THIS FILM MAY NOT BE USED TO REPRODUCE ADDITIONAL FILM COPIES

Use of this film in reproduction is limited to individual page reprints when occasional demands require paper copies for use and study.

Micro Photo Inc.

OFFICIAL GAZETTE

UNITED STATES PATENT OFFICE

VOL. 67

APR. - JUN.

1894

MICRO PHOTO INC F

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME LXVII.

APRIL 3 TO JUNE 26, INCLUSIVE.

1894.

67609

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1894.

LIBRARY,
NOV 11 1895
U.S. PATENT OFFICE.

CONTENTS.

ERRATA FOR VOLUME LXVII OF THE OFFICIAL GAZETTE.

ANNOUNCEMENTS—VOLUME LXVII.

DISCLAIMERS—VOLUME LXVII.

TEXT OF THE OFFICIAL GAZETTE, APRIL 3 TO JUNE 26, 1894, INCLUSIVE.

INDEX TO THE DECISIONS OF THE COMMISSIONER OF PATENTS AND OF THE UNITED STATES COURTS IN PATENT CASES.

DIGEST OF DECISIONS OF THE COMMISSIONER OF PATENTS AND OF THE UNITED STATES COURTS IN PATENT CASES.

INDEX OF PATENTS AND PATENTEES FOR THE QUARTER YEAR, APRIL TO JUNE, 1894.

ERRATA.

517,467, page 19, in heading, name of assignee, for "Martha P. Quinn" read *Murtha P. Quinn.*

517,853, page 153, in heading, residence of assignees, for "Rich Lake" read *Rice Lake.*

518,018, in heading, name of inventor, for "Edward Becker" read *Eduard Becker.*

518,339, page 317, in heading, residence of assignee, for "Boston, Massachusetts," read *South Gardner, Massachusetts.*

518,458, page 358, first claim, line 2, for "nitrosodiethyanlin" read *nitrosodiethylanlin.*

518,568, page 389, in heading, for "assignor to" read *assignor of one-half to.*

518,848, page 488, in heading, assignee, for the "New York Condensed Milk Company, same place," read the *New York Condensed Milk Company, same place, a corporation of New Jersey.*

519,328, page 689, in heading, residence of assignee, for "Springfield, Illinois," read *Springfield, Ohio.*

520,102, page 959, fourth claim, line 7, fifth claim, line 8, seventh claim, line 11, and eighth claim, line 13, before the word "leading," insert the words *a passage.*

521,131, page 1318, first claim, line 4, for the word "of," preceding the word "lime," read *or.*

521,713, page 1540, first claim, lines 2–8, strike out the clause "with its sides surrounded by wings except at its point of support" and insert same after the word "space," line 5.

522,019, page 1660, in heading, title, for "Car-Door" read *Grain-Door.*

522,052, page 1670, first claim, line 4, for "segment" read *segments.*

24,454, (Trade-Mark,) page 135, lines 3–4, for "January 3, 1884," read *January* 3, 1894.

24,460, (Trade-Mark,) page 136, in heading, name of registrant, for "J. O. Hauthorn & Co." read *J. O. Hanthorn & Co.*

24,776, (Trade-Mark,) page 1186, in heading, for "Application filed May 25, 1894," read *Application filed May* 5, 1894.

Commissioner's Decisions, page 404, second column, lines 30–31, for "62 O. G., 592; 58 Fed. Rep., 262," read 67 *O. G.*, 678; 59 *Fed. Rep.*, 572.

Commissioner's Decisions, page 404, second column, lines 31 and 43, insert the words *Richter v. Anchor Remedy Co.*

Commissioner's Decisions, page 404, second column, line 37, for "53 Fed. Rep., 262," read 59 *Fed. Rep.*, 572.

Commissioner's Decisions, page 1452, first column, line 20 from bottom of page, for "Sec. 4887" read *Sec.* 4888.

Commissioner's Decisions, page 1574, second column, line 7 from bottom of page, for "same" read *some,*

VOL. 67.

ANNOUNCEMENTS—VOL. LXVII.

APPLICATIONS UNDER EXAMINATION—
Condition of ... 2, 146, 278, 408, 536, 682, 818, 934, 1072, 1196, 1336, 1454, 1578

ATTORNEYS—
Order—Disbarring F. H. Barker ... 681
W. M. Bushfield ... 681
John G. Chapman ... 535
James Cooley ... 536
B. J. Donnell ... 407
M. D. Ellis ... 1
C. A. D. Hill, *alias* Albert D. Hill ... 536
Lewis F. Houpt ... 277
H. Norman McIntire ... 145
Christian Quien ... 681

CHANGES IN CLASSIFICATION—
Order 995 ... 535
998 ... 681, 817
1000 ... 1453

COPIES OF DECISIONS FURNISHED ... 1, 1072

DRAWINGS—
Order in relation to alterations in and blue prints of. *Order* 986 ... 817, 933, 1071, 1195, 1335, 1453, 1577

FILE-WRAPPERS, ENTRIES ON—
Order 767 ... 1, 145, 277, 407, 1072

INDEXES TO FOREIGN PATENTS ... 145

INDEXES TO PATENTS ON ELECTRICITY ... 145

INDEXES TO PERIODICALS ... 1, 277, 407, 682, 1071, 1335, 1577

INTERFERENCES—
Order to examiners to withhold interference cases for appeal ... 1195, 1336, 1577
Order 453 relating to filing papers ... 1, 277, 407, 933

OATHS OF APPLICANTS IN FOREIGN COUNTRIES—
Order 822 ... 146, 1196, 1578

OFFICIAL GAZETTE—
Notice to foreign subscribers ... 1, 146, 277, 407

PUBLISHERS' CATALOGUES—
Request for ... 1072

SCIENTIFIC LIBRARY—
Privileges of ... 933

WITHDRAWAL OF CASE FROM ISSUE—
Order 629 ... 277, 407, 1335

WOMEN INVENTORS—
List of ... 1

DISCLAIMERS.

(None.)

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

APRIL–JUNE, 1894.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office

[BY AUTHORITY OF CONGRESS.]

LIBRARY, NOV 11 1895, U.S. PATENT OFFICE.

VOL. 67.—No. 1. TUESDAY, APRIL 3, 1894. PRICE—$5 per year.

CONTENTS.

	Page.
ATTORNEYS	1
SUBSCRIPTION PRICE TO FOREIGN SUBSCRIBERS	1
FILE-WRAPPERS—ENTRIES ON	1
NOTICE	1
INDEXES TO PERIODICALS	1
WOMEN INVENTORS	1
COPIES OF DECISIONS FURNISHED	1
OFFICIAL GAZETTE	2
ISSUE OF APRIL 3, 1894	2
APPLICATIONS UNDER EXAMINATION	2
PATENTS GRANTED	3
REISSUES	None.
DESIGNS	132
TRADE-MARKS	134
PRINTS	None.
LABELS	None.
DECISIONS OF THE U. S. COURTS—	
Dunlap *et al. v.* Schofield *et al*	139
Belding Manufacturing Company *v.* Challenge Corn Planter Company	141
Masseth *v.* Johnston *et al*	143
Masseth *v.* Reiber	143
Richardson *et al. v.* Shepard *et al*	144

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., March 26, 1894.

SIR: The Secretary of the Interior has ordered that M. D. Ellis, of Worthington and Indianapolis, Ind., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

JOSEPHUS DANIELS,
Chief Clerk.

The Commissioner of Patents.

Official Gazette—Subscription Price to Foreign Subscribers.

DEPARTMENT OF THE INTERIOR,
Washington, March 29, 1894.

SIR: Inasmuch as the two dollars additional required of foreign subscribers to the OFFICIAL GAZETTE of the Patent Office is inadequate to reimburse the Government the cost of the postage required, you are hereby directed to raise the price, for the ensuing fiscal year, to ten dollars per annum for foreign subscriptions.

Very respectfully,

HOKE SMITH,
Secretary.

The Commissioner of Patents.

File-Wrappers—Entries On.

It is directed that entries shall not be made on the back of a file-wrapper, containing the application-papers for a patent, of papers or actions which do not become a permanent part of the contents of the file.

A card (Form 2-384 Office Series of blanks, sample hereto attached) will be placed in the file showing all appellate actions.

Notice.

(ORDER No. 453.)

Hereafter, when there are two or more interferences pending in this Office relating to the same subject-matter, or in which substantially the same applicants or patentees are parties thereto, in order that the record of proceedings in each particular interference may be kept separate and distinct, all motions and papers sought to be filed therein must be titled in and relate only to the particular interference to which they belong, and no motion or paper can be filed in any interference which relates to or in which is joined another interference, or matter affecting another interference.

The Examiners are also directed to file in each interference a distinct and separate copy of their actions, so that it will not be necessary to examine the records of several interferences to ascertain the status of a particular case.

This order will not, however, apply to the testimony.

All papers filed in violation of this order will be returned to the party or parties filing the same, with a printed copy of this order, which will be considered a sufficient explanation.

Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading room of the scientific library:

Engineering Review, London, a monthly synoptical index of periodical literature in the English, French, and German languages, including hydraulic, railway, mechanical, electrical, mining, metallurgical, marine, military, and gas engineering.

Electrical Engineering, Chicago, a monthly synoptical index of electrical literature.

Electrical World, New York, a weekly digest of electrical articles.

Journal of the Association of Engineering Societies, Chicago, a monthly synoptical index of civil-engineering literature, mostly American.

Engineering Magazine, New York, a monthly title-index of engineering articles in the English language only.

Women Inventors.

The Patent Office has published and has for sale a volume containing a list of women inventors to whom patents have been granted by the United States from 1790 to July 1, 1888. 44 pages. Paper covers, 50 cents.

An Appendix to the above, covering the period from July 1, 1888, to October 1, 1892, has been published, and is now for sale. 18 pages. Paper covers, 25 cents.

Copies of Decisions Furnished.

Hereafter an uncertified copy of every decision or action by any tribunal in this Office will be furnished by such tribunal to the interested party or parties without charge.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of Arpil 3, 1894.

Patents	409	No. 517,420 to No. 517,828, inclusive.
Designs	7	No. 23,163 to No. 23,169, inclusive.
Trade-Marks	45	No. 24,436 to No. 24,480, inclusive.
Labels	None.	
Prints	None.	
Reissues	None.	
Total issue	461	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	2	....	Nevada	2	....
Arizona Territory	1	....	New Hampshire	1	....
Arkansas	2	....	New Jersey	19	2
California	21	....	New York	62	9
Colorado	3	....	North Carolina	2	....
Connecticut	13	1	North Dakota	....	....
Delaware	....	....	Ohio	23	3
District of Columbia	4	1	Oklahoma Ter	....	....
Florida	2	....	Oregon	1	1
Georgia	....	....	Pennsylvania	33	3
Idaho	....	....	Rhode Island	5	....
Illinois	27	6	South Carolina	....	....
Indiana	10	....	South Dakota	....	....
Indian Territory	....	....	Tennessee	3	....
Iowa	10	....	Texas	7	1
Kansas	2	....	Utah Territory	....	....
Kentucky	6	....	Vermont	1	....
Louisiana	2	2	Virginia	5	....
Maine	2	2	Washington	2	....
Maryland	12	3	West Virginia	2	1
Massachusetts	35	3	Wisconsin	11	2
Michigan	15	....	Wyoming	2	....
Minnesota	6	....	U. S. Army	1	....
Mississippi	1	....	U. S. Navy	....	....
Missouri	13	2			
Montana	1	....	Total to citizens of the United States	373	42
Nebraska	1	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	....	....	Italy	1	....
Austria-Hungary	3	....	Mexico	....	....
Belgium	....	....	Netherlands	....	....
Bermuda	....	....	New South Wales	....	....
Brazil	....	....	New Zealand	....	....
Canada	6	1	Norway	....	....
Chile, Republic of	....	....	Peru	....	....
Colombia	....	....	Queensland	....	....
Cuba	....	....	Russia	....	....
Denmark	....	....	Scotland	....	....
Ecuador	....	....	South Australia	....	....
England	17	....	Sweden	....	....
France	1	2	Switzerland	1	....
Germany	14	....	Victoria	....	....
Hawaii	....	....			
India	....	....	Total to citizens of foreign countries	43	3
Ireland	....	....			

APPLICATIONS UNDER EXAMINATION.

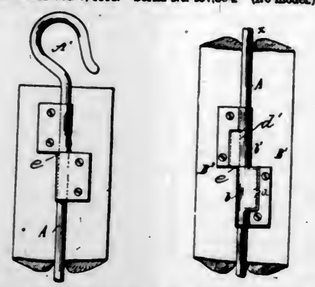
Condition at Close of Business March 27, 1894.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
31	Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Mar. 7	Mar. 26	52
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Feb. 28	Mar. 23	81
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Feb. 27	Mar. 23	86
13	Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, etc.	Feb. 28	Mar. 22	63
2	Farm Stock, Products, etc	Feb. 28	Mar. 22	102
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Mar. 1	Mar. 19	115
7	Harvesters, Games and Toys, and Velocipedes.	Mar. 1	Mar. 19	195
32	Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	Feb. 28	Mar. 17	138
	Between one and two months.			
21	Textiles, etc.	Feb. 2	Mar. 22	147
6	Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Feb. 1	Mar. 20	139
1	Tillage and Fences	Feb. 2	Mar. 19	200
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Feb. 21	Mar. 17	180
8	Furniture, Toilet, Umbrellas and Canes, etc.	Feb. 6	Mar. 17	239
18	Steam-Engineering, etc	Feb. 3	Mar. 17	175
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Feb. 1	Mar. 17	187
12	Mechanical Engineering, Stores-Service, etc.	Jan. 29	Mar. 16	214
10	Carriages and Wagons and Railway-Cars.	Jan. 30	Mar. 13	396
17	Paper-Manufactures and Printing.	Jan. 29	Mar. 12	174
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Jan. 31	Mar. 8	264
19	Stoves and Furnaces	Feb. 14	Mar. 7	270
26	Electricity, Generation, Distribution, Electric Railways, etc.	Jan. 29	Feb. 21	211
4	Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Jan. 29	Feb. 19	281
	Between two and three months.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather Working Machinery.	Dec. 27	Mar. 24	421
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Jan. 2	Mar. 22	296
3	Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Jan. 17	Mar. 19	154
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Jan. 4	Mar. 19	205
23	Instruments of Precision, Acoustics, Optics, etc.	Dec. 28	Mar. 14	356
22	Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Dec. 28	Mar. 1	217
30	Lamps, Gas-Fittings, Linotyping, Matrix-Making Machines, and Type-Writing Machines.	Jan. 15	Feb. 8	210
	Between three and four months.			
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Dec. 18	Mar. 14	402
9	Hydraulics, Fire-Extinguishers, etc.	Dec. 21	Mar. 3	496
24	Sewing-Machines, Crinoline and Corsets, and Apparel.	Dec. 22	Feb. 23	262
	Total number of applications awaiting action			6,928
	Under one month in arrears.			
	Designs	Mar. 17	Mar. 24	57
	Trade-Marks	Mar. 21	Mar. 24	31

PATENTS

GRANTED APRIL 3, 1894.

517,420. GAZETTE-HOLDER. EDOUARD ADAM, Lucerne, Switzerland. Filed Oct. 6, 1893. Serial No. 487,384. (No model.)



Claim.—1. A holder for papers adapted to be operated by the longitudinal movement of the rod A, having a wedge shaped projection thereon, said wedge bearing upon the sides of pockets formed in casings embedded in the rails of the holder, said casings in combination with the rod serving to hinge the rails of the holder together substantially as described.

2. In combination with the binding rails of a paper holder, the casings embedded therein, having pockets and a rod having a wedge shaped projection thereon, adapted to said pockets, said rod having longitudinal movement through the casings, substantially as described.

517,421. BUCKLE. GEORGE E. ADAMS, Providence, R. I. Filed Aug. 9, 1892. Serial No. 442,556. (No model.)



Claim.—1. The combination with a buckle furnished with a stud or projection, of a cast-off adapted to have a suspender end connected with it, and comprising a finger piece constructed at its inner end to fit over the said stud or projection, and to turn thereon, and a body extended under the inner end of the said finger piece to act in opposition to the same in holding it in place, substantially as described.

2. In a suspender end cast-off or similar article, a clamping-device consisting of a ring, a cross-bar below said ring having its ends bent backward to form lugs, a suspending-loop formed in part with said bar, and a spring-clamp pivoted in said lugs combined with a co-operating member having a projection entering the ring, as described.

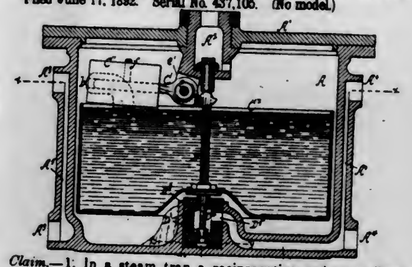
3. In a suspender end cast-off, the combination with a suspending-loop, a securing-ring, an intermediate cross-bar having its ends bent to form lugs, the back-plate 14 having the thumb-piece 16, the pintles 15 journaled in the lugs before mentioned, and a spring-tongue 14 formed in part with said plate 13, of the co-operating member having a projection entering the ring as described.

4. The combination with the buckle provided at its lower portion with a stud of a cast-off having a ring adapted to surround said button, and a spring clamping-device pivotally connected with the ring for drawing the same into position, as described.

5. The combination with the buckle 5 having a substantially circular lower portion, and a stud 6 provided on such portion, of a cast-off consisting of the ring 12, loop 9, and posts 11, and a back-plate 13 having pintles journaled in said posts, a thumb-piece 16, and a spring-tongue 14 bent over from said back-plate, as described.

6. The combination with a buckle or corresponding part provided with a round stud or projection, of a cast off provided with co-operating jaws pivotally connected together, one of which is formed with a circular opening to receive the stud of the buckle or corresponding part and the other of which operates to keep its opposing jaw and the stud in engagement, whereby a swiveling motion of the cast off on the stud is permitted, substantially as described.

517,422. STEAM-TRAP. FRANK M. ASHLEY, Hawthorne, N. J. Filed June 17, 1892. Serial No. 437,105. (No model.)



Claim.—1. In a steam trap a reciprocating rod controlling a valve at one end and carrying a cup normally filled with water to keep the valve closed, in combination with a separate lever pivoted between its extremities and carrying at one end a counter balancing weight and at the other loosely engaging the reciprocating rod, substantially as described.

2. In a steam trap, the combination of a trap-casing, an outlet valve at the center of the bottom of said casing, a valve stem with a water-containing weight-vessel mounted thereon, and a hollow plug at the center of the cover of the trap casing, forming jointly with the casing of said valve, a guide for the valve stem, substantially as herein described

517,423. WIRE FENCE. CLAUDE W. BENNETT, Penn, and FRANKLIN CHAPMAN, Newburg, Mich. Filed July 8, 1893. Serial No. 479,932. (No model.)



Claim.—1. The combination in a wire fence of an apertured end post provided with protecting shields for the apertures, a second end post having spikes driven therein, bolts and nuts on the outer ends of the spikes, an intermediate post having a lower terminal auger-like point and an anchor pivotally connected to the intermediate post comprising a drive stake and a connecting arm between the post and the stake, a series of wires passing through the apertures in the intermediate post and connected to the end posts, as and for the purposes set forth.

2. A wire-securing device comprising a spike having an apertured head, a bolt provided with a recess in the head thereof for the reception of the wire, and a nut on the bolt, as specified.

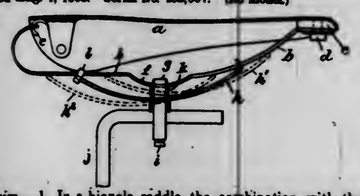
3. A wire-securing device, comprising a spike having an angular opening in the head thereof, a bolt provided with an angular projection on the lower face of the head which is recessed to receive the wire, and a securing-nut on the bolt adapted for drawing said angular projection into the opening of the spike, as specified.

517,424. LAST. FRANCIS E. BENTON, Stoughton, Mass. Filed June 3, 1893. Serial No. 476,908. (No model.)



Claim.—A last block fastener comprising members C and D, each having means of attachment to the last block and last, respectively, and a sliding dovetail connection with each other, the member C having a hook *c'* and the member D a corrugated spring latch engaging therewith substantially as described.

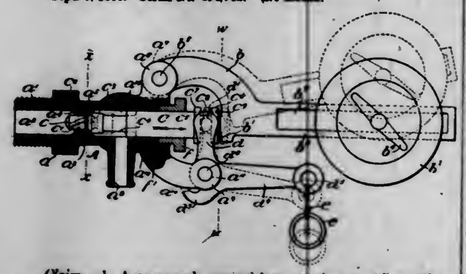
517,425. BICYCLE-SADDLE. HENRY BERGFELD, Newark, N. J. Filed Aug. 1, 1893. Serial No. 482,067. (No model.)



Claim.—1. In a bicycle saddle, the combination, with the seat post clamp, of the main spring bar *b* clamped therein and having the seat leather attached to its opposite ends, and the spring bar *h* secured adjustably in the clamp with its ends curved upwardly to the under side of the main spring-bar, substantially as set forth.

2. In a bicycle saddle, the combination, with the seat post clamp, of the main spring bar *b* having the downward curve *f* near the middle of its length, the seat post clamp *g* applied thereto, the seat leather *a* attached under tension to the opposite ends of the main spring bar, and the curved bar *h* secured in the clamp with the intermediate distance piece *k*, the whole arranged and operated substantially as herein set forth.

517,426. GAGE-COCK. GOTTLOB BUNDER, Philadelphia, Pa. Filed Sept. 6, 1893. Serial No. 484,912. (No model.)



Claim.—1. A gage-cock, comprising a casting provided with an internal bore and an expansion chamber having an interposed inlet or port, a valve provided with a grooved-cap, a forked-lever engaging therewith and provided with a stop for controlling the range of movement of said valve, substantially as and for the purposes set forth.

2. A gage-cock, comprising a casting provided with two chambers separated by a contracted inlet or port, a valve provided with a recessed and grooved stem having a grooved-cap, a forked-lever with pins engaging therewith and the lever provided with a stop for limiting the range of movement of said valve, substantially as and for the purposes set forth.

3. A gage-cock, comprising a casting provided with two chambers having between them a contracted inlet or port and an outlet or port formed integral with the inner chamber, a cylindrical valve provided with a stem having a partially curved face merging into an annular groove and with a tapering flange recessed in rear and with a grooved cap or end, and a pivotally supported forked-lever provided with a stop for controlling the range of movement of said valve, substantially as and for the purposes set forth.

4. A gage-cock, comprising a casting, provided with internal chambers having an interposed inlet or port, a valve provided with a stem having a recessed or grooved cap, a forked-lever engaging therewith and provided with means for controlling the range of movement of said valve and a weighted pivotal-lever normally engaging said valve, substantially as and for the purposes set forth.

5. A gage-cock, comprising a casting provided with internal chambers having an interposed inlet or port, a valve provided with means for engaging a forked-lever, and an adjustable weighted lever detachably connected with said valve, substantially as and for the purposes set forth.

6. A gage-cock, comprising a casting provided with internal-chambers, whereof one has a contracted inlet or port and whereof the other has a depending outlet or port, a stem valve engaged by a forked lever provided with means adapted to control the range of movement thereof and a weighted pivotal-lever normally engaging said valve, substantially as and for the purposes set forth.

7. A gage-cock, comprising a casting provided with a threaded fitting and two internal chambers with an interposed inlet or port, an outlet or port and a forked-lever with a stop, substantially as and for the purposes set forth.

8. A gage-cock, comprising a casting having a flanged externally threaded fitting and internal chambers separated by a contracted inlet and with a depending outlet, a valve having the stem in contact with a gasketed stuffing-box, a forked-lever engaging said valve and arranged so as to limit the range of movement thereof and a weighted-lever detachably engaged by said valve, substantially as and for the purposes set forth.

9. A gage-cock, comprising a casting provided with two chambers separated by a wall provided with an inlet, a cylindrical valve provided with a stem having a partially curved flat face merging with a groove and a tapering flanged seat and a recess and a grooved-cap with a transverse groove and a pivotally supported lever provided with arms having pins adapted to engage and move in the grooved-cap of said stem, substantially as and for the purposes set forth.

10. A weighted gage cock provided with a valve with a grooved-cap engaged by a pivoted bifurcated lever, substantially as and for the purposes set forth.

11. A gage-cock provided with a gasketed stuffing-box, inlet and outlet ports, a valve provided with a grooved-end engaged by the pins of a forked pivotal-lever for controlling the range of movement of said valve and an adjustable weighted pivotal-lever held normally in engagement with said valve, substantially as and for the purposes set forth.

12. A gage-cock provided with a contracted inlet-port and depending outlet-port, a valve having a stem adapted to engage the contracted inlet port and provided with a groove and the rear end of said stem flanged and grooved to engage pins of a forked pivotal lever and a pivotal lever provided with a weight detachably connected therewith, substantially as and for the purposes set forth.

13. A gage-cock, comprising a casting having a flanged tapering and threaded exterior fitting with an internal bore and contracted inlet leading to an expansion chamber provided with a depending outlet, a valve provided with a contracted recessed and grooved stem embraced by a pivotal forked-lever provided with a stop for controlling the range of movement of said valve and means for operating said lever, substantially as and for the purposes set forth.

14. A gage-cock, comprising a casting provided with cheeks having an adjustable weighted curved and channeled or recessed lever-arm connected therewith and provided with a lug or nose, a detachable stuffing-box engaging the recessed internal portion of said casting and cylindrical portion of said valve provided with a grooved-cap or head, a pivoted bifurcated lever having lateral pins engaging said cap, and said lever provided with a stop adapted to control the range of movement of said valve-stem, substantially as and for the purposes set forth.

15. A gage cock, comprising a casting provided with a pivotally supported weighted adjustable channeled or recessed lever with an integral nose, lug or projection, a valve provided with a stem having in one portion thereof an annular groove and flanged so as to embrace a forked pivotal lever and means connected with said forked pivotal lever for operating the same and for limiting the range of movement of said valve, substantially as and for the purposes set forth.

16. A gage-cock, comprising a casting provided with a pivotally supported curved lever-arm with a projecting lug or nose and a longitudinal channeled or recessed extension carrying an adjustable weight, a gasketed stuffing-box, a valve with a stem having a grooved-cap engaged by the vertical forks of a longitudinal lever provided with pins and a stop, and means connected with said lever for actuating the same so as to limit the range of movement of said valve, substantially as and for the purposes set forth.

17. A weighted gage-cock, comprising a casting provided with an internal bore and an expansion chamber with an interposed contracted inlet leading to said chamber and an outlet connected directly therewith, a complemental valve with a flanged and grooved stem engaged by a forked-lever provided with a stop for limiting the range of movement thereof, substantially as and for the purposes set forth.

18. A gage-cock provided with an internal bore and an external threaded tapering and flanged fitting, a contracted inlet and a rear tapering wall and an expansion chamber provided with a depending outlet and with curved wings pivotally supporting a bifurcated-lever with a stop and a rear extension provided with a detachable means for operating the same, a valve provided with a stem having a contracted partially flat face merging with a groove and a tapering flange recessed in rear thereof and merging with the cylindrical portion of said stem having a grooved-cap embraced by pins of said bifurcated-lever, and a pivotally supported lever carrying an adjustable weight normally engaging said valve, substantially as and for the purposes set forth.

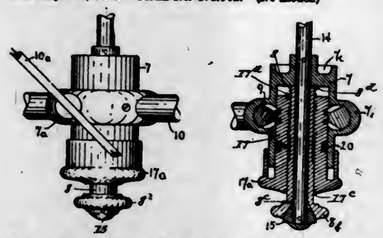
517,427. PROCESS OF MANUFACTURING ACTIVE MATERIAL FOR SECONDARY ELECTRIC BATTERIES. WILHELM A. BOSSE, Berlin, Germany. Filed June 27, 1893. Serial No. 478,968. (No specimens.) Patented in England July 6, 1892, No. 11,532; in France Oct. 11, 1892, No. 211,658, and in Belgium Oct. 11, 1892, No. 101,693.

Claim.—1. The process for manufacturing active material for secondary batteries, which consists in mixing a metallic oxide with a sulphonic acid of anthracene or its analogues and simultaneously removing electrolytically-soluble compounds.

2. The process for manufacturing active material for secondary batteries, which consists in treating the residues of coal-tar with a suitable solvent, and mixing the resulting solution with a metallic oxide and sulphuric acid.

3. The process for manufacturing active material for secondary batteries, which consists in treating the residues of the distillation of coal-tar with alcohol, and mixing the resulting solution with a metallic oxide and sulphuric acid.

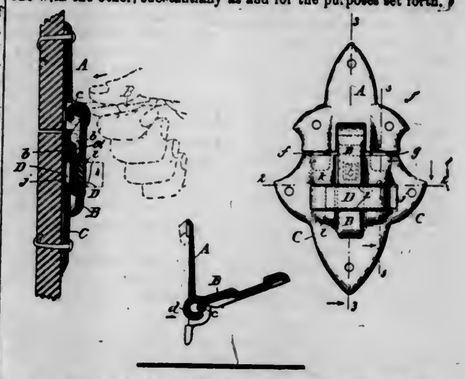
517,428. REVOLVING FAN. ISRAEL D. BOYER, Dayton, Ohio. Filed Apr. 26, 1893. Serial No. 471,962. (No model.)



Claim.—In a revolving fan, a frictionally driven screw and a frictionally driven nut, either capable of being held stationary while the other continues to revolve with the fan; the screw confined against longitudinal motion; the nut capable of a limited longitudinal movement; connection between the nut and the fan blades whereby the longitudinal motion of the nut changes the inclination of the blades; the whole in combination substantially in the manner and for the purpose specified.

517,429. TRUNK-FASTENER. WILLIAM BRUEN, Newark, N. J., assignor to M. Gould's Son & Co., same place. Filed Oct. 7, 1893. Serial No. 487,409. (No model.)

Claim.—In a trunk fastener, the combination of a catch plate provided with a pintle, a swinging catch having a hook thereon, the space between the end and body portion thereof being smaller than the widest diameter of the pintle, a counter-piece and swinging latch therefor, said latch having pivots integral therewith which are supported by the under side of the counter-piece, the catch of the catch plate and the latch of the counterplate being adapted to co-operate one with the other, substantially as and for the purposes set forth.



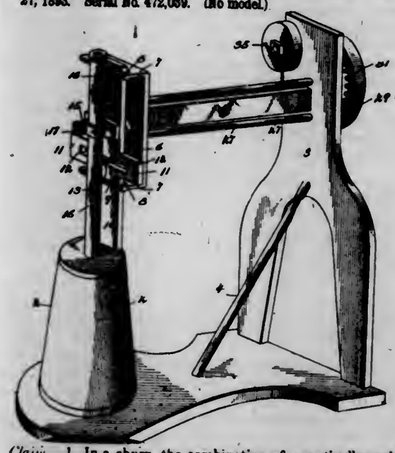
517,430. EYEGLASSES. BENAJAH U. BUGBEE and JOSEPH RENO, Southbridge, Mass., assignors to the Southbridge Optical Company, same place. Filed May 27, 1893. Serial No. 475,739. (No model.)



Claim.—1. In eyeglasses, the eye wire divided on its inner side and provided with a post constructed of two members arranged to rest one upon the other, the upper member having its upper surface recessed, and constructed to receive the end of the spring connecting the eye wires, and each member of the post having a screw threaded perforation approximately vertical or at right angles thereto, the parts being constructed to be held together by a single screw which passes down through the end of the nose spring and is threaded into the members of the post, substantially as set forth.

2. In eyeglasses, the eye wire divided on its inner side and provided with a post constructed of two members perforated approximately vertically or at right angles to the post, the members forming the juxtaposed ends of the eye wire, the upper member having on its upper surface flanges forming a recess constructed to receive the spring and nose guard one upon the other and the whole held together by a screw passing down through the spring and nose guard and threaded into the members of the post as set forth.

517,431. CHURN. OLIVER C. BYLER, Holden, Mo. Filed Apr. 27, 1893. Serial No. 472,089. (No model.)



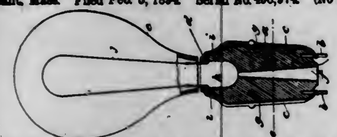
Claim.—1. In a churn, the combination of a vertically reciprocating dasher-rod, a concavo-convex dasher secured to the lower end of the dasher rod and provided with perforations, and a rotary dasher.

arranged above the concavo-convex dasher and provided with inclined dasher blades, substantially as described.

2. In a churn, the combination of a tubular dasher-rod having a threaded lower end, a concavo-convex dasher having perforations and provided on its upper face with a cylindrical interiorly threaded socket provided on its interior with a valve seat and having an exterior shoulder and forming a bearing, a valve arranged within the socket and a rotary dasher composed of inner and outer rings, the inner one being arranged on the socket, and inclined propelling blades connecting the rings, substantially as described.

3. In a churn, the combination of a standard having a horizontal arm, a vertically disposed guide arranged at the outer end of the arm, a horizontal shaft arranged below the arm and journaled in the guide and the standard, a crank disk arranged in the guide and mounted on the shaft, a pinion mounted on the shaft and arranged adjacent to the standard, a vertically reciprocating slide provided with a dasher-rod clamp and having a horizontal slot receiving the wrist-pin of the crank-disk, a short shaft, a pinion mounted on one end of the short shaft, a balance wheel arranged on the other end of the short shaft, and an internal gear-wheel mounted on the standard and having inner and outer gears receiving and meshing with the pinions and provided with a crank-handle, substantially as described.

517,432. INCANDESCENT LAMP. AUGUSTUS C. CAREY, Lake Pleasant, Mass. Filed Feb. 3, 1894. Serial No. 498,974. (No model.)



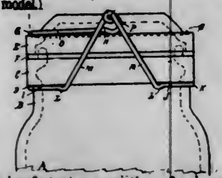
Claim.—1. An incandescent lamp having a butt of moldable electrically non-conductive material, shaped to fit any socket, having external longitudinal grooves, contact pieces molded in its end, and leading-in wires connected with said contact pieces and laid in said grooves, substantially as described.

2. An incandescent lamp having a butt of moldable electrically non-conductive material, shaped to fit any socket, having external longitudinal grooves, contact pieces molded in its end, and leading-in wires connected with said contact pieces and laid in said grooves and passed thence through the inner end of the butt and hermetically sealed therein, substantially as described.

3. In an incandescent lamp, a butt of molded electrically non-conductive material, shaped to fit the socket of a lamp, contact pieces molded in the outer end of the butt, longitudinal external grooves and an inner annular wall provided with transverse holes, combined with leading-in wires connected with said contact pieces, laid in said grooves and passed through the holes in the annular wall and sealed therein hermetically, substantially as described.

4. In an incandescent lamp, a butt of molded electrically non-conductive material, shaped to fit the socket of a lamp, contact pieces molded in the outer end of the butt, a number of longitudinal external grooves and an inner annular wall provided with transverse holes, combined with an illuminating tube inclosing the incandescing element, leading-in wires connected with said contact pieces, laid in two of said grooves and passed through the holes in the annular wall and sealed therein hermetically, and an external surrounding ventilating and protecting bulb applied to the butt, substantially as described.

517,433. JAR-FASTENING. ROBERT S. CARR, Hamilton, Ohio, assignor to Frank C. Ball, Muncie, Ind. Filed July 13, 1893. Serial No. 480,365. (No model.)



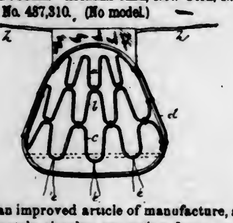
Claim.—1. A jar fastening consisting of a clamping member and two yokes similar to each other, the clamping member being formed with a cam near each end and parallel with each other and the ends terminating in trunnions, and the central portion of each yoke forming a curve of less extent than a semi-circle, and having its ends each extended at an obtuse angle to the plane of the curved portion and terminating in an eye for engaging with the clamping member, whereby when in position upon a jar, the pivotal point between the clamping member and the yokes will be located at a point above and between the adjacent ends of the curved portions of the yokes, substantially as set forth.

2. A jar fastening consisting of a clamping member and two yokes similar to each other, the clamping member being formed with a cam near each end and parallel with each other, and the ends terminating in trunnions, and the central portion of each yoke forming a curve of less extent than a semi-circle, and having its ends each extended at an obtuse angle to the plane of the curved portion and terminating in an eye, the point of union between the end and the curved portion lying below the plane of and without the end of the curved portion, and the pivotal point between the clamping member and the yokes, when in position upon a jar, being located at a point above and between the adjacent ends of the curved portions, substantially as set forth.

3. A jar fastening consisting of a clamping member and two yokes similar to each other, the clamping member being formed with a cam near each end and parallel with each other, and the ends terminating in trunnions, and the central portion of each yoke forming a curve of less extent than a semi-circle, and having its ends each extended at an obtuse angle to the plane of the curved portion and terminating in an eye for engaging with the clamping member, the point of union between the end and the curved portion comprising a rearwardly turned loop lying below the plane of and without the end of the curved portion, and the pivotal point between the yokes and the clamping member, when in position upon a jar, being located at a point above and between the adjacent ends of the curved portions, substantially as set forth.

4. The combination with a can, the top of the cover of which is provided with an annular groove near its periphery, of a fastening consisting of a clamping member and two yokes similar to each other, the clamping member being provided with a cam near each end and parallel with each other and adapted to fit within the groove of the cover, and the central portion of each yoke forming a curve of less extent than a semi-circle, and having its ends extended at an obtuse angle to the plane of the curved portion and terminating in an eye for engaging with the clamping member, whereby, the pivotal point between the clamping member and the yokes will be located at a point above and between the adjacent ends of the curved portions, substantially as set forth.

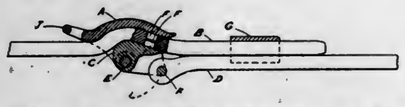
517,434. BUSTLE. ESTELLA CASE, New York, N. Y. Filed Oct. 6, 1893. Serial No. 487,310. (No model.)



Claim.—1. As an improved article of manufacture, a bustle comprising an approximately circular supporting frame and a series of spring bows within said frame, secured to each other and to the frame, the said bows comprising a series of loops disposed in a spherical surface, the loops of the respective bows being secured together at their points of approximate contact, substantially as described.

2. As an improved article of manufacture, a bustle comprising an approximately circular supporting frame and a series of spring bows within said frame, secured to each other and to the frame, the said bows comprising a series of loops disposed in a spherical surface, the loops of the respective bows being secured together at their points of approximate contact, the lower series of loops having depending tapes, substantially as described.

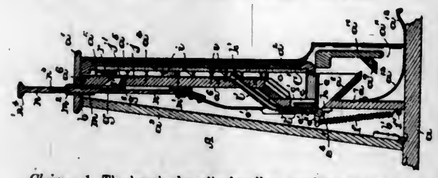
517,435. SELF CLAMPING AND LOCKING TRACE-BUCKLE. FRANKLIN D. CLARK, Escanaba, Mich. Filed Oct. 23, 1893. Serial No. 488,933. (No model.)



Claim.—1. The combination of circular plate "A," with its projecting side pieces, which are provided with holes to receive bolt "E;" which circular plate "A" is also provided with tongue "F;" also eccentric "C" which is provided with tongue "F;" and bolt "E," which holds circular plate "A" and eccentric "C" together; also eyelets "H H," "J" and "K," as shown and described.

2. The combination of circular plate "A," with its projecting side pieces; eccentric "C" and bolt "E," which bolt holds circular plate "A" and eccentric "C" together; circular plate "A" being provided with eyelet "J;" eccentric "C" being provided with eyelet "K" and tongue "F;" bolt "E" being provided with eyelets "H H," as shown and described.

517,436. GAME APPARATUS. CLEMENT C. CLAWSON, Newark, N. J. Filed Jan. 3, 1894. Serial No. 495,494. (No model.)



Claim.—1. The herein described wall or partition a^4, and a series of sties or compartments provided with hinged bottoms, in combination with means, substantially as described, for forcing a coin or counter in front of said wall or partition, and mechanism for conveying the coin or counter back of said wall or partition for operating either of said hinged bottoms connected with said sties or compartments, substantially as and for the purposes set forth.

2. The herein described wall or partition a^4, pins i arranged on said partition or wall, and a series of sties or compartments provided with hinged bottoms, in combination with means, substantially as described, for forcing a coin or counter in front of said wall or partition, and mechanism for conveying the coin or counter back of said wall or partition for operating either of said hinged bottoms, substantially as and for the purposes set forth.

3. In a game apparatus, in combination, a casing, having a wall or partition a^4 therein, pins i on said wall or partition, a spring-actuated rod provided with a coin-receiving recess, means for receiving the coin from said recess in said rod and forcing it onto said pins, and coin-receiving sties or compartments, each compartment being provided with a hinged bottom, and mechanism for operating said hinged bottoms, substantially as and for the purposes set forth.

4. In a game apparatus, in combination, a casing, having a wall or partition a^4 therein, pins i on said wall or partition, a spring-actuated rod provided with a coin-receiving recess, means for receiving the coin from said recess in said rod and forcing it onto said pins, and coin-receiving sties or compartments, a hinged bottom e in each sty or compartment, a cam-shaped arm e' on each bottom, an arm e^3 thereon, and a spring f connected with each arm e^3, and mechanism adapted to engage with said cam-shaped arms e' upon the interposition of a coin or counter to operate either of the hinged bottoms, substantially as and for the purposes set forth.

5. In a game-apparatus, in combination, a wall or partition a^4, pins i arranged thereon, substantially as set forth, a coin receiver g, provided with a lip g^3, coin receivers k, k' and k^3, each provided with an opening and a lip k^4, means for conveying a coin or counter into said receiver g, and mechanism for conveying the coin from said receivers k, k' or k^3, back of said wall or partition a^4, substantially as and for the purposes set forth.

6. In a game-apparatus, in combination, a wall or partition a^4, pins i arranged thereon, substantially as set forth, a coin receiver g provided with a lip g^3, coin receivers k, k' and k^3, each provided with an opening and a lip k^4, means for conveying a coin or counter into said receiver g, and mechanism for conveying the coin from said receivers k, k' or k^3, back of said wall or partition a^4, consisting essentially of chutes l, l' and l^3, having coin-guides l^5 and l^6, substantially as and for the purposes set forth.

7. The herein described wall or partition a^4 and a series of sties or compartments, provided with hinged bottoms, in combination, with a coin receiver g, provided with a lip g^3, coin receivers k, k' and k^3, each provided with an opening and a lip k^4, means for conveying a coin or counter into said receiver g, and mechanism for conveying the coin from said receivers k, k' or k^3, back of said wall or partition a^4, substantially as and for the purposes set forth.

8. The herein described wall or partition a^4 and a series of sties or compartments, provided with hinged bottoms, in combination, with a coin receiver g, provided with a lip g^3, coin receivers k, k' and k^3, each provided with an opening and a lip k^4, means for conveying a coin or counter into said receiver g, and mechanism for conveying the coin from said receivers k, k' or k^3, back of said wall or partition a^4, consisting essentially of coin chutes l, l' and l^3 having coin guides l^5 and l^6, substantially as and for the purposes set forth.

9. The herein described wall or partition a^4 and a series of sties or compartments, provided with hinged bottoms, in combination, with a coin receiver g, provided with a lip g^3, coin receivers k, k' and k^3, each provided with an opening and a lip k^4, means for conveying a coin or counter into said receiver g, consisting essentially of a spring-actuated rod provided with a coin receiving recess, from which the coin is dropped into said receiver g, and mechanism for conveying the coin from said receivers k, k' or k^3 back of said wall or partition a^4, substantially as and for the purposes set forth.

10. The herein described wall or partition a^4 and a series of sties or compartments, provided with hinged bottoms, in combination, with a coin receiver g, provided with a lip g^3, coin receivers k, k' and k^3, each provided with an opening and a lip k^4, means for conveying a coin or counter into said receiver g, consisting essentially of a spring-actuated rod provided with a coin receiving recess, from which the coin is dropped into said receiver g, and mechanism for conveying the coin from said receivers k, k' or k^3 back of said wall or partition a^4, consisting essentially of coin chutes l, l' and l^3, having coin-guides l^5 and l^6, and spring-fingers o, o' and o^3, connected with said spring-actuated bar, substantially as and for the purposes set forth.

11. The herein described spring-actuated rod n, provided with fingers o, o' and o^3, in combination with coin chutes l, l' and l^3, and hinged bottoms of coin-receptacles, said hinged bottoms being adapted to be operated by said fingers upon the interposition of a coin or counter when said spring-actuated rod is depressed, substantially as and for the purposes set forth.

12. The herein described spring-actuated rod n, provided with fingers o, o' and o^3, in combination with coin chutes l, l' and l^3, and hinged bottoms of coin receptacles, each bottom being provided with a cam-shaped arm e' adapted to be operated by said fingers, when a coin has been placed between them, an arm e^3 connected with each hinged bottom, and a spring connected with each arm e^3, substantially as and for the purposes set forth.

13. In a game apparatus, in combination, a wall or partition a^4, pins arranged on said wall or partition, substantially as set forth, and coin receivers k, k' and k^3 in said wall or partition, arranged, substantially as and for the purposes set forth.

14. In a game apparatus, in combination, a wall or partition a^4, pins arranged on said wall or partition, substantially as set forth, coin receivers k, k' and k^3 in said wall or partition, and coin-receiving sties or compartments C, C' and C³, arranged, substantially as and for the purposes set forth.

15. In a game apparatus, in combination, a wall or partition a^4, pins arranged on said wall or partition, substantially as set forth, coin receivers k, k' and k^3 in said wall or partition, and coin-receiving sties or compartments C, C' and C³, each sty or compartment having a hinged bottom e, means for conveying a coin or counter from said receivers k, k' or k^3, back of said wall or partition, and mechanism for operating either of said hinged bottoms, substantially as and for the purposes set forth.

16. The herein described game apparatus, comprising therein a wall or partition a^4 and a series of sties or compartments, provided with hinged bottoms, a series of pins arranged on said wall or partition, means for forcing a coin or counter in front of said wall or partition, mechanism for conveying the coin or counter back of said wall or partition, for operating either of said hinged bottoms connected with said sties or compartments, openings a^{12} in the opposite sides of the casing of said apparatus, a bar r in said opening adapted to slide across the face of said wall or partition a^4, and coin receiving recesses r^2 and r^3 in said bar, substantially as and for the purposes set forth.

17. The herein described game apparatus, comprising therein a wall or partition a^4 and a series of sties or compartments provided with hinged bottoms, a series of pins arranged on said wall or partition, means for forcing a coin or counter back of said wall or partition, for operating either of said hinged bottoms connected with said sties or compartments, openings a^{12} in the opposite sides of the casing of said apparatus, a bar r in said opening adapted to slide across the face of said wall or partition, coin receiving recesses r^2 and r^3 in said bar, and guides t and t' on said wall or partition, substantially as and for the purposes set forth.

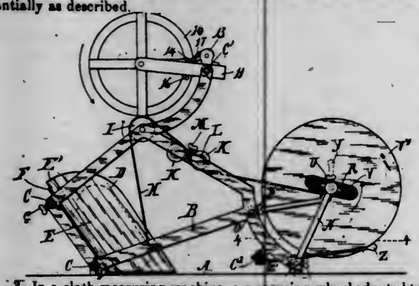
18. In a game apparatus of the class herein set forth, in combination, with the casing A, and a partition or wall a^4, a bar r adapted to slide from side to side across the face of said wall or partition, coin-receiving recesses r^2 and r^3 in said bar, and guides t and t' on said wall or partition, substantially as and for the purposes set forth.

517,437. CLOTH-MEASURING MACHINE. GEORGE P. CONANT, Lake Geneva, Wis., assignor of two-thirds to Harry B. Tyrrell and Walter C. Quigley, same place. Filed Apr. 6, 1893. Serial No. 469,260. (No model.)

Claim.—1. In a cloth measuring apparatus, the combination with a frame, of non-revoluble cloth-holders consisting of end pieces and back pieces rigid to each other, the back pieces being arranged obliquely to the perpendicular, the holders being supported on the frame and adjustable toward and from each other, substantially as described.

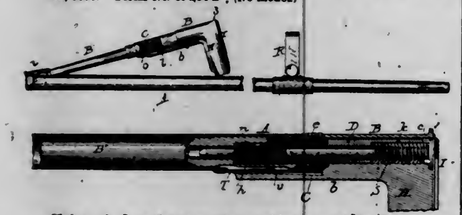
2. In a cloth measuring apparatus, the combination with a frame and means for winding cloth, of a tension device, consisting of two parallel bars fixed at a distance apart in swinging arms pivoted me-

dially and adjustable in the frame, at oblique planes to the plane of motion of the cloth by means of a set screw or its equivalent substantially as described.



3. In a cloth measuring machine, a measuring wheel adapted to be rotated by the movement of the cloth, a pawl adapted to be operated by contact with the wheel at each revolution thereof and two sight wheels adjacent to each other revoluble about the same axis, each sight wheel being provided with an annular rack of greater and less diameters respectively, the one of greater diameter having a single notch of such depth as to permit the pawl to engage and operate both racks concurrently at one motion of the pawl, the rack of greater diameter being otherwise adapted to prevent the pawl from engaging the rack of lesser diameter, substantially as described.

517,438. CANE-GUN. ROSWELL F. COOK, Ilion, N. Y. Filed Dec. 22, 1893. Serial No. 494,394. (No model.)



Claim.—1. In a fire arm, the combination of the breech bolt mounted in the frame so as to have a rotary and a reciprocating longitudinal motion therein, with the striker and spring mounted on and carried by said bolt, substantially as shown and described.

2. In combination with the breech bolt having the spring extractor hook secured thereto, the firing pin, the striker provided with an incline or projection arranged to bear against the firing pin, and the main spring to press against the striker, for the two-fold purpose of firing the cartridge and ejecting the shell when withdrawn from the chamber, as herein set forth.

3. In combination with the cane having its upper end made tubular to receive the barrel of a pistol or fire arm, a pistol or fire arm adapted to have its barrel inserted into such tubular portion, and having the end of its sear or trigger pass over the outside of the tube when the parts are united, to prevent the arm from being fired while connected to the cane, as set forth.

4. In combination with a fire arm or pistol substantially such as described, the cane having a slot in the wall of its tubular end adapted to receive and hold the muzzle, and provided with an adjustable shoulder piece, substantially as and for the purpose set forth.

5. In combination with a tubular cane, a pistol or fire arm having the muzzle end of its barrel provided with an enlargement of proper size to fit snugly within the tube, and which also serves to hold the muzzle secure in the slot of the tube when placed therein, substantially as shown and described.

6. The combination in a cane gun, of the tube A provided with a slot in one side at its upper end, a pistol provided with a rib to fit in said slot and having its muzzle adapted to be held therein, substantially as and for the purposes set forth.

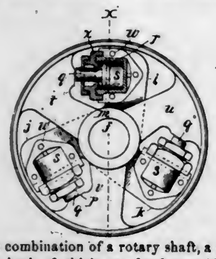
7. The combination in a pistol or gun adapted to be used in connection with a cane, of the handle H attached to or forming a part of the frame or receiver of the pistol or gun, and the plate I secured to the breech bolt of the same, and forming a part of the handle when the breech of the gun is closed and locked, substantially as shown and described.

8. In combination with the frame B provided with central bore *c*, longitudinal groove *e* and slot *o*; the plug C provided with lug *l* to fit the slot; the striker D mounted upon the plug and provided with rib *k* to fit the groove *e*; a spring S to move the striker forward; and firing pin *n* and extractor *h* carried by the plug.

9. In combination with the frame B provided with central bore *c*, longitudinal groove *e* and slot *o*; the plug C provided with lug *l* to fit the slot; the striker D mounted upon the plug and provided with rib *k* to fit the groove *e*; a spring S to move the striker forward; firing pin *n* and extractor *h* carried by the plug, and the sear T to engage the striker.

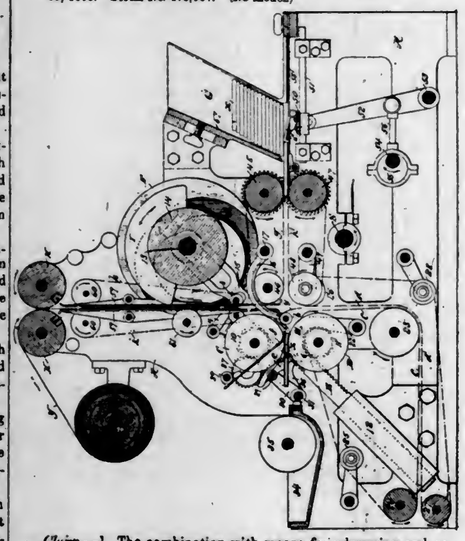
10. In combination with the frame and the plug or bolt rotatively mounted therein; the striker adapted to slide but not to rotate; and the main spring encircling the plug or bolt and actuating the striker.

517,439. DYNAMOMETER. JOHN A. CROSS, New York, N. Y. Filed Mar. 18, 1892. Renewed Jan. 20, 1894. Serial No. 498,154. (No model.)



Claim.—The combination of a rotary shaft, a collar *m*, thereon, and also a hub *o*, both of which are fixed to said shaft, a pulley *h*, whose hub *l*, is loose upon said shaft, cylinders *s*, pistons *r*, and piston rods *q*, all carried upon said hub *o*, spokes, belonging to said pulley *h*, and pressing upon said piston rods, a gage *b*, pipe *y*, fixed to said gage, pipes *y'* carried by and communicating with said cylinders, and a trunnion *z*, connecting the said pipe *y*, with the pipes *y'*.

517,440. WRAPPING-MACHINE. LUTHER C. CROWELL, Brooklyn, assignor, by direct and mesne assignments, to Robert Hoe, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed Apr. 13, 1893. Serial No. 470,167. (No model.)



Claim.—1. The combination with means for advancing and reversing a paper and wrapper, of a flap turner, substantially as described.

2. The combination with means for advancing and reversing a paper and wrapper, of a roll forming a flap turner, substantially as described.

3. The combination with means for advancing and reversing a paper and wrapper, of a roll co-acting therewith to feed the reversed paper, and forming a flap turner, substantially as described.

4. The combination with means for advancing and reversing a paper and wrapper, of a frictionally driven roll coacting therewith to feed the reversed paper and forming a flap turner, substantially as described.

5. The combination with means for advancing and reversing a paper and wrapper, of a flap turner, and means for moving said flap turner to opposite sides of the path of the advanced and reversed paper, substantially as described.

6. The combination with means for advancing and reversing a paper and wrapper, of a flap turner and guides coacting with the flap turner to control the reversed paper, substantially as described.

7. The combination with means for advancing and reversing a paper and wrapper, of a flap turner, and pressing and delivery devices, substantially as described.

8. The combination with means for advancing and reversing a paper and wrapper, of a flap turner, guides co-acting with the flap turner to control the reversed paper, and pressing and delivery devices, substantially as described.

9. The combination with means for advancing and reversing a paper and wrapper, of a flap turner, pressing and delivery devices, and means for moving the flap turner to opposite sides of the path of the advanced and reversed paper, substantially as described.

10. The combination with means for advancing and reversing a paper and wrapper, of a flap turner, guides coacting with the flap turner to control the reversed paper, and means for moving the flap turner to opposite sides of the path of the advanced and reversed paper, substantially as described.

11. The combination with means for advancing and reversing a paper and wrapper, of a flap turner, guides coacting with the flap turner to control the reversed paper, and means for moving said guides into and out of position to engage the paper, substantially as described.

12. The combination of feeding devices, means for actuating said feeding devices in opposite directions, and a flap turner, substantially as described.

13. The combination of feeding devices, means for actuating said feeding devices in opposite directions, and a roll forming a flap turner, substantially as described.

14. The combination of feeding devices, means for actuating said feeding devices in opposite directions, and a roll forming a flap turner and coacting with the feeding devices to feed the reversed paper, substantially as described.

15. The combination of feeding devices, means for actuating said feeding devices in opposite directions, a flap turner, and means for moving said flap turner to opposite sides of the path of the paper, substantially as described.

16. The combination of feeding devices, means for actuating said feeding devices in opposite directions, a flap turner, and guides coacting with the flap turner to control the reversed paper, substantially as described.

17. The combination of feeding devices, means for actuating said feeding devices in opposite directions, a flap turner, pressing and delivery devices, and means for moving the flap turner to opposite sides of the path of the advanced and reversed paper, substantially as described.

18. The combination of feeding rolls, means for rotating said rolls in opposite directions, and a flap turner, substantially as described.

19. The combination of feeding rolls, means for rotating said rolls in opposite directions, and a roll forming a flap turner and coacting with one of the feeding rolls to feed the reversed paper, substantially as described.

20. The combination of feeding rolls, means for rotating said rolls in opposite directions and a frictionally driven roll forming a flap turner and coacting with one of the feeding rolls to feed the reversed paper, substantially as described.

21. The combination of feeding rolls, means for rotating said rolls in opposite directions, a flap turner and pressing and delivery devices, substantially as described.

22. The combination of feeding rolls, means for rotating said rolls in opposite directions, a flap turner, and guides coacting with said flap turner to control the reversed paper, substantially as described.

23. The combination of feeding rolls, means for rotating said rolls in opposite directions, a flap turner, guides coacting with said flap turner to control the reversed paper, and pressing and delivery devices, substantially as described.

24. The combination of feeding rolls, means for rotating said rolls in opposite directions, a roll forming a flap turner and coacting with one of the feeding rolls to feed the reversed paper, and means for moving said roll to opposite sides of the path of the advanced and reversed paper, substantially as described.

25. The combination of feeding rolls, means for rotating said rolls in opposite directions, a roll forming a flap turner and coacting with one of the feeding rolls to feed the reversed paper, means for moving said roll to opposite sides of the path of the advanced and reversed paper, and guides coacting with said roll to control the reversed paper, substantially as described.

26. The combination with paper feeding mechanism, of wrapper feeding mechanism advancing a wrapper transversely to and into the path of movement of the paper, wrapper pasting devices, means for advancing and reversing the paper and wrapper received from the feeding mechanism, and a flap turner, substantially as described.

27. The combination with paper feeding mechanism, of wrapper feeding mechanism advancing a wrapper transversely to and into the path of movement of the paper, wrapper pasting devices, means for advancing and reversing the paper and wrapper received from the feeding mechanism, a flap turner, and guides coacting with the flap turner to control the reversed paper, substantially as described.

28. The combination with paper feeding mechanism, of wrapper feeding mechanism advancing a wrapper transversely to and into the path of movement of the paper, wrapper pasting devices, means for advancing and reversing the paper and wrapper received from the feeding mechanism, a flap turner, and pressing and delivery devices, substantially as described.

29. The combination with paper and wrapper feeding mechanism, and wrapper pasting devices, of means for advancing and reversing the paper received from the feeding mechanism, and a flap turner, substantially as described.

30. The combination with paper and wrapper feeding mechanism, and wrapper pasting devices, of means for advancing and reversing the paper and wrapper received from the feeding mechanism, a flap turner, and guides coacting with the flap turner to control the reversed paper, substantially as described.

31. The combination with paper and wrapper feeding mechanism, and wrapper pasting devices, of means for advancing and reversing the paper and wrapper received from the feeding mechanism, a flap turner, and pressing and delivery devices, substantially as described.

32. The combination with feeding rolls C, D, and means for rotating said rolls in opposite directions, of flap turning roll *b* coacting with said roll D, and pressing and delivery belts *c*, *d*, substantially as described.

33. The combination with feeding rolls C, D, and means for rotating said rolls in opposite directions, of a flap turner, guides *f*, and means for moving said guides into and out of position to engage the paper, substantially as described.

34. The combintion with feeding rolls C, D, and means for rotating said rolls in opposite directions, of a flap turner, means for moving the flap turner to opposite sides of the path of the paper, guides *f*, and means for moving said guides into and out of position to engage the paper, substantially as described.

35. The combination with rolls C, D, and means for rotating said rolls in opposite directions and a flap turner, of feeding mechanism advancing a paper and wrapper to the rolls, and pasting mechanism for the wrapper on the opposite side of the rolls from the feeding mechanism, substantially as described.

36. The combination with feeding rolls C, D, means for rotating said rolls in opposite directions and a flap turner, of paster *e* on the opposite side of the rolls from the feeding mechanism, and means for operating said paster to lay a line of paste upon the layer of wrapper on the paper, substantially as described.

37. The combination with the paster *e* and fountain roll 35, of rock arms 30 in which the paster is pivotally mounted, crank arm 32 on the paster and arm 33 pivoted to said crank arm and to the frame, substantially as described.

38. The combination with rolls C, D, of sliding rack bar E, shaft 13, cam F carried by said shaft and reciprocating said rack bar, flap turner *b* carried by arms 16, and cam *v* on said shaft 13 and connections for moving said flap turner, substantially as described.

39. The combination with rolls C, D, of sliding rack bar E, shaft 13, cam F carried by said shaft and reciprocating said rack bar, flap turner *b* carried by arms 16, cam *v* on said shaft 13 and connections for moving said flap turner, guides *f*, and cam *w* on said shaft 13 and connections for moving said guides, substantially as described.

517,441. NEWSPAPER-WRAPPING MACHINE. LUTHER C. CROWELL, Brooklyn, assignor to Robert Hoe, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed Oct. 7, 1893. Serial No. 487,502. (No model.)

Claim.—1. The combination with feeding rolls for advancing and reversing a paper and wrapper, of a roll coacting therewith to feed the advanced and reversed paper and forming a flap turner, substantially as described.

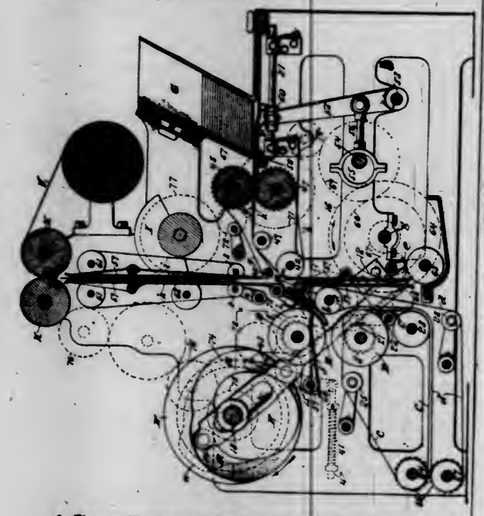
2. The combination with feeding rolls for advancing and reversing a paper and wrapper, of a positively driven roll coacting therewith to feed the advanced and reversed paper and forming a flap turner, substantially as described.

3. The combination with feeding rolls for advancing and reversing a paper and wrapper, of a roll coacting therewith to feed the advanced and reversed paper and forming a flap turner, and guides coacting with the flap turner to control the paper, substantially as described.

4. The combination with feeding rolls for advancing and reversing a paper and wrapper, of a roll coacting therewith to feed the ad-

vanced and reversed paper and forming a flap turner, and pressing and delivery devices, substantially as described.

5. The combination with feeding rolls for advancing and reversing a paper and wrapper, of a roll coacting therewith to feed the advanced and reversed paper and forming a flap turner, guides coacting with the flap turner to control the paper, and pressing and delivery devices, substantially as described.



6. The combination with feeding rolls for advancing and reversing a paper and wrapper, of a roll coacting therewith to feed the advanced and reversed paper and forming a flap turner, guides coacting with the flap turner to control the paper, and means for moving said guides into and out of position to engage the paper, substantially as described.

7. The combination of feeding rolls, means for rotating said rolls in opposite directions, and a roll coacting therewith to feed the advanced and reversed paper and forming a flap turner, substantially as described.

8. The combination of feeding rolls, means for rotating said rolls in opposite directions, and a positively driven roll coacting therewith to feed the advanced and reversed paper and forming a flap turner, substantially as described.

9. The combination of feeding rolls, means for rotating said rolls in opposite directions, a roll coacting therewith to feed the advanced and reversed paper and forming a flap turner, and guides coacting with the flap turner to control the paper, substantially as described.

10. The combination with paper and wrapper feeding mechanism, and wrapper pasting devices, of feeding rolls for advancing and reversing the paper, and a roll coacting with said feeding rolls to feed the advanced and reversed paper and forming a flap turner, substantially as described.

11. The combination with paper feeding mechanism, of wrapper feeding mechanism advancing a wrapper transversely to and into the path of the movement of the paper, wrapper pasting devices, feeding rolls for advancing and reversing the paper, and a roll coacting with said feeding rolls to feed the advanced and reversed paper and forming a flap turner, substantially as described.

12. The combination with paper feeding mechanism, of wrapper feeding mechanism advancing a wrapper transversely to and into the path of the movement of the paper, wrapper pasting devices, feeding rolls for advancing and reversing the paper, a roll coacting with said feeding rolls to feed the advanced and reversed paper and forming a flap turner, and guides coacting with the flap turner to control the paper, substantially as described.

13. The combination with paper feeding mechanism, of wrapper feeding mechanism advancing a wrapper transversely to and into the path of the movement of the paper, wrapper pasting devices, feeding rolls for advancing and reversing the paper, a roll coacting with said feeding rolls to feed the advanced and reversed paper and forming a flap turner, guides coacting with the flap turner to control the paper, and pressing and delivery devices, substantially as described.

14. The combination with feeding rolls for advancing and reversing a paper and wrapper, of a flap turning roll *b* coacting with said feeding rolls, and pressing and delivery tapes *c*, *d*, one of said series of tapes passing over the roll *b*, substantially as described.

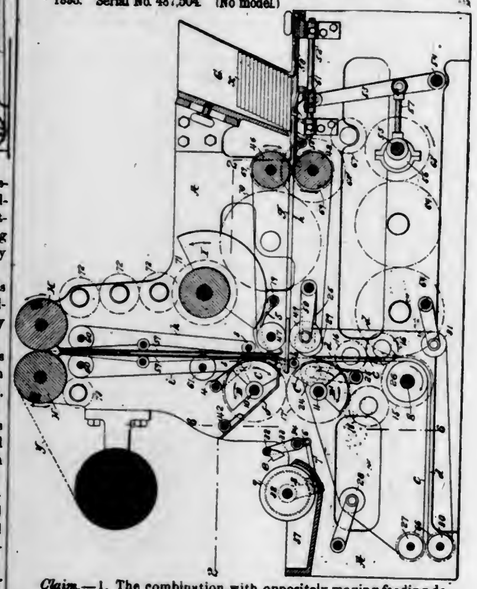
15. The combination with feeding rolls for advancing and reversing a paper and wrapper, of flap turning roll *b* coacting with said rolls, guides *m* and rolls *l* over which the paper is fed to the roll *b*, and pressing and delivery tapes *c*, *d*, one of said series of tapes passing over rolls *l* and flap turning roll *b*, substantially as described.

16 The combination with feeding rolls for advancing and reversing a paper and wrapper, of flap turning roll *b* coacting with said feeding rolls to feed the advanced and reversed paper, guides *f*, and means for moving said guides into and out of position to engage the paper, substantially as described.

17 The combination with feeding rolls for advancing and reversing a paper and wrapper, of flap turning roll *b* coacting with said feeding rolls to feed the advanced and reversed paper, guides *f*, means for moving said guides into and out of position to engage the paper, and pressing and delivery devices, substantially as described.

18. The combination with feeding rolls and means for rotating said rolls in opposite directions, of flap turning roll *b* coacting with said feeding rolls, guides *f*, means for moving said guides into and out of position to engage the paper, and pressing and delivery devices, substantially as described.

517,442. NEWSPAPER-WRAPPING MACHINE. LUTHER C. CROWELL, Brooklyn, assignor to Robert Hoe, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Original application filed Apr. 13, 1893, Serial No. 470,167. Divided and this application filed Oct. 7, 1893. Serial No. 487,504. (No model.)



Claim.—1. The combination with oppositely moving feeding devices for advancing and reversing a paper and wrapper, of a flap turner, substantially as described.

2. The combination with oppositely moving feeding devices for advancing and reversing a paper and wrapper, of a roll forming a flap turner, substantially as described.

3. The combination with oppositely moving feeding devices for advancing and reversing a paper and wrapper, of a flap turner and means for moving said flap turner to opposite sides of the path of the advanced and reversed paper, substantially as described.

4. The combination with oppositely moving feeding devices for advancing and reversing a paper and wrapper, of a flap turner and guides co-acting with the flap turner to control the reversed paper, substantially as described.

5. The combination with oppositely moving feeding devices for advancing and reversing a paper and wrapper, of a flap turner and pressing and delivery devices, substantially as described.

6. The combination with oppositely moving feeding devices for advancing and reversing a paper and wrapper, of a flap turner, guides co-acting with the flap turner to control the reversed paper, and means for moving the flap turner to opposite sides of the path of the advanced and reversed paper, substantially as described.

7. The combination with oppositely moving feeding devices for advancing and reversing a paper and wrapper, of a flap turner, pressing and delivery devices, and means for moving the flap turner to opposite sides of the path of the advanced and reversed paper, substantially as described.

8. The combination with oppositely moving feeding devices for advancing and reversing a paper and wrapper, of a flap turner, guides co-acting with the flap turner to control the reversed paper, and means for moving said guides into and out of position to engage the paper, substantially as described.

9. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a flap turner, substantially as described.

10. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a roll forming a flap turner, substantially as described.

11. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a roll co-acting therewith to feed the reversed paper and forming a flap turner, substantially as described.

12. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a frictionally driven roll co-acting therewith to feed the reversed paper and forming a flap turner, substantially as described.

13. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a flap turner, and means for moving said flap turner to opposite sides of the path of the advanced and reversed paper, substantially as described.

14. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a flap turner, and guides co-acting with the flap turner to control the reversed paper, substantially as described.

15. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a flap turner, and pressing and delivery devices, substantially as described.

16. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a flap turner, guides co-acting with the flap turner to control the reversed paper, and pressing and delivery devices, substantially as described.

17 The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a flap turner, pressing and delivery devices, and means for moving the flap turner to opposite sides of the path of the advanced and reversed paper, substantially as described.

18. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a flap turner, guides co-acting with the flap turner to control the reversed paper, and means for moving the flap turner to opposite sides of the path of the advanced and reversed paper, substantially as described.

19. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a flap turner, guides co-acting with the flap turner to control the reversed paper, pressing and delivery devices. and means for moving the flap turner to opposite sides of the path of the advanced and reversed paper, substantially as described.

20. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a roll forming a flap turner and co-acting therewith to feed the reversed paper, and means for moving said roll to opposite sides of the path of the advanced and reversed paper, substantially as described.

21. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a roll forming a flap turner, guides co-acting with the flap turner to control the reversed paper, and means for moving said guides into and out of position to engage the paper, substantially as described.

22. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a roll forming a flap turner and co-acting therewith to feed the reversed paper, means for moving said roll to opposite sides of the path of the advanced and reversed paper, guides co-acting with said flap turner to control the reversed paper, and means for moving said guides into and out of position to engage the paper, substantially as described.

23. The combination with paper and wrapper feeding mechanism and wrapper pasting devices, of oppositely rotating feeding segments for advancing and reversing the paper received from the feeding mechanism, and a flap turner, substantially as described.

24. The combination with paper and wrapper feeding mechanism and wrapper pasting devices, of oppositely rotating feeding segments for advancing and reversing the paper received from the feeding mechanism, a flap turner, and guides co-acting with the flap turner to control the reversed paper, substantially as described.

25. The combination with paper and wrapper feeding mechanism and wrapper pasting devices, of oppositely rotating feeding segments for advancing and reversing the paper received from the feeding mechanism, a flap turner, guides co-acting with the flap turner to control the reversed paper, and means for moving said guides into and out of position to engage the paper, substantially as described.

26. The combination with paper and wrapper feeding mechanism and wrapper pasting devices, of oppositely rotating feeding segments for advancing and reversing the paper received from the feeding mechanism, a flap turner, and pressing and delivery devices, substantially as described.

27. The combination with paper and wrapper feeding mechanism and wrapper pasting devices, of oppositely rotating feeding segments for advancing and reversing the paper received from the feeding mechanism, a flap turner, guides co-acting with the flap turner to control the reversed paper, and pressing and delivery devices, substantially as described.

28. The combination with paper feeding mechanism, of wrapper feeding mechanism advancing a paper transversely to and into the path of movement of the paper, wrapper pasting devices, oppositely rotating feeding segments for advancing and reversing the paper received from the feeding mechanism, and a flap turner, substantially as described.

29. The combination with paper feeding mechanism, of wrapper feeding mechanism advancing a paper transversely to and into the path of movement of the paper, wrapper pasting devices, oppositely rotating feeding segments for advancing and reversing the paper received from the feeding mechanism, a flap turner, and guides co-acting with the flap turner to control the reversed paper, substantially as described.

30. The combination with paper feeding mechanism, of wrapper feeding mechanism advancing a paper transversely to and into the path of movement of the paper, wrapper pasting devices, oppositely rotating feeding segments for advancing and reversing the paper received from the feeding mechanism, a flap turner, guides co-acting with the flap turner to control the reversed paper, and means for moving said guides into and out of position for engaging the paper, substantially as described.

31. The combination with paper feeding mechanism, of wrapper feeding mechanism advancing a paper transversely to and into the path of movement of the paper, wrapper pasting devices, oppositely rotating feeding segments for advancing and reversing the paper received from the feeding mechanism, a flap turner, and pressing and delivery devices, substantially as described.

32. The combination with feeding segments C, C′ and D, D′ and means for rotating said segments in opposite directions, of flap turning roll *b* co-acting with segment D′, substantially as described.

33. The combination with feeding segments C, C′ and D, D′ having their axes in line, and means for rotating said segments in opposite directions, of flap turning roll *b* co-acting with the segment D′, substantially as described.

34. The combination with feeding segments C, C′ and D, D′ having their axes in line, and means for rotating said segments in opposite directions, of flap turning roll *b* co-acting with the segment D′ and driven by friction therefrom, substantially as described.

35. The combination with feeding segments C, C′ and D, D′ having their axes in line, and means for rotating said segments in opposite directions, of flap turning roll *b* co-acting with the segment D′ and means for moving said roll to opposite sides of the path of the paper, substantially as described.

36. The combination with feeding segments C, C′ and D, D′ having their axes in line, and means for rotating said segments in opposite directions, of flap turning roll *b* co-acting with the segment D′, and pressing and delivery belts *c*, *d*, substantially as described.

37. The combination with feeding segments C, C′ and D, D′ having their axes in line, and means for rotating said segments in opposite directions, of a flap turner, guides *f*, and means for moving said guides into and out of position to engage the paper, substantially as described.

38 The combination with feeding segments C, C′ and D, D′ having their axes in line, and means for rotating said segments in opposite directions, of a flap turner, means for moving the flap turner to opposite sides of the path of the paper, guides *f*, and means for moving said guides into and out of position to engage the paper, substantially as described.

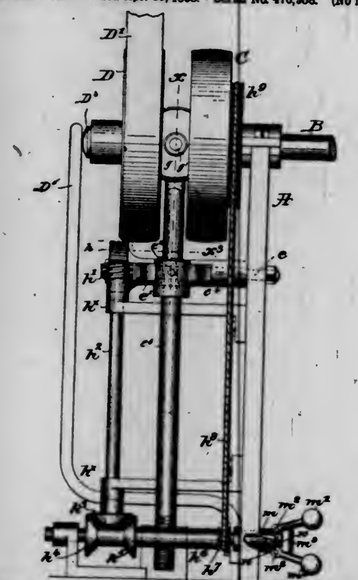
39. The combination with feeding segments C, C′ and D, D′ having their axes in line, and means for rotating said segments in opposite directions, of a flap turner, feeding mechanism advancing a paper and wrapper to the segments, and pasting mechanism for the wrapper on the opposite side of the segments to the feeding mechanism, substantially as described.

40. The combination with the shafts 10, 11, segments C, C mounted rigidly on said shafts, segments D, D′ carried by sleeves on said shafts, means for rotating said shafts and sleeves in opposite directions, and a flap turner, substantially as described.

41. The combination with the shafts 10, 11, segments C, C mounted rigidly on said shafts, segments D, D′ carried by sleeves on said shafts, means for rotating said shafts and sleeves in opposite directions, flap turning roll *b* carried by arms 18, and cam *v* and connections for moving said flap turner, substantially as described.

42. The combination with the shafts 10, 11, segments C, C' mounted rigidly on said shafts, segments D, D' carried by sleeves on said shafts, means for rotating said shafts and sleeves in opposite directions, flap turning roll *b* carried by arms 18, cam *v* and connections for moving said flap turner, guides *f* and cam *w* and connections for moving said guides, substantially as described.

517,443. SPEED-VARYING MECHANISM. HENRY H. CUMMINGS, Malden, Mass. Filed Apr. 19, 1893. Serial No. 470,938. (No model.)



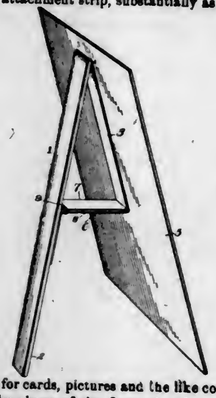
Claim.—1. A driving and driven pulley having circular concavities, an interposed roll entering said concavities, and a support for it, said roll being driven by one of the pulleys and driving the other pulley by friction, combined with a governor, a governor shaft and connections between the governor shaft and the roll support by which the roll is automatically adjusted with relation to the pulleys to insure a constant rotation of the driven pulley at the same rate of speed, substantially as described.

2. A driving and a driven pulley, each having an annular curved-bottom groove in adjacent faces, a shaft for such pulleys, rolls located at different sides of such shaft in frictional contact with the grooves in such pulleys, rotatable supports for such rolls, toothed segments on such supports, a toothed shaft engaging both of said segments to rotate them in unison to vary the relations of the rolls to the centers of the pulleys, a governor, a governor shaft, a connection between the governor shaft and the aforesaid toothed shaft, and an independent connection between the driving pulley and the governor shaft, substantially as described.

3. A driving and a driven pulley each provided with an annular groove semi-circular in cross section substantially as shown, frictional surfaced rolls located between said pulleys and entering said grooves to contact with said pulleys; supports for said rolls, and connections between said supports, combined with a governor, a rotating governor shaft the speed of which is regulated by or with the pulley which is to be run at a constant speed, and connections between said governor shaft and the connecting devices of the said roll supports, whereby any increase or decrease of speed at the driving pulley is automatically made to adjust the rolls with relation to their points of contact with the driving and driven pulleys to insure constant rotation of the driven pulley at the same rate of speed, substantially as described.

517,444. SUPPORT FOR CARDS, PICTURES, OR LIKE ARTICLES. SIMON DALSHEIMER and ABNER GREENLEAF, Baltimore, Md. Filed June 8, 1893. Serial No. 476,943. (No model.)

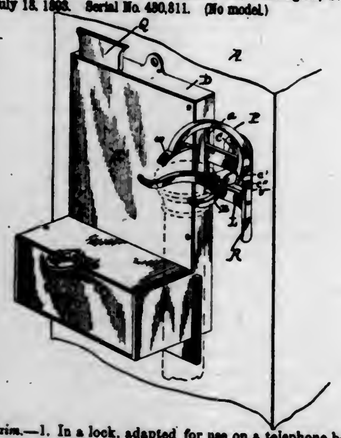
Claim.—1. A support for cards, pictures and the like comprising a frame of substantially the shape of the figure 4 and composed of a rigid leg, an attachment strip designed to be secured to the back of a picture, card or the like and having its upper end attached to the upper end of the leg, a folding cross-strip having a hinge crease and connecting the lower end of the attachment strip with the leg at an intermediate point of the latter, a cross-brace secured to the cross-strip at one side of the hinge crease and adapted to be arranged longitudinally of the cross-strip to form a rigid brace between the leg and the attachment strip, substantially as described.



2. A support for cards, pictures and the like comprising a frame of substantially the shape of the figure 4 and composed of a rigid leg, an attachment strip designed to be secured to the back of a picture, card or the like and having its upper end attached to the upper end of the leg, a folding cross-strip having a hinge crease and connecting the lower end of the attachment strip with the leg at an intermediate point of the latter, a cross-brace secured to the cross-strip at one side of the hinge crease and adapted to be arranged longitudinally of the cross-strip to form a rigid brace between the leg and the attachment strip, and a sliding band for holding the brace longitudinally of the cross-strip to prevent the frame from collapsing, substantially as described.

3. A support for cards, pictures and the like comprising a frame of substantially the shape of the figure 4 and composed of a rigid leg, an attachment strip designed to be secured to the back of a picture, card or the like and having its upper end attached to the upper end of the leg, a folding cross-strip having a hinge crease and connecting the lower end of the attachment strip with the leg at an intermediate point of the latter, a cross-brace secured to the cross-strip at one side of the hinge crease and adapted to be arranged longitudinally of the cross-strip to form a rigid brace between the leg and the attachment strip, and a sliding band encircling the brace and the cross-strip and adapted to be moved from one side of the hinge crease to the other, substantially as and for the purpose described.

517,445. COIN-CONTROLLED AND COIN-RETURN LOCK FOR TELEPHONES. JULIUS M. DASHIELL, Jr., Washington, D. C. Filed July 18, 1893. Serial No. 480,811. (No model.)



Claim.—1. In a lock, adapted for use on a telephone box, a lever or bar pivoted to one face of the lock box, an operating push bar carried by the first named lever or bar, and extending outside the lock box, and means substantially as described for moving the whole about the pivot in the manner and for the purposes set forth.

2. In a telephone lock, a lever or bar pivoted to one side of the lock box, an operating bar carried by said lever or bar, and extending outside the lock box, and guiding lugs projecting from the first named lever or bar, through which lugs passes the operating bar, substantially as shown and described.

3. In a telephone lock, a lever or bar pivoted within the lock box, projections attached to or formed integral with said lever or bar, an operating means connected with one of said projections, and an operating push bar carried by the other projections and extending outside of the lock box, substantially as shown and described.

4. In a telephone lock a pivoted bar or lever resting upon the switch lever of the telephone box and extending into the lock box, a push bar carried by said lever and extending beneath the switch lever, a push button or thumb-piece on one end of said push bar, means for returning the push bar to its normal position after it has been operated, means carried by said push bar to hold it in its locked position, and means for moving the whole about the pivot of the first named lever or bar, substantially as shown and described.

5. In a telephone lock the combination of a lock lever or bar pivoted in the lock box, and carrying an operating push bar, a hook or catch carried by said push bar, and engaging a lug or projection on the box, a stop lever also pivoted within the lock box and having its pivot in axial line with the push bar, means for moving said stop lever, and means for turning the push bar and lock bar about the pivot of the latter, substantially as described.

6. In a telephone lock a lock lever or bar pivoted in the lock box, and means for turning said lever about its pivot, a push bar carried by said lock lever or bar, a hook or catch attached to the push bar and adapted to engage a lug attached to or formed integral with the lock box, a spring acting upon said hook to keep it normally in engagement with said lug or projection, a stop lever pivoted in axial line with the push bar, a projecting plate or stop attached to or formed integral with one of the projecting arms of the lock lever and adapted to arrest the movement of the stop lever, and means, substantially as set forth imparting motion to said stop lever.

7. In a telephone lock, a lock bar or lever pivoted in the lock box and extending over the switch lever of the phone, a push bar carried thereby, a pivoted guard on one end of the lock lever and provided with a depending arm, and a projection on the end of the push bar extending beneath and in contact with said depending arm of the guard, substantially as described.

8. In a telephone lock the lock lever carrying an operating push rod, an arm carried by said push rod, a guard pivoted to the lock lever and comprising a curved lever with one of its arms resting upon the projection on the end of the guard, its other arm having a preponderance of weight at its end, a cut out, and a projecting lug for engagement with the projection of the push bar, a hook or catch carried by the push bar, and means for returning the push bar to its normal position after being operated, substantially as described.

9. In a lock of the character described a pivoted lock bar adapted to move up and down with the switch lever of the phone, in combination with a guard attached to the end of said lock bar, one end of said guard extending over the fork of the switch lever when the phone is locked, and adapted to offer an obstacle to the replacement of the receiver upon the switch lever when the phone is unlocked, substantially as described.

10. In a lock of the character described, a guard for the switch lever of the phone, comprising in its structure a pivoted lever, having a short arm provided with a cut away portion and projection, and its other arm bent and so formed that the preponderance of weight shall be at or near its extremity, substantially as set forth.

11. In a telephone lock comprising mechanism for locking or unlocking the switch lever of the phone, a guard, forming a part of, and mechanically connected to, the locking and unlocking mechanism, adapted to control the replacement of the receiver of the phone upon its switch lever.

12. In a telephone lock, a coin operated lever, a lever pivoted within the box and in axial line with the push bar, connections between said lever and the coin operated lever, and means for arresting the movement of the coin operated lever before it has attained the limit of its movement to release the operating coin, substantially as set forth.

13. In a telephone lock a coin operated lever pivoted in the lock box and provided with an adjustable weight, a stop lever in line with the push bar, connections between the stop lever and the coin operated lever, and means for arresting the movement of the stop lever before the operating coin has been released, the arrest of the stop lever and coin operated lever being independent of any function of the push bar, substantially as described.

14. A telephone lock comprising the following instrumentalities, namely, a coin operated lever, a stop lever connected therewith, a push bar normally in contact with the end of said stop lever when the phone is locked, a lock lever carrying said push bar and provided with a projecting plate or lug for arresting the movement of the coin operated and stop levers, and means for removing said arresting plate when the push bar is operated.

15. In a telephone lock, a lever adapted to be operated by a descending coin, a locking lever or bar pivoted within the lock box and carrying a push bar or operating bar, and means connected with said locking lever or bar for arresting the descent of the operating coin before the same has moved the first named lever to its limiting position, substantially as shown and described.

16. In a telephone lock a push-bar having a locking hook or catch attached thereto, a stop lever pivoted in axial line with said push-bar, and operated by another lever which is in turn operated by a coin, as shown and described.

17. In a telephone lock, two parallel bars or rods in contact with the upper and lower faces of the switch lever, respectively, one of said bars or rods being pivoted and supporting the other bar or rod, means for moving the two bars or rods simultaneously about the pivot as the switch lever moves up or down, and means connected with one of said rods for locking the bars, substantially as shown and described.

18. A telephone lock comprising a box adapted to be secured to the side of a telephone box, a cover or plate within said box dividing the inside into two compartments, an entrance or chute for the operating coin leading into one of said compartments, guides within the same compartment adapted to guide the coin to a cash receptacle, a lever pivoted to the cover or plate and having one end extending into the guideway for the coin, said end being provided with a projection or "toe" adapted to be struck by and to carry the descending coin, a locking lever or bar pivoted within the second compartment and supporting a push bar or rod, a stop lever pivoted also in the second compartment, adapted to control the operation of the push bar or rod, and connections between said stop lever and the coin operated lever situated on the opposite side of the separating cover or plate, substantially as shown and described.

19. In a lock of the character described, a coin operated lever provided with an adjustable weight, means connected with said lever for arresting its movement and stopping the descent of the coin before the phone is unlocked, a coin chute situated within the lock box and below the descending coin, said chute having its vertical center line to one side of the vertical line through the coin center, and provided with a slot in its edge, leading to the cash box, and means in connection with said chute for arresting the descending coin after it has entered the chute, substantially as shown and described.

20. In a lock of the character described a coin operated lever, means for arresting the movement of said lever while being operated by the coin, a chute placed below and adapted to receive the descending coin on a further movement of the coin operated lever, a slot in the edge of said chute and leading into the cash box, means for arresting a coin after it has entered said chute, and means for releasing the coin, substantially as described.

21. In a coin operated lock for use on a telephone box, a vertically disposed guideway or chute, a second chute beneath and having its edges to one side of those of the first named chute, and a means connected with the lower chute for arresting the descent of a coin.

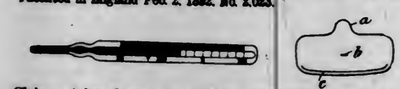
22. In a lock of the character described, a chute placed below the mechanism proper of the lock and adapted to receive a coin after it has operated the unlocking mechanism, means for arresting the descent of the coin in said chute, and means for releasing said coin, as shown and described.

23. In a lock of the character described, a vertically disposed guide way for the operating coin, a lever pivoted in the lock box and having one of its arms projecting into said guide way, a "toe" or projection on the end of said lever arm at the vertical center line of the guide way,—said "toe" adapted to support and be struck by the descending coin,—a second chute or guide way placed below the toe of the coin operated lever, the vertical edges of said lower chute being out of line with those of the upper chute, a slot in the edge of said lower chute leading into the cash box, a lever pivoted in the lock box and having a projection on one of its arms which projection extends through the lower chute in the path of a descending coin, and an electro magnet or magnets and electrical connections for operating said lever, substantially as described.

24. In a lock of the character described a coin receiving chute placed beneath the descending coin and adapted to receive the same after it has operated the unlocking mechanism, said chute leading to a point outside of the lock box, a slot cut through one edge of the chute and leading into a cash receptacle, a lever pivoted in the lock box and having a projection on one of its arms normally extending through a slot in the sides of the chute, a spring in connection with said lever for returning it to its normal position after it has been withdrawn from the chute, an electro magnet or magnets supported within the lock box and in juxtaposition to one end of the aforesaid lever, and wires or conductors leading out of the lock box for exciting said magnets when it is desired to operate the lever thereby and so release a coin from the lower chute, substantially as shown and described.

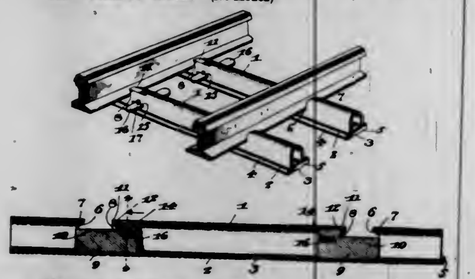
25. In a coin operated device, a chute for receiving a coin and holding the same from further descent, a slot cut through the edge of said chute, the lower edge of said slot being below the upper edge of an imprisoned coin, a chute situated above the first named chute having a slot cut through its edge for the path of the coin operated lever, the edges of said chutes being so disposed that they will not be in the same vertical line, as described, so that a coin descending from the upper chute will strike a coin which has previously entered the lower chute, and roll upon the edge of the imprisoned coin into the cash receptacle.

517,446. MAGNIFYING-THERMOMETER. SAMUEL G. DENTON, London, England. Filed Feb. 9, 1894. Serial No. 499,649. (No model.) Patented in England Feb. 2, 1892. No. 2,023.



Claim.—A lens-front or magnifying thermometer tube with the scale-bearing surfaces on either side of the lens approximately in the same plane and at an angle to the sides of the lens in place of being continuations or prolongations of the sides of the lens as heretofore.

517,447. RAILWAY-TIE. ROBERT DIMMORE, Weston, W. Va., assignor of one-half to Adolph Greenstein, same place. Filed July 7, 1893. Serial No. 479,520. (No model.)

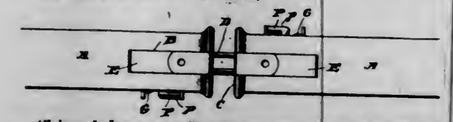


Claim.—1. In a metallic rail tie, the combination of a base consisting of a plate and adapted to be secured permanently to the sleepers, and a hollow removable body-portion slidably connected to the base and provided with seats and locking devices for the rails, said body-portion being arranged to cover and conceal the securing devices for the base, substantially as specified.

2. In a metallic rail tie, the combination of a base provided with upturned lateral edges forming grooves, and having a terminal stop 5, and a hollow body-portion arched in cross-section and provided at its lower edge with lateral flanges 2 engaging said grooves in the base whereby the body-portion is removable from the base, and means for securing the rails to the body-portion, substantially as specified.

3. The combination with an arched hollow rail tie provided in its upper side with a seat 6 having an overhanging lip 7, of a keeper 9 slidably fitted in and filling the bore of the tie and provided with a flat seat 10, a catch or lug 11 arranged opposite to the lip 7, and a transverse opening 14 which is adapted to register with corresponding openings 15 in opposite sides of the tie, a wedge 16 engaging said registering openings, and a locking-pin 17 engaging a perforation in the reduced end of the wedge, substantially as specified.

517,448. CAR-COUPLING. ROBERT DIMMORE, Weston, W. Va., assignor of one-half to Adolph Greenstein, same place. Filed Nov. 10, 1893. Serial No. 490,570. (No model.)

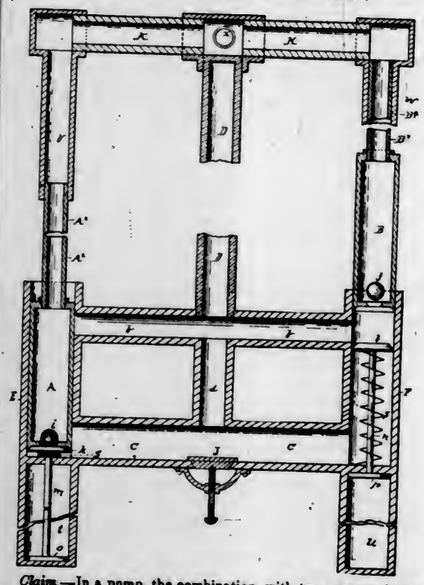


Claim.—1. In a car coupling, the combination with the drawhead; of a hook latch pivoted within the drawhead, a link adjusting arm pivoted to the under side of the hook latch, the link, and means for simultaneously lifting the free end of the hook latch and lowering the free end of the link adjusting arm, substantially as set forth.

2. In a car coupling, the drawhead having a top recess leading into an end mouth, a hook latch pivotally mounted at one end within said top opening and having a narrowed coupling hook at its other end, a pivoted link adjusting arm pivoted at one end to the bottom of the hook latch and having a pin opening in its other end adapted to align with similar openings in the drawhead and hook latch, a rock shaft mounted in the drawhead, and separate cams mounted on said rock shaft and adapted to simultaneously lift the free end of the hook latch and lower the free end of the link adjusting arm, substantially as set forth.

3. In a car coupling the combination of a drawhead having a top recess at one end, a hook latch pivotally mounted near one end within said top opening and having a longitudinal recess in its under side and a metallic wear plate, a link adjusting arm seated in the recess of the hook latch and pivoted at one end on the pivot of such latch, said link adjusting arm being provided near its free end with an inwardly disposed and depending lug, a rock shaft mounted in the draw head under the hook latch, a lifting cam mounted on said rock shaft and adapted to bear under the hook latch against its wear plate, and a hook cam mounted on the rock shaft alongside of the lifting cam and adapted to engage the lug of said link adjusting arm, substantially as set forth.

517,449. PUMPING MACHINERY. MORRISON FOSTER, Sewickley, Pa. Filed Jan. 2, 1892. Serial No. 416,900. (No model.)

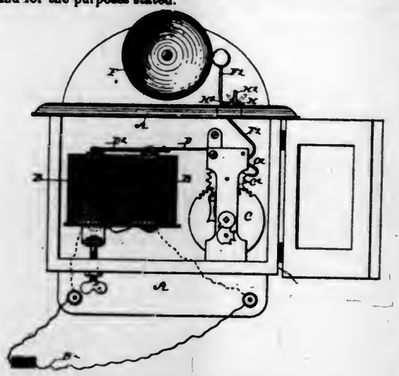


Claim.—In a pump, the combination, with two communicating cylinders, of valved plungers reciprocating therein, valves in said cylinders constructed to close the ports in said plunger when engaged thereby, moving and limiting devices applied to said valves whereby they engage the plungers and move with the same during part of their stroke, all substantially as described, whereby each plunger acts during such portion of its stroke as a forcing plunger to force liquid through the other plunger.

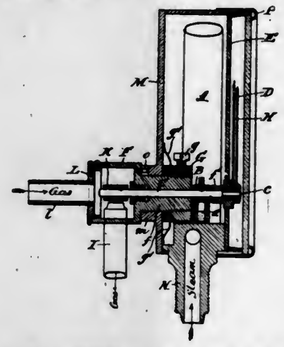
517,450. ELECTRIC BURGLAR-ALARM. JOHN FRAME and ROBERT B. MORDEN, Cooper, Iowa. Filed Dec. 26, 1893. Serial No. 494,810. (No model.)

Claim.—1. An electric burglar alarm, comprising the following elements, to wit: a suitable casing, an electro-magnet in said casing, an electric circuit having said magnet included therein, suitable spring-actuated clock-work mechanism, alarm mechanism connected with the escapement of the clock work mechanism to be operated thereby, a leaf spring connected with the said escapement and a piece of flat metal connected with said leaf spring and adapted to be attracted by the electro magnet, substantially in the manner set forth, for the purposes stated.

2. An electric burglar alarm comprising the following elements in combination, to wit; a suitable casing, an electro-maguet in said casing, an electric circuit having said magnet included therein, suitable spring-actuated clock-work mechanism, a bell clapper connected with the same arbor as the detent of the escapement thereof, a leaf spring connected with said arbor, a flat metal strip connected with said leaf spring and adapted to be attracted by said electro magnet, a bell in position to be engaged by said clapper and means for holding the clapper inoperative, all arranged and combined substantially as and for the purposes stated.



517,451. APPARATUS FOR INDICATING AND REGULATING FLUID-PRESSURE. JOHN H. GARTRELL, Penzance, England. Filed Dec. 26, 1893. Serial No. 494,793. (No model.) Patented in England May 26, 1892. No. 9,965.



Claim.—1. In a combined pressure gage and regulator, of the type specified, a valve casing closed at the bottom and provided with a cylindrical sleeve or boss supported and guided in a cylindrical bearing formed in the back of the pressure gage, said boss having an axial bore for the spindle which actuates the index hand of the pressure gage and the valve, and an arm or extension adapted to carry the index hand which indicates the position of the valve seat, substantially as described.

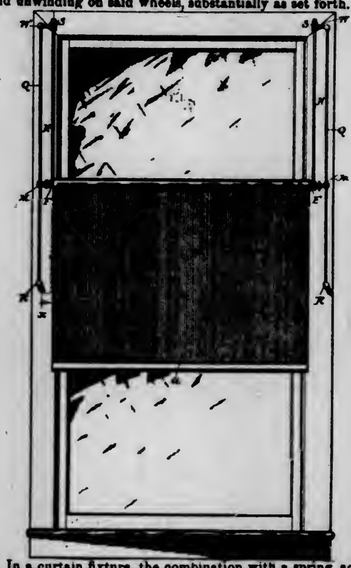
2. In a combined pressure gage and regulator, the combination of a spindle C carrying at one end the index hand D of the pressure gage and at the other end the regulating valve K, with a Bourdon tube or equivalent device connected with the said spindle and adapted to control the same, a valve casing F containing the valve seat and provided with a boss *f* adapted to support and guide the valve spindle C at the back and carrying an index hand H in front, a pressure gage casing having in front a graduated scale for the two index hands and at the back a bearing for the boss of the valve casing, and means for retaining the valve casing axially in position and for limiting its angular or pivotal motion, substantially as described.

517,452. INSULATING COMPOUND. ADOLF GENTZSCH, Vienna, Austria-Hungary. Filed Oct. 7, 1893. Serial No. 487,477. (No specimens.)

Claim.—An insulating compound consisting of the extract from fossil resins as ozokerite, asphalt and amber, in the proportions set forth, from which the gas, vapors and oils have been removed, substantially as described.

517,453. CURTAIN-FIXTURE. CHARLES E. GOODRICH, Pioche, Nev., assignor of one-half to Thomas J. Osborne, same place. Filed Dec. 9, 1893. Serial No. 493,219. (No model.)

Claim.—1. In a curtain fixture, the combination of the hollow shade roller having a longitudinally disposed roller slot leading out to one end, a shaft arranged longitudinally in the roller and having winding wheels at one end, one end of said shaft being adapted to be free for movement out of said roller slot in adjusting the fixture, the spring and check devices, and the supporting tapes or ribbons winding and unwinding on said wheels, substantially as set forth.



2. In a curtain fixture, the combination with a spring actuated shade roller; of a shaft arranged longitudinally in said roller, sectional winding wheels attached to the extremities of said shaft, supporting tapes winding and unwinding on said winding wheels, and a check clutch for holding the roller in a fixed position, substantially as set forth.

3. In a curtain fixture, the combination with a spring actuated and pawl-arrested shade roller; of a shaft arranged longitudinally in the roller, sectional winding wheels attached to the extremities of said shaft and one of which is provided with a clutch member, the supporting tapes or ribbons, and a non-rotative clutch member supported for vertical movement at one end of the roller and adapted to be engaged by and disengaged from the wheel clutch member by a lateral shift of the shade roller, substantially as set forth.

4. In a curtain fixture, the combination with a spring actuated and pawl-arrested shade roller supported for a slight horizontal or lateral play; of a shaft arranged within the roller and having winding wheels and a clutch member, a non-rotative clutch member supported for a vertical movement at one end of the roller, and supporting tapes, substantially as set forth.

5. In a curtain fixture, the combination of an ordinary spring actuated shade roller, winding wheels attached to the extremities of the shaft of said roller and one of which is provided with a clutch hub, supporting tapes winding and unwinding on the winding wheels, opposite parallel guide rods, and bearing collars mounted to slide on the guide rods and one of which is provided with a clutch end adapted to be engaged by and disengaged from said clutch hub, substantially as set forth.

6. In a curtain fixture, the combination with a spring actuated and pawl arrested shade roller; of a shaft arranged longitudinally in the roller, sectional winding wheels attached to the extremities of the shaft and comprising separate disk members having registering base lugs, supporting tapes suspended from their upper ends and having their lower extremities fitted between the registering base lugs of the sectional wheels, and a check clutch for holding the roller in a fixed position, substantially as set forth.

7. In a curtain fixture, the combination with a spring actuated shade roller; of the longitudinal roller shaft, extended wheel spindles fitted to the extremities of said shaft and having winding wheels comprising fixed and separable disk members having registering base lugs, one of said winding wheels having an inner notched pawl hub and an outer notched clutch hub, the roller pawls engaging said pawl hubs, suitably arranged guide rods, non-rotative bearing collars sliding on said guide rods and loosely receiving the outer ends of the wheel spindles to provide for a horizontal play of the shade roller, one of said

collars having clutch lugs adapted to be engaged by said clutch hub and disengaged therefrom by the horizontal movement of the shade roller, and the supporting tapes winding and unwinding on said winding wheels, substantially as set forth.

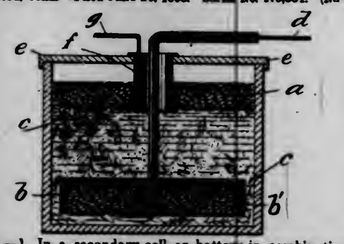
8. In a curtain fixture, the combination of the automatic roller devices having opposite projecting wheel spindles, the sectional winding wheels fitted on said spindles and having registering base lugs, the stationary supporting brackets having separable parts provided with registering base lugs corresponding with those of the winding wheels, and the supporting tapes wound on the winding wheels and said brackets and adapted to have their extremities fitted in the spaces between said registering base lugs, substantially as set forth.

9. In a curtain fixture, the combination of the automatic roller devices having opposite projecting spindles and winding wheels, suitably arranged socket brackets, the vertical guide rods fitted at their lower ends in said brackets, the bearings for the roller devices mounted on said rod, the combined tape and rod brackets located at the upper end of a window frame and having off-standing flanged bracket disks provided at one side with spaced base lugs, the bracket spindle extended through central openings in said bracket disks and having an end disk, and a single base lug registering with the spaced base lug, and lock openings in their outer extremities, the lock sleeves fitted over said spindles and having rod openings aligning with said lock openings and adapted to receive the upper ends of said guide rod, and the supporting tapes, substantially as set forth.

517,454. ENAMEL FOR COATING SHEET METAL, &c. JOHN HENNEMAN, Chicago, Ill., assignor of one-half to Richard H. Stupe, same place. Filed Apr. 1, 1893. Serial No. 468,717. (No specimens.)

Claim.—An enamel composed of a mixture of fluor-spar, salt-peter, white-sand, borax, mica, red-lead, carbonate of potash, and kryolite with a suitable coloring oxide, substantially as set forth.

517,455. SECONDARY CELL OR BATTERY. GEORGE B. HENRY, Hartford, Conn. Filed June 21, 1893. Serial No. 478,351. (No model.)



Claim.—1. In a secondary cell or battery in combination the plates with their terminals, and an electrolyte composed of a spongy mass of flax seed mixed with dilute sulphuric acid, all substantially as described.

2. In a secondary cell in combination an electrolyte, and plates composed of a mass of vegetable carbon, one of the plates being provided with a layer of chloride of lead, all substantially as described.

3. In a secondary cell in combination an electrolyte composed of a spongy mass of flax-seed and a solution of sulphuric acid suspended therein, plates composed of a vegetable carbon, a coating of chloride of lead on one of the plates, and the terminals, all substantially as described.

517,456. SASH LOCK AND SUPPORT. JOHN S. HENRY, Manheim, Pa. Filed Oct. 21, 1893. Serial No. 488,611. (No model.)

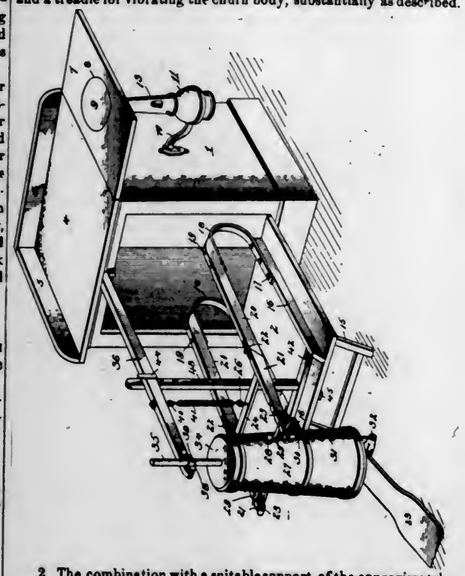


Claim.—1. A sash-lock and supporter comprising a body having jaws adapted to engage a bead of the window-casing, and an enlarged head constructed to engage a rail of the sash, substantially as specified.

2. A sash-lock and supporter comprising a body having jaws adapted to engage a bead of the window casing, and an enlarged head connected therewith by a reduced neck, substantially as specified.

517,457. COMBINED KITCHEN-CABINET AND CHURN. JORDAN K. HODGES and THEODORE C. DICKSON, Cheyenne, Wyo. Filed Dec. 13, 1893. Serial No. 493,548. (No model.)

Claim.—1. In a kitchen cabinet, the combination of a casing provided with a downwardly swinging door, the approximately U-shaped springs secured to the inner face of the door at the lower end thereof, the parallel vibrating bars secured to and supported by the springs and provided at their outer ends with folding extensions, a churn body detachably mounted on said extensions and provided with a dasher rod, a detachable fixed support connected with the dasher rod, and a treadle for vibrating the churn body, substantially as described.



2. The combination with a suitable support, of the approximately U-shaped springs, the parallel vibrating bars arranged horizontally and secured to and supported by said springs, a churn body connected with and carried by the vibrating bars, and having a dasher rod, a folding standard located between the vibrating bars, a removable arm supported by the standard and extending outward horizontally beyond the same and detachably connected with the dasher rod, and a detachable treadle for vibrating the churn body, substantially as described.

3. In a kitchen-cabinet, the combination with the casing having a downwardly opening door provided at its outer end with supports, vibratory bars connected with the door and at their outer ends adapted to support a churn-body, a churn-body arranged removably on said outer ends, a dasher-staff arranged in the churn-body, and a fixed support connected with the casing and with the dasher-staff, and means for yieldingly supporting the bars, substantially as specified.

4. In a kitchen-cabinet, the combination with the casing having the downwardly opening door supported at its outer end, the opposite vibratory bars arranged thereover and adapted to fold within the casing, the bowed springs interposed between the rear ends of the bars and the door, the churn on the outer ends of the bars, the dasher-staff, and a fixed support for the latter, substantially as specified.

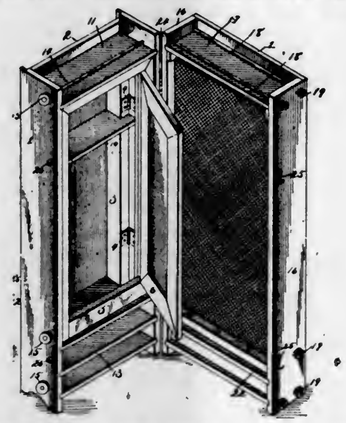
5. In a kitchen-cabinet, the combination with the casing having the downwardly opening door provided at its outer end with a support, the opposite pair of bars arranged over the door and having beveled ends, the intermediate bowed springs connecting the rear ends of the bars with the door, the beveled extension bars notched and hinged to said bars, of the churn-body provided with vertically opposite keepers, the opposite bails arranged in the keepers and terminating at their lower ends in hooks, the loose rods connected to the hooks, the treadle loosely connected to the rods, the dasher-staff arranged in the churn, and means for rigidly supporting said dasher-staff, substantially as specified.

6. In a kitchen-cabinet, the combination with the casing, the downwardly opening door arranged in front thereof, the vibratory bars yieldingly supported on the door and adapted at their front ends to support a churn, a churn-body supported by the free ends of the bars, a treadle below the body, connections between the treadle and the churn-body, the staff arranged in the body, and an arm removably seated in a socket formed in the casing and adjustably connected with the staff, substantially as specified.

7. In a kitchen-cabinet, the combination with a casing having a hinged door provided with legs, cleats upon the upper side of the door, the bowed springs arranged upon the cleats, the vibratory foldable bars secured to the springs and provided at their outer ends with notches, the intermediate connecting bar, the removable standard connected to the cleats and having a keeper at its upper end, of the removable arm 36 arranged in a socket in the casing and engaged by the keeper, a keeper on the arm provided with a binding-screw, a churn-body having bails at its opposite sides arranged on the vibratory bars, and a staff arranged in the churn-body and passing through the keeper of the arms, substantially as specified.

8. In a kitchen-cabinet, the combination with the casing, the platform in front of the same, the curved springs arranged on the platform, the vibratory-bars secured to the springs, the intermediate connecting-bar, the churn at the outer ends of the vibratory-bars and the dasher extending through the churn-body, of the arm removably extending from a socket in the casing, hooks arranged on the cross-bar and the under side of the arm, a coiled spring removably engaging the hooks, and adjusting devices between the outer ends of the arm and the dasher-staff, substantially as specified.

517,458. COMBINED COT AND WARDROBE. SAMUEL C. HOPKINS, U. S. Army. Filed Nov. 18, 1892. Serial No. 452,400. (No model.)



Claim.—1. The combination with a wardrobe, of a bed frame hinged to one of the side edges thereof and adapted to be swung to one side of the wardrobe or in front of and against the same, and a cot frame hinged at its lower end in the front of the bed frame and adapted to swing down therefrom and from and in line with the wardrobe, substantially as specified.

2. The combination with a wardrobe, of a bed frame hinged to one of the side edges thereof and adapted to be closed against the front thereof and provided with casters, hooks connected to the bed frame at its free edge and eyes for receiving the same connected to the wardrobe whereby the two are detachably and hingedly connected, and a cot frame hinged at its lower end in the front of the bed frame and adapted to swing down therefrom and from and in line with the wardrobe, substantially as specified.

3. The combination with a wardrobe, of a bed frame detachably hinged to one side thereof and adapted to close against the front of the same, of a cot frame detachably and pivotably connected to the front of the bed frame and adapted to swing down therefrom and from and in line with the wardrobe, substantially as specified.

4. The combination with a "knock-down" wardrobe, of a "knock-down" bed-frame hinged at one edge thereto, and adapted to close against the front thereof and a cot removably mounted within and removably hinged to the front of the bed-frame, and adapted to fold down in front of and in line therewith and the wardrobe, substantially as specified.

517,459. BIT FOR WELL-DRILLING APPARATUS. STEPHEN A. HORTON, Clarksville, Tex. Filed May 24, 1893. Serial No. 475,306. (No model.)

Claim.—1. The combination with a tubular drill-stock, provided at its lower end with notches and having interior vertical stop-ribs, of a bit comprising twin pivotally-connected jaws or members, adapted to fold automatically by gravity when released, and provided with exterior shoulders to engage the notches in the stock and upwardly extending arms to bear against the wall of the stock when separated, an operating-rod connected to the pivotal point of the jaws, and an expander, slidably fitted upon the operating-rod and provided with a conical lower end to pass between and separate the arms of the jaws and hold them in engagement with the said stop-ribs, substantially as specified.

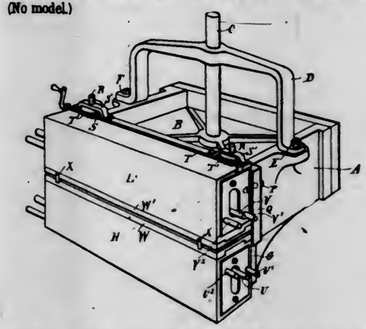


2. The combination with a drill stock provided in its lower end with lock-notches, of a drill bit having pivotally-connected jaws provided with shoulders to engage said lock-notches, and upwardly-extending prongs or extensions arranged within the stock, means to separate the prongs or extensions to bring the same in contact with the inner surface of the stock, and stop-ribs fixed to the inner surface of the stock and adapted to contact with said prongs or extensions, substantially as specified.

3. The combination with a drill stock, of a drill bit having pivotally-connected jaws or members provided with upwardly-extending prongs or extensions, adapted to be held parallel with each other in contact with the walls of the stock when the jaws are extended an expander to separate said prongs or extensions and provided with exterior guiding-ribs to bear against the inner surface of the well tubing, and ribs carried by the drill stock to engage the prongs or extensions, substantially as specified

---

517,460. APPARATUS FOR MANUFACTURING PLATE-GLASS. EDWARD P. KING, Toledo, Ohio. Filed Sept. 4, 1888. Serial No. 284,546. (No model.)



Claim.—1. In an apparatus for manufacturing plate glass, the combination, with a receptacle for containing the melted glass, of suitable dies arranged substantially as described, boxes or carriers connected with said dies, and a heating chamber arranged in each carrier, substantially as shown and described, whereby the portions of the dies adjacent to the receptacle are heated while the glass is being passed between the same.

2. In an improved apparatus for the manufacture of plate glass, the combination, with a receptacle for containing the melted glass and provided with an opening for the passage of the same, of suitable dies, arranged as described, for imparting a smooth and sheet-like form to the glass as it passes between them, and boxes or carriers connected with said dies, each box or carrier being provided with a cooling chamber near the outlet end of the dies, substantially as shown and described, whereby the glass is cooled as it is passed from the dies.

3. In an improved apparatus for manufacturing plate-glass, the combination, with suitable dies, arranged substantially as described, of boxes or carriers connected with the dies, a heating chamber located in each box or carrier near the inner or inlet ends of the dies, and a cooling chamber located in each box near the outer or outlet ends of the dies, whereby the glass as it enters the dies is kept warm and given a smooth and sheet-like form and slowly cooled or annealed as it passes from the dies, substantially as shown and described.

4. In an apparatus for manufacturing plate glass, the combination, with suitable dies, arranged as described, for imparting a smooth and sheet like form to the melted glass, of boxes or carriers connected with each of the dies, a heating chamber formed in each of the boxes and adapted to heat the inner ends of the die-plates, and cooling chambers formed in each of the boxes and located at the front and rear of the heating chamber, whereby the glass is first heated and then cooled; and the inner portions of the dies and boxes are prevented from becoming too hot, substantially as set forth.

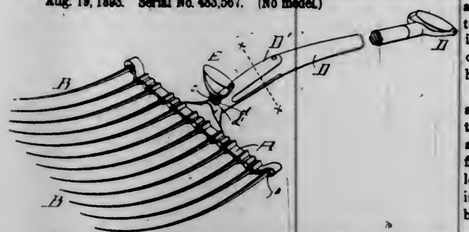
5. In an apparatus for manufacturing plate glass, the combination, with a fixed box, carrying a die, of a movable box, also carrying a die and having screw rods extending vertically from the upper side of the

same, wheel-nuts suitably supported and adapted to turn upon the screw rods, and a shaft for imparting motion to said wheels, whereby the movable die may be adjusted relative to the thickness of the glass as it is passed between the dies, substantially as shown and described.

6. In an apparatus for manufacturing plate glass, the combination, with a fixed box carrying a die and provided with heating and cooling chambers, of a vertically-adjustable box constructed similar to the fixed box, and carrying vertically-extending screw rods on its upper side, wheel nuts, suitably supported and turning upon the screw rods, a shaft for imparting motion to said wheel nuts, and guides for steadying the motion of the movable box substantially as shown and described.

7. In an apparatus for manufacturing plate glass, the combination, with a fixed box carrying a die plate, of adjustable transverse gage-strips, to limit the width of the glass, a vertically-adjustable box carrying a die plate, screw rods, wheel nuts, turning shaft, and guides to facilitate the adjustment of the movable box, all arranged and adapted to operate substantially as shown and described.

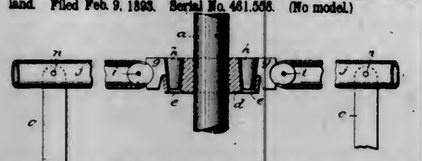
517,461. FORK. WILLIAM I. LAFFER, Cleveland, Ohio. Filed Aug. 19, 1893. Serial No. 483,567. (No model.)



Claim.—1. The combination of the head A, provided with tine apertures, the tapered tines B, and the retaining bands C, located in front of the head, and shrunk upon the tines, substantially as and for the purpose set forth.

2. The combination of the head A provided with tapered tine apertures *a*, the tapered tines B sector shape in cross section and the retaining bands C shrunk around the tines, substantially as and for the purpose specified.

517,462. SHIP'S BERTH. EDWARD LAWSON, Birmingham, England. Filed Feb. 9, 1893. Serial No. 461,506. (No model.)



Claim.—1. In a berth supported by pillars, the combination with the supporting pillars, of collars fixed thereon and having sockets, the horizontal bars of the berth frame, plugs carried on the ends of said bars and entering and fitting said sockets of said collars, and a pivotal connection i between said bars and plugs having a horizontal axis, whereby when said plugs are fitted home in said sockets said bars can be tilted vertically relatively to said plugs on said pivotal connections, substantially as set forth.

2. In a berth supported by pillars, the combination with the supporting pillars, of collars fixed thereon, having vertical conical sockets, said sockets having at their lower outer portions closed front walls, and having horizontal laterally cut away portions *f* in their walls adjacent to the corresponding berth bars, and said sockets extending downwardly in conical form back of said front walls, the horizontal bars of the head, foot and lee rails, vertical conical plugs carried on the ends of said bars, and necks *g* between said plugs and said bars and of less depth than and fixed to the upper part of said plugs, said plugs having conical lower ends extending downwardly below said necks, and entering and fitting said sockets, and passing behind the closed front walls thereof, and said necks of less width than and entering said cut away portions, whereby when said plugs are fitted home in said sockets a tight joint is obtained at the lower ends of the plugs and thereby all chatter between said plugs and said sockets is obviated, and when said necks are in said cut away portions said bars can be displaced horizontally while said plugs are in said sockets, substantially as set forth.

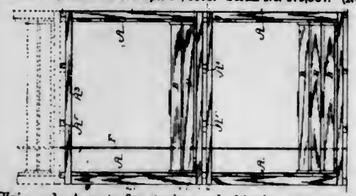
3. In a berth supported by pillars, the combination with the supporting pillars, collars fixed thereon, and the horizontal bars of the head, foot and lee rails, of vertical conical plugs pivoted on a horizontal axis to the ends of said bars, and vertical conical sockets in said collars, of like taper to, and receiving and fitting said conical plugs, whereby when said plugs are fitted home in said sockets a tight joint is obtained and thereby all chatter between said parts is obviated, and by reason of said pivotal connection between said plugs and bars the latter can be tilted vertically relatively to the former, substantially as set forth.

4. In a berth supported by pillars, the combination with the supporting pillars, and the horizontal head, foot and lee rails, of collars *d* fixed on said pillars, having vertical conical sockets *e*, each formed with a gap *f*, and vertical conical plugs *h* of like taper to and fitting said sockets *e*, and having rigid lateral pieces *g* entering the gaps *f* of said socket, and horizontal pivotal connections between said pieces *g* of said plugs and said rails, substantially as and for the purpose set forth.

5. In a berth supported by pillars, the combination with the supporting pillars, and the horizontal bars of the head, foot and lee rails, of blocks *r* fixed to the head and foot rail bars and having vertical conical sockets having cut away portions in the direction of the lee rail bars, and vertical conical plugs pivotally connected on a horizontal axis to the ends of said lee rail bars, having a like taper to, entering and fitting said sockets, and when therein entering the cut away portions thereof, whereby a tight joint between said plugs and sockets is obtained, and when said plugs are in said sockets said lee rail bars can be tilted vertically relatively to said plugs and can be displaced horizontally or relatively to said sockets, substantially as set forth.

6. In a head, foot or lee rail of a berth supported by pillars, upper and lower bars of flattened tubular section, the flat portion constituting the sides of said bars, slots in the under side of the upper bars and in the upper side of the lower bars, and vertical bars of solid flat section, connecting said upper and lower bars, the upper and lower ends of said vertical bars passing respectively through the slots in the upper and lower bars and being pivotally connected to said bars, substantially as hereinbefore described.

517,463. EGG-PRESERVING APPARATUS. ESTES H. LAYMAN, Des Moines, Iowa. Filed Apr. 17, 1893. Serial No. 470,587. (No model.)



Claim.—1. A crate for storing and shipping eggs, comprising a suitable rectangular frame or box, a number of sliding drawers therein adapted to contain eggs, longitudinal strips secured to the top and bottom of the frame or box to mate with like strips secured to contiguous boxes to prevent lateral movements of the frames or boxes relative to each other, and a rod adapted to be extended through the frame or box and said drawers, substantially as, and for the purposes, stated.

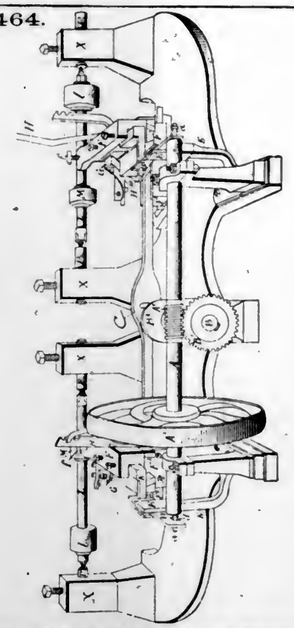
2. An improved apparatus for handling and turning eggs comprising a crate formed of the parts A, A^2, A^3 and A^4, the longitudinal strips A^5 secured to the top and bottom of the crate to prevent the lateral movement of two crates relative to each other when placed the one above the other, the egg drawer composed of the parts B, B^2, C and C^2, a link detachably secured to the part C and adapted to be attached to a like part of a contiguous egg drawer, as set forth, and a rod F adapted to be extended vertically through the crate and all of the egg drawers therein for the purposes stated.

517,464. MACHINE FOR HOLLOWING RAZOR-BLADES, &c. JULES LEBESCHE, Sens, France. Filed Aug. 14, 1893. Serial No. 483,136. (No model.) Patented in France Feb. 20, 1893, No. 228,072.

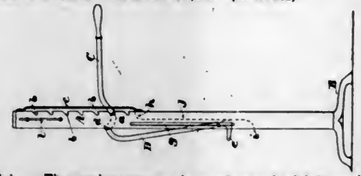
Claim.—1. In combination, the grinding disk, the carriage operating in a direction transversely of the shaft of the disk, the holder for the blade pivoted to the carriage and extending therefrom tangentially to the periphery of the grinding disk to reciprocate circumferentially thereof, the spring means for holding the pivoted holder in contact with the grinding disk and to allow it to yield as it moves tangentially thereof and the longitudinally sliding carriage having the transverse carriage thereon and the means for operating the latter, substantially as described.

2. In combination, the two grinding disks, the two longitudinally movable carriages, the two transversely moving carriages on the longitudinal carriages and the means for operating all of said carriages comprising the shaft A extending lengthwise of the machine and having crank connections at its ends with the transverse carriages, the double connecting rod C' extending parallel with the shaft A from end to end of the machine and connected with the longitudinally movable carriages and the means for rotating the shaft A and reciprocating the rod C, substantially as described

517,464.

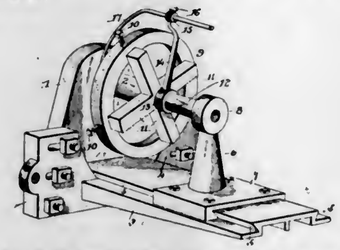


517,465. LIFTING-JACK. BENJAMIN F. LEWIS, Amesbury, Mass. Filed Nov. 6, 1893. Serial No. 490,116. (No model.)



Claim.—The combination in a jack, of a standard duly supported, and formed with slot E, groove *m*, slots *g* and seats *b*, the rod D provided with foot *e*, and pin *f* arranged to move up and down in slots *g*; lever C provided with pivot pin *a* arranged to enter said seats *b*, and guide rods *c* secured to standard A, to allow pin *a* to pass up and down when being adjusted; all substantially as specified.

517,466. CENTERING DEVICE FOR LATHES. RUDOLPH L. LEVIN, Menominee, Mich. Filed Jan. 16, 1894. Serial No. 497,070. (No model.)



Claim.—1. In a device of the class described, the combination with a base, and means for securing the same in its adjusted positions, of a clamp adapted to be secured to a wrist-pin and provided with a concentric spindle, means for centering the clamp with the wrist-pin, and a standard or gage fitted upon the base and provided with means to engage the spindle of the clamp, such means being arranged at a predetermined interval from the plane of the base, substantially as specified.

2. In a device of the class described, the combination of a clamp provided with gage screws and having a concentric spindle, a standard or gage having a sleeve to engage said spindle, and a rotatable scriber mounted concentric with the spindle, substantially as specified.

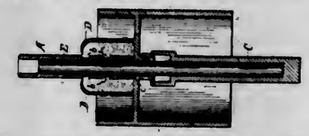
3. In a device of the class described, the combination of a clamp provided with gage screw, to engage a wrist-pin, and having a concentric spindle, an arm swiveled upon said spindle, and a scriber carried by the arm, substantially as specified.

4. In a device of the class described, the combination of a clamp provided with adjusting devices, an arm swiveled concentric with said clamp, and a scriber carried by said arm, substantially as specified.

5. In a device of the class described, the combination of a clamp provided with gage screws and having a concentric spindle, an arm swiveled upon said spindle and provided with a terminal guide, and an angular scriber having one arm fitted in said guide and the other arm provided with a terminal point, substantially as specified.

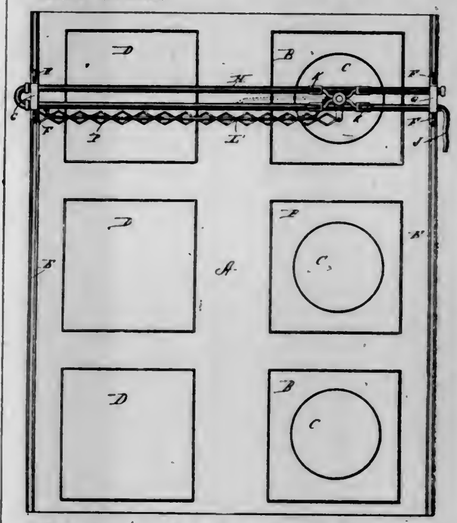
6. The herein described centering device for wrist-pins, the same comprising a clamp provided with adjusting devices to engage the surface of a wrist-pin and having a concentric spindle, a scriber-carrying arm fulcrumed upon said spindle, and a standard or gage adapted to be fitted upon the guide on the base of a turning machine and provided with a sleeve to fit the extremity of the spindle of said clamp, substantially as specified.

517,467. LUBRICATOR. JOSEPH LONGINUS, Pottsville, Pa., assignor of one-half to Martha P. Quinn, same place. Filed Dec. 4, 1893. Serial No. 492,680. (No model.)



Claim.—As an improved article of manufacture, a lubricator for mule or upright shafting, consisting of a cylindrical hollow cup, D D, with inverted top, provided with an opening at top and bottom to admit the shaft and bearing passing readily through it, in combination with the bearing A, perforated with angular vents *b b*, substantially as described and herein set forth.

517,468. PNEUMATIC CAN-HOIST FOR ICE-MACHINES. CHARLES A. MACDONALD, Chicago, Ill. Filed Aug. 22, 1892. Serial No. 443,790. (No model.)



Claim.—1. In a can hoist, the combination of compressed air reservoir pipes, supported so as to be moved sidewise and a can hoist proper supported on such pipes so as to travel therealong, and means

for connecting such can hoist with such pipes so that the pressure thereof may be used to operate the can hoist.

2. In a can hoist the combination of reservoir pipes with carriages at their ends, means for connecting them with an air compressor, whereby they may be stored with compressed air, a can hoist supported on such pipe and means for connecting the operating mechanism of such can hoist with such storage pipes.

3. In a can hoist the combination of storage pipes with a can hoist proper supported so as to be removable along such pipes, a cylinder, a piston in such can hoist, a connection from such piston through the can and a hoist connection from such cylinder to such storage pipes.

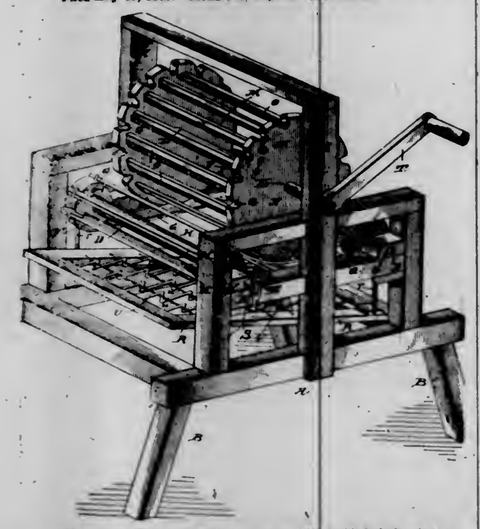
4. In a can hoist the combination of a cylinder, with a piston, a rack rod connected with such piston, a pinion to engage such rack rod and a pulley associated with such pinion and a rope on such pulley to be attached to the can.

5. In a can hoist the combination of a cylinder, with a piston, a rack rod connected with such piston, a pinion to engage such rack rod and a pulley associated with such pinion and a rope on such pulley to be attached to the can, said pulley having a spiral surface so that the speed of the vertical motion of the end of the rope varies with regard to the speed of rotation of the pulley.

6. In a can hoist the combination of a cylinder, with a piston, a rack rod connected with such piston, a pinion to engage such rack rod and a pulley associated with such pinion and a rope on such pulley to be attached to the can, and an idler to hold the rack rod against its pinion.

7. In a can hoist the combination of compressed air reservoir pipes with a can hoist proper, movable along such pipes, a hose pipe connecting the hose proper with the reservoir pipes, and a lazy tong support for such hose which is secured at one end to the pipes and at the other end to the hoist.

517,469. VINE-STRIPPER. MELVIN MAPLES, Hartwick, N. Y. Filed May 15, 1893. Serial No. 474,234. (No model.)



Claim.—1. In a vine stripper, an endless knife belt having a series of transverse knives arranged flat, and a notched knife drum mounted above the belt and arranged to have its notches positively engage the knives of said belt and having corresponding flat knives, the cutting edges of both sets of knives being disposed in the same direction of travel and traveling together in nearly the same plane substantially as set forth.

2. In a vine stripper, the combination with the frame, of an endless open knife belt mounted within said frame, a rotating knife drum mounted above the open knife belt, and adapted to turn in contact therewith, and a vibrating separating screen arranged under the open knife belt, substantially as set forth.

3. In a vine stripper, the frame, the endless knife belt mounted within said frame and having flat stripping knives provided with beveled cutting edges disposed in the direction of travel of the belt, and a knife drum arranged to move in contact with the knife belt, and having a series of flat knives alternating with those of the knife belt and having beveled cutting edges disposed in the direction of the drum's rotation, and traveling in the same direction as the knives of the belt substantially as set forth.

4. In a vine stripper, the combination with the frame, of an endless knife belt moving horizontally through the frame and having a transverse series of flat stripping knives beveled at one edge, a drum shaft journaled in the frame above the knife belt, an upper knife drum mounted on said drum shaft between the ends of the knife belt and bearing on top of said knife belt, said knife drum comprising spaced drum disks provided with peripheral notches adapted to loosely and positively embrace the ends of the transverse knives of the knife belt, and a series of intermediate stripping knives alternating with the belt knives and connecting the spaced disks in from the circumferences thereof and beveled at one edge, the beveled edges of both the drum and belt knives forming cutting edges disposed in the same direction of travel and traveling together in nearly the same plane, substantially as set forth.

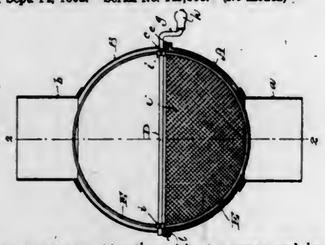
5. In a vine stripper, the combinaation of frame having bearings, the shafts mounted in said bearings and one of which is provided at one end with a crank arm, belt pulleys mounted on said shaft, an open knife belt arranged to move over said belt pulleys, a rotating knife drum arranged over and positively connected with said knife belt, a vibrating separating screen arranged under the open knife belt, at an angle and swinging links for said screen, one of said links being extended into a crank end loosely engaging said crank arm, and adapted to communicate motion to the screen from the knife belt substantially as set forth.

517,470. MOLD FOR FORMING HATS. JAMES MARSHALL, Fall River, Mass. Filed Aug. 18, 1893. Serial No. 483,458. (No model.)



Claim.—A mold for forming hats under pressure, comprising an outer shell, an inner shell or mold, and an intervening filling of fusible metal, substantially as described.

517,471. SAFETY-FLUE. CHARLES E. MARTIN, Baraboo, Wis. Filed Sept. 14, 1892. Serial No. 445,868. (No model.)



Claim.—1. The combination with the upper and lower semi-spherical flue-sections, provided with cylindrical terminations, of a semi-spherical screen fitting within one of said flue-sections and held in place between them, substantially as set forth.

2. The combination with the upper and lower semi-spherical flue-sections provided with cylindrical terminations, of a semi-spherical screen fitting within one of said flue-sections, a horizontal central revoluble shaft, and a series of semi-circular wires or rods, secured to said shaft, and adapted to lightly scrape the inner surface of said screen, substantially as set forth.

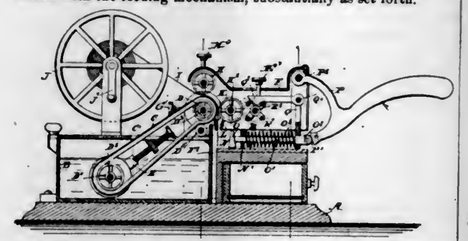
517,472. POSTAGE-STAMP-ATTACHING MACHINE. OSCAR J. MOE, New York, N. Y. Filed Apr. 5, 1893. Serial No. 469,182. (No model.)

Claim.—1. The herein described moistening belt formed of an endless piece of absorptive fabric provided with an external facing of wire gauze to prevent the adhesive material from adhering to it, substantially as set forth.

2. The combination with the water tank and the endless moistening belt formed of an absorptive fabric provided with an outer wire gauze facing, of a feed roller adjustable toward and from the upper end of the belt and between which and said upper end the stamps are passed, substantially as set forth.

3. The combination with the water tank and the endless moistening belt extending through the top of the tank, of a longitudinally reciprocating plunger below the upper end of the tank, feeding mechanism for causing the stamps to pass from the upper end of the belt downwardly past the plunger and operating connections between the plunger, the belt and the feeding mechanism, substantially as set forth.

4. The combination with the water tank and the casing spaced therefrom and forming an envelope slot or recess, of an endless moistening belt extending through the top of the tank to the upper end of said slot or recess, feeding mechanism in the casing operating in connection with the upper end of the belt, and a stamp affixing plunger in the casing below the upper end of the belt and operatively connected with the feeding mechanism, substantially as set forth.



5. The combination with the water tank and the casing spaced therefrom and forming an envelope slot or recess, of the endless moistening belt extending through the top of said tank to the upper end of the slot or recess, a roller above and geared to the upper belt shaft and adjustable toward and from the same, a second roller in front of and geared to the upper belt shaft, a ratchet wheel geared to said second roller and a longitudinally reciprocating stamp affixing plunger provided with a pawl engaging the ratchet wheel, substantially as set forth.

6. A stamp attaching mechanism comprising a water tank, a casing spaced therefrom and forming an envelope slot or recess an endless moistening belt extending through the top of the tank to the upper end of said slot or recess, feed rollers in the casing geared to the upper belt shaft, an open hopper or throat at the upper end of said slot or recess, a plunger reciprocating longitudinally across the lower end of the said hopper or throat to sever and affix the stamp, and provided with a pawl, a ratchet wheel operated by the pawl and geared to one of the feed rollers, and a lever for operating the plunger, substantially as set forth.

7. The combination with the stamp affixing machine having an envelope receiving slot or recess and the moistening and affixing devices at the upper end thereof, of bottom pieces to enter the bottom of the slot and adjust its height to the widths of different envelopes, substantially as set forth.

517,473. BLUE DYE. OSCAR NASTVOGEL and FRIEDRICH REINGRUBER, Elberfeld, Germany, assignors to the Farbenfabriken, vormals Fr. Bayer & Co., same place. Filed Nov. 11, 1893. Serial No. 490,675. (Specimens.) Patented in France Oct. 27, 1891, No. 217,020; in England Nov. 4, 1891, No. 19,062; in Italy Dec. 22, 1891, XXVI, 30,987, and LX, 477, and in Austria-Hungary Oct. 9, 1892, No. 2,742 and No. 2,689.

Claim.—1. The process of producing new diphenylnaphthylmethane dyes by condensing equal molecular proportions of tetraalkyldiamidobenzhydrol and ethyl alpha naphthylamin (or methyl alpha naphthylamin) converting the so formed leuco compound into the nitrosoamin, oxidizing the latter and subsequently splitting off the nitroso group by treating with reducing agents.

2. As a new article of manufacture, the diphenylnaphthylmethane dyes, having the general formula:

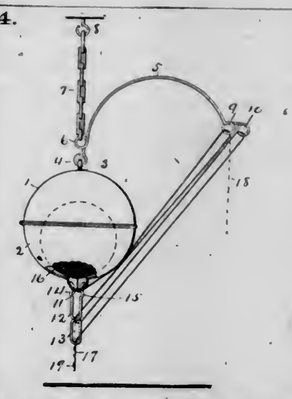
$$C_6H_4{=}N(R)_2Cl$$
$$C{-}C_6H_4{-}N(R)_2$$
$$C_{10}H_6{-}NH.R$$

(in which formula R signifies fatty alkyl radicles, such as methyl or ethyl), forming a greenish-brown crystalline powder, easily soluble in hot water with a reddish-blue color, soluble in concentrated sulfuric acid (66° Baumé) with a yellowish-brown color, which on the addition of water is changed at first into yellow, then into green, little crystals being finally separated, producing on wool or on cotton prepared with tannic acid or the like beautiful blue shades.

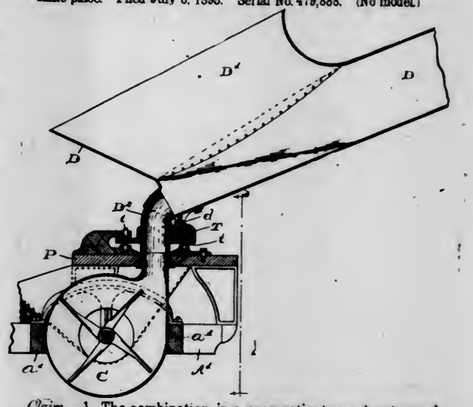
517,474. TWINE HOLDER AND TAKE-UP. EDWARD NELSON, Kansas City, Mo. Filed July 6, 1893. Serial No. 479,735. (No model.)

Claim.—In a twine-holder and take-up, the combination with the lever 5, of the twine-holder 1, 2, connected therewith, the supporting medium 7, and 8, connected with the lever 5, the loops 9, 10, 12, and 13, substantially as described.

517,474.



517,475. PNEUMATIC STRAW-STACKER. JOSEPH W. NETHERY, Indianapolis, Ind., assignor to the Indiana Manufacturing Company, same place. Filed July 8, 1893. Serial No. 479,888. (No model.)



Claim.—1. The combination, in a pneumatic straw elevator and stacker, of auxiliary sills A' extending out from the rear of an ordinary thrashing machine, a fan mounted thereon, a platform surrounding said fan, a turn-table on said platform, a trunk or chute mounted on said turn-table, and means for raising and lowering said trunk and swinging it from side to side.

2. The combination, in a pneumatic straw elevator and stacker, of a fan, a platform and frame-work surrounding it, a turn-table mounted on said platform, a trunk or chute mounted on said turn-table by means of a rocker-shaft d, an intermediate tube D^2 connecting the mouth of the fan and the lower end of the trunk or chute, and means whereby said trunk or chute may be raised and lowered and and swung from side to side, substantially as set forth.

3. The combination, with a thrashing machine, of a pneumatic straw elevator suitably mounted on an auxiliary frame-work, and extending out therefrom at an angle, and provided with a hopper D' formed integrally therewith upon the upper side of its lower end, said hopper being positioned adjacent to the discharging end of the thrashing machine to receive the straw therefrom, and a blast fan leading to the lower end of the trunk or chute below the hopper, the blast wherefrom is arranged to pass entirely across said hopper and into the trunk or chute, thereby driving the straw from said hopper into and through said trunk or chute, the several parts being arranged and operating substantially as shown and described.

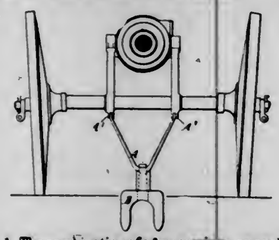
4. The combination, with the trunk or chute of a straw elevator and stacker, of a windlass for raising and lowering the same and swinging it from side to side, consisting of a windlass proper, or spool, a rope running therefrom to the trunk or chute, an arm or frame running out from the same axis as the windlass or spool, and in the same direction as said trunk or chute through the outer end of which the rope passes, and means for revolving said windlass or spool, consisting of a screw gear mounted on the axle of said windlass, and a worm wheel mounted on a shaft running transversely thereto substantially as set forth.

5. The combination, with the trunk or chute of a straw elevator and stacker, of a windlass for raising and lowering the same and

swinging it from side to side, consisting of a windlass or spool, a rope running therefrom to said trunk or chute, an arm or frame extending out from the axis on which said windlass or spool is mounted, through the outer end of which the rope passes, means for revolving said windlass or spool, and a pawl mounted on said arm and adapted to be engaged with or be disengaged from a wheel or rack on said windlass or spool, whereby the same may be caused to move together when engaged, and the windlass or spool permitted to revolve separately when disengaged, substantially as and for the purposes set forth.

6. The combination, in a straw elevator and stacker, of a fan located on an extension of the frame-work of the thrashing machine having a neck or nozzle which extends up vertically through the center of the turn-table, said turn-table, a windlass mounted upon the top of the thrashing machine whereby the elevator trunk is raised and lowered, the axis whereof is in line with the center of the turn-table and said fan neck or nozzle, and said elevator trunk, and said thrashing machine, said parts being arranged and operating substantially as set forth.

517,476. ANCHOR FOR FIELD-GUN CARRIAGES. ANDREW NOBLE and RALPH T. BRANSTON, Newcastle-on-Tyne, England, assignors to Sir W. G. Armstrong, Mitchell & Co., Limited, same place. Filed Aug. 19, 1893. Serial No. 483,553. (No model.)



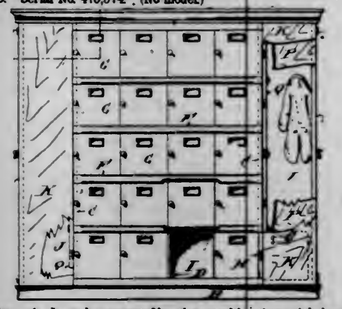
Claim.—1. The combination of a gun carriage, an anchor arranged centrally between the wheels, a vertically arranged lever connecting the carriage with the anchor and arranged on a vertical pivot, and devices connecting the lever and anchor with the gun carriage to maintain the lever in a vertical position.

2. The combination of a gun carriage, an anchor arranged centrally between the wheels of the carriage, a lever connecting the anchor with the gun carriage, hinged connections between the upper ends of the lever and the carriage to permit it to swing longitudinally of the carriage, a vertical pivot connecting the lever with the anchor, and devices connecting the anchor with the gun carriage to prevent the lever from moving from a vertical position when the gun recoils.

3. The combination of a gun carriage, a lever mounted on a vertical pivot beneath the carriage, a central anchor at the end of the pivot, and means for preventing the lever from turning from an approximately vertical position.

4. The combination of a gun carriage, a lever A, an anchor B, a vertical pivot connecting the anchor with the lever, and devices connecting the lever and anchor with the gun carriage to maintain the lever in a vertical position.

517,477. CASE OR CABINET. JOHN F. OHMER, Dayton, Ohio, assignor to the M. Ohmer's Sons Company, same place. Filed May 26, 1893. Serial No. 475,574. (No model.)



Claim.—1. In a document file, the combination with horizontal series of pigeon holes, a like series of horizontal slides therefor, and a compartment at the end of the case, a partition in said compartment just back of the front wall of the case so as to divide said compartment into a narrow space for the reception of the slides and into a larger space for other uses.

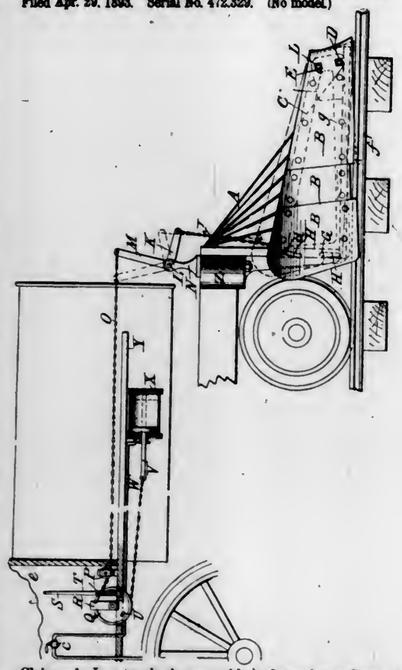
2. In a document case, the combination with horizontal series of pigeon holes, horizontal slides therefor, and a compartment at the end of the case divided into a space for projected slides and a space for other uses, a door for said compartment and a locking device located within the compartment and adapted to lock all the slides at one side of the center.

3. In a document case having horizontal series of pigeon holes, horizontal slides therefor, a compartment at one side divided into a space to receive the projected slides and another space for other purposes, and having a door to admit of access to it, and a locking bar having projections adapted to extend into the first named space and across the ends of the adjacent slides.

4. In a document case having horizontal series of pigeon holes, a horizontal series of slides therefor, a lock for the slides located at the end of the case and consisting of a slotted sliding bar having a projection or pin for each slide adjacent to it.

5. A document case having horizontal series of pigeon holes, and horizontal slides therefor, a locking bar having beveled projections or pins, the sliding of the bar being adapted to move the pins or projections more or less across the adjacent slide.

517,478. TRACK-CLEARER. JOHN OLSON, Two Harbors, Minn. Filed Apr. 29, 1893. Serial No. 472,329. (No model.)



Claim.—1. In a track clearer, a blade formed of a frame, a plurality of plates bolted thereto and a strengthening plate interposed between the lower ends of the plates and the frame, substantially as and for the purposes set forth.

2. A track clearer comprising two blades each formed of a frame and plates secured thereto, and pivoted at its forward end, slots in the rearward part of the frame and connecting bolts passed through said slots and means for raising and lowering the rearward end of the blades.

3. A track clearer adapted to be secured to the pilot of a locomotive engine, comprising two blades or knives each, formed of a frame pivoted at its forward end to a bracket in the pilot, a plurality of plates bolted to said frame, slots in the rear of the frame, bolts passed through said slots and connected to the frame of the pilot, an air or steam cylinder and, intermediate means between said cylinder and the rearward end of the blades for raising and lowering the latter.

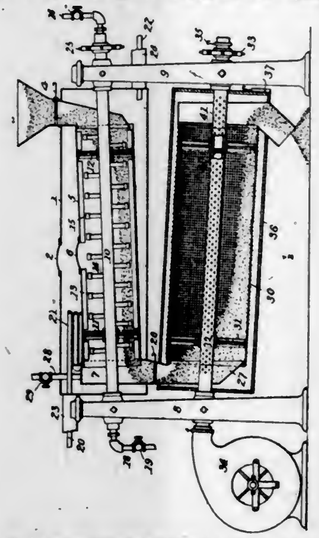
4. In a track clearer adapted to be secured to the pilot of a locomotive engine, and in combination with two blades pivoted at their forward ends, means for raising and lowering said blades consisting

of an air or steam cylinder, a piston, a pulley, a bell-crank lever, a chain connected to the piston rod and passed around the pulley and connected to one arm of the lever, and a chain connecting the other arm of the lever and the rearward end of the blade.

5. In a track clearer adapted to be secured to the pilot of a locomotive and in combination therewith means for raising and lowering the knives consisting of an air or steam cylinder, a piston, a pulley having two or more apertures having chamfered sides, a spring actuated lever having a pin for engaging the aperture, an idler, a bell-crank lever, and intermediate chain connections, substantially as described.

6. A rail-scraper, comprising a vertically and laterally self adjusting knife, loosely mounted in brackets and having a head for limiting its downward movement and with its lower end adapted to extend across the head, and on the inside of the rail, and springs engaging the knife at the top and side to maintain it in a normal position as set forth.

517,479. PREPARING CEREALS. WILLIAM ONDERDONK, New York, N. Y. Filed Mar. 31, 1893. Serial No. 468,453. (No model.)

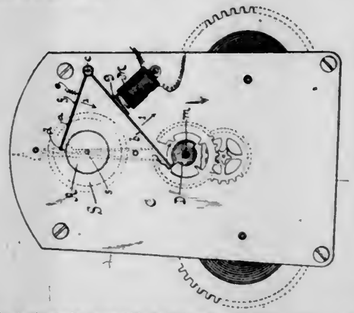


Claim.—1. In an apparatus for treating cereals as hereinbefore described, the combination of the upper stationary case having an inlet for hot air or steam, the chamber rotating within said case, a valve controlled hopper or chute passing through said case and leading to said rotating chamber, the hollow shaft connecting with a steam supply and revolving with the chamber, the lower stationary case, the hollow perforated shaft connecting with a cold air supply, the gauze cylinder rotating with said perforated shaft, and a valve controlled chute connecting the upper rotating chamber with said gauze cylinder, as set forth.

2. In an apparatus for treating cereals as hereinbefore described, the combination of the stationary upper inclined case having an inlet for hot air or steam, the chamber rotating within said case, a valve controlled hopper or chute passing through said case and leading to said rotating chamber, the hollow revolving shaft connecting with a steam supply and provided with hollow projections, the lower stationary case inclining in an opposite direction to the upper, the hollow perforated shaft connecting with a cold air supply and provided with the stop 40, the gauze cylinder rotating with said perforated shaft, and a valve controlled chute connecting the upper rotating cylinder with said gauze cylinder, as set forth.

517,480. ELECTRIC SYNCHRONIZER FOR CLOCKS. HENRY S. PRENTISS, Elizabeth, N. J., assignor to the Prentiss Clock Improvement Company, New York, N. Y., and Jersey City, N. J. Filed Nov. 3, 1892. Serial No. 450,894. (No model.)

Claim.—1. In a clock system, a master clock provided with a circuit closer adapted to close the circuit at a predetermined period before the hour and to break it at the hour, and a secondary clock (or clocks) provided with a detent adapted to arrest the motion of the train, an electro-magnet in connection with the circuit closer of the master clock and arranged to act on said detent, and a device actuated by the train of the secondary clock, and placed in connection with the detent to permit motion of the latter under the influence of the electro-magnet at the hour as indicated by the secondary clock and for a predetermined period thereafter, substantially as and for the purpose set forth.



2. A time piece provided with a detent composed of a member actuated by the train of the movement, and a second member consisting of a lever actuated by an electro-magnet, the two cooperating to arrest the motion of the train, and a cam, or its equivalent, mounted on one of the arbors of the train and engaging the lever to permit of its being actuated to engage with the first member only at the hour as indicated by said time piece, and for a predetermined period thereafter, substantially as described.

3. A time piece provided with a disk mounted on the arbor of the scape wheel, a detent lever arranged to engage with the same for arresting the motion of the train, an electro-magnet arranged to act on said lever to draw it into contact with the disk, and a cam mounted on the arbor of the minute hand and engaging with the lever; said cam having a recessed portion permitting the lever to turn about its pivot under the influence of the electromagnet at the hour as indicated by the time-piece and for a predetermined period thereafter, substantially as and for the purpose set forth.

517,481. DEVICE FOR PRODUCING RESPIRATION. JEREMIAH M. PRESSEY, Cleveland, Ohio. Filed Nov. 13, 1893. Serial No. 490,850. (No model.)



Claim.—A means for producing artificial respiration, consisting of a pad, having an adhesive surface to be applied to the abdomen, and a convenient handle, whereby expansive and contractive movements may be produced for drawing air into and expelling it from the lungs, substantially as described.

517,482. BEDSTEAD. GEORGE E. PROCTOR, Washington, D. C. Filed June 19, 1893. Serial No. 478,126. (No model.)

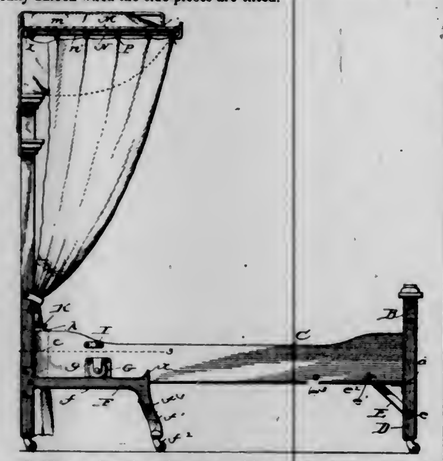
Claim.—1. The combination with the flat upright head-board, of the skeleton frames F, detachably secured to the head-board, and formed with supporting rails *f* and legs *f'*, the foot-board, the side-pieces secured thereto, and rollers on the side-pieces resting on the rails.

2. The combination of the head-board, the supporting frames F, detachably secured thereto, the foot-board, the side-pieces secured thereto, rollers carried by the side pieces and resting on the frames, the stops I, above the rollers on the side-pieces, and which abut against, and rest on the rails when the bed is elevated.

3. The combination, substantially as hereinbefore set forth, of the head-board, the foot-board and the side-pieces, the supplemental frames secured to the head-board, rollers secured to the side-pieces and resting on the frames, the legs J secured to the side-pieces and the hooked arms *j'* for limiting the movement of the legs.

4. The combination of the head-board, the foot-board, side-pieces secured to the foot-board, supplemental supporting frames secured to the head-board, and on which the side-pieces are supported, and catches K, for locking the side-pieces to the head-board and constructed and arranged to hold the side-pieces against longitudinal movement when they are in a horizontal position.

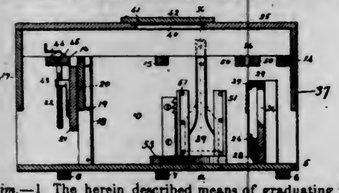
5. The combination of the head-board, the supporting frames F, detachably secured thereto, the foot-board, side-pieces secured to the foot-board, and provided with rollers resting on the frames F, and the automatic catches K, constructed and arranged to lock the side-pieces against longitudinal movement in a horizontal plane and to automatically unlock when the side-pieces are tilted.



6. The combination with the head-board of a folding bed, of a curtain frame made in two parts each of which comprises an upwardly inclined portion, a forwardly projecting horizontal portion, and a transversely arranged front portion which enters an adjustable connecting sleeve, and clamping devices for adjustably securing the frame to the head-board.

7. The combination with the head-board of a folding bed, of a curtain frame made in two parts, each comprising an upwardly inclined rear portion, a forwardly projecting horizontal portion, and a transversely arranged horizontal portion entering an adjustable sleeve, in combination with a similar frame for supporting a cover or canopy, a supporting frame for sustaining the frames at their central front portion, and clamping devices for adjustably securing the frames to the head-board.

517,483. WATER-GAGE. JOHN C. RUMMEL, Sheridan, Wyo. Filed June 25, 1890. Renewed Jan. 22, 1894. Serial No. 497,717. (No model.)



Claim.—1 The herein described means of graduating the passage of water through a water gate for the purpose of determining the quantity of water passing in a given time consisting of a horizontal and a vertical scale attached to the outflow weir approximately indicating in figures and marks of sub-division the continuous flow of water in cubic inches per second of time through a rectangular opening having dimensions indicated upon the scale, in combination with the herein described sliding valve located in the out-flow weir for the purpose of regulating the dimensions of the opening in the weir, substantially as described.

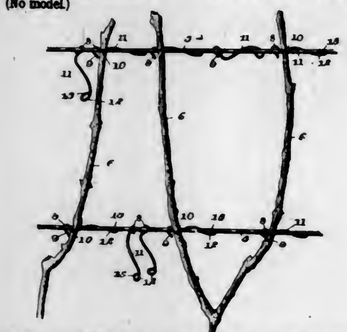
2. The herein described means of graduating the passage of water through a water-gate for the purpose of determining the quantity of water passing in a given time consisting of a horizontal and a vertical scale attached to the outflow weir approximately indicating in marks of sub-division the flow of water through an opening having dimensions indicated upon the scale, in combination with the herein described sliding valve located in the out-flow weir for the purpose of regulating the dimensions of the opening in the weir, substantially as described.

3. In an inclosed box for irrigating flumes the combination of the vertically movable inflow gate operated by screws 22 substantially as described, the flushing gate, the longitudinally sliding valve 25 and a scale to indicate the capacity of the opening 24 as it is varied by the valve 25, substantially as set forth.

4. In an inclosed box for irrigating flumes the combination of the vertically movable inflow gate operated by screws 22 substantially as set forth, the flushing gate, the longitudinally sliding valve 25, the sight hole 40 and a scale to indicate the capacity of the opening 24 as it is varied by the valve 25, substantially as described.

5. In an inclosed box for irrigating flumes the combination of the vertically movable inflow gate operated by screws 22 substantially as described, the flushing gate, the longitudinal sliding valve 25, the lever and adjusting pins and a scale to indicate the capacity of the opening 24 as it is varied by the gate 25, substantially as set forth.

517,484. GRAPE-VINE FASTENER. GARRETT E. RYCKMAN and MAJOR TUCKER, Brocton, N. Y. Filed Apr. 24, 1893. Serial No. 471,656. (No model.)



Claim.—1. A fastener or clamp for grape-vines, &c., having a terminal retaining hook the mouth of which is smaller than the diameter of the trellis wire, with which it is engaged, whereby the fastener is not detached from the trellis wire by the disengagement of the vine, a bend to embrace the vine, and temporary securing devices for the free end of the fastener, substantially as specified.

2. A fastener or clamp for grape-vines, &c., having a terminal retaining hook, a contiguous bend, and a spirally-twisted arm provided at its free end with a loop, the free terminal of which is deflected or bent out of the plane of such loop, substantially as specified.

3. A fastener or clamp for grape-vines, &c., having a bend 10, a retaining hook connected to and integral with one arm of such bend and arranged in a plane at an angle to that of the bend, and a spirally-twisted arm 11 connected to and integral with the other arm of said bend and provided at its extremity with a terminal or stop which is arranged out of the plane of the end of the arm, substantially as specified.

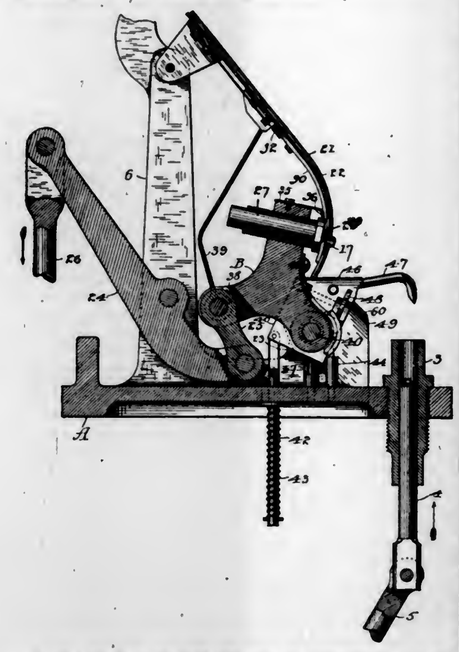
517,485. BUTTON-ATTACHING MACHINE. FREDERICK A. RYNO, St. Paul, Minn., assignor of one-half to Alvah H. Warren, same place. Filed Mar. 3, 1893. Serial No. 464,490. (No model.)

Claim.—1. In a button attaching machine, the combination of the plunger, the conduit leading thereto, the hammer working toward and from said plunger, the conduit leading to the face of the hammer when raised, means for receiving a button from said conduit and holding it upon the face of the hammer, the spring restrained perforator working in line with said plunger, and means carried by said hammer for actuating it in advance of the hammer, substantially as described.

2. In a button attaching machine, the combination of the plunger, the rocking hammer, automatic means for conveying rivets and buttons singly to said plunger and hammer respectively, the rocking perforator mounted upon the same pivot as the hammer, its retracting spring, means carried by said hammer adapted to engage said perforator and to rock the same in advance of the hammer, the guide for directing said perforator toward said plunger, and means for releasing said perforator at a pre-determined point in its movement, substantially as described.

3. In a device of the class described, the combination with the plunger and the rocking hammer, of the hub mounted upon the same pivot as the hammer, its retracting spring, the block carried by said hub and hinged to swing laterally thereon, the perforator carried by said block, the guide for directing the perforator toward the plunger, and means for actuating said hub to carry said perforator through said garment and withdraw it therefrom in advance of the hammer, substantially as described.

4. In a device of the class described, the combination with the pivoted hammer and the hub arranged at one side thereof and having a common pivot therewith, its retracting spring, the block carried by said hub and having a hinged connection therewith, permitting it to turn toward the path of the hammer, the spring tending to hold said block away from the path of the hammer, the inclined guide adapted to be engaged by said block when carried forward by said hub and turned by it against the tension of its spring, the perforator carried by said block, the spring controlled finger carried by said hammer adapted to engage said hub to rock it with said hammer, and automatic means for disengaging said finger from said hub at a predetermined point, substantially as described.



5. In a device of the class described, the combination with the rocking hammer, of the rocking hub mounted on its pivot, the perforator carried by said hub and having a laterally swinging hinge connection therewith, the guide adapted to be engaged by said perforator, and to turn the same into the path of the hammer, and automatic means for actuating said perforator in advance of said hammer, substantially as described.

6. In a device of the class described, a perforating mechanism comprising in combination the hub, its retracting spring, the perforator carried thereby, and having a laterally swinging connection therewith, the spring holding said perforator out of line with the riveting mechanism, the guide adapted to be engaged by said perforator and to turn it into line with the riveting mechanism, and means for automatically actuating said perforating mechanism in advance of the riveting mechanism, substantially as described.

7. In a button attaching machine, the combination with the rocking hammer, of the hub mounted on the same pivot, its retracting spring, the perforator hinged to said hub, and adapted to swing toward and from said hammer, the spring holding it normally away from said hammer, the inclined guide adjacent to said perforator, the anti friction roll carried by said perforator adapted to engage said guide when carried forward by the rocking of the hub, so as to swing the perforator into the path of the hammer, the spring controlled finger carried by said hammer and engaging said hub, and the stop for tripping said finger so as to release said hub and allow it to withdraw said perforator under the impulse of its spring in advance of the descent of the hammer, substantially as described.

8. In a device of the class described, the combination with the rocking magnetic hammer, of the conduit terminating in front of the hammer when raised, the spring controlled button stops, projections carried by said hammer and adapted to engage said stops, so as to release the button and allow it to be drawn against the face of the hammer, substantially as described.

517,486. FERTILIZER. SILVESTER B. SCHENCK, Newark, N. J. Filed June 7, 1893. Serial No. 476,890. (No specimens.)

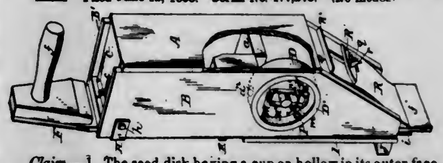
Claim.—1. The fertilizer compound herein set forth, produced by the combination of skins or their products, or other like nitrogenous materials, treated with sulphuric acid, with excrement, (night soil) and ground tobacco, substantially as set forth.

2. The fertilizer compound herein set forth, produced by the combination of skins or their products, or other like nitrogenous materials, treated with sulphuric acid, with excrement, (night soil,) ground tobacco, and bone-black, substantially as set forth.

3. The herein described process of producing a fertilizer, which consists in:—first, boiling skins or their products, or other nitrogenous materials, in sulphuric acid, to produce a jelly-like mass, secondly, adding excrement (night soil), and ground tobacco. and mixing the same, substantially as set forth.

4. The herein described process of producing a fertilizer, which consists in:—first, boiling skins or their products, or other like nitrogenous materials in sulphuric acid, to produce a jelly-like mass; secondly, adding excrement, (night soil,) bone-black, and ground tobacco, and mixing the same, substantially as set forth.

517,487. HAND CORN-PLANTER. PAUL SCHENDEKLOS, Duelm, Minn. Filed June 12, 1893. Serial No. 477,273. (No model.)



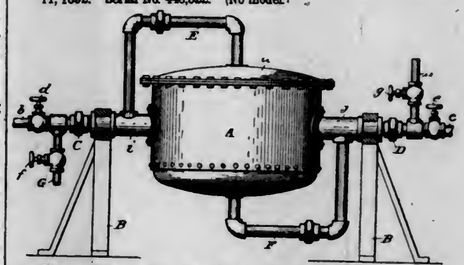
Claim.—1. The seed-disk having a cup or hollow in its outer face, the seed pocket in the ring around such hollow, and the bottom for the seed pocket extending into such cup, in combination with the double ratchet frame upon which the pocket bottom is mounted, and the spring pawl for engagement with the double ratchet frame and securing the ratchet frame in its different adjustments, as set forth.

2. In combination, the hollow disk having the seed pocket, the adjustable bottom for the pocket, the rectangular ratchet frame carrying said bottom, the plate secured to the face of the disk having guiding lugs for the ratchet frame, and the spring pawl secured to the plate and engaging the teeth on the two arms of the ratchet frame as set forth.

3. In combination with the inclined bottom and the front of the machine, the slotted dust guard having an outwardly bent upper end, the screw projecting from the inclined bottom, the elongated washer across the dust guard and the thumb nut, substantially as described.

4. In combination, the front of the machine, the sides projecting slightly beyond the front, the plunger located between said sides, the metal strap S secured to the face of the plunger and having outwardly turned end, the metal strap embracing the plunger and having its ends turned against the sides, and the bolt *h* passing through these ends, the sides, and the back of the hopper, as set forth.

517,488. FILTER. CARL H. SCHULTZ, Jr., New York, N. Y.; Carl H. Schultz administrator of Carl H. Schultz, Jr., deceased. Filed Oct. 11, 1892. Serial No. 448,522. (No model.)



Claim.—The combination of a revoluble filter-body A with the revoluble inlet-pipe E, stationary supply-pipe *b* communicating therewith, and blow-off pipe G also communicating therewith, and with the revoluble outlet-pipe F communicating with the filter-body A, and with the discharge-pipe c and steam inlet-pipe H, all arranged for alternately filtering, and cleansing and sterilizing, while the filter-body is in a stationary position, the filter-body having its ends closed, except where it admits the inlet and outlet-pipes E F, as and for the purpose described.

517,489. MOLDING APPARATUS. JACOB SHAABER, Reading, Pa. Filed Sept. 8, 1893. Serial No. 485,062. (No model.)

Claim.—1. An apparatus for forming the core of hollow castings

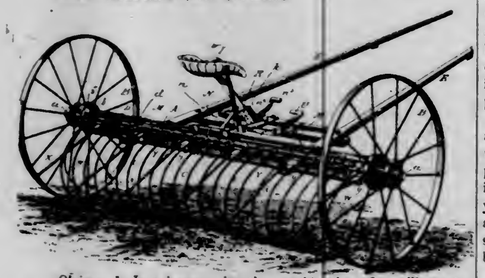
substantially such as described consisting of a core box made up of separably connected side top and bottom sections and a separately removable transversely grooved strip B^3, and chill pieces E fitted to said grooves and having shanks engaged by a longitudinal core strengthening bar G, substantially as set forth.



2. The core box B made up of side sections B B and bottom piece B' separably connected, and strip B^3 provided with transverse grooves b' inclined toward the horizontal, said strip being separably removable from the core by lifting the same in the direction of said inclined grooves, as described.

3. The core box B made up of side sections B B and bottom piece B' separably connected, and strip B^3 provided with inclined transverse grooves b', said strip being separably removable, in combination with metal pieces E adapted to fit said grooves and provided with shanks to engage the core material, substantially as set forth.

517,490. HORSE-RAKE. CHARLES S. SHARP, Auburn, N. Y., assignor to the D. M. Osborne & Company, same place. Filed Jan. 25, 1892. Serial No. 419,208. (No model.)



Claim.—1. In a horse rake, the combination of a rolling rake head consisting of the metallic L-shaped bar A and rake teeth loosely connected to the horizontal portion of said bar by clips D, metallic end pieces secured to the ends of said bar, having forwardly projecting lugs 20, with transverse holes through them, wheel journals *a* embraced at points midway between their ends by said lugs, supporting wheels thereon having internally toothed hubs, rock shafts M, M', arranged in alignment and turning on an axis in parallelism with the axis of the rake head, having their outer ends projecting into the internally toothed hubs, and bent at right angles to form pawls adapted to cooperate therewith, bearings for said rock-shafts secured to the vertical portions of said bar A, an intermediate connection between the inner ends of said rock shafts, to which they are flexibly connected, a foot lever connected with and adapted to operate said rock shafts, and tripping mechanism for the rolling rake head constructed and arranged to operate when the rake teeth have been raised a predetermined distance, substantially as described.

2. In a horse rake, the rolling rake head consisting of a metallic L-shaped bar A, and rake teeth pivotally connected to the horizontal portion thereof by clips D, metallic end pieces secured to each end of said bar having forwardly projecting lugs 20, wheel journals *a* embraced at points midway between their ends by said lugs 20, rock shafts M, M', arranged in alignment and turning on an axis in parallelism with the axis of the rake head, and bearings for said rock shafts secured to the vertical portions of the bar A, an intermediate connection between the inner ends of said rock shafts to which they are flexibly connected, a foot lever connected therewith, right angular pawls formed integral with the outer ends of said rock shafts and contained within and adapted to cooperate with internally toothed hubs upon the supporting wheels mounted on the journals *a*, a draft frame, a metallic L-shaped stripper bar Y supported thereby, strippers secured to the horizontal portions thereof by clips *y*, and tripping mechanism for the rolling rake head comprising an extension borne by the rake head, and a fixed stop on the stripper bar, for tripping said rake head when the rake teeth have been raised a predetermined distance, substantially as described.

3. In a horse rake, the rolling axle provided with wheel journals, wheels mounted on said journals and having hubs with internal teeth, the two rock shafts journaled in the bearings on the axle in line with each other and having at their outer ends dogs or pawls adapted to engage the teeth of the wheel hubs, means for rocking said shafts to throw the dogs into engagement with the said teeth, and a yielding spring connection for the inner end of said shafts which permit a slight independent movement of the shafts relatively to each other.

4. In a horse rake, the combination of the axle and its supporting wheels, two rock shafts mounted in bearings on the axle and carrying dogs or pawls at their outer ends adapted to engage the respective wheels, and a spring connected between said shafts to permit one of said dogs or pawls to yield when the wheels turn in opposite directions.

5. In a horse rake and in combination with the rock shafts M, M', carrying dogs to engage the wheels, the intermediate member N having sockets to receive the shafts and springs seated therein as shown and connected at one end with the shafts, and at the other end with the member N and means for turning the member N.

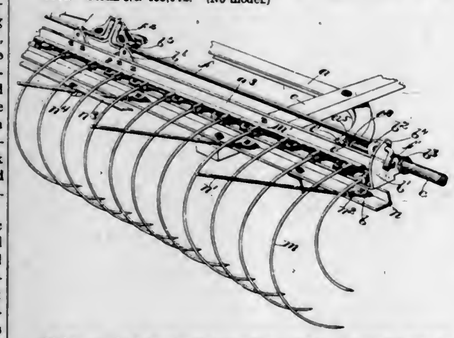
6. In a horse rake and in combination with the rock shafts carrying dogs to engage the wheels, the intermediate socketed member N the springs connecting the same with the rock shafts, and stops *n* to limit the independent motion of the shafts.

7. In a horse rake, the rolling axle, its rake teeth and the supporting wheels in combination with the draft frame provided with a driver's seat, the arms F fixed to the draft frame and provided with a plurality of pivot holes, and the bearing plates H fixed to the axle and provided with a corresponding number of pivot holes, and pivots movable as described, whereby the leverage of the driver's weight upon the axle may be increased or diminished without changing the relation between the axle and the draft frame.

8. In a horse rake, the combination of the rolling axle carrying the rake teeth, a supporting wheel, a rock shaft mounted in bearings on the axle and carrying a dog or pawl adapted to engage said wheel, the arm *n'* for turning said shaft having laterally projecting pin n^4, and the spring P, secured at one end to the axle the opposite end being formed to cooperate with the pin n^4, and hold the parts in operative position, the foot lever connected with said arm, and a limiting stop for limiting the movement of said arm, and disengaging the pin n^4, from the angular formation of the spring P.

9. In a horse rake, wheel supporting axles and wheels thereon, a rolling tooth carrying rake head, a ratchet toothed hub turning in unison with one of said supporting wheels, a rock-shaft bearing a pawl at its outer end, to engage the ratchet teeth, and a spring acting upon said pawl carrying shaft, to resist its backward rotation, yet permit it to yield as the pawl slips over the teeth of the ratchet, a block connected with said rock shaft, against which one end of said spring bears, an operating lever and intermediate connections between said operating lever and block, substantially as described.

517,491. HORSE-RAKE. CHARLES S. SHARP, Auburn, N. Y., assignor to the D. M. Osborne & Company, same place. Filed Aug. 24, 1893. Serial No. 483,912. (No model.)



Claim.—1. In a horse rake, a rolling rake head, wheel journals, and wheels, and an internally toothed hub d', combined with a reversible rock shaft *f* turning on an axis in parallelism with the axis of the rake head, having like right angular ends f', f^3, a sectional box or casing *g* recessed to receive either right angular end while the other acts as a pawl to engage the teeth of the hub d', and a foot lever connected with and adapted to move said box or casing, substantially as described.

2. In a horse rake, a rolling rake head, wheel journals, and wheels, and an internally toothed hub d', combined with a rock shaft *f* turning on an axis in parallelism with the axis of the rake head, having right angular ends f', f^3, the box or casing *g* confining one of said ends while the other acts as a pawl to engage the teeth of the hub d', a tapering recess in said box or casing *g*, permitting limited movement of the right angular end confined therein, and a foot lever connected with and adapted to move said box or casing, substantially as described.

3. In a horse rake, a rolling rake head, wheel journals, and wheels, and an internally toothed hub d', combined with a rock shaft *f* turning on an axis in parallelism with the axis of the rake head, having right angular ends f', f^3, the box or casing *g* confining one of said ends while the other acts as a pawl to engage the teeth of the hub d', a tapering recess in said box or casing *g* permitting limited movement of the right angular end confined therein, and a spring connected with said rock shaft, bearing upon said confined right angular end, and a foot lever connected with and adapted to move said box or casing, substantially as described.

4. In a horse rake, a rolling rake head, wheel journals, and wheels, and an internally toothed hub d', combined with a rock shaft *f*, turning on an axis in parallelism with the axis of the rake head having a pawl at the end which co-operates with the toothed hub d', the box or casing *g*, connected with the opposite end of said rock shaft, an exteosion *g'* thereon, and a fixed stop against which it strikes to limit the rotation of the rake head, and disengage the pawl from the hub d', and a foot lever connected with and adapted to move said box or casing, substantially as described.

5. In a horse rake, a rolling rake head, wheel journals, and wheels, and an internally toothed hub d', combined with a rock shaft *f* turning on an axis in parallelism with the axis of the rake head having a pawl at the end which co-operates with the toothed hub d', the box or casing *g*, connected with the opposite end of said rock shaft, an extension *g'* thereon, and a fixed stop against which it strikes to limit the rotation of the rake head, and disengages the pawl from the hub d', and the restoring spring h^3, and foot lever connected with and adapted to move said box or casing, substantially as described.

6. In a horse rake, a rolling rake head bearing at each end wheel journals, wheels thereon, having internally toothed hubs d', combined with two rock shafts *f*, *f*, arranged in alignment and turning on an axis in parallelism with the rake head, and having at each end right angular ends f', f^3, a box or casing *g* confining the adjacent right angular ends while the opposite ends act as pawls to engage the internally toothed hubs, springs acting upon said confined right angular ends, a foot lever for moving said box or casing to throw the pawls into engagement with the toothed hubs, and means for limiting the rotation of the rake head and disengaging the pawls, substantially as described.

7. In a horse rake, and in combination with a rolling rake head, wheels and journals therefor, and a toothed hub, of a rock shaft turning on an axis in parallelism with the axis of the rake head, having like right angular portions at each end, whereby its position may be reversed, and either end serve as a pawl to engage the teeth of said hub.

8. In a horse rake, and in combination with a rolling rake head, wheels and journals therefor, and a toothed hub, of a rock shaft turning on an axis in parallelism with the axis of the rake head, bent at each end at right angles with relation to the shaft and in opposite directions to form like right angular portions at each end of the shaft, either of which may be used as a pawl to engage the teeth of said hub.

9. In a horse rake, the combination of the rolling rake head, wheels, and journals therefor, and a toothed hub, a rock shaft turning on an axis in parallelism with the rake head, having at its outer end a pawl adapted to engage said toothed hub, and having at its inner end a right angular portion, a sectional box or casing chambered to confine and permit a limited movement therein of said right angular end portion, and means for moving said box or casing to thereby rock the shaft, substantially as described.

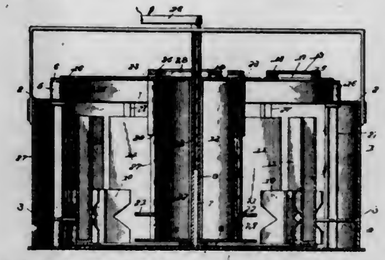
10. In a horse rake, the combination of a rolling rake head, wheels, journals therefor, and a toothed hub, a rock shaft turning on an axis in parallelism with the rake head, having at its outer end a pawl adapted to engage said toothed hub, and having at its inner end a right angular portion, a sectional box or casing chambered to confine and permit a limited movement therein of said right angular end portion, a spring bearing upon said confined right angular end, and means for moving said box or casing to thereby rock the shaft, substantially as described.

11. In a horse rake, a rolling rake head, wheels and journals therefor, and toothed hubs, combined with two independent shafts having pawls at their outer ends adapted to engage said toothed hubs, the inner ends of which terminate adjacent to each other, a box confining and permitting a limited independent movement of said inner ends, a foot lever for moving said box to thereby in turn operate said pawl-carrying shafts, substantially as described.

12. In a horse rake, a rolling rake head, wheels and journals therefor, and toothed hubs, combined with two independent shafts, having pawls at their outer ends adapted to engage said toothed hubs, the inner ends of which terminate adjacent to each other, a spring acting upon the inner end of each pawl-carrying shaft, tending to throw the pawl thereof into engagement with the teeth of the hub, a box confining said inner ends of the shafts and also the pressure springs, and means for moving said box to operate the shafts and bodily move the pressure springs, substantially as described.

517,492. ICE-CREAM FREEZER. JAMES M. SKIPPER, Granbury, Tex., assignor of one-half to John W. Holden, same place. Filed Aug. 22, 1893. Serial No. 483,733. (No model.)

Claim.—1. In an ice-cream freezer, the combination with an inner and an outer cylinder, holders arranged in said cylinders and having their upper ends covered, and ice-cream receiving tubes loosely and removably seated for independent location in the holders, substantially as specified.



2. In an ice-cream freezer, the combination with an inner and an outer cylinder, provided with holders, of a series of cream-receiving tubes loosely arranged for independent rotation in the holders, substantially as specified.

3. In an ice-cream freezer, the combination with inner and outer cylinders provided with holders having removable covers, of a series of cream-receiving tubes rectangular in cross section and loosely fitting said holders, adapted to rotate therein substantially as specified.

4. In an ice-cream freezer, the combination with an inner and an outer cylinder having holders, of agitating devices arranged in the outer cylinder, and cream-freezing tubes loosely arranged for rotation in the holders, substantially as specified.

5. In an ice-cream freezer, the combination with an outer and an inner cylinder, of a removable cover for the outer cylinder secured to the inner cylinder, flanges arranged on the inner side of the outer cylinder and outer side of the inner cylinder, perforations formed in the cover and the flanges of the inner cylinder and the top and flanges of the outer cylinder, flanges surrounding said perforations of the top and cover, covers arranged in the flanges, and a series of cream-receiving tubes arranged in the perforations and flanges, substantially as specified.

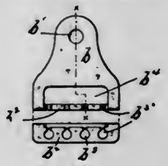
6. In an ice-cream freezer, the combination with an outer and inner casing, cream tubes therebetween of water-cans contained between the cream tubes, and agitating devices, substantially as specified.

7. In an ice-cream freezer, the combination with an outer and an inner cylinder, a rotatable agitator arranged within the outer cylinder, of cream tubes, and water-receptacles, the latter being carried by the rotatable agitator, substantially as specified.

8. In an ice-cream freezer, the combination with the outer and the inner cylinders, of holders, cream-tubes arranged in the receptacles, a rotatable disk arranged between the bottoms of the two cylinders, a shaft extending from the disk upward through the inner cylinder and provided with operating means, a series of X-shaped standards arranged on the disk, and a series of removable water-receptacles arranged between the X-shaped standards, substantially as specified.

9. In an ice-cream freezer, the combination with the outer cylinder formed with an annular opening in its upper end having a surrounding horizontal flange, and an internal horizontal flange, aligning perforations formed in the said flanges, a central pin, a disk arranged on the pin and having a central shaft rising therefrom to a point above the cylinder, cream-tubes arranged in the perforations in the flanges, and water-receptacles carried by the disk, of an inner cylinder having a central bore arranged on the shaft, a perforated circular cover secured to the upper end of the inner cylinder and having an opening covered and communicating with the same, outer cylinder perforations in the flange agreeing with those in the cover, and cream tubes arranged therein, and in the perforations in the flanges of the cylinder substantially as specified.

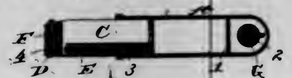
517,493. TAILPIECE FOR BANJOS OR VIOLINS. ROBERT H. SMALL, New London, Conn., assignor of one-half to Milo E. Hayes, same place. Filed Jan. 17, 1894. Serial No. 497,138. (No model.)



Claim.—1. A tail piece for banjos and like articles, formed of sheet metal and consisting of a body of plate form, perforated at one end and formed at its other end with a right angular slitted cross bar having its top below the plane of the body plate; said body plate being cut-away at the rear of said cross bar, substantially as and for the purposes specified.

2. A tail-piece of the class referred to, formed of sheet metal and consisting of a body of plate form perforated at one end and having at its other end a slitted right angular cross-bar whose upper edge is below the plane of the body part and bent slightly rearward, as set forth; the body portion of the tail-piece being cut away as at b^4, all substantially as specified.

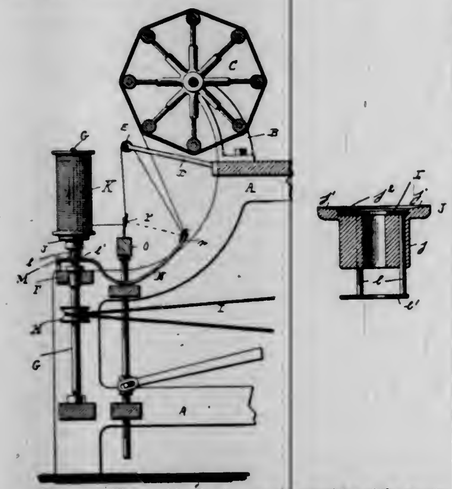
517,494. STAMP STICKING DEVICE. CHARLES A. SPRAGUE, Dayton, Ohio. Filed Oct. 21, 1893. Serial No. 488,836. (No model.)



Claim.—The combination of the case A with moistening apartment, the stamp-holder C with partial opening in the forward part of its bottom the roller D and the frame F held loosely in said holder, and thereby adapted to slide within said case, substantially as and for the purpose specified.

517,495. AUTOMATIC TENSION-REGULATOR FOR SPOOLING-MACHINES. WILLIAM H. ST. GEORGE, Ashland, Mass. Filed Mar. 15, 1893. Serial No. 466,021. (No model.)

Brief.—The bobbin is driven by frictional contact with the ring J. The plate L, of less diameter than the ring J, is raised when the tension becomes too great, and on account of its smaller area exerts but slight friction on the bobbin.



Claim.—1. The combination in a spooling machine of the revolving spindle, the friction-plate mounted on the spindle adapted to rotate the bobbin, the reel or source of thread supply, means for forming a loop in the thread between the source of supply and the bobbin, and means controlled by the tension of the thread in this loop adapted to lift the bobbin, mounted on the spindle, away from the friction ring as the tension of the thread in the loop increases, substantially as described.

2. The combination in a spooling machine of the revolving spindle, the friction-plate turning with the spindle, and adapted to revolve a bobbin placed upon the spindle, the lifter-plate mounted in the friction-plate, means for forming a loop in the thread between the source of supply and the spindle, including a part around which the loop of the thread passes, as the hook or eye n, and connections from this hook or eye n adapted to raise or adjust the lifter-plate to thereby vary the frictional driving power of the bobbin, depending upon the tension of the thread in the loop, substantially as described.

3. The combination in a spooling machine of the revolving spindle, the friction-ring mounted on the spindle, the lifter-plate recessed into the friction-ring, and having pins extending through the friction-plate, a suitable lever arranged to lift the lifter-plate, said lever having a hook or eye through which the thread passes between the source of supply and the bobbin, whereby the tension of the thread between the source of supply and the bobbin will raise the lifter plate to raise the bobbin from the friction-ring, substantially as described.

4. The combination in a spooling-machine of the revolving spindle G having the friction-ring J mounted thereon, the lifter-plate L housed within the friction-plate, the lever N pivoted to the bolster-rail, and connected to the lifter-plate, said lever having an eye or hook n, through which the thread may be looped between the source of supply and the bobbin, whereby the tension of the thread in this loop will raise the lifter plate and thus the bobbin from the friction-ring, substantially as described.

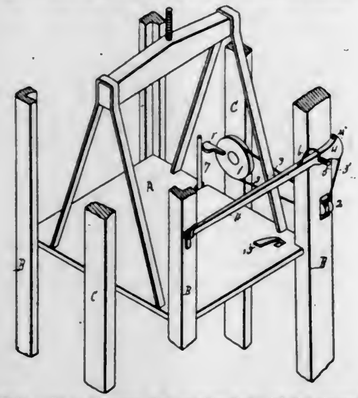
5. The combination in a spooling machine of the revolving spindle G having the friction-ring J attached thereto, the lifter-plate L recessed into the friction-ring, and having the pins *l* projecting through the friction-ring, and united at their lower ends by the washer *l'*; the yoked lever N pivoted to the bolster-rail, and having a hook n formed on the end thereof, said hook n being arranged so that the thread or yarn will form a loop between the source of supply and the traverse-hook, whereby the tension of the thread will raise the lifter-plate to lift the bobbin from the friction-ring, substantially as described.

6. The combination in a spooling machine of the revolving spindle, a friction-plate mounted on this spindle against which the spool is adapted to rest, and means for varying the friction between the friction-ring and the spool or bobbin operated from the tension on the thread between the source of supply and the spool or bobbin, substantially as described.

7. The combination in a spooling machine of the revolving spindle, the friction-plate mounted on this spindle against which the spool or bobbin rests, and means operated by the tension of the thread between the source of supply and the bobbin, for varying the area of the frictional surface upon which the spool or bobbin rests substantially as described.

8. The combination in a spooling machine of a revolving spindle, the friction plate carried thereby, the lifter-plate housed in the friction-plate, of the lever having the eye, said lever being adapted to raise said lifter-plate, of the guide or roller E, the source of thread-supply, the thread passing from the source of supply through the hook on the lever, then over the roller E to the bobbin, whereby the tension in the thread in the loop between the source of supply and the roller E will tend to raise the lifter-plate, substantially as described.

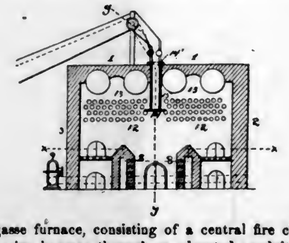
517,496. ELEVATOR-GATE. CHARLES STOCKER, Jr., Saginaw, Mich. Filed July 12, 1893. Serial No. 480,246. (No model.)



Claim.—In an elevator, the combination with the pivoted gate 4 of spring 6, pulleys 1 and 2, belts 3 and 3', the crank 1', and means for operating the crank 1', consisting of rod 7 secured to the base of the elevator cage and adapted to engage the crank 1', and provided with the laterally extending lug 10, and collar 8, foot levers 12 and 13' engaging lug 10, and spring 19, as and for the purpose set forth.

517,497. BAGASSE-FURNACE. WILLIAM W. SUTCLIFFE, New Orleans, La. Filed Apr. 7, 1891. Renewed Feb. 3, 1894. Serial No. 499,019. (No model.)

Claim.—1. A bagasse furnace consisting of a central fire chamber 5 adapted to receive and consume bagasse, and auxiliary furnaces, to consume other fuel, situated on opposite sides of the central fire chamber, said bagasse furnace 5 and auxiliary furnaces being situated directly under the forward ends of the steam boilers, and the boilers arranged immediately above and over the central fire chamber and the auxiliary furnaces, the whole being inclosed with the walls of the boiler setting, substantially as and for the purpose described.



2. A bagasse furnace, consisting of a central fire chamber 5 adapted to receive bagasse through an elevated conduit above its bed, the auxiliary furnaces situated on opposite sides of said central chamber and having their fire beds in the transverse line of the bed of the central chamber, said bagasse furnace 5 and the auxiliary furnaces being situated directly under the forward ends of the steam boilers; and the boilers located immediately above the central fire chamber and the auxiliary furnaces, the whole being inclosed within the walls of the boiler setting, as shown and described.

3. The combination of the auxiliary furnaces arranged side by side, the fire chamber 5 between the auxiliary furnaces and in the same transverse line with said auxiliary furnaces, said bagasse furnace 5 and auxiliary furnaces being situated directly under the forward ends of the steam boilers, the walls between the auxiliary furnaces and the central fire chamber being provided with air chambers and tuyere irons 8 that open directly into the central fire chamber, and the generators or boilers immediately above the central fire chamber and the auxiliary furnaces, the whole being within the walls of the boiler setting, as shown and described.

4. The combination of a central bagasse furnace situated within a boiler setting below the steam generators therein, the auxiliary furnaces also situated within the boiler setting, on opposite sides of the bagasse furnace, between the vertical feed opening for the bagasse furnace, said bagasse furnace and auxiliary furnaces being in the same transverse line and at the forward end of the boiler setting, and the air passages between the auxiliary furnaces and the bagasse furnace and communicating directly with the latter furnace, substantially as described.

5. The combination of a bagasse furnace having the refractory fire beds on either side thereof, a battery of steam boilers separated by a partition wall or walls, which extend forward of the bridge wall and sustained above the fire bed by an arch or tiling, directly at the forward end of the boilers substantially as described.

6. The combination of a bagasse furnace having the continuous fire bed at the forward end of the boilers and extending the width of the boiler setting, the battery of steam generators, the partition wall extending forward of the bridge wall over the fire bed and sustained by the arch or tiling, said partition wall having the vertical feed opening above the bagasse furnace, substantially as described.

7. The combination of a bagasse furnace, having its side and bridge walls provided with air chambers, the steam generators, the partition wall having the vertical manifold heater in rear of the bridge wall, and the blower, substantially as described.

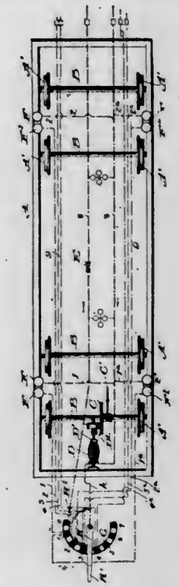
8. The combination of a bagasse furnace having its side and bridge walls provided with air chambers, the divided battery of steam boilers separated by a partition wall, the blower, and the vertical manifold heater situated in the partition wall and having its mains connected respectively with the blower and the air chamber in the bridge wall, substantially as described.

9. The combination of a bagasse furnace having its side and bridge walls provided with air chambers, the battery of steam boilers, the double partition walls forming a chamber, the blower, the vertical manifold heater situated in said chamber and having its upper and lower mains connected respectively with the blower and the chamber in the bridge wall, and the horizontal diaphragm arranged between outlets in the chimney, one of said outlets being adapted to be closed by a damper, substantially as described.

517,498. ELECTRIC TRAIN LIGHTING AND BRAKING SYSTEM. GEORGE W. SWARTZ, Florence, Ala. Filed Sept. 1, 1893. Serial No. 484,585. (No model.)

Claim.—1. The combination with a generator and co-operating means including an adjustable rubber friction disk or pulley on the car axle, of brake magnets and their brakes, a switch, an electric light circuit, a storage battery in the light circuit and connections between the generator, switch and light circuit and brake magnets, as set forth.

2. The combination with the axle and the driving disk adjustably mounted thereon, of the generator having a shaft provided with an adjustable rubber friction disk or pulley, and storage batteries in circuit to be charged from said generator to maintain the light current while the train is not in motion, as set forth.



3. In a system of electrical distribution, the combination with one or more brake circuits connected in multiple with a lamp circuit and storage battery of a sufficient number of cells to bring the voltage to the same potential as the generator, shunt circuits between the brake and lamp circuits a lamp circuit and a brake circuit and both circuits in multiple series for the purpose of lighting a train and actuating electro magnetic brakes for stopping the same, and a switch connected with the generator and with each of the circuits, as set forth.

4. The combination with the brake magnets and their armature, of a rod connected with the armature, and screw threaded, nuts on the threaded portion above and below the armature, brake shoes pivotally connected with said rod, and links suspending the brake shoes from the frame of the truck, as set forth.

517,499. PROCESS OF FILTERING OR PURIFICATION OF LIQUIDS. LOUIS WAGNER, JOHN MARR, and HENRY CAMPBELL, Baltimore, Md. Filed Sept. 12, 1893. Serial No. 485,330. (No model.)

Claim.—1. The herein described process for the purification of liquids which consists in subjecting the liquid to the simultaneous actions of centrifugal and electrical forces, and filtering the liquid by the aid of the said centrifugal force, substantially as set forth.

2. The herein described process for the purification of beer or other beverage, consisting in filtering the same by centrifugal force, while under the action of electrolytic force and under air or gas pressure, substantially as set forth.

3. In an apparatus for the purification of liquids the combination of a rotary perforated or straining vessel adapted to hold the liquid, electrodes therein, and means for rotating the vessel, substantially as set forth.

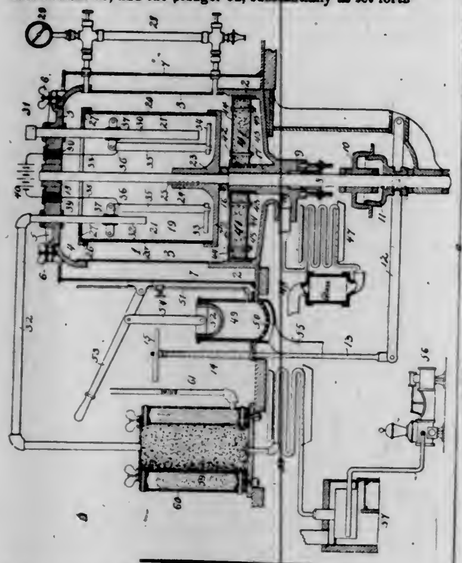
4. The combination of a rotary vessel adapted to hold the liquid, electrodes therein, means for filtering the liquid, and mechanism for rotating the vessel, substantially as set forth.

5. The combination of a casing, a rotary vessel therein, electrodes extending through said casing into the vessel, mechanism for rotating said vessel, and filtering or straining devices, substantially as set forth.

6. The combination of a casing, a rotary vessel therein having straining or filtering means, electrodes in the vessel, a strainer or filter at the bottom of the casing, and mechanism for rotating the vessel, substantially as set forth.

7. The combination of an air tight casing, electrodes and a rotary filtering or straining vessel therein, means for supplying air or gas pressure to the surface of the liquid in the casing or vessel, and mechanism for rotating the latter, substantially as set forth.

8. As a means for washing filtering material the combination of the vessel 49 having the water supply and the perforated or equivalent bottom 50, and the plunger 52, substantially as set forth



517,500. WAGON-BODY. THEODORE WAGNER and WILHELM HABERMANN, Milwaukee, Wis. Filed Nov. 17, 1893. Serial No. 491,206. (No model.)



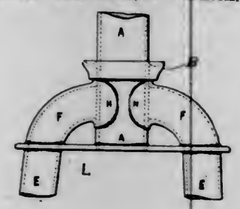
Claim.—1. In a wagon body, the combination, of a tail-board, an arm secured to the wagon body, a bolt pivoted horizontally to said arm, a retaining bar turning vertically upon the bolt, and a catch with which the free end of the retaining bar is adapted to engage, substantially as set forth.

2. In a wagon body, the combination, of a tail-board, an arm secured to the wagon body, a bolt pivoted horizontally to said arm, a retaining bar turning vertically upon the bolt, and provided at its free end with a depending lug, and a spring catch provided with an upward-projecting inward-curved extension, substantially as set forth.

3. In a wagon body, the combination, of a tail-board, an arm secured to the wagon body, a bolt pivoted horizontally to said arm, a retaining bar turning vertically upon the bolt, said bar having its free end turned over and secured at its extremity to the main portion of the bar, to form a loop or handle, and a catch with which the free end of the retaining bar is adapted to engage, substantially as set forth.

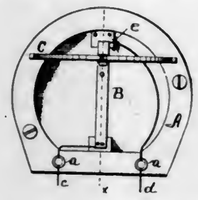
4. In a wagon body, the combination, of a tail-board, an arm secured to the wagon body, and provided at its rear end with eyed lugs, a bolt provided with an eye passing between and registering with the eyed lugs of the arm, a vertical pivot pin passing through the registering eyes, a retaining bar turning upon the bolt, and a catch with which the free end of the retaining bar is adapted to engage, substantially as set forth.

517,501. BICYCLE-FRAME. GEORGE F. WASHBURN, Boston, Mass. Filed Feb. 2, 1894. Serial No. 498,896. (No model.)



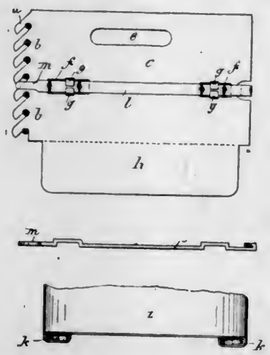
Claim.—In a bicycle frame, the legs E E, having bent portions F, the ends of which are provided with projecting lips H, which are brazed to the opposite sides of the tube A, substantially as described and for the purposes set forth.

517,502. CIRCUIT-MAKER. JOSEPH WEAVER, Canandaigua, N. Y. Filed Sept. 30, 1893. Serial No. 486,868. (No model.)



Claim.—A circuit maker comprising a horseshoe-shaped bracket, circuit wires secured thereto, a contact piece, a horseshoe-shaped arch and a fusible strip secured to said arch at one end, its opposite end adapted to hold the contact strip normally out of contact.

517,503. BOOK-SHELF. GEORG WENKER, Marburg, Germany. Filed June 24, 1893. Serial No. 478,731. (No model.)



Claim.—1. The combination of the U-formed step standards having horizontal steps at very small distances from each other with the bottom plates or shelves of extremely thin sheet metal having the two longitudinal edges rolled up and pressed into a flat shape, side plates of sheet metal each having a rectangularly bent lower piece and a series of downwardly projecting teeth to engage adjustably the steps of the standards and a locking slide to prevent displacement of the teeth and steps, all substantially as described.

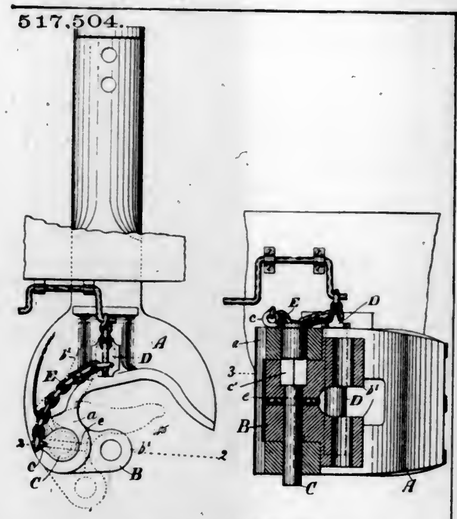
2. A book shelf consisting of the step standards, the side plates supported therefrom, bent pieces *h* forming continuations of the side plates and a bottom plate *i* having rolled edges removably supported by said pieces *h*, substantially as described.

3. In combination with the standards having the steps *b*, the side plates having a series of downwardly projecting teeth, and a horizontally movable slide arranged in line with the space between two steps whereby it is adapted to close the entrance to one of the recesses between the teeth and thus retain the step within the recess, substantially as described.

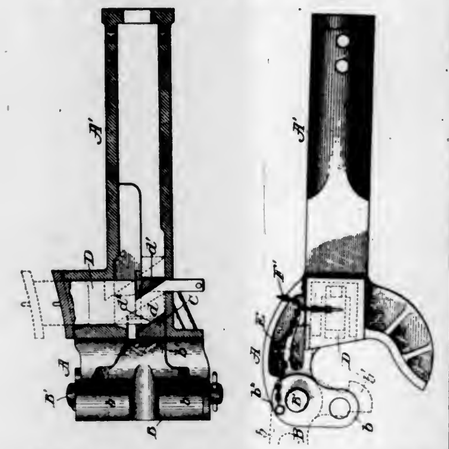
517,504. CAR-COUPLING. BENJAMIN M. WHITLOCK, New York, N. Y., assignor to the Interstate Coupler Company, Jersey City, N. J. Filed Dec. 21, 1893. Serial No. 494,367. (No model.)

Claim.—In a car coupler, the combination with the draw-head, of the knuckle, and the pivot pin having an angular portion fitting a corresponding recess in the knuckle, the cross-pin adapted to lock said pivot pin and knuckle and prevent vertical movement of said pivot pin; the latter having a head with a lateral offset extending to one side of the axis of the pin, and a flexible device connected to said offset so as to act directly upon the pivot pin to oscillate the knuckle, substantially as described.

517,504.



517,505. CAR-COUPLING. BENJAMIN M. WHITLOCK, New York, N. Y., assignor to the Interstate Coupler Company, Jersey City, N. J. Filed Jan. 19, 1894. Serial No. 497,388. (No model.)



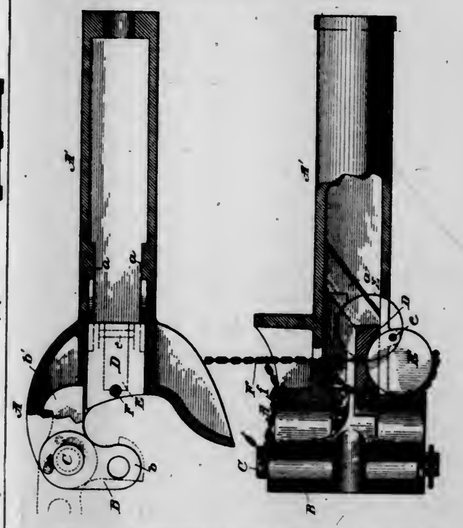
Claim.—1. In a car-coupling, a coupler-head having a recess and an angular knuckle pivoted thereto so that one arm of the knuckle may swing into said recess, in combination with a sliding locking block and a locking pin adapted to move across the path of movement of the sliding block, and provided with an oblique portion engaging an opening in said block, whereby the latter is moved when the pin is raised or lowered so as to either unlock or lock the coupling, according to the direction of motion, substantially as described.

2. In a car coupling, a coupler-head having a recess therein, an angular knuckle pivoted to said head so as to adapt one arm thereof to swing into said recess, and a locking device consisting of a horizontally sliding block and a vertically sliding pin; the latter having an oblique portion which passes through said block so as to cause the block to move across the path of movement of the pin when the latter is raised or lowered, substantially as described.

3. The combination, in a car coupling, of the vertically movable pin and the sliding locking block controlled by said pin, with the angular knuckle having an inner arm adapted to swing into a recess of the coupler-head and an outer arm provided with a plate or extension in rear of the knuckle pivot outside of the coupler-head and overlying the extension of the latter to which the knuckle is pivoted, and a flexible device or chain connecting said plate and locking-pin, substantially as and for the purpose described.

4. In combination with the recessed coupler-head, the angular knuckle having an arm adapted to swing into said recess, a horizontally sliding block for locking said knuckle and a vertically sliding pin for locking said block, arranged to travel across the path of movement of the block, so that when the pin is raised the block will recede and disengage the knuckle, said pin being adapted to fall by gravity and advance the block so as to confine the knuckle-arm within the recess, substantially as described.

517,506. CAR-COUPLING. BENJAMIN M. WHITLOCK, New York, N. Y., assignor to the Interstate Coupler Company, Jersey City, N. J. Filed Jan. 19, 1894. Serial No. 497,389. (No model.)

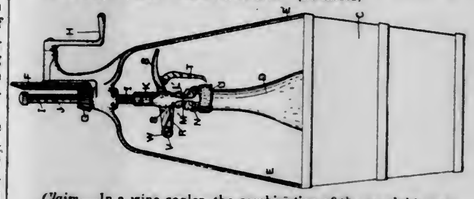


Claim.—1. The combination with a coupler-head provided with a recess and a knuckle pivotally connected thereto, of a locking device comprising an eccentrically pivoted oscillating disk or cam, a lock-block working in a recess over the disk, and means for actuating the disk so as to impart an upward and backward movement to the block, substantially as described.

2. The combination with the recessed coupler-head provided with a pivoted angular knuckle having a portion capable of swinging into and out of said recess, of a lock-block and an eccentric or cam underneath said block, and means for oscillating the eccentric so as to impart a rearward and upward movement to the block and thereby disengage the knuckle, substantially as described.

3. The combination with a recessed coupler-head provided with a pivoted angular knuckle having a portion capable of swinging into and out of said recess, of a lock-block recessed on its under side, an eccentrically pivoted disk underneath said block and engaging the recess therein, a flexible device or chain extending from the disk past said block and out through an opening in the top of the draw-head, and inclines for guiding the rear end or heel of the block so as to maintain the same in a substantially horizontal position, substantially as described

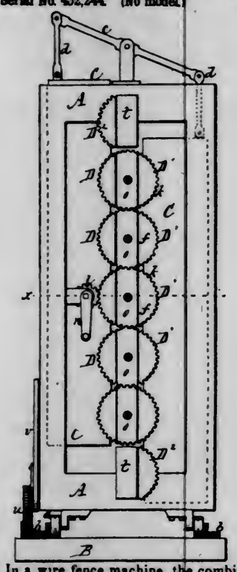
517,507. WINE-COOLER. THOMAS R. WICKHAM, Chicago, Ill. Filed Aug. 21, 1893. Serial No. 483,690. (No model.)



Claim.—In a wine cooler, the combination of the revoluble vertical shaft I, which is mounted to slide vertically, a bifurcated head K at the lower end of said shaft, spring actuated levers M and M' mounted at the ends of the arms of said bifurcation, and a lever S

mounted to said head to vibrate vertically between the said arms, said lever having pivotally mounted thereto a cutter blade T which is of a length to contact the binding wire of a wine bottle, and is actuated by pressure upon said lever S to cut the said binding wire in the manner substantially as shown and described.

517,508. WIRE-FABRIC MACHINE. FRANK A. WILLIAMS, Holley, assignor of one-half to Edward T. Lamb, Batavia, N. Y. Filed Nov. 17, 1892. Serial No. 452,244. (No model.)

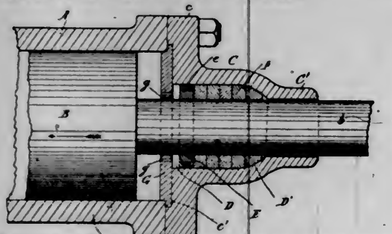


Claim.—1. In a wire fence machine, the combination of the reversible slides, the series of twisters attached thereto and movable with the slides, and center blocks with which the twisters align when in position, said twisters and center blocks being provided on their outer edges with gear teeth with which engages an external gear for giving rotary motion to the twisters, as herein shown and described.

2. The combination, with the segmental twisters attached to suitable supports and movable in reverse directions, of the stationary center blocks capable of rotary motion, the twisters and blocks provided with gear teeth, and so arranged that when the twisters are brought in alignment with the blocks complete circular toothed heads are formed, as herein shown and described.

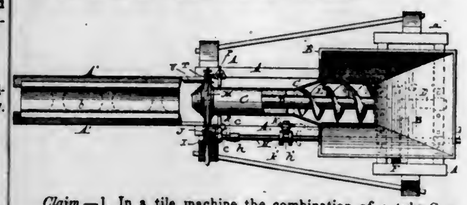
3. The combination, with the main frame, of the reversible slides, the toothed center blocks attached to suitable supports, the toothed twister heads connected with the slides so as to be carried up and down with them, and the pinion *l* and its shaft *m* attached to one of the slides, said pinion engaging with the gear of one of the twister heads, in the manner and for the purpose specified.

517,509. STUFFING-BOX. HORACE G. WILLIAMS, Lykens, Pa. Filed Dec. 15, 1893. Serial No. 493,738. (No model.)



Claim.—A stuffing box, consisting of a cap provided at one end with the flange c and the recess *c'*, a tubular portion C' at its other end, and the cylindrical chamber D having a conical end portion D'; in combination, with the collar sliding in the said chamber, and the plate G let into the said recess and provided with a hole *g* communicating with the said chamber, substantially as set forth.

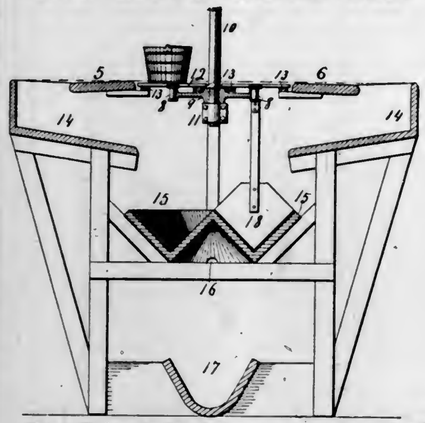
517,510. TILE-MACHINE. JOHN ADAMSON, Fort Worth, Tex. Filed May 15, 1893. Serial No. 474,364. (No model.)



Claim.—1. In a tile machine the combination of a tube C, a loose ring pulley T, on the end thereof, having formed therein two recesses, one at a right angle to the face of said pulley, and the other at an acute angle thereto, a spiral slot connecting said recesses, a knife provided with a spring and nipples for holding it securely in either recess, the power shaft having a pulley fixed thereon, a hinged handle provided with a pulley adapted to connect the two pulleys above named, substantially as and for the purpose set forth.

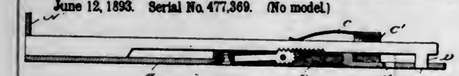
2. In a tile machine, the combination of a tube C, the shaft H, a cam secured thereon, punches located on either side of the tube, an arm connected with one punch and adapted to be engaged by the cam while in one position, said cam engaging the other punch when in an opposite position, and springs for controlling the punches, substantially as and for the purpose set forth.

517,511. FRUIT-PEELING TABLE. FRANK M. ANDERSON, Keokuk, Iowa. Filed Oct. 7, 1893. Serial No. 487,450. (No model.)



Claim.—The combination of a loop-shaped table; vertical shafts journaled at the ends of the loop and horizontal wheels fixed upon the shafts below the plane of the table; a chain mounted to travel around the wheels; cross bars fixed upon the chain at the plane of the table within its loop and less than the width of a bucket apart, and rails fixed beneath the ends of the cross-bars throughout their path, substantially as described.

517,512. DOOR-BOLT. ALEXANDER ANGUS, Hartford, Conn. Filed June 12, 1893. Serial No. 477,369. (No model.)

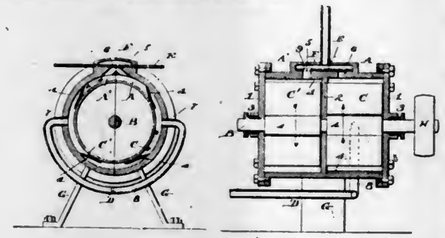


Claim.—1. The combination of the bolt and bolt plate with a throwing lever, having an oval formed toothed cam on its pivoted end, which disengages and throws the bolt, in the manner described and for the purpose set forth.

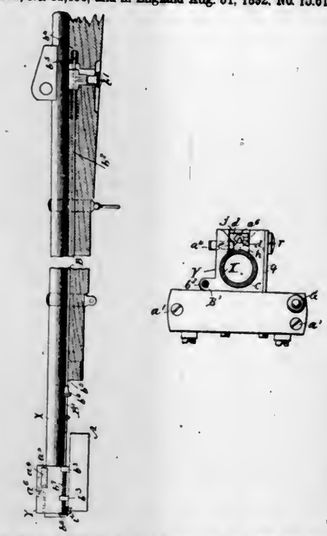
2. The combination of the bolt plate, having the raised portion to rest the bolt and two openings to engage the bolt and lock it, with a bolt adapted to be so engaged and locked, and a spring for engaging it with the openings, and a lever for disengaging and throwing the bolt, substantially as set forth.

517,513. ROTARY STEAM-ENGINE. WILLIAM M. BARNES, Auburn, Ky. Filed June 22, 1893. Serial No. 478,455. (No model.)

Claim.—In a rotary engine, the combination with a casing consisting of two aligned cylinders divided by a central partition, of a piston shaft rotatively mounted in said casing and extending through the axes of the respective cylinders, pistons mounted on said shaft in the respective cylinders, said pistons being provided with tangential vanes arranged about their peripheries and contacting at their free ends with the inner walls of the cylinders, the vanes on the respective pistons being oppositely directed, said cylinders being provided with oppositely directed steam inlet ports adapted to admit steam against the inner side of the said vanes, outlet tubes leading from opposite sides of the respective cylinders, a steam chest F arranged over the steam inlet ports and provided with lateral openings and with a flat valve seat extending between and coinciding with the lower wall of each of said openings, and a flattened slide valve E arranged in said steam chest with its extremities passing through the lateral openings thereof, said slide valve having a handle at one end and having ports formed through it at different points along its length, said ports being adapted to coincide respectively with the steam inlet ports of the respective cylinders, substantially as described.



517,514. SIGHT FOR GUNS. CHARLES BECHIS, Turin, Italy. Filed Mar. 21, 1893. Serial No. 467,106. (No model.) Patented in Italy July 4, 1892, No. 32,138, and in England Aug. 31, 1892. No. 15,613.



Claim.—1. In a sighting device for portable guns, an electric lamp at the muzzle end of the gun, an electric generator at the muzzle end of the gun connected to said lamp for operating it, and an electric circuit comprising the connection between said lamp and generator, in combination with a circuit closer at the muzzle end of the gun, and in said circuit for controlling said connection, and a rod B for operating said circuit closer extending toward the rear consisting of two separable sections and terminating in a thumb piece *b'* in the stock of the gun, substantially as and for the purpose set forth.

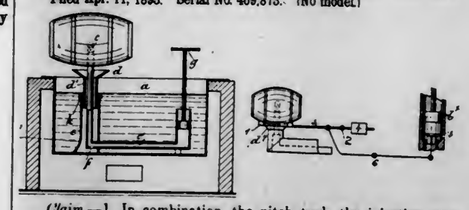
2. A sighting device for arms consisting of a box A beneath the muzzle of the gun, an accumulator E carried thereby, an appendix Y fixed to the upper side of said box and having a tubular aperture *c* fitting the muzzle of the gun, and an electric lamp a^6 carried by said appendix for lighting the sight of the gun, electrical connections between said lamp and accumulator and a circuit closer for said connections, substantially as and for the purpose set forth.

3. In a sighting device for arms, the box A removably mounted beneath the muzzle of the gun, an accumulator E carried thereby, an appendix Y fixed to the upper side of said box for connecting it to the gun and having a hole *c* fitting over the muzzle of the gun, an electric lamp a^6 carried by said appendix for illuminating the sight of the arm, an electric circuit between said lamp and accumulator, a circuit closer in said circuit, and a rearwardly extending rod B connected to said circuit closer for operating it and consisting of two portions $B' b^3$ and an intermediate separable coupling b^4, whereby when said portions are separated said box can be removed, substantially as and for the purpose set forth.

4. A sighting device for arms consisting of a box A beneath the muzzle of the gun, an accumulator E carried thereby, an appendix Y fixed to the upper side of said box and having a tubular aperture *c* fitting the muzzle of the gun, said appendix having a groove *d* embracing the sight of the gun, a catch-nose *e* engaging said sight to lock the appendix to the gun, a groove *i* in line with the sight of the gun, and a bridge *j* over said grooves, and an electric lamp a^6 carried by said appendix for lighting the sight of the gun, electrical connections between said lamp and accumulator and a circuit closer for said connections, substantially as and for the purpose set forth.

5. A sighting device for arms consisting of a box A beneath the muzzle of the gun, an accumulator E carried thereby, an appendix Y fixed to the upper side of said box and having a tubular aperture *c* fitting the muzzle of the gun, and an electric lamp a^6 carried by said appendix for lighting the sight of the gun, electrical connections between said lamp and accumulator and a circuit closer for said connections, and contacts *l* and *m* for said accumulator projecting externally of said box, whereby said accumulator can be charged without its removal from the box, substantially as and for the purpose set forth.

517,515. APPARATUS FOR PITCHING CASKS. CARL BERNREUTHER, Berlin, Germany, assignor to Paul Esselbach, same place. Filed Apr. 11, 1893. Serial No. 469,873. (No model.)



Claim.—1. In combination, the pitch tank, the injection pipe having a nozzle, the pressure forcing device and the funnel *d* surrounding the injection pipe, substantially as described.

2. In combination, the pitch tank, the injection pipe and nozzle, the pressure forcing device the valve the ring l arranged to be operated by the barrel when placed over the injection pipe, and the connection therefrom to the valve substantially as described.

517,516. POTATO-DIGGER. JAMES A. BUCK, Crescent, N. Y. Filed Mar. 18, 1893. Serial No. 466,574. (No model.)

Claim.—1. In a potato digger, the combination with the plow and a rotary clearing-wheel yieldingly supported above the plow, of a plurality of separator-tines curved concentrically with the periphery of the clearing-wheel and pivoted at their forward ends to swing vertically in the track of the plow toward and from the clearing-wheel, and means for oscillating the separator-tines, substantially as described.

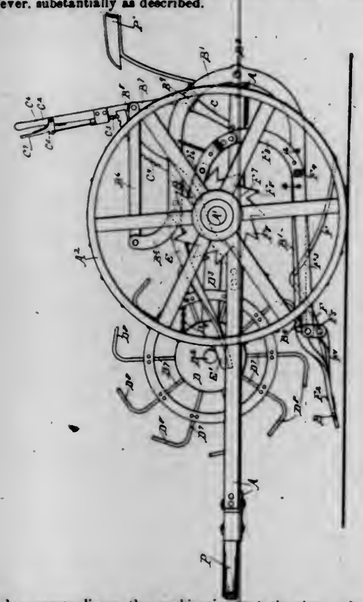
2. In a potato-digger, the combination with the plow, a clearing-wheel rotatorily supported above the plow, and means for rotating such clearing-wheel, of a plurality of tines pivoted at their forward ends in the track of the plow and oscillatory toward and from the clearing-wheel, and means for oscillating the tines, substantially as described.

3. In a potato-digger, the combination with the traction-wheel truck and plow, of a plurality of separator-tines oscillatory in the track of the plow, a lever connected at one end with the oscillatory tines, a cam-connection between the other end of the lever and the traction-wheel shaft and an adjustable fulcrum-connection between the lever and a relatively fixed support, substantially as described.

4. In a potato-digger, the combination with the traction-wheel truck and plow, a vertically movable clearing wheel, and means for rotating the clearing-wheel, of a horse-shoe shaped plow frame pivoted at the bend of the frame to the rear part of the truck and having its upper and lower arms respectively in supporting connection with the clearing-wheel and plow, substantially as described.

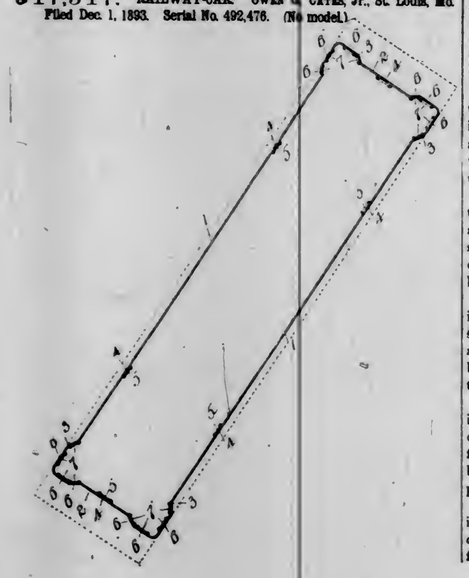
5. In a potato-digger, the combination with the traction-wheel truck, plow, plow-frame pivoted upon the truck, separator-tines piv-

oted upon the plow, a separator-frame pivoted upon the plow-frame and connected with the tines, and means for imparting oscillating movements to the separator-frame; of a flexible connection between the plow-frame and separator-frame, and a hand-lever pivoted upon the truck and connected with the plow-frame, whereby oscillating movements may be imparted to the separator-tines independently of the plow, and both plow and tines lifted from the soil by the same hand-lever, substantially as described.



6. In a potato-digger, the combination with the plow, a clearing-wheel rotatorily supported above the plow, and means for rotating the wheel; of a plurality of separator-tines pivoted at their forward ends to the heel of the plow to oscillate vertically, the forward portions of the tines beneath the clearing-wheel being inclined upwardly and the rear portions inclined downwardly, and means for communicating oscillating movements to the tines, substantially as described.

517,517. RAILWAY-CAR. OWEN G. CATES, Jr., St. Louis, Mo.
Filed Dec. 1, 1893. Serial No. 492,476. (No model.)



Claim.—1. In combination with a railway car, of a bastion or bastions extending the entire height of the car walls, and arranged in one or more corners thereof, substantially as described.

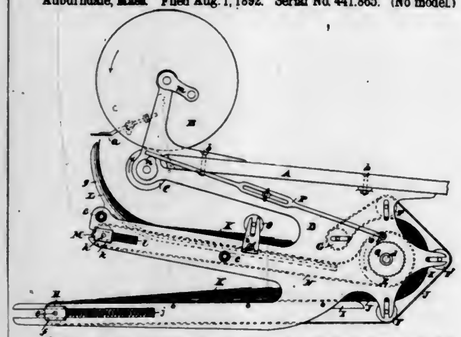
2. The combination with a railway car, of bastions arranged in its four corners and extending the full height of the car walls, substantially as described.

3. A railway car having its side and end walls formed with offsets which extend the entire height of the walls, and which correspond to the flanks of bastions, substantially as described.

4. A railway car having offsets formed in its end wall, said offsets being provided with port holes, substantially as described.

5. A railway car having its side and end walls formed with offsets near its corners forming bastions which offsets extend the entire height of the walls, said side and end walls and offsets being provided with port holes, and slides arranged on the inside of the car for covering said port holes, substantially as described.

517,518. PAPER-FEEDING MECHANISM. EDWARD DUNNER, Auburndale, Mass. Filed Aug. 1, 1892. Serial No. 441,865. (No model.)



Claim.—1. In a paper-feeder the combination of an upper and a lower support for a bank of paper, a drum in suitable position with reference to the supports, and rollers parallel to the drum, whereby on revolution of drum and rollers the bank will be carried around said drum from the lower to the upper support, said feeder being open at the rear above the lower support whereby paper may be placed on paper in the machine while in operation to effect continuous feeding, substantially as set forth.

2. In a paper-feeder the combination of an upper and a lower support for a bank of paper, a drum, rollers parallel to the drum, and a band extending about said rollers, the position of said supports, rollers and band with reference to each other being substantially as specified, whereby on revolution of drum and rollers the bank will be taken from the lower support and carried around said drum onto the upper support, the machine being open at the rear between said supports whereby paper may be placed on paper in the machine while in operation to effect continuous feeding, substantially as set forth.

3. In a paper-feeder the combination of a drum, rollers parallel to said drum, an upper support, and a lower support, the rollers being parallel to each other and located transversely to the supports and in such relation thereto that on revolution of the drum paper will be carried from the lower support onto the upper support, the upper support being curved, substantially as set forth.

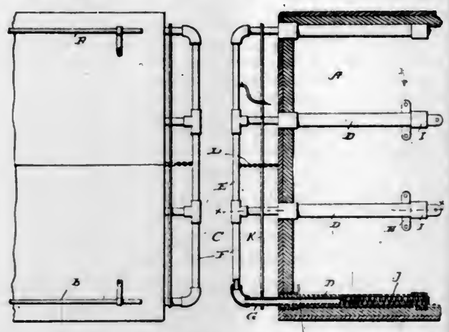
4. In a paper-feeder the combination of a drum, rollers parallel to said drum, a band extending around said rollers, and an upper and a lower support for paper, said drum, rollers and supports being in such relation to each other that paper will be carried from the lower onto the upper support on revolution of the drum, the upper support being curved, substantially as set forth.

5. In a paper-feeder in combination with mechanism for removing a sheet from a bank of paper, an upper curved support, a lower support for said bank, a drum and rollers parallel with each other, and a band extending about said rollers, said drum rollers and band being in suitable relation to each other to reverse the bank, substantially as specified.

6. In a paper-feede the combination with mechanism for removing the upper sheet of a bank of paper by friction on the edge-face of the sheet and lifting the sheet from the bank, and with mechanism for supporting and conveying said bank, of a roller to bear on said bank at or near the opposite edge of said sheet to prevent the slipping of the sheet, substantially as specified.

7. In a paper-feeder the combination with mechanism for removing the upper sheet of a bank of paper by friction on the edge-face of the sheet and lifting the sheet from the bank, and with mechanism for supporting and conveying said bank, of a roller to bear on said bank and roll on the bank on movement of the bank, said roller being adjustable whereby it may be secured in position at or near the edge of said sheet, substantially as specified.

517,519. SAFETY-GUARD FOR FREIGHT-CARS. MATHEW FITZSIMMONS, Ironwood, Mich. Filed Sept. 13, 1893. Serial No. 485,419. (No model.)



Claim.—1. In a safety attachment for railway cars, the combination with a car; of the outer and intermediate, longitudinally disposed sleeves D, bearing at one end in the end wall of the car and fixed with respect thereto, brackets connected to the top of the car and having caps I, to support and close the inner ends of the sleeves D, the movable frame E, comprising the transverse bar F, the outer and intermediate longitudinally-disposed bars or plungers G, movable in the sleeves D, and the transverse bar K, connecting the bars or plungers G, coiled springs arranged in the sleeves D, and backing the bars or plungers G, and a chain connected to the bar F, of the frame E, and to the car above the said frame and adapted to prevent downward sagging of the frame E, and also adapted to retain the plungers G, in the sleeves D, all substantially as and for the purpose set forth.

2. In a safety attachment for railway cars, the combination with a car; of the outer and intermediate, longitudinally-disposed sleeves D, formed from gas pipe and bearing at one end in the end wall of the car and fixed with respect thereto, brackets connected to the top of the car and having the caps I, to support and close the inner ends of the sleeves D, the movable frame E, formed of gas pipe and comprising the transverse bar F, the outer and intermediate, longitudinally-disposed bars or plungers G, movable in the sleeves D, and the transverse bar K, connecting the bars or plungers G, coiled springs arranged in the sleeves D, and backing the bars or plungers G, and a chain connected to the bar F, of the frame E, and to the car above the said frame and adapted to prevent downward sagging of the frame E, and also adapted to retain the plunger G, in the sleeves D, all substantially as and for the purpose set forth.

517,520. MINER'S SAFETY-LAMP. JESSE GRAHAM and HARRY CHAPMAN, Morley, England. Filed Oct. 7, 1893. Serial No. 487,452. (No model.) Patented in England Apr. 10, 1893, No. 7,286.

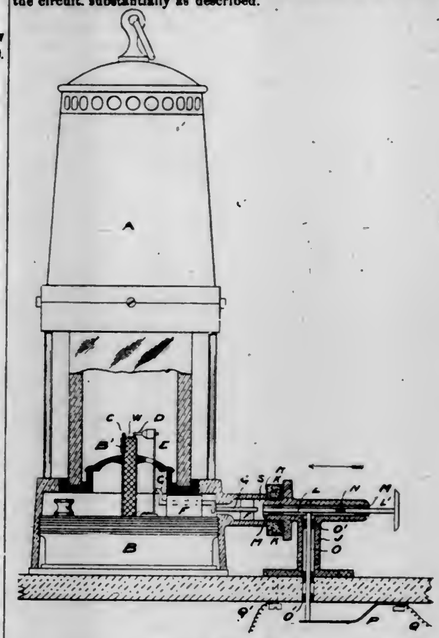
Claim.—1. In combination in a miner's safety lamp, the burner, the electric lighting means arranged adjacent thereto, the contact piece carried by the lamp, the air tight chamber in which the contact is located, the circuit connections leading from a suitable source and the means for closing the circuit at the contact within the air tight chamber whereby sparking will not cause explosions, substantially as described.

2. In combination, in a miner's safety lamp, the burner, the electric lighting means arranged adjacent thereto, the chamber S carried by the lamp and the contact piece G extending into the same, substantially as described.

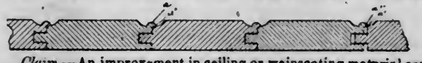
3. In combination in a miner's lighting apparatus, the burner, the electric lighting means arranged adjacent thereto, the chamber S carried by the lamp, the contact therein, the electric circuit, the bracket having the movable contact L, and the flexible washer K on said bracket arranged to be borne upon by the chamber S, substantially as described.

4. In combination in a miner's lighting apparatus, the burner, the electric lighting means arranged adjacent thereto, the electric circuit connections, the bracket having the movable contact L, the flexible washer K and the contact point R, the contact carried by the lamp and the chamber S also carried by the lamp and arranged to contact with the washer K and with the contact point R to close the circuit at this point, substantially as described

5. In combination in a miner's safety lamp, the burner, the electric lighting device, the contact piece and the chamber S containing the same, the walls of said chamber being adapted to form part of the circuit, substantially as described.

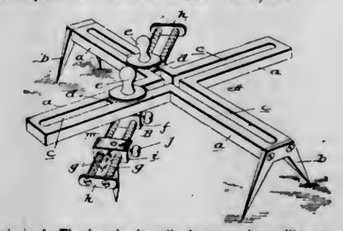


517,521. CEILING OR WAINSCOTING BOARD. JOHN A. HENSEL, Chicago, Ill. Filed May 29, 1893. Serial No. 475,889. (No model.)



Claim.—An improvement in ceiling or wainscoting material consisting of boards provided on one edge with a tongue *a* on the other edge with a groove, the upper corner of the board at its tongue end being cut away and the opposite corner at the groove end being similarly cut and formed with a bead which projects beyond the edge, said bead lying in a plane lower than the surface of the board and adapted to overlap the cut away portion of the next adjoining board so as to cover up the joint between the boards and hide the opening or crevice formed by the shrinkage of the boards when in place.

517,522. ELLIPSOGRAPH. GERTRUDE M. KING, Nantucket, Mass. Filed Sept. 7, 1893. Serial No. 484,954. (No model.)



Claim.—1. The herein described trammel or ellipsograph, comprising a cross shaped frame or table having divergent and pointed legs at the outer ends of two of its aligned arms or branches and also having the vertically disposed and intersected slots *c*, the rectangular blocks *d*, arranged to slide in the slots of the table or frame, the scribing beam disposed below the table or frame and formed by two parallel bars connected at their opposite ends, the blocks *f*, *i*, mounted and adapted to be adjusted upon the beam and having set screws whereby they may be fixed at various points, and the headed screws taking through the blocks *d*, and into the blocks *f*, and bearing upon the table or frame, all adapted to operate, substantially as set forth

2. In a trammel or ellipsograph, the combination with a block provided with a vertical bore *k*, having its lower portion enlarged and also provided with a vertical slot *m'*, communicating with said bore; of a tubular pencil holder arranged in the bore *k*, and having a flange at its lower end, a screw taking through the slot *m'*, and the pencil holder and adapted to fix a pencil therein, and a spring arranged in the enlarged portion of the bore *k*, and adapted to exert a pressure against the flange of the pencil holder, substantially as specified.

517,523. KEY FOR OPENING METAL CANS. ARTHUR KLEINFELDT, Brooklyn, N. Y., assignor to the Eureka Can Opening Company, of New Jersey. Filed Mar. 8, 1893. Serial No. 465,204. (No model.)



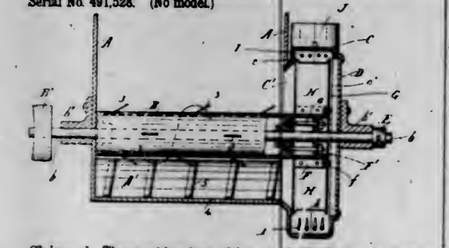
Claim.—1. A key or device for opening metal receptacles which consists of a piece of sheet metal doubly slitted and having a loop between the slits at a sufficient distance from the body of the key to receive in the opening thus formed a tongue or projection on the metal receptacle, substantially as and for the purpose set forth.

2. A key or device for opening metal receptacles provided with an opening or loop which is adapted to engage with a tongue or projection on the metal receptacle, and having an elbow or bent over portion at the end thereof adjacent to said opening or loop, substantially as and for the purpose set forth.

3. A key or device for opening metal receptacles which consists of a piece of sheet metal doubly slitted and having a loop between the slits at a sufficient distance from the body of the key to receive in the opening thus formed a tongue or projection on the metal receptacle, and having an elbow or bent over portion at the end thereof adjacent to said opening or loop, substantially as and for the purpose set forth.

4. A key or device for opening metal receptacles, which consists of a piece of sheet metal, having one end or portion larger than the other, comprising the head of the key, and the other portion the shank, said shank doubly slitted and having a loop between the slits at a sufficient distance from the body of the key to receive in the opening thus formed a tongue or projection on the metal receptacle, the lower end of the shank being provided with an elbow or bent-over portion, adjacent to said loop, substantially as described.

517,524. CENTRIFUGAL DISCHARGER FOR STRAW-STACKERS. FRANK F. LANDIS, Waynesborough, Pa. Filed Nov. 21, 1893. Serial No. 491,528. (No model.)



Claim.—1. The combination, with a revoluble discharger consisting of a disk provided with arms; and a casing inclosing the discharger, of a yielding straw guide connected at one end to the said casing and projecting therein in the direction of the motion of the discharger, and operating to prevent the straw from becoming packed between the tips of the arms and the casing, substantially as set forth.

2. The combination, with a revoluble discharger consisting of a disk provided with arms; and a casing inclosing the discharger, of a straw guide consisting of a row of fingers arranged inside the said casing, substantially as shown and described.

3. The combination, with a revoluble discharger consisting of a disk provided with arms; and a casing inclosing the discharger, of a straw guide consisting of a row of spring-actuated fingers pivotally connected to the casing and provided with a stop whereby the said guide is prevented from striking the discharger arms, substantially as set forth.

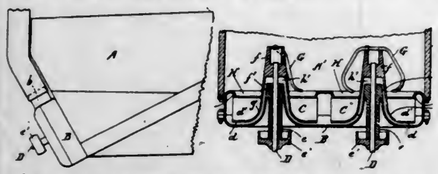
4. The combination, with a revoluble discharger consisting of a disk provided with arms; and a casing inclosing the said discharger, of a straw guide consisting of a row of fingers, a shaft journaled in the casing and having the said fingers secured on it, an arm secured on the projecting end of the shaft, a spring operating the said arm and pressing the fingers toward the discharger, and a stop for limiting the motion of the fingers toward the discharger, substantially as set forth.

5. The combination, with a straw discharger consisting of a revoluble disk provided with a series of rearwardly-curved arms having substantially radial tips, of an inclosing casing, and a yielding straw guide connected to the casing and operating to prevent the straw from becoming packed between the tips of the arms and the casing, substantially as set forth.

6 The combination, with a straw discharger consisting of a revoluble disk provided with a series of rearwardly-curved arms having channel-shaped faces and substantially radial tips; of an inclosing casing, and a yielding straw guide connected to the casing and operating to prevent the straw from becoming packed between the tips of the arms and the casing, substantially as set forth.

7. The combination, with a straw discharger consisting of a disk provided with arms; and the discharger shaft and casing; of a straw chamber opening into the discharger casing and provided with a curved portion substantially concentric with the said shaft; means for revolving the straw in the straw chamber, and a series of spirally arranged ribs secured to the said curved portion, whereby the revolving straw is propelled toward the discharger, substantially as set forth.

517,525. CENTRIFUGAL DISCHARGER FOR PNEUMATIC STRAW-STACKERS. FRANK F. LANDIS, Waynesborough, Pa. Filed Dec. 13, 1893. Serial No. 493,543. (No model.)



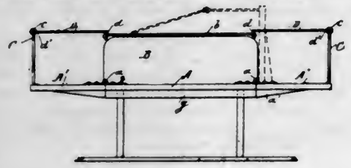
Claim.—1. In a centrifugal discharger, the combination, with a straw chamber, of a discharger casing provided with two inlet openings communicating directly with the said straw chamber, and a single delivery pipe; two dischargers, each consisting of a disk provided with arms, arranged at a little distance apart within the said casing; and driving mechanism operating to revolve the dischargers in opposite directions, whereby the streams of straw are brought together gently and are forced up the said delivery pipe, substantially as set forth.

2. In a centrifugal discharger, the combination, with a straw chamber having an inclined end portion, of a diagonally-arranged discharger casing abutting against the end of the said chamber and provided with two inlet openings communicating with the chamber, and a single delivery pipe; two dischargers, each consisting of a disk provided with arms, arranged at a little distance apart within the said casing; and driving mechanism operating to revolve the dischargers in opposite directions, whereby the straw is forced up the said delivery pipe, substantially as set forth.

3. In a centrifugal discharger, the combination, with a straw chamber, of a discharger casing provided with an inlet opening and a shaft bearing, a shaft journaled in the said bearing and provided with means for revolving it, a discharger secured on the said shaft and provided with a disk and with arms, and feed fingers secured to the hub of the discharger inside the said chamber and in front of the inlet opening, substantially as set forth.

4. In a centrifugal discharger, the combination, with the discharger casing provided with an inlet opening, and a long shaft bearing; and a shaft journaled in the said bearing and provided with means for revolving it; of a discharger secured on the shaft and provided with a disk, and with arms, and having a conical and recessed hub inclosing one end of the said shaft bearing, and projecting through the inlet opening; and the rearwardly and inwardly curved feed fingers secured to the end of the said hub, substantially as set forth.

517,526. VEHICLE-SEAT. JOHN M. MCHENRY, Lincolnville, Kans. Filed Dec. 30, 1893. Serial No. 495,210. (No model.)

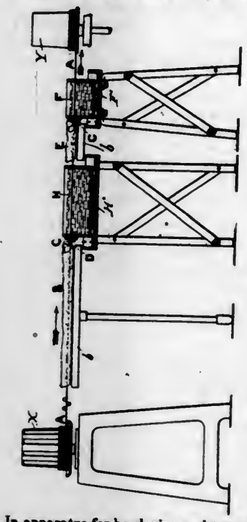


Claim.—1. In a vehicle seat, the combination, with a stationary portion, of a movable portion hinged thereto, and a rod pivoted to the movable portion and slidably connected to the back of the stationary portion of the seat, said rod forming a back for the said movable portion, substantially as set forth.

2. In a vehicle seat, the combination, with a stationary central portion provided with a back, and a guide rod secured to the back; of two end portions hinged to the said central portion, and rods provided with eyes sliding on the said guide rod and pivotally connected with the end portions, said rods forming backs for the end portions and supporting them when lowered, substantially as set forth.

3. The combination, with the central portion provided with a back, and with bars under it, and the guide rod secured to the top of the back; of the end portions hinged to the said central portion and provided with blocks abutting against the ends of the bars, the side rails provided with eyes, and the rods pivoted to the said eyes and slidably connected with the said guide rod, substantially as set forth.

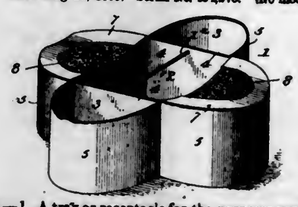
517,527. APPARATUS FOR HARDENING AND TEMPERING STEEL WIRE. EDWIN ODDY, JOSEPH CROMBLEY, ENOS SMITH, and ALSMITH, Cleckheaton, England. Filed Oct. 2, 1893. Serial No. 486,984. (No model.) Patented in England June 17, 1893, No. 11,955.



Claim.—1. In apparatus for hardening and tempering wire, the combination, with a flame for heating the wire, and an oil reservoir for cooling the wire, of a nozzle projecting outwardly from the side of the reservoir into the said flame and provided with a hole for the wire to pass through, substantially as set forth.

2. In apparatus for hardening and tempering wire, the combination, with a flame for heating the wire, and an oil reservoir for cooling the wire, of a nozzle projecting outwardly from the side of the reservoir into the said flame and provided with a conical hole for the wire to pass through and a hole in its under side for the passage of surplus oil, substantially as set forth.

517,528. SMOKER'S TRAY. WILLIAM H. O'DWYER, New York, N. Y. Filed Aug. 29, 1893. Serial No. 484,275. (No model.)



Claim.—1. A tray or receptacle for the purposes named, consisting of a central or main compartment, and outer compartments bounding the sides thereof, one or more of which being provided with a dished or concaved cover to constitute a cigar "rest," substantially as described.

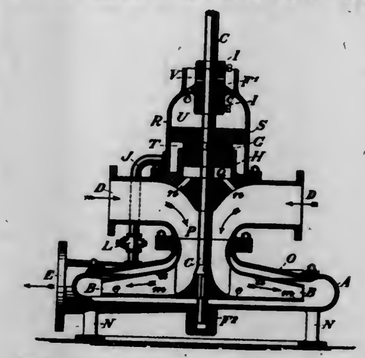
2. A tray or receptacle for the purposes named, consisting of a central or main compartment, and outer compartments bounding the sides thereof, one or more of which being provided with a dished or curved cover and having a removable scratching pad, substantially as described.

3. A tray or receptacle for the purposes named, consisting of a central or main compartment and outer compartments bounding the sides thereof, one or more of which latter being provided with an inwardly projecting flange 7, a dished or concaved cover beneath such flange, and a removable scratching pad inserted between said cover and flange, substantially as described.

4. A tray or receptacle for the purposes named consisting of a central or main compartment, and outer compartments bounding the sides thereof, one or more of said latter compartments being provided with a removable cover formed with a downwardly projecting flange embracing the sides of such compartments, substantially as shown and for the purpose described.

5. A tray or receptacle for the purposes named, consisting of a central or main compartment, having the cross rod 1^a, and outer compartments bounding the sides thereof, one or more of which latter being provided with a dished or concaved cover and an inwardly projecting flange 7, and a removable scratching pad inserted between said cover and flange, substantially as described.

517,529. CENTRIFUGAL PUMP. GOMER W. PRICE, San Francisco, Cal. Filed Aug. 14, 1893. Serial No. 483,113. (No model.)



Claim.—1. In a centrifugal pump, the combination of the pump-casing, the pump wheel, its shaft, a balancing piston secured on the shaft, a cylindrical casing surrounding said piston and a water pipe leading to the balancing piston from the discharge, substantially as described.

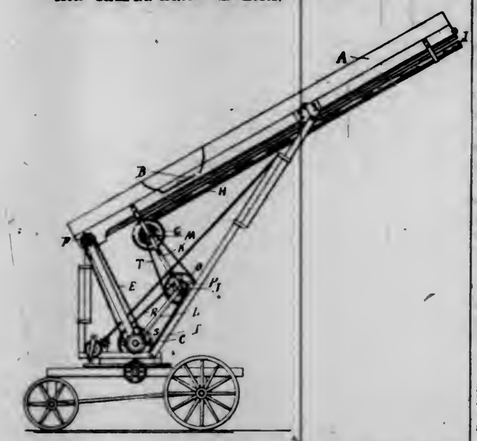
2. In a centrifugal pump, the combination of the pump casing having suction pipes and a discharge, a pump impeller within the casing, a pump shaft, a balancing piston secured on the shaft, a cylinder surrounding it and communicating with the suction pipes and another casing surrounding an extension of the aforesaid piston, together with the pipe leading to the piston from the water discharge, substantially as described.

3. In a centrifugal pump, a balancing piston and cylinder, the former attached to and the second surrounding the pump spindle, the piston subjected to water pressure from the pump discharge, such pressure applied on either side of the balancing piston, as the unbalanced force may require, and as the weight of the running parts may determine; passages for conducting waste water that passes the piston, up to and around the pump spindle bearing, in the manner substantially as set forth and described.

4. In a centrifugal pump, a balancing piston and cylinder as herein described, the piston attached to and the cylinder surrounding the pump spindle; a pipe connecting to the pump discharge water, and to the balancing piston, as the gravity of the running parts or other unbalanced forces on the pump impeller or spindle may require, a cock to regulate the flow of water and waste ways connecting to the upper pump bearing any water passing the balancing piston, in the manner substantially as and for the purposes described.

5. In a centrifugal pump, the combination of the pump-casing having suction pipes and a discharge, the pump wheel in said casing, its shaft, a balancing wheel secured on the shaft above the suction pipes, a cylinder surrounding it and communicating through ports with the suction pipes, another casing surrounding the extension of the aforesaid piston, a pipe leading to the piston from the water discharge and passages for conducting waste water that passes the piston, up to and around the pump spindle bearing at the top, substantially as described.

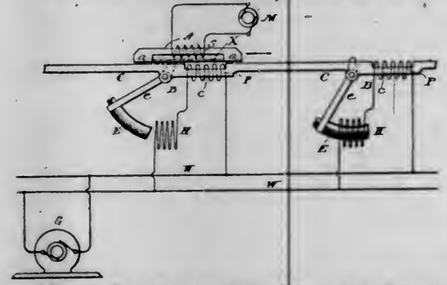
517,530. STRAW-STACKING MACHINE. MARSHAL T. REEVES, Columbus, Ind., assignor to Reeves & Co., same place. Filed July 31, 1893. Serial No. 481,933. (No model.)



Claim.—1. In a straw-stacking machine, the combination with the straw-chute, of an endless-belt carrier arranged to traverse the straw-chute, whereby the straw is carried along the chute, and means for forming an air-blast adjacent to the discharging end of the straw-chute, whereby the straw is projected therefrom after leaving the carrier-belt, substantially as set forth.

2. In a straw-stacking machine, the combination of the straw-chute, the endless-belt carrier arranged to traverse said chute, the blast-fan and the discharge-tube therefrom suspended from said chute, the jointed hangers carrying at their joint a counter shaft and pivoted respectively to a shaft of the stacking-machine and to the shaft of the blast-fan, and a train of pulleys and belts connecting said shafts of the machine and blast-fan, all combined and arranged to co-operate substantially as and for the purpose set forth.

517,531. INDUCTION ELECTRIC RAILWAY. CHARLES E. ROEHL, St. Joseph, Mo. Filed May 4, 1893. Serial No. 472,990. (No model.)



Claim.—1. In an induction railway system, a road-bed provided with a magnetically continuous iron core separate from but extending parallel to the tracks, and a series of primary coils located upon said core, in combination with a moving vehicle carrying a secondary core and coil in inductive relation to said primary core for the purpose set forth.

2. In an induction railway system, a road-bed provided with a magnetically continuous iron core separate from but extending parallel to the tracks, and a series of primary coils located upon said core, in combination with a moving vehicle carrying a secondary core and coil in inductive relation to said primary core, said secondary core moving in contact with the primary core, substantially as described.

3. In an induction railway system, the combination of primary coils located along the roadway, secondary coils carried by moving vehicles and self-inductive resistances in series with the primary coils, for the purpose set forth.

4. In an induction railway system, the combination of primary coils located along the roadway, secondary coils carried by moving vehicles and self-inductive resistances in series with the primary coils, and means carried by each car for automatically controlling the effect of said resistances on the circuit, substantially as described.

5. In an induction railway system, the combination of a generator, mains for conveying electrical currents, a number of primary coils connected in multiple arc with said mains, and each primary coil having connected in series with it a self-induction resistance, consisting of a coil of wire and an iron core movable with respect to each other, and means for automatically moving said core and coil with respect to each other, for the purpose set forth.

6. In an induction railway system, the combination of primary coils in the roadway, secondary coils on the vehicles, choking coils in circuit with the primary coils, said choking coils having iron cores, the cores being mounted upon pivoted levers, and a device carried by the cars which strikes said levers and moves the cores and coils with respect to each other, substantially as described.

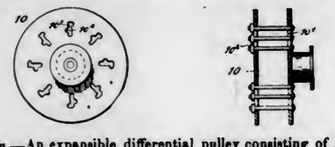
7. In an induction railway system, a road-bed provided with a magnetically continuous, laminated, iron core separate from but running parallel to the track, and a series of primary coils evenly distributed upon said core, in combination with a moving vehicle carrying a secondary core and coil in inductive relation to said primary core, substantially as described.

8. In an induction railway system, a road-bed provided with a continuous iron core extending parallel to the track, in combination with coils surrounding the same at intervals, the surrounded portions being depressed or offset so that one side of the coil will be flush with the top of the core, substantially as described.

9. In an induction railway system, a road-bed provided with an iron core magnetically continuous but built in sections, the joints between which are surrounded by coils of wire, substantially as described.

10. In an induction railway system, a main circuit over which alternating currents flow, including at intervals along the roadway primary coils in combination with secondary coils and moving vehicles supplied with current from said secondary coils, and self-inductive resistance in series with each primary coil, and mechanisms carried by the vehicles for automatically varying the inductive action of said self-inductive coils, substantially as and for the purpose set forth.

517,532. EXPANSIBLE DIFFERENTIAL PULLEY. WILL ROWEY, Independence, Iowa. Filed Sept. 19, 1893. Serial No. 485,990. (No model.)



Claim.—An expansible differential pulley consisting of a drum of fixed diameter and a drum of variable diameter, the latter drum having its sides formed of circular disks having notched radial slots cut therein, and having its surface formed by rods passing between said disks and held in one or another set of notches, substantially as described.

517,533. PROCESS OF DYEING BY THE AID OF PARAMIDODIPHENYLAMIN. ARTHUR WEINBERG, Frankfort-on-the-Main, Germany, assignor to Leopold Cassella & Co., same place. Filed Nov. 29, 1893. Serial No. 492,404. (No specimens.) Patented in England Mar. 2, 1893, No. 4,612, and in France Mar. 4, 1893, No. 228,395.

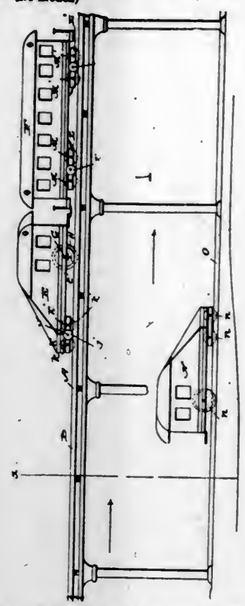
Claim.—The method of producing fast colors on the fiber dyed with a diazotizable dye stuff by treating such dyeings in a first bath with free nitrous acid and developing the color in a second bath containing para-amidodiphenylamin substantially as herein described.

517,534. NUT-LOCK. SYRUS W. WRIGHT, Huffman, Ala. Filed Dec. 16, 1893. Serial No. 493,825. (No model.)



Claim.—The herein described nut lock made from a single piece of metal, consisting of the main or central inclined portion, the loops one at each end adapted to closely surround the bolts, the bends at the open portion of the loops offset on opposite or reverse sides of the loops to give a spring action thereto, and the arms having the tapered or spring ends extending out from the bends and adapted to engage and lock the nuts, said spring arms engaging the inner side of the nuts and being substantially parallel.

517,535. SYSTEM OF ELEVATED AND SURFACE RAILWAYS. CHARLES H. BARROWS, Willimantic, Conn. Filed May 17, 1893. Serial No. 474,543. (No model.)



Claim.—1. In a railway system, an elevated track having the broad girders and central guide rail which accommodate respectively the flangeless traction wheels and flanged central wheels of a car, and a single surface rail adapted to receive the flanged wheels of a car provided with traction wheels, substantially as and for the purpose described.

2. In a railway system, the elevated track comprising the broad girders or sleepers and a central guide rail between the main stations, an elevated car having its trucks provided with the aligned flanged central wheels that ride on the central rail and the axles provided with the flangeless traction wheels that bear on the sleepers or girders, a single surface rail leading to a main station of the elevated line and a surface car provided with central aligned wheels that ride on said single rail and having the traction wheels designed to sustain the car-body in its upright position, substantially as described.

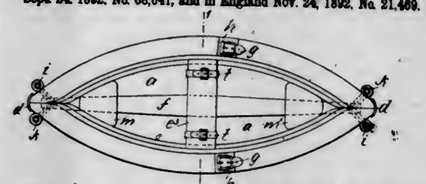
3. In a railway system, an elevated track comprising a central guide rail and the broad smooth sleepers situated parallel to, and in substantially the same horizontal plane with, said central guide rail, an elevated car having at its rear end an axle which carries a central flanged wheel adapted to the middle rail and provided at its ends with traction wheels which normally ride upon the broad sleepers of the track, said car having a pivotal front truck which sustains an axle carrying traction wheels adapted to the side sleepers and provided, in advance and rear of said axle, with independent flanged guide wheels which align with the rear guide wheel of the car and are so disposed as to normally ride upon the central guide rail, for the purposes described, substantially as set forth.

4. In a railway system, the elevated track comprising a central guide rail and the side girders or sleepers, an elevated car having its forward pivoted truck provided with the central flanged wheels that ride on said central rail and with the traction wheels to bear on the girders, and a rear power axle provided with the flanged wheel in line with the flanged wheels of the forward truck and with the broad flangeless traction wheels that bear on the girders or sleepers of the track, substantially as described

5. In a railway system, the combination with a guide rail, of a car, the truck connected with said car and carrying a group of flanged guide wheels all disposed in the longitudinal center thereof, and the transverse axle journaled in the truck and provided at the ends with broad flangeless traction wheels designed to normally bear on a smooth surface to sustain the greatest weight of the car body, as set forth.

6. An elevated railway comprising a track embodying a central guide rail between two sleepers or girders which are built up of sections united laterally together to break joints and present a flat smooth upper surface, a car, the trucks connected with said car and each carrying a group of flanged guide wheels disposed to ride on the central rail and the transverse axles journaled in said trucks and provided with broad traction wheels which ride on the smooth sleepers or girders, substantially as described.

517,536. LIFE-BOAT. CARL BASWITZ, Berlin, Germany. Filed June 17, 1893. Serial No. 478,018. (No model.) Patented in Germany Sept. 24, 1892, No. 68,641, and in England Nov. 24, 1892, No. 21,409.

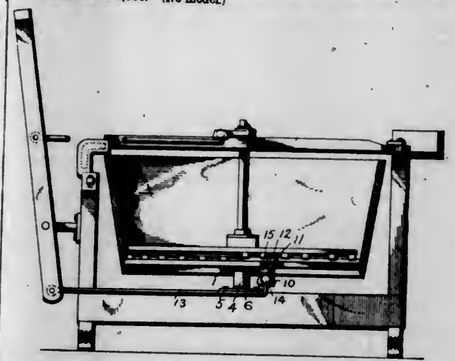


Claim.—1. A boat, having its sides composed of bolsters meeting at stem and stern, said bolsters consisting of envelopes of a watertight fabric stuffed with a yielding buoyant material of low specific gravity, the bottom of the boat also consisting of watertight fabric stayed by a rigid stretcher reaching from stem to stern, for the purpose as described.

2. A boat, having its sides composed of bolsters c^1 c^2 c^3 meeting at stem and stern, said bolsters consisting of envelopes of a watertight fabric stuffed with a yielding buoyant material of low specific gravity, the bottom of the boat also consisting of watertight fabric stayed by a rigid stretcher f reaching from stem to stern, said stretcher supporting cross-stretchers e carrying bolsters c^1 c^2 c^3, the latter being adapted to be used as seats, for the purpose as described.

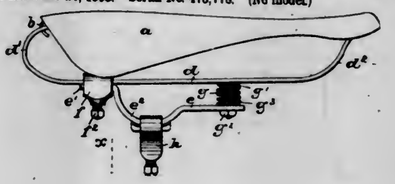
3. A boat, having its sides composed of bolsters c^1 c^2 c^3 meeting at stem and stern, said bolsters consisting of envelopes of a watertight fabric stuffed with a yielding buoyant material of low specific gravity, the bottom of the boat, also consisting of watertight fabric stayed by a rigid stretcher f reaching from stem to stern, said stretcher supporting cross-stretchers e carrying bolsters c^1 c^2 c^3, the latter being adapted to be used as seats, the upper bolster or seat bolster proper being held by straps i secured to cross-straps b p, the latter connecting the sides of the boat, for the purpose as described.

517,537. WASHING-MACHINE. JOSEPH BELTZER, Columbus, Ohio, assignor to James H. Butler, same place. Filed Jan. 23, 1893. Serial No. 459,310. (No model.)



Claim.—In a washing machine, the combination of a plate 1 having a bearing hole 3 and cylindrical tube 4, and a plate 5 having a shoulder 6 to receive the lower end of the tube 4 and a spindle 7 the upper end of which fits in the bearing hole 3, substantially as described.

517,538. BICYCLE-SADDLE. HENRY BERGFELD, Newark, N. J. Filed June 26, 1893. Serial No. 478,778. (No model.)

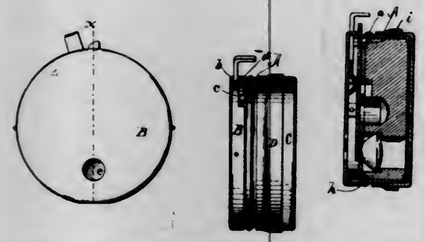


Claim.—1. A spring-support for bicycle saddles, comprising therein an upper and a lower part, arranged one above the other, said lower part carrying a post at its rear end, a disk or head on said post, and an auxiliary spring encircling said post, and said disk or head of said post bearing against said upper part of the spring support and means connected with said post to adjust the tension of said auxiliary spring, substantially as and for the purposes set forth.

2. In a bicycle saddle, the combination with the seat, of a main spring connected with the seat and an independent clamping spring *e*, adjustably connected with said main spring, a post on the rear end of said spring *e*, a disk or head on said post, an auxiliary spring encircling said post, and means connected with said post to adjust the tension of said auxiliary spring, substantially as and for the purposes set forth.

3. In a bicycle saddle, the combination with the seat, of a main spring connected with the seat and an independent clamp-spring *e*, adjustably connected with said main spring, a post on the rear end of said spring *e*, a disk *g* on said post, in normal contact with said main spring, a spring g^3 encircling said post, and an adjusting screw on the lower end of said post, substantially as and for the purposes set forth.

517,539. CAMERA. HERMAN CASLER, Syracuse, assignor of one-half to Harry N. Marvin, Schenectady, N. Y. Original application filed Mar. 1, 1893, Serial No. 464,161. Divided and this application filed Aug. 4, 1893. Serial No. 482,379. (No model.)



Claim.—1. A camera comprising a circular base, a lens seated therein and an eccentrically-pivoted plate provided with a lug on one side adapted to engage with the recesses in the shell and having an exposing slotway adapted to travel in a circuitous direction in making an exposure

2. A camera comprising a circular base, a lens seated therein, an eccentrically-pivoted plate provided with a lug on one side adapted to engage with the recesses in the case and having an exposing slotway and means for causing said eccentrically-pivoted plate to travel in a circuitous direction in making an exposure

3. A camera comprising a circular base, a lens seated therein, an eccentrically pivoted plate provided with a lug on one side to engage with the recesses in the shell or case and a wire band adapted to be seated in the front edge of the base for the purpose of securing said base within the shell.

4. In a camera-case, the combination, with a base or support for the shutter-mechanism, of a shell or casing formed with an annular groove in its inner face, a spring-packing seated partly in said groove and partly in a similar groove in said base, and a front and rear cover as described.

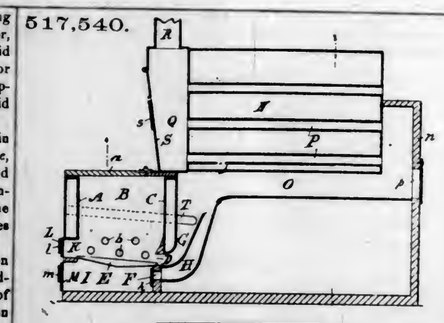
5. A camera-case, comprising a circular shell, a base or support for the shutter-mechanism seated in said shell, and lens seated in said base or support, a front cover provided with an exposure opening and a rear cover inclosing the film chamber.

6. In a camera, the combination, with the base adapted to support a shutter-mechanism, of a shell or casing having one of its edges provided with alternating slots and projections, a front cap or cover connected with said base, indicating marks on the said projections, whereby the relative positions of the lens and plate or film may be determined, and a rear cover for the film chamber, substantially as specified.

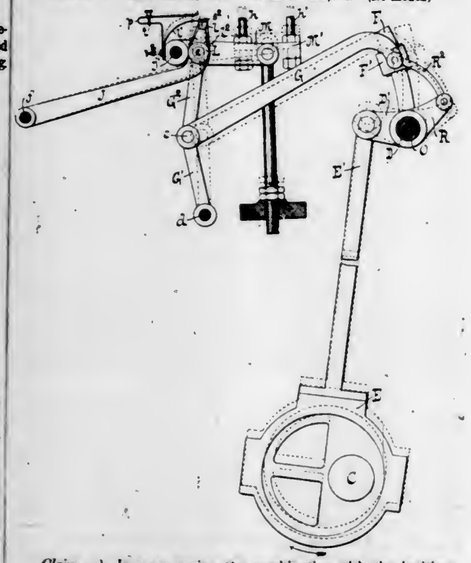
517,540. SMOKE-CONSUMING FURNACE. JEAN F. CHABOTTE, Montreal, Canada, assignor of two-thirds to Gustave des Trois Maisons and Antoine Roy, same place. Filed May 18, 1893. Serial No. 474,617. (No model.)

Claim.—In a smoke consuming furnace, the combination with the fire box, A, B, and C, having its feed door at the top, the grate E, apertures closed by dampers above the surface of the said grate, of the flues G and H, the damper *h* in the said flue H, air tubes T and concave combustion chamber O, substantially as set forth.

517,540.



517,541. GAS-ENGINE VALVE-GEAR. BARTON H. COFFEY, New York, N. Y. Filed Dec. 2, 1892. Serial No. 453,871. (No model.)



Claim.—1. In a gas engine, the combination with the igniting device of an eccentric, a rocker shaft actuated from the same, a lifting lever, a radius rod connecting the same with the rocker shaft, a trigger in operative connection with the admission valve (or valves), a toe on the lifting lever adapted to engage the trigger to lift the same for opening the valve, and means for constraining the motion of the lifting lever in a fixed path, as described, whereby the valve is gradually brought to its seat on the return stroke of the lifting lever, substantially as described.

2. In a gas engine, the combination with the igniting device of an eccentric, a quadrant actuated from the same, a block movably mounted on the quadrant, a toggle lever, a radius rod connecting the same with the block, a trigger in operative connection with the admission valve (or valves), a toe on the lifting lever adapted to lift the same for opening the valve, means for constraining the motion of the toggle lever in a determined path, a governor, and intermediate connections between the same and the block for varying the point of cut off with the load, substantially as described.

3. In a gas engine, the combination with the igniting device of an eccentric, a quadrant actuated from the same, a block movably mounted on the quadrant, a toggle lever, a radius rod connecting the joint of the toggle lever with the block, a radius b connected with the free end of the lever, a trigger carried by a lever in operative connection with the admission valve (or valves), a lifting toe carried by the toggle lever and adapted to engage with the trigger to lift the admission valve, a governor, and an intermediate connection between the governor and the quadrant block, substantially as described.

4. In a gas engine, the combination with the igniting device of the eccentric, a tubular rock shaft, a quadrant actuated from the same, a movable block on the said quadrant, a rod passing through the rock shaft, a sleeve mounted on the rock shaft and provided with an oblique slot, a pin on the rod passing through a slot in the rock shaft and entering the oblique slot in the sleeve, an operative connection between the quadrant block and the sleeve, a governor, and a connection between the same and the rod for moving the same longitudinally with variations in the load, substantially as described.

5 In a gas engine, the combination with the igniting device of an eccentric, a rock shaft actuated from the same, a quadrant and block, a valve lever connected with the same by an intermediate operative connection, and a cam mounted on the rock shaft and engaging the exhaust valve, substantially as described.

6 In a gas engine, the combination with the igniting device the combination of the trigger and its actuating mechanism, as described a contact surface on said trigger, stationary contacts, a battery, an induction coil, and an igniting plug, said stationary contacts being arranged relatively to the contact of the trigger to break the circuit at the point of cut off, to explode the charge, substantially as described.

7 In a gas engine, the combination with the igniting device of the pivoted trigger L′ in operative connection with the admission valve (or valves), and a lifting toe constrained to move in an arc and adapted to lift the trip arm when moved in one direction, said trigger being held to the toe during the retrograde movement by the pressure of the valve to gradually cause said valve to be brought to its seat, substantially as described

8. In a gas engine, the combination with the igniting device of the toggle lever G′ G^3, the lifting toe L, the trigger L′ in operative connection with the admission valves, and means for operating the same, substantially as and for the purpose set forth.

9 In a gas engine, the combination with the igniting device of the toggle lever G′ G^3, the movable lifting toe L, the trigger L′, the lever M in operative connection with the admission valves, and means for operating the same, substantially as and for the purpose set forth.

10. In a gas engine, the combination with the igniting device of the toggle lever G′ G^3, the movable lifting toe L, the trigger L′, the multiplying lever M in operative connection with the admission valves, the radius rod G, the rock arm or quadrant F, the rock shaft D and means for operating the same, substantially as and for the purpose set forth.

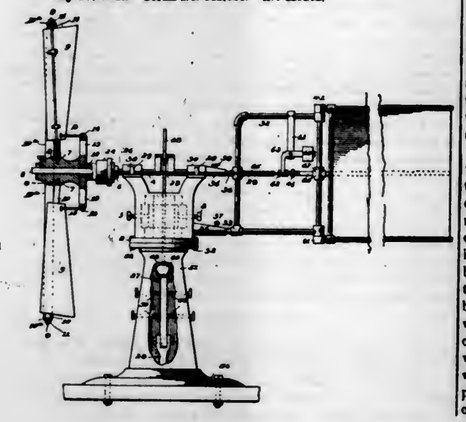
11 In a gas engine, the combination with the igniting device, of the quadrant F, a block F″ fitted to slide thereon, a connection between said block and the admission valve of the engine for operating the same, a governor and a connection between the latter and the block, whereby the block is shifted upon the quadrant to vary the point of cut off of said valve with the load, substantially as described.

12 The combination of the trigger L′ with contact surface e^3, of the trigger actuating mechanism as described the contact springs *p p′*, the igniting plug P, an induction coil, a battery and electrical connections, substantially as and for the purpose set forth.

13. In combination with the trigger L′, and its actuating mechanism as described an igniting plug P, an induction coil, contact springs, a battery and electrical connections whereby the circuit is broken through one coil of the induction coil to induce the passage of a spark at the igniting plug, at the point of cut off, substantially as described.

14. In a gas engine, the combination with the igniting device, of a lifting lever, the movable lifting toe carried by the same and constrained to move in a fixed path, the trigger L′ in operative connection with the valves and adapted to be engaged by the lifting toe, and means for operating the same, substantially as described.

517,542. WINDMILL. TRUMAN D. COOK, Topeka, Kans. Filed July 23, 1892. Serial No. 441,018. (No model.)



Claim.—1. In a windmill, the combination of the pedestal secured to a suitable support, a cap secured to the pedestal, a turn-table mounted on said cap, a wind-wheel mounted on a shaft having its journals in the turn-table, a governing mechanism carried by the thimble of the wind-wheel, consisting of a spider carried on and secured by a set screw to a thimble surrounding and held in position on the wind wheel thimble by a pin working in a groove therein, a sleeve having oppositely disposed parallel and diagonal slots, pins set in the wind-wheel thimble working in the parallel slots and pins set in the governor thimble working in the diagonal slots, a collar surrounding the sleeve and made fast thereto by set screws entering openings in the sleeve, and means for connecting the spider with the wings of the windwheel, a vane frame secured in bosses on the turn table, a vane having wings hinged to the vane-frame, a toggle carried by the wings of the vane, rods connecting the toggle to the governing mechanism on the wind-wheel thimble. substantially as shown and described.

2. In the windwheel of a windmill, wings or sails having a straight and a diagonal edge hung on a line parallel with the straight edge of the wing or sail and between the central or median line and the diagonal edge thereof to arms having threaded inner ends to be set in threaded openings in the hub of the windwheel thimble, and threaded outer ends to receive nuts on the outside of the rim or band encircling the windwheel, and provided with sleeves between the wings and the hub and between the wings and the rim or band to retain the wings in place on the arms, the wings being provided with eyes near the inner end, near the diagonal edge to engage hooks or rods connecting the wings with the spider, of a governing mechanism carried on the windwheel thimble, to retain the wings in or turn them out of the wind, in the manner substantially as shown and described and for the purposes specified

3. In a windmill, a tail vane consisting of a vane-frame secured by extensions of the frame entering and secured in bosses on the turn-table of the wind mill, two curved wings hinged to the vane-frame, the convex faces facing each other and each bearing the arm of a toggle, a governor rod attached to the knee of the toggle and passing through a T on the outer limb of the vane-frame, entering a sleeve attached to the inner limb of the frame, and bearing a cross-bar near the ends of which are attached rods which pass through perforated ears on the superior journal-box on the turn-table and are secured at opposite sides of the connecting collar working in a groove in the governor collar of the governing mechanism carried on the windwheel thimble, and a counterbalance carried on a curved arm supported on a bar attached to the upper arm of the vane-frame, the lower end of the curved arm working between brackets on the governor-rod, substantially as shown and described and for the purposes specified

4. In a wind mill, a governing mechanism consisting of a spider carried on and secured by a set screw to a thimble surrounding and held in position on the wind-wheel thimble by a pin working in a groove therein, a sleeve having oppositely disposed parallel and diagonal slots, pins set in the wind wheel thimble working in the parallel slots and pins set in the governor thimble working in the diagonal slots, a collar surrounding the sleeve and made fast thereto by set screws entering receptacles in the sleeve, means for connecting the spider with the wings of the wind wheel, and means for connecting the collar with a toggle between the wings of the vane, substantially as shown and described.

5. In the governing mechanism of a windmill, a governor sleeve having oppositely disposed parallel slots and oppositely disposed diagonal slots adapted to receive set screws from a surrounding collar, in combination with a windwheel thimble encircled by the sleeve, a governor thimble partly encircling the sleeve and a governor collar extending over the governor thimble and surrounding the sleeve, pins in the windwheel thimble working in parallel slots of the sleeve and pins in the governor thimble working in the diagonal slots of the sleeve, and set screws in the governor collar entering openings in the sleeve, substantially as shown and described and for the purposes specified.

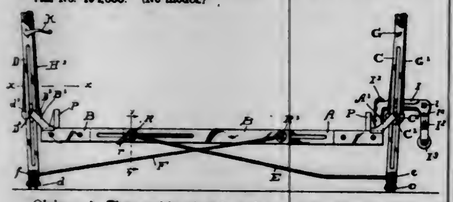
6 In a windmill, a vane governor consisting of a vane having two wings hinged to a vane frame secured by extensions of the frame entering and secured in bosses on the turn-table of the mill, the inner convex face of each wing bearing the arm of a toggle, a governor rod attached at the knee of the toggle passing through a T on the outer limb of the vane frame and entering a sleeve attached to the inner limb of the frame, a thimble surrounding the wind wheel thimble and held in position thereon by set screws working in grooves in the wind wheel thimble, a spider set on the thimble and fixed thereon by set screws, pins in the perimeter of the spider, rods connecting the wings of the wind wheel with the pins on the spider, a sleeve having opposite parallel slots and opposite diagonal slots encircling the wind wheel thimble and partly encircled by the thimble, pins set in the wind wheel thimble working in the parallel slots of the sleeve and pins set in the thimble working in the diagonal slots of the sleeve, a collar surrounding the sleeve and extending over the thimble and se-

cured to the sleeve by set screws entering receptacles therein, a connecting collar working in a groove in the collar, rods secured at opposite sides of the connecting collar and passing through perforated ears on the superior journal-box on the turn-table attached to the cross bar carried by the governor rod, and a counterbalance carried on a curved arm supported on a bar attached to the upper arm of the vane frame, the lower end of the curved arm working between brackets on the governor rod, substantially as shown and described.

7. The combination with the turn-table and with the cap as shown and described supporting the turn-table, the turn-table and cap being recessed as shown to relieve the friction of the bearing parts and the turn-table provided with set bolts to prevent tilting in the wind, of the pedestal hollow as to its central portion having the double row of set bolts to retain the connecting-rod of the wind-mill true in position and a base-plate, substantially as shown and described and for the purposes specified

---

517,543. PIANO-TRUCK. FRANK R. DAVIS, Columbus, assignor of one-half to John R. McCoy, Indianapolis, Ind. Filed Dec. 27, 1893. Serial No. 494,835. (No model.)



Claim.—1. The combination, in a piano truck, of two frame parts A B the legs of which are membered and pass between each other, said legs being also slotted in the other direction, with bolts R R' passing through the slots of the members of one set of frame legs and attached to the ends of the members of the other set of frame legs, whereby an extensible truck body or bottom is secured, substantially as set forth.

2. The combination, in a piano truck, of the truck body or bottom, the end frames, slots or guides in said end frames, shafts secured in said slots or guides, connections between the body or bottom and said shafts, and gearing mounted upon said end frames, whereby said shafts may be driven up and down the same and the truck body or bottom thus elevated and lowered, substantially as set forth.

3. The combination, in a piano truck, of the truck body or bottom, the slotted end frames C D, shafts in the slots, connections between the body or bottom and said shafts, windlasses in the upper ends of said frames C D, and ropes connecting said windlasses and said shafts, whereby they may be elevated, together with the truck body or bottom, substantially as set forth.

4. The combination, in a piano truck, of the body or bottom, arms thereon, shafts connected to said arms, slotted end frames, the slots whereof pass over said shafts, and detachable braces E F connected to the body or bottom and to the end frames, whereby the frames may be secured in position for use, or permitted to be folded down for packing or transportation, substantially as shown and described.

5. The combination, in a piano truck, with the body or bottom adapted to be elevated relatively to the end frames by which it is supported, said end frames, an arm I secured to said body or bottom and extending out and provided with a roller, said parts being arranged and operating as specified, whereby the truck may be utilized in ascending or descending from one level to another, substantially as set forth.

6. The combination, in a piano truck, of the body or bottom, end frames supporting the same, means of raising and lowering the body or bottom relatively to said end frames, a central frame J having a roller J' and means for adjusting and holding said frame and roller, substantially as and for the purposes set forth.

7. The combination, in a piano truck, of the body or bottom, the end frames, the shafts C' and D', the windlasses G and H, ropes G' and H', sheaves c^4 and d^4 on said shafts, and inclosing guards or casings C^3 and D^3 surrounding said sheaves, substantially as set forth.

8. The combination, in a piano truck, of the body or bottom, end frames to which said body or bottom is connected, and mechanism for elevating and lowering said bottom upon said end frames, said bottom being provided with recesses a^4 to receive the rear trucks of the piano when placed thereon, substantially as shown and described

9. The combination, in a piano truck, of the body frame composed of the two frame parts A and B, the two end frames C and D provided with slots, shafts mounted in said slots, connections extending from said frames A and B to said shafts, gearing mounted on said end frames and adapted to drive said shafts, together with the bottom frame, up and down, an arm I extending out from the frame A and bearing rollers, a frame J secured to the other end of the frame A and bearing a roller, and braces E and F connecting the frames A C and B D, respectively, the whole being constructed, arranged and operating substantially as set forth

---

517,544. LAWN-SPRINKLER. JOHN DICKENS, New Brunswick, N. J., assignor to the Dickens Manufacturing Company, same place. Filed Dec. 15, 1893. Serial No. 493,747. (No model.)



Claim.—1. A sprinkler, consisting, essentially, of a collar adapted to be secured in a hose or coupling and having a series of openings therein, a hollow stem extending out from said collar and having a series of openings near its base arranged in radial alignment with the openings in the collar so that the streams of water issuing from said openings will strike at right angles, and a cut-off having openings arranged to register with the openings in the collar and stem and adapted to be operated to disclose a greater or less number of the openings in the collar and stem, substantially as and for the purpose set forth

2. A sprinkling device, consisting of a collar having a series of openings therein, a stem extending out from said collar and having a corresponding series of openings, said series of openings being in different horizontal planes, so that the streams of water issuing from said openings will strike substantially at right angles and thereby distribute the water in the form of finely divided spray, substantially as described.

3. A sprinkler, consisting, essentially, of a collar having a series of vertical openings therein, a hollow stem extending out from said collar and having a series of horizontal openings near its base, corresponding to and in radial alignment with the openings in the collar, a cut-off arranged to fit snugly over the collar and stem and having openings adapted to register with openings in the collar and stem and disclose a greater or less number thereof, and a headed screw arranged in the end of the stem to close the same and adapted to retain the cut-off in place, substantially as described.

4. A sprinkler, comprising a collar having a series of openings therein, a stem extending out from the collar and having a series of openings arranged in radial alignment with the openings in the collar, a cut-off arranged over said collar and stem and provided with openings to register with openings in the collar and stem, and means for limiting the movement of said cut-off, substantially as described.

5. A sprinkler, consisting of a collar having a series of openings therein, a stem extending out from said collar and having a series of openings in radial alignment with the openings in the collar, a cut-off comprising a peripheral plate arranged on the collar and a tube fitting snugly on the stem, said cut-off having a limited movement and being provided with openings to register with openings in the collar and stem and disposed so as to disclose a different number of openings in the collar and stem when the collar is turned into different positions, substantially as described.

6. A sprinkler, consisting of a collar and a stem rigid therewith, said collar and stem being provided with openings arranged in radial alignment, and a cut-off fitted snugly on said collar and stem and provided with openings adapted to register with openings in the collar and stem and so disposed that said cut-off may be operated to confine the discharge of water to openings on one or more sides of the sprinkler or on all sides, as described.

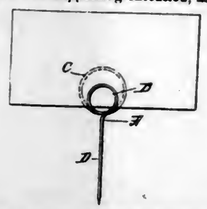
7. The combination with a pipe or coupling of a collar secured in the end thereof and having a series of vertical openings therein, a hollow stem extending out from said collar and having a series of horizontal openings in radial alignment with the openings in the collar, a cut-off comprising a peripheral plate arranged on the collar and a tube fitted snugly on the stem, said plate and tube being provided with openings to correspond with openings in the collar and stem, a headed screw arranged in the end of the stem to close the same and retain the cut-off in place, a recess in said peripheral plate, and a pin rigid with the collar and projecting up in said recess to limit the movement of the cut-off, substantially as described

---

517,545. LABEL-HOLDER. WALTER G. DUCKETT, Washington, D. C. Filed June 20, 1893. Serial No. 478,246. (No model.)

Claim.—1. A card rack, comprising multiple coils of wire, one of which is of larger diameter and forms a backing or rear support for the interposed card, and a supporting extension, as specified.

2. A card rack, comprising one or more concentric coils of wire, an eccentric coil of larger diameter and formed by a continuation of said concentric coils, and a supporting extension, as specified.



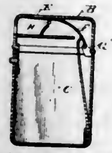
3. A card, sign or label rack, comprising one or more wire clamping coils, an integral rear support or backing projecting above and connecting the coils, and supporting extensions formed by the terminations of the coils, as specified.

4. In a card, sign or label rack, multiple coils of wire, an approximately arch-shaped backing projecting above the coil and formed by bending up the outer extremity thereof, and the terminal shank of the arched backing, as specified.

5. In a card, sign or label rack, a flat spiral clamping coil formed from a single length of wire, the backing or support formed by the approximately arch-shaped termination of the coil and the downwardly bent extremity or shank of the backing, as specified.

6. In a card, sign or label rack, a flat spiral wire clamping coil having one extremity thereof arched and projecting above the coil proper and terminating in a downwardly extending shank and the opposite extremity bent radially and normally resting against the coil to form a spring finger, as specified.

517,546. COMBINED MATCH-BOX AND CIGAR-TIP CUTTER. THEODORE W. FOSTER, Providence, R. I. Filed Nov. 11, 1893. Serial No. 490,669. (No model.)



Claim.—1. A pocket match receptacle consisting of the body portion, the cap piece hinged thereto, having the cigar tip opening in its top face, the guide extending transversely across the cap piece, and the spring knife passing between the guide and cap to close the cigar tip opening, and jointed directly to the body portion forward of the hinge of the cap piece, whereby the cigar tip opening is closed by the knife when the cap piece is closed and opened as the cap piece is opened: substantially as described.

2. The combination with the match receptacle and cap piece hinged thereto and having the cigar tip opening therein, of the spring knife hinged to the body of the receptacle at a point slightly removed from the hinge of the cap piece, and the guide for holding said knife against the top of the cap piece whereby said knife in straightening out will tend to hold the cap piece closed; substantially as described.

3. In a pocket match box, the combination with the hollow body portion having the open end, and the hollow cover hinged to the body portion at one edge and having its sides and edges adapted to close against the sides and edges of the body portion respectively to inclose matches projecting from the box and having a cigar tip opening in its top face, with a guide within the cover and in proximity to the inner side of its top, of a knife working between the guide and top of the cover to open and close the cigar tip opening, and a direct hinge connection between the knife and body of the box at a point forward of the cover hinge, whereby the knife is inclosed within and held against lateral movement by the walls of the cover; substantially as described

---

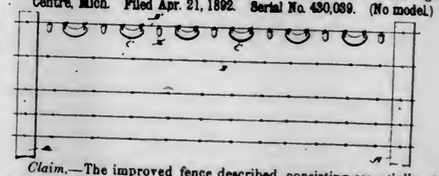
517,547. BURGLAR-ALARM SPRING. MINTHORNE T. GORDON, Stapleton, assignor of one-half to Charles Rudman, New York, N. Y. Filed Dec. 12, 1893. Serial No. 493,490. (No model.)



Claim.—1. The combination, with a base plate A provided with flanges a having apertures a' formed therein, and a contact piece D secured to such base plate but insulated therefrom, of levers B provided with curved segmental portions b working through such apertures, a spring for co-operating with said levers, means for limiting the outward movement of these levers, and means whereby the base plate and contact piece may be connected with electric conductors, substantially as described.

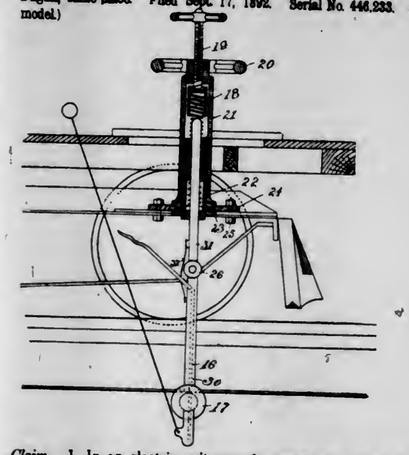
2. The combination, with a base plate A provided with a flange a having an aperture a' formed therein, a contact piece D raised some distance above such plate and provided with a spring end d', and insulating material interposed between the contact piece and the base plate, whereby to insulate the former from the latter, of a lever B pivoted to the base plate, whereby to be capable of movement back and forth under the spring end of the contact piece, and provided with a segmental portion b working through said aperture, and a spring for normally forcing the lever outward from under the contact piece, substantially as described.

517,548. BARBED-WIRE FENCE. LEONARD HERWEYER, Vogel Centre, Mich. Filed Apr. 21, 1892. Serial No. 430,089. (No model.)



Claim.—The improved fence described, consisting essentially of posts and barbed wires, the top runners, the crescent shaped plates, having the holes at opposite ends, the wires D, passing through said holes and forming a loop b, and thence coiled around the runners a number of times as shown at d, and terminating in the barbs c, on opposite sides of the loops b, and the small plates E depending from the runners at points intermediate of the large plates of crescent shape, all adapted to serve, substantially as and for the purpose specified.

517,549. CONDUIT ELECTRIC RAILWAY. WILLIE C. KEITELY, San Francisco, Cal., assignor of one-half to Jo Gordon and Herbert F. Dugan, same place. Filed Sept. 17, 1892. Serial No. 446,233. (No model.)

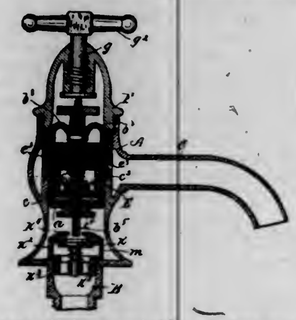


Claim.—1. In an electric rail-way, the combination of underground conduit (1), the wire (8), covering (7) and a hanger for said wire, said hanger consisting of the tube (9), wire (10), flange (11), the upper portion of said tube (9), being made of rubber, spring (15) and means for securing said hanger in said covering, substantially as and for the purpose described.

2. In an electric rail-way, the combination of the underground conduit (1), the wire (8), the flanged hanger trolley arm (16), spring (32) and means for raising or lowering said trolley arm, substantially as and for the purpose set forth.

517,550. FLUID-DISCHARGING APPARATUS. WILLIAM T. MERRIMAN, Boston, Mass. Filed May 2, 1891. Serial No. 391,332. (No model.)

Claim.—1. The combination of the main shell or chamber of a fluid discharging apparatus, with the main valve controlling the flow of fluid therefrom, and the auxiliary valve acted upon by the fluid entering the shell which tends to close said auxiliary valve, said main valve cooperating with the auxiliary valve as described, opening the same when the main valve is opened and permitting the auxiliary valve to close when the main valve is closed, as and for the purpose described.



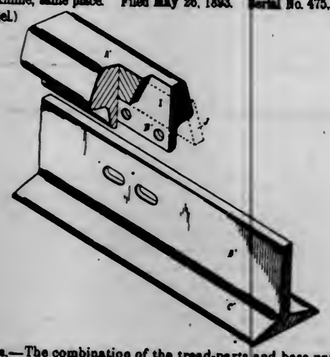
2. The chamber provided at one end with a cylindrical seat piece having lateral ports, and with a packing disk at its other end, combined with the cylindrical valve cooperating with said seat piece and controlling the said ports, and its stem passing through said packing disk, the said chamber having lateral openings between the seat piece and packing disk, substantially as described.

3. A chamber provided at one end with a cylindrical seat piece having lateral ports and with a packing disk at its other end combined with the cylindrical valve cooperating with said seat piece and controlling the said ports, and its stem passing through said packing disk, and said chamber having lateral openings between the seat piece and packing disk, and a cylindrical strainer confined therein by said packing disk, substantially as described.

4. The combination of the main shell or chamber of a fluid discharging apparatus, with the main valve controlling the flow of fluid therefrom, and the auxiliary valve chamber vented as described and the auxiliary valve therein, constantly exposed to the pressure of the fluid entering the shell, which tends to close the said auxiliary valve, said main valve cooperating with the auxiliary valve as described, opening the said valve when the main valve is opened and permitting the auxiliary valve to close when the main valve is closed, substantially as and for the purpose described.

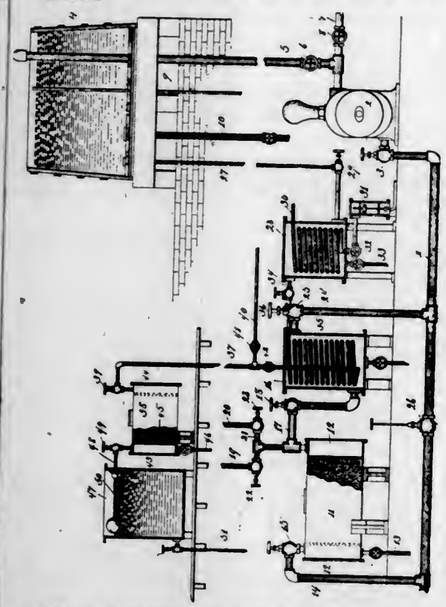
5. The combination of the main shell of the faucet provided with a seat as E with a removable valve chamber having an annulus that engages with said seat, and the valve seating on said annulus, a packing disk at the opposite end of said chamber from said annulus, and a removable cap piece or cover for the valve shell between which and the seat in the valve shell the removable chamber is secured, substantially as described.

517,551. COMBINATION RAILWAY RAIL AND JOINT. WILLIAM H. MCCORMICK, Kalamazoo, Mich., assignor of one-half to Henry A. Kinnie, same place. Filed May 26, 1893. Serial No. 475,549. (No model.)



Claim.—The combination of the tread-parts and base-parts provided with their webs and channels and detachably bolted together, the joints between the ends of the tread-parts alternating with the joints between the ends of the base-parts, the contiguous ends of said tread-parts being provided with the open mortises communicating with the channels of said tread-parts, and the tongues in said mortises resting upon the webs of the base-parts; substantially as set forth.

517,552. APPARATUS FOR PURIFYING WATER. JOSEPH H. MCDONALD, New York, N. Y. Filed Feb. 16, 1893. Serial No. 462,597. (No model.)



Claim.—1. In an apparatus for purifying water, the combination with a supply-pipe and tank, of a filter, a cooling chamber adapted to receive water from the filter, pipes connecting the supply-pipe with the filter and with the cooling chamber, and means whereby the water may be passed through the filter into and through the cooling chamber and thence to the tank, a boiler communicating with said tank, a coil within the cooling chamber communicating with the boiler, a decolorizer communicating with said coil, a reservoir communicating with said decolorizer, and a steam coil within said boiler, whereby the filtered water, after acting as the cooling medium by circulation around the coil in the cooling chamber, is boiled by circulating around the steam coil in the boiler and is cooled by passing through the coil in the cooling chamber, substantially as and for the purpose specified.

2. The combination with a supply-pipe, filter and cooling chamber, of pipes connecting the opposite ends, respectively, of said filter with the supply-pipe and with the bottom of the cooling chamber, a pipe connecting the top of said cooling chamber with said supply-pipe, and a coil communicating with the boiler and entering the cooling chamber at its top, whereby the circulation of the water within the coil, and that within the chamber, will be in opposite directions, substantially as and for the purpose specified.

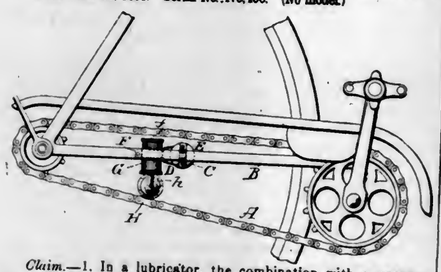
3. In an apparatus for purifying water, the combination with a supply pipe, of a filter and cooler, pipes connecting the opposite ends, respectively, of said filter with said supply-pipe and the lower end of said cooling chamber, a pipe connecting the upper end of said cooling chamber with said supply-pipe, a tank connected to said supply-pipe, a boiler containing a steam coil connected to said tank, a coil within said cooling chamber connected to said boiler, a decolorizer connected to said coil, a reservoir connected to said decolorizer, and a valve in the supply-pipe between the connections of said supply-pipe with the filter and cooling chamber whereby when the valve is closed the water will circulate through the entire apparatus, but when the valve is open will pass to the tank, boiler, decolorizer and finally the reservoir, when it is desired, as for use in cooking, to merely boil and decolorize the water, substantially as and for the purpose specified.

4. In an apparatus for purifying water, the combination with a supply-pipe, filter and cooling chamber, pipes connecting the opposite ends, respectively, of said filter, with the supply-pipe and the lower end of said cooling chamber, a pipe connecting the upper end of said cooling chamber with the supply-pipe, a boiler operatively connected at its lower end with said supply-pipe, a coil within said cooling chamber entering at the upper end thereof and connected to the upper end of the boiler, a pipe adapted to convey the water from the opposite end of said coil, and a steam coil within said boiler, entering at its upper end whereby water is adapted to circulate from the bottom to the top of said boiler around the steam coil and in an opposite direction to the circulation of the steam therein, and to circulate through the coil in the cooling chamber in an opposite direction to the circulation of the cooling medium therein, substantially as and for the purpose specified.

5. In an apparatus for purifying water, the combination with a supply-pipe, filter, cooling chamber and boiler operatively connected, of a coil within said cooling chamber communicating with said boiler, a decolorizer connected at its opposite ends to said coil and to a reservoir by means of valve controlled pipes, of a valve controlled steam pipe communicating with the pipe connecting the coil with the decolorizer, and a wash-out at the opposite end of said decolorizer, whereby the circulation of the water through said decolorizer may be prevented and a jet of steam passed therethrough in a direction opposite to the usual flow of water, substantially as and for the purpose specified.

6. The combination with a supply-pipe, filter, cooling chamber, tank, boiler, decolorizer, and reservoir operatively connected, of a valve adapted to regulate the flow of water into the reservoir, and adapted to be operated by the level of the water in said reservoir, whereby the lowering of the level of the water by drawing off a portion of the same for use automatically causes the circulation of the water through the cooling chamber for the purpose of cooling the advanced current passing through the cooling chamber in the opposite direction to supply the reservoir, said advanced current having been boiled previous to its entrance into said cooling chamber, and whereby, by the raising of the level, the circulation through the entire apparatus is suspended, substantially as and for the purpose specified.

517,553. LUBRICATOR. WILLIAM O. NELSON, Baltimore, Md. Filed June 21, 1893. Serial No. 478,400. (No model.)



Claim.—1. In a lubricator, the combination with a reservoir adapted to hold a lubricant, and a rotary feed wheel, of a spring support having a split ring thereon, means for tightening or loosening the ring about the reservoir whereby the latter may be shifted, a disk constructed for attachment to a support, said disk having a split pin, and means for closing the split end whereby the spring support may be shifted, substantially as set forth.

2. In a lubricator, the combination with a reservoir having an opening in its lower end for the discharge of the lubricant, of a rotary feed wheel located below the hole in position to close the latter and receive a supply of lubricant thereon and an agitator inside of the reservoir adapted to project down through the hole and bear upon the wheel whereby it is kept agitated by the movement of the wheel, substantially as set forth.

3. In a lubricator, the combination with a clamping disk having a stud, of a spring support carried by said slotted stud and a lubricator secured to said spring support.

517,554. WATCHCASE-SPRING. CHARLES NOBS, Newark, N. J. Filed June 19, 1893. Serial No. 478,044. (No model.)



Claim.—1. A watch case spring provided with a holding lip, and a reduced portion at one end of said spring, a tongue on said reduced portion, and said reduced portion being adapted to overlap part of the opposite and free end portion of the spring, substantially as and for the purposes set forth.

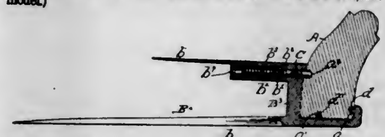
2. The combination, with the case-center of a watch case, of a case spring provided with a holding lip and a narrower portion at the one end of the case spring being connected therewith by a curved portion forming a stop and provided with a tongue, and the opposite end of said spring, when in position in the watch-case being adapted to overlap said narrower portion of the spring, substantially as and for the purposes set forth.

3. The combination, with the case-center of a watch-case, of a case-spring a provided with a holding lip a^2, said spring being provided with a narrower end portion a' having a tongue a^3, and from a point, as at a^4, being of the same width throughout its length, and having a curved end-portion a^4, overlapping said narrow end-portion a', substantially as and for the purposes set forth.

4. The herein described watch-case spring a, curved lengthwise to fit the case center of a watch, and formed with a holding lip a^2, a narrow end portion a' having a tongue a^3, and a curved end-portion a^4, adapted, when in position in the watch-case, to overlap said narrow end portion a', substantially as and for the purposes set forth.

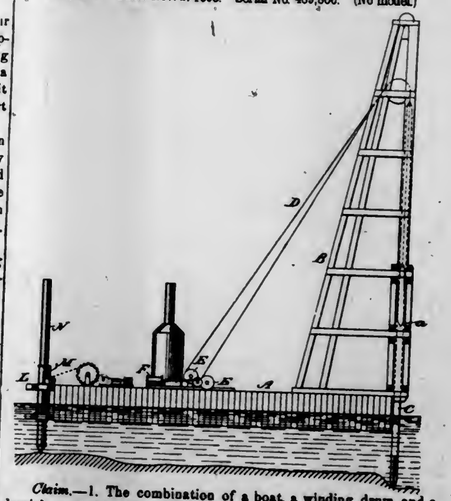
5. The herein described watch case spring, curved lengthwise to fit the case center of a watch, provided with a holding lip and a narrower portion at the one end provided with a tongue, said spring being curved, as at a^3, and forming a stop a^2, against which the end-portion a^4 of the spring abuts while overlapping said narrow end portion, substantially as set forth.

517,555. DETACHABLE STOCK FOR HAND-FIREARMS. IRVIN H. REED, Leadville, Colo. Filed Nov. 2, 1893. Serial No. 489,820. (No model.)



Claim.—In a detachable stock for hand fire arms the combination with a hand grip of the fire arm, having sockets a—a' and a^5 therein, of a stock having a connection section consisting of attaching side bars, the upper bar having an enlargement at its forward end formed with a longitudinal chamber therein, and elongated slots in its sides, a spring actuated bolt in the chamber, pins on the bolt extending through the slots, thumb-pieces on the pins, an arm extending forward from the lower bar, formed with an upturned forward end and fixed inwardly extending lugs on the extension and upturned end adapted to enter the sockets in the handles, substantially as described.

517,556. SUBAQUEOUS ROCK-BREAKER. PETER S. ROSS, Newark, N. J. Filed Nov. 2, 1893. Serial No. 489,806. (No model.)



Claim.—1. The combination of a boat, a winding drum and a derrick carried by the boat, and a pounding weight permanently connected to the drum by means of a cable, the cable and weight being connected together through the intermediation of a cushion connection, substantially as set forth.

2. The combination of a boat, a spud carried by the boat, a drum shaft mounted on the boat and carrying a rotatable hoisting drum.

connected to the spud, a second independently rotatable drum carried by said shaft, an anchor connected to said second drum, said drums being adapted to be independently connected to the drum shaft, and mechanism for driving the shaft, substantially as set forth.

3. A rock-breaking chisel having a wedge-shaped end and made of iron, and provided with a flat core of steel welded into the iron and extending laterally through the chisel and upward from the edge of the wedge, substantially as set forth.

4. The combination of a pounding weight, and a cable permanently attached to the weight through the intermediation of a cushioned connection, substantially as set forth.

5. The combination of a pounding weight provided with a slot, a bolt passing through the slot and engaging therein a link, a link-ring engaging the upper end of the link, a bolster passing through the link and resting upon the weight and beneath the link-ring, and a cable permanently connected to the link-ring, substantially as set forth.

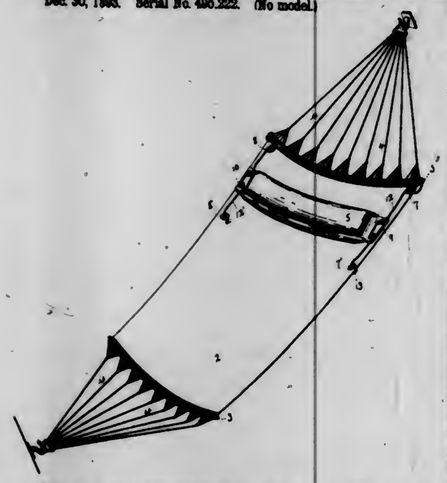
6. The combination of a pounding weight provided with a slot, a counter-sunk sealed bolt passing through the slot threading a thimble in the slot and engaging a link therein, a link-ring engaging the upper end of the link, a wooden bolster passing through the link and resting upon the weight and beneath the link-ring, and a cable permanently connected to the link-ring, substantially as set forth.

7. An iron tubular spud-well provided with a longitudinal gutter and with an aperture in the gutter, and carrying a pulley arranged in line with said aperture, substantially as set forth.

8. A spud comprising a long iron body portion tubular throughout its length and an iron shoe having a circumferential shoulder, the tubular body overlapping the shoe and resting upon the shoulder, substantially as set forth.

9. A spud comprising a long iron body portion tubular throughout its length and an iron shoe carrying an eyebolt and having a circumferential shoulder, the tubular body overlapping the shoe and resting upon the shoulder, and a chain attached to the eyebolt, substantially as set forth.

517,557. HAMMOCK. THEODORE B. THOMAS, Quincy, Mass. Filed Dec. 30, 1893. Serial No. 496,222. (No model.)



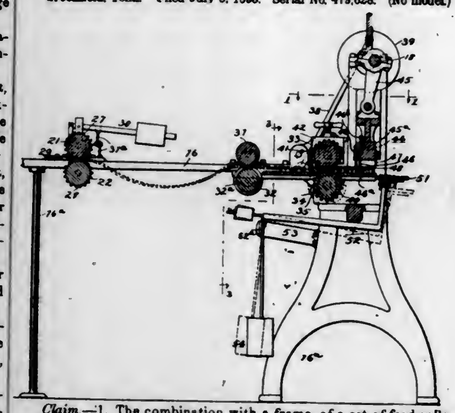
Claim.—1. As a new article of manufacture, a pillow furnished hammock provided with flexible bands extending along the opposite edges in part of the hammock, and adapted to engage the pillow which is adjustably movable thereupon, substantially as and for purposes explained and set forth.

2. In combination with a hammock, a pillow detachably secured thereto, means for positively securing the pillow to the hammock, and fastening devices at the pillow ends adapted to allow movement of the pillow, while so attached, substantially as described and stated.

3. The combination with a hammock, and two flexible bands secured longitudinally to the hammock along or near the edges in part, and having detachable ends, of a pillow, fastening devices at each end of said pillow to engage the bands and allow movement of the pillow while attached to the hammock, substantially as described.

4. In combination a hammock, two eyeleted openings disposed some distance apart at or near opposite edges and at one end of the hammock, flexible connections which extend between two openings on the same side, a detachable pillow, and fastening devices thereupon at each end to engage the flexible connections on the hammock and adapted to allow movement of the pillow longitudinally of the hammock while positively fastened to the latter, substantially as specified.

517,558. VENEER-MORTISING MACHINE. HENRY C. WARD, Greenfield, Tenn. Filed July 5, 1893. Serial No. 479,628. (No model.)



Claim.—1. The combination with a frame, of a set of feed-rolls located upon the frame and means for operating said rolls, the upper roll of said set being journaled in boxes yieldingly held upon the frame, levers pivoted to brackets upon the frame and connected to the boxes in which the roll is journaled, cross-bars 31ª each connected at one of their ends to the brackets and at their other ends to the levers and to each other at their centers, whereby both sides of the roll may be lifted at the same time, substantially as described.

2. The combination with a frame of a set of feed-rolls located and journaled upon the frame and placed one above the other, and so connected as to rotate in unison the upper roll being carried in boxes adjustably held in journal bearings which bearings are pivoted in brackets located upon the frame, the lower feed-roll having devices for giving it an intermittent motion, substantially as described.

3. The combination with a frame, of a set of feed-rolls located and journaled upon the frame and placed one above the other, the upper roll being carried in boxes adjustably held in journal bearings, which bearings are pivoted in brackets located upon the frame, the lower feed-roll having a ratchet wheel secured to the shaft and an arm carrying a pawl adapted to engage the teeth in the ratchet wheel, the said pawl carrying arm being loosely mounted upon the feed roll shaft and provided with means for oscillating same, both feed-rolls being so connected as to rotate in unison, substantially as described.

4. The combination with a frame, of a set of feed-rolls located and journaled upon the frame and placed one above the other, the said rolls being narrower than the width of the material which passes between the same, the upper roll being carried in boxes adjustably held in journal bearings which bearings are pivoted in brackets located upon the frame, the lower feed-roll having a ratchet wheel secured to the shaft, and an arm carrying a pawl adapted to engage the teeth in the ratchet wheel, the said pawl carrying arm being loosely mounted upon the feed-roll shaft and provided with means for oscillating same, both feed-rolls having a spur gear secured to each shaft and which engage each other, whereby both feed-rolls may rotate in unison, substantially as described.

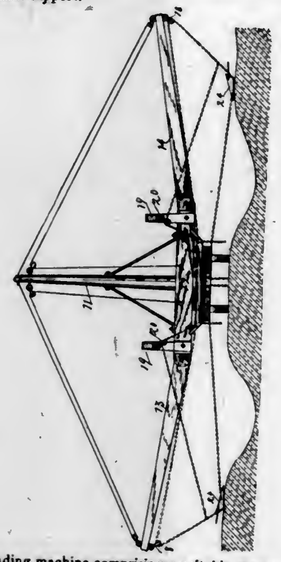
5. The combination with a frame, of a receiving table having an L-shaped arm 52 secured at one of its ends to the under side of the table the other end being secured to a cross-bar pivoted to brackets arranged upon the frame, the said cross-bar being provided with a counter-balance, whereby the said table will yield when weight is placed thereon, substantially as described.

6. The combination with a feed-roll properly journaled in a frame and carrying a ratchet wheel at one of its ends, of a frictional device comprising two pieces of suitable material secured at one of their ends to frame and engaging at their other ends the opposite faces of the ratchet wheel, and means for drawing the two pieces together whereby different degrees of friction may be secured, substantially as described.

517,559. MACHINE FOR GRADING RAILROADS, &c. CHARLES W. ARCH, Eagle Grove, Iowa, assignor of one-half to G. H. Traner, same place. Filed July 14, 1893. Serial No. 480,552. (No model.)

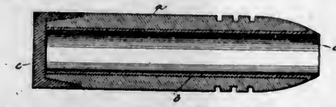
Claim.—1. In a grading machine, the combination of a suitable support, a frame mounted on said support, and horizontally movable,

relative thereto, a mast vertically positioned on said support, booms adjustably secured to said support, and extended transversely therefrom, drag scrapers, and chains connecting said drag scrapers with the said frame and with the support, and means for moving said frame relative to said support.



2. A grading machine comprising a suitable support, a base sill transversely positioned on said support, a mast vertically positioned in said sill, booms hinged to the outer ends of said sill, adjustable connections, between the outer ends of said booms, and the mast-top, a frame connected with said support, a sliding bar fixed to said frame and extended rearwardly on the said support, drag chains fixed to said frame, drag scrapers fixed to said drag chains, dumping chains fixed to said frame and connected with said scrapers, goose-neck arms adjustably mounted on said sill, blocks mounted on said arms, and supporting the bight of the dumping chains, a return chain fixed to the sliding arm and extended through sheaves and blocks to a point of attachment with the said scraper, and means for operating the said frame.

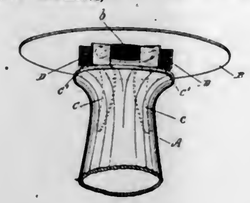
517,560. PROJECTILE. FRANK M. ASHLEY, Hawthorne, assignor of one-fourth to Wood McKee, Paterson, N. J. Filed Feb. 29, 1892. Serial No. 423,109. (No model.)



Claim.—1. A cylindrical projectile having an axial passage extending entirely through it, an open ended tube fitting said passage and having a bell-shaped rifled mouth at its forward end.

2. A cylindrical projectile having an axial passage extending entirely through it and made of soft material, such as lead, and a lining tube of harder material than the body of the projectile and having its forward end reinforced for the purpose described.

517,561. UTENSIL FOR COOKING FOOD OVER LAMP-CHIMNEYS. AUGUSTA N. AYRES, Beverly, Mass. Filed July 27, 1893. Serial No. 481,680. (No model.)



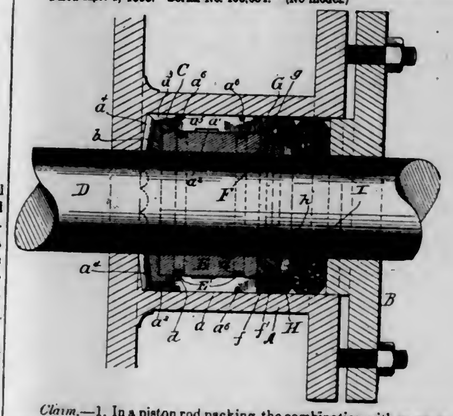
Claim.—The herein described cooking or heating utensil consisting of a plate B having a draft opening *b* combined with expansive prongs C, C adapted to enter the chimney and having [ ] shaped supporting pieces C', C' in their upper ends secured to the plate B and adapted to serve as means for holding said plate B at a proper distance above the chimney top as well as providing draft passages and retaining device for curling tongs, substantially as and for the purpose set forth.

517,562. COMPOUND FOR CLEANING BOILERS. FRIEDRICH BERGER, Pilger, Nebr. Filed Sept. 14, 1893. Serial No. 485,475. (No specimens.)

Claim.—1. A compound for preventing incrustation in steam boilers, made up of chicory, ashes of barilla or kelp, cotton-seed oil and carbolic acid.

2. The compound herein described made up of forty-eight parts of powdered chicory, forty-eight parts of ashes of kelp, four and three-fourths parts of cotton-seed oil as a binding for the aforesaid ingredients, and a sufficient quantity of carbolic acid to preserve the same and prevent mold or vegetable growth, the composition being adapted to be placed in steam boilers for the purpose of preventing the formation of scale.

517,563. PISTON-ROD PACKING. ALEXANDER H. CLARK, Fond du Lac, Wis., assignor of one-half to Isabella E. Clark, Denver, Colo. Filed Apr. 1, 1893. Serial No. 468,651. (No model.)



Claim.—1. In a piston rod packing, the combination with an open cage, of a segmental, metallic packing ring inserted in said cage said segments each extending from end to end thereof, substantially as set forth.

2. In a piston rod packing, the combination with an open cage, of a segmental, metallic packing ring inserted in said cage said segments each extending from end to end thereof, and springs encircling said metallic, segmental packing ring, substantially as set forth.

3. In a piston rod packing, the combination with a cage having a number of slots or openings adapted to receive steam or water which may enter the packing, the posts dividing said slots or openings, being provided with recesses on their inner faces, of a segmental packing ring, located within said cage, substantially as set forth.

4. In a piston rod packing, the combination with an open cage made in separable parts, of a segmental, metallic packing ring located within said cage said segments each extending from end to end thereof, substantially as set forth.

5. In a piston rod packing, the combination with a cage, and a segmental packing ring located within said cage and extending from end to end thereof, of a narrow segmental packing ring adapted to bear against the first-mentioned packing ring, beyond the cage and a spring encircling said narrow segmental packing ring, substantially as set forth.

6. In a piston rod packing, the combination with a sectional packing ring, and an outer ring having an inclining or beveled upper face of a flexible ring adapted to be inserted in the space between the sectional packing and the ring with the bevel or inclined upper face whereby to force the latter outwardly against the inner wall of the stuffing box and the sectional packing ring inwardly against the piston rod, substantially as set forth.

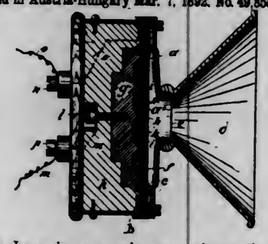
7. In a piston rod packing, the combination with a cage and a packing ring located therein and extending from end to end thereof, of a narrow metallic, sectional packing ring adapted to bear against the packing ring in the cage, a metallic packing ring having abutting

ends and an inclined or beveled inner face, adapted to bear against the end of the cage, and a flexible packing ring inserted in the space between the narrow sectional, metallic packing ring and the beveled packing ring, and adapted to force the former against the piston rod and the latter against the inner wall of the stuffing box, substantially as set forth.

8. In a piston rod packing, the combination with a cage and a packing ring located therein and extending from end to end thereof, of a narrow, metallic, sectional packing ring adapted to bear against the packing ring in the cage, a metallic packing ring having abutting ends and an inclined or beveled inclined inner face and adapted to bear against the end of the cage, a flexible packing ring inserted in the space between the beveled packing ring and the narrow segmental packing ring, and a larger flexible packing ring, adapted to bear against the first-mentioned flexible packing ring, substantially as set forth.

9. The combination with a metallic cage, and a segmental packing ring lining the entire interior of the cage, of a packing ring bearing against one end of the cage, said ring provided with a beveled or inwardly inclined upper face, a segmental packing ring within the beveled ring and adapted to bear upon the piston rod, textile ring inserted in the space formed between this beveled face and the sectional ring, and a textile ring inserted between the first mentioned textile ring and the gland, substantially as set forth.

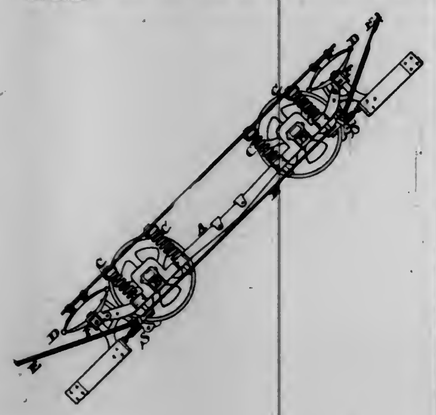
517,564. MICROPHONE. WILHELM DECKERT, Vienna, Austria-Hungary. Filed Mar. 1, 1893. Serial No. 464,259. (No model.) Patented in France Nov. 28, 1891, No. 217,736; in England Dec. 9, 1891, No. 21,565, and in Austria-Hungary Mar. 7, 1892, No. 49,855 and No. 2,654.



Claim.—1. In grain- or powder- microphones the combination with a box or casing, a cover, and a mouth piece attached thereto, of diaphragm *a* of electric conducting material, covered on its side facing the mouthpiece with a protective coating against moisture, and on its other side with a coating of elastic non-conducting material *f*, leaving an uncovered conducting surface *a'*, and of an electrode *g*; substantially as and for the purpose described.

2. In grain- or powder- microphones the combination with a box or casing a cover and a mouthpiece attached thereto of diaphragm *a*, an electrode *g* with alternately placed diamond points facing the diaphragm, and of tufts or brushes *h* of elastic non-conducting material attached to the diamond points opposite to conducting space *a'*; substantially as and for the purpose described.

517,565. MOTOR-CAR TRUCK. WILLIAM A. DUTTON and JACOB P. PFETCH, Cleveland, Ohio. Filed Nov. 20, 1893. Serial No. 491,504. (No model.)



Claim.—1. The side bars for car trucks having the journaled yokes integral therewith, and the ends of said bars bent inclinatorily upward, for supporting the elliptic springs on a higher plane, substantially as described.

2. In a car truck the combination with the side bars having their middle portions between the journal bearings forged in truss form, and their ends bent upward inclinatorily; of elliptic springs supported on the ends of said bars, the brackets bolted or riveted to said bars and adapted to clamp the springs thereon, substantially as described.

3. A side bar for car trucks, having its middle part bent downward and of greater depth than its remaining part and its ends bent inclinatorily upward, substantially as described and for the purposes specified.

4. In a car truck, the combination with the side bars, of brackets secured to the ends thereof, each of said brackets being made in two parts formed with recesses arranged to provide an opening when said two parts are together, elliptical springs seated in said openings, and arms, each projecting from one of said parts of the bracket over said opening to the other member of the bracket, said arms confining the springs to their seats, substantially as shown and described.

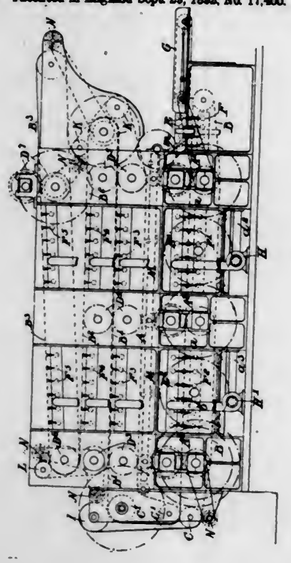
5. In a car truck, the combination with the side bars having the middle portions between the journal bearings forged in truss form; elliptic springs supported on the ends of said side bars, brackets bolted or riveted to said bars, and clamping the same to the bars, cross bars joining two opposite brackets at each end of the truck, recess caps bolted or riveted to the upper chord or sill-plate, and the cross beams supported in said caps at each end of the truck, substantially as described.

6. In a car truck, the combination with the side bars having their ends extending inclinatorily upward, and the elliptical springs supported on said ends, of coiled springs, bolts encircled by said coiled springs and extending through said side bars, and inclined rods E and horizontal rods E' having their adjacent ends secured to the lower ends of said bolts, substantially as shown and described.

7. In a car truck, the combination with the side bars, and elliptical springs supported thereon, of the upper bars, cross beams projecting over said springs, and caps, secured to said upper bars and having mortises to receive the ends of said cross beams and the upper parts of said elliptical springs, substantially as described and for the purposes specified.

8. The combination with a car truck, the brake shoes and the brake beams, of equalizing levers, L L, attached to said brake beams, levers, M M, each pivoted at one end to an end of an equalizing lever, the connecting rods, O O, joining the levers M L at one end of the truck with the corresponding levers at the other end thereof, and pull rods N N, substantially as shown and for the purposes specified.

517,566. WOOL-WASHING MACHINE. GEORGE L. P. EYRE, London, and THOMAS J. HOPKINS, Trowbridge, England; said Hopkins assignor to said Eyre. Filed Dec. 6, 1892. Serial No. 454,242. (No model.) Patented in England Sept. 29, 1892, No. 17,405.



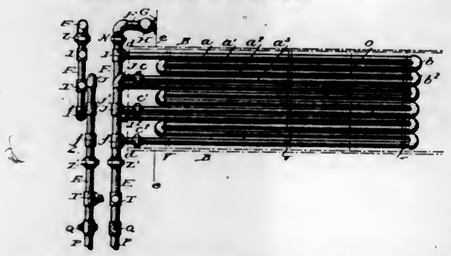
Claim.—1. In an apparatus for washing or cleansing wool or other material, the combination with an endless reticulated conveyer apron for the same, of sets of spraying tubes arranged along the path of said apron at suitable intervals, for projecting a liquid cleansing agent against or through the wool or other material on the apron, from both sides thereof, and presser-rollers interposed between the sets of spraying tubes, substantially as described.

2. The combination with an endless reticulated conveyer-apron upon which the wool or other material is placed, of alternately arranged spraying tubes, for projecting the cleansing agent against the apron, and presser-rollers, disposed in pairs for squeezing the polluted agent out of the wool or other material on the apron, the latter not being submerged in the cleansing agent, troughs or tanks beneath said spraying tubes and apron for catching the polluted agent, and means for again forcing said polluted agent against the apron, substantially as described.

3. The combination with a series of conveyer aprons and presser-rollers for each apron, of spraying devices for the cleansing agent arranged in proximity to each apron, and means for transferring the wool or other material successively from apron to apron in a reversed or turned-over position, so as to alternately subject the opposite sides thereof to the action of said cleansing agent, substantially as described.

4. The combination with an endless conveyer apron of a pair of feed-aprons projecting over one end of the former and means whereby said feed-aprons may be alternately thrown into and out of operation for the purpose of receiving a fresh supply of the material undertreatment, substantially as described.

517,567. AUTOMATIC WATER-CIRCULATING FIRE-GRATE. EDWIN D. FERRIS and GAGE M. WHEELER, Tacoma, Wash. Filed Feb. 20, 1893. Serial No. 463,138. (No model.)



Claim.—1. The combination, in a tubular fire grate, of a tubular fire grate having sections, Y; with a feed pipe F, having a stop cock H, and a union Z and connections I, I', I^2, and K connected to the boiler C; with a discharge pipe E, having connections J, J', J^2, and a union Z' and a stop cock U, connected to the dome or upper part of a boiler or dome D; with a blow off pipe P, having a stop cock Q, connected to pipe E, all substantially as set forth.

2. The combination in a tubular fire grate, of a tubular section Y, having tubular bars and tubular return bends, and connection K and unions *c*; with other like tubular sections Y, each adjustable to the feed pipe F, and the discharge pipe E, independently of each other, all substantially as set forth.

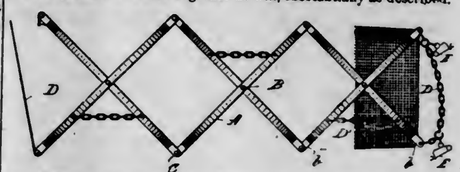
3. The combination in a tubular fire grate, of a tubular section Y, having connections K, and unions *c*; with a feed pipe F, having connections I, and a union Z, and stop cock H, attached to a boiler C, with a discharge pipe E, having connections J, and union Z', and stop cock U, and blow off pipe P, all substantially as set forth.

4. The combination in a tubular fire grate, of a feed pipe F, having a flanged plug valve or stop cock H, a union Z and connections I, I', I^2, adjustable to a boiler C, and a grate section Y, with a tubular fire grate O, having sections Y; with a discharge pipe E, having connections J, and union Z', and stop cock U, and a blow off pipe P, having stop cock Q, all substantially as set forth.

5. The combination in a tubular fire grate, of a discharge pipe E having connections J, a union Z', a stop cock or flanged plug valve U, and a blow off pipe P, adjustable to the boiler, as at dome D, and to the grate at J, with a tubular grate O, having sections Y, with a feed pipe F, having connections I and union Z, and valve H, all substantially as set forth.

517,568. ATTACHMENT FOR LADIES' DRESSES FOR PROTECTING BANDS OF FLOWERS. FLORENCE M. FLETCHER, Knighton, assignor to Charles Edward Whitmore and Charles Dundas Price, Leicester, England. Filed Feb. 3, 1893. Serial No. 460,904. (No model.) Patented in France May 4, 1893, No. 227,703.

Claim.—1. As a new article of manufacture, a flower-protecting dress attachment, consisting of two or more arches, so connected as to be expanded or folded together at will, substantially as described.



2. The combination with a flower-protecting, dress-attachment, consisting of two or more arches so connected as to be expanded or folded together at will, of a cover of any suitable fabric secured thereto, substantially as described.

3. As a new article of manufacture a flower-protecting dress attachment, consisting of two or more arches, connected at base by a set of pivoted levers, substantially as described.

517,569. ADJUSTABLE DESK-BRACKET FOR ELECTRIC LAMPS. STEPHEN G. GARLOCK and BENNIE W. MARSHALL, St. Louis, Mo., assignors to William J. Marshall, same place. Filed May 8, 1893. Serial No. 473,383. (No model.)



Claim.—1. The improved electric-lamp attachment for desks, having a fixed horizontal guide-bar, angular in cross-section and fitted with a bracket at each of its ends for securing it parallel to and above the top of a desk, a loose traveler having an opening therethrough corresponding to the cross-section of said guide bar, and said traveler mounted loosely upon said guide-bar with said opening engaging the same, means for preventing revoluble movement of said traveler upon said bar, a socket-piece 11, a bolt 12 which engages said socket piece and said traveler, and pivotally secures said socket to said traveler, said socket having a circular screw-threaded opening 13, a hollow arm 14 screwed into said opening, an electric-lamp socket mounted upon the free end of said arm, and electrical conductors connected to said lamp socket and passing through said arm and through the opening in said socket piece 11, and arranged to carry an electric current to and from a lamp located in said lamp socket, and thereby illumine said lamp continuously while said traveler is being adjusted longitudinally on said bar, and while said socket and arm are being swung around upon said traveler, substantially as herein specified.

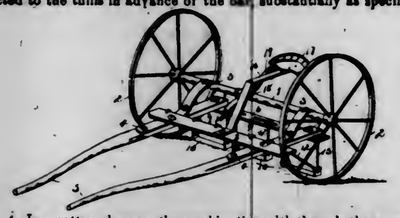
2. The combination, in an electric lamp attachment for desks, of a horizontal guide-bar 4 angular in cross-section, an upwardly projecting bracket 5 formed integral with said bar at one of its ends, an other bracket 6 detachably secured to the opposite end of said bar, each of said brackets constructed to support said bar horizontally above and parallel to the top of a desk, a screw 9 which secures said bracket 6 to the end of said bar, a traveler 7 consisting of an elongated rectangular block having a rectangular transverse opening 10 and loosely mounted to slide upon said guide-bar, means for preventing rotation of said traveler upon said bar, a bolt 12 which engages the lower end of said traveler, a socket piece 11 having a circular screw-threaded opening 13 and revolubly mounted upon the lower end of said traveler and secured thereto by means of said bolt, a curved hollow arm 14, one end of which is threaded into the opening 13 of said socket piece, an electric lamp socket 15 mounted upon the free end of said hollow arm, and two flexible electrical conductors located within said arm and connected to said lamp socket and passing through the screw-threaded opening 13 of said socket piece, one upon one side of said bolt 12 and one upon the opposite side of said bolt, substantially as herein specified.

517,570. COTTON-CHOPPER. WILLIAM H. J. GOODWIN, Raleigh, N. C. Filed June 27, 1893. Serial No. 478,974. (No model.)

Claim.—1. In a cotton chopper the combination with an axle and opposite ground wheels, of a subjacent bar, hoes depending therefrom, thills terminating below the axle and connected to the bar and springs interposed between the axles and bar, substantially as specified.

2. In a cotton chopper, the combination with an axle its ground wheels and a subjacent bar provided with hoes, of thills terminating below the axle and connected to the bar springs interposed between the axle and bar, and means for raising the bar and its hoes against the tension of the springs, substantially as specified.

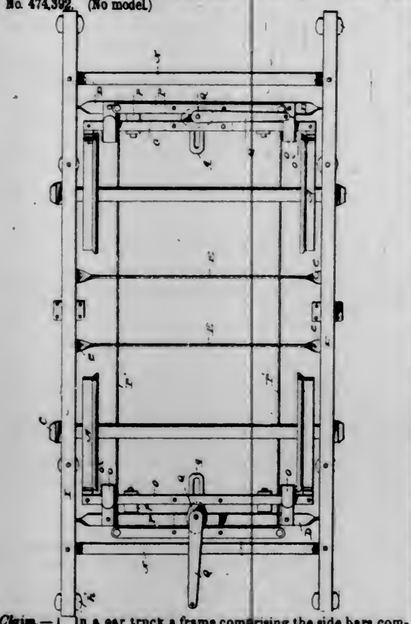
3. In a cotton chopper, the combination with an axle and its ground wheels, of a subjacent hoe carrying bar, thills terminating below the axle and connected to the bar, curved flat springs secured to and extending forwardly and downwardly from the axle, and connected to the thills in advance of the bar, substantially as specified.



4. In a cotton chopper, the combination with the axle the ground wheels, the curved springs secured to and extending forwardly and downwardly from the axle, the opposite thills bolted to the springs and extending in rear thereof to points below the axle, the perforated bar arranged over the springs and thills, the standard rising from the perforated bar and supporting the driver's seat above and in rear of the axle, and a foot lever mounted on the axle adjacent to the seat of a slotted bar arranged under and bolted to the rear ends of the thills, a series of U-shaped hoes arranged under the bar, bolts passed through the ends of the hoes, adjusting rods passed through the slots of the bar and provided above and below the same with nuts, inclined suspension rods terminating at their lower ends in eyes engaging the bolts and at their front ends in hooks engaging the perforations of the bar, and a chain between the rear bar and the foot lever, substantially as specified.

5. In a machine of the class described, the thills 5 and the transverse beam 6 secured to the ends thereof and provided with slots, the U-shaped hoes 10, and front and rear suspension rods 12 and 13 for the hoes, the rear rods 13 being adjustably fitted in the slots of the beam 6, and the front rods loosely connected to a cross bar of the thills, substantially as specified

517,571. CAR-TRUCK. JAMES L. HARDIE, Chester, Pa., assignor of one-half to John J. Leary, same place. Filed May 16, 1893. Serial No. 474,392. (No model.)

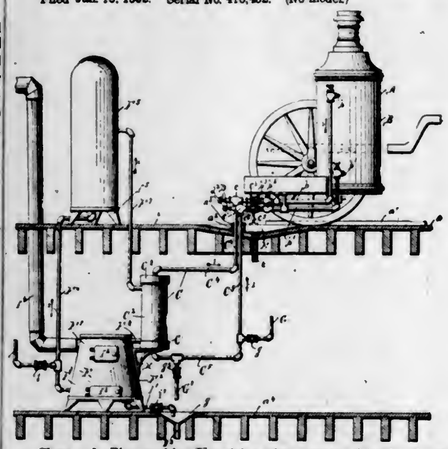


Claim.—1. In a car truck a frame comprising the side bars composed of two sections with a space between, the cross-bars connecting the side bars and supporting the brake mechanism, springs located centrally of the frame, sills located above the side bars, and levers pivoted between the sections of the bars having their outer ends connected with the ends of the sills and their inner ends with the springs, substantially as described.

2. In a car truck a frame comprising the side bars with cross bars connecting the same, springs located in openings in the center of the side bars, sills mounted above the side bars, and levers pivoted in the side bars having their inner ends connected to the springs and their outer ends to the ends of the sills, substantially as described.

3. In a car truck a frame comprising the side bars composed of two sections with a space between, springs located in openings in the center of the side bars, levers pivoted between the sections having their inner ends connected to the springs, sills located above the side bars having their ends resting upon the outer ends of the levers, and projections extending from the lower face of the sills between the sections, substantially as described.

517,572. WATER-HEATER. EDWARD HAYES, Rochester, N. Y. Filed Jan. 18, 1892. Serial No. 418,432. (No model.)



Claim.—1. The combination with a pipe connected in the circulation of a portable boiler, and an automatically operating check valve connected to said pipe; of a second pipe communicating with the former, and a movable rod for rocking the valve piece of the check valve when said pipes are in communication, and permitting a flow through said pipes, substantially as and for the purpose set forth.

2. The combination with a pipe connected in the circulation of a portable boiler, and an automatically operating check valve connected to said pipe; of a second pipe communicating with the former, and a rod mounted within the latter pipe and adapted to project beyond the same and within the check valve for opening the same, substantially as and for the purpose specified.

3. The combination with a pipe connected in the circulation of a portable boiler, and an automatically operating check valve connected to said pipe; of a second pipe communicating with the former, a rod within the latter pipe, a bushing on the latter pipe through which said rod is movable, and a hand engaging portion at the outer extremity of said rod, substantially as and for the purpose set forth.

4. The combination with a pair of pipes connected in the circuit of a portable boiler, and check valves connected to said pipes at their extremities; of a pair of normally fixed pipes for receiving the ends of the former pipes and movable rods within the latter pipes for operating the check valves, substantially as and for the purpose specified.

5. The combination with a pair of pipes connected in the circuit of a portable boiler, and check valves connected to said pipes at their extremities; of a pair of normally fixed pipes for receiving the ends of the former pipes, movable rods within the latter pipes for operating the check valves, and a catch basin beneath the ends of the fixed pipes for receiving the water when the portable boiler is withdrawn, substantially as and for the purpose set forth.

6. The combination of a pipe connected in the circulation of a portable boiler, and an automatically operating check valve connected to said pipe; of a second pipe communicating with the former pipe and provided with a movable wearing extremity adapted to encircle the projecting end of the former pipe, and a movable rod within the latter pipe for rocking the valve piece of the check valve when said pipes are in communication and permitting a flow therethrough, substantially as and for the purpose set forth.

7. The combination with a portable boiler having an inlet and an outlet, and automatically closing valves in said inlet and outlet and a water circulating system composed of a shell and conduits adapted to be connected to the inlet and outlet of the portable boiler for passing a circulation through the same; of a stationary heater having a water leg and a heating system composed of fluid containing conduits leading into the bottom and out the top of said leg and thence through said shell in proximity to the conduits of the circulating system therein but disconnected therefrom for raising the temperature of the water therein without mingling the fluid in the heating system with said water, substantially as and for the purpose specified.

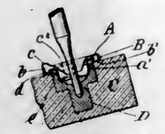
8. The combination with a pipe connected in the circulation of a portable boiler and an automatically operating check valve connected to said pipe; of a second pipe communicating with the former, a movable rod for rocking the valve piece of the check valve when said pipes are in communication, a water circulating system composed of conduits connected to said second pipe for passing the circulation of water therethrough, a stationary heater, and a heating system composed of conduits arranged in proximity to the conduits of the circulating system, and disconnected therefrom for raising the temperature of the water therein without mingling the fluid in the heating system with said water, substantially as and for the purpose set forth.

9. The combination with a portable boiler mounted on wheels, guides on the floor for said wheels, inlet and outlet pipes leading rearwardly from the boiler, and an outwardly-closing flap-valve in each pipe near its end; of a pair of fixed pipes formed without valves, brackets rigidly supporting the front ends of these pipes from the floor in horizontal position to receive the ends of the former pipes, upright pipes leading from a hot water circulating system vertically through the floor and into said fixed pipes near their closed rear ends, a shoulder on the floor supporting said upright pipes, a bearing in each of the fixed pipes near its front end, a rod sliding through this bearing and through the rear end of the fixed pipe for opening the valve in the first pipe when the boiler is brought into its normal position, and a catch basin beneath the ends of said fixed pipes, substantially as described.

10. The combination with a portable boiler having an inlet and an outlet; of pipes adapted to be removably connected to the inlet and outlet of said boiler when in its normal position, a circulating conduit —C'— depressed beneath the plane of the said pipes and connected thereto for passing a circulation through the same into the boiler, a heating system provided with a conduit —F⁴— arranged in proximity to the conduit —C'— and disconnected therefrom for raising the temperature of the water therein without mingling the fluid in the heating chamber with said water, a chamber F⁶ arranged within said heating system and remote from either of said conduits, and a heater also arranged within said system and remote from said conduits and from the chamber, substantially as and for the purpose specified.

11. The combination with a portable boiler having an inlet and an outlet; of pipes adapted to be connected to the inlet and outlet of said boiler when in its normal position, a circulating conduit —C'— depressed beneath the plane of the pipes and connected thereto for passing a circulation through the same into the boiler, a stationary heater, and a heating system comprising a conduit —F⁴— arranged in proximity to the conduit —C'— and disconnected therefrom for raising the temperature of the water therein without mingling the fluid in the heating system with said water, a chamber —F⁵— beneath the conduit —F⁴— connected to said conduit and a chamber —F⁵— arranged above the conduits —C'—F⁴— and connected to the conduit —F⁴—, substantially as and for the purpose set forth.

517,573. STEP-PROTECTOR FOR SPINDLES. ELI JAGGER, Oldham, England. Filed Sept. 29, 1892. Serial No. 447,308. (No model.) Patented in England Sept. 18, 1891, No. 15,858.



Claim.—1. In protectors for footsteps for mule, twiner and the like spindles the combination of a number of foot step protectors A with a plate or frame B, the protectors A being rendered laterally as well as vertically movable in the plate or frame B so as to facilitate the manipulation and proper adjustment of each individual protector A to its spindle foot step D in the spindle rail C, substantially as set forth.

2. In protectors for footsteps for mule, twiner and the like spindles the combination of a number of step protectors A with a frame or plate B having a bead or beads c adapted to keep the oil off the spindle rail C upon which the said plate is placed and bevel flanges c^2 projecting into the protectors A and adapted to hold the latter in position and conduct the oil into the foot steps D, substantially as set forth.

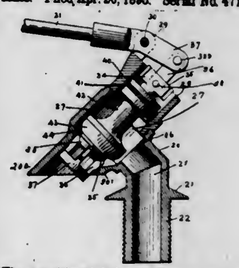
517,574. SURGICAL LIGATURE-HOLDER. HENRY A. KAYSER, Brooklyn, N. Y. Filed May 19, 1893. Serial No. 474,784. (No model.)



Claim.—1. In a cat gut holder for surgical purposes, the combination of a vessel for containing a preserving fluid, a stopper for said vessel provided with a thread eye, and an elongated winder disposed in said vessel for receiving the cat gut and adapted to oscillate from side to side in said vessel during the unwinding thereof, substantially as set forth.

2. In a cat gut holder for surgical purposes, the combination of a vessel for containing a preserving fluid, a stopper for said vessel provided with a thread eye, and an elongated winder disposed in said vessel for receiving the cat gut and adapted to oscillate from side to side of said vessel, and a keeper for engaging the lower end of said winder, substantially as set forth.

517,575. VALVE. GEORGE W. KNAPP and JOHN V. CHAMBERLIN, Worcester, Mass. Filed Apr. 26, 1893. Serial No. 471,966. (No model.)



Claim.—1. The combination in a ball cock of a casing arranged to direct the supply against the bottom of the tank, the valve chamber being formed so as to stand at an incline to the bottom of the tank, the outlet portion being cut off substantially parallel with the bottom of the tank, a valve stem 33 suitably connected to the float 32 and carrying the valve 43 and co-operating with a suitable seat 44 in the casing and a throttle or auxiliary valve connected with the valve stem 33 arranged below the main valve and adapted to throttle the outlet from the casing below the main valve, substantially as described.

2. The combination with a casing 20 having an inlet passage 25 which is bent at an angle, and a valve chamber carried by the casing 20 located at an angle at the bottom of the tank and having its outlet portion cut away, substantially parallel with the bottom of the tank, whereby, the supply is directed against the bottom of the tank, a valve stem 33 having a cup leather 41 arranged on the valve stem 33, and a valve 43 arranged on the stem below the cup leather and co-operating with a suitable valve seat 44, the supply being admitted between the valve and the cup leather, substantially as described.

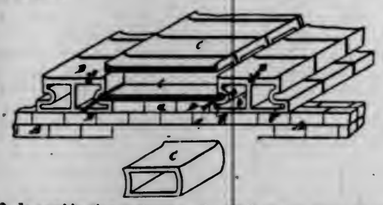
3. The combination in a ball-cock of the casing arranged so as to direct the supply against the bottom of the tank, the valve-chamber being formed so as to stand in an incline to the bottom of the tank, the outlet portion of the casing being cut off substantially parallel to the tank, the valve-stem 33 having the guide-wings 35 secured to the upper end thereof, the cup-leather mounted on the valve-stem and working in the upper part of the casing, the valve 43 secured to the lower end of the valve stem, and co operating with a suitable seat 44 in the casing, the auxiliary valve or disk 37 connected to the main valve by means of the guides 36, and a suitable ball-float connected to operate the valve and auxiliary valve, substantially as described.

517,576. FIREPROOF ROOF OR FLOOR. THOMAS A. LEE, Kansas City, Mo. Original application filed Apr. 26, 1892, Serial No. 430,759. Divided and this application filed Jan. 9, 1893. Serial No. 457,743. (No model.)

Claim.—1. A layer of tension rods, cement, and tiles for use in smelter flues and other passages for heated gases, certain of the tiles being provided with channeled or recessed faces whereby they may form a tubular or other space between adjacent tiles for the reception of the said tension rods, and being provided with hollow projections or flanges b^{10} extending beneath the said layer to protect the

tension rods and surrounding cement, substantially as, and for the purposes, set forth.

2. In combination with supporting walls, one or more courses of tiles B provided with channels or recesses *b*, for receiving tension rods, and communicating hollows *b'*, extending parallel with and under the said recesses *b*, transversely to the said walls and open to the air at the end or ends of the said course or courses, one or more tension rods D cemented within the said channels or recesses, and one or more courses of tiles C placed adjacent to the said course or courses of tiles B and closing the said recesses *b*, substantially as, and for the purposes, set forth.



3. In combination with supporting walls, one or more courses of tiles B provided with channels or recesses *b*, for receiving tension rods, and communicating hollows *b'* extending parallel with and under the said recesses *b* transversely to the said walls and open to the air at the end or ends of the said course or courses, one or more tension rods D cemented within the said channels or recesses, and one or more courses of tiles placed adjacent to the said course or courses of tiles B, having hollows transverse to the course and open at their ends above the edges of the said tiles B, substantially as, and for the purposes, set forth.

4. A roof or floor for smelter flues and like uses, consisting of hollow tilework and tension rods, the upper walls of the said tile work forming the compression member of the said roof or floor and the tension rods forming the tension member of the said roof or floor, and hollows *b'* within the said tile work and beneath the said tension rods forming a protective air space beneath the said rods, substantially as, and for the purposes, set forth.

5. A hollow tile B for use in floors, roofs, and other structures, subjected to compression at or near one surface and tension at or near the other surface thereof, consisting of a thickened face, wall, or portion, *b''*, for forming the compression layer of the said structure and thinner or lighter walls inclosing the hollow or hollows *b'* and forming the web of the said structure, and channels or recesses *b*, for tension rods embedded in cement, substantially as, and for the purposes, set forth.

6. A hollow tile B for use in floors, roofs, and other structures subjected to compression at or near one surface and tension at or near the other surface thereof, having channels or recesses *b* for tension rods embedded in cement, and flanges or projections *b'''* forming protective air spaces for the said channels or recesses, substantially as, and for the purposes, set forth.

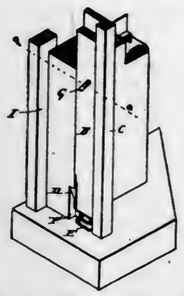
7. A hollow tile B for use in floors, roofs, and other structures subjected to compression at or near one surface, and tension at or near the other surface thereof, provided with hollow flanges or projections *b'''* for protecting a tension rod or other material placed above such flanges or projections, substantially as, and for the purposes, set forth.

8. A layer of tension rods, cement, and tiles, for use in smelter flues and other passages for heated gases, certain of the tiles being provided with channels or recesses *b* whereby they may form a tubular or other space between adjacent tiles for the reception of the said tension rods, and being provided with hollow flanges *b'''*, extending beneath the said chambers or recesses to protect the tension rods and surrounding cement, and supporting the adjacent tiles, substantially as, and for the purposes, set forth.

9. A layer of tension rods, cement, and tiles, for use in smelter flues and other passages for heated gases, certain of the tiles being provided with channels or recesses *b* whereby they may form a tubular or other space between adjacent tiles for the reception of the said tension rods, and being provided with hollow flanges *b'''* extending beneath the said chambers or recesses to protect the tension rods and surrounding cement, and a superposed layer of cement, plaster, or other material, E, substantially as, and for the purposes, set forth.

10. In a floor, roof, or like structure, hollow tilework, and tension rods rigidly secured thereto, the said rods forming a tension sustaining layer or member of the structure, the upper walls of the said tilework forming a compression sustaining layer or member, and cement or other strengthening material superposed upon the said tilework, whereby distinct and parallel tension and compression members or layers are produced separated but rigidly connected by a light webbing, substantially as, and for the purposes, set forth.

517,577. SASH-HOLDER. CHARLES S. LEE, Troy, N. Y. Filed May 4, 1893. Serial No. 472,963. (No model.)



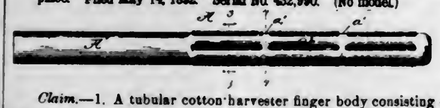
Claim.—1. In a window sash stop consisting of two or more parts one or more of said parts being movable, a vertical bar or strip moving forward and backward transversely of the window jamb in combination with a notched sash acting upon such bar or strip for the purposes herein specified.

2. The combination of the movable part B having diagonal slots G with the lug D for the purposes herein specified.

3. The combination of the movable part B having diagonal slots G with the lug D and spring E all for the purposes herein specified.

4. The combination of a window sash having the notch F with the lug D the spring E and the movable part B having diagonal slots G all for the purposes herein specified.

517,578. FINGER FOR COTTON-HARVESTERS. AXEL LEVEDAHL, Aurora, Ill., assignor to the Gardner Sewing Machine Company, same place. Filed May 14, 1892. Serial No. 432,990. (No model.)



Claim.—1. A tubular cotton harvester finger body consisting of a single piece of cylindric tubing having a plurality of lengthwise slots arranged side by side in its projecting portion, the metal strips between said slots having their edges directed inwardly and the inner end portion of the tube having its original cylindric shape to form the journal on which the finger rotates.

2. A tubular cotton harvester finger body consisting of a single piece of cylindric tubing having a plurality of lengthwise series of slots arranged side by side, the necks of metal separating the slots of each series being integral with the metal between the series of slots and the edges of the slots being deflected inwardly, leaving narrow, externally rounded surfaces exposed to contact with the cotton plant between the brushes which protrude through the slots.

517,579. BIFURCATED GARMENT AND GUSSET THEREFOR. STEPHEN B. LEWIS and FRANKLIN F. LEWIS, Janesville, Wis., assignors to the Lewis Knitting Company same place. Filed May 18, 1893. Serial No. 474,684. (No model.)

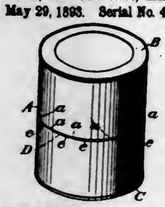


Claim.—1. The herein described improved bifurcated garment, comprising the main or body portions, and a gusset C formed from a single piece of fabric, having a triangular apex portion, and two flaps folded over said apex portion in reverse directions, forming three thicknesses of the fabric at said portion, said flaps diverging laterally therefrom in the planes of said folds and having therewith a continuous outer selvage, said gusset being set into the garment at the bifurcation thereof by seams along its outer selvage and folds and the back flaps of the main portions, and by seams at the inner edges of the end portions of the diverging flaps, substantially as specified.

2. In a garment of the class described, the gusset C formed from a continuous strip of fabric, having a V-shaped cut at its central portion and made from the inner edge, the edges of said cut being overlapped and secured, the two branches of the strip being reversely folded over said seam, substantially as specified.

3. In garments of the class described, the gusset C, consisting of one continuous piece, having a V-shaped notch cut out of its central portion at one side, the edges of said opening being drawn together and secured by a seam, forming a V-shaped strip having a continuous outer selvage edge, a reflex fold made about this seam in such a manner as to entirely cover it from both sides and present a folded edge in line with the selvage edge, substantially as specified.

517,580. MANUFACTURE OF METALLIC PRESERVING-CANS. ANDREW W. LIVINGSTON, San Francisco, assignor to John Lee, San Mateo, Cal. Filed May 29, 1893. Serial No. 475,907. (No model.)

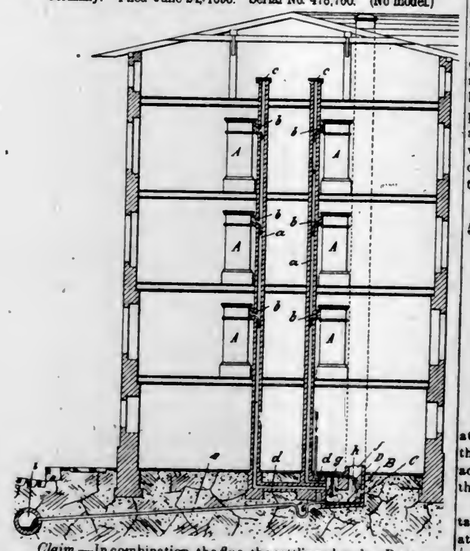


Claim.—1. The process of improvement in the art of manufacturing sheet metal cans, consisting in forming a double length can body from a single blank of sheet metal and cutting it into two separate can bodies and simultaneously with the act of cutting turning inward the edges of the two cans, whereby the necessity of subsequently burring or turning said edges inward by a separate operation is obviated, substantially as specified.

2. The double packing can herein described, scored or partially severed around its axis or middle section and having the edges of the two cans, which are to be formed by separating or dividing the double can, turned inward at such score, substantially as specified.

3. The process of improvement in the art of manufacturing sheet metal cans consisting in first partially severing a double length can body blank along its median line and simultaneously turning inward the edges of the two cans to be formed from said double can body blank, then forming said double can body blank into a double length can body, and finally separating the double length can body into two separate can bodies along said partially severed line, substantially as specified.

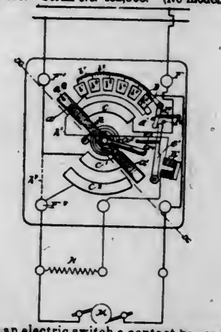
517,581. SOOT-SEPARATOR. MAXIMILIAN A. LUTZNER, Steglitz, Germany. Filed June 24, 1893. Serial No. 478,760. (No model.)



Claim.—In combination, the flue, the settling chamber B connecting therewith the water spray device *g* adapted to create a draft in the said chamber B, a second spray device *h*, the gas escape flue *f* and the water outlet pipe *e* leading from the chamber, said spray device *g* being located near the inlet of the flue into the chamber to induce a draft at this point and the spray device *h* being located at the gas outlet flue *f*, substantially as described

---

517,582. ELECTRIC SWITCH. ROBB MACKIE, New York, N. Y. Filed Aug. 7, 1893. Serial No. 482,508. (No model.)



Claim.—1. In an electric switch a contact bar and means for moving the same from its starting point to its final contact, the bar provided with a spring to return it to starting point, in combination with an independent mechanical spring clutch for holding said bar at its final contact, and means for releasing the clutch actuated by shutting off the current.

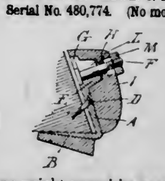
2. In an electric-switch a contact bar turned against the tension of a spring through and over a series of contact terminals, in combination with an independent mechanical spring-clutch for holding said bar at the end of its course, an electro-magnet and armature lever provided with a retractile spring and means actuated by the recoil of the armature lever to trip the independent mechanical clutch and thereby restore the contact bar to starting point.

3. In an electric switch a contact bar and means for turning the same against the tension of a spring through and over a series of contact terminals, in combination with an independent mechanical spring clutch for holding said bar when the current is on, and means for preventing the clutch from catching when the current is off.

4. In an electric switch a contact bar turned against the tension of a spring through and over a series of contact terminals in combination with an independent mechanical spring clutch for holding said bar at the end of its course, an electro magnet and an armature lever provided with a retractile spring and arranged so that the mechanical clutch will lay in the path of the armature lever and be tripped thereby when the armature lever is retracted.

5. In an electric switch a contact bar turned against the tension of the spring through and over a series of contact terminals in combination with an independent mechanical spring clutch for holding said bar at the end of its course, an electro magnet and armature lever provided with a retractile spring, means actuated by the recoil of the armature lever to trip the independent mechanical spring clutch when the current is off, and means for releasing the independent mechanical clutch when the current is on without disturbing the armature lever.

517,583. TOE-WEIGHT. EDWIN G. MILES, Detroit, Mich. Filed July 17, 1893. Serial No. 480,774. (No model.)

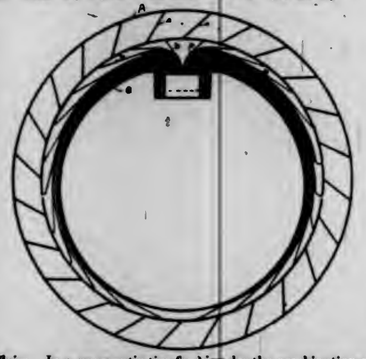


Claim.—1. A toe-weight comprising a securing strap, a flat tang at the lower end of the strap extending rearwardly at an acute angle therefrom, a screw extending downwardly through the strap at an acute angle, and a weight secured on the strap and over the head of the screw substantially as and for the purpose described.

2. A toe-weight comprising a bifurcated securing strap, a flat tang at the lower end of the strap extending rearwardly therefrom at an acute angle, a securing screw passing through the strap, a bifurcated lug on the upper face of the strap, a weight having a recess to engage upon the lug, and a securing bolt passing through the bifurcation of the lug and weight, substantially as described.

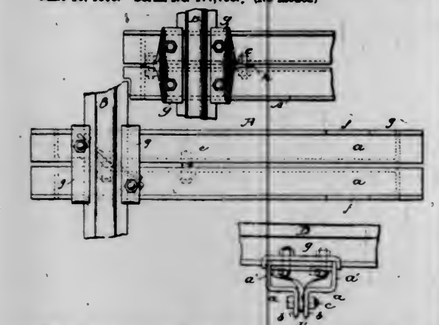
3. A toe-weight comprising a securing strap, means for securing the strap to the hoof of a horse, a lug upon the upper face of the strap, a weight recessed to engage upon the lug, and a bolt passing through the lug and weight, the lug and strap having complementary bifurcations for the bolt and its head whereby it may be disengaged from the weight, substantially as described.

517,584. PNEUMATIC TIRE. George N. Monro, Jr., Pittsburg, Pa. Filed May 15, 1893. Serial No. 474,312. (No model.)



Claim.—In a pneumatic tire for bicycles the combination of two tubes, the outer one being subdivided into series of non-communicable compartments; and the inner ones adapted to inclose a number of small feed tubes corresponding in number with air compartments contained in the outer tube; and a valve connected with said air compartments respectively by said feed tubes, substantially as and for the purpose herein described.

517,585. RAILWAY-TIE. James Heafie, Rocton, N. J. Filed June 16, 1893. Serial No. 477,788. (No model.)



Claim.—1. A metal railroad tie composed of two parts, each part being ⌐└ shaped in cross-section and the two parts being united longitudinally by means of bolts or rivets and forming an open trough or box-like structure with a central longitudinal flange or keel projecting at right angles from the bottom thereof and constituting an anchor to prevent the tie from moving longitudinally in the road-bed, as set forth.

2. A metal railroad tie composed of two sections, each being composed of a horizontal member and two other members projecting in opposite directions therefrom and at right-angles thereto, the said sections being united longitudinally by means of suitable fasteners, to form an open box-like structure or trough with a central longitudinal flange or keel projecting at right angles from the bottom thereof and transverse flanges intersecting with said central flange or keel, as described, and for the purposes set forth.

3. A metal railroad tie composed of two sections, each being composed of a horizontal member and two other members projecting in opposite directions therefrom and at right-angles therewith, the said sections being united longitudinally by suitable bolts or fasteners to form an open box-like structure or trough with a central longitudinal flange or keel projecting at right-angles from the bottom thereof and parted at the center, as shown, and for the purposes set forth.

4. A metal railroad tie composed of two sections, of the construction described and united longitudinally to form an open box-like structure having a central longitudinal flange or keel projecting at right-angles from the bottom thereof and parted at the center, as shown, and transverse flanges intersecting with the aforesaid flange or keel at the extremities thereof, as described, and for the purposes set forth.

5. A metal railroad tie composed of two sections constructed as described and united longitudinally to form an open box-like structure having an opening in the bottom thereof and a central longitudinal flange or keel projecting at right-angles from the said bottom and extending from the opposite extremities of said opening to the end portions of the said structure, as described, and for the purposes set forth.

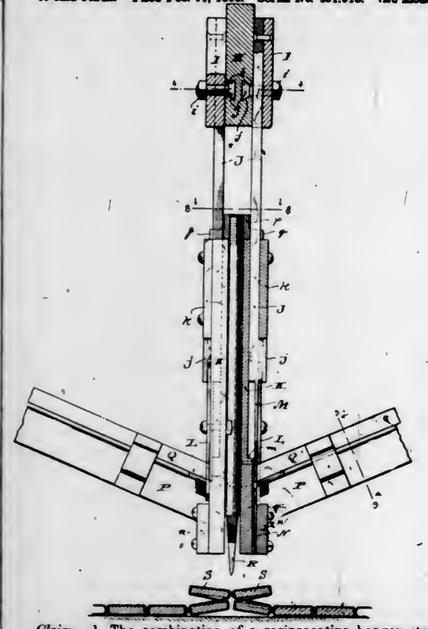
6. A metal railroad tie composed of two sections constructed and joined together at the bottom, as described, and forming an open or box-like structure or trough having an opening in the bottom thereof, a central longitudinal flange or keel projecting at right angles from the said bottom and extending from the opposite extremities of said opening to the end portions of the said structure, and transverse flanges intersecting with the said flange or keel, at the extremities thereof, as described, and for the purposes set forth.

7. A metal railroad tie composed of two sections, each having a horizontal member and two other members projecting in opposite directions and at right-angles therefrom, ⌐└-shaped in cross section the said sections being united longitudinally, as described, to form a box-like structure or trough, open at the top and with a central longitudinal flange or keel projecting at right angles from the bottom thereof, whereby the upper edges of the opposite sides of the tie serve as double bearings or seats for the rails.

8. In a metal railroad tie composed of two ⌐└-shaped sections adapted to be united at the bottom, longitudinally, as shown the combination of filling pieces or wideners interposed between the united parts, and means for securing the fillers and the said parts together, as and for the purposes set forth.

9. A metal railroad tie comprising therein two plates or bars ⌐└-shaped in cross-section and united longitudinally, as shown, and means for securing them to one another, as described, and for the purposes set forth.

517,586. STAPLING AND CUTTING MACHINE. Charles E. Parks and Lobegott Mollart, Watertown, Wis.; said Mollart assignor to said Parks. Filed Feb. 11, 1893. Serial No. 461,913. (No model.)



Claim.—1. The combination of a reciprocative hanger, staple driving plungers that depend from the hanger and are individually provided with a lateral lug on the outer face, a guide stock held loose on each plunger to have movement therewith at a certain time in either direction of its travel, a staple-guide connected to each guide-stock and pivotal fingers on said guide-stock actuated by the relative plunger-lug to come in and out of the path of staples on the guide, substantially as set forth.

2. The combination of a reciprocative hanger, staple driving plungers that depend from the hanger and are individually provided with a lateral lug on the outer face, a guide-stock held loose on each plunger to have movement therewith at a certain time in either direction of its travel, a staple-guide connected to each guide-stock, pivotal fingers on said guide-stock actuated by the relative plunger-lug to come in and out of the path of staples on the guide, and a flat spring in the aforesaid guide-stock, this spring serving as a temporary stop for each staple fed from said guide, substantially as set forth.

3. The combination of a longitudinally grooved and reciprocative hanger, bolts having their heads in sliding dovetail engagement with the hanger-groove, plungers having head-plates retained on the bolts, guide-stocks held loose on the plungers, to have movement therewith at a certain time in either direction of travel, and suitable means for feeding staples to said guide-stocks in advance of a descent of the aforesaid plungers, substantially as set forth.

4. The combination of a bed-piece provided with guide-standards, braces connecting the standards, a hanger loose in the standards, toggle-joints connecting the braces and hanger, guides extending upward from said braces, links arranged to work in the guides, levers connecting the links and toggle-joints, a hand-lever connected to said links, another link connection between one end of the hand-lever and one of the toggle-joints, and a series of plungers depending from said hanger, guide stocks for the plungers, suitable means for limiting independent movement of said plungers in their guide-stocks, and other suitable means for feeding staples to said guide-stocks in advance of a descent of the aforesaid plungers, substantially as set forth.

5. The combination of a reciprocative hanger, staple-driving plungers depending therefrom, guide stocks engaging the plungers, suitable means for limiting movement of the plungers in the guide-stocks, other suitable means for feeding staples to said guide-stocks in advance of a descent of said plungers, and chisels loosely mounted on said guide-stocks in the path of the aforesaid hanger, substantially as set forth.

6. The combination of a lever-controlled reciprocative hanger, staple-driving plungers depending therefrom, guide-stocks engaging the plungers, suitable means for limiting movement of the plungers in the guide-stocks, other suitable means for feeding staples to said guide-stocks in advance of a descent of said plungers, and chisels loosely mounted on said guide-stocks in the path of the aforesaid hanger, substantially as set forth.

7. A method of securing the wires of slat and wire fabric and forming the same into sections, this method consisting in doubling the fabric on itself in such a manner as to have slats thereof disposed in opposing vertical pairs, driving staples across the wires into the paired slats, and cutting said wires intermediate of these slats, substantially as set forth

---

517,587. STAPLING AND CUTTING MACHINE. Charles E. Parks and Lobegott Mollart, Watertown, Wis.; said Mollart assignor to said Parks. Filed Feb. 28, 1893. Serial No. 464,101. (No model.)

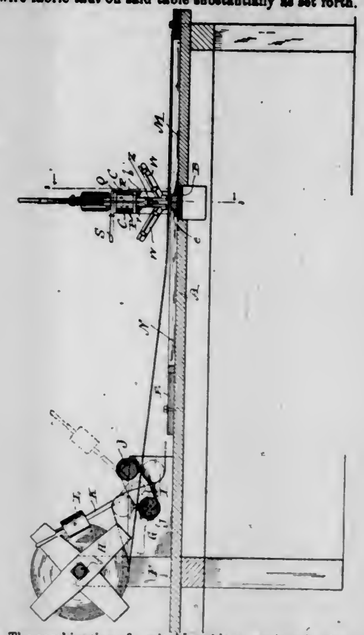
Claim.—1. The combination of a suitable table, supports projecting above the same, a tightener for slat-and-wire fabric drawn from a reel journaled in the supports, a carriage having a travel transverse to the table, a staple-driving and fabric-cutting mechanism supported by the carriage, and suitable means for holding panel-frames on said table against a draw of the fabric incidental to an operation of the tightener, substantially as set forth.

2. The combination of a suitable table having parallel longitudinal gages one at least of which is adjustable in a direction transverse of the table, supports projecting above the table, a tightener for slat-and-wire fabric drawn from a reel journaled in the supports, a carriage having a travel cross-wise of said table, a staple-driving and fabric-cutting mechanism supported by the carriage, and suitable means for holding panel-frames on said table against a draw of the fabric incidental to an operation of the tightener, substantially as set forth.

3. The combination of a suitable table, a carriage having a travel transverse to the table, a guide-stock vertically reciprocative in the carriage, plungers arranged in the guide-stock to move both with and independent of the same, suitable means for feeding staples to said guide-stock in advance of a descent of the plungers, and other suitable means for drawing a web of slat-and-wire fabric taut on said table, substantially as set forth.

4. The combination of a suitable table, a carriage having a travel transverse to the table, a guide-stock vertically reciprocative in the carriage, plungers arranged in the guide-stock to move both with and independent of the same, suitable means for feeding staples to said guide-stock in advance of a descent of the plungers, yielding stops for the temporary restraint of the staples thus fed, and suitable means for drawing a web of slat-and-wire fabric taut on said table, substantially as set forth.

5. The combination of a suitable table, a carriage having a travel transverse to the table, a guide-stock vertically reciprocative in the carriage, plungers arranged in the guide-stock to move both with and independent of the same, lugs on the plungers, inclined staple-guides extended from said guide-stock adjacent to the paths of the plungers, spring-controlled staple-stops pivotally connected to the aforesaid guide-stock to have portions thereof normally in the paths of the plunger-lugs, and suitable means for drawing a web of slat-and-wire fabric taut on said table substantially as set forth.



6. The combination of a suitable table, a carriage having a travel transverse to the table, a guide-stock vertically reciprocative in the carriage, plungers arranged in the guide-stock to move both with and independent of the same, suitable means for feeding staples to said guide-stock in advance of a descent of the plungers, a knife connected to said carriage, and suitable means for actuating this knife coincident with the action of said plungers, substantially as set forth.

7. The combination of a suitable table, a carriage having a travel transverse to the table, a vertical guide-stock loose in the carriage but provided with a stop in opposition to the top of the same, plungers loose in the guide-stock, suitable means for limiting movement of the plungers in said guide-stock, other suitable means for feeding staples to the aforesaid guide-stock in advance of a descent of said plungers, a knife having one end thereof pivotally hung from said carriage, a lever linked to the upper portion of the aforesaid carriage and pivotally connected to said plungers, and a hanger connecting these plungers and other end of the knife, substantially as set forth.

8. The combination of a suitable table, a carriage having a travel transverse to the table, a vertical guide-stock loose in the carriage but provided with a stop in opposition to the top of the same, plungers loose in the guide-stock, suitable means for limiting movement of the plungers in said guide-stock, other suitable means for feeding staples to the aforesaid guide-stock in advance of a descent of said plungers, a knife having one end thereof pivotally hung from said carriage, and a weighted lever controlling the movement of the aforesaid guide-stock plungers and knife, substantially as set forth.

9. The combination of a suitable table, a carriage having a travel transverse to the table, a guide-stock vertically reciprocative in the carriage, plungers arranged in the guide-stock to move both with and independent of the same, inclined staple guides extended from the said guide-stock adjacent to the paths of the plungers, staple-stops in the form of fingers that have beveled inner edges at their lower extremities and are pivoted in pairs to the aforesaid guide-stock, suitable means for actuating these fingers on their pivots, and other suitable means for drawing a web of slat-and-wire fabric taut on said table, substantially as set forth.

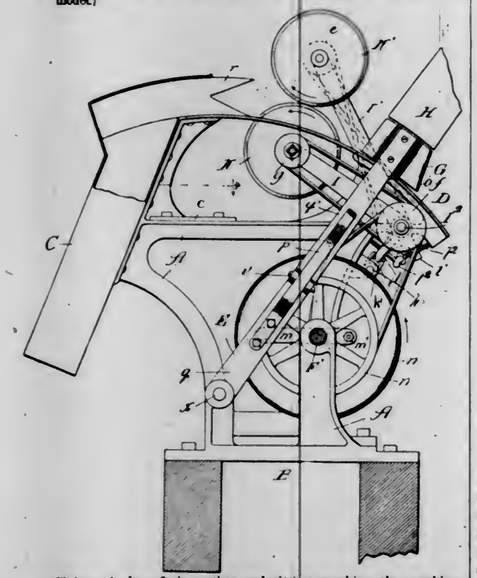
10. The combination of a suitable table, provided with bearings for the journals of a reel of slat-and-wire fabric, a tightener for the fabric that consists of end-blocks journaled in bearings adjacent to the reel, a pair of bars joined at their ends to said blocks, and a lever fast on one of the end-block journals; a carriage having a travel

transverse to the table, a staple-driving and fabric-cutting mechanism supported by the carriage, and suitable means for holding panel-frames on said table against a draw of the fabric incidental to an operation of the tightener, substantially as set forth.

11. The combination of a suitable table provided with bearings for the journals of a reel of slat-and-wire fabric, a fabric-tightener provided with a weighted actuating lever, a carriage having a travel transverse to the table, a staple-driving and fabric cutting mechanism supported by the carriage, and suitable means for holding panel-frames on said table against a draw of the fabric incidental to an operation of the tightener, substantially as set forth.

12. A method of making panels, the same consisting in first fastening one end of a continuous web of slat and wire fabric to the outer end of the outermost wooden frame in a pair laid in successive order and held stationary for a time, drawing the fabric taut over the frames, simultaneously fastening said fabric to the meeting ends of said frames, and cutting the aforesaid fabric intermediate of the aforesaid frames, whereby one panel is completed and the outer end of the fabric-web made fast to the frame succeeding said finished panel, other frames being supplied from time to time as the work proceeds.

517,588. FRUIT CUTTING AND PITTING MACHINE. JACOB F. REHM, Chicago, Ill. Filed Oct. 18, 1893. Serial No. 488,465. (No model.)



Claim.—1. In a fruit-cutting and pitting machine, the combination with the frame of a cutter, a pit-dislodging stop in the path of the fruit across said cutter, and a divided fruit-holder reciprocally connected with the driving shaft to be carried by the operation of the machine back and forth across the cutter to engage the pit with the stop, substantially as and for the purpose set forth.

2. In a fruit-cutting and pitting machine, the combination with the frame of a pair of rotary cutters yieldingly supported with relation to each other to extend into the path of the fruit, a pit-dislodging stop in the path of the fruit across the cutters, and a divided fruit-holder reciprocally connected with the driving shaft to be carried by the operation of the machine back and forth across the cutters to engage the pit with the stop, substantially as and for the purpose set forth.

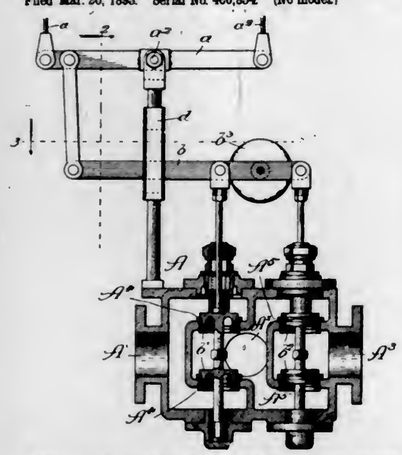
3. In a fruit cutting and pitting machine, the combination with the frame of an arc-shaped way, a pit-dislodging stop near one end of the way, a bottomless divided fruit-holder reciprocally connected with the driving shaft to be oscillated on said way by the operation of the machine back and forth with relation to the stop, and a pair of rotary cutters yieldingly supported with relation to each other, in the path of the fruit to the stop, with the lower cutter projecting upward through said way, substantially as and for the purpose set forth.

4. In a fruit cutting and pitting machine, the combination with the frame of an arc-shaped way, a pit-dislodging stop near one end of the way, spring-controlled arms supported to oscillate at opposite sides of said way and each carrying a section of a divided bottomless fruit-holder extending over said way, and a pair of rotary cutters yieldingly supported with relation to each other in the path of the fruit to the stop, substantially as and for the purpose set forth.

5. In a fruit cutting and pitting machine, the combination with the frame of an arc-shaped way, a pit-dislodging stop near one end of the way, spring controlled arms supported to oscillate at opposite sides of said way and each carrying a section of a divided bottomless fruit-holder extending over said way, a cam in the path of said arms, and a pair of rotary cutters yieldingly supported with relation to each other in the path of the fruit to the stop, substantially as and for the purpose set forth.

6. A fruit cutting and pitting machine comprising, in combination with a frame A, an arc-shaped way D, a rotary driving shaft F, pivotal arms E and E' connected with said shaft to be oscillated by its rotation, and having spring-controlled sections, a holder G formed in sections supported on said arms over the way D, pivotal cutter-arms I and I' carrying rotary cutters K and K' geared with the said shaft, said cutter-arms having stops at their rear ends, a spring *i* engaging the cutter-arms and against which they are separated, and a chute C at the discharge end of said way and having a pit-dislodging stop *r* extending into the path of the fruit in the holder, the whole being constructed and arranged to operate substantially as described.

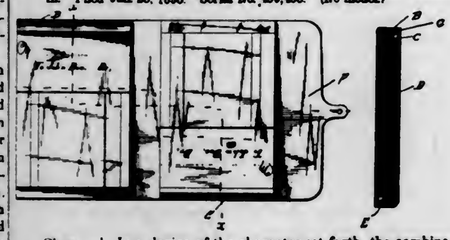
517,589. VALVE DEVICE. JOSEPH REICHMANN, Chicago, Ill. Filed Mar. 20, 1893. Serial No. 466,834. (No model.)



Claim.—1. In a valve-device, the combination with the shell having the passages A', A^3 and A^3 and valve-seats A^4 and A^5, of the lever *b* and the double-headed valves *b'* and b^3, each provided with the relatively larger and smaller valve-pistons, the valves being pivotally connected with said lever to form, each, when seated, the fulcrum of the lever for unseating the other, substantially as and for the purpose set forth.

2. In a valve-device, the combination with the shell having the passages A', A^3 and A^3 and valve-seats A^4 and A^5, of the lever *b* and the double-headed valves *b'* and b^3, each provided with the downward-tapering, relatively larger and smaller, valve-pistons, the valves being pivotally connected with said lever to form, each, when seated, the fulcrum of the lever for unseating the other, substantially as and for the purpose set forth.

517,590. BILL OR ACCOUNT HOLDER. JOHN F. RIDDER, Quincy, Ill. Filed Jan. 23, 1893. Serial No. 459,433. (No model.)



Claim.—1. In a device of the character set forth, the combination of one or more leaves or holders, a clasp for securing said leaf or leaves, having a V-shaped free end projecting over the said leaves, and a prism-shaped strip adapted to slide between said clasp in the space formed by the V-shaped free end of the same and inserted from one side, substantially as described.

2. In an article of the class described, the combination of a cover, a pair of holders arranged on said cover apart from each other, a series of leaves arranged on said holders and extending lengthwise partially of the width of each holder to form a space at the lower end of said leaves, a V-shaped spring clasp applied over the upper ends of said leaves and when folded adapted to have their projecting portions fit in the spaces at the bottom of the said leaves, substantially as described.

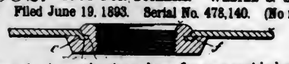
517,591. INSULATING-TUBE. MINER ROBINSON, Newton, Mass. Filed Jan. 6, 1894. Serial No. 495,953. (No model.)



Claim.—1. A timber or other part of a wall or floor provided with the hole *b* in combination with an insulating tube A having the longitudinal ridges *a* throughout the entire length of the body of the tube whereby the tube is firmly held concentrically in the hole with an insulating air space on all sides of the tube between it and the timber, substantially as described.

2. An insulating tube A provided with longitudinal ridges *a* throughout the entire length of the body of the tube substantially as and for the purposes described.

517,592. SPUT FOR BOILERS. WALTER S. SHIPE, Brooklyn, N. Y. Filed June 19, 1893. Serial No. 478,140. (No model.)



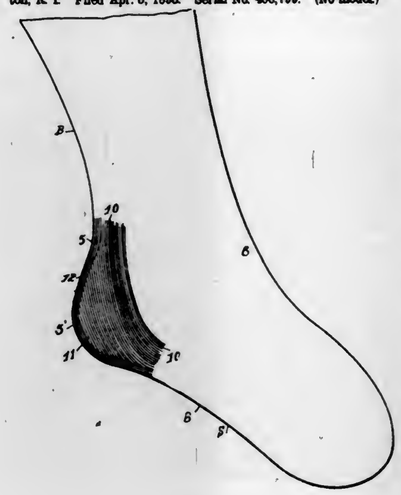
Claim.—1. A sput having a base-flange provided with an annular groove, and a tubular projecting portion extending from, and forming the inner wall of, said groove, substantially as described.

2. A sput having a base-flange provided with an annular groove, the opposite walls of which are reversely inclined, and a tubular portion extending from the inner wall, substantially as described.

3. A sput having a base-flange provided with an annular groove, the opposite walls of which are reversely inclined said groove being adapted to receive and act as a die for a surrounding boiler sheet, and a tubular portion extending from the inner wall of said groove, and adapted to be compressed within the annular groove formed in the boiler sheet, substantially as described.

4. A sput having a base-flange provided with an annular groove, and a projecting tubular portion, in combination with a boiler sheet having a circular aperture, the edges of which are confined in said annular groove by the swaged metal of the tubular projection, substantially as described.

517,593. HOSIERY. SAMUEL SILLS and JOHN E. WOOD, Thornton, R. I. Filed Apr. 3, 1893. Serial No. 468,799. (No model.)



Claim.—1. The method herein described of forming the heels of stockings knit as flat webs, said method consisting in adding extra wales to widen the fabric, in withdrawing said wales to narrow, and then joining the edges, substantially as described.

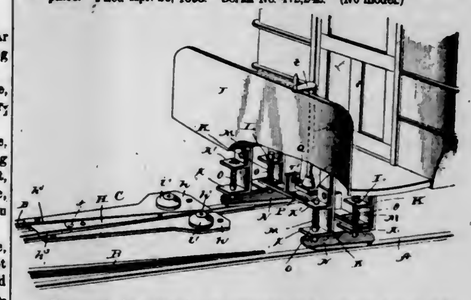
2. A stocking having a back seam; and a heel-pocket consisting of additional wales adjacent to said seam.

517,594. CLOCK. JOB SMITH, Annapolis, Md., assignor of one-half to Walter J. Werntz, same place. Filed May 4, 1893. Serial No. 473,040. (No model.)



Claim.—In a magic clock, the combination of an hour hand of tubular form, a minute hand adjacent thereto, and also of tubular form, and containing the clock mechanism entire, a tubular shaft passing through the clock mechanism and two hands, the said minute hand having a contracted tubular extension E^2, a stem winding spindle E', rotatably mounted in said tubular extension, and an actuating stem winding mechanism, and a counter balance weight O, mounted on said tubular shaft, said hands being adapted to be turned either to the right or left without affecting the interior mechanism, substantially as described.

517,595. AUTOMATIC SWITCH. WALTER H. SOUTHWORTH, Memphis, Tenn., assignor of two-thirds to V. A. Cordes and J. A. Webb, same place. Filed Apr. 28, 1893. Serial No. 472,242. (No model.)



Claim.—1. In a switch, the combination of a switch box or casting having a pocket or recess, a switch plate pivoted in said pocket or recess and carrying a pointed switch rail, opposite rail plates attached to said switch box or casting on each side of the switch rail, and traveling devices for shifting the switch plate, substantially as set forth.

2. In a switch, the combination of a switch box or casting having a pocket or recess and opposite slotted rail plates, a switch plate pivoted in said pocket or recess beneath the rail plates and carrying a pointed switch rail moving between said plates, shifting stems connected to the switch plate, and means for laterally moving said shifting stems, substantially as set forth.

3. In an automatic switch, the combination of a switch box or casting having a pocket or recess, rail plates removably attached to the opposite top sides of said box or casting and having slots at one end, a movable switch plate pivoted at one end in said pocket or recess and carrying a pointed switch rail moving between said rail plates, roller stems attached to the switch plate and moving in the slots in the rail plates, rollers mounted on the upper ends of said stems, and traveling shifting devices adapted to travel between said rollers and to contact with either one of the same, substantially as set forth.

4. In a switch, the recessed box or casting, a movable switch plate pivoted at one end in the box or casting and carrying a pointed switch rail, said plate being provided with longitudinal dirt grooves on each side of the switch rail, opposite rail plates attached to said box or casting and overlapping the switch plate, and cleaning springs attached to the switch plate and bearing under the opposite rail plates, substantially as set forth.

5. In an automatic switch, a switch box or casting having a recess and off standing grooves at one end of said recess, opposite rail plates attached to opposite top sides of said box or casting and having slots over said off-standing guide grooves and shoulders at their inner edges, a movable switch plate pivoted at one end in the recess of said box or

casting and having lugs at one end moving in said off-standing guide grooves, and carrying a pointed switch rail adapted to be thrown into the shoulders of the rail plates, roller stems attached to the lugs of the said switch plate and moving in the slots of said rail plates, and shifting rollers attached to the upper ends of said stems above the rail plates, substantially as set forth.

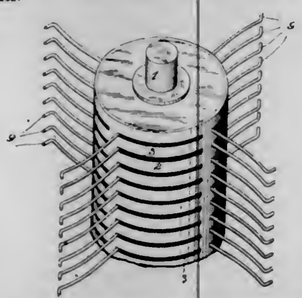
6. The combination with a switch carrying laterally movable shifting rollers; of shifting shoes adapted to be carried by a car, and means for disposing said shifting shoes at an angle so as to pass between and contact with either of the shifting rollers, substantially as set forth.

7. In an automatic switch, the combination with the movable switch rail carrying separated shifting rollers; of the flat shifting shoes supported from a car and pivoted at their front ends so as to leave their rear ends free to move laterally, a transverse shifting bar connecting the laterally movable ends of said shoes, and a crank or eccentric device for moving the transverse shifting bar laterally to adjust the angle of the shoes, substantially as set forth.

8. The combination with a switch having a movable switch rail carrying separated shifting rollers; of depending brackets suspended from a car and having perforated bracket arms certain of which are provided with slots, flat shifting shoes having stems mounted in said bracket arms to leave their rear ends free to move laterally, springs arranged on said stems to normally extend the flat shoes below the brackets near to the track rails, a transverse shifting bar connecting the rear laterally movable shoe stems, and a crank or eccentric device for moving the transverse shifting bar laterally to adjust the angle of the shoes, substantially as set forth.

9. The combination with a car, of flat shifting shoes supported from the car and pivoted at their front ends, a transverse shifting bar connecting the rear movable ends of said shoes and carrying perforated lugs or ears at an intermediate point, a horizontal rod mounted in said perforated lugs or ears and having a slotted box, a set screw working into one end of the slot in said box, springs arranged on said rod between said box and the perforated lugs or ears, a turning operating shaft carrying at one end a crank wheel or hub provided with a crank pin adapted to work in the slot of said slotted box, substantially as set forth.

517,596. COTTON-HARVESTER. LEONARD R. TURNER, Sing Sing, assignor to the Southern Cotton Harvester Company, New York, N. Y. Filed Oct. 17, 1892. Renewed Aug. 29, 1893. Serial No. 484,336. (No model.)



Claim.— 1. The combination of a shaft, a spider carried thereon consisting of outwardly projecting arms, lugs on said arms and spring fingers, each secured to one lug and passing behind the succeeding lug, substantially as and for the purpose specified.

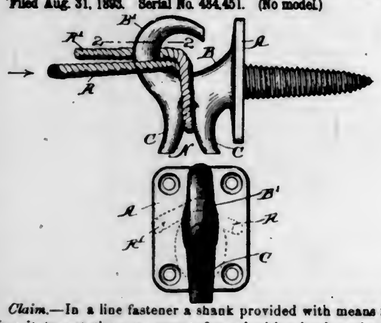
2. The combination of the shaft, the spider carried thereon consisting of outwardly projecting arms, lugs on said arms, and spring fingers, each secured to one lug and passing behind the succeeding one, and means for limiting its forward flexure, substantially as and for the purpose specified.

3. The combination of a shaft, a spider carried thereon consisting of outwardly projecting arms, lugs on said arms, and spring fingers each secured to one lug and passing behind the succeeding one and means for limiting its forward flexure and guiding its movements consisting of a slotted cylindrical casing, substantially as and for the purpose specified.

4. The combination of the cylinder having apertures, spiders set within said cylinder and carrying small lugs on their upper sides and larger recessed lugs on the under sides, and spring fingers secured to said lugs and projecting through said apertures, substantially as and for the purpose specified.

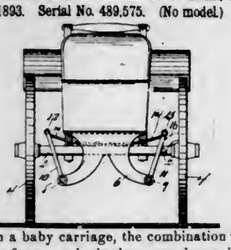
5. The combination of the cylinder having apertures, the spiders set within said cylinder and having arms extending to contact with the inner sides thereof, said arms carrying small lugs on their upper sides and larger recessed lugs on the under sides and spring fingers secured to said lugs and projecting through said apertures, substantially as and for the purpose specified.

517,597. LINE-FASTENER. WILLIAM S. TWITTY, Chicago, Ill. Filed Aug. 31, 1893. Serial No. 484,451. (No model.)



Claim.—In a line fastener a shank provided with means for securing it to a stationary support, formed with a hook projecting in one direction and two diverging horns projecting in the opposite direction and separated by a wedge shaped notch widest at its open end, the shank being adapted to receive a loop of the line passing through the hook and notch; substantially as shown and described.

517,598. BABY-CARRIAGE. MARY L. BARR, Indianapolis, Ind. Filed Oct. 30, 1893. Serial No. 489,575. (No model.)



Claim.—1. In a baby carriage, the combination with a carriage body, a supporting frame, and wheels mounted on said frame, of depending arms to the front and the rear bottom ends of said carriage body, suitable front and rear springs on said frame, and suitable side shafts journaled at the ends of said springs and having depending arms or end cranks formed thereon adapted to fit the journal ends of said depending arms, substantially as and for the purpose set forth.

2. In a baby carriage, the combination with the body of the carriage, the axles 2. and 3. the side bars 1. and suitable supporting wheels journaled on the ends of said axles, of the arms 6. and 7. the supporting springs 14. and 15. the suspension links 10. and 11. and the side rods 12. and 13. all substantially as and for the purpose set forth.

517,599. TENONING-MACHINE. WILLIAM H. BENNETT, Chicago, Ill. Filed Dec. 30, 1892. Serial No. 456,812. (No model.)

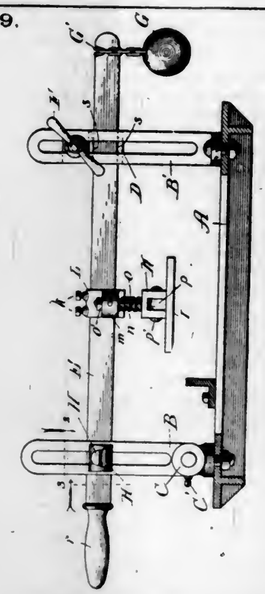
Claim.—1. In combination with a lever, having pivot bearings above the carriage, a collar having internal knife bearings mounted upon said lever, and a presser plate pivotally connected to and supported by said collar, substantially as described.

2. In a clamp of the character described, in combination with the presser-plate carrying-lever and with the standard extending upward from the carriage, the pivot bearing D, comprising a box having knife bearings to receive the lever, said box having a screw and slot connection with the standard, whereby it is adjustable thereon, substantially as described.

3. The means for supporting the presser plate upon a pivoted lever in a clamp of the character described, comprising a collar L, having the knife bearing, and provided with the set screws *k*, substantially as and for the purpose set forth.

4. A clamp comprising slotted standards extending vertically upward from the carriage, one having a vertically adjustable knife bearing, a lever having its pivot in said knife bearing, a binding cam holding said lever in engagement with the other standard, a collar L upon the lever and having the inner knife bearing, a spring encircled bolt supported on said collar, and a presser plate pivotally connected with said bolt, the parts being arranged to operate substantially as described.

517,599.



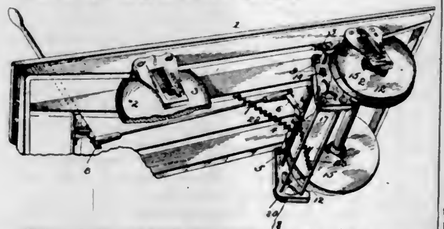
517,600. GAME APPARATUS. WALTER G. BURNS, Fort Wayne, Ind. Filed May 19, 1893. Serial No. 474,735. (No model.)



Claim.—1. In a game board, a plate or disk provided on its face with a circular rim forming an inclosure, and pockets or cups placed within the inclosure at equal distances from each other and also from the center: a recess upon the under side of the board in its center, adapted to form a point of attachment for a compressible pivot, and receive said compressible pivot within such recess when forced therein: and a compressible pivot placed within said recess and adapted to support said disk above a table on which it may be placed, and also to be forced within said recess: in combination with a ball and the tumble bugs G and H arranged over the ball substantially as described.

2. In a game board, a board provided upon its face with a circular rim forming an inclosure, and with cups or pockets formed in its upper surface, in combination with the ball and the two tumble bugs G and H arranged over the ball as described: and a suitable compressible pivotal support for the board.

517,601. CAR-BRAKE. HENRY B. CARY, Los Angeles, Cal. Filed June 15, 1893. Serial No. 477,633. (No model.)

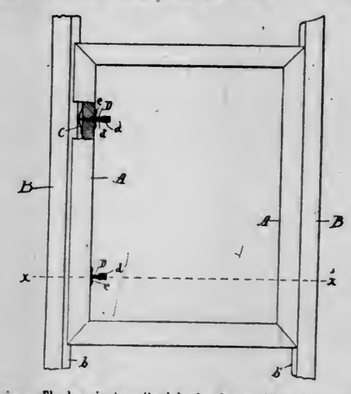


Claim.—1. In a car-brake the combination of shoe-frames carrying shoes which are adapted to unitedly engage the track and the wheels a crank-shaft having cranks near the opposite ends thereof, which directly pass through the upper parts of said shoe frames and means for operating said crank-shaft, substantially as described.

2. In a car-brake, the combination of shoe-frames carrying shoes at the bottom and one edge of each adapted to unitedly engage the track and wheels, a crank-shaft having cranks near the opposite ends which directly engage the upper parts of the said shoe-frames, cross-rods or braces connecting said shoe-frames, a rod attached to said crank-shaft, and means for operating said rod, to actuate the brake, substantially as described.

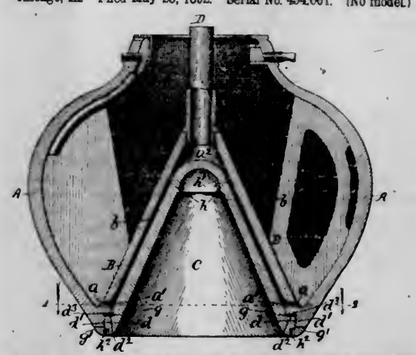
3. In a car-brake, the combination of shoe-frames carrying shoes at the bottom and one side edge of each, adapted to unitedly engage the track and wheels, a crank-shaft, having cranks near the opposite ends which directly engage the upper parts of the said shoe-frames, cross-rods or braces, connecting said shoe-frames, a rod attached to said crank-shaft, means for operating said rod to actuate the brake, and springs connected to the brake mechanism to automatically release the same, substantially as described.

517,602. WINDOW-SCREEN. WARREN W. COLE, Portland, Me. Filed Dec. 30, 1893. Serial No. 495,202. (No model.)



Claim.—The herein described device for retaining window screens in place consisting of a spindle extending laterally through the side bar, a semi-elliptical spring for forcing said spindle outward against the casing, the outer end of said spindle being pivoted to said spring and the inner end of said spindle having a lateral projection, a retaining plate secured to the side bar and having an opening through which said spindle passes, said opening being so formed that it will allow said projection to pass when the spindle is turned to its normal position but will stop it when turned away from its normal position, substantially as described.

517,603. CENTRIFUGAL SEPARATOR-BOWL. DANIEL J. DAVIS, Chicago, Ill. Filed May 23, 1892. Serial No. 434,061. (No model.)



Claim.—1. A separator bowl having a conical chambered bottom, a conical false bottom seated in said chamber, an intervening space being left between the adjacent surfaces throughout the length of the chambered bottom, the conical bottom having a number of inlet apertures opening at its base into the bowl, and a receiver opening through the apex of the chambered bottom into the said intervening space; substantially as set forth.

2. A separator bowl having a chambered bottom, a false bottom seated in said chamber, with an intervening space between the adjacent surfaces, said chambered bottom being provided at its base with a series of apertures opening into the bowl, and with a groove following the line of said apertures, and a receiver opening through

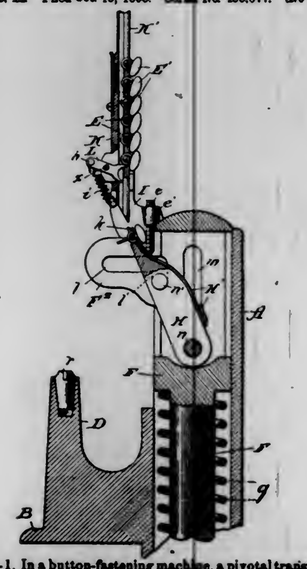
the apex of the chambered bottom into said intervening space: substantially as set forth.

3. The combination with a separator-bowl, provided with a conical chambered bottom having a number of inlet-apertures opening at the base of the wall of said bottom, of a conical false bottom, inserted in and extending up inside of the chamber in the bottom of the bowl proper, but leaving an annular space between the adjacent surfaces, said false bottom having a close fitting connection at its base with the corresponding part of the base of the bowl below the inlet apertures, and the receiver-tube, opening down through the apex of the conical bottom and discharging on the corresponding part of the false bottom, whereby the incoming volume is broken up and spread over a large area and made to enter the separating-chamber at as many different points as there are inlet apertures, substantially as set forth.

4. The combination with a separator-bowl, having a conical chambered bottom provided near its base with an annular shoulder and screw threaded below said shoulder, of a conical false bottom, provided with a corresponding abutting shoulder and a screw-threaded surface, whereby said conical false bottom may be removably inserted in the chambered bottom of the bowl proper, substantially as set forth.

5. The combination with a separator-bowl, provided with a conical chambered bottom, of a conical false bottom, seated in said chambered bottom and provided just below its apex with a number of projections, substantially as set forth.

517,604. BUTTON-FASTENING MACHINE. JOSEPH C. F. DICK, Belvidere, Ill. Filed Oct. 13, 1893. Serial No. 488,077. (No model.)



Claim.—1. In a button-fastening machine, a pivotal transfer-hammer having a claw in its outer end, the hammer being connected with the reciprocable actuating mechanism to be swung between and co-operate successively with the feed and the anvil, a spring clamping jaw on the hammer, and normally in unset condition thereon and a stop in the path of the spring, for setting it in the approach of the hammer to the feed substantially as and for the purpose set forth.

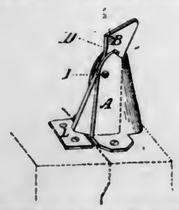
2. In a button-fastening machine, the combination with the tubular support and feed thereon, and the anvil, of a spring-controlled plunger confined in the support and having a head provided with slotted ears, and a transfer-hammer provided with clamping means and pivoted on the support and having guide-studs to engage the slots in said ears, whereby reciprocation of the plunger swings the hammer between the feed and anvil, substantially as and for the purpose set forth.

3. In a button-fastening machine, the combination with the tubular support and feed thereon and the anvil, of a spring-controlled plunger confined in the support and having a head provided with slotted ears, a transfer-hammer provided with a claw on its outer end and pivoted on the support and having guide-studs to engage the slots in said ears, a spring clamping-jaw on the hammer and a stop in the path of the jaw, substantially as and for the purpose set forth.

4. In a button-fastening machine, the combination with a tubular support and feed thereon and the anvil, of a spring-controlled plunger confined in the support and having a head provided with slotted ears and carrying a striker-arm, a spring-controlled escapement-lever extending at its opposite ends respectively into the path of the feed and that of the striker-arm, a transfer-hammer provided with a claw in its outer end and pivoted on the support and having guide-studs to engage the slots in said ears, a spring clamping-jaw on the hammer and a stop in the path of the jaw, substantially as and for the purpose set forth.

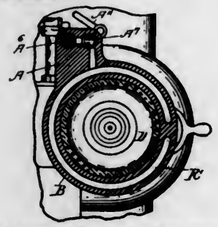
5. A button-fastening machine comprising, in combination, a tubular support A, provided with a seat, a spring-controlled plunger F confined in the support and adapted to be operatively connected with a foot-lever G, a vertically slotted head F' on the plunger having the slotted ears F^2, a hammer H supported to swing on a pin n fastened in the said support to pass through the slots in the head, said hammer having a die-claw in its outer end, guide-studs n' on the hammer to engage the slots in the ears, a spring-clamp H' on the hammer, an anvil D, a feed on the support provided with a spring-controlled escapement-lever L, a stop e extending into the path of the clamping spring, and a striker-arm on the plunger-head to engage the escapement lever, the whole being constructed and arranged to operate substantially as described.

517,605. SASH-FASTENER FOR MEETING-RAILS. PILLSBURY C. DOLLIVER, Augusta, Me. Filed July 2, 1892. Serial No. 438,843. (No model.)



Claim.—The combination in an automatic sash lock of the frame A with the point J, the pawl B with the projection D and the hole C which is larger than the bolt I the bolt I and the plate L, substantially as shown and described

517,606. COMBINED STEAM AND GAS GENERATOR AND ENGINE. NORMAN EATON, Hopedale, Mass. Filed Feb. 1, 1893. Serial No. 460,543. (No model.)



Claim.—1. In a combined steam and gas generator and engine, the combination of a compressed air chamber, a combustion chamber, a device for admitting and igniting fuel, and an injector device, as described: with a separating chamber, and valves opening from said separating chamber to the divisions of a combined rotary engine, and a combined rotary engine adapted to operate as described; substantially as described and for the purpose set forth.

2. In a combined steam and gas generator and engine, the combined rotary engine having divisions M and N, the division N having exhaust port direct to the open air, and division M having exhaust leading back to the combustion and generating chambers, substantially as described and for the purpose set forth.

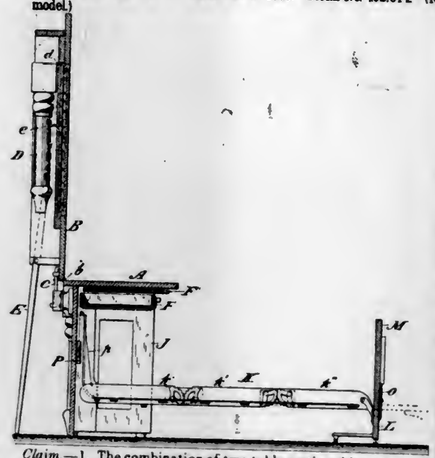
3. In a combined steam and gas generator and engine, the combination of the combustion chamber and injector leading from the same, and an annular passage surrounding said injector and connecting with a water chamber, the injector adapted to receive the products of combustion, and mingling the same with the vapor and spray from the water chamber, injecting the same into the valve chamber D^{10} of the engine; substantially as described and for the purpose set forth.

4. In a combined steam and gas generator and engine, a vertical chamber adapted to receive the combined steam and gas from the generator in combination with valve passages, one opening from the lower part of said chamber and adapted to receive the heavier parts of the combined steam and gas, and deliver it to one division of the

cylinder of the engine, and another valve passage adapted to receive the lighter parts of the combined steam and gas, and deliver the same to another part of the combined engine; substantially as described and for the purpose set forth.

5. In a combined steam and gas generator and engine, a combined rotary engine having a rotating cylinder divided laterally, each part provided with a steam head: in combination with a counter cylinder adapted to operate with the aforesaid cylinder, all substantially as described and for the purpose set forth.

517,607. COMBINED FOLDING TABLE AND BED. ROSE ETTINGER, New York, N. Y. Filed Dec. 2, 1893. Serial No. 492,614. (No model.)



Claim.—1. The combination of two table sections hinged together, one of said sections being adapted to be turned into a vertical position to form a dressing case,—and so arranged that when it is turned down into a horizontal position the face of the dressing case section forms with the other section a table surface and a folding bed supported at one end by the other of said table sections and adapted to be folded thereunder, substantially as set forth.

2. The combination of a table provided at one end with a casing J,—a folding bed supported at one end by said casing and adapted to fold thereinto, the bed being provided with a folding foot board normally occupying a vertical position when the bed is let down, and adapted to be unfolded to a horizontal position to form an extension for the bed and closing the casing J when the bed is folded in into the casing, substantially as set forth.

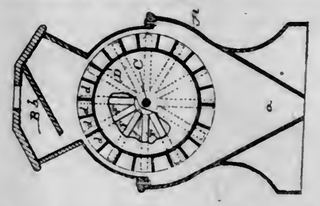
3. In a folding bed, the combination of a casing, open on one side, folding side rails supported at one end by the casing and adapted to fold into the casing through its open side, a folding foot-board adapted to be turned from its normal vertical position, which it occupies when the bed is let down to a horizontal position to form an extension of the bed and when in its vertical position adapted to close the open side of the casing when the bed is folded thereinto, substantially as set forth.

4. The combination of two table sections A and B hinged together, said section B being provided with folding legs and adapted to be turned to a vertical position to form with the section A a dressing case, the section B being so arranged that when it is turned down into a horizontal position the face thereof forms with the section A a table surface, a bed comprising folding side rails and a folding foot-board supported at one end beneath the section A and adapted to fold thereunder, substantially as set forth.

5. The combination of two table sections hinged together, one of said sections being adapted to be turned into a vertical position to form a dressing case,—and so arranged that when it is turned down into a horizontal position the face of the dressing case section forms with the other section a table surface and a folding bed supported at one end by the other of said table sections and adapted to be folded thereunder, the top of the second mentioned table section being hinged to fold up into vertical position, substantially as set forth.

6. The combination of a table provided at one end with a casing beneath the top of the table, the top of the table above the casing being hinged to fold into vertical position and forming, when in horizontal position, the cover for said casing, and a folding bed supported by the casing and adapted to fold thereinto, the bed being provided with a folding foot-board normally occupying a vertical position when the bed is let down and adapted to be turned down into a horizontal position to form an extension of the bed and adapted to close the casing when the bed is folded thereinto, substantially as set forth.

517,608. ROTATING GRAIN-METER. JOHN M. FINCH, Marysville, Cal., assignor of one-half to Frank Miller, same place. Filed Mar. 17, 1893. Serial No. 466,441. (No model.)



Claim.—1. An automatic weighing apparatus consisting of a rotary wheel adapted to receive upon its periphery the material to be weighed, and to be rotated by the imposition of said material, and a check or balance connected with the wheel, and consisting of a series of hollow arms exterior of the wheel, and upon each side thereof, said arms communicating with each other and adapted to contain a flowing material which is successively and continuously discharged from one to the other by their rotation, substantially as herein described

2. An automatic weighing apparatus consisting of a rotary wheel having on its periphery a series of receptacles adapted to receive the material to be weighed, said wheel being rotated by the material in said receptacles, and a check or balance connected with the wheel and rotated thereby and consisting of a hollow hub and a series of radially disposed communicating hollow arms exterior of the wheel and containing a flowing material which is successively and constantly discharged from one to the other by their rotation, substantially as herein described.

3. An automatic weighing apparatus consisting of a frame or stand having mounted within it a rotary wheel having a series of receptacles upon its periphery, a supply hopper for directing the material to be weighed into said receptacles to one side of the vertical plane of the wheel whereby the latter is rotated by the imposition of the material, and a check or balance consisting of a series of communicating hollow arms radially disposed upon opposite sides of the exterior of the wheel, the arms communicating at their inner ends and connected with said wheel and adapted to be rotated thereby, said arms containing a flowing material which is successively and constantly discharged from one to the other by their rotation, substantially as herein described

4 An automatic weighing apparatus consisting of a rotary wheel upon the periphery of which the material to be weighed is imposed whereby the wheel is rotated, a check or balance consisting of a hollow hub exterior of the wheel and mounted on its shaft, a series of communicating radially disposed hollow arms connected with said hub and adapted to contain a flowing material which is successively and constantly discharged from each arm into succeeding ones as they revolve, and a register connected with said wheel to indicate the number of its revolutions, substantially as herein described.

5. An automatic weighing apparatus consisting of a rotary wheel adapted to receive the material to be weighed upon its periphery, whereby said wheel is rotated, a hollow hub secured outside of the wheel and upon the shaft of the latter, and radial hollow arms carried by and communicating with said hub, and containing a flowing material serving to check and balance the wheel, substantially as herein described.

6. An automatic weighing apparatus, consisting of a rotary wheel having on its periphery a series of receptacles or buckets for the material to be weighed, a feed hopper adapted to supply said material to the buckets to one side of the perpendicular line of the wheel, a hollow hub secured to the shaft of said wheel exterior of the latter, and radial hollow arms carried by and communicating with the hub, and containing a flowing material to check and balance the wheel, and a registering device connected with said wheel for indicating the number of its revolutions, substantially as herein described.

517,609. GLAZE FOR CLAY ARTICLES. BENEDICT FEST, New York, N. Y., assignor to Henry Maurer, same place. Filed Dec. 6, 1893. Serial No. 493,166. (No specimens.)

Claim.—1 A glaze for clay-articles, composed of a melted and pulverized mixture of basalt, potassium carbonate and potassium nitrate, substantially as set forth.

2. A glaze for clay, composed of a melted and pulverized mixture of ground basalt, potassium carbonate and potassium nitrate, with water and a suitable adhesive substance, substantially as set forth.

3. The process herein described of preparing a glaze for clay-articles, which consists in mixing pulverized basalt potassium carbonate and potassium nitrate, melting the same together, pulverizing the melted mass and mixing the same with water and some adhesive substance, substantially as set forth.

517,610. JOINT FOR METAL WHEEL-RIMS. JOSEPH FRIEDENSTEIN, Brooklyn, N. Y. Filed Jan. 4, 1894. Serial No. 495,602. (No model.)



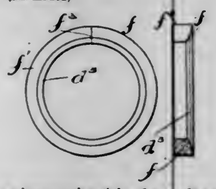
Claim.—1. The method of constructing metal rims from a continuous ribband or blank which consists in slitting the ends of the blank to form tongues, assembling said ends so that adjacent tongues of each end will overlap opposite surfaces of the other end, and riveting said tongues of each end to said other end, substantially as described.

2. A joint or splice for the meeting ends of metal rims or bands comprising tongues formed in said meeting ends, the adjacent tongues of each end overlapping the opposite surfaces of the other end, and rivets securing said tongues, substantially as described.

3. A joint or splice for the meeting ends of the metal rims or bands, comprising tongues formed on said meeting ends, the adjacent tongues of each end overlapping opposite sides of the solid part of the other end, and rivets securing said tongues, substantially as described.

4. A joint or splice for the meeting ends of metal rims or bands, comprising tongues formed on said meeting ends, the adjacent tongues of each end overlapping opposite surfaces of the other end, said lapped ends being provided with holes or apertures the edges of one of which project through the other, forming in effect a tubular rivet, substantially as described.

517,611. CLIP FOR USE IN MAKING JOINTS IN CAST-IRON PIPE. EARLE H. GOWING, Reading, Mass. Filed Apr. 24, 1893. Serial No. 471,650. (No model.)



Claim.—As an improved article of manufacture, a clip for use in filling pipe-joints, the same being composed of rubber, molded in ring form, divided, and having the side for contact with the pipe-end slightly dished or concaved from the outer corner to a point part way toward the inner corner, and from said point to the said corner concaved or cut away to a greater extent, substantially as and for the purpose set forth.

517,612. SUSPENSION METAL-SHAPER. HENRY J. HENDEY, Torrington, Conn., assignor to the Hendey Machine Company, same place. Filed Aug. 5, 1893. Serial No. 482,429. (No model.)

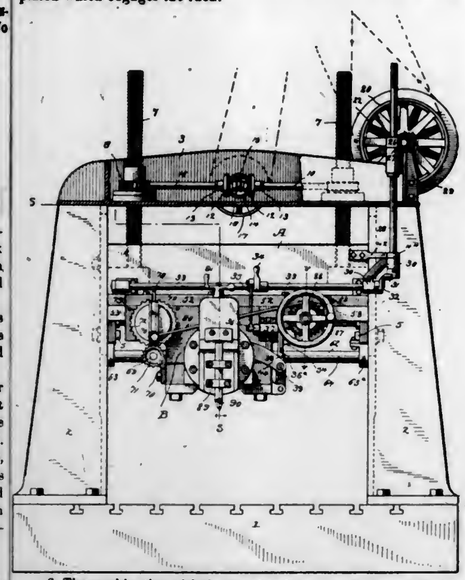
Claim.—1. The combination with the cross head carrying non-rotating screw 45, of the saddle having a boss 47 and a groove 49, a feed nut 46 which passes through the boss and engages the screw and is provided with a collar lying in groove 49 and with worm teeth, and shaft 51 carrying a worm engaging the worm teeth.

2. The combination with the cross head and the suspended saddle, of the cutter bar suspended in the saddle and having a rack 88, shaft 62, and a sliding pinion 65 keyed to said shaft by which the cutter bar is reciprocated.

3. The combination with the cross head and the suspended saddle, of the cutter bar suspended in the saddle and having a rack 88, shaft 62 having a spline 64, sliding sleeves 66 journaled in the saddle, sliding pinion 65 which engages the rack, and a sliding bevel pinion 67 through which said shaft and spline pass, and a bevel pinion 68 engaging pinion 67 by which shaft 62 is rotated and the cutter bar is reciprocated.

4. The combination with the cross head and the suspended saddle, of the cutter bar suspended in the saddle and having a rack 88, shaft 62, sliding pinion 65 on said shaft which engages the rack, sliding bevel pinion 67, shaft 69, carrying the bevel pinion and engaging pinion 67, and suitable means for rotating said shaft in either direction.

5. The combination with the cross head having brackets 63 and 63^a, sleeve 66 journaled in said brackets, and the saddle suspended from the cross head, of the cutter bar suspended in the saddle and having a rack 88, shaft 62 journaled in said sleeves and carrying a sliding pinion which engages the rack.



6. The combination with the cross head, non-rotating screw 45, the suspended saddle having pins 79, and feed nut 46 which receives the screw and engages the saddle, of shaft 69 carrying a pinion 71, gear wheel 72 which meshes with said pinion, hub 73 on which said gear wheel is journaled, rocker 74 also journaled on said hub and provided with a pin 78 adapted to engage either of the pins on the saddle, friction washers between said rocker and the gear wheel, gear wheel 83 having double faced ratchet 86, lever 81 carrying a reversible spring pawl 85 adapted to engage said ratchet, a connecting rod between the rocker and said lever, and suitable connections intermediate gear wheel 83 and the feed nut whereby the oscillation of the rocker is caused to impart intermittent rotary movement to the feed nut.

7. The combination with the saddle having pins 79 and the non-rotating screw, and feed nut 46 which receives the screw and engages the saddle, of gear wheel 42, rocker 74 having pin 78 and adapted to be driven by friction from gear wheel 72 until stopped by engagement of pin 78 with one of the pins 79, gear wheel 83 having double faced ratchet 86, lever 81 carrying a reversible spring pawl adapted to engage the ratchet, a connecting rod between the rocker, and the lever, and suitable connections intermediate gear wheel 83 and the feed nut whereby the oscillation of the rocker is caused to impart movement to the latter.

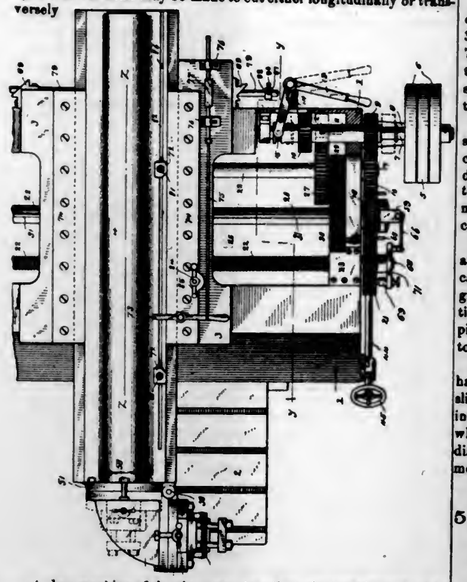
8 The combination with the feed nut having worm teeth, shaft 51 having a worm engaging said teeth and a pinion 54, of gear wheel 83 having a sleeve 82, hub 84 on which it is journaled, and a hand wheel keyed to the sleeve whereby a hand feed may be obtained.

517,613. COMBINATION METAL-SHAPER. HENRY J. HENDEY, Torrington, Conn., assignor to the Hendey Machine Company, same place. Filed Aug. 5, 1893. Serial No. 482,430. (No model.)

Claim.—1. In a machine of the character described the combination with the saddle and cutter bar, of screw 22 which moves the saddle, shaft 20 and connecting mechanism which move the cutter bar, and suitable mechanism by which said screw may be made the power and said shaft the feed, and other mechanism by which said shaft may be made the power and said screw the feed.

2. The combination with the saddle, screw 22 by which it is moved, the cutter bar and shaft 20 and connecting mechanism by which it is moved, of suitable automatic mechanism by which said shaft is made the power and said screw the feed, other automatic mechanism by which said screw may be made the power, and suitable mechanism moved by hand by which said shaft may be made the feed.

3. The combination with the saddle and cutter bar having a flange 51, of the cutter head hinged to said flange, and angle piece 54 adapted to lie between the cutter head and the flange so that a tool carried by the cutter head may be made to cut either longitudinally or transversely



4. In a machine of the character described, the combination with the saddle and the cutter bar, of the hinged cutter head and angle piece 54.

5. The combination with angle piece 54 having boss 55 and recess 56, of hinged cutter head 49 having boss 53 and recess 57, substantially as shown and for the purpose specified.

6. In combination, the cutter bar, the hinged cutter head and the angle piece

7. The combination with the hinged cutter head having boss 53 and recesses 57 in its edge, of angle piece 54 having recess 56 to receive boss 53 and recesses 57 in its edge, substantially as shown, for the purpose specified.

8. The combination with the cutter bar having flange 51, of the hinged cutter head, angle piece 54 adapted to lie between the cutter head and the flange, said cutter head, angle piece and flange having recesses 57, and bolts 58 adapted to engage said recesses to lock the cutter head in either the open or closed position.

9. The combination with the cutter bar having flange 51 provided with a central recess 52 and recesses 57 in its edge, of angle piece 54 having central boss 55, central recess 56, and recesses 57 in its edges, and the hinged cutter head having boss 53 adapted to engage either recess 52 or recess 56 and having recesses 57 in its edge, and bolts 58 adapted to engage said recesses to lock the hinged cutter head either to the angle piece or to the flange and to lock the latter when in use to the flange

10. The cutter bar having flange 51 provided with recess 52, in combination with the cutter head hinged to said flange and having a boss 53 adapted to engage said recess, and suitable means for locking the cutter head in place.

11. The cutter bar having flange 51 provided with recess 52, in combination with the cutter head hinged to said flange and having a boss 53, an angle piece 54 having a boss 55 adapted to engage recess 52 and a recess 56 adapted to receive boss 53, and suitable means for locking the parts in position.

12. The combination with the saddle, the cutter head and angle piece 54 for holding the cutter head in the open position so that the tool will cut transversely, of mechanism for moving the saddle constituting the power, and mechanism for moving the cutter bar constituting the feed.

13. The combination with the saddle, the cutter bar, the hinged cutter head, and the angle piece, of screw 22 by which the saddle is moved constituting the power, and shaft 20 and connecting mechanism by which the cutter bar is moved constituting the feed.

14. The combination with the saddle, the cutter bar, the hinged cutter head and the angle piece, of screw 22 for moving the saddle, mechanism for rotating said screw when used as power, mechanism for intermittently rotating said screw when used as feed, shaft 20 and connecting mechanism for reciprocating the cutter bar when used as the power, and hand mechanism for moving the cutter bar when used as the feed.

15. The combination with the saddle, screw 22 engaging the saddle and having pinion 21, the cutter bar, shaft 20 having gear wheel 30, and intermediate connections for moving the cutter bar, of shaft 7 having pinion 9, intermediate idler pinions one of which is adapted to be engaged by pinion 9 whereby rotation is communicated to the screw to move the saddle, and worm 43, worm wheel 40, and connections whereby movement is communicated to the cutter bar.

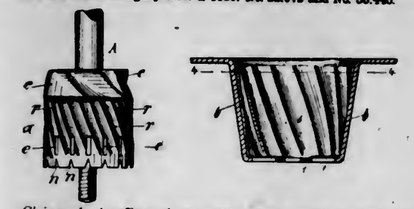
16. The combination with the saddle, screw 22 for moving the saddle and having pinion 21, the cutter bar, shaft 20 for moving the cutter bar and having pinion 30, of shaft 7 adapted to rotate in either direction, mechanism intermediate said shaft and pinion 21 to drive the screw in either direction constituting the power, and suitable mechanism connecting with gear wheel 30 to move the cutter bar constituting the feed.

17. The combination with screw 22 and shaft 20, of shaft 7 adapted to rotate in either direction, sliding sleeve 11 on said shaft carrying pinions 9 and 10, intermediate gearing adapted to be engaged by pinion 10 at one position of the sleeve to communicate motion to shaft 20, and intermediate gearing adapted to be engaged by pinion 9 at the other position of said sleeve to communicate rotation to the screw.

18. The combination with screw 22 having pinion 21 and shaft 20 having gear wheel 30, of shaft 7 adapted to rotate in either direction, sliding sleeve 11 on said shaft carrying pinions 9 and 10, and gearing intermediate gear wheel 30 and pinion 10 at one position of the sleeve whereby motion is communicated to shaft 20, and gearing intermediate pinion 21 and pinion 9 at the other position of the sleeve whereby motion is communicated to the screw

---

517,614. COFFEE-MILL. OSKAR LEUFBROCK, Gottsleuba, Germany. Filed July 5, 1893. Serial No. 479,900. (No model.) Patented in Belgium June 15, 1889, No. 86,346; in Germany Oct. 30, 1889, No. 49,432, and in Austria-Hungary Nov. 4, 1889, No. 22,672 and No. 53,440.



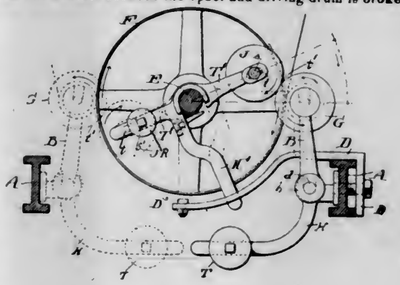
Claim.—1. A coffee and spice-mill runner, provided at its top with spirally shaped teeth, and on the outer surface of its lower part with spirally disposed ridges or cutting edges, the lower part of the runner being hollow and having side-openings, substantially as set forth

2. A runner for coffee and spice-mills, made cylindrical and hollow at its bottom, which runner is provided on its outer surface with spirally disposed ridges or cutting edges, and has slots in the walls of the hollow part, substantially as set forth

3. A runner for coffee and spice-mills, having its bottom part made hollow and provided with spirally disposed ridges or cutting edges on its surface, and having slots in its sides near the bottom, and notches in the bottom edge, substantially as set forth.

517,615. STOP MECHANISM FOR SPOOLING-MACHINES. OSWALD LEVER and WILLIAM S. GRUNDY, Philadelphia, Pa. Filed Nov. 18, 1892. Serial No. 452,368. (No model.)

Brief.—As the thread accumulates on the spool G the roll J bearing against the spool-flange descends until the arm T' is horizontal, when the contact between the spool and driving-drum is broken

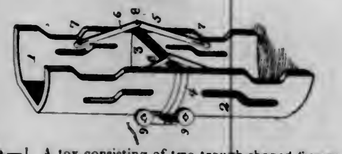


Claim.—1. In a spooling frame, the combination with a weighted swinging arm upon which a spool is supported, and a rotating friction drum for driving the spool, of an arm H' provided with a collar resting loosely on the shaft of said drum and with projecting extension arms T' T', one of them carrying an adjustable balance weight and the other of them a roll J, the latter arranged to bear against the flange or rim of the spool, and operating to separate the spool from contact with the drum when said extension arms T' T' shall by gravity assume a horizontal position; substantially as described.

2. In a spooling frame, the combination with a weighted swinging arm upon which a spool is supported, and a rotating friction drum for driving the spool, and with the main supporting frame A of a longitudinally slotted curved guide arm D, an arm H' having its lower end guided in said slot, its upper end provided with a collar adapted to hang loosely on said drum shaft and with extension arms T' T', one of them carrying an adjustable balance weight and the other of them a roll J, the latter arranged to bear against the flange or rim of the spool and operating to separate the spool from contact with the drum when by gravity the said arm H' shall assume a perpendicular position: substantially as described.

3. In a double spooling machine, having opposite parallel frames A A, a longitudinally central shaft E with drum F mounted thereon, weighted supporting arms B, H, mounted on said frames and carrying spools G the combination therewith of stop mechanism for each spool consisting of a pair of longitudinally slotted curved guide arms D supported toward each other from the frames A A, a pair of arms H' provided with a collar hanging loosely on the drum shaft, on opposite faces of the drum and in opposite directions to each other, said arms H' each having extension arms T' T', one provided with an adjustable balance weight and the other with a roll J, the latter adapted to contact with the flange or rim of the spool; and separate it from contact with the drum when and as the said balanced friction rolls shall by the filling of the spool be brought by gravity into the same horizontal plane; said parts being combined and arranged and operating substantially as and for the purpose set forth.

517,616. TOY. EMBRANN LINDNER, Akron, Ohio. Filed July 3, 1893. Serial No. 479,527. (No model.)



Claim.—1. A toy consisting of two trough-shaped frames, each closed at one end and open at the other, hinged together by lever-hinges arranged to permit their open ends, open faces; or closed ends, as desired, to be severally swung in juxtaposition, substantially as shown and described.

2. A toy consisting of two trough shaped frames, each closed at one end and open at the other, their closed ends having curved edges extending beyond their outer sides to constitute rockers, said frames being connected by lever-hinges arranged to permit their open faces, open ends or closed ends, as desired to be severally swung into juxtaposition, substantially as shown and described.

3. A toy, consisting of two trough-shaped frames, each closed at one end and open at the other, hinged together by lever-hinges arranged to permit their open ends to be swung into juxtaposition, and a retaining device as a hook and eye to retain them in alignment, substantially as shown and described.

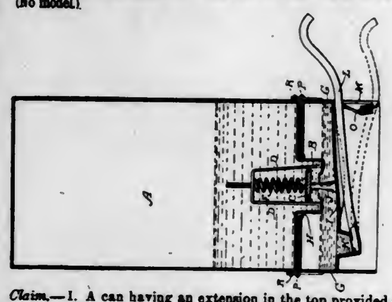
4. A toy consisting of two trough-shaped frames, each closed at one end and open at the other, hinged together by lever-hinges arranged to permit their open ends to swing into juxtaposition, and each provided with wheel-carrying brackets arranged to swing outside the surface of their respective frames, substantially as shown and described.

517,617. PROCESS OF MAKING PAPER BAGS. WILLIAM A. LORENZ, Hartford, Conn., assignor to Albert E. Walker, trustee, same place. Filed Aug. 18, 1892. Serial No. 443,359. (No specimens.)



Claim.—That process of making a paper bag from a tucked tube, which consists in first folding one end of the upper ply of the tube together with the upper plies of the tucks over upon the body of the blank, thus producing the folds 11ª and 12ª over the triangular folds 13 and 14, and then completing the rectangular bottom of the bag by folding over the forward flap, all substantially as described

517,618. DISCHARGE ATTACHMENT FOR OIL-CANS. WILLIAM MATHEWS, Alameda, Cal. Filed Dec. 22, 1893. Serial No. 494,425. (No model.)



Claim.—1. A can having an extension in the top provided with an opening, a spring-actuated valve closing said opening from the inside in combination with the independent chamber having a hole in the top corresponding with the extension in the top of the can into which said extension enters when the can is inverted upon the chamber, said hole being of a diameter to admit air into the chamber and a pin projecting upwardly from the bottom of the chamber and registering with the opening in the top thereof so as to form contact with and open the valve when the can is inverted upon the chamber, substantially as herein described.

2. A chamber having an opening in the top, a pin extending upwardly from the bottom centrally disposed with relation to the opening, a can separate and independent from said chamber to rest thereon and having an extension and an opening therein with the spring-actuated closing valve adapted to form contact with the pin in the bottom of the chamber when the can is inverted, so that the extension enters the opening in the top of the chamber, whereby the liquid in the can will flow into the chamber until it covers the end of the extension, and a drawing off tube connected with the bottom of the chamber having the outer end curved so as to stand normally above the level of the liquid in the chamber, said tube being movable so that its outer end may be depressed below the level of the liquid whereby the latter will flow as long as it remains in this position, substantially as herein described.

3. A chamber adapted to contain liquid, having a depressed receptacle upon one side of the bottom, a tube connected therewith extending across beneath the bottom and through the side of the chamber below the bottom having the outer end curved so as to stand normally above the level of the liquid in the chamber, said tube being depressible so as to carry the outer end below the level of the liquid whereby the latter will flow while the tube remains depressed, the said chamber being provided in its bottom with a projection registering with an opening in its top substantially as herein described.

4. A chamber adapted to contain liquid, having a flexible bottom and a depressed receptacle near one side thereof, and forming part of said bottom a tube opening into said receptacle and rigidly connected therewith, and adapted when depressed to flex said bottom said tube extending through the side to the exterior of the vessel and having the outer end upturned so as to stand normally above the level of the liquid in the chamber, a spring whereby it is retained in this position, said tube being depressible so that its discharge end is lower than the level of the liquid in the chamber, substantially as herein described.

5. A drawing off chamber for cans having an opening in its top, a projection registering therewith and a depressible outlet tube connected with its bottom, the outer end of the said tube extending above the level reached by the liquid, substantially as herein described.

6. The combination with the chamber having a flexible bottom a vertically movable rigid outlet tube rigidly connected with said bottom and extended at its upper end above the liquid line; the said tube being adapted to be moved vertically by flexing the said bottom, substantially as herein described.

7. The combination with the chamber having a flexible bottom, a vertically movable rigid spring pressed outlet tube rigidly connected with said bottom and extended at its outer end above the liquid line; the said tube being depressible against the action of its spring by the flexure of said bottom, substantially as herein described.

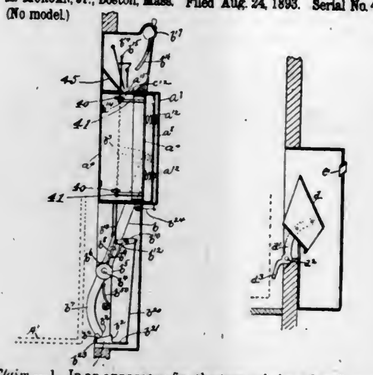
8. The combination with the chamber having a flexible diaphragm or bottom depressed to concentrate the flow to that point, a rigid outlet tube extended outwardly from said depressed point, and upwardly to a higher point than the liquid line or level, said tube being rigidly connected with the bottom and adapted to be moved up and down by flexing said bottom, substantially as herein described.

9. The combination with the invertible can having a tubular extension on its top provided with an inwardly opening valve, of a separate and independent chamber having an opening in its top to admit said extension, the rise of the liquid in the said chamber serving to seal the said can extension a projection to open said valve, and an outlet, and means for locking said chamber to the can, the said opening in the chamber being of a diameter to admit air into the chamber, substantially as herein described.

10. The combination with the invertible can having a tubular extension on its top provided with an inwardly opening valve of the separate and independent chamber having an opening in its top of greater diameter than said extension to admit the passage of air when said extension enters the opening upon inverting the can, and also provided with a projection to open the valve, and with a flexible bottom having a rigid outlet tube rigidly connected therewith and extending at its outer end above the liquid level in the chamber, substantially as herein described.

11. The combination with an invertible can having a valved opening in its top, of a separate and independent drawing off chamber upon which the can may be placed when inverted; the top of the said chamber being provided with an opening of sufficient diameter to receive, and admit the entrance of air around the valved end of the can, and the said valved end being sealed by the rise of the liquid in the chamber, and means for automatically opening said valve when the can is so placed on said chamber, substantially as herein described.

517,619. APPARATUS FOR TRANSPORTING MAIL. ROBERT A. MORGAN, Jr., Boston, Mass. Filed Aug. 24, 1893. Serial No. 483,935. (No model.)



Claim.—1. In an apparatus for the transmission of mail or other matter, the combination of the following instrumentalities, a substation for the reception of matter to be transported, means in said substation, to positively discharge or remove the contents from said substation, mechanism to operate said means, an elevator car outside of the substation and provided with a receptacle or box and with an actuating device to actuate said mechanism to operate the discharging means within the substation, substantially as described.

2. In an apparatus for the transmission of mail or other matter, the combination of the following instrumentalities, a normally closed substation for the reception of matter to be transported, means in said substation to discharge or remove the contents from said substation, mechanism to operate said means, and a traveling carrier provided with a receptacle or box and with an actuating device to actuate said mechanism to operate the discharging means within the substation, and a receiving station or receptacle into which the contents of the traveling box or receptacle may be discharged, substantially as described.

3. In a structure or building provided with a series of landings, a series of normally closed substations for the reception of mail or other matter, located at the said landings a plunger in each substation mechanism for positively operating said plunger to discharge or remove the contents of each of the said substations, an elevator car in said building provided with a receptacle or box co-operating with the substations to receive the contents discharged or removed from said substations, and an actuating device on the elevator car to co-operate with and actuate the plunger operating mechanism of the substation, substantially as described.

4. In a structure or building provided with a series of landings, a series of normally closed stationary substations for the reception of mail or other matter, located at the said landings, a plunger in each substation, mechanism for positively operating the said plunger to discharge or remove the contents of the said substation, an elevator car in said building provided with a receptacle or box co-operating with the substations to receive the contents discharged or removed from said substations, an actuating device on the elevator car to co-operate with and actuate the plunger operating mechanism of the substation, and a receiving station at one end of the travel of the elevator car into which the contents of the receptacle on the elevator car may be discharged, substantially as described.

5. In a structure or building provided with a series of landings, a series of substations for the reception of mail or other matter, located at the said landings mechanism for positively discharging or removing the contents of the said substation, an elevator car in said building provided with a receptacle or box co-operating with the substations to receive the contents discharged or removed from said substations, and provided with a discharge opening, a valve or gate to control said discharge opening, an actuating device on the elevator car to co-operate with and actuate the discharging mechanism of the substations, a receiving station provided with a movable bridge or chute to co-operate with the discharge opening in the box or receptacle carried by the elevator car, substantially as described.

6. In an apparatus for the transmission of mail or other matter, a substation comprising a main box or receptacle having a normally closed discharge opening and a supplemental chamber provided with a passage communicating with the main receptacle, a lid or cover normally closing an entrance to the supplemental chamber, and a discharging device in the main receptacle and movable bodily therein to positively remove the contents through the said discharge opening, substantially as described.

7. In an apparatus for the transmission of mail or other matter, a substation comprising a main box or receptacle and a supplemental chamber provided with a passage communicating with the main receptacle, a lid or cover normally closing an entrance to the supplemental chamber, a discharging device movable bodily in the main receptacle, and a guard in the supplemental chamber for the passage connecting the said supplemental chamber with the main chamber, substantially as described.

8. In an apparatus for the transmission of mail or other matter, a substation comprising a box or receptacle for the reception of mail or other matter, a discharging or removing device in said receptacle, an actuating device for said discharging device consisting of two members normally locked together, and means operated by one of the said members to unlock the said members from each other and to lock one of said members in its inoperative position, and means to unlock the member in its inoperative position and permit it to be restored to its operative position substantially as described.

9. In an apparatus for the transmission of mail or other matter, a substation comprising a box or receptacle for the reception of mail or other matter, a discharging or removing device in said receptacle, an actuating device for said discharging device consisting of two members normally locked together, means operated by one of the said members to unlock the said members from each other, substantially as described.

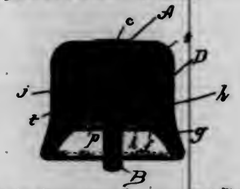
10. In an apparatus for the transmission of mail or other matter, a substation comprising a box or receptacle for the reception of mail or other matter, a discharging or removing device in said receptacle, an actuating device for said discharging device consisting of two members normally locked together, a cover or lid controlling the entrance of mail into the said receptacle and means operated by one of the said members to unlock the said members from each other, a locking device to retain one of the unlocked members, and means operated by the cover to actuate the locking device and release the locked member, substantially as described.

517,620. SWIVEL-BRACKET FOR RODS. THOMAS MORRIS, Brooklyn, assignor to Julius Berbecker & Co., New York, N. Y. Filed June 28, 1893. Serial No. 479,056. (No model.)



Claim.—The combination with a rod consisting of tubes one of which is adapted to slide within the other, the outer end of each tube being internally screw threaded, of brackets A, and heads pivoted to swing in said brackets and provided with threaded hubs adapted to engage the threaded ends of the rod.

517,621. INSULATOR. LOUIS MCCARTHY, Boston, Mass. Filed July 15, 1893. Serial No. 480,618. (No model.)



Claim.—1. An insulator comprising a case, metallic portions placed within said case and separated from each other by an interposed layer of insulating material, a flange on said case extending inwardly therefrom and having a thin or feather edge, a series of sheets of mica outside said flange on one of the insulated metallic portions and in contact around said metallic portion with the insulating material within the case, and a nut or washer on said insulated metallic portion, substantially as set forth.

2. An insulator comprising a case, metallic portions placed within said case and insulated from each other by interposed sheets of mica, a flange on said case extending inwardly therefrom and having a thin or feather edge, the upper side of said flange being flat and the under side thereof curved in cross section, a washer or nut on the shank of one of the insulated metallic portions, the face of said nut adjacent said flange being curved to correspond therewith, and a series of sheets of mica interposed between said nut and said flange and in contact around said shank with the insulating material within the case, substantially as set forth.

517,622. BUTTON-SETTING MACHINE. IRVING G. PLATT, Waterbury, Conn. Filed Mar. 1, 1889. Serial No. 301,638. (No model.)



Claim.—1. In a machine for attaching hollow-shanked buttons to cloth, the combination with a button-head carrier constructed with a central longitudinal opening, of a bodkin extending into the said opening from the outer end thereof, means located outside of the said carrier for positively reciprocating the said bodkin to project it beyond and retire it within the face of the said carrier, a button-shank carrier located opposite to, and in line with, the said button-head carrier and bodkin, and means for reciprocating one of the said carriers, substantially as described.

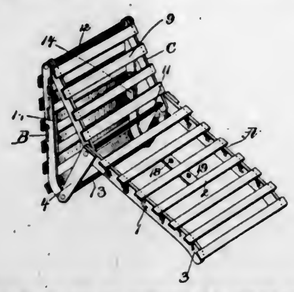
2. In a machine for attaching hollow-shanked buttons to cloth, the combination with a button-head carrier constructed with a central longitudinal opening, of the bodkin extending into the said opening from the outer end thereof, means located outside of the carrier for positively reciprocating the said bodkin to project it beyond and retire it within the face of the said carrier, a button-shank carrier located opposite the said button-head carrier, a plunger also located opposite and in line with the said button-head carrier, and means for reciprocating one of the said carriers, substantially as described.

3. In a machine for attaching hollow-shanked buttons to cloth, the combination with a button-head carrier constructed with a central longitudinal opening, of a bodkin extending into the said opening from the outer end thereof, means located outside of the said carrier for positively reciprocating the bodkin to project it beyond and retire it within the face of the said carrier, a button-shank carrier and a plunger located opposite to and in line with the said button-head carrier, and means for reciprocating the button-head carrier independent of the bodkin, for closing the two carriers together, substantially as described.

4. In a machine for attaching hollow-shanked buttons to cloth, the combination with a button-head carrier constructed with a central longitudinal opening, of a bodkin extending into the said opening from the outer end thereof, means located outside of the said carrier for positively reciprocating the said bodkin to project it beyond and retire it within the face of the said carrier, a button-shank carrier consisting of two spring actuated pivotal arms, located opposite said button-head carrier; a plunger located between the said arms, which are separated when it descends, and means for reciprocating the said button-head carrier, substantially as described.

517,623. BED-REST. JOHN R. PLUMMER, Waterville, N. Y. Filed Oct. 30, 1893. Serial No. 489,465. (No model.)

Claim.—1. The rest for invalids, &c., comprising the sloping body-support, the back-support joined at its lower end to the said body-support, and adapted to be moved toward and from the upper end of the latter, the head-rest joined to the upper portion of the back-support and adapted to be turned down against the sloping body-support, substantially as set forth.



2. A rest for invalids, &c., comprising the sloping body-support having a fixed angle of inclination, the back-support located adjacent to the most elevated portion of the body support and pivoted at its lower end to the said body-support, and means for securing said back support at different inclinations, substantially as set forth.

3. The rest for invalids, &c., comprising the sloping body-support, the back-support joined at its lower end to the said body-support and adapted to be swung toward and from the upper end of the latter, the head-rest joined at one end to the upper portion of the back-support and adapted to be turned down against the sloping body-support when desired, and means for holding at the desired inclination the connected back-support and head-rest when the latter is extended, substantially as set forth.

4. The rest for invalids, &c., comprising the sloping body-support, the back-support joined at its lower end to the said body-support, the hook bars whereby the upper-end of the back-support may be held away from the body-support when required, the head-rest joined at one end to the upper portion of the back-support and adapted to be turned down against the sloping body-support and engaged with the latter and the brace whereby the connected back-support and head-rest may be held at the desired inclination when the head-rest is extended, substantially as described.

5. The rest for invalids, &c., comprising the sloping body-support A, having the lower end thereof curved, the back-rest B pivoted thereto, the head-rest C pivoted to said back-rest, and means for securing said back-rest and head-rest in desired positions, substantially as set forth.

6. The rest for invalids, &c., comprising the sloping body-portion A, the back-rest B located adjacent to the most elevated portion of the said body portion and pivoted at its lower end to said body portion and having its lower end convexly curved, and means for securing said back-rest in desired position with reference to said body-support, substantially as set forth.

7. The rest for invalids, &c., comprising the sloping body-portion curved at its lower end, the back-rest also curved at its lower end and pivoted thereat to said body-portion, the head rest C pivoted to the upper end of said back-rest, hook-bars on said back-rest for engaging the upper portion of said body-support, and a brace for said head-rest, substantially as set forth

517,624. TOILET-SOAP SERVER. HOBART B. POTTER, Hillburn, N. Y. Filed Feb. 18, 1893. Serial No. 462,893. (No model.)

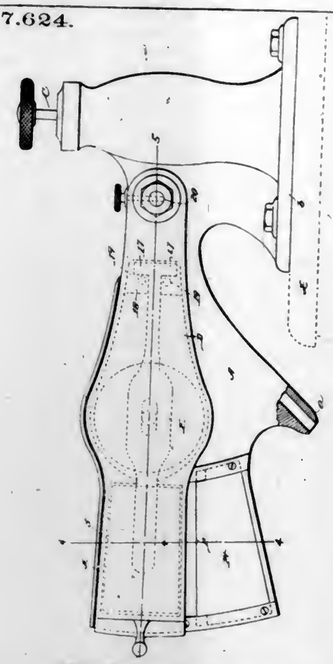
Claim.—1. A faucet provided with a water-delivery channel and controlling valve, in combination with a movable lever or section connected with the faucet section, one having a receptacle for a block of soap and the other a cutter and means for forcing the soap outward from said receptacle, and against the cutter, substantially as set forth.

2. The combination of the part as the lever D, having a receptacle for the soap, the follower, a lever E, pivoted to the part D, a screw carrying a nut bearing on said lever, and means for turning the screw at each movement of the lever, substantially as set forth.

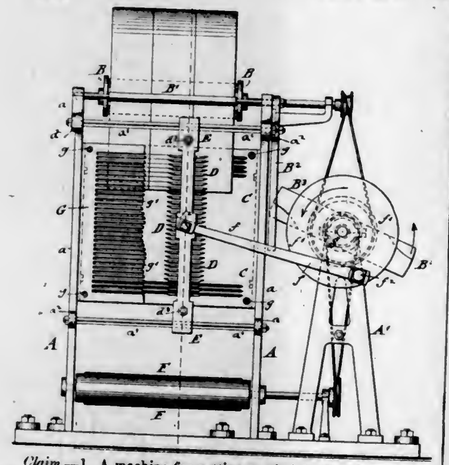
3. The combination of the part A, of the pivoted lever D, follower, lever E, detachably connected with the lever D, and screw and nut, and means for turning the screw and nut, substantially as set forth.

4. The combination with the basin of a soap server consisting of a stationary section A, extending over the basin a movable section D, pivoted to one side of the section A, one section having a cutter and the other a receptacle for a block of soap and means for forcing the latter outward on the movement of the movable section, substantially as set forth.

517,624.



517,625. MACHINE FOR CUTTING TOOTHPICKS. JAMES POWERS, New York, N. Y. Filed Jan. 5, 1894. Serial No. 495,837. (No model.)



Claim.—1. A machine for cutting toothpicks, &c., from veneer, consisting of intermittently-operated feed-device for feeding a sheet of veneer, a grooved guide-plate arranged below the feed-rollers, a reciprocating gang of disk-shaped cutting-knives and a slotted steadying plate for said cutting-knives, located in front of the grooved guide-plate, substantially as set forth.

2. A machine for cutting toothpicks, &c., from veneers, comprising an intermittently-actuated feed-device, a stationary guide-plate provided with parallel grooves in the face of the same, a gang of disk-shaped cutting-knives arranged in front of the guide-plate, means for imparting reciprocating motion to said gang of cutting-knives, and a steadying-plate arranged in front of the guide-plate and provided with slots for the passage of the cutting-knives, substantially as set forth.

3. A machine for cutting toothpicks, &c., from veneer, which comprises an intermittently-actuated feed-device, a guide-plate arranged below the feed-device and provided with parallel grooves in its face, a stationary plate arranged in front of the guide-plate and provided with parallel slots in line with the grooves of the guide-plate, a gang of disk-shaped cutting-knives, said knives passing through the slots of the steadying-plate into the grooves of the guide-plate, sleeves for supporting the spindle of the cutting-knives, a cross-piece to which the shafts of the sleeves are applied, and means for imparting reciprocating motion to said cross-piece, substantially as set forth.

4. The combination, of an intermittently-actuated feed-device for the veneer, a stationary guide-plate having parallel grooves below the same, a steadying-plate in front of the guide-plate provided with parallel slots, a gang of rotary disk-shaped cutting-knives arranged to pass through the slots of the steadying-plate means for imparting reciprocating motion to the gang of cutting-knives, and an endless apron or conductor arranged below the guide-plate and cutting knives for receiving the toothpicks or other articles cut from the veneer, substantially as set forth.

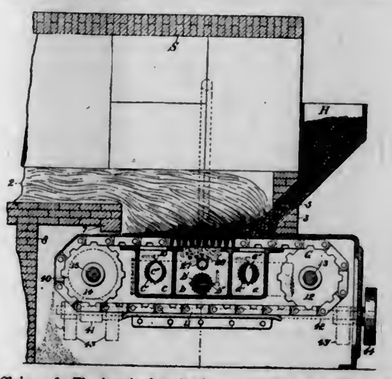
5. A machine for cutting toothpicks from veneers which comprises an intermittently-actuated feed-device, a guide-plate having parallel grooves in its face, a steadying-plate in front of the guide-plate, said steadying plate being provided with parallel slots, a gang of rotary disk-shaped cutting-knives adapted to pass through the slots of the steadying-plate, means for adjusting the entire gang of cutting-knives relatively to the guide-plate, and means for imparting reciprocating motion to the gang of cutting-knives, substantially as set forth.

517,626. PROCESS OF PURIFYING TANNIC ACID. BERNARD REINUS, Paterson, N. J. Filed Apr. 8, 1893. Serial No. 469,561. (No specimens.)

Claim.—1. The process herein described of purifying tannic acid contained in the ordinary tannic extracts of commerce, which consists in mixing the tannic acid solution with a solution of acetate of lead so as to precipitate from the tannic acid solution a portion of the tannate of lead with the impurities contained in the same, filtering off the precipitate from the purified solution of tannic acid, treating the purified tannic acid solution with a solution of acetate of lead in excess so as to precipitate tannate of lead, subjecting the precipitated tannate of lead to the action of oxalic acid or any other acid which forms an insoluble compound with lead, and filtering off the pure and concentrated tannic acid from the insoluble precipitate, substantially as set forth.

2. A process herein described of purifying tannic acid contained in the ordinary tannic extracts of commerce, which consists in mixing the tannic acid solution with a solution of acetate of lead so as to precipitate from the tannic acid solution a portion of the tannate of lead with the impurities contained in the same, separating the precipitated tannate of lead with the impurities from the solution of tannic acid, subjecting the tannate of lead in the precipitate to the action of oxalic acid so as to form an insoluble oxalate of lead and tannic acid solution, filtering off the insoluble oxalate of lead from the impure tannic acid solution, and purifying the solution in the same manner as the ordinary commercial tannic extracts, substantially as set forth.

517,627. FURNACE. FRANCIS H. RICHARDS, Hartford, Conn., assignor to Eckley B. Coxe, Drifton, Pa. Filed Feb. 20, 1894. Serial No. 500,888. (No model.)



Claim.—1. The herein-described process of burning fuel, which consists in igniting the mass spread in a layer, subjecting said ignited layer to successive air-blasts of varying pressures during the successive stages of the combustion period, and also subjecting said mass to a

steam-blast between the first and last stages of the combustion thereof, substantially as described.

2. The herein-described process of burning fuel, which consists in igniting the mass spread in a layer, subjecting the same to a dry-air blast during the ignition period, a dry-air blast during the last stages of the combustion period, and a combined steam-and-air blast near the middle portion of the combustion period, substantially as described.

3. The herein-described process of burning coal and other fuel, which consists in igniting the mass spread in a layer, feeding said mass forward subjected to a dry-air blast of relatively low pressure during the early part and the latter part of the combustion period and subjecting said layer to a combined air-and-steam blast of relatively high pressure during the middle portion of the combustion period, substantially as described.

4. The herein-described process of burning fuel, which consists in supplying a grate with fuel spread in a layer thereon; igniting the same and first subjecting it to a dry-air ignition-blast from below the grate, then moving it forward and subjecting it to a combined air-and-steam blast, thence moving it forward and subjecting it to a dry-air blast, substantially as described and for the purpose set forth.

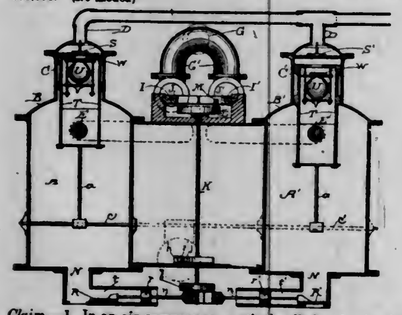
5. The herein described process of burning fuel, which consists in spreading the same in a layer, igniting the layer, moving the layer forward during combustion and subjecting the same during the successive periods of combustion to successive dry-air and steam-blasts, substantially as described.

6. The herein-described process of burning coal and other fuel, which consists in subjecting a moving mass or layer first to heat and to a dry-air blast of relatively low pressure for igniting the same, next subjecting the ignited layer to a combined steam-and-air blast of relatively high pressure, and subsequently subjecting the burning fuel to a dry-air blast of relatively low pressure, substantially as described and for the purpose set forth.

7. In a furnace, the combination with a traveling grate and with successive air-supply chambers underneath the grate at successive points in the length thereof, of means for supplying air to the chambers at different pressures, and means for supplying steam to the grate through one of said chambers, whereby the fuel may be ignited by a dry-air blast, continued burning by a combined air-and-steam blast, and the burning completed by a dry-air blast, substantially as described.

8. In a furnace, the combination with a traveling grate and with means for supplying the grate with fuel spread in a layer thereon, of a dry-air ignition-blast apparatus underneath the grate adjacent to the fuel-supply, a combined air-and-steam blast apparatus underneath the grate forward of the ignition air-blast, and an air-blast underneath the grate forward of the combined air-and-steam blast, substantially as described and for the purpose specified.

517,628. HYDRAULIC AIR-COMPRESSOR. EMILE SCHUTZ and JOHN H. HENDERSON, Sierra City, Cal. Filed Oct. 13, 1893. Serial No. 488,093. (No model.)



Claim.—1. In an air compressor, vertical cylinders having inlet pipes opening into the sides, pipes connecting with the inlet pipes and through which water under pressure is admitted, reciprocating valves by which the admission of water to either cylinder is controlled, slotted slides with rods connecting with said valves and a rotary disk mounted upon a shaft and having a pin adapted to enter the slots in the slides, whereby the valves are reciprocated in opposite directions by the rotation of the disk, substantially as herein described.

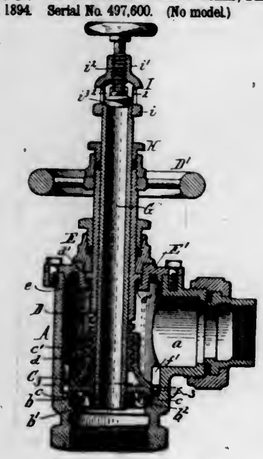
2. An air compressor consisting of vertical cylinders having the inlet pipes, the reciprocating oppositely moving controlling valves near the opposite ends of the cylinders, and mechanism for operating said valves whereby water is alternately admitted under pressure into the cylinders and discharged therefrom, a jet nozzle and air inlet valves through which air is drawn, and injected with the water into the cylinders, a smaller cylinder with reciprocating piston fitted therein forming a continuation above the top of each main cylinder, an outlet pipe and valve through which the compressed air is discharged as the water fills the cylinder, a float valve movable within the piston which moves in the supplemental cylinder and closing a discharge in the top of the piston when the water reaches it, whereby the pressure of the water is transferred to the piston and the latter forced to the top of its cylinder and the air contained above it is forced into the discharge pipe, substantially as herein described.

3. In an air compressor, the vertical cylinders having the inlet pipes, reciprocating controlling valves, jet nozzles and air inlet passages, and a mechanism whereby the valves are alternately shifted to admit and cut off the supply of water to the cylinders, water discharge openings in the bottom of the cylinders with correspondingly reciprocated valves by which the openings are alternately opened and closed in opposition to the opening and closing of the admission valves, a vertical shaft journaled between the two cylinders having disks at the top and bottom with eccentric pins, slotted slides with which the valve rods are connected, and into the slots of which the pins of the disks pass when the disks are rotated so that one admission valve is opened and the other closed, and the corresponding water outlet valve is closed and the other opened, substantially as herein described.

4. An air compressor consisting of the vertical cylinders with air and water inlet pipes and reciprocating controlling valves near the upper part and oppositely moving water discharge valves at the bottom, a vertical intermediate shaft and mechanism by which the two sets of valves are operated, a supplemental cylinder extending from the top of each of the compression cylinders having a piston movable therein and an air discharge passage from the top, a float valve by which the opening in the top of the piston is closed when the cylinder becomes filled with water whereby the piston is moved upwardly, a horizontal shaft extending through the lower part of the two cylinders and having rocker arms fixed to it within each cylinder, and connecting rods by which said rocker arms are connected with the movable piston whereby the shaft is partially rotated by the movement of either piston, a water engine consisting of a cylinder with a reciprocating piston and a controlling valve, an arm connected with the rotary oscillating shaft and with the valve whereby the latter is moved to reciprocate the piston of the engine, a rack bar formed upon the piston rod of said engine, and a pinion with which it engages fixed upon the vertical shaft by which the inlet and discharge valves are actuated whereby said valves are moved automatically, substantially as herein described.

5. In an air-compressor, the vertical cylinders having inlet pipes, upper reciprocating controlling valves, jet nozzles and air inlet passages, and a mechanism comprising a rotary disk and slides on the stems of the valves engaged thereby whereby the valves are shifted to alternately admit and cut off the water to the cylinders, water discharge openings in the bottom of the cylinders with correspondingly reciprocated valves and actuating mechanism by which the discharge openings are alternately closed and opened in opposition to the opening and closing of the admission valves, pistons connected with the discharge valve stems, and cylinders in which said pistons travel, connected with the main vertical cylinders, and receiving water pressure therefrom to act against the pistons and assist in moving the valves, substantially as herein described.

517,629. AIR-INJECTOR. JOHN G. STAMP, Buffalo, N. Y. Filed Jan. 22, 1894. Serial No. 497,600. (No model.)



Claim.—1. In an air injector, the combination with the casing having a liquid inlet and an outlet, of an air tube extending into the casing and terminating below the liquid inlet, a perforated diaphragm arranged in the casing adjacent to the outlet end of said air tube, a movable valve-plate or disk controlling the passage of the liquid through the perforations of said diaphragm, and an actuating device connected with the movable valve-plate, substantially as set forth.

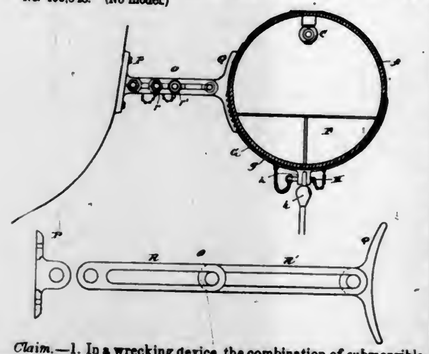
2. In an air injector, the combination with the casing having a liquid inlet and an outlet, of an air supply tube extending into the casing and terminating below said inlet, a perforated diaphragm arranged adjacent to the lower end of said air tube, and an adjustable valve-plate provided with tapering valves which control the passage of the liquid through the perforations of said diaphragm, substantially as set forth.

3. In an air injector, the combination with the casing having a liquid inlet and an outlet, of a perforated diaphragm arranged in the casing below its inlet, an air supply tube extending into the casing, and opening into the space below said diaphragm, a movable valve-plate or disk controlling the passage of the liquid through the openings of said diaphragm, and a hollow actuating stem surrounding said air tube and connected with said valve-plate or disk, substantially as set forth.

4. In an air injector, the combination with the casing having a liquid inlet and an outlet, of a perforated diaphragm arranged in the casing below its inlet, an air supply tube extending into the casing and opening into the space below said diaphragm, a valve plate or disk movable toward and from said diaphragm and held against rotation, and a hollow rotary actuating stem held from lengthwise movement and having a screw-threaded connection with said valve-plate or disk, substantially as set forth.

5. In an air injector, the combination with the casing having a liquid inlet and an outlet, of a perforated diaphragm arranged in the casing below its liquid inlet, an air supply tube open at both ends, extending into the casing and terminating adjacent to said diaphragm, and an air regulating valve, composed of an open cage provided at its lower end with an internally threaded ring engaging with an external screw-thread at the projecting end of the air tube, and at its upper portion with an internally screw-threaded collar, and a valve seating against the end of said air tube and having an externally screw-threaded stem which engages with said internally threaded collar, substantially as set forth.

517,630. APPARATUS FOR RAISING SUNKEN VESSELS. JOHN TAYLOR and CALL TAYLOR, Detroit, Mich. Filed Apr. 8, 1893. Serial No. 469,548. (No model.)



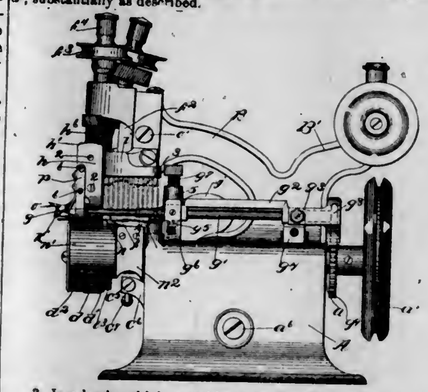
Claim.—1. In a wrecking device, the combination of submergible pontons, means for handling the same under water, and means for forcing air into said pontons, and braces having bearing ends P Q, connecting links R R', and an adjusting bolt, substantially as described.

2. In a wrecking device, means of securing submergible pontons in place, comprising a cable secured to its under side and passed under the wreck, and an adjustable strut, one end of which is secured to the wreck, the other end of which bears against the ponton, substantially as described.

517,631. LEATHER-SKIVING MACHINE. ANDREW J. TEWKSBURY, Haverhill, Mass. Filed Aug. 28, 1893. Serial No. 484,193. (No model.)

Claim.—1. In a leather skiving machine, the combination of two pulleys, an endless feeding belt d thereon, beveled at its inner edge, as at d', and cut away at its outer edge, as at d^3, leaving a flat central portion the full thickness of the belt, a rotary skiving knife, and two presser feet, one bearing upon the stock upon the flat central portion of the belt, and the other bearing upon the stock at the cut away portion d^3, and an upper feed wheel, substantially as described.

2. In a leather skiving machine, the combination of two pulleys, an endless feeding belt d thereon, beveled at its inner edge, as at d', and cut away at its outer edge, as at d^3, leaving a flat central portion the full thickness of the belt, a rotary skiving knife, an upper feed wheel bearing upon the stock upon the flat central portion of the belt, and a presser foot bearing upon the material at the cut away portion d^3, substantially as described.



3. In a leather skiving machine, an endless feeding belt, two pulleys over which it passes, the shaft a driving one of said pulleys, and the adjustable bell-crank lever supporting said shaft a, substantially as described.

4. In a leather skiving machine, the combination of endless feeding belt, two pulleys b, c, over which it passes, driving shaft a for the pulley b, an upper feed wheel g, driving shaft g' for it, and an adjustable bell-crank lever or frame a supporting said shafts a and g, substantially as described.

5. In a leather skiving machine, the combination of an endless feeding belt, two pulleys b, c, over which it passes, driving shaft a for the pulley b, an adjustable bell-crank lever or frame a^3, supporting said shaft a an upper feed wheel g, driving shaft g' for it, a yoke supporting said shaft g' pivotally connected at one end to said bell-crank lever, and adjustably connected at the other end with said lever, substantially as described.

6. In a leather skiving machine, the combination of an endless feeding belt, two pulleys over which it passes, a rotary knife, and two presser feet, and an upper positively driven feed wheel between said presser feet, substantially as described.

7. In a leather skiving machine, the combination of an endless feeding belt, two pulleys over which it passes, a rotary knife, and a positively driven upper feed wheel, an adjustable yielding presser foot h, h^x, passing beneath the shaft of the feed wheel, substantially as described.

8. In a leather skiving machine, the combination of an endless feeding belt, two pulleys over which it passes, a rotary knife, a positively driven feed wheel, and a presser foot consisting of the plate h bent at its lower end at h^x, to bear upon the material and pass beneath the shaft of the feed wheel, the cam h^3 for adjusting the lower end h^x, spring h^5, and adjusting nut h^4, substantially as described.

9. In a leather skiving machine, the combination of an endless feeding belt, two pulleys b, c, over or around which it passes, one of which as b has a circumferential groove, a presser foot and a rotary skiving knife, and the block e entering the groove in the pulley b and pivotally connected to a fixed arm e' the axis of said block being at right angles to the axis of the pulley b and the adjusting screw e^4 having a tapered end for varying the plane of the upper surface of said block, e, substantially as described.

10. In a leather skiving machine, the combination of a rotary skiving knife, and an endless feeding belt, two pulleys over or around which it passes, a frame supporting one of said pulleys, adjustable on an axis in line with the axis of the other pulley, whereby the feeding belt may be moved toward and from the skiving knife, a feed wheel bearing upon said feeding belt supported by the aforesaid adjustable frame and thereby movable in conjunction with the pulley which is supported by it, an independent block beneath and adapted to bear against the under side of the feeding belt, beneath the skiving knife, an adjusting screw for adjusting it on an axis at right angles to the axis on which the pulleys revolve, to vary the plane of said block with relation to the face of the pulley, and a support for said independently adjustable block made movable in conjunction with the movable pulley, substantially as described.

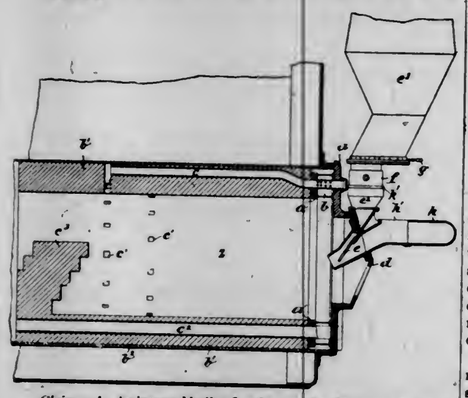
11. In a leather skiving machine, the combination of feeding mechanism, a rotary skiving knife, arm B supporting it, and a vertical guard *i*, 3, placed between said arm and the bed of the machine, substantially as described.

12. In a leather skiving machine, the combination of feeding mechanism, a rotary skiving knife, and the guard *j* having a curved upper surface, substantially as described.

13. In a leather skiving machine, the combination of an endless feeding belt, and a block located below it at the point where the skiving is to be done, a rotary skiving knife located above said belt, the guard *k* inclosing and protecting the front of said knife, and the guard *m* passing around the back side of and crossing the plane of said knife, substantially as described.

14. In a leather skiving machine, the combination of a rotary skiving knife, an endless feeding belt, two pulleys over or around which it passes, a frame supporting one of said pulleys adjustable to vary its position relative to the skiving knife, a feed wheel bearing upon said feeding belt supported by said adjustable frame, an independent block beneath and adapted to bear against the under side of the feeding belt, at a point beneath the skiving knife, means for adjusting said block on an axis at right angles to the axis upon which the pulleys revolve, to vary the plane of said block with relation to the face of the pulleys, a support for said adjustable block, guides for the feeding belt, and a guide for the material being skived, both supported by the adjustable frame carrying the movable pulley, substantially as described.

517,632. FINE-FUEL FURNACE. CARL WEGENER, Berlin, Germany. Filed Oct. 12, 1893. Serial No. 487,778. (No model.) Patented in France Apr. 26, 1893, No. 218,265; in Belgium May 5, 1893, No. 104,531; in Italy May 15, 1893, LXVI, 485, and in Luxemburg Aug. 29, 1893, No. 1,882.



Claim.—1. An internal boiler flue furnace for fine fuel consisting of a fire brick cylinder (*b'*) arranged within the fore part of the flue and forming the combustion chamber, a furnace front (*a*) closing the entrance of the combustion chamber, an annular air chamber (*b*) fed with air and connected with air conduits (*c c'*) leading through the walls of the said cylinder into the combustion chamber and means for blowing the coal dust into the latter, substantially as described and shown.

2. An internal boiler flue furnace for fine fuel, consisting of a fire brick cylinder, a furnace front, an annular chamber and conduits in the walls of the said cylinder for supplying the combustion chamber with air, means for blowing the coal dust into the combustion chamber and a tube passing longitudinally through the lower part of the fire brick cylinder for the purpose of clearing the flue by means of compressed air or steam, substantially as shown and described.

3. An internal boiler flue furnace for fine fuel consisting of a fire brick cylinder, an annular air chamber and air conduits in the walls of the cylinder, a central door in the front of the furnace provided with openings, and with a supplemental smaller door, a blast device arranged to swing upon a vertical axis in front of said central door, and resting in contact with the upper part of the latter when not swung aside, and a fixed coal dust hopper joined to the blast device by a sleeve or collar, substantially as described.

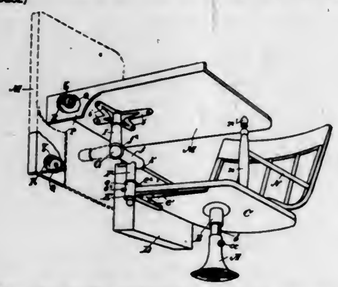
4. An internal boiler flue furnace for fine fuel consisting of a fire brick cylinder, an annular air chamber and air conduits in the walls of the said cylinder, a blast for feeding the coal dust into the combustion chamber arranged on the furnace front plate and a forwardly projecting fire bridge at the rear end of the combustion chamber, substantially as shown and described.

5. The combination with an internal boiler flue furnace for fine fuel, consisting of a fire brick cylinder, an annular air chamber and air conduits in the walls of the said cylinder and a blast for feeding the coal dust through the furnace front plate into the combustion chamber, of a coal dust disintegrating and supplying device and a hopper above the same provided at its lower end with an angular extension, substantially as shown and described.

6. The combination with an internal boiler flue furnace for fine fuel, consisting of a fire brick cylinder, an annular air chamber and air conduits in the walls of the said cylinder and a blast for feeding the coal dust, of a coal dust disintegrating and supplying sieve (*i*) rocking on a vertical axis and radially arranged strips (*k*) fitted immovably above this sieve, substantially as shown and described.

7. The combination with an internal boiler flue furnace for fine fuel, consisting of a fire brick cylinder, an annular air chamber and air conduits in the walls of the said cylinder and a blast for feeding the coal dust, of a coal dust disintegrating and supplying device, and dust channel (*e'*) underneath the same directed slopingly downward to the combustion chamber and gutters (*e*) in continuation of the said dust channel projecting into the entrance of the combustion chamber, substantially as shown and described.

517,633. ADJUSTABLE DESK. MONROE A. WERTHEIMER, San Diego, assignor of two-thirds to Charles E. Bancroft and Harlow P. Bancroft, San Francisco, Cal. Filed May 9, 1893. Serial No. 473,541. (No model.)



Claim.—1. In a desk in combination with the seat and the table or leaf, an adjustable connection between the two consisting of a horizontal sleeve connected with the seat, a vertical sleeve connected with the table or leaf, an intermediate piece having journal pins at right angles to each other, one of said pins being mounted in the sleeve connected with the seat, and the other being mounted in the sleeve connected with the table or leaf, stop pins on the journal pins and recesses in the sleeves engaging said pins for limiting the movements on and of said journal pins, substantially as herein described.

2. In a desk in combination with its seat and table or leaf, the means for adjustably connecting the two consisting of a horizontal sleeve connected with the seat, a vertical sleeve connected with the table or leaf, an intermediate piece having journal pins at an angle to each other, and each fitting in one of said sleeves whereby hinged joints are formed, and the means for frictionally controlling said joints consisting of the washers and bearing frictionally by means of binding screws on the sleeves, substantially as herein described.

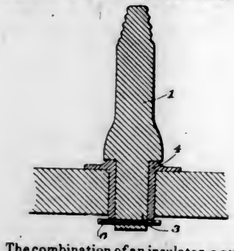
3. In a desk, in combination with its seat and table or leaf, the means for adjustably connecting the two, consisting of a sleeve connected with the seat, said sleeve having a flange f^2 and recessed edge, a sleeve connected with the table or leaf having a flattened portion and recessed edge adapted to oppose the flange and recess of the other sleeve, and an intermediate piece having journal pins at an angle to each other and each mounted in one of said sleeves, substantially as herein described.

4. In a desk, in combination with its seat and table or leaf, the means for adjustably connecting the two, consisting of a sleeve connected with the seat, said sleeve having a flange f^2 and recessed edge, a sleeve connected with the table or leaf having a flattened portion adapted to oppose the flange and recess of the other sleeve, a piece having journal pins at an angle to each other, and each mounted in one of said sleeves, and stop lugs and recesses in the sleeve with which they engage for limiting the movements of the pin and sleeve, substantially as herein described

5. In a desk, the combination of the chair or seat, the table or leaf, a hinge connection at one side of the chair or seat and connecting the same with the table, said connection consisting of a sleeve carried by the seat and a sleeve carried by the table, one in a horizontal and the other in a vertical position, an intermediate piece having pins at right angles forming journals adapted to enter said sleeves whereby the table or leaf is adapted to be turned to a horizontal position in front of the chair and to a vertical position at one side thereof, and an arm rest at the opposite side of the chair having an adjustable extension in its upper end adapted to support the free end of the desk when the latter is in its horizontal position, substantially as herein described.

6. In combination with a table or leaf adapted to have a movement from a horizontal to an upright position and thence edgewise backwardly, an ink-well having a mouth at one side, and mounted in said table or leaf upon a pivot which enables it to automatically turn from its initial position to a position at right angles thereto when the table or leaf is turned from a horizontal to an upright position.

517,634. PIN FOR INSULATORS. GEORGE H. WINSLOW, Pittsburg, Pa. Filed Oct. 25, 1893. Serial No. 489,095. (No model.)



Claim.—1. The combination of an insulator, a pin, said parts being provided with suitable devices whereby they may be secured together or detached one from the other by a rotation of one of the parts, and a support for the pin, the latter being so secured to the support as to be capable of rotation, substantially as set forth.

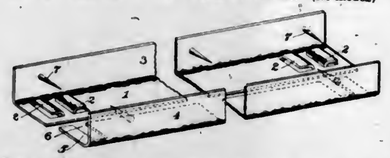
2. The combination of an insulator, a pin, said parts being provided with suitable devices whereby they may be secured together or detached one from the other by a rotation of one of the parts, a ferrule loosely fitting the end of the pin and adapted to be secured in a suitable support, substantially as set forth.

3. The combination of an insulator provided with an internally threaded socket, a pin threaded at one end for engagement with the insulator and a ferrule surrounding the opposite end of the pin and provided with a cup shaped flange, substantially as set forth.

4. The combination of an insulator provided with a threaded socket, and a reinforced pin threaded at one end for engagement with the insulator, and so mounted on its support as to be capable of rotation, substantially as set forth.

5. The combination of an insulator, a pin, said parts being provided with suitable devices whereby they may be secured together or detached one from the other by a rotation of one of the parts, a support for the pin, and a lock for preventing the removal of the pin from the support, substantially as set forth.

517,635. BINDER FOR LEAVES. GEORGE H. WINSLOW, Pittsburg, Pa. Filed Oct. 10, 1893. Serial No. 487,755. (No model.)

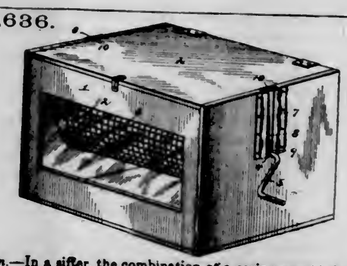


Claim.—1. In a binder for leaves, the combination of a back piece provided with guiding and retaining lips and a laterally movable side piece constructed to engage said lips and provided with inwardly projecting pins, substantially as set forth.

2. In a binder for leaves, the combination of a back piece provided with guiding and retaining lips, a side piece formed integral with the back piece, a laterally movable side piece constructed to engage said lips, and pins attached to the side pieces, substantially as set forth.

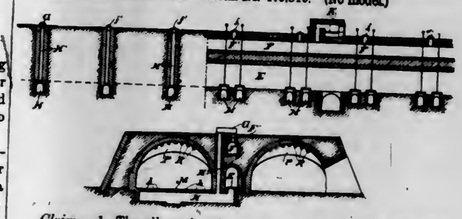
3. In a binder for leaves, the combination of a back piece, provided with guiding and retaining lips, a laterally movable side piece constructed to engage said lips and provided with inwardly projecting pins, and a lock for holding the side piece in proper relation to the back piece, substantially as set forth.

517,636. ASH-SIFTER. LOUISA YOUNGQUIST, FRED L. N. MERRYERS, and AUGUST YOUNGQUIST, Milwaukee, Wis. Filed June 21, 1893. Serial No. 478,387. (No model.)



Claim.—In a sifter, the combination of a casing provided at opposite sides with vertical slots, plates secured to the casing at opposite sides of the slots and forming ways, a shaft journaled on the casing at the bottom of the slots, a rotary sieve carried by the shaft, and slides arranged in the ways and provided at their lower ends with curved recesses and provided at their upper ends with L-shaped flanges engaging the upper edges of the casing and closing the tops of the slots, substantially as described.

517,637. CONTINUOUS KILN. PETER L. YOUNGREN, Oakland, Cal. Filed July 3, 1893. Serial No. 479,519. (No model.)



Claim.—1. The rib or barrier in the crown of a kiln provided with openings and suitable dampers to control said openings, substantially as herein described.

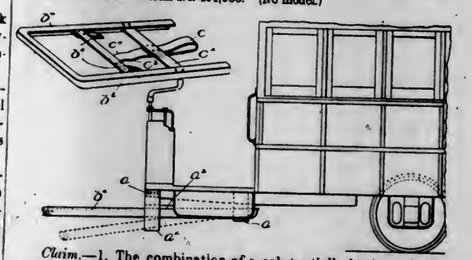
2. The rib or barrier projecting from the main arch having passages through the same combined with dampers supported upon and operated by the settling ware and arranged to close the passages automatically when the material in the kiln settles, substantially as herein described.

3. The barrier projecting from the main arch having passages through the same, combined with a damper supported on the barrier and on the material in such manner that when the material descends the damper closes the passage through the barrier, substantially as herein described.

4. The combination of the transverse flues H extending under the compartment floors and communicating with the said compartments, flues connecting said flues H with a main heat or hot air flue, and a furnace K in connection with said heat flue, substantially as herein described.

5. Transverse flues extending under the compartment floors and connected with the compartments, combined with flues connecting said transverse flues with the tops of the kiln compartments and a supplementary furnace K in communication with said connecting flues, substantially as herein described.

517,638. CAR-FENDER. CARL P. ANDERSON, Boston, Mass. Filed Nov. 25, 1893. Serial No. 491,988. (No model.)



Claim.—1. The combination of a substantially horizontal slideway on the car and a fender engaging said slide-way and capable of limited vertical play and having guides which tilt its forward end downward under a rearward movement of the fender in the slideway.

2. The combination of a substantially horizontal slide-way on the car, and a fender engaging said slide-way and capable of limited vertical play, and having parts whose engagement with the slide-way maintains the fender substantially horizontal in its projected and retracted adjustment, and guides which tilt the forward end of the fender downward under a rearward movement of the latter.

3. The combination of a substantially horizontal slide-way on the car, a fender engaging said slide-way and capable of limited vertical play, and having parts whose engagement with the slide-way maintains the fender substantially horizontal in its projected and retracted adjustment, and guides which tilt the forward end of the fender downward under a rearward movement of the latter, and a spring exerting a downward pressure on the fender.

4. The combination of a substantially horizontal slide-way on the car, and a fender engaging said slide-way and capable of limited vertical play and having parts whose engagement with the slide-way maintains the fender substantially horizontal in its projected and retracted adjustment, and inclined guides adapted to engage the under side of the slide-way under a rearward movement of the fender and tilt the front end of the latter downward.

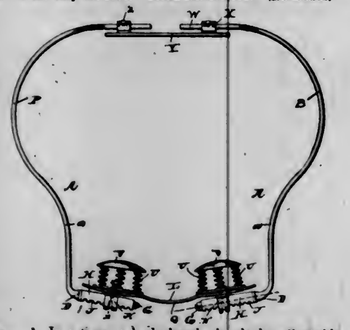
5. The combination of fender-supporting hangers on the car, and a fender adapted to slide longitudinally in said hangers and capable of limited vertical play, and having lugs whose engagement with the latter maintains the fender substantially horizontal at certain points in its longitudinal adjustment, and also provided with inclined lugs for engagement with the under side of the front hanger and which tilt the front end of the fender downward under rearward movement of the fender.

6. The combination of fender-supporting hangers on the car, a fender adapted to slide longitudinally in said hangers and capable of limited vertical play, and having lugs whose engagement with the latter maintains the fender substantially horizontal at certain points in its longitudinal adjustment, and also provided with inclined lugs for engagement with the under side of the front hanger and which tilt the front end of the fender downward under rearward movement of the fender, and a spring carried by the fender and by engagement with the front hanger exerting a downward influence on the fender.

7. The combination of fender-supporting hangers on the car, angle rails connecting said hangers, a fender longitudinally movable in said hangers and having angle side bars engaging the said angle rails, and lugs whose engagement with the hangers maintains the fender substantially horizontal at certain points in its longitudinal adjustment, said fender also having inclined lugs adapted to engage the under side of the front hanger under rearward movement of the fender and thereby tilt the front end of the fender downward, horizontally extending portions of sides of the fender resting on the front hanger in the tilted adjustment of the fender.

8. The combination of fender-supporting hangers on the car, a fender adapted to slide longitudinally in said hangers and capable of limited vertical play and having lugs whose engagement with the latter maintains the fender substantially horizontal at certain points in its longitudinal adjustment, and also provided with inclined lugs for engagement with the under side of the front hanger and which tilt the front end of the fender downward under rearward movement of the fender, and a movable key which holds the fender in position for engagement of its inclined lugs with the under side of the forward hanger.

517,639. TRUSS. JULIUS BRICKNER and ABRAHAM S. HERR, Tiffin, Ohio. Filed May 22, 1893. Serial No. 475,053. (No model.)



Claim.—1. In a truss, a body band, circularly adjustable clamp collars fitted on the front ends of said body band, and having locking notches in one edge, a front pad plate connecting the front ends of the body band and having spring locks adapted to engage the notches of said clamp collars, substantially as set forth.

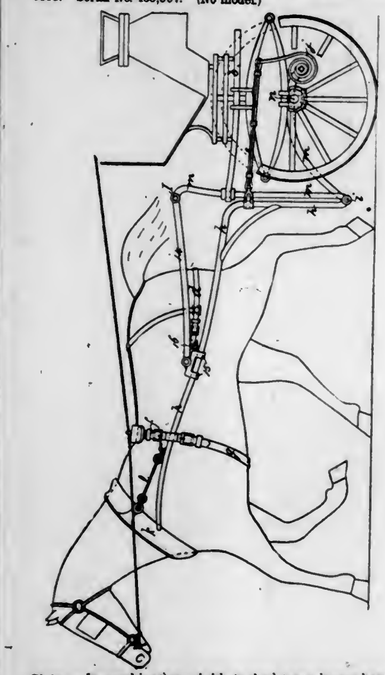
2. In a truss, the combination of the body-band, circularly-adjustable clamp-collars fitted on the front ends of said body-band, a front pad-plate connecting the front ends of the body-band and having slide-collars adapted to loosely embrace said clamp-collars, and means for locking said slide-collars at any adjusted position on said clamp-collars, substantially as set forth.

3. In a truss, a body band having spindles at its front extremities and lock studs at the base of said spindles, circularly adjustable clamp collars adapted to be clamped on the said spindles and having stud openings in one end adapted to engage the lock studs at the base of the spindles, and a front pad carrying plate having slide collars or lugs adjustably engaging said clamp collars, substantially as set forth.

4. In a truss, a sectional body band terminating at its front extremities in spindles and having projecting lock studs at the base of said spindles, circularly adjustable clamp collars clamped on the said spindles and having stud openings in one end engaging said lock studs and a longitudinal series of locking notches in one edge, a front pad carrying plate having slide collars or lugs loosely embracing the clamp collars, and spring locks arranged on the slide collars or lugs and adapted to engage the locking notches of said clamp collars, substantially as set forth.

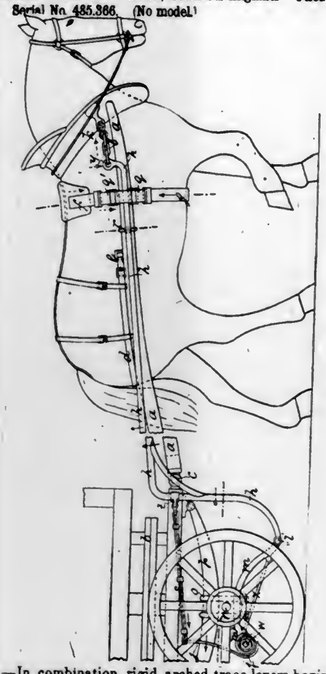
5. In a truss, a sectional body band terminating at its front extremities in spindles, angular clamp collars circularly adjustable on said spindles and adapted to be clamped thereon, said clamp collars being provided with a longitudinal series of locking notches in one edge, a front pad carrying plate, slide collars or lugs attached to one side of said plate near its opposite ends and provided with angular openings loosely embracing the angular clamp collars, and spring-actuated finger lock levers mounted on said slide collars or lugs and adapted to normally engage the locking notches of said clamp collars, substantially as set forth.

517,640. MEANS FOR CONNECTING DRAFT-ANIMALS TO VEHICLES. THOMAS H. BRIGG, Bradford, England. Filed Sept. 12, 1893. Serial No. 485,367. (No model.)



Claim.—In combination, rigid, arched trace-levers having their ends disposed in a downwardly inclined plane or planes relative to flexible connections to the animal at the hame, and their rear-ends pivotally connected to a lowly depending part of the fore-carriage; continuing flexible trace connections tending, when in draft, to draw the ends of the trace-levers into alignment with the attachments to the hame, a belly-band connected to the trace-levers and adapted to bring downward pressure on the animal's fore-quarters; a spring or springs connected to the fore-carriage and to the arched parts of the trace-levers tending to raise the fore-parts of the levers; and combined steering and backing attachments connected to the trace-levers at forward parts, and to the fore-carriage at high points of attachment and together by breech-strap; the whole co-operating as set forth.

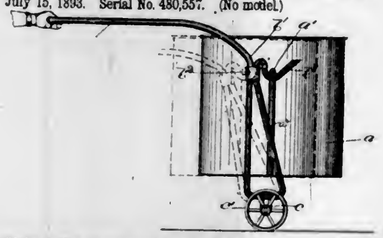
517,641. MEANS FOR CONNECTING DRAFT-ANIMALS TO VEHICLES. THOMAS H. BRIGG, Bradford, England. Filed Sept. 12, 1893. Serial No. 485,366. (No model.)



Claim.—In combination, rigid arched trace-levers having their ends disposed in a downwardly inclined plane or planes relative to flexible connections to the animal at the hame, and their rear ends pivotally connected to a lowly depending part or parts of the fore-carriage or equivalent part of the vehicle,—continuing flexible trace connections tending when in draft to draw the ends of the trace-levers into alignment with the attachments to the hame,—a belly-band connected to the trace levers and adapted to support the animal's fore-quarters,—a back-band connected to the trace levers and adapted to bring downward pressure on the animal's forequarters,—and a spring or springs connected to the fore-carriage or vehicle and to the arched parts of the trace-levers tending to raise the fore parts of the levers:—the whole co-operating as set forth

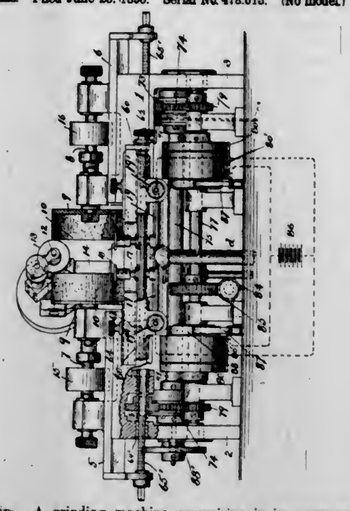
---

517,642. TRUCK. THOMAS R. CAMPBELL, Cambridge, Mass. Filed July 15, 1893. Serial No. 480,557. (No model.)



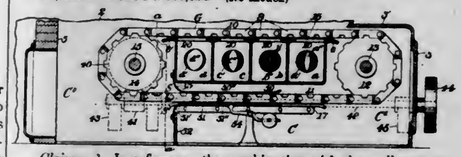
Claim.—The receptacle *a* having lateral projections *a'*, combined with the truck consisting of an open frame, comprising two like side pieces *b*, bent at points midway between their ends at right angles, and joined together at their upper ends by the handle bar, and an axle or frame secured to their lower ends, wheels supported at each end of said axle or frame, and hooks b^2 projecting from said side pieces at their bends, as shown, between the wheel supporting axle and handle bar to engage the projections *a'*, substantially as described.

517,643. GRINDING-MACHINE. DUANE H. CHURCH, Newton, Mass. Filed June 23, 1893. Serial No. 478,613. (No model.)



Claim.—A grinding machine comprising in its construction a movable grinder, feed mechanism for advancing the same upon the work, means controlled by the grinding surface for rendering said feed mechanism inoperative, a retracting agent which constantly tends to withdraw the grinder, and means for restraining said retracting agent a predetermined time after the feed-mechanism has been rendered inoperative.

517,644. FURNACE. ECKLEY B. COXE, Drifton, Pa. Filed Feb. 20, 1894. Serial No. 500,824. (No model.)



Claim.—1. In a furnace, the combination with the endless traveling grate and the chamber in which it is located, of a transverse division-wall located intermediate to the ends of said grate and having a flexible resilient portion in bearing-contact with the lower run of said grate, substantially as described and for the purpose set forth.

2. In a furnace of the class specified, the combination with an endless traveling grate and with the chamber inclosing said grate, of a transverse partition located intermediate to the upper and lower runs of the grate, and having a flexible or resilient portion in bearing-contact with the lower run of said grate, and a transverse partition located below the lower run of said grate and bearing against the lower face of said run, which partitions divide the grate-inclosing chamber into two compartments, substantially as described and for the purpose set forth.

3. In a furnace of the class specified, the combination with the traveling grate, and with its inclosing chamber, of two transversely-disposed bearing-plates in yielding contact with the upper and lower faces of the lower run of said grate and adapted for cutting off communication between the front and rear portions of said chamber, substantially as described and for the purpose set forth.

4. In a furnace of the class specified, the combination with the traveling grate and with its inclosing chamber, of a transversely-disposed air-seal device located intermediate to the front and rear ends and in bearing-contact with the upper and lower faces of the lower run of the grate, and means for retaining said sealing-device in close but yielding contact with said grate, substantially as described and for the purpose set forth.

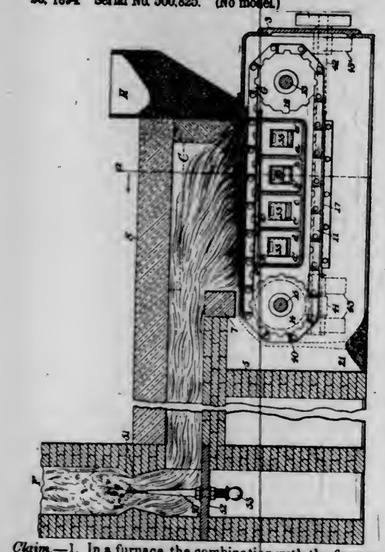
5. In a furnace of the class specified, the combination with the traveling grate, its inclosing chamber, and the air-supply apparatus located intermediate to the upper and lower runs of said grate, of an air-seal consisting of a bearing-plate secured to the air-supply apparatus and bearing upon the upper face of the lower run of the grate, and a bearing-plate pivotally or otherwise secured to a transverse wall or plate below and bearing against the lower face of said run.

and means for retaining the two plates in close but yielding contact with the upper and lower faces, respectively, of said lower run, substantially as described and for the purpose set forth.

6. In a furnace, the combination with the traveling furnace-grate and its inclosing chamber, of a transverse wall dividing said chamber into two compartments and having a bearing-plate in connection therewith in yielding contact with and closing openings through said grate, substantially as described and for the purpose set forth.

7. The combination with a traveling furnace-grate and its inclosing chamber, of a transverse partition or wall located intermediate to the ends of said grate and dividing the said chamber into two compartments; a bearing-plate supported by one edge thereof on said wall and having a body-portion adapted for bearing against the grate and closing openings through the same, and means for normally holding the bearing-plate in close but yielding contact with the under side of said grate, substantially as described and for the purpose set forth.

517,645. FURNACE. ECKLEY B. COXE, Drifton, Pa. Filed Feb. 20, 1894. Serial No. 500,825. (No model.)



Claim.—1. In a furnace, the combination with the furnace-chamber and its inclosing walls, of a grate adapted for supporting and carrying forward the fuel in a layer, a series of vacuum-chambers located below said grate and in direct communication with the outer atmosphere, and an exhaust-apparatus located at the discharge-end of the furnace-chamber and adapted for exhausting said chamber and creating a vacuum in the several vacuum-chambers, substantially as described and for the purpose set forth

2. In a furnace having a furnace-chamber and a grate adapted for supporting and moving the fuel forward, the combination with a series of independent vacuum-cells or chambers, each having induction-passages in restricted communication with the outer atmosphere, and each having openings contiguous to the grate, of means for exhausting the furnace-chamber and creating a vacuum in said air-chambers, substantially as described and for the purpose set forth.

3. In a furnace, the combination with the furnace-chamber and its inclosing walls, of a series of successive air-chambers located below the grate and having induction-openings of varying areas for limiting the volume of in-flowing air to each successive chamber, and an exhaust apparatus adapted for exhausting the furnace-chamber and for creating a vacuum in the several air-chambers, substantially as described and for the purpose set forth.

4. In a furnace, the combination with the furnace-chamber and its inclosing walls, of a grate adapted for carrying the fuel forward in a layer, a series of successive air-chambers located underneath the fuel-layer and each having an induction-passage in direct communication with the outer atmosphere, means in connection with each induction-passage for limiting the influx of air thereto, and an exhaust apparatus for producing an increased suction in the furnace-chamber, for exhausting the same and at the same time creating a vacuum in the air-chambers sufficient to cause an influx of air thereto, substantially as described.

5. In a furnace, the combination with the furnace-chamber and its fuel-carrying grate, of a vacuum-chamber located below the ignition region of the grate and having an induction-passage of relatively small area in communication with the outer atmosphere; an adjacent vacuum-chamber having a similar induction-passage of relatively large area; a vacuum-chamber located under the region of the grate where the last stages of combustion take place and having an induction-passage of relatively small area; and a steam-blast apparatus located at the discharge-end of the combustion-chamber and adapted for exhausting said chamber and for creating a vacuum in the several vacuum-chambers to cause an influx of air thereinto, substantially as described.

6. In a furnace, the combination with the furnace-chamber and its inclosing walls, and with the discharge-flue or stack leading from the furnace, of a fuel-traveling grate, a series of vacuum-chambers located under said grate and each having an induction-passage in direct communication with the outer atmosphere, resistant valves at the inlet ends of said passages, and an exhauster in said flue or stack for drawing air upward from the said chambers through the fuel and for creating a vacuum in said chambers to continue the supply, substantially as described and for the purpose set forth.

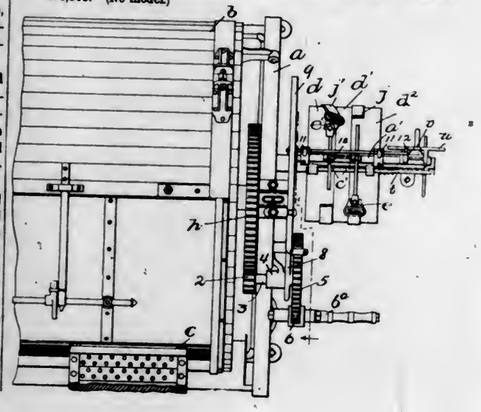
7. In a furnace plant, the combination with the furnace-chamber and grate, and with successive air-chambers located at successive points underneath the grate, of successive induction-pipes leading from the outer atmosphere to said chambers, gravity resistant valves in said pipes adapted for regulating the influx of air to the several chambers, and an exhauster located in the flue or stack for increasing the suction in the furnace-chamber and for creating a vacuum in the air-chambers, substantially as described and for the purpose set forth.

8. In a furnace, the combination with the furnace-chamber and its inclosing walls, and with the furnace-floor adapted for carrying the fuel forward in a layer, of a series of successive air-supplies located below said floor and having their induction-passages in direct but restricted communication with the outer atmosphere, a discharge-flue or stack at the discharge-end of the furnace-chamber, a steam-blast nozzle in said flue or stack, means for supplying steam to said nozzle, and a regulator valve for controlling the steam-blast, whereby a vacuum is produced in the several air-chambers, substantially as described and for the purpose set forth.

9. In a furnace, the combination with the grate and with the furnace-chamber, of a series of successive air-chambers located below the grate and each having an induction-passage in direct communication with the outer atmosphere, a weighted gravity valve closing each passage more or less, and means for creating a vacuum in the air-chambers to overcome the resistance of their weighted valves and cause an influx of air, substantially as described and for the purpose set forth.

10. In a furnace, the combination with the furnace-chamber and its grate, of a series of air induction apparatuses comprising air-chambers located under the grate and each having an inlet and a discharge opening, the discharge opening being contiguous to the grate and the inlet opening being located outside the wall of the furnace, a weighted resistant valve contiguous to each inlet opening and adapted for regulating the influx of air, and an exhaust apparatus located at the discharge end of the furnace-chamber and adapted for creating a suction in the chambers of the induction apparatus, substantially as described and for the purpose set forth.

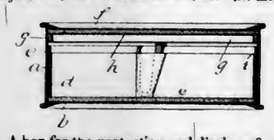
517,646. REVERSING-GEARING FOR WASHING-MACHINES. JAMES G. CRAWFORD, Boston, Mass., assignor to the Crawford Laundry Machinery Company, Portland, Me. Filed June 23, 1893. Serial No. 478,595. (No model.)



Claim.—1. Reversing gearing, comprising loose and tight pulleys on a driven shaft and belts engaging the same, a sliding carrier reciprocated by connection with one of the loose pulleys, a belt-shipper, a latch for connecting said shipper with the sliding carrier, hand-turning means arranged to be shifted in and out of gear, and means whereby the shifting of said hand-turning means locks the latch in inoperative position.

2. Reversing gearing, comprising loose and tight pulleys on a driven shaft and belts engaging the same, a sliding carrier reciprocated by connection with one of the loose pulleys, a belt-shipper, a latch pivoted to the shipper and adapted to engage the sliding carrier and also to be thrown to an inoperative position where it holds the belts on the loose pulleys, hand-turning gear arranged to slide in and out of operative adjustment, a lever for operating said gear, and a slide connected with said lever and arranged to be moved thereby to a position where it locks the latch in its inoperative adjustment, substantially as described.

517,647. WATCH-MOVEMENT BOX. EZRA C. FITCH, Newton, Mass. Filed Sept. 19, 1892. Serial No. 446,295. (No model.)

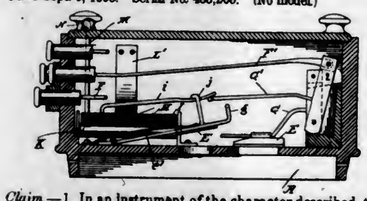


Claim.—1. A box for the protection and display of watch movements comprising in its construction a body portion having its base bent to form an inwardly projecting flange, a cover fitting closely over the body portion and having its upper edge bent to form an inwardly projecting flange, transparent top and bottom plates resting against said flanges, and internal rings adapted to hold the top and bottom plates against said flanges, the said box being adapted to confine the case shoulder of a watch between internal projections carried by the body portion and cover substantially as described.

2. A box for the protection and display of watch movements comprising in its construction a body portion having its base bent to form an inwardly projecting flange, a cover fitting closely over the body portion and having its upper edge bent to form an inwardly projecting flange, transparent top and bottom plates resting against said flanges, and internal rings adapted to hold the top and bottom plates against said flanges, the ring in the body portion being adapted to form an internal shoulder near its upper edge to form a rest for the shoulder of a watch movement, substantially as described.

3. A box for the protection and display of watch movements comprising in its construction a body portion and a cover having transparent top and bottom, the body portion having a recess in one side and a spring latch removably fitted to said recess and constructed and arranged to engage the box and a watch movement therein to hold the latter in the box, as set forth.

517,648. ACCORDION. JOSEPH GALLEAZZI, San Francisco, Cal. Filed Sept. 9, 1893. Serial No. 485,203. (No model.)



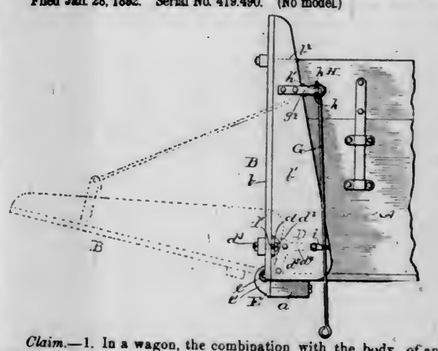
Claim.—1. In an instrument of the character described, the combination with the valves E E', and their operating mechanism, of a hook projecting from the valve E', and a lever secured to the valve E and projecting under and adapted to raise said hook, and independent means for raising said valve E' whereby the valve E' will always be opened when the valve E is opened but may be itself opened without opening the valve E.

2. In an instrument of the character described, the combination of a series of valves E', a piston or key adapted to operate one of said valves, a series of rods adapted to detachably connect the said valve E' with certain other of the valves to form major chords, and mechanism for shifting said rods whereby they may be made to connect the said valve with certain other valves of the series to form minor chords.

3. The combination of a series of valves, hooks projecting therefrom, operating pistons, levers connected with said pistons, a series of rods engaging over said levers and also engaging under said hooks and connecting the valves in chords, and means for shifting said rods so as to vary the chords.

4. The combination, in an instrument of the character described, of valves, detachable rods opening said valves, a shaft joining said rods, an operating lever or key, and a shifting board for the shaft and rods whereby a change in the valves acted upon is effected, substantially as set forth.

517,649. WAGON END-GATE. EUGENIO K. HAYES, Galva, Ill. Filed Jan. 28, 1892. Serial No. 419,490. (No model.)



Claim.—1. In a wagon, the combination with the body, of an end gate, sides on the gate, a supporting plate connected to the gate and sides constituting a connecting brace therefor and having a lateral horizontal bearing, located between the ends of the gate of a hook shaped rest extending out from the body, in which the bearing rests, and a supporting rod on the gate, substantially as described.

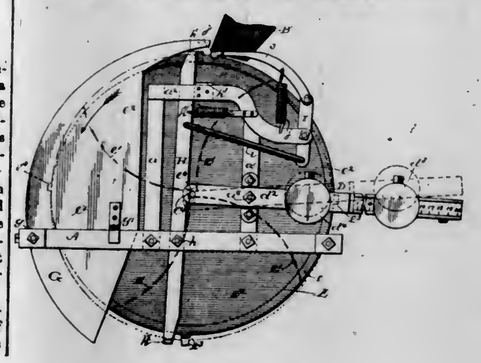
2. In a wagon, the combination with the body, of an end gate, a laterally adjustable bearing on the gate, and a laterally adjustable seat for the bearing secured on the body, substantially as described.

3. In combination in a wagon end-gate and shoveling board, the side boards b' secured and pivoted at one end to the bottom b by pivot bolts b^3, and at their other ends adjustably fixed to the bottom board by angle plates D, one arm of each of which is slotted to receive a bolt, and adjustably secure it to the bottom board, substantially as specified.

4. In combination in a wagon end-gate and shoveling board, the side boards b' secured and pivoted at one end to the bottom b by pivot bolts b^3, and at their other ends adjustably fixed to the bottom board by angle plates D, one arm of each of which is slotted to receive a bolt, and adjustably secure it to the bottom board, said angle plates D being further provided with arms d^5 having each a journal d^6, which engages with a hook shaped bearing e' carried by an adjustable plate E, substantially as specified.

5. In a wagon, the combination with a body, of an end gate hinged to the body at its lower end, a bracket extending beyond the sides of the gate, a rod G pivotally secured to the bracket, an eye h on the wagon body having an opening h' in its vertical outer side part which opening will not permit the escape of the rod until the end gate is elevated to a nearly vertically position, and a hook on the end gate with which hook the rod engages, substantially as described.

517,650. ROTATING GRAIN-METER. EUGENIO K. HAYES, Galva, Ill. Filed Jan. 6, 1893. Serial No. 457,464. (No model.)



Claim.—1. In a grain weigher, in combination substantially as hereinbefore described, with an intermittently revolving grain bucket wheel, having a series of compartments or buckets, and having projecting lugs on its periphery, and a poised scale beam on which said multibucket wheel is revolubly poised and mounted to rise and fall therewith, a bar extending diametrically across the multibucket wheel and provided with a detent lug at each end thereof, adapted to engage with the lugs on the multibucket wheel, substantially as described.

2. In a grain weigher, in combination substantially as hereinbefore described, with an intermittently revolving grain multibucket wheel, having a series of compartments or buckets, and also having projecting lugs on its periphery, and a poised scale-beam on which said multibucket wheel is revolubly poised, and mounted to rise and fall therewith, a pivoted swinging bar extending diametrically across the multibucket wheel and provided with a detent lug at each end thereof, adapted to engage with the lugs on the multibucket wheel, substantially as described, and a yielding spring connection interposed between said swinging bar and a fixed connection.

3. In a grain weigher, in combination, substantially as hereinbefore described, with an intermittently revolving grain bucket wheel, having a series of compartments or buckets, and also having projecting lugs on its periphery, and a poised scale-beam on which said bucket wheel is revolubly poised, and mounted to rise and fall therewith, a pivoted swinging bar with a detent lug on its upper end, adapted to engage with the lugs on the bucket wheel substantially as described, and a yielding spring connection interposed between said swinging bar and a fixed connection.

4. In a grain weigher, in combination substantially as hereinbefore described, with an intermittently revolving grain bucket wheel, having a series of compartments or buckets, and also having projecting lugs on its periphery, and a poised scale-beam on which said multibucket wheel is revolubly poised and mounted to rise and fall therewith, a pivoted swinging bar with a detent lug on its upper end, adapted to engage with the lugs on the multibucket wheel substantially as described, a yielding spring connection interposed between said swinging bar and a fixed lug or stop, such as A^3, to limit the movement of the swinging bar in one direction.

5. In a grain weigher, in combination, substantially as hereinbefore described, with an intermittently revolving grain bucket wheel having a series of compartments or buckets and also having projecting lugs on its periphery, and a poised scale beam on which said multibucket wheel is revolubly poised and mounted to rise and fall therewith, a pivoted swinging bar extending diametrically across the multibucket wheel and provided with a detent lug at each end thereof, adapted to engage with the lugs on the multibucket wheel, substantially as described, a yielding spring connection interposed between said swinging bar and a fixed part of the supporting frame, and a stop, as A^3, for the swinging bar.

6. In a grain weigher, in combination, substantially as hereinbefore described, with an intermittently revolving grain bucket wheel having a series of compartments or buckets and also having projecting lugs on its periphery, and a poised scale-beam on which said multibucket wheel is revolubly poised and mounted to rise and fall therewith, a pivoted swinging bar with a detent lug at its upper end adapted to engage with the lugs on the multibucket wheel substantially as described, a yielding spring connection interposed between said swinging bar and a fixed part, and a detent pawl J

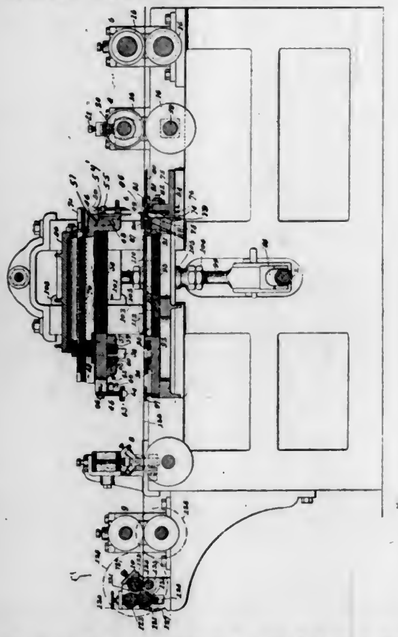
7. In a grain weigher, in combination substantially as hereinbefore described, with an intermittently revolving grain bucket wheel having a series of compartments or buckets, and also having projecting lugs on its periphery, and a poised scale-beam on which said multibucket wheel is revolubly poised to rise and fall therewith, a pivoted swinging bar with a detent lug at its upper end, adapted to engage with the lugs on the multibucket wheel, substantially as described, a yielding spring connection interposed between said swinging bar and a fixed part, a detent pawl J, and a spring *j* for holding it in contact with the multibucket wheel.

8. In a grain weigher, in combination substantially as hereinbefore described, with an intermittently revolving grain bucket wheel having a series of compartments or buckets and also having projecting lugs on its periphery, and a poised scale-beam on which said multibucket wheel is revolubly poised and mounted, to rise and fall therewith, a pivoted swinging bar with a detent lug at its upper end adapted to engage with the lugs on the multibucket wheel, a yielding spring connection interposed between said swinging bar and a fixed part, a pawl J pivoted to a rocking bar I, and a link rod i connecting said rocking bar with said swinging bar which has a detent at its upper end.

9. In a grain weigher, in combination, substantially as hereinbefore described, with an intermittently revolving grain bucket wheel having a series of compartments or buckets and also having projecting lugs on its periphery, and a poised scale-beam on which said multibucket wheel is revolubly poised and mounted to rise and fall therewith, a pivoted swinging bar extending diametrically across the multibucket wheel and provided with a detent lug at each end thereof adapted to engage with the lugs on the multibucket wheel, a yielding spring connection between said swinging detent bar and a fixed part, a pawl J pivoted to a rocking bar I, and a link rod i connecting said rocking bar and said swinging detent bar at the end thereof.

517,651. MACHINE FOR CUTTING OUT CELL-CASE BLANKS.

FRANK D. MALTBY, Englewood, N. J., assignor, by mesne assignments, to James M. Whitney, Brooklyn, N. Y. Filed Dec. 16, 1891. Renewed Oct. 11, 1893. Serial No. 487,887. (No model.)



Claim.—1. The combination with the paper feed rolls of the paper carrying roll provided with a ratchet wheel, a reciprocating pawl operated by the machine, and a swinging roll resting on the paper and arranged to lift said reciprocating pawl into engagement with the ratchet wheel, to turn the same to unwind the paper, substantially as described.

2. The combination with the transverse shearing cutters, of a table arranged close to the lower cutter and in the path of the upper one, supporting springs for said table, means for varying the pressure of said springs, and a pressure plate or guide, substantially as described.

3. The combination with the transverse shearing cutters, of an adjustable table arranged close to the lower cutter and in the path of the upper one, supporting springs for said table, means for varying the pressure of said springs, and an adjustable pressure plate or guide, substantially as described.

4. The combination with the transverse shearing cutters, of the springs supported table, the pressure plate, and the wedge blocks for vertically adjusting the same, substantially as described.

5. The combination with the adjustable transverse shearing cutters, of the stationary shear holder adjustable on the bed, the adjustable spring pressed table, and the adjustable pressure plate, substantially as described.

6. The combination with the slotting punch and die of the die holder and the tongued clamping blocks having one tongue beveled to clamp the dies firmly in place, substantially as described.

7. The combination with the slotting punch and die and its adjustable stripper and guide of the shearing cutters, the spring pressed table arranged on a level with the stationary shear and slotting die, and the adjustable pressure plate and guide, substantially as described.

8. The combination with the bed provided with a stationary and a longitudinally movable die holder of an intermediate removable table made in sections, substantially as described.

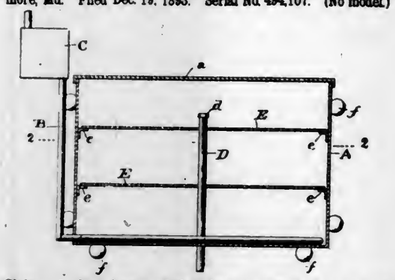
9. The combination with the bed provided with a longitudinal guide way and dies which are adjustable lengthwise of said bed in

said guide-way, of a movable sectional table, the sections of which are fitted to said guide-way, said sections being disconnected from each other so that they may be separately removed or replaced when it is desired to lengthen or shorten the said table, substantially as described.

10. The combination with a table, of a pressure plate mounted on said table and provided at its under side with a recess or groove, as 148, of a guide block arranged in said recess or groove, and adjustable vertically relative to said pressure plate, adjusting screws for determining the projection of the said block below said pressure plate, and a clamping nut and screw for securing the same in adjusted position.

517,652. LIVE-BOX FOR SHELL-FISH.

THOMAS MANN, Baltimore, Md. Filed Dec. 19, 1893. Serial No. 494,107. (No model.)



Claim.—1. In a device of the class described, the combination of the water-tight box having perforated shelves arranged therein one above the other, a feed pipe entering the box at or near its bottom and on the inside extending around the inner walls of the box in a continuous loop-form and provided throughout its length with jet apertures; a salt receptacle exteriorly of the box and connected with the feed-pipe; and a drain-pipe extending vertically up through the box to a point above the top shelf and having position centrally with respect to the said continuous loop feed-pipe.

2. In a device of the class described, the combination of the closed water-tight box having perforated shelves arranged therein one above the other; a salt-water feed-pipe entering the box; a vertical overflow pipe; and elastic cushions, *f*, on the exterior of the box at its bottom and sides.

517,653. MACHINE FOR CUTTING, FOLDING, AND PILING CLOTH, PAPER, OR OTHER FABRICS.

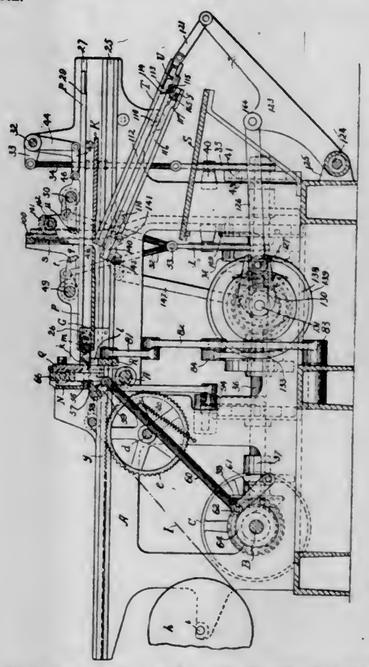
FRANCIS MEISEL, Boston, Mass. Filed Apr. 24, 1893. Serial No. 471,645. (No model.)

Claim.—1. In a cutting and folding machine, the combination of a reciprocating carriage provided with feed-grippers adapted to seize the end of the fabric and draw it out a distance equal to the required length to be cut off, a clamping device adapted to hold the web after a given length has been drawn out, cutters adapted to sever from the web the piece drawn out by the feed-grippers, a folding-blade adapted to fold the severed sheet or piece of fabric, clamps arranged on each side of the folding blade and adapted to hold the fabric in place as soon as it has been drawn out to the required length, and release it at or before the contact of the folding-blade therewith, and grippers for taking the folded sheet from the folding-blade and delivering it, substantially as set forth.

2. In a cutting and folding machine, the combination of a reciprocating carriage provided with feed-grippers for seizing the end of the fabric and drawing it out, said gripper-carriage and grippers having a traverse of greater length than that of the piece or length of fabric to be cut off, a table over which said fabric is drawn by said grippers, clamping devices for holding the length or piece of fabric drawn out by the grippers, shears, or cutters, both members of which are movable toward and from the fabric, a folding-blade adapted to force the severed piece of fabric through a slot or opening in the table, and delivery grippers for receiving said sheet from the folding blade, drawing it through the slot or opening in the table, and delivering it folded onto a table or pile, substantially as described.

3. In a cutting and folding machine, the combination of a reciprocating carriage provided with feed-grippers adapted to seize the end of the fabric and draw it out to the desired distance, a spring for opening said grippers at each end of their traverse, and cam-bars sliding in suitable grooves and having cams or inclines acting upon arms or levers connected with the movable jaw of the grippers and adapted to close the same before the gripper-carriage starts on its backward traverse, substantially as set forth.

4. In a cutting and folding machine, the combination of a reciprocating gripper-carriage provided with feed-grippers adapted to draw out a piece of fabric of the desired length to form a blank, said grippers consisting of a stationary jaw and a movable jaw held normally open or separated by a spring, said movable jaw being secured to a rock-shaft having its bearings in the gripper carriage and provided with levers carrying cam rolls, cam bars sliding in grooves in the framework and having cams or inclines with which said cam-rolls engage, and mechanism for reciprocating the cam-bars, whereby the grippers are closed upon the end of the fabric on the arrival of the gripper-carriage at the end of its forward traverse, and opened when a piece of the fabric of sufficient length for a blank has been pulled forward by the movement of the gripper carriage, substantially as set forth.



5. In a cutting and folding machine, the combination of the shears or cutting-blades, the upper one having a vertical movement toward and from the fabric and the lower one having a swinging movement on a pivot or fulcrum, and a reciprocating carriage provided with feed-grippers adapted to pass between said cutting-blades when separated from each other to seize the end of the fabric, substantially as set forth.

6. In a cutting and folding machine, the combination of the shears or cutters, the upper one having a straight vertical movement toward and from the fabric, and the lower one having a swinging movement on a pivot having a vertical movement, whereby the fulcrum of the swinging cutter is raised just previous to the cut being made, a reciprocating carriage provided with feed-grippers adapted to pass between said cutting blades when separated in order to seize the end of the web and draw the same forward, and a clamping device for holding the fabric while being cut, substantially as set forth.

7. In a cutting and folding machine, the combination, with the upper cutter having a vertical movement in suitable guides toward and from the fabric to be cut, of a lower swinging cutter co-operating therewith and having its fulcrum pin or pivot on a slide reciprocating vertically in a guideway at one end of the upper cutter, and mechanism for actuating the upper and lower cutters and reciprocating the fulcrum-pin slide of the lower cutter on the upper cutter, substantially as and for the purpose set forth.

8. In a cutting and folding machine, the upper cutter Q supported by and made adjustable horizontally toward and from its supporting bar 66 by means of tubular screws 77 passing through said cutter and fitting over supporting studs 67 projecting from the bar 66 and having heads 78, and the set screws 80 for clamping the tubular screws 77, all substantially as described.

9. In a cutting and folding machine, the combination, with the reciprocating gripper carriage G, the feed grippers *k*, *l*, and their actuating cam-bars *p*, *p*, of the rock-shaft 32, levers 44, links 45, lever 33, rotary cam-wheel 43, and the connecting rod 34, provided with an

adjusting screw-nut 47, whereby its length may be varied to adjust the cam-bars *p*, *p*, all substantially as described.

10. In a cutting and folding machine, the combination, with the table K provided with a narrow slot or opening 48, and the vertically reciprocating folding blade *q*, of the clamping bars *t*, *u*, arranged on opposite sides of said folding blade and secured to the rock-shafts 49, 50, said shafts provided with arms or levers 51, the connecting rods 52, the slide L, and the rotary cam wheel M, all operating substantially as set forth.

11. In a cutting and folding machine, the combination with the lower swinging cutter R, of the cutter Q and its vertically reciprocating supporting bar 66, the rock-shaft 71 provided with an arm or lever 72 and eccentric 70, the rods 69 connecting the eccentrics 70 with the bar 66, the cam wheel 76 and the connecting rod 73 actuated by said cam-wheel and connected with the lever 72 of the rock-shaft 71, all operating substantially as described.

12. In a cutting and folding machine, the combination, with the vertically reciprocating cutter Q and its actuating mechanism, of the swinging cutter R having its fulcrum on a slide 90 moving vertically in a guideway on the cutter Q, the toggle lever W, the connecting rod 84 and the cams 86, 88, for actuating the rod 84, all operating substantially as described.

13. In a cutting and folding machine, the combination of the feed-gripper-carriage G and its feed-grippers, of the rack bars *g*, *g*, sliding in longitudinal grooves in the frame-work and secured to the carriage G, the gears *c*, *c*, shaft *d*, gear *c*, rack-bar E, crank D, and the shaft B, all operating substantially as set forth.

14. In a cutting and folding machine, the combination, with a table over which the fabric is drawn, and a reciprocating folding-blade adapted to force the fabric or blank through a slot or aperture in said table, of a reciprocating carriage provided with delivery-grippers adapted to be moved into a position beneath the table to receive the doubled sheet from the folding blade, means for opening said grippers at each end of their traverse to receive and release the fabric or blank, and means for closing said grippers tightly onto the doubled fabric before the gripper-carriage starts on its backward traverse, substantially as set forth.

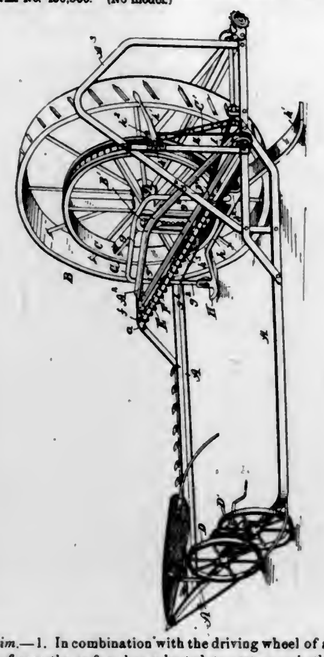
15. In a cutting and folding machine, the combination, with the delivery-gripper-carriage and its guideways, of delivery-grippers having a movable jaw secured to a rock shaft provided with levers having cam-rolls moving in cam-grooves in the delivery-gripper-carriage guideways, the front ends of said cam-grooves being located in movable portions at the front ends of said guideways, and means for depressing and raising said movable portions to open and close the delivery-grippers at the required times, substantially as set forth.

16. In a cutting and folding machine, the combination, with the delivery-gripper-carriage, reciprocating in suitable guideways and means for actuating the same, of the delivery grippers, consisting of a stationary jaw and a movable jaw, the latter secured to a rock-shaft having its bearings in the gripper-carriage and provided with levers *f* and cam-rolls 165, and the guideways T provided with cam-grooves 116 for the reception of the cam-rolls 165 and having their front ends movable, and means for depressing and raising said movable portions of the guideways whereby the delivery grippers are opened at the end of their forward traverse to receive the folded fabric from the folding-blade, and closed tightly to grip the same before the gripper-carriage starts on its backward traverse, substantially as set forth.

17. In a cutting and folding machine, the combination, with the delivery-gripper-carriage and the delivery-grippers, of the guideways T provided with guide-grooves 112 for said gripper-carriage, and cam-grooves 116 parallel therewith and having cams or inclines 117 at their rear ends, the movable portions 140, the rock-shaft 143 provided with eccentrics 144 connected with said movable portions 140, the lever 146 on the rock-shaft 143, the connecting-rod 147 and the cam-wheel 151 adapted to actuate the rod 147 to depress and raise the movable portions 140 of the guide-ways T, all operating substantially in the manner and for the purpose set forth.

18. In a cutting and folding machine, the combination of feed-grippers mounted on a reciprocating carriage, means for actuating said grippers whereby they are opened to receive the fabric at the end of their forward traverse, and closed before the gripper carriage starts on its backward traverse, and again opened to release the fabric after a piece of the desired length has been drawn out, a table over which the fabric is drawn by said grippers, clamps for holding the fabric when drawn out, cutters, both members of which have a vertical movement toward and from the fabric, a folding-blade adapted to force the severed piece of fabric through a narrow slot or opening in the table, delivery grippers mounted on a reciprocating carriage, driving mechanism for said carriage constructed to produce a rest or dwell of the same at the end of its forward traverse, guideways for said delivery-gripper-carriage having longitudinal cam-grooves, a rock-shaft to which is secured the movable jaw of the delivery-grippers, said rock-shaft having levers provided with cam-rolls engaging said cam-grooves of the guideways, and said guideways having their front portions movable as described, and means for depressing and raising said movable portions to open and close the delivery grippers at the required times, all constructed to operate substantially in the manner and for the purpose set forth.

517,654. HARVESTER. WILLIAM MCCLOSKEY, Essex, Canada, assignor of one-half to Alem J. Green, same place. Filed Jan. 31, 1893. Serial No. 460,380. (No model.)



Claim.—1. In combination with the driving wheel of a harvester and the frame thereof, a shoe adapted to rest upon both sides of a furrow, and having an intermediate portion raised above the ends, and adapted to sustain the machine by rolling contact with an auxiliary wheel attached to the driving wheel, substantially as described.

2. In a harvester, the combination of the frame, double drive wheels journaled therein and firmly attached to each other, one of said wheels being of less diameter than the other, a shoe with two depressed ends and rising centrally and adapted to receive the tread of the smaller wheel, means for raising said shoe from the ground as the wheel progresses, and means for returning said shoe to its original position preparatory to receiving the tread of the smaller wheel in its further operation, substantially as described.

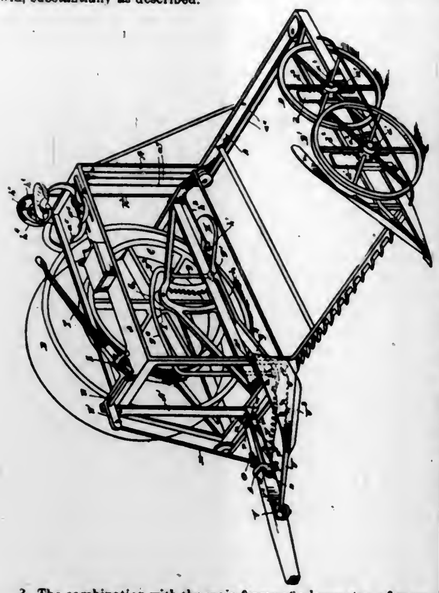
3. In a harvester, in combination with the main driving wheel consisting of two concentric sections, one of less diameter than the other, of an automatically adjustable bridge upon which the smaller section of the driving wheel may travel, means for withdrawing the bridge to the rear operated by the driver, and means for locking the same when in the rearward position, substantially as described.

4. In a harvester, the combination of a frame, a driving wheel consisting of two parts, one larger than the other, journaled at one end of said frame, a shoe adjustably connected therewith and adapted at each end to rest upon the ground, and adapted centrally to receive the tread of the smaller of two wheels as the larger one leaves the ground, and means for operating the same, and two wheels located at the opposite end of said frame, one forward of the other, in such manner that as one fails of support upon the ground, the other will receive the weight and support the same until the forward one is again brought to bear upon the ground, substantially as and for the purpose described.

517,655. HARVESTER. WILLIAM MCCLOSKEY, Essex, Canada, assignor of one-half to Alem J. Green, same place. Filed June 12, 1893. Serial No. 477,285. (No model.)

Claim.—1. In combination with the frame and platform of a harvester, two outer carrying wheels adapted to be raised and lowered with reference to said frame, foot levers within the reach of the driver, and means connecting said foot levers with locking bolts, whereby said bolts may be operated to lock or unlock bearings carrying the wheels, substantially as described.

2. In a harvester, the combination of a main frame, two outer carrying wheels, means whereby said wheels may be made adjustable at the will of the driver with reference to the elevation of the platform, an adjustable tilting pole, and means within the reach of the driver whereby the adjustment of the tilting pole may be changed at will, substantially as described.



3. The combination with the main frame of a harvester, of means for tilting the platform thereof within reach of the driver, a double adjustable seat constructed with an adjustable bearing upon the under side of the seat, about which the seat may be rotated, an adjustable bearing upon the frame upon which the seat spring rests, and upon which the seat spring may also be rotated, and means for fastening the seat and the seat spring respectively in any desired position within the limits of the rotation, substantially as described.

4. A pole attachment for a harvester or analogous mechanisms, consisting of the combination of the main frame, brackets projecting from the forward end of the main frame at a suitable distance from each other, a fixed strap upon one side of the pole rigidly attached thereto and adapted to engage one of the brackets, a strap pivotally attached to the opposite side of said pole, one end of which is adapted to engage the opposite bracket, and the other end of which is adapted to be locked to the side of the pole in such manner that the straps are pivotally attached to the brackets and may be detached at will by a reversal of the operation of attachment, and means for locking the pivotal strap rigidly to the side of the pole, substantially as described.

5. In a pole attachment for a harvester or analogous mechanism, the combination of the main frame, brackets projecting from the forward end of the main frame at a suitable distance from each other, a fixed strap upon one side of the pole rigidly attached thereto and adapted to engage one of the brackets, a strap pivotally attached to the opposite side of said pole, one end of which is adapted to engage the opposite bracket, and the other end of which is adapted to be locked to the side of the pole in such manner that the straps are pivotally attached to the brackets and may be detached at will by a reversal of the operation of attachment, and means for locking the pivotal strap rigidly to the side of the pole, and a side brace adapted to be locked to the pole and pivotally locked to the frame of the harvester, substantially as described.

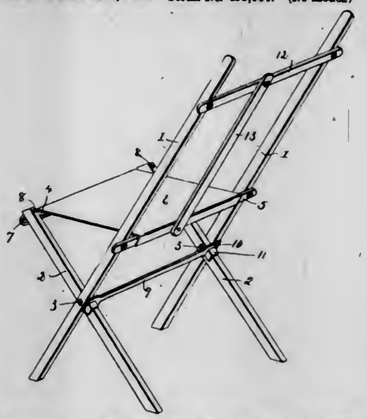
6. A pole attachment for a harvester or analogous mechanisms, consisting of the combination of the main frame, brackets projecting from the forward end of the main frame at a suitable distance from each other, a fixed strap upon one side of the pole rigidly attached thereto and adapted to engage one of the brackets, a strap pivotally attached to the opposite side of said pole, one end of which is adapted to engage the opposite bracket, and the other end of which is adapted to be locked to the side of the pole in such manner that the straps are pivotally attached to the brackets and may be detached at will by a reversal of the operation of attachment, means for locking the pivotal strap rigidly to the side of the pole, a side brace adapted to be locked to the pole and pivotally locked to the frame of the harvester, a connecting rod connecting the pole to a rock shaft operated by a lever within reach of the driver, and a quadrant and latch for holding the lever in a predetermined position, substantially as described.

7. In a detachable pole mechanism for harvesters, the combination of a pole, a bracket containing an upper and a lower lug separated by a space, a side brace adapted to engage in an eye in the lower lug, and when in position being swung under the upper lug, the opposite end of the side brace being connected to a perpendicular lug upon the main frame having eye therein, a projection extending from near the center of said side brace upwardly and backwardly, the end of which is adapted to engage with the slot in the main frame, and a link connected to a hand lever with means of adjustment thereof and detachably connected to a bracket upon the upper side of said pole, whereby, when said pole is in position attached to the harvester and said link is connected, the upward extension from the side brace is compelled to pass through the slot in the frame and prevent the detachment of the side brace from the eye in the frame, substantially as and for the purpose described.

8. In a pole mechanism for harvesters, the combination of a pole, means for attaching and detaching the pole from the harvester, consisting of one fixed and one swinging strap adapted to engage in brackets on the harvester, a connecting rod connected to an adjusting mechanism and detachably pivotally connected with a bracket upon the upper side of the pole adjacent to the outer end of the swinging strap, and a swinging clasp latch adapted to hold a swinging strap to the side of the pole and simultaneously secure the rod in an eye in the bracket on the upper side of the pole, substantially as described.

9. A sprocket wheel, composed of three parts: first, a wheel having sprockets or teeth and attached by spokes to a hub; second, a side ring recessed upon one side and having a face of diameter equal to or greater than the periphery of the teeth of the sprocket wheel; and, third, an opposite companion ring, and bolts whereby the two rings may be secured upon either side of the sprocket wheel in combination with a bridge upon which said sprocket wheel is adapted to rotate, substantially as described.

517,656. FOLDING CHAIR. SAMUEL G. MCCULLOUGH, Sidney Ohio. Filed Dec. 3, 1892. Serial No. 453,961. (No model.)



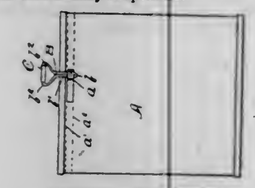
Claim.—1. In a folding chair, the solid standard, the legs pivoted thereto, the upper and lower cross bars and back-resting bar connecting the cross bars, the bar pivotally attached to the upper ends of the legs, the fabric seat, and a pivot brace secured to the standards adjacent to the pivots on which the legs turn, said brace having recesses to receive the legs and hold them in place

2. In a folding chair, the back standards, front legs pivotally secured thereto, and a pivot brace pivotally secured at each end of the back standards, and having recesses coincident with the front legs of a form to receive the same.

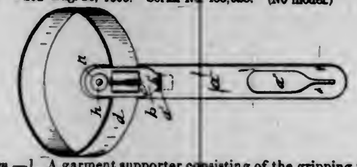
517,657. KEY FOR SELF-OPENING CANS. EDWIN NORTON, Maywood, assignor to himself, and Oliver W. Norton, Chicago, Ill. Filed Feb. 6, 1894. Serial No. 499,246. (No model.)

Claim.—The can opening key herein shown and described, and consisting in the combination with a piece of wire having a looped or slotted portion *b'* formed by a fold at the middle of the wire, and

provided with two handle-shaped abutting end portions b^2 b^2, of the sheet metal clamp or tube C surrounding or embracing said abutting handle portions, substantially as specified.



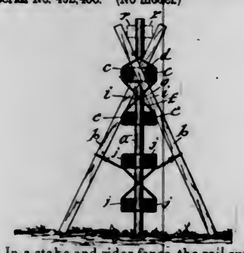
517,658. GARMENT-SUPPORTER. WALTER OGDEN, Syracuse, N. Y. Filed Aug. 21, 1893. Serial No. 483,625. (No model.)



Claim.—1. A garment supporter consisting of the gripping plate —*a*—, the clamping plate —*b*— hinged at one end to the gripping plate and provided with the slot —*c*—, a locking device detachably connecting the opposite end of the plate —*b*— to the plate —*a*—, and the supporting band —*d*— clamped between the aforesaid plates and passing with its ends through the slots —*c*— substantially as set forth and shown.

2. The combination of the plate —*a*— provided with the transverse slot —*a'*—, and depression —*c*— above the slot, the plate —*b*— formed with tongue —*b'*—, serrations —*b*—, slot —*c*—, and eye —*f*—, the stud —*h*— projecting from the plate —*a*— through the eye —*f*—, the nut —*n*— on said stud, and the band —*d*— clamped between the plate —*b*— and recessed portion of the plate —*a*— and passing with its ends through the slot —*c*— substantially as described and shown.

517,659. FENCE. JOHN E. PHILLIPS, Syracuse, N. Y. Filed Nov. 29, 1893. Serial No. 492,400. (No model.)

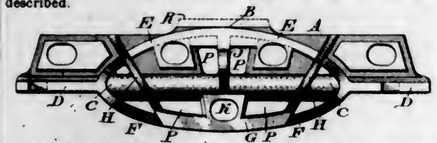


Claim.—1. In a stake and rider fence, the rail-support consisting of oblique braces set in vertical planes and crossing each other near their upper ends, an upright stake or post erected between the feet of the braces and extending above the point of their crossing, rails of two adjacent panels resting respectively in the outer angles of the crossing portion of the braces, rails of said panels having their ends in the crotches beneath the crossing of the braces, and wires wound around the upper rails and tying and supporting the same on the braces and extending around the lower rails and supporting the same, each pair of said rails being separated from each other by the post passing between them as set forth.

2. The combination of the oblique braces —*b*—*b*—, the post —*a*— central between said braces and extending above the crossing thereof, the rails —*c*—*c*— seated in the outer angles of the braces the wire-loop —*d*— embracing said rails and drawing the same into the aforesaid angles, the rails —*e*—*e*— inserted between the post and braces at opposite sides thereof and beneath the crossing of the latter, and the wire —*f*— formed into loops —*l*—*l*— embracing respectively the upper rails —*c*—*c*— and lower rails —*e*—*e*— and drawing the latter tightly into the crotches between the post and braces at opposite sides thereof substantially as described and shown.

517,660. GIRDER-JOINT FOR RAILROAD-RAILS. JAMES M. PRICE, Philadelphia, Pa., assignor to the Price Railway Appliance Company, of Pennsylvania. Filed Mar. 23, 1893. Serial No. 467,306. (No model.)

Claim.—1. A girder joint for meeting rails consisting of a vertical plate with a raised center, a horizontal groove forming a jaw, and feet, arches connecting the inner end of the said feet, and a bench depending from said jaw, said parts being combined substantially as described.



2. Two plates of metal, consisting each of a vertical plate resting upon the flange of two meeting rails and in part upon the cross ties on which those rails sit, by means of a foot nearly horizontal spreading out upon them, the plates strengthened by two arches of metal, foot to foot, and by embracing ribs, binding all parts together, the plates being pierced by bolt holes and connected by bolts through the rails, and below them at one and the same time, as a rail joint, substantially as described.

3. Two joint plates, each ribbed externally by curved and projecting ribs, and on the inner side by straight and slanting ribs, supporting a ribbed periphery, from which rises at the center of the plate a comb to support at their meeting point the heads of the two meeting rails, embraced and upheld between the ties by the joint plates, these being secured together, where they embrace the flanges of the rails inclosed by bolts midway of the rails themselves and traversing them and the joint plates, and by another bolt passing through the plates below the rails, the whole constituting a rail joint, substantially as described.

4. A rail joint, consisting of two metallic plates, deeply furrowed or guttered to receive and compress the flanges of two meeting railroad rails, the plates consisting in the main of a vertical back or girder, with center raised into contact with the heads of the rails inclosed, and feet resting in part upon the rail flanges and inclosed in part upon the cross-ties supporting the rails, with encircling ribs and arches of metal inverted to each other, and bolted above and below the flanges of the rails embraced, substantially as described.

5. A girder joint consisting of a plate with groove and feet, said plate having openings therein, and reinforce plates Q for the walls of said openings, said parts being combined substantially as described.

6. A girder joint consisting of a plate with a horizontal groove therein, and a raised central portion, and feet, a depending bench with openings therein arches connecting said said bench and feet, and slanting strengthening ribs and projections, said parts being combined substantially as described.

7. A girder joint for meeting rails having a raised central portion, in combination with adjusting plates adapted to rest on the raised portion, substantially as described.

517,661. PHOSPHATIC FERTILIZER. NATHANIEL B. POWTER, New York, N. Y. Filed Apr. 4, 1893. Serial No. 469,045. (No specimens.)

Claim.—The above described composition, which consists of phosphate of alumina containing insoluble phosphoric acid and slaughter house refuse or similar substance, in about the proportions set forth.

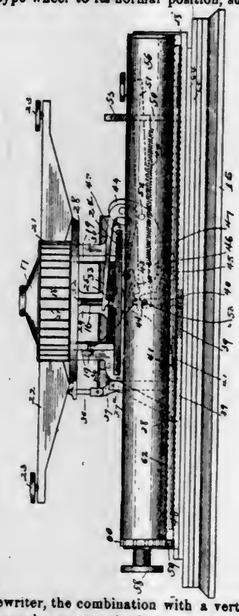
517,662. PROCESS OF MAKING FERTILIZERS. NATHANIEL B. POWTER, New York, N. Y. Filed Apr. 4, 1893. Serial No. 469,046. (No specimens.)

Claim.—The above described method of utilizing slaughter house refuse and similar waste products, which consists, in mixing therewith from five to fifty per cent. of substantially pure phosphate of alumina containing insoluble phosphoric acid and allowing the mixture to dry, whereby the mass is converted into an odorless fertilizing compound of a dry character, substantially as and for the purposes specified.

517,663. TYPE-WRITING MACHINE. WILLIAM P. QUENTEL, Kansas City, Mo. Filed Aug. 21, 1893. Serial No. 483,654. (No model.)

Claim.—1. In a typewriting machine, the combination with a rotatable shaft carrying a type wheel thereon, a series of pivoted key levers radially arranged with reference to said shaft, a pivoted annulus adapted to be depressed by the depression of any one of the series of levers, a printing mechanism actuated by said annulus when depressed, means for rotating the central shaft and the type wheel carried thereby, an arm carried by the shaft and adapted to arrest its movement by engagement with the key lever depressed, and means for returning the shaft to its normal position, substantially as described.

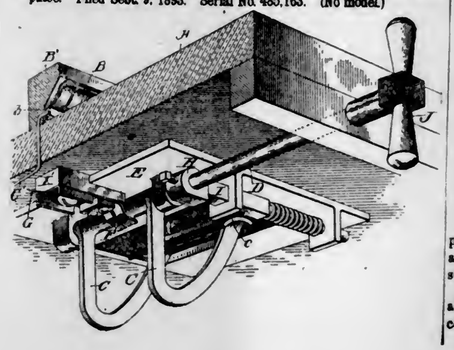
2. In a typewriter machine, the combination with a rotatable shaft carrying a type wheel thereon, of a series of pivoted key levers radially arranged with reference to the shaft, a pivoted annulus adapted to be depressed by the depression of any one of the series of keys, a printing lever arranged in the path of the annulus, a rack bar geared with the central shaft, a spring connected with said rack bar and adapted to reciprocate the latter whereby to rotate the central shaft and its type wheel to the printing position, and a connection between the annulus and the rack bar whereby the latter is moved to return the type wheel to its normal position, substantially as described.



3. In a typewriter, the combination with a vertically arranged rotatable shaft carrying a type wheel thereon, a stationary support through which the shaft loosely passes, a stop arm carried by the shaft, a series of key levers pivoted near their inner ends upon the stationary support, springs for maintaining said levers in an elevated position, a pivoted annulus adapted to be engaged by any one of the series of levers, a printing mechanism actuated by the annulus, means for rotating the central shaft and its type wheel to the printing position, said means being positively actuated by the movement of the annulus, and a spring connected with the latter and adapted to return the shaft to its normal position, substantially as described.

4. In a typewriter, the combination with a central rotatable shaft, a key lever support having slots in its periphery and mounted in a stationary position upon the base, a series of key levers radially arranged with reference to the shaft and pivoted upon said support, a cap secured thereto for confining the shaft in its bearing, and an annular disk having its perimeter slotted to provide spring fingers adapted to engage the type levers to maintain them in position, substantially as described.

517,664. ELECTRICAL SWITCH. ERNST RUEBEL, St. Louis, Mo., assignor to himself, Sherman B. Pike, and William N. Matthews, same place. Filed Sept. 9, 1893. Serial No. 485,163. (No model.)



Claim.—1. In an electrical switch, the combination with a swinging contact arm formed with an axle of irregular shape, of a spring contact located in juxtaposition to said axle and adapted to contact therewith when said axle is in certain of its positions, and rigidly mounted contacts B, with which said swinging arm is adapted to co-operate and make circuit when the spring contacts are in electrical contact with the irregularly shaped axle, substantially as described.

2. In an electrical switch, the combination with a swinging contact arm formed with an axle of irregular shape, of a spring contact located in juxtaposition to said axle and adapted to contact therewith when said axle is in certain of its positions, a shaft for moving said swinging contact arm, a collar on the shaft formed with squared faces, a spring impelled bolt for co-operating with the squared faces on the collar, and rigidly mounted contact B with which the swinging arm co-operates when the bolt engages one of the squared faces on the collar, substantially as described.

3. In an electrical switch, the combination with a swinging contact arm formed with a cam-shaped axle, of a split contact spring located in juxtaposition to said axle to engage the same when in certain of its positions, a shaft for moving said arm and axle, a collar mounted on the shaft formed with two squared faces forming an apex, a spring impelled bolt having a squared face for engaging and co-operating with the squared faces of the collar whereby the apex is caused to pass the spring impelled bolt and present a dead center for a short time only, and causing the arm to assume either of its extreme positions with accelerated speed, and contacts B with which said arm is adapted to co-operate when in one of its positions and when the split spring is engaging the cam-shaped axle thereof, substantially as described.

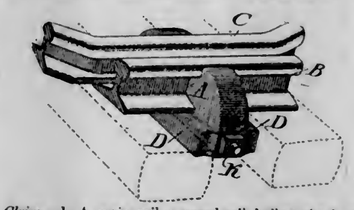
4. In an electrical switch, the combination with an insulation slab provided with an opening, of a trap-door normally closing said opening, a swinging arm mounted below said opening and adapted to be swung up therethrough beyond the trap-door, and suitable contacts located above said trap-door with which the swinging arm is adapted to co-operate, substantially as described.

5. In an electrical switch, the combination with an insulation slab of a series of spring contacts mounted thereabove, a strip for electrically connecting said contacts, terminals of electrodes which are adapted to be so arranged that one of said terminals will be in electrical connection with said contact springs, and a swinging contact arm, mounted on the under side of the slab, which is adapted to pass through an opening in the slab and make contact with the other electrode terminal, substantially as described.

6. In an electrical switch, the combination with an insulation slab having spring contacts rigidly mounted thereon, of an insulation piece 4, provided with contacts 3 and 6, said latter contacts being in the form of U-shaped springs clasping a conducting strip, a swinging arm mounted on the under side of the slab, which is electrically disconnected when in its lowered position from the source of supply, and means for raising said arm through an opening in the slab so that it will contact with the U-shaped spring and, at the same time, be thrown into electrical connection with the source of supply, substantially as described.

7. In an electrical switch, the combination with an insulation slab formed with an opening, of a trap-door normally closing said opening, a swinging contact arm mounted on the under-side of the slab and adapted to be forced up through the opening beyond the trap-door, means for retaining said arm in each of its positions above and below the trap-door, and a rigidly mounted contact located to one side of the opening and on top of the slab, with which the swinging arm is adapted to co-operate, substantially as described.

517,665. CLAMP FOR RAILROAD-RAILS. DANIEL B. RUFFNER, Philadelphia, Pa. Filed Oct. 22, 1892. Serial No. 449,587. (No model.)



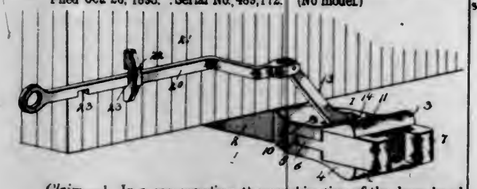
Claim.—1. A main rail, a guard rail, hollow cheek pieces supporting said rails, a filling piece in contact with said rails, and having a depending flange, and a connecting bolt, said parts being combined substantially as described

2. A clamp for railroad rails consisting of hollow cheek pieces adapted to support both a main and a guard rail a filling piece in contact with the head, web and flanges of the rails and having a de-

pending flange, and a bolt passing through said cheek pieces and depending flange, said parts being combined substantially as described.

517,666. CAR-COUPLING. LEWIS H. SEGRIST, Brandywine, Miss.

Filed Oct. 26, 1893. Serial No. 489,172. (No model.)



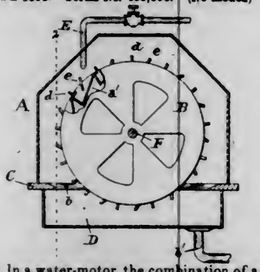
Claim.—1. In a car coupling, the combination of the draw-head having outwardly projecting upper and lower portions and provided at the inner terminus of the horizontal opening between the upper and lower portions with recesses located at opposite sides of the draw-head, and interchangeable and removable interlocking devices provided with parallel shanks arranged within said recesses and secured to the draw-heads, substantially as described.

2. In a car coupling, the combination of the draw-heads having outwardly projecting upper and lower portions and provided at their sides with recesses, and having slots in the upper portions, spring actuated jaws provided with shanks arranged in the recesses of one of the draw heads, an arrow-headed hook having a transverse portion and provided with shanks arranged in the recesses of the other draw-head, pins securing the shanks in the recesses, and an uncoupling lever arranged between the jaws and fulcrumed on the draw-head and passing through the adjacent slot, substantially as described.

3. In a car coupling, the combination of a draw-head having outwardly projecting upper and lower portions and provided at the inner terminus of the horizontal opening between the projecting portions with recesses, an arrow-shaped hook having a transverse portion at its inner end and provided with inwardly extending shanks arranged in said recesses, and pins securing the shanks in the recesses, substantially as described.

517,667. WATER-MOTOR. JOHN W. SHIPLEY, Baltimore, Md.

Filed Aug. 24, 1893. Serial No. 483,898. (No model.)

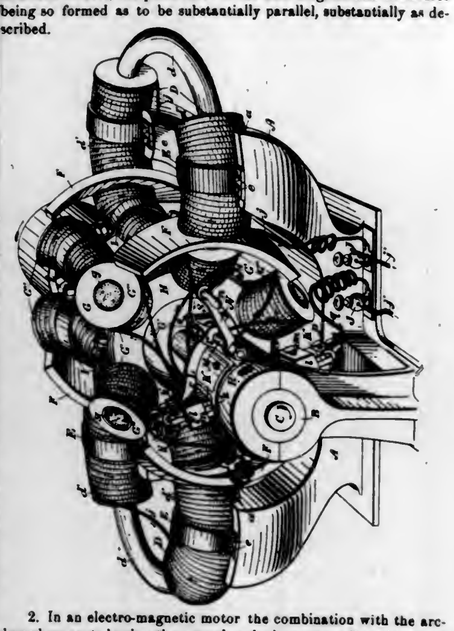


Claim.—1. In a water-motor, the combination of a suitable housing; a water supply pipe in the housing with its delivery end pointing downward; a vertically-revoluble water wheel arranged in said housing and provided on its rim with buckets each comprising a bottom, *a*, an inner side, *a'*, connecting the upper side of the bottom with the lower side of the bottom of the next adjoining bucket, and a circumferential side, *c*; a radial flange, *d*, on the exterior of the circumferential side of the bucket; and an inclined blade, *e*, on the wheel-rim between the said inner and circumferential sides of the bucket.

2. In a water-motor, the combination of the base, C, having a passage, *b*; a housing, A, resting on said base: a water-tank, D, suspended from the base and having a discharge pipe, *b'*; a water-supply pipe, E, in the said housing; a horizontal shaft, F; bearings on the base to support the shaft; a vertically-revoluble water-wheel on the shaft with its lower portion in the said passage in the base and provided on its rim with buckets each comprising a bottom, *a*, an inner side, *a'*, connecting the inner edge of the bottom with the outer edge of the bottom of the next adjoining bucket, and a circumferential side, *c*; a radial flange, *d*, on the exterior of the circumferential side of the bucket; and an inclined blade, *e*, on the wheel-rim between the said inner and circumferential sides of the buckets.

517,668. ELECTRIC MOTOR. WILLIAM J. STILL, Toronto, Canada, assignor of one-half to Randolph MacDonald, same place. Filed Mar. 3, 1893. Serial No. 464,541. (No model.) Patented in Canada July 11, 1893, No. 43,566.

Claim.—1. In an electro-magnetic motor, the combination with the arc-shaped magnets of the curved arc-shaped armatures each of which successively completes the arc of the circle of the said magnets as it rotates, the polar faces of the field magnets and armatures being so formed as to be substantially parallel, substantially as described.



2. In an electro-magnetic motor the combination with the arc-shaped magnets having the curved end plates extending above and below the coils of the magnets, of the arc-shaped armatures secured on the hub attached to the shaft of the machine, the ends of such armatures being constructed so that they rotate laterally parallel to the plates the concave sides of which plates are located next the shaft and the curve of the plate described from a radius less in diameter than the circle described by the ends of the armatures in their rotation so that the ends of the plates are nearer to the armature and the central portion farther away as the armature rotates as and for the purpose specified.

3. The combination with the arc-shaped magnets, D, secured in the concave recess, *a*, in the top of the frame, A, by metal straps, E, and having the end plates, F, constructed as specified, of the arc-shaped armatures, G, secured in the concave recesses in the hub, H, by the metal straps, I, the said armatures being constructed as specified and means whereby the current is conveyed to the coils of the magnets and armatures as and for the purpose specified.

4. The combination of the arc-shaped magnets, D, constructed as specified, and having the solid soft iron core, *d*, of the arc-shaped armatures, G, constructed as specified and having the core, *g*, formed of a bundle of twisted insulated wires and means whereby the current is conveyed to the coils of the magnets and armatures as and for the purpose specified.

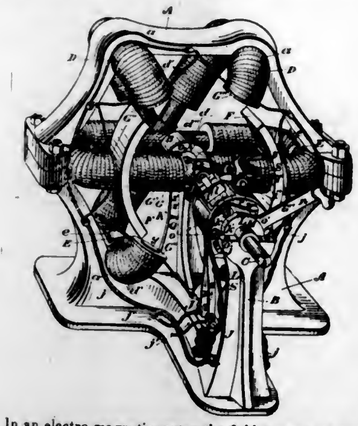
5. In an electro magnetic motor, the combination with the commutator having metallic sections insulated from each other of the brush therefor consisting of a central conducting plate of a carbon of low resistance for conveying the current and the side plates of carbons of high resistance inclosing said conducting plate and adapted to increase the resistance as the metallic sections of the commutator recede from the central plate whereby a gradual break in the current is formed, substantially as described.

6. In an electric motor the combination with the magnets, armatures and commutator formed of metallic sections and insulating partition between the sections, of the brushes formed as specified and insulated from the holder by the insulating plates, *l*, *l*, as and for the purpose specified.

517,669. ELECTRIC MOTOR. WILLIAM J. STILL, Toronto, Canada. Filed Mar. 3, 1893. Serial No. 464,542. (No model.) Patented in Canada July 12, 1893, No. 43,578.

Claim.—1. In an electro-magnetic motor the combination with the field magnets having curved ends and the armature revolving between said curved ends, of curved plates carried by the ends of the revolving armature, substantially as described.

2. In an electro-magnetic motor, the combination with the field magnets composed of the elongated core bars having hooked ends with coils upon said ends, of the armature revolving between said hooked ends, substantially as described.



3. In an electro magnetic motor the field magnets composed of elongated core bars having hooked ends with coils upon said ends, and the armature revolving between said ends and adapted in its rotation to complete the loop of which the core bar and coils form the major part, substantially as described.

4. In an electro-magnetic motor the combination with the field magnets having hooked ends, of the armature revolving between said ends, and curved plates carried by the armature, lengthwise across the faces of the magnets the curve of the plates being described from a circle greater in diameter than the circle in which the ends of the magnets are placed so that the ends of the plates are nearer to the magnets and the central portion farther away from such magnets as the armature rotates as and for the purpose specified.

5. The combination with the series of field magnets having hooked ends and the armature rotating between said ends and designed to co-act with such magnets, one end of the coils of each armature being connected to one brush while the other end of the coils is connected to the other brush, both of which brushes are held in arms secured to a shaft and rotate with such shaft, of a stationary commutator designed to co-act with the brushes so as to supply the current to the magnets, short circuit such current and change its direction so as to change the polarity of the magnets as the armature rotates as and for the purpose specified.

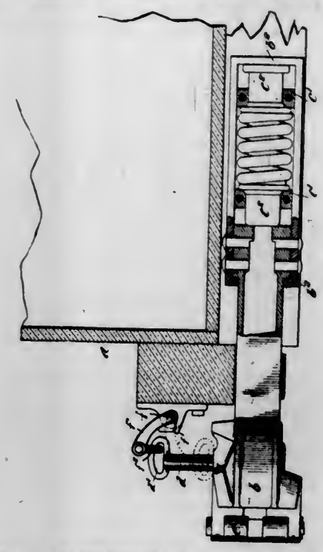
6. The combination with the arc-shaped magnets, D, secured in the concave recesses, *a*, in the frame, A, by metal straps, E, and having the end plates constructed as specified, of the arc-shaped armature, G, having the plate, F, constructed as specified and secured to the hub, H, the said armature being constructed as specified and means whereby the current is conveyed into the coils of the armatures and magnets as and for the purpose specified.

7. The combination with the arc-shaped magnets, D, constructed as specified and having the core, *d*, formed of a bundle of twisted insulated wires and the armature, G, constructed as specified and having a soft solid iron core, *g*, as specified and means whereby the current is conveyed to the coils of the magnet and armatures as and for the purpose specified.

8. The combination with the armature and magnets constructed as specified and the wires running through the commutator to their corresponding magnets connected together in two series, of the rotating brushes, K, the lower one of which conveys the current passing through the armatures over the wires, *j*, to the brushes thence through the commutator to the magnets, the plates of the brushes being insulated from the holder and being formed of a central plate, *k*, of a conducting material of low resistance and the side plates, *k'*, of a conducting material of high resistance and the commutator being formed of insulated sections, Q, separated from each other by the partition, *r*, formed of insulating material as and for the purpose specified.

9. The combination with the armatures and magnets constructed as specified, of the rods, 2, and, 3, the split ring upper end of which surround the rings, 4, and, 5, respectively, of the insulated wires, G', leading from the ring, 5, to and through the armature and back through one brush, K, to the commutator thence through the magnets to the commutator and out by the other brush, wire, *j* ring, 4, and rod, 2, as and for the purpose specified.

517,670. CAR-COUPLING. CHARLES H. TAYLOR, South Orange, N. J. Filed Jan. 25, 1892. Serial No. 419,129. (No model.)



Claim.—1. The combination with a car-coupler adapted to be supported in a longitudinally movable position in its relation to the car, of a vertically moving locking pin or bolt supported in said coupler, provided with an elongated horizontally arranged slot or opening in its upper end, extending in the direction of movement of the coupler, and having its center arranged at one side of the central line of the coupler-pin, substantially as described and for the purpose set forth.

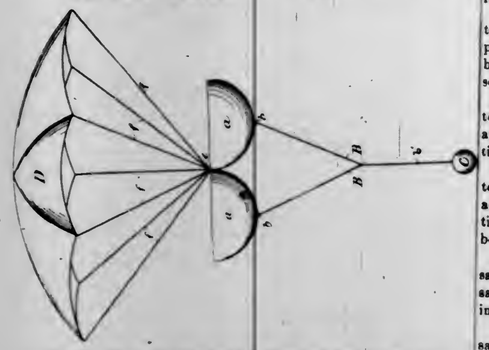
2. The combination with a car-coupler adapted to be supported in a laterally movable position in its relation to the car, of a vertically moving locking pin or bolt supported in said coupler, provided with an elongated opening in its upper end; and an operating lever adapted to be supported on the car, having connection with the slotted head of said pin or bolt through the medium of a connecting link; having an elongated opening therein arranged at right angles to the opening in said pin, substantially as described and for the purpose set forth.

3. The combination with a car-coupler, of a vertically moving locking pin or bolt supported therein provided with a horizontally arranged slot or opening in its upper end, and an operating lever supported on the car, provided with an arm having connection with the slotted head of said pin or bolt through the medium of a connecting link; having an elongated opening therein extending at right angles to the opening in the connecting pin or bolt head, substantially as described and for the purpose set forth.

4. The combination with a car-coupler adapted to be supported in a longitudinally movable position in its relation to the car, of a vertically moving pin or bolt supported in said coupler, provided with an elongated horizontally arranged slot or opening in its upper end extending in the direction of movement of the coupler, and having its center located at one side of the central line of the pin, and an operating lever supported or pivoted upon the car and having connection with said pin or bolt through the horizontally arranged slot therein, through the medium of a connecting link, substantially as described and for the purpose set forth and an operating lever supported or pivoted upon the car and having connection with said pin or bolt through the horizontally arranged slot therein, through the medium of a connecting link, substantially as described and for the purpose set forth.

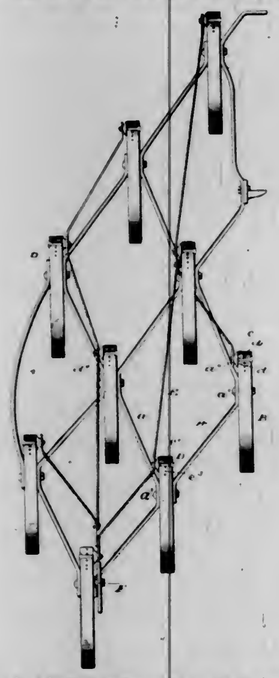
5. The combination with a car-coupler adapted to be supported in a longitudinally movable position in its relation to the car, of a vertically moving pin or bolt supported in said coupler, provided with an elongated horizontally arranged slot or opening in its upper end having a curved upper side, and having its center located at one side of the central line of the pin, and an operating lever supported upon the car and having connection with the said pin or bolt through the medium of a connecting link, in a manner substantially as described and for the purpose set forth and an operating lever supported upon the car and having connection with the said pin or bolt through the medium of a connecting link, in a manner substantially as described and for the purpose set forth.

517,671. TOY PARACHUTE. CHARLES G. TIEFEL, Bloomington, Ill., assignor to Gustav C. Schulz, same place. Filed Mar. 21, 1893. Serial No. 467,012. (No model.)



Claim.—In a toy parachute the combination of two hemispherical cups hinged together, a parachute joined to the hinge uniting the cups, cords attached to each of said cups at the center of the exterior surface and united to a cord carrying at its free end a weight, substantially as set forth.

517,672. SPRING-TOOTH HARROW. MARQUIS J. TODD, Buffalo, N. Y. Filed May 8, 1893. Serial No. 473,461. (No model.)



Claim.—1. A harrow, spring teeth therefor loosely or pivotally secured at their inner ends, a series of connecting straps for operating said teeth, and adjustable connections between said straps and said teeth at points between the secured and free ends of the latter, substantially as set forth.

2. A harrow, spring teeth therefor loosely or pivotally secured at their inner ends, a series of connecting straps for simultaneously operating all of said teeth, a lever to which said straps are connected, and adjustable connections betwen said straps and said teeth at points between the secured and free ends of the latter, substantially as set forth.

3. A harrow, spring teeth therefor loosely or pivotally secured at their inner ends, a series of connecting straps, and adjustable clips engaging said teeth at points between their secured and free ends and carried by said straps, substantially as set forth.

4. The frame having adjacent portions, the yokes, the spring teeth, and pointed or reduced bearings for the latter between said adjacent portions, as set forth.

5. In a harrow, the frame having adjacent portions, the spring teeth having inner coiled ends, and the pivot-bolts therefor having pointed or reduced ends in contact with said adjacent portions, said bolts being encircled by said coiled ends of the teeth, substantially as set forth.

6. In a harrow, the frame having adjacent portions, the spring teeth, the pivot bolts therefor having their ends in contact with said adjacent portions, and the yokes supporting said pivot bolts, substantially as set forth.

7. In a harrow, the frame having adjacent portions, the spring teeth, the pivot bolts therefor having their ends in contact with said adjacent portions, and the yoke located between said adjacent portions and having openings in their sides to accommodete said pivot bolts, substantially as set forth.

8. In a harrow, the frame having adjacent portions, bolts between said portions, the yokes having openings for said bolts and engaging said adjacent portions, the spring teeth, and pointed or reduced bearings for the inner ends of the latter, substantially as set forth.

9. In a harrow, the frame having adjacent portions, bolts between said portions, the yokes having openings in their sides for said bolts, the pivot bolts supported by said yokes and having pointed or reduced ends in contact with said adjacent portions, and the spring teeth having their inner ends encircling said pivot bolts, substantially as set forth

10. In a harrow, the frame, the spring teeth loosely secured thereto at their inner ends, the clips, the connecting straps carrying said clips, and the clamping collars on said clips for binding said teeth, at their edges substantially as set forth.

11. In a harrow, the frame, the spring teeth loosely secured thereto at their inner ends, the series of connecting straps for adjusting said teeth, and the looped clips carried by said straps and having each a binding collar and nut for holding said clips to said teeth, at points between the ends of the latter, substantially as set forth.

12. The frame, the pivoted teeth having toothed edges, the clips engaging said teeth having toothed clamping collars engaging said toothed edges, and the connecting straps carrying said clips, substantially as set forth.

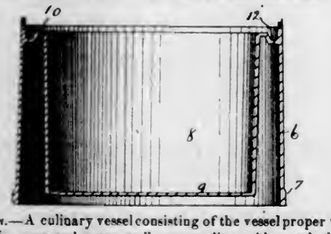
13. The frame, the pivoted teeth having recesses or indentations therein, the clips having loops and an inner lug to engage said recesses or indentations, and the straps carrying said clips, substantially as set forth.

14. The frame, the pivoted teeth having toothed edges and recesses or indentations, the clips having loops and an inner lug, the clamping collar having teeth, the connecting straps, and the nuts on said clips for binding said collars against said toothed edges, substantially as set forth.

15. The frame, the pivoted teeth having toothed edges, the series of connecting straps for operating said teeth having holes therein, the clips having loops for said teeth and inner threaded ends, the clamping collars having hubs fitting the holes in said straps and also having teeth for engaging said toothed edges, and the nuts on said threaded ends, substantially as set forth.

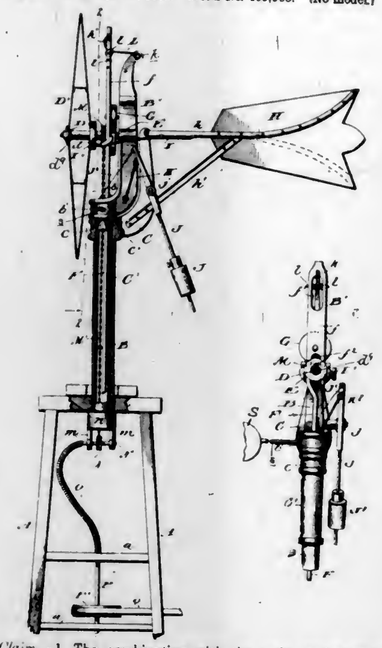
16. The herein-described improved harrow, comprising the frame having adjacent portions, the bolts therefor, the yokes located between said adjacent portions and having ears or flanges overlapping the same, the pivot bolts supported by said yokes having reduced ends in contact with said adjacent portions, the spring teeth encircling said pivot bolts, the series of connecting straps, the operating lever therefor, the clips carried by said straps having loops for said teeth, the clamping collars, and the nuts for binding the latter against said teeth, substantially as set forth

517,673. CULINARY VESSEL. MILTON S. TRACY, Glastonbury, Conn. Filed Jan. 24, 1893. Serial No. 459,541. (No model.)



Claim.—A culinary vessel consisting of the vessel proper with the annular air space and outer wall surrounding said vessel, the water channel 12 outside of and slightly below the upper edge of said vessel proper and the vent located on the elevated rim between said water channel and interior of said vessel, substantially as described and for the purpose specified.

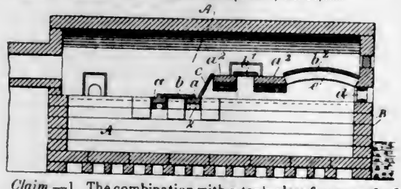
517,674. WINDMILL. CHARLES E. WILLIAMSON, Grand Rapids, Mich. Filed Apr. 11, 1893. Serial No. 469,903. (No model.)



Claim.—1. The combination with the main casting having an offset, to the rear only of the vane casting having a like offset, and the wind wheel carried by a shaft journaled in the first-mentioned casting whereby the center of gravity of the wheel is brought near the center of the mill, substantially as specified.

2. The combination with the wind wheel and its casting having offset to the rear only, of the tail vane and its casting having a like offset, the arm held in the said offset, and the auxiliary vane carried by the wind wheel casting at right angles to the tail vane near the bottom or lower edge of the wind wheel, substantially as shown and described

517,675. GLASS-MELTING TANK-OVEN. FRIEDRICH WREDE, Dresden, Germany. Filed June 23, 1893. Serial No. 478,565. (No model.) Patented in Germany Oct. 22, 1891, No. 67,505.



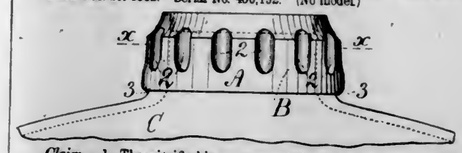
Claim.—1. The combination with a tank glass furnace, of a floating bridge having a downwardly projecting rib or flange with openings through the same for the passage of the melted glass, substantially as specified.

2. The combination with a tank glass furnace, of two or more floating bridges and covering plates between and resting on such bridges and covering the molten glass to exclude the products of combustion from the same at the working end of the tank furnace, substantially as specified.

3. The combination with a tank glass furnace, of two or more transverse floating bridges, two or more elevated bridges, horizontal covering plates and an inclined connecting plate, said parts covering the molten glass to exclude the products of combustion from the same at the working end of the tank glass furnace, substantially as specified.

4. The combination with a tank glass furnace, of two or more transverse floating bridges a, two or more elevated bridges a^3, horizontal covering plates b b' b^2, an inclined connecting plate c resting upon one floating bridge and against one elevated bridge, and the arch bars e, said parts covering the molten glass to exclude the products of combustion from the same at the working end of the tank glass furnace, substantially as specified

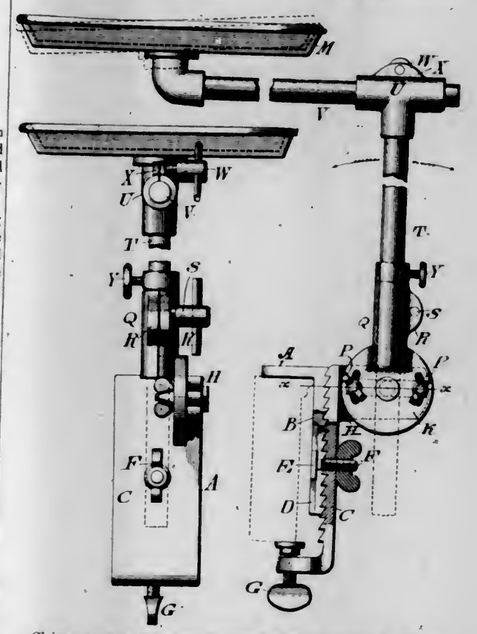
517,676. LAMP-COLLAR. LEWIS J. ATWOOD, Waterbury, Conn., assignor to the Plume & Atwood Manufacturing Company, same place. Filed Dec. 23, 1892. Serial No. 456,192. (No model.)



Claim.—1. The vitrified lamp reservoir having an upwardly projecting neck with substantially vertical indentations on the outside, open at the top, in combination with a sheet metal collar around the neck and having inward projections fitting into the indentations, and means for holding the collar down around the neck substantially as specified.

2. The combination with the vitrified lamp reservoir having a neck with vertical indentations on the outside, of a collar having corresponding projections or corrugations to interlock by the insertion of the collar over the neck and thereby prevent the rotation of the collar upon the neck, there being a recess in the glass of the neck into which the lower edge of the collar is pressed for preventing the collar being lifted, substantially as set forth.

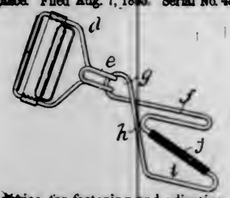
517,677. TRAY FOR INVALIDS. ADAM BENDER, Philadelphia, Pa. Filed Dec. 14, 1892. Serial No. 455,110. (No model.)



Claim.—1. A tray, in combination with the horizontally-sliding arm V supporting the same, the split-sleeve U freely receiving said arm, the screw W, the vertically-sliding spindle carrying said sleeve, the split-sleeve Q freely receiving said spindle, the screw S, the slotted plate K connected with said sleeve Q, the journal L on said plate, the bolts N with nuts, and the arm H of the clamp A, said arm having a slot receiving said journal L and bolts N, all substantially as described.

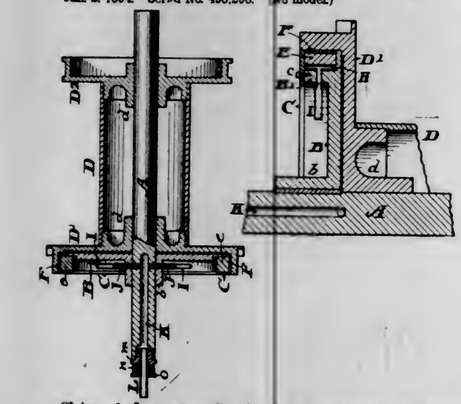
2. A tray support consisting of the adjustable clamp A with arm H having a horizontal slot, the plate K with a journal thereon and openings therein, the bolts N, a split sleeve on said plate, a spindle adjustably secured in said sleeve, a horizontally-extending split sleeve on said spindle, and an arm adjustable in said last mentioned sleeve, said parts being combined substantially as described.

517,678. GARTER ADJUSTER AND FASTENER. WARREN L. BRADDOCK, Boston, Mass., assignor to Marcus G. Clark and A. Spencer Coon, same place. Filed Aug. 7, 1893. Serial No. 482,497. (No model.)



Claim.—A device for fastening and adjusting garters, comprising in its construction a length of wire bent to form the oblong loop *f*, an eye at the inner open end of said loop, a bearing *h* below the eye, a bar *i* extending substantially parallel with the oblong loop, and a bearing extending between the inner open end of said loop and the outer end of the bar *i*, as set forth.

517,679. PNEUMATIC CLUTCH. JOHN F. BYERS, Ravenna, Ohio, assignor to the John F. Byers Machine Company, same place. Filed Jan. 2, 1894. Serial No. 495,298. (No model.)



Claim.—1. In a pneumatic clutch the combination of a flanged disk D', loosely mounted on shaft A, and disk B keyed fast upon said shaft, in close proximity to said disk D, shoes E placed in an annular rabbet of disk B, ring plate C attached to disk B, confining the shoes in said rabbet, a pressure chamber H between the rim and the shoes, provided with flexible sacks, pipes or tubes J I, connecting said sacks or chamber with the bore K in the shaft A, and means for applying fluid pressure to said sacks, for expanding the same for forcing the shoes against the rim of disk D', substantially as and for the purpose set forth.

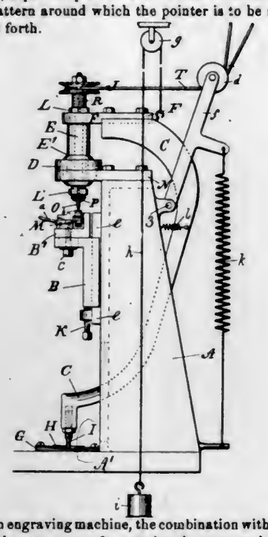
2. In a pneumatic clutch, the combination of shaft A, driving disk B permanently mounted on said shaft, drum D loosely mounted on said shaft, segmental shoes E between the flange B' on disk B and outer flange of disk D', band F between the shoes and said outer flange, metal strips G closing the apertures between the ends of said shoes, flexible sacks H between said shoes and the flange B', retracting springs *s* attached to lugs *c* on said shoes, pipes I and J connecting the sacks H with the bore K in the shaft A substantially as described.

517,680. ENGRAVING-MACHINE. HENRY A. CHASE, Brooklyn, assignor to William A. Force & Co., New York, N. Y. Filed May 29, 1893. Serial No. 475,964. (No model.)

Claim.—1. The combination with means for holding the article to be engraved, and a pattern plate, of a spindle, a tool carried thereby, a bearing or sleeve for the spindle, a universal joint holding the spindle bearing and in which it is movable endwise, an arm connected with the spindle bearing at one end, and a pointer carried at its other end, whereby the engraving tool receives a proportional movement and is lifted off the work by the lifting of the pointer from the pattern, substantially as specified.

2. In an engraving machine, the combination with a ball and socket device, of a spindle and cutter, a sleeve surrounding the spindle and passing through the ball and socket device, and means for longitudinally adjusting said sleeve, an arm connected to said sleeve and adapted to lift the sleeve, spindle and cutter vertically, and a stop for limiting the upward movement, substantially as set forth.

3. In an engraving machine, the combination with a rotary cutting device and means for holding the work blank, of a supporting standard having an opening in the face thereof, an arm connected directly with the cutter mechanism and adapted to move the same both vertically and laterally, said arm extending down behind the standard and forward through said opening therein and terminating in a pointer, a pattern plate located in front of the standard and containing a pattern around which the pointer is to be moved, substantially as set forth.



4. In an engraving machine, the combination with a pattern plate, a spindle and cutter, means for rotating the same, and a support therefor, of an arm connected to the spindle support and extending downward to a pattern plate and adapted to move the cutter in a decreased ratio, and a counterbalance mechanism for the spindle mechanism and arm, substantially as specified.

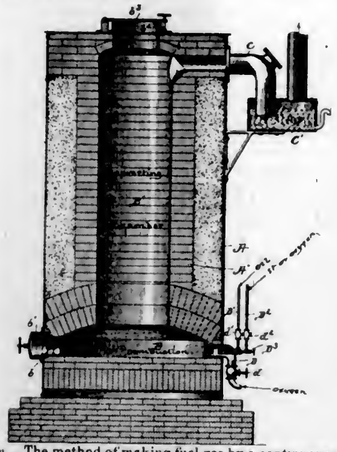
5. In an engraving machine, the combination with a universal joint mechanism, a spindle and a cutter and a support therefor, of an arm connected to the spindle support and extending downward and terminating in a pointer, a pattern plate having a concave surface made as an arc from the center of the universal joint mechanism and containing a number, letter or character around which said pointer is adapted to be moved while the cutter is caused to "follow copy" in a decreased ratio in engraving the work blank, substantially as set forth.

6. In an engraving machine, the combination with a standard and a base therefor; of a slide way *c* secured vertically upon the face of the standard and carrying a screw bolt K, a sliding head B movable upon said slide way and adjusted by said screw bolt, an adjustable chuck or holder B' and a clamping bolt *c* for connecting the same upon the sliding head B, and a clamp block *b* and cam lever *a* for holding the work blank in place, substantially as set forth.

7. In an engraving machine, the combination with the standard A and a base therefor, of the socket plate N connected to the upper end of the standard and projecting therefrom, the upper socket plate D, the sleeve E, its ball E' received within and between said socket plates, the top plate F and its integral sleeve F' passing down within said sleeve and ball, the adjustable sleeve R screw-threaded at its respective ends and passing through the plate F and sleeve F' and provided with adjusting nuts L L', the driving spindle P passing through the sleeve R, the pulley J and belt T for rotating the same, substantially as set forth.

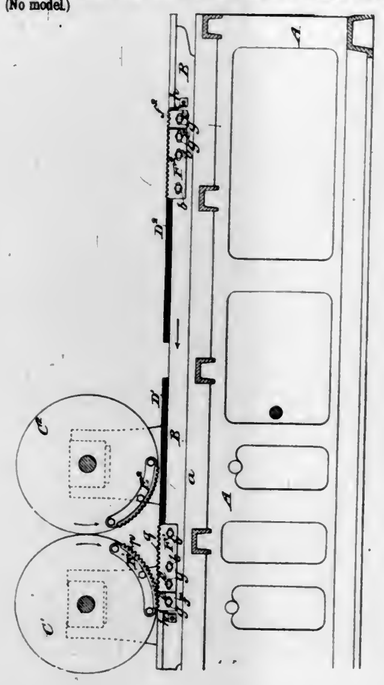
8. In an engraving machine, the combination with the standard A and a base therefor; of the socket plate N connected to the upper end of the standard and projecting therefrom, the upper socket plate D, the sleeve E, its ball E' received within and between said socket plates, the top plate F and its integral sleeve F' passing down within said sleeve and ball, the adjustable sleeve R screw-threaded at its respective ends and passing through the plate F and sleeve F' and provided with adjusting nuts L L', the driving spindle P passing through the sleeve R, the pulley J and belt T for rotating the same, a curved movable arm C to whose upper end the top plate F is securely fastened, a pointer at the lower end of said arm C adapted to be moved across the face of a pattern plate G and around and within the pattern H, whereby the cutter is moved in relation to the pointer and caused to "follow copy" and whereby the cutter can, by the vertical movement of the arm, be raised out of or brought into operative contact with the work blank, substantially as set forth.

517,681. PROCESS OF MAKING FUEL-GAS FROM CRUDE OIL. CHARLES F. A. CONVERT, Chicago, Ill., assignor to the Liquid Carbonic Acid Manufacturing Company, same place. Filed Mar. 10, 1891. Serial No. 384,400. (No model.)



Claim.—The method of making fuel gas by a continuous process, which consists in injecting into a heated retort or chamber oil in a sprayed form and an indifferent gas, together with oxygen, in addition to the oxygen contained in said indifferent gas, in quantity less than that required for producing complete combustion and sufficient only for making carbon-monoxide and hydrogen, whereby a temperature is maintained within the retort or chamber sufficient to produce ignition of the elements introduced as they enter the same, and whereby the partial combustion of the combination of elements necessary for fixing the gas is continuously accomplished, and continually withdrawing the resultant gas from the retort or chamber, substantially as described.

517,682. PRINTING-MACHINE. CHARLES P. COTTRELL, Stonington, Conn., assignor to the C. B. Cottrell & Sons Company, Westerly, R. I., and New York, N. Y. Filed Nov. 24, 1893. Serial No. 491,841. (No model.)



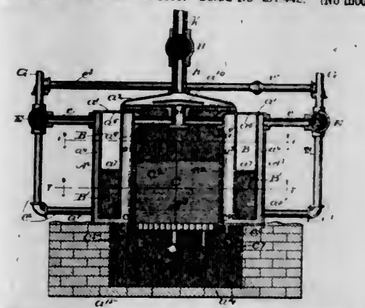
Claim.—1. The combination with the impression cylinder and the reciprocating bed of a printing machine, of a registering segment on the cylinder and a registering rack consisting of two portions which are both attached to the bed but of which one portion is movable lengthwise under the control of the segment relatively to the other portion which is fixed solidly to the bed, substantially as herein set forth.

2. The combination with the impression cylinder and the reciprocating bed of a printing machine, of a registering segment on the cylinder and a registering rack on the bed, the said rack having one portion loose and movable lengthwise relatively to the other portion which is fixed solidly to the bed, and a spring for holding the said loose portion toward the said fixed portion, substantially as herein set forth.

3. The combination with the impression cylinder and the reciprocating bed of a printing machine and a registering rack on the bed, the said rack having one portion loose and movable lengthwise relatively to the other portion which is fixed solidly to the bed, the said loose portion being fitted to the said fixed portion with a mortise in one and a tenon in the other and some of the teeth of said rack being so divided between said mortise and tenon that a part of one tooth is in the movable portion and a part in the fixed portion of the rack, substantially as herein described.

4. The registering segment and rack of a flat bed cylinder printing machine having their teeth notched or recessed in one side and full on the opposite side, substantially as and for the purpose herein set forth

517,683. HEATER FOR HOT-WATER HEATING SYSTEMS. FREDERICK E. DACK, Galva, Ill., assignor of one-half to E. K. Hayes, same place. Filed Jan. 6, 1893. Serial No. 457,442. (No model.)



Claim.—1. In a furnace or heater for hot water systems of heating, intermediate sections comprising in their structure and in combination, U-shaped side parts with their water spaces connected at their lower ends by a water space and non communicating at their upper ends, a top part having a water space, and a pipe or pipes connecting the water space of said top part with the adjacent leg only, of each side part.

2. In a furnace or heater for hot water systems of heating, intermediate sections comprising in their structure and in combination, U-shaped side parts with their water spaces connected at their lower ends by a water space and non communicating at their upper ends, a top part having a water space, a pipe or pipes connecting the water space of said top part with the adjacent leg only of each side part, and a partition located between the vertical water legs of each of said U-shaped side parts whereby the interspace between said legs is divided into upper and lower return flues.

3. In a furnace or heater for hot water systems of heating, intermediate sections comprising in their structure and in combination, U-shaped side parts with their water spaces connected at their lower ends by a water space and non communicating at their upper ends, a top part having a water space, a pipe or pipes connecting the water space of said top part with the adjacent leg only, of each side part, a partition a^7 located between the vertical water legs of each of said U-shaped side parts, dividing the interspace into an upper and lower return flue, a flue opening through the inner series or flow pipe water legs into the rear end of the lower flue, and a flue opening at the forward end of the partition a^7 whereby the upper and lower return flues communicate.

4. In a furnace or heater for hot water systems of heating, intermediate sections comprising in their structure and in combination, U-shaped side parts with their water spaces connected at their lower ends by a water space and non communicating at their upper ends, a top part having a water space, a pipe or pipes connecting the water space of said top part with the adjacent leg only, of each side part, a partition a^7 located between the vertical water legs of each of said U-shaped side parts, dividing the interspace into an upper and lower re-

turn flue, a flue opening through the inner series or flow pipe water legs into the rear end of the lower flue, a flue opening at the forward end of the partition a^7 whereby the upper and lower return flues communicate, and the drums E and H.

5. In a furnace or heater for hot water systems of heating, the combination with a series of intermediate sections, each comprising in its structure U-shaped side parts, a top part having a water space, a pipe or pipes connecting the water space of said top part with the direct flow pipe water leg of each side part, a partition between the water legs of each side part dividing the interspace into upper and lower return flues, a pipe connecting each top part of each section with the direct flow pipes of the water circulating system of pipes, a pipe connecting the return pipes of said system with the return flow leg of each section, an end section with a fire door, and an end section at the opposite end of the furnace, each of said end sections provided with a direct and a return flow pipe, substantially as described.

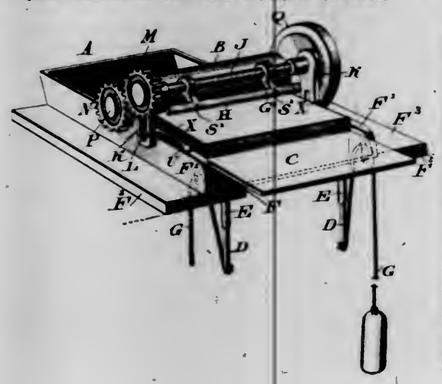
6. In a furnace or heater for hot water systems of heating, intermediate sections comprising in their structure and in combination, U-shaped side parts with their water spaces connected at their lower ends by a water space and non communicating at their upper ends, a top part having a water space, a pipe or pipes connecting the water space of said top part with the adjacent leg only of each side part, and a deflector plate a^{10} located within the water space of said top part.

7. In a furnace or heater for hot water systems of heating, the combination with a series of intermediate sections, each comprising in its stucture U-shaped side parts, a top part having a water space, a pipe or pipes connecting the water space of said top part with the flow pipe water leg of each side part, a partition between the water legs of each side part, a pipe connecting each top part of each section with the direct flow pipes of the water circulating system of pipes, a pipe connecting the return pipes of said system with the return flow legs of each section, an end section provided with a fire door, and with flue doors, and an end section at the opposite end of the furnace, each of said end sections provided with a direct and a return flow pipe, substantially as described.

8. In a furnace, or heater, for hot water systems of heating, and in combination substantially as hereinbefore described, intermediate sections A^3 formed of sub parts a', a^2, a^3, a^4, end section A with a fire door and flue doors, end section A', pipes h connecting the upper parts of the sections A, A', A^3 and the top a^3 with a drum H, which is connected with the flow pipes of the pipe system, pipes e connecting the upper ends of the water legs a^4 with drums E which are connected with the return pipes of the pipe system, a pipe e^3 connecting the drums E, pipe e' connecting the lower part of the section A with the drums E, pipes e^2 connecting the lower part of the section A' with the drums E.

9. In a furnace, or heater, for hot water systems of heating, and in combination substantially as hereinbefore described, sections A^3 formed of sub parts a', a^2, a^3, a^4, section A, with fire doors and flue doors, section A' forming a fire back, grate c', bridge wall c, tilting bottom a^{11}, valves d and operating stems k^2, pipes h connecting the upper parts of the sections A, A', A^3, and the top a^3 with a drum H, which is connected with the flow pipes of the pipe system, pipes e connecting the upper ends of the water legs a^4 with drums E which are connected with the return pipes of the pipe system, a pipe e^3 connecting the drums E, pipe e' connecting the lower part of the section A with the drums E, pipes e^2 connecting the lower part of the section A' with the drums E.

517,684. PASTING DEVICE FOR SHEETS, FLIES, STRIPS, &c. ALFRED DAY, Philadelphia, Pa., assignor to Day & Breithaupt, same place. Filed Nov. 15, 1893. Serial No. 490,979. (No model.)



Claim.—1. A pasting device consisting of a trough, a rising and falling table, stops limiting the upward movement of said table, a roller in said trough, a rocking shaft having a paster secured thereon outside of and above said trough, meshing gearing on the roller and paster shafts, said parts being combined substantially as described.

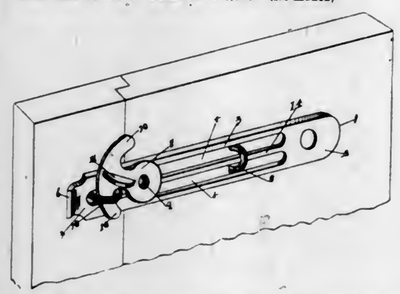
2. A pasting device having a trough with a roller dipping therein, a rising and falling table, a paster with a rocking shaft having a pinion meshing with a pinion on the roller shaft, and a scraper for said roller, said parts being combined substantially as described.

3. A pasting device having a roller, a rotary paster, an ascending table, and stops for limiting the ascent of the latter, said paster being formed with a recess for clearing said stops, substantially as described.

4. A pasting device consisting of a trough with a roller dipping therein, a bed, a rising and falling table movable on said bed, a rocking shaft having a paster mounted thereon, connecting gearing for said roller and shaft, and a scraper having a cross bar and longitudinally-extending end pieces, said parts being combined substantially as described.

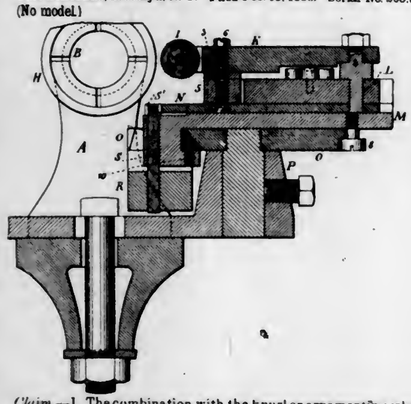
5. A pasting device consisting of a trough and bed with uprights, a roller dipping in said trough, a rising and falling table on said bed, a rocking shaft with a paster thereon adapted to receive paste from said roller and apply it to sheets on said table, and a scraper adjacent to said roller, said parts being combined substantially as described.

517,685. HASP-LOCK. JAMES A. DIXON, Bowling Green, Mo. Filed June 19, 1893. Serial No. 478,058. (No model.)



Claim.—The combination of a sliding hasp 3, provided with two longitudinal parallel slots 4, which extend in the body of said hasp and terminate at points adjacent the ends thereof, a staple 5 which engages said slots and loosely secures said hasp in position, another staple which the hasp engages to lock the door, and a button 8 revolubly mounted on said hasp adjacent the outer end thereof, so that its base overhangs the outer ends of each of said slots, said button having a crescent-shaped hook 10 having two free ends which engage either the staple upon the door jamb, or the staple 5 upon the door, substantially as and for the purpose herein specified.

517,686. TOOL FOR ORNAMENTING WATCHCASES. FREDERIC ECAUBERT, Brooklyn, N. Y. Filed Feb. 13, 1888. Serial No. 263,867. (No model.)



Claim.—1. The combination with the knurl or ornamenting wheel and the mandrel and chuck or tool for holding the watch case center or other article to be ornamented, of a rotating shaft and adjustable crank pin and a rigid connecting rod extending from the crank pin and provided with rack teeth, a pinion upon the mandrel engaging the rack teeth, and a roller adjacent to the pinion for holding the rack to the pinion, substantially as set forth.

2. The combination with the knurling or ornamenting tool and the device for holding the same, of a rack connected with the holder, a stationary pinion with which the rack bar is in gear for steadying the knurling tool and a support for the parts and a lever handle for moving the knurling tool toward its work substantially as specified.

3. The combination with the knurling or ornamenting tool and the device for holding the same, of a rack bar connected with the holder a stationary pinion with which the rack bar is in gear, a quadrant, and slide rest for supporting the parts and a handle for pressing the knurl to its work, substantially as specified.

4. The combination with the knurling or ornamenting tool and its holder and the slide for supporting the same, of a rack bar connected with the holder and a stationary pinion with which the rack bar is in gear for steadying the knurling tool and means for pressing the knurl to its work and moving the same laterally substantially as set forth.

5. The combination with the knurling tool and its holder, of a rack connected with the holder and a stationary pinion for preventing the tool becoming misplaced laterally substantially as set forth.

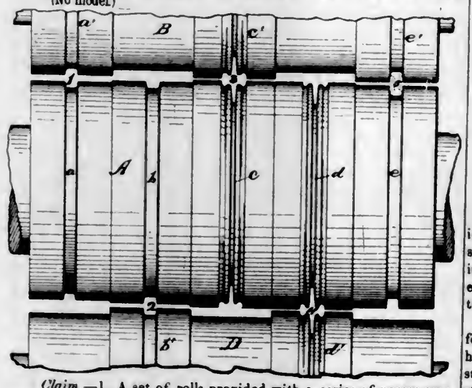
6 The combination with a knurling tool, of a jaw and slide and slide rest for supporting such knurling tool, two handles upon the slide rest to be grasped by the workman, one of which handles acts upon the slide to press the knurling tool against the work, substantially as set forth.

7. The combination with a knurl or circular ornamenting tool, of a jaw and slide for holding such knurl a quadrant plate or base O and a slide rest M upon such quadrant plate or base and in which slide rest the tool slide is movable, a lever handle attached to the slide rest for moving the same and a lever handle pivoted on the slide rest for pressing the knurling tool toward the work, substantially as set forth.

8. The combination with a quadrant or base O of a slide rest supported by and movable upon the quadrant or base, a knurling tool and tool holding slide, a lever for moving the slide rest, a lever for pressing the knurling tool to its work, a mandrel and chuck or holder for the watch case center or other article to be ornamented and mechanism for communicating to the mandrel a rotary motion first in one direction and then in the other, substantially as set forth.

9. The combination with a knurling or ornamenting tool, of a jaw for holding such tool, a pivot upon which such jaw or holder can swing laterally, a slide rest carrying the pivot, means for pressing the tool to its work, a quadrant or base for supporting the slide rest, a mandrel and chuck or holder for the article to be ornamented and mechanism for communicating to such mandrel a reverse or rotary motion first in one direction and then in the other, substantially as set forth.

517,687. ROLLS FOR SIDE-BEARING SUSPENSION-RAILS. PETER ECKEL, Syracuse, N. Y. Filed May 10, 1893. Serial No. 473,661. (No model.)

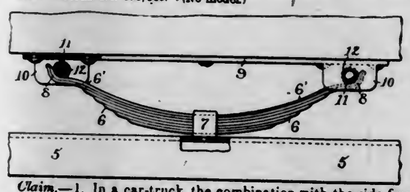


Claim.—1. A set of rolls provided with a series of passes comprising two flat passes, followed by two edge passes, and a final flat pass, of the respective shapes shown in the drawings and numbered from 1 to 5 inclusive, whereby a rectangular billet is swaged and rolled down into a reversible side bearing rail having longitudinal T shaped suspension ribs between the side bearings.

2. A set of rolls having a series of flat and edge passes, adapted by the first pass to swage a rectangular billet and partially produce the side bearings and the longitudinal ribs; by the succeeding flat pass to further produce said side bearings and ribs; by the succeeding edge pass to further finish said bearings and to partly concave said ribs, by the succeeding edge pass to further finish said side bearings and complete the concavities in said ribs; and by the succeeding final flat pass to finish the heads of the T-shaped suspension ribs and finish the side bearings

---

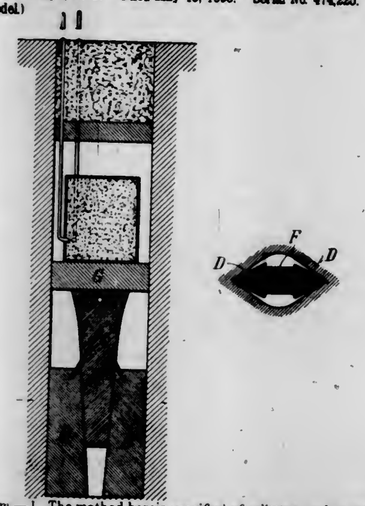
517,688. CAR-TRUCK. EVERETT G. GIBSON, Providence, R. I., assignor of one-half to Edgar G. Durfee, same place. Filed Nov. 20, 1893. Serial No. 491,446. (No model.)



Claim.—1. In a car-truck, the combination with the side-frame, and a curved spring secured thereto and having transverse concavities in its upper end-portions, of a bearing-plate having depending bracket-plates, a shaft fixed in said bracket-plates, sleeves rotatably mounted on said shaft between said bracket-plates and adapted to bear in the concave portions of the spring, as described.

2. The combination with the side-frame 5, the spring 6 secured thereto and provided with the leaves 6'—6' having the bent ends 8—8, of the bearing-plate 9 adapted to be secured to a car-body and having the depending-plates 10—10, the bolts 11—11 secured through perforations in the bracket-plates, and the sleeves 12—12 loosely mounted on said bolts, as and for the purpose described.

517,689. ROCK DRILLING AND SPLITTING. GEORGE M. GITTENS, Brooklyn, N. Y. Filed May 15, 1893. Serial No. 474,226. (No model.)



Claim.—1. The method herein specified of splitting rock consisting in forming a hole with opposite angular grooves, introducing into such hole cleaving bars having edges at less angles than the angles in the stone and driving in an intermediate wedge and forcing the edges of the cleaving bars into the opposite angles of the stone to split the same substantially as set forth.

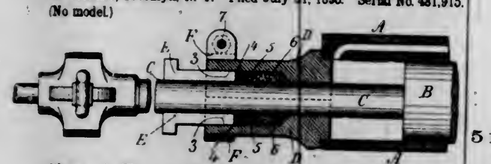
2. The method herein specified of splitting stone, consisting in forming a hole with opposite angular grooves, introducing into such hole cleaving bars having edges at a less angle than the angles in the stone and driving the cleaving bars into the opposite angles of the stone to split the same, substantially as specified.

3. The two cleaving bars D. D having longitudinal angular edges and inclined back faces, the narrowest ends of the bars being uppermost, in combination with an intermediate wedge with its widest end uppermost, and means for suspending the cleaving bars below the wedge bar so that the three parts can be lowered into the hole in the rock, substantially as specified.

4. The two cleaving bars D. D, having longitudinal angular edges and inclined back faces, the narrowest ends of the bars being uppermost, in combination with an intermediate wedge with its widest end

uppermost, and means for suspending the cleaving bars below the wedge bar so that the three parts can be lowered into the hole in the rock, and a wad resting on the wedge and supporting the explosive material substantially as specified.

517,690. PACKING FOR ROCK-DRILLING ENGINES. GEORGE M. GITHENS, Brooklyn, N. Y. Filed July 31, 1893. Serial No. 481,915. (No model.)



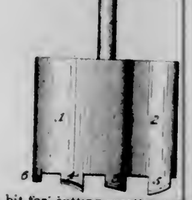
Claim.—1. The combination with a piston and piston rod, of a cylinder, a cylinder head through which the piston rod passes, a packing gland around the piston rod and a follower for the same held upon the cylinder head by friction so as to be sent up from time to time and maintain the proper pressure upon the packing material by the blow or concussion of the piston against the inner end of the cylinder head, substantially as set forth.

2. The combination with the piston, piston rod, cylinder and cylinder head, of a packing around the piston rod, a follower for the packing or packing gland held in position by friction and adapted to being driven up to place from time to time for properly holding the packing material around the piston rod, substantially as set forth.

3. The combination with the cylinder, piston and piston rod, of a divided cylinder head surrounding the piston rod and having a cavity for the reception of packing material, a follower for holding the packing material with the required pressure, and a screw for regulating the friction of the follower upon the cylinder head and thereby holding the follower and the packing materials compressed by the same and allowing such follower to be set up by the concussion of the piston against the cylinder head, substantially as set forth.

4. The combination with the piston and piston rod in a rock drill or similar engine, of a divided head through which the piston rod passes, a packing gland and its follower surrounding the piston rod and the cylindrical portion of the head, and a screw to apply the friction necessary between the cylindrical portion of the cylinder head and the follower of the packing gland, substantially as set forth.

517,691. BIT FOR CUTTING ROSETTES. EDWIN GOLLINS, Columbus, Ohio. Filed Dec. 11, 1893. Serial No. 493,433. (No model.)



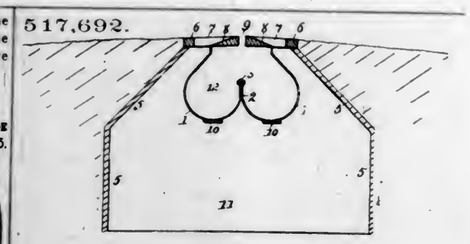
Claim.—1. A bit for cutting rosettes comprising wings 1 and 2 extending on opposite sides of the axis of rotation, the cutting edge composed of a single series of segments, the segments for molding adjacent members of the rosettes being arranged alternately on the wings, and recesses or spaces between the segments extending beyond their shallow cutting points in the direction of the axis of the bit to permit the escape of chips, substantially as set forth.

2. A bit for cutting rosettes comprising curved wings 1 and 2 extending on opposite sides of the axis of rotation, the cutting edge composed of a single series of segments, the segments for molding adjacent members of the rosettes being arranged alternately on the wings, and recesses or spaces between the segments extending beyond their shallow cutting points in the direction of the axis of the bit to permit the escape of chips, substantially as set forth.

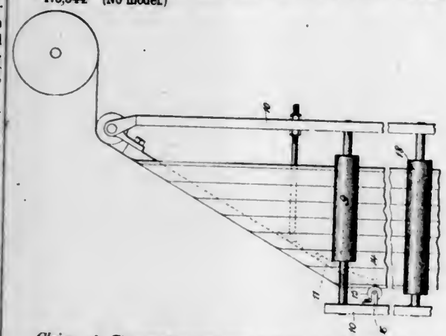
517,692. CONDUIT ELECTRIC RAILWAY. HERBERT A. GORHAM, Decatur, Ill. Filed Aug. 14, 1893. Serial No. 483,077. (No model.)

Claim.—A conduit for the trolley wires of electric cars, comprising a trench, a conduit extending along the upper portion of the trench, a central rib, or upward extension, in the conduit, supporting, and insulated from, the trolley wire, slotted grates covering the conduit and communicating with the trench, such grates being separated sufficiently to form a slot for the trolley, and valves in the lower surfaces of the conduit, substantially as set forth.

517,692.



517,693. MACHINE FOR DOUBLING WEBS OF FABRIC LONGITUDINALLY. SAMUEL G. GOSS, Chicago, Ill., assignor to the Goss Printing Press Company, same place. Filed May 8, 1893. Serial No. 473,344. (No model.)



Claim.—1. The combination with a V shaped former, of a roller journaled at the apex thereof, for marking the line of the fold after the web passes over the former substantially as described.

2. In a folding machine, the combination with a V shaped former, of creasing rollers adapted to receive the web as it passes from the former, substantially as described.

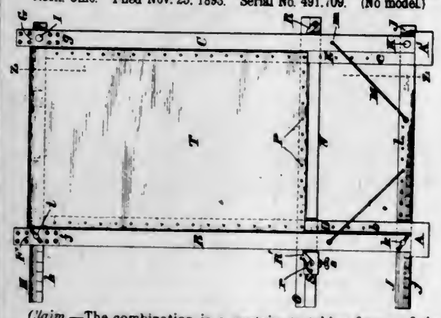
3. In a folding machine, the combination with a V shaped former, of creasing rollers arranged to receive the web after it passes from the former, and fold laying devices, substantially as described.

4. In a folding machine, the combination with converging internal guides, and external turners, of a roller mounted at the apex of said internal guides, substantially as described.

5. In a folding machine, the combination with a V shaped former, of a roller mounted at the apex thereof, and creasing rollers arranged to receive the web after it passes from said former, substantially as described.

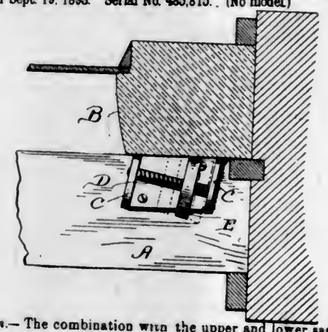
6. The combination with a V shaped former, and external turners, of fold laying devices, and creasing rollers between said former and said fold laying devices, substantially as described.

517,694. CURTAIN-STRETCHER. PHOEBE M. HARTPENCE, Harrison, Ohio. Filed Nov. 23, 1893. Serial No. 491,709. (No model.)



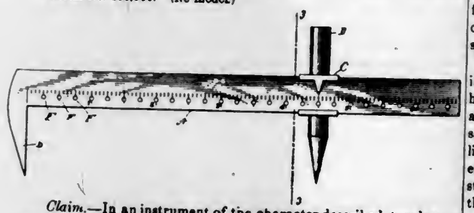
Claim.—The combination, in a curtain-stretching frame, of the sill A, supporting a laterally-shiftable standard consisting of a pair of vertical stiles B, B', separated by an opening and united at top by blocks F *f*; the sill A' supporting a stationary standard consisting of a pair of stiles C, C', separated by an opening and united at top by blocks G *g*; the top rail H inserted between said blocks F, *f*, G, *g*, and connected to said standards by a pin I and thumb screw *i*; the bottom rail J, occupying the openings between said standards, and secured to them by a pin K and thumb screw *k*; the hook L, pivoted to the stile B and having its free end engaged with either one of a series of holes *l* in said bottom-rail J; the hook M, pivoted to this rail, and having its free end engaged with a perforation *m* of the stile C; and a stretcher bar N, vertically adjustable within the openings between the standards, and having devices that secure it in place; said standards, and the stretcher-bar, being provided with means for the ready attachment of a curtain, all as herein described.

517,695. SASH-HOLDER. CHARLES E. HEIL, Cleveland, Ohio. Filed Sept. 19, 1893. Serial No. 485,815. (No model.)



Claim.—The combination with the upper and lower sashes of a window, of a stationary-screw suitably supported upon the lower sash adjacent one of the stiles of the upper sash, said screw being arranged in a horizontal or approximately horizontal plane, and a wheel or disk mounted to turn upon said screw and having internal threads engaging threads on the screw, the arrangement of parts being such that said wheel or disk is capable of being actuated into and out of engagement with the aforesaid stile of the upper sash, substantially as set forth.

517,696. BEAM-COMPASS. WALLACE B. HUNTER, New York, N. Y., assignor to Ellen Friedlander, same place. Filed Mar. 20, 1893. Serial No. 466,900. (No model.)

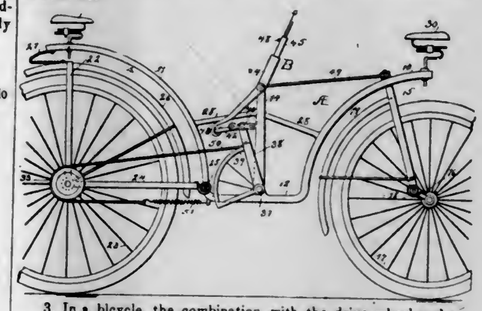


Claim.—In an instrument of the character described, two legs or portions of the device arranged at right angles to each other, one of said legs being graduated on one side a series of perforations, through the thickness of said legs, arranged at regular intervals along the said legs, a pencil holding clamp overlapping two edges of the said graduated leg (one of the overlapping parts of the said clamp being sharpened and adapted to act as an indicator along the said graduation) perforations through the said clamp for the reception of the pencil and means for holding the said pencil and clamp at any predetermined point substantially as set forth.

517,697. BICYCLE. THOMAS B. HYDE, Taylor, Tex. Filed Jan. 31, 1893. Serial No. 460,312. (No model.)

Claim.—1. In a bicycle, a frame comprising two arches substantially concentric with the wheels, a horizontal section between the arches, uprights located essentially in the middle of the said horizontal section, braces extending from the uprights to each of the said arches, yokes connected with the bearings of the wheels and with the upper portions of the arches, and a lever pivoted to the upper ends of the uprights and connected with the said rocking pedal arms, a shaft journaled in the said uprights near their junction with the said horizontal section, arms secured to each end of the said shaft, pedals connected with the opposite ends of said arms, and a mechanism for driving one of the wheels when the said arms are rocked, substantially as described.

2. In a bicycle, the combination, with the wheels, a vertical yoke adapted to receive the axle of one wheel, a horizontal yoke extending from the axle of the same wheel, springs at the outer ends of the said yokes, and another yoke having a spring connection with the bearings of the other wheel, of a frame secured to the springs located at the outer ends of the said vertical and horizontal yokes connected with one of the wheels, and to the upper end of the yoke having a spring connection with the bearings of the other wheel, substantially as described.



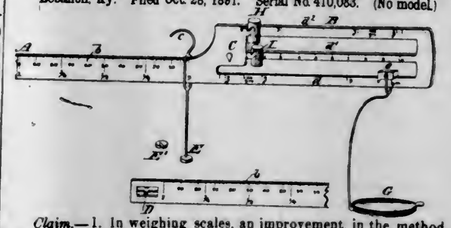
3. In a bicycle, the combination, with the drive wheel and a ratchet driving mechanism located on the shaft thereof, of a pedal shaft, crank arms carried by the said shaft, driving connections between the said crank arms and the said ratchet mechanism, and a handle bar pivotally mounted in the frame of the bicycle to oscillate forward and backward in a longitudinal plane and having detachable engagement with the crank arms of the pedal shaft, as and for the purpose specified.

4. In a bicycle, the combination, with the wheels and the frame of a fork pivoted to the frame and provided with hooks at its lower ends, links adapted to engage the hooks with one end, a drive shaft journaled in the frame, segments and bars mounted on the drive shaft, the bars having pivotal connection with the links, pedals pivoted to the upper ends of the said bars, a driving mechanism on the driving wheel, and connections between the said mechanism and the segments on the drive shaft, substantially as described.

5. In a bicycle or like machine, a ratchet mechanism located on the shaft of the driving wheel, a cranked pedal shaft having a rocking movement and a driving connection with the said ratchet mechanism, and a handle bar mounted on a transverse pivot to oscillate forward and backward in a longitudinal plane and having detachable connection with the cranks of the pedal shaft, as and for the purpose specified.

6. In a bicycle or like machine, the combination, with the driving wheel, a ratchet driving mechanism connected therewith, bars having a rocking movement in a vertical plane and adapted to operate the driving mechanism, pedals pivoted to the upper ends of the said rocking bars, a handle bar pivoted to the frame of the bicycle, links connecting the lower ends of the handle bar with the upper ends of the rocking bars, a yoke adapted for engagement with the steering wheel, a rotatable post inserted into the upper portion of the handle bar, and a connection between the post and the yoke, substantially as described.

517,698. DRUGGIST'S WEIGHING-SCALE. EDWARD KELLY, Lebanon, Ky. Filed Oct. 28, 1891. Serial No. 410,083. (No model.)



Claim.—1. In weighing scales, an improvement, in the method of weighing different denominations of weight by altering the distance between the load and the fulcrum of the beam, which improvement consists, in the employment on the scale beam of a movable load carrying pan or support, conjointly with a movable counterbalance weight therefor, by means of which the equilibrium of the scale beam may be maintained after any movement of said load carrying pan or support, substantially as described.

2. The herein described method of weighing different denominations of weight consisting in employing a longitudinally movable poise, and a longitudinally movable counterbalance weight therefor, alter-

ing the weight of the poise to increase or diminish its weighing power as required and moving the counterbalance to compensate for the change in the value of the poise and thus balance the scale, substantially as described.

3. In a weighing scale, the combination of the scale beam, having its weighing arm A, on one side of its fulcrum C, sectionally divided or marked and each section sub-divided or marked with one hundred equal parts or points b, b, and its load's arm B constructed to form distinct minor beams d, d', d^2, the one of which d' is marked with ten points or divisions and the others d and d^2 are graduated and marked with like symbols of weight, the sectional sliding poise E on arm A, the balance weights H and I fitted to slide on minor arms d^2 and d', and the slide e on minor arm d, carrying the scale pan G, substantially as and for the purposes herein specified.

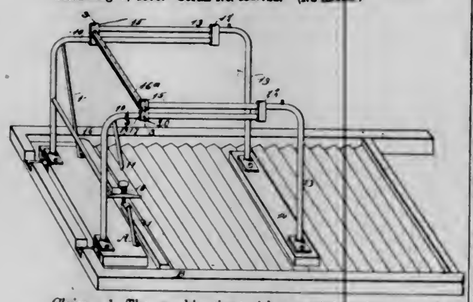
4. In weighing scales, a scale beam, a longitudinally movable poise, a longitudinally movable load pan or support, and a longitudinally movable counterbalance weight on the load's arm of the scale beam for balancing the scale to the different positions of the load pan or support, in combination, substantially as described.

5. In weighing scales, a scale beam, a longitudinally movable poise on the poise arm of the beam, separate weights adapted to the poise for increasing and diminishing the value of the poise, a load pan on load's arm of the beam, and a movable counterbalance weight on load's arm, for balancing the beam as the value of the poise is altered, substantially as described.

6. In weighing scales, a scale beam, a longitudinally movable poise adapted to receive weights, a longitudinally movable counterbalance for balancing the scale to the different weights of the poise, a longitudinally movable load carrying pan or support, and a longitudinally movable counterbalance weight for balancing the scale beam to the different positions of the load pan or support, in combination, substantially as described.

517,699. WASHING-MACHINE. LOUISE KELLY, Rosebank, N. Y.

Filed Aug. 9, 1893. Serial No. 482,722. (No model.)



Claim.—1. The combination, with a wash-board and the fixed right-angle arms, 10, having perforated guides, 12, fixed on their free upper ends, of the sliding angle arms, 13, which work in said guides, the guides, 15, fixed on said sliding arms and adapted to slide on the fixed arms, a transverse handle connecting the sliding arms, and the rubber, 14, attached to the free lower ends of the vertical members of the sliding arms and thereby adapted to be reciprocated with the latter, as shown and described.

2. The combination, with the wash-board, and a base board hinged thereto and adapted to fold down on the wash-board, of the right-angle arms, 10, fixed on said base-board their upper members projecting over the wash-board parallel thereto, the sliding right-angle arms, 13, the fixed and sliding guides, 12 and 15, arranged as shown, and the rubbing-board, 14, fixed on the vertical members of the said sliding arms, as shown and described.

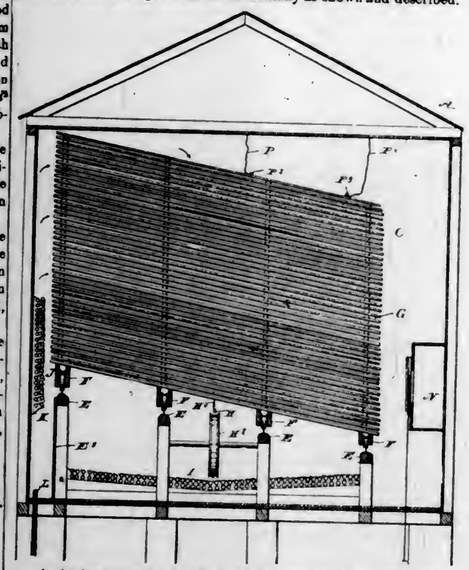
3. The combination, with a wash-board, of the rubbing attachment composed of the rubber, 14, the sliding angle arms, 13, and guides, 15, the fixed angle arms and their guides, 12, and the base board, which is hinged as specified, and the device for locking said base-board upon the wash-board in position for operation of the rubbing attachment, as shown and described.

517,700. DRYING-KILN. ADOLPHUS KIMBALL and PHINEAS KIMBALL, Arkansas City, Ark. Filed July 25, 1893. Serial No. 481,419. (No model.)

Claim.—1. In a kiln provided with a track having its several rails arranged in different horizontal planes, in step form, substantially as shown and described.

2. A kiln, provided with a track having the several rails arranged in step form, and lumber trucks mounted to travel on the said rails and adapted to support the lumber in an inclined position, substantially as shown and described.

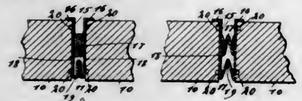
3. A lumber drying kiln having a plurality of movable carriers arranged in step form and having their supporting faces inclined, transversely whereby to support the lumber in a transversely inclined position in the drying chamber, substantially as shown and described.



4. An improved lumber drying kiln, comprising a drying chamber, having steam pipes held therein, movable carriers arranged longitudinally and in step form, whereby the lumber will be held inclined, a longitudinal cut off projected from the top of the chamber to the top of the lumber, a cold air inlet at one side of the chamber, means for carrying such air above the carriers, whereby it will pass transversely of the chamber between the lumber, an air duct at the opposite side of the chamber, and a suction fan connected therewith, all arranged substantially as shown and described.

5. A lumber drying kiln, comprising a heating chamber, a series of longitudinal tracks arranged in step form, a longitudinal cold air way formed at the high track side of the chamber, a series of steam pipes held at that side over the mouth of such way, and an air duct having openings communicating with the chamber, disposed at the low track side of such chamber, a suction fan connected therewith, and cold air inlets opening into the bottom of the cold air way, all arranged substantially as shown and for the purposes described.

517,701. FINISHING-JOINT IN WOODEN WALLS OR CEILINGS. GEORGE KNOWER, Greenwood, Wis. Filed July 11, 1893. Serial No. 480,118. (No model.)

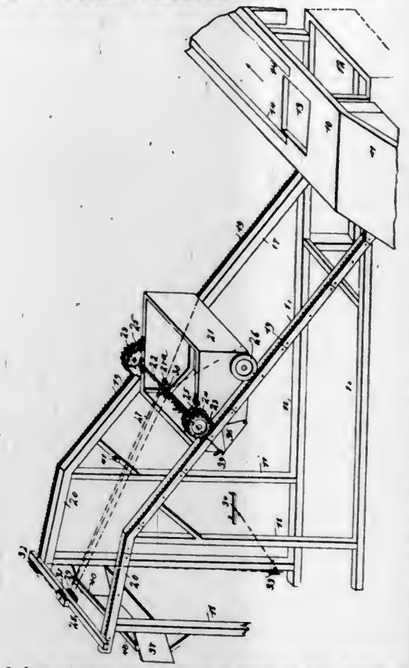


Claim.—1. The combination, with the flat, parallel adjacent grooved edges of ceiling boards, or pieces, of a padding composed of two foldable, paper strips whose side edges are pasted to the opposite edges of said boards but separated as shown, whereby a dead-air space is formed between said strips, as specified.

2. The combination, with parallel and adjacent edges of wooden ceiling boards, or pieces, of a paper padding, or joint-closer, composed of strips, one of which is pasted to the body of the other parallel to its side edges, thus forming an air-containing tube, and the edges of such other strip being secured to the wooden pieces, as shown and described.

517,702. ELEVATOR AND DUMP. SAMUEL E. KURTZ, Greenfield, Iowa. Filed Oct. 13, 1893. Serial No. 488,045. (No model.)

Claim.—1. In an elevator and dump, the combination with inclined tracks and elevated horizontal tracks, of a car whose width is less than the space between said tracks, and having a hinged door at its front end and supporting wheels on each side, the rear wheels being journaled at or near the rear lower corners and the upper wheels near the upper forward corners of said car, whereby the latter is held horizontal when passing up the inclined tracks and assumes an inclined position when on the horizontal tracks, and means for operating the car, as shown and described.

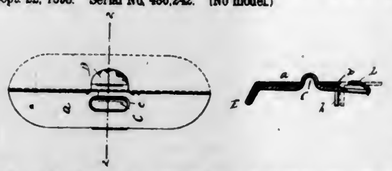


2. In an elevator and dump, the combination with inclined and elevated horizontal tracks, a chute arranged below the horizontal tracks, and an abutment or trip bar located above the chute, of a car which fits between the tracks and having pairs of supporting wheels arranged at or near its forward upper and rear lower corners, and a door hinged at its lower edge, and gravity catches attached to the end of the car above the door, as shown and described, whereby the car assumes an inclined position when between the horizontal tracks and the door being automatically opened drops upon the chute and forms practically a continuation of the same, and means for operating the car, as shown and described.

3. In an elevator and dump, the combination with inclined and elevated horizontal tracks, of a car having front and rear supporting wheels arranged in different horizontal planes, a door hinged at its rear edge, and automatic catches therefor, of a fixed contact arranged between the inclined tracks and upon which the said door when open is adapted to strike while the car makes its return passage after dumping, and means for operating the car, as shown and described.

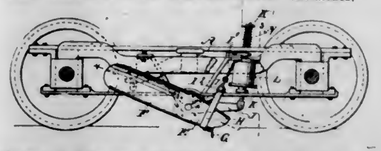
4. An elevator and dump, comprising inclined tracks, a pit at the lower end of the tracks, horizontal tracks arranged one above another within the pit and connecting with the inclined tracks, a car having its front and rear wheels arranged in different planes, a dumping platform above the pit, and means for dumping the car at the top of the inclined tracks, substantially as described.

517,703. SPRING-CATCH. ADOLF LUDWIG, Hoboken, N. J. Filed Sept. 22, 1893. Serial No. 486,242. (No model.)



Claim.—A spring catch, composed of a body-plate and a spring tongue having a button, all made of a single and continuous piece of sheet-metal, said tongue being folded on the inner side of the plate, the free end of said folded tongue projecting beyond that edge of the plate opposite the one at which the tongue is connected with the plate, the free end of said tongue being adapted to catch and retain a suitable plate or keeper and the button on the tongue projecting through an aperture in the plate, substantially as set forth.

517,704. FLANGER. THOMAS W. MACFARLANE, Ellensburg, Wash. Filed July 3, 1893. Serial No. 479,485. (No model.)



Claim.—1. A flanger comprising hangers attached to the truck frame, a shaft journaled in the said hangers, flangers attached to the ends of the said shaft, means for imparting a rocking movement thereto, a rod connecting the upper portions of the flangers, and arms projected from the shaft and connected with the said rod, as and for the purpose set forth

2. A flanger comprising hangers directly attached to the truck frame, a shaft journaled in the said hangers, flangers attached to the end of the said shaft and adapted to engage the railroad rails, a cylinder having its piston rod connected with an arm on the said shaft, to impart a rocking motion to the said shaft and thereby a swinging motion to the said flangers, a spring for returning the said piston rod to its normal position when the pressure in the cylinder decreases, and an apron extending from the rear end of each of the said flangers and arranged at angles thereto, substantially as shown and described.

3. A flanger comprising hangers directly attached to the truck frame, a shaft journaled in the said hangers, flangers attached to the end of the said shaft and adapted to engage the railroad rails, a cylinder having its piston rod connected with an arm on the said shaft, to impart a rocking motion to the said flangers, a spring for returning the said piston rod to its normal position when the pressure in the cylinder decreases, and a scraper bolted to the free end of each flanger to engage the inside of the rails, substantially as shown and described.

4. A flanger comprising hangers directly attached to the truck frame, a shaft journaled in the said hangers, flangers attached to the end of the said shaft and adapted to engage the railroad rails, a cylinder having its piston rod connected with an arm on the said shaft, to impart a rocking motion to the said shaft and thereby a swinging motion to the said flangers, a spring for returning the said piston rod to its normal position when the pressure in the cylinder decreases, an apron extending from the rear end of each of the said flangers and arranged at angles thereto, and means, substantially as described, for limiting the downward swinging motion of the flangers, as set forth.

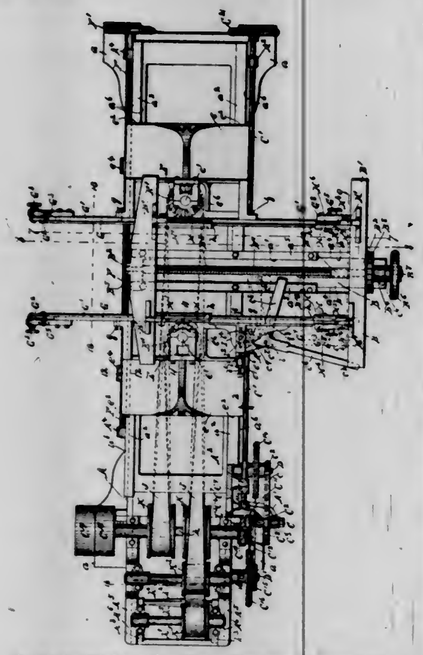
517,705. GROOVING-MACHINE. HENRY W. MORGAN, Rochester, N. Y. Filed Dec. 29, 1892. Serial No. 456,631. (No model.)

Claim.—1. In a grooving machine, the combination of a cutter head, a support having a bearing face disposed at an angle to the axis of the cutter head for supporting the boards, jaws for clamping said boards in position upon the support, a driving shaft, a second shaft connected to said jaws for feeding the same along said face of the support, and thereby moving the boards across the face of the cutter head, and for returning said jaws to their normal position, connections between the driving shaft and the latter shaft for rotating the latter shaft in one direction, and connections between said driving shaft and the latter shaft for rotating the latter shaft in the opposite direction, substantially as and for the purpose described.

2. In a grooving machine, the combination of a cutter head, a support having a bearing face disposed at an angle to the axis of the cutter head for supporting the boards, jaws for clamping said boards in position upon the support, a shaft connected to said jaws for feeding the same along said face of the support, and thereby moving the boards across the face of the cutter head, and for returning said jaws to their normal position, and wheels revolving in opposite directions detachably connected to said shaft for revolving the same in opposite directions, substantially as and for the purpose specified.

3. In a grooving machine, the combination of a cutter head, a support having a bearing face disposed at an angle to the axis of the cutter head for supporting the boards, jaws for clamping said boards in position upon the support, wheels revolving in opposite directions, a shaft connected to said jaws and connected to one of said wheels for feeding the jaws along said face of the support, and thereby moving the boards across the face of the cutter head, and a shifting device con-

nected to the shaft for disconnecting the same from said wheel and connecting the same to the other wheel, said shifting device being connected to said jaws whereby the movement of the jaws automatically actuates said shifting device, substantially as and for the purpose described.



4. In a grooving machine, the combination of a cutter head, a support having a bearing face disposed at an angle to the axis of the cutter head for supporting the boards, jaws for clamping said boards in position upon the support, a shaft connected to said jaws, a wheel connected to said shaft for rotating the shaft in one direction to feed the jaws along said face of the support, and to move the boards across the face of the cutter head, a second wheel connected to said shaft for rotating the same in the reverse direction and returning the jaws, and a shifting device having an engaging arm connected to said jaws for automatically limiting the return movement of said jaws, substantially as and for the purpose specified.

5. In a grooving machine, the combination of a cutter head, a support having a bearing face disposed at an angle to the axis of the cutter head for supporting the boards, jaws for clamping said boards in position upon the support, a driving shaft, a second shaft connected to said jaws for feeding the same along said face of the support and thereby moving the boards across the face of the cutter head, connections between the driving shaft and the latter shaft for rotating the latter shaft in one direction, connections between said driving shaft and the latter shaft for rotating the latter shaft in the opposite direction, and a shifting device connected to said connections for bringing the same into action and connected to the jaws, whereby the retractive movement of the jaws automatically actuates said shifting device, substantially as and for the purpose described.

6. In a grooving machine, the combination of a cutter-head, a support having a bearing face disposed at an angle to the axis of the cutter-head for supporting the boards, jaws for clamping said boards in position upon the support, a driving shaft provided with pinions, a second shaft connected to said jaws for feeding the same along said face of the support and thereby moving the boards across the face of the cutter-head and for returning said jaws to their normal position, a sleeve loosely mounted on said second shaft and provided with a clutch section and with a gear wheel for meshing with one of the pinions on the driving shaft, a gear wheel for meshing with the other pinion on the driving shaft formed of greater diameter than the gear wheel provided on said sleeve and loosely mounted on the sleeve and provided with a clutch section, and clutch sections secured to said second shaft for alternately engaging the former clutch sections, substantially as and for the purpose described.

7. In a grooving machine, the combination of a frame, a cutter head mounted on the frame, a carriage provided with jaws for clamping the boards and moving the same across the face of the cutter head and provided with separated engaging faces, gear wheels revolving in opposite directions, a shaft connected to said jaws and connected to one of said gear wheels for moving the carriage in one direction, and a lever pivoted to the frame and having an arm connected to the shaft for disengaging the same from said gear wheel and engaging the same with the other gear wheel and for disengaging the shaft from the other gear wheel, said lever being provided with an arm interposed between said separated faces of the carriage for engaging the same, substantially as and for the purpose specified.

8. In a grooving machine, the combination of a frame, opposite cutter head bearings mounted on the frame, a support rigidly secured to one of said bearings for supporting the bottom edges of the boards, a carriage movable lengthwise of said support and provided with opposite heads or bars, clamping jaws connected to said carriage heads or bars and movable laterally on the carriage heads or bars for approximating their adjacent faces and movable lengthwise of said support for feeding the boards to be grooved across the adjacent faces of the cutter head, substantially as and for the purpose described.

9. In a grooving machine, the combination of a frame provided with guide-ways, bearings simultaneously movable toward and away from each other along said guides, oppositely arranged cutter-heads journaled in said bearings, a support rigidly secured to one of said bearings for supporting the bottom edges of the boards, a carriage movable lengthwise of said support and provided with opposite heads or bars, clamping jaws connected to said carriage heads or bars and movable laterally on the carriage heads or bars for approximating their adjacent faces and movable lengthwise of said support for feeding the boards to be grooved across the adjacent faces of the cutter head, substantially as and for the purpose described.

10. In a grooving machine, the combination of a frame provided with a guide, a bearing movable along said guide, a cutter head journaled in the bearing, reciprocally moving clamping jaws for feeding the boards across the face of the cutter head, gear wheels revolving in opposite directions, a shaft connected to said jaws and connected to one of the gear wheels for feeding the jaws in one direction, and a shifting device connected to the shaft for disconnecting the same from said gear wheel and connecting the same to the other gear wheel and connected to said jaws, whereby the movement of the jaws automatically actuates said shifting device, substantially as and for the purpose described.

11. In a grooving machine, the combination of a frame provided with guides, bearings movable simultaneously toward and away from each other along said guides, opposite cutter heads journaled in said bearings, reciprocally moving clamping jaws for feeding the boards across the adjacent faces of said cutter heads, gear wheels revolving in opposite directions, a shaft connected to said jaws and connected to one of the gear wheels for feeding the jaws in one direction, and a shifting device connected to the shaft for disconnecting the same from said gear wheel and connecting the same to the other gear wheel and connected to said jaws, whereby the movement of the jaws automatically actuates said shifting device, substantially as and for the purpose specified.

12. In a grooving machine, the combination of a frame, opposite cutter head bearings mounted on the frame, one of said bearings being provided with a support, a bar or rail adjustably mounted on said support for engaging the bottom edges of the boards to be grooved, a carriage movable lengthwise of said support and provided with opposite heads or bars, clamping jaws connected to said carriage heads or bars and movable laterally on the carriage heads or bars for approximating their adjacent faces and movable lengthwise of said support for feeding the boards to be grooved across the adjacent faces of the cutter head, substantially as and for the purpose described.

13. In a grooving machine, the combination of a frame provided with rectilinear guides, bearings movable simultaneously toward and away from each other along said guides, oppositely arranged cutter heads journaled in said bearings, a support for the boards to be grooved secured to each of said bearings and projecting on opposite sides of the cutter heads, a rail or bar extending on opposite sides of the cutter heads and movably mounted on each of said supports and having its face projecting beyond the face of the corresponding support, and jaws for clamping said boards movable lengthwise along said supports for feeding the boards across the adjacent faces of the cutter heads substantially as and for the purpose set forth.

14. In a grooving machine, the combination of a frame, a bearing mounted on the frame, and provided with a support a cutter head journaled in the bearing, a rail or bar for supporting the boards, a link having one end movably mounted on the support of said bearing for the cutter-head and the other end pivoted to the rail for raising and lowering said rail, a clamp for retaining the rail in its adjusted position, and jaws movable along said rail for clamping the boards and moving the same across the face of the cutters, substantially as and for the purpose described.

15. In a grooving machine, the combination of a frame, a bearing mounted on the frame and provided with a support, a cutter head journaled in the bearing, a rail or bar for supporting the boards, links having corresponding ends movably mounted on the support of said bearing for the cutter-head and their other ends pivoted to the opposite ends of the rail, a screw for adjusting the rail, clamps for holding the rail in its adjusted position, and clamping jaws movable lengthwise of said rail, substantially as and for the purpose specified.

16. In a grooving machine, the combination of a frame having a longitudinal guide and a transverse guide arranged at substantially right angles to the former guide, a cutter head supporting bearing movable along the longitudinal guide and having a support for the boards to be grooved secured thereto, and arranged in a plane, substantially parallel with the transverse guide, a pair of rocking levers or links having corresponding ends pivoted to the opposite ends of said support, a rail or bar pivotally supported upon the other ends of said links for engaging said boards, means for retaining said rail in its adjusted position, and jaws for clamping said boards movable lengthwise along said support for feeding the boards across the adjacent face of the cutter head, substantially as and for the purpose described.

17. In a grooving machine, the combination of a frame provided with a guide, bearings movable along the guide, a support for the articles to be grooved, a cutter head journaled in the bearing, a carriage movable on the frame in a plane arranged at substantially right angles with the plane of movement of the bearing, and jaws for clamping the articles to be grooved mounted on the carriage and movable lengthwise of said support for feeding said articles across the face of the cutter head, said jaws being connected to the movable bearing whereby the jaws are moved transversely on said carriage, substantially as and for the purpose specified.

18. In a grooving machine, the combination of a frame provided with a guide, a bearing movable along the guide, a support for the articles to be grooved, a cutter head journaled in the bearing, a carriage movable on the frame in a plane arranged at substantially right angles with the plane of movement of the bearing, jaws for clamping the articles to be grooved mounted on the carriage and movable lengthwise of said support for feeding said articles across the face of the cutter head, said jaws being connected to the movable bearing, whereby the jaws are moved transversely on said carriage, a driving shaft, a second shaft connected to said carriage for feeding the same, connections between the driving shaft and said second shaft for rotating the second shaft in one direction, and connections between said driving shaft and the second shaft for rotating the second shaft in the opposite direction, substantially as and for the purpose set forth.

19. In a grooving machine, the combination of a frame provided with a guide, a bearing movable along the guide, a support for the articles to be grooved, a cutter head journaled in the bearing, a carriage movable on the frame in a plane arranged at substantially right angles with the plane of movement of the bearing, jaws for clamping the articles to be grooved mounted on the carriage and movable lengthwise of said support for feeding said articles across the face of the cutter head, said jaws being connected to the movable bearing whereby the jaws are moved transversely on said carriage, a driving shaft, a second shaft connected to said carriage for feeding the same, connections between the driving shaft and said second shaft for rotating the second shaft in one direction, connections between said driving shaft and the second shaft for rotating the second shaft in the opposite direction, and a shifting device for automatically limiting the return movement of the carriage, substantially as and for the purpose specified.

20. In combination, a frame, a carriage movable upon the frame, a cutter head supported by the frame in a plane at substantially right angles to the plane of movement of the carriage and movable toward and away from said carriage, a support mounted upon the frame and movable simultaneously with the cutter head and formed with a face disposed in a plane substantially parallel with the plane of movement of the carriage, and clamping jaws mounted on the opposite ends of the support and the carriage and movable lengthwise of the support and transversely of the carriage and having engaging faces disposed in planes substantially parallel with the axis of the cutter head for engaging the interposed boards, substantially as and for the purpose specified.

21. In combination, a frame, a carriage movable upon the frame, a cutter head supported by the frame, in a plane at substantially right angles to the plane of movement of the carriage and movable toward and away from said carriage, a support mounted upon the frame and movable simultaneously with the cutter head and formed with a face disposed in a plane substantially parallel with the plane of movement of the carriage, clamping jaws mounted on the support and having engaging faces disposed in planes substantially parallel with the axis of the cutter head for engaging the interposed boards, and laterally extending arms on the carriage for guiding the jaws as the support is moved, substantially as and for the purpose set forth.

22. In combination, a frame, a carriage moving upon the frame, a bearing movable upon the frame in a plane at substantially right angles to the plane of movement of the carriage, a cutter head journaled in said bearing, a support secured to said bearing and formed with a face disposed in a plane substantially parallel with the plane of movement of the carriage, clamping jaws mounted on the support and having engaging faces disposed in planes substantially parallel with the axis of the cutter head for engaging the interposed boards, means for adjusting said jaws toward and away from each other, and laterally extending arms on the carriage adjustable toward and away from each other for supporting the clamping jaws during the movement of the support, substantially as and for the purpose set forth.

23. In combination, a frame, a carriage movable upon the frame, a bearing movable upon the frame in a plane at substantially right angles to the plane of movement of the carriage, a cutter head journaled in said bearing, a support secured to said bearing and formed with a face disposed in a plane substantially parallel with the plane of movement of the carriage, clamping jaws mounted on the support and having engaging faces disposed in planes substantially parallel with the axis of the cutter head for engaging the interposed boards means for adjusting said jaws toward and away from each other, laterally extending arms on the carriage adjustable toward and away from each other for supporting the clamping jaws during the movement of the support, means for feeding the carriage to and fro, and means for preventing the action of said feeding mechanism, substantially as and for the purpose specified.

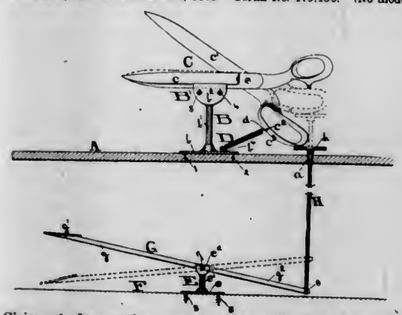
24. In a grooving machine, the combination of a cutter head, a support having a face disposed in a plane at substantially right angles to the axis of the cutter head for supporting the boards arranged edgewise thereon, clamping jaws one of which is formed with a face plate adjustable lengthwise thereon said jaws having engaging faces disposed in planes substantially parallel with the axis of the cutter head for engaging the interposed boards, said jaws being movable along said face of the support for moving the ends of the boards across the cutter head, substantially as and for the purpose specified.

25. In a grooving machine, the combination of a frame, a pair of bearings movable toward and away from each other, means, substantially as described, for rotating the adjacent faces of the cutter heads in the same direction, a pair of supports secured to said bearings and formed with faces for supporting the boards arranged edgewise thereon, a carriage interposed between the bearings and movable in a plane at substantially right angles to the axes of the cutter heads, laterally extending arms mounted on the carriage and movable toward and away from each other, and clamping jaws movable lengthwisely of said supports and lengthwisely of said arms and formed with engaging faces disposed in planes substantially parallel with the axes of the cutter heads for engaging the interposed boards, substantially as and for the purpose specified.

26. In a grooving machine, the combination of a frame, a cutter head mounted on the frame, a screw threaded spindle at one side of the cutter head, a nut for engaging said spindle, separated movable jaws for clamping the boards arranged on opposite sides of the spindle and connected to the nut, and means for moving said jaws, substantially as and for the purpose set forth.

27. In a grooving machine, the combination of a frame, a cutter head mounted on the frame, a screw threaded spindle arranged at one side of the cutter head, a nut movably mounted on the spindle and provided with a guideway, a guidebar registered with said guideway, separated movable jaws for clamping the boards arranged on opposite sides of said spindle and connected to the nut, and means for rotating said spindle and moving the nut along the guidebar, substantially as and for the purpose described.

517,706. HOSIERY-CUTTING APPARATUS. ISAAC MOSSOP, Wiconisco, Pa. Filed June 29, 1893. Serial No. 479,158. (No model.)



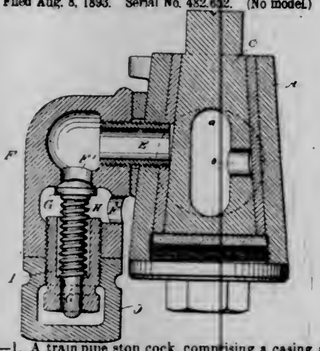
Claim.—1. In a cutting apparatus, the combination of a suitably supported clamp; suitable treadle-mechanism: a reciprocating rod

actuated by such mechanism and provided with a flat disk; and a pair of shears sustained by the clamp and having one of its handles in sliding relation with said disk, substantially as specified

2. In a cutting apparatus, the combination of a suitably supported clamp; suitable treadle-mechanism; a reciprocating rod actuated by such mechanism and provided with a flat disk; a pair of shears sustained by the clamp and having one of its handles in sliding relation with said disk, and a spring for maintaining said handle and disk in such relation, substantially as specified.

3. In a cutting apparatus, the combination of a table; the support B secured to the table by its base-plate b; the clamp B; a pair of shears having one blade secured between the plates b^1 b^2 of the clamp; suitable treadle-mechanism; a vertically reciprocating rod actuated by the latter and terminating in a disk h; the handle of the other blade of the shears being in sliding contact with the face of the disk; and a spiral spring attached to said plate and handle and maintaining the latter in such relation with said disk, substantially as specified.

517,707. TRAIN-PIPE STOP-COCK. JOSEPH O'LEARY, Memphis, Tenn. Filed Aug. 8, 1893. Serial No. 482,652. (No model.)



Claim.—1. A train pipe stop cock, comprising a casing adapted to connect with the train pipe and with the coupling hose, an air outlet arranged in the said casing, a plug mounted to turn in the said casing and provided with the usual main opening adapted to register with the train pipe and the coupling hose and also with the said air outlet, the said plug being also provided with a port adapted to register with the train pipe at the time the said main opening registers with the air outlet, and an automatic releasing valve adapted to be opened by air pressure in train-pipe and closed when such pressure has been reduced to a certain degree substantially as described.

2. A train pipe stop cock, comprising a casing adapted to connect with the train pipe and with the coupling hose, an air outlet arranged in the said casing, a plug mounted to turn in the said casing and provided with the usual main opening adapted to register with the train pipe and the coupling hose and also with the said air outlet, the said plug being also provided with a port adapted to register with the train pipe at the time the said main opening registers with the air outlet, an auxiliary casing connected with the said air outlet, provided with a valve seat and connected with the outer air, and a spring-pressed valve arranged in the said auxiliary casing and normally held to the said seat, substantially as shown and described.

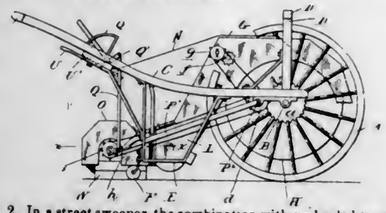
517,708. COVER FOR FRYING-PANS, &c. MARY E. RADICK, White Plains, N. Y. Filed Jan. 10, 1894. Serial No. 496,397. (No model.)



Claim.—A cover for frying pans, gridirons and like culinary vessels, provided with a pendent flange which is upwardly and inwardly curved at its lower edge, forming a groove or channel for the reception of matter which may run from the inner face of the cover, substantially as shown and described.

517,709. STREET-SWEEPER. JAMES B. TILTON, Fresno, Cal., assignor of one-third to Augustus M. Jones, Detroit, Mich. Filed Sept. 19, 1893. Serial No. 485,790. (No model.)

Claim.—1. In a street sweeper, the combination of a wheeled truck, a dust receptacle pivoted on the axle thereof, and normally held with its mouth presented upward, means for dumping the receptacle, a hood covering the receptacle, an elevator trunk communicating with the hood above the receptacle, an elevator therein, an inclined hinged apron at the lower end of the trunk, a rotary brush at the lower end of the trunk, and drive mechanism for the brush and the elevator, substantially as described.

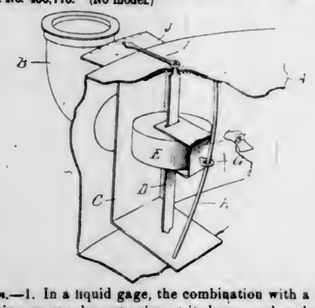


2. In a street sweeper, the combination with a wheeled truck and receptacle thereon of the frame comprising a hood for the receptacle, an elevator trunk connecting into the hood above the receptacle and a brush hood hinged to the lower end of the trunk, the brush, the elevator actuating mechanism therefor, a lever on the truck, and a connection of the lever extending down and secured to the outer end of the brush frame for elevating the same substantially as described

3. In a street sweeper, the combination with a wheeled truck, a frame on the truck, a hood supported on the frame, a trunk, an elevator in the trunk, a brush hood at the lower end of the trunk, a brush therein, means for actuating the brush and elevator, a dust receptacle eccentrically pivoted on the trunk, means for dumping said receptacle, and a stop on the trunk for the receptacle either in its normal or dumped position, substantially as described.

4. In a street sweeper, the combination with the frame, the hood, elevator trunk and a semicircular receptacle pivoted under the hood, having its rear portion formed eccentrically of a curved lip on the upper edge of the lower face of the elevator trunk beneath which the eccentric portion of the receptacle is adapted to engage, and which acts as a stop for the edge of the receptacle when it is dumped, substantially as described.

517,710. LIQUID-GAGE. ALLIE R. WELCH, Chelsea, Mich., assignor of one-half to Frank P. Glazier, same place. Filed July 17, 1893. Serial No. 480,775. (No model.)

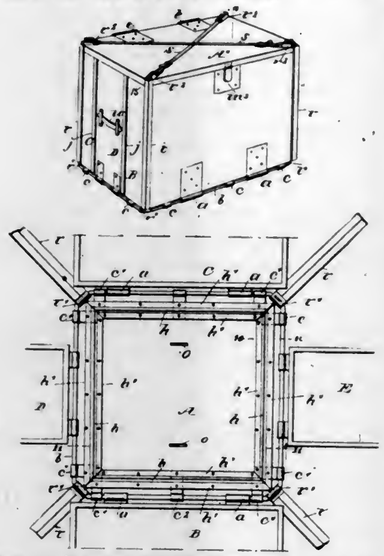


Claim.—1. In a liquid gage, the combination with a tank, of a frame having an angular extension at its lower end and secured at its upper end to the top of the tank, an inclined guide extending from the outer end of the extension to the top, a vertical shaft journaled in the frame having a straight angular portion, an apertured float on the said angular portion, an arm carried by the float and loosely engaging the inclined guide, and a pointer on the upper end of the shaft, substantially as described.

2. A liquid gage for a tank comprising a bracket, a straight vertical shaft journaled therein, having an angular guide portion, an apertured float moving upon the shaft, an arm having portions above and below the float apertured to embrace the shaft and moving with the float, an eye at the end of the arm, an inclined guide bar supported on the bracket and with which the eye on the arm engages, an extension of the shaft through the bracket and tank, an index on the end of the extension, and a scale, substantially as described.

3. In a liquid gage, the combination with the top of the reservoir, of a bracket secured thereon and consisting of a single metal strip bent at right angles at opposite ends, an inclined guide between the bent ends of the support, a straight angular rock shaft journaled in the bent ends, a pointer on the shaft, a float slidingly secured on the shaft, and an arm extending from the float to the inclined guide and loosely engaging the latter, substantially as described.

517,711. TRUNK. WILLIAM H. S. WESTLAKE, Lock 4, Pa. Filed June 23, 1893. Serial No. 478,574. (No model.)



Claim.—1. In a trunk, the combination with a bottom piece, of series of rectangular boxes hinged thereto by their outer edges at lower ends, and a lid adapted to bind the tops of the boxes together, substantially as described

2. In a trunk, the combination with a bottom piece, of boxes hinged thereto by their lower ends, and adapted to fold outwardly or stand upright on said bottom, and a hinged lid adapted to bind the tops of the boxes together, substantially as described.

3. In a trunk, the combination with a rectangular bottom piece, of two boxes hinged to opposite edges of the bottom piece, intervening boxes also hinged to edges of the bottom piece, and a lid hinged to one box and adapted to bind the tops of all the boxes together, substantially as described.

4. In a trunk, the combination with a rectangular bottom piece, of a marginally secured substantially rectangular guard rail, boxes hinged by lower ends upon said rail, and a hinged lid adapted to bind the tops of all the boxes together, substantially as set forth.

5. In a trunk, the combination with a rectangular bottom piece, a substantially rectangular guard rail secured thereto and projected at the edge of said bottom piece, and two boxes approximating in width the length of two opposite sides and hinged thereto so as to be adapted to stand upright on the bottom piece, or receive an outward folding adjustment of two pairs of folding boxes hinged by one edge of one box of a pair to other parts of the guard rail, and a hinged lid, substantially as described.

6. In a trunk, the combination with a bottom piece, a guard rail thereon at its edge, and boxes hinged thereto so as to fold outwardly or stand upright, of elastic joint strips between the boxes, an elastic joint strip between the bottom piece and boxes, and a hinged lid adapted to bind the tops of all the boxes together, substantially as described.

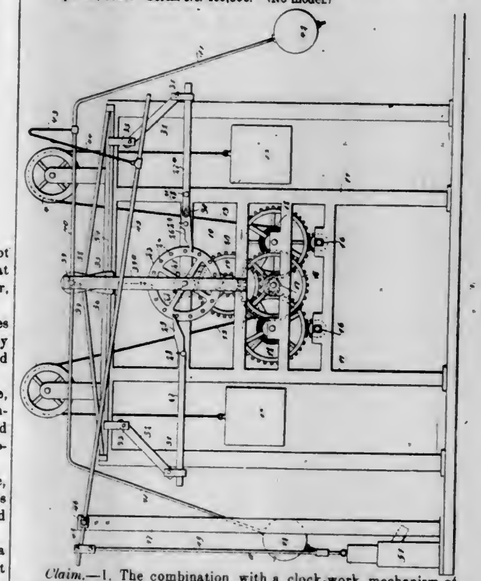
7. In a trunk, the combination with a rectangular bottom piece, and a guard rail secured by transverse plates thereon and conforming to the edge of the bottom so as to project therefrom, of a plurality of boxes hinged to the guard rail and adapted to stand on the bottom or fold outwardly, a lid hinged to one box and binding all together when shut, and means to secure the lid in closed adjustment, substantially as described.

8. In a trunk, the combination with a rectangular bottom piece, a guard rail secured thereon and conforming with the margin of the bottom piece, and two spaced boxes substantially equal in width with the length of opposite sides of the bottom and loosely jointed to the guard rail, of two pairs of folding boxes hinged to opposite parts of the guard rail and adapted to stand between the other boxes, joint strips intervening the folded boxes and spaced boxes, a joint strip between all the boxes and the bottom piece, a hinged lid, a joint piece between the lid and all the boxes, and means to secure the lid in closed adjustment, substantially as described.

9. In a trunk, the combination, with a rectangular bottom piece, a guard rail thereon, two parallel and spaced boxes hinged by lower ends to the rail, two pairs of folding boxes hinged to the rail and intervening the spaced boxes, and a hinged lid adapted to bind the tops of all the boxes together, of hinged angular corner pieces, and adjustable straps extending diagonally on the lid from said corner pieces, substantially as described

10. In a trunk, the combination, with a rectangular bottom piece, a guard rail thereon, two opposite spaced boxes hinged to said rail, and two pairs of folded boxes intervening the spaced boxes and also hinged to the rail, angular corner pieces hinged by lower ends to the corners of the guard rail, buffer holders hinged to upper ends of the angular corner pieces, elastic buffer blocks therein, and adjustable straps extended from the holders, of removable brace bars on the folded boxes, a hinged lid adapted to bind the tops of all the boxes together, elastic joint strips between the boxes, a joint strip between the lid and boxes, a joint strip between the boxes and bottom piece, and elastic buffers on said bottom piece, substantially as described.

517,712. MOTOR. ALBERT K. WHITAKER, La Porte, Ind. Filed Apr. 11, 1893. Serial No. 469,896. (No model.)



Claim.—1. The combination, with a clock-work mechanism of an escapement wheel connected therewith and provided with parallel pins, pallets independently pivoted to the frame of the mechanism on diametrically opposite sides of the said escapement wheel and adapted to engage the pins thereof, an oscillating pendulum, and a driving mechanism between the said pendulum and the said pallets, as set forth.

2. The combination, with a clock-work mechanism of an escapement wheel connected therewith and provided with parallel lateral pins, pallets fulcrumed on the frame of the mechanism and adapted to engage the pins of the escapement wheel on opposite sides thereof, levers fulcrumed on the frame of the mechanism and each pivotally connected with one of the said pallets, a walking beam, pitmen pivotally connected with the ends of the walking beam and the said levers respectively, and a pendulum constructed to be actuated by the movement of the walking beam, as set forth.

3. The combination with the clock-work mechanism, of an oscillating pendulum rod having a pendulum at each end, a vertically moving pump lever connected with a pump to operate it, and a flexible connection between the pendulum rod and the pump lever, substantially as described.

4. The combination, with a clock-work mechanism having a plurality of driving drums provided with cables and suitable weights, of an oscillating pendulum rod having a weight at each end, the rod being operatively connected with the clock mechanism, a weighted and vertically swinging pump lever operatively connected with the pump and adapted to lift the pump piston on its down stroke, and a flexible connection between the pump lever and the pendulum rod whereby the swinging of the rod lifts the lever, substantially as described.

5. The combination, with the weight-propelled clock-work mechanism, of the tilting walking beam actuated by the clock-work mech-

anism, the double pendulum rod having a pendulum at each end, the rod being pivoted at its center adjacent to the walking beam, a crank and pin connection between the walking beam and the pendulum rod, whereby the movement of one actuates the other, a weighted pump lever operatively connected with a pump, and a connection between the pump lever and the pendulum rod, whereby the movement of the rod works the lever, substantially as described.

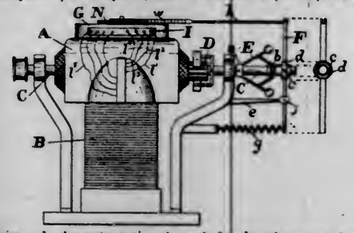
6. The combination, with the clock-work mechanism having an escapement wheel, of tilting levers pivoted adjacent to the clock-work mechanism and connected with the escapement wheel by pallets, a walking beam pivoted on a suitable support above the escapement wheel, pitmen connecting the tilting levers with the walking beam, a swinging pendulum rod having a horizontally-extending portion and depending ends with pendulums thereon, the rod being pivoted adjacent to the walking beam, an operative connection between the walking beam and the pendulum rod, whereby the tilting of the beam moves the rod, a swinging weighted pump lever operatively connected with a pump, and a flexible connection between the pump lever and the pendulum rod, substantially as described.

517,713. BERRY-CRATE. PETER A. WIMBROW, ROBERT S. WIMBROW, and HARRY P. DALE, Whaleysville, Md. Filed July 10, 1893. Serial No. 480,063. (No model.)



Claim.—A rectangular berry crate having each of its front top rail sections composed of a single piece of wood having a deep narrow central groove in its lower edge, and a groove or recess on its upper and inner edge; in combination with the thin slat-strips entered into the deep narrow groove in the lower edge of the rail sections, and a cover or lid fitting bodily down into the recesses of the upper edges, substantially as and for the purpose described.

517,714. GOVERNOR FOR ELECTRIC MOTORS. JOHN F. WINTER, Baltimore, Md., assignor of one-half to James Frank Morrison, same place. Filed Sept. 21, 1893. Serial No. 486,134. (No model.)



Claim.—1. An automatic governor for electric motors having in combination a closed dust-proof box; a shaft in the box having an end projecting outside; two sets of stationary contacts within the closed box and insulated where they pass through the walls of the box and each set arranged in a part circle concentric with the said shaft; and a shunt-lever in the box and mounted on the shaft.

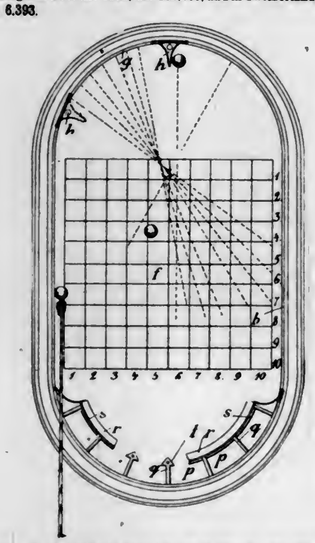
2. An automatic governor for electric motors having in combination a closed dust-proof box: a shaft in the box having an end projecting outside; two sets of stationary contacts within the closed box and each set arranged in a part circle concentric with the said shaft and insulated where they pass through the walls of the box; a shunt-lever in the box and mounted on the shaft; a toothed pinion on the outer projecting end of the said shaft; a roller adjacent to the toothed pinion; a rack-bar held in engagement with the pinion by said roller and adapted to reciprocate endwise; weighted governor links, E, suitably carried by the armature shaft of the motor; and a lever moved by the shifting of said governor links and connected with the rack-bar.

3. An automatic governor for electric motors having in combination a dust-proof box provided with openings in its side walls; segmental-shaped insulator blocks in said openings and provided with radial holes; contact-pieces secured in the said radial holes; a shunt-lever pivoted in the box so that, when partially rotating its ends will make contact with the said contact-pieces; and a cover to close the box and exclude the dust and dirt from the said parts which are inclosed.

4. An automatic governor for electric motors having in combination a closed dust-proof box provided with segmental-shaped insulator blocks in its side walls; headed contact-pieces, *b'*, in said insulator blocks—the heads projecting on the inner side; wire-binding sockets having screw-shanks—each shank entered into the insulator blocks from its outside and engaging one of the said headed contact-pieces; and a shunt-lever pivoted in the closed block so that when partially rotating its ends will make contact with the said projecting contact-heads.

5. An automatic governor for electric motors having in combination a closed dust-proof box; two sets of stationary contact pieces within the closed box and insulated where they pass through the walls of the box and arranged in a part circle concentric with the center; and a shunt-lever pivoted in the center of the closed box and having spring-pressed end-pieces to make contact with the said stationary contact-pieces.

517,715. BILLIARD-TABLE. ANTON WORBS, Hanover, Germany. Filed Jan. 11, 1893. Serial No. 458,043. (No model.) Patented in Germany Nov. 6, 1892, No. 70,798; in France Nov. 23, 1892, No. 225,880; in Belgium Nov. 23, 1892, No. 102,285, and in Switzerland Nov. 23, 1892, No. 6,393.



Claim.—1. A billiard table having a central playing surface and having a curved guide rail, a ball path located at one side of the playing surface and having a continuation lying adjacent to said guide rail, and a movable deflector adapted to be placed at different positions along said curved guide rail to give it different angular positions with respect to the playing surface said deflector having beveled portions for frictionally engaging said guide rail, substantially as described.

2. A billiard table having its central portion provided with a playing surface and having its edges provided with a cushion, and a ball path adjacent thereto and a movable deflector unconnected with the table, having a beveled portion for frictionally engaging the cushion whereby said deflector may be moved bodily along said ball path and secured in any desired position by friction, sustantially as described.

3. A billiard table having a central playing surface, divided by intersecting lines into a series of counting divisions covering the whole of said playing surface, said table having a guide rail extending along one side of the playing surface and provided with a curved portion adjacent to one end of the said playing surface, a series of balls on said playing surface, a ball path lying adjacent to said guide rail, and a deflector unconnected with the table adapted to frictionally engage the curved portion of said guide rail and to be moved bodily along the same, to cause said deflector to assume different angular positions with respect to said playing surface and a playing ball for said ball path, substantially as described.

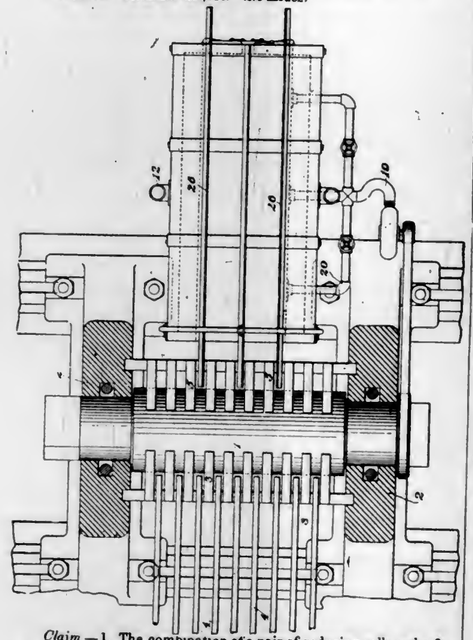
4. A billiard table provided with a central playing surface, a ball path having a curved portion adjacent to one end of said playing surface, a deflector movable bodily around the curved portion of the ball path and held by frictional contact with portions of the table, whereby

the angle of the deflector is changed with respect to the playing surface, substantially as described.

5. A billiard table having a central playing surface divided by intersecting lines into a series of counting divisions covering the whole of said playing surface, a series of pockets at one end of said playing surface each provided with an integral closing flap of flexible material secured thereto and adapted to yield inwardly to permit the entrance of a ball, said table having a side rail provided with a curved portion adjacent to one end of the playing surface, a ball path adjacent to said side rail and a deflector movable bodily along the curved portion of said side rail, to give it different angular positions with respect to the playing surface said deflector having portions to frictionally engage the curved portion of said side rail, substantially as described.

6. A billiard table having a playing surface divided into a series of counting divisions arranged in rows extending longitudinally and transversely of the table, of a series of numerals arranged adjacent to one of the longitudinal rows of divisions and a series of numerals located adjacent to one of the transverse rows of divisions, substantially as described.

517,716. ROLLING-MILL. RICHARD G. WOOD, Allegheny, assignor to the W. Dewees Wood Company, McKeesport, Pa. Filed Dec. 20, 1893. Serial No. 494,219. (No model.)



Claim.—1. The combination of a pair of reducing rolls and a furnace for heating the article, and means for shifting the furnace, whereby it may be adjusted for the reception and return of the article, substantially as set forth.

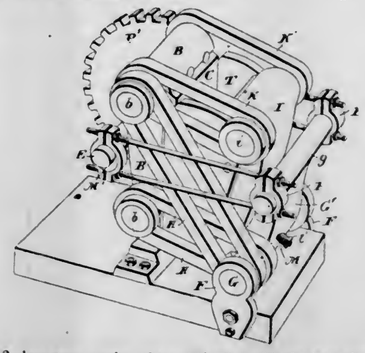
2. The combination of a pair of reducing rolls, a furnace provided with guides for directing the article being rolled into and out of the furnace, and means for moving the furnace vertically, substantially as set forth.

3. The combination of a pair of reducing rolls, a pivotally mounted furnace adapted to receive the article as it comes from the rolls, and means for raising the furnace for the return of the article to the front of the rolls, substantially as set forth.

4. The combination of a pair of reducing rolls, a furnace provided with guides for directing the article being rolled into the furnace, means for moving the furnace, and guides for receiving the article from the rolls when the furnace is shifted out of the line of feed of the rolls, substantially as set forth.

517,717. ROCK-CRUSHER. CHARLES E. WYMAN, Martinsburg, assignor of one-half to John H. Stotsenburg, New Albany, Ind. Filed July 20, 1893. Serial No. 481,062. (No model.)

Claim.—1. In a stone-crusher, the combination of a stationary jaw, a movable jaw, a link extending from the upper end of one jaw to the upper end of the other, and pivoted to both, to permit the movable jaw to move vertically, a rock shaft, and connections between the latter and the lower portion of the movable jaw, whereby the latter is moved toward and from the other, and vertically substantially as and for the purpose specified.

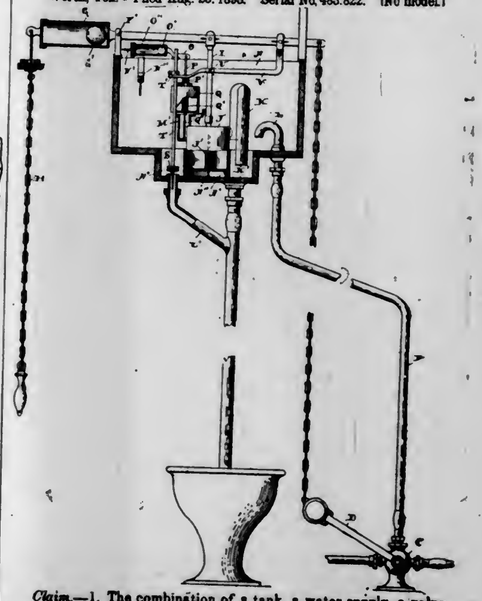


2. In a stone-crusher, the combination with the jaws thereof the shaft for vibrating one relative to the other, of journals for said shaft, and links extending from relatively fixed points to such shaft, to support the same substantially as and for the purpose shown.

3. The stone-crusher frame, consisting of a bed or base, a standard which constitutes or supports the stationary jaw, journal bearings for the actuating rock-shaft and links that connect such standard with said rock-shaft and with the movable jaw, substantially as and for the purpose set forth.

4. The stone-crusher described consisting of the bed-plate, the standard which constitutes or supports the stationary jaw, the rock-shaft, the movable jaw pivotally connected near one end to the periphery of such shaft, the links that connect the upper end of said movable jaw with the standard, the links which connect said standard with said rock-shaft, the driving shaft provided with eccentrics and the straps and rods that connect said eccentrics with the rock-shaft, substantially as and for the purpose shown and described.

517,718. FLUSHING APPARATUS. GEORGE D. ACKLEY, Fort Worth, Tex. Filed Aug. 23, 1893. Serial No. 483,822. (No model.)



Claim.—1. The combination of a tank, a water supply, a valve for controlling the same, a vertically moving lever for operating the valve, a second lever fulcrumed between its ends and connected at one end to the first named lever, and a valve in the bottom of the tank operated by the opposite end of the said second lever, whereby when

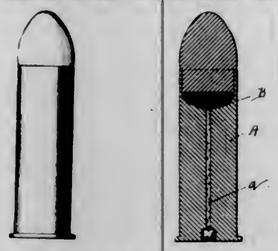
the first named lever is elevated for the purpose of opening the supply valve the said valve in the tank bottom is closed and vice versa, substantially as shown and described.

2. The combination of a tank, a valved supply, a lever adapted to swing vertically over the tank for operating the valve of the supply, a means for automatically controlling the downward movement of the lever, lever V connected at one end to the said first named lever, and a valve in the tank bottom adapted to be operated by the said lever V, whereby when the said first named lever is elevated the said valve will be closed and when lowered automatically the valve will be opened, substantially as shown and described..

3. The combination of a tank, a valved supply, a lever adapted to swing vertically over the tank for operating the valve of the supply, a float in the valve for controlling the downward movement of the lever, a means for discharging the water from the tank, lever V fulcrumed between its ends and connected at one end to the said first named lever, a valve in the bottom of the tank, a vertically movable rod to which it is secured and an adjustable connection between the said rod and the free end of lever V, substantially as shown and described.

4. The combination of a tank, a vertically swinging lever controlling the water supply, lever V connected at one end to the first named lever and forked at its opposite end, a valve controlling a discharge in the tank bottom, a stem therefor, an adjustable stop carried by the rod which is engaged by the fork of lever V and a siphon discharge independent of the valved discharge, substantially as shown and described.

517,719. PRACTICE-CARTRIDGE. GEORGE D. R. AIKIN, Louisville, Ky. Filed Aug. 19, 1893. Serial No. 483,504. (No model.)



Claim.—As a new article of manufacture, a cartridge shell or blank of the usual length, and formed of a single piece of metal, the internal solid portion thereof extending a portion of its length, whereby the explosive chamber of the shell or blank is reduced in length, and a small longitudinal bore or passage through said solid internal portion and communicating with the cap or anvil seat, substantially as specified.

517,720. LINE-CHALKING APPARATUS. CARL E. ANDERSON, Wood's Holl, Mass. Filed Nov. 16, 1893. Serial No. 491,101. (No model.)



Claim.—1. A line chalking apparatus, consisting of a two compartment box, one compartment of which is made V-shaped at the bottom and is adapted to receive the chalk, and the other of which is provided with a spool or reel, guide rollers arranged respectively in the partition between the compartments and the bottom of the V-shaped chamber, and the chalk line wound about the reel and descending to and passing around the roller in the bottom of the V-shaped chalk chamber substantially as and for the purpose described.

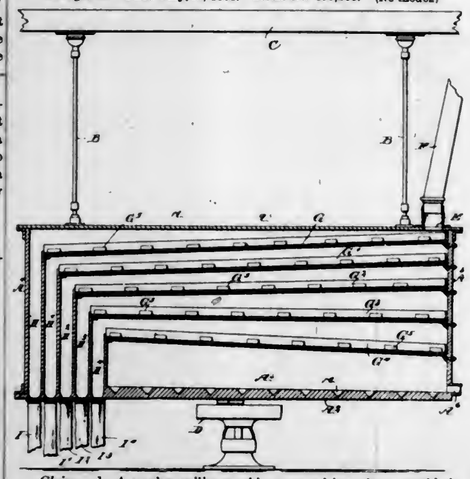
2. In a line chalking apparatus, the combination with the compartment for chalk; of a guide roller for the line arranged in the bottom of said chalk compartment, and means for locking said roller there or removing it substantially as shown and described.

3. In a line chalking apparatus, the combination of grooved walls A^4 A^4, the roller H, and retaining sides h h substantially as and for the purpose described.

4. A line chalking apparatus consisting of a two compartment box, one compartment of which is made V-shaped at the bottom and is adapted to receive the chalk, and the other of which is provided with a spool or reel, guide rollers arranged respectively in the partition between the compartments, in the bottom of the chalk chamber, and the external wall of the box, and the chalk line passing over the rollers in the partition and box wall, and under the roller in the bottom of the chalk chamber substantially as shown and described.

5. The combination of the box A having two compartments with laterally adjustable roller D in the partition between the compartments, the spool B arranged in one compartment to receive the line, roller H arranged in the bottom of the chalk chamber, roller F arranged in the side of the box, and the chalk line wound about the reel and over the guide rollers and having attached outside the box a ring I with sharpened peg or pin G substantially as and for the purpose described.

517,721. GRADER AND AMALGAMATOR. JOHN A. ARMBRUSTER, Chicago, Ill. Filed July 12, 1893. Serial No. 480,203. (No model.)

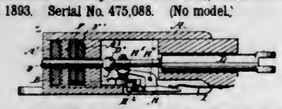


Claim.—1. A grader or like machine, comprising a box, provided with a suitable inlet, means for imparting a gyratory motion to the said box, and a series of superposed graduated sieves located in the box, the upper sieves being inclined downwardly toward their delivery ends so that the coarser particles will be accelerated in their motion toward the delivery ends of the said sieves, the lower sieves being fed by the upper ones, and inclined upwardly toward their delivery ends, to retard the finer particles and thus maintain a supply to the lower sieves equal to their full capacity, substantially as described.

2. A grader and amalgamator comprising a gyrating box connected at its top near one end with a stock supply, a series of graduated sieves arranged one above the other within the said box, the uppermost sieves being inclined in an opposite direction to the lowermost sieves, outlets arranged within the said box at the discharge ends of the said sieves, and a receiving chamber formed within the box below the lowermost sieve and provided in its bottom with pockets adapted to receive mercury, substantially as shown and described.

3. A grader and amalgamator comprising a gyrating box connected at its top near one end with a stock supply, a series of graduated sieves arranged one above the other within the said box, the uppermost sieves being inclined in an opposite direction to the lowermost sieves, outlets arranged within the said box at the discharge ends of the said sieves, a receiving chamber formed within the box below the lowermost sieve and provided in its bottom with pockets adapted to receive mercury, and a water outlet leading from the said chamber, substantially as shown and described.

517,722. SWITCH-LOCK. SAMUEL E. BARLETT, Red Bank, assignor of one-half to Benjamin B. Mathews, Bound Brook, N. J. Filed May 22, 1893. Serial No. 475,088. (No model.)



Claim.—1. A switch lock comprising a plunger or bolt under the control of the operator and adapted to engage the switch bar to lock the same in place, plates adapted to be engaged by the said bolt, and a mechanism controlled by the said bolt for shifting the said plates, substantially as shown and described.

2. A switch lock comprising a plunger or bolt under the control of the operator and adapted to engage the switch bar to lock the

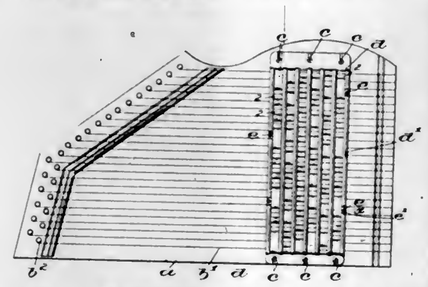
same in position, plates mounted to slide and adapted to be engaged by lugs on the switch bar, the said plates being provided with apertures adapted to register with the said plunger to be engaged by the same, and spring-pressed levers for shifting the said plates and adapted to be locked or unlocked by the said plunger, substantially as shown and described.

3. A switch lock comprising a switch bar provided with lugs, a plunger or bolt under the control of the operator and adapted to engage the said switch bar to lock the same in position, sliding plates adapted to be moved inward by the said lugs on the switch bar, spring-pressed levers connected with the said plates, and a second set of levers adapted to lock the said first-named set of levers and controlled by a projection on the said plunger, substantially as shown and described.

4. A switch lock comprising a casing, a plunger fitted to slide therein and under the control of the operator, plates fitted to slide in opposite directions in the said casing and having apertures adapted to be engaged by the said plunger, spring-pressed levers engaging the said plates to move the latter outward, a second set of spring-pressed levers arranged within the said casing, and a projection on the said plunger and adapted to engage the second set of levers to unlock the first set of levers, substantially as shown and described.

5. A switch lock comprising a casing, a plunger fitted to slide therein and under the control of the operator, plates fitted to slide in opposite directions in the said casing and having apertures adapted to be engaged by the said plunger, spring-pressed levers engaging the said plates to move the latter outward, a second set of spring-pressed levers arranged within the said casing, a projection on the said plunger and adapted to engage the second set of levers to unlock the first set of levers, and a switch bar passing through the said casing and adapted to be engaged by the said plunger, the said switch bar being provided with adjustable lugs arranged on opposite sides of the casing to engage the said plates, substantially as shown and described.

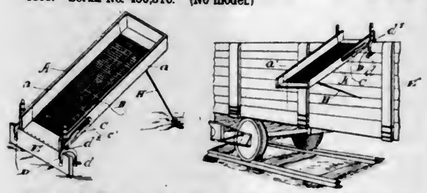
517,723. HARP. WILLIAM W. BATCHELDER, Jr., Boston, Mass., assignor to the Phonoharp Company, Berwick, Me. Filed May 9, 1893. Serial No. 473,519. (No model.)



Claim.—1. The combination with a harp, its strings, and a bridge crossing said strings, of one or more leveling devices for said bridge by which the vertical distance of said bridge from said strings may be adjusted or varied, substantially as described

2. The combination with a harp, its strings, and a bridge crossing said strings and supported at its ends; of one or more adjustable leveling devices by which to adjust and control the distance vertically of the bridge between its end-supports, from the strings, substantially as described

517,724. SCREEN. LOUIS G. BEERS, Chicago, Ill. Filed Sept. 23, 1893. Serial No. 486,310. (No model.)



Claim.—1. The combination with a screen, of a rod secured thereto and longitudinally therewith, a sliding collar on said rod, a supporting staff adjustably secured to the collar, a pair of clamps having set-screws to secure them to a support, and upright standards having openings therein for engagement with the end of the screen frame, substantially as described.

2. In a screen the combination with the frame A, having the adjustable braces C, provided with lugs or pins c^3, secured to the sides of the frame, of a rod secured longitudinally to the frame, a sliding collar on said rod, a supporting staff adjustably secured to the collar, a pair of clamps having upright standards provided with openings therein for engagement with the screen-frame, and having means for securing them to the support, substantially as described.

3. The combination with a screen of a support longitudinally adjustably attached thereto, a pair of clamps having upright standards provided with openings therein for engagement with the screen-frame, and having means for securing them to the support, substantially as described

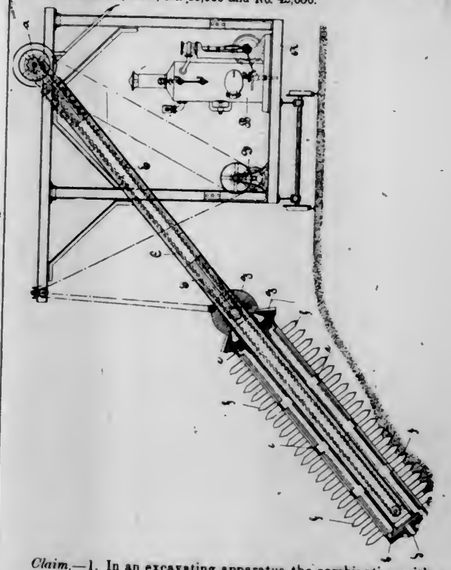
4. In a screen the combination with the frame A, having the adjustable braces C, provided with lugs or pins c^3, secured to the sides of the frame, of the rod F, secured longitudinally to the frame, the sliding collar g, on said rod, the arm h fulcrumed to the collar and having a cam to engage the rod F, and the rod H, secured to the arm h, all constructed, arranged, and operating substantially as and for the purpose set forth.

517,725. SCARF-PIN. HENRY BORNSTEIN, Boston, Mass. Filed Oct. 17, 1893. Serial No. 488,383. (No model.)



Claim.—As an improved article of manufacture, a safety pin for scarfs and other purposes, consisting of a pointed shank A, a downwardly projecting front prong A^3, a bent or curved portion A^2 connecting the shank and front prong and lying substantially in the plane thereof, and a projecting shank B provided with a setting and rigidly fixed on the said front prong between the pointed extremity thereof and the bent or curved portion which connects the front prong with the shank A, substantially as and for the purposes described.

517,726. EXCAVATING OR DREDGING MACHINE. JULIUS E. A. BRAUN, Dautzschen, near Torgau, Germany. Filed June 11, 1892. Serial No. 436,356. (No model.) Patented in Germany Mar. 27, 1892, No. 66,619; in England Apr. 22, 1892, No. 7,652, and in Austria-Hungary Sept. 29, 1892, No. 18,593 and No. 42,056.



Claim.—1. In an excavating apparatus, the combination with a suitable supporting frame, of a driving shaft rotatably mounted therein, an inclined elevator frame loosely mounted at one end upon the driving shaft and adapted to be raised and lowered thereupon, as described, the upper side of said elevator frame being open to permit the excavated material to be discharged therethrough, a rotatable shaft carried by the elevator frame at its opposite end, an endless bucket chain arranged within the said elevator frame and mounted upon the said rotatable shaft and the driving shaft and adapted to

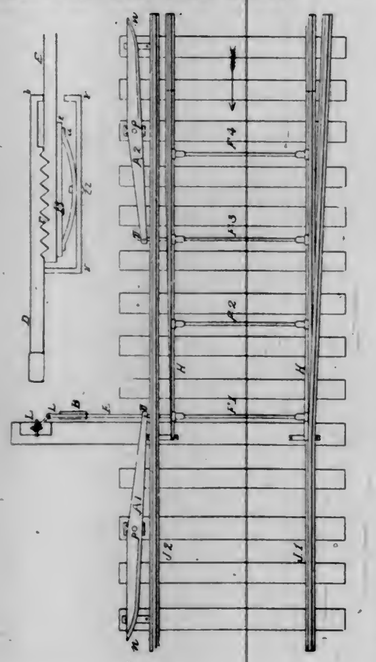
receive the excavated material, a cylinder mounted over and rotatably supported by the elevator frame, said cylinder being provided with a series of openings, and a series of cutting blades carried by the cylinder, as and for the purpose specified.

2. In an excavating apparatus, the combination with a suitable supporting frame, of a driving shaft rotatably mounted therein, an inclined elevator frame loosely mounted at one end upon the driving shaft and adapted to be raised and lowered thereupon as described, the upper side of said elevator frame being open to permit the excavated material to be discharged therethrough, a rotatable shaft carried by the elevator frame at its opposite end, an endless bucket chain arranged within the said elevator frame and mounted upon the said rotatable shaft and the driving shaft and adapted to receive the excavated material, a cylinder mounted over and rotatably supported by the elevator frame, said cylinder being provided with a series of circumferentially arranged cutting blades and with a series of openings, said blades being curved and adapted when rotated to raise the excavated material and discharge the same through the openings of the cylinder onto the bucket chain, as and for the purpose specified.

3. In an excavating apparatus, the combination with a suitable supporting frame, of a driving shaft rotatably mounted therein, an inclined elevator frame loosely mounted at one end upon the driving shaft and adapted to be raised and lowered thereupon as described, the upper side of said elevator frame being open to permit the excavated material to be discharged therethrough, a rotatable shaft carried by the elevator frame at its opposite end, an endless bucket chain arranged within the said elevator frame and mounted upon the said rotatable shaft and the driving shaft and adapted to receive the excavated material, a cylinder mounted over and rotatably supported by the elevator frame, said cylinder being provided with a series of openings, a series of cutting blades carried by said cylinder, and gearing between the driving shaft and the cylinder for rotating the latter at a slower speed in relation to that at which the bucket-chain is moved, for the purpose specified.

4. In an excavating apparatus, the combination with a suitable supporting frame, of a traveling bucket chain adapted to raise the excavated material, a revolving drum or cage surrounding said bucket chain and provided with a number of openings, a series of cutting blades carried by said drum and adapted to excavate and raise the material and discharge it through the openings, and inclined plates arranged beneath the said openings and adapted to form hoppers for facilitating the discharge of the material onto the traveling chain, as described.

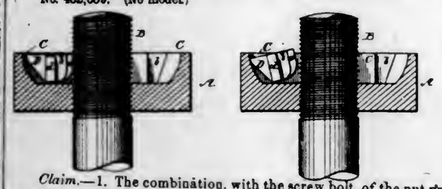
517,727. RAILROAD-SWITCH. FRANK BROWN, Cincinnati, Ohio. Filed Nov 8, 1893. Serial No. 490,388. (No model.)



Claim.—1. In switches, levers A' and A^2 pivoted at *p*, *p*, communicating with connecting rods D, E, F' and F^2, and lock B, all combined and arranged to operate rails H, H, substantially as shown and described.

2. Lock B to which is connected the connecting rods D and E, substantially as shown.

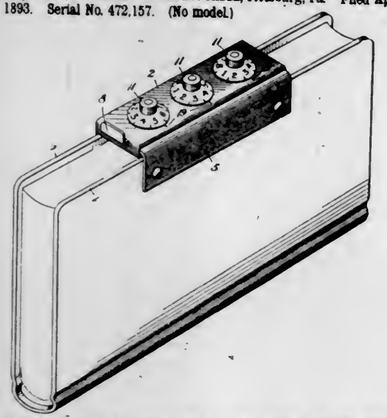
517,728. NUT-LOCK. JOSEPH H. BURROWS, Globe, Ariz., assignor to Gustavus Hyman, San Francisco, Cal. Filed Aug. 1, 1893. Serial No. 482,059. (No model.)



Claim.—1. The combination, with the screw bolt, of the nut provided with one or more recesses in its outside face, opening into the bolt hole of the nut and enlarged on the side intermediately of the length of the recess to form a groove wider at top than bottom, and a key applied to said recess or recesses and constructed with a lateral projection adapted to fit within the groove, but of less width than said groove above the bottom thereof, and constructed to stop short of the top of the key, substantially as herein shown and described and for the purpose set forth.

2. In a nut lock, the combination, with the screw bolt B, of the nut A having one or more recesses C opening into the bolt-hole of the nut, and constructed to form an inwardly tapering lateral groove *b* intermediate of the length of each recess, and of the canting key or wedge D, constructed with a sharpened inner end *e*, and with a lateral projection *d* of less width than the groove *b* above the bottom thereof and made to stop short of the top of the key, essentially as shown and described and for the purposes specified.

517,729. LOCK. DANIEL J. CABLE, Pittsburg, Pa. Filed Apr. 28, 1893. Serial No. 472,157. (No model.)



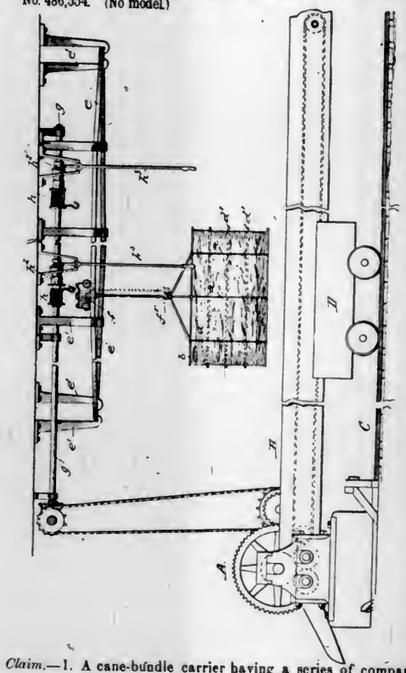
Claim.—1. A lock, comprising a case or shield, having openings in the side for the insertion of a hasp plate; a plate provided with downwardly projecting lugs for engaging the hasp plate, capable of longitudinal movement within the case, controlled by one or more dial stems, passing through the openings in the movable plate, and provided with narrow portions designed to register with slotted extensions of said opening, and having at their upper portions numbered or lettered dials, designed to be set to a combination, substantially as shown and described.

2. A lock, comprising a case or shield having openings in the side for the insertion of a hasp plate, a plate provided with downwardly projecting lugs for engaging the hasp plate, and a narrower forwardly extending upturned finger piece capable of longitudinal movement within the case, controlled by one or more dial stems, passing through openings in the movable plate, provided with narrower portions designed to register with slotted extensions of the openings, such openings being located to one side or the other of the center line for the purposes described; the dial stems having at their upper portions numbered or lettered dials, designed to be set to a combination by registering with a fixed point, substantially as shown and described.

3. In combination with a book, satchel or other similar article, a case rigidly secured to one side thereof, provided with a locking-bar capable of longitudinal movement therein, such movement being controlled by one or more dial stems passing through openings in the bar, the stems having narrower flattened portions designed to enter longitudinal extensions of the openings in the bar and provided at their upper portions with numbered or lettered dials, designed to be set to a combination, and a hasp plate secured to the other side of the article provided with inwardly and forwardly shaped lugs designed to enter openings in the side of the case and to be engaged by downwardly projecting lugs on the locking bar, substantially as shown and described.

4. In combination with a book, satchel or other similar article, a case carrying a locking bar capable of longitudinal movement therein, such movement being controlled by one or more dial stems passing through openings in the bar, the stems having narrower flattened portions designed to enter longitudinal extensions of the openings in the bar and provided at their upper portions with numbered or lettered dials designed to be set to a combination: the case being provided with downwardly projecting hooks; removably attached to a retaining bar or plate secured to one side of the article, and a hasp plate secured to the other side of the article, provided with inwardly and forwardly shaped lugs, designed to enter openings in the side of the case, and to be engaged by downwardly projecting lugs on the locking bar, substantially as shown and described.

517,730. APPARATUS FOR CHARGING SUGAR-CANE CARRIERS. OMA CARR, Washington, D. C. Filed Sept. 26, 1893. Serial No. 486,554. (No model.)



Claim.—1. A cane-bundle carrier having a series of compartments adapted to be successively opened to drop the cane bundle in installments, substantially as described.

2. The combination of a cane-carrier a bundle-carrier consisting of a series of compartments adapted to drop the cane in installments, and mechanism for suspending the bundle over the cane-carrier, substantially as described.

3. In combination with a cane-carrier, a bundle-carrier consisting of a series of superimposed compartments adapted to be emptied successively upon the cane-carrier, substantially as described.

4. A compartment bundle-carrier consisting of a series of encircling chains or bands detachably connected together and a series of detachable divisional chains or bands forming the compartments, substantially as described.

5. A compartment cane-bundle carrier consisting of encircling chains detachably connected together at their upper and lower ends, and a series of divisional chains connecting the encircling-chains at intervals, said divisional chains being formed in detachable sections, substantially as described.

6. A cane-bundle carrier consisting of two sets of encircling chains, each set having their upper and lower ends connected to rods, means for detachably connecting the adjacent rods, and a series of detachable divisional chains forming the compartments, substantially as described.

7. A cane-bundle carrier consisting of two sets of encircling chains, each set having their upper and lower ends connected to rods, means for detachably connecting the adjacent rods, substantially as described.

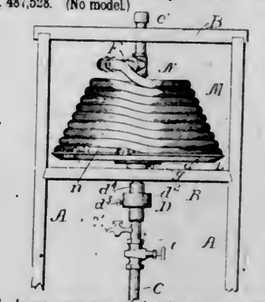
8. A cane-bundle carrier consisting of two sets of encircling chains, each set having their upper and lower ends connected to rods, means for detachably connecting the adjacent rods, and a series of detachable divisional chains forming the compartments, said divisional chains being formed in sections whose inner ends are connected to rods, and means for also detachably connecting these adjacent rods, substantially as described.

9. In a cane-bundle carrier, the combination of the encircling chains connected at their ends to horizontal rods and the divisional chains connected at their free ends to rods, means for detachably connecting each pair of rods, said means consisting essentially of headed lugs projecting from one rod and recessed pieces projecting from the adjacent rod, substantially as described.

10. The combination of a conveyer, an endless overhead track having a portion of its length arranged directly over said conveyer and another portion to one side the same, blocks traveling on said track and carrying a bundle-engaging hook, bundle-carriers adapted to be suspended from said hook, an overhead shaft and means for continuously revolving it, loose drums at intervals on said shaft and friction clutches controlling the drums, and ropes depending from the drums, substantially as described.

11. The combination of a conveyer, a pair of overhead endless tracks, said tracks having their inner portions parallel and directly over the conveyer and their outer portions alongside the conveyer, carriages or blocks on said overhead tracks, bundle-carriers adapted to be suspended from the carriages, overhead shafts on opposite sides of the conveyer, lifting drums on these shafts, and means for controlling the movements of the lifting-drums, substantially as described.

517,731. HOSE-REEL WILLIAM N. CASSON, Marinette, Wis., assignor of one-half to John J. Casson, same place. Filed Oct. 7, 1893. Serial No. 487,528. (No model.)



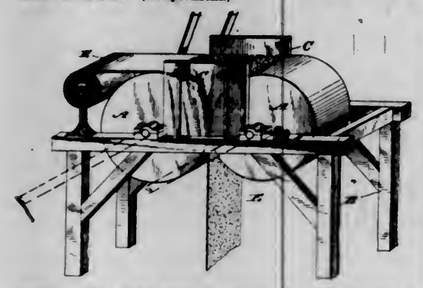
Claim.—1. In an apparatus of the character described, the combination with the fixed pipe C, revoluble pipe E and a union connecting the two; of the branch pipe F; the hose N connected thereto; the conical reel M, rigidly attached to said pipe E; the valve *c*; and the drain cock *c'*, substantially as and for the purposes described.

2. In an apparatus of the character described, the combination with the fixed pipe C, revoluble pipe E, closed as at *c'*, and the union D connecting said fixed pipe and said revoluble pipe; of the branch pipe F; the hose N connected thereto; the hubs G and G rigidly attached to said revoluble pipe E, and a conical framework mounted upon said hubs, substantially as and for the purposes described.

3. In an apparatus of the character described, the combination with the fixed pipe C, revoluble pipe E, closed as at *c'* and the union D connecting said fixed pipe and said revoluble pipe; of the branch pipe F; the hose N connected thereto; the hubs G and G' rigidly attached to said revoluble pipe E, the arms *h* and *h'*; rings K and K'; staves *m*; and annular shelf L, substantially as and for the purposes described.

4. In an apparatus of the character described, the combination with the fixed pipe C, revoluble pipe E, closed as at *c'* and the union D connecting said fixed pipe and said revoluble pipe; of the branch pipe F; the hose N connected thereto; the hubs G and G' rigidly attached to said revoluble pipe E, the arms *h* and *h'*; rings K and K'; staves *m*; and annular shelf L; the valve *c* and drain cock *c'* substantially as described

517,732. PROCESS OF ENAMELING PAPER OR OTHER FABRICS. WILLIAM H. H. CHILDS, New York, N. Y. Filed Mar. 30, 1892. Serial No. 426,703. (No specimens.)

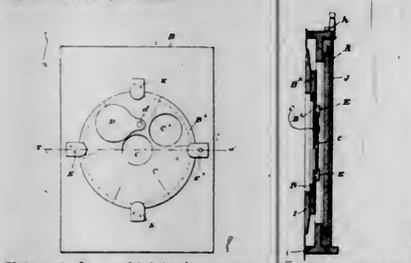


Claim.—1. The herein described method of manufacturing imitation pebbled leather, consisting in applying the heated pitch or analogous coating material to paper or other fabric, and subjecting the coating to a heat sufficient to foam the coating and simultaneously deprive it of its volatile properties, substantially as described.

2. The herein described method of manufacturing enameled fabrics, consisting in heating a substance such as pitch, applying the same to paper or other fabric by running the latter through such substance, and immediately subjecting the coating to a heat sufficient to deprive it of its volatile properties, and simultaneously to a rolling pressure, substantially as described.

3. In the manufacture of enameled fabrics, the herein described method of finishing the same, consisting in subjecting the applied coating to a heat sufficiently high to materially deprive it of volatile properties and markedly raise its melting point, substantially as described.

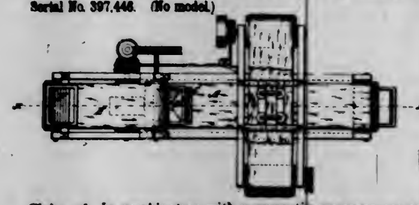
517,733. PHOTOGRAPHIC-CAMERA MULTIPLYING ATTACHMENT. DAVID S. COLE, Washington, Iowa. Filed Mar. 16, 1893. Serial No. 466,333. (No model.)



Claim.—1. In a multiplying attachment for photographic cameras, the combination of the plate B having the circular opening B', fixed buttons E E and movable button E', the rotary disk C having two apertures and a shutter or cover D pivoted to the disk C so as to cover either of said apertures, substantially as described.

2. In a multiplying attachment for photographic cameras, the combination of the plate B having the circular opening B' and fixed buttons E E and movable button E', the rotary disk C, having a central aperture c and a side aperture c', and a shutter or cover D pivoted to the disk C so as to cover either of said apertures, all arranged substantially in the manner and for the purpose specified.

517,734. FEEDING MECHANISM FOR MAGNETIC SEPARATORS. GORDON COWLING, Glens Falls, N. Y. Filed June 25, 1891. Serial No. 397,446. (No model.)

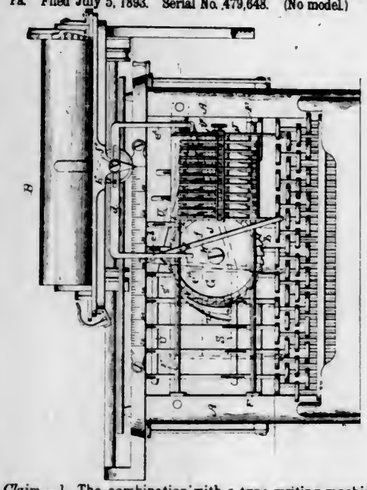


Claim.—1. In combination with a magnetic ore separator comprising the rapidly and slowly moving belts, one mounted above the other, mechanism substantially as described for operating said belts, of a chute conveying ore from one belt to the other, and a fan blower connected to and adapted to deliver a current of air into said chute whereby the velocity of the ore is increased, substantially as described.

2. The combination with an ore separator provided with rapidly and slowly moving belts one mounted above the other, of a chute B, having a bent nozzle C, at its delivery end, and a fan blower D, provided with an inclined spout E' said spout being connected to the chute in a line with the nozzle C, whereby the air from the fan is directed in the nozzle, substantially as and for the purpose set forth.

3. In an ore separator, the combination with the belts A, E, one mounted above the other, mechanism, substantially as described, for driving said belts, of a vertical chute B intermediate of the belts and adapted to deliver ore from one to the other, a bent nozzle C on the discharge end of the chute, the bend of which is in the direction of the travel of the belt, an air-blast connected to the chute in a line substantially straight with that of the delivery end thereof, and a connection with the mechanism driving the belt with that of the air-blast whereby the latter is driven therefrom, substantially as and for the purpose set forth.

517,735. NUMERAL ADDING OR SUBTRACTING ATTACHMENT FOR TYPE-WRITING MACHINES. JAMES D. DAUGHERTY, Kittanning, Pa. Filed July 5, 1893. Serial No. 479,648. (No model.)



Claim.—1. The combination with a type writing machine, of a computing mechanism situated on a line drawn from the key board to the type writer carriage, connections between the type writer keys and the computing mechanism and an operating connection between the carriage feed mechanism and the said computing mechanism.

2. The combination with a type writing machine, of a supporting plate secured to the inner side of the carriage frame between it and the key board and below the carriage, a computing mechanism supported by the said plate, connections between the type writer keys and the computing mechanism and an operating connection between the said carriage feed mechanism and the computing mechanism.

3. The combination with a typewriting machine, of a computing mechanism comprising a carriage carrying numeral wheels, the said carriage moving in a horizontal line across the said typewriter between the key board thereof and the carriage feed mechanism, and a register actuating wheel operated by the keys across which the said computing mechanism moves, and an operating connection between the carriage feed mechanism of the typewriter and the computing mechanism for moving the latter across the said register actuating wheel.

4. The combination with a type writing machine, of a computing mechanism comprising a register actuating wheel situated between the key board and carriage feed mechanism of the type-writer, a computing carriage carrying numeral wheels situated between said register actuating wheel and the key board, actuating connections between said wheel and the key board, and an operating connection between the carriage feed mechanism and the computing carriage.

5. The combination with a type-writing machine, of a computing mechanism having an upright carriage supported on a line drawn from the key board to the type writer carriage and carrying numeral wheels, connections between the computing mechanism and the type writer keys, and an operating connection between the type-writer carriage feed mechanism and the said upright carriage.

6. The combination with a type writing machine of the Remington type, of a computing mechanism comprising an upright numeral carriage, and an upright register actuating wheel, a connection between the carriage feed of the type-writer and the computing carriage, and operating connections between the type writer keys and the said upright wheel.

7. The combination with a typewriting machine, of a computing mechanism comprising a registering actuating wheel having its face parallel with the travel of the carriage of said machine, a computing carriage carrying numeral wheels moving across the face of said register actuating wheel, and the numeral wheels adapted to intermesh therewith, an operating connection between the key levers of the typewriter and the said register actuating wheel, and an operating connection between the carriage feed mechanism of the typewriter and the said computing carriage.

8. The combination with a type writing machine, of a computing mechanism comprising a carriage carrying numeral wheels, connections between the keys of the type writer and the said numeral wheels, and a connection between the type writer carriage and the computing carriage having an adjustment lengthwise said carriages.

9. The combination with a printing mechanism comprising a carriage, of a computing mechanism comprising a computing carriage carrying numeral wheels, connections between the key levers of the typewriter and the numeral wheels of the computing carriage, and a speed increasing connection between the carriage feed mechanism of the typewriter and the computing carriage, whereby the latter moves a greater distance than the said typewriter carriage for each impression made.

10. The combination with a printing mechanism comprising key levers and a carriage, of a computing mechanism comprising a register actuating wheel, and the computing carriage carrying numeral wheels both situated inside of the key levers of the typewriting machine, an operating connection between the key levers and the register actuating wheel, a register actuating wheel stop, and a connection between the typewriter key levers and the said register actuating wheel stop.

11. The combination with a printing mechanism, comprising key levers and a carriage feed, of a computing mechanism situated between the key board and the carriage feed mechanism, a movable connection between the carriage feed mechanism and the said computing carriage, whereby the same can be thrown out of operative connection with the said printing carriage mechanism.

12. A computing mechanism comprising a register actuating wheel having cogs on its face, a computing carriage supported in a line with and traveling across said wheel and carrying numeral wheels, the numeral wheels adapted to mesh with the said cogs of the register actuating wheel, key levers, operating connections between the key levers and the said actuating wheel, and a feed mechanism for the computing carriage.

13. A computing mechanism comprising a register actuating wheel having cogs upon the edge of its face, key levers and connections between the same and the said wheel, a computing carriage carrying numeral wheels which move across the face of the register actuating wheel, and of a length less than the distance across the face of the said wheel, whereby the actuating wheel can be made to operate the numeral wheels in opposite directions by bringing them in contact with opposite sides of the said actuating wheel, and a feed mechanism for the computing carriage.

14. A computing mechanism comprising a register actuating wheel having cogs upon its face, key levers operatively connected with said wheel, a computing carriage carrying numeral wheels, the said carriage adapted to move across the face of the said register actuating wheel to cause the numeral wheel to engage opposite edges of the register actuating wheel for adding or subtracting, two sets of levers for each set of numeral wheels, said levers carrying pawls engaging the succeeding numeral wheel and shoulders carried by the said numeral wheels for engaging the said levers, and a means for throwing one set of levers out of contact with the numeral wheels and permitting the other set to come in contact therewith, whereby the mechanism is adapted for subtracting and adding.

15. A computing mechanism comprising a register actuating wheel having cogs upon its face, a computing carriage having numeral wheels, a feed mechanism for moving the said computing carriage across the face of the register actuating wheel, key levers, connections between the key levers and the register actuating wheel, a lever for each numeral wheel carrying a shoulder, a pawl upon said lever for engaging the succeeding numeral wheel, a spring for holding the lever toward the axes of the numeral wheel and the shoulder upon the numeral wheel for engaging the said lever, the parts operating as described.

16. A computing mechanism comprising a register actuating wheel, a computing carriage, having numeral wheels, a feed mechanism for moving the same across the face of the said register actuating wheel, the said numeral wheels divided into three sections and each section numbered from 1 to 0, shoulders carried by the numerals for each section thereof, a lever pivoted at one end and having an intermediate shoulder engaged by the shoulder upon the numeral wheels, a spring for holding the said lever inward, and a dog carried by the opposite end of the said lever adapted to engage the succeeding numeral wheel, and connections between the key levers and the register actuating wheel

17. A computing mechanism comprising a register actuating wheel having cogs upon its face, key levers, connections between the key levers and the said register actuating wheel, a computing carriage carrying numeral wheels, a feed mechanism for moving the same across the face of the said register actuating wheel, two levers for each numeral wheel, the said levers carrying intermediate shoulders, projections upon the said numeral wheels adapted to engage the shoulders upon the said levers, springs uniting the said levers, and a cam for moving either of said levers out of operative connection with the said numeral wheels

18. A computing mechanism comprising a register actuating wheel having cogs upon its face, key levers, connections between the key levers and the register actuating wheel, the computing carriage carrying numeral wheels, a feed mechanism moving the said carriage across the face of the register actuating wheel, two levers for each numeral wheel pivoted at one end and carrying pawls at their opposite ends, a spring uniting each pair of levers, the said levers having intermediate shoulders, projections upon the numeral wheels adapted to engage the said shoulders, a pawl upon each lever extending upward and normally inside of the said levers, and a cam adapted to engage first the pawl and then the lever, for forcing either out of operative connection with the numeral wheel.

19. A computing mechanism comprising a register actuating wheel, a carriage carrying numeral wheels which move across the face of said register actuating wheel and engaging opposite sides thereof, a carrying device between the numeral wheels and operated thereby, and a means for throwing the carrying device in operative connection with opposite sides of the numeral wheels for the purpose of adding or subtracting.

517,736. HAND-PUMP FOR INFLATING TIRES, &c. JOHN DICKENS, New Brunswick, N. J., assignor to the Dickens Manufacturing Company, same place. Filed Sept. 26, 1893. Serial No. 486,547. (No model.)



Claim.—1 A hand-air pump for inflating tires and other objects, consisting of a tube or tubular rod having at its outer end portion suitable means to connect with the object to be inflated, and at its inner end portion provided with separated orifices for the inlet of air thereinto, a piston movable on the tube or tubular-rod and composed of a sleeve having a fixed collar, two oppositely disposed cup-shaped packings and a collar permanently fastened to the sleeve, and a hand-operated cylinder adapted to reciprocate longitudinally of the tube or tubular-rod and having valved air inlets at its opposite end portions, substantially as described.

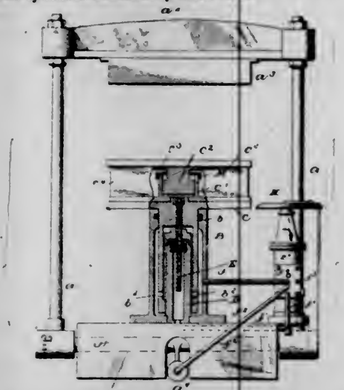
2. The combination in a hand-air pump for inflatiug tires, of a tube or tubular-rod having at its outer end portion suitable means to connect with the object to be inflated, and at its inner end portion provided with separated ports or orifices for the inlet of air thereinto, packed rings mounted on the tube or tubular support and between which the said ports or orifices are located, a piston movable on the tube or tubular rod and composed of a sleeve 31 having fixed collar 32, two oppositely disposed cup-shaped packing rings 29, a supporting plate 30 arranged between and supporting the packing rings and a collar 33 attached to one end of the sleeve, and a hand-operated cylinder adapted to reciprocate longitudinally of the tube or tubular-rod and having valved air inlets at its opposite end portions, substantially as described.

3. The combination in a hand-air pump for inflating tires, of a tube or tubular-rod having at its outer end a screw-threaded portion, and a conical tip, a hand-operated cylinder adapted to reciprocate on the tube or tubular rod and having valved air inlets, means for controlling the flow of air from the cylinder into the tube or tubular-rod, a handle attached to the screw-threaded portion of the tube or tubular-rod, and an elastic tube extending through the handle and into which the conical tip of the tube or tubular rod extends, substantially as described.

517,737. MOLDING-MACHINE. WILLIAM EDGAR, Sanford, Fla. Filed June 13, 1893. Serial No. 477,451. (No model.)

Claim.—1. In a molding machine, the combination with a main cylinder, of a supplemental cylinder therein, a main ram carrying a

table, a cylinder arranged thereon and having a water-pipe extending into the supplemental cylinder and a supplemental ram arranged therein, a pipe leading into the supplemental cylinder, a flask support or stripping plate arranged upon the table, the pattern located upon the supplemental ram and beneath the stripping plate and patterns, and the water suppply pipes leading into the main and supplemental cylinders. substantially as set forth.



2. In a molding machine, the combination with a base, of a shaft journaled therein, rods connected thereto and carrying a head-plate, the main cylinder located upon the base, a supplemental cylinder arranged therein, a main ram arranged in the main cylinder and carrying a flask support, a supplemental ram within the flask support, a water-pipe extending from the supplemental cylinder to beneath the supplemental ram and the pattern plate upon said supplemental ram, the water cylinder and valve therein, the hand wheel for operating the same, the pipes leading from the water cylinder to the main and supplemental cylinder, the stop upon the wheel, and the stop-rod upon the shaft journaled in the base, substantially as set forth.

3. In a molding machine, the combination with a water supply cylinder having four ports, and an inlet, of a valve arranged opposite to said ports, a base, a shaft journaled therein and connected by means of rods with the head-plate, a main, and supplemental cylinders arranged upon the base, a horizontal cylinder arranged below the base and provided with a ram, connected to a crank upon the shaft in the base, the water pipes connecting said cylinders to the main ram, the flask support carried thereby, the supplemental ram within the support, a water-pipe extending from the supplemental cylinder to beneath the supplemental ram and the pattern plate carried by the supplemental ram, substantially as set forth.

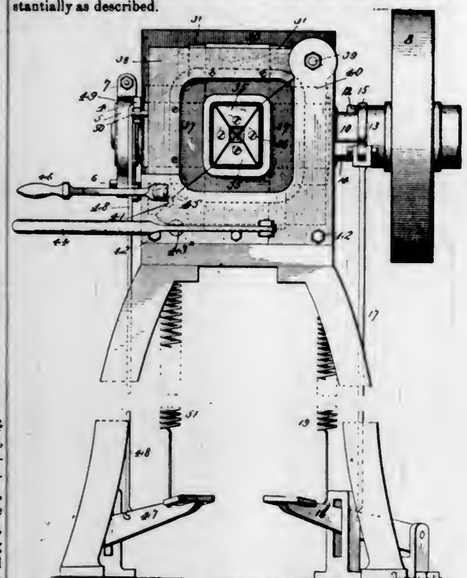
4. In a molding machine, the combination with a base, of the shaft journaled therein, the rods connected thereto and carrying the head plate, the horizontal cylinder located beneath the base, and provided with a ram connected to a crank upon the shaft in the base the main and supplemental cylinders arranged upon the base, a water supply cylinder having four ports, a valve arranged opposite said ports, a stem and hand wheel, said wheel having a stop, a stop rod arranged upon the shaft and adapted to contact with the stop, the main ram arranged in the main cylinder, the flask support mounted upon said main ram, a supplemental ram located within the flask support, and a pattern plate supported by said supplemental ram, substantially as set forth.

517,738. MACHINE FOR EXPANDING TIN BOXES. THOMAS S. EDGAR and CHARLES E. WILLIAMS, Richmond, Va., assignors to the Hasker & Marcuse Manufacturing Company, same place. Filed Jan. 13, 1894. Serial No. 496,798. (No model.)

Claim.—1. The combination of a frame, an expander and means for reciprocating the same, a supporting plate, radially movable plates mounted on said plate and having their inner ends beveled to conform to the expander, the male former consisting of a series of independent sections, means for removably securing each section to the inner end of one of said sliding plates, and a sectional female former embracing the male former, and means for carrying said female sections and removably locking them around the male former, substantially as described.

2. The combination of a frame, a tapering expander and means for reciprocating the same, a supporting plate, a series of radially slidable plates mounted on said plate, a sectional male former carried by said radially slidable plates, a sectional vise surrounding said male former and carrying a sectional female former, and means for opening and closing and locking said vise, substantially as described.

3. The combination of a frame, a reciprocating expander, a supporting plate, radially slidable plates mounted on said supporting plate and having their inner ends beveled to fit against the expander, springs normally pressing said plates against the expander, a male former consisting of sections secured to the inner ends of said slidable plates, a sectional female former embracing the male former, substantially as described.

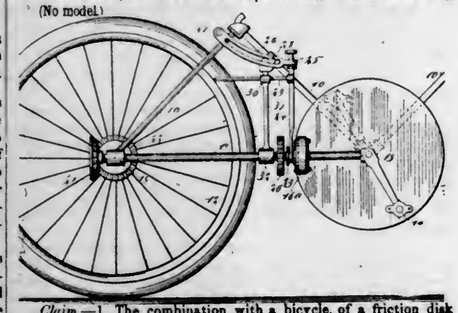


4. The combination of a supporting frame, a tapering reciprocating expander, radially movable sections constituting the male former, a female former surrounding the male former and constructed of separable sections, a vise or clamp constructed of movable sections, and means substantially as described for locking and separating said sections, substantially as described.

5. The combination of a frame, a male former composed of sections, means for expanding the same; a female former constructed of separable sections, a vise consisting of two hinged sections carrying said female former, wedges for locking and pressing the sections of the vise together, levers for operating said wedges, and means for separating the sections, substantially as described.

6. The combination of a frame, a reciprocating expander, a supporting plate, a series of radial plates 30 working in ways 31 on said supporting plate, the inner ends of said plates 30 being beveled and provided with rearwardly and forwardly extending lugs, springs bearing against the rearwardly extending lugs, former-sections 35 removably secured on the front side of said plates 30 and abutting against the forwardly extending lugs, a sectional female former embracing the male former, and means for locking the same, substantially as described.

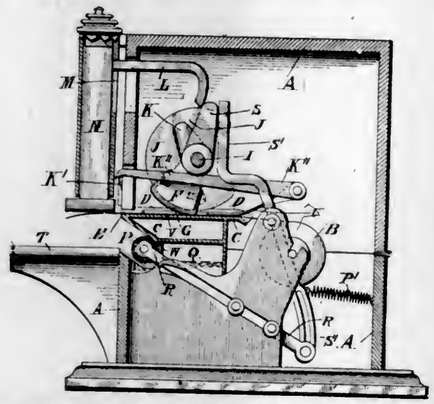
517,739. VARIABLE DRIVING-GEAR FOR BICYCLES. SAMUEL C. EISENHART, York, Pa. Filed Sept. 30, 1893. Serial No. 486,851. (No model.)



Claim.—1. The combination with a bicycle, of a friction disk carried by the pedal shaft, a driving shaft adjacent to the friction disk, a friction roller adjustable on the driving shaft, an operative driving connection between the shaft and the rear bicycle wheel, a fork engaging the hub of the roller, a handle plate connected with the fork and held to run on a guide roller, and a guide rod secured to the fork and adapted to slide in an adjacent support, substantially as described.

2. The combination, with the friction disk, the parallel shafts adjacent to it and the friction rollers on the shafts, of a fork engaging the hubs of the rollers, a handle plate connected with the fork and held to run on a guide roller, and a guide rod secured to the fork and adapted to slide in an adjacent support. substantially as described.

517,740. MACHINE FOR ATTACHING POSTAGE-STAMPS TO ENVELOPES. CHARLES ELLIOT, Croydon, England. Filed May 11, 1893. Serial No. 473,768. (No model.) Patented in England Jan. 7, 1892. No. 352.



Claim.—1. In a machine for attaching postage stamps, the combination of a casing provided with a slot, a reel or spool on which the stamps are wound, a plate arranged between the spool and slot and provided with guides for the stamps, and a rotary shaft provided with a segmental feeder adapted to bear on one of the stamps on said plate and feed it toward and through the slot in the casing, substantially as described.

2. In a machine for attaching postage stamps, the combination of a reel or spool on which a continuous strip of stamps is wound, a guide plate for supporting the stamps as the strip is fed from the spool, means for applying moisture to the under side of a stamp after it has passed over the guide plate, a knife for cutting off the moistened stamp, a presser for pressing the stamp onto a letter or package, and a rotary shaft carrying a segmental feeder to feed the strip of stamps and also carrying cams to actuate the cutting and pressing devices, substantially as described.

3. In a machine for attaching postage stamps, the combination of a casing provided with a slot for exit of stamps, a table located on the outside of the casing to receive the letter or package to be stamped, a spool located in the casing and on which the stamps are wound in a continuous strip, a plate located between the said spool and the slot in the casing and provided with guides for the stamps, springs to bear on the strip of stamps and prevent buckling, a wetting roller for applying moisture to the under side of a stamp projected through the slot in the casing, a knife for cutting off the moistened stamp, a presser for pressing the stamp onto a letter or package, levers for actuating the wetting roller, the knife and the presser, a rotary shaft provided with cams to actuate said levers, and a segmental feeder mounted on said shaft to feed the strip of stamps one at a time. substantially as described.

517,741. TRICYCLE. SAMUEL F. ESTELL, Chicago, Ill. Filed May 27, 1893. Serial No. 475,805. (No model.)

Claim.—1. In a tricycle having its pair of wheels in front and a laterally oscillating rear wheel, the automatic guiding mechanism consisting of sleeve *d*, pivotal bar *i*, springs *k*, *k* and flanges *m m'*, in combination with part C, and a rear frame all constructed and operating in the manner substantially as and for the purpose set forth.

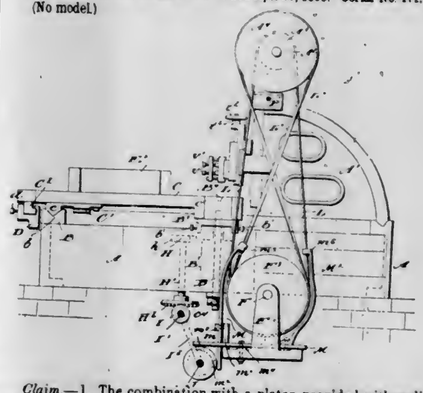
2. In a tricycle the wheels *a*, *a'*, axle *b*, part *c*, and the rear frame in combination with sleeve *d*, pivot J, bar *i*, and springs *k*, *k*, substantially as described.

3. The combination of part *c*, sleeve *d*, pivot *j*, and springs *k*, *k* in a tricycle having a pair of opposite wheels in front, substantially as specified.

4. The combination of part *c*, sleeve *d*, bar *i*, pivot *j*, and flanges *m* and *m'*, substantially as specified.



517,742. STONE-WORKING MACHINE. ROLLIN D. FIELD and EUGENE O. PRATT, Rutland, Vt. Filed Apr. 20, 1893. Serial No. 471,131. (No model.)



Claim.—1. The combination with a platen provided with radial slots, of a clamp having an angular body portion and provided with slotted arms extending in different directions from different sides thereof, substantially as specified.

2. The combination with a platen provided with radial slots, of a clamp having an angular body portion with integrally slotted arms extending in different directions from different sides thereof and set screws passed through the body portion upon different sides and extended at right angles to said slots, substantially as specified.

3. The combination with a platen and platen operating means, and a belt-shifting mechanism, of a shipper lever provided with a segmental gear for actuating the belt-shifting mechanism, the shaft with its cam grooves the inclined rod having swivel connection with said shaft and with the shaft of the gear meshing with the segmental gear and cooperating cam and cam-actuating devices interposed between said lever and platen, substantially as specified.

4. The combination with the belt-pulleys and the belts, of the shaft with its spiral cams, arranged so that the belt will be removed from one pulley before the other belt is moved thereon, the levers with their rollers working in the grooves of the cams, and carrying belt-engaging devices, the adjustable work holding clamps the platen and intermediate mechanisms for actuating said levers by the movement of the platen, substantially as specified.

5. The combination with the shipping lever, of a vertical shaft to which it is secured, a segmental gear carried by said shaft, belt-shifting devices actuated by said gear, a platen, having a rack upon its under side, the cooperating gear actuated from the power shaft and devices intermediate of the platen and said lever whereby the belt-shifting devices are automatically actuated by the movement of the platen. substantially as specified.

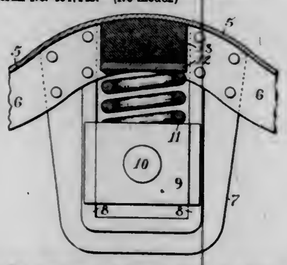
517,743. ELECTRICALLY-OPERATED RAILWAY-SWITCH. WILLIAM S. GAVEY, Brooklyn, N. Y. Filed Apr. 1, 1893. Serial No. 468,697. (No model.)

Claim.—In an automatic electric switch the combination, with a railroad having a plurality of sidings, of a swinging switch rail at each siding, electro-magnets arranged to swing the rails, shunt wires for each switch, the wires being in connection with the switch magnets and in different vertical planes, an overhead wire carrying electricity,

trolleys carried by the cars to engage the overhead wires, and contact pulleys which are adjustable along the trolley shafts and thus adapted to contact with different shunt wires, substantially as specified.



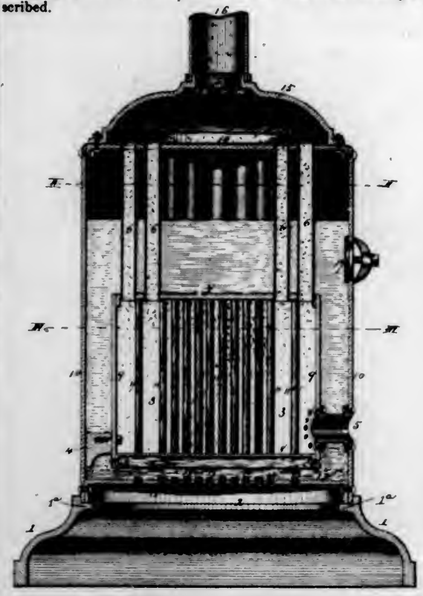
517,744. CAR-TRUCK. EVERETT G. GIBSON, Providence, R. I., assignor of one-half to Edgar G. Durfee, same place. Filed Nov. 20, 1893. Serial No. 491,445. (No model.)



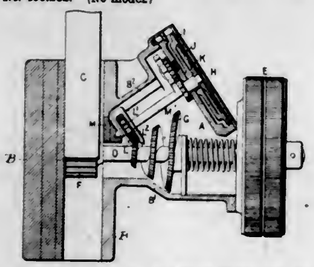
Claim.—The combination with a side-frame having the upper plate 5 and the side-plates 6—6 integral therewith, and the yokes 7—7 depending from the side-plates and having guides 8—8, of the journal-boxes 9 movable in said guides, the coiled-spring 11 supported on the journal-box, the plate 12 bearing on the upper end of the spring, and the elastic buffer 13 interposed between the plate 12 and the plate 5 and adapted to fit between the plates 6—6, as described.

517,745. STEAM-BOILER. JAMES R. GREEN, St. Louis, Mo. Filed Feb. 20, 1893. Serial No. 463,024. (No model.)

Claim.—The combination of the stand 1 having a horizontal flange 1^a, the outer wall 10 supported on the flange, having a bottom sheet 12, and a top sheet 14, the dome 15 having a chimney 16, the combustion chamber 3 having a top 7, a bottom 8 and sides 9, the brackets 4 by which the combustion chamber is supported on the outer wall, out of contact with the latter and the bottom thereof, the neck 5, extending through the side of the outer wall and the combustion-chamber, for the insertion of the gas-jet, the vertical pipes 11 located in and passing through the middle of the combustion chamber, the double series of tubes 6 surrounding the tops of the middle pipes and passing through the top plate of the combustion-chamber and through the top-plate of the outer wall, and the outer series of pipes 11^a, located in and passing through the combustion-chamber, and discharging upwardly between the series of tubes; substantially as described.



517,746. SIGHTING AND INDICATING APPARATUS FOR ORDNANCE. HUBERT H. GRENFELL, London, England. Filed Apr. 6, 1893. Serial No. 469,282. (No model.)



Claim.—1. In sighting and indicating-apparatus for ordnance, the combination of a sliding-sight-bar, a guide wherein the sight-bar slides, a spindle supported in bearings on the guide and geared with the sight-bar, a tapering spiral secured on the said spindle, a rotary indicating device a circular member of which is in operative connection with the tapering spiral and is adapted to be rotated by the said tapering spiral through equal angles when the spindle is turned through varying angles, for the purpose specified.

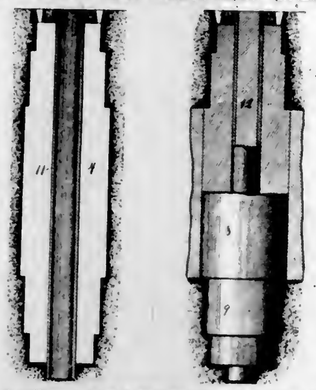
2. In sighting and indicating-apparatus for ordnance, the combination of a sliding sight-bar, a guide wherein the sight-bar slides, a spindle geared with the sight-bar and having a toothed spiral thereon, and an indicating device characterized by a pinion and first motion shaft so constructed that the pinion can turn with but not upon the said shaft and can slide along the shaft axially, and also by a box or yoke which embraces the pinion and the spiral so that they are kept always in gear with each other, substantially as set forth.

3. In sighting and indicating-apparatus for ordnance, the combination of a sliding sight-bar, a guide wherein the sight-bar slides, a spindle geared with the sight-bar and having a toothed conical spiral thereon, and an indicating device characterized by a pinion and first-motion shaft so constructed that the pinion can turn with but not upon the said shaft and can slide aloog the shaft axially, and also by a box or yoke which embraces the pinion and the spiral so that they are kept always in gear with each other, substantially as set forth.

4. In sighting and indicating-apparatus for ordnance, the combination of a sliding sight-bar, a guide wherein the sight bar slides, a spindle geared with the sight-bar and having a toothed conical spiral thereon, and an indicating device characterized by a pinion and a first-motion shaft inclined to the axis of the spiral and so constructed

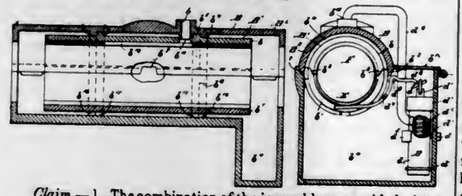
that the pinion can turn with but not upon the said shaft and can slide along the shaft axially, and also by a box or yoke which embraces the pinion and the spiral so that they are kept always in gear with each other, substantially as described.

517,747. ROLL FOR METAL-ROLLING. WILLIAM E. HARRIS, Niles, Ohio. Filed Feb. 8, 1893. Serial No. 461,416. (No model.)



Claim.—A roll comprising a steel core, a cast iron body and journals, and a tube extending the length of the roll between the body and the journals, and the core; substantially as described

517,748. LUBRICATING DEVICE. HENRY P. HUMPHREY, Nashua, N. H., assignor to the Lowell Oiler Company, same place. Filed Apr. 14, 1890. Serial No. 347,760. (No model.)



Claim.—1. The combination of the journal-box, provided with an oil-hole and the shell surrounding said journal-box and extending beyond the ends thereof and provided with an oil-hole, smaller in diameter than the oil-hole in said journal-box and arranged concentrically with said last-named oil-hole, said shell being also provided with an annular boss, surrounding the oil-hole in said shell and smaller than the oil-hole in said journal-box and arranged concentrically with and above said last-named oil-hole, as and for the purpose specified.

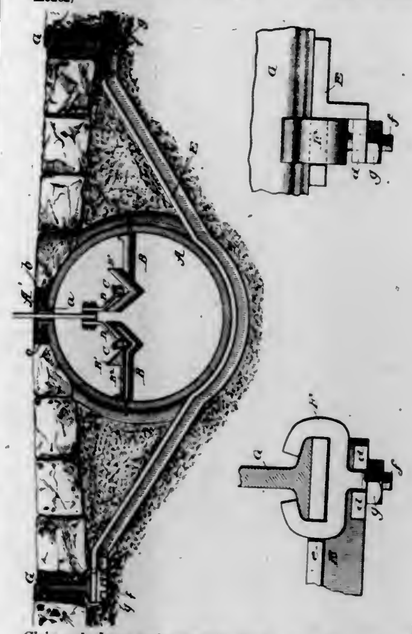
2. The combination of the journal-box and the shell, surrounding said journal-box and extending beyond the ends thereof, said journal-box and shell being each provided with an oil-hole in the top thereof, said oil-holes being concentric with each other, said shell being also provided with a downwardly-tapering annular boss, surrounding the oil-hole in said shell, concentrically therewith, said boss being smaller at its lower end than at the upper end of the oil-hole in said journal-box, as and for the purpose specified.

3. The combination of the journal-box and the shell, surrounding said journal-box and extending beyond the ends thereof, said journal-box and shell being each provided with an oil-hole in the top thereof, said oil-holes being concentric with each other, said shell being also provided with a downwardly-tapering annular boss, surrounding the oil-hole in said shell, concentrically therewith, said boss being smaller at its lower end than at the upper end of the oil-hole in said journal-box and extending into said last-named oil-hole, as and for the purpose specified.

4. The combination of the journal-box, provided with lateral projections and the shell surrounding said journal-box and extending beyond the ends thereof and provided with internal projections, to separate said shell and box, and provided with a reservoir or drip-receiver, to allow oil dripping from said box to flow in the space between said shell and box to said reservoir, as and for the purpose specified.

5. The combination with a journal-box and a shell having a reservoir, a mechanical oiler, its lever and operating cam, said lever being arranged within said reservoir and having lateral projections to reach across the inside of said reservoir and prevent a lateral displacement of said lever, as and for the purpose specified.

517,749. UNDERGROUND-CONDUIT RAILWAY. WILTON P. JENKINS, Richmond, Va. Filed Aug. 8, 1893. Serial No. 482,641. (No model.)

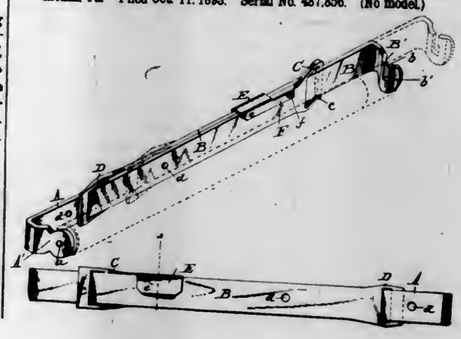


Claim.—1. In an underground railway system, the combination of a conduit, yokes passing under the conduit, longitudinal surface rails resting upon the ends of the yokes at right angles and a downwardly drawing screw clamp connection provided with double claws for grasping both sides of the rail base and adapted to be applied laterally to the yoke for fastening the yokes to the rails at any point along their length without the use of bolts substantially as shown and described.

2. The double-clawed clamp F having central screw stem *f* depending therefrom with nut *g*; in combination with the yoke arranged transversely beneath the rail and provided with the slot *e* for the passage of one of the claws, and lugs *d d* as a bearing for the screw nut, substantially as and for the purpose described

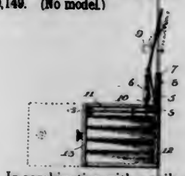
3. The cylindrical cast iron conduit having a longitudinal slot with a slot wall *a*, horizontal overhanging flange *b*, webs *c* uniting the flange to the exterior of the conduit, and a surface slot plate A' for giving a vertical depth between the slot plate and curved external surface of the conduit sufficient to receive paving material substantially as shown and described.

517,750. EXTENSIBLE SHADE-HANGER. JACOB JOSEPH, Shamokin, Pa. Filed Oct. 11, 1893. Serial No. 487,856. (No model.)



Claim.—In an extensible or adjustable hanger for shade rollers, the combination with the slidable bars A and B, provided respectively, with the elbow bearings A′ and B′ deflected loops C, D, and apertures *d*, *d*, and one of said bars formed on its outer side with a series of equi-distant notches, of the spring clamp E, hinged to one of said bars and provided with an inwardly projecting rib *g*, adapted to engage with said notches, substantially as described.

517,751. RAILWAY-SIGNAL. CHARLES C. KAHNE, GEORGE F. KAHNE, and ANDREW A. ADKINS, Ashland, Ky. Filed Nov. 6, 1893. Serial No. 490,149. (No model.)



Claim.—1. In combination with a railway signal and the cord or connection for operating the same; the herein-described indicator consisting of a movable panel having red and white surface and suitably connected with the operating cord or connection whereby the panel is moved in opposite directions simultaneously with the change in the direction of movement of said operating cord or connection, and the detent for holding the operating cord, substantially in the manner and for the purposes set forth.

2. In combination with a gravity operating railway signal and the cord or connection for retaining or releasing said signal; the herein-described indicator consisting of a movable swinging panel having positive connection with said operating cord which causes said panel to move in opposite directions simultaneously with the change in the direction of movement of the operating cord, a loop in connection with the cord, an opening through which the loop is introduced, and a removable pin for retaining the loop in the opening, as and for the purposes explained.

3. In combination with a railway signal and the cord by which it is controlled; a pivoted red and white faced panel having connection with the cord which causes the panel to swing upon its pivot and disclose its opposite faces simultaneously with the change in the direction of the operating cord, the handle for controlling said cord and a detent for the handle substantially as described.

4. In combination with a gravitating railroad signal and its operating cord; an indicating panel having different colored opposite faces and mounted to swing upon a horizontal axis, connection between the panel and said operating cord whereby the panel is reversed by the reversal of the movement of the cord, and a detent for the cord for holding the signal in raised position, all substantially as and for the purpose set forth.

5. In combination with a gravitating signal and its operating cord having a loop; of the order box, and a sliding pin for engaging the loop of the operating cord, under control of the door of the order box, substantially as and for the purpose set forth.

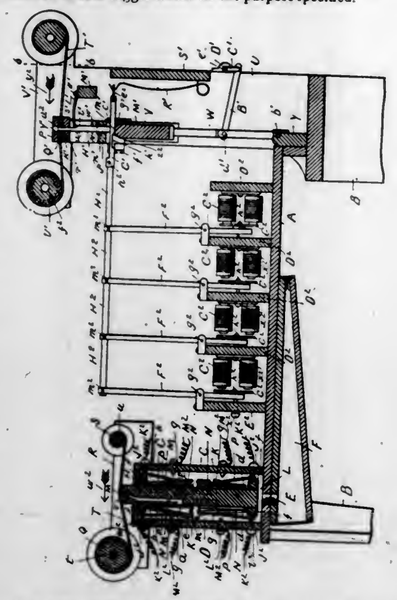
6. In combination with a gravitating signal, and its operating cord; of an order box, an opening in the order box through which a loop on the cord passes, and a reciprocating pin engaging said loop and controlled by the door, all substantially as and for the purpose set forth.

7. In combination with a gravitating signal and its operating cord; an order box having a door, an indicating panel mounted upon a horizontal axis above the order box, and having connection with said operating cord, a loop on the cord passing through an opening in the top of the box, and a reciprocating retaining pin engaging the loop and connected with the door of the box, all substantially as and for the purpose set forth.

517,752. PERFORATING-MACHINE. GEORGE R. KELLY, Boston, Mass. Filed June 30, 1891. Serial No. 479,241. (No model.)

Claim.—1. In a machine for perforating sheet material, in combination, a wind chest, a board within said wind chest, an air passage therein opening to its upper surface outside of said wind chest, a pneumatic bellows secured to the side of said board within said wind chest communicating with said air passage, an electric magnet, a pivoted lever carrying an armature for said magnet, a slide bar arranged to move back and forth in suitable guideways and connected to said lever for operation thereof, a notch in said slide bar, a punch or die, in suitable guideways, a spring bearing on said punch and a plate or bar adapted to move up and down in suitable guideways for operation on said slide bar for the purpose specified.

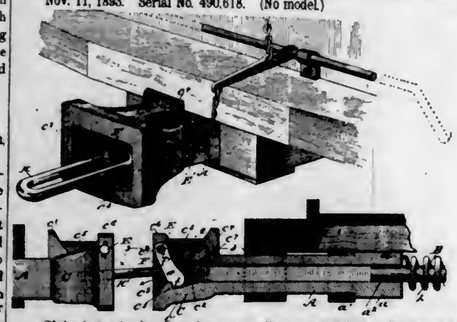
2. In a machine for perforating sheet material, in combination, a wind chest, a board within said wind chest, an air passage therein opening to its upper surface outside of said wind chest, a pneumatic bellows secured to the side of said board within said wind chest communicating with said air passage, an electro magnet, a pivoted lever carrying an armature for said magnet, a slide bar arranged to move back and forth in suitable guideways and connected to said lever for operation thereof, a notch in said slide bar, a punch or die in suitable guideways, a spring bearing on said punch, a plate or bar adapted to move up and down in suitable guideways, toggle levers connected to said plate and a support, a rotary shaft, and crank arms thereon connected to said toggle levers for the purpose specified.



3. A wind chest, a board therein having a vertical air passage opening to the outside of said wind chest, a pneumatic bellows secured to the side of said board within said wind chest communicating with said air passage, a spring secured to a support by a screw and bearing on said bellows, an opening in the wall of said wind chest opposite to said screw, and a plug adapted to fit in said opening.

4. A wind chest, a board therein having a vertical air passage, opening to the outside of said wind chest, a pneumatic bellows secured to the side of said board within said wind chest communicating with said air passage, a spring secured to a support by a screw and bearing on said bellows, an opening in the wall of said wind chest opposite to said screw, and a plug adapted to fit in said opening, and having an electric wire extending through the same and bearing on said screw.

517,753. CAR-COUPLING. EDWARD J. LAHAN, Quincy, Ill. Filed Nov. 11, 1893. Serial No. 490,618. (No model.)



Claim.—1. An improved car coupling comprising a draw-head having its top, bottom and side walls formed solid, provided with a vertical abutting extension on its top, and a reinforce portion connecting such extension and the upper front edge of the head, said head having a link mortise formed with an upper face inclined from the front downward, said reinforce portion having a central longitudinal seat or recess terminating at the front at a point behind the upper front edge, a shaft journaled transversely in the upper solid edge of the head, passed through the front end of the aforesaid recess, a gravity pin journaled on such portion, adapted to snugly fit the said recess when pushed up, and having a stop portion adapted to engage the bottom of the link mortise to limit its down movement all substantially as shown and for the purposes described.

2. As an improvement in car couplers, the combination of the shank *a*, the head portion C, having a mortise formed with non-apertured top, bottom and side portions, and having its front or bumping face extended laterally, and formed at its upper end c^4 with a transverse bearing, and having a reinforced portion provided with a recess C′, its front end bisecting the transverse bearing, said reinforced portion terminating in an abutment c^4, the bottom of mortise of the head having a recess provided with a stop c^5, at a point to the rear of the front of the upper recess, the rock shaft E, the link F having a keyed connection therewith and formed with a curved rear face f^3 all arranged substantially as shown and for the purposes described.

517,754. BAND-CUTTER AND FEEDER. GEORGE D. LAMB and WILLIAM SIGARD, Ackley, Iowa. Filed Jan. 26, 1893. Serial No. 459,922. (No model.)



Claim.—1. In a band cutting and feeding mechanism substantially as described, the combination with the conveyer frame having a hinged bail like member at its front end adapted to be folded under such end, of a division board having a hook member at its upper end adapted to slip over a cross bar of the conveyer frame, and having its front end supported on the bail member, and means for securing it detachably to such bail member, all substantially as hereinbefore shown and described.

2. In a band cutting and feeding mechanism substantially as described, the combination with the conveyer formed of a main portion hinged to fold under the mouth or feed end of the thrasher frame, and a bail member hinged at the outer end of such main portion and a transverse frame member at the inner end, of a division board having detachable connections with the said transverse member at its upper end, and supported on and detachably connected with the bail member at its lower end, as and for the purposes described.

3. In a band cutter and feeder, the combination of the band cutter shaft, the knives or blades, and a yielding shield, consisting of bent plates rigidly secured to a cross beam of the frame near one end and passing under said shaft and between the said blades, rods secured to one end of said plates and passing loosely through the other one, tubes inclosing part of the length of said rods and coiled springs surrounding the uninclosed parts of said rods, substantially as described.

4. In a band cutter and feeder, the combination with the frame including a transverse support or bar, the conveyer, and a revolving cutter shaft having radially arranged blades, of spring metal angle plates, secured at their upper ends to the said cross bar, their front or vertical member extending down between the cutter blades in front of the cutter shaft, their horizontal portion being extended rearward under said shaft, and beyond the cutters, said plates being of a width to snugly fit between such blades, and means for imparting a downward pressure to the horizontal members of said plates, whereby the pressure members will serve to compactly press the grain against the discharge end of the said conveyer, all substantially as shown and described.

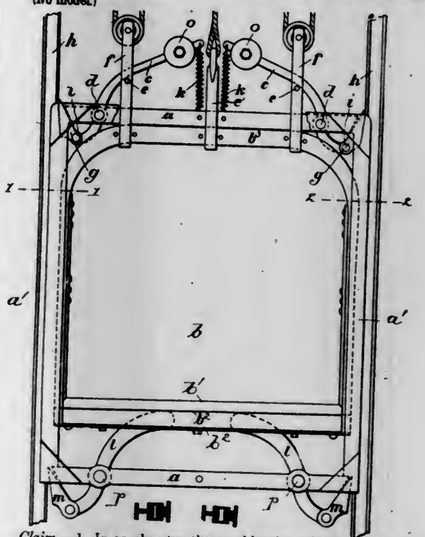
5. In a band cutting and feeding mechanism substantially as described, the combination with the cross bar L, the frame portion A′, and the rotary shaft H journaled in rear of the bar L, said shaft having a series of spaced radial blades, of the plates *p* secured to the rear of the bar L, and extended down in front of the shaft H, said plates having horizontal portions *p*′ extended under and to the rear of such shaft, and spring actuated devices for normally holding the portions *p*′ pressed downward, all substantially as and for the purposes shown and described.

6. As an improvement in a band cutter and feeder mechanism for thrashing machines, the combination with the main frame having guide notches in its front extension, of a conveyer frame hinged to the front end to fold thereunder, said conveyer frame having lateral headed studs, and eyes or staples, the detachable legs having notched ends adapted to engage the lateral studs when the frame is extended, said studs adapted to engage the notches in the main frame, and hook members hinged to the main frame and adapted to engage the eyes in the sides of the conveyer frame, all arranged substantially in the manner shown and for the purposes described.

7. As an improvement in band cutters and feeders, the combination with the main frame, and the auxiliary side boards n^3 having recesses n^4, of the conveyer frame hinged to the front end to fold thereunder and having lateral headed studs and eyes or staples, and the hook members hinged to the main frame adapted to engage the eyes or staples when the conveyer is folded between the boards n^3, all arranged substantially in the manner shown and described

---

517,755. SELF-ACTING BRAKE FOR ELEVATORS. GEORG W LUDOVICI, Cassel, Germany. Filed Aug. 14, 1893. Serial No. 483,090. (No model.)



Claim.—1. In an elevator the combination with the cage, of an independently movable frame, normally supported thereby, movable brake blocks secured to said frame, stationary cams secured to said frame in position to be engaged by said brake blocks, devices connected with the cage for normally holding said brake blocks out of operation, and means for forcing said blocks into engagement with the said cams to apply the brakes, on the downward movement of said cage in respect to said frame, substantially as described.

2. In an elevator the combination with the vertical guide rails and the movable cage, of an independently movable frame, normally supported by said cage, and provided with movable brake blocks for engaging said rails, cams secured to said frame in position to be engaged by said blocks, devices connected with the cage for normally holding said blocks out of engagement with cams, and devices connected with said blocks for throwing them into engagement with said cams, and guide rails, on the downward movement of the cage with respect to said frame, substantially as described.

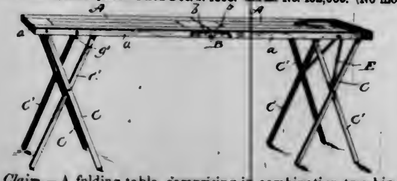
3. In an elevator the combination with the guide rails, and the movable cage, of an independently movable frame, normally supported by said cage, and provided with movable wedge shaped brake blocks

for engaging said rails, stationary cams secured to said frame in position to engage said blocks, devices connected with said cage for normally holding said blocks out of operation and devices for throwing said wedge shaped blocks into engagement with said cams and guide rails on the downward movement of the cage, with respect to said frame, substantially as described.

4. In an elevator the combination with the guide rails, and movable cage, of an independently movable frame, normally supported by said cage, and provided with wedge shaped brake blocks, pivoted levers connected with said brake blocks, and provided with springs for throwing said blocks into operation, stationary cams secured to said frame in position to be engaged by said blocks and devices connected with the cage for engaging said levers and normally holding said brake blocks out of operation, substantially as described.

5. In an elevator the combination with the guide rails and movable cage, of an independently movable frame normally supported by said cage, provided with two pairs of brake blocks, one pair being provided with springs for throwing them into engagement with the rails, and the other being operatively connected with said cage, and devices connected with the cage for normally holding said spring actuated brake blocks out of engagement with said rails, whereby the downward movement of the cage with respect to said frame will force one pair of brake blocks directly into operation and release said spring actuated brake blocks, substantially as described.

517,756. FOLDING PASTING-TABLE. LUDWIG MAURER, New York, N. Y., assignor of one-half to Denison P. Chesebro and Alfred E. Davidson, same place. Filed Dec. 2, 1893. Serial No. 492,609. (No model.)



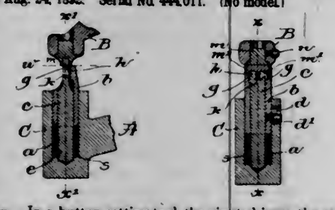
Claim.—A folding table comprising in combination two hinged sections, each provided with two sets of legs pivoted together at their longitudinal centers, brace rods E pivoted to blocks on the under side of the table sections and to the legs at their pivotal centers, the said legs adapted to be folded so that their edges will lie in the same parallel planes and flush with the side cleats of the sections, the braces being folded between the edges of the sets of legs, all substantially as shown and described.

517,757. PEN-RACK. WALTER S. MENDENHALL, Covington, Ky., assignor to the Samuel C. Tatum Company, Cincinnati, Ohio. Filed Dec. 14, 1892. Serial No. 455,157. (No model.)



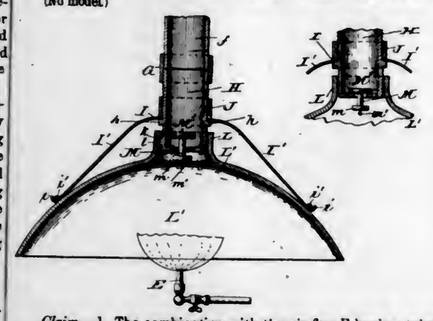
Claim.—A pen rack consisting of a rectilinear open frame 1 formed in one piece and provided at its opposite ends with downwardly opening slots 2, the outer side of each slot being inclosed a coiled spring 4 resting upon said frame, and a rod 3 passing through the convolutions of said spring and seated in said slots and held therein by the tension of the spring, said rod being elastic whereby the spring and rod may be readily taken out and put in place, substantially as shown and described.

517,758. BUTTON-SETTING APPARATUS. WILLIAM B. MERRITT, Braintree, assignor of one-half to Edward O. Ely, Boston, Mass. Filed Aug. 24, 1892. Serial No. 444,011. (No model.)



Claim.—In a button setting tool, the pivoted jaws, the anvil, and the head C, a hollow yielding work-support connected thereto, a limiting stop for said support, the cut-away portion *f*, and fastener guides *g*, adjacent to the cut-away portion, combined with a plunger longitudinally movable in said work-support, and having a flattened outer end provided with recesses *h*, *k*, and a spring confined between the head and the work-support, substantially as described.

517,759. DEVICE FOR HEATING AND VENTILATING ROOMS. COLUMBUS MILLS, Gas City, Ind. Filed Oct. 4, 1893. Serial No. 487,170. (No model.)

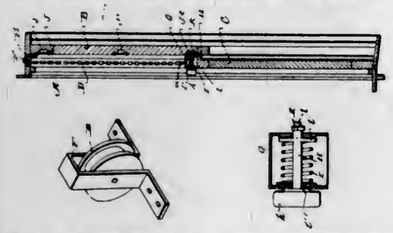


Claim.—1. The combination with the air-flue F having tubular depending extensions or "holders" H, constructed as described and provided with the gravity-valve M', of the detachable hood L' having neck L adapted to be attached to the holder and provided with the cross-wire *m'*; substantially as and for the purpose shown and set forth.

2. The combination with the air-flue F having tubular depending extensions or "holders" H provided with an exterior circumferential flange *h*, of the plate I having hooked arms I', screw-threaded sleeve J, and removable hood L' having staples *i'*, for the attachment of the hooked arms I'; substantially as and for the purpose shown and set forth.

3. The combination of the air-flue F having depending branches G H, hot-air drum or receiver O having branch-pipes P P, removable heads L' located over jets of flame, and gravity valves M' operated automatically by the hood; substantially as and for the purpose shown and set forth.

517,760. SASH-BALANCE. WILLIAM K. MORGAN, Eureka Springs, Ark. Filed Mar. 31, 1893. Serial No. 468,479. (No model.)

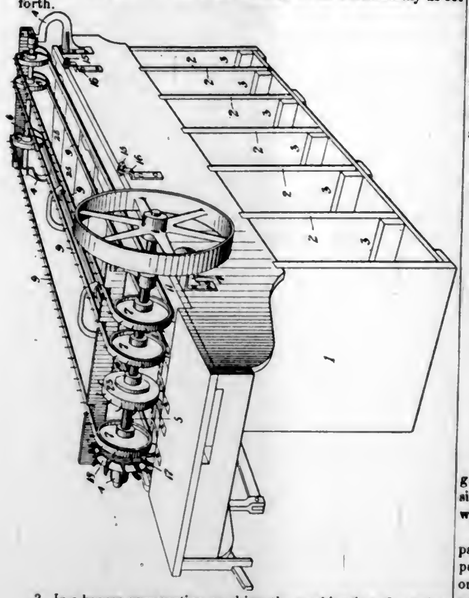


Claim.—The combination with a pair of mutually counterbalancing and sliding sashes, of the lock therefor, said lock comprising a casing adapted to be secured to the top rail of the lower sash, a rotary bolt journaled in said casing, a T-head on the engaging end of said bolt, a bearing stud projecting beyond said head, a lug or collar on said bolt within said casing, a spring coiled around said bolt and confined between said lug or collar and the inner end wall of the casing and acting to normally project said bolt, an opening in the outer end of said casing of such a shape as to permit the passage of said T-head when the latter is turned parallel therewith, but not when at an angle thereto, and a series of plates secured to the upper sash and having each an opening therein corresponding to the opening in the inner end of said casing, substantially as specified.

517,761. BROOM-CORN-SIZING MACHINE. GEORGE F. MCCOMBS, Allegheny, assignor to the Hand Stitch Broom Sewing Machine Company, Pittsburg, Pa. Filed June 3, 1893. Serial No. 476,497. (No model.)

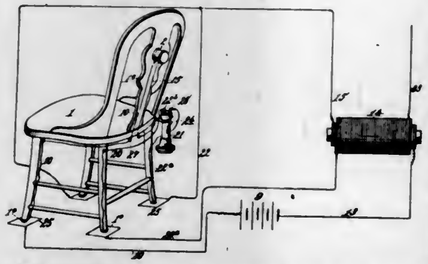
Claim.—1. In a broom corn sizing machine, the combination of overlapping rotating cutting blades one of said blades being recessed back of its cutting edge, a spring for holding the cutting edges of the blades in contact with each other and rotating disks provided with fingers for feeding the broom corn between the cutting blades, substantially as set forth.

2. In a broom corn sorting machine, the combination of overlapping rotating cutting blades, rotating disks arranged on opposite sides of one of the cutting blades and provided with fingers overlapping the periphery of the other cutting blade, substantially as set forth.



3. In a broom corn sorting machine, the combination of rotating cutting blades, a series of movable fingers on one side of the cutting blades operative on the body of the broom corn, and a series of movable fingers on the opposite side of the cutting blade, said series of fingers moving in unison, whereby the broom corn is fed squarely to the cutting blades, substantially as set forth.

517,762. TELEPHONE. STEWART D. MCKELVEY, Canton, Ohio, assignor of one-third to Joseph A. Linville, same place. Filed Feb. 20, 1893. Serial No. 463,130. (No model.)



Claim.—1. In a telephone, a transmitter, a vibratory structure to which the transmitter box or housing is rigidly attached, said substance, or structure, being of such character that the speaker may support his body upon and against the same, and a suitable receiver, substantially as described.

2. In a telephone, the combination with a chair, or means of support for the body of the speaker, of a transmitter the housing of which is firmly attached to some part of said chair or other support upon and against which the body of the speaker rests and a suitable receiver, substantially as described.

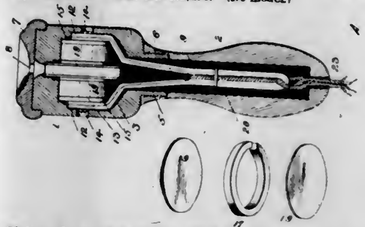
3. The combination with a chair, or other means of support of a telephone transmitter, rigidly attached to a portion of the chair-back, a receiver, a local battery, and induction-coil having its primary in circuit with said battery through a vibrating point acting upon the diaphragm, and a receiver having its induction-coil connected by one terminal to the secondary of the induction-coil which is energized by the local battery and also connected by the other terminal to the line, substantially as described.

4. The combination with a chair, or other means of support of a transmitter consisting of a housing containing the diaphragm, said housing being rigidly attached to the back of the chair, a receiver suspended by a hook arranged at the side of the seat, a local circuit including the diaphragm and its vibratory point-carrying arm, and the primary of an induction-coil and a circuit for the secondary of the induction-coil, including the induction-coil of the receiver and the line-wire, substantially as described.

5. The combination with a chair having suitable conducting wires supported upon its legs, of floor contacts upon which said legs are placed, a transmitter the box, or housing of which is rigidly secured to the back of said chair, and a circuit in which said floor-contacts are interposed, substantially as described

---

517,763. MAGNETO-TELEPHONE. STEWART D. MCKELVEY, Canton, Ohio, assignor of one-third to Joseph A. Linville, same place. Filed Sept. 13, 1893. Serial No. 485,430. (No model.)



Claim.—1. A receiver for telegraphic, telephonic, phonautographic and other apparatus, having a shell formed in two equal and similar parts which are united by a screw-cap and a handle engaging with the ends of said shell, substantially as described.

2. A receiver for the uses set forth, having a shell formed in two parts which when united inclose a chamber adapted to receive the polar extremities of a permanent magnet, a screw-cap turned upon one end of said shell and a handle having a threaded, counter-bored recess to receive a threaded neck on the other end of said shell, substantially as described.

3. The combination with a permanent magnet having bi-polar extremities brought opposite each other, of steel cores mounted upon the inner, or adjacent faces of said extremities, bobbins mounted upon said cores, an elastic ring interposed between said bobbins, and diaphragms inserted between said ring and the ends of the cores, substantially as described.

4. The combination with a shell having a suitable chamber provided with an exit-opening and a screw-cap having an orifice, of a permanent magnet having steel cores upon its two polar extremities, bobbins mounted on said cores, the terminals of one connected up with a secondary and the terminals of the other with a tertiary circuit, an elastic ring interposed between the ends of the steel cores and having a portion removed beneath the exit-opening of the shell, and diaphragms inserted between the ring and said cores, substantially as described.

5. The combination with a permanent magnet composed of a bar which is bent at its middle portion to form a two-part, divergent shank and bring its polar extremities opposite each other, of steel cores projecting from said extremities, bobbins mounted on said cores, an elastic ring interposed between the inner ends of said cores and having an opening, diaphragms inserted between the ring and cores, and a loop movable upon the two-part shank of the magnet, substantially as described.

6. The combination with a permanent magnet having bi-polar extremities brought opposite each other, of cores mounted upon the adjacent faces of said extremities, an elastic ring arranged between said cores and provided with an opening, diaphragms interposed between the opposite sides of said ring and the ends of said cores, and a two-part shell or casing, having an exit-opening and an orifice in its cap, arranged directly over and in line with the opening in the ring, the parts of said casing having bearing against the peripheries of the said diaphragms located therein to clamp said diaphragms against the elastic ring, substantially as described.

7. The combination with a permanent magnet having bi-polar extremities which are brought opposite each other, of steel cores mounted upon said extremities and projecting toward each other, bobbins mounted upon said cores, an elastic ring interposed between said cores and having an opening, diaphragms inserted between said elastic ring and the inner ends of the cores, and a two-part casing having seats for said diaphragms, substantially as described

---

517,764. MAGNETO-TELEPHONE. STEWART D. MCKELVEY, Canton, Ohio. Filed Dec. 6, 1893. Serial No. 492,949. (No model.)

Claim.—1. In an electric telephone, the combination with a transmitting diaphragm of an amplifying device, and a rigid arm pivotally connected to said amplifying device at one end and having its other end provided with divergent points which are attached to the transmitting diaphragm in or between different nodal circles, substantially as described.



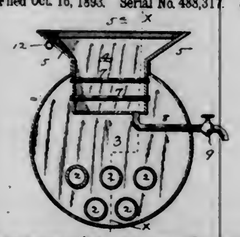
2. In an electric telephone, the combination with a transmitting diaphragm of a yoke-shaped amplifying device having pivotal support in rear of said diaphragm, and a rigid arm pivotally connected at one end to one member of said device and having its other end divided into a plurality of divergent points which are attached to said diaphragm at varying distances from its center, a carbon-pointed set-screw adjustable toward and from a platinum point upon the other member of the amplifying device, a wire coil on the set-screw, an induction-coil having secondary and tertiary coils, a battery and a receiver, a primary circuit including the pivot of the amplifying device and the primary of the induction-coil, a secondary circuit including the coil on the set-screw and a wire coil in the receiver, and a tertiary circuit including a second coil in the receiver, substantially as described.

3. In a magnetic telephone, a receiver comprising two non-magnetic diaphragms clamped against an interposed ring having a sound-opening, metallic cores having their adjacent ends arranged close to magnetic buttons centrally mounted upon the outer faces of the diaphragms, metallic plates upon which the outer ends of the cores are rigidly mounted, and a chambered casing supporting said plates, substantially as described.

4. In a magnetic-telephone, a receiver comprising two non-magnetic diaphragms clamped upon an interposed ring having a sound-opening, metallic cores rigidly supported at their outer ends and having their inner ends close to magnetic buttons on the outer faces of the diaphragms, wire coils mounted on said cores and an induction coil having a primary connected through the battery to the transmitter, a secondary connected to the line and through one of the wire coils on the receiver to earth, and a tertiary which includes in its circuit the other wire coil in the receiver and a coil in the transmitter, substantially as described.

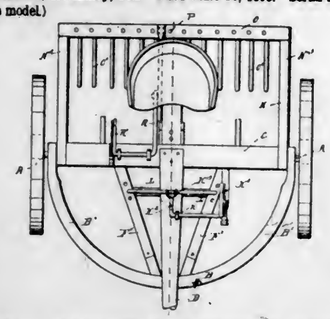
5. In an electric telephone, the combination with a transmitting diaphragm of an amplifying device, an adjustable core having contact with one arm thereof, a coil upon said core, an induction coil having a primary, secondary and tertiary coil, and a receiver, one terminal of the primary, being connected, through the battery, to the amplifying device and the other terminal to the core having contact with said device, one terminal of the secondary being connected to the line wire and the other terminal to a binding post on the receiver and thence through a coil in said receiver to earth, one terminal of the tertiary coil being connected to one end of the wire coil on the adjustable core and the other terminal to a binding post on the receiver and thence through its coil back to the other end of the wire coil, substantially as described.

517,765. EVAPORATING-PAN. SIMEON A. POCHÉ, Donaldsonville, La. Filed Oct. 16, 1893. Serial No. 488,317. (No model.)



Claim.—In an evaporating apparatus, the combination with a boiler having an opening in its upper part, and provided with a series of flues, of the rectangular box seated in said opening, having flaring sides and ends, the partitions located therein having troughs in their upper edges and dividing the box into a series of compartments, the drainage pipe connected with said troughs, the transverse pipes passing through said compartments and communicating with the steam space of the boiler and the draw off pipes connected with said compartments, substantially as described.

517,766. COMBINED STALK-CUTTER AND RAKE. JOSEPH PRIESTLEY, McKinney, Tex. Filed June 30, 1893. Serial No. 479,251. (No model.)



Claim.—1. In a combined stalk cutter and rake, the combination of the main frame, the hanger attached to the under side of the axle-bar of said frame, the cutter-carrying frame E, the arms C, C, at the rear portion of said frame E, a transverse rod or bar h engaging said hanger and also engaging arcuate slots in said arms C, C, the support for the forward end of said frame E, means for securing a lateral adjustment of the side bars of said frame with relation to each other, the rock-lever and connections for operating said frame, and the rake to the rear of said frame, substantially as specified.

2. In a combined stalk cutter and rake, the combination with the axle, the rake frame and rake, of the rocking main frame, cutter-carrying frame suspended from said frame, said cutter-carrying frame having a lateral and a vertical adjustment, and the operating lever therefor, substantially as specified

3. In a combined stalk cutter and rake, the combination with the axle, and the rake frame and rake, of the rocking main frame, the arm depending from the central forward portion of said frame, the hanger depending from the axle bar, the cutter-carrying frame loosely connected at its respective ends to said arm and hanger, and thereby capable of a vertical adjustment with relation to the main frame, the side bars of said carrying frame having a lateral adjustment with relation to each other, the cutters, and the operating lever, substantially as specified.

517,767. AMALGAMATOR. NATHAN L. RABER, Corvallis, Oreg. Filed Apr. 8, 1893. Serial No. 469,578. (No model.)



Claim.—1. In an amalgamator, the combination of the mercury cup or trough, a tube or cell in said trough and adapted to receive the agents by the electrolysis of which the mercury may be cleaned

or purified, and a lead or similar conductor extended longitudinally within said cell, whereby to secure an electrical discharge from end to end within the cell, substantially as set forth.

2. The combination in an amalgamator, of a mercury cup or trough, a tube or cell in said cup, a conductor in said cell, and a sodium compound solution in said cell in contact with the conductor and adapted to be decomposed by the electrical current, substantially as and for the purposes set forth.

3. In an amalgamator substantially as described, the combination of the box or framing hanger supports adjustable vertically upon said box or framing hangers adjustable horizontally upon said supports and the mercury cup or trough carried by said hangers substantially as set forth.

4. In an amalgamator, the combination with the box or casing, the mercury cup or trough and the hanger supports of the hangers connected at one end with the cup or trough and having their opposite ends connected pivotally with their supports whereby the cups or troughs may be given a swinging adjustment substantially as set forth.

5. In an amalgamator the box or framing and the mercury cups in combination with plates secured to the box and vertically adjustable and provided with horizontal arms having slots formed in the direction of their length and the hangers secured to the cups or troughs and having projected arms secured adjustably in the slots of the horizontal arms of the plates substantially as set forth.

6. In an amalgamator the combination with a mercury cup or trough adjustable both vertically and horizontally of a chemical feeder, supported independently of said cup or trough and also adjustable both horizontally and vertically substantially as set forth.

7. In an amalgamator the combination with the box or framing and the mercury cups of a transverse bar extended across said box or framing and having at its ends legs connected with and adjusted vertically upon the box or frame the chemical feeder and a plate supporting said feeder and connected adjustably with the transverse bar substantially as shown and described.

8. In an amalgamator the combination of the mercury cup or trough supports therefor adjustable vertically and horizontally the chemical feeder and supports therefor adjustable vertically and horizontally substantially as set forth.

9. In an amalgamator the combination of the box or frame, the mercury cup, the plates vertically adjustable upon the box or frame and having the horizontal arms, the hangers connected with the mercury cups and having horizontal arms or portions engaging those of the plates and the set screws turning in the horizontal arms of the hangers substantially as set forth.

10. The combination in an amalgamator of the box or frame, the mercury cup or trough, the level controlling tube connected at one end with the trough, a vertically adjustable plate supporting the other end of the tube and a plate having guides for the said adjustable plate all substantially as set forth.

11. In an amalgamator the combination with the box or frame having sides provided with slots and a stepped bottom having plates which overlap at their lower ends the upper ends of the next lower steps the cleats secured upon said plates and operating to retain between them material being treated the mercury cup, and the level controlling tube connected at one end with the mercury cup and extended at its other end into and adjustable within the slot in the side of the box or frame substantially as set forth.

12. The combination in an amalgamator of a mercury cup or trough, a tube or cell in said trough and adapted to receive the agents by the electrolysis of which the mercury may be cleaned or purified and electrical connections with the contents of said cup and cell substantially as set forth.

13. The combination in an amalgamator of the mercury cup or trough, the tube or cell therein and the lead in said cell all substantially as described and for the purposes set forth.

14. In an amalgamator the combination with a mercury cup or trough of devices whereby the quickening agent may be supplied to the mercury in the cup, below the level of the mercury whereby to secure an even distribution of the quickening agent without interfering with the feed of the material to be treated substantially as set forth.

15. In an amalgamator the combination of the mercury cup and the tube or cell therein having at its outer end an upturned portion open at its upper end substantially as described and for the purposes set forth.

16. In an amalgamator substantially as described the combination with a mercury cup or trough and a submerged tube or cell therein having an upturned end of a guard plate dipping below the surface of the mercury adjacent to said upturned end whereby to prevent the accumulation of pulp, &c., there around substantially as set forth.

17. In an amalgamator the combination with the mercury cup or trough, a tube or cell therein and a lead in said tube or cell of wires connected one with the lead and the other with the mercury in the cup or trough substantially as set forth.

18. In an amalgamator the combination with the mercury cup or trough of two tubes or cells submerged therein, closed at their inner adjacent ends and having their outer ends upturned and open substantially as set forth.

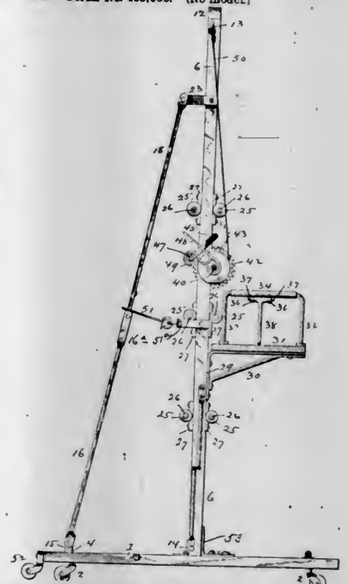
19. In an amalgamator substantially as described the combination of the mercury cup or trough devices for feeding the material to be treated and a gate arranged above the cup or trough said gate being curved transversely and adjustable approximately in the arc of its curve substantially as set forth.

20. The combination in an amalgamator of the mercury cup or trough and the gate arranged above the same and having a pivotal and sliding connection with its supports whereby it may be swung or slid to secure its desired relation to the mercury in the cup substantially as set forth.

21. The combination in an amalgamator of the gate provided at its ends with curved grooves, and the set screws entering said grooves whereby the gate may be adjusted pivotally or be slid upon said screws substantially as set forth.

22. The combination of the box or frame, having the stepped bottom the plates thereon the mercury cups on said steps, the cleats upon the step plates and provided with bearings, the curved gates having at their ends curved grooves and the screws turned through the cleats and entering the curved grooves of the gates all substantially as set forth.

517,768. ELEVATOR. WILLIAM H. RICKABACH, Mishawaka, Ind., assignor of one-half to Winfield L. Huston, same place. Filed Sept. 16, 1893. Serial No. 485,660. (No model.)



Claim.—1. In an elevating apparatus, the combination of the base beams provided with rollers on their under sides and at their rear ends, standards hinged to said base beams, the jointed brace rods connected with said beams and standards, and elevating devices, substantially as described.

2. In an elevating apparatus, the combination with the base beams provided with rollers on their under sides and rear ends, the standards hinged to said base beams and the jointed brace rods connected with said beams and standards, of the vertically movable slides working in guideways in said standards and provided with rollers, the platform connected with said slides, the crank shaft journaled to said slides and provided with pinions at each end, the shaft having intermediate pulleys and cog-wheels each end meshing with said pinions, and the ropes or cables connected with said pulleys and with eye-bolts secured to the transverse rod connecting the upper ends of the standards, substantially as described.

3. In an elevating apparatus, the combination with the base beams, and the hinged standards, of the lower brace rods connected with said base beams having their upper ends bifurcated and provided with a stop-plate, and the upper brace-rods connected with said standards and pivoted near their lower ends to said bifurcated rods, substantially as described.

4. In an elevating apparatus, the combination with the base beams, and the standards hinged thereto, of the lower brace-rods pivotally connected with said beams and having their upper ends bifurcated, forming arms, the stop plates secured to said arms, the upper brace-rods pivoted near their lower ends to said arms, and the hook connected with said standards for engaging with said brace-rods, substantially as described.

5. In an elevating apparatus, the combination with the base beams, the standards hinged thereto and connected at their upper ends by a transverse bar having eye-bolts, of the vertically movable slides working in guide-ways in said standards and provided with rollers, the platform secured to said slides, the shaft journaled in said slides and provided with pulleys and cog-wheels, the hooked retaining bar journaled to the crank shaft journaled in said beams and provided with pinions, and the ropes or cables connecting said eye-bolts and pulleys, substantially as described.

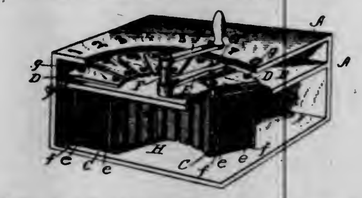
517,769. NECKTIE. GUSTAVE SELOWSKY, New York, N. Y. Filed Oct. 11, 1893. Serial No. 487,884. (No model.)



Claim.—1. An improved neck tie, comprising two ends or aprons formed with a facing and a lining, one of the ends or aprons having its facing terminating short of its lower end, and a corresponding facing applied to the inner surface of the lining opposite the unfaced portion, the said inner faced portion of such end or apron being turned outwardly and upwardly and secured at its side edges to the part over which it is turned, to form a pocket, substantially as described.

2. An improved neck tie formed with two aprons, comprising a facing and lining, said aprons having a fixed relation at their upper ends and having one of such aprons made longer than the other, the longer apron having the facing removed from the outer surface of its lower end and applied to the inner surface of said end, said longer apron being turned outwardly and upwardly and secured to the part over which it is turned, to form a pocket, substantially as described.

517,770. RHEOSTAT. ALTON J. SHAW, Muskegon, Mich. Filed Oct. 12, 1893. Serial No. 487,926. (No model.)



Claim.—1. A rheostat comprising a series of connected cards or sections of folded metallic tape, a supporting plate for said cards or sections, contact blocks carried by said supporting plate and electrically connected with the respective sections, and a brush movable over the contact blocks substantially as set forth.

2. A resistance card or body consisting of a folded metallic tape or band, having a layer of enamel interposed between the folds and serving both to insulate and mechanically to bind together the several folds or layers.

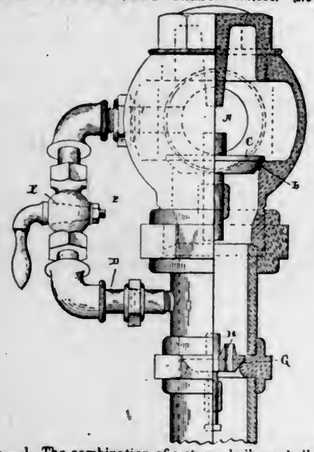
3. A resistance card or body comprising the following elements in combination; a folded metallic tape or band, a metallic block resting upon one fold of said band, and a binding passing about the folded body and the block and serving to unite the same and hold them in compact condition.

4. In combination with a supporting board or plate, a resistance card C provided with a metallic block C', a contact block D, and screws or fastenings *g* passing through the contact block and the supporting plate and engaging with the block C', substantially as shown and described.

5. In combination with a suitable supporting board or plate, a resistance card or body provided with a metallic block C', a fastening securing the block C' to the supporting plate, a contact block on the opposite side of said plate, and fastenings extending from the contact block to the block C', substantially as and for the purpose set forth.

6. A resistance card consisting of two or more insulated sections, each section comprising a metallic band folded back and forth in zig-zag form, the folds being electrically insulated but mechanically united by enamel, substantially as described.

517,771. FEED-WATER-PIPE HEATER. JAMES C. SHAW, Hannibal, Mo. Filed Jan. 31, 1894. Serial No. 498,666. (No model.)

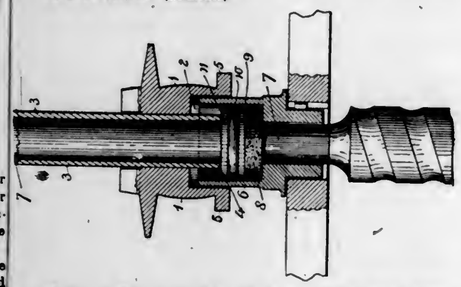


Claim.—1. The combination of a steam boiler, a boiler connection having a valve seat, a check valve therein, a feed water pipe connected to said boiler connection, and a valved pipe bridging said check valve, substantially as shown and described.

2. The combination of a steam boiler, a boiler connection, a check valve therein, a feed water pipe leading to said boiler connection, pipe I leading from the boiler to the said feed pipe, and a valved bridge pipe extending from the boiler connection to the said pipe I, substantially as shown and described.

3. The combination of a steam boiler, a feed water pipe leading thereto, a check valve in the outer end of said pipe, a valved pipe bridging said check valve, and an intermediate check valve in the feed pipe provided with a passage for the purpose, substantially as shown and described.

517,772. SPINDLE FOR SPINNING MACHINERY. BENJAMIN SMITH and JAMES M. HOWSON, Halifax, England. Filed Nov. 28, 1893. Serial No. 492,308. (No model.)



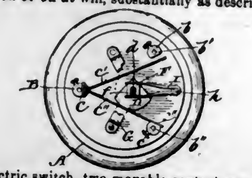
Claim.—1. The combination with the spindle 7 and tube 3 inclosing said spindle, of the whirl 1 rigidly attached to said tube and hollowed out at its base as at 2 to form a cap inclosing the lower end of said tube; an oil cup 6 projecting up into said cap and inclosing said spindle, a loose washer 8 of felt or similar material placed in said oil cup and surrounding said spindle, a superimposed metal washer 9, a metal ring 10, and a metal washer 11, placed on said ring and forming a bearing for the lower end of said tube, substantially as and for the purposes described.

2. In combination, the spindle, a whirl hollowed out to form a cap, a tube surrounding said spindle, fast to the whirl and carried down into the cap an oil cup surrounded by the cap a loose felt or like washer in the oil cup and a superposed metal washer surrounding the spindle and forming a bearing for the end of the tube substantially as described.

517,773. ELECTRIC SWITCH. CHARLES F. SPEED, EDWARD W. BARKER, and CHARLES P. FRANK, Duluth, Minn. Filed Dec. 1, 1893. Serial No. 492,490. (No model.)

Claim.—1. In an electric switch two movable contact arms electrically connected with a feed pole, in combination with a plurality

of contact poles of separate independent circuits, and a movable device located between the arms, which is so constructed and can be operated to cause a contact of said arms directly with one or two poles of the independent circuits, and admits of all or one of the circuits being put on or off at will, substantially as described.



2. In an electric switch, two movable contact arms electrically connected with a feed pole, in combination with two contact poles of separate independent circuits, and a movable device located between the arms which is so constructed and adapted to be operated as to cause a direct contact of said arms with the poles of the independent circuits so as to make or break either or both of said circuits without causing an intermediate period of darkness between the shifting of the currents, substantially as described.

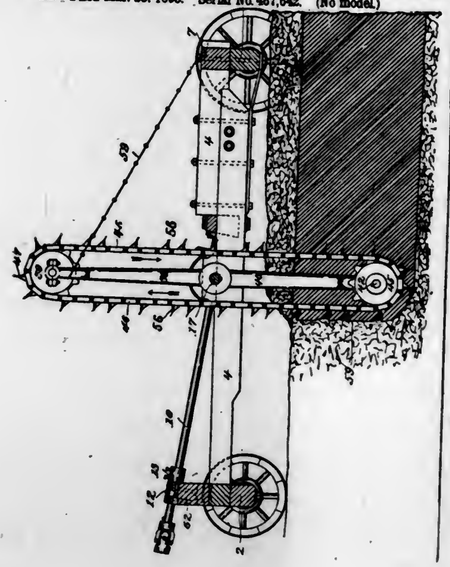
3. In an electric switch, two movable spring contact arms electrically connected with a feed pole, in combination with two contact poles of separate independent circuits, and a movable device located between the arms which is so constructed and adapted to be operated as to cause a direct contact of said arms with the poles of the independent circuits so as to make or break either or both circuits without causing an intermediate period of darkness between the shifting of the currents, substantially as described.

4. In an electric switch, the combination of a feed pole, movable contact arms connected therewith, contact poles of independent circuits in proximity to said arms, a movable sector adapted to cause the engagement of said arms with said contact poles together or separately without causing an intermediate period of darkness between the shifting of the currents, substantially as described.

5. In an electric switch, the combination of a feed pole, two movable spring contact arms connected therewith, contact poles of independent circuits in proximity to said arms, a movable sector located between the said arms and adapted to cause the engagement of said arms directly with the said contact poles together or separately without causing an intermediate period of darkness between the shifting of the currents, substantially as described.

6. In an electric switch the combination of a feed pole, two movable contact arms connected therewith, contact poles placed in proximity to said arms, an operating shaft, a sector mounted on said shaft and adapted to cause the engagement of said arms with said contact poles together or separately, substantially as described.

517,774. DITCHING-MACHINE. LEWIS A. STANFORD, Bradford, Pa. Filed Mar. 25, 1893. Serial No. 467,642. (No model.)



Claim.—1. In a ditching machine, the combination of a suitable frame, a shaft mounted in said frame, and a dirt-elevating device carried by said shaft consisting of the oppositely projecting carrier arms forked at their outer ends, a series of sprocket wheels journaled in said forked ends, and conveyer chains passing around said sprocket-wheels, and suitable means for operating said elevating device, substantially as shown and described.

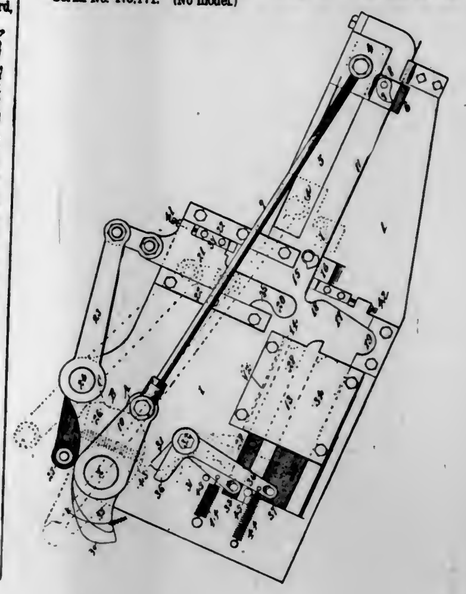
2. In a ditching machine, the combination of a frame, a shaft mounted therein, a dirt-elevating device mounted on said shaft, and consisting of the forked carrier arms having sprocket-wheels journaled therein, and elevating chains passing around said sprocket-wheels, suitable means for imparting motion to said elevating device, and suitable means for controlling the position of the elevating device consisting of a sprocket-wheel mounted on the central shaft, a sprocket and ratchet-wheel mounted in the frame, a pawl engaging said ratchet-wheel, and an operating lever, all substantially as shown and described.

3. In a ditching machine the combination of a suitable frame, a shaft mounted in said frame and a dirt-elevating device carried by said shaft, consisting of the oppositely projecting carrier arms forked at their outer ends, a series of sprocket-wheels fixedly secured to shafts journaled in said forked ends and conveyer chains passing around said sprocket-wheels, suitable means for imparting motion to said elevating device consisting of the sprocket-wheels mounted respectively on the shafts of the carrier arms and elevating sprockets, a chain connecting said sprocket-wheels, a bevel wheel mounted loosely on the carrier shaft and fixedly secured to the sprocket-wheel on said shaft, and a second bevel wheel mounted upon the power shaft journaled in the main frame engaging with the bevel wheel on the carrier shaft, substantially as shown and described.

4. In a ditching machine, the combination of a suitable frame, a shaft mounted in said frame, and a dirt-elevating device carried by said shaft and consisting of the oppositely projecting carrier arms 38 and 40 forked at their outer ends, and having journaled therein a series of sprocket-wheels, two of said wheels on the arm 40 being mounted outside of the fork and elevating chains passing around said sprocket-wheels with suitable means for operating the elevating device, substantially as shown and described.

5. In a ditching machine, the combination of a suitable frame, a shaft mounted in said frame, a dirt-elevating device carried by said frame consisting of the forked carrier arms having sprocket-wheels journaled therein, and chains passing around said wheels, the links of which are formed with integral brackets and having secured thereto the elevating spade blades formed with a back 57 and inclined edges, and suitable means for imparting motion to the elevating device substantially as shown.

517,775. MACHINE FOR MAKING HOOKS FOR STRETCHING CURTAINS. FRANK STEINMANN, St. Louis, Mo. Filed May 22, 1893. Serial No. 475,171. (No model.)

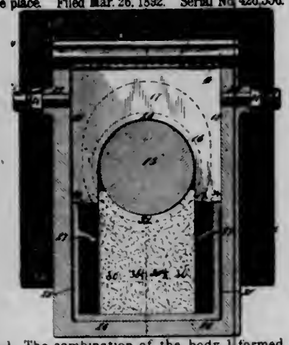


Claim.—1. The combination of a rib 17 having a round upper end 18, and a semi-circular lower end 19, a vertically sliding die 20, having a lower end conforming in shape to the semi-circular lower end of the rib, and a side recess 35, a horizontally sliding die 28 having an end conforming in shape to the round upper end of the rib, a horizontally sliding die 34 having an end conforming in shape to the side recess of the vertically sliding die, means for feeding the wire, means for moving the dies, and means for cutting the wire; substantially as described.

2. The combination of the frame, the sliding head 4 having a bearing plate 6 and a pivoted dog, the serrated cam 15 and fixed projection 16, the rib 17 having a round upper end 18, and a semi-circular lower end 19, a vertically sliding die 20, having a side recess 35, a horizontally sliding upper die 28, a horizontally sliding lower die 34, means for moving the head, means for moving the dies, and means for cutting the wire; substantially as described.

3. The combination of a rib 17 having a round upper end 18, and a semi-circular lower end 19, a vertically sliding die 20 having a side recess 35, a horizontally sliding upper die 28, a horizontally sliding lower die 34, means for feeding the wire, bell crank levers and cams for moving the upper and lower dies, lever and cam for moving the vertical die, and means for cutting the wire; substantially as described.

517,776. OIL-DRAWER JOURNAL-BOX. JOHN H. SURTIN, St. Louis, Mo., assignor of two-thirds to Robert McCulloch and William Sutton, same place. Filed Mar. 26, 1892. Serial No. 426,556. (No model.)



Claim.—1. The combination of the body 1 formed with an incline 4, the cap 2 formed with side flanges 5, and with rearward extension 3 having an incline 3ª resting on the incline of the brow and means by which the cap is secured to the body; substantially as described.

2. The combination of the body 1 having the channels 18, the check-plate 17, seated in the channel-grooves, having the arc curved base, the oil drawer for the lubricant having longitudinal flanges 27 provided with transverse slots 29, the front suction block 30 located in the slots, having arc curved surface 31 and the journal 13 having annular recess 16 receiving the check-plate and suction block, substantially as described.

3. The combination of the body 1, the oil-drawer 25 the cap 2 and the cushions 32 located between the oil-drawer and the cap; substantially as described.

4. A journal-oil-drawer having the inclined longitudinal flanges 27, providing a longitudinal opening 27½ between them, and the transverse slots 29, the side blocks, and the front block; substantially as described.

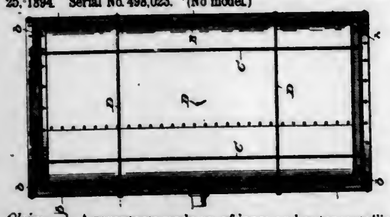
5. A journal oil-drawer having the inclined longitudinal flanges 27, located at a distance beneath the top of the drawer, providing a longitudinal opening 27½ between them and the transverse slots 29, and the side and front blocks substantially as described.

6. A journal oil-drawer having the inclined longitudinal flanges 27, providing a longitudinal opening 27½ between them, the transverse slots 29 and the extensions 40, having openings 28 and the side and front blocks; substantially as described.

7. A journal oil-drawer having the inclined longitudinal flanges 27, providing a longitudinal opening 27½ between them, the transverse slots 29 and the extensions 40, the side suction blocks 30½ the front suction-block 30, located in the transverse slots, having an arc-curved surface 31, substantially as described.

8. A journal oil-drawer having the inclined longitudinal flanges 27 providing a longitudinal opening 27½ between them, the transverse slots 29 and the extensions 40, having openings 28 the front suction-block 30, located in the transverse slots, having an arc curved surface 31, and the side suction-blocks 30½ located in the longitudinal opening; substantially as described.

517,777. RECEPTACLE OR TANK FOR THE STORAGE OF COMPRESSED AIR, GAS, &c. WILLIAM TIMMIS, Pittsburg, Pa. Filed Jan. 25, 1894. Serial No. 498,023. (No model.)

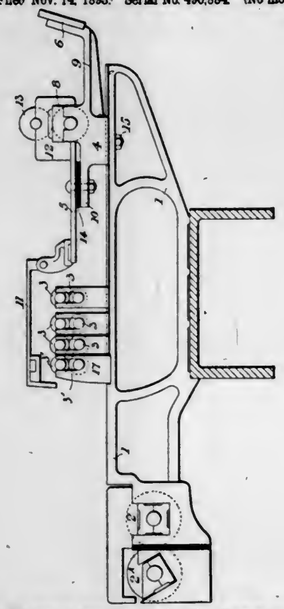


Claim.—1. A receptacle made up of inner and outer metallic casings placed one within the other so as to leave a space between them, the space being filled by a metal of greater density than the metal of which the casings are made.

2. As an improved article of manufacture, a tank or receptacle made up of two metallic casings of different sizes one placed within the other to leave a space between them, said space being filled with a ductile metal of greater density than the metal of which the casings are made so as to completely surround the inner casing and connect the same to the outer casing, substantially as shown, and for the purpose set forth.

3. A method of manufacturing metallic receptacles consisting in placing one casing within another, heating the casings and while they are in a heated condition filling the space between them with molten metal of greater density than the metal of which the casings are made, substantially as described.

517,778. ELECTRIC STOP-MOTION DRAWING-FRAME. EDMUND TWEEDALE, SAMUEL TWEEDALE, and JOSEPH SMALLEY, Castleton, England. Filed Nov. 14, 1893. Serial No. 490,884. (No model.)

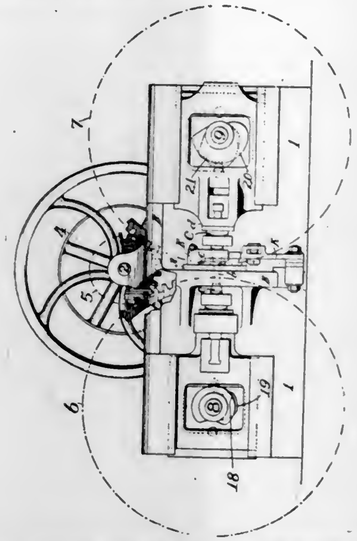


Claim.—1. In electric stop motion drawing frames and in combination the support 1, adjustable sliding bracket 4 carried thereby, guide rail 6, insulated back plate 5, top clearer 11, cap bar 12 and rollers 8, 13, all carried by the bracket 4, substantially as and for the purpose described.

2. In electric stop motion drawing frames and in combination the support 1, adjustable sliding bracket 4 carried thereby, insulated back plate 5, top clearer 11, cap bar 12, and rollers 8, 13, all carried by the bracket 4 substantially as and for the purpose described.

517,779. MACHINE FOR MAKING NUTS. ANTON URBAN, Vienna, Austria-Hungary. Filed Apr. 27, 1893. Serial No. 472,090. (No model.)

Claim.—1. In a machine for making nuts, the combination with a matrix of the form of the desired exterior of the nut; of means for cutting off the blank and carrying it in front of the matrix; an inserting rod adapted to press said blank into said matrix and then to move out of the way; two hollow stamps adapted to enter said matrix and press against the exterior edges of the blank; and cylindrical punches moving in said hollow stamps and adapted to press part of the material forming the blank away from the center and toward the circumference of said blank, and then to punch out the burr remaining in the said center, substantially as described.



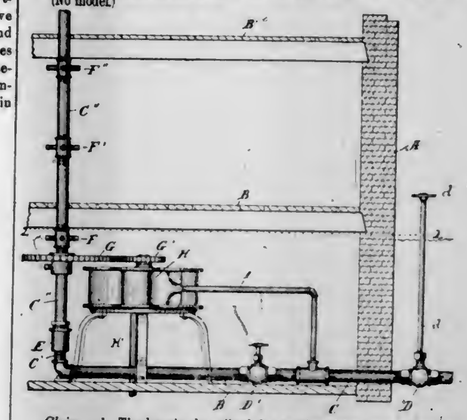
2. In a machine for making nuts, the combination with a matrix of the form of the desired exterior of the nut; of means for cutting off the blank, carrying it in front of said matrix; an inserting rod adapted to press said blank into said matrix, and means for intermittently moving said rod toward said matrix and removing it clear of the same; two hollow stamps adapted to enter said matrix from opposite sides and to compress the exterior edges of said blank, a cylindrical punch mounted in each of said hollow stamps; and means for moving said punches independently of said hollow stamps, substantially as described.

3. In a machine for making nuts, the combination with a matrix, of the form of the desired exterior of the nut; of means for cutting off the blank, holding the same in position and carrying it in front of said matrix; an inserting rod and means for operating the same for inserting said blank in said matrix; two hollow stamps adapted to enter said matrix and press against the exterior edges of the blank; and cylindrical punches moving in said hollow stamps and adapted to press part of the material forming the blank away from the center and toward the circumference of said blank, and then to punch out the burr remaining in the said center, substantially as described.

4. In a machine for making nuts, the combination with a matrix of the form of the desired exterior of the nut; of a fixed and movable cutter for cutting off said blank, and a spring operated finger for holding said blank after it has been cut off; means for carrying it to and inserting it in said matrix; two hollow stamps adapted to enter said matrix from opposite sides and to compress the exterior edges of said blanks; a cylindrical punch mounted in each of said hollow stamps; and means for moving said punches independently of said hollow stamps, substantially as described.

5. In a machine for making nuts, the combination with a matrix of the form of the desired exterior of the nut; of a fixed and movable cutter for cutting off said blank, and a spring operated finger for holding said blank after it has been cut off; means for carrying it to and inserting it in said matrix; two hollow stamps adapted to enter said matrix from opposite sides and to compress the exterior edges of said blank; cams and mechanism for operating the same for moving said stamps; a cylindrical punch moving in each of said hollow stamps; and cams and mechanism for operating the same for moving said punches independently of said stamps, substantially as and for the purposes described.

517,780. FIRE-EXTINGUISHER. JOHN VAN KALKER and NICHOLAS BOLT, Grand Rapids, Mich. Filed July 31, 1893. Serial No. 482,030. (No model.)

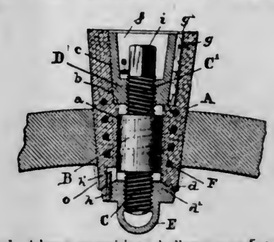


Claim.—1. The herein described fire extinguisher, consisting of a stationary supply pipe, having two valves and provided at one end with a stationary vertical extension, a rotatable pipe, connected with said extension, and provided at intervals throughout its length with series of nozzles, a gear wheel fixed to said rotatable pipe, a water motor, connected with said supply pipe between the valves thereof, and a pinion, fixed on the shaft of said motor and engaged by said gear wheel.

2. In a fire extinguisher, the combination with a stationary supply pipe having a vertical extension at its inner end, said extension having threads on its outer surface, and a stuffing box having a reduced threaded lower end engaging the threaded part of said extension, of a rotatable pipe, having its lower end projecting into the larger upper part of said stuffing box into contact with the upper end of said extension, a packing in said larger part of the stuffing box surrounding the lower end of said rotatable pipe, a gland, threaded into the upper end of the larger part of the stuffing box and compressing and holding the packing therein, and series of nozzles projecting at intervals from said rotatable pipe, substantially as described.

3. A means designed to be located in buildings for extinguishing fires therein, consisting of a horizontal stationary supply pipe extending into the building from the outside thereof, a rotatable pipe extending upward through the building and provided at intervals with discharge nozzles, said rotatable pipe being connected with said supply pipe, a water motor, designed to be located inside the building and geared with said rotatable pipe, a single valveless pipe connecting said motor with said supply pipe, a normally open valve in the part of said supply pipe inside the building and rearward of the pipe connecting the supply pipe with the motor, a normally closed valve located in the part of the supply pipe without the building, and means for operating said last-mentioned valve, substantially as shown and described.

517,781. EXPANSIBLE BUNG. LOUIS WAGNER, Baltimore, Md. Filed Apr. 15, 1892. Renewed June 17, 1893. Serial No. 478,006. (No model.)



Claim.—1. A bung comprising a hollow tapered elastic plug having a conical seat at one end and an internal shoulder near the other end; a stem extending through said plug and having oppositely threaded end-portions; a nut on one of said end-portions and fitting against the conical seat; and a nut on the other of said end-portions and fitting against the internal shoulder.

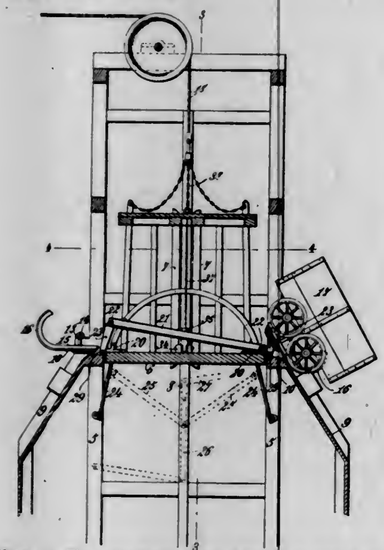
2. A bung comprising a hollow tapered elastic plug having a conical seat at one end and an internal shoulder near the other end; a

stem extending through said plug and having oppositely threaded end-portions; a nut on one end fitting the conical seat; and a nut on the opposite end fitting against the internal shoulder and having ribs which engage grooves in the hollow plug for the purpose described.

3. A bung comprising a hollow tapered elastic plug; means for expanding the same in the bung-hole; and a spiral spring embedded in the said plug.

4. In a bung the combination with a hollow expansible sleeve of suitable elastic material such as rubber, of spreading or expanding devices within and near the inner and outer ends of the same, means for forcing said devices together, and a spring situated intermediately between said spreading devices for elongating and restoring the proper shape to the elastic sleeve, substantially as set forth.

517,782. SELF-DUMPING MECHANISM FOR COAL-ELEVATORS. ALEXANDER WALKER, What Cheer, Iowa. Filed Jan. 3, 1894. Serial No. 495,535. (No model.)



Claim.—1. The combination of the platform or cage having a pair of slots 19 at each end, the car rails removably arranged in bearings on the platform, rock-shafts 29 having cranks 30 and prop arms 23 which are adapted to enter the end slots of the platform, a link 31 connecting the crank arms of the rock-shafts, and a lever handle 32 for operating the crank-arms and link, substantially as described.

2. The combination with the platform or cage, car rails removably arranged in bearings on the platform, and prop-arms for causing the rails to assume inclined position in either direction relatively to the opposite sides of the elevator-shaft, of pivoted arms 24, a vertically movable rod 26, links 25 pivoted at one end to the vertically movable rod and at their opposite ends pivoted respectively to the pivoted arms, and a horizontally arranged lever 27 pivoted intermediate its extremities and at one extremity pivoted to the vertically movable rod for operating the latter, substantially as described.

3. The combination with the platform or cage of an elevator, and car-rails thereupon, of chock-blocks movable across the rails to chock the car-wheels, and connections between the chock-blocks and the hoisting cable, substantially as described.

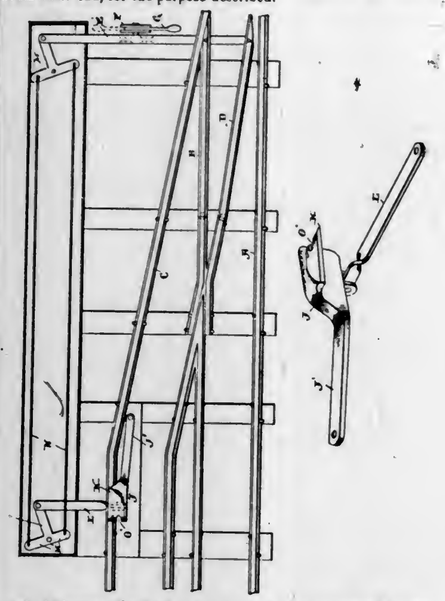
4. The combination with the platform or cage of an elevator, and car rails thereupon, of pivoted chock-blocks each composed of two arms, one of which is adapted to move across the rails, and the other one of which is connected with the hoisting cable, substantially as described.

517,783. SWITCH ATTACHMENT. GOVERNOR D. WARREN, Dallas, Tex., and JAMES CASEY, Coalgate, Ind. Ter. Filed June 26, 1893. Serial No. 478,927. (No model.)

Claim.—1. An improved derailing guard comprising a bar pivoted at a point inside of the rail and extending parallel therewith, the bar having at its free end an outwardly extending horizontal flange adapted to overlap the rail, and an outwardly curved vertical flange at the inner side of the horizontal flange.

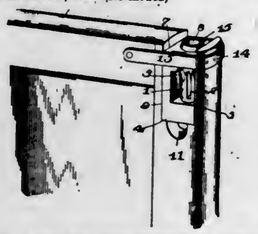
2. The combination of a side track rail, a shoe pivoted adjacent the same, a means for adjusting the shoe to and away from the rail, and a vertical groove formed in the shoe end, for the purpose substantially as shown and described.

3. An improved derailing guard comprising an arm pivoted at one end at a point inside of the rail, said arm having at its free end a vertical portion provided with an outwardly extending horizontal flange at a point below the upper edge of the said vertical portion, the vertical portion above the horizontal flange being curved outward at its inner end, for the purpose described.



4. An improved derailing guard comprising a horizontally swinging arm pivoted at one end at a point inside of the rail, its free end having a vertical portion extending above the rail, an outwardly extending horizontal flange below the upper edge of the vertical portion and adapted to overlap the rail, an operating means outside of the rails, and a connection extending under the rail and connected with the vertical portion of the guard and its opposite end connected with the operating device, substantially as described.

517,784. PENCIL-SHARPENER. AUGUST WERNER, Pioche, Nev., assignor of two-fifths to Thomas J. Osborne, same place. Filed July 18, 1893. Serial No. 480,864. (No model.)



Claim.—1. A pencil sharpener comprising a holder having a longitudinal bore and provided with a recess intersecting and dividing the bore into upper and lower portions, the upper portion being adapted to receive a pencil, and a tubular cutter detachably arranged in the recess and fitted in the lower portion of the bore and provided on its interior with cutting edges, substantially as described.

2. A pencil sharpener comprising a holder having a longitudinal bore and provided with a recess intersecting the bore, a pencil guiding bushing fitted in the upper portion of the bore and having a shoulder resting upon the upper face of the holder, and a tubular cutter arranged within the recess and fitted in the lower portion of the bore, substantially as described.

3. A pencil sharpener comprising a holder having a longitudinal bore and provided with a recess intersecting the bore, and a tubular cutter arranged in the recess and fitted in the lower portion of the

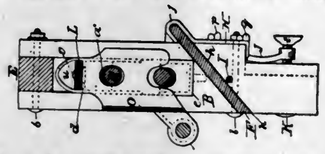
bore and provided with a tapering bore and having vertical slots and flared grooves forming interior cutting edges, the slots extending nearly the entire length of the bore and the grooves being arranged at the top of the cutter between the slots, substantially as described.

4. The combination of a slate frame provided at the top with an opening, a removable holder arranged within the opening and provided with a longitudinal bore, a tubular cutter carried by the holder, and a swinging loop hinged to the slate frame at the inner side of the opening and adapted to fit over the adjacent side edge of the slate frame and extending on opposite sides of the holder, substantially as described.

5. The combination of a slate frame provided at its top with an opening and having a socket at the bottom thereof, a holder removably mounted in the opening of the slate frame and provided with a depending projection engaging the socket thereof, a swinging loop hinged to the slate frame and provided with inwardly extending lugs engaging the holder, and a cutter carried by the holder, substantially as described.

6. The combination of a slate frame provided at its top at one side with an opening and having at the bottom thereof a socket and provided at opposite sides of the opening at the lower end thereof with beveled recesses, a holder having a longitudinal bore and provided with a recess and having a depending projection engaging the socket of the slate frame, a cutter arranged within the recess of the holder and fitted in the lower portion of the bore, and a swinging loop hinged to the slate frame and provided at opposite sides with lugs engaging the holder, substantially as described.

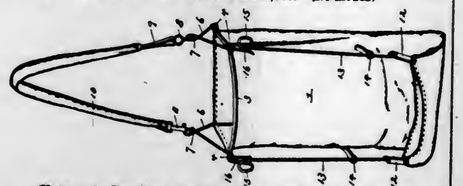
517,785. CLOTHES-WRINGER. CYRENUS WHEELER, Jr., Auburn, N. Y. Filed Sept. 12, 1893. Serial No. 485,368. (No model.)



Claim.—1. In a clothes wringer, in combination with the rolls and their bearing boxes, the frame work supporting the same, consisting of the slotted end pieces, the cross bar connecting the tops of said end piece, the inclined drip board supported by the end pieces and below the rolls in grooves, and projecting back of the end pieces, the metal socket pieces embracing the corners of the drip board, and united to the end pieces by bolts, substantially as shown and described.

2. In a clothes wringer, the combination of the frame work, the rolls, and spring, the movable boxes provided with guard plates having journal boxes for the clothes supporting roller, substantially as described and shown

517,786. FRUIT-GATHERER. JOHN K. WOODWARD, Riverside, Cal. Filed Nov. 8, 1893. Serial No. 490,375. (No model.)



Claim.—1. In a fruit gatherer, the combination of a bag open at the top and bottom and having its lower end folded upward to close the bottom, and yielding connections between the upturned end of the bag and the body thereof, whereby an elastic or cushioned bottom is provided, substantially as described.

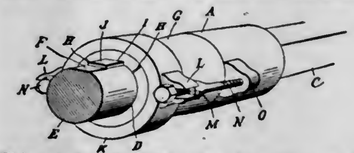
2. In a fruit gatherer, the combination of a bag open at both ends and having its lower end turned up to close the bottom, and the parallel resilient suspension rods secured to the lower opposite corners of the bag and detachably connecting the upturned end of the bag with the body thereof, substantially as and for the purpose described.

3. In a fruit gatherer, the combination with a bag open at its opposite ends, of a rectangular frame secured to the upper end of the bag, and yielding suspension devices secured to the lower opposite corners of the bag, shorter than the bag, and adapted to removably engage with said frame, substantially as specified.

4. In a fruit gatherer, the combination with a bag open at its opposite ends, of a frame secured to the upper end of the bag, a pair of suspension-rods shorter than the bag and secured to the lower opposite corners of the bag and having their upper ends coiled to form springs and terminating in hooks for engaging the frame, substantially as specified.

5. In a fruit gatherer, the combination with the bag open at its opposite ends, and guide-eyes secured to the opposite sides of the bag, of a frame secured to the upper end of the bag, straps secured to the lower corners of the bag, and yielding rods secured to the straps, passed through the guide-eyes, and removably engaging the frame, and shorter than the bag, substantially as specified.

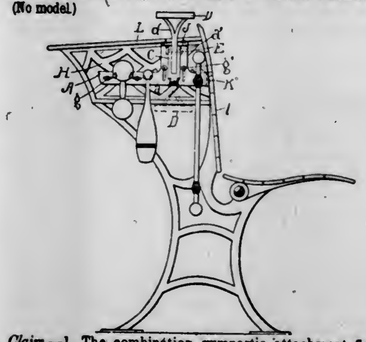
517,787. SLIP-SHAFT COUPLING. THEODORE L. BAUMGARTEN, Hornellsville, N. Y., assignor of one-half to Farrand C. Prindle, same place. Filed Mar. 18, 1893. Serial No. 466,705. (No model.)



Claim.—1. In a slip shaft coupling, the combination of a cylindrical coupling block provided at one end with a circular bore and a squared key-seat or groove formed in one side of said bore, a flat key of a width equaling the depth of said key seat or groove and fitting therein, the round shaft-end fitted in said circular bore and having an exteriorly-flattened ungrooved side bearing flat against the inner flat face of the key, and means for compressing the bored end of the coupling block, substantially as specified.

2. In a slip shaft coupling, a coupling block having a square bore at one end, off-standing threaded lugs, and an opposite exteriorly tapered end provided with a cylindrical bore, and having slits formed therein and a key seat or groove, a square key adapted to be inserted in said key seat or groove and to fit the flattened side of a round shaft end, an interiorly beveled clamping collar or ring fitting the exteriorly tapered end of the block and provided with opposite notched ears, and shouldered coupling screws or bolts removably fitting the notched ears of the collar or ring and adjustably engaging the threaded lugs of the coupling block, substantially as set forth.

517,788. GYMNASTIC APPLIANCE FOR SCHOOL-DESKS. THEODORE BESSING, Los Angeles, Cal. Filed Jan. 17, 1893. Serial No. 458,878. (No model.)

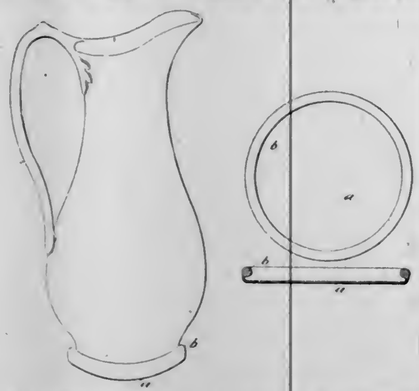


Claim.—1. The combination gymnastic attachment for school desks set forth comprising the bracket bar adapted for attachment to the frame work of the desk and provided with the series of hooks or clamps adapted to receive the dumb-bells, Indian club, &c., and provided with the double bracket having the pivot holes *e* and the base shoulder rest *c*; and the parallel bar having the slotted arm inserted within the bracket, and the pivot inserted through such pivot holes and the slot in the arm, and arranged to pivot the arm in such double bracket.

2. The combination set forth of the bracket bar adapted for attachment to the frame of the desk and consisting in the long horizontal base member provided with a series of hooks or clamps arranged in pairs to receive and retain dumb-bells, &c., and provided with a short upright member *a'*, and provided with a bracket arranged and adapted to receive and sustain a hand, breast or parallel bar, and secured to such base and upright members, and such bar secured to the bracket.

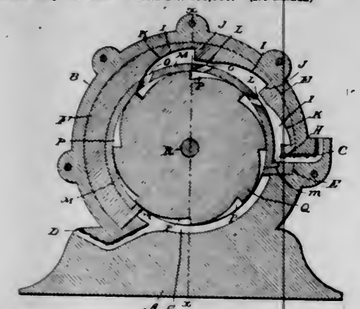
517,789. SHIELD FOR PITCHERS, &c. MARGARET L. BUCKLEY, Freeport, Pa. Filed Jan. 16, 1894. Serial No. 497,079. (No model.)

Claim.—1. A rubber shield or protector for pitchers, bowls, and other vessels, consisting of the elastic disk *a* to extend across and wholly cover or inclose the bottom of the vessel and protect it against injury and provided with the constrictive rim *b* adapted to engage the foot of the vessel exteriorly only and by its constrictive force bind the shield to such foot, and admit of the use of the shield on different vessels whose feet greatly vary in diameter substantially as described



2. A rubber shield or protector for vessels, having the perforated elastic disk *a* to extend across and wholly cover or inclose the bottom of the vessel and protect it against injury and the upturned thickened constrictive rim *b* adapted to engage the foot of the vessel exteriorly only and by its constrictive force bind the shield to such foot and admit of the use of the shield on bottoms of vessels of different diameters, substantially as described.

517,790. ROTARY STEAM-ENGINE. WALTER M. BYRD, Mount Gilead, assignor of one-half to W. D. Clark and A. D. Clark, Fly, N. C. Filed July 18, 1893. Serial No. 480,835. (No model.)

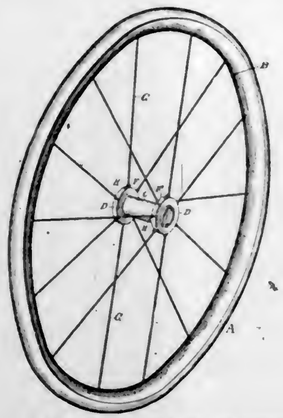


Claim.—1. In a rotary steam engine, the steam cylinder having a series of interior impacting pockets communicating with each other and the steam inlet, a cap plate facing the inner wall of the steam cylinder to inclose said impacting pockets and having steam openings or ports aligning with the forward walls of each pocket, and the bucket drum substantially as set forth.

2. In a rotary steam engine, the cylinder having oppositely located inlet and exhaust ports, a segmental packing abutment seated within the cylinder between the ports thereof and having a series of impacting pockets communicating with each other and the inlet port, a removable abutment cap plate facing the inner side of said packing abutment and having a series of steam openings or ports communicating with said impacting pockets, and a rotary bucket drum or piston mounted within said cylinder and traveling in contact with said abutment cap plate, substantially as set forth.

3. In a rotary steam engine, the combination of a steam cylinder having oppositely located inlet and exhaust ports, a segmental packing abutment mounted inside of the cylinder between the ports thereof and provided with a series of intercommunicating impacting pockets or recesses also communicating with the inlet port, said impacting pockets each having a rear straight shoulder wall and a forward curved wall, a removable cap plate fitted to the inner side of said packing abutment and provided with a series of steam openings or ports disposed in a direct line with the forward curved wall of each impacting pocket and a bucket steam drum mounted within said cylinder and traveling in contact with said removable cap plate, substantially as set forth.

517,791. METALLIC VEHICLE-WHEEL. CORODON S. CANNON, Battle Creek, Mich. Filed June 30, 1893. Serial No. 479,271. (No model.)

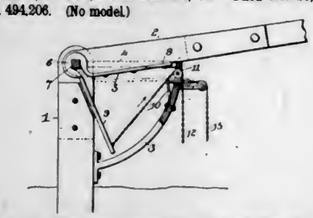


Claim.—1. In a metallic vehicle wheel, the combination with a cast hub; of separate attaching links partially embedded in the metal of the hub and having outer exposed ends, and the spokes loosely connected at their inner ends to the outer exposed ends of said links, substantially as set forth.

2. In a metallic vehicle wheel, the combination with a cast hub; of a spacing ring embedded in the metal of the hub, attaching links embracing said spacing ring, and the wheel spokes loosely connected at their inner ends to said links, substantially as set forth.

3. In a metallic vehicle wheel, the combination with the hub having cast collars; of spacing rings embedded in the metal of said collars, attaching links partially embedded in the metal of the collars and connected at their inner ends to said spacing rings, and the spokes provided at their inner end with eyes loosely engaging the outer exposed ends of the links, substantially as set forth.

517,792. RAILWAY-CROSSING GATE. GEORGE C. CORBIN and THOMAS A. CORBIN, North Danville, Va. Filed Dec. 20, 1893. Serial No. 494,206. (No model.)

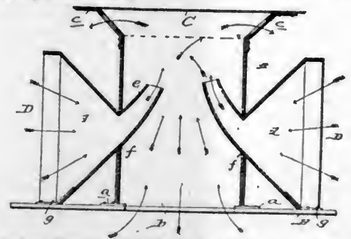


Claim.—1. The combination with a gate-arm, of a leaf-spring having one of its leaves attached to the gate-arm, a lever operatively connected to the free leaf of said spring, a locking device arranged to engage the free leaf of the spring when the latter is in its contracted position, a trip-lever connected to said locking devices, and means for operating the levers to contract and release said spring respectively, substantially as specified.

2. The combination with a gate-arm, of an actuating leaf-spring having one of its leaves secured to the arm, a spring-actuated latch to engage the extremity of the free arm of the spring, a gate-opening lever operatively connected to the free leaf of the spring, a trip-lever operatively connected with the said latch, and trip-pins adapted to be carried by the rolling stock and provided with operating devices, substantially as specified.

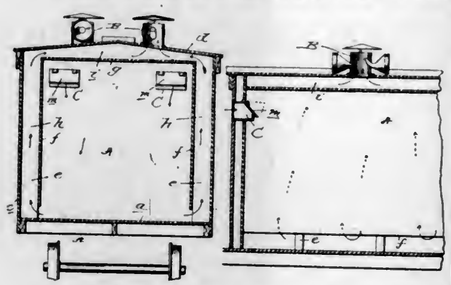
517,793. VENTILATOR. WILLIAM T. COTTIER, Los Angeles, Cal. Filed Mar. 7, 1893. Serial No. 464,976. (No model.)

Claim.—1. In a ventilator, substantially as described, the combination with a chimney or shaft and a cap plate supported above the upper end of the chimney or shaft so as to form a horizontal passage; of inductors arranged at opposite points and respectively comprising a flaring mouth *d*, and a tube *e*, extending upwardly within the chimney or shaft and tapered or reduced toward its terminal end, as and for the purpose set forth.



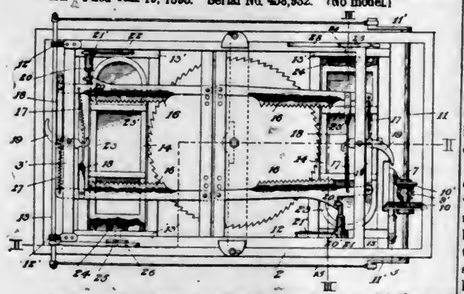
2. In a ventilator, substantially as described, the combination with a chimney or shaft and a cap plate supported above the upper end of the chimney or shaft so as to form a horizontal passage; of inductors arranged at opposite points and respectively comprising a flaring mouth *d*, and a tube *e*, extending upwardly within the chimney or shaft and tapered or reduced toward its terminal end; one of the said tubes *e*, being of a greater length than the other, substantially as and for the purpose set forth.

517,794. VENTILATED FREIGHT-CAR. WILLIAM T. COTTIER, Los Angeles, Cal. Filed Apr. 12, 1893. Serial No. 470,065. (No model.)



Claim.—The improved ventilated freight car constructed as described, with the ceiling *g*, of less length and width than the interior of the car, and the side walls *f*, depending from the ceiling so as to leave a space between their lower edges and the floor of the car, whereby vertical flues *e*, are formed in the sides and an expansion chamber *i*, formed in the top of the car, the fresh air induction devices C, having the gauze covering in the front walls, and the inclined hinged doors *m*, on their rear sides, and said induction devices being arranged in the end walls of the car body near the top thereof, so that air entering at one end while the car is in motion, will tend to close the induction devices at the opposite end, and the ventilators B, arranged on the top of the car and in communication with the expansion chamber, and flues connecting the expansion chamber with the interior of the car, substantially as specified.

517,795. SHINGLE-MACHINE. THOMAS C. DAVIS, Bradenbaugh, Md. Filed Jan. 19, 1893. Serial No. 458,932. (No model.)

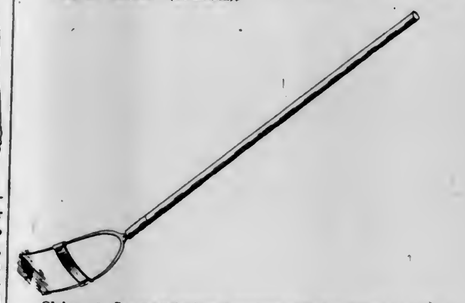


Claim.—1. In a shingle machine, the combination with the main frame, and driving mechanism, a saw, a saw-arbor, a carriage mounted on said frame, a crank-shaft, connecting devices adapted to reciprocate said carriage, clamping jaws located at either end of the carriage, a central cross-bar, said clamping jaws being pivotally connected thereto at one end, and having their free ends supported in the slotted end bars of the carriage, tension springs whereby the jaws are normally closed, and a pivoted cam lever adapted to open said jaws, substantially as described.

2. In a shingle machine, the combination with the main frame, and driving mechanism, a saw, a saw-arbor, a carriage mounted on said frame, a crank-shaft, connecting devices adapted to reciprocate said carriage, clamping jaws located at either end of the carriage, a central cross-bar, said clamping jaws being pivotally connected thereto at one end, and having their free ends supported in the slotted end bars of the carriage, tension springs whereby the jaws are normally closed, a cam surface beneath the carriage secured to the machine frame, a rock-shaft, a pin secured therein, a cam carried thereby, whereby the clamping jaws are locked until said cam engages the cam surface, and a pivoted cam lever carried by the carriage, adapted to release the jaws, substantially as described.

3. In a shingle machine, a saw, a saw-arbor stepped in an adjustable bearing at its lower end, a gear secured thereon, a train of variable speed gears driven thereby, an upright shaft located at one end of the machine, having its lower end stepped so as to permit said shaft to be rocked, a sliding bearing adapted to receive the upper end of the shaft, bevel gears mounted thereon, a hand-lever attached to said bearing, whereby the shaft is rocked, a horizontal shaft having crank arms on the ends thereof, a reciprocating carriage, clamping jaws carried thereby, and devices connecting said horizontal shaft and the reciprocating carriage gears of different diameters mounted on said horizontal shaft, adapted to be engaged by the gears mounted on the upright shaft so as to change the speed of the reciprocating carriage, substantially as and for the purpose set forth.

517,796. CUTTER ATTACHMENT FOR FORKS. PETER P. DUSTRUD and JULIUS DUSTRUD, Sacred Heart, Minn. Filed July 8, 1893. Serial No. 479,918. (No model.)



Claim.—1. In an agricultural implement, a fork having a cutter, said cutter being provided with eyelets for the reception of the fork tines, substantially as described.

2. An agricultural implement consisting of a fork having a removable cutter, said cutter being slightly curved and provided with eyelets at each end for the reception of the fork tines, substantially as described.

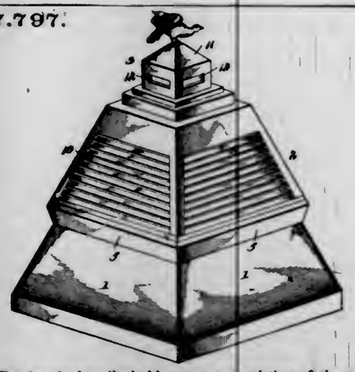
3. In an agricultural implement, a fork having a removable cutter, slightly curved, with a knife edge, the ends of said cutter having eyelets to engage the fork tines, substantially as described.

517,797. CHIMNEY TOP AND VENTILATOR. JAMES T. FINCH, Wellsville, Ohio. Filed June 29, 1893. Serial No. 479,130. (No model.)

Claim.—1. The herein-described chimney top, the same consisting of a conical hollow base open at top and bottom and having imperforate sides, a conical section surmounting the same combining therewith to form an intermediate air space terminating there-above in a contracted open neck and having air inlets there-below, and a discharge cap or section surmounting the same, substantially as specified.

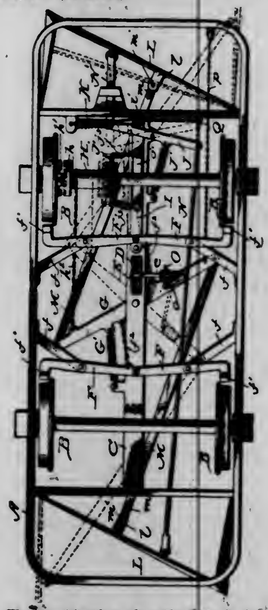
2. The herein-described chimney top, consisting of the conical open ended hollow section, adapted to surmount a chimney and provided with a surrounding grooved ledge midway the same, an intermediate section exceeding in size and arranged upon the ledge and having a rib seated in the groove thereof, said intermediate section terminating above the lower section in a contracted neck having a surrounding flange and opposite said lower section provided with inlet openings having a series of inclined slats and combining with the lower section to form converging air-passages and a conical cap section seated upon the contracted neck and embraced by the flange and provided with a series of discharge-openings, substantially as specified.

517,797.



3. The herein-described chimney top, consisting of the conical open ended hollow section, adapted to surmount a chimney, an intermediate section exceeding in size and arranged upon the lower section, said intermediate section terminating above the lower section in a contracted neck and opposite said lower section provided with inlet openings having a series of inclined slats and combining with the lower section to form converging air-passages, and a conical cap section seated upon the contracted neck and provided with a series of discharge-openings, substantially as specified.

517,798. CAR-FENDER AND AUTOMATIC BRAKE. WILLIAM L. PITTENGER, Baltimore, Md., assignor, by direct and mesne assignments, to the Russ Car Fender Company, of West Virginia. Filed Dec. 8, 1893. Serial No. 493,127. (No model.)



Claim.—1. The combination of a pilot board adapted to yield when engaged by an obstruction on the track, a lever adapted to be positively operated from an axle of the truck, a releasing and clutch mechanism actuated by the yielding of the pilot board to operatively connect the said lever with the axle, connections between the said lever and the pilot board whereby the latter is thrown outward, a brake mechanism, and motive power disconnecting devices actuated from the said lever, simultaneously with the outward movement of the pilot board, substantially as set forth.

2. The combination with a pilot board adapted to swing outward a drum, a clutch mechanism between an axle of the car truck and the said drum, and connections between the said drum and the pilot board, of a counterbalanced lever for throwing the said clutch mechanism in gear, and a latch lever for holding the clutch mechanism out of gear by engagement with the said counterbalanced lever, and adapted to be released by impact of the pilot board with an obstruction, substantially as described for the purpose specified.

3. The combination with the pilot board adapted to swing outward, a drum, and a clutch mechanism between the said drum and an axle of the truck, of a lever having connection with the said drum, a rod forming connection between the said lever and the pilot board and constructed to permit of a slight inward movement of the said pilot board when the latter is struck a counter-balanced clutch operating lever, and a latch lever adapted to be released by the inward movement of the pilot board, substantially as described.

4. In combination a pivoted pilot board, a brake mechanism, a transverse lever having connection with the said pilot board and brake mechanism, a drum for operating the said transverse lever, a clutch mechanism between the said drum and an axle of the truck, a counterbalanced clutch operating lever, a latch lever for engagement with the counterbalanced lever to hold the clutch out of gear, a push rod to be operated from by the pilot board to release the said latch lever, a resetting lever under the control of the motor or gripman, and provisions having attachment with the said transverse lever for automatically disconnecting the car from its propelling mechanism, substantially as specified.

5. In combination with a railway car, a movable pilot board carried by the car, a trip device operated by impact with an obstruction on the track, a pilot board actuating mechanism, and a clutch operated by the trip device to gear the said pilot board actuating mechanism with an axle of the car, whereby the momentum or forward movement of the said car is utilized to move the pilot board to remove the obstruction from the path of the car, substantially as described.

6. In combination with a railway car, a movable pilot board pivoted at one end to the car, a trip device operated by impact with an obstruction on the track, a pilot board actuating mechanism, and a clutch operated by the trip device to gear the said pilot board actuating mechanism with an axle of the car, whereby the momentum or forward movement of the said car is utilized to sweep the pilot board across the path of the car, substantially as set forth.

7. In combination with a railway car, a pilot board pivoted at one end to the car and extending across the tracks, a trip device operated by impact with an obstruction on the track, a pilot board actuating mechanism, and a clutch operated by the trip device to gear the said pilot board actuating mechanism, with an axle of the car, whereby the momentum or forward movement of the said car is utilized to sweep the pilot board across the path of the car, substantially as specified.

8. In combination a railway car, and mechanical propelling means, a movable pilot board carried by the car, trip mechanism operated by impact with an obstruction on the track, a pilot board actuating mechanism, and a clutch operated by the trip device to gear the said pilot board actuating mechanism with an axle of the car to utilize the forward movement of the car to release it from its propelling mechanism, substantially as described.

9. In combination with a railway car, and propelling means therefor, of a movable pilot board carried by the car, trip mechanism operated by the impact of the pilot board with an obstruction on the track, a pilot board actuating mechanism, and a clutch operated by the trip device to gear the said pilot board actuating mechanism with an axle of the car to utilize the forward movement of the car to move the pilot board and also release the car from its propelling means, substantially as described for the purpose specified.

517,799. ORE SEPARATOR AND CLASSIFIER. JOHN P. FOLEY, BERTRAM H. DUNSHEE, and DAVID H. ANDERSON, Phillipsburg, Mont. Filed Apr. 20, 1893. Serial No. 471,099. (No model.)

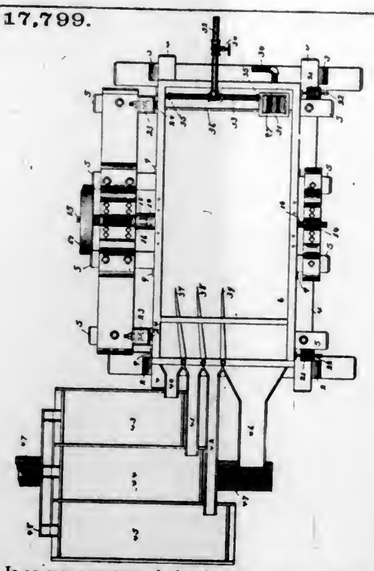
Claim.—1. In an ore separator and classifier, the combination with a frame and vibratory inclined table, of a mercury pot carried near the upper end of the table, and a water discharge pipe near the same end, substantially as and for the purpose specified.

2. In an ore separator and classifier, the combination with the frame and vibratory inclined table, of a mercury pot near the upper end of the table, a dam rib, and a water discharge pipe adapted to discharge above the rib, substantially as and for the purpose specified.

3. In an ore separator and classifier, the combination with the frame and inclined vibratory table, of a mercury pot near the upper end of the table, and a hinged pipe in the lower end thereof adapted to regulate the level of the mercury in the pot, substantially as and for the purpose specified.

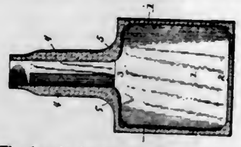
4. In an ore separator and classifier, the combination with the frame, of a table, spring-supported, thereon, longitudinally movable shaft secured to the table, a cam head upon one end of the shaft, a revoluble shaft, and cam head in proximity thereto adapted to vibrate the table, substantially as set forth.

517,799.



5. In an ore separator and classifier, the combination with the frame, and table, spring-supported, thereon, a cam head near one end of the shaft, a revoluble shaft, a cam head thereon having a recess adapted to receive the projecting end of the shaft upon the table, all co-operating substantially as and for the purpose specified.

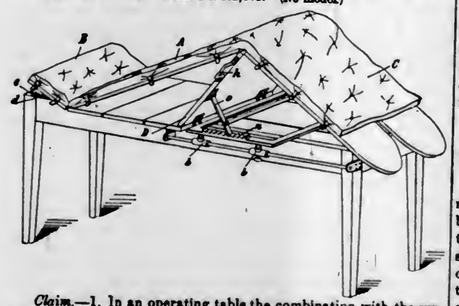
517,800. BOTTLE. JOSEPH I. FRIEDMAN and JOHN W. KEILER, Paducah, Ky. Filed Feb. 8, 1893. Serial No. 461,490. (No model.)



Claim.—1. The herein described improved bottle consisting of the body-portion and neck, each externally rectangular in cross-section and having their interiors rounded and thickened opposite their external angles, and said external angles of the neck and body arranged at variance with each other, substantially as specified.

2. The herein described improved bottle, consisting of the neck and body-portion, each of which is rectangular in cross-section and having their angles arranged at variance to each other, whereby their grains or textures are at angles so that each resists the other, substantially as specified.

517,801. SURGICAL TABLE. OTTO GRASEMANN, Gera, Germany. Filed May 2, 1893. Serial No. 472,675. (No model.)

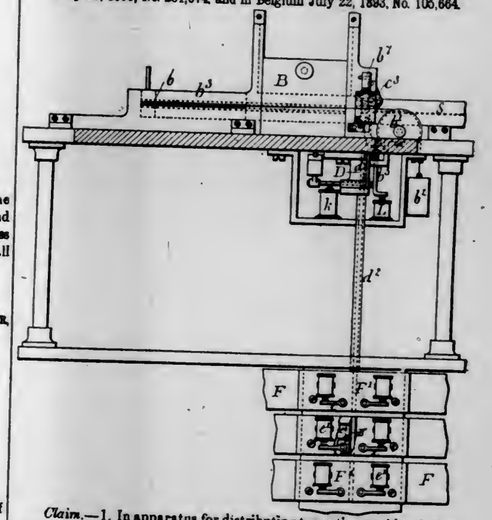


Claim.—1. In an operating table the combination with the supporting frame, of a top composed of a series of sections united by pivotal connections, a lifting flap pivoted at one end to a stationary part of said frame, and at the other edge pivotally connected to adjacent edges of two of said sections, a rack secured to said frame, and a supporting pawl secured to said lifting flap for engaging said rack, substantially as described.

2. In an operating table, the combination with the supporting frame, of a top composed of a series of sections united by pivotal connections, a lifting flap pivoted at one end to a stationary part of the said frame and at the other end pivotally connected to adjacent edges of two of said sections, a supporting pawl secured to said lifting flap, a rack secured to said frame and adjusting devices for said rack, substantially as described.

3. An operating table comprising a series of sections united by pivotal connections, the lifting flap provided with a supporting pawl, a rack adapted to be engaged by said pawl and provided with collars having set screws and a guide rod secured to the stationary part of the frame of the table and engaging said collars, substantially as described.

517,802. APPARATUS FOR DISTRIBUTING TYPE. CHARLES F. HILDER, London, England. Filed July 24, 1893. Serial No. 481,301. (No model.) Patented in England July 25, 1892, No. 13,524; in France July 21, 1893, No. 231,674, and in Belgium July 22, 1893, No. 105,664.



Claim.—1. In apparatus for distributing types the combination of a transverse channel, a follower and its cords pulleys and weights, an upper stationary stop and a lower movable stop with spring armature electro magnet and finger contact key, whereby space types occupying the front end of a separated line of type are separated from the line, substantially as described.

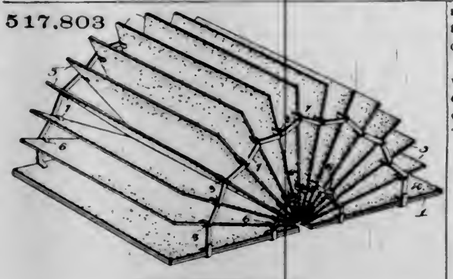
2. In apparatus for distributing types in combination with a transverse channel a follower and its cords pulleys and weights an upper and a lower end stop, a vertically sliding piece having projections fitting the nicks of the type, a horizontally sliding gate and roller, an armature lever and its two arms, electromagnet and finger contact key, whereby the front character type of a separated line of types is separated, substantially as described.

3. In apparatus for distributing types the combination of a switch-gate, two descending channels, pivoted shutters at the side of each channel, a sliding catch on each shutter and its weighted lever and for each shutter a receiving compartment, an electro-magnet and a contact key whereby each separated character type is transferred into its appropriate compartment, substantially as described.

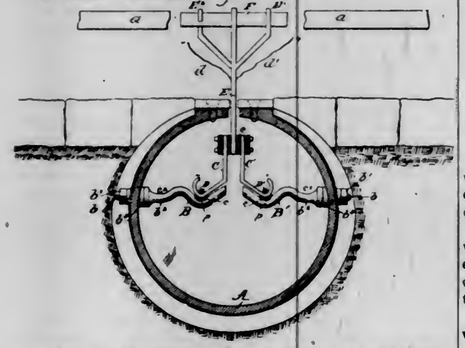
517,803. LETTER-DRIER. DAISY D. HOWARD, Jacksonville, Fla. Filed Aug. 4, 1893. Serial No. 482,396. (No model.)

Claim.—The herein-described letter drier adapted for use in connection with a letter press, the same consisting of the opposite stout backs, a series of intermediate blotter sheets or pages arranged between the backs and provided near their opposite edges with slits, the slits of each sheet or page being arranged alternately with respect to or out of alignment with the slit of the adjacent sheets or pages, and the flexible connecting tapes passed successively through said slits and extending in a zigzag line from one back to the other, said tapes being secured or fastened at points opposite the edges of the sheets or pages to insure the folding of the tape outside of the same when the drier is placed in the press, substantially as set forth.

517,803



517,804. CONDUIT ELECTRIC RAILWAY. WILTON F. JENKINS, Richmond, Va. Filed Aug. 10, 1892. Renewed July 26, 1893. Serial No. 481,552. (No model.)



Claim.—1. The combination with a conduit; of a horizontally projecting arm consisting of a metal core having its sides and end completely covered or incased in a non-conducting material and bent to form depressions as described, and conducting wires laid loosely upon said arms within the depressions substantially as shown and described.

2. The combination with a conduit; of two horizontally projecting arms covered with insulation and bent to form depressions, the two conducting wires loosely laid therein, and a trolley having two terminal hooks at its lower end resting beneath the conducting wires substantially as shown and described.

3. The combination with conductor supports and electric conductors laid loosely thereon; of a trolley having a wiping pad or brush arranged to wipe off the bearing point of the support under the conductor at each passage of the trolley substantially as shown and described.

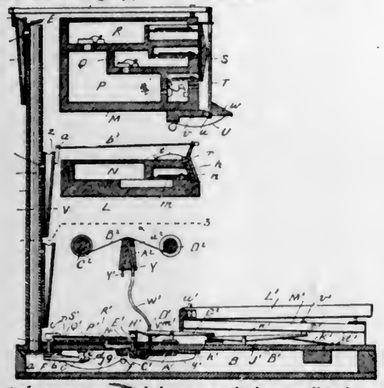
4. The combination with the car truck of the detachable bar F, and the trolley having shank E with hooks E^1 and E^2 at its upper end facing in opposite directions and hung upon the bar F substantially as shown and described.

517,805. MECHANICAL MUSICAL INSTRUMENT. GEORGE B. KELLY, Boston, Mass. Filed May 15, 1893. Serial No. 474,307. (No model.)

Claim.—1. In a reed organ, a wind chest, a standard or upright, a vertical air passage in said standard communicating with the wind chest, a pneumatic bellows communicating with the vertical passage, a reed valve connected to said pneumatic bellows, a valve in the wind chest to said vertical passage, a pneumatic bellows outside of said wind chest, arranged to operate said valve, an air passage between said last pneumatic bellows and the wind chest, and a pneumatic bellows valve in the wind chest operated and controlled by and through the means of a perforated music sheet, arranged to travel over an air passage leading to said pneumatic bellows in the wind chest.

2. In a reed organ, a wind chest, a series of reed boards arranged in a vertical plane one above the other, each having a reed chamber, a reed cell, a valve to such cell, a standard or upright having a vertical air passage, communicating with the wind chest, pneumatic bellows secured to said standard and having communication with its air passage, and each connected to a valve of a reed cell, a valve in the wind chest to said vertical passage, a pneumatic bellows outside of said wind chest, arranged to operate said valve, an air passage between said last pneumatic bellows and the wind chest and a pneumatic bellows valve in the wind chest operated and controlled by and through the means of a perforated music sheet arranged to travel over an air passage leading to said pneumatic bellows in the wind chest.

3. In an organ, a wind chest, a metal tube extending through one wall of the wind chest, each end projecting a short distance beyond each side of the thickness of the wall, and two valves one to each end of said tube and rigidly connected together.



4. In an organ, a wind chest, a metal tube extending through one wall of the wind chest, each end projecting a short distance beyond each side of the thickness of the wall, and two valves, one to each end of said tube, and adjustably connected together.

5. In an organ, a wind chest, a metal tube extending through one wall of the wind chest, each end projecting a short distance beyond each side of the thickness of said wall, and two valves one to each end of said tube and rigidly connected together by a wire extending through said tube.

6. In an organ, a wind chest, a metal tube extending through one wall of the wind chest, each end projecting a short distance beyond each side of the thickness of said wall, and two valves one to each end of said tube and connected together by a wire rigidly secured to one valve and screwing into the other.

7. In an organ, a wind chest, a metal tube through one wall of the wind chest, each end projecting a short distance beyond each side of the thickness of the wall for a seat for a valve, a chamber connected with a pneumatic bellows, and an opening in the side of said tube communicating with said chamber.

8. A valve to an air passage, a pivoted lever to which said valve is secured at or near its central portion, and a spring secured to a support and bearing on one end of said valve for the purpose specified.

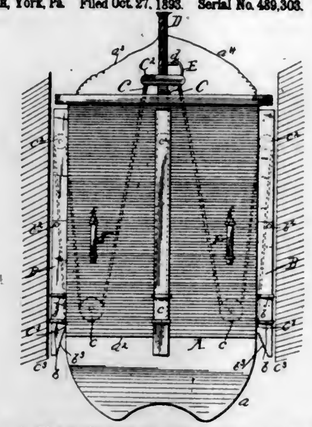
9. A valve to an air passage, a pivoted lever to which said valve is secured at or near its central portion, and a spring secured to the lever and bearing on one end of said valve for the purpose specified.

10. In a reed organ, a wind chest, a series of reed boards arranged in a vertical plane one above the other, each having a reed chamber, a reed cell, a valve to such cell, a standard or upright having a vertical air passage, communicating with the wind chest, pneumatic bellows secured to said standard and having communication with its air passage and each connected to a valve of a reed cell, a valve in the wind chest to said vertical passage, a pneumatic bellows outside of said wind chest arranged to operate said last valve, an air passage between said last pneumatic bellows and the wind chest, a pneumatic bellows valve to said air passage, and a key pivoted to a support, and arranged to operate said pneumatic bellows valve.

11. In a reed organ, a wind chest, a series of reed boards arranged in a vertical plane one above the other, each having a reed chamber, a reed cell, a valve to such cell, a standard or upright having a vertical air passage, communicating with the wind chest, pneumatic bellows secured to said standard and having communication with its air passage and each connected to a valve of a reed cell, a valve in the wind chest to said vertical passage, a pneumatic bellows outside of said wind chest arranged to operate said last valve, an air passage between said last pneumatic bellows and the wind chest, a pneumatic bellows valve to said air passage, a lever arranged to operate said pneumatic bellows valve, a key pivoted to a support and a lever between key and said pivoted lever for operation thereof.

12. In a reed organ, a wind chest, a standard or upright, a vertical air passage in said standard communicating with the wind chest, a pneumatic bellows communicating with the vertical passage, a reed valve connected to said pneumatic bellows, a valve in the wind chest to said vertical passage, a pneumatic bellows outside of said wind chest, arranged to operate said valve, a tube forming an air passage between the outside and inside of the wind chest, an air passage between said pneumatic bellows and said tube passage, a pneumatic bellows in said wind chest, a valve attached thereto to close said tube air passage, a passage communicating with the wind chest and leading to an opening to the outer side of a block or raceway and a perforated music sheet arranged to travel over said block or raceway opening.

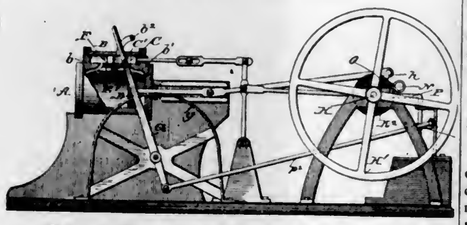
517,806. REMOVING ARTICLES FROM WELLS, &c. LEVI MAISH, York, Pa. Filed Oct. 27, 1893. Serial No. 489,303. (No model.)



Claim.—1. The method of removing a tool, a piece of tool, or other matter of appropriate metal, from a well or other situation practically inaccessible by hand, which consists in drawing the object or objects to be removed to a position to be seized or held, by subjecting the same to the influence of magnetic attraction, and then causing the object or objects to be lifted, substantially as described.

2. The method of removing a tool, a piece of tool, or other appropriate metallic article, from a well or other situation, by first drawing it away from the walls by magnetic attraction, so that its upper part will be free, and, then, engaging it with tongs, a grapple, a scoop, or the like, and lifting it out, substantially as set forth.

517,807. VALVE-OPERATING MECHANISM. JACOB J. MOORE, Chambersburg, assignor of one-half to C. Emil Rönne, Philadelphia, Pa. Filed June 30, 1893. Serial No. 479,273. (No model.)



Claim.—1. The combination of the shaft, having the plate provided with the guide, the eccentric having a pin or projection engaging said guide, the eccentric carrier to which the eccentric is movably fixed, such carrier having a sleeve embracing the shaft and provided with a spiral groove, the sliding collar having a pin entering said spiral groove and keyed to the shaft and devices for sliding said collar, all substantially as set forth.

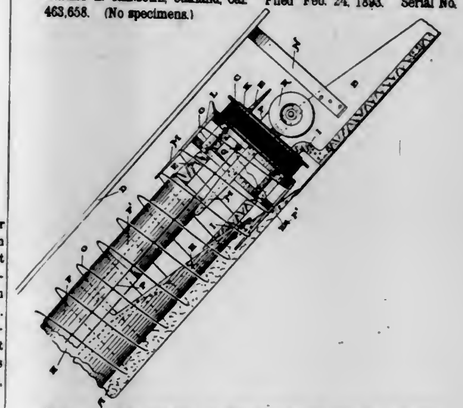
2. In an engine, the combination of the shaft, the eccentric support or carrier having a sleeve provided with a spiral groove and having a plate or disk, the eccentric held to and movable radially on the disk, the shaft having a disk provided with a cam slot having a central portion concentric with the shaft and end portions eccentric thereto, the eccentric held movably to the disk of its carrier and the sliding collar fitted upon and having a pin entering the spiral groove of the eccentric carrier sleeve, all substantially as set forth.

3. In an apparatus substantially as described, the combination of the shaft having a disk provided with the cam slot formed with the concentric central portion 1 and the opposite eccentric end portions 2 and 3, the eccentric having a pin entering said cam slot and the eccentric support to which said eccentric is movably secured and devices for shifting said eccentric all substantially as set forth.

4. In an apparatus substantially as described, the combination with the shaft and its cam disk, the eccentric and its carrier, the latter having a sleeve embracing the shaft and provided with a spiral groove and the sliding collar embracing said sleeve and having a pin entering its spiral groove a guide rod parallel with the shaft a shifter sliding upon said rod and engaging the sliding collar and devices for operating said shifter all substantially as set forth.

5. The improvement in engines herein described comprising the shaft having a key way and provided with the disk having the cam slot formed with portions 1, 2 and 3, the eccentric having a pin entering said cam slot, the eccentric carrier having a disk to which said eccentric is movably connected and a sleeve embracing the shaft and provided with a spiral groove, the sliding collar having a pin entering the said spiral groove and projecting into the key way of the shaft, the guide rod parallel to the shaft the shifter sliding at one end on said rod and engaging at its other end with the sliding collar and the operating devices connected with said shifter, substantially as set forth.

517,808. MANUFACTURE OF MONOLITHIC PIPES IN SITU. ERNEST L. RANSOME, Oakland, Cal. Filed Feb. 24, 1893. Serial No. 463,658. (No specimens.)



Claim.—1. The method of embedding bond iron in monolithic pipe built *in situ*, consisting in setting up the iron in a continuous spiral inside of a continuously traveling mold, investing it with the plastic concrete forming the body of the pipe, and retaining the iron in place by guides attached to the mold and to the pipe until it has become embedded in the structure, substantially as described.

2. An apparatus for shaping and placing bond iron for monolithic structures consisting of an earth shaper "B," carrying a cage "L" and its guides "M," together with a reel "C" upon a rim bearing "K" in connection with guide wires "P," substantially as described.

517,809. DRAWBRIDGE. MAX G. SCHINKE, Milwaukee, Wis. Filed Sept. 28, 1893. Serial No. 486,672. (No model.)

Claim.—1. The combination with a suitable abutment or support on one side of the channel to be spanned, provided with a vertically disposed guide-way, of a vertically swinging draw bridge having a movable supporting connection at or near one end with said guide-way; and a link connection at or near the other end with said support, whereby one end of said bridge is caused to rise and the other to descend simultaneously in opening and closing, said bridge being otherwise unsupported between said connections, substantially as and for the purposes set forth.

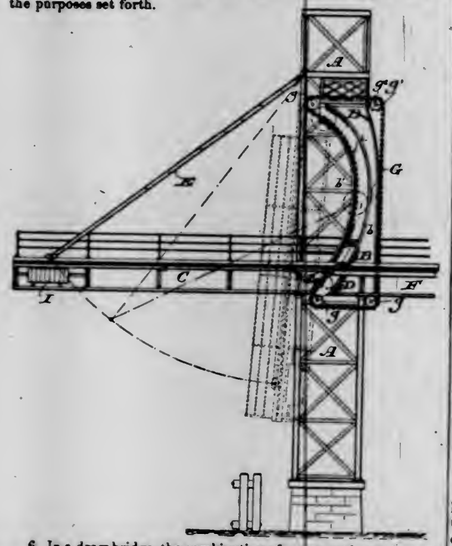
2. In a draw bridge, the combination with a support located on one side of the channel to be spanned, and provided with a curved guide-way, of a vertically swinging bridge having a supporting connection at or near one end with said guide-way, and a link connection at or near the other end with said support, substantially as and for the purposes set forth.

3. In a draw bridge, the combination with a support located on one side of the channel to be spanned, and provided with a vertically disposed guide-way, of a vertically swinging bridge provided at or near one end with a sheave or roller arranged to engage with and traverse said guide-way, and a link connection at or near the other end of said bridge with said support, substantially as and for the purposes set forth.

4. In a draw bridge, the combination with a support located on one side of the channel to be spanned and provided with a vertically disposed guide-way, of a vertically swinging bridge having a supporting connection at or near one end with said guide-way, and a link

connection at or near the other end with said support, and an operating chain or cable attached to said bridge and passing over sheaves above and below it, substantially as and for the purposes set forth.

5. In a draw bridge, the combination with a support on one side of the channel to be spanned, provided with vertically disposed guide-ways, of a vertically swinging bridge having sheaves or rollers at or near one end engaging with said guide-ways, and a link connection at or near the other end with said support, substantially as and for the purposes set forth.



6. In a draw bridge, the combination of a support located on one side of the channel to be spanned and provided with curved guide-ways, of a vertically swinging bridge having rollers at or near one end engaging with said guide-ways, and a link connection at or near the other end with said support, substantially as and for the purposes set forth.

7. In a draw bridge, the combination with a support on one side of the channel to be spanned provided with vertically disposed guide-ways, of a vertically swinging bridge provided at or near one end with sheaves or rollers engaging with said guide-ways, a link connection at or near the other end of said bridge with said support, and chains or cables attached to said bridge and passing over sheaves above and below it, substantially as and for the purposes set forth.

8. In a draw bridge, the combination with a support on one side of the channel to be spanned, provided with a vertically-disposed guide-way, of a vertically swinging bridge having a supporting connection at or near one end with said guide-way, and a link connection at or near the other end with said support, said guide-way being so constructed and arranged as to cause the center of gravity of the bridge to move as nearly as practicable in a horizontal direction in opening and closing, substantially as and for the purposes set forth.

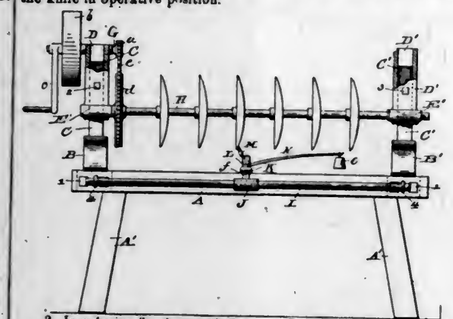
9. In a draw-bridge, the combination with a support provided with vertically disposed guides comprising parallel ways, of a vertically swinging bridge provided at one end with sheaves which bear against one and the projecting axles of which engage with the other of each pair of ways, and links connecting the opposite end of said bridge with said support, substantially as and for the purposes set forth.

10. In a draw-bridge, the combination with a support provided with vertically disposed guides comprising parallel ways, of a vertically swinging bridge connected at one end by links with said support and provided at the other end with sheaves which bear against one of each pair of ways and the axles of which are provided with friction rollers arranged to engage the other of each pair of ways, and chain belts having friction rollers at the articulations of the links, attached to said axles and passing over sheaves above and below said guides, substantially as and for the purposes set forth.

517,810. MACHINE FOR SHARPENING HARROW-DISKS. JAMES L. SHAW, Seneca, Ill. Filed Dec. 12, 1893. Serial No. 493,509. (No model.)

Claim.—1. In a device for sharpening harrow-disks, a frame-work, a central shaft mounted thereon, and means for giving the shaft vertical movement, in combination with a knife-rest, a guide for the knife-rest, a knife-carrying tool-post removably attached to said knife-rest, and means for holding the knife in operative position.

2. In a device for sharpening harrow-disks, a frame-work, a central disk-carrying shaft mounted thereon, and means for vertically moving said shaft, in combination with a knife-rest, a guide for the knife-rest, a tool-post removably attached to said knife-rest, a knife-holder pivotally connected to said tool-post, and means for holding the knife in operative position.



3. In a device for sharpening harrow-disks, a disk-carrying shaft, and means for revolving the same, in combination with, a knife-rest, a guide for the knife-rest, a tool-post removably attached to the knife-rest, a knife-holder carrying a knife at its upper end, a weighted lever pivoted to the tool-post and acting against the lower end of the knife-holder to keep it in operative position.

517,811. ARTIFICIAL STONE. AUGUSTINUS WALLENBERG, Chicago, Ill. Filed May 2, 1893. Serial No. 472,781. (No specimens.)

Claim.—The artificial stone herein described having a face of plaster of paris and coloring matter, water-proofed with lacquer, linseed oil and turpentine, and a backing of sand, cement and plaster of paris, all in about the proportions and under the conditions set forth

517,812. SYSTEM FOR CONTROLLING ELECTRIC LIGHTS. WILLIAM F BRADNER, Denver, Colo., assignor, by direct and mesne assignments, to the Electric Specialty Company, same place. Filed May 12, 1893. Serial No. 473,929. (No model.)



Claim.—1. In a circuit switch, the combination of a rotating ratchet composed of an insulating disk and two conducting plates applied to its opposite faces, said plates having lips bent to engage the teeth of the disk, the lips of each plate engaging every alternate tooth, and four contact brushes, two of which are continuously in engagement with the respective face plates of the disk while the other two alternately engage the lips of the respective plates as the ratchet is actuated, substantially as described.

2. In a system for controlling electric lights, the combination with the two duplex or three wire switches, two conductors located between said duplex switches, and other switches interposed in the double portion of the circuit, each composed of an insulating, rotating block, two contact plates, and four brushes, two of which are in continuous engagement with the respective contact plates, and the other two alternately in contact with the said plates, substantially as described.

517,813. TIRE-TIGHTENER. ISAAC L. CARMAN, North Salem, assignor of one-half to Joshua H. McGee, Max, Ind. Filed May 26, 1893. Serial No. 475,524. (No model.)



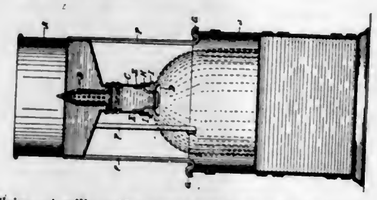
Claim.—1. A tire tightener comprising a clip formed on the upper side to fit the felly, corrugations on the upper side, and dished on the under side, substantially as shown and described.

2. A tire tightener comprising a clip formed on the upper side to fit the felly, and a wedge shaped tongue extending centrally from the under side and adapted to hold the end of the spoke in place and adapted to be parallel with the felly when in place, substantially as shown and described.

3. A tire tightener comprising a clip formed on the upper side to fit the felly and dished on the under side and provided with a tongue centrally extending from the under side, substantially as shown and described.

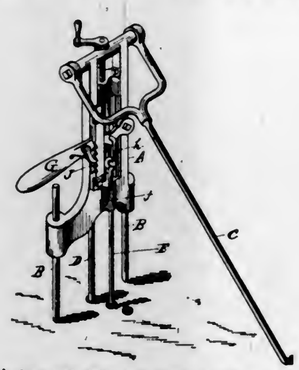
4. A tire tightener consisting of a clip concave in cross section on the upper side, corrugations on the upper side, and means on the under side for holding the tightener to the spoke, substantially as shown and described.

517,814. MILK-PURIFIER. RICHARD H. CASSWELL, Ingersoll, Canada, assignor to Charles H. Slawson and Stephen King, same place, and John S. Pearce, London, Canada. Filed July 6, 1891. Renewed Dec. 9, 1893. Serial No. 493,450. (No model.) Patented in Canada Apr. 9, 1889, No. 31,069.



Claim.—A milk purifier, comprising a vessel, A, supported above a milk receptacle, said vessel, A, having a strainer, B, therein covering the outlet, a neck, C, fixedly secured to the exterior of the vessel, A, a disk, D, fixedly suspended from and offset from said neck, and the adjustable deflector, H, substantially as shown and described and for the purpose specified

517,815. ROCK DRILLING AND BORING MACHINE. ISAIAH N. DAY, San José, Cal. Filed July 7, 1893 Serial No. 479,819. (No model.)

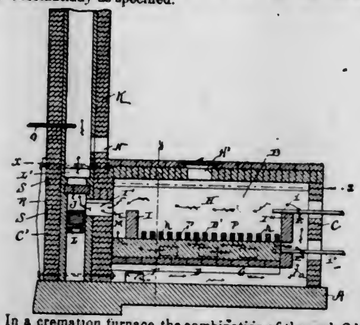


Claim.—1. In a rock drilling or boring machine, an anchor rod adapted to anchor the machine to the rock or article operated on, and a rack on the machine, and a lever pivoted on said machine and connected to said rod and adapted to engage said rack, substantially as set forth.

2. In a rock drilling or boring machine, an anchor rod adapted to anchor the machine to the rock or article operated on, and a rack on the machine, a lever pivoted to the machine and adapted to engage said rack, and linked to said rod, substantially as specified.

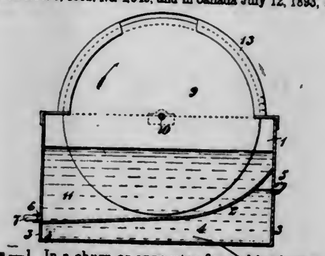
517,816. CREMATION-FURNACE. SAMUEL W. DIXON, Findlay, Ohio, assignor to the Dixon Sanitary Crematory Company, same place. Filed Oct. 7, 1893. Serial No. 487,439. (No model.)

Claim.—1. In a cremation furnace, the combination with the outer walls of the furnace, of a longitudinal grate dividing the body of the furnace into two chambers H and G', one above the other, a transverse vertical retaining wall at the rear of the chamber H, and so disposed as to form a vertical passage between it and the stack wall, said passage communicating with the said chamber G', the stack wall having a combustion chamber J in its lower portion below the said passage through the stack wall, a series of bricks or bars of refractory material in the said chamber J, said bars or bricks having passages between them, and furnaces or fire boxes at the opposite end portion of the furnaces arranged to project their flames into said chambers H and G' substantially as specified.



2. In a cremation furnace, the combination of the arch G having between it and the bed of the furnace a longitudinal cold air flue D, said arch also supporting the floor of an evaporating chamber G', the fire boxes E, E, at one end and to which said flue leads, a series of grate bars over said chamber G', and forming the floor of a combustion chamber H, said fire boxes having grates or burners for each of the chambers G' and H, and arranged to project their flames therein, the retaining walls I and I'' at the respective ends of said chamber H, the stack wall separated from the retaining wall I by a vertical passage M communicating with the said chamber G', the stack wall having the opening therethrough, the stack having a combustion chamber in its lower portion, a grate or burner in said chamber below the said opening in the stack wall, and the refractory bricks or blocks in the stack above said opening, substantially as specified.

517,817. CHURN. JOHN H. H. DUNCAN, London, England, assignor to the Disc Churn Company, Limited, same place. Filed Feb. 26, 1892. Serial No. 422,861. (No model.) Patented in Germany Oct. 14, 1891, No. 65,025; in England Dec. 1, 1891, No. 20,989; in France Feb. 24, 1892, No. 21,964; in Belgium Feb. 24, 1892, No. 98,499; in Norway July 20, 1892, No. 2,655; in Austria-Hungary Oct. 29, 1892, No. 12,455; in Sweden Nov. 3, 1892, No. 4,049, and in Canada July 12, 1893, No. 43,591.



Claim.—1. In a churn or apparatus for making butter, a rotary body of disk form arranged to rotate in its own plane and partly within the cream to be treated so as to pick up and throw off the cream by centrifugal force, a receptacle to contain the cream, and an obstructing body arranged opposite the periphery of the said rotary body and against which said cream will be thrown, as set forth.

2. A churn or apparatus for making butter comprising a stationary vessel open at the top, a disk mounted to rotate in said vessel, and a fixed guard of concave or trough shape form in cross section arranged to partly surround said disk substantially as herein described for the purpose specified.

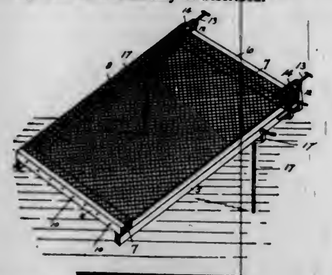
3. Apparatus for making butter, comprising a vessel 1 having at its lower side a jacket 4 provided with inlet and outlet openings for fluid, a disk 1 mounted to rotate in said vessel, and a fixed guard 13 of concavo-convex form in cross section arranged externally to and concentric with said disk substantially as herein described for the purpose specified.

517,818. DEVICE FOR TIGHTENING WOVEN-WIRE BED-SPRINGS. EUGENE M. RANKINE, Denver, Colo., assignor to Neil Gentry, same place. Filed Dec. 20, 1893. Serial No. 494,234. (No model.)

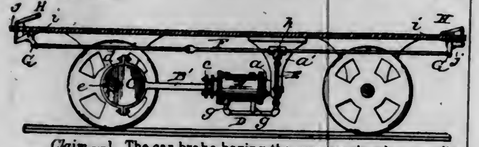
Brief.—The device is a removable and adjustable clamp to be used in setting up the springs on an indefinite number of bed-bottoms.

Claim.—In a tightening device for woven-wire bed-springs, the combination of the shoe composed of the shank having a threaded aperture, and the arms to receive the rail, and a screw shaft inserted

in the aperture of the shank and carrying a hooked grip swiveled on one extremity thereof, substantially as described.



517,819. VACUUM-BRAKE. WILLIAM L. FITZHUGH, Baltimore, Md. Filed Dec. 22, 1891. Renewed Sept. 26, 1893. Serial No. 486,573. (No model.)



Claim.—1. The car brake having the vacuum chamber or cylinder with its piston and piston-rod in combination with the eccentric secured to the wheel axle and the air cut off or regulating valve and pipe connection between it and said chamber or cylinder, substantially as specified.

2. The car brake having the vacuum chamber or cylinder, with its air outlet-valves and piston and piston-rod, in combination with the air-pipe having branch connections with said cylinder or chamber near opposite ends thereof, and the valve for opening and closing the outer end of said air pipe, substantially as set forth.

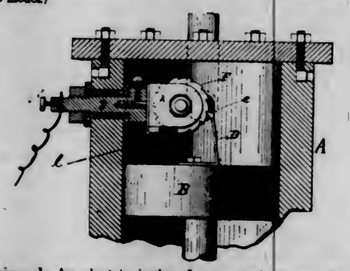
3. In a car brake, the combination with the valved vacuum cylinder or chamber and its piston and piston-rod having connection with the wheel axle of the valve and crank levers and bell cranks having rod connection with said valve, and the pipe connecting with said cylinder or chamber by branch pipes near its opposite ends substantially as set forth.

4. In a car brake, the combination of the vacuum cylinder or chamber pivotally supported in position under the car, the flexible pipe having branch pipe connection with said cylinder or chamber, near its opposite ends, the piston and piston-rod having eccentric or crank connection with the wheel axle and the air cut off valve with its actuating mechanism, substantially as set forth.

517,820. DEFECATING CANE-JUICE. JULIUS KOEBIG, San Francisco, Cal. Filed May 17, 1893. Serial No. 474,545. (No specimens.)

Claim.—The process of purifying sugar juices, consisting, firstly, in adding magnesium hydrate (MgO_2H_2) to the boiling juice and stirring the juice; secondly, adding slaked lime and finely pulverized charcoal, stirring and filtering the same; thirdly, again boiling the juice and injecting a mixture of one part sulfurous acid gas and three parts of air into the boiling juice, substantially as described.

517,821. GAS-ENGINE. JACQUES LABATAILLE and JUSTIN J. GRAFF, San Francisco, Cal. Filed June 22, 1893. Serial No. 478,491. (No model.)

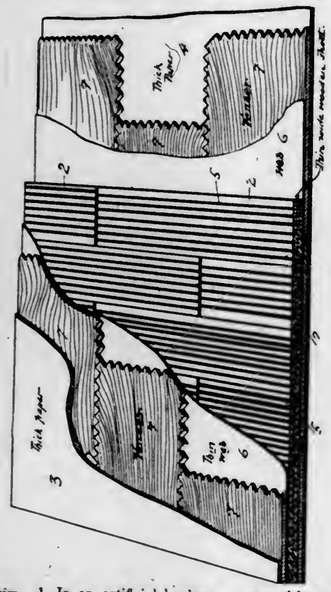


Claim.—1. An electric igniter for gas engines, consisting of a ratchet wheel mounted inside the cylinder and electrically connected with one of the poles of the battery, in combination with a spring projection on the piston head, connected with the other pole of the battery and adapted to actuate the ratchet wheel and rub over the face of the tooth on its retrograde movement, substantially as described.

2. In a gas igniting device for gas engines; a rotary electrode having ratchet teeth and a pawl adapted to prevent backward rotation, in combination with a spring projection on the piston head, adapted to engage with one tooth of the ratchet at each stroke of the piston, substantially as described.

3. In a gas igniting device for gas engines, the combination of a revolving electrode and a reciprocating electrode intermittently actuating the revolving electrode, substantially as set forth.

517,822. ARTIFICIAL LUMBER OR COMPOSITION MATERIAL. GEORGE S. MATHEW, Minneapolis, Minn., assignor to Charles Axil Smith, same place. Filed May 2, 1893. Serial No. 472,798. (No model.)



Claim.—1. In an artificial lumber or composition material a wooden core composed of three thin layers of wood each made up of a series of thin sheets or strips and the grain of the outer layers having a common direction transverse to that of the middle layer, in combination with thick paper or pulp board facings for said core and an interposed adhesive material or cement between and securing all of said parts firmly together to form a thin but inflexible board, substantially as described.

2. The combination in a composition material of two thick sheets of heavy paper or pulp board with a core arranged between said sheets of paper and composed of a layer of wide but thin sheets of wood, and, two layers arranged upon opposite sides thereof and composed of thin, wide veneers arranged transversely with respect to said sheets of wood and an interposed adhesive material securing all of said parts firmly together, substantially as described.

3. The combination, in an artificial lumber or composition material, of a series of thin wide wooden sheets, with thin cement-carrying-webs arranged upon opposite sides of said series or layer, and thin and wide veneers laid upon opposite sides thereof, with their grain running across that of the said wooden sheets, substantially as described, and for the purpose specified.

4. The combination, in an artificial lumber or composition material, of a series or layer of thin wide wooden sheets, with thin cement-carrying-webs arranged upon opposite sides of said series or layer, and thin and wide veneers laid upon opposite sides thereof with their grain running across that of the said wooden sheets, and thick paper or pulp board facings secured upon said veneers by a suitable adhesive material or cement, substantially as described.

5. The combination, in an artificial lumber or composition material, of a series of thin wide sheets of wood arranged edge to edge and provided in their opposite sides with a series of rows of indentations, with a series of thin wide wood veneers arranged upon opposite sides of said thin sheets and secured thereto by an adhesive material, said veneers being arranged with their grain crossing that of said sheets, substantially as described.

6. The combination, in an artificial lumber or composition material, of a series of thin sheets of wobd arranged edge to edge and having their sides provided with a series of rows of indentations, thin wide wood veneers arranged upon opposite sides of said thin sheets of wood, thick sheets of paper or pulp board inclosing said veneers and an adhesive material interposed between said parts to secure the same firmly and inflexibly together, substantially as described.

7. The combination, in an artificial lumber or composition material, of the thin wide sheets of wood arranged edge to edge and having both sides provided with a series of rows of indentations extending with the grain of the wood, with a course of thin wood veneers laid cross-grained to said sheets of wood; with sheets of paper secured upon opposite sides of the wooden core so formed by a suitable adhesive material, substantially as described.

8. The combination, in an artificial lumber or composition material, of the thin wooden sheets arranged in a thin layer with the carrying webs for the adhesive material and whereby the same is applied, thin wood veneers having serrated and interlocking edges and secured by the adhesive material upon said webs, the grain of the wood veneers extending in an opposite direction to that of the wooden sheets, substantially as described.

9. The combination, in an artificial lumber or composition material of the thin wooden sheets arranged in a thin layer with two layers arranged upon opposite sides thereof and each composed of a series of thin wood veneers having serrated and interlocking edges, and the thick paper or pulp board facings secured upon said veneers and all parts being firmly secured together by a suitable adhesive material, substantially as described.

10. The combination, in an artificial lumber or composition material, of the thin wooden sheets, with the carrying webs for the adhesive material and whereby the same is applied, thin wood veneers having serrated and interlocking edges and secured by the adhesive material upon said webs, the grain of the wood veneers extending in an opposite direction to that of the wooden sheets, and thick facings of artificial material secured upon said veneers by adhesive material, substantially as described.

11. The combination, in an artificial material or composition material, of the thin wooden sheets arranged edge to edge with carrying webs for adhesive material applied to opposite sides of said wooden sheets, thin wooden veneers arranged across grain to and secured upon the same, thick paper sheets secured upon said veneers, said wooden sheets provided with the closely arranged indentations in opposite sides, said veneers having serrated interlocking edges, and the whole secured together by an adhesive material and subjected to a heavy pressure and dried, substantially as described.

517,823. SKATING-RINK. MARTIN T. MEAD and SAMUEL M. CLEMENS, San Francisco, Cal., assignors of one-third to John L. Boone, same place. Filed Aug. 8, 1893. Serial No. 482,688. (No specimens.)

Claim.—A floor for skating and sliding purposes composed of a sub-base or foundation and a surface coating of sulphur, substantially as specified.

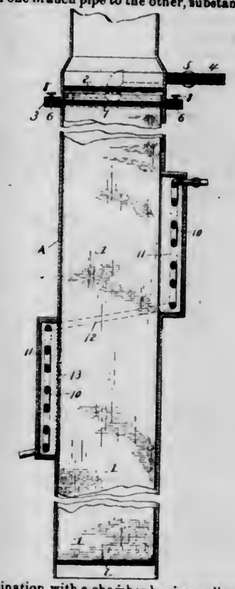
517,824. MOLE-TRAP. MARSHALL E. PARHAM, Burr Oak, Mich. Filed May 20, 1893. Renewed Mar. 6, 1894. Serial No. 502,594. (No model.)



Claim.—In a mole trap, the combination of a standard having a point at its lower end, and arms at its upper end and provided with a longitudinal groove and having openings at the upper and lower ends of the groove, a plunger mounted in the openings of the arms, a spring for forcing the plunger downward, a plate secured to the lower end of the plunger and having depending pins and provided with a projection arranged in said groove, a bell-crank lever fulcrumed at its angle in the lower opening and having one arm arranged horizontally and forming a trigger, and its other arm disposed vertically on the back of the standard and having its upper end bent forward and extending through the upper opening for engaging the projection of the plate, substantially as described.

517,825. MOISTENING-CHAMBER FOR TOBACCO-ORDERING APPARATUS. GUSTAVUS A. PEPLE and CHARLES A. PEPLE, Richmond, Va., assignors to the Mayo Tobacco Drying and Ordering Company, same place. Filed Jan. 14, 1893. Serial No. 458,409. (No model.)

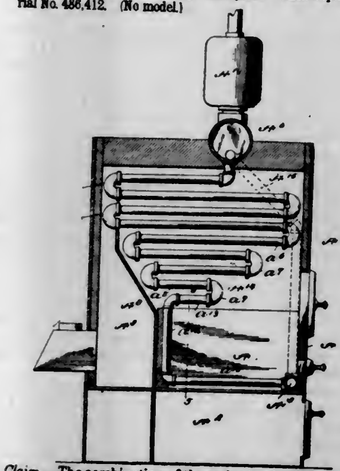
Claim.—1. The combination with a chamber through which air is circulated, and cloths extending longitudinally through said chamber with spaces between them for the circulation of air, of a main, branch pipes leading from the main on each side of the chamber, valves in the branch pipes, and sprinkling pipes having perforations therein, said sprinkling pipes extending across through the chamber and cloths from one branch pipe to the other, substantially as set forth.



2. The combination with a chamber having radiators at the sides thereof for supplying heat to the chamber, of cloths extending through the chamber, and perforated sprinkling pipes for supplying water to the cloths, substantially as set forth

3. The combination with a chamber having lateral recesses, radiators in these recesses, and wire gauze extending across the mouths of the recesses, of moistening cloths, and sprinkling pipes located at the upper ends of the cloths for supplying moisture to them, substantially as set forth.

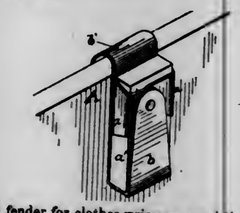
517,826. BOILER. HAMLINE W. REYNOLDS, Geneva, N. Y., assignor, by direct and meane assignments, to Amos R. Smith, Elia J. Reynolds, and James C. Knapp, same place. Filed Sept. 25, 1893. Serial No. 486,412. (No model.)



Claim.—The combination of the casing having a coal supply door and partition A^9, the upper part of which is inclined upward and rearward and forms with the rear of said casing a down take flue for the

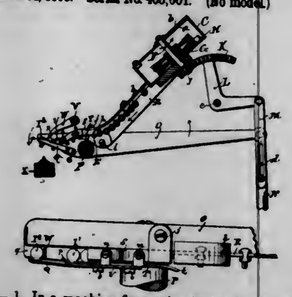
boiler; a fire box made of tubes forming part of the water circulating system of the boiler, and having its rear end next to the partition; water tubes projecting, from the tubes forming the rear of the fire box, into said fire box and toward the front of the casing and of less length than the depth of said fire box and having their rear ends on said inclined part of partition A^6; water tubes above and forming a continuation of the tubes projecting into the fire box and extending from the front to the rear wall of the casing and overlapping and part resting on the top of the partition A^6; an upper header into which these last named tubes are inserted; down take water tubes; a header connecting the ends of the tubes forming the fire box, and connected with said upper header by the down take water tubes.

517,827. FENDER FOR METALLIC TUBS OR BOILERS. FRANK K. ROBERTS and GEORGE M. BURROUGHS, Santa Cruz, assignors to Seller Bros. & Co., San Francisco, Cal. Filed Aug. 8, 1893. Serial No. 482,696. (No model.)



Claim.—A fender for clothes wringers, consisting of a block and a pocket-like support for said block, having a hook adapted to engage the upper edge of the tub or boiler, substantially as and for the purpose set forth.

517,828. MACHINE FOR SETTING LACING-HOOKS. JEREMIAH KEITH, Middleborough, Mass., assignor to Ira F. Peck, Providence, R. I. Filed Feb. 24, 1893. Serial No. 463,601. (No model.)



Claim.—1. In a machine for setting lacing hooks, the combination with the inclined circular hopper C, and the curved track H, projecting upward from the bottom, and located near the peripheral wall of the said hopper, of the rock-shaft F, provided with the radially arranged brush G, the pinion J, upon the shaft F, the lever L, provided with the gear segment K, the slotted link M, for actuating the said segment, and means for reciprocating the said link, to move the brush in opposite directions, substantially as described.

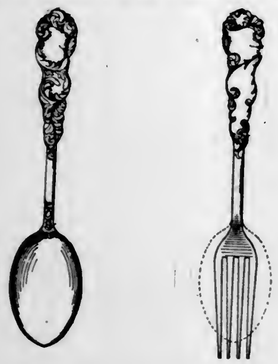
2. In a machine for setting lacing hooks, the combination with the inclined circular hopper C, the curved track H arranged near the upper edge of the inclined bottom of the said hopper, and projecting through an opening in the side of the same, the rock-shaft F provided with the circular brush G, and means for operating the brush in reverse directions, of the setting lever O, provided with the lip *q*, the spring guard Q, the track R pivoted to the lever O, the track R', the side guide T, and the spring stop U, substantially as described.

3. In a machine for setting lacing hooks, the combination with the anvil X, of the setting lever O, provided with the lip *q*, the spring guard Q, for holding the lacing-hook in its proper position, the track R pivoted to the lever O, the track R', the side guide T, and the spring stop U, substantially as described.

4. In a machine for setting lacing hooks, the combination with the anvil X, of the setting lever O, provided with the lip *q*, the spring stop U, means for raising and lowering the outer end of the lever O, and the stationary forwardly directed pivoted dog, adapted to force the lacing hook forward upon the setting lever to the proper position above the anvil, upon the upward movement of the lever, substantially as described.

DESIGNS.

28,163. SPOON, FORK, &c. SIDNEY SMITH, Bridgeport, Conn., assignor to the Holmes & Edwards Silver Company, same place. Filed Mar. 1, 1894. Serial No. 501,998. Term of patent 7 years.



Claim.—The design for a handle for spoons, forks and similar articles substantially as shown and described.

28,164. FONT OF PRINTING-TYPE. HERMAN IHLENBURG, Philadelphia, Pa., assignor to the American Type Founders Company, Newark, N. J. Filed Dec. 23, 1893. Serial No. 494,472. Term of patent 7 years.

ABCDEFGHIJKLMN

OPQRSTUVWXYZ

1234567890

abcdefghijklmnopqrstuvwxyz

Claim.—A design for a font of printing type as herein described and shown in the accompanying typographical impression.

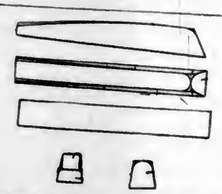
28,165. PATTERN FOR TEXTILE FABRICS. CHARLES SCHLAEFER, Paterson, N. J. Filed Feb. 10, 1894. Serial No. 499,827. Term of patent 3½ years.



Claim.—The design for a pattern for a textile fabric as herein shown and described.

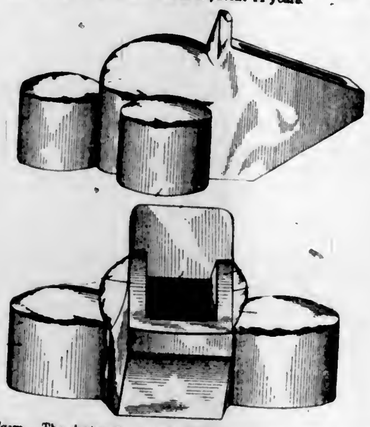
28,166. KEY FOR MUSICAL INSTRUMENTS. AUGUSTUS NEWELL, Chicago, Ill. Filed Jan. 12, 1894. Serial No. 496,634. Term of patent 14 years.

28,166.



Claim.—The design for a musical instrument key substantially as described and illustrated in the accompanying drawings.

28,167. PRESERVING-VAULT. WILLIAM WALKER, Bedford, Iowa, assignor of one-half to Robert G. Moon, same place. Filed Feb. 27, 1894. Serial No. 501,726. Term of patent 14 years.



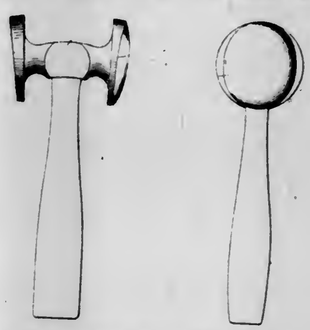
Claim.—The design for a preserving vault herein shown and described.

28,168. BROODER. EARL BARNEY, Schenectady, N. Y. Filed Feb. 24, 1894. Serial No. 501,425. Term of patent 7 years.



Claim.—The design for a brooder herein shown and described.

28,169. HAMMER. ZEPHIREN DUCHEMIN, Haverhill, Mass. Filed Mar. 3, 1894. Serial No. 502,284. Term of patent 7 years.



Claim.—The design for a hammer herein shown and described.

TRADE-MARKS

REGISTERED APRIL 3, 1894.

24,436. WATCHCASES. ILLINOIS WATCH CASE COMPANY, Elgin, Ill. Filed Mar. 5, 1894.

ELGIN GIANT.

Essential feature.—The words "ELGIN GIANT." Used since June 1, 1891

24,437. METAL CLASPS FOR SECURING UNDERCLOTHING. FRANCIS G. DAVIS, Watertown, N. Y. Filed Mar. 2, 1894.

NEVERSLIP.

Essential feature.—The word "NEVERSLIP." Used since January 15, 1894.

24,438. AGATE BEADS AND BUTTONS. F. BAPTEROSSES & CIE., Paris, France. Filed Mar. 6, 1894.



Essential feature.—The representation of a plurality of figures having six equal faces, and in the center of which is the design of a duck. Used since November 1, 1893

24,439. RIVETS. HOOPES & TOWNSEND, Philadelphia, Pa. Filed Mar. 5, 1894.

HT

Essential feature.—A monogram composed of the letters "H" and "T." Used since February 12, 1894.

24,440. CORSET-WAISTS. R. POHL & CO., Baltimore, Md. Filed Oct. 31, 1893.

NORMAL

Essential feature.—The word "NORMAL." Used since July 1, 1892.

24,441. BOOTS AND SHOES. WILLIAM H. FEAREY, Albany, N. Y. Filed Mar. 10, 1894.

RELIEF

Essential feature.—The word "RELIEF." Used since March 1, 1894

24,442. BOOTS AND SHOES. WILLIAM H. FEAREY, Albany, N. Y. Filed Mar. 10, 1894.

GEM

Essential feature.—The word "GEM." Used since March 1, 1894

24,443. VELVETS. GIRON FRÈRES, St. Etienne, France. Filed Mar. 6, 1894.



Essential feature.—The representation of two lions standing and facing, and supporting with their forepaws an original blazon in the center of which are to be seen the letters "G F." Used since September 15, 1856

24,444. WRITING-PAPER AND ENVELOPES. Z. & W. M. CRANE, Dalton, Mass. Filed Feb. 12, 1894.

PARCHMENT VELLUM

Essential feature.—The words "PARCHMENT VELLUM." Used since December 1, 1880

24,445. PERFUME FOR TOILET USES IN LIQUIDS, POWDERS, PASTES, AND SOAPS. GEORGE R. LORENZ, Toledo, Ohio. Filed Mar. 9, 1893

WILD GRAPE BLOSSOM

Essential feature.—The words "WILD GRAPE BLOSSOM." Used since September 1, 1891

24,446. SHAVING-SOAP. THE J. B. WILLIAMS COMPANY, Glastonbury, Conn. Filed Feb. 7, 1894.

SWISS VIOLET

Essential feature.—The words "SWISS VIOLET." Used since July, 1892.

24,447. CIGARS, ALL-TOBACCO CIGARETTES, CHEROOTS, SMOKING, CHEWING, AND LEAF TOBACCO, AND SNUFF. S. HERBSHEIN BROS. & CO., New Orleans, La. Filed Feb. 14, 1894.

LA BELLE CREOLE

Essential feature.—The words "LA BELLE CREOLE." Used since 1869

24,448. CIGARS, ALL-TOBACCO CIGARETTES, CHEROOTS, SMOKING, CHEWING, AND LEAF TOBACCO, AND SNUFF. S. HERBSHEIN BROS. & CO., New Orleans, La. Filed Feb. 14, 1894.

JACKSON SQUARE NEW ORLEANS.

Essential feature.—The words "JACKSON SQUARE, NEW ORLEANS." Used since 1869

24,449. LAGER-BEER. THE FIRM OF ISAAC LEISY, Cleveland, Ohio. Filed Feb. 20, 1894.



Essential feature.—The representation of an eagle holding a badge on which appears the letter "L." Used since December, 1878.

24,450. NATURAL MINERAL WATER. JOHN P. C. SCHMIT, Green Bay, Wis. Filed Feb. 8, 1894.

Salvator

Essential feature.—The representation of an anchor having a rope attached which forms a letter "S" the whole placed back of and in combination with the word "SALVATOR." Used since December 2, 1893.

24,451. COFFEE. WOOLSON SPICE COMPANY, Toledo, Ohio. Filed Mar. 1, 1894.

BEAR
PADANC JAVA

Essential feature.—The words "BEAR PADANG JAVA." Used since May, 1893

24,452. ORANGES. EUGENE VAN NESS, WILLIAM P. VAN NESS, and SILAS H. GAITSKILL, Baltimore, Md., and McIntosh, Fla. Filed Feb. 5, 1894.

ARREDONDO GROVE

Essential feature.—The words "ARREDONDO GROVE." Used since December 1, 1892.

24,453. SUGAR AND LICORICE CONFECTIONS. M. MICHAELIS & SONS, New York, N. Y. Filed Mar. 7, 1894.

Liliputian

Essential feature.—The word "LILIPUTIAN." Used since June 15, 1893.

24,454. EGG-NOODLES. C. F. MUELLER & CO., Jersey City, N. J. Filed Feb. 5, 1894.



Essential feature.—The representation of two hens facing each other and a nest of eggs in the foreground, and two barrels and a sheaf of wheat standing upright in the background. Used since January 3, 1884.

24,455. CELERY BISCUIT. SAMUEL B. CLARK, New York, N. Y. Filed Mar. 1, 1894.

S.B.CLARK'S
CELEBRATED
CELERY BISCUIT

Essential feature.—The representation of a bunch of celery, with the words "S. B. CLARK'S CELEBRATED" above it and the words "CELERY BISCUIT" across it. Used since December 1, 1893.

24,456. FLOUR, OATMEAL, PARCHED WHEAT, AND OTHER CEREAL FOODS. JOHN B. A. KERN & SONS, Milwaukee, Wis. Filed Feb. 23, 1894.



Essential feature.—A golden circle with a central transverse bar of red color across the circle. Used since December 15, 1893.

24,457. HOG AND BEEF PRODUCTS, INCLUDING LARD AND TALLOW. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Feb. 28, 1894.

24,457.



Essential feature.—The words and abbreviation "THE WHITE CITY PACKING CO.," and the picture of a statue of heroic size, in an erect attitude, upon a pedestal, and holding in her upraised hands certain emblematic objects. Used since February 17, 1894.

24,458. HOG AND BEEF PRODUCTS, INCLUDING LARD AND TALLOW. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Feb. 28, 1894.



Essential feature.—The words and abbreviation "THE WORLD'S FAIR PACKING CO.," and a partial interior view of the court of honor of the World's Columbian Exposition. Used since February 17, 1894.

24,459. CANNED LOBSTERS. BURNHAM & MORRILL COMPANY, Portland, Me. Filed Mar. 1, 1894.



Essential feature.—The words "QUEEN BRAND" and a representation of the rising sun. Used since 1875.

24,460. FISH AND MEAT PACKED IN TIN CANS. J. O. HAWTHORN & Co., Astoria, Oreg. Filed Feb. 13, 1894.



Essential feature.—The representation of a hand grasping a fish. Used since April 1, 1877.

24,461. CANNED AND HERMETICALLY-SEALED GOODS. MARY J. BOYER, Baltimore, Md. Filed Mar. 7, 1894.

B

Essential feature.—The letter "B." Used since 1872.

24,462. BUTTERINE. WILKINS & COMPANY, Washington, D. C. Filed Jan. 13, 1894.

C.C

Essential feature.—The letters "C. C." Used since November 15, 1890.

24,463. MEAT SOFTENER IN THE FORM OF A POWDER. ARTHUR E. BAIRD, New York, N. Y. Filed Feb. 12, 1894.



Essential feature.—The word "KOOMAA" and the representation of an old man wearing a turban and a loose garment open to the waist and holding in one hand a leg of mutton and in the other a bottle as if pouring its contents on the leg of mutton. Used since November, 1893.

24,464. THE GOLD CURE FOR OPIUM, WHISKY, AND TOBACCO HABITS AND NERVOUS DISEASES. THE LESLIE E. KEELEY COMPANY, Dwight and Carbondale, Ill. Filed Apr. 4, 1893.



Essential feature.—The representation of a globe, crossed by a belt, and the words: "WE BELT THE WORLD." Used since January 1, 1889.

24,465. REMEDY FOR CERTAIN NAMED DISEASES. JOHN W. LUNDGREN, Worcester, Mass. Filed Feb. 23, 1894.

LINNEA

Essential feature.—The word "LINNEA." Used since September 1, 1893.

24,466. BLOOD-PURIFIER AND LIVER AND KIDNEY REGULATOR. ISAIAH E. ZIMMERMAN, Paterson, N. J. Filed Dec. 5, 1893.



Essential feature.—The representation of a human eye, the capital letter "Z," the character "&" and the abbreviation "Co." Used since December 1, 1893.

24,467. REMEDY FOR CERTAIN NAMED DISEASES. JOHN MORRISON MCLEOD, Goderich, Canada. Filed Mar. 8, 1894.



Essential feature.—A monogram of the letters "J M McL." Used since April 11, 1889.

24,468. MEDICINE FOR THE CURE OF NEURALGIA, GRIP, AND FEVER. THE PHENO-BROMATE CHEMICAL CO., Lebanon Springs, N. Y. Filed Feb. 14, 1894.

Pheno-
Bromate

Essential feature.—The word "PHENO-BROMATE." Used since January 15, 1893.

24,469. REMEDIES FOR CATARRH, LA GRIPPE, AND DISEASES OF THE THROAT AND LUNGS. LEONIA MABEE, Paris, Tex., and St. Louis, Mo. Filed Feb. 8, 1894.

TARGARETTE

Essential feature.—The word "TARGARETTE." Used since December 15, 1893.

24,470. COUGH-DROPS. JOSHUA F. BEARE, Augusta, Me. Filed Feb. 5, 1894.

24,470.

Aunt Rebeccas

Essential feature.—The words "AUNT REBECCA'S." Used since October 15, 1892.

24,471. LINIMENTS, WORM-POWDERS, AND ELIXIRS FOR DIARRHEA. FRANK E. CARTER and CYNTHIA S. JONES, Boston, Mass. Filed Dec. 1, 1893.

RELIEVU

Essential feature.—The word "RELIEVU." Used since October 7, 1893.

24,472. LINIMENTS, OINTMENTS, AND REMEDIES FOR DYSPEPSIA, CHILLS, AND LUNG TROUBLES. F. W. PECK & Co., Columbia, Mo. Filed Aug. 5, 1893.

BETTER THAN GOLD

Essential feature.—The words "BETTER THAN GOLD." Used since 1890.

24,473. CASTOR-OIL. M. CALM & BRO., New York, N. Y. Filed Feb. 14, 1894.

LAXOL

Essential feature.—The word "LAXOL." Used since December 7, 1893.

24,474. LINIMENTS. ELIJAH F. WATKINS, Palatine, W. Va. Filed Mar. 6, 1894.



Essential feature.—The representation of an outline of a human figure wearing a helmet and standing over a wingless dragon having its tail partly coiled about his right leg. Used since September, 1893.

24,475. INSECTICIDES. ORLANDO H. JADWIN, New York, N. Y. Filed Dec. 11, 1893.

FATAL FOOD

Essential feature.—The words "FATAL-FOOD." Used since 1871.

24,476. REMEDY FOR CHICKEN-CHOLERA. EDWARD M. HAWKINS, Cuba, Mo. Filed Feb. 21, 1894.

SURE

Essential feature.—The letters "S" and "C" in the form of a monogram, followed by the letters "U. R. E." Used since December 2, 1893.

24,477. BLACKING, DRESSING, AND RUBBER AND LEATHER CEMENT FOR BOOTS AND SHOES. LAING, SON & HARRAR, Philadelphia, Pa. Filed Mar. 8, 1894.

PARAGON

Essential feature.—The word "PARAGON." Used since June 8, 1893.

24,478. BUILDING, PAVING, AND INSULATING COMPOSITION. ALBERT P. MCKEAN, Sunbury, Pa. Filed Mar. 10, 1894.

24,478.

SHIKELLIMY

Essential feature.—The word "SHIKELLIMY." Used since February, 1894.

24,479. WINDMILLS. FAIRBANKS, MORSE & COMPANY, Chicago, Ill., and Beloit, Wis. Filed Jan. 29, 1894.

ECLIPSE.

Essential feature.—The word "ECLIPSE." Used since 1860.

24,480. WINDMILLS. FAIRBANKS, MORSE & COMPANY, Chicago, Ill., and Beloit, Wis. Filed Jan. 29, 1894.

FAIRBANKS.

Essential feature.—The word "FAIRBANKS." Used since 1892.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

DUNLAP *et al. v.* SCHOFIELD *et al.*

Decided March 5, 1894.

1. STROHEIM—DESIGN FOR RUGS—SECTION 4900 CONSTRUED.
The meaning of section 4900 is that the owner of the patent cannot recover damages of infringers unless he establishes that he has given notice of his patent right either by marking his article "Patented" or by particularly informing infringers of his patent and of their infringement of it.
2. SAME—SAME—ACT OF FEBRUARY 4, 1887, (CHAPTER 105,) CONSTRUED.
This statute requires that, in order to charge either a manufacturer or seller of a patented Design, the patentee must prove that the infringer applied the Design or some colorable imitation thereof "with a knowledge of the patent and of his infringement."

APPEAL from the Circuit Court of the United States for the Eastern District of Pennsylvania.

STATEMENT OF THE CASE.

This was a bill in equity, filed May 7, 1889, for the infringement of Letters Patent issued, April 2, 1889, for the term of three and a half years, by the United States to Julius Stroheim for a Design for rugs.

The bill alleged that the Design was new and original; that Stroheim was the original and first inventor thereof; that it was not, at the time of his application for a patent, in public use or on sale with his consent or allowance; that before the issue of the patent he assigned the invention and the patent to be obtained therefor to the plaintiffs by an instrument in writing recorded in the Patent Office; that the invention was of great practical use and benefit to the plaintiffs, and they had applied it to large and extensive use, and had expended large sums of money in introducing it, and the public and the users of the invention had acknowledged and acquiesced in its value; that the defendants had infringed, and intended to continue to infringe the patent by making, using and vending the patented Design, substantially the same in outline, detail and appearance as shown and described in the patent; and that the plaintiffs, "after the issue of the aforesaid Letters Patent, notified the said defendants of the issue of said Letters Patent, of their infringement thereof, and requested them, the said defendants, to abstain and desist from any further violation thereof in infringement of" the plaintiffs' "rights thereunder in the manufacture and sale of rugs bearing said patented Design;" and prayed for a discovery, an injunction, an account of profits, damages, and further relief.

The defendants answered under oath, admitting the issue of the Letters Patent to Stroheim; denying all the other allegations of the bill, and, among other things, denying that—

after the issue of the aforesaid Letters Patent these complainants notified these defendants of the issue of said Letters Patent, or of their infringement thereof, and requested the said defendants to abstain and desist from infringement of the complainants' alleged rights thereunder, in the manufacture and sale of rugs bearing said patented Design.

The plaintiffs filed a general replication.

At the hearing upon pleadings and proofs, it appeared by the testimony introduced by both parties that the plaintiffs made and sold many rugs with the patented Design upon them; and there was conflicting evidence upon the question of infringement. The court held that the patent was valid, and that the defendants had infringed it by making and selling rugs bearing a Design in imitation of and substantially similar to the Design shown, described and claimed in the patent.

No evidence was offered by either party upon the question whether the plaintiffs' rugs were marked "Patented," or upon the question whether the plaintiffs had notified the defendants that they were infringing the patent.

The defendants contended that they were not liable in damages, because the plaintiffs had failed to prove their own compliance with section 4900 of the Revised Statutes of the United States, which is as follows:

It shall be the duty of all patentees, and their assigns and legal representatives, and of all persons making or vending any patented article for or under them, to give sufficient notice to the public that the same is patented; either by fixing thereon the word "Patented," together with the day and year the patent was granted; or when, from the character of the article, this cannot be done, by fixing to it, or to the package wherein one or more of them is inclosed, a label containing the like notice; and in any suit for infringement, by the party failing so to mark, no damages shall be recovered by the plaintiff, except on proof that the defendant was duly notified of the infringement, and continued, after such notice, to make, use or vend the article so patented.

The court held that the notice alleged in the bill was not a sufficient compliance with this section, and that the burden of proof was upon the defendants to show that the plaintiffs had not complied with it. (42 Fed. Rep., 323.)

The plaintiffs asked for an injuction, and for damages in the sum of $250, as penalty and damages under the act of February 4, 1887, chapter 105, (which is copied in the margin,*) and waived all right to any further damages, or to an account of profits. The court, on May 13, 1890, entered a decree for the plaint-

*An act to amend the law relating to patents, trade-marks and copyrights.

SEC. 1. Hereafter, during the term of Letters Patent for a design, it shall be unlawful for any person other than the owner of said Letters Patent, without the license of such owner, to apply the design secured by such Letters Patent, or any colorable imitation thereof, to any article of manufacture for the purpose of sale, or to sell or expose for sale any article of manufacture to which such design or colorable imitation shall, without the license of the owner, have been applied, knowing that the same has been so applied. Any person violating the provisions, or either of them, of this section, shall be liable in the amount of two hundred and fifty dollars; and in case the total profit made by him from the manufacture or sale, as aforesaid, of the article or articles to which the design, or colorable imitation thereof, has been applied, exceeds the sum of two hundred and fifty dollars, he shall be further liable for the excess of such profit over and above the sum of two hundred and fifty dollars. And the full amount of such liability may be recovered by the owner of the Letters Patent, to his own use, in any circuit court of the United States having jurisdiction of the parties, either by action at law or upon a bill in equity for an injunction to restrain such infringement.

SEC. 2. Nothing in this act contained shall prevent, lessen, impeach or avoid any remedy at law or in equity which any owner of Letters Patent for a design, aggrieved by the infringement of the same, might have had if this act had not been passed; but such owner shall not twice recover the profit made from the infringement. (24 Stat., 387.)

iffs accordingly, and the defendants appealed to this Court.

Mr. J. C. Fraley for the appellants.

Mr. H. T. Fenton for the appellees.

Mr. Justice GRAY (after stating the case) delivered the opinion of the Court.

By section 4900 of the Revised Statutes of the United States, (which by virtue of section 4933 applies to patents for Designs,) it is made the duty of every patentee or his assigns, and of all persons making or vending any patented article for or under them, to give sufficient notice to the public that it is patented, by putting the word "Patented" upon it, or upon the package inclosing it –

and in any suit for infringement, by the party failing so to mark, no damages shall be recovered by the plaintiff, except on proof that the defendant was duly notified of the infringement, and continued, after such notice, to make, use or vend the article so patented.

The clear meaning of this section is that the patentee or his assignee, if he makes or sells the article patented, cannot recover damages against infringers of the patent, unless he has given notice of his right, either to the whole public by marking his article "Patented," or to the particular defendants by informing them of his patent and of their infringement of it.

One of these two things, marking the articles, or notice to the infringers, is made by the statute a prerequisite to the patentee's right to recover damages against them. Each is an affirmative fact, and is something to be done by him. Whether his patented articles have been duly marked or not is a matter peculiarly within his own knowledge; and if they are not duly marked, the statute expressly puts upon him the burden of proving the notice to the infringers, before he can charge them in damages. By the elementary principles of pleading, therefore, the duty of alleging, and the burden of proving, either of these facts is upon the plaintiff.

In the present case, although the plaintiffs had manufactured and sold goods with the patented Design upon them, they made no allegation or proof that the goods were marked as the statute required. They did allege in their bill that they notified the defendants of the patent and of their infringement; but this allegation was distinctly denied in the defendants' answer, and the plaintiffs offered no proof in support of it. They could not, therefore, recover, even if this were a suit for damages within section 4900 of the Revised Statutes of the United States.

But these plaintiffs, waiving all right to an account of profits, or to other damages, sought and were allowed to recover the fixed sum of $250, in the nature of a penalty, imposed by the act of February 4, 1887, (ch. 105,) upon any person who, during the term of a patent for a Design, and without the license of the owner, applies the Design secured by the patent, "or any colorable imitation thereof," to any article of manufacture for the purpose of sale, or sells or exposes for sale any article of manufacture to which "such design or colorable imitation" has been applied, "knowing that the same has been so applied." (24 Stat., 387.) This statute, according to its clear intent and effect, requires that, in order to charge either a manufacturer or a seller of articles to which has been applied a patented Design or any colorable imitation thereof, he must have been "knowing that the same has been so applied," which is equivalent to saying "with a knowledge of the patent and of his infringement." The reasons for holding the patentee to allege and prove either such knowledge, or else a notice to the public or to the defendant, from which such knowledge must necessarily be inferred, are even stronger, in a suit for such a penalty, than in a suit to recover ordinary damages only.

In none of the cases on which plaintiffs rely, and by which the court below considered its judgment as controlled, was there any adjudication inconsistent with this conclusion.

The leading case is *Rubber Co.* v. *Goodyear*, (9 Wall., 788,) decided at the October term, 1869, which was a bill in equity for an injunction, and for an account of profits, against infringers of a patent for an invention; and the passage in the opinion of this Court, which is relied on by the plaintiffs, is that in which Mr. Justice Swayne, after citing the provisions of the act of March 2, 1861, (ch. 88, sec. 13,) which are re-enacted in section 4900 of the Revised Statutes of the United States, proceeded as follows:

It is said that the bill contains no averment on this subject, and that the record is equally barren of proof that any such notice was ever given to the defendants, except by the service of process, upon the filing of the bill. Hence, it is insisted that the master should have commenced his account at that time, instead of the earlier period of the beginning of the infringement. His refusal to do so was made the subject of an exception. The answer of the defendants is as silent upon the subject as the bill of the complainants. No such issue was made by the pleadings. It was too late for the defendants to raise the point before the master. They were concluded by their previous silence and must be held to have waived it. It cannot be considered here. (9 Wall., 801.)

In that case, as appears in the passage just quoted from the opinion, not only was there no averment in the bill, or in the answer, on the subject of marking or of notice; but no objection to the want of proof of either fact was made by the defendants at the original hearing in the circuit court, as appears by its opinion reported in 2 Cliff., 351. The objection was first taken at the subsequent hearing before a master, and was therefore held to have been waived.

In some later cases in the circuit courts of the United States it has been assumed that the defendant was bound to allege and prove that the patented articles were not marked, if he would, upon that ground, avoid liability for damages under the section in question. But in none of those cases was that point in judgment. In *Goodyear* v. *Allyn*, (6 Blatchf., 33,) the only qestion before the Court was of granting an injunction, a matter not touched by this section. In *Herring* v. *Gage*, (15 Blatchf., 124,) the point decided was that the statute did not apply to the marking of the articles made and used by the infringing defendants. In *New York Pharmical Association* v. *Tilden*, (23 O. G., 272; 21 Blatchf., 190,) the answer alleged and the proof showed that the plaintiffs' goods were not marked, and the question was as to the sufficiency of a verbal notice to charge the defendants in damages. And in *Allen* v. *Deacon*, (10 Saw., 210,) the want of marking was alleged and proved by the defendant, and he was also proved to have been duly notified of the infringement. On the other hand, in *McComb* v. *Brodie*, (2 O. G., 117; 1 Woods, 153,) it was held that if the patentee did not prove that his articles were

marked, or that he gave the defendant notice of the infringement, he could recover only nominal damages.

The patent having now expired, so that the injunction is of no further value, the decree is reversed and the case remanded to the circuit court with directions to dismiss the bill.

Supreme Court of the United States.

BELDING MANUFACTURING COMPANY *v.* CHALLENGE CORN PLANTER COMPANY.

Decided March 5, 1894.

HAMBROOK—PATENTABLE NOVELTY—PATENT VOID.

Letters Patent No. 204,216, dated May 28, 1878, issued to Richard T. Hambrook, for an improvement in refrigerators, examined in view of the state of the art and *Held* to be void for want of patentable novelty.

APPEAL from the Circuit Court of the United States for the Western District of Michigan.

STATEMENT OF THE CASE.

Letters Patent of the United States, No. 204,216, were granted, on May 28, 1878, to Richard T. Hambrook, for an improvement in refrigerators, and by various assignments the ownership thereof became vested, in 1885, in the Belding Manufacturing Company.

In March, 1889, in the Circuit Court of the United States for the Western District of Michigan, a bill in equity was filed by the Belding Manufacturing Company against the Challenge Corn Planter Company, alleging infringement by the defendant of the complainant's rights, as owner of the Hambrook patent, and praying for relief. The Challenge Corn Planter Company appeared and answered. The cause was put at issue, a large amount of evidence was put in by the respective parties, and, after argument, on June 25, 1890, a final decree was entered dismissing the bill of complaint, from which decree this appeal was taken.

Mr. C. Clarence Pool and *Mr. Taylor E. Brown* for the appellants.

Mr. Arthur Stem and *Mr. Edward Taggart* for the appellees.

Mr. Justice SHIRAS delivered the opinion of the Court.

We have been aided in our consideration and decision of this case by very full and able arguments, oral and printed, on behalf of both the parties.

Hambrook's invention was described by himself as follows:

The nature of my invention consists in the construction of a refrigerator having the ice chamber constructed in such manner that the air will impinge upon the top, bottom, and sides of the ice, and that the continuous volume of cold air generated by the melting of the ice will descend, in a dry state, to the provision-chamber without material hinderance, causing the displaced and less frigid air to ascend to the ice chamber through open spaces at each side thereof without meeting the descending current of cold air.

The specification describes the refrigerator as consisting of a cabinet or outer box, within which is an inner box, lined with metal throughout, and fastened and retained in its relative position to the outer case by any proper means used by makers of refrigerators. The inner box is divided into several compartments—one, occupying the upper part, being the ice-chamber, and a lower one, consisting of two apartments, separated from each other by a partition, which is called the "provision-chamber."

We accept, as a satisfactory description of the Hambrook refrigerator, that given by Melville E. Dayton, an expert examined on behalf of the complainant:

The patent illustrates and describes a domestic or household refrigerator, containing an ice-box at the top, a lid over the ice-box, a provision chamber or chambers below the ice-box, a partition separating the ice-box from the provision chamber or chambers, a central passage through this passage for the downflow of cold air from the ice box to the provision-chamber, side passages rising from the provision-chamber outside of the ice-chamber to near the top of the latter, overhanging cleats or shields covering these side passages, gutters at the margins of the central opening in the partition to prevent the passage of water from the ice-chamber into the provision-chamber a deflecting-plate over said central opening, to carry the water, which would drip directly through said central opening to the top of the partition at the sides of said opening, so that the gutters shall carry away all water or moisture falling from the ice or its supporting-rack, and a pipe for draining off the water delivered by the gutters. The patent shows a vertical partition dividing the provision-chamber into two compartments, said partition being extended up through the central opening in the horizontal partition and into the ice-chamber.

The court below did not deem it necessary to consider and pass upon the question of infringement, but being of opinion that, in view of former inventions and of the state of the art in reference to the construction of refrigerators, there was no patentable invention in the Hambrook patent, dismissed complainant's bill; and if we are satisfied to adopt that conclusion of the court no other question in the case need be considered.

Quite a number of prior patents were put in evidence by the defendant, beginning with patent to Sanford in 1855, followed by one to Lyman in 1856, to Banta in 1867, to Chase in 1869, to Hunt in 1870, to Rohrer in 1871, to Butler in 1875, and to Smith in 1877.

Without going into a minute comparison of the features of these respective patents, it may be safely said that they closely resemble each other in the main particulars of their construction and in the objects sought to be effected. Certain disadvantages were overcome and improvements added from time to time.

Litigation took place in which the courts were called upon to consider conflicting claims under some of these patents. The most important case, and the only one which we need to notice, involved a contest between the Lyman and Sanford patents, and came to this Court on appeal from the Circuit Court of the United States for the Southern District of New York. (*Roberts* v. *Ryer*, 10 O. G., 204; 91 U. S., 150.)

The bill was filed by Roberts, assignee of Sanford, alleging an infringement of the patent to Sanford for an improvement in refrigerators. The principal defense relied upon was the prior invention of Lyman, and this defense was sustained in the court below, whose decree, dismissing the bill, was affirmed by this Court in an opinion by Chief Justice Waite.

In that opinion the Sanford patent is described to be for a combination of three elements, to wit: 1, an open-bottom ice-box, or its equivalent, so constructed that the air may pass freely down through it, while, at the same time, the drip of the water from the melting ice is prevented by collecting the water and taking it in an escape-pipe outside of the refrigerator; 2, a dividing partition, open above and below, separating the refrigerator into two apartments; and, 3, a chamber directly under the open-bottom ice-box, in which articles to be refrigerated may be placed in such manner as to receive the descending current of air from the ice-box directly upon them.

The Court proceeded to compare these devices with those found in the Lyman patent, in which were found

an open-bottom ice-box, and a partition open above and below, dividing the refrigerator into two apartments, in one of which the air passed downward only, and in the other upward only. Each called for the circulation of air, and each obtained it substantially by the same device. They each passed the air cooled in the ice-box through convenient openings downward in one apartment, and upward through the other. In each device the cooled air passed through the opening in the bottom of the partition, and the warm air through that in the top. All this was done in both cases for the purpose of cooling, desiccating, and purifying the confined air, and to prepare it for the purposes of refrigeration. There was, therefore, one common object to be accomplished by both inventors; and they each devised substantially the same plan for that purpose. With both of the inventors, the circulation by means of an ascending and descending current was the principal object to be obtained. One considered the greatest benefit for the purposes of refrigeration was to be derived from the use of the descending current, while the other saw more particularly the advantage of the ascending current, but they each had both, and could utilize both. The Court, therefore, concluded that the effort to distinguish the two devices was futile; that if there was any change of construction suggested, it was only to increase its capacity for usefulness; that it was a carrying forward of new or more extended application of the original thought—a change only in form, proportions, or degree, doing the same thing in the same way, by substantially the same means, with better results.

Bearing in mind the reasoning and conclusion of the Court in that case, we shall pass by the patents subsequently granted till we reach that granted to Smith in 1877, reissued in 1878, and in which the court below found all the essential features of the Hambrook invention.

Smith described his theory and devices in the following language:

> My invention relates to that class of refrigerators wherein a constant circulation of air is maintained through the ice-box and provision-chambers; and its object is to increase the circulation, reduce the air to a lower temperature than heretofore, and to deliver such air into the provision-chambers deprived of all odor and free from sweating, preventing the sides of said provision-chambers from sweating, and better preserving the articles placed therein.
>
> My invention therein consists in the combination of an ice box of the entire width of the refrigerator, except the air-passages at its end, said ice-box having a central air-discharge opening in its bottom, the provision chambers and the air-passages leading out of the same; also, in the combination of the same elements and an air-discharge opening above the center of the ice-box; also, in the combination of the ice box with the central air-discharge opening and a false bottom, raised above the bottom of the ice-box, having openings near its ends and an air-passage under it; also, in the combination of the various principal operative parts, all constructed and arranged as more fully hereinafter described.

In this description we recognize the principal features of those contained in the prior patents to Lyman and Sanford, and, without pausing to consider whether the art was thereby advanced within the meaning of the patent law, it is obvious that the territory for further invention, in this kind of refrigerator, was still further restricted.

The appellant's expert, Dayton, on rebuttal limited the Hambrook patent as follows:

> The Hambrook patent is not broadly for the idea or discovery that cold air is heavier than warm air, and will fall by its greater specific gravity, and thus cause the warm air which it displaces to rise; nor is it for the general location of an ice-chamber above a provision-chamber, by which the difference in specific gravity between the cold and warm air may induce a circulation; nor is it for a particular form of grate or support on which the ice may rest while allowing air to move downward in contact with the ice; nor is it for the idea of inclining a water-shed in order to permit water to flow therefrom; nor is it for the provision of an air-passage broadly, by which air may descend from the ice-chamber, or ascend from the provision-chamber. All these things, broadly considered, were well known in various forms at the date of the Hambrook invention.

These admissions were plainly constrained by the claims and descriptions contained in the prior patents.

So, too, the learned counsel for the appellant in his supplemental brief concedes that the Smith patent shows the provision-chambers, the ice-chamber, an ice table or rack equivalent to the rack of Hambrook, the equivalent of the double-inclined bottom pieces of Hambrook provided with a central opening—that it has also the equivalents of the gutters, and that it has the waste-water pipe.

But it is claimed that the Smith patent does not contain the side passages of Hambrook or their equivalents, and that it does not have the deflector-plate or any equivalent, and that these missing elements are material to the combination; and hence it is argued that the Smith patent, omitting these two elements of the Hambrook combination, did not anticipate the latter.

Yet appellant's expert witness, Dayton, in his analysis of the Smith patent admits—as of course he had to do—that it contained an uptake flue or passage at each end of the ice-box, though he endeavors to distinguish them from the end passage-ways of Hambrook, in that the former do not discharge into the sides of the ice-chamber at the top thereof, but are continued or prolonged through spaces in the cover, which meet and open at the middle of the lid, which results, as he contends, in a retardation of the air-currents.

So, too, the same witness admits that the imperforate ice-rack in the Smith patent operates to prevent the water from dripping, and thus performs the function of the Hambrook deflector, though less advantageously, and he argues that an imperforate ice-rest is an entirely different thing from a separate deflector interposed between such ice-rest and a subjacent opening.

Whether the device in the Smith patent, to prevent the water from dripping into the provision-chamber, by the use of an imperforate ice-rack can be deemed an equivalent for the Hambrook deflector, we need not decide, because the evidence is clear that the refrigerators made by the defendant company do not have the Hambrook deflector, but the ice is carried on an imperforate plate of corrugated metal, through which no water can drip. Either, then, this imperforate ice-rest *is* an equivalent of the Hambrook deflector, in which case the Smith patent was an anticipation, or it is *not* an equivalent, in which case the defendant's refrigerator does not infringe in that particular.

Nor do we think the distinction pointed out between the uptake-flues or side passages in the Smith and Hambrook patents amounts to a patentable difference. The purpose of the flues is the same and their mode of operation is the same. The fact that Hambrook did not prolong these air-passages along the lid or cover might perhaps be a better way of introducing the air into the ice-chamber, but it does not amount to a patentable improvement.

As was said in *Roberts* v. *Ryer*, *supra*—

> it was a mere carrying forward, a change only in form, proportions, or degree, doing the same thing, in the same way, by substantially the same means, with better results.

In view, then, of the state of the art as manifested by numerous prior patents, and particularly by that of Smith, we conclude that the Hambrook patent is void for want of patentable novelty; and the decree of the court below, dismissing the bill for that reason, is affirmed.

Mr. Justice GRAY was not present at the argument, and took no part in the decision of the case.

U. S. Circuit Court—Western District of Pennsylvania.

MASSETH *v.* JOHNSTON *et al.*

Decided January 15, 1894.

1. GORDON—PACKERS—INFRINGEMENT SUITS—DEFENSES.
   The use of an infringing device is not justified by the fact that defendant had previously attempted to use one made under complainant's patent, which proved to be useless.
2. SAME—ABANDONMENT.
   The failure of a patentee for some years to manufacture his device does not defeat the rights vested in him by the patent.
3. SAME—ACTIONS—WITNESSES—CONSTITUTIONAL LAW.
   The vendor of an infringing device, who is not a party to the suit, may be compelled to testify to the purchase and use thereof by the defendant without violating the constitutional provision that no witness shall be compelled to testify against himself in any criminal case, for Revised Statutes, sections 4919, 4921, do not subject an infringer to penalties or forfeitures, but merely authorize the court in its discretion, and "according to the circumstances of the case," to impose additional damages.

SUIT by Benjamin Masseth against Johnston Bros. & Stanfield for infringement of a patent.

Messrs. Bakewell & Sons for the complainant.
Mr. T. C. Campbell for the defendants.

BUFFINGTON, *J.*:

This is a bill in equity for an accounting for alleged infringement of Letters Patent No. 167,400, for improvement in packers for shutting off water from oil and gas wells, granted April 21, 1875, to James P. Gordon and assigned to complainant, Benjamin Masseth. The answer admits the use at the time of filing and for two years previous thereto by the respondents, of what is known as the "Palm device," but denies infringement thereby, and further denies the patentability of Gordon's device. Since answer filed this court has sustained the Gordon patent (*Masseth* v. *Palm*, No. 16, May term, 1891, 51 Fed. Rep., 824) and has held the Palm device, which the answer, by specific reference to the said suit, describes as the one respondents use, to infringe the Gordon patent; so that these defenses, however available when the answer was filed, cannot now avail.

The respondents further allege that they had complainant put in for them one of his packers, constructed under the Gordon patent; that it failed to shut off the water, and was useless, and they afterward procured the Palm packer. We cannot see how this affords any defense to the present bill. The failure of the Gordon packer did not justify the respondents in replacing it with an infringing one, nor can the alleged failure of Gordon for some years to manufacture his device avail to defeat his or his assignee's rights vested in them by the grant of the patent. (*Campbell Printing-Press & Manufg. Co.* v. *Manhattan Ry. Co.*, 60 O. G., 894; 49 Fed. Rep., 930.) But it is alleged the only evidence of infringement is that of Palm, the vendor of the infringing device, which was taken under protest and subject to the opinion of the court as to competency. It is contended that Palm cannot be compelled to give evidence on behalf of complainant, because thereby he may subject himself to penalties and forfeitures hereafter in an accounting with the present complainant. In *Roberts* v. *Walley* (14 Fed. Rep., 167) the right of the complainant to call a repondent seems to have been assumed, the contention being simply to restrict such examination within proper limits. Assuming, for present purposes, that infringement is not admitted by the answer, we see no reason why Palm was not competent to prove the purchase and use by the respondents of the infringing device. He is not a party to the present bill, and we do not regard Revised Statutes, sections 4919, 4921, as subjecting him hereafter to penalties and forfeitures. They do not vest a right in a complainant to recover any penalty or forfeiture; they simply empower the court, in its discretion, and "according to the circumstances of the case," to impose additional damages against an infringer. (See *Untermeyer* v. *Freund*, 65 O. G., 1767; 58 Fed. Rep., 2'0.) The calling of Palm to testify was a violation neither in letter nor spirit of the constitutional provision (see amendment 5) that "no person * * * shall be compelled in any criminal case to be a witness against himself."

We are of opinion the complainant is entitled to a decree.

U. S. Circuit Court—Western District of Pennsylvania.

MASSETH *v.* REIBER.

Decided January 15, 1894.

GORDON—PACKERS—INFRINGEMENT SUITS—DEFENSES.
The refusal of a patentee to furnish his device, when requested, does not justify the use of an infringing article.

SUIT by Benjamin Masseth against Ferd. Reiber for infringement of a patent.

Messrs. Bakewell & Sons for the complainant.
Mr. T. C. Campbell for the defendant.

BUFFINGTON, *J.*:

This case is governed by that of *Masseth* v. *Johnston*, (No. 8, Nov. Term, 1892, 59 Fed. Rep., 613,) to the opinion in which we refer. One additional matter is set up in defense. It is alleged that respondent requested complainant to put in one of his packers, and that he arbitrarily refused to do so until respondent would direct the payment of a contested bill by a company of which he was superintendent. These facts, however, would not justify the respondent in using an infringing device. "The exclusive right to his discovery" is what the law confers on a patentee. Whether he exercises that right or not by manufacturing his device cannot affect his exclusive right under the patent. (*Roller-Mill Co.* v. *Coombs*, 48 O. G., 255; 39 Fed. Rep., 805; *Campbell Printing-Press & Manufg. Co.* v. *Manhattan Ry. Co.*, 60 O. G., 894; 49 Fed. Rep., 930.)

We are of opinion the complainant is entitled to a decree.

U. S. Circuit Court—District of Massachusetts.

RICHARDSON *et al. v.* SHEPARD *et al.*

Decided March 9, 1894.

1. DE LONG—GARMENT-HOOK—VALID.

Letters Patent No. 411,857, granted October 1, 1889, to Frank De Long, for improvement in hooks or fastenings for garments, examined in view of the state of the art and *Held* to be valid.

2. QUESTION OF INVENTION—CIRCUMSTANCES OF GREATEST UTILITY, POPULARITY, AND SUCCESS RESOLVE ANY DOUBTS OF INVENTION IN FAVOR OF THE PATENTEE.

Where the change in the patented hook is beneficial and embodies a new and better mode of operation; where numerous other patents have issued for hooks between the dates of invention of the alleged anticipating hooks and the patented hook, without its having occurred to those skilled in the art to make the change; where the best of the prior inventions met with only moderate success, and where the patented hook has great utility, extensive public use, and marked commercial success, *Held* that these considerations are sufficient to resolve any doubt on the question of patentability in favor of the patentee.

Messrs. Straubridge & Taylor, Mr. Bradbury Bedell, and *Messrs Fish, Richardson & Storrow* for the complainants.

Mr. Richard Stone and *Mr. Thomas Ewing, Jr.*, for the defendants.

COLT, *J.:*

This is a bill in equity brought for infringement of Letters Patent No. 411,857, granted October 1, 1889, to Frank E. De Long, for an improvement in hooks or fastenings for garments.

The improvement of De Long over the ordinary hook consists in the addition of a spring bowed tongue placed intermediate between the side bars of the hook, and which forms a loop coincident with the bend of the hook. The specification says:

Between the front and rear portions of the hook, and secured to a proper part thereof, is a spring-tongue B, which occupies part of the space between said portions, and is bowed or swelled outwardly so as to approach the front portion.

* * * * * * *

It will be seen that when an eye, loop, or ring is presented to the hook and drawn between the front and rear portions thereof it bears against the tongue and rides over the same, forcing it backward, so that said eye, &c., or ring is permitted to pass to the bend D, the tongue then closing or returning to its normal position and serving to retain the eye, &c., on the hook, it being noticed that the tongue prevents the return or displacement of the eye, &c., from the hook.

The single claim of the patent is as follows:

A hook comprised of a hook proper and a shank formed of substantially parallel bars, and a tongue having its free end forming a loop coincident with the bend of the hook, said tongue and loop being intermediate of said side bars, substantially as described.

The only defense urged at the hearing was the invalidity of the patent in the light of the prior state of the art. Of the many patents introduced in evidence as anticipating the De Long invention I deem it necessary to consider only two—the English patent, No. 8,068, granted to John H. Rodgers in 1839, and Patent No. 195,825, granted to Joel Jenkins October 2, 1877.

The Rodgers hook has a yielding resilient humped tongue, and to this extent is similar to the De Long structure; but the end of the tongue in this hook is not carried around the bend of the hook. There are two defects in the Rodgers hook. First, the end of the tongue, when the eye is inserted in the hook, is pressed down below the plane of the shank of the hook, and, coming in contact with the fabric, tends to abrade it, and, second, in inserting the eye in the hook the spring-tongue may become bent or displaced, in which case the eye, in attempting to unhook it, may pass behind or under the end of the tongue, and so prevent the disengagement of the eye from the hook. This hook was not a commercial success.

The Jenkins patent is for a safety-pin. The guard, which is integral with the wire of the pin, is composed of a series of convolutions lying close together and forming a flat surface or bearing. This surface is then bent over, making a recess with two parallel flat sides, within which the point of the pin is received and protected by the upper and lower surface of the guard. The specification then declares:

To prevent the point of the pin from being withdrawn from the guard *a* by accident, a small obstruction, *c*, is formed in the under surface of the guard by bending one or more of the convolutions.

This obstruction offers no obstacle to the free insertion of the pin within the guard, but affords just enough resistance to its being withdrawn therefrom to hinder accidental displacement.

The language of the Jenkins patent and an inspection of the pin made in accordance therewith show that the "small obstruction" in the guard of the pin does not perform the same function and is in no proper sense the resilient spring-tongue of the De Long hook. It has no appreciable spring movement, it is not depressed when the point of the pin is inserted, and it does not spring back, thereby holding the point of the pin within the recess.

The change in structure from Rodgers to De Long may seem slight and, now that we see it, simple; but this is no sufficient reason for denying invention or patentability where a beneficial change embodying a new and better mode of operation has been produced. It must also be remembered that numerous patents on hooks were taken out between the invention of Rodgers in 1839 and of De Long in 1889, and that it did not occur to any one engaged in developing this branch of the art to make the change which is found in the De Long device. This circumstance strongly tends to prove that such a modification of the Rodgers pin would not be obvious to one skilled in the art, and that therefore it called for the exercise of the inventive faculty. If we add to this the further circumstance that most of these prior efforts were failures and that none of them met with more than moderate success, and contrast this with the great utility, extensive public use, and marked commercial success of the De Long hook, I think these considerations are sufficient to resolve any doubt on the question of patentability in favor of the patentee. (*Washburn & Moen Manufacturing Co.* v. *Grinnell & Wire Co.*, 24 Fed. Rep., 23; *Same* v. *Haish*, 18 O. G., 465; 4 Fed. Rep., 900; *Reiter* v. *Jones*, 35 Fed. Rep., 421; *Wilcox* v. *Bookwalter*, 39 O. G., 1200; 31 Fed. Rep., 224; *Hitchcock* v. *Tremaine*, 1 O. G., 633; 9 Blatchf., 550; *Watson* v. *Stevens*, 2 C. C. A., 500; *Webster Loom Co.* v. *Higgins*, 21 O. G., 2031; 105 U. S., 580; *Consolidated Valve Co.* v. *Crosby Valve Co.*, 30 O. G., 991; 113 U. S., 158; *Magowan* v. *New York Belting and Packing Co.*, 57 O. G., 845; 141 U. S., 332; *The Barbed Wire Patent*, 58 O. G., 1555; 143 U. S., 275.

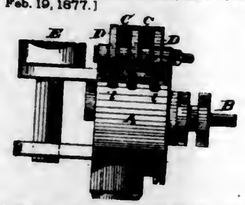
Decree for complainants.

PATENTS

Expired, April 3 1894.

The term of these patents granted during the week ending April 3, 1877, have expired. The reissues expired at an earlier date.

189,009. PERFORATING-STAMPS. Geo. F. Almy, Delphos, assignor of one-half his right to H. M. Clark, Toledo, Ohio. [Filed Feb. 19, 1877.]

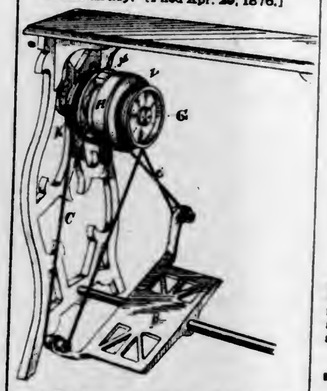


1. In a hand canceling-stamp, the combination of one or more independent disks C, the stamp-frame arranged to be nearly flush with the periphery of the disk or disks, said disks roughened on their periphery, and provided with notches *c*, with a revolving shaft, B, substantially as and for the purpose described.

2. The combination of disk or disks C, shaft B, regulator D, and regulating-screws *i*, substantially as and for the purpose described.

3. In a hand canceling-stamp, the regulator D, provided with slots A, in combination with regulating screw or screws *i*, substantially as described.

189,010. SEWING-MACHINE MOTORS. S. Artley, O. Berg, and H. Dieterlea, Chicago, Ill.; said Berg and Dieterlea assignors to said Artley. [Filed Apr. 29, 1876.]



1. The centrally-pivoted treadle B, in combination with the bracket attachments E and F, arranged one on each end of the treadle, substantially as and for the purpose set forth.

2. The centrally-pivoted single treadle B, in combination with the endless belt C, and the pulleys K and L, substantially as specified.

3. The pulleys K L and clutches M P, constructed and arranged, as described, to fit one upon the inside of one pulley, and the other on the outside of the other pulley in combination with the eccentrics O and Q, and the drive-wheel H, substantially as and for the purpose set forth.

4. A double pronged clutch, having a central opening, and two bearing-points at some distance apart, in combination with an eccentric bearing, substantially as shown and described.

5. The wheel H provided with a flange, projecting from one side thereof, in combination with the clutch P constructed as described, to clasp the wheel upon the outside of said flange, substantially as shown and set forth.

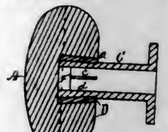
189,011. HORSESHOES. C. W. Atkinson, Indianapolis, Ind., assignor to H. Atkinson, same place. [Filed Nov. 21, 1876.]

189,011.



A toe-weighted horseshoe—namely, a cast shoe having a cored chamber in the toe, in which is inserted lead or other metal whose specific gravity is heavier than the metal of the shoe, in the manner and for the purposes set forth and described.

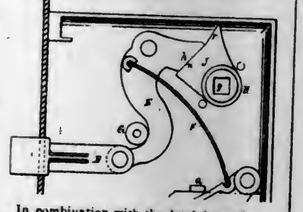
189,012. ATTACHING KNOBS TO THEIR SHANKS. Wm. A. Barlow, Chicago, Ill. [Filed Aug. 17, 1876.]



1. The combination, with the knob A, of the slotted shank C, ring D, and key F, substantially as and for the purpose set forth.

2. In a door-knob, the combination, with the tapering mortise formed within the shank C, of the key F, adjusted to pass through said mortise from the inner end of the shank, substantially as and for the purpose specified.

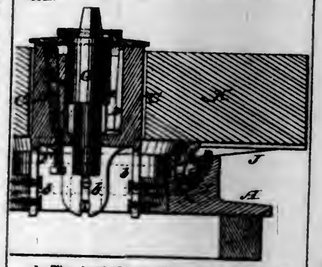
189,013. KNOB-LATCHES. W. A. Barlow, Chicago, Ill. [Filed Aug. 3, 1876.]



In combination with the latch-lever E, operating the latch, and beveled, as at A, the hub H, having the arm J, provided with the bearing-faces *s r*, arranged at different angles, and adjusted to act upon the lever, substantially as and for the purpose specified.

189,014. BALANCING AND ROCKING MILLSTONES. C. E. Benade, York, Pa., assignor to himself and Jas. Kell, same place. [Filed Mar. 13, 1877.]

Brief.—Provides for rocking the bed-stone by means of anti-friction balls held between the supporting-plate and the upholding-platform.

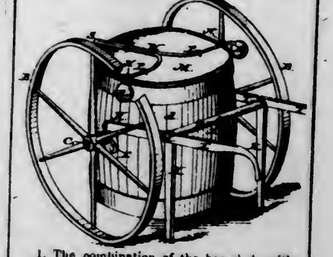


1. The bush C, provided with slotted legs *b*, and adjustably attached to the legs *a* on the flange B of the bed-plate A, substantially as and for the purposes herein set forth.

2. In a run of millstones, the combination of the bed-plate, the bed-stone, and a series of balls, interposed between the stone and plate, to cause a rocking motion of the bed-stone, for the purposes herein set forth.

3. The combination of the bed-plate A, having concave flange H, the loose ring I, with balls D, and the bed-stone K, having spider J, with convex flange L, all substantially as and for the purposes herein set forth.

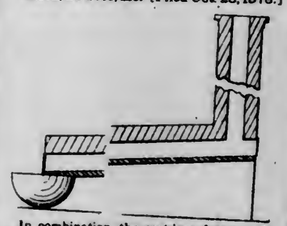
189,015. GARBAGE-TRUCKS. J. O. A. Bennett, Morrison, Ill. [Filed Aug. 21, 1876.]



1. The combination of the barrel A with the cover M, pivot-rods W, balls R, substantially as shown and described, and for the purpose set forth.

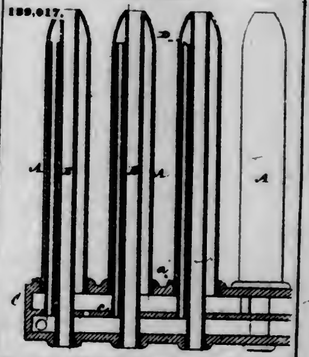
2. The combination of the barrel A with the cover M, pivot-rods W, balls R, wheels B, handles F, legs E, and the spindles C, substantially as shown and described, and for the purpose set forth.

189,016. LEAD-FURNACE BOTTOMS. Theo. Bisch, De Soto, Mo. [Filed Oct. 28, 1876.]



In combination, the cast-iron furnace-sole, inclined from rear to front, and having its upper surface longitudinally synclinal, and the metal-discharging pot, the sole being suitably cut away at its discharge end to receive the pot, and form therewith a drip-proof seat, all substantially as and for the purpose herein set forth.

189,017.

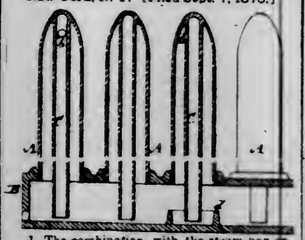


189,017. STEAM-RADIATORS. G. W. Blake, New York, N. Y. [Filed Sept. 7, 1876.]

1. The outer steam-heating pipes A and inner air circulating and heating pipes B of the radiator, united at their upper or outer ends by welding, whereby said inner and outer pipes are integral portions of each other, substantially as and for the purposes herein set forth.

2. The outer and inner pipes A and B, united with each other at their upper or outer ends, and constructed with screw-threads *a* and *b*, of like pitch and direction, at their opposite ends, in combination with the radiator-base C, having tapped holes, into which the threaded portions of both pipes A and B are simultaneously screwed, essentially as described.

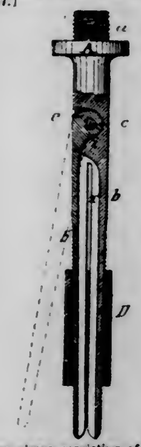
189,018. STEAM-RADIATORS. G. W. Blake, New York, N. Y. [Filed Sept. 7, 1876.]



1. The combination, with the steam box or base B, of the outer or main steam-heating pipes A, attached to said base, and the inner steam-return pipes C, united at their upper or outer ends, by welding, with the main pipes A, but free from or disconnected with the base at their lower or opposite ends, substantially as specified.

2. The combination, with the steam box or base B and outer or main steam-heating pipes A, of inner steam-return pipes C, attached at or near their upper ends to the main pipes, but extending below the latter, and a water-pit in the steam box or base, operating to seal the lower ends of the steam-return pipes, essentially as described.

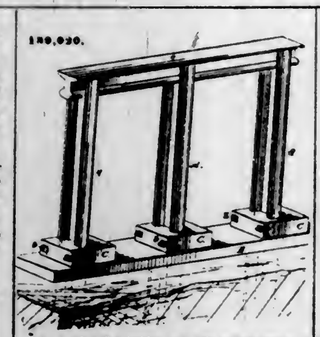
189,019. ROPE-CLAMPS. John H. Calor and David Powell, Fallston, Pa. [Filed Feb. 26, 1877.]



1. A rope-clamp consisting of a stem, A, provided with tapering jaws *b b'*, and with a sleeve, D, said jaws inclosing a socket, *s*, enlarged at the inner end, and corresponding to the tapering end *y* of a rope, C, all as set forth.

2. The combination of the shank A, its jaw *b*, socket and shoulder *i*, and the pivoted jaw *b'*, its head *a*, and recess, as set forth.

189,020. BRIDGES-PIERS. E. E. Colby, Groton, N. Y., assignor of one-half his right to O. Avery, O. Bartholomew, and C. Perrigo. [Filed Aug. 11, 1876.]



1. A pier for bridge or other structures, formed of piles A made of railroad-rails and cross-pieces D, substantially as described.

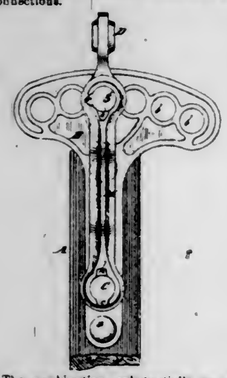
2. The piles A of railroad-iron, in combination with the mudsill B, substantially as specified.

3. The combination, in a pier, of driven piles, with mudsill B, and stops C C, substantially as specified.

4. In a pier, the cap or cross-piece D, formed of railroad-iron, in combination with a series of driven piles, substantially as specified.

189,021. CLEVISES. J. C. Coonley and A. O. Buckius, Chicago, Ill. [Filed May 27, 1876.]

Brief.—The brace-bar is attached to the clevis-plate and draft-bar by detachable locking-connections.



1. The combination, substantially as set forth, of the clevis-plate B, draft-bar D, and brace-bar H, attached to the plate and draft-bar by detachable locking-connections, constructed and operating as specified.

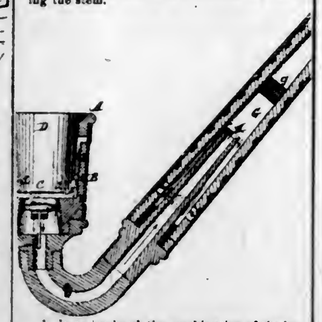
2. The combination of the draft-bar D and brace-bar H, attached thereto by a detachable locking-connection, constructed and operating as described.

189,022.



189,023. TOBACCO-PIPES. J. Davis, St. Paul, Minn. [Filed Aug. 2, 1876.]

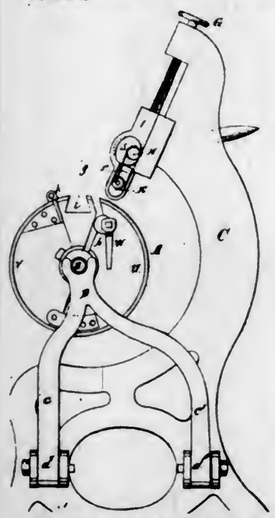
Brief.—The bowl is in two parts or shells, between which there are channels for the circulation of the smoke, to cool it before entering the stem.



1. In a pipe-bowl, the combination of the inner shell A, divided into two compartments by the partition C, and provided with spiral grooves *a* on the outside communicating with ducts leading to said compartments, with the outer shell B fitting over said inner shell, and the fire-pot D sitting within said inner shell, the whole arranged to operate substantially as set forth.

2. In a pipe-stem, the combination of the body G, divided into two compartments by the partition *g*, said compartments communicating with each other by means of spiral channels on the outside of said body, and the outer casing, and supplemental stem H, secured in the lower part of the body, substantially as herein set forth.

189,024. PAPER-BARREL MACHINES. Francis N. Davis, Beloit, Wis. [Filed Sept. 19, 1876.]

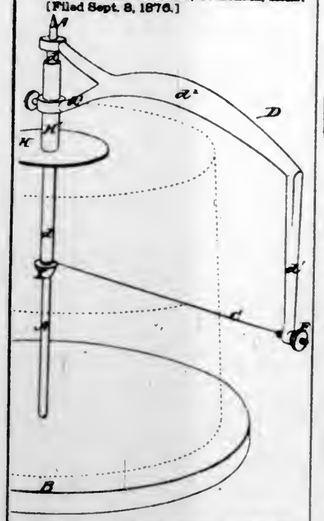


1. The roller A, constructed in two parts, hinged together at one side, one section having a dovetailed groove, *i*, in combination with the eccentric *h*, for expanding or contracting the cylinder, so as to enable the shells to be easily withdrawn with their clamps, substantially as specified.

2. The locking-rod *j* and lock *l m*, in combination with the removable clamp *n p*, and roller A, substantially as set forth.

3. The combination of the sliding heads F, frame C, screws G, roller E, eccentric *s*, shaft H, and roller A, for adjusting space and pressure, substantially as described.

189,025. BUTTER-CUTTERS. Jas. H. Dugan and Geo. Moncrief, Stoneham, Mass. [Filed Sept. 8, 1876.]



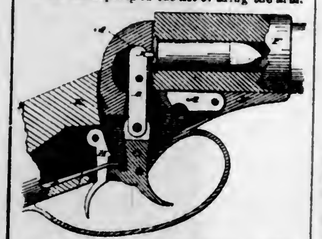
1. The frame D, constructed as described, combined with the wire C and the supporting-standard A, as set forth.

2. The stop or rest H, combined with the frame D, wire C, and standard A, as set forth.

3. The conical collar I, combined with the standard A and frame D, as set forth.

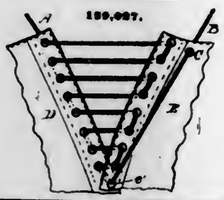
189,026. BREECH-LOADING FIRE-ARMS. I. M. Earle, Pella, Iowa. [Filed Sept. 28, 1876.]

Brief.—The piece is cocked and the breech opened by a pull upon the front trigger or lever. The breech-block and hammer move together, and the breech is closed by the action of the mainspring in the act of firing the arm.



The firing-lever B and the trigger C, so pivoted to each other and to the breech-block A that a pull or said trigger withdraws spur K from the cartridge and opens the breech by depressing the breech-block A, substantially as described.

189,027.



189,027. LACING BOOTS AND SHOES. N. Evans, Boston, Mass., assignor of one-half his right to E. S. Fisher, same place. [Filed Feb. 17, 1877.]

A shoe provided with lacing-holes along the two edges of the opening, one set of holes being coincident with the other set, together with an auxiliary hole at one side, as shown, all adapted to receive a lacing, substantially as shown and described.

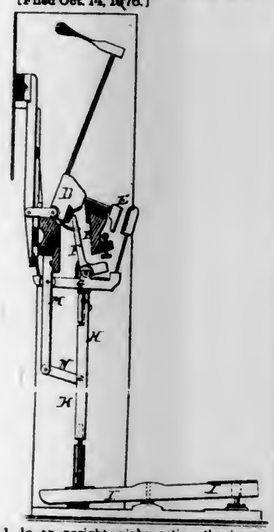
189,028. HANDLE AND CATCH COMBINED FOR SLIDING DOORS. Wm. C. Folant, Ellenville, N. Y. [Filed Oct. 24, 1876.]



1. The handle H, provided with the projection A and aperture C, in combination with the spring-catch B F and staple E, substantially as and for the purpose specified.

2. The spring-catch B F, provided with the thumb-piece G, in combination with the staple E and recessed handle H, having the projection A and aperture C, substantially as and for the purpose specified.

189,029. UPRIGHT PIANO-FORTE ACTIONS. Friedrich Frickinger, West Nassau, N. Y. [Filed Oct. 14, 1876.]

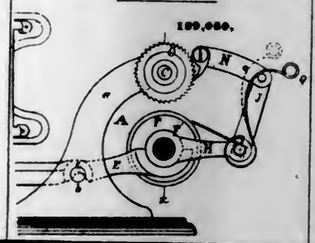


1. In an upright-piano action the inner rail B, placed with reference to the fly F and hammer-catch E, to constitute a combined fly-stop and hammer-rest, substantially as specified.

2. The hammer-catch E, elongated and combined with the inclined face of the fly-stop B, substantially as herein shown and described.

3. The butt M, having the fly-lever G and brace N, both directly pivoted thereto, and to the lifter H, substantially as specified.

189,030.



189,030. PLAITING-MACHINES. T. Hagerty, Brooklyn, N. Y. [Filed Mar. 6, 1877.]

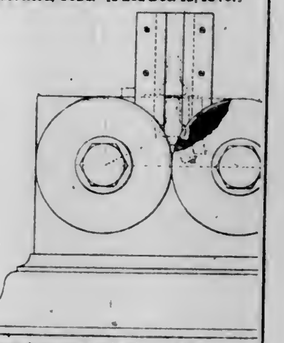
1. In a plaiting-machine, the driving-shaft C, when passing loosely through the upper roller B, and being independent of the same, in combination with the adjustable crank D, pitman K, blade-shaft I, link J, oscillating arm N, ratchet-wheel O, and pawl P, substantially as shown.

2. The spring Q, attached to the blade-shaft I when made to press intermittently on the cloth by the forward and backward movement of arm N, or other parts of the machine.

3. In a plaiting-machine, the bifurcated adjusting-lever for raising and adjusting the lower roller, and also forming the bearings of the same, constructed substantially as described.

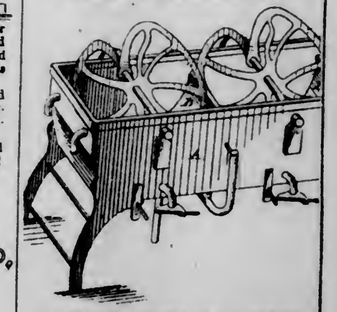
4. The combination of the driving-shaft C with the oscillating arm N and link J, to act on or engage the ratchet-wheel, part of the time positively, and part of the time with lost motion, when the machine is in operation.

189,031. MANUFACTURE OF HORSESHOE-NAILS. G. L. Hall, Boston, Mass., assignor to Narragansett Horse Nail Company, Hartford, Conn. [Filed Dec. 13, 1876.]



As an improvement in the art of manufacturing horseshoe-nails, the particular adaptation herein described of the dies to the nail-blank, which latter is of an uniform thickness, but of a shape otherwise, as represented and set forth, in virtue of which the head metal, instead of being first forced laterally and upwardly into the shank, is at first forced laterally and downwardly toward the apex of the head, thus completely filling all the angles of the head-die, and after this forcing any surplus metal toward and into the shank, to be succeeded immediately by the reduction of the shank itself, which latter operation commences about the time the head is passing across the plane of the axis of the die-rolls.

189,032. LARD-COOLERS. W. P. Harvey, Baltimore, Md. [Filed Feb. 6, 1877.]



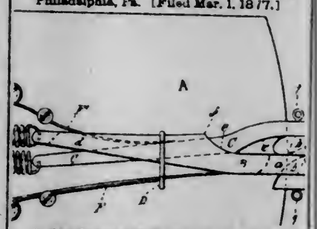
A lard-cooler provided with an inclosing-jacket chamber, a series of transverse curved hollow partitions communicating therewith, suitable inlet and outlet pipes for the admission and discharge of the refrigerant, and a series of revolving spiral agitators for promoting the rapid cooling of the lard, the several parts being relatively arranged substantially as herein set forth.

189,033. SLATE-WASHERS. R. De Haven, Rochester, N. Y., assignor, by mesne assignments, to E. G. De Haven and E. L. Thomas, same place. [Filed Sept. 30, 1876.]



The combination, in a slate-eraser, of the handle H, extended to form the shank K and bulb B, the sponge or other substance S, attached by wire or cord to the shank K, and the cap C, substantially as and for the purposes herein set forth.

189,034. CAR-COUPLINGS. Jas. Hayden, Philadelphia, Pa. [Filed Mar. 1, 1877.]



1. The draw-bar B, having an eye, *a*, in its front end, in combination with the draw-bar C, having a hook, *b*, the bars being so arranged in relation to each other and with the platform A that, when two cars are brought together, the hook of each pair of bars will automatically couple with the eye of the other bar, substantially in the manner and for the purpose set forth.

2. The arrangement of the bars B and C diagonally with each other, the bar B having a longitudinal slot, *d*, in which the bar C is held in position, substantially in the manner and for the purpose set forth.

3. The bar B, having projections *f*, for the double purpose of supporting the bar C in its lateral movements, and for forming a space between the projections for the movement of the bar, substantially as set forth.

4. The combination of the springs F F' with the draw-bars B C, when so arranged as to press toward each other, and thus keep the bars in their central position when the cars are on a straight line, and allow them to yield in accommodation to each other in turning curves, substantially as set forth.

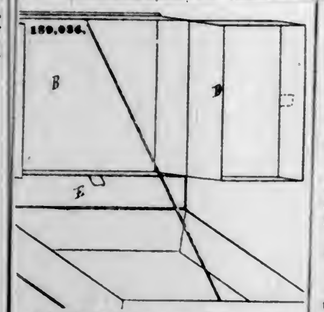
189,035. BUTTON-FASTENINGS. Simon A. Haselton, Linden, N. Y. [Filed Aug. 29, 1876.]



1. The combination of the button *a*, provided with slotted shank *b*, and the curved fastening-shield *d*, having elongated slot *f* and tongue *e*, arranged, applied, and operating as and for the purposes as herein shown and set forth.

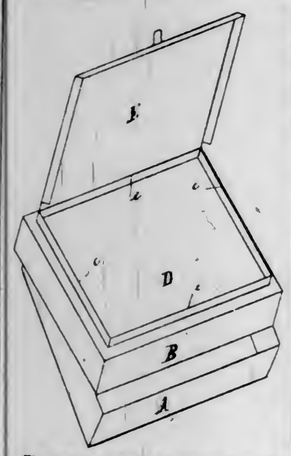
2. The fastening-shield *d*, concave on one face and convex on the other, provided with elongated slot *f* and tongue *e*, as and for the purposes herein set forth and described.

189,036. PAPER BOXES. L. P. Heath, Springfield, Mass., assignor to Powers Paper Company, same place. [Filed Jan. 24, 1877.]



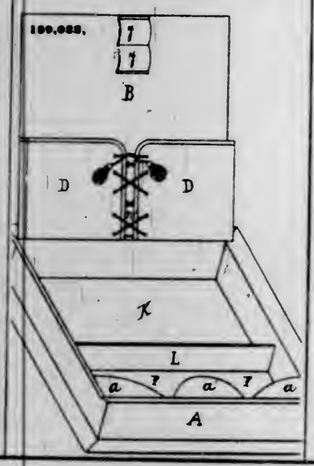
A box having a deep cover, B, in which are two deep cabinet doors, D D, and a drawer, E, all arranged substantially as and for the purpose set forth.

189,037. PAPER BOXES. L. P. Heath, Springfield, Mass., assignor to Powers Paper Company, same place. [Filed Jan. 24, 1877.]



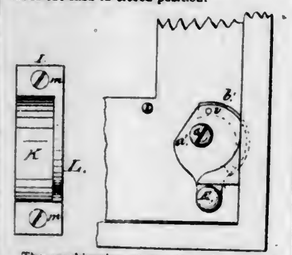
The combination of the auxiliary box D, the hinged cover E, and the vertically-lifting cover B, with the main box A, substantially as and for the purpose set forth.

189,038.



189,039. PAPER BOXES. L. P. Heath, Springfield, Mass., assignor to Powers Paper Company, same place. [Filed Jan. 24, 1877.]

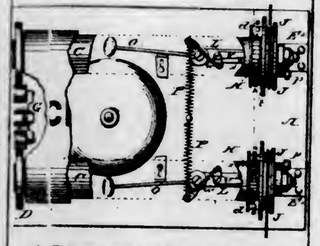
Brief.—As an improvement on Patent No. 177,247, May 9, 1876, a fastening-plate is provided, having in the middle a curved recess and on the side a projecting catch, cast in a single piece, and let into the sash-frame in such manner that the weighted handle of the cam passes under the catch and automatically locks the sash in closed position.



The combination of the fastening-plate I, having a curved recess, K, and catch L, with the cam or eccentric A, having handle E, or its equivalent, substantially as shown and described, for the purpose set forth.

189,040. SASH-HOLDERS. R. Holcroft, Philadelphia, Pa. [Filed Oct. 11, 1876.]

Brief.—As an improvement on Patent No. 177,247, May 9, 1876, a fastening-plate is provided, having in the middle a curved recess and on the side a projecting catch, cast in a single piece, and let into the sash-frame in such manner that the weighted handle of the cam passes under the catch and automatically locks the sash in closed position.



1. The spring-pulley J, provided with projecting tooth *e*, in combination with the pivoted lever I, carrying hammer *o*, finger *e*, and spring *w*, substantially as and for the purpose set forth.

2. The combination of the curtain-rollers O with ratchet-wheels H and standards E', having stationary hubs A, provided with projecting hooks *i*, the hollow pulleys J, springs I, pawls *m*, and stops *p* and *s*, whereby the curtain can be operated in both directions, all substantially as and for the purpose set forth.

189,041. COUPLINGS FOR GLASS PIPES. H. P. Humphrey, Chelmsford, assignor of one-half his right to J. W. Bruce, Westford, Mass. [Filed Dec. 23, 1876.]

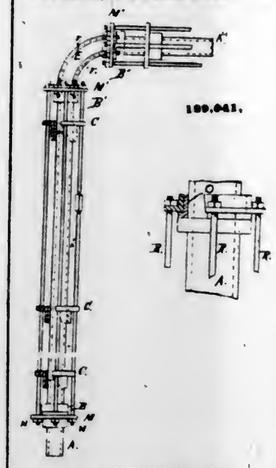
1. The cushion O, placed between the collar M and the pipe A and boss B, as and for the purpose described.

2. The rods R R R, provided with nuts N N, in combination with the collars M M' and bosses B B', as and for the purposes described.

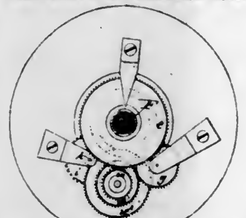
3. The coupling-rings C C and collars M M, in combination with the rods R R' R'', to prevent lateral motion of the pipes.

4. The method herein described of coupling pipes by elastic cushions and supporting-rods, substantially as herein described.

189,041.



189,042. TIME-GLOBES. Louis P. Juvet, Glen's Falls, N. Y. [Filed Sept. 15, 1876.]



1. A globe revolved to correspond with the diurnal rotation of the earth by means of mechanism within it, communicating also through intermediate gearing with one or more hands, and imparting thereto a rotation in reverse direction to that of the globe, so as to indicate the time on an ordinary clock-dial.

2. A time-globe, A, provided with an equatorial dial, B, for indicating the time at various longitudes, and a polar dial, D, for indicating the time at a selected place by means of hands *b d*, having the motions proper to the hands of a time-piece.

3. The globe A, revolved on its axis from west to east by the wheels *w s*, in combination with gearing *w' w' g u i k* and hands *b d*, to indicate the time on a dial, D, substantially as set forth.

189,043. PROJECTILES. De Lancy Kennedy, New York, N. Y. [Filed Mar. 15, 1877.]

Brief.—The cutting-edge is designed to give the projectile greater penetration when used against iron plates.



A projectile constructed with a cutting-edge, extending radially from the axis at A to the periphery at B, and thence spirally around, or partly around, the periphery to the point C, substantially as shown and described.

189,044. CORN-DRILLS. D. Kerschner, Connersville, Ind. [Filed May 25, 1876.]

1. The feeding mechanism, consisting of the slide J, to which is pivoted at *y* the U-shaped double pawl I, arranged to be operated by means of the links *t* and its connections with the working parts of the machine, to give a vibrating motion to the double pawl I, and at the same time a sliding motion to the slide J, whereby motion is communicated to the feed-plate *g* by means of the ratchet *i*, in the manner and for the purposes set forth and described.

2. The combination, with the frame A, its driving wheel and shaft L, of the rear pivoted frame E, carrying the hopper and feed mechanism, the intermediate devices driven by the shaft L, and a clutch, which is disconnected on the elevation of the frame, as set forth.

3. The adjustable platform E, with its studs *e'*, having inclined faces, combined with washers *e'*, with inclined faces, nuts *d*, and covers F, having slotted shanks, as specified.

4. The combination of the yoke C, carrying the plow, the platform E, pivoted to the yoke and moving freely independent of the plow, and the slotted link *v*, for operating the devices by which the platform is raised and the feed thrown out of gear, as set forth.

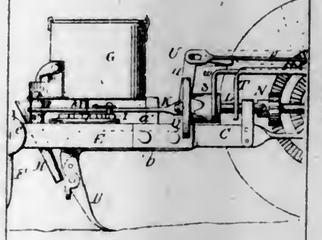
5. The combination of the platform E, carrying the hopper, and feed mechanism operated from the shaft L of the main frame, the devices for disconnecting the shaft and feed mechanism, and the slotted link *v*, connecting said devices and the platform, and permitting a limited movement of the latter without disconnecting the gear, as set forth.

6. The platform-elevating device, consisting of the crank-shaft U, connected, by a link, *u*, to the yoke C, and, by a link, *u'*, to a hand-lever, V, hung to the frame of the machine, as shown, a link, *v*, connected with the slide *w*, slotted at one end to receive the crank-shaft U, arranged and adapted to be operated by the forward or backward movement of the lever V to elevate or lower the platform E with its feed mechanism, in the manner set forth and described.

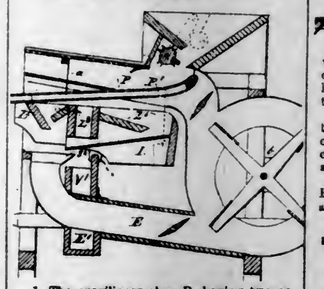
7. The combination of the slide J, pawl I, lever K, and rod *r*, connected by a universal joint to the lever, and to a pin on the revolving disk Q, substantially as specified.

8. The platform E, carrying the hopper G and coverers F, and hung to and adjustable independently of the plow-beam, as set forth.

189,044.



189,045. GRAIN-SEPARATORS. N. Kibler, Pittsfield, Ill. [Filed May 9, 1876.]

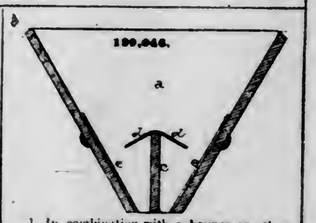


1. The curvilinear shoe P, having two or more sieves, concave in the line of feed, and tapering toward the discharge end, substantially as shown and described.

2. The combination, with the fan and the curvilinear shoe P, of the shoe L, having removable extension L', and the air-trunk E, having removable extensions S or T, substantially as shown and described.

189,046. MAGNETIC PROTECTORS FOR COFFEE AND SPICE MILLS. W. A. King, Detroit, Mich. [Filed Feb. 7, 1877.]

189,046.

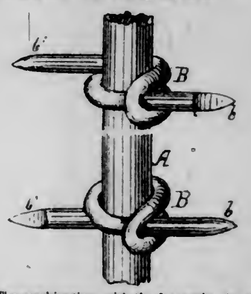


1. In combination with a hopper or other receptacle of a mill through which the material to be ground passes, a magnet or magnets, or magnetic substances arranged around or in the discharge, substantially as shown.

2. The combination of the hopper *a* and magnetic plates *c*, arranged in the bottom thereof, substantially as described.

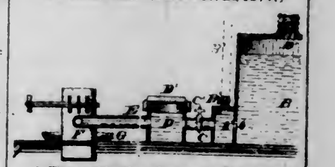
3. The combination of the hopper *a*, magnetic plates *c*, and shield *d*, substantially as set forth.

189,047. BARBED FENCE-WIRE. Ole O. Kittleson, Milan Township, De Kalb County, Ill. [Filed Aug. 21, 1876.]



The combination, with the fence-wire A, of the wire-barb B *b b'*, attached to the fence-wire by forming a bight in said barb *b* around the said fence-wire, and returning the point *b* through said bight on the opposite side of the fence-wire, so that the points *b b'* project, as shown and described.

189,048. OIL-STOVES. H. P. Malone, Cleveland, Ohio. [Filed Feb. 21, 1877.]



1. The combination of reservoir B, provided with supplemental air-chamber B^3, wick-tube or tubes F, pipes C E, and chamber D, the latter furnished with a loose cover, substantially as and for the purpose set forth.

2. The combination, with pipe E, having two or more wick-tubes secured thereto, of an oil-reservoir, B, supplemental chamber B^3, and cock C', and cock or pipe B^3, substantially as and for the purpose set forth.

3. The combination of reservoir B, chamber B^3, pipe C, and cocks C' and B^3, substantially as and for the purposes described.

189,049. VALVES. Wm. Mann and Saml. Owens, London, England. [Filed Feb. 22, 1877.]

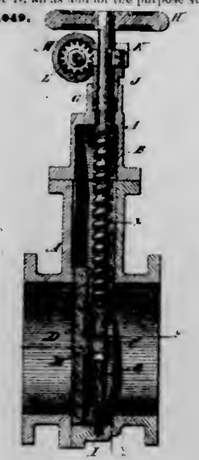
Brief.—The valve is locked against its seat by a cam fixed on the screw-spindle, which raises and lowers the slide. The screw-spindle passes through a nut placed loosely in a bracket on the slide.

1. The combination of the spindle G, screw B, nut F, cam C, rib E, and slide D, all constructed, arranged, and operating substantially in the manner and for the purpose described.

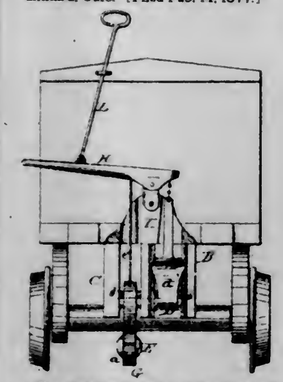
2. The slide D, provided with the rib E, and driven to its seat by means of a cam on the same shaft as the screw, for raising and lowering the slide, all as specified.

3. The nut F, playing in the bracket P, in combination with the screw B, cam C, and slide D, all as and for the purpose stated.

189,049.



189,050. CAR-COUPLINGS. M. L. Mathias, Hilliard, Ohio. [Filed Feb. 14, 1877.]

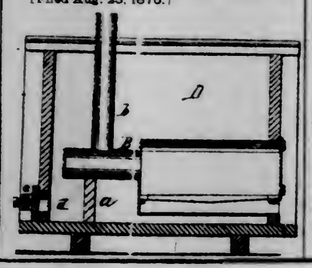


1. The combination of the draw-head C, with stationary horizontal pin *b*, the chamber D, and the coupling-bar O, provided at its front end with the upwardly-bent hook *a*, and at the rear end with the weight E, substantially as and for the purposes herein set forth.

2. The swinging gate *d*, in combination with the draw-head C and pin *b*, to form an inclined guide for the coupling-bar, as herein set forth.

3. The combination of the hooked and weighted coupling-bar G, connection *e*, lever H, with rod L, and the movable foot J, all substantially as and for the purposes herein set forth.

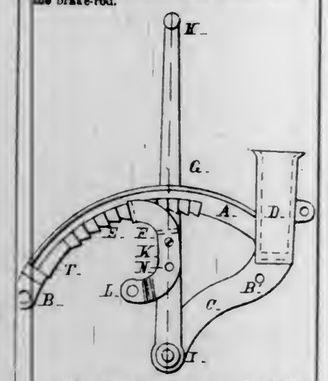
189,051. AGRICULTURAL BOILERS. Wm. McAfee and Y. P. True, Clarence, Mo. [Filed Aug. 23, 1876.]



The agricultural boiler consisting of the flue *b*, pipe B, and furnace, provided with an open draft, all wholly within the tank D, having a hinged cover and drain-outlet, *d*, provided with adjustable stop *e*, all as and for the uses and purposes substantially as set forth.

189,052. WAGON-BRAKE LOCKS. Saml. H. Miller, Canton, Mo., assignor of one-half his right to J. T. Lemley and R. D. Lemley, Quincy, Ill. [Filed July 29, 1876.]

Brief.—The lever loosely pivoted, so as to permit the pawl to be disengaged by a twisting pressure upon the handle. Engagement of the pawl produced by the angular pull of the brake-rod.



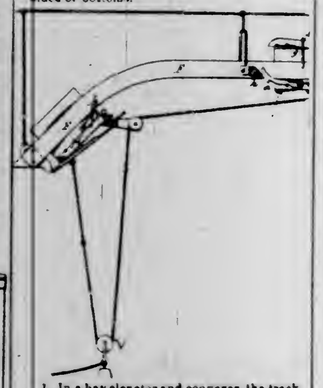
1. In a wagon-brake, the lever G, having the handle H and loose pivot I, the latch F, and angular projecting eye L, in combination with the curved rack E and brake-rod S, arranged substantially as set forth.

2. In combination with the brake-rod S and curved rack E, the loose-pivoted lever G, having the latch F and the bearing part on opposite sides of the rack-bar, arranged so the latch may be engaged or disengaged from the rack by twisting the handle H, substantially as set forth.

3. The combination of the brake-rod S, the screw-block having the hook S', and the latch-lever G, with eye L, arranged for use substantially as set forth.

189,053. HAY ELEVATORS AND CONVEYERS. J. R. Moran, Schoharie, N. Y., assignor to W. B. Murphy, same place. [Filed Feb. 14, 1877.]

Brief.—Suspended carriage-ways curved in either a vertical or a horizontal plane. Carriages adapted to conform thereto by curved sides or bottoms.



1. In a hay elevator and conveyer, the track E, so curved as to turn a corner, in combination with the carrier F, suitably conformed to pass between the rails of same, substantially as set forth.

2. In a hay elevator and conveyer, the carrier F, having concave and convex surfaces, substantially as described.

3. The inclined or curved track E, in combination with the carrier F, having concave and convex surfaces, substantially as set forth.

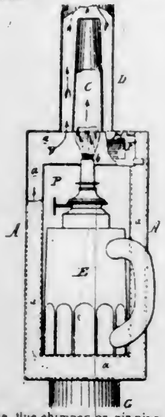
4. In a hay elevator and conveyer, the carrier F, having concave and convex surfaces, and provided with the plate P, check M, wheel L, and swivel T, substantially as set forth.

5. The dummy X, provided with spring-catches *a d*, in combination with the carrier F and curved track E, substantially as shown and described.

6. The carrier F, having concave and convex surfaces, and provided with the projection *b* and staple *c*, in combination with the dummy X, furnished with the spring catches *a d*, substantially as specified.

189,054. VENTILATORS. Geo. R. Moore, Philadelphia, Pa. [Filed Feb. 28, 1877.]

Brief.—The application of a lighted lamp or gas-jet to the internal atmosphere of any flue, air draft pipe, or chimney, whereby the circulation of air through the same may be impelled whenever desired to increase draft for ventilation.



1. The flue chimney or air-pipe A, provided with external lamp-holder or niche B, with its communicating aperture *b* into the said pipe or chimney, substantially as and for the purpose herein set forth.

2. In combination, the chimney or air pipe A, niche B, internal chimney C, and pipe D, substantially as and for the purpose herein set forth.

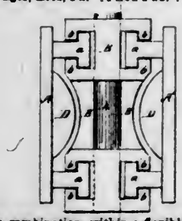
3. In combination, the air-pipe A, with aperture *b* and side door or window F, either with or without mica or glass, substantially as and for the purpose herein set forth.

4. In combination, the air-pipe A, with aperture *b* and pivoted slide *c*, substantially as and for the purpose herein set forth.

5. In combination, the air-pipe A, with aperture *b*, mica or glass front F, and a bright or reflecting surface back of the light, substantially as and for the purpose herein set forth.

6. In combination, the air-pipe A, lamp E, or gas-jet, mica or glass front F, and adjustable reflector H, substantially as and for the purpose herein set forth.

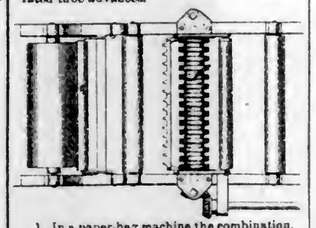
189,055. BALANCE SLIDE-VALVES. T. M. Nagle, Erie, Pa. [Filed Feb. 7, 1877.]



The combination, within a flexible, double, or duplex slide-valve, of the faces A A' and the web or carrier B, when the same are provided with projections *a a a a* and *b b b b*, which interlock or overlap, substantially as and for the purposes mentioned.

189,056. PAPER-BAG MACHINES. Chas. A. Nixon, Dayton, Ohio. [Filed Feb. 16, 1877.]

Brief.—The paper tube is perforated, where it is desired to separate the bag-blanks, by a serrated revolving perforating-blade, which operates in connection with a grooved roller, the projections on blade fitting into the grooves in the roller. A revolving arm or beater detaches the bag-blanks as the perforated tube advances.

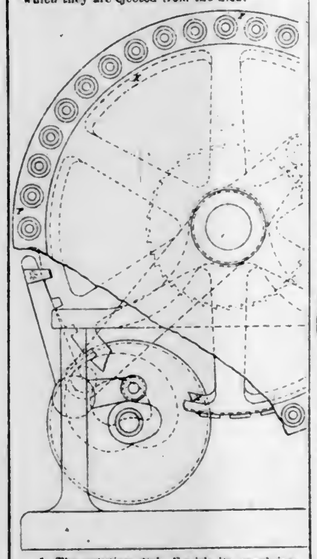


1. In a paper-bag machine the combination, substantially as specified, of the perforator and the grooved roller.

2. In a paper-bag machine the combination, substantially as specified, of the perforator, the grooved roller, and the beaten or breaker.

189,057. MACHINES FOR VARNISHING THE INTERIOR OF CARTRIDGE-SHELLS. F. A. Pratt and J. R. Reynolds, Hartford, Conn., assignors to the Pratt & Whitney Company, same place. [Filed Feb. 2, 1877.]

Brief.—The cartridges are placed in a hopper, from which they are picked up and automatically fed into cells in a rotating disk, by which they are carried in front of reciprocating brushes, by which the varnish is applied to the interior of the shells. The continued rotation of the disk brings the shells successively in front of a reciprocating plunger, by which they are ejected from the disk.



1. The rotating disk F with its revolving spring-cells for holding the cartridge-shells, substantially as herein described.

2. The disk F in combination with a varnishing and wiping mechanism, substantially as herein described.

3. The disk F in combination with an arranging, conveying, and feeding mechanism, substantially as herein described.

4. The disk F in combination with an ejecting-bar for removing the shells, substantially as herein described.

5. The combination of the mechanism for intermittently rotating the disk F, the mechanism for operating the varnishing and wiping brushes, and the mechanism for ejecting the shells with the disk, brushes, and ejecting-bar, substantially as herein described.

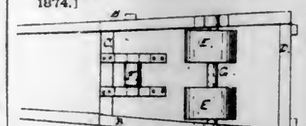
6. The spring-plate N in combination with the series of rotating cells in the disk F, substantially as and for the purpose herein described.

7. The conveying-box D and its operating mechanism, substantially as herein described.

8. The combination of the studs B' and the spring B' with the projections B' on the wheel B, as an engaging device, substantially as herein described.

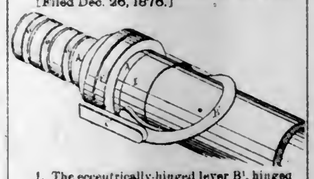
9. The spring bands *d d'* in combination with the cells L, for holding the cartridge-shell, substantially as herein described.

189,058. BRICK-YARD TRUCKS. Edouard Remillard, Oakland, Cal. [Filed Dec. 18, 1874.]



The above-described truck, having shafts B, rollers E E, axle G, and central roller F, said three rollers being arranged to support and balance the load, and their tread covering the track of the truck, thus rolling the ground smooth, substantially as set forth.

189,059. HOSE-COUPLINGS. A. F. Rich, Fall River, Mass., assignor of one-third of his right to J. H. Crittenden same place. [Filed Dec. 26, 1876.]



1. The eccentrically-hinged lever B', hinged to loose collar E', and carrying pivoted yoke C', as specified.

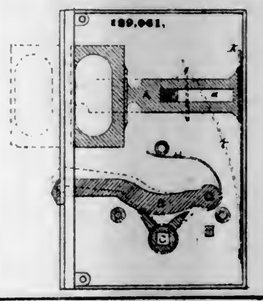
2. In combination, couplings A' A, collar E', packing D', with lever B' and yoke C', as described, for the purpose specified.

189,060. PENCIL-SHARPENERS. James B. Roache and W. F. Redding, New York, N. Y., assignors to said Redding. [Filed Jan. 29, 1877.]

Brief.—The end of the pencil to be sharpened is placed in the forked carrier C, and then revolved around within and against the inclined abrasive surface D.



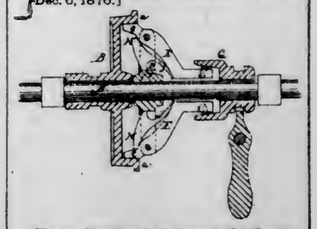
A pencil-sharpener, consisting of a cylindrical shell, A, the inner wall of which is coated with sand or emery, and flaring outward from its base, in combination with the revolving holder C, operated substantially as described.



189,061. LOCKS FOR SLIDING DOORS. W. C. Rogers, Chicago, Ill. [Filed Apr. 17, 1876.]

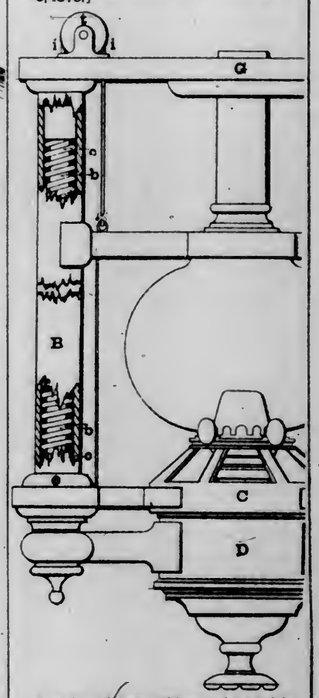
The sliding pull A, provided with a shoulder near its lower front end, for engaging with the face-plate when forced into the case, in combination with the spring K, for throwing the pull outward when released from its engagement, substantially as described.

189,062. FRICTION-CLUTCHES. M. Rumely, La Porte, Ind., assignor of one-half his right to John Rumely, same place. [Filed Dec. 6, 1876.]



The combination of the loose pulley B, provided with a rim, *a*, the bent levers E E, provided at one end with shoes *e e*, and at the other end with set-screws *i i*, the hub *c*, provided with arms D and springs J, and the hollow-cone sliding head G, into the interior of which enter the ends of the levers E, substantially as set forth.

189,063. CENTER-LAMPS. G. Sherwin and E. Hoople, Brooklyn, N. Y. [Filed Sept. 5, 1876.]



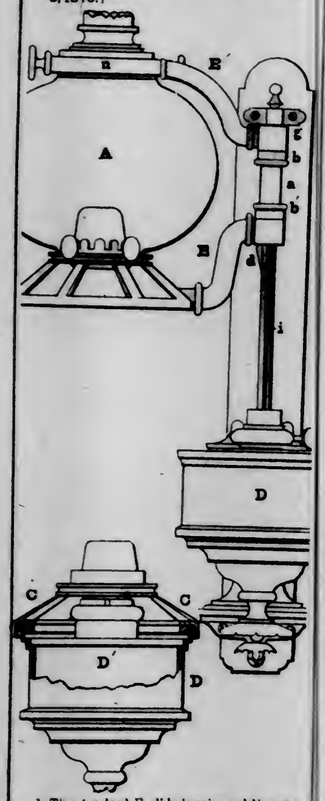
1. A drop oil-lamp, with or without a drip-holder, in combination with the rods *b b*, actuating-springs *e e*, and the suspension-tubes B B, substantially as and for the purpose set forth.

2. A stationary globe and suspension tube or bars B B, in combination with a drop oil-lamp, with or without a drip-holder, tension-rods *b b*, and actuating-springs *e e*, for the purpose specified.

3. The nut *c'*, tension-rod *b*, spring *c*, and support B, in combination with a drop-lamp, for the purpose specified.

4. The tubes E E, springs *c c*, rods *b b*, and cords *i i*, in combination with a lamp-fount, with or without a drip-cup, D, and globe-holder C, as described, and for the purpose specified.

189,064. BRACKET-LAMPS. G. Sherwin and E. Hoople, Brooklyn, N. Y. [Filed Sept. 5, 1876.]



1. The standard F, slide-bearing *a b b'*, arms or brackets E E', and globe-holder, in combination with a stationary lamp, with or without a drip-case, for the purpose specified.

2. In combination with the standard F and slide-bearing *a*, the rib *i*, for the purpose specified.

3. The catch *d*, in combination with the standard F and its slide-bearings *b b'*, for the purpose specified.

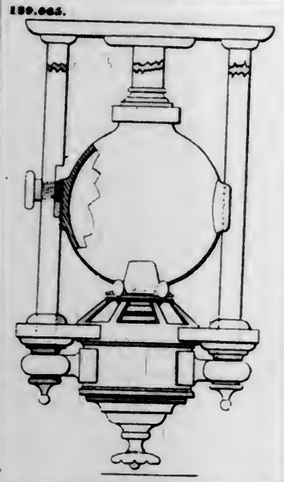
4. A stationary bracket-lamp, with or without a drip-case, D, for railroad-cars and other purposes, in combination with an elevating swinging globe-holder, C, its bracket or arm E, combined with a slide-bearing, *a b b'*, arm or bracket E', with its chimney-ring *n*, which keeps the globe A in a fixed and secure position upon the globe-holder C, as and for the purpose specified.

189,065. CENTER-LAMPS. G. Sherwin and E. Hoople, Brooklyn, N. Y. [Filed Sept. 5, 1876.]

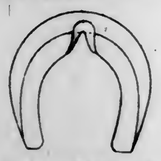
1. A lamp-globe with bearings formed in the material of which the globe is composed, in combination with its guideways or rods, for the purpose specified.

2. A lamp-globe with slide-bearings formed therein, as described, placed between guideways or rods, for the purpose of guiding its upward and downward movement, in combination with a device, whereby the globe can be readily removed and replaced, for the purpose specified.

189,066.



189,066. HEEL-STIFFENERS FOR BOOTS AND SHOES. N. J. Simonds, Woburn, Mass. [Filed Oct. 5, 1876.]



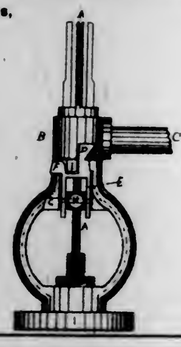
A boot or shoe stiffener having a groove or channel formed on its outer surface, at the angle of intersection of its vertical wall with the horizontal flange, as shown, adapted to receive the seam of the quarters at or near the joint where it enters between the inner and outer sole, all substantially as shown and described.

189,067. MANUFACTURE OF HEEL-STIFFENERS FOR BOOTS AND SHOES. Nathan J. Simonds, Woburn, Mass. [Filed Oct. 5, 1876.]



In the manufacture of boot and shoe stiffeners, the improved process, consisting of first molding the stiffeners when in a moist state, then partially drying the same, and finally re-molding to give it the perfect contour and finish requisite, all substantially as set forth.

189,068.



189,068. STOP-MOTIONS FOR GOVERNORS. Le Grand Skinner, Erie, Pa. [Filed July 28, 1876.]

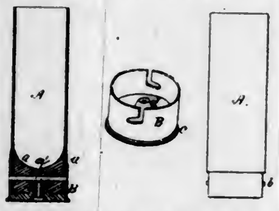
1. The sustaining-frame E, pivoted at one end, and having the counter-weight arm H pivoted to it at the other end, and forming, with the said arm, the shut-off lever, substantially as shown and described.

2. The frame E, pivoted and operating substantially as described, and the arm H, pivoted to and sustained by the frame E, in combination with the rod A, as shown, and for the purposes mentioned.

3. The combination of the frame E and catching device D *d*, constructed and operating substantially as shown and described.

4. The pulley-shaft C, connected to the frame by a swinging sleeve, B, in combination with a catching device for sustaining the shut-off lever, substantially as shown, and for the purposes mentioned.

189,069. CARTRIDGES. Albert B. Smith, Geneva, N. Y. [Filed Feb. 6, 1877.]



1. A metallic cup-shaped head, B, for cartridges formed with a conical projection, *d*, on its interior face, in combination with shell A, formed with a conical opening in its base, the head and shell constructed to be secured together by bayonet-fastening, as shown and described.

2. The paper diaphragm covering the base of the cartridge when applied on the outside of the shell, so as to be ruptured in the act of connecting the base to the shell, as set forth.

189,070. DARTS FOR AIR-GUNS. C. Spring, Hyde Park, and J. T. Robinson, Boston, Mass. [Filed Mar. 7, 1877.]



1. The dart-head, provided with an internal shoulder, in combination with a brush formed of a band and fibrous material placed within and without the band, to operate substantially as described.

2. A dart-brush, composed of a strand of fibrous material, surrounded by a yielding collar, and turned back outside of the band to envelop the periphery of the band, all substantially as described.

3. A dart-brush, composed of an annular band, filled and covered peripherically with fibrous material bent about the band, as described, in combination with a dart-head having its open end contracted to a diameter less than the diameter of the band and fibrous material within the opening in the head, substantially as described.

189,071. STOVE-PIPE WALL-THIMBLES. C. Street, Cincinnati, Ohio. [Filed Sept. 25, 1876.]

Brief.—The swinging sleeve can be adjusted to fit different sizes of pipe.



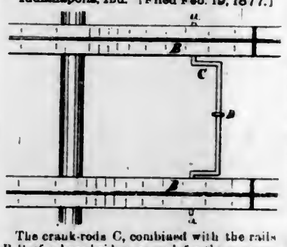
189,072.

1. A thimble, A, for stove-pipe, having a swinging sleeve attached thereto, substantially as and for the purpose specified.

2. The combination of shell or ring A, and reducible sleeve B, constructed and operating substantially as and for the purpose specified.

3. In combination with the ring A and reducible sleeve B, the bale C, and screw-fastener D E, connected and operating substantially as and for the purpose specified.

189,073. HOSE-BRIDGES. James Taylor, Indianapolis, Ind. [Filed Feb. 19, 1877.]



The crank-rods C, combined with the rails B B of a hose-bridge, as and for the purpose specified.

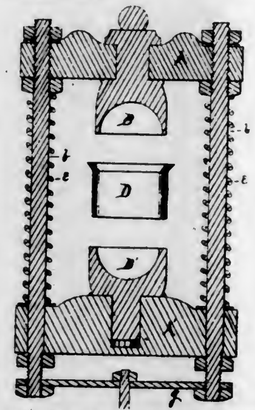
189,074. CORKS, STOPPERS, OR BUNGS FOR CANS, BARRELS, &c. T. Tully, Springfield, Ill., assignor to himself and W. H. Doan, Cleveland, Ohio. [Filed Aug. 28, 1876.]

Brief.—A core of solid material is covered with a yielding jacket of lead, or similar yielding metallic substance, which can be forced into a metal bushing, so as to form a ground joint.



The combination, with a solid bung or stopper, of a yielding jacket of lead or similar yielding metallic substance, whereby the yielding jacket may be forced into intimate contact with a metal bushing, and form a ground joint therewith, substantially as and for the purpose set forth.

189,074. CORN-BALL PRESSERS. Chas. B. Vankouren, Wheeling, W. Va. [Filed July 19, 1876.]



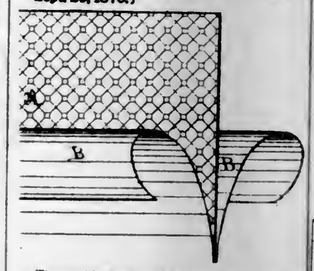
The machine for making pop-corn balls, consisting of movable head-block A, stationary base A', with cup-molds B B' secured thereto, rods *b b*, rigidly secured at one end to head-block A, passing loosely through base A', and secured at bottom to cross-bar *g*, spiral springs *c c*, encompassing the rods *b b*, and keeping the blocks A A' asunder, treadle H, clamp *f*, and separate or detached gage-cup D, all constructed, arranged, and adapted to operate as and for the purposes set forth and shown.

189,075. NUT-LOCKS. T. Vernon, Charleston, Mo., assignor to I. Hisey, Waynesville, Ohio. [Filed Jan. 30, 1877.]



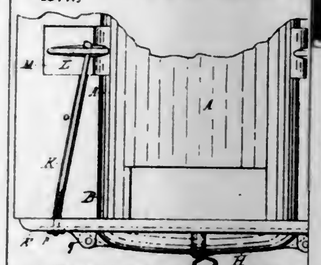
In combination with a series of bolts, C, with nuts D on their ends, the stirrups G G, placed on two of the bolts, with the nuts on them between the arms of the stirrups, and the elongated key L, substantially as and for the purposes herein set forth.

189,076. ORNAMENTAL CARD-BOARD. A. Adams and A. Bott, Albany, N. Y. [Filed Sept. 20, 1876.]



The combination, with the ornamented sheet A, of one or more plain sheets, B, secured thereto in the manner and for the purpose herein specified.

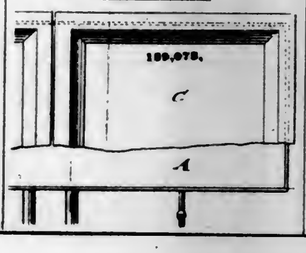
189,077. BOILER-FURNACE FRONTS. G. L. Allen, Worcester, Mass., assignor to Wm. Allen & Sons, same place. [Filed Mar. 2, 1877.]



1. The combination, with the grooved circular projection or flange G of the boiler-furnace front E, of the convex doors H, provided with curved projecting edges *f f* to fit the circular groove F, substantially as and for the purposes set forth.

2. The combination, with boiler-furnace front E and projecting ears L upon projections M M upon the boiler A, of the self-adjusting holding-rods K K, substantially as and for the purposes set forth.

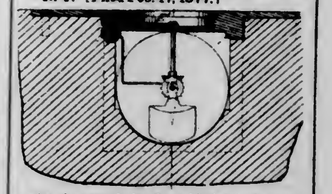
189,078.



189,078. APPARATUS FOR PREPARING BUTTER FOR PACKING. W. B. Bemis, Cincinnati, Ohio. [Filed Jan. 29, 1877.]

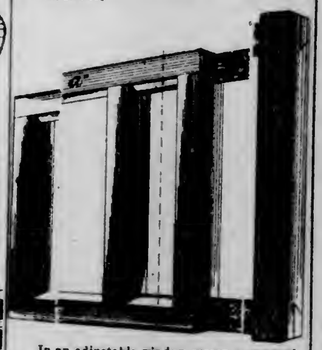
The combination, with butter-pan C, of the tank A, connected by valved pipes with a hot and cold water reservoir, as shown and described, so that the temperature of the heating-fluid may be regulated as desired.

189,079. LEVELS. T. H. Burk, New York, N. Y. [Filed Feb. 17, 1877.]



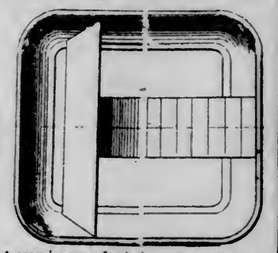
An improved level and plumb, having weighted side indicators and a jointly-working top indicator, whose shaft is connected by bevel-gearing with the weighted shaft of the side indicators, substantially in the manner and for the purpose set forth.

189,080. WINDOW-SCREENS. R. Calhoun, Allegheny, assignor of one-half his right to P. C. Dean, Pittsburg, Pa. [Filed Aug. 16, 1876.]



In an adjustable window-screen, composed of the two sliding sections having each its inner upright bar *a' b'*, respectively, tenoned and dovetailed, as shown, the beveled bars *a'' b''*, one of which is secured to each bar *a' b'*, and separated from the other by the tenon or tongue, as shown, and for the purpose set forth.

189,081. KNIFE-SCOURING PANS. D. H. Cassel and G. W. Zint, Crestline, Ohio. [Filed Feb. 26, 1877.]

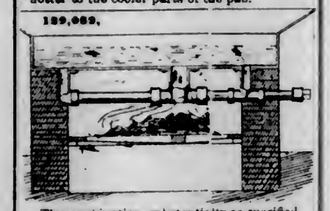


A scouring-pan for knives and forks, consisting of a dish or pan, with longitudinal inclined plane or rest-piece, and a lateral partition in front of the same, forming a receptacle for the scouring-powder, substantially in the manner described, and for the purpose herein specified.

189,082. SUGAR BOILING AND EVAPORATING PANS. W. V. Clough, Madison, Ind., administrator of W. Clough, deceased. [Filed July 11, 1876.]

Brief.—The transverse horizontal pipes, connected to the bottom of the evaporating-pan at its center and sides by short vertical pipes, are for the purpose of better heating the juice and causing its uniform circulation from the hotter to the cooler parts of the pan.

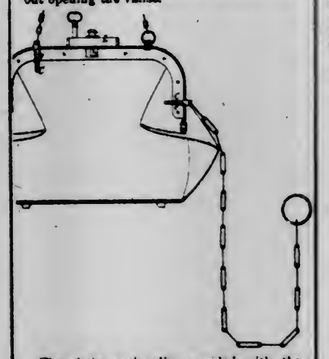
189,082.



The combination, substantially as specified, of the evaporating-pan, and the pipes arranged underneath thereof, transversely across the combustion-chamber, and connected, by vertical pipes, at both ends and in the center, with the bottom of the pan.

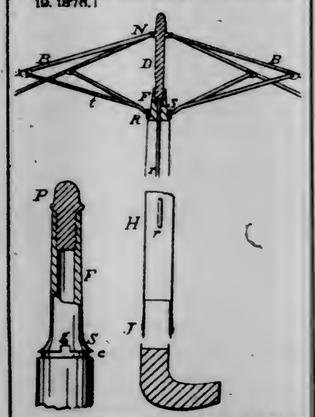
189,083. SAFETY ATTACHMENTS FOR TRAVELING-BAGS. Hiram Collins, Amesbury, Mass. [Filed Feb. 6, 1877.]

Brief.—The chain cannot be removed without opening the valise.



The chain or handle, provided with the spring-catch, in combination with the frame of the valise or bag, provided with the perforation or aperture adapted to receive and hold the catch, substantially as set forth.

189,084. COMBINED CANE AND UMBRELLA. M. M. Copp, Rochester, N. Y. [Filed Aug. 19, 1876.]

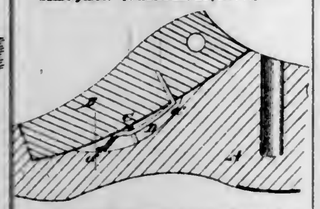


1. The combination of the hollow handle or cane H, in two parts, connected by the screw slip-joint J, having the threaded tube finial F, provided with the sloped shoulder S, vertical groove g, horizontal groove c, and screw-plug P, for the purposes substantially as set forth

2. The screw-rod D, to which is solidly joined the notched ring N and the guide-rod r, and having the horizontal groove w, in combination with the ribs B, stretchers t, and runners R, for the purposes substantially as herein set forth.

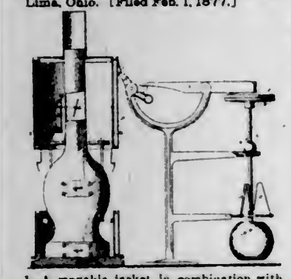
3. The combination of the runner-ring R, provided with the vertical opening a and lug l, bent stretchers t, ribs B, guide-rod r, and screw-rod D, substantially as described.

189,085. LASTS. C. H. Cree, Marlborough, Mass., assignor to himself and J. B. Curtis, same place. [Filed Jan. 20, 1877.]



The combination, with a grooved last provided with a staple, as shown, of a last-block, having a curved spring, one end of which enters the body of block, securing it thereto, while the free end is adapted to enter the staple to hold the block in place, all substantially as shown and described.

189,086. CAR-HEATERS. G. W. Dismar, Lima, Ohio. [Filed Feb. 1, 1877.]



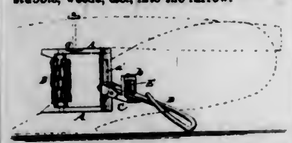
1. A movable jacket, in combination with a heater and automatic catches for securing the jacket, and a tripping device for causing the jacket to fall in case of accident to the car, substantially as set forth.

2. In combination with the movable section D of the jacket, a damper, G, placed in the pipe normally open, but which will be closed automatically upon the fall of the jacket, substantially as set forth.

3. The tripping device, consisting of the lever L, disk L', N', and rod N, freely-swinging weight N², and springs O, substantially as set forth.

189,087. CLEARING ATTACHMENTS FOR PLOWS. J. F. Dock, Elkhart, Ind. [Filed Mar. 3, 1877.]

Brief.—A roller is journaled in a frame, which is secured to the plow-beam, and a hook is hinged to a support, which is secured to said frame, for the purpose of drawing stubble, weeds, &c., into the furrow.

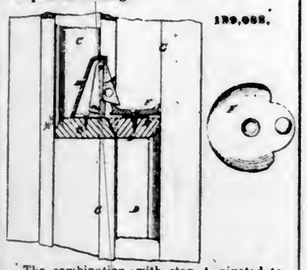


The combination of the frame A, roller B, support C, hook D, and spring E, substantially as herein shown and described.

189,088. FASTENERS FOR MEETING-RAILS OF SASHES. W. T. Doremus, New York, N. Y. [Filed Feb. 26, 1877.]

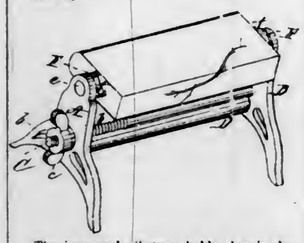
Brief.—An automatic pivoted stop, differing but little from the ordinary construction, impinges on a pivoted lock-plate having upwardly-projecting flanges and side shoulders; the peculiar form of the lock-plate giving added security, and drawing the sashes together to prevent rattling.

189,088.



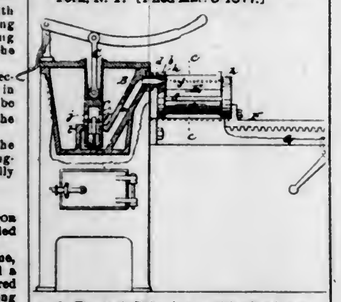
The combination, with stop A pivoted to plate B, and having toe a, of the pivoted lock-plate F, having upwardly-projecting flanges and shoulders upon its sides, as shown and described.

189,089. OIL-STONE HOLDERS. Geo. W. Dudley, Alton, N. H. [Filed May 17, 1876.]



The improved oil stone holder herein described, consisting of the rotating spur-pivots F, in combination with the standards A B, bar or brace D, connecting-rod C, and nut e, substantially as and for the purpose herein shown and specified.

189,090. APPARATUS FOR CASTING METALS. C. Dusenbury and B. H. Dusenbury, New York, N. Y. [Filed Mar. 3 1877.]



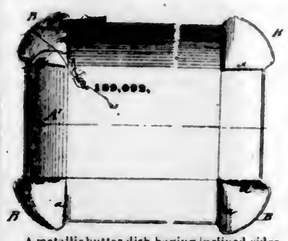
1. The tank B, having partition f and spout a, and combined with the hollow pump-plunger C, having the valve i and the aperture j above said valve, substantially as herein shown and described.

2. The shaft a, made with the projecting ribs g g and plates h h, one of the plates h having the hole d, all arranged for combination with the solid journal-box f, and constituting a mold for lining said journal-box, substantially as herein shown and described.

189,091. PAINT COMPOSITIONS. Saml. B. Fisher, Pleasant Unity, Pa. [Filed Jan. 13, 1877.]

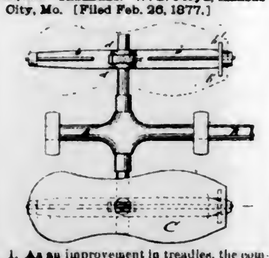
The paint composition herein described, consisting of Rosendale cement, water, glue, linseed-oil, and benzine, in about the proportions described, for the purpose specified.

189,092. BUTTER-DISHES. W. H. Fitch, Brooklyn, N. Y. [Filed Feb. 26, 1877.]



A metallic butter-dish having inclined sides, connected by corner moldings B, having the sections a extended outwardly from the sides, as shown and described.

189,093. TREADLES. W. B. Floyd, Kansas City, Mo. [Filed Feb. 26, 1877.]

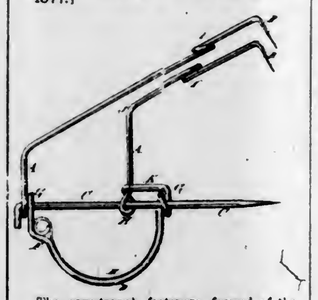


1. As an improvement in treadles, the combination of a laterally-oscillating treadle-bar with adjustable and clamped treadles, to give more or less leverage, substantially in the manner and for the purpose set forth.

2. As an improvement in treadles, the combination of the laterally-swinging treadles with the centrally-pivoted and longitudinally-oscillating brackets or arms of the treadle-bar, to form a duplex pivot-joint, for the purpose described.

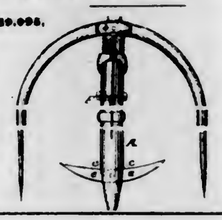
3. The combination of the treadle C with a longitudinal pivot-rod, b, fixed end seat b', and oscillating bracket D, substantially as specified.

189,094. EAVE-TROUGH FASTENERS. A. J. Gilbert, Honeoye, N. Y. [Filed Mar. 3, 1877.]



The eave-trough fasteners, formed of the wire A, bent to form the curve D, to receive the eave-trough, the eyes G, to receive the spike or bolt C, the shoulder K, the hook-points E, and the eyes I, whether the eye H and the offset F be used or not, substantially as herein shown and described.

189,095.

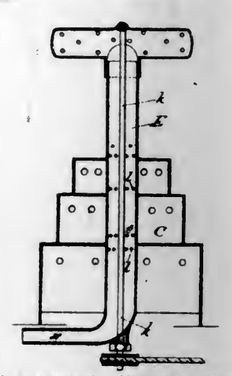


189,095. HORSE HAY-FORKS. P. Grant, Clinton, Ontario, assignor to himself and J. R. Grant, Brussels, Canada. [Filed Nov. 11, 1876.]

A horse hay-fork provided with a key, F, bent over the front of tine A, and formed into an eye for receiving the disengaging-cord, substantially as shown and described.

189,096. DEVICES FOR SUPPLYING AIR TO FURNACES. Wm. Halsted, Trenton, N. J. [Filed Feb. 16, 1877.]

Brief.—A graduated series of perforated air-chests are located within the fire-chamber, and are supplied with air from a perforated tube, which runs up through their center. The top of said tube is provided with another tube, which is also perforated, forming a T-piece, and made to revolve by means of a rod provided with a pulley at its bottom, thus distributing air in all directions within the furnace.

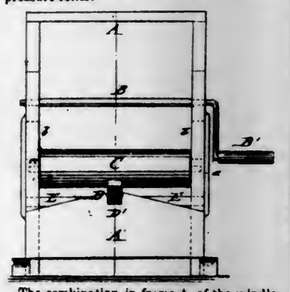


1. As a means for aiding and accelerating the combustion of fuel in furnaces, locomotives, &c., the series of graduated and perforated chambers within the fire pot, in combination with the perforated air-tube E, extending through and supplying air to such chambers, substantially as shown and described.

2. The combination, with the perforated chamber or chambers, and with the central perforated tube E, of the horizontal perforated tube I, connected to a rod or support, k, and adapted to be revolved upon the tube E, substantially as and for the purposes set forth.

189,097. MACHINES FOR WINDING HAY INTO ROLLS FOR FUEL. E. Harding, Delavan, Minn. [Filed Jan. 19, 1877.]

Brief.—The hay is wound upon a flat revolving spindle, being pressed upward upon said spindle by a vertically-sliding lever acted pressure-roller.

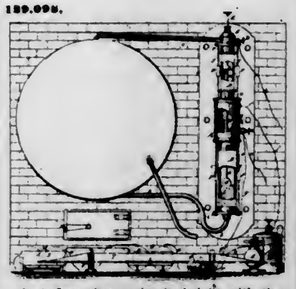


The combination, in frame A, of the spindle B, roll C, lever D, and support E, to condense hay or straw into convenient form for fuel, as described.

189,098. ELECTRO-MAGNETIC BOILER-FEED REGULATORS. R. A. Hayes, Elgin, Ill. [Filed Jan. 22, 1877.]

Brief.—Automatically controls the feed of the water by means of a float making and breaking an electric circuit; also closes a circuit to alarm-bell if water falls too low.

189,099.



1. A float that varies in height with the level of the water in the boiler, a relay, and a series of oppositely-arranged magnets, constructed and arranged to open or close the throttle or governor valve of a steam-boiler feed-pump, or the water-supply valve, as the electrical current is established or broken by the rise or fall of the said float, substantially as herein shown and described.

2. The float-chamber consisting of a central metallic section, A, the glass cylinders B D, cap E, head C, and bolts e f, substantially as herein shown and described.

3. The float G, having the spindle h and guide k, the float-chamber, having an insulated central metallic section, A, the metallic cap E, adjustable rod H, and the electrical conducting-wires l n q, in combination, substantially as herein shown and described.

4. The relay I and battery J, in combination with the float and float-chamber, made as described, and the conducting-wires n q, substantially as herein set forth.

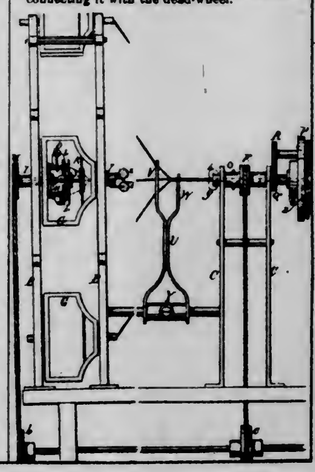
5. The relay I, the oppositely-arranged magnets M Q and O P and their conducting-wires, the lever T, connecting-rod V, and throttle-valve A, combined and arranged substantially as herein shown and described.

6. The bell-magnet B' and battery O, in combination with the float G, point p', insulated wire f', conducting-wires l o, and the float-chamber, consisting of the parts A B C D E, in combination, substantially as herein shown and described.

7. The insulators F, consisting of a metallic casing and an insulating substance, j, in combination with the bolts e f, substantially as shown and described.

189,099. MACHINES FOR MAKING ROPE. L. E. Higby, Belleville, N. J. [Filed July 7, 1876.]

Brief.—The strand-formers are supported within a frame or grid having hollow journals, and strand-receiving rollers upon the end of one of them. By revolving this grid an additional twist may be given to the strand. The winding-drum is simplified by means of an internal rack engaging with the gearing, connecting it with the dead-wheel.



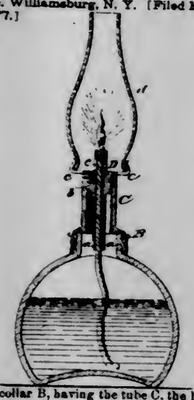
1. The combination of the spools L, revolving upon hollow spindles upon the revolving plate H, with guide J, and hollow spindle I, having pulleys *e s*, and arranged to revolve substantially as described.

2. The stationary guides V and W, in combination with hollow shaft O, having the grooved pulleys h and *g*, and with revolving plate P, and take-up or feed-drum F, arranged together substantially as described.

3. The drum F, provided with the rack T, in combination with the revolving plate P, gear-wheels Q and R, and pinion S, substantially as described.

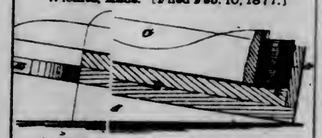
4. The combination of the revolving heads D, carrying spool L, auxiliary twisting hollow spindle I, and guide J, with stationary guides V W, and a twisting device consisting of grooved pulleys *g* and h, hollow shaft O, plate P, and take-up drum F, substantially as described.

189,100. NIGHT-LAMPS. H. W. Huntington, Williamsburg, N. Y. [Filed Mar. 12, 1877.]



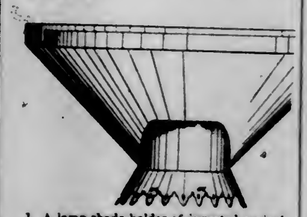
The collar B, having the tube C, the burner D, provided with arms *e* for holding the chimney, and having the long wick-tube *e*, in combination, substantially as herein shown and described.

189,101. COIN-TRAYS. Albert A. Hyde, Wichita, Kans. [Filed Feb. 10, 1877.]



A coin-tray consisting of sides A, bottom B, partitions C, front D, and handle E, the sides projecting at an acute angle below the bottom, as and for the purpose specified.

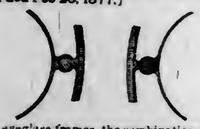
189,102. LAMP-SHADE HOLDERS. H. L. Ives, Troy, N. Y., assignor to himself and T. H. Dutcher, same place. [Filed Feb. 26, 1877.]



1. A lamp-shade holder of inverted conical shape, having two flanges at the upper circumference, to admit the use of shades of different size, substantially as specified.

2. A lamp-shade holder of inverted conical shape, and provided with two flanges, at the upper circumference of which the inner flange rises from an inclined collar, being below the level of the outer flange, substantially as described.

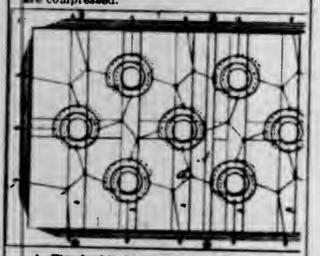
189,103. EYEGLASSES. Ira H. Johannes, Washington, D. C., assignor of one-half his right to R. T. Waters, Baltimore, Md. [Filed Feb 26, 1877.]



In eyeglass-frames, the combination of bows or other devices for holding the glasses, pads or rests for supporting the frames upon the nose, and ball-and-socket joints for uniting the pads to the bows, the operation of the parts being substantially such as described.

189,104. SPRING BED-BOTTOMS. T. R. Jones, Utica, N. Y. [Filed Dec. 21, 1876.]

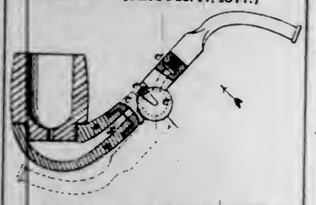
Brief.—The upper frame is made longer than the lower one, in order to give the springs resting upon the transverse end bars greater freedom of motion, and the inner edges of the upper frame are beveled, so that the links connecting the outer springs with the frame may accommodate themselves to the downward movement of the springs when the latter are compressed.



1. The double frame for spring-beds, herein described, consisting of frame A, uprights B, slats *a*, cross-bar A^3, and upper frame C, the inner sides of which are beveled, substantially as and for the purpose herein shown and specified.

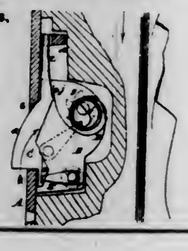
2. In a spring bed-bottom, the upper frame C of which has inwardly-beveled sides, the link E for connecting the outer springs with the said frame, consisting of a piece of wire having eyes *e e'*, the one of which, *e'*, nearest to the frame is bent, for the purpose of enabling said link to work freely against the frame, substantially as and for the purpose hereinbefore set forth.

189,105. SMOKING-PIPES. B. A. Jonasson, Warren, Pa. [Filed Feb. 17, 1877.]



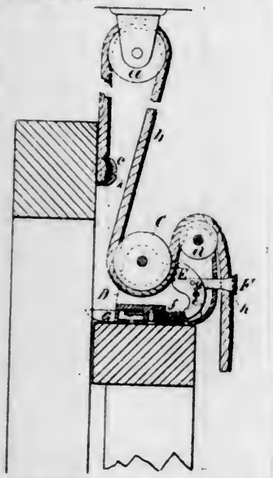
A folding smoking-pipe whose joint consists of two rabbeted hollow half-spheres and an open-ring spring-retainer, *c'*, arranged substantially as and for the purpose specified.

189,106.



189,107. SASH-BALANCES. A. Kolb and C. Osborghaus, Sandusky, Ohio. [Filed Jan. 29, 1877.]

Brief.—Suitable pulleys, serrated spring-clutch, and cord are combined with a horizontal rod, which has an end eye for the cord, and, passing through a suitable hole in the shell or casing, is pivoted at the other end to the clutch, there being also a spring-bolt for fastening purposes



The combination, with pulleys C *d*, cord *b*, and spring-clutch E, of the rod F, pivoted to the clutch, passing through a hole in casting D, and provided with an end eye, h, as and for the purpose specified.

189,108. SASH-FASTENERS. H. Jones, East Saginaw, Mich. [Filed Oct. 7, 1876.]

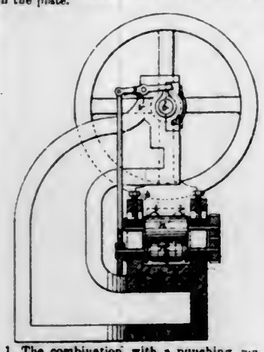
1. In a window-fastening, the part C, having the curved face *a* and shank *c* arranged to slide upward and backward against the spring D, by engagement with the plate A, substantially as shown and described.

2. The combination of the volute spring D, post *f*, ratchet *g*, pawl h, and part C, substantially as set forth.

3. The combination of the detent E and part C, substantially as shown and described.

189,109. MACHINES FOR MAKING HORSE-SHOE-NAILS. Jos. M. Laughlin, Boston, Mass. [Filed Sept. 21, 1876.]

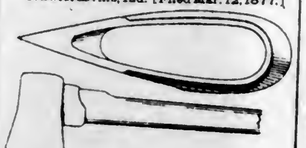
Brief.—One of the rollers is provided with projections for making the nail-point recesses in the plate.



1. The combination, with a punching-machine, of a beveling-machine, provided with beveling-rollers for forming indentations or depressions, substantially as described, and suitable connecting mechanism, by which a rotary, but intermittent, motion is imparted to the rollers a a' from the punching-machine, as and for the purpose set forth and described.

2. The combination, with a beveling-machine, of the roller provided with projections around its circumference, substantially as and for the purpose set forth and described.

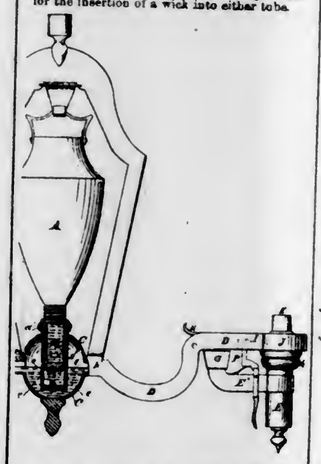
189,109. AX-HELVE SHIELDS. J. M. Larsh, Crawfordsville, Ind. [Filed Mar. 12, 1877.]



As an article of manufacture, the ax-helve shield having an edge forming a supplementary bit, substantially as described and shown.

189,110. OIL LAMPS OR CHANDELIERS. J. F. Lauth, Pittsburg, Pa. [Filed Feb. 12, 1877.]

Brief.—The two tubes, each provided with a wick, can be readily disconnected to allow the removal of burner. A hinged lid provides for the insertion of a wick into either tube.



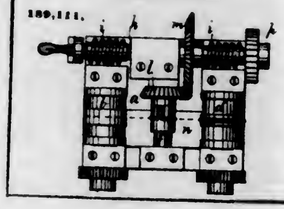
1. The combination, in a lamp or chandelier, of the receptacle C, tubes D E', wicks *c c'*, lamp E, and the reservoir A, provided with screw-cap B', all arranged substantially as described, and for the purposes set forth.

2. In combination with receptacle C, one or more tubes, D, provided with an ascending portion filled with a material having the power of capillary attraction, all arranged and operating in manner as described, for the object set forth.

3. The lamp E, detachable from the oil-supply, and provided with the tube E', having the wick *c'*, all combined, constructed, and operating as described, and for the object set forth.

4. The combination of the tubes D and E' and the wicks *c c'*, or their equivalents, conveying illuminating-fluid over an elevation between and higher than the lamp E and its base of supply, all constructed and operating in manner as described, and for the object specified.

189,111.

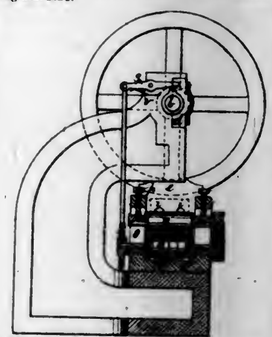


189,111. MACHINES FOR BEVELING HORSE-SHOE-NAIL PLATES. Joseph M. Laughlin, Boston, Mass. [Filed May 26, 1876.]

The improved milling or shaping machine, as herein shown, consisting of the feed-rollers *b c d e*, the mill-shaft *f*, with its mill or cutter *g*, and the bed or support *a* for the nail-plate, substantially as and for the purpose set forth.

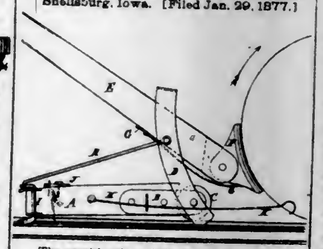
189,112. MACHINES FOR MAKING HORSE-SHOE-NAILS. Jos. M. Laughlin, Boston, Mass. [Filed Sept. 21, 1876.]

Brief.—Rollers for producing the groove in the plate, that serves for the formation of the point of the nail, are combined with a punching-machine.



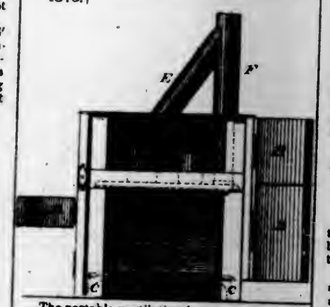
The combination, with a punching-machine, of a beveling-machine, provided with beveling-rollers for forming a groove, substantially as described, and suitable connecting mechanism, by which a rotary but intermittent motion is imparted to the rollers a a' from the punching-machine, as and for the purpose set forth.

189,113. CAR-PUSHERS. H. La Tourette, Shellsburg, Iowa. [Filed Jan. 29, 1877.]



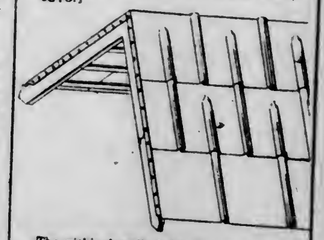
The combination of the bar A, the roller C, the U-bar D, the lever E, the shoe F, the spring G, the rods H, and the double cranks I, with each other, substantially as herein shown and described.

189,114. KITCHEN-VENTILATORS. Jas. A. Leeper, Concord, Mo. [Filed May 18, 1876.]



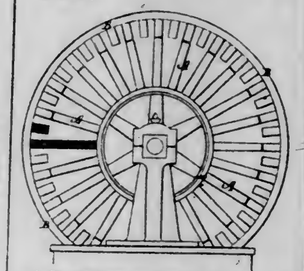
The portable ventilating box or envelope A, to be placed over a cooking stove or range, and having the doors B and branch pipe E, connected with the main pipe F, substantially as set forth and described.

189,115. METAL SHINGLES. E. Looker and C. Knispel, Newark, N. J. [Filed Sept. 1, 1876.]



The within-described shingle, consisting of a metallic plate bent upward at one edge and downward at the other, to form plain hollow ribs A C, and having a central hollow rib, D, as set forth.

189,116. DYNAMO-ELECTRIC MACHINES. D. F. J. Lontin, Paris, France. [Filed Mar. 1, 1876.]



1. The combination, with a set of movable induced magnets, of a stationary inducing-magnet having its cores extended, and provided with one or more separate coils, from which alternate currents in opposite directions may be taken, substantially as and for the purpose described.

2. The combination of the inducing electro-magnets A^1 A^2, having extended cores and independent coils (C^2, with the induction-wheel P, having induced magnets D', arranged as described, and the rubbers *a a'*, forming electrical connection between the coils of the inducing-magnet A^1 A^2 and the coils of the induced magnets, substantially as described.

3. The combination, with the revolving inducing-magnets A and the stationary induced magnets B, of the stationary inducing-magnets A^1 A^2 and the revolving induced magnets D', arranged as described, together with the conducting-rubbers *a a'*, which make contact with the induced wheel in the polar line, and conduct the currents invariable in direction to the revolving inducing-magnets A, for the purpose of charging the same, substantially as and for the purpose described.

189,117. METHODS OF PRESERVING AND FINISHING PICTURES. L. T. Luther, Mill Village, Pa. [Filed Aug. 26, 1876.]

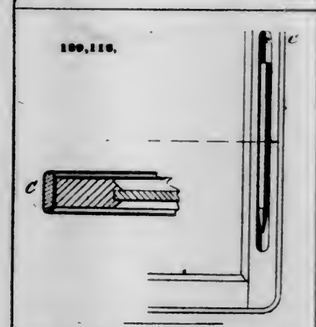
The method of preserving and finishing pictures herein described, consisting in covering the picture with a textile fabric rendered transparent by shellac, glue, or other adhesive substance which will secure the covering to the picture, substantially as described.

189,118. SLATES. F. W. Mallett, Chicago, Ill., assignor to A. H. Andrews, H. L. Andrews, and T. S. Hayden, same place. [Filed Aug. 28, 1876.]

Brief.—The width of the cushion, which is tacked to the outer edge of the slate-frame, being greater than the thickness of the frame, the whole rests upon the edges of the cushion.

A slate-frame, B, in combination with a strip, C, secured to the outside edge thereof, and projecting beyond the frame upon both side faces, substantially as and for the purpose specified.

189,118.

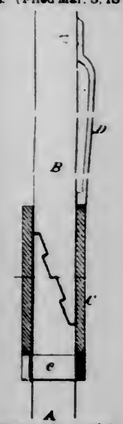


189,119. SKIRTS. Julius Mark, Herkimer, N. Y. [Filed Feb. 17, 1877.]



The method herein described of manufacturing knit skirts for ladies and children, consisting in, first, cutting a tubular piece of knitted goods into lengths correspouding to the lengths which the skirts are to have; second, cutting these sections open; and, third, finishing the skirt by uniting a suitable number of these sections, goring, and trimming, substantially as and for the purpose hereinbefore set forth.

189,120. ROD-COUPLINGS. Wm. C. McClintock, Hooperston, Ill., assignor to himself and Wm. B. Steele, Bernhart's Mills, Pa. [Filed Mar. 3, 1877.]



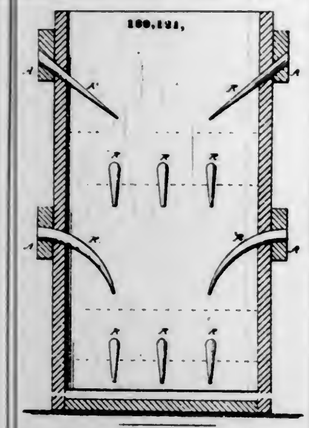
The sections A B, scarfed at their inner ends, and provided with transverse recesses and projections, the section A having the collar c, the sleeve C, and spring-latch D, in combination substantially as herein shown and described.

189,121. COTTON-PRESSES. G. C. McKee, Jackson, Miss. [Filed Mar. 20, 1877.]

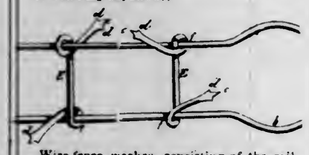
1. The pins R, passing through the walls of the press-box, substantially as shown and described.

2. The bar A, in combination with the pins R, as and for the purposes herein set forth, substantially as shown and described.

189,121.



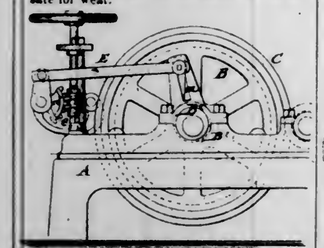
189,122. BARBED FENCE-WIRES. John McNeill, Chicago, assignor of one-half of his right to A. C. Decker, Bushnell, Ill. [Filed July 18, 1876.]



Wire-fence meshes, consisting of the rail-wires a a, provided with curves b b, the Z-shaped wire barb E, herein described, having beveled points c and shoulders d d, substantially as and for the purpose set forth.

189,123. HOISTING-MACHINES. D. H. Merritt, Marquette, Mich. [Filed Mar. 12, 1877.]

Brief.—The hoisting-drum has eccentric bearings B^2, by means of which it may be thrown in and out of gear with the driving-shaft D. The band-brake is connected to the operating-cam by screw-bolts, by means of which the band may be tightened to compensate for wear.



1. In hoisting-machine, the combination of frame A, having boxes B^1, eccentric sleeves B^2, having slotted arms a, connecting pivot-rods E, and arms b, operated by worm and segment-gear, with the shaft of winding-drum seated in the eccentric sleeves, to impart a parallel motion to the friction-wheel of drum toward the friction-pinion, substantially in the manner and for the purpose set forth.

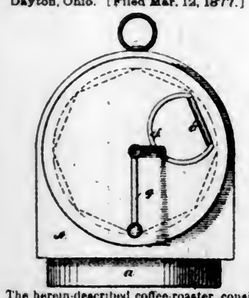
2. The combination of a worm and segment-gear, by connecting pivot and swivel rods, with brake F and winding-drum, to put on or take off the brake at any moment, substantially as set forth.

3. The combination of worm f^3, toothed segment d^3, having arms d^4, and adjustable pivot-rods d^5, with swivel-sockets of forked yoke ends p of brake F, to compensate for the wear of the brake, substantially as specified.

4. The combination of the brake F with a shoe, F^2, at a point opposite to the worm and segment-gear, and with a pivoted supporting-rod, b^3, to hold brake, when not in use, clear of wearing-surface, substantially as described.

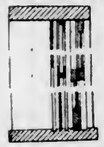
5. The brake F, composed of an outer band, faced with blocks, having wedge-shaped or tapering ends, for the purpose set forth.

189,124. COFFEE-ROASTERS. N. Metz, Dayton, Ohio. [Filed Mar. 12, 1877.]



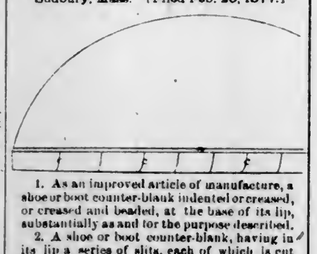
The herein-described coffee-roaster, consisting of the casing A, with flanged bottom and rod b, attached to one end thereof, at a point opposite to the center of a circular opening in the other end, and prism B, with its axial tube s, beaded sleeve C, sliding door c, and crank g, the whole constructed and arranged as and for the purpose specified.

189,125. WINDOW-BLINDS. J. Miller, Chambersburg, Pa. [Filed Mar. 1, 1877.]



A window-frame having an upper and lower shade, and an insect-screen occupying one-half of the length of the frame, in addition to the ordinary double hung glass-sashes, whereby either the top or bottom section of the window may be used for ventilation, and yet prevent the admission of insects, substantially as described.

189,126. HEEL-STIFFENERS FOR BOOTS AND SHOES. S. Moore and H. Rogers, South Sudbury, Mass. [Filed Feb. 20, 1877.]



1. As an improved article of manufacture, a shoe or boot counter-blank indented or creased, or creased and beaded, at the base of its lip, substantially as and for the purpose described.

2. A shoe or boot counter-blank, having in its lip a series of slits, each of which is cut obliquely to the opposite faces of the lip, substantially as set forth.

3. A shoe or boot counter-blank indented or creased, and beaded at the base of its lip, and having in such lip a series of slits, each of which is cut obliquely to the opposite faces of the lip, all substantially as shown and specified.

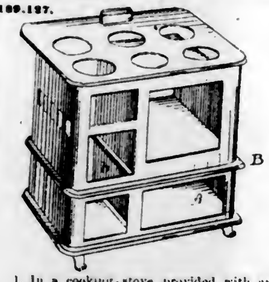
4. A boot or shoe counter-blank, molded or curved longitudinally, or transversely and longitudinally, and having in its lip a series of slits, each of which is cut oblique to the opposite faces of the lip, all essentially as set forth.

5. A boot or shoe counter-blank, molded or curved longitudinally or transversely, and longitudinally indented, creased, or filleted at the base of its lip, and having in such lip a series of slits, each of which is cut oblique to the opposite faces of the lip, all being substantially as set forth.

189,127. COOKING-STOVES. E. P. Morong, Boston, Mass. [Filed Feb. 20, 1877.]

Brief.—Plate b may be inserted at the bottom of the front compartment of either the upper or the lower section. Plate C divides section A vertically.

189,127.

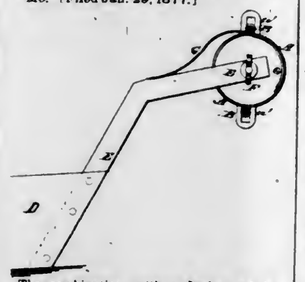


1. In a cooking-stove provided with an auxiliary removable under section, the combination of the base-plate B, provided with a removable plate, b, under the ash-pit, with the compartment A, provided with the standards or lugs a, substantially as shown and described.

2. In a cooking-stove consisting of two detachable horizontal sections, the interchangeable plate b, adapted to set either as a part of the base plate B, or as the division-plate in dividing the compartment A, substantially as and for the purpose described.

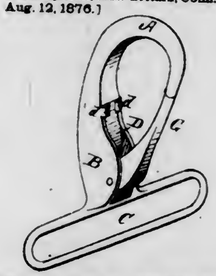
3. In a cooking-stove, the auxiliary section A, provided with a removable plate, c, substantially as and for the purpose described.

189,128. CORN-GUARDS FOR PLOWS. E. B. Murphy and C. D. Bramell, South Point, Mo. [Filed Jan. 29, 1877.]



The combination, with a fender and its crooked bar D E, of the hollow casting A, arc-slotted and provided with slotted lugs a', the bolts B, slotted bar C, pivot F, and spring G, all constructed and arranged substantially as and for the purpose specified.

189,129. SNAP-HOOKS. Wm. Nash and E. Kempshall, New Britain, Conn. [Filed Aug. 12, 1876.]



The within-described snap-hook, formed of the hook A, shank B, having longitudinal recess a, shoulder b, and ears d d, the spring D, secured in said recess, under the ears, and the pivoted tongue G, having a cam under its pivoted point, which bears on the free end of the spring, as set forth.

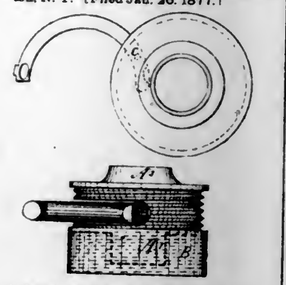
189,130. CORN-SHELLERS. H. Neubert, Ironton, Ohio. [Filed Feb. 26, 1877.]

189,130.



The combination of the ring-plate C, provided with the knives D, the ring-plate E, having lugs F and an outer concaved edge, and the short tube G, with the revolving shaft A, substantially as and for the purpose set forth.

189,131. LAMPS. S. S. Newton, Binghamton, N. Y. [Filed Jan. 26, 1877.]

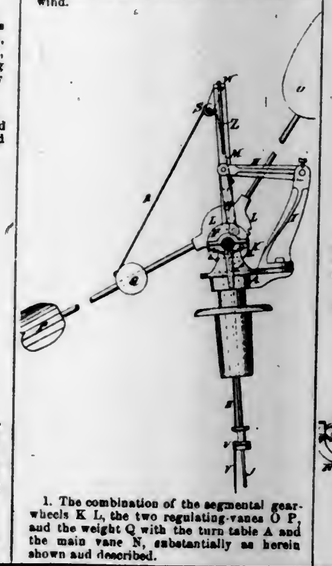


1. In a lamp, a filling-tube vibrating horizontally through an opening in the side of the burner, substantially as set forth.

2. In a lamp, an opening in the side of the burner, a filling-tube vibrating in said opening, and a plate-ring or cap to cover said opening, substantially as set forth.

189,132. WINDMILLS. Daniel Nysewander, Springfield, Ohio. [Filed Feb. 10, 1877.]

Brief.—Upon the turn-table, directly opposite the wheel-bracket, is formed an arm, to which is pivoted a segmental bevel-gear wheel, the teeth of which mesh into the teeth of a segmental bevel-gear wheel pivoted to an upright arm formed upon the turn-table. To one segment is attached the main vane, and to another segment are attached the stems of two vanes, which project upon the opposite sides of the turn-table, and are set at such an angle that the wind may tend to turn them toward the main vane and throw the wheel out of the wind.



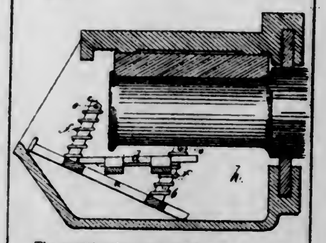
1. The combination of the segmental gear-wheels K I, the two regulating-vanes O P, and the weight Q with the turn table A and the main vane N, substantially as herein shown and described.

2. The combination of the flaring flanges e^2 with the edges of the wings of the wheel E, substantially as herein shown and described.

3. The combination of the bars e^3 with the flanges e^2 and the wings of the wheel E, substantially as herein shown and described.

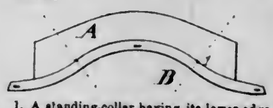
4. The combination of the upright bar w', the cross-bar W, the hinge-bar Y, and the brace-bars X Z with the turn-table A and the vane N, substantially as herein shown and described.

189,133. CAR-AXLE LUBRICATORS. Wm. Palmer, New York, N. Y. [Filed Mar. 6 1877.]



The combination, with the frame a, columns b b c c, springs f, and roller e, of the frame d, provided with the elongated openings for the upper ends of the columns b, for allowing the frame to be removed from the columns c while being inserted, substantially as set forth.

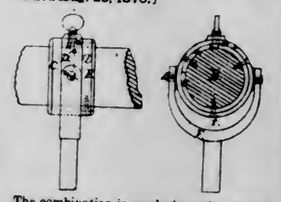
189,134. STANDING-COLLARS. Jas. K. P. Pine, Lansingburg, N. Y. [Filed Jan. 29, 1877.]



1. A standing-collar having its lower edge where it is joined to the neck-band cut in a reverse curve, substantially as and for the purpose set forth.

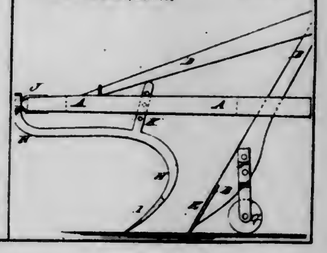
2. The collar A, having its lower edge cut in a reverse curve, as described, in combination with the band B, curved to correspond with the collar, substantially as and for the purpose set forth.

189,135. ROWLOCKS. T. S. Popplewell, Ithaca, N. Y., assignor of one-half of his right to H. J. Linderberry, same place. [Filed Aug. 26, 1876.]



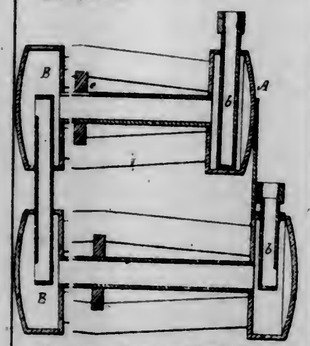
The combination in rowlocks, substantially as described, of a thumb-screw with a slotted ring, so as to make a tight or loose oar by simply turning the thumb-screw.

189,136. PLOWS. J. Preston, Millford, Ky. [Filed Feb. 10, 1877.]



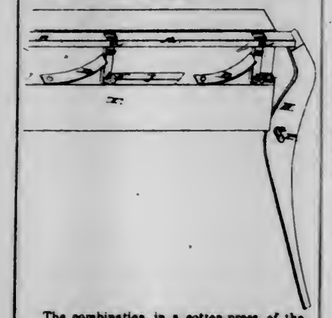
The combination of the curved beam H, provided with the plow-plate I and the rigid perforated bar K, with the slotted beam A, the standard B, provided with the square plow E and the roller G, and the handles D, substantially as herein shown and described.

189,137. APPARATUS FOR COOLING LIQUIDS. A. D. Puffer, Boston, Mass. [Filed Mar. 1, 1877.]



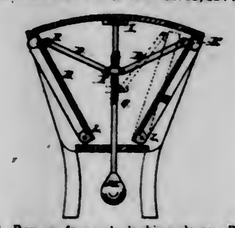
In apparatus for cooling liquids the multitubular cylinders herein explained, consisting of the hollow closed heads A B, and the connecting-pipes *d d*, &c., with the circulating-pipes *b* and *c*, the multitabular cylinders being arranged in clusters in the refrigerating-chamber of the fountain, as explained, and the whole operating essentially as and for purposes stated.

189,138. MACHINES FOR TIGHTENING IRON BANDS ON BALES. M. Quin, Galveston, Tex. [Filed Feb. 14, 1877.]



The combination, in a cotton-press, of the horizontal bar A, parallel bars B, pivoted to platen T and bar A, and depressing springs D, with rod P and operating lever or levers H, all constructed as shown and described.

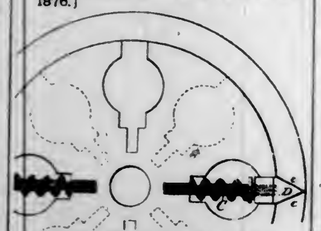
189,139. WINDOW-MIRRORS. P. W. Ralfs, Milwaukee, Wis. [Filed Feb. 19, 1877.]



1. Box or frame A, looking-glasses B B, with arms D D, screw-shaft G, and nut F, substantially as described.

2. Arms D D, screw-shaft G, nut F, handle H, keeper I, and looking-glasses B B, all in combination, substantially as described.

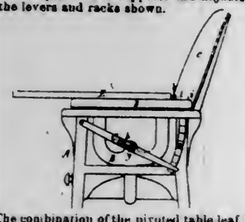
189,140. PISTON-PACKING FOR STEAM-ENGINES. W. Rankin, St. Margaret's Bay, Nova Scotia, Canada. [Filed Dec. 13, 1876.]



The combination of the sectional packing-rings E E', having beveled ends *e*, with the wedges D, having screw-threaded steps or shoulders *d* projecting at right angles, and operated by screw-bolts C and coiled springs B, substantially in the manner and for the purpose herein shown and specified.

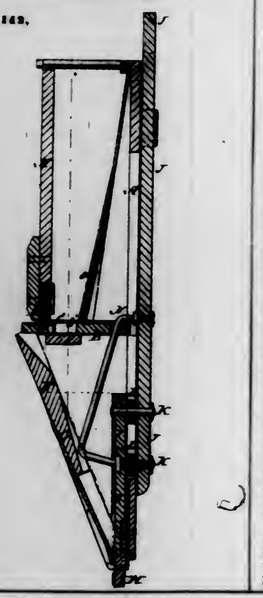
189,141. COMBINED CHAIR AND WORK-TABLE. G. L. Rich, Rockland, Me. [Filed Dec. 18, 1876.]

Brief.—A leaf is pivoted to vertically-adjustable side supports by hooks and loops, so that it can be thrown up against the back of the chair, or turned down upon the supports in a horizontal position to form a table, and it can also be unhooked at one side to allow the chair to be occupied. The supports are adjusted by the levers and racks shown.



The combination of the pivoted table-leaf E and the chair A with the vertically-movable supporters B B, their operative levers C C, and sustaining-racks D D, all being arranged and applied substantially in manner and to operate as set forth.

189,142.

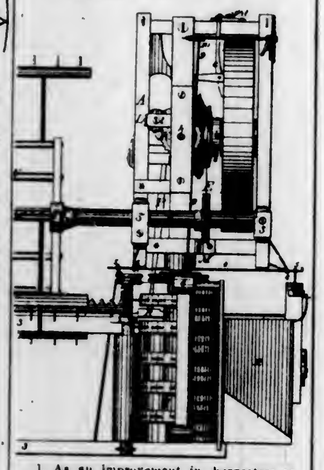


189,142. HAND CORN-PLANTERS. Wm. E. Seelye, Anoka, Minn. [Filed Feb. 17, 1877.]

Brief.—The seed-slide is reciprocated by an inclined rod secured to the plunger.

The combination of the bar I, the bolts K, and the block or blocks L, with the plunger H, the handle J, and the slotted back of the planter, substantially as herein shown and described.

189,143. HARVESTERS. O. N. Skaarass, Hale, Wis., assignor of one-half his right to Louis Bagger & Co., Washington, D. C. [Filed Jan. 4, 1877.]



1. As an improvement in harvesters or reaping-machines, a reel having jointed wings connected by rods with a cranked shaft, whereby the wings are extended and folded as the reel revolves, substantially as and for the purpose hereinbefore set forth.

2. The combination of the forked lever-arm N, constructed as described, and having cross-piece *f*, with the lever P, lever Q, and sickle-bar R, substantially in the manner and for the purpose hereinbefore set forth.

3. The combination of the shaft *i*, adjustable coupling M, upright 8, rod 9, and rock-shaft 10, all arranged and operating substantially in the manner and for the purpose hereinbefore set forth.

189,144. PAPER-PERFORATING MACHINES. R. T. Smith, Nashua, N. H. [Filed Oct. 6, 1876.]

Brief.—The card-board is drawn through the dies by a clamp, which travels in unison with a perforated table, which automatically rises and falls, so as to press upon the punches and force them through the card-board. Those punches which are not to perforate enter the perforations in table as it is raised, and those alone against which the upper surface of table presses perforate the card-board. A vibrating lever, operated by a cam, feeds the table along through the medium of a pawl and ratchet.

1. The combination of the die E, the punch F, the collar *b*, the presser *c*, and the sliding platform D, or their equivalent, substantially as described.

2. The combination of the die E, the punches F, the sliding platform D, the collar *b*, the presser *c*, and the part *d*, or their equivalents, substantially as described.

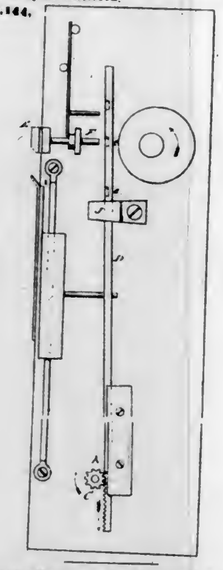
3. The combination of the die E, the punch F, the sliding platform D, the gear K, the ratchet R, the dog *p*, the bar I, and the cam H, or their equivalent, substantially as described.

4. The combination of the die E, the punch F, the sliding platform D, the gear K, the ratchet R, the dog *p*, the bar I, the cam H, and the stop *j*, or their equivalents, substantially as described.

5. The combination of the dies E, the punch F, the sliding platform D, the gear K, the ratchet R, the dog *p*, the bar I, the cam H, the block L, and pinchers A and *i*, or their equivalents, substantially as described.

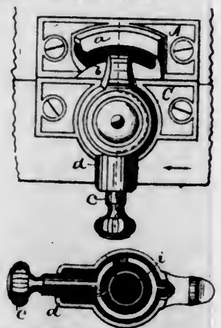
6. The combination of the dies E, the punches F, the sliding platform D, the gear K, the ratchet R, the dog *p*, the bar I, the cam H, and the wire *s*, or their equivalents, substantially as described.

189,144.



189,145. FASTENINGS FOR MEETING-RAILS OF SASHES. Wm. E. Sparks, New Britain, Conn., assignor to P. & F. Corbin, same place. [Filed Feb. 28, 1877.]

Brief.—The sweep or swinging lever is composed of two parts, swinging together on their transverse axis, one of these parts being adapted to lock the sweep in position by a quarter-turn or independent partial rotation on its longitudinal axes. There is also a single spring, so arranged as to swing both parts while partially rotating one of them, and also a peculiar keeper, provided with an overhanging flange at the rear, and a cam-surface at the front, into which keeper the two-part sweep enters for locking the device.



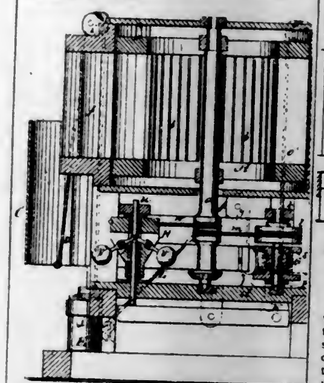
1. In a sash-lock, the sweep composed of two parts adapted to swing together on a transverse axis, and having one of said parts adapted to lock the sweep by an independent partial rotation on its longitudinal axis, substantially as described, and for the purpose specified.

2. In combination with the two-part sweep E and plate C, a single spring, *i*, operating to swing the parts *e d* of the sweep and partially rotate the part *e*, substantially as described, and for the purpose specified.

3. In a sash-lock, the keeper A, open at its end, and provided with the overhanging flange *a* at the rear and the cam *b* at the front, disconnected from said flange, substantially as described, and for the purpose specified.

189,146. WINDMILLS. Elias Stata, Cape Vincent, N. Y., assignor to Mary E. Stata, same place. [Filed Feb. 3, 1877.]

Brief.—The combination of a hoop or shield and a governor with a vertical windmill, in such a way that the action of the governor applies a portion of the power of the wheel to raise the said shield, exposing more or less of the wheel to the action of the wind, thus controlling its motion.



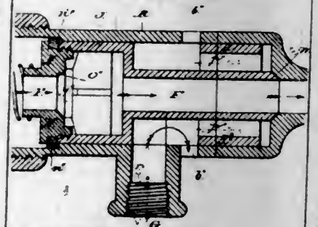
1. A wind-wheel provided with a shield, self-regulating, and covering the whole thereof, substantially as shown and described.

2. The combination of the governor H, lever 1, winding-drum G, wheel *l*, ropes *o o'*, and shield C, substantially as shown and described.

3. The combination of the rope L, pulleys *y* and *s*, and winding-drum G, substantially as specified.

4. The combination of the weights *j*, rope D, tube E, pulley *i*, and shield C, as shown and described.

189,147. STEAM AND AIR BRAKES. H. H. Taylor, Warsaw, and A. McCamish, East St. Louis, Ill., assignors to J. F. Degnon, St. Louis, Mo., and C. D. Leet, Springfield, Mass. [Filed Aug. 11, 1876.]



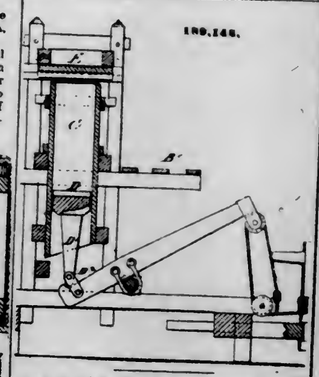
The combination of the valve case or shell B, with its eduction-ports *b' b''*; the hollow piston-valve J, constructed with valve-shaped end, made to fit its seat *m''*, and moved thereto by the current of compressed air, and which carries in its interior a wing-valve, seating itself by moving in the opposite direction, said piston-valve J being also constructed with the slide-valve or ring-bearing *d'' d''*, with air-passages through it between the arms *p'' p''*, Fig. 1; the wing-valve *y''*, and the pipe-connections from G, Fig. 1, to the brake-cylinder, whereby the air-pressure in the brake-cylinder is equalized each side of piston B, substantially as and for the purpose set forth.

189,148. COTTON-PRESSES. J. Templeton, Florence, Ga. [Filed Feb. 10, 1877.]

Brief.—A vertical frame, a sliding cover at top, a follower moved upwardly from beneath by the end of a lever, the other end of which is drawn down by a rope around a capstan.

As an improvement in cotton-presses, the combination of the cotton-box C, with vertically-movable follower D, entering box at lower end, and a sliding and closing top panel, E, substantially as and for the purpose set forth.

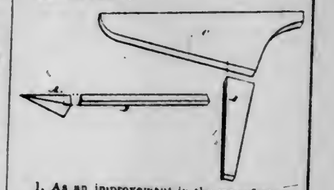
189,148.



189,149. PROCESSES OF TREATING WOOL OIL OR GREASE TO OBTAIN GLUE OR GELATINE. H. Thaulow, Christiania, Norway. [Filed Feb. 1, 1877.]

The process herein described of treating wool oil or grease to obtain glue or gelatine therefrom, consisting in the following steps, successively performed, viz: combining the crude oil with water and beef-blood, boiling the mixture, straining or filtering the same, mixing beef-blood with the strained and cooled liquid, and then reboiling the same, substantially as herein set forth.

189,150. MANUFACTURE OF PLOWSHARES. C. H. Thompson, Pittsburg, Pa. [Filed Sept. 8, 1876.]

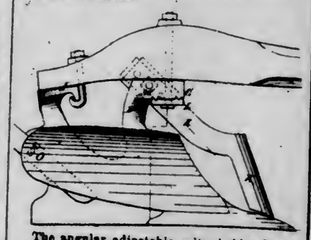


1. As an improvement in the manufacture of plowshares, the method hereinbefore described and set forth—that is, passing the blanks A, B, C, and D through a series of dies, for the purpose of welding them together and forming a complete plowshare, substantially as described.

2. As an improvement in the manufacture of plowshares, the series of dies shown and described, for the purpose set forth.

189,151. PLOWS. R. B. Thomson, Dansville, Mich. [Filed Feb. 10, 1877.]

Brief.—An angular plate bolted beneath the beam, having the land-side arm grooved for a colter-holder.



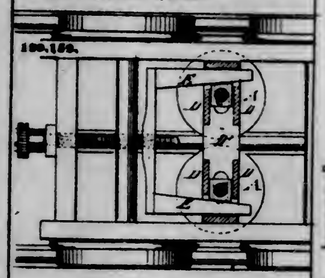
The angular adjustable colter-holder L, in combination with the arm G of the standard D and with the colter K, substantially as herein shown and described.

189,152. GRIPING AND PROPELLING ATTACHMENTS FOR CAR-TRUCKS AND LOCOMOTIVES. J. J. Thomas, Cahto, and Wm. J. Anderfuren, San Francisco, Cal. [Filed Dec. 4, 1876.]

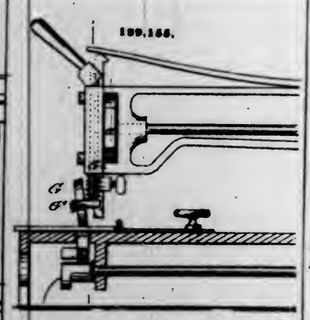
The combination, with horizontal grooved wheels A A, arranged opposite to each other

on vertical shafts C, and in bearings C', or the vertical guides D, horizontal slotted guides D', and the movable wedges E, all arranged to operate as specified.

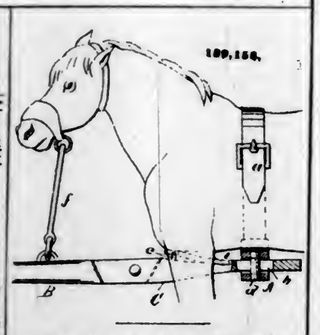
189,155.



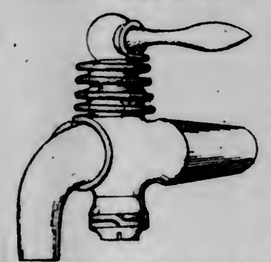
189,156.



189,158.



189,155. ATTACHMENTS FOR AUTOMATICALLY CLOSING COCKS AND FAUCETS. H. B. Towle, Roselle, N. J., and R. H. Plass, New York, N. Y.; said Plass assignor to said Towle. [Filed Aug. 26, 1876.]



As an article of manufacture, a spiral spring having the ends thereof bent for attaching it to the handle and nozzle or horizontal body of a faucet, substantially in the manner and for the purpose set forth.

189,156. SKIRT-SUPPORTERS. W. W. Towson, Baltimore, Md. [Filed Oct. 19, 1876.]

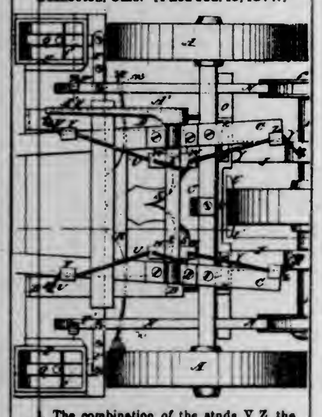


A skirt or dress supporter consisting of the plate A, having a waistband hook or attachment, and provided with one or more eyes or holders, e, for receiving the looping-up buttons or devices of the skirt or dress, substantially as herein specified.

189,157. MACHINES FOR STAMPING LEATHER GOODS. L. E. Urner, Nevada, Mo. [Filed Feb. 22, 1877.]

In a machine for stamping leather or leather goods with ornamental designs, the combination of a reciprocating striking-rod, carrying a bit or die, a spring acting on said rod to give the blows, a rotary spring-presser, G, to set on the material to be ornamented, and a vibrating feed mechanism therefor, substantially as shown and described.

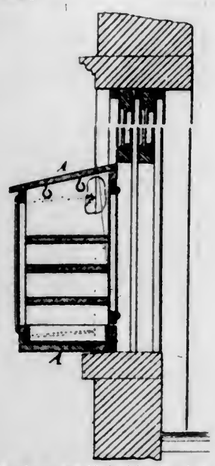
189,158. CORN-PLANTERS. H. Wagoner, Coshocton, Ohio. [Filed Jan. 19, 1877.]



1. The combination of the studs V Z, the cords U Y, the cross-bars W W, the shaft X, and the lever A', with the thills C and the hinged bars D J, substantially as herein shown and described.

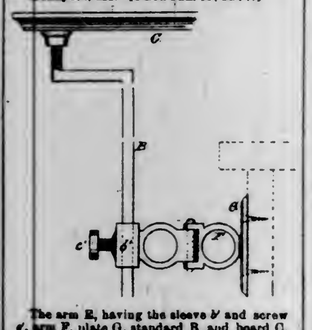
2. The combination of rods E', slide-pins F', and springs G', with the copper-slide bars N and spout-valves D', as and for the purpose specified.

189,159. PROVISION-SAFES. Ezra Webb, Brooklyn, N. Y., assignor to Mrs. S. R. Shutter, New York city. [Filed Sept. 16, 1876.]



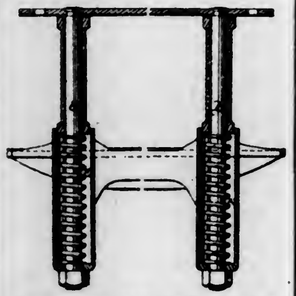
A safe, A, provided with wire cloth in its front and rear, with an inclined top, and with chains F, to adapt it to be applied to a window, substantially as herein shown and described.

189,157. ARM-RESTS. Philo R. Wagor, Rockport, Mo. [Filed Jan. 19, 1877.]



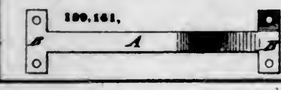
The arm E, having the sleeve b and screw c', arm F, plate G, standard B, and board C, combined substantially as herein shown and described.

189,160. WAGON-SEAT SPRINGS. Benj. F. Wells, Brooklyn, N. Y. [Filed Sept. 23, 1876.]

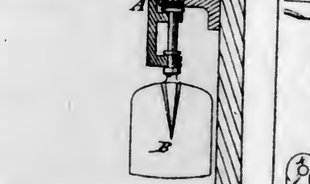


The reversible tubular head a herein described, applied loosely to and combined with the pin B of a wagon-seat spring, substantially as and for the purpose specified

189,161.



189,158. BOOT-SUPPORTERS. W. A. Wharton, Belle Centre, Ohio, assignor to himself and H. E. Lambert, same place. [Filed Jan. 29, 1877.]



A vehicle-wheel whose fellies are provided with the intermediate detachable blocks B, through which pass the dowel pins, as shown and described.

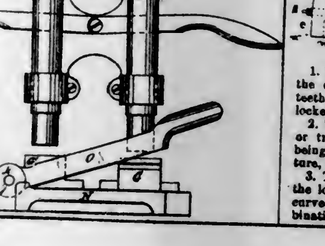
189,163. HORSE-COLLARS. H. W. Whitney and C. F. Whitney, Oswego, N. Y. [Filed Feb. 3, 1877.]

The combination of face A, having inner convexity c d and concavities d e c f, the part B, overlapping face A, and the roll C, having parallel edges, one stitched to part A and the other riveted to part B, as and for the purpose specified.

189,164. FEATHERING PADDLE-WHEELS. Henry Williams, Milwaukee, Wis. [Filed Oct. 7, 1876.]

The combination of the stationary cam C, having the double or divided groove d d' f and intervening solid part h, with the wheel A and radial paddles B, provided with inner cross-arms c, each having pins or rollers e, and moving in the grooves of the cam, as and for the purpose set forth.

189,165. GRAIN-BINDERS. C. B. Withington, Janesville, Wis., assignor to C. H. and L. J. McCormick, Chicago, Ill. [Filed Nov. 10, 1876.]



1. The combination, substantially as hereinbefore set forth, of a binder-arm and a wire-carrying arm mounted on a common swinging support, and a crank-shaft for actuating them.

2. The combination, substantially as hereinbefore set forth, of a grain-receptacle, a wire-carrying arm, and a binding-head, both of the latter vibrating in a vertical plane, for the purpose set forth.

189,166. PROCESSES AND APPARATUS FOR MANUFACTURING ILLUMINATING-GAS. J. Amsterdam, New York, N. Y. [Filed Aug. 12, 1875.]

Brief.—Water is passed through a coil of pipe below the surface of the oil, or is admitted freely into the liquid hydrocarbon, to control its temperature below its surface.

1. The process of manufacturing a fixed gas by bringing steam in contact with liquid hydrocarbon, cooled or refrigerated below its surface, thence conveying the mixed steam and hydrocarbon vapors into a heated retort, and there converting the mixture into a fixed gas, substantially as described.

2. The combination of the boiler A, still K, cooling or refrigerating coil X, and retort J, substantially as described.

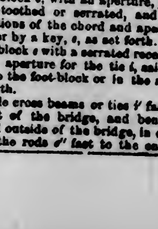
189,167.

189,167. MACHINES FOR INCASING POCKET-PORTRAITS. J. R. Applegate, Philadelphia, Pa. [Filed Oct. 26, 1876.]

In a machine for punching and incasing pocket-portraits, the cutting-die G, the sealing-die G', and shear N O, jointly, the several parts attached to a single bed-plate, and arranged for successive operation, substantially as and for the purpose set forth.

189,168. LATHE-CHUCKS. F. Armstrong, Bridgeport, Conn. [Filed Feb. 28, 1877.]

Brief.—Improvement on lathe-chuck shown in Letters Patent No. 154,162, August 18, 1874, to prevent unevenness of wear incident to the frictional contact between the central bevel-gear and its containing-shell.



The shell A and gear B, having their contact-faces beveled toward the axis of the gear, combined substantially as shown and described, and for the purposes set forth.

189,169. ANIMAL-POKES. R. B. Attaberry, Savannah, Iowa. [Filed Sept. 27, 1876.]

The bar A, provided with a suitable yoke, A', in combination with lever D, rod C, having cross-piece B, bent finger E, and rod F, constructed and arranged as and for the purpose set forth.

189,170. BRIDGES. O. Avery, Jr., Groton, and C. Bartholomew, Etna, N. Y. [Filed Sept. 11, 1876.]

1. The foot-block c, with an aperture, g, for the chord r, toothed or serrated, and said teeth or serrations of the chord and aperture locked together by a key, e, as set forth.

2. The foot-block c with a serrated recess, h, or transverse aperture for the tie i, said tie being bound to the foot-block or in the aperture, as set forth.

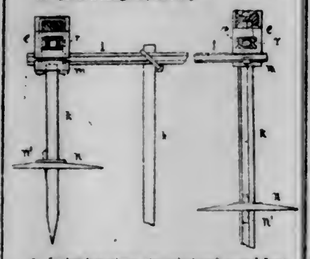
3. The middle cross beams or ties f' fast to the lower part of the bridge, and bent or curved upward outside of the bridge, in combination with the rods c'' fast to the end of

said beam or beams at or nearly at right angles to the beam, and bracing the bridge-truss, as shown and described.

4. The chord *r*, having its base upward and ends serrated, as and for the purpose set forth.

5. The tie *i* fast or locked to the foot-block as a transverse end tie or band, as set forth.

189,171. BRIDGE-PIERS. O. Avery, Jr., Groton, and C. Bartholomew, Dryden, N. Y. [Filed Aug. 11, 1876.]



1. In bridge-piers, the pile-head *n* and foot-block *s*, in combination with the cross or end tie *i*, as and for the purpose set forth.

2. The head-cap *m* and foot-block *s*, when formed in, and consisting of, one piece, secured to, and holding the top of, the piles, in combination with the cross-band or end tie *i* and pile *k*, as and for the purpose set forth.

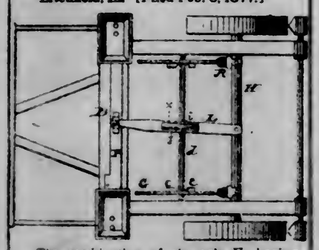
3. Abutments and piers of bridges consisting of the piles *k*, with head-caps *m* and foot-blocks *s*, be the said parts *m* and *s* made of one or two parts, as shown and described, whereby the pier and the bridge are bound together, in the manner and for the purpose set forth.

189,172. HORSE-BLANKETS. J. C. Ayres, Philadelphia, Pa., assignor to himself, W. Ayres, G. R. Ayres, W. M. Ayres, and L. H. Ayres, same place. [Filed Feb. 16, 1877.]



The combination of a horse-blanket with a shield, B, and adjusting connections *a* and *a'*, all substantially as set forth.

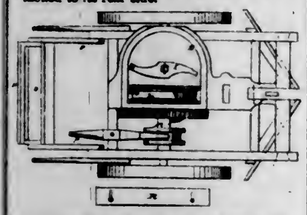
189,173. CORN-PLANTERS. D. C. Bacon, Litchfield, Ill. [Filed Feb. 8, 1877.]



The combination of the axle H, having brushes R R, the slotted bar I, having its rear end pivoted to the axle, and its front end connected to the center of the seed-slide P, the cross-shaft *d*, with spur or spiked wheels G G, and the vertically-placed disk on the shaft *d*, and having cams *i i* on opposite sides, all substantially as set forth.

189,174. COTTON-SEED PLANTERS. R. Ball, Petersburg, Va., assignor to William H. Tappey and A. Steel, same place. [Filed Oct. 31, 1876.]

Brief.—The revolving feed-wheel is provided with side flanges and central pins for carrying out the seed. Above and working over the feed-wheel is a horizontal agitator for stirring the seed to be sown. The coverer is a weighted box secured to pivoted arms, and has a bar or scraper removably and adjustably attached to its rear side.



1. The revolving wheel or cylinder D, provided with flanges *a* and pins or bars *b*, projecting from its surface between said flanges, as described, for taking the seed from the hopper, as set forth.

2. The horizontally-rotating agitator 1, in combination with the wheel or cylinder D, as and for the purposes herein set forth.

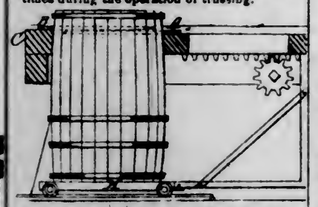
3. The combination of the pivoted drag-bars P P, the weight-box O, and the movable and adjustable bar R, substantially as and for the purposes herein set forth.

189,175. SOAP COMPOSITION. Charles H. Baxter and H. Horrocks, Fall River, Mass. [Filed Feb. 17, 1877.]

A sizing-soap composed of sal-soda, white soap, rosin, baryta, lard-oil, water, and silicate of soda, in the proportions substantially as set forth.

189,176. MACHINES FOR TRUSSING BARRELS. Philip Beamer, Duncansville, Pa. [Filed Dec. 13, 1876.]

Brief.—The edges of the staves from which the barrel is to be formed are joined in a true circle, to allow the top hoop to be put on, by means of two semicircular trussing-clamps provided with flaring ends, one of said clamps being fixed, and the other supported in the end of a horizontal carriage reciprocating in guideways upon a bench, beneath which is a clear and unobstructed space, within which the barrel is moved and adjusted centrally by the said clamps, in connection with a push-arm depending from the under side of said carriage, and acting simultaneously with the trussing-clamps, for the purpose of maintaining the barrel in a vertical position at all times during the operation of trussing.



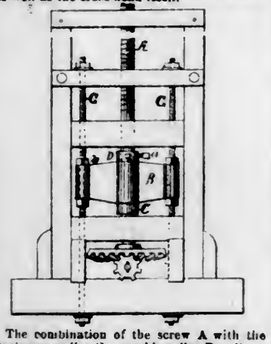
1. A machine for trussing barrels, constructed and organized with a horizontal bench, C, trussing-clamps A B, arranged to act upon the upper portion of the barrel, and a clear and unobstructed space beneath said bench, and clamps within which said barrel is moved and adjusted centrally with and by said clamps, the support for the barrel being independent of said bench and its trussing-clamps, substantially as described.

2. The combination of a horizontally-reciprocating clamp with a fixed clamp, arranged upon a bench to operate in the same horizontal plane, or nearly so, with their projecting flaring ends adapted to lap and pass each other in gathering the staves, substantially as herein set forth.

3. The combination, with a horizontal reciprocating clamp, of a push-arm, adapted to act upon the lower end of the barrel or its supporting-truck in unison with the clamp, to move the barrel vertically in position between the clamps.

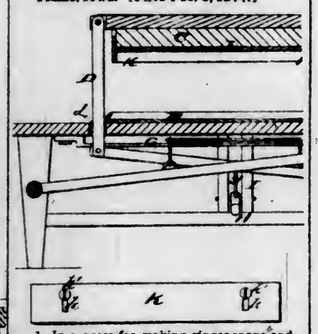
189,177. COTTON-PRESSES. C. J. Beasley, Petersburg, Va., assignor to William H. Tappey and A. Steel, same place. [Filed Oct. 31, 1876.]

Brief.—To obviate the danger of the gearing being drawn out of gear, or goring too deeply therein, in consequence of wear resulting from the end thrust of the screw, or the pressure in the opposite direction, the collar bearing on the cross-head is made adjustable as well as the cross-head itself.



The combination of the screw A with the stationary collar C, movable collar D, adjustable cross-head B, screws G G, and nuts *b b*, all substantially as and for the purposes herein set forth.

189,178. PRESSES FOR MAKING GINGER-SNAPS. Azel H. Bell and N. Hills, Belle Plaine, Iowa. [Filed Feb. 3, 1877.]



1. In a press for making ginger-snaps and other cakes, the follower C, provided with the flour-holding facing J, in combination with the vertically-adjustable gage-plate K, substantially as described, and for the purpose set forth.

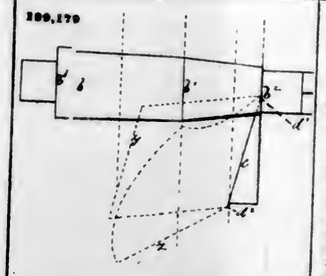
2. In a press for making ginger-snaps and other cakes, a follower, C, in combination with a vertically-adjustable gage-plate, K, substantially as and for the purpose set forth.

189,179. MANUFACTURE OF PLOW MOLD-BOARDS. Chas. Blair, Collinsville, Conn. [Filed Aug. 14, 1876.]

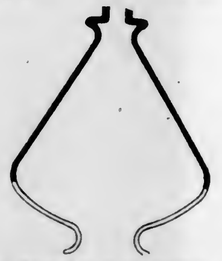
1. An improvement in the art of making a mold-board of varying thickness from a sheet of uniform thickness, which consists in passing the diamond-shaped blank through tapered rolls, with the edge which is afterward to be the share-line at an acute (nearly right) angle to the line of rolls, as described.

2. As a new article of manufacture, a mold-board having an area of increased thickness, substantially as described, and with the line of diminution parallel, in substance, to the share-line.

189,170



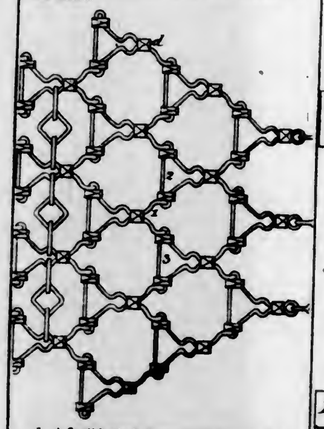
189,180. MANUFACTURE OF GLASS SHADES, GLOBES, &c. Jos. Bourne, West Meriden, Conn., assignor to the Meriden Flint Glass Company, same place. [Filed Mar. 28, 1877.]



The improvement in the manufacture of combined globes and shades, and chimneys and shades for illuminating purposes, consisting in forming upon the one part, as opal, before it is completely shaped, a finished edge, and uniting thereto sufficient glass for the second part, as flint, subsequently finishing the article, as herein described, whereby a clearly-defined dividing-line between the opal and flint portions is produced, and without the overlaying of one part upon the other.

189,181. HARROWS. E. T. Bousfield, Bedford, England. [Filed Mar. 16, 1877.]

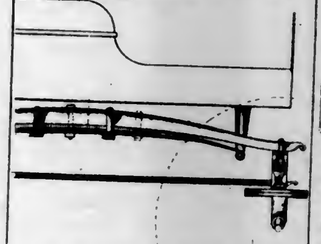
Brief.—A flexible wrought or steel framed harrow, made with hooks and eyes, and stiffened, with teeth cast in to give stiffness to the frame.



1. A flexible chain-harrow, composed of tripod-frames, made with eyes and hooks from rods of iron or steel, bent to shape, as shown at Figs. 3 and 4, and stiffened by tines or tine-sockets cast thereon, as above described.

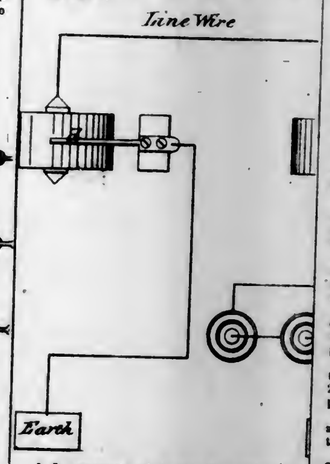
2. In combination with tripod-frames, constituting a flexible or chain harrow, the links or acting-surfaces *c*, for dividing up the spaces between the tripods, as and for the purpose described.

189,182. SIDE-BAR SPRING-VEHICLES. J. F. Bridget, Washington, D. C. [Filed Mar. 21, 1877.]



The combination, in a side-bar buggy, of the side bars and their springs with the transverse cross connecting-bars, the central fastening-bolt, and the adjustable clips, all constructed and arranged to operate substantially as described.

189,184. AUTOMATIC TELEGRAPHY. James W. Brown, Port Huron, Mich. [Filed May 21, 1875.]



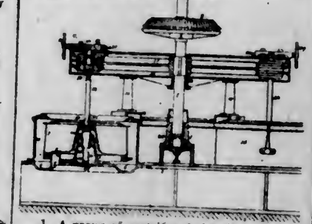
1. In automatic telegraphy, the method of forming dashes, by, first, transmitting a strong initial current; second, compensating by weakening, cutting off, or reversing such current, as the state of line may determine, as explained; third, by transmitting a current identical with the initial current; and, finally, a reverse current, equal in strength to initial current, substantially as set forth.

---

2. Combination of strip, perforated as described, the marking, compensating and reversing pens, the battery, and resistance, with circuit-connections, as described, whereby a dash is transmitted, by using, first, a strong initial current; second, the compensation therefor, as explained; third, a current similar to initial current; and, lastly, a reversing or clearing current.

189,185. CENTRIFUGAL DRYING AND CLEANING MACHINES. J. Buchanan, Jr., Liverpool, England. [Filed Mar. 6, 1877.]

Brief.—Four centrifugal machines, placed at equal distances from a central shaft, are operated by a central friction-wheel bearing upon the friction-pulleys of the machines, any one of which pulleys may be thrown out of gear while the others are kept in motion. The finished sugar is removed from the bottom of the machine through flanged openings in the bed-plate of the outer case. The friction-pulleys are composed of alternate rings of compressed paper and metal, the latter rings tapering from the center outwardly.



1. A group of centrifugal cleaning and drying machines, arranged circumferentially around a central driving-spindle, and in combination therewith, substantially as and for the purposes set forth.

2. The centrifugal machines arranged equally around the circumference of the central shaft, and in combination therewith, so as to obtain an equal pressure in all directions, substantially as and for the purpose specified.

3. The combination of centrifugal machines, arranged circumferentially around a central driving-shaft, with a sole-plate provided with bearings for the machine and driving-shafts, substantially in the manner and for the purposes set forth.

4. The casing 13, columns 14, bridges 16, and casings 16, in combination with the sole-plate 3, substantially as and for the purposes set forth.

5. In a centrifugal machine, the friction pulleys of compressed paper 19, divided into layers by metal disks 20, tapering from the center outward, substantially as and for the purposes set forth.

6. The combination of the bearing 4, oil-reservoir 21, conical bushes 22, adjusting-nut 23, spindle 24, convex plates 25, foot-step 26, and adjustable carrying-pieces 27, substantially as and for the purpose set forth.

7. The combination of bearing 5, oil-reservoir 21, convex plates 25, and loose foot-step 26, substantially as and for the purpose specified.

8. The combination of pulley 18, casing 13, adjustable carrying-pieces 27, slides 28, and adjusting-screws 29, substantially as and for the purpose specified.

9. The combination of the pulley 18, the casing 13, the carrying-pieces 27, slides 28, adjusting-screws 29, and limiting-screws 30, substantially as and for the purpose specified.

10. The combination of the carrying-pieces or bearings 27 and hand-wheel and screw 29 with springs 31, substantially as and for the purposes set forth.

11. The combination of the auxiliary or intermediate spindles 32 with the main spindles 24 and carrying-pieces or bearings 27, for the purposes set forth.

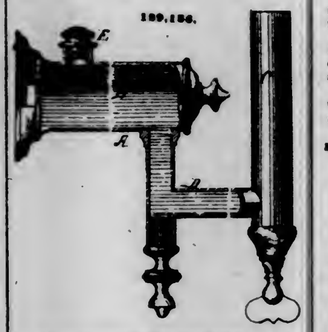
12. The driven pulleys 18, secured to the auxiliary spindles 32, and arranged substantially as set forth.

13. The combination of the spindles 32 and 24 with the joint 33 34, arranged, connected, and combined substantially as and for the purposes set forth.

14. The combination of the stems 37, rocking bushes 36, spindles 32, and cups 35, substantially as and for the purposes set forth.

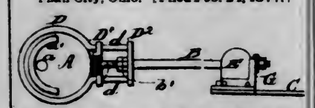
189,186. LAMPS. William A. Butler, New York, N. Y. [Filed Feb. 17, 1877.]

189,186.



The horizontal tubular bracket-arm A, forming an oil-containing reservoir, B, and provided with an opening closed by a cap, E, for filling said reservoir, in combination with the pipe D, projecting downwardly from the lower side of the bracket-arm, and bent horizontally, as shown, and an Argand burner, C, attached to the extreme end of said horizontal portion of the pipe, and having its wick-tube extending a short distance only above the bottom of the oil-reservoir, as and for the purposes hereinbefore set forth.

189,187. PITMAN-RODS. B. E. Carpenter, Plain City, Ohio. [Filed Feb. 24, 1877.]

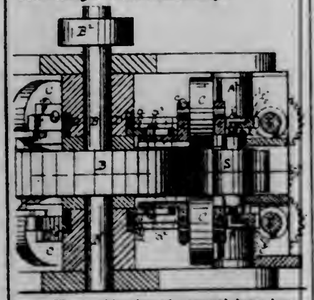


1. The combination of circumferentially-grooved wheel A with collar D, having ends d d, yokes D^1 D^2, pitman B, and nuts b', substantially as and for the purpose set forth.

2. Wheel A, provided with crank-hole a, counterbalance a^1, and circumferential groove a^2, in combination with a pitman-rod and collar connection, substantially as and for the purpose set forth.

189,188. MACHINES FOR ROLLING METALLIC RINGS AND CYLINDERS. Robert A. Carter, Pittsburg, Pa. [Filed Nov. 4, 1876.]

Brief.—The annular blanks cut from a plate of metal are placed successively upon reducing-rolls, so arranged around the drum as to approach the same in their revolution about it, and thereby reduce and draw the blank until brought to the desired shape.



1. The combination of a central drum, having a rolling-periphery, and a series of two or more drawing and reducing rolls, S, arranged radially around the drum, and eccentrically thereto, so as to be operative in the manufacture of seamless rings and tubes, substantially as set forth.

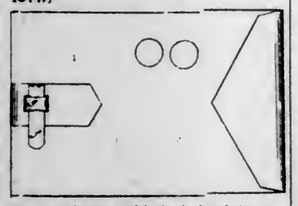
2. The combination of a central drum, B, a series of two or more vertical rolls, S, and a corresponding series of rolls, C, substantially as set forth.

3. The eccentrically-arranged vertical and edging rolls S C, mounted in a single frame, and simultaneously adjustable toward or from their center of motion, substantially as and for the purpose set forth.

4. The combination of drum B, eccentrics D, yokes a, radially-adjustable frames a, and edging and reducing rolls S C, substantially as described.

5. The combination of drum, eccentrically-operating edging and reducing rolls C S, and gear-wheels e, substantially as set forth.

189,189. ENVELOPES. R. C. Carter, Kingston, Ontario, Canada. [Filed Feb. 17, 1877.]



The combination, with the body of the envelope, having the loop g of the flap or strip, provided with a slot, and the locking-tongue f, substantially as shown and described.

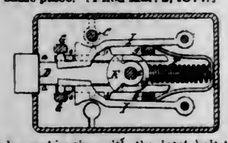
189,190. SHAFT-COUPLINGS. G. A. Chapman, Woonsocket, R. I. [Filed Feb. 5, 1877.]



1. A shaft-coupling consisting of an outer sleeve provided with a central oblong perforation, g, said sleeve having conical holes, the same gradually increasing in size from the center of the sleeve toward its ends, in combination with split conical sleeves and screw-threaded followers, substantially as and for the purpose set forth.

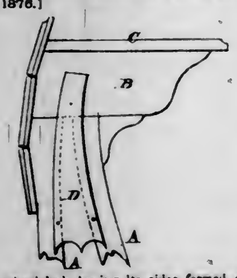
2. The combination, with the solid tubular coupling-sleeve b, of the screw f, arranged and operated substantially as described.

189,191. LOCKING-LATCHES. H. A. Chase, Hartford, Conn., assignor of one-half his right to S. H. Hubbard and C. H. Clark, same place. [Filed Mar. 2, 1877.]



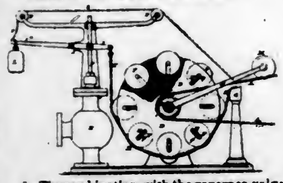
In combination with the latch-bolt D, provided with shoulders behind its head, and a suitable casing having posts G parallel with the latch, independent locking-bars H and spring-tumblers I, arranged to operate substantially as hereinbefore set forth.

189,192. SCHOOL-DESKS. Wm. B. Cogger and F. T. June, Morris, Ill. [Filed Mar. 21, 1876.]



A school-desk, having its sides formed of sawed-wood legs A A, connected by a moretised bracket, B, on top, and a covering and bracing plate, D, on the outside, substantially as herein set forth.

189,192. GOVERNORS. J. W. Collet, Upper Alton, Ill. [Filed Feb. 13, 1877.]



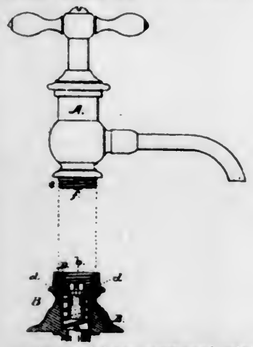
1. The combination, with the governor-valve stem lever I, of the rotating head D, with rollers F, acting upon said lever by centrifugal force, substantially as and for the purpose set forth.

2. In a governor, the combination of lever I, belt H, rotating head or wheel D, and radially-movable rollers F, substantially as and for the purpose set forth.

3. In a governor, the combination of rotating head D with radially movable weights or rollers F, belt H, weighted lever I, cord or chain O, and idler M N, substantially as set forth.

189,194. AUTOMATIC CHECK-VALVES. O. Collier, Sacramento, Cal., assignor of one-half of his right to G. W. Gilbert, same place. [Filed Dec. 15, 1876.]

Brief.—The lower part of the body, that is permanently connected with the service-pipe, forms a valve seat and chamber for an automatic check-valve. This valve is pressed down and kept open by the end of the faucet-body when it is screwed down in its place, but is thrown up and closed by a spring when the faucet is taken off.



An improved faucet, constructed substantially as herein described and shown, consisting of the part A, with its end c provided with a screw-thread to fit into the part B, and a bridge, f, and the part B having a valve, b, valve-seat d, and spring e, for the purpose of controlling the flow of water from the service-pipe when the faucet is removed, as herein set forth.

189,193. MACHINES FOR DRESSING SILK, &c., IN HANKS OR SKEINS. C. Corron, St. Etienne, France. [Filed Feb. 17, 1877.]

Brief.—The hank or skein is placed over the flanged rollers, and shaken and straightened by the jerking motion of the beater, which is pivoted upon an independent shaft, and intermittently acted upon by a cam upon the main shaft. The remaining features are explained by drawing and claims.

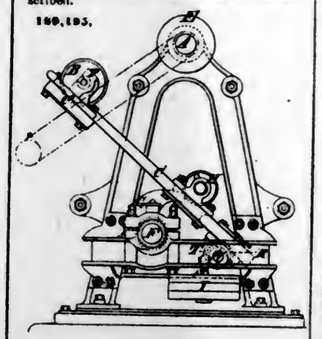
1. The combination, with the flanged roller or rotating peg A', of the oscillating beater C C' and the flanged roller or peg B, attached to and oscillating with said beater, substantially as and for the purpose specified.

2. The combination of the shaft F, the cam G, the oscillating beater C C', the removable flanged roller or peg B, the rotating flanged roller or peg A', and the spindle A receiving rotating motion from the main shaft F, substantially as and for the purpose set forth.

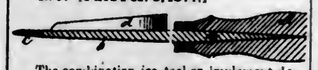
3. The combination, with the oscillating

beater C C', of the sector R, attached to the pivot of said beater, the flexible strap T, attached to and passing over said sector, and the weight or weights I suspended from said strap, substantially as and for the purpose described.

189,195.

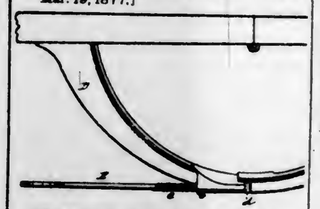


189,196. ICE-TOOLS. Jno. Crawford, New York, N. Y., assignor, by mesne assignments, to Rebecca Chapman, Plainfield, N. J. [Filed Feb. 9, 1877.]



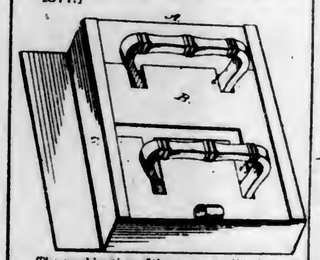
The combination ice tool or implement described, consisting of the hatchet F, pick D, shovel b d, and cutter c, and a handle, A, all substantially as and for the purpose specified.

189,197. TABLE-LEAF SUPPORTS. Wm. F. Daly, Peru, assignor of one-half his right to E. D. Olin, Indianapolis, Ind. [Filed Mar. 19, 1877.]



The grooved arm C, provided with the lug f, and the arm D, provided with the hollow enlargement b, in combination with the rod E, spring e, and plate d, all constructed and arranged substantially as set forth.

189,198. FLAT-IRON HEATERS. S. B. Dinsmore, Richmond, Mo. [Filed Feb. 10, 1877.]

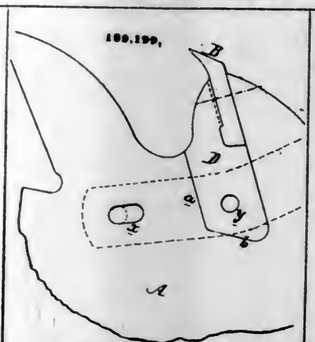


The combination of the cover A, slide B, and front C, constructed substantially as described.

189,199. INSERTIBLE SAW-TEETH. T. S. Dinston, Philadelphia, Pa., assignor to H. Dinston, H. Dinston, A. H. Dinston, and H. C. Dinston, same place. [Filed Sept. 4, 1876.]

Brief.—The tooth and locking-plate are held in a recess in the saw-plate, having straight and parallel opposite edges.

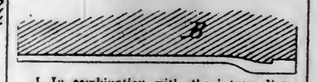
189,199.



1. The combination of the blade A and its recess, having straight and parallel opposite edges, with the locking-plate D and tooth B, adapted to the said locking-plate and recess, all substantially as set forth.

2. The blade A and its hole a, in combination with the locking-plate and its hole y, one or both of the holes being elongated, as and for the purpose specified.

189,200. DIES FOR FORMING SUCKER-ROD JOINTS. G. Douglass, Bridgeport, Conn. [Filed Feb. 5, 1877.]

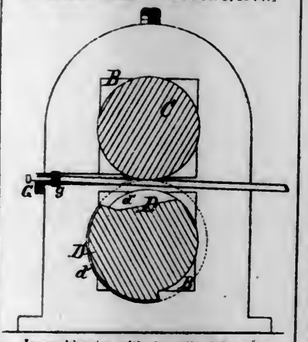


1. In combination with the intermediate die C and main dies A B, the yielding joint D a, adapted to provide for the bodily movement of the tongue C, and also for its turning or changing its inclination, as herein specified.

2. The spring E, in combination with the tongue C, bolt or axis D, slot a, and dies A B, as herein specified.

3. The counter-balance or partial counter-balance C' on the tongue C, in combination with the spring E, loose joint D a, and dies A B, as herein specified.

189,201. MACHINES FOR ROLLING BLANKS FOR SUCKER-ROD JOINTS. Geo. Douglass, Bridgeport, Conn. [Filed Feb. 5, 1877.]



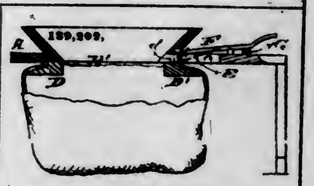
In combination with the rolls C D, having a groove and a cavity, d', the guides I I, adapted to receive the end of the metal and to guide it in its backward and forward movement, as and for the purposes herein specified.

189,202. BAG-HOLDERS. Josiah Eberhard, Burr Oak, Mich. [Filed Feb. 3, 1877.]

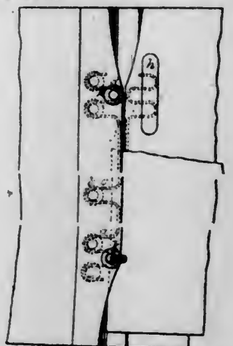
Brief.—Beneath a table, upon which is placed a hopper, are two buttons, upon which the mouth of the bag is fixed. One of the buttons is fixed, while the other is revolved to further distend the mouth of the bag.

The combination of table A, having curved slot a, with adjusting-bar F, rack G, cord E, guide-stud d, pivoted button D', and fixed button D, substantially as and for the purpose set forth.

189,203.

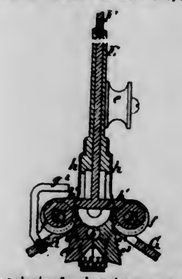


189,203. TEMPORARY BINDERS. Geo. W. Emerson, Philadelphia, Pa. [Filed Feb. 3, 1877.]



The improved file or temporary binder herein described, consisting of opposite lids each having a marginal wire bent to form projecting loops d and reversed loops b, and in connection with said loops, respectively, eyelets and belaying-cleats forming fastenings for the filing-thread, substantially as specified.

189,204. CLAMPS FOR ENDLESS-ROPE RAILWAYS. W. Eppelsheimer, San Francisco, Cal. [Filed Feb. 3, 1877.]



1. In a device for clamping a car to an endless traveling cable, the combination, with the shank E, carrying the clamping device, and having vertical movement and lateral oscillation in its seat or bearings in the car-truck, and provided with the wheels or pulleys c, of the rail c', having curves n' and elevations n, as and for the purpose described.

2. The combination of the shank E, carrying the clamping device, and in which works the operating slide F, with the box a pivoted at a^2 in frame a^3, which slides in ways a^4 in truck-frame a^5, as described.

3. The combination, with the shank E, as described, of the hinged clamping jaws c^3, together with the operating slide F, its cross-bar f^3, and bearing-rollers f, as and for the purpose specified.

4. The combination, with the shank E, its hinged jaws c^3, and the operating slide F, carrying rollers f, of the hinged frames G, carrying guide-pulleys g, as and for the purpose specified.

5. The combination, with the shank E, jaws c^3, and slide F, with rollers f, of the spring-arms h, carrying the half pulleys H, as described, and for the purpose specified.

6. The combination, with the shank E, carrying the cable-gripping devices, of the cross-piece e^1, carrying the front and rear upper

guide-pulleys d', as described, and for the purpose specified.

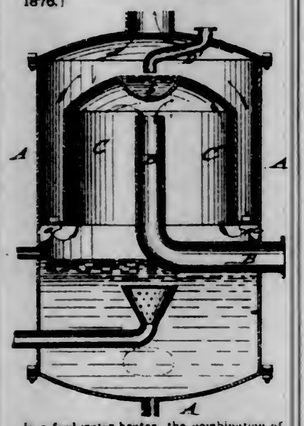
7. The combination, with the hinged upper cable guide-pulley d^3, having hood d^4 and spring d^5, of the curved bar or plate d^6, arranged to operate as and for the purpose specified.

199,205. BOILER-BOTTOMS. C. R. Everson, Macedon, N. Y. [Filed Oct. 24, 1876.]



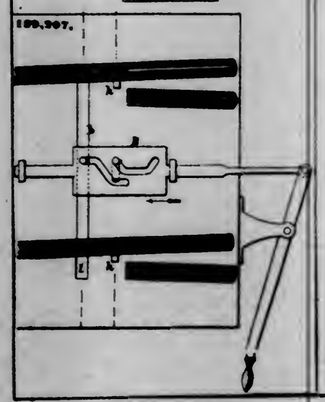
The wash-boiler bottom consisting of a single sheet with two pits, *a a*, having parallel opposite edges, as and for the purpose set forth.

199,206. FEED-WATER HEATERS. Benj. Bynon, Pittsburg, Pa. [Filed July 1, 1876.]



In a feed-water heater, the combination of the casing A, the dome C, having depending cylindrical wall, separated by an annular space from the casing, and the steam-induction pipe B, entering said dome and terminating near the top, whereby the admitted steam is brought in contact with the interior of the dome, the surface of the heated feed-water and the water falling between the dome wall and casing, substantially as described and shown.

199,207.

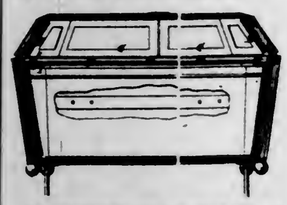


199,208. RAILROAD-SWITCHES. Smith H. Vinci, New York, N. Y. [Filed Mar. 10, 1877.]

The slotted sliding bar B, in combination with the pins *f f*, the sliding bar L, and the bolts *k k*, substantially as and for the purpose described.

199,209. BURIAL-CASKETS. A. Fischer, New York, N. Y. [Filed Mar. 7, 1877.]

Brief.—Folding legs are secured to the bottom of the coffin to serve as standards.



The combination, with a burial-casket, A B, of hinged standards, substantially as and for the purpose described.

199,209. FILLING AND EMPTYING INK-STANDS. I. M. Fisher, Camden Point, Mo. [Filed Feb. 24, 1877.]

Brief.—Inkstands are filled from a protected reservoir, and emptied into the same.



1. The combination of an ink-reservoir, with a follower working therein, and a distributing-pipe leading to several different inkstands, substantially as and for the purpose set forth.

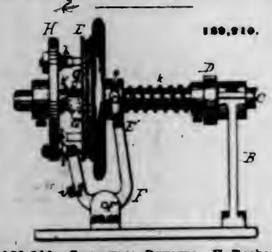
2. Non conducting casing B and head B', in combination with ink-reservoir A and vertical passage F, substantially as and for the purpose set forth.

3. The combination of screw tapped block C and screw-threaded rod D with piston or follower E, well A, tube F, and distributing-pipe G, substantially as and for the purpose set forth.

4. The combination of distributing-pipe G, with branch pipes H, inkstands I, having separate cocks J, passage F, reservoir A, and piston E, substantially as and for the purpose set forth.

5. The combination of screw-threaded rod D, having fixed collar D^2, with sectional upper piece E^3, clamping collar or nut e^1, packing E^4, and disk E^1, having shank E^2, with a collar fixed on its upper end, substantially as and for the purpose set forth.

199,210.



199,210. CLUTCHING DEVICES. H. Fuchs, Chicago, Ill., assignor to G. W. Barnhart, A. B. Barnhart, A. M. Barnhart, and C. Spindler, same place. [Filed Nov. 22, 1876.]

Brief.—For use in type-casting and other machines. The clutch is intermittent in its operation. The cam-shaft may be rotated at every second, third, or other desired number of revolutions of the drive-wheel. A star-wheel, provided with arms for being engaged by a catch on the circumference of the driving-wheel, determines the intervals of rest of the cam-shaft.

1. The combination, with the cam-shaft, of a drive-pulley mounted loosely thereon, and carrying one or more catches, G^1, a wheel, H, fast upon said shaft, and carrying a clutch, *h*, and cam *h'*, and a bent rock-lever, actuated by the cam *h'*, and provided with a shifter for shifting said pulley, substantially as set forth.

2. The combination, with the pulley mounted loosely upon the cam-shaft, and the wheel H, fast upon the same shaft, and both provided with catches, so that they will clutch when brought together, of a coiled spring encircling the shaft and held thereon, so as to exert a pressure upon the pulley, tending to force it toward the wheel H, substantially as specified.

3. The bent lever, jointed so as to permit one end to yield transversely, in combination with the spring i^3, so attached as to resist such yielding, essentially as described.

4. The star-wheel provided with radiating arms m^1 and m^2, constructed substantially as shown and described.

5. The star-wheel provided with radiating arms, and having its hub flattened with the same number of sides that it has arms, and combined with a spring impinging upon said flattened sides, substantially as and for the purpose set forth.

6. The combination, with the pulley and the spring pressing it toward the clutch-wheel, of a wheel mounted upon an appropriate standard, and provided with radiating arms, the wheel being so placed that the arms will act to resist the spring, substantially as specified.

7. The pulley provided with a catch, *n*, essentially as shown, in combination with the wheel $m\ m^1\ m^2$, substantially as set forth.

8. The combination, with the cam-shaft, of the drive-pulley E, the wheel H, the lever F, spring *k*, and star-wheel $m\ m^1\ m^2$, the pulley carrying the catches G^1, *x*, and *n*, the wheel carrying catch *h* and cam *h'*, and the lever being provided with a shifter for shifting the pulley, and all the parts being arranged substantially as set forth.

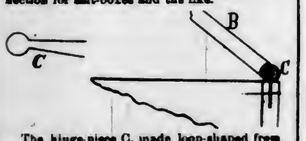
9. The combination, with the drive-pulley and the wheel which rotates the cam-shaft, both pulley and wheel being provided with catches to clutch, of a device for shifting the pulley away from the wheel, operated by a cam upon the wheel, substantially as set forth.

10. The clutch operating the cam-shaft, the driving part whereof is provided with a catch, *n*, in combination with a wheel, *m*, suitably mounted and located with reference to the movable part of the clutch, essentially as shown, and provided with radial arms, so constructed that one or more of them will permit the contact of the parts of the clutch, while the others will prevent it, substantially as specified.

11. The cam-shaft intermittently operated by and in combination with a clutch, one part of which is provided with several removable catches, so that the number of contact-points may be changed at pleasure, substantially as set forth, whereby the period of rest may be regulated by changing the number of catches.

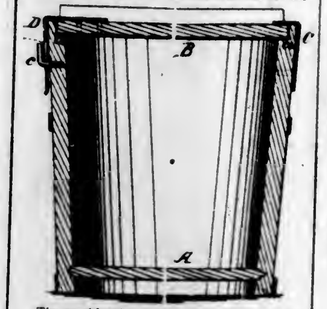
199,211. HINGES FOR BOXES, &c. Amos F. Gerald, Augusta, Me., assignor of one-half his right to W. Harvey, same place. [Filed Mar. 9, 1877.]

Brief.—A strip of brass, tin, or other metal is bent loop-shaped, with projecting ends, and these ends are driven or forced into the top edge of the box, while a dowel or trunnion is formed on the outside edge of the cover, over which the loop of the hinge-piece passes, and on which it turns freely, the construction forming a convenient and inexpensive hinge-connection for salt-boxes and the like.



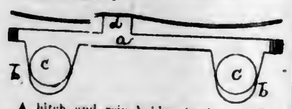
The hinge-piece C, made loop-shaped from a single piece of brass, tin, or other suitable material, in combination with *p* turning freely on the dowels or trunnions G, formed on the side or end of cover B, or its equivalent, substantially as shown and described, for the purposes specified.

199,212. BUTTER-PAILS. James Gilberds, Jamestown, N. Y. [Filed Jan. 13, 1877.]



The combination of the pail A, having rabbet *a* and angular metallic clip C, and rotating button *c*, with the cover B, resting on the rabbet, with its top flush with the top of the pail, and having the angular and slotted spring-hasp D rigidly attached, all as set forth.

199,213. REIN-HOLDERS. F. E. Hall and C. W. Richardson, Portland, Me. [Filed Mar. 17, 1877.]



A hitch and rein holder, having the flat plate *a*, with the concave under side, ears *b*, set-screws *c*, support *d*, and spring *e*, substantially operating as and for the purposes herein set forth.

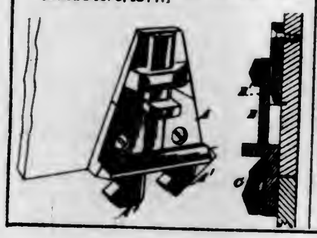
199,214. KNIFE-SCOURERS. P. Hauersperger, Homer, Ill. [Filed Mar. 8, 1877.]



1. The combination, with the lower rubber-board provided with the dust-box, of the upper reciprocating rubber-board, loosely connected thereto by a guide slot and pin engagement, the said guide-slot formed longitudinally in the body of the upper rubber-board, substantially as and for the purpose described

2. The upper rubber-board, loosely connected with the lower rubber-board by the guide slot and pin, respectively formed on the two, the said lower board being provided with the dust-box, formed in its solid body and in a horizontal line below its padded rubber-face, substantially as and for the purpose described.

199,215. CARRIAGE-SEAT LOCKS. Nahum Hayward and P. C. Hays, Roanoke, Ind. [Filed Feb. 6, 1877.]

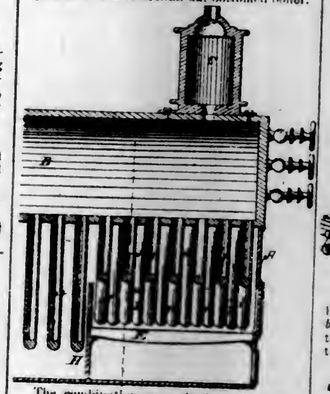


1. The combination of the lock A and hasp C, the interlocking jaws of which have inclined faces, so as to prevent the lock from being lifted vertically out of the hasp, and a bolt, B, which, when thrown, prevents any lateral movement of the lock, substantially as set forth.

2. The lock A, formed in two pieces, and with beveled faces, in combination with the bolt B, with similarly-inclined faces, and spring B', for creating friction between such beveled and opposed faces, substantially as set forth.

199,216. DROP-TUBE STEAM-BOILERS. C. K. Heath, Toledo, Ohio. [Filed Aug. 12, 1876.]

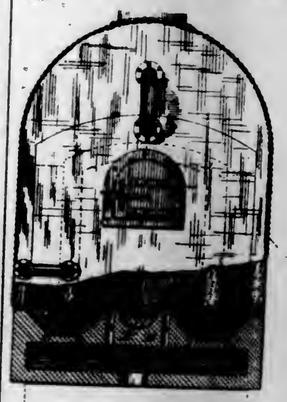
Brief.—Drop-tubes protect the sides of the casing from the intense heat; short drop-tubes are suspended immediately over the fire, and long tubes in rear of the bridge wall, all suspended from a horizontal flat-bottomed boiler.



The combination, in a horizontal steam-boiler having casing A, with bridge-wall H, of the steam- and water-chamber B, having rounded top and flat bottom, from which depend the short drop water-tubes J, protecting drop water-tubes J^1 on each side of the fire-box adjacent to the casing, and the long water-tubes J^2 in the rear of the bridge-wall, all constructed substantially as and for the purposes herein set forth.

199,217. HYDROCARBON-FURNACES. Benj. Hershey, Erie, assignor of one-half his right to J. E. Shaw, Pittsburg, Pa. [Filed Feb. 20, 1877.]

Brief.—Air is admitted through perforations around the edge of the oil-trough, also through perforations in the bottom of the side troughs. Said side troughs form diving flues, by which the flame is made to pass under the water-legs.



In combination with the inner water-leg section and the outer water-legs and boiler of a boiler-furnace, the independent transverse fire-back forming the rear of the fuel-chamber, formed by the inner water-leg section, substantially as described.

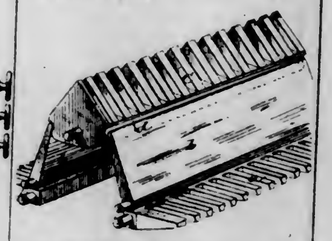
---

1. The hollow chamber, of fire-brick or other refractory material, divided into three troughs or compartments, the central one forming the fuel-chamber, and the others being perforated and communicating with the air-chamber, which is connected with a blast apparatus, the whole forming a grate for burning liquid fuel, substantially as set forth.

2. In combination with the fire-chamber of a furnace, the central hydrocarbon receptacle, with surrounding air-passages, the troughs or compartments at each side, provided with air-passages, and the water-legs *a* and *b*, substantially as described.

199,218. GRATES FOR FURNACES. Benj. Hershey, Erie, assignor of one-half his right to J. E. Shaw, Pittsburg, Pa. [Filed Feb. 20, 1877.]

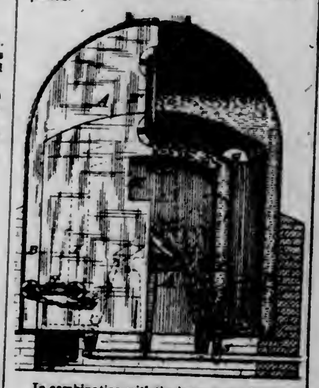
Brief.—The fuel is partially burned on the upper grate. Said grate is then sunken, whereby the strata of fuel is broken, and automatically fed down the incline section to the horizontal grate.



In a grate-furnace, the combination of the horizontal sections *a a*, the inclined sections *b b*, and the central independent breaker G, the whole arranged to operate and distribute the fuel, substantially as described.

199,219. FIRE-BOXES FOR STEAM-BOILERS. B. Hershey, Erie, assignor of one-half his right to J. E. Shaw, Pittsburg, Pa. [Filed Feb. 20, 1877.]

Brief.—A detachable fire-box is provided with water-legs upon three of its sides. A transverse water fire-back, connected to the boiler, forms the fourth and back side. The fire-box may be removed for repairs or replaced.



In combination with the inner water-leg section and the outer water-legs and boiler of a boiler-furnace, the independent transverse fire-back forming the rear of the fuel-chamber, formed by the inner water-leg section, substantially as described.

199,220. HOES. O. H. Hicks, Baltimore, Md. [Filed Mar. 3, 1877.]

Brief.—A composite hoe of duplex construction, the eye-piece recessed, and the blade beveled to fit therein, secured in front by a rivet through a projecting portion of the eye-piece; forms a perfectly-smooth surface on back of the hoe.

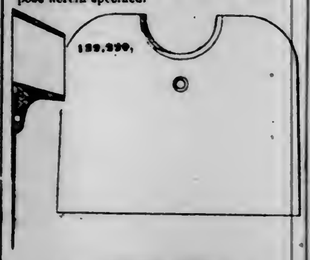
1. An eye-piece for a hoe, recessed to the

thickness of the blade, and having a dovetailed projecting edge, adapted to fit over a correspondingly-shaped edge of the hoe-blade, and form, when so united, a flat or flush connection at the back thereof, substantially as specified.

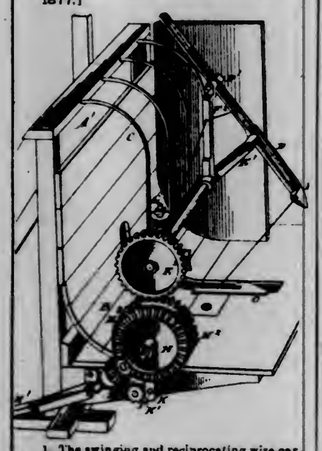
2. An eye-piece recessed to the thickness of the blade, and provided with a dovetailed projecting edge, as described, combined with a hoe-blade having a cut to receive the said eye-piece, and an edge shaped to fit the projecting edge thereof, substantially as herein specified.

3. An eye-piece for a composite hoe, having a practically circular eye therein, provided with a key-seat, substantially as and for the purpose herein specified.

No. 189,220.



189,221. GRAIN-BINDERS. P. F. Hodges and F. S. Blim, Massillon, Ohio: said Blim assignor to said Hodges; said Hodges assignor of one-half his right to Wm. McClymonds, same place. [Filed Feb. 12, 1877.]



1. The swinging and reciprocating wire-carrying arm, provided with a lateral projection at its point, through which the wire passes, combined with the overhung twisting-pinion, so that said arm will pass by the pinion, and carry the wire to the center thereof, both in its upward movement to gather the gavel, and in its forward movement to compress the same, substantially as set forth.

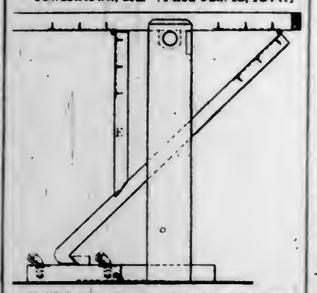
2. In combination with the slotted platform B and twister, arranged to overhang one side of the slot, the wire-carrying arm free to enter the slot at one end, pass the twister, and escape at the other end, substantially as set forth.

3. In combination with the twister and wire-carrying arm, the fluted rollers N N', and ratchet and double pawls, and oscillating shaft I', pinion I', swinging segment E, and cam for oscillating it, substantially as set forth.

4. In combination with the twister-pinion M and the driving-pinion L', revolving in the same plane, the wrist-pin on the driving pinion, and slotted reciprocating chisel, operated by the wrist-pin, for shearing the wires above the twister, while the free end is held by the rollers below the twister, substantially as set forth.

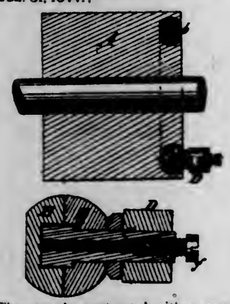
5. In combination with the twister-pinion and wire-carrying arm, revolving so as to carry the wire under and over the twister, the reciprocating hooked plate D, actuated by the shaft I' through the arm I' and intermediate connections, for catching and confining the wire, substantially as set forth.

189,222. IRONING-TABLES. G. W. Hook, Towsontown, Md. [Filed Jan. 18, 1877.]



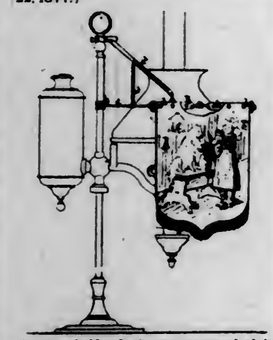
A folding ironing-table having the base thereof in two sections, hinged together, and one of them fitted with casters, as shown, and the pivoted top thereof fitted with diagonal and supplemental braces, whereby it is rigidly supported in a horizontal position, substantially as herein specified.

189,223. CAM-MOTIONS. W. Houghtaling and E. Siviter, Bridgeport, Conn. [Filed Jan. 31, 1877.]



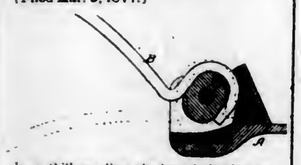
The cam A, constructed with a groove, *b*, having its sides or walls concave, in combination with the roller B, divided transversely of its axis, the pin C on which the roller turns having a shoulder, *c*, set in a recess between the sections of the roller, the arm or lever D, and the screw *f* passing longitudinally through the pin C, for adjusting the sections of the roller, substantially as described.

189,224. SCREEN-HOLDERS FOR LAMPS. J. E. Hubbell, New York, N. Y. [Filed Feb. 22, 1877.]



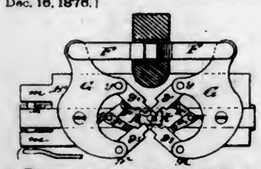
A screen-holder for lamps, composed of the bracket, constructed of the arm a^1, inclined arm a^2, and horizontal arm B, having the screen D attached thereto, the arms a^1 and a^2 having the eye *b* and hook *c*, for securing the bracket to a lamp standard, the whole being combined substantially as and for the purpose described.

189,225. THILL-COUPLINGS. T. J. Hubbell, Yountville, Cal., assignor of one-half his right to J. A. Boylan, Canaseraga, N. Y. [Filed Mar. 9, 1877.]



In a thill-coupling, the box A, having the packing *a a'*, in combination with the fixed bolt D, movable cam C, and hooked thill-iron B, all constructed, arranged, and operated as set forth.

189,226. BOLT-THREADING MACHINES. A. F. Jackson, Minneapolis, Minn. [Filed Dec. 16, 1876.]



1. The combination, with the shaft D, of the yoke F F, the lower ends of which are pivoted to two horizontal arms, G, carrying the bolt-heading dies, substantially as and for the purpose set forth.

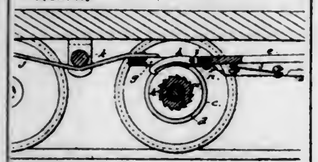
2. The combination of shaft D, having crank *d*, with angular yoke F F and horizontal die-carrying arms G G, substantially as set forth.

3. In a bolt-heading machine, a shaft, provided with two eccentrics, arranged so as to operate both the vertical spreader and the horizontal dies by direct and positive motion, substantially as set forth.

4. Arm G, in combination with sliding jaw K^1 K^2, dies g^1 g^2, links g^4 g^4, and pin g^3, substantially as set forth.

5. The combination of jaws G G, having the rear dies g^1 and the forward dies g^2, with links g^4 g^4 and pins g^3, substantially as set forth.

189,227. CAR-STARTERS. W. Jasper, Morrisania, assignor of one-half his right to J. C. Kelley, Brooklyn, N. Y. [Filed Mar. 8, 1877.]



1. The combination, with the ratchet-wheel *a* and the slide-bar *c*, having a pivoted hook, *h*, adapted for operation with said ratchet-wheel, as described, of the axle, disks *c c*, and their annular shoulders *d d*, whereby to form a support and guideway for the inner end of said slide-bar.

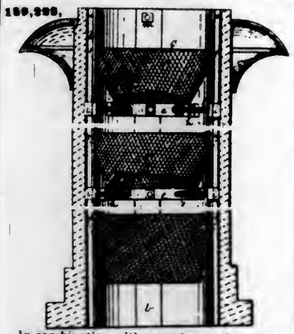
2. The combination, with the ratchet-wheel *a*, the slide-bar *c*, and its pivoted hook *h*, of the draft-bar *l*, having a movement independent of the slide-bar, and an extension to pass under and elevate the hook, as herein set forth.

3. The combination, with the slide bar, its hook, and the ratchet-wheel disks, of the spring *j* and the roller *k*, as and for the purpose described.

4. The combination, with the slide-bar and its pivoted hook, arranged to operate in relation to the ratchet-wheel as described, of a draft-bar having a movement independent of the slide-bar, and the spring *a*, as and for the purpose herein set forth.

189,228. SPARK-ARRESTERS. E. M. Johnson, Pittsburg, Pa., assignor to himself and J. E. Sampsel, same place. [Filed Jan. 17, 1877.]

No. 189,228.



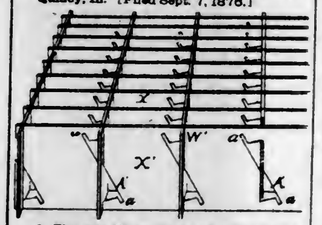
In combination with a stack, a series of inverted hollow perforated conical frusta or baskets, having central openings arranged within the stack, one above another, substantially as and for the purposes specified.

189,229. CLOTHES-DRIERS. J. Kahn, New York, N. Y. [Filed Feb. 14, 1877.]



A frame for stretching curtains and other articles, composed of a series of frame-sections, B C D, connected by hinge-joints *a*, in combination with the sliding traverses *d* and traverse A, and loose traverses *j*, the rails *c*, end traverses *h* and loose traverses *j* being provided with points on one or both sides, substantially as and for the purpose shown and described.

189,230. EGG-CARRIERS. W. J. H. Kappe, Quincy, Ill. [Filed Sept. 7, 1876.]



1. The strip X', provided with the aperture A', having the slits *a*, substantially as shown and set forth.

2. The strip X', provided with the aperture A', having the slits *a*, in combination with the strip W', having the slits *b*, as shown and specified.

189,231. APPARATUS FOR GIVING HOT-AIR AND OTHER BATHS. T. Keech, New York, N. Y. [Filed Feb. 24, 1877.]

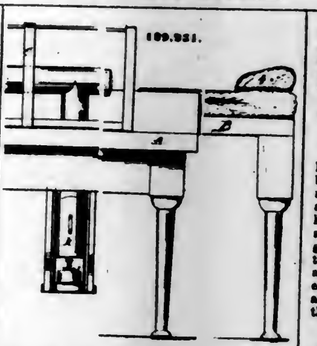
Brief.—The treating medium is supplied directly to the patient from lamps placed beneath the table. The patient is supported on a sliding bed-rest.

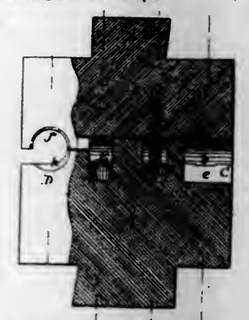
1. An apparatus composed of a suitable table or support for the patient, a cover for the confinement of the treating medium, lamps for generating the latter, and lamp-holding and heat-conveying tubes and discharge-pipes, the several parts arranged relatively to each other, and operating as set forth.

2. The combination, with the table A and its other appliances, of the sliding bed-rest B, the whole arranged to operate as and for the purpose set forth.

189,232. DIES FOR MAKING HAMMERS. H. W. Kip and E. Rieckel, Buffalo, N. Y. [Filed Dec. 13, 1876.]

Brief.—The first pair of die surfaces form a solid projection for the axle-eye, and stretches the metal to form the claw; the second pair rounds the poll; the third shapes the eye and partly severs the blank from the bar, and the fourth opens the solid eye.



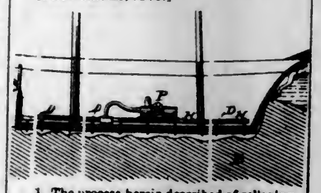


1. The dies A B, with the impressions C D E F and the punch G, for forming, drawing out, shaping, finishing, and punching the hammer-blank, all constructed and operating substantially in the manner herein shown and described.

2. Jointly, the surfaces *a b* and *f g* on the hammer-face, and the surfaces *c d e* and *h i* on the anvil-block, substantially as and for the objects set forth.

3. Jointly, the surfaces *a b f g* and *n o* on the hammer-face, and the surfaces *c d e h i* and *k l* on the anvil-block, substantially as and for the purposes set forth.

189,233. MEANS FOR RELIEVING STRANDED VESSELS. H. F. Knapp, New York, N. Y. [Filed Oct. 26, 1876.]

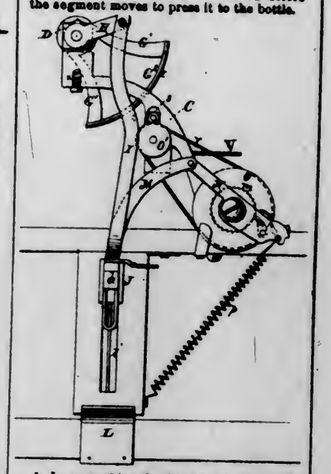


1. The process herein described of relieving stranded vessels by causing them to float in a fluid or semi-fluid, by means of forcing continuous streams of fluid immediately around its bottom into the sand or mud in which the vessel is embedded or lies, for the purpose of washing away and softening the sand, while at the same time a lateral movement or strain is imparted to the vessel by means of warping-lines or equivalent means, whereby it may be moved into deeper water, substantially as and for the purpose set forth.

2. As a means for relieving stranded vessels, the tube H, located on the side of the keel, and provided with exit-tubes D, passing in a water-tight manner through the bottom of the vessel, in combination with the force-pump P, substantially as and for the purpose described.

189,234. LABELING-MACHINES. C. Knoch and S. L. Salomon, New York, N. Y. [Filed Sept. 23, 1876.]

Brief.—An oscillating segment presses the labels upon the bottle as they are fed thereto between the paste roller and a pressure-roller, motion being imparted to the several parts by a treadle, which is attached to a sliding cross-head attached to an arm, which is secured to a vibrating lever carrying a pawl, which engages with a ratchet upon a pulley, from which the feeding-roll is driven. The cross-head is also attached to the crank-arm link, which operates the pressure-segment by a slot, thereby allowing the label to be fed forward before the segment moves to press it to the bottle.



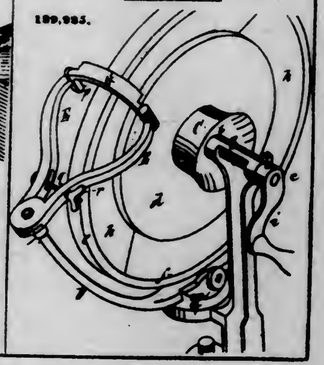
1. In a machine for labeling bottles, the padded segmental presser-plate G^2, adjustably attached to the rocking and yielding shaft E, for the purposes herein set forth.

2. The combination of the standards C C, boxes or bearings D D, with stems *d d*, the springs *b b* surrounding said stems, the hub G, with set-screw *f* and arms G^2, and the padded presser-plate G^2, all substantially as and for the purposes herein set forth.

3. The combination of the rocking and yielding shaft E, carrying the adjustable presser-plate G^2, the crank H, arm I, slotted at its lower end, stud k, cross-head J, rod *i*, and treadle L, substantially as and for the purposes herein set forth.

4. The combination of the pressure-roller S, paste box R, paste-roller P, with pulley O', cord *r*, pulley O, with ratchet *n*, and the lever N, provided with the pawl *a*, and operated by means of the treadle and spring, all as and for the purposes herein set forth.

No. 189,235.



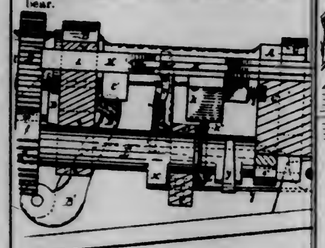
189,235. GRINDING-MACHINES. GEO. A. KNOWLTON, Natick, Mass., assignor to himself and W. D. Parlin, same place. [Filed Jan. 13, 1877.]

1. The curved guide D, secured by a set-screw, *a*, in combination with the caliper-leg holders E E, attached by a horizontal joint, *f*, compressed by screw-nut *r*, and the grinding-wheel B, as described.

2. The guard C, provided with an expanding mouth covering the joint *f*, in combination with the shaft *e*, bearing *b*, and grinding-wheel B, as specified.

189,236. NAIL-PLATE FEEDERS. William Koplin, Newcastle, Pa., assignor to H. B. Koplin, same place, and Anthony Welsh, Youngstown, Ohio. [Filed Dec. 9, 1876.]

Brief.—Improvement on machine patented to applicant June 13, 1876. The rear end of the feed barrel is hung in an oscillating bearing, against which a projection on the mutilated gear-wheel bears, and prevents it from moving while the cut is being made. The forward ends of the feed-fingers are provided with guard-flanges, which support the plate and prevent it from rising during the cutting of the nail-blank, and the rearward ends with set-screws, against which the operating-levers bear.



1. In a nail-plate feeder, the combination of the feeding-barrel, the sliding frame, and the feed-fingers, provided with the guard-flanges, substantially as and for the purposes specified.

2. In a nail-plate feeder, the combination of the feed-fingers, pivoted in the sliding frame, and the lever and cam mechanism for operating the fingers, substantially as and for the purposes specified.

3. In a nail-plate feeder, the combination of the feed-fingers with mechanism for operating the same, and the set-screws on the feed-fingers, substantially as and for the purpose specified.

4. In combination with the sliding-finger frame of a nail-plate feeder, the set-screw for regulating the travel of the frame, the feed-fingers, and the set-screws thereon, substantially as and for the purpose specified.

5. The feed-barrel provided with the spring-nippers, and the supplemental spring working through a slot in one of said nippers for controlling the scrap, substantially as and for the purpose specified.

6. In combination with the feed-barrel, the vertical rising and falling bearing C, yoke E, and the oscillating or rocking bearing B B', substantially as and for the purpose specified.

7. In combination with the rocking bearing, the projection for locking the bearing, substantially as described.

189,237. MEAT-TENDERERS. V. Lapham, Marion, Ohio. [Filed Sept. 23, 1876.]

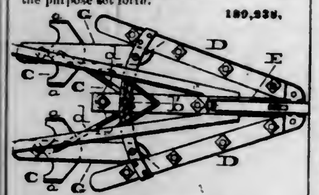


In a meat-mangler, the handle made in two parts, pivoted together, and provided with L-shaped jaws, in combination with a rod, *b*, rolling or drawing knives, and intermediate washers or collars, substantially as and for the purposes herein set forth.

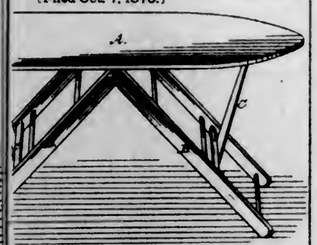
189,238. WEED-DESTROYERS. J. A. Lees, Philadelphia, Pa. [Filed Feb. 28, 1877.]

Brief.—A weed-destroyer combining clearing tooth and blades with sharpened side edges, for cutting weeds and grass even with the surface of the ground.

The teeth B and cutters C, in combination with the central beam E and pivoted side beams D, and with the pivoted rear beams G, straps F, and rods *d*, substantially as and for the purpose set forth.



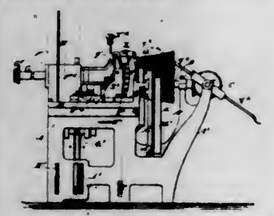
189,239. IRONING-TABLES. Thos. Libby, Minneapolis, Minn., assignor of one-half his right to Harvey O. Fuller, same place. [Filed Oct. 7, 1876.]



The board A, provided with the cross-bar D and cleats *c*, in combination with the legs B and pawls C, constructed to operate substantially as and for the purpose set forth.

189,240. BROOM-MACHINES. C. E. Lipe, Illion, assignor of two-thirds of his right to Edw. D. Bronsoo, Amsterdam, and A. Walrath, Fort Plain, N. Y. [Filed Mar. 10, 1877.]

Brief.—Mechanism for pressing and holding the broom, winding the band before stitching; devices for passing the needle and thread for the stitch, and drawing the surplus thread, and devices for giving the proper motions to the broom after each stitch.



1. In a broom-sewing machine, a rocking broom-holding vise provided with alternating ratchet-teeth on its sides, in combination with vertically and horizontally movable pawls, substantially as and for the purpose set forth.

2. A broom-holding vise, in combination with devices whereby the oscillation of said vise causes the same to climb upward step by step, substantially as and for the purpose set forth.

3. In a broom-sewing machine, a moving broom-holding vise, in combination with shifting mechanism, whereby, when the sewing is completed, the driving-wheel is thrown out of gear, substantially as and for the purpose set forth.

4. In a broom-sewing machine, a broom-holding vise provided with a tripping-leg, in combination with a clutch-shifting lever having a pivoted pawl or arm, substantially as and for the purpose set forth.

5. In a broom-sewing machine, a shaft having two rotary take-up arms, that operate alternately on each side of the broom, substantially as and for the purpose set forth.

6. In a broom-sewing machine, the combination of two needle-carriers with a double-pointed needle, each of said needle-carriers being provided with a tooth that catches into a perforation in said needle, substantially as and for the purpose set forth.

7. The combination, with a guideway having an oblique slot and stop-piece, of a needle-carrier having a hinged needle-holding bar, and a stud adapted to engage with said stop and slot, substantially as and for the purpose set forth.

8. The combination of a sliding needle-carrier, having a pivoted needle-holding bar and a recess behind the same, with a yoke, operated by the driving-shaft, said yoke having a pressure stud or arm, substantially as and for the purpose set forth.

9. The combination of pawls S' with a treadle and suitable connections, substantially as and for the purpose set forth.

10. Blocks S', provided on the inside with studs or blocks, for bracing against the throat of the needle, in combination with rocker R and broom-holding vise, substantially as and for the purpose set forth.

11. The combination of a cam-grooved disk or wheel with a system of levers and a broom-carriage, whereby a rapid intermittent backward and forward motion is given to the broom, substantially as and for the purpose set forth.

12. The combination, with the broom-carriage, of a lever, either end of which may be made the fulcrum at will, substantially as and for the purpose set forth.

13. In a broom-sewing machine, a rocking broom-vise, in combination with a sliding broom-carrier, substantially as and for the purpose set forth.

14. In a broom-sewing machine, a broom-holding vise, in combination with a U shaped rocker, a cam on the driving-shaft, and suitable connections, substantially as and for the purpose set forth.

15. In a broom-sewing machine, a pivoted broom-holding device, in combination with a U shaped rocker, the side vise being adapted to slide up and down in said rocker, substantially as and for the purpose set forth.

16. In combination with a broom-holding vise, a pair of pivoted levers, in combination with a treadle, whereby said vise can be closed at will, substantially as and for the purpose set forth.

17. A broom-holding vise having a bevel-geared spindle, in combination with a bevel-geared shaft, and two treadles, connected by cords to said shaft, substantially as and for the purpose set forth.

18. A broom-holding vise, in combination with mechanism for rotating the same, substantially as and for the purpose set forth.

19. A broom-vise, in combination with clasps for holding together its two parts or jaws when released from the pressure of the closing-levers, substantially as and for the purpose set forth.

20. In a broom-sewing machine, a broom-holding vise, in combination with a carrier, the two being connected by a universal joint, substantially as and for the purpose set forth.

21. In a broom-sewing machine, a broom-holding vise provided with double-hinged supplemental clamps, substantially as and for the purpose set forth.

22. A double-pointed needle provided with an inserted tension-spring, substantially as and for the purpose set forth.

23. The combination of a driving shaft with a take-up shaft at right angles thereto, the two being connected by suitable gearing, substantially as and for the purpose set forth.

24. The combination of a connecting-yoke with two needle-carriers, which are alternately opened and closed thereby, substantially as and for the purpose set forth.

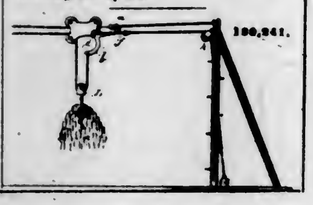
25. The combination of a connecting-yoke with two needle-carriers, which are alternately moved inward and outward thereby, substantially as and for the purpose set forth.

26. In a broom-sewing machine, the combination of two rotating take-up arms with two thread-guides, one being arranged on each side of the broom, substantially as and for the purpose set forth.

27. The combination of a broom-holding vise with two needle-carriers and a needle.

28. In a broom-sewing machine, a rocking broom-holding vise, in combination with two revolving take-up arms.

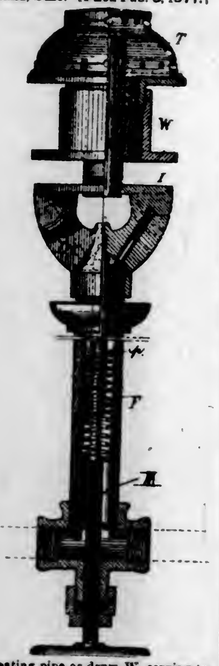
189,241.



189,243. HAY-ELEVATORS. J. Lux and P. Lux, Hopkinton, Iowa. [Filed Dec. 13, 1876.]

The combination of the car U, having a pivoted dog, M, attached thereto, constructed with a coupling, *d*, curved lever *b*, coupling-hook *c*, draft-rope H, pulley L, and bumper-block *e*, all arranged and operating substantially as described.

189,242. VAPOR-BURNERS. F. A. Lyman, Cleveland, Ohio. [Filed Feb. 8, 1877.]



1. The heating pipe or drum W, serving to conduct gas from the mixing-chamber downwardly, for the purpose of forming the auxiliary heating-flame, the same being vertically adjustable independently of said burner or mixing-chamber, substantially in the manner and for the purposes set forth.

2. In a vapor burner in which the supply of oil is fed to the vaporizing-chamber from a point below the same, the combination, with said vaporizing-chamber, of the hollow arms projecting upwardly therefrom, for the purpose of supporting the burner, and adapted to contain a reserve supply of oil, as and for the purposes explained.

3. In a gasoline or vapor stove, the combination of the gas-jet orifice, forming the valve-seat, and a valve having a sectional shaft and interposed spring, for the purposes explained.

4. In combination with the burner T, the depending and adjustable drum, having a horizontal flange at its lower end, operating in conjunction with the plate I, for the purpose of regulating the auxiliary flame, substantially as shown.

5. The perforated flange *c*, in combination with the screw-threaded pipe B and burner T, substantially as set forth.

6. The combination of the burner-supporting arms, provided with cap or plate I, the screw-threaded pipe B, and vertically adjustable drum W, having the horizontal flange, as and for the purposes explained.

7. The valve-rod composed of the two sections E and M, and provided with plates or pins *p*, combined with the spring F, the whole being arranged and adapted to operate in the manner shown and described.

189,244. BOBBINS. J. Mawson, Philadelphia, Pa. [Filed Jan. 24, 1877.]

Brief.—In the base of the bobbin a metal ring is fitted, having internal projections, which bear against the flattened portion of the spindle, thus causing the bobbin to be rotated with the spindle.

189,245.



The combination of the metal ring B, having internal projections *b b*, with the lower slotted portion *d* of the body A of the bobbin, all substantially as set forth.

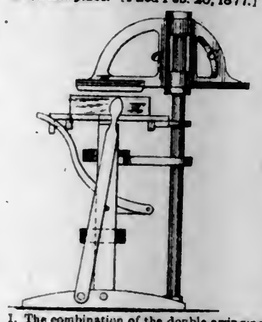
189,244. ATTACHING KNOBS TO SPINDLES. W. De C. May, Baltimore, Md. [Filed Mar. 2, 1877.]



1. The encompassing collar or band, provided with a tongue, *d*, in combination with the knob having a socket, *a*, and its fastening-screw *b*, substantially as and for the purpose described.

2. The spring collar or sleeve C, slitted transversely, and combined with the knob and its holding-screw, as and for the purpose described.

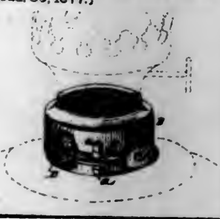
189,245. MOLDING-MACHINES. J. B. McOune, Hamilton, Ontario, Canada, assignor of one-half his right to R. M. Wanzer, same place. [Filed Feb. 20, 1877.]



1. The combination of the double swinging bracket, carrying a tucking-plate and a ramming-plate, with a flask adapted to be moved to and from said plates, the whole so arranged that the sand can be first tucked into the flask and afterward leveled for the reception of a plain bottom board, substantially as described.

2. In combination with the upright standard, a double bracket secured loosely thereto, and provided with a tucking-plate and ramming-plate, so arranged in relation to a reciprocating flask that either may be brought over the same at will, substantially as described.

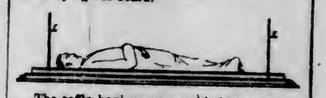
189,246. LAMPS FOR BURNING HYDROCARBON OILS, &c. D. McCarty, Philadelphia, Pa., assignor of a part of his right to E. A. Collins and John H. Lewars, same place. [Filed Jan. 30, 1877.]



The combination, with a lamp-collar having an opening in its periphery, of a valve, D, pivoted between the lugs *a a*, longitudinally of, and parallel with, the vertical wall of the said collar, and provided with a rearwardly-projecting thumb-piece, *c*, and a spring, E, secured between said thumb-piece and the lamp-collar, substantially as and for the purpose described.

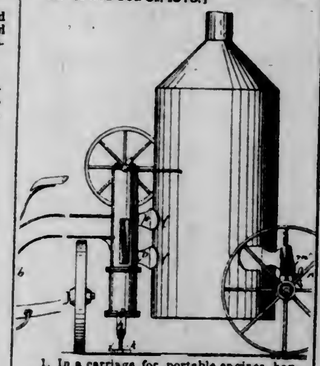
189,247. BURIAL-CASES. E. Mote, Rochester, N. Y. [Filed Mar. 1, 1877.]

Brief.—The bottom is removable to serve as a laying-out board.



The coffin having a removable bottom for a laying-out board, and the rubber bead B, embedded at the joint between the sides and bottom, and provided with through screw-bolts L and cleats S, by which the receptacle is made air-tight, substantially as set forth.

189,248. CARRIAGES FOR PORTABLE ENGINES. C. M. Miller, Shortsville, N. Y., assignor to Benj. T. Adams, same place, and E. Beach and M. A. Morse, Chicago, Ill. [Filed Oct. 31, 1876.]



1. In a carriage for portable engines, having a pivotal connection between the forward end of the reach and the axle mechanism, substantially as described, for locking the forward axle at any angle.

2. The universal joint connection, consisting of the king-bolt, pivoted upon the axle and turning in the end of the reach, when the reach is provided with a stop or clamp, by which the axle may be held at any angle, as set forth.

3. The intermediate adjustable foot for supporting the central part of the carriage, as set forth.

4. The connections for the rear axle, consisting of the socketed bracket sliding on the vertical bolt, and having the bar *w'* bearing against the sleeve on the axle, as set forth.

5. The slotted bar *w'*, fixed to the bracket, working in connection with the threaded bolt, passing through the slot and set-nut thereon, as set forth.

6. In a carriage for portable engines, the combination of the reach with the interposed bracket supporting the engine and driving-shaft, and connected to the boiler, as set forth.

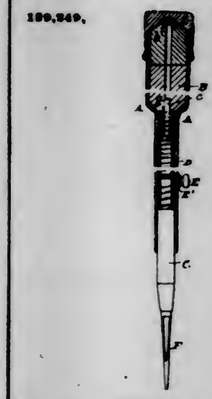
189,249. DENTAL PLUGGERS. K. L. Mills, Kansas City, Mo. [Filed Feb. 22, 1877.]

Brief.—The mallet 1 is of two parts, with symmetrical ends of different materials, and is reversible in its cylindrical case. The spring is adjusted by a set-screw in different holes in the tool-shaft.

1. The mallet B, formed of two or more separate reversible blocks having symmetrical ends, fitting tightly together, and fixed in cylindrical case or handle A, substantially as set forth.

2. In combination with the point-holder C and spring D, the screw E, with series of screw-holes *e'*, to regulate the play of the holder and tension of the spring D, substantially as set forth.

189,249.



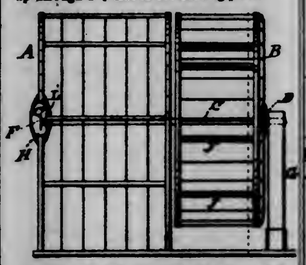
189,250. SHEET-METAL VESSELS FOR CULINARY PURPOSES. Henry C. Milligan, Brooklyn, N. Y., assignor to Lalance & Grosjean Manufacturing Company, same place. [Filed Feb. 5, 1877.]



A vessel, A, constructed of sheet metal spun or struck up into the desired shape, and provided with a rounded shoulder or offset, *b*, at or near its upper edge forming an annular seat, *g*, for the cover, and strengthened at its extreme edge by an inclosed annular wire, *h*, substantially as set forth.

189,251. BIRD-CAGES. A. B. Mook, East Pembroke, N. Y. [Filed Dec. 26, 1876.]

Brief.—Annular passage around axis from cage to wheel. Wheel removable by lifting standard at one end of axis from its socket, and raising the head of the other end of axis up through a V-slot in the bearing-plate.



1. The wheel B, provided with the rod C, having head C', in combination with the opening L and standard G, constructed and arranged substantially as and for the purposes specified.

2. The combination of a revolving cage-wheel, B, with a series of perches, J, for the purposes described.

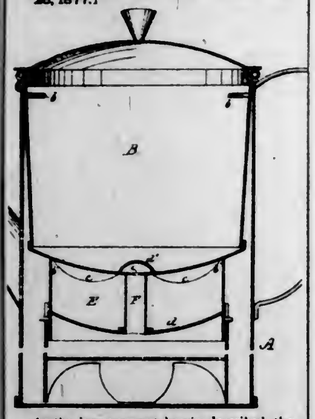
189,252.



189,253. FENCE-POST TIPS. D. C. Morris, New Sharon, Iowa. [Filed Jan. 11, 1877.]

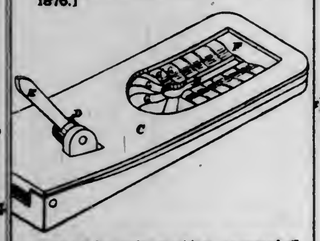
As a new article of manufacture, the metallic tip for posts herein described, consisting of the point A, the socket-wings C, flange B, opening *b*, drain or ventilating opening E, and mortise D, constructed as and for the purpose set forth.

189,252. COFFEE-POTS. R. L. Nelson, Orange Court-House, Va. [Filed Feb. 26, 1877.]



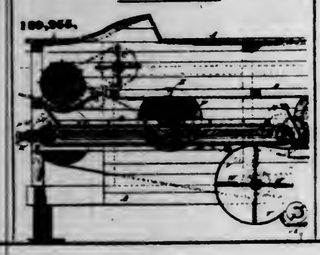
As the improvement herein described, the combination, with the pot A, of the tapered water-reservoir B, the coffee-holder, and its ring E, attached directly to the bottom of the reservoir by means of ears *b'*, thus leaving openings *c*, and the tube F, provided with the strainer *f'*, all as shown and described, whereby the entire drip attachment is concentrated within the pot, as and for the purposes set forth.

189,254. CLAMPS FOR BUTTON-HOLE SEWING-MACHINES. B. Moreau, San Francisco, Cal., assignor to the Moreau Machine Manufacturing Company. [Filed Oct. 17, 1876.]



A clamp for sewing-machines, composed of a series of independent pressers, G G G, placed side by side and arranged along the line of the stitches, close to the sewing-point, and to be pressed upon the cloth by means of the plate C and eccentric-lever D, each of said pressers being arranged to exert a pressure independent of all the other pressers in the series, substantially as and for the purposes described.

189,255.

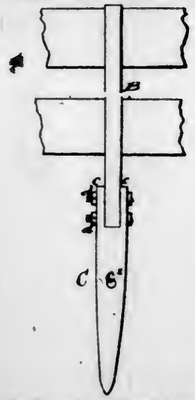


189,255. GRAIN-SEPARATORS. E. F. Osborne, St. Paul, Minn., assignor to J. H. Elward, same place. [Filed June 28, 1876.]

In combination with the scraper *e'*, the grain belt M, provided with an automatically-adjustable tension device, substantially as and for the purposes set forth.

189,256. FENCE-POSTS. John R. Pefley, Ladoga, Ind. [Filed Feb. 10, 1877.]

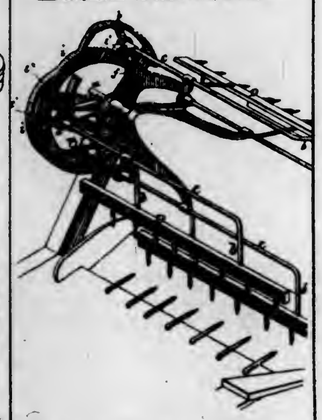
Brief.—A wooden post has a metal socket and point, to be driven into the ground. The socket has an outlet for the escape of water from the interior thereof.



1. The metallic fence-post C, having its upper part made hollow, and provided with an outlet-hole, *c'*, at the bottom of said hollow, substantially as described, and for the purpose set forth.

2. The combination of post B, having conical block B' on its lower end, with point C, having perforated lugs *c c*, cavity C', and an outlet at the bottom of said cavity, substantially as and for the purpose set forth.

189,257. HARVESTER-REELS. E. L. Phipps, Milford, Mich. [Filed Feb. 1, 1877.]



1. In a harvester-reel, the combination of the shafts C, having the rakes or arms D rigidly connected thereto, and mounted in the rotating spider B, the disks *d*, having slots *x* and arms *d' d'*, with projecting studs *e' e'*, and the spring-catches *f*, substantially as and for the purposes herein set forth.

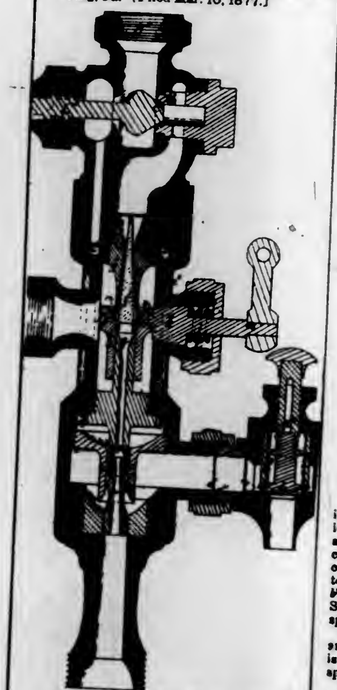
2. The adjustable track-plate G, having cam *h* and flanges *i k*, in combination with the reel, having independently-operating shafts C, with arms or blades D, spider B, and disks with arms, slots, and projecting studs, and a spring, all substantially as and for the purposes herein set forth.

189,258. BALE-TIES. R. C. Pope, St. Louis, Mo. [Filed Feb. 23, 1877.]



The bale-tie A B, formed with locking-lugs *a*, recesses *b*, and turn-pin *c'* and recess *b'*, all combined substantially as set forth.

189,259. INJECTORS. J. Proeger, Pittsburg, Pa. [Filed Mar. 10, 1877.]



1. In combination with the steam-jet and combining-tube of an injector, the reducing-cylinder, movable on the combining-tube, substantially as and for the purpose specified.

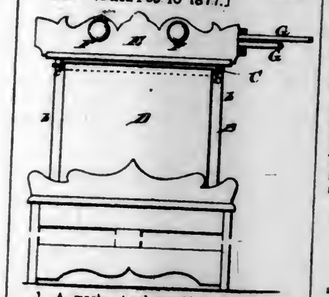
2. In an injector, the combination of the jet, the combining-tube, and the perforated reducing-cylinder, movable on the combining-tube, substantially as and for the purpose specified.

3. The combination of the auxiliary jet with the discharge end of the combining-tube and the delivery-tube, and inclosing the same, substantially as and for the purpose specified.

4. In an injector, the hollow cylindrical double-seated overflow-valve, substantially as and for the purpose specified.

5. In combination with the double-seated hollow cylindrical overflow-valve, the central valve for closing the overflow-nozzle, substantially as specified.

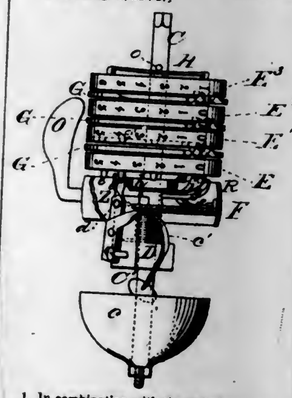
189,260. COMBINED TOWEL-RACK AND WALL-PROTECTOR. E. Pullan, Detroit, Mich. [Filed Feb 10 1877.]



1. A wash-stand provided with grooved guides A' A', having catches H H, in combination with the sliding frame B, carrying the wall-protecting sheet D, substantially as described, and for the purpose set forth.

2. The sliding frame B, which is provided with rod C, staples *c c*, removable wall-protecting sheet D, lifting-knobs F F, towel-rack G, in combination with a wash-stand which is provided with strips A' A' and stops H H, substantially as described, and for the purpose set forth.

189,261. COMBINED REGISTER AND PUNCH. N. A. Ransom, Chicago, Ill. [Filed Aug. 5, 1876.]



1. In combination with the cylindrical casing, containing the mechanism of a registering-alarm, and serving as one of the lever arms or handles of the punch, the removable cap B, having the fixed jaw *b* of a punch secured thereto, the removable jaw *b'* pivoted to the fixed jaw, and provided with a handle, *b''*, extending along the casing, and a spring, S, for holding the jaws open, substantially as specified.

2. A ticket-punch, having one of its lever-arms or handles made hollow to inclose a registering-alarm mechanism, substantially as specified.

3. In combination with the disk E, having teeth *e* upon its under side, the lever-wheel F, having pawl *g* engaging with the said teeth, and rotating with the said wheel, and the collar h fixed to the main shaft and provided with a spring-stop, *i*, overlying the said pawl, and preventing disk E from backward rotation, substantially as specified.

4. The combination, with the casing A, having groove *n*, the central non-rotating shaft C, the registering-disks E E' E' E', having spaced cogs upon their under sides, and spring-pawls upon their upper faces, of the plates G, having spurs *k* fitting in groove *n*, and the apturned prongs *l'*, substantially as specified.

5. The casing A, having longitudinal groove *n*, the non-rotating central shaft C, and the registering-disks E E' E' E', operated, the one by the other, in combination with the guard-plates G engaging with the said groove *n*, substantially as specified.

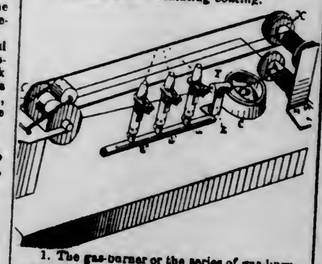
6. The register-wheel, having a circular series of teeth, *s*, on its face, exterior and interior circular channels *h'* at the sides of said series, and raised interspaces *r* between said teeth, substantially as specified.

7. The non-rotating guard-plates G, having upturned prongs *l'* adapted to be placed between the register-wheels, substantially as specified.

8. The registering-disk, having a circular series of teeth, *e*, and a channel beside the same sunk deeper than the raised spaces between the teeth, in combination with an adjoining disk, having a sprig-pawl, *j*, and the intermediate non-rotating guard-plate G, having a prong, *l'*, playing in said channel, substantially as specified.

189,262. INSULATED WIRE. H. Redding, Boston, Mass., assignor of one-half his right to J. Redding, same place. [Filed Jan. 27, 1877.]

Brief.—Wire passed through a solution of shellac in alcohol, and then over a series of burners, which serves to give a tough jet-black finish to the insulating coating.

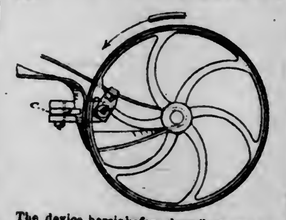


1. The gas-burner or the series of gas burners or lamps, through which the wire passes, and by which the insulating coat is hardened or cured, in combination with the reels A and X, the trough C, containing the liquid insulating substance, and the wiper or guard F.

2. As a new article of manufacture, the wire, in combination with its insulating coating or covering, prepared as herein described, or by an equivalent process.

189,263. DEVICES FOR THROWING BELTS ON PULLEYS. R. Reinhard, Langendreer, Prussia, assignor to Wm. R. Reinhard, Huntington, Ind. [Filed Jan. 4, 1877.]

Brief.—A slotted plate is so clamped to a spoke of the drum that it projects radially from the periphery, and has a slot, in which there is a spring-catch for the insertion of the belt.



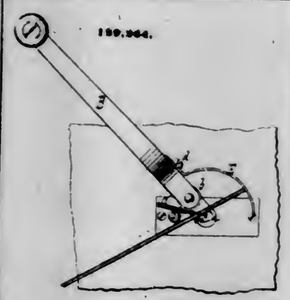
The device hereinbefore described, consisting of a plate, A, having a groove, *c*, and a spring clamping-bar, B, a screw-rod rigidly attached to part A, at right angles, an arm, D, adapted to slide on the rod, and a nut for securing it in any adjustment, substantially as shown and described, to operate as specified.

189,264. BAIL-EYE FORMERS. Henry S. Reynolds, Green Point, N. Y. [Filed Sept. 22, 1876.]

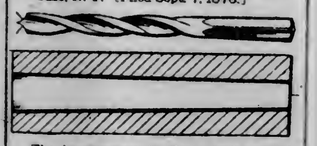
Brief.—A wire is passed through a bail-ear, and is gaged by a stop secured to the lever. The pivot of the lever is grooved to receive the end of the bail-ear. A friction-roller on the lever bears against the wire, and bends the wire about the lever-pivot.

In combination with the lever B, having a friction-roller, *b*, and a gage, E, the stud *e*, constructed with a groove, *e*, to receive the edge of the ear, whereby the eye of the wire can be formed and fastened in the ear without injury to the same, substantially as set forth.

189,264.



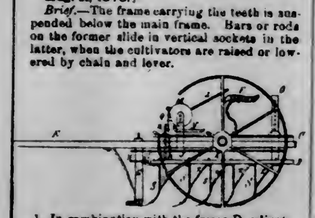
189,265. GIMLETS AND TWIST-DRILLS. J. C. Richardson, Philadelphia, Pa., assignor of one-half his right to T. Hooker, Syracuse, N. Y. [Filed Sept. 7, 1876.]



The improvement in the manufacture of gimlets and twist-drills from grooved blanks, such as described—namely, twisting the blank while inclosed, except at the two ends, within a tubular die, the walls of which limit and graduate the diameter of the twist, as set forth.

189,266. FALLOW-CULTIVATORS. John Richardson, Ancaster Township, Wentworth County, Ontario, Canada. [Filed Aug. 11, 1876.]

Brief.—The frame carrying the teeth is suspended below the main frame. Bars or rods on the former slide in vertical sockets in the latter, when the cultivators are raised or lowered by chain and lever.



1. In combination with the frame D, adjustably secured to the rear of the cultivator by the rod O and pin *s*, the rods P and nuts R, for adjusting the height of said frame, and the chain Q and wheel M, and its pawl for elevating said frame, substantially as herein set forth.

2. In combination with the draft-bar G, the center-bolt, and rear adjustable bar O, the bar J, for preventing the frame from drawing obliquely, substantially as set forth.

3. The combination of the draft-bar G, bolted to the tongue, the link H and hook I, attached to the frame D, and the bar J, secured to the rod O, as and for the purposes set forth.

189,267.



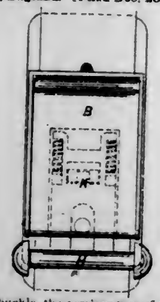
189,267. SHEET-METAL ELBOWS. N. I. Rothan, Cincinnati, Ohio. [Filed May 26, 1876.]

1. The process of forming a sheet metal curved pipe from a strip of metal spirally wound and grooved or seamed, substantially as herein described.

2. A curved pipe constructed from a strip of sheet metal spirally wound and grooved or seamed, as herein described.

3. A blank constructed of a strip of sheet metal of varying widths, adapted to form an elbow or other curved pipe, in the manner set forth.

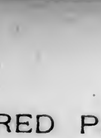
189,268. BUCKLES. F. W. Schafer, London, England. [Filed Dec. 26, 1876.]



In a buckle, the combination of the tubular base plate A, having a perforation near its upper front portion, and provided with the slotted lug L and spring E, in combination with the top plate B, having the cam-hinge D, stud C, and locking mechanism adapted to be operated by a draw-bar, all constructed as and for the purpose specified.

189,269. SUPPLYING BEER-KEGS WITH BICARBONATE OF SODA. J. J. Schillinger, New York, N. Y. [Filed Mar. 24, 1877.]

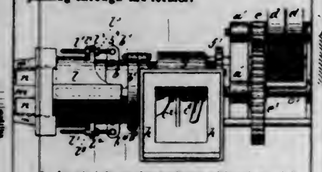
Brief.—The soda is confined between the two plugs shown.



The method, substantially as herein described, of supplying a keg or barrel containing beer or other liquid with bicarbonate of soda, or other equivalent material, by providing in any portion of said keg or barrel, or on any part connected thereto, a chamber for the reception of the bicarbonate or equivalent material, from which chamber such bicarbonate is pushed into the liquid contained in the keg or barrel whenever it may be required.

189,270. BRICK-MACHINES. C. Schlickeysen, Berlin, Prussia. [Filed Dec. 2, 1876.]

Brief.—The cylinder is made in two parts, connected on one side by a hinge, and on the other by a locking device. The former-head is removable and adjustable, and is provided with a water-reservoir, lined in its bottom with a straining-fabric. Channels lead to a series of overlapping plates, making a lining to the former, and distributing the water in thin sheets upon the surface of the material passing through the former.



1. In a brick-machine, the combination, with the feed and mixing cylinder *b*, of a former-head adapted to be adjusted to and from said cylinder in a line with that of its axis, substantially as described, for the purpose set forth.

2. The driving or operating mechanism, consisting of the gear-wheels *f' f²* and the pinion *g* and *g* fast pulley, the latter two mounted on a counter-shaft, *c'*, in combination with the pug-shaft *c²* and the feed-roll *g*, all constructed, arranged, and operating substantially as described.

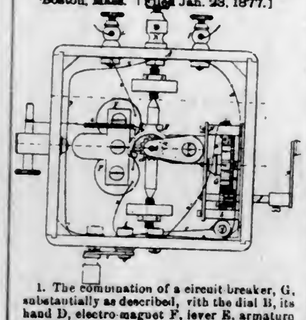
3. The former *m*, the adjustable former-head *l*, the cylinder *b*, and the feed mechanism, all combined and operating substantially as described, for the purpose specified.

4. The cylinder *b*, adapted to be opened and closed, in combination with the adjustable and removable former-head, all constructed and operating substantially as described, for the purpose specified.

189,271. COMPOSITION FLUXES. C. F. Secor, San Francisco, Cal. [Filed Sept. 26, 1876.]

As a flux for smelting and liquidizing gold and silver ores, the described composition, consisting of natural alkali, iron oxide, caustic lime, cryolite, niter, and petroleum, substantially as set forth.

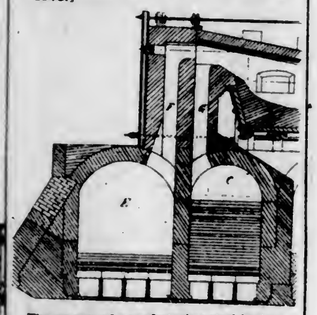
189,272. DIAL-TELEGRAPHS. R. J. Sheehy, Boston, Mass. [Filed Jan. 28, 1877.]



1. The combination of a circuit-breaker, G, substantially as described, with the dial B, its hand D, electro-magnet F, lever E, armature *d*, and escapement *a b c*, applied and arranged essentially as set forth, such circuit-breaker consisting of the arbor *f*, pinion *h*, ratchet-wheel *i*, retaining-pawl *k*, gear *m*, brake-wheel *n*, brake-lever *o*, and insulated stud *q*, all being arranged and applied substantially and to operate as set forth.

2. The combination of the switch *r*, connection-knobs *s t u*, posts I K L, and wires *r x y a'* with the case A, dial B, electro-magnet F, lever E, armature *d*, escapement *a b c*, dial-hand D, arbor C, and the circuit-breaker G, all being arranged, applied, and to operate substantially as set forth.

189,273. PROCESSES OF CONVERTING CAST-IRON INTO CAST-STEEL. C. W. Siemens, Westminster, England. [Filed Nov. 16, 1876.]



The process of manufacturing steel by tapping, turning, pouring, or otherwise transferring the charge of a furnace or other apparatus for refining cast-iron into a heated ladle lined with refractory material, and containing ferro-manganese in a solid condition, as and for the purposes described.

189,274. ROPE-CLAMPS. Henry T. Smith, Washington, D. C. [Filed Mar. 7, 1877.]

189,274.



The shell A, with its hub *s* and groove *a*, in combination with the cup B, with its serrated rim, and the screw C, substantially as and for the purpose set forth.

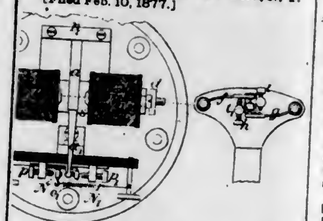
189,275. SCYTHE-SNATH FASTENINGS. M. Smith, Springfield, Vt. [Filed Mar. 17, 1877.]



1. The combination of the clamping-bolt, the swinging socket-plate, having a roughened under surface at its free end, and a plate arranged upon the snath, and having a roughened upper surface to clutch the swinging socket-plate from the action of the bolt, substantially as and for the purpose specified.

2. The plate G, having a roughened outer surface, and an opening, *e*, in combination with the swinging socket E, having a roughened under surface, and the clamp-bolt F, passing through the opening of the plate G, and arranged to clamp the parts, substantially as described.

189,276. MULTIPLE TELEGRAPHS. G. Smith, Astoria, N. Y., assignor of one-half his right to G. B. Prescott, New York, N. Y. [Filed Feb. 10, 1877.]



1. A receiving-instrument having one armature so arranged as to respond to changes in the strength and in the polarity of the line-current, either or both, in combination with two independent sounding or recording instruments.

2. Two independent keys or transmitters in combination with a receiving-instrument having one armature so arranged as to respond to changes in the strength and in the polarity of the line-current, either or both, and two independent sounding or recording instruments.

3. Two independent keys or transmitters, so arranged with reference to each other and to a main battery or batteries that their separate and combined action is capable of producing four distinct electrical conditions in the main line, differing from each other in respect to the strength or polarity of the current, or both, in combination with a receiving-instrument, having one armature so arranged as to be capable of being placed in four different positions, corresponding, respectively, to the four electrical conditions of the main line and two independent sounding or recording instruments.

4. A key or device for transmitting signals by changing the polarity of the line-current, and an independent key or device for transmitting signals by changing the strength of the line-current, in combination with a receiving-instrument having one armature so arranged as to respond to changes in the strength and in the polarity of the line-current, either or both, and two independent sounding or recording instruments.

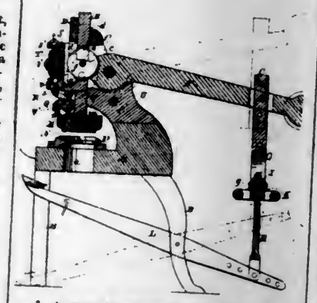
5. A key or device arranged to transmit signals by reversing the polarity of the normal main-line current, in combination with a second key which, when depressed, transmits a signal by diminishing or weakening the normal current, irrespective of the polarity of said current.

6. In a receiving-instrument, a polarized armature, acting upon two movable contact-levers, one of which presents a contact-point and the other an insulating-point to the said armature or its extension, in combination with stops which serve to limit the movement of each of the said contact-levers in each direction.

7. The vibrating lever *t* of a pole-changing transmitter, in combination with the contact-springs *f* and *g*, mounted upon a fixed support, and the adjustable stops *h* and *i*, substantially as and for the purpose specified.

189,277. METAL-DRAWING PRESSES. O. Smith, Bridgeton, N. J. [Filed Dec. 5, 1876.]

Brief.—Friction-wheel on end of operating-lever plays vertically in slots in arms of both the cutting and the drawing dies. Arm of drawing-die carries arm of cutting die, and after cutting is done passes on to effect the drawing.



1. A press for cutting and drawing sheet metal, in which the bar that carries the cutting-die is moved positively by the bar which carries the drawing die, substantially as and for the purpose specified.

2. The means employed for combining the movements of the bars D and E, consisting of the tripping-block Q, pivoted within said bar D, and provided with an arm, *q*, which is caused to engage with a spur, *e'*, upon said bar E by the pressure of the spring *e*, substantially as and for the purpose shown.

3. The means employed for disengaging the bar D from the bar E, consisting of the jointed bar R, pivoted to or upon the tripping-block Q, and connected to or with the block S, substantially as and for the purpose set forth.

4. The means employed for locking the bar D at its lowest point, consisting of the tripping-block Q *q* and spurs *s* and *s'*, substantially as and for the purpose shown and described.

5. In combination with the bar D, tripping-block Q, and jointed bar R, the block S, secured to or upon the yoke T, and made vertically adjustable by means of the screw *t*, swiveled within the lug *s'*, substantially as and for the purpose specified.

6. In combination with the levers F and L, the connection formed by the forked bar G *g*, threaded bar H, and nuts I and K, substantially as and for the purpose shown.

7. The hereinbefore-described die-clamp, consisting of the threaded sleeves V *v v'*, the threaded bolt X *x'*, and the nuts W, Y, and Z, all combined to operate in the manner and for the purpose substantially as set forth.

189,278. WRINGERS. L. Sternberger, Philadelphia, Pa. [Filed Aug. 31, 1876.]

1. The combination of the depressing-strip *f* of a wringing machine with the screw-shafts *d d*, geared together so as to be operated simultaneously, substantially as set forth.

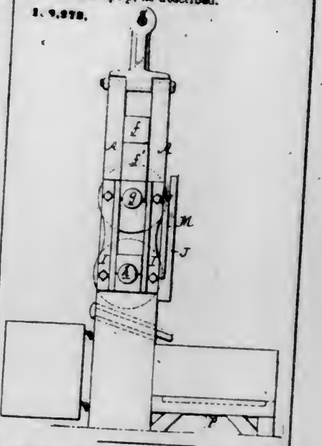
2. The combination of the rolls of a wringing-machine with the plate M, having a contracted opening, *m*, and so adapted to guides J J as to be readily removed and replaced, as set forth.

3. The combination of the lower journal and box A and its legs *t t* with the plates I I, bottom plate *i*, and transverse pin *j*, as set forth.

4. The combination of the lower journal-box of a wringing-machine with a passage for conveying the drippings of the lubricant away from the inner side of the post in which the bearing is situated, as specified.

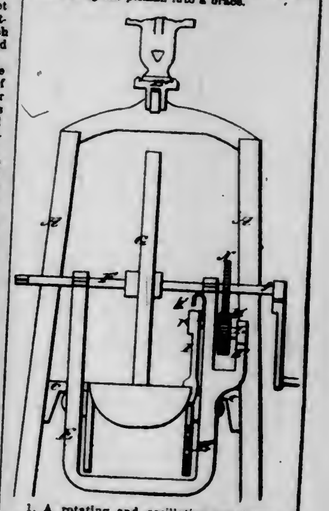
5. The combination of the open frame P of a wringing or starching machine with the tub Q and its strips *p*, as described.

189,279.



189,279. SICKLE-GRINDERS. Homer S. Stevens, Waukegan, Ill., assignor of one-half his right to J. F. Powell, same place. [Filed Nov. 18, 1876.]

Brief.—The stone is adjustable vertically, and vibrates at the same time it rotates, if desired. The vibration is stopped by detaching a pitman-connection from an eccentric or crank wheel on the pivoted journal-frame, and attaching or hooking it into a catch, thereby converting the pitman into a brace.

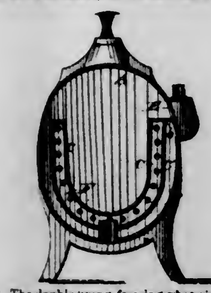


1. A rotating and oscillating grindstone, provided with a connecting-arm which is made detachable, for the purpose of causing the oscillating motion of the stone to cease at the will of the operator, and the rotary motion to continue, substantially as described.

2. In combination with fixed trough C, the vertically adjustable tilting frame E and the grindstone G, supported thereby, substantially as set forth.

3. The pivoted block O, having lugs *o o*, and upward extension O', in combination with the pivoted sickle-holder P, provided with projections *p p'* and catch *g*, substantially as described.

189,260. HEATING-STOVES. B. Stewart, Fort Madison, Iowa. [Filed Mar. 1, 1877.]



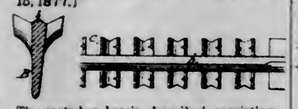
1. The double lining, forming a hot-air chamber about the bottom and sides of the fire-box, the indirect-draft passage of which latter is between the said hot-air chamber and the wall of the stove, substantially as described.

2. The combination, with the fire-box, provided with a double lining, forming the hot-air chamber, of the indirect-draft passage between the said double lining and the wall of the stove, substantially as described.

3. The hot-air chamber formed at the bottom and sides of the fire-box, and communicating with the open air by lower feed and end exit passages, as described, the said fire-box being provided with an indirect-draft passage between the hot-air chamber and the wall of the stove, substantially as described.

4. The combination, with the damper and connecting-rod, of the swinging stove-door, communicating motion to the same, the said rod and door engaging by rack and pinion mechanism, substantially as described.

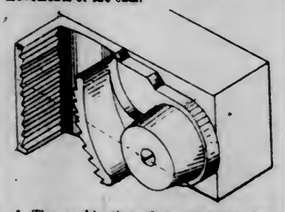
189,261. GRATE-BARS. A. Stroh, Mauch Chunk, Pa., assignor to C. Albright and W. H. Stroh, same place. [Filed Mar. 15, 1877.]



The grate-bar herein described, consisting of the central bar B, raised and beveled on its upper surface *b*, and the concave and grooved ribs *c*, projecting outward and upward from the central bar, making the fire-surface concave, raised, and corrugated, each bar being independent, substantially as described.

189,262. TOOL-HOLDERS. T. Strobridge, New Brighton, Pa. [Filed Jan. 24, 1877.]

Brief.—The device can be set for large or small handles of tools, and a gage limits the movements of the cam.

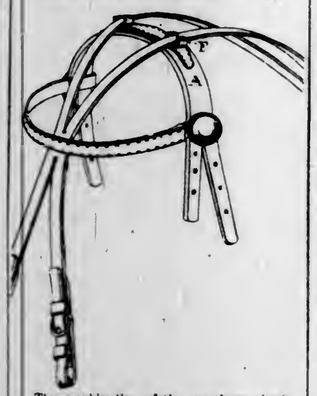


1. The combination of the rest, the plate slotted as at *a*, the cam or dog, the cap, and a fastening device, substantially as and for the purpose specified.

2. The combination of the rest or bar, the cam or dog, and the slotted cap, substantially as and for the purpose specified.

3. The combination of the slotted plate, the rest, the cam or dog, and the slotted cap, substantially as and for the purpose specified.

189,263. BRIDLES. G. M. Strong, Boston, Mass. [Filed Aug. 31, 1876.]



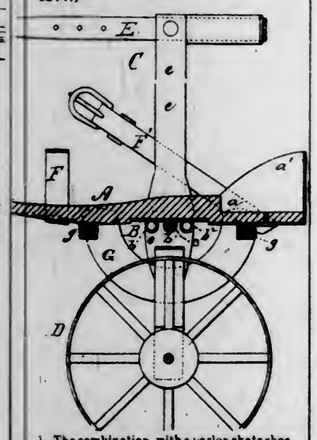
The combination of the overdraw check-rein, the open loops F F', with the crown-piece A of a bridle, constructed and operating as and for the purpose specified.

189,264. COUNTERFEIT-COIN DETECTORS. J. A. Thompson, Chicago, Ill. [Filed Feb. 23, 1877.]



In a counterfeit-coin detector, the bar C K, provided with the flanges F, and lugs D D, substantially as shown and described, and for the purpose set forth.

189,265. PARLOR-SKATES. H. L. True, McConnellsville, Ohio. [Filed Mar. 3, 1877.]



1. The combination, with a parlor-skate shoe, having suitable fastenings, and a central journal-bearing below said shoe, of a single roller, arranged under the hollow of the shoe, below the level of the same, substantially as specified.

2. The combination, with a parlor-skate shoe, of a roller, D, which is adjustable to the front or rear, substantially as specified.

3. The braces U C, extending above and below a skate-shoe, A, to form ankle-braces *s* and bearings *s'* for a roller, substantially as specified.

4. The shoe-plate A, having plate B, provided with spaced bearings *b b' b²*, in combination with braces C C and the journal-bolt *c*, substantially as specified.

5. The shoe-plate A, adjustable in front or rear, in combination with the braces C C and the transporting-roller D, substantially as specified.

6. The rocking shoe-plate A, in combination with the braces C C, bolt *c*, and the transporting-roller D, substantially as specified.

7. The combination, with the braces C C and the transporting-roller D, of the shoe-plate A, having brake-shoes *g*, and the journal-bolt *c*, substantially as specified.

8. The combination, with the braces C C, the shoe-plate A journaled therein, and the transporting-roller D, of the semi-annular braces G, locking the said plate against vibration, substantially as specified.

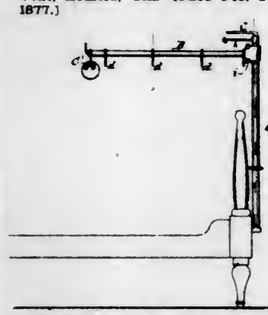
9. The arched transverse brace H, in combination with the braces C C, shoe-plate A, and roller D, substantially as specified.

189,266. LIGHTNING-RODS. L. D. Vermilya, Dayton, Ohio, assignor of one-half his right to H. Webbert, same place. [Filed Mar. 8, 1876.]



A lightning-rod of twisted sheet metal, provided with a serrated strip, B, located between its folds, in the manner and for the purpose specified.

189,267. MOSQUITO-NET FRAMES. J. F. Volle, Houston, Tex. [Filed Feb. 27, 1877.]



1. The folding and extensible frame for supporting mosquito-nets, consisting of the swivelled L-shaped parts A B, and the sliding rod C', connecting them in the manner shown and described.

2. In combination with the L frames A B, having short lever-arms *k*, the cord 4, passing through loops, and otherwise arranged, as shown and described, for the purpose specified.

3. In combination with the sliding rod C', net-rings *d*, and L-frames, the cord 3, arranged as shown, for the purpose specified.

189,268. ANCHOR AND HYDRAULIC SUPPORTS FOR WELL-TUBING. M. Wanner and J. Youkers, Karns City, Pa. [Filed May 31, 1876.]

Brief.—The piston is drawn out of the chamber until the shoulder strikes the shoulder of the chamber. When the anchor and chamber are lowered into the liquid, the chamber fills, and when the lower end of the piston strikes the bottom of the well the valve closes.

189,268.

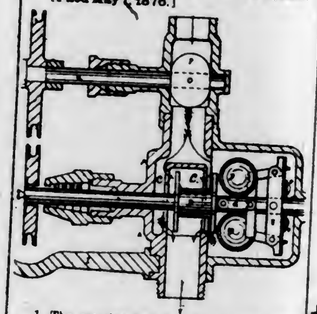


1. The anchor consisting of a fluid-chamber, valve, and plunger, in combination with the tubing of oil, salt, and other wells, substantially as herein described, and for the purpose set forth.

2. The anchor consisting of a fluid-chamber, compound valve, and plunger, in combination with the tubing of oil, salt, and other wells, substantially as herein described, and for the purpose set forth.

3. The anchor consisting of a fluid-chamber, valve or valves for holding the working-chamber or barrel of well-tubing at the desired pumping-line in the well, substantially as herein described.

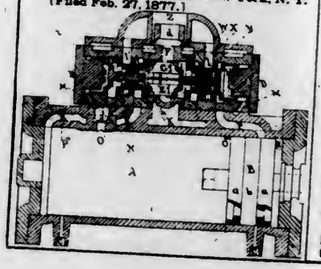
189,269. STEAM-ENGINE GOVERNORS. S. A. West, San Francisco, Cal., assignor of one-half his right to P. Hinkle, same place. [Filed May [illegible], 1876.]



1. The rotating rod F, provided with the cross-head E, containing springs N, in combination with the link G, balls D D, loose sliding valve B, and casing C, as set forth.

2. In a steam-engine governor, the bolt U, wheel T, arm S, and rod *s*, in combination with the rotating cut-off valve P, governor-valve B, as and for the purpose described.

189,270. VALVES FOR STEAM PUMPING-ENGINES. N. W. Wheeler, New York, N. Y. [Filed Feb. 27, 1877.]



1. The combination of the bored valve-chambers D, D', and F, valve-seats W W' Y Y', and diaphragms X X', in the same line, substantially in the manner and for the purposes described.

2. The combination of the valves G, H, and H', and their seats, the connected pair of valves G forming a distance-piece between the distance-pins K, substantially in the manner and for the purposes described.

3. The combination of the independent chamber F and seats W W' with the pair of plug puppet-valves G, connected by a bar or bars, E, which are too short to allow both valves to be seated at the same time, substantially in the manner and for the purposes described.

4. The combination of the chambers D D' and seats Y Y' with the pair of plug puppet-valves H H', separated by distance-pins K and distance piece or pieces G E, so far as to prevent the seating of both valves at the same time, substantially in the manner and for the purposes described.

5. The combination, in the chamber D, of the seats W Y, diaphragm X, and valves G and H, which seats and diaphragm are connected by the distance-lugs L L, substantially in the manner and for the purposes described.

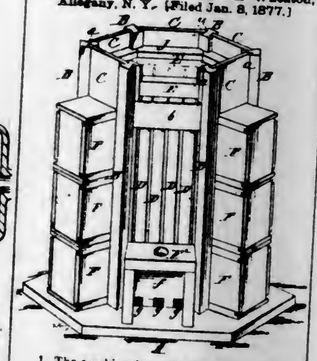
6. The combination of the preventer plug or plugs h and i, and seats W W' and Y Y', with the valves G and separate valves H H', which valves are capable of being thrown or actuated by steam-pressure upon the backs of H or H', substantially in the manner and for the purposes described.

7. The combination of the channels *c c*, opening into the cylinder A within the stroke of the piston B, with the cushion-ports O O', cushion-valves N N', and exhaust-channels P P', substantially in the manner and for the purposes described.

8. The guarding-recess *g* in the steam channel R, to receive the cushion-valve N, and prevent it from being disturbed by steam passing through said channel R, as set forth.

9. The combination of the rabbeted packing-rings of the piston B with the cushion-ports O O' and valves N N', substantially in the manner and for the purposes described.

189,271. BEE-HIVES. Hiram Wheaton, Allegany, N. Y. [Filed Jan. 8, 1877.]



1. The combination, with the surplus-honey boxes F, the posts B, and the removable slides C, forming the comb-chamber, of the removable inclosing-case G, and the removable cover I, substantially in the manner and for the purposes herein set forth.

2. The means herein described of forming the corner ventilating-flues H, consisting of the tiers of surplus-honey boxes F, the inclosing-case G, and the fixed posts B, said boxes being arranged between the case and the comb-chamber, and said flues being formed within said space by and between the walls of the tiers of boxes, as herein set forth.

3. The removable and interchangeable covers E and K, in combination with the slides C, posts B, and inclosing-case, forming the top and comb chamber, as and for the purpose herein set forth.

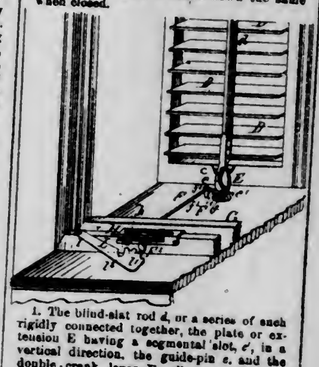
4. The slides C and posts B, extended above the comb frames D, combined with the removable glass cover E and inclosing-case, to form the top chamber J, as and for the purpose herein set forth.

5. The combination, with the radial tiers of honey-boxes F, arranged to form ventilating-flues between them, as described, of the inclosing-case G, adapted to be raised sufficiently from the base to open said flues at the bottom, to give equal ventilation to the several tiers of honey-boxes, as described.

6. The base A and the fixed posts B, constructed to form a skeleton frame constituting guides, holds, and supports for the boxes, and the comb-chamber slides, and combined with the removable inclosing-case, in the manner and for the purpose herein set forth.

189,272. BLIND-SLAT WORKERS. E. C. Whipple, Davenport, Iowa. [Filed Jan. 27, 1877.]

Brief.—A double-crank lever extending into the room actuates a plate having a segmental slot in a vertical direction, which plate is rigidly attached to the blind-slat rod. There is also a peculiar locking-lever, having a segmental toothed enlargement, which is pivoted to the inside of the window-frame, and by lateral movement serves to lock the double-crank lever, when the blind-slats are either opened or closed, and also, by passing into a slot or recess in the sash, to fasten down the same when closed.

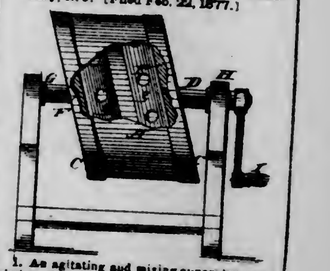


1. The blind-slat rod *d*, or a series of such rigidly connected together, the plate or extension E having a segmental slot, *c'*, in a vertical direction, the guide-pin *e*, and the double-crank lever F, all combined, constructed, and operating substantially as and for the purpose set forth.

2. In a blind slat worker, the combination of the crank-arm F² of the double-crank lever F with the segmental toothed enlargement F with the pivoted locking-lever L, all constructed and operating substantially as described, for the purpose specified.

3. In a combined blind-stop and sash fastener, the combination of the crank arm F² of the double-crank lever F and the sash-frame, provided with a slot or recess, *h*, with the segmental enlargement *i*, and the notch or recess *f* on the pivoted locking-lever L, all arranged, constructed, and operating substantially as described, for the purpose specified.

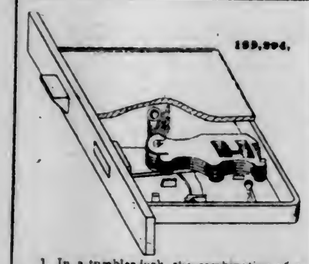
189,273. AGITATING AND MIXING APPARATUS. G. L. Witall, Camden, assignor of one-half his right to A. F. Porter, Woodbury, N. J. [Filed Feb. 22, 1877.]



1. An agitating and mixing apparatus consisting of a revolving cylinder, the ends of which are cut obliquely to its axis, substantially as and for the purpose set forth.

2. The combination, with a cylinder, the ends of which are cut obliquely to its axis, of perforated deflectors, substantially as and for the purpose set forth.

189,274. MASTER-KEY LOCKS. F. O. Yeaple, Pittsburg, Pa. [Filed Mar. 1, 1877.]



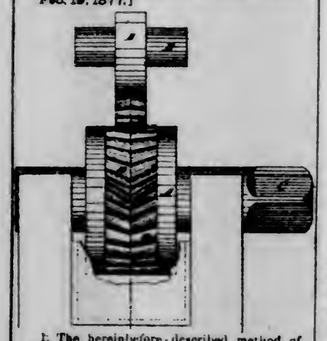
189,894.

1. In a tumbler-lock, the combination of a master-tumbler with the series of tumblers adapted to be operated from or by the master-tumbler, substantially as and for the purpose specified.

2. In a tumbler-lock, the combination of a master-tumbler with a series of tumblers adapted to be operated from or by the master-tumbler, and with a tumbler operated independently of the master-tumbler, substantially as and for the purpose specified.

REISSUES.

7,584. MANUFACTURE OF GEAR-WHEELS. J. Comly, Williamsburg, N. Y. Patent No. 132,899, dated Nov. 12, 1872. [Filed Feb. 19, 1877.]

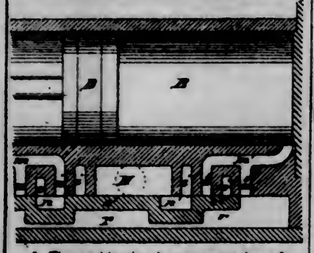


1. The hereinbefore-described method of manufacturing gear wheels, which consists in rotating a toothed die or former in contact with a heated blank wheel, whereby teeth are formed on the periphery of the blank wheel as it rotates.

2. The combination, substantially as hereinbefore set forth, of a revolving toothed die or former, its shaft, and supporting-frame, with a mandrel which carries a blank wheel, whereby teeth are formed upon the blank wheel as it rotates in contact with the former.

7,585. COMBINED HIGH AND LOW PRESSURE ENGINES. Thos. L. Jones, Natchez, Miss. Patent No. 76,776, dated Apr. 14, 1868. [Filed Oct. 10, 1874.]

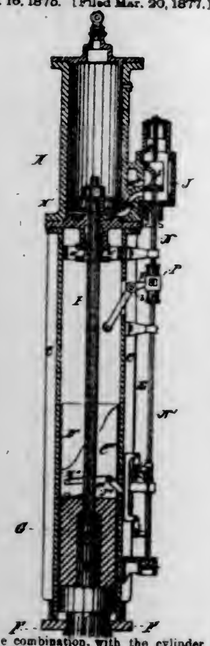
Brief.—After the engine has exhausted down to atmospheric pressure, the cylinder is put into communication with a condenser.



1. The combination, in a steam-engine, of a valve-seat provided with the ports a^1, e, and i, and a valve provided with the chamber n, substantially as and for the purpose set forth.

2. The cylinder B, piston D, steam-chest A, provided with the ports m m', a a^1 a^2, e e', i i', and space 2, valves g g', pipes F and H, and valve c c^1 c^2, provided with the recesses n n', substantially as described and shown.

7,586. STEAM PILE-DRIVERS. T. T. Loomis, Chicago, Ill. Patent No. 160, 781, dated Mar. 16, 1875. [Filed Mar. 20, 1877.]



1. The combination, with the cylinder H, having the grooves arranged in the flanges centrally on opposite sides thereof, and grooved plate F, of the hammer-frame E, all arranged to and between the leaders A A of the ordinary derrick of a pile-driver, substantially as specified.

2. The combination, with the leaders A A, of the frame E and grooved hammer G, the grooves of the hammer being adapted to receive both the side pieces of the frame and the leaders, substantially as and for the purpose specified.

3. The combination, with the frame E, of the detachable grooved plate F, adjusted to receive and guide the pile, and support the frame while driving the pile, substantially as and for the purpose specified.

4. The coupling P, provided with the adjustable boxes t t, to receive the lever employed to elevate and depress the coupling, in combination with the valve-stem N and connecting-rod N^1, substantially as and for the purpose specified.

7,587. LOCKING-CASES FOR STOP-COCKS. H. O. Meyer & Co., New York, N. Y., assignees of J. H. Morris, executor of V. T. Hall, deceased. Patent No. 89,930, dated May 11, 1869. [Filed Feb. 17, 1877.]

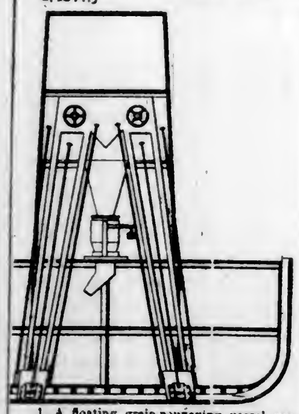


1. A case or clasp adapted to wholly or partially surround and protect a stop cock or the union or connection between the cock and the supply-pipe, and which may be locked about the said cock or the said connection, substantially as and for the purpose described.

2. The combination, with a case or clasp adapted to protect a stop cock, of means for engagement with a strap or lug permanently attached to the pipe with which the stop-cock is connected, substantially as and for the purpose set forth.

3. A protector case or clasp made in parts adapted to be locked together, and provided with an interior or concealed coupling or joint, substantially as and for the purpose set forth.

7,588. FLOATING GRAIN-ELEVATORS. O. W. Mills, Mont Clair, N. J. Patent No. 166,023, dated July 27, 1875. [Filed Feb. 5, 1877.]



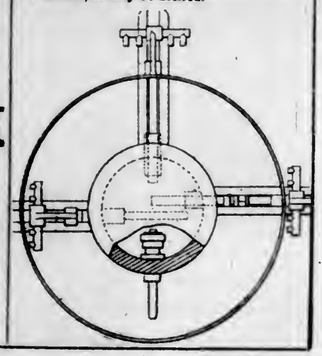
1. A floating grain-conveying vessel containing grain-receptacles, a vertical, or nearly vertical trunk, having openings leading directly from the bins to the trunk, and provided with slides or gates, and an elevating chain or belt, with buckets, and the pulleys thereof permanently fitted into such grain-conveying vessel, substantially as and for the purposes set forth.

2. A floating grain-conveying vessel provided with an elevator-trunk located between two or more bins, in combination with the elevator chain or belt and its wheels, permanently fitted into such trunk, and slides or gates to admit the grain from either of the bins directly to the elevator, substantially as set forth.

3. The combination, with a grain-elevator permanently fitted into a floating vessel containing grain-bins, of a water-tight trunk extending below the bottom of the grain-bins, and provided with gates or slides, whereby the grain-elevator is also adapted to use as a water-raiser, substantially as set forth.

7,589. TIRE-HEATING APPARATUS. Saml. G. Reed, Wellesley, Mass. Patent No. 158,622, dated Jan. 5, 1875. [Filed Mar. 21, 1877.]

Brief.—A gas-containing chamber, from which radiate several telescopic tubes, curved upward at their outer ends, and each provided at its extremity with a short cross-tube, studded with burners, which may be turned so as to direct the flame upon an inclosed or upon an outlying tire. Bars for supporting the tire radiate from the chamber, and curved guards, connected to the ends of the tubes, and resting on the supports, may be turned outward or inward, as may be desired.



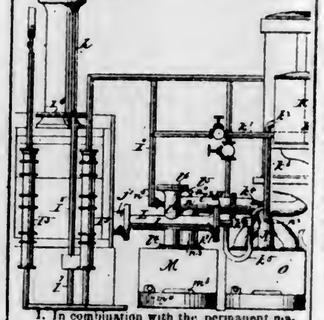
1. A gas-receiver and a series of radially-adjustable heads, burners, and tubes, in combination with the slotted supports for the tire, and the heads and burners, substantially as described.

2. The head and its series of burners, in combination with the foot or guard to retain the gas-burners at the proper position with reference to the tire, and guard the burners, substantially as described.

3. A gas-receiver and tube receiving-sockets, in combination with a series of tubes made radially adjustable with relation to the sockets and with gas-burners, to permit the gas-burners to be moved to direct their flame on large or small tires, substantially as described.

4. A gas-receiver and tubes and adjustable heads, each provided with a series of burners, in combination with slotted supports to sustain the heads and burners, and permit their adjustment in radial lines to discharge the gas-flame against the tire to be heated, all substantially as described.

7,590. PROCESSES AND APPARATUS FOR MANUFACTURING ILLUMINATING-GAS. J. Rigby, Montreal, Quebec, Canada. Patent No. 166,692, dated Jan. 30, 1877. [Filed Mar. 12, 1877.]



1. In combination with the permanent masonry-base A, the superstructure, substantially as described, having sectional removable walls on every side, adapted to permit the removal of any desired part without disturbing the remainder, as set forth.

2. In combination with the permanent base A, the angle-iron frame-work and the sectional removable walls, substantially as described.

3. In combination with the sectional covering-plates, the sectional water-backs, substantially as described.

4. In combination with the sectional covering-plates and sectional make-up blocks, the removable retorts, substantially as described.

5. In combination with the permanent base, the sectional water-backs, the sectional make up blocks, and the sectional covering-plates, substantially as described.

6. In combination with the permanent base, the sectional water-backs, the sectional make up blocks, the retorts, and the sectional covering-plates, substantially as described.

7. The steam-generating system described, consisting essentially of the sectional water-backs, the stand-pipes, the connecting branches, and the supply-tank, substantially as described.

8. In combination with the water-backs and stand-pipes, the connecting-pipes and the superheating-chambers, substantially as described.

9. In a gas apparatus, the combination of the following elements: A water-bridge, water-backs, stand-pipes, and superheating-chambers, substantially as described.

10. In combination with the water-backs and the superheaters, the pipes I^2 I^3, supplying live and superheated steam to the first and second dip-pipes, substantially as described.

11. In combination with the relatively-fixed dip-pipe, the plate k^2 and the pipe-length k^3, passing through the dip-pipe, substantially as described, the plate and pipe-length being adapted for removal without disturbing other parts, substantially as described.

12. In combination with the dip-pipe, the pipe-length k^3 passing through the dip-pipe, and having the siphon-pipe k^4 and the removable plate k^2, as described.

13. The triangular retort J, having an excess of metal on the angle-lines and on the central portion of the faces, as described.

14. In combination with a retort, a dip-pipe and a washer, an injector-pipe and injector, substantially as described, located beyond the washer, and adapted to exhaust the gas therefrom, as set forth.

15. In combination with the retorts, dip-pipes, and first washer, the injector-pipe, injector, and second washer, as described.

16. In combination with an exhaust apparatus and a first or main air-cock, a second or auxiliary air-cock, substantially as described, adapted to supplement the action of the first.

17. In combination with a gas-furnace water-backs, arranged on either side of the retort-chamber, divided up horisontally into compartments connected by stand-pipes, and having their inner faces extending upward and inward, to throw the products of combustion against the retorts, as herein set forth.

18. In the furnace A, the combination therewith of the water backs connected by the water-bridge, and communicating with the water-tank by pipe I^m, inlet-pipe P, and stand-pipes I^3, for the purpose of securing perfect equilibrium, as herein set forth.

19. The combination of furnace A with retorts J, washer M, second washer or purifier O, scrubber Q, oil-tank K, and water-tank I, all constructed, arranged, connected together and operating substantially in the manner and for the purpose set forth.

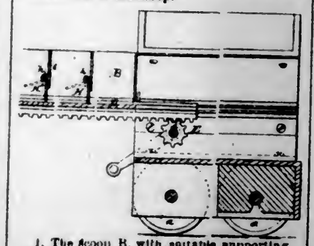
20. The described method of treating gas consisting essentially in subjecting it successively to the action of live and superheated steam.

21. The method described of making gas, consisting essentially in decomposing oil in a retort, and subjecting the products successively to the action of live steam and a mixture of superheated steam and hydrogen.

22. The described method of treating gas, consisting essentially in subjecting the products of the retorts to the following steps: first, to the action of a washing agent; second, to the action of live steam as a softening agent; third, to the action of a second washing agent; and, fourth, to the action of superheated steam as a drying agent.

7,591. MACHINES FOR CHARGING GAS-RETORTS. Thos. F. Rowland, Green Point, Brooklyn, N. Y. Patent No. 131,564, dated Sept. 24, 1872. [Filed Dec. 18, 1876.]

Brief.—The charging-scoop loaded with coal is projected into the retort by the wheeled carriage, and the bottom is then withdrawn, the coal being deposited by transverse plates and hinged valves, which prevent the coal being slid back with the bottom of the scoop. The transverse plates level the coal upon the withdrawal of the scoop.



1. The scoop B, with suitable supporting means A, and having a removable bottom, D, and valves H^1 H^2, combined and arranged for joint operation, substantially as herein specified.

2. The removable bottom D, corrugated longitudinally, in combination with the correspondingly-formed valves H^1 H^2, and curved sides B, adapted to match in a D-retort, and reciprocate separately therein, substantially as and for the purposes herein set forth.

3. The combination, with a stoking-machine in which the scoop enters the full length of the retort, and is co-extensive therewith, of one or more partitions or stops, the said apparatus so constructed being effective in preventing the withdrawal of the coal upon the withdrawal of its support, substantially as described.

4. A coal carrier or scoop, B, combined and arranged with one one or more swinging plates or partitions, H^1 H^2, which apparatus so constructed is effective in preventing the withdrawal of the coal upon the withdrawal of its support, while the scoop or carrier is easily withdrawn without withdrawing the coal, substantially as described.

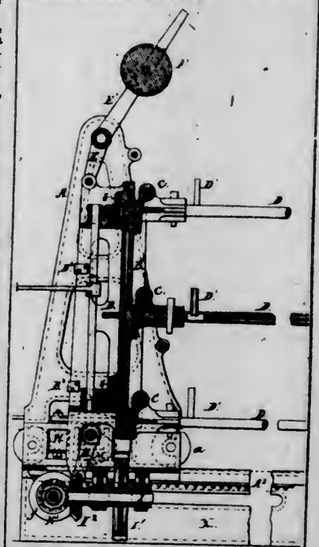
5. The combination of a scoop or coal carrier with one or more fixed diaphragms, which apparatus is effective in leveling the surface of the coal by its withdrawal from the retort, substantially as described.

6. A D-shaped coal carrier or scoop having approximately the same length and shape as the D-shaped retort which it is intended to enter and fill, and adapted to carry and discharge the full amount of coal which the retort is capable of receiving, substantially as described.

7. The removable corrugated bottom D, as combined and connected with a coal carrier or scoop, B, substantially as described.

7,592. APPARATUS FOR RAKING GAS-RETORTS. Thos. F. Rowland, Green Point, Brooklyn, N. Y. Patent No. 127,486, dated Apr. 1, 1873. [Filed Dec. 18, 1876.]

Brief.—The forward movement of the rake-carriage slightly elevates the rakes and their supporting-frame by means of a pair of friction-sectors and connecting-levers, so that the rakes enter the retorts above the coke, and upon the backward movement of the carriage the rakes are depressed, so as to withdraw the coke. The rakes and their frame are given a slight lateral movement, to adjust them to different parts of the retort, by a horisontal toothed rack and a toothed sector and lever. The rake-rods are hollow, and are cooled by water admitted within them.



1. In combination with a carriage, A, moving forward and backward on the support X, the rising and sinking frame B, rakes D d, and means for raising and lowering them, so as to enter the retorts in an elevated, and return in a depressed, position, as herein specified.

2. The knuckle-joints C between the rake-levers D, and the rising and sinking frame and its connections, as herein specified.

3. In combination with traversing carriage A, rising and sinking frame B, and connected rakes D d, the transverse carriage B^1 and adjusting means O, arranged to allow the adjustment of the rakes to one side or the other within moderate limits, as herein specified.

4. The friction-sectors M and spring H, in combination with the traversing carriage A and its operating means, rising and sinking frame B, rakes D d, and a balancing or partially-balancing means, F, arranged as shown, so that the changes of motion of the carriage A will elevate or depress the rakes, as herein specified.

5. The stops B^2 on the jumping frame, arranged to serve relatively to the main frame A, and to the means of raising and lowering, B, as and for the purposes herein specified.

6. The water-connections D', in combination with the hollow levers D, rakes d, and means for operating them, as herein specified.

EXPIRED PATENTS.

7. In a machine arranged to withdraw coke or other substances from retorts, a rake, *d*, and rake-handle D, combined with mechanism for elevating them together as they enter the retort, and depressing them upon their withdrawal, substantially as described.

8. A mechanical rake combined with mechanism for adjusting it to the center of the retort or other desired position independent of the mechanism for moving the main carriage, substantially as described.

9. A rake and rake-carriage, combined with mechanism which, upon the forward motion of the carriage, automatically raises the rake, so that it passes into the retort free of the coke, and which, upon the backward motion of the carriage, drops the rake into the coke, substantially as described.

10. The combination of a rake-carriage having a motion parallel to the retorts, and a motion at right angles to the first motion, thereby carrying the rake into the retorts, with a rake having a separate lateral adjustment, so that the controlling operator is enabled to enter the rake at any part of the retort, substantially as described.

7,393. APPARATUS FOR MAKING PLUMBAGO CRUCIBLES. W. Smith, Pittsburg, Pa., assignor, by mesne assignments, to M. McCullough and John R. Dalzell. Patent No. 40,506, dated Nov. 3, 1863. [Filed Mar. 3, 1877.]

1. In a crucible-machine, a counterpoised former, having both a vertical and a radial movement in a bulged mold for forming bulged crucibles, in combination with the mold, substantially as described.

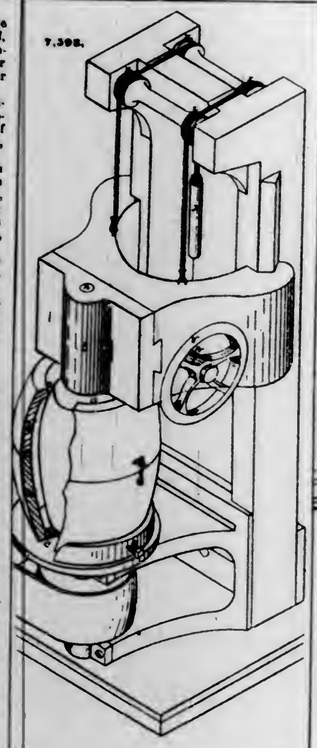
2. In a crucible-machine, the former mounted or dependent on a sliding carrier, provided with suitable means for moving it to and from the side of the mold, substantially as described.

3. A partible removable mold, open at both ends, having a loose bottom, upon which the crucible is made, substantially as described.

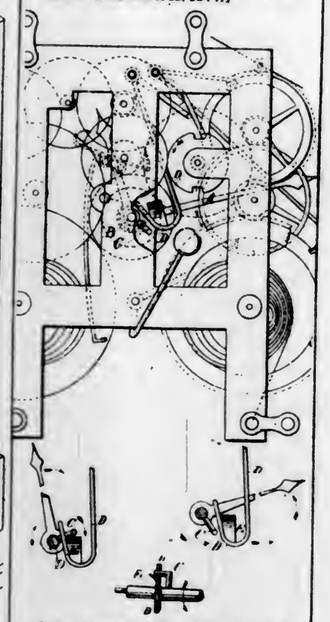
4. A partible bulged mold, in combination with a hollow or recessed wheel or chuck, which receives and sustains the same under the operation of the former, which has a radial movement in the mold, and bears against one side, substantially as described.

5. The hollow or recessed wheel, provided with means for fastening the mold therein, substantially as described.

7,393.



7,394. LOCK-WORK ATTACHMENTS FOR CLOCKS. J. W. Williams, New York, N. Y. Patent No. 183,094, dated Oct. 10, 1876. [Filed Mar. 12, 1877.]



The combination, with the hook or bent arm C and the trip-wire D, of an incline or cam plate, E, upon the trip wire D, and operating in the manner and for the purposes set forth.

NATIONAL LITHOGRAPHING CO. WASHINGTON D.C.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 67.—No. 2. TUESDAY, APRIL 10, 1894. PRICE—$5 per year.

CONTENTS.

	Page.
SUBSCRIPTION PRICE TO FOREIGN SUBSCRIBERS	145
ATTORNEYS	145
FILE-WRAPPERS—ENTRIES ON	145
OFFICIAL GAZETTE	145
INDEXES TO FOREIGN PATENTS	145
INDEXES TO PATENTS ON ELECTRICITY	145
OATHS OF APPLICANTS IN FOREIGN COUNTRIES	145
ISSUE OF APRIL 10, 1894	146
APPLICATIONS UNDER EXAMINATION	146
PATENTS GRANTED	146
REISSUES	147
DESIGNS	262
TRADE-MARKS	262
PRINTS	267
LABELS	None.
DECISIONS OF THE U. S. COURTS—	None.
Morgan Envelope Company *v.* Albany Perforated Wrapping Paper Company	271
Johnson Street Steel Rail Company *v.* William Wharton, Jr., & Company, Limited, *et al.*	274

Official Gazette—Subscription Price to Foreign Subscribers.

DEPARTMENT OF THE INTERIOR,
Washington, March 29, 1894.

SIR: Inasmuch as the two dollars additional required of foreign subscribers to the OFFICIAL GAZETTE of the Patent Office is inadequate to reimburse the Government the cost of the postage required, you are hereby directed to raise the price, for the ensuing fiscal year, to ten dollars per annum for foreign subscriptions.

Very respectfully,

HOKE SMITH,
Secretary.

The Commissioner of Patents.

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., March 31, 1894

SIR: The Secretary of the Interior has ordered that H. Norman McIntire, of Washington, D C., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

JOSEPHUS DANIELS,
Chief Clerk.

The Commissioner of Patents.

File-Wrappers—Entries On.

It is directed that entries shall not be made on the back of a file-wrapper, containing the application-papers for a patent, of papers or actions which do not become a permanent part of the contents of the file.

A card (Form 2-384 Office Series of blanks, sample hereto attached) will be placed in the file showing all appellate actions.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $10; single copies, 10 cents, if mailed to foreign countries 10 cents additional for postage; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below:

INDEX TO FRENCH PATENTS, 1791 to 1879, inclusive, (subject-matter,) one volume, 935 pages, bound in cloth $10 00

INDEX TO ITALIAN PATENTS, 1848 to May 1, 1882, (subject-matter,) one volume, 120 pages—

Bound half-turkey	2 50
Bound in cloth	1 25
Paper covers	1 00

Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1890, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Vol. 4. Appendix No. 4, July 1, 1884, to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Vol. 5. Appendix No. 5, July 1, 1885, to June 30, 1886. One volume, 54 pages In paper covers, $1.50.

Vol. 6. Appendix No. 6, July 1, 1886, to June 30, 1887. One volume, 52 pages. In paper covers, $1.50.

Vol. 7. Appendix No. 7, July 1, 1887, to June 30, 1888. One volume, 68 pages. In paper covers, $1.50.

Vol. 8. Appendix No. 8, July 1, 1888, to June 30, 1889. One volume, 72 pages. In paper covers, $1.50.

Vol. 9. Appendix No. 9, July 1, 1889, to June 30, 1890. One volume, 84 pages. In paper covers, $1.50.

Vol. 10. Appendix No. 10, July 1, 1890, to June 30, 1891. One volume, 98 pages. In paper covers, $1.50.

Vol. 11. Appendix No. 11, July 1, 1891, to June 30, 1892. One volume, 86 pages. In paper covers, $1.50.

Oaths of Applicants in Foreign Countries.

It is hereby directed that oaths accompanying applications for patents made within the following-named foreign countries must be taken before a minister, chargé d'affaires, consul, or commercial agent holding commission under the Government of the United States:

Austria-Hungary.
Argentine Republic.
Belgium.
Brazil.
Costa Rica.
Denmark.
Haiti.
Honduras.
Italy.
Mexico.
Netherlands.
Norway.
Peru.
Portugal.
Russia.
San Salvador.
Servia.
Sweden.
Switzerland.

Applications filed in this Office presenting oaths not executed in compliance with this order will be treated as incomplete.

Issue of April 10, 1894.

Patents	383	No. 517,829 to No. 518,211, inclusive.
Designs	24	No. 23,170 to No. 23,193, inclusive.
Trade-Marks	41	No. 24,481 to No. 24,521, inclusive.
Labels	None.	
Prints	None.	
Reissues	2	No. 11,411 to No. 11,412, inclusive.
Total issue	450	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	2	.....	Nevada	.....	.....
Arizona Territory	.....	.....	New Hampshire	2	.....
Arkansas	1	.....	New Jersey	16	6
California	13	.....	New Mexico Territ'y	.....	.....
Colorado	4	.....	New York	76	7
Connecticut	11	2	North Carolina	1	.....
Delaware	1	.....	North Dakota	1	.....
District of Columbia	4	.....	Ohio	22	2
Florida	1	.....	Oklahoma Territory	.....	.....
Georgia	3	.....	Oregon	1	.....
Idaho	.....	.....	Pennsylvania	30	2
Illinois	39	4	Rhode Island	3	.....
Indiana	15	.....	South Carolina	2	.....
Indian Territory	.....	.....	South Dakota	1	.....
Iowa	9	.....	Tennessee	1	.....
Kansas	4	.....	Texas	9	.....
Kentucky	3	.....	Utah Territory	1	.....
Louisiana	2	.....	Vermont	.....	.....
Maine	1	.....	Virginia	2	.....
Maryland	6	1	Washington	.....	.....
Massachusetts	27	8	West Virginia	2	.....
Michigan	16	1	Wisconsin	4	2
Minnesota	10	1	U. S. Army	.....	.....
Mississippi	.....	.....	U. S. Navy	.....	.....
Missouri	13	1			
Montana	2	.....	Total to citizens of the United States	365	37
Nebraska	4	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	.....	.....	Netherlands	.....	.....
Austria-Hungary	1	.....	Newfoundland	.....	.....
Belgium	.....	.....	New South Wales	1	.....
Bermuda	.....	.....	New Zealand	.....	.....
Brazil	.....	.....	Norway	.....	.....
Canada	6	.....	Queensland	.....	.....
Cape Colony	.....	.....	Russia	.....	.....
Colombia	.....	.....	Scotland	.....	.....
Cuba	.....	.....	Servia	.....	.....
Denmark	.....	.....	South Australia	1	.....
Ecuador	.....	.....	Spain	.....	.....
England	10	3	Sweden	1	.....
France	3	.....	Switzerland	.....	.....
Germany	18	1	Tasmania	.....	.....
Hawaii	1	.....	West Australia	.....	.....
Ireland	.....	.....			
Italy	.....	.....	Total to citizens of foreign countries	42	4
Mexico	.....	.....			

APPLICATIONS UNDER EXAMINATION.

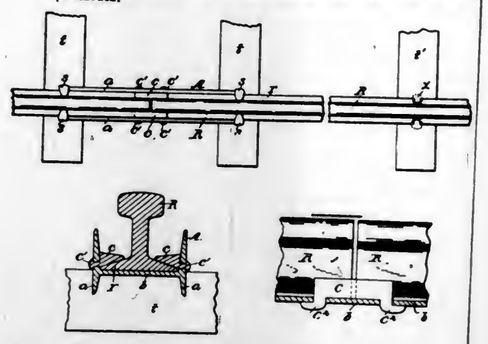
Condition at Close of Business April 3, 1894.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Mar. 5	Mar. 31	91
31	Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Mar. 9	Mar. 28	66
13	Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, etc.	Mar. 5	Mar. 28	84
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Mar. 5	Mar. 27	118
7	Harvesters, Games and Toys, and Velocipedes.	Mar. 7	Mar. 26	191
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Mar. 5	Mar. 26	96
32	Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	Mar. 6	Mar. 23	140
2	Farm Stock, Products, etc	Mar. 5	Mar. 23	101
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Mar. 5	Mar. 17	171
	Between one and two months.			
3	Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Feb. 5	Mar. 27	164
21	Textiles, etc	Feb. 5	Mar. 26	141
4	Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Feb. 5	Mar. 26	317
18	Steam-Engineering, etc	Feb. 14	Mar. 24	190
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Feb. 7	Mar. 24	200
6	Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Feb. 5	Mar. 24	154
12	Mechanical Engineering, Stores-Service, etc.	Feb. 5	Mar. 24	228
1	Tillage and Fences	Feb. 7	Mar. 22	214
19	Stoves and Furnaces	Feb. 19	Mar. 19	303
8	Furniture, Toilet, Umbrellas and Canes, etc.	Feb. 12	Mar. 19	269
10	Carriages and Wagons and Railway-Cars.	Feb. 7	Mar. 15	411
17	Paper-Manufactures and Printing.	Feb. 5	Mar. 15	184
30	Lamps, Gas-Fittings, Linotyping, Matrix-Making Machines, and Type-Writing Machines.	Feb. 5	Feb. 27	177
26	Electricity, Generation, Distribution, Electric Railways, etc.	Feb. 5	Feb. 21	201
	Between two and three months.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather Working Machinery.	Jan. 23	Mar. 31	358
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Jan. 8	Mar. 29	229
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Jan. 9	Mar. 27	307
23	Instruments of Precision, Acoustics, Optics, etc.	Jan. 4	Mar. 23	343
22	Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Jan. 6	Mar. 15	249
9	Hydraulics, Fire-Extinguishers, etc.	Jan. 4	Mar. 14	500
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Feb. 1	Mar. 8	255
	Between three and four months.			
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Dec. 18	Mar. 14	440
24	Sewing-Machines, Crinoline and Corsets, and Apparel.	Dec. 29	Mar. 12	229
	Total number of applications awaiting action			7,121
	Under one month in arrears.			
	Designs	Mar. 20	Mar. 24	70
	Trade-Marks	Mar. 26	Mar. 31	30

PATENTS

GRANTED APRIL 10. 1894.

517,829. RAILWAY-RAIL JOINT. LATHAM ANDERSON and LEWIS M. HOBBS, Cincinnati, Ohio. Filed June 28, 1892. Serial No. 438,250. (No model.)



Claim.—1. A support for the meeting ends of railway rails consisting of a section of rolled channel or I-beam provided centrally with chair plates or shields secured thereto as a permanent part of the structure rigidly secured thereto at opposite sides within the trough formed by the sides and connecting web—said chair plates being formed to overlap and span across the meeting ends of the rail bases, substantially as set forth.

2. A railway rail-joint embodying a channel or I-beam girder spanning between and resting upon its connecting web upon contiguous cross-ties and having side flanges extended vertically a sufficient width to sustain the load-stress; and provided centrally with shoe-blocks or chair-plates as part of its structure to receive and overlap the meeting ends of the rails: in combination with rails having their meeting ends resting in the trough of the girder, and spikes driven into the ties and directly engaging the bases of the rails and holding the rails to the girder and thereby securing the girder to the ties substantially as set forth.

3. A railway rail supporting joint consisting of a section of rolled channel or I-beam upon and spanning between contiguous ties, in combination with the rails fitted to the trough between and in contact with the vertical side flanges, chair plates permanently secured to the beam as a part of its structure and spanning across contiguous ends of the rail bases at each side; and rail spikes driven at each end of the beam and at side and engaging over the bases of the rails, holding both beam and rails to the ties and preventing end play of the beam, substantially as set forth.

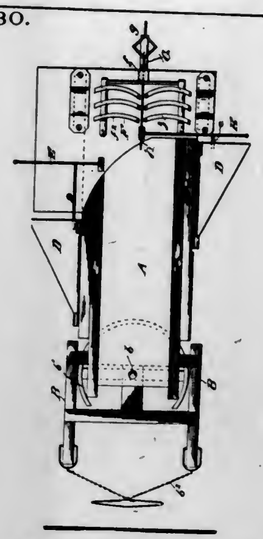
4. A support for the meeting ends of railway-rails consisting in a section of rolled channel or I-beam girder adapted to span between and rest upon contiguous ties and carry the rails upon the web connecting the sides, and provided with outer ledges *b'*, for the engagement of spikes, substantially as set forth.

5. The combination of a channel or I-beam, with a chair-plate provided with one or more shanks, inserted through suitable apertures of the beam and upset, securing the chair plate to the beam, substantially as set forth.

517,830. CORN-HARVESTER. JAMES ANDERSON, Nevada, Mo. Filed July 7, 1892. Serial No. 439,255. (No model.)

Claim.—As an improvement in corn harvesters, the combination, with a platform provided with cutting knives at each side thereof, of a shocking device comprising an upright post, curved supporting arms, a bar projecting rearwardly from said post, four arms pivotally connected together and having their rear pivot secured to said bar, and a forwardly-extending rod for operating said pivoted arms connected with the forward pivot of the latter; substantially as set forth.

517,830.



517,831. ELECTRIC-POWER APPLIANCE. BION J. ARNOLD, Chicago, Ill. Filed Aug. 31, 1892. Serial No. 444,607. (No model.)

Claim.—1. The combination of a series of dynamo electric machines, with switches so that either can be connected with electrical conductors, as a motor or generator, a driving shaft, or equivalent, and a lock to connect the rotating part of the machine directly with the shaft when the two have attained equal speed, and a magnetic device to operate such lock.

2. A speed indicator for a dynamo electric machine, consisting of opposed gear rings, associated one with the driving shaft, the other with a moving part of the machine, and indicators proper actuated one from each ring.

3. As a speed indicator for a dynamo electric machine, two opposed gear rings one associated with the driving shaft, the other with the moving part of the machine, two worm gears associated one with each of such rings, a tube driven by one gear and a shaft driven by the other gear and placed diagonally in the two, and indicators associated with the ends of the shaft and tube.

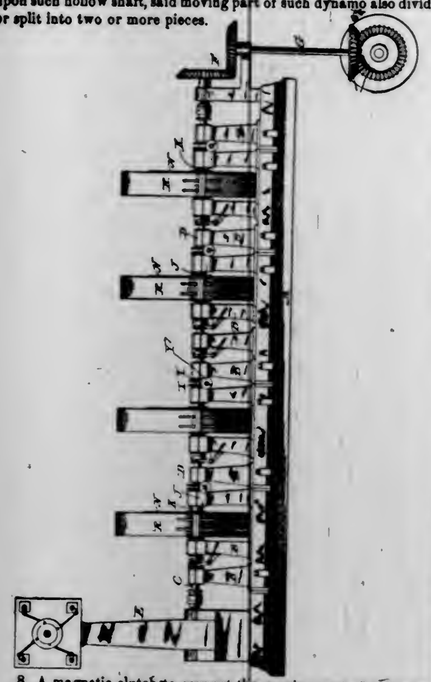
4. The combination of a series of dynamo electric machines, with a continuous driving shaft, a rotating part for each of said dynamos mounted upon a hollow sleeve surrounding the driving shaft and supported in independent bearings, main electrical conductors and connecting devices whereby each of said dynamo electric machines may be connected with such mains to work either as a generator or motor.

5. The combination of a series of dynamo electric machines, with a main driving shaft and rotating parts for each dynamo electric machine supported on a hollow sleeve surrounding the main shaft and journaled in independent bearings, with clutch mechanisms whereby such rotating part or sleeve may be positively connected to the shaft at will.

6. The combination of a series of dynamo electric machines with a main driving shaft therefor a rotating part for each machine supported on a hollow sleeve which surrounds the main shaft and is journaled on independent bearings and switches and connectors whereby any machine operating as a generator may be made to supply current to any other machine to operate it as a motor.

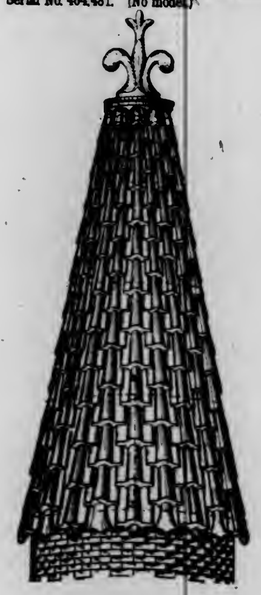
7. The combination of a main driving shaft with a dynamo electric machine having a moving part, a hollow sleeve longitudinally split and journaled in independent bearings, the main shaft passing

through such hollow shaft and a rotating part for the dynamo, secured upon such hollow shaft, said moving part of such dynamo also divided or split into two or more pieces.



8. A magnetic clutch to connect the moving part of a dynamo electric machine with the driving shaft, which consists of an electro-magnet connected with either shaft or moving part, and a movable magnetized clutch block connected with the other part so as to slide thereon, but rotate therewith, and a reversing switch connected with the electro-magnet to change its polarity at will and attract or repel said clutch block.

517,832. TILE ROOFING. GEORGE H. BABCOCK, Plainfield, N. J. Francis B. Clarke, J. Bennett Clarke, Joseph A. Hubbard, and William M. Stillman executors of said George H. Babcock, deceased. Filed Mar 3, 1893. Serial No. 464,481. (No model.)

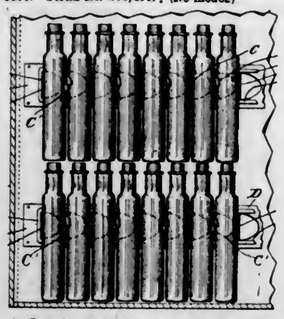


Claim.—1. A tiling for conical roofs, consisting of the herein described series of interlocking tiles wherein units or members are laterally adjustable upon one another whereby; several tiers of varying circumferences are composed of differeutly adjusted tiles of uniform lateral dimension.

2. The herein described roofing tiles, adapted when assembled in overlapping vertical series, to overlap at or about the middle of the lengths of the adjacent vertical series, provided with adjustable joints at those edges which in one said series lie in planes intermediate to the planes of the edges in the other said series

---

517,833. BOTTLE-HOLDER. VICTOR V. BACON, DOTT, Mich. Filed Aug. 4, 1893. Serial No. 482,409. (No model.)



Claim.—1. In a bottle holder, a strip of metal, having a single series of lugs, a portion of said lugs also being longitudinally bisected and oppositely bent, and adapted to grasp the bottles and press the same against the opposing lugs substantially as described.

2. In a bottle holder, a strip or plate having a series of lugs, integral with the same, each alternate lug also being longitudinally bisected and oppositely bent, and adapted to grasp the bottles and press the same against the opposing lugs substantially as described.

3. In a bottle holder, in combination with a plate, having spring lugs for holding bottles, a band or strip of flexible material adjacent to the base of said lugs, substantially as described.

4. In a bottle holder, the combination of a strip of metal, having a series of lugs, each alternate lug being bisected and oppositely bent and a band or strip adjacent to the bases of said lugs, substantially as described.

517,834. WITHDRAWN.

517,835. HAY-CARRIER. ALLEN P. BOYER, Goshen, Ind. Filed Mar. 23, 1893. Serial No. 467,352. (No model.)

Claim.—1. The combination with a track, and independent spring catches thereon, of a hay-carrier frame movable on the track, sheaves therein, and independent trip latches in the frame adapted to automatically unlatch the spring catches, and mechanism adapted to unlatch said spring catches independent of said trip latches, substantially as and for the purpose specified.

2. The combination with a track, and independent catches thereon, a hay-carrier frame movable on the track and sheaves therein, of a sling pulley, intermediate mechanism in the carrier frame, and adjustable mechanism on said pulley adapted to actuate either catch through said intermediate mechanism, substantially as specified.

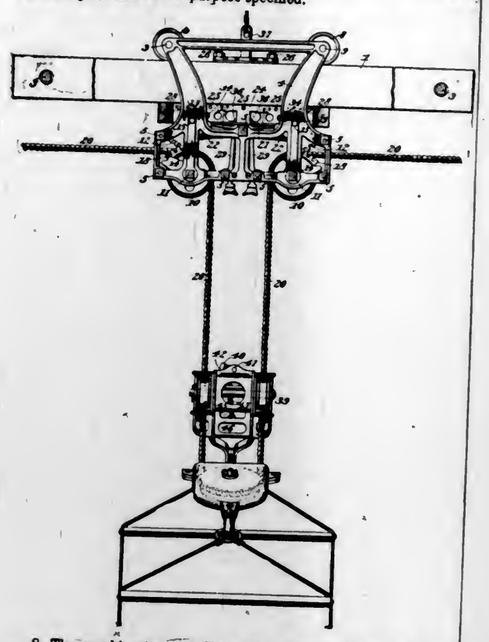
3. The combination with a track, and independent spring catches thereon, of a hay-carrier frame movable on said track, independent trip latches adapted to independently actuate either of the spring catches, a sling pulley and mechanism thereon adapted to actuate either of the said trip latches, substantially as and for the purpose specified.

4. The combination with a track, and independent spring catches thereon, of a hay-carrier frame, sheaves therein independent trip latches carried by the carrier adapted to independently actuate the spring catches, a sling pulley, adjustable mechanism thereon, adapted to actuate either trip latch, and mechanism adapted to actuate the spring catches simultaneously independent of the trip latches, substantially as and for the purpose specified.

5. The combination with a track, and movable carrier, trip latches thereon, catches upon the track, a sling pulley and trip-block thereon adapted to actuate one or the other of the latches at will, substantially as set forth.

6. In a sling pulley designed to be used with a hay-carrier, the combination with a frame of a movable trip-block thereon, substantially as set forth.

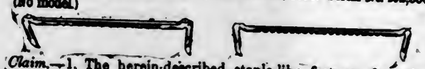
7. The combination with a pulley designed to be used with a hay-carrier, of a spring-actuated pivoted trip-block carried thereon, substantially as and for the purpose specified.



8. The combination with a carrier track provided with a trip bridge composed of two substantially parallel plates having inclined ended tracks, separate independent catches between the plates adapted normally to project below the tracks, of a carrier provided with sheaves, clutch mechanism and catch actuating mechanism, said clutch being adapted to be actuated by the tracks and said catch actuating mechanism, being adapted to raise the catches to or above the level of the tracks, substantially as specified.

9. The combination with a track provided with a trip bridge having inclined ended parallel tracks and interposed yielding catches, of a carrier having a medial partition adapted to be held between the catches, and vertically movable separate independent trip latches on either side of said partition adapted to be actuated to raise either catch out of the path of the partition, and a stirrup projecting through the carrier track and supporting said catches and adapted to actuate the same, substantially as specified.

517,836. FASTENING DEVICE FOR TUBS, BOXES, &c. FREDERICK T. BRADISH, Boston, Mass. Filed Nov. 29, 1893. Serial No. 492,358. (No model.)



Claim.—1. The herein-described staple-like fastener for tubs, boxes, &c., the same consisting of two driving legs, and a connecting integral crown provided with a continuous series of transverse serrations or notches forming as many lines of weakness to facilitate the bending of such fastener about an angle or corner of an object, substantially as set forth.

2. The herein-described staple-like fastener for tubs, boxes, &c., the same consisting of two driving legs, and a connecting integral crown provided with a continuous series of transverse serrations or notches made in its edge, and having its outer edge flat and unbroken, the said serrations or notches forming lines of weakness to facilitate the bending of the fastener about an angle or corner of an object, substantially as set forth.

3. The herein described staple-like fastener, consisting of a crown bent downwardly at its ends to form driving legs, and having auxiliary upward bends inside and adjacent the tops of said legs to provide raised driving surfaces, substantially as and for the purpose specified.

4. The herein described staple-like fastener, consisting of a serrated crown bent downwardly at its ends to form driving legs, and having auxiliary upward bends inside and adjacent the tops of said legs to provide raised driving surfaces, substantially as and for the purpose specified.

517,837. WIRE-FENCE MACHINE. VANRENSSELAER T. BRIGGS, North Lansing, Mich. Filed Nov. 11, 1892. Serial No. 451,685. (No model.)



Claim.—1. In a fence machine, the combination with a frame, a plurality of twisters and movable bobbin frames therein, of parallel moving aligning bars adapted to carry all of the bobbin frames in alignment for shifting them, and mechanism for operating the aligning bars, as set forth.

2. In a fence machine, the combination with a frame, of a plurality of twisters having disk heads, notches in the disk heads, guide plates on opposite sides of the notches, bobbin frames carried on the twisters and provided with squared ends adapted to work in the notches, aligning bars adapted to hold the notches in alignment, and reversing mechanism for shifting the bobbin frames, substantially as and for the purpose specified.

3. In a fence machine, the combination with a frame, and a plurality of twisters having disk-heads and notches thereon, of movable bobbin frames carried upon the twisters, parallel movable aligning bars, a lever operatively connected with the aligning bars to open and close them, and reversing mechanism for shifting the bobbin frames, substantially as set forth.

4. The combination with a plurality of twisters provided with notched disk heads, movable bobbin frames carried upon the twisters, a movable frame provided with alternately arranged pairs of wedges, and mechanism for operating the frame for inserting the wedges between the bobbin frames and the disk head hubs for shifting the position of the bobbin frames from one set of twisters to another, substantially as and for the purpose specified.

5. In a fence machine, the combination with a frame and a plurality of twisters having notched disk heads, movable bobbin frames thereon, a movable frame upon the main frame, wedges upon the movable frame adapted to shift the position of the bobbin frames, bell-crank levers carried upon the main frame and connected respectively with the movable frame and with pitmen, and a lever operatively connected with the pitmen to work the frame and shift the bobbins, substantially as set forth.

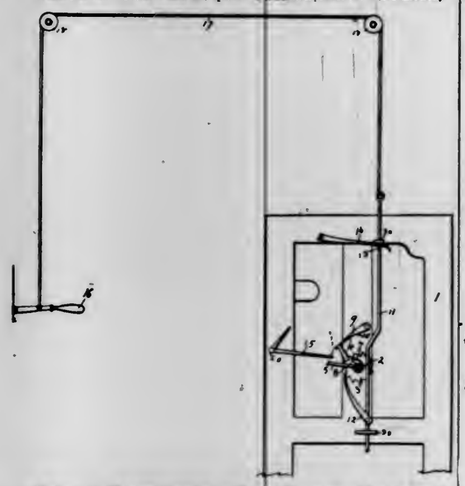
6. In a fence machine, the combination with a frame, twisters and bobbin frames, of a finger-gate provided with fingers, and mechanism for operating the twisters and automatically operating the finger-gate, substantially as set forth.

7. In a fence machine, the combination with a frame, twisters, and bobbin frames, gears connecting the twisters, a driving shaft, a finger-gate provided with fingers, a lever operatively connected with the finger-gate, and an eccentric upon the driving-shaft adapted to operate the lever to swing the finger-gate, substantially as set forth.

8. In a fence machine, the combination with a frame, twisters, and movable bobbin frames, of aligning bars and a lever operatively connected therewith, intermeshing gears upon the twisters, a main

driving shaft operatively connected with the gears, a spring-actuated lever in the path of the aligning bar lever, a finger-gate, a lateral and forwardly spring-actuated lever operatively connected therewith, an eccentric carried upon the driving-shaft, and a lock-block upon the bearings of said shaft, all cooperating, as and for the purpose specified.

517,838. CLOCK STRIKING APPARATUS. CHARLES D. BROWN, Ames, Iowa. Filed June 19, 1893. Serial No. 478,187. (No model.)



Claim.—1. The combination with an ordinary clock housing, provided with a main shaft, of a pin secured to said shaft, a mutilated ratchet working upon said shaft and against said pin, and provided with an upwardly extending cam provided with the shoulder adapted to receive said pin, an extending arm secured to said ratchet, said ratchet riding loosely upon said shaft, and an arm provided with a pawl for operating said mutilated ratchet, said extending arm being adapted to operate the gong lever, all substantially as and for the purpose set forth.

2. In a clock, the combination with the hand shaft, of a pin secured to said shaft, a mutilated ratchet riding loosely upon said shaft and provided upon the pin side with an extending cam provided with an abutting shoulder, and upon the other with an extending arm adapted to engage the lever of the striking mechanism of the clock, a stop in the path of said arm and a spring actuated pawl for operating said ratchet said pin in its revolution with the main shaft being adapted to drive said mutilated ratchet and actuate said stop, all substantially as and for the purpose set forth.

3. In a clock, the combination with the hand shaft, of a pin secured within said shaft, a mutilated ratchet provided with a number of teeth representing a given number of moments of the hour, and provided with an extending cam, an extending arm secured to said mutilated ratchet adapted to actuate the striking lever of the clock, and a spring actuated rod provided with a pawl adapted to actuate the ratchet, said ratchet being adapted to be operated a given number of times and then remain inert or dead by virtue of the mutilated portion, all substantially as and for the purpose set forth.

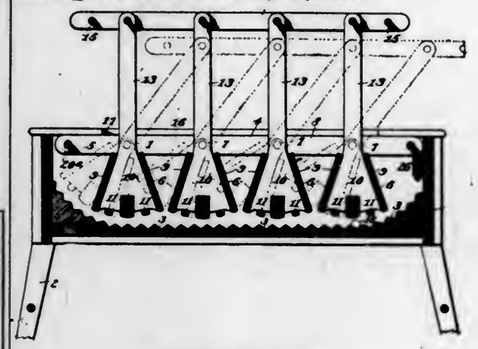
4. In a clock the combination with a housing, the shaft 2 provided with the loosely working ratchet 3, the arm 4 secured to said ratchet, the pin 5 secured to said shaft 2, the spring 6 forcing said pawl against the pin 5, the cam 7 adapted to hold the pin 5 upon one side, the stop and pawl 12 secured to the spring actuated operating rod 11, all of said instrumentalities being arranged to operate, all substantially as and for the purpose set forth

517,839. WASHING-MACHINE. VACLUV CERMAK, Cleveland, Ohio. Filed Sept. 16, 1893. Serial No. 485,676. (No model.)

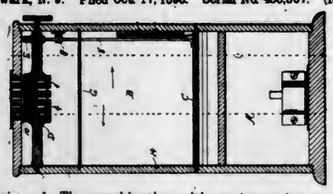
Claim.—1. In a washing machine, the combination with a receptacle, of a vertically adjustable frame pivoted at one end and yieldingly sustained at the other, and a plurality of oscillatory rubbers supported thereby, substantially as specified.

2. In a washing machine, the combination with a receptacle, of a frame pivoted at one end in vertically adjustable bearings, consisting of a slotted plate provided with slotted and notched side pieces, and a bearing plate adjustable thereon and provided with parts co operating with the slots and notches of the first named plate, substantially as specified.

3. In a washing machine, the combination with a receptacle, of a frame pivoted at one end in vertically adjustable bearings and yieldingly sustained at its opposite end, a plurality of synchronously oscillatory rubbers supported by said frame, and adapted to maintain the same contiguous relation to each other in their various positions, levers adapted to actuate said rubbers and connected at their upper ends, and hinged correlatively-recessed covers adapted to permit the operation of the machine while preventing the escape of noxious fumes from the receptacle, substantially as specified.



517,840. COIN-RECEIVING APPARATUS. CLEMENT C. CLAWSON, Newark, N. J. Filed Oct. 17, 1893. Serial No. 488,367. (No model.)



Claim.—1. The combination with an inspection chamber, and coin-discharging means at the exit from said chamber, of a coin introducer with closed-bottom coin-holding pockets at the entrance to said chamber movable into coin-receiving and coin-dumping positions and adapted to close the direct entrance to said chamber in both positions, and connections between said coin introducer at the entrance and the coin-discharging means at the exit of said chamber whereby the discharge of coins from said chamber is effected when the coin introducer is in coin-receiving position, substantially as described.

2. The combination with a chamber, and a coin introducer with closed-bottom coin-holding pockets at the entrance to said chamber, of a coin-receiver above the said coin introducer with its bottom constituted thereby, substantially as described.

3. The combination with an inspection chamber, coin-discharging means at the exit from said chamber, and a coin introducer with closed-bottom coin-holding pockets at the entrance to said chamber, of a coin-receiver arranged above the said coin introducer and having its bottom constituted thereby, and connections between said coin introducer and said coin-discharging means whereby the discharge of coins from said chamber is effected while the said coin introducer is in coin-receiving position, substantially as described.

4. The coin introducer having pockets and a coin-sustaining surface adjacent to the mouths thereof, in combination with an inspection chamber having a slotted top above said coin introducer, the said top being made to form a coin receiver by the said coin-sustaining surface constituting a temporary bottom to the slots in said top while the said coin introducer is in the coin-delivering position, substantially as described.

5. The combination with an inspection chamber, a coin introducer, and coin-discharging means, of operating mechanism connected with said introducer and said discharging means and comprising a shaft on which said introducer is mounted a cam on said shaft and connections from the said cam to the said discharging means, substantially as described.

6. The combination with an inspection chamber, of means arranged to hold and discharge two or more coins in a parallel position (that is face to face) and an intercepter in said chamber transverse to the plane of said coins, substantially as described.

7 The combination with an inspection chamber of a coin introducer having two or more parallel pockets (that is pockets arranged face to face) movable with the said introducer of which they form a part and an intercepter below said introducer transverse to the planes of the said pockets, substantially as described.

8. An inspection chamber provided with a coin table and a front glass 12 inclined inwardly and upwardly adjacent to said table and having the portion 13 of the front above said glass terminated at the upper edge of said glass without overhanging inside chamber, substantially as described.

517,841. COLLAPSIBLE TRUNK. ELIZA J. M. CLEMENS, Metropolis, Ill. Filed Apr. 29, 1893. Serial No. 472,340. (No model.)



Claim.—1. A collapsible trunk provided with a removable corner plate having lugs projecting from its inner surfaces and overlapping and means for securing the plate to the trunk, substantially as specified.

2. A collapsible trunk having openings in its side and end and having a corner plate with lugs passing through said openings and overlapping each other, substantially as specified.

3. A collapsible trunk having holes in a side or end and holes and slots in an adjacent side or end and a corner plate having lugs projecting from its inner faces at right angles to and overlapping each other and means for maintaining the slotted side or end in a distended position, substantially as specified.

4. A collapsible trunk having openings in a side and end, a corner plate having perforated projections in line with each other and passed through said openings and a single bolt passed through said perforations, substantially as specified.

5. A collapsible trunk having openings in its side and end, a corner plate provided with perforated base and perforated lugs arranged with all the perforations in the same vertical plane and passed through said openings, and a bolt screwthreaded at its lower end and passed through all of said perforations, substantially as specified.

6. A collapsible trunk provided with openings in the side and a folding tray support, a removable corner-piece having lugs passed through said openings and a bolt for passing through the tray-support and all of said lugs, substantially as specified.

7. A collapsible trunk having tray-supporting horizontally-foldable standards in its corners and having trays comprising corner-plates cut away and strengthened and constructed to escape the supports and foldable sides and ends, substantially as specified.

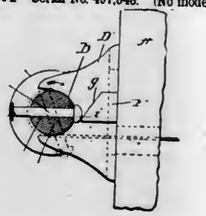
8. A collapsible trunk having tray-supports in the corners thereof and trays having pivoted wire frames and corner plates concaved to escape the supports and to rest upon tray-supporting arms carried by the supports, substantially as specified.

9. In a collapsible trunk, top and bottom sections and intermediate foldable and hinge-leaves one connected to the top and the other to the bottom section and connected to each other by a jointed strap, substantially as specified.

10. In a collapsible trunk, top and bottom sections, intermediate folding sections, terminal hinge-leaves, one of which is connected with the top section and the other with the bottom section, and one of which carries a fastening device and the other of which carries cooperating fastening lugs, substantially as specified

11. In a foldable trunk, and in combination with the top and bottom and intermediate folding sections thereof, a jointed connecting-strap pivoted at either end to a hinge leaf and means for detachably connecting the hinge-leaves, substantially as specified.

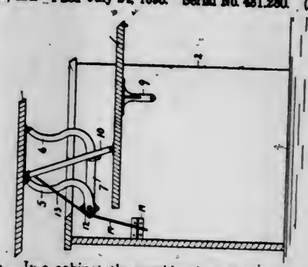
517,842. WIRE-STRETCHER. GEORGE J. CLINE, Goshen, Ind. Filed Jan. 19, 1894. Serial No. 497,348. (No model.)



Claim.—1. In a wire stretcher, the combination with a frame comprising a plate and brackets having bearings as *b*, and a keeper lug arranged upon the frame and having its free end beveled: of a spool having trunnions journaled in the bearings *b*, of the brackets, and a gravitating latch loosely arranged in a diametrical bore formed in one of the trunnions of the spool; the said latch being adapted to engage the keeper lug, substantially as and for the purpose set forth.

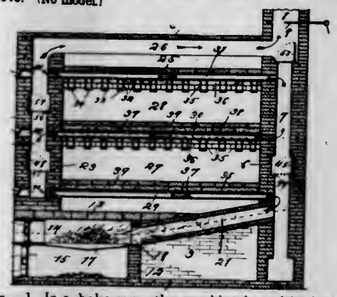
2. In a wire stretcher, the combination with a frame comprising a plate and brackets having bearings as *b*, and a keeper lug arranged upon the frame and having its free end beveled; of a spool having trunnions journaled in the bearings *b*, of the brackets, and a gravitating latch loosely arranged in a diametrical bore formed in one of the trunnions of the spool and having a head *i'*, at one end and a rounded head at its opposite end, substantially as specified.

517,843. TYPE-WRITER CABINET. HENRY T. COMBS, Indianapolis, Ind. Filed July 24, 1893. Serial No. 481,280. (No model.)



Claim.—In a cabinet, the combination of the casing, the swinging-table pivoted to the casing, the movable cover, the parallel arms connecting said cover with the casing, the link connecting the cover and the table, the two-armed coiled spring mounted on the pivot connecting one of the parallel arms with the casing and arranged to engage the under side of the movable cover with one of its arms, and the plate secured to the casing and having a series of notches adapted to engage the other arm of the spring, all arranged to co-operate as and for the purpose set forth.

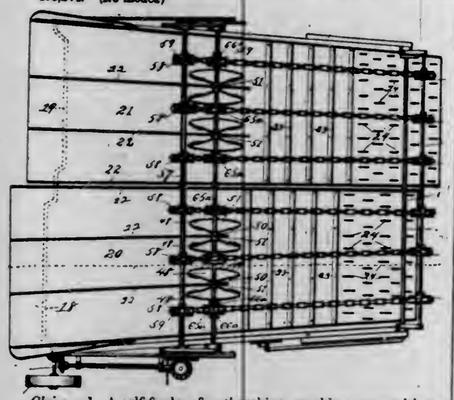
517,844. DIRECT-DRAFT BAKE-OVEN. RICHARD H. CRAINE and DAVID C. CRAINE, Rosedale, Kans. Filed Oct. 31, 1893. Serial No. 489,673. (No model.)



Claim.—1. In a bake-oven, the combination with the furnace, partitions dividing the structure into front and rear valve-controlled passages 24, and 7, and flue-passages 21 and 22, connecting the furnace with the rear passage 7, of a number of superimposed baking compartments, and a series of flues above and below each of said compartments, and communicating at their opposite ends with the passages 7 and 24, and tubular passages through the front wall of the oven corresponding in number to and located opposite the adjacent ends of the said flues, so that said flues may be cleaned, and hinged doors closing said tubular passages, substantially as set forth.

2. The combination in a bake-oven, of a pair of partition walls, forming a pair of passages communicating with the furnace and the chimney, of a series of horizontally arranged pipes extending through and supported by said partition walls, a plate 37, resting upon said pipes and fitting snugly between the side and the partition walls, a layer of solidifying material upon said plate, and brick laid in said material, and a second series of pipes arranged horizontally and above the first series, stirrups suspended from said pipes, strips supported by said stirrups, bricks resting upon said strips, and a layer of solidifying material upon said bricks, substantially as set forth.

517,845. SELF-FEEDER FOR THRASHING-MACHINES. ROBERT L. DENNISON, Kansas City, Mo. Filed Apr. 14, 1893. Serial No. 470,271. (No model.)



Claim.—1. A self-feeder, for thrashing machines, comprising a support, a frame carried by said support, and reciprocating feed-pans carried by said frame, stationary standards carried by said frame, and a shaft extending transversely of the feeder and journaled in said standards, a pair of standards pivotally supported near the discharge end of the feeder, and a rod carried by said pivotal standards and having arms, and a shaft journaled in said arms, and a top-feed mechanism carried by the shaft of the stationary and the shaft supported from the pivotal standards, and means to operate the pivotal standards to adjust the discharge end of the top-feed mechanism, substantially as set forth.

2. A self-feeder for thrashing machines, comprising a pair of stationary supports, a frame pivotally carried by said supports, telescopic legs pivoted to the front portion of said frame and resting upon the ground, and means to extend or contract said legs to raise the frame, and spring-actuated locking-bolts, carried by the supports, and located between the pivotal point of the frame, and the telescopic legs carried by said frame, and adapted to engage the under side of the pivotal frame to assist the telescopic legs in supporting the frame in its elevated position, substantially as set forth.

3. A self-feeder for thrashing machines, comprising a pair of supports, a frame pivotally carried between said supports, telescopic legs supporting the opposite or free end of the frame, a number of reciprocatory feed-pans carried by said pivotal frame, and a top-feed mechanism consisting of chains having arms, supported longitudinally of and above said feed-pans, and an eccentric adjustment whereby the discharge end of the top-feed mechanism may be operated to slacken said chains, substantially as set forth.

4. A self-feeder for thrashing machines, comprising a support, a frame carried by said support, and reciprocatory feed-pans carried by the frame, a pair of stationary standards carried by the frame, and a shaft carried thereby, a pair of standards pivotally supported near the discharge end of the machine, and eccentrics mounted revolubly in said pivotal standards, a rod rigidly connecting said eccentrics, and arms carried by said rod, a shaft journaled in said arms, a top-feed mechanism, supported upon the shaft carried by the said arms and the shaft of the stationary standards, and a handle or lever projecting from one of the said arms so that the discharge end of the top feed mechanism may be eccentrically raised or lowered, substantially as set forth.

5. A self-feeder for thrashing machines, comprising supports, a frame pivoted at one end, and between said supports, and having telescopic legs supporting the opposite or free end of said frame, and reciprocatory feed-pans carried by the frame, and stationary slotted standards carried by said frame, and a cross-shaft having bearings in the slots of the standards, and sprocket wheels thereon, and standards pivotally carried at the discharge end of the machine and a shaft provided with sprocket-wheels supported from said pivotal standards, and endless-chains having feed-arms connecting the first mentioned and last mentioned sprockets, and means to independently and vertically adjust the opposite ends of the endless chains, with reference to the vertical adjustment of the feeder, substantially as set forth.

6. In a self-feeder for thrashing machines, the combination with a pivoted frame, and a lower feed mechanism carried thereby, of a pair of standards pivotally carried by the said pivoted frame, a rod extending transversely of the machine, and connecting said pivoted standards, and having arms, and a shaft operatively mounted in said arms, an endless top-feed mechanism operatively supported by said shaft at one end, and from the said pivoted frame at the opposite end, a lever mounted upon the said pivoted frame, and operatively connected to one of the pivoted standards, and means to secure the said lever at any desired point in the plane of its movement, substantially as and for the purpose set forth.

7. In a self-feeder for thrashing machines, the combination with a support, a crank shaft, and reciprocatory feed-pans carried by said shaft, and a power-shaft of a belt-pulley mounted loosely upon the crank-shaft, and operatively connected to the power-shaft, a grooved sliding sleeve operatively connected to the said wheel to turn therewith, a cross-bar mounted rigidly upon the shaft and carrying friction-shoes, and rods operatively connecting the friction-shoes and the grooved sleeve, and means whereby, as the belt-pulley is rotated the sleeve shall be moved and the friction-shoes forced against the inner side of the rim of the belt-pulley, substantially as set forth.

8. In a self-feeder, the combination with a feed-pan carrying crank-shaft, and a power-shaft of a belt-pulley mounted loosely upon the crank-shaft and operatively connected to the power-shaft and having an extended hub, an annularly grooved sliding sleeve mounted upon the extended hub, belt-crank levers pivotally carried by the wheel, and having arms pivotally connected to the sliding sleeve, and arms projecting through radial slots in the wheel, spring-retracted levers pivoted to the wheel and having weights upon one end, and having their opposite end adjacent to the end of the free arms of the bell-crank levers, a cross-bar keyed upon the shaft and carrying friction-shoes having radially guided stems or rods, and link-rods pivotally connected to the said stems or rods, and extending obliquely downward and outward and engaging loosely the annular groove of the sliding sleeve, substantially as set forth.

9. In a self-feeder for thrashing machines, the combination with a frame carrying reciprocatory feed-pans, of a pair of stationary standards carried by said frame, and having vertical slots, and having inclined slots, extending upwardly and forwardly from the upper end of the vertical slots, sliding boxes mounted in the vertical slots in which a shaft is journaled, and sprocket wheels mounted upon said shaft, and sliding boxes mounted in the inclined slots and links pivotally connecting the boxes of the vertical slots with the boxes of the inclined slots, and a shaft having sprocket-wheels, journaled in the boxes of the inclined slots, and standards pivotally supported near the discharge end of the feeder, and a shaft having sprocket-wheels supported therefrom, and endless chains having arms, operatively connecting the sprockets of the last mentioned shaft and the shaft of the boxes of the inclined slots, and extending obliquely downward and rearward and guided under the sprockets of the shaft carried by the boxes of the vertical slots, and a lever to adjust the front end of the endless chains, and means to hold said chains at any point of adjustment, substantially as set forth.

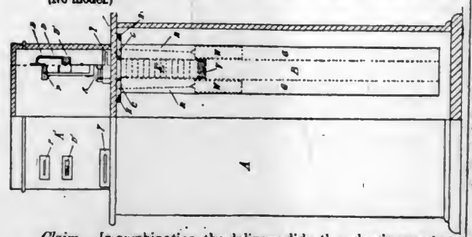
10. A self-feeder for thrashing machines, comprising a pair of supports, a frame pivotally carried between said supports, a crank-shaft revolubly mounted upon said pivotal frame, gear-pinions carried upon each end on the crank-shaft, a top-feed mechanism, comprising a number of revoluble transverse shafts, sprocket wheels carried thereby, and endless chains having curved feed-arms adapted to travel around said sprocket wheels, a multiple gear wheel carried by the pivotal frame, a shaft carrying a pinion meshing with the pinion of the crank-shaft, and a slidable pinion also on said shaft, and means to throw said pinion into engagement with one or the other of the sets of teeth of the multiple gear, and a pinion on one of the sprocket shafts, and a shaft having a pinion meshing with the pinion of the sprocket shaft, and also a slidable pinion, and means to throw said pinion into engagement with one or the other of the sets of the multiple gear, to increase or decrease the speed of travel of the feed-chain mechanism, substantially as described.

517,846. FACE-STEAMING APPLIANCE. MARGARET DE WITT, Kansas City, Mo. Filed Apr. 14, 1893. Serial No. 470,285. (No model.)



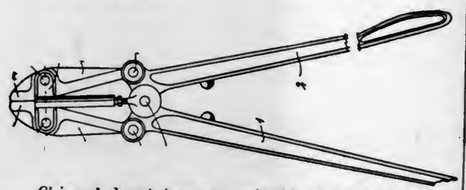
Claim.—In a face steaming appliance, the combination with a casing, a horizontal partition dividing the casing into an upper and a lower compartment, and provided with a central aperture, air-inlet openings communicating with the lower compartment, and a steam outlet opening communicating with the upper compartment, of a water receptacle in the upper compartment, and legs, secured at their lower ends to the margin of the opening of the horizontal partition, and supporting said water receptacle, substantially as set forth.

517,847. COIN-ACTUATED AUTOMATIC MECHANISM FOR THE DELIVERY OF ICES. HERBERT Y. DICKINSON and ANDREW G. MACCULLOCH, London, England. Filed June 24, 1893. Serial No. 478,739. (No model.)



Claim.—In combination, the delivery slide, the releasing mechanism thereof, the coin slide with inlet slot, the bar D, having its lower end adapted to bear on the article, an upper end D^2 adapted to close the slot opening when the machine is empty and the placard "full" and "empty" connected to the bar D, substantially as described.

517,848. BOLT-CUTTER. WILLIAM L. DUTCHER, Rome, assignor to P. D. Randall & Son, Troy, N. Y. Filed Aug. 3, 1893. Serial No. 482,223. (No model.)



Claim.—1. In a bolt cutter, a pair of lever handles hinged together, a pair of cutting levers hinged in a strap, the ends of the cutting levers being pivoted to the ends of the lever handles, a spring and guide barrel fixed on the strap holding the cutting levers and projecting toward the hinging joint between the lever handles, and a plunger connecting with the joint between the lever handles and extending into the barrel, all combined, substantially as set forth.

2. The combination of a pair of lever handles hinged together, a pair of cutting levers hinged in straps, each mounted on an independent pivot in the strap, a fixed projection on the strap and a slotted opening in the cutting levers substantially in line between the pivotal point of the cutting levers, substantially as set forth.

3. The combination of a pair of cutting levers hinged on independent pivots in straps, a projection from the straps into slotted indentations in the cutting levers, and a pair of lever handles hinged together and connecting with the cutting levers, substantially as set forth.

4. The combination of a pair of lever handles, an adjustable hinged joint between the lever handles having projections arranged at the sides of the pivotal center of the joint on one of the parts and a series of grooves substantially concentric with the pivotal center of the joint in the other part adapted to receive the projections as one part is adjusted sidewise upon the other part, a slotted opening in one of the parts for permitting the adjustment, a bolt or pivotal pin extending through the pivotal center of the hinged joint and holding the same together, and a pair of cutting jaws hinged to the short arms of the lever handles, substantially as set forth.

5. The combination of a pair of lever handles, an adjustable hinged joint between the lever handles having a projection on one of the parts of the joint, and a series of substantially concentric grooves on the other part adapted to receive the projection as the parts are adjusted sidewise upon each other, an opening in each of the parts for the reception of a pivotal pin or bolt, and a bolt or pivotal pin, substantially as set forth.

6. In a bolt cutter, a pair of lever handles hinged together, a pair of cutting levers each connected with the short arm of the lever handles and pivoted on independent pivots in a strap, a connection between the strap and the hinge joint between the lever handles, and a cushioning spring introduced in the connection, combined substantially as set forth.

7. In a bolt cutter, a pair of lever handles hinged together, a pair of independent cutting levers hinged to the short arms of the lever handles, a strap engaging the cutting levers, a pivot for each cutting lever in the strap, an independently operating means for limiting the swinging movement of each of the levers on its pivot, combined substantially as set forth.

8. In a bolt cutter, a pair of lever handles hinged together, a pair of cutting levers hinged in a strap, the ends of the cutting levers being pivoted to the ends of the lever handles, a spring and guide barrel fixed to the strap and extending toward the hinged joint of the lever handles, a plunger connected with the hinged joint and extending into the barrel, a spring in the barrel, and means for adjusting the length of the barrel, combined substantially as set forth.

9. In a bolt cutter, a pair of lever handles hinged together, a pair of connecting levers hinged on independent pivots in a strap, the ends of the cutting levers being connected to the ends of the lever handles, a spring and guide barrel fixed on the strap, and extending toward the joint between the lever handles, a spring in the barrel, a plunger working in the barrel and connected with the hinged joint between the lever handles, and means for adjusting the length of the plunger, all combined substantially as set forth.

517,849. BARBER'S BOTTLE. JOEL B. EDMUNDS, Manchester, Iowa. Filed Nov. 17, 1893. Serial No. 491,220. (No model.)



Claim.—1. As a new article of manufacture, a barber's bottle, consisting of a body *a*; an extension or lug *c* thereon, a cap *d*, over said extension; or lug and held thereto; an eye *g*, on said cap; and a valve at the lower end of said body, substantially as described.

2. As a new article of manufacture, a barber's bottle, consisting of a body *a*; neck *b*; cork *i*, in said neck; casing, *j*, in said cork, said casing having a valve seat *k*; valve *l*, for engagement with said seat; spring *o*, for normally seating said valve; stem *m*, for said valve, and finger piece *n* on said stem, substantially as described.

517,850. LAGGING FOR BOILERS AND PIPES. CHARLES EHRLICHER, Watertown, N. Y. Filed Dec. 14, 1893. Serial No. 493,705. (No specimens.)

Claim.—Lagging for boilers and pipes composed of a mixture of fibrous talc, hair and soluble glass in the proportions substantially as set forth.

517,851. FIREPROOF SHEATHING. CHARLES EHRLICHER, Watertown, N. Y. Filed Dec. 14, 1893. Serial No. 493,706. (Specimens.)

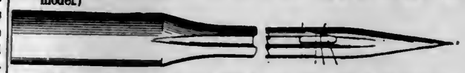
Claim.—1. The process of making a fireproof sheathing, consisting in first forming a solution of salt and alum, then thoroughly incorporating therewith wood pulp, then mixing fibrous talc with the treated wood pulp and finally forming the mass into a flexible sheet, substantially as set forth.

2. The flexible sheet of sheathing composed of fibrous talc and wood pulp in the proportions substantially as set forth.

517,852. COVERING FOR PIPES AND BOILERS. CHARLES EHRLICHER, Watertown, N. Y. Filed Dec. 14, 1893. Serial No. 493,707. (Specimens.)

Claim.—The covering for pipes and boilers, consisting of a flexible sheet composed of fibrous talc and asbestus in the proportions substantially as set forth.

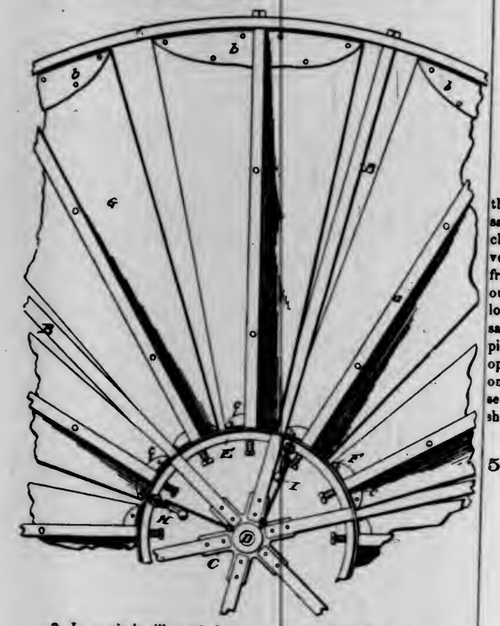
517,853. SEWING-MACHINE NEEDLE. JULIUS M. FARMER, Milwaukee, assignor of one-half to Henry Reuter and Alexander L. Reuter, Rich Lake, Wis. Filed July 3, 1893. Serial No. 479,440. (No model.)



Claim.—A sewing machine needle provided with an eye near the point thereof and a threading slot communicating with said eye formed by a cut, the said cut being in a plane oblique to the longitudinal axis of the said needle and at the same time diagonal to the said axis, starting from a point in the body above the eye on the one side of the needle and terminating at a point below the center of the eye on the other side of the needle, whereby the part of the metal at the cut continuous with the lower or point end of the needle overlies and rests upon the part of the metal continuous with the body of the needle for the entire length of said cut, and also rests upon the under cut metal of said body above the top of the eye, substantially as set forth.

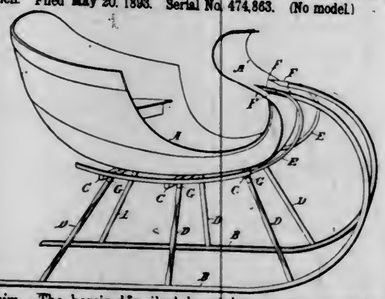
517,854. WINDMILL. FRANK A. FRANKLIN, Evansville, Wis. Filed Apr. 3, 1893. Serial No. 468,852. (No model.)

Claim.—1. In a wind-mill, the combination with a wind-wheel substantially as described, of governing levers "H" pivoted to the inner rim of said wind-wheel, a governing weight "I" on the end of each governing arm "H," a connecting rod "*f*" connecting said governing arm "H" with the fans of said wind-wheel, a connecting rod "*k*" connecting said governing weights with bell levers "*g*," the connecting arms "*m*" connecting said bell levers "*g*" with shipping swivel "*n*" and a shipping lever connected with the said shipping swivel substantially as set forth.



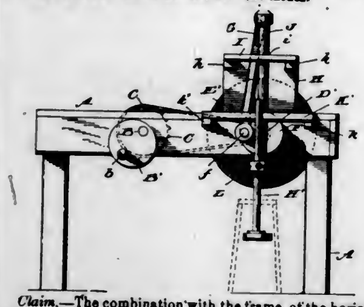
2. In a wind-mill, a wind-wheel, composed of the outer rim A, the double supporting spokes B secured to the spider C, the cross pieces E, the inner rim F secured to said cross pieces, the shafts *a* mounted between said inner rim F and said outer rim A, the castings *b* and *c* on the outer and inner ends of each shaft, the fan *d* bolted or riveted to said castings *b* and *c*, in combination with governing weights I connected to the fans thereof, said governing weights being connected together so as to counter balance each other when at rest, substantially as set forth.

517,855. KNOCKDOWN CUTTER. JASPER K. FISHER, Lowell, Mich. Filed May 20, 1893. Serial No. 474,863. (No model.)



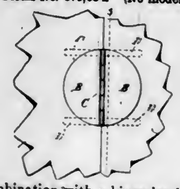
Claim.—The herein-described knockdown cutter, consisting of the body, having its dash provided with plates each of which has flanges and a socket at the side of said flanges, the runner irons, tapered at their upper ends and having said tapered ends received between and engaging the flanges of said plates, and removable therefrom, the fenders, having their upper ends removably inserted within the sockets of said plates and encircled thereby, sockets, G, having flanges, bolts, passing through said flanges and removably securing said sockets to the cutter-body, and knees, secured at their lower ends to the runner irons and having their upper ends inserted within said sockets G, substantially as described.

517,856. MOTOR. MATTHEW C. GILBERT, Columbus, Ga. Filed Aug. 22, 1893. Serial No. 483,723. (No model.)



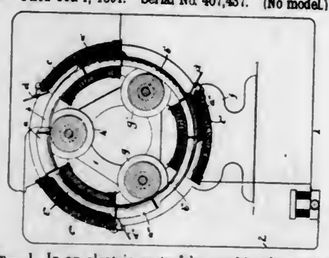
Claim.—The combination with the frame, of the horizontal shaft, the sprocket wheel and crank disk thereon, the shaft parallel with said shaft, the fly wheel and sprocket wheel thereon, the sprocket chain passed around said sprocket wheels, the crank disk and pin the vertical pitman connected at one end to said pin, the upright H rising from the frame, the horizontal arms *h*, the plate I connecting the outer ends of said arms and having an opening, the vertical rod passed loosely through said opening, a lateral projection at the upper end of said rod, and connected to the upper end of the pitman, the lateral pieces *k'* on the frame, the plate K supported thereon and having an opening through which the vertical rod loosely passes, the clamp arm on the lower end of said rod and having open sided opening, and a set screw for holding the dasher stem therein, all substantially as shown and described.

517,857. HINGE. ALVINZA M. GRANGER, Grand Rapids, Mich. Filed June 23, 1893. Serial No. 478,634. (No model.)



Claim.—In combination with a hinge having flat plates pivoted to each other at their adjacent edges, ribs arranged parallel to said plates and connected to the inner surface of the same by narrow necks, and adapted to engage openings in the door and casing, and secure said hinge thereto, substantially as described.

517,858. ELECTRIC MOTOR. EDWIN T. GREENFIELD, New York, N. Y. Filed Oct. 1, 1891. Serial No. 407,437. (No model.)

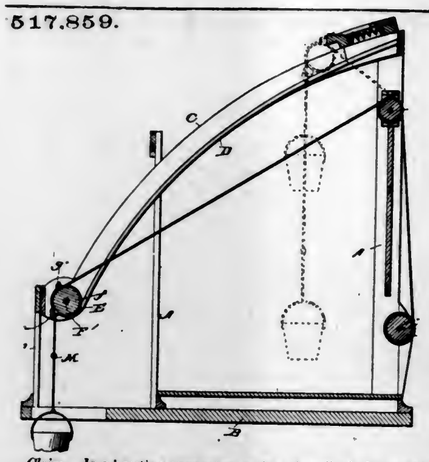


Claim.—1. In an electric motor the combination with a series of solenoids of an annular core therefor made up of alternate sections of magnetic and non-magnetic material, a centering device for said core, a power transmitting device driven by said core, and brushes or contacts carried by said solenoids adapted to contact with said core, substantially as set forth

2. In an electric motor the combination with an annular core made up of magnetic sections *a*, *a'*, &c., and non-magnetic sections *b*, *b'*, &c., of solenoids *c*, *c'*, &c., brushes *d*, *d'*, &c., of centering rollers *g*, *g'* and centering and friction roller *h*, substantially as set forth.

517,859. HOISTING AND CONVEYING APPARATUS. SETH M. HEWETT, Minneapolis, Minn. Filed Feb. 18, 1893. Serial No. 462,883. (No model.)

517,859.



Claim.—In a hoisting apparatus, such as described, the combination with the fixed inclined tracks, the fixed pulley, drum and rope as described, of the carriage, traveling on the tracks, having the wheels at each side, the central pulley over which the rope passes and the frame journaled on the carriage and having the aperture at the bottom and the bridge at the top for cooperation with the rope as described.

517,860. WORK-HOLDER. MARY P. C. HOOPER, New York, N. Y. Filed May 2, 1893. Serial No. 472,802. (No model.)



Claim.—1. A holder for supporting a fabric for receiving ornamentation, consisting of a frame that provides an unobstructed working space within it, which frame has a multiplicity of projecting impaling pins for retaining the fabric stretched over them, and a protecting covering retainer for the pins that is detachable for the reception and removal of the fabric, substantially as described.

2. A holder for supporting a fabric for receiving ornamentation, consisting of a frame that provides an unobstructed working space within it, which frame has a multiplicity of projecting impaling pins for retaining the fabric stretched over them, and a protecting covering retainer for the pins that is detachable for the reception and removal of the fabric and is provided with means for securing it in place over the pins, substantially as described.

3. A holder for supporting a fabric for receiving ornamentation, consisting of a frame that provides an unobstructed working space within it, which frame has a multiplicity of projecting impaling pins for retaining the fabric stretched over them, and a protecting covering retainer for the pins that is detachable for the reception and removal of the fabric that is provided with pin entering spaces of smaller area than the pins, whereby the latter operate to hold the retainer in place, substantially as described.

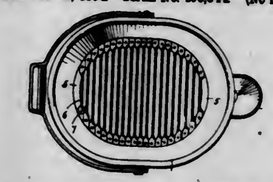
4. A holder for supporting a fabric for receiving ornamentation, consisting of a frame that provides an unobstructed working space within it, which frame has a multiplicity of projecting impaling pins for retaining the fabric stretched over them, and a protecting covering retainer for the pins that is detachable for the reception and removal of the fabric and composed of a material readily entered by said pins, substantially as described.

5. A holder for supporting a fabric for receiving ornamentation, consisting of a frame that provides an unobstructed working space within it, which frame has a multiplicity of projecting impaling pins for retaining the fabric stretched over them, and a protecting covering retainer for the pins that is detachable for the reception and removal of the fabric and constructed to receive the pins within its body, said frame having holes, as 7, and said retainer having holes, as 6, which holes are adapted to receive fastenings for securing the retainer upon the holder, substantially as described.

517,861. COMPOSITION FOR EXTERMINATING CANADA THISTLES. RICHARD B. HULL, Milton Junction, Wis. Filed Dec. 19, 1893. Serial No. 494,098. (No specimens.)

Claim.—The herein described composition of matter to be used in exterminating Canada thistles, consisting of bi-sulphide of carbon, turpentine, pine tar, and butyric ether, combined substantially in the proportions specified.

517,862. ELECTRICAL FOOT-BATH. ISAAC A. ISAACS, New York, N. Y. Filed Jan. 10, 1894. Serial No. 496,344. (No model.)



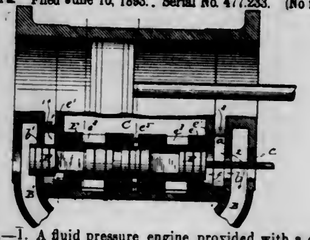
Claim.—1. An electrical foot-bath consisting of a vessel and a number of voltaic couples arranged at or near the bottom of the vessel and serving also as a support for the feet of the user.

2. An electrical foot-bath consisting of a vessel, a number of voltaic couples arranged near the bottom of the vessel, and a hot water inlet to the vessel arranged beneath said couples

3. An electrical foot-bath consisting of a vessel, a number of voltaic couples arranged near the bottom of the vessel, a hot-water inlet arranged between said couples and said bottom, and an exteriorly-arranged hot-water pipe on the side of the vessel

4. An electrical foot-bath consisting of the vessel, the ring, the voltaic couples thereon, the hot-water inlet beneath the couples, and the outside hot-water pipe.

517,863. VALVE FOR ENGINES. WILLIAM H. JENKS, Brookville, Pa. Filed June 10, 1893. Serial No. 477,233. (No model.)

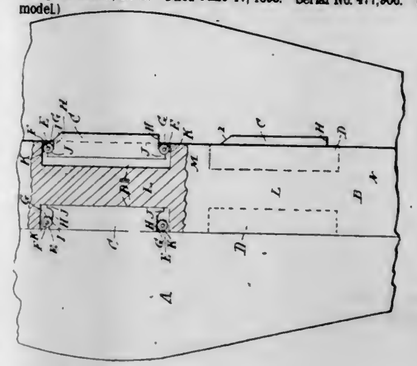


Claim.—1. A fluid pressure engine provided with a cylinder, a valve chest, one or more relief valves, and one or more reciprocating valves which pass through the relief valve or valves, and govern the admission of steam or other fluid.

2. A fluid pressure engine provided with a cylinder, a valve chest, and a reciprocating valve or valves governing the admission of steam and provided also with a sleeve or relief valve through which the reciprocating valve passes, and means for normally holding the relief valve on its seat.

3. The combination of the cylinder, the fluid chest, ports leading from the fluid chest to both ends of the cylinder, passages connecting the exhaust passages with the ports at the ends of the cylinder, a valve chest, relief valves within the valve chest provided with springs for holding them on their seats, and a reciprocating valve extending through the relief valves.

517,864. LEE-WING FOR VESSELS. NATHAN C. JESSUP, West Hampton Beach, N. Y. Filed June 17, 1893. Serial No. 477,906. (No model.)

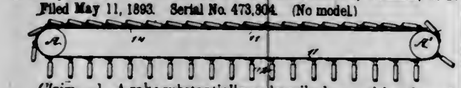


Claim.—1. In vessels, the hull and keel, the latter constructed with sockets in its side faces and a solid wall L intervening between said sockets, in combination with a lee-wing movably mounted in each of said sockets, when moved in one direction projecting laterally from said keel for preventing leeway, and when moved in the other direction moving within its socket, and means for moving said wings, substantially as set forth.

2. In a vessel, the hull and keel, the latter constructed with a plurality of sockets in each of its side faces, with a solid web L between said sockets, with a solid under face N beneath said sockets, and with solid portions M between the ends of said sockets, in combination with lee wings for each of said sockets, and means for moving said wings, substantially as set forth.

3. In a vessel, the hull and keel, in combination with a lee wing C carried by the keel and having rack teeth H and stop projection J, and a gear E having a shaft F for manipulating it and constructed with a toothed segment G engaging said rack and a segment K in the path of and engaging said stop J for limiting the movement of the wing, substantially as and for the purpose set forth.

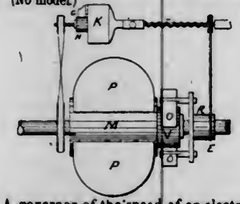
517,865. RATTLE RAKE. RICHARD KEELING, Walhalla, N. D. Filed May 11, 1893. Serial No. 473,804. (No model.)



Claim.—1. A rake substantially as described comprising the endless guide belts, the loops secured to said guides and the slats pivoted at one edge to said loops and arranged at their opposite or free edges each to rest upon the loop supporting the adjacent slat all substantially as and for the purposes set forth.

2. The improved rattle rake herein described, consisting of the endless guide belts, the loops or eyes secured thereon, the slats having at one edge staples engaging said guide belts, the loops, staples, and slats being constructed and spaced, substantially as described, whereby upon the upper run of the rake the slats will be spaced apart at their adjacent edges, such space being narrower than the space between the hanging slats upon the lower run of the rake, and the free edges of the slats on the upper run of the rake being rested upon the loops, which secure the adjacent slat, substantially as shown and described.

517,866. GOVERNOR FOR ELECTRIC OR OTHER MOTORS. NATHANIEL S. KEITH, San Francisco, Cal. Filed July 5, 1893. Serial No. 479,608. (No model.)

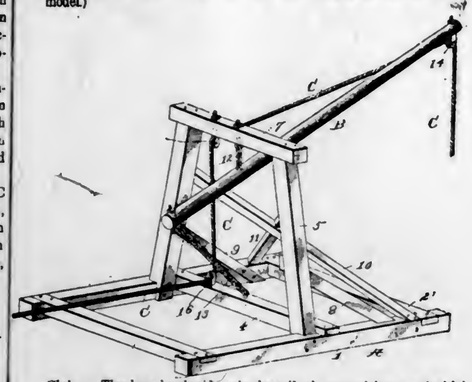


Claim.—1. A governor of the speed of an electric, a steam, or a water motor, consisting of a dynamo-electric machine having its armature driven by the motor; its field-magnet mounted so as to be rotatable in one direction by the magnetic torque of its armature on its field-magnet; and rotatable in the other direction by a spring, or weight, or like means; and attached by suitable mechanism to means which control the supply of either electricity, magnetism, steam, water, or air to the motor, or parts thereof.

2. A governor of the speed of any motor:—consisting of a dynamo-electric machine, having its armature driven by the motor; its field-magnet mounted so as to rotate in one direction by reason of the magnetic torque of its armature on its field-magnet; and so as to rotate in the other direction by the pull of a spring, or weight, or analogous means; and said field-magnet attached by suitable mechanism to means which control the supply of energy to the motor, or parts thereof, so that the movements of the field-magnet of the governor effects automatically the supply of energy to the motor to preserve an approximate constancy of speed.

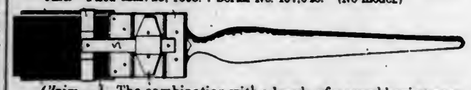
3. The combination which consists of a motor; means for regulating the supply of actuating materials or energy to the motor; a dynamo-electric machine mounted so as to rotate concentrically to or fro, with its armature; means for rotating the armature of the dynamo-electric machine by the motor; a device, or devices, for connecting the field-magnet to the means for regulating the supply of actuating materials, or energy, to the motor; all so that when the field-magnet is rotated a corresponding motion is conveyed to the aforesaid means for regulating the supply of actuating materials, or energy, to the motor.

517,867. DEVICE FOR UNLOADING HAY. FREDERICK A. KILLPACK, Ferron, Utah. Filed Nov. 25, 1892. Serial No. 453,067. (No model.)



Claim.—The hay loader, herein described, comprising a suitable base "A," standards secured to the base and connected at the tops by a cross-bar "7," a chain "12" secured to and depending from the cross bar, a lever "B" hung to the chain "12," a stay-chain "13," having one end secured to the lower end of the lever "B," and the lever end anchored to the base "A," a pulley "14" on the outer end of the lever "B," a pulley "15" depending from the cross-piece of the standards, a pulley "16" mounted on the base "A," and a lifting rope on the said pulleys, all arranged and combined substantially as shown and specified.

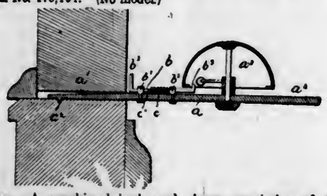
517,868. PAINT-BRUSH. GEORGE A. KRICHBAUM, Youngstown, Ohio. Filed Mar. 25, 1893. Serial No. 467,648. (No model.)



Claim.—1. The combination with a brush, of a guard having portions to embrace the edges of the bristle tuft, and a spring attached at its ends, respectively, to the said guard and handle of the brush to hold the guard in a normal position and return the same to an original position when the pressure on the brush is removed, and which will admit of the guard yielding and conforming to the movements of the bristle tuft in the sweep of the brush, substantially as described.

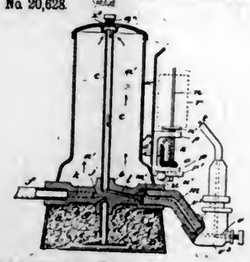
2. The combination with a brush having a keeper on one side of the handle, of a guard composed of side pieces placed in parallel relation and tapering in width, a cross piece connecting the said side pieces near the wide end, and a spring connected with the said cross piece at one end and adapted to have the other end inserted in the said keeper, whereby the guard and the bristle tuft will yield together in the efficient service of the brush, substantially as set forth.

517,869. PORTABLE BURGLAR-ALARM. SIM C. LAWLOR, Duluth, Minn., assignor of three-fourths to S. George Stevens, Timothy W. Lemieux, and Wallace E. Harvey, same place. Filed Apr. 13, 1893. Serial No. 470,191. (No model.)



Claim.—A combined lock and alarm, consisting of the base *a* provided with a shank *a'* adapted to be introduced into the space between the door and its casing and to be turned, whereby a stud or tooth *c'* on its shank will engage with said casing; an alarm bell a^3 secured to said base and having alarm mechanism therein; an arm *b* mounted on said base, in bearings b' b^3 and adapted to engage with at one end and trip the bell mechanism; a spring *c* for holding said arm normally out of engagement with said bell mechanism; and a finger b^3 on said arm *b* in the path of the door, adapted to move said arm *b* and trip the bell mechanism when the door is opened and to engage with the bearing b' so as to lock the door, substantially as described.

517,870. LIME-LIGHT APPARATUS. WILLIAM LAWSON, Newton-le-Willows, assignor to Joseph Riley, Bradford, England. Filed June 19, 1893. Serial No. 478,135. (No model.) Patented in England Nov. 15, 1892, No. 20,628.



Claim.—1. In an apparatus for producing lime light, the case, a tube and valve-carrier arranged within the case, a gas-supply and a burner for said tube and valve-carrier arranged outside the case, said tube and valve-carrier having a valved passage leading from the gas-supply and communicating with the interior of the case, a passage leading from the interior of the case and communicating with the burner, and an independent valved-passage leading from the gas-supply and communicating directly with the burner, the lime, and means for supporting said lime in proper relative position to the burner, substantially as described.

2. In an apparatus for producing lime light, the case, a tube and valve-carrier arranged within the case, a gas-supply and a burner for said tube and valve-carrier arranged outside the case, said tube and valve-carrier having a valved passage leading from the gas-supply and communicating with the interior of the case, a passage leading from the interior of the case and communicating with the burner, and an independent valved-passage leading from the gas-supply and communicating directly with the burner, the lime and a support therefor, and means for automatically adjusting the lime in proper relative position to the burner, substantially as described.

3. In an apparatus for producing lime light, the case, a tube and valve-carrier arranged within the case, a gas-supply and a burner for said tube and valve-carrier arranged outside the case, said tube and valve-carrier having a valved passage leading from the gas-supply and communicating with the interior of the case, a passage leading from the interior of the case and communicating with the burner, and an independent valved passage leading from the gas-supply and communicating directly with the burner, a valve *v'* for regulating the supply of gas to said burner, the lime, and means for supporting said lime in proper relative position to the burner, substantially as described.

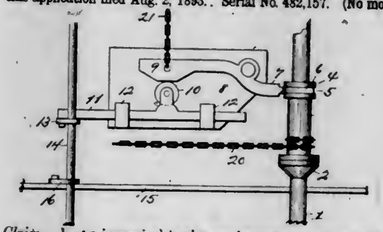
4. In an apparatus for producing lime light, the combination of the case *a*, the tube and valve carrier *b* arranged within said case and provided with a gas supply and valved gas passages, a tube *d* extending from one of said valved gas passages and opening into the bottom of the case and provided with a diaphragm *e*, and a tube *c* extending upwardly from such tube and valve carrier and opening into the top of the case and communicating with the burner tube through another of the said passages, substantially as described.

5. In an apparatus for producing lime light, the combination of the case *a* containing inflammable material, the tube and valve carrier *b* arranged within said case and provided with a gas supply and valved gas passages, a tube *d* extending downwardly from said tube and valve carrier and opening into the bottom of the case and communicating with the gas supply through one of said passages and also opening into the inflammable material in the case, a tube *c* extending upwardly from the tube and valve carrier and opening into the top of the case and communicating with the burner tube through another of such gas passages, the lime, and means for adjusting said lime in proper relative position to the burner tube, substantially as described.

6. In an apparatus for producing lime light, the combination of the case *a* containing inflammable material, the tube and valve carrier *b* arranged within said case and provided with a gas supply and valved gas passages, a tube *d* extending downwardly from said tube and valve carrier and opening into the bottom of the case and communicating with the gas supply through one of said passages and also opening into the inflammable material in the case, a tube *c* extending upwardly from the tube and valve carrier and opening into the top of the case and communicating with the burner tube through another of such gas passages, the lime, a support therefor arranged outside the case, and a shield interposed between the case and lime, substantially as described.

7. In an apparatus for producing lime light, the combination of the case *a* containing inflammable material, the tube and valve carrier *b* arranged within the case and provided with a gas supply and valved gas passages, a tube *d* extending downwardly from said tube and valve carrier and opening into the bottom of the case and communicating with the gas supply through one of said passages and also opening into the inflammable material in the case, a tube *c* extending upwardly from the tube and valve carrier and opening into the top of the case and communicating with the burner tube through another of the said passages, a suitable number of jets arranged outside the case and communicating with the burner tube, the lime and means for adjusting said lime in proper relation to the jet or jets, substantially as described.

517,871. CAR-BRAKE MECHANISM. WILLIAM LAWRENCE, New York, N. Y., assignor to the Lawrence Electric Company, same place. Original application filed Jan. 21, 1893, Serial No. 459,134. Divided and this application filed Aug. 2, 1893. Serial No. 482,157. (No model.)

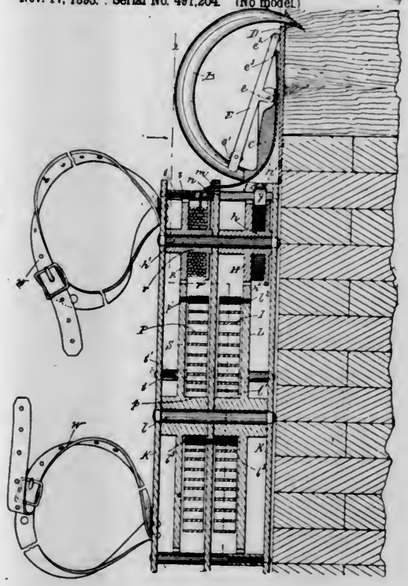


Claim.—1. An improved brake mechanism consisting of a drum slidably and rotatably mounted on a shaft, a recessed shoulder mounted upon and secured to said shaft, the said drum having one end tapered and adapted to engage with the recess in said shoulder; a ring also mounted on the shaft and adapted to bear against the drum, the said ring having a groove on its outer surface to receive the forked end of a lever, the said lever being pivoted on a plate and having an inclined shoulder for engagement with a wheel mounted in a slidable bar, the said lever adapted to be moved laterally by said wheel and bar, thereby causing a friction between the drum and shoulder, substantially as and for the purpose set forth.

2. In a brake mechanism, the combination of a shaft, a clutch thereon, a lever to operate said clutch, a sliding bar, means between said lever and said bar for moving the former by the latter, a brake and connection between said brake and said clutch, for operating the latter, substantially as described.

3. In a brake mechanism the combination of a shaft, a clutch thereon, a lever to operate said clutch, a sliding bar, and means between said lever and said sliding bar for moving the former by the latter, said bar movable in either direction from either end of the car without changing the movement of the operating lever, substantially as shown and described.

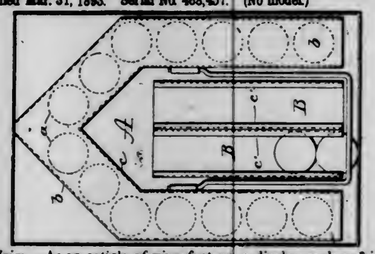
517,872. FIRE-ESCAPE. EDWARD LAWTON, Quincy, Mass. Filed Nov. 17, 1893. Serial No. 491,204. (No model.)



Claim.—1. In a portable fire-escape, the combination of a hook B formed substantially on the arc of a circle, a stanchion extending from the butt of the hook in the line of a radius to the curve of the hook toward the center, a spring-plate secured to the stanchion, its free end extending upward beyond the hook and formed with a slot through which the point of the hook passes, a tape attached to the butt of the hook and wound upon the hub of a pinion wheel mounted on an axle in a suitable frame, a second wheel mounted in said frame and geared with said pinion and having a coil spring which winds up with the unwinding of the tape, and suitable means for securing the device to the person, substantially as described.

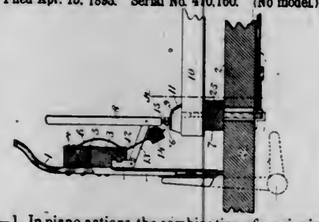
2. In a portable fire escape, the combination of a hook B formed substantially on the arc of a circle, a stanchion extending from the butt of the hook in the line of a radius to the curve of the hook toward the center, a spring-plate secured to the stanchion, its free end extending upward beyond the hook and formed with a slot through which the point of the hook passes, a lever pivoted to the stanchion of the hook having one arm which slides on the inner periphery of the hook, its other and shorter arm sliding on the spring-plate, a releasing cord attached to said shorter arm and wound upon the hub of a pinion wheel mounted in a frame, another wheel mounted in said frame and geared with said pinion wheel, and having a coil spring which winds up with the unwinding of the cord, all combined so that the hook may be detached by pulling the cord, substantially as described.

517,873. DISPLAY-RACK. OTTO MAGNIAU, Fremont, Nebr. Filed Mar. 31, 1893. Serial No. 468,457. (No model.)



Claim.—As an article of manufacture, a display rack consisting essentially of a flat plate or card having openings therein and adapted to rest on its lower end or edge, back plates located behind these openings, open elongated receptacles secured on the back of the plate within the space formed by the back plates, and a rest connected with the back of the plate to support the device in its elevated position, said rest constructed and capable of being made to enter the space formed around the back receptacle when folded, substantially as set forth.

517,874. TRANSPOSING-KEYBOARD. ALEXANDER MARCY, Toronto, Canada, assignor of eleven-twentieths to Joseph Hanauer, Omaha, Nebr. Filed Apr. 13, 1893. Serial No. 470,160. (No model.)



Claim.—1. In piano actions, the combination of a swinging flange rail and a movable transposing key-board, for the purposes set forth.

2. In piano actions, the combination of an adjustable retaining bar beneath the swings and a movable transposing key-board, for the purposes set forth.

3. In piano actions, the combination of a swinging flange rail jointed to a stationary rail and an adjustable retaining bar beneath the swings and secured to the swinging flange rail, and the springs secured to the stationary rail, for the purposes set forth.

4. In piano actions, the combination of a swinging flange rail jointed to a stationary rail, an adjustable retaining bar beneath the swings and secured to the swinging flange rail, the springs secured to the stationary rail, and the flanges secured to the said swinging flange rail, for the purposes set forth.

5. In piano actions, the combination of a swinging flange rail jointed to a stationary rail, an adjustable retaining bar beneath the swings and secured to the swinging flange rail, the springs secured to the stationary rail, the flanges secured to the said swinging flange rail, and the swings connecting the said flanges with the lifts or action stems, for the purposes set forth.

6. In piano actions, the combination of a swinging flange rail jointed to a stationary rail an adjustable retaining bar beneath the swings, and secured to the swinging flange rail, the springs secured to the stationary rail, the flanges secured to the said swinging flange rail, the swings connecting the said flanges with the lifts or action stems, and the lifts or action stems with the lower ends where they connect with the keys about equally spaced from center to center, for the purposes set forth.

7. In piano actions, the combination of a swinging flange rail jointed to a stationary rail, an adjustable retaining bar beneath the swings and secured to the swinging flange rail, the springs secured to the stationary rail, the flanges secured to the said swinging flange rail, the swings connecting the said flanges with the lifts or action stems, the lifts or action stems with the lower ends where they connect with the keys about equally spaced from center to center, and the regulating screws on the lower ends of the said lifts or action stems, for the purposes set forth.

8. In piano actions, the combination of a swinging flange rail jointed to a stationary rail, an adjustable retaining bar beneath the swings and secured to the swinging flange rail, the springs secured to the stationary rail, the flanges secured to the said swinging flange rail, the swings connecting the said flanges with the lifts or action stems, the lifts or action stems with the lower ends where they connect with the keys about equally spaced from center to center the regulating screws on the lower ends of the said lifts or action stems, and a movable transposing key-board, for the purposes set forth.

9. In piano actions, the combination of a swinging flange rail jointed to a stationary rail, an adjustable retaining bar beneath the swings and secured to the swinging flange rail, the springs secured to the stationary rail, and a jack secured to the casing, for the purposes set forth.

10. In piano actions, the combination of a swinging flange rail jointed to a stationary rail, an adjustable retaining bar beneath the swings and secured to the swinging flange rail, the springs secured to the stationary rail, a jack secured to the casing, and the jack rod leading to a foot pedal, for the purposes set forth.

11. In piano actions, the combination of a swinging flange rail jointed to a stationary rail, an adjustable retaining bar beneath the swings and secured to the swinging flange rail, the springs secured to the stationary rail, a jack secured to the casing, the jack rod leading to a foot pedal, and a movable transposing key-board for the purposes set forth.

12. In piano actions, the combination of a swinging flange rail jointed to a stationary rail, an adjustable retaining bar beneath the swings and secured to the swinging flange rail, the springs secured to the stationary rail, the action brackets resting on the casing back of the keys, and back of the said stationary and swinging flange rail, and a movable transposing key-board, for the purposes set forth.

13. In piano actions, the combination of a swinging flange rail, an adjustable retaining bar, the springs, the flanges, the swings, the lifts or action stems, deflected as shown the regulating screws, the jack, the jack rod, the action brackets resting on the casing back of the keys and back of the stationary and swinging flange rail, and a movable transposing key-board for the purposes set forth

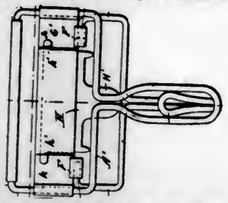
14. In pianos the combination of a swinging flange rail, an adjustable retaining bar beneath the swings, the lifts or action stems, deflected as shown so the lower ends of the lifts or action stems will be about evenly spaced from center to center, and a movable transposing key-board, for the purposes set forth.

15. In piano actions, the combination, of a stop rod with one end secured in a flexible manner to the jack and the other end having an adjustable connection with a movable transposing key-board for the purposes set forth.

16. In pianos the combination of a swinging flange rail, an adjustable retaining bar beneath the swings and secured to the swinging flange rail, the springs pressing against the said swinging flange rail, a jack secured to the casing, a stop rod with one end secured to the jack in a flexible manner and the other end having an adjustable connection with the key-board frame, and a movable transposing key board for the purposes set forth.

517,875 WIRE SUSPENDER-BUCKLE. JAMES F. MOLLOY, New Haven, Conn. Filed July 24, 1893. Serial No. 481,251. (No model.)

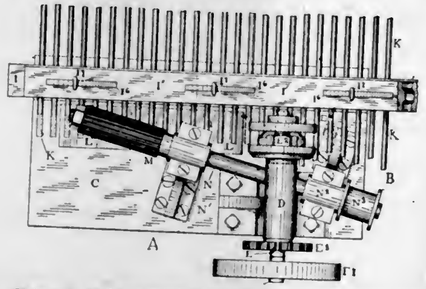
Claim.—1. The herein described suspender buckle, having a wire body-portion with parallel sides and parallel ends, a sheet-metal cross-bar located between the parallel sides of the frame with spaces between its edges and the said sides for the web to be passed through, and having its ends attached to the ends of the frame, and a pivotal sheet-metal catch located back of the cross-bar and engaging at its upper end with the rear face of the said bar which holds it in its open and closed positions, and extended at its lower end below the lower edge of the cross-bar, and provided with teeth for engaging with the rear face of the web, the outer face of which is engaged by another portion of the buckle, substantially as described.



2. The herein described suspender buckle, having a wire frame with parallel sides and parallel ends, and a pivotal wire lever, one of the said parts being formed with a depending loop and the other with a depending hook to pass through the same, a sheet-metal cross-bar located between the parallel sides of the frame with spaces between its edges and the said sides for the web to pass through, and having its ends connected with the ends of the frame, and a pivotal sheet-metal catch mounted in the said cross-bar and engaging at its upper end with the rear face thereof, whereby the said cross-bar holds it in its open and closed positions, and extending at its lower end below the lower edge of the cross-bar, and provided with teeth which take into the rear face of the webbing, substantially as described.

3. A suspender-buckle having a wire frame and a wire lever adapted to be coupled together, a sheet-metal cross-bar having its ends applied to the ends of the said frame, and having its middle portion shaped to form a recess, flanked at each end by a shoulder, a sheet-metal catch located in the said recess, furnished at its ends with trunnions which enter perforations formed in the said shoulders, and having teeth located below its said trunnions and taking into the web, substantially as described.

517,876. MACHINE FOR SCARFING ENDS OF CANE STRIPS FOR SPLICING. HENRY B. MORRIS, Michigan City, Ind., assignor to Ford, Johnson & Co., same place. Filed May 22, 1893. Serial No. 475,076. (No model.)



Claim.—1. The hereinbefore described cane-strip clamp, comprising in its organization, a longitudinally-grooved section; a corresponding, interlocking tongued section; a guide-plate attached to one section; holes or recesses therein through which the cane-strips are inserted transversely to the clamp, and means, substantially such as described, for locking the clamp-sections and compressing the cane-strips, whereby the cane-strips are held centrally, at regulated distances apart, and moved bodily with the clamp.

2. The hereinbefore described cane-strip clamp, comprising in its organization, corresponding longitudinally-grooved and tongued sections; a guide-plate attached to one section; holes or recesses therein through which the cane-strips are inserted transversely to the clamp; projections on one section to prevent longitudinal motion of one section relatively to the other, and means, substantially such as described, for locking the clamp-sections and compressing the cane-strips, for the purposes described.

3. The combination, substantially as hereinbefore set forth, of a scarfing-cutter extending obliquely inward in the direction of the movement of the cane-strips, and gearing for driving it in the proper direction to scarf the strip progressively from its edge inward, as specified.

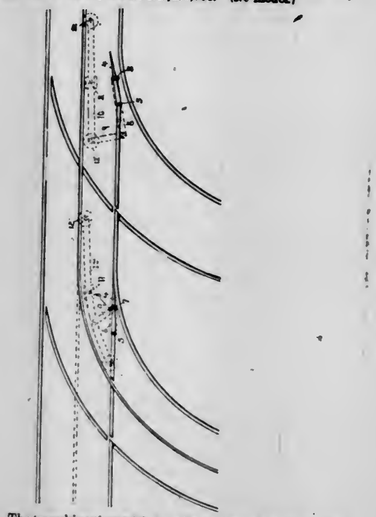
4. The combination, substantially as hereinbefore set forth, of a traversing feed-clamp; a strip-supporting plate, and a scarfing-cutter mounted on an axis oblique to the line of motion of the feed-clamp, and inclined inwardly in the direction of the movement of the clamp; whereby the strip is scarfed from its end inward, as specified.

5. The combination, substantially as hereinbefore set forth, of a traversing feed-clamp; shears for trimming the ends of the cane-strips; a scarfing-cutter mounted on a shaft oblique to the line of movement of the feed-clamp, and inclined inwardly in the direction of its movement, and gearing for driving the shears and cutters in the proper direction, as and for the purposes specified.

6. The combination, substantially as hereinbefore set forth, of a traversing feed-clamp; shears for trimming the ends of the cane-strips; feed-rolls intermediate of the clamp and shears, and a scarfing-cutter mounted on a shaft oblique to the line of movement of the clamp, and inclined inwardly in the direction of this movement, and gearing for driving the shears, rolls and cutter in the proper direction, as and for the purposes specified.

7. The combination, substantially as hereinbefore set forth, of a traversing feed clamp in which the strips to be trimmed are mounted, and by which they are carried at suitable distances apart, rotary shears for trimming the ends of the strips, shafts on which the shears are secured and which are supported in bearings at one end, and which have their opposite ends free or unsupported, pressure rollers interposed between the feed clamp and the shears and mounted on the unsupported or free ends of the shafts, whereby the strips are positively held as they pass crosswise through the shears and are prevented from springing or yielding, and devices for further trimming the strips after they have passed through the shears.

517,877. RAILWAY-SWITCH. CHARLES J. MORTIMER, New York, N. Y. Filed Jan. 9, 1893. Serial No. 457,768. (No model.)



Claim.—1. The combination with a railway switch point or rail, of a centrally pivoted lever, an arm connected to said switch point, a link connecting said lever and arm, and an arm carried by a car adapted to strike both ends of said lever to open and close the switch or vice versa, substantially as set forth.

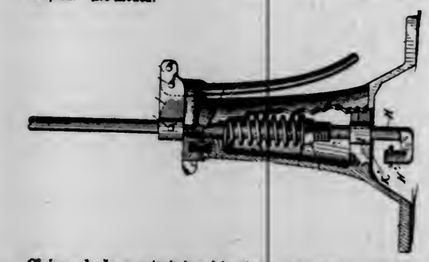
2. The combination with a railway switch point or rail, of a centrally pivoted lever, another centrally pivoted lever one end of which is connected with the switch point and the other with the first named lever, and an arm carried by a car adapted to strike both ends of the first named lever to open and close the switch, or vice versa, substantially as set forth.

3. The combination, in a switch operating device, of the pivoted lever 10, having means at each end adapted to be struck by an operating arm carried by a car, of the switch point or rail 4, the plate 6 having a bearing at the rail pivot and connected to the rail in advance of its pivot and link 9 connected to said plate and to the lever 10, substantially as described.

4. The combination with a railway car, of an arm carried by said car for operating a switch of the character herein described, said arm being formed in one plane to operate certain switch points and deflected out of that plane to avoid operating other switch points, substantially as described.

5. The combination with a car, of a grip-arm adapted to travel along a conduit slot and having a bend or depression in line with a switch operating device extending across the conduit slot, whereby such arm is adapted to pass the switch operating device without moving it, substantially as described.

517,878. AUTOMATIC SWITCH-STAND. JOHN W. MURRAY, Jenison, Mich. Filed Jan. 6, 1893. Renewed Feb. 24, 1894. Serial No. 501,431. (No model.)



Claim.—1. In a switch stand having a slip clutch, consisting of a fixed part, and a rotative part, having interlocking inclined projections, and a crank shaft adjustably connected to said rotative part, a sleeve surrounding said shaft and connected to said rotative part, and a spring engagiug said sleeve, and forcing said projections into engagement independent of said crank shaft, substantially as described.

2. In a switch stand, a fixed case and a rotative cap, having interlocking inclined projections, a sleeve attached to said cap, and a spring engaging said sleeve, and forcing said projections into engagement, substantially as described.

3. In a switch stand, a fixed case and rotative cap, interlocking inclined projections on the same, a sleeve attached to said cap and journaled in a bearing in said case, an adjustable nut on said sleeve and a spring surrounding said sleeve, and engaging said nut and journal bearing at its respective ends, substantially as described.

4. In a switch stand a fixed casing, having upper and lower journal bearings in its axis, a detached head having a sleeve engaging the upper bearing, a slip clutch connecting said head and casing, a crank shaft journaled in said sleeve and lower bearing and mechanism to adjustably connect said shaft and cap, substantially as described.

5. In a switch stand, a fixed casing, having upper and lower bearings in its axis, a detached cap on said casing a sleeve attached to the axis of said cap and passing downward through and beyond said upper bearing, a nut on said sleeve, and a spring surrounding said sleeve and engaging said nut and bearing, and a slip clutch having oppositely inclined interlocking surfaces and connecting said stand and cap, and a crank shaft journaled in said sleeve and lower bearing and adjustably connected to said cap, substantially as described.

6. In a switch stand, a fixed casing, consisting of a truncated hollow cone, having upper and lower journal bearings in its axis, and terminating at the top in a series of oppositely inclined projections, a detached cap having corresponding interlocking projections on its under surface, a sleeve attached to the axis of said cap, said sleeve journaled in said upper bearing and projecting below the same, a nut near the lower end of said sleeve, a spring on said sleeve engaging said nut and bearing, and forcing them apart, a crank shaft journaled in said lower bearing and sleeve and longitudinally movable in the same, an arm on said shaft above said cap, and a lever pivoted in said arm and engaging a series of notches in the rim of said cap, substantially as described.

7. In a switch stand, a fixed casing, a sleeve journaled in the axis of said casing, a cap attached to the upper end of said sleeve and connected to said stand by a slip clutch permitting said cap to partially rotate under heavy pressure, a crank shaft journaled in said sleeve, an arm detachably secured to said shaft, and resting upon said cap, a bell crank lever pivoted in said arm and engaging a series of notches in the rim of said cap, and a pin passing through the short arm of said lever and the end of said arm to secure the same in place in said notches, substantially as described.

517,879. MATTRESS FOR RIPRAP. DAVID NEALE, Fort Calhoun, Nebr. Filed Aug. 28, 1893. Serial No. 484,231. (No model.)

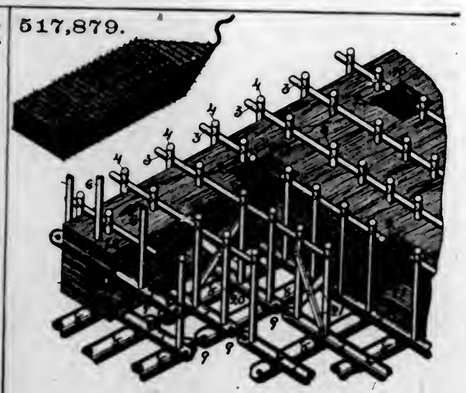
Claim.—1. A mattress for riprap having a cell formed with permeable walls, adapted to receive and retain accretions of mud, silt or sand substantially as described.

2. A mattress for riprap consisting of one or more cells formed with permeable walls and partitions sustained by a frame-work substantially as described.

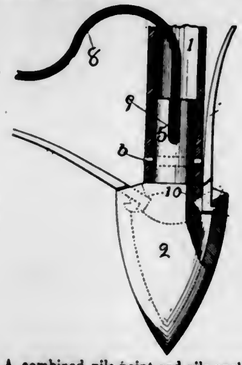
3. A mattress for riprap built up of brush, hay, straw or bagasse and a sustaining frame-work, and having a system of internal cells with port holes substantially as described.

4. A cellular pliant mattress for riprap having a frame-work consisting of loosely jointed logs, connected by uprights with binders parallel with the logs, and having walls and partitions of brush, hay, straw or bagasse sustained by the frame-work to form a system of cells substantially as described.

517,879.



517,880. PILE-POINT AND PERMANENT ANCHOR FOR PILES OR CABLES. DAVID NEALE, Fort Calhoun, Nebr. Filed Oct. 19, 1893. Serial No. 488,616. (No model.)



Claim.—1. A combined pile-point and pile-anchor with folding flukes substantially as described.

2. A combined pile-point and pile-anchor with folding and separable flukes substantially as described.

3. In a combined pile-point and pile-anchor the combination of a pointed anchor-head having sockets therein and hooks within the sockets with folding separable flukes having shanks to fit the sockets, and hooks to engage the hooks in the socket substantially as shown and described

4. In a combined pile-point and pile-anchor, the combination of a pointed anchor-head, adapted to be attached to a pile and having oppositely disposed sockets, and inwardly projecting hooks, and shoulders above, with separable folding flukes having shanks to loosely enter the sockets and bear against the shoulders, and hooks on the shanks to engage hooks on the head, substantially as shown and described.

5. In a combined pile-point and pile-anchor, for hollow iron piles, a pointed anchor-head having a cylindrical shank to attach in the lower end of the pile, and oppositely disposed projections with sockets, inwardly projecting hooks in the sockets, and shoulders above, in combination with separable folding flukes, having shanks to loosely enter the sockets and bear against the shoulders, and outwardly turned hooks to engage the hooks in the sockets substantially as shown and described.

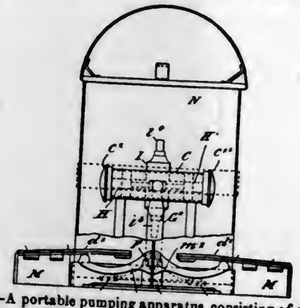
6. In a permanent anchor for cables the combination of a pointed anchor-head, having an eye to attach a cable, with separable folding flukes and means to separably attach the head to a driving rod or pipe substantially as shown and described.

7. In a permanent anchor for cables, the combination of a pointed anchor-head, adapted to be separably attached to a driving rod or pipe, and having an eye to attach a cable, with folding flukes attached to the head so as to fold up while driving and unfold by upward draft substantially as described.

8. In a permanent anchor for cables, a pointed anchor-head having a shank adapted to be loosely and separably inserted in the end of a driving pipe, an eye to attach the cables, and oppositely disposed projections with sockets, inwardly projecting hooks in the sockets,

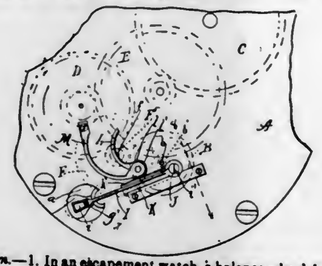
and shoulders above, in combination with separable folding flukes having shanks to loosely enter the sockets and bear against the shoulders, and outwardly turned hooks to engage the hooks in the sockets substantially as shown and described.

517,881. PORTABLE PUMPING APPARATUS. DONALD NOBLE, Leeds, England. Filed Mar. 8, 1892. Serial No. 424,217. (No model.) Patented in England Aug. 26, 1890, No. 13,418; in France June 16, 1891, No. 214,211; in Belgium June 16, 1891, No. 95,292; in India Oct. 7, 1891, No. 200, and in Austria-Hungary Oct. 10, 1891, No. 41 and No. 2,951.



Claim.—A portable pumping apparatus, consisting of a stand M; a water receptacle N; a pump within said receptacle; the shaft F passing through the walls of said receptacle; bearings for said shaft on the stand M, within and without the receptacle; the vertical lever G″ connected rigidly with said shaft F and within said receptacle and engaging with the piston rod of said pump; the levers O, O, rigidly connected with said shaft F, outside of said receptacle; the pedals D, D′ pivoted at their forward ends to the frame M, adjacent to the side of said receptacle N, and arranged at an angle to each other, whereby the said pedals D, D′, will bear approximately at right angles, substantially as described.

517,882. WATCH. JOHN W. NUNAMAKER, Chicago, Ill., assignor of one-fourth to Harvey L. Hopkins, same place. Filed June 20, 1893. Serial No. 478,224. (No model.)



Claim.—1. In an escapement watch, a balance wheel, in combination with an escapement wheel constructed and adapted to apply power directly to the former, a gear-train connecting the escapement wheel with the main-spring drum, an escapement lever provided with a rack-segment engaging with the balance pinion, and a spring connected to said lever to reverse its motion by direct action thereon, substantially as described.

2. In an escapement watch, a balance wheel provided with a pinion on its arbor, in combination with an escapement wheel provided with gear-teeth arranged in groups at equal distances apart on the periphery thereof and adapted to engage with the balance pinion, an escapement lever provided with a rack-segment adapted also to engage with the balance pinion, and a spring having its free end connected to the outer end of the said lever, substantially as described.

3. In an escapement watch, the balance wheel, B, provided with pinions, *b′*, in combination with the escapement wheel, F, having on its periphery teeth, *f′*, arranged in groups of three and with open spaces, *f²*, between the respective groups, whereby the balance wheel is moved directly by said groups of teeth successively engaging with the pinion and is permitted to reverse by the open spaces between said groups, substantially as described.

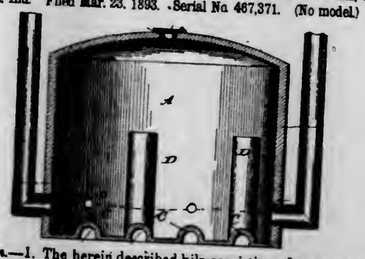
4. In an escapement watch, the balance wheel, B, provided with pinion, *b′*, in combination with the escapement wheel, F, provided with teeth on its periphery adapted to engage with said pinion and separated by open spaces between the teeth sections, the escapement lever, G, provided with rack-segment *g*, engaging with the balance pinion and having a pin, *g′*, at its outer end, and the straight spring, I, secured at its inner end and connected at its free end to the pin, *g′*, substantially as described.

5. In an escapement watch, the balance wheel, B, provided with pinion, *b′*, in combination with the escapement wheel, F, having at its periphery groups of teeth, *f′*, and intervening free spaces, *f²*, the teeth adapted to engage with the balance pinion, and provided on its face with escapement pins, *f³*, set between the respective teeth groups, an escapement lever, G, provided with segmental rack, *g*, engaging with the balance pinion and having pin, *g′*, at its outer end, an anchor, H, fixed to said lever and having pallets, *h*—*h′*, adapted to engage the escapement pins to stop the escapement wheel, and a spring, I, secured at one end to an adjustable support and at its free end provided with a loop, *i*, engaging with the pin, *g′*, on the lever, substantially as described.

6. In an escapement watch, a balance wheel, B, provided with pinions, *b′*, in combination with an escapement wheel, F, adapted to impart motion directly to the balance wheel, the escapement lever, G, provided with rack, *g*, engaging the balance pinion and provided with pin, *g′*, at its outer end, a slide, K, mounted on the back plate, a spring, I, fastened at one end to this slide and having at its free end a loop, *i*, engaging said pin, *g′*, and a device for adjusting said slide lengthwise of the spring, substantially as described.

7. In an escapement watch, the balance wheel, B, provided with pinion, *b′*, in combination with the escapement lever, G, provided with rack, *g*, engaging said pinion and having a pin, *g′*, at its outer end, the slide, K, having toothed edge, *k′*, the spring, I, fastened at one end to said slide and provided at its free end with the loop, *i*, engaging said pin, *g′*, the guide, J, the adjusting lever, L, having toothed head, *l*, adapted to engage with the rack on the slide, and the spring, M, on which said lever is mounted, substantially as described.

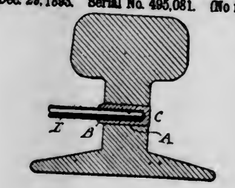
517,883. BRICK AND TILE KILN. GEORGE N. PHARES, Sheridan, Ind. Filed Mar. 23, 1893. Serial No. 467,371. (No model.)



Claim.—1. The herein described kiln consisting of the outer casing or surrounding wall with continuous curved arches forming a support for the tile or material to be burned above the bottom proper, the said arches being open at alternately opposite ends and terminating at their other ends in curved vertical flues the outer walls of which are formed by the side casing, and the vertical outlets exterior of the kiln at right angles to the length of the arches and having horizontal portions communicating with the interior of the casing above the tops of the vertical portions of the arches and between the same and the upper ends of the vertical flues, substantially as specified.

2. The herein described kiln consisting of the outer casing or wall with dampered outlet in its dome-shaped top, the bottom formed upon the exterior with horizontal continuous arches, each arch being open at one end at the exterior of the casing and at its other end terminating in integral vertical flues extended above the outlet openings of the draft flues, the openings and vertical flues of said arches being alternately arranged and the vertical outlet flues exterior of the casing and having horizontal connecting portions communicating with the interior of the casing below the upper ends of the vertical flues and above the tops of the arches and arranged at right angles thereto and to said arches, all substantially as herein shown and described.

517,884. RAIL CONNECTION. THEODORE G. PAULSEN, Chicago, Ill. Filed Dec. 29, 1893. Serial No. 495,081. (No model.)

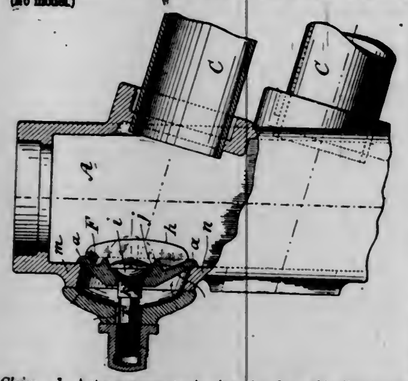


Claim.—1. The combination of two large conductors having holes therethrough with caps closed at one end and a wire having one end inserted into each cap, whereby when said caps are driven into said holes, said conductors will be electrically connected together, substantially as described.

2. The combination in an electrical connection of two rails with holes therethrough, caps inserted in each holes, said caps closed at one end and provided with a groove extending only part way through the metal, and a wire having one end in each of said caps, substantially as described,

3. The combination in a rail connector of two caps closed at one end, with a wire having one end inserted into the opening of each cap, said caps having the metal partially cut away on one side substantially as described.

517,885. DEVICE FOR FASTENING HAND-HOLE PLATES. NAT. W. PRATT, Brooklyn, N. Y. Filed Mar. 3, 1893. Serial No. 464,540. (No model.)



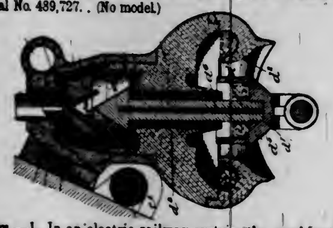
Claim.—1. A steam generator having a header and inclined tubes, hand hole openings in said header in axial line with the tubes, and a cover plate and clamp secured with the universally jointed bolt as set forth.

2. A steam generator having a vertical header and inclined connected tubes, the hand hole openings in said header being formed in axial line with the inclined tubes and fitted with a cover plate and clamp connected by a bolt arranged at right angles to the face of the header and universally jointed to the clamp, substantially as and for the purpose set forth.

3. A clamp or yoke for cover plates of steam boilers of greater diameter than the opening, having two of its parallel sides reduced combined with a securing bolt having a ball bearing head upon which the yoke is free to oscillate when adjusted to place, and a squared portion which prevents it from turning when in place, as set forth.

4 A clamp bolt for securing a cover plate constructed with a ball bearing head and a shank or body of less diameter through the plate aperture whereby the bearing faces of the nut and plate are brought in uniform contact, and any lateral strain on the threaded portion of the bolt relieved as set forth.

517,886. ELECTRIC RAILWAY. HENRY S. PRUYN, Hoosick Falls, N. Y., assignor to James S. Gibbs, Chicago, Ill. Filed Nov. 1. 1893. Serial No. 489,727. . (No model.)



Claim.—1. In an electric railway system, the combination of a conduit, a sectional electric conductor located therein, insulators positively attached to and supporting the sections of said sectional conductor, the insulators being constructed to be freely removable from their mountings, whereby one or more sections with their attached insulators may be bodily removed from the conduit.

2. In an electric railway system, the combination of a conduit, a sectional electric conductor located therein and provided at intervals with flexible joints, insulators positively attached to and supporting the sections of said sectional conductor, the insulators being constructed to be freely removable from their mountings, whereby one or more sections with their attached insulators may be bodily removed from the conduit.

3. In an electric railway system, a working sectional conductor, the sections of which are provided, between their extremities, with flexible joints, through which the electric circuit is continuous for the purpose set forth.

4. In an electric railway system, a sectional conductor having rigid insulated joints and flexible uninsulated joints, for the purpose set forth.

5. In an electric railway system, fixed sockets or seats for insulators, in combination with insulators fitting into said sockets or seats and latches to prevent the removal of the insulators from the seats.

6. In an electric railway system, a stationary insulator provided with an internal contact chamber, a vertically reciprocating rod entering said chamber, a working conductor carried by said rod and means for automatically forcing oil into the contact chamber when the rod reciprocates, substantially as described.

7. In an electric railway system, a stationary insulator provided with an internal contact chamber, a vertically reciprocating rod entering said chamber, a working conductor carried by said rod, a cup of oil located at the lower end of said rod, the rod provided with a passage communicating at one end with the oil in the cup and at the other end with the contact chamber, substantially as described.

8. In an electric railway system, a stationary insulator provided with an internal contact chamber, a vertically reciprocating rod entering said chamber, a working conductor carried by said rod, a cup of oil located at the lower end of said rod, the rod provided with a passage communicating at one end with the oil in the cup and at the other end with the contact chamber, and a second passage leading from the contact chamber to the oil cup.

9. In an electric railway system, an insulator provided with an internal contact chamber and a reciprocating contact rod, in combination with an oil reservoir and suitable passages leading therefrom to the chamber, whereby the suction caused by the reciprocation of the rod will force oil into the contact chamber.

10. In an electric railway system, an insulator supporting a working conductor and provided with a reciprocating contact rod, said rod carrying an oil cup, substantially as described.

11. In an electric railway system, a vertically supported insulator having its lower edge tapered downward to form dripping points, in combination with a conductor supported by the insulator and extending across its lower end between the dripping points.

12. In an electric railway system, a stationary insulator supporting a working conductor, and having a reciprocating contact rod moving in it and provided with an interior annular oil channel, forming an insulator between its inner and outer surfaces for the purpose set forth.

13. In an electric railway system, an insulator containing an internal contact chamber, and having its lower end open and its upper end closed air tight, a reciprocating contact rod moving in said contact chamber, and an air outlet leading from the contact chamber to the lower end of the insulator, whereby the insulator will act in the nature of a diving bell, in the presence of water, and thereby protect the contacts against moisture.

517,887. BAND-CUTTER AND FEEDER FOR THRASHING-MACHINES. JOHN W. RHODES, Havana, Ill., assignor to the Pioneer Thrasher Company, Minneapolis, Minn. Filed Jan. 23, 1891. Serial No. 378,828. (No model.)

Claim.—1. In a feeding and band-cutting mechanism, the combination with a suitable grain support, of a rotary drum or cylinder, cutting blades projecting therefrom radially, and having their outer ends bent laterally at an oblique angle to form spreaders, and means for feathering said blades.

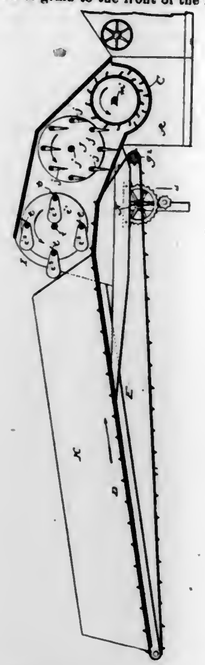
2. The band-cutting and spreading blade having its body portion formed with a cutting edge and its end beyond the edge bent laterally to an oblique position, as described and shown.

3. In combination with the rotary cutter having the feathering blades, the thrashing cylinder, the rotary feeder provided with feathering teeth and located between the cutter and cylinder, the conveyer arranged to carry the grain beneath the cutter to the feeder, and the feed table over which the grain is delivered from the feeder to the cylinder.

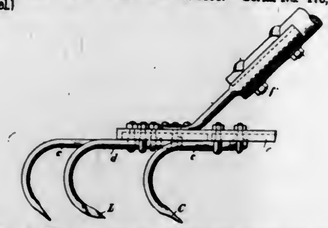
4. In combination with a thrashing cylinder, the rotary toothed feeder, the rotary band-cutter in advance of the feeder, the toothed conveyer extending beneath the cutter and feeder and mechanism whereby the cutter and thrashing cylinder are driven at high speeds and the feeder and conveyer driven at slower and substantially equal speeds.

5. In combination with the rotary toothed feeder, the underlying

toothed conveyer, and the rotary cutter provided with pins or teeth to return the excess of grain to the front of the machine.



517,888. GARDEN IMPLEMENT. DANIEL RUNCK and WILLIAM RUNCK, Delhi, Ohio. Filed June 19, 1893. Serial No. 478,131. (No model.)



Claim.—1. The combination, in a garden implement, of the plate perforated and having ledges to furnish bearings for the arms of the hooked teeth, the handle and shank secured to the top of said plate, the hooked teeth removably and adjustably secured to the under side of said plate, and fastenings to hold the said fingers to the plate, substantially as shown and described.

2. In a garden implement, the combination of the perforated plate having downwardly projecting ledges, the handle socket secured to the plate, the hooked arms carrying cutter teeth at their ends, said cutter teeth and cultivator teeth being alternately secured to the bottom of said plate, and eye bolts for removably and adjustably securing the arms of the teeth to the plate, substantially as shown and described.

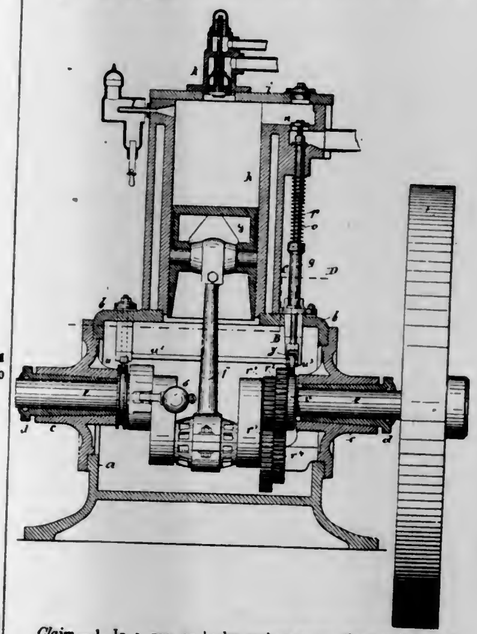
3. The combination, substantially as hereinbefore set forth, of the plate A having downwardly projecting ledges *a* and *a'*, the arms having their forward ends curved downwardly toward the ground, their opposite ends flattened and hooked, the eye bolt B to receive the flattened end of said arms and the eye bolt B' to pass over the arms, said eye bolts having screw threaded shanks to pass through the perforated plate and tightening nuts on the top for drawing the arms against the ledges and holding the arms rigidly in place.

517,889. LAMP-SHADE. AUGUST SEBERG and DAVID CONNOR, Marshalltown, Iowa. Filed Nov. 17, 1891. Serial No. 412,139. (No model.)

Claim.—The combination in a lamp shade holder of a clamping-ring "A," an adjustable rod "C" connected to the ring, and a shade-holder "D" consisting of a triangular frame "8," a vertical spring-tongue "9" projected from and integral with the base of the triangular frame, and an arm "10" adjustably connected to the rod "C," substantially as and for the purpose specified.



517,890. GAS OR HYDROCARBON MOTOR. WILLY SECK, Ober Ursel, Germany. Filed Nov. 10, 1892. Serial No. 451,587. (No model.) Patented in Switzerland Dec. 22, 1891, No. 4,454; in England Dec. 31, 1891, No. 22,834; in France Jan. 21, 1892, No. 218,837; in Austria-Hungary Apr. 25, 1892, No. 21,764 and No. 69,503; in Belgium May 20, 1892, No. 99,746; in Spain May 27, 1892, No. 13,371, and in Italy Oct. 31, 1892, No. 32,903



Claim.—1. In a gas- or hydro-carbon-motor, the combination of a crank-shaft, a suitable train of gear and piston connected therewith, and a cam disk mounted loosely on the crank-shaft, said cam disk making only one revolution, while the shaft makes two, substantially as and for the purpose set forth.

2. In a gas- or hydro carbon-motor, the combination with the crank-shaft, and piston connected therewith, of a train of gear wheels driven by the crank-shaft, a cam disk loosely mounted on the said crank-shaft and connected with said train of gear, an exhaust-valve, the rod of which is under control of said cam disk, and means for shifting the friction roller of said rod, substantially as and for the purpose set forth.

3. In a gas- or petroleum-motor, the combination with the crank-shaft *c*, and piston *g* connected therewith, of a toothed wheel r' fast on the crank-shaft, a toothed wheel r^2 in gear with r', a toothed wheel r^4 secured to or integral with r^2, and a toothed wheel r^5 in gear with r^4 and loose on the crank-shaft, a cam disk *v* secured to or integral with r^3, a sheave or roller *y* under control of said cam disk, a fork *z* to shift said roller *y*, and an exhaust-valve *n* carrying said roller *y*, substantially as and for the purpose set forth.

4. In a gas- or hydro-carbon-motor, the combination with the crank-shaft *c* and piston *g* connected therewith, a cam disk *v* having cams *w* and *x*, wheels r', r^2, r^3, r^4, connected with said cam disk, and crank-shaft, whereby the cam disk makes only half as many revolutions as the crank-shaft, and means for shifting the roller *y*, against which one or both of the cams are working, as desired, substantially as and for the purpose set forth.

5. In a gas- or hydro-carbon-motor, the combination of a crank-shaft gear r' keyed thereto and gear r^2 loosely carried thereon, a cam disk secured to said gear r^2, and gears r^3, r^4 secured together and adapted to engage with said gears r', r^3, whereby the cam disk will be caused to make one revolution for every two revolutions of the crank-shaft, substantially as and for the purposes specified.

6. In a gas- or hydro-carbon-motor, the combination of a crank-shaft, gear r' keyed thereto and gear r^2 loosely carried thereon, a cam disk secured to said gear r^2, gears r^3, r^4 secured together and adapted to engage with said gears r', r^3, whereby the cam disk will be caused to make one revolution for every two revolutions of the crank shaft, an exhaust-valve, the rod of which is provided with a friction-roller and is under control of said cam disk, and means for shifting said friction-roller, substantially as and for the purposes specified.

517,891. FOLDING COUCH. NELS SNULERUD, Chicago, Ill. Filed Nov. 29, 1893. Serial No. 492,336. (No model.)



Claim.—1. The combination, in a folding couch, of a rigid frame, wings hinged at each side thereof and longitudinal therewith, a wire mattress extending from the outside of one wing to the outside of the other wing, upholstery forming a continuous covering for the central section and wings; folding legs for supporting the wings when raised, an extensible pillow block at one end of the central section, and adapted to slide to the outside of one wing and unfold so as to extend to the outside of the other wing, substantially as described.

2. The combination, of a folding couch having a central section and extension wings at each side thereof, of a folding pillow block normally extending across the central section, a T-bolt for securing the pillow block to the frame, a transverse channel across the frame for receiving the bolt, whereby the block may be moved in its seat to reach the outside of the couch when extended and be unfolded to extend entirely across the couch, substantially as described.

3. In a folding couch the combination with a central portion and with swinging extensions at each side thereof, of an extensible foot rail pivotally attached to the central portion and adapted to hang at the end thereof and to be raised and extended so as to stand erect across the entire couch when open, and means for holding the foot rail in its erect position, substantially as described and for the purpose specified.

517,892. POST-HOLE AUGER. GEORGE P. SMITH and JOHN B. BRUNER, Springfield, Ohio. Filed June 21, 1893. Serial No. 478,390. (No model.)



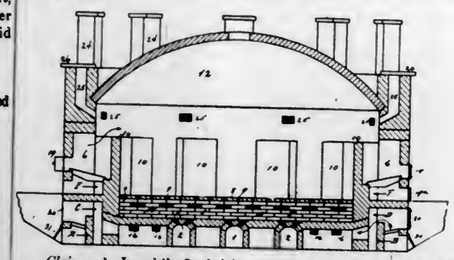
Claim.—1. A post auger having a central standard, a supporting plate thereon with depending blades, said plate being formed in two parts with one blade connected to each part, and said parts being connected together, a locking device adapted to hold the respective parts in their normal position, and a thumb latch on the central standard connected to said locking device and adapted to operate the same to unlock the parts and permit one of said parts to turn by gravity to an unusual position, substantially as specified.

2. A post auger, consisting essentially of a central standard, and a supporting plate having depending blades therefrom, said plate being formed in two parts hinged together, and a bearing block adapted to extend between projections on the respective parts, and means for withdrawing said block, substantially as specified.

3. In a post auger, a central standard and the circular supporting plate, the circular blades depending from said plate and having downwardly and inwardly projecting cutting edges, as described, said plate being made in two parts and hinged together, a spring actuated block adapted to fit between projections on the respective portions of said plate, and a thumb latch for operating said block, substantially as specified.

4. In a post auger, a central standard, a supporting plate having depending blades, said blades being curved downwardly and inwardly at their lower ends to form cutting edges and also to form a pocket, and a central projecting spindle secured to said central standard and adapted to project downwardly through said pocket to a point below said cutting edges, a hinged connection in said supporting plate between said depending blades, a locking device adapted to hold said blades in their normal position, and thumb-latch for operating said locking device to permit one of said blades to turn by gravity to an unusual position and thus discharge the contents of said pocket, substantially as specified.

517,893. KILN FOR BURNING BRICK, POTTERY, &c. SAMUEL K. SMITH, New Brighton, Pa. Filed Sept. 14, 1893. Serial No. 485,526. (No model.)



Claim.—1. In a kiln for brick or pottery, a foundation flue system consisting of a central quadrangular flue of like section with the equatorial connecting flue and having two of its sides parallel therewith and the other two sides opening therein; a series of radial flues, opening, at their inner ends, into said quadrangular flue and, at their outer ends into damper controlled "uptake" flues in the wall of the kiln, a second series of radial flues, interposed between said open end flues, and closed at their inner ends, but with their outer ends passing through the kiln wall, fitted as "fire holes" and provided with tight doors; "ports" or openings connecting said radial flues each with the others; a series of parallel flues built upon and connecting with said radial and quadrangular flues, and a "ported" or perforated floor superposed upon said parallel flues, whereby, when "fired" in the "fire-holes" of the radial flues, the products of combustion are distributed evenly over the entire floor space and arise within the kiln as shown and described.

2. In a reversible draft kiln, the combination, with a series of lower fire holes connected by radial flues with a main equatorial flue and with rectangular flues opening into said main flue, a series of parallel flues superposed upon said radial flues and main flue and a kiln floor laid upon said parallel flues, openings or ports through said floor to said parallel flues, and openings or ports connecting said parallel flues with the underlying radial flues, rectangular flue and main flue, damper controlled uptake flues connected with said radial flues, furnace bags built over said lower fire holes, and fitted with tight doors, a series of damper controlled outlet flues, opening, within the kiln, above said furnace bags and passing out through the top of the kiln wall and dampers within the main flue, outside the kiln walls, whereby the combusting gases from said furnace bags may be directed downward through the floor and thence upward through the uptake flues, or to be carried away through the main flue or gases, from the lower fire holes, may be carried upward through the floor and escape through the upper series of outlet flues, as shown and described.

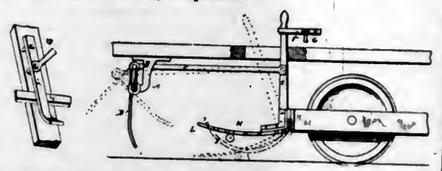
3. In a kiln of the described class the combination, with a central quadrangular distributing flue and an equatorial main connecting flue, each opening into the other, of a series of radial flues opening into the central quadrangular flue and into damper controlled uptake flues; a series of "fire-hole" flues having outer doors and connecting with their neighboring radial flues by "ports" or openings; a series of parallel flues upon and connecting with said radial flues; a perforated floor upon said parallel flues, and a series of "furnace bags," above the fire hole flues, fitted with tight doors, and a series of damper controlled outlet flues above said "furnace bags" and within the kiln wall, whereby the kiln may be fired as an up-draft kiln until the ware is dried and subsequently as a down-draft kiln until the ware is wholly burned or vitrified, and, thereafter may be quickly cooled by the opening of the flues and doors, as shown and described.

517,894. FENDER FOR STREET-RAILWAY CARS. ELDRIDGE J. SMITH, Washington, D. C. Filed Dec. 18, 1893. Serial No. 493,919. (No model.)

Claim.—1. A flexible apron so made flexible to permit buckling up when a fixed obstruction is encountered provided with a flexible edge L, and hinged to the sill of a car in combination with hinged fingers D and connecting rods C substantially for the purpose specified.

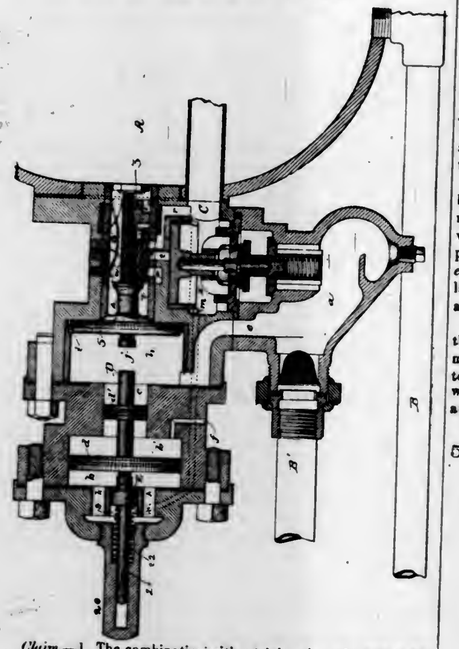
2 The levers E provided with an angle iron at their lower end in combination with an apron H, rods C and fingers D or their equivalents, substantially as specified.

3. The wheels I secured to the standard N, in combination with the apron H, substantially as specified.



4. In fenders for street railway cars, the lever E in combination with friction spring F, the latter arranged for holding and releasing the said lever and wrench G for varying the amount of tension of spring F, substantially as set forth.

517,895. BRAKE-CYLINDER PRESSURE GRADUATING AND MAINTAINING TRIPLE VALVE. JACOB A. STEININGER, Creston, Iowa. Filed Dec. 13, 1893. Serial No. 493,568. (No model.)



Claim.—1. The combination with a triple valve, of a stem in line with the piston 5 thereof, and adapted to arrest the outward movement of said piston, and a movable abutment attached to said stem and exposed to the pressure in the brake cylinder, whereby a predetermined pressure in said brake cylinder will cause said abutment to give the piston 5 a return movement, substantially as described.

2. The combination with a triple valve, of a stem in line with the piston 5 thereof, and two movable abutments of different areas attached to said stem, the smaller one being exposed to the train pipe pressure, and the larger one to the brake cylinder pressure, substantially as described.

3. The combination with a triple valve, of a stem in line with the piston 5 thereof, and two movable abutments of different areas attached to said stem, the smaller one being in a chamber communicating with chamber h of the valve, and the larger one being in a chamber communicating with the brake cylinder connections of the valve, substantially as described.

4. The combination with a triple valve, of a stem in line with the piston 5 thereof, a movable abutment attached to said stem and inclosed in a chamber communicating with the brake cylinder, a spring actuated plunger abutting said stem, and a valve on said plunger adapted to cut off the communication between said chamber and brake cylinder, substantially as described.

5. The combination with a triple valve, of the stem D carrying the abutments d d', located in the chambers b, c, and the spring plunger 21, having the piston valve E moving in a cylinder g, and adapted to close the end of a passage m leading from the chamber b to the chamber x of the triple valve, substantially as described.

3. The combination with a triple valve, of a movable abutment in line with the piston 5 thereof, and exposed normally to the pressure in the brake cylinder, and means for cutting off said pressure by the excessive movement of the piston 5 when an emergency stop is made, substantially as described.

517,896. LABELING-MACHINE. ALFRED I. STEVENS, Dayton, Ohio, assignor of two-thirds to Jno. M. Phelps and Christopher W. Uthbrok, same place. Filed Apr. 17, 1893. Serial No. 470,795. (No model.)

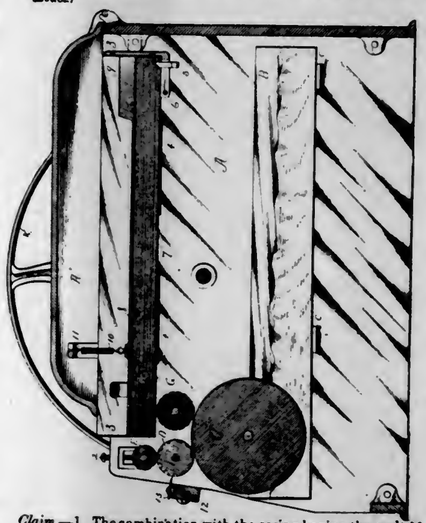


Claim.—1. In a labeling machine, the combination with the casing provided with a paste receptacle and a driving shaft; of a label receptacle placed longitudinally in said casing, the blade K″ secured vertically in the rear center of said receptacle, a primary feeding roller journaled in the front portion of the casing below the label receptacle so that the labels rest upon said feeding roller, the rollers g, e, and f through which paste is applied to the labels, and said labels are fed to the can, the gravity weight to insure a proper contact of said labels with the blade K″ and the primary feeding roller, substantially as and for the purposes specified

2. The combination in a labeling machine, of a label holder, the blade K″ attached to a slotted arm projecting horizontally from the rear of the label holder, the feed roller C, the pulley c' and ratchet wheel c^5 loosely mounted on the shaft of roller C, and the pawl c^6 pivoted to the arm c^4 rigidly mounted on said shaft, the feed rollers e and f mounted adjacent to roller C to receive the label from the latter roller, the paste roller g to feed paste to the label, substantially as described.

3. In a labeling machine, an adjustable can holder consisting of the disks I^3 and I^5 having journals with longitudinal bores therein mounted in the casing, the disks I^6 and I^7 with bearing stems adapted to be inserted in said bores, and means for rigidly securing said stems when so inserted, whereby means for supporting cans of various sizes are provided.

517,897. LABELING-MACHINE. ALFRED I. STEVENS, Dayton, Ohio, assignor of two-thirds to John M. Phelps and Christopher W. Uthbrok, same place. Filed July 13, 1893. Serial No. 480,341. (No model.)



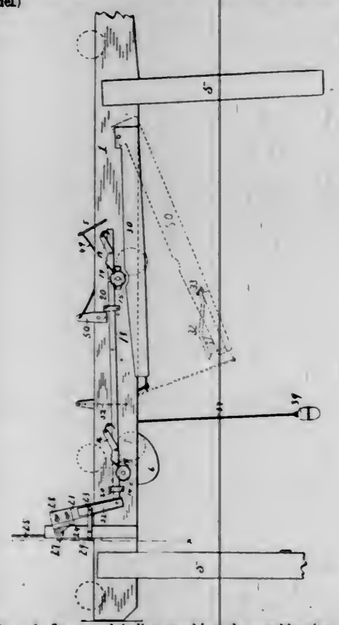
Claim.—1. The combination with the casing having the arch 11; of the label tray 3, and the gravity plate 8 the rear end of which is provided with an excess of weight, and the front end normally maintained out of contact with the labels by the spring 10 attached thereto and to the arch 11, substantially as described.

2. The combination of the paste roller C, the feed rollers D, E and G, the latter of which is adapted to feed labels to rollers D and E; the transverse bar 12 mounted in the front of the casing, and forming a gage for the cans; the serrated plate 13 mounted on the bar 12 adjacent to roller D, by the means of which the labels are prevented from following said roller, as herein specified.

3. In a labeling machine, the combination with the feeding rollers G, E and D, and the paste roller C for applying paste to roller D; of an inclined way upon which the cans are supported while receiving the labels, and down which said cans gravitate to secure the labels; a stationary belt suspended above the lower portion of said inclined way on adjustable supports, said belt being adapted to press the surface of the cans and completely secure the labels thereto, substantially as herein described.

4. The combination with the casing having a paste receptacle and a label holder therein, and roller mechanism for feeding said paste and labels; the serrated plate 13, mounted in the front of roller D; the transverse bar 12 upon which said plate is mounted and by means of which the cans are gaged to a proper position to receive the labels; of the inclined way upon which said cans are supported, the stationary belt J, mounted on adjustable supports, over the lower portion of said incline by means of which the labels are secured to the cans as said cans roll thereunder, substantially as herein described.

517,898. CAN-LABELING MACHINE. ALFRED L. STEVENS, Dayton, Ohio, assignor of two-thirds to John M. Phelps and Christopher W. Uthbrok, same place. Filed Oct. 21, 1893. Serial No. 488,834. (No model.)



Claim.—1. In a can-labeling machine, the combination with the inclined way herein described; of paste receptacles with ledges 8, the paste rollers 9 and 10 having circumferential teeth near their ends, and bearings on the ledges 8, the paste rollers 11 and 12 by which the rollers 9 and 10 are revolved, and the ratchet mechanism by means of which the rollers 11 and 12 are revolved.

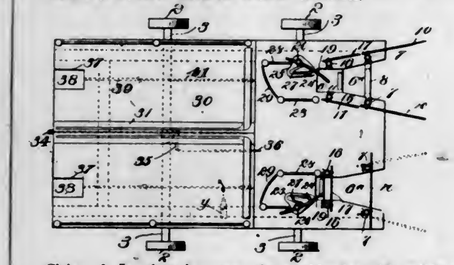
2. In a can-labeling machine, the combination with the inclined way; of a label holder having one end pivoted to the way, and the other end free to be lowered or raised, paste receptacles, one above and one below said label holder for adhering the initial and final ends of the labels to the cans, the paste rollers 9 and 10, and 11 and 12, ratchet wheels rigidly mounted on the journals of rollers 9 and 11, the horizontal sliding plate bar 18 having one end pivoted to the vertical lever 21, the plates 16 and 17 pivoted to the bar 18, and adapted to engage with the ratchet wheels, and means for operating the lever 21 whereby the bar 18 is moved and the ratchet mechanism actuated, substantially as herein described.

3. In a can-labeling machine the combination of the inclined way, the pressure belt 49 mounted over said incline, a label holder pivoted at one end, to said incline, the bed of said label holder having a curvilinear form whereon the front ends of the labels lie in a horizontal plane, paste receptacles located beneath the incline, and at both ends of the label holder, the rollers 11 and 12, and the rollers 9 and 10, the latter having peripheral teeth to engage with the former, whereby paste is applied to the cans in a manner to prevent said paste from oozing from beneath the label, substantially as described.

4. In a labeling machine, the combination with the inclined way; of a curved label bed having one end pivoted to the inclined way, the curvature of said bed being such that presents one end of the labels in a horizontal position to be taken up one by one by the gravitating cans, the guides 35 with pins penetrating said labels to control the removal thereof, paste receptacles located above and below the label holder and beneath the inclined way, pasting rollers mounted in said receptacles in the path of the cans, and lever and ratchet mechanism for rotating said rollers, substantially as described.

5. In a can labeling macnine, the combination with the inclined way; of a curved label holder having one end hinged thereto, the curvature of the bed of said holder being such that will present the initial end of the labels to the cans, on a horizontal plane, so that said cans may come in sufficient contact therewith, the guides 35 having pins adapted to penetrate said labels and thereby control their removal, the side plates 40 and 41 inclosing the sides of the labels, the latter plate being adjustable, whereby said plates are adapted to inclose labels of different widths, paste receptacles located beneath the inclined way, above and below the label holder with pasting rollers mounted therein, and lever and ratchet mechanism for rotating said rollers, substantially as described.

517,899. CORN-HARVESTER. HOMER R. STEVENSON, Salem, Ill. Filed Aug. 19, 1893. Serial No. 483,552. (No model.)



Claim.—1. In a corn harvester, the combination with a sliding blade, of springs for holding said blade against the stalk of corn to be cut, rods mounted on each side of said blade, foot-like projections on said rods which engage with recesses in said blades to operate the rods when the blades are retracted, and arms mounted on the rods which are adapted to swing around when the rods are partially rotated by the engagement of their feet with the blades, substantially as described.

2. In a corn harvester, the combination with a front platform, of a receptacle for receiving the severed stalks from the blade, a rod provided with right-angular projections on its lower end, projections on the axle for engaging and oscillating said rod through the medium of its right-angular projections, sliding arms 19 mounted in said rod, and a cam for guiding said arms, substantially as described.

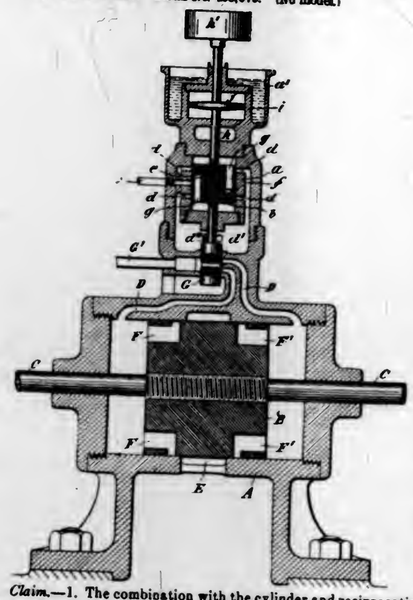
3. In a corn harvester, the combination with the front platform, and a cutting apparatus carried thereby, of a pivoted rear platform, formed with recesses in its rear end, in line with the cutting apparatus, gates for closing said recesses, a cord attached to said gates and having its other end attached to the front platform, and a pulley, mounted on the lower front edge of the pivoted platform over which said cord runs, substantially as described.

4. In a corn havester, the combination with a front platform and a cutting apparatus which is carried thereby, of a tilting platform located in the rear of the front platform and provided with recesses in its rear which are in line with the cutting apparatus, and spring-closed gates for closing said recesses, which gates are operated to unclose said recesses when the rear platform is tilted, substantially as described.

5. In a corn harvester, the combination with the front platform and a cutting apparatus carried thereby of a tilting platform, which is mounted in the rear of the front platform on the rear axle, a drum mounted on said axle, a clutch mechanism mounted in juxtaposition to the drum, a bar slidingly mounted on the platform, and a cord or chain which is wound upon the drum and has its other end connected to the bar, substantially as described.

6. In a corn harvester, the combination with the front platform and a cutting apparatus which is carried thereby, of a tilting platform pivotally mounted on the rear axle an inverted V shaped boxing extending longitudinally the length of said platform, a bar slidingly mounted in a slot in said inverted V-shaped housing, a pulley mounted in the rear of the housing, a drum mounted on the rear axle, a cord which is connected to said bar and passing over the pulley in the rear of the housing is wound upon the drum, and a clutch mechanism for said drum, substantially as described.

517,900. STEAM-ENGINE. NIKOLA TESLA, New York, N. Y. Filed Dec. 29, 1893. Serial No. 495,079. (No model.)



Claim.—1. The combination with the cylinder and reciprocating piston and controlling valve of an engine adapted to be operated by steam or a gas under pressure of an independently controlled engine of constant period operating the said valve, as described.

2. The combination of an engine cylinder, a piston adapted to reciprocate therein, a slide valve for controlling the admission of steam to said cylinder, and an independently controlled engine of constant period operatively connected with said valve.

3. The combination with the cylinder, piston and valve mechanism of a main or working engine, of an independent controlling engine comprising a cylinder, a piston connected with the valve mechanism of the main engine, and a spring acting upon the said piston and controlling the period of its reciprocation, as set forth.

4. The combination with a cylinder and a piston adapted to be reciprocated by steam or a gas under pressure of a cylinder and a plunger therein reciprocated by the piston and constituting with its cylinder an air spring, and an open jacket or receptacle around the said cylinder and containing water to preserve the temperature of the air spring uniform, as set forth.

5. The combination with a cylinder, a reciprocating piston and valve mechanism for controlling the admission and exhaust of the steam or gas under pressure, of a cylinder, a piston connected with and operating said valve mechanism, and an air spring vibrated by the piston, the spring and piston being related in substantially the manner described to produce a reciprocating movement of constant period.

517,901. FLUID-PRESSURE BRAKE. FRANK THALMUELLER, Jr., Huntingburg, Ind. Filed Jan. 28, 1892. Serial No. 419,536. (No model.)



Claim.—The combination with the train-pipe, brake cylinder, triple valve, and reservoir, of a fluid-pressure brake, and an auxiliary train-pipe, of a valve or casing connected with the brake-cylinder exhaust and with the auxiliary train-pipe, and having two outlet ports, a weighted valve controlling one of said ports, and a positively operated valve controlling the other port and seated by pressure from the auxiliary train-pipe, substantially as set forth.

517,902. PUMP. JOSEPH C. TOM and EDWARD A. TOM, Pontotoc, Tex. Filed Mar. 30, 1893. Serial No. 468,364. (No model.)

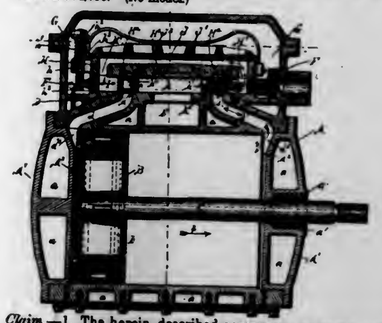


Claim.—1. In a pump, the combination with actuating mechanism a pair of cylinders, open plungers and ball valves therein, a chain connecting the plungers, and an adjustable chain guide pulley, of a common receptacle above the cylinders, oppositely inclined valve seats over each of the cylinders, and a free ball adapted to alternately close the cylinders, substantially as specified.

2. In a pump, the combination with a frame, pipe, a pair of cylinders, oppositely inclined valve seats over the cylinders, respectively, a ball valve adapted to alternately close each cylinder, and a receptacle above the valve seats, of plungers in the cylinders provided with ball valves, an adjustable pulley in the ends of the cylinders, and a chain connecting the plungers and passing around the pulley, substantially as and for the purpose specified.

3. In a pump, the combination with a frame, pipe, a pair of cylinders oppositely inclined, valve seats above said cylinders and a receptacle thereabove, of a ball valve adapted to alternately close the cylinders, hollow plungers within the cylinders provided with ball valves, an adjustable pulley in the lower ends of the cylinders, a chain connecting the plungers and passing around the pulley, a rock pulley above said cylinders operatively connected therewith and with the plungers, and guide pulleys adapted to guide said chain, substantially as and for the purpose specified.

517,903. COMPRESSOR OR VACUUM-PUMP. EDWARD N. TRUMP and JOHN E. SWEET, Syracuse, N. Y. Filed Dec. 15, 1890. Serial No. 374,706. (No model.)



Claim.—1. The herein described compressor or pump, comprising a cylinder having opposite ports, a receiving chamber, a valve chamber interposed between the cylinder and the receiving chamber and formed with an outlet and with a channel or recess, as H^2, in its outer wall, a valve for closing said outlet, and a valve movable within the valve chamber and provided with an opening therethrough for communicating with said channel or recess and equalizing the press-

ure on opposite sides of the valve, and provided also with a passage or way between its opposite extremities for communicating, substantially as described, with the opposite cylinder ports, substantially as and for the purpose specified.

2. The herein described compressor or pump, comprising a cylinder having opposite ports, a receiving chamber a valve chamber interposed between the cylinder and the receiving chamber and formed with an outlet, and with an outer wall, as —H— having channels or recesses, as —H³—a valve for closing said outlet and a valve movable within the valve chamber and provided at its opposite ends with openings therethrough for communicating with said channels or recesses and equalizing the pressure on opposite sides of the valve and having a passage or way connecting said openings through the valve, whereby said passage or way and said openings communicate with the opposite cylinder ports, substantially as and for the purpose specified.

3. The herein described compressor or pump comprising a cylinder having opposite ports, a receiving chamber, an inlet chamber for communicating with said cylinder ports, a valve chamber interposed between the cylinder and the receiving chamber and formed with an outlet and with an outer wall as —H,— having a channel or recess, as —H³,—a valve for closing said outlet, and a valve having an opening registered with said inlet chamber and extending through the valve and communicating with said channels or recesses for equalizing the pressure on opposite sides thereof and having a passage way extending from one end of the valve to its opposite end for communicating with said opposite cylinder ports, substantially as set forth.

4. The herein described compressor or pump comprising a cylinder having opposite ports, a receiving chamber, an inlet chamber for communicating with said ports, a valve chamber interposed between the cylinder and the receiving chamber and formed with an outer wall having an outlet consisting of a pair of outlet ports, as —H'—H'— a valve for closing said outlet ports, and a valve of less length than the distance between said outlet ports movable within the valve chamber and provided with a passage or way for communicating with the opposite cylinder ports, substantially as and for the purpose described.

5. The herein described compressor or pump comprising a cylinder having opposite ports, a receiving chamber, an inlet chamber, for communicating with said ports, a valve chamber interposed between the cylinder and the receiving chamber and formed with an outlet and with an outer wall as —H— having channels or recesses as —H³—, a valve for closing said outlet, and a valve movable within the valve chamber and formed at its opposite ends with openings therethrough and with an additional opening therethrough arranged between the former openings and registered with the inlet chamber and with one of said channels or recesses, said openings in the valve operating in connection with said recesses to equalize the pressure on opposite sides thereof, and said valve having passage ways between the opposite ends of the former openings therethrough, whereby said former openings and the passages or ways communicate with the opposite cylinder ports, substantially as set forth.

6. The herein described compressor or pump, the same comprising a cylinder having opposite ports, a receiving chamber, a valve chamber between the cylinder and the receiving chamber and provided with a movable wall or plate as —H— and an outlet, a valve for closing said outlet, and a valve movable within the valve chamber and provided with a passage or way extending from one end of the valve to its opposite end for communicating with the opposite cylinder ports and a spring for forcing said wall or plate to its normal position, substantially as and for the purpose described.

7. The herein described compressor or pump, the same comprising a cylinder having a valve face, a stationary plate or ring imposed above the valve face, a yielding wall or plate as —H— at one side of said ring, a balanced valve between the yielding plate and the valve face, and a receiving chamber at one side of said pressure or cover plate, substantially as and for the purpose described.

8. The herein described compressor or pump, the same comprising a cylinder having opposite ports and a valve face, a stationary plate or ring imposed above the valve face, a yielding wall or plate as —H— imposed at one side of the stationary plate or ring and provided with an outlet and with channels or recesses, as —H³—, whereby a valve chamber is inclosed by said valve face, the stationary ring, and the wall or plate, a valve for closing said outlet, and a valve movable within said valve chamber and provided with openings therethrough registered with said channels or recesses for equalizing the pressure on opposite sides of the valve and with a passage or way for communicating with the opposite cylinder ports, substantially as and for the purpose specified.

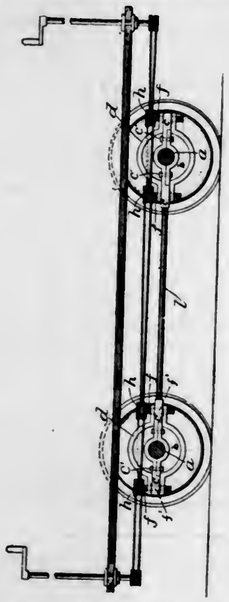
9. The herein described compressor or pump, the same comprising a cylinder having opposite ports, a valve chamber connected to the cylinder and formed with an outlet, a pressure valve for closing said outlet, a spring for forcing the pressure valve to normal position, a second spring for the pressure valve, a stop for preventing the action of the latter spring until after the commencement of the movement of the pressure valve, and a valve movable within the valve chamber and provided with a passage or way extending from one end of the valve to its opposite end and communicating with the opposite cylinder ports, substantially as and for the purpose specified.

10. The herein described compressor or pump, the same comprising a cylinder having opposite ports, a valve chamber connected to the cylinder and provided with a yielding wall or plate as —H— and an outlet, a valve for closing said outlet, a guide or support for the yielding wall or plate, and a valve movable within the valve chamber and provided with a passage or way extending from one end of the valve to its opposite end and communicating with the opposite cylinder ports, substantially as and for the purpose specified.

11. The herein described compressor or pump, the same comprising a cylinder, a receiving chamber connected to the cylinder, a valve chamber between said cylinder and receiving chamber provided with an outlet, a valve movable within the valve chamber, a pressure valve for closing said outlet provided with an opening therethrough, a spring for forcing the pressure valve to operative position, a second spring connected to said pressure valve, a stop for the latter spring guided through the opening in the pressure valve and supported upon the valve face for the same, said stop being of greater length than the thickness of the pressure valve, substantially as described.

12. The herein described compressor or pump, the same comprising a compression cylinder having a valve face and opposite ports leading from said valve face to the opposite ends of the cylinder and provided with recesses at their inner ends, a valve chamber of rectangular section connected to the cylinder and provided with a yielding wall or plate as —H— having an outlet consisting of separated outlet ports, as —H'—H'— guides for said wall or plate, springs for forcing said wall or cover plate to operative position, a valve of angular section movable in the valve chamber and provided at its opposite ends with openings extending therethrough, and passages or ways connecting the opposite ends of said openings, a pressure valve at one side of said wall or cover plate, and springs for supporting said pressure valve, substantially as and for the purpose specified.

517,904. CAR-BRAKE. PETER D. VAN VRADENBURG, Binghamton, N. Y. Filed Sept. 7, 1893. Serial No. 485,012. (No model.)



Claim.—1. In a brake for vehicles, a disk or wheel secured to revolve in unison with the traction wheels, in combination with a pair of clamping shoes embracing the disk, right and left screws adapted to actuate the shoes toward and away from the disk, and cables, substantially as described, for actuating the screws as set forth.

2. In combination with the axle of a vehicle, a disk or wheel secured to rotate therewith, clamping shoes embracing the disk or wheel, and having lateral projections with threaded holes, right and left screws passing through the holes, drums upon said screws, and cables for actuating the drums, all arranged and adapted to operate in the manner and for the purpose set forth.

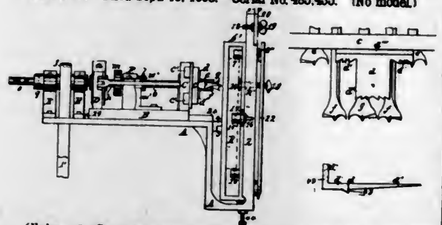
3. In a vehicle braking mechanism, the combination with the axle of the vehicle, of a wheel or disk fixed thereon, a horizontally disposed frame surrounding the disk or wheel, semi-circular clamping shoes embracing the latter, said shoes being provided with lateral projections having threaded holes therein, vertical screws having right and left threads engaging those in the projections, said screws being smooth where they pass through the frame, whereby they revolve freely therein, drums fixed on the screws, and a cable passing around the drums and on to the brake rods, in the manner set forth.

4. In a vehicle braking mechanism, the combination with the wheel axle, of a friction disk fixed thereto having a convex periphery, grooved clamping shoes adapted to fit and engage said periphery, right and left screws applied to and operating the shoes, and means, substantially as described, for actuating the screws, in the manner and for the purpose set forth.

517,905. COMPOSITION FOR DEGUMMING FLAX-STRAW. HIRAM B. WARE, Fort Scott, Kans. Filed May 27, 1893. Serial No. 475,682. (No specimens.)

Claim.—The composition of matter herein described to be used for degumming flax straw; said composition consisting of water, potash, kerosene and glycerine substantially as described.

517,906. MORTISING-MACHINE. GEORGE WELDON, Mount Vernon, N. Y. Filed Sept. 13, 1893. Serial No. 485,435. (No model.)



Claim.—1. In a mortising-machine the combination of the base A, sliding plate B, vertically sliding frame 3, lever 22, 28, sleeve *q*, spindle *o*, *h*, cam *s*, yoke *a*, lever *b*, plate *c*, and saws *d*, pinions *l*, *l*, *l*, spindles *i*, *i*, *i*, with bits *f*, *f*, *g*, wheels *m*, *n*, *m*, spindles *j*, *j*, with bits *e*, *e*, lever 45 and connection 47, all substantially as herein shown and described.

2. The combination in a machine for cutting mortises for sash pulleys, of boring bits arranged substantially as herein described, consisting of a central spindle *h*, driving spindles *i*, *i*, by means of the pinion *l* meshing into pinions *l*, *l*, on said spindles *i*, *i*, the said spindle *h* also driving spindles *j*, *j*, by means of a wheel *n* on said spindle *h*, meshing into wheels *m*, *m*, on said spindles *j*, *j*, all of the said spindles carrying boring bits moving with equal velocities with their axes lying in a common plane.

3. In a mortising machine the combination with a series of boring bits substantially as shown, of a vibrating frame *c* carrying saws *d*, *d*, substantially as shown and described.

4. In a mortising machine the combination with a series of boring bits and their spindles as shown, a vibrating frame *c* supported in posts C, C, carrying saws *d*, *d*, and driven by means of a cam *s* on spindle *h*, yoke *a* supported in bearings D, D, and lever *b*, substantially as shown and described.

5. In combination with the boring bits and their spindles the vibrating frame *c* provided with saws *d*, *d*, and its operating mechanism as described, the adjustable bearing *w'* for the connecting rod *b* substantially as shown.

6. The combination with a series of boring bits substantially as shown, of saws *d*, *d*, whose outside edges coincide with the outer cutting edges of the bits, substantially as shown and described.

7. In combination with a series of mortising bits arranged as shown, the inner ones for deep cutting and the outer ones for shallow cutting, saws *d* having a long cutter *d''* and shallow cutters *d'*, substantially as shown and described.

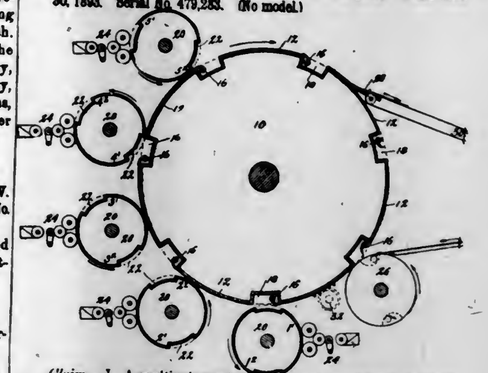
8. In a combination of mortising bits and saws as described, the saws arranged to travel to a line perpendicular to the plane of the saws passing through the centers of the cuts made by the bits at a period when the flat shanks of the bits do not occupy a vertical plane, or one at right angles to the plane of the saws, substantially as herein described.

9. A saw for the purpose described having a long cutter *d''* provided with saw teeth, and short cutters *d'* on each side of the long cutter, substantially as shown and described.

10. A saw substantially as described having its short cutters widened into a lip 42 for cutting away the solid wood left in the mortise by the outer bits substantially as shown and described.

11. Saws as and for the purpose described, having a long central cutter *d''*, short cutters *d'*, *d'*, lips 42, flange *d'''* and slotted holes 43 substantially as shown.

517,907. MULTICOLOR-PRINTING PRESS. WILLIAM C. WENDT, Boston, Mass., assignor to Emma L. Forbes, same place. Filed June 30, 1893. Serial No. 479,283. (No model.)



Claim.—1. A multicolor printing machine consisting of an impression-cylinder having two or more impression-surfaces of equal size, with a gap for each containing grippers; in combination and in operative contact with two or more equal-sized form-cylinders the radius of each of which is an aliquot part of the diameter of the impression-cylinder; with two forms on each of said form-cylinders, each form covering less than half its circumference and adjusted, angularly, to register with an independent series of the impression-surfaces; and with inking apparatus for each form-cylinder adapted to ink both forms with a single color; substantially as described

2. A multicolor printing machine consisting of an impression-cylinder having two or more impression surfaces of equal size, with a gap to each containing grippers; in combination and in operative contact with two or more equal-sized form-cylinders the radius of each of which is an aliquot part of the impression-cylinder; with two forms on each of said form-cylinders, each form covering less than half its circumference and adjusted angularly to register each form with an impression-surface after passing the previous impression-surface, and with two sets of inking apparatus for every form-cylinder constructed and adapted to ink each of the two forms thereon independently of each other; substantially as described.

3. In a multicolor printing press adapted for printing sheets, an impression-cylinder, in combination and in operative contact with two or more form-cylinders each provided with two forms, which cover respectively less than half its circumference; with a plurality of impression-surfaces on the impression-cylinder, every alternate one of which registers with one of the forms on the form-cylinder, and every intermediate impression-surface with the other; and with grippers for each impression-surface in gaps on the impression-cylinder between said surfaces; substantially as described.

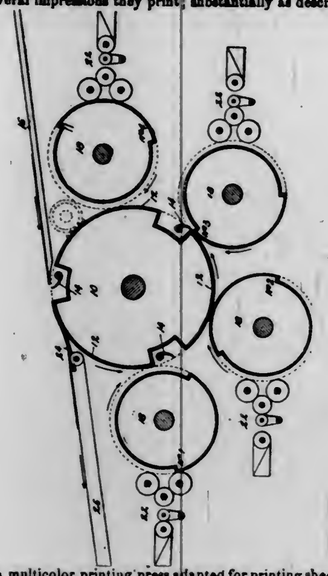
4. In a multicolor printing press adapted for printing sheets; the combination of an impression-cylinder provided with two or more impression surfaces separated by gaps; with two or more forms, on two or more equal sized form cylinders, a fraction of the diameter of one of which, having unity for its numerator and the number of forms for its denominator, is an aliquot part of the diameter of the impression-cylinder; and with form-supports separated by gap-spaces to carry said forms, of size and angular position corresponding with the impression-surfaces and gaps of the impression-cylinder, and registering each set of related forms, with an independent series of impression-surfaces on the impression-cylinder: substantially as described.

517,908. MULTICOLOR-PRINTING PRESS. WILLIAM C. WENDT, Boston, Mass., assignor to Emma L. Forbes, same place. Filed June 30, 1893. Serial No. 479,284. (No model.)

Claim.—1. In a multicolor printing press, the combination of an impression-cylinder provided with an odd plurality of impression-surfaces; with two or more form-cylinders placed operatively in relation thereto and adapted each to carry one form covering less than half the circumference of the same, and each adjusted angularly to register upon every second impression surface of the impression-cylinder as the cylinders revolve; substantially as described

2. In a multicolor printing press, the combination of an impression-cylinder provided with an odd plurality of impression-surfaces; with grippers for each arranged to close upon alternate impression-surfaces as they pass under the sheet-feeding devices; with form cylinders in operative contact therewith, the radius of each of which is an odd

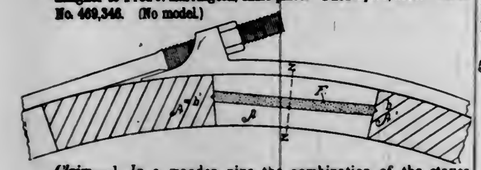
aliquot part of the diameter of the impression-cylinder, and each bearing a form-support covering less than half the surface of the form-cylinder and a relatively depressed surface for the remainder; together with inking apparatus to supply the forms with the requisite colors for the several impressions they print; substantially as described.



3. In a multicolor printing press adapted for printing sheets; an impression-cylinder provided with an odd plurality of impression-surfaces separated from each other by gaps containing grippers; in combination with as many equal sized form-cylinders as there are forms to be printed, with a form-support on each equal in length to one of the impression-surfaces and occupying less than half the periphery of each form-cylinder by a length equal to that of a gap on the impression-cylinder, with a relatively depressed surface on each form-cylinder occupying the rest thereof; and with cam devices closing every alternate set of grippers as the same pass the sheet feeding devices; substantially as described.

4. In a multicolor printing press for printing sheets, a feed cylinder adapted to seize and transfer the sheets presented to it; in combination and in operative contact with an impression-cylinder bearing an odd plurality of impression-surfaces; with grippers for each and means for closing the same on the sheets presented by the feed-cylinder to every second impression-surface; with form-cylinders carrying forms adapted to print the several colors in register upon the intermittent series of sheets and with means for releasing and delivering each printed sheet from the press in continuous alternation with the feed of blank sheets to the same; substantially as described.

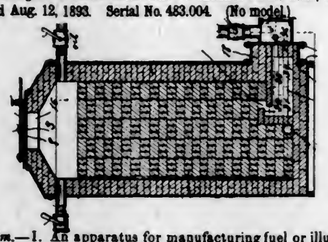
517,909. WOODEN PIPE. EDGAR T. WHEELER, Los Angeles, Cal., assignor to Fred J. Harrington, same place. Filed Apr. 6, 1893. Serial No. 469,346. (No model.)



Claim.—1. In a wooden pipe the combination of the staves grooved at the ends; the adjoining staves; and the flat expansible wood tenon fitted in the end grooves of the staves and arranged with the grain of the tenon running parallel with the sides of the staves so that the expansion of the tenon caused by moisture will operate to force the ends of the tenon against or into the sides of the adjoining staves.

2. The wooden pipe set forth having the ends of the staves grooved to receive the flat tenon and having a flat wood tenon fitted in the end grooves of the staves to close the joints between the staves; the grain of the tenon running parallel with the axis of the tube, and the ends of the tenon being beveled to the radius of the pipe and provided with the sharp insertion rib projecting beyond the sides of the staves to cut or mesh into the adjoining staves when the tube is formed.

517,910. GAS APPARATUS. CHARLES E. WHITE, Kansas City, Mo., assignor of seven-twentieths to Richard K. De Grau, same place. Filed Aug. 12, 1893. Serial No. 483,004. (No model.)



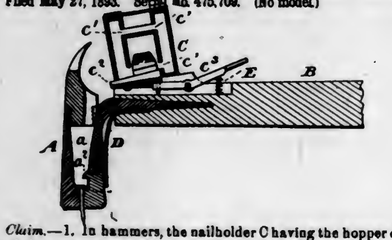
Claim.—1. An apparatus for manufacturing fuel or illuminating gas, comprising a retort or casing having a draft out-let opening, and a combustion chamber having a vertical wall at its inner end, and a passage opening up communication between the combustion chamber and the interior of the retort or casing, and a plate fitting across the outer end of the combustion chamber and provided with an opening, and a compartment or chamber communicating with the combustion chamber through said opening, an oil-pipe projecting into said compartment or chamber, and adapted to spray oil through said opening, and an air-pipe also communicating with said compartment or chamber, substantially as set forth.

2. An apparatus for manufacturing fuel or illuminating gas, comprising a retort or casing having a discharge opening in its upper end, and a cap or cover therefor, a combustion chamber extending into the interior of the retort or casing and having a vertical wall at its inner end and having a flange projecting horizontally and toward the front end of the combustion chamber from the upper edge or margin of said vertical wall, and having the top-wall of the said chamber extending to about the end of said flange, but in a lower horizontal plane, so as to form a space therebetween, and an oil-pipe and an air-pipe communicating with the front end of said combustion chamber, substantially as set forth.

3. An apparatus for manufacturing fuel or illuminating gas, comprising a retort or casing provided with a draft-opening in its upper end, and a checker-work of refractory material, a combustion chamber communicating near its inner end with the interior of the retort or casing, a plate fitting across the outer end of the combustion chamber and provided with openings, and a vertical guide wall erected in the outer end of said chamber and between said openings, a compartment or chamber communicating with the outer end of the combustion chamber at each side of said guide-wall, and through said openings, an oil-pipe projecting into each compartment or chamber and provided with a series of perforations opposite said openings, and an air-pipe also communicating with said compartments or chambers, substantially as set forth.

4. An apparatus for manufacturing fuel or illuminating gas, comprising a retort or casing provided with a draft-opening in its upper end, and a checker work of refractory material, a combustion chamber communicating near its inner end with the interior of the retort or casing, a plate fitting across the outer end of the combustion chamber and provided with openings, and a vertical guide wall erected in the outer end of said chamber and between said openings, a compartment or chamber communicating with the outer end of the combustion chamber at each side of said guide-wall, and through said openings, an oil-pipe projecting into each compartment or chamber and provided with a series of perforations opposite said openings, and an air-pipe also communicating with said compartments or chambers, and lighting-holes communicating with said compartments or chambers, and removable plugs closing said holes, substantially as set forth.

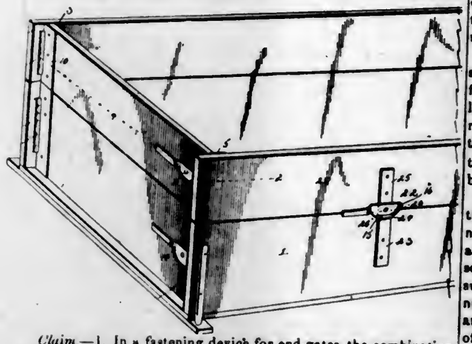
517,911. LATH OR SHINGLE HAMMER. WILLIAM A. WILEY, Rochester, Minn., assignor of one-half to James F. Harvey, same place. Filed May 27, 1893. Serial No. 475,709. (No model.)



Claim.—1. In hammers, the nailholder C having the hopper c the curved slot c', the pivoted support c^2 and the tilting lever c^3 supported at the handle by a spring, in combination with a recessed hammer handle and a hammer-head having a channel open at the top for the purpose set forth.

2. The hammer head A having the channel *a* extending perpendicularly therethrough and so shaped as to permit the free passage of the nail except at its outer end which is only large enough for the passage of the shank of the nail which is thus retained by the head only, and provided with a spring held pivoted jaw A′ cut out on the inside to form the shoulders a' a^2 between which the nailhead is supported, all substantially as shown and described.

517,912. FASTENING DEVICE FOR END-GATES. CARL A. ANDERSON, Lynn Center, Ill. Filed Nov. 7, 1893. Serial No. 490,253. (No model.)

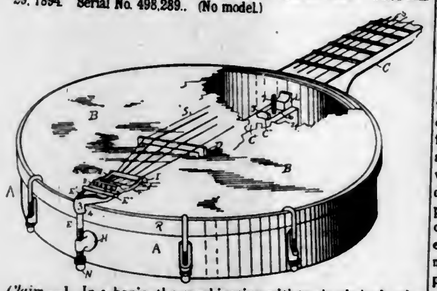


Claim.—1. In a fastening device for end-gates, the combination of a socket-plate secured to the side of the wagon body and provided with a socket and stop-flange, a tongued plate secured to the contiguous end of the end-gate to engage said socket, a catch-plate secured to the opposite side of the wagon body and provided with a forwardly-extending tongue 8, and a rotary latch pivoted to the end-gate and provided with a segmental upstruck rim which is flared or curved outwardly at its free extremity to engage the tongue 8, substantially as specified.

2. The combination with a catch-plate having a raised tongue, of a rotary latch having a segmental head provided at its curved edge with an upstruck rim, which is concentric with the center of movement of the latch and is flared outwardly at its free end, substantially as specified.

3. In a fastening device for end-gates, the combination of a socket-plate, a tongued plate engaging said socket-plate and carried by one end of the end-gate, a catch-plate provided with a tongue 8 and having a contiguous socket, a tongued plate carried by the other end of said end-gate to engage the socket in the catch-plate, and a latch provided with a segmental rim to engage the tongue 8, said sockets terminating short of the extremities of the plates in which they are formed and having closed extremities to prevent vertical displacement of the tongues carried by the tongued plates on the end-gate, substantially as specified.

517,913. BANJO. JOHN F. BARROWS, Saginaw, Mich. Filed Jan. 29, 1894. Serial No. 498,289. (No model.)



Claim.—1. In a banjo, the combination with the banjo body, the neck provided with a stem extending through the body to the opposite side from the neck and a corrugated end piece on the end of the stem, of a plate secured to the body and having transverse corrugations to engage the corrugated end piece, substantially as specified.

2. In a banjo, the combination with the banjo body, a neck provided with a stem extending through the body to the opposite side from the neck, a transversely corrugated end piece on the end of the stem and having a central lug, of a plate secured on the inside of the body and provided with corrugations to engage the corrugations of the end plate, and having a central vertical slot to receive the central lug of the end plate, substantially as specified.

3. In a banjo, the combination with a banjo body, of a neck provided with a stem passing into the banjo body, the stem provided with a rectangular vertical slot at the point where it passes within the body, and a fastening device within the slot consisting of a plate passing through the slot and extending on both sides of the stem and against the banjo body, and having a right angle arm supporting a right angle triangular piece longitudinally movable along said arm, the straight side of said piece engaging the end of the slot, a screw rod passing through said arm and screwing into a nut between the said pieces, one side of the nut being beveled to engage the beveled side of the triangular piece, whereby when the screw is turned it will draw the nut up between the parts, substantially as specified.

4. In a banjo, the combination with a banjo body, a neck having a stem integral therewith passing through the body to the opposite side from the neck, a transversely corrugated end piece having a central lug on the end of the stem, a plate corrugated to mesh into the corrugations of the end piece and having a central vertical slot to secure the central lug of the end piece, and means for securing the plate to the body, of adjustable means for fastening the neck and stem to the body, substantially as specified.

5. In a banjo, the combination with a banjo body, the neck and the stem integral with the neck, of adjustable means for tilting the neck and for securing the end of the stem to the body combined, and a tightening device consisting of a nut, having a beveled side, on a screw rod and adapted to be drawn by the screw rod between two surfaces, one straight, the other beveled to engage the bevel of the nut, one fixed, the other movable, all placed within a slot in the stem and adapted to bear against the banjo body on one side, and the end of the slot on the other, substantially as described.

6. In a banjo, the combination with a banjo body, a neck having a stem integral therewith passing through the banjo body to a point opposite the neck, an end piece on the end of the stem having horizontal corrugations, and a central lug a plate secured to the body to engage the end piece and having corrugations to mesh into the same on the end piece, and having a vertical central groove to receive the lug on the end piece, whereby the neck may be tilted independently of the body, of a fastening device for holding the neck and body rigidly together, consisting of a nut having one side beveled, a screw rod carrying said nut, two surfaces engaging the nut, one straight and engaging the straight side of the nut, one beveled and engaging the bevel of the nut, one resting against the body of the banjo, the other movable when the nut is drawn between them and pressing against the end of the rectangular slot in the stem, receiving the device, when the nut is drawn between them, substantially as described.

7. In a banjo, the fastening device described, consisting of a nut having a straight and a beveled side, two engaging surfaces, one straight, and the other beveled to engage the bevel of the nut, one rigid and supporting upon an arm a screw rod carrying the nut, the other movable as the nut is drawn between them by screwing down the rod, substantially as described.

8. In a banjo, the neck tilting device described, consisting of an end plate on the stem of the neck having its exposed surface transversely corrugated, and a lug extending therefrom, and an engaging plate adapted to be secured to the inside of the banjo body and having its exposed surface horizontally corrugated to receive the corrugations of the end piece, and having a vertical groove to receive the lug of the end piece, the plate being vertically longer than the end plate, whereby the end plate may be moved from one corrugation to another, substantially as described.

9. In a banjo, the combination with a banjo body, the neck, the drum head, the bridge and the strings, of an adjustable tail piece in two parts, one the tail piece proper having a head with shoulders engaging the rim of the banjo, and extending forward having eyelets for receiving the strings, and having a forwardly extending bracket adapted to press upon the strings at the proper distance in front of where tied to the tail piece, the other part consisting of a hook shaped device having a shank passing through the head of the tail piece proper, but not in engagement with it, and extending down the body of the banjo, but free from it, and passing through an eye in a lug extending from the body and being screw threaded and carrying a nut below the eye whereby it may be drawn down upon the tail piece proper, when the hooked part will press upon the tail piece at a point just back of the string engagement, whereby the bracket on the end of the tail piece will press upon the strings, substantially as described.

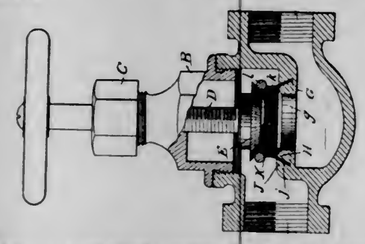
10. In a banjo, the combination with a banjo body, the neck, the stem integral with the neck, and having a rectangular slot where it passes within the body, the end adjustment on the end of the stem, the means within the rectangular slot for rigidly securing the neck to the body, the drum head, the bridge, and the strings, of a tail piece engaging the rim of the banjo body only, and having a frontwardly extending bracket whose end bears on the strings in front of the tail

piece, a hooked device having a screw threaded shank passing within the tail piece at the side of the body but not in engagement with the tail piece or body, and passing through an eye in a lug on the body, and having a nut on its end below the lug whereby by turning up the nut the hooked device on the top of the shank will be drawn down, the end of the hook engaging the tail piece at a point just back of the eyelets for the string engagement, thus drawing the bracket on the end of the tail piece down and lowering the strings, substantially as described.

11. In a banjo, the adjustable tail piece described, consisting of the tail piece proper having its shoulders engaging the rim of the body, and having eyes for securing the strings, and having in front of the string engagement a bracket bearing upon the strings between their engagement and the bridge, and the adjusting device consisting of a screw threaded shank passing through the tail piece proper, but not in eugagement with it, and extending down the side of the body, but free from it, and passing through an eye in a lug on the body and having a nut below the lug, a frontwardly extending hook upon the upper end of the shank adapted to engage and bear upon the tail piece back of the string eyelets when the nut is screwed upon the shank, whereby the front of the tail piece will bear upon the strings and draw them toward the drum head, substantially as described.

12. In a banjo, the combination with a tail piece having an extension in front of the string holder adapted to bear upon the strings between their fastening and the bridge, and a hooked device having its shank screw threaded and adjustably secured to the body with the hook adapted to engage the tail piece just back of the string fastening and press it downward, thereby drawing the strings toward the drum head, substantially as described.

517,914. VALVE AND JOINT. CHARLES S. BAVIER, New York, N. Y. Filed Mar. 29, 1893. Serial No. 468,245. (No model.) Patented in England Aug. 2, 1892, No. 13,964, and in France Aug. 2, 1892, No. 223,423.



Claim.—1. A ring having a thinned ductile web and a thickened tensional head, as and for the purpose described.

2. The combination in valves and joints, of a cone on one member of the valve or joint, a recess around said cone, and a ring provided with a tensional head and a ductile web attached thereto and adapted to be expanded over the cone into the recess, substantially as described.

3. The combination with a ring having a tensional head and ductile web attached thereto of the cone, H, adapted to enter and expand said ductile web and shoulder, J, as and for the purpose described.

4. A ring having a tensional head, and a ductile web formed of one integral piece of material, substantially as and for the purpose described.

517,915. METALLIC CROSS-TIE. ALBERT G. BUDINGTON, Austin, Tex. Filed June 6, 1893. Serial No. 476,764. (No model.)



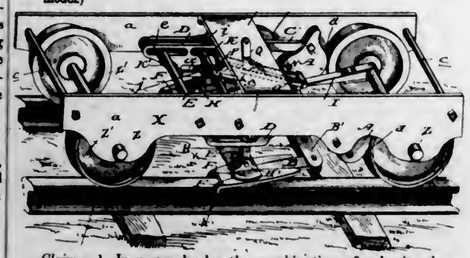
Claim.—1. The combination with rails, of a hollow cross-tie having parallel vertical sides provided with flat upper faces supporting the rails, and the rail chairs arranged within the cross-tie and fitting snugly between the sides thereof, and each composed of a bottom flange resting upon the bottom of the cross-tie, a web and a top portion 16 arranged flush with the upper faces of the sides of the cross-tie and provided with integral parallel upward extending flanges arranged transversely of the cross-tie and projecting above the upper faces of the chair and the sides of the cross-tie and receiving the rails between them and embracing the same, substantially as described.

2. The combination of a hollow cross-tie, a chair arranged within the cross-tie and provided with side flanges extending upward, a rail mounted on the cross tie and arranged between the upwardly-extending side flanges of the chair, and clips composed of bars arranged on the lower faces of the top flanges of the tie and provided at their ends with upwardly extending prongs passing through the tie and engaging the bottom flanges of the rails, substantially as described.

3. The combination of a cross-tie, an inclined brace composed of a longitudinal body-portion engaging the rail beneath the head thereof and inclined legs having their lower ends bifurcated and arranged on the cross tie, and clips consisting of heads and shanks passing through the cross tie and arranged in the bifurcations of the legs and bent over upon the latter, substantially as described.

4. The combination of a cross-tie, a rail chair arranged within the tie and comprising a bottom plate, a web and a top plate having upwardly-extending flanges, a rail mounted on the cross-tie and arranged between the upwardly-extending flanges of the chair, clips 13 having prongs extending upward through the tie and engaging the rail, an inclined brace having a longitudinal body to engage the rail beneath the head and provided with depending bifurcated legs, and clips 22 consisting of heads and shanks passing through the cross tie and arranged in the bifurcation of the legs and bent over upon the latter, substantially as described.

517,916. CAR-BRAKE. GEORGE W. CHANDLER and JOHN C. DALE, Manhattan, Kans. Filed July 14, 1893. Serial No. 480,548. (No model.)



Claim.—1. In a car brake, the combination of a brake shoe adapted to be moved by a wheel, a clutch adapted to engage a rail, and mechanism intermediate of the shoe and the clutch adapted to lower the clutch when the shoe is moved, substantially as specified.

2. A car brake comprising a brake shoe adapted to engage a wheel, a clutch adapted to engage a rail, and mechanism adapted to bind the clutch against the rail, after the speed of the car has been slackened by the application of the shoe to the wheel, substantially as specified.

3. In a car brake, the combination of a swinging brake shoe adapted to engage a wheel, a slidable block connected and adapted to move with the brake shoe and having a cam groove, a clutch adapted to engage a rail and an arm connected to the clutch and engaging the cam groove of the slide block, whereby when the shoe is moved to brake the wheel, the clutch will be lowered to an operative position, substantially as specified.

4. A car brake comprising a movable brake shoe adapted to engage a wheel, a clutch adapted to engage a rail, mechanism intermediate of the shoe and the clutch adapted to lower the clutch when the shoe is moved, and mechanism adapted to bind the clutch against a rail to stop the car, substantially as and for the purpose set forth.

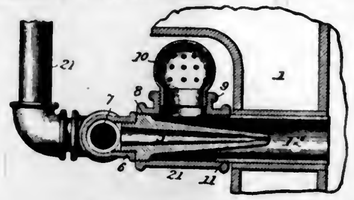
5. In a car brake, the combination of a swinging brake shoe adapted to engage a wheel, a clutch adapted to engage a rail, a slidable block connected and adapted to move with the shoe and having a cam groove, an arm connected with the clutch and engaging the cam groove of the slidable block, and a wedge adapted to bind the members of the clutch against the rail, substantially as specified.

6. In a car brake, the combination with a wheel; of a pivotally mounted brake shoe having a compound curved engaging face and also having an anti-friction wheel adapted to normally engage the wheel, and a suitable means for adjusting the said shoe.

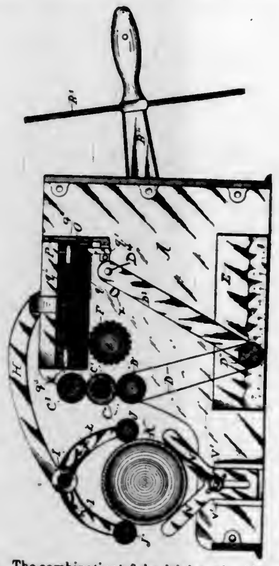
7. In a car brake, the combination of the pivotally mounted brake shoes adapted to engage wheels, the clutches adapted to engage the rails and respectively comprising two pivotally-mounted members, slidable blocks connected and adapted to move with the brake shoes, and having cam grooves-swinging arms connected with the clutches and engaging the cam grooves of the slidable blocks, wedges adapted to bind the clutches against the rails when the speed of the car is slackened by the application of the shoes to the wheels, and a suitable means for normally holding the shoes and the clutches out of engagement with the wheels and rails, respectively, substantially as and for the purpose set forth.

517,917. SMOKE CONSUMER. HARRY DELANEY, New Albany, Ind. Filed Sept. 12, 1893. Serial No. 485,356. (No model.)

Claim.—In a smoke consumer for locomotives, the injector devices consisting of the steam chamber 7 formed or provided with the collars 6, steam injectors fitted to such collars, the sleeves or collars 9 fitted to the injectors, and the air receiving hoods provided with openings, substantially as described.



517,918. LABELING-MACHINE. EDWARD E. EUCHENHOFER, CHRISTIAN J. WEINMAN, and ALFRED L. STEVENS, Dayton, Ohio; said Euchenhofer and Weinman assignors to said Stevens; said Stevens assignor of two-thirds of the whole right to Jno. M. Phelps and Christopher W. Uthbrok, same place. Filed Apr. 10, 1893. Serial No. 469,836. (No model.)



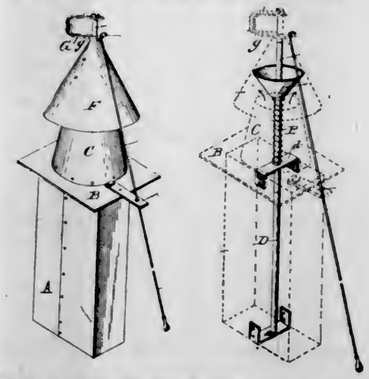
Claim.—1. The combination of the driving wheel having the disk N with a cam groove, on its inner face, and a ratchet on its outer face, the arms H and H′ the latter of which is provided with an anti-friction roller to engage with said groove, the pawl *b*″ to engage with said ratchet, the feed roller F and the crown wheel *j* mounted on the shaft thereof, the pawl *s* mounted in the extension *s*′ of the arm H′, and means for rotating the driving wheel, as is herein specified.

2. In a labeling machine, the combination with the driving wheel having the wheel with ratchets *b* and *b*′ and the disk with cam slot *i* fixed thereto, the lever B″ with ratchet pawl *b*″, fulcrumed on the shaft of the driving wheel; of the arms H and H′ connected by the transverse shaft I, the fingers 1, 2, 3, 4 mounted on said shaft, the pressure rollers J and J′ mounted in said fingers, the primary feed roller F and ratchet wheel *j* operated by the arm H′, the feed rollers C″ and C⁹, and the paste-applying belt D on rollers D′ and D″, as herein described.

3. In a labeling machine, the combination of the driving wheel having a ratchet wheel and a disk with a cam slot, fixed thereto, the reciprocating arms H and H′ the former of which having anti-friction roller, movable in said cam slot, the feeding roller F, a crown wheel having a ratchet on its face, mounted on the shaft of said roller, the dog *s* engaging with said ratchet and operated by the arm H′ substantially as described.

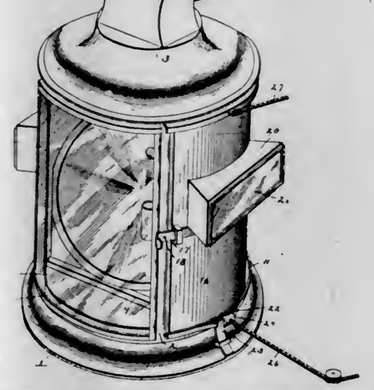
4. In a labeling machine, the combination with the casing having label and paste receptacles therein, and the primary feed rollers F; of the rollers D′ and D″, the apron D rotated by said rollers, the adjustable bars D⁸ in which roller D″ is mounted, the friction rollers C″ and C⁹ the former to receive paste from said apron, and in conjunction with roller C⁹ to receive the labels from feed roller F, substantially as described.

517,919. CHIMNEY-REGULATOR. JURGEN FERRICHS, Gilman Ill. Filed Dec. 5, 1893. Serial No. 492,847. (No model.)



Claim.—In a draft regulator for chimneys, the combination with the flue box A, plate B, conical pipe C and vertical rod D, of the deflector E, loosely mounted on said rod, the hood or cover F, also loosely mounted on said rod, the coiled spring encircling rod D and interposed between plate B and deflector E, the vertically slidable bracket G, and the rod K, substantially as described.

517,920. HEADLIGHT. ELIAS C. GLAZIER, Rochester, N. Y. Filed Apr. 13, 1893. Serial No. 470,245. (No model.)



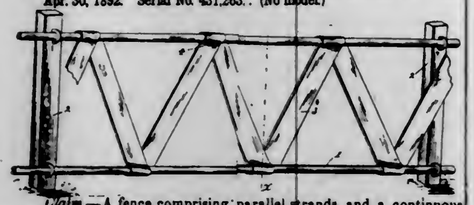
Claim.—1. A head light for locomotives comprising a stationary cylinder 2 having a light opening and a dark side, a stationary dome 3 surmounting the cylinder, and an exteriorly revolving cylinder 12 entirely surrounding the stationary cylinder and having a glass covered reflector-light exposing opening and a dark side, substantially as specified.

2. A head light for locomotives comprising the inner stationary section having side and front openings, and the revolving outer section having the glass covered light-exposing opening at the front, and at opposite sides the number-bearing illuminating panels, which are carried by the revolving section in its movement so that in either position of adjustment of the revolving section the number-bearing panels will always be disposed at the sides and exposed to passing trains, substantially as specified.

3. In a headlight for locomotives, the combination with an inner stationary cylinder having a light-exposing opening, at one side of the same provided with a door-opening, and at the opposite side with a slot, of an outer revolving cylinder provided with a glass covered light-exposing opening, at one side with a door having a number-carrying plate mounted in the opening, a number-carrying plate arranged diametrically opposite the same in a corresponding opening, and between said openings diametrically opposite the light-exposing opening having a dark side, substantially as specified.

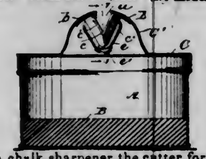
4. In a headlight for locomotives, the combination with an annular ring whose upper side is provided with an annular rib, an inner stationary cylinder secured to the ring and provided with a bottom, a light-opening, a door-opening, and a slot opposite the same formed in the stationary cylinder, of an external cylinder having corresponding openings, a dark side opposite its light-opening, curved ways formed upon the cylinder, the lower one of which is provided at diametrically opposite sides with notches, a sliding door located in the ways, and a detent secured to the base for engaging the notches, substantially as specified.

517,921. FENCE. ELIAS A. GOEHRING, Beaver Falls, Pa. Filed Apr. 30, 1892. Serial No. 431,263. (No model.)



Claim.—A fence comprising parallel strands, and a continuous zig-zag ribbon or flat strip connecting the strands and lying between the same, bent at each intersection around the strands to form tubular elongated clips, and having intermediate divergent portions which overlap and lie in contact adjacent to the strands, whereby the intermediate portions of the ribbons or strips lie, approximately, in the plane of the axes of the strands, substantially as specified.

517,922. CHALK-SHARPENER. GEORGE HAY, Pictou, Canada. Filed Apr. 21, 1893. Serial No. 471,319. (No model.)



Claim.—1. In a chalk sharpener the cutter formed of a V-shape body having its end edges c' c' sharpened; each blade b of the cutter being angular in cross section and the attaching flanges b' at the upper ends of the blades b, substantially as set forth.

2. In a chalk sharpener the cutter formed of a V-shape body provided with opening b^3 and having its end edges c' c' sharpened, each blade b of the cutter being angular in cross section and provided at its upper end with flanges b' and slots b^3, substantially as set forth.

3. In a chalk sharpener, the combination with a V-shaped cutter body having two similar blades each angular in cross section and provided with an opening at its upper end, the body being provided with an opening at the juncture of the said blades, of a wiper doubled upon itself and having its ends passed through the openings in the blades, and a staple secured in the doubled portion of the wiper, passed out through the opening in the body of the cutter and engaging the ends of the wiper, substantially as described.

4. The combination with the hollow slotted support and the V-shape cutter thereon provided with a wiper, of the dust guards g g, substantially as set forth.

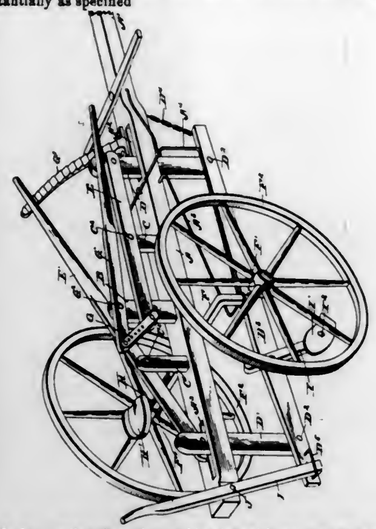
5. The combination with a hollow base, a lid, a hollow slotted projection on the lid, and a pair of cutter blades below the slot, of a wiper device on the cutter device between its blades, substantially as described.

6. The combination with a hollow base, a lid, a hollow slotted projection on the lid, and a pair of V-shaped depending cutter blades sharp on edges that diverge in pairs at like angles, of a pliable wiper strip secured on the cutter blades between the pairs of V-shaped sharp edges, substantially as described.

7. The combination with a hollow base, a weighty bottom thereon, a removable lid, a slotted spherical projection central on the lid, and a wiper on the projection at its slot, of a pair of cutter blades below the slot in the lid, and a wiper device on the cutter blades between their edges, substantially as described.

517,923. RIDING-PLOW. WILLIAM D. HOTT, Loy's Shop, N. C. Filed Apr. 5, 1893. Serial No. 469,117. (No model.)

Claim.—1. In a sulky plow, the combination with the axle, the ground-wheels, the main beam, the lower plow-carrying beam, and the vertically and longitudinally movable bars mounted in elongated mortises in the main beam and pivoted at their lower ends to the opposite sides of the center of the plow-carrying beam, levers for raising and lowering said bars, and a rear lever pivoted on the main beam and loosely connected to the rear end of the plow-carrying beam, substantially as specified



2. In a sulky plow, the combination with the axle, the ground-wheels, the main beam terminating in a draft-pole and provided with mortises, of the lower plow-carrying beam provided at its rear end with a keeper, a lever fulcrumed on the rear end of the main beam and engaging the keeper, a draft-chain between the under side of the pole and the front end of the plow-carrying beam, vertical bars arranged in mortises in the main beam and pivoted at their lower ends to the plow-carrying beam, the central standard B and the side standards C and C' arranged on the main beam, the lever E fulcrumed on the standard C and pivotally connected at its front end to the upper end of the front vertical bar, the lever G' fulcrumed on the standard B and terminating at its front end in a handle, a link G connecting the rear ends of the levers G' and E, and the lever E' fulcrumed on the standard C' terminating at its front end in a handle, and having its rear end pivoted to the rear vertical bar G', substantially as specified.

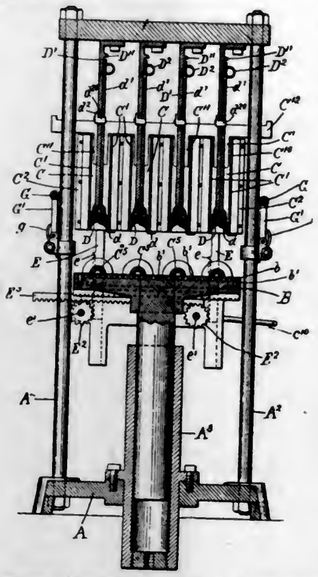
3. In a sulky plow, the combination with an axle and its ground-wheels, and a main beam supported on the axle, of a plow-carrying beam arranged below the main beam, vertically movable bars loosely supported upon the main beam and pivotally connected at their lower ends to the plow-carrying beam, levers fulcrumed above the main beam and connected to the upper ends of the bars, and a lever pivoted to the beam and loosely connected at its lower end to the plow-carrying beam, substantially as specified.

517,924. MACHINE FOR MOLDING SPOOLS OR SIMILAR FORMS FROM PULP. EBER HUBBARD, Chicago, Ill., assignor to the Willimantic Linen Company, Hartford, Conn. Filed Aug. 7, 1893. Serial No. 482,571. (No model.)

Claim.—1. In combination with the press frame, the bed adapted to be reciprocated vertically; the mold cases C C C, &c., supported on the bed and adapted to be elevated from it; the followers rigid with the frame, in line respectively with the mold cavities of the mold cases C, and adapted to fit in and traverse the same pistonwise as the bed rises; substantially as set forth.

2. In combination with the press frame, the bed adapted to be reciprocated vertically therein; the mold cases supported on the bed, and mechanism for elevating them relatively thereto; the followers secured to the frame and overhanging the bed in line with the cavities of the molds respectively, and adapted to advance pistonwise therein as the molds rise, said followers being composed each of two members, one of which is movable longitudinally; whereby the molded form may be stripped from the follower by such longitudinal movement: substantially as set forth.

3. In combination with the press frame and the bed adapted to be reciprocated vertically therein, the mold cases supported on the bed; the trough C^4 at one side of the mold cases, said mold cases having gateways near their upper ends through their side and partition walls; whereby the pulp may flow from the trough into the mold cavities; the gates or valves which close such gateways adapted to slide vertically; and the trip bars G on the frame in position to detain the gates while the molds descend and thereby to open the gates: substantially as set forth.



4. In combination with the bed and the mold cases carried thereon, the trough C^4 having communication with the molds; the supply pipe F, and the depending pipe terminal C^{40}, of the trough adapted to telescope with the up-standing end of the supply pipe as the molds descend: substantially as set forth.

5. In combination with a mold for liquid pulp, and a piston follower by which the pulp may be compressed therein; a ridge or elevation in the bottom of the mold cavities to produce a groove or furrow in the molded form, such ridge being provided with slight projections: substantially as and for the purpose set forth

6. In combination with the mold C for the half-spool form having a flat bottom with a longitudinal rib; and the follower adapted to operate pistonwise in such mold cavity, the longitudinal rib being longitudinally furrowed, ribbed or fluted: substantially as and for the purpose set forth.

7. In combination with the bed and the molds C C carried thereon, two-part followers Dd, projecting downward into the upper ends of such molds; the lever d^3 fulcrumed upon one of said parts and operating upon the other, and having one end exposed in the path of the mold, whereby the latter at the upper limit of its movement operates the lever to reciprocate the movable member of the follower: substantially as set forth.

8. In combination with the bed, the molds C C thereon; the uprights E E constituting supports for the group of molds, the shafts journaled in the bed having pinions E', engaging the racks on said uprights, and the pinions E^2, and the horizontal racks E^3, meshing with said pinions E^2, whereby the rotation of one of said shafts elevates simultaneously all four of the uprights: substantially as set forth.

517,925. COMBINED DRAG-BAR CULTIVATOR AND DRILL. WILLIAM HULL, Souris, Canada. Filed Sept. 26, 1893. Serial No. 486,560. (No model.)

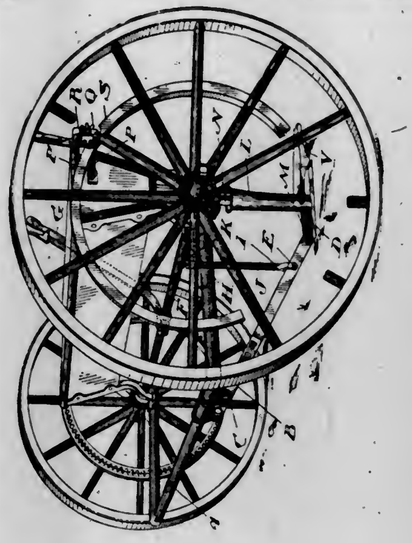
Claim.—1. In a cultivator and seeder, a seed covering device pivotally connected with the seed-spout and having side walls converging together from the front rearwardly, and a weighted tail formed on said seed-covering device, substantially as described.

2. In a cultivator and seeder, a drag bar, shares D having their lower ends turned outwardly and horizontally and their upper ends bolted together and to the drag-bar, substantially as described.

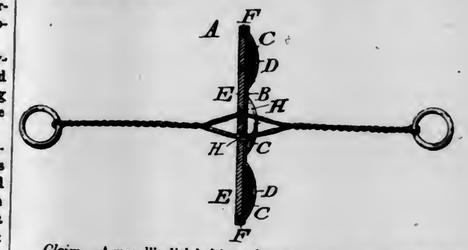
3. In a cultivator and seeder, rods N, rock-shaft O connected thereto, arm P carrying said rock-shaft, in combination with arm P', pivoted to said arm P pinion Q, carried by said arm P, and having a pin projecting therefrom acting on said arm P, gear wheel S, and means for adjusting said arm P', substantially as described.

4. The combination in a cultivator, of rods N, rock-shaft O connected thereto, arm P carrying said shaft, arm P' connected with said arm P, pinion Q carried by said arm P', a quadrant Q', and a hand lever engaging said quadrant and arranged to adjust the pinion and levers, substantially as described.

5. In a cultivator and seeder, a drag bar, shares formed in two halves having their lower ends turned outwardly and horizontally, and their upper ends bolted together and to the drag bars, the lower and forward edges of said shares being sharpened, substantially as described.



517,926. TOY. WILLIAM H. KLINE, Philadelphia, Pa., assignor of one-half to William P. Bushell, same place. Filed Apr. 5, 1893. Serial No. 469,087. (No model.)



Claim.—A metallic disk having a flat central portion, a flat peripheral portion, integral-convexities between the center and periphery, and an inturned rim in combination with a flat backing which rests against the central and peripheral portions of said disk, covers the rear of the convexities and has its peripheral portion embraced by said rim, the central portions of the disk and backing having an operating cord passed through them, all as described.

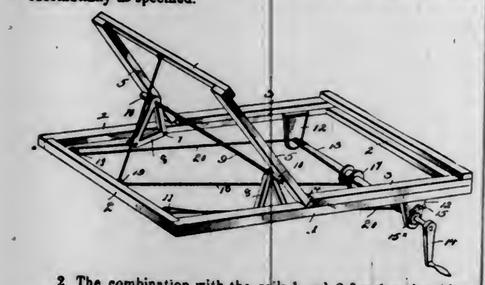
517,927. COMPOUND FOR WATERPROOFING FABRICS. ERNEST J. KNOWLTON, Ann Arbor, Mich. Filed Mar. 29, 1892. Serial No. 426,871. (No specimens.)

Claim.—A filling compound consisting of linseed mucilage and Spanish white, substantially in the proportions and for the purpose stated.

517,928. INVALID-BED. JACOB M. LIECHTY, Sterling, Ohio. Filed July 31, 1893. Serial No. 481,958. (No model.)

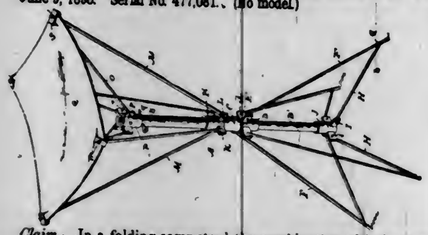
Claim.—1. In a bed of the class described, the combination with a suitable supporting-frame, and bars hinged to the upper side of the same between the ends of the side-rails thereof, of bell-crank levers pivoted to the supporting-frame in advance of the hinge point, a cross-bar connecting the bell-crank levers, projecting beyond the same, and taking under the hinged bars, guide-eyes in the upper end of the supporting-frame, bearings in the lower end, a winding-shaft mounted in the bearings, and a series of three ropes passed through the guide-eyes, the two outer ropes being connected to the bell-cranks at their

lower ends and the central rope to the swinging frame and reversely wound upon the windlass-shaft with relation to the said side ropes, substantially as specified.



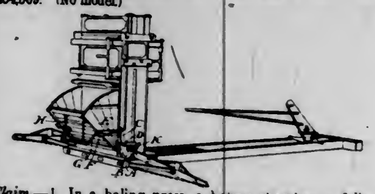
2. The combination with the rails 1 and 2 forming the oblong frame, the stationary bars 3 surmounting the same, the rails 5 hinged to the forward ends of the stationary bars 3, the cross-bars 6 for the bars 3 and 5, of the hangers 12, windlass-shaft 13 having a central drum 17 and square at one end to receive a removable crank, a ratchet-wheel carried by the shaft, a pawl upon one of the hangers for engaging the wheel, a pair of bell-crank levers pivoted to the rails 1 in advance of the hinges between the bars 3 and 5, the cross-rod 9 mounted in and connecting the bell-cranks and projecting beyond the same and provided with anti-friction rollers, and the guide-pulleys 11 and 19, the ropes 18 and 20 wound reversely with relation to each other upon the shaft and drum and passed through the guide-pulleys, the central rope 18 being connected to the cross-bar between the bars 5, and the ropes 20 connected to the lower ends of the bell-cranks, substantially as specified.

517,929. FOLDING STOOL. MILO O. MARCH, Goshen, Ind. Filed June 9, 1893. Serial No. 477,061. (No model.)



Claim.—In a folding camp stool, the combination with the standard, of a revolving folding seat frame mounted on the standard and having seat arms provided with outer squared extremities, a flexible stool seat having diagonally crossed seat straps arranged upon its under side, and metal attachment clips clamping the ends of said straps to the corners of the seat, said clips being provided with openings adapted to removably engage the extremities of said seat arms, substantially as set forth.

517,930. BALING-PRESS. DENNIS J. MURPHY and JONATHAN RICHARDSON, Mountain View, Cal. Filed Sept. 2, 1891. Serial No. 404,569. (No model.)

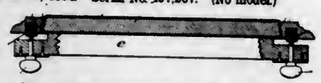


Claim.—1. In a baling press, a baling chamber, a follower, a door, a roller attached to and moving with the follower, a bell crank lever pivoted to the end of the press and having one end projected into the path of movement of the roller, a connecting rod pivotally attached to the other end of said bell crank lever, and, operating a crank arm, links pivoted at one end to the door, and loosely connected at the other end to a crank lever operated by said crank arm, all combined and arranged as and for the purpose described.

2. In a baling press, a baling chamber provided with a door, a follower, a roller, attached to and moving with said follower a bell crank lever pivoted to the end of the baling press, having one end adapted to be operated by the roller when the follower moves in one direction. Devices for opening and closing the door operated by the other end of the said bell crank-lever, a second bell crank lever pivoted to the end of the press, and having one end projecting into the path of movement of a projecting portion of said follower when it moves in a direction opposite to that in which it moves to operate said first mentioned bell-crank lever, the other end of said second named bell crank lever adapted and arranged to operate the outer end of said first mentioned lever; whereby on each reciprocation of the plunger the door is opened and closed, substantially as described.

3. In a baling press a baling chamber a door, a follower, roller B carried thereby bell crank-lever "C. and K." pivoted to the end of the press, one end of each adapted to be operated by said follower. Connecting rod. E. pivoted to the other end of bell crank lever "C" crank arm F, and crank G. operated by said connecting rod, links H. pivoted to the door and loosely connected to the crank. G. the other or free end of crank lever *k* adapted to operate the outer end of crank "C" all combined and operating as and for the purpose specified.

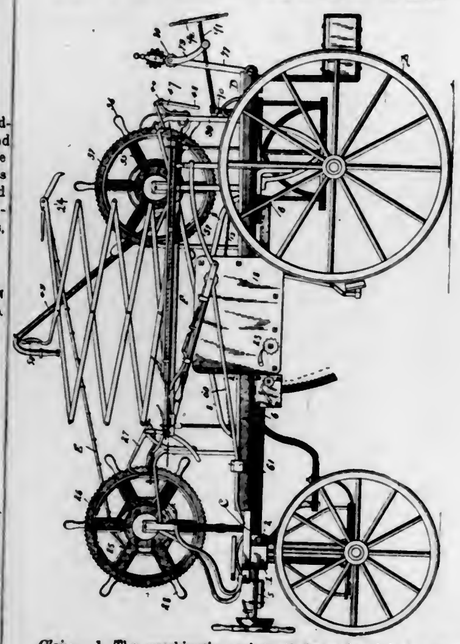
517,931. CARD-TABLE. JEREMIAH O'MEARA, New York, N. Y. Filed Jan. 18, 1894. Serial No. 497,267. (No model.)



Claim.—1. A card table having a border provided with a beveled inner edge and a center having a correspondingly beveled outer edge and fitted within the said border, and means for adjusting the said center within the said border to make and maintain a tight and close joint between the center and the border. substantially as described.

2. A table having a border and a movable center, the adjacent edges of the border and center being beveled in parallel planes, in combination with battens applied to the under side of the center to support it, and screws arranged in the ends of the battens and engaging nuts in the border to effect an adjustment of the center so as to insure not only a tight, close joint between the border and center, but also to enable the maintenance of the top surface of the center above the level of the border, substantially as described.

517,932. FIRE-LADDER. JOSEPH PAULY and MICHEL MICHELS, Chicago, Ill. Filed Oct. 12, 1891. Serial No. 408,446. (No model.)



Claim.—1. The combination substantially as hereinbefore set forth in a fire ladder, of a truck, a reel mounted thereon, a ratchet wheel on said reel, a pivoted spring detent 27 upon said truck having an arm 31 resting upon a sliding bar 32 provided with an inclined edge 33, devices for sliding said bar, a system of lazy tong levers

mounted upon said truck, and a flexible ladder wound upon said reel and having one end connected with said lazy tong levers.

2. The combination substantially as hereinbefore set forth in a fire ladder, of a truck, a system of lazy tong levers and a ladder mounted thereon, a reel mounted upon said truck, and provided with oppositely arranged ratchet wheels, detents located to engage said ratchet wheels, and a line of hose pipe wound upon said reel and having one end connected with the upper end portion of said lazy tong levers.

3. The combination substantially as hereinbefore set forth with a reel having oppositely arranged ratchet wheels, of oppositely arranged detents engaging said ratchet wheels, movable arms located in engagement with said detents, and a shaft connected with both of said arms for moving the same.

4. The combination substantially as hereinbefore set forth in a fire ladder, of a truck and swinging frame mounted thereon, and having a horizontal pivotal connection with said truck near one end thereof, devices for swinging said frame on its pivot, a system of lazy tong levers, and a ladder, mounted upon said swinging frame, said lazy tong levers being provided at their upper ends with pivoted hooks and detents for holding said hooks immovable.

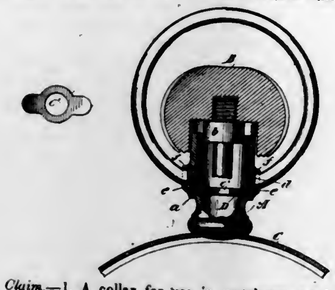
5. A fire ladder truck having a laterally sliding connection at its forward end with axle of the wheels supporting the same, a segmental toothed rack mounted upon said axle, and a gear pinion carried by a shaft mounted upon said truck.

6. The combination substantially as hereinbefore set forth in a fire ladder, of a truck, outwardly extending arms 57 secured thereto, lifting levers 59 pivoted to said arms 57, and fulcrum supports 60 pivoted to said levers.

7. The combination substantially as hereinbefore set forth in a fire ladder, of a truck, outwardly extending arms 57 secured thereto, lifting levers 59 pivoted to said arms 57, and fulcrum supports 60 pivoted to said levers and having also a ratchet and pawl connection therewith.

8. The combination substantially as hereinbefore set forth, in a fire ladder, of a truck provided with a trackway 7 having overhanging flanges 11, and a system of lazy tong levers and a ladder mounted upon said truck, the lower legs 8 of said lazy tongs being provided with rollers 9 resting upon said trackway, and friction rollers 10 secured to said legs 8 and located beneath said overhanging flanges.

517,933. WATCHCASE-PENDANT. WILLIS S. RICHARDSON, Newark, N. J., assignor to the Newark Watch Case Material Company, same place. Filed July 10, 1893. Serial No. 480,005. (No model.)



Claim.—1. A collar, for use in watchcase pendants, provided with bearings for closing the inner sides of the openings in said pendants, substantially as described.

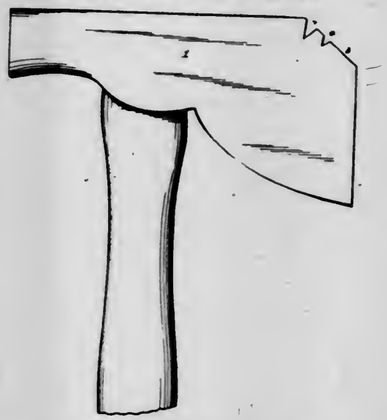
2. The combination with a watchcase pendant formed with openings in the sides thereof, of a collar fitted therein and provided with bearings adapted to close the inner sides of said openings, substantially as described.

3. The combination with a watchcase pendant formed with openings in the sides thereof, of a collar fitted therein and provided with bearings adapted to close the inner sides of said openings, and a bow, the ends of which fit in said openings and against said bearings, substantially as described.

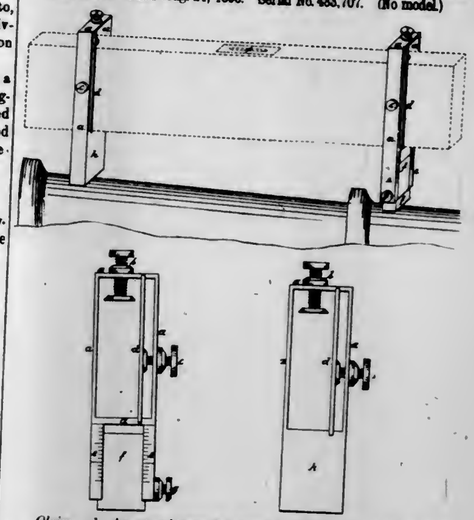
517,934. HATCHET. JOHN C. SCALES, Chicago, Ill. Filed Feb. 17, 1894. Serial No. 500,569. (No model.)

Claim.—1. As a new article of manufacture, a hatchet having at its outer or front portion a face or edge extending at an angle to the cutting blade and provided with one or more notches or openings forming a nail-removing claw, substantially as described.

2. As a new article of manufacture, a hatchet having a face or edge extending at an angle from the end of the cutting blade to a point on the front edge of the hatchet, at a distance above such cutting blade, there being on said edge one or more notches or claws for readily extracting nails, substantially as described.



517,935. SPIRIT-LEVEL ATTACHMENT. AUGUST SCHNELL, Clinton, Iowa. Filed Aug. 21, 1893. Serial No. 483,707. (No model.)



Claim.—1. An attachment for spirit levels consisting of an open frame, a set screw through the top of the frame, a horizontally sliding plate within the frame, a set screw through one side of the frame swivelly connected with said plate, strips depending from said frame and provided with a gage, a block sliding between them, and a set screw through one strip for locking the block in adjustable position, as and for the purpose set forth.

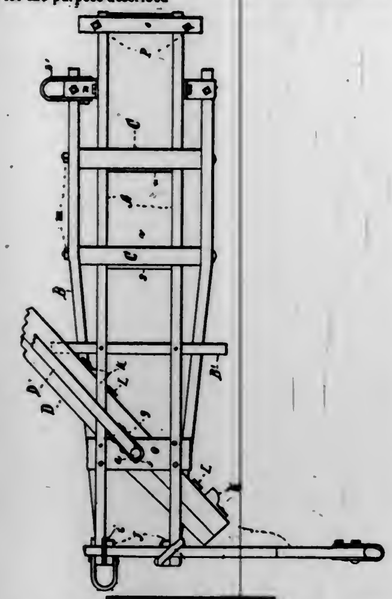
2. An attachment for spirit levels consisting of an open frame, means substantially as described for detachably and adjustably connecting said frame with the spirit level, strips depending from said frame and having grooves on their inner edges, one strip being provided with a scale, a block between said strips having tongues fitting said grooves, and a set screw through one strip for fastening the block in adjusted position, as and for the purpose set forth.

3. An attachment for spirit levels comprising two members, each consisting of an open frame adapted to surround one end of the level, and set screws through the top and one side of each frame for detachably and adjustably connecting it with said level; one frame having a solid block at its lower end, and the other frame having at its lower end depending strips, and a sliding block adjustably located between them, all as and for the purpose set forth

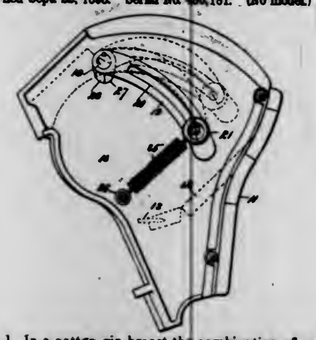
---

517,936. BALING-PRESS. GEORGE SCHUBERT, Walnut Springs, Tex. Filed Feb. 20, 1893. Serial No. 462,943. (No model.)

Claim.—In a baling press, having runners B, B, frame bars A extending beyond the feeding chamber, posts J and J' secured to the frame bars A, a cross bar C, a clevis K on said cross bar C, a clevis k, a brace *j* extending over the post J, and in the slot of the post J', stirrups *i* and *i'* secured to the upper end of the posts J and J' extending over the brace *j*, a wedge *j'* on the brace *j* and in the stirrup *i'*, as and for the purpose described



517,937. BREAST FOR COTTON-GINS. ANDREW SCHULER, Lott, Tex. Filed Sept. 22, 1893. Serial No. 486,161. (No model.)



Claim.—1. In a cotton gin breast the combination of a stationary inner curved portion, a movable portion extending throughout the length of the breast and hinged to said curved portion, said movable portion being curved in continuation of the curve of the stationary portion and means for holding said movable portion against the roll to retain said roll between the stationary and movable portions, substantially as described.

2. A gin breast provided with an upper circle pivoted adjacent to the upper rear wall or casing, a slotted arm connected to said upper circle, and a tension spring, one end of which is adjustably secured in the slot in said arm.

517,938. SHOE FOR BRIDGES. GEORGE S. SEAMAN, Alvarado, Tex. Filed Nov. 29, 1893. Serial No. 491,368. (No model.)



Claim.—A shoe for bridges and the like, comprising a base or plate provided on its bottom with a longitudinal flange, perforated to form ears and adapted to receive bolts, and an outward extending transverse flange arranged at the front of the base or plate and provided on its inner face with an integral wedge-shaped projection, substantially as and for the purpose described.

517,939. CONVERTER. CHARLES W. STICKNEY, Butte, Mont. Filed Sept. 16, 1892. Serial No. 446,122. (No model.)



Claim.—1. A separable swinging converter having tuyere holes leading therein through its sides above the base, and having a form increasing in its internal periphery from the base upward, and provided with false sides made in longitudinal sections and removable substantially as described.

2. A separable swinging converter having tuyere holes leading therein through its sides above the base, and having a form increasing in its internal periphery from the base upward, and provided with a loose false bottom made in sections and removable, substantially as described.

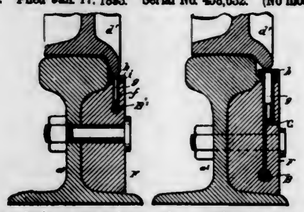
3. A separable swinging converter, having tuyere holes leading therein through its sides above the base, and having a form increasing in its internal periphery from the base upward, and provided with a coating of non-adhesive material between the converter body and its refractory lining substantially as described.

4. In combination with a converter, removable lining catches, projecting through the converter shell into the space occupied by the refractory lining material, substantially as described.

5. In combination with the connecting flanges of the parts of the converter, the clamps, *t*, held in place by the wedges, *w*, and the two projections, *v* on the flange and *u* on the clamp, substantially as described.

6. In combination with a separable converter and its refractory lining, one or more breakage lines in said lining formed by non-adhesive material placed in said lining before baking, substantially as described.

517,940. ELECTRIC-RAILWAY SYSTEM. CHARLES D. TISDALE, Boston, assignor, by direct and mesne assignments, to himself, and John D. Gould, East Boston, and Charles Healey and James E. Jenkins, Lynn, Mass. Filed Jan. 17, 1893. Serial No. 458,632. (No model.)



Claim.—1. In an electric car, the combination with a truck provided with two axles, each axle being furnished with one conducting wheel and one insulated wheel, the conducting wheel of one axle being arranged diagonally opposite the conducting wheel of the other axle, of a motor attached to the truck frame, and conductors connected with the brushes of the motor and directly with the axles of the truck substantially as herein shown and described, whereby the current flows from one of the track rails through one of the conducting wheels and axle attached thereto, through the motor, through the other axle and the other conducting wheel to the other rail.

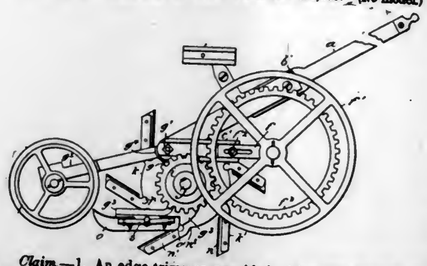
2. In an electric railway system, the combination with the railway rail, of a sectional conducting rail A provided with contact pins, *y* an elastic support *i* for the conducting rail, A a main conductor, B', the contact pieces G and support for the same, substantially as specified.

517,941. ABDOMINAL SUPPORTER. ALBERT H. WADE, Minneapolis, Minn. Filed Apr. 10, 1893. Serial No. 469,811. (No model.)

Claim.—The combination, in an abdominal support, of a series of closely and vertically arranged flexible but inelastic parts, with a series of short horizontal elastic strips connecting said parts, respectively, and held in place thereby, adjusting means provided in the sides and upper parts of the belt so formed, and adjustable devices arranged in connection with the elastic strips in the back of the belt, substantially as and for the purpose set forth.



517,942. LAWN-EDGE TRIMMER. GEORGE F. WAGNER, Philadelphia, Pa. Filed Apr. 20, 1893. Serial No. 471,193. (No model.)



Claim.—1. An edge trimmer provided with a hub having arms carrying blades, a depending foot, a spring controlled blade adapted to slide edgewise on the flattened face of said foot, a gage-wheel for rotating said hub, and projections on the hub for striking against the rear corner of the spring controlled blade, substantially as described.

2. The herein described combined tool or implement comprising a handle having brackets adapted for connection with a gage-wheel, a disk cutter and a deliverer to constitute a sod-cutter; and for connection with a plate provided with a revoluble hub having projections and carrying blades, a flanged guide-wheel and a spring controlled blade operated by said projections, to constitute an edge trimmer.

3. In an edge trimmer, a gage-wheel, a rotating hub provided with projections and with arms carrying blades and a spring controlled or pressed blade having its rear corner disposed in range of said projections and shifted thereby into position for co-operation with the blades on the arms, substantially as described.

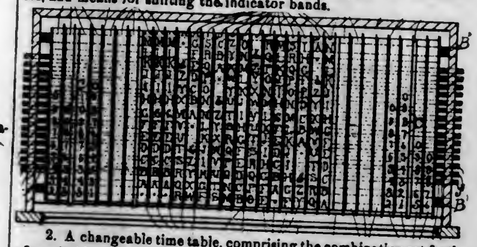
4. In an edge trimmer a hub provided with arms and projections, blades applied to said arms and disposed obliquely of the face or curved surface of the hub, a foot depending from the machine, a spring controlled blade carried by said foot and having its rear corner disposed in range of said projections, screws and slots for connecting said spring controlled blade and foot and for permitting the former to move under the influence of said projections, and a wheel for rotating said hub through the intervention of spur gearing, substantially as described.

5. An edge trimmer provided with a hub having arms carrying blades, a foot depending from the machine and provided with a flattened and inclined face, a blade, a spring connected at its intermediate portion to said face and having its ends connected with the last mentioned blade, set screws and slots for permitting the spring pressed or controlled blade to slide on said face, projections on said hub adapted to contact with the inner corner of the spring pressed blade, a wheel for rotating said hub, and a flanged guide-wheel, substantially as described.

6. An edge trimmer comprising a handle, a frame applied to said handle and provided with a depending foot having a flattened and inclined face, a blade adapted to slide on the face of the foot, a spring secured at its intermediate portion to said foot and having its ends attached to said blade, a hub journaled to said plate and provided with rotating blades and with projections adapted to collide with the inner portion of the spring controlled blade to turn the latter about the intermediate portion of said spring clear of the inner portion of the rotating blades and to release the spring controlled blade in position for contacting with the outer portions of the rotating blades, a gage-wheel, and spur gearing interposed between the hub and gage-wheel, substantially as and for the purposes set forth.

517,948. RAILROAD TIME-INDICATOR. CONRAD WORTH, Los Angeles, Cal. Filed Oct. 18, 1893. Serial No. 449,251. (No model.)

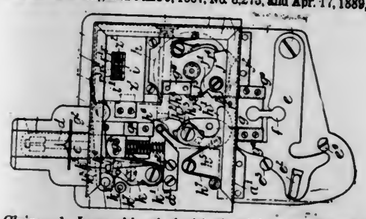
Claim.—1. The combination set forth of a suitable case having a face provided with a series of sight slots or openings; a series of front indicator-band roller-supporting-shafts arranged in such case adjacent and parallel, respectively, with the sight slots or openings; a series of rear indicator-band-roller-carrying-shafts arranged in pairs with and parallel with the front band roller-supporting shafts; a series of independent band-rollers journaled upon each of such shafts and arranged in pairs front and back; series of independent indicator-bands trained, respectively, one band around each pair of band-rollers, and means for shifting the indicator bands.



2. A changeable time table, comprising the combination set forth of a suitable case; the front and back band roller supporting shafts arranged in such case parallel with each other; a series of independent band rollers journaled upon each of such shafts, and arranged in pairs, front and back; a series of endless indicator bands trained respectively, one around each of such pairs of rollers, and suitable means for rotating the rollers to shift the various bands with relation to each other.

3. The changeable time table set forth comprising the combination of a suitable case provided with a front and rear series of roller-carrying shafts arranged in vertical rows and parallel with each other; a series of band-carrying-rollers journaled on each shaft of each series of roller-carrying-shafts; a series of roller-shifting shafts arranged between each pair of roller-carrying shafts and journaled to revolve; a band shifting wheel fixed to each of such roller shifting shafts; a roller-shifting band trained around each one of such band-shifting wheels and around one of each pair of band-carrying rollers; a series of bands having characters thereon, each trained around one pair of band-carrying rollers and over its respective shifting band, and suitable means for rotating the roller-shifting shafts.

517,944. PUNCH AND FARE-REGISTER. JOHN M. BLACK, London, England. Filed Mar. 22, 1893. Serial No. 467,124. (No model.) Patented in England June 9, 1887, No. 8,273, and Apr. 17, 1889, No. 6,551.



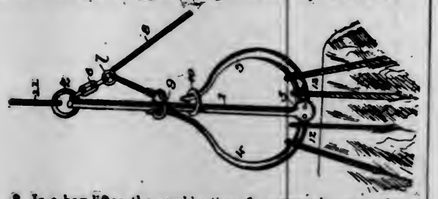
Claim.—1. In combination with the ticket punch, and with the thumb-operated lever linked to a slide for operating the punch, of a pivoted arm or catch provided with a spring pin within the casing and operating when moved from its normal position to prevent the punch from being operated, until the apparatus is opened to effect a disengagement of these parts, all substantially as described.

2. In apparatus for checking fares and for similar purpose, the combination with the perforating punch and a spring catch, of a box to receive the punched out pieces, a spring catch normally holding the same in place, and a hinged plate serving to hold between the box and the surface to which it is attached a piece of paper which must be torn before the spring catch can be disengaged to allow the removal of the box, all substantially as shown and described.

3. In combination with the perforating punch, and its described operating lever and slide bar, counting disks and mechanism substantially as described, movable by the agency of said lever by means of the slide oscillating frame, a plate having the series of teeth, ratchet wheels engaging therewith and provided with notches to receive one or more of the teeth when two or more of the disks are simultaneously moved, all substantially as described.

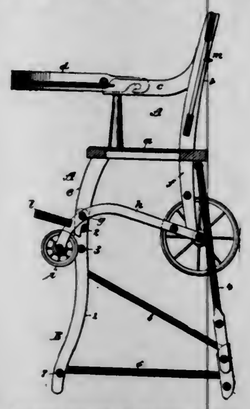
517,945. HAY-LIFTER. ORSON BRIGGS, St. Louis, Mich. Filed Dec. 13, 1893. Serial No. 493,577. (No model.)

Claim.—1. In a hay lifter, the combination of a support having a lifting device attached to the upper end thereof, arms hinged to the lower end of said support, rings mounted on said support, and adapted to engage the upper ends of said arms, and a trip rope, or cord attached to the uppermost of said rings, substantially as described.



2. In a hay lifter, the combination of a support having a ring at the upper end thereof, a lifting device attached to said ring, a guide ring loosely depending from said ring at the upper end of the support, a pair of curved arms hinged to the lower portion of said support, one of which is longer than the other, and a pair of rings loosely surrounding the support and adapted to engage the upper ends of the said arms, and a trip rope, or cord passing through the said guide ring, and attached to the uppermost of said rings on the support, substantially as and for the purpose specified.

517,946. CONVERTIBLE CHAIR. LEMUEL A. CHICHESTER, Phœnicia, N. Y., assignor to the National Chair Manufacturing Company, same place. Filed Mar. 2, 1893. Serial No. 464,375. (No model.)



Claim.—1. The combination of the seat carrying section A, the frame section B, pivotally connected at the front legs of said section, said seat carrying section being provided with front and rear wheels *i*, *k*, the former of which are adapted to bear against the round or brace 3, of the frame section, and means for supporting the rear of said seat carrying section, substantially as described.

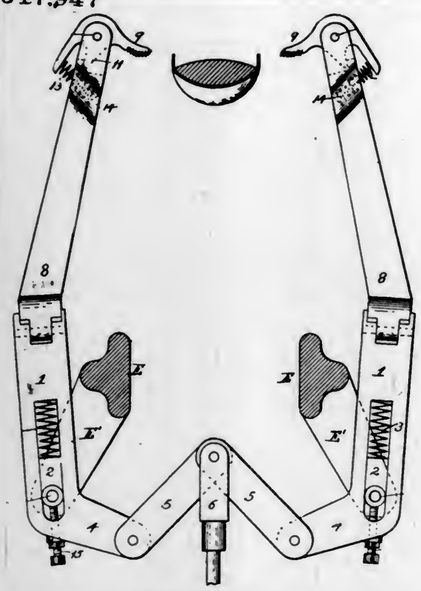
2. The combination of the seat carrying section A having braces 4, wheels *i* and *k*, with the frame section B, pivotally connected to the front legs of said seat carrying section and provided with stops 2 and 3, all arranged so that the wheels *i* and the legs *e* of the seat carrying section will abut against said stops 3 and 2, respectively, when said seat carrying section is supported at the rear, substantially as described.

517,947. LASTING-MACHINE. JOSEPH E. CRISP, Somerville, Mass., assignor to the Copeland Rapid Laster Manufacturing Company, Portland, Me. Filed July 14, 1893. Serial No. 480,515. (No model.)

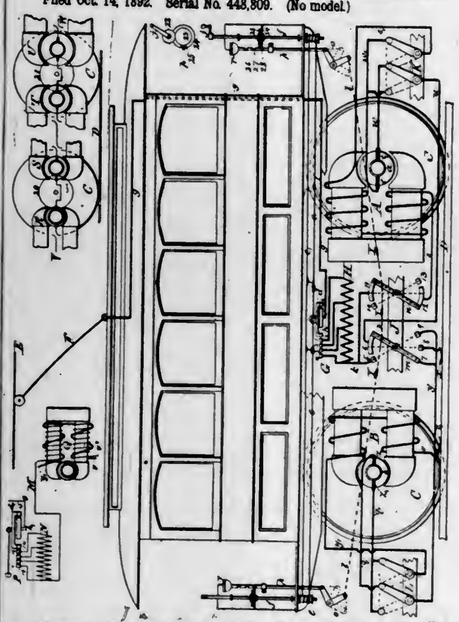
Claim.—1. In a lasting machine side lasting mechanism consisting of turning and holding fingers substantially as described, elastically mounted upon the tops of horizontal swinging and vertically reciprocating carrying arms, springs to elevate said arms, and toggle and treadle mechanism to swing and depress said arms, substantially as shown and described.

2. In a lasting machine, side lasting mechanism, consisting of turning and holding fingers, elastically pivoted upon the tops of carrying arms, the working ends of said fingers when at rest being below the horizontal level of said pivots, and treadle and spring mechanism to vertically reciprocate said arms, substantially as described, and for the purpose set forth.

517,947



517,948. METHOD OF AND MEANS FOR SPEED REGULATION OF ELECTRIC LOCOMOTIVES. CHARLES E. EMERY, Brooklyn, N. Y. Filed Oct. 14, 1892. Serial No. 448,809. (No model.)



Claim.—1. The method of regulating the speed of an electrically operated car or apparatus, which consists in electrically connecting a generator, at will, with motors, singly or in series, which motors severally develop different counter electro-motive forces at like speeds of the car or apparatus to which they are attached, thereby operating such car or apparatus at different speeds for the same available voltage.

2. The method of regulating the speed of an electrically operated car or apparatus, which consists in electrically connecting a generator with motors, which are severally of unlike counter electro-motive force when operated in multiple at like speeds of the car or apparatus to which they are attached, at will singly, in series or in series groups of like counter electro-motive force, whereby several of the arrangements will operate such car or apparatus at different speeds for the voltage available.

3. In combination with the axles of a car, a number of motors of different counter electro motive forces and switching apparatus for at will operating such motors singly or in parallel groups formed by connecting units with unlike counter electro-motive forces in series to form a group in parallel with a similar group or unit having substantially the same total counter electro-motive force, substantially as and for the purposes specified.

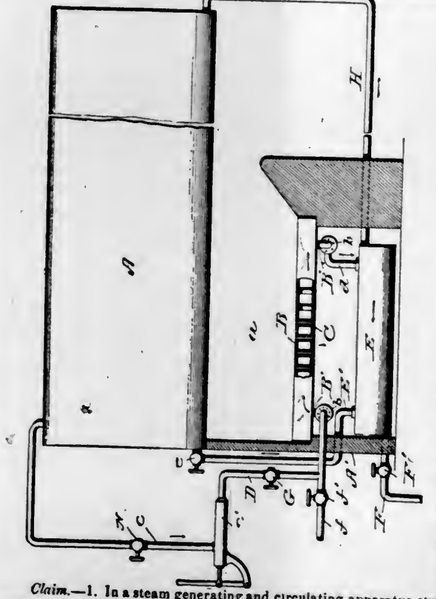
4. The combination with an axle of a car and a motor for operating the same provided with shunt windings, of a rheostat and regulator for regulating the current supplied to the armature of such motor, a rheostat and regulator for regulating the current supplied to the shunt field coils of such motor, and apparatus for operating such regulators brought to the working platform of the car, substantially as and for the purposes specified.

5. The combination with electric supply conductors and the axles of a car, of a series wound motor, a motor provided with shunt field coils, a change switch to cause such motors to operate singly or in series, a rheostat and regulator for regulating the main current supplied to the motors in operation, a rheostat and regulator for regulating the current supplied to the shunt coils and apparatus for operating such regulators brought to the working platform of the car, substantially as and for the purposes specified.

6. In combination with electric supply conductors and the axles of a car and a number of electric motors for operating the same, each developing different counter electro-motive forces at like speeds of car, a change switch for connecting such motors in series to the line and for cutting out each or a number of the same at will and a handle for operating the said change switch from a working platform, substantially as and for the purposes specified.

7. In combination with a change switch to connect several motors to operate singly or in series and in combination with a regulator and rheostat for regulating the current and with handles for operating the said switch and the said regulator from a working platform, an apparatus for locking the change switch by the motion of the current regulator and unlocking such switch when such regulator is in the desired position, substantially as and for the purposes specified.

517,949. STEAM-GENERATING APPLIANCE. CHARLES W. HICKS, Ashburn, Ga. Filed Jan. 24, 1894. Serial No. 497,890. (No model.)



Claim.—1. In a steam generating and circulating apparatus, the combination with a boiler, of a hollow grate, a pipe connecting the boiler and grate, an injector connected to said pipe and by which the primary circulation of water therein is started, a mud drum in connection with the hollow grate and a second pipe communicating with the boiler and with the mud drum, whereby the water from the boiler is made to circulate through the grate and mud drum and whereby its heating is expedited and its sediment removed, substantially as described.

2. In a steam generating grate of the class described, the combination with perforated hollow grate-bars, of flanged coupling pipes alternately located at opposite ends of said bars, and extending below the same, the flange being provided with perforations and fasteners whereby suitable packing material can be interposed between them, and whereby the bars can be disconnected separately, as and for the purpose set forth.

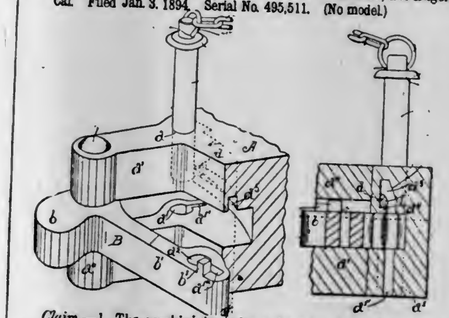
3. In a steam generating apparatus, a hollow grate composed of rectangular hollow bars provided with a plurality of draft openings therein, coupling pipes located at and connecting the alternate ends of said bars, said pipes being arranged to extend below the bars and being provided with perforated flanges and fasteners adapted to enter said perforations to lock the flanges together, receiving and discharge pipes connecting the opposite extremities of said grate with the boiler, a mud drum interposed within the circulation of said pipes, and an injector and blow-off pipe, all arranged and adapted to operate in the manner and for the purpose substantially as described.

4. The herein described grate having receiving and discharging pipes connected at opposite ends thereof, said grate being composed of perforated rectangular hollow bars, in combination with coupling pipes located alternately at the opposite ends of the bars and provided with flanges adapted to be placed face to face and to have suitable packing material interposed between them, and devices for clamping said flanges together, whereby the grate-bars are permitted to expand and contract, and can be removed, in the manner and for the purpose substantially as described.

5. The combination with a boiler, of a water grate composed of a series of hollow rectangular bars provided with a plurality of perforations or draft openings, flanged coupling pipes connecting the alternate ends of said bars to effect a zigzag passage through the grate, receiving and discharge pipes connecting the opposite ends of said grates with the boiler at a point below the water line, a mud drum included within the water circuit, a blow-off valve and an injector, substantially as described.

6. A water grate composed of a series of hollow grate bars connected alternately at their opposite ends by means of independent flanged pipes or elbows such as B' whereby the bars are allowed to contract and expand, in combination with a boiler and pipes connected to maintain a circulation in the boiler and grate, substantially as described.

517,950. CAR-COUPLING. CHARLES W. HINTON, Los Angeles, Cal. Filed Jan. 3, 1894. Serial No. 495,511. (No model.)



Claim.—1. The combination with a draw head provided with a vertical pin hole and a cam slot opening into such pin hole extending from the lower side of such draw head, of the pin provided at its lower end with the projecting cam and provided at its top with a shoulder, the removable washer arranged on such shoulder and the open ring inserted through the pin above the shoulder to retain the washer in place.

2. In a draw head having a vertical pin hole and a cam slot, one wall of such cam slot being provided with a cam sustaining shoulder arranged to receive and support the pin cam to hold the pin elevated above the mouth of the draw head, and having its other wall curved to throw such pin cam into vertical line with the cam shoulder when the pin is fully elevated in the draw head; the pin arranged in the pin hole and provided with the cam arranged to extend into the cam slot, suitable means arranged to disengage the cam from the cam supporting shoulder when the coupling is effected, and suitable means for operating the pin.

3. The combination of the draw head provided with the pin hole, and the cam slot having its upper end arranged to form a cam chamber, one of the walls of such chamber being inclined across the top of such chamber, and having its other wall arranged to form a cam shoulder; the knuckle pivoted in the draw head and provided with a cam operating lug, the pin, provided with the cam, and suitable means for reciprocating the pin.

4. The combination of the draw head provided with the pin hole and the cam slot opening into such pin hole, such slot being widened at the top to form a cam chamber and having one wall inclined across the chamber at the top and having its other wall arranged to form a cam shoulder having its upper face inclined downward away from the slot; the knuckle, pivoted in the draw head and provided on its upper face with the pin operating lug arranged to extend into the cam chamber and to project above the cam shoulder when the knuckle is swung into its coupled position; the pin arranged in the pin hole and provided with the cam arranged to extend into the cam slot, and suitable means for reciprocating the pin.

5. The draw head set forth provided with a knuckle pivoted in such draw head and provided with a vertical pin hole extending through such draw head and through such knuckle when the knuckle is in its coupled position, and provided with a cam slot opening into such pin hole to allow the passage of the pin cam there-along, such slot being widened at its top and having one of its walls arranged slanting at its top to engage the pin cam and to partially rotate such pin when such pin cam is raised to engage the slanting wall of the top of the slot, and having its other wall provided above such knuckle with a cam shoulder arranged to intercept the pin cam in its downward movement, and to support the pin above such knuckle; such knuckle, provided with the pin hole and cam slot and also provided with a cam engaging lug arranged to extend upward above the cam sustaining shoulder of the draw head when the knuckle is in its coupled position to receive and sustain the cam until the knuckle is swung outward to uncouple the coupler, and to engage with and dislodge the cam from the cam sustaining shoulder and allow it to drop through the pin hole and cam slot when such knuckle is swung into its coupled position; and the pin provided on its lower end with the cam arranged to extend into the cam slot, and suitable means for operating the pin.

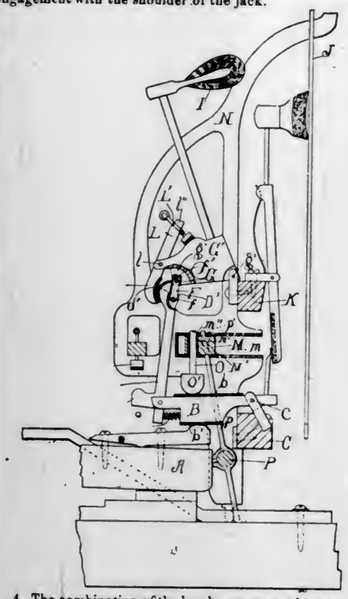
6. The draw head set forth provided with the knuckle pivoted in such draw head and provided with the vertical pin hole extending through such draw head and through such knuckle when the knuckle is in its coupled position and provided with a cam slot opening into such pin hole to allow the passage of the pin cam therealong, such slot being widened at its top to form a cam chamber and having one of its walls arranged slantingly across the chamber at the top, and having its other wall arranged to form a cam receiving shoulder to intercept the pin cam when the pin is lowered after being reciprocated and partially rotated by the cam engaging with the slanting upper wall of the chamber; the knuckle pivoted in the draw head and provided with the pin hole and the cam slot, and also provided with the cam engaging lug arranged to extend upward into the cam chamber above the cam sustaining shoulder of the draw head when the knuckle is in its coupled position to receive and sustain the cam until the knuckle is swung outward to uncouple the coupler, and to engage the cam when the knuckle is swung into its coupled position to thereby disengage the cam from the cam sustaining shoulder and to allow the pin to drop through the pin hole; the pin provided at its lower end with the cam, and suitable means for reciprocating the pin.

517,951. ACTION FOR PIANOS. FRANK W. KRINGEL, Los Angeles, Cal. Filed Apr. 29, 1893. Serial No. 472,403. (No model.)

Claim.—1. A repeating action for piano fortes comprising in combination a jack, a hammer-butt, and a supplemental jack arranged to form an extensible pivotal connection between the jack and the hammer-butt.

2. A repeating action for piano-fortes comprising in combination a jack, a transversely slotted supplemental jack pivoted to the jack and a hammer butt provided with a pin arranged to play in the transverse slot of the supplemental jack.

3. The combination of a key lever arranged to engage a jack rocker; such jack rocker pivoted at one end to the action rail and pivoted at its other end to the jack and provided below the pivotal point of the jack with a spring receiving shoulder; a jack pivoted near its lower end to the jack rocker and provided with a downwardly projecting spring engaging arm; and also provided with an outwardly projecting throw-off shoulder arranged to engage the regulating button and provided at its top with a supplemental-jack-receiving offset and a supplemental-jack-engaging shoulder projecting above such offset; a supplemental jack pivoted at its lower end to the jack and arranged normally in engagement with the shoulder of the jack and having its upper end provided with a longitudinal transverse slot arranged to receive a transverse pin; a hammer butt pivoted to the action rail and having its other side provided with a transverse pin adapted to enter the transverse slot in the supplemental jack; a suitable stop arranged to engage the jack when the jack is engaged by the throw-off, and a spring arranged between the spring sustaining shoulder of the jack rocker and the downwardly projecting spring engaging arm of the jack to normally hold the supplemental jack in engagement with the shoulder of the jack.



4. The combination of the key lever arranged to engage the jack rocker; such jack rocker pivoted at one end to the action rail and pivoted at its other end to the jack; such jack having one end pivoted to the jack rocker and having its other end operatively connected with the hammer butt; the touch regulating bar arranged to slide back and forth above such jack rocker and provided with the vertical weight arm receiving guideway arranged to receive a weight arm and adapted to allow such arm to slide up and down through the bar; a suitable weight arranged to rest upon the jack rocker and provided with the weight arm arranged in the guideway provided in the bar, and suitable means arranged to slide the regulating bar back and forth longitudinal the jack rocker to carry the weight nearer to or farther from the jack.

5. In an action for upright pianos the combination of the hammer butt; the jack operatively connected with the hammer butt and with the key lever; the jack stop having one end arranged to engage the jack and having its other end engaged by a screw arranged to adjustably connect the stop with the hammer butt.

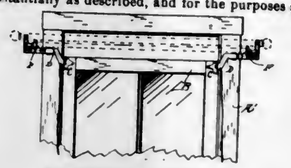
6. In a piano action, the hammer butt having a jack stop pivoted thereto, one end of such stop being arranged to engage the jack and the other end being provided with an adjusting screw arranged to engage the hammer butt to adjust the stop with relation to such hammer butt

7. The touch regulating bar set forth consisting of the main member provided with a series of slots each lined upon the back and sides with felt, and the cap member secured to such main member and provided with a series of strips of felt secured to such cap member and respectively arranged to form the other side of the weight arm receiving slots when the two members are secured together.

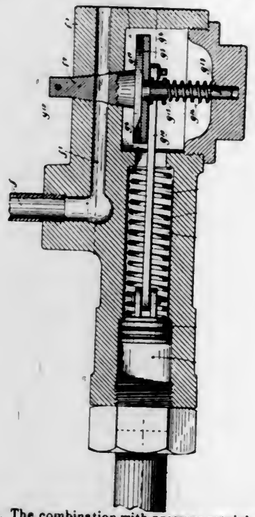
8. The piano bracket set forth provided with the horizontally arranged guideway adapted and arranged to receive a weight regulating bar therein to allow such bar to slide back and forth in such guideway to carry such bar longitudinal of the jack rocker and relatively nearer to or farther from the jack.

517,952. WINDOW-FIXTURE. JAMES R. LAMBERT and JAMES E. LAMBERT, Indianapolis, Ind. Filed Feb. 28, 1893. Serial No. 464,032. (No model.)

Claim.—In a window fixture the bracket having the foot C and the arm C', the plate D bent at right angles and also cranked upwardly as shown, and having the ears d^3 to engage the upper and lower edges of the bracket arm, and a slot D^2 and screw d passing through the arm and through the slot for the purpose described, vertical extensions D^3 and G near the outer end of the plate D, each of said extensions having a perforation near its upper end and an underlying vertical slot, a sliding joint in the plate D similar in construction to the joint between the plate D and the bracket arm, the brackets H and F for the purposes described and a rod M secured to the plate, a window curtain, a window shade, a window sash, and a window frame having longitudinal strips to guide the sash, all combined and arranged substantially as described, and for the purposes specified.



517,953. FLUID-PRESSURE BRAKE APPARATUS. JOHN K. LENCKE, St. Paul, Minn. Filed Oct. 2, 1891. Serial No. 407,587. (No model.)



Claim.—1. The combination with pressure retaining valve mechanism, for fluid pressure brake motors, of a pawl and ratchet device operative to throw said valve mechanism alternately into its open and closed positions.

2. The combination with a train-pipe, brake motor, and retaining-valve mechanism for said motor, of a pawl and ratchet device operative by variation of train-pipe pressure to control said valve mechanism, substantially as described.

3. In a fluid pressure brake system, the combination with a train-pipe and a brake-motor having a two-way exhaust passage external to the triple-valve, of a retaining valve proper in one of said ways, and a shut-off valve in the other of said ways, normally open, and a controller operated by train-pipe pressure and applied to said shut-off valve, for closing the same, at will, to force the exhaust from the motor to pass through said retaining valve, substantially as and for the purpose set forth.

4. In a fluid pressure brake system, the combination with a train-pipe and a brake-motor, having a two-way exhaust passage external to the triple valve, of a retaining valve proper in one of said ways, and a shut-off valve in the other, and a controller for said shut-off valve, having a morable part subject to train-pipe pressure on one side, and to a pre-determined yielding back pressure on the other, whereby, when the train-pipe pressure is reduced below said yielding back pressure, the said controller may be thrown into action, substantially as described.

5. In a fluid pressure brake system, the combination with a brake motor and pressure retaining valve mechanism for the same, of a controller, for said valve mechanism, comprising a movable part subject to a pre determined yielding back pressure on one side, and to a variable fluid pressure on the other, and a pawl and ratchet mechanism for applying the motion of said movable part to said valve mechanism, substantially as and for the purpose set forth.

6. In a fluid pressure brake system, the combination with a train-pipe and a brake-motor, of a shut-off valve located in the exhaust passage from said motor external to the triple valve, and a controller for said shut off valve, comprising a reciprocating part subject to a variable fluid pressure on one side and to a pre-determined yielding back pressure on the other, and a pawl and ratchet connection from said reciprocating part to said shut-off valve, substantially as and for the purpose set forth.

7. In a fluid pressure brake system, the combination with a brake motor and train pipe, of pressure retaining valve mechanism for said motor, and a controller, for said valve mechanism, comprising a cylinder communicating with the train-pipe, a valve seated piston in said cylinder, subject to train-pipe pressure on one side, and to a predetermined yielding back pressure on the other, and a pawl and ratchet connection from said piston to said retaining valve mechanism, substantially as and for the purpose set forth.

8. In a fluid pressure brake system, the combination with a train-pipe, and a brake-motor, of a rotary shut-off valve in the exhaust passage from said motor external to the triple valve, adapted for a step by step movement to alternately open and close the same a reciprocating body subject to train-pipe pressure on one side, and to a predetermined yielding back pressure on the other, and operating on successive reciprocations (complete return out and in strokes) to alternately open and close said shut off valve, substantially as and for the purpose set forth.

9. In a fluid pressure brake system, the combination with a brake-motor and train-pipe, of a rotary shut-off valve in the exhaust passage from said motor, frictionally held to its seat, a reciprocating body subject to train-pipe pressure on one side and to a yielding back pressure on the other, and a pawl and ratchet connection between said reciprocating body and said valve, the ratchet member of which has teeth corresponding both to the open and to the closed position of said valve, whereby said body, on successive reciprocations (complete return in and out strokes) to alternately open and close said valves, substantially as and for the purpose set forth.

10. In a fluid pressure brake system, the combination with the brake motor and the train-pipe, of the spring-seated rotary shut-off valve in the exhaust passage of said motor, and the controller for said valve, comprising the cylinder g, in communication with the train-pipe, the valve-seated piston g', subject to train-pipe pressure on one side, and to the resistance spring g^3, on the other, the connecting rod g^{10}, and the pawl and ratchet mechanism, one member of which is operated by said connecting rod, and the other of which operates said shut-off valve, substantially as described.

11. A controller for the pressure retaining valve mechanism of fluid pressure brakes, comprising a cylinder adapted for connection with the train-pipe, a piston in said cylinder, subject to train-pipe pressure on one side, and to a pre-determined yielding back-pressure, on the other, and pawl and ratchet mechanism operated by said piston and applicable to said retaining valve mechanism, substantially as and for the purpose set forth.

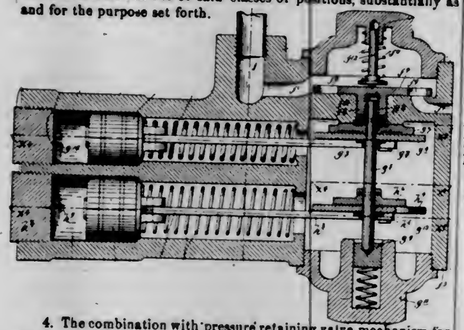
12. The device for application to fluid pressure brake systems, comprising a case or housing f^2, having a two-way exhaust passage f' f^3, for connection with the external exhaust pipe from the brake motor, and provided with a cylinder bore g, adapted for connection with the train-pipe, a rotary shut-off valve f^4 in one of said exhaust ways, a retaining valve proper f^5, in the other of said exhaust ways, a valve seated piston g' in said cylinder g, subject to train-pipe pressure on one side, and to a resistance spring g^3, on the other, a connecting-rod g^{10}, and a pawl and ratchet mechanism, as g^3 g^7, one member of which is operated by said piston, and the other member of which operates the said valve f^4, substantially as and for the purpose set forth.

517,954. CONTROLLER AND ARIGHTER FOR AIR-BRAKE RETAINERS. JOHN K. LENCKE and FRANK D. MERCHANT, Minneapolis, Minn.; said Merchant assignor to said Lencke. Filed July 10, 1893. Serial No. 480,027. (No model.)

Claim.—1. The combination with pressure retaining valve mechanism, for fluid pressure brake-motors, of a controller and an arighter constructed and operating, the former, to throw said valve mechanism alternately into open and into closed positions, and the latter, to insure the positioning of said valve mechanism always in one class of said positions, substantially as and for the purpose set forth.

2. The combination with pressure retaining valve mechanism, for fluid pressure brake motors, of a controller and an arighter for said valve mechanism both having reciprocating parts subject to fluid pressure, variable from a common source, on one side, and to different predetermined yielding back pressures on the other, and arranged, with the reciprocating part of the controller operative to throw said valve mechanism alternately into its closed and its open positions, and with the reciprocating part of the arighter operative to insure the positioning of said valve mechanism in one of said classes of positions, substantially as and for the purpose set forth.

3. The combination, with pressure retaining valve mechanism, for fluid pressure brake motors, of a primary or controller pawl and ratchet device, operative to alternately throw said valve mechanism both into open and into closed positions, and a secondary or arighter pawl and ratchet device, operative to insure the positioning of said valve mechanism in one of said classes of positions, substantially as and for the purpose set forth.



4. The combination with pressure retaining valve mechanism for fluid pressure brake motors, of a primary or controller pawl and ratchet device, the ratchet member of which has teeth corresponding both to the open and to the closed positions of said valve mechanism, and a secondary or arighter pawl and ratchet device, the ratchet member of which has teeth corresponding to only one class of said positions of said valve, both of said devices being operative on said valve mechanism, whereby, regardless of the position into which said valve mechanism may have been thrown by the controller pawl and ratchet device, the arighter pawl and ratchet device, when operated, will insure the positioning of said valve mechanism in one class of said positions, substantially as and for the purpose set forth.

5. The combination with a train-pipe and a brake motor having pressure retaining valve mechanism, of a controller and an arighter for said valve mechanism, both operative from the train pipe, at different pressures, the said controller being applied to alternately throw said valve mechanism into closed and open positions and the said arighter being applied to said valve to insure the positioning of said valve mechanism in one class of said positions, substantially as and for the purpose set forth.

6. The combination with a train-pipe and a brake-motor having pressure retaining valve mechanism, of a controller and an arighter, for said valve mechanism, both having pistons subject to train pipe pressure on one side, and to different predetermined yielding back pressures on the other, and pawl and ratchet devices, connecting said pistons with said valve mechanism, the ratchet member connecting the controller having teeth corresponding both to the open and the closed positions of said valve mechanism, and the ratchet connecting the arighter piston having teeth corresponding only to one class of said positions of said valve mechanism, substantially as and for the purpose set forth

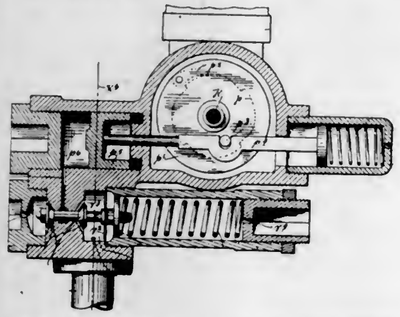
7. In a fluid pressure railway brake system, the combination with the train-pipe, of a series of brake motors, each having pressure retaining valve mechanism, a corresponding series of controllers operative, by train-pipe pressure, to throw the whole series of said valve mechanisms alternately into open and closed positions and a corresponding series of arighters, operative from the train pipe, at different pressure than the controllers, to insure the setting of all of said valve mechanisms in one class of said positions, substantially as and for the purpose set forth.

8. The combination with a common train-pipe and a series of brake-motors, each having pressure retaining valve mechanism of a corresponding series of controllers and arighters, both having pistons subject to train-pipe pressure on one side, and to resistance springs of different tension on the other, and pawl and ratchet devices connecting said piston with said valve mechanism, the controller ratchet having teeth corresponding both to open and closed positions of said valve mechanisms, and the arighter ratchet having teeth corresponding only to one class of said positions of said valve mechanisms, substantially as and for the purpose set forth.

9. In a fluid pressure railway brake system, wherein the setting of the brakes is dependent on reduction of train-pipe pressure, the combination with a train pipe and brake motors having pressure retaining valve mechanism, of a corresponding series of controllers and arighters for said valve mechanisms, both having pistons subject to train-pipe pressure, on one side, and to different predetermined yielding back pressures on the other, both of less power than train-pipe pressure at the minimum reduction required for maximum brake setting action, whereby said controllers and arighters only become operative, at different reductions of train pipe pressure, below the range required for the manipulation of the brakes in "service application," substantially as described.

10. The combination with a train-pipe and a brake-motor having a two-way exhaust passage, of a retaining valve proper in one of said ways and a rotating shut off valve in the other, and a controller and an arighter both applied to said shut-off valve, consisting of pistons subject to train-pipe pressure on one side, and to springs of different resistance on the other, both of less tension than train pipe pressure at minimum reduction required for "service applications," and pawl and ratchet devices connecting the said pistons with said shut-off valve, of which devices the controller ratchet has teeth corresponding both to open and closed positions of said shut-off valve and the arighter ratchet has teeth corresponding only to one class of said positions, all the said parts operating substantially as and for the purpose set forth

517,955. CONTROLLER AND ARIGHTER FOR AIR-BRAKE RETAINERS. JOHN K. LENCKE, Minneapolis, Minn. Filed Aug. 15, 1893. Serial No. 483,172. (No model.)



Claim.—1. The combination with retaining valve mechanism for fluid pressure brake-motors, of the controller for the same, comprising a controller-motor, with connections to said valve mechanism, and the two-way trip-valve operative by a variation of fluid pressure, against a predetermined yielding resistance, to open said controller motor to supply and exhaust, substantially as described.

2 The combination with a train-pipe, brake motor and retaining valve mechanism, of a controller for said valve mechanism, comprising a controller-motor, with connection to said valve mechanism, and a two-way trip-valve operative by variation of train-pipe pressure, against a predetermined yielding resistance, to open said controller motor to supply and exhaust, substantially as described.

3. The combination with the train pipe, brake-motor and retaining valve mechanism of the controller for said valve mechanism, comprising a controller-motor with connections operating, on successive actions, to throw said valve mechanism alternately into its closed and open positions, and an arighter motor, with connections, adapted, when operated, to insure the positioning of said valve mechanism in one class of said positions, and independent two-way trip valves operative by variations of train-pipe pressure, against different predetermined yielding resistances to open said controller and arighter motors to supply and exhaust, substantially as described.

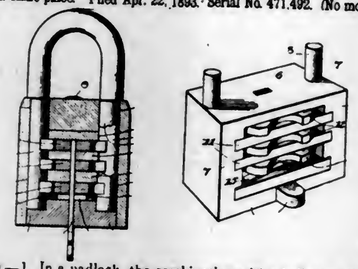
4. The combination with a brake-motor, having a single exhaust passage external of the triple valve, of a self-closing retaining-valve in said passage, a cam operative on said valve to throw the same into its open position and to permit the same to assume its closed position, substantially as described.

5. The combination with a brake-motor having a single exhaust passage, external of the triple valve, of a self closing retaining valve in said passage, a cam operative on said valve to throw the same into its open position and to permit the same to assume its closed position, and a controller with connections to said cam operative by a variation of fluid pressure, substantially as described.

6. The combination with the pawl and ratchet devices, of the controller and arighter cylinders and pistons, on one side of said pawl and ratchet devices, the spring cases and springs on the other side of said pawl and ratchet devices, the push-rods coupled to the reciprocating members of said pawl and ratchet devices, and subject to the action of said pistons at one end and to said springs at the other, and retaining valve mechanism operated by said pawl and ratchet devices substantially as and for the purposes set forth.

7. The combination with the controller and arighter motors, each having a duct for supply and exhaust, of the double valve seat r in each of said ducts, the double headed trip valves r' in said seats, the diaphragms r^3, the fluid chest r^4 in communication with the train-pipe a, and the graduated spring r^5 acting on said diaphragm in resistance to the train-pipe pressure, substantially as and for the purposes set forth.

517,956. PADLOCK. BENJAMIN F. LOUGHMILLER, Aspen, Colo., assignor, by mesne assignments, of one-half to Thomas Latta and J. W. Wist, same place. Filed Apr. 22, 1893. Serial No. 471,492. (No model.)

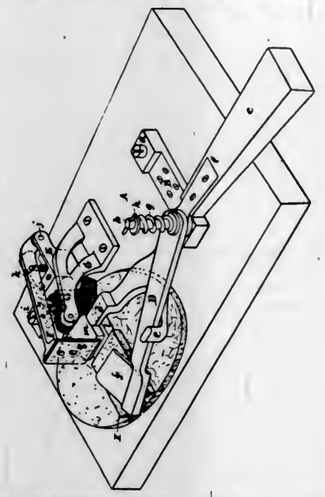


Claim.—1. In a padlock, the combination with a hollow shell or casing, and a shackle having its legs fitted in openings or sockets in the top thereof, of a frame fitted snugly within said shell or casing and having a bottom plate which closes the lower end or mouth of the opening in the shell or casing, and also having parallel spaced webs, the bottom plate and webs being provided with registering openings, and tumblers fitting loosely between the webs, held in place by the side walls of the shell or casing and provided with openings registering with those in the webs and bottom plate for the reception of a key, substantially as specified.

2. In a padlock, the combination with a shell or casing provided with an elongated recess, openings or sockets in the upper end and grooves or channels in the side walls of said recess, and a shackle having its legs fitted in said openings or sockets and adapted to lie in the grooves or channels with their inner notched surfaces exposed, of a frame fitted snugly into said recess and provided with lateral ears to close the lower ends of the grooves or channels in the side walls of said recess and tumblers mounted upon and carried by said frame, substantially as specified.

3. In a padlock, the combination with a hollow shell or casing and a shackle having its legs fitted in openings or sockets in the top of said shell or casing, of a frame fitting snugly in the interior of said shell or casing and having side bars, a bottom plate and transverse webs, and tumblers rotatably mounted upon said frame between the webs and adapted to project at their peripheries beyond the side edges of such webs to engage the notches of the shackle, substantially as specified.

517,957. ELECTRIC SWITCH. ANDREW T. MACCOY, Boston, Mass. Filed Apr. 13, 1893. Serial No. 470,236 (No model.)

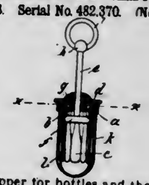


Claim.—1. In an electric switch the combination of two levers, a pivot for the same, and a spring to maintain the levers one upon the other on the pivot, one of the levers being provided with prongs projecting at right angles to the same to meet the other lever and move the latter, substantially as set forth.

2. In an electric switch the combination with the two members thereof of a lever on one member, a contact piece on the other member, and a comparatively non-conducting and non-combustible piece moved by said lever from between the members or contact-points of the switch, substantially as set forth.

3. The combination of two levers, a pivot for the levers, one of the levers being provided with prongs by which the other lever is swung, a plate attached to the latter lever, two plates between which the former plate enters to complete the circuit, and a lever provided with a piece of comparatively non-conducting and non-combustible material which lever is pivoted in suitable relation to one of said prongs that said piece will be caused thereby to enter between the contact points, substantially as described.

517,958. BOTTLE-STOPPER. CARL F. MÜLLER, Berlin, Germany. Filed Aug. 4, 1893. Serial No. 482,370. (No model.)



Claim.—1. A stopper for bottles and the like consisting of an inclosing cover of flexible material, a series of leaves pivoted at their upper ends to a supporting disk within the cover and a vertically movable piston encircled by the leaves, substantially as described.

2. The india-rubber cover k, with its internal ring or ridge l combined with the leaves and piston, said cover entirely inclosing said leaves and piston substantially as described.

517,959. GEAR-CASE FOR BICYCLES. ALFRED M. MOORE, Malden, Mass., assignor to the Williams & Moore Manufacturing Company, Portland, Me. Filed Nov. 18, 1893. Serial No. 491,334. (No model.)



Claim.—1. A gear-case for bicycles composed of a plurality of parts having adjustable connections so that said case may be shortened or lengthened to provide for variations in distance between two revoluble wheels, substantially as explained.

2. A gear-case, composed of a group of parts consisting of a hood, an upper cover, a lower cover, and two end closers adapted to interlock and form a chamber to contain the two sprockets and the chain of a bicycle, the said upper and lower covers being adjustably united to the said hood and said end closers, substantially as stated.

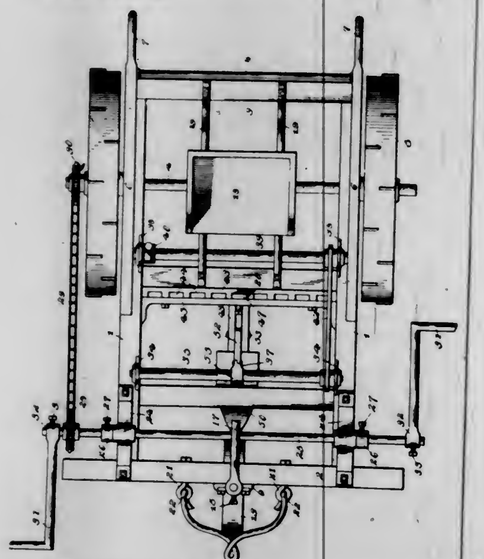
3. In combination with a hood, and two covers, upper and lower, two end closers adapted for telescopic adjustment with respect to the covers, substantially as specified.

4 In a gear-case, the combination with an upper cover in part a closed box, a similar lower cover, both curved at their adjacent ends, and means for interlocking the same, of a hood adapted to receive and slide upon the opposite extremities of said covers, two closers to engage with the covers and hood, and mechanism for adjusting and fastening together the various parts as a unit, substantially as stated.

517,960. COMBINED FURROW-OPENER AND STALK-KNOCKER. GEORGE W. MURRAY, Sumter, S. C. Filed July 19, 1893. Serial No. 480,932. (No model.)

Claim.—1. In a machine of the class described, the combination with the rectangular frame, the opposite axle, the ground-wheels mounted for rotation therewith, and the sprocket-wheel carried by the axle, of bearings at the front end of the frame, a transverse shaft arranged in the bearings and terminating at its end in knocking-arms, a sprocket-wheel mounted on the shaft, and a sprocket chain connecting said sprocket-wheel with that of the axle, substantially as specified

2. In a machine of the class described, the combination with the framework, the transverse axle, the ground wheels revolving therewith, and the sprocket-wheel arranged on the end of the axle, of standards arranged at the front end of the machine, a transverse shaft journaled in the standards and provided beyond the same with adjustable bearing collars, a sprocket wheel, a sprocket-chain connecting the same with that of the axle and oppositely disposed crank shaped knocking-arms arranged upon the ends of the shaft and terminating at their inner ends in eyes, and provided with adjusting bolts, substantially as specified.



3. In a machine of the class described, the combination with the rectangular framework, the transverse bar having a mortise, a standard arranged in the mortise, a clamping-bar arranged over the standard, binding-bolts connecting the two, of an inclined standard slotted and pivoted to the lower end of the vertical standard and having at its lower end a shovel, and a link pivotally connected to the machine in advance of the vertical standard and pivotally connected at its lower end to the inclined standard above the shovel, substantially as specified.

4. In a machine of the class described, the combination with the framework, the transversely disposed plate having mortises in its front side, a transverse clamping-bar, and bolts passed through the same into the plate, of a standard located adjustably in one of said mortises and held in position by the bar, a slotted inclined standard pivoted to the lower end of the said adjustable standard and carrying a shovel, front and rear rock-shafts journaled in the frame, the front shaft being provided with rock-arms and the rear shaft with a lever, a connecting-bar between the lever and upper rock-arm of the front shaft, and a link pivotally connected to the rock-arm of the front shaft and to the inclined standard above the shaft, substantially as specified.

517,961. CULTIVATOR AND MARKER. GEORGE W. MURRAY, Rembert, S. C. Filed Sept. 15, 1893. Serial No. 485,612. (No model.)

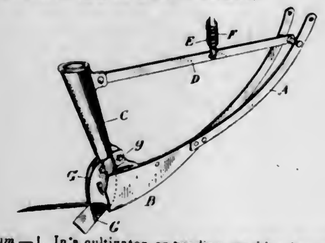
Claim.—1. In an agricultural machine, the combination with the framework, of a marking-bar carrying opposite marking-devices at its front end, opposite flanged plates let into the side of the framework and adapted to receive the bar, opposite latches pivoted between their ends to the sides of the framework and having upper beveled shouldered portions for engaging the bar, and coiled springs interposed between the lower ends of said latches and the framework, substantially as specified.

2. In an agricultural machine, the combination with a framework, of a swinging marking bar, means for locking the same at either side of the machine, a diamond-shaped frame having internal braces, and a hub arranged on the locking-bar, a binding-bolt passed through the hub and impinging upon the locking-bar, and marking-shovels carried by the ends of the frame, substantially as specified.

3. In a machine of the class described, the combination with the framework, a plate secured at the front end thereof and having a vertical eye provided with a perforation, and a bracket extending forwardly from the eye and provided with a bore communicating with the perforation, of a lever pivoted upon the bracket, a locking bolt pivoted to the lever and passing through the perforation of the eye and the bore of the bracket and into said eye, a caster-carrying spindle arranged in the eye, a handle for the upper end of the spindle, a bell-crank lever arranged upon the handle, and a wire leading from the bell-crank lever to the upper end of the bolt-operating lever, substantially as specified.



517,962. CULTIVATOR. THOMAS J. MCBRIDE, Winnipeg, Manitoba, assignor to the Massey-Harris Company, Toronto, Canada. Filed Nov. 24, 1893. Serial No. 491,840. (No model.)



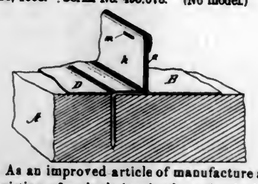
Claim.—1. In a cultivator or seeding machine having a series of independent drag bars and shoes attached thereto, the combination with the drag bar, and shoe having a sharp bottom cutting edge, of a weed cutter composed of two laterally extending knives attached to the rear of the shoe as and for the purpose specified.

2. In a cultivator or seeding machine having a series of independent drag bars and shoes attached thereto, the combination with the drag bar and shoe having a sharp bottom edge, of a weed cutter composed of two laterally extending knives preferably slanting slightly upwardly toward their outer ends and to the rear, the cutting edges of the knives being preferably situated at an obtuse angle to the side of the shoe and the knives being secured to the rear end of the shoe through their upward extensions G', which are held between the sides of the shoe as and for the purpose specified.

3. In a cultivator or seeding machine having a series of independent drag bars and shoes attached thereto, the combination with the drag bar and shoe having a sharp bottom cutting edge, of a weed cutter, G, secured to the rear end of the shoe and means whereby a pressure is exerted upon the shoe so as to maintain the bottom of the shoe, as it moves forward, at a uniform depth in the ground as and for the purpose specified.

4. In a cultivator or seeding machine having a series of independent drag bars and shoes attached thereto, the combination with the drag bar and shoe having a sharp bottom cutting edge, of a weed cutter, G, secured to the rear end of the shoe, the bar E, pivotally connected within the drag bar and extending through the socket, H, attached to the pressure bar and the spring, F, located on the bar, E, as and for the purpose specified.

517,963. ANCHOR FOR SHEET-METAL ROOFING. GEORGE M. PATTON, Canton, Ohio, assignor of one-half to John Karrer, same place. Filed Dec. 16, 1893. Serial No. 493,878. (No model.)

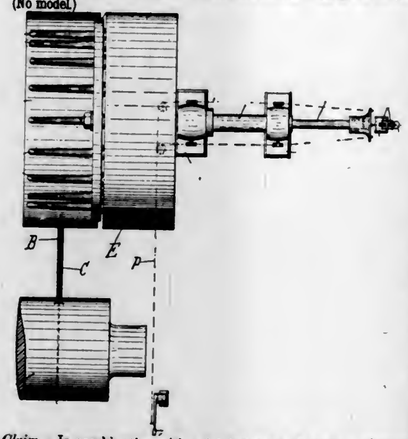


Claim.—1. As an improved article of manufacture a sheet metal roof anchor consisting of a single bar having a hooked upper end a laterally extended intermediate portion and a pointed lower end, substantially as herein described.

2. As an improved article of manufacture, a sheet metal anchor consisting of a single bar having a flat upper hooked end, a flat laterally projected intermediate portion, and a pointed lower end, substantially as herein described.

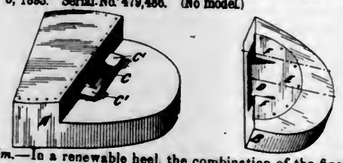
3. In combination, the sheets B and D having upturned flanges of different widths, an anchor, consisting of a single bar of metal having a hooked upper end to receive the narrow flange, a laterally extended intermediate portion underlying the adjacent sheet, and a pointed lower end to engage the timber, substantially as herein described.

517,964. APPARATUS FOR COILING WIRE. HUBERT POLTE, Remscheid-Hasten, Germany. Filed May 24, 1893. Serial No. 475,373. (No model.)



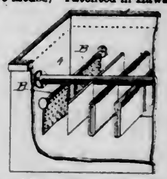
Claim.—In combination with a driving pulley E, disks G secured within the pulley E, rods D passing through openings in said disks with their front ends extending through a movable disk J, means for giving horizontal movement to said disk J, a casing T inclosing the rods D, feed rolls and an elongated channel C between the feed rolls and the casing, substantially as described.

517,965. HEEL. JAMES W. ROGERS, London, England. Filed July 3, 1893. Serial No. 479,486. (No model.)



Claim.—In a renewable heel, the combination of the fixed part A cut away along the rear lower portion; the catch C provided with overhanging wings C', the detachable part B cut away near the center thereof, the plate E having wings F adapted to engage between said wings C' and the fixed portion A of the heel; and the spring clip D adapted to engage the catch C, substantially as and for the purposes described.

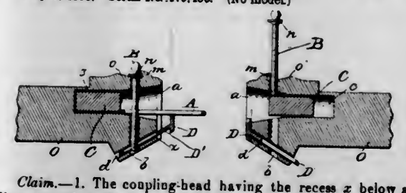
517,966. FILTRATION OF LIQUIDS. ZEPHANIAH S. SPALDING, Kealia, Island of Kauai, Sandwich Islands. Filed Mar. 20, 1893. Serial No. 466,941. (No model.) Patented in Hawaii Apr. 18, 1892.



Claim.—1. In combination with a suitable tank or receptacle, a single discharge from said tank, a central conduit within the tank communicating with said discharge, a series of lateral branch pipes extending from said main pipe, said branch pipes being perforated, filter bags surrounding said perforated pipes and metallic frames within the filter bags, substantially as described.

2. In combination with a suitable tank, a discharge pipe therein, a series of perforated pipes extending laterally therefrom upon each side, part of said pipes being extended beyond the rest and having their outer ends connected with the side walls of the tank, frames depending from said pipes and filter bags enveloping the pipes and frames substantially as described.

517,967. CAR-COUPLING. GEORGE SWITZER, Lodi, Ohio. Filed July 3, 1893. Serial No. 479,480. (No model.)



Claim.—1. The coupling-head having the recess *x* below and adjacent to the orifice of the link cavity, in combination with the link-supporting plate D which in its inoperative position occupies said recess and which has a concave upper edge constituting in its inoperative position the lower margin of said orifice, substantially as set forth.

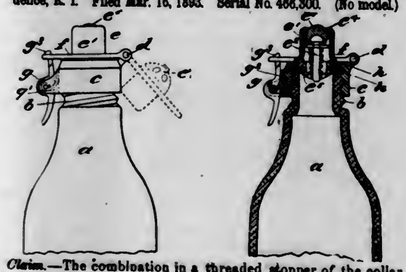
2. In a car-coupler, the coupling-pin B and pin-hole *b*, in combination with the inclined slot *d* intersecting the lower portion of said pin-hole, and the link-set D having slotted stem D' adapted to slide in said inclined slot *d*, the slot of said stem D' registering with the pin-hole *b* and embracing the point of the coupling-pin, substantially as set forth.

3. The sliding bolt C having operating stud *s*, in combination with the slot *t* which said stud enters having a beveled margin *t'*, substantially as set forth.

4. In a car-coupler, the coupling-head O having pin-hole *b*, and the coupling-pin B, in combination with a stationary lug *m* adjacent to the pin-hole *b* with which said coupling-pin automatically engages when dropped into the pin-hole, substantially as set forth.

5. In a car-coupler, the coupler-head O having pin-hole *b*, and the coupling-pin B having flange *n*, in combination with a stationary overhanging or laterally-recessed lug *m* on said coupling-head adjacent to said pin-hole, and a cam-incline *o* which guides the flange *n* of the coupling pin into engagement with the lug *m*, substantially as set forth.

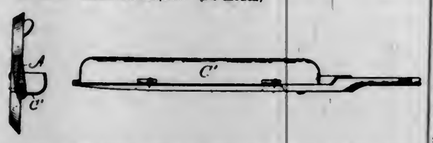
517,968. BOTTLE-STOPPER. FREDERICK R. THATCHER, Providence, R. I. Filed Mar. 16, 1893. Serial No. 466,300. (No model.)



Claim.—The combination in a threaded stopper of the collar *e* having projections or ears *g'* and the stop *i* as shown, the stopple *a*

having the projecting plate *f* with the opening *f'* formed therein, the hinge connection *d* between the collar and stopple, the latch *g* pivoted between the ears *f* and having an outturned hook adapted to engage an opening in the plate *f* of the stopple, and the spring *g*ª normally pressing the lower end of the lever inward and the upper end of the latch outward in engagement with the plate of the stopple, all substantially as described.

517,969. BARBERS' SHEARS. ELIJAH TOLMAN, Jr., Taunton, Mass., assignor of one-fourth to Elijah Tolman, same place. Filed Nov. 10, 1893. Serial No. 490,550. (No model.)



Claim.—The herein described improved pair of barbers' shears comprising the jaws A B and the long, narrow, shallow trough C C' C" adjustably secured to the blade as described, whereby provision is made for the reception of the falling ends of short hairs such as are clipped from the neck during the operation of hair-cutting, substantially as set forth.

517,970. VEIL-CLASP. HELEN L. ALEXANDER, Washington, D. C. Filed Nov. 27, 1893. Serial No. 492,129. (No model.)



Claim.—1. The herein described clasp, the same comprising the locking member 1 adapted at its outer end to engage with a veil or the like, and at its inner end having opposite curved spring arm crossing each other and provided at their extremities with guard-balls, and the loop member adapted at its outer end to engage with a veil or the like, and in advance of the same provided with an enlarged eye having at its front side a smaller eye or offset, between which and said offset a narrow neck or entrance is formed, substantially as specified.

2. The herein described clasp, the same comprising the locking member 1 adapted at its outer end to engage with a veil or the like and at its inner end having opposite curved spring arms crossing each other, curved outward, and provided at their extremities with guard-balls, and the loop member adapted at its outer end to engage with a veil or the like, and in advance of the same provided with an enlarged eye having at its front side a smaller eye or offset, between which and said offset a narrow neck or entrance is formed, substantially as specified.

517,971. RAZOR-WIPER. WILLIAM H. BRIDGMAN, Brooklyn, N. Y. Filed July 12, 1893. Serial No. 480,208. (No model.)



Claim.—1. A razor wiper; comprising a sheet of yielding material impervious to water and provided with longitudinal and transverse corrugations, consecutive transverse corrugations being at different distances apart, substantially as set forth.

2. The razor wiper comprising a sheet of yielding non-absorbent material provided with a handle, longitudinal corrugations in the face of said yielding material and transverse corrugations across the face of said material, consecutive transverse corrugations being at different distances apart, substantially as set forth.

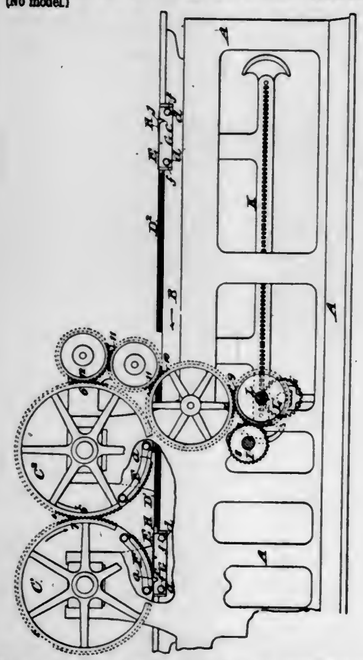
517,972. BILLIARD-BALL. GEORGE H. BURT, Millburn, N. J. Filed Jan. 17, 1894. Serial No. 497,197. (No model.)



Claim.—1. A ball comprising a main spherical part having a circumferential enlargement and parts covering the same on both sides of the enlargement.

2. A ball having a circumferential enlargement and a number spot formed by an inserted plug having a cavity in its side and a tube encircling said plug and having its portion next the cavity pressed therein and parts covering the ball upon both sides of said enlargement.

517,973. PRINTING-MACHINE. CHARLES P. COTTRELL, Stonington, Conn., assignor to the C. B. Cottrell & Sons Company, Westerly, R. I., and New York, N. Y. Filed Nov. 24, 1893. Serial No. 491,842. (No model.)



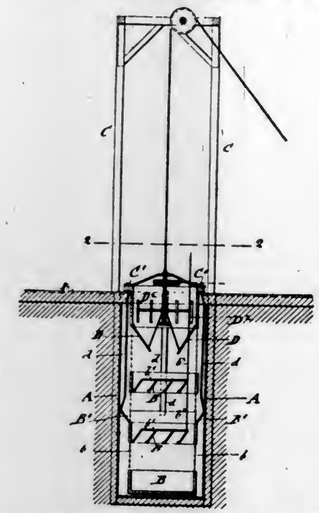
Claim.—1. The combination with the rotary impression cylinder and reciprocating bed in a printing machine and means of separately driving said cylinder and bed, of a registering segment fast on the impression cylinder, a loose registering rack movable lengthwise on the bed, and a locking device for locking the said rack to the bed in such engagement with the segment as to produce a proper register between the bed and cylinder, substantially as herein set forth.

2. The combination with the impression cylinder and the bed, of a segment on the said cylinder, a rack movably attached to the bed, a locking device for engaging the rack to the bed to register with said segment and a tripping device attached to the cylinder for tripping the said locking device and leaving the rack free to move on the bed, substantially as herein set forth.

3. The combination with the impression cylinder, the bed, a segment on the cylinder, a notched rack movable lengthwise on the bed, a notched locking plate affixed rigidly to the bed, and a locking lever attached to the bed and having a wedge-shaped portion for engaging with the notches in the rack and locking plate to bring the said rack in proper relation to the bed and lock it in such relation, substantially as herein set forth.

4. The combination of the bed provided with fixed bolts *d*, the notched rack E, and notched locking plate G, both supported on said bolts, the rack movable and the locking plate fixed on said bolts, the locking lever H fulcrumed in said locking plate and having wedge-shaped portions for engaging respectively with the notches in the said rack and locking plate, substantially as and for the purpose herein set forth.

517,974. ORE-SEPARATOR. GEORGE DOERFLINGER, Brooklyn, N. Y. Filed Sept. 28, 1893. Serial No. 486,709. (No model.)



Claim.—1. An ore-separator, consisting of a tank filled with water, a hopper-shaped receptacle, an agitator in said hopper, a series of trays suspended below said hopper and provided with bottoms which can be opened or closed at will, and means for hoisting and lowering the trays, substantially as set forth.

2. An ore separator, consisting of a tank having inwardly-projecting guide-ways extending along the upper portion of said tank, a supporting-frame placed vertically above said tank, a hopper-shaped receptacle suspended from said frame, an agitating device in said hopper, and a series of trays suspended from the hopper, the intermediate trays being provided with hinged bottom-slats, while the lowermost tray is made solid, and hinged top flanges on the intermediate trays which are adapted to prevent the ore-particles from passing into the tank outside of the tray, substantially as set forth.

3. In an ore-separator, the combination, with a tank filled with water, a supporting-frame located above said tank, a hopper suspended from the frame and provided with an agitator and drop-gate, and a series of trays suspended from the charging chamber or hopper, the intermediate trays being provided with hinged slat-bottoms, and means for hoisting or lowering the hopper and trays, substantially as set forth.

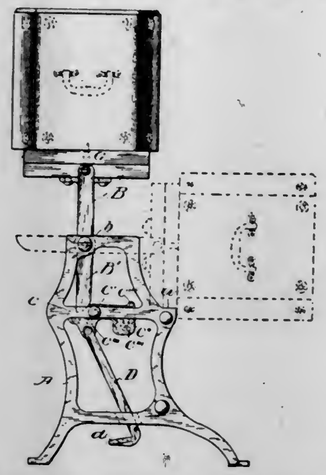
4. The process herein-described of separating ore from lighter particles, which consists in mixing the ground ore in a liquid column, then permitting the ore to drop through the liquid column, next intercepting and detaining the ore-particles in their fall or descent through said liquid column, after a certain time, while suspended at their different depths in said liquid column, so as to separate the particles bodily according to their different specific gravities, and finally elevating and successively draining the different deposits above the liquid column, and removing the different deposits from the intercepting media, substantially as set forth

517,975. METHOD OF TESTING METAL BARS. PLINNON H. DUDLEY, New York, N. Y. Filed Apr. 11, 1893. Serial No. 469,857. (No specimens.)

Claim.—The method of testing metallic bars or rails, consisting of laying off on the bar or rail a series of predetermined distances, submitting the bar so prepared to lateral impact at a point within the extreme limits of the series, and finally ascertaining the change which has taken place in the deflection and length of the distances laid off on the bar under the lateral impact to which it has been subjected to determine its condition, substantially as set forth.



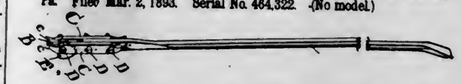
517,976. CASKET-TRIMMING TABLE. THOMAS R. HENNESSY, St. Louis, Mo. Filed May 12, 1893. Serial No. 473,965. (No model.)



Claim.—1. The combination with a casket table, of keeper plates formed with open ended slots, a screw passing through and loosely mounted in said slots, said screw being provided with a collar, and an operating handle, substantially as and for the purposes described.

2. In a casket trimming table, the combination with the stand A formed with a ledge *a*, of the tilting table B pivoted thereto and formed with an extension B', a gravitating latch with which said extension engages when the table is in its vertical position, a swinging table pivoted in the center of the tilting table, suitable latches for retaining the swinging table in a longitudinally disposed position on the tilting table, and means for securing the casket to the swinging table, substantially as described.

517,977. SPIKE DRAWING BAR. LEOPOLD LANDRETH, Bristol, Pa. Filed Mar. 2, 1893. Serial No. 464,322. (No model.)



Claim.—1. A spike drawing implement consisting of a long handle A provided with a claw upon its end extending beyond the end of the handle so as to leave an open space between the jaws of the claw, a bolt D between the jaws extending through the open space, and a fulcrum piece carried by the bolt D and free to swing into the opening between the jaws when not used as a fulcrum.

2. A spike drawing implement consisting of a long handle A provided with a claw upon its end composed of two claw pieces C, C fastened to the end of the handle A and extending beyond the end of the handle so as to leave an open space between the claw pieces beyond the end of the bar, a bolt D between the claw pieces beyond the end of the bar and a fulcrum piece carried by the bolt D and free to swing into the opening between the claw pieces when not used as a fulcrum.

3. A spike drawing implement consisting of a long handle A provided with a claw upon its end composed of two reversible claw pieces C, C detachably fastened to the end of the handle A and extending beyond the end of the handle so as to leave an open space between the claw pieces beyond the end of the bar, a bolt D between the claw pieces beyond the end of the bar, and a fulcrum piece carried by the bolt D and free to swing into the opening between the claw pieces when not used as a fulcrum.

4. A spike drawing bar, consisting of a handle A, two detachable and reversible claw pieces C, C each provided with bolt holes adjacent

to each claw end, a bolt D passing through the claw pieces and the bar at the rear end to secure the claw pieces to the bar, a second bolt D passing through the bolt holes in the front end of the claw pieces beyond the end of the bar leaving an opening or space between the end of the bar and the front bolt, and the fulcrum piece E carried by the front bolt D, the rear bolt holes being adapted to receive the front bolt D when the claw pieces are reversed.

517,978. APPARATUS FOR DISPENSING LIQUID SOAP FOR TOILET PURPOSES. ELMER LEE, Chicago, Ill. Filed Feb. 20, 1893. Serial No. 463,029. (No model.)



Claim.—1. As a new article of manufacture, a toilet or lavatory fixture for dispensing liquid soap for individual use, comprising a reservoir and a fixed support therefor, said reservoir having a filling opening and having a suitable discharge aperture in its bottom, a valve within the reservoir and normally pressed against and closing said discharge aperture, and means extending outside the reservoir whereby the valve may be moved away from the discharge aperture, substantially as described.

2. As a new article of manufacture, a toilet fixture for dispensing liquid soap for individual use, which comprises a reservoir, a support therefor adapted to be permanently attached, and said reservoir having a filling opening and a suitable discharge aperture in its bottom and a valve normally closing said discharge aperture and having its stem projected therethrough and external to the reservoir and adapted to be raised by the upward pressure of the palm of the hand thereon, whereby a quantity of the liquid soap may be received in the same hand which manipulates the valve, substantially as described.

3. In an apparatus for dispensing liquid soap for toilet purposes, the combination with a bracket arm having an integral clamping ring and means for compressing the clamping ring, a cylindrical reservoir supported by the clamping ring, a valve controlled aperture in the bottom of said reservoir, a valve stem projected through said aperture and a tapered annular flange surrounding said valve stem, substantially as described.

4. In an apparatus for dispensing liquid soap for toilet purposes, the combination with a supporting bracket clamp, of a cylindrical reservoir having a removable cover, a bottom cap having a connection with the cylindrical body, said bottom cap having rising from its interior surface integral posts or pillars, a bridge or guide having a cross head supported upon the tops of said pillars, a second cross head depending between, a valve stem adapted to slide through apertures in said cross heads, a valve carried by said stem, a spring interposed between the lower cross head and the valve, said valve stem being projected through an aperture in the bottom plate and adapted to be unseated by an upward pressure or blow, substantially as described.

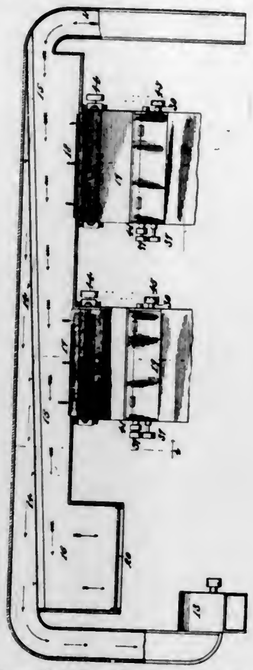
5. In an apparatus for dispensing liquid soap, the combination with a reservoir having a suitable filling aperture at its top, a valve controlled discharge aperture at its bottom, and an annular flange surrounding the discharge aperture, said flange having concave inner walls terminating at its margin in a sharp edge, substantially as described.

517,979. COMBINED ELEVATOR, CLEANER, DISTRIBUTER, AND FEEDER FOR SEED-COTTON. THOMAS E. LITTLEFIELD, Hillsborough, Tex. Filed June 26, 1893. Serial No. 478,822. (No model.)

Claim.—1. In a pneumatic cotton handling apparatus, the combination of a trunk, a box or receiver with which said trunk communicates, means for creating a draft of air through said trunk and said box or receiver, chutes communicating with said receiver and extending downwardly therefrom, a winged valve adapted to rotate in said chute, and appliances for raising and lowering said winged valve so that the same will extend more or less into said receiver.

2. In a pneumatic cotton handling apparatus, the combination of a trunk or tube, a box or receiver with which said trunk or tube communicates, one or more depending chutes communicating with said receiver, a rotary valve in said chute or chutes withdrawing said cotton from said receiver and impelling it into said chutes, and one or more feed rollers for delivering cottou from the chutes to the gin or gin feeders.

3. In a pneumatic cotton handling apparatus, the combination of a trunk or tube, a box or receiver with which said trunk or tube communicates, one or more depending chutes communicating with said receiver, a rotary valve in said chute or chutes withdrawing said cotton from said receiver and impelling it into said chutes, a pair of feed rollers at the bottom of said chute, and adjusting devices for increasing or decreasing the interval between said rollers.



4. In a pneumatic cotton handling apparatus, the combination of a trunk, a box or receiver with which said trunk communicates, means for creating a draft of air through said trunk and said receiver, one or more chutes extending downwardly from said receiver, a winged valve adapted to rotate in said chute, appliances for raising and lowering said winged valve, and a pair of feed-rollers for delivering the cotton from the chute to a gin or gin feeder.

5. In a pneumatic cotton handling apparatus, the combination of a trunk, a receiver with which said trunk communicates, a second trunk communicating with a fan or exhaust, a screen interposed between said trunks, one or more chutes communicating with the receiver and extending downwardly therefrom at an angle to the vertical, a winged valve journaled in the upper part of said chutes, adjusting devices for raising and lowering said winged valve, a pair of feed-rollers for delivering the cotton from the chute to a gin or gin feeder, and adjusting devices for controlling the interval between said feed rollers.

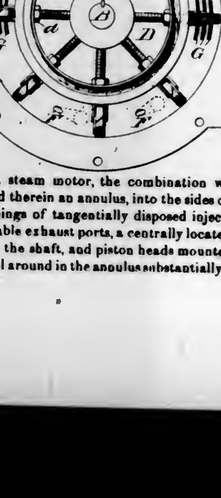
517,980. COMBINED ELEVATOR, CLEANER, DISTRIBUTER, AND FEEDER FOR SEED-COTTON. THOMAS E. LITTLEFIELD, Hillsborough, Tex. Filed June 26, 1893. Serial No. 478,823. (No model.)

Claim.—1. An apparatus for handling seed cotton, consisting of a box or receiver, a trunk for delivering cotton to said box or receiver, a traveling screen moving within said box or receiver below the path of the cotton for delivering the cotton therefrom to a gin or feeder, appliances for creating a draft of air through said trunk, receiver and screen, a valve making air-tight connection with said screen, and means for propelling said traveling screen.

2. A seed-cotton handling apparatus, consisting of a box or receiver, a trunk for delivering the cotton to said box or receiver, a traveling screen, adapted to move within said box or receiver below the path of the cotton and carry the cotton forward, one or more spiked feed rollers for delivering the cotton from the screen to a gin or gin feeder, appliances for creating a draft of air through said trunk, receiver and screen, and means for propelling the said traveling screen and the said feed-roller or rollers.

3. A seed-cotton handling apparatus, consisting of a trunk or tube, a box or receiver with which said trunk or tube communicates, a traveling screen adapted to move within said box or receiver below the path of the cotton, appliances for propelling said traveling screen, a pair of feed-rollers for delivering the cotton from the screen to a gin or gin feeder, a valve making air-tight connection with said screen, and means for creating a draft of air through said trunk or tube and across said box or receiver and said screen.

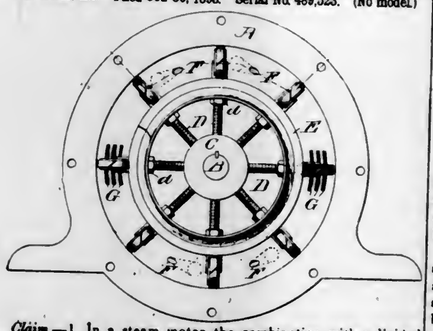
4. A seed-cotton handling apparatus, consisting of a trunk or tube, a box or receiver with which said trunk or tube communicates, a traveling screen adapted to move within said box or receiver, appliances for propelling said traveling screen, a pair of feed-rollers for delivering the cotton from the screen to a gin or gin feeder, means for adjusting said feed rollers, and means for creating a draft of air through said trunk or tube and across said box or receiver.



5. A cotton handling apparatus, consisting of a trunk or tube, a box or receiver with which said trunk or tube communicates, a traveling screen, rollers journaled in bearings at the sides of the box or receiver and around which said screen travels, means for propelling said rollers, a partition extending from the bottom of said receiver or box to a point below the line of travel of said screen, a valve appliance secured to the upper part of said receiver and adapted to form with said partition a chamber, a trunk or tube communicating with said chamber below said screen, and means for creating a draft of air in said last-mentioned trunk or tube.

6. A cotton handling apparatus, consisting of a trunk or tube, a box or receiver with which said trunk or tube communicates, a screen placed within said box or receiver, a second trunk or tube communicating with said box or receiver below said screen, means for creating a draft of air through said last-mentioned trunk or tube, and a board or partition placed within said box or receiver above the aperture leading to the trunk or tube last mentioned, for causing a dispersion of the draft of air within said receiver.

517,981. STEAM-MOTOR. JAMES H. LUCAS and JOHN D. LUCAS, St. Louis, Mo. Filed Oct. 30, 1893. Serial No. 489,523. (No model.)



Claim.—1. In a steam motor, the combination with a divided casing having formed therein an annulus, into the sides of which, at the top and bottom of the casing, lead the contracted openings of oppositely and tangentially disposed inlet ports, a centrally located shaft, a piston ring on the shaft, piston heads on the ring, which travel in the annulus, and exhaust ports leading from the annulus at a point midway between the position of the entrance openings of the inlet ports, substantially as described.

2. In a steam motor, the combination with a divided casing having formed therein an annulus, into the sides of which, at the top and bottom of the casing, lead the contracted openings of oppositely and tangentially disposed inlet ports, a centrally located shaft, a piston ring on the shaft, piston heads on the ring, which travel in the annulus, and exhaust ports leading from the annulus at a point midway between the position of the entrance openings of the inlet ports, substantially as described.

3. In a steam motor, the combination with a divided casing forming an annulus into which suitable injector ports lead, and from which suitable exhaust ports lead, a centrally-located shaft, a collar on said shaft, a piston ring having an adjustable connection with said collar through the medium of threaded bolts and nuts forming spokes, said spokes being formed on their outer ends with a squared portion which passes through the ring, and a flaring bifurcated extremity which extends into the annulus, and piston-heads which are secured in said bifurcation of the spokes, substantially as described.

4. In a steam motor, the combination with a divided casing forming a circular steam cylinder, of tangentially arranged inlet ports formed with contracted openings opening into the side of the cylinder, said openings being arranged in pairs at the top and bottom of the casing, the pairs on each side pointing in opposite directions, exhaust ports located midway between the pairs of inlet ports, a centrally located shaft, a piston ring on the shaft, and piston heads on the ring, substantially as described.

517,982. STEAM-ENGINE. CHARLES T. PORTER, Montclair, N. J. Filed Apr. 13, 1893. Serial No. 470,224. (No model.)

Claim.—1. In a steam engine, the outer shell A^4 formed and arranged as shown so as to inclose a practically continuous steam-jacket space a' surrounding the cylinder A, valve-seats A', ports a and admission pipes A^3, such outer shell being formed integral with the cylinder, all substantially as herein specified.

2. In a steam-engine, the admission pipes A^3 connecting the valve-seats, having a shell A^4 inclosing the whole, and arranged as shown, so as to allow the steam in the jacket space a' to flow completely around said pipes, the parts being braced by studs A^5 all formed integral, as herein specified.

3. Two steam pipes, one straight and the other connected thereto at an angle, bringing steam from the boiler to the cylinder, and a jacket around the same, arranged as shown, so that the steam for the jacket is allowed to move in a straight line past the junction, and the steam to be used in the cylinder is caused to turn a sharp angle, in combination with provisions as the pipes H', H, for conveying away the water

with a small proportion of the steam from the jacket, all substantially as specified.

4. The two steam pipes F and J, and junction J', in combination with the steam jacket A^4, and with the pipe K supplying steam, arranged as shown, so that any water mingled with the steam received through the pipe K shall be projected by its momentum and gravity past the angle and be delivered through the pipe F in a straight line and thence into the jacket-space a', and that the pipe J shall receive mainly dry steam, as herein specified.

5. In a steam-engine having an outer shell A^4 inclosing a jacket-space a', the pipes J, K, turning an angle and supplying steam to the cylinder to impel the piston, and the pipe F supplying steam to the jacket-space, connected to the pipe K at the angle J', and the valve L and pipe L combined and arranged as shown, so that the particles of water in the steam shall tend, by their momentum, to be thrown into the pipe F and be led to the jacket space, and the drier steam shall be led to the interior of the cylinder, and any water collected in the valve shall be removed, all substantially as herein specified.

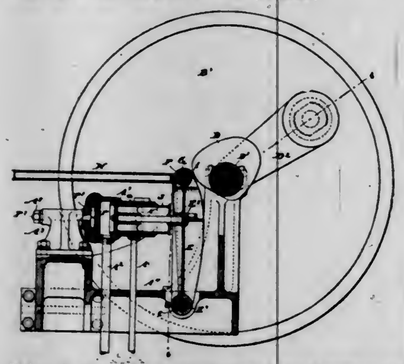
6. In a steam-engine, in combination with piston-valves reciprocating within the cylindrical valve-seats A' and with a jacket A^4 inclosing both the main cylinder A and such valve-seats, the exhaust passages leading axially away from such piston valves in opposite directions into external pipes, substantially as herein shown and described

7. In a steam-engine having a jacket, provisions as the branched pipe H, H', for draining the cylinder from a number of widely distributed points in the lower portion of the jacket, in combination with means as the perforated pipe G for introducing the steam at a number of widely distributed points in the upper portion of the cylinder, with apertures for such induction of the steam to the jacket being arranged in two series at or near the line of the highest point of the cylinder, and discharging the steam in jets in opposite directions from such line, all substantially as herein specified.

8. In a compound steam-engine having on each cylinder a shell A^4 inclosing the steam jacket space a', and heads B, C, having inclosed chambers b, c, serving also as steam jackets, and a receiver M in which the steam is retained in its passage between the cylinders, the series of separate heating pipes P, Q, R, S, traversing such receiver, in combination with the separate connections H, H', I, I', to each from the several jackets, arranged to carry steam independently from each jacket through the said receiver, all arranged for joint operation substantially as herein specified.

9. In a compound steam-engine having the shells A^4 inclosing the steam jacket spaces a' and heads B, C, having inclosed chambers b, c, serving as steam-jackets, and a receiver M in which the steam is retained in its passage between the cylinders, containing the series of separate heating pipes P, Q, R, S, the separate discharge pipes P', Q', R', S', for conveying away the water and air independently from each, so as to insure an active and approximately uniform movement of the steam through the whole, as and for the purposes herein specified.

517,983. STEAM-ENGINE. CHARLES T. PORTER, Montclair, N. J. Filed May 5, 1893. Serial No. 473,113. (No model.)

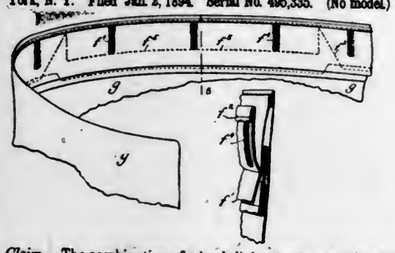


Claim.—1. As a means of applying the pressure of steam or other elastic fluid to maintain contact between the cam and the valve connections, the cylinder A', piston J, and thrust-rod K, in combination with the lever E, all arranged for joint operation substantially as herein specified.

2. In the valve motion of a steam-engine, the connecting link H, reciprocated as shown, having a hook A, and the axial rod Q and means as the knob Q' for both moving it axially and raising and lowering it, and the spring Q^3 urging it into the locked position, in combination with each other and with the pin L^3 and the valve rod I, all arranged for joint operation substantially as herein specified.

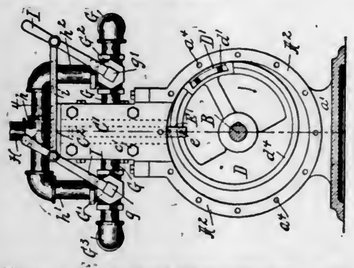
3. In a steam-engine having the valves actuated by a cam, the detachable bracket A^4 supporting the cam-shaft D', lever E and cylinder A', with a web extending between the cam-shaft and the cylinder support, adapted to serve as herein specified.

517,984. WAISTBAND FOR TROUSERS. JULIUS SCHWARZ, New York, N. Y. Filed Jan. 2, 1894. Serial No. 495,335. (No model.)



Claim.—The combination of a back-lining having slits b therein, elastic pieces extending across the slits and secured to the back lining on both sides of the slits, together with a waist-band secured to the back-lining on one side of the slits and provided with button-holes in proximity to the slits in the back-lining, substantially as described.

517,985. ROTARY ENGINE. WILLIAM SMITH, Clarinda, Iowa, assignor of one-half to Alonzo D. Smith, Chicago, Ill. Filed Mar. 3, 1893. Serial No. 464,494. (No model.)



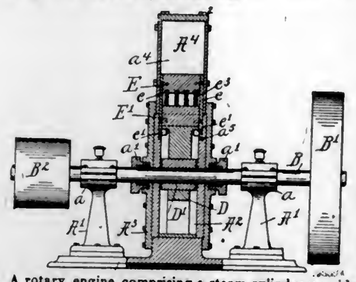
Claim.—1. A rotary steam engine comprising a steam cylinder provided with inlet and exhaust ports, of a smooth faced cam-wheel or piston rotatively mounted at the center of the said cylinder, a reciprocatory plunger mounted in the said cylinder and secured to said piston so that its lower end shall positively engage the perimeter thereof, said piston being provided on its perimeter with a concentric portion sufficient in length to simultaneously and at the desired time, close both of said ports, substantially as described.

2. A rotary steam engine comprising a cylinder provided with inlet and exhaust ports, a cam-wheel or piston rotatively mounted in the said cylinder, a reciprocatory plunger mounted in said cylinder between said ports and secured at its lower end to said piston and an adjacent head or plate interposed between the piston and one of the cylinder heads, and means, substantially as described, for adjusting said head toward and from the piston, said adjusting plate being provided with a radial recess or groove; as a^3, a^5, substantially as and for the purpose specified.

517,986. ROTARY STEAM-ENGINE. WILLIAM SMITH, Clarinda, Iowa, assignor of one-half to Alonzo D. Smith, Chicago, Ill. Filed Sept. 13, 1893. Serial No. 485,386. (No model.)

Claim.—1. A rotary engine comprising a steam cylinder provided with steam and exhaust ports, a smooth faced rotating piston mounted upon a shaft at the center of the cylinder, a reciprocating plunger located between the ports and constantly held against the periphery of the piston, said plunger being provided with an interior, bodily movable plate adapted to engage the face of the piston, and means for imparting to said plate a yielding pressure toward the piston, substantially as described.

2. A rotary engine comprising a steam cylinder provided with steam and exhaust ports, a smooth faced rotating piston adjustably mounted eccentrically upon a shaft at the center of the cylinder, a reciprocating plunger located between the ports, inwardly extending lateral arms secured to said plunger and provided with friction wheels engaging the inner surface of the piston rim, said plunger being provided with a reciprocating plate adapted to engage the face of the piston, and means for imparting to said plate a yielding pressure toward the piston, substantially as described.



3. A rotary engine comprising a steam cylinder provided with steam and exhaust ports, a smooth faced rotating piston adjustably mounted eccentrically upon a shaft at the center of the cylinder, a reciprocating plunger located between the ports, inwardly extending lateral arms secured to said shaft and provided with friction wheels engaging the inner surface of the piston rim, an elongated recess at the inner end of said plunger, a movable plate within said recess adapted to engage the face of the piston, and a spring imparting to said plate a constant pressure toward the piston, substantially as described.

4. A rotary engine comprising a steam cylinder provided with steam and exhaust ports, a smooth faced rotating piston mounted eccentrically at the center of the cylinder, and a reciprocating plunger located between the said ports, and constantly held against the piston, the plunger being provided with an interior movable plate adapted to engage the face of the piston, and means for providing a yielding pressure on said plate toward the piston, substantially as described.

5. A rotary engine comprising a steam cylinder provided with steam and exhaust ports, a smooth faced rotating piston mounted eccentrically at the center of the cylinder, a reciprocating plunger located between the ports and constantly held against the piston, an elongated recess at the inner end of said plunger, a bodily movable plate within said recess adapted to engage the face of the cylinder, and a spring within said recess engaging said plate and imparting thereto a constant pressure toward the piston, substantially as described.

517,987. MANUFACTURE OF SOLID COMPOUNDS OF PYROXYLIN. JOHN H. STEVENS, Newark, N. J., assignor, by mesne assignments, to the Celluloid Company, same place. Filed June 9, 1890. Serial No. 354,786. (No specimens.)

Claim.—1. In the art of manufacturing compounds of pyroxyline, the subjecting of such pyroxyline to the solvent or converting action of phenyl-acetamide (acetanilid).

2. A new composition of matter consisting of pyroxyline and acetanilid substantially as described.

3. The process of manufacturing solid or massive pyroxyline compounds which consists in mixing phenyl acetamide (acetanilid) and pyroxyline, and subsequently subjecting the resulting compound to heat and pressure sufficient to render the composition plastic, substantially as described.

4. The process of manufacturing solid or massive pyroxyline compounds which consists in mixing pyroxyline, phenyl acetamide, (acetanilid) and a liquid menstruum or liquid menstrua, and subsequently subjecting the resulting compound to heat and pressure sufficient to render the composition plastic, substantially as described.

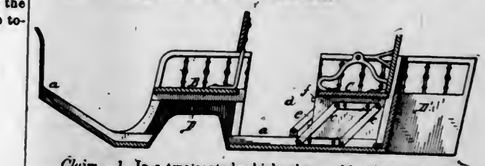
5. The process of manufacturing solid or massive pyroxyline compounds which consists in mixing pyroxyline, phenyl acetamide (acetanilid) and camphor, and subsequently subjecting the resulting compound to heat and pressure sufficient to render the composition plastic, substantially as described.

6. The process of manufacturing solid or massive pyroxyline compounds which consists in mixing pyroxyline, phenyl-acetamide (acetanilid), camphor and a liquid menstruum or liquid menstrua and subsequently subjecting the resulting compound to heat and pressure sufficient to render the composition plastic, substantially as described.

7. As a new composition of matter, a solid or massive pyroxyline compound containing phenyl-acetamide (acetanilid) and pyroxyline, substantially as set forth.

8. As a new composition of matter, a solid or massive pyroxyline compound, containing pyroxyline, phenyl-acetamide (acetanilid) and camphor, substantially as described.

517,988. VEHICLE. CHARLES H. STRATTON, Buffalo, N. Y. Filed Nov. 11, 1893. Serial No. 490,664. (No model.)



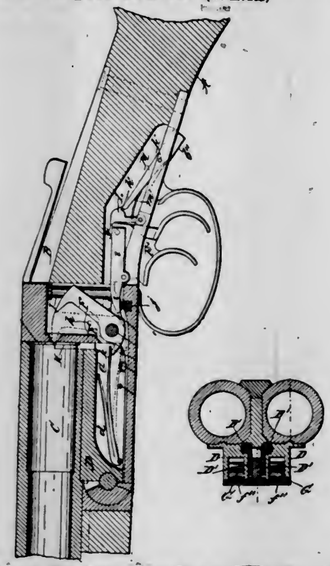
Claim.—1. In a two-seated vehicle, the combination with a rigid vehicle body having stationary front panels and a front seat secured between the same, of longitudinally movable rear panels arranged in rear of the stationary front panels and forming rearward continuations of the same, when in their forward position, and capable of longitudinal movement on the body independent of the rear seat, whereby passage ways are opened between the front and rear seats when the movable panels are shifted backwardly, and the said passage ways are closed when the rear seat is in use, substantially as set forth.

2. A vehicle body provided with side panels capable of moving lengthwise thereon and having their rear ends arranged flush with the rear end of the vehicle body, when in their forward position, whereby the panels project beyond the rear end of the body, when shifted backward, substantially as set forth.

3. The combination with a vehicle body having longitudinally movable side panels, of links or jump irons connecting said panels with the stationary portion of the body, substantially as set forth.

4. A vehicle body having a downwardly swinging end gate, and longitudinally movable side panels adapted to be shifted backward beyond the rear end of the body, for forming guards on opposite sides of the end gate, substantially as set forth.

517,989. FIREARM. ARTHUR J. STRONG, Brooklyn, N. Y. Filed Mar. 25, 1893. Serial No. 467,685. (No model.)



Claim.—1. In a firearm of the class specified, the combination with a barrel, A, provided with and carrying a pin, e, a hammer and tripping sear, of the rocking dog, E, forked at its front end to straddle the pin, and having at its upper or rear part a pin or lateral projection, k, arranged to bear against the front of the hammer to cock the same from the outward movement of the barrel in opening the breech, substantially as and for the purpose herein set forth.

2. In a firearm of the class specified, the combination with a barrel, A, a hammer and tripping sear, of a barrel-lug secured to the barrel and having a chamber in its under side, and a main-spring, G, placed in said chamber arranged to release or slacken its pressure upon the toe of the hammer as the barrel is moved outward to open the breech and to resume its said pressure when the barrel is brought back to close the breech, substantially as and for the purpose herein set forth.

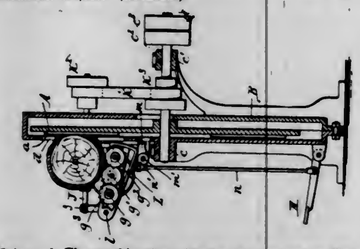
3. In a firearm of the class specified, the combination of a barrel provided with a pin, *e*, a hammer having a toe, *m*, a sear for tripping said hammer, a main-spring G, for actuating the hammer, a chambered barrel-lug, D, attached to and moving with the barrel and constructed to hold the main-spring, and a rocking dog, E, forked at one end to straddle the pin, *e*, and at the other constructed to bear against the front of the hammer, whereby the tendency of the main-spring is slackened to release its pressure simultaneous with the opening of the breech and the cocking of the hammer, and to resume its pressure with regard to the hammer when the breech is closed, substantially as and for the purpose herein set forth.

4. In a firearm of the class specified the combination of a barrel, A, arranged to be tilted outward at its rear end to open the breech, a rocking bolt, I, provided with the stud, *n*, and with means for locking and releasing the barrel, in the closing and opening of the breech, a main-spring, G, and a pin, *e*, attached to and carried by said barrel, a hammer arranged to receive the pressure of said main-spring when the barrel is depressed to close the breech and to be relieved from such pressure as the barrel is tilted outward to open the breech, a tripping sear for tripping said hammer when raised, the rocking dog, E, arranged to intercept the stud, *n*, of the rocking bolt, I, when the breech is open, and constructed with the fork, *g*, to engage the said pin, *e*, and with the projection, *h*, extended in front of the hammer to lift the same, the whole arranged for joint use and operation, substantially as and for the purpose herein set forth.

5. In a firearm of the class specified, the combination with a barrel, A, a chambered barrel lug, D, attached to and carried by said barrel, and an ejector having a shoulder, *d'*, on its stem, of the ejector sear, D', provided with a lateral stud, *b'*, and with a shoulder, *c'*, and a main-spring, G, placed in the chamber of the barrel lug and arranged to cause the shoulder, *c'*, to engage with the shoulder, *d'*, by pressure upon the said lug, when the barrel is depressed, substantially as and for the purpose herein set forth.

6. In a firearm of the class specified, the combination with a barrel, A, a recoil face, *c*, a chambered barrel-lug, D, attached to and carried by the barrel, an ejector having a shoulder, *d'*, upon its stem, and an ejector spring, C', of a main-spring, G, placed in the chamber of the barrel-lug, a stop, *d'*, provided at the front of breech receiver, and an ejector sear, D', having at its rear end a lateral stud, *b'*, to receive pressure from the main-spring and at its front constructed to impinge against the stop, *d'*, when the barrel is moved outward to open the breech, the whole arranged for joint use and operation substantially as and for the purpose herein set forth.

517,990. MACHINE FOR BARKING LOGS. WILLIAM W. TREVOR and FRANCIS N. TREVOR, Lockport, N. Y. Filed May 29, 1893. Serial No. 475,819. (No model.)



Claim.—1. The combination with the rotating cutter disk, of feed wheels and lifting arms arranged in front of the disk and made vertically movable with reference to each other, whereby either the feed wheels or the lifting arms can be made to support the log, at desire, substantially as set forth.

2. The combination with the rotating cutter disk, of feed wheels and vertically movable lifting arms arranged in front of the disk, and mechanism whereby the lifting arms can be raised above the feed wheels, substantially as set forth.

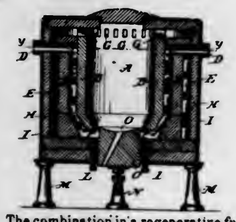
3. The combination with the rotating cutter disk and its case, of feed wheels journaled in brackets secured to the case, lifting arms supported at their front ends by a rocking support, and mechanism whereby the rear ends of the lifting arms can be raised, substantially as set forth.

4. The combination with the rotating cutter disk and its case, of feed wheels mounted on shafts arranged across the face of the cutter disk, lifting arms composed of open frames through which said shafts pass, and mechanism whereby said frames and shafts can be raised and lowered relatively to each other, substantially as set forth.

5. The combination with the rotating cutter disk and its case, of feed wheels arranged in front of the cutter disk, lifting arms capable of vertical movement, cams pivoted to the case and connected with said lifting arms, and a treadle whereby said cams are operated, substantially as set forth.

6. The combination with the rotating cutter disk and its case, of brackets secured to the front of said case, feed wheels mounted on shafts which are journaled in said brackets, a rock shaft journaled in said brackets, lifting arms secured with their front portions to said rock shaft, and a lifting mechanism connected with the rear ends of said lifting arms, substantially as set forth.

517,991. REGENERATIVE FURNACE. MARTIN WANNER, Denver, Colo., assignor of eleven-twentieths to William B. Crittenden and John M. Millman, Bucyrus, Ohio. Filed Dec. 8, 1892. Serial No. 454,457. (No model.)



Claim.—1. The combination in a regenerative furnace of a bridge wall entirely surrounding the sides of the combustion chamber, a chamber outside of the bridge wall connecting with the external air and opening at the lower end of the combustion chamber, inlets for gas, also opening at or below the lower end of the combustion chamber, and a hearth adapted to carry the charge, substantially as set forth.

2. The combination in a regenerative furnace of a bridge wall entirely surrounding the sides of the combustion chamber, a chamber which surrounds the bridge wall, and which connects with the external air and opens at the lower end of the combustion chamber, inlets for gas, opening at or below the end of the combustion chamber, and a hearth adapted to carry the charge, substantially as set forth.

3. The combination in a regenerative furnace of a bridge wall entirely surrounding the sides of the combustion chamber, a chamber around the bridge wall, connecting with the external air and opening at the lower end of the combustion chamber, an independent chamber outside of the air chamber connecting with the upper end of the combustion chamber, through which the products of combustion pass on their way to the stack inlets for gas opening at or below the lower end of the combustion chamber, and a hearth adapted to carry the charge, substantially as set forth.

4. The combination in a regenerative furnace of the bridge wall entirely surrounding the sides of the combustion chamber, a chamber on each side of the bridge wall across which projections extend from the side walls to the opposite wall, whereby the structure is braced and supported without interfering with the independent expansion of the two sides of the said chamber, said chamber or chambers connecting with the external air and opening at or below the lower end of the combustion chamber, and inlets for the gas, opening at or below the lower end of the combustion chamber, substantially as set forth.

5. The combination in a regenerative furnace of a combustion chamber, contracted at its lower end, a bridge wall which entirely surrounds the sides of the combustion chamber, a chamber or space outside of the bridge wall connecting with the external air and opening at the contracted lower end of the combustion chamber and inlets for the gas also opening at the lower contracted end of the combustion chamber, substantially as set forth.

6. The combination in a regenerative furnace, of a combustion chamber contracted at its lower part, a bridge wall which entirely surrounds the sides of the combustion chamber, a chamber or space outside of the bridge wall connecting with the external air and opening at the contracted lower end of the combustion chamber, inlets for the gas also opening at the lower contracted end of the combustion chamber and a chamber outside of the said air chamber connecting with the upper end of the combustion chamber adapted to convey the products of combustion from it to the stack, substantially as set forth.

517,992. PROCESS OF ENAMELING SHEET-IRON WARE. THEODOR EWERMANN, Baltimore, Md. Filed Jan. 5, 1894. Serial No. 495,821. (No specimens.)

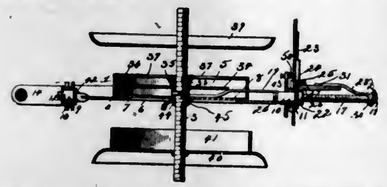
Claim.—1. The process herein described of enameling sheet-metal ware, which consists in applying to said articles a ground enamel mixed with prepared glass-fritters and a suitable metallic oxide, next drying and fusing the same, and then applying a second transparent enamel or glaze, and drying and fusing the same, substantially as set forth.

2. The process herein described of enameling sheet-metal ware, which consists in preparing an ordinary ground enamel, adding thereto a dry mixture of glass-fritters, potassium bichromate, transparent glue and a metallic oxide, applying the mixture to the surface of the sheet-metal article, and drying and fusing the same, substantially as set forth.



3. A composition for producing mottled enameled sheet-iron ware, which consists of an ordinary ground enamel mixed with glass-fritters, potassium bichromate, transparent glue and a metallic oxide, substantially as set forth.

517,993. DAMPER. JOHN W. ANDERSON, Lancaster, Pa., assignor to Oliver N. Anderson, same place. Filed May 31, 1893. Serial No. 476,116. (No model.)



Claim.—1. In a damper, a revoluble plate provided with an expansible flared or flanged periphery, substantially as specified.

2. In a damper, the combination of a main plate carrying an axially-disposed stem, and upper and lower twin disks adjustably mounted upon said stem and of less diameter than the main plate, said plate and disks being provided with expansible flared or flanged peripheries substantially as specified.

3. In a damper, the combination of a main fulcrumed plate, a register or valve carried thereby, means to operate said register or valve, and upper and lower twin disks arranged parallel with and upon opposite sides of the plane of the main plate and carried thereby, said plates being oppositely flared at their peripheries substantially as specified.

4. In a damper, the combination with a main plate, constructed to form a deflecting chamber and provided with a perforated floor, and cover of a register or valve located within the deflecting chamber to control the openings in the floor thereof, and means to operate said register or valve, substantially as specified.

5. In a damper, the combination with a main fulcrumed plate, constructed to form a deflecting chamber provided with a perforated floor, of an adjustable deflecting plate arranged to close the top of said chamber and provided with outlet openings or perforations, a register or valve arranged within the deflecting chamber to control the openings in the floor thereof, and means to operate the register or valve, substantially as specified.

6. In a damper, the combination with a fulcrumed main plate, constructed to form a deflecting chamber, of a perforated adjustable deflecting plate adapted to close the top of said chamber, a register or valve arranged within the chamber to control openings in the floor thereof, means to operate said register or valve, and a vertically-adjustable disk disposed within the chamber and of less diameter than the same to form an annular space between its periphery and the walls of the chamber, substantially as specified.

7. In a damper, the combination with a main fulcrumed plate and a threaded axial stem carried thereby, of a register or valve mounted centrally upon the plate to control openings therein, means to operate said register or valve, and upper and lower twin disks adjustably mounted upon said stem, the lower disk being provided with an upstanding annular collar, substantially as specified.

8. In a damper, the combination with a main fulcrumed plate, and an axial stem carried thereby, of a rotary register or valve mounted centrally upon the plate to control openings formed therein, means to operate said register or valve, and a disk adjustably fitted upon the stem beneath the main plate and provided with an upstanding annular collar of greater diameter than the space in which the openings in the main plate are formed, substantially as specified.

9. In a damper, the combination with a fulcrumed plate provided with openings or perforations, and a rotary register or valve mounted upon the plate to control said openings or perforations, of an operating spindle threaded in a hollow trunnion of the fulcrumed plate, and a link connecting said spindle to the register or valve, substantially as specified.

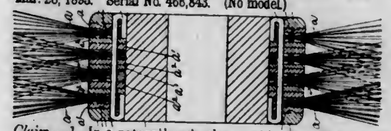
10. In a damper, the combination with a fulcrumed plate provided with openings, and a register or valve carried by the plate to control said openings and provided with exteriorly-accessible operating devices, and an indicating mechanism operatively connected to the register or valve, substantially as specified.

11. In a damper, the combination with a perforated fulcrumed plate, and a register or valve carried by the plate to control the openings or perforations therein, of an operating spindle threaded in a hollow or tubular trunnion of the plate and connected to said register or valve, an exposed indicating device, and connections between the indicating device and the operating spindle, substantially as specified.

12. In a damper, the combination with a perforated fulcrumed plate, and a register or valve carried by the plate to control the perforations therein, of an operating spindle connected to said register or valve and threaded in a hollow trunnion of the plate, an index arranged to travel over a suitable dial plate, a segment geared to the index, and a link connecting said segment to the operating spindle, substantially as specified.

13. In a damper, the combination with a perforated plate, and a register or damper carried thereby, of a longitudinally-movable operating spindle, a pivoted index, a toothed segment meshing with spurs upon the index, and a reciprocating link pivotally connected to the segment and having a ring engaging a neck of said spindle, substantially as specified.

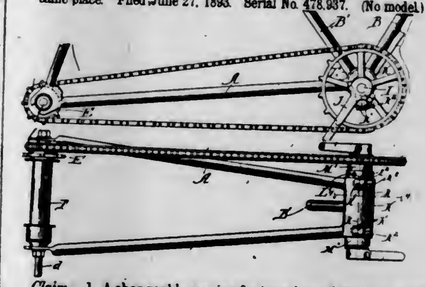
517,994. BRUSH. HENRY B. ASHTON, Medford, Mass. Filed Mar. 20, 1893. Serial No. 466,843. (No model.)



Claim.—1. In a rotary brush, the combination with a plurality of layers or rows of bristles, of washers between which the said bristles are interposed, and locking projections or surfaces attached to the washers on the surfaces contiguous to the bristles and composed of a ring of granular material cemented to the washers and acting on the butts of the bristles to firmly hold or clamp the same, a hub upon which the washers and bristles are mounted, and means to secure said washers and bristles on said hub, substantially as described.

2. In a rotary brush, the combination with a plurality of layers of bristles *a* and washers between which the layers of bristles are interposed, of a locking projection or surface attached to the washers on the surfaces contiguous to the bristles and composed of a ring of granular material cemented to the said washers, and clamping rings connected together and between which the bristles and washers are confined, and a hub for said brush detachably secured to both of the clamping rings, substantially as described.

517,995. CHANGEABLE GEARING FOR BICYCLES. HERBERT L. BAILEY, Chicago, Ill., assignor to the Bailey Manufacturing Company same place. Filed June 27, 1893. Serial No. 478,937. (No model.)



Claim.—1. A changeable gearing for bicycles and similar vehicles, comprising a plurality of gear wheels of different diameters carried by one of the wheels of the vehicle and an eccentric-bearing for the

pedal-shaft, having axial and longitudinal movements and carrying a single gear-wheel for operative connection with one or another of the plural gears, substantially as set forth.

2. A changeable gearing, for bicycles and similar vehicles, comprising a hub or axle for one wheel of each vehicle carrying at one end a plurality of gear-wheels of different diameters, and an eccentric-bearing for the pedal-shaft having axial and longitudinal movements, substantially as set forth.

3. A changeable gearing, for bicycles and similar vehicles, comprising a hub or axle, for one of the vehicle-wheels, having at one end a plurality of gear-wheels of different diameters, a pedal-shaft carrying a single gear-wheel for operative connection with one or another of the plural gears, and an eccentric-bearing for said shaft, having axial and longitudinal movements, substantially as set forth.

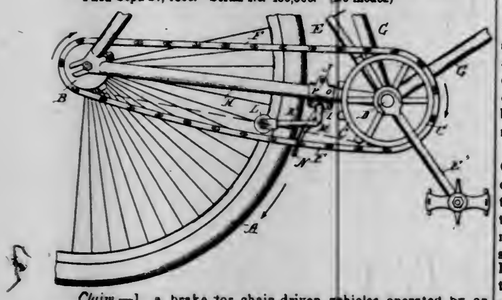
4. A changeable gearing for bicycles and other vehicles, comprising a hub or axle, for one of the vehicle-wheels, provided with a plurality of sprocket-wheels of different diameters, a pedal-shaft carrying a single sprocket-wheel, an eccentric-bearing for said shaft, said bearing having axial and longitudinal movements, and a sprocket chain trained over the sprocket-wheel of the pedal-shaft and over one or another of the plural sprocket-wheels, substantially as set forth.

5. A changeable gearing, for bicycles and similar vehicles, comprising a circumferentially expansible and contractible sleeve carried by the vehicle frame, a tubular bearing inclosed by said sleeve and axially and also longitudinally movable therein and having an eccentric bore, and a pedal-shaft extending through the bore of said bearing, and a plurality of gear-wheels of different diameters attached to one of the carrying wheels, substantially as set forth.

6. A changeable gearing, for bicycles and similar vehicles, comprising a split sleeve carried by the vehicle-frame, and provided with clamping-bolts for contracting the sleeve circumferentially, a tubular bearing surrounded by the sleeve and having an eccentric bore and also movable axially and longitudinally in said sleeve, and a pedal-shaft revoluble in the bore of the bearing, substantially as set forth.

7. A changeable gearing, for bicycles and similar vehicles, comprising a circumferentially expansible and contractible sleeve carried by the machine frame, a two-part plug-bearing surrounded by said sleeve and having its two members engaged to axially move simultaneously and similarly, an eccentric bore for each member, anti-friction bearings at the outer ends of the members, and a pedal-shaft revoluble in the bores of the members; the bearing-members being also longitudinally movable in the sleeve, substantially as set forth.

517,996. AUTOMATIC VEHICLE-BRAKE. HERBERT I. BAILEY, Chicago, Ill., assignor to the Bailey Manufacturing Company, same place. Filed Sept. 27, 1893. Serial No. 486,580. (No model.)



Claim.—1. A brake for chain driven vehicles operated by or through the lateral movement of the normally slack side of the driving chain thereof, substantially as described.

2. In an automatic brake for chain driven vehicles, the combination with a brake device of means operated by the lateral movement of the slack side of the driving chain of said vehicle for automatically setting the brake device and means for automatically releasing said device, substantially as described.

3. In an automatic brake for chain driven vehicles the combination of a brake device, of a lever connected therewith and operated by the lateral movement of the slack side of the driving chain of said vehicle, substantially as described.

4. In an automatic brake for chain driven vehicles, the combination of a rock-shaft and radial arms thereon, one of said arms operating a brake device and the other arm being operated by the lateral movement of the slack side of the driving chain of said vehicle, substantially as described.

5. In an automatic brake for chain driven vehicles the combination with a rock-shaft journaled in the frame of the machine and radial arms thereon, of a brake spoon carried by one of said arms for engaging the tire of the vehicle wheel and an anti-friction roller carried by the other of said arms and adapted to be operated by the lateral movement of the slack side of the driving chain of said vehicle, substantially as described.

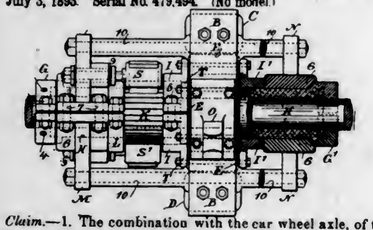
6. In an automatic brake for chain driven vehicles the combination with a rock shaft journaled in the frame of the machine and radial arms thereon, one or both of which are adjustable, of a brake spoon carried by one of said arms for engaging the tire of the vehicle wheel and an anti-friction roller carried by the other of said arms and adapted to be operated by the lateral movement of the slack side of the driving chain of said vehicle, substantially as described.

7. In an automatic brake for chain driven vehicles the combination with one of the vehicle wheels, the pedal shaft, a sprocket wheel and chain connection between said shaft and wheel, and crank pedals on said shaft, of a brake device operated by or through the lateral movement of said sprocket chain, substantially as described.

8. In an automatic brake for chain driven vehicles the combination with one of the vehicle wheels, the pedal shaft, a sprocket wheel and chain connection between said shaft and wheel, and crank pedals on said shaft, of a brake device operated by or through the lateral movement of the slack side of said chain, and means for automatically releasing the brake device, substantially as described.

9. In an automatic brake for chain driven vehicles the combination with one of the vehicle wheels, the pedal shaft, a sprocket wheel and chain connection between said shaft and wheel, and crank pedals on said shaft, of a rock shaft having radial arms one of which is operated by or through the lateral movement of the slack side of said chain, a brake device operated by the other arm, and means for automatically releasing said brake device, substantially as described.

517,997. MODE OF CONNECTING DYNAMOS TO CAR-AXLES. WILLIAM BIDDLE and PATRICK KENNEDY, Brooklyn, assignors to the American Railway Electric Light Company, New York, N. Y. Filed July 3, 1893. Serial No. 479,494. (No model.)



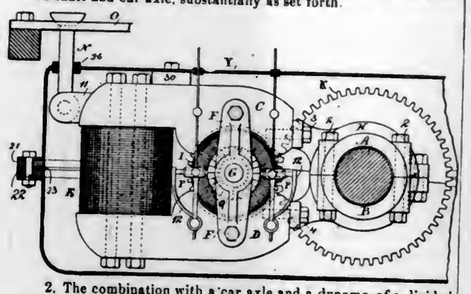
Claim.—1. The combination with the car wheel axle, of the divided rings G G' clamped upon the axle, a sleeve of metal between the said rings cast around the axle, an armature surrounding the axle and armature rings in halves at the ends of the armature, screws for clamping the same to the sleeve, the field magnets at opposite sides of the armature, the supporting frames for the same and half circle bearings surrounding the sleeve upon the axle and the bolts for connecting the half circle bearings, substantially as set forth.

2. The combination with the car wheel axle, of the divided rings G G' clamped upon the axle, a sleeve of metal between the said rings cast around the axle, an armature surrounding the axle and armature rings in halves at the ends of the armature, screws for clamping the same to the sleeve, the field magnets at opposite sides of the armature, the supporting frames for the same and half circle bearings surrounding the sleeve upon the axle, the bolts for connecting the half circle bearings, a slotted bracket extending out at one side of the dynamo, the equalizing levers for the truck, and a cross bar connected at its ends with the equalizing levers and passing through a slot in the bracket, substantially as set forth.

3. The combination with the car wheel axle, of the divided rings G G' clamped upon the axle, a sleeve of metal between the said rings cast around the axle, an armature surrounding the axle and armature rings in halves at the ends of the armature, screws for clamping the same to the sleeve, the field magnets at opposite sides of the armature, the supporting frames for the same and half circle bearings surrounding the sleeve upon the axle, the bolts for connecting the half circle bearings, commutator plates at one end of the armature, the clamping ring for the outer ends of the commutator plates and by which they are held to the sleeve, and commutator brushes supported by the frames of the dynamo, substantially as set forth.

517,998. ELECTRIC CAR-LIGHTING SYSTEM. WILLIAM BIDDLE and PATRICK KENNEDY, Brooklyn, assignors to the American Railway Electric Light Company, New York, N. Y. Filed Apr. 20, 1893. Renewed Dec. 27, 1893. Serial No. 494,823. (No model.)

Claim.—1. The combination with the external circuit containing the electric lamps and secondary battery in multiple arc, of a pole changing switch, a dynamo and a connection for driving the same from the car axle, and a revolving cam and lever for moving the pole changing switch according to the direction of rotation of the armature shaft and car axle, substantially as set forth.



2. The combination with a car axle and a dynamo, of a divided sleeve bolted upon the car axle, a divided ring around the sleeve and bolts for connecting the same to the dynamo frame, and a link between the dynamo frame and the truck frame for suspending the dynamo, substantially as set forth.

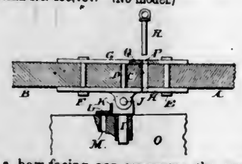
3. The combination with the car axle and truck frame, of a dynamo, a divided sleeve and bolts for securing the same to the car axle, a ring around the sleeve and bolts for connecting the same to the dynamo, a suspending link from the dynamo to the car truck, a divided gear wheel around the sleeve, and a pinion upon the armature shaft, and a coupling or clutch for connecting and disconnecting the gear wheel and sleeve, substantially as set forth.

4. The combination with the car axle and truck frame, of a dynamo, a divided sleeve and bolts for securing the same to the car axle, a ring around the sleeve and bolts for connecting the same to the dynamo, a suspending link from the dynamo to the car truck, a divided gear wheel around the sleeve, a pinion upon the armature shaft, a coupling or clutch for connecting and disconnecting the gear wheel and sleeve, there being recesses in the divided gear and in the ring of the armature frame for containing lubricating material, and rings around the sleeve and within the recesses for supplying the lubricating material to the surfaces of the sleeve, substantially as set forth.

5. The combination with the external circuit and incandescent lamps and storage battery in multiple arc and within a railway car, of a dynamo, a pole changing switch and an automatic means for moving the same for maintaining uniformity in the direction of the current in the external circuit, regardless of the direction of rotation of the armature of the dynamo; a magnet and armature controlled by the magnet and acting as a switch, a resistance thrown into the external circuit by the movement of the armature when the rotation of the dynamo armature is lessened or stops, one helix of the armature field being in a shunt and the other in series with the external circuit, substantially as set forth.

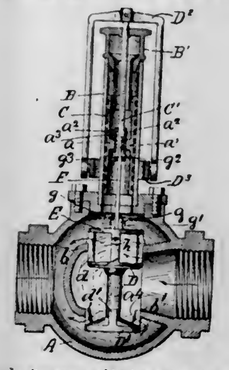
6. The combination, with the dynamo, of the axle, a sleeve upon the axle, a supporting ring around the sleeve and connected with the dynamo, a gear surrounding the sleeve, a clutch for connecting and disconnecting the sleeve and the gear, and a pinion upon the axle of the armature, a two-part case with edge bars for supporting the meeting edges of the case, and an elastic intervening packing, and packing glands around the axle and connected with the case for excluding dust and moisture from the dynamo and gearing, substantially as set forth.

517,999. OAR. ARTHUR H. BURNS, Penn Yan, N. Y. Filed Oct. 21, 1893. Serial No. 488,787. (No model.)



Claim.—In a bow facing oar apparatus, the combination of a boat having a row lock journal and a pin-hole alongside, a swiveling row-lock pintle provided with a horizontally extending bracket secured to the side of the pintle having a pin-hole therein adapted to register with the pin-hole in the boat, a swiveling row-lock frame pivoted to said pintle, inner and outer oar portions pivoted in said frame, mechanism connecting said portions for producing a corresponding reverse movement upon their pivots, registering pin-holes in the oar and frame, and a pin adapted to be transferred from the last named pin-holes to those upon the boat and pintle, substantially as described.

518,000. PRESSURE-REDUCING VALVE. GEORGE M. DAVIS, Chicago, Ill. Filed Dec. 13, 1890. Serial No. 374,591. (No model.)



Claim.—1. In a pressure reducing valve, the combination of the chambered casing, an inlet pipe projecting into the chamber, an outlet port leading from the chamber, upper and lower valve openings in the inlet pipe, upper and lower valves connected together and adapted respectively to said openings, a cap plate connected with the upper valve and overhanging its valve opening on the opposite side from the valve, shoulders or stops to prevent the cap-plate from closing the opening when the valves are opened, and means for balancing the valve, substantially as described.

2. In a pressure reducing valve, the combination of the chambered casing, an inlet pipe projecting into the chamber, an outlet port leading from the chamber, upper and lower valve openings in the inlet pipe, upper and lower valves connected together and adapted respectively to said openings, a cap-plate connected with the upper valve and overhanging its valve opening on the opposite side from the valve, a steam cylinder communicating with the chamber, a piston working in said cylinder and connected on one side with a weight carrying frame, and a link-and-pin connection between the other side of the piston and the cap plate, substantially as described.

3. In a pressure reducing valve, the combination of the chambered casing, an inlet pipe projecting into the chamber, an outlet port leading from said chamber, upper and lower valves adapted respectively to said openings, a cap plate connected with the upper valve and overhanging its valve opening on the opposite side from the valve, a steam cylinder communicating with the chamber, a piston working in said cylinder, a link-and-pin connection between one side of the piston and the cap-plate, and a link-and-pin connection between the other side of the piston and a weight carrying frame; substantially as described.

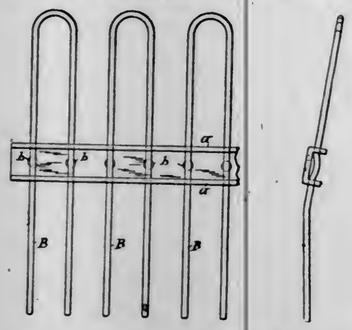
4. In a pressure reducing valve, the combination of the chambered casing, an inlet pipe projecting into the chamber, an outlet port leading from the chamber, upper and lower valve openings in the inlet pipe, upper and lower valves connected together and adapted respectively to said openings, guide projections on the valves, a cap-plate connected with the upper valve and overhanging its valve opening on the opposite side from the valve, and shoulders or stops on the guide projections to prevent the cap plate from closing the opening when the valves are opened; substantially as described.

5. In a pressure reducing valve, the combination of the chambered casing, an inlet pipe projecting into the chamber, an outlet port leading from the chamber, upper and lower valve openings in the inlet pipe, upper and lower valves connected together and adapted respectively to said openings, and a cap-plate connected with the upper valve and overhanging its valve opening on the opposite side from the valve, said plate being arranged to leave a free space between itself and the valve-opening during all the movements of the valve, and being also free of any connection with the side walls of the valve chamber; substantially as described.

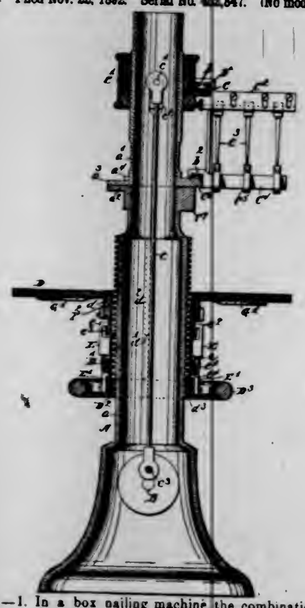
518,001. RAKE. AUSTIN R. DICKINSON, Syracuse, N. Y. Filed Nov. 25, 1893. Serial No. 491,934. (No model.)

Claim.—The combination of a rake-head composed of metal and formed with perforated horizontally projecting longitudinal ribs on its top and bottom edges, teeth formed in pairs, each pair being formed of one piece of wire bent at its central portion so that its end portions are parallel, said end portions passing through the perfora-

tions in the ribs, perforations in the said head one opposite each tooth, and a bend in the portion of each tooth lying between said ribs as and for the purpose described.



518,002. BOX-NAILING MACHINE. WILLIAM S. DOIG, Brooklyn, N. Y. Filed Nov. 22, 1892. Serial No. 452,847. (No model.)



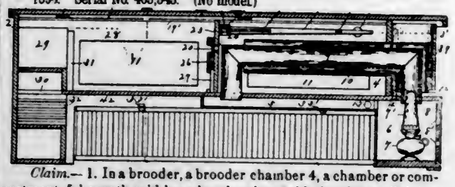
Claim.—1. In a box nailing machine, the combination with a standard, and a non-rotary driver or punch of a table, surrounding the standard and adapted to support a number of boxes to be operated on successively and having a rotary and vertical movement relative to said standard, and means for causing said movements, substantially as specified.

2. In a box nailing machine, the combination with a standard, comprising two portions, the upper portion being laterally adjustable upon the other and carrying the punches and pockets, an annular table surrounding said standard and adapted to support a series of boxes to be nailed successively, means for adjusting the table vertically and means for rotating it, substantially as specified.

3. In a box nailing machine, the combination with a standard, having an exterior screw thread of a table having a vertical and rotary movement thereon, a nut for causing a vertical movement of said table, a yielding connection between said nut and table and mechanism comprising a pawl and ratchet mechanism operated from a driving shaft for causing a rotary and vertical movement of the table, while the nut is at rest substantially as specified.

4. In a box nailing machine, the combination with a standard having a threaded portion thereon, of a rotary and vertically movable table, a threaded ring, a ring movable vertically on the standard, arms extending therefrom, rollers in the ends of said arms, arc-shaped ribs on the under surface of the table adapted to move on the rollers as the table is rotated and means operated from a driving shaft for rotating the table, substantially as specified.

518,003. BROODER. SAMUEL Q. DUNCAN, Greenfield, Ohio, assignor to the Columbian Manufacturing Company, same place. Filed Feb. 23, 1893. Serial No. 463,343. (No model.)



Claim.—1. In a brooder, a brooder chamber 4, a chamber or compartment 5 beneath said brooder-chamber, said chambers adjoining each other vertically and being separated by the floor of chamber 4, and a hot air pipe 9 passing through said brooder-chamber and terminating in said compartment 5, whereby the heated air, before being discharged from the brooder, passes under and heats the floor of brooder-chamber 4, all in combination substantially as set forth.

2. In a brooder, a lamp box 6, a brooder-chamber 4, a hot air pipe 9 forming a flue, said pipe 9 extending from said lamp-box and passing through said brooder chamber, and a fresh-air pipe 10 surrounding said pipe 9, said pipe 10 extending from a point outside of chamber 4 to a point within said chamber, whereby the fresh air, in passing through said pipe 10, is heated before it reaches the interior of said chamber, all in combination substantially as set forth.

3. In a brooder, a lamp-box 6, a brooder chamber 4, a chamber or compartment 5 beneath said chamber 4 and separated therefrom by the floor of chamber 4, and a pipe 9 forming a flue, said pipe 9 extending from the top of said lamp box, passing through said chamber 4, and terminating in said chamber or compartment 5, all in combination substantially as set forth.

4. In a brooder, a lamp-box 6, a brooder-chamber 4, a chamber or compartment 5 beneath said chamber 4, a pipe 9 forming a flue, said pipe 9 extending from the top of said lamp-box, passing through said chamber 4, and terminating in said chamber or compartment 5, and a fresh air pipe 10, said pipe 10 surrounding a portion of pipe 9 and extending from a point outside of chamber 4 to a point within said chamber, whereby the fresh air, in passing through pipe 10, is heated before it reaches the interior of brooder-chamber 4, all in combination substantially as set forth.

5. In a brooder, a lamp box 6, a brooder-chamber 4, a chamber or compartment 5, said chamber or compartment 5 being beneath said chamber 4 and communicating with said lamp box 6, and a pipe 9 forming a flue, said pipe extending from the top of said lamp-box, passing through said chamber 4, and terminating in said chamber or compartment 5, whereby the circuit of the draft from the lamp is completed, all in combination substantially as set forth.

6. In a brooder, a lamp-box 6 having the discharge tubes 12, the brooder-chamber 4, the chamber or compartment 5 communicating with said lamp-box, and the pipe 9 forming a flue, said pipe extending from the top of said lamp-box, passing through said chamber 4, and terminating in said chamber or compartment 5, all in combination substantially as set forth.

7. In a brooder, a lamp-box 6, a brooder-chamber 4, a chamber or compartment 5 communicating with said lamp-box 6, a pipe 9 forming a flue, said pipe extending from the top of the lamp-box, passing through said chamber 4, and terminating in said chamber or compartment 5, for the purpose specified, and a fresh air pipe 10 surrounding a portion of said pipe 9, whereby the fresh air, in passing through said pipe 10, is heated before it reaches the interior of brooder-chamber 4, all in combination substantially as set forth.

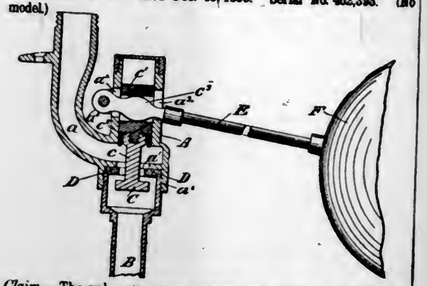
8. In a brooder, the combination with the compartment 28, of a compartment 4, said compartments being connected by a doorway with a sliding door, and said compartment 4 being provided with a heating pipe forming a flue from the lamp, with a fresh air pipe surrounding said heating pipe, and a shifting frame 19, provided with netting, supported above said compartments, substantially as described.

9. In a brooder, the combination with a compartment 28, having a hinged lid 21, of an adjoining compartment 4, having a hinged lid 22, said compartments being connected by a doorway and door, and a shifting frame 19, provided with netting, supported upon cleats just beneath said lids and adapted to be shifted to either end of the brooder so as to cover or close either of said compartments as desired, substantially as described.

10. In a brooder, the lamp-box 6, having a hinged door 8 with openings 8', and having the discharge tubes 12, the brooder-chamber 4, the shallow chamber or compartment 5 communicating with said lamp-box, the lamp 7, the pipe 9, arranged as specified, the pipe 10,

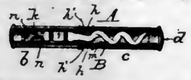
encircling pipe 9 and open at both ends, for the purpose set forth, the partition 23, having the air-port 24 and the doorway 41, controlled, respectively, by slide 25 and sliding door 27, the feeding compartment 28, having the box 29, said box having a doorway 40, controlled by sliding door 38, the inclined walk or stairway 32, leading down to the ground compartment 42, and the hinged racks 33, all in combination substantially as set forth.

518,004. VALVE FOR WATER-CLOSETS, &c. THOMAS R. KEYWORTH, Jr., New York, assignor of one-half to Lucien Knapp, Long Island City, N. Y. Filed Feb. 15, 1893. Serial No. 462,393. (No model.)



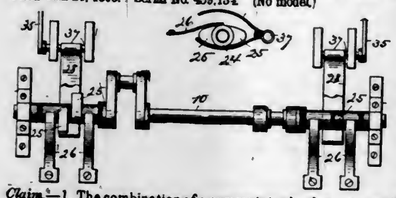
Claim.—The valve structure comprising a casing provided with an inleting chamber having a cylindrical extension, an outleting chamber secured to the casing, an opening between the two chambers, a valve seat of disk form interposed between the adjacent walls of the inleting and outleting chambers around the opening between the two chambers, the opening through the valve seat being of less diameter than the opening through the wall between the inleting and outleting chambers, a valve in the outleting chamber arranged to open in the direction of the flow of the liquid and to close against such flow, the stem of the valve extending through the inleting chamber, a valve operating piston fixed to the stem and adapted to fit the cylindrical extension of the inleting chamber, the said valve operating disk being of greater diameter than the opening through the valve seat and the float actuated lever connected with the valve stem to assist in moving the valve toward and away from its seat, the enlarged area of the piston on the valve stem relative to the opening in the valve seat serving to assist in holding the valve closed under the pressure of the liquid in the inleting chamber, substantially as set forth.

518,005. CORKSCREW. FRANK H. LA PIERRE, East Orange, N. J. Filed Sept. 2, 1893. Serial No. 484,617. (No model.)



Claim.—In a cork screw, the combination of the detachable screw having its shank B provided with the two sets of notches *n n*, and the tubular handle composed of the two sections telescopically united, one of said sections being provided with holes *h* having side notches *o*, and the other section being provided with holes *h'* arranged to register with the holes *h*, substantially as shown and described.

518,006. ELECTRIC LOCOMOTIVE. WILLIAM LAWRENCE, New York, N. Y., assignor to the Lawrence Electric Company, same place. Filed Jan. 21, 1893. Serial No. 459,134. (No model.)



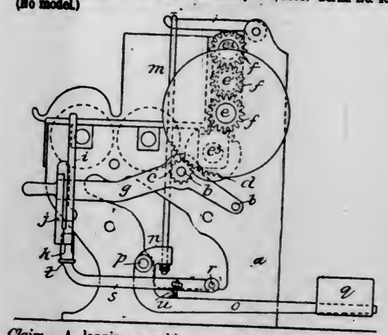
Claim.—1. The combination of a commutator having contacts 25, with forked brushes 28 adapted to be engaged by said contacts, and means for moving either of said brushes into engagement with said contacts, and with side brushes 26, substantially as described.

2. The combination of a commutator having contacts 25, with brushes 28, a rocking shaft for moving said brushes into engagement with said contacts, and with brushes 26, substantially as described.

3. The combination of a commutator having contacts 25, with brushes 28, a shaft connected therewith for operating them, a rod connected with said shaft, a lever for operating said rod, and with brushes 26, all arranged substantially as shown and described.

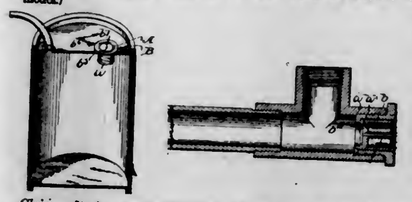
4. The combination of a commutator, contacts 25, and brushes 26, with forked brushes 28, arm 36, connected therewith by pivots 37, rod 35, arm 34, shaft 32, arm 33, rod 29, and lever 30, all arranged and operating as and for the purposes specified.

518,007. SAFETY STOPPING MECHANISM FOR LAP-MACHINES. ALBERT H. MORTON, Lowell, Mass., assignor to the Kitson Machine Company, same place. Filed Apr. 10, 1893. Serial No. 469,702. (No model.)



Claim.—A lapping machine comprising in its construction a knocking-off mechanism, calendering rolls, levers arranged to bear upon the said rolls at both ends thereof, weighted levers on both sides of the machine connected with the first-mentioned levers, a rod journaled in the machine, levers secured to said rod and adapted to be actuated by the said weighted levers, one of the levers attached to the rod being extended to the knocking-off mechanism to actuate the same, as set forth.

518,008. CAP AND LOCKING DEVICE FOR CLOSING PIPES OR ORIFICES. JOSEPH RILING, Philadelphia, Pa., assignor to Salmon R. Rowley, same place. Filed Dec. 13, 1893. Serial No. 493,527. (No model.)



Claim.—1. A cap provided with a threaded exterior, a fixed end and an end adapted to move vertically independently of the fixed end, said last mentioned end being provided with an orifice for the insertion of the key; and the fixed end being provided with a device adapted to register with the key.

2. A cap provided with a threaded exterior, a fixed end and an end adapted to rotate independently of the fixed end, said last mentioned end being provided with an orifice for the insertion of the key, and the fixed end being provided with a device adapted to register with the key.

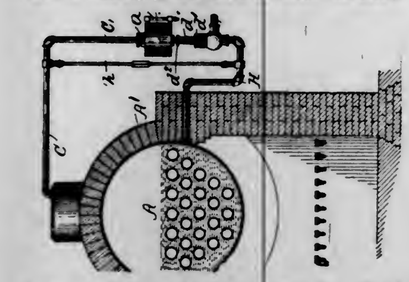
3. A cap provided with a threaded exterior, a fixed end, and an end adapted to rotate and move vertically independently of the fixed end, said last mentioned end being provided with an orifice for the insertion of the key, and the fixed end being provided with a device adapted to register with the key.

4. A cap provided with a threaded exterior, a fixed end and an end adapted to rotate and move vertically independently of the fixed end, said last mentioned end being provided with an orifice for the insertion of the key, and the fixed end being provided with a device adapted to register with the key, and a spring between said ends.

5. A cap provided with a threaded exterior, a fixed end and an end adapted to rotate and move vertically independently of the fixed end, said last mentioned end being provided with an orifice for the insertion of the key and the fixed end being provided with a device adapted to register with the key, a standard secured to the fixed end and passing through the movable end and adapted to receive the orifice in the key.

6. A cap provided with a threaded exterior, a fixed end, and an end adapted to rotate and move vertically independently of the fixed end, said last mentioned end being provided with an orifice for the insertion of the key, and the fixed end being provided with a device adapted to register with the key, a spring between said ends, a standard secured to the fixed end and passing through the movable end and adapted to receive the orifice in the key.

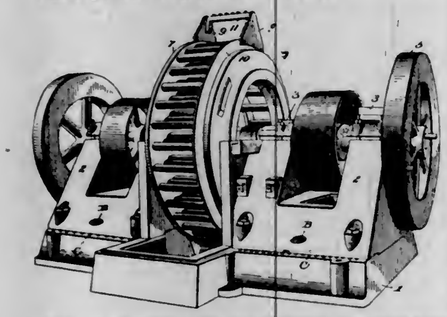
518,009. AUTOMATIC BOILER-FEED. LORIN C. SPRINGER, Chicago, Ill. Filed Sept. 2, 1893. Serial No. 484,629. (No model.)



Claim.—1. In a device of the kind described, the combination of the steam-pipe, the regulating-vessel or drum, having a slip-joint connecting with said pipe, the valve-part, the tube, provided with water-ports and connecting said vessel and valve by a slip joint, the feed-pipe, and the water-pipe, connecting with the source of supply, substantially as set forth.

2. In a device of the kind described, the combination of the regulating-vessel, the valve-part, the tube, adjustably connecting said vessel and valve, and the spiral spring, mounted on said tube, substantially as set forth.

518,010. DISINTEGRATOR. NATHAN STEDMAN, Aurora, Ind., assignor to the Stedman's Foundry and Machine Works, same place. Filed Aug. 8, 1893. Serial No. 482,655. (No model.)



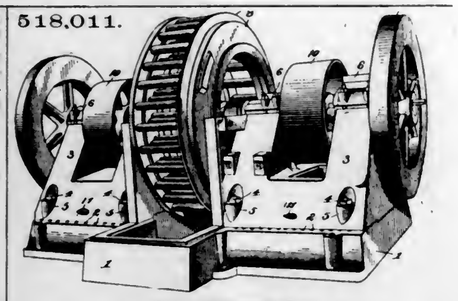
Claim.—1. In a disintegrator, the combination with the cages and a casing inclosing the same, of a scraper bar projecting beyond the periphery of the outer cage, and set screws, or teeth, adjustably connected with the outer edge of the said scraper bar, substantially as and for the purpose specified.

2. In a disintegrator, the combination with the cages and a casing inclosing the same, of plates attached at their inner ends to the outer cage and projecting beyond the periphery thereof, a scraper bar connecting the outer ends of the said plates, and set screws constituting scraping teeth adjustably connected with the scraper bar, substantially as described for the purpose specified.

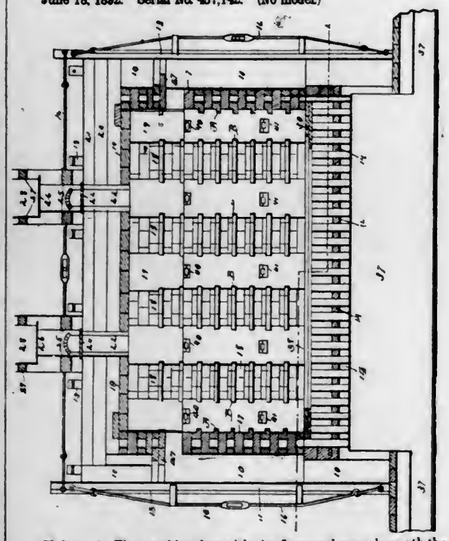
518,011. DISINTEGRATOR. NATHAN STEDMAN, Aurora, Ind., assignor to the Stedman's Foundry and Machine Works, same place. Filed Aug. 8, 1893. Serial No. 482,656. (No model.)

Claim.—In a distintegrator, the combination with a base having a series of openings along one edge two housings mounted on the base and adapted to be moved thereon, each provided with a lateral projection to extend over the said series of openings and form a fulcrum for a lever which is adapted to obtain a purchase in one of the said series of openings by means of which the said housings are moved, the latter carrying the cages, and means for securing the said housings to the base in the required position, substantially as described.

518,011.



518,012. DOWNDRAFT MUFFLE-KILN. ANDERS M. STRUSHOLM, Woodbridge, N. J., assignor to Robert W. Lyle, New York, N. Y. Filed June 18, 1892. Serial No. 437,142. (No model.)



Claim.—1. The combination with the floor and space beneath the same, the outer and muffle walls, the inner and outer crown walls providing a crown space, and the divided interior flues connecting the floor and crown spaces; substantially as shown and described.

2. The combination with the foundation and floor supported above the same, of the chimney-flue, the flues leading thereto, the exterior chimney connected with said flues, the inner and outer walls, the upper and lower crowns providing the crown space, the chimney 28, and passages leading thereto and the dampers 24, and 26, all arranged substantially as shown and described.

3. The combination with the hollow muffle walls, of the upper and lower crown walls, the conduit 29, and the passages 22 and openings 23 all arranged substantially as shown and described.

4. The combination with the walls of the kiln having air ducts 1, 35, 40 and 41, of the hollow muffle walls, floor 38, arches 19 and 20 and the flues 18 all arranged substantially as shown and described.

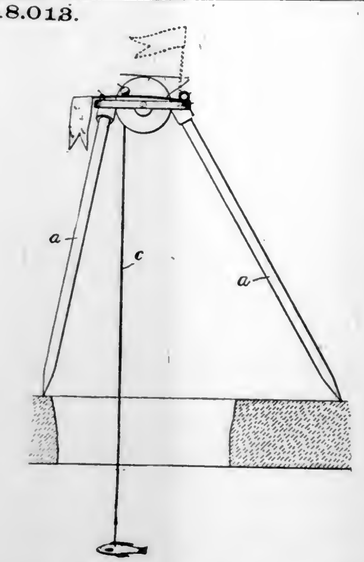
5. The combination with two or more kilns of the conduit 29 connecting the same, and the passages 22 and openings 23 provided with dampers substantially as shown and described.

6. The combination with the walls 4 and 17 of the floor 38 and columns 9, the partitions 8, the flues 18, the chimney-flue 37, the arch 14 over the same, the crown wall 19 and crown wall 20, and the furnaces 2 all arranged substantially as shown and described.

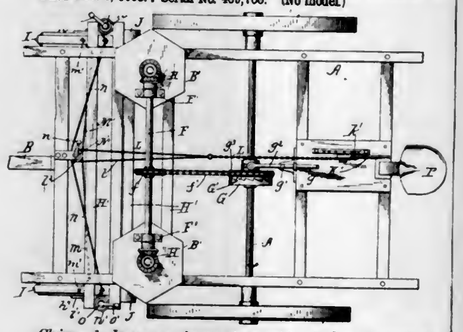
518,013. FISHING APPARATUS. HENRY J. TRAYER, Boston, Mass. Filed Oct. 9, 1893. Serial No. 487,597. (No model.)

Claim.—A fishing apparatus comprising in its construction a reel and support therefor, said reel carrying an inclined lug on one head, a spring actuated signal wire adapted to lie in the path of the inclined lug when the apparatus is set, and a catch on the reel support to hold said wire until displaced laterally by the said lug.

518,013.



518,014. SEED-PLANTER. JAMES A. THOMPSON, Galveston, Tex. Filed Nov. 1, 1893. Serial No. 489,703. (No model.)



Claim.—1. In a corn planter the combination, of a hopper provided with dropping mechanism, a chute leading therefrom, a slotted bar rigid on the machine and depending therefrom, a second chute on the bar and communicating with the first, a furrow opener provided with a shank arranged in the slot of the bar and movable longitudinally therein, and a furrow covering and rolling device pivotally connected to the shank of the opener, all substantially as described.

2. In a corn planter the combination of a seed hopper, a furrow opening device, a transverse guide-way in which the opener is arranged and capable of movement therein, an extensible chute leading from the hopper to the furrow opener and a system of ropes and winding spools connected to the furrow opener whereby it may be moved along the guide-way, substantially as described.

518,015. ICE-CUTTING TROLLEY. ROBERT W. THOMPSON, Cleveland, Ohio. Filed Nov. 4, 1893. Serial No. 490,051. (No model.)



Claim.—1. In a combined trolley wheel and wire stripper, the combination of a hub provided with a central disk grooved on its edge, peripheral rings secured by radial arms to the disk and hub at either side of the disk but separated therefrom by annular openings, and cutting inner edges integral with the rings, substantially as described.

2. In a combined trolley and wire stripper, the combination of a centrally perforated hub provided with a grooved disk, and concentric peripheral rings completing the sides of the groove, substantially as described.

3. In a trolley wheel, the combination of a hub provided with a central disk grooved to conform to the shape of the bottom of the trolley V shaped groove, concentric peripheral rings of flattened elliptical section diagonally placed to form the sides of the V shaped groove, but separated from the bottom by annular openings, and radial arms, connecting the said rings with the central disk and hub, substantially as described.

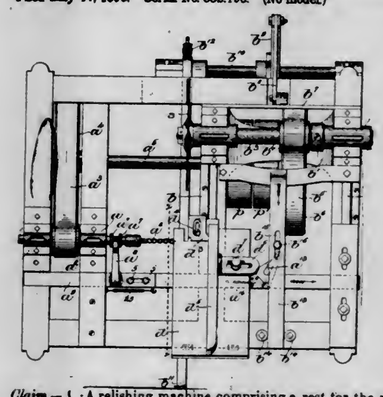
4. In a trolley wheel, the combination with a hub and grooved disk, of concentric rings forming the sides of the grooves provided with annular cutting edges, substantially as described.

518,016. STEAM-GENERATOR. GABRIEL ZAHIKIAN, London, England. Filed May 22, 1893. Serial No. 475,033. (No model.)



Claim.—In a steam generator of the character described, the combination with a water tube receiving water at one end, and discharging it wholly or partly evaporated at the other end, of a device consisting essentially of a plurality of helicoidal blades set transversely in said tube, and clips adapted to engage said tube and hold said device in position, substantially as described.

518,017. RELISHING-MACHINE. OTHO F. AMSDEN, Athol, Mass. Filed May 17, 1890. Serial No. 352,190. (No model.)



Claim.—1. A relishing machine comprising a rest for the work, a shaft and saw thereon, a frame having bearings for the said saw-shaft, means under the control of the operator to cause a gradual approach of the saw to the work, a shaft and bit therein, a movable bit-traversing frame connected with the saw frame and also connected with the bit-shaft to move it, the connections between the saw frame and bit-traversing frame being rendered operative to advance the bit to complete its work and thereafter retract the said bit before the saw has completed its advance movement into the work, constructed, combined and arranged substantially as described.

2. A relishing machine comprising a rest for the work, a shaft and saw thereon, a frame having bearings for the said saw-shaft, means under the control of the operator to cause a gradual approach of the saw to the work, a shaft and bit therein, a movable bit-traversing frame, and a tripping device interposed between and connecting the saw frame and bit-traversing frame to advance the bit and complete its work and adapted to release the bit-traversing frame to retract the bit before the saw has completed its advance movement into the work, constructed, combined and arranged substantially as described.

3. A relishing machine comprising a rest for the work, a shaft and saw thereon, a frame having bearings in said saw-shaft, means under the control of the operator to cause a gradual approach of the saw to the work, a shaft and bit therein, a movable bit-traversing frame, and a tripping device consisting of a movable tongue on the bit-traversing frame and a stud on the saw-frame, whereby movement

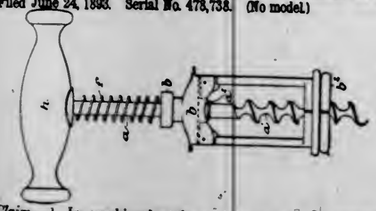
of the saw frame to advance the saw to the work causes said stud to act upon said tongue to move the bit-traversing frame to its work and release the bit-traversing frame to retract the bit before the saw has completed its advance movement, constructed, combined and arranged substantially as described.

4. The carriage b', the shaft b^3, and stud b^{10} carried thereby, combined with the slide bar a^9 having a pivoted spring controlled tongue a^{10}, and the arm a^8, and shaft a', to operate substantially as described.

5. In a relishing machine, the frame a movable shaft carrying a saw, and a longitudinally movable shaft carrying a bit, combined with an adjustable table carried by said frame, and a rest for the tenon on said table, substantially as described.

6. In a relishing machine, the frame, a movable shaft carrying a saw, and a longitudinally movable shaft carrying a bit, combined with the table d hinged to said frame, means to hold said table in adjusted position, and the adjustable rest d^3 on said table, substantially as described.

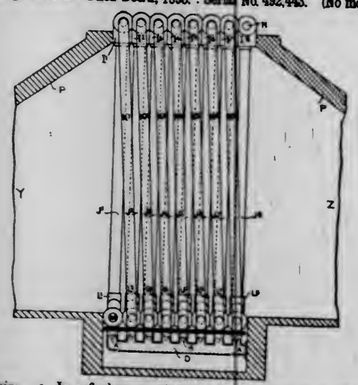
518,018. CORKSCREW. EDWARD BECKER, Solingen, Germany. Filed June 24, 1893. Serial No. 478,738. (No model.)



Claim.—1. In combination the cork screw shaft or spindle the box b arranged thereon and having stops b^4, the two arms pivoted to the box and having the stop bead at their free ends and the ring arranged to slide over the arms, substantially as described.

2. In combination, the cork screw and the two part frame, comprising the box and the arms pivoted thereto and having two semicircular parts b^3, and the clamp ring r, substantially as described.

518,019. FEED-WATER HEATER. JAMES G. CALVERT, Gothenburg, Sweden. Filed Dec. 1, 1893. Serial No. 492,443. (No model.)



Claim.—1. In a fuel economizer, feed water heater or tubulous boiler, the sections connected together to permit the feed water to flow from one section to the other in succession, a blow off pipe common to all the sections, and the back pressure valves between the sections and the blow off pipe, arranged to cut off said sections from the blow off pipe and to allow passage of water successively through all the sections, one after the other substantially as described.

2. In a fuel economizer, feed water heater or tubulous boiler, the water heating sections, the return pipe, the junction box connected thereto, the blow off pipe and the injector device to direct the return water into the said junction pipe and away from the blow off pipe consisting of the curved or bent passage leading from the return pipe to the junction box and the passage connecting with the blow off pipe curving or bending in the opposite direction, substantially as described.

3. In combination, in a fuel economizer, feed water heater or tubulous boiler the two or more sections of heating pipes, the inlet for the feed water, the blow off pipe common to all the sections and the back pressure valve between the sections and the blow off pipe, substantially as described.

4. In a fuel economizer, feed water heater or tubulous boiler the combination of an injector device with the return pipe, blow-off pipe and lower junction box or boxes of one or more sections of heating pipes or tubes the sections of heating pipes or tubes communicating with each other to allow the water to circulate successively through all the said sections substantially as described, and for the purpose specified.

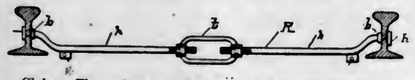
5. In a fuel economizer, feed water heater or tubulous boiler, in which the several sections of heating pipes or tubes communicating with each other as to allow the water to circulate successively through all the sections of such pipes or tubes the combination of an injector device consisting of a bend or curved passage connecting the return pipe to its corresponding junction box and a bend or curved passage of opposite curvature or direction connecting the said junction box to the blow-off pipe, with a back pressure valve interposed between the lower junction box and the blow-off pipe, substantially as described, and for the purposes specified.

6. In combination, in a fuel economizer, feed water heater or tubulous boiler the two or more sections of heating pipes, the inlet for the feed water, the blow off pipe, common to the sections, and the injectors between the sections and the blow off pipe, substantially as described.

7. In combination in a fuel economizer, feed water heater or tubulous boiler, the heating sections, the upper and lower boxes, the connections between said boxes consisting of the pipes K' to K⁷, the blow off pipe D common to all the sections and the back pressure valves between the lower junction boxes and the blow off pipe, substantially as described.

8. In combination, in a fuel economizer, feed water heater or tubulous boiler the sections communicating with each other to permit the feed water to flow successively from one to the other, the blow off pipe and the injection devices between the blow off pipe and the sections comprising the bent passage and the nozzle located therein, substantially as described.

518,020. RAILWAY SWITCH-ROD. JOHN CARNES, Youngstown, Ohio, assignor of two-thirds to John Walters and Andrew H. Middleton, same place. Filed Dec. 26, 1893. Serial No. 494,726. (No model.)

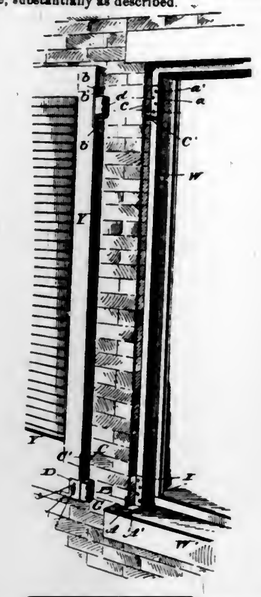


Claim.—The switch-rod R, formed of the two similar rods r r, each oppositely screw threaded upon the inner end and united by the turnbuckle t, provided with the apertured lug or ear e upon the under side, curved downward near the outer end and having outward from the curved portion the fixed collar or boss b, outside of which appears the neck n terminating in two opposite rectangular flanges forming the head h, in combination with two opposite switch-rails each having through the web the aperture a, in form similar to the transverse form of the head h of a rod r, all substantially as described and for the purpose expressed.

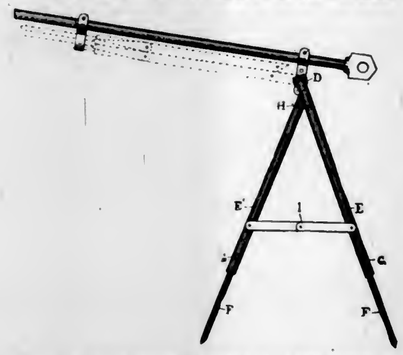
518,021. LOCK-HINGE. ZENAS B. CHASE, Bangor, Me. Filed Dec. 27, 1892. Serial No. 456,512. (No model.)

Claim.—1. In a hinge; the combination with an angle plate whose upright member is secured to the outer face of the window frame and whose lower horizontal member rests upon the window sill, has a central upright pin, and is provided with apertures in its upper face at opposite sides of the pin; of an angle-casting let into the lower corner of the blind, a collar at the transverse center of said casting adapted to loosely surround said pin, a box integral with and at the angle of the casting countersunk into the blind and having an upright cavity and an upright slot opening through the normally inner face of the blind, a bolt mounted in said cavity and having a handle projecting through its slot, the lower end of the bolt being adapted to engage either of said apertures, and an upper hinge, substantially as described.

2. In a hinge, the combination with an angle plate whose upright member is secured to the outer face of the window frame and whose lower horizontal member rests upon the window sill, has a central upright pin, and is provided with apertures in its upper face at opposite sides of the pin; of an angle-casting let into the lower corner of the blind, a collar at the transverse center of said casting adapted to loosely surround said pin, a box at the angle of the casting countersunk into the blind and having an upright cavity with a reduced upper end and an upright slot opening from the cavity through the normally inner face of the blind, a bolt mounted loosely in said cavity and having a reduced upper end passing through the reduced upper end of the cavity, an expansive spring coiled around the reduced upper end of the bolt between the shoulder thereon and the upper end of the cavity, a handle on the bolt projecting through said slot, the lower end of the bolt being adapted to engage either cavity, and an upper hinge, substantially as described.



518,022. BICYCLE-SUPPORT. JOHN R. CRUNKLETON, Birmingham, Ala. Filed July 31, 1893. Serial No. 481,964. (No model.)



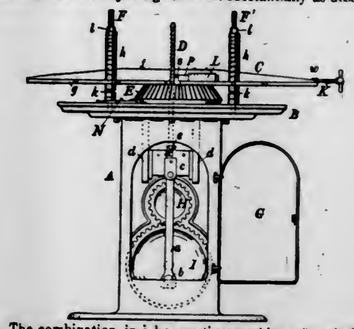
Claim.—A bicycle support, consisting of a clamp secured to the frame brace of the bicycle, a swivel head secured in one of the holes in the clamp, a pair of legs pivoted together near the top the longest leg pivoted in the swivel head, a jointed brace pivoted to the legs near the center, adjustable extension pieces secured in the legs by set screws, a hook clamp secured on the frame brace of the bicycle, having hooks to support the legs of the supporting device when folded, all combined as set forth and for the purpose described.

518,023. KEY-SEATING MACHINE. WILLIAM P. DAVIS, Rochester, N. Y. Filed July 26, 1893. Serial No. 481,488. (No model.)

Claim.—1. The combination, in a key-seating machine, of the supporting table, the reciprocating cutter, the clamping bar C, having flange f, the sliding block p carrying cutter support o and spring q, the angular plate L and the adjusting screw K, substantially as described.

2. The combination, in a key-seating machine, of the supporting table, the reciprocating cutter, the clamping bar, and pivoted cutter support, of the threaded rods F F', recessed washers i and spring k, substantially as described.

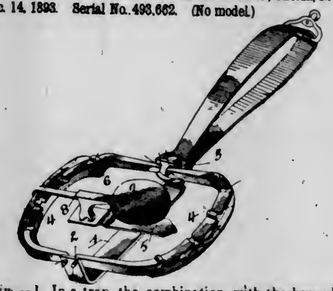
3. The combination, in a key-seating machine, of the supporting table, the clamping bar, the recessed sliding block p, pivoted cutter-support o, and spring q, attached to the sliding block and bearing on the support, and the adjusting screw K, substantially as described.



4. The combination, in a key-seating machine, of a suitable support, the reciprocating cutter, clamping bar C carrying pivoted cutter support o and spring q, the shaft T supporting the outer end of the clamping-bar, the rod P, adjustable block Y and the eccentric Q, and the adjusting screw K, substantially as described

---

518,024. ANIMAL-TRAP. THOMAS DONLON, Oneida, N. Y. Filed Dec. 14, 1893. Serial No. 493,662. (No model.)



Claim.—1. In a trap, the combination, with the base plate, and the hinged trigger and bait plate, of a latch hinged to one of the jaws, and the actuating spring, whereby an upward pressure is brought to bear upon the latch and hold it in frictional contact with the notch of the latch plate, substantially as specified.

2. In a trap, the combination with the base plate and the hinged trigger provided with a notch at its rear, of the latch hinged to one of the jaws, and the actuating spring, whereby the jaws are closed against each other, and the latch held in frictional contact with the trigger when the trap is set, substantially as specified.

3. In a trap, the combination, with the base-plate, the cross-bar attached thereto, and the trigger hinged to said cross-plate, of a pair of jaws having their inner faces tongued and grooved transversely and their outer edges provided with flanges, and a latch hinged to the flange of one of the jaws and adapted to engage a notch in said trigger, substantially as specified.

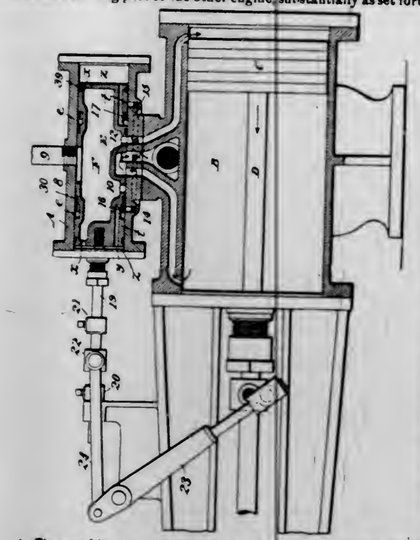
518,025. VALVE DEVICE FOR DUPLEX ENGINES. WILLIAM A. DREWETT, Brooklyn, N. Y. Filed Nov. 14, 1893. Serial No. 490,900. (No model.)

Claim.—1. In a direct acting duplex engine the combination with the main valve of each engine, piston for actuating the same means for imparting initial movements to said piston and exhaust valves and ports for exhausting the pressure at the ends of said piston, of a valve device having an exhaust port, passages communicating with the ports of said exhaust valves, and a valve controlling said exhaust port and devices for operating said valve, connected with a moving part of the other engine, substantially as set forth.

2. In a direct acting duplex engine, a main valve of each engine and means for actuating the same an auxiliary valve device upon each engine having an exhaust port, a valve controlling said exhaust connected with operating devices of the other engine, and channels leading from the chamber of said auxiliary valve to the exhaust ports of the main operating valve device of said engine, substantially as set forth.

3. The combination in a direct acting duplex engine, of the main valve of one engine, the operating piston of said valve, and means for actuating the same supplemental exhaust ports, and means whereby

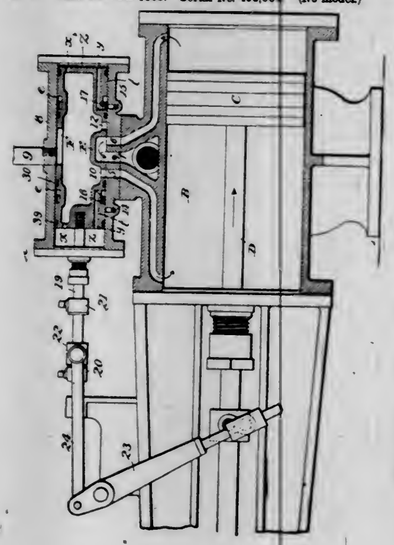
said supplemental ports are controlled, and a casing with which said exhaust ports communicate, and provided with an exhaust port, as 34, a valve controlling the exhaust port 34, and connections between said valve and a moving part of the other engine, substantially as set forth.



4. The combination with the main valve, valve operating piston and means for actuating the same and supplemental valves and ports of an engine, of a casing having a chamber, communicating with said supplemental ports and provided with an exhaust port and valve, and a by-pass channel as *d*, extending from said chamber to the exhaust port of the engine, and provided with a valve, substantially as and for the purpose set forth.

5. The combination with the main valves and operating means of a duplex engine of a valve device on one engine having a chamber *w* communicating with exhaust ports of the main valve, and with a valve G in said chamber controlling an exhaust port thereof, connections between said valve G and a moving part of the other engine, and a by-pass between the chamber *w* and an exhaust port, and a valve in said by-pass, substantially as described.

518,026. VALVE DEVICE. WILLIAM A. DREWETT, Brooklyn, N. Y. Filed Nov. 14, 1893. Serial No. 490,901. (No model.)



Claim.—1. The combination with the piston and cylinder of a steam engine having inlet and exhaust ports and passages, a main valve controlling the same, and a valve controlling piston in a valve casing, and means for moving said piston from the engine to a limited extent from each end of the casing, of a contracted steam inlet channel or port communicating with each end of the casing, an exhaust channel leading from the main exhaust port to a supplemental exhaust port between the main exhaust port and each end of the casing, a channel leading from each end of the valve operating piston to the supplemental exhaust port, and a valve controlling the channel between each supplemental port and the main exhaust port, and means for shifting said valve by the valve operating piston, substantially as set forth.

2. The combination with the engine cylinder, piston, ports and valve, and valve casing, of a piston connected with said valve and sliding in said casing, supplemental exhaust ports communicating with the main exhaust, supplemental valves controlling each exhaust port, a channel leading from each supplemental valve to the end of the piston, means for shifting the supplemental valves by the action of said piston, and contracted ports communicating with the ends of the valve casing and with the steam supply, substantially as set forth.

3. The combination of the valve casing, piston, and main valve carried thereby, of supplemental valves and supplemental exhaust ports in the casing controlled by said valve, channels in the piston leading from the ends thereof to said supplemental valves, means for shifting said supplemental valves by the movements of the piston and contracted ports communicating with the ends of the valve casing and with the steam supply, substantially as set forth.

4. The combination in a valve device of a casing having ports 5, 6, and 7, and a valve controlling the same and supplemental exhaust ports 14, 15, communicating with the port 7, a piston operating the main valve and provided with chambers *e*, containing supplemental valves controlling the supplemental ports, and channels between the ends of the piston and the chambers *e*, substantially as set forth.

5. The valve casing having the ports 5, 6, 7, 14 and 15, in combination with the piston F, valve E, annular chambers *e*, in said piston and annular valves in said chambers and channels extending from the chambers *e* to the ends of the pistons and contracted ports communicating with the ends of the casing and with the steam supply, substantially as set forth.

6. The combination of the valve casing, having main ports communicating with the ends of the cylinder, an exhaust port, and supplemental ports communicating with the exhaust, valves sliding over said supplemental ports, and a piston having shoulders arranged to make contact with and move said valves while permitting a limited independent movement of the piston, substantially as described.

518,027. FINGER-PROTECTOR. CHARLES H. ENGLISH, Washington, D. C. Filed Feb. 26, 1892. Serial No. 422,828. (No model.)



Claim.—1. A tip, to protect the finger end, provided on the inside with corrugations broken and overlapping each other alternately.

2. A tip to protect the finger end provided on the inside with corrugations broken and overlapping each other alternately and perforated between said corrugations, substantially as and for the purposes described.

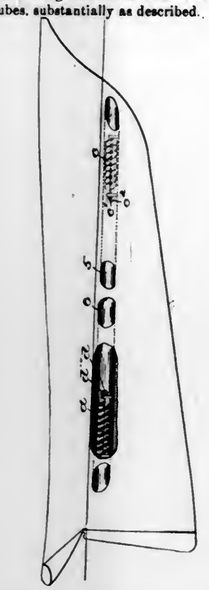
3. A tip to protect the finger end terminating in a hollow ball shaped body having a thickened portion to receive the impact of a blow.

4. A tip to protect the finger end provided with corrugations, broken and overlapping each other alternately, perforations between said corrugations and a hollow ball shaped body having a thickened portion at the lower end, substantially as and for the purposes described.

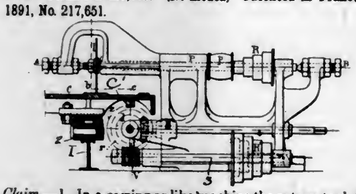
518,028. VESSEL AND PROPELLING MECHANISM THEREFOR. RUFUS FOLSOM, Chelsea, assignor of one-half to George A. Folsom, Boston, Mass. Filed Dec. 29, 1892. Serial No. 456,623. (No model.)

Claim.—1. A vessel provided with straight or substantially straight bow and stern tubes, the bow tubes entering the vessel at its bow and extending divergently rearwardly toward and terminating at the sides thereof, and the stern tubes entering the vessel at the sides and extending convergently rearwardly toward and terminating at the stern thereof, whereby a direct flow of water may be had through said tubes to reduce the frictional resistance of the vessel when moving through the water, substantially as described.

2. A vessel provided with bow and stern tubes, the bow tubes entering the vessel at its bow and extending divergently rearward toward and terminating at the sides thereof, and the stern tubes entering the vessel at the sides and extending convergently rearward toward and terminating at the stern thereof, whereby a direct flow of water may be had through said tubes combined with propellers located within the tubes, substantially as described.



518,029. MECHANICAL SAWING AND MOLDING STONE, MARBLE, &c. FÉLIX J. G. FROMHOLT, Paris, France. Filed Apr. 19, 1892. Serial No. 429,775. (No model.) Patented in France Nov. 25, 1891, No. 217,651.



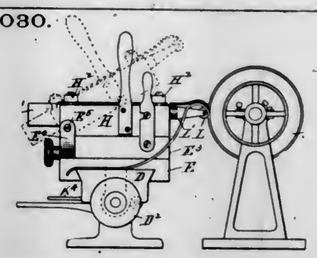
Claim.—1. In a sawing or like machine the rotary tool, the shaft therefor, the band pulleys R thereon, the reciprocating work supporting table, a shaft 3 parallel with the tool carrying shaft, the band pulleys thereon to receive belts from the pulleys R a worm V on the end of the parallel shaft, the rack on the work table, the worm wheel meshing therewith the shaft supporting said wheel, the sliding sleeve thereon having a worm wheel to engage and disengage the worm V, said sleeve having also a pinion *d*, the shaft O N, with means for operating it and the pinion *i* thereon adapted to engage the pinion *d* of the sleeve when said sleeve is shifted to disengage the worm wheel *w* from the worm V, substantially as described.

2. In combination, the work tool the reciprocating carriage having a rack, the gearing in engagement with said rack including a sliding sleeve arranged to connect and disconnect the parts of the driving train, said sleeve carrying also a pinion *d* and the supplemental shaft O N, with operating means therefor said shaft having a pinion *i* to engage the pinion *d* when the sliding sleeve is shifted to disconnect the main driving train, substantially as described.

518,030. MAKING TAPE FROM LEATHER-BOARD OR OTHER MATERIAL. WILLIAM P. GAY, Leominster, Mass. Filed Sept. 15, 1893. Serial No. 485,624. (No model.)

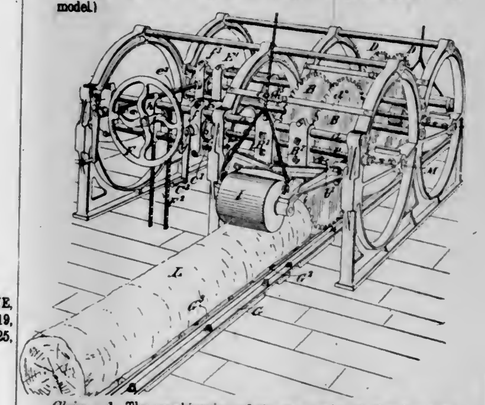
Claim.—1. The method of making leather board tape direct from the pulp by the following described steps; first causing the pulp to be distributed evenly on the surface of a rotating "wet roll;" second cutting the pulp, thus distributed upon the "wet roll," into a spiral strip and simultaneously removing the severed strip from the "wet roll," substantially as, and for the purpose set forth.

518,030.



2. In a leather board tape machine the combination of a rotating "wet roll," a longitudinally moving table, a cutting knife and shield mounted on said table, the said knife and shield moving longitudinally in relation to the "wet roll" and serving to cut spirally and remove from the "wet roll" the pulp, thus forming a tape of leather board substantially as and for the purpose set forth.

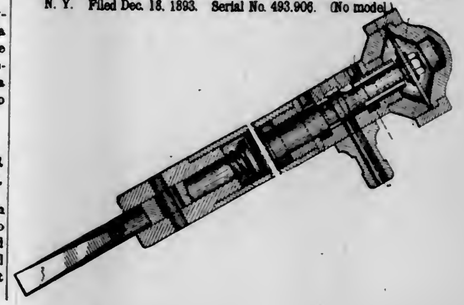
518,031. TWIN CIRCULAR SAWING MACHINE. MICHAEL GARLAND, Bay City, Mich. Filed Nov. 27, 1893. Serial No. 492,051. (No model.)



Claim.—1. The combination of the two pairs of circular saws, arranged to cut, one pair in advance of the other, and the saws of each pair on opposite sides of the log; and separate, or independent, setting-mechanisms; each operating to set the saws of one pair; all substantially in the manner and for the purposes hereinbefore set forth.

2. In a twin-circular sawing machine of the type herein shown and described, the combination, with a suitable frame-work; and shafts on which to mount them, of a series of sets of circular saws operating simultaneously upon the log to be cut up from the time its leading end comes into contact with the second set of saws until its tail end passes beyond the action of the first set, and arranged so that the saws of each set cut simultaneously at opposite sides of the log, and in vertical planes; and so that the saws of the several sets cut one set in advance of another but in different planes; all substantially in the manner and for the purposes hereinbefore set forth.

518,032. PERCUSSION-TOOL. WILLIAM E. GIBBS, New York, N. Y. Filed Dec. 18, 1893. Serial No. 493,906. (No model.)



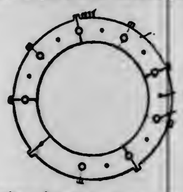
Claim.—1. In a pneumatic percussion tool, a plunger connected to a vibrating diaphragm, and moved by admitting and exhausting air alternately on opposite sides of said diaphragm.

2. In a pneumatic percussion tool, a plunger and piston rod, connected to the center of an air driven vibrating diaphragm, and means for admitting and exhausting air on the opposite sides of said diaphragm.

3. In a pneumatic percussion tool, a vibrating diaphragm, a plunger connected with the center of said diaphragm, air passages to each side of said diaphragm, and means for putting passages in communication alternately with the air supply and the exhaust ports.

4. In a pneumatic percussion tool, a vibrating diaphragm, a plunger connected with the center of said diaphragm, suitable air passages to each side of said diaphragm, a tubular casing having supply and exhaust ports around said plunger all so proportioned that air will be admitted and exhausted alternately on each side of said diaphragm by the motion of said plunger.

518,033. ELECTRIC MOTOR. JOHN C. HENRY, New York, N. Y. Original application filed Sept. 27, 1889, Serial No. 325,244. Divided and this application filed Aug. 19, 1890. Serial No. 362,459. (No model.)



Claim.—1. A laminated armature core composed of segments having circumferential projections, the segments being arranged to break joints whereby the projection on each segment will lie opposite an open space on the adjacent segment on each side of it.

2. A spirally arranged laminated armature-core composed of a series of thin annular mutually insulated segments, whose circumferential length is such that each convolution consists of a whole number of plates, plus a half plate.

3. A spirally arranged armature-core composed of abutting and insulated segments having, at their abutting joints, half teeth that constitute staggered polar projections which separate the armature-bobbins; as set forth.

4. A spirally arranged armature-core composed of abutting and insulated annular segments, in combination with transfixing or clamping tie-bolts coated with vitreous enamel adapted to bind the segments together and connect them to the spider.

5. An armature-core for an odd number of bobbins composed of a series of flat annular segments, the circumferential length of each of which is represented by a fraction whose denominator is the number of bobbins, and whose numerator is 2, said segments abutting so as to present a series of mutually insulated laminations in a continuous spiral, their abutting ends having half-teeth forming polar extensions and being insulated from one another, so as to form joints, the joints of the first, third and fifth, &c., laminations being midway between those of the intervening laminations so as to overlap or "break joints;" substantially as and for the purpose set forth.

6. The composition in a brush-holder of the divided arm 35, supporting the brushes, having tapered screw above and handle screwed thereon.

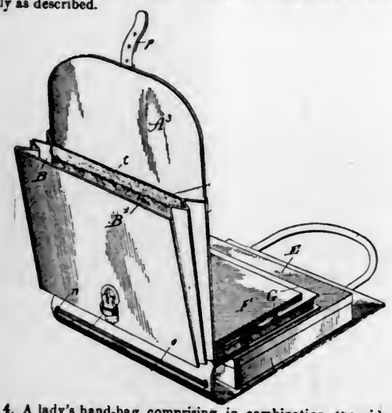
7. The combination of a block or brush-holder having a number of holes or seats and a socket opening into the same, a series of commutator-brushes which occupy said holes or seats, and springs or cushions in said sockets which bear on the sides of all of said brushes and means for adjustable pressure of said springs into their sockets.

518,034. LADY'S HAND-BAG. MARY E. HOYLE, Chicago, Ill. Filed Nov. 2, 1893. Serial No. 489,852. (No model.)

Claim.—1. In a lady's hand-bag, the combination of the sides A′ and A^3 having the connecting hinge *x* and forming a compartment E between them, fastening means in said compartment for removably securing a book therein, and a pocket B on one of said sides containing a partition-lining B^3 forming a secret pocket B′ therein, substantially as described.

2. In a lady's hand-bag, the combination of the sides A′ and A^3 having the connecting hinge *x* and affording a compartment E between them, fastening means in said compartment for removably securing a book therein, and a pocket B on one of said sides containing a partition-lining B^3 provided with an elastic band *t* extending along its free edge and forming a secret pocket B′ therein, substantially as described.

3. In a lady's hand bag, the combination of the sides A′ and A^3 having the connecting hinge *x* and forming a compartment E between them, fastening means in said compartment for removably securing a book therein, an outer pocket B on the side A′ containing a partition-lining B^3 forming a secret pocket B′ therein, a flap A^3 for the said pockets, and inner pockets D and D′ on the said side A′, substantially as described.



4. A lady's hand-bag comprising, in combination, the sides A′ and A^3 provided with handles *r* and having the connecting hinge *x* and forming a compartment E between the sides adequately wide to contain books F and G and a lunch-box H, fastening means in said compartment for removably securing the books therein, an outer collapsible pocket B on the side A′ containing a partition-lining B^3 forming a secret pocket B′ therein, a flap A^3 for the said pockets, provided with fastening means, inner collapsible pockets D and D′ on the said side A′, a diagonal outer pocket C on the side A^3 and a fastening-strap *m* for the sides, substantially as and for the purpose set forth.

518,035. BATTER-DROPPER. ELLA L. D. HOYLE, New Orleans, La. Filed Nov. 10, 1893. Serial No. 490,536. (No model.)



Claim.—The herein described batter dropper, the same comprising a vessel having a flat bottom with a hole in the center thereof, smaller than the diameter of said bottom, a vertical cylindrical discharge spout rigidly secured to said bottom around the hole and having a slot in one side at a point midway between its upper and lower ends, and a circular slide pivoted to the spout at one end of the slot therein and having a handle at a point opposite said pivot, all as and for the purpose set forth.

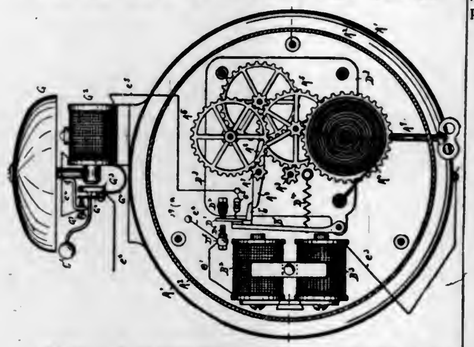
518,036. INKSTAND. WALTER HUBBARD, Meriden, Conn., assignor to the Bradley & Hubbard Manufacturing Company, same place. Filed Feb. 17, 1894. Serial No. 500,522. (No model.)



Claim.—1. In an ink-stand, the combination with a socket-plate having a central depression, a raised edge or border and a centrally depending longitudinally bored post or hub, of a bed upon which the said socket-plate rests, a base receiving the said bed in its upper portion, a binding-plate located within the base, and a coupling-screw passing through the said plate and entering the post or hub depending from the socket-plate, substantially as set forth.

2. In an ink-stand, the combination with a socket-plate having a central depression to receive an ink-well, a raised border confining the well against lateral displacement, and a centrally depending longitudinally bored hub or post, a bed upon which the said plate rests, constructed with a central opening for the downward passage of the hub or post of the plate, and with a circular chamber entering it from its lower face, a base adapted to have the said bed set into it, a binding-plate located within the base and constructed with an upwardly projecting circular boss entering the chamber formed in the lower face of the bed, and a coupling-screw passing through the center of the said boss into the said post or hub, substantially as described.

518,037. ELECTRICAL ANNUNCIATOR. ROBERT L. HUNTER, St. Paul, Minn. Filed Feb. 13, 1893. Serial No. 462,196. (No model.)



Claim.—1. In an annunciator, an indicating mechanism, an electro magnet connected to a source of electric energy, a series of circuit closers in circuit with said source of electric energy and corresponding with and connected to the indications in said indicator, in combination with a signal bell mechanism connected into the indicator annunciator circuit by a separate electrical connection, whereby a duplex circuit is formed so that the signals and indications are given simultaneously and the signals rendered capable of repetition without the necessity for again actuating the indicating mechanism.

2. In an annunciator, a disk or plate having notations thereon and an arm movable therewith, a series of electric contacts corresponding to said notations and adapted to be actuated by said arm, means for locking said arm and disk, electro magnets connected to a battery or other source of electric energy and adapted when energized to release said disk and arm, a push button for each of said contacts consisting of an electro magnet connected separately by its fields and cores to said contacts and said source of electric energy, substantially as and for the purpose set forth.

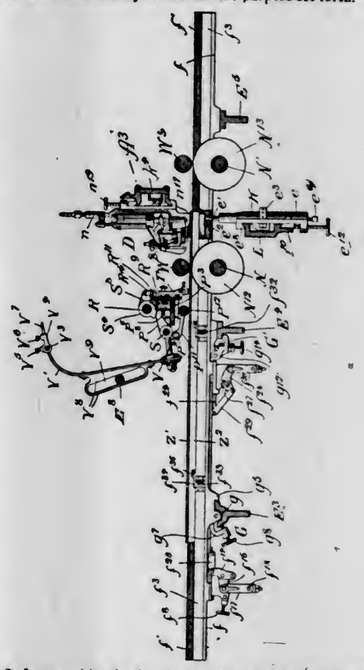
3. In an annunciator, a disk or plate having notations thereon and an arm movable therewith, a series of electric contacts corresponding to said notations and adapted to be actuated by said arm, means for locking said arm and disk, electro magnets connected to a battery or other source of electic energy and adapted when energized to release said disk and arm, a ring having pins in contact with said series of contacts and connected electrically to said electro magnets, connecting each of said contacts with said source of electric energy, and a series of push buttons connected between said source of electric energy and said electric contacts, said push buttons arranged to hold the circuits broken until depressed, substantially as and for the purpose set forth.

4. In an annunciator, a disk or plate having notations thereon and an arm movable therewith, a series of electric contacts corresponding to said notations and adapted to be actuated by said arm, an electro magnet having an armature adapted to lock said disk and arm stationary, said magnet being connected to a battery or other source of electric energy so that when energized it will withdraw said armature and release said disk and arm, an insulated extension upon said armature connected to the magnet of an electric signal bell, a contact with which said insulated extension connects when said armature is attracted by the energizing of said magnets, said contact being connected electrically with said main magnet and with said series of contacts, separate electrical connection between said signal bell, battery and main magnets, and a series of push buttons interposed between said series of contacts and said source of electric energy, substantially as and for the purpose set forth.

5. In an annunciator, a disk supplied with two or more series of notations and adapted to be revolved to designate the location from which the signal proceeds, stationary face plate having a separate opening for each series of notations, and cut off plate arranged to cover and uncover said openings so that only one is open at a time, substantially as and for the purpose set forth.

518,038. MACHINE FOR MAKING BOX-BLANKS. THURSTON L. KNUDTSON and JACOB UHRI, Chicago, Ill. Filed Feb. 10, 1893. Serial No. 461,785. (No model.)

Claim.—1. In a machine for forming box blanks by fastening sheets and strengthening wires to reinforcing cleats, the combination of guides for the cleats, intermittent feed mechanism for advancing the cleats longitudinally in said guides with a sheet through the machine, an intermittingly actuated staple driver adjacent to the path of each cleat, alternating in its action with said feed mechanism, to fasten the sheet, by successive operations, to the cleat, and means for guiding strengthening wires with the cleats and sheet across the staple drivers, substantially as and for the purpose set forth.



2. In a machine for forming box blanks by fastening sheets and strengthening wires to reinforcing cleats, the combination of outer and intermediate guides for the cleats, intermittent feed mechanism for advancing the cleats longitudinally in said guides with a sheet through the machine, an intermittingly-actuated staple driver adjacent to the path of each cleat alternating in its action with said feed mechanism to fasten the sheet and strengthening wires by successive operations to the cleat at intervals in the direction longitudinally of the cleat, and means for guiding strengthening wires with the sheet across the staple drivers, substantially as described.

3. In a machine for forming box blanks by fastening sheets and strengthening wires to reinforcing cleats, the combination of guides for the cleats, intermittent feed mechanism for advancing the cleats longitudinally in their guides and with a sheet through the machine, an intermittingly actuated staple driver above the path of each cleat, alternating in its action with said feed mechanism, to fasten the sheet, by successive operations, to the cleat at intervals in the direction longitudinally of the cleat means for guiding strengthening wires with the sheet across the staple drivers, and reciprocating clinchers below the paths of the said cleats co-operating with the staple drivers, substantially as described.

4. In a machine for forming box blanks by fastening sheets and strengthening wires to reinforcing cleats, the combination of guides for the cleats, intermittent feed mechanism for advancing the cleats longitudinally in their guides and with a sheet through the machine, an intermittingly actuated staple driver above the path of each cleat, an intermittingly actuated clincher below the path of each cleat, the said staple drivers and clinchers being adjustable with relation to each other and co-operating in their action to alternate with the said feed mechanism to fasten the sheet, by successive operations, to the cleats at intervals in the direction longitudinally of the cleats and means for guiding strengthening wires with the sheet across the staple drivers, substantially as described.

5. In a machine for forming box blanks by fastening sheets and strengthening wires to reinforcing cleats, the combination of laterally adjustable guides for the cleats, intermittent feed mechanism for advancing the cleats longitudinally in their guides and with a sheet

through the machine, a laterally adjustable intermittingly actuated staple driver adjacent to the path of each cleat, alternating in its action with said feed mechanism, to fasten the sheet, by successive operations, to the cleat at intervals in the direction longitudinally of the cleat and means adjustable with the staple drivers for guiding strengthening wires with the sheet across the staple drivers, substantially as and for the purpose set forth.

6. In a machine for forming box blanks by fastening sheets and strengthening wires to reinforcing cleats, the combination of guides for the cleats, intermittent feed mechanism for advancing the cleats longitudinally in their guides and with a sheet through the machine, an intermittingly actuated staple driver and a guide for a strengthening wire adjacent to the path of each cleat, the staple drivers alternating in their action with the said feed mechanism to fasten the strengthening wires and sheet, by successive operations, to the cleat at intervals in the direction longitudinally of the cleat, substantially as described

7. In a machine for forming box blanks by fastening sheets and strengthening wires to reinforcing cleats, the combination with intermittingly actuated staple drivers, of guides for the lateral edges of the sheet, guides for cleats intermediate of the said sheet guides, guides for strengthening wires at the staple drivers and intermittent feed mechanism alternating in its action with the said staple drivers for advancing the cleats and sheets in their guides with the strengthening wires across the said staple drivers, substantially as and for the purpose set forth

8. In a machine for forming box blanks by fastening sheets and strengthening wires to reinforcing cleats, the combination of intermittent feed mechanism for advancing the cleats longitudinally with a sheet through the machine, an intermittingly actuated staple driver adjacent to the path of each cleat, alternating in its action with said feed mechanism, to fasten the strengthening wires and sheet, by successive operations, to the cleat at intervals in the direction longitudinally of the cleat a strengthening wire guide at each staple driver, guides for the lateral edges of the sheet and guides for the cleats adjustable with relation to the said sheet guides according to the width of the cleats and thickness of the sheet, substantially as and for the purpose set forth.

9. In a machine for forming box blanks by fastening sheets and strengthening wires to reinforcing cleats, the combination of an adjustable bed frame, mounted in guides with means for raising and lowering it therein guides for the cleats on the said bed frame, intermittent feed mechanism for advancing the cleats longitudinally with the sheet through said guides, and intermittingly actuated staple driver adjacent to the path of each cleat alternating in its action with said feed mechanism, to fasten the strengthening wires and sheet, by successive operations, to the cleat at intervals in the direction longitudinally of the cleat and a strengthening wire guide at each staple driver, substantially as and for the purpose set forth.

10. In a machine for forming box blanks by fastening sheets and strengthening wires to reinforcing cleats, the combination with intermittingly actuated staple drivers, of guides for the cleats, guides for the strengthening wires and intermittingly actuated feed rollers for advancing the sheet strengthening wires and cleats in their guides longitudinally across the said staple drivers, the said feed rollers alternating in their action with the said staple drivers, substantially as described.

11. In a machine for forming box blanks by fastening sheets to reinforcing cleats, the combination with intermittingly actuated staple drivers, of guides for the sheet and cleats, intermittent feed rolls, alternating in their action with the said staple drivers to advance the sheet and cleats in their guides longitudinally across the staple drivers, and a sliding frame, provided with means for gripping the cleats through the sheets, and operative to engage the same, when initially fed to the machine, slide them to the said feed rolls, hold them together until the first staples are driven and then release them, substantially as described.

12. In a machine for forming box blanks by fastening sheets and strengthening wires to reinforcing cleats, the combination of guides for the cleats, intermittent feed mechanism for advancing the cleats longitudinally with a sheet through the machine, a series of intermittingly actuated staple forming and driving machines, alternating in their action with the said feed mechanism, disposed above the path of the sheet and cleats and in a horizontal line at right-angles to said path, and means for guiding strengthening wires across the staple drivers, whereby the strengthening wires and sheet, by successive operations of the staple drivers, are fastened to the cleats at intervals in the direction longitudinally of the cleats, substantially as described.

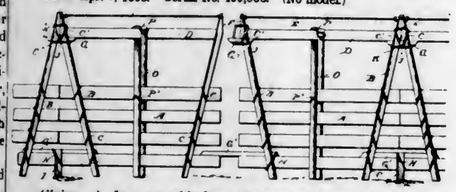
13. In a machine for forming box blanks by fastening sheets and strengthening wires to reinforcing cleats, the combination of guides for the cleats, intermittent feed mechanism for advancing the cleats longitudinally with a sheet through the machine, an intermittingly actuated staple driver adjacent to the path of each cleat, alternating in its action with said feed mechanism, and means for severing and initially advancing a strengthening wire across each staple driver before the first staple is driven into a cleat, substantially as and for the purpose set forth.

14. The combination with the main-frame, of a driver and drive-shaft mounted thereon, clutch mechanism between the said driver and shaft, shipping-mechanism on the frame for engaging and releasing the clutch members to start and stop the machine, staple forming and driving machines mounted on the frame and actuated from the said drive-shaft, guides at said staple machines for strengthening wires *y*, strengthening-wire engaging and advancing means, and strengthening-wire severing means at the said guides normally inactive and brought into action by movement of said shipping mechanism, to disengage the said clutch-members, and a feed for the material to be stapled actuated from the said drive-shaft to advance the material intermittingly across the said staple-machines, substantially as described.

15. In a machine of the character described, the combination with the main-frame, drive-shaft, staple forming and driving machines mounted on the frame and actuated from the drive-shaft, strengthening-wire guides, and intermittent feed for the material to be stapled, of rotary spools on the main-frame for the strengthening-wires *y* and staple-wires *x*, and brakes for the said spools engaged by said wires and operating when the wires are at rest normally to engage the spools, and under pressure against them exerted by the wires when drawn upon, to release the spools, substantially as and for the purpose set forth.

518,039. PORTABLE FENCE. BENJAMIN J. LESLIE, Butler, Ky.

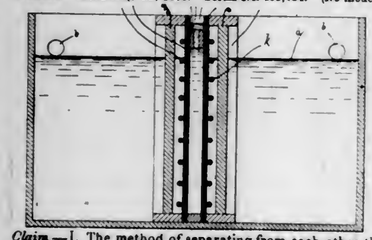
Filed Apr. 7, 1893. Serial No. 469,388. (No model.)



Claim.—1. In a portable fence, the separable panels having horizontal rails adapted to align and abut with the rails of the adjacent panels, the inclined end posts arranged at each end of each panel at one side of the same and having upper flattened projecting ends adapted to abut with the adjacent post end of the adjacent panel rail wires binding the horizontal rails to one side of said end posts and splice bars bound to the abutting rail ends by said rail wires substantially as set forth.

2. In a portable fence, the separable fence panels having inclined end posts arranged at each end and one side of the same, said inclined end posts having upper projecting ends adapted to abut flat against the post ends of the adjacent panels, removable splice bars bound to the aligned fence panels at the joints thereof, and the main locking wires J, passed transversely across and in front of the upper abutting ends of the inclined end posts, thence under and around the upper splice bars and the rider rails of the panel, and finally returned and fastened at the front of the said abutting ends of the fence posts, substantially as set forth.

518,040. ELECTROLYTIC CELL. ERNEST A. LE SUEUR, Ottawa, Canada. Filed Aug. 22, 1893. Serial No. 483,731. (No model.)

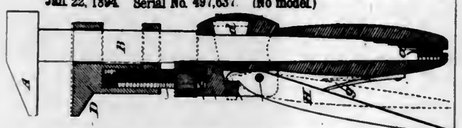


Claim.—1. The method of separating from each other the fluid contents of the compartments of an electrolytic cell, which consists in first producing a separating wall or layer of fluid, then occasioning liquid pressure upon said fluid, and keeping the same under such pressure and thereby maintaining in the said fluid lateral pressure with tendency to lateral flow, substantially as and for the purposes set forth.

2. The method of separating from each other the fluid contents of the compartments of an electrolytic cell, which consists in first producing a separating wall or layer of fluid, then occasioning liquid pressure upon said separating wall or layer higher than exists in the negative electrode compartment, and keeping the same under such pressure and thereby maintaining in the said fluid lateral pressure with tendency to lateral flow, substantially as and for the purposes set forth.

3. An electrolytic cell having the compartments thereof separated by two or more pervious layers having between them a space forming a chamber containing liquid under greater relative pressure than the liquid in the adjacent compartments of the cell, whereby the movement of the liquid in the cell due to the said greater pressure will be from said chamber and through the pervious sheets or layers, substantially as set forth

518,041. WRENCH. JAMES A. LOWE, North Branch, N. J. Filed Jan. 22, 1894. Serial No. 497,637. (No model.)



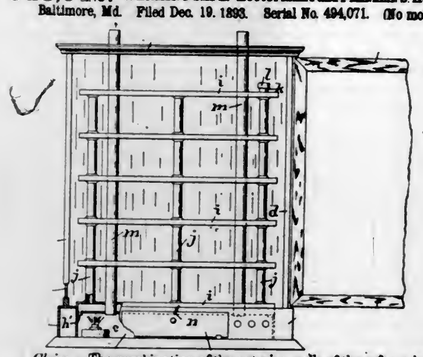
Claim.—1. The combination of a wrench stock having a permanently attached jaw and provided with an abutment, a loose jaw, a loose wedge surrounding the stock between said abutment and loose jaw, and a lever connected with the stock and engaging with said wedge, substantially as and for the purpose herein set forth.

2. The combination of a wrench stock having a permanently attached jaw and provided with an abutment, a loose jaw, a wedge applied between the said abutment and loose jaw, and a lever connected with the stock and engaging with the said wedge for setting up the loose jaw and a spring between said lever and stock for drawing back said wedge, substantially as herein set forth.

3. The combination of a wrench stock having a permanently attached jaw and provided with an abutment, a loose jaw, a screw for adjusting one jaw relatively to the other, a wedge applied between said abutment and the loose jaw, and a lever connected with the stock and engaging with the wedge for setting up the loose jaw, substantially as herein set forth.

4. In combination of a wench stock having a permanently attached jaw and provided with an abutment, a loose jaw, and a loose wedge surrounding the stock between said abutment and loose jaw and connected with the said abutment and jaw outside thereof by tongues and grooves whereby the said wedge operates both to set up and loosen the loose jaw, substantially as herein set forth.

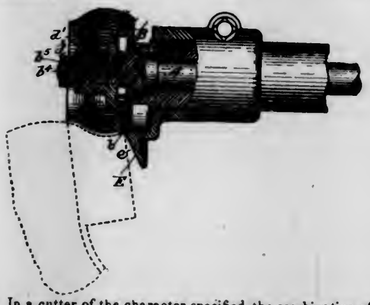
518,042. WARMING-SAFE. AUGUST MAAG and FRANKLIN S. HORN, Baltimore, Md. Filed Dec. 19, 1893. Serial No. 494,071. (No model.)



Claim.—The combination of the exterior walls of the safe; a base having a chamber; a heater contained in the base-chamber; a series of shelves the lowermost of which rests upon a support in the base-chamber—one shelf being above the other—each shelf consisting of a hollow metal independent chamber having a top, a bottom and side walls; vertical pipes each connecting the top of one shelf with the bottom of the shelf next above it, and the lower and upper ends of each pipe in open communication with the respective chambers in the shelves to which they are connected; and the flues open at both ends and passing up through the chambers of all the shelves.

518,043. HEEL-CUTTER. ALEXANDER MCDOWELL, Lynn, Mass. Filed Jan. 3, 1893. Serial No. 457,074. (No model.)

Claim.—1. In a sole and heel cutter of the character specified the combination of a face plate having two surfaces, the outer one of which overhangs the inner one with cutting blades having the feet c^3 at right angles to the main cutting sections and within them, and having surfaces which bear against the two surfaces of the face plate and extend under the overhanging part of the outer section, and devices for locking the cutter to the plate in this position, as and for the purposes described.



2. In a cutter of the character specified, the combination of the face plate having the circular recess b^2 in its face and the overhanging section b^3, with the cutters C having the feet c^3 and the underlapping extensions c^4, and the shaft A having the spindle end b^4 and the clamp plate D held upon the said spindle end against the feet of the cutters by a nut b^5, as and for the purposes described.

3. The cutter having a face plate and a shoulder, cutting blades, pivoted at their rear ends to the face plate and having shoulders to contact with the shoulder of the face plate, and a clamp plate for clamping said cutters to the face plate having locking pins or projections to engage said cutters and maintain their shoulders in contact with the shoulder or the plate, as and for the purposes described.

4. In a cutter of the character specified, comprising a face plate having a number of cutters C having the feet *c* attached thereto by pivots passing through the ends of said feet into the face plate, and said pivots, the cutting plate feet-engaging sections of which are eccentric to the portions held in the plate, as and for the purposes described.

518,044. HOPPLE. HENRY MCGUIRE, Memphis, Mich. Filed June 5, 1893. Serial No. 476,602. (No model.)

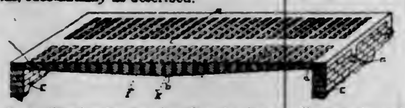


Claim.—1. In a device for the purpose set forth, the combination of the bands adapted to embrace the leg of the animal above and below the knee, and having means to secure them in place, the thick pad or lining upon the inner face of said bands, the bars extending between said bands and secured at their ends to the outer face thereof, and the means for adjusting said bands longitudinally upon the bars so as to increase or decrease the distance between them, said bars passing on opposite sides of the leg of the animal free from the knee thereof.

2. In a device for the purpose set forth, the combination of the bands adapted to embrace the leg, the bars extending between said bands and having a series of holes in the ends thereof, the clips attached to the outer face of said bands and adapted to receive the ends of said bars, the bolts passing through said clips and the holes in said bars so as to permit of longitudinal adjustment, the thick pads upon the inner face of said bands whereby said bars are extended free from the knee of the animal.

518,045. ILLUMINATING-FLOOR. ERNEST L. RAMSOME, Oakland, Cal. Filed Nov. 13, 1893. Serial No. 490,516. (No model.)

Claim.—1. In an illuminating panel, or floor, a system of glasses of various strengths duly graduated and placed in proper relative order to themselves, and to the floor, for resisting the calculated floor strains, substantially as described.



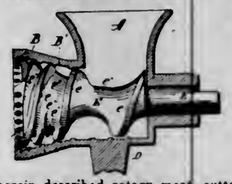
2. An illuminating panel or floor having an off-set on the under side, the surface of which is formed in part by the face of the illuminating glass, substantially as described.

518,046. COMPOSITION OF MATTER FOR VULCANIZING RUBBER. JEAN M. RAYMOND, Paris, France. Filed Oct. 21, 1893. Serial No. 488,765. (No specimens.) Patented in France July 31, 1893, No. 231,883.

Claim.— 1. The herein described compound for vulcanizing rubber consisting of benzine, or its derivatives, camphor and chloride of sulphur, substantially in the proportions hereinbefore set forth.

2. The herein described compound for vulcanizing rubber, consisting of benzine, or its derivatives, camphor, and chloride of sulphur, and oleic acid, substantially in the proportions hereinbefore set forth.

518,047. ROTARY MEAT-CUTTER. LEVI T. SNOW, New Haven, assignor of one-half to Oliver D. Woodruff, Southington, Conn. Filed Nov. 20, 1893. Serial No. 491,471. (No model.)



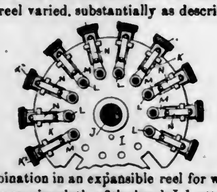
Claim.—The herein described rotary meat-cutter comprising three main elements, namely, a case or frame cast in one piece, a combined integral forcer-cutter and former, having the general form and action of a screw, and a handle comprising the handle proper and a retaining screw, the said case being constructed with a circular chamber having its outer end flared outwardly and containing internal spirally arranged grooves and ribs, terminating at their outer ends in the same or substantially the same vertical plane at a point just within the end of the said chamber, and the said screw being constructed with an outwardly flaring outer end to conform to the outwardly flaring outer end of the said chamber, and having spirally arranged ribs and grooves terminating at their outer ends in the same or substantially the same vertical plane at a point which will be within the outer ends of the ribs and grooves in the said chamber when the parts are assembled, and furnished at a point beyond the outer ends of its ribs and grooves with a circular series of forming openings which fall within the range of the outer ends of the ribs and grooves in the chamber when the cutter is assembled and discharge, and the said handle being applied to the inner end of the screw which projects through the case and which screw is held in place by the said handle and the equalization of endwise thrust upon it, substantially as described.

518,048. APPARATUS FOR GALVANIZING WIRE. GEORGE M. WRIGHT, Worcester, Mass., assignor of one-half to the Wright & Colton Wire Cloth Company, same place. Filed July 10, 1891. Serial No. 399,101. (No model.)

Claim.—1. In a galvanizing apparatus, the combination of the delivery roll, or mechanism by which wire, wire netting, wire cloth, or similar material, is delivered to a galvanizing vat, or pan, a galvanizing vat, or pan, through which the material to be galvanized is passed, and an expansible rotating reel arranged to receive the galvanized material from the galvanizing pan, or vat, said expansible reel consisting of a rotating shaft, heads carried by said shaft, reel bars extending between said heads and arranged concentrically with said rotating shaft, and actuating mechanism by which said reel bars are moved radially, substantially as described.

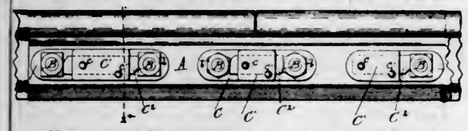
2. In a galvanizing apparatus, the combination of a galvanizing pan, or vat, a roll E within said galvanizing vat, a roll F journaled above said vat and an expansible winding reel G consisting of a rotating shaft J, heads I, I, carried by said shaft, plates capable of sliding radially in said heads, and reel bars attached to said plates and extending between said heads, substantially as described.

3. In a galvanizing apparatus, the expansible reel upon which the galvanized material is wound, said reel consisting of the heads I, I, provided with a series of radial slots K, at their edges, sliding plates having a radial motion within said slots, reel bars connecting said sliding plates and connected actuating mechanism by which said sliding plates and connected reel bars are moved in and out and the diameter of the reel varied, substantially as described..



4. The combination in an expansible reel for winding galvanized wire, wire netting, or wire cloth, of the heads I, I, attached to a rotating shaft, shafts L, journaled in said heads, crank arms carried by said shafts, links connecting said crank arms with a series of plates having a radial sliding motion in said heads, reel bars connecting said plates upon which the galvanized material is wound, pinions attached to said shafts L, and arranged concentrically around an actuating gear and an actuating gear P, engaging said pinions, whereby the shafts L, are rotated and a radial sliding motion imparted to said plates and connected reel bars, substantially as described.

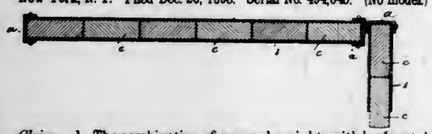
518,049. NUT-LOCK. CARL F. BOYENS and JACOB S. BURKHOLDER, Allentown, Pa. Filed Sept. 23, 1893. Serial No. 486,339. (No model.)



Claim.—A nut lock consisting of the base plate C formed to serve as a washer, the cap plate C' connected thereto by the bolts or rivets c and c', the locking plate C^3 pivoted between said plates on said rivet c, said rivet c' being located to serve as a stop to support said locking plate in the position required to lock said nuts, substantially as set forth

---

518,050. FIREPROOF PARTITION. SEBASTIAN G. BRINKMAN, New York, N. Y. Filed Dec. 26, 1893. Serial No. 494,645. (No model.)



Claim.—1. The combination of grooved uprights with horizontal I bars engaging said uprights and with blocks engaged at the top and bottom by the flanges of the I bars, substantially as specified.

2. The combination of grooved uprights with horizontal bars having doubled flanges and with blocks engaged by said flanges, substantially as specified.

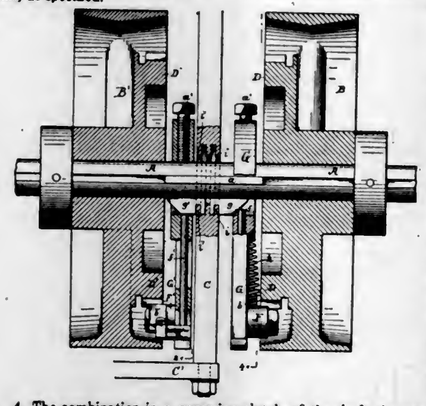
3. A partition composed of flanged uprights, horizontal I beams having doubled flanges at one side, single flanges at the other side and interposed fire proof blocks, substantially as specified.

518,051. CLUTCH FOR MACHINERY. WALTER D. BUTZ, Norristown, Pa. Filed Dec. 12, 1892. Serial No. 454,880. (No model.)

Claim.—1. The combination in a reversing clutch, of a shaft, two pulleys loose thereon and rotated in opposite directions, each pulley having a ratchet wheel with teeth facing in the direction of rotation of the pulley, a pair of arms secured to the shaft, one adjacent to each pulley and each carrying a pawl adapted to engage with the ratchet wheel of its respective pulley, and means for engaging and disengaging said pawls, substantially as specified.

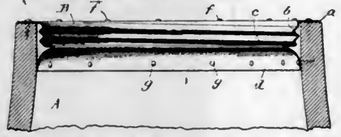
2. The combination of a shaft, a pulley loose thereon, and having a ratchet wheel with teeth facing in the direction of rotation of the pulley, an arm secured to the shaft and having a pawl adapted to engage with the teeth of the ratchet wheel, a spring for causing said pawl to engage with the ratchet wheel, a rod guided in the arm and adapted to act upon the pawl, a wedge block adapted to act upon said pin to project the same and a shifter bar controlling said wedge block, substantially as specified.

3. The combination in a reversing clutch, of a shaft, a pair of pulleys running loosely thereon, one pulley turning in one direction, and the other in the opposite direction, ratchet wheels carried by said pulleys, and each facing in the direction of rotation of its respective pulley, a pair of arms secured to the shaft and each carrying a pawl adapted to engage with the teeth of its respective ratchet wheel, and means for engaging and disengaging said pawl, and a shifter bar controlling the pawl engaging and disengaging devices of both clutch arms, whereby it is adapted to throw one clutch out of action simultaneously with the throwing of the other clutch into action, substantially as specified.



4. The combination in a reversing clutch, of the shaft, the two pulleys running loosely thereon, one in one direction and the other in the opposite direction, the two clutch arms each secured to the shaft and each carrying a pawl for engagement with the ratchet wheel of its respective pulley, a spring for drawing said pawl into engagement with said ratchet wheel, and a sliding wedge block and pin for throwing the pawl out of engagement with said wheel, and a swinging shifter bar having annular flanges for engaging with the wedge blocks of the two clutch arms so as to operate them simultaneously, substantially as specified.

518,052. CLOSURE FOR BARRELS, &c. HENRY C. CAMPBELL, Tarrytown, N. Y., assignor to William N. Campbell, same place. Filed Feb. 10, 1894. Serial No. 499,706. (No model.)



Claim.—1. A closure ring for vessels consisting of a flange *a*, a downwardly depending screw-threaded portion *b*, and a shoulder or bearing *c* at the lower edge of the screw-threaded section, substantially as described.

2. A closure ring for vessels, consisting of a flange *a*, a downwardly depending screw-threaded portion *b*, a shoulder or bearing *c*, and a curved lip *d*, substantially as described.

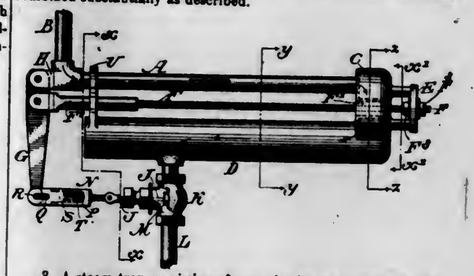
3. The combination with a vessel, of a closure ring entered into an aperture in the vessel, and having a flange overlapping the edge of the aperture, and a screw-thread formed in the body of the ring, a shoulder at the lower edge of the said threaded section together with a cover having its edge screw-threaded to correspond with the thread of the ring, substantially as described.

4. The combination with a vessel, of a closure ring entered into an aperture in the vessel, and having a flange *a* overlapping the edge of the aperture, a screw-threaded portion *b*, a shoulder *c*, and a lip *d* fitting against the wall of the aperture, together with a cover having its edge screw-threaded to correspond with the thread of the ring, substantially as described.

518,053. STEAM-TRAP. JOSEPH L. CHAPMAN, Haddonfield, N. J. Filed Sept. 27, 1893. Serial No. 486,583. (No model.)

Claim.—1. The tube A with an inlet pipe connected thereto by the coupling H, the tube D, the coupling C connecting said tubes A and D, and provided with the channel F' and the cross head E, the fulcrum rod F freely passing through said channel, a valve and discharge pipe for said tube D, a lever pivoted to said rod F, coupling H, and the stem of the said valve, said parts being combined substantially as described.

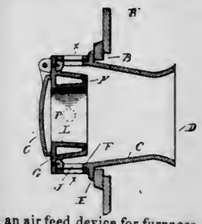
2. Two tubes with coupling, a fulcrum rod loosely inserted in a channel in said coupling, a lever pivotally secured to said fulcrum rod and at one end to one of said tubes, and a discharge valve for the other tube having its stem connected with said lever, said parts being combined substantially as described.



3. A steam trap consisting of two tubes having a coupling with a cross head thereon and provided with a channel, a fulcrum rod adjustably connected with said cross head and freely passing through said channel, a discharge valve for one of said tubes, and a lever connected with the other tube, the fulcrum rod and the stem of the said discharge valve, said parts being combined substantially as described.

4. A tube with a discharge valve, a lever, a hollow link connected at one end with the valve stem and slotted at its other end, pins connected with said lever and in the slots of the said link, a head within said link, and a spring bearing against said head and link said parts being combined substantially as described.

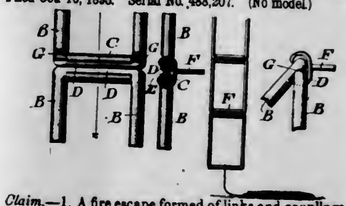
518,054. AIR-FEEDING DEVICE FOR FURNACES. THOMAS CRANEY, Bay City, Mich. Filed Jan. 2, 1894. Serial No. 495,354. (No model.)



Claim.—1. In an air feed device for furnaces, the combination of the door, a contracting nozzle secured thereto projecting inside and outside the door, a head on the outer end of the nozzle, a steam ring on the head, having a central aperture, a door for the apertures in the nozzle around the steam ring, and a ring damper, controlling these apertures, substantially as described.

2. In an air feed device for furnaces, the combination of the door, the contracting nozzle the circumferential flange E by means of which the cone is secured to the door, the apertured cylindrical extension F outside the door, the head G secured to the end of the extension and projecting beyond the edges of the same, the damper H secured on the extension between the flange E and the extension of the head, the steam ring on the inner face of the head having jets at the forward edge, and an exterior door, controlling a passage through the ring, substantially as described.

518,055. FIRE-ESCAPE. CHARLES DOEHLER, Philadelphia, Pa. Filed Oct. 16, 1893. Serial No. 488,207. (No model.)



Claim.—1. A fire escape formed of links and couplings, said couplings being of elliptical form in cross section, with throats in their sides the contiguous cross bars of the links being embraced by the upper and lower walls of said couplings, substantially as described.

2. A fire escape consisting of links with cross bars, and couplings for said cross bars of the links having projections thereon forming steps, said parts being combined substantially as described.

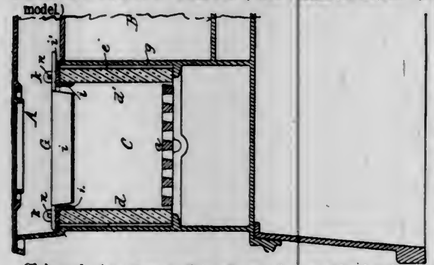
3. A fire escape consisting of links with cross bars, elliptical coup-

lings connecting the cross bars of adjacent links, and steps projecting from said couplings, said parts being combined substantially as described.

4. A fire escape formed of links and couplings, which embrace the contiguous cross bars thereof, the sides and cross bars of said links being grooved to provide for the connection and disconnection of the links, substantially as described.

5. A fire escape formed of links, couplings therefor, and steps, said couplings embracing the contiguous cross bars of the links and having open throats in their sides, and said steps projecting horizontally outward from said couplings, the parts named being combined substantially as described.

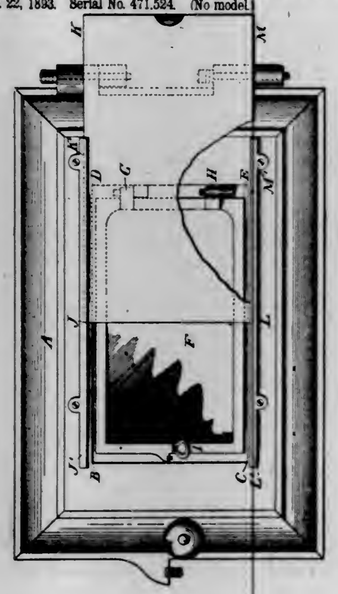
518,056. BRICK-HOLDER FOR STOVES, RANGES, &c. HENRY EIBEN, New York, N. Y. Filed Dec. 7, 1893. Serial No. 492,981. (No model.)



Claim.—1. As a new article of manufacture a holder for the bricks or linings of heating and cooking apparatus the same consisting of a plurality of sections each of which is composed of two flanges at about right angles to each other, the ends of connecting sections provided respectively with lugs and slots which are constructed and adapted to permit the holder to be adjusted to the inequalities in the bricks or linings, substantially as specified.

2. In combination with the plates or walls of a stove, and the bricks or linings of a fire chamber, a sectional holder for the linings consisting of a number of plates, each of which is composed of two flanges at or about the same angle to each other as the top and face of the lining, and having the ends provided with devices for fastening adjoining sections together and permitting the adjustment of the sections to irregularities in the linings, the said holder when in position adapted to hold the linings in place and also cover the spaces between the linings and the walls of the fire chamber, substantially as specified.

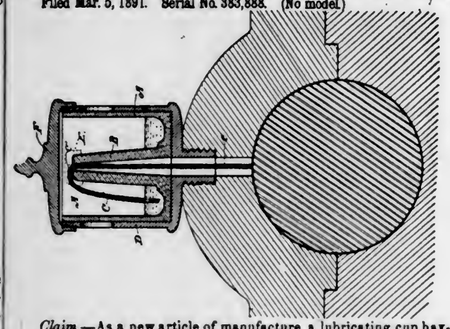
518,057. OVEN. MYRA C. FARNUM, Port Jervis, N. Y. Filed Apr. 22, 1893. Serial No. 471,524. (No model.)



Claim.—1. The combination as applied to the door of an oven, of the door A. with a supplemental door F. of mica, glass, or other transparent substance, covering the aperture B, C, D, E—hinged to the main door A. with the hinges G. H. and protected by the metallic slide or cover J, K, L, M; operating in the manner described to obtain the results indicated.

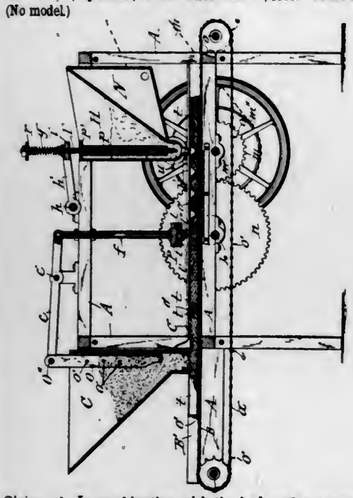
2. The combination as applied to the door of an oven, of the door A. with a supplemental door F. of mica, glass, or other transparent substance, covering the aperture B, C, D, E,—hinged to the main door A. with the hinges G. H. and protected by the metallic slide or cover J, K, L, M, held in place by the guides J', K', and L', M'. all substantially as set forth for the purpose specified.

518,058. LUBRICATOR. JOHN Q. FINCH, San Francisco, Cal. Filed Mar. 5, 1891. Serial No. 383,888. (No model.)



Claim.—As a new article of manufacture, a lubricating cup having a centrally perforated stem projecting from its lower end, having means for removably connecting it centrally above the journal to be lubricated, said cup being composed of an exterior metal case with an interior lining forming a receptacle, a cone concentric with the interior walls of the receptacle having a vertical central passage continuous with the passage in the exterior stem, and a metallic conductor impervious to oil, bent upon itself with one end resting within the receptacle and the other extending down through the cone and stem, so as to rest in operative contact with the surface to be lubricated, when the cup is in place.

518,059. MACHINE FOR MOLDING CONFECTIONS. FREDERICK W. FIX, Syracuse, N. Y. Filed June 17, 1893. Serial No. 477,958. (No model.)



Claim.—1. In combination with the bed, and trays movable on said bed, a starch-hopper over the bed communicating with the subjacent tray, agitators in the hopper, a vertically movable printing plate in front of said hopper, and rock-arms transmitting motion from said printing plate to the agitators as set forth.

2. In combination with the elongated bed, and trays mounted movably on said bed, a starch-hopper over one end of said bed communicating with the subjacent tray, a vertically movable printing plate over the path of the trays in front of the starch-hopper, agitators in the hopper, rock-arms transmitting motion from the printing plate to the agitators, a starch leveler between said hopper and printing plate, a hopper for confection material in front of the printing-plate provided with discharge-nozzles, and plungers, in the latter hopper forcing the confection material through the nozzles substantially as set forth.

3. In combination with the frame —A—, bed —B—, trays —*t*—, and endless conveyers —*a*—, the starch hopper —C—, the vertically movable plate —P—, rotary shaft —*b*—, eccentric —*b'*—, eccentric-rod —*b''*— connecting the aforesaid plate to the eccentric, the rock-arms —*c*—*c*— actuated by the plate —P—, and the agitators —O—, in the starch-hopper and connected to the rock-arms as set forth.

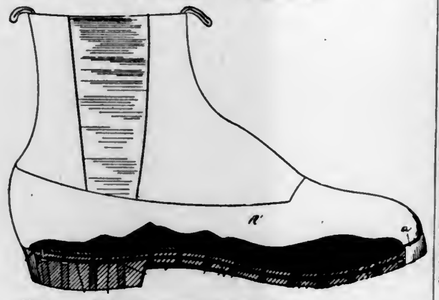
4. In combination with the frame —A—, bed —B—, and trays —*t*—, the vertically movable plate —P—, dies —P'— on the under side of said plate, the rotary shaft —*b*— parallel with the plate —P—, eccentrics —*b'*—, attached to said shaft, and eccentric-rods —*b''*— connecting the aforesaid plate to the eccentrics substantially as described and shown.

5. In combination with the frame —A—, bed —B—, endless conveyers —*a*— conveyer shaft —*a'*—, crank-disk —*a''*— mounted loosely on said shaft, the ratchet-wheel —*d*— fixed to said shaft, pawl —*d'*— pivoted to the crank disk, the rotary shaft —*b*—, crank —*c*—, and eccentrics —*b'*—*b'*— fixed to the latter shaft, and the pitman —*c'*— connecting said cranks, the starch-hopper —C—, starch leveler —C'—, the vertically movable printing plate —P—, eccentric-rods —*b''*— connecting said plate to the eccentrics —*b'*—*b'*—, the agitators —O— in the starch-hopper, the rock-arms —*c*—*c*— connected at one end to the agitators, and the posts —*f*—*f*— rigidly secured to the printing plate and connected to the aforesaid rock-arms, whereby said plate receives a tilting movement in making the impressions in the starch and obviates disturbances of previously made impressions as set forth.

6. In combination with the frame and bed, the hopper —H— provided with nozzles —H'—H'—, the bar —I—, plungers —I'—I'— hung on said bar, springs —*g*—*g*— depressing said plungers, the rock-shaft —*h*—, arms *h'*—*h'*— on said rock-shaft connected to the bar —I—, the heel —*h''*— on one of said arms, the rotary shaft —*b*—, eccentrics —*b'*— fixed to said shaft, eccentric rods —*b''*—, the pitman —L— connected to said eccentric rod and provided with the shoulder —L'— adapted to engage and draw down the heel —*h''*— the throw-off-cam —*i*— on said pitman, the stationary lug —*i'*— in the path of said cam, and a spring pushing the pitman toward said heel substantially as set forth.

7. The combination, with the hopper —H—, of the trough —*u*—, nozzles —H'—H'— on the bottom of said trough, and plungers —I'—I'— entering said nozzles, of the caps —*u'*—*u'*— removably connected to the ends of the trough —*u*—, substantially as and for the purpose set forth.

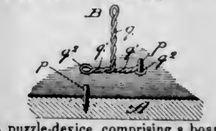
518,060. SOLE. WILLIAM A. FORD, Indianapolis, Ind. Filed Dec. 26, 1891. Serial No. 416,225. (No specimens.)



Claim.—1. The combination, with the insole of a boot or shoe, of an outsole consisting of two layers of rubber with an intermediate layer of canvas or equivalent tenacious material, the outer layer of rubber being provided with perforations extending completely there through, and fastening devices let into said perforations and passed through the canvas, the inner layer of rubber, and the insole, and securing the same together, the outer portion of said devices abutting directly against the canvas, substantially as described.

2. The combination, with the insole of a boot or shoe, of an outsole consisting of two layers of rubber with an intermediate layer of canvas or equivalent tenacious material, the outer layer of rubber being provided with perforations extending completely therethrough, and nails let into said perforations and perforating the canvas, the inner layer of rubber, and the insole, and securing the same together, the heads of said nails abutting directly against the canvas, substantially as described.

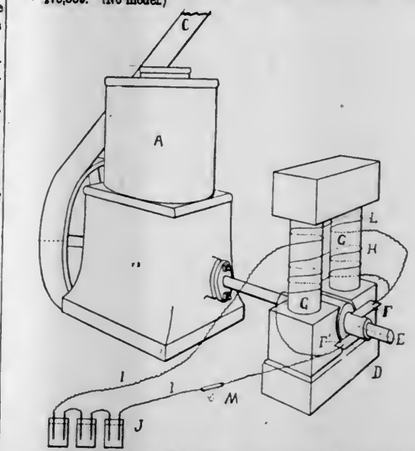
518,061. PUZZLE. JUDSON M. FULLER, Oak Park, Ill. Filed Nov. 28, 1893. Serial No. 492,213. (No model.)



Claim.—1. A puzzle-device, comprising a board provided on its surface with pivots, marking the points of a true course between points *t* and *s*, and false courses, and an implement, comprising a stem, adapted to be held in the hand, and two laterally extending arms, having pivot-engaging ends a distance apart coinciding with the distance between pivots in the courses, to engage and turn at their ends on said pivots and reach from pivot to pivot in the course, substantially as described.

2. A puzzle device comprising a board provided on its surface with a starting point *t*, ultimate point *s*, and pins *p* marking the points of a true course between the points *t* and *s*, and false courses, and an implement B provided with loops q^3, to engage and turn on the pins and reach from pin to pin in the courses, substantially as described.

518,062. SPEED AND POWER REGULATOR FOR MOTORS. HORACE B. GALE, San Francisco, Cal. Filed June 21, 1893. Serial No. 478,389. (No model.)



Claim.—1. In a regulator for a motor or prime mover, the combination of a dynamo-electric machine, a secondary battery whose positive and negative poles are electrically connected respectively to the corresponding poles or terminals of the armature of the said dynamo-electric machine, so as to complete the external circuit thereof, and power-transmitting devices connecting the motor or prime mover with the said dynamo-electric machine, which acts alternately as a current generator, charging the battery, and as an auxiliary motor, driven by a reverse or discharge current from the battery, thereby absorbing any surplus mechanical energy generated by the prime mover in excess of that required by the work, and restoring such energy when the power used exceeds that exerted by the prime mover, substantially as set forth, and for the purposes described.

2. In a regulator for a prime mover, the combination of an auxiliary reversible-current electric generator or motor having a constant direction of rotation, suitable power-transmitting devices connecting the said auxiliary generator and the prime mover, so that the auxiliary generator may either oppose or assist the prime mover as may be required; and a secondary battery with its positive and negative terminal plates in electrical connection respectively with the corresponding terminals of the said auxiliary generator, which battery is charged when the power exerted by the prime mover is in excess of the working load, and discharged through the said auxiliary generator when the load opposing the prime mover exceeds the power exerted thereby, in such a manner as to neutralize or diminish the fluctuations of power of the prime mover, substantially as set forth, and for the purposes described.

3. In a regulator for a motor or prime mover, the combination of a dynamo-electric machine having shunt and series field windings and a constant direction of rotation, power-transmitting devices connecting the same with the motor whose speed or power is to be regulated, an electrical circuit traversing the armature of the said dynamo-electric machine and the said series field windings, a secondary battery in the said circuit, having its positive and negative poles connected respectively to the terminals of like polarity of the said dynamo-electric machine, which battery is charged by reason of the superior electromotive force generated in the said armature when the power exerted by the prime mover exceeds what is required for other purposes, and which assists the prime mover by discharging a reverse current through the said armature, when the power required exceeds that exerted by the prime mover, substantially as set forth, and for the purposes described.

4. In a regulator for a prime mover, the combination of an auxiliary dynamo electric machine having a constant polarity and direction of rotation, suitable power-transmitting devices connecting the armature of the said dynamo-electric machine with the prime mover, an external circuit traversing said armature, a secondary battery in said circuit having its positive and negative terminal plates connected respectively to the terminals of like polarity of the said armature, the said battery serving to absorb any excess of energy exerted by the prime mover, and to supply, through the motor action of said armature, any deficiency in the power of the prime mover, and a rheostat or equivalent device in the field circuit of the said dynamo electric machine, whereby the strength of its magnetic field is adjusted, for the purpose of regulating the speed or power of the prime mover, substantially as described.

5. In a regulator for a motor or a prime mover, the combination of a reversible-current rotary electric generator or motor, having shunt and series field windings and a constant direction of rotation, suitable power-transmitting devices connecting the armature of the said generator or motor with the prime mover, a secondary battery whose positive and negative poles are connected respectively to the corresponding poles or terminals of the said generator, which absorbs any excess of energy exerted by the prime mover, and assists the prime mover by discharging a reverse current through the said armature when the power required exceeds the power exerted by the prime mover, and a rheostat or variable resistance connected in shunt with the said series windings, substantially as set forth, and for the purposes described.

6. The combination of an engine or prime mover, an auxiliary reversible-current dynamo-electric machine having its armature on the same shaft or otherwise connected therewith, so as to run at a speed corresponding or proportionate to that of the prime mover, a storage battery, and an independent electrical circuit including the armature of said auxiliary dynamo, and the said storage battery, for the purpose of regulating the speed or power of the prime mover by alternately absorbing and reproducing mechanical energy, substantially as set forth.

7. The combination of an engine or prime mover, an auxiliary rotary electric generator or motor having shunt and series field windings, suitable power-transmitting devices connecting the same with the prime mover, an electrical circuit traversing the armature of the said generator or motor and the said series field windings, a secondary battery in said circuit having its positive and negative poles connected respectively with the terminals of like polarity of the said auxiliary generator or motor, which battery is charged by reason of the superior electro-motive force of the auxiliary generator when the power exerted by the prime mover is greater than that used in other ways, and which assists the prime mover by discharging a reversed current through the said circuit when the power required exceeds that exerted by the prime mover, thereby steadying the operation of the prime mover, substantially as set forth.

8. The combination of a primary motor, an auxiliary rotary electric generator or motor, having shunt and series field windings, power-transmitting devices connecting the same with the primary motor, an electric circuit traversing the armature of the said auxiliary generator or motor and the said series field windings, a storage battery in the said circuit, having its positive and negative poles connected respectively to the terminals of like polarity of the said auxiliary generator, which battery, through the medium of the auxiliary generator, alternately absorbs any excess and supplies any deficiency in the power of the primary motor, a rheostat or variable resistance in circuit with the shunt coils of the said field windings, by which the rate of the primary motor may be set or controlled, and a rheostat connected in shunt with the series coils, by which the allowed variation in the rate of the primary motor may be adjusted, substantially as set forth.

9. The combination of a prime mover, a dynamo electric machine driven thereby, an external electric circuit energized by the said machine, one or more motors or other translating devices in the said circuit, supplying a variable demand for power, an auxiliary rotary electric generator driven by power derived from said circuit, an independent circuit traversing the armature of the said auxiliary generator, and a storage battery in the said independent circuit, which, through the medium of the said auxiliary generator, alternately absorbs the excess of energy exerted by the prime mover, and restores the same to the system, in such a manner as to regulate the power or speed of the prime mover, substantially as set forth.

10. The combination of a motor or prime mover, an auxiliary electric generator and a secondary battery connected as set forth for regulating the speed or power thereof, and electrically-operated valves, controlling the supply of working fluid to the said motor or prime mover, substantially as set forth and for the purposes described.

518,063. ART OF AND APPARATUS FOR COLORING THE PRINTING-SURFACE OF CAST TYPE. MANLY M. GILLAM, Philadelphia, Pa. Filed June 30, 1893. Serial No. 479,215. (No model.)



Claim.—1. The method of treating a type-bar or linotype to form a color contrast between the printing surface and the background thereof, which consists in inking the printing surface in the casting machine in the range of movement thereof, substantially as and for the purposes set forth.

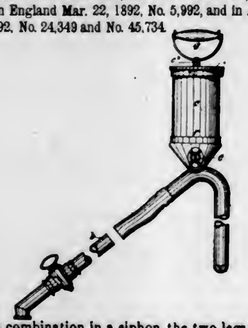
2. The method of treating type-bars or linotypes to form a contrast between the printing surface and back ground thereof, which consists in casting a type-bar or linotype under pressure in a machine, affording the type-bar or linotype a range of movement to cool and inking the printing surface thereof in said movement and prior to being liberated from the machine, substantially as and for the purposes set forth.

3. The combination with a casting machine, of means for applying coloring matter to the printing surface of the cast type-bar or linotype prior to liberation of the same from the machine, substantially as and for the purposes set forth.

4. The combination, with a machine for casting type-bars or linotypes, of devices with actuating mechanism for automatically applying coloring matter to the printing surfaces thereof, substantially as and for the purposes set forth.

5. The combination, with a type-bar casting or linotype machine provided with a carrier adapted to expose a type-bar or linotype in the travel thereof, means for coloring or inking the exposed printing surface of said type-bar or linotype and mechanism for controlling the range of movement thereof and for releasing the color applying means from contact with said type bar or linotype, substantially as and for the purposes set forth.

518,064. SIPHON. BERNHARD GREVE, Cologne, Germany. Filed Mar. 29, 1893. Renewed Mar. 7, 1894. Serial No. 502,781. (No model.) Patented in England Mar. 22, 1892, No. 5,992, and in Austria-Hungary Oct. 28, 1892, No. 24,349 and No. 45,734.



Claim.—In combination in a siphon, the two legs *a*, *b*, the cylinder at the apex of the legs connected therewith by the pipe 5, the valve in said pipe, the piston within the cylinder with means for operating it and the funnel shaped casing projecting up from the apex of the cylinder and having an opening through which the valve stem is rendered accessible, substantially as described.

518,065. ELECTROLYTICAL APPARATUS. CARL HOEPFNER, Giessen, Germany. Filed Feb. 8, 1892. Serial No. 420,774. (No model.) Patented in Germany Feb. 22, 1889, No. 58,133; in Norway Sept. 1, 1890, No. 1,967; in England Sept. 1, 1890, No. 13,735; in Italy Sept. 30, 1890, XXIV, 28,112, LV, 196; in Spain Nov. 11, 1890, No. 11,205, and in Austria-Hungary Dec. 12, 1890, No. 39,156 and No. 66,246.

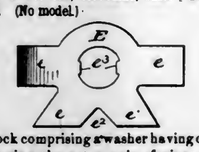


Claim.—1. In an electrolytic apparatus having adjacent cells of unlike name, a partition between said cells comprising a diaphragm constructed of a nitrated textile material, substantially as and for the purpose set forth.

2 In an electrolytic apparatus having adjacent cells of unlike name, a partition between said cells comprising a diaphragm constructed of a nitrated textile material and one or more auxiliary diaphragms, said nitrated diaphragms facing the insoluble electrode, substantially as and for the purpose set forth.

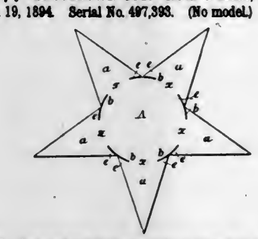
3. An electrolytic apparatus having adjacent cells of unlike name, and a chambered partition dividing said cells having its wall facing the insoluble electrode constructed of a nitrated organic substance as a nitrated textile material, substantially as and for the purpose set forth.

518,066. NUT-LOCK. WILLIAM G. KAY, Brooklyn, assignor of one-half to Harry S. Stevens, Cleveland, Ohio. Filed July 20, 1893. Serial No. 481,079. (No model.)



Claim.—A nut-lock comprising a washer having one or more wings or flanges, *e*, for engaging the nut a pair of wings or flanges, *e'*, arranged substantially as indicated, to engage an abutment on the body and one or more inwardly-projecting teeth, e^3, to engage the bolt substantially as and for the purpose set forth.

518,067. KNOCKDOWN TOY. HUGH S. KERR, Philadelphia, Pa. Filed Jan. 19, 1894. Serial No. 497,393. (No model.)

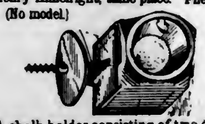


Claim.—1. A star shaped section of a knock down toy having incisions at the junction of the triangular portions with the body, substantially as described.

2. The combination in a knock down toy, of the star shaped sections, each section consisting of the central body portion A and triangular projecting portions *a* having points *c* at the base of each triangular portion made by incisions, substantially as described.

3. The combination of the star shaped section A having incisions at the junction of the base and the points, the section B, star shaped at each point having projections *a'* forming the two points of a star which are printed upon the said section, the points of one section being adapted to the incisions in an adjoining section to make a tower, substantially as described.

518,068. CHALK-HOLDER FOR BILLIARD OR OTHER CUES. CYRUS A. KNAUER, Pottstown, Pa., assignor of two-thirds to John H. Geiger and Henry Himelright, same place. Filed Oct. 5, 1893. Serial No. 487,240. (No model.)

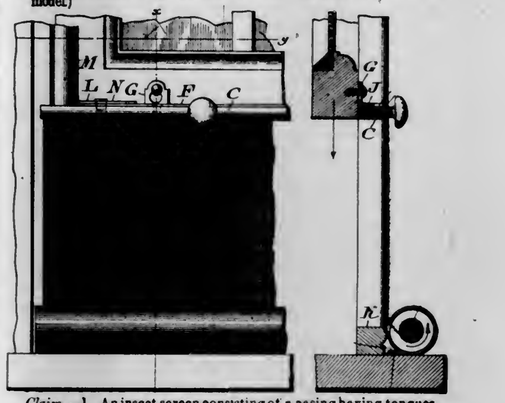


Claim.—1. A chalk holder consisting of two detachable parts one of said parts having a top, bottom and back piece, with an arm provided with a shoulder and an attaching screw, and the other part having sides adapted to engage the back of the first mentioned part, and with an opening for the insertion of a cue, said parts being combined substantially as described.

2. A chalk holder consisting of the detachable parts B and C, said part B having a top, bottom and back piece, with an arm having an attaching screw, and said part C having an opening G therein and formed of sides adapted to engage with the top, bottom and back of said piece B forming a chamber for the chalk, said parts being combined substantially as described.

3. A chalk holder consisting of two detachable parts one of which has a top, bottom and back piece, with means substantially as described for attaching the same to a table, the other part having a mouth therein to receive the cue tip, and provided with sides, each of which engages said top and bottom piece, said latter part having an opening formed in the wall of the mouth thereof, substantially as described.

518,069. WINDOW AND INSECT SCREEN. ERNEST C. KERR, Jr., Philadelphia, Pa. Filed June 29, 1893. Serial No. 479,115. (No model.)

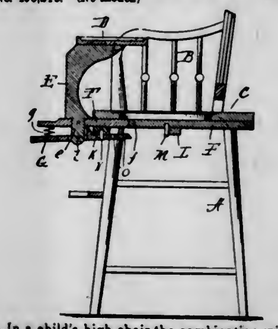


Claim.—1. An insect screen consisting of a casing having tongues thereon, a spring roller mounted in said casing, a netting secured at one of its ends to said roller, a strip secured to the other end of the netting, and an adjustable plate secured to said strip and having ears for connecting it to a sash, said parts being combined substantially as described.

2. An insect screen having a netting with a spring roller at one end, and provided at the other with a strip having a slotted plate secured thereto, and ears connected with said plate, said parts being combined substantially as described.

3. An insect screen having a netting with a strip at one end means substantially as described for securing the said end to a sash and adjustable slotted guards secured to said strip and fitting closely against a sash and the side stiles of the frame on which said sash moves, said parts being combined substantially as described.

518,070. HIGH CHAIR. GEORGE A. MORFOOT, Chicago, Ill., assignor of one-half to Joseph Koblish, same place. Filed Jan. 27, 1894. Serial No. 498,216. (No model.)



Claim.—In a child's high chair the combination with the chair, of guide ways secured to the under side of the seat, a vertically jointed

slide bar running in said ways, an upwardly projecting arm, E, rigidly secured to the slide bar, a table D, carried by the arm E, and adapted to close the space between the chair arms, and a spring catch for locking the slide bar into the ways, substantially as described and for the purpose specified.

518,071. TROLLEY-WIRE INSULATOR. LOUIS MCCARTHY, Boston, Mass. Filed June 8, 1893. Serial No. 477,015. (No model.)



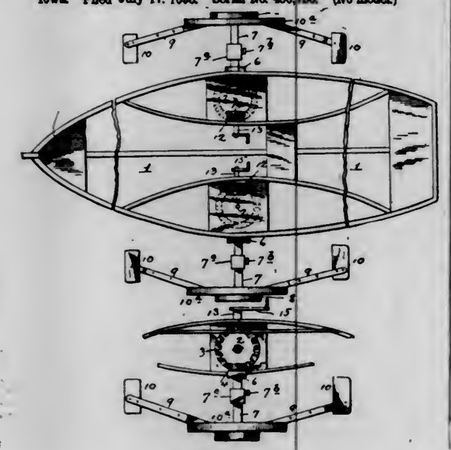
Claim.—1. An insulator for trolley wires comprising an outer case or receiver having one or more arms by means of which the insulator may be secured to the span wire, an insulated portion fitting within said receiver, a screw bolt passing through the top of the outer case or receiver and entering the upper part of such insulated portion for securing said insulated portion within said receiver and a screw connection for securing said insulator to the ear or clip on the trolley wire, substantially as set forth.

2. An insulator for trolley wires comprising an outer case or receiver having one or more arms by means of which the insulator may be secured to the span wire, an insulated portion fitting within said receiver, and a screw connecting piece for securing said insulator to the ear or clip on the trolley wire, said receiver having a downwardly projecting skirt extending below the lower portion of the insulator proper which is within the receiver, for the purposes and substantially as set forth.

3. An insulator for trolley wires comprising an outer case or receiver provided with one or more arms by means of which the insulator may be secured to the span wire, an insulated portion fitting within said receiver, said insulated portion having an exterior layer of insulating composition molded thereon, and screw connecting bolts for securing said insulated portion within the receiver as also for securing said insulated portion to the ear or clip on the trolley wire substantially as set forth.

4. An insulator for trolley wires comprising an outer case or receiver having oppositely extending arms by means of which the insulator may be secured to the span wire, an insulated portion fitting within said receiver a screw connecting bolt passing through the top of the outer case or receiver and entering the top of the said insulated portion for securing said insulated portion within said receiver, and a second screw connecting bolt separate and independent from that aforesaid for securing said insulated portion to the ear or clip on the trolley wire, said oppositely extending arms being in line with the body of the insulated portion when said portion is within the receiver whereby the span wire will be in line with the body of the insulated portion and below the securing bolt which secures said insulated portion within the receiver, substantially as and for the purposes set forth.

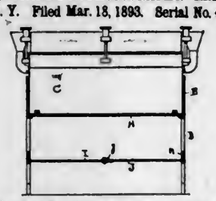
518,072. BOAT-PROPELLER. FRANK P. MCELFRESH, Kimballton, Iowa. Filed July 17, 1893. Serial No. 480,726. (No model.)



Claim.—1. The combination with a boat of the horizontal crown-wheels, the transverse shafts having a pinion engaging with said crown-wheels, the shafts pivoted to said transverse shafts, the hubs carried thereby, the inwardly inclined adjustable arms secured to said hubs and provided with paddles, the pinions meshing with said crown-wheels, and their shafts and cranks; substantially as described.

2. The combination with a boat of the rotatable shafts at each side thereof, and means for operating the same, the shafts pivoted thereto, the slidable sleeves, the removable pins for holding said sleeves in place, the hubs, the inwardly inclined arms having paddles and the brace ring; substantially as described.

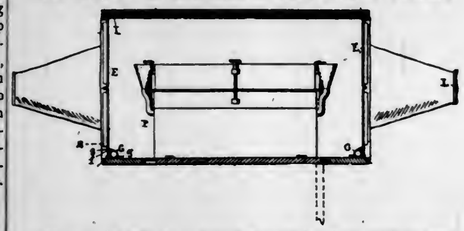
518,073. STAND FOR PHOTOGRAPHS. ARTHUR D. F. RANDOLPH, New York, N. Y. Filed Mar. 18, 1893. Serial No. 466,653. (No model.)



Claim.—1. A stand for photographers having folding leg sections, catches to hold the said leg sections in a folded position, and braces I and J having their outer ends pivotally connected with the cross bars of the said leg sections, the brace I being a folded rod, and the brace J being a single straight rod and having a catch *j* on the inner end to engage with the folded end of the brace I, substantially as described.

2. The herein shown and described stand for photographers, composed of a top having vertical sides and an inner ledge, folding leg sections having their lower ends expanded, catches to hold the said leg sections in a folded position, and braces I and J pivotally connected at their outer ends to the cross bars of the leg sections, the brace I being a folded rod and the brace J a single straight rod having a catch at the outer end to engage with the folded end of the brace I, substantially as specified for the purpose set forth.

518,074. PHOTOGRAPHIC DARK-BOX. ARTHUR D. F. RANDOLPH, New York, N. Y. Filed Mar. 18, 1893. Serial No. 466,654. (No model.)



Claim.—1. A folding portable dark room for photographers, consisting of a top and bottom frame, flexible sides connected at their top and bottom edges with the said top and bottom frames, corner supports connected midway of their ends by a rule joint and hinged at the ends, respectively, to the said top and bottom frames and arranged to stiffen the said flexible sides at the angles when the structure is in use, said supports having depressions *f* near one of the hinged ends, and coil springs having arms *g* seated in the said depressions, and having arm *g'* secured to the contiguous frame, substantially as set forth.

2. The folding portable dark room for photographers herein set forth, consisting of a bottom having a downwardly opening door and grooved in the edge, a top frame having grooves in its inner edges, a frame I secured to the said top frame, flexible sides having the top edge clamped between the top frame and the frame I, and having the lower edge held in the said grooved edge of the bottom by a clamp wire, and having flexible cuffs on the opposite sides provided with contractible wrist bands, folding corner supports connected midway of their ends by rule joints and hinged at their ends, respectively, to the top and the bottom and adapted to stiffen the flexible sides when the structure is in use, and springs to hold the corner supports distended, substantially as described.

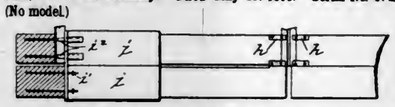
518,075. PHOTOGRAPHIC DEVELOPING-TRAY. ARTHUR D. F. RANDOLPH, New York, N. Y. Filed Mar. 18, 1893. Serial No. 466,655. (No model.)

Claim.—1. A photographer's developing tray composed of a lower section having an inner ledge, and having a plate opening in one side just above the said ledge, a strip on the three sides of the said ledge remote from the side having the plate opening, a door hinged to the side and having a strip to enter the said plate opening to force the plate to place, an upper section having a flexible strip at its lower end to engage with the plate to be developed and obtain a close joint, and clamping devices to secure the sections together, substantially as described for the purpose set forth.



2. A photographer's developing tray composed of an upper section closed at the top by a colored glass and open at the bottom, and subdivided into two or more compartments, by vertical partitions, funnels and spigots for each compartment attached to the said section near the lower end thereof, the flexible strip at the bottom edge of the said section to engage with the plate to be developed and obtain a close joint, a lower section closed at the bottom by a colored glass, and having an inner ledge and a plate opening *i* in a side for each compartment in the upper section, a strip *t* on the three sides remote from the side having the opening *i*, a door R having a strip to enter the opening *i* and force the plate to proper place, the sides of the said lower section having slots to receive the said spigots and funnels and clamping devices to secure the said two sections together and clamp the plate between the lower end of the upper section and the said inner ledge, substantially as set forth.

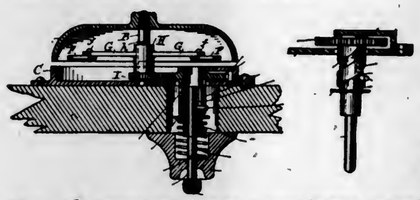
518,076. APPLIANCE FOR MOLDING CONCRETE. ALBERT RAU, Pforzheim, Germany. Filed May 15, 1893. Serial No. 474,376. (No model.)



Claim.—1. A board for use in making concrete structures having the clasps *h* for engaging the beams and the sliding casing *i*, movable longitudinally of the board, said sliding casing carrying sliding bars i^2 at one end of the board, substantially as described.

2. A board for use in making concrete structures having the clasps *h* for engaging the beams at one end and the sliding bars i^2 at the other end arranged to slide lengthwise of the board, substantially as described

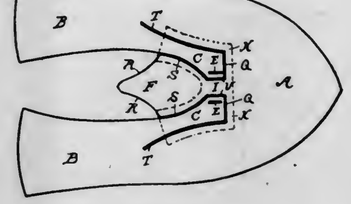
518,077. DOOR-BELL. JOHN R. SAUTTER, San Francisco, Cal. Filed Dec. 26, 1893. Serial No. 494,674. (No model.)



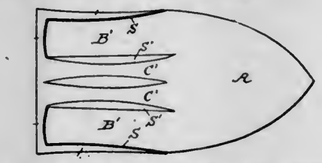
Claim.—The combination of a gong, a rotary hammer to sound the same, a gear wheel and pinion adapted to impart motion to the hammer, a spirally-slotted tube formed integral with and extending outward from the gear wheel, a longitudinally slotted tube extending through the spirally slotted tube and forming a bearing for the same and the gear wheel, and a push rod playing in the said inner tube and provided with a transverse pin passing through the straight slot therein and engaging the spiral slot in the outer tube.

518,078. SLIPPER. BENJAMINO SCARINCI, Philadelphia, Pa. Filed Nov. 17, 1893. Serial No. 491,259. (No model.)

Claim.—The herein described integral blank for slippers, consisting of the vamp, A, the tongue F, connected thereto by the narrow web, I; the counters, B, with the flaps, C, separated from the counters by the slits, T, extending downwardly to the rear to a point about midway between the upper and lower edges of the counters, and closing the openings on each side of the slipper formed by cutting the said flaps from the counters, substantially as described.



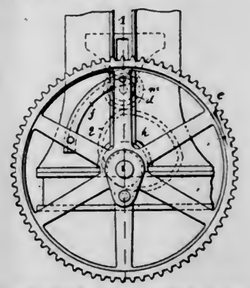
518,079. SHOE. BENIAMINO SCARINCI, Philadelphia, Pa. Filed Nov. 17, 1893. Serial No. 491,262. (No model.)



Claim.—1. The herein described shoe blank, consisting of the vamp, A, the counters, B', B', the front strips, C, C, with the upper borders, D', D', at right angles thereto, both of said parts being severed from adjacent sides of the counters and the whole forming an integral blank, substantially as described.

2. The herein described shoe blank consisting of the vamp, A, front strips, C, C, upper borders, D', D', and the back strips, E', E', cut from the counters, substantially as shown and described.

518,080. STAMPING-PRESS. LOUIS SCHULER, Göppingen, Germany. Filed Oct. 5, 1893. Serial No. 487,244. (No model.) Patented in Germany Apr. 7, 1889, No. 49,580.



Claim.—1. A stamping-press, constructed with a cam-shaft, a support for the bottom-die, cams for raising the said support, wheels on the cam-shaft, curved tracks fastened to said wheels, and projections on the die support, on which projection said curved tracks can act, substantially as set forth.

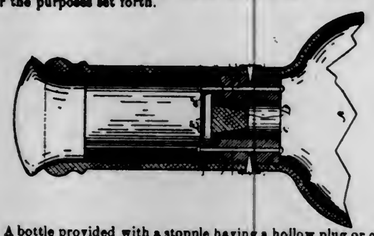
2. A stamping-press, constructed with a cam-shaft, a vertically movable support for the lower die, vertically-slotted standards between which said support is guided to move vertically, cams on the cam-shaft for raising the support, rollers pivoted on said support, wheels on the ends of the cam-shaft, and flanged curved tracks attached to said wheels, which curved tracks, when the support has reached its highest position, bear on the rollers of the support and press the same and said support downward, substantially as set forth.

518,081. STOPPLE FOR BOTTLES. HERMAN C. F. R. SNOWHAR, New Paltz, N. Y. Filed Feb. 5, 1894. Serial No. 499,077. (No model.)

Claim.—1. A bottle provided with a stopple, a hollow cork with a movable flanged tapering plug, a recessed disk disposed in range thereof and connected therewith and a sealing strip or band encircling the neck of the bottle and provided with means engaging said cork, substantially as and for the purposes set forth.

2. A bottle provided with a neck having an internal hollow plug with a movable valve, a recessed disk disposed in range thereof, and a

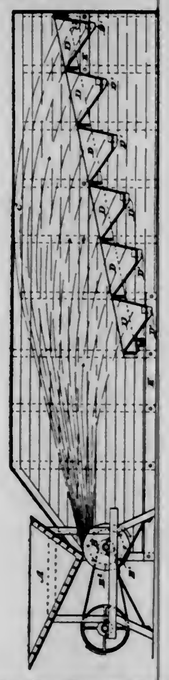
band provided with pins or tacks engaging said plug, substantially as and for the purposes set forth.



3. A bottle provided with a stopple having a hollow plug or cork with a recessed face, a flanged gasketed tapering valve seating with said plug or cork, and a recessed disk disposed in range of said valve and connected by means of pins or bars with said cork, substantially as and for the purposes set forth.

4. A bottle provided with a stopple having a plug or cork with a movable valve and a band engaging said neck and provided with means fitting into said plug or cork, substantially as and for the purposes set forth.

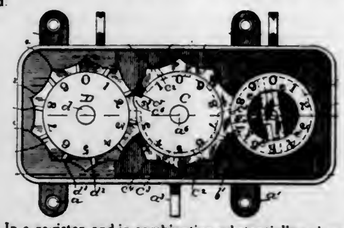
518,082. APPARATUS FOR THE CONCENTRATION OR SEPARATION OF ORES. MORTIMER STUCKEY and HENRY ARTHUR, Adelaide, South Australia. Filed Nov. 6, 1893. Serial No. 490,189. (No model.) Patented in South Australia June 21, 1893, No. 2,513, and in New South Wales June 22, 1893, No. 4,477.



Claim.—An ore separating apparatus comprising a chamber, the wheel B arranged to receive the material and throw it into the chamber the series of hoppers inclining upwardly from the centrifugal wheel and adjustable in inclined position toward and from the same, and the horizontal ways along which the series of hoppers is moved whereby the inclination thereof will be maintained, substantially as described.

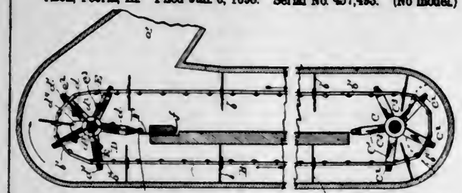
518,083. REGISTER FOR GRAIN WEIGHING AND MEASURING MACHINES. VALENTIN WEBER, Princeville, Ill. Filed Jan. 6, 1893. Serial No. 457,448. (No model.)

Claim.—1. In a register, and in combination substantially as hereinbefore described, a units wheel having an aperture b^3 in its periphery, a tappet b' projecting from its periphery, and lugs c, c', at its central part, a drive shaft f projecting into the units wheel and provided with a block, as F, fixed thereto, and removably seated in the lugs c, c', a tens wheel having an annular flange c' with indentations c^3, lugs c^3 and aperture c^3, and a hundreds wheel having lugs d^3 and an annular flange d' with indentations d^3 in its outer edge, whereby the hundreds wheels and the tens wheel may be removed, and the units wheel and said tens wheel and hundreds wheel then reset substantially as described.



2. In a register, and in combination substantially as hereinbefore described, with a units wheel having lugs c and c', a multisided block, as F, removably seated in a correspondingly shaped interspace between said lugs, a drive shaft, as f, to which said block is fixed, whereby said block and shaft can be removed from the units wheel for resetting said wheel, substantially as described.

518,084. GRAIN-ELEVATOR. VALENTIN WEBER, Princeville, and JAMES R. HARRISON, Peoria, assignors of one-third to William Harrison, Peoria, Ill. Filed Jan. 6, 1893. Serial No. 457,493. (No model.)



Claim.—1. In an elevator, the combination substantially as hereinbefore described, with a trunk, a partition which divides said trunk into two tubes and which partition has a fixed lower main part and a slidable extension or upper end part, upper and lower sprocket wheels, the upper one of which is adjustable vertically with reference to the trunk, and means for connecting said slidable extension with the adjustable sprocket wheel shaft, whereby said extension is adjusted in higher or lower planes in unison with adjustments of the sprocket wheel.

2. In an elevator, in combination substantially as hereinbefore described with a trunk and a partition dividing said trunk into two tubes, upper and lower sprocket wheels, the upper one having grain deflector plates, and a carrier belt having flights or disks, a slidable extension of the upper end part of the partition adapted for sliding upwardly when the upper sprocket wheel is elevated.

3. In an elevator, in combination substantially as hereinbefore described, with a trunk and a partition dividing said trunk into two tubes, upper and lower sprocket wheels, the upper one having grain deflector plates, and a carrier belt, a slidable extensible upper end part of the partition, and means for connecting the upper sprocket wheel and sliding extension whereby they are simultaneously adjusted.

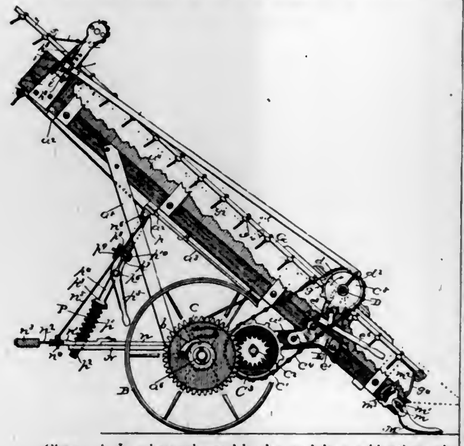
4. In an elevator, in combination substantially as hereinbefore described, with a trunk and a partition dividing said trunk into two tubes, upper and lower sprocket wheels, the upper one having grain deflector plates E, and a carrier belt having lifts as b, a slidable plate as F, and adjustable blocks d^3 to which the slidable plate F is connected and to which the upper sprocket wheel is journaled, whereby said sprocket wheel and sliding plate are simultaneously adjusted by adjustment of the sliding blocks.

5. In an elevator, in combination substantially as hereinbefore described, with a trunk and a partition dividing said trunk into two tubes having a slot in its upper end, upper and lower sprocket wheels the upper one having grain deflector plates E, and a carrier belt having lifts as b, a plate F adapted to slide vertically in the slotted partition, and blocks d^3 adjustably fixed to the trunk, and connected with the upper sprocket wheel and the sliding plate whereby simultaneous adjustments are given thereto by adjustments of the blocks d^3.

6. In an elevator, in combination substantially as hereinbefore described, with a trunk and a partition dividing said trunk into two tubes and provided with a discharge spout, a carrier belt having lifts or disks for impelling or carrying grain or other material upwardly through one of said tubes, and an upper and a lower sprocket wheel, the upper sprocket wheel having slotted arms with sprocket teeth or cogs on their outer ends, and grain deflector plates, as E fixed in the slots of the arms.

7. In an elevator, in combination substantially as hereinbefore described, with a trunk, a partition dividing said trunk into two tubes, a discharge spout, an upper and a lower sprocket wheel, and sprocket chain provided with lifts, or disks, and deflector plates extending laterally from each side of the upper sprocket-wheel and radially from the shaft on which it is mounted and by which it is revolved in such relation to the lifts on the sprocket chain as to aid in retaining the grain thereon, and to facilitate and insure its passage therefrom and to the discharge spout.

518,085. HAY RAKE AND LOADER. CHARLES E. WHITE, Moline, Ill., assignor to the Deere & Mansur Company, same place. Filed Jan. 9, 1893. Serial No. 457,834. (No model.)



Claim.—1. In a hay rake and loader, and in combination substantially as hereinbefore described, with an inclined platform, hay elevating rake bars and a multicrank shaft for operating said rake bars, a rock shaft located above the upper ends of the rake bars, and flexible rake bar lifters, connecting said rock shaft and the upper ends of the rake bars.

2. In a hay rake and loader, and in combination substantially as hereinbefore described, with an inclined platform, hay elevating rake bars and a multicrank shaft for operating said rake bars, a rock shaft located above the upper ends of the rake bars and operated by the multicrank shaft, and flexible rake bar lifters connecting said rock shaft, and the upper ends of the rake bars, one series of which lifters wind in one direction on said rock shaft and the other series wind in an opposite direction thereon, and one series of which are connected with the rake bars of one gang thereof to lift them with a positive motion and the other series with the rake bars of the other gang thereof to lift them with a positive motion.

3. In a hay rake and loader, and in combination substantially as hereinbefore described, with an inclined platform, hay elevating rake bars, and a multicrank shaft for operating said rake bars, a rock shaft located above the upper ends of the rake bars and geared with to be oscillated or rocked back and forth by said multicrank shaft, and mechanism connecting the rock shaft and the upper ends of the rake bars, whereby the rock or swing of the rock shaft in one direction will lift the upper ends of one gang of rake bars, and its rock or swing in an opposite direction will lift the upper ends of the other gang of rake bars.

4. In a hay rake and loader, and in combination substantially as hereinbefore described, with an inclined platform, hay elevating rake bars, and a multicrank shaft for operating said rake bars, a rock shaft located above the upper ends of the rake bars and geared with to be oscillated or rocked back and forth by said multicrank shaft, flexible chains or cords fixed at one end to the rake bars and at their other ends to the rock shaft, one series thereof to wind in one direction on the rock shaft and thereby lift the upper ends of one gang of rake bars, and the other series thereof to wind in an opposite direction on the rock shaft and thereby lift the upper ends of the other gang of rake bars.

5 In a hay rake and loader, and in combination substantially as hereinbefore described, with an inclined platform, hay elevating rake bars, and a multicrank shaft for operating said rake bars, a rock shaft located above the upper ends of the rake bars and geared with to be oscillated or rocked back and forth by said multicrank shaft, flexible chains or cords fixed at one end to the rake bars, and extending upwardly and laterally from each rake bar to the rock shaft to which they are fixed at their other ends, one series thereof to wind in one direction on the rock shaft and thereby lift the upper ends of one gang of rake bars, and the other series to wind in an opposite direction on the rock shaft and thereby lift the upper ends of the other gang of rake bars.

6. In a hay rake and loader, and in combination substantially as hereinbefore described, with an inclined platform, multicrank shaft, and rake bars operated thereby, a rock shaft geared with the multicrank shaft to be oscillated or rocked back and forth thereby, lifting mechanism connecting said rock shaft, and the upper ends of the rake bars, whereby when the rock shaft is rocked or swung in one direction one gang of rake bars is lifted thereby, and when the rock shaft is rocked or swung in an opposite direction the other gang of rake bars are lifted thereby, and adjustable standards to which the rock shaft is journaled.

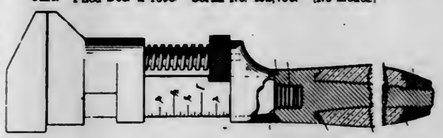
7. In a hay rake and loader, and in combination substantially as hereinbefore described, with an inclined platform, multicrank shaft, and rake bars operated thereby, a rock shaft provided with a crank having a series of holes a connecting rod connecting with either of said holes at one end and at its other end with a crank arm on the end of the multicrank shaft, and rake bar lifters connecting the rock shaft and the upper ends of the rake bars, whereby the rock or swing of the rock shaft in one direction will lift the upper ends of one gang of rake bars, and its rock or swing in an opposite direction will lift the other gang of rake bars.

8. In a hay rake and loader, and in combination substantially as hereinbefore described, with an inclined platform, hay elevating rake bars, and a multicrank shaft for operating said rake bars, a rock shaft located above the upper ends of the rake bars and provided with a crank arm at one end thereof, which is adjustably connected with one end of a connecting rod by a series of holes in said rod, the other end of which rod is connected with a crank arm on the multicrank shaft, and rake bar lifters interposed between the rock shaft and the upper ends of the rake bars, whereby the rock or swing of the rock shaft in one direction will lift the upper ends of one gang of rake bars, and its rock or swing in an opposite direction will lift the upper ends of the other gang of rake bars.

9. In a hay rake and loader, and in combination substantially as hereinbefore described, an inclined platform, multicrank shaft, rake bars operated by said multicrank shaft, a rock shaft located at or near to the upper end of said inclined platform intergear mechanism connecting said rock shaft and multicrank shaft, rake bar lifting mechanism interposed between said rock shaft and the rake bars, whereby when the rock shaft is rocked or swung in one direction by the multicrank shaft one gang of rake bars is lifted thereby, and when said rock shaft is rocked or swung in an opposite direction the other gang of rake bars is lifted thereby

---

518,086. MONKEY-WRENCH. WILLIAM R. WILBUR, Cleveland, Ohio. Filed Dec. 4, 1893. Serial No. 492,736. (No model.)



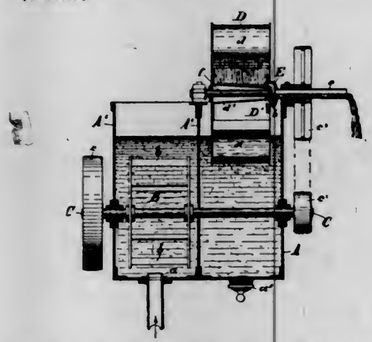
Claim.—1 A monkey-wrench having the shank of the stationary jaw made in two pieces 3 and 4, member 3 bearing the movable jaw and the stationary sleeve or collar that affords bearing for the operating-screw, and member 4 bearing the handle of the tool, member 3 extending through and beyond the aforesaid sleeve or collar and having the portion extending beyond said collar or sleeve screw-threaded externally, and the inner end of member 4 terminating in a nut that is integral with member 4 and engages the threaded portion of member 3, substantially as set forth.

2 A monkey-wrench having the shank of the stationary-jaw composed of two pieces, 3 and 4, member 3 bearing the movable jaw and stationary sleeve or collar that affords bearing for the operating-screw and member 4 bearing the handle of the tool, member 3 extending through and beyond the aforesaid sleeve or collar and having the portion that extends beyond said collar or sleeve screw-threaded externally, and member 4 terminating at its inner end in a nut that engages the threaded end of member 3, and is fitted into the aforesaid sleeve or collar, substantially as and for the purpose set forth.

3. A monkey-wrench having the shank of the stationary jaw composed of two pieces 3 and 4, member 3 bearing the movable jaw and stationary sleeve or collar that affords bearing for the operating-screw, and member 4 bearing the handle of the tool, member 3 ex-

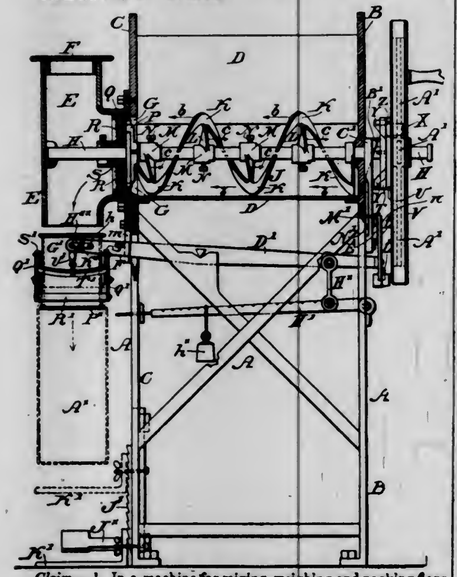
tending through and beyond the aforesaid sleeve or collar, and having the portion that extends beyond said collar or sleeve screw-threaded externally and reduced in size to form a shoulder, 8, and member 4 terminating at its inner end in a nut that engages the threaded end of member 3, is fitted into the aforesaid sleeve or collar and engages the aforesaid shoulder or member 3, substantially as and for the purpose set forth.

518,087. WASHING APPARATUS. WILHELM ARNOLD, Gablenburg, near Stuttgart, Germany. Filed Oct. 18, 1893. Serial No. 488,467. (No model.)



Claim.—In a baling device, a rotary drum provided with a number of peripheral scoops, in combination with a hollow shaft communicating with the interior of the drum, a number of inclined troughs arranged below the scoops and around the axle of the drum, and a valve suspended from the axle of the drum for closing off the lower part of the said drum, substantially as set forth.

518,088. MACHINE FOR MIXING, WEIGHING, AND PACKING FLOUR, &c. SAXTON T. AYRES, Philadelphia, Pa. Filed June 10, 1893. Serial No. 477,246. (No model.)



Claim.—1. In a machine for mixing, weighing and packing flour a hopper with a rotatable shaft therein, in combination with a conveyer consisting of hubs with arms and spiral flights, said hubs being removably secured on said shaft, and each of said arms being twisted in an opposite direction from the spirals thereon, substantially as described

2. In a machine for mixing, weighing and packing flour, a shaft a conveyer consisting of sections, each having a hub with a twisted arm and a spiral flight, said hub being adapted to be secured on said shaft and said arm being twisted in opposite direction from said flight, said parts being combined substantially as described.

3. In a machine for mixing, weighing and packing flour, a frame, a hopper thereon, a conveyer in said hopper, a chute in communication with said hopper, a sieve between said hopper and chute, a brush freely mounted on said conveyer shaft, and bearing against said sieve, and an arm secured on said shaft and bearing against said brush, said parts being combined substantially as described.

4. The driving shaft H with a conveyer thereon, the head T fixed to said shaft, and the sliding head U loose thereon, the loose sliding power wheel V on said shaft, the levers C' with shoes B' thereon, said head T having the recesses W and projecting lug X, and said head U having the projections Y and openings Z, the lug X being adapted to be engaged by said power wheel, substantially as described.

5. The beam D' with the levers L' and yoke F', the bag-supporting cylinder G' on said yoke, and stopping mechanism of the driving shaft adapted to be engaged by the saddle E', substantially as described.

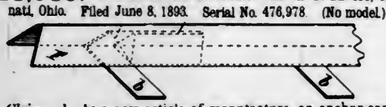
6. In a machine for mixing, weighing and packing flour, a frame, a conveyer, a power wheel with clutch members on the conveyer shaft, a weighing device having the pivoted beam D', the levers L' with projections M', N', the levers C' pivoted to the frame and having the inclined shoes B' engaging a lug Y on the loose member of the clutch mechanism, said parts being combined substantially as described.

7. The lever L' with lateral extensions M' and lugs N', the levers C' and the power wheel V, and the heads T and U on the driving shaft, said wheel V and head U being laterally movable on said shaft, and said head T being fixed on said shaft and provided with the lug X, in combination with the bag carrying beam D' and the saddle E' on the frame of the machine said saddle being adapted to engage with said lugs N', for operating said levers C', and thus operating also the stopping mechanism of said driving shaft, substantially as described.

8. In a machine for mixing, weighing and packing flour, a frame, a hopper mounted thereon, a conveyer in said hopper, a chute adjacent to said hopper, a sieve between said chute and hopper, a brush loosely mounted on said conveyer or shaft, and in contact with said sieve, an arm secured to said shaft and bearing against said brush, and a wiper on said shaft and in contact with the opposite side of said sieve from said brush, said parts being combined substantially as described.

9. In a machine for mixing, weighing and packing flour, a frame, a hopper, a combined mixer and conveyer, a power wheel with clutch members on the conveyer shaft, one of said members having lugs thereon and the other member having recesses through which said lugs pass, a weighing device with levers connected therewith, levers pivoted to the frame of the machine and having inclined shoes engaging said lugs, and levers carried and operated by the movements of a beam of the weighing device for operating said levers having the shoes thereon, said parts being combined substantially as described.

518,089. SHEET-METAL ROOFING. EDWIN D. BEVITT, Cincinnati, Ohio. Filed June 8, 1893. Serial No. 476,978. (No model.)

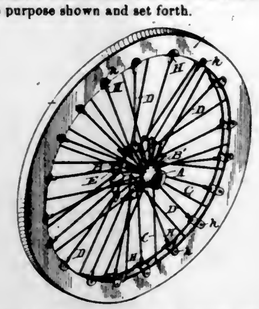


Claim.—1. As a new article of manufacture, an anchor-cap for standing-seam roofing, composed substantially of a narrow sheet or plate formed into an inverted-V shape in cross section, an inner integral fold or strip turned along one edge or side of said sheet, longitudinal end-slits *c*, *c*, and intermediate right-angled slits *c'*, *c'*, constructed along the line or web of said fold, and narrow strips of metal, thus partially severed from said cap or main-piece, lapped under at *d* and bent and disposed laterally across the bottom of the cap, to form, anchoring cleats *b*, as herein shown and described.

2. In the construction of a joint-cap for sheet-metal roofing, the process herein-described of taking a strip or piece D of less width than that of the combined width of the metal requisite in two single caps, making a longitudinal, double-row of end-slits *e* and *e'*, and right-angled slits *f*, down the center thereof, the space or width of metal between said double-row of slits corresponding to the width of metal necessary in forming the cleats along both resultant divisions D' and D^2 of said piece D, the narrow strips provided by said slits then bent and disposed into lateral cleats and connecting webs, and the divisions D' and D^2 and parts of said cleat strips being then pressed or otherwise formed into inverted-V or other suitable shape in cross-section, substantially as herein set forth.

518,090. BICYCLE-WHEEL. BENJAMIN J. BRAGDON, Beloit, Kans. Filed Nov. 3, 1893. Serial No. 489,897. (No model.)

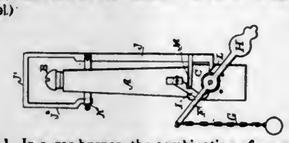
Claim.—1. In a wheel for bicycles and other vehicles, the combination of the hub A B B', spokes C, inner rim I, spokes D provided with the adjustable springs G G', and outer rim comprising the parallel sides or fellies J J and concave rim or tire-seat L; substantially as and for the purpose shown and set forth.



2. In a wheel for bicycles and other vehicles, the combination with the hub A B B', dished spokes C and inner rim I, of the independent rim J K J, spokes D, adjustable bushings or spring-bearings E *e*, arms F F', and springs G G': substantially as and for the purpose shown and set forth.

3. In a wheel for bicycles and other vehicles, the combination with a common hub of two independent and disconnected rims, one of which forms an inner rim, connected to the hub by rigid spokes, while the other forms an exterior rim provided with a concave seat for a tire and connected to the hub by spokes provided with adjustable springs whereby the "spring" or resiliency of said outer rim in respect to the hub and the inner rim may be regulated by adjusting the tension of the springs upon their respective spokes; substantially in the manner and for the purpose herein shown and set forth

518,091. SAFETY GAS-COCK. GEORGE W. CINI and GUSTAV MAIWALD, San Francisco, Cal. Filed June 26, 1893. Serial No. 478,891. (No model.)



Claim.—1. In a gas burner, the combination of a supplemental cock having notches on its opposite sides, a lever and attachment for operating the cock, a pawl adapted to engage one of said notches to retain the cock in an open position, a lever fulcrumed near the upper end of the burner having its lower end formed or provided with a pawl to engage the other notch, having its upper portion extended across the burner tip to form an expansible bar, and thence turned downwardly on the side of the burner opposite the main portion of the lever, and having its end fixedly secured whereby as the transverse bar expands under the influence of the heat the lever swings about its fulcrum and the pawl end is made to engage its notch, said lever being provided with means adapted to engage and release the retaining pawl from its notch, substantially as herein described.

2. In a gas burner, a cock having a weighted or spring-actuated lever fixed upon its outer end and an attachment whereby said lever is moved so as to open the cock for the passage of gas, a pawl adapted to engage a notch in the ratchet disk upon the outer end of the cock whereby the latter is retained in its open position, after the lever has been drawn down, a vertical lever fulcrumed upon the side of the burner having a pawl projecting therefrom and adapted to engage a notch upon the opposite side of the ratchet from the first named pawl, a yoke connected with the upper end of the lever having the side opposite to the lever rigidly fixed to the gas burner, and the transverse bar of the yoke extending above the burner whereby its expansion acts to move the lever about its fulcrum and causes the second pawl to engage the notch of the ratchet, and an arm M projecting from the lever and acting to disengage the first named pawl at the instant when the second pawl has engaged the ratchet, substantially as herein described.

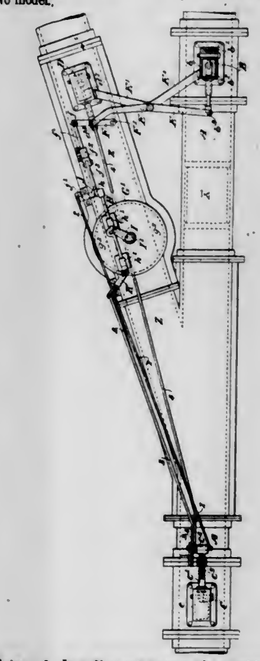
3. In a gas burner, the rotary gas cock, a weighted lever with connection by which it is actuated to open the cock, a pawl I engaging a notch upon one side of the ratchet disk to retain the valve in its open position, a lever fulcrumed upon the opposite side of the burner connected with an expansion arm passing through the gas flame whereby the upper end of the lever is moved outward by the expansion of the arm, an arm projecting from the lower end of the lever adapted to disengage the pawl I when the lever is moved by expansion and a pawl L connected with the lever and movable therewith so as to engage a notch in the ratchet upon the opposite side from the pawl I, said notch being so placed with relation to the notch of the first named pawl that the ratchet will be allowed to turn a little distance after the pawl I is disengaged before the pawl L becomes engaged whereby the pawl I is prevented from again entering its notch, substantially as herein described.

518,092. PERMANENT MAGNET. ARTHUR T. COLLIER, St. Albans, England, assignor to the American Bell Telephone Company, Boston, Mass. Filed Jan. 8, 1894. Serial No. 496,057. (No model.)



Claim.—A magnet consisting of a bar or bars formed as a loop or coil having the ends crossing each other and both extending inward toward the interior of the loop or coil to constitute two poles, substantially as described.

518,093. DISPATCH-TUBE SYSTEM. WILLIAM G. COLLINS, New York, N. Y., assignor to the Collins Automatic Pneumatic Switching Tubes Company, of New Jersey. Filed Nov. 26, 1892. Serial No. 453,250. (No model.)



Claim.—1. In a dispatch system, the combination with two tubes forming junction with each other, of a gate normally open in one tube, a finger projecting into the other tube adapted to be struck by carriers in said tube and connections between said finger and said gate whereby when said finger is struck by a carrier, said gate will be closed, substantially as set forth.

2. In a dispatch system, the combination with two tubes forming junction with each other,—of a gate and a finger or projection in one tube,—a finger normally projecting into the other tube and adapted to be struck by a carrier in said tube whereby said finger or projection is placed in position in the first tube to be struck by a carrier approaching said junction, and connections between said finger and said gate whereby said gate is automatically closed by said last mentioned carrier, substantially as set forth.

3. In a dispatch system, the combination with a main tube, and a branch tube forming junction therewith,—of a gate in the branch tube and a finger projecting into the main tube whereby the main-tube carrier may place said gate under control of the branch-tube

carrier so that the latter may close said gate,—and another finger projecting into said main tube and also operated by the main-tube carrier to open said gate and release said branch-tube carrier, substantially as and for the purpose set forth.

4. In a dispatch system, the combination of a main tube and a branch tube,—two carrier-actuated devices in said main tube projecting into said tube,—one carrier-actuated device in the branch tube adapted to be projected onto said branch tube and having lever connections with one of such devices in the main tube,—a gate in the branch tube,—and connections between the carrier-actuated devices in the main tube and the carrier actuated device and gate in the branch tube whereby the actuation of the first device in the main tube by a carrier will set the device in the branch tube in position to be actuated by a branch-tube carrier to close said gate,—and whereby the actuation of the second device in the main tube by the main-tube carrier, will re-open said gate substantially in the manner and for the purpose set forth.

5. In a dispatch system, the combination of a main tube and a branch tube, two carrier-actuated devices projecting into the main tube, a gate in the branch tube, a carrier-actuated device adapted to be projected into the branch tube, lever connections between it and the first carrier-actuated device in the main tube whereby the actuation of the latter by a carrier will set the carrier-actuated device in the branch tube in position to be actuated by a branch tube carrier to close said gate and whereby when said carrier-actuated device in the branch tube is struck by a carrier it will restore said first carrier-actuated device in the main tube to its normal position, and connections between said second carrier-actuated device in the main tube and the gate whereby the actuation of the former by the main tube carrier will reopen the latter, substantially as set forth.

6. In combination with a gate normally open at the junction of two tubes in a dispatch system, a carrier actuated device for operating said gate consisting of a bar or finger pivoted at one end and having a free end adapted to be projected into the tube, and rod or lever connections between said finger and the gate whereby the gate will be closed when said finger is struck by a carrier, substantially as set forth.

7. The combination with the main tube having the carrier-actuated devices B and C,—of the branch tube having carrier-actuated device D connected so as to be operated simultaneously with the device B in the main tube,—rod d^3 connected to said device D,—pivoted lever F,—sliding rod f',—push-bar f^3,—trip lever j and means connected with the device C for operating same,—bar H having pin h engaging said push-bar,—rotary gate G in the branch tube operatively connected to said bar,—pivoted lever K and rod 3 adapted to be operated by said carrier-actuated device C, all arranged and operating substantially as set forth.

8. The combination with the main tube having carrier-actuated device B, and with the branch tube having carrier-actuated device D and rotary gate G,—of the carrier-actuated device C,—a spring for keeping said device C normally in position to be struck by the carriers,—and lever connections whereby said devices B and D and gate G are restored to their normal positions, substantially in the manner and for the purpose set forth.

9. In combination with a gate in a dispatch tube system, a finger projecting into the tube adapted to be struck by carriers, a rod connected at one end with said finger and having its opposite end movable so that in one position it engages with said gate to close the same when said finger is struck by a carrier, and in another it does not engage, and a trip to remove the movable end of said rod from engagement with the gate, substantially as set forth.

10. In a dispatch system, the combination with two tubes forming a junction with each other, of a gate in one tube, two fingers projecting into the other tube and connections between said gate and each of said fingers whereby when the first of said fingers is struck by a carrier a projection will be forced into the tube containing the gate so as to be adapted when struck by a carrier to close said gate, and when the second of said fingers is struck by the carrier the gate will be opened, substantially as set forth.

11. In a dispatch system, the combination with two tubes forming a junction with each other, of a gate in one tube, a finger normally projecting into the other tube, a second finger adapted to be projected into the first mentioned tube but normally withdrawn therefrom, connections between said fingers whereby when one of the fingers is forced by a carrier out of its tube the other finger will be projected into its tube, and connections between said gate and said second finger whereby when said second finger is struck by a carrier the gate will be closed, substantially as set forth.

12. In a dispatch system, the combination with two tubes forming a junction with each other, of a gate in one tube, three fingers, two of which are adapted to be projected into or withdrawn from the main tube and the other of which is adapted to be projected into or withdrawn from the branch tube, connections between said three fingers whereby when the first finger in the main tube is struck by a carrier the branch tube finger will be projected into the branch tube, and when said branch tube finger is struck by a carrier the said first finger in the main tube will be projected into the main tube, and when the second main tube finger is struck by a carrier the other fingers will be restored to their respective normal positions (if not already there) and connections between said gate and the said finger in the branch tube whereby when said finger is struck by a carrier the gate will be closed, substantially as set forth.

13. In a dispatch system, the combination with two tubes forming a junction with each other, of a gate in one tube, two fingers normally projecting into the main tube, a third finger adapted to be projected into the branch tube but normally withdrawn therefrom, connections between the branch tube finger and the first one of the main tube fingers so that when one of these fingers is forced out of its tube the other will be projected into its tube, connections between the gate and the branch tube finger whereby when the latter finger is struck by a carrier the gate will be closed, a rod or arm connected with the branch tube finger and adapted to engage with the second finger in the main tube only when the branch tube finger is projecting into the branch tube, whereby when said rod is in engagement with said second finger in the main tube and the latter is struck by a carrier the finger in the branch tube will be withdrawn from the tube, substantially as set forth.

14. In a dispatch system, the combination with two tubes forming a junction with each other, of a gate in one tube, two fingers normally projecting into the main tube, a third finger adapted to be projected into the branch tube but normally withdrawn therefrom, connections between the branch tube finger and the first one of the main tube fingers so that when one of these fingers is forced out of its tube the other will be projected into its tube, connections between the gate and the branch tube finger whereby when the latter finger is struck by a carrier the gate will be closed, a rod or arm connected with the branch tube finger and adapted to engage with the second finger in the main tube only when the branch tube finger is projecting into the branch tube, whereby when said rod is in engagement with said second finger in the main tube and the latter is struck by a carrier the finger in the branch tube will be withdrawn from the tube, a rod or arm connected with the gate and adapted to engage with the second finger in the main tube only when the gate is closed, whereby when said rod is in engagement with said second finger and the latter is struck by a carrier the gate will be opened, substantially as set forth.

15. In a dispatch system, the combination with two tubes forming a junction with each other, of a gate in one tube, two fingers normally projecting into the main tube, a third finger adapted to be projected into the branch tube but normally withdrawn therefrom, connections between the branch tube finger and the first one of the main tube fingers so that when one of these fingers is forced out of its tube the other will be projected into its tube, connections between the gate and the branch tube finger whereby when the latter finger is struck by a carrier the gate will be closed, a rod or arm connected with the branch tube finger and adapted to engage with the second finger in the main tube only when the branch tube finger is projecting into the branch tube, whereby when said rod is in engagement with said second finger in the main tube and the latter is struck by a carrier the finger in the branch tube will be withdrawn from the tube, a rod or arm connected with the gate and adapted to engage with the second finger in the main tube only when the gate is closed, whereby when said rod is in engagement with said second finger and the latter is struck by a carrier the gate will be opened, a rod connected to said second finger in the main tube having a tripping mechanism at its other end whereby when said second finger is struck by a carrier the connections between the finger in the branch tube and the gate will be tripped to permit the gate to be closed without projecting the branch tube finger into the branch tube, substantially as set forth.

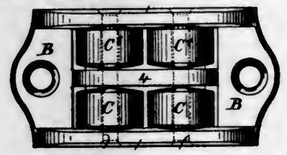
16. In a dispatch system, the combination with two tubes forming a junction with each other, of a gate in one tube, two fingers normally projecting into the main tube, a third finger adapted to be projected into the branch tube but normally withdrawn therefrom connections between the branch tube finger and the first one of the main tube fingers so that when one of these fingers is forced out of its tube the other will be projected into its tube, connections between the gate and the branch tube finger whereby when the latter finger is struck by a carrier the gate will be closed, a rod or arm connected with the branch tube finger and adapted to engage with the second finger in the main tube only when the branch tube finger is projecting into the branch tube, whereby when said rod is in engagement with said second finger in the main tube and the latter is struck by a carrier the finger in the branch tube will be withdrawn from the tube, a rod or arm connected with the gate and adapted to engage with the second finger in the main tube only when the gate is closed, whereby when said rod is in engagement with said second finger and the latter is struck by a carrier the gate will be opened, a rod connected to said second finger in the main tube having a tripping mechanism at its other end whereby when said second finger is struck by a carrier the connections between the finger in the branch tube and the gate will be tripped to permit the gate to be closed without projecting the branch tube finger into the branch tube, substantially as set forth.

17. In a dispatch system, the combination with two tubes forming a junction with each other, of a gate in one tube, two fingers normally projecting into the main tube, a third finger adapted to be projected into the branch tube but normally withdrawn therefrom, connections between the branch tube finger and the first one of the main tube fingers so that when one of these fingers is forced out of its tube the other will be projected into its tube, a rod connected with the branch tube finger having its opposite end movable and adapted to engage with an arm or projection from the gate when the branch tube finger projects into the tube, whereby the gate will be closed when said latter finger is struck by a carrier, a rod or arm connected with the branch tube finger and adapted to engage with the second finger in the main tube only when the branch tube finger is projecting into the branch tube, whereby when said rod is in engagement with said second finger in the main tube and the latter is struck by a carrier the finger in the branch tube will be withdrawn from the tube, a rod or arm connected with the gate and adapted to engage with the second finger in the main tube only when the gate is closed, whereby when said rod is in engagement with said second finger and the latter is struck by a carrier the gate will be opened a rod connected to said second finger in the main tube having a tripping mechanism at its other end adapted to trip the rod which is connected with the branch tube finger and engages the arm or projection from the gate, when said second finger in the main tube is struck by a carrier, and a spring or weight to restore the second finger in the main tube to its normal position in the tube after being struck by a carrier, substantially as set forth.

18. In combination with the junction of a branch with a main tube in a dispatch system, a gate in one tube, a finger in the same tube normally withdrawn from the tube but adapted to be projected therein another finger in the other tube normally projecting therein, connections between said fingers whereby when one is struck by a carrier the other will be projected into its respective tube, and connections between said first mentioned finger and the gate whereby when said finger is struck by a carrier the gate will be closed a second finger in the main tube, a rod connected with the branch tube finger adapted at its other end to engage with the second finger in the main tube only when the branch tube finger is projected into the tube, whereby when said second finger in the main tube is struck by a carrier the finger in the branch tube will be withdrawn from the tube substantially as set forth.

19. In combination with the junction of a branch with a main tube in a dispatch system, a gate in one tube, a finger in the same tube normally withdrawn from the tube, a finger normally projecting into the main tube, connections between said fingers so arranged that when one of said fingers is forced out of its tube the other one will be projected into its tube, a rod connected with the branch tube finger having its other end movable and adapted, when the said finger is projected into the branch tube, to engage with an arm or projection from the gate, whereby the gate will be closed when the branch tube finger is struck by a carrier, a second finger in the main tube, a rod connected with said gate and adapted at its other end to engage with said second main-tube finger only when the gate is closed, another rod connected with said last mentioned finger and having at its other end a tripping device for tripping the rod that is connected with the branch tube finger and that engages with the arm or projection from the gate, whereby when said second finger in the branch tube is struck by a carrier, the gate will be closed without projecting the branch tube finger into its tube, substantially as set forth.

518,094. TRUNK-CASTER. GEORGE CROUCH, New York, N. Y. Filed Feb. 13, 1893. Serial No. 462,025. (No model.)

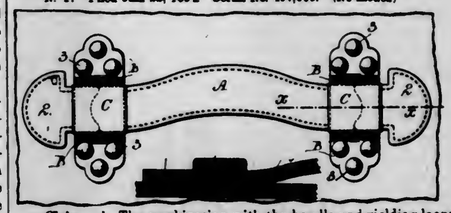


Claim.—A trunk roller formed of a frame with side flanges 2 and a central flange 4 with cross axes passing through the respective flanges and four rollers, two on each of the cross axes and between the respective flanges, substantially as set forth.

---

second finger in the main tube having a tripping mechanism at its other end whereby when said second finger is struck by a carrier the connections between the finger in the branch tube and the gate will be tripped to permit the gate to be closed without projecting the branch tube finger into the branch tube, and a spring or weight to restore the second finger in the main tube to its normal position in the tube after being struck by a carrier, substantially as set forth.

518,095. HANDLE FOR TRUNKS. GEORGE CROUCH, New York, N. Y. Filed Jan. 22, 1894. Serial No. 497,669. (No model.)



Claim.—1. The combination with the handle and yielding loops connected at their ends to the trunk and through which the handle passes, of metallic guards upon the surfaces of the loops in their middle portions and adjacent to the handle, substantially as set forth.

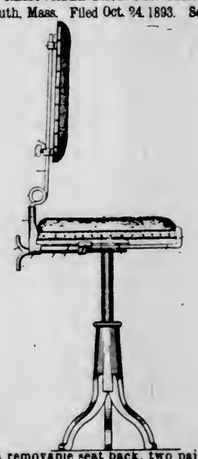
2. The combination with a trunk handle loop composed of leather or similar material, of a sheet metal guard crossing the central portion of the loop and having its ends turned around behind such loop and adjacent to the surface of the handle, substantially as set forth.

518,096. REFRIGERATOR. JOHN R. DAVIS, Chicago, Ill. Filed Nov. 24, 1893. Serial No. 491,861. (No model.)



Claim.—The combination in a refrigerator of a projecting ledge or support extended around the inner face of the casing, a drip chamber arranged within the refrigerator and below the projecting ledge, the ice box arranged above said ledge and provided with a drip spout extended downward through a suitable opening into the drip chamber, and a discharge spigot, substantially as set forth.

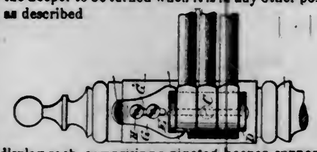
518,097. REMOVABLE BACK FOR SEATS. ALVAN P. DERBY, South Weymouth, Mass. Filed Oct. 24, 1893. Serial No. 488,982. (No model.)



Claim.—In a removable seat back, two pairs of clamping members, the members of each pair having upwardly extended lugs to embrace a seat, guide-ways on one of the members of each pair in which the other member of each pair is free to move, means to move the members of each pair one with relation to the other to clamp and hold between them a seat a connection between one of the members of one pair and a corresponding member of the other pair, and a back carried by said clamping members, substantially as described.

518,098. DISPLAY-RACK. SYLVESTER P. DENISON, Belleville, N. J., assignor to Mathews R. Dickson, New York, N. Y. Filed Sept. 27, 1893. Serial No. 486,613. (No model.)

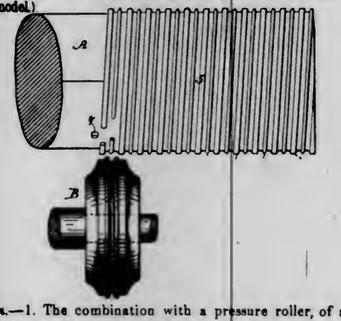
Claim.—1. A display rack, comprising a pivoted keeper having a base whose length is greater than its width, a gravity catch fitted to slide toward and from the keeper, the catch being provided at the end which is adjacent to the keeper with two lugs placed a distance from each other that is equal to the width of the base of the keeper, whereby the said catch will hold the keeper in position when the short side of the base of the keeper aligns and engages with the catch, but will allow the keeper to be turned when it is in any other position, substantially as described



2. A display rack, comprising a pivoted keeper, supporting arms held thereon, and a gravity catch provided with lugs the inner faces whereof are adapted for locking engagement with the keeper, while the outer edge of one of the lugs is rounded and is adapted to be engaged by the keeper so as to raise the catch, as and for the purpose set forth.

3. A display rack, comprising a keeper mounted to turn, and provided with a series of supporting arms, a gravity catch fitted to slide and provided on opposite sides with lugs adapted to engage the sides of the said keeper, to lock the latter in place for extending the arms in a horizontal position, one of the said lugs being somewhat longer than the other to form a stop for the keeper when turning the latter into a vertical position, substantially as shown and described.

518,099. MECHANISM FOR MAKING SPECTACLE-BOWS. FREDERIC ECAUBERT, Brooklyn, N. Y. Filed May 13, 1892. Serial No. 432,849. (No model.)

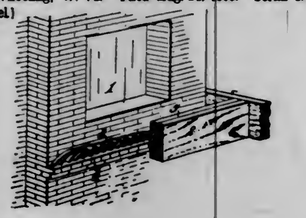


Claim.—1. The combination with a pressure roller, of a form mandrel and means for causing the wire to pass around the mandrel and between the mandrel and the roller at the speed of the mandrel, there being recesses at intervals in the form mandrel whereby the wire is shaped longitudinally about the form mandrel and reduced transversely at intervals, substantially as specified

2. The combination with a pressure roller, of a form mandrel having a groove that is recessed or flattened at intervals, and means for holding the wire from slipping in the groove of the form mandrel, whereby the wire is shaped longitudinally by being pressed into the groove of the mandrel and the wire is thicker at the regular intervals where such mandrel is recessed, substantially as specified.

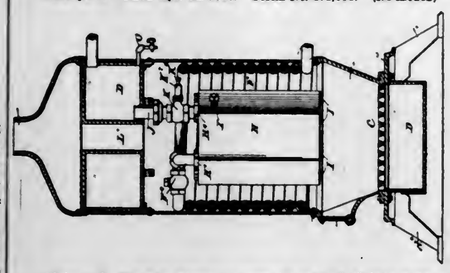
3. The combination with a pressure roller, of a form mandrel having a groove that is recessed at intervals and passes in the form of a screw around the mandrel and means for holding the wire from slipping in the groove, whereby the wire is shaped longitudinally by being pressed into the groove of the mandrel and the wire is thicker at regular intervals where such mandrel is recessed, substantially as set forth.

518,100. HEARTH-BED FOR FIREPLACES. FREDERICK F. FARIS, Wheeling, W. Va. Filed Aug. 21, 1893. Serial No. 483,633. (No model.)



Claim.—In a hearth, the combination of a transversely curved metal bed plate, a ledge or shoulder on the chimney to support the bed-plate at one side edge, and a joist or trimmer against which the other side edge of the bed-plate binds, substantially as described.

518,101. STEAM-GENERATOR. ALEXIS F. GILLET, Kearney, Nebr., assignor to himself, George W. Whiteaker, and James D. Whiteaker, same place. Filed Apr. 24, 1893. Serial No. 471,633. (No model.)



Claim.—1. A steam generator comprising a coil of pipe connected with a water supply, and a steam generating block connected with the discharge end of the said coil of pipe, and provided with a continuous interior channel for the passage of the water, the said coil of pipe and block being adapted to be heated, substantially as shown and described.

2. A steam generator comprising a fire box, a shell supported thereon, a coil of pipe arranged in the said shell and connected with a water supply, and a steam generating block connected with the discharge end of the said coil of pipe, and provided with a continuous channel for the passage of the water discharged by the said coil of pipe, and a steam chamber connected with the discharge end of the said channel in the block, substantially as shown and described.

3. A steam generator comprising a fire box, a shell supported thereon, a coil of pipe arranged in the said shell and connected with a water supply, a steam generating block connected with the discharge end of the said coil of pipe, and provided with a continuous channel for the passage of the water discharged by the said coil of pipe, a steam chamber connected with the discharge end of the said channel in the block, and a check valve in the discharge end of the said coil of pipe, substantially as shown and described.

4. A steam generator comprising a fire box, a shell supported thereon, a coil of pipe arranged in the said shell and connected with a water supply, a steam generating block connected with the discharge end of the said coil of pipe, and provided with a continuous channel for the passage of the water discharged by the said coil of pipe, a steam chamber connected with the discharge end of the said channel in the block, and a steam pressure regulating valve, arranged in the connection between the block and the said steam chamber substantially as shown and described

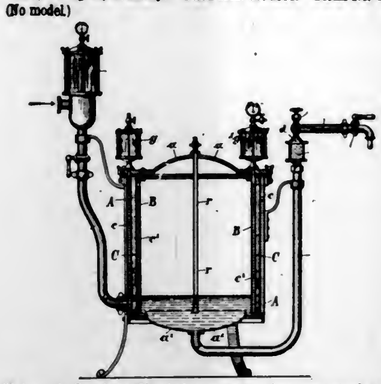
5. A steam generator comprising a fire box, a shell supported thereon, a coil of pipe arranged in the said shell and connected with a water supply, a steam generating block connected with the discharge end of the said coil of pipe, and provided with a continuous channel for the passage of the water discharged by the said coil of pipe, a steam chamber connected with the discharge end of the said channel in the block, a check valve in the discharge end of the said coil of pipe, and a second check valve in the inlet end of the said coil of pipe, substantially as shown and described.

6. A steam generator comprising a fire box, a shell supported thereon, a coil of pipe arranged in the said shell and connected with a water supply, a steam generating block connected with the discharge end of the said coil of pipe, and provided with a continuous channel for the passage of the water discharged by the said coil of pipe, a steam chamber connected with the discharge end of the said channel in the block, a check valve in the discharge end of the said coil of pipe, a second check valve in the inlet end of the said coil of pipe, and a water pressure regulating valve arranged in the inlet end of the said coil of pipe, in front of the second check valve, substantially as shown and described.

7. A steam generator provided with a generating block formed with an interior circuitous channel having connected longitudinal and cross channels whereby the water may be fed into and the steam discharged from the same end of the block substantially as set forth.

8. A steam generator provided with a generating block formed with longitudinal and cross channels intersecting each other within the block and extended from the outer sides of said block and devices for closing the outer ends of said channels substantially as set forth.

518,102. WINE OR BEER FILTERING APPARATUS. ROBERT HAAG, Stuttgart, Germany. Filed Mar. 15, 1893. Serial No. 466,106. (No model.)



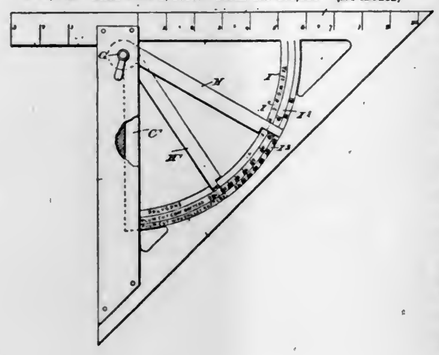
Claim.—1. In a beer-filtering apparatus, a beer receptacle, a filter within the receptacle, a smaller cylinder shorter than the receptacle extending to near the bottom of the same and located within the filter, a level-regulating pipe within the smaller cylinder, a supply pipe in communication with the receptacle, and an outlet pipe leading therefrom, whereby a body of air is retained above the surface of the liquid, substantially as described and for the purpose set forth.

2. In a beer-filtering apparatus, the combination with a receptacle, a beer supply pipe connected to the receptacle, a filtering cylinder within the receptacle, a smaller cylinder within the filtering cylinder and open at its lower end, and an outlet pipe connected to the bottom of the receptacle, substantially as described and for the purpose set forth.

3. In a beer-filtering apparatus, the combination with a beer receptacle, and a filtering cylinder within the receptacle, a lid removably attached to the receptacle, an interior cylinder shorter than the beer receptacle and suspended from the lid, and an outlet pipe connected with the bottom of the receptacle, substantially as described and for the purpose set forth.

4. In a beer-filtering apparatus, the combination with a receptacle, a supply pipe connected to the receptacle, a filtering cylinder whose exterior diameter is smaller than the interior diameter of the receptacle, a lid removably attached to the receptacle, an interior cylinder suspended from the lid, the said cylinder being shorter than the receptacle and having an exterior diameter smaller than the interior diameter of the filtering cylinder, a level-regulating tube passing through the lid, its lower end opening a short distance above the bottom of the receptacle, an air cock on the upper end of the level-regulating pipe, a pair of urns on the lid, one in communication with the space between the filter and the exterior wall of the receptacle and the other in communication with the space between the filter and the interior cylinder, an outlet pipe connected to the bottom of the receptacle, a transparent urn attached to the upper end of the outlet pipe, a non-closable adjustable regulating valve on the top of the urn, a service pipe into which the regulating valve opens, and a faucet on the service pipe, substantially as described and for the purpose set forth.

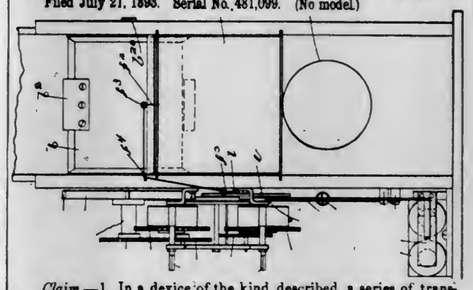
518,103. MEASURING-INSTRUMENT. LEONARD M. HODGE, San José, Cal. Filed June 2, 1893. Serial No. 476,359. (No model.)



Claim.—1. A measuring instrument comprising a right angle triangle, two arms pivoted on the said triangle, and a graduated segment forming an integral part of the triangle, and on which indicate the said arms at opposite sides, substantially as shown and described.

2. A measuring instrument comprising a right angle triangle formed on its base with a graduated extension, a pivot held in one side of the said triangle, two arms hung on the said pivot and adapted to fold in a recess in the right angle side, and a segment forming an integral part of the triangle and on which indicate the said arms on graduations formed on both sides of the said segment, substantially as shown and described.

518,104. STEREOPTICON. EDMUND HUDSON, Washington, D. C. Filed July 21, 1893. Serial No. 481,099. (No model.)



Claim.—1. In a device of the kind described, a series of transparent slides, and actuating mechanism for moving them successively between the light and lens, a controlling lever for said actuating mechanism, and an electro-magnet governing the operation of said controlling lever, the circuit of which is operated from a distant point at the will of the operator, substantially as described.

2. In a device of the kind described, several transparent slides loosely connected together, one after another, and actuating mechanism for moving them successively between the light and lens, a controlling lever for said actuating mechanism, and an electro magnet governing the operation of said controlling lever, the circuit of which is operated from a distant point at the will of the operator, substantially as described.

3. In a device of the kind described, a series of loosely connected transparent slides, a drum over which they pass and by which they are held suspended between the light and lens, motor mechanism for rotating said drum for successively advancing said slides, a controlling lever for said motor mechanism, and an electro-magnet governing the operation of said controlling lever, the circuit of which is operated at will from a distant point, substantially as described.

4. In a device of the kind described, a series of loosely connected slides, a drum over which they pass and by which they are held suspended between the light and lens, motor mechanism for rotating said drum for successively advancing the slides, a controlling lever for said motor mechanism, and an electro-magnet governing the operation of said controlling lever, the circuit of which is operated at will from a distant point, the upper compartment containing the folded slides from which they are drawn by said drum, and the lower compartment which receives the slides folded as they are advanced by the drum, substantially as described.

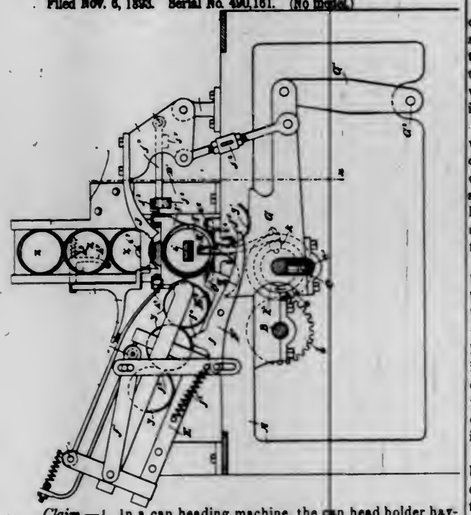
5. In a device of the kind described, the transparent plates *a*, having pictures thereon adapted to be projected upon a curtain, two metallic end clips for each plate, extensible connections for said clips, whereby they may be separated to disengage the plate, and flexible connections connecting each pair of clips to the pair next to it, to thereby form a series of loosely connected detachable slides, substantially as described.

6. In a device of the kind described, a series of slides, and a screen, and actuating mechanism for successively moving the slides between the light and lens, and simultaneously operating the screen, a releasing lever therefor, an electro-magnet controlling the operation of said releasing lever, the circuit of which is operated from a distant point, substantially as described.

7. In a device of the kind described, a series of loosely connected slides, a drum over which they pass and by which they are held suspended between the light and lens to be displayed, a screen normally held at one side of the particular slide which is being displayed, motor mechanism for moving said screen into position between said light and lens and thereafter restoring it to its normal position, and for rotating said drum to advance the slides during the time the said screen is in its abnormal position, the controlling lever for said motor mechanism, and an electro-magnet governing the operation of said controlling lever, the circuit of which is operated at will from a distant point, substantially as described.

8. In a device of the kind described, a series of slides, an actuating train therefor, a screen and an actuating train therefor, a releasing device for the slide-actuating train controlled by the screen-actuating train, and a releasing device for the screen-actuating train, an electro-magnet controlling its operation, the circuit of which is operated from a distant point, substantially as described.

518,105. CAN-HEADING MACHINE. MATHIAS JENSEN, Astoria, Oreg., assignor to the Jensen Can Filling Machine Company, same place. Filed Nov. 6, 1893. Serial No. 490,161. (No model.)



Claim.—1. In a can heading machine, the can head holder having a semi-circular recess into which the can heads are received, and a semi-circular hinged guide adapted to hold the can head in said recess and to close and remain closed by gravitation alone, means for rocking the can head holder so that it may force the can head upon the contiguous end of the can body, and means for opening said guide to deliver the headed can.

2. In a can heading machine, the can head holder having a recess for the can heads and having a semi-circular guide with a beveled mouth or opening, hinged to said holder and closing over the face of the holder and remaining closed thereon by gravitation whereby the can head is held in the recess so as to receive the lower edge portion of the can body, and means for rocking the holder to cause said can head to receive the remaining portion of the edge of the can body, said guide serving to direct the end of the can body into the can head.

3. In a can heading machine, a can head holder having a semi-circular recess for the reception of the can heads, a semi-circular guide hinged to the upper part of the holder and adapted to close thereon to retain the can head in the recess while it is forced upon the can body, and a device for adjusting the distance between the holder and the guide, by which the can body is sized to fit the can.

4. In a can heading machine, a normally inclined can head holder having a semi-circular recess for the can heads, a semi-circular hinged guide adapted to close over the face of the holder for holding the can heads in the recess while one side of one end of the can body is first placed in the flange of the can head, means for rocking the holder to cause the can head to be forced on the remaining portion of the end of the can body, and means for releasing the headed can by opening the guide while said holder recedes from an upright to an inclined position.

5. In a can heading machine, a can head holder having a recess for receiving the can heads, a semi-circular guide hinged so as to close by gravitation, and means for placing the end of a can body in the flange of the can head on one side and afterward force the remaining parts of the flange of the can head, upon the opposite side of the end of the can body, and the oscillating lever for lifting the guide while it retracts from the headed can.

6. In a can heading machine, a normally inclined can head holder adapted to rock and provided with a recess for receiving the can head, and having a beveled mouth guide fixed upon one side thereof and overlapping a small portion of the circumference of the flange of the can head so as to insure a closer fit by less sizing in not overlapping the whole circumference of the flange of the can head.

7. In a can heading machine, a chute or carrier whereby the can bodies are delivered intermittently between inclined can head chutes, can head holders having recesses adapted to receive the heads from the chutes, mechanism whereby the can bodies are pressed downward so that the lower peripheries of their ends are pressed into the lower parts of the can head flanges, guides hinged to the can head holders having semi-circular beveled conical openings adapted to close down upon the upper parts of the can heads, and to serve as guides through which the upper portion of the can body enters the upper portion of the can head flange, and mechanism whereby the holders are forced inwardly toward the end of the can whereby the heads are placed thereon, substantially as herein described.

8. In a can heading machine, the inclined chute into which the can bodies are received, a stop f^4 by which they are arrested, a mechanism consisting of the fulcrumed levers F f' and connecting link f^3, the crank shaft, the rotary crank whereby the arms are moved to allow the cans to pass one at a time over the stop f^4, and a stop E^3 into which the cans are received after this movement, substantially as herein described.

9. In a can heading machine, the can head chute having stops whereby the can heads are delivered one at a time upon the stop E^3, a crank shaft, a carrier mounted thereon and provided with recesses, one of which lifts a can from the heading mechanism while the other simultaneously lifts a fresh can from the top which holds it, an oscillating fulcrum with which the free or outer end of the carrier is connected, and mechanism connected with and actuated by the carrier for opening the can head holding devices.

10. In a can heading machine, a chute through which the can bodies are delivered to the heading mechanism, intermediate stops by which the cans are held, a crank shaft and a carrier actuated thereby having recesses, one of which lifts a can from the heading mechanism while the other simultaneously lifts a fresh can from the stop which holds it, an oscillating fulcrum with which the outer end of the carrier is connected, a lever arm situated above the heading mechanism, an oscillating yoke to which said arm is connected, and a rod connecting the yoke with the crank actuated carrier whereby the lever arm is depressed so as to engage the can head holder guides, and open them in its return movement, substantially as herein described.

11. In a can heading machine, the chute through which the can bodies pass, stops by which the bodies are prevented from passing down the chute, a crank actuated carrier by which they are lifted from the stops and deposited in the heading apparatus, inclined chutes through which the heads are delivered, oscillating can head holders adapted to tilt outwardly so as to receive the can heads from the chutes, mechanism, consisting of connecting rods i' pivoted to the can head holders, lever arms i^2 i^3 and a cam i^5 upon the crank shaft whereby the can head holders are oscillated so as to be alternately separated and tilted to receive a can head from the chute, and then forced together to place the can head upon a can body which has been delivered between the two, substantially as herein described.

12. In a can heading machine, means for delivering the can heads intermittently from the inclined chute through which they pass consisting of the fulcrumed levers A^8 A^7 adapted to alternately check the can heads from below and from above, and mechanism whereby these check levers are actuated consisting of a lever arm fulcrumed on the chute having a lower end adapted to extend down over the lowermost can body, a bar secured to the lever arm and extending to each side thereof, and arms with which the outer portions of the bar are designed to form contact.

13. In combination with the oscillating holders by which the heads are received and placed upon the can body ends, the cam actuated releasing levers adapted to be forced against the can heads and permitting the can head holders to be moved toward the can head chutes without interfering with the headed can.

14. The oscillating holders adapted to receive can heads, overlapping guides hinged to and movable thereon, whereby the can head is retained and the can end guided, and means to open the guides and release the headed can as described.

15. The crank arms fixed to the hinge shafts of the can head holder guides, and movable arms engaging the crank arms to retain the guides after they are opened, and allow the cans to pass as described.

518,106. TOOL-HANDLE. WILLIAM J. JOHNSON, Newton, Mass. Filed May 15, 1893. Serial No. 474,174. (No model.)



Claim.—1. A tool handle formed with a series of tool cells arranged in a circle in combination with an end-cap pivoted near one edge, the pivot socket being one of the series and in the same circle with the tool cells, whereby all the tools are concealed or exposed simultaneously, substantially as set forth.

2. A tool handle formed with a series of tool cells and with a cap-spindle cell all parallel with and equidistant from the axis, in combination with an end-cap closing all said cells, a rigidly affixed spindle with spring and sleeve in said cap spindle cell, and a locking lug or protuberance formed on the under side of the end cap, registering with an opposite cell substantially as set forth.

518,107. CUSPIDOR-HOLDER. CHARLES E. KELLOGG, West Hartford, assignor to the Hartford Sanitary Manufacturing Company, Hartford, Conn. Filed Nov. 8, 1893. Serial No. 490,341. (No model.)

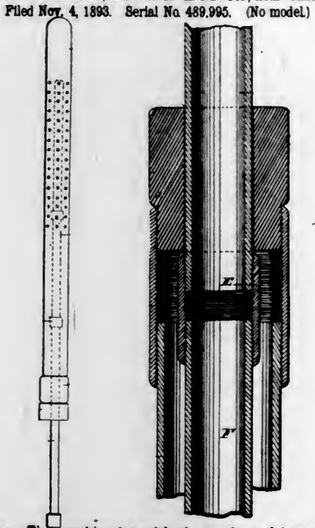


Claim.—1. A cuspidor holder consisting of a base, supporting thereon a casing adapted to carry a liquid receiving receptacle, with flexible wings extending from the upper edge of the said casing and carrying the shield A, the extreme upper edge of the said wings being turned inward to form hooks which operate to securely hold in place the said shield, substantially as and for the purpose specified.

2. A cuspidor holder consisting of a rectangular outside casing carrying a cup-receptacle, said casing having outward projecting flexible wings extending from the upper edge of the casing and carrying the shield A, the said wings being hooked inward along their upper edge for the purpose of admitting and retaining the upper edge of the said shield, the lower edges of the shield projecting slightly into the liquid receptacle, substantially as described.

3. A cuspidor holder consisting of the perforated base, supporting a casing adapted to surround the sides of the cup-receptacle, the upper edge of the said casing having attached thereto, upwardly and outwardly inclined flexible wings the side edges of which, taper outwardly so that the wings are broadest at their upper end, the extreme upper edge of said wings being turned inwardly to form hooks adapted to retain the upper edge of the shield, the lower edge of the shield A projecting slightly into the cup-receptacle, substantially as and for the purpose specified.

518,108. WORKING-BARREL PROTECTOR. CHARLES E. LASHER, WILLIAM J. WEBSTER, and DAVID L. NEWTON, near Oakdale Station, Pa. Filed Nov. 4, 1893. Serial No. 489,995. (No model.)



Claim.—The combination with the perforated integral casing, closed at its lower end, and the cap rigidly connected therewith, of the well tubing, passing through and adapted to work in said cap, the barrel, arranged in said casing, and a coupling between the tubing and barrel, which forms an abutment adapted to contact with the under side of the cap, as shown and described, for the purpose specified.

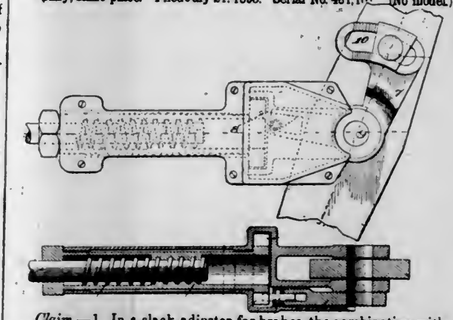
518,109. FASTENING DEVICE FOR ENVELOPES, LETTERS, &c. GEORGE F. LEMMON, St. Augustine, Fla. Filed Aug. 10, 1893. Serial No. 482,837. (No model.)



Claim.—1. An improved fastener for envelopes letters and postage stamps, comprising an inner plate having projecting prongs at one side adapted to be secured to the letter or inclosure and outwardly extending prongs adapted to be secured to the envelope, an outer plate having prongs on its under face to engage the envelope and prongs on its outer face to receive and clamp the postage stamp all substantially as shown and for the purposes described.

2. An improved fastener for letters envelopes and postage stamps, comprising an inner plate having projecting prongs on one face near its outer edges, and prongs projected from its opposite face, grooves in such faces, running parallel with such prongs, a second or outer plate having prongs projected from its opposite faces, and running grooves parallel to such prongs, said prongs and grooves being arranged alternately to the prongs and grooves in the lower plate, whereby the prongs of one plate will engage the grooves in the other plate when both plates are pressed together all arranged as and for the purposes shown and described.

518,110. SLACK-ADJUSTER FOR BRAKES. WALDO H. MARSHALL, Chicago, Ill., assignor to the Consolidated Brake Adjuster Company, same place. Filed July 21, 1893. Serial No. 481,101. (No model.)



Claim.—1. In a slack adjuster for brakes, the combination with a moving part of the brake system, of a connection leading thereto and provided with a nut or turn-buckle having external teeth, and an arm or bell crank mounted on the moving part of the brake system and provided with a latch or pawl adapted to engage the teeth of the nut or turn-buckle; substantially as and for the purposes specified.

2. In a slack adjuster for brakes, the combination with a brake lever, of a connecting rod having a turn-buckle provided with external teeth, a bell crank provided with a latch or pawl adapted to engage the teeth of the turn buckle, and a moving part of the brake system on which said bell crank is mounted; substantially as and for the purposes specified

3. In a slack adjuster for brakes, the combination with a brake lever, of a connecting rod secured to the lever and provided with a turn-buckle having external teeth, and a bracket or bell crank arm having a latch or pawl which engages the teeth of the turn-buckle, said bracket or bell crank arm having a fulcrum coincident with the point of attachment of the connecting rod and lever; substantially as and for the purposes specified.

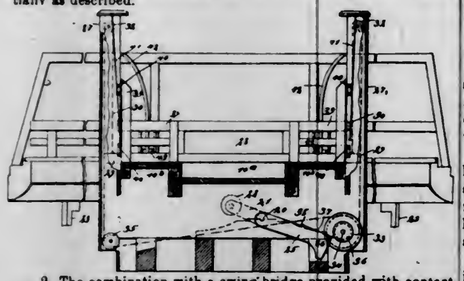
4. In a slack adjuster for brakes, the combination with a brake lever and connecting rod provided with a turn-buckle, of a bell crank mounted on the lever and provided with a latch or pawl which engages the turn-buckle; substantially as and for the purposes specified.

5. In a slack adjuster for brakes, the combination with a brake lever, of a connecting rod having an externally toothed turn-buckle, a bell crank mounted on the brake lever and having at one end a spring latch or pawl which engages the teeth of the turn buckle, and at the other a slot and bolt adjustment device; substantially as and for the purposes specified.

518,111. BRIDGE-GATE. BENJAMIN MOORE, Chicago, Ill. Filed May 23, 1893. Serial No. 475,247. (No model.)

Claim.—1. The combination with a swing bridge provided with contact blocks, of crank shafts adapted to be engaged by the contact

blocks, gates for closing the passage ways of the bridge, drums below the gates, cables connected with the gates and drums, and an arm on the crank shaft and projecting in an opposite direction from the crank arm, said arm operating the cable to open the gates, substantially as described.



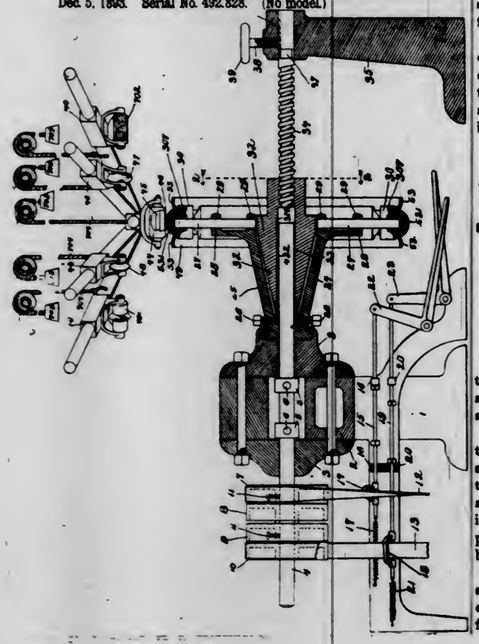
2. The combination with a swing bridge provided with contact blocks, of crank shafts adapted to be engaged by the contact blocks, gates for closing the passage ways of the bridge, drums below the gates, cables connected with the drums and gates, an arm on the crank shaft, having a grooved head and a cable secured to the said arm and to one of the drums, substantially as described.

3. The combination with a swing bridge provided with contact blocks, of a shaft provided with two crank arms, one of which is adapted to be engaged by the contact blocks, a sliding center gate, hinged and spring-pressed end gates, drums below the gates, cables secured to the sliding gate and drums, a cable secured to the other crank arm of the shaft and to one of the drums, and means for closing the end gates from the center sliding gate, substantially as herein shown and described.

4. The combination, with the vertically movable gate, of the spring-repressed gates arranged adjacent to the ends of the vertically movable gate, and inclined rods or levers secured to the swinging gates and extending into the path of the vertically movable gate, substantially as described.

5. The combination, of the vertically movable gate, the swinging spring-repressed gates arranged adjacent to the ends of the sliding gate, inclined rods or levers secured to the swing gates and extending into the path of the sliding gate, and rollers journaled on the sliding gate to contact with the rods, substantially as described.

518,112. MACHINE FOR MAKING SHOES OR COVERS FOR PNEUMATIC TIRES. GEORGE C. MOORE, Easthampton, Mass. Filed Dec. 5, 1893. Serial No. 492,828. (No model.)



Claim.—1. The combination of an expansible shell constituting a holder and support for the lining or foundation, with an expansible former to which the said shell is applied, means for supporting and rotating the said former, and means whereby the said former is expanded to also expand the said shell and stretch the lining or foundation applied thereto, substantially as described.

2. The combination of an expansible shell constituting a holder and support for the lining or foundation, and a catch for retaining the parts of the same in proper position when expanded, with an expansible former to which the said shell is applied, means for supporting and rotating the said former, and means whereby the said former is expanded to also expand the said shell and stretch the lining or foundation applied thereto, substantially as described.

3. The combination of an expansible holder and support for the lining or foundation, with means for expanding the same to extend and stretch the said lining or foundation first placed around the same, and for supporting and rotating the same, and rolls for operating on said lining or foundation while applied to and rotating with the said holder and support, substantially as described.

4. The combination of a holder or support for receiving and holding distended the lining or foundation, and means for supporting and rotating the same, of a pneumatic roll for operating on said lining or foundation while applied to and rotating with the said holder and support, substantially as described.

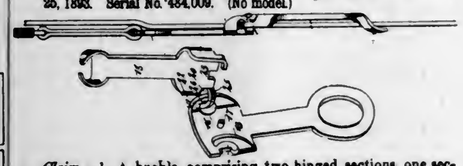
5. The combination with a driving shaft, means for rotating the same in either direction as desired, an expansible former rotating with said shaft, an expander constructed to be engaged and rotated in unison with the said shaft and former when placed in operative connection with the said former, and a screw operating to feed the expander when the latter is rotated, substantially as described.

6. The combination with a driving shaft, means for rotating the same in either direction as desired, an expansible former rotating with said shaft, an expander cone engaged by the said shaft, when said cone is placed in operative position, and thereby made to rotate with the said shaft and former, a feed screw engaging with the said cone and serving to move the latter endwise as required in varying the dimensions of the said former, and means for holding the said screw from rotation while the cone is feeding endwise in either direction, substantially as described.

7. The combination with a driving shaft, means for rotating the same in either direction as desired, an expansible former rotating with said shaft, an expander cone engaged by the said shaft, when the said cone is placed in operative position, and thereby made to rotate with the said shaft and former, a feed screw engaging with the said cone and serving to move the latter endwise as required in varying the dimensions of the said former, the said screw having a longitudinal groove and a communicating annular groove, substantially as described, a support for the outer end of the said screw, and a locking screw adapted to enter said grooves, substantially as described and for the purposes set forth.

8. The combination with a rotating support or holder for the lining or foundation, of a series of working rollers or implements, a series of levers supporting the said rollers or implements and movable vertically to carry the latter toward and from the said support or holder and also movable laterally to enable the desired one to be brought into working position, substantially as described.

518,113. BUCKLE. ARTHUR MORRIS, Rockefeller, Ill. Filed Aug. 25, 1893. Serial No. 484,009. (No model.)



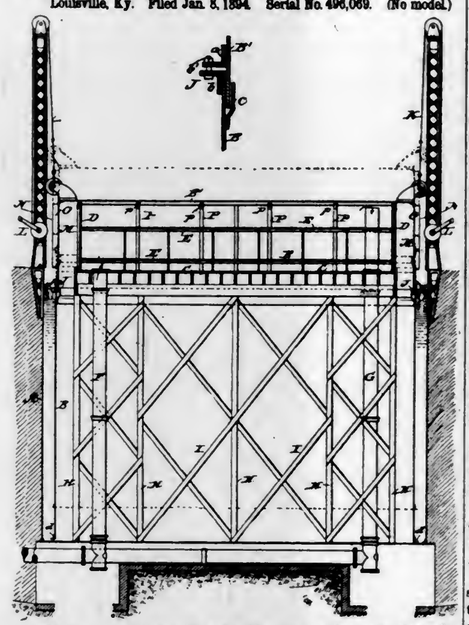
Claim.—1. A buckle, comprising two hinged sections, one section being provided with a keeper at its free end and the other with an eye at its free end and with a stud at its hinged end for engaging and holding a strap, substantially as described.

2. A buckle for the purpose described, constructed in two sections, the upper section of one having a hinged connection with one side of the lower portion of the other, the two sections being adapted to fold one over the other, and one section being provided with a keeper and the other with a latch to enter the keeper, the under section being also provided with a stud at its hinged end and an eye at the opposite end, the upper section having an open loop formed opposite its hinged end, as and for the purpose set forth.

3. In a buckle, the combination, with a section adapted as a lower section, the same consisting of a shank having an eye formed at one end and a head at the opposite end, the head being provided with flanges at its ends, one flange having a recess formed therein, forming a keeper, and the other being provided with an aperture, of a second section adapted as an upper section, the same consisting of a shank having an open loop formed at one end and a head at the opposite end, the head being provided with end flanges, one of which flanges is passed through the aperture in the flange of the lower section, forming a hinged connection therewith, the opposite flange having formed thereon a latch adapted to enter the keeper of the under section, substantially as shown and described

---

518,114. GAS HOLDER AND PURIFIER. DONALD MCDONALD, Louisville, Ky. Filed Jan. 8, 1894. Serial No. 496,069. (No model.)



Claim.—1. A combined gas holder and purifier consisting of a water seal tank or reservoir A having within the same a supporting frame work carrying on its upper side a stationary floor C arranged above the level of the water in the tank, a vertically adjustable and balanced receiver made deeper vertically than the tank and extending a considerable distance above the level of the floor at all times and having doors M in its sides opening above the level of the said floor, and purifying boxes or trays arranged on said floor and adapted to be reached by wheel barrows through said doors and across said floor substantially as shown and described

2. A combined gas holder and purifier consisting of a water seal tank or reservoir A having within the same a supporting frame work carrying at its upper side a stationary floor C arranged above the level of the water in the tank, a vertically adjustable and balanced receiver B B' made in two sections connected detachably at J, the upper section B' being substantially above the floor at all times and having side doors M, and purifying boxes or trays arranged upon the floor and adapted to be reached by wheel barrows across said floor substantially as shown and described.

3. A combined gas holder and purifier, consisting of a water seal tank A having within the same a supporting frame work carrying at its upper side a stationary floor C arranged above the level of the water in the tank, a vertically adjustable and balanced receiver made deeper vertically than the tank, and extending a considerable distance above the level of the floor at all times, and having an opening in the upper part of the same, purifying boxes or trays arranged upon said floor and adapted to be reached by wheel barrows across said floor, an inlet pipe F opening into the receiver on a level with the floor, and the outlet pipe G opening into the receiver above the purifying boxes substantially as and for the purpose described

---

518,115. CAR-FENDER. WILLIAM V. MCMANUS, Baltimore, Md. Filed Nov. 8, 1893. Serial No. 490,346. (No model.)

Claim.—1. An improved car fender consisting of the fixed guide and the receiving frame freely suspended at its upper end and having a sliding connection at its lower front edge with said guide, substantially as set forth

2. An improved car fender comprising the guide frame, the receiving frame suitably supported at its upper edge and having a sliding connection at its lower front edge with the guide frame, such sliding connection including a bearing inclined to the horizontal whereby the front edge of the receiving frame may be depressed as it is pushed rearwardly, substantially as set forth.



3. An improved car fender comprising the receiving frame, a support and guide for the front edge of said frame, connections between said frame and guide having a bearing inclined to the horizontal, and a support for the rear edge of the frame independent of the front support and guide substantially as set forth.

4. In a car fender, the combination with the guide and the receiving frame, one of which has inclined slots of pins or projections extended from the other part and entering and operating in such slots, substantially as set forth.

5. In a car fender, the combination with the receiving frame and supporting devices at the lower front edge thereof, of springs supporting the upper rear end of said frame all substantially as and for the purposes set forth.

6. In a car fender, the combination of the guide and support, the receiving frame having a sliding connection at its front edge therewith and a spring support for the upper rear edge of the said frame, substantially as set forth.

7. The combination in a car fender, of the receiving frame having slots which incline upward toward their front ends and the guides having pins or projections entering said slots, substantially as set forth.

8. A car fender comprising a receiving frame freely suspended at its upper rear end as distinguished from being pivoted and guide devices whereby to control the forward and backward movement of its front or lower end, substantially as set forth.

9. A car fender having a fixed guide a receiving frame having a sliding connection at its lower front edge with said guide, and springs by which said frame is suspended at its upper rear end, substantially as set forth.

10. The combination in a car fender of the receiving frame freely suspended at its upper rear edge as distinguished from being pivoted thereat, and guide devices for the lower front edge of said frame adapted to depress the latter as it is pushed rearwardly, substantially as set forth

11. The combination in a car fender of the receiving frame, springs by which said frame is freely suspended at its upper rear end and guide devices for its front end adapted to depress said end as it is pushed rearwardly, substantially as set forth.

12. In a car fender the combination with the receiving frame provided near its front end with slots inclined upwardly toward their front ends, guides having pins or projections entering said inclined slots and springs on which said frame is freely suspended at its upper rear end, substantially as set forth.

13. In a car fender the combination of freely suspended links, the receiving frame having projecting portions operating in said links and devices whereby said frame is freely suspended at its upper rear end, substantially as and for the purposes set forth.

14. In a car fender the combination of the suspended links, the receiving frame having portions entering and operating in said links and the springs on which said frame is suspended, substantially as set forth.

15. In a car fender, the combination of the guide bars, the receiving frame having its rear end arranged above said guide bars and having portions projecting laterally over the lines of said bars and springs on which said frame is suspended at its upper rear end, substantially as set forth.

16. In a car fender, the combination of the guide bars, the links suspended freely above said bars, the receiving frame having at its upper free end lateral pins or projections entering and operating in the links and extended laterally over the guide bars and springs on which the upper rear end of the frame is supported, substantially as set forth.

17. The improvement in car fenders substantially as herein described, consisting of the guide bars, the links suspended freely above said bars, the receiving frame having at its upper end rods entering said links and projecting above the guide bars, and provided near its front end with slots inclining upward toward their front ends, pins or projections from the guide bars entering said slots and springs on which the rear end of the frame is freely suspended, all substantially as and for the purposes set forth.

518,116. MUSTACHE-GUARD FOR SPOONS. CARL A. GUENTELL, New Orleans, La. Filed Jan. 9, 1894. Serial No. 496,240. (No model.)



Claim.—1. A spoon having a guard flexibly connected above the bowl and carrying a pendant adapted to raise the guard from the bowl, substantially as specified.

2. In a spoon, the combination with a bowl and a handle connected to the bowl; of a guard arranged upon the bowl and having resilient branches at one end provided with globular heads journaled in bearings in opposite sides of the handle, substantially as specified.

3. In a spoon, the combination with a bowl and a handle connected to the bowl and having bearing recesses in two of its opposite sides; of a guard having resilient branches *c*, at one of its ends provided with globular heads adapted to engage the bearing recesses of the handle, and a depending plate-engaging piece C, fixedly connected to and depending from the guard and having a knob or button at its lower end, substantially as specified.

518,117. PROCESS OF REFINING NICKEL AND COPPER MATTES. CHARLES G. RICHARDSON, Toronto, Canada. Filed May 18, 1893. Serial No. 474,693. (No specimens.)

Claim.—1. The process herein set forth of converting a mixture of iron, nickel and copper oxides into ferric chloride, and nickel and copper chlorides, by treating it with dry hydrochloric acid gas, and then separating the resulting chlorides by fractional distillation or sublimation, preferably in an atmosphere of hydrochloric acid gas or other neutral gas, substantially as described.

2. The process herein set forth of converting a mixture of iron and nickel oxides into chlorides by treating it with dry hydrochloric acid gas at a temperature below the volatilizing or subliming point of nickel chloride and the simultaneous distillation and separation of the ferric chloride as formed, substantially as described.

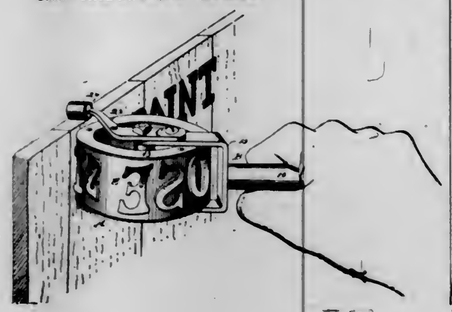
3. The process herein set forth of converting a mixture of nickel and copper oxides into chlorides by treating it with dry hydrochloric acid gas and then raising the temperature to a point below the point of volatility of copper chlorides and above the volatilizing point of nickel chloride, and separating the two chlorides by fractional distillation, substantially as described.

4. The process herein set forth of converting a mixture of nickel and copper chlorides by heating the same to a point below the volatilization or subliming point of copper chloride and above the volatilizing or subliming point of nickel chloride and separating the two chlorides by fractional distillation or sublimation preferably in an atmosphere of hydrochloric acid gas or other neutral gas, substantially as described.

5. The process herein set forth of separating a mixture of nickel and iron chlorides by means of fractional distillation or sublimation in an atmosphere of hydrochloric acid gas or other neutral gas, substantially as described.

6. The process herein set forth of treating a mixture of iron, nickel and copper chlorides, which consists in separating them from each other by fractional distillation or sublimation in an atmosphere of hydrochloric acid gas or other neutral gas, substantially as described.

518,118. SIGN-PRINTER. WILLIAM E. ROSE, New Carlisle, Ind., assignor of one-half to Scuyler C. Hicks, same place. Filed June 2, 1893. Serial No. 476,376. (No model.)



Claim.—1 In a sign printer, or like device, the combination, with the type wheel, of an arm extending from one of the wheel bearings beyond the periphery thereof, and a roller journaled on the outer end of said arm, and arranged with its axis parallel to the plane of the side of said wheel, as shown and described, to operate as specified.

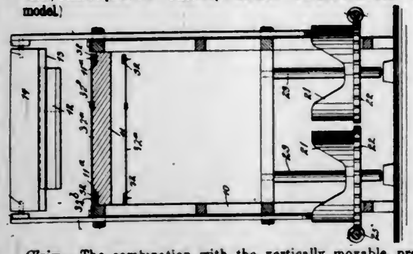
2. In a sign printer or like device, the combination with the type wheel and yoke or handle thereof, of the reversible roller-carrying arm, 23, having three equidistant apertures and journaled on the spindle of said wheel, and a screw adapted to pass through either of the two outer apertures and through the yoke, as shown and described, for the purpose specified.

518,119. PNEUMATIC DOOR-LOCK OPENER. JOHN SCHNEPF, New York, N. Y., assignor of one-half to William H. Bellamy, same place. Filed Mar. 15, 1893. Serial No. 466,132. (No model.)



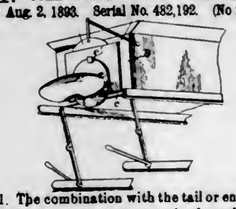
Claim.—In a pneumatic door lock or opener, the combination of a bellows, a bell-crank actuated by the bellows, a striking plate lever and a tripping lever pivoted to the striking plate lever, and adapted to be engaged by the bell-crank, and a spring which engages with the tripping lever, substantially as set forth.

518,120. OIL-CLOTH-PRINTING MACHINE. WILLIAM H. SCHOENBERG, Philadelphia, Pa. Filed Sept. 12, 1893. Serial No. 485,332. (No model.)



Claim.—The combination with the vertically movable press-block of an endless feed-apron arranged to move beneath the block, the apron having spurs adjacent to its edges, and a row of threaded eyelets between and parallel to said edges to receive a third row of spurs, as shown to operate as and for the purpose specified.

518,121. COAL-WAGON CHUTE. PHILIP SEIBERT, Philadelphia, Pa. Filed Aug. 2, 1893. Serial No. 482,192. (No model.)



Claim.—1. The combination with the tail or end gate of a wagon, of a chute axially adjustable thereon and adapted to discharge the contents of the wagon laterally, substantially as set forth.

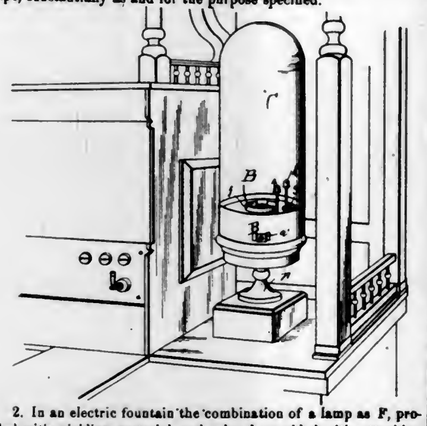
2. A wagon chute, curved in the form of a cycloid, and discharging at right angles to the longitudinal plane of the wagon body, substantially as set forth.

3. A wagon chute, having an approximately elliptic cross section and curved longitudinally in the form of a cycloid, substantially as set forth.

4. In a wagon chute, the combination, with the end or tail gate having a discharging opening therein, a plate or casting having a coincident opening therein and fastened to said tail gate, a wicket or slide and its manipulating lever arranged to slide between said tail gate and plate, and a curved tube or chute proper arranged in alignment with said opening and axially adjustable upon said plate, substantially as specified.

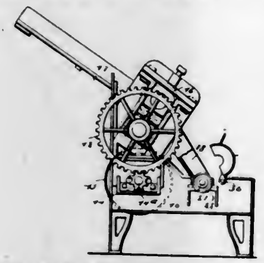
518,122. ELECTRIC FOUNTAIN. FRED P. SHANAFELT, Canton, Ohio. Filed Sept. 13, 1893. Serial No. 485,429. (No model.)

Claim.—1. The combination of the cylinder or drum provided with the plate or cover I having the opening J, and the over-flow aperture K, and the flanges *f* and *g*, the water wheel D located within the drum or cylinder, and a revolving cylinder carrying different colored glass sections, and an electric light, a glass dome and a water pipe, substantially as and for the purpose specified.



2. In an electric fountain the combination of a lamp as F, provided with yielding material, and a bead provided with attaching flanges, a cylinder or drum having located therein a water wheel, and rotatable glass sections of different colors, substantially as and for the purpose specified.

518,123. FEED-MILL. JOHN O. SMITH, Nashville, Tenn. Filed May 16, 1893. Serial No. 474,382. (No model.)



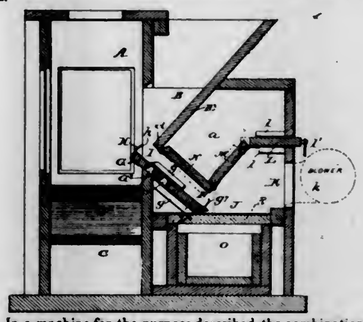
Claim.—1. In a feed mill, a revoluble cutter, comprising two cylindrical sections provided with longitudinal grooves and with grooves in their inner ends, knives fitting in the longitudinal grooves of the cylindrical sections, and collars having grooves on their inner faces to receive the outer ends of the knives, substantially as described.

2. In a feed mill, a revoluble cutter, comprising two cylindrical sections having longitudinal grooves and V-shaped grooves in their inner ends, the longitudinal grooves of one section being opposite the end grooves of the other section, collars having V-shaped grooves in their inner faces, and knives fitting in the longitudinal grooves and having pointed ends fitting in the end grooves of the adjacent section and in the grooves of one of the collars, substantially as described.

3. In a feed mill, the combination with a shaft having a screw threaded portion and provided with a fixed collar spaced from said screw threaded portion, of cylindrical sections secured to the shaft and each provided with longitudinal grooves and with V-shaped end grooves in its inner end, the longitudinal grooves of one section being opposite the end grooves of the other section, knives having pointed ends and fitting in the longitudinal grooves of the cylinder sections, loose collars on the shaft and having V-shaped grooves in their inner faces, and a nut on the shaft, substantially as herein shown and described.

518,124. COTTON-SEED CLEANER AND SEPARATOR. JAMES W. SMITH, Rome, Ga. Filed Aug. 3, 1893. Serial No. 482,279. (No model.)

Claim.—1. A seed separator and cleaner comprising a hopper, a seed receiving chamber, having as its mouth the discharge end of the hopper, a blast way projected and inclined reversely to the hopper and opening through the bottom thereof, and a blower connected therewith, said way having its upper wall formed of a member hinged at its upper end to the hopper, and adjusting devices projected to the outside of the machine, connected to the free end of the said hinged member, whereby its lower end can be set to adjust the lower opening of such blast way, all arranged substantially as described and shown.

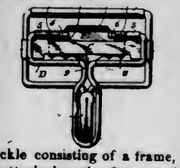


2. In a machine for the purpose described, the combination with the seed receiving chamber, and the inclined hopper discharging therein, and a blast chamber, of an open way inclined reversely to the hopper, and opening through it in its discharge end, said way having a longitudinally adjustable bottom, having a retarding strip at its upper end, and a top member adjustably connected, whereby its lower end can be raised or lowered, means for setting such member, adapted to be operated from the outside of the machine, and the blower, all substantially as shown and for the purposes described.

3. In a separating machine, substantially as described, the combination with the inclined hopper bottom, the chamber C having an inclined bottom C^x and exit F, and the opening I between the hopper bottom and the mouth of chamber C, of the rearwardly inclined board G, having its upper end provided with a retarding plate, and projected into the opening I, of a blast chamber, a waste receiving box under such chamber, and a cut off slide between such chamber and waste box all arranged substantially as shown and described.

4. The combination with the hopper, the seed receiving chamber, the opening I and the blast devices, including the valve M, of the inclined board G having a retarding strip H at its upper end fitting in the opening I, and provided with an angular groove in its upper face, all substantially as shown and described.

518,125. BUCKLE. DWIGHT I. SMITH, Waterbury, Conn., assignor of one-half to Earl A. Smith, same place. Filed Nov. 1, 1893. Serial No. 489,702. (No model.)



Claim.—1. A buckle consisting of a frame, a cross bar having eyes 4 by which it is attached to the frame and eyes 5, a movable member having inwardly turned ends extending through and past eyes 5, and a clamping lever having eyes 7 through which said inwardly turned ends pass.

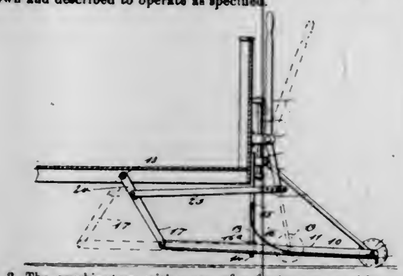
2. A buckle consisting of a frame, a cross bar having eyes 4 by which it is attached to the frame and eyes 5, a movable member having inwardly turned ends extending through and past eyes 5 and suitably bent to form springs 12, and a clamping lever having eyes 7 through which said inwardly turned ends pass, and a bearing plate 11 against which springs 12 bear to hold the clamping lever in engaging position.

3. A buckle consisting of a frame having at its lower end a loop 13, a cross bar having eyes 4 by which it is attached to the frame, and eyes 5, a hook having inwardly turned ends extending through and past eyes 5 and acting to engage the loop for the purpose set forth, and a clamping lever having eyes 7 through which said inwardly turned ends pass.

518,126. CAR-FENDER. BENJAMIN TRANTER, Brooklyn, N. Y., assignor of one-half to William Burton, same place. Filed Dec. 13, 1893. Serial No. 493,583. (No model.)

Claim.—1. The combination, with a car, of a movable fender carrying frame arranged horizontally at the front of the same, swinging hangers which pivotally connect its rear end with the bottom of

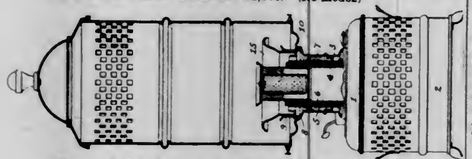
the car, a pitman pivoted to said hanger, and a lever pivoted vertically at the front of the car and connected with said pitman, as shown and described to operate as specified.



2. The combination, with a car, of a fender arranged beneath the car and having its rear end pivotally connected therewith, rollers on the front end of the fender, braces pivoted to the front end of the fender and adapted to slide vertically on the car, and a lever mechanism for moving the fender forward and backward, substantially as described.

3. The combination, with the car and the guide frame hung beneath it, of the fender held to move longitudinally in the guide frame and provided on the front end with trucks, hangers suspended beneath the car and pivoted to the rear end of the fender, braces pivoted to the front end of the fender and arranged to slide vertically on the end of the car, a forwardly-extending pitman operatively connected with the hangers, and a lever fulcrumed on the end of the car and connected with the pitman, substantially as described.

518,127. LAMP-STOVE. CHARLES S. UPTON, New York, N. Y. Filed Nov. 24, 1893. Serial No. 491,870. (No model.)



Claim.—1. In a lamp stove, the combination, with a burner, of a heating drum inclosing the burner and suitably supported, and a collar inclosing the flame and rising above the bottom of the drum, for protecting the flame from currents of air, and adapted to deflect such currents upward and away from the flame, substantially as described.

2. In a lamp stove, the combination, with a burner, of a heating drum inclosing the burner and suitably supported, and an outwardly flaring collar inclosing the flame and rising above the bottom of the drum, for protecting the flame from currents of air, and adapted to deflect such currents upward and outward, substantially as described.

3. In a lamp stove, the combination, with a burner 3 having a chimney gallery 8, a heating drum 11 inclosing said burner, and a bottom plate 10 supported by said chimney gallery and adapted to support said drum, of a collar 15 supported by said chimney gallery, inclosing the flame and rising above the bottom plate 10, and having an outwardly flaring upper portion, and adapted to deflect air currents upward and outward, substantially as described.

518,128. SLIDING GATE. WILLIAM WOODS, Frostburg, Md. Filed Nov. 18, 1893. Serial No. 491,304. (No model.)

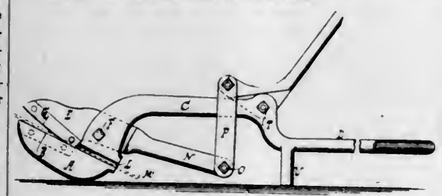


Claim.—1. In a gate of the character described, the combination with the three aligned posts and a slidable gate, of the track bar fixed high above the roadway and inclining downward from the middle post, the movable track bar which is arranged in the same plane with the fixed bar, the same being pivoted to an outer post, and free at its inner and normally lower end, and a cord attached to such free end of the movable bar, and passing up over a guide, whereby it is adapted for raising the inner end of the movable bar, to cause the gate to travel, as shown and described.

2. The combination, with the sliding gate fixed track bar and movable track bar arranged in the same vertical plane, of the rotatable shaft arranged at a right angle to the gate, pulleys mounted on said shaft, and cords arranged as specified, one being attached to the movable track bar, and the other two, which are endless, being arranged to run on guide pulleys, as shown and described.

3. The combination with the posts and sliding gate, of the fixed and movable track bars, the rotatable shaft, the endless cords, guide pulleys arranged as specified, arms projecting from the upper ends of the posts and rollers journaled in the outer ends of said arms, all as shown and described to operate as specified.

518,129. SHEARS. JOHANN H. AUFDERHEIDE, Kaiserslautern, Germany, assignor to Heinrich Aufderheide, Brooklyn, N. Y. Filed May 4, 1893. Serial No. 472,978. (No model.)



Claim.—1. The combination with a stationary blade having a rearwardly-extending stationary arm and handle, of a pivoted blade provided with a rearwardly extending arm, a bell-crank lever pivoted to said stationary arm and having a handle located in operative relation to the handle of the stationary arm, and a link connecting one arm of the bell-crank lever with the rearwardly-extending arm of the pivoted blade and moved toward the fulcrum of the bell-crank lever when the latter is operated to close the pivoted blade, substantially as described.

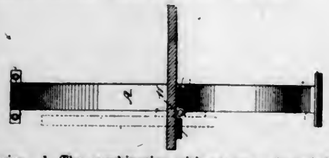
2. The combination with a primary blade formed in one piece in ⌐ shape so as to form an upper and a lower shoulder of a secondary blade jointed to said primary blade and provided with a depending edge adapted to come into alignment with said lower shoulder, substantially as described.

3. The combination with a primary blade formed with an upper and a lower shoulder substantially as described of a secondary blade seated over said upper shoulder and made adjustable toward and from the primary blade, the outer face of the secondary blade being left free or unobstructed, substantially as described.

4. The combination with a primary blade formed in one piece in ⌐ shape so as to form an upper and lower shoulder of a secondary blade jointed to said primary blade, said secondary blade being provided with an actuating arm made to extend backward entirely clear of the shoulders of the primary blade so as to be free for the application of motive power, substantially as described.

5. The combination with a primary blade formed in one piece in ⌐ shape so as to form an upper and a lower shoulder and a channel or recess, of a secondary blade jointed to the primary blade, said secondary blade having its edge aligned with the lower shoulder and the primary blade having its edge aligned with the channel, substantially as described.

518,130. SETTEE-ARM. WILLIAM C. BARTOL, Lewisburg, Pa. Filed Nov. 10, 1893. Serial No. 490,543. (No model.)

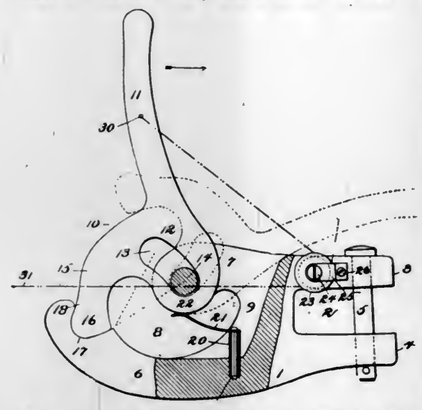


Claim.—1. The combination with an arm adapted for attachment to a settee and having a horizontal extension, of a table which is hinged to said extension, the joint of the hinge being directly over one of the side edges of such extension, as shown and described.

2. An arm for settees or like seats, provided with a horizontal extension, and a table hinged between its center and one edge upon the extension, the table being provided with cushions adapted for engagement with the arm on its extension when the table is either in a horizontal or in a vertical position, as and for the purpose set forth.

3. A curved arm for settees having a straight middle portion for attachment of a table, and having three-quarter round iron bars attached to its ends, the cylindrical sides of said bars being outermost, as shown and described, whereby said arm is adapted for attachment to settees having seats and backs at different angles, in such manner that the middle portion is in horizontal position, as specified.

518,131. SAFETY RELEASE-HOOK. JOHN U. BECKEMAN, St. Louis, Mo. Filed Nov. 7, 1893. Serial No. 490,255. (No model.)



Claim.—1. In a safety release hook a main body 1 having perforated projections 3 and 4 formed integral with one end, and a projection 6 having a depression 17 in its free end formed integral with the other end, two perforated parallel ears 7 formed integral with said body in such a manner that they will overhang said projection 6, a latch 10 having a segmental slot 13 fulcrumed between said ears, a projection 16 formed on said latch to engage the depression 17 in the free end of the projection 6, and a spring connected to the body for retaining said projection in engagement with the free end of said projection 6, substantially as set forth.

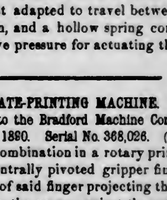
2. The safety release hook comprising a body having perforated projections 3 and 4 formed integral with one end, a projection 6 having a depression in its free end formed integral with the other end of said body, two perforated ears formed integral with said body in such a manner that they will overhang said projection, a latch having a segmental slot fulcrumed between said ears, a projection formed on the free end of said latch in such a manner that when the hook is in a closed position it will engage the depression in the first mentioned projection, and a pulley connected to one side of the perforated projection 3 to support a rope for disengaging the projection of the latch from the depression when the hook is an elevated position, substantially as set forth.

3. In a safety release hook, a main body 1 which is rectangular in cross-section, having perforated projections formed on or fixed to one end, a projection 6 having a depression 17 in its free end which forms an enlarged portion 18 thereon, perforated parallel ears overhanging said projection 6, a latch 10 having a slot 13, fulcrumed between said ears, a projection 15 formed on the main body 12 of the latch 10, an enlarged portion formed on the free end of said projection 15 which engages the depression 17 in the projection 6, a handle 11 connected to the main body 12 of the latch 10, one end of a rope connected to said handle which passes over a pulley connected to one of the perforated projections, a pin 20 located in an aperture 19 formed in the projection 6, and a spring connected to the free end of said pin, said spring engaging the portion 22 of the main body 12 of the latch 10, substantially as set forth.

518,132. ROPE-CLAMP FOR PULLEY-LINES. THOMAS BEVAN, New York, N. Y. Filed Nov. 14, 1893. Serial No. 490,934. (No model.)

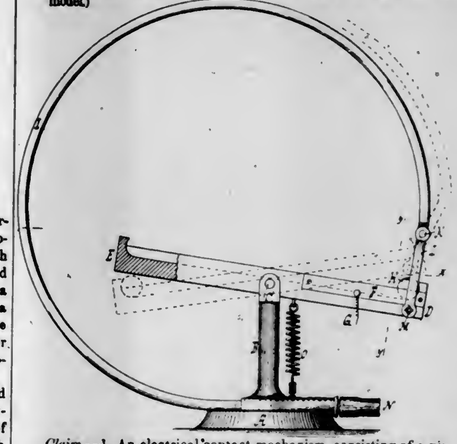
Claim.—1. In a pulley line clamp, a tubular body having a beveled under surface at one end, and a substantially V-slot produced in the said beveled surface, the contracted portion of the slot being at its inner end, and eyes located upon the top of the body, as and for the purpose set forth.

2. In a pulley line clamp, a tubular body provided with a substantially V-shaped slot in its under surface and extending from one end in direction of the center, eyes formed upon the top of the body, one near each end, and a third eye located above and between the body eyes and connected with both of them, as and for the purpose set forth.



3. A pulley line clamp, the same consisting of a tubular body having its under surface beveled at one end, and the beveled surface provided with an angular slot tapering from the end in direction of the center of the body, eyes formed upon the top of the body, one near each end, a hanger connected with both of the eyes, and a third eye carried by the hanger, above and between the lower or body eyes, as and for the purpose specified.

518,133. ELECTRICAL CONTACT MECHANISM. JOHN F. BLAKE, New Haven, Conn. Filed Jan. 25, 1894. Serial No. 497,973. (No model.)



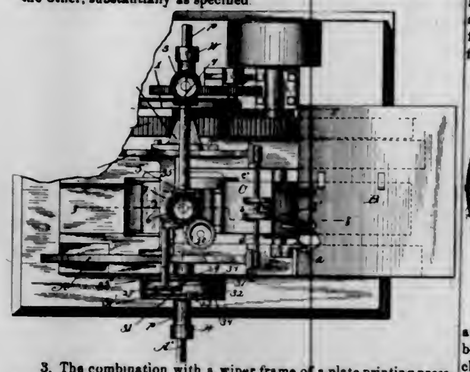
Claim.—1. An electrical contact mechanism, consisting of a pivoted lever or arm provided with an insulating portion and separated conducting strips, electrical terminals connected to said conducting strips, a rolling contact adapted to travel on the pivoted lever or arm and electrically connect the said conducting strips, and a spring having a jointed connection with the lever or arm for operating the latter, substantially as described.

2. An electrical contact mechanism comprising a lever or swinging arm provided with electrical terminals and with an insulating portion, a rolling contact adapted to travel between the terminals and the insulating portion, and a hollow spring connected to said lever and adapted to receive pressure for actuating the lever substantially as described.

518,134. PLATE-PRINTING MACHINE. EUGENE S. BRADFORD, Chicago, assignor to the Bradford Machine Company, East St. Louis, Ill. Filed Oct. 13, 1890. Serial No. 368,026. (No model.)

Claim.—1. The combination in a rotary printing press, of an impression cylinder a centrally pivoted gripper finger pivoted to a vibrating arm, one end of said finger projecting through the periphery of the cylinder to grip the paper against the cylinder, the other end moving in a guide-slot within the cylinder to cause the gripping-finger to hold the paper when the arm to which the finger is pivoted is thrown into a certain position, and to recede within the cylinder when thrown in another position; the vibrating arm to which the gripping finger is pivoted vibrating within the cylinder; and suitable mechanism connected to said vibrating arms and operated by the pins or lugs on the frame outside of the cylinder to vibrate it at fixed, definite periods by the revolution of the cylinder, substantially as specified.

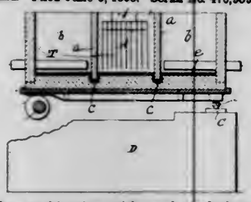
2. In a plate printing press, the wiper frame 12 having arms upon which are mounted rolls for carrying the wiper cloth which revolve with the wiper plate; and gear wheels and shaft carried on the wiper frame and rotating one of the spools which are mounted on the wiper frame and a shaft on which the wiper frame is mounted, whereby the wiper frame and cloth are rotated, and the cloth fed from one spool to the other, substantially as specified.



3. The combination with a wiper frame of a plate printing press, mounted on the end of a revolving shaft; of the driving mechanism mounted on the wiper frame for winding the cloth from one spool to another on the wiper frame; of a rock-shaft connected with a drum on the shaft of the machine, and means intermediate said shaft and the gearing which feeds the cloth to feed it intermittently beneath the wiper frame, as specified.

4. In a plate printing press, the wiper-frame; spools mounted on said frame and revolving therewith to carry the wiper-cloth; the shaft 7 to which the wiper-frame is attached; a sleeve surrounding said shaft and through which the shaft is adjustable vertically, but which revolves with the shaft; a spring between the sleeve and the wiper-frame; and means for adjusting the shaft through the sleeve, substantially as specified.

518,135. ELECTROLYTIC APPARATUS. HAMILTON Y. CASTNER, London, England. Filed June 8, 1893. Serial No. 476,939. (No model.)



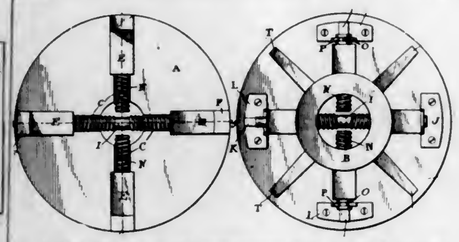
Claim.—1. The combination with an electrolytic cell provided with compartments having means of communication, of means for causing the contained mercury or other substance to circulate between said compartments by the action of gravity, substantially as described.

2. The combination with an electrolytic cell provided with compartments having communicating passages at the bottoms, of means for rocking said cell so as to cause the contained mercury or other substance to circulate or flow between the compartments, substantially as described.

3. An electrolytic cell composed of a number of compartments divided by partitions having spaces beneath the same, an electrode and suitable connections, a layer of mercury and means for imparting to said cell a rocking movement to cause the mercury to flow from one compartment to the other and back again, substantially as shown and for the purpose described.

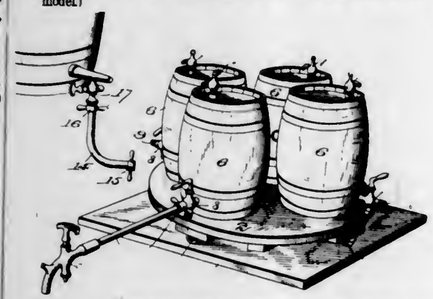
518,136. LATHE-CHUCK. SOLOMON COOPE and ENOS O. ROGERS, Orbisonia, Pa. Filed Oct. 18, 1893. Serial No. 448,511. (No model.)

Claim.—1. In a lathe chuck, the combination of the chuck face plate and the hub provided with a radial series of slots, a series of strengthening ribs projected from the inner face of the face plate and the top of the hub, separate pairs of universally and independently adjustable chuck jaws mounted to slide in said slots and having threaded openings in the inner portions thereof, diametrically arranged flanged bearing plates secured to the inner side of the face plate near its periphery and certain of which are provided with bearing notches, a single adjusting screw mounted in the bearing plates and having separate right and left screw threaded portions engaging the threaded openings in the universally adjustable jaws, separate and independent adjusting screws engaging the threaded openings of the independently adjustable jaws, all of said screws having outer squared key ends turning the notched bearing plates, and a flanged casing cap arranged on the hub and secured against the outer edges of said strengthening ribs, said cap being flush with the periphery of the face plate and having a series of key openings, substantially as set forth.



2. In a lathe chuck, the combination of the chuck face plates and rearwardly projecting hub provided with radial slots, said hub being exteriorly and interiorly threaded at its outer end, the radial chuck jaws mounted in the face plate and hub and provided with threaded openings, the adjusting screws for the jaws having outer squared key ends, and the removable flanged casing cap engaging the exterior threads of the hub and fitting close up against the inner face of the face plate, said cap being flush with the periphery of the face plate and having a series of key openings arranged directly over the squared ends of the several adjusting screws, substantially as set forth.

518,137. APPARATUS FOR DISPENSING BEER, &c. JAMES P. DAY, Anniston, Ala. Filed Aug. 24, 1893. Serial No. 483,970. (No model.)



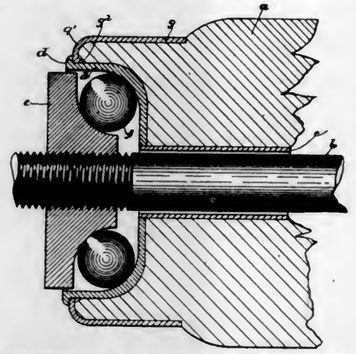
Claim.—1. In an apparatus for dispensing beer and other liquids containing effervescent gases, the combination of a main supply vessel, a series of smaller vessels, a draft cock, means for effecting communication between the main supply vessel and the series of smaller vessels, means for effecting communication between the draft cock and said series of smaller vessels, and a revolving support for said series of smaller vessels for bringing each smaller vessel of the series in succession adjacent to the main vessel to receive the liquid therefrom and then adjacent to said draft tube for the passage of the liquid from the smaller vessels, in succession, to the draft tube, substantially as and for the purposes described.

2. The combination with a series of comparatively small vessels, a draft tube common to all of said small vessels, couplings for connecting said small vessels with said draft tube for drawing the liquid successively from said small vessels through said draft tube, a moving support for said small vessels adapted to bring said vessels successively opposite to said draft tube without removal from said support to enable connection to be made between each one of them and said draft tube, substantially as and for the purposes described.

518,138. BALL-BEARING FOR WHEELS. STERLING ELLIOTT, Newton, assignor to the Hickory Wheel Company, South Framingham, Mass. Filed Oct. 13, 1892. Serial No. 448,779. (No model.)

Claim.—1. The combination of a wooden hub having its exterior end portion shaped concentric with the axis of the wheel, a metallic band inclosing said end portion, and a cup-shaped piece engaged and supported by said band, an axle passing through said hub and cup-shaped piece, a ball retaining cone thereon, and balls interposed between said ball retaining cone and cup-shaped piece, substantially as described.

2. The combination of a wooden hub bored axially and having a recessed end, the exterior end portion of said hub being turned concentric with the axis of the wheel, a metallic band fitted onto said end portion, and a ball receiving cup contained in the recess and engaged and supported by said band, the axle passing through said hub and cup shaped piece, ball retaining cone thereon, and balls interposed between said ball retaining cone and cup-shaped piece, substantially as described.

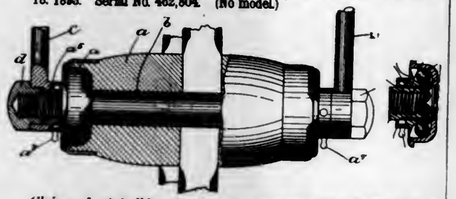


3. The combination of a wooden hub bored axially and having its exterior end portion shaped concentric with the axis of the wheel, a metallic band upon said end portion, a cup-shaped piece engaged and supported by said band, said parts when in engagement entirely concealing and protecting the end of the hub, a metallic tube passing through said bore and connected with said cup-shaped piece by an oil tight joint, an axle passing through said tube and cup-shaped piece, ball retaining cone thereon, and balls, substantially as described.

4. The combination of a wooden hub bored axially and having its exterior end portion shaped concentric with the axis of the wheel, a metallic band upon said end portion having an inwardly turned flange g', a cup-shaped end piece engaged and supported by said band having an outwardly extended flange d', which abuts against the flange g', of the band, an axle passing through said hub and cup-shaped piece, ball retaining cones thereon, and balls, substantially as described.

5. The combination of a wooden hub bored axially and having its exterior end portion shaped concentric with the axis of the wheel, a metallic band upon said end portion having an inwardly turned flange g', and a flange g^2, a cup-shaped end piece engaged and supported by said band having an outwardly extended flange d', which abuts against the flange g' of the band, an axle passing through said hub and cup shaped piece, ball retaining cone thereon, and balls, substantially as described.

518,139. BALL-BEARING. STERLING ELLIOTT, Newton, assignor to the Hickory Wheel Company, South Framingham, Mass. Filed Feb. 18, 1893. Serial No. 462,804. (No model.)



Claim.—1. A ball bearing for wheels comprising a ball-receiving cup, and ball-retaining plate having oil passages terminating back of the balls, substantially as described.

2. A ball bearing for wheels comprising a ball receiving cup, and ball-retaining plate, having holes 2, and holes 3, leading from said holes 2, and terminating at a point back of the balls, substantially as described.

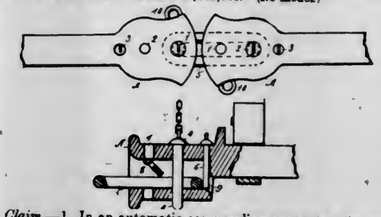
3. A ball bearing for wheels comprising a ball receiving cup, and ball-retaining plate, having oil passages therethrough, and a ring encircling a portion of the plate to close the entrances to said oil passages, and having a hole through it which may be made to register with the entrances to said oil passages, substantially as described.

4. A ball bearing for wheels comprising a ball receiving cup, and ball retaining plate having oil passages therethrough, and a ring encircling a portion of the plate to close the entrances to said oil passages, and having a hole through it which may be made to register with the entrances to said oil passages, and a finger piece a^3, projecting from said ring, substantially as described.

5. A ball bearing for wheels comprising a ball receiving cup, and ball retaining plate having a flange substantially flush with the end of the cup, and a projection of lesser diameter than the flange provided with holes, a ring encircling said projection corresponding in width to the length thereof, and having a hole and a finger piece, substantially as described.

6. A ball bearing for wheels comprising a ball-receiving cup, and a ball-retaining plate having a bearing portion for the balls, and the flange a^2, contained within and substantially closing the opening into said ball-receiving cup, the outer edge of which is diminished in thickness to a knife edge, substantially as described.

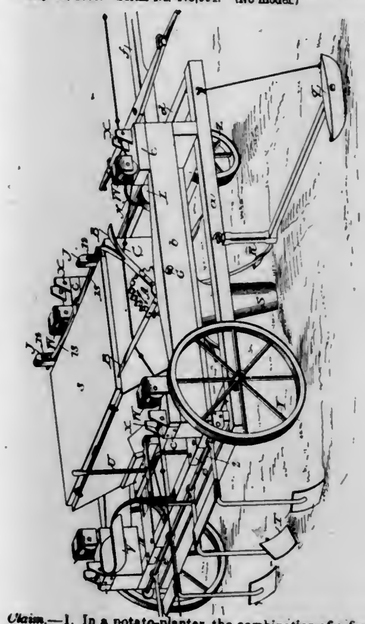
518,140. CAR-COUPLING. SIMEON J. FORD, Placerville, Cal. Filed Sept. 16, 1893. Serial No. 485,720. (No model.)



Claim.—1. In an automatic car-coupling apparatus, the combination with the herein described draw-head provided with a rounded face, a series of pin holes and a rear opening, of the swinging pin support suspended within the draw-head, substantially as and for the purposes herein set forth.

2. In an automatic car-coupling apparatus, the combination of the draw-head having a rounded face, a series of pin holes and a rear opening, the swinging pin support, and the supplementary pin all constructed and arranged substantially as herein described.

518,141. POTATO-PLANTER. THOMAS L. GOOD, Wanda, Ill. Filed May 29, 1893. Serial No. 475,991. (No model.)

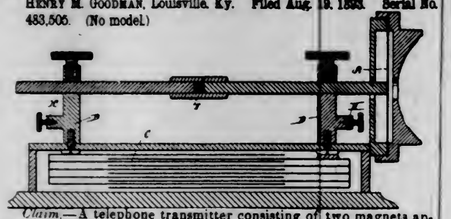


Claim.—1. In a potato-planter, the combination of a frame supported on wheels, a single seed-hopper mounted on said frame, bottom plates I, I, fixed in said hopper and inclined from the center.

thereof downward and outward said hopper having openings H formed in the bottom thereof at the base of said plates I, I, a main shaft G which extends across the hopper through each of said inclined plates I, I, and through opposite sides of the hopper, short stirring-pins passed through openings in said main shaft and projecting at right angles on opposite sides thereof directly above each of the openings H, force-feed devices located directly beneath each of said openings and constructed to force seed potatoes downward into seed-chutes located beneath them, mechanism for operating said force-feed devices, furrow-opening shovels connected with said frame, and the forked arms B for imparting movement to said shaft G and operating said stirring-pins as the machine is moved forward, substantially as herein specified.

2. In a potato-planter, the combination of a frame, a hopper located on said frame and extending across the same, said hopper having openings formed in the bottom thereof, a feed-disk-shaft, E, feed-disks P, P, fixed on said shaft E, one beneath each of the openings in the hopper and having [___]-shaped grooves in their peripheries, said feed-disks each having two pointed projections F which extend parallel from the peripheries of said disks, an oscillating finger K pivotally mounted in the rear of each of said feed-disks so that its front end is normally in contact with the periphery of the adjacent feed-disk, springs which hold the fingers in the position just mentioned, and a finger L pivotally mounted in front of each feed-disk and having a rectangular recess or offset in its rear upper corner, and the rear end of which is normally located closely adjacent the periphery of the contiguous feed-disk, so that the rear end of this finger will be depressed by engagement therewith of the projections F of the contiguous feed-disk and have its forward end correspondingly elevated, a spring N which returns said finger L to its normal position after its rear end has been depressed, and proper operative connections, substantially as herein specified.

518,142. TELEPHONE-TRANSMITTER. JOHN GOODMAN and HENRY M. GOODMAN, Louisville, Ky. Filed Aug. 19, 1893. Serial No. 483,506. (No model.)



Claim.—A telephone transmitter consisting of two magnets approximating each other in a straight, or nearly straight line, and a mass of metal susceptible of magnetic induction, and in a state of comminution, between the extremities of said magnets, in combination with a vibrating diaphragm mechanically connected at or near its center with an extremity of one of said magnets, and an electrical condenser, substantially as specified.

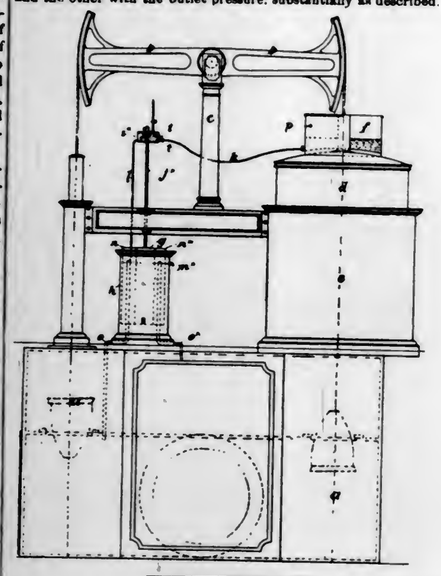
518,143. STATION GAS-GOVERNOR. JOHN HAWKYARD, Saddleworth, assignor to Joseph Braddock, Oldham, England. Filed Mar. 18, 1893. Serial No. 466,664. (No model.)

Claim.—1. In a gas governor, the combination of the main governor bell and a loading tank connected to and moving with the said bell, with an overflow vessel in communication with such tank so as to maintain an equal water level in both the overflow vessel and loading tank, a float carrying said overflow vessel and acting in a tank and provided with a bell in communication with the inlet pressure, substantially as set forth.

2. In a gas governor, the combination of the main governor bell and a loading tank connected to and moving with the said bell, with an overflow vessel in communication with such tank so as to maintain an equal water level in both the overflow vessel and loading tank, a float carrying said overflow vessel and acting in a tank and provided with two bells, one in communication with the inlet pressure and the other in communication with the outlet pressure, substantially as set forth.

3. In a gas governor, the combination of the main governor bell, and a loading tank mounted upon the top of said bell, with an overflow vessel in communication with such tank so as to maintain an equal water level in both the overflow vessel and loading tank, a float upon which said overflow vessel is mounted and acting in a tank and provided with a bell in communication with the inlet pressure, substantially as described.

4. In a gas governor, the combination of the main governor bell, and a loading tank mounted upon the top of said bell, with an overflow vessel in communication with such tank so as to maintain an equal water level in both the overflow vessel and loading tank, a float upon which said overflow vessel is mounted and acting in a tank and provided with two bells in communication one with the inlet pressure and the other with the outlet pressure, substantially as described.

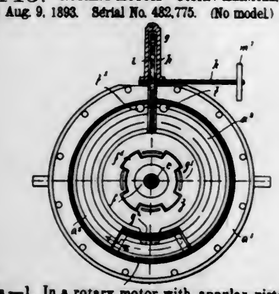


518,144. POLISHING-MITT AND DAUBER. THOMAS P. HEBBLEWHITE and FRANK HARVEY, Buffalo, N. Y. Filed June 5, 1893. Serial No. 476,641. (No model.)



Claim.—In a polishing mitt or glove, the combination of a polishing material, an impervious lining and an interposed slow conductor of heat with an impervious back and a dauber stuffed or wadded, substantially as and for the purposes herein set forth.

518,145. ROTARY MOTOR. GUSTAV HEINICKE, Berlin, Germany. Filed Aug. 9, 1893. Serial No. 482,775. (No model.)

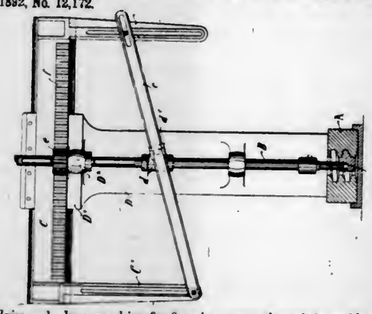


Claim.—1. In a rotary motor with annular piston-passage, the combination with the piston *d* revolving within passage a^3, and with disk *f* fixed to shaft *e*, of an intermediate disk *g*, driven by the piston and adapted to transmit the motion of the latter to disk *f*, for the purpose as described.

2. In a rotary motor with annular piston-passage, the combination with the piston *d* revolving within passage a^3, and with serrated disk *f* fixed to shaft *e*, of a serrated intermediate disk *g*, driven by the piston and adapted to transmit the motion of the latter to shaft *e*, the serrations of both disks catching into another, for the purpose as described.

3. In a rotary motor with annular piston-passage, the combination with the piston *d* revolving within passage a^3, and with disk *f* fixed to shaft *e*, of an intermediate serrated disk *g* loosely connected with, and driven by, the piston, and adapted to transmit the motion of the latter to shaft *e*, the serrations of both disks catching loosely into another, for the purpose as described.

518,146. MACHINE FOR FORMING SCREW-THREADS. OTTO HENNING, Magdeburg-Buckau, Germany, assignor to the Grusonwerk, same place. Filed Mar. 27, 1893. Serial No. 467,783. (No model.) Patented in Germany Oct. 15, 1890, No. 55,994, and in England June 30, 1892, No. 12,172.



Claim.—1. In a machine for forming screw threads in molds such as herein specified, a shaft carrying a templet and arranged in combination with a sliding support and with one or more guide rods, in such a manner that by its rotation the said shaft imparts lateral movement to the said support, which, by means of the said inclined guide rods, moves the templet shaft up and down through a distance corresponding with the pitch of the screw.

2. In a machine for forming screw-threads, the combination of the longitudinally adjustable rotating shaft carrying the templet and having an inclined guide and the transversely moving support having sliding connection with said guide, substantially as and for the purpose set forth.

3. In a machine for forming screw-threads, the combination of the longitudinally adjustable rotating shaft, carrying the templet and having upon it a guide by which it may be moved longitudinally and which is adjustable in its angle, and the transversely sliding support having adjustably mounted upon it sliding connections engaging the guide on said shaft, substantially as and for the purpose set forth.

4. In a machine for forming screw threads, the combination of a rotary shaft carrying the templet, and having a bearing, a sleeve embracing said shaft and means for advancing the shaft with the templet consisting of the inclined guide engaging the sleeve, and mounted to move transversely of the shaft, as and for the purpose explained.

5. In a machine for forming screw threads, the combination of a rotary shaft mounted to be advanced longitudinally in its bearings, means for advancing said shaft consisting of the sleeve embracing the shaft and the inclined guide rod engaging said sleeve and movable transversely to the shaft, and working connections for imparting the transverse movement to the guide rod, from the rotary movement of the shaft, whereby the latter is rotated and advanced simultaneously, substantially as and for the purpose explained.

6. In a machine for forming screw threads, the combination of the shaft carrying the templet, and having means for rotating it, bearings in which the shaft may be advanced longitudinally and means for advancing said shaft consisting of the inclined guide-rod movable transversely to the shaft and having suitable sliding connections therewith; said guide-rod being adjustably mounted for the purpose of changing its angle of inclination, and thereby alter the pitch of the screw thread, as explained.

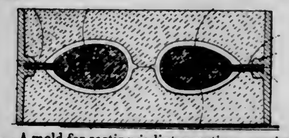
7. In a machine for forming screw threads, the combination of a longitudinally adjustable rotating shaft carrying the thread forming templet, and means for adjusting the shaft longitudinally as it rotates, consisting of the inclined guide rod having sliding connection with the shaft, and mounted to move transversely to the same, a rack for moving said inclined guide-rod, and a pinion on the shaft, engaging the rack, substantially as explained.

8. In a machine for forming screw-threads, the combination of the longitudinally adjustable rotating shaft, carrying the templet, and the means for adjusting the shaft longitudinally for forming any desired pitch of thread, consisting of the inclined guide-rod having sliding connection with the shaft, and the sliding support for holding and moving the guide-rod transversely to the shaft, formed with a pair of arms to which the ends of the guide rod are adjustably connected, as explained.

9. In a machine for forming screw-threads, in molds, the combination of a shaft, carrying a templet, a sliding support adapted to be moved by said shaft, a sleeve mounted on said shaft and provided with guides adapted to turn thereon and the guide-rods adjustably connected to the sliding support and movable in said guides, substantially as and for the purposes explained.

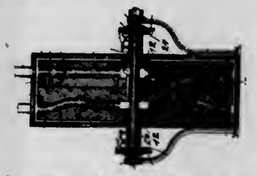
10. In a machine for forming screw threads in molds, the combination of a frame D, a shaft B carrying a templet, adapted to move in a vertical direction, and journaled in said frame, a support C movable transversely in said frame and provided with a rack and slotted arms C', a pinion on the shaft B engaging said rack, a sleeve *d* in which the shaft rotates, and the adjustable inclined guide-rods c carried by the arms C', and sliding in the collar *d*, substantially as and for the purpose set forth.

518,147. MOLD. JOSEPH M. HURLEY, Buffalo, N. Y., assignor to Walter F. Bryant, same place. Filed Jan. 25, 1893. Serial No. 459,645. (No model.)



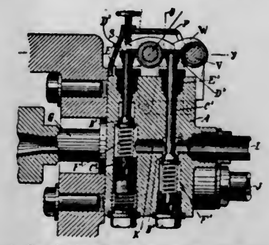
Claim.—A mold for casting radiator sections, consisting of a flask in two parts 1 and 1^a, each part having an inwardly projecting flange provided with a series of semicircular depressions 3 and 3^a, extending part way across the face of the flange, a sand mold and a core having a series of anchor pins extending outward and adapted to fit in the depressions 3 and 3^a, substantially as described.

518,148. MACHINE FOR POLISHING TABLE-KNIVES, &c. EMIL F. KUECHLER and HERMAN STARCK, St. Louis, Mo. Filed Sept. 19, 1893. Serial No. 485,749. (No model.)



Claim.—In a machine for polishing knives and forks, a casing supported by a frame, a horizontal shaft mounted in said frame and opening through the casing, disks 14 and 15 connected to said shaft and located in said casing, a disk 13 located within said casing, a sleeve feathered on said shaft and extending into said casing upon which the disk 13 is connected, a disk 23 threaded on said shaft, a notched disk 24 mounted on said sleeve and connected to the disk 23, and a spring actuated pawl constructed to engage said notched disk and prevent it from turning, substantially as set forth.

518,149. CONTROLLING-VALVE FOR HYDRAULIC PRESSURE. AUGUST KAMPF, Magdeburg, assignor to the Grusonwerk, Magdeburg-Buckau, Germany. Filed Jan. 28, 1893. Serial No. 460,103. (No model.)



Claim.—1. In a hydraulic press, the combination with three passages arranged to establish communication between the lower end of the press cylinder and the source of power, between the upper end of the press cylinder and the source of power, and between the upper end of the cylinder and the overflow; the three valves B', B^2 and B^3 located

in the respective passages and a pair of rock shafts having radial arms both located to engage the valve B', and one of said rock shafts having arms respectively located and movable in opposite directions to engage the valves B^2 and B^3, substantially as and for the purpose set forth.

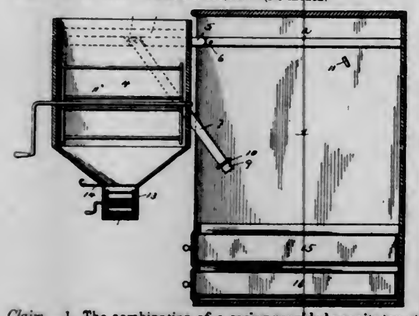
2. The herein described means for controlling hydraulic presses, consisting of passages arranged to establish communication between the source of power and the respective sides of the press-piston, a passage establishing communication between an overflow and the upper side of the press-piston, power, upper cylinder and overflow valves controlling the source of power, the passage above the piston and the overflow respectively, and operating shafts provided with projections and coupled together, movable in opposite directions, said projections being arranged, some to move in one direction into engagement simultaneously with the power valve and the upper cylinder valve, and others movable in the opposite direction for engagement with said power valve and the overflow valve, substantially as and for the purposes explained.

3. In combination with the herein described controlling valve having suitable passages and the accumulator, upper cylinder and overflow, valves controlling the same; of the operating connections for said valves, consisting of the pair of rock-shafts having each an arm projecting in one direction therefrom for engagement respectively with the accumulator and one of the other of the three valves, and one of said shafts also having a pair of arms projecting oppositely from its arm first mentioned and adapted respectively to engage said accumulator valve and the remaining valve, as and for the purposes explained.

4. In combination with the accumulator-passage, the upper and lower cylinder-passages communicating with the accumulator-passage, the overflow communicating with the upper cylinder, and the accumulator, the overflow, and the upper cylinder valves arranged to respectively control the accumulator passage, the overflow and the communication between the upper cylinder and the accumulator passage; means for controlling said valves, consisting of the shafts Q and V, with means for operating them, the lever W on shaft V controlling the accumulator valve, and the levers R, S on shaft Q the lever S having a pair of arms controlling respectively the overflow and upper cylinder valves, and the lever R having an arm controlling the accumulator valve, substantially as and for the purposes explained.

5. In combination with the accumulator passage, the upper and lower cylinder passages communicating with the accumulator passage, the overflow also communicating with the upper cylinder passage, and the accumulator, the overflow and upper cylinder-valves, respectively controlling the accumulator passage the overflow passage and the communication between the upper cylinder and accumulator-passage; the herein described means for controlling said valves, consisting of the pair of rock-shafts, Q and V, having turning levers, O, O' and U, with the connecting link T which cause said shafts to oscillate simultaneously, the one-armed lever W fixed upon the shaft V and projecting over the accumulator valve; and the levers R, S fixed upon the shaft Q, the lever S having a pair of arms projecting on one side over said overflow valve, and the upper cylinder valve, and the lever R having an arm projecting from the opposite side over the accumulator valve, all substantially as and for the purposes set forth

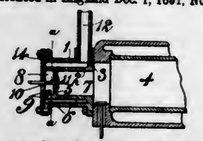
518,150. KITCHEN-CABINET. JOHN H. KEYS, West Salem, Ill.
Filed Sept. 29, 1893. Serial No. 486,799. (No model.)



Claim.—1. The combination of a casing provided near its top at opposite sides with horizontal cleats 2 forming ways, a flour bin or receptacle provided at opposite sides of the upper end with horizontal cleats resting upon those of the casing, and suspending the bin or receptacle therefrom and forming spaces at opposite sides of the bin or receptacle, keepers arranged on the inner faces of the sides of the casing and located at the front and back of the latter, the vertically swinging folding bars pivoted to the outer ends of the cleats 2 and arranged to fold and be concealed in the spaces at the opposite sides of the bin or receptacle, and the horizontal braces pivoted at their outer ends to the folding bars at points intermediate of the ends of the latter and having their lower or inner ends fitted in the front or rear keepers, substantially as described.

2. The combination of a casing provided at opposite sides near the top with horizontal cleats 2, a bin or receptacle suspended from the cleats 2 and provided with cleats 3 resting thereon, the upper and lower L-shaped keepers or supports 10 and 11 arranged at the front and back of the casing at opposite sides thereof, the vertically swinging folding bars pivoted to the outer extremities of the cleats 2 and forming horizontal continuations of the cleats 2 and adapted to swing downward and be concealed in the spaces at the sides of the bin or receptacle, and the folding braces pivoted at their outer extremities to said bars and having their lower or inner extremities shouldered and engaging either the upper or lower keepers or supports, substantially as and for the purpose described.

518,151. VAPORIZER FOR HYDROCARBON-MOTORS. JOHN H. KNIGHT, Farnham, England. Filed Nov. 6, 1893. Serial No. 490,146.
(No model.) Patented in England Dec. 1, 1891, No. 20,926.



Claim.—1. A vaporizer for hydrocarbon engines comprising a combustion chamber, a vaporizing chamber extending longitudinally of and surrounding the same, a vaporizing chamber extending across and closing the end of the said combustion chamber, and a communication between said chambers and the combustion chamber.

2. A vaporizer for hydrocarbon motors, comprising a casing, an inner longitudinal wall arranged to form with said chamber a vaporizing chamber inclosing a combustion chamber, and longitudinal retarding ribs between said casing and inner wall, one edge of the ribs being separated from one wall to form a passage way for oil and vapor.

3. A vaporizer for a hydro-carbon motor, comprising inner and outer tubular walls and a transverse wall located within the inner one, and intermediate its ends to form in conjunction with end walls an inner combustion chamber that is open to the motor cylinder, and outer vaporizing chambers one of which is located at the rear of said combustion chamber, substantially as herein described.

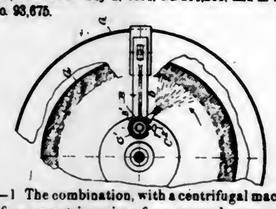
4. A vaporizer for a hydrocarbon motor, comprising an outer tubular wall or casing provided with an inlet for hydrocarbon and air, an inner tubular wall connected to said outer wall or casing and forming therewith a vaporizing chamber and provided with longitudinal external ribs or projections, a transverse wall arranged within the inner tubular wall and arranged to divide the same into a rear vaporizing chamber and an inner combustion chamber, a passage for connecting said combustion chamber with one of said vaporing chambers, a valve controlling said passage, and a detachable rear end wall arranged to close the rear ends of said vaporizing chambers, substantially as herein described.

5. A vaporizer for a hydrocarbon motor, comprising an outer tubular wall or casing provided with an inlet for hydrocarbon and air, an inner tubular wall connected to said outer wall or casing and forming therewith a vaporizing chamber and provided with external ribs or projections, a transverse wall arranged within the inner tubular wall and arranged to divide the same into a rear vaporizing chamber and an inner combustion chamber, a passage for connecting said combustion chamber with one of said vaporizing chambers, a valve controlling said passage, a chimney extending through said combustion chamber and having its wall formed integral with said inner and outer walls substantially as herein described for the purpose specified.

6. A vaporizer for a hydrocarbon motor, comprising inner and outer tubular walls 1 and 2 connected by an annular end wall 3, provided with ribs or projections 13, 13^a and 13^b and arranged to form outer vaporizing chambers 6 and 16, a transverse wall 5 located within said tubular inner wall so as to divide the same into an inner combustion chamber 7 and a rear vaporizing chamber 8 that is in free communication with the vaporizing chambers 6 and 16, an outlet passage 10 connecting the vaporizing chamber 16 with said combustion chamber, a valve controlling said outlet passage, a chimney 15 traversing said vaporizer and integral with said inner, outer and transverse walls, and a detachable end plate arranged to close the rear ends of said vaporizing chambers, substantially as herein described for the purposes specified.

7. A vaporizer for hydrocarbon motors comprising a combustion chamber, a vaporizing chamber inclosing the same, and a chimney or tube passing through the combustion and vaporizing chambers.

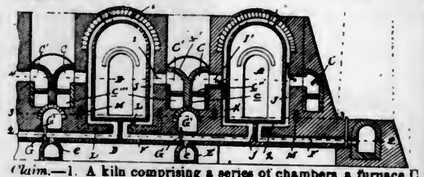
518,152. APPARATUS FOR REFINING SUGAR. JULIUS LACH, Magdeburg-Neustadt, Germany. Filed Sept. 16, 1892. Serial No. 446,083.
(No model.) Patented in Austria-Hungary Oct. 11, 1890, No. 2,867 and No. 2,799; in France May 2, 1891, No. 211,200, and in Belgium June 2, 1891, No. 93,675.



Claim.—1 The combination, with a centrifugal machine for washing sugar, of an eccentric series of superposed spray-nozzles located therein obliquely and oppositely to the direction of rotation of the centrifugal an eccentrically arranged stationary pump-tube connected with said nozzles, and means for adjusting the obliquity of the spray-nozzles, as set forth.

2. The combination, with a centrifugal machine for washing sugar, of the arm A fixed to the casing of the centrifugal, the conical ring B arranged at the inner end of said arm and having a lateral opening B', the spray-nozzles supporting tube C provided with an annular conical shoulder C' having a lateral projection C^3, and a clamp-screw F working in said projection, as and for the purpose specified

518,153. KILN FOR BAKING OR BURNING BRICKS. FRED MACARTHY, Sayreville, N. J., assignor of one-half to the Sayre & Fisher Company, same place. Filed June 15, 1892. Serial No. 436,774. (No model.)



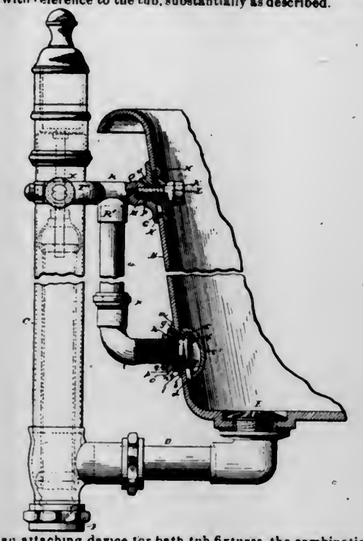
Claim.—1. A kiln comprising a series of chambers, a furnace C, arranged on one side of each chamber, a furnace C', arranged on the opposite side of each chamber, the flues F, F', passing beneath the bottoms of the chambers, partitions *j*, arranged in the flues F, and extending to the bottoms of the chambers, the series of flues J, extending from opposite sides of the partitions *j*, around the bottom, sides and top of the chambers and communicating with the furnaces C, C', and also communicating with the flues F, on opposite sides of the partitions *j*, and the flues K, arranged alternately with respect to the flues J, and extending around the sides and top of the chambers and communicating with the furnaces C, C', and also communicating at one of their ends with the flues F', substantially as and for the purpose set forth

2. A kiln comprising a series of chambers, a furnace C, arranged on one side of each chamber, a furnace C', arranged on the opposite side of each chamber, the flues F, F', passing beneath the bottoms of the chambers, partitions *j*, arranged in the flues F, and extending to the bottoms of the chambers, the series of flues J, extending from opposite sides of the partitions *j*, around the bottom, sides and top of the chambers and communicating with the flues F, on opposite sides of the partitions *j*, the flues K, arranged alternately with respect to the flues J, and extending around the sides and top of the chambers and communicating at one of their ends with the flues F', the transverse flues below and communicating with the flues F, F', the dampers adapted to close the flues F, F', so as to deflect the flame and particles of combustion into the transverse flues, and a main longitudinal flue communicating with the transverse flues, all substantially as and for the purpose set forth

518,154. BATH WASTE AND SUPPLY COUPLING. FRANCIS M. MACKIN and CHARLES R. SCHMIDT, Baltimore, Md. Filed Aug. 2, 1893. Serial No. 482,178. (No model.)

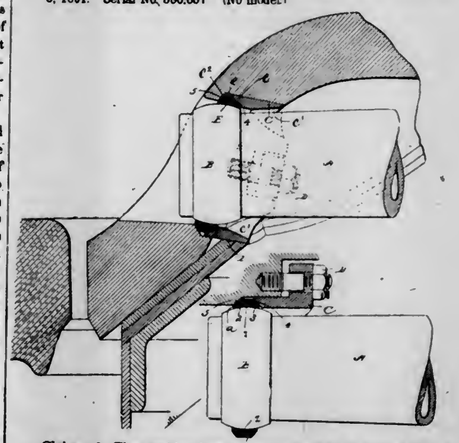
Claim.—1. In an attaching device for bath tub fixtures, the combination with coupling piece R, and screw bolt M, of the plates H, and N, arranged between the end of the coupling piece and the head of the bolt and universally movable on said coupling piece and bolt and having bearing surfaces curved to conform to correspondingly curved bearing surfaces on the coupling piece and bolt, substantially as described.

2. The combination with a bath tub having one of its walls pierced or perforated for the attachment of the waste and supply couplings of clamping plates, which clamp the walls of the tub adjacent to the perforations, and coupling devices for securing the waste and supply couplings to the tub, the said clamping plates and the said coupling devices being correspondingly curved on their abutting or contacting faces so that the waste and supply couplings are rendered universally movable with reference to the tub, substantially as described.



3. In an attaching device for bath-tub fixtures, the combination with supply-pipe *i* and collar *h*, adapted to be attached to the end of said pipe inside the tub, the plate *c*, adapted to abut against the inner surface of the tub, of the plate *l*, adapted to abut against the outer surface of the tub and the collar *p* screwing on pipe *i* and against the plate *l*, the contacting surfaces of the collars and plates being curved or rounded, substantially as described

518,155. GUN-EMBRASURE JOINT. CARL MARTIN, Magdeburg-Buckau, Germany, assignor to the Grusonwerk, same place. Filed Feb 3, 1891. Serial No. 380,057 (No model.)

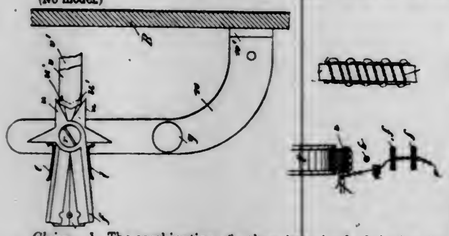


Claim.—1 The combination of an embrasure having a cylindrical bore at its inner side forming a shoulder, a collar surrounding the gun having a convex surface, a ring of concave-convex form in cross-section fitting on the collar against the shoulder, and the adjustable gland located in the bore, having a conical recess in its forward end occupied by the rear side of the ring; the shoulder, embrasure, ring, and gland forming a space between them into which the powder-gases enter from the front side of the ring and force the latter against the collar and into the recess of the gland; substantially as described.

2. The combination of an embrasure having a cylindrical bore at its inner side forming a shoulder, a collar surrounding the gun having

a convex surface, a ring of concave-convex form in cross-section, divided circumferentially and fitting on the collar against the shoulder, and the adjustable gland located in the bore, having a conical recess in its forward end occupied by the rear side of the ring; the shoulder, embrasure, ring and gland forming a space between them into which the powder-gases enter from the front side of the ring and force the latter against the collar and into the recess of the gland; substantially as described.

518,156. MACHINE FOR SEWING BEADS TO FABRICS. KARL NECKER, Berlin, Germany. Filed June 7, 1892. Serial No. 435,858. (No model.)

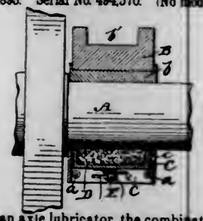


Claim.—1. The combination of a thread-carrier for bringing the beading thread across the braid, a bead-holder which keeps the necessary beads arranged ready for each row across the braid, a bead distributer which guides the beads to the thread-carrier, a bead-pusher which pushes the beads on the thread and stitch-forming mechanism for securing the thread carrying the beads to the fabric: substantially as described.

2. The combination of a thread-carrier *e*, the distributer *f f'*, the holder *g*, the pusher *i*, means for operating the same and stitch-forming mechanism for securing the thread carrying the beads to the fabric; substantially as described.

3. The combination, with a braid support; of the thread-carrier *e* means for causing the thread-carrier to seize the thread and form a loop on one side of the support, means for withdrawing the thread-carrier and elevating it, means for causing the thread-carrier to seize the thread above the beads and carry the thread across the support and depress the thread carrier and form a loop on the other side of the support, means for withdrawing the thread-carrier, elevating it, causing it to seize the thread again, above the beads, and returning it in the same manner in which it was advanced and stitch-forming mechanism for securing the thread carrying the beads to the fabric; substantially as described.

518,157. AXLE-LUBRICATOR. JOHN OLSON, Two Harbors, Minn. Filed Dec. 23, 1893. Serial No. 494,570. (No model.)



Claim.—1. In an axle lubricator, the combination with a journal box, of a rigid casing mounted within the same and provided with a long continuous slot in its wall for the introduction of waste, a vertically movable cellar mounted in said casing and adapted to be depressed below said slot for the introduction of said waste through said slot into it, and a spring for holding the cellar and the lubricant and waste carried thereby in contact with the journal, substantially as described.

2. In an axle lubricator, the combination with a journal box of a rigid casing mounted within the same and provided with a slot for the introduction of lubricating material and also with spring holding slots one of which is provided with a spring retaining depression, a movable cellar mounted in said casing, a removable spring for supporting said cellar normally in contact with the journal; said spring having its ends mounted in said spring holding slots, substantially as described.

518,158. MANUFACTURE OF WOODEN VESSELS. THOMAS K. PARRISH, Richmond, Va. Filed Dec. 23, 1893. Serial No. 494,538. (No model.)

Claim.—1. The method of hooping coopered or staved vessels which consists in forming a groove in the vessel for the reception of the hoop, forcing on the vessel and into said groove a metallic hoop—and causing said hoop while being so forced to compress the staves and sufficiently diminish the diameter of the groove to admit the hoop.

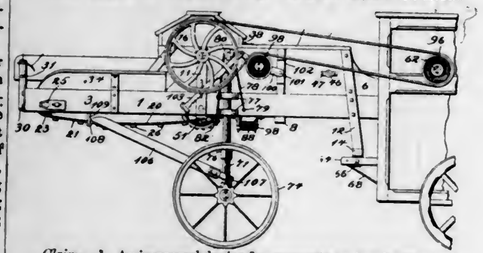
2. The method of hooping coopered or staved vessels which consists in forming a circumferential, concave groove in the vessel, and then forcing over the vessel a round wire hoop, said hoop being caused to compress the staves, while being so forced, sufficiently to gain entrance to the groove.



3. The method of manufacturing staved wooden vessels which consists in forming continuous circumferential grooves on the outside of the vessel and then forcing a round wire welded hoop of less diameter than the part of the vessel adjacent to the grooves upon the vessel with such force as to compress the vessel sufficiently to allow the hoop to seat in the groove.

4. A staved wooden vessel having a welded wire hoop seated in a continuous circumferential groove, the material at the lower edge of the groove being compressed and the hoop applied after its ends have been welded together.

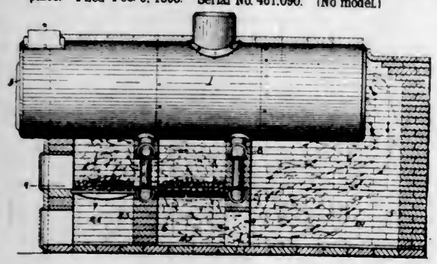
518,159. COMBINED BAND-CUTTER AND FEEDER. HENRY PAUL, Foreston, Ill. Filed Oct. 16, 1893. Serial No. 488,220. (No model.)



Claim.—1. An improved device for supporting a band cutter and feeder, comprising the combination of an axle, two wheels loosely mounted on said axle, two vertical bars, T-couplings which connect said bars to said axle, the main frame of the band cutter and feeder, two ears connected to each side of said main frame, a pulley mounted upon the upper end of each of said vertical bars, pulleys mounted upon the under side of said main frame one adjacent each of said vertical bars, a drum mounted upon the under side of said main frame, and a rope or chain arranged to pass beneath said main frame and engage all of said pulleys and said drum, one end of said rope being fixed to said main frame, substantially as herein specified.

2. In a band cutter and feeder, two vertical parallel bars connected to the cross-bar of the main frame, a dividing-board having a segmental slot formed in one end mounted between said vertical bars, and held in position by two bolts passing through the vertical bars, one through an aperture in the lower edge of the board, and the other bolt passing through the segmental slot, substantially as and for the purpose stated.

518,160. SMOKELESS BOILER-FURNACE. WILLIAM S. PLUMMER, St. Louis, Mo., assignor of one-third to Arthur M. Morse, same place. Filed Feb. 6, 1893. Serial No. 461,090. (No model.)



Claim.—1. In a smoke consuming furnace, the combination with a boiler of a lower pair of horizontal tubes 17 having a length equal to the width of a furnace grate and arranged one tube of the pair forward of the other tube of the pair, a fire supporting furnace 6 composed of hollow bars or tubes arranged parallel, with their forward ends communicating with the forward one of the pair of tubes 17 and with their rear ends communicating with the rear one of the tubes 17, a series of solid updraft grate-bars 7 arranged in the furnace forward of and adjacent the forward one of the horizontal tubes 17, an upper pair of horizontal transverse tubes 20, arranged parallel, with one of said pair directly above the forward one of the pair of tubes 17, and with the other one of said pair directly above the rear one of the pair of tubes 17 and in a plane closely adjacent the under surface of said boiler, short vertical tubes 18 and elbows 19 located in the side walls of the furnace and connecting the outer ends of said lower pair of tubes 17 with the outer ends of said upper pair of tubes 20, and a three-way cast iron fitting 21 having its upper surface in contact with the adjacent under surface of said boiler and making a tight joint therewith and applied one centrally of the length of each one of the pair of tubes 20 and connecting the interior thereof with the interior of the boiler, one at a point directly above the forward one of the pair of tubes 20, and one at a point in rear thereof and separated a distance therefrom, substantially as herein specified.

2. In a smoke consuming furnace, the combination with a boiler, of a lower pair of horizontal tubes 17 having a length equal to the width of the furnace grate and arranged one tube of the pair forward of the other tube of said pair, a fire supporting surface 6 composed of hollow bars or tubes arranged parallel, with their forward ends communicating with the forward one of the pair of tubes 17, and with their rear ends communicating with the rear one of the tubes 17, a series of solid updraft grate bars 7 arranged in the furnace forward of and closely adjacent the forward one of the horizontal tubes 17, an upper pair of horizontal transverse tubes 20 arranged parallel, with one of said pair directly above the forward one of the pair of tubes 17, and with the other one of said upper pair directly above the rear one of said pair of tubes 17 and in a plane closely adjacent the under surface of said boiler, said fire surface 6 arranged for a down draft, and composed solely of tubes having each of their ends threaded, a bridge-wall 8 fitted closely to the under side of said boiler to prevent passage of products of combustion between it and the boiler and arched or supported across the space beneath said boiler so as to form a fire-passage 9 beneath itself, an additional transverse wall 23 extending across the furnace beneath the boiler, the adjacent ends of said solid grate bars and said water tubes being supported by said wall 23 and said wall dividing the space beneath the grates into a forward ash pit 24 and a rear combustion chamber 25, short vertical tubes 18 and elbows 19 connecting the outer ends of said lower pair of tubes 17 with the outer ends of said upper pair of tubes 20, said tubes 17, 18 and 20 being located in and protected by said walls 8 and 23, and a three-way cast iron fitting 21 having its upper surface in contact with the adjacent under surface of said boiler and tightly fitted thereto and applied one centrally of the length of each one of the upper pair of tubes 20 and connecting the interior thereof with the interior of the boiler at a point directly above each tube of said upper pair of tubes 20, substantially as herein specified.

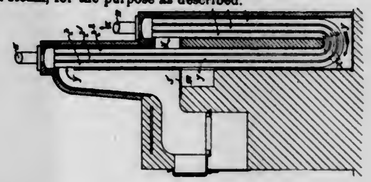
518,161. DEVICE FOR ADMINISTERING MEDICINES. WILLIAM R. POLLARD, Hot Springs, Ark. Filed June 21, 1893. Serial No. 478,396. (No model.)



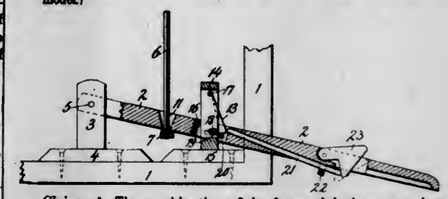
Claim.—A device for administering medicine composed of a receiver formed with an extension having a broadened end or mouth-piece, a passage through said extension and opening to one side of the broadened end or mouth-piece, and an elastic bulb connected with the receiver, substantially as shown and described.

518,162. METHOD OF SUPERHEATING STEAM. WILHELM SCHMIDT, Wilhelmshöhe, near Cassel, Germany. Filed May 27, 1893. Serial No. 475,727. (No specimens.) Patented in Germany Mar. 20, 1891, No. 59,992; in France Mar. 23, 1891, No. 212,285; in Belgium Mar. 31, 1891, No. 94,349; in Italy Apr. 2, 1891, No. 29,451; in England Apr. 2, 1891, No. 5,697 and June 23, 1892, No. 11,721, and in Austria-Hungary Nov. 27, 1891, No. 16,464 and No. 40,414.

Claim.—The method of superheating steam by the direct action of a stream or streams of hot gases or products of combustion, consisting in first drying the steam by exposing it to the first, *i. e.* hottest part of said stream or streams and then superheating the dried steam by exposing it to the following, *i. e.* less hot part of said stream or streams, this latter part flowing in a direction opposite to that of the dried steam, for the purpose as described.



518,163. LOCKING DEVICE FOR PIANO-PEDALS. GEORGE B. SHEARER, Oneonta, N. Y. Filed July 28, 1893. Serial No. 481,742. (No model.)



Claim.—1. The combination of the foot-pedal, the arm or lever and rod connecting it to said pedal, the spring-stop and pin or projection to engage it, one of which is attached to the pedal and the other to a suitable support, to lock the pedal, and means for moving said spring stop from out of engagement with said pin or projection, substantially as and for the purposes described.

2. The combination of the foot pedal, the arm or lever and rod connecting it to said pedal, the spring-stop and pin or projection to engage it, one of which is attached to the pedal and the other to a suitable support, a sliding pin or bolt to act on the spring stop to disengage it from said pin or projection, and means for actuating said sliding bolt, substantially as and for the purposes described.

3. The combination of the foot pedal, the arm or lever and rod connecting it to said pedal, the spring-stop and pin or projection to engage it, one of which is attached to the pedal and the other to a suitable support, a sliding pin or bolt to act on said spring-stop to disengage it from the pin or projection, and a finger or trigger acting on said sliding bolt, substantially as and for the purposes described.

4. The combination of the foot pedal, the spring-stop and pin or projection to engage it, one of which is attached to the pedal and the other to a suitable support, to lock the pedal, means for disengaging said spring stop and pin or projection to unlock the pedal, and means for restoring the pedal to its normal position, substantially as and for the purposes described.

5. The combination of the foot pedal, the post or standard provided with the spring stop adapted to be moved into and out of said post or standard, the pin or projection carried by the foot pedal in a position to engage said spring stop, and the sliding bolt and pivoted trigger carried by the pedal and adapted to actuate the spring stop to disengage it from its pin or projection, substantially as and for the purposes described.

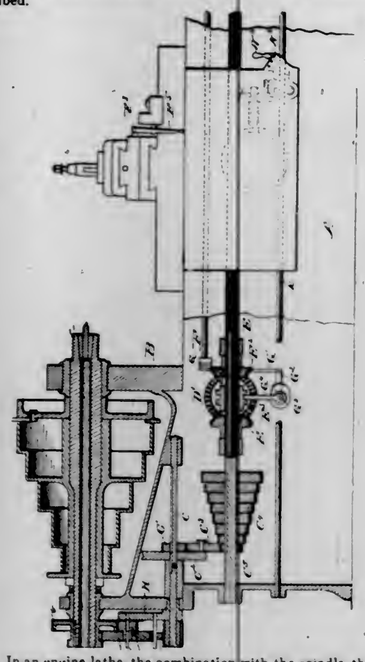
518,164. ENGINE TURNING-LATHE. WILLIAM SHELLENBACK, Richmond, Ind. Filed Apr. 23, 1892. Serial No. 430,369. (No model.)

Claim.—1. In an engine lathe, the combination with the spindle and feed screw, and the counter shaft from which the feed screw is driven, of the segment pivoted on said counter shaft, the gear wheel on the counter shaft, the gear wheels on the spindle and the idler gears carried by the segment movable longitudinally on their centers and meshing with either of the gear wheels on the spindle and with the gear on the counter shaft; substantially as described

2. In an engine lathe, the combination with the spindle and gear wheel thereon, of the adjustable segment having the smooth stud, the gear wheels movably mounted on said stud and having the flanges embracing the gear wheel on the spindle when the same are in mesh and the feed screw driven from the gears on the segment; substantially as described.

3. In an engine lathe, the combination with the spindle having the different sized gear wheels thereon, the counter shaft from which the feed screw is driven and the gear wheel on said counter shaft, of the adjustable segment pivoted on the counter shaft, the different sized gear wheels journaled on said segment and bodily movable thereon to mesh with either of the gear wheels on the spindle and the idler gear completing the train of gears between the spindle and counter shaft; substantially as described.

4. In an engine lathe, the combination with the spindle and feed screw, of the different sized gear wheels rigidly mounted on the spindle and separated a distance equal to the thickness of one gear wheel and the movable gear wheels of different size rigidly connected together and adapted to mesh with one or the other of the gear wheels on the spindle, the one of said movable gear wheels not in mesh occupying the space between the gear wheels on the spindle, the feed screw being driven from said movable gear wheels; substantially as described.



5. In an engine lathe, the combination with the spindle, the feed screw, and a cone of gear wheels from which said feed screw is driven, a bell crank tumbler movable longitudinally of the cone, a gear wheel and idler gear wheel carried by the tumbler and means for varying the speed transmitted to the gearing on the tumbler, of an extension of said tumbler protruding from the head stock and provided with means for retaining it in the desired position relative to a gage plate.

6. In an engine lathe, the combination with the spindle; the feed screw and a cone of gear wheels from which said screw is driven, a bell-crank tumbler movable longitudinally of the cone, gear wheel and idler gear wheel carried by the tumbler, included within the head stock; and means for varying the speed transmitted to the gearing on the tumbler, of an extension of said tumbler protruding from the head stock and provided with a pin for retaining it in the desired position relative to a gage plate.

7. In an engine lathe, the combination with the spindle, feed screw driven therefrom and reversing mechanism interposed between said feed screw and spindle, the clutch controlling said reversing mechanism, the clutch operating shaft, the carriage and upper slide thereon, the clutch slide carried by said upper slide and connections between said clutch slide and clutch operating shaft whereby by the transverse movement of the upper slide said clutch is operated as set forth.

8. In an engine lathe, the combination with the feed screw, reversing mechanism therefor, carriage and upper slide thereon having a groove or way therein, of the clutch operating shaft controlling the reversing mechanism, the block mounted on said shaft, the clutch slide mounted in the way or groove in the upper slide, the bolt for clamping said clutch slide in position and connections between said clutch slide and block; substantially as described.

9. In an engine lathe, the combination with the feed screw, reversing mechanism therefor, carriage, upper slide and clutch operating shaft controlling the reversing mechanism, of the block on said clutch operating shaft, the clutch slide carried by the upper slide, the link connected to said clutch slide and the adjustable clip connecting said link and block whereby the direction of movement of the clutch operating shaft with relation to the movement of the upper slide may be changed; substantially as described.

10. In an engine lathe, the combination with the feed screw, carriage, upper slide thereon and clutch operating shaft controlling the reversing mechanism, of the block mounted on said clutch operating shaft and having the portions projecting on each side of said shaft; the clutch slide carried by the upper slide and the link and adjustable clip connecting said slide and block; substantially as described

11. In an engine lathe, the combination with the feed screw, carriage, reversing mechanism for the feed screw and clutch operating shaft controlling the reversing mechanism, of the block mounted on said shaft the clutch slide connected to said block and moving longitudinally with the carriage, the operating handle for said clutch slide and the link connecting the slide and handle; substantially as described.

12. In an engine lathe, the combination with the bed, carriage, apron gearing thereon having a cone of gear wheels and apron feed shaft, of the gear wheel rotating with said shaft, the carrier and an idler wheel journaled thereon, meshing with the gear wheel on the shaft and adapted to mesh with any one of the gears in the cone; substantially as described.

13. In an engine lathe, the combination with the bed, carriage, apron gearing thereon having a cone of gear wheels, and the apron feed shaft, of the gear wheel on said shaft, the carrier moving with the carriage and pivoted on the shaft and the idler wheel on said carrier meshing with the gear wheel on the shaft and adapted to mesh with any one of the gear wheels in the cone; substantially as described.

14. In an engine lathe, the combination with the bed, carriage, apron gearing thereon having a cone of gear wheels and the apron feed shaft, of the gear wheel on said shaft, the carrier pivoted on the shaft and embracing the gear wheel, the idler wheel on the carrier meshing with said last mentioned gear wheel and adapted to mesh with any one of the gear wheels forming the cone and the arm on the carrier cooperating with the gage plate on the apron to indicate the position of the gears; substantially as described

15. In an engine lathe, the combination with the bed, carriage, apron gearing carried thereby and embodying a cone of gear wheels and the apron feed shaft, of the gear wheel on the apron feed shaft, the carrier pivoted on said shaft and having the idler wheel meshing with said gear wheel and adapted to mesh with any one of the gears in the cone, the handle on the carrier, a locking catch on the handle and a gage plate on the carriage with which said catch cooperates; substantially as described.

16. In an engine lathe, the combination with the bed, longitudinally movable carriage and transversely movable slide mounted on said carriage and having the rearward projection, and the screw for moving said slide detachably engaged therewith, of the supplemental carriage, a clamp for holding it in adjusted position, the adjustable guide on said supplemental carriage and the slide block detachably connected with the transversely movable slide and working in the adjustable guide; substantially as described.

17. In an engine lathe, the combination with the bed, longitudinally movable carriage and transversely movable slide mounted on said carriage and having the slotted rearward projection, the screw for moving the slide and the nut connecting the slide and screw secured in the slot of the rearward extension, of the supplemental carriage, a clamp for holding it in adjusted position, the adjustable guide on said supplemental carriage and the slide block adjustably connected with the rearward extension of the slide and working in the adjustable guide; substantially as described.

518,165. NUT-LOCK. EDWARD H. THALAKER, Petersburg, W. Va. Filed Jan. 31, 1894. Serial No. 498,637. (No model.)

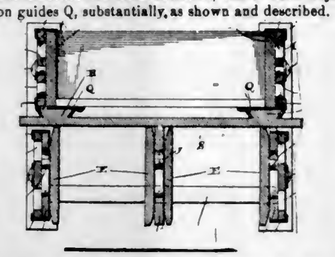


Claim.—In a nut lock, the combination with a bolt having body and reduced portions provided, respectively, with right and left screw-threads, and main and lock nuts threaded respectively upon the body and reduced portions of the bolt and provided in their facing surfaces with shouldered notches disposed in relatively-opposite directions, of a spring washer interposed between said nuts with its terminals in engagement respectively with the notches upon the facing surfaces of the nuts, said spring washer being coiled in the direction of the threads upon that part of the bolt engaged by the main nut, whereby the spring forming the washer is opposed longitudinally to a motion by either nut in the direction of loosening or unscrewing, to communicate such loosening movement of one nut to the other nut in the direction of tightening, substantially as specified.

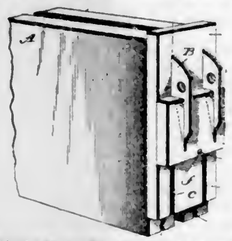
518,166. SCHOOL SEAT AND DESK. THEODORE TOBIAS, Pierpoint, S. D. Filed Jan. 19, 1893. Serial No. 459,032. (No model.)

Claim.—1. The combination of a desk seat standards in front thereof slotted longitudinally at the upper ends, angular guides F secured to the vertical edges, seat posts B slotted vertically at B' through which clamping screws extend to the seat standards, the opposite edges of said posts being embraced by said guides F, longitudinally slotted support I, seats E carrying trunnions which bear in said support and standards, and bar H sustaining said support and also the seats when in a horizontal position, substantially as shown and described.

2. The combination of a desk, standards upon which it is vertically adjustable, guides Q secured to the desk, flanges Q' formed on said guides to embrace the said standards, and a back adjustable vertically on guides Q, substantially, as shown and described.



518,167. DEVICE FOR PACKING FURNITURE. EMIL F. TUBACH, Dushore, Pa. Filed Dec. 27, 1893. Serial No. 494,864. (No model.)



Claim.—The blocks for packing furniture, as described, consisting of a block having a series of longitudinal slots which are adapted to receive the hooks of a series of side rails of bedsteads, portions of the block bearing against the sides and upper edges of the said hooks, and extending above the edges of the side rails, a second block having beveled slots *d* for engagement with the tapering edges of the hooks, as described, and pins for retaining the blocks in their relative locking position, as and for the purpose set forth

---

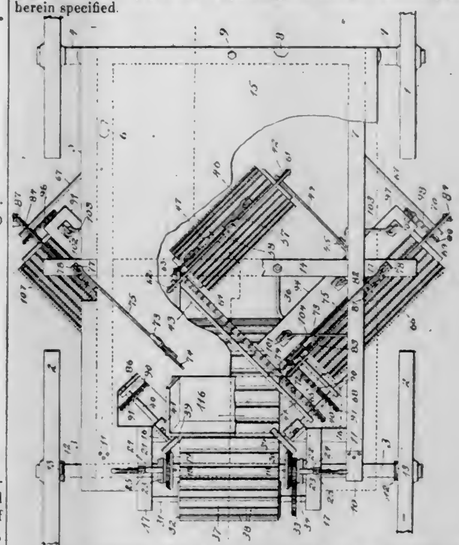
518,168. STREET-SWEEPER. WILLIAM H. WALLS, St. Louis, Mo., assignor of one-half to Michael Becker and Henry Mueller, same place. Filed Sept. 19, 1893. Serial No. 485,748. (No model.)

Claim.—1. In a street sweeper, brushes 66 and 107 located at right angles with each other and under the sweeper, means for raising and lowering said brushes, means for throwing said brushes in and out of operation, an endless belt conveyer located between the adjacent ends of said brushes, screw conveyers mounted in casings and located above said brushes, said screw conveyers projecting outward over the endless belt conveyer, and curtains in combination with said casings to guide the dust thereinto, substantially as set forth.

2. A street sweeper constructed with two separate revolving brushes located in an angular position with relation to each other, a screw-conveyer located above each of said brushes, in combination with a cylindrical casing having a longitudinal opening in one side thereof, a curtain attached thereto for guiding the sweepings into said casing, and an endless conveying-belt arranged adjacent the ends of said screw-conveyer for elevating the sweepings into an adjacent receptacle, substantially as herein specified.

3. In a street sweeper, the combination with a main frame mounted on wheels of the following elements, to wit: three revoluble brushes 46, 66 and 107, said brushes 66 and 107 located at right angles relative to each other and beneath the edges of the main frame and a suitable distance apart so as to form a space between their adjacent ends, an endless-conveying-belt located in the space between the adjacent ends of said brushes for conveying the sweepings to a receptacle, the revoluble brush 46 located in front of the brushes 66 and 107 and parallel with said brush 66 so as to cover the space between the adjacent ends of said brushes 66 and 107, a cylindrical casing containing a screw-conveyer mounted over each of the brushes 66 and 107 for conveying the sweepings onto the endless conveying-belt, means for raising and lowering each of said brushes and mechanism driven by the traction-wheels for revolving said brushes, all arranged and combined to operate substantially as herein specified.

4. In a street sweeper, a series of revolving brushes, each of said brushes constructed with a longitudinal shaft which projects a distance beyond each end thereof, a bar, having a slot therein, engaging each end of each of said shafts, the opposite end of said bar pivoted to suitable bearings which are connected to the under side of the main frame, chains engaging the ends of each of said shafts, and engaging tilting-bars which are mounted in suitable bearings beneath the main frame of the street sweeper, and are located between the brush and the main frame and parallel with said brush, a link engaging the adjacent end of each of said tilting bars, which are connected to the horizontal portion of an angle-iron, which is mounted in bearings connected to the upper surface of the floor, the vertical portion of the angle-iron engaged indirectly by a lever for operating the same, substantially as herein specified.



5. In combination with a street sweeper, a series of revoluble brushes 66 and 107, said brushes 66 and 107 located at right angles relative to each other, and a suitable distance apart to form a space between them, the brush 46 located in front of said brushes 66 and 107 and parallel with said brush 66 in such a position as to cover the space between the adjacent ends of the brushes 66 and 107, a cylindrical casing having a longitudinal opening in its under side, located above and parallel with each of the brushes 66 and 107, a screw-conveyer located in each of said casings which is operated by a sprocket-chain mounted on sprocket-wheels carried by the shaft which carries the screw-conveyer and the shaft upon which the brush is mounted, a curtain in combination with each of said casings for directing the sweepings into said casings, and an endless conveying-belt located beneath the adjacent ends of the casings which carry the screw-conveyers for elevating and discharging the sweepings therefrom into a receptacle, substantially as set forth

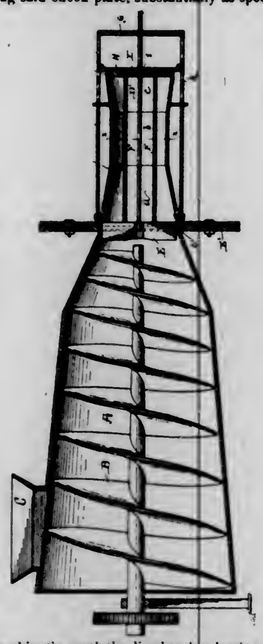
---

518,169. MACHINE FOR FORMING TUYERES AND PIPES. MORGAN L. WILLIAMS, Johnstown, Pa. Filed Nov. 21, 1893. Serial No. 491,567. (No model.)

Claim.—1. In a machine for forming tuyeres and pipes, the combination of an elongated, tapering clay cylinder or casing a spiral conveyer or screw rotatable therein, a die case secured to the discharge end of said cylinder or casing, said die case having an elongated, straight, forming portion *b*, and a flaring bell-forming portion *c*, a series of perforator rods supported within said die case, and a compressing check plate arranged to be forced into the discharge end portion of said die case, and compress the clay into the bell, substantially as specified.

2. In a machine for forming tuyeres and pipes, the combination of a clay casing, a spiral conveyer working therein, a die case connected to the discharge end of said clay casing, said die case having a straight forming portion of a length from one fourth to one seventh of the article to be formed, and a flaring bell-forming portion *c*, a series of perforator rods supported in said die case, and a reciprocating compressing check plate adapted to be forced into a straight-walled portion in the discharge end of said die case, substantially as specified.

3. The combination with the die-case, and the die chamber therein having the flaring portion c and the straight portion *d*, of a check plate adapted to enter said straight portion, and a swinging yoke or frame carrying said check-plate, substantially as specified.



4. The combination with the die-chamber having the body-shaping portion *b* of a length from one-fourth to one-seventh of that of the article formed thereby, the bell-forming portion c, and the straight portion *d*, of a reciprocating check-plate or compressor arranged to seat in the said portion *d*, and a swinging yoke or frame carrying said check-plate, substantially as specified.

5. The herein described machine for the formation of tuyeres, said machine comprising a clay cylinder or case, a spiral conveyer, or screw therein, a die-case secured to the discharge end portion of said cylinder or casing, a die chamber in said die case having the portions c and *d*, the spider, the perforator rods supported in said chamber by said spider, the yoke pivoted to said die-case, the cross-head working in said yoke, and the perforated check-plate or compressor carried by said cross-head, and arranged to seat in the said portion *d*, substantially as specified

518,170. ELEVATED RAILWAY. LEE ANDERSON, Paris, Tex., assignor of one-half to J. J. Dickerson, Ben H. Denton, and Jas. H. Johnston, same place. Filed Oct. 21, 1893. Serial No. 488,789. (No model.)

Claim.—1. In an elevated railway a car having wheels above and below the same and adjustable connections for varying the distance between the upper and lower wheels, substantially as specified.

2. In an elevated railway, a car having wheels above and below the same in different vertical planes and adjustable connections for varying the distance between the upper and lower wheels, substantially as specified.

3. In an elevated railway, a car having wheels above and below the same and vertically adjustable rods carried by the car and supporting the bearing for the upper wheel, substantially as specified.

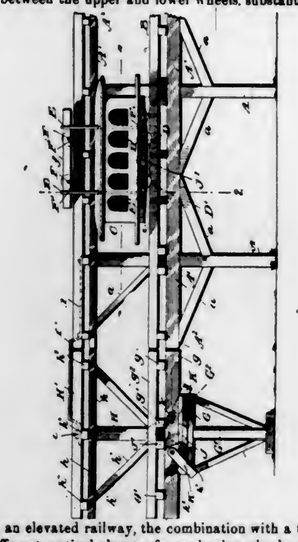
4. In an elevated railway, a car having wheels above and below the same in different vertical planes and vertically adjustable rods carried by the car and supporting the bearings for the upper wheel, substantially as specified.

5. The combination with a car, of vertical rods extended above the same and carrying a support for the upper wheels of adjusting means on the lower ends of said rods, substantially as specified.

6. The combination with a car adapted for a single rail track, of pivoted axle-supports pivotally connected together, substantially as specified.

7. The combination with a car, of vertically disposed rods extended above the same, axle supports pivotally held near their outer ends on pivots held in said rods and having their adjacent ends pivotally connected together, substantially as specified.

8. The combination with an elevated track having rails in different vertical planes, of a car having wheels above and below the same in different vertical planes and adjustable connections for varying the distance between the upper and lower wheels, substantially as specified.

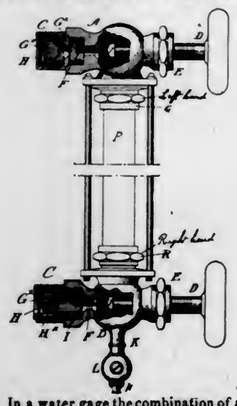


9. In an elevated railway, the combination with a track having rails in different vertical planes, of a car having wheels above and below the same in different vertical planes and carried by horizontal axles and adjustable connections on the car for vertically adjusting the upper wheels, substantially as specified.

10. The combination with a track having a single rail for each set of wheels in different vertical planes and a car adapted to travel upon said track, of a turn table at one end of the track for receiving the car from one track and placing it in position for its return upon the other track, and an arched brace having one end pivoted at the center of the turn-table substantially as specified.

11. The combination of rails in different vertical planes, a car having wheels in corresponding planes and adjustable connections on the car for vertical adjustment of one set of wheels with relation to the other to distribute the weight upon the upper and lower rails, substantially as specified.

518,171. WATER-GAGE. FRANK M. ASHLEY, Hawthorne, N. J. Filed Sept. 7, 1892. Serial No. 445,286. (No model.)

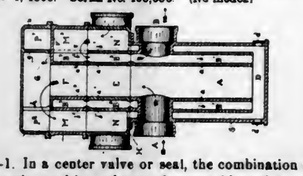


Claim.—1. In a water gage the combination of a water tube connected with a valve chamber and a valve located in said chamber consisting of a disk having around its periphery a series of angular wings or blades, between which fluid passes for the purpose of rotating the valve to grind the seat, said wings or blades being located in oblique planes to the axis of the disk.

2. A water gage having in combination with the water glass a tubular head at one end with a right hand screw thread thereon, and a head at the other end having a left hand screw thread, substantially as set forth.

3. A water gage having in combination a set of automatic closure valves, a water glass with two heads therefor having right and left screw threads respectively, and the lower end of the water gage having a pet cock with a screw thread therein, substantially as set forth.

518,172. CENTER-VALVE. CHRISTIAN BAHRET, Fort Wayne, Ind., assignor to the Western Gas Construction Company, same place. Filed Apr. 1, 1893. Serial No. 468,636. (No model.)

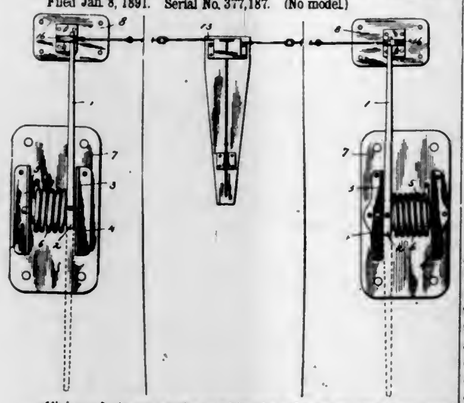


Claim.—1. In a center valve or seal, the combination with the distributing section and its seal pot, of a rotatable outlet cap divided by radial partitions into compartments, and having an outlet compartment M^3, closed at the top and provided with a lateral opening v', into the annular outlet passage of the valve, and a rotatable inlet cap mounted on said outlet cap and having a passage communicating with the compartments of the distributing section of the valve, substantially as and for the purpose described.

2. In a center valve or seal, the combination with the distributing section H, constructed with a central inlet passage and an annular outlet passage and with radial partitions dividing it into compartments, of a rotatable outlet valve C, mounted upon said section and divided by radial partitions into compartments corresponding with those of said distributing section, also having central and annular gas passages, and, as a distinctive feature, a separate outlet compartment or passage closed at the top and opening into the annular outlet passage of the valve, whereby communication may be established with the outlet pipe of any purifier, and a rotatable inlet cap, C', mounted on cap C, suitably divided into compartments and having a separate passageway, whereby communication may be established between the inlet passage of the valve and the inlet pipe of any one of the purifier boxes in the series, substantially as described.

3. In a center seal or valve, the combination with the distributing section divided into compartments and having inlet and outlet passages of the usual construction and the seal pot constructed with the usual inlet and outlet ports and passages, of the rotatable outlet cap C, mounted on the said distributing section and provided with compartments, a central passage F, and annular passage B^3, closed at the top by a plate, *l*, and the outlet chamber M^3, closed at the top by plate *v*, and having a lateral opening *v'* into the outlet passage B^3, and the inlet cap C', adapted to rotate upon the cap C independently of or in unison therewith and provided with pairs of communicating compartments P, P', a circular wall *g*, forming the central chamber G, and having a lateral passage *h*, into one of the compartments as P^3, substantially as and for the purpose described.

518,173. BIRD-TRAP. ABRAHAM BAKER, South Haven, Mich. Filed Jan. 8, 1891. Serial No. 377,187. (No model.)



Claim.—1. In a trap, the combination of opposite spring actuated bars pivoted at their inner ends and arranged to swing vertically and adapted to carry a net, a trigger, and fastening devices arranged at one side of the trap and each consisting of a casing, a vertically disposed pivoted catch having shoulders at its upper end arranged to engage the adjacent spring actuated bar and provided with a depending portion, and a pivoted lever having its upper portion engaging the depending portion of the catch to hold the shoulder in engagement with the spring actuated bar and having its lower portion connected with the trigger, substantially as described.

2. In a trap, the combination of opposite spring actuated bars arranged to swing vertically from one side of the trap to the other and adapted to carry a net, a trigger and fastening devices arranged at one side of the trap for holding the spring actuated bars and each comprising a casing, a pivoted catch provided at its top with a head having a shoulder, and a lever fulcrumed intermediate of its ends in the casing and having its lower portion connected with the trigger and having its upper portion recessed at its inner edge to permit an outward movement of the lower portion of the catch, substantially as and for the purpose described

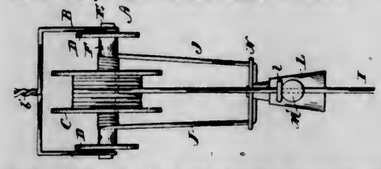
3. The combination in a trap, of opposite spring actuated bars pivoted at their inner ends and arranged to swing vertically from one side of the trap to the other and adapted to carry a net, fastening devices arranged at one side of the trap for engaging the spring actuated bars, a casing located between the fastening devices, the opposite bars 15 pivoted in the casing and having lower portions connected with the fastening devices, a lever for holding the upper portions of the bars 15, and a trigger connected with the lever for releasing the bars 15, substantially as and for the purpose described.

4. In a trap, the combination of the opposite pivotally mounted spring actuated bars adapted to carry a net, fastening devices arranged at one side of the trap for holding the spring actuated bars, a casing arranged between the fastening devices, the oppositely disposed bars 15 pivotally mounted in the casing and having their lower ends connected with the fastening devices, an approximately vertically disposed lever 18 fulcrumed on the casing and having its upper end terminating above the bars 15 and adapted to hold the upper ends of the latter, and a trigger connected with the lever 18 for releasing the pivoted bars, substantially as described.

5. In a trap, the combination of opposite spring actuated bars pivotally mounted at the inner ends and arranged to swing vertically and adapted to carry a net, fastening devices arranged at one side of the trap for holding the spring actuated bars, a casing arranged between the fastening devices and provided at its top with a wedge-shaped portion 20, the bars 15 pivotally mounted in the casing and having their lower ends connected with the fastening devices and adapted to have their upper ends arranged adjacent to the wedge-shaped portion 20, and a lever 18 fulcrumed on the casing and having one end arranged adjacent to and adapted to hold the upper ends of the bars 15, substantially as described.

6. In a trap, the combination of opposite pivotally mounted spring actuated bars arranged to swing vertically and adapted to carry a net, fastening devices arranged at one side of the trap for holding the bars, a casing arranged between the fastening devices, the bars 15 having their lower ends connected with the fastening devices, and pivotally mounted intermediate of their ends, a lever for holding the bars 15, a bar 23 connected with the lever and provided with a shoulder, a pivoted trigger adapted to engage the shoulder of the bar 23, and a supporting pin for holding the trigger in engagement with the bar 23, substantially as described

518,174. DEVICE FOR SUSPENDING STOVE-LIFTERS, &c. OZRA J. BALDWIN, Youngsville, and JAMES L. KERSTETTER, Bradford, Pa. Filed May 26, 1893. Serial No. 475,660. (No model.)



Claim.—In a device of the class described, the combination with a banger B consisting of wire bent to form the depending arms *b*, having eyes b^2 at their lower ends, said wire being twisted at the point *b'* and bent to form the horizontal looped portion b^3, a screw or the like passed through said looped portion and securing the same to a ceiling, a shaft mounted in the eyes b^2, flanges upon said shaft and having hubs, a cord having its ends wound upon said hubs, a second cord reversely wound upon a hub intermediate the ends of the other cord, a bar through which passes the first mentioned cord, a counterbalance suspended from said cord, an eye secured to said counterbalance through which eye said second cord passes, and a lifter, piece of chalk or other article suspended from the latter cord, as described.

518,175. DENTAL HANDPIECE. STEPHEN H. BROOKS, New York, N. Y., assignor to Edward A. Peirce, same place, and J. Otis Cox, Brooklyn, N. Y. Filed Oct. 31, 1893. Serial No. 489,610. (No model.)



Claim.—1. In a dental hand piece, the combination with the casing, of a spindle, a split or spring-jawed tool locking device, a wedge adjusted to slide transversely to the spindle and along the surface of such locking device and means for enforcing operative contact between the wedge and said locking device, such wedge adjusted to move the tool locking device endwise for the purpose of clamping the tool, and to receive motion from the tool locking device when such means for enforcing operative contact cease to operate, substantially as set forth.

2. In a dental hand piece, the combination with the casing, of a spindle fitted to rotate therein, a split clamp tool locking device, a sliding wedge, proper surfaces for guiding it transversely to the spindle, and means for moving it along such guides, substantially as set forth.

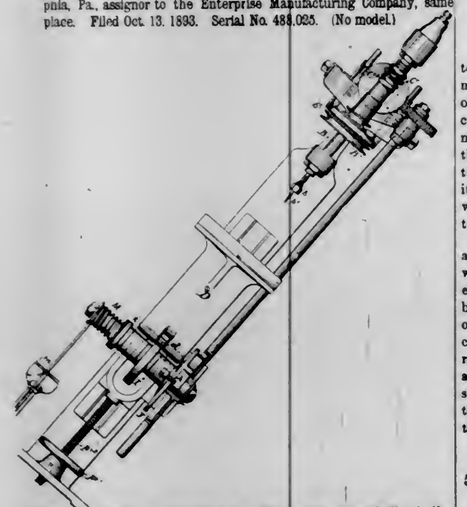
3. In a dental hand piece, the combination with the casing, of a spindle, a split clamp tool locking device, a sliding wedge, proper surfaces for guiding it, and a slide for compelling its movement and provided with a sloping surface adjusted to engage with the wedge, substantially as set forth.

4. In a dental hand piece, the combination with the casing, of a spindle fitted to rotate therein, a split clamp tool locking device, a sliding wedge, proper surfaces for guiding it transversely to the spindle, and a slide having two surfaces for engaging with the wedge whereby such wedge may be moved in opposite directions, substantially as set forth.

5. In a dental hand piece, the combination with the casing, of a spindle, a split clamp tool locking device, a wedge, a channel in the tool locking device wherein the wedge slides and means for moving the wedge along such channel substantially as set forth.

6. In a deutal hand piece, the combination with the casing and spindle, of split clamp tool locking device 12, 13, 14, connecting bar 8, sliding wedge 15 inner slide 17, outer slide 21 and intermediate pin 22, substantially as set forth.

518,176. DRILLING-MACHINE. JOHN W. BROWN, Jr., Philadelphia, Pa., assignor to the Enterprise Manufacturing Company, same place. Filed Oct. 13, 1893. Serial No. 488,025. (No model.)



Claim.—1. The combination in a drill press, of the drill spindle, mechanism for revolving said spindle, a vertically movable table carrying the work, a shaft, a cam on said shaft, for raising the table, mechanism for revolving said shaft, and mechanism for throwing the shaft out of gear with the revolving mechanism, substantially as described.

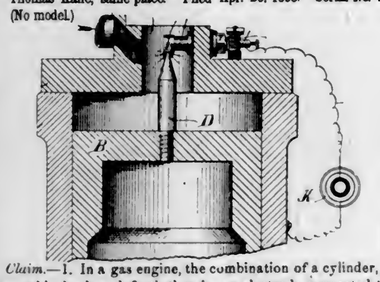
2. The combination in a drill press, of the spindle, mechanism for revolving the same, a vertically movable work table, a shaft and cam thereon, acting to elevate the table, a pawl carried by said shaft, a wheel loose on the shaft having teeth with which the pawl engages, mechanism for continuously revolving said wheel, and a pin for throwing the pawl out of engagement with the wheel, substantially as described.

3. The combination of the standard, the spindle, mechanism for revolving the spindle, and an adjustable slide adapted to the standard, shaft carried by said slide, a work table mounted on the slide above the shaft, a cam on the shaft bearing against the work table, a disk, a spring pawl mounted on said disk, a toothed wheel with which the pawl engages, a stationary pin for throwing the pawl out of engagement with the wheel when the cam reaches a certain point, a drum on the shaft, and a cord and treadle, whereby on the depression of said treadle the shaft will turn with the drum, and elevate the work to the drill, substantially as described.

4. The combination in a drill press, of the drill spindle, mechanism for revolving the same, a vertically movable work table, a cam for raising said table, a shaft on which the cam is mounted, a pawl and ratchet mechanism through which the said shaft is operated, a rope drum on the shaft, and a rope and treadle, with a pawl and ratchet connection between the drum and a disk on the shaft, so that when the treadle is depressed the shaft will be turned and the table elevated, substantially as described.

5. The combination of the standard, the spindle, bearings therefor, a drill adapted to said spindle, a belt wheel on the spindle, a friction wheel adjustable on the spindle, a friction disk bearing against said friction wheel, a shaft on which said disk is mounted, a worm on said shaft, a worm wheel gearing with said worm, a vertical feed shaft, a cam shaft geared to the feed shaft by a worm and worm wheel, and pawl and ratchet mechanism, a cam on said shaft, and a vertically movable work table acted upon by said cam, substantially as described.

518,177. GAS-ENGINE. JOHN B. CARSE, Chicago, Ill., assignor to Thomas Kane, same place. Filed Apr. 26, 1893. Serial No. 471,938. (No model.)

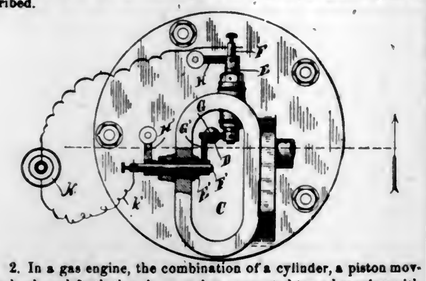


Claim.—1. In a gas engine, the combination of a cylinder, a piston movable back and forth therein, an electrode connected to and moving with the piston, a combustion chamber into which the point of the electrode moves, a rock shaft passing through the wall of the combustion chamber and insulated therefrom, an inner rigid arm mounted on the inner end of the rock shaft with its free end in position to be contacted by the point of the electrode and moved back thereby rotating the rock shaft, means for restoring the rigid arm to its normal position as the electrode retreats, and an electric circuit which includes the electrode and the inner rigid arm as parts, substantially as described.

2. In a gas engine, the combination of a cylinder, a piston movable back and forth therein, an electrode connected to and moving with the piston, a combustion chamber into which the point of the electrode moves, a rock shaft passing through the wall of the combustion chamber and insulated therefrom, an inner rigid arm mounted on the inner end of the rock shaft with its free end in position to be contacted by the point of the electrode and moved back, thereby rotating the rock shaft, an arm on the outer end of the rock shaft, a spring exerting its tension on such arm for restoring it, the rock shaft and the inner rigid arm to their normal position as the electrode retreats, and an electric circuit which includes the electrode and the inner rigid arm as parts, substantially as described.

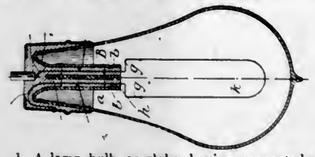
518,178. GAS-ENGINE. JOHN B. CARSE, Chicago, Ill., assignor to Thomas Kane, same place. Filed Apr. 26, 1893. Serial No. 471,939. (No model.)

Claim.—1. In a gas engine, the combination of a cylinder, a piston movable back and forth therein, a pusher connected to and moving with the piston, a combustion chamber into which the point of the pusher moves, rock shafts passing through the walls of the combustion chamber, inner rigid arms mounted on the inner ends of the rock shafts with their free ends lapping and adapted to contact as the pusher moves one of the arms, means for restoring the rigid arms to their normal position as the pusher retreats, and an electric circuit which includes the inner rigid arms as parts, substantially as described.



2. In a gas engine, the combination of a cylinder, a piston movable back and forth therein, a pusher connected to and moving with the piston, a combustion chamber into which the point of the pusher moves, rock shafts passing through the walls of the combustion chamber, inner rigid arms mounted on the inner ends of the rock shafts with their free ends lapping and adapted to contact as the pusher moves one of the arms, arms on the outer ends of the rock shafts, springs exerting their tension on such arms for restoring them, the rock shafts and the inner arms to their normal position as the pusher retreats, and an electric circuit which includes the inner rigid arms as parts, substantially as described.

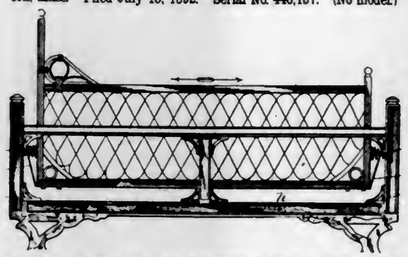
518,179. ELECTRIC INCANDESCENT LAMP. JOHN E. CRIGGAL, Springfield, Mass., assignor to the Davis Electrical Works, same place. Filed Dec. 8, 1893. Serial No. 493,158. (No model.)



Claim.—1. A lamp bulb, or globe, having supported within its neck two tubes of glass which are open from end to end, the leading-in wires passed longitudinally through said tubes, a cement or plastic material filling and closing the inner ends of the tubes, a quantity of mercury in said tubes above the said inner end-filling, and the filament connected to the inner ends of the leading-in wires, substantially as described.

2. A lamp bulb, or globe, having supported within its neck two tubes of glass which are open from end to end, the leading-in wires passed longitudinally through said tubes, a cement or plastic material filling and closing the inner ends of the tubes, a quantity of mercury in said tubes above the said inner end-filling, a cement or plastic material closing the upper ends of the said tubes, and the filament connected to the inner ends of the leading-in wires, substantially as described.

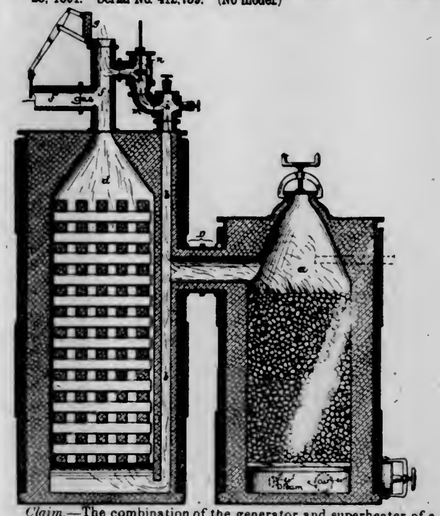
518,180. CHILD'S CRIB OR BED. ARTHUR W. CROSSLEY, Boston, Mass. Filed July 15, 1892. Serial No. 440,137. (No model.)



Claim.—1. A crib or child's bed comprising in its construction a stationary frame, a bed support or crib proper, supporting devices connected with the latter and the frame of a structural character in virtue of which the bed support or crib proper is adapted to be reciprocated longitudinally and maintained against lateral or rocking or rolling motion, and a spring or springs interposed between portions of the frame and bed support or crib proper, the said spring or springs being constructed and arranged to operate resiliently in a substantially horizontal plane, whereby the reciprocating movements of the crib are limited and cushioned, as set forth.

2. A crib or child's bed comprising in its construction a rectangular frame having rods *d* at its ends, a bed bottom having two straps *e* at each end connected with rods *d*, and springs *e* interposed between the ends of the bed bottom and frame, lateral movement of the bed bottom being prevented by the sides of the frame, substantially as described.

518,181. GAS APPARATUS. THOMAS CURLEY, Wilmington, Del., assignor of one-half to John McIlhenny, Philadelphia, Pa. Filed Nov. 23, 1891. Serial No. 412,739. (No model.)



Claim.—The combination of the generator and superheater of a gas apparatus, the discharge pipe at the top of the superheater, a flue or passage in said superheater extending from top to bottom of the same, and communicating with the combustion chamber of the generator, and with the lower end of the superheater chamber, and a by-pass connecting the upper end of said flue with the discharge pipe of the superheater, said by-pass having an adjustable valve for regulating the flow through the same, substantially as specified.

518,182. BUTTON-ATTACHING MACHINE. CHARLES E. DENTON, Peoria, Ill. Filed July 21, 1892. Serial No. 440,815. (No model.)



Claim.—1. In a button attaching machine of the class hereindescribed, a feed tube or race-way, having a slot in its front face at its lower end, a wheel pivoted at right angles to said slot into which it projects having a series of recesses in its periphery designed to suc-

cessively receive the buttons from said tube or race-way and properly position the same, and a spring support for said wheel, as set forth.

2. In a button attaching machine of the class herein-described, a feed tube having a front longitudinal slot in its lower end, a spring plate attached to said tube having a lower forked end, and a wheel pivotally hung in said forked end and at right angles to said slot into which it is projected, and having a series of recesses in its periphery, substantially as set forth.

3. In a button attaching machine of the class herein-described, the combination with the clincher bar or block having a slot therein, and means for feeding and guiding the wire, of the feed tube or race-way having an inner slot for the button shanks and a slot in its front face at its lower end, and the vertically disposed wheel projecting into said latter slot and having a yielding support and a series of recesses in its periphery to receive the heads of the buttons, the shanks of which are positioned for receiving the wire by means of the slot in said clincher bar or block, substantially as set forth.

4. The combination with the frame, the cutting and bending bar or plate and the clincher bar or block, of the mandrel at approximately right angles to said cutting and bending bar or plate provided with a lip or shoulder, the cam wheel journaled in said frame having two shoulders for engaging said lip or shoulder, and the operating rod connected to an arm of said cam-wheel, substantially as set forth.

5. The combination with the frame, the cutting and bending bar or plate, and the clincher bar or block having an inner flange c^3, of the mandrel having a lip or shoulder, the cam-wheel journaled in said frame having two shoulders for engaging said lip or shoulder, and also having a third shoulder c^4 for engaging said flange c^3, substantially as set forth.

6. In a button attaching machine having mechanism for cutting and bending the wire and a feed-tube for the buttons, a wire feeding arm, and means for automatically holding said wire feeding arm stationary when the button supply ceases, as set forth.

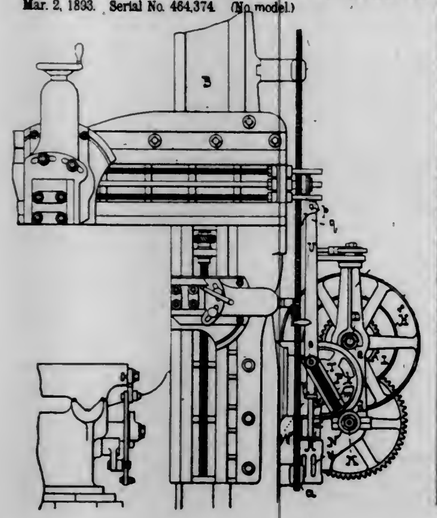
7. In a button attaching machine, having mechanism for cutting and bending the wire and a feed tube for the buttons, a wire feeding arm, and an arm or lever having one end projected into said feed-tube and held depressed by the buttons therein, the outer end of said arm or lever being designed to fall into the path of and hold said wire feeding arm retracted when the button supply ceases, as set forth.

8. In a button attaching machine, the combination with the cutting and bending bar or plate, and a clincher bar or block, of a wire feeding arm operated by said cutting and bending bar or plate, and the arm or lever designed to engage and hold said wire-feeding arm retracted when the button supply ceases, substantially as set forth.

9. In a button attaching machine, the combination with the cutting and bending bar or plate, and the clincher bar or block, of a button feed tube or race-way having a slot in one side, a wire-feeding arm, and the arm or lever having one end projected through said slot, its other end being designed to engage and hold said wire feeding arm retracted when the button supply ceases, substantially as set forth.

518,183. FEEDING DEVICE FOR METAL-PLANING MACHINES.

JACOB S. DETRICK and LEWIS H. BACHTELL, Baltimore, assignors to the Detrick & Harvey Machine Company of Baltimore City, Maryland. Filed Mar. 2, 1893. Serial No. 464,374. (No model.)



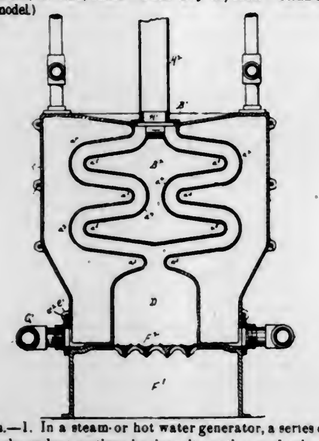
Claim.—1. In combination with a shaft constantly in revolution but alternately in reversed directions, a pinion and a friction roll secured to the said shaft, a second shaft carrying a segment adapted to engage with the said friction roll, and a loose gear in engagement with the said pinion, and a frictional device whereby the movement of the said gear wheel is communicated to the said segment, to bring its ends into contact with the said friction roll after they have been removed from contact in the operation of the feed, substantially as specified.

2. As elements of a feed for a planer, a friction roll and a segment whose ends extend beyond the diametrical line, whereby in the operation of the feed the mechanism driven by the said segment is moved to its extreme limit and then slightly drawn back, substantially as, and for the purpose specified.

3. In a metal planing machine, friction producing devices to effect the feed of the machine, said feeding devices being susceptible of engagement and disengagement, combined with supplemental friction producing devices for effecting the said engagement and disengagement of the others, substantially as, and for the purpose specified.

518,184. STEAM AND HOT-WATER GENERATOR.

DANIEL A. DICKINSON, St. Paul, Minn. Filed May 20, 1893. Serial No. 474,935. (No model.)



Claim.—1. In a steam or hot water generator, a series of hollow external independent sections having alternating projections and recesses, a hollow back section, and a hollow internal section connected into said back section and formed with projections and recesses conforming to and alternating with the projections and recesses of said external sections, substantially as and for the purpose set forth.

2. In a steam or hot water generator, a series of hollow external independent sections having alternating projections and recesses, a hollow back section, and a hollow internal section connected into said back section and formed with projections and recesses conforming to and alternating with the projections and recesses of said internal sections, said independent external sections connected at top and bottoms by piping $G' G^2$, substantially as and for the purpose set forth.

3. In a steam or hot water generator a series of hollow external independent sections having alternating projections and recesses, a hollow back section and a hollow internal section connected into said back section and formed with projections and recesses conforming to and alternating with the projections and recesses of said external sections, the front pair of said external sections having hollow wings integral therewith and forming the water front to the fire chamber, substantially as and for the purpose set forth.

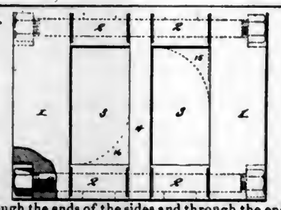
4. In a steam or hot water generator a series of hollow external independent sections having alternating projections and recesses, and a hollow internal section formed with projections and recesses conforming to and alternating with the projections and recesses of said external sections, and with partitions K within said external sections to facilitate the circulation of the water therein, substantially as and for the purpose set forth

518,185. MOLD FOR BRICK-MACHINES.

EMIL FERNHOLTZ, St. Louis, Mo., assignor of one-half to Jacob Stocke and Henry C. Beckmann, same place. Filed Sept. 27, 1893. Serial No. 486,608. (No model.)

Claim.—1. In a mold for brick machines, the combination of the sides and ends formed of separate pieces, fitting and bearing squarely against each other; the said end pieces having a fixed contact and full bearing with the side pieces and formed with the channel 6, and

518,185.

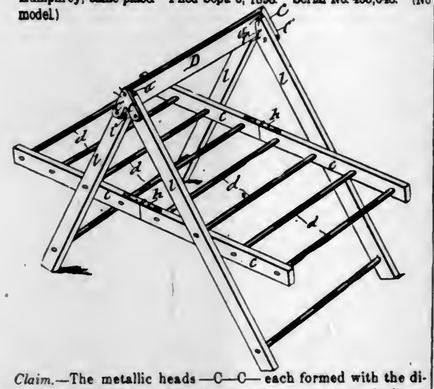


bolts passing through the ends of the sides and through the end pieces, whereby the ends may be set up as they become worn, substantially as and for the purpose set forth.

2. In a mold for brick machines, the combination of the sides 1, perforated near their ends, ends 2 having channels 6, crossed by webs 6^2, a partition 4 perforated at its ends, and connecting bolts 5 passing through the perforations in the sides and partition, and through the channels in the ends; substantially as and for the purpose set forth.

518,186. FOLDING WASHBENCH AND CLOTHES-BAR.

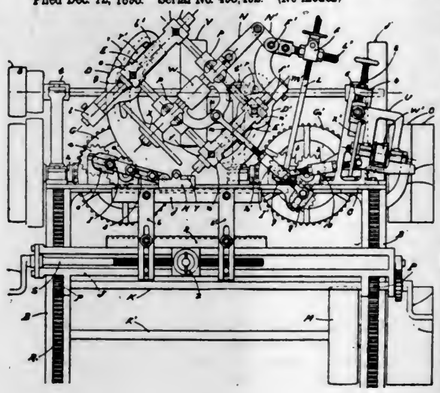
WILLIAM H. FORRESTER, Syracuse, N. Y., assignor of one-half to George C. Humphrey, same place. Filed Sept. 8, 1893. Serial No. 485,043. (No model.)



Claim.—The metallic heads —C—C— each formed with the divergent arms —C'—C'— and the lugs —*a*—*a*— having vertical parallel walls —*a'*—*a'*— on their adjacent sides and inclined shoulders —*b*—*b*— at their bases, the board —D— inserted with its ends between the aforesaid lugs and fastened to the heads, —C—C—, in combination with the legs —*l*—*l*— pivoted to the free ends of the aforesaid arms and terminated at their upper ends with the abutments —*l'*—*l'*— and chamfers —*l''*—*l''*—, the rails —*c*—*c*— pivoted to the said legs and having vertical abutting ends hinged together at their tops, and rungs —*d*—*d*— attached to said rails, all constructed and combined to allow the structure to be adjusted to the various positions hereinbefore described and shown.

518,187. SAW-SHARPENING MACHINE.

DEXTER HAZARD, Marquette, Mich., assignor of one-half to Frederick O. Clark, same place. Filed Dec. 12, 1893. Serial No. 493,492. (No model.)



Claim.—1. In a saw sharpening machine, the combination with supporting bracket A, rods *o* and *o'* mounted thereon, of frame *u* slidably mounted upon said rods; arbor W journaled in said frame; connecting rod I'; bar N; rocking bar N'; box F; threaded rods L and L'; cranks *g* and *g'*, and the elliptical gears *b* and *b'*; all substantially as shown and described.

2. In a saw sharpening machine, the combination with supporting bracket 4, sliding box 5, and swinging frame U mounted thereon; arbor W' journaled in frame U; connecting rod 10, cranks *g*, and the elliptical gears *b* and *b'*; all substantially as shown and described.

3. In a saw sharpening machine, the combination with stationary slide 18, sliding frame H mounted thereon; set screw 16; sliding bolt Y; bar 14; ball joint 12; connecting rod 3; crank *e*; elliptical gears *a* and *a'*; all substantially as shown and described.

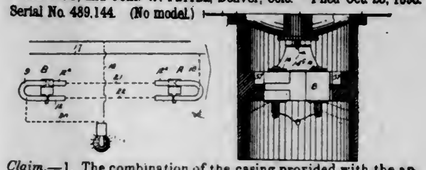
4. In a saw sharpening machine, the combination with supporting bracket A, rods *o* and *o'* mounted thereon, of frame *u* slidably mounted upon said rods; arbor W journaled in said frame; connecting rod I'; bar N; rocking bar N'; box F; threaded rods L and L'; cranks *g* and *g'*, and the elliptical gears *b* and *b'*. Also stationary slide 18, sliding frame H mounted thereon; set-screw 16; sliding bolt Y; bar 14; ball-joint 12; connecting rod 3; crank *e*; elliptical gears *a* and *a'*; all substantially as shown and described.

5. In a saw sharpening machine, the combination with supporting bracket A, rods *o* and *o'* mounted thereon, of frame *u* slidably mounted upon said rods; arbor W journaled in said frame; connecting rod I'; bar N; rocking bar N'; box F; threaded rods L and L'; cranks *g* and *g'*; supporting bracket 4, sliding box 5 and swinging frame U mounted thereon; arbor W' journaled in said frame U; connecting rod 10; crank *g* and the elliptical gears *b* and *b'*: all substantially as shown and described.

6. In a saw sharpening machine, the combination with supporting bracket A, rods *o* and *o'* mounted thereon, of frame *u* slidably mounted upon said rods; arbor W journaled in said frame; connecting rod I'; bar N; rocking bar N'; box F; threaded rods L and L'; cranks *g* and *g'*, and the elliptical gears *b* and *b'*; supporting bracket 4, sliding box 5 and swinging frame U mounted thereon; arbor W journaled in frame U; connecting rod 10; crank *g*, and the said elliptical gears *b* and *b'*. Stationary slide 18, sliding frame H mounted thereon; set-screw 16; sliding bolt Y; bar 14; ball joint 12; connecting rod 3; crank *e*; elliptical gears *a* and *a'*; all substantially as shown and described.

518,188. CIRCUIT-SWITCH.

ELMER E. HERSH, BENJAMIN F. WOODWARD, and JOHN W. PETTER, Denver, Colo. Filed Oct. 25, 1893. Serial No. 489,144. (No model.)



Claim.—1. The combination of the casing provided with the apertured partition, a T-shaped rotatable switch block pivoted in said partition, two contact brushes attached to opposite surfaces of the partition and adapted to engage the block, an apertured face plate, and a single push button for actuating the switch block, substantially as described.

2. In a circuit switch, the combination with a suitable casing, of a double T-shaped rotatable switch-block, and two contact brushes, one double and the other single, engaging the opposite stems of the switch-block, and suitable means for actuating the switch-block, substantially as described.

3. In a circuit switch, the combination with the rotatable switch-block, the two contact brushes, one double and the other single, the single push-button and the intermediate spring for actuating the switch-block, the arrangement of the parts being such that one of the brushes is always in contact with the switch-block, while the other is alternately in contact therewith as the latter is rotated, substantially as described.

4. In a circuit switch, the combination with the casing of the rotatable double T-shaped switch-block, the double contact brush, the two single brushes, the single push-button and the intermediate spring, the arrangement being such that the double brush is always in contact with the switch-block, and the two single brushes alternately in contact therewith as the switch-block is rotated, substantially as described.

5. In a circuit switch, the combination of the casing having a notched rim at one extremity, and a central apertured partition, the operative parts of the switch mechanism being attached to said partition, and the face plate provided with lugs adapted to engage the rim of the casing, and apertured to receive the actuating push button, substantially as described.

6. In a circuit switch, the combination with the casing and apertures face plate, of the double T-shaped rotatable switch-block, the contact brushes engaging the stems of the switch-block, the leaf spring normally located in close proximity to the switch-block, and the single push-button engaging the spring, substantially as described.

7. In a circuit switch, the combination of the casing having the notched rim at one extremity, the central, apertured partition, a T-shaped rotatable switch block pivoted in said partition, two contact brushes attached to the opposite surfaces of the partition and adapted to engage the block, an apertured face plate provided with lugs adapted to engage the rim of the casing, and a single push button for actuating the switch block, substantially as described.

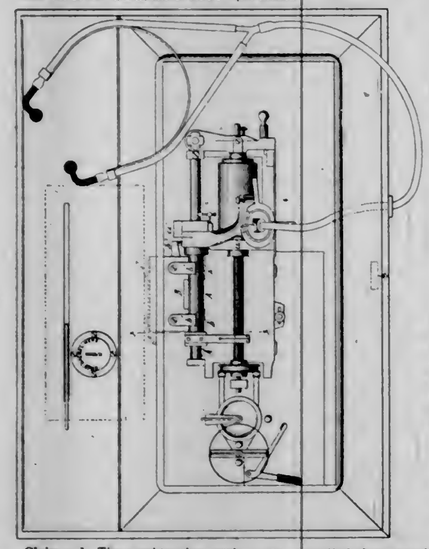
8. In a circuit switch, the combination of the cylindrical casing having the apertured face plate, and the centrally apertured partition, a T-shaped rotatable switch block pivoted in the partition, a single push button, an intermediate spring, and suitable contact brushes, substantially as described.

518,189. SAFETY-ENVELOPE. HENRY R. HORR and DAVID H. MCFALL, Red Lodge, Mont. Filed Feb. 11, 1893. Serial No. 461,870. (No model.)



Claim.—As an improved article of manufacture the herein described envelope having double end portions or flaps, which are open at their upper ends and have the inner edge of one portion of each fitted between the opposite similar portions when said parts are folded inwardly, to form double pockets of a depth equal to the depth of the body of the envelope, a lower flap B, upper flaps C C', adapted to be folded inwardly and gummed on both sides, and an adjacent upper flap to close over the top of the body of the envelope, substantially as described.

518,190. ATTACHMENT FOR OPERATING PHONOGRAPHS. ALBERT K. KELLER, New York, N. Y., assignor, by mesne assignments, to the Automatic Phonograph Exhibition Company of New York. Filed Jan. 31, 1891. Serial No. 379,824. (No model.)



Claim.—1. The combination, with a coin controlled phonograph, of means, released by the phonograph, to shift the reproducer, substantially as described.

2. The combination, with a phonograph, of a coin controlled mechanism for throwing it into operation, means for raising and lowering the reproducer, and means released by the phonograph to shift the reproducer, substantially as described.

3. The combination, with a phonograph, of a coin controlled mechanism for throwing it into operation, means operated by the phonograph to stop the phonograph, and means to shift the reproducer, substantially as described.

4. The combination, with a phonograph, of a coin controlled mechanism for throwing it into operation, means for raising and lowering the reproducer, and means operated by the phonograph to stop the phonograph, substantially as described.

5. The combination, with a phonograph, of a coin controlled mechanism for lowering the reproducer and throwing the phonograph into operation, and means operated by the phonograph to raise the reproducer and stop the phonograph, substantially as described.

6. The combination, with a phonograph, of a coin controlled mechanism for throwing it into operation, means operated by the phonograph to stop the phonograph, and means released by the phonograph to shift the reproducer, substantially as described.

7. The combination, with a phonograph, of a coin controlled mechanism, means for raising and lowering the reproducer, means for moving the reproducer along the phonogram, and means for shifting the reproducer, said raising, lowering, moving and shifting means, all operating automatically in proper sequence upon each operation of the coin controlled mechanism, substantially as described.

8. The combination, with a phonograph, of a coin controlled mechanism for setting it into operation, and storing power to shift the reproducer, the said coin controlled mechanism being operated by hand, and means automatically operated by the phonograph for releasing the power and shifting the reproducer, substantially as described.

9. The combination, with a phonograph, of a coin controlled mechanism, means for lowering the reproducer, and means for throwing the phonograph into operation, both of the two last named means operating in the order stated, upon each operation of the coin-controlled mechanism, means for lifting the reproducer, and means for shifting the phonograph arm, substantially as described.

10. The combination with a phonograph, of a coin controlled mechanism, means for lowering the reproducer, means for moving the reproducer along the phonogram, both of said last named means operating in the order stated upon each operation of the coin-controlled mechanism, means for lifting the reproducer, and means for shifting the reproducer, both of said means being thrown into operation by the phonograph, in the order stated, substantially as described.

11. The combination, with a coin controlled phonograph, of means for shifting the reproducer, and means operated by the shifting means for raising the reproducer, substantially as described.

12. The combination, with a phonograph, of a device for raising and lowering the reproducer, and coin controlled mechanism operating on said device to raise and lower it, and thereby lower and raise the reproducer, substantially as described.

13. The combination, with a phonograph, of a raising and lowering device connected with the reproducer, and means normally held locked, and adapted to be released by a coin to operate on said device to raise and lower it, and thereby lower and raise the reproducer, substantially as described.

14. The combination, with a phonograph, operated by a motor, of a coin controlled mechanism for starting and stopping the motor, and mechanism for raising and lowering the reproducer, substantially as described.

15. The combination, with a phonograph operated by a motor, of a circuit breaker in the motor circuit, opened by the reproducer at the end of the record, and means for closing the circuit at the said circuit breaker when the phonograph is to be operated, substantially as described.

16. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of coin controlled mechanism for closing said circuit, and means operated by the phonograph to open said circuit, substantially as described.

17. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of a coin controlled mechanism for closing the motor circuit, means operated by the phonograph to open said circuit, and means for raising and lowering the reproducer, substantially as described.

18. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of coin controlled mechanism for closing the circuit to operate the phonograph, means operated by the phonograph to open the circuit and stop the phonograph, and means for shifting the reproducer, substantially as described.

19. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of coin controlled mechanism for closing the circuit to operate the phonograph, means operated by the phonograph to open the circuit and stop the phonograph, means for shifting the reproducer, and means for raising and lowering the reproducer, substantially as described.

20. The combination, with a phonograph, operated by a motor and having its motor circuit normally open, of coin controlled mechanism to close the motor circuit, and lower the reproducer, substantially as described.

21. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of coin controlled mechanism to close the circuit and lower the reproducer, and means operated by the phonograph to open the circuit and raise the reproducer, substantially as described.

22. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of a coin controlled mechanism for closing the circuit, and throwing the phonograph into operation, means for raising and lowering the reproducer, means operated by the phonograph to open the circuit and stop the phonograph, substantially as described.

23. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of means for lowering the reproducer, means for closing the motor circuit, both said means being coin controlled, means for opening the motor circuit, means for lifting the reproducer, and means for shifting the reproducer, substantially as described.

24. The combination, with a phonograph, operated by a motor, and having its motor circuit normally open, of coin controlled mechanism for closing said circuit, means for lowering the reproducer, and means operated by the phonograph to open said circuit and raise the reproducer, substantially as described.

25. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of a coin controlled mechanism for closing said circuit, means for lowering the reproducer, means operated by the phonograph to open said circuit and raise the reproducer, and means to shift the reproducer, substantially as described.

26. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of a device to hold the reproducer in a raised position, coin controlled mechanism to lower the reproducer and close the motor circuit, and means operated by the reproducer to open the motor circuit and raise the reproducer, substantially as described.

27. The combination, with a phonograph operated by a motor, of a coin controlled mechanism for starting and stopping the motor, a shifting lever, and an automatic lifting device for the reproducer of said phonograph, substantially as described.

28. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of a coin controlled mechanism, means operated by the coin controlled mechanism for closing the motor circuit, means for raising and lowering the reproducer, means for moving the reproducer along the phonogram, means for opening the motor circuit, and means for shifting the reproducer, said raising, lowering, moving, shifting and circuit opening means all operating automatically in proper sequence upon each operation of the coin controlled mechanism, substantially as described.

29. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of a coin controlled mechanism, means for lowering the reproducer, and means for closing the motor circuit, both of the two last named means operating in the order stated, upon each operation of the coin controlled mechanism, means for lifting the reproducer, means for opening the motor circuit, and means for shifting the reproducer, substantially as described.

30. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of a coin controlled mechanism, means for lowering the reproducer, means for closing the motor circuit, both of said last named means operating in the order named upon each operation of the coin controlled mechanism, means for lifting the reproducer, means for opening the said motor circuit, and means for shifting the reproducer, all three of said means being thrown into operation by the phonograph, substantially as described.

31. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of mechanism which is normally held locked, and is released by a coin, to throw the phonograph into position for operation, and means to relock said mechanism and close the motor circuit simultaneously, substantially as described.

32. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of mechanism which is normally held locked and is released by a coin, and means to lower the reproducer, lock the said mechanism again and close the motor circuit before the phonograph has commenced to operate, substantially as described.

33. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of a device to hold the reproducer from contact with the phonogram, coin controlled mechanism to hold the phonograph locked, and means to close the motor circuit and lower the reproducer, substantially as described.

34. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of a device to hold the reproducer from contact with the phonogram, coin controlled mechanism to hold the phonograph locked, means to close said motor circuit and lower the reproducer, and means to hold said motor circuit closed, which last named means are released by the phonograph to break said motor circuit, and means operated by the phonograph to stop the phonograph and to raise the reproducer at any desired point in the forward travel thereof, substantially as described.

35. The combination, with a phonograph operated by a motor, of an attachment which is normally held locked, and is released by a coin to lower the reproducer, and means to lock the attachment again and close the motor circuit before the phonograph begins to operate, substantially as described.

36. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of mechanism which is normally held locked, and is released by a coin to throw the phonograph into position for operating, and means to relock said mechanism and close the motor circuit simultaneously, substantially as described.

37. The combination, with a phonograph operated by a motor, of an attachment which is normally held locked, and is released by a coin to lower the reproducer, means to lock the attachment again and close the motor circuit before the phonograph begins to operate, and means operated by the phonograph to raise the reproducer and open the motor circuit, substantially as described.

38. The combination, with a phonograph operated by a motor, of an attachment which is normally held locked, and is released by a coin to lower the reproducer, means to lock the attachment again and close the motor circuit before the phonograph begins to operate, means to raise the reproducer and open the motor circuit, and means to shift the reproducer, substantially as described.

39. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of a mechanism which is normally held locked, and is released by a coin to throw the phonograph into position for operation, means to relock said mechanism and close the motor circuit simultaneously, means operated by the phonograph for opening the motor circuit, means for lowering and raising the reproducer, and means for shifting the reproducer, substantially as described.

40. The combination, with a phonograph, of a motor for operating it, in a circuit which can be opened and closed at two points, an attachment which is normally held locked, and is released by a coin to open said motor circuit at one of the said points and close it at the other point, means to hold the circuit closed at the second point, means to throw the phonograph in position to operate, and means to simultaneously close the circuit at the first point and relock the attachment, substantially as described.

41. The combination, with a phonograph, of a motor for operating it in a circuit that can be opened and closed at two points, an attachment which is normally held locked, and is released by a coin to open said motor circuit at one of said points and close it at the other point, means to hold the circuit closed at the second point, means to simultaneously close the circuit at the first point and relock the attachment, and means operated by the phonograph to open the circuit at the second point, substantially as described.

42. The combination, with a phonograph, of a motor for operating it in a circuit which can be opened and closed at two points, an attachment which is normally held locked, and is released by a coin to open the circuit at one of said points and close it at the other point, means to hold the circuit closed at the second point, means to simultaneously close the circuit at the first point and relock the attachment, means operated by the phonograph to open the circuit at the second point, means for raising and lowering the reproducer, and means for shifting the reproducer, substantially as described.

43. The combination, with a phonograph, of means to hold the reproducer up, a motor in a circuit that can be opened and closed at two points for operating the phonograph, an attachment which is normally held locked, and is released by a coin to open said motor circuit at one of said points, and to close it at the other point, means to hold the circuit closed at the second point, means to lower the reproducer, and means to simultaneously close the circuit at the first point and lock the attachment, substantially as described.

44. The combination, with a phonograph, of means to hold the reproducer up, a motor in a circuit that can be opened or closed at two points for operating the phonograph, an attachment which is normally held locked and is released by a coin to open said motor circuit at one of said points and close it at the other point, means to hold the circuit closed at the second point, means to lower the reproducer, means to open the motor circuit at the second point, and means to lift the reproducer off the phonogram, and means to shift the reproducer, substantially as described.

45. The combination, with a phonograph, of means to hold the reproducer up, a motor in a circuit that can be opened and closed at two points for operating the phonograph, an attachment which is normally held locked, and is released by a coin to open the motor circuit at one of said points and close it at the other point, means to

hold the circuit closed at the second point, means to lower the reproducer on the phonogram, means to open the motor circuit at the second point, means to lift the reproducer, and means to shift the reproducer, said circuit opening, lifting and shifting means being operated by the phonograph, substantially as described.

46. The combination, with a phonograph, of a coin controlled mechanism for throwing it into operation, and adjustable means operated by the phonograph to stop the phonograph at any desired point, substantially as described.

47. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of coin controlled mechanism for closing the circuit to operate said phonograph, and adjustable means operated by the phonograph to open the motor circuit and stop the phonograph at any desired point, substantially as described.

48. The combination, with a phonograph operated by a motor and having its motor circuit normally open, of coin controlled mechanism for closing said motor circuit, adjustable means operated by the phonograph to open said motor circuit and stop the phonograph at any desired point, and means also operated by the phonograph to raise the reproducer, substantially as described.

49. The combination, with a phonograph operated by a motor, of a rocking bar which engages with the arm thereof, of an attachment consisting of two cross-heads, each of which carries an electrode through which the motor circuit is completed, one of which cross-heads engages with the rocking bar to raise the reproducer of the phonograph, means released by a coin for effecting the movement of these cross heads so as to open the circuit at one point and close it at the other point, and to lower the reproducer, a catch in the path of the phonograph arm to hold one of the cross-heads in position, means for returning the other cross head to its original position, means for locking it there and simultaneously closing the motor circuit, and means for returning the first cross head to its original position, and thereby breaking the motor circuit, and lifting and shifting the reproducer when the said cross head is released by the phonograph, substantially as described

50. The combination, with a phonograph, of a plate B having the tongues b b, plates b' b', projection b^3, and pin b^4, and the rocking bar H, all arranged to operate substantially as, and for the purpose set forth.

51. The combination, with a phonograph, of the plate B, having the tongues b b, plates b' b', projection b^3, and pins b^3 and b^4, rocking bar H and spring pawl I, all arranged to operate substantially as and for the purpose set forth.

52. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of an attachment which consists of two cross-heads, each carrying a plug for making and breaking said motor circuit, a coin controlled locking and releasing device connected with one of said cross heads, and a device operated by said cross heads to lower the reproducer, substantially as described.

53. The combination, with a phonograph operated by a motor, of a coin controlled attachment which consists of two cross heads for operating said phonograph, each of which cross heads carries a projection or plug for making and breaking said motor circuit, means to lower the reproducer and move said cross heads from their normal position to break the motor circuit at one point and close it at another, a device to hold one of the cross heads and keep the circuit closed at that point, and a device to return the other cross head to complete the motor circuit and lock the attachment again before the phonograph can commence to operate, substantially as described.

54 The combination, with a phonograph, operated by a motor, of a coin controlled attachment, which consists of two cross heads for operating the phonograph, each of which cross-heads carries a projection or plug for making and breaking the motor circuit, means to lower the reproducer, and move said cross heads from their normal position to break the motor circuit at one point and close it at another, a device to hold one of the cross-heads and keep the circuit closed at that point, a device to return the other cross-head to complete the motor circuit and lock the attachment again before the phonograph has commenced to operate, and means operated by the phonograph to break the circuit, raise the reproducer and shift the reproducer, substantially as described.

55. An attachment for operating phonographs, which consists of a frame or box to which are attached guide rods F F', cross-heads G G', which travel on said guide rods, springs connected with said box or frame and with said cross heads to return the cross heads, each of said cross heads carrying a projection or plug for making and breaking the motor circuit that operates the phonograph, a coin controlled locking and releasing device to release the cross heads, a rocking bar H, a spring pawl I, and a plate B, substantially as described.

56 An attachment for operating phonographs, which consists of a frame or box to which are attached guide rods F F', cross heads G G', which travel on said guide rods, springs connected with said box or frame and with the said cross-heads to return the cross heads, each of said cross-heads carrying a projection or plug for making and breaking the motor circuit that operates the phonograph, a coin controlled locking and releasing device to release the cross heads, a rocking bar H, a spring pawl I, a projection on the cross-head G' to prevent the bar H from rising, a projection J. on said cross head G' which engages the pawl I and holds the cross head G' at that point, a plate B connected with a sleeve A of the phonograph, one end of which plate is in contact with the phonograph arm a, an adjustable pin b^3, upon which the rocking bar H rests, and an adjustable pin b^4 to trip the pawl I at any desired point on the travel of the phonograph arm, substantially as and for the purpose set forth.

57. An attachment for operating phonographs, which remains normally locked and is released by a coin, consisting of two cross-heads, each carrying a projection or plug for making and breaking the motor circuit that operates the phonograph, a lever to carry or force both the cross-heads or carriages in the same direction, to break the said motor circuit at one point and close it at the other point, a spring pawl for holding the circuit closed at the last named point, means to return the lever and lock the attachment again, and at the same time, close the motor circuit at the first point, and thereby complete the motor circuit before the phonograph begins to operate, and a device for raising and lowering the reproducer operated by the phonograph through one of the cross-heads, substantially as described.

58. An attachment for operating phonographs, which normally remains locked, and is released by a coin, consisting of two cross heads, each carrying a projection or plug for making and breaking the motor circuit that operates the phonograph, a device to carry or force both the cross-heads in the same direction to break the motor circuit at one point and close it at the other point, and mechanism to hold the circuit closed, but which is released by the phonograph to break the motor circuit, raise the reproducer and shift said reproducer to its starting point at any desired point in the travel of the phonograph arm, substantially as described.

59. An attachment for operating phonographs, which remains normally locked, and is released by a coin, consisting of two cross heads, each carrying a projection or plug for making and breaking the motor circuit that operates the phonograph, a lever to carry or force both the cross-heads in the same direction to break the electric circuit at one point and close it at another, mechanism to hold the circuit closed, but which is released by the phonograph to break the motor circuit, raise the reproducer, and shift the reproducer to its starting point at any desired point on the travel of the reproducer, a locking and releasing device which consists of one or more levers, and a fixed stop with which one of the free ends of said levers engages to lock the attachment, substantially as described.

60. An attachment for operating phonographs, which remains normally locked and is released by a coin, consisting of two cross-heads, each carrying a projection or plug for making or breaking the motor circuit that operates the phonograph, a lever to carry both the cross-heads in the same direction to break the motor circuit at one point and to close it at another, mechanism to hold the circuit closed, the said mechanism being released by the phonograph to break the motor circuit and raise the reproducer, and means to shift the reproducer, substantially as described

61. An attachment for operating phonographs which remains normally locked and is released by a coin, consisting of two cross heads, each carrying a projection or plug for making or breaking the motor circuit that operates the phonograph, a lever to carry both the cross heads in the same direction to break the motor circuit at one point and close it at another, mechanism to hold the circuit closed, the said mechanism being released by the phonograph to break the motor circuit and raise the reproducer, and springs connected with the cross-heads, which springs are expanded by the traveling of said cross-heads away from the starting point to return said cross-heads and reproducer, substantially as described.

62. The combination with a phonograph operated by a motor having its motor circuit normally open, of a device to hold the phonograph arm in a raised position, a coin controlled attachment operating on said device to lower the phonograph arm, means to close the circuit and lock the attachment before the phonograph commences to operate, mechanism to hold the circuit closed, and adjustable means operated by the phonograph to release said mechanism, break the motor circuit and raise the reproducer, substantially as described.

63. An attachment for operating phonographs, which normally remains locked, and is released by a coin, consisting of a frame or box to which are attached two guide rods, two cross heads G G', which travel on said guide rods, each of said cross heads carrying a projection or plug for making and breaking the motor circuit, said circuit being normally broken at one point, and the plug on the cross head G normally closing the circuit at another point before the attachment is released, springs f, g, attached to the said frame and cross heads to return the cross heads, a projection J and lug g^{10} on said cross head G', a spring pawl I, a rocking bar H, upon which the lug g^{10} rests and slides, a detent at one end of the rocking bar H, a spring, A, connected with the rocking bar H at that point, a lever to break the motor circuit at one point and move the cross head G' and close the circuit at another point, all arranged to operate substantially as shown and described.

64. In a coin operated phonograph, the combination with a coin operated trigger, and with a cross head, carrying a plug which is released by said trigger, and with an electrode for engagement with said plug, of a carrying arm for the reproducer, and means whereby the carrying arm will break the circuit at the end of the movement, substantially as described.

65. In a coin operated phonograph, the combination with a trigger, tripped by a coin, of a lever which is released by said trigger, and two electrodes, one of which is connected to said lever and moved by it into contact with the other electrode, substantially as described.

66. The combination, with a phonograph operated by a motor, of a coin controlled attachment for operating said phonograph, which attachment consists of two cross-heads, each carrying a projection or plug for making and breaking the motor circuit, means to lower the reproducer and move said cross heads to break said circuit at one point and close it at another, a device to hold one of the cross heads, and keep the circuit closed at that point, a device to return the other cross head to complete the motor circuit, and lock the attachment again before the phonograph has commenced to operate, and means operated by the phonograph to break the circuit and raise the reproducer, substantially as described.

67. The combination, with a phonograph, adapted to be operated by a motor, in a circuit which is normally open, and can be made and broken at two points, of two movable cross heads or carriages, each carrying a circuit making and breaking device to open and close said motor circuit, a shifting lever to move said cross heads, and a locking mechanism actuated by a coin to release said cross heads, substantially as described.

68. The combination, with a phonograph operated by a motor, in a circuit which is normally open, and can be made and broken at two points, of two movable cross heads or carriages, each carrying a circuit making and breaking device to open and close said motor circuit, a device operated by one of said cross heads to raise and lower the phonograph arm, locking mechanism actuated by a coin to release said cross heads, and a shifting lever to move said cross heads, substantially as and for the purpose set forth.

69. The combination, with a phonograph, operated by a motor, in a circuit which is normally open, and can be made and broken at two points, of two movable cross heads or carriages, each carrying a circuit making and breaking device to open and close said motor circuit, a device operated by one of said cross heads to raise and lower the phonograph arm, a shifting lever to move said cross heads, and locking mechanism actuated by a coin to release said cross heads, the locking mechanism consisting of one or more levers carried by one of said cross heads, and a fixed stop with which said lever or levers engage to lock said cross heads, substantially as and for the purpose set forth.

70. The combination, with a phonograph, having its motor circuit normally open, of an attachment for operating said phonograph which is normally locked but is released by a coin, said attachment being connected with the phonograph in such manner as to hold the reproducer from contact with the phonogram when the phonograph is not operating, a lever to lower the reproducer to the phonogram, two movable electrodes moved by said lever to alternately open and close the motor circuit by the forward and backward movement of said lever, and mechanism to hold the circuit closed, but released by the phonograph to break the motor circuit and raise the reproducer at any desired point in the travel of said reproducer, substantially as described.

71. The combination, with a phonograph having its motor circuit normally open, of an attachment for operating said phonograph which remains normally locked, but is released by a coin, said attachment being connected with the phonograph in such manner as to hold the reproducer from contact with the phonogram when the phonograph is not operating, a lever, by the movement of which in one direction the reproducer is lowered to the phonogram, and the motor circuit closed at one point and is opened at another, and by the return movement of which the attachment is locked again before the phonograph begins to operate and the motor circuit closed at another point, thereby completing the motor circuit, and mechanism to hold the circuit closed released by the phonograph to break said circuit and raise the reproducer at any desired point in the travel of said reproducer, and a device to return said reproducer, substantially as described.

72. The combination, with a phonograph, having its motor circuit normally open, of an attachment for operating said phonograph which remains normally locked but is released by a coin, said attachment being connected with the phonograph in such manner as to hold the reproducer from contact with the phonogram when the phonograph is not operating, a lever, by the movement of which in one direction, the reproducer is lowered to the phonogram and the motor circuit closed at one point and opened at another, and by the return movement of which the attachment is locked again before the phonograph begins to operate, and the motor circuit closed at another point, thereby completing the motor circuit, a locking and releasing device to hold the attachment locked, operated by a coin to release the attachment, and mechanism to hold the motor circuit closed, released by the phonograph to break the motor circuit and raise the reproducer at any desired point in the travel of the reproducer, substantially as described.

73 The combination, with a phonograph having its motor circuit normally open, of an attachment for operating said phonograph which remains normally locked, said attachment being connected with the phonograph in such manner as to hold the reproducer from contact with the phonogram when the phonograph is not operating, a lever, forming a part of said attachment, by the movement of which in one direction the reproducer is lowered to the phonogram and the motor circuit closed, and means to hold the attachment locked, the said means being released by a coin, substantially as described.

74. The combination, with a phonograph, having its motor circuit normally open, of an attachment for operating said phonograph, which remains normally locked but is released by a coin, said attachment being connected with the phonograph in such manner as to hold the reproducer from contact with the phonogram when the phonograph is not operating, a lever, forming part of said attachment, by the movement of which in one direction the reproducer is lowered to the phonogram and the motor circuit closed, and mechanism to hold the circuit closed at that point, but released by the phonograph to break said circuit and raise the reproducer at any desired point in the travel of reproducer, substantially as described.

75. The combination, with a phonograph having its motor circuit normally open, of an attachment for operating said phonograph which remains normally locked, but is released by a coin, said attachment being connected to the phonograph in such manner as to hold the reproducer from contact with the phonogram when the photograph is not operating, a device to hold the attachment locked, actuated by a coin to release the attachment, a lever, by the movement of which in one direction from its starting point the motor circuit is broken at one point and closed at another and the reproducer lowered to the phonogram, a device to return the lever to its starting point to complete the motor circuit and lock the attachment again before the phonograph commences to operate, and mechanism, to hold the circuit closed, which is released by the phonograph to break the motor circuit and raise the reproducer from contact with the phonogram at any desired point in the travel of said reproducer, substantially as described.

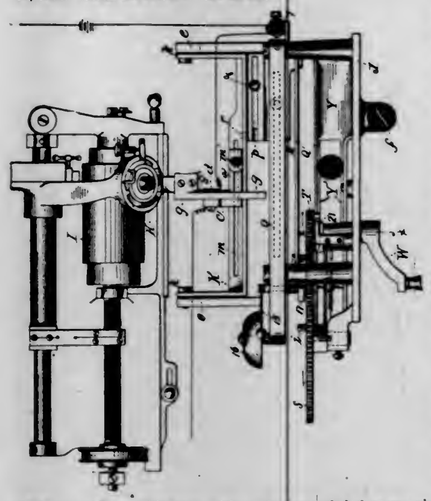
76. The combination, with a phonograph having its motor circuit normally open, of an attachment for operating said phonograph which remains normally locked, but is released by a coin, said attachment being connected to the phonograph in such manner as to hold the reproducer from contact with the phonogram when the phonograph is not operating, a device to hold the attachment locked, the said attachment being operated by said coin to release the attachment, a lever, by the movement of which in one direction from the starting point the motor circuit is broken at one point and closed at another and the reproducer lowered to the phonogram, a device to return said lever to its starting point to complete the motor circuit and lock the attachment again before the phonograph commences to operate, mechanism, to hold the circuit closed, which is released by the phonograph arm to break the motor circuit and raise the reproducer at any desired point in the travel of said reproducer, and a device to shift the reproducer, substantially as described.

77. The combination, with a phonograph having its motor circuit normally open, of an attachment for operating said phonograph which remains normally locked, and is released by a coin, a device to raise and lower the reproducer, a lever, by the movement of which in one direction the reproducer is lowered to the phonogram and said motor circuit broken at one point and closed at another, a device to return the lever to its starting point to complete the motor circuit and lock the attachment again before the phonograph commences to operate, and mechanism, to hold the circuit closed, which is released by the phonograph to break the motor circuit and raise the reproducer from contact with the phonogram at any desired point in the travel of said reproducer, substantially as described.

78. The combination of locking levers K K' K^2 K^3 constructed as shown and described, springs k k' k^2 k^3 connected therewith, fixed stop M, cross heads G G', and arm g^9 on said cross head G', and lever D all arranged to operate after the insertion of a coin, substantially as and for the purpose set forth.

79. The combination, with the phonograph arm of a phonograph, of rocking bar H, locking levers K K' K^2 K^3, constructed as shown and described, springs k k', k^2 k^3 connected therewith, fixed stop M, cross heads G G' and arm g^9 on said cross head G' and lever D, all arranged to operate after the insertion of a coin, substantially as and for the purpose set forth.

518,191. MACHINE FOR OPERATING PHONOGRAPHS. ALBERT K. KELLER, New York, N. Y., assignor, by mesne assignments, to the Automatic Phonograph Exhibition Company of New York. Filed Feb. 14, 1891. Serial No. 381,404. (No model.)



Claim.—1. The combination, with a coin controlled phonograph, of means for shifting the reproducer, and means operated by the shifting means for lowering the reproducer, substantially as described.

2. The combination, with a coin controlled phonograph, of means for shifting the reproducer, and means operated by the shifting means for raising and lowering the reproducer, substantially as described.

3. The combination, with a phonograph, of a coin controlled mechanism for shifting and lowering the reproducer and throwing the phonograph into operation, and means operated by the phonograph for stopping the phonograph, substantially as described.

4. The combination, with a phonograph, of coin controlled mechanism, and means operated by it for lifting, shifting and lowering the reproducer, and throwing the phonograph into operation, and means operated by the phonograph for stopping the phonograph, substantially as described.

5. The combination, with a phonograph operated by a motor, of coin controlled mechanism for shifting and lowering the reproducer and starting the motor, and means operated by the phonograph for stopping the motor, substantially as described.

6. The combination, with a phonograph operated by a motor, of coin controlled mechanism for raising, shifting and lowering the reproducer and starting the motor, and means operated by the phonograph for stopping the motor, substantially as described.

7. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of a coin controlled mechanism for shifting and lowering the reproducer and closing the motor circuit, and means operated by the phonograph for opening the motor circuit, substantially as described.

8. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of coin controlled mechanism for lifting, shifting and lowering the reproducer and closing the motor circuit, and means operated by the phonograph for opening the motor circuit, substantially as described.

9. The combination, with a phonograph operated by a motor, of a circuit breaker in the motor circuit, normally held open by the reproducer or phonograph arm at the end of the record, and means for closing the circuit at the said circuit breaker when the phonograph is thrown into operation, substantially as described.

10. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of means to raise and lower the reproducer, a circuit making and breaking device to close the circuit operated by the reproducer in moving from its normal position, and operated by said reproducer on returning to its normal position to open the circuit, substantially as described.

11. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of mechanism which is normally held locked and is released by a coin to shift and lower the reproducer and close the motor circuit, and means to relock said mechanism simultaneously with the closure of the motor circuit, substantially as described.

12. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of mechanism which is normally held locked and is released by a coin to lift, shift and lower the reproducer and close the motor circuit, and means to relock said mechanism simultaneously with the closure of the motor circuit, substantially as described.

13. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of mechanism which is normally held locked and is released by a coin to shift and lower the reproducer and close the motor circuit, means to relock said mechanism simultaneously with the closure of the motor circuit, and means operated by the reproducer to open said circuit, substantially as described.

14. The combination, with a phonograph operated by a motor, and having its motor circuit normally open, of mechanism which is normally held locked and is released by a coin to lift, shift and lower the reproducer and close the motor circuit, means to relock said mechanism simultaneously with the closure of the motor circuit, and means operated by the reproducer to open said circuit, substantially as described.

15. The combination, with a phonograph, of a motor for operating it in a circuit which can be opened and closed at two points, an attachment normally held locked but released by a coin to open said motor circuit at one of said points and to close it at the other point, and to shift and lower the reproducer, means to hold the circuit closed at the second point, and means to simultaneously close the circuit at the first point and relock the attachment, substantially as described.

16. The combination with a phonograph, of a motor for operating it in a circuit which can be opened and closed at two points, an attachment normally held locked, but released by a coin to open said motor circuit at one of said points and close it at the other point, and lift, shift and lower the reproducer, means to hold the circuit closed at the second point, and means to simultaneously close the circuit at the first point and relock the attachment, substantially as described.

17. The combination, with a phonograph, of a motor for operating it in a circuit which can be opened and closed at two points, an attachment normally held locked, but released by a coin to open said motor circuit at one of said points and close it at the other point, and to shift and lower the reproducer, means to hold the circuit closed at the second point, means to simultaneously close the circuit at the first point and relock the attachment, and means operated by the reproducer to open the circuit at the second point, substantially as described.

18. The combination, with a phonograph, of a motor for operating it in a circuit that can be opened and closed at two points, an attachment normally held locked, but released by a coin to open said motor circuit at one of said points and close it at the other point, and to lift, shift and lower the reproducer, means to hold the circuit closed at the second point, means to simultaneously close the circuit at the first point and relock the attachment, and means operated by the reproducer to open the circuit at the second point, substantially as described.

19. The combination, with a phonograph, of a shifting device for the reproducer, and a coin controlled driving wheel adapted to move the said shifting device, substantially as described.

20. The combination, with a phonograph, of a shifting device for the reproducer, a driving wheel which is normally locked, and can be released by a coin to operate said shifting device, and means to rotate the said wheel, substantially as described.

21. The combination, with a phonograph, of a shifting device for the reproducer, a driving wheel to operate said shifting device, coin controlled mechanism to lock the said wheel, and means to rotate the said wheel, substantially as described.

22 The combination, with a phonograph, of an adjustable device to shift the reproducer over the record upon the phonogram, a driving wheel connected with the said adjustable device, a coin controlled mechanism normally locking the said wheel, and means to rotate the said wheel to shift the said device, and thereby shift the reproducer, substantially as described.

23. The combination, with a phonograph, of a device to raise and lower the reproducer, a wheel, which is normally locked and can be released by a coin, connected with the said device to operate it, and means to rotate the said wheel, substantially as described.

24. The combination, with a phonograph, of a device to raise and lower the reproducer, a driving wheel to actuate said raising and lowering device to raise and lower the reproducer, means which normally lock the said wheel, and are released by a coin, and means to rotate the said driving wheel, substantially as described.

25. The combination, with a phonograph, of a device to raise and lower the reproducer, shifting means for the said reproducer, and a coin controlled driving wheel operating the said shifting means, substantially as described.

26. The combination, with a phonograph, of a device to raise and lower the reproducer, shifting means operating on said raising and lowering device to raise and lower it, a driving wheel, which is normally locked, but can be released by a coin, connected with the said shifting means to operate it, and means to rotate said driving wheel, substantially as described.

27. The combination, with a phonograph, of a device to raise and lower the reproducer, shifting means for the said reproducer, the said shifting means operating upon the raising and lowering device to raise and lower it, and a coin controlled driving wheel operating the said shifting means, substantially as described.

28. The combination, with a phonograph, of a device to raise and lower the reproducer, a traveling cross head or carriage to operate said device to raise and lower it and to shift the said reproducer, a driving wheel connected with the said carriage to impart motion thereto, coin controlled mechanism to lock the said wheel, and means to rotate the said wheel and shift the said cross head, and thereby raise, lower and shift the reproducer, substantially as described

29. The combination, with a phonograph, of a shifting device for the reproducer, a driving wheel connected with the said shifting device, the said wheel being normally held locked, and being released by a coin, and means to rotate the said driving wheel consisting of a crank, a primary wheel, and a frictional connection between the said crank and primary wheel, whereby the crank may be turned without turning the said primary wheel, substantially as described.

30. The combination, with a phonograph, of a shifting device for the reproducer, a driving wheel connected with the said shifting device, the said wheel normally being held locked, but being released by a coin, and means to rotate said driving wheel, which means consist of a crank, and a primary wheel adapted to be turned thereby, the said primary wheel and crank being connected together in such manner that the crank may be turned without turning the primary wheel so long as the driving wheel is locked, substantially as described.

31. The combination, with a phonograph, of a device to raise and lower the reproducer, a shifting device for the reproducer, and means to operate the said shifting device, which means consists of a crank, and a primary wheel connected with the said crank in such manner that the crank may be turned without turning the said primary wheel so long as the driving wheel remains locked, substantially as described.

32. The combination with a phonograph, the normal position of the reproducer of which is down and at the end of its movement, and at the end of the record upon the phonogram, of a device adapted to shift the reproducer to the beginning of the record upon the phonogram, and coin controlled mechanism connected with the said device to shift the reproducer, the said mechanism consisting of a wheel upon one revolution of which the said shifting device will be moved away from and returned to its starting point or normal position, substantially as described.

33. The combination, with a phonograph, of a device to raise and lower the reproducer, means operating on the said device to raise and lower it, a driving wheel connected with said raising and lowering means, the said driving wheel being normally held locked, and being released by a coin, and means to rotate said driving wheel, the said rotating means consisting of a primary wheel, a crank adapted to turn the said primary wheel, and means connecting the said crank and primary wheel, whereby the crank may be turned without turning the said primary wheel, substantially as described

34. The combination, with a phonograph, of a driving wheel which remains normally locked, but can be released by a coin, a primary wheel which engages with the driving wheel to rotate it, and a crank frictionally attached to the primary wheel, substantially as described.

35. The combination, with a driving wheel S, of the wheel T, constructed as shown and described, and consisting of a part having cog teeth meshing with the wheel S, and a part with ratchet teeth, a spring pawl locking the said wheel T, a spring washer 22, a nut 23 and a crank 18, all constructed to operate substantially as shown and described.

36. In a coin controlled mechanism, the combination with the wheel S, constructed as shown, and described, and having a stud or pin *i* thereon, of the wheel T constructed as shown and described, a crank W, a bell 16 and a hammer 15, all arranged to operate substantially as and for the purpose set forth.

37. In a coin controlled mechanism, the combination with a coin chute, of the driving wheel S, having the stud *y* thereon, and mechanism operated by a coin passing through the said chute, the said mechanism consisting of a sleeve 1, arms 3, 5 and 6 and spring 4 connected with the said sleeve, sleeve 7, arms 8, 10, 11 and 12 and spring 9 connected therewith, and rod 13, all arranged to operate substantially as shown and described.

38. In a coin controlled mechanism, the combination, with the driving wheel S, constructed as shown and described, being weighted at one side, and having studs *y* and *i* thereon, of the wheel T constructed as shown and described and consisting of a part having cog teeth to mesh with the wheel S and a part having ratchet teeth, a pawl to lock said wheel T, a spring washer 22, a nut 23, a crank 18, mechanism operated by a coin, consisting of a sleeve 1, arms 3, 5, and 6, and a spring 4 connected with the said sleeve, a sleeve 7, arms 8, 10, 11, and 12, and a spring 9 connected therewith, and a rod 13, all arranged to operate substantially as shown and described

39. The combination, with the wheel S and stud *y* thereon, of a coin actuated mechanism consisting of a sleeve 1, arms 3, 5, and 6, and a spring 4 connected with the said sleeve, a sleeve 7, arms 8, 10, 11, and 12, and a spring 9 connected therewith, and a rod 13, all arranged to operate substantially as described.

40. In a coin controlled mechanism, the combination, with a driving wheel, of a coin chute, a trigger pivoted therein, and a sleeve having a plurality of arms, one of which is engaged by the said trigger another of which locks the said wheel and another of which projects contiguous to the said wheel and is actuated thereby to cause the trigger and the first named arm to engage, substantially as described.

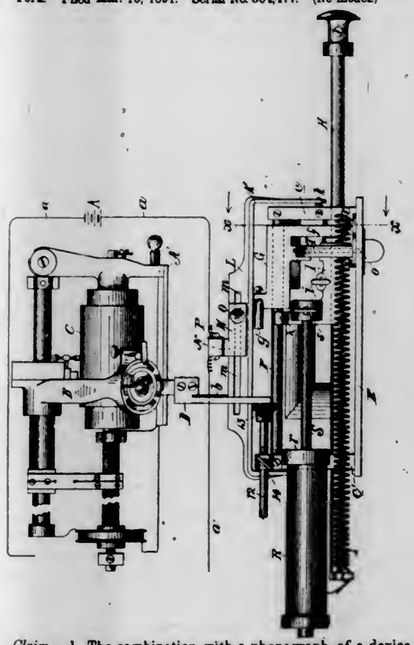
41. The combination, with the phonograph arm of a phonograph, of the rocking bar K, having a rib *k'*, and the cross head M, having the post *q* and pin *r*, substantially as described.

42. The combination, with a phonograph, of the rocking bar K, constructed as shown and described, the cross head M constructed as shown and described, a driving wheel S and a connecting rod Q, substantially as described.

43. The combination, with a phonograph operated by a motor, of the rocking bar K, constructed as shown and described, a circuit making and breaking device connected therewith, the cross head M constructed as shown and described, a circuit making and breaking device connected therewith, and a coin controlled driving wheel and connecting rod for operating the said cross head, substantially as described.

44. The combination, with the cross head or carriage M, guide rod L, and driving wheel S, of coin controlled mechanism to release the said wheel, substantially as described.

518,192. MACHINE OR ATTACHMENT FOR OPERATING PHONOGRAPHS. ALBERT K. KELLER, New York, N. Y., assignor, by mesne assignments, to the Automatic Phonograph Exhibition Company of New York. Filed Mar. 10, 1891. Serial No. 384,477. (No model.)



Claim.—1. The combination, with a phonograph, of a device to raise and lower the reproducer, and means to operate on said device to raise and lower it, said means being constructed in two parts which can be keyed or united by a coin, substantially as and for the purpose set forth.

2. The combination, with a phonograph, of a device to raise and lower the reproducer, and means which can be moved to operate on said device to raise and lower it and at the same time shift the reproducer, said means remaining normally inoperative and constructed in two parts which can be keyed or united by a coin, substantially as and for the purpose set forth.

3. The combination, with a phonograph, of a device to raise and lower the reproducer, a movable cross head or carriage adapted to

operate on said device and lower it, and at the same time shift the reproducer, another movable cross head which can be united to the first cross head by a coin, and means to move said cross heads, substantially as and for the purpose set forth.

4. The combination, with a phonograph, of a device to raise and lower the reproducer, and means to shift said reproducer and raise and lower said device, which means consist of the cross heads G and I which can be keyed together by a coin, and the rod H to move said cross heads, substantially as and for the purpose set forth.

5. The combination, with a phonograph, of a device to raise and lower the reproducer, means to raise and lower said device and shift said reproducer, which means consist of two cross heads which can be keyed together by a coin, and a device to move said cross heads, substantially as and for the purpose set forth.

6. The combination, with a phonograph having its motor circuit normally open, of a device to raise and lower the reproducer, means to operate on said device to raise and lower it, said means being constructed in two parts which can be keyed or united by a coin, and means operated by the phonograph to open and close the motor circuit, substantially as and for the purpose set forth.

7. The combination, with a phonograph having its motor circuit normally open, of a device to raise and lower the reproducer, means to operate on said device to raise and lower it, said means being constructed in two parts which can be keyed or united by a coin, and an adjustable circuit making and breaking device operated by the phonograph to open and close the motor circuit, substantially as and for the purpose set forth.

8. The combination, with a phonograph, of a lifting device to raise and lower the reproducer, an adjustable circuit making and breaking device connected therewith and operated by the phonograph to open and close the motor circuit, and means to operate on said lifting device to raise and lower it, said means being constructed in two parts which can be keyed or united by a coin, substantially as and for the purpose set forth.

9. The combination, with a phonograph, of a lifting device to raise and lower the reproducer, an adjustable circuit making and breaking device connected therewith and operated by the phonograph to open and close the motor circuit, means to operate on said lifting device to raise and lower it and at the same time shift the reproducer, said means remaining normally inoperative and being constructed of two parts which can be keyed by a coin, substantially as and for the purpose set forth.

10. The combination, with a phonograph, of a device to raise and lower the reproducer, a movable coin carrier to operate on said device to raise and lower it, said carrier remaining normally inoperative and being constructed in two parts which can be united or keyed by a coin, and means to move said coin carrier, substantially as and for the purpose set forth.

11. The combination, with a phonograph having its motor circuit normally open, of a device to raise and lower the reproducer, a movable coin carrier to operate on said device to raise and lower it, said coin carrier remaining normally inoperative, and being constructed in two parts which can be united or keyed by a coin, means to move said coin carrier, and means operated by the phonograph to open and close the motor circuit, substantially as described.

12. The combination, with a phonograph, of a raising means for the reproducer, shifting means for the said reproducer, which shifting means remains normally inoperative, and means which can be connected to said shifting means by a coin, substantially as described.

13. The combination, with a phonograph, of raising means for the reproducer, shifting means for said reproducer, which shifting means remains normally inoperative, means which can be connected to said shifting means by a coin, and lowering means for the reproducer, substantially as described.

14. The combination, with a phonograph, of raising means for the reproducer, a shifting device for said reproducer, which shifting device remains normally inoperative, driving means which can be connected with said shifting device to operate it by means of a coin, and means to operate said driving means, substantially as described.

15. The combination, with a phonograph, operated by a motor, of means operated by the phonograph to open and close the motor circuit, a shifting device for the reproducer, which shifting device remains normally inoperative, driving means which can be connected to said shifting device by means of a coin, and means to move said driving means, substantially as described.

16. The combination, with a phonograph, operated by a motor, of means operated by the phonograph to open and close said motor circuit, raising means for the reproducer, a shifting device for the reproducer, which shifting device remains normally inoperative, driving means which can be connected to said shifting device by means of a coin, and means to move said driving means, substantially as described.

17. The combination, with a phonograph, of a device to raise and lower the reproducer, means to operate on said device to raise and lower it and shift said reproducer, which means consist of the cross head G, constructed as shown and described, having the post *g* and the pin *d* connected therewith, and the cross head I, constructed as shown and described, which can be keyed to the cross head G by a coin, and a rod H to move said cross heads, substantially as and for the purpose set forth.

18. In a coin controlled mechanism, the combination of the rod H, spring J, cross head I, cross head G, and guide rod F, all constructed and arranged to operate after the insertion of a coin, substantially as and for the purpose set forth.

19. In a coin controlled mechanism, the combination of a rod H, spring J, cross head I, cross head G, guide rod F, cylinder R and piston rod S, all constructed and arranged to operate after the insertion of a coin, substantially as and for the purpose set forth.

20. The combination, with a phonograph, of a device to raise and lower the reproducer, a rod H, spring J, cross head I, cross head G and guide rod F, all constructed and arranged to operate after the insertion of a coin, substantially as and for the purpose set forth.

21. The combination, with the phonograph arm, of the extension D of said arm, rocking bar K, cross head G, cross head I, guide rod F, rod H, and spring J, all constructed and arranged to operate after the insertion of a coin, substantially as and for the purpose set forth.

22. In a coin controlled mechanism, the combination of the rod H, spring J, cross head I, cross head G, guide rod F and plate W, all constructed and arranged to operate after the insertion of a coin, substantially as described

23. In a coin controlled mechanism, the combination with the cross head I and rib n thereof, of the coin chute having opening o and pivoted arm 1 and lug 2, all arranged substantially as and for the purpose set forth.

24. In a a coin controlled mechanism, the combination of two movable cross heads to be keyed by a coin, a coin chute composed of the plate T and frame V, the arm or projection W, plate *w*, and rod H, all constructed and arranged to operate substantially as and for the purpose set forth.

25. In a coin controlled mechanism, the combination with two movable members to receive the coin and to be keyed thereby, a coin receptacle, having a pivoted bottom, to receive the coin upon its release from the movable members, and a means actuated by one of the movable members to tilt the said bottom, substantially as described.

26. In a coin controlled device, the combination with a coin-controlled locking device to receive the coin, a receptacle, having a pivoted bottom, to receive the coin upon its discharge from the said device, and means for tilting the said pivoted bottom, the movement of the said means being controlled by the said device, substantially as described.

518,193. CARPET-FASTENER. JOHN A. KORB and CHARLES F. KORB, Altoona, Pa., assignors of one-fourth to Charles Long, same place. Filed June 21, 1893. Serial No. 478,381. (No model.)



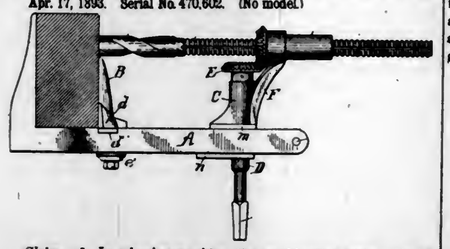
Claim.—The herein described improved carpet fastener, the same being formed of wire and consisting of a blank, the upper portion of which, near one end, is outwardly bent to form a carpet engaging hook, and below the same slightly and uniformly curved from said bend to its opposite end to form a prong for engaging a staple located under said carpet, substantially as specified.

518,194. BUSHING FOR BARRELS. ALBERT KUEHNE, St. Louis, Mo.; Emma Kuehne and Albert Kuehne executors of Albert Kuehne, deceased. Filed Feb. 10, 1893. Serial No. 461,792. (No model.)



Claim.—A lining or bushing for the orifice of beer barrels and the like formed of flexible rawhide, and having an annular body 1, an outer marginal flange 2, and interior triangular points 3, adapted to be bent at right angles to the main body, and secured to the inner surface of the barrel, by nails driven through such triangular points into the wood of the barrel, substantially as set forth.

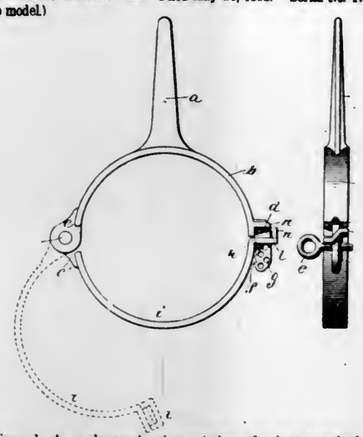
518,195. BORING-MACHINE. JOHN MINER, Detroit, Mich. Filed Apr. 17, 1893. Serial No. 470,602. (No model.)



Claim.—1. In a boring machine, the combination with a suitable base, of the longitudinally movable head mounted thereon, the drive shaft carrying a gear wheel journaled in said head, the sleeve mounted on said head and supported at an angle to said shaft and provided with internal threads, the gear wheel journaled in said sleeve and meshing with the drive gear, the threaded spindle passing through the sleeve and gear journaled therein, which latter is splined thereon said spindle carrying a bit or drill.

2. In a boring-machine, the combination of the approximately parallel bars having the integral jaws at their outer ends, the movable jaw mounted between said bars, the longitudinally movable head also mounted between said bars and supporting the internally threaded sleeve, the vertical shaft journaled in said head and having a beveled gear at its upper end, the threaded bit spindle passing through said sleeve at right angles to said shaft, the beveled gear journaled in the end of said sleeve and splined upon the bit spindle which passes therethrough, said gear meshing with the gear on said shaft.

518,196. CONDUCTOR-HOOK. EDWARD W. MOHROFF and CHARLES W. DOBELIN, Madison, Wis. Filed May 20, 1893. Serial No. 474,972. (No model.)



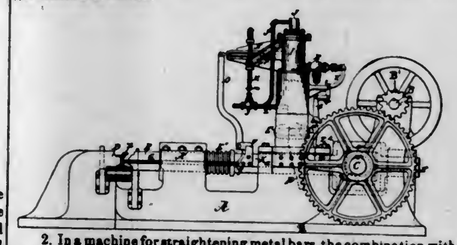
Claim.—1. A conductor hook consisting of a jaw attached outwardly to the building, a ratchet latch upon the end of the jaw a series of holes laterally through the latch a second jaw hinged to the other end of the first a mortised lug and a spur upon the second jaw receiving and catching the latch and a pin key through one of the holes and bearing against the lug; all said parts combined substantially as set forth.

2. In a conductor hook, in combination with a pair of jaws hinged together embracing the pipe a ratchet latch upon one jaw, series of holes through the latch, a catch holding and a mortised lug receiving the latch, both upon the other jaw, and a key pin through one of the holes and bearing against the lug substantially as set forth.

3. In a conductor hook in combination with two jaws hinged together at the ends and holding the pipe a latch attached to one jaw at its other end overreaching the second jaw graduated series of holes laterally through the latch a mortised lug upon the second jaw admitting the latch and a pin key in one of the holes in the rear of the lug whereby the holder is firmly pressed around the pipe and locked.

518,197. MACHINE FOR STRAIGHTENING RAILS OR OTHER METAL BARS. ARTHUR J. MOXHAM, Johnstown, Pa. Filed Feb. 25, 1892. Serial No. 422,746. (No model.)

Claim.—1. In a machine for straightening metal bars, a plunger formed in two parts, a wedge between the two parts of the plunger, a bend contact, and intermediate mechanism between said contact and the wedge, whereby the position of the wedge between the plunger sections is varied.



2. In a machine for straightening metal bars, the combination with an extensible plunger and mechanism to change the length of said plunger, of bend contact mechanism adapted to gage the extent of the bend, and connection between the bend contact mechanism and mechanism for changing the length of the plunger, whereby when the contact device strikes the bend in the bar the last mentioned mechanism is thrown into action and the extent of its operation is governed by the gage of the bend.

3. In a machine for straightening metal bars, the combination with an extensible reciprocating plunger and mechanism to change the length of said plunger, of a reciprocating bend contact device secured so as to have a longitudinal movement independent of said plunger, and connection between said bend contact device and mechanism to change the length of said plunger, whereby when the contact device strikes the bend in the bar the last mentioned mechanism is thrown into action and the extent of its operation is governed by the gage of the bend.

4. In a machine for straightening metal bars, the combination with an extensible plunger, and mechanism to change the length of said plunger, of a bend contact device adapted to be moved against and away from the bar to be straightened and gage the extent of the bend, and connection between the contact device and mechanism to change the length of the plunger, whereby when the contact device strikes a bend in the bar said mechanism is thrown into action, and its extent of operation governed by the gage of the bend.

5. In a machine for straightening metal bars, the combination with an extensible plunger and mechanism to change the length of said plunger, of a central and side contact devices, the side feelers being adapted to be brought out of alignment with the central contact when a bend in the bar is struck by said contact, and connection between the central contact device and mechanism to change the length of the plunger whereby the extent of the operation of the last mentioned mechanism is governed by the extent the central contact is out of alignment with the side contacts.

6. In a machine for straightening metal bars, the combination with an extensible plunger, and mechanism to change the length of said plunger, of a central and side contact devices adapted to be moved against and away from the bar to be straightened, the two side feelers being adapted to be brought out of alignment with the central contact when a bend in the bar is struck by said contact, and connection between the central contact device and mechanism to change the length of the plunger, whereby the extent of the operation of the last mentioned mechanism is governed by the extent, the central contact is out of alignment with the side contacts.

7. In a machine for straightening metal bars, the combination with an extensible reciprocating plunger, and mechanism to change the length of said plunger, of bend contact mechanism adapted to gage the extent of the bend, and connection between the bend contact mechanism and mechanism for changing the length of the plunger, whereby the extent of operation of the last mentioned mechanism is governed by the extent of movement of the bend contact mechanism, and mechanism adapted in the return movement of the plunger to return the plunger to its normal length.

8. In a machine for straightening metal bars, the combination with an extensible reciprocating plunger and mechanism to change the length of said plunger, of a reciprocating bend contact device secured so as to have a longitudinal movement independent of said plunger, and connection between said bend contact device and mechanism to change the length of said plunger whereby the extent of operation of the last mentioned mechanism is governed by the extent of the independent movement of the bend contact device, and mechanism anism adapted in the return movement of the plunger to return the plunger to its normal length.

9. In a machine for straightening metal bars, a central and side feelers, an extensible plunger, an automatic mechanism, governed by the central feeler, to set the plunger at a striking distance, propor-

tional to the depth of the bend to be straightened, and a main driving mechanism.

10. In a machine for straightening metal bars, as herein set forth, an extensible plunger, in combination with an automatic wedging mechanism, adjusted by contact with the bend to be straightened, whereby the plunger is first shortened in proportion to the depth of the bend and is then gradually elongated in proportion as the bend is diminished.

11. In a machine for straightening metal bars, as herein set forth, an extensible plunger, a feeler operating in advance of the plunger and an intermediate plunger wedging mechanism, which automatically reduces the length of the plunger before it advances, in proportion to the depth of the bend to be straightened.

12. In a machine for straightening metal bars, the combination with an extensible plunger and a wedge for adjusting the length of the plunger, of an automatic mechanism, adjusted by contact with the bend to be straightened, to operate the wedge.

13. In a machine for straightening metal bars, a feeler, an extensible plunger and mechanism for operating the feeler and plunger, in combination with a hydraulic mechanism connected with the wedge and feeler, whereby contact of the feeler with the bend to be straightened governs the hydraulic mechanism, causes the wedge to be adjusted and sets the plunger at a striking distance in proportion to the depth of the bend.

14. In a machine for straightening metal bars, the combination with an extensible plunger and operating mechanism, of a hydraulic wedge mechanism, acted upon by contact with the bend to be straightened, to set the plunger at a striking distance in proportion to the depth of the bend.

15. In a machine for straightening metal bars, the combination with an extensible plunger, a feeler and mechanism for operating the plunger and feeler, of a wedge and hydraulic mechanism, intermediate to the wedge and feeler, and connected therewith, whereby contact of the feeler with the bend to be straightened acts on the hydraulic mechanism, to cause the plunger to be set by the wedge at a striking distance, in proportion to the depth of the bend.

16. In a machine for straightening metal bars, the combination with an extensible plunger, of a hydraulic wedge mechanism, and a feeler, which acts, by contact with the bend to be straightened to cause the wedge mechanism to set the plunger at a gaged striking distance, said wedge having a movable connection with the hydraulic mechanism, permitting of lateral play of the wedge.

17. In a machine for straightening metal bars, the combination with an extensible plunger and feeler, and mechanism for operating the plunger and feeler, of an automatic hydraulic wedge mechanism, which, by contact of the feeler with the bend to be straightened, sets the plunger at a striking distance proportionate to the depth of the bend and becomes automatically locked by water filling the cylinder on both sides of the piston head.

18. In a machine for straightening metal bars, an extensible sectional plunger, a feeler, a wedge located between sections of the plunger, and an automatic hydraulic mechanism, connected with the feeler and the wedge, and acted upon by the contact of the feeler with the bend to be straightened, to set the plunger at a gaged striking distance and to be automatically locked, so as to hold the wedge rigidly in its adjusted position, in combination with a main driving mechanism.

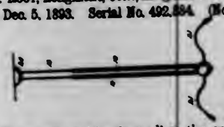
19. In a machine for straightening metal bars, the combination with a central feeler, of side feelers provided with stiff spring joints and a main driving mechanism.

20. In a machine for straightening metal bars, the combination of a central feeler or bend contact with side feelers connected together so as to have a vibratory movement.

21. In a machine for straightening metal bars, the combination with a central feeler, of side feelers, connected with their driving shafts by means of stiff springs, and a main driving mechanism, the spring joints of the side feelers serving to maintain them in a normally straight line with the central feeler.

22. In a machine for straightening metal bars, the combination with an extensible plunger, and a wedge for adjusting the length of the plunger, of an automatic mechanism, adjusted by contact with the bend to be straightened, to operate the wedge and lock it in adjusted position.

518,198. ADJUSTABLE ELECTROLIER. CHARLES M. MCCANEY and SEBRA H. ROOT, Longmont, Colo., assignors to Nevada L. Root, same place. Filed Dec. 5, 1893. Serial No. 492,594. (No model.)



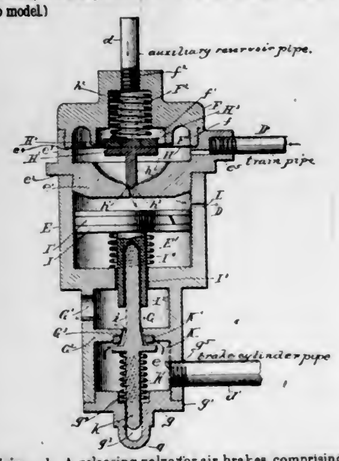
Claim.—1. In an adjustable electrolier, the combination of two depending metallic tubes made fast to a suitable support and insulated from each other, the feed wires respectively connected electrically with the tubes, movable rods provided with spring contact brushes at their upper extremities, the rods telescoping within the tubes which are engaged by the brushes, an insulating base connecting the lower extremities of the rods, and the lamp wires respectively attached to the rods, substantially as described.

2. In an adjustable electrolier, the combination of the depending stationary metallic tubes insulated from each other and connected with the feed wires, the metallic rods telescoping within the tubes and provided with adjustable spring contact brushes, the outer stationary tubes insulated from the inner tubes, the insulating base connecting the rods, and the lamp wires respectively connected with the rods, substantially as described.

3. In an adjustable electrolier, the combination of the stationary insulating block, the metallic contact plates attached to the block and insulated from each other, the feed wires leading to these plates, the depending metallic tubes respectively connected with the contact plates, the outer stationary tubes insulated from the inner tubes, the telescoping metallic rods provided with the spring contacts engaging the inner tubes, the insulating base block connecting the rods and insulating them from each other, the outer tubes attached to the base block and inclosing the rods, and the lamp wires respectively connected with the rods, substantially as described.

4. In an adjustable electrolier, the combination of the depending stationary metallic tubes insulated from each other, the feed wires connected therewith, the telescoping metallic rods the upper extremities of which are provided with right and left threads, spring contact brushes attached to these rods and engaging the tubes, spreading nuts screwed upon the rods and engaging the brushes, suitable means for connecting and insulating the lower extremities of the rods, and the lamp wires respectively connected with the rods, substantially as described.

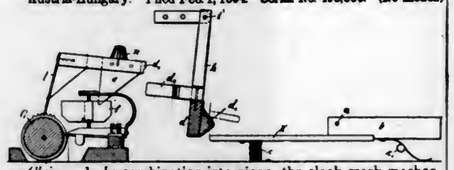
518,199. RELEASING-VALVE FOR AIR-BRAKES. JOSEPH G. SARVENT, South Englewood, Ill. Filed May 5, 1893. Serial No. 473,129. (No model.)



Claim.—1. A releasing valve for air brakes, comprising a casing, a flexible diaphragm therein and constructed so that no air can pass it, an opening in the casing from the auxiliary reservoir and above the diaphragm, a valve below and actuated by the diaphragm and kept normally closed by the pressure of air in the auxiliary reservoir, an opening in the casing from the train pipe and between the diaphragm and its valve, a valve commanding an opening from the brake cylinder to the atmosphere, and means by which the last named or brake cylinder valve may be operated by the pressure of air in the casing, whereby upon creating in the train pipe a pressure superior to that in the auxiliary reservoir the diaphragm actuated valve will be opened and the air from the train pipe allowed to operate to open the brake cylinder valve and the air in the brake cylinder allowed to escape, thus releasing the brakes, substantially as described.

2. A releasing valve for air brakes, comprising a casing, a flexible or movable diaphragm therein and constructed so that no air can pass it, a valve commanding an opening from the brake cylinder, to the atmosphere an opening in the casing from the auxiliary reservoir and on one side of the diaphragm, an opening in the casing on the other side of the diaphragm and from the train pipe and means in connection with the brake cylinder valve, and actuated by the air from the train pipe whereby, owing to a normal superior pressure on the auxiliary reservoir side of the diaphragm, the brake cylinder valve is kept normally closed, and whereby upon creating in the train pipe a pressure superior to that of the auxiliary reservoir, the diaphragm will be operated to allow the air from the train pipe to open the brake cylinder valve and thereby allow the air in the brake cylinder to escape, thus releasing the brakes, substantially as described.

518,200. PIANO FOR CHILDREN. GUSTAV SCHÖNIG, Vienna, Austria-Hungary. Filed Feb. 1, 1894. Serial No. 498,806. (No model.)

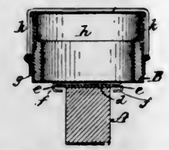


Claim.—1. In combination in a piano, the clock work mechanism comprising the wings *f*, the keys, the arresting means for the wings *f* and the connection thereto from the keys, substantially as described.

2. In combination in a piano, the clock work mechanism, comprising the wings *f*, the arresting fingers therefor, the keys and the pivoted lever between the keys and the wings carrying the arresting finger, substantially as described.

3. In combination in a piano, the clock work mechanism comprising the wings *f* and the gear *m*, the arresting finger, the pivoted lever carrying the same, the keys for operating the lever, and the yielding tongue *l* to engage the gear *m*, to retard the action of the arresting finger.

518,201. CASH AND PARCEL CARRIER. DANIEL M. SKINNER, Centre Sandwich, N. H. Filed Dec. 19, 1893. Serial No. 494,069. (No model.)



Claim.—1. In a cash and parcel-carrier-apparatus, the combination of a carrier, a rigid track for the same provided with guides for said carrier, whereby it is adapted to travel upon the surface of the track, said track terminating in a downwardly curved end portion, the impelling spring C consisting of an elastic cord, and supports for the same secured to the track, substantially as and for the purpose set forth.

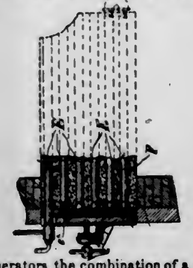
2. In a cash and parcel-carrier apparatus, the combination of a carrier, a rigid track for the same provided with guides for said carrier and terminating in a downwardly curved end-portion, a carrier-impelling spring consisting of an elastic cord and supports for the same secured to the track, and a buffer consisting of an elastic cord G having its opposite ends secured to supports secured to the track, said carrier being free to run off the lower end of the downwardly curved end-portion of the track when said buffer is removed out of the way, substantially as set forth.

3. In a cash and parcel-carrier apparatus, the combination, with the carrier, and the rigid track for the same provided with suitable guides for said carrier, and terminating in a downwardly curved end-portion, of the impelling spring C and its supporting stirrups D, E, secured to the track, said spring C consisting of a looped elastic cord passing through tubular guides at the ends of the stirrup D and having its ends secured to the stirrup E, all arranged to operate substantially in the manner and for the purpose set forth.

4. In a cash and parcel carrier-apparatus, the combination of the rigid track A provided on its edges with guide flanges *e*, the carrier B having the hooks *f* adapted to engage the flanges *e*, the impelling spring C consisting of an elastic cord adapted to engage said carrier, the spring supporting stirrups D, E, secured to the track and having tubular guides 21 and sockets 20 at their ends to receive and support the spring C, and the spring buffer G and its supporting stirrup H secured to the track, all constructed and arranged to operate substantially as and for the purpose set forth.

518,202. GAS-GENERATOR. DE WITTE STEARNS, Chicago, Ill. Filed Jan. 11, 1893. Serial No. 458,003. (No model.)

Claim.—1. In gas generators, the consisting of a retort consisting of a series of removable metallic tubes connected together alternately at one end by return bends, a block of refractory material provided with longitudinal passages for the reception of the tubes forming the retorts and surrounding such tubes, return bends adapted to join the opposite end of the tubes alternately together and to form one continuous channel, a cap for securely holding such return bends against the tubes and prevent leakage, and means for locking the cap securely in place, substantially as described.



2. In gas generators, the combination of a retort consisting of a series of removable metallic tubes joined together alternately at one end by return bends, a block of refractory material provided with longitudinal passages for the reception of the tubes forming the retort and surrounding such tubes, return bends adapted to detachably engage the other end of the tubes alternately to form one continuous channel, means for guiding the return bends into complete engagement with such tubes, a cap adapted to hold such return bends in engagement with the tubes, and means for securely locking such cap in position, substantially as described.

518,203. MINER'S FLASK. JOHN ZWEIG, Bellaire, Ohio, assignor of one-half to Harry Venison, same place. Filed Apr. 20, 1893. Serial No. 471,132. (No model.)

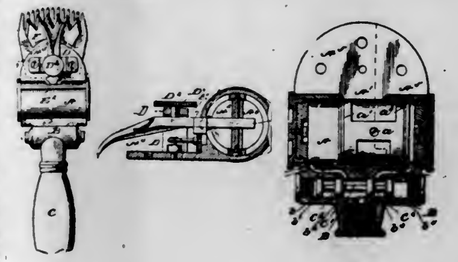


Claim.—1. The combination with a flask provided with a plurality of inner compartments, one of which is provided with a nipple, of a cap for said nipple, and a cover provided with an aperture adapted to receive said nipple, substantially as set forth.

2. In a flask, the combination with an interior partition, of a nipple thereupon, a vertical notched partition thereabove, and a cover substantially as specified.

3. In a flask, the combination of an interior partition composed of two horizontal sections in different planes, and an intermediate oblique section, of a vertical notched partition above the lower and a nipple upon the upper horizontal section, a cap for said nipple, and a cover provided with an aperture adapted to receive said nipple, substantially as specified.

518,204. ANIMAL-SHEARS. WILLIAM BELL, Murrurundi, and JOHN W. BROOMHEAD and WALTER A. JONES, Sydney, New South Wales. Filed June 25, 1887. Serial No. 242,473. (Model.) Patented in Victoria Apr. 23, 1887, No. 5,032; in South Australia Apr. 26, 1887, No. 795; in Tasmania Apr. 28, 1887, No. 460; in New Zealand May 9, 1887, No. 2,332; in New South Wales July 30, 1887, No. 2,135, and in Queensland Aug. 5, 1887, No. 262.



Claim.—1. In combination, the comb plate, the reciprocating knife over the same, the lever carrying said knife, the cylinder and piston for operating the knife lever, the hollow handle, the fluid conduit extending longitudinally through the same, and the valve chest interposed between said handle and the piston cylinder, substantially as described.

2. In combination, the comb plate, the knife, the lever carrying the same, the bridge D extending over the lever, the adjustable pivot screw extending through the bridge and engaging the knife lever, the roller E^3 upon which the lever bears, the swinging arm carrying said roller, and the means for operating the knife lever, substantially as described.

3. In combination, the comb plate, the knife resting thereon, the lever connected to said knife and consisting of the forked arms E' detachably connected with the knife plate, the bridge extending over the knife lever, the lower bearing for the lever, the adjustable pivot screw passing through the bridge to engage the knife lever and force the same down so that it will engage the knife plate securely and force the same against the comb plate, substantially as described.

518,205. DIE FOR THE MANUFACTURE OF TWIST-DRILLS.

JEROME C. TAFT, Providence, R. I. Filed Jan. 23, 1893. Serial No. 459,481. (No model.)

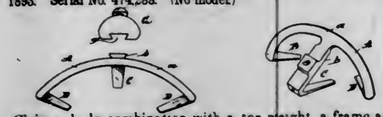


Claim.—1. The opposite twisting dies, provided upon their faces with the lobes adapted to strike, longitudinally, in the grooves of the blank, at opposite sides of the axial line of the drill, and not upon the said axial line, the lobes of one die, also striking transversely, on the opposite side of the axial line, from that acted upon by the corresponding lobes of the opposite die.

2. The combination with the twisting dies provided with the lobes adapted to strike in the groove of the blank at the opposite side of the axial line of the drill, of the side supporting dies adapted to operate upon the forward corner of the blank, substantially as described.

3. The combination with the twisting dies provided upon their faces with the lobes adapted to strike in the groove of the blank at opposite sides of the axial line of the drill, of the side supporting dies provided with the projecting portions, which serve as a guide for the blank, substantially as described.

518,206. TOE-WEIGHT. WILLIAM N. CARLISLE, Detroit, Mich., assignor of one-half to George H. Paine, same place. Filed May 15, 1893. Serial No. 474,288. (No model.)



Claim.—1. In combination with a toe weight, a frame adapted to hold the same to the hoof, having a loop adapted to extend over the toe of the hoof, and prongs adapted to extend between the hoof and the shoe and to be secured in place by bending the prongs behind the shoe, substantially as described

2. In combination with a toe-weight, a frame comprising the looped portion *a*, terminating with inturned prongs B and D, and the strut portion *b*, terminating with an inturned prong C, substantially as described.

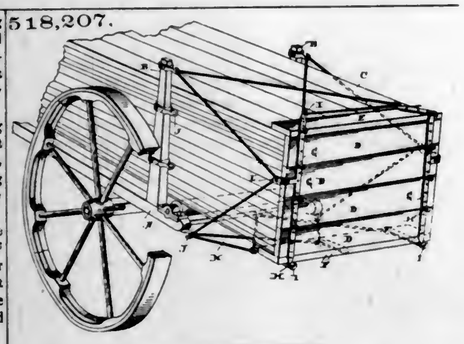
518,207. LUMBER-LOAD BINDER. ERNEST R. CASSADAY and WILLIAM WEAVER, Philadelphia, Pa. Filed Nov. 21, 1893. Serial No. 491,552. (No model.)

Claim.—1 An improved binder adapted to fit the extended end of a lumber load, consisting of a plurality of transverse boards or strips arranged in vertical succession and detachably connected, and a means for securing the binder in position, substantially as shown and described

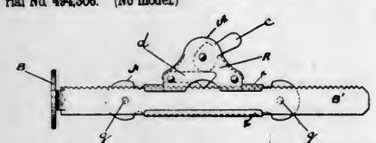
2 The combination of a lumber binder arranged in sections, straps on each section having their ends arranged with hooks and eyes respectively, and a means for securing the binder in position, substantially as shown and described

3 The combination of a lumber binder, boards projecting at right angles from opposite edges thereof, hooked straps projecting from the binder a distance equal to the thickness of the said boards, straps secured to the outer surfaces of the latter for engaging the straps on said boards, and a means for securing the binder in position, substantially as shown and described.

518,207.



518,208. ADJUSTABLE SHADE-ROLLER BRACKET. GEORGE COOK, Newark, N. J., assignor of three fourths to Adolph W. Cook, George Burgeesser, and Joseph Schnarr, same place. Filed Dec. 21, 1893. Serial No. 494,306. (No model.)

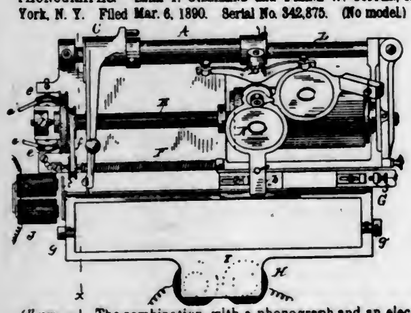


Claim.—1. A shade roller bracket comprising a base plate having longitudinal ribs thereon, the bracket proper, having a serrated strip portion adapted to slide in the said base plate a gravity pawl engaging with the said strip portion and a cam engaging with the said pawl all substantially as described and for the purpose set forth.

2. A shade roller bracket comprising the base plate A having longitudinal ribs thereon, the bracket proper B, B', having a serrated strip portion adapted to slide in the said base plate, a gravity pawl *d* engaging with the said strip portion and a cam lever *c* engaging with the said pawl, the bracket proper having its neck or bend narrower than the strip portion thereof, all substantially as described and for the purposes set forth.

3. In an adjustable shade roller bracket the combination of a sliding bracket proper having serrated edge, a gravity pawl, and a cam lever all arranged as shown and for the purpose substantially as set forth and described

518,209. ATTACHMENT FOR AUTOMATICALLY OPERATING PHONOGRAPHS. EZRA T. GILLILAND and FRANK W. TOPPAN, New York, N. Y. Filed Mar. 6, 1890. Serial No. 342,875. (No model.)



Claim.—1 The combination, with a phonograph and an electric circuit which supplies power to operate said phonograph, of an attachment or device to hold the spectacle and reproducer from contact with the phonogram when the phonograph is not talking, an electro-magnet in a circuit adapted to operate on said device or attachment to lower the spectacle and reproducer into position for talking, and a coin to close the circuit to the source of electric energy and said magnet, substantially as and for the purpose set forth

2. The combination, with a phonograph and an electric circuit which supplies power to operate said phonograph, of an attachment or device to hold the spectacle and reproducer from contact with the phonogram when the phonograph is not talking, an electro-magnet in a circuit adapted to operate on said device or attachment to lower the spectacle and reproducer into position for talking a coin to close the circuit to the source of electric energy and said magnet,

and another electro-magnet in a circuit which is also adapted to operate on said device to raise said spectacle and reproducer at any desired point in their travel according as to how much of the record registered on the phonogram it is desired shall be heard, substantially as and for the purpose set forth.

3. The combination with a phonograph and an electric circuit which supplies power to operate said phonograph, of an attachment or device to hold the spectacle and reproducer from contact with the phonogram when the phonograph is not talking, an electric circuit from a separate source of electric energy, an electro-magnet in circuit with said separate source of electric energy adapted to operate on said attachment or device to lower the spectacle and reproducer into position for talking and at the same time close the said motor circuit so that the phonograph may operate or talk, and a coin to close the circuit to said separate source of electric energy, substantially as and for the purpose set forth.

4. The combination with a phonograph and an electric circuit which supplies power to operate said phonograph, an attachment or device to hold the spectacle and reproducer from contact with the phonogram when the phonograph is not talking, an electric circuit from a separate source of electric energy, an electro-magnet in circuit with said separate source of electric energy adapted to operate on said attachment or device to lower the spectacle and reproducer into position for talking and at the same time close the said motor circuit so that the phonograph may operate or talk, and a coin to close the circuit to said separate source of electric energy, and another electro-magnet in circuit with said separate source of electric energy which is also adapted to operate on said attachment or device to raise the spectacle and reproducer at any desired point in their travel according as to how much of the record registered on the phonogram it is desired shall be heard, substantially as and for the purpose set forth.

5. The combination with a phonograph driven by a motor, of an attachment to normally hold the spectacle and reproducer from contact with the phonogram, an electro magnet to operate on said attachment to lower the spectacle and reproducer into position for talking, the electrical circuit operating said magnet being normally open and being closed by a coin, an adjustable circuit closing device which is operated by the spectacle and reproducer in lowering to close the circuit to the motor, and is operated by the spectacle and reproducer in returning to its normal condition to open the said circuit, an electro magnet operating on said attachment to raise the spectacle and reproducer, and an adjustable circuit closing device which is included in the circuit with the last named electro magnet and is actuated by the spectacle and reproducer at any desired point in their forward travel, substantially as described.

6. The combination with a phonograph of an attachment or device to normally hold the spectacle and reproducer from contact with the phonogram, an electro-magnet adapted to operate on said device or attachment to lower the reproducer into position for talking, and at the same time to close the circuit to the motor that drives the phonograph, the electric circuit operating said magnet being normally open and adapted to be closed by means of a coin, and an electro-magnet which also operates on said attachment or device to raise the spectacle and reproducer at any desired point in its travel, according as to how much of the record on the phonogram it is desired shall be heard, substantially as and for the purpose set forth.

7. The combination with a phonograph of an attachment or device to normally hold the spectacle and reproducer from contact with the phonogram, said attachment or device being adapted to be operated upon by an electro-magnet to lower the reproducer into position for talking and at the same time to close the circuit to the motor that drives the phonograph, the electric circuit operating said magnet being normally open and adapted to be closed by means of a coin and an electro-magnet which also operates on said attachment or device to raise the spectacle and reproducer at any desired point in its travel, according as to how much of the record on the phonogram it is desired shall be heard, so that it may be returned to its starting point, and an adjustable circuit-closing device adapted to be operated at any desired point of the return of the phonograph to open the motor circuit and stop the phonograph, substantially as and for the purpose set forth.

8. The combination with a phonograph of an attachment or device to normally hold the spectacle and reproducer from contact with the phonogram when the phonograph is not talking an electro-magnet adapted to operate on said attachment or device to lower the spectacle and reproducer, and at the same time to close the circuit to the motor that drives the phonograph, the electric circuit operating said magnet being normally open and adapted to be closed by means of a coin, substantially as and for the purpose set forth.

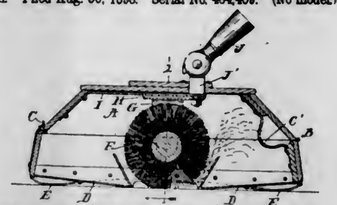
9. The combination, with a phonograph driven by an electric motor, of an electrically operated attachment for raising and lowering the spectacle and reproducer, an electro magnet operating on said attachment to release and lower it and to thereby lower the spectacle and reproducer and simultaneously close the motor circuit, the circuit of the said motor being normally open and being closed by a coin, an electro magnet operating on said attachment to raise the reproducer and spectacle, an adjustable circuit closing device which is included in circuit with the last named electro magnet, and is actuated by the spectacle and reproducer at any desired point in their forward travel, and an adjustable circuit breaking device operated at any desired point of the rearward travel of the spectacle and reproducer to open the motor circuit, substantially as described.

10. The combination with a phonograph, the reproducer thereof having a projection *b*, of the rocking-bar G, bar I, the adjustable spring *i*, electro-magnet J, battery L and contacts *k k'* in circuit with said battery L and magnet J, all constructed, arranged and adapted to operate by means of a coin, substantially as and for the purpose herein described.

11. The combination with a phonograph, the reproducer thereof having a projection *b*, of the rocking-bar G, bar I, the adjustable spring *i*, electro-magnet J, battery L, contacts *k k'* in circuit with said battery L and magnet J, the adjustable circuit-closing device consisting of the spring N, post O, and screw *o*, battery M and an electric motor for driving said phonograph in circuit with said battery M and circuit-closing device, all constructed, arranged and adapted to be thrown into operation by means of a coin, substantially as and for the purpose herein described.

12. The combination with a phonograph, the reproducer thereof having a projection *b*, of the rocking-bar G, bar I, the adjustable spring *i*, electro-magnet J, battery L, contacts *k k'* in circuit with said battery L and magnet J, the adjustable circuit-closing device consisting of the spring N, post O, and screw *o*, battery M, and an electric motor for driving said phonograph in circuit with said battery M and circuit-closing device, and an adjustable circuit closing device consisting of the spring P, post S and screw *s* in circuit with the battery L and magnet H, all constructed, arranged and adapted to operate, substantially as and for the purpose herein described.

518,210. CARPET-SWEEPER. SILAS H. RAYMOND, Grand Rapids, Mich. Filed Aug. 30, 1893. Serial No. 484,409. (No model.)



Claim.—1. In a carpet sweeper, in combination with a cylindrical brush, adapted to rotate in contact with the carpet, and a case; hangers in which said brush is journaled, a bar to which said hangers are attached, flexible strips connecting said bar and case, and a handle socket attached to said bar, substantially as described.

2. In a carpet sweeper, a case divided in a horizontal plane, and having hinges and a catch, a strip connecting said divided parts at the hinged side, fixed dust pans attached to the lower part of said case and having their inner angles adjusted to move close to the carpet, a rotary brush between said pans, hangers for said brush, flexible connections between said hangers and the upper part of said case, and a handle socket connected to said hangers, substantially as described.

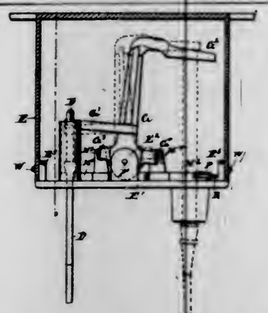
3. In a carpet sweeper, in combination with a case and a brush journaled in hangers, flexible connections between said hangers and the case, a handle socket connected to said hangers, fixed pans in said case at each side of said brush, and shoes on said case near each corner thereof, substantially as described.

4. In a carpet sweeper, a case horizontally divided and hinged, a strap connecting the two parts of said case at the hinged side, shoes near the respective corners of said case, fixed pans having their inner angles close to the carpet, a rotary brush between said pans, hangers for said brush attached to a bar in the upper part of the case, flexible strips connecting said bar to the case, and a stud attached to said bar and passing through an opening in the case, and a handle socket pivoted to said stud, substantially as described.

518,211. LOCK. CHARLES T. JOHNSON, Brooklyn, assignor to Berliner Brothers, Solomon Lindenborn, and Marcus Adler, New York, N. Y. Filed Feb. 15, 1893. Serial No. 462,394. (No model.)

Claim.—1. In a lock having a key-hole *d* and a pin-hole *e* adapted to receive a pin and key respectively, the lever G', G^3, having beveled faces G^2, G^4, and the auxiliary lever H', H^3, having beveled arms H^2, H^4, the latter lever turning on a pivot E^2 and adapted to engage by an oscillating movement with the pin and key alternately, the parts being arranged as shown so as to induce such movement by the bev-

518,211.



cled faces G^3, G^4, acting obliquely on the beveled arms H^3, H^4, all combined for joint operation, substantially as herein specified.

2. In combination with the cover plate F^1, having the two apertures *d* and *e* adapted to receive respectively the key and pin, the lever G turning on the pivot F and operated alternately by the key and pin, and the dog P and spring R arranged as shown, adapted to engage with the lever H and to be liberated by the thrusting in of the pin C, substantially as herein specified.

REISSUES.

11,411. HAIR-CLIPPER. JOSEPH K. PRENEY, Nashua, N. H. Filed Sept. 29, 1893. Serial No. 486,834. Original No. 478,461, dated July 5, 1892.



Claim.—1. In a clipper, a movable cutter, operating handles, a comb plate; and a spring connected to said handles and arranged in a space or chamber below the highest portion of the inner end of the pivotally movable handle, whereby compactness is secured and provision is made for the removal of the spring in a downward direction, after the comb plate is removed, without changing the relation of the handles to each other, substantially as described.

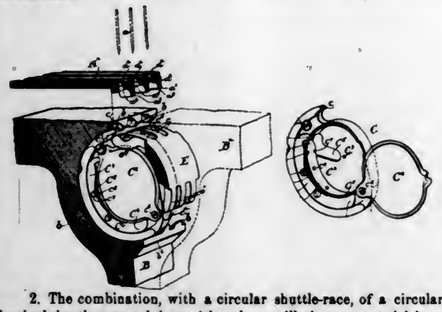
2. In a clipper, the combination of the cutter-operating handle formed with an arched or bowed portion, and with a pendent hollow cylindrical bearing; the stationary handle having a housing portion, and a hollow shouldered cylindrical bearing projecting from said housing portion and passing through the cylindrical bearing of the movable handle; the coupling and spring-tension key-bolt, the comb-plate, the cutter-plate, and a spring arranged in a space between the arched portion of the movable handle and the upper surface of the comb-plate and made removable in a downward direction when the comb plate is removed, substantially as described.

3. An organized clipper having the cutter, and handles, one of which is pivotal and the other practically stationary; and the spring arranged in the space or chamber, and connected to the handle portions, and made removable downwardly, on removal of the comb plate, without changing the relation of the handle portions to each other, substantially as described.

4. In a clipper, a reciprocating cutter and vibrating operating handle, in combination with an axial portion, a stationary handle, comb plate and a power spring connected to said handles; said operating, vibrating handle, and the other parts named, being constructed to allow of the spring being arranged about said axial portion, and below the forward portion of the movable handle; whereby compactness is secured and the spring can be removed downwardly when the comb plate is removed, substantially as described.

11,412. SEWING-MACHINE. MARSHALL GARDNER, Aurora, Ill., assignor, by mesne assignments, to the Gardner Sewing Machine Company, same place. Filed Mar. 2, 1893. Serial No. 464,458. Original No. 447,306, dated Mar. 3, 1891.

Claim.—1. The combination, with a series of parallel circular shuttle-races, of a series of circular hooked shuttles engaged therewith and a segmental oscillating driver engaged with said shuttles, said shuttles being each provided with a central recess concentric with the axis of rotation of the shuttle for containing a flat cop, an exit thread-guide passing through the side wall of the shuttle at the center of said recess, and a flat cover for closing said recess, substantially as described.



2. The combination, with a circular shuttle-race, of a circular hooked shuttle engaged therewith and an oscillating segmental driver, said shuttle being provided with a central recess concentric with the axis of rotation of the shuttle, an exit thread-guide passing through the side wall of the shuttle at the center of said recess, a flat cover closing said recess, a tension spring located in a cavity outside of the central recess and provided with guide-notches for holding the thread in engagement with said spring, substantially as described.

3. The combination, with a series of needles and a series of parallel circular shuttle-races, of a series of circular hooked shuttles engaged with said shuttle-races and a throat-plate extending over the shuttles and having in its under surface grooves forming parts of the shuttle-races, said throat-plate being provided with needle-apertures at the sides of the shuttle-races, and provided also with a series of narrow guide slots or recesses for the thread-loops, extending upwardly from the shuttle-races and laterally from the needle-apertures at one side thereof in a direction transverse to the paths of the points of the shuttles, substantially as described.

4. The combination, with needles and work-plate of a gang sewing-machine, of a series of circular shuttles and a circular shuttle race provided with a plurality of guide-grooves for the shuttles, said shuttle race consisting of two separate parts or castings arranged at opposite sides of the needles and one of which parts is pivoted at a point below the shuttles so that its upper end may swing downwardly and outwardly, said work-plate being provided with an opening located over the pivoted part of the shuttle race, and wider than the diameter of the shuttles, and the stationary part of the race being extended beneath the shuttles past the center of the latter to support the shuttles when the race is open, substantially as described.

DESIGNS.

23,170. HANDLE FOR SPOONS, &c. GEORGE A. MUELLER, Concord, N. H., assignor to William B. Durgin, same place. Filed Jan. 11, 1894. Serial No. 496,545. Term of patent 7 years.



Claim.—1. The design for handles for spoons and similar articles substantially as shown and described.

2. In the design for handles for spoons and similar articles, the obverse substantially as shown and described.

3. In the design for handles for spoons and similar articles, the reverse substantially as shown and described.

23,171. HANDLE FOR SPOONS, &c. JOHN CLULEE, Wallingford, Conn., assignor to Simpson Hall Miller & Company, same place. Filed Mar. 12, 1894. Serial No. 503,367. Term of patent 3½ years.



Claim.—The design for the handles of spoons, forks, &c., as herein shown and described.

23,172. HANDLE FOR SPOONS, &c. GEORGE ROCKWELL, Meriden, assignor to Rogers & Brother, Waterbury, Conn. Filed Mar. 12, 1894. Serial No. 503,369. Term of patent 7 years.



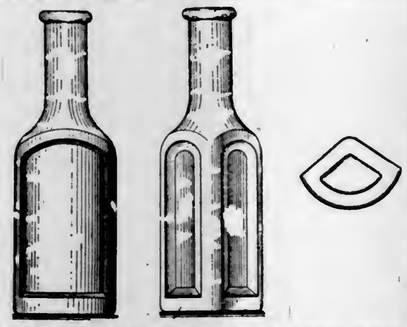
Claim.—The design for the handles of spoons, forks, &c., as described and shown in the accompanying illustration.

23,173. FORK-SCRAPER. WILLIAM JACOBS OSTERMAN, Richmond, Va. Filed Feb. 6, 1894. Serial No. 499,302. Term of patent 3½ years.



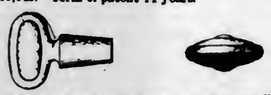
Claim.—The design for a fork scraper herein shown and described.

23,174. BOTTLE. GEORGE LLOYD, Brooklyn, assignor to Maxmillian Calm, New York, N. Y. Filed Feb. 21, 1894. Serial No. 501,051. Term of patent 14 years.



Claim.—The design for a bottle consisting of the design, substantially as shown and described.

23,175. BOTTLE-STOPPER. CHARLES A. TATUM, New York, N. Y., assignor to Whitall, Tatum & Co., same place. Filed Mar. 14, 1894. Serial No. 503,645. Term of patent 14 years.



Claim.—The design for a bottle stopper substantially as shown and described.

23,176. BOTTLE-STOPPER. CHARLES A. TATUM, New York, N. Y., assignor to Whitall, Tatum & Co., same place. Filed Mar. 14, 1894. Serial No. 503,646. Term of patent 14 years.



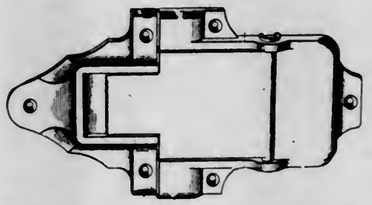
Claim.—The design for a bottle stopper, substantially as shown and described.

23,177. LAMP-SHADE. AUGUST J. FONDEVILLE, West Hoboken, N. J. Filed Mar. 7, 1894. Serial No. 502,779. Term of patent 3½ years.



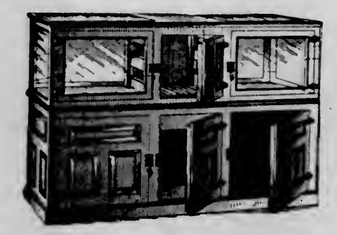
Claim.—The design for a lamp shade, substantially as shown and described.

23,178. TRUNK-FASTENER. JAMES H. MCNAMARA, Chicago, Ill. Filed Feb. 19, 1894. Serial No. 500,792. Term of patent 14 years.



Claim.—The design for a trunk fastening as shown and described.

23,179. COOLER OR REFRIGERATOR. JULIUS A. FLESCH, Chicago, Ill. Filed Feb. 8, 1894. Serial No. 499,542. Term of patent 7 years.



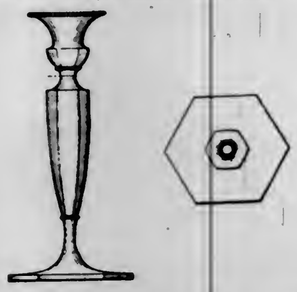
Claim.—The design for coolers or refrigerators, substantially as herein shown and described.

23,180. SLAB FOR TABLE-TOPS. FRANZ YOKEL, Meriden, Conn., assignor to the Meriden Bronze Company, same place. Filed Mar. 5, 1894. Serial No. 502,447. Term of patent 3½ years.



Claim.—The design for slab for table-tops as herein shown and described.

23,181. CANDELABRUM-PEDESTAL. CHARLES C. WIENTER, Providence, R. I., assignor to the Howard Sterling Company, same place. Filed Mar. 8, 1894. Serial No. 502,909. Term of patent 7 years.



Claim.—The design for a candelabrum pedestal as herein shown and described.

23,182. PRONGED STANDARD. FREDERICK RATCLIFF, New Bedford, Mass., assignor to the Fairpoint Manufacturing Company, same place. Filed Oct. 5, 1893. Serial No. 487,292. Term of patent 7 years.



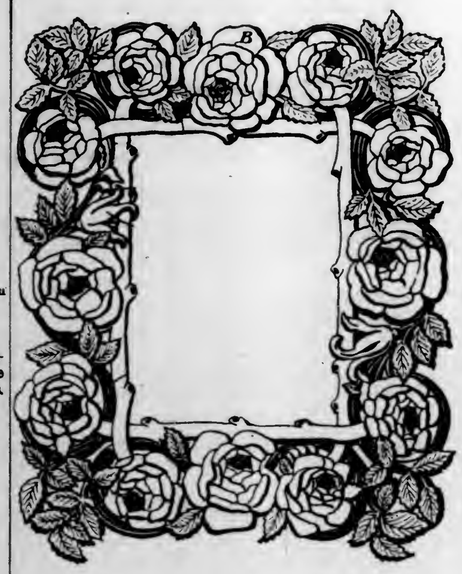
Claim.—The design for a pronged standard for toilet articles herein shown and described.

23,183. PICTURE-FRAME. ROBERT GOLDE, Brooklyn, N. Y., assignor to the Royal Metal Manufacturing Company, of New York. Filed Feb. 13, 1894. Serial No. 499,996. Term of patent 3½ years.



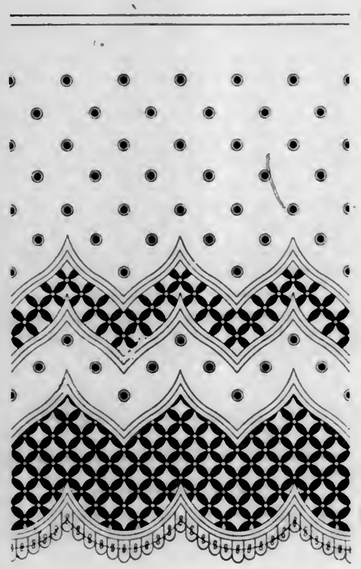
Claim.—The design for a picture frame substantially as shown and described.

23,184. PICTURE-FRAME. ROBERT GOLDE, Brooklyn, N. Y., assignor to the Royal Metal Manufacturing Company, of New York. Filed Feb. 13, 1894. Serial No. 499,997. Term of patent 3½ years.



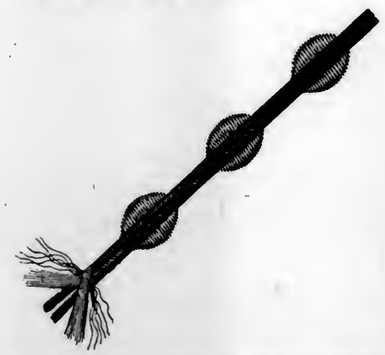
Claim.—The design for a picture frame substantially as shown and described.

23,185. LACE FABRIC. ARTHUR WATNEY, Calais, France. Filed Mar. 12, 1894. Serial No. 503,366. Term of patent 3½ years.



Claim.—The design for a lace fabric substantially as shown and described.

23,186. BRAID. VALENTINE G. SCHUCK, New York, N. Y., assignor to the Sutro Bros. Braid Company, same place. Filed Mar. 5, 1894. Serial No. 502,434. Term of patent 14 years.



Claim.—A design for a braid as herein shown and described.

23,187. KNIT SHIRT. JOHN H. GILES, Amsterdam, N. Y. Filed Feb. 7, 1894. Serial No. 499,411. Term of patent 3½ years.



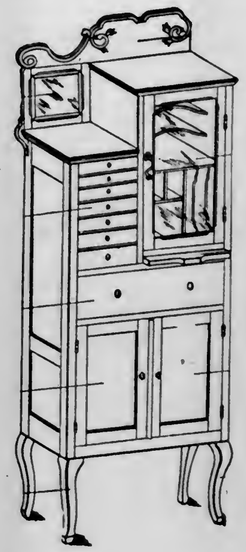
Claim.—The design for a shirt substantially as herein shown and described

23,188. DIAL. GEORGE E. STONEBURNER, Des Moines, Iowa. Filed Feb. 9, 1894. Serial No. 499,687. Term of patent 3½ years.



Claim.—The design for a dial, substantially as shown and described.

23,189. DENTAL CABINET. WILLIAM G. HULLHORST, Toledo, Ohio, assignor to the Ransom & Randolph Company, same place. Filed Mar 10, 1894. Serial No. 503,201. Term of patent 7 years.



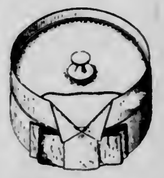
Claim.—The design for a dental cabinet substantially as shown and described.

23,190. CASE FOR COIN-CONTROLLED MACHINES. GUSTAV SITTMANN and WALTER H. PITT, Brooklyn, N. Y. Filed Mar. 8, 1894. Serial No. 502,910. Term of patent 7 years.



Claim.—The design for a case for coin operated machines set forth and described

23,191. BOX. ALBERT JAMES ROSCOE, New Bedford, Mass., assignor to the Fairpoint Manufacturing Company, same place. Filed Feb. 15, 1894. Serial No. 500,310. Term of patent 3½ years.



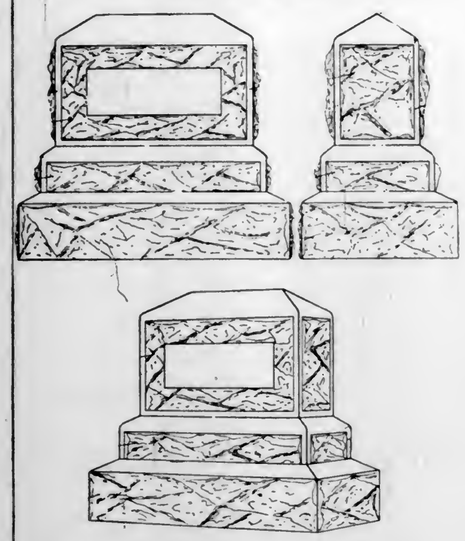
Claim.—The design for a box herein shown and described.

28,192. SHOE-STAND. MAURICE LANDAU and ARMEN TRAXLER, St. Louis, Mo. Filed Mar. 12, 1894. Serial No. 503,363. Term of patent 14 years.



Claim.—The design for a shoe-stand herein shown and described.

28,193. MONUMENT. JOHN H. LLOYD, Toledo, Ohio. Filed Feb. 3, 1894. Serial No. 499,034. Term of patent 7 years.



Claim.—The design for a monument herein shown and described.

TRADE-MARKS

REGISTERED APRIL 10, 1894.

24,481. WATCHES AND WATCHCASES. THEOPHILUS ZURBRUGG, Riverside, N. J. Filed Feb. 6, 1894.

PERFECTION

Essential feature.—The word "PERFECTION." Used since February 1, 1894.

24,482. WATCHES AND WATCHCASES. THEOPHILUS ZURBRUGG, Riverside, N. J. Filed Feb. 6, 1894.

PREMIER

Essential feature.—The word "PREMIER." Used since April 1, 1890.

24,483. WATCHES AND WATCHCASES. THEOPHILUS ZURBRUGG, Riverside, N. J. Filed Feb. 6, 1894.

PRIVATEER

Essential feature.—The word "PRIVATEER." Used since January 14, 1892.

24,484. WATCHES AND WATCHCASES. THEOPHILUS ZURBRUGG, Riverside, N. J. Filed Feb. 6, 1894.

PROTECTOR

Essential feature.—The word "PROTECTOR." Used since February 1, 1894.

24,485. WATCHES AND WATCHCASES. THEOPHILUS ZURBRUGG, Riverside, N. J. Filed Feb. 6, 1894.

PALATINE

Essential feature.—The word "PALATINE." Used since February 1, 1894.

24,486. BICYCLE-LANTERNS. THE BRIDGEPORT BRASS COMPANY, Bridgeport, Conn. Filed Mar. 14, 1894.

SEARCH-LIGHT

Essential feature.—The words "SEARCH-LIGHT." Used since January 1, 1894.

24,487. LADIES' HATS AND BONNETS AND TRIMMINGS THEREON. MARIE FURRER, New York, N. Y. Filed Mar. 30, 1893.

MAISON STAUFFER

Essential feature.—The words "MAISON STAUFFER" and the representation of a ship surrounded by a wreath of leaves. Used since February 15, 1892.

24,488. GARTERS, HOSE-SUPPORTERS, AND SLEEVE-HOLDERS. SILVERMANN & Co., Williamsport, Pa. Filed Feb. 10, 1894.

Harris

Essential feature.—The word "HARRIS." Used since June, 1893.

24,489. CORSETS. WORCESTER CORSET COMPANY, Worcester, Mass. Filed Mar. 15, 1894.

KID FITTING

Essential feature.—The words "KID FITTING." Used since September, 1869

24,490. CORSET STEELS AND CLASPS. WORCESTER CORSET COMPANY, Worcester, Mass. Filed Mar. 15, 1894.

"WILDFIRE"

Essential feature.—The word "WILDFIRE." Used since April 15, 1875.

24,491. ORANGE SHELLAC GUM. BERRY BROS., LIMITED, Detroit, Mich. Filed Feb. 7, 1894.

S.
D. C.

Essential feature.—The letters "S. D. C." Used since February 1, 1891

24,492. ISINGLASS OF A GELATINOUS NATURE. HOWE & FRENCH, Boston, Mass. Filed Dec. 8, 1893.



Essential feature.—The words "SOUTH SHORE" and the representation of an anchor. Used since January 1, 1874.

24,493. ISINGLASS OF A GELATINOUS NATURE. HOWE & FRENCH, Boston, Mass. Filed Dec. 8, 1893.



Essential feature.—The words "RIPLEY AMERICAN" in conjunction with the word "ISINGLASS." Used since January 1, 1873.

24,494. SOAP IN CAKES OR BARS. THE CHRISTOPHER LIPPS COMPANY, Baltimore, Md. Filed Feb. 15, 1894.



Essential feature.—The representation of a hair pin having its two diverging arms or members connected by a circular ornamented head portion. Used since October 1, 1893.

24,495. SOAP. THE TORREY & BENTLEY COMPANY, Boston, Mass. Filed Nov. 23, 1893.



Essential feature.—The word "LIBERTY" and the representation of the statue of Liberty. Used since March 11, 1887.

24,496. MEDICINE FOR DISEASES OF THE BOWELS AND STOMACH. HORACE WOODCOCK, Brookfield, Wis. Filed June 15, 1893.



Essential feature.—The words "WONDER REGULATOR." Used since May 10, 1893.

24,497. CERTAIN NAMED MEDICAL COMPOUNDS. HERBERT LOVETTE PARTRIDGE, La Crosse, Wis. Filed Apr. 24, 1893.



Essential feature.—The word "SAFETY" and the representation of a safety bicycle. Used since November 1, 1892.

24,498. MEDICINAL COMPOUND FOR THE PREVENTION AND CURE OF DIPHTHERIA. ARON W. DE JEAN, Minneapolis, Minn. Filed Jan. 26, 1894.

BA-LOBEIL

Essential feature.—The word "BA-LOBEIL." Used since January 1, 1884.

24,499. MEDICATED DISTILLED WATER. KALISH PHARMACY, New York, N. Y. Filed Mar. 14, 1894.



Essential feature.—The words "RESTORATIVE WATER" and the representation of a column set in the earth with water gushing therefrom. Used since March 1, 1894.

24,500. WHISKY. CHARLES D. BICKLEY, Boston, Mass. Filed Nov. 16, 1893.

Essential feature.—The letters "B V." Used since October 1, 1893.

24,501. FRANCONIAN WINES. THE FIRM OF J. W. MEURCHEL SEEB., Buchbrunn, near Würzburg-on-the-Main, Germany. Filed June 3, 1893.



Essential feature.—The representation of a wine flask having a flat circular body, an elongated neck, a round open handle and flattened bottom and having upon an oval field upon the flat surface of the body, the representation of a bunch of grapes with leaves and runners. Used since February 1, 1893.

24,502. LAGER-BEER. THE CHRISTIAN MOERLEIN BREWING COMPANY, Cincinnati, Ohio. Filed Mar. 8, 1894.



Essential feature.—The letter "M" encircled by a crown. Used since June 15, 1887.

24,503. ESSENCE FOR USE WITH COFFEE. GEORGE FLOTO'S SONS, Brooklyn, N. Y. Filed Feb. 8, 1894.



Essential feature.—A circular disk bearing the portrait of a man, and associated with the word "FLOTO'S" and the representation of two stars. Used since April 23, 1893.

24,504. COFFEE AND TEA. SHAPLEIGH COFFEE COMPANY, Boston, Mass. Filed Mar. 16, 1894.

VICTOR.

Essential feature.—The word "VICTOR." Used since January 1, 1894.

24,505. TEA. JAMES BUTLER, New York, N. Y. Filed Mar. 13, 1894.

UNXLD.

Essential feature.—The word symbol "UNXLD." Used since March 1, 1894.

24,506. NATURAL MINERAL WATER. J. F. FORBES & CO., San Francisco, Cal., and Chicago, Ill. Filed Feb. 12, 1894.

CASTALIAN

Essential feature.—The word "CASTALIAN." Used since December 1, 1883.

24,507. CANDIES AND SWEETMEATS. CALLARD & BOWSER, London, England. Filed Feb. 20, 1894.



Essential feature.—The representation of a British thistle within a circle. Used since January, 1860.

24,508. TOMATO CATSUP. ANDERSON PRESERVING COMPANY, Camden, N. J. Filed Mar. 8, 1894.

WHITE LABEL.

Essential feature.—The words "WHITE LABEL." Used since February 1, 1893.

24,509. LOAVES OF BREAD. PROMPT & SCHOMAKER, Brooklyn, N. Y. Filed Jan. 26, 1894.



Essential feature.—The representation of an egg bearing on its face the letter "C." Used since December 23, 1893.

24,510. SAUSAGE. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Mar. 5, 1894.



Essential feature.—A string or rope, the body of which is of the natural color of the rope, with a strand of black twisted in, with, through or around it. Used since December 1, 1893.

24,511. EVAPORATED CARROTS, PARSNIPS, RUTABAGAS, TURNIPS, AND FOOD PRODUCTS MADE THEREFROM. ELSIE STRAUS, St. Louis, Mo. Filed Mar. 12, 1894.



Essential feature.—The word "FALCON" associated with the representations of a falcon, a turnip, a carrot, a parsnip and a rutabaga. Used since December 1, 1893.

24,512. LARD. SWIFT & COMPANY, Chicago, Ill. Filed Mar. 6, 1894.

SILVER LEAF

Essential feature.—The words "SILVER LEAF" and the representation of two leaves. Used since 1890.

24,513. LARD. SWIFT & COMPANY, Chicago, Ill. Filed Mar. 6, 1894.

CRESCENT

Essential feature.—The word "CRESCENT" and the representation of a crescent. Used since 1890.

24,514. WOOL FAT. FELIX SALOMON & Co., New York, N. Y. Filed Mar. 3, 1894.

ADEPS LANAE



N.W.K.

Essential feature.—The representation of a ram and the words "ADEPS LANAE" and the letters "N. W. K." Used since February 1, 1894.

24,515. CIGARS. BYRON R. CADY, Springfield, Mass. Filed May 31, 1893.

Cady's 85

Essential feature.—The word and figures "CADY'S 85." Used since January 1, 1885.

24,516. PLUG-TOBACCO AND SNUFF. SAMUEL WEILER, Philadelphia, Pa. Filed Nov. 10, 1893.

PROGRESSIVE

Essential feature.—The word "PROGRESSIVE." Used since November 1, 1890.

24,517. PREPARATION FOR CLEANING AND POLISHING LEATHER. EDWARD HENRY BROWN, London, England, and Paris, France. Filed Feb. 23, 1894.

ROYAL
LUTETIAN CREAM.

Essential feature.—The words "ROYAL LUTETIAN CREAM." Used since 1889.

24,518. PREPARATION FOR BEAUTIFYING AND PRESERVING LEATHER. EDWARD HENRY BROWN, London, England, and Paris, France. Filed Feb. 23, 1894.

24,518.

MELTONIAN CREAM.

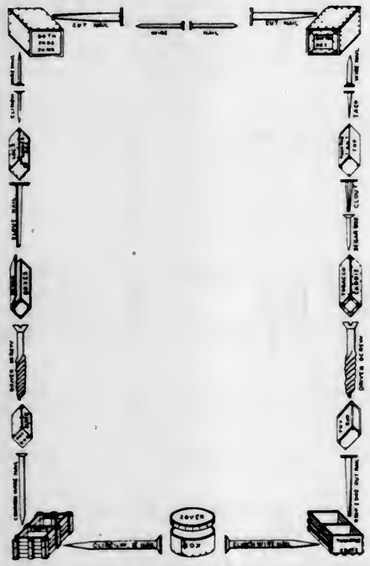
Essential feature.—The words "MELTONIAN CREAM." Used since 1883.

24,519. BITUMINOUS COAL. THE NEW PITTSBURGH COAL COMPANY, Columbus, Ohio, and Chicago, Ill. Filed Mar. 3, 1894.

POWELL'S
RUN COAL

Essential feature.—The words "POWELL'S RUN COAL." Used since May 1, 1889.

24,520. BOX-NAILING MACHINES. WILLIAM S. DOIG, Brooklyn, N. Y. Filed Mar. 3, 1894.



Essential feature.—The representation of a series of alternating boxes in perspective and a variety of fastening devices consisting of nails, tacks and screws arranged in a rectangular figure. Used since January 1, 1894.

24,521. CANVAS, HOSE-DUCK, AWNING-STRIPES, SAIL-DUCK, SAIL-TWINE, SEINE-TWINE, SEWING-TWINE, AND THREAD. GREENWOODS COMPANY, New Hartford, Conn. Filed Jan. 8, 1894.

VIGILANT

Essential feature.—The word "VIGILANT." Used since December, 1892.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

MORGAN ENVELOPE COMPANY *v.* ALBANY PERFORATED WRAPPING PAPER COMPANY.

Decided March 19, 1894.

1. HICKS—TOILET PAPER—VOID.
   Letters Patent No. 325,410, granted to Oliver H. Hicks September 1, 1885, for a package of toilet paper, known as the "Oval Roll" or "Oval King" package, examined in view of the state of the art and *Held* to be void for want of invention.
2. SAME—BENEFIT OF CANCELED CLAIM—ESTOPPEL.
   Where the applicant has acquiesced in the rejection of a claim, he is estopped thereby, when a patentee, to claim the benefit of his canceled claim or such a construction of his patented claim as would be equivalent thereto. This rule is applicable both when the canceled claim is broader and narrower than the patented claim.
3. SAME—TOILET-PAPER FIXTURE AND APPARATUS FOR HOLDING TOILET PAPER—NO INFRINGEMENT.
   Letters Patent No 325,174, dated August 25, 1885, for a toilet-paper fixture, and No. 357,993, dated February 15, 1887, for an apparatus for holding toilet paper, granted to Oliver H. Hicks, which are for a combination of the paper-roll in Patent No. 325,410 and certain fixtures for its support, *Held* not to be infringed by the making, selling, and using of the paper-roll, the latter patent being void.
4. SAME—COMBINATION OF APPARATUS AND ARTICLE IT IS DESIGNED TO DELIVER.
   Quære. Whether, when a machine is designed to manufacture, distribute, or serve out to users a certain article, the article so dealt with can be said to be a part of the combination of which the machine itself is another part?
5. SAME.
   Where the defendant purchased of the patentee an apparatus for toilet paper with which the latter was accustomed to send a roll of paper used in the same, *Held* that the sale of the apparatus carried with it the right to use and sell the apparatus upon a replenishment of the paper.
6. SAME—COMBINATION—APPARATUS AND ARTICLE DELIVERED—SALE OF THE ARTICLE—WHEN IT IS NOT AN INFRINGEMENT.
   Where the article produced is perishable in its nature, which it is the object of the apparatus to deliver, and which must be renewed periodically, whenever the apparatus is used, and where the article so produced is not patented, *Held* that there is no infringement of the combination by the making and sale of the article.

APPEAL from the Circuit Court of the United States for the Northern District of New York.

STATEMENT OF THE CASE.

This was a bill in equity to recover damages for the infringement of three Letters Patent issued to Oliver H. Hicks of Chicago, and assigned to the appellant, viz: (1) Patent No. 325,410, issued September 1, 1885, for a "package of toilet-paper," known as the "Oval Roll" or "Oval King" package. (2) Patent No. 325,174, issued August 25, 1885, for a "toilet-paper fixture." (3) Patent No. 357,993, issued February 15, 1887, for an "apparatus for holding toilet-paper." These are known as the "Oval King" fixtures.

The answer made the usual denials of novelty and infringement.

Upon a hearing upon pleadings and proofs, the court dismissed the bill, except as to the fifth claim of Patent No. 357,993, upon which a decree was ordered for plaintiff without costs. From this decree plaintiff appealed to this Court.

Mr. Melville Church, *Mr. J. B. Church*, and *Mr. C. E. Mitchell* for the appellants.

Mr. Esek Cowan for the appellees.

Mr. Justice BROWN delivered the opinion of the Court.

Prior to the inventions covered by the patents in this case, toilet-paper had been put up in packages of sheets cut to a convenient size, sometimes attached together by a wire, or in cylindrical rolls of continuous length, either perforated transversely at proper intervals for the convenient detachment of the sheets, or in similar rolls not perforated, but designed to be cut by a device having a sharp edge to which the rolls were attached. All these methods proved to be objectionable on account of the temptation offered to greed or wastefulness, in the facility with which unnecessary amounts of paper could be detached, which were either carried off or allowed to fall on the floor. Where perforated paper was employed in roll form, the litter was increased by the dropping of small particles of paper intended to have been removed by the perforating-machine, but which remained attached until the paper was unwound, when they fell upon the floor and became very difficult to remove.

(1) In the specification of his Patent No. 325,410, which is for a package of toilet-paper, the patentee states that he had in view to furnish a toilet-paper in the form which would prevent in a large measure this vast amount of wastage.

In carrying out this object I have put up one or more lengths of paper in the form of a continuous band (as contradistinguished from a roll) of oblong or oval shape, the short rounded ends of the bundle thus produced serving as guides for determining the proper points at which the paper is to be separated in order to produce sheets of a size desirable for use, and affording also the most advantageous surfaces upon which to tear the paper. The band I make of a thickness calculated to produce sheets severed at the points stated of practical and economical lengths from the time the bundle is opened until it is consumed.

The band he makes of an oblong or oval shape so that it may be mounted in a fixture shown in a previous patent for that purpose, or used detached from the fixture, one hand of the user being slipped into the interior, and the other hand being employed to

grasp the pendent end of the paper, and by drawing the paper tightly over one of the short rounded ends of the bundle causing it to separate at that point and produce a sheet of convenient length. His claim was for—

a bundle of paper consisting of one or more lengths formed into a continuous band whose internal diameter is greater than the thickness of paper, substantially as described.

The invention in question, as described in the specification and illustrated in the drawings annexed to the patent, is for a band of paper rolled in an oval instead of the usual cylindrical shape, with a view of affording a convenient method of tearing off sheets of a proper size, the fracture in each case being at the end of the roll. It is difficult to see, however, how any waste is thereby prevented, since it is nearly, if not quite as easy, to unwind long strips of this paper from an oblong as from a cylindrical roll. So, too, if the patent were construed as for an oblong roll, the fact that from time immemorial, cotton and woolen goods and silks have been almost universally wound about a flat board or core, precisely as described in the patent, would indicate that there is no novelty in the oblong or oval shape, and that the patent, if supported at all, must be for the different purpose for which toilet-paper is wound in this form.

Upon examining the claim, however, in connection with the original application, it appears that, if the patent involved any invention at all, it is not limited to bands of oval or oblong shape, since the claim contained in the original application was for—

a bundle of toilet-paper consisting of one or more lengths of paper formed into a flexible continuous band of oblong or oval shape, the short rounded ends of such band serving as guides for determining the proper points at which the paper is to be separated in order to produce sheets of a size desirable for use, and affording, also, the most advantageous surfaces upon which to tear the paper, substantially as described.

This claim, which corresponds with the specification and drawings, and was Hicks's real invention, was rejected as indefinite, because it failed to point out any construction over an ordinary paper-roll, and was also rejected upon a prior patent to one Peacock. The patentee thereupon amended his application by changing his claim to—

a bundle of paper consisting of one or more lengths formed into a continuous band whose internal diameter [by which we understand the internal diameter, when rolled into a cylindrical form] is greater than the thickness of the paper, substantially as described.

If this claim be good, it would seem to follow that any band of paper wound in such manner that the internal diameter is greater than the thickness of the paper, would be an infringement, whatever be its shape, or for whatever purpose used. The size of the roll, too, is not made material, except that it must bear a certain relation to its inner diameter. Certainly it would apply to all toilet-paper, even if wound in a cylindrical form, as the language of the claim, though not of the specification, indicates that it should be. It would also follow that, even if the roll of paper, when purchased, had an internal diameter less than the thickness of the paper, such internal diameter would become relatively greater with the progressive using of the paper, until its thickness was so far reduced as to become less than the internal diameter, when it would fall within the description of the claim. Indeed, it is difficult to see what function is performed by a band of paper so constructed, or what difference it makes whether the internal diameter is greater or less than the thickness of the paper, unless the paper be made in an oval form.

It is insisted in this connection, however, that under the words "substantially as described" the patentee is entitled to claim a band of oval or oblong shape, and that, looking at his specification and drawings in connection with the claim, it is obvious that the latter should be so limited. But the patentee having once presented his claim in that form, and the Patent Office having rejected it, and he having acquiesced in such rejection, he is, under the repeated decisions of this Court, now estopped to claim the benefit of his rejected claim or such a construction of his present claim as would be equivalent thereto. (*Leggett* v. *Avery*, 17 O. G., 445; 101 U. S., 256; *Shepard* v. *Carrigan*, 34 O. G., 1157; 116 U. S., 593; *Crawford* v. *Heysinger*, 42 O. G., 197; 123 U. S., 589, 606; *Cartridge Co.* v. *Cartridge Co.*, 30 O. G., 771; 112 U. S., 624.)

It is true that these were cases where the original claim was broader than the one allowed, but the principle is the same if the rejected claim be narrower. Why the claim of the present patent was allowed after the rejection of the narrower claim does not appear. The objections made to the claim as originally presented seem to be equally applicable to this.

But construing this claim as for an oval or oblong roll, it is clearly anticipated by the patent granted March 6, 1883, to one Peacock, for a toilet-paper case, used for carrying toilet-paper, which was wound in an oval form about a spool or core, precisely as described in plaintiff's patent. Apparently it differs from the Hicks' roll only in being smaller and having its core hinged to a stiff case, in which the paper for convenience was carried.

There was also put in evidence by the defendant a device known as the Wheeler pocket-companion, which was a small package of toilet-paper of an oval form, differing from those covered by the Hicks' patent only in size, and in the fact that no attention was paid to the relation of the inner to the outer convolutions, and no intent shown that when one convolution was torn off the end of the next one would drop down into position to be grasped. While neither of these devices is a precise anticipation of the Hicks' patent in the manner in which they are used, it is impossible to say that a mere enlargement of these devices to the size contemplated by Hicks would constitute invention, although by such enlargement the roll became capable of being used in a somewhat different manner.

(2) Patents No. 325,174 and No. 357,993 are practically the same, and are for a combination of the paper-roll described in the former patent, with a mechanism for the delivery of the paper to the user in an economical manner. The object of both inventions is said to be—

to so arrange the paper as to prevent more than a given quantity of it from being withdrawn from the roll at a single operation, and so that in the act of withdrawing such given quantity it shall be automatically severed from the roll, leaving pendent from the roll a free end, which shall serve as a means for withdrawing a like quantity by the next user.

This is accomplished by the combination of an oscillating roll of toilet-paper actuated in one direction

by a pull upon its free end, of a knife or cutter co-operating with the roll to sever the unwound portion when the roll has reached the limit of its motion in one direction, and a stop for so limiting the motion of the roll. The principal difference between the two patents is that No. 325,174 is limited to an appliance in which a knife or cutter for arresting the roll of paper, when oscillated, is employed; while the later one, No. 357,993, is broad enough in its scope to include a structure in which a mere stop, which has no cutting action at all, is employed to arrest the roll.

Each patent contains five claims, and in all of them, except the fourth and fifth of the first patent and the fifth of the second, the paper-roll is included as an element of the combination.

No question is made but that the mechanism of these patents, by which the paper is served out to the user, involves a patentable novelty; but it is claimed, first, that the roll of paper being perishable, and the machine being constructed for the purpose of delivering this paper to users in convenient lengths, such a roll is not a proper part of the combination; second, that conceding it to be a part of the combination, there was no infringement.

The first defense raises the question whether, when a machine is designed to manufacture, distribute, or serve out to users a certain article, the article so dealt with can be said to be a part of the combination of which the machine itself is another part. If this be so, then it would seem to follow that the log which is sawed in the mill; the wheat which is ground by the rollers; the pin which is produced by the patented machine; the paper which is folded and delivered by the printing-press, may be claimed as an element of a combination of which the mechanism doing the work is another element. The motion of the hand necessary to turn the roll and withdraw the paper is analogous to the motive power which operates the machinery in the other instances.

But without expressing an opinion upon this point, we think the facts of this case fail to sustain the charge of infringement. Defendant neither made, sold, nor used the mechanism invented by Hicks to serve out the toilet-paper, except as it purchased it of the patentee, and the only acts proven against it were in selling oval rolls of paper of its own manufacture, with fixtures manufactured and sold by the plaintiff, in combination with its (the plaintiff's) paper to persons other than the defendant, the fixtures having been obtained by defendant from the original purchasers of the patented combination; and also of selling oval rolls of paper of defendant's own manufacture to persons who had previously purchased fixtures and paper from the plaintiff, with the knowledge and intention that the paper so sold was to be used in connection with the plaintiff's fixtures. In this connection it appeared that it had not been the practice of the plaintiff to sell its fixtures independently of its paper, and that it sold only to such parties as dealt in and used its paper. Purchasers were also required to buy a given quantity of paper to a given number of fixtures, to be sold only in connection with the paper, the rule being not to sell more than one fixture to one case of paper. The fixtures were also sold to hotels and other public buildings, with the understanding that their paper would be subsequently purchased of the plaintiff company. It appears to have been its invariable rule to refuse to sell fixtures except to persons also ordering paper.

So far as fixtures sold by defendant, which had been originally manufactured and sold by the patentee to other parties, are concerned, it is evident that, by such original sale by the patentee, they passed out of the limits of the monopoly, and might be used or sold by any one who had purchased them from the original vendees. The patentee having once received his royalty upon such device, he cannot treat the subsequent seller or user as an infringer. (*Bloomer* v. *McQuewan*, 14 How., 539.) As was said by Mr. Justice Clifford in *Chaffee* v. *The Boston Belting Company*, (22 How., 217, 223:)

When the patented machine rightfully passes to the hands of the purchaser from the patentee, or from any other person authorized to convey it, the machine is no longer within the limits of the monopoly. * * * By a valid sale and purchase, the patented machine becomes the private individual property of the purchaser, and is no longer protected by the laws of the United States, but by the laws of the State in which it is situated.

See also *Bloomer* v. *Millinger*, (1 Wall., 340;) *The Paper Bag Cases*, (21 O. G., 1275; 105 U. S., 766.) In this latter case one Morgan had purchased a machine for making paper bags of the patentee, and it was held that, having the absolute ownership of the machine, he had the right either to use it during the existence of the Letters Patent, or to transfer such ownership and right to another. It was said that—

the power to sell the machine and transfer the accompanying right of use is an incident of unrestricted ownership.

(*Birdsell* v. *Shaliol*, 30 O. G., 261; 112 U. S., 485; *Woodworth* v. *Curtis*, 2 W. & M., 524; *Goodyear* v. *Beverly Rubber Co.*, 1 Cliff., 348.)

The real question in this case is, whether, conceding the combination of the oval roll with the fixture to be a valid combination, the sale of one element of such combination, with the intent that it shall be used with the other element, is an infringement. We are of opinion that it is not. There are doubtless many cases to the effect that the manufacture and sale of a single element of a combination, with intent that it shall be united to the other elements, and so complete the combination, is an infringement. (*Saxe* v. *Hammond*, Holmes, 456; *Wallace* v. *Holmes*, 9 Blatchf., 65; *Barnes* v. *Straus*, 9 Blatchf., 553; *Schneider* v. *Pountney*, 21 Fed. Rep., 399.) But we think these cases have no application to one where the element made by the alleged infringer is an article of manufacture perishable in its nature, which it is the object of the mechanism to deliver, and which must be renewed periodically, whenever the device is put to use. Of course, if the product itself is the subject of a valid patent, it would be an infringement of that patent to purchase such product of another than the patentee; but if the product be unpatentable, it is giving to the patentee of the machine the benefit of a patent upon the product, by requiring such product to be bought of him. To repeat an illustration already put: If a log were an element of a patentable mechanism for sawing such log, it would, upon the construction claimed by the plaintiff, require the purchaser of the sawing device to buy his logs of the patentee of the

mechanism, or subject himself to a charge of infringement. This exhibits not only the impossibility of this construction of the patent, but the difficulty of treating the paper as an element of the combination at all. In this view, the distinction between repair and reconstruction becomes of no value, since the renewal of the paper is in a proper sense neither the one nor the other.

The case of the *American Cotton Tie Company* v. *Simmons*, (22 O. G., 1976; 106 U. S., 89,) presents no difficulty whatever. In that case the owner of a patent for a metallic cotton-bale tie, each tie consisting of a buckle and band, granted no licenses to manufacture the ties, but supplied the market with them, and stamped upon the metal of each buckle the words: "Licensed to use once only." After the bands had been once used and severed, defendants, who had bought the bands and the buckles as strap-iron, rolled and straightened the pieces of the bands, and riveted together their ends. They then cut them into proper lengths, and sold them with the buckles, to be used as ties, nothing having been done to the buckles. It was held that they thereby infringed the patent. The gist of the decision is that the use of a tie once, and its subsequent severance, were intended to operate as a destruction of it, and that the defendants had no right to put the same parts together for use a second time. Says Mr. Justice Blatchford:

Whatever right the defendants could acquire to the use of the old buckle, they acquired no right to combine it with a substantially new band to make a cotton-bale tie. They so combined it when they combined it with a band made of the pieces of the old band in the way described. What the defendants did in piecing together the pieces of the old band was not a repair of the band or tie in any proper sense. The band was voluntarily severed by the consumer at the cotton-mill because the tie had performed its function of confining the bale of cotton in its transit from the plantation or the press to the mill. Its capacity for use as a tie was voluntarily destroyed.

It is evident that the use of the tie was intended to be as complete a destruction of it as would be the explosion of a patented torpedo. In either case, the repair of the band or the refilling of the shell would be a practical reconstruction of the device. In this case, however, the purchaser of the new roll does precisely what the patentee intended he should do: he replaces that which is in its nature perishable, and without the replacement of which the remainder of the device is of no value. The replacement is of a product which it is the object of the mechanism to deliver. The case is more nearly analogous to that of *Wilson* v. *Simpson*, (9 How., 109,) in which the invention involved was a planing-machine, and the patent sued upon covered the combination with the cutting knives or planes of a pressure-roller to effect the planing of the planks. It was proved that one of the machines would last in use for several years, but that its cutting-knives would wear out, and must be replaced at least every sixty or ninety days. It was said by Mr. Justice Wayne, (p. 125,) that—

the right to replace them was a part of the invention transferred to the assignee for the time he bought it, without which his purchase would be useless to him, except for sixty or ninety days after a machine had been put in use. It has not been contended, nor can it be, that such can be a limitation of the assignee's right in the use of the invention. * * * If, then, the use of the machine depends upon the replacement of the knives, * * * frequently replacing them, according to the intention of the inventor, is not a reconstruction of the invention, but the use only of so much of it as is absolutely necessary to identify the machine with what it was in the beginning of its use, or before that part of it had been worn out. The right of the assignee to replace the cutter-knives is not because they are perishable materials, but because the inventor of the machine has so arranged them as a part of his combination, that the machine could not be continued in use without a succession of knives at short intervals. Unless they were replaced, the invention would have been of little use to the inventor or to others.

The true distinction is stated by Mr. Justice Clifford in *Aiken* v. *Manchester Print Works*, (2 Cliff., 435,) where the invention was of a knitting-machine, with which the vendor was accustomed to send a package of the needles used in the machine, which needles were the subject of a separate patent. It was held that the purchase of the knitting-machine, and the needles accompanying the same, did not confer upon the purchaser any right, after the needles were worn out and became useless, to manufacture other needles, and use the same in the knitting-machine so sold and purchased. The case of *Wilson* v. *Simpson* was distinguished from this in the fact that the cutters and knives in that case were not subject to a patent, and of course the respondent had a right to use them as materials to repair his machine;

but, [says the Court,] unfortunately for the defendants in this case, the needle is subject to a patent, and in making and using it they have infringed the right of the plaintiff.

As we have already held that the paper-roll in this case was not the subject of a valid patent, it follows that the defendant cannot be held as an infringer for the manufacture and sale of such roll.

Considerable stress is laid by plaintiff upon the fact that Mr. Wheeler, president of the defendant corporation, in February, 1885, and before the first patent was issued, bought one of the plaintiff's fixtures, known as the "Oval King fixture," together with some of its paper, and dispatched them to England with instructions to his agents to file an application for a patent there, which patent was subsequently issued. That, before a patent was issued, Hicks himself applied for protection in England, and learning of the filing of the application there by Wheeler, filed a protest against the issuance of a patent to the latter, who thereupon, to thwart his obtaining a patent, made an affidavit that he did not obtain the knowledge of the invention from Hicks or any other person, but by seeing it in public use in the United States. Wheeler's own testimony in this case indicates that this affidavit contained a *suppressio veri* if not a *suggestio falsi*. But, however reprehensible his conduct may have been in this connection, it does not affect the issue between the parties here. It does not show that the Hicks patent upon the roll is a valid patent, or that the conduct of the defendant in making and selling such roll is an infringement upon the combination patents.

The decree of the court below is, therefore, affirmed.

Mr Justice WHITE, not having been a member of the Court when this case was argued, took no part in its decision.

Supreme Court of the United States.

JOHNSON STREET STEEL RAIL COMPANY *v.* WILLIAM WHARTON, JR., & COMPANY, LIMITED, *et al.*

Decided March 5, 1894.

THE DOCTRINE OF RES JUDICATA—ITS APPLICATION TO JUDGMENTS OF COURTS OF GENERAL JURISDICTION—NOT AFFECTED BY THE LAW ALLOWING SUCH JUDGMENTS TO BE RE EXAMINED BY THE COURTS.

Where the question upon the merits was determined in a former suit between the parties, though the judgment by reason of the small amount in dispute was not reviewable by a court of appellate jurisdiction, *Held* that the court below did not err in holding that the judgment in the former suit concluded the question between the parties, regardless of the fact that the judgment in the first suit was not subject to review by an appellate court.

IN ERROR to the Circuit Court of the United States for the Eastern District of Pennsylvania.

STATEMENT OF THE CASE.

By written agreement executed November 24, 1885, between William Wharton, Jr., & Company, a limited partnership association, and the Johnson Street Steel Rail Company, a corporation—to be hereinafter referred to as the Wharton and Johnson companies—the latter acquired the right to make and sell, upon certain conditions, guard-rails constructed according to the specifications attached to Letters Patent granted to William Wharton, Jr., for an improved guard-rail.

The present action was brought upon this agreement of license to recover the stipulated royalties or fees for guard-rails sold and delivered by the Johnson Company between January 10, 1888, and June 4, 1889.

In its statement of demand the Wharton Company averred that the Johnson Company commenced and continued the sale of guard-rails, and voluntarily rendered statements and paid the stipulated fees down to January 1, 1887, but refused to pay those due between January 1, 1887, and January 10, 1888, on the ground that the rails made and sold by it were not covered by the Wharton patent; that in a suit brought by the present plaintiff against the Johnson Company in the Circuit Court of the United States for the Eastern District of Pennsylvania, it was adjudged that the rails sold by the defendant were covered by the Wharton patent, and judgment was entered for the amount of royalties to January 10, 1888; that from and after the latter date, down to the expiration of the patent, June 4, 1889, the defendant continued to sell, under the agreement, rails of the same character as those that had been adjudged to be covered by the above patent.

The Johnson Company, admitting the manufacture and sale by it between January 10, 1888, and June 4, 1889, of certain girder guard-rails of steel, averred that those manufactured by it were not such rails as were covered by the Wharton patent. It also admitted that the suit mentioned in the plaintiff's statement was brought and decided as set forth, but insisted that the decision was not binding in the present case—

because the amount involved in the former suit was so small as not to entitle the defendant to a writ of error on the said judgment to the Supreme Court of the United States, whereas the amount involved in this suit is sufficent to so entitle the defendant;

and—

that the right of the defendant to have the issues involved in this case adjudicated by the Supreme Court of the United States, if a decision adverse to it is rendered by this [the circuit] court cannot be taken away from it by reason of a former trial and judgment between the same parties where the amount involved did not entitle the defendant to a review of the same.

The court below held the affidavit of defense to be insufficient, and, the damages sustained by the defendant having been assessed at the sum of $6,306, judgment was rendered for that sum.

Mr. George Harding and *Mr. Wayne MacVeagh* for the appellants.

Mr. John G. Johnson and *Mr. F. P. Prichard* for the appellees.

Mr. Justice HARLAN, (after stating the facts,) delivered the opinion of the Court.

The question, upon the merits, which the defendants' affidavit of defense presented, was whether the girder guard-rails manufactured and sold by them were covered by the Wharton patent and by the license granted by the agreement of November 24, 1885. But that precise question, it is admitted, was presented and determined in the former suit between the same parties. And we are to inquire, on this writ of error, whether the court below erred in holding that the judgment in the former suit concluded that question between the parties. The learned counsel for the defendants insists that it did not, and bases his contention solely upon the ground that the former judgment was not, by reason of the limited amount involved, subject to review by this Court.

Is it true that a defeated suitor in a court of general jurisdiction is at liberty, in a subsequent suit between himself and his adversary, in the same, or in any other court, to relitigate a matter directly put in issue and actually determined in the first suit, upon its appearing that the judgment in the first suit, by reason of the small amount in dispute, could not be reviewed by a court of appellate jurisdiction? Does the principle of *res judicata*, in its application to the judgments of courts of general jurisdiction, depend, in any degree, upon the inquiry whether the law subjects such judgments to re-examination by some other court? Upon principle and authority these questions must be answered in the negative. We have not been referred to, nor are we aware of, any adjudged case that would justify a different conclusion.

The object in establishing judicial tribunals is that controversies between parties, which may be the subject of litigation, shall be finally determined. The peace and order of society demand that matters distinctly put in issue and determined by a court of competent jurisdiction as to parties and subject-matter, shall not be retried between the same parties in any subsequent suit in any court. The exceptions to this rule that are recognized in cases of judgments obtained by fraud or collusion have no application to the present suit.

In *Hopkins* v. *Lee*, (6 Wheat., 109, 113,) it was held that a fact directly presented and determined by a court of competent jurisdiction cannot be contested again between the same parties in the same or any other court.

In this, [the court said,] there is and ought to be no difference between a verdict and judgment in a court of common law and a decree of a court of equity. They both stand on the same footing and may be offered in evidence under the same limitations, and it would be difficult to assign a reason why it should be otherwise. The rule has found its way into every system of jurisprudence, not only from its obvious fitness and propriety, but because without it an end could never be put to litigation. It is, therefore, not confined in England or in this country to judgments of the same court or to the decisions of courts of concurrent jurisdiction, but extends to matters litigated before competent tribunals in foreign countries. * * * On a reference to the proceedings at law, and in chancery, in the case now before us, the court is satisfied that the question which arose on the trial of the action of covenant was precisely the same, if not exclusively so, (although that was not necessary,) as the one which had already been directly decided by the court of chancery.

And in *Smith* v. *Kernochan*, (7 How., 178, 217:)

The case, therefore, falls within the general rule, that a judgment of a court of concurrent jurisdiction directly upon the point is as a plea, a bar, or as evidence conclusive between the same parties or privies upon the same matters when directly in question in another court.

To the same effect are *Pennington* v. *Gibson*, (16 How., 65, 77;) *Stockton* v. *Ford*, (18 How., 418;) and *Lessee of Parish* v. *Ferris*, (2 Black, 606, 609.)

The whole subject was carefully considered in *Cromwell* v. *County of Sac*, (94 U. S., 351, 352,) where it was said:

There is a difference between the effect of a judgment as a bar or estoppel against the prosecution of a second action upon the same claim or demand, and its effect as an estoppel in another action between the same parties upon a different claim or cause of action. In the former case, the judgment, if rendered upon the merits, constitutes an absolute bar to a subsequent action. It is a finality as to the claim or demand in controversy, concluding parties and those in privity with them, not only as to every matter which was offered and received to sustain or defeat the claim

or demand, but as to any other admissible matter which might have been offered for that purpose. Thus, for example, a judgment rendered upon a promissory note is conclusive as to the validity of the instrument and the amount due upon it, although it be subsequently alleged that perfect defenses actually existed, of which no proof was offered, such as forgery, want of consideration, or payment. If such defenses were not presented in the action, and established by competent evidence, the subsequent allegation of their existence is of no legal consequence. The judgment is as conclusive, so far as future proceedings at law are concerned, as though the defenses never existed.

The doctrines of the latter case were applied in *Lumber Co.* v. *Buchtel*, (101 U. S., 638, 639,) which case is like this in some respects. That was an action for the recovery of the last installments of money due on a contract for the purchase of timber lands, the plaintiff having in a previous action against the same defendant obtained a judgment for the first installment. In the first action the sole defense was that the defendant had been induced to make the contract of guaranty by false and fraudulent representations. The same defense was made in the second action, and an additional one was interposed to the effect that the representations made as to the quantity of timber, and which induced the execution of the contract, amounted to a warranty upon which defendant could sue for damages. Both grounds of defense, relied on in the second action, were held to be concluded by the judgment in the prior action. In respect to the second ground, it was said:

The finding of the referee, upon which the judgment [in the first action] was rendered—and this finding, like the verdict of a jury, constitutes an essential part of the record of a case—shows that no representations as to the quantity of timber on the land sold were made to the defendant by the plaintiff, or in his hearing, to induce the execution of the contract of guaranty. This finding, having gone into the judgment, is conclusive as to the facts found in all subsequent controversies between the parties on the contract. Every defense requiring the negation of this fact is met and overthrown by that adjudication.

In *Stout* v. *Lye*, (103 U. S., 66, 71,) in which one of the questions was as to the conclusiveness of a judgment in a State court upon the same parties to a suit in the Federal court—the two suits involving the same subject-matter, and the suit in the State court having been first commenced—this Court, observing that the parties instituting the suit in the Federal court, being represented in the State suit, could not deprive the latter court of the jurisdiction it had acquired, said:

The two suits related to the same subject-matter, and were in fact pending at the same time in two courts of concurrent jurisdiction. The parties also were, in legal effect, the same, because in the State court the mortgagor represented all who, pending the suit, acquired any interest through him in the property about which the controversy arose. By electing to bring a separate suit the Stouts voluntarily took the risk of getting a decision in the circuit court before the State court settled the rights of the parties by a judgment in the suit which was pending there. Failing in this, they must submit to the same judgment that has already been rendered against their representative in the State court. That was a judgment on the merits of the identical matter now in question, and it concluded the "parties and those in privity with them, not only as to every matter which was offered and received to sustain or defeat the claim or demand, but as to any other admissible matter which might have been offered for that purpose." (*Cromwell* v. *County of Sac*, 94 U. S., 351, 352.) It is true the mortgagor did not set up as a defense that the bank had no right to take the mortgage, or that he was entitled to certain credits because of payments of usurious interest, but he was at liberty to do so. Not having done so, he is now concluded as to all such defenses, and so are his privies.

In all of these cases, it will be observed, the question considered was as to the effect to be given by the court of original jurisdiction to the judgment in a previous case between the same parties or their representatives, and involving the same matters brought up in a subsequent suit. In no one of them is there a suggestion that the determination of that question by the court to which it was presented should be controlled by the inquiry whether the judgment in the first action could be reviewed upon appeal or writ of error.

The counsel for the plaintiff in error, in support of his position, referred to the clause of the Constitution declaring that the judicial power of the United States shall be vested in one Supreme Court, and in such inferior courts as the Congress may from time to time ordain and establish, and to the clause providing that the judicial power of the United States shall extend to *all* cases in law or equity mentioned in that instrument. But, except in the cases specially enumerated in the Constitution and of which this Court may take cognizance, without an enabling act of Congress, the distribution of the judicial power of the United States among the courts of the United States is a matter entirely within the control of the legislative branch of the government. And it has never been supposed that Congress, when making this distribution, intended to change or modify the general rule, having its foundation in a wise public policy, and deeply embedded in the jurisprudence of all civilized countries, that the final judgment of a court—at least, one of superior jurisdiction—competent under the law of its creation to deal with the parties and the subject-matter, and having acquired jurisdiction of the parties, concludes those parties and their privies, in respect to every matter put in issue by the pleadings and determined by such court. This rule, so essential to an orderly and effective administration of justice, would lose much of its value if it were held to be inapplicable to those judgments in the circuit courts of the United States which, by reason of the limited amount involved, could not be reviewed by this Court.

The inquiry as to the conclusiveness of a judgment in a prior suit between the same parties can only be whether the court rendering such judgment—whatever the nature of the question decided, or the value of the matter in dispute—had jurisdiction of the parties and the subject-matter, and whether the question, sought to be raised in the subsequent suit, was covered by the pleadings and actually determined in the former suit. The existence or non-existence of a right, in either party, to have the judgment, in the prior suit re-examined, upon appeal or writ of error, cannot, in any case, control this inquiry. Nor can the possibility that a party may legitimately or properly divide his causes of action, so as to have the matter in dispute between him and his adversary adjudged in a suit that cannot, after judgment, and by reason of the limited amount involved, be carried to a higher court, affect the application of the general rule. Whatever mischiefs or injustice may result from such a condition of things, must be remedied by legislation regulating the jurisdiction of the courts, and prescribing the rules of evidence applicable to judgments. Looking at the reasons upon which the rule rests, its operation cannot be restricted to those cases, which, after final judgment or decree, may be taken by appeal or writ of error to a court of appellate jurisdiction.

We are of opinion that the question whether the rails manufactured by the Johnson Company were covered by the Wharton patent, having been made and determined in the prior action between the same parties—which judgment remains in full force—could not be relitigated in this subsequent action.

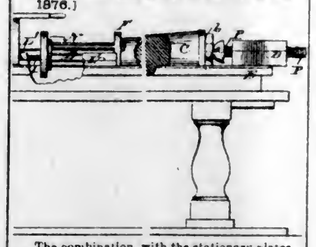
There is no error in the judgment, and it is affirmed.

PATENTS

Expired, April 10 1894.

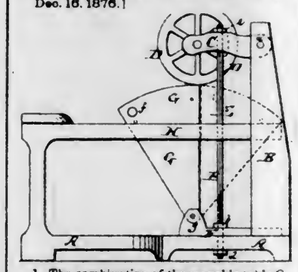
The term of these patents granted during the week ending April 10 1877, have expired. The reissues expired at an earlier date.

189,295. TUYERE-MACHINES. Jas. E. Atwood, Harrisburg, Pa. [Filed Aug. 28, 1876.]



The combination, with the stationary plates E, of the supporting-frame, the horizontal steam-cylinder G, its piston-rod I, the cross-head N, horizontal rods B, fixed guide F, through which the rods pass, mold C, plate b, setting in the latter, and the horizontal adjustable screw P at the rear of the mold C, substantially as described.

189,296. TOBACCO-STEM FLATTENERS. N. H. Borgfeldt, New York, N. Y. [Filed Dec. 16, 1876.]

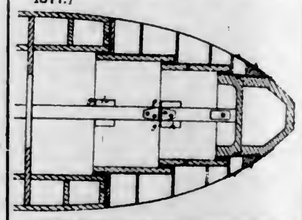


1. The combination of the movable table O, having handles *f f*, with the adjustable compression-roller D, substantially as herein shown and described.

2. The combination of the movable table G with the stationary guide-rails H H and adjustable compression-roller D, substantially as herein shown and described.

3. In combination with the bed-plate A, having two posts, B B, the vibrating frame C, pressure-roller D, bolts E E, block F, and table G, all arranged to operate substantially as herein shown and described.

189,297. SECTIONAL LIFE-BOATS. George Bates, Cohasset, Mass. [Filed Mar. 21, 1877.]



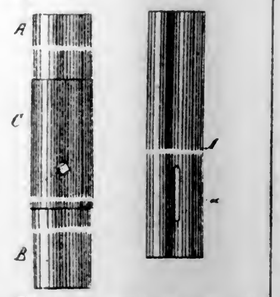
1. The folding boat-body as composed of the central and end and intermediate sections, provided with the shoulder ribs, and constructed and arranged substantially in manner and to operate as specified.

2. The series of fixed and detachable floats, provided with locking hasps or devices, as described, in combination with the boat-body composed of the central and end and intermediate sections, constructed, arranged, and furnished with shoulder-ribs, all substantially as set forth.

3. The combination of the separable longitudinal braces with the boat-body composed of sections, constructed and arranged or applied as specified.

4. The combination of the series of projections *g h* with the sectional boat-body, as described, such projections being for use with the braces, and to serve as stops to the sections, as explained.

189,298. COUPLINGS FOR LIGHTNING-RODS. L. Bradley, Chicago, Ill. [Filed June 5, 1876.]

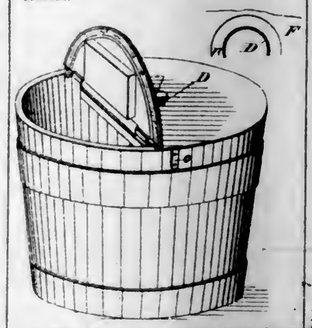


1. The part A, provided with a slot, *a*, in combination with the part B, provided with the coupling C, substantially as and for the purpose set forth.

2. The part A, provided with a slot, *a*, in combination with the part B, collar C, and the fastening-bolt *b*, constructed and arranged substantially as and for the purpose set forth.

189,299. COVERS FOR TOBACCO-PAILS. F. A. Braymer, Jr., Chicago, Ill., assignor of one-half his right to O. A. Peck, same place. [Filed Nov. 8, 1876.]

Brief.—Under the cover is a water receptacle, which is filled from the ontside, and has an opening connecting with the pail to cause the evaporation of the water to dampen the tobacco.

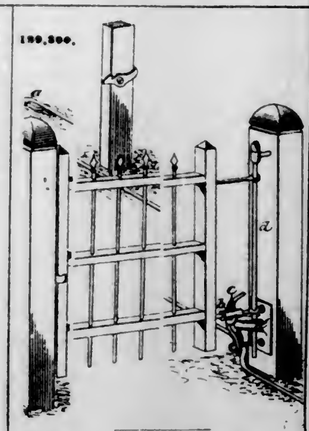


A cover for tobacco-pails, and similar articles, having secured to its inner or under side a pan or box, F, for containing a liquid, with an opening, *a*, in its upper surface, and a tube, D, for filling the same, all constructed to operate substantially as described.

189,300. AUTOMATIC GATES. Thomas E. Breakey, Homer, Mich. [Filed Aug. 17, 1874.]

The reciprocating lever *c*, provided with a semicircular-shaped head, and pivoted to the projection *h*, as shown, in combination with the roller *b*, connecting-rods *e*, upright rod *d*, and rods *a*, and the wheel-iron lever, the several parts operating substantially as and for the purpose described.

189,300.

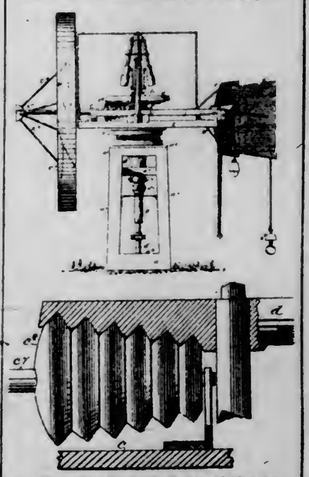


189,301. COMPOSITION COVERING FOR STEAM-PIPES. P. Cary, Philadelphia, Pa. [Filed Apr. 25, 1876.]

A non-conducting covering for steam-pipes, consisting of the following ingredients: fine wood-ashes, steamed sawdust, Manila fiber, plaster-of-paris, white glue, air-slaked lime, all combined in substantially the proportions specified.

189,302. WINDMILLS. Geo. R. Comstock, Mankato, Minn. [Filed Aug. 1, 1876.]

Brief.—The superstructure revolves freely upon the foundation portion, the friction being greatly reduced by the anti-friction rollers employed between the fixed and moving parts.



1. In combination with the foundation portion and the revolving superstructure of windmill, having inclined bearing surfaces a^2 c^2, the conical loose rollers B, substantially as described.

2. In combination with a foundation portion and revolving superstructure of a windmill, a series of loose plain rollers, and a series of loose flanged rollers, the members of which alternate with each other, substantially and for the purpose described.

3. In combination with the foundation plate of a windmill, having an inclined bearing, a^3, and annular recess a^{10}, the corresponding plate above, and the intermediate loose rollers, substantially as described.

4. In combination with the vertical shaft of a windmill-shaft and the wind wheel, the intermediate friction-gearing described, consisting of the wheels d, resembling in form the frustum of a cone, and wheel d^5, of corresponding form, the two being united by a series of V shaped projections and recesses, substantially as described.

5. The vertical shaft D, having the disk d, with annular V shaped projections and recesses, in combination with the wind-wheel shaft c^1, having the conical gearing d^5, with annular V shaped projections and recesses, the projections being less in length than the recesses, so that the two are united to communicate movement by the weight of the upper, substantially as described.

6. The combination of the centrifugal governor, the lever, the intermediate rope, and the hinged vane, substantially as described.

7. The combination of the governor, lever, rope, and hinged vane with the retracting weight, substantially as described.

8. In combination with the hinged vane c^1, and a fixed pulley, f^1, a cord, f^2, extending from the vane, over the pulley, to a point within reach, and provided at its lower end with a weight, f^3, having means for holding other weights, as and for the purpose described.

9. In combination with a governor and a hinged vane united by intermediate connecting devices, substantially as described, a retracting-weight, made adjustable, substantially as and for the purpose set forth.

10. In combination with the hinged vane, the stop-rope, adjustable pulley, and depending beam g^1, as described.

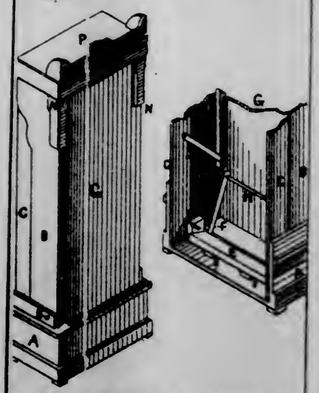
11. The combination of a shaft having a crown-wheel provided with annular V shaped projections and recesses, as described, with a shaft having corresponding projections and recesses, and supporting the former, as described.

12. A turn-table movement, having a series of intermediate loose flanged and plain rollers, alternated, located as described.

13. In combination with the hinged vane, the adjustable stop-bar I, substantially as and for the purpose described.

14. In combination with the governor-lever and the regulating-vane, the removable auxiliary weight, as described.

189,303. WARDROBE-BEDSTEAD. Mark Crosby, Wakefield, Mass. [Filed Jan. 22, 1877.]

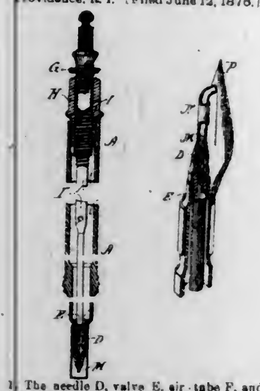


1. In a parlor-bed, as above described, the automatic-adjusting side pieces C C, having hinged arms D D, in combination with the side pieces B B, all being constructed and arranged to operate substantially in the manner described, as and for the purposes set forth.

2. The combination of the hinged weight E, having arms F, with the stops S, whereby the movement of the said weight is arrested before the case B G P arrives at a vertical position, as and for the purposes set forth.

3. In combination with the hinged weight E, arms F, and rod H, the blocks or stops S, all being constructed and arranged to operate substantially in the manner described, as and for the purposes set forth.

189,304. FOUNTAIN-PENS. A. T. Cross, Providence, R. I. [Filed June 12, 1876.]

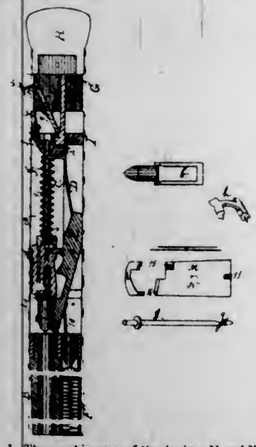


1. The needle D, valve E, air-tube F, and vent-screw H, in combination with the cap I and outer case A, substantially as described.

2. The needle D, tube M, and pen P, in combination with the ink-conveying tube N, of greater diameter than the tube M, substantially as described.

189,305. MAGAZINE CANE-GUNS. Marcelin Daigle, Houma, La. [Filed Aug. 24, 1876.]

Brief.—The barrel and handle have reciprocating motion relatively to each other, by which the breech is opened, the empty shell extracted and thrown out, and a new cartridge carried by the carrier into line with the bore of the barrel and inserted, and fired by bringing the parts together. The magazine is changed through an opening in the bottom of the frame when the parts are drawn apart to open the breech.



1. The combination of the devices M and N, having catches 15 and 16 and pivots 11 and 12, with the springs 13 and 14, when arranged to operate as described, and for the purpose set forth.

2. The arrangement, within frame A, of the block d and breech-block C, the latter provided with a spring, D, for operating the cartridge-lever E, as described, and for the purpose set forth.

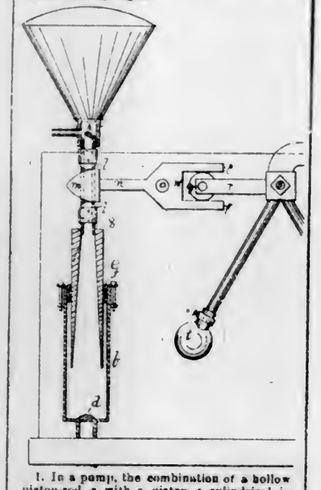
3. The combination of the block d, sliding block C, firing-pin L, rod 1, and spring f with the pawl h and spring i, all arranged to operate as described, and for the purpose specified.

4. The arrangement, within the frame A, of the breech-block C, side pieces G, stem 6, and handle R, substantially as set forth.

5. A magazine cane-gun, consisting of the frame A, provided with a barrel, B, magazine F, lever E, provided with spring 10, shell extractor b, block d, sliding breech-block C, firing-pin L, rod 1, and handle R, the whole constructed and arranged to operate substantially as described.

189,306. PUMPS. W. S. Davis, Pittsfield, Me., assignor to himself and W. L. Parks, same place. [Filed Feb. 26, 1877.]

Brief.—The conical cavity in the piston gradually diminishes the size of the column of water from the lower end of the piston to the opening of the hollow piston-rod, forming a continuous tube, flaring at the lower end, thus avoiding angles.

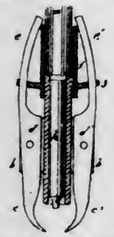


1. In a pump, the combination of a hollow piston-rod, g, with a piston, e, cylindrical in form externally, and having a conical cavity, K, therein, diminishing in size from the bottom to its junction with the rod g, at the top, forming, with said rod, a continuous tube, with its orifice flaring at the bottom, and substantially smooth upon its inner surface, substantially as and for the purposes herein set forth.

2. In combination with the piston-rod of a pump, the friction-rollers l l, attached thereto, cam m, and lever n, substantially as shown and set forth.

3. In a pump, the combination of the piston and rod e g, friction-rollers l l, cam m, and lever n, the arms p p, roller q, and lever r, either with or without the weights t t, substantially as and for the purposes specified.

189,307. ROLLER-ABSTRACTORS FOR WATCHES. B. Frese, Chicago, Ill. [Filed May 29, 1876.]



1. The independently-pivoted jaws c c', having circular grooves in the faces of their turned-in ends, in combination with the extensions c c' and cross bar g, for closing the jaws simultaneously, and grasping the object uniformly on all sides, substantially as and for the purpose specified.

2. The stiff pivoted jaws c c', having extensions c c' and the sliding bar g, in combination with a handle and a spindle, h, substantially as specified.

3. The combination of the pivoted jaws c c', having extensions c c', sliding bar g, spindle h, lever j, and handle, substantially as and for the purpose specified.

189,308. BREAST-COLLARS FOR HARNESS. W. Gibbs, Canton, Ohio, assignor to L. Gibbs, same place. [Filed Nov. 4, 1875.]



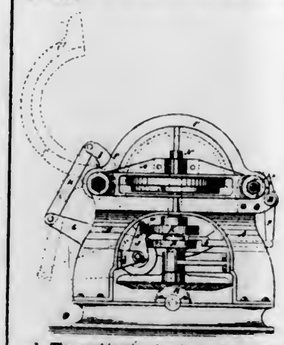
1. A breast-collar frame, A B A, having the draft-arms A bent inward at m, to form draft-bearings for the pads E, and with the front portion B bent downward at n from the plane of the arms A A, substantially as and for the purpose specified.

2. The adjustable draft-pads E, secured in vertical position, substantially as shown, in combination with the collar-frame A B A, for the purpose described.

3. The herein-described draft-pad joint, consisting of cap F, with angular hole f, joint-bolt H, with square or angular bearings h i, and frame-socket G, the several parts being constructed and combined substantially as and for the purpose herein specified.

189,309. MACHINES FOR COMPRESSING BARRELS. O. D. Goodell, St. Louis, Mo., assignor to the United States Barrel and Stave Company, New York, N. Y. [Filed Oct. 1, 1876.]

Brief.—The dies employed to compress a barrel are automatically opened and closed, locked and unlocked, and moved in and off the barrel by means of sectional dies operated by cams, a reciprocating follower-plate, and side bars, for taking the strain from the action of the cams, all arranged in the same horizontal plane.



1. The combination, in a barrel-compressing machine, of the dies C C', with the cam K, the levers J G I, arm H, and shaft F, whereby the said dies are automatically opened and closed, and the shaft N, cam M, having the flange e, the follower-plate L, and arm q, whereby a reciprocating movement is given to the said dies, substantially as described.

2. The combination, in a barrel-compressing machine, of the sectional dies described with the cam P, the web p, the lever g, and latch e, whereby the said dies are automatically locked and unlocked, as described.

3. The combination, in a barrel-compressing machine, of the sectional dies C C', the follower-plate L, the cam M, the groove s', arm or bracket q, and bolt t, as and for the purpose described.

4. The combination, in a barrel-compressing machine, of the sectional dies C C', follower-plate L, and the cam M, provided with the groove s', the arm or bracket q, and the bolt t', all constructed to operate as and for the purpose specified.

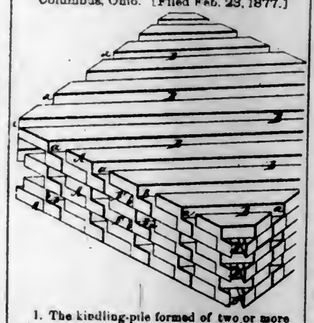
5. The combination, in a barrel-compressing machine, of the sectional dies C C', the guide-bar B, and the hollow sleeve hinged joint b e, as and for the purpose described.

6. The combination, in a barrel-compressing machine, of the cam F, the latch e, the shaft D, the forked projection b''', and the sleeve d, as and for the purpose described.

7. In a barrel-compressing machine, the construction and arrangement described of the side bars B B', the cam M, in the same plane with the center of the dies, the shaft of said cam having bearings above and below said plane, as and for the purpose described.

8. The combination, in a barrel-compressing machine, of the sectional dies C C', the reciprocating follower-plate or frame L, connected to said sectional dies, as specified, and the cam K, levers J, G, and I, and arm H, acting to open and close the dies, as described.

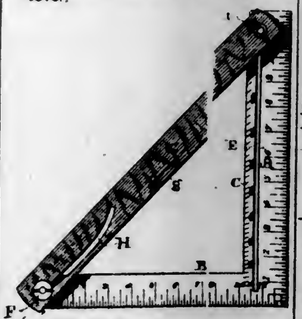
189,310. FIRE-KINDLERS. C. H. Hayden, Columbus, Ohio. [Filed Feb. 23, 1877.]



1. The kindling-pile formed of two or more pieces of plank or board, grooved on top and bottom transversely to the grain of the wood, and placed on one another and secured together in the manner described, so as to form communicating circulation-passages, which extend from side to side on all sides and up through the pile, substantially as described.

2. A pile for kindling constructed of pieces which are grooved, in the manner described, and afterward-united together, and when united form vertical and lateral circulation-passages, which passages are in communication with one another and extend out to all sides of the pile, as herein described.

189,311. BEVELS. J. F. Klinglesmith, St. Louis, Mo., assignor of one-half his right to C. Farner, same place. [Filed Apr. 28, 1876.]



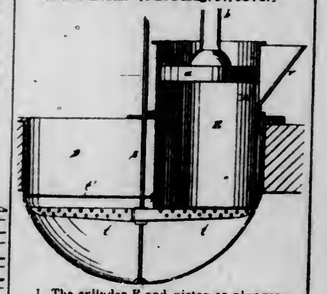
1. The herein described bevel, consisting of the square A B, having the slot E and pin F, and the straight-edge G, having the slot H, constructed as described, and the pin I, combined and operating substantially as described.

2. The square A B, having the slot E and pin F, and the scales C and D, or either of said scales, and the straight-edge G, having the slot H, as described, and the pin I, combined and operating substantially as set forth.

189,312. COMPOSITIONS FOR LINING BARRELS, &c. M. Laflin, Chicago, Ill. [Filed Aug. 28, 1876.]

The mixture or composition of paraffine and rosin for lining or coating barrels, packages, other vessels or pipes, and coating eggs, fruits, and other articles, substantially as specified.

189,313. PROCESSES AND APPARATUS FOR AMALGAMATING ORES. M. Laflin and S. Elliott, Chicago, Ill., said Elliott assignor to said Laflin. [Filed Aug. 17, 1876.]



1. The cylinder E and piston or plunger e, located within the kettle D, and in combination therewith, substantially as specified.

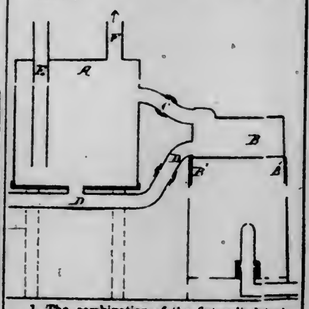
2. The cylinder E, piston e, and kettle D, with or without sleeve e', in combination with a stirrer operating between the lower end of the cylinder and the bottom of the kettle, substantially as and for the purpose set forth.

3. The combination of the rack c, pinion d, and stem or shaft b, with the catch-lever i, rod k, and pin l, substantially as described.

4. The combination of the stem b with the bar m and lever n, for stopping the action of the piston while the cylinder is being filled, substantially as specified.

5. The process of amalgamating gold and silver bearing ores, which consists in forcing the pulverized ore at regular intervals, and in a heated condition, as described, into a bath of molten lead, and permitting it to rise freely to the surface of said bath during constant stirring and dissemination, substantially as and for the purpose set forth.

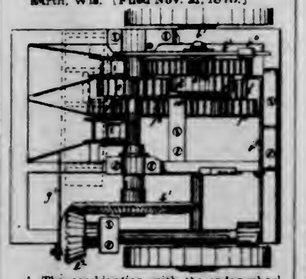
189,314. HOT-WATER APPARATUS. Edw. Lawler, Hartford, Conn. [Filed Mar. 6, 1877.]



1. The combination of the flat cylindrical boiler B, having the flange B', the reservoir A, and the pipes C D E F, with the chamber J for heating by means a flame, all constructed and arranged substantially as and for the purpose herein set forth.

2. The combination of the flat cylindrical closed boiler B, the reservoir A, and the pipes C D, with a mechanism for heating by means of a gas-flame, substantially as herein described.

189,315. CORN-PLANTERS. J. Leitch, Black Earth, Wis. [Filed Nov. 21, 1876.]



1. The combination, with the index-wheel *b*, having a stud, b^1, and the seed-slide *g'* in the feed-box *g*, of the segmental wheel *d*, lever b^2, gears e e^1 e^2, and pitman g^3, substantially as and for the purpose set forth.

2. The combination, with the index-wheel *b* and droppers *i i*, mounted on the axis i^2, of the segmental wheel *d*, having the stud d^3, lever d^2, and gear-wheels f, f^1, f^2, and f^3, substantially as and for the purpose set forth.

3. In a machine for planting grain, the segmental wheel *d*, provided with stud or pin d^3, adapted to be attached to an index-wheel, *b*, and arranged to engage alternately with and operate the two sets of gearing which operate the gate-valve and dropping-hoppers, substantially as set forth

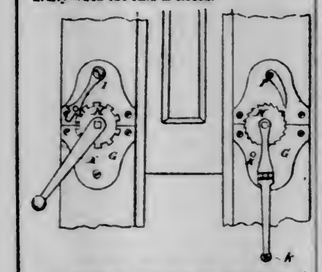
189,316. FRUIT-JARS. J. L. Mason, New Brunswick, N. J. [Filed Dec. 30, 1876.]



The cover G, having on its under side the wedge-shaped channel J, and the rib K projecting therefrom, in combination with the gasket D, encircling the top flange C of the jar, and projecting above said flange, all constructed, arranged, and operating substantially as and for the purpose set forth.

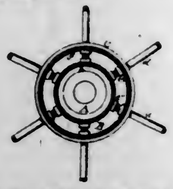
189,317. SASH-BALANCES. B. F. McOune Barbourville, W. Va. [Filed May 6, 1876.]

Brief.—A recessed box or case contains a pinion, which meshes into the teeth of a rack-bar; a two-part facing-plate carries a suitable pawl and ratchet, for holding the sash at any desired height; and the operating-shaft, after passing through the base and pinion, is brought out between the facing-plates, and then provided with a crank or folding handle, which is hinged, and has its end formed into a locking-pin, for engaging in a hole in the lower part of the facing-plate, to lock the device firmly when the sash is closed.



An improved sash balance, consisting of the recessed box or case C, the pinion or cog wheel D, the cogged rack-bar E, the two-part facing-plate G, the ratchet-wheel H, and pawl I, the operating-shaft J, and the folding handle or crank K, formed with an inwardly projecting locking-pin *k*, all constructed, arranged, and operating substantially as shown and described, for the purpose specified.

189,318. VEHICLE-WHEELS. J. McGowan, Mifflin Township, Allegheny County, Pa. [Filed Mar. 15, 1877.]



1. The flange B, bearing at its periphery and outer extremity, and on each side thereof, an overhanging circular rim, C, perforated or provided with holes for the reception of the spokes *d d*, in combination with the elastic band *f* and nuts *e e''*, substantially in the manner shown, and for the purposes set forth.

2. The flange E, bearing at its periphery and outer extremity and on each side thereof, an overhanging circular rim, C, perforated or provided with holes for the reception of the alternating spokes *d d* arranged on each side of the circular rim C, in combination with the elastic band A and nuts *e e''*, substantially in the manner shown, and for the purposes set forth.

3. The flange B, bearing at its periphery, and on each side thereof, an overhanging circular rim, C, perforated or provided with holes for the reception of the spokes *d d*, in combination with the elastic bands *f* and A and nuts *e e''*, substantially in the manner shown, for the purposes set forth.

189,319. WASHING-MACHINES. D. Miller, Bellvue, Pa. [Filed Feb. 23, 1877.]



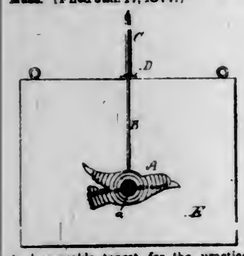
In combination with the boiler A, the herein described washing apparatus, the corrugated cylinder C, having its convex ends *g g* formed with a series of radial corrugations, and adjusted to rotate within the boiler, substantially as shown and set forth.

189,320. DRAW-BRIDGES. R. C. Mouledon, Cleveland, Ohio. [Filed Mar. 7, 1877.]



The combination, with an ordinary swing or turning bridge, of the serrated curved bar B, pinion C, levers *b b'*, cranks *c c'*, and gates E, substantially as and for the purpose set forth.

189,321. TARGETS FOR SHOOTING-GALLERIES. Wm. H. H. Norcross, Boston, Mass. [Filed Jan. 17, 1877.]

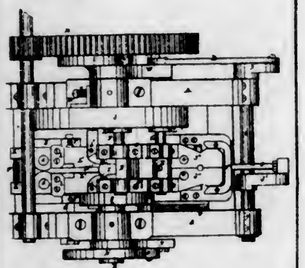


1. A movable target for the practice of "wing-shooting," consisting of a bird, or other object, suspended from a pendulous rod, and bearing the character of a target, substantially as and for the purposes stated.

2. As a complete target for indoor practice, the combination of the swinging target-figure A, suspensory E, post C, angle-piece D, and board F, substantially as and for the purposes stated.

189,322. HORSESHOE-MACHINES. Webster Roberts, Cleveland, Ohio. [Filed Nov. 26, 1876.]

Brief.—Reciprocating arms, provided with detachable plates, bend the blank around the former. Fingers attached to pivoted levers surround the former, and prevent the blank from springing up while being bent. The former is attached to a rock-shaft, and is provided with a cam-shank, which opens the pivoted levers and fingers when the former is thrown up, to permit the entrance of the pressing and creasing and punching dies. These dies are journaled in segmental arms integral with the main shaft, and are provided with pinions on their respective axles, which mesh with teeth formed in a stationary wheel. The bending-plates surround and sustain the bent blank while it is being pressed, creased, and punched. The under side of the shoe is beveled while being pressed, &c., by a horizontally-adjustable die. The benders carry the shoe with them as they withdraw until they are opened by contact of their rear ends with cam-surfaces.



1. The shaft B, segmental radial arms or head C C, carrying the dies or blocks D and E journaled therein, as described, and pinions K L, in combination with the inside gear-wheel J, substantially in the manner as herein described and for the purpose specified.

2. The revolving segmental arms or head C C and die-blocks D E, journaled therein, and operating conjointly, substantially as and for the purpose set forth.

3. The levers K' K', detachable fingers L' L', and spring *t''*, arranged to operate in relation to, and in combination with, the former R' and arms J'' J'', substantially as and for the purpose set forth.

4. The levers K' K' and detachable fingers L' L', in combination with bending-head or former R' and its cam-shank N', in the manner substantially as described, and for the purpose specified.

5. The beveling or bed die M', having a horizontal adjustment, in combination with the levers J'' J'', provided with the detachable bending-plates *c c* and fingers L' L', substantially as and for the purpose set forth.

6. The arms J'' J'' and detachable bending-plates *c c*, having a rabbet, *c'*, and their inner edges conforming to the configuration and thickness of a horseshoe, and serving to hold the shoe while being pressed, creased, and nail pointed, in combination with the former R' and the pressing and creasing dies H I, in the manner substantially as described, and for the purpose set forth.

7. The angle-iron or bracket E'' and spring *h'*, in combination with the wheel J, substantially in the manner as described, and for the purpose specified.

8. The combination of the cam Q, lever S, lever T, spring *t*, and shear *m*, as and for the purpose set forth.

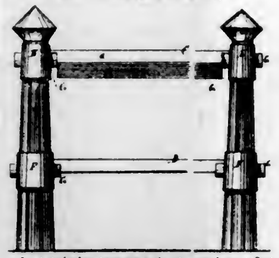
9. The levers K' K', detachable fingers L' L', spring *t''*, and adjustable plates *h h*, in combination with the bending-head or former R' and its cam-shank N', substantially as described, and for the purpose set forth.

10. The vertically-adjustable bed B', arms J'' J'', and detachable bending-plates *c c*, in combination with the former R', segmental arms or head C C, and die-blocks D E, and

their respective dies, substantially in the manner as herein set forth, and for the purpose specified.

11. The arms J'' J'', in combination with the pins *c'' c''*, spring T'', and shoulders O'', substantially as and for the purpose specified.

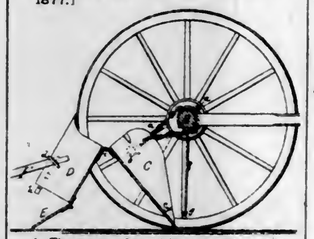
189,323. IRON FENCES. Corydon A. Root, Andover, and D. W. Strickland, Wellington, Ohio. [Filed Mar. 3, 1877.]



1. A tubular tapering sheet-metal post fluted or corrugated, as herein described, and provided with bands E F and lugs G, substantially as set forth, and for the purpose specified.

2. The rail C, consisting of the cap *a* and bar *b*, in combination with the posts A and B, substantially as herein set forth.

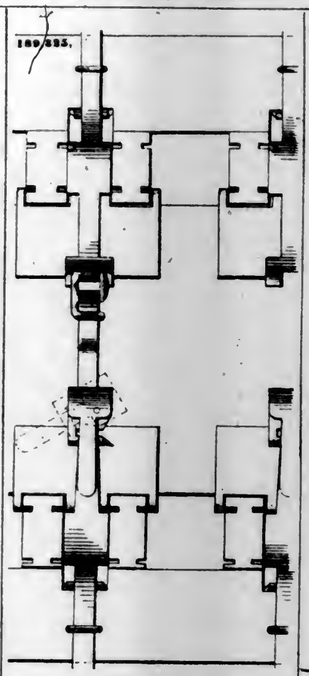
189,324. ROAD-SCRAPERS. P. Schneider, Sr., White Bear, Minn. [Filed Feb. 17, 1877.]



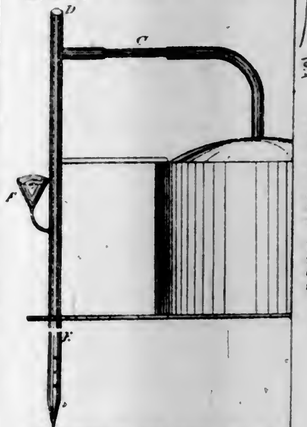
1. The scraper formed in two sections, C D, connected by hinges *c c'* at the bottom, when supported from the axle B by adjustable chains *a a'*, and trunnions *b b'* on the forward section, arranged and operating substantially as hereinbefore set forth.

2. The combination and arrangement of the hinged body C D, hinged back E, locking-bars F, adjustable chains *a a'*, axle B, and supporting hooks or rods *g g'*, arranged and operating as hereinbefore explained.

189,325. IMPROVEMENT IN [illegible]



189,326. LIGHTNING-RODS FOR OIL-TANKS. J. A. Sherriff, Franklin, Pa. [Filed July 29, 1876.]



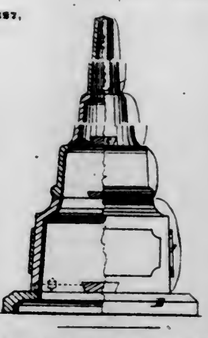
1. In combination with an oil-tank, the lightning-conductor D E, and gas-escape tube B, the latter provided with the section C made of non-conducting material, substantially as and for the purpose specified.

2. The hollow lightning-conductor D, having the pointed and perforated end E, and funnel and tube F, for the introduction of water, substantially as and for the purpose specified.

189,327. MONUMENTS. A. Smith, Palmyra, N. Y. [Filed Sept. 23, 1876.]

A metallic sectional monument having its members connected together by dovetail coupling-bars *a*, arranged transversely across the sections, substantially as shown and described, for the purposes set forth.

189,327.

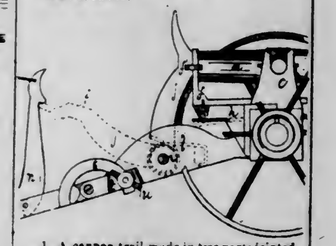


189,328. HOSE-NOZZLES. Jno. H. Stump, Baltimore, Md. [Filed Mar. 9, 1877.]



A hose-nozzle provided with an eccentrically-located discharge-orifice, in combination with a rotary perforated cap, by means of which the orifice can be completely and partially opened and closed.

189,329. BREECH-LOADING ORDNANCE. F. M. Swallow, Springfield, Mass. [Filed Mar. 9, 1877.]



1. A cannon-trail made in two parts jointed together, one part provided with arc *s*, and the other part with mortise *t* and set-screw *u*, substantially as described.

2. The breech-loading cannon *a*, the hammer *j*, pivoted within the trail, and provided with the spring *l*, and the detent-arm *n*, pivoted within the trail, all combined and arranged to operate substantially as shown and described.

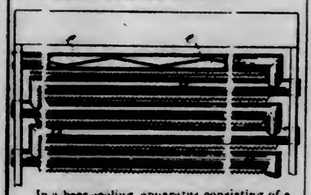
3. The cannon *a* with rear open end, the laterally-swinging breech-block *f*, perforated for the passage of the firing-pin, and the pivoted hammer *j*, provided with the firing-pin *i*, all combined substantially as described.

189,330. SAP-SPOUTS. E. Willis, Colton, N. Y. [Filed Oct. 6, 1876.]



A sap-spout, consisting of a metal hanger or block, A, having at the top a hollow cylinder projecting at right angles from the rear side, prolonged downward, and formed into a hook, *a*, and extended forward to form a projection, *c*, having an inclined groove, *r*, in its front face, as specified.

189,321. COOLERS FOR BEER, ALE, &c. F. V. Baudelot, Harancourt, near Sedan, France. [Filed Mar. 12, 1877.]



In a beer-cooling apparatus consisting of a vertical range of horizontal tubes, *a*, connected at alternate opposite ends, and over which the beer or other liquid trickles, the zigzag detaining and agitating strips *s* within the tubes *a*, for the purposes and substantially as specified.

189,322. BEER-COOLERS. F. V. Baudelot, Harancourt, near Sedan, France. [Filed Aug. 21, 1876.]

Brief.—A twisted metallic strip is placed in each pipe to throw the cold water that is passing through against the inner surface, to more thoroughly cool the beer that is trickling over the outside.



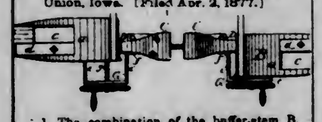
In a beer-cooling apparatus, consisting of a vertical range of horizontal tubes connected at alternate ends, and over which the beer trickles, the twisted detaining and deflecting strip *b* within the tubes, for the purposes and substantially as set forth.

189,323. BOOTS AND SHOES. J. M. Bibbins, Williamsport, Pa. [Filed Mar. 14, 1877.]



A shoe having a front opening closed by a lap attached at one side to the outside of the vamp along one edge of the opening, and a gore attached at one side to the outside of the vamp along the opposite edge of the opening, the said lap and gore, when consisting of two separate pieces, being fastened together at their outer edges, by sewing the gore to the inner face of the lap, as shown and set forth.

189,324. CAR-COUPLINGS. A. T. Bigalow, Union, Iowa. [Filed Apr. 2, 1877.]

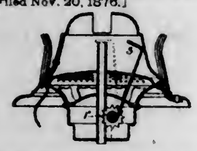


1. The combination of the buffer-stem B, having recess *b* and slots *c c*, with the vertically-adjustable draw-head C, having stem D, provided with laterally-projecting brackets and guide-bars *d d*, substantially as and for the purpose herein shown and specified.

2. The combination of the longitudinally-recessed buffer-stem B, vertically-adjustable draw-head C, having stem D, plate *f*, bail G, and adjusting-screw *g*, all arranged and operating substantially in the manner and for the purpose herein shown and specified.

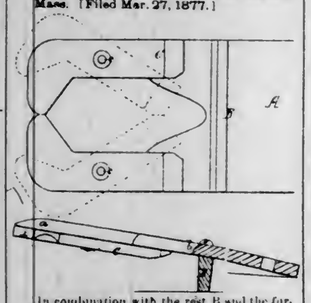
3. The improved car-coupling device, herein described, consisting essentially of the vertically-adjustable draw-head C, having stem D and pivoted coupling-bolt I, longitudinally-recessed buffer-stem B, plate *f*, bail G, and adjusting-screw *g*, all combined and arranged to operate substantially in the manner and for the purpose shown and specified.

189,325. LAMP-EXTINGUISHERS. Edw. C. Blakeslee, Waterbury, Conn., assignor to Holmes, Booth & Haydens, same place. [Filed Nov. 20, 1876.]



The extinguisher *s*, formed of a solid plate of metal, and connected to the friction-eye *r*, that is around the shaft *l*, by the arm which extends from one side of the extinguisher, near the middle thereof, for the purposes and as set forth.

189,326. BOOT-JACKS. J. Buzzell, Boston, Mass. [Filed Mar. 27, 1877.]



In combination with the rest B and the furcated board A, arranged as shown, the two jawed levers pivoted to the prongs *a a*, and arranged with the said rest on the under side of the said board, all substantially as set forth.

189,327. STONE PAVEMENTS. B. F. Camp, Philadelphia, Pa. [Filed Mar. 11, 1876.]



A stone pavement composed of rectangular blocks laid obliquely across the road-bed, combined with an asphalt filling between the stones, as and for the object specified.

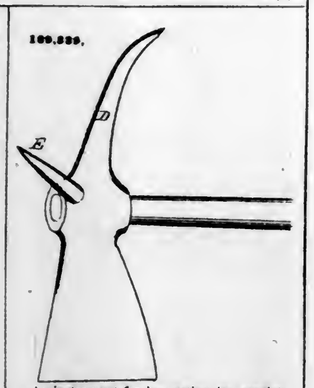
189,328. CRAYONS FOR MARKING ON GLASS, &c. B. J. Clarke, New York, N. Y. [Filed Jan. 29, 1877.]

A compound, consisting of a pigment, beeswax, suet, and oil of cedar, substantially as herein described.

189,329. ICE-AXES. Wm. H. Coleman, Salisbury Mills, N. Y. [Filed Feb. 3, 1877.]

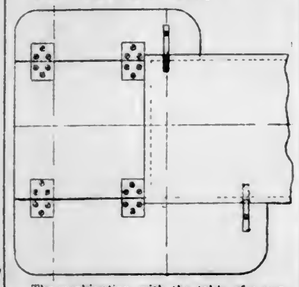
Brief.—The implement is adapted for use as an ax for cutting ice, as a pike for pushing it from place to place, and as a hook for drawing it from the water.

189,330.



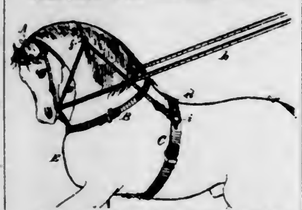
An instrument for harvesting ice, consisting of an ax having formed on it the hook D and pike E, substantially as herein shown and described.

189,340. EXTENSIONS FOR SEWING-MACHINE TABLES. H. G. Crawford, Peabody, Kans. [Filed Jan. 19, 1877.]



The combination, with the table of a sewing-machine, having a bottom recess at one side, and a recess and socket-hole at the opposite side, of the hinged leaves of an extension-board, said leaves having fastening-pins entering said recess and hole to rigidly attach the leaves and extension, substantially as specified.

189,341. BRIDLE ATTACHMENTS. Seton S. Cummings, Turner's Point, Tex., assignor of one-third his right to W. C. Stevenson, same place. [Filed Feb. 17, 1877.]



The headstall A, neck-strap *c*, strap *g*, having the ring *f*, the brace-rein D, the martingale E, collar-strap B and its loops, the surcingle C, having rings *d i*, combined and arranged substantially as herein shown and described.

189,342. PAPER BAGS. A. S. Dennison, Watertown, N. Y. [Filed Oct. 13, 1876.]

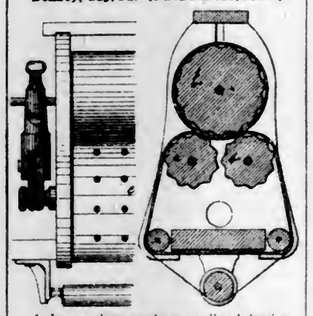
1. A bail for paper bags, formed with pointed ends, and adapted for application to the bag, so as to close the end and serve for a bail, as set forth.

2. A bail for paper bags, formed with pointed ends, inserted through the two sides at the mouth of the bag, and bent to hold the mouth closed and to secure the bail to the bag, as set forth.

189,343.



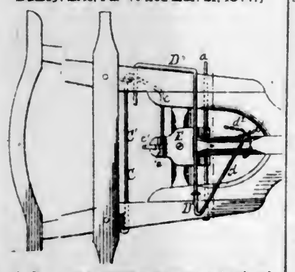
189,343. WASHING-MACHINES. Samuel L. Deaney, Gap, Pa. [Filed Nov. 15, 1876.]



1. In a washing-machine, a roller, *b*, having longitudinal corrugations, as shown, and covered with a thin sheet of rubber, which rest upon the ridges between the corrugations, as and for the purpose shown.

2. The combination of the rollers *b c d* with perforated band *e*, when arranged substantially in the manner specified.

189,344. WAGON-TONGUE SUPPORTS. R. Dudley, Erie, Pa. [Filed Mar. 21, 1877.]



1. In a wagon-tongue support, a torsional spring whose rod passes clear across both hounds, and is connected to the tongue, substantially as described.

2. The torsional spring C, passing under both hounds, and connected to the rear of the tongue, substantially as described.

3. The torsional spring D, passing over both hounds, and connected to the tongue by means of the chain *d*, substantially as described.

189,345. LIQUID-MEASURES. S. R. Dummer, Jersey City, N. J. [Filed Mar. 1, 1877.]

1. A liquid-measure provided with a passage or canal along its side, from which a circular spout projects about midway of its height and at right angles, substantially as specified.

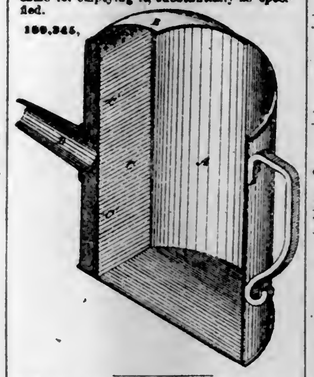
2. A liquid-measure provided with a hood, B, and partition C, substantially as specified.

3. A liquid-measure provided with an inclined partition, substantially as specified.

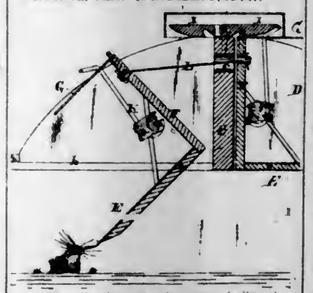
4. In a liquid-measure, the combination of a hood, B, a partition, C, and a spout, D, substantially as specified.

5. As an improved article of manufacture, the combined measure and funnel herein described, in which the spout projects from about the middle height of the side of the measure, so as to balance and support the same for emptying it, substantially as specified.

189,346.



189,346. ANIMAL-TRAPS. M. Early, New Madison, Ohio. [Filed Mar. 9, 1877.]

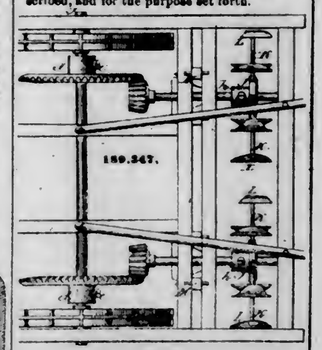


1. An animal trap having two similar pitfalls, consisting of the parts E, F, and G, in combination with the open frame B and partition C, whose orifice *c* is traversed by cord or thong L, connecting the two platforms, and with suitable bait and set hooks K I, as and for the purpose set forth.

2. The barriers D, in combination with the pitfalls, consisting of parts E, F, and G, adapted to reset each other, as and for the purpose set forth.

3. A dumping-platform or pitfall, composed of floor E, rear wall F, and canopy G, from which the bait-hook K is suspended, and with which the catch I engages, in the manner shown.

189,347.



189,347. COTTON-CHOPPERS. J. B. Eaves, Rutherford County, N. C. [Filed Mar. 15, 1877.]

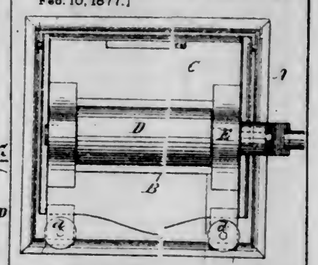
Brief.—The revolving cutters, having noes or blades of different widths, are arranged to operate immediately in the rear of rearwardly-converging fenders.

1. In a cotton-chopper, the combination of the rearwardly-converging fenders or guards N, with the revolving cutters arranged in close proximity thereto, said fenders serving to press together the row of plants and hold them during the action of the cutters, substantially as shown and described.

2. In a cotton-chopper, the combination of the plows O, the rearwardly-converging guards or feeders N, and the revolving cutters, substantially as shown.

3. A revolving cutter for a cotton-chopper, consisting of a drum or hub, J, provided with detachable radial arms K, and detachable blades or knives L of different widths, arranged as described, so as to allow two or more of said blades to make a continuous unbroken cut equal to the combined width of the said blades, substantially as shown and described, and for the purpose set forth.

189,348. PHOTOGRAPHIC BURNISHERS. J. H. Ferguson, Leavenworth, Kans. [Filed Feb. 10, 1877.]

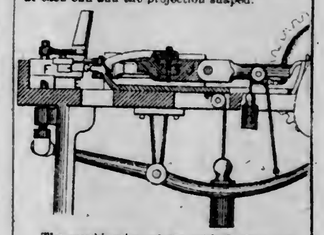


1. The combination, in a photograph burnisher, of the stationary base A, stationary burnisher B, vertically-adjustable frame C, having an opening for the passage of the burnisher, and carrying the feed-roll D, substantially as and for the purpose herein set forth.

2. The studs *c* and nuts *d e*, in combination with the bed A and frame C, for adjusting the roller D, substantially as shown and described.

189,349. MACHINES FOR MAKING TOE-CALKS. Henry C. Field, Providence, R. I. [Filed Nov. 24, 1876.]

Brief.—The blanks are deposited upon the table by the pockets, and held against the die by the fingers, while the ends thereof are bent at each end and the projection shaped.



The combination of the table E, fingers G G, double die F, guides *a a*, and pivoted arms I I, having friction-rollers, as described, substantially as and for the purpose specified.

189,350. DITCHING-MACHINES. Thos. T. Fleener, Arlington, Ind. [Filed Sept. 16, 1876.]

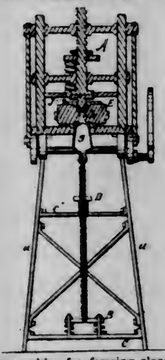
1. In a ditching-machine, the combination of the cutters D D E, the sliding and adjustable wheel-frame H, with friction-belt B, wheel C, and conveyer F, constructed and operating in the manner and for the purpose set forth.

2. The ditching machine herein described, consisting of the frame A, the cutters D D' E, the sliding adjustable frame H, double caster-wheels I, friction-belt B, wheel C, and conveyer F, all constructed and arranged substantially as shown and herein specified.

199,330.



199,331. MANUFACTURE OF GLASSWARE. W. Fox, Wheeling, W. Va., assignor of one-half his right to A. H. Beggs, Bridgeport, Ohio. [Filed Feb. 15, 1877.]



1. In a machine for forming glassware, the press A, mounted upon the frame a a, and provided with the slotted bed-plate c c', substantially as described, and for the purposes specified.

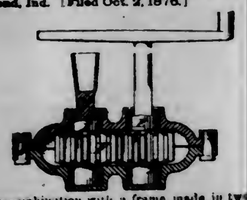
2. In a machine for forming glassware, in combination with the mold E, the removable plate f, having a beveled slot or passage-way, K, extending from center to circumference, substantially as described, and for the purposes specified.

3. In a machine for forming glassware, the self-adjusting rest B, substantially as described, and for the purposes specified.

4. In a machine for forming glassware, in combination with the guide-rest B, the guide-arm D, substantially as described, and for the purposes specified.

5. The process of forming glassware, consisting in forming the body or bowl by blowing it upon the blow-iron without the use of molds, and then affixing the base, foot, stem, or other finishing part, by means of molten glass pressed in a mold thereon, substantially as described.

199,332. WRENCHES. John B. Fox, South Bend, Ind. [Filed Oct. 2, 1876.]

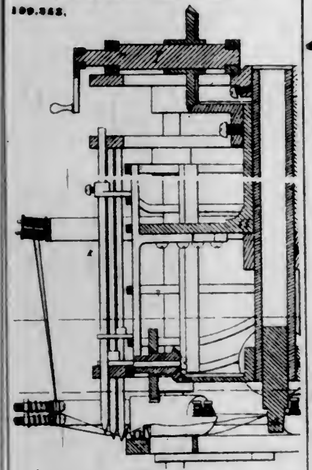


In combination with a frame made in two parts, and adapted to be secured together and provided with suitable bearings, the meshing gears with slotted shafts or hubs adapted to receive a wrench-block and operating-handle, substantially as and for the purposes set forth.

199,333. CIRCULAR LOOMS. J. E. Gillespie, New York, N. Y., assignor to the Eureka Fire Hose Company, same place. [Filed Dec. 4, 1876.]

Brief.—The loom is adapted to weave more than one ply. The shedding cams are arranged on a vertical cylindrical frame, and do not cross or run into each other, as is usually the case. The cylindrical frame is revolved by suitable gearing. The warp-lifters are vertical rods arranged in rings that are secured to the stationary frame. These lifters are divided into groups of three each, and upon each one of the three is fixed a collar having an arm or projection provided with holes, through which the other two rods of the group pass. These collars prevent the rods from turning on their axes, and also steady the said rods.

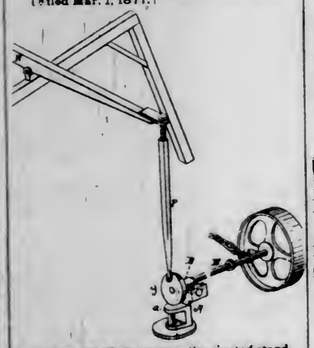
199,333.



1. In a circular loom, the combination of two or more harness-cams, separate from each other, and arranged upon the periphery of a revolving vertical and cylindrical frame, with the vertically sliding rods *k* arranged substantially as described, whereby the warps are separated into sheds, and a web of more than one ply is woven, as and for the purpose specified.

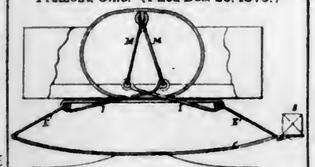
2. In a circular loom, the combination of the warp-carrier rods *k*, arranged in groups of two or more, each rod of the group carrying an arm, *r*, through which the other rods of the group pass, with the mechanism for inserting into the sheds two or more weft-threads, all constructed and arranged to operate as and for the purpose described.

199,334. TRACTION HORSE-POWERS. D. T. Gillis, San Leandro, Cal., assignor of one-half his right to F. A. Hill, same place. [Filed Mar. 1, 1877.]



In a traction horse-power, the pivoted standard A *a*, with blocks *c c* and journaled box B at its upper end, in combination with the traction-wheel and axle E thereof, which passes through the box B and is provided with a crank-wheel, *g*, said crank-wheel being connected with the walking-beam H by means of the pitman P, the said parts being constructed and arranged for operation substantially in the manner and for the purposes set forth.

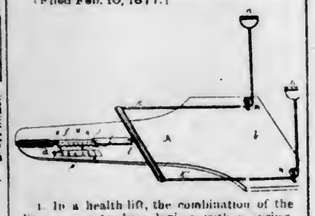
199,335. VEHICLE-SPRINGS. J. W. Groat, Fremont, Ohio. [Filed Dec. 26, 1876.]



1. The combination of the spring J, suspension-rods M M, levers E E, and side bars B B, all substantially as and for the purpose described.

2. The lever E, having bent ends E' E' and arm I on the opposite side, in combination with the side bars B B of a vehicle, substantially as and for the purpose described.

199,336. EXERCISING-MACHINES. H. F. Hanson and F. O. Buzzell, Bangor, Me. [Filed Feb. 10, 1877.]



1. In a health-lift, the combination of the lifting or extending devices, with a spring, *d*, and with both retaining and readjusting devices, said retaining devices holding the spring in extension, while the readjusting devices enable the cords to be taken up to compensate for the increased length of the spring, whereby the power necessary to extend said spring may be increased with each successive lift, substantially as and for the purposes described.

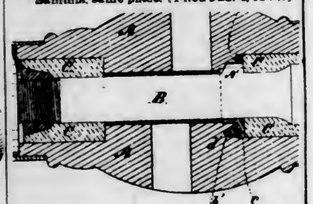
2. In combination with the spring *d*, the toothed bar *f* and pin *o*, holding the spring in extension, substantially as set forth.

3. In combination with the spring *d*, toothed bar *f* and pin *o*, holding the spring in extension, the perforations *h*, bar *i*, stud *j*, and lifting devices, adjustable substantially as and for the purposes set forth.

4. In a health-lift, in combination with the resisting-spring *d*, the bar *f*, and pointer *q*, moving with said spring and scale *p*, adjusted to show the strength exerted in extending said spring, as set forth.

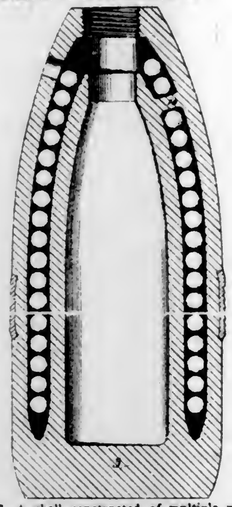
5. In combination with the platform A, the spring *d*, toothed and perforated bar *f*, bar *i*, stud *j*, pin *o*, cords *k k'*, cross-bar *l*, pulleys *m* and handles *n*, arranged as herein described, for the purposes set forth.

199,337. ELASTIC HUBS. Geo. W. Hayes, New York, N. Y., assignor to John B. Sammis, same place. [Filed Jan. 4, 1877.]



The ring D, of sleeve-like form, slotted at *b*, constructed with the flange *a*, having the studs or fins *b'*, notched at *a'*, in combination with the radial spur or projection A' of the box B, and the cavities *d* in the face of a recess formed in the end of the hub, all as herein set forth, for the purposes specified.

199,338. SHELLS. B. B. Hotchkiss, New York, N. Y. [Filed Dec. 1, 1876.]



1. A shell constructed of multiple walls united to a solid base, as an integral part thereof, said walls being arranged parallel, or nearly so, with each other, whereby is provided between them a narrow chamber, adapted to receive and support a separate shell, or tier of balls, and a central chamber of great cubical area for the reception of the bursting charge, all substantially as described.

2. A shell having multiple walls united to a solid base, as an integral part thereof, and inclosing between them a separate shell, substantially as described.

3. A shell having multiple walls united to a solid base, and secured together by one or more anchors, substantially as described.

199,339. LAMP-CHIMNEYS. Hiram L. Ives, Troy, N. Y., assignor to himself and T. H. Dutcher, same place. [Filed Feb. 28, 1877.]



A lamp-chimney, provided with the interior dome D and the scalloped base C, substantially as and for the purpose specified.

199,340. REVOLVING FIRE-ARMS. Owen Jones, Philadelphia, Pa. [Filed Aug. 22, 1876.]

Brief.—A rack carried by the tilting barrel engages with a toothed extension on the cylinder, and draws the latter away from the frame by tilting the barrel, and extracts the cartridges, which are held by an extractor-plate secured to the frame. The rack may be disconnected from the cylinder by withdrawing a pin, which holds it, when it will be allowed to swing on a pivot.

1. In combination with a fixed extractor-plate, a sliding cylinder, and a tilting barrel, the intermediate rack mechanism for uniting the barrel to the cylinder, substantially as described.

2. In combination with a sliding cylinder and a lever-barrel for moving the cylinder, intermediate rack mechanism for communicating the movement of the former to the latter without lost motion, substantially as described.

3. The combination of the rack-bar with the teeth of the cylinder, the former being adapted to move on an arc of a circle struck from the pivot-point of the barrel, and the latter on a horizontal line cutting the highest point of the circle, as and for the purpose described.

4. In combination with a lever barrel provided with a pivoted rack-bar, a sliding cylinder, having annular teeth, as described.

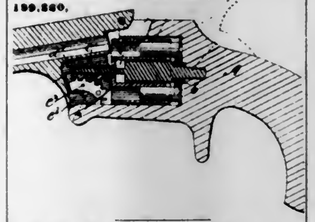
5. The combination of the following elements: a tilting-lever, a sliding cylinder, and a pivoted rack-bar, having a removable securing-pin adapted to engage with the cylinder, as described.

6. The combination of the following elements: a fixed center-pin, a fixed extractor-plate, a sliding cylinder, a tilting barrel, and rack mechanism for uniting the barrel to the cylinder, substantially as described.

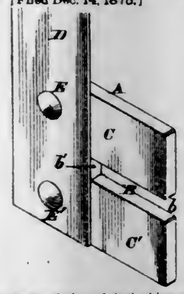
7. In combination with the pivoted rack-bar E, the spring e^3, as described.

8. In combination with a tilting barrel for sliding the cylinder a limited distance, the cylinder having the hollow sleeve, and the center-pin having the extension b^2, the construction being such that the cylinder is guided and supported in all its movements by the pin, substantially as described.

199,360.

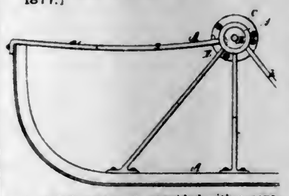


199,341. STRAP-LOCKS. Bart Kane, Cincinnati, assignor to J. Lyons, Lockland, Ohio. [Filed Dec. 14, 1876.]



A bale-tie consisting of the locking-plate or buckle A, having two lugs or prongs, C C', separated by a slot, B, open at *b*, and closed at *b'*, said plate having secured to it one end of band D, whose free end D' has the fourfold engagement G, H, I, and J with said lugs and slot, substantially as herein described, and for the purpose set forth.

199,342. HUB-RUNNERS. G. F. Kimball, Newton, Mass., assignor to himself and E. N. Kimball, same place. [Filed Mar. 6, 1877.]



1. A hub-runner, A, provided with a separate reversible axle-journal box, B, arranged and confined in it substantially as and for the purpose specified.

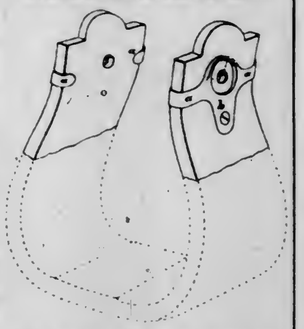
2. A hub-runner provided with an auxiliary axle-journal box supporter, *f*, and guard and oblique braces arranged with the main journal-box supporter and the spokes of the runner, substantially as set forth.

3. The hub-runner A, provided with the auxiliary axle-journal box supporter *f* and the flanged cap C, arranged with the axle-box and its main supporter, essentially as shown and described.

4. The hub-runner provided with the reversible axle-journal box, its two supporters, and the flanged cap, arranged and provided with confining screws, as set forth.

5. The combination of the axle and its collar-plate D with a hub-runner, A, the flanged disk C, and the separate removable axle-box B, and the auxiliary supporters *f* thereof, all being arranged and connected substantially as set forth.

199,343. STIRRUPS. H. H. Knight, Sandusky, Ohio. [Filed Feb. 28, 1877.]

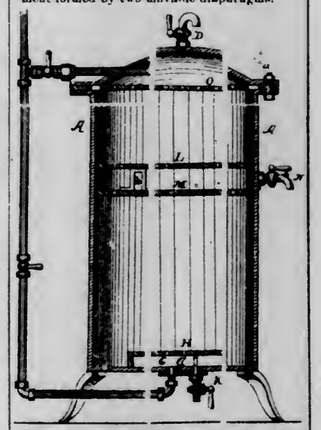


1. A bolt-plate for wooden stirrups, constructed with side arms *a*, which are bent round the edges of the stirrup, substantially as described, and for the purposes set forth.

2. A bolt-plate for wooden stirrups, constructed with the side arms *a*, which extend over the edges of the stirrup, and ear *b*, substantially as described, and for the purposes set forth.

199,344. LIQUID-FILTERS. M. Lansburgh, Baltimore, Md. [Filed Feb. 20, 1877.]

Brief.—The liquid is admitted above and below the filtering material, and is drawn off, through a stop-cock, from a central compartment formed by two movable diaphragms.

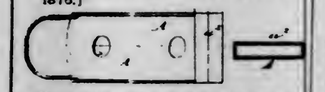


1. The combination of the movable diaphragms L and M with the stop-cock N.

2. The combination of the stop-cocks D and K with the cover and air-chamber G near the bottom.

3. The combination of the diaphragms L and M, having between them stop-cock N, with the vessel A, having inlets E and I at its top and bottom, respectively, whereby the liquid is passed through the two bodies of filtering material in opposite directions, and is drawn off at the middle of the vessel, or thereabout, substantially as and for the purpose described.

189,365. HARNESS-PADS. M. V. Longworth, Delphos, Ohio. [Filed Sept. 16, 1876.]



The cross-bars a^2 upon the upper ends of the flanged pad-plates A, to receive and hold the saddle-strap, substantially as herein shown and described.

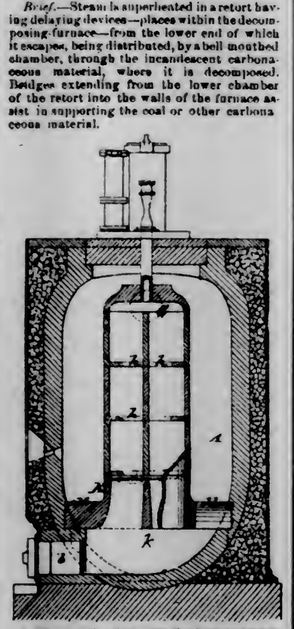
189,366. WRENCHES. J. D. Lovell, Worcester, Mass., administrator of A. G. Coes, deceased, assignor to J. H. Coes and F. L. Coes, same place. [Filed Feb. 21, 1877.]



In a screw-wrench, in combination substantially as shown and described, the bar A, having screw-threaded shank A', ferrule D, provided with beveled or conical end *a*, and the hollow metallic handle F, having screw-threaded diaphragm I, and interior beveled surface *b*, fitting the beveled end of ferrule, as set forth.

189,367. FURNACES FOR PRODUCING HEATING-GASES. P. W. Mackenzie, Blauvelt-ville, assignor to the Smith & Sayre Manufacturing Company, New York, N. Y. [Filed June 15, 1876.]

Brief.—Steam is superheated in a retort having delaying devices—places within the decomposing-furnace—from the lower end of which it escapes, being distributed, by a bell-mouthed chamber, through the incandescent carbonaceous material, where it is decomposed. Bridges extending from the lower chamber of the retort into the walls of the furnace assist in supporting the coal or other carbonaceous material.



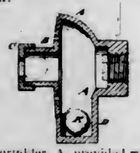
1. The combination, with the furnace proper for generating heating-gases, of a steam-superheating retort, provided with delaying devices, said retort being of a larger transverse area than the pipe which supplies it with steam, and arranged within the furnace, substantially as and for the purpose or purposes herein set forth.

2. The interior bell-mouthed distributing chamber K, in combination with a steam superheating retort and its surrounding or inclosing furnace A, essentially as described.

3. The combination of one or more bridges, M, the chamber K, and the furnace proper A, with its ash-clearing aperture *b*, substantially as and for the purpose specified.

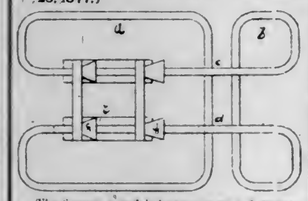
189,368. COMBINED NOZZLE AND SPRINKLER. N. Malmquist, Brooklyn, N. Y., assignor to himself and J. Loyd, New York city. [Filed Mar. 19, 1877.]

Brief.—The sprinkler is provided with a short tube in its face directly opposite the screw socket, and having its end covered with a perforated cap, with a tube in its side, having its outer end closed, and with a small marble or ball placed within it, to adapt it to be used for throwing water in a solid stream or shower.



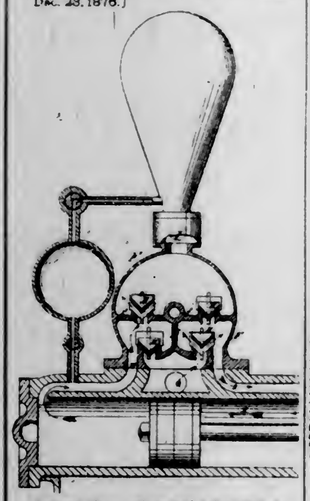
A sprinkler, A, provided with a short tube, B, in its face, directly opposite its screw-socket, and having its outer end covered with a perforated cap, C, with a tube, D, in its side, having its outer end closed, and with a small marble or ball, E, placed within it, to adapt it to be used for throwing water in a solid stream or a shower, substantially as herein shown and described.

189,369. HORSE-PROTECTORS. William S. Marsh, New Gloucester, Me. [Filed Jan. 23, 1877.]



The frames *a* and *b*, having arms *c d*, frame *c*, socket *g*, the part *a* being placed higher than *b*, as herein set forth, the whole operating as herein described.

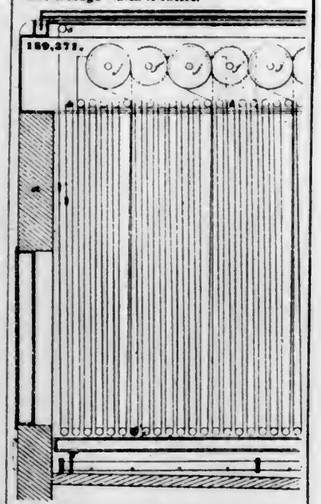
189,370. VALVES FOR STEAM-PUMPS. Jas. W. Mathieson, Brooklyn, N. Y. [Filed Dec. 29, 1876.]



A pump whose valves and valve-seats extend from side to side of chamber F, and are made of V shape, substantially as and for the purpose specified.

189,371. APPARATUS FOR STEAMING AND AGING PRINTED FABRICS. Wm. Mather, Salford, England. [Filed Nov. 26, 1876.]

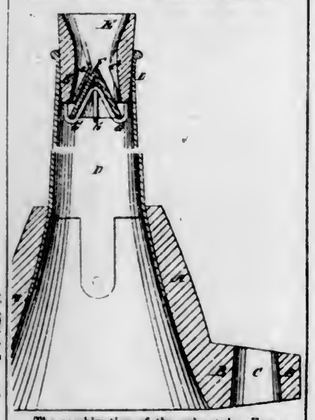
Brief.—The printed fabric passes alternately over large heating or drying rollers in the top of the apparatus, and a series of smaller rollers underneath the heating-rollers. Moist steam is admitted through a perforated pipe placed near the floor. The fabric is steamed while passing up and down over the small rollers, and, after alternate steaming and heating, passes out of the apparatus at the same aperture through which it enters.



1. The process of fixing the colors of printed fabrics, consisting in the alternate application of heat and moisture, substantially as set forth.

2. The improved apparatus for aging or fixing the colors of printed fabrics by the alternate application of heat and moisture, consisting of a case or chamber, *a*, provided with perforated steam-induction pipe and heated rollers, located respectively at bottom and top of the case or chamber, and other rollers *e d'*, for carrying the fabric, in the manner described.

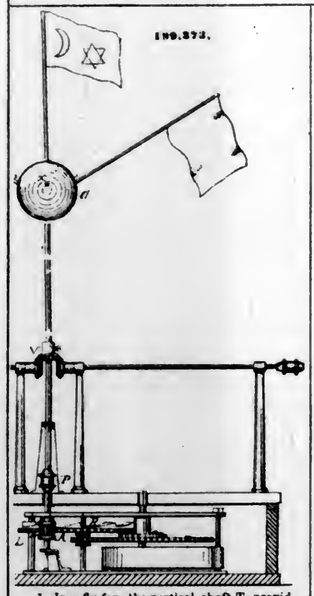
189,372. CHURN-DASHERS. J. L. Maxwell, Bentonville, Ark. [Filed Jan. 20, 1877.]



The combination of the valve-tube E, provided with the guide-ribs *e'*, the hollow-cone valve F, and the cage or spider G, with the hollow handle D of the dasher A B C, substantially as herein shown and described.

189,373. FLY-FANS. James F. McMillen, Mansfield, Ohio. [Filed Dec. 27, 1876.]

189,373.



1. In a fly-fan, the vertical shaft T, provided with the ball *d*, and driven by wheels A and L, said ball being furnished with the sockets or cavities *x*, for the reception of the ends of the flag-shafts, substantially as described.

2. In a fly-fan, the horizontal shafts *x x*, vertical shaft T, and wheels V, in combination with the wheel A, having cams B, substantially as and for the purpose set forth.

3. In a fly-fan, the wheel A, provided with the cams B, in combination with the vertical shaft A, substantially as set forth.

4. The oscillating bars *e*, pivoted to the standard *f*, and provided with the hangers or props *g*, substantially as specified.

5. The gear-wheel A and cams B, in combination with the props *g* and bars *e*, substantially as specified.

189,374. WEED-HIDERS. G. H. McDopel, J. Thorn, and S. Ewing, Fostoria, Ohio. [Filed Sept. 5, 1876.]

Brief.—Secured to the forward part of the plow-beam, and dragging in and upon the edge of the furrow, to turn under weeds or grass.



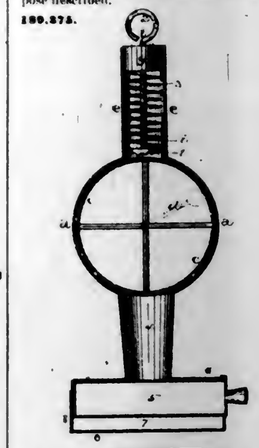
The above-described device for covering grass and weeds, consisting of the rod D, having the hook C and the prongs E and F, in combination with the clamp A, provided with the eye B, arranged to attach the weed-turner D E F loosely to the front part of a plow-beam and allow the prongs to drag in the furrow last cut, substantially as shown and described.

189,375. NUTMEG-GRATERS. John Meyer, Washington Court-House, Ohio. [Filed Mar. 17, 1877.]

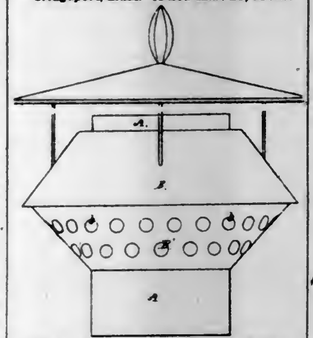
1. In a spice-grater, the chute 4, leading to the compartment 6, the latter being provided with the side pieces 7, to support the drawer and leave a space beneath it, as and for the purpose set forth.

2. As a new article of manufacture, the improved spice-grater shown, consisting of the grating mechanism e e e, the chute 4, compartment 6, having the drawer 5, and provided with a sifting-cloth, S, as and for the purpose described.

189,375.

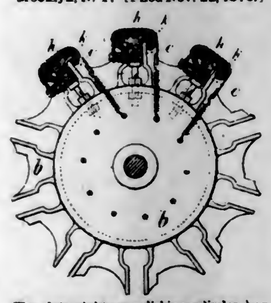


189,376. VENTILATORS. P. Mihan, Cambridgeport, Mass. [Filed Mar. 28, 1876.]



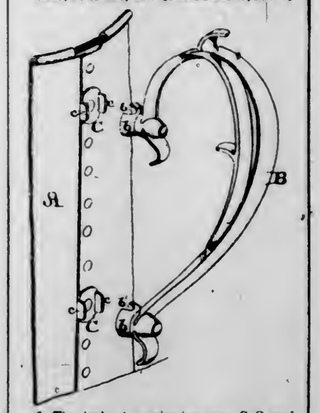
The combination of the main ventilating-pipe A, the conic frusta B B', and dome, when the parts are constructed and relatively arranged as shown and described.

189,377. DEVICES FOR WIPING AND POLISHING ENGRAVED PLATES. Robt. Neale, Brooklyn, N. Y. [Filed Nov. 22, 1876.]



The plate wiping or polishing cylinder, having heads *b*, presser-bars *c*, and radial screws, separately adjustable to adjust and sustain the bars *c* at the desired distance from the axis of the cylinder, in combination with the elastic material *k* and covering *h*, for the purpose and as set forth.

189,378. MODES OF ATTACHING HANDLES. F. G. Niedringhaus and W. F. Niedringhaus, St. Louis, Mo. [Filed Feb. 16, 1877.]



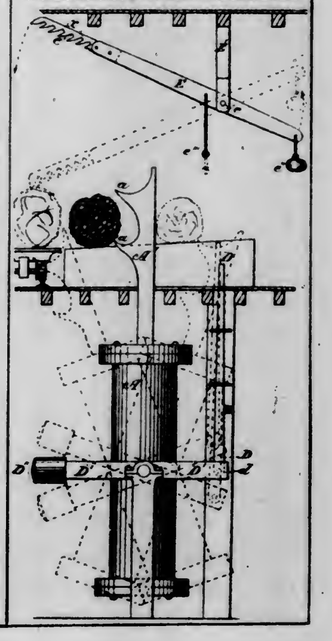
1. The body A, projecting ears C C, and handle B, having the sockets *b b*, constructed and combined substantially as described.

2. In a sheet-metal or other vessel, the combination of an enameled body, A, a projecting ear or ears, C C, formed of a metal to which enamel does not adhere, and a handle, B, substantially as described.

3. The ears C C, having the projections *c c*, and the handle B, having the cup-points *b b*, arranged and united by soldering, substantially as described.

189,379. LOG-TURNERS FOR SAW-MILLS. John Orm, Paducah, Ky. [Filed Mar. 10, 1877.]

Brief.—The reciprocating spiked rod, which engages the log on the log-deck, and forces it on the head-block, is given a great horizontal range. The log is prevented from rolling back by means of a swinging arm, having a balance-weight at one end and a series of teeth at the other, and pivoted to an arm suspended from a frame attached to the side of the main frame.

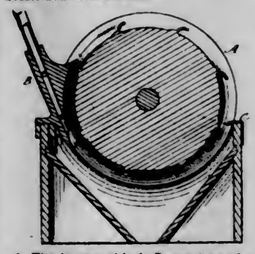


1. The lever D, weighted arm D', in combination with the oscillating steam cylinder A, containing the reciprocating bar A', as and for the purposes described.

2. The toothed and weighted arm E, pivoted at *e*, having balance-weight *e''*, and pull-cord *e'''*, in combination with the reciprocating log-turner A, operating in the manner substantially as described.

189,380. HYDRAULIC ENGINES. C. D. Page, Rochester, N. Y. [Filed Apr. 2, 1877.]

Brief.—The prime feature is the abutment-block, which serves the double purpose of a nozzle and an abutment

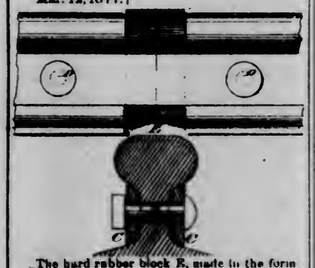


1. The butment-block B, constructed with the butment *f* and the internal water-passage *e*, in combination with the wheel A, in the manner and for the purpose specified.

2. The batment *f* of the block B, made concentric with the wheel to an extent equal to the distance of the buckets apart, and formed at the bottom with the curved depression or offset *f'*, for allowing the proper discharge of water upon the buckets as they pass forward, as shown and described.

3. The combination, with the wheel A, of the dash-plate C, as and for the purpose specified.

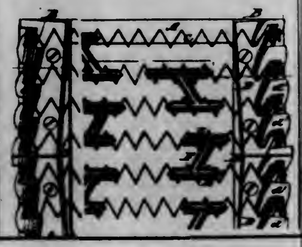
189,381. RAILROAD-JOINTS. C. Palm and J. Fitzgerald, Cerro Gordo, Ill. [Filed Mar. 12, 1877.]



The hard rubber block E, made in the form of a short section of a rail, interposed between the adjacent ends of two rails, and kept in place by the fish-plates, substantially as herein shown and described.

189,382. SPRING BED-BOTTOMS. J. H. Palmer, Warren, Pa. [Filed Jan. 20, 1877.]

Brief.—The end plates are made with upward-projecting flanges, having cross-notches formed therein, to receive the ends of the springs, which can be lifted from the notches to adjust their tension. The adjacent inner ends of the plates are inclined to form an arch or brace for the end rails.



1. The plates D, provided with single or double notched flanges *d'*, and made in two parts, with their adjacent ends inclined to cause them to meet at an angle, in combination with the frame A B and with the springs C of a bed-bottom, substantially as herein shown and described.

2. The couplings formed of the two short rods E, rigidly connected by an arm, F, in combination with the springs C of a bed-bottom, substantially as herein shown and described.

189,383. GRAIN-DRILLS. Chas. E. Patric, Springfield, Ohio. [Filed Oct. 30, 1876.]

Brief.—The feeding-case has spurs for the attachment of the removable seed-funnel, which is provided with an eye on one side, and a slot and spring-arm having an eye on the other. Within the measuring-channel of the feeding-case, and on the rock-shaft, is secured a gage, that is adjusted by segment and pinion, for graduating the amount of seed sown. By means of the slotted bearing the distributers are independently removable.

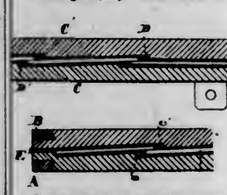


1. The gages *e*, arranged within the measuring-channels of the distributing-wheels, in combination with the rock-shafts *f* H, segments *g*, and pinions *h*, arranged and operating substantially as described.

2. The slotted or open bearing-brackets *F*, in combination with the sliding pinions *h*, adapting the distributers to be independently removed and replaced, as described.

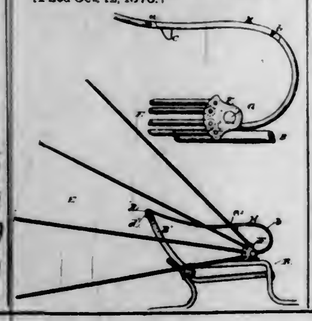
3. The distributer wheel casing D D', provided with the spurs *g g*, in combination with the funnel M, provided with the eye *n* and perforated spring *p*, arranged and operating substantially as described.

189,384. WINDOW-SASHES. John Petri, Covington, Ky. [Filed Mar. 9, 1877.]



The described combination of stepped frames A C e B C' *e'*, lips K, gaskets D D', hinges E, and screw-fastenings F G H, as and for the purpose set forth.

189,385. CARRIAGE-TOP AND SHIFTING SEAT-RAIL. J. W. Post, New York, N. Y. [Filed Oct. 12, 1876.]



1. The shifting top E, made of tubular metal, without intermediate cross bars or braces, and united at the ends into a trunnion, G, in combination with the socket C on rail B, as described.

2. The removable spring hand-rail H, as and for the purposes described.

3. In combination with the top E, with keeper F, trunnion G, and stop *a'*, the removable rail H, with recesses *a b*, stop *c*, and plate *d*, as described.

4. The combination and arrangement of top bows with trunnion G, rail E, with socket C, and removable rail H, as and for the purposes described.

5. In combination with the rail B, with socket C, and removable rail H, with ends h, the trunnions G of the top, provided with recesses *g*, as and for the purposes described.

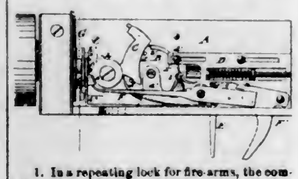
189,386. WHEEL-TIRES. I. N. Pyle, Decatur, Ind. [Filed Mar. 19, 1877.]



The outer tire C, made with the groove *c'* upon its inner surface, and the inner tire B, made with the tongue *b'* upon its outer surface, and the groove *b*' and the two pairs of lips *b*² *b*² upon its inner surface, in combination with the fellies A, made with the tongue *a'*, the two grooves *a*', and the two bevels *a*² upon their face, substantially as herein shown and described.

189,387. LOCKS FOR FIRE-ARMS. Ira Robbins, Hughesville, Pa. [Filed Mar. 12, 1877.]

Brief.—A coiled spring is used for the main-spring, and is connected with an intermittently-revolving notched disk, by which the hammer is thrown forward. The lock is cocked automatically after each pull of the trigger.



1. In a repeating lock for fire-arms, the combination of the releasing-trigger mechanism with a spring-acted revolving disk and a pivoted hammer, substantially in the manner and for the purpose set forth.

2. In a repeating-lock for fire-arms, the combination of a revolving spring acted disk with a releasing-trigger mechanism, pivoted hammer, and a spring-acted return-lever to throw the hammer forward for firing and then reset it again, substantially as described.

3. The combination of the spring-acted revolving disk B, having projecting studs, with the pivoted hammer, a sliding spring-bolt, D, and releasing-trigger, to simultaneously throw the hammer forward while returning the bolt for relocking the disk and trigger, substantially as specified.

4. The combination of the spring-acted revolving disk B, having circumferential notches, with the sliding spring-bolt D, pivoted lock-pawl *b*, and releasing-trigger, substantially as set forth.

5. The sliding spring-bolt D, having recess *g* with inclined sides, in combination with the pivoted lock-pawl and releasing-trigger, to withdraw the pawl from the spring-disk on pulling the trigger, substantially as described.

6. The combination of the sliding spring-bolt D, having lower heel *f'* and side heel or projection *f''*, with spring-hook *f* and spring-hook *e* of trigger, to release spring-bolt for forward motion on pulling of trigger, substantially as specified.

7. The combination of the spring-acted revolving disk B, having circumferential notches and projecting studs, with the sliding spring-bolt D, having extending heel *d'*, pivoted lock-pawl *b*, spring-hook *f*, and locking-hook *e* of trigger, to return bolt and lock bolt and disk for next operation, substantially as specified.

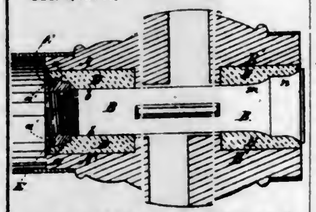
8. The swinging hammer D, having mutilated pinion *h'*, revolving mechanism of cylinder, and return-lever F, to return hammer and simultaneously turn cylinder, substantially as and for the purpose set forth.

9. The combination of swinging hammer C, sliding rack-plate *h'*, having pin *i* and lower hook-end *h'*, with spring-pawl *i'*, inner ratchet *i'*, slide-rod *i* P, check-pawl *m*, and outer ratchet G, to release ratchets and revolve cylinder, substantially as specified.

10. The combination of sliding rack-plate *h'*, having lower hook end *h'*, with spring-pointed *l*, slide-rod P, tapering guide-plate P, and pin P, to drop pawl-lifting rod as soon as the check-pawl clears the outer ratchet, substantially as described.

11. The combination of the pivoted hammer C and rack-plate *h'*, having heel *h'*, with spring-acted lever F and supplemental trigger F', to raise hammer for firing when required, as described.

189,388. ELASTIC HUBS. Jno. B. Sammis and Geo. W. Hayes, New York, N. Y.; said Hayes assignor to said Sammis. [Filed Jan. 4, 1877.]

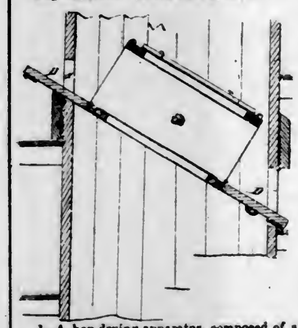


1. In an elastic hub, the tapering nut E, combined in such relation with the outer end of the elastic cushion D and the adjacent portions of the hub as to compress the said outer end of the elastic cushion between the circumference of the nut and the concentric inner surface of the recess formed in the hub, in the manner described, for the purpose specified.

2. In an elastic hub and axle-box, B, constructed with the double wedge-like surfaces *a a*, in combination with the recessed inner elastic cushion B, substantially as and for the purpose herein set forth.

3. The combination of the box B, constructed with one or more radial projections, ribs, or spurs, and fitting loosely in the bore of the hub, with one or more elastic cushions, and a frame, G, formed internally in the wood of which the hub is composed, whereby provision is made for the action of the cushion or cushions in relieving the box B, without danger to the cushion or cushions from torsion exerted by the turning of the box within the hub, substantially as set forth.

189,389. HOP-DRIERS. C. A. Sands, Burlington, Kans. [Filed Feb. 3, 1877.]

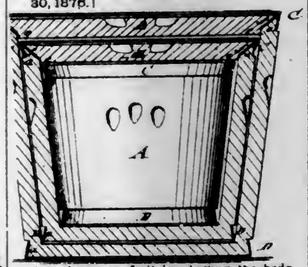


1. A hop-drying apparatus, composed of a revolable and reversible drying-box, having wire-gauze or perforated top and bottom doors to admit the passage of the heated air, and hinged entrance and discharge doors at the end, substantially as and for the purpose set forth.

2. The combination, with the drying shaft or chamber, of the centrally-pivoted and revolving drying box or floor, having hinged doors at opposite ends, and an entrance-opening above the level of the box and a discharge-opening below the level of the box, to tilt the same in inclined position for receiving or discharging the hops, substantially as specified.

3. The combination of the transverse strips or cushions *d* with the doors D of the box, to close the space between the box and walls of the drying-room, substantially as described.

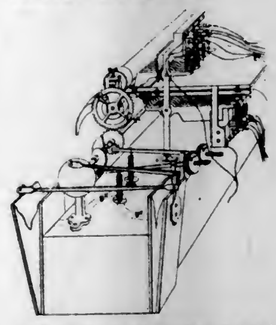
189,390. BUTTER AND FRUIT JARS. Chas A. Sands, Burlington, Kans. [Filed Dec. 30, 1876.]



1. A butter or fruit jar, having the body A and bottom B connected by a compressible gasket and diagonal joint, the latter being covered on the outside by an elastic band, C, arranged as shown and described.

2. The jar A, having circumferential recess on lower edge and rubber band D lapping into recess and over bottom of jar, to form, in connection with top band, a cushioning packing for the jar, substantially as specified.

189,391. ELECTRO-PNEUMATIC MUSIC-PLAYING APPARATUS. Wm. F. Schmoele and H. Schmoele, Jr., Philadelphia, Pa., assignors of one-third their right to Chas. Schmoele. [Filed Feb. 25, 1874.]



1. The combination of opposite rows of readers, arranged to read simultaneously from opposite surfaces of the music-sheet, substantially as described.

2. The combination, with a set of conducting-fingers, of a non-conducting comb to determine the position of the fingers, substantially as described, and for the purpose set forth.

3. The combination of an electro-magnet and armature with an internal pocket or trail of pockets, substantially as described.

4. The internal or "chamber valve" used in this combination, which, when starting into action, moves against the wind-pressure to close the ingress-aperture, and, when returning to rest, moves with the wind-pressure to close the egress-aperture, substantially as described.

5. The combination of an electro-pneumatic action with a circuit-arrester upon a draw-slide, substantially as and for the purpose set forth.

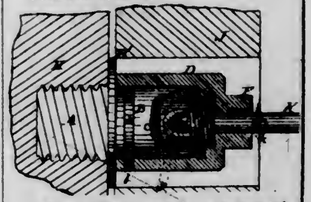
6. The graduating piano-action consisting of the combination of a series of slides with the electro-pneumatic trains, for the purpose of varying the force of the impulses delivered to the piano-hammers by the final pockets of those trains, substantially as described.

7. The combination of an intermitting circuit-breaker with an electro-pneumatic train, to produce a rolling electro-pneumatic action for drums and other percussion-instruments, and for tremolo, substantially as described.

8. In an electro-pneumatic drum-action, the combination of one or more resistance-pockets with the main or striking pocket, to modify the force of the blows, substantially as set forth.

9. The battery plunging pocket, to automatically lower and raise the battery-plates into and from the exciting liquid, substantially as described.

189,392. LOCKS FOR SLIDING DOORS, &c. James W. Schoonmaker, Albany, N. Y. [Filed Feb. 3, 1877.]



1. The combination, with the screw-threaded bolt A B, provided with a clutch-holding recess, and the revolving sleeve D, also provided with a corresponding clutch-recess, and secured in a loose manner to said bolt, of the clutch E and spring S, as and for the purpose set forth.

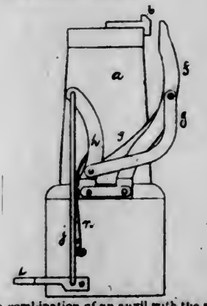
2. The combination, with clutch E and pin *u* projecting in the central recess of said clutch, of the key K, having an annular groove, *x*, and groove *y*, leading to said annular groove, in the manner and for the purpose set forth.

3. The combination, with the clutch E, having an opening or recess, provided with pin *u*, the screw-threaded bolt A B, having a clutch-holding recess, and the loose sleeve D, having a corresponding clutch-holding recess occupied by a coiled spring, and a key-hole, having ward *i*, of the key K, provided with angular groove *x*, way *y*, bit or stop *z*, and pin *u*, as and for the purpose set forth.

4. The within-described lock, composed of a screw-threaded stem, having a shaft solid with the same, a revolving sleeve, having an angular head, and working over said shaft, and a spring-clutch capable of engaging with clutch-holding recesses in the shaft and sleeve, and adapted to be operated by a key to effect such engagement, all combined to adapt the lock to be screwed in place or unscrewed, and subsequently rendered inoperative for said operations, as and for the purpose set forth.

189,393. BLACKSMITHS' ANVILS. H. B. Sevay, Vienna, Mo. [Filed Feb. 7, 1877.]

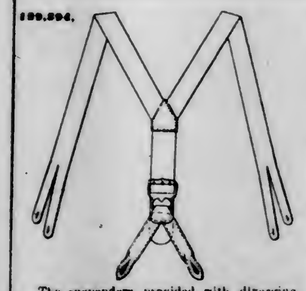
Brief.—An ordinary anvil with a vise attached to it at one end and bolt-heading dies at the other, the two devices operated separately by foot-levers, and both detachable when circumstances require it.



The combination of an anvil with the swage *b*, jaw *f*, bands *f*, treadles *i*, rods *j*, springs *n*, levers *h*, part *k*, clasp *o*, having the grooves *e*, and set-screw *d*, arm *m*, all operating as and for the purposes herein described.

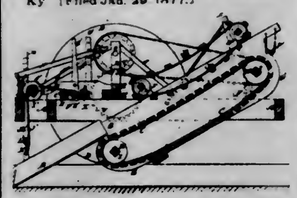
189,394. SUSPENDERS. A. Shenfeld, New York, N. Y. [Filed Mar. 16, 1877.]

189,294.



The suspenders provided with diverging ends and an adjustment at the back, and with diverging ends at the front that are continuations of the webbing c, and without intervening slides or buckles, substantially as set forth.

189,293. DITCHING-MACHINES. J. R. Slaton and J. M. Wadlington, Morganfield, Ky. [Filed Jan. 29, 1877.]



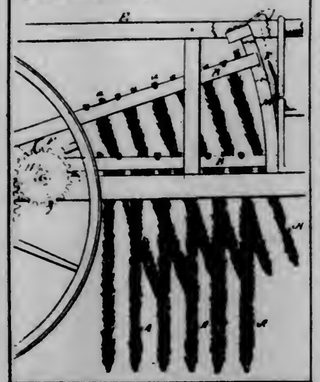
1. The combination of the gear-wheels U T and the pulleys P O J K with the drive-wheel D and the rear shafts of the carriers C M, substantially as herein shown and described.

2. The combination of the gear-wheels V W, the shafts X B' F', and their connecting-gearing, the lever G', the cord H', the shaft I', and the cords J', with the drive-wheel D, the frame A, and the scraper B, substantially as herein shown and described.

3. The combination of the extension-bars Q with the front cross-bar of the frame A and the extensible axle F, substantially as herein shown and described.

189,295. COTTON-PICKERS. O. R. Smith, Raleigh, N. C. [Filed May 29, 1876.]

Brief.—Flexible rods, bearded with spines pointing upward, depend vertically from a series of alternately-vibrating finger-bars. These picker-rods, by their intersection, strip the cotton from the bolls as the machine passes through the field.



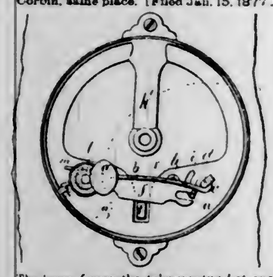
1. In a cotton-picker, the flexible toothed rods A and vibrating bars B, having laterally projecting brushes, combined and operating substantially as described.

2. In a cotton-picker, the combination of the vertical flexible toothed rods A, horizontal vibrating bars B, tappet-shaft, gearing, and transporting-wheel, as shown and described.

3. In a cotton-picker, the combination of the carrier and vibrating bars carrying toothed rods, and receptacle E, as shown and described.

4. In a cotton-picker, the combination, with the vibrating picker-bars, of the pivoted board, carrying spring-catches, substantially as shown and described.

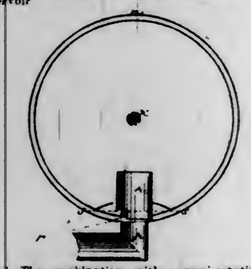
189,297. DOOR-BELLS. Wm. E. Sparks, New Britain, Conn., assignor to P. and F. Corbin, same place. [Filed Jan. 15, 1877.]



The lever *f* upon the fulcrum-stud *l* at one side of the plate *g*, and the hammer *a* upon the pivot-pin *d*, at the opposite part of such plate *g*, and the hammer-tail entering the notch at the end of the lever *f*, in combination with the stops *i o*, and the lever *l*, that passes through the door and acts upon the lever *f*, as and for the purposes set forth.

189,298. FOUNTAIN-LAMPS. E. J. Stearns, Denton, Md. [Filed Dec. 6, 1876.]

Brief.—A depression in the periphery of the reservoir provides for the insertion of a short tube, which may be used for filling or feeding, according to the position of the reservoir.



1. The combination, with a semi-rotating reservoir and a fixed inclosing-case therefor, of a concave formation or cup in the circumferential side of said reservoir, and a supply-pipe projecting externally within said concave or cup, and adapted for operation in relation to the case and the delivery-pipe, substantially as herein set forth.

2. The supply-pipe A of the reservoir, provided with the side opening *r*, in combination with the top and delivery openings *a* and *p* of the fixed case, substantially as and for the purpose herein set forth.

3. An air and oil chamber formed above the delivery-pipe *p*, below the supply-pipe A, and between the reservoir and fixed case, when these pipes are coincident, in combination with the top opening *a* and the said supply-pipe, substantially as and for the purpose herein set forth.

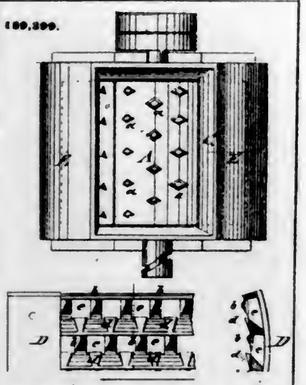
189,299. MACHINES FOR GRINDING SHAVINGS. I. Tompkins and A. G. Tompkins, Brooklyn, N. Y. [Filed Oct. 23, 1876.]

Brief.—Reduces the shavings of planing-mills, sash-factories, &c., into fine particles of sawdust size.

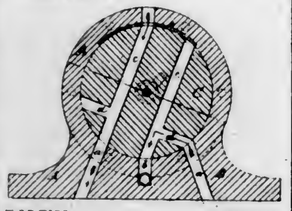
1. The combination, in a shaving-grinder, of the case B, fixed grinding-cylinder D, and rotary grinding-cylinder A B, substantially as and for the purpose specified.

2. In a shaving-grinder, the shell provided with alternate longitudinal cutters and chipping-teeth *b d*, between which are arranged perforations *a*, as shown and described.

189,300.



189,300. CIRCULAR VALVES FOR STEAM-ENGINES. H. L. Tumy, Cincinnati, Ohio. [Filed Aug. 14, 1876.]



1. The valve C, constructed in a circular form, placed in and accurately fitting the cylindrical case A, and having the inlet-ports *c c* passing directly through it, intersected by the exhaust-ports *a a*, so arranged that they can be put in connection or communication with the outlet *b* alternately, said inlet-ports *c c* being put in communication with *d d* alternately by a reciprocating movement of the valve C, substantially as set forth and described.

2. The combination of the bearing-plate *e*, casing A, and valve C, and the inlet and exhaust-ports, substantially as shown and described.

189,301. PETROLEUM PRODUCTS AND METHODS OF OBTAINING THE SAME. Herbert W. C. Tweddle, Pittsburg, Pa. [Filed July 31, 1876.]

1. As a new article of manufacture, the petroleum product hereinbefore described, and having the characteristics herein described.

2. The process herein described for obtaining a new product from petroleum, the same consisting in washing the orange-colored resinous oily product obtained toward the close of the distillation of tar residuum, and subsequently driving off the solvent and recovering the heavy oil, substantially as and for the purpose specified.

189,302. PETROLEUM PRODUCTS AND METHODS OF OBTAINING THE SAME. Herbert W. C. Tweddle, Pittsburg, Pa. [Filed July 31, 1876.]

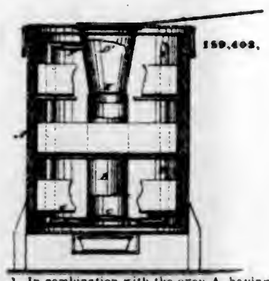
1. As a new article of manufacture, the petroleum product hereinbefore specified, and having the characteristics herein described.

2. The process herein described for obtaining a new product from petroleum, the same consisting in lixiviating the orange-colored resinous oily product obtained toward the close of the distillation of tar residuum, and recovering the precipitate, substantially as and for the purpose specified.

189,305. PORTABLE OVENS. Edw. B. Van De Mark, New York, N. Y. [Filed July 1, 1876.]

Brief.—A double fire can be built within the oven. The smoke escapes through the pipe passing entirely around the oven.

189,402.

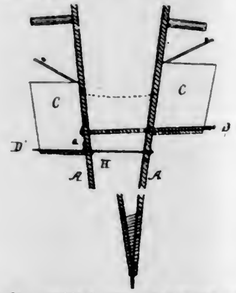


1. In combination with the oven A, having coincident holes at top and bottom, the pipe B, the fire-pot, and the pipe F, extending from the latter around the oven, as shown and described, for the purpose specified.

2. The cone-shaped fire-pot D', having a slotted or perforated bottom, K, the same being applied to the reversed end of the cylindrical pipe B, as shown in Fig. 2, for the purpose of enabling two fires to be built within the oven, one in the fire-pot D', and one at the base of the pipe B, substantially as shown, and for the purpose specified.

189,403. SEED-PLANTERS. J. Wafer, Etna, N. Y. (Filed Mar. 28, 1877.]

Brief.—A combined hand planter (corn and pumpkin-seed) with a "nib" on the under side of the pumpkin-seed slide, to prevent the seed from wedging or catching, as would otherwise occur.



1. In a combined corn and pumpkin-seed planter, the iron slide D', having the projecting nib H, arranged substantially as described, and for the purpose specified.

2. In a corn and pumpkin-seed planter, arranged with sides A, seed-boxes C C', and slides D D', the nib H, in combination with the grooved bottom, all constructed and arranged substantially as described, and for the purpose set forth.

189,404. CORSETS. Ira De Ver Warner, Bridgeport, Conn. [Filed Feb. 13, 1877.]



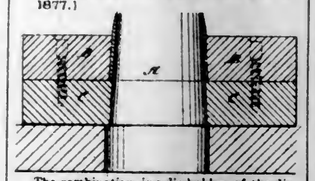
1. The improvement in the art of manufacturing corsets, consisting in forming pockets in the separate sections, inserting the ribs therein, and then uniting the sections, as set forth.

2. A bosom-pad corset in which those portions of the gores which aid in forming the bosom receptacles are provided throughout their entire extent with ribs placed side by side, as set forth.

3. A bosom-pad corset in which the breast-receptacles are stiffened by series of diagonal and vertical ribs, as specified.

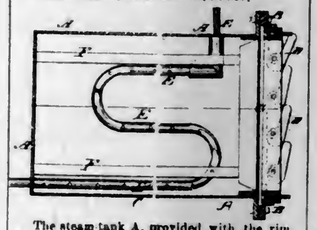
4. The combination of the ribs *d'*, extending the length of the corset, the shorter ribs *e e* extending from the lower edge to the breast-sections, and the series of small ribs stiffening the breast-sections, substantially as specified.

189,406. DIES FOR CUTTING LEATHER. A. Warren, Jefferson, Ohio. [Filed Feb. 10, 1877.]



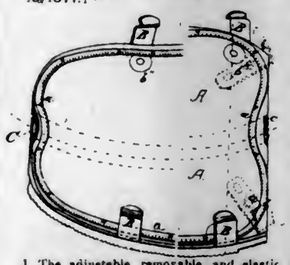
The combination, in a die-holder, of the die A and blocks B C, each of the latter provided with a central aperture to allow the cut stock to drop through, and the lower block C constituting the base-support for the die, all constructed and arranged substantially as shown and described.

189,407. STEAM-TANKS FOR COOKING FISH AND MEAT IN CANS. F. M. Warren, Portland, Oreg. [Filed Oct. 14, 1876.]



The steam-tank A, provided with the rim B around its open end, the sliding door C, the cams D, the perforated steam-pipe E, and the track F, substantially as herein shown and described.

189,408. ADJUSTABLE SAFETY-SOLES FOR BOOTS AND SHOES. A. P. Watson and C. E. Crane, Lake City, Minn. [Filed Mar. 19, 1877.]



1. The adjustable, removable, and elastic sole-protector A, having the soft and yielding edging *a*, and spring holding-clamps B, substantially as and for the purposes described.

2. The adjustable, removable, and elastic sole-protector A, having the soft and yielding edging *a*, spring holding-clamps B, and serrated or toothed spring C, substantially as and for the purposes described.

189,409. DENTAL ENGINES. B. M. Wilkerson, Baltimore, Md. [Filed Feb. 13, 1875.]

Brief.—The driving-shaft is rotated by a portable water-wheel, the case of which is provided with two rubber tubes, to admit and carry away the water. A sliding sleeve catches under the beveled end of a spring, which carries a fastening lug for the tool proper. A small tube carries water to the end of the tool to keep it cool.

189,409.

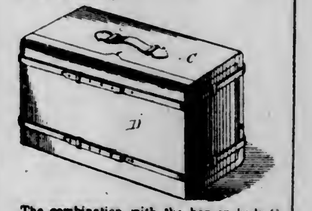


1. In combination with the water-wheel and its tool-driving shaft, the case D, having an attachment at its rear face of two flexible tubes, the smaller one for conveying water or fluid, to drive the wheel and engine, and the larger one to convey the waste water from the wheel, substantially as shown and set forth.

2. In combination with the stock or stem A, the movable slotted sleeve *g*, and the spring *d* and its inclines and teeth, the combination operating substantially as and for purpose set forth.

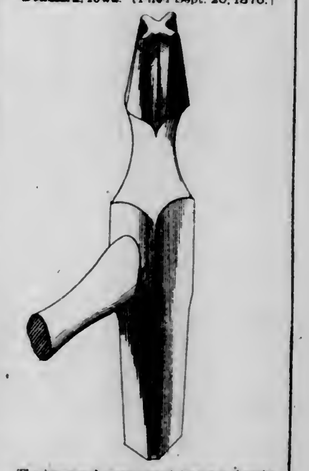
3. In combination with a dental engine, adapted to be driven by water, the small watering-tube *t*, extending to the forward end of the hand-piece I, and provided with a cut-off valve or stop-cock, substantially as shown and described.

189,410. TRUNKS, PORTMANTEAUS, &c. H. F. Worthington South River, N. J. [Filed Feb. 20, 1877.]



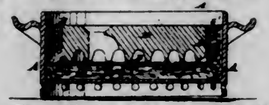
The combination, with the box or body C and its cover D D, the auxiliary compartments A A and covers B B, substantially as described.

189,411. RIVETING-HAMMERS. E. Wright, Denmark, Iowa. [Filed Sept. 20, 1876.]



The improved cross-panel hammer, herein described and shown.

189,413. DISH-WARMERS. J. H. Wright, New York, N. Y. [Filed Mar. 10, 1877.]



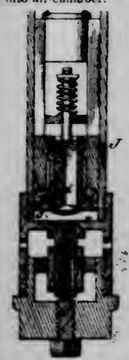
The combination of the inner case B and the asbestus packing C with the outer case or body A and the iron heating-block D, substantially as herein shown and described.

189,414. COMPOSITION FOR ARTIFICIAL FUEL. J. Q. A. Ziegler, Philadelphia, Pa., assignor of one-half his right to H. W. Adams, same place. [Filed Nov. 28, 1876.]

The composition artificial fuel consisting of small coal, clay, coal-tar or petroleum, and water, substantially in the manner and for the purposes hereinbefore set forth.

189,415. STEAM-PUMPS. C. Ahrens, Cincinnati, Ohio. [Filed May 13, 1876.]

Brief.—Compressed air is supplied to the air-chamber of a steam-pump by the air-pump. The piston of air-pump forces the air entirely out of air pump barrel (leaving no air to expand) into the pressure-vessel underneath, and thence into air-chamber.



1. In a steam-pump, the positive-moving supplemental pump J, adapted to supply air to the air-vessel, substantially as and for the purpose specified.

2. In an air-pump, the combination, substantially as specified, of the pump barrel, the piston, the valve thereof, the pressure-chamber underneath the pump-barrel, and the valve governing the induction port of said air-chamber, the relative arrangement of the parts being such as hereinbefore stated.

3. In combination with the air-pump J and air-vessel G, the supply-pipe I, provided with check-valve I and the stop-cock F, connected and operating substantially as and for the purpose specified.

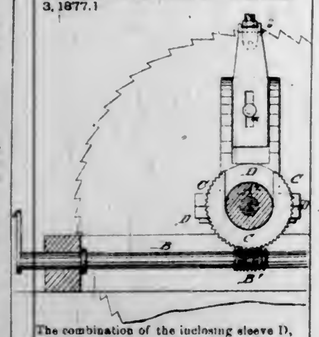
189,416. BENCH-PLANES. L. Bailey, Hartford, Conn. [Filed Feb. 16, 1877.]

Brief.—The bit is longitudinally adjustable by means of a link working in a longitudinal slot in the bed-plate, and provided at one end with a stud, which engages with a series of holes in the bit, and near the other end with a similar stud, which engages with a cam slot in a gear-wheel attached to the under side of the bed-plate, and operated by a pinion attached to a milled head pivoted to the same side of said plate.



The combination of the longitudinally slotted bed-plate I, the link L, provided with the studs M K, the pinion G, and the gear-wheel H, having the cam-slot J, constructed to operate as shown and described, and for the purpose specified.

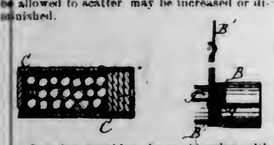
189,416. ADJUSTABLE SAW-GUIDES. Geo. W. Baker, Watsontown, Pa. [Filed Mar. 3, 1877.]



The combination of the inclosing sleeve D, carrying the guide-supporting arm, and having a sectional gear-wheel, C, with a worm-wheel of crank-shaft B, to swing the guide down and out of the way, for the purpose specified.

189,417. SHOT-CARTRIDGES. H. H. Barnard, Rochester, N. Y., assignor of one-half his right to H. S. Miller, same place. [Filed Mar. 10, 1877.]

Brief.—The cartridge is wound with several threads of short lengths. By increasing or diminishing the number of threads, the range at which the case will separate and the shot be allowed to scatter may be increased or diminished.

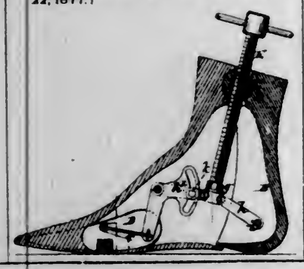


1. In a shot-cartridge, the combination, with the divided case A A, of the several threads B B', wound one after another upon the case, the ends of the threads looping around each other, as described, so that, in unwinding, one thread will raise the end of the next, as and for the purpose specified.

2. In a shot-cartridge, the combination, with the case A A and the threads B B', of a paper envelope, C, covering the cartridge, and connected with the threads in such a manner as to start the unwinding of the thread as the cartridge leaves the gun, as herein shown and described.

3. The envelope C, constructed with the two flaps *h i*, arranged for folding one over the other, a slit, *k*, for the insertion of the thread, and the notches *m m*, for producing even wrapping of the envelope around the cartridge, as herein shown and described.

189,418. LASTS FOR BOOTS AND SHOES. John Bailey, Kensington Park Gardens, John Keate, Wood Green, and Jas. Neil, Worship Street, England. [Filed Feb. 22, 1877.]



1. In combination with the body of the last, of a pivoted-swinging heel-piece adjustable toward and from the instep, and within or under cover of the body of the last, substantially as specified.

2. A last provided on either side of its foot or forward portion with a side piece constructed and applied to swing outward from an axial line parallel, or nearly so, with the sole and length of the foot, essentially as described.

3. The combination of the swinging and adjustable heel-piece of the last with the laterally swinging or rolling side pieces on either side of the forward portion of the last, substantially as specified.

4. In a last having an adjustable heel-piece and expanding and contracting side pieces at its forward portion, the combination, with said heel-piece and forward side pieces, of mechanism organized to provide, first, for the expansion of the heel-piece, and subsequently for the expansion of the side pieces, essentially as described.

5. The combination, with the pivoted or swinging heel-piece B and rolling side pieces D D, of the screw E, the toggle-levers *h h'*, the stud or pin *k*, the lever *m*, having a slotted arc, *l*, and the rods *r r*, substantially as specified.

189,419. FASTENINGS FOR BUTTONS. Geo. W. Beeley, Toledo, Ohio. [Filed Mar. 8, 1877.]



The hereinbefore-described button-fastener A, constructed from wire, and provided with the loop *a*, arm *a'*, and offset *a''*, substantially as and for the purpose specified.

189,420. TELESCOPIC BALLASTING-TUBES FOR VESSELS. Alex. Berghold, New Ulm, Minn. [Filed Mar. 12, 1877.]

1. In combination with steam or sailing vessels, a series of telescoping pipes capable of being lowered down below the keel or raised within wells in the hold of vessels, said series of pipes being located on a line with the keel, or adjacent to it on each side, to keep vessels from capsizing or drifting before the wind, substantially as described.

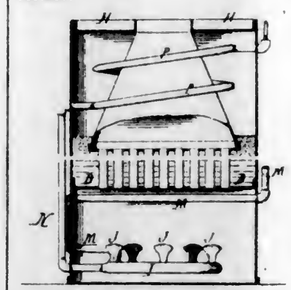
2. In combination with steam or sailing vessels and a series of telescoping pipes extending through the bottom of said vessels, the spring-valves attached to the lower end of the telescoping pipes, substantially as and for the purpose described.

189,421. HYDROCARBON-BURNERS. Joshua Bishop, Philadelphia, Pa., assignor of one-half his right to Jas. Forney, same place. [Filed Dec. 29, 1876.]

1. The combination of the vapor-pipe N and the steam-pipe M, with the tube I, its burners J, and chambers *a* and *b*, the former communicating with the burners through openings *i* and the latter through nozzles *m*, as set forth.

2. The combination of the tube I and its chambers *a* and *b*, with the burners J, their openings *i* and *f*, and the nozzles *m*.

189,421.



189,422. SPHERICAL GLASS TARGETS. A. H. Bogardus, Elkhart, Ill. [Filed Mar. 26, 1877.]



A hollow glass ball, having a serrated or roughened surface or exterior, as and for the purpose specified.

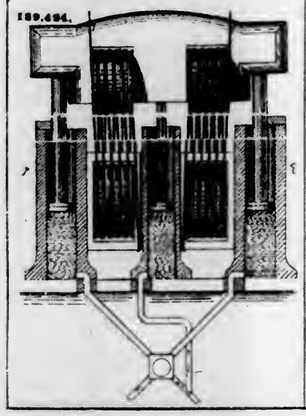
189,423. SEWING-MACHINE SHUTTLES. W. Bown, Birmingham, England. [Filed Jan. 9, 1877.]



1. The shuttle or shell having the open-ended slit *b'* made therein, extending lengthwise of the shuttle, and terminating at its end in an open cut, extending transversely from such slit to the edge of the face of the shuttle, and thereby forming a spring-flap having its free end rounded to coincide with, and forming part of, the rounded heel of the shuttle.

2. In combination, the sliding presser plate or spring D within the shuttle, its adjusting-screw, the slot L in the shuttle, and a fixed visible device on the outside of the shuttle, serving to indicate readily to the eye the degree of tension imparted to the thread by the presser or tension spring, as shown and described.

189,424.

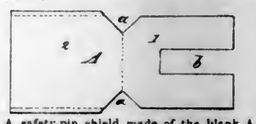


189,425. HYDRAULIC ELEVATORS. E. Brower, Boston, Mass. [Filed Jan. 10, 1877.]

Brief.—Cross-head is lifted by the pressure of the water upon the pistons at its ends, while the central cylinder and piston serves to counterbalance the elevator-car.

The cross-head, its two sets of sheaves, and two equal pistons, positively attached at the ends of the cross-head, in combination with two stationary equal cylinders, *p q*, adapted to be connected with the main or service and waste pipes, as described, to lift the cross-head at its end, and with a central car-counterbalancing cylinder and piston arranged to operate, all substantially as described.

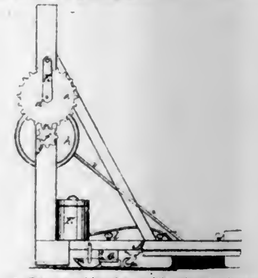
189,426. SAFETY-PIN SHIELDS. Wm. A. Butler, New York, N. Y. [Filed Mar. 14, 1877.]



A safety-pin shield made of the blank A, with the notches *a* and *b* formed therein in relation with each other, and having the part 1 bent over the part 2, and the lateral borders of said parts joined, substantially as and for the purpose set forth.

189,427. SCRUBBING-MACHINES. P. Byrne, Jr., Norwalk, Wis. [Filed Feb. 10, 1877.]

Brief.—A frame on wheels carries a reciprocating scrubbing-brush, with mechanism for operating it. It also has a water-holder, connected with the scrubber by a flexible tube, and a mop and pan for taking up the water that has been used.



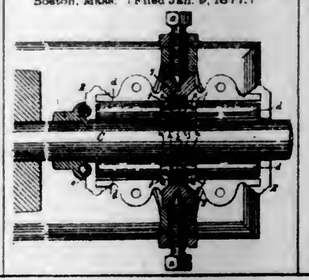
1. The combination, with the horizontal frame, of the reciprocating scrubber, sliding on ways, the rod *i*, the wheel *h*, and gearing for rotating the same, as shown and described.

2. The combination of the scrubber and its vertically-adjustable ways or guides with the part B of the frame, substantially as shown and described.

3. The water-holder E, flexible tube, and the reciprocating scrubber, combined as shown and described.

4. The combination of the pan *m* with the rubber mop G, having an angular or curved form, and provided with a hole, *o*, for the passage of water to pan.

189,427. ANTI-FRICTION BEARINGS FOR REVOLVING SHAFT-AXLES. O. R. Chaplin, Boston, Mass. [Filed Jan. 9, 1877.]



1. The combination of the shaft C, box B, a series of rolls, *d*, provided with the centrally-located reduced journals *h*, and adapted to roll in contact with the shaft and the inclosing-box, a second series of short rolls or cylinders, *i i*, adapted to bear along their whole length upon said reduced journals *h*, and the two rings *j k* adapted to be revolved in opposite directions by contact with opposite sides of the rolls *i i*, substantially as and for the purposes described.

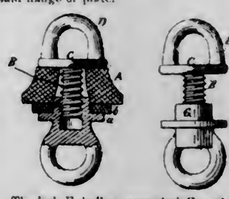
2. In combination with the two series of rolls *d* and *i*, and the ring *j*, constructed and arranged as set forth, the ring *k*, made in two semicircular parts, hinged together at one side, and secured together at the other side, by a pin, as and for the purposes described.

3. The box B, made in two parts, divided longitudinally, and having formed in its interior two cylindrical surfaces, *c c*, of equal diameter, separated by an annular groove or enlarged chamber, *g*, in combination with the supporting-rolls *d d*, separating-rolls *i i*, and the rings *j k*, adapted to revolve in opposite directions in the same plane, substantially as and for the purposes described.

4. The combination, in a box or journal-bearing, made in two parts, divided longitudinally, of two interior cylindrical surfaces of equal diameter, separated by an annular groove or enlarged chamber, *g*, and two inwardly-projecting annular ribs, *e e*, cast with or forming an integral part of said box and its cap, substantially as described.

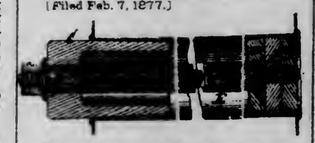
189,429. CHAIN-PUMP BUCKETS. W. Cooper, Ypsilanti, Mich. [Filed Sept. 23, 1876.]

Brief.—The female screw or closed nut is not formed of one piece with a link and flange, but is made separate, the link being attached separately to the flange, the nut turning in said flange or plate.



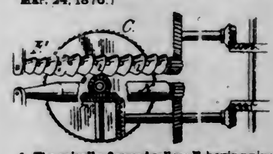
The link E, hollow screw-hub G, and flange *a*, formed of one piece of metal, in combination with the link D, plate C, and screw B, all connected together, the rubber A, and washer *b*, all substantially as and for the purposes herein set forth.

189,429. STOP-PLUGS FOR BOILERS AND OTHER TUBES. M. Coryell, Paris, France. [Filed Feb. 7, 1877.]



The combination of the hollow tapering plug C, the tube E, secured at its one end to said plug and passing therethrough, the adjustable rod F, inclosed in its passage through said plug by the tube E, the outer bulk-head D', the inner bulk-head D, and the expanding disk I, the whole being arranged substantially as herein shown and described.

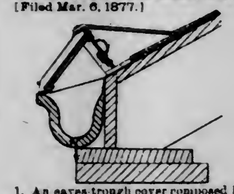
189,430. CORN-HARVESTERS. W. H. Cox and J. L. Cox, Milwaukee, Wis. [Filed Mar. 24, 1876.]



1. The spirally-flanged rollers F, having pins *l* between the flanges, constructed and operating substantially as and for the purpose specified.

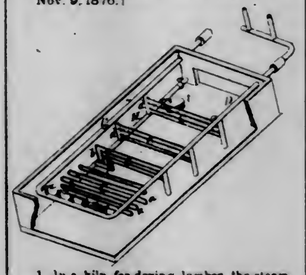
2. The combination of the spirally-flanged stripping and husking rollers F, having pins between the flanges, with rollers K, and rotary serrated knives or cutters C, operating simultaneously to cut the corn-stalks, strips them, and husk the ears, substantially as set forth and described.

189,431. EAVES-TROUGH COVERS. Jas. R. Creighton, Boston Mass., assignor of one-half his right to Alfred S. Hall, same place. [Filed Mar. 6, 1877.]



1. An eaves-trough cover composed in part of glass, for the purposes specified.
2. A combined snow-guard and gutter-cover, substantially as and for the purposes specified.
3. A combined gutter-cover and snow-guard, constructed with openings through which to clear the gutter from sediment or deposit, substantially as described and shown.

189,432. LUMBER-DRIERS. J. J. Curran, Chicago, Ill., assignor of one-third his right to C. Wilcox, same place. [Filed Nov. 9, 1876.]



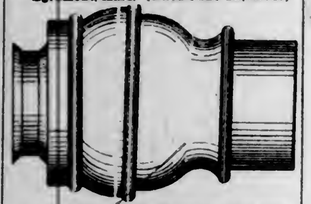
1. In a kiln for drying lumber, the steam-pipes C, arranged upon the inclined ground-floor B, and underneath the inclined floor O of the drying-chamber on which the cars run, as and for the purposes herein set forth.
2. The steam-pipes C, set up in gate form across the kiln, with free expansion-joints and headers, running across and lengthwise of the kiln, substantially as and for the purposes herein set forth.
3. The broad chimney M, extending entirely across the kiln, and provided with the two chimneys M' M', separated by inclined deflecting boards, as set forth.
4. In combination with the chimney M, having a sliding door in front, the steam-box P, arranged forward of the chimney, and provided with a hinged and a sliding door, as shown, and arranged upon the forward extension of the floor O, so as to be entirely independent of the kiln proper, substantially as and for the purposes herein set forth.
5. In combination with the broad chimney M, kiln A, and heating-chamber underneath, the sliding door or curtain N, arranged in the mouth of the chimney, and leaving an opening at the bottom whereby the hot air is compelled to descend to the floor of the kiln before passing out through the chimney, as set forth.

189,433. HUB-CAP AND AXLE-NUT. A. R. Cushman, Memphis, Mo. [Filed Apr. 24, 1876.]



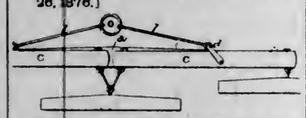
The solid hub-cap b, provided with holes d d, and secured to the hub by screws f f, in combination with grooved axle nut a and key A, substantially as described.

189,434. AXLE-BOXES. D. Dalzell, South Egremont, Mass. [Filed June 29, 1876.]



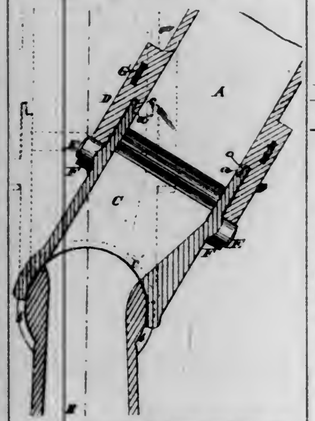
1. An axle-box, having formed upon its head an annular shoulder or head for conducting off the oil from the hub or wheel, substantially as and for the purpose specified.
2. In combination with an annular shoulder or head, formed upon the head of an axle-box for conducting off the oil from the wheel or hub, a supplemental shoulder upon the head to form a bearing for the hub and protect it from the water or other substances, substantially as and for the purpose described.

189,435. THREE-HORSE EQUALIZERS. E. B. Decker, Rockbridge, Ill. [Filed Oct. 26, 1876.]



The construction and arrangement of the ring *o*, rods *l*, and clevises *d d* with the double trees *c c*, and ends of the spreader-bar *a*, whereby the double trees and bar are connected, as shown, and a yielding connecting device for attaching the equalizer to a plow, or the like, afforded, substantially in the manner and for the purposes specified.

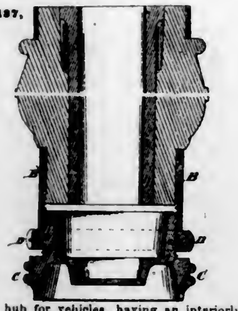
189,436. PIPE-JOINTS FOR PUMPING AND DREDGING APPARATUS. James B. Eads, St. Louis, Mo. [Filed Mar. 9, 1877.]



1. The pipe-coupling herein described, consisting of the three members A B C, fitting together with rabbeted knuckle-joints, and moving in planes at right angles to each other.
2. The combination with the coupling-sections A C and their rabbet-joints *a*, of the lugs D D and gudgeons E E, for sustaining pressure and relieving the rabbet-joints, as described.
3. The combination of the coupling-sections A C, rabbet-joints *a*, gudgeons E E, lugs D D, and straps F F, substantially as and for the purposes set forth.

189,437. CAPS FOR VEHICLE-HUBS. Edwin G. Ridley, Cincinnati, Ohio, assignor to Crane, Breed & Co., same place. [Filed Mar. 19, 1877.]

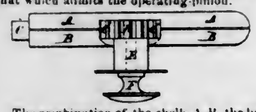
189,437.



A hub for vehicles, having an interiorly-threaded band, B, fitted with a screw-threaded cap, C *c*, and annular locking-nut D, substantially as and for the purpose specified.

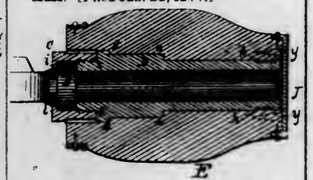
189,438. DOOR-BOLTS. Robt. Eichmuller, Thomaston, Conn., assignor of one-half his right to Aaron C. Sanford, same place. [Filed Jan. 26, 1877.]

Brief.—The rack-bolt and its case are inserted in an auger-hole of the same size as that which admits the operating-pinion.



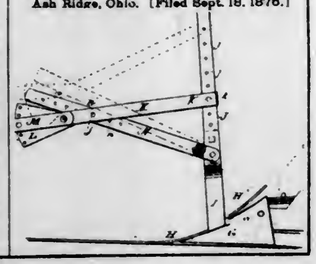
The combination of the shells A B, the bolt C, with its rack C', the pinion D, the socket E, and the handle F, constructed and arranged so that the stationary sockets and shells for containing and holding the working parts are all contained within the space formed by two auger-holes of the same diameter bored into the thickness of the door, substantially as herein described.

189,439. VEHICLE HUBS AND BOXES. Geo. W. Eldridge, Chatham, assignor of one-half his right to Jos. Raymond, Harwick, Mass. [Filed Jan. 20, 1877.]



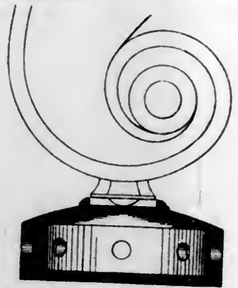
1. The combination of the box D, having closed end and annular grooves *h*, with the wooden hub E, connected to the box by the wedges *y y*, whereby the outer end of the box is secured to the hub without the use of an exterior nut and cap, J, substantially as set forth.
2. The axle-box D, having closed outer end and provided with shoulder *d*, grooves *h*, and screw-threads *x x*, the nut C, with flange *i*, the axle A, with collar B, and the wooden hub E, with cap J, all constructed substantially as set forth.

189,440. DITCHING-MACHINES. S. P. Evans, Ash Ridge, Ohio. [Filed Sept. 18, 1876.]



1. In a ditching-machine, the combination, with the trough A, pivoted or hinged shoe G, colter H, and upright side cutters I, of the standard J, draw-bar K, connecting-brace N, and clevis M, all constructed and arranged substantially as shown and described, for the purpose specified.
2. In a ditching-machine, the combination, with the trough A, hinged or pivoted shoe G, colter H, and upright side cutters I, of the standard J, draw-bar K, connecting-brace N, sector-shaped piece L, and pivoted clevis M, all constructed and arranged substantially as shown and described, for the purpose specified.

189,441. HOLLOW SUPPORTS FOR PIANOS. James Fairman, New York, N. Y. [Filed Feb. 7, 1877.]



1. A support for the legs of a piano-forte, consisting of a hollow block with an arched top, and a perforated rim, substantially as shown and described.
2. A support for the legs of a piano-forte, made with an arched top, a perforated or partly-open rim, and a projecting circular bead on its top, substantially as and for the purpose set forth.

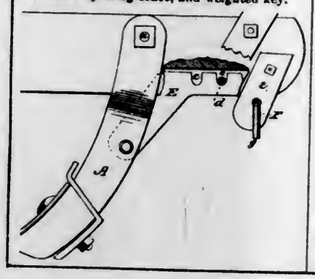
189,442. CLASPS FOR SKIRT AND STOCKING SUPPORTERS. E. C. Fales, Foxborough, Mass. [Filed Feb. 21, 1877.]



In a clasp or garment holder, the plate *a* centrally slotted, and provided at one end with a loop or hook, and a shoulder at the opposite end, in combination with a bent spring-plate, *b*, provided with a pivot on its inner side adapted to slide in the slot of plate *a*, and the elongated portion or end adapted to rest within the shoulder, all constructed and arranged as described.

189,443. PLOWS. D. P. Ferguson, Jonesborough, Ga. [Filed Jan. 6, 1877.]

Brief.—Combination of pivoted standard, notched adjusting-brace, and weighted key.



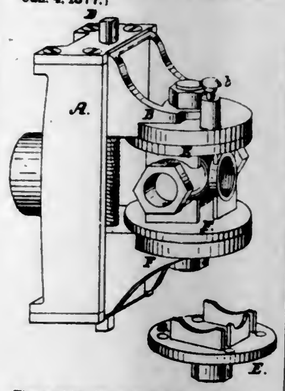
The combination, with the pivoted standard A, of the brace E, having an angular form and provided with notches or open slots on the upper side of its horizontal arm, the bolt *d*, passing through the plow-handle and traversing the slot *c* in the beam, the weighted key F *g*, and the slotted pendent ears *e*, all arranged as shown and described, for the purpose specified.

189,444. BOOTS AND SHOES. J. Fleming, Brooklyn, N. Y. [Filed Jan. 17, 1877.]



A high-cut boot or shoe having a button or lace opening at the side, composed of two pieces of stock, united by a curved or deviating side seam opposite the opening, all substantially as shown and described, for the purpose set forth.

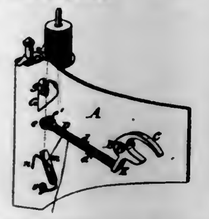
189,445. CHUCKS FOR HOLDING PIPE-FITTINGS. Jas. Flower, Detroit, Mich. [Filed Jan. 4, 1877.]



The combination, with the chuck-frame A, stationary chuck-heads B C, and right-and-left hand screw D, of the revolving heads E F, and the spring-bolt *b*, constructed and arranged substantially as described and shown.

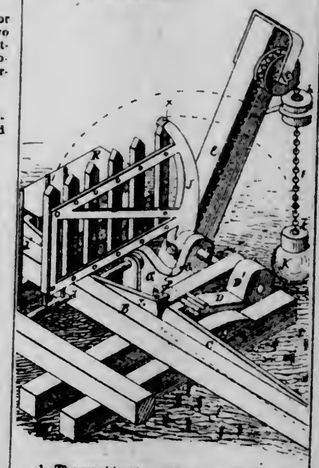
189,446. TAKE-UP DEVICES FOR SEWING-MACHINES. J. L. Follett, New York, N. Y. [Filed Jan. 22, 1877.]

Brief.—The take-up lever is bifurcated longitudinally, said bifurcation terminating at its outer end in two eyes. The thread, (through these eyes,) on the upward motion of the arm, is carried up until it comes in contact, between the eyes, with an adjustable cast-off, which forces it into the slot in the lever; said lever being held in such a position as to form an incline, over which the thread must slide as it is drawn downward, thus gradually paying it out.



1. A sewing-machine take-up, constructed and operating substantially as herein shown and described, so that while the positive hold of the take-up on the thread is released at the proper time with respect to the needle, the take-up still acts to control and pay out gradually the slack created by the release of the thread, as set forth.
2. In a take-up, the combination of a vibratory double-eyed longitudinally-slotted thread-carrier and a cast-off, the two being combined for operation, substantially as herein shown and described.
3. The combination of the vibratory thread-carrying lever with a stationary cast-off, the latter being capable of adjustment for the regulating of its action upon the needle-thread in the thread-carrier, substantially as shown and set forth.
4. The combination, substantially as set forth, of the vibratory double-eyed longitudinally-slotted thread-carrier, the cast-off, and the spring-holder *a*.

189,447. RAILROAD-GATES. A. Fox, L. Vorwald, and J. Vorwald, Columbus, Ind. [Filed Feb. 26, 1877.]



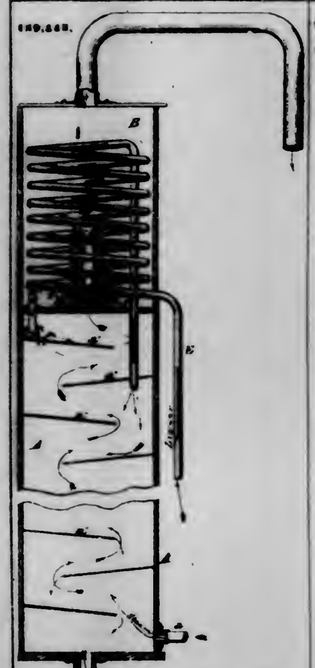
1. The combination of the levers C L, having cogged segments *a a'* upon their adjacent ends, the double-cogged lever D, and the single-cogged lever D' on the shaft *b*, carrying the side gate I J, substantially as and for the purposes herein set forth.
2. The combination, with the gate I J, of the curved arm or head J, having exterior longitudinal groove *x*, the chain *c*, elevated pulley H, chain K, and rubber bumpers *k k*, all substantially as and for the purpose herein set forth.
3. The combination, with the gate I J, secured to the rock-shaft *b*, and operated by the levers C L, having cogged ends and levers D D', with the central gate *d d'* and cogged arms G G, whereby both gates are operated simultaneously by the action of the cars on the levers, substantially as set forth.

189,448. STILLS. Thos. Gaff, Aurora, Ind. [Filed Nov. 17, 1876.]

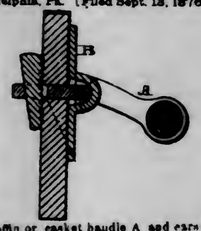
Brief.—The beer or wash is passed through a coil of pipe in a chamber above the still-column, where it is heated and acts as a condenser to the ascending vapors. A perforated hood upon the lower end of the cap, covering the upper vapor-pipe of the column, distributes the vapors through the liquid in the upper chamber, and the liquid accumulating above a certain height, by condensation in this chamber, is returned by trapped overflow-pipes to the column to be redistilled.

1. In combination with still A, case B, pipes E *e*, and conducting-pipe C, the downwardly-conducting cap F, terminating in a perforated bell-mouth, *f f'*, for spreading the vapors, substantially as and for the purpose specified.
2. In combination with still A, case B, pipes E *e*, pipe C, and cap F *f f'*, the trapped overflow-pipes G *g*, substantially as and for the purpose specified.

189,448.



189,449. COFFIN-HANDLES. F. X. Gartland, Philadelphia, Pa. [Filed Sept. 13, 1876.]



The coffin or casket handle A and ears B, in combination with auxiliary fastening-pins, fitted to the axis of the handle, and formed with slots for the reception of keys, substantially as and for the purpose set forth.

189,450. PROCESSES OF ORNAMENTING CROCKERY-WARE. E. J. Gerard, Trenton, N. J. [Filed Sept. 30, 1876.]

1. The method of preparing a color-feeder for the stamp in marking crockery and other surfaces, which consists in first spreading or placing the coloring matter employed on a hard, non-absorbent, and inelastic plate, and then covering said coloring matter with a textile fabric, substantially as and for the purpose set forth.

2. The method herein described of marking china and crockery ware, which consists in spreading or placing the coloring composition on a hard, non-absorbent, and inelastic plate, covering said coloring matter with a textile fabric for charging the flexible stamp in the usual manner, and then marking the article in its biscuit state, substantially as and for the purpose set forth.

3. A coloring composition for marking china and crockery ware, consisting of the following ingredients: black oxide of cobalt, calcined Turkish umber, and chromate of iron, mixed together in about the proportions above described.

189,451. ROLLER-SKATES. Robt. Gibson New York, N. Y. [Filed Mar. 24, 1877.]

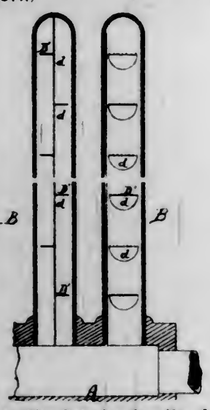


1. In a roller-skate, the combination of a vertical swivel-standard, *b*, and a regulator, E, with the roller frame or truck supporting the axle of the rollers, and the foot-plate A, all constructed and arranged to operate substantially as and for the purpose herein described.

2. The combination, with the foot-plate A, standard *b*, and roller-frame B, which contains the rollers D D, of a ball-and-socket joint, substantially as and for the purpose set forth.

3. The combination, with the foot-plate A, swivel-standard *b*, roller-frame B, and the segmental plates *e*, which retain the standards in their sockets, of elastic cushions *f*, substantially as and for the purpose described.

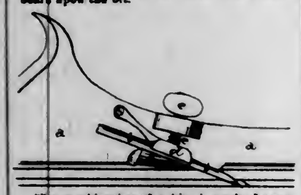
189,452. STEAM-RADIATORS. Richard S. Gibbopic, New York, N. Y. [Filed Mar. 15, 1877.]



The partition D, having the orifices *d* and deflectors D', in combination with a steam-radiator, B, and base A, as herein specified.

189,453. BENCH-PLANES. George Gocher, Johnstown, Pa. [Filed Jan. 24, 1877.]

Brief.—The bit has a bead rolled its entire length, and is secured in position on the stock by means of an inclined bed corresponding to the form of the bit, and upon which it is clamped by a set-screw passing through a lug on the stock, and pressing upon a clamping lever pivoted to the stock, and which bears upon the bit.



The combination of a bit, *i*, made from a single sheet of metal, and having a bead rolled its entire length, with the stock *c*, having the inclines *c* and clamp *d*, and a set-screw, *e*, substantially as specified.

189,454.



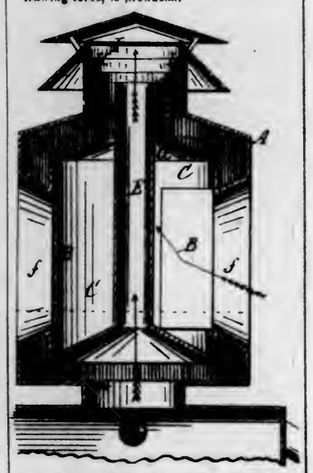
189,455. WIPERS FOR FIRE-ARMS. James T. Hamilton, Brooklyn, N. Y. [Filed Mar. 13, 1877.]



A swab or wiper for fire-arms, provided with means for attaching it to a rammer or wiper-rod by a swivel or similar connection, substantially as and for the purpose herein described.

189,456. VENTILATORS. Geo. W. Harrold and Le Roy Satterlee, Rochester, N. Y.; said Harrold assignor to A. S. Strong, same place. [Filed Aug. 2, 1876.]

Brief.—The object in this ventilator is to produce a more active motion of the dead air by injecting a current of fresh air through the same; said current being carried up in the center of the dead-air chamber, whereby greater friction, and, consequently, greater drawing force, is produced.



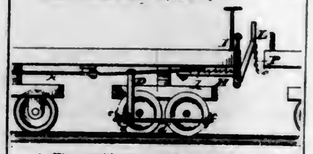
1. In a ventilator, the pivoted valves B B B B, hung in windows *f f f f* of the ventilator A, and opening inward, in combination with a live-air chamber, C, located above said valves, and a dead-air space, D or E, opening above said live-air chamber, whereby the air that enters the ventilator by the opening of the valves on one side is arrested by the closing of the valves on the opposite side, and deflected up through the chamber C to exert a lifting power upon the dead air, in the manner and for the purpose specified.

2. In a ventilator, the body A, constructed with a live-air chamber, C, receiving its supply from the outer air through windows *f f*, in combination with a dead-air space, D, surrounding said live-air chamber, and a dead-air tube, E, passing up through the live-air chamber, said dead-air space and dead-air tube communicating at the bottom with a common dead-air supply, and opening at the top above the live-air chamber to receive the impetus of the live-air currents, in the manner and for the purpose specified.

3. In a ventilator, the combination, with the live-air chamber C, the dead-air space D, and the dead-air tube E, of the dividing-tube H, located between the top of the live-air chamber and the exterior of the case, for the purpose of giving an upward direction to the currents that mingle at the top, in the manner and for the purpose specified.

4. In a ventilator, the tube E, constructed with the deflectors *k k*, in combination with the surrounding live-air chamber C, whereby a portion of the live air is carried within said tube to impel the dead air upward, as herein shown and described.

189,457. CAR-BRAKES. L. T. Hay, Xenia, Ohio. [Filed Mar. 6, 1877.]



1. The combination, with lever F and the brake mechanism, of a spring-pressed rack-bar, arranged to engage with lever F, and automatically lock the brakes, substantially as set forth.

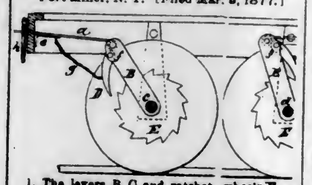
2. The combination, with lever F, rack-bar, and brake mechanism, of lever I, chain P, and ring O, substantially as and for the purpose set forth.

3. The combination, with lever F, of rack-bar and spring, to press the rack-bar against the edge of lever F, substantially as and for the purpose set forth.

4. The combination, with lever F, rack-bar and spring, of a sliding bolt arranged to engage with the forward end of rack-bar, whereby the brakes may be released when desired, substantially as and for the purpose set forth.

5. The combination, with lever F, rack-bar and brake mechanism, of lever N, rod or chain *n*, and lever O, substantially as and for the purpose set forth.

189,458. CAR-STARTERS. R. Hermance, Fort Miller, N. Y. [Filed Mar. 9, 1877.]



1. The levers B C and ratchet-wheels E, rigidly secured to the axles of a car, in combination with the pawls D and chains or cords *g*, connected thereto and to the draft-bars *a b*, the same being provided with stops *c*, holes *i*, and the pins A, the whole arranged to operate substantially as and for the purpose set forth.

2. The combination, with the levers B C, ratchet-wheels E, pawls D, chains or cords *g*, and the draft-bars *a b*, with stops *c*, holes *i*, and pins A, of the U-shaped iron G and springs *h l*, substantially as and for the purpose specified.

189,459. CONSTRUCTION OF SAILING-VESSELS. N. G. Herreshoff, Providence, R. I. [Filed Mar. 20, 1877.]

1. The two hulls A A, connected near the ends by the cross-pieces B, with universal joints C, as herein specified.

2. The longitudinal timber M and deck G, in combination with the end cross-pieces B, universal joints C, and hulls A A, as specified.

3. The amidship-beam D and links E, in combination with the deck G, end connections B C, and hulls A A, as herein specified.

4. The elastic arms A' A', in combination with the hulls A A and their connections to the deck G, or its equivalent, as herein specified.

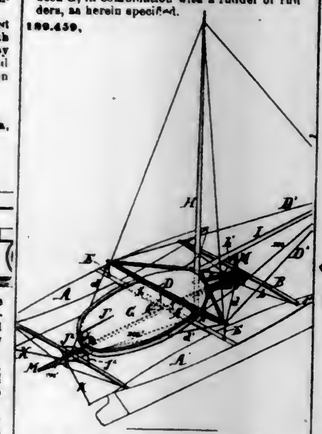
5. In a double-hulled boat, the mast H, aiding to support, and being itself supported by, a deck, G, and having its feet braced in all directions, as herein specified.

6. A double-hulled vessel having a deck or frame-work supported upon jointed connections, as and for the purposes herein specified.

7. In combination with the two connected hulls A A and two rudders, R R, the arms J' J' and rods K, adapted to compel the turning of the one rudder more than the other, as herein specified.

8. The two hulls A A, connections B C, and deck G, in combination with a rudder or rudders, as herein specified.

189,459.



189,460. UMBRELLA-RUNNERS. Thos. G. Hofer, New York, N. Y. [Filed Aug. 8, 1876.]

The combination of the screw-cap C, with the runner R of an umbrella, in the manner and for the purpose set forth.

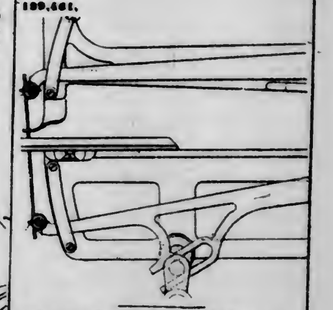
189,461. SCROLL-SAWS. James A. House, Bridgeport, Conn. [Filed Mar. 3, 1877.]

Brief.—The saw is attached by set-screws to clamping-heads upon the outer ends of a C-shaped frame, provided upon its lower part with a slotted bracket, and pivoted at its rear to a bifurcated supporting-frame, having guide-plates or ways upon its front portion, in which the outer ends of the saw-arms work. A cam-lever pivoted to one side of the upper outer end of the main frame for straining the saw, and a vertically-adjustable presser-foot attached to the other side of said part of the main frame. The rear is operated by means of a crank-arm upon a short shaft mounted in a bracket with the lower part of the main frame, and having a crank-pin, which works in the slotted bracket of the lower saw-arm. The saw-supporting frame can be readily secured to and detached from a table or bench by means of an overhanging flange projecting laterally from the lower saw-arm, and a clamping-screw passing through a lug formed on a downwardly-projecting bracket on the main frame.

1. The combination of the bifurcated supporting-frame, having the pendent portion or bracket projecting from its lower arms, and adapted to be clamped in position, the saw-arms pivoted to the frame, the guideways in which the outer ends of the saw-arms work, the slotted bracket on the lower saw-arm, and the crank mounted in the pendent portion of the saw-supporting frame, and working in the slot in the saw-arm bracket, these members being constructed and operating substantially as herein before set forth.

2. The combination, substantially as herein before set forth, of the supporting-frame, the pivoted saw-arms provided with clamps to secure the saw-blade in place, and the cam-lever mounted upon the supporting-frame, and acting directly upon the yielding saw-arms to strain the saw-blade, as set forth.

189,461.



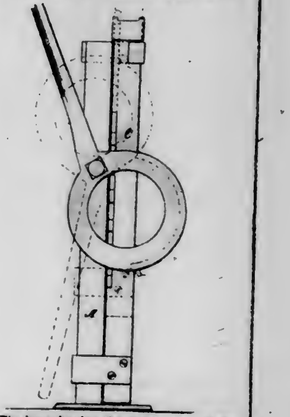
189,462. WAGON-BEDS. R. R. Hunt, Lexington, Ky. [Filed Jan. 20, 1877.]



1. The wagon-bed A, provided with longitudinal rails A'', mortised at *a*', in combination with the hinged standards B C, and transverse frames D D', provided with tenons on their under faces, substantially as described, and for the purpose set forth.

2. Transverse frame D', provided with staples *d*, fenders D', and tenons *d*', substantially as set forth.

189,463. LIFTING-JACKS. A. R. Hurst, Mechanicsburg, Pa. [Filed Mar. 30, 1877.]



1. The lever having the cam-head partially flanged, and combined with the stationary standard, and the sliding lift-bar, having laterally-projecting teeth or pins, substantially as and for the purpose described.

2. The combination, with the standard A, and the lift-bar C, having laterally-projecting teeth or pins, of a lever having a partially-flanged cam-head, whose flange is arranged to be disengaged from the teeth of the lift-bar by a movement of the lever, to permit the independent adjustment of the lift-bar to the axle, substantially as described.

189,464. HITCHING-POSTS. W. N. Hutchinson, South Bay City, assignor of one-half his right to W. P. Lapham, Bay City, Mich. [Filed Jan. 4, 1877.]

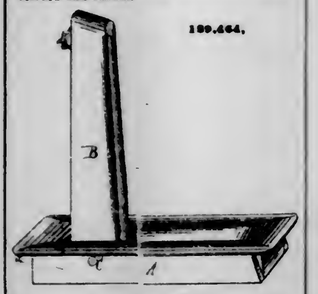
1. The pivoted hitching-post B, let into the curb or sidewalk, and adapted to rest in a horizontal position flush with the surface of the same, substantially as and for the purposes set forth.

2. The combination, with the frame A, of the post B, pivoted in the said frame, and

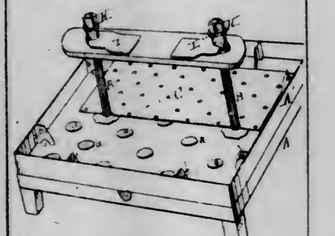
adapted to rest in a horizontal position flush with the top of the same, substantially as and for the purposes set forth.

3. The combination, with the frame A, of the post B, having the slot *b* and the bolt C, constructed and arranged substantially as described and shown.

189,464.



189,465. HOP-PRESSES. J. Jakel, Detroit, Mich., assignor of one-half his right to F. L. Dohnstreich, same place. [Filed Jan. 15, 1877.]

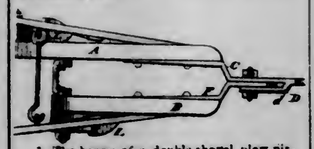


1. In a press constructed substantially as described, the studs *a*, by which the perforated bottom is elevated above the bottom proper, in combination with the perforated bottom, and with the guttered flanges *b*, substantially as set forth.

2. In a press, the combination of the base A, studs *a*, flanges A′ and *b*, gutters *c*, outlet *d*, follower-guides B, perforated bottom C, box or frame D, follower-boards E, and cross-bars F, and follower G, flanged nuts H, and straddler I, arranged to operate substantially as and for the purposes set forth.

189,466. PLOWS. J. C. Jenkins, Lebanon, Tenn. [Filed Feb. 26, 1877.]

Brief.—Cultivator beams loosely shackled together. A shield to protect the forward connecting-joint.



1. The beams of a double-shovel plow pivoted at their forward ends, said joint being protected by a bridge, substantially as and for the purpose set forth.

2. The combination of the plow-beams A B, bars C F, and bridge D, substantially as and for the purpose set forth.

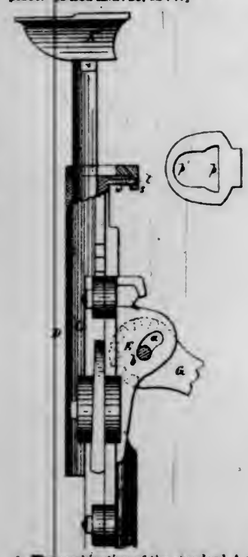
189,467. WAGON-BOX STRAP-BOLTS. J. Jensen, Racine, Wis. [Filed Dec. 19, 1876.]

The box-strap or strap-bolt for wagon-beds herein described, consisting of a lower round screw-threaded part, A, an intermediate flattened and spreading section, B, and an upper semi-oval section, C, the sections B and C having a central longitudinal groove, *e*, reaching to the top or end of the strap, and provided with perforations *d e f*, substantially as and for the purpose herein shown and specified.

189,467.



189,468. LIFTING-JACKS. Victor Johnson, Mount Pleasant, Iowa, assignor of one-half his right to J. W. Hampton, same place. [Filed Mar. 16, 1877.]



1. The combination of the standard A with concave foot B, the sliding standard D, having two series of alternating cogs, *e e*, and the operating lever G, provided on its inner segmental end with two series of alternating cogs, *d d*, all substantially as and for the purposes herein set forth.

2. The combination of the sliding standard D, having side flanges *h*, with ratchet-teeth *i*, the pivoted pawls H, and springs *f*, substantially as and for the purposes herein set forth.

3. The combination of the hollow standard D, the post J, having notches *x*, and the plate P, provided with the aperture *p p′*, and operated by a spring, *w*, all substantially as and for the purposes herein set forth.

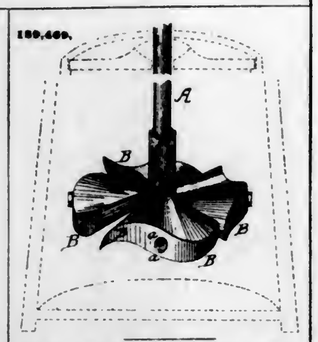
189,469. CHURN-DASHERS. F. M. Johnson, Asheville, N. C., assignor of one-half his right to W. M. Cooke, Jr., same place. [Filed Mar. 9, 1877.]

1. In a vertically-reciprocating churn-dasher, a series of independently-rotating paddles, placed upon stationary arms or spindles projecting from the dasher-rod or handle, substantially as herein set forth.

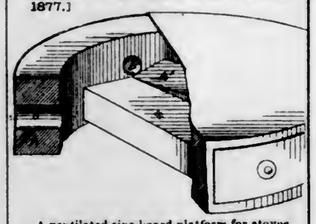
2. The rotating sectoral paddles B, constructed in serpentine form, with concave and convex upper and lower surfaces, substantially as and for the purposes herein set forth.

3. The combination of the rod or handle A, the radial arms *a* projecting therefrom, and the rotating sectoral paddles B, made in serpentine form and provided with the hooks *b*, substantially as and for the purposes herein set forth.

189,469.

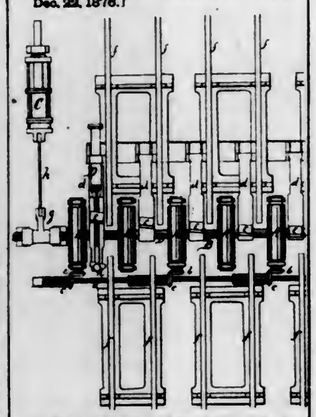


189,470. ZINC BOARDS FOR STOVES. Ebn Jones, Winterset, Iowa. [Filed Feb. 23, 1877.]



A ventilated zinc-board platform for stoves, provided with one or more drawers as receptacles for stove utensils.

189,471. HOT-BEDS FOR BENDING RAILROAD-RAILS. Wm. R. Jones, Braddock's, assignor to the Edgar Thomson Steel Company, (limited,) Pittsburg, Pa. [Filed Dec. 22, 1876.]



1. The combination of the driven rolls A and the curved line of stops *e*, arranged and operating substantially as specified.

2. The combination, with the driven rolls A, of the curved line of interlying stops *e*, provided with means of vertical elevation and depression, substantially as shown and described.

3. The combination, with the driven rolls A, of the curved line of interlying stops *e*, each provided with means of horizontal adjustment, whereby the curvature of the line may be varied at will, substantially as and for the purposes set forth.

4. The combination of the curved line of stops *e* and the movable head-blocks *n*, arranged and operating substantially as described.

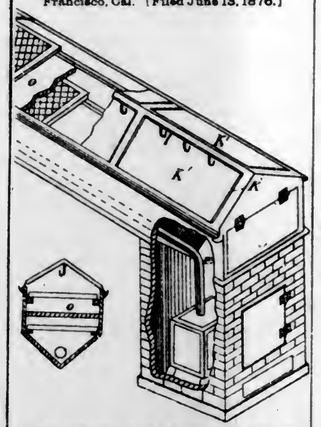
5. The combination of a slotted arm, *d*, and a stop, *e*, bolted thereon, and capable of being located at different points of the arm, substantially as described.

6. The combination, with the shoulders of the stop *e*, of the self-adjusting face-plates *e′*, pivoted thereupon, substantially as and for the purpose described.

7. The combination of rock-shaft B, cams *i*, and arms *d*, as and for the purpose described.

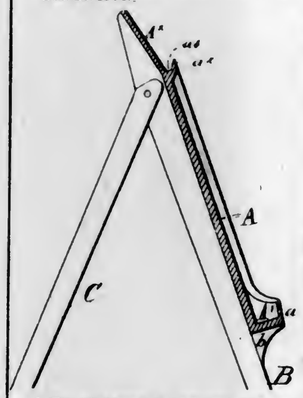
8. The combination of rolls A and a series of guide-rails, *f*, on one or both sides thereof, substantially as and for the purpose described.

189,472. FRUIT-DRIERS. J. M. Kesler, San Francisco, Cal. [Filed June 13, 1876.]



The combination of the inclined chest or chamber B, having a V-shaped bottom, and opening at one end into a furnace, A, the heat-radiating pipe E, imperforate partition O, and the transparent inverted V-shaped roof K, substantially as and for the purpose set forth.

189,473. BLACKBOARDS. H. L. Kingsley and W. P. Packard, Racine, Wis. [Filed Dec. 23, 1876.]



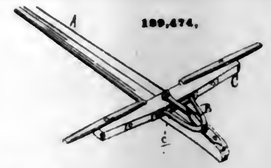
1. The blackboard A, provided with the flange a^2 and head-piece A^1, rearwardly inclined from the face of said blackboard, substantially as described, and for the purpose set forth.

2. The blackboard A, provided with the flange a^2, rearwardly-inclined head-piece A^1, standards B, and chalk-trough *a*, in combination with the pivoted supports C, substantially as described, and for the purpose set forth.

189,474. WHIFFLETREE ATTACHMENTS. J. D. Lane, Onondaga, Mich. [Filed Jan. 13, 1877.]

The combination, with the pole A and evener C, of the brace B, secured to the pole, with its ends sliding in a slot formed by the plate on the back of the evener, constructed and arranged substantially as and for the purpose set forth.

189,474.



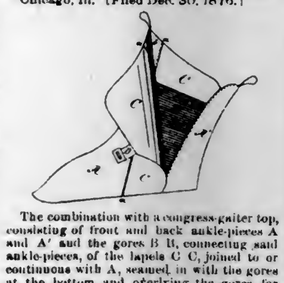
189,475. PLATFORM-SCALES. H. T. Lawton, Middletown Springs, Vt. [Filed Dec. 11, 1876.]

Brief.—Places steam-pipes below platform, to prevent obstruction of working parts by snow and ice.



In combination with the platform-scale and its pit, one or more pipes provided with an induct and educts, and arranged substantially as and for the purpose as described.

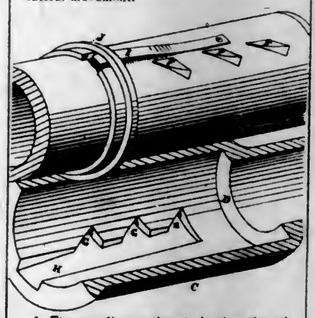
189,476. CONGRESS-GAITERS. C. Libby, Chicago, Ill. [Filed Dec. 30, 1876.]



The combination with a congress-gaiter top, consisting of front and back ankle-pieces A and A′ and the gores B B, connecting said ankle-pieces, of the lapels C C, joined to or continuous with A, seamed in with the gores at the bottom, and overlying the gores, for their concealment and protection, substantially as described and shown.

189,477. PIPE-COUPLINGS. S. Lightburne, Jr., San Francisco, Cal. [Filed Dec. 2, 1876.]

Brief.—When the lugs enter their corresponding slots they are kept from unlocking by the spring shown, said spring preventing lateral movement.

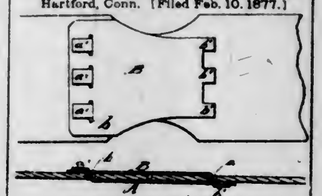


1. The coupling-section A, having the triangular inclined lugs F, as shown, in combination with the section B, having the enlargement C, said enlargement being provided with the depressions or slots G, to receive the lugs, and the beveled channels H, substantially as herein described.

2. The double-edged elastic ring E, secured to the end of the section A, and made compressible against the shoulder D by means of the lugs F and slots G, substantially as herein described.

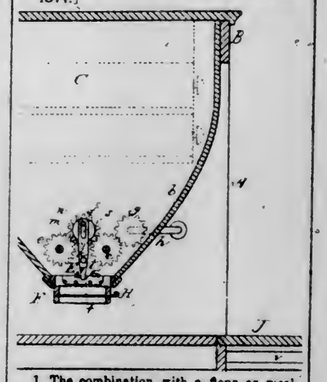
3. The piece E, provided with ring J and spring I, in combination with piece C, provided with channels H, as and for the purpose set forth.

189,478. BELT-FASTENERS. Patk. Lyons, Hartford, Conn. [Filed Feb. 10, 1877.]



In a belt-fastener, the combination, substantially as hereinbefore described, of the plate A, provided at one end with transverse slots *a*, and at the other end with raised tongues *a′*, and the plate B, provided with slots *b* and downwardly-bent tongues *b′*, as and for the purpose set forth.

189,479. COMBINED FLOUR AND PASTRY CUPBOARD AND KNEADING-BOARD. F. M. Mahan, St. Joseph, Mo. [Filed Feb. 10, 1877.]

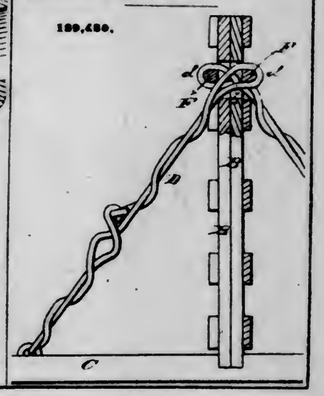


1. The combination, with a floor or meal-bin having a discharge-orifice at one end, of the conveyers D D, a mechanism for rotating them in the same direction, the sifter F, and reciprocating agitating-grate G, substantially as specified.

2. In combination with the bin C, having rotary agitators at its lower end, pinions *c*, upon adjacent ends of the agitator-shafts, pinion *f*, meshing with pinions *c*, a master-gear, *g*, and its crank *h*, of the disk *m*, stud *n*, slotted lever *k*, sliding agitator G, and a sifter arranged under the discharge-orifice of the bin, substantially as specified.

3. The rests *q*, consisting of the sections *w r*, tongued and grooved into each other, and the former extensible relative to the other, in combination with the hinged front J of a bin-case, substantially as specified.

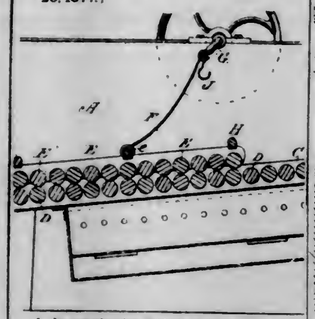
189,480.



199,480. FENCE-POSTS. W. B. Markham, Bethel, assignor of one-half his right to F. Duckett, Chapin, Ill. [Filed Feb. 10, 1877.]

The combination of two corresponding perforated battens, B B, ground-piece C, bracing-wires D D, having loops *d d*, and keys F F, substantially as and for the purpose set forth.

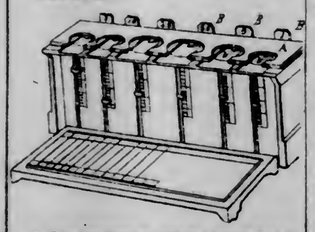
199,481. WASHING-MACHINES. Edward McBride, Vermillionville, La. [Filed Jan. 26, 1877.]



1. In combination with the lower stationary rubber C D, the top reciprocating rubber E E', with cross-bars e H I, secured at its central portion to arms F F, connecting with the crank-shaft G and hook J, all constructed and arranged as described, for the purposes specified.

2. The washing-machine herein described, consisting of case A, lower rubber C D, with stationary rollers, top reciprocating rubber E E', with revolving rollers, crank-shaft G, pitman-arms F F, cross-bar H, and hook J, all constructed and arranged to operate substantially as and for the purposes described.

199,482. BOXES FOR HOLDING COIN. Chas. E. McConnell, Columbus, Wis. [Filed Feb. 20, 1877.]



1. The combination, with the spring E and follower D, of the slide B, having a beveled lug, and constructed and arranged substantially as described, and for the purposes herein set forth.

2. The combination, with cover A, of the slotted slides B B B, constructed and arranged substantially as specified.

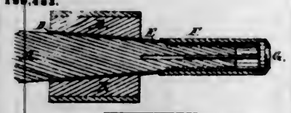
199,483. DEVICES FOR FITTING AND POLISHING CYLINDERS AND RINGS. M. H. McNair, Meadville, Pa. [Filed Oct. 12, 1876.]

Brief.—A tapered mandrel; a split cylinder with a tapered hole through it lined with a split steel ring; a short tapered ferrule abutting against the lining at its smallest end; a cylindrical ferrule abutting against the end of the tapered ferrule; and a button that covers the outer end of the cylindrical ferrule, and extends by a long stem into the end of the mandrel. Thus the split cylinder may be distended while in use by light blows upon the button. The griping device will be readily understood from the drawings.

1. The combination of the tapered mandrel A, expansible cylinder and cylinder-lining B D, ferrules E and F, and button G, substantially as and for the purpose specified.

2. The combination of the tapered mandrel A, expansible cylinder B, and the griping and holding device, substantially as described, and for the purpose set forth.

199,484.

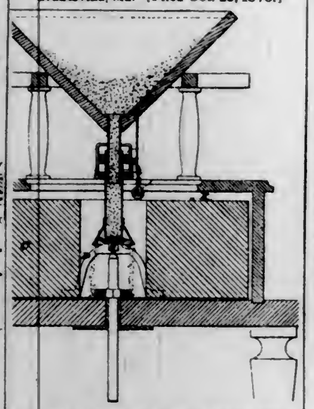


1. The combination of the adjustable feed-tube, the vertically rocking lever, supported on the cross-bar and connected with the feed-tube, the spring connecting the inner end of the lever with the cross-bar, the yoke secured to the cross-bar, the arm pivoted to the yoke above and extending beyond the outer end of the lever, the screw passing through the arm and bearing upon the lever, and the cord secured to said arm, these members being constructed, arranged, and operating substantially as hereinbefore set forth, whereby the feed may be regulated by the screw or by the cord, either of which may be, at any time, adjusted from its respective floor to rock the adjusting-lever without interfering with the operation of the other to increase or diminish the feed.

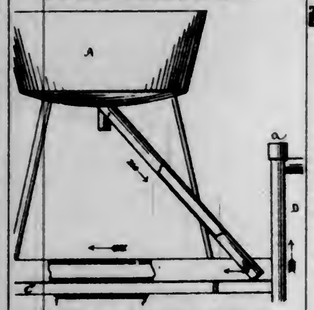
2. The combination, substantially as hereinbefore set forth, with a valve in the hopper, controlled by the weight of the grain, and the runner, of a globular alarm-bell connected with the valve, and operated by direct contact with the runner, upon which it rolls when the hopper is empty, or nearly so.

3. The combination of the runner, the cross-bar, the bell-lever pivoted to the bar, the bell flexibly suspended from the outer end of the lever, the rod pivoted to the inner end of said lever, and the valve in the hopper, against which the rod bears, these members being constructed and operating substantially as hereinbefore set forth.

199,484. GRINDING-MILLS. J. Mellinger, Grantsville, Md. [Filed Oct. 25, 1876.]

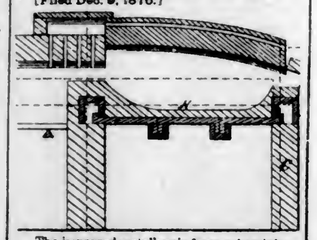


199,485. MILK-COOLERS. B. Davis Miller Vincent, Pa. [Filed Jan. 26, 1877.]



The pan A, in combination with the tubular base C, consisting of the double zigzag pipe, and with the upwardly-projecting pipe D, substantially as and for the purpose set forth.

199,486. CONSTRUCTION OF REVERBERATORY FURNACES. J. Morrison, Pittsburg, Pa. [Filed Dec. 9, 1876.]



The improved metallurgic furnace hereinbefore described, having the two air-heating flues taking respectively into the front and rear walls, each passing half-way around the hearth through the bosh es, and then rising to the crown, where they communicate with an air-gathering chamber extending transversely across the crown, and from which the air-current passes into the furnace through a series of two or more cumulative delivering-slits constructed in the crown, the several parts being combined substantially as and for the purpose specified.

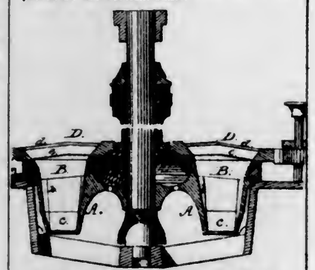
199,487. HEELS FOR BOOTS AND SHOES. Morris A. Myers, New York, N. Y. [Filed Feb. 22, 1877.]



The combination, in a shoe or boot heel, of a flanged iron having an open center, a filling containing "blind" pegs, and a covering-pad, secured to the heel by said pegs, in the manner and for the purpose set forth.

199,488. TURBINE WATER-WHEELS. Jos. Osborn and J. P. Lybarger, Delphos, Ohio. [Filed Feb. 26, 1877.]

Brief.—A concavity is formed in the base of the wheel-shaft, adapted to fit and revolve upon the conical wooden bearing, while upon the same shaft, under the coupling at the top, is placed a circular flange, which drops down over and covers the top of the stand, so as to prevent sand from getting into the working parts. The gate is opened and closed by means of a rack on one side of the gate-rim, which is operated in either direction by the pinion on the vertical shaft.



1. In a turbine water-wheel, the buckets A, formed of the inclined planes *b b* and *c*, comprising the sides and bottom of the said buckets, and cast solid with the wheel, substantially as and for the purpose described.

2. The buckets A, having their upper edges or rims of a concave form, in combination with the convex surface of the chutes, substantially as and for the purpose specified.

3. The gate D, formed of an angular arch, in combination with the case or chute-rim B, substantially as specified.

4. The gate D, formed of an angular arch, and provided with the correspondingly-shaped slides *c*, having angular ribs or braces *d*, substantially as and for the purpose described.

199,489. METALLIC HUBS. Chas. B. Owen, Fenton, Mich. [Filed Oct. 31, 1876.]

199,489.

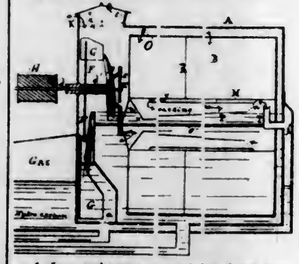


1. In a cast-metal hub, the combination, with the shell A, having the spoke-sockets *a*, of the two sets of internal flange-rings *c c'* and the two sets of friction-rollers *d*, constructed and arranged substantially as described and shown.

2. The cast-metal hub described, consisting of the shell A, the sockets *a*, the strengthening-flanges *b b'*, the internal flange-rings *c c'*, the rollers *d*, and cage-rings *e e'*, all constructed and arranged substantially as described and shown.

199,490. CARBURETERS. Jno. J. Paquette, New Orleans, La. [Filed Feb. 20, 1877.]

Brief.—The surrounding oil and gas tank feeds the oil automatically by pressure of the gas into the carbureting-chamber, where it is raised by swinging buckets, and poured over the half partition. The air enters through double gauze plates, and is forced by the straight blades in the interior of the outer cylinder through the passages formed between the several interior cylinders, and through a fibrous packing, and finally into the surrounding gas tank.



1. In a carburetor, a revolving drum, having a central passage and an adjacent annular compartment, filled with a suitable fibrous material, and an exterior annular compartment, the latter being divided longitudinally by straight blades and transversely by a partition, substantially as described.

2. The inlet-tube K, having the ground lid Q and two wire gauze partitions, substantially as described.

3. In combination with the drum B, partition L, the wheels C and D, the latter carrying the buckets G, substantially as described.

4. In combination with the case A, the chamber A', serving the double purpose of oil and gas distributing reservoir, and automatically feeding into the case A by the pressure of the gas, substantially as described.

5. The drum B, having cylinders O, M, and N, and central tube P, as set forth.

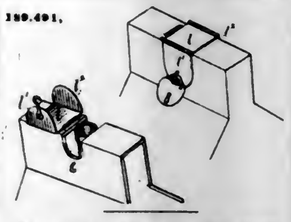
6. In combination with the pipe T and partition L, the stationary shaft *e*, as described.

7. In combination with the sleeve *h* of the wheel D, the arms F, having curved ends, and the swinging buckets G G, substantially as described.

199,491. PACKING-CASES FOR DRILLSTOCKS, &c. George W. Peck, Brooklyn, N. Y. [Filed Mar. 22, 1877.]

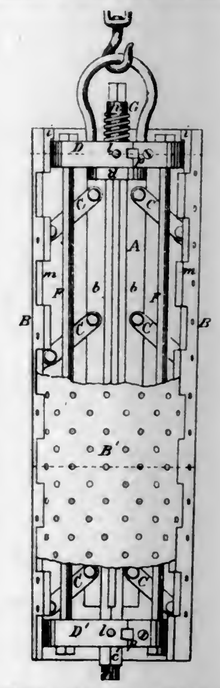
The shield *l*, having a hinge at one side, by which it is united to the top surface of the ridge of the packing-case, and provided with wings *l' l'*, that pass down at each side of the ridge to close the aperture therein, substantially as set forth.

199,491.



199,492. COLLAPSIBLE CORES FOR CASTING METAL PIPES. J. Pennycook, Chicago, Ill. [Filed Aug. 10, 1876.]

Brief.—A tapering, expanding-bar, with toggle-levers attached by means of fins, has a screw attached to one end by means of a swivel, so that the core may be expanded or contracted by forcing the bar longitudinally.



1. The expansion collar-rings D and D', held in position by stay-rods F F, in combination with steady-pins *l l*, projecting from the periphery, and sliding in corresponding holes *n n* on section-plates B B', substantially as and for the purpose specified.

2. The expansion-plates *o o* on expansion collar-rings D D', underneath the intersections, in manner substantially as and for the purpose specified.

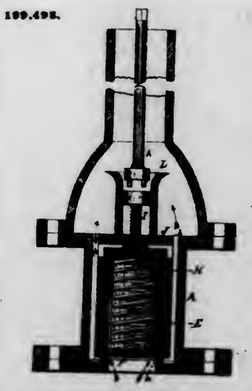
3. The combination of collar-nut *g* with guide-nut *d d'*, in connection with expansion collar-rings D D', substantially as described.

4. The combination of radial flanges *b* of guide-bar A, screw G, extension *a*, expansion-links C, collar-nut *g*, with means for preventing rotation of bar A, as and for the purpose set forth.

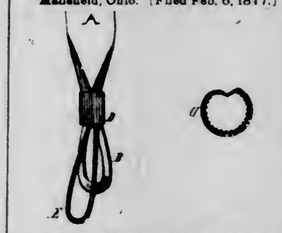
199,493. SAFETY-VALVES. Ira M. Phelps, Philadelphia, Pa., assignor, by mesne assignments, to S. L. Garrett, same place. [Filed Sept. 9, 1876.]

The compression-cylinder H, set-screw I, valve-seating A, and funnel L, adapted to guide the key K, in combination with the safety-valve B, substantially as shown and described.

199,494.



199,494. SUSPENDERS. James R. Pollock, Mansfield, Ohio. [Filed Feb. 6, 1877.]

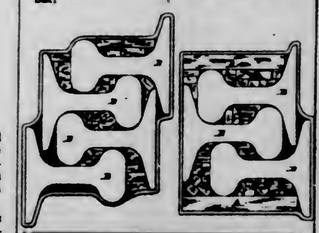


1. A suspender-button end consisting of a cord secured to the end of a piece of webbing by means of a corrugated clamp of malleable metal or analogous material, substantially as specified.

2. The suspender-button strap consisting of the loops B and E, secured to the webbing A, by means of the corrugated clamp D, substantially as set forth.

199,495. PILES FOR NAIL-PLATES. Wm. H. Powell, Belleville, Ill. [Filed Dec. 29, 1876.]

Brief.—The pile, Fig. 3, is composed of bars made from piles 1 and 2, the letters on the several piles indicating the quality of the iron, whether it be of old rail, scrap, or muck-bar.



1. The fagot constructed, substantially as shown in Fig. 2, with a number of sections, B B B, of old rail, and one or more surface-pieces of muck-bar, applied as shown at A, to produce bars *b d*, with one or more new surfaces, as and for the purpose set forth.

2. The pile for final rolling, constructed of bars *b* and *d*, made from old rail, with new surfaces, and interposed bars *c* of old rail-iron, as explained.

199,496. PLOWS. J. Reich, Buffalo, N. Y. [Filed Feb. 26, 1877.]

Brief.—Curved plow-beam with angular standard, forming a section of the mold-board, and support for the other parts. Cleris devices for both adjustments.

189,296.



1. In a plow, the combination of the following elements: the curved beam A, having socket for the colter, and having the standard A', L shaped in cross-section, one member forming the front portion of the mold-board, and supporting the rear wing thereof, the land-side and frame secured to the other member of the standard, forming a support for the handles, substantially as shown and described.

2. The combination, with the plow-beam A, having the lugs *f* on its forward end, of the adjusting screw P and the pivoted open disk L, as described.

3. The combination, with the plow-beam A, having the lugs *f*, of the adjusting-screw P, the pivoted open disk L, and the cleris N, as stated.

189,297. TEA-KETTLES. J. Reinig, Fond du Lac, Wis. [Filed Jan. 20, 1877.]



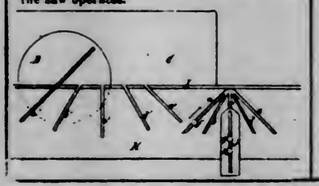
1. The combination of the double cover A, perforated on the top, with the rim B, constructed in the manner set forth, so as to make a perfectly tight joint, substantially as described.

2. The condensing tube C, combined with the top of the kettle and with the mouth of the spout, substantially as described, and for the purposes set forth.

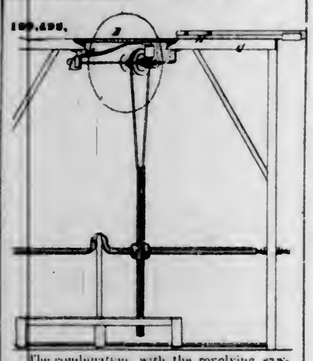
3. A tea-kettle constructed with the rim B, cover A, and condensing-tube C, combined substantially as described, and for the purposes set forth.

189,298. SAWING-MACHINES. M. Rose, New York, N. Y. [Filed Feb. 7, 1877.]

Brief.—The saw is mounted in a revolving carriage secured to a stationary table, upon which is placed a movable table having a raised edge for the work to rest against, provided with a double series of slots, by which it is guided on pins projecting from the surface of the stationary table, and provided with a series of slots, through which the saw operates.



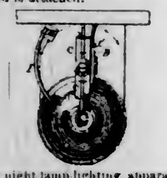
189,299.



The combination, with the revolving saw-carriage H and stationary table C, of the movable bed H, for supporting and guiding the work, said bed having the guide slots *a b*, *c d*, *e* and *a' b' c' d' e'*, substantially as and for the purpose described.

189,299. DEVICES FOR LIGHTING NIGHT-LAMPS. J. R. Rowlands, Lancaster, Ohio. [Filed Nov. 18, 1876.]

Brief.—The plate which holds the matches is attached to a vertical spring-rod, which, when wound up, is held from returning by a double-acting lever, D, to which, at its rear end, a cord is attached.



1. In a night-lamp lighting apparatus, the combination of a rotating lever with a match at each end, and actuated by a coil-spring, a double-acting trigger, and a friction arm, substantially as and for the purposes herein set forth.

2. The combination of the pivoted lever C, with match-holders *x* at each end, the coil-spring *e*, trigger D, with lugs *d d'*, spring *f*, and wires connecting with the pendent handle G, for the purposes herein set forth.

3. The friction-arm I, pivoted to the stand-ard H at one of its ends, so that it can be raised up out of the way of the matches while the arm C is being wound up, as herein set forth.

189,300. KNITTING-MACHINE NEEDLES. L. E. Salisbury, Providence, R. I. [Filed Jan. 22, 1877.]

Brief.—The receiving and casting off of the yarn is controlled by a bridge and guard sliding in the cavity of the hook.



A knitting-machine needle having a suitable shank and a rigid main hook, in combination with a sliding guard, provided with a hook and a heel, substantially as described, whereby said guard may be wholly controlled by the yarn, as set forth.

189,301. KNITTING-MACHINE NEEDLES. L. E. Salisbury, Providence, R. I. [Filed Jan. 17, 1877.]

Brief.—The receiving and casting off of the yarn is controlled by means of a finger arranged wholly within the spring-hook.

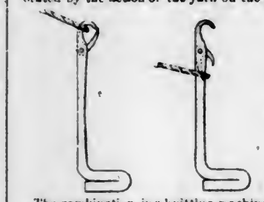
A knitting-machine needle having a spring-hook which is normally closed, and a movable finger which is attached to the shank of the needle, located wholly within the spring-hook, and arranged to engage with the inner surface of said hook, substantially as described.

189,301.



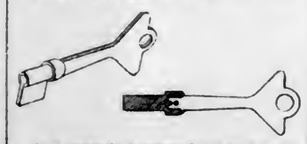
189,302. KNITTING-MACHINE NEEDLES. L. E. Salisbury, Providence, R. I. [Filed Nov. 7, 1876.]

Brief.—In place of the ordinary latch, the needle has a combined hook and guard, the guard serving as a latch, but in all cases operated by the action of the yarn on the hook.



The combination, in a knitting-machine needle, of a suitable shank with a combined hook and guard, connected with each other and pivoted to the shank, substantially as described, whereby yarn, when fed to the needle below the hook, will, when the needle descends, by contact with the hook, cause the guard to be elevated and afford free passage through the loop last formed, and also whereby, when no yarn is fed to the needle, the loop last formed, by contact with said hook, will cause the guard to be elevated, and prevent the loop from being cast off by retaining said loop within the hook, substantially as set forth.

189,303. KEYS FOR LOCKS. John Schade, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. [Filed Mar. 13, 1877.]



1. A composite key formed of a sheet-metal shank and bow, a cast-metal stem, and a bit secured in a slotted recess in the stem, substantially as described.

2. The combination of a sheet-metal key shank and bow, unprovided with a bit, and a solid cast-metal stem, unprovided with a bit, substantially as and for the purpose described.

3. The process of forming a key, substantially as described, consisting in stamping out the bow and shank, casting the stem upon it, and then forming a slotted recess in the stem, and securing the bit within it.

189,304. PROCESSES FOR CLARIFYING SUGAR. John Schwartz, Pelham Street, Mile End, New Town, England. [Filed Dec. 12, 1876.]

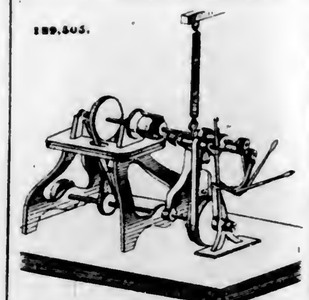
Brief.—Cold water or liquor, reduced to a temperature of about 32° Fahrenheit, is sprayed upon sugar under treatment in molds or centrifugal machines, to clarify it without melting the sugar-crystals.

The process of clarifying raw and refined sugar, which consists in submitting it to the action of a spray of water or sugar-liquor reduced to a temperature of 32° Fahrenheit, or thereabout, the same being evenly diffused through the sugar mass by centrifugal force, substantially as and for the purpose specified.

189,305. MACHINES FOR GRINDING AND POLISHING HOLLOW-WARE. Wm. Scully, Detroit, Mich., assignor to the Detroit Iron and Brass Manufacturing Company, same place. [Filed Nov. 25, 1876.]

Brief.—A series of grinding-tools, graduated from coarse to fine, are supported by a frame pivoted at its bottom, so as to be brought into use alternately. The holding-chuck is mounted on a table or base capable of partial rotation, so as to present the article at different angles to the grinding-tools.

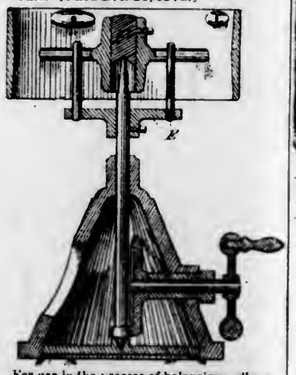
189,305.



1. The combination, with a rotary tail spindle and chuck adapted to receive and secure an article of hollow-ware, of a swinging frame and a gang of grinding-wheel spindles, susceptible of longitudinal adjustment in their bearings, all of which spindles are driven from the same shaft, substantially as described.

2. In a grinding machine, substantially as described, the swinging frame, carrying a gang of grinding-spindles, all driven by belts from a pulley on the main shaft, and susceptible of independent longitudinal adjustment to and from the surface of the work, substantially as set forth.

189,306. DEVICES FOR BALANCING FLY-WHEELS, &c. Chas. Seymour, Defiance, Ohio. [Filed Dec. 20, 1876.]



For use in the process of balancing pulleys, &c., the apparatus consisting of a spindle, a supporting base or frame, and a gear for rotating said spindle, a yoke, E, vertical arms, and a step-block, F, all constructed as shown and described.

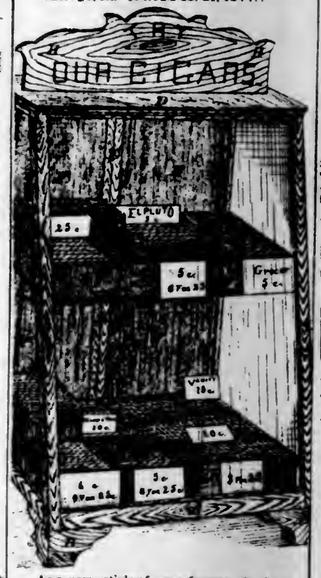
189,307.



189,307. CONCAVES FOR THRASHING-MACHINES. John H. Sharp, Doylestown, Pa. [Filed Feb. 17, 1877.]

In a concave for thrashing-machines made in sections, the section A, provided with the perforated heads B B, projecting teeth C C, formed with sharp front edges *b*, and arranged in line, as shown, and the series of auxiliary teeth D on both sides of the teeth C, along the edges of the section substantially as and for the purposes herein set forth.

189,308. SHOW-CASES. Wm. T. Sherer, Chicago, Ill. [Filed Feb. 21, 1877.]



As a new article of manufacture, the show-case hereinbefore described, having vertical glazed ends, an upward and rearward inclining glazed front side, and a vertical rear side inclosed by folding doors, which are covered by mirrors upon their front sides, substantially as and for the purpose specified.

189,309. CHANDELIERS. F. S. Shirley, New Bedford, Mass. [Filed Mar. 6, 1877.]



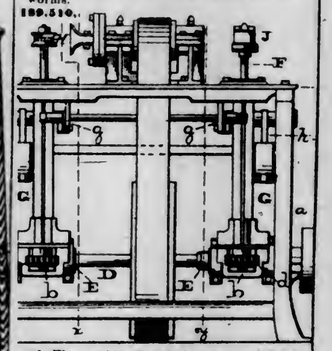
1. In a chandelier, the combination of a pipe, *a*, the cup *h*, nose-piece *b*, a rod, *i*, attached to the cup, and a mechanism for raising and lowering the cup, substantially as shown.

2. A cup, *h*, filled with mercury, glycerine, or other material, in combination with the rod *i*, pipe *a*, having slots 2, rod 1, and knob 3, having screw-threads for the rod I to catch in, substantially as described.

189,310. MACHINES FOR MAKING WOODEN RODS AND DOWEL-PINS. H. B. Smith and J. Saltar, Jr., Smithville, N. J. [Filed Nov. 20, 1876.]

Brief.—Wooden dowel-pins and similar articles are formed by means of a hollow rotary cutter attached to a hollow axial shaft; a pair of laterally-adjustable feed rollers, mounted on vertical shafts, whose bearings open and close in reverse order, and have a common axis, and provided with V-shaped grooves and serrated surfaces at the center of said grooves; a pair of laterally and vertically adjustable discharge-rollers, formed with shoulders at opposite ends, and arranged with their central portions coincident with the openings of the cutter, and adapted to fit finished rods of any size; screw-stops for limiting the closing movements of the feed-rollers, and suitable operating mechanism. The main shaft is relieved of the weight and strain of the feed-rollers, roller-shafts, and bearing arms by means of independently-supported sleeves encircling worms upon said shaft, and provided with side openings, into which project worm-wheels attached to the feed-roller shafts, and which mesh with said worms.

189,310.



1. The combination of the rotary shafts F, carrying the feed-rollers H and J, the shaft-bearing arms G, the levers *g* and *h*, and gearing *b d*, substantially as shown and described.

2. The combination of the sleeves E, main shaft D, gearing *b d*, feed-roller shafts F, and shaft-bearing arms G, constructed and arranged substantially as shown, for the purpose specified.

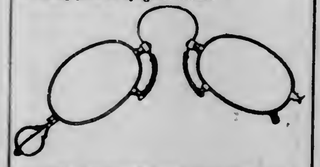
3. The feed-rollers J, constructed as shown in Fig. 4, having shoulders at opposite ends, and adjustable relatively to one another, substantially as and for the purpose specified.

4. The feed-rollers H, formed of V-grooves, with smooth sides and serrations or corrugations at the center or angle, substantially as and for the purpose set forth.

5. The bearing-arms G of the roller-shafts F, and the connected levers *g*, in combination with the adjusting or regulating screw-stop K, substantially as and for the purpose set forth.

189,311. EYEGLASSES. John S. Spencer, New York, N. Y. [Filed June 7, 1876.]

Brief.—Suspending-hook attached to and forming part of eyeglass-frame.



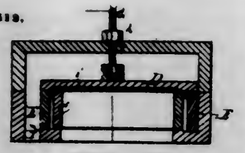
1. The combination of a suspending and fastening attachment to the frame of an eyeglass, substantially as herein represented and described.

2. As a new article of manufacture, an eyeglass provided with a self-attachable suspending hook, substantially as herein represented and described.

189,312. BALANCED VALVES. W. Stephens, Pittston, Pa. [Filed Feb. 13, 1877.]

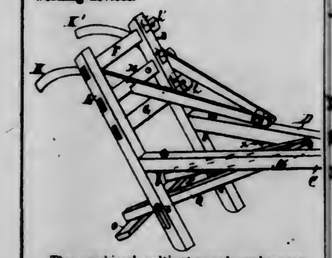
The combination, in a slide-valve for steam-engines, of the raised seat m and shouldered supports E within the valve chest, the valve C, having enlarged back projections *x*, the plate D, provided with recesses *i* and legs *d*, and the bolts G, with nuts *h*, all constructed and arranged to operate substantially as and for the purposes herein set forth.

189,513.



189,513. CULTIVATORS. Jas. C. Stevens, Pleasant Hill, La. [Filed Jan. 22, 1877.]

Brief.—Construction of the frame for adjustment, and to adapt it for interchangeable working devices.



The combined cultivator and seed-coverer herein described, composed of the main beam D, the angular beam O, adjustable on the main beam, the slotted standards A B, the adjustable cross-bars F G M, and the laterally-adjustable handles K K', adapted to carry the covering devices O P Q or cultivator-teeth and shovels, substantially as shown and described.

189,514. STREET AND PARK LAMPS. Jas. Stimpson, Baldwinsville, Mass. [Filed Mar. 21, 1877.]

1. The combination, with a lamp-post, of a pivoted lever and lantern, substantially as and for the purpose described.

2. The pivotal lever, lantern, and post, in combination with a locking device to hold the lever in an upright position.

3. A locking device, in combination with a lantern-cage and its carrying-lever, to operate substantially as described.

189,515. GIMP-LOOMS. Robt. Stone, Coventry, England. [Filed Aug. 31, 1876.]

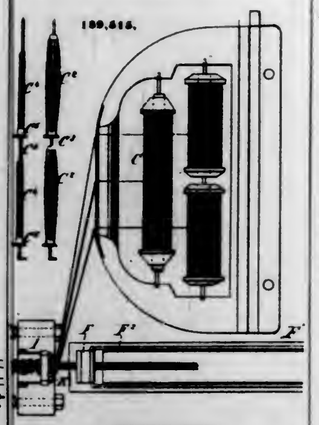
Brief.—The crooked pin-wires of the shuttle are provided with helical springs, one end of which is secured to the pin-wire, and the opposite end to a bush loose upon said wire. The bush fits into the tube with sufficient closeness to cause the latter, when turned, to coil up the spring. When, however, the spring is coiled tight, the tube will be turned by the further winding of the bobbin, thereby providing an additional protection against the breakage of the spring. The reed is held down by a spring strut-piece, which allows the reed to be pushed out should a shuttle be caught. A yielding table with a pressure-spring is provided for making the loops.

1. The combination, with a gimp-loom shuttle, of two crooked pin-wires, C^2, (for each shuttle,) placed parallel to each other and longitudinally of the shuttle, each pin-wires being fitted with helical springs C^4 and bushes C^3, the same being inclosed in tubes C^1, having attached to their exterior retaining-springs C^5 for holding three or more bobbins in place in the shuttle, each arrangement being designed to maintain the tension of the several weft-threads, while providing for unequal rates of delivery during the throw of the shuttle.

2. The combination of the oscillated reed-frame F', the self-liberating reed F, and the elastic strut or clip-piece F^3, substantially as and for the purpose above described.

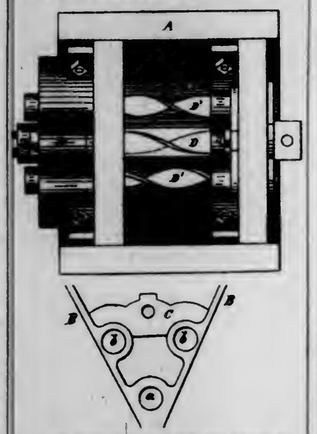
3. The combination of the yielding table I and its return springs, with the spring-presser K and the reed F, for automatically bringing the loops of gimp to shape, as the beating up takes place, and the work is wound upon the work-roll, essentially as described.

189,516.



189,516. SEEDER AND FERTILIZER. Oren Stone, Flint, Mich., assignor of one-half his right to Oliver Perry, same place. [Filed Mar. 15, 1877.]

Brief.—The spiral distributing-shafts are journaled in V-shaped castings, that are secured, one to the outside and the other to the inside of the hopper. The two upper shafts or agitators are made to run faster than the lower or discharge shaft, for feeding out the material to be sown. The gearing is protected by a suitable covering.



1. The castings herein described, consisting of the inclined side straps B B, united at their lower ends, connected by the cross-bar C, and formed with the boxes *a* and *b b*, substantially as and for the purposes herein set forth.

2. In a seed or fertiliser hopper, the twisted agitators D and D' D', arranged as described, and rotating at varying rates of speed, substantially as and for the purposes herein set forth.

3. The combination, with the hopper A, of the castings B C B C, twisted agitators D D', gear-wheels G G', of varying size, provided with slotted journals *d*, and the cap H, substantially as and for the purposes herein set forth.

189,517. MOISTENING-PADS. Charles E. Stockder, West Meriden, assignor to Wm. H. Maguire, same place, and L. C. Whitney, South Meriden, Conn. [Filed Feb. 5, 1877.]

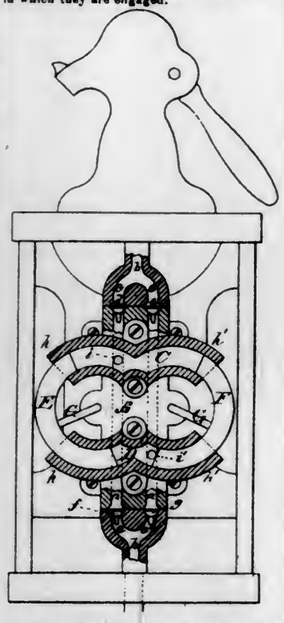
The herein-described moistening-pad for horses' feet, consisting of the fibrous or absorbing material, provided with lugs *a*, for attaching the same within the shoe, substantially as specified.

189,517.



189,518. SUCTION AND FORCE PUMPS. T. B. Swan, Mechanics Falls, Me. [Filed Mar. 14, 1877.]

Brief.—The body of the pump has two parallel ducts extending from end to end. The pump-barrels are in the form of sections of an annulus. Curved plungers fit the bore, and are of the same curvature as the barrels in which they are engaged.

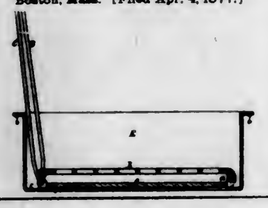


1. In a combined lifting and force pump, the body A, having ducts *a a'*, and valves *d* and *e* and *f* and *g*, respectively, at the upper and lower ends of said ducts, the curved barrels C D, communicating the one with duct *a*, and the other with duct *a'*, the curved pistons E F, engaged in said barrels, and, as described, for operating said pistons, combined substantially as specified.

2. The curved end-wise-reciprocating pistons E F and curved barrels C D, combined with the body A, having ducts *a a'*, valves *d e* and *f g*, and orifices *i i'*, respectively connecting the barrels C D with their ducts *a a'*, substantially as specified.

3. The combination, with the valved and channeled body A and the curved barrels C D, communicating therewith through passages *i i'*, of the curved reciprocating pistons E F, substantially as specified.

189,519. BOILERS. Charles D. Symonds, Boston, Mass. [Filed Apr. 4, 1877.]



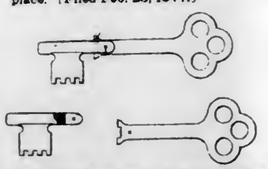
The combination of the double flanged ring E, as described, with the two grids A B and the two handles C D, all arranged and connected together substantially as shown and explained.

189,520. STOCK FOR THE MANUFACTURE OF KEYS. W. H. Taylor, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. [Filed Feb. 26, 1877.]



A blank for the manufacture of key-stems and bits, of the form shown and described.

189,521. KEYS FOR LOCKS. W. H. Taylor, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. [Filed Feb. 23, 1877.]



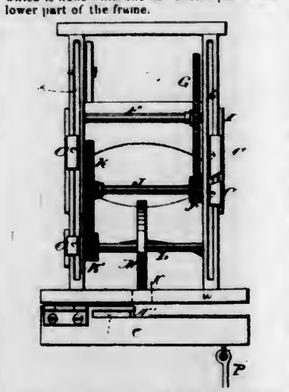
1. A key shank and bow without bit or stem, formed of one piece of sheet metal, and provided with a slot in its end for uniting it with the stem, substantially as described.

2. The combination of a sheet-metal bow and shank, slotted at its end, with a round slotted stem, carrying a bit, substantially as described.

3. The combination of a sheet-metal bow and shank with a round slotted stem, carrying a bit, when the shank is wider at the point of junction with the stem than the diameter of the stem, for the purpose specified.

189,522. SAW-GRINDERS. E. P. Terrell, Bloom Centre, Ohio. [Filed Oct. 28, 1876.]

Brief.—The grinder and train of gearing to drive it are journaled in a vertically-sliding sash or frame, so as to control the grinding, which is done while the saw is clamped in the lower part of the frame.



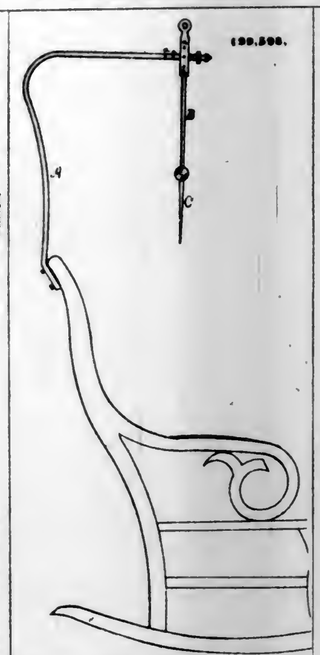
1. In a saw-sharpening machine, the piece D, hinged to the bed-piece A, and provided with a recess, *p'*, for the reception of a circular saw, in combination with the hook P and sockets *r*, substantially as described, and for the purpose set forth.

2. The combination of shafts F, J, and L, with gear-wheels G, J, K, and K', and dressing-wheel M, all journaled in sliding sash D, substantially as set forth.

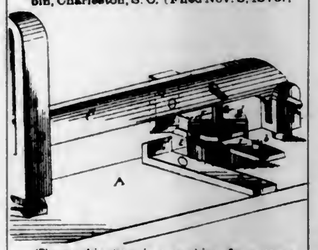
189,523. FAN ATTACHMENTS. K. Thompson and L. G. Bergstrom, Norwalk, Ohio. [Filed Feb. 12, 1877.]

A fan attachment for rocking chairs, having a rod, A, and pendant B, said parts being provided with holes *a a a*, and a pin, *b*, by which the position of the fan can be regulated, substantially as set forth.

189,524.

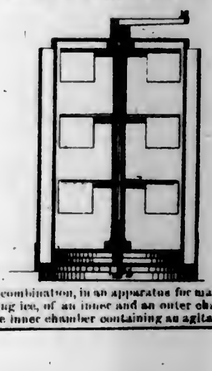


189,524. MACHINES FOR CUTTING AND PUNCHING COTTON-BALE TIES. J. R. Tobin, Charleston, S. C. [Filed Nov. 8, 1876.]



The combination, in a machine for cutting and punching cotton-bale ties, of the bed plate A, provided with cutter E', adjustable anvil H, tapering die I, and perforated top cap J, and the lever C, pivoted to the fork B, and provided with the punch G and cutter E, all constructed and operating substantially as and for the purposes herein set forth.

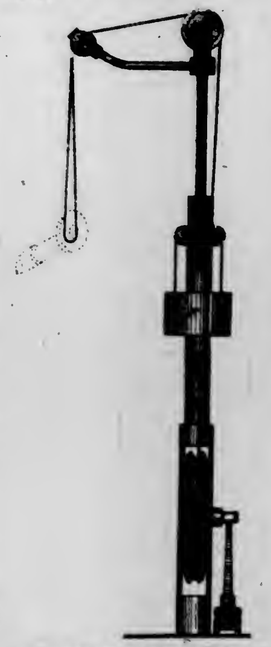
189,525. ICE-MACHINES. S. Tragheim, New York, N. Y. [Filed Feb. 1, 1877.]



The combination, in an apparatus for manufacturing ice, of an inner and an outer chamber, the inner chamber containing an agitator and the refrigerating or freezing material, and the outer chamber containing the water to be frozen into blocks or cakes, substantially as herein shown and described.

189,526. DENTAL ENGINES. G. W. Tripp, Auburn, N. Y., assignor to S. S. White, Philadelphia, Pa. [Filed Mar. 22, 1877.]

Brief.—The telescoping vertical rod, which carries a horizontal rod and pulleys, is balanced at various heights by a perforated weight, which works over the hollow vertical standard.



1. The combination, substantially as hereinbefore set forth, of a base or stand, a shaft rising therefrom, a rod telescoping and turning in said shaft, and a balance weight acting upon said rod, for the purposes set forth.

2. The combination, substantially as hereinbefore set forth, of the tubular shaft, the telescoping-rod, its arm projecting at right angles therefrom, the pulleys, carried by the rod and arm, and the balance-weight, for the purposes set forth.

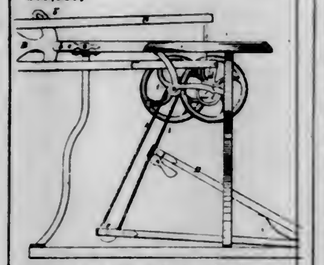
3. The combination, substantially as hereinbefore set forth, of the tubular shaft, its telescoping and turning rod, and a spring detent to lock the shaft and rod together.

4. The combination, substantially as hereinbefore set forth, of the base or stand, the driving-pulley, the shaft, the telescoping-rod, its projecting arm, the pulleys carried by the rod and arm, the balancing-weight, the belt-connections, and a hand-piece, these members being constructed to operate in combination, for the purposes set forth.

189,527. SCROLL-SAWING MACHINES. G. H. Truxell, Greensburg, Pa., assignor of one-half his right to Wm. Truxell, same place. [Filed Aug. 16, 1876.]

Brief.—The loss of power is obviated by means of a two-part treadle, its upper and lower parts held apart by a spring, and its upper part carrying a gravity friction-clutch. Tension is given the saw, and the saw-arms adapted to various lengths of blade by a bracket pivoted to a rear extension of the table, and provided with upper and lower projections, to which are pivoted the outer ends of the arms, and with an upper projection having a curved slot to receive a set-screw on the upper arm. The length of stroke is varied, as required, by an adjustable eccentric slotted diametrically, and secured to the power-wheel by a set-screw passing through the slot.

190,387.



1. The pivoted brace B, slotted as described, in combination with the arm or arms of the saw, substantially as specified.

2. In combination with brace B and extension a, the guide-piece b, substantially as described.

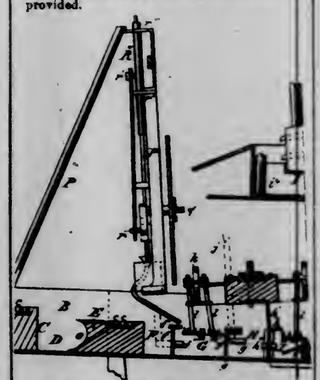
3. In combination with wheel f, rod d, and saw-frame C C', &c., an adjustable eccentric, e, to regulate the length of stroke of the pitman, substantially as specified.

4. The combination of a continuous cord or band, k, a clutch operating substantially as described, pulleys i and o, and a two part treadle sprung apart by a spring, s, substantially as and for the purpose described.

5. The two-part treadle, the upper carrying a gravity friction-clutch, and the lower a pulley or band-wheel, and held apart normally by a spring, s, substantially as and for the purpose described.

190,388. COMBINED WASHER AND AMALGAMATOR. B. Tyson, Washington, D. C. [Filed Mar. 3, 1877.]

Brief.—The gold bearing débris passes, with the water of the flume, through the grate bars situated at the head of the washer, thence descending from riffle to riffle, and through the various compartments of the washer, until finally it overflows at the tail piece. Mercury contained in the troughs and riffle arrests, separates, and retains the fine gold; a series of bars reciprocating across the machine assisting amalgamation. A device for automatically feeding the mercury is provided.



1. The removable grate-bar a, provided with the groove a^6 in the side of the web part, as and for the purposes described.

2. In a machine for washing and amalgamating gold, the grate to receive the gold bearing earth, composed of the sides a'', transverse plates a''', grate-bars a, and keys a^5, all constructed and arranged as and for the purpose substantially as described.

3. The combination, with the riffle-arrest C, of the removable grate X, seated in its upper face, and provided with a series of parallel grooves or pockets, substantially as herein set forth.

4. The riffle or arrest E, provided with a concave, e, in its upstream face, as and for the purposes substantially as described.

5. The riffle f, having a projecting top, f^1, in combination with reciprocating agitator-bars m and m', as and for the purposes described.

6. The reciprocating bars m and m', provided with angular projections 6 on their under sides, substantially as and for the purposes described.

7. The reciprocating agitator-bars m and m', having ribs 2 and intervening grooves 3 on their upper sides, substantially as and for the purposes described.

8. The reciprocating agitator-bars m and m', provided with mortises or holes 5, formed transversely through the bars, substantially as and for the purposes described.

9. The agitator-bars m and m', provided with ribs 2, intervening grooves 3, and mortises 5, as and for the purposes described.

10. The reciprocating agitator-bar n, having a series of pins on its top side, and angular projections on its under sides, substantially as described.

11. The reciprocating agitator-bar n', angular in form, and with pins projecting from its sides, substantially as described.

12. In a machine for washing and amalgamating gold, a reciprocating agitator, composed of the frame L, agitator-bars m and m' n and n', constructed as described, in combination with two or more grooved riffles, such as f g h, and trough l', as and for the purposes described.

13. The trough l', having transverse blocks l^1 and nozzles l^2, in combination with the agitator-bars n', as and for the purposes substantially as described.

14. The final riffle J, with the grooves or grating on its top, constructed as shown, in combination with the trough l', provided with the water-nozzles l^2, and the reciprocating agitator-bar n', as and for the purposes described.

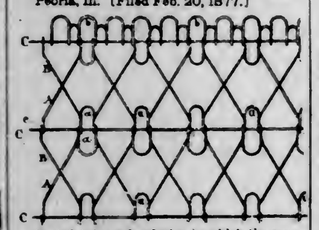
15. The combination, with the water-pipes f'' and riffle f, of reciprocating agitators m m', in the manner and for the purpose described.

16. The combination, with agitators m m' and riffle g, of the bent water-pipe g', giving a jet of water forward of riffle g', in the manner and for the purpose substantially as described.

17. The combination, with agitators n n' and trough l', provided with inclined plates i'', of the water-pipe h'', giving a jet of water upon said plates i'', as and for the purposes described.

18. In a machine for washing and amalgamating gold, the automatic device for supplying quicksilver in the operation, consisting of the combination of the adjustable plunger T, reciprocating cup U, cistern V, funnel r, and pipe r', substantially in the manner and for the purpose described.

190,389. WIRE FABRICS. H. R. Van Epe, Peoria, Ill. [Filed Feb. 20, 1877.]



1. A fabric made of wire, in which the separate zigzag divisions which form the article are united to a continuous wire by turning the loops or points of each bend or zigzag over said continuous rod or wire, the common bond of union between each adjoining zigzag division, substantially as and for the purposes described.

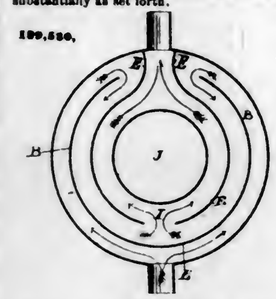
2. The wire sections A, (or A and B,) of a zigzag form, united to wires C by turning over the loops a, or the points of the zigzag sections A B, to form, with several such sections or divisions and rods C, a flat article, or an article made up of curves, substantially as and for the purposes set forth.

3. The combination, in a wire fabric, of the divisional connecting-loops a and the uniting-wire C, substantially as and for the purposes described.

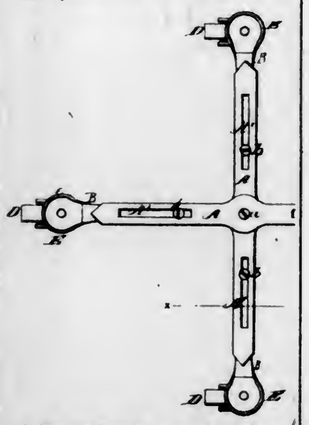
190,390. STOVE-DRUMS. G. W. Vosburgh and H. Van Slyck, Waterloo, Wis. [Filed Dec. 29, 1876.]

A stove-drum constructed, as described, with the external central opening or air-passage J, and the internal deflecting-partitions B E E, arranged as described, so as to cause the products of combustion to circulate within, and not pass directly through, the drum, substantially as set forth.

190,390.



190,391. STOVE-CASTER FRAMES. Ellison H. Voorhees, Pella, Iowa. [Filed Feb. 3, 1877.]



1. The combination, in a supporting-frame for stoves, of crossed bars A A, pivoted together at their middle points, with extension-bars B B and standards or legs C C, the said frame being adjustable longitudinally and laterally, substantially as and for the purpose set forth.

2. The combination of crossed bars A A, pivoted together at their middle points, longitudinally slotted and recessed near their ends, as described, with extension-bars B B, having stove-feet holders E, standards C, and casters D, substantially as and for the purpose set forth.

190,392. PRINTING-PRESSES. Josiah Wade, Halifax, England. [Filed Jan. 7, 1876.]

Brief.—The main shaft, on which the platen is sleeved, carries a cam, which rocks a shaft having a segment-arm geared to a segment fixed to the platen. Crank-wheels on the main shaft are connected to an eccentric shaft mounted in the pivoted bed-frame, which is oscillated by the cranks, and receives additional motion by the rocking of the eccentric shaft, which carries a cam-arm engaging a stop-stud on an adjustable sliding rod. The turning of the rod, disengaging stud and arm, avoids an impression. The ink-roller frame is detachably connected to a rocking lever-arm, jointed to a band on one of the crank-wheels. The ink-fountain is adjustable at the edge of the distributing-disk. The edges of jointed adjustable gages are perforated to receive pins to hold down the edges of the sheet to the platen.

1. The combination of the oscillating bed and the automatically-rocking eccentric shaft, mounted in the bed-frame, substantially as described.

2. The combination of the bed-frame, the crank-wheels, and connecting-rods, and the automatically-rocking eccentric shaft, substantially as described.

3. The oscillating bed and the rocking eccentric shaft, mounted in the bed-frame, and having a cam-arm in combination with the stop-stud, substantially as described.

4. The oscillating bed and the rocking eccentric shaft mounted in the bed-frame, and having a cam-arm, in combination with the stop-stud, the spring 34, and stops 34A 34B, substantially as described.

5. The combination of the oscillating bed, the rocking eccentric shaft, having a cam-arm, and the adjustable stop-stud, substantially as described.

6. The oscillating bed and the rocking eccentric shaft, having a cam-arm, with a swiveled guide-stud thereon, combined with the sliding rod, having a stop-stud thereon, substantially as described.

7. The sliding rod bearing a stop-stud and a pin, in combination with the cam-arm, the eccentric rocking shaft, and the oscillating bed, substantially as described.

8. The revolving shaft 35A, carrying a cam, and the crank-wheels oscillating the bed; the platen, sleeved on said shaft and provided with a segment-gear, 22, and the rock-shaft 18, carrying a segment-gear, 17, and having a crank-arm, 19, all combined and operating substantially as described.

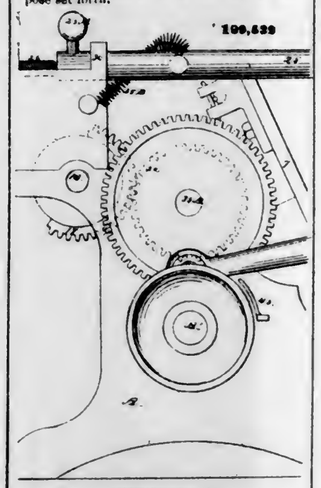
9. The adjustable gage, provided with holes for receiving the sheet-holding pins, substantially as described.

10. The jointed adjustable gage, combined with the pivoted adjustable links, substantially as described.

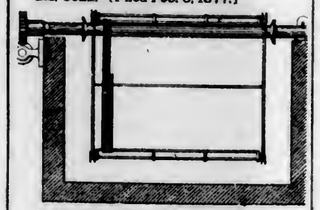
11. The combination of the ink-roller frame with mechanism substantially as described, for oscillating said frame, and a locking-nut, for connecting and disconnecting said frame with or from said mechanism, substantially as described.

12. The combination of the ink-fountain 57, adjusting-screw 58, roller 56, screws 60 and 62, and clip-piece 63, all as and for the purpose set forth.

190,392.



190,393. PROCESSES AND APPARATUS FOR ELECTROPLATING WIRE. Wm. Wallace, Ansonia, Conn., and L. L. Smith, Passaic, N. J., assignors to Wallace & Sons, Ansonia, Conn. [Filed Feb. 6, 1877.]



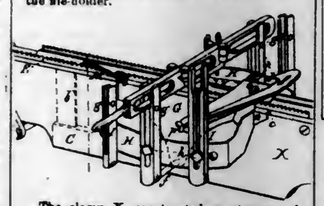
1. The method herein described for electroplating coils of wire, consisting in separating or distributing the convolutions forming the coil in substantially an axial line with each other, and then subjecting them to the action of the coating-bath during their gradual rotation, substantially as described.

2. The herein described reel or frame, consisting of the two rings or heads, connected together by one or more pairs of longitudinal rods, the outer one of each pair being detachable from the end rings, and between which and the inner rods the wire to be plated is secured before placing in the bath, substantially as and for the purpose described.

3. In combination with an electroplating-vessel and a frame for holding the coils of wire to be plated, a friction rotating axis, for imparting a rotary motion to the said frame, the combination being substantially as and for the purpose described.

190,536. SAW-SHARPENERS. John Walsh, Newton, Iowa. [Filed Oct. 5, 1876.]

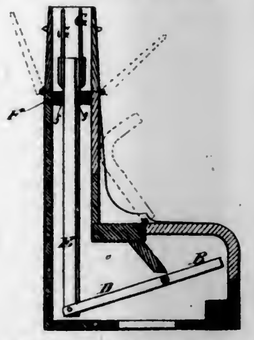
Brief.—Depth of cut of file regulated by guide-rods on each side of file. A notched gage-plate, to properly space the teeth, connected to hand-slides, which rest by means of flanges on the upper edges of the saw-clamp. Adjustable guide-standards on each side, for the file-holder.



The clamp X, constructed as shown and described, and strip E, in combination with side plates G G, spring-catch M, adjustable standards I I, file-holder M, gage-rods s, and tooth-gage K, all arranged substantially as and for the purpose set forth.

190,535. APPARATUS FOR TEACHING SPELLING. David A. Willbanks, Monroe, Ga. [Filed Sept. 30, 1876.]

Brief.—A key-board exhibits a letter or word upon pressing each key thereof.



1. The combination of a series of keys, B, with a series of levers, D, a series of vertically-sliding rods, E, and a series of letter-slides or letter-plates, G, substantially as set forth.

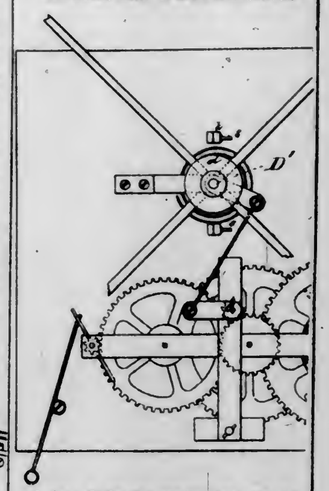
2. The combination of a key, B, a lever, D, a vertical rod, E, a letter-slide or letter-plate, G, and a perforated guide-board or guide-plate, F, substantially as set forth.

190,536. TREATING HIDES AND SKINS. N. Wilson, Beckat, Mass. [Filed Jan. 2, 1877.]

Brief.—After the hides or skins have been limed, they are treated in a solution of ground barley, chloride of sodium, saltpeter, sulphate of magnesia, or Epsom salts, sulphuric acid, and water.

In the process of tanning hides or skins after they have been subjected to the action of lime for removing the hair, &c., the treating of them to a compound or solution, substantially as described.

190,537. FLY-FANS. George W. J. Woltz, Greenfield, Ohio. [Filed Feb. 17, 1877.]



1. In a fly-fan, the combination, with the oscillating fan-shaft D, of the springs s, for preventing jarring, substantially as specified.

2. The longitudinally-slotted clamp A, in combination with a fly-fan arm and a "brush" wrapped around the same, substantially as specified.

3. In combination with the oscillating shaft D, the spring s and the oscillating spring L, for the prevention of jarring, substantially as specified.

190,538. PRODUCTION OF COLORING MATTERS FROM ANILINE. Justus Wolff, Wyke, near Bradford, and Ralph Bethley, Wigan, England. [Filed Jan. 23, 1877.]

1. The production of a dye, or of a series of dyes, from aniline, or from toluidine, or from mixtures of the same, and either with or without the employment of xylidine, together with nitro-benzole or nitro-toluol, or mixtures of the same, in conjunction with metallic salts, as herein mentioned, in the manner and for the purposes as hereinbefore described.

2. The production of coloring matters from aniline, in conjunction with nitro-benzole, by the employment of hydrochloric acid, or of other suitable hydrogen acids, in the manner hereinbefore described.

3. The production of coloring matters from aniline by the employment of arsenic acid, or of other metallic oxygen acids, in the manner and for the purposes hereinbefore described.

4. The production from aniline, partially or completely neutralized or saturated by hydrochloric acid, or by any other suitable acid, and treated in the manner hereinbefore described, of coloring matters soluble in water, or in acidulated water, at an elevated temperature, the same being capable of dyeing various shades of black and gray on wool, cotton, and other fabrics.

190,539. EXERCISING-MACHINES. Geo. W. Wood, New York, N. Y., assignor to M. M. Stanfield and H. W. Wood, same place. [Filed Mar. 24, 1877.]

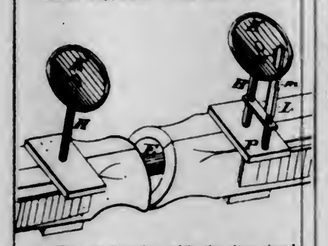


1. In combination with the elastic exercising-tube a, the plugs b, having necks, and the elastic bands d, confining the tube into said necks, substantially as set forth.

2. The combination, with the elastic exercising-tube and the end plugs thereof, of the hooks or eyes f, attached to said plugs, substantially as set forth.

3. In the exercising apparatus, the combination, with the elastic exercising-tube and connecting eyes or staples, of the lever g, substantially as set forth.

189,640. CAR-COUPLINGS. Jacob B. Zink, Union City, Mich. [Filed Jan. 18, 1877.]

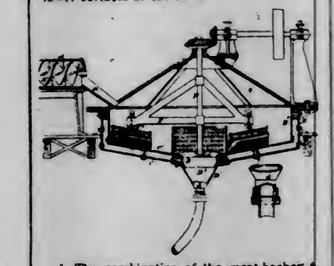


1. The combination, with the draw-head, constructed with fixed and springy pressed jaws, of a cam, G, and locking mechanism M m L P, substantially as and for the purpose set forth.

2. The combination, with the draw-head, constructed with fixed and springy-pressed jaws, of an actuating shaft, H, provided with a cam and a screw, the latter adapted to engage with a plate secured to the under side of the draw-head, substantially as and for the purpose set forth.

189,641. PROCESSES AND APPARATUS FOR RENDERING FATS. William E. Andrew, New York, N. Y. [Filed Feb. 17, 1877.]

Brief.—The combination of a basher with a cylindrical jacketed kettle having an inclined bottom, the oil outlet surrounded with a perforated cylindrical strainer, and revolving metallic brushes having vertical and horizontal teeth, which brush the outer surface of the perforated cylinder, and the bottom and lower surfaces of the tank.



1. The combination of the meat-basher A A' a with a rendering-vessel having a heat-radiating surface, B' C', and a perforated cylinder, E, rigid therewith, as specified.

2. The combination of a jacketed rendering-vessel, B B' C C', having an orifice, D, with a perforated cylinder, E, rigid with the vessel and surrounding the orifice, and extending slightly upon the heating-surface, as herein specified.

3. The perforated cylinder E, in combination with, and rigidly attached to, the bottom of an open-bottomed rendering-kettle, as specified.

4. The vertical shaft F, in combination with metallic brushes H, having vertical and horizontal teeth, in combination with the rendering-tank and perforated cylinder, as specified.

5. The brushes H, hung differentially, in combination with the operating means F F', the rendering-vessel, and the perforation outlet, as herein set forth.

6. The process described of dry-rendering animal fat, which consists in subjecting it to an extracting heat, conveying the oil away from the heat and tissue as fast as rendered, and at the same time preventing the clogging of the oil-outlets and the accumulation of gluten or other non-conducting material, as specified.

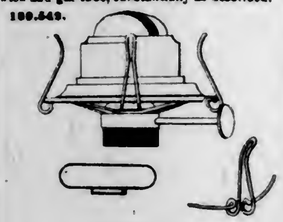
189,642. LAMP-BURNERS. Jas. G. Hallen and Wm. N. Weeden, Waterbury, Conn., assignors to the Benedict & Burnham Manufacturing Company, same place. [Filed Mar. 9, 1877.]

1. In a lamp-burner, substantially such as described, the deck or chimney-rest, constructed with its edge turned inward, and inclosing a wire to form the edge of the chimney-rest, substantially as described.

2. In a lamp-burner, substantially such as described, the chimney-holding springs formed from wire, the ends of the said springs turned into a horizontal plane with the chimney-rest, and secured thereto by turning the edge of the chimney-rest over the said ends, substantially as described.

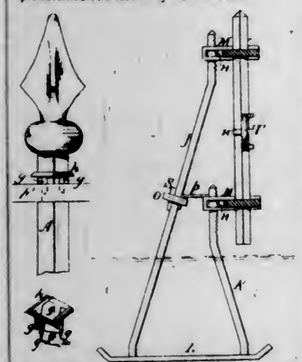
3. In a lamp-burner, the combined wick and gas tube, formed complete in a single piece of metal, with a division between the wick and gas tube, substantially as described.

189,643.



189,644. IRON FENCES. Jas. H. Van Dorn, Cleveland, Ohio. [Filed Oct. 30, 1876.]

Brief.—The stringers are connected adjustably to the posts, and the ornaments and pickets are connected by novel means.



1. The iron fence-picket, constructed with the lateral recesses and applied to the fence-stringers by being inserted therein and then moved laterally or turned partly round, substantially as described, for the purpose specified.

2. The combination of one or more wedges, g, with the recessed pickets and the stringers F, substantially as described, for the purpose specified.

3. The picket-collar h, provided with one or more wedges, g, substantially as described, for the purpose specified.

4. The combination of the uprights J K of the post, with the upper and lower fence-stringers united thereto by suitable means, substantially as described, for the purpose specified.

5. The fence-post, consisting of the inclined uprights J K of unequal length mounted upon the base-plate L, substantially as described, for the purpose specified.

6. The grooved lateral wedges a, and looped plates or bars M, in combination with the fence-stringers and the corrugated uprights of the fence-post, substantially as described, for the purpose specified.

7. The combination of the dog p and collar O, with the long upright of the fence-post and the lower fence-stringer, substantially as described, for the purpose specified.

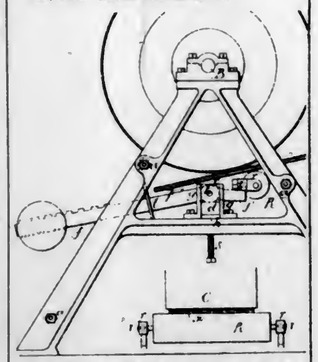
8. The base-plate L of the fence-post, having its ends turned upward to prevent it from slipping longitudinally in the ground, substantially as described.

9. The picket-heads, constructed substantially as described, secured to the pickets by forcing their lower edges into the recesses of the pickets at one or more points, substantially as described.

10. The picket-ornament T, constructed with the cross-bar u to fit into a notch in one side or corner of the picket, substantially as described, for the purpose specified.

REISSUES.

7,395. GRINDING-MACHINES. Saml. Bevan, Philadelphia, Pa., assignor, by mesne assignments, to Henry Disston & Sons, same place. Patent No. 114,098, dated Apr. 25, 1871. [Filed Feb. 16, 1877.]



1. The combination of a grinding or polishing wheel, C, with a roller, R, and with a strip, x, carrying the object to be ground, and serving as a lever, of which the said roller R is the fulcrum.

2. The combination of the grinding or polishing wheel with a fulcrum-roller, R, clothed with rubber or other equivalent yielding material.

3. The combination of the grinding or polishing wheel with a fulcrum-roller, R, and yielding bearings of the same, which permit the said roller to accommodate itself to the plates to be ground or polished, as described.

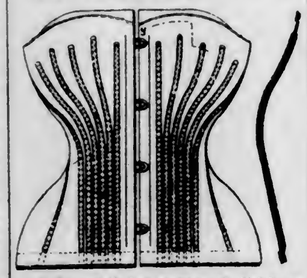
4. The combination of the grinding or polishing wheel and the fulcrum roller with strips for preventing the said roller from coming in contact with the said wheel.

5. The combination of the grindstone or polishing-wheel with weighted levers F and fulcrum-roller R.

6. The combination of a grinding or polishing wheel with a yielding fulcrum-roller situated at one side of a vertical line drawn through the axis of the said stone or wheel.

7. The combination of the grinding or polishing wheel with levers F F, hung loosely to a spindle, the fulcrum-roller R, and the swivel-bearings r r of the said roller.

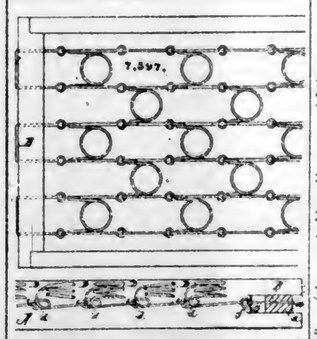
7,396. CORSETS. M. Cohn, New York, N. Y. Patent No. 137,893, dated Apr. 16, 1873. [Filed Feb. 28, 1877.]



1. A corset, the bone-passages of which have been closed in the weaving of the fabric at places predetermined by the jacquard, substantially as described.

2. The improvement in the mode of making corsets by closing one end of the bone-passages in the weaving at points predetermined for locating the ends of the bones, substantially as described.

7,397. SPRING BED-BOTTOMS. F. B. Franklin, Appleton, Wis., assignor to the Union Wire Mattress Company, Chicago, Ill. Patent No. 34,570, dated Mar. 4, 1862. [Filed Mar 16, 1877.]



7,397.

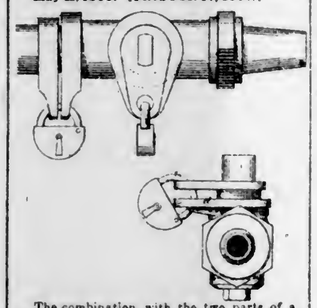
1. The continuous elastic web composed of spring links and links, substantially as set forth and described.

2. In a bed-bottom, the combination, with a rectangular frame, of the elastic wire web set forth and described, and stretched longitudinally between and supported wholly from the end bars of the frame, substantially as specified.

3. In a bed-bottom, the combination, with a frame, of the continuous wire web shown and described, supported wholly from its ends, and the end bar B', adjustably connected with the side rails, so as to admit of being moved to or from the end bar B, to slacken or tighten the web longitudinally, substantially as and for the purpose set forth.

4. In a removable bed bottom frame, the removable end piece B', made adjustable, as set forth, and for the purpose specified.

7,398. LOCKING DEVICES FOR STOP-COCKS. H. C. Meyer & Co., New York, N. Y., assignees of J. H. Morris, executor of V. T. Hall, deceased. Patent No. 89,929, dated May 11, 1869. [Filed Feb. 17, 1877.]



The combination, with the two parts of a stop-cock, or with the cock and the pipe to which it is coupled or connected, of means, substantially as described, adapted to be fastened together by a lock, and which, when locked together, effectually prevent any rotation relatively of the parts with which said means is combined.

7,399. HORSE HAY-RAKES. L. Myers, Ludlowville, N. Y. Patent No. 105,117, dated July 5, 1870; antedated June 28, 1870. [Filed Nov. 30, 1876.]

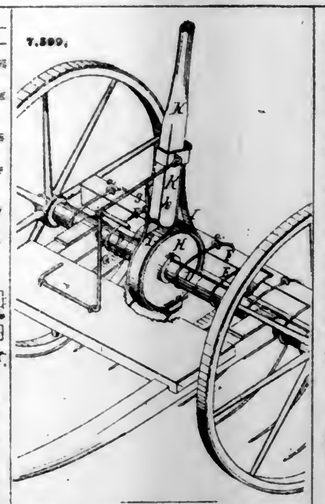
1. The combination of a revolving axle and rake-teeth, and a flexible friction-gripe for gearing them together, for the purpose set forth.

2. A friction-surface applied on opposite sides of a revolving axle, in combination with the rake-teeth, for the purpose of gearing the teeth with the axle, substantially as set forth.

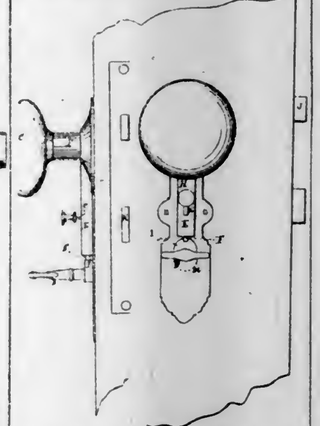
3. The combination of the wheel H fixed to the axle, the disk or flange J, with its studs g and d, the lever K, strap I, and the staple-bar F, substantially as set forth.

4. In a hay-rake, in combination with the revolving axle and with the lifting-bar for raising the teeth, a friction-strap having connections with the bar and with mechanism by which it is caused to bite the rotating surface at will.

7,399.



7,600. COMBINED KEY AND KNOB FASTENER. Wm. Neracher, Cleveland, Ohio, assignor of one-half interest to H. B. Piper. Patent No. 179,943, dated July 18, 1876. [Filed Sept. 25, 1876.]



1. The case E, slide or bolt F, spring G, and finger-piece H, in combination with the key D, notched cam I thereof, and door A, in the manner substantially as described, and for the purpose specified.

2. In combination with the notched cam I of key D, and notched knob-shank F', the slide F, spring G, case E, and notch c, for locking simultaneously the knob-shank and key, substantially in the manner as herein set forth, and for the purpose specified.

7,601. REGISTERS FOR GAS AND WATER METERS. J. J. Squire, St. Louis, Mo., assignor, by mesne assignments, to H. E. Towle, New York city. Patent No. 37,632, dated Mar. 3, 1863. [Filed Oct. 3, 1876.]

1. In a registering mechanism, a revolving disk, in combination with another disk having numerical characters upon it, the first disk serving at one point in its revolution to obscure for the time being the number upon the second disk which would otherwise be exposed, substantially as set forth.

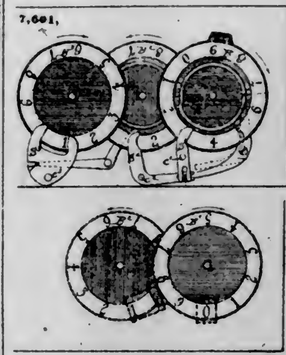
2. The arrangement, substantially as shown and described, of cams, levers, and shields, for the purposes set forth.

3. In a registering apparatus, the combination of a units-disk overlapping a part of a tens-disk with the said tens-disk, the said units-disk having parts of it cut away so as to allow characters or numbers upon the said tens-disk to be seen and read at a designated place or visual opening at which the state of the register is to be ascertained, substantially as set forth.

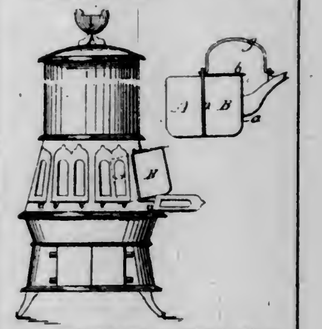
4. Registering mechanism, composed of a unit-disk and a ten-disk, geared to work together by ratchet-wheel and pinion, said unit-wheel being cut away or mutilated at or near its periphery in such a manner as to allow numerical characters upon the ten disk to be seen at the cut-away or mutilated places through suitable openings in an exterior cover plate, substantially as set forth.

5. In combination with a registering apparatus, consisting of one or more wheels showing numbers upon the same, a shield or screen centered and pivoted in such a manner as to allow the screen or shield to be shifted to cover or uncover numbers as the registration or indications proceed, substantially as shown and described.

7,601.



7,602. COOKING UTENSILS. S. Spoor, Troy, N. Y., assignor to W. M. Spoor, H. M. Russell, S. B. Norton, and Foxell & Jones. Patent No. 86,108, dated Jan. 19, 1869. [Filed Feb. 29, 1876.]



1. A cooking-utensil constructed and arranged substantially as represented and described, to fit in a door or window opening in a vertical or upright side of a heating-stove, and to partially project into the interior of the stove, so as to be self sustained or supported therein, for the purposes herein specified.

2. Cooking-utensils constructed and arranged substantially as represented and described, to project through the side of a stove into the interior thereof, and be subjected to the immediate heat of the fire in the combustion-chamber, substantially as and for the purpose herein specified.

3. In cooking-utensils, kettles, or boilers, a resting-face, *a'*, constructed substantially as shown and described, in combination with the spout A, or equivalent projection, on the upper part of the said resting-face, for the purpose herein specified.

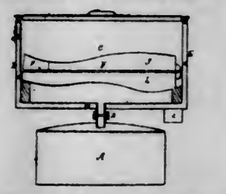
4. A cooking-utensil having a pit or store-entering portion, A, at one side, substantially as shown and described, and for the purpose herein specified.

EXPIRED PATENTS.

5. A cooking-steamer having a flange, *c*, between the inner part or pit A and the outer part or body B, formed to fit the edge of the stove-opening which receives it, substantially as shown and described, and for the purpose specified.

6. A tea-kettle having a bail, *g*, hung at one end to the body thereof, and at the other end to the spout *h*, substantially as shown and described, and for the purpose herein specified.

7,602. STEAMING AND DRYING APPARATUS FOR SHAPING PANTALOONS. B. B. Viets, Boston, Mass. Patent No. 144,044, dated Nov. 18, 1873. [Filed May 22, 1873.]

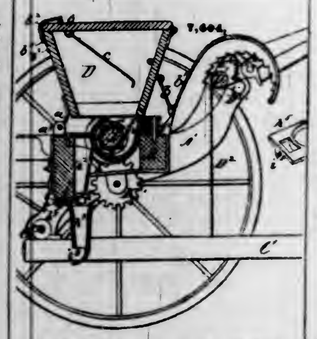


1. For shaping pantaloons or trousers, the mode or process substantially as described, consisting in first stretching the garment on and by means of an expansible former, and next introducing such former, and the garment stretched thereon, into a box or chamber, and, while therein, subjecting both garment and former to the action of steam let into such chamber or box, and subsequently rapidly desiccating the garment, while on the former, by heat applied thereto, as described, all being substantially as set forth.

2. The combination of a former, F, constructed substantially as described, and the steaming and drying chambers C E, substantially as and for the purpose set forth.

3. The combination of the former F, the steaming and drying chambers C E, and the steam-generator A, all being arranged and applied together substantially in manner and for the purpose as specified.

7,604. SEEDERS AND CULTIVATORS. W. A. Van Brunt, Horicon, Wis. Patent No. 158,152, dated Dec. 22, 1874; reissue No. 7,466, dated Jan. 16, 1877. [Filed Mar. 8, 1877.]



1. The combination, with the drag-bars C and an eccentrically-journaled shaft, from which the former are suspended, of the lifting and supporting devices, consisting, essentially, of a rigid support and a lever, attached to said shaft, and provided with means for engagement with and disengagement from said support, substantially as and for the purpose set forth.

2. The combination, with the eccentrically-journaled shaft D^1, supporting the drag-bars C, of the chain *l*, weighted lever L^1, gear-wheel K, and intermediate connections between said lever and wheel, whereby the drag-bars and seeding devices may be adjusted simultaneously, as and for the purpose set forth.

3. The combination of the tube h^2 and plate h^4, said tube being hinged or swung upon said plate, and fastened to it in front by a yielding connection, for the purpose set forth.

4. The cylinder box, having a converging channel or cavity in its lower interior surface, in combination with an adjustable cylinder, substantially as described.

5. The combination, with the toggles O O^1, drag-bars C, and shovel-standards N, of the pins or screws p^1, substantially as and for the purpose set forth.

6. The sockets or collars C^2, formed with the projections c^1, to enter the drag-bars in front, and the rearwardly-projecting plate c^2, to receive a fastening bolt, substantially as shown and described.

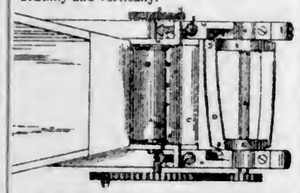
7. The pivoted adjustable hinges, consisting of the plates *a*, having the curved lateral projections a^4 and transverse slots a^5, in combination with the hopper D, and frame A, substantially as shown, and for the purpose specified.

8. The combination, with the side casting A^1, having the annular flanges or journal-box F^1, of the wheel E^3, mounted upon a spindle, from which it is detachable without removing the latter, and having an inwardly-projecting bearing-fitting the spindle, and having its bearing in said box F^1, substantially as shown and described.

9. The combination, with the eccentrically-arranged shaft D^1 for supporting and adjusting the drag-bars, of a support located between the ends of said shaft, to prevent sagging.

7,605. FEED-CUTTERS. J. R. Whittemore, Chicopee Falls, Mass. Patent No. 111,604, dated Feb. 7, 1871. [Filed Oct. 16, 1876.]

Brief.—The straw is fed by an upper toothed roll and a lower smooth roll, both arranged for an interchange of gear, so as to vary the speed of each positively and relatively. The revolving knives are diagonal upon the peripheries that carry them. The intervening ledger-bar is adjustable by set-screws, horizontally and vertically.



1. In combination, the revolving knives D, the side frames M, having the mortises J, the ledger-bar 1, having its ends resting in the mortises J, the vertical and horizontal adjusting-screws K L, and the feed-rolls A B, all substantially as described, and for the purpose set forth.

2. In combination, the feed-rolls A B, with their shafts, the variable and interchangeable gears G H, and the cutting-roll D E F, all substantially as described, and for the purpose set forth.

NATIONAL LITHOGRAPHING CO. WASHINGTON, D.C.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 67.—No. 3. TUESDAY, APRIL 17, 1894. PRICE—$5 per year.

CONTENTS.

	Page.
SUBSCRIPTION PRICE TO FOREIGN SUBSCRIBERS	277
ATTORNEYS	277
FILE-WRAPPERS—ENTRIES ON	277
NOTICE	277
INDEXES TO PERIODICALS	277
WITHDRAWAL OF CASES FROM ISSUE	277
OFFICIAL GAZETTE	278
ISSUE OF APRIL 17, 1894	278
APPLICATIONS UNDER EXAMINATION	278
PATENTS GRANTED	279
REISSUES	392
DESIGNS	394
TRADE-MARKS	396
PRINTS	None.
LABELS	None.
DECISIONS OF THE U. S. COURTS—	
Seabury *et al.* v. Am Ende	401
Sargent *et al.* v. Covert	403
Richter v. Reynolds *et al*	404

Official Gazette—Subscription Price to Foreign Subscribers.

DEPARTMENT OF THE INTERIOR,
Washington, March 29, 1894.

SIR: Inasmuch as the two dollars additional required of foreign subscribers to the OFFICIAL GAZETTE of the Patent Office is inadequate to reimburse the Government the cost of the postage required, you are hereby directed to raise the price, for the ensuing fiscal year, to ten dollars per annum for foreign subscriptions.

Very respectfully,

HOKE SMITH,
Secretary.

The Commissioner of Patents.

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., April 9, 1894.

SIR: The Secretary of the Interior has ordered that Lewis F. Houpt, of Buffalo, N. Y., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

JOSEPHUS DANIELS,
Chief Clerk.

The Commissioner of Patents.

File-Wrappers—Entries On.

It is directed that entries shall not be made on the back of a file-wrapper, containing the application-papers for a patent, of papers or actions which do not become a permanent part of the contents of the file.

A card (Form 2-384 Office Series of blanks, sample hereto attached) will be placed in the file showing all appellate actions.

Notice.

(ORDER No. 453.)

Hereafter, when there are two or more interferences pending in this Office relating to the same subject-matter, or in which substantially the same applicants or patentees are parties thereto, in order that the record of proceedings in each particular interference may be kept separate and distinct, all motions and papers sought to be filed therein must be titled in and relate only to the particular interference to which they belong, and no motion or paper can be filed in any interference which relates to or in which is joined another interference, or matter affecting another interference.

The Examiners are also directed to file in each interference a distinct and separate copy of their actions, so that it will not be necessary to examine the records of several interferences to ascertain the status of a particular case.

This order will not, however, apply to the testimony.

All papers filed in violation of this order will be returned to the party or parties filing the same, with a printed copy of this order, which will be considered a sufficient explanation.

Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading room of the scientific library:

Engineering Review, London, a monthly synoptical index of periodical literature in the English, French, and German languages, including hydraulic, railway, mechanical, electrical, mining, metallurgical, marine, military, and gas engineering.

Electrical Engineering, Chicago, a monthly synoptical index of electrical literature.

Electrical World, New York, a weekly digest of electrical articles.

Journal of the Association of Engineering Societies, Chicago, a monthly synoptical index of civil-engineering literature, mostly American.

Engineering Magazine, New York, a monthly title-index of engineering articles in the English language only.

Withdrawal of Cases from Issue.

Hereafter all amendments proposed to allowed applications which involve a withdrawal from issue, and all petitions and requests relating thereto, shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $10; single copies, 10 cents, if mailed to foreign countries 10 cents additional for postage; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of April 17, 1894.

Patents	367	No. 518,212 to No. 518,578, inclusive.
Designs	13	No. 23,194 to No. 23,206, inclusive.
Trade-Marks	45	No. 24,522 to No. 24,566, inclusive.
Labels	None.	
Prints	None.	
Reissues	3	No. 11,413 to No. 11,415, inclusive.
Total issue	428	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	.....	Nevada	.....	.....
Arizona Territory	.....	.....	New Hampshire	3	.....
Arkansas	1	.....	New Jersey	15	.....
California	25	1	New York	57	11
Colorado	2	.....	North Carolina	1	.....
Connecticut	18	2	North Dakota	1	.....
Delaware	.....	.....	Ohio	26	2
District of Columbia	4	.....	Oklahoma Ter	1	.....
Florida	1	1	Oregon	2	.....
Georgia	2	.....	Pennsylvania	21	6
Idaho	2	.....	Rhode Island	8	.....
Illinois	21	7	South Carolina	.....	.....
Indiana	8	1	South Dakota	1	.....
Indian Territory	.....	.....	Tennessee	1	.....
Iowa	4	.....	Texas	7	.....
Kansas	5	.....	Utah Territory	1	.....
Kentucky	2	1	Vermont	1	.....
Louisiana	1	.....	Virginia	.....	.....
Maine	1	1	Washington	1	.....
Maryland	5	1	West Virginia	.....	.....
Massachusetts	44	2	Wisconsin	8	1
Michigan	14	.....	Wyoming	.....	.....
Minnesota	3	.....	U. S. Army	.....	.....
Mississippi	.....	.....	U. S. Navy	.....	.....
Missouri	9	1			
Montana	3	.....	Total to citizens of the United States	337	38
Nebraska	6	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	.....	.....	Italy	.....	1
Austria-Hungary	2	.....	Mexico	.....	.....
Belgium	3	.....	Netherlands	1	.....
Bermuda	.....	.....	New South Wales	.....	.....
Brazil	.....	.....	New Zealand	.....	.....
Canada	5	.....	Norway	.....	.....
Chile, Republic of	.....	.....	Peru	.....	.....
Colombia	.....	.....	Queensland	.....	.....
Cuba	.....	.....	Russia	.....	.....
Denmark	.....	.....	Scotland	3	.....
Ecuador	.....	.....	South Australia	.....	.....
England	7	.....	Sweden	.....	.....
France	5	4	Switzerland	.....	.....
Germany	13	2	Victoria	4	.....
Hawaii	.....	.....			
India	.....	.....	Total to citizens of foreign countries	43	7
Ireland	.....	.....			

APPLICATIONS UNDER EXAMINATION.

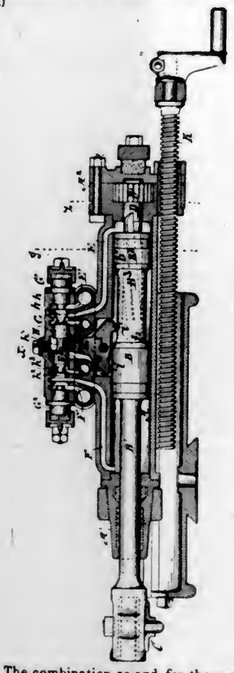
Condition at Close of Business April 10, 1894.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
31	Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Mar. 10	Apr. 7	53
32	Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	Mar. 12	Apr. 6	128
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Mar. 13	Apr. 3	84
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Mar. 10	Apr. 3	98
2	Farm Stock, Products, etc	Mar. 12	Mar. 31	100
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Mar. 12	Mar. 30	132
13	Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, etc.	Mar. 12	Mar. 28	108
7	Harvesters, Games and Toys, and Velocipedes.	Mar. 12	Mar. 28	226
	Between one and two months.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather Working Machinery.	Feb. 10	Apr. 7	299
21	Textiles, etc.	Feb. 12	Apr. 5	131
3	Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Feb. 15	Apr. 3	163
12	Mechanical Engineering, Stores-Service, etc.	Feb. 14	Apr. 2	226
4	Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Feb. 13	Apr. 2	333
1	Tillage and Fences	Feb. 12	Apr. 2	223
6	Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Feb. 12	Mar. 31	137
8	Furniture, Toilet, Umbrellas and Canes, etc.	Feb. 23	Mar. 28	262
10	Carriages and Wagons and Railway-Cars.	Feb. 12	Mar. 28	416
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Feb. 10	Mar. 28	216
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Mar. 5	Mar. 26	214
19	Stoves and Furnaces	Feb. 26	Mar. 26	280
18	Steam-Engineering, etc	Feb. 14	Mar. 24	184
17	Paper-Manufactures and Printing	Feb. 19	Mar. 23	192
26	Electricity, Generation, Distribution, Electric Railways, etc.	Feb. 12	Mar. 14	190
30	Lamps, Gas-Fittings, Linotyping, Matrix-Making Machines, and Type-Writing Machines.	Feb. 15	Mar. 8	191
	Between two and three months.			
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Jan. 11	Apr. 7	209
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Jan. 19	Apr. 3	309
23	Instruments of Precision, Acoustics, Optics, etc.	Jan. 11	Mar. 31	343
22	Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Jan. 13	Mar. 26	255
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Feb. 2	Mar. 15	259
9	Hydraulics, Fire-Extinguishers, etc.	Jan. 11	Mar. 14	537
	Between three and four months.			
24	Sewing-Machines, Crinoline and Corsets, and Apparel.	Jan. 2	Mar. 21	196
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Dec. 28	Mar. 20	438
	Total number of applications awaiting action			7,132
	Under one month in arrears.			
	Designs	Apr. 3	Apr. 4	47
	Trade-Marks	Apr. 4	Apr. 6	31

PATENTS

GRANTED APRIL 17, 1894.

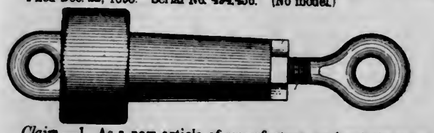
518,212. VALVE MECHANISM FOR ROCK-DRILLS. ROBERT L. AMBROSE, Burden, N. Y. Filed Sept. 21, 1893. Serial No. 486,076. (No model.)



Claim.—1. The combination as and for the purposes herein set forth of the steam or compressed air cylinder of a rock drill; passages for connecting the opposite extremities of said cylinder with the end portions respectively of the valve chamber; a valve chamber provided with two exhaust ports near its ends respectively, also provided with two live steam or compressed air ports, respectively, adjacent to the mouths of the said passages and an endwise reciprocating circumferentially grooved balanced piston valve for alternately connecting one of the said live steam or compressed air ports with the passage communicating with one end of the said cylinder, while uncovering the mouth of the passage communicating with the other end of the said cylinder and at the same time uncovering the adjacent exhaust port and thereby at each successive stroke effecting the discharge of the exhaust steam or air through the end portion of the valve chamber unoccupied by the piston valve.

2. The combination as herein described of a rock drill cylinder, an elongated piston reciprocating in said cylinder and having its middle portion circumferentially grooved, a valve actuating tappet adapted to be rocked by said grooved piston in one direction during the latter portion of the working stroke, and in the opposite direction during the latter portion of the return stroke, and free from the control of said piston during an intermediate portion of each stroke; a valve-chamber provided with resilient cushioned heads and provided near each end with an exhaust port and with an adjacent live steam or compressed air port, passages respectively connecting the ends of said drill cylinder with the adjacent ends of said valve chamber, an endwise reciprocating piston valve adapted to, at each stroke, connect one of said live steam or compressed air ports with one of said passages at one end of said valve chamber and to simultaneously open a path for the exhaust through the space between the valve piston and the other end of said valve chamber, whereby the tappet is assisted by the pressure of the exhaust to effect the latter portion of each stroke of the valve piston and to compress and store up in the cushioned head of the valve chamber against which the valve is driven, the resilient force by which, during the intermediate portion of the stroke of the drill piston, the return stroke of the valve piston is initiated and the live steam or compressed air port partially closed.

518,213. INSULATING-TURNBUCKLE. HENRY P. BALL, Schenectady, N. Y., assignor to the General Electric Company, Boston, Mass. Filed Dec. 22, 1893. Serial No. 494,436. (No model.)



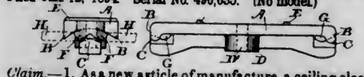
Claim.—1. As a new article of manufacture, an insulating turn buckle having a central shank, a cup adapted to rotate about such shank, insulating material interposed between the cup and shank, an eye-bolt threaded into the shank and an eye-plate secured to the cup.

2. As a new article of manufacture, an insulating turn-buckle having the following parts; a central insulated shank, an eye-bolt threaded therein, a cup rotatable about the shank, an eye-plate secured to the cup and a washer between the cup and the shank but insulated from the shank.

3. As a new article of manufacture, an insulating turn-buckle comprising an eye-bolt having a screw thread and adapted to engage the shank, a cup rotatable about the shank and an eye plate attached to the cup by having a lip of the cup turned over to engage the plate, substantially as described.

4. As a new article of manufacture, an insulating turn-buckle comprising the following parts; a central shank having a flange as B', a cup having a hole in its bottom smaller than the flange but larger than the shank, insulating material between the cup and shank, a washer adapted to take the wear between the cup and shank, an eye-bolt having a screw thread engaging with one end of the shank and an eye-plate secured to the cup by having the edge of the cup turned over upon it.

518,214. CEILING-CLEAT. HENRY P. BALL, Bridgeport, Conn. Filed Jan. 12, 1894. Serial No. 496,635. (No model.)

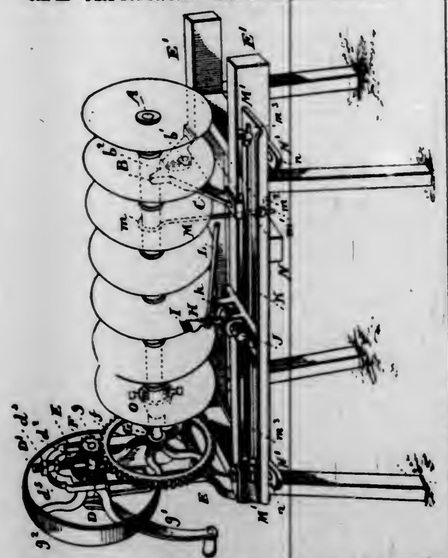


Claim.—1. As a new article of manufacture, a ceiling cleat formed in a single piece, from suitable insulating material, comprising a body portion A and lugs B, B and C, forming diagonal channels upon the end of the cleat adapted to engage and hold in place a wire, substantially as described.

2. As a new article of manufacture, a ceiling cleat formed in a single piece and of insulating material, and having means for engaging the wire comprising diagonal channels F, F, formed upon the end of the cleat, and a groove G in a lug forming one side of such diagonal channels, the groove being of smaller section than the wire which the cleat is adapted to hold.

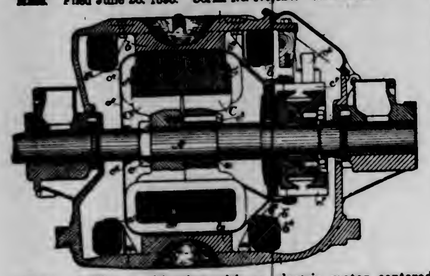
3. As a new article of manufacture, a cleat for incandescent wiring, formed in a single piece from suitable insulating material, such cleat comprising a body portion A having a central boss D provided with a screw hole D', projections E, E, lugs B, B and C, such lugs forming diagonal channels F, F, upon the end of the cleat, and one of such lugs being cut away to form a groove G of smaller section than the wire which the cleat is adapted to hold.

518,215. HARROW-DISK SHARPENER. JOHN T. BARLER, Seneca, Ill. Filed Dec. 20, 1893. Serial No. 494,194. (No model.)



Claim.—The frame D having two parallel arms d d', opposite bearings d^3 d^3 at the upper end and the single bearing d^3 at the lower end, in combination with the frame E having a vertical slot or opening in the middle and above it a hole through the top, the screw D threaded at both ends and passing through said hole, and the nuts d^3 d^3 arranged on the opposite ends of said screw; whereby the operative mechanism and the disk shaft may be all correspondingly adjusted to suit the height of the disk-shaft as described.

518,216. ELECTRIC MOTOR FOR RAILWAY-CARS. NORMAN C. BARRETT, Lynn, assignor to the General Electric Company, Boston, Mass. Filed June 28, 1893. Serial No. 479,027. (No model.)



Claim.—1. The combination with an electric motor centered upon an axle of a vehicle, of a truck supported by the axles, and pivotal supporting devices connecting the motor to the truck at points vertically in line with the center of gravity of the motor.

2. The combination with an electric motor centered upon an axle of the vehicle, of trunnions upon the outside of the motor vertically in line with its center of gravity, and longitudinal yokes supported by the wheel-base of the vehicle to which yokes said trunnions are pivotally connected.

3. An electric motor centered on an axle of the vehicle and having a supplementary support at a point vertically in line with its center of gravity, said support consisting of side bars supported at one end by a transverse cross bar, and at the other end by links pivoted to a cross bar on the opposite side of the axle.

4. The combination with an electric motor centered on an axle of the vehicle, of a longitudinal supporting bar therefor carried at one end by the truck frame on one side of the axle, and at the other end by a link pivoted to the truck frame on the opposite side of the axle, and a pivotal connection between the motor and the said longitudinal bar vertically in line with the center of gravity of the motor.

5. An electric railway motor sleeved upon a car axle, but mainly supported by a supplementary frame pivotally connected at one end to the main truck, and spring supported at the other end upon a cross piece suspended from said main truck, as described.

6. An electric railway motor supported by a supplementary frame consisting of yokes extending longitudinally along the sides of said motor and suspended from the main truck frame, said motor being connected to said yokes at points below its center of gravity and prevented from swinging around said points by extensions sleeved upon the car axle, as described.

7. In an electric motor having an inclosing shell made of an upper and lower casing hinged and bolted together, trunnions on opposite sides of said lower casing, longitudinal extensions from said lower casing sleeved upon the car axle, and yokes suspended from the main truck adapted to support said trunnions but readily removable therefrom so that the motor can be allowed to swing beneath the axle and be suspended therefrom in an accessible position, and held by said longitudinal extensions, as described.

8. A waterproof motor comprising two casings hinged together at one end and sleeved upon a car axle at the other, trunnions upon opposite sides of said casings below the center of gravity of said motor, yokes supporting said trunnions, said yokes being pivotally supported near the axle end of the motor and spring-supported near the free end thereof, as described.

9. An electric railway motor comprising a lower box-shaped casing sleeved at one end upon the car axle and supported upon trunnions on its sides below the center of gravity of the motor, said trunnions resting in spring-supported yokes, an upper box-shaped casing hinged to said lower casing at the end away from the car axle and bolted thereto near said axle, thereby forming a substantially watertight inclosing shell, an armature within said inclosing shell and journaled between said casings, and polar extensions upon the inner surface of said casings adapted to receive bobbins and form the field magnets of the motor, substantially as described.

10. An electric motor geared to and centered upon a car axle, and supported upon a supplementary frame pivotally connected to one end of the truck, and spring-supported at the other end, as set forth.

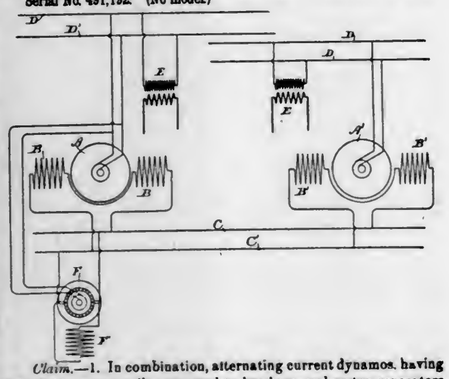
11. An electric motor pivotally connected at points in line with its center of gravity to longitudinal yokes supported by the truck, and extensions from said motor sleeved upon the car axle, as and for the purpose described.

12. An electric motor comprising a lower casing sleeved upon an axle and flexibly supported by the truck, an upper casing hinged to said lower casing, but not extending to the car axles, an armature journaled in the said casing, and extensions on the inner wall of said casing forming the field magnet poles of the motor, as set forth.

13. An electric motor having its field magnets concentric with its armature, said field magnets forming an inclosing case therefor, journal-bearings in the said case for the armature, pivotal connections between the said case and a longitudinal supporting bar, at points vertically in line with the said journal-bearings, and an extension from the said case bearing on the axle.

14. An electric motor provided with a casing and extensions therefrom for centering the motor upon an axle, supporting devices for the said casing vertically in line with the center of gravity of the motor, and an additional supporting device on the end of the casing opposite the said extensions.

518,217. MEANS FOR EXCITING FIELD-MAGNETS OF ALTERNATING CURRENT DYNAMOS. LOUIS BELL, Boston, Mass., assignor to the General Electric Company, same place. Filed Nov. 17, 1893. Serial No. 491,192. (No model.)



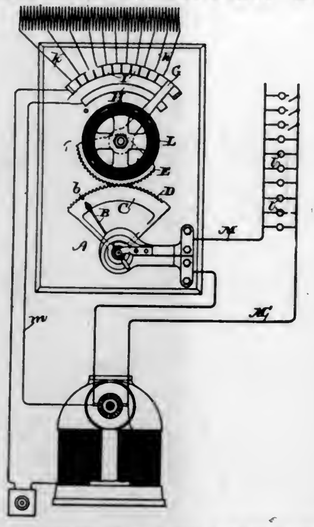
Claim.—1. In combination, alternating current dynamos, having their field-magnet coils connected to bus-bars, and motor-generators actuated by alternating current and delivering continuous current to the bus-bars.

2. In combination, alternating current dynamos, a motor-generator the field-magnet coils of which are in shunt to its own brushes and which delivers continuous current to the field-magnet coils of the alternators, and a separate alternating machine delivering current to the motor-generator and having its field-magnet coils excited by continuous current therefrom.

3. In combination, alternating current dynamos, having their field magnet coils connected in a common circuit and motor-generators actuated by alternating current and delivering continuous current to said circuit.

4. In combination, an alternating current dynamo having its field coils supplied with a continuous current from a transforming motor-generator which has an armature winding supplied with alternating motive currents and delivering a constant direct current.

518,218. REGULATOR FOR DYNAMO-ELECTRIC MACHINES. LOUIS BELL, Boston, Mass., assignor to the General Electric Company, same place. Filed Nov. 28, 1893. Serial No. 492,248. (No model.)



Claim.—1. In combination, a rheostat, an electrical measuring instrument, mechanical connections between the rheostat and measuring instruments actuated by the motion of the rheostat arm, and a scale having a point of reference with which the indicator of the measuring instrument should coincide; whereby the motion of the rheostat arm serves to bring into coincidence the scale point of reference and the indicator of the measuring instrument, and at the same time to insert or withdraw a proper resistance, substantially as described.

2. In combination, an ampère meter having a movable scale, a rheostat, and means whereby the movement of the rheostat arm actuates the scale of the ampere meter.

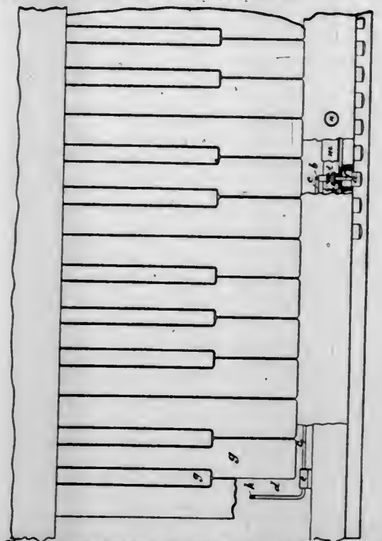
3. In combination, a generator, a rheostat in the field-magnet circuit thereof, an electric measuring instrument in the main circuit, and mechanical connections between the rheostat and the measuring instrument; such connections adapted to cause the withdrawal of resistance varying with the load in the main circuit, as indicated by the measuring instrument.

4. A combined current regulator and indicator comprising a needle movable under the influence of variations of current, a scale movable concentrically with the needle, a rheostat, and means adapted to actuate the rheostat and the scale simultaneously.

5. A combined current regulator and indicator comprising an ampère meter having a movable point of reference, a current regulating appliance, and means substantially as described to simultaneously actuate the current regulator and the point of reference of the ampère meter.

6. In combination, a generator, an ampere meter in the main circuit of such generator, a current regulator in the field-magnet circuit adapted to control its electro-motive force and means whereby the movements of the current regulator may move the point of reference of the ampère meter; all arranged and adapted substantially as herein described, to cause the variations of the ampère meter to indicate a proper resistance proportioned to the load in the circuit and adapted to maintain the excitation of the generator in accordance with such load.

518,219. MUSICAL INSTRUMENT. ANTON H. BEYER, London, England. Filed Nov. 19, 1892. Serial No. 452,558. (No model.) Patented in Sweden Mar. 28, 1889, No. 1,761; in England July 6, 1889, No. 9,989, and in Germany Dec. 31, 1889, No. 50,174.



Claim.—1. The combination with an organ or similar musical instrument, of devices for depressing a key of such instrument and maintaining the same in a depressed position, consisting essentially of a sliding rod, a bar adapted to engage and hold said rod at a certain point in the movement thereof, a pivoted lever against which the sliding rod bears and is adapted to operate, and a connection between said pivoted lever and the key and adapted to depress and retain the latter when the pivoted lever is oscillated, as described.

2. The combination with an organ or similar musical instrument and devices for depressing a key of such instrument, consisting essentially of a sliding rod, a bar adapted to engage and hold said rod at a certain point in its movement, a pivoted lever against which the sliding rod bears and is adapted to operate, and a connection between said pivoted lever and the key and adapted to depress and retain the latter when the pivoted lever is oscillated, of means for releasing the sliding rod from the bar to allow the depressed key to rise, as described.

3. The combination with an organ or similar musical instrument, of devices for depressing a key of such instrument, consisting in the combination with a rod f, adapted to have a sliding movement, a shoulder and a groove on said rod, a bar or plate adapted to ride over the shoulder of the rod and engage the groove thereof, a pivoted angle-lever, one arm of which lies against one end of the sliding rod and is adapted to be operated thereby, and a link connected at one end to the said lever and at its opposite end with a key, as described.

4. The combination with an organ or similar musical instrument, of devices for depressing a key of such instrument consisting in the combination with the rod f, adapted to have a sliding movement, a shoulder and a groove on said rod, a bar or plate adapted to ride over the shoulder of the rod and engage the groove thereof, a pivoted angle-lever, one arm of which lies against one end of the sliding rod, and is adapted to be operated thereby, and a link connected at one end to said lever and at its opposite end with a key, a sliding rod n', a rocking lever q, adapted to be rocked by the rod n' when the latter is depressed, said lever taking beneath and adapted to raise the bar out of engagement with the groove of rod f, for the purpose specified.

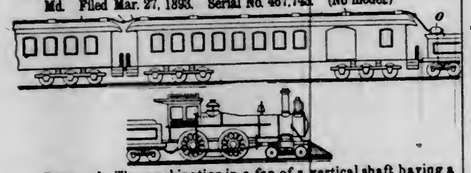
5. The combination with an organ or similar musical instrument, of a series of buttons or knobs a, arranged in a bank, a rod f, connected with each of said knobs and adapted to have a sliding movement through the instrument case, shoulders i, k, on each of said rods, a groove l, between said shoulders, a bar m, having a lip or bent end adapted to engage the groove l when the rod f is pushed inwardly, an angle-lever b—c—d pivoted in a bearing, the arm b, of which lever lies in rear of and is adapted to be operated by the rod f when the latter is operated, and a link h, connected at one end to the arm d, of said angle-lever, and at its opposite end to a key, all arranged for cooperation, as described.

6. The combination with an organ or similar musical instrument, of a series of buttons or knobs a, arranged in a bank, a rod f, con-

nected with each of said knobs and adapted to have a sliding movement through the instrument case, shoulders *i k* on each of said rods, a groove *l*, between said shoulders, a bar *m*, having a lip or bent end adapted to engage the groove *l* when the rod is pushed inwardly, an angle-lever *b—c—d* pivoted in a bearing, the arm *b*, of which lever lies in rear of and is adapted to be operated by the rod *f*, and a link *h*, connected at one end to the arm *d* of said angle-lever and at its opposite end to a key, and means for releasing the rod *f* from the bar *m* consisting of the button *n*, the bar *n'* carrying said button, a pivoted lever *q*, one arm of which lies beneath the bar *m*, and the other arm lying beneath the rod *n'* and adapted to be rocked thereby to cause the raising of the bar *m*, as described.

7. The combination with an organ or similar musical instrument, of a series of buttons or knobs *a*, a rod *f*, connected with each of said knobs and adapted to have a sliding movement through the instrument case, shoulders *i*, *k*, on each of said rods, a groove *l*, between said shoulders, a bar *m*, having a lip or bent end adapted to engage the groove *l*, when the rod is pushed inwardly, an angle-lever *b—c—d* pivoted in a bearing, the arm *b*, of which lever lies in rear of and is adapted to be operated by the rod *f*, and a link *h*, connected at one end to the arm *d*, of said angle-lever and at its opposite end to a key, and means for releasing the rod *f*, from the bar *m*, as described.

518,220. CAR-VENTILATOR. GEORGE A. BOYDEN, Baltimore, Md. Filed Mar. 27, 1893. Serial No. 467,743. (No model.)



Claim.—1. The combination in a fan of a vertical shaft having a clutch-disk secured to it; and provided on its end with a screw thread; a hub loose on said shaft and provided with a clutch-disk; fan-blades secured to said loose hub; a regulating nut on the threaded end of said shaft; and a suitable spring between the said hub and nut, whereby the yielding effect of the spring is always maintained with reference to the disks in every stage of adjustment of the nut.

2. In a fan system for cars the combination of a line-shaft extending longitudinally of the car; vertical fan-shafts pendent in the car; miter-wheels connecting the line-shaft and vertical shafts; and a housing or case inclosing the said miter-wheels and bearings, as set forth.

3. In a fan system for cars the combination of a line-shaft extending longitudinally of the car; bearings on the car to support said shaft; fans mounted on the car and connected with the line-shaft; an engine or motor; and a flexible-shaft connecting the said engine or motor and the said line-shaft.

4. In a fan system for cars the combination of the line-shaft extending longitudinally of the car; bearings on the car to support said shaft; fans mounted in each car and each fan connected with the line-shaft of its car; an engine or motor to impart motion to one of the line-shafts; a flexible shaft attached at the end of each line-shaft, and couplings which connect the two flexible shafts at the ends of adjoining cars.

5. In a ventilating system for rail-way cars, the combination of a motor or engine; fans located in the cars, and a line shaft provided with a flexible connection between adjoining cars, by which the power is transmitted from car to car to drive the said fans.

6. In a ventilating system for rail-way cars, the combination of a locomotive boiler; a motor or engine; pipe-connections between the said boiler and motor; fans located in the several cars, and means to transmit the power from the motor to the said fans in the several cars.

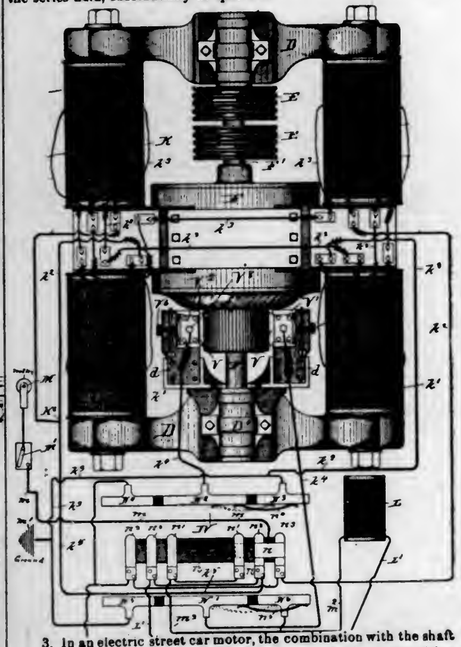
7. In a ventilating system for rail-way cars, the combination of a motor or engine; a number of fans located in the several cars, and all the fans in each car suitably connected; and a flexible power-transmitter between adjoining cars, whereby all the fans in a train of cars may be driven by power transmitted from one prime motor.

8. The combination in a ventilator system for rail-way cars, of a motor or engine to provide power; a fan or fans mounted in the several cars, and means to transmit the said power from car to car to drive the fans therein.

518,221. ELECTRIC-MOTOR CAR. HAROLD P. BROWN, New York, N. Y. Filed Dec. 21, 1891. Serial No. 415,685. (No model.)

Claim.—1. In an electric motor car the combination with the car and mechanism for communicating motion from the motor to the car, of an electric motor having field magnets furnished with both series field coils and shunt field coils, and an additional or choking magnet adapted to be placed in connection with the series field in starting the motor or car, substantially as specified.

2. In an electric motor car an electric motor having a field magnet composed in part of series connected coils, and in part of shunt connected coils, a switch for short circuiting one or more of the series field coils as occasion may require and an additional or choking magnet controlled by said switch and adapted to be put in or out of the series field, substantially as specified.



3. In an electric street car motor, the combination with the shaft or axle C of a friction brake reducing gear mechanism, comprising a pinion disk S and a brake wheel S' secured together as one wheel, and having two wide bearings s' and s^3, and provided with a brake surface midway between said bearings, substantially as specified.

4. In an electric street car motor, the combination with the shaft or axle C of a friction brake reducing mechanism comprising a pinion disk S and a brake wheel, said wheel or shell S' being made in halves secured together and adapted to be separated to give access to the gearing, substantially as specified.

5. In an electric street car motor, the combination with the shaft or axle C of a friction brake reducing mechanism comprising a pinion disk S and a brake wheel S', said disk S and wheel or shell S' being secured together and together forming one hollow wheel containing the intermeshing pinions and filled with a lubricant to deaden the noise and to lubricate the parts, substantially as specified.

6. In a street car motor, the combination with the shaft or axle C of a friction brake reducing mechanism, comprising a pinion disk S and a two-part brake wheel S' bolted thereto and together forming a single hollow wheel, pinions *p*, internal gear p^7 and sleeve pinion *p'*, said pinions having lubricant holes bored through them, and said wheel S S' being filled with or containing lubricant, substantially as specified.

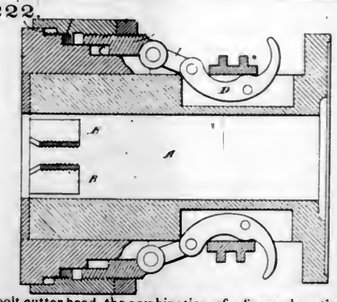
7. The reducing gear S, S', with its pinions *p* and sleeve pinion *p'*, in combination with an internal gear p^7 and its spider p^8, made in a separate piece from said internal gear, substantially as specified.

8. The street car motor switch N, comprising in combination stationary contact pieces N^3 N^4 N^5 N^6 N' N^6, n', n^3, n^4 and n', n^3, n^5, and removable contact pieces *n*, n^4 and n^5, secured to a common operating bar, all arranged, combined and operating substantially as shown and described.

518,222. BOLT-CUTTER HEAD. FREDERICK W. BRUCH and HIO P. EILERS, Cleveland, Ohio, assignors to the Acme Machinery Company, same place. Filed Nov. 13, 1893. Serial No. 490,736. (No model.)

Claim.—1. In a bolt cutter head, the combination with a portion of the die ring having means for operating the dies and another portion of the die ring having means for longitudinally sliding it upon the head,—one of said portions formed with an external screwthread, of an adjusting sleeve having an internal screwthread fitting upon the screwthreaded portion and turning upon the other portion, substantially as set forth.

518,222.



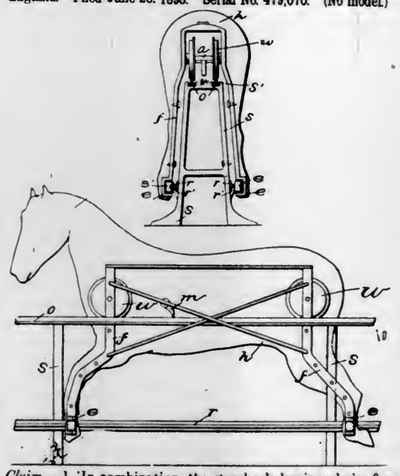
2. In a bolt cutter head, the combination of a forward portion of the die ring formed with an external screwthread, a rear portion of the die ring sliding upon the rear end of said forward portion and formed with a screwthread wound in the opposite direction to the thread upon the forward portion, and an adjusting sleeve having an internal right and left hand screwthread fitting upon the right and left hand screwthreads of the two portions of the die ring, substantially as set forth.

518,223. SKINNING-KNIFE. MARCUS CAHEN, Mülheim, Germany. Filed June 24, 1893. Serial No. 478,743. (No model.)



Claim.—In combination with a suitable handle, flanges c at the end thereof, a blade of U shape having a continuous edge of like shape beveled throughout the entire extent of the blade, and the shank having an integral extension *d* beyond the handle substantially as described.

518,224. GRAVITY-RAILWAY. JOHN W. CAWDERY, London, England. Filed June 28, 1893. Serial No. 479,070. (No model.)

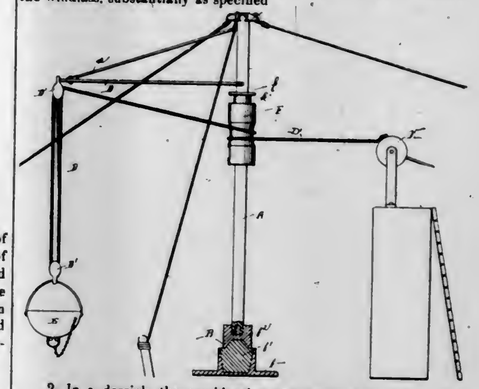


Claim.—1. In combination, the standards having chairs formed at their upper ends for the upper rail and laterally projecting hooked chairs or seats on their sides, and the carriage having wheels to run on the upper chairs and side extensions on each side of the standard, the lower ends of said extensions having rollers bearing on the rails held by the laterally extending chairs, substantially as described.

2. In combination, the standards, having the upper and side rails, the carriage comprising an inner frame *f* having downward extensions on each side of the standards, said extensions having bent lower ends to form pockets or recesses, the rollers journaled therein to bear on the side rails and the outer shell *h*, secured to the inner frame, substantially as described.

518,225. DERRICK. WALTER R. CLOSE, Bangor, Me. Filed June 30, 1893. Serial No. 479,267. (No model.)

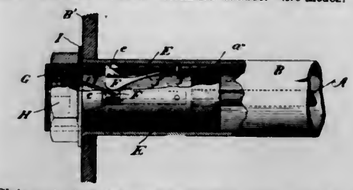
Claim.—1. In a derrick, the combination with a rotary post or mast, of a rotary cylinder journaled on the intermediate portion of said post or mast, its anti-friction bearings, the boom, the tackle, and the windlass, substantially as specified



2. In a derrick, the combination of a rotary post or mast, its bearing step, the upper bearing and stay, the flanges or collars *f*, *f''* on said mast or post, the rotary cylinder F journaled on said mast or post between said flanges, a series of anti-friction balls in each end portion of said cylinder and forming the bearings therefor, the boom, and hoisting tackle, substantially as specified.

3. In a derrick, the combination with the rotary mast or post, the boom carried thereby, and the hoisting devices carried by said boom, of the rotary cylinder journaled upon the intermediate portion of said post or mast just below the point where the boom is connected thereto, the rope from the upper block of the hoisting tackle having one or more turns around said cylinder as it passes to the windlass substantially as specified.

518,226. TUBE-STOPPER. EDWIN W. CRAINE, Missouri Valley, Iowa. Filed Mar. 1, 1893. Serial No. 464,269. (No model.)



Claim.—1. A tube stopper comprising a rod carrying at one end a flexible washer and at the other end a set of dogs, means for forcing them into the tubes to hold the rod in place, and a nut and gasket for closing the outer end of the tube, substantially as described.

2 A tube stopper comprising a shell fitting the tube, a set of dogs carried by the shell, means for forcing them outwardly, a nut screwing upon the outer end of the shell, a rod extending from the inner end of the shell, and a washer on the end of the rod.

3. The combination with the shell E having the nut H and the holes *e* of the dogs F having spring tails *f*, fastened to the inside of the shell, and means for forcing the dogs outwardly through the holes, substantially as described.

4. The combination with the shell E having the holes *e*, of the dogs F having spring tails *f* attached to the shell, the conical screw plug G, and the external nut H, substantially as described.

5. The combination with a tube stopper, of a finger projecting from the end thereof at its periphery to lift a broken tube section, substantially as described.

6. The combination with a tube stopper, of a detachable finger projecting from the end thereof, at its periphery to lift a broken tube section, substantially as described.

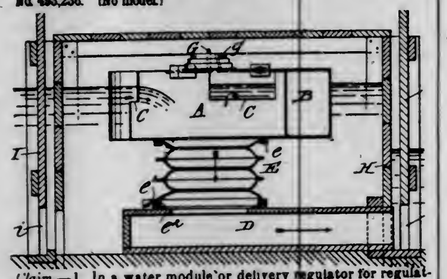
7. The combination with a tube stopper, of a tapering finger having its wider end secured to the end of the tube stopper, at its periphery to lift a broken tube section substantially as described.

8. An attachment for a tube stopper, comprising a tapering finger curved in its cross section, and having a yoke at its wider end, substantially as described.

9. An attachment for a tube stopper, comprising a tapering finger curved in cross section, and having a yoke and a flexible tongue at its wider end, substantially as described

518,227. WATER MODULE OR DELIVERY REGULATOR.

CHARLES A. D'ERRO, Melbourne, Victoria. Filed Dec. 9, 1893. Serial No. 493,236. (No model.)



Claim.—1. In a water module or delivery regulator for regulating the delivery of water from water channels, a vessel provided with floats and having superimposed weights in combination with an expansible tube connecting said vessel with a discharge trunk or chamber, the said vessel surmounting the said expansible tube which expands and contracts vertically as the floating vessel rises or falls as set forth.

2. In a water module or delivery regulator for regulating the delivery of water from water channels a vessel provided with floats, and having super-imposed weights and radial arms, each supporting an adjustable balance weight in combination with an expansible tube connecting said vessel with a discharge trunk or chamber, as set forth.

3. In a water module or delivery regulator for regulating the delivery of water from water channels, a floating vessel having superimposed weights in combination with an expansible tubular connection clamped to said vessel at its upper end and to a discharge trunk or chamber at its lower end, the said vessel being free to rise and fall and expand and contract the expansible tube vertically, as set forth.

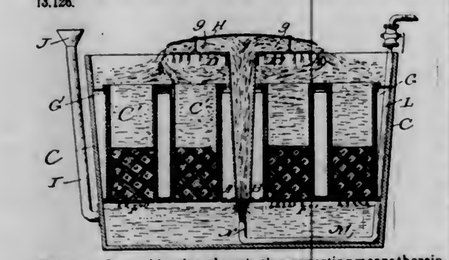
4. In a water module or delivery regulator, the floating vessel fitted with floats and weights and adapted to receive the water flowing into its top part and the expansible tube connecting the bottom of said floating vessel with the discharge trunk, substantially as described.

5. In a water module or delivery regulator for regulating the delivery of water from water channels, a vessel provided with superimposed weights and connected to an annular float supported a short distance from said vessel, as set forth.

6. In a water module or delivery regulator, the floating vessel provided with floats and adapted to receive the water into its upper part and the expansible tube connecting said vessel with the discharge trunk, the said floats extending about the floating vessel and up above the level of the inlets for the water leading thereto, substantially as described.

518,228. APPARATUS FOR DYEING.

ALFRED DRÈZE, Pepinster, Belgium. Filed Sept. 17, 1892. Serial No. 446,240. (No model.) Patented in Belgium Dec. 14, 1891, No. 97,570, and Dec. 24, 1891, No. 97,716; in France Dec. 14, 1891, No. 218 035; in England Jan. 4, 1892, No. 143; in Italy Mar. 26, 1892, No. 31,556/40, and in Spain Mar. 28, 1892, No. 13,126.

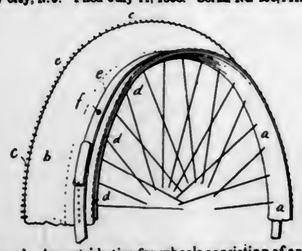


Claim.—1. In combination, the tub, the supporting means therein, for holding the material to be treated, the central pipe, the jet below the same, the perforated plate G, near the upper end of the pipe and the cap at the upper end of the pipe extending partially over the plate G, and comprising the upper and lower plates H, with a space between them opening laterally, substantially as described.

2. In combination, the tub, the supporting means therein for holding the material comprising the upper and lower plates with sockets extending between them, the removable receptacles having perforated bottoms and adapted to the said sockets, the central pipe with a jet below the same, and the cap extending partially over the upper plate and comprising the plates H, G, at the upper end of the central pipe with a space between them opening laterally, substantially as described.

518,229. PNEUMATIC TIRE FOR WHEELS.

THOMAS A. EGAN, Jersey City, N.J. Filed July 11, 1893. Serial No. 480,141. (No model.)

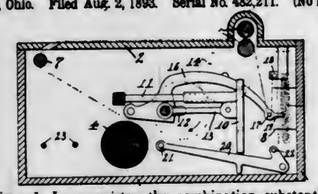


Claim.—1. An outside tire for wheels consisting of an endless belt suitably secured to the wheel rim and having hooks and eyes uniting the edges thereof, substantially as and for the purposes described.

2. The combination of a wheel rim *a*, an outside tire *b* consisting of an endless belt with means for uniting the edges thereof, a strap *e* for securing said outside tire to the rim *a* and an inner tire *h* adapted to be surrounded by said tire *b*, substantially as and for the purposes specified.

518,230. AUTOGRAPHIC REGISTER.

WILLIAM L. EGRY, Dayton, Ohio. Filed Aug. 2, 1893. Serial No. 482,211. (No model.)



Claim.—1. In a register, the combination, substantially as set forth, of stab-wires, a perforated stab-plate adapted to reciprocate to and from the ends of the stab-wires, and mechanism, substantially as set forth, for laying a strip of paper in successive folds between the stab-plate and the ends of the stab-wires.

2. In a register, the combination, substantially as set forth, of a casing, an end cover therefor provided with inwardly projecting stab-wires, feed-rolls for feeding paper toward the stab-wires, a perforated plate adapted for reciprocation to and from the ends of the stab-wires, and having a width less than that of the strip of paper to be dealt with, movable pins projecting inwardly beyond the plane of the edges of the intended paper and at the level of the top of the intended folds of paper and arranged for movement outwardly beyond the planes of the edges of the paper, pins arranged for movement in a plane substantially parallel with the stabbing-plate and rearward of said first-mentioned pins and projecting inwardly beyond the plane of the edges of the inteaded paper but not to the edges of the stab-plate, and mechanism, substantially as described, for turning the feed-rolls and reciprocating the stab-plate and moving the first-mentioned pins to one side and the other of the planes of the edges of the inteaded paper and moving the last mentioned pins in a plane substantially parallel with the stab-plate.

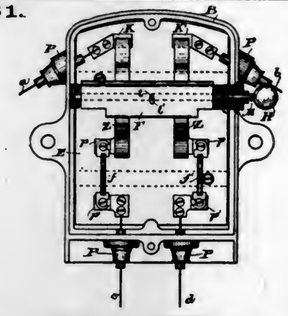
3. In a register, the combination, substantially as set forth, with a casing, paper feeding rolls, stab-wires, and a hand-crank, of a perforated stabbing-plate reciprocated by the movement of the hand-crank, inwardly projecting pivoted pins at the top of the inteaded folds of paper, pivoted arms, as 16, pins 17 projecting inwardly therefrom, extensions, as 19, from the arms, adapted to engage and tip the pivoted pins, and pivoted arms, as 20, arranged to lift the first mentioned arms and be operated by the forward movement of the stab-plate.

518,231. ELECTRIC SWITCH.

AXEL EKSTRÖM, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Dec. 24, 1890. Serial No. 375,663. (No model.)

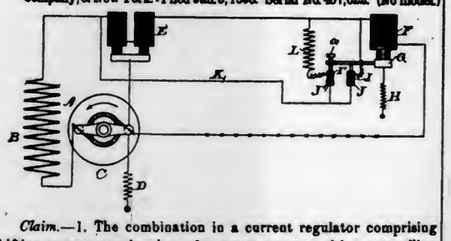
Claim.—The combination with the closed switch box having the circuit wires led thereinto through insulating gaskets, with the contact springs Z, Z, attached to one set of terminals, and adapted to be thrown into engagement with the second set of terminals, the cam journaled in the box, but insulated therefrom, the handle outside the box connected to the cam by a pin and slot connection and a supplementary spring W, assisting in throwing the switch contacts so as to form a quick break of the circuit

518,231.



518,232. REGULATOR FOR DYNAMO-ELECTRIC MACHINES.

WILLIAM H. ELKINS, Cambridge, Mass., assignor to the General Electric Company, of New York. Filed Jan. 3, 1893. Serial No. 457,022. (No model.)



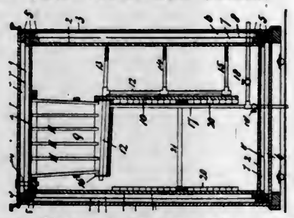
Claim.—1. The combination in a current regulator comprising shifting commutator brushes, of a motor magnet, with a controlling magnet and two or more sets of contacts controlled by the controlling magnet, one of which controls a shunt of small resistance around the motor magnet and the other comprises a similar shunt with considerably higher resistance as set forth.

2. The combination in a regulator of the brush shifting type, of a motor magnet connected to the brushes, a controlling magnet whose armature has connected with it two or more contacts in such a way that upon movement of the armature the circuit through these contacts is opened or closed successively, and shunt circuits of relatively high and low resistance controlled by said contacts.

3. The combination in a regulator of the brush shifting type of a motor magnet connected to the commutator brushes, a controlling magnet connected in circuit so that the current through it is responsive to the main current, shunt paths around the motor magnet one of which contains an artificial resistance, and means for opening and closing said paths successively by the movement of the armature of the controlling magnet.

518,233. REFRIGERATOR.

GEORGE FEE, North Bay, Canada. Filed Oct. 12, 1893. Serial No. 487,932. (No model.)



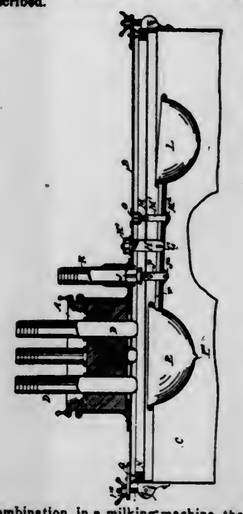
Claim.—A refrigerator having a series of metal pipes 12, in the ice chamber and extending downwardly, and open at both ends, branch pipes 13, 14, 15, extending into the food compartments and closed at the end terminating in said compartments to transmit cold from the ice chamber, said pipes 12, externally transmitting cold and internally inducing an air current, substantially as set forth.

518,234. MILKING-MACHINE.

ROBERT FERGUSON and AARON T. DANKS, Melbourne, Victoria. Filed Nov. 10, 1893. Serial No. 490,542. (No model.)

Claim.—1. In combination, in a milking apparatus, the receptacle having an air port, the liquid connection to the receptacle, the suction pipe, the suction valve, the air valve, the movable support connected to the valves, the cup connected to said movable support to control the said valves, said cup being arranged to receive the inflowing liquid, substantially as described.

2. In combination, in a milking apparatus, the receptacle having the air port, the suction pipe, the suction and air valves and the cup connected thereto and arranged to be weighted by the inflowing liquid, said cup having a perforation E' for the escape of liquid, substantially as described.

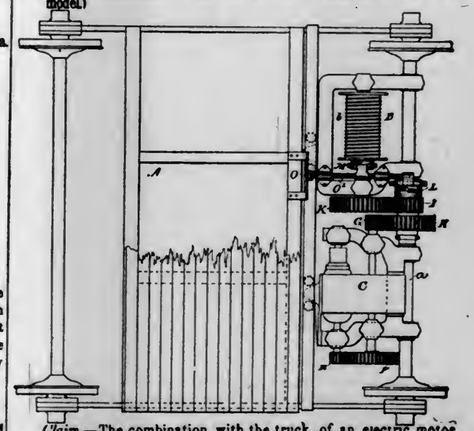


3. In combination, in a milking machine, the receptacle having an air port, the inlet pipe for the liquid, the suction pipe, the suction and air valves, the weighted lever carrying the valves and the cup to receive the liquid flowing into the receptacle, said cup acting in opposition to the weighted end of the lever, substantially as described.

4. In combination in a milking machine, the receptacle having the air port, the suction pipe, the cup E adapted to receive the liquid from the suction pipe to be weighted down thereby, the balanced channel lever carrying said cup, the cup L at the other end of said lever adapted to receive the liquid through the channel lever from the main cup E' and the valve mechanism comprising the suction and air valves connected with the lever to be controlled thereby, substantially as described.

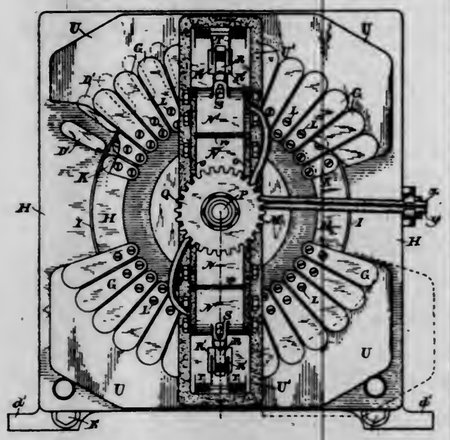
518,285. COMBINED TRUCK AND HOIST.

JONATHAN P. R. FISKE, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed July 30, 1891. Serial No. 401,160. (No model.)



Claim.—The combination with the truck, of an electric motor and a hoisting drum mounted thereon, a train of speed reducing gearing permanently connected with the motor, a rock shaft adjacent to both the truck axle and the hoisting drum, and two clutches operated reversely by said rock shaft, and serving to connect a portion of the gearing with the axle, and the entire train of gears with the hoisting drum, respectively, substantially as described.

518,236. RHEOSTAT. JONATHAN P. B. FISKE, Lynn, assignor to the General Electric Company, Boston, Mass. Filed Feb. 25, 1893. Serial No. 463,755. (No model.)



Claim.—1. A rheostat comprising a frame and a tier of removable trays supported therein, each tray containing a resistance coil, substantially as described.

2. A rheostat comprising a frame, a tier of removable trays supported therein, a resistance coil in each tary, and a series of contact plates connected with said coils, substantially as set forth.

3. A rheostat comprising a frame, a tier of removable trays supported therein, and insulation between each tray and the frame, substantially as described.

4. A rheostat comprising a frame, and a tier of trays supported therein, each tray having open sides to permit free circulation of air, substantially as set forth.

5. A rheostat comprising a frame, a tier of trays supported therein, a resistance coil in each tray, and insulation between said coil and the tray, substantially as described.

6. A tray for a rheostat having open sides with ribs extending across them, substantially as set forth.

7. A tray for a rheostat composed of two portions meeting on a median plane, substantially as described.

8. A tray for a rheostat composed of two similar portions meeting on a median plane, each portion having an open side with ribs extending across it, substantially as set forth.

9. A resistance coil for a rheostat, comprising a removable conductor inclosed in a flat tray, such conductor being bent back and forth in the same plane and having insulating strips inserted between adjacent lengths thereof, substantially as set forth.

10. The combination with the plates D having the lugs *d*, of removable trays A supported on said lugs, and resistance coils in said trays, substantially as described.

11. In a rheostat, the plate D having a plurality of studs D′, and a central pillar D^3, a switch arm pivoted on said pillar and adapted to swing over said studs, and means for magnetizing said parts, substantially as described.

12. In a rheostat, the plate D having a plurality of studs D′, and a central pillar D^3, a helix surrounding said pillar, and a switch arm pivoted on said pillar, substantially as set forth.

13. In a rheostat the plate D having a plurality of studs D′, an insulating face plate supported by said studs, and a series of contact plates carried by said insulating face plate, substantially as described.

14. In a rheostat, the plate D having a plurality of studs D′, an insulating face plate supported by said studs, a series of contact plates carried by said insulating face plate and projecting over said studs, and a sheet of insulation between the studs and the contact plates, substantially as set forth.

15. In a rheostat, the combination with magnetic spark rupturing poles and superposed contact plates, of a removable sheet of insulation interposed between said poles and contact plates, substantially as described.

16. In a rheostat, a switch arm provided with brushes of different resistance moving in concentric arcs of different radii, substantially as described.

17. In a rheostat, the combination with a series of contact plates, of a switch arm carrying two brushes of different resistance, and arranged to traverse different portions of the contact plates, substantially as set forth.

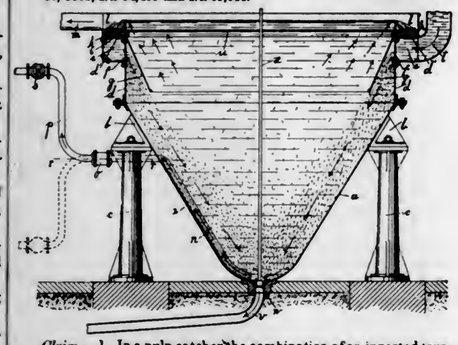
18. In a rheostat, the combination with a series of contact plates, of a switch arm carrying brushes of different resistance, and so arranged that in both directions of its motion the brush of higher resistance is the last to leave the contact plates, substantially as described.

518,237. PROCESS OF SPLITTING MICA. JOHN FOULDS, Jr., Lynn, assignor to the General Electric Company, Boston, Mass. Filed Jan. 28, 1893. Serial No. 460,022. (No model.)



Claim.—The process of splitting mica which consists in subjecting it to the action of bending rolls, substantially as described.

518,238. PULP-CATCHER FOR PAPER MANUFACTORIES. ALWIN G. E. FÜLLNER, Warmbrunn, Germany. Filed Sept. 23, 1892. Serial No. 446,646. (No model.) Patented in France July 9, 1892, No. 222,886; in Belgium July 26, 1892, No. 100,712; in England July 30, 1892, No. 13,883; in Norway July 30, 1892, No. 2,833; in Sweden Aug. 6, 1892, No. 4,090; in Switzerland Sept. 19, 1892, No. 5,876; in Italy Sept. 30, 1892, XXVI, 32,438, LXIII, 437, and in Austria-Hungary Nov. 19, 1892, No. 34,409 and No. 65,618.



Claim.—1. In a pulp catcher the combination of an inverted truncated conical vessel *a*, an annular channel in connection with the water and pulp supply, discharging into said vessel, an outlet for the cleaned water above the level of the inlet, and a discharge pipe for the deposited pulp, leading from the bottom of the vessel, substantially as described.

2. In combination, with the vessel *a*, an inlet for the water and pulp, an outlet for the water above the level of the inlet, a channel *n*, for the outlet of the pulp and a discharge pipe in connection therewith adapted to be adjusted to raise or lower the discharge end, substantially as described.

3. In a pulp catcher the combination of a truncated conical vessel having above its upper edge a circumferential channel for the supply of pulp-water an internal ring of inverted truncated conical form, an upper annular channel for the outflowing cleaned water, and an outlet for the pulp, substantially as described for the purpose specified.

4. In a pulp catcher, the combination of an inverted truncated conical vessel having an annular supply channel above its upper edge and surmounted by an upper channel for the discharging water, a filter or sieve near the upper edge of the vessel, and an outlet for the pulp, substantially as described and for the purpose specified.

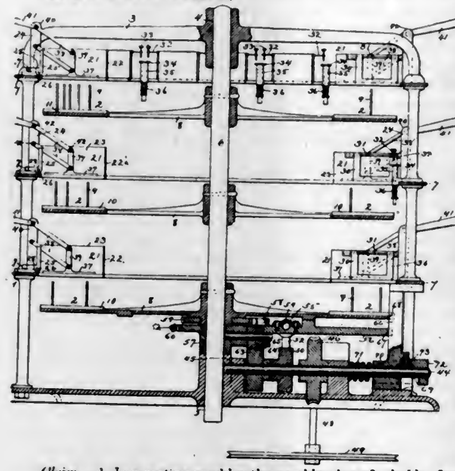
518,239. ARTIFICIAL STONE. EDWARD GOODE, Bartow, Fla., assignor of one-half to Thomas A. Goode, same place. Filed Aug. 30, 1893. Serial No. 484,390. (No specimens.)

Claim.—1. An artificial stone having a body portion of sand and hydraulic cement, and a skin of pure cement impregnated with lime, whereby the skin portion of the stone has a permanent, white, marble-like appearance, substantially as set forth.

2. The herein described process of making artificial stone, which consists in mixing together pure sand and Portland cement with sufficient water to make a thick mortar, then molding this composition, then forming a surface by sifting or placing thereon dry hydraulic cement, and then finishing the said surface, substantially as set forth.

3. The herein described process of making artificial stone, which consists in forming a body of a mixture of sand, hydraulic cement and water, then applying thereto a surface or skin of pure hydraulic cement, allowing the stone thus formed to harden, and then treating the surface with lime-water, while the stone is yet moist, substantially as set forth.

518,240. APPARATUS FOR SORTING CARDS AND COMPILING STATISTICS. JOHN K. GORE, Newark, N. J. Filed May 19, 1893. Serial No. 474,806. (No model.)



Claim.—1. In a sorting machine the combination of a holder for a pile of cards or other articles having a movable support for such pile, a series of differing selecting devices, mechanism for bringing said selecting devices successively and said holder opposite each other, and means for operating said support to release said articles, substantially as set forth.

2. The combination of an endless series of holders having means for supporting and releasing the cards, an endless series of selecting devices beneath said holders, means for bringing said holders and devices successively opposite to each other, and mechanism operating, when the devices are in said position, to release the cards substantially as set forth.

3. The combination of a suitable frame, a second rotary frame, a series of holders having card supporting and releasing devices and a series of selecting devices below said holders the former supported upon one of the said frames and the latter supported upon the other of said frames, and means for actuating the rotary frame to bring the said holders and selecting devices successively opposite to each other, substantially as set forth.

4. The combination of a suitable frame, a second rotary frame, a series of holders and a series of selecting devices the former supported upon one of the said frames and the latter supported upon the other of said frames, and beneath the holders means for actuating the rotary frame to bring the said holders and devices successively opposite to each other, and means for moving one of said frames in a direction parallel with the axis of the rotary frame, to release the contents of the holders substantially as set forth.

5. The combination of the frame 3, a vertical shaft therein provided with horizontal supporting plates arranged one above the other in two or more stories, two or more series of selecting devices and holders arranged in corresponding stories and carried respectively by said supporting plates and frame 3, and means for actuating said shaft, substantially as set forth.

6. The combination of a series of holders, having movable supports and a series of selecting devices, and means for rotating one of said series intermittently and mechanism for moving one of said series relative to the other in a direction parallel with the axis of rotation to operate said supports and release the contents of the holders, substantially as set forth

7 In a card sorting machine the combination with the rotary frame, of a radial shaft, a cam thereon having a suitable connection with said frame for rotating it intermittently, a cam on said shaft engaging said frame or part connected therewith for moving it in a direction parallel with its axis of rotation, and a catch operated by said radial shaft for preventing the rotation of the frame while it receives its latter movement, substantially as set forth

8. The combination of the frame 3 the shaft 6 mounted therein and provided with the supporting plates 8, the selecting devices carried by said plates, card holders 21 mounted on said frame, the shaft 44 provided with the cams 50, 63 and 72, a ratchet movement for intermittently rotating the shaft 6 and operated by said cam 50, a catch 66 operated by the cam 72, and means for rotating the shaft 44, substantially as set forth.

9. In a sorting machine a selecting device having a plate 10 provided with regular series of perforations 11, and the pins 9 adjustable from one to the other of the perforations of said series, said pins being adapted to pass through the perforations of the cards of the desired class and to support the cards whose perforations do not correspond to the arrangement of the pins, substantially as set forth.

10. The combination, in a sorting machine, with one or more holders adapted to hold and deliver cards to be sorted of a series of separate plates 10 having the upwardly projecting pins 9, the plates being adapted to collect and retain their appropriate cards and to be independently removed from the machine with their contents, substantially as set forth.

11 The combination of a supporting plate having a pin 13 and spring 14, and a spring-actuated catch 17, of the plate 10 provided with pins 9 and having the slot 12, substantially as set forth.

12. In a sorting machine the combination of a selecting device, a holder adapted to contain the cards or other articles to be sorted, laterally movable shelves for sustaining said cards, and means for bringing said selecting device and holder together and for withdrawing said shelves, substantially as set forth.

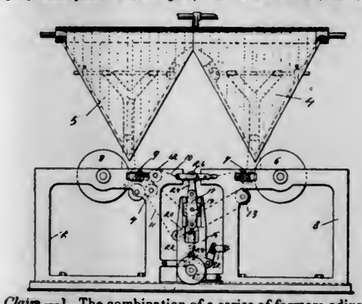
13. The combination of the selecting device having upward projections adapted to support the cards to be sorted and to permit the deposit of the properly perforated cards, a holder for the cards to be sorted, removable shelves for sustaining the cards in the holder, means for bringing said selecting device and holder together, and means cooperating with the selecting device to keep the cards in the holder horizontal upon the withdrawal of the said shelves, substantially as set forth.

14. The holder 21 having the shelves 29 pivotally mounted thereon, outwardly extending stop arms connected with said shelves, a selecting device having upward projections adapted to be moved toward said holder, and suitable connections whereby said movement causes the oscillation of said stop arms and the withdrawal of said shelves, substantially as set forth.

15. The combination with the selecting device having upward projections, of the holder above said device and provided with the vertically movable follower 37, and means for maintaining the horizontal position of the follower to properly confine the cards in conjunction with the projections of the selecting device, substantially as set forth.

16. In a sorting machine the combination of a holder adapted to contain a pile of articles to be sorted one above the other, a support for the pile, means for moving said support to release the pile, and a series of selecting devices having upward projections and moving in a path below said holder, substantially as set forth.

518,241. DELIVERY APPARATUS FOR PRINTING-PRESSES. SAMUEL G. GOSS, Chicago, Ill., assignor to the Goss Printing Press Company, same place. Filed Aug. 30, 1892. Serial No. 444,552. (No model.)



Claim.—1. The combination of a series of formers adjustable toward and from each other, and web-associating devices movable with said formers for associating the webs received therefrom, substantially as described.

2. The combination of a plurality of formers adjustable toward and from each other, web-associating devices movable with said formers for associating the webs received therefrom, and means, substantially as described, for maintaining the length of the pathway through which the sheets pass constant to insure the proper register of the associated webs.

3. The combination with a plurality of supporting frames, rollers carried thereby, and means for adjusting said frames toward each other, of tapes for associating the webs delivered to said rollers, and

devices for automatically keeping the distance to be traveled by the webs constant, substantially as described.

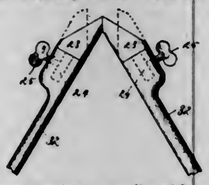
4. The combination with supporting frames adjustable toward each other, of tapes adapted to conduct a web from one of said frames to the other, and means for automatically keeping the length of the tape pathway through which the sheets pass constant, substantially as described.

5. The combination with frames adjustable toward each other, and tapes adapted to conduct the web from one of said frames to the other, of vertically movable rollers adapted to bear upon said tapes, supporting devices for said rollers, and means for adjusting said rollers as the frames are caused to approach or recede from each other, substantially as described.

6. The combination with frames adjustable toward each other, tapes 10 and 11, and tape rollers for supporting said tapes, of standards, boxes 17 and 18 adapted to move vertically in said standards, rollers 19, 22 and 26 carried by said boxes, said rollers 26, being laterally movable, and means for moving said boxes vertically as the frames are caused to approach or recede from the other, substantially as described.

7. The combination with frames 2 and 3 adjustable toward each other, and tapes adapted to conduct a web from one of said frames to the other, of standards, boxes 17 and 18 adapted to move vertically in said standards, rollers carried by said boxes adapted to bear upon said tapes, and the uppermost rollers being laterally movable, and bell crank levers 30 and 31 connected to said boxes and to one of said frames, substantially as described.

518,242. DELIVERY APPARATUS FOR PRINTING-PRESSES. SAMUEL C. GOSS, Chicago, Ill., assignor to the Goss Printing Press Company same place. Filed Aug. 30, 1892. Serial No. 444,551. (No model.)



Claim.—1. In combination, a plurality of formers adjustable toward and from each other, each of said formers having an adjustable extension piece, the extension pieces of adjacent formers being adapted to engage each other to form the angle between such formers, substantially as described.

2. A delivery apparatus for a printing press, consisting of a bed plate, a main frame composed of a plurality of frame sections slidable toward and from each other on the bed plate, former devices carried by and movable with each main frame-section, and means for adjusting the said frame sections on the bed plate, substantially as described.

3. A delivery apparatus for a printing press, consisting of a horizontal bed plate, a main frame composed of a plurality of frame sections slidable toward and from each other on the bed plate, former devices carried by and movable with each frame section, a rotary shaft having a cross head provided with jointed rods pivoted respectively to the main frame sections, and means for turning the shaft to move the said frame sections on the bed plate, substantially as described.

4. The combination with a plurality of formers adjustable toward and from each other, of reversible extension pieces carried by the formers for varying the position of the angle between said formers, substantially as described.

5. The combination with a plurality of formers adjustable toward and from each other, of reversible extension pieces 23 carried by the formers and having a plurality of faces intersecting the axes of the extension pieces at different points, so that by reversing the said extension pieces the position of the angle between the formers is changed, substantially as described.

6. The combination with a suitable support, of a V-shaped former provided at its upper and lower end portions with independent adjusting devices for the purpose of adjusting the base of the former forward and backward independently of adjustment of the apex of said former, substantially as described.

7. The combination with a V-shaped former, and a supporting bracket 20, of upper and lower bolts 18 and 19 connected with the upper and lower portions of the bracket and engaging the said former, nuts 21 and 22 applied to said bolts, and means for supporting the bracket, substantially as described.

8. The combination of the V-shaped former composed of two rods 32 provided with a horizontal rod 17, and a bracket or support 20, of adjustable bolts 18 carried by the bracket or support and pivotally connected with the rod on the former, substantially as described

---

518,243. BROILER. WILLIAM HAILES, Albany, N. Y.; William H. Hailes and Frederick A. Hailes executors of said William Hailes, deceased. Filed Feb. 24, 1891. Renewed Sept. 27, 1893. Serial No. 486,633. (No model.)



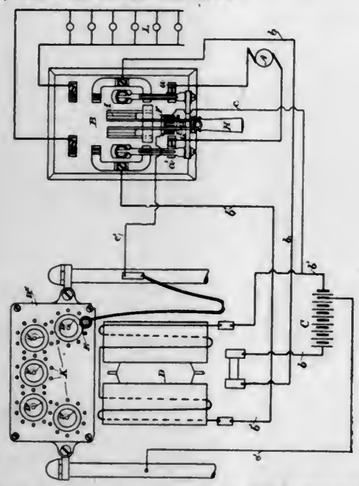
Claim.—1. A broiler having two or more continuous ledges or shelves a a' a^2 which are arranged on different planes, one above the other in a step like form, and are separated from each other by vertically extended risers $c, c' c^2$ provided at intervals with lateral perforations e e which communicate from a chamber, provided in the lower side of the broiler, to the chamber above for containing the articles to be broiled, substantially as and for the purposes set forth.

2. A broiler provided with two or more continuous ledges or shelves a a' a^2 arranged on different planes, one above the other, and having their upper sides concave in their cross direction and provided with outlets o o, and separated each from its neighboring ledge or shelf by vertically extended risers c c' c^2, which are provided at intervals with lateral perforations e e communicating from a chamber, located below the said concave ledges, to a chamber for containing articles to be cooked, and provided with the juice or liquid receptacle D, between the lowermost ledge a and the outer inclosing wall B substantially as and for the purposes set forth.

3. A broiler having a series of gutter form ledges or shelves, provided each with one or more outlets, and rising step like successively one above the other by laterally perforated risers, and having a broad shelf or platform which is elevated above the uppermost one of said ledges by a similar perforated riser and is provided at its edge margin with a shallow gutter having one or more outlets to the gutter form ledge next below, and having at the base of the said series of ledges, the receptacle D, substantially as and for the purposes set forth.

4. The combination with a broiler having two or more continuous gutter form ledges or shelves a a' a^2 which are arranged on different planes, one above the other, and separated by vertically extended risers c c' c^2 having in them at intervals the perforations e e and inclosed by the outer wall B having in its upper margin edge the seat b^2, of the ventilated cover G, substantially as and for the purposes set forth.

518,244. CUT-OUT METER. CARYL D. HASKINS, Lynn, assignor to the Thomson-Houston Electric Company, Boston, Mass. Filed Sept. 19, 1892. Serial No. 446,470. (No model.)



Claim.—1. The combination with an electric apparatus into which a predetermined quantity of current is to be fed, of a switch controlling the feeding mains, an electro magnet for releasing the switch, a meter for measuring the current and having a movable index, a motor mechanism for the meter maintaining the registration properly proportional to the current and a circuit including said magnet and a movable contact adapted to be set at any desired point in the path of said index, substantially as described.

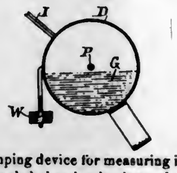
2. The combination with an electric apparatus into which a predetermined quantity of current is to be fed, of a switch controlling

the feeding mains, an electro magnet for releasing said switch, a meter for measuring the current, and having an index moving over a dial surrounded with perforations, a motor mechanism for the meter maintaining the registration properly proportional to the current and a circuit including said magnet and a movable contact adapted to be set in any one of said perforations, whereby the movable index may come in contact with it and close the switch releasing circuit, substantially as set forth.

3. The combination with a storage battery, of a dynamo and a work circuit, a double pole reversible switch adapted to connect the battery with either the dynamo or the work circuit a meter for measuring the current supplied to the battery, and means whereby the meter is enabled to reverse the switch and connect the battery with the work circuit when the battery has been charged to a predetermined point, substantially as described.

4. The combination with a storage battery, of a dynamo and a work circuit, a double pole reversible spring-actuated switch adapted to connect the battery with either the dynamo or the work circuit, a detent for holding the switch closed on the feeding circuit, an electro magnet for releasing the switch, included in a shunt circuit from the mains, and a meter controlling said circuit, substantially as set forth.

518,245. DAMPING DEVICE FOR ELECTRICAL MEASURING-INSTRUMENTS. FRANK HOLDEN, Lynn, assignor to the General Electric Company, Boston, Mass. Filed Mar. 3, 1893. Serial No. 464,638. (No model.)

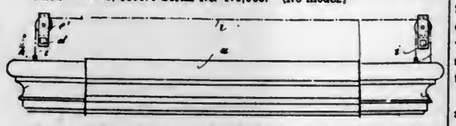


Claim.—1. A damping device for measuring instruments consisting of a hermetically sealed chamber having a plain inner surface and inclosing a viscous liquid.

2. A damping device for a measuring instrument, consisting of a hermetically sealed chamber centrally mounted upon pivots and inclosing a viscous liquid such sealed chamber having a plain inner surface.

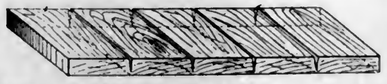
3. In combination with an electric measuring instrument, a damping device consisting of a hermetically sealed drum, as D, rotated about pivots attached to its center, as P P, and inclosing a quantity of a viscous liquid, as G; the drum provided with an adjustable weight as W, whereby the center of gravity may be adjusted, as and for the purposes herein set forth.

518,246. WINDOW-SHADE. EDUARD HORN, Munich, Germany. Filed June 28, 1893. Serial No. 479,065. (No model.)



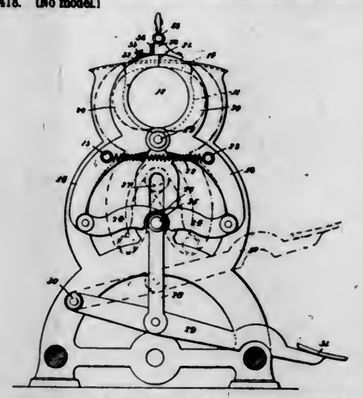
Claim.—A frame or support for shades consisting of two sections a a held together adjustably by an inclosing casing d' and spring catches having knobs d' engaging openings in the casing, brackets j carried by said sections, telescopic rods supported by said brackets and adjustable supporting means for said sections consisting of the slotted plates f, f, and the eyes h, h adjustably secured therein and supporting means connecting with said eyes, substantially as described.

518,247. KINDLING-WOOD. WILLIAM F. HUTCHINSON, Passaic, N. J. Filed Aug. 13, 1892. Serial No. 442,951. (No specimens.)



Claim.—A fire kindler consisting of a thin rectangular block or strip of veneer, having a length sufficient to afford division into a number of blocks of corresponding size, said block or strip being scored or cut transversely of its length and nearly through, but leaving the adjacent edges of the blocks uncut, the scores being equidistant apart so that the said block or strip can readily be divided by hand, substantially as described.

518,248. BUNDLING-MACHINE. WILLIAM F. HUTCHINSON and AARON J. TYLER, Passaic, N. J., assignors to the Hutchinson Manufacturing Company, of New Jersey. Filed Mar. 24, 1893. Serial No. 467,418. (No model.)



Claim.—1. The combination with the oppositely moving jaws adapted to form a bundle between them, of a wire-holding device near the free end of one jaw, a wire-holding device near the free end of the opposite jaw, nippers carried by one of the jaws and adapted to engage the ends of a binding wire, and mechanism for twisting the wire ends together, substantially as described.

2. In a bundling machine, the combination of the oppositely arranged jaws movable toward and away from each other, wire holders on the free ends of the jaws, a twisting device to unite the ends of the wire, and knives actuated by the jaws and arranged to cut the wire, substantially as described.

3. A bundling machine, comprising oppositely arranged jaws having curved adjacent faces to form a bundle, a lever mechanism for forcing the jaws together, and an abutment plate arranged opposite the opening in the jaws and provided with a top flange to overlap a bundle formed between the jaws, substantially as described.

4. A bundling machine, comprising a supporting frame having an opening in its top, a back plate arranged opposite one side of the opening and provided with a top flange projecting above the opening, a hinged plate secured to the frame and adapted to close the opposite side of the opening at the top, and a pair of oppositely arranged swinging jaws provided with curved inner faces and held to move through the opening adjacent to the back plate, substantially as described.

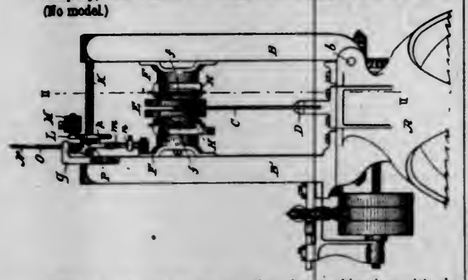
5. The combination, with the oppositely swinging jaws adapted to form a bundle between them, of a wire-holding device near the free end of one jaw, a wire holding device near the free end of the opposite jaw, knives carried by the jaws and adapted to sever the wire, nippers carried by one of the jaws and adapted to engage the severed ends of the wire, and mechanism for twisting the wire ends together, substantially as described.

6. The combination with the oppositely arranged jaws, of a tension device or wire-holder near the free end of one jaw, a wire-holding device near the free end of the opposite jaw, knives carried by the jaws and adapted to sever a wire by the closing of the jaws, revoluble nippers carried by one of the jaws and extending below the knives to engage the wire ends, mechanism for closing the nippers upon the wire ends, and a device for twisting the nippers and wires, substantially as described.

7. The combination, with the oppositely arranged compressing jaws, of a tension device near the free end of one jaw adapted to hold a wire, nippers arranged near the free end of the opposite jaw to engage the end of a wire, knives carried by the jaws and adapted to cut the wire when the jaws are closed, a revoluble post held at the free end of one of the jaws, a second set of nippers carried by the post and extending beneath the knives to engage the wire, and a vertically movable stem held in the post and adapted to close the second set of nippers upon the wire, substantially as described.

8. The combination, with the oppositely arranged compressing jaws, of slotted throat plates on the lower portion of the meeting faces of the jaws to guide a wire, a wire-holding device near the free end of one jaw, a wire-holding device near the free end of the opposite jaw, knives carried by the jaws and adapted to sever the wire by the closing of the jaws, a revoluble post held to turn above the knives, a pair of nippers pivoted in the post and extending downward between the knives and the throat plates, and a revoluble and vertically movable stem threaded in the post and adapted to close the nippers upon the wire ends, substantially as described.

518,249. CRIMPING-MACHINE. SAMUEL W. JAMESON, Boston, Mass., assignor to the S. W. Jamison Boot and Shoe Crimping Machine Company, New York, N. Y. Filed Oct. 27, 1893. Serial No. 489,292. (No model.)



Claim.—1. In a crimping machine the combination with the crimping jaws, their slides and actuating mechanism for closing the jaws as the slides descend, of a form supported in a grooved rim, formed in the arc of a circle having its center at about the level of the crimping edge of said form, the latter being adjustable in said rim, substantially as described.

2. The combination with the crimping jaws adjustable upon a center, and with their actuating mechanism, of a grooved circular base or rim projecting from the frame of the machine, said rim being the arc of a circle, and a crimping form fitted and adjustable in said rim and having its lower edge shaped to conform to said groove, so as to be solidly supported in all its positions, substantially as described.

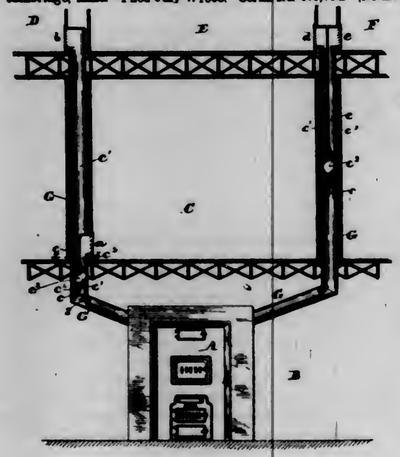
3. The combination of the vertical guide ways, means for moving them toward and from each other, slides or carriages moving on said guide-ways, smooth-faced crimping jaws adjustable axially upon said supports and a crimping form having its lower edge curved in a circular arc, and slidingly supported in a grooved rim of corresponding shape, substantially as described.

4. The combination of the jaws, the sliding supports therefor, the upright ways upon which said supports travel, devices for moving said ways toward and from each other, and an adjustable lifter-rod carried by one of said supports for actuating said devices, substantially as described.

5. The combination of the upright ways, the screw shaft for moving the same, the slides carrying the jaws, an arm for turning said shaft, an adjustable lifter rod for engaging said arm carried by one of said slides, and an adjustable tripping device for releasing the arm from engagement with said rod, substantially as described.

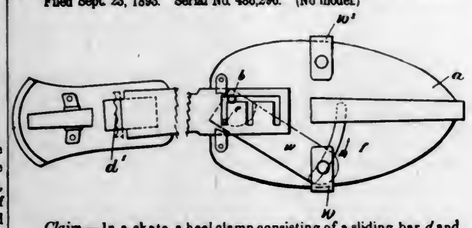
6. The combination of the ways, the slides movable thereon, the screw shaft for causing the ways to approach or recede from one another, a weighted arm projecting from said shaft, a pawl carried by said arm, an extensible lifter rod on one of said slides having a notch to engage said pawl and a stop to catch the end of the same when released from the notch, the notch and stop being adjustable in extending said rod, and a tripper for releasing the pawl from said notch, substantially as described.

518,250. HOT-AIR HEATING APPARATUS. HENRY P. JUDSON, Cambridge, Mass. Filed July 7, 1893. Serial No. 479,794. (No model.)



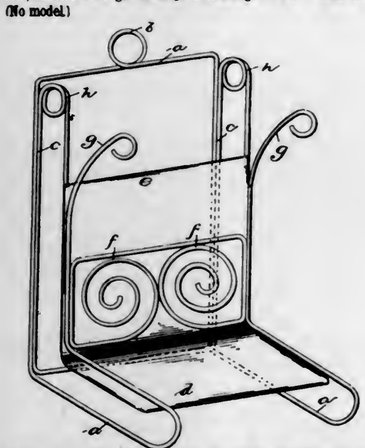
Claim.—In combination with a hot air furnace, and a pipe leading therefrom having two discharge openings communicating with two different rooms to be heated, a partition in said pipe dividing it, from a point above the lowest of said openings to a point some distance below the same, into two passages closed at their upper ends, a portion of said partition below said opening being twisted one half a revolution about the axis of said pipe substantially as and for the purpose described.

518,251. SKATE. FRIEDRICH KALENER, Hildesheim, Germany. Filed Sept. 23, 1893. Serial No. 486,296. (No model.)



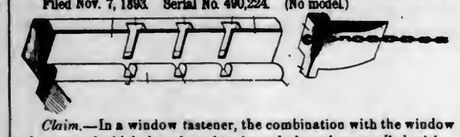
Claim.—In a skate, a heel clamp consisting of a sliding bar *d* and claw, a pivoted lever *w* operating said sliding bar *d*, a stationary strap on one side of the skate and a second strap secured to said pivoted lever *w* at the free end thereof, substantially as described.

518,252. CLIP FOR LETTERS, ACCOUNTS, &c. EDMUND KELLER, Charlottenburg, Germany. Filed Aug. 11, 1893. Serial No. 483,035. (No model.)



Claim.—A wire clip for letters, accounts and the like, consisting of a frame *a*, clip *c* with horizontal paper rest *d*, spiral rack *f f*, inclined vertical rest *e*, and curved arms *g g*, substantially as herein described with reference to the accompanying drawing.

518,253. SASH-FASTENER. GRACE M. KIMBALL, Oakland, Cal. Filed Nov. 7, 1893. Serial No. 490,224. (No model.)

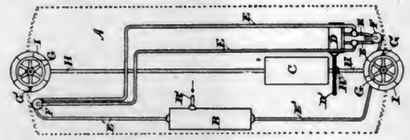


Claim.—In a window fastener, the combination with the window sashes one of which has slots therein and the other supplied with a hook, of a parting bead with notches, and a wedge shaped fastener adapted to engage said slot and having a lug to engage a notch of the parting bead and a chain or analogous device connected thereto and adapted to be adjustably secured to the said hook, substantially as described.

518,254. CONTROLLER FOR ELECTRIC-RAILWAY CARS. WALTER H. KNIGHT, Lynn, assignor to the General Electric Company, Boston, Mass. Filed Dec. 21, 1893. Serial No. 494,288. (No model.)

Claim.—1. An electrically propelled vehicle, a controller therefor, means adapted to actuate the controller from a source of fluid pressure carried on the car, and an indicator upon the car platform adapted to show the position of the controller, substantially as described and set out herein.

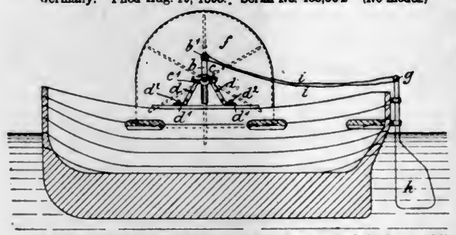
2. An electrically propelled vehicle, a source of fluid pressure thereon, a controller actuated by such fluid pressure and having a step by step movement, valves located upon the car platforms adapted to control the action of the fluid pressure mechanism and indicators also upon the car platforms arranged and adapted as herein described, to show the position of the controller and to actuate it by hand.



3. An electrically propelled vehicle, a source of fluid pressure carried thereon, a controller actuated by such fluid pressure, a cylinder actuating a rack, a pinion meshing therewith and operating the controller, valves upon the car platforms arranged to admit and release the fluid pressure in the cylinder in either direction at will, indicators also located upon the car platforms, connected with the controller and operated thereby, such indicators being arranged to act as manual controlling devices for the controller, substantially as described.

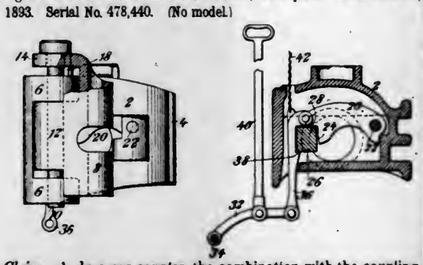
4. An electrically propelled vehicle, a source of fluid pressure carried thereon, valves upon the car platforms communicating with such source of fluid pressure, a piston actuated by the fluid pressure and controlled by such valves, a rack and pinion operating the controller cylinder, a rod extending from the controller cylinder to both of the car platforms, and indicators actuated by such rod and upon the car platforms, such indicators adapted to serve as manual controlling devices for the controller cylinder.

518,255. PADDLE-WHEEL BOAT. JOHANN S. KUNNETH, Leipsic, Germany. Filed Aug. 19, 1893. Serial No. 483,584. (No model.)



Claim.—A boat propeller consisting of a cranked shaft, a paddle wheel carried on the onter end thereof, bearings for said shaft, hinged supports for said bearings and horizontally movable base plates for said supports, substantially as described.

518,256. CAR-COUPLING. JOHN LA BURT, Brooklyn, N. Y., assignor of one-half to J. Herbert Watson, same place. Filed June 22, 1893. Serial No. 478,440. (No model.)



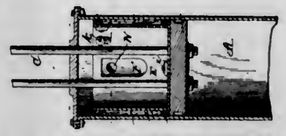
Claim.—1. In a car coupler, the combination with the coupling head, and the swinging knuckle, of a locking device 20, and a locking link 36, provided with a shoulder 38, adapted to engage against a portion of said knuckle when the device 20 is locked and to prevent an accidental upward movement of said locking device, substantially as specified.

2. In a car coupling, the combination with a head and a swinging knuckle, of the pivoted locking latch the supplemental locking link pivoted thereto and having a projection to engage under a portion of the knuckle and means for operating the locking devices, substantially as specified.

3. In a car coupling the combination with the coupling head and the swinging knuckle, of the pivoted locking latch, the locking link pivoted thereto, a pivoted lever engaging with the lower portion of said link, and means for lifting said locking devices, substantially as specified.

4. The combination with the coupling head, of the swinging knuckle having the projection provided with a slot or opening, an end wall of which is beveled or inclined, and the cam lug on the coupling head, substantially as specified

518,257. LUBRICATOR. REUBEN LAWRENCE and JAMES BLACKFORD, St. Joseph, Mo. Filed July 24, 1893. Serial No. 481,378. (No model.)

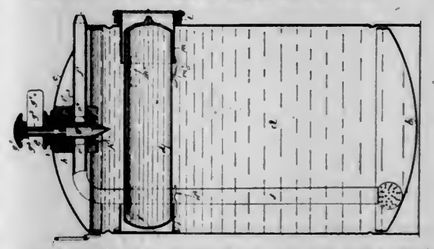


Claim.—1. A lubricator for cylinders, consisting of a cup having a bottom portion to fit against the piston said bottom portion having an opening, cylindrical side portions, extending up therefrom and leaving the upper end of the cup open, and the lubricating packing around the outside of the cylindrical sides, substantially as described.

2. A lubricator for cylinders, consisting of a cup having bottom portions to fit against the piston, cylindrical side portions, extending up therefrom, and leaving the end of the cup open, the lubricating packing around the outside of the cylindrical sides and the means for retaining the packing in place consisting of the projections extending laterally from the cylindrical sides to engage the packing material, substantially as described.

3. A lubricator for cylinders comprising the cylindrical cup having bottom portions to fit against the piston with an opening therein and the lubricating material extending about the outside of the same, said cup having the open side for the admission and escape of water to and from the cylinder.

518,258. FIRE-EXTINGUISHING APPARATUS. ANTOINE L. E. LECHARTIER, Paris, France. Filed Dec. 20, 1893. Serial No. 494,226. (No model.) Patented in France May 31, 1893, No. 230,493.



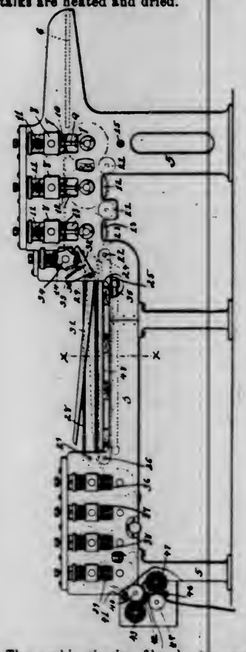
Claim.—1. A fire extinguishing apparatus comprising a vessel of any suitable form and dimensions containing water and salts; an acid reservoir, made of glass, placed, for instance, horizontally within the said vessel and supported, on the one hand, by a seat or immovable socket, and, on the other hand, by the clutch socket of a stopper, which screws and makes a water-tight joint in the opening reserved at the top of the vessel for allowing the acid reservoir to be put in its place or replaced by another, a tube extending to the bottom of the vessel and also to the upper part of the same, where it passes through a double stuffing box, and issues from the vessel and forms a fitting, and, lastly, a double stuffing box, through which passes the hereinbefore mentioned tube, provided with a piston, which makes a water-tight joint in the said tube, and which, under the effect of an external blow, opens the communication in the tube, after its striking end has broken the acid reservoir and thereby put the apparatus in operation.

2. In a fire extinguishing apparatus the combination of a suitable vessel containing the extinguishing fluid having double stuffing box a tube passing therethrough and extending to the bottom of said vessel which tube is adapted to conduct the fire extinguishing liquid, said stuffing box also being provided with a piston, which forms a valve for said tube and is adapted to close the same as long as the apparatus shall remain charged, and adapted to open communication in the tube at the moment when the apparatus is to operate; an acid containing reservoir placed underneath said piston and arranged so as to be touched and broken by said piston when the latter reaches

the lowest point in its downward stroke, said piston being adapted to be moved by percussion or otherwise, from its highest to its lowest position to break said acid reservoir, substantially as described.

518,259. FIBER BRAKE, CRUSHER, AND CLEANER. JAMES F. LESTER, Atlanta, Ga. Filed Apr. 25, 1893. Serial No. 471,802. (No model.)

Brief.—The stalks are first crushed between smooth-surfaced rolls, then broken between fluted rollers, are then passed along by carrier-chains 28, upon which they are beaten by beaters 31, are then passed between a series of pairs of finely-corrugated rolls, and are finally subjected to the action of brushes, in order to thoroughly clean them. Below the carrier-chains 28 are placed steam or hot-air pipes, by which the stalks are heated and dried.



Claim.—1. The combination in a fiber-brake, crusher and cleaner, of a receiving table; a pair of plain rollers; one or more pairs of fluted rollers; a series of carrier chains mounted to travel in line with the rollers; beaters journaled to strike vertically between the chains; a cam mounted on a revolving shaft and a spring connected with the beaters to operate them; heating pipes beneath the chains and beaters; one or more pairs of fluted rollers journaled in line to follow the chains and a cleaner comprising flexible rollers and brushes following the last-named fluted rollers, all mounted in a frame in the order named, substantially as described.

2. The combination in a fiber-brake, crusher and cleaner, of breaking rollers; chains arranged to travel in line of the rollers; a heater beneath the chains and beaters above the chains, substantially as described.

3. The combination in a fiber-brake, crusher and cleaner of rollers journaled in pairs in a frame; carrier chains mounted to rotate in line of the rollers; beaters mounted between the chains and a cam and spring for operating the beaters, substantially as described.

4. The combination in a fiber-brake, crusher and cleaner, of a series of carrier chains mounted to travel in a frame, means for breaking and delivering fibrous material between the chains, and beaters hung in the frame to strike vertically between the chains, substantially as described.

5. The combination in a fiber-brake, crusher and cleaner of beaters comprising arms pivoted above the plane of travel of the fiber to strike parallel with and in the direction of its line of travel whereby a stroke of gradually increasing force is applied to the fiber, and means for breaking and passing the fibrous material beneath the beaters, substantially as described.

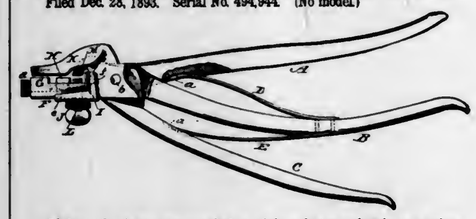
6. The combination in a fiber-brake, crusher and cleaner, of beaters mounted on a frame, heating apparatus located beneath the beaters and means for breaking and passing fibrous material over the heating apparatus and beneath the beaters, substantially as described.

7. The combination in a fiber brake, crusher and cleaner, of a crusher; a breaker geared to the crusher and adapted to receive crushed fibrous material therefrom; a beater connected with the breaker and adapted to receive broken fibrous material therefrom; a heater beneath the beater, and a brusher belted to run in connection with the beater and adapted to receive the fibrous material therefrom, substantially as specified.

8. The combination in a fiber-brake, crusher and cleaner, of the carrier chains 25 and 28 mounted to travel one below the other, the bars 48 fixed between the chains 25, and a little below the plane thereof, and the beaters 31 adapted to strike upon the bars, substantially as described.

9. The combination in a fiber-brake, crusher and cleaner, of means for crushing and breaking vegetable fiber, means for beating it after breaking, and heating apparatus under the beater all arranged to operate mechanically in connection, substantially as described

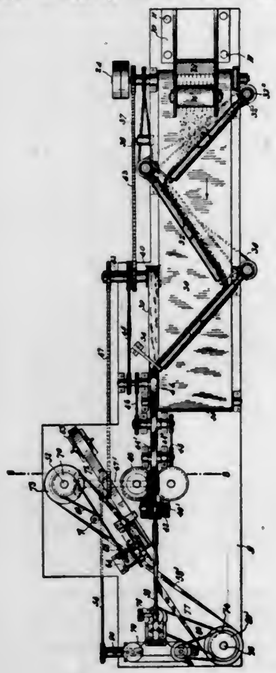
518,260. SAW-SET. HERBERT MARSHALL, Los Angeles, Cal. Filed Dec. 28, 1893. Serial No. 494,944. (No model.)



Claim.—1. A saw-set consisting of three independently operating levers, the lever A having jaw F with support G for the saw-blade, the longitudinal adjustable anvil H, and the adjustable gage I connected to the jaw, and the levers B C having respectively a clamping jaw K and a punch M, substantially as and for the purpose set forth.

2. A saw-set consisting of the lever A having slotted jaw F and support G, an anvil H adjustable within the slot, the adjustable gage I, the screw J and jam-nut L for holding the gage in its adjusted position, and the levers B C having respectively the clamping-jaw K and the punch M, substantially as and for the purpose described.

518,261. CIGARETTE-MACHINE. LEVERETT L. MAXFIELD, Brooklyn, N. Y. Filed Apr. 17, 1893. Serial No. 470,694. (No model.)



Claim.—1. In a cigarette machine, the combination with a former-tube and means for conveying thereto a continuous charge of tobacco, of a belt wrapped spirally around said tube, whereby the paper is formed into a spiral tube on the former-tube, substantially as set forth.

2. In a cigarette machine, the combination with a former-tube supported stationary over a table means for conveying thereto a continuous charge of tobacco and a second tube of sufficient diameter to permit the end of said former-tube to be entered therein, of a driven belt wrapped spirally around said former-tube, whereby the paper is formed into a spiral tube on the former-tube and is propelled over the former-tube and into the tube into which the end of the former-tube extends, substantially as set forth.

3. In a cigarette machine, the combination with a former-tube supported stationary over a table and means for conveying thereto a continuous charge of tobacco and a second tube of such diameter as to permit the end of the former-tube to be entered therein, of a driven belt wrapped spirally around the former-tube and a short tube supported upon a movable part of the cutting mechanism and adapted to be forced forward at proper intervals over the traveling tobacco-filled paper tube, substantially as set forth.

4. In a cigarette machine, the combination with the tobacco feeding and compressing mechanism and a former-tube supported stationary over a table and adapted to receive the tobacco filler from the pressure mechanism, of another tube of diameter sufficient to permit the former tube to enter the same and a driven belt wrapped spirally around the former-tube and adapted to propel the paper over said tube, substantially as set forth.

5. In a cigarette machine, the combination with the feeding roller as 15 and belt 12, and a belt provided with nails or prongs and moving in a vertical plane in proximity to said feeding roller, of a concaved surface also provided with prongs and arranged in proximity to said pronged traveling belt and a pair of belts arranged beneath said vertical traveling pronged belt and also traveling in a substantially vertical plane and arranged a sufficient distance apart to provide a passage or conduit for the disintegrated tobacco, substantially as set forth.

6. In a cigarette machine, the combination with a horizontally traveling belt upon which the tobacco is placed to be fed into the machine, a feed roller which takes up the tobacco from the belt, an endless belt provided with prongs which receives the tobacco from the feed roller a concaved surface in proximity to said pronged belt and endless belts traveling in a substantially vertical plane and providing a passage-way into which the tobacco falls from the pronged belt, of a second pronged belt arranged beneath said passage-way and operating to convey the tobacco in proper condition onto the traveling apron, and a curved surface arranged in proximity to said last mentioned pronged belt, substantially as set forth.

7. In a cigarette machine, the combination with the endless belt 12, a feed roller cooperating with said belt to convey the tobacco to the feeding and disintegrating mechanism, a pronged belt in proximity to said feed roller, a prolonged concaved surface in proximity to said belt, belts traveling in a vertical plane beneath said pronged belt and provided between them a passage-way for the tobacco, of guide rollers located at the bottom of said passage-way and a pronged belt traveling in a vertical plane beneath said guide rollers, substantially as set forth.

8. In a cigarette machine, the combination with an endless traveling apron which receives the tobacco from the feeding and disintegrating mechanism and conveys it forward, of a tobacco shaping roller supported diagonally upon the apron and geared to revolve in a direction reverse to the travel of the apron, whereby the tobacco as it is deposited upon the apron is obstructed and is formed in a mass along the length of the roller, while being propelled forward to the end of the said roller which is adapted to deliver it at the proper point of exit, substantially as set forth.

9. In a cigarette machine, an endless traveling apron and rollers supported upon said apron and arranged diagonally of its width and in opposite directions and geared to revolve in a direction reverse to the travel of the apron, and serving to obstruct the passage of the tobacco and arrange it in a continuous mass along the lengths of the rollers, which in conjunction with the moving apron propel the tobacco forward to the point of exit from the apron, substantially as set forth.

10. In a cigarette machine, the combination with a suitable table and an endless traveling apron adjusted thereon, of a series of preparing rollers arranged diagonally over and upon the apron and in opposite directions, and revolving reversely to the travel of the apron, and provided on their outer ends with gears, brackets fixed to the table and supporting the inner ends of the rollers in proper position over the apron, and vertical journals operating in bearings fixed to the table and provided with gears on their upper ends cooperating with the gears on the outer ends of said rollers and provided at their lower ends with means to receive the gearing by which motion is communicated to said journals, substantially as set forth.

11. In a cigarette machine, the combination with a table and an endless apron supported thereon and operated from the main shaft of the machine, of a series of preparing rollers arranged diagonally over and upon the apron and in opposite directions and geared to vertical journals operating in bearings fixed to the table, which journals are provided at their lower ends with pulleys, a belt communicating the motion of the main shaft to one of said vertically arranged journals and connecting belts between the pulleys on the several journals, substantially as set forth.

12. In a cigarette machine, mechanism for compressing the mass of tobacco received from the conveying apron and feeding it forward to the former tube, consisting of an endless belt mounted on pulleys and propelled indirectly from the main shaft and a series of pressure rollers beneath which the endless belt travels, the first of said rollers being flangeless and the others of the series arranged in pairs one above the other and having flanges, the final pair of rollers supported on vertical spindles and giving the final pressure to the filler of tobacco before entrance thereof into the former-tube, substantially as set forth.

13. In a cigarette machine, the combination with the former-tube and its operating belt wrapped spirally thereupon, of a pasting mechanism mounted on the table in proximity to said former-tube at an incline thereto, and a reel for the paper ribbon likewise mounted in suitable proximity to the pasting mechanism, the paper ribbon extending from the reel beneath the paste trough with its surface in appropriate contact with the paste wheel and with its free end wrapped spirally around the former-tube beneath the belt, substantially as set forth.

14. In a cigarette machine, the combination with a former-tube, of the pasting mechanism arranged in proximity thereto, a paper reel arranged in proper relation to the pasting mechanism, and at an incline to the former tube, the paper ribbon extending beneath the paste trough with its surface in contact with the paste wheel, and an adjusting device, as 66, secured to the pasting mechanism and comprising a pivoted arm, as 66^3, which is adjusted by a set screw to bear upon the paper beneath which it travels to maintain the paper in proper relation to the pasting wheel, substantially as set forth.

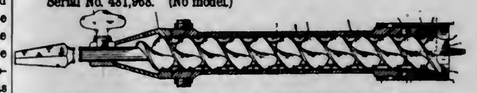
15. In a cigarette machine, the combination with the delivery mechanism, of mechanism for cutting the continuous cigarette into suitable lengths, consisting of a continuous band-knife mounted upon wheels or pulleys and adapted to be continuously propelled, and means for raising and lowering the cutter at suitable intervals, substantially as set forth.

16. In a cigarette machine, a cutting mechanism mounted upon a hinged support in front of the delivery mechanism and comprising an endless band-knife sharpened on both edges and adapted to revolve on pulleys mounted on said support, and a cam cooperating with the outer end of said cutter-support to raise and lower the same at proper intervals, substantially as set forth.

17. In a cigarette machine, the combination with an endless band-knife and a support for the pulleys around which said knife travels, of a tube mounted upon a carrier which is connected to the cutter-support to slide thereon, said tube encircling the delivery tube of the machine, and an eccentric adapted to move said tube carrier forward toward the endless band-knife to advance the tube of the carrier beyond the end of the delivery tube at proper intervals, substantially as set forth.

18. In a cigarette machine, the combination with the cutter-support 82 provided with pulleys and an endless band-knife adapted to revolve around said pulleys, of a tube 62 mounted on guide pins in carrier 62^2, rollers, as 67, adapted to cooperate with the endless band-knife when the carrier is moved forward and an eccentric, as 76, cooperating with said carrier, substantially as set forth.

518,262. BORING-MACHINE. CHARLES W. MEGGENHOFEN, Franklin, and ALBERT S. COURTRIGHT, Indianapolis, Ind. Filed July 31, 1893. Serial No. 481,968. (No model.)



Claim.—The combination, in a boring machine, of an auger having a spur gear formed therewith or secured thereto, a surrounding sleeve, and a series of cutters mounted on said sleeve and provided with spoke-like open cogs engaging with and driven by said gear, whereby a hole corresponding to the shape of said cutters is produced, substantially as set forth.

518,263. TELEPHONIC APPARATUS. CHARLES MILDE, Paris, France. Filed Oct. 31, 1893. Serial No. 489,641. (No model.)

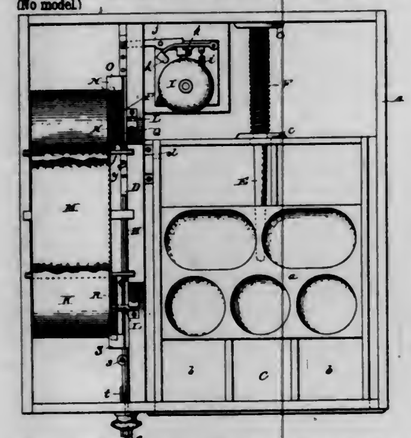
Claim.—1. A microphone consisting of a metallic corrugated box partly filled with granulated and purified coke, said box having a carbon stud or bead extending through it at each side and carrying a

weight, one of the bands being connected to the vibrating transmission plate, substantially as described.



2. A microphone comprising the flat box made up of the corrugated plates, the vibrating diaphragm, the opposing carbon studs extending through the corrugated plates and centrally thereof, the circuit connections and granulated filling in the box, said box extending laterally around the opposing studs, substantially as described.

518,264. CASH-DRAWER AND MANUAL RECORDER. EPHRAIM H. MENNIGH, Gettysburg, Pa. Filed July 28, 1891. Serial No. 400,979. (No model.)



Claim.—1. The box or casing A and means for locking the same, the drawer C mounted within said casing, and mechanism for locking and releasing said drawer adapted to be operated from outside of the casing, in combination with provisions within said casing and inaccessible when said casing is locked for rendering said mechanism inoperative to release the drawer, substantially as set forth.

2. The box or casing A inclosing the money drawer and cash-recording mechanism for use in connection therewith, a lock for said casing, and a single operating rod for both drawer and cash-recorder adapted to be operated from outside of the casing and an annunciator sounded when said drawer is released, in combination with means within the casing adapted to secure said operating rod and prevent the opening of the drawer or the further operation of the cash-recorder, said securing means being inaccessible when the casing is locked, substantially as set forth.

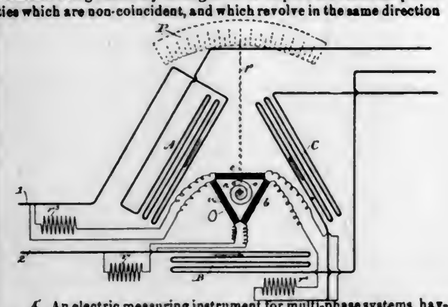
3. A money-drawer and a spring tending to throw the drawer open, a latch for securing said drawer against the action of said spring, an annunciator-gong, and a lever *j k* co-operating with the gong-clapper, in combination with an operating-rod which when moved in one direction simultaneously draws said latch to release the drawer and swings said lever *j k* to operate the gong-clapper, and springs *e m* which when said drawer is closed operate respectively to return the latch G and lever *j k* to their normal positions and at the same time co-operate to return said operating lever into position to be again operated, substantially as set forth.

518,265. ELECTRIC MEASURING-INSTRUMENT FOR MULTI-PHASE SYSTEMS. EDGAR W. MIX, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Mar. 31, 1892. Serial No. 426,701. (No model.)

Claim.—1. An electric measuring instrument for multi-phase systems, having relatively movable field and armature elements, one of said elements having a number of coil portions included respectively in the several multiphase lines, and the other element having coil portions connected respectively to the several lines, so as to form cross circuits between them.

2. An electric measuring instrument for multi-phase systems, having relatively movable field and armature elements, each of said elements having a number of angularly displaced coils acting in different directions, the coils of one element connected respectively in the several multi-phase lines, and the coils of the other element connected in several circuits across the multi phase lines.

3. An electric measuring instrument for multi-phase systems, having relatively movable field and armature elements, one of said elements having angularly displaced coils connected respectively in the several multi-phase lines, and the other element having coils acting in different directions connected in circuits across said lines, said two elements being relatively arranged so as to produce resultant polarities which are non-coincident, and which revolve in the same direction

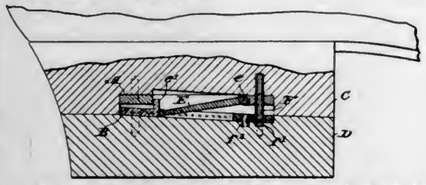


4. An electric measuring instrument for multi-phase systems, having relatively movable field and armature sets of coils connected respectively in circuit with, and in shunt across, the several lines, and arranged to produce two non-coincident polarities revolving in the same direction.

5. An electric measuring instrument for multiphase systems, having relatively movable field and armature elements, one of said elements having a number of coil portions included respectively in the several multiphase lines, and the other element having coil portions connected respectively to the several lines so as to form cross circuits between them, and a resistance coil modifying the current flowing in cross circuits, substantially as described.

6. An electric measuring instrument for multiphase systems, having relatively movable field and armature elements, one of said elements having a number of coil portions included respectively in the several multiphase lines, and the other element having coil portions connected respectively to the several lines so as to form cross circuits between them, and a resistance in each of said cross circuits in series with the coil portions therein, substantially as described.

518,266. HEEL. WALTER MORRISON and WILLIAM H. PURSER, Moonee Ponds, near Melbourne, Victoria. Filed July 20, 1893. Serial No. 481,073. (No model.) Patented in Victoria Dec. 28, 1892, No. 10,228; in New South Wales June 13, 1893, No. 4,454, and in New Zealand June 23, 1893, No. 6,253.



Claim.—1. In combination with a boot or shoe, having a recess in the heel part thereof, a gravity pawl pivoted within said recess at one end, a removable heel having slides fitted to said heel part and a stop or shoulder on the heel adapted to be engaged by the free end of the gravity pawl, substantially as described.

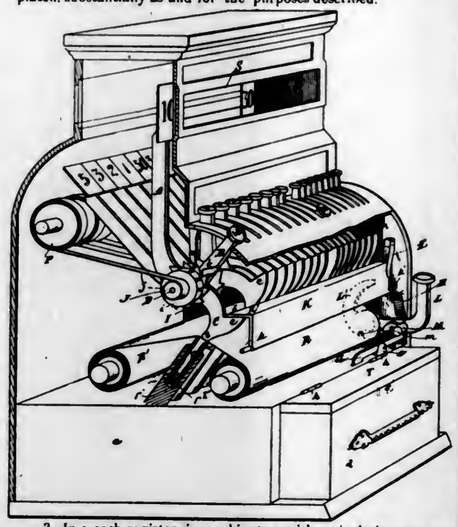
2. In combination with a boot or shoe, a removable heel therefor, the opposing faces of said parts being recessed, a pivoted pawl located in the recess of the boot or shoe and engaging the recess in the heel and a sliding pin or bolt carried by the boot or shoe and also engaging the recess of the heel, substantially as described.

518,267. CASH REGISTER, INDICATOR, AND RECORDER. WILLIAM T. MCGRAW, Detroit, Mich. Filed Feb. 9, 1893. Serial No. 461,633. (No model.)

Claim.—1. In a cash register, in combination with an inclosing case provided with an inspection slot, a swinging curved lever reaching through the walls of the case, pivoted at the turn of the curve, terminating at its inner end with a tablet, and provided with a type hammer arm located between the turn of the curve and the outer end, and a platen adapted to support a strip of paper located in the path

of said type hammer, substantially as and for the purpose described.

2. In a cash register, in combination with an inclosing case provided with an inspection slot, a swinging curved lever reaching through the walls of the case, terminating at its inner end with a tablet, and provided between the pivot and the outer end with a type hammer arm, a yielding platen adapted to hold a strip of paper in the path of said type hammer, and means for advancing the paper over said platen, substantially as and for the purposes described.



3. In a cash register, in combination with an inclosing case provided with an inspection slot, a swinging curved lever reaching through the walls of the case, provided with a pivot at the turn of the curve, and terminating at its inner end with a tablet, a hammer arm made integral therewith and located between the pivot and the outer end, a yielding platen, means for advancing a strip of paper between the hammer arm and the platen, and means for holding said lever with the tablet exposed at said inspection slot, substantially as and for the purpose specified.

4. In a cash register, the combination with an inclosing case provided with an inspection slot, of a swinging curved lever reaching through the walls of the case, pivoted at the turn of the curve, and terminating at the inner end of the tablet, a hammer arm made integral with said lever and located between the pivot and the outer end thereof, a yielding platen, means for advancing a strip of paper between the hammer arm and the platen, means for holding the lever with the tablet exposed at the inspection slot, and means for releasing the lever, substantially as and for the purpose described.

5. In a cash register, the combination of a series of tablet rods, a series of actuating keys, a series of hooks a single detaining hook common to all the hooks of said series, having its detaining edge oblique to the common axis of said series of hooks, whereby the engagement of the hook at one end of the series with the common delaining hook, is greater than the amount of engagement between corresponding parts at the other end of the series, substantially as and for the purpose specified.

6. In a cash register, in combination with a tablet rod and an actuating key made integral therewith, and arranged to move around a common center, a ratchet wheel turning on the same center and actuated by a pawl on the key bar, a spool secured to said ratchet wheel and turning therewith, a tape adapted to be wound on said spool, and to indicate the number of revolutions made thereby, substantially as and for the purpose described.

7. In a cash register, the combination of an actuating key, a tablet rod and type hammer, a ratchet wheel, spool and tape, all journaled on a common arbor, the said ratchet wheel and spool, being adapted to be actuated by a pawl on the key-bar; a printing platen, and means for advancing a strip of paper over the same, substantially as described.

8. In a cash register, in combination with a series of actuating keys and tablet rods, a series of hooks and a single detaining hook having an engaging surface adapted to contact each of said hooks with an amount that decreases with each succeeding hook from a higher to a lower order across the series, whereby after the key of a higher order has been moved into engagement, a key of a lower order may also be moved into engagement, without releasing the key of the higher order, substantially as and for the purpose specified.

9. In a cash register, the combination of a series of tablet rods, key-bars and type hammers, each set being provided with its individual ratchet wheel and tape spool attached thereto, an index tape, adapted to be stored on each of said spools, means for catching and holding two or more of the type hammers, by a continuous catch, means for releasing the catch and simultaneously advancing a strip of paper between the platen, and the type hammers, and a yielding platen, substantially as described.

10. In a cash register, the combination of a key bar, a ratchet wheel journaled upon the same arbor at the key-bar, an indicating tape, adapted to indicate the revolutions of said wheel, and means for actuating said ratchet wheel, substantially as and for the purpose specified.

11. In a cash register, the combination of a key bar, a ratchet wheel and spool both journaled on a common arbor with the key-bar an index tape, adapted to show the revolutions of said wheel, means for storing said tape, and means for actuating said register wheel, substantially as and for the purpose specified.

12. In a cash register, in combination with two or more swinging printing type integral with the several key bars and tablet rods, yielding tablets equal in number thereto and adapted to yield independently, substantially as and for the purpose specified.

13. In a cash register, a multiplicity of swinging printing type integral with the several key bars and tablet rods, yielding tablets equal in number to said printing type, and adapted to yield independently, means for moving a strip of paper forward between the type and tablets substantially as and for the purpose stated.

14. In a cash register, the combination of a multiplicity of swinging printing type integral with the several key bars and tablet rods, yielding tablets equal in number to said type, and adapted to yield independently means for moving a strip of paper forward between said type and tablets, and storage rolls for the unprinted and printed parts of said strip of paper, substantially as and for the purpose specified

15. In a cash register, the combination of swinging printing type, integral with the key bar and tablet rod and journaled with them on a common arbor, yielding tablets adapted to yield when struck by said type, means for moving a strip of paper forward between the type and tablet, and storage rolls for both the printed and unprinted parts of said paper, substantially as and for the purpose specified

16. In a cash register, the combination of an inclosing case, a drawer projecting partially therefrom and adapted to be pulled out when unlocked, a lid hinged to the case and adapted to cover the projecting part of the said drawer.

17. In a cash register, the combination of an inclosing case, a drawer having its front part covered by a lid by which access to it may be had, and adapted to be fully pulled out, when said lid is raised, and provided with a locking catch, whereby the lid when closed serves to lock the drawer.

18. In a cash register, the combination with an inclosing case, a drawer adapted to be pulled out from the frame when unlocked, and having its front part covered when closed by a counterweighted lid hinged to said case, means adapted to engage with said counterweight, and lock the lid in its closed position, substantially as and for the purpose specified.

19. In a cash register, the combination of an inclosing case, a drawer adapted to slide in and out of the same, a lid arranged to cover the front part of said drawer, hinged to said case and provided with a locking catch adapted to engage a mortise in said drawer, and means for holding said lid partially lifted until the catch and mortise are in engaging position, substantially as and for the purpose specified.

20. In a cash register, the combination of a drawer adapted to slide into the case near the bottom thereof, a lid covering the front part of said drawer hinged to said case, and provided with a counterweight, means concealed within said case, adapted to engage with said counterweight, and lock the lid in its closed position, a catch on said lid adapted to interlock with the drawer, an actuating lever for releasing the lid lock, and thereby permitting the counterweight to actuate the lid and open the same, and release the drawer, substantially as described.

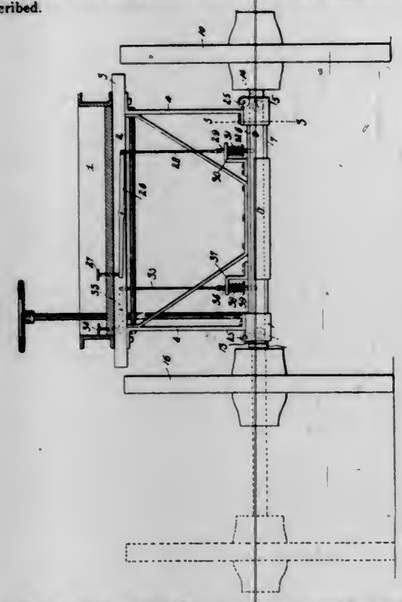
518,268. ROAD-SCRAPER. THOMAS R. MCKNIGHT, Aurora, Ill., assignor to the Western Wheeled Scraper Company, of Illinois. Filed Mar. 28, 1893. Serial No. 468,065. (No model.)

Claim.—1. The combination of a frame having an extensible axle composed of two separate axles, one of which is adapted to be laterally extended, means for extending the laterally extensible axle, spring pressed locking pins mounted upon the said frame and automatically moved by their springs into engagement with the two axles, and means for moving the locking pins against the tension of their springs to disengage said pins from the axles, substantially as described

2. The combination of a frame having an extensible axle composed of two separate axles, one of which is adapted to be laterally extended, means for extending the laterally extensible axle, locking

pins mounted upon said frame and movable into and out of engagement with the axles, and lever mechanisms connected with the locking pins for withdrawing them from engagement with the axles, substantially as described.

3. The combination of a frame having an extensible axle composed of two separate axles, one of which is adapted to be laterally extended, rack and pinion mechanism for extending the laterally extensible axle, locking pins mounted upon the said frame and movable into and out of engagement with the two axles, and independent lever mechanisms connected respectively with the locking pins for withdrawing them from engagement with the two axles, substantially as described.



4. The combination with a frame, axle boxes secured thereto, two separate longitudinally movable axles slidingly mounted in said axle boxes, and wheels mounted on said axles, of a rack secured to one of said axles, a pinion engaging said rack, means for rotating the pinion, locking pins mounted upon the said frame and movable into and out of engagement with the two axles, and independent lever mechanisms connected respectively with said locking pins for withdrawing them from engagement with the axles, substantially as described.

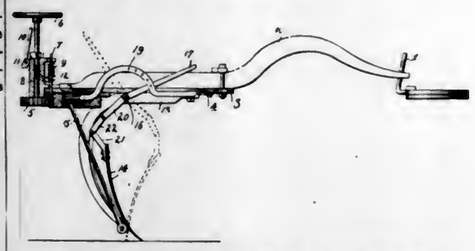
5. The combination with a frame, axle boxes secured thereto, two separate longitudinally movable axles slidingly mounted in said axle boxes, a bearing plate secured to said axle boxes below said axles and connecting said axle boxes together, rollers journaled on the inner ends of said axles and bearing upon said bearing plate, rollers journaled in said axle boxes and bearing on said axles, and wheels mounted one on each of said axles, of a rack secured to one of said axles, a pinion engaging with said rack, mechanism for rotating said pinion whereby said rack may be moved longitudinally, and mechanism for locking said axles in the desired position, substantially as specified.

6. In a scraper, the combination with a frame 1, axle boxes 5—5ª secured to said frame, bearing-plates 6—7 secured to said axle boxes, axle 9 slidingly mounted in said axle boxes 5—5ª, and a wheel 10 mounted on said axle 9, of an axle 13 slidingly mounted in said axle boxes 5—5ª, a wheel 16 carried by said axle 13, a rack 18 secured to said axle 13, a pinion 24 mounted on said axle box 5ª and engaging with said rack, and mechanism for rotating said pinion so as to move said rack longitudinally, substantially as specified.

518,269. ROAD-SCRAPER. THOMAS R. MCKNIGHT, Aurora, Ill., assignor to the Western Wheeled Scraper Company, of Illinois. Filed Mar. 28, 1893. Serial No. 468,066. (No model.)

Claim.—1. In a direct draft road scraper, the combination with a scraper frame adapted to be suspended under a scraper carriage, and a scraper blade carried by the scraper frame, of a rock shaft mounted on said scraper frame and connected with the scraper blade, and a lever for rocking the said shaft to adjust the pitch of the scraper blade, substantially as described.

2. The combination with a scraper frame, and a scraper blade pivotally connected therewith, of a rock shaft journaled on the scraper frame and pivotally connected with the scraper blade, and a lever for turning the rock shaft to vary the pitch of the scraper blade, substantially as described.



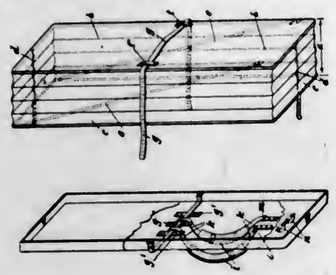
3. The combination with a scraper frame, of a rock-shaft 16 journaled in said scraper frame and having arms 20, a scraper blade pivotally supported by said scraper frame, links connecting said arms 20 with said scraper blade, and a lever 17 secured to said rock-shaft, whereby the pitch of said blade may be varied by operating said lever, substantially as described.

4. The combination with a scraper frame, of a rock-shaft 16 journaled in said scraper frame and having arms 20, a scraper blade pivotally supported by said scraper frame, links connecting said arms 20 with said scraper blade, a lever 17 secured to said rock-shaft, whereby the pitch of said blade may be varied by operating said lever, and a locking device carried by said scraper frame, whereby said lever may be locked in different positions, substantially as described.

5. In a scraper blade, the combination with a frame 2, an outer ring 3 secured to said frame, an inner ring 4 carried by said outer ring and adapted to be rotated therein, of arms 13, secured to said inner ring 4, a scraper blade 14 pivotally mounted on said arms 13, a rock shaft 16 journaled on said ring 4, and having arms 20, said arms 20 being pivotally connected with said scraper blade, and a lever 17 secured to said rock shaft, whereby by the movement of said lever the angle of said scraper blade with the ground may be adjusted, substantially as described

6. In a scraper, the combination with a frame 2, an outer ring 3 secured to said frame, and an inner ring 4, carried by said outer ring and adapted to be rotated thereon, of arms 13 secured to said inner ring 4, a scraper blade 14 pivotally mounted on said arms 13, a rock shaft 16 journaled on said ring 4 and having arms 20, links 22 pivoted to said arms 20 and to said scraper blade, a lever 17 secured to said rock shaft, whereby by the movement of said lever the angle of said scraper blade with the ground may be adjusted, and mechanism for locking said lever whereby said scraper blade may be locked at the desired angle, substantially as described.

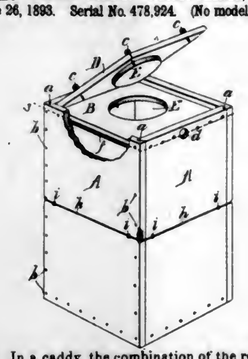
518,270. COLLAPSIBLE BOX. ALFRED ORTH, Lomnitz, Germany. Filed Oct. 27, 1893. Serial No. 489,304. (No model.)



Claim.—1. A collapsible box capable of being adjusted and maintained in a wholly or partially expanded condition, whose body is composed of distension frames covered with material and connected together by toggle links in combination with diagonal stay-rods or braces whereby the capacity of the box may be varied to suit the bulk of the contents, substantially as described.

2. A box comprising the body portion, the lid, the strap *g* extending transversely of the lid and adapted to secure the same to the body, and the shoulder straps attached at one end to the strap *g* and at the other to the box lid, substantially as described.

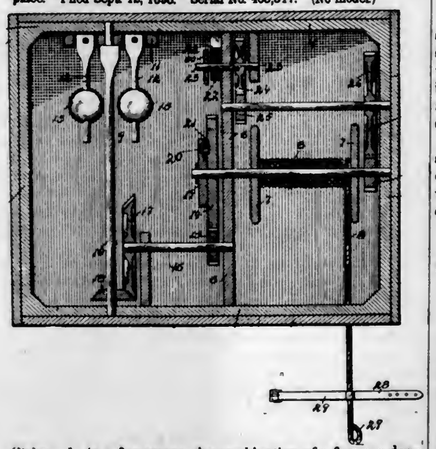
518,271. FLOUR-CADDY. ALONZO PALMER, Centreville, Mich. Filed June 26, 1893. Serial No. 478,924. (No model.)



Claim.—1. In a caddy, the combination of the rectangular case, the square heads therein having half-round grooves in their edges, the continuous strand of rope filling entered in said groove and passing entirely around said heads the portion of said strand extending from said groove being compressed against the plane sides of the case, the head B having the central opening therethrough and located below the top of the sides of the case, the supplementary head D fitting within the sides flush with the top and resting upon the head D and having a depending plug that fills the opening therein.

2. The combination of the rectangular case having the square heads therein, one of said heads being depressed below the top of the case and provided with a central opening, the removable lid lying upon said head within the sides of the case, flush with the top thereof and having a depending plug that fills the opening in said head, said case having an aperture *d* through the sides thereof that communicates with the space between said head and lid, as and for the purpose specified.

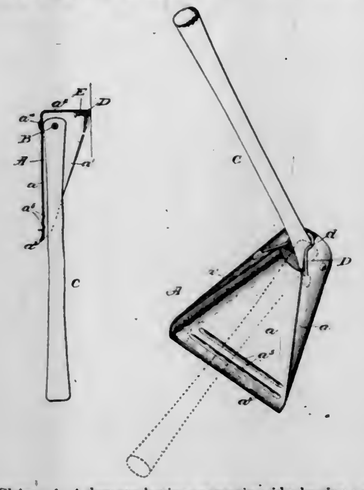
518,272. FIRE-ESCAPE. WILLIAM S. PARMAN, Stillwater, Okla., assignor of one-half to William R. Adams and James F. Farrer, same place. Filed Sept. 12, 1893. Serial No. 485,317. (No model.)



Claim.—1. In a fire-escape, the combination of a frame, a drum mounted in the frame and provided with a rope or cable, a vertically disposed governor shaft arranged adjacent to the drum, and provided at its top adjacent to the frame with a head, gearing for connecting the drum and the governor shaft, the cam levers fulcrumed on said head and arranged to engage the frame and provided with adjustable weights, a clutch carried by the drum for connecting said gearing with the same when the rope or cable is unwinding, a spring for rewinding the rope or cable, and gearing connecting the spring with the drum, substantially as described.

2. In a fire-escape, the combination of a frame, a drum having a shaft journaled in the frame and provided with a rope or cable, a vertically disposed governor shaft mounted in the frame, and provided at its top with a head arranged adjacent to the frame, the cam levers fulcrumed on the frame and provided with adjustable weights and adapted to engage the frame a lower countershaft journaled in the frame, beveled gearing connecting one end of the lower countershaft with the governor, gear wheels 14 and 15 connecting the lower countershaft with the drum shaft, the gear wheel 14 being loosely mounted on the drum shaft, a clutch fixed to the drum shaft and arranged to engage the gear wheel 14 when the drum is rotating for unwinding the rope or cable, a spring shaft, a coiled spring mounted on the spring shaft and having one end connected to the same and having its other end secured to the frame, an upper countershaft, and gear wheels connecting one end of the upper countershaft with the spring shaft and the other end of the upper countershaft with the drum, substantially as described.

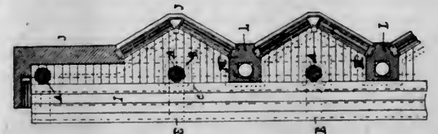
518,273. DUST-PAN. LYMAN A. POWERS, Fennimore, Wis., assignor of one half to Henry E. Roethe, same place. Filed Feb. 3, 1894. Serial No. 499,000. (No model.)



Claim.—1. A dust pan having converging sides leaving a narrow space between them at the rear end, a cross bar supported by said sides, a handle hinged on said bar, and adapted to be turned down upon the bottom of the pan, and to be raised to an upright position in the space between the sides, and a spring clip spanning said space and adapted to receive and hold the handle in its upright position, substantially as described.

2. A dust pan, comprising the pan A having the converging curved sides *a'* and back *a³*, the cross bar B supported in said sides in front of said back, the handle C hinged on said cross bar, and the U-shaped wire D having its legs attached to the sides *a'*, and containing the curves *d*, substantially as described.

518,274. BUILDING. CHARLES A. PRARAY, Providence, R. I., assignor of one-half to Charles R. Makepeace, same place. Filed Jan. 16, 1894. Serial No. 497,035. (No model.)



Claim.—1. In a building, a series of columns, resting upon proper foundations and adapted to sustain the floor beams, in combination with floors and floor-beams wholly supported upon said columns, and an outer wall, inclosing said structure, but wholly independent thereof, and having a separate foundation substantially as described.

2. In a building, the combination of the columns A, each resting upon its proper foundation, the beams D, E, resting upon ledges or flanges of said columns and wholly supported thereby, the capital or bracket F, upon each column, provided with bolts to fasten the beams to the columns, respectively, and the wall J, having its own foundation K, but wholly independent of said beams, substantially as specified.

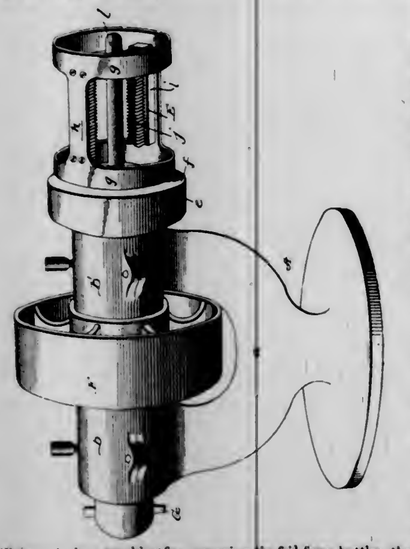
3. The combination of the beam E, having the notched end, the columns, A, cut away with plane faces to receive said notched beam-end and having ledges or lips *b*, *b*, to support said beam, the capital F, mounted upon the column and having a lug *m*, which enters a mortise in the beam, and also having a bolt *n*, passing through it into

the beam and the dog-iron *p*; extending through the column and entering the beam, substantially as shown.

4. In a building, an outer wall, whose surface is made in a series of bays or angular projections, in combination with pilasters, located at the entering angles of said bays and columns located midway between the pilasters, respectively, and in line therewith adapted to support beams, substantially as described.

5. The improved building herein described, consisting of the columns A, resting upon piers B, and pier-foundations C, the floor beams D, E, adapted to rest upon ledges or flanges of the columns A, the capitals F, upon the columns, provided with means of fastening the beams E to the columns, the flooring H, I, the wall J, resting upon a foundation K, and having pilasters L, resting upon suitable foundations, said wall J, being made with angular bays and entirely independent of the floor beams, substantially as specified.

518,275. MACHINE FOR REMOVING TIN-FOIL FROM BOTTLES. EDWARD RANTS, New Orleans, La. Filed May 19, 1893. Serial No. 474,350. (No model.)



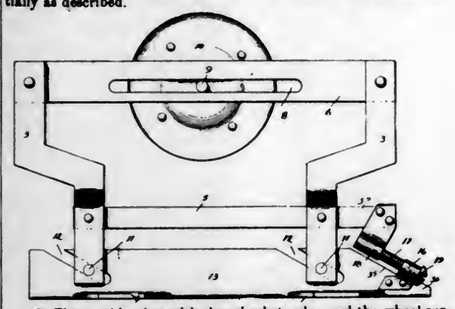
Claim.—1. In a machine for removing tin foil from bottles, the combination with the main frame; of the horizontal spindle fixed in said frame, and having the head *l*, at its outer end, the tubular shaft B, rotatable in the main frame and around the spindle, and having the flanged head *c*, at its outer end, the open brush frame D, detachably connected to the flanged head of the tubular shaft, and the brushes secured in said head, substantially as specified.

2. The herein described machine for removing tin foil from bottles, consisting of the standard or main frame, the spindle fixed with respect to the main frame and having a head *l*, at its outer end, the tubular shaft journaled in the main frame and surrounding the spindle and having the flanged head *c*, at its outer end, the brush frame D, detachably connected to the flanged head of the tubular shaft and comprising the bands *g*, and the bars *h*, connecting said bands, and the brushes comprising the heads *i*, connected to the bars *h*, of the brush frame, and the flat metallic bristles disposed at right angles to the length of the heads, all substantially as and for the purpose set forth.

518,276. DOOR-HANGER. MARCUS C. RICHARDS, Aurora, Ill., assignor to the Wilcox Manufacturing Company, same place. Filed Oct. 23, 1891. Serial No. 410,134. (No model.)

Claim.—1. In a door hanger, the combination with a yoke having a boss 18, of an attaching plate 13 having at one end portion a projecting fin 34 and a boss 16, and an adjusting screw 17 having a head provided with a groove 19 to receive the fin in connecting the screw with the bosses so that the fin constitutes a stop for the screw, substantially as described.

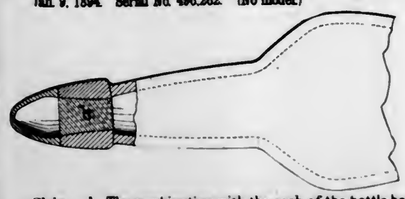
2. In a door hanger, the combination of a yoke composed of vertical straps 3 and 4 having pins 11, upper horizontal straps 6 having slots 8, cross bars 7 interposed between said straps, and a lower horizontal strap 5 having an end extension provided with a boss 18, with a wheel 10, an attaching plate 13 having inclined slots 12, fin 34 and boss 16, and a screw 17 connecting the boss on the lower horizontal strap with the boss on the attaching plate and having a head provided with a groove 19 to receive the fin on the attaching plate, substantially as described.



3. The combination with the wheeled yoke, and the wheel-supporting rail of a door hanger, of a plate 26 adapted to be attached to a door frame and having a slot 28, and a stop 25 having pendent projections 29 and 30 extending downward through the slotted part of the said plate, and a forwardly extending portion 31 engaging the said wheel supporting rail, substantially as described.

4. The combination with the wheeled yoke, and the wheel-supporting rail of a door-hanger, of a plate 26 adapted to be attached to the door frame and having a slot 28, a stop 25 having pendent projections 29 and 30 extending downwardly through the slotted part of the said plate, and a forwardly extending portion 31 engaging the said wheel-supporting rail, and a band 33 applied to the said pendent projection 30 below the slotted part of the plate, substantially as described.

518,277. BOTTLE-SEAL. HARSON ROBINSON, Baltimore, Md. Filed Jan. 9, 1894. Serial No. 496,262. (No model.)



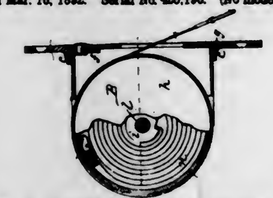
Claim.—1. The combination with the neck of the bottle having a cork therein, of a seal comprising a glass cap or cover fused to the mouth of the bottle above the cork, substantially as described.

2. The combination with a bottle having a cork therein of a cap, seal or closure composed wholly or in part of a brittle material extending over the cork, and closed by fusion, thereby preventing the withdrawal of the cork without fracture of the closure, substantially as described.

3. In a bottle seal the combination with the neck of the bottle formed of a comparatively thin wall at the mouth thereof, and increasing in thickness toward the body of the bottle a cork driven into the thickened part of the neck and a cap or cover welded to the mouth of the bottle, substantially as described.

4. A bottle provided with a hermetic closure of glass confining the cork, and formed by a seal or cap fused to the mouth of the bottle the walls of the closure having a portion of less thickness than the thickness of the glass at the line of union, substantially as described.

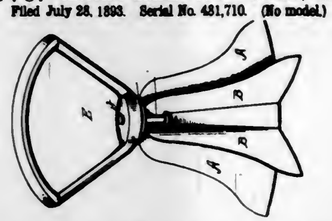
518,278. SASH-BALANCE. FRANK I. ROSENTRETER, Rochester, N. Y., assignor to the Caldwell Manufacturing Company, same place. Filed Mar. 16, 1892. Serial No. 425,196. (No model.)



Claim.—1. In a sash balance, the combination of a face plate, a single side plate fitted removably thereto, a drum with a closed outer face fitted to the side plate and bearing against the same, a rivet uniting the drum and side plate, a spring connecting the drum with a hub of the side plate, and a tape winding on the drum, as and for the purpose specified.

2. In a sash balance, the combination of a case with a side plate, a drum fitted thereto a rivet uniting the parts, a spring connecting the drum with a hub of the case, a tape winding on the drum, and a spring disk set into a cavity of the case, held by the rivet and serving to draw the drum against the side plate, as specified.

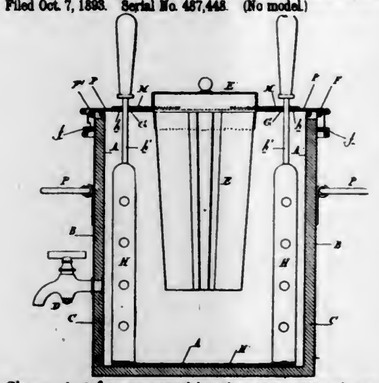
518,279. CHOPPING-KNIFE. FRED H. RUSSELL, Horseheads, N. Y. Filed July 28, 1893. Serial No. 481,710. (No model.)



Claim.—1. A chopping knife comprising a main blade having two substantially vertical slot-ways in its lower edge, a slot-way in its upper end having its lower end enlarged, auxiliary blades having a similar slot-way in its upper end, and a vertical slot-way leading therefrom through the center of the blade and adapted to engage with the aforesaid slot-ways, a handle and a bolt engaging with said enlarged slot-ways having its upper end secured to the handle.

2. A chopping knife comprising a main blade having slot-ways in its lower end, a slot-way in its upper end, having its lower end enlarged, auxiliary blade having a similar slot-way leading therefrom through the center of the blade, said blades having the upward extending part —*c*— a radially slotted perforated disk engaging said parts, a handle and a bolt engaging with said enlarged slot-ways, and said disk, and secured to the handle as set forth.

518,280. ICE-CREAM FREEZER. JULES SCHALLER, Paris, France. Filed Oct. 7, 1893. Serial No. 487,448. (No model.)



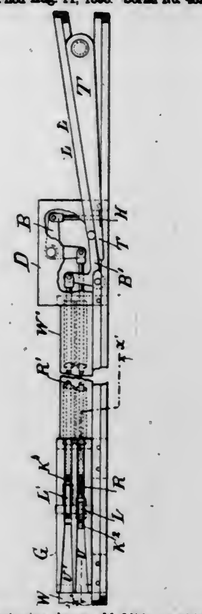
Claim.—1. A freezer comprising the outer receptacle, the holding vessel E formed with a cover plate F for the receptacle, said plate having openings for the introduction of the freezing mixture and the beaters passing down through the cover plate into the outer receptacle, substantially as described.

2. A freezer comprising the outer receptacle, the vessel E depending therein and a cover plate F having openings to receive the freezing mixture the beaters passing down through the openings in the cover plate, the sliding covers M carried by the beater stems and the cock D leading from the lower end of the receptacle, substantially as described.

3. In combination, the outer receptacle, the inner containing vessel, the cover plate F having openings to receive the freezing mixture, and the second plate F', substantially as described.

4. In combination the outer receptacle, the inner containing vessel, the cover plate F having openings to receive the freezing mixture, the second plate F', the beaters depending into the annular space between the inner and outer receptacles, and extending up through the plates F F', and the cover plates M moving with the beaters, substantially as described.

518,281. AUTOMATIC RAILWAY-SWITCH. OTTO R. SEIFERT, Brooklyn, N. Y. Filed Aug. 11, 1893. Serial No. 482,907. (No model.)



Claim.—1. The tripping levers M M' in combination with the guide block G and switch levers L L'.

2. The guide block G, the switch levers L L', connecting rods R R', bell crank levers B B' and tongue T, in combination.

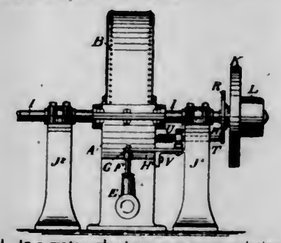
3. A tripping lever M attached to a car and provided with suitable operating devices, in combination with a switch lever L, a grooved guide block G, rod R, bell crank lever B and switch tongue T, substantially as shown and described.

4. A tripping lever M attached to car and provided with suitable operating devices, in combination with a switch lever L, a grooved guide block G, rod R, bell crank lever B and switch tongue T, and a tripping lever M' attached to a car and provided with similar operating mechanism in combination with a switch lever L', grooved guide block G, rod R', bell crank lever B' and switch tongue T.

5. The guide block G provided with the grooves U U^3 and U' U^3, the switch levers L L', connecting rods R R', bell crank levers B B' and tongue T, in combination.

6. The guide block G, the switch levers L L', the springs S S', the connecting rods R R', the bell crank levers B B' and the tongue T in combination.

518,282. WATER-WHEEL-REGULATING APPARATUS. CHARLES B. SESSIONS and BURTON C. VAN EMON, San Francisco, Cal. Filed June 17, 1893. Serial No. 478,010. (No model.)



Claim.—1. In a water wheel governor or regulating apparatus, the combination with the main water-wheel shaft, of a pulley loosely mounted thereon, a fixed disk likewise thereon, centrifugally-acting weighted levers pivoted on the disk, spring connections between said levers and the disk, a link connection between them and the loose pulley, and suitable connections consisting essentially of a laterally-movable disk having an engagement with the loose pulley by means of beveled cylindrical ledges whereby the actions of the aforesaid parts may control the valve in the water-supply pipe, substantially as described.

2. In a water wheel regulating apparatus, the combination of the main shaft, a loose pulley thereon, a fixed disk likewise thereon, centrifugally-acting levers pivoted on the disk, spring connections between the free ends of said levers and the periphery of the disk, link connections between said levers and the loose pulley, the water supply pipe and the valve therein, the laterally-movable disk operated by the aforesaid mechanism and the beveled cylindrical ledges for connecting or disconnecting said disk with the loose pulley, and leverage connections actuated by said disk so as to control the water supply valve, substantially as described.

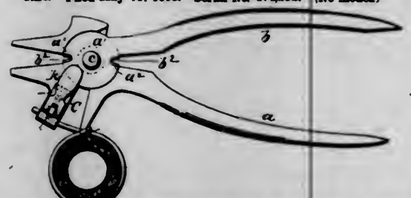
3. In a water wheel regulating apparatus, the combination of the main shaft, a loose pulley and a fixed disk thereon, together with centrifugal levers on the disk and spring and link connections between them and the disk and pulley, and a laterally-movable sliding disk operated by the aforesaid mechanism through the engaging ledges or teeth and the sliding studs together with a lever acted on endwise by said disk for the purpose of imparting motion through suitable connections to control the water supply valve, substantially as described.

4. In a water-wheel regulating apparatus, the combination of the water wheel shaft, a pulley loosely mounted thereon, a fixed disk thereon, weighted levers pivoted on the disk, spring connections and link connections between the ends of said levers and the disk and the pulley, a collar on the pulley having beveled ledges, a sliding plate having also beveled ledges which engage the ledges on the pulley, another laterally movable disk, the sliding studs attached thereto and operated in consequence of the engagement of the said ledges so that it will be shifted for the purpose of operating suitable leverage connections between it and the water supply pipe, so as to control the valve in the latter, substantially as described.

5. In a water wheel regulating apparatus, the combination of the main shaft, a loose pulley and a fixed pulley thereon, together with centrifugal levers pivoted on the fixed pulley and spring and link connections between said levers and the pulleys, all arranged substantially as described and beveled ledges on the inner face of the loose pulley, a disk opposite thereto having likewise beveled ledges which engage the other ledges, another laterally movable disk having sliding studs which are attached likewise to the ledge provided disk, a rod which is operated upon endwise by the sliding disk and suitable connections between it and the water supply valve whereby the latter is controlled so as to regulate the water supply, substantially as described.

6. In a water wheel regulating apparatus, the combination of the water wheel shaft, a pulley loosely mounted thereon and provided with beveled circular ledges on its inner face, a fixed disk likewise mounted upon the main shaft, centrifugal weighted levers pivoted on said disk, spring connections between the free ends of said levers and the disk, link connections between said levers and the loose pulley, a plate adjacent to the loose pulley having beveled cylindrical ledges thereon which engage the ledges on the loose pulley, another laterally movable disk on the main shaft having sliding studs which are attached to the ledge-provided plate, all arranged so that when the two sets of ledges engage with each other, the sliding studs may shift the disk, together with the leverage mechanism whereby said disk operates to control the water supply valve, substantially as described.

518,283. COMBINATION-TOOL. FRANK K. SNYDER, Massillon, Ohio. Filed May 15, 1893. Serial No. 474,232. (No model.)



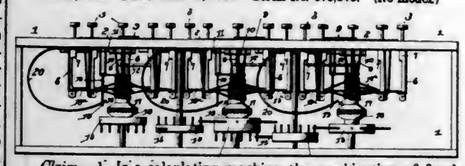
Claim.—1. The combination with two levers pivotally connected together, of an arm projecting from one of said levers, a clamp connected adjustably with said arm, and a hook-shaped arm projecting from the other lever, substantially as set forth.

2. The combination with two levers pivotally connected together, of an arm projecting from one of said levers, a clamping jaw pivotally connected adjacent to said arm, a pin passing through said arm and jaw and a cam lever pivotally connected to one end of said pin, and an arm projecting from the other lever, substantially as set forth.

3. The combination with two levers pivotally connected together, of an arm projecting from one of said levers, clamping jaws pivotally connected at diametrically opposite sides of said arm, springs between said jaws and the arm, a pin passing through said jaws and the arm and a cam lever pivotally connected to said pin, substantially as set forth.

4. The combination with two levers pivotally connected together, of an arm projecting from one of said levers, a jaw pivotally conected to said arm, a pin passing through said jaw and arm and screwthreaded on one end, a thumb nut adapted to screw on said screwthreaded end, and a cam lever pivotally connected to the other end of said pin and an arm projecting from the other lever, substantially as set forth.

518,284. CALCULATING-MACHINE. SHERMAN R. STALLARD, Merit, Tex. Filed June 21, 1893. Serial No. 478,373. (No model.)



Claim.—1. In a calculating machine, the combination of fixed dials provided with ten radial series of consecutively-arranged digits disposed in concentric circular columns, each of which contains the ten digits pointers traversing said dials, keys, operating connections between the keys and pointers, and means for communicating motion from each pointer to the pointer of next higher denomination, substantially as specified.

2. The combination with dials having radial series of digits which are disposed in concentric circular columns, the numerals in each column being arranged consecutively and contignous columns being distinguished from each other, of pointers traversing the dials, keys, operating connections between the keys and pointers, and means for communicating motion from one pointer to that of the next higher denomination, substantially as specified.

3. The combination of a dial provided with radial series of consecutively-arranged numerals disposed in concentric circular columns, the numerals in each column being arranged consecutively and the initial numbers of the several columns being disposed in different radial series, contiguous columns being distinguished from each other, as by color, to facilitate tracing a particular column; a pointer traversing said dial, and means for operating the pointer substantially as specified.

4. The combination with fixed dials provided with radial series of digits disposed in concentric circular columns, of a series of numbered keys arranged contiguous to the outermost circular column with its initial number opposite that of the outermost column and with its numbers increasing in a direction opposite to that of the said column, pointers traversing said dials, operating connections between the keys and pointers, and means for communicating motion from each pointer to that of the next higher denomination, substantially as specified.

5. The combination with fixed dials provided with radial series of consecutively-arranged numerals disposed in concentric columns, of numbered keys arranged respectively in operative relation to the radial series of numerals, the numerals of said keys being arranged consecutively and increasing in a direction opposite to the direction of increase in the concentric columns, pointers traversing said dials, operating connections between the keys and the pointers, and means for communicating motion from each pointer to that of the next higher denomination, substantially as specified.

6. The combination with dials having radial series of numerals, of numbered keys arranged, respectively, contiguous to the outer terminals of said series, pointers having spindles disposed centrally of the dials and arranged to traverse the dials, drums loosely mounted upon the spindles, flexible connections between the keys and the drum, stops carried by the keys, and arms fixed to the spindles and adapted to engage the stop of a depressed key, substantially as specified.

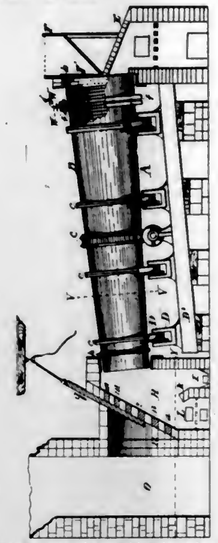
7. The combination with dials, depressible keys, and pointers having spindles concentric respectively with the dials, of means for communicating motion to the spindles, and stop shoulders carried by the keys and adapted when the latter are depressed to lie in the paths of stop-arms carried by the spindles, substantially as specified.

8. The combination with dials, depressible keys, and pointers arranged to traverse said dials, and having spindles of drums loosely mounted upon said spindles, clutch connections between the drums and the spindles, flexible connections between the keys and the drums, a tension device consisting of a tension spring and a flexible connection reeled upon each drum to return the latter to its normal position, and means for communicating motion from one spindle to the next of higher denomination, substantially as specified.

9. The combination with fixed dials, of depressible numbered keys disposed in circular series around the dials, spindles arranged respectively concentric with the dials and carrying pointers to traverse the same, means to prevent the backward rotation of the spindles, lateral arms carried by the spindles and adapted to engage stop-shoulders fixed to the keys when such shoulders are arranged in the path thereof by the depression of a key, connections between the keys

and the spindles, and means for communicating motion from each spindle to that of the next higher denomination, substantially as specified.

518,285. FURNACE FOR TREATING REFUSE OF CITIES. JACOB J. STORER, Helena, Mont., assignor, by mesne assignments, to the Economic-Sanitary Company, of Montana. Filed Mar. 19, 1892. Serial No. 425,646. (No model.)



Claim.—1. In a furnace, the combination of a revolving cylinder, a fire place at the receiving end thereof, and a chimney at the other end, with a gas combustion chamber located outside of the chimney, and a perforated wall facing the discharge end of the cylinder and arranged between it and the chimney, substantially as described.

2. In a revolving cylinder furnace, the combination with the inner shell A. of an outer shell B., having flanged sections with opposing flanged offsets *d.*, immovable ring *g*, with inserted water-pipe *g'*, and end rings *b*, the whole being fitted and arranged and operating substantially as herein shown and described, and forming a water jacket or space for the purpose set forth.

3. In a water jacketed, revolving furnace, the combination with the outer shell provided with a water-discharge opening, of a grooved ring encircling said shell and having an orifice coinciding with the discharge opening thereof, constructed and arranged substantially as and for the purpose described.

4. In a furnace adapted for the cremation of city refuse, the combination with a perforated wall arranged between the furnace and the stack thereof, of an imperforate damper arranged to open the perforations successively from the bottom upward, substantially as described.

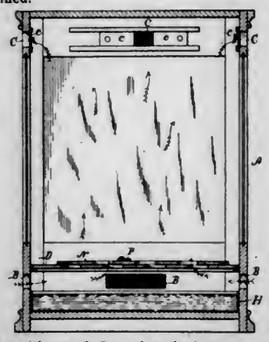
5. The combination with a furnace adapted for the cremation of city refuse of a gas combustion chamber, at and about the discharge end thereof, constructed with a perforated front wall; a pit in the bottom of said chamber for the reception of the discharged contents of the furnace; a fire place between said pit and the smoke stack, and a flue for the passage of the gases into said stack; all located, constructed and arranged substantially as set forth.

6. In a system designed for the cremation of city refuse, the combination with a revolving furnace of a fireplace at the receiving end thereof; a feed hopper provided with a gravity-operating door; a gas combustion chamber having one wall perforated for the passage of the furnace gases into the stack; a receiving pit and fire place in said chamber, and a flue between it and the stack: the parts being constructed, arranged and located relatively to each other, as herein shown, and for the purposes set forth.

518,286. PRESERVING-CASE. HENRY D. STRATOR, Galesburg, Mich. Filed May 22, 1893. Serial No. 475,175. (No model.)

Claim.—1. In a case with a water tank below and ventilating openings above, the bottom D with openings there through in combination with slide N, operated by lever P, pivoted at *r* and the arm *j* operated by hand wheel E to control the size of the openings, substantially as described.

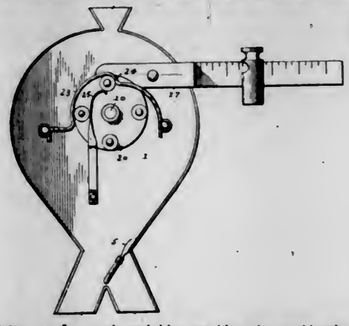
2. A case with a water tank at the bottom, openings in the sides of the case near the water line of the tank, openings in the upper part of the case, and a partition with adjustable openings between for the purpose specified.



3. A case with a tank formed at the bottom, a removable horizontal partition above, closable openings in the partition, openings in the case below the partition to permit a circulation of air over the tank, and openings above the partition to permit the escape of air to cause a circulation in the case, for the purpose specified.

4. A case for preserving articles of the class described, composed of a chamber above with ventilator openings in the top and closable openings in the bottom and suitable means of retaining water in the case below the bottom of the upper chamber, and openings for the passage of air below the floor of the upper chamber and over the water retaining device, for the purpose specified.

518,287. ROTATING GRAIN-WEIGHER. JOSEPH SUDBROCK, Jr., Belleville, Ill. Filed June 29, 1893. Serial No. 479,159. (No model.)

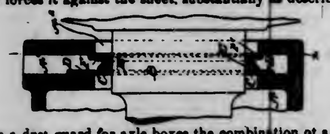


Claim.—1. In a grain-weighing machine, the combination with a casing provided with an inlet hopper, and suitable discharge chutes, of a scale-beam fulcrumed upon the casing and provided with a counterpoise, a revoluble receiver arranged within the casing and having its shaft mounted in bearings depending from said scale-beam, a disk fixed to the shaft of the receiver and provided with spaced stop-pins corresponding in number with the compartments of the receiver, a curved guide provided with a stop-shoulder to engage one of said stop-pins when the receiver is elevated by the counterpoise, and a brake-spring corresponding in curvature with said guide, terminating adjacent to the stop-shoulder, and spaced at such an interval from the guide as to engage a stop-pin as it approaches the stop-shoulder and check the movement of the receiver by frictional contact with said pin, substantially as specified.

2. In a grain-weighing machine, the combination with a casing provided with a hopper and discharge chutes, a scale-beam provided with a counterpoise, a revoluble receiver suspended from one member of the scale-beam, and a disk affixed to the shaft of the receiver and provided with spaced stop-pins corresponding in number with the compartments of the receiver, of a curved guide provided with a stop-shoulder, and a coacting brake-spring arranged to hold a stop-pin in contact with the guide until it reaches said stop-shoulder, substantially as specified.

518,288. DUST-GUARD FOR AXLE-BOXES. THOMAS H. SYMINGTON, Baltimore, Md. Filed Aug. 5, 1893. Serial No. 482,487. (No model.)

Claim.—1. In a dust guard the combination of a sheet of suitable material having a central opening and having sufficient strength to resist the pressure of a spring upon it and of size larger than the aperture in the rear side of the axle box, a severed dust guard ring made of indurated fiber or other suitable material having its rear surface beveled, and a spring within the dust guard well which encircles the ring and contracts upon the inclined rear surface of the dust guard ring and forces it against the sheet, substantially as described.



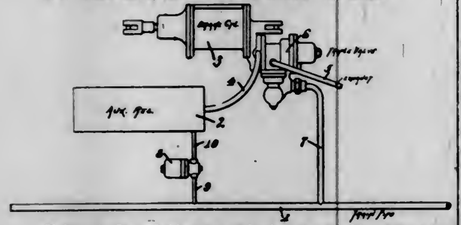
2. In a dust guard for axle boxes the combination of a sheet of felt having a hole in the middle, a plate of similar shape bearing against said sheet, a severed dust guard ring bearing against the said plate and having its rear surface beveled, and a spring located within the dust guard well encircling the ring and contracting upon the rear beveled surface of the dust guard ring to press it upon the axle and the plate and felt sheet as and for the purpose specified.

3. In a dust guard for axle boxes the combination of a sheet of felt having a hole in the middle a plate of similar shape next to the sheet of felt, a dust guard ring bearing against the said plate and having its rear surface beveled, said ring being severed and its ends overlapping one another, and a spring located within the dust guard well and encircling the ring and contracting upon the rear beveled surface of the dust guard ring to press it upon the plate and the felt sheet and also to contract it upon the axle.

4. In a dust guard for axle boxes a severed dust guard ring made of suitable material and surrounding the axle and having overlapping ends and beveled on one of its exterior surfaces in combination with a spring encircling the ring and pressing upon said beveled surface, and thereby forcing said ring in two directions, against a seat on the interior of the dust guard well and contracting it upon the axle, substantially as described.

5. In a dust guard for axle boxes the combination of a dust guard ring with a spiral spring one end of which is coiled into a circle of the size of the ring and the other end coiled in a square larger than the opening in the axle box and of a size to prevent its turning in the dust guard well.

518,289. FLUID-BRAKE VALVE. HARRIS TABOR, Elizabeth, N. J. Filed Jan. 8, 1892. Serial No. 417,362. (No model.)



Claim.—1. In a fluid pressure brake, the combination with a train-pipe, auxiliary reservoir, brake cylinder, and triple valve, of a direct or straight air passage from the train pipe to the brake cylinder, independent of the emergency passage, a supplemental or conversion valve, normally closed by fluid pressure, and automatically controlling the admission of air through said direct passage from the train pipe to the brake cylinder, and means substantially as described by which a fall in the fluid pressure below a determinate point opens said supplemental valve, and converts the operation from automatic to direct.

2. In a fluid pressure brake, the combination with a train pipe, auxiliary reservoir, brake cylinder and triple valve, of a passage between the train pipe and auxiliary reservoir independent of the charging passage, a supplemental or conversion valve controlling said passage and normally closed by fluid pressure and means substantially as described by which a fall in the fluid pressure below a determinate point opens said supplemental valve and converts the operation from automatic to direct.

3. In a fluid pressure brake, the combination with a train pipe, auxiliary reservoir, brake cylinder and triple valve, of a direct or straight air passage between the train pipe and the brake cylinder, independent of the emergency passage, a supplemental or conversion valve controlling said passage, a movable abutment exposed to fluid pressure normally closing said supplemental valve, and a load to open the valve upon a fall in the fluid pressure below a determinate point, whereby the operation is changed from automatic to direct.

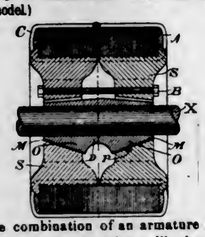
4. In a fluid pressure brake, the combination with a train pipe, auxiliary reservoir, brake cylinder and triple valve, of a supplemental or conversion valve, normally closed by auxiliary reservoir pressure for automatically controlling the admission of air directly from the train pipe to the brake cylinder, and means substantially as described, by which a fall in reservoir pressure, below a determinate point opens said supplemental valve and converts the operation from automatic to direct.

5. In a fluid pressure brake, the combination with a train pipe, auxiliary reservoir, brake cylinder, and triple valve of a passage between the train pipe and auxiliary reservoir, independent of the charging passage, a supplemental or conversion valve controlling said passage and normally closed by auxiliary reservoir pressure, and means substantially as described, by which a fall in reservoir pressure, below a determinate point opens said supplemental valve and converts the operation from automatic to direct.

6. The combination, substantially as set forth, with a train-pipe, an auxiliary reservoir, and a brake motor or cylinder, having pipe and valve connections, of a secondary feed passage between the train-pipe and the auxiliary reservoir, a valve in said passage held closed by normal pressure in the passage, and a load, as a spring, to open said valve in case the pressure in said passage becomes abnormally low.

7. The combination with the train-pipe, brake motor or cylinder, auxiliary reservoir, and valve, of a fluid pressure automatic brake apparatus, of a supplementary pipe-connection between the train-pipe and auxiliary reservoir, a valve in said connection opening toward the auxiliary reservoir, a movable abutment connected to the valve and exposed to the fluid pressure in the pipe connection to close the valve, and a load, as a spring or equivalent, tending to open the valve.

518,290. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. ELIHU THOMSON, Swampscott, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Jan. 19, 1892. Serial No. 418,568. (No model.)



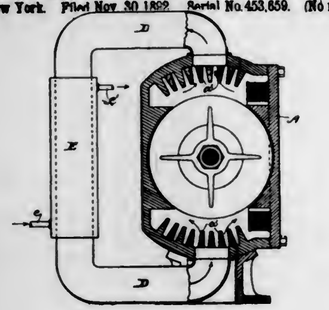
Claim.—1. The combination of an armature shaft having flat-faced ribs or arms forming a triangular or like irregular shaped hub for the armature, with the spider having corresponding flat faces parallel with those on the ribs and strips or layers of indestructible insulating material disposed between the meeting faces, as set forth.

2. An armature shaft having a hub keyed or secured thereto, and provided with projecting wings forming a non-circular bearing, in combination with an annular armature having a supporting spider shaped to fit the hub and thereby attached to the shaft, as set forth.

3. An armature shaft having a hub secured thereto with flat faces tapering in a direction parallel to the shaft, in combination with the separable two-part spider shaped to fit the hub, and thereby attached to the shaft, as set forth.

4. An armature shaft having a hub secured thereto tapering reversely in a direction parallel to the shaft, in combination with a two-part spider fitting the hub and thereby secured to the shaft, and insulating material between the spider and hub, as set forth.

518,291. MODE OF COOLING ELECTRIC MOTORS. ELIHU THOMSON, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed Nov. 30, 1892. Serial No. 453,659. (No model.)



Claim.—The combination of an electric motor, a closed casing therefor provided with projecting studs or lugs adapted to increase its radiating surface, a pipe communicating with such casing, and a water jacket surrounding a portion of the pipe, all arranged, substantially as set out herein, to provide a waterproof inclosing casing for an electric motor, adapted to dissipate the heat generated therein.

518,292. MOLD FOR WATER-TANKS. HERBERT F. TICKNER and ALBERT BUTLER, Mason, Mich. Filed Nov. 7, 1893. Serial No. 490,303. (No model.)

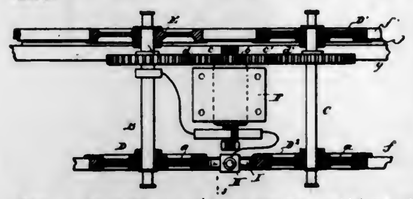


Claim.—1. A mold for tanks comprising an outer frame consisting of similar sides provided at their ends with recesses forming upper and lower extensions 9, ends recessed at their upper and lower edges and forming intermediate extensions 10 interlocked with those of the sides, and pins passing through the extensions of the sides and engaging the outer faces of the ends and others passing through the extensions of the ends and engaging the outer faces of the sides, whereby the sides and ends are detachably connected, substantially as described.

2. A mold, comprising an outer separable frame, and an inner frame consisting of two separable sections provided with oppositely disposed partition pieces and having inclined sides with rounded bottoms secured to the partition pieces, the longitudinal bars arranged at the meeting edges of the bottoms of the sides and bearing against each other, and the rectangular clips securing the longitudinal bars together, substantially as described.

3. A mold comprising an outer separable frame, an inner frame having its upper edges flush with those of the outer frame, and consisting of two separable sections provided with oppositely disposed partition pieces and having at the meeting edges of their bottoms longitudinal bars and wedges interposed between the partition pieces, rectangular clips engaging the longitudinal bars and locking the latter together, and transverse bars detachably secured to the upper edges of the inner and outer frames, substantially as described.

518,293. ELECTRIC-RAILWAY SYSTEM. CHARLES D. TISDALE, Boston, Mass., assignor, by direct and mesne assignments, of five-sixths to John D. Gould, New York, N. Y., and Charles Healey and James E. Jenkins, Lynn, Mass. Filed Apr. 26, 1893. Serial No. 471,892. (No model.)

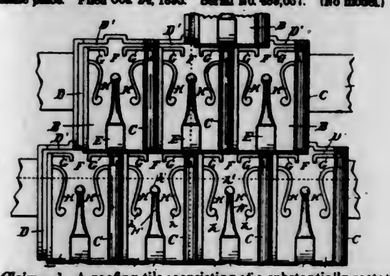


Claim.—1. In an electric railway system, the combination with a truck provided with three insulating wheels, two upon one side of the truck and one upon the other, of a motor mounted on the truck, and a trolley wheel arranged upon the side of the truck having two insulating wheels and arranged to form an electrical contact with the rail upon the side of the track supporting the two insulating wheels, substantially as specified.

2. In an electric railway system, the combination with the railway track, of a continuous longitudinally grooved timber, and a continuous elastic conducting strip inserted in the groove of the timber and lying in the path of the flange of the car wheel, the said elastic conducting strip being constructed for continuous contact with the car wheel, substantially as specified.

3. In an electric railway system, the combination of a track formed of the rails *f*, *f'*, the timber *g* having a V-shaped groove, the elastic conductor J inserted in the groove, a truck provided with the metallic car wheel E and with the insulating car wheels D, D', D², the motor F mounted on the truck, and the spring-pressed contact wheel I, carried by the truck, substantially as specified.

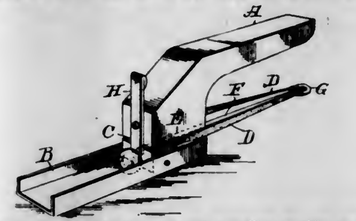
518,294. ROOFING-TILE. JOHN VERN and FERDINAND A. DORNBERG, Grand Rapids, Mich.; said Dornberg assignor to Joe Vander Molen, same place. Filed Oct. 24, 1893. Serial No. 489,037. (No model.)



Claim.—1. A roofing tile, consisting of a substantially rectangular plate; having a semicylindrical side and a groove at its other side, a downwardly turned lower end formed with a notch, a transverse rib near its upper end formed with a middle opening, inwardly and downwardly extending side ribs, a raised middle part extending into the space between said ribs, and lugs on its under side, substantially as shown and described.

2. As an improved article of manufacture, a roofing tile consisting of a substantially rectangular plate, constructed with a groove at one side, a semi cylindrical opposite side, a downwardly turned lower end formed with a notch, a transverse rib near its upper end formed with a middle opening, downwardly extending curved side ribs, a raised middle part with its upper end wedge shaped and terminating in an enlargement situated between said side ribs, and lugs on its under side, all substantially as described and for the purposes set forth.

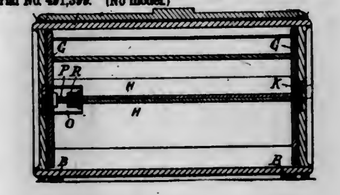
518,295. MARBLE-SHOOTING TOY. ELIZABETH M. VELSOR, Brooklyn, N. Y. Filed Mar. 15, 1893. Serial No. 466,104. (No model.)



Claim.—1. A toy for shooting and propelling marbles consisting of a trough forming the lowermost portion of the toy, said trough constructed and adapted to rest flat upon the surface upon which the game is played, a handle secured to the trough and projecting above the latter a sufficient distance to allow space for the operator's fingers between it and the plane in which the trough is located, a spring actuated propelling rod located in rear of trough in position to force the marble forward, and a stop or trigger for controlling the rod, substantially as set forth.

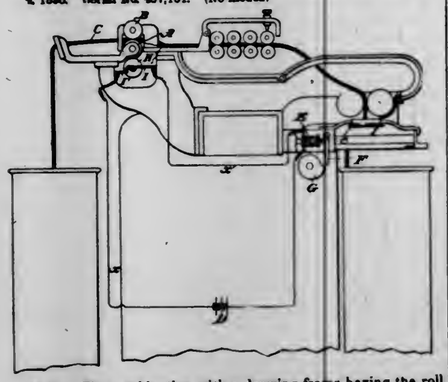
2. A toy for shooting or propelling marbles consisting of a trough forming the lowermost portion of the toy, said trough constructed and adapted to rest flat upon the surface upon which the game is played, a handle secured to the trough and projecting upward therefrom and thence rearwardly to allow space between it and the lowermost surface of the toy for the operator's fingers, a spring actuated rod having sliding connection with the lower end of the handle in a plane parallel with the trough, and a stop or trigger pivoted to the handle in position to engage and hold the rod in readiness to propel the marble, substantially as set forth.

518,296. TOOL-CHEST. JEPTHY L. WAGGONER, Columbus, and WILLIAM T. CARMICHAEL, Wallesborough, Ind. Filed Nov. 20, 1893. Serial No. 491,399. (No model.)



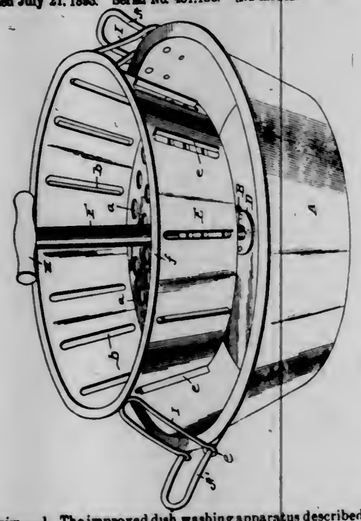
Claim.—In a tool-chest, the combination with the cylindrical casing having closed ends and an opening in its side, and the tool-receptacle pivotally mounted within said casing so as to revolve therein, of the tension-bolt mounted at one end of the tool-receptacle and arranged to extend said tool-receptacle longitudinally, substantially as and for the purpose set forth.

518,297. ELECTRIC STOP-MOTION. JOHN WEIR, Fall River, Mass., assignor of one-half to James Monaghan, same place. Filed Oct. 4, 1893. Serial No. 487,181. (No model.)



Claim.—The combination with a drawing frame having the roll A, of the roller H adjacent thereto, a spring arm I supporting said roller, an arm I' normally out of contact with the arm I, and an electric stop motion having the terminals of its circuit connected with the arms I, I', substantially as described.

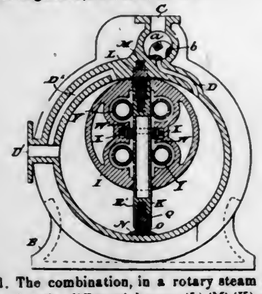
518,298. DISH-CLEANER. FRANCIS H. WEST, Portland, Oreg. Filed July 21, 1893. Serial No. 481,136. (No model.)



Claim.—1. The improved dish washing apparatus described, comprising the pan, having the externally threaded stud rising from the center of the bottom thereof, the hollow post B, internally threaded at its lower end and engaging said stud, the dish receptacle E, having slotted sides carrying flanges, and a perforated bottom with a central hole, the collar G, arranged in said hole, and secured to the dish receptacle, the socket F, having the handle at its upper end, and secured to the dish receptacle at its lower end, and adapted to turn around the hollow post B, whereby said receptacle may be rotated and moved vertically within the pan and the receptacle and hollow post removed from the pan altogether when desired, substantially as specified.

2. The improved dish washing apparatus described, comprising the pan having the externally threaded stud rising from the center of the bottom thereof, the hollow post B, internally threaded at its lower end and engaging said stud, the dish receptacle E, having the perforated bottom and the slotted sides carrying flanges, and the hollow post or socket receiving the post of the pan and having a handle at its upper end, all constructed to operate, substantially as and for the purpose set forth.

518,299. ROTARY STEAM-ENGINE. HARRY WILLIAMS, Richmond, and THOMAS L. FISHER, Hawthorn, Victoria. Filed Oct. 7, 1893. Serial No. 487,466. (No model.) Patented in Victoria Feb. 2, 1892. No. 9,430, and in England Apr. 25, 1892, No. 7,767.



Claim.—1. The combination, in a rotary steam engine, of the cylinder (A) having the differential curve (L) (M) (K) and the arc (K) (G) (L) formed as the bore contour, the drum (S) with anti friction rollers (Y), shafts (J) and (J), springs (X) and (X) the sliding piston (K) having at its sides and faces the steam-tight band (W) and (W), with springs (R') (R') and (R^2), and at the ends the intermediate pieces (Q), and hinged blocks (N), metal strips (Z) and (Z) and springs (Z') substantially as hereinbefore described and as illustrated in our drawings.

2. In a rotary steam engine, the combination of the cylinder (A) having the steam inlet (C) (D) and exhaust passages (D') and (D^2) situated for the expansive working of one induction of steam and the admission of a second induction of steam prior to the opening of the exhaust, the drum (S) in which is contained the sliding piston (K) between antifriction rollers (Y) and having at its sides the steam-tight band (W) and (W), springs (R') (R') and (R^2), and at the ends the intermediate pieces (Q) and hinged blocks (N), substantially as hereinbefore described and as illustrated in our drawings.

3. The combination in a rotary steam engine, of the drum (S) eccentrically arranged within the cylinder (A) the gun metal strip (L) secured in the top of the cylinder bore, springs (M), the flat sliding piston (K) and anti-friction rollers (Y), steam tight band (W) and (W) and springs (R') (R') and (R^2), and having at its ends the flanges or disk (T) provided with shafts (J) and (J) arranged through end covers (E) and (F) substantially as hereinbefore described and as illustrated in our drawings.

518,300. WINDMILL. AREY V. WINEGARDEN, Anthony, Kans. Filed June 13, 1893. Serial No. 477,469. (No model.)

Claim.—1. In a wind mill, the combination of a vertically disposed rotating standard, a vertically adjustable frame slidingly mounted thereon, wind wheels mounted on the frame, a vertical shaft journaled in suitable bearings of and rotating with the standard, and gearing connecting the wind wheels together and with the shaft, substantially as described.

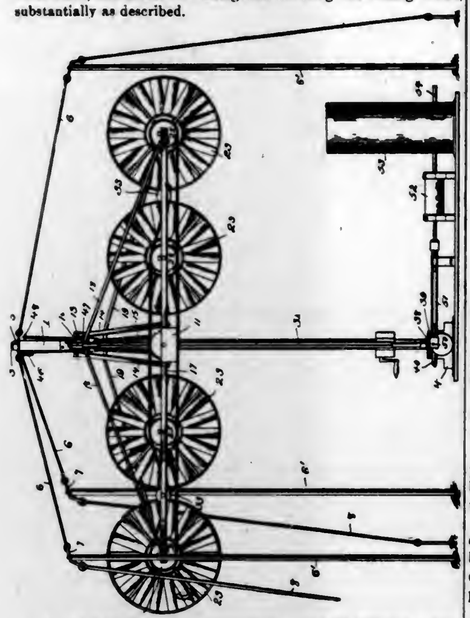
2. In a wind mill, the combination of a vertically disposed rotating standard, a horizontal frame mounted on the standard, wind wheels carried by the frame, a vertical shaft journaled in suitable bearings of the standard, gearing connecting the wind wheels with the shaft, a pinion secured to and carried by the vertical shaft, a cog wheel loosely journaled on the standard and meshing with the pinion of the vertical shaft, and gearing for transmitting motion from the cog wheel, substantially as described.

3. In a wind mill, the combination of a vertically disposed rotating standard, a horizontal frame mounted on the standard, wind wheels carried by the frame, a vertical shaft journaled in suitable bearings of the standard, gearing connecting the wind wheels with the shaft, a pinion secured to and carried by the vertical shaft, a cog wheel loosely journaled on the standard and meshing with the pinion of the vertical shaft, a gear wheel secured to and rotating with the cog wheel, a drive shaft, and a pinion mounted on the drive shaft and meshing with the gear wheel, substantially as described.

4. In a wind mill, the combination of a vertically disposed rotatable standard, a sliding frame mounted on the standard, a wind wheel mounted on the frame, gearing for transmitting motion from the wind-wheel, and a hoisting rope for raising and lowering the sliding frame, substantially as described.

5. In a wind mill, the combination of a rotating standard polygonal in cross-section, a vertically movable frame slidingly mounted

thereon and rotating therewith, a vertically disposed shaft journaled in suitable bearings of the standard and being polygonal in cross-section, a gear wheel journaled on the frame and having an opening receiving the vertical shaft and conforming to the configuration of the same, a transverse shaft journaled on the frame and carrying a gear wheel meshing with said gear wheel, wind wheels mounted on the frame, gearing for connecting the wind wheels with the transverse shaft, and means for raising and lowering the sliding frame, substantially as described.



6. In a wind mill, the combination of a rotating standard, a horizontal frame slidingly mounted thereon, and provided with a pulley, wind wheels mounted on the frame, gearing connected with the wind wheels for communicating motion therefrom, a pulley arranged at the top of the standard, a windlass arranged at the base of the same, and a hoisting rope having one end secured to the standard at the top thereof and passing under the pulley of the frame and over the pulley of the standard and extending down to and connected with the windlass, substantially as described.

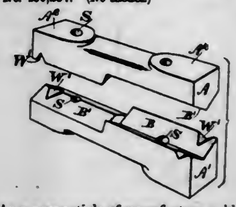
7. In a wind mill, the combination of a rotating standard, a sleeve slidingly mounted on the same and provided at its top with lugs extending from opposite sides of the standard, upper and lower brackets secured to the sleeve, parallel side bars secured to the lower bracket and forming a frame, the crossed braces arranged at an inclination and extending from the lower bracket to the outer end of the upper bracket and to said lugs, the longitudinally disposed brace rods, wind wheels mounted on the frame, and gearing for transmitting motion from the wind wheels, substantially as described.

8 In a wind mill, the combination of a rotating standard, a vertically sliding frame mounted thereon, wind wheels mounted on the frame, gearing for transmitting motion from the wind wheel, a head having the upper end of the standard journaled in it, uprights, plates secured to the upper ends of the uprights, and brace rods 6 and 8 having their adjacent ends connected to said plates, the brace rods 6 extending from the uprights to said head, and the other brace rods extending downward from the uprights and designed to be anchored in the ground, substantially as described.

9 In a wind mill, the combination of a rotating standard, a vertical shaft polygonal in cross-section journaled in suitable bearings of the standard and carried by the same, a frame slidingly mounted on the standard, a transverse shaft journaled in suitable bearings of the frame, beveled gear wheels 30 and 31 connecting the transverse shaft with the vertical shaft, the gear wheel 31 having an opening loosely receiving the shaft and adapted to slide thereon with the movement of the frame, a cog wheel journaled on the standard and rotating independently thereof, a pinion fixed to the vertical shaft and meshing with the cog wheel, a gear wheel secured to the cog wheel, and a drive shaft carrying a pinion meshing with the last mentioned gear wheel, substantially as described.

10. In a wind mill, the combination of a rotating standard, a vertical shaft journaled thereon and carried thereby, a horizontal frame slidingly mounted on the standard, a transverse shaft journaled on the frame, beveled gearing connecting the transverse shaft and the vertical shaft, sprocket wheels mounted on the transverse shaft, wind wheels mounted on the frame and provided with sprocket wheels, sprocket chains connecting the wind wheels together and with the transverse shaft and arranged on said sprocket wheels, and pulleys located above and engaging the upper portions of the sprocket chains which connect the wind wheels, substantially as described.

518,301. CEILING-CLEAT. HERBERT C. WIRT, Boston, Mass., assignor to the General Electric Company, same place. Filed Oct. 27, 1893. Serial No. 489,257. (No model.)



Claim.—1. As a new article of manufacture, a block for a ceiling cleat having at one end a wedge-shaped convex bearing and at the other end a wedge shaped concave bearing.

2. As a new article of manufacture, a block for a ceiling cleat having at one end a convex bearing and at the other end a concave bearing with a transverse wire groove in each bearing.

3. As a new article of manufacture, a block for a ceiling cleat having at one end a convex and at the other end a concave bearing with a transverse dove-tailed wire groove and a screw hole in each.

4. As a new article of manufacture, a ceiling cleat formed of two parts, as A, A', having bearing surfaces as A^3, and other wedge shaped bearing surfaces, B, B', provided with cut-away portions, W', adapted to contain an insulated wire.

5. As a new article of manufacture, a block for a ceiling cleat comprising external bearing surfaces, as A^3, and internal wedge-shaped bearing surfaces, as B, B', each of such bearing surfaces occupying one half the internal surface of the block and provided with cut-away portions, as W', adapted to contain an insulated wire.

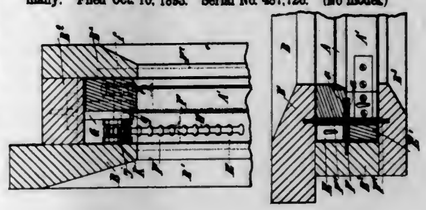
518,302. AIR-PUMP. ADRIAN WOLFF and THEOPHILUS R. HYDE, Jr., Waterbury, Conn., assignors to the Scovill Manufacturing Company, of Connecticut. Filed Feb. 9, 1893. Serial No. 461,573. (No model.)



Claim.—1. In an air pump the combination with a cylinder, of a piston provided with a cut out portion b^4 for the conical valve D, said cut out portion being provided with stops d between which an air passage is formed and against which the valve D rests when opened by the air, of a spring b^3 to return said valve to its seat c, said seat being retained by a perforated screw threaded plug E substantially as described.

2. In an air pump the combination with a cylinder, of a piston provided with a cut out portion b^4 for the conical valve D, said cut out portion being provided with stops d between which an air passage is formed and against which the valve D rests when opened by the air, and a seat c against which the valve rests when closed, said seat being retained by a perforated screw threaded plug E, substantially as described.

518,303. SLIDE-WINDOW. MARTIN ZENNER, Stockingen, Germany. Filed Oct. 10, 1893. Serial No. 487,726. (No model.)

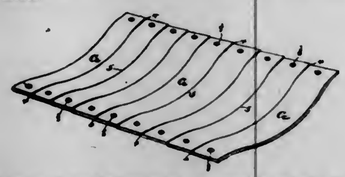


Claim.—1. In combination, the window frame comprising the fixed portions B^2, B^3 and the removable portion B', the guiding rails F F' F^3 arranged at right angles to each other to divide the space into four guide ways for the sash and counterweights, one of said rails (F) being held removably by the rigid frame section while the rails F' and F^3 are fixed to the removable and fixed frame parts B' and B^3 respectively, substantially as described.

2. In combination, the window frame, the sash guided therein, the guide rail F extending between the sash, the counter weight, the connection therefrom to the sash, the pulley and the carrier G therefor having a notch *g* for receiving the upper edge of the guide rail, substantially as described.

3. In combination, the frame, having rail F^3 forming part of the weight box, the sash movable in the frame, the counterweight, the connection therefrom to the sash, the pulley for said connection, the carrier G for the pulley, the pivot pin passing loosely through the carrier and bearing at one end against the rail F^3 of the frame, and the removable frame or band B' bearing at the other end against the other end of the pin, substantially as described.

518,304. SHEET OF METALLIC SHOE-SHANKS. GEORGE D. BARTLETT, Plymouth, Mass. Filed Jan. 20, 1892. Serial No. 418,641. (No model.)

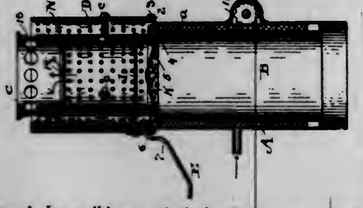


Claim.—1. A sheet of arched strips severed from one another at the middle and attached at the ends, substantially as described.

2. A sheet of arched strips severed from one another at the middle and attached at the ends and hardened substantially as described.

3. A sheet of arched strips severed from one another at the middle and attached at the ends, with the attaching portions indented or compressed, substantially as described.

518,305. HYDROCARBON-BURNER. ATWELL J. BLACKFORD, Medina, Ohio, assignor of one-half to the Durand Manufacturing Company, same place. Filed Mar. 10, 1893. Serial No. 465,402. (No model.)



Claim.—1. In an oil burner, the body of the burner constructed for a wick, the combustion tubes connected together and free to rotate on the burner, and a single projection on the outer tube forming a pivot on which to tilt said tubes to light the burner, and continued outwardly from the tubes to constitute a handle for rotating said tubes, substantially as described.

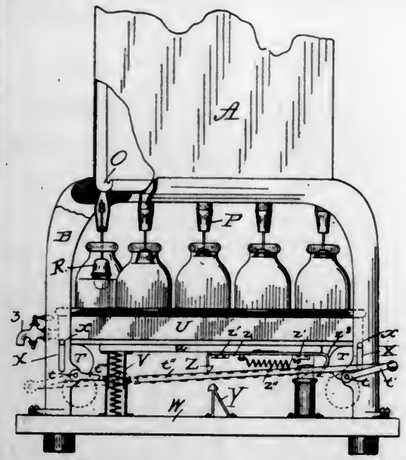
2. The burner, and connected inner and outer perforated combustion tubes having a chamber between them, the inner tube being provided with a diaphragm in its upper end having a central air opening or passage and the said inner tube extending above the outer tube and having a series of large openings about its top above said diaphragm, said inner tube being imperforate between said diaphragm and said openings, substantially as described.

3. The burner described having a pair of perforated combustion walls and two perforated diaphragms spanning the interior of the burner and arranged respectively in about the plane of the base of flame and some distance above such base and forming a cooling and air collecting chamber between them, substantially as described.

518,306. MACHINE FOR BOTTLING MILK. WILLIAM A. CLARK, Toronto, Canada. Filed May 5, 1893. Serial No. 473,121. (No model.)

Claim.—1. In combination with a receptacle containing the milk a series of bottles beneath, a series of openings in the bottom of said milk receptacle, spouts leading from each of said openings, floats in each of said bottles, stems connected to said floats and stoppers within the spouts connected to the opposite end of said stems, substantially as described.

2. In an apparatus such as specified, the combination with the channel and spouts and stoppers for each spout, of a pan or receptacle, U, for supporting the bottles and adjusting rollers T, the spindles, *t*, and the cranks, connected together by the rod, *t'*, as and for the purpose specified.



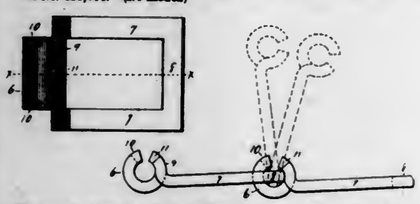
3. In an apparatus such as specified, the combination with the channel and spouts and stoppers for each spout, of a pan or receptacle, U, for supporting the bottles and adjusting rollers T, the spindles, *t*, the cranks, the rod, *t'*, and the spiral spring, *v*, extending between the bottom board of the pan, U, and the base board, W, as and for the purpose specified.

4. In an apparatus such as specified, the combination with the channel and spouts and stoppers for each spout, of a pan or receptacle, U, for supporting the bottles and adjusting rollers, T, the spindles *t*, crank *t'* the rod, *t''*, the spiral springs, and the telescopic standards, V, surrounding the springs as and for the purpose specified.

5. In combination with the milk filling apparatus of a pan or receptacle U, the pins *x* extending into slots, the adjusting rollers T, spindles *t*, cranks *t'*, the rods *t''*, springs *v*, telescopic standards V and means for securing the pan in position when lowered, substantially as described.

6. In combination, a pan U, the pins *x* extending into slots, spindles *t*, crank *t'* the rods *t''*, springs *v*, telescopic standards V, the spring catch Z the catch Y, the roller T and the cam arm x^3, substantially as described.

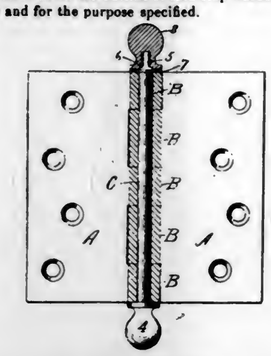
518,307. DRIVE CHAIN. THOMAS CORSCADEN, New Britain, Conn., assignor to the Stanley Works, same place. Filed Jan. 21, 1892. Serial No. 418,768. (No model.)



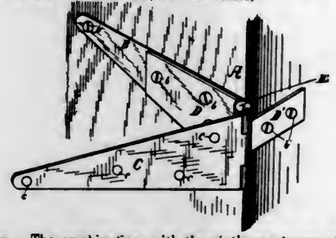
Claim.—A sheet metal chain link, having a flattened end cross bar, side bars, connecting web and hook, with lugs 10 at the outer corners of said hook and the lug 11 on said connecting web at a point between said lugs 10, the width of the slot between the edges of the hook and web measured in the direction of the link's length being less than the width of said cross bar and fully equal to its thickness, substantially as described and for the purpose specified.

518,308. HINGE. THOMAS CORSCADEN, New Britain, Conn., assignor to the Stanley Works, same place. Filed Aug. 21, 1893. Serial No. 483,597. (No model.)

Claim.—The herein described removable pintle hinge, the same consisting of the leaves and knuckles secured together by the pintle C, said pintle having at one end a threaded projection and angular portion, the stop washer 7 fitted to said angular portion and the ornamental tip 8 screwed on the outside of said stop washer, substantially as described and for the purpose specified.

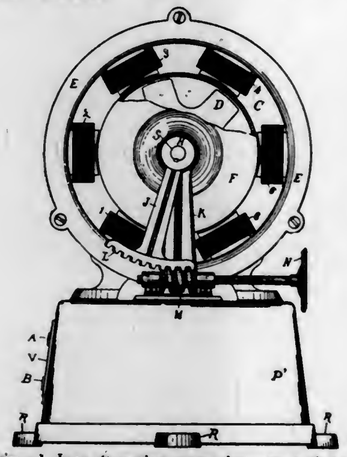


518,309. HINGE. WILLIAM R. DENING, Bentonville, Ark. Filed Sept. 16, 1893. Serial No. 485,698. (No model.)



Claim.—The combination, with the pintle and leaves of a strap hinge, one of which leaves is cut away opposite to the knuckle or eye of the other leaf, so as to leave a slot when such knuckle or eye is placed in position, of an independent and removable reinforcing piece bent at a right angle to form two plates, of which one overlies the said cut away leaf, and the other is adapted to pass through said slot, and both are adapted to be secured to adjacent sides of a gate post or door jamb, substantially as described.

518,310. UNIVERSAL-PHASE ALTERNATE-CURRENT MOTOR. THOMAS DUNCAN, Fort Wayne, Ind. Filed May 22, 1893. Serial No. 475,087. (No model.)



Claim.—1. In an alternating current electro magnetic motive device, the combination of a laminated field having its polar projections facing inward at an angle, as shown, and a closed secondary or armature, all substantially as set forth and described.

2. In a universal phase motor, the combination of a laminated iron field having polar projections with suitable coils wound thereon for the purpose set forth, a closed armature of low resistance and a magnetic path diverter for regulating the direction of the magnetic flux through the armature, substantially as described.

3. The combination in an electro-magnetic motor for single or multiphase alternating currents, of a field magnet adapted to be connected with said currents a closed rotary armature, a magnetic path diverter and the adjusting lever all substantially as and for the purpose set forth.

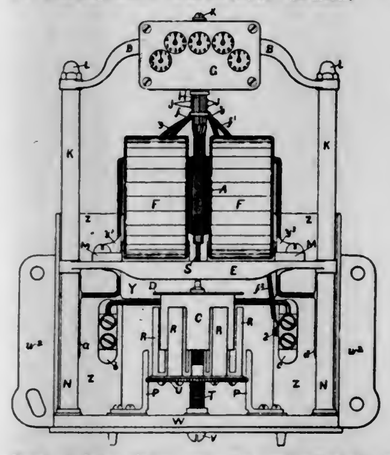
4. In a universal phase alternating current motor, the combination of an energizing field magnet *e*, a closed cylindrical secondary or armature C, the bearing heads F supporting said armature, and the adjusting shaft S on which the said mandrel heads are adapted to rotate, all substantially as described.

5. In a universal phase motor, the combination of the field magnet *e*, the armature C, the bearing heads F, the diverter D, the lever J. H L, the worm gear M, the adjusting shaft S, and the plug or switch board V, all as described and hereinbefore set forth.

6. In an electric motor for single and polyphase currents, the combination of a laminated field having its polar projections facing the armature at an angle, and provided with suitable coils located in the circuit or circuits of the supply, and a laminated diverter for varying the speed and direction of rotation, all substantially as described.

7. In an electric motor for single and polyphase currents the combination of a laminated field having its polar projections facing the armature at an angle, and provided with suitable coils located in the circuit or circuits of the supply, a laminated diverter for varying the speed and direction of rotation and the terminals plugs or switch board as herein set forth and described.

518,311. ELECTRIC METER. THOMAS DUNCAN, Fort Wayne, Ind. Filed Aug. 2, 1893. Serial No. 482,220. (No model.)



Claim.—1. In an electric meter, the combination of a motor driven by the energy to be measured and a Foucault current drag or brake, consisting of the closed armature C, D, supported upon the shaft *s* and revoluble between the vertical poles or limbs of the micrometric adjustable magnets R, as and for the purpose herein set forth and described.

2. In an electric meter, the combination of a motor driven by the energy to be recorded, and a micrometric Foucault current drag or brake consisting of the vertically adjustable armature C, D, supported upon the motor armature shaft *s* and revoluble between the poles or limbs of the magnets R, as and for the purpose set forth and described.

3. In an electric meter, the combination of a motor driven by the energy to be recorded, and a drag or brake armature consisting of a disk and cylinder combination revoluble in a field of force established by the vertically adjustable magnets R, as and for the purpose herein set forth and described.

4. In an electric meter, the combination of a motor driven by the energy to be measured and a compound drag or brake armature revoluble with the motor spindle and within a constant field of force established by the vertically adjustable magnets R, as and for the purpose herein set forth.

5. In an electric meter, the combination of a motor whose series fields are connected in the work circuit and representing the current flow in ampères, and its armature circuit connected in multiple arc upon the mains of the supply system, and representing the electro-motive force in volts between said mains of said system, and a condenser shunted around or connected to the terminals of said armature circuit, as and for the purpose set forth and described.

6. In an electric meter, the combination of a motor whose series field coils are connected in the work circuit and representing the current flow in ampères, and its armature circuit connected in multiple arc upon the mains of the supply system and representing the electromotive force in volts between said mains of said system, a condenser shunted around and connected to the terminals of the circuit or circuits containing self-induction, and a Foucault current drag consisting of a closed conductor moving through a constant field of force as and for the purpose herein described.

7. In an electric meter, the combination of a motor operated by the energy to be recorded, a condenser, a retarding device consisting of a closed conductor capable of rotation between the poles of one or more vertical magnets which are adjustable micrometrically, and a registering train, all substantially as set forth and described.

8. In an electric meter, the combination of a motor driven by the energy to be measured, a condenser, a retarding device consisting of a closed conductor capable of rotation between the poles of one or more vertical magnets which are adjustable micrometrically and the clamping devices P, P, which hold said magnets in position when the requisite retardation is obtained, all substantially as described.

9. In an electric meter consisting of a motor driven by the energy to be recorded, the combination of the herein described retarding device, a condenser shunted around the terminals of the volt circuit, the disk U holding the retarding magnets R, and adjustable upon a center coaxial with the limbs or poles of said magnets, and the supporting post T on which said disk and magnets are micrometrically adjusted to any vertical position, as and for the purpose herein described.

10. In an electric motor meter, the combination of a condenser, a Foucault current drag, the upright supporting post T, the disk U, the clamps P, P, the registering train G, and the spindle *s* carrying both the motor and drag armatures, also giving motion to said registering train to indicate the consumption of energy, all substantially as herein set forth and described.

11. In an electric meter for direct and alternating currents, the combination of a motor driven by the current or energy consumed and to be measured, a registering train operated by the rotation of the armature, and a damping or retarding device, consisting of a closed conductor mounted upon the armature shaft, and revolving therewith, between the poles of magnets which constitute or maintain a constant field of force, said magnets being secured to a common support and turning upon the threaded upright post T for the purpose herein described.

12. In an electric meter for measuring the energy consumed in direct or alternating circuits, of varying current flow and constant potential, or constant current and varying potential, the combination of the motor armature revoluble in a field established by the embracing coils, the spindle *s* carrying said armature, the registering train G, the commutator H, the brushes J, the condenser Y, the resistance *m*, the supporting post T, the disk U, the magnets R, the clamps P, and the Foucault current drag consisting of a metallic cylinder closed at one end for the purpose set forth, and attached to the same spindle carrying the motor armature, and moving in a constant field of force established by one or more permanent magnets which are capable of producing a micrometric change in the retardation or brake force governing the speed of the motor, by being adjustable to any vertical position in the manner set forth, so that such variations in drag are due to the cylinder being rotated through more or less of the lines of force passing between the limbs of said vertical magnets, all substantially as herein set forth and described.

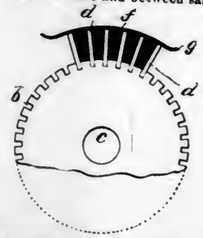
13. In an electric meter consisting of the herein described motive device, the combination of a high resistance discharge circuit shunted around the motor terminals or brushes for the purpose set forth, a commutator secured to and revolving with the spindle, a registering train, and a Foucault current drag or brake having a permanent or constant field of force acting upon a closed revoluble and adjustable conductor moving in inductive proximity thereto, as and for the purpose herein set forth.

14. In an electric energy or joulemeter consisting of a motor operated by the energy passing through it and to be measured, the combination of the commutator of nickel, aluminium, or their alloys, a high resistance discharge circuit shunted around the armature terminals or brushes, a condenser, a registering train or mechanism, and a retarding device governing the revolutions of the spindle actuating said recording mechanism, and consisting of an adjustable closed armature moving in inductive proximity to a multiplicity of magnets, maintaining a constant field of force to act upon said armature, and micrometrically adjustable for the purpose set forth and herein described.

518,312. ARMATURE. ERNST EGGER and FERDINAND A. WESSEL, New York, N. Y., assignors of one-fourth to Aaron Naumburg, same place. Filed May 17, 1893. Serial No. 474,509. (No model.)

Claim.—1. An armature consisting of the combination of a core having grooves, insulated iron plates fitting in said grooves, and conductors wound between the plates and on the core.

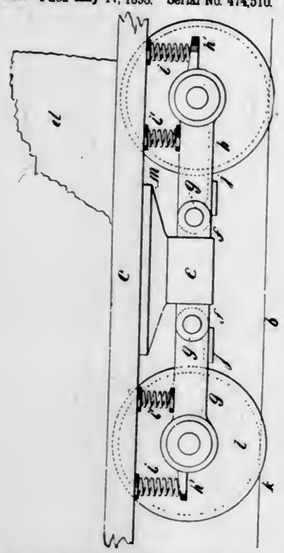
2. An armature consisting of the combination of a cylindrical core provided with grooves cut in the surface of the core, insulated plates fitting in said grooves and projecting beyond the ends of the core, and wires around the core and between said plates.



3. An armature consisting of the combination of a cylindrical core provided with grooves cut in the surface of the core, insulated plates fitting in said grooves and projecting beyond the ends of the core, and wires around the core and between said plates, thereof parallel to the axis of the core.

4. An armature consisting of the combination of a cylindrical core provided with grooves cut in the surface of the core, insulated iron plates fitting in said grooves, and wires around the core and between said plates thereof parallel to the axis of the core.

518,313. RAILWAY-TRUCK. ERNST EGGER and FERDINAND A. WESSEL, New York, N. Y., assignors of one-fourth to Aaron Naumburg, same place. Filed May 17, 1893. Serial No. 474,510. (No model.)



Claim.—1. The combination with a car truck frame and with the axles of a car, of pivot or pivots rigidly supported centrally between said axles, levers connecting said pivots and axles and rotary thereon and springs connecting the levers with said frame.

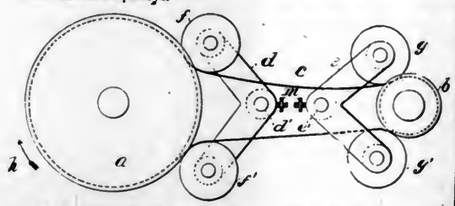
2. The combination with the truck and with the axles of the car, of pivots rigidly supported between said axles upon opposite sides of the car, levers connecting said axles and pivots and rotary thereon, flexible ties connecting the levers on one side of the car with those on the other, and springs between the car and levers.

518,314. AUTOMATIC BELT-REGULATOR. ERNST EGGER and FERDINAND A. WESSEL, New York, N. Y., assignors of one-fourth to Aaron Naumburg, same place. Filed May 17, 1893. Serial No. 474,511. (No model.)

Claim.—1. The combination with pulleys and a driving belt connecting the same, of means for automatically varying the pressure of the said belt upon said pulleys proportionally to the increase or decrease of the tension of the taut portion of the belt.

2. The combination, with pulleys and a driving belt connecting the same, of a pair of rollers for each pulley, an independent support

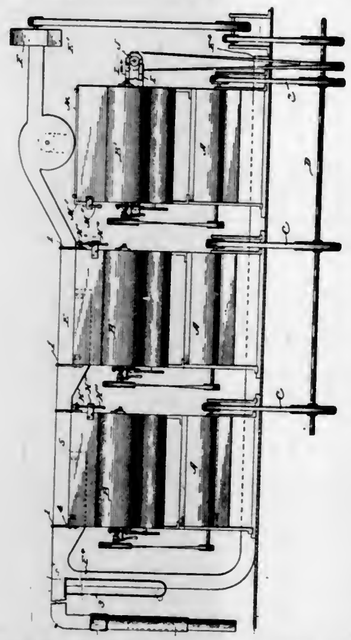
for each pair of rollers, each support movable by the action of the taut portion of the belt, all rollers bearing upon said belt, and the rollers on the slack side of the belt bearing through said belt against their respective pulleys.



3. The combination with pulleys and with a driving belt, passing around and connecting the same, of a fulcrum or pivoted support located between the pulleys and between the slack and taut portions of the belt, a lever rotatable about said fulcrum and carrying pulleys or rollers which bear upon that face of the belt opposite the face which is in contact with the first named pulleys, both of said rollers being located substantially at the periphery of one of the first named pulleys, and the said fulcrum being located at a distance from the same pulley.

4. The combination of pulleys *a* and *b*, a driving belt *c*, connecting the same, levers *d* and *e*, pivoted upon pins *d'* and *e'*, which are located between said pulleys, the said levers *d* and *e* carrying rollers *f*, *f'*, and *g*, *g'*, which rollers bear upon the belt *c* as herein set forth.

518,315. MACHINE FOR HANDLING AND CLEANING SEED-COTTON. WILLIAM E. ELAM, Dallas, Tex., assignor of two-thirds to Robert S. Thomas and Saunie W. Hardwick, same place. Filed Apr. 6, 1893. Serial No. 469,288. (No model.)



Claim.—1. The combination with a gin, a feeder thereon, a pneumatic cotton conveying tube crossing the top of the feeder and communicating therewith through an opening adapted to distribute the falling cotton over approximately the whole length of the ginning mechanism beneath, a board arranged to move in a plane transverse to the tube to wholly or partially close said opening, and means for fixing the board at different points in its path: whereby changing the position of the board regulates the supply of cotton while maintaining an even distribution to all the saws.

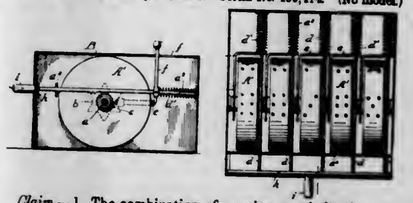
2. The combination with a gin feeder box, of a cotton conveying pneumatic tube communicating vertically therewith and provided with an enlargemeut opening laterally into said box, and a closure arranged to govern both lateral and vertical communication between the box and the tube.

3. The combination with the closed or covered feeder box, of the pneumatic tube above the same, communicating vertically therewith, and provided with an enlargement fitting the side of the box and opening through the same, and the hinged board and wing arranged to swing upward for partially or wholly closing communication between the box and the tube.

4. The combination with an upwardly open feeder box and means for dropping cotton into the same, of an open conveyer running across the feeder box at one side of the normal path of the falling cotton and adapted to carry from the box cotton that may be placed upon it.

5. The combination with the upwardly open feeder box, of devices for dropping cotton into the same, a transverse conveyer located at one side of the falling cotton, feeding mechanism arranged to receive the falling cotton and pass it downward out of the box, and an adjustable deflector operating to divert the falling cotton from the feeding mechanism to the transverse conveyer.

518,316. DIE-THROWING DEVICE. CONRAD S. GROVE, Philadelphia, Pa. Filed Apr. 7, 1893. Serial No. 469,414. (No model.)



Claim.—1. The combination of a casing, a spindle therein, a series of disks mounted upon said spindle and provided on their peripheries with distinguishing marks, a stop wheel and a pinion secured to each disk, a stop bar adapted to engage with the stop wheel, a series of independently movable starting rods, as *d*, equal in number to the disks, teeth on said rods adapted to engage with the teeth of the pinions, an extension of each of said rods extending outside the casing and a starting bar impinging against the entire series of rods, *d*, but not secured thereto, substantially as specified.

2. The combination in a dice throwing device of two or more revoluble disks having their peripheries marked with series of distinguishing signs, means for rotating the said disks simultaneously, a bar rigidly connected with the operative mechanism of each disk for also independently operating each disk and means for automatically locking said disks independently, substantially as described.

3. The combination of the casing, a spindle, *a*, a series of disks, A', mounted thereon, a stop wheel, *b*, and a pinion, *c*, secured to each of said disks, a series of guided rods, *d*, extending to, or nearly to, the walls of the casing, a starting bar, *h*, adapted to impinge against the ends of the rods, *d*, a spring, *d'*, adapted to each rod, *d*, a stop bar, *e*, secured to each rod, *d*, and a bar, *f*, secured to each of the rods, *d*, and extending through slotted openings in the wall of the casing, substantially as specified.

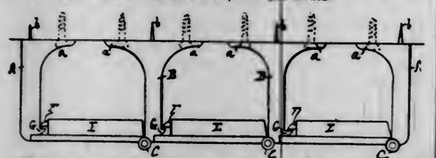
4. The combination of the casing, a spindle, *a*, a series of disks, A', mounted thereon, a stop wheel, *b*, and a pinion, *c*, secured to each of said disks, a series of guided rods, *d*, extending to the front of the casing, a starting bar, *h*, impinging against the ends of such rods, a spring, *d'*, adapted to each rod, *d*, a stop bar, *e*, secured to each rod, *d*, and bars, *f*, extending from the rods, *d*, through slotted openings in the top of the casing, substantially as specified

5. The combination of a casing, a horizontally disposed spindle, a series of two or more disks loosely mounted upon said spindle, a ratchet or stop wheel and a pinion secured to each of said disks, series of reciprocating rods adjusted in guides in said casing, said rods extending to, or nearly to, the walls of the casing, teeth provided upon each of said rods for engaging in and operating the pinions secured to the disks, a starting bar provided in guides in front of one of the ends of the series of bars disconnected from the same and adapted to impinge thereon, projection provided upon said starting bar protruding through the casing for operating said bar and rods, a spring and stop bar adapted to each of said rods, said stop bars adapted to engage with each respective ratchet or stop wheel, operating bar rigidly secured to each of said rods, substantially at right angles thereto, said rods being constructed to operate independently or simultaneously and connectedly, said operating bars protruding through the wall of the casing for independently operating each disk, substantially as described.

6. The combination of the casing, A, having openings, B, *f'*, a spindle, *a*, in said casing, a series of disks, A', mounted on said spindle, a stop wheel, *b*, and a pinion, *c*, secured to each of said disks, a series of guided rods, *d*, extending to the front of the casing, guides, a^2, a^3,

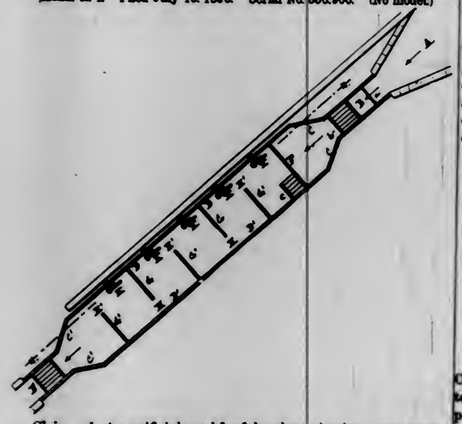
for said rods, a starting bar, *h*, guides therefor, a spring, *d'*, for each rod, *d*, a stop bar, *e*, secured to each rod, *d*, and a series of vertical bars, *f*, extending from the rods, *d*, through the slotted opening, *f'*, in the casing, A, substantially as described.

518,317. BILLIARD-CUE LOCK. HENRY C. HART, Detroit, Mich. Filed July 10, 1893. Serial No. 480,077. (No model.)



Claim.—A cue lock consisting of two or more separate standards, a hasp hinged to each of said standards, each hasp being adapted to lock with the succeeding standard and each standard being adapted to lock with the preceding hasp, substantially as shown and described.

518,318. ARTIFICIAL FISH-POND. CHARLES A. HOXSIE, Richmond, R. I. Filed July 16, 1890. Serial No. 358,960. (No model.)



Claim.—1. An artificial pond for fish culture, having a water-supply in combination with means of introducing and distributing air throughout the body of water therein, consisting of square compartments formed in said pond and having waterways alternately arranged to create centripetal currents in each compartment, respectively and a feed pipe from another water-supply under pressure, with gates or valves adapted to discharge the water by the force of gravity into such compartments, substantially as specified.

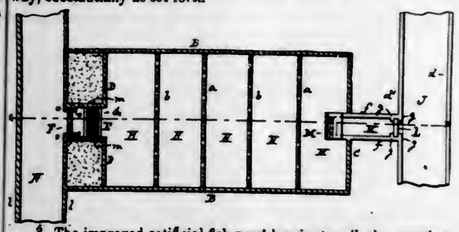
2. An artificial pond for fish culture, having a water-supply, in combination with means of forcing and distributing air throughout the body of water therein, consisting of square compartments formed in said pond and having waterways alternately arranged to create centripetal currents in each compartment, respectively, and a feed pipe from another water-supply, under pressure, with gates or valves, adapted to discharge the water into such compartments, substantially as specified.

3. In combination with an artificial fish pond having a flow of water through it and constructed with compartments having waterways alternately arranged, and a feed pipe from another water-supply under pressure, adapted to discharge water into said pond, so as to aerate the water of the pond, substantially as specified.

518,319. NURSERY-POND FOR FISH CULTURE. CHARLES A. HOXSIE, Richmond, R. I. Filed Feb. 9, 1891. Serial No. 380,821. (No model.)

Claim.—1. The combination with an artificial fish-pond having a bulkhead C, of an inlet passage K, elevated above the pond and adapted to receive water from a proper source and to discharge into the pond, and a hood M, attached at the discharging end of said passage and arranged so as to break the force of the water-flow and to deflect the falling water back against the bulkhead, substantially as and for the purposes specified.

2. In an artificial fish-pond, the combination of a passage for a water supply, an inlet leading therefrom to the pond, a gate vertically movable in guides in said inlet to regulate the quantity of water and the force of the current passing through said pond, and a waste-way, substantially as set forth



3. The improved artificial fish-pond herein described, consisting of the pond having the bottom A, sides B, bulkhead C and walls D, divided into compartments H by slat partitions *a b*, which have openings alternately arranged, the inlet passage K having the hood M, the outlet passage E having the screen G, the gate L and flashboard F, the water way J and the waste-way N, all combined substantially as specified.

518,320. LUMINOUS PAINT. CARL KRAUT, Washington, D. C. Filed Jan. 4, 1894. Serial No. 495,713. (No specimens.)

Claim.—The herein-described method of preparing a luminous painted surface which consists in the application to an object of a ground composition composed of zinc oxide, carbonate of lead, linseed oil, and Venetian turpentine; and coating the ground composition with a luminous composition composed of calcium fluoride, heated ground oyster-shells, dammar-gum and Venetian turpentine, substantially as described.

518,321. ANTIFRICTION-BALL-BEARING. HENRY LA CASSE, Rochester, N. Y. Filed Oct. 17, 1892. Serial No. 449,143. (No model.)



Claim.—1. The combination of the shaft A, the grooved section C fast on said shaft, the stationary grooved section B, the balls D interposed between the sections and located in the grooves thereof, the points at which each ball contacts with the faces of the grooves in the sections lying in the face of an imaginary cone whose vertex is at the center of the shaft, said points of contact being arranged symmetrically with relation to the axis of the cone, and all of the points of contact on one side of said axis being in the section fast on the shaft and all of the points of contact on the opposite side of said axis being in the stationary section, substantially as set forth.

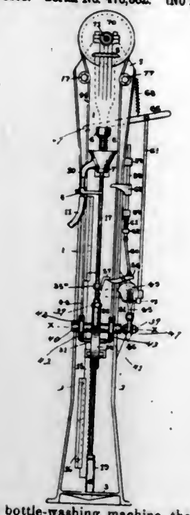
2. The combination of the shaft A, the grooved section C, fast on said shaft, the stationary grooved section B, one of said sections being adjustable toward the other, the balls D interposed between the sections and located in the grooves thereof, the points at which each ball contacts with the faces of the grooves in the sections lying in the face of an imaginary cone whose vertex is at the center of the shaft, said points of contact being arranged symmetrically with relation to the axis of the cone, and all of the points of contact on one side of said axis being in the section fast on the shaft and all of the points of contact on the opposite side of said axis being in the stationary section, substantially as described.

3. The combination of the shaft A, the grooved section C fast and adjustable lengthwise on said shaft, the stationary grooved section B, the balls D interposed between the sections and located in the grooves thereof, the points at which each ball contacts with the faces of the grooves in the sections lying in the face of an imaginary cone whose vertex is at the center of the shaft, said points of contact being arranged symmetrically with relation to the axis of the cone, and all of the points of contact on one side of said axis being in the section fast on the shaft and all of the points of contact on the opposite side of said axis being in the stationary section, substantially as specified.

4. The combination of the shaft A, the grooved section C fast on said shaft, the stationary grooved section B^3 having its face separated from the adjacent face of the section C, the balls D interposed between the sections and located in the grooves thereof, the points at which each ball contacts with the faces of the grooves in the sections lying in the face of an imaginary cone whose vertex is at the center of the shaft, said points of contact being arranged symmetrically with relation to the axis of the cone, and all of the points of contact on one side of said axis being in the section fast on the shaft and all of the points of contact on the opposite side of said axis being in the stationary section, substantially as described.

points of contact on the opposite side of said axis being in the stationary section, substantially as and for the purpose set forth.

518,322. BOTTLE-WASHER. HENRY LA CASSE, Rochester, N. Y. Filed June 26, 1893. Serial No. 478,382. (No model.)



Claim.—1. In a bottle-washing machine, the combination with the main frame and a bottle support, of a rotary hollow spindle having a brush and connected to a water supply, a spindle-carrying frame, said frame and bottle support being separated when the machine is at rest, driving mechanism for causing their relative approach and separation, and clutch devices actuated by the movable part for causing their arrest after a predetermined movement, substantially as described.

2. In a bottle-washing machine, the combination with the main frame and the bottle-support thereon, of a rotary spindle carrying a brush, a movable spindle-carrying frame, driving mechanism for causing the movement of the frame in opposite directions, a stop operated by the frame governing the driving mechanism and adapted to permit the complete reciprocation of the spindle-frame and then disconnect it from the driving mechanism, substantially as described.

3. The combination with the stationary main frame, and a bottle-support thereon, of a rotary spindle having a brush, a movable spindle-carrying frame, two oppositely moving driving pulleys, and clutch devices actuated mediately by the carrying frame for connecting said frame with one or the other of the pulleys, substantially as described.

4. The combination with the stationary main frame, and a bottle-support thereon, of a rotary spindle having a brush, a reciprocating spindle-carrying frame, two oppositely moving driving pulleys and clutch devices for engaging one or the other pulley with the frame, an automatic clutch operating device, a pawl controlling it and a stop on the spindle frame cooperating with said pawl when the frame is at the extremes of movement, substantially as described.

5. The combination with the reciprocating frame, two oppositely moving pulleys, a clutch for engaging one or the other with the frame, an automatic clutch-operating device, a pawl for controlling it and a stop on the spindle-frame cooperating with said pawl when the frame is at the extremes of its movement, substantially as described.

6. The combination with the reciprocating frame, two oppositely moving pulleys and a clutch for engaging one or the other with the frame, of an automatic clutch-operating device, a pawl for controlling it, a stop on the spindle-frame cooperating with the pawl when the frame is at the extremes of its movement, and a movable support for the pawl for disengaging the pawl from the stop on the spindle-frame, substantially as described.

7. The combination with the reciprocating frame, two oppositely moving pulleys and a clutch for engaging one or the other with the frame, of an automatic clutch-operating device, a pawl for controlling it, a stop on the frame cooperating with the pawl when the frame is at the extremes of its movement and a movable support for the pawl actuated by the clutch-operating device for disengaging the pawl from the stop on the frame, substantially as described.

8. The combination with the reciprocating frame, two oppositely moving pulleys and a clutch for engaging one or the other with the frame, of a clutch-operating device, a spring for actuating it in one direction, a pawl retaining the device when either of the pulleys is engaged with the frame, and a stop on the frame disengaging the pawl from the clutch-operating device when the frame is at the extremes of its movement, substantially as described.

9. The combination with the reciprocating frame, two oppositely moving pulleys and a clutch for engaging one or the other with the frame, of a clutch-operating device, a spring for actuating it in one direction, a pawl retaining the device when either of the pulleys is engaged with the frame, a stop on the frame disengaging the pawl from the clutch-operating device when the frame is at the extremes of its movement, and a movable support for the pawl actuated by the clutch-operating device for disengaging the pawl from the stop on the frame, substantially as described.

10. The combination with the reciprocating spindle-carrying frame, two oppositely moving pulleys and a clutch for engaging one or the other with the frame, of the ratchet disk having the cam thereon and controlling the clutch, the pawl support actuated by the cam, the pawl engaging the ratchet disk, the stop on the frame cooperating with the pawl when the frame is at the extremes of its movement and the spring for actuating the ratchet disk in one direction, substantially as described.

11. The combination with the reciprocating spindle-carrying frame, two oppositely moving pulleys and a clutch for engaging one or the other with the frame, of the ratchet disk having the crank-pin and cam thereon, the spring for actuating the disk, the clutch lever actuated by the crank pin, the pawl engaging the ratchet disk, the movable pawl-support actuated by the cam, and the stop on the movable frame engaging the pawl when the frame is at the extremes of its movement to disengage said pawl from the disk, substantially as described.

12. In a bottle washing machine, the combination with the reciprocating frame having the rack thereon, the pinion and the connecting worm-wheel, of the longitudinally movable arbor having the tapered portions, the worm splined thereto, the pulleys rotating in opposite directions, loose on the arbor, and correspondingly tapered, the adjustable collars on the arbor and the shipping lever operating between the collars for moving the shaft in either direction to engage one or the other of the pulleys, substantially as described.

13. In a bottle-washing machine, the combination with the main frame, the thimbles secured adjustably therein, the arbor journaled in said thimbles having the driving wheel splined upon it and provided with the tapering portions, of the two pulleys on the arbor between the driving-wheel and thimbles, each having tapering portions corresponding to those on the arbor and a shipper lever for operating said arbor longitudinally to engage one or the other of the pulleys, substantially as described.

14. In a bottle-washing machine, the combination with the bottle-support, of the reciprocating frame, the rotary spindle carrying a cleaning brush, a spring connection between the spindle and frame permitting an independent relative movement of the spindle and a stop for arresting the longitudinal movement of the spindle, substantially as described.

15. In a bottle-washing machine, the combination with the main frame, an adjustable abutment for the bottom of a bottle, a bracket arranged below the abutment having a water receptacle and an outlet therefrom, a spring-pressed sleeve on the bracket supporting the neck of the bottle, of the hollow, rotary spindle having the cleaning brush on its upper end, connected to a water supply and passing through the sleeve and the reciprocating frame on which the spindle is mounted, substantially as described.

16. In a bottle-washing machine, the combination with the bottle-support embodying two relatively movable members, and a spring for operating them toward each other, of a hollow, rotary spindle connected to a water supply and having a cleaning brush on its upper end, a reciprocating frame on which the spindle is mounted arranged below the bottle-support, driving mechanism for moving the frame up and down, and a stop device actuated from the frame for causing the disconnection of the driving mechanism and the arrest of the frame when moved down, substantially as described.

17. In a bottle-washing machine, the combination with the main frame, the main driving pulley thereon, the reciprocating frame, the two pulleys arranged on horizontal axes, a wheel operating on the frame to reciprocate it, and clutch devices between it and said two pulleys, of the spindle driving pulley in a stationary support, the spindle supported in the movable frame and splined to said pulley and a single belt passing around all said pulleys, substantially as described.

18. In a bottle-washing machine, the combination with the reciprocating frame, two oppositely moving pulleys, and a clutch device for connecting either pulley with the frame, of the clutch-operating lever, the disk having the crank pin operating the lever, and a pawl or detent for holding the disk with the crank pin on either side of the center to hold the clutch in engagement with one or the other of the pulleys, substantially as described.

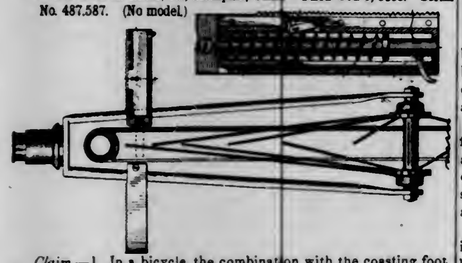
19. In a bottle-washing machine, the combination with the reciprocating frame, two oppositely moving pulleys, and a clutch device for connecting either pulley with the frame, of the clutch-operating lever, the disk having the crank pin operating the lever, a detent or pawl for holding the crank-pin on either side of the center and a stop on the frame for releasing the detent when at the extremes of movement, substantially as described.

20. In a bottle-washing machine, the combination with the main shaft, the main driving pulley thereon and a clutch between them, of the reciprocating frame, reversing devices for moving the frame in opposite directions, a lever controlling the reversing devices and connections between said lever and the clutch on the main shaft causing their simultaneous operation, whereby when the machine is set in operation the reversing device is actuated to move the reciprocating frame in one direction, substantially as described.

21. In a bottle-washing machine, the combination with the main shaft, the main driving pulley thereon and a clutch between them of the reciprocating frame, reversing devices for moving the frame in opposite directions, a lever controlling the clutch, a spring operating the lever in a direction to disconnect the clutch, reversing devices for moving the frame in opposite directions connected to said lever, a pawl or detent for holding the lever when moved to cause the operation of the frame in one direction, and a stop on the frame for releasing said detent and allowing the spring to actuate the lever and stop the machine when the frame reaches the extreme of movement in one direction, substantially as described

---

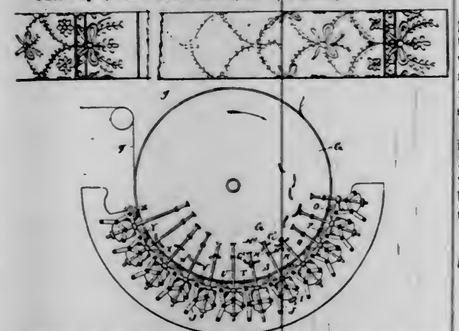
518,323. LOCK ATTACHMENT FOR BICYCLES. WALTER LAMB and SPENCE H. LAMB, Jr., Memphis, Tenn. Filed Oct. 9, 1893. Serial No. 487,587. (No model.)



Claim.—1. In a bicycle, the combination with the coasting foot rest, of lock mechanism applied to said foot rest and provided with the bolt adapted to be moved into position to project between spokes of the steering wheel, substantially as set forth.

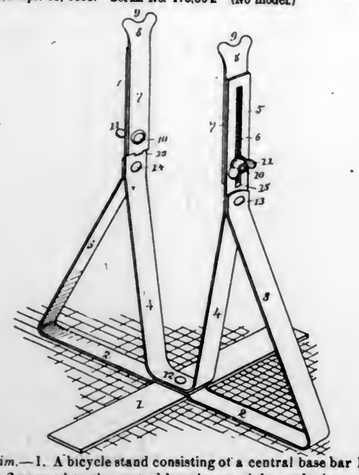
2. The bicycle coasting foot rest adapted for attachment to a fork of the steering post and provided with the lock case, the lock bolt adapted to be moved into position to project between spokes of the wheel, means for dogging and releasing the lock bolt, and the spring for retracting the bolt, substantially as set forth.

518,324. MACHINE FOR PRINTING WALL-PAPER. CARL F. W. LEHMANN, New York, N. Y., assignor to William Campbell, same place. Filed May 8, 1893. Serial No. 473,424. (No model.)



Claim.—In a machine for printing wall paper in successive quotas, the combination with the main cylinder G and means for supplying and taking away the paper in a continuous web, a series of printing rolls capable of being moved toward and from the cylinder, and geared continuously therewith and carrying raised printing surfaces the toggle levers I I and J J, and means G' G³ and the rod H, for operating such toggle and thereby moving such rolls positively into and out of contact with the web at the proper times, all substantially as herein specified.

518,325. BICYCLE-STAND. FRED B. MUELLER, Decatur, Ill. Filed Apr. 18, 1893. Serial No. 470,864. (No model.)

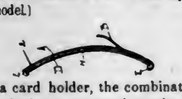


Claim.—1. A bicycle stand consisting of a central base bar 1, the base bar 2 secured to the central base bar at right angle thereto and having its ends bent obliquely upward, the bent bar 4 secured to the crossed base bars and having its upper ends longitudinally slotted, and the extension bars 8 substantially as described.

2. A bicycle stand consisting of a bar 4 bent at its center to form two divergent standing branches and extension bars 8 thereon, a bar 2 centrally secured to the bent bar 4, and having its ends bent obliquely upward and secured to said branches, and the bars 4 and 2 secured to the central bar 1 and at right angles thereto substantially as described.

3. In bicycle stands, the combination of base bar 1, base bar 2 intersecting bar 1 and having its ends extended obliquely upward, bars 4, 5, bent at their center, slotted at their upper ends and secured to the base bars and the extensions of bar 2, bars 7 having their upper ends thinned and concaved, and the studs, bolts and nuts securing bars 7 to the slotted ends of bars 4, 5, in a manner permitting longitudinal adjustment, substantially as set forth.

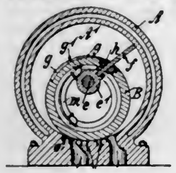
518,326. BRACKET AND CARD-HOLDER. FRANK J. MCARDLE and JOHN B. FURAY, Omaha, Nebr. Filed Apr. 17, 1893. Serial No. 470,785. (No model.)



Claim.—1. In a card holder, the combination with a main supporting rib having the lower recurved portion c, the outwardly extending hanger portion B integral with said rib A proper and provided with an opening, and a card holder having upper and lower recurved lips adapted to rest within the lower edges within one or more of said brackets and secured at the upper ends by means of a suitable screw, all substantially as and for the purpose set forth.

2. In a card holder, the combination with a rib A, having the openings *a* and *b*, the recurved lip *c*, and the outwardly curved bracket B integral with said rib A, in combination with the holder D provided with the recurved lips E, E, adapted to be held within said brackets A, in combination with suitable display cards, all substantially as and for the purpose set forth.

518,327. ROTARY ENGINE. RUDOLF NADENICZEK, Buda-Pesth, Austria-Hungary. Filed Nov. 10, 1893. Serial No. 490,560. (No model.)

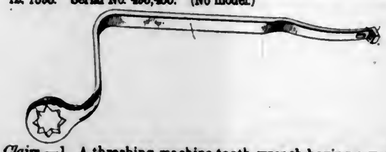


Claim.—1. In combination in a rotary engine, the main cylinder, the reduced lateral cylinder extension *d*, the rotary part in the main cylinder having the piston plate, the reduced lateral extension on said piston portion fitting within the lateral cylinder extension, with contracted intervening spaces *n* and the steam supply pipes leading to said spaces, substantially as described.

2. In combination in a rotary engine, the main cylinder the reduced lateral cylinder extension *d*, the rotary part in the main cylinder having the piston plate, the reduced lateral extension on said piston portion fittiog within the lateral cylinder extension, with the contracted intervening spaces *n*, and the rod piston in said spaces, substantially as described.

3. In combination, the main cylinder, the rotary piston therein, the reduced lateral cylinder and piston portions, the piston plate forming a working chamber A' for the live steam and the pipe *m* extending from the chamber A' to the contracted space *n* between the reduced cylinder and piston plates substantially as described.

518,328. WRENCH AND STRAIGHTENER FOR THRASHING-MACHINE TEETH. EDWARD W. OAKEY, Chatfield, Minn. Filed Dec. 12, 1893. Serial No. 493,455. (No model.)

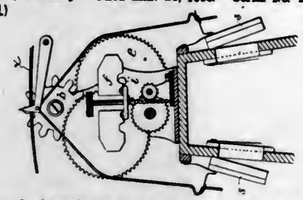


Claim.—1. A thrashing machine tooth wrench having a wrench head at one end to fit over the nut of a tooth, a goose-neck handle, a rectangular mortise near the end opposite the wrench head, and a terminal portion about at right angles to the wrench head which is also provided with a rectangular mortise, all substantially as shown and described.

2. The wrench for thrashing machine teeth having an opening with eight corners or notches and a convex face, an oval stem integral with said head, and a goose neck handle connected to said stem, all substantially as described

---

518,329. MUSICAL INSTRUMENT. FRIEDRICH A. RICHTER, Rudolstadt, Germany. Filed Mar. 28, 1893. Serial No. 467,963. (No model.)



Claim.—1. A musical instrument such as an accordion of the kind specified, having a music-sheet controlling the reeds and uniformly advanced by means of a spring-actuated clock-work, and a winding device actuated by the movement of the instrument and operating to automatically wind the clock-work, substantially as described

2. In a musical instrument such as an accordion the combination of a clock-work, multiple tongs or a jointed device *o* connected with and operated by the bellows of said instrument and means substantially as described connected with said tongs and clock-work for winding the same, substantially as set forth.

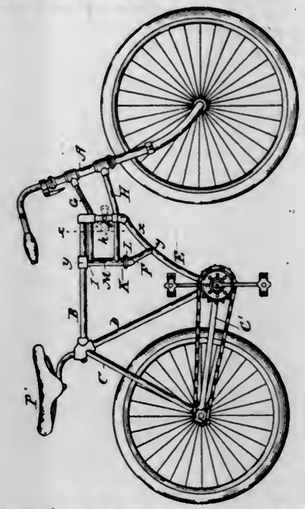
3. In a musical instrument such as an accordion of the kind specified, the combination of reed-stops or valves on two sides of the reed-box, and lever rods on two sides over the driving apparatus to the elastic reed stops or valves substantially as set forth.

4. In a musical instrument such as an accordion of the kind specified, the combination of the bellows, the reed box, spring actuated driving apparatus for outwardly moving the music-sheet over the casing of the reed-box, and a winding device for the driving apparatus actuated by the movement of the bellows, substantially as set forth.

5. In a musical instrument of the character described, the combination of a clock work for moving a music sheet, a ratchet wheel connected with the winding arbor of said clock work, tongs or jointed device connected to the bellows and adapted to operate the said ratchet wheel when the bellows is operated, substantially as specified.

518,330. FOLDING BICYCLE. MICHAEL B. RYAN, Boston, Mass., assignor of two-thirds to Charles L. Backus and Charles F. Lincoln, Andover, Conn. Filed Dec. 26, 1893. Serial No. 494,747. (No model.)

Claim.—1. The herein described folding bicycle, consisting of the standard A. bar B. frame standards C, D, braces E and F. the connecting rods G. H. sleeve M. button *a*. and suitable wheels, saddle, pedals, and connecting parts, all arranged and adapted to operate substantially as and for the purposes set forth.



2. In a bicycle the standard A. the bar B. the rods G and H. suitably hinged to the after part of the machine, and secured to said standard A. the brace E, provided with the part N. and suitable means for securing or interlocking the said rods G and H. to part N. combined and adapted to operate substantially as and for the purposes set forth.

3. In a bicycle, the herein-described interlocking mechanism consisting of the part N. of brace E. suitably formed to receive one or more connecting rods, secured to the front standard of the machine and having a hinged connection with the after part of the machine and in rear of said interlocking mechanism; the cam plates *c* and *d*. and the button *a*. movably secured to said part N. and adapted to hold the said connecting rods interlocked all substantially as and for the purposes set forth.

4. In a bicycle, the brace E. provided with the part N. suitably formed to receive one or more rods, connecting the front standard A. with the after part of the machine by a hinged connection, and also having suitable catches *b*. and *b'*. near the ends of said part N. the button *a*. adapted to turn so that the ends *a'* and *a²*. of said button will enter said catches *b* and *b'*. and said button will interlock the said connecting rods when placed between the part N. and the button, the cam plates *c* and *d*. and cam device *k*. all arranged, combined and adapted to operate as an interlocking mechanism, substantially as and for the purposes set forth

5. In a bicycle, the combination of the bar B. the brace E. having the part N. the cam device *k*. *c*. *d*. and the button *a*. suitably secured to part N. in connection with said cam device, with one or more connecting rods secured to the main front standard A. and having a suitable hinged connection with the after part of the machine, substantially as described.

6. In a bicycle, the combination of the bar B. brace E. provided with the part N. adapted to receive one or more rods connecting the front standard with the after part of the machine by a suitable hinged connection and in combination therewith, and suitable means for securing said connecting rods to said part N. substantially as and for the purposes set forth.

518,331. TELEPHONE-EXCHANGE SYSTEM. JOHN I. SABIN and WILLIAM HAMPTON, San Francisco, Cal. Filed Jan. 19, 1894. Serial No. 497,414. (No model.)

Claim.—1. In a telephone system, the combination with a metallic circuit telephone line, of an individual indicator and battery in a bridge of said circuit at the central station, a calling device in a permanent bridge of the subscriber's station, means at the subscriber's station for short-circuiting said permanent bridge to close said battery operatively in circuit with said indicator to operate the same, and means for cutting out said battery and indicator when connection is made at the central station with said metallic circuit, substantially as described.

2. In a telephone system, the combination with a metallic circuit telephone line, of an individual indicator and battery at the central station in a bridge of said metallic circuit, a permanent bridge at the subscriber's station containing a calling device, a normally open telephone circuit around said bridge, and means for closing said telephone circuit to include said battery operatively in circuit with said individual indicator to actuate the same, substantially as described.



3. In a metallic circuit telephone system, an individual annunciator and battery at the central station in a bridge of the metallic circuit, a condenser and bell at the subscriber's station connected in a permanent bridge of said metallic circuit, a normally open telephone circuit around said bell circuit, and means at the subscriber's station for short-circuiting said bell circuit, substantially as described.

4. In a metallic circuit telephone system, an individual annunciator and battery at central station in a bridge of the metallic circuit, a normally open telephone circuit at the subscriber's station, means for closing said telephone circuit and means for cutting out said annunciator and battery, substantially as described.

5. In a metallic circuit telephone system, an individual annunciator and battery at central station connected in a separable bridge of the metallic circuit, a condenser and bell at the subscriber's station connected in a permanent bridge of said metallic circuit, a normally open telephone circuit and means for closing same at subscriber's station, to shunt the bell circuit, substantially as described.

6. In a metallic circuit telephone system, an individual annunciator and battery at central station connected in a bridge of the metallic circuit, a condenser and bell at the subscriber's station connected in another bridge of said metallic circuit, a normally open telephone circuit, means for closing same, and means for cutting out said annunciator and battery, substantially as described.

7. In a metallic circuit telephone system, an individual annunciator and battery at central station connected in a bridge of the metallic circuit, a condenser and bell at the subscriber's station connected in another bridge of said metallic circuit, a normally open telephone circuit, means for closing same, a clearing out annunciator at the central station, and means for simultaneously cutting out said individual annunciator and battery, and cutting in said clearing out annunciator, substantially as described.

8. In a telephone system, the combination with a metallic circuit connecting two subscribers' stations and including the primary of the transmitter induction coil at each station, of two clearing out annunciators at the central station, and a battery included in a bridge of said metallic circuit between said clearing out annunciators, substantially as described.

9. In a telephone system, the combination with a metallic circuit connecting two subscribers' stations, of a bridge at each of said stations containing a bell and condenser, clearing out annunciators at the central station, a battery included in a bridge of said metallic circuit between said clearing out annunciators and a generator adapted to be connected through said metallic circuit with either one of said subscribers' stations, substantially as described.

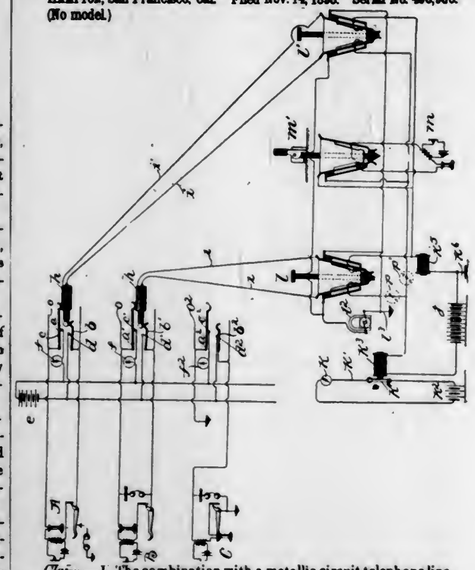
10. In a metallic circuit telephone system, the combination with a condenser and bell permanently connected in a bridge of the metallic circuit at each subscriber's station, of a battery connected in a separable bridge of each of said circuits, an individual indicator in circuit therewith a generator at the central station adapted to be temporarily connected in individual circuit with each bell and condenser, substantially as described.

11. In a metallic circuit telephone system, the combination with an individual annunciator and battery in a bridge of the metallic circuit at the central station, of means for automatically cutting out said battery and indicator when connection is made at central station with said metallic circuit, and a generator at the central station adapted to be looped into said metallic circuit

12. In a telephone system, the combination with a telephone line extending to the central station, of a battery and an individual indicator in a bridge at the central station, means for cutting said battery and individual indicator from line by the act of making connection therewith at the central station, and a battery and clearing-out indicator adapted to be bridged between the two sides of said line by said act of connecting with the line, substantially as described.

13. In a telephone system, the combination with a battery and individual indicator in a bridge of the telephone line at the central station, of means at the subscriber's station for operatively closing said battery in circuit with said indicator to operate the same, means for cutting said battery and indicator from the line by the act of making connection therewith at the central station, a clearing-out indicator, a battery adapted to be bridged between the two sides of the telephone line by the act of connecting therewith, and means at the subscriber's station for controlling the circuit of said battery through said clearing-out indicator, substantially as described.

518,332. TELEPHONE SYSTEM. JOHN I. SABIN and WILLIAM HAMPTON, San Francisco, Cal. Filed Nov. 14, 1893. Serial No. 490,950. (No model.)



Claim.—1. The combination with a metallic circuit telephone line, of a connection to ground from one limb thereof, a bell, or other signal device included in said ground connection, a grounded generator at the central station adapted to be connected to the grounded limb of said metallic circuit, a calling indicator and a battery included in a bridge between the limbs of said metallic circuit at the central station, and means for cutting said bridge from circuit by the act of connecting with the line, substantially as described.

2. The combination with a metallic circuit telephone line, normally open at the subscriber's station, of a normally closed ground connection from one limb of said metallic circuit containing a bell, or other signal device, a telephone hook adapted, when the telephone is removed therefrom to close said telephone line circuit and open the grounded connection a grounded generator at the central station adapted to be connected with the grounded limb of said metallic circuit, a calling indicator and a battery included in a bridge between

the limbs of said metallic circuit at the central station, and means for cutting said bridge from circuit by the act of connecting with the line substantially as described.

3. The combination with a telephone line extending to spring jacks at the central station, of a source of electricity and an individual indicator bridged between the limbs of said line, means for closing the circuit at the subscriber's station, and a plug adapted to be inserted into the spring jack at the central station to open the bridge containing said source of electricity and said individual indicator, substantially as described.

4. The combination with a metallic circuit telephone line extending to spring jacks at the central station, of a source of electricity and an individual indicator bridged between the limbs of said line, means for closing the circuit at the subscriber's station, and a plug adapted to be inserted into the spring jack at the central station to open the bridge containing said source of electricity and said individual indicator, a ground connection from one of the limbs of said line containing a subscriber's bell, or other signal device, and a grounded generator at the central station adapted to be connected to said grounded limb through said plug, substantially as described.

5. The combination with two metallic circuit telephone lines connected together at the central station through a pair of cord conductors, of a grounded generator included in a normally open bridge between the strands of said cord conductors, a bridge across the telephone set at one of the subscribers' stations, containing a signal device and a condenser, and a connection to ground at the other subscriber's station from one limb of his metallic circuit, said connection containing a signal device, substantially as described.

6. The combination with a subscriber's metallic circuit containing his telephones set and extending to the central station, of a subscriber's grounded circuit containing his telephone set and extending to the central station, a connection containing a signal device extending from one limb of said metallic circuit to ground, a connection containing a signal device and a condenser extending from the metallic limb of said grounded line to ground, and a pair of plug conductors connecting said lines at the central station, a grounded generator included in a normally open bridge between the strands of said cord conductor, substantially as described.

7. The combination with a subscriber's metallic circuit containing his telephone set and extending to the central station of a subscriber's grounded circuit containing his telephone set and extending to the central station, a bridge at the subscriber's station between the limbs of said metallic circuit, containing a signal device and a condenser, a connection to ground from the metallic limb of said grounded circuit containing a signal device and a condenser and a pair of plug conductors connecting said lines at the central station, a battery and a calling indicator in a bridge between the two sides of each of said lines at the central station, and means for cutting said bridges from circuit by the act of connecting with the lines substantially as described.

8. In a telephone system, the combination of a subscriber's circuit composed of two line-wires normally separated at the subscriber's station, a local circuit at the switching-station in which is included a calling-indicator and a battery, and four-point spring jack connections at the switch-board by which the two wires of the subscriber's line are connected to the said local circuit, a shunt or short circuit adapted to close the two sides of the subscriber's line, and a switch-lever having two anvils or contacts, to one of which said shunt is connected, and to the other of which is connected a bell-signal and a "ground;" and a grounded generator at the central station adapted to be connected with the line the lever of said switch being the subscriber's telephone-hook; whereby the circuit of the indicator-battery is closed through the indicators by the act of removing the telephone from its hook, and one side of the subscriber's line is grounded through the bell-signal when the telephone is hanging on its hook, as hereinbefore described.

9. In a trunk line, the combination with a condenser in one limb thereof, of a battery and an indicator in a bridge between the two limbs of said trunk line, and means for connecting said bridge upon either side of said condenser, substantially as described.

10. In a trunk line, the combination with a condenser in one limb thereof, of a battery and an indicator in a bridge between the two limbs of said trunk line, and a switch for changing the location of said bridge from one side of said condenser to the other side thereof, substantially as described.

11. The combination with a trunk line provided upon its ends with contact terminals whereby connection may be made therewith, of a battery in a bridge of said line, an indicator in circuit therewith, and a condenser in one of the limbs of said line; whereby the circuit of the battery through said indicator can be controlled from one end only of said line, substantially as described.

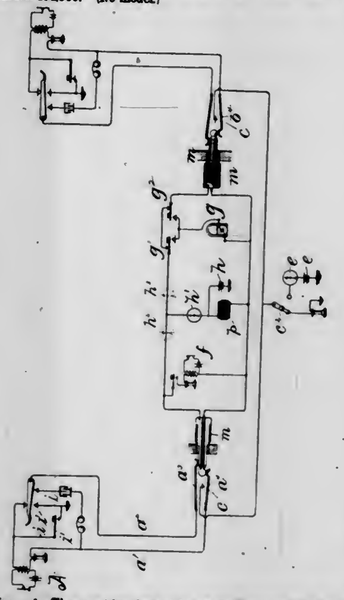
12. The combination with a trunk line provided upon its ends with contact terminals, whereby connection may be made therewith, of a battery in a bridge between the two sides of said line when connection is made through said trunk line, an indicator in circuit with said battery, and a condenser in one side of the line; whereby the circuit of the battery through said indicator can be controlled from one end only of said line, substantially as described.

13. The combination with the limbs of a trunk line connected at one end with the terminals of a spring jack switch, and at the other end with the terminals of a cord plug, of a condenser in one limb of said trunk line, and a bridge containing a battery and an indicator adapted to be connected to the limb containing the condenser between said condenser and the cord plug, substantially as described.

14. The combination with the two limbs of a trunk line, of an indicator in circuit therewith adapted to be actuated by the insertion of a plug in the switch end of said trunk line, said indicator adapted to serve as the clearing out indicator of a called subscriber when the plug of said trunk line is inserted in the switch of said subscriber, substantially as described.

15. The combination with the two limbs of a trunk line, of an indicator in circuit therewith adapted to be actuated by the insertion of a plug in the switch end of said trunk line, and means for switching said indicator in position to serve as the clearing out indicator of a called subscriber. substantially as described.

518,333. TELEPHONE-EXCHANGE SYSTEM. JOHN I. SABIN and WILLIAM HAMPTON, San Francisco, Cal. Filed Mar. 3, 1893. Serial No. 464,509. (No model.)

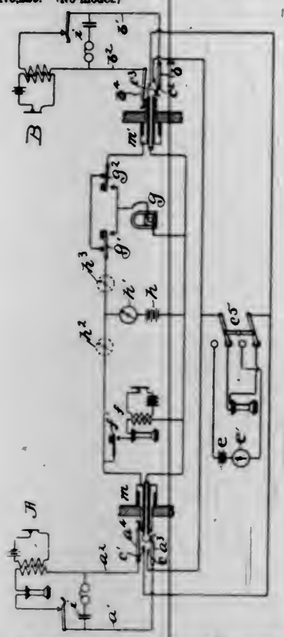


Claim.—1. The combination with a metallic circuit telephone line extending to the central station, of a normally closed ground branch from one limb of said line, through an operator's telephone, a ground connection at the subscriber's station adapted to be closed to include the subscriber's telephone set in circuit with the operator's telephone, double strand cord connectors adapted to loop the telephone line in circuit with another line at the central station, a ground branch from one of the strands of said connector including a battery, a self restoring clearing out indicator in circuit with said battery, and means at the subscriber's station for opening or closing the circuit through said battery, substantially as described.

2. The combination with two metallic circuit telephone lines looped together at the central station by a double strand cord conductor, of a ground connection from one of the strands of said cord conductor, a battery in said ground connection, a self restoring indicator in circuit therewith, and means for closing a ground branch at the subscriber's station to complete the circuit of said battery through the clearing out indicator, substantially as described.

3. The combination with two metallic circuit telephone lines looped together at the central station, of a ground branch from one limb of the metallic circuit thus formed, a battery in said ground branch, a self restoring indicator in circuit therewith, and means for closing a ground branch at the subscriber's station when the subscriber hangs up his telephone, thereby completing the circuit of said battery through the clearing out indicator, substantially as described.

518,334. TELEPHONE-EXCHANGE SYSTEM. JOHN I. SABIN and WILLIAM HAMPTON, San Francisco, Cal. Filed Apr. 13, 1893. Serial No. 470,229. (No model.)

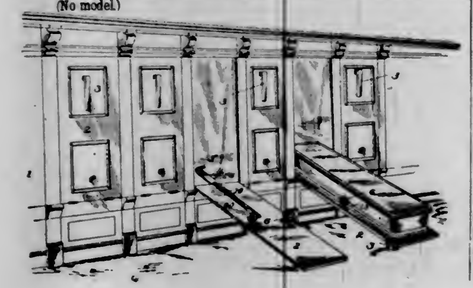


Claim.—1. The combination with a metallic circuit telephone line, extending to the central station, of a metallic local circuit containing the operator's cap telephone normally in circuit with said line, and means at the subscriber's station for closing his telephone set in circuit with said cap telephone, substantially as described.

2. The combination with a metallic circuit telephone line extending to the central station and normally open at the subscriber's station, of a metallic local circuit containing the operator's cap telephone normally in circuit with said line, and a switch at the subscriber's station adapted to be actuated by the removal of the telephone from its hook to close the subscriber's telephone set in circuit with said cap telephone, substantially as described.

3. The combination with two metallic circuit telephone lines extending to the central station and normally open at the subscriber's station, of a local metallic circuit containing an operator's cap telephone normally in circuit with the line of the calling subscriber, but cut therefrom by the act of making connection at the central station, means at the subscriber's station for closing his telephone set in circuit with said cap telephone, a double stranded cord connector looping the two telephone lines together at the central station, a clearing out indicator in circuit at the central station, a battery in a bridge between the two strands of the cord connector, and means at the subscribers' stations for maintaining said battery circuit open or closed to cause said clearing out indicator to display the desired signal, substantially as described.

518,335. EXHIBITOR FOR CASKETS OR COFFINS. WILLIAM P. SHERMAN, Butte, Mont. Filed Sept. 12, 1893. Serial No. 485,349. (No model.)



Claim.—1. In an exhibitor of the class described, the combination of a cabinet, having a series of drop doors, an arm extending beyond the lower hinged end of each door and having a hooked end, and fastenings intermediate of the ends of each door, adapted to be adjusted inwardly toward each other, and supplied with suitable buffers, substantially as described.

2. The combination with a door, of an arm secured to one end thereof, having an outer hooked free end, and a pair of fastenings located intermediate of the ends of said door, and comprising screw-shanks with heads on the inner opposing ends thereof, supplied with rubber coverings, the same being adapted to hold a casket or coffin for the purpose of exhibition or display, substantially as described.

518,336. MAKING ROSE-RED GLASS. ALFONS SPITZER, Buda-Pesth, assignor to Wilhelm Kralik Sohn, Eleonoronhain, Austria-Hungary. Filed Oct. 7, 1893. Serial No. 487,427. (No specimens.)

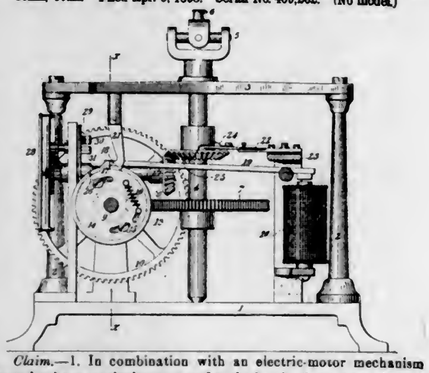
Claim.—1. The process of staining glass in rose-red, which consists in adding selenites or selenates and zinc-dust or equivalent agent to the glass batch or to the molten glass mass without further addition, substantially as described,

2. The process of staining glass in rose-red, which consists in adding potassic, sodaic or calcic selenites or selenates and zinc-dust to the glass batch or to the molten glass mass, substantially as described.

3. A new composition of matter for making rose red glass consisting of silica, potash, lime, a selenite or selenate of an alkali or alkaline earth and a suitable separating agent for the selenite or selenate substantially as set forth.

4. The herein described composition of matter for making rose red glass consisting of silica, potash, lime, selenite of soda and zinc dust or an equivalent separating agent, substantially as set forth.

518,337. ELECTRIC TOWER-CLOCK. CHARLES D. WARNER, Ansonia, Conn. Filed Apr. 6, 1893. Serial No. 469,262. (No model.)



Claim.—1. In combination with an electric-motor mechanism adapted to be operatively connected to the hands of a tower or similiar clock, an electric circuit through which to operate the motor, and mechanism for opening said circuit and permitting the motor to run by acquired momentum, for the purpose set forth.

2. In combination with an electric-motor mechanism adapted to be operatively connected to the hands of a tower or similar clock, an electric circuit through which to operate the motor, and mechanism for opening said circuit and controlling the run of the motor by acquired momentum within prescribed limits, for the purpose set forth.

3. In combination with an electric-motor mechanism adapted to be operatively connected to the hands of a tower or similar clock, an electric circuit through which to operate the motor, and mechanism operated by the motor for opening said circuit and permitting the motor to run by acquired momentum within prescribed limits, for the purpose set forth.

4. In combination with the hands-operating mechanism of a tower clock, an electric motor operatively connected to and for operating said mechanism, an electric circuit including said motor, circuit controlling mechanism adapted to be operated by a separate regulator or master-clock, and circuit-breaking devices operated by the motor and controlling its time of running or number of rotations, substantially as set forth.

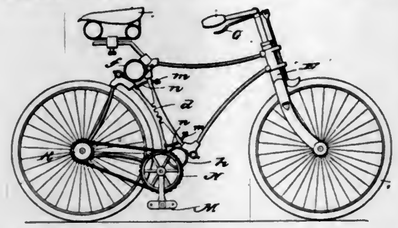
5. In combination, the mechanism of and for operating the hands of a tower clock, an electric motor connected to and for operating the said mechanism, and a spring stop for arresting the rotation of the motor after its operating circuit has been broken, substantially as described.

6. In combination, the mechanism of and for operating the hands of a tower clock, an electric motor connected to and for operating the said mechanism, and a spring stop mechanism constructed and arranged to break the motor circuit at a predetermined point of the movement of the hands-mechanism and to gradually arrest the rotation of the motor, substantially as described.

7. In combination, the hands-operating mechanism of a tower clock driven by an electric motor, the operating circuit of a striking mechanism and a magnet operating to close the same, and a circuit making and breaking mechanism operated by the said hands-mechanism and controlling the circuit to said magnet, substantially as described.

8. In combination in a tower clock system, the circuit of a motor-actuated hands-mechanism, the circuit of an electrically-operated striking-mechanism, a regulator circuit including electric devices for closing the circuits of said mechanisms, and a circuit making and breaking mechanism operated by the hands-motor and controlling the circuit closing mechanism of the striking mechanism, substantially as described.

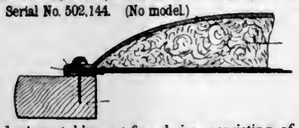
518,338. BICYCLE. CLARENCE E. WHITAKER, Lynn, Mass., assignor to Josiah C. Bennett, same place. Filed Apr. 14, 1892. Serial No. 429,235. (No model.)



Claim.—1. In a bicycle, the combination with the wheels and the steering fork, of a two part frame having members of essentially triangular shape, said members being mounted one on the rear wheel and the other on the fork, and having tooth formations on their adjacent sides interlocking one with the other, springs interposed between the adjacent portions of the members above and below the interlocking teeth, and means to prevent lateral movement of one section upon the other.

2. In a bicycle, the combination with the wheels and the steering fork, of a two part frame having members of essentially triangular shape, said members being mounted one on the rear wheel and the other on the fork, and having tooth formations on their adjacent sides interlocking one with the other, springs interposed between the adjacent portions of the members above and below the interlocking teeth, rigid screw-threaded projections carried by one member and extending through openings in the other member, and screw-threaded nuts fitted to said projections, substantially as and for the purpose set forth.

518,339. CHAIR-SEAT. RODERIC L. BENT, Gardner, assignor to S. Bent & Brothers, Boston, Mass. Filed Dec. 29, 1891. Renewed Mar. 2, 1894. Serial No. 502,144. (No model.)

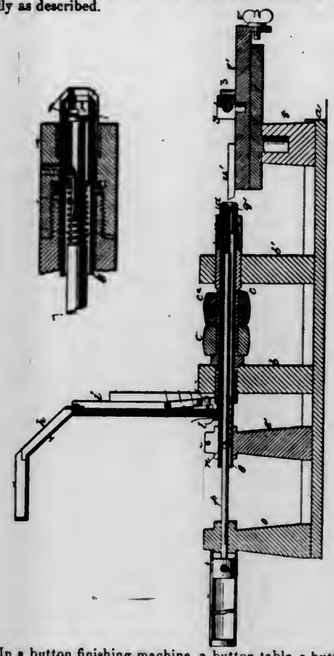


Claim.—1. A portable seat for chairs, consisting of a base of veneer of the general form of the seat, a covering of leather or fabric having its edges overlapping the base piece and glued to both surfaces of said base near the edges thereof, and a filling of yielding material between the base and cover inside the glued margin, substantially as described.

2. An upholstered seat consisting of a base of veneer, a covering of flexible material extending over said base and overlapping the edges on all sides, and glued to the upper and lower surfaces of said base near the margin thereof, and the filling inside said margin, combined with the support and the nails or securing devices passing through the fabric, the base, and the inturned edge of the covering beneath the base and into the support, substantially as described.

518,340. BUTTON-FINISHING MACHINE. HENRY A. BERGER, Brooklyn, N. Y. Filed July 13, 1893. Serial No. 480,333. (No model.)

Claim.—1. In a button finishing machine, a button table, a button delivery chute to which the buttons are supplied from said table, an automatic gate and cut-off at the delivery end of said chute, a tube into which said chute delivers, a button-carrying sleeve in said tube, means to move said sleeve longitudinally in said tube, and a button-holding chuck to which the button is delivered from the sleeve, substantially as described.



2. In a button finishing machine, a button table, a button delivery chute to which the buttons are supplied from said table, an automatic gate and cut-off at the delivery end of said chute, a tube into which said chute delivers, a button-carrying sleeve in said tube, means to move said sleeve longitudinally in said tube, and a button-holding chuck to which the button is delivered from the sleeve, combined with a button ejector, substantially as described.

3. In a button finishing machine, a button table, a button delivery chute to which the buttons are supplied from said table, an automatic gate and cut-off at the delivery end of said chute, a tube into which said chute delivers, a button-carrying sleeve in said tube, means to move said sleeve longitudinally in said tube, and a button-holding chuck to which the button is delivered from the sleeve, combined with a reciprocating rod arranged in said tube and having a head adapted to deliver the button to the chuck and eject it therefrom, substantially as described.

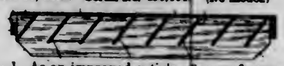
4. In a button finishing machine, a button table, a button delivery chute to which the buttons are supplied from said table, an automatic gate and cut-off at the delivery end of said chute, a tube into which said chute delivers, a button-carrying sleeve in said tube, means to move said sleeve longitudinally in said tube, and a button-holding chuck to which the button is delivered from the sleeve, combined with a stop to limit the forward motion of said sleeve, substantially as described.

5. In a button finishing machine, a button table, a button delivery chute to which the buttons are supplied from said table, an automatic gate and cut-off at the delivery end of said chute, a tube into which said chute delivers, a button-carrying sleeve in said tube, a reciprocating headed rod in said tube to move said sleeve and actuate said gate and cut-off, substantially as described.

6. In a button finishing machine, a button table, a gage and a chute; an automatic gate and cut off working in said chute to admit the buttons one at a time to the machine, in combination with a rotary chuck a tubular passage, and a headed rod working therein and adapted to carry the button therethrough and deliver it to said rotary chuck, substantially as described.

7. In a button finishing machine, a button chute, and a gate and cut-off applied thereto and comprising a pivoted arm provided with projections or lugs arranged upon opposite sides of the chute and adapted to enter such sides alternately at different altitudes, combined with a button holding device, a tube leading thereto from the chute, and a reciprocating rod for actuating said gate and cut-off, and a sleeve on said rod for conveying the button from the delivery end of the chute to the button-holding device, substantially as described.

518,341. EGG-TRAY. FERDINAND F. BIRCHOFF, Milwaukee, Wis. Filed Nov. 17, 1893. Serial No. 491,191. (No model.)



Claim.—1. As an improved article of manufacture, an egg tray adapted to be arranged vertically in its containing receptacle, the tray provided with a series of pockets for supporting the eggs, and the bottom pieces of said pockets arranged as upward inclines, whereby the eggs are supported thereby, when the trays are disposed vertically in the receptacle, substantially as set forth.

2. In combination with an egg tray having its back piece provided with a series of elongated openings, of a filler adapted to fit within said tray, and composed of longitudinal partitions and transverse strips, said partitions provided with inclined slits forming a series of tongues every alternate one thereof being projected rearward beyond the other tongues, and passed through the elongated openings of the back piece, and the transverse strips provided with slits adapted to interlock with the slits of the longitudinal partitions, whereby said transverse strips are secured to the partitions in inclined positions, substantially as set forth.

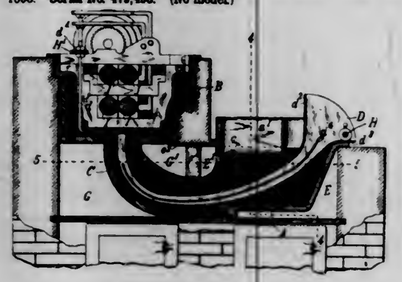
3. As an improved article of manufacture, an egg tray having its back provided with a series of elongated openings, and said tray divided into a series of compartments or pockets, two of the opposite side walls of said pockets being inclined, the inclined walls having their edges provided with recesses, the recessed edges of the upper and lower walls, respectively, of contiguous pockets being in alignment whereby a continuous opening is formed for each pocket, said opening registering with one of the openings of the back of the tray, substantially as set forth.

4. In combination with an egg tray, of a filler adapted to fit therein, said filler composed of longitudinal partitions and transverse strips, said partitions provided with inclined slits, and the transverse strips also provided with similar slits adapted to interlock with the slits of the longitudinal partitions, whereby a series of pockets is formed, each having two parallel straight sides, and two parallel upward inclined sides, the latter forming upward inclined bottoms for each pocket, and adapted to support an egg within each pocket, when the tray is arranged vertically in its containing case, substantially as set forth.

5. The combination with an egg tray, having the back piece thereof provided with a series of elongated openings, and its end border strip provided with slits of a filler adapted to fit within the tray, said filler composed of longitudinal partitions and transverse strips, said partitions having end tongues or tangs fitting the slits of the upper border strip, and also provided with inclined slits, and the transverse strips provided with slits adapted to interlock with the slits of the longitudinal partitions, for securing the same thereto in inclined positions, said transverse strips provided with recessed edges, the recessed edges of the upper and lower strips of the contiguous pockets formed by the union of the partitions and strips being in alignment, whereby an opening is formed for each pocket, which opening registers with one of the openings of the back piece, substantially as set forth.

6. The combination, with an egg tray the back piece thereof provided with a series of elongated openings, of a filler consisting of longitudinal partitions and transverse strips, said longitudinal partitions provided with inclined slits, and the transverse strips also provided with slits interlocking with the slits of the partitions, whereby said transverse strips are secured thereto, and said transverse strips further provided with recessed edges, the recessed edges of the upper and lower strips of the contiguous pockets formed by the union of the partitions and strips being in alignment, whereby an opening is formed for each pocket registering with one of the openings of the back piece, substantially as set forth.

518,342. TIN-PLATING MACHINE. CLARENCE R. BRITTON, Cleveland, Ohio, assignor to Charles S. Britton, same place. Filed July 3, 1893. Serial No. 479,493. (No model.)



Claim.—1. In a tin plating apparatus, the combination of a tinning pot A, and a grease pot B,—the bottom of which lies above the intended surface level of the molten metal in the tinning pot and has through it a transverse slot through which communication is established between the grease pot and neck,—with a curved hollow neck connected at its rear end to the bottom of the grease pot and extending therefrom downward and then forward to the tinning pot to which its forward end is connected, and feed rolls mounted in said grease pot over the said slot, substantially as and for the purpose specified.

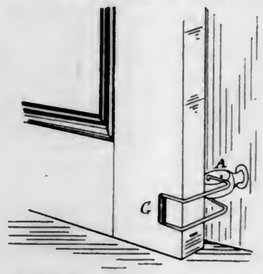
2. In a tin plating apparatus, the combination of a grease pot, a tinning pot and a connecting hollow neck, the said tinning pot being provided with vertical walls a^3 a^4 which are connected with each other and with the walls of the pot and extend into and below the surface of the molten metal, whereby said surface is divided into two parts one of which may be protected by a covering of oil without at the same time covering the other part of the surface, substantially as and for the purpose specified.

3. In a tin plating apparatus, the combination of a grease pot, a tinning pot and a connecting hollow neck, with a box formed in one rear corner of the tinning pot by the partitions a' a^3 and plate a, and a bottomless box formed in the other corner by the partitions a^2 a^4, all of said parts being integral with each other, substantially as and for the purpose specified.

4. In a tin plating apparatus, the combination of a tinning pot, a grease pot, and a curved hollow neck connecting said two pots, with supporting masonry in which are formed two flues E and G the former extending in front of the tinning pot, the latter behind the neck and under the grease pot, and a wall which divides the space above the neck into two flues E', G, the former being connected with flue E, the latter with flue G, whereby the tinning pot on the one hand and the rear part of the neck and the grease pot on the other hand may be independently heated, substantially as and for the purpose specified.

5. In a tin plating apparatus, the combination of a tinning pot, a grease pot, and a connecting neck, with two guides D D' each having three flanges d^2 d^3 d^4, thereby forming, on each guide, two grooves which are arranged with respect to each other, substantially as described, whereby either edge of a plate may be placed in the upper groove on one guide, while the other edge is placed in the lower groove on the other guide, for the purpose specified.

518,343. DOOR-STOP. WALLACE M. COATS, Hillsdale, Iowa. Filed July 26, 1893. Serial No. 481,508. (No model.)



Claim.—In a door-stop, the combination of a block having sockets arranged in series for adjustment, an elastic or yielding button mounted in the block, a spring-wire hook-shaped holder having its ends adjustably and removably received in a pair of said sockets, a yielding covering for the holder, and means for securing the device to a wall, substantially as described.

518,344. CASH REGISTER, INDICATOR, AND RECORDER. HUGO COOK, Dayton, Ohio, assignor to Anna M. Cook, same place. Filed Feb. 27, 1893. Serial No. 463,930. (No model.)

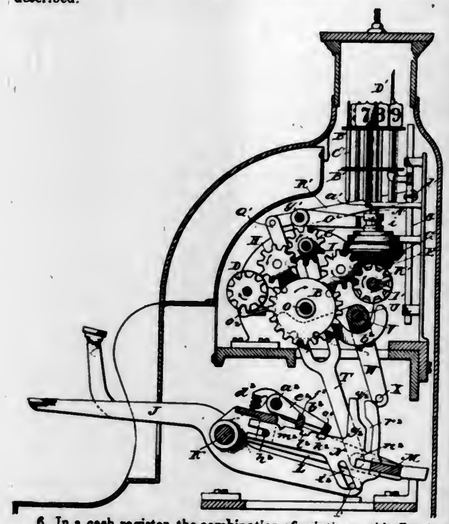
Claim.—1. In a cash register, the combination of rotary registering, printing and indicating members, each on a different fixed axis, a driver therefor, and means for connecting and disconnecting the driver and said members.

2. In a cash register, the combination of rotary registering and printing members on different fixed axes, a driver therefor, and means for dividing its action between said members in proportions to produce the required movement thereof, substantially as described.

3 In a cash register, the combination of rotary registering and indicating members on different fixed axes, a driver therefor and means for dividing its action between said members in proportions to produce the required movement thereof, substantially as described.

4. In a cash register, the combination of rotary registering printing and indicating members on different fixed axes, a driver therefor, and means for dividing its action between said members in proportions to produce the required movement thereof, substantially as described.

5. In a cash register, the combination of rotary registering and printing members on different fixed axes, a driver therefor having a definite movement at each operation, and means for dividing its action between said members in proportions to produce the required movement thereof during the first half of its movement, substantially as described.



6. In a cash register, the combination of printing and indicating members, a driver therefor, means for dividing the action of said driver between the members in proportions to produce the required movement thereof, and a separate driver for returning the indicating member to initial position, substantially as described.

7. In a cash register, the combination of registering and printing members, a driver therefor, a platen for the printing member, and means for dividing the movement of the driver between said members in proportions to produce the required movement thereof, substantially as described.

8. In a cash register, the combination of registering and printing members, a platen for the latter, a driver actuating said members and platen, and means for dividing the movement of the driver between said members in proportions to produce the required movement thereof, substantially as described.

9. In a cash register, the combination of rotary registering printing and indicating members, each revoluble in one direction only, a driver therefor, and means for dividing the movement of the driver between said members in proportions to produce the required movement thereof, substantially as described.

10. In a cash register, the combination of rotary, registering, printing and indicating members, each revoluble in one direction only, a driver therefor, and means for automatically connecting and disconnecting the driver and said members.

11. In a cash register, the combination with the registering, printing and indicating members, or any two of them, of a main driver, and secondary driving mechanism actuated thereby and carried on a movable frame, whereby said secondary driving mechanism can be shifted to divide its action between said members in proportions to produce the required movement thereof, substantially as described.

12. In a cash register, the combination with the registering, printing and indicating members, or any two of them, of a main driver, secondary driving mechanism actuated thereby and carried on a movable frame and actuated by the main driver, a series of keys, and shifting mechanism for the movable frame controlled by the keys, whereby said secondary mechanism is shifted at different times for each key to divide its action between said members in proportions to produce the required movement thereof, substantially as described.

13. In a cash register, the combination with the registering, printing and indicating members, or any two of them, of a main driver having a complete revolution at each operation, secondary driving mechanism actuated by the main driver and carried on a movable frame, a series of keys, and shifting mechanism for the movable frame controlled by the keys, whereby said secondary mechanism is shifted at different times for each key to divide its action between said members in proportions to produce the required movement thereof, substantially as described.

14. The combination of a registering member, a type member, a main driver, and secondary drivers actuated thereby and carried on a movable frame, the one of said secondary drivers for actuating both members, and the other for actuating the second member, substantially as described.

15. The combination of a registering member, a type member, a main driver, and secondary drivers actuated thereby and carried on a movable frame, the one of said secondary drivers for actuating both members and the other for actuating the second member, and means for shifting the movable frame, substantially as described.

16. The combination of a registering member, a type member, a main driver having a complete revolution at each operation, and secondary drivers actuated thereby at different times and carried on a movable frame, the one of said secondary drivers for actuating both members and the other for actuating the second member, and means for shifting the movable frame, substantially as described

17. The combination of a registering member, a type member, a main driver having a complete revolution at each operation, and secondary drivers actuated thereby at different times and carried on a movable frame, the one of said secondary drivers for actuating both members and the other for actuating the second member, substantially as described.

18. The combination with a registering member, a type member, and an indicating member, of a main driver, and secondary drivers actuated thereby and carried on a movable frame, the one of said secondary drivers for actuating the first two members and the other for actuating the second member, substantially as described.

19. The combination with a registering member, a type member, and an indicator, of a main driver, and secondary drivers actuated thereby and carried on a movable frame, the one of said secondary drivers for actuating the first two members and the other for actuating the second two members, and means for shifting the movable frame, substantially as described.

20. The combination with a registering member, a type member, and an indicator, of a main driver having a complete revolution at each operation, and secondary drivers actuated thereby at different times and carried on a movable frame, the one of said secondary drivers for actuating the first two members and the other for actuating the second two members, substantially as described.

21. The combination with a registering member, a type member, and an indicator, of a main driver having a complete revolution at each operation, secondary drivers actuated thereby at different times and carried on a movable frame, the one of said secondary drivers for actuating the first two members and the other for actuating the second two members, and means for shifting the movable frame, substantially as described.

22. The combination of a driving member having a definite movement at each operation, a registering and printing member driven thereby, and suitable intermediate connecting and disconnecting devices, whereby the driving member during the first half of its movement sets the printing member and registering members to proper position, and whereby the second half movement of the driving member moves the printing member to initial position, substantially as described.

23. The combination of a driving member having a definite movement at each operation, a registering, indicating and printing member driven thereby, and suitable connecting and disconnecting devices, whereby the driving member during the first half of its movement is caused to pick up the indicating member and carry it to initial position and during the same time to set the printing member and actuate the registering member, and whereby the second half movement of the driving member is divided between the printing member, which is set to initial position, and the indicating member, which is actuated to indicate the amount registered, substantially as described

24. The combination of a rotary driving member making a complete revolution at each operation, rotary registering and printing members driven thereby, means for automatically connecting the driving member with the printing member, disconnecting it therefrom and connecting with the registering member during the first half of the revolution, and connecting it again with the printing member to reset it to initial position during the second half of the revolution, substantially as described

25. The combination of a rotary driving member making a complete revolution at each operation, rotary registering, printing and indicating members driven thereby, means for automatically connecting the driving member with the indicating member to reset it to zero, with the printing member to set it to proper position, and with the registering member to make the proper registration during the first half of the revolution, and then disconnecting it from the registering member and connecting it with the printing member to return it to

initial position, and with the indicator to effect the proper indication, substantially as described.

26. The combination with a registering gear, a rotary driver having two lock gears and connecting devices, of two lock pinions engaged by the two lock gears of the driver and carried on a movable frame, and means for automatically shifting said frame, whereby the one lock pinion is caused to actuate the printing gear and then the registering gear during the first half revolution of the driver, and whereby the other lock pinion is caused to turn the printing gear to initial position during the second half revolution of the driver, substantially as described.

27. The combination with a registering gear, a printing gear, indicating mechanism, a rotary driver having lock gears and connecting devices, of two lock pinions engaged by the lock gears of the driver and carried on a movable frame, and means for automatically shifting said frame, whereby during the first half revolution of the driver the indicating mechanism is set to initial position, and the printing and registering gears are properly set, and whereby during the second half revolution of the driver the printing gear is set to initial position and the indicating mechanism is moved to effect the proper indication, substantially as described.

28 The combination of a rotary driving member, a rotary printing wheel having the members thereon arranged in backward order relatively to the direction of movement of said wheel, a registering wheel having the numbers arranged thereon in forward order relatively to the direction of movement of said wheel, and suitable connecting and disconnecting devices, whereby the driving member during the first half of its revolution turns the printing wheel to a given number and then turns the registering wheel to effect the registration of a corresponding number, and whereby during the second half of its revolution the driving member turns the printing wheel to initial position and then becomes disconnected therefrom, substantially as described.

29. The combination of a rotary driving member, a rotary indicator having its numbers arranged in backward order relatively to the direction of movement of said indicator, a rotary printing wheel having the numbers arranged thereon in forward order relatively to the direction of movement of said wheel and suitable connecting and disconnecting devices, whereby the driving member during the first half of its revolution turns the indicator to initial position, turns the printing wheel to a given number, and then turns the registering wheel to effect the registration of a corresponding number, and whereby during the second half of its revolution the driving member turns the printing wheel, substantially as described.

30. The combination with a registering wheel, a printing wheel, a rotary driver therefor, and suitable connecting and disconnecting devices on a movable frame, of a series of keys whose action causes the shifting of the movable frame at different times for each key during the operation of the driver, substantially as described.

31. The combination with a registering wheel, a printing wheel, indicating mechanism, a rotary driver therefor, and suitable connecting and disconnecting devices on a movable frame, of a series of keys whose action causes the shifting of the movable frame at different times for each key during the operation of the driver, substantially as described.

32. The combination with a registering member, an indicating member, a main driver and secondary drivers actuated thereby and carried on a movable frame, the one of said secondary drivers for actuating the first member and the other secondary driver for actuating the second member, substantially as described.

33. The combination with a registering wheel, a printing wheel, a rotatable indicator on a vertical axis, a rotary driver for the foregoing mechanism for setting the indicator to initial position during the first half revolution of the driver, and suitable connecting and disconnecting devices on a movable frame, of a series of keys whose action causes the shifting of the movable frame at different times for each key during the operation of the driver, substantially as described.

34. The combination of a registering member, an indicating member, a main driver and secondary drivers actuated thereby and carried on a movable frame, the one of said secondary drivers for actuating the first member and the other secondary driver for actuating the second member, and means for shifting the movable frame, substantially as described.

35. The combination of a registering member, an indicating member, a main driver having a complete revolution at each operation, and secondary drivers actuated thereby at different times and carried on a movable frame, the one of said secondary drivers for actuating the one member, and the other for actuating the other member, substantially as described.

36. The combination of a registering member, an indicating member, a main driver having a complete revolution at each operation, and secondary drivers actuated thereby at different times and carried on a movable frame, the one of said secondary drivers for actuating the one member and the other for actuating the other member, and means for shifting the movable frame, substantially as described.

37. The combination of a registering member, an indicating member, a main driver having a complete revolution at each operation, secondary drivers actuated thereby at different times and carried on a movable frame, the one of said secondary drivers for actuating the one member and the other for actuating the other member, means for shifting the movable frame, and a series of keys whose action causes the shifting of the movable frame at different times for each key during the operation of the main driver, substantially as described.

38. In a cash register, the combination of a main driver, a secondary driver, a revoluble indicator on a vertical axis, means for locking the indicator to the main driver to set it to initial position during the first half stroke of the driver, and means for locking the indicator to the secondary driver to set it to indicate the proper amount during the second half stroke of the driver, substantially as described.

39. In a cash register, the combination of a main driver, a secondary driver, a revoluble indicator on a vertical axis, means for locking the indicator to the main driver to set it to initial position during the first half stroke of the driver, and means for locking the indicator to the secondary driver, to set it to indicate the proper amount during the second half stroke of the driver, and a series of keys whose action causes the proper setting of the indicator on the second half stroke of the driver, substantially as described

40. In a cash register, the combination of a main driver, a revoluble indicator on a vertical shaft, a sleeve feathered and free to slide on said shaft and carrying an actuating disk, a second actuating disk on said sleeve and given a complete revolution during the second half stroke of the driver, pins on the adjacent faces of the two disks and occupying the same plane of travel, means for bringing said pins into engaging position during the first half stroke of the driver to turn the indicator to initial position and then disengaging the same, and means for actuating the first disk during the second half stroke of the driver to set the indicator to the proper amount, substantially as described.

41. In a cash register, a series of circularly arranged constantly vertical tablets carried by a revoluble rack, means for revolving said rack and tablets, and means for exposing one of said tablets, substantially as described.

42. In a cash register, a series of circularly arranged tablets on vertically sliding rods, a revoluble rack in which said rods are mounted, means for revolving said rack, and means for exposing one of said tablets, substantially as described.

43. In a cash register, two or more series of circularly arranged and constantly vertical tablets, each series being carried by a revoluble rack, means for revolving said racks, and means for exposing one tablet of any series, substantially as described.

44. In an indicator mechanism, the combination of a series of constantly vertical tablets on vertical rods circularly arranged, an exposing member therefor, and means for operating the latter

45. In an indicator mechanism, the combination of an exposing member, a series of constantly vertical indicators mounted to be moved, in a circle with a vertical axis, over said exposing member, and means for operating the latter, substantially as described.

46. In an indicator mechanism, the combination of an exposing member, a series of constantly vertical indicators mounted to be moved, in a circle with a vertical axis, over said exposing member, and means for operating said exposing member when the indicators have been moved a predetermined distance, substantially as described.

47. In an indicating mechanism, the combination of an indicating window, an exposing member, a series of constantly vertical indicators mounted to be moved, in a circle with a vertical axis, over said exposing member, and means for operating said exposing member to place an indicator in said window, substantially as described.

48. In an indicating mechanism, the combination of an indicating window, an exposing member, a series of constantly vertical indicators mounted to be moved, in a circle with a vertical axis, over said exposing member, means for automatically moving said indicators, and means for operating said exposing member to place the indicator in said window, substantially as described.

49. In an indicating mechanism, the combination of an indicating window, an exposing member, a series of constantly vertical indicators mounted to be moved, in a circle with a vertical axis, over said exposing member, a driver for first setting said indicators to initial position, a driver for then setting them to the position desired, and means for operating the exposing member to place the proper indicator in said window, substantially as described.

50. In an indicating mechanism, the combination of an indicating window, two or more series of indicators mounted to be moved, in a circle with a vertical axis, over an exposing member for each series, said exposing members, means for automatically moving said indicators, and means for operating said exposing members to place the proper indicator of each series in the window, substantially as described.

51. In a cash register, a series of circularly arranged tablets on sliding rods carried by a revoluble rack set vertically, means for revolving said rack and tablets to initial position and then to proper indicating position, and means for raising the properly set tablet and its rod, substantially as described.

52. In a cash register, the combination of a main driver, a movable frame with secondary driving mechanism actuated by the main driver, a series of keys, and means for actuating said movable frame controlled in its action by each of said keys, whereby the actuation of any key determines the particular time at which the movable frame is actuated, substantially as described.

53. In a cash register, the combination of a vibrating frame, a series of slides carried thereby, a series of keys for said slides, a lock to yieldingly lock any of said slides upon the initial operation of the key or keys, and a second lock to rigidly lock the operated slides in one position and the unoperated slides in another position upon further operation of the key or keys, substantially as described.

54. In a cash register, the combination of a vibrating frame, a series of slides carried thereby and provided with graded cams, a series of keys adapted to engage said slides and means for locking and unlocking the slides, substantially as described.

55. In a cash register, the combination of a main driver making a complete revolution at each operation, a movable frame with secondary revoluble driving mechanism actuated by the main driver, a series of keys, and means for actuating said movable frame controlled in its action by each of said keys, whereby the actuation of any key determines the particular time at which the movable frame is actuated, substantially as described.

56. In a cash register, the combination of a main driver, a movable frame with secondary driving mechanism actuated by the main driver, a series of keys, a tilting bar for said movable frame, a vibrating frame actuated at each stroke of the main driver, and a series of slides on said vibrating frame one for each key and provided with graded cams, whereby the actuation of any key sets its slide to actuate the tilting bar of the movable frame by means of its cam, substantially as described.

57. In a cash register, the combination of a main driver, a movable frame with secondary driving mechanism actuated by the main driver, a series of keys, a tilting bar for said movable frame, a vibrating frame actuated by each stroke of the main driver, a series of slides on said vibrating frame one for each key and provided with graded cams, and locks for each slide brought into action by the shifting of one or more of said slides under the action of its key or keys, substantially as described.

58 In a cash register, the combination of a series of transfer bars, a series of registering wheels adapted to move them in one direction, means for simultaneously effecting all transfers to the secondary wheels standing at 9 or the transfer point, and means for simultaneously moving said bars back to effect all transfers to secondary wheels standing elsewhere than at 9 or the transfer point.

59. In a cash register, two registering wheels on a common axis, a transfer bar actuated by one of said wheels in one direction and carrying two pawls for engaging the other registering wheels, means for operating the transfer bar in the opposite direction, and means for preventing the actuation of both pawls during one complete operation of the transfer bar, substantially as described.

60. In a cash register, a registering wheel, a cam carried therewith, a transfer bar actuated in one direction by said cam, a second registering wheel and two ratchets carried thereby, the one having a continuing series of teeth and the other one tooth, a pawl pivoted to the transfer bar for engaging the ratchet with the continuing series of teeth, a second pawl pivoted to the first pawl and engaging the ratchet with one tooth, a disengaging lock for the first pawl brought into action by the operation of the second pawl, and a second cam for actuating the transfer bar in the opposite direction, substantially as described.

61. In a cash register, a registering wheel, a cam carried therewith and arranged to operate between the 9 and 0 of the registering wheel, a transfer bar operated in one direction by said cam, a second registering wheel and two ratchets carried thereby the one having a continuing series of teeth and the other one tooth between the 9 and 0 of its wheel, a pawl pivoted to the transfer bar and engaging the ratchet with the continued series of teeth, a second pawl pivoted to the first pawl and engaging the ratchet with one tooth, a disengaging lock for the first pawl brought into action by the operation of the second pawl, and a second cam for actuating the transfer bar in the opposite direction, substantially as described.

62. In a cash register, a series of registering wheels on a common axis, a transfer bar for each of said wheels except the one of lowest denomination, a cam carried by each wheel for actuating its adjacent transfer bar in one direction, two pawls carried by each transfer bar and engaging notches on the next higher wheel, the one ratchet having a continued series of teeth and the other one tooth, a disengaging lock for each of the pawls engaging the ratchets with continued series of teeth and brought into action by the operation of its adjacent pawl, and a second series of cams for operating the transfer bars in the opposite direction, substantially as described.

63. In a cash register, the combination of a revoluble main driver B having the lock ears a b, the lock pinions F, G, on a movable frame E engaged thereby and actuated at different times, the pinions H, I, actuated by the lock pinions and movable therewith, the registering pinion D, the type pinion C, and means for shifting the movable frame E, substantially as described.

64. In a cash register, the combination of the revoluble main driver B having the lock gear a b, the lock pinions F, G, on a movable frame E, engaged thereby and actuated at different times, the pinions H, I, actuated by the lock pinions and movable therewith, the type pinion C and indicator pinion K', and means for shifting the movable frame E, substantially as described.

65. In a cash register, the combination of the main driving shaft O, the shaft I', the indicator revoluble on a vertical shaft A', the lock gear L' fast on the shaft O, the lock pinion M', fast on the shaft I' and engaging the gear L', the cam N' fast on the shaft O, the bell crank O' O' engaged by said cam, the gear G' in constant mesh with a gear on the shaft I', the sleeve e' loose on shaft I' and driven at certain times from the shaft O, pinion J' fast on said sleeve e', sleeve E' feathered and free to slide on shaft A' and passing loosely through hub of gear G' and engaged by bell crank O' O', the gear F' fast on the sleeve E', and arranged to mesh with gear J' while the latter is in action, the pin c' on gear G', the pin d' on gear F', substantially as described.

66. In a cash register, the combination of the vertically set revoluble rack carrying the circularly arranged tablets and their sliding rods, means for picking up and resetting the rack and tablets to initial position during the first half of an operation, the lifting rod S' for the properly set tablet, the main shaft O, the cam P' fast thereon, the arm Q' actuated by said cam, and the pivoted arm R' connected to the rod S' and to the arm Q', whereby the properly set tablet is lifted into view, substantially as described.

67. In a cash register, the combination of the movable frame E carrying secondary driving mechanism actuated by a main driver, a series of keys and projections provided with graded cams actuated thereby, and a shifter for the frame E, actuated by the graded cams, substantially as described.

68. In a cash register, the combination of the movable frame, E, carrying secondary driving mechanism actuated by a main driver, a series of keys and projections provided with graded cams actuated thereby, the bell crank arms Y, W, connected to the movable frame, and the bar X carried by the arms W and engaged by the graded cams, substantially as described.

69. In a cash register, the combination with the shifter for the secondary driving mechanism, a series of keys, the vibrating bar M, the slides N, carried by said bar and supported at their forward ends, the graded cam slots q^2 in said slides, notches k^2, l^2, m^2 in said slides, the lock bars c^2, f^2 on vibrating frames for said notches, and means for shifting said slides into operating position by the movement of the keys, substantially as described.

70. In a cash register, the combination with the shifter for the secondary driving mechanism, a series of pivoted keys, the vibrating bar M, the slides N carried by said bar and supported at their forward ends, the graded cam slots q^2 in their slides, the inclined slots i^2 in the slides, and pins j^2 on the keys engaging said slots, whereby at the initial operation of a key its slide is projected into operative position, and whereby at the end of the operation of a key its slide is brought back out of operative position, substantially as described.

71. In a transfer mechanism of a cash register, the combination with the shaft O having cam k^2, the registering wheel of lower denomination carrying cam j^2, the sliding transfer bar between and operated by said cams at different times, the registering wheel of next higher denomination carrying two disks f^2, g^2 the former having a continuing series of teeth and the latter one tooth, the pawl p^2 pivoted to the bar E^4 and engaging the ratchet f^2, the pawl o^2 pivoted to pawl p^2 and engaging the disk g^2, the locking lug p^3 on the pawl p^2, and the locking bar p^4 for engaging said pawl when pawl o^2 is in action, substantially as described.

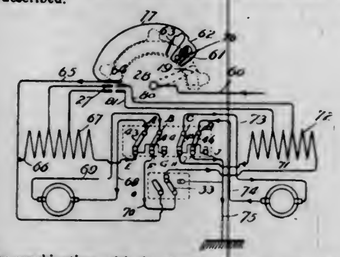
72. In a cash register, the combination of the revoluble shaft O, the cam B^2 fast on said shaft the pivoted arm A^2 engaging said cam under spring pressure, the platec C^2 and gong hammer d^2 carried by said arm, the gong D^2 and type wheels, substantially as described.

518,345. CONTROLLER FOR ELECTRIC MOTORS. WILLIAM COOPER, Minneapolis, Minn. Filed Aug. 28, 1893. Serial No. 484,162. (No model.)

Claim.—1. The method of operating electric motors, which consists in first arranging the motors in series in an open circuit, then inserting a total resistance and closing the circuit through the same, then gradually cutting out a part of said resistance, then breaking or opening the circuit and while open coupling said motors in multiple arc,

and afterward reinstating the remainder of said resistance, and finally gradually cutting out the same, substantially as described.

2. The method of operating electric motors, which consists in first arranging the motors in series in an open circuit, then inserting a total resistance and closing the circuit through the same, then gradually cutting out a part of said resistance, then shunting the current around the remaining resistance and into said motors while in series, then breaking or opening the circuit and while open coupling said motors in multiple arc, and afterward reinstating the remainder of said resistance, and finally gradually cutting out the same, substantially as described.



3. The combination with the electric motors, of an adjustable resistance connected in the circuit thereof, a multiple series switch arranged in circuit between said motors for connecting the same in series or in multiple arc, and means for cutting out a part of said resistance, then breaking the circuit and throwing said multiple series switch and finally cutting out the remainder of the resistance, substantially as described.

4. The combination, with the electric motors, of an adjustable resistance connected in the circuit thereof, a multiple series switch arranged in circuit between said motors for connecting the same in series or in multiple arc, the contact device of said resistance, and means in connection with said contact device for cutting out a part of said resistance, then breaking the circuit and throwing said multiple series switch, and finally cutting out the remainder of the resistance, substantially as described.

5. The combination, with the electric motors, of an adjustable resistance included in the circuit thereof, a multiple-series switch included between said motors, a gap in said resistance to form a break in the circuit and means to change the position of said switch during such break, substantially as described.

6. The combination, with the electric motors, of two groups of adjustable resistance included in the circuit of said motors, a short circuit or loop extending about the second group and having a terminal between said groups, a movable contact to engage the resistance sections in said groups, and a multiple-series switch included between said motors, and means in connection with said contact for throwing said switch during the movement of said contact from said loop terminal to the second group of adjustable resistance, substantially as described.

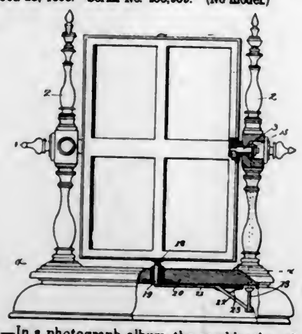
7. The combination, with the frame, of the resistance sections arranged therein and insulated therefrom, said sections arranged in two groups, a gap being provided between the same, a contact arm and brush to sweep over said sections, a four point switch, and means in connection with said arm for operating said switch as said brush passes over said gap, substantially as described.

8. The combination, with the semicircularly arranged resistance sections divided into two groups, a central shaft, an arm thereon, a contact brush to engage said sections, a terminal provided between said sections, a terminal provided at the end of the second group of sections, a short circuit between said terminals, and a magnetic blower arranged between said groups and included in said short circuit, substantially as described.

9. The combination, with the frame, of the resistance sections arranged therein in two groups, the vertical shaft, the pinion thereon, the central shaft, the gear to be engaged by said pinion, said gear carrying the contact arm provided with a brush to engage said sections, means for operating said shaft, a switch, a second arm provided on said gear and arranged to operate said switch, a reversing switch, and a second shaft with means in connection therewith for operating said reversing switch, substantially as and for the purpose set forth.

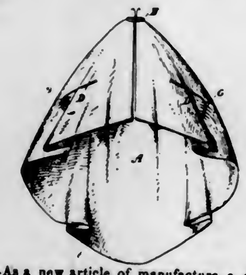
10. The combination, with the two groups of resistance sections arranged with the gap between the same, of a contact device to engage said sections successively, a terminal section provided at the end of the first group of resistance sections, a loop or short circuit extending therefrom to the last section or terminal of the second group of resistance sections, and a magnetic blower provided in the gap between said groups and included in said short circuit, substantially as described.

518,346. PHOTOGRAPH-ALBUM. JOHN EKVAL, Fargo, N. D. Filed Oct. 23, 1893. Serial No. 488,959. (No model.)



Claim.—In a photograph album, the combination of a rotatable box, a series of gravitating frames mounted therein, a gear wheel connected thereto, an upright rod having teeth engaging said gear wheel, and adapted to revolve the said box and removably keyed for actuating said rod, and a lock to hold the said box and prevent the same revolving more than one-half revolution, substantially as described.

518,347. GARMENT FOR DANCERS. MARIE L. FULLER, New York, N. Y. Filed Oct. 12, 1893. Serial No. 488,004. (No model.) Patented in France Apr. 8, 1893, No. 227,107, and in England May 24, 1893, No. 10,296.



Claim.—As a new article of manufacture, a dancing garment consisting of a skirt the upper edge of which is attached to a band or crown-piece, said skirt being open in front from the lower edge to a point in the crown-piece, with two wands one end of each of which is attached to the skirt near its lower inner edge, adjacent to the sides of the dancer, the opposite ends of the wands being loose and adapted to be grasped by the hands of the wearer for the purpose of manipulating the garment, substantially as and for the purpose specified.

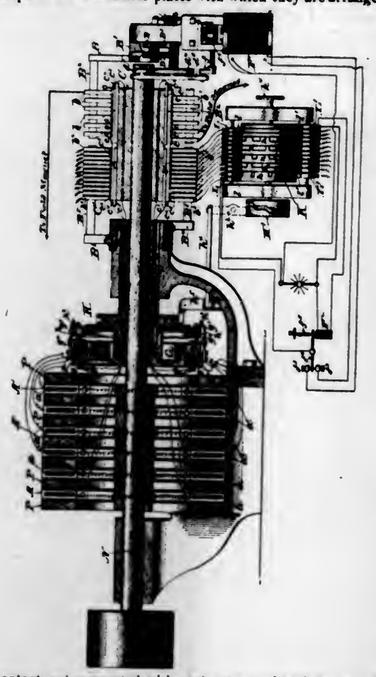
518,348. BRIDLE-ROD FOR RAILROADS. HERCULES A. MORIN, San Leandro, Cal. Filed Oct. 23, 1893. Serial No. 488,939. (No model.)



Claim.—The herein-described improved bridle-rod, consisting of two parts or sections, provided each with an outer hooked end, a central vertical portion and a free extended end, and nutted bolts uniting said parts or sections, substantially as set forth

518,349. REGULATOR FOR DYNAMO-ELECTRIC MACHINES. CHARLES L. F. MULLER, Milwaukee, Wis.; Charles B. Carstens, same place, administrator of said Muller, deceased, assignor to the Wisconsin Electric Light and Power Company, of Wisconsin. Filed May 13, 1889. Serial No. 310,581. (No model.)

Claim.—1. In a dynamo electric machine, the combination with a revolving armature provided with a number of independent coils, of a commutator having a corresponding number of pairs of segmental plates with which the terminals of the corresponding coils are connected, the insulating spaces between the ends of said plates being arranged in lines oblique to the axis of rotation, and two sets of brushes arranged in pairs corresponding in number with said coils and the pairs of commutator plates with which they are arranged to



make contact and connected with each other and with the exterior circuit in series, one set of brushes being movable circumferentially about the axis of the commutator toward and from the other, whereby said coils are included successively in the exterior circuit and generate an electric current for a greater or less portion of each revolution of the armature, and when not so included in the exterior circuit, are open and inoperative, substantially as and for the purposes set forth.

2. In a dynamo electric machine, the combination with a revolving armature having a number of independent coils, of a commutator having a like number of pairs of segmental plates with which the terminals of the corresponding coils are connected, the insulating spaces between the ends of said plates being arranged in lines oblique to the axis of rotation, two sets of brushes arranged to engage in pairs with the corresponding pairs of commutator plates and connected with each other and with the exciting circuit in series, one set being movable circumferentially about the axis of the commutator toward and from the other, whereby said coils are included successively in the exciting circuit and generate current for a greater or less portion of each revolution of the armature, and when not so included, are open and inactive, a field magnet, the windings of which are connected with the terminal brushes, and electro magnetic mechanism connected with the working circuit and with one set of brushes and arranged to automatically shift said brushes toward and from the other set, according to variations in the strength of the working current, substantially as and for the purposes set forth

3. In a dynamo-electric machine, the combination with a revolving armature provided with a number of independent coils, of a commutator having a corresponding number of pairs of segmental plates with which the terminals of the coils are connected, and continuous rings interposed between the several pairs of segmental plates and two sets of brushes through which and said rings the coils are connected in series, one set of brushes being movable circumferentially about the commutator toward and from the other, whereby the coils are included for a greater or less portion of each revolution of the armature in circuit and when not so included are open, substantially as and for the purposes set forth

4. In a dynamo-electric machine, the combination with a revolving armature provided with a number of independent coils each composed of sections, a coupling device arranged to connect the sections of each coil in series or multiple arc, a commutator having a corresponding number of segmental plates with which the terminals of the coils are connected, and two sets of brushes one set being movable toward and from the other, whereby said coils are included in circuit for a greater or less portion of each revolution of the armature, substantially as and for the purposes set forth.

5. In a dynamo-electric machine, the combination with a revolving armature provided with a number of independent coils, a commutator having a corresponding number of pairs of segmental plates with which the terminals of the coils are connected, the insulating spaces between the ends of said plates being in lines oblique to the axis of rotation, two sets of brushes, one set being movable circumferentially around the commutator toward and from the other, whereby said coils are included in circuit for a greater or less portion of each revolution of the armature, and when not so included are open, and a coupling device by which the coils are severally or in groups connected with each other and the exterior circuit in series and by which they are variously grouped for greater or less quantity, substantially as and for the purposes set forth.

6 In a dynamo electric machine, the combination with a revolving armature provided with a number of independent coils, and a coupling device consisting of two disks revolving concentrically with the armature, one disk being movable laterally toward and from the other, and provided with insulated contact pieces variously grouped and connected according to the coupling to be effected of the sections of the coils and the other disk being provided with insulated blocks with which the terminals of the coils are connected and insulated springs with which the terminals of the sections are connected, arranged to bear against the various contact pieces of the other disk in the different positions of the latter, substantially as and for the purposes set forth

7 In a dynamo-electric machine, the combination with a revolving armature provided with a number of independent coils, a commutator having a number of pairs segmental plates, with which the terminals of the coils are connected, the insulating spaces between the ends of said plates being in lines oblique to the axis of rotation, a like number of pairs of brushes, one brush of each pair being movable circumferentially around the commutator toward and from the other whereby said coils are included in circuit for a greater or less portion of each revolution of the armature and when not so included are open, a coupling device whereby two or more of said coils are grouped for quantity and a regulator whereby the strength of the circuit is maintained constant when changes are made for both quantity and intensity, substantially as and for the purposes set forth.

8. In a dynamo electric machine, the combination with the field magnet, of a revolving armature provided with a number of independent coils, a commutator provided with a like number of pairs of segmental plates with which the terminals of the coils are connected, the insulating spaces between the ends of said plates being in lines oblique to the axis of rotation, two sets of brushes working in pairs with the corresponding pairs of segmental plates, one set being movable toward and from the other, continuous rings interposed between the several pairs of segmental commutator plates and serving to connect the coils through the brushes in series, and mechanism connected with the main circuit and arranged to automatically change the distance between the two sets of brushes according to variations in the strength of said main circuit, substantially as and for the purposes set forth

9 In a dynamo-electric machine, the combination with the field magnet and armature supplying the working circuit, of a revolving armature provided with a number of independent coils, means for connecting said coils with each other a commutator having a like number of pairs of segmental plates with which the terminals of said coils are connected, the insulating spaces between the ends of said segmental plates being in lines oblique to the axis of rotation, two sets of brushes working in pairs with the corresponding pairs of segmental plates, one set being movable toward and from the other, the said several coils being connected through said brushes in series, and the terminals connected with the windings of the field magnet, automatic regulating mechanism connected with the movable brush holder, two electro magnets and their armature connected with said mechanism, a switch arranged to divert a portion of the current through either one of said magnets, and an electro magnet connected with the working circuit so as to operate said switch when the working current exceeds a certain strength, substantially as and for the purposes set forth.

10. In a dynamo-electric machine, the combination with a revolving armature provided with independent coils which are connected in series with the windings of the field magnet through two sets of brushes, one set being movable toward and from the other, and means for connecting said coils with each other of automatic brush adjusting mechanism, consisting of two friction wheels each geared through suitable mechanism with the movable brush holder, a constantly rotated friction driver with which said friction wheels are arranged to engage one at a time, a pivoted armature arranged when moved in

one direction to bring one of said friction wheels into engagement with said friction driver and when moved in the other direction to bring the other friction wheel into engagement with said driver, two electro magnets arranged to move said armature in opposite directions, and an automatic switch consisting of two contact points connected one with the windings of one of said magnets, the other with the windings of the other magnet, of an electro-magnet the windings of which are connected with the working circuit and its armature movable between said contact points, substantially as and for the purposes set forth

11 In a dynamo-electric machine, the combination with a revolving armature provided with a number of independent coils, a commutatator having a like number of pairs of segmental plates with which the terminals of the corresponding coils are connected and a like number of pairs of brushes working with the said segmental commutator plates, of a coupling device, consisting of two sets of contact springs, individually connected with said brushes, and a cylinder provided with contact plates arranged in corresponding and connected groups on opposite sides thereof, said plates varying in width in different groups so as to couple together two or more pairs of coils, substantially as and for the purposes set forth

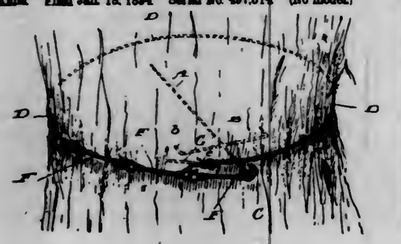
12. In a dynamo-electric machine, the combination with a revolving armature provided with a number of independent coils, a commutator having a number of pairs of segmental plates with which the terminals of the corresponding coils are connected, and two sets of brushes working in pairs with the corresponding pairs of segmental commutator plates, of a coupling device consisting of two sets of contact springs severally connected with said brushes and of a revoluble cylinder provided on opposite sides with corresponding groups of insulated contact plates, and insulated rings connecting the plates on one side of the cylinder with the plates of the corresponding groups on the opposite side of the cylinder. substantially as and for the purposes set forth.

13. In a dynamo-electric machine, the combination with a revoluble armature provided with a number of independent coils, a commutator having a like number of pairs of segmental plates with which the terminals of the corresponding coils are connected, the insulating spaces between the ends of said plates being in lines oblique to the axis of the commutator, and two sets of brushes working in pairs with the corresponding pairs of commutator plates, one set of brushes being movable toward and from the other, of a coupling device consisting of a revoluble cylinder having two sets of contact plates arranged in corresponding groups on opposite sides of said cylinder, the plates of the corresponding opposite groups being electrically connected, and two sets of contact springs on opposite sides of said cylinder, severally connected with said brushes, substantially as and for the purposes set forth.

14. In a dynamo-electric machine, the combination with a revolving armature having a number of indepeodent coils, of a commutator having a like number of pairs of segmental plates with which the terminals of the corresponding coils are connected, two sets of brushes arranged to work in pairs with the corresponding pairs of commutator plates, brush supporting rods or bars parallel with the axis of the commutator, provided with insulated conductors which are inserted in longitudinal grooves in said rods or bars and are severally connected with said brushes, and a coupling device consisting of two sets of contacts severally connected with said insulated conductors at the ends of the rods or bars in which they are inserted, and a revoluble cylinder provided with insulated plates correspondingly grouped on opposite sides thereof, substantially as and for the purposes set forth

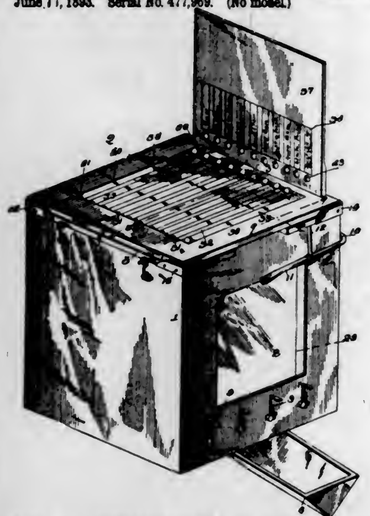
15 In a dynamo-electric machine, the combination with a commutator, divided transversely to its axis into a number of sections, two sets of brushes working in pairs with corresponding sections of the commutator, brush supporting rods or bars arranged parallel with the periphery of the commutator and formed with longitudinal grooves, and insulated conductors inserted in said grooves and each connected with a brush. substantially as and for the purposes set forth

518,350. SHOCK-COMPRESSOR. ERA W NEWBERRY, Lane, Kans. Filed Jan. 18, 1894. Serial No. 497,314. (No model.)



Claim.—In a shock compressor as described, the combination of a metallic rod having lateral extending arms with bent ends *b* parallel with the rod A for engagement with a shock of grain, and a wire composed of one long piece, and a series of links, of a hook carried by the end of the long part of the binding wire, the link end of the binding strip adapted to be looped over a hooked portion C, the said binding wire to be passed around the shock, by means of a hand hook, and the hook *c* engaged in a link portion of the binding strip, substantially as shown and described.

518,351. BALLOT-BOX. HENRY H. NIEBUR, Ferndale, Cal. Filed June 17, 1893. Serial No. 477,969. (No model.)



Claim.—1. A ballot-box having a series of compartments therein, a removable tray or series thereof having holes or openings therein coincident with said compartments and adapted to receive ball-ballots, and means for releasing said ball-ballots, substantially as described.

2. A ballot-box having a series of removable compartments with passage-ways therethrough, a removable tray or series thereof having holes or openings therein coincident with said passage-ways for receiving ball-ballots, means for releasing said ball-ballots, and means for registering votes as cast, substantially as described.

3. A ballot-box having a series of compartments with passage-ways therethrough, a removable tray having holes or openings therein corresponding to said passage-ways and designed to receive ball-ballots and a movable frame beneath said holes or openings, substantially as described.

4. A ballot-box having a series of compartments with passage-ways therethrough, a removable tray having holes or openings therein corresponding to said passage-ways, a movable frame beneath said holes or openings and a lever fulcrumed on said ballot-box and designed to operate said frame, substantially as described.

5. The combination with a ballot-box having a series of compartments and passage-ways therethrough, of a tray having holes or openings corresponding to said passage-ways, a frame loosely attached to said tray and having cross-bars beneath said holes or openings, and a spring pressed lever fulcrumed on said box and having arms engaging said frame, substantially as described.

6. The combination with a ballot-box having a series of separate passage ways, of a tray having a series of holes or openings, slides between corresponding holes or openings, and a movable frame beneath said holes or openings of said tray, substantially as described.

7 The combination of the box having separate passage-ways provided with inclined bottoms and discharge holes at the ends thereof, the tray having holes or openings corresponding to said passage ways, slides having cross-bars normally held beneath said holes or openings, and means for operating the same, substantially as described.

8 A ballot-box having a removable compartment supplied with a passage-way therethrough, a vertical screw-shaft therein with a lower spiral of increased dimension, a scale, and an index-hand adjustably mounted on said vertical screw-shaft, said spiral being engaged and operated by a ball ballot, substantially as described.

9. In a ballot box the combination of a compartment having a passage-way therethrough for the reception of a ball-ballot, a registering mechanism comprising a lower spiral having a straight portion at the lower end thereof and a lock engaging the said lower straight portion of the said spiral, substantially as described.

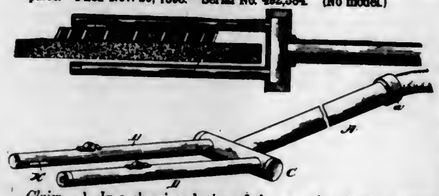
10. A removable tray having a series of openings therein and a box upon which said tray is adapted to be placed having a series of removable compartments with passage-ways therethrough adapted to coincide with the openings of the tray, substantially as described.

11. A tray for ballot-boxes having a series of grooves and slides therein and rows of openings extending longitudinally of said tray and between the slides and the adjacent terminations of the grooves, and means for opening and closing the said rows of openings. substantially as described.

12. In a ballot-box the combination of a box proper having a sight-opening in one end thereof, a series of compartments with registering mechanism therein having open sides adapted to be exposed to said sight-opening, and a slide for covering said sight-opening, substantially as described.

13. In a ballot-box the combination of a box proper having a series of removable compartments therein with passage-ways extending therethrough, registering mechanism in said compartments, a lid or cover for said box having a series of openings therein, a removable tray with slides and openings therein and adapted to receive ball-ballots, a slide plate on the under side of said tray and lever mechanism adapted to operate said slide-plate to release the ball-ballots and permit them to pass through the compartments. substantially as described.

518,352. REVOLVING CLEANING-BRUSH. WILLIAM R. NIGHTINGALE, Valley, Nebr., assignor of one-half to John H. Simonton, same place. Filed Nov. 29, 1893. Serial No. 492,384. (No model.)



Claim.—1. In a cleaning device of the class described, a piping frame having separate jet pipes one of which is provided with a jet opening at one side, and the other of which is provided with an end jet opening and a revolving cleaning brush having a water wheel at one side and disposed next to said side jet opening, of one of said jet pipes substantially as set forth.

2. In a cleaning device of the class described, a piping frame having separate parallel jet pipes, one of which is provided with a jet opening at one side, a perforated jet plug removably fitted into one end of the other jet pipe and a revolving cleaning brush mounted on a spindle journaled on the jet pipes, and having a radial series of off-standing blades or buckets at one side adapted to be disposed next to said side jet opening, substantially as set forth.

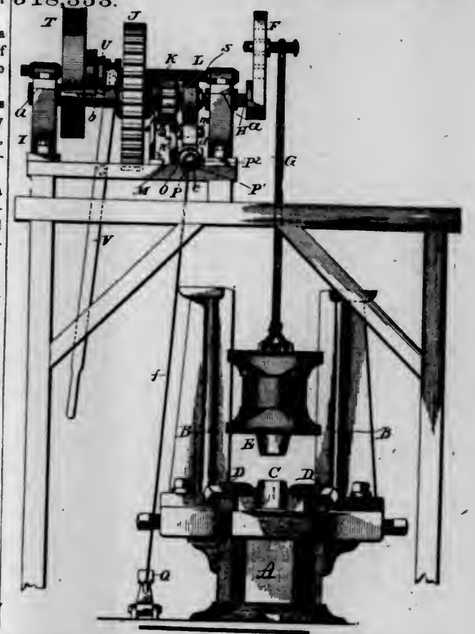
3. In a cleaning device of the class described, a pipe handle adapted to be coupled with a hose or other water supply, parallel jet pipes coupled to one end of said pipe handle, one of said jet pipes having an end jet opening and the other of which is provided at one side near its outer end with a side jet opening disposed at an angle, a revolving cleaning brush journaled between said jet pipes and having a brush periphery, and a water wheel disk arranged at one side of said brush and having a radial series of off-standing and angularly disposed blades or buckets. substantially as set forth.

518,353. DROP-PRESS. GEORGE W. PECK, New Haven, Conn., assignor to the Miner & Peck Manufacturing Company, same place. Filed Apr. 18, 1893. Serial No. 470,870. (No model.)

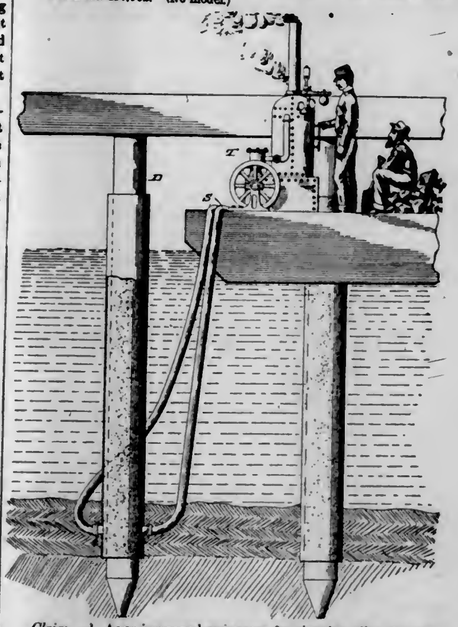
Claim.—1. In a drop press the combination with the dies; hammer, crank shaft, crank, and operating gear and mechanism constructed and adapted to operate substantially as described whereby the hammer is automatically locked in its raised position at every revolution of the crank-shaft, and is released by operating a treadle, of a band pulley a friction-clutch for throwing the band pulley into and out of engagement with the driving shaft and a lever for operating the clutch, whereby the power employed in operating the press may be utilized to facilitate in setting the dies, substantially as set forth.

2. The combination with a die, hammer, crank shaft, and means connecting a crank on the crank shaft with the hammer, of an arm secured to the crank shaft, yielding stop plates for engaging the arm, a driving and ratchet wheel loosely mounted on this crank shaft, a pawl pivoted to the arm on the crank shaft, a cam for automatically removing the pawl from the ratchet toothed wheel, a drive shaft, gearing, and a clutch on the drive shaft for regulating the application of power thereto, substantially as set forth.

518,353.



518,354. METHOD OF AND APPARATUS FOR PRESERVING PILES. ALBERT A. POLHAMUS, San Diego, Cal. Filed June 25, 1892. Serial No. 437,962. (No model.)



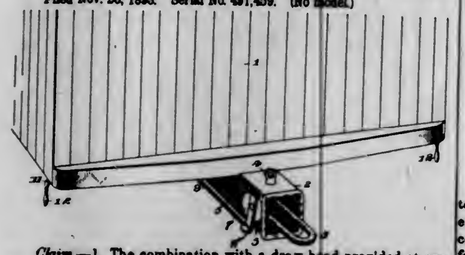
Claim.—1. As an improved apparatus for cleaning piles, the combination of a guide surrounding the pile, eyes carried by the guide, a chain passing through the eyes and around the pile, and means for changing the position of the guide longitudinally of the piles, substantially as described.

2. As an improved apparatus for preserving piling the combination of a casing surrounding a pile, a tube discharging in to the top of said casing, means for forcing a supply of water through the tubes.

a reservoir above the surface of the water, and flexible tubes opening into the casing at the bottom and connecting with said reservoir whereby the pile may be cleaned and cement applied thereto from the bottom upward, substantially as described.

3. The herein described method of preserving a pile consisting in cleaning the same by a mechanical apparatus surrounding it with a casing, injecting water within the casing to gradually expel the mud, and within said casing around the bottom thereof to permit the latter to gradually sink, coating the cleansed pile with a covering of cement from the bottom upward while the casing still surrounds the same, and removing the casing, substantially as set forth.

518,355. CAR-COUPLING. JAMES W. RABBET, Cairo, Ill., assignor of two-thirds to Isaac A. Hall and John O. Hartless, same place. Filed Nov. 20, 1893. Serial No. 491,459. (No model.)



Claim.—1. The combination with a draw-head provided at one side with concentric diagonally disposed curved slots, of an oscillating plate pivoted between the slots, tines extending inwardly from the slots and adapted to engage a link, and means located at the sides of the car for oscillating the plate, substantially as specified.

2. The combination with a draw-head having curved concentric slots arranged diagonally opposite each other in one side of the head, an oscillating plate concentrically pivoted to that side of the head with relation to the slots and having laterally disposed link-engaging tines, an arm extending from the plate at an angle thereto, a transverse cranked shaft located under the car, a handle for operating the shaft, and a link between the crank-portion of the shaft and the arm, substantially as specified.

3. The combination with a draw-head provided at one side with diagonally curved concentric slots, the front lower slot registering with a transverse recess formed in the bottom of the head, and the upper end of the rear slot registering with a transverse recess formed in the under side of the top of the head, a centrally pivoted plate arranged upon the draw-head and having laterally disposed tines passing through the slots and adapted to take into the recesses, a crank-shaft arranged under the car and adapted to rock, and operating connections between the crank-shaft and the plate for causing an oscillation of the latter when the shaft is oscillated, substantially as specified.

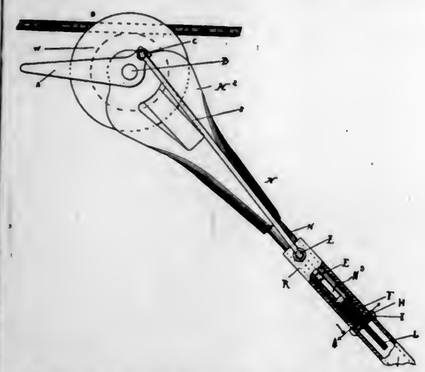
518,356. PUMP. DANIEL F. SELZER and HENRY SELZER, Akron, Ohio. Filed July 27, 1892. Serial No. 441,410. (No model.)



Claim.—1. In a chemical pump, the acid proof cylinder having a lower interiorly threaded end and a series of inlet perforations in such end, a valve removably clamped within the cylinder above the perforations, a flexible cushion cap or rest arranged within the lower end of the cylinder and of a smaller diameter than the cylinder to stand in and away from the inlet perforations, an exteriorly threaded bushing ring fitting said cap or rest and removably engaging the threads of the cylinder below the inlet perforations, and a hollow acid proof valved plunger moving within the cylinder, substantially as set forth.

2. In a pump, the combination of the cylinder or barrel having the lower interiorly threaded end, perforations in such end, and an inner shoulder arranged above said perforations, a flap valve-disk adapted to rest against said inner shoulder, an unthreaded valve supporting disk bearing against said flap-valve disk, a threaded follower-collar engaging said interiorly threaded end of the cylinder and working against said unthreaded disk, a flexible cushion rest or cap of smaller diameter than the cylinder and removably fitted in the lower end thereof below and in from the inlet perforations, and a valved hollow plunger moving in said cylinder above the valve, substantially as set forth.

518,357. AUTOMATIC TROLLEY-WIRE FINDER. THEODORE STRAUS, Baltimore, Md. Filed Jan. 26, 1894. Serial No. 498,115. (No model.)



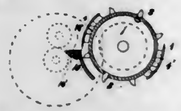
Claim.—1. The combination with a trolley arm, of a sliding extension at the outer end of said arm, a spring arranged to urge said extension outward, a trolley, pivoted guides upon the extension, and connections between the guides and the trolley arm, whereby the former are automatically made operative when the trolley leaves the wire, substantially as described.

2. The combination with a trolley arm, of a sliding extension at the outer end of the said arm, a trolley wheel and inclined guides pivotally mounted in the outer end of the extension, connecting rods pivoted to the guides and to the trolley proper, a spring arranged to urge the extension outward, and a stop to limit its outward movement, substantially as described.

3. The combination with the hollow trolley arm, of the sliding extension having a shank fitting therein, the spring urging said extension outward, the trolley wheel in the bifurcated head of the extension, the inclined guides pivoted on the outside of the head and provided with short arms, and the rods connecting said short arms with the trolley arm proper, substantially as described.

4. The combination with a trolley arm bent upwardly near its outer end, of a spring-projected sliding extension, a trolley wheel and inclined guides pivotally mounted in said extension, said guides being automatically operated by the pressure of the trolley upon the wire, substantially as described.

518,358. CORN SEPARATOR, HUSKER, AND FODDER-SLITTER. CHARLES H. TAYLOR, Lincoln, Nebr. Filed Sept. 6, 1892. Serial No. 445,203. (No model.)



Claim.—1. In a fodder slitting machine the combination with a table or platform over which the stalks are moved, and rotary rollers between which the stalks pass lengthwise from the table, of a rotary slitting cylinder journaled in juxtaposition to one end of the table or platform, and provided with a plurality of stalk-slitting teeth which are narrow pointed and sharpened along their length from point to base to slit the stalks into filaments or shreds, and a bridge piece having a concave plate arranged approximately concentric with the slitting cylinder and serving to support the bent down portions of the stalks while they are slitted into filaments or shreds by the teeth of the cylinder, substantially as described.

2. The combination with a table or platform over which the stalks are moved, of rotary indented snapping rollers between which the stalks pass lengthwise from the table and by which the ears of corn are removed from the stalks, and a rotary slitting cylinder journaled in juxtaposition to one end of the table or platform and provided with a plurality of stalk-slitting teeth which are narrow pointed and sharpened along their length to slit the stalks into filaments or shreds, substantially as described.

3. The combination with a table or platform over which the stalks are moved, of rotary indented snapping rollers between which the stalks pass lengthwise from the table, and by which the ears of corn are removed from the stalks, a rotary slitting cylinder journaled in juxtaposition to one end of the table or platform, and provided with a plurality of stalk-slitting teeth which are narrow pointed and sharpened along their length from point to base to slit the stalks into filaments or shreds, and a bridge piece interposed between the rollers and the cylinder and provided with a shear blade and a pendent concave plate which is approximately concentric with the slitting cylinder for supporting the stalks while they are being slitted into filaments or shreds by the teeth of the cylinder, substantially as described.

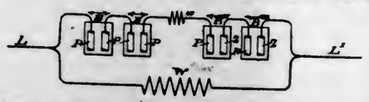
4. The combination with a table or platform over which the stalks are moved, and rotary indented snapping rollers between which the stalks pass lengthwise from the table and by which the ears of corn are removed from the stalks, of a rotary slitting cylinder journaled in juxtaposition to one end of the table and provided with a plurality of stalk slitting teeth,—a series of cross cutting knives which have their cutting edges along their length and extend lengthwise of the cylinder, and a bridge piece interposed between the snapping rollers and the cylinder, and having a pendent concave plate approximately concentric with the slitting cylinder for supporting the stalks while they are slitted into filaments or shreds by the teeth of the cylinder, substantially as described.

7. The combination in a fodder slitting machine, of a slitting cylinder provided with teeth for slitting the stalks into filaments or shreds, a pair of corn snapping rollers, one of which is mounted in vertically yielding boxes, a train of gears which gear the lower snapping roller direct to the shaft of the slitting cylinder at one side of the machine, and gearing at the opposite side of the machine which gears the upper snapping roller with the shaft of the slitting cylinder and comprises a gear wheel mounted on the cylinder shaft, a gear wheel on the upper snapping roller shaft, and an intermediate gear with which the gears on the cylinder shaft and snapping roller shaft directly mesh, substantially as described.

8. The combination in a fodder slitting machine, of a slitting cylinder provided with teeth for slitting stalks into filaments or shreds, a pair of corn snapping rollers, one of which is mounted in vertically yielding boxes, gearing connecting the shaft of the slitting cylinder with the lower snapping roller at one side of the machine, a gear wheel mounted on the shaft of the slitting cylinder at the opposite side of the machine, a gear wheel on the vertically yielding snapper roller, and a swinging plate or arm connected with one of the vertically yielding boxes, and carrying an intermediate gear which connects the gear on the cylinder shaft with the gear on the vertically yielding roller, substantially as described

9. In a fodder slitting machine the combination with a slitting cylinder having sharp-pointed knife-shaped teeth projecting from its face for slitting stalks lengthwise, of cross-cutting knives extending lengthwise along the cylinder and having their cutting edges extending along their length, and a bridge-piece and shear blade arranged in proximity to the cylinder and upon which the stalks are supported while they are slit longitudinally and cut transversely, substantially as described.

518,359. ELECTRIC-CURRENT REGULATOR. ADDISON G. WATERHOUSE, Hartford, Conn., assignor to the Waterhouse Electric Company, of Connecticut. Filed Nov. 26, 1892. Serial No. 453,191. (No model.)



Claim.—1. In the local circuit formed by dividing an electric circuit into two closed circuit branches, the combination of one or more electrolytic cells with one or more current generators, the counter electro-motive force of the cells being approximately equal to the electro-motive force of the generators, substantially as and for the purposes specified.

2. In the local circuit formed by dividing an electric circuit into two branches, the combination of electrolytic cells with current generators in both branches, in such proportions that the counter electro-motive force of the cells is approximately equal to the electro-motive force of the generators in the local circuit, substantially as and for the purposes specified.

3. In an electric circuit divided into two branches, electrolytic cells having non-attackable electrodes in combination with current generators having their poles arranged in the branches respectively, as described, so that if a current be flowing in the circuit in one direction the generators assist the electrolytic cells in opposing the current in one branch but assist the current in overcoming the counter electro-motive force of the cells in the other branch, substantially as and for the purpose specified.

4. The combination with a branched electric circuit, of an electrolytic cell or cells having non-attackable electrodes in a branch,—and a current generator, said current generator and electrolytic cell or cells being in series with one another on the local circuit formed by said branches as and for the purpose described.

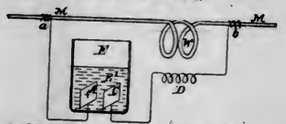
5. The herein described method of converting alternating currents into currents of the same direction, consisting in opposing the alternating currents by a current generator in a branch of the circuit, and balancing said current generator by the counter electro-motive force of an electrolytic cell or element.

6. The herein described method of converting alternating into direct currents, consisting in opposing the flow of current of one sign and assisting the flow of current of the other sign in each of two branches by current generators, and opposing the flow of current from said generators on short circuit by the counter electro-motive force of an electrolytic element or elements.

7. The herein described method of regulating an electric current, consisting in opposing the flow thereof in either of two branches of a circuit by a current generator, and opposing the flow of current from said generator on short circuit through said branches by the counter electro-motive force of an electrolytic element or elements.

8. The herein described method of regulating the flow of alternating currents, consisting in establishing two branches of circuit, opposing the flow of currents of one sign and assisting the flow of currents of the other sign by a current generator in a branch of said circuit and balancing the current of said generator on short circuit through the branches by the counter electro-motive force of an electrolytic element.

518,360. METHOD OF REGULATING ELECTRIC CURRENTS. ADDISON G. WATERHOUSE, Hartford, Conn., assignor to the Waterhouse Electric Company, of Connecticut. Filed Apr. 13, 1892. Renewed Mar. 15, 1894. Serial No. 503,797. (No model.)



Claim.—1. The method of regulating an electric current by first forming a derived circuit current and opposing its passage by the counter electromotive force of one or more sets of electrolytic elements having non-attackable electrodes, and second, in employing the magnetic effect of said derived circuit current for the purpose of regulating a current, substantially as and for the purposes set forth.

2. The method of regulating an electric current by first, forming a derived circuit current and opposing its passage by the counter electromotive force of one or more sets of electrolytic elements having non-attackable electrodes, and second, in employing the said derived circuit current for actuating a current regulating device, substantially as, and for the purposes set forth.

3. The combination with a main circuit, the electrical constants of which are known and the current in which is to be maintained below a fixed limit, of a regulating circuit placed as a shunt around said main circuit and including an electrolytic pile having non attackable electrodes, substantially as described.

4. The combination with a main circuit the current in which is to be maintained below a fixed limit, of a regulating shunt circuit including an electrolytic pile having non-attackable electrodes, and a resistance, substantially as described.

5. The combination with a main circuit, the current in which is to be maintained below a fixed limit, of a regulating shunt circuit including an electrolytic pile, having non-attackable electrodes, and arranged in such relation with the said main circuit that when a current flows in the shunt circuit the electrical condition of the said main circuit will be altered, substantially as described.

6. The combination with a main circuit the current in which is to be regulated, of a shunt circuit including an electrolytic pile having

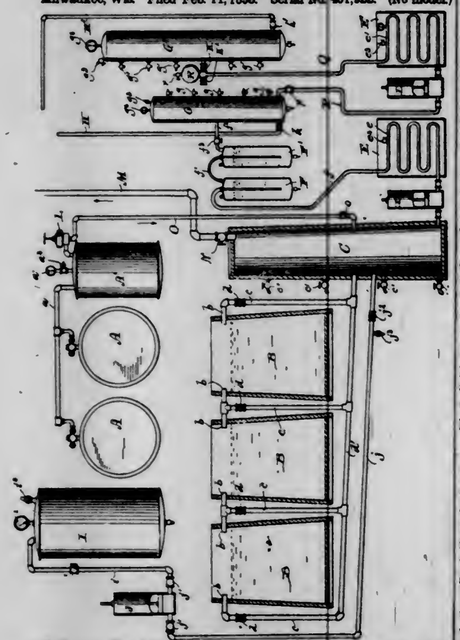
non-attackable electrodes, and apparatus which is actuated by a current flowing in the shunt circuit so as to alter the electric conditions of the main circuit, substantially as described.

7. The combination with a main circuit the current in which is to be regulated, of a shunt circuit including an electrolytic pile having non-attackable electrodes, and an electro-magnetic device which is actuated by a current flowing in the shunt circuit and is thereby caused to alter the electrical conditions of the main circuit, substantially as described.

8. The combination with a main circuit the current in which is to be regulated, of a shunt circuit including an electrolytic pile having non-attackable electrodes and an electro-magnetic device which is operated by a current flowing in the shunt circuit to divert the current in the main circuit, substantially as described.

9. The herein described method of regulating or controlling an electric current in either of two branches of a circuit, consisting in opposing the passage of current in either of them by the counter electro-motive force of one or more electrolytic elements having non-attackable electrodes, and adjusted as described, in their counter electro-motive force to the potential at which it is desired that current should flow or cease to flow, as and for the purpose set forth.

518,361. METHOD OF AND APPARATUS FOR THE RECOVERY OF WASTE GASEOUS PRODUCTS IN BREWERIES. OTTO ZWIETUSCH, Milwaukee, Wis. Filed Feb. 11, 1893. Serial No. 461,922. (No model.)



Claim.—1. The herein described method of utilizing the heretofore waste product of carbonic acid gas derived from the main fermentation and other brewing processes, consisting in collecting the same in a suitable closed vessel, separating the atmospheric air therefrom, and forcing the gas through purifiers to suitable storage receptacles, ready for immediate or future use.

2. The herein described method of utilizing the heretofore waste product of carbonic acid gas derived from the main fermentation and other brewing processes, consisting in collecting the same in a suitable closed vessel placed in the lowest and coolest portion of the brewery, separating the atmospheric air therefrom as much as possible, pumping the gas through a coil in a cooling tank, and forcing it through a purifier or purifiers to a suitable storage receptacle

3. The herein described method of collecting the carbonic acid gas, heretofore wasted, from the main fermentation, and other brewing processes, and treating the same for re-use, by leading it into one or more vessels for separating and purifying the gas from air and other substances, under the required pressure, and temperature.

4. The herein described method of utilizing the carbonic acid gas, heretofore wasted, from the main fermentation, and other brewing processes, by collecting the same in a suitable closed vessel, leading the gas through purifiers, and cooling it, and compressing the gas in a suitable separating cylinder, expelling the air from the upper part thereof, and leading the purified carbonic acid gas from the lower part of the separator, to the place of use or storage.

5. The herein described method of utilizing the carbonic acid gas, heretofore wasted, from the main fermentation, and other brewing processes, consisting in collecting the same in a suitable closed vessel, and carrying it through suitable compressors and separators, and expelling the atmospheric air therefrom.

6. The herein described method of utilizing the carbonic acid gas, heretofore wasted, from the main fermentation, and other brewing processes, consisting in collecting the same in a suitable closed vessel, drawing off the atmospheric air therefrom leading the gas through a compressor and compressing it to the degree of liquefaction, extracting the atmospheric air from above this liquefied gas, and forcing the latter to a suitable storage receptacle for immediate or future use.

7. The herein described method of utilizing the heretofore waste product of carbonic acid gas given off in brewing processes, consisting in collecting the same in a suitable closed receptacle, freeing it from atmospheric air, and compressing it to the point of liquefaction.

8. The herein described method of utilizing the carbonic acid gas, heretofore wasted, from the main fermentation, and other brewing processes, consisting in collecting the same in a suitable vessel, forcing the gas from there into a separating vessel, expelling the atmospheric air from the upper part thereof, leading the gas through a compressor and compressing it to the degree of liquefaction, and forcing the latter to a suitable storage receptacle for immediate or future use.

9. The herein described method of utilizing the heretofore waste product of carbonic acid gas derived from the main fermentation and other brewing processes, consisting in collecting the same in a suitable receptacle, drawing off the atmospheric air therefrom, and forcing the gas under suitable pressure to a storage receptacle, ready for immediate or future use.

10. In apparatus for the recovery of waste carbonic acid gas, the combination of a gas collector, having one or more pipes leading thereto from the sources of production of the gas, and an air pipe leading from the top of said collector to the outer air, with a pump or compressor, a pipe leading thereto from the lower part of said collector, and a cooling tank, containing a coil connected directly to said compressor, and leading the compressed gas to the device adapted for storage, use or further treatment.

11. In apparatus for the recovery of waste carbonic acid gas, the combination of a gas collector, having one or more pipes leading thereto from the sources of production of the gas, and an air pipe leading from said collector to the outer air, with a pump or compressor, a cooling tank containing a coil connected to said compressor, a purifier located between the compressor and storage device, a series of suitable valve-controlled connecting pipes between the several parts named, and a pipe leading to the place of use or storage.

12. In apparatus for the recovery of waste carbonic acid gas, the combination of a gas collector, having one or more pipes leading thereto from the sources of the production of the gas, and an air-escape pipe or outlet, with the pump or compressor, a cooling tank containing a coil connected to said compressor, a storage or separating cylinder, a purifier located between said compressor and said cylinder, a series of suitable valve-controlled connecting pipes between the several parts named, and a pipe leading from the said storage or separating cylinder

13. In apparatus for the recovery of waste carbonic acid gas, the combination of a gas collector having one or more pipes leading thereto from the sources of production of the gas, and a suitable air-escape pipe or outlet, with a series of pumps or compressors, a series of cooling tanks containing coils, a purifying device, a storage or separating cylinder, a series of suitable valve controlled connecting pipes between the several parts named, a pipe leading from the last cooling tank coil, and provided with a double cock, and an air-collecting globe, provided with an air-escape cock, located above the said double cock.

14. In apparatus for the recovery of waste carbonic acid gas, the combination of a gas collector having one or more pipes leading thereto from the sources of production of the gas, and a suitable air escape pipe or outlet, with a series of pumps or compressors, a series of cooling tanks containing coils, a purifying device, a series of storage or separating cylinders, a series of suitable valve-controlled connecting pipes between the several parts named, an outlet cock interposed between the last storage or separating cylinder and the pipes leading thereto, an air-collecting globe provided with an air-escape cock above the said outlet cock, and a pipe leading from the said last storage or separating cylinder.

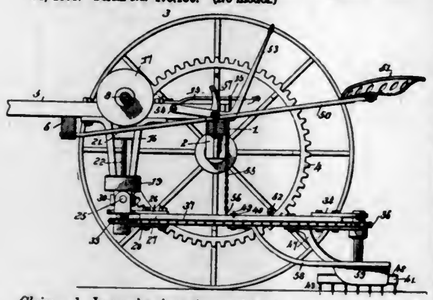
518,362. TROLLEY-WHEEL. JOHN D. ASHLEY, Cambridge, Mass. Filed July 27, 1893. Serial No. 481,616. (No model.)

Claim.—1. A bushing of pure copper for trolley wheels and loose pulleys, substantially as described.



2. The combination with a trolley wheel or pulley having in its hub an annular recess or chamber for reception of a lubricant, of a pure copper bushing having a perforation or perforations communicating with said chamber, substantially as described.

518,363. LAND-PULVERIZER. HARRY C. BROOKENS, Bloomington, Wis., assignor of one-half to T. S. Brookens, same place. Filed May 31, 1893. Serial No. 476,139. (No model.)



Claim.—1. In a pulverizer, the combination with the framework, the axle, and the ground-wheels, of a pair of beams extending rearward and suspended from the framework, vertical shafts journaled in bearings in the rear ends of the beams, sleeves mounted removably upon and adapted to revolve with the shafts, rotary pulverizers carried by said sleeves, bearing collars supporting the sleeves upon the shafts, bracket-arms depending from the beams, break-pins securing the bracket arms to the bearing collars, and means for communicating motion from the ground-wheels to said shafts, substantially as specified.

2. In a pulverizer, the combination with the framework, the axle, and the ground-wheels, of a pair of beams extending rearward and depending from said framework, straps having bearings secured upon the upper and lower sides of and extending rearward from the ends of the beams, vertical shafts journaled in the straps and provided with squared portions, gear wheels mounted upon the shafts between the straps, gearing for communicating motion from the ground-wheels to said shafts, sleeves loosely mounted upon the shafts below the straps and having upper squared portions fitting the shafts, rotary pulverizers carried by the lower ends of the sleeves, shoulders formed upon the sleeves, bearing collars located under the shoulders of the sleeves and supporting the same and provided with perforated ears, bracket-arms depending from the beams and taking between said ears, and break-pins located in the perforations of the ears and rear ends of the bracket arms, substantially as specified.

3. In a pulverizer, the combination with the framework, the ground wheels, and the axle for the same; of standards depending from the framework and terminating at their lower ends in bearings, beams loosely hung at the lower ends of the standards for vertical and horizontal adjustment, means for raising and lowering the beams, vertical shafts journaled in the standards, others journaled in the rear ends of the beams, pulverizers carried by the latter shafts, and means for communicating motion from the ground wheels to the shafts of the standards and from thence to the pulverizer carrying shaft, substantially as set forth.

4. In a pulverizer, the combination with the framework, the ground-wheels, and axle, of standards depending from the framework, shafts located in the standards and terminating at their upper ends in gears, means for communicating motion to said gears from the ground-wheels, a pair of beams loosely hung to the lower ends of and extending rearward from the standards, short shafts located in the front ends of said beams, a gimbal joint connection between the lower ends of the shafts in the standard and said short shafts, sprocket wheels carried by said short shafts, rear vertical pulverizer carrying shafts, sprocket wheels carried thereby, and sprocket chains connecting the said sprocket shafts with those of the short shafts, substantially as specified.

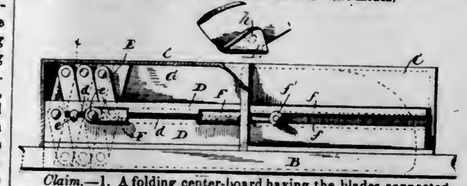
5. In a pulverizer, the combination with the framework, the axle, the ground-wheels, standards depending from the framework and provided with upper and lower bearings, vertical shafts mounted in said bearings, gears carried by the upper ends of the shafts, means for communicating motion to said gears from the ground wheels, a pair of beams universally hung to the lower ends of the standards, bearings formed at the front and rear ends of said beams, short shafts arranged in the front bearings, a gimbal joint connection between the upper ends of said short shafts and the lower ends of the shafts of the beams, sprocket wheels carried by said short shafts, pulverizer carrying shafts supported in the rear bearings, sprocket wheels carried thereby, and sprocket chains connecting the sprocket wheels of the two shafts at the front and rear ends of the beams, substantially as specified.

6. In a pulverizer, the combination with the framework, the ground wheels and their axles, of a pair of rearwardly disposed beams loosely suspended from said frame work and having a lateral play, rotary pulverizers mounted at the rear ends of the beams, means for communicating motion from the ground wheels to said pulverizers, fenders extending down and rearward from the beams between the pulverizers, and a spacing rod loosely connected at its ends to said beams, substantially as set forth.

7. In a land pulverizer, the combination with a wheeled frame, of loosely connected horizontal drag beams loosely suspended from said frame and having a simultaneous horizontal or lateral adjustment and an independent vertical adjustment, rotary pulverizers mounted at the rear ends of each beam, and means for transmitting motion to such pulverizers from the wheels of the frame, substantially as set forth.

8. In a land pulverizer, the combination with the wheeled frame, of depending hanger-standards attached to the frame, vertical shafts journaled in said hangers and suitably geared with the ground wheels, horizontally and vertically adjustable drag-beams swiveled and pivotally connected at their forward ends to said hanger standards, shafts journaled in each end of said beams of which the forward ones are connected to said vertical shafts by a universal joint, pulverizers attached to the shafts at the rear ends of the beams, and a drive connection between the shafts at the ends of the beams, substantially as set forth.

518,364. CENTERBOARD FOR BOATS. JOEL COUCH, Clayton, N. Y. Filed Oct. 18, 1893. Serial No. 488,531. (No model.)



Claim.—1. A folding center-board having the blades connected, and operated by a lazy tongs, the latter having the center or middle pivots extended and adapted to work in guides, substantially as shown and described.

2. In a folding center-board, the combination with the blades, and a lazy tongs connecting the said blades and having the middle pivots extended, of the operating rod working in a guide and connected with one of the said extended pivots, substantially as shown and for the purpose set forth.

3. In a folding center-board, the combination with the blades, and a lazy tongs connecting the same and having the middle or center pivots extended, of a guide to receive the said extended pivots, and an operating rod connected with one of the said pivots, substantially as shown and described.

4. In a folding center board, the combination with the blades, and a longitudinally slotted guide, of a lazy tongs connecting the said blades and pivoted to the guides in line with the slot therein, and having the middle or center pivots extended and adapted to work in the said slot, substantially as shown and described.

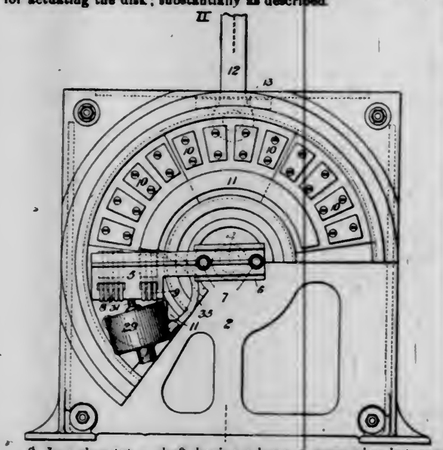
5. The combination with the blades of a folding center board having hooks at one corner, of projections at the opposite corners of the said blades to be engaged by the respective hooks to lock the said blades, substantially as shown and described.

6. The combination with the blades of a folding center-board having their free ends curved on lines corresponding with the lines of movement of the said ends, of keepers provided on said blades to embrace the curved portions of the respective adjacent blades, substantially as shown and described.

7. The combination with the folding blades having hooked corners, of keepers to prevent lateral separation of the free ends of the said blades, and having pins to engage with the said hooked corners, substantially as, and for the purpose set forth.

518,365. RHEOSTAT. ALVA C. DINKEY, Allegheny County, Pa. Filed Dec. 1, 1893. Serial No. 492,413. (No model.)

Claim.—1. In a rheostat, a reversing switch having a projecting arm, a plate or disk having a tooth to engage the arm, and means for actuating the disk; substantially as described.



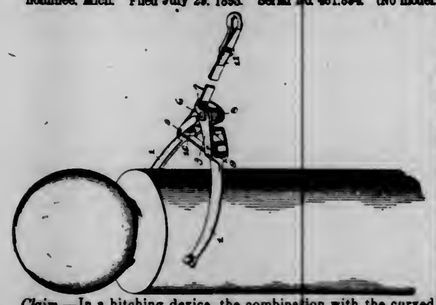
2. In a rheostat, a shaft having a lever, a connection between said shaft and a collar upon a second shaft, a crank-pin carried by the collar, a link pivoted to the crank-pin and to a lever arm, and an actuating connection between the lever arm and the traveling contact arm of the rheostat; substantially as described.

3. In a rheostat, a shaft having a lever, a connection between said shaft and a collar upon a second shaft, a crank pin carried by the collar, a link pivoted to the crank-pin and to a lever-arm, and a connection between the lever-arm and the second shaft: substantially as described.

4. A rheostat having a cylinder provided with a projecting piston rod, and a pipe leading from the cylinder, substantially as described.

5. A rheostat having a stationary cylinder at one end of the contact pieces; a projecting piston rod, valve-controlled air inlet ports, a pipe leading from the cylinder, and a contact arm arranged to actuate the piston-rod; substantially as described.

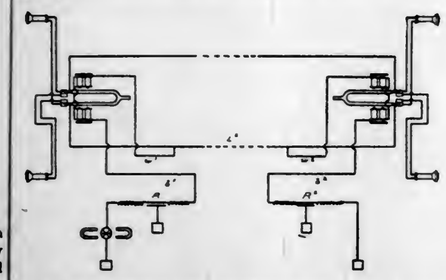
518,366. HORSE-HITCHING DEVICE. JOHN G. KNOBBS, Menominee, Mich. Filed July 29, 1893. Serial No. 481,894. (No model.)



Claim.—In a hitching device, the combination with the curved arms terminating at their outer ends in inwardly disposed points and provided near their opposite ends with frames having transversely disposed antifriction-rollers journaled therein, the outer sides of said frames being extended therebeyond to form pivoted arms provided at their inner sides with hollow studs, a transverse pintle extending through the studs, a clevis loosely mounted upon the pintle, a coiled spring arranged upon the studs and having its terminals reversely disposed and engaging with the opposite cross-bars of the frames, and the hitching-strap passed loosely through the clevis at the outer side of one of the members under the anti-friction-roller thereof, across under and over the anti-friction-roller of the remaining member, and secured to the cross-bar of the frame of the first mentioned member, substantially as specified.

518,367. MULTIPLEX TELEPHONY. WILLIAM W. JACQUES, Newton, assignor to the American Bell Telephone Company, Boston, Mass. Filed Nov. 22, 1893. Serial No. 491,675. (No model.)

Claim.—1. The herein described method of carrying on multiple telephonic conversation, or several telephonic conversations at the same time over the same line wire, or over the same pair of line wires in metallic circuit, consisting in talking into each of two or more transmitting telephones and meanwhile successively making and breaking a circuit between said transmitting telephones and their respective receivers at the opposite end of the line, so that while a circuit is established between one of said transmitters and its receiver at the opposite end of the line, the circuit is broken between the other transmitter and its corresponding receiver, or between the other transmitters and their corresponding receivers, with such rapidity that the human ear will not notice the interruptions or mutilations of sounds received at the receivers due to the interruption of the currents successively established between the transmitters and their respective receivers.



2. The combination with a telephone circuit, whether grounded or metallic, and two telephones or telephone sets at each end of said telephone circuit of two vibrating switches, one also at each end of said circuit adapted to connect and disconnect therewith each of said telephones or telephone sets at the same end at every vibration, and mechanism for vibrating said switches synchronously and with a rapidity, substantially as described.

3. The combination with line wires adapted to be used in metallic telephone circuit or circuits, telephones or telephone sets at each end of each pair of said line wires, and switches at each end of each pair of line wires, each said switch being adapted to connect and disconnect two of said telephones or telephone sets with a pair of said line wires, of a synchronizing circuit, either independent or branching from said telephone circuits, and a dynamo machine and electro magnets in said synchronizing circuit adapted to operate and synchronize said switches, said switches being vibrated with a rapidity substantially as described.

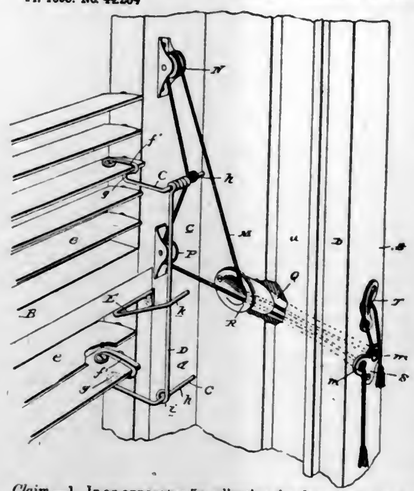
4. The combination with line wires adapted to be used in metallic telephone circuit or circuits, telephones or telephone sets at each end of each pair of said line wires, and switches at each end of each pair of line wires, each said switch being adapted to connect and disconnect two of said telephones or telephone sets with a pair of said line wires, of a synchronizing circuit, either independent or branching from said telephone circuits, electro-magnets and a dynamo machine in said synchronizing circuit for operating with the rapidity indicated and synchronizing said switches, and an inductiver resistance in said synchronizing circuit, substantially as described.

5. A metallic telephone circuit or circuits, tuning forks having a uniform rate of vibration of a rapidity such as specified, there being one of said tuning forks at each end of each of said circuits and the two wires of each of said circuits terminating each at each end in an insulated contact point carried by a separate arm of the tuning fork at the same end, and telephones or telephone sets in pairs and corresponding contact-plates in double pairs at each end of each of said circuits, the said insulated contact-points on said tuning forks being adapted to vibrate each over two of said contact-plates, in combination with a synchronizing circuit either independent or branching from one of said telephone circuits containing electro-magnets, one for each arm of said tuning forks, and a dynamo machine adapted to send impulses corresponding to the rate of vibration of said tuning forks, substantially as described.

6. A metallic telephone circuit or circuits, tuning forks having a uniform rate of vibration of a rapidity such as specified, there being one of said tuning forks at each end of each of said circuits and the two wires of each of said circuits terminating each at each end in an insulated contact-point carried by a separate arm of the tuning fork at the same end, and telephones or telephone sets in pairs and corresponding double pairs of contact-plates at each end of each of said circuits, the said insulated contact-points on said tuning forks being adapted to vibrate each over two of said contact-plates, in combination with a synchronizing circuit, either independent or branching from one of said telephone circuits, containing electro-magnets, one for each arm of said tuning forks, a dynamo machine adapted to send impulses corresponding to the rate of vibration of said tuning forks, and an inductive resistance, substantially as described.

7. The combination with a metallic telephone circuit, two pairs of telephones or telephone sets, one of said pairs at either end of said telephone circuit, two tuning forks of the same rate of vibration such as hereinbefore specified, one of them also at either end of said telephone circuit and suitable contacts whereby the telephones or telephone sets at either end of said circuit may be connected and disconnected therewith by the vibrations of the said tuning fork at the same end, of a synchronizing circuit containing electro-magnets and a dynamo machine adapted to send impulses corresponding to the rate of vibration of said tuning forks, substantially as described.

518,368. BLIND-STOP. LOUIS JOBIN, Quebec, Canada. Filed Jan. 25, 1894. Serial No. 498,036. (No model.) Patented in Canada Sept. 11, 1893. No. 44,234.



Claim.—1. In an apparatus for adjusting the slats of outside shutters or blinds, the combination of a window casing having a way to receive a sash and also having a bore or passage as Q, a shutter or blind embodying a series of pivoted slats, connected together so as to move in concert, an arm connected to one of the slats, guides as N, P, and a cord connected to the arm and taking around the guides N, P, and extending through the bore or passage Q, whereby the slats may be opened and closed by a person within a room without raising the window, substantially as specified.

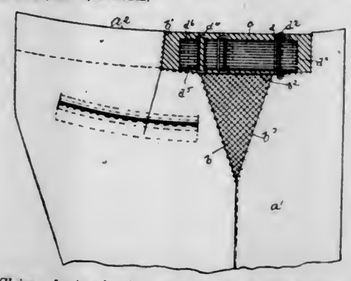
2. In an apparatus for adjusting the slats of shutters or blinds, the combination of a shutter or blind embodying two series of pivoted slats, and bars connecting the several slats of each series, an arm connected to a slat of the upper series, a similar arm connected to a slat of the lower series, a link connecting the said arms, pulleys or sheaves as N, P, and a cord connected to the upper arm and taking around the sheaves or pulleys, substantially as and for the purpose set forth.

3. In an apparatus for adjusting the slats of blinds or shutters, the combination of a shutter embodying a fixed section provided with a series of pivoted slats, and a swinging section also provided with a series of pivoted slats, an arm connected to and extending inwardly from one of the slats of the fixed section and having a lateral branch, an arm connected to and extending inwardly from one of the slats of the swinging section and having a lateral branch, a link connected to the lateral branch of the arm of the upper section and having an eye to loosely receive the branch of the lower section, and a suitable means for moving the arms so as to rock the slats, substantially as specified.

4. In an apparatus for adjusting the slats of blinds or shutters, the combination of a shutter embodying a fixed section provided with a series of pivoted slats, and a swinging section also provided with a series of pivoted slats, an arm connected to and extending inwardly from one of the slats of the fixed section and having a lateral branch, an arm connected to and extending inwardly from one of the slats of the swinging section and having a lateral branch, a link connected to the lateral branch of the arm of the upper section and having an eye to loosely receive the branch of the lower section, and the pivoted arm E, having the lateral branch adapted to engage the link: substantially as and for the purpose set forth.

5. In an apparatus for adjusting the slats of outside shutters or blinds the combination of a window casing having a way to receive a sash, and also having a bore or passage as Q, a thimble or bushing at the outer end of the bore or passage and a plate S, at the inner end of the bore or passage provided with a pair of apertures, a shutter or blind embodying a series of movable slats, pulleys, or sheaves N, P, and a cord connected with and adapted to adjust the slats of the blind or shutter; the said cord being passed over the sheaves or pulleys and through the bore or passage of the casing and the apertures in the plate S, substantially as specified.

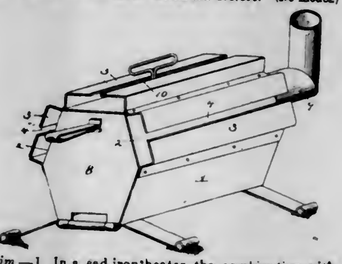
518,369. TROUSERS. JOHN E. LEAVITT, Boston, Mass., assignor of one-half to James L. Wesson, same place. Filed Oct. 7, 1893. Serial No. 487,417. (No model.)



Claim.—1. A pair of trousers having an elastic gore secured in the waistband and body portion thereof, said gore having an adjustable elastic strap secured at its ends to one of the faces of the said gore, substantially as described.

2. An elastic gore for trousers and the like consisting of a substantially V-shaped piece of elastic fabric having an adjustable elastic strap secured at its ends to one of the faces of the base of the gore, substantially as described.

518,370. SAD-IRON HEATER. WILLIAM R. LEE, Nelsonville, Tex. Filed June 22, 1893. Serial No. 478,499. (No model.)



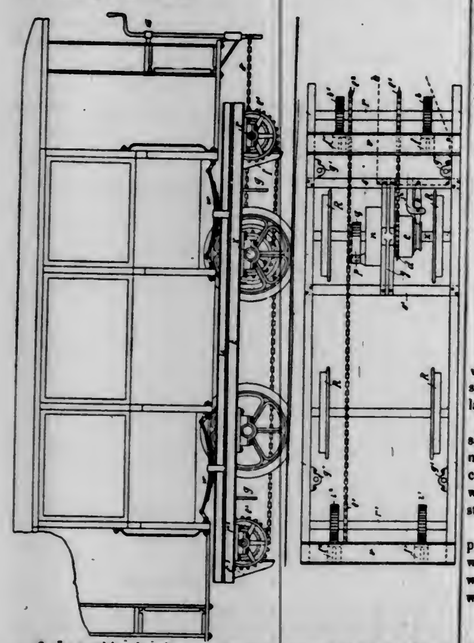
Claim.—1. In a sad-iron heater, the combination with a body portion which is polygonal in section, having a plurality of exposed sides, of a series of longitudinally slotted hoods or holders arranged respectively in juxtaposition with said heating surfaces and having open opposite ends, whereby the irons may be inserted and removed at either end thereof, substantially as specified.

2. In a sad-iron heater, the combination with a body portion of polygonal shape having an inclosed combustion chamber provided with a plurality of sides or walls forming heating surfaces, of longitudinally-slotted hoods or holders formed by strips of sheet metal secured to the angles between the sides of the combustion chamber and spaced apart at their contiguous edges to form spaces to receive the handles of the irons, substantially as specified.

518,371. CAR STARTER AND BRAKE. CARL H. O. LEVERKUS, Cologne-on-the-Rhine, Germany. Filed Jan. 9, 1894. Serial No. 496,232. (No model.)

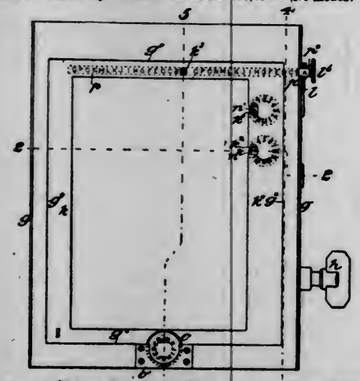
Claim.—1. In combination, in a car starter apparatus, the chain wheel d, the shaft x loosely carrying the same, the clutch c arranged to release and engage the said chain wheel with the axle, the chain wheels d' d^3 and d^3, the shafts r r' carrying the same, the connections from the chain wheel d to the train of wheels d' d^3 and d^3, the gear wheels carried by the shafts r r', the movable frame u movable vertically in relation to the truck frame, the racks on said frame engaging the gear wheels whereby the frame u will be lifted in stopping the car by throwing in the clutch and the means for transmitting the falling movement of the frame u to the car axles consisting of the toothed wheel fixed on the car axle, the pawl engaging the same, the

toothed wheel n carrying said pawl and the gearing for operating said toothed wheel consisting of the pinion k on the chain wheel d and the pinion m between the same and the toothed pawl carrier n, substantially as described.



2. In combination, in a car starter apparatus, the truck frame, the vertically movable frame u carrying the car body, the elevating means between the truck frame and the frame u, the driving connections engaging the car axle for operating the elevating means, the clutch for throwing the driving connections into and out of engagement with the car axle and the transmitting devices between the driving connections and the car axle for transmitting the falling movement of the car body and frame u to the said car axle to start the car, substantially as described.

518,372. REGISTERING AND MARKING APPARATUS FOR PHOTOGRAPHIC FILM-HOLDERS. HERMANN MACKENSTEIN, Paris, France. Filed July 7, 1892. Serial No. 439,239. (No model.)

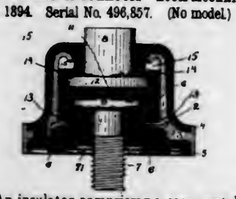


Claim.—1. The combination with a photographic roll holder, of a movable plate having upon it a series of consecutive numbers or signs to be presented successively to the light through an opening in the holder for producing photographically simultaneously with the taking of the pictures on the film in the holder, a successive series of marks upon several pictures so taken, substantially as herein set forth.

2. The combination with a photographic roll holder, of one or more rotary photographic printing dials geared with and driven by one of the rollers of the holder for marking photographically with consecutive numbers the successive impressions on the film, substantially as herein set forth.

3. The combination with a photographic roll holder, of a printing dial facing to the front of said holder and a registering dial facing to one side of the said holder, the said dials being both geared with one of the rollers of the said holder and being arranged respectively opposite openings in the front and in one side of the holder to present corresponding numbers or signs opposite the said openings, substantially as and for the purpose herein set forth.

518,373. STRAIN-INSULATOR. LOUIS MCCARTHY, Boston, Mass. Filed Jan. 15, 1894. Serial No. 496,857. (No model.)

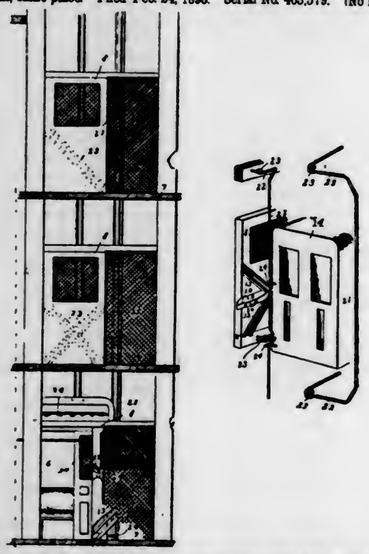


Claim.—1. An insulator comprising a case, metallic connections within said case, and insulating material between said connections, said insulating material consisting of a series of sheets of mica and a layer of molded composition, substantially as set forth.

2. An insulator comprising a case, metallic connections within said case, and a series of sheets of mica interposed between said connections and serving to insulate the same from each other, one of said connections having the head or end thereof within said case covered with a mass of insulating composition which is molded thereon, substantially as set forth.

3. An insulator having a metallic connection or coupling piece provided at the head thereof with a covering of insulating material which is molded upon the same, said molded covering being formed with a cavity or seat thereon to receive the parts of the insulator which are adjacent said connection, substantially as set forth.

518,374. AUTOMATIC GATE FOR ELEVATORS. JAMES MCLAUGHLIN, Michigan City, Ind., assignor of one-half to Robert G. Franklin, same place. Filed Feb. 24, 1893. Serial No. 463,579. (No model.)



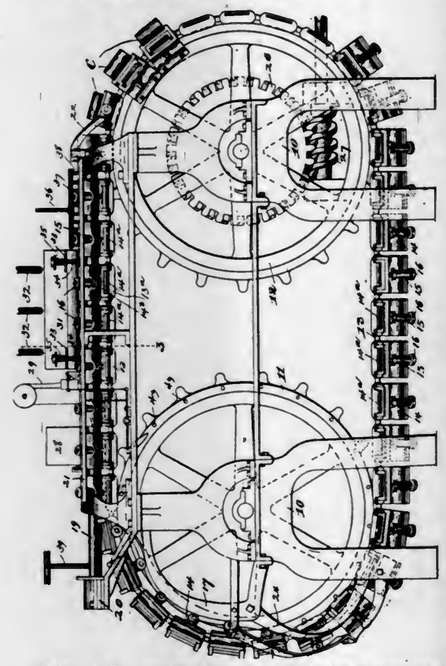
Claim.—1. In an elevator, the combination with sliding gates, an elevator car, means whereby the gates are opened and closed successively as the car ascends or descends, and means to lock the gates in their closed positions, of counterbalancing weights flexibly connected to the gates to assist the closing action and hold them closed until locked, and means carried by the car to disengage said locking means, substantially as specified.

2. The combination with the gates, and means for operating the same, of locking-bars having parallel upper and lower arms provided with spring coils, to normally hold the bars in their operative positions, notched catches carried by the gates, and means to disengage the locking-bars from the catches, substantially as specified.

3. The combination with slidable gates, and automatic operating connections, of spring-pressed, vertically-disposed locking-bars 21 equal in length to the height of the gates, notched arms carried by the gates to be engaged by said locking bars, and a finger carried by the car to disengage the locking-bars from the said arms, substantially as specified.

4. The combination with gates and automatic operating mechanism therefor, of locking-bars provided with spring-actuated terminal arms, notched arms carried by the gates to be engaged by the locking-arms, guides 20 fixed to said notched arms to guide the locking-bars, and means for disengaging the locking-bars from the said arms, substantially as specified.

518,375. MACHINE FOR FORMING AND SOLDERING SHEET-METAL CANS. DARWIN D. RAMEY, Lewistown, Ill., assignor, by mesne assignments, to Moses Turner, trustee, same place. Filed May 16, 1893. Serial No. 474,450. (No model.)



Claim.—1. In a machine for forming the bodies of sheet metal cans and soldering the side seams thereof, the combination with an endless traveling carrier, of a series of movable blank folders connected to and traveling with said carrier, a stationary horn or mandrel of greater length than the can body to be formed, means for operating the folders whereby to bend the blank about the horn, and soldering appliances arranged adjacent to the horn whereby a series of can bodies may be operated upon simultaneously, substantially as described.

2. In a machine for forming the bodies of sheet metal cans and soldering the side seams thereof, the combination with an endless traveling carrier, of a series of movable blank folders connected to and traveling with the carrier, stationary cam tracks adapted to operate the folders whereby to bend the blanks, a stationary horn or mandrel of greater length than the can body and about which the blank is bent, and soldering appliances arranged adjacent to the horn and adapted to apply the solder to the side seams thereof while the can bodies are being moved along the horn, substantially as described.

3. In a machine for forming the bodies of sheet metal cans and soldering the side seams thereof, the combination with a frame having driving wheels journaled thereon, an endless flexible carrier carried around and driven by said wheels, blank folders hinged to said carrier, a stationary cam track adapted to operate the hinged folders, a stationary horn or mandrel of greater length than the can body, and soldering appliances arranged adjacent to the horn and adapted to apply solder to the side seams thereof while the cans are moved along the horn by the folders, substantially as described.

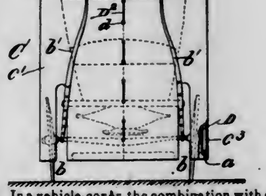
4. In a machine of the class described, the combination with the endless carrier, of folders hinged to said carrier, said folders having studs provided with rollers, cam tracks for moving the folders to form the body, a stationary horn or mandrel along which a series of cans may be simultaneously passed and straight tracks for confining the holders and cans along the mandrel, substantially as described.

5. In a machine of the class described, the combination with an endless carrier, of movable folders mounted thereon, cam tracks for operating the folders, a stationary hollow horn or mandrel, means for heating the interior of the horn, and soldering appliances arranged in line with the horn and adapted to apply solder to the side seams of the cans while moving along the horn, substantially as described.

6. In a machine of the class described, the combination with an endless carrier having movable folders connected and traveling therewith, cam tracks for operating the folders, a stationary horn around which the blanks are folded, means for applying acid to the seam, a device for feeding a solder wire and melting the wire over the seam, and a solder knife arranged in line with the seam and adapted to work the solder into the joint, substantially as described.

7. In a machine of the class described, the combination with the endless carrier composed of a link belt, a saddle removably secured to the links of the belt and having points to engage the can blank, folders hinged to the saddle, cam tracks for operating the folders and a grooved horn on which the blanks are bent and along which they are moved by the points traversing the grooves of the horn, substantially as described.

518,376. VEHICLE-COVER AND SUPPORT THEREFOR. JOHN H. RAU, Cincinnati, Ohio. Filed Dec. 30, 1893. Serial No. 495,257. (No model.)



Claim.—1. In a vehicle-cover, the combination with cover A composed of top c, end and side curtains c', c^2, c^3, c^4, and curtain hoisting-ropes D, D', D^2, D^3, of a traveler or carrier-frame E, and suspension guide track-wires e', e', said traveler being composed of a longitudinal reach 1, and cross-bars 2, 3, 4, having suspension-loops e, guide eyes or loops d', pulleys 5, 6, 7, 8, draft-block 9, pull-rope 10, pulley d^2, and cover suspension ropes F, the whole being constructed, arranged, and adapted to be operated, substantially as and for the purpose specified.

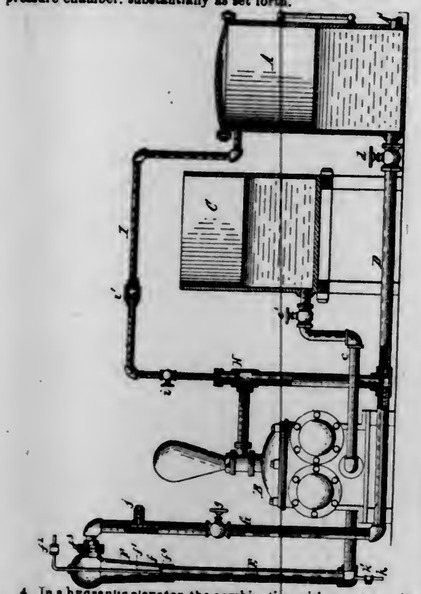
2. A vehicle-cover composed of a rectangular stretched top c, C, side and end drop-curtains c', c^2, c^3, c^4, at the four edges of said top, slats a at the bottom of each curtain, and hoisting-ropes leading from said slatted-bottoms through said curtains to a suitable pulley mechanism above, and the fore drop-curtain c' having narrow, vertical, open slots b, substantially as herein set forth.

518,377. HYDRAULIC ELEVATOR. JOHN G. STAMP, Buffalo, N. Y. Filed May 11, 1893. Serial No. 473,796. (No model.)

Claim.—1. In a hydraulic elevator, the combination with the pressure chamber, a pump for delivering water to said chamber, and a suction pipe connecting the pump with the source of supply, of a water and air mixing pipe provided with an air injector and connected with the suction chamber of the pump independent of the suction pipe thereof, substantially as set forth.

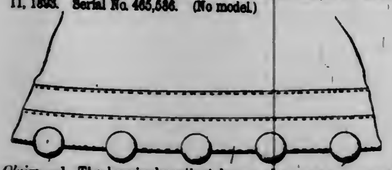
2. In a hydraulic elevator, the combination with a pressure chamber, a pump having its delivery pipe connected with said chamber and a suction pipe connecting the pump with the source of supply, of a water and air mixing pipe connected directly with the suction chamber of the pump, an air injector connected with said mixing pipe, a water pipe connecting said air injector with the delivery pipe of the pump, and an air supply pipe connected with said delivery pipe, between the pump and the junction of said water pipe with the delivery pipe, and leading to the pressure chamber, substantially as set forth.

3. In a hydraulic elevator, the combination with a pressure chamber, a pump having its delivery pipe connected with said chamber and a suction pipe connecting the pump with a source of supply, of a water and air mixing pipe connected directly with the suction chamber of the pump, an air injector connected with said mixing pipe, a water pipe connecting said air injector with the delivery pipe of the pump, a separating chamber connected with the delivery pipe between the pump and the junction of said water pipe with the delivery pipe, and an air supply pipe extending from said separating chamber to said pressure chamber, substantially as set forth.



4. In a hydraulic elevator, the combination with a pressure chamber, a pump having its delivery pipe connected with said chamber and a suction pipe connecting the pump with a source of supply, of a water and air mixing pipe connected with the suction chamber of the pump, an air injector connected with said mixing pipe, a water pipe connecting said air injector with the delivery pipe of the pump, and having a hand valve and a check valve, and an air supply pipe connecting the delivery pipe of the pump with the pressure chamber, substantially as set forth.

518,378. DRESS-PROTECTOR. OLIVER H. STILL, East Greenwich, R. I., assignor of one-half to William R. Lamb, same place. Filed Mar. 11, 1893. Serial No. 465,586. (No model.)



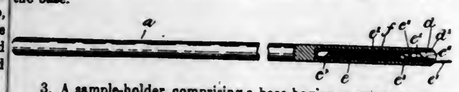
Claim.—1. The herein described dress and trouser protector, the same consisting of a textile base, and a series of metal disks each provided at the upper and opposite sides of its periphery with prongs for engaging the base, and its lower portion extending below the textile base, substantially as specified.

2. The herein described dress and trouser protector, the same consisting of a textile base, doubled longitudinally, and a series of disks formed of metal applied to the face of the base and extending below the edge thereof, each disk being provided at its upper and opposite edges with prongs engaging with the adjacent layer of the base and taking between said layers, substantially as specified.

518,379. DRY-GOODS BOARD. GEORGE TETREAU, Laconia, N. H. Filed Sept. 5, 1893. Serial No. 484,844. (No model.)

Claim.—1. A dry-goods board, having a pocket in one end, in combination with a sample-holder adapted to be inserted in said pocket and having a sprig adapted to exert friction on one side of the pocket.

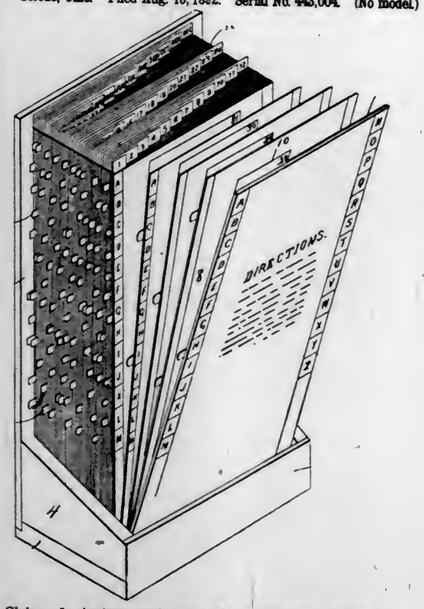
2. A sample-holder, comprising a base having openings near opposite ends, a tape attached to said base and between which and the base a bundle of samples is held, and flaps arranged to fold over the samples and held by the tape which passes through the openings in the base.



3. A sample-holder, comprising a base having openings near opposite ends, a tape attached to said base and between which and the base a bundle of samples is held, flaps arranged to fold over the samples and held by the tape which passes through the openings in the base, and a spring carried by one of the flaps and adapted to exert an outward pressure on the flap which folds over upon it.

4. A sample-holder, comprising a base having openings near opposite ends, a tape attached to said base and between which and the base a bundle of samples is held, an end-flap having an opening registering with one of the openings in the base and carrying a spring, and side-flaps arranged to fold over the samples and upon the said spring and to be held by the tape which passes through the openings in the base and in the end-flap.

518,380. FILE FOR KEEPING RECORDS. DANIEL E. THOMAS, Toledo, Ohio. Filed Aug. 13, 1892. Serial No. 443,004. (No model.)



Claim.—1. An improved record file, comprising a holder, a series of calendar cards properly arranged, a series of record cards arranged between the calendar cards, and a gage board having the letters marked upon its margin for the purpose set forth.

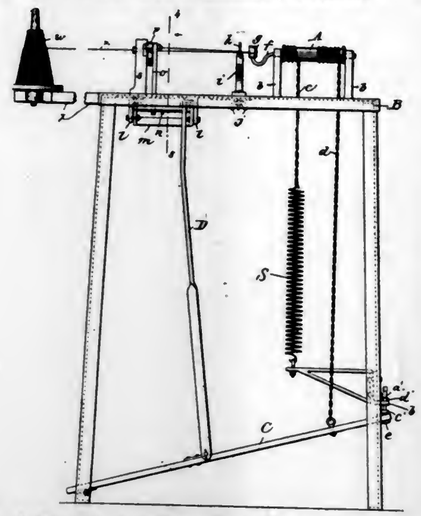
2. An improved record file comprising in combination a holder, a series of calendar cards properly arranged, a series of record cards arranged between the calendar cards, each record card having its margin marked to indicate the point of attachment of an index tab, and a gage board having the letters marked upon its margin for the purpose set forth

---

518,381. MACHINE FOR FORMING WIRE LOOPS. DAVID WHITE and ALEXANDER F. LAGERWALL, New York, N. Y., assignors to the American Extract and Supply Company, same place. Filed Aug. 23, 1893. Serial No. 483,811. (No model.)

Claim.—1. In a machine for forming wire loops, the combination with a spindle provided with a hook for engaging the wire, together with a pin co-operating with the hook to form a loop, of a treadle and connected mechanism for rotating the spindle in one direction, and a restoring spring connected with the spindle for rotating it in a reverse direction, substantially as described.

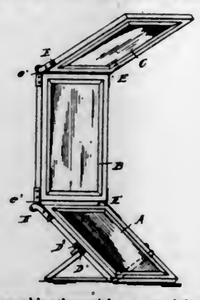
2. In a machine for forming wire loops, the combination with a spindle provided with a hook for engaging the wire, together with a pin co-operating with the hook to form a loop, of chains reversely wound upon the spindle and connected respectively to a treadle for rotating the spindle in one direction, and to a restoring spring for rotating it in a reverse direction, substantially as described.



3. The combination in a machine for forming wire loops of a hook for engaging the wire, a pin adjustable to and from the hook, and co-operating therewith to form a loop and a knife for cutting the wire independently adjustable to and from the hook, substantially as described.

4. The combination in a machine for forming wire loops of a rotary hook for forming the loop, a treadle and restoring spring for rotating said hook in either direction, and a double acting knife to cut the wire actuated by the treadle in its motion in either direction, substantially as described.

518,382. COMBINATION-MIRROR. PETER WIEDERER, Stapleton, N. Y. Filed Jan. 25, 1894. Serial No. 498,043. (No model.)

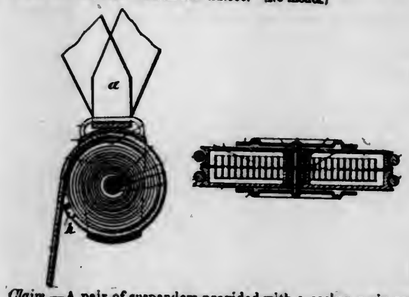


Claim.—1. The combination with a central frame and two end-frames, of hinges connecting the two ends of the central frame with the two end frames, which hinges are so constructed as to permit the end frames to swing in planes at right angles to the face of the central frame and which hinges have stops which permit of folding the end frames upon the central frame in one direction, but only permit the end frames to swing toward each other a limited distance in the opposite direction, substantially as set forth.

2. The combination with three mirror-frames, of which two are hinged to the top and bottom ends of the third or central frame by hinges having stops to limit the swing of the end frames toward one face of the central frame, of braces pivoted to the bottom frame and stops for said braces, substantially as set forth.

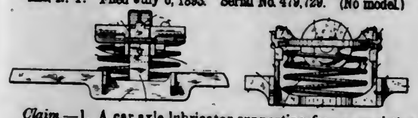
3. The combination with a central frame, of a frame hinged to each side of the same to fold over the face of the said central frame, a frame hinged to the bottom of the central frame, a frame hinged to the top of the central frame which top and bottom frames fold on the central frame and a brace for said bottom frame, substantially as set forth.

518,388. SUSPENDERS. FRIEDRICH WIELAND, Brooklyn, N. Y. Filed Nov. 25, 1893. Serial No. 492,009. (No model.)



Claim.—A pair of suspenders provided with a casing, a pin connecting the side walls of the casing, stops on said casing, rotatable drums mounted within the casing having lugs adapted to come in contact with said stops and provided with peripheral flanges, one of said drums having an inwardly projecting hub turning on said pin, and the other drum having a tubular portion turning on said hub, an actuating spring for said drums, and suspender ends independently attached to the respective drums, substantially as described.

518,384. CAR-AXLE LUBRICATOR. WILLIAM H. WRIGHT, Buffalo, N. Y. Filed July 6, 1893. Serial No. 479,729. (No model.)

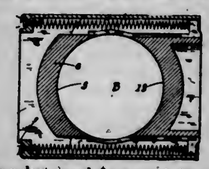


Claim.—1. A car axle lubricator supporting frame consisting of a stationary frame provided with a series of longitudinal and transverse wings adapting it to be easily fitted to the axle box and provided with two vertical bars each having an upward projection at the top adapted to be bent over the top of the slideways for holding it down against the force of the spring, the whole being formed in one piece of cast metal, substantially as described.

2. In a car axle lubricator, the combination of a stationary frame provided with longitudinal and transverse wings thereby adapting it to be easily fitted to a car axle box, two vertical supporting bars forming part of said frame, two transverse bars having cross bars adapting them to be movable up or down on the vertical supporting bars, a slideway on each transverse bar and projecting portions on the vertical supporting bars adapted to be bent over the vertically sliding bars for limiting the upward movement of the horizontal slideways, a roller supporting frame adapted to fit and slide on the horizontal slideways so as to be capable of a lateral movement, a transfer roller mounted in boxes in the roller supporting frame, and a spring interposed between the base of the stationary frame and the roller supporting plate, substantially as and for the purposes described.

3. In a car axle lubricator, the combination with a supporting frame having two upright bars, two horizontal angle bars having slideways slidable on the upright bars, a roller supporting plate mounted on said slideways, so as to be capable of a lateral movement thereon, a means consisting of the bent projections at the top of the vertical supporting bars for holding the several parts in place, a spring interposed between the roller plate and the bottom of the stationary frame, and a grooved transfer roller mounted in boxes in the roller plate frame and having the two edges of its face rounded, substantially as described.

518,385. DUST-GUARD FOR CAR-AXLE BOXES. WILLIAM H. WRIGHT, Buffalo, N. Y. Filed July 8, 1893. Serial No. 479,899. (No model.)



Claim.—1. In a dust guard for car axle boxes, a slideway portion, 1, having two hollow longitudinal slideways open on their inner sides directly opposite each other, a concave portion, 3, adapted to encompass more than half of the periphery of the axle and having hollow parallel slideway portions, in combination with a sliding por-

tion forming the other part of the packer and adapted to partly encompass the periphery of the axle, and having slideway tongues whose ends project forward and are adapted to move in the slideways of the portion, I, and springs wholly inclosed within the packer for drawing the two parts of the packer together, substantially as described.

2. A dust guard for car axle boxes, consisting of two parts, one adapted to slide in the slideways of the other, each part being covered on both sides with an oil proof yielding covering of woven or felted material, and springs wholly inclosed within the packer for holding the two slideway parts together, substantially as described.

3. A dust guard for car axle boxes, consisting of two parts one adapted to slide in the slideways of the other, and each provided with a series of projecting pins extending out from each side and a covering of oil proof woven or felted material, secured thereto by said pointed pieces as set forth, the two parts having circular openings between them adapted to embrace a car axle, and a means for drawing the two parts together, substantially as described

4. A dust guard for car axle boxes, consisting of two parts, one adapted to slide in the slideways of the other, each part being formed so as to leave a circular opening between them adapted to embrace a car axle, a covering of woven or felted material boiled in coal tar secured to both sides of each part and rigidly fastened thereto by the bent portions 7 and 7ª, and springs for drawing the two parts together, substantially as described.

5. A dust guard for car axle boxes, consisting of two parts, one part provided with slideways adapted to receive the other and both parts being formed so that the two together leave a circular opening between them adapted to embrace a car axle, two spiral springs connected with the slideway part and extending through its slideways and connecting with the slideway part for holding the two together, the slideway portion being provided with two longitudinal fitting strips, substantially as and for the purposes described.

518,886. PROCESS OF MANUFACTURING PYROXYLIN SOLVENTS AND THEIR PRODUCTS. GUSTAVE O. ZELLER, Rahway, N. J. Filed Dec. 12, 1893. Serial No. 493,615. (No specimens.)

Claim.—1. The herein described process of preparing solvents of pyroxyline which consists in subjecting aldehydes to the action of organic acids and simultaneously to the action of an oxidizing agent, substantially as described.

2. The herein described process of preparing solvents of pyroxyline which consists in subjecting aldehydes to the action of organic acids and an oxidizing agent, either the aldehyde or the acid being in nascent condition.

3. A compound of pyroxyline which consists of pyroxyline dissolved in primary alcohols which by themselves are not solvents of pyroxyline but are rendered so by being oxidized in the presence of a compounding organic acid.

518,887. PROCESS OF MANUFACTURING PYROXYLIN SOLVENTS AND THEIR PRODUCTS. GUSTAVE O. ZELLER, Rahway, N. J. Filed Dec. 12, 1893. Serial No. 493,616. (No specimens.)

Claim.—1. The process of manufacturing solvents of pyroxyline which consists in treating a mixture of two or more alcohols, in the presence of a compounding organic acid, or acids, with an oxidizing agent, substantially as described.

2. The process of manufacturing solvents of pyroxyline, which consists in treating a mixture of two or more alcohols with an oxidizing agent, producing thereby mixed aldehydes and organic acids having mutual reactions, and separating these mixed oxidation compounds thus produced by distillation; and cleansing and washing the distillate.

3. A pyroxyline compound which is the product of solution of pyroxyline in mixed oxidation compounds of two or more primary alcohols oxidized in the presence of a compounding organic acid.

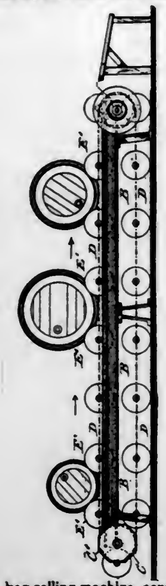
518,888. PROCESS OF MANUFACTURING SOLVENTS OF PYROXYLIN AND THEIR PRODUCTS. GUSTAVE O. ZELLER, Rahway, N. J. Filed Dec. 12, 1893. Serial No. 493,617. (No specimens.)

Claim.—1. The process of manufacturing solvents of pyroxyline which consists in mixing one or more alcohols with benzine and submitting the mixture to distillation with an oxidizing agent.

2. The process of manufacturing solvents of pyroxyline which consists in mixing one or more alcohols with benzine and compounding organic acids, submitting the mixture to distillation with an oxidising agent; and washing and refining the distillate.

3. A pyroxyline compound which is the product of solution of pyroxyline in the described oxidation-product-benzine compound.

518,889. KEG-ROLLING MACHINE. WILHELM ARENDSEE, Hamburg, Germany. Filed Dec. 7, 1892. Serial No. 454,332. (No model.) Patented in Germany Dec. 13, 1888, No. 47,450.

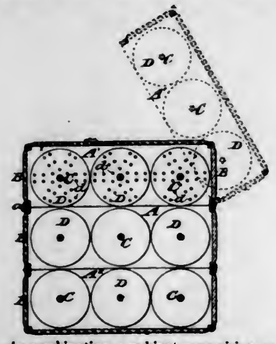


Claim.—1. A keg-rolling machine, consisting of endless chains, rotary driving drums at one end of said chains, guide-drums at the opposite ends of the chains, a number of transverse shafts attached to said endless chains, rollers on said shafts for supporting the kegs and means, substantially as described, whereby simultaneously with the continuous forward motion imparted to the shafts, an axially-rotary motion is imparted to the same, substantially as set forth.

2. A keg-rolling machine, consisting of supporting standards, longitudinal beams connecting said standard, driving drums at one end of said beams, guide-drums at the opposite ends of the same, endless chains supported on said drums, transverse shafts attached to said endless chains, rollers on said shafts, pinions on said rollers and racks supported on said beams, so that simultaneously with the forward motion of said rollers a rotary motion on their axis is imparted to the same, substantially as set forth

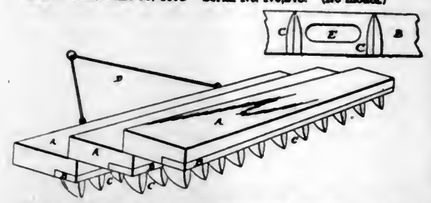
---

518,890. PARASOL OR UMBRELLA CABINET. ALEXANDER BEVER, Spokane, Wash. Filed Feb. 21, 1893. Serial No. 463,203. (No model.)



Claim.—In combination, a cabinet comprising an intermediate section having open sides and adjacent sections hinged to the intermediate section at its diagonally opposite edges the said sections forming one compartment when closed a bar mounted to rotate in one of the sections, a disk secured to said bar near its lower end, a hub sliding upon the said bar and adapted to be secured thereto at different heights, arms radiating from the said hub and having clamps thereon, the whole forming a holder for supporting parasols and the like, substantially as set forth.

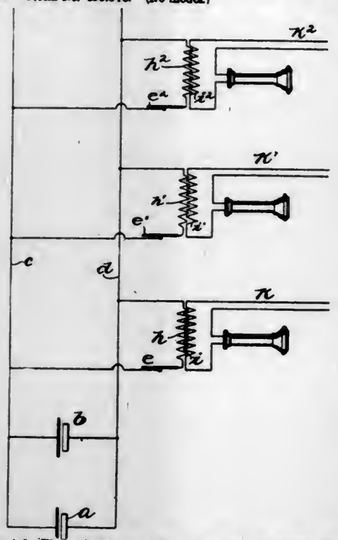
518,891. PULVERIZING-HARROW. JAMES BOSTON, Du Bois, Nebr. Filed June 30, 1893. Serial No. 479,275. (No model.)



Claim.—The herein described pulverizing harrow, consisting of a series of step timbers, rabbeted at their rear edges, combined with a series of bars fitting said rabbets and having a series of projecting teeth formed thereon and a series of transverse slots in each of said bars whereby an independent and relative lateral adjustment of each bar is secured

---

518,892. TELEPHONE-TRANSMITTER FROM SECONDARY BATTERIES. JOHN J. CARTY, New York, N. Y., assignor to the Western Electric Company, Chicago, Ill. Filed Apr. 14, 1891. Renewed Nov. 7, 1893. Serial No. 490,318. (No model.)



Claim.—1. The combination with a battery or other source of electricity, having very low internal resistance, of telephone transmitters connected in parallel between the poles of the battery, and deriving current therefrom, substantially as described.

2. The combination with a storage battery or secondary battery of low internal resistance, of telephone transmitters connected in parallel between its poles, and deriving current therefrom, substantially as described.

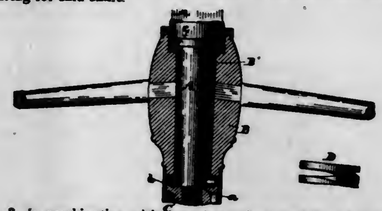
3. The combination with a battery or other source of electric current, having very low internal resistance, of several parallel branches between the poles of the battery, and a telephone transmitter and the primary helix of an induction coil in each branch, substantially as described.

4. In combination, a source of electric current of very low internal resistance, separate parallel branches joining the poles of the source of battery, a telephone transmitter and the primary helix of an induction coil included in series in each of the branches, and a telephone line circuit connected with a telephone receiver, including the secondary helix of each induction coil, substantially as described.

518,893. THRUST-BEARING FOR WHEELS, &c. JAMES A. CHACE, Brockton, assignor of two-thirds to George M. Carpenter, Everett, and Frank W. Sisson, Fair Haven, Mass. Filed Oct. 21, 1893. Serial No. 488,798. (No model.)

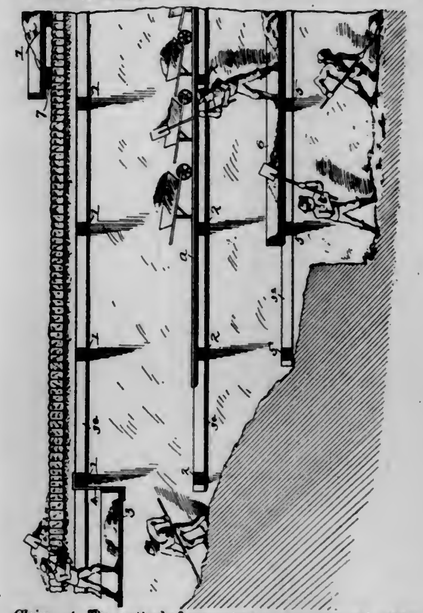
Claim.—1. The spring washer D comprising a single bar or rod of steel formed into a plurality of spiral coils, the end portions of the bar or rod from which said coils are formed being tapered to a thin knife edge and brazed or welded to the face of the contiguous coil.

2. In combination with a revolving wheel or shaft, and its bearing, the spring washer D comprising a single bar or rod of steel formed into a plurality of spiral coils, the ends of said coils being brazed or welded to the surface of the intermediate or contiguous coil; and the nut C, said washer being fitted closely around said shaft or bearing between said nut and the end of the hub of said wheel or bearing for said shaft.



3. In combination with a carriage wheel, and its axle provided with a nut to secure said wheel thereon, the spring washer D comprising a single bar or rod of steel formed into a plurality of spiral coils, the ends of the bar or rod from which said coils are formed being tapered to a thin knife edge and brazed or welded to the intermediate or contiguous coil, and surrounding said axle between said nut and the wheel hub.

518,894. SYSTEM OF EXCAVATING AND REFILLING. BERNARD J. COYLE, Washington, D. C. Filed May 28, 1892. Serial No. 434,777. (No model.)



Claim.—1. The method of excavating, constructing and refilling in trenches, which consists in excavating a desired length to the bottom in advance; constructing the sewer or other structure, and conveying the material thereafter excavated upon ways within the excavation, and below the ground surface to the rear, and refilling with it upon the constructed work, as set forth.

2. In a system of underground excavating and refilling the combination with the beams located across the trench at its surface, of the dependent tray suspended therefrom, within the trench, substantially as specified.

3. In a system of excavating and refilling in trenches, the combination with the elevated timbers, firmly secured against the sides or suspended from above, of the way or track supported thereon, substantially as specified.

4. A system of bracing open trenches, consisting of a series of horizontal stringers or timbers placed along the same, with cross beams firmly driven and secured to them, thus supporting the sides without vertical planks or sheathing boards, as set forth.

5. The combination with the cross beams and horizontal stringers

which brace the sides of the trench, of the ways and the tray located below the same, whereby the earth from the lower portion of the trench may be elevated and conveyed to the point of deposit, substantially as specified.

6. In a system of excavating and refilling, the combination with the beams arranged across the trench in which the operations of excavating and refilling are being conducted, of the platform whereon the concrete is prepared, and the chute whereby it is delivered to the trench below, substantially as specified.

518,395. DEVICE FOR PACKING VEHICLE-WHEELS. FRANCIS G. DAVIS, Watertown, N. Y. Filed July 24, 1893. Serial No. 481,273. (No model.)



Claim.—1. The combination with the crate bar, of two movable jaws adapted to bear against opposite sides of a wheel and capable of movement toward and from each other, a screw bolt which passes through both jaws and extends beyond the same sufficiently to pass through the crate bar, and a screw-nut applied to the screw bolt, whereby the jaws are tightened against opposite sides of the wheel and are also attached to the crate bar, substantially as set forth.

2. A clamping device for packing wheels consisting of two jaws adapted to bear against opposite sides of the wheel and provided with rounded interlocking tenons and recesses, and a tie bolt connecting said jaws, whereby the jaws are enabled to rock on each other and adjust themselves to the wheel as they are tightened, substantially as set forth.

3. A clamping device for packing wheels having jaws adapted to bear against opposite sides of the wheel, each provided with a tenon and a recess arranged in line with each other on the same jaw, whereby two jaws, which are exact duplicates of each other, form a pair, substantially as set forth.

518,396. REFRIGERATOR. JOSEPH DENSON, Stockdale, Tex., assignor of one-half to Henry Smith, same place. Filed Nov. 29, 1893. Serial No. 492,343. (No model.)



Claim.—1. In a refrigerator, the box or casing having outer and inner perforate walls, a vertical drip or leach cloth arranged centrally in the space between said walls, and a water supply for said cloth, substantially as set forth.

2. In a refrigerator, the box or casing having outer and inner perforate walls, a water tank or pan removably arranged within the top of said box or casing and having bottom drip openings, at its bottom edges and a vertical drip or leach cloth arranged within the space between said walls and removably connected at its upper edge to the top edges of said water tank, substantially as set forth.

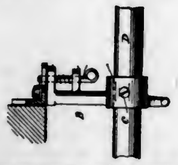
3. In a refrigerator, the box or casing having separated perforate walls inclosing an air space, a drip trough or pan arranged in the bottom of said air space between the walls, a water tank removably arranged in the top of said box or casing and having drip openings, and an exterior drip flange below the plane of the openings, and a drip or leach cloth stretched in the space between the two walls and having its lower edges arranged in said drip trough or pan, the upper edges of said cloth being connected with the water tank above its drip flange, substantially as set forth.

4. In a refrigerator, the combination of the casing having outer and inner screen walls inclosing an air space, vertical spacing rods arranged in said air space at the corners of the casing, cloth retaining hooks secured to the front wall of the casing, a water tank at the top of the casing and provided with drip openings, and a drip or leach cloth stretched around said spacing rods in the space between said screen walls, and provided at its upper edges with supporting hooks adapted to detachably engage the upper edges of the water tank, the free ends of said cloth detachably engaging said cloth retaining hooks, substantially as set forth.

5. In a refrigerator, the casing having outer and inner screen walls, a water tank removably arranged in the top of said casing and provided with an exterior declining drip flange and drip openings in the bottom corners thereof, and a drip or leach cloth arranged centrally in the space between said walls and having its upper edges supported in contact with said declining drip flange, substantially as set forth.

6. In a refrigerator, the combination of the box or casing having door openings in the sides and ends thereof, screen doors fitted in the end and rear side openings, an interior shelf frame arranged inside of the box or casing and having surrounding screen walls inclosing therebetween and the screen doors a cold air space, a rectangular drip trough or pan arranged in the bottom of said air space, a water tank removably arranged in the top of the box or casing and having drip openings, and a vertical drip or leach cloth, arranged centrally in said cold air space, substantially as set forth.

518,397. SWINGING SUPPORT FOR CLOTHES-LINES. BERTHA M. ESSLEY, Brooklyn, N. Y. Filed Aug. 1, 1893. Serial No. 482,064. (No model.)

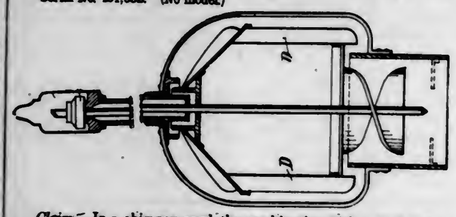


Claim.—1. The combination, of a bracket attached to the outside of a window-casing, said bracket being provided with a central journal bearing and with holes two of which are located respectively above and below said journal bearing and the other being located sidewise of and between said two holes, a shaft supported in the bearing of said bracket and extending at right angles therefrom, said shaft being provided with perforated lugs adjacent to the bracket and with a sleeve at the opposite end of the same, a lever-arm inserted into said sleeve and attached thereto, a spring-actuated bolt guided in the perforated lugs of the shaft and adapted to engage either one of the holes in the bracket, a double eye attached to the shorter end of the lever-arm and a guide-pulley attached to the longer end of the same, substantially as set forth.

2. The combination, with a supporting-bracket attached to the window-casing, said bracket being provided with a central journal bearing and with holes two of which are located respectively above and below said bearing and the other being located at one side of and between said two holes, of a shaft supported in the bearing of said bracket and extending at right angles therefrom, said shaft being provided with perforated lugs, a spring-actuated locking bolt guided in said lugs and adapted to engage either one of the holes in the bracket, a sleeve at the opposite end of the shaft, a double or T-shaped hook on said sleeve, a lever-arm held in the sleeve of the shaft, a double guide-eye at the shorter end of the lever-arm, and a guide-pulley at the longer end of the same substantially as set forth.

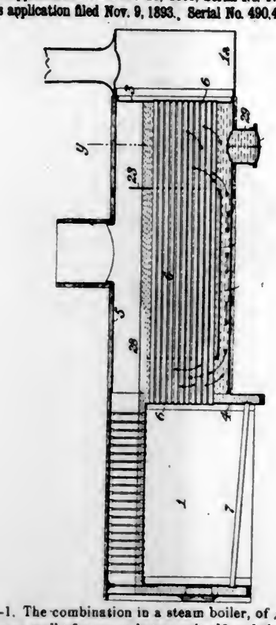
3. In a swinging support for clothes-lines, a shaft for the supporting and swinging lever-arm, said shaft being provided with perforated lugs at one end and a sleeve at the opposite end, and with a hook at the opposite side of said sleeve, said lugs, sleeve and hook being made in one integral casting with the shaft, substantially as set forth.

518,398. CHIMNEY-COWL. HERMANN F. A. PAULHABER and CHRISTOPH F. KOCH, Schwabisch Hall, Germany. Filed May 4, 1892. Serial No. 431,852. (No model.)



Claim.—In a chimney-cowl, the combination with a cowl-casing and an upwardly projecting tube fixed thereto, at its lower end of a spindle passed through the tube and carrying the rotative part of the cowl, a collar fixed to the top of the spindle and adapted to turn upon the upper end of the tube, and a protecting casing separate from said collar and extending sufficiently far above and below the bearing parts as to protect the latter against dust and rain, substantially as herein shown and described.

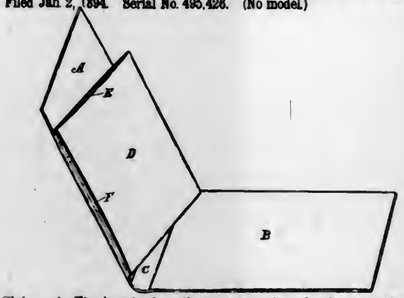
518,399. STEAM-BOILER. MATHIAS N. FORNEY, New York, N. Y. Original application filed June 23, 1893, Serial No. 478,646. Divided and this application filed Nov. 9, 1893. Serial No. 490,409. (No model.)



Claim.—1. The combination in a steam boiler, of a diaphragm, forming the rear wall of a space between itself and the front tube-plate, a channel at the bottom of the boiler connecting said space with the back end of the boiler, and a feed water inlet communicating with said space, substantially as set forth.

2. The combination, in a steam boiler, of a diaphragm, forming the rear wall of a space between itself and the front tube-plate, a channel at the bottom of the boiler connecting said space with the back end of the boiler, a feed water inlet communicating with said space, and a second diaphragm forming a space between itself and the back tube plate, substantially as set forth.

518,400. DUPLICATING ORDER-BOOK. EDMUND D. GIBBS, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Jan 2, 1894. Serial No. 495,426. (No model.)



Claim.—1. The herein described cover and holder for order slips and the like, composed of the backs A B arranged end to end and flexibly connected at C, and the slip-holder D hinged to the back A at its side edge and provided along one side edge with means for receiving and holding a carbon sheet, substantially as and for the purpose described.

2. The herein described cover and holder for order slips and the like, composed of the backs A B arranged end to end and flexibly connected at C, and the holder D secured to the side edge of the back A and provided with the pocket E at its upper end, substantially as and for the purpose described.

3. The herein described cover and holder for order slips and the like, composed of the backs A B arranged end to end and flexibly connected at C, the holder D secured to the back A at its side edge and provided with the pocket E at its upper end and the pocket F at its side edge, substantially as and for the purpose described.

4. The herein described order or sales slip book, consisting of a back having a holder hinged to its side edge, in combination with a block of slips attached to said holder at their upper ends, and a carbon sheet secured at one side edge of the book and adapted to overlie the upper half of the block of slips, substantially as described.

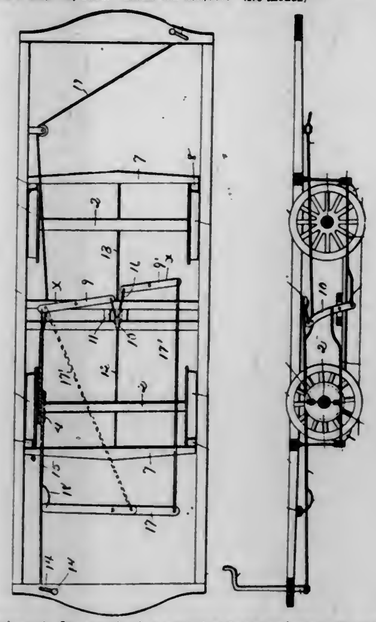
5. The herein described order or sales slip book, consisting of a cover composed of the backs A B arranged end to end and flexibly connected at C, the holder D hinged at one side edge of the back A, the block of slips attached to the holder at their upper ends, and the carbon sheet attached to the book at its side edge, substantially as described.

6. The herein described order or sales slip book, consisting of a cover composed of the backs A B arranged end to end and flexibly connected at C, the holder D hinged to one side edge of the back A and provided with the pocket E at its upper end, the block of slips having the attaching piece H inserted in the pocket E, and the carbon sheet I attached to the book at its side edge, substantially as described.

7. The herein described order or sales slip book, consisting of a cover composed of the backs A B flexibly connected at C, the holder D hinged to the left hand edge of the back A, and having the pocket E, the block of slips G having the attaching piece H inserted in the pocket E, and the carbon sheet I attached to the piece J inserted in a pocket in the left hand edge of the book, substantially as described.

8. The herein described order or sales slip book, consisting of a cover composed of the backs A B flexibly connected at C, the holder D hinged to the left hand edge of the back A and having the pockets E and F, the block of slips G having the attaching piece H inserted in the pocket E, and the carbon sheet I attached to the piece J inserted in the pocket F, substantially as described.

518,401. CAR-BRAKE. FRANK E. GILLING, Toledo, Ohio, assignor of two-thirds to Francis M. Oliver and Frederick J. Shovar, same place. Filed Aug. 18, 1893. Serial No. 483,447. (No model.)



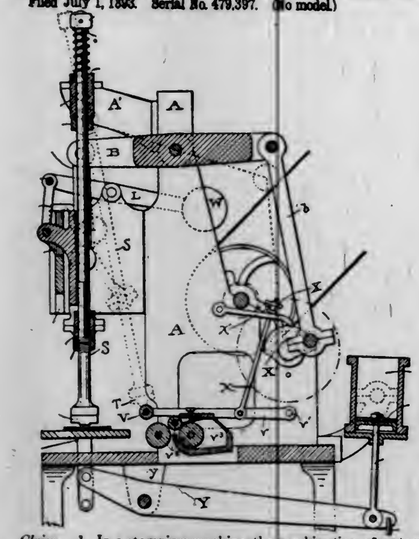
Claim.—1. In a car brake, a friction drum upon the axle, a rope or cable coiled around the same, brake actuating mechanism connected with the rope or cable by flexible connections attached to the brake mechanism upon each side of the friction drum, and normally slack, and connections with the rope or cable and each brake rod upon the car.

2. In a car brake, a friction drum upon the axle, a rope or cable coiled around the drum and connected with the front and rear brake rod respectively upon the car, the brake beams and shoes, a vertical pivoted lever connected with the brake beams, and a centrally pivoted lever connected with the rope or cable and with the vertical lever, the connections with the rope or cable being normally slack.

3. In a car brake, a vertical lever pivotally connected with the car frame, brake beams upon the front and rear of the car respect-

ively, connections from the vertical lever to the brake beams, one connection above and one below the pivot, a friction drum or sheave upon the car axle, a rope or cable coiled around the same, and connected with the front and rear brake rods, a pivoted lever upon the car frame connected with the vertical lever at one end and with the rope at the opposite end, the connection being normally slack.

518,402. STAMPING-MACHINE. ALBERT E. GRANT, Troy, N. Y. Filed July 1, 1893. Serial No. 479,397. (No model.)



Claim.—1. In a stamping machine, the combination of a stamping rod, a die secured thereto, a shaft suitably mounted, a means for connecting said shaft with said stamping rod, an inking device with which said die may be brought in contact, a movable table upon which the goods to be operated upon may be placed, all so arranged that by the operation of the shaft the die at the end of the stamping rod will be brought in contact with the inking device and then swung away from the inking device and caused to descend in a vertical plane and brought into forcible and positive contact with the work on said table, substantially as described and for the purpose set forth.

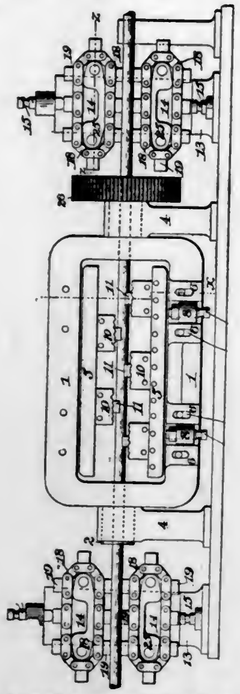
2. In a stamping machine, the combination of a stamping rod, means for raising said rod from the goods to be operated upon, an inking device with which said stamping rod may be brought in contact, a movable table upon which the goods to be operated upon may be placed, substantially as described and for the purpose set forth.

3. In a stamping machine, a stamping rod, a plate provided with a sleeve pivotally secured thereto, said sleeve capable of oscillatory movement on said plate, said plate constructed to permit of a swinging motion, means for raising said plate and causing said rod to swing into contact with an inking roller, an inking mechanism provided with an inking roller arranged to be brought in contact with the end of the stamping rod when the stamping rod is swung away from the table with a table upon which the goods are placed to be operated upon, substantially as described and for the purpose set forth.

4. In a stamping machine, a table provided with downwardly extending bars attached to one end of a lever, said lever pivoted to the frame of the machine, a weight attached to the end of said lever opposite to that secured to the bars of the table, a rod secured to said lever near said weight, an air cylinder, a piston in said air cylinder connected to said rod, substantially as described and for the purpose set forth.

5. In a stamping machine, a stamping rod, a plate provided at its lower extremity with a bearing, a sleeve provided with a squared opening therethrough, a portion of the stamping rod passing through said sleeve having a squared portion, said sleeve capable of oscillatory movement in said bearing, an ear projecting from said plate, a plate placed in front of said last mentioned plate provided with ears, a bolt passing through each of said ears on each of said plates, a lever pivoted to the frame of the machine, with links secured by said bolt, with a weight attached to the end of said lever farthest from said links, with an arm attached to a lug on said first mentioned plate, with an arm securing said lug to a walking beam, said walking beam attached by an arm to a shaft, with a sleeve secured within bearings in a bracket attached to the frame of the machine, a cap at the upper end of said stamping rod, a spiral spring resting against said cap and upon the top of said sleeve, with an adjustable collar placed upon said stamping rod immediately beneath each of said sleeves, substantially as described and for the purpose set forth.

518,403. MACHINE FOR STRAIGHTENING RODS. PHILIP M. HAAS, Youngstown, Ohio. Filed Aug. 4, 1893. Serial No. 482,410. (No model.)



Claim.—1. In a rod straightening machine, the combination of a rotating flier, presser rollers arranged on the flier with their axes parallel with the axis of rotation of the flier, and feed mechanism for forcing a bar or rod through the machine, substantially as set forth.

2. In a rod straightening machine, the combination of a rotating flier, carrier frames adjustably mounted on the flier, rollers mounted on the blocks with their axes parallel with the axis of rotation of the flier, and mechanism for feeding a bar or rod through the flier, substantially as set forth.

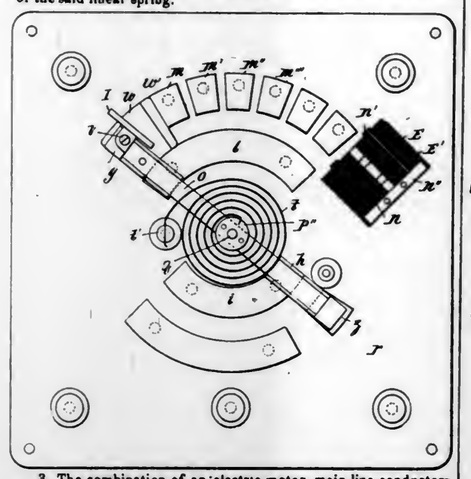
3. In a rod straightening machine, the combination of straightening mechanism, two endless chains provided with gripping blocks and mechanism for driving the chains, substantially as set forth.

4. In a feed mechanism for straightening machines, the combination of adjustable slides arranged on a suitable standard, endless chains provided with gripping blocks and so mounted on the slides that the gripping blocks on one chain will during a portion of its travel be in line or approximately in line with and in such proximity to the gripping blocks on the other chain as to tightly grip the rod, and mechanism for driving the chains, substantially as set forth.

518,404. ELECTRIC STARTING-SWITCH. FREDERICK V. HENSHAW, Brooklyn, N. Y. Filed June 2, 1893. Serial No. 476,332. (No model.)

Claim.—1. The combination with main line conductors and with a motor having its armature in circuit with the main line conductors and its field in shunt, of a magnet in the shunt circuit, a circuit closer for one main line conductor retained closed by said magnet, a spring for the circuit closer opposing the action of said magnet, resistances whose terminals lie in the path of said circuit closer for the purpose set forth, and a second circuit closer rigidly attached to the first and in circuit with the other main line conductor, the contact surfaces of said terminals being in one plane, and provided with an inclined surface.

2. The combination of an electric motor, main line conductors, circuit closers in circuit with the main line conductors, an insulator bar connecting said circuit closers pins projecting from said bar, a linear spring having slotted and curved ends, the pins passing through said slots, a spiral retractile spring for said linear spring, a central pin forming a bearing for said bar and linear spring, a handle rotary upon said pin, nuts pressing the handle against the linear spring, and a projection upon the handle and extending into the plane of the rotation of the said linear spring.

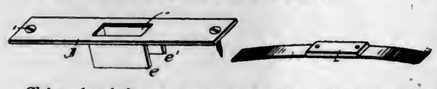


3. The combination of an electric motor, main line conductors, circuit closers in circuit with the main line conductors, an insulator bar connecting said circuit closers pins projecting from said bar, a linear spring having slotted and curved ends, the pins passing through said slots, a spiral retractile spring for said linear spring, a central pin forming a bearing for said bar and linear spring, a handle rotary upon said pin, nuts pressing the handle against the linear spring, a projection upon the handle and extending into the plane of the rotation of the said linear spring, and resistances interposed in circuit between one main line conductor, and one circuit closer.

4. The combination of an electric motor, main line conductors, circuit closers in circuit with the main line conductors, an insulator bar connecting said circuit closers pins projecting from said bar, a linear spring having slotted and curved ends, the pins passing through said slots, a spiral retractile spring for said linear spring, a central pin forming a bearing for said bar and linear spring, a handle rotary upon said pin, nuts pressing the handle against the linear spring, a projection upon the handle and extending into the plane of the rotation of the said linear spring, and resistances interposed in circuit between one main line conductor, and one circuit closer, an armature attached to said last named circuit closer, and a magnet in circuit with said motor and in the path of said armature.

5. The combination with an electric motor and with main line conductors, of circuit closers closed between both conductors, and the motor, and variable resistance between one conductor and the motor, and in series with the field magnet, and having terminals in the path of the last named circuit closer, and means for short circuiting the said resistances with respect to the field magnet.

518,405. BOLT-SOCKET. BENJAMIN HEYWARD, Boise City, Idaho. Filed Oct. 16, 1893. Serial No. 488,334. (No model.)

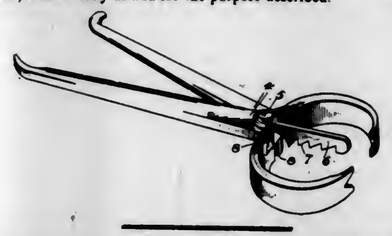


Claim.—In a bolt socket or strike plate the combination of plate A having an opening for the bolt of a flat spring plate B provided with the filling plate C for the bolt opening substantially as described.

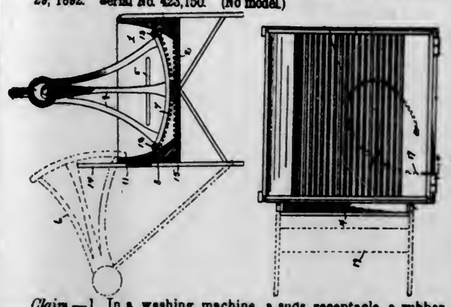
518,406. WIRE-STRETCHER. GEORGE W. HUGHS, Fort Worth, Tex. Filed Sept. 30, 1893. Serial No. 486,885. (No model.)

Claim.—1. A wire stretcher comprising a pair of pivoted members provided with oppositely disposed jaws, and a rack bar carried by the members and arranged between the jaws and provided with a series of teeth, substantially as described.

2. A wire stretcher comprising a pair of similar members each provided with a jaw and having a shank, a pivot connecting the members, and a longitudinally disposed rack bar provided at its inner end with an opening to receive said pivot and extending outward therefrom and arranged between the jaws and provided with a series of teeth, substantially as and for the purpose described.



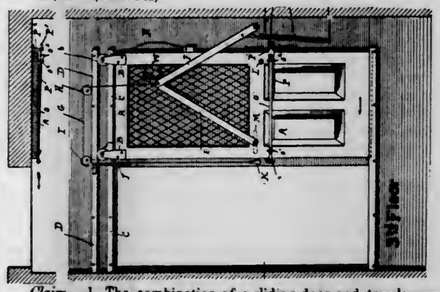
518,407. WASHING-MACHINE. FRANCIS JACKSON, Ralstonville, Mich., assignor of one-half to Frank Atkinson, same place. Filed Feb. 29, 1892. Serial No. 423,150. (No model.)



Claim.—1. In a washing machine, a suds receptacle, a rubber therein, and a spring actuated rest pivoted to the frame and adapted to swing in the arc of a circle to sustain the rubber.

2. In a washing machine, the combination with a suds box having curved side fillings of a curved rubber having the friction rollers at each end, the standards upon said rubber, the hollow cross bar and handle and the weight adapted to be inserted in the hollow cross bar and produce a pressure on the rubber.

518,408. ELEVATOR-DOOR-OPERATING MECHANISM. EBENEZER C. JENKINS, Shrewsbury, Mass. Filed Apr. 30, 1892. Serial No. 431,321. (No model.)



Claim.—1. The combination of a sliding door and toggle-arms for operating the same, the end of one arm being pivoted to the door, and the end of the other arm being pivoted to a fixed point, the pivots of said arms being in a line parallel to the movement of the door, and a stop adapted to limit the movement of the toggle-arms in one direction when the same are substantially in line with each other, whereby said toggle-arms will form a lock for the door, and means for moving said toggle arms to open and close the door, substantially as described.

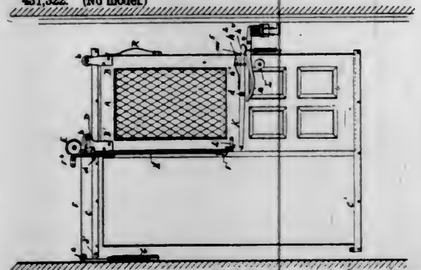
2. The combination of sliding door A, toggle arms E and F for moving the same, cord G connected to the point where said arms E and F are connected, and spring N adapted to move the toggle in one direction, substantially as described.

3. The combination of sliding door A, arm P having catch P' secured to the same, stationary hook P^2, of arm O bearing on said arm P, said arm O having cam o^3 and bracket o^2 with which said cam is adapted to engage, whereby as said arm is pulled, the catch P' will be disengaged from the hook P^2, substantially as described.

4. The combination of a sliding door A, toggle arms E and F for moving the same, cord G secured to the point where said arms E and

F are connected, the spring N adapted to move the toggle in one direction and the buffer spring R adapted to receive the impact when the door is opened and to store energy to start the door on its return movement, substantially as described.

518,409. ELEVATOR-DOOR-OPERATING MECHANISM. EBENEZER C. JENKINS, Shrewsbury, Mass. Filed Apr. 30, 1892. Serial No. 431,322. (No model.)



Claim.—1. The combination of a sliding door, and a latch adapted to keep the same locked, of a weight connected by a cord to said latch so as normally to keep said latch in its locked position, said cord projecting beyond said latch and having a handle whereby by pulling on said handle the latch may be raised and the door opened, and by releasing said handle, the door will be closed, and the door locked by action of said weight, substantially as described.

2. The combination of a sliding door, means as a weight connected to keep the same in one position, said door having a pivoted arm as K, having a catch k^4 of the arm M having a curved portion n^3 at one end, and an armature n^4 at the other end of the magnet N cooperating with armature n^4, and a roller L adapted to bring the armature m^4 in contact with the magnet, so that the said catch k^4 can engage said arm M, and electrical connections to said magnet, substantially as described.

3. The combination of a catch, and armature controlling and connected to said catch, of a magnet controlling said armature, a co-operating catch or latch with which the first named catch is adapted to engage, and means for bringing the armature mechanically against the magnet, as one of said catches approaches the other, so that the catches will engage if the magnet is energized, substantially as described.

4. The combination of the elevator car, of the sliding elevator door A having an arm or latch K, an arm M pivoted to the wall, having a catch as m^3 adapted to engage and hold said arm K, of a spring as m^3 for holding the catch m^3 out of engagement with the arm K, of an armature as m^4 on said arm M, and a magnet as N controlling the said armature, a roller as L mounted on the door, adapted to bring said armature mechanically into contact with the magnet as the door is opened, so that the catches will engage only if the magnet is energized, of electrical connections extending to said magnet, and a switch mounted on the car, to which said electrical connections pass, substantially as described.

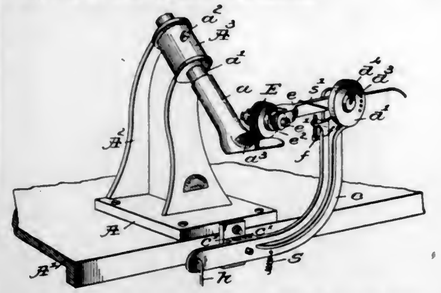
5. An elevator arranged in an elevator well in the usual manner, of a plurality of doors opening into said well, each door having a latch, a catch adapted to engage each of said latches to hold each of said doors open, means for automatically closing said doors, a magnet controlling said catches, a source of electric energy, and connections to said magnet, and normally opened circuit breakers, controlled from the movement of said car, substantially as described.

518,410. MACHINE FOR CREASING BOOT OR SHOE UPPERS. GEORGE KNIGHT, Brockton, Mass. Filed Oct. 17, 1893. Serial No. 488,371. (No model.)

Claim.—1. The combination with a horn to enter and support a boot or shoe to be creased; of a fixed support; a creasing tool, a carrier therefor attached to said support and movable thereon in a line parallel with the desired lines of the creases, whereby movement of said carrier causes said tool to be moved across said horn in the lines of and to form said creases in the boot or shoe upon the horn; and means to move said carrier, substantially as described.

2. The combination with a fluted horn to enter and support a boot or shoe to be creased, of a fixed support; a roller creasing tool, a carrier therefor attached to said support and movable thereon in a line parallel with the lines of the flutes in said horn, whereby movement of said carrier causes said tool to be moved across said horn and in the lines of the flutes therein to form creases in the boot or shoe upon the horn; and means to move said carrier, substantially as described.

3. A creasing machine, consisting of a fluted horn; a fluted roller creasing tool; a fixed support, a carrier attached thereto and movable in a direction parallel with the lines of the flutes in said horn; an arm pivoted to said carrier, and in the free end of which said roller creasing tool is journaled; and means for moving said carrier to cause said tool to follow in the lines of the flutes in said horn to crease a boot or shoe upon the latter, substantially as described.



4. In a creasing machine of the class described, a fluted horn; a fixed support; a carrier attached to said support and movable thereon in a line parallel with the lines of the flutes in said horn; an arm pivoted to said carrier; and a creasing tool mounted in the free end of said arm; combined with a spring to press said tool toward the fluted surface of said horn; and means to move said carrier to cause said tool pressed into the flutes in the horn to be moved in the lines of said flutes to crease a boot or shoe placed upon said horn, substantially as described.

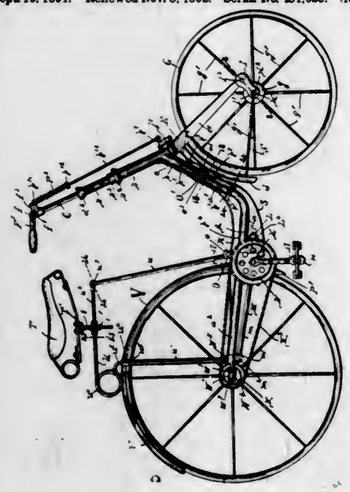
5. In a creasing machine of the class described, a base, a standard thereon having an angularly positioned head, a horn adjustably mounted in said head, and held thereby in an angular or inclined position, combined with a pivoted carrier, an arm as *e* pivoted to said carrier, a creasing tool on the end of said arm, and a spring to press said tool toward the fluted surface of said horn, substantially as described.

6. In a creasing machine of the class described, a base, a fluted horn carried thereby, a plate *b'* pivotally connected to said base, combined with a carrier pivoted to said plate, an arm as *e* pivoted to said carrier, a creasing tool on the end of said arm, and a spring to press said tool toward the fluted surface of said form, substantially as described.

7. In a creasing machine of the class described, a horn, combined with a pivoted carrier *c*, a creasing tool, and a supporting arm therefor pivoted to said carrier, the spring *s*, the disk d^2 provided with a series of holes, and the pin d^3, all to operate substantially as described.

9. In a creasing machine of the class described, a base, a horn carried thereby, a pivot stud b^3 attached to said base, a creasing tool and the carrier *c* therefor having a slot, and a collar b^4 in said slot and clamped to said pivot stud, all to operate substantially as described.

518,411. BICYCLE. HENRY LA CASSE, Rochester, N. Y. Filed Sept. 16, 1891. Renewed Nov. 5, 1892. Serial No. 451,023. (No model.)



Claim.—1. The combination of a fork, a wheel having an axle, a link having one extremity secured to the axle and having a recess in its opposite extremity provided with a slot in its side wall for receiving the adjacent end of the fork, and a spring mounted in said recess in the link between the inner wall of the recess and the adjacent face of the fork and having one end connected to the link and the other to the fork, substantially as and for the purpose set forth.

2. The combination of a frame and a steering rod, a cap at the extremity of said rod provided with a pair of ears, a lever interposed between said ears and formed with a threaded socket, a handle bar composed of separable extremities having their adjacent ends screw threaded and passed through said socket, and a lock for preventing turning of said handle bar extremities substantially as and for the purpose set forth.

3. The combination of a frame, a steering rod provided at its upper end with a projecting shoulder fixed thereto and with upwardly projecting ears, a handle bar journaled in said ears for operating the steering rod, a brake-shoe hinged to the frame, a lever p^3 pivoted to said frame, a jointed connection p^2 hinged to the lever p^3 and connected, substantially as described, to the brake-shoe, a lever f^3 having one end rigidly secured to the handle bar and the other projecting outwardly beyond the steering rod, a link having one end pivoted to the lever p^3 and the other to the projecting end of the lever f^3 and provided with a spring engaging shoulder, and a spring interposed between the projecting shoulder on the steering rod and the spring engaging shoulder on said link, substantially as and for the purpose specified.

4. The combination of a frame, a pedal shaft, a knuckle K interposed between the pedal shaft and the frame and comprising levers pivoted to each other and also to the pedal shaft and to the frame, a spring for supporting said knuckle in its normal position, and a seat connected to said knuckle, substantially as and for the purpose set forth.

5. The combination of a frame, a pedal shaft, a knuckle K interposed between the pedal shaft and the frame and comprising levers pivoted to each other and also to the pedal shaft and to the frame, a spring for supporting said knuckle in its normal position, a seat connected to said knuckle, and an adjuster for adjusting the tension of said spring, substantially as described.

6. The combination of a frame, a pedal shaft, a knuckle K interposed between the pedal shaft and the frame and comprising levers pivoted to each other and also to the pedal shaft and to the frame, a spring for supporting said knuckle in its normal position, a link having one end hinged to the pedal shaft and the other to the rear portion of the frame, and a seat connected to said knuckle, substantially as described.

7. The combination of a frame, a seat, a seat support, a knuckle joint between the frame and the seat support, a spring secured to said frame and to said seat support, and an adjuster for adjusting the tension of the spring, substantially as and for the purpose specified.

8. The combination of a frame, a lever L′ having its rear end hinged to the frame, a lever L^3 arranged beneath the lever L′ and having its front end hinged to the corresponding end of the lever L′, a pedal shaft, a lever L^4 having the pedal shaft journaled therein and having its front end hinged to the rear end of the lever L^3, a spring connected, substantially as described, to said levers for supporting the same in operative position, and a seat connected to said levers, substantially as specified.

9. The combination of a frame, a lever L′ having its rear end hinged to the frame, a lever L^3 arranged beneath the lever L′ and having its front end hinged to the corresponding end of the lever L′, a pedal shaft, a lever L^4 having the pedal shaft journaled therein and having its front end hinged to the rear end of the lever L^3, a spring connected, substantially as described, to said levers for supporting the same in operative position, a seat connected to said levers, and a link M having its rear end hinged to the frame and its front end rigidly secured to the rear end of the lever L^4, substantially as set forth.

10. The combination of a frame, a pair of hinged levers having their corresponding extremities hinged together and the opposite end of one lever hinged to the frame, a seat, a seat support hinged to the opposite end of the other lever, and a spring for holding said levers into operative position, substantially as specified.

11. The combination of a frame, a lever L′ having its rear end hinged to the frame, a lever L^3 arranged beneath the lever L′ and having its front end hinged to the corresponding end of the lever L′, a pedal shaft, a lever L^4 having the pedal shaft journaled therein and having its front end hinged to the rear end of the lever L^3, a seat, a seat support having its lower end hinged to the pivotal pin of the levers L^3 L^4, and a spring connected, substantially as described, to said levers for supporting the same, substantially as described.

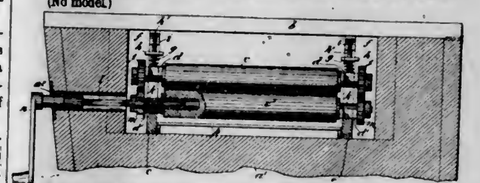
12. The combination of a frame, a pedal shaft, a pair of hinged levers having their corresponding extremities hinged together and the opposite end of one lever hinged to the frame and the opposite end of the other lever to said pedal shaft, an upwardly projecting arm secured to the hinge pin of one of said levers and formed with an engaging shoulder, and a spring having one end secured to said frame and the other engaged with said engaging shoulder, substantially as specified.

13. The combination of a frame, a shaft, a knuckle K interposed between the pedal shaft and the frame and comprising levers pivoted to each other and also to the pedal shaft and to the frame, a brake-shoe journaled on one of the levers, a handle bar connected to the brake-shoe, a spring for supporting said knuckle in its normal position, and a seat supported on said knuckle, substantially as and for the purpose set forth.

14. The combination of a frame, a lever L′ having its rear end hinged to the frame, a lever L^3 arranged beneath the lever L′ and having its front end hinged to the corresponding end of the lever L′, a pedal shaft, a lever L^4 having the pedal shaft journaled therein and having its front end hinged to the rear end of the lever L^3, and a brake shoe journaled on the lever L^4, a handle bar connected to the brake-shoe, a spring connected, substantially as described, to said levers for supporting the same in operative position, and a seat connected to said levers, substantially as and for the purpose described.

15. The combination of a frame, a rear wheel having an axle, a projecting arm adjustably secured to said axle, a link having one end hinged to the forward end of the arm, a pedal shaft journaled in the front end of the link, a knuckle joint between the pedal shaft and the frame, and a spring for supporting the pedal shaft, substantially as and for the purpose specified.

518,412. COMBINED CLOTHES-WRINGER AND WASHTUB. CHARLES F. LEWIS and WILLIAM LEWIS, New York, N. Y., assignors to Adolph Falck, same place. Filed Nov. 16, 1893. Serial No. 491,068. (No model.)



Claim.—1. The combination with the partition of a wash tub having an opening therein, of a wringer located in said opening, a shaft of said wringer rollers extending through a channel in said partition, and a crank handle constructed to be inserted from the outside of the tub and to engage with and operate said shaft and wringer rollers, substantially as set forth.

2. The combination with a partition of a wash tub having an opening therein, of a wringer located in said opening said wringer having side standards supporting the wringer rollers and being each located at a short distance from the adjoining edge of the said partition, gearing joining the wringer rollers located in the openings between the standards and the edges of the partition and plates extending from said partition and said standards and bridging across and inclosing said last mentioned openings, substantially as set forth.

3. The combination with a partition of a wash tub having an opening therein, of a wringer located in said opening said wringer having side standards supporting the wringer rollers, and plates joining said side standards to the wash tub partition, a shaft of said wringer rollers extending through a channel in said partition, and a crank handle constructed to be inserted from the outside of the tub and to engage with and operate said shaft and wringer roller, substantially as set forth.

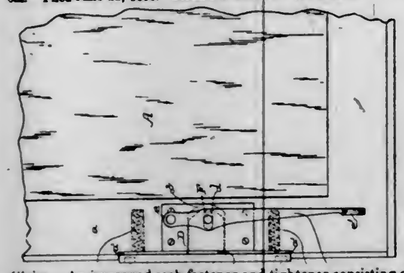
4. The combination with a partition of a wash tub having an opening therein, of a wringer located in said opening said wringer having the side standards *e e*, the wringer rollers *c* and *c'* having shafts mounted therein, the shaft *k* of said roller *c'* being hollow, the inner shaft *l* removably held in said hollow shaft *k* and extending through a channel in said partition, and a crank handle constructed to be inserted from the outside of the tub and to engage with said inner shaft *l*, substantially as set forth.

5. The combination with a partition of a wash tub having an opening therein, of a wringer located in said opening, said wringer having the side standards *e, e*, the wringer rollers *c* and *c'* having shafts and bearing boxes mounted in said standards, yielding pressure devices mounted in said standards and connected to the bearing boxes of one of said wringer rollers, gearing joining the wringer rollers located in openings between the standards *e, e*, and the edges of said partition, and the plates *f f* extending from the standards to the edges of said partition and bridging across and laterally inclosing said last mentioned openings, substantially as set forth.

6. The combination with a partition of a wash tub having an opening therein, of a wringer located in said opening, said wringer

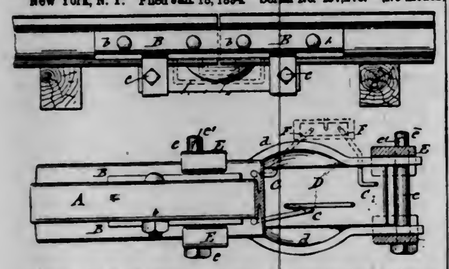
having the side standards *e*, *e*, the wringer rollers *c* and *c'* having shafts and bearing boxes mounted in said standards, yielding pressure devices mounted in said standards connected to the bearing boxes of said wringer rollers *c*, gearing joining the wringer rollers located in openings between the standards *e e* and the edges of said partition, the plates *f f* extending from the standards *e*, *e*, to the edges of said partition and bridging across and laterally inclosing said last mentioned openings the said roller *c'* having the hollow shaft *k* and the inner shaft *l* removably held in said hollow shaft *k* and extending through a channel in said partition, and a crank handle constructed to be inserted from the outside of the tub and to engage with said inner shaft *l*, substantially as set forth

518,413. SASH-HOLDER. WILLIAM H. MASTERMAN, Oakland, Cal. Filed June 22, 1893. Serial No. 478,490. (No model.)



Claim.—An improved sash fastener and tightener consisting of a spring-actuated plate having one edge beveled, a separate strip let into the sash groove having a beveled face for the beveled edge of the plate, a shank at the center of the plate adapted to enter a recess in the sash, coil-springs seated in recesses in the sash and to bear upon opposite ends of the plate, a face plate covering the shank of the plate having an elongated slot through which a pin or stud from the shank projects, and a vertically disposed lever pivoted at one end to the face plate and having its opposite end provided with a finger piece, said lever having the pin or stud from the shank fitted to it at a point between its opposite ends, substantially as herein described.

518,414. BOND FOR ELECTRIC RAILWAYS. JULIUS MEYER, New York, N. Y. Filed Jan. 18, 1894. Serial No. 497,276. (No model.)



Claim.—1. In an electric railway, the combination, with conductors, of a bond or bonds connecting the same, a container, means for attaching the container to said conductors, and insulating material in the container for insulating the bond or bonds and its or their connection with and points of contact with the conductors, substantially as set forth.

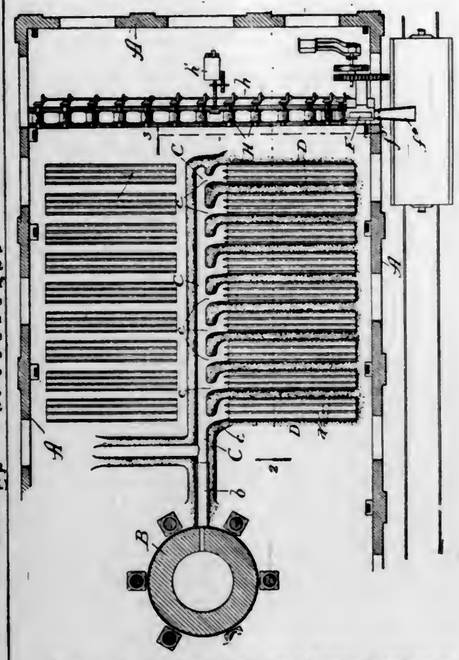
2. In electric railways, the combination, with conductors, of a bond or bonds connecting the same, a container, means for attaching the container to said conductors, said container being provided with outwardly-bulging side-portions, and insulating material in the container, substantially as set forth.

3. In electric railways, the combination, with conductors, of a bond or bonds, one end of which is connected to the conductors, a container, means for fastening the same to the conductors, insulating material in the container insulating the bond or bonds and its or their connection with and points of contact with the conductors, the bonds continued through the container and brought to a connection with each other outside of the container, substantially as set forth.

4. In electric railways, the combination, with a conductor or conductors, of a bond or bonds connecting the same, a container, means for attaching the container to said conductor or conductors, insulating material in the container insulating the bond or bonds and its or their connection with and points of contact with the conductor or conductors, and a supplemental conductor or feeder outside of the container and connected with the bond or bonds or with the conductor or conductors inside of the container, substantially as set forth.

5. In electric railways, the combination, with a conductor or conductors, of a bond or bonds one end of which is connected to the conductor or conductors, a container, means for fastening the same to the conductor or conductors, insulating material in the container insulating the bond or bonds and its or their connection with, and points of contact with the conductors, the bond or bonds continued through the side-walls or the bottom of the container, a supplemental conductor or feeder outside of the container and a connection of the bond or bonds with the feeder or feeders outside of the container, substantially as set forth.

518,415. BLAST-FURNACE CAST-HOUSE. CHARLES L. MILLER and JEROME R. GEORGE, Chicago, Ill. Filed Dec. 31, 1892. Serial No. 456,922. (No model.)



Claim.—1. In combination with a blast furnace, a mold to receive the molten metal from the furnace and form it into desired shapes, a crane for lifting and carrying the cooled metal from each mold compartment separately, a train of rollers for receiving and conducting the cooled metal from the crane, a breaker for receiving the cooled metal from the conveyer, means for stopping the forward movement of the cooled metal in the breaker and holding it in desired position, and a ram to come down upon the cooled metal to break it into desired lengths, substantially as described.

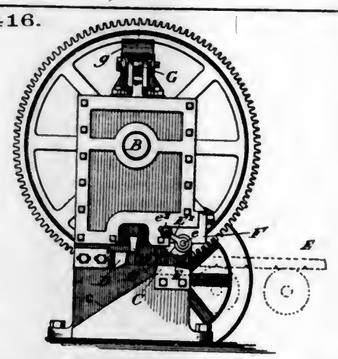
2. In combination with a blast furnace, molds to receive the molten metal from the furnace and form it into desired shapes, a crane for lifting and carrying the cooled metal, a conveyer for conducting the cooled metal from the crane, a breaker for receiving the cooled metal from the conveyer and breaking it into desired lengths, and a chute for conducting the broken metal to a car or place of delivery, substantially as described.

518,416. MACHINE FOR BREAKING PIG-IRON. CHARLES L. MILLER and JEROME R. GEORGE, Chicago, Ill. Filed Sept. 19, 1893. Serial No. 485,900. (No model.)

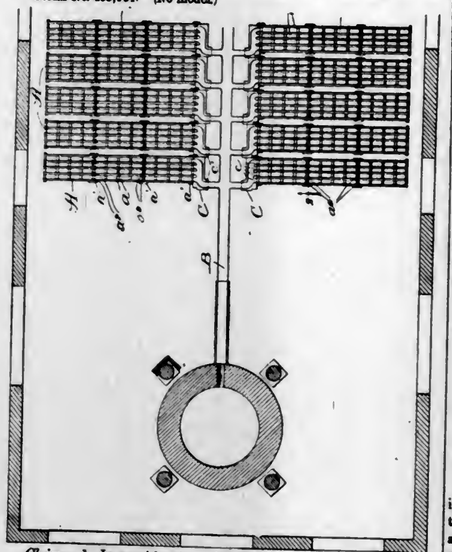
Claim.—1 In a metal breaker, the combination of a cam disk mounted on a shaft, means for bringing the cam disk down upon the metal to be broken, a stop in the line of the metal, and a ram adapted to come down upon the metal at a point adjacent to the stop and in advance of the cam disk and of the place where the metal is to be broken, substantially as described.

2. In a metal breaker, a series of cam disks adapted to operate successively, and means for bringing the cam disks down upon the metal to be broken, substantially as described.

518,416.



518,417. MOLD FOR BLAST-FURNACE CAST-HOUSES. CHARLES L. MILLER and JEROME R. GEORGE, Chicago, Ill. Filed Sept. 19, 1893. Serial No. 485,901. (No model.)



Claim.—1 In combination with the main runner of a blast furnace cast house, a short runner leading from the main runner and having side openings therein, and a mold having forms or channels extending at right angles to the short runner opposite its side openings, the metal inlet from the main runner into the short runner being at one side or out of the direct line of each form or channel in the mold, substantially as described.

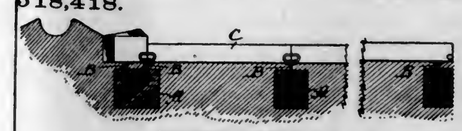
2. In combination with the main runner of a blast furnace cast-house, a short runner leading from the main runner and having side openings therein, and a mold having forms or channels extending at right angles to the short runner opposite its side openings, intermediate openings in the short runner being wider than the openings next to the metal inlet or farthest therefrom, whereby the flow of metal into the forms or channels of the mold is regulated, substantially as described.

518,418. FOUNDATION FOR MOLDS. CHARLES L. MILLER and JEROME R. GEORGE, Chicago, Ill. Filed Sept. 19, 1893. Serial No. 485,902. (No model.)

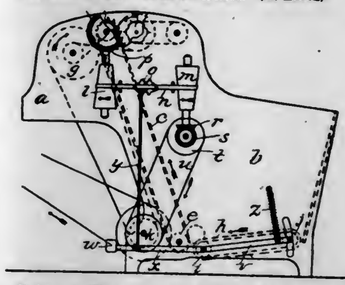
Claim.—1. In a blast-furnace cast house, a foundation for molds comprising masonry, metallic supports extending upward from the masonry, molds placed on the supports and blocks or clamps secured to the supports for holding the molds in position laterally, substantially as described.

2. In a blast-furnace cast house, a foundation for molds comprising walls or piers of brick-work, I-beams embedded in the brick-work and extending up therefrom, and blocks or clamps secured to the I-beams for holding the molds in position laterally, substantially as described.

518,418.



518,419. FIBER-FEEDING MACHINE. ALBERT H. MORTON, Lowell, Mass., assignor to the Kitson Machine Company, same place. Filed Nov. 7, 1893. Serial No. 490,296. (No model.)



Claim.—1. The combination of a yielding support for the material, a lifting-apron, means for operating the same a speed-changing mechanism for controlling the speed at which the lifting-apron is driven, and mechanism intermediate of the yielding support and speed-changing mechanism and connecting the same, whereby as the weight or pressure of the material on the yielding support varies, the speed at which the lifting-apron is run may be varied as required.

2. The combination of a yielding support for the material, a lifting-apron, means for operating the same a speed-changing mechanism for controlling the speed of the lifting-apron, and levers and rods intermediate of the yielding support and the speed-changing mechanism and connecting the same, as set forth

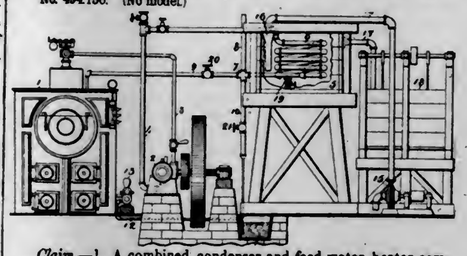
518,420. SAW-FRAME. RICHARD J. MOXLEY, New Haven, Conn. Filed May 29, 1893. Serial No. 475,993. (No model.)



Claim.—1. The combination in a saw frame of the socket B having a receiving hole on the upper side for the bow A another hole on the under side nearer the handle E to receive the stud D also a hole at right angles to and between aforesaid holes into which the screw C enters passing simultaneously through peripheral grooves in said bow and stud substantially as described and for the purpose specified.

2. In a saw frame the U shaped staple I in combination with the sleeve H having a slot K one end of said staple passing jointly through the stud D and the sleeve H and the other end swinging into said slot K substantially as set forth and for the purpose specified.

518,421. COMBINED SURFACE CONDENSER AND FEED-WATER HEATER. JOHN B. MCCURDY, Joplin, Mo. Filed Dec. 19, 1893. Serial No. 494,130. (No model.)

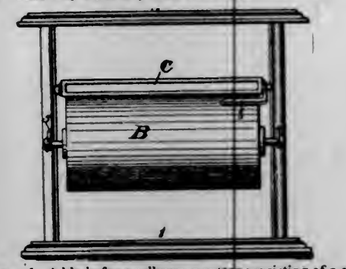


Claim.—1. A combined condenser and feed water heater comprising a boiler, an engine connected to the same, an exhaust for said engine, a terminal coil for said exhaust, and a cold water pipe superposed over or in proximity to the exhaust end of the coil, substantially as set forth.

2. A combined condenser and feed water heater, comprising a boiler, an engine connected to the same, an exhaust for said engine, a terminal coil for said exhaust, a vat for said coil, a cold water pipe within said vat having its delivery end superposed directly over the exhaust end of said coil, a valve in said exhaust end opening into said vat, a relief pipe, and pipes leading respectively to the boiler and a suitable hot well leading from the terminus of the exhaust end, substantially as set forth.

3. A combined condenser and feed water heater, comprising a boiler, an engine connected to the same, an exhaust for said engine, a terminal coil for said exhaust, a vat for said coil, a cold water pipe within said vat having a funnel-shaped opening and a delivery end superposed over the exhaust end of said coil, a valve in said exhaust end opening into said vat, a relief pipe, a pipe leading to the boiler and a third pipe leading to a suitable well, a well, a feed pump, a pipe leading from said well to said feed pump, suitable valves in said pipes, an overflow for said vat, a cold water delivery pump, a pipe for delivering water to said vat connected to the delivery pump, and a suitable concentrator communicating with the overflow from said vat, substantially as set forth.

518,422. ROLL-PAPER CUTTER. DUNCAN MCLACHLAN, Groton, N. Y. Filed July 23, 1892. Serial No. 440,987. (No model.)

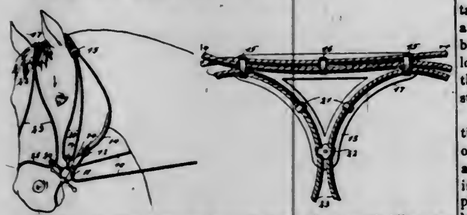


Claim.—1. A blade for a roll-paper cutter consisting of a cutting blade adapted to rest upon the roll and having a recess in the end and a paper lifter having an enlargement upon its inner end and journaled in the recess.

2. A blade for a roll paper cutter consisting of a body having a cutting edge, and a lifting bail connected thereto consisting of an angularly bent bar one end of which is connected to the blade, and the other arm is substantially parallel to the cutting edge.

3. A blade for a roll paper cutter consisting of a body having a cutting edge, and a lifting bail consisting of a bar bent to form two arms connected together, one arm being pivoted in the blade body and the other lying substantially parallel to its cutting edge, and over which the free end of the paper passes from the roll.

518,423. BRIDLE. JAMES R. MCLEOD, Calgary, Canada. Filed Aug. 26, 1893. Serial No. 484,091. (No model.)

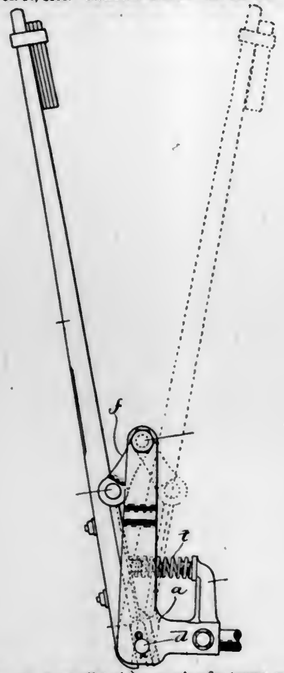


Claim.—1. As an improved article of manufacture, a bridle, comprising the usual bit, and a continuous cord having its free ends arranged to form the reins, the cord extending loosely through the bit rings, crossing beneath the jaws of the horse, crossing again above the top of the head, extending downward to form the cheek pieces of the bridle, connecting with the bit rings, returning upon themselves and merging in a loop adapted to form a nose-band and overdraw and connect with the bit rings, substantially as described.

2. As an improved article of manufacture, a harness bridle, comprising a suitable bit, a top plate adapted to rest upon the horse's head and provided with suitable guiding keepers, and a continuous cord the free ends of which form the reins, the cord extending through the bit rings and crossing to form the throat latches of the bridle, thence extending across the bridle top through the keepers in the top plate, thence downward to connect with the bit rings, thence returning through the keepers on the top plate and merging in a loop adapted to form the nose-band of the bridle and connect with the bit rings, substantially as described.

3. As an improved article of manufacture, a harness bridle, comprising a suitable bit, having the usual rings, a top plate having keepers thereon, a keeper for the throat latches, and a continuous cord extending through the bit rings, thence crossing through the throat latch keeper, thence extending upward and crossing through the keepers on the top plate, thence extending downward to form the cheek pieces and connect with the bit rings, thence returning through the keepers on the top plate, and then merging in a loop to connect with the bit rings and form an overdraw and nose band, substantially as described.

518,424. PICKER-MOTION FOR LOOMS. JAMES H. PAIGE, Manchester, N. H., assignor of one-half to George S. Varney, same place. Filed Feb. 17, 1893. Serial No. 462,724. (No model.)



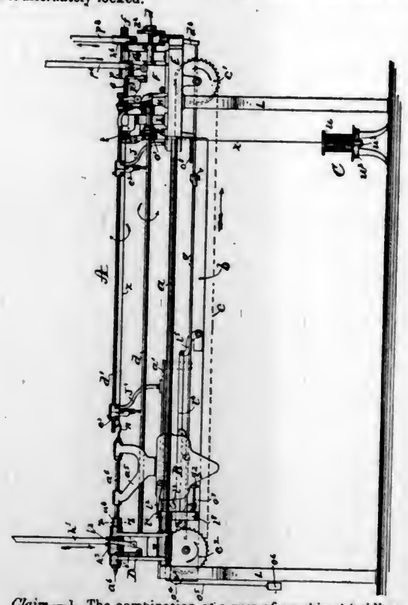
Claim.—1. A parallel picker-motion for looms, comprising in its construction a bracket having a horizontal portion adapted for attachment to the loom-frame and a vertical bifurcated portion forming a pair of standards, a pivot-pin extending across the lower end of the bifurcation, a picker-stick pivoted on said pin and adapted to play longitudinally thereon, and a swing comprising members pivoted to the vertical standards respectively and connected with the picker-stick by a common pivot-pin.

2. A parallel picker-motion for looms comprising in its construction a bracket supporting a pivot-pin, a pendent lever or crank pivoted at its upper end to a stationary support and having a pivot-pin at its lower end, a picker-stick, and a strap secured thereto and forming therewith a bifurcation at the lower end which embraces the pivot-pin thereat, and a bearing which receives the pivot-pin at the lower end of the pendent lever.

3. In a picker motion for looms, the combination, with a bifurcated bracket, of a picker stick, a pivot pin longitudinally adjustable in the bifurcation of said bracket, the said picker stick being pivoted at its lower end upon said pivot pin and constructed and arranged to move longitudinally on said pivot, and pendent levers or cranks pivoted at their upper ends in the bracket, and pivotally connected at their lower ends with the picker stick, as set forth.

518,425. LOOP-BANDING MACHINE. JOHN M. PARKER, Pawtucket, R. I. Filed Feb. 27, 1893. Serial No. 463,898. (No model.)

Brief.—The machine automatically feeds the twine to the twisting-jaws, cuts it off, draws out the loop by means of a hook mounted in a movable carriage, twists each leg of the loop, doubles the legs by rotating the loop-hook, removes the finished band, and brings the carriage forward for the next band. The carriage is propelled by a continuously running belt or chain, to the upper or lower part of which it is alternately locked.



Claim.—1. The combination of a pair of combined holding and twisting jaws, each consisting of a tubular member and a longitudinally movable spring-resisted member or head *e'* perforated to receive and clamp the cord against the end of said tube, means for intermittingly rotating the jaws and means for opening and closing the jaws at pre-determined intervals, substantially as described.

2. The combination with combined holding and twisting jaws constructed and arranged substantially as described, means for opening and closing the jaws, means for simultaneously revolving the jaws intermittingly in non-revoluble boxes and mechanism for introducing yarn into said jaws, of an intermittingly revolving loop-hook and means for moving it to and fro with respect to said twisting mechanism, substantially as described.

3. Combined holding and twisting-jaws, means for revolving the same, nipping-jaws, and means for opening and closing them, feeding mechanism for passing a strand of yarn through the said twisting-jaws and into the nipping-jaws and a knife for severing the strand of yarn, in combination with a loop-hook, means for moving it to and fro with respect to the twisting-jaws and mechanism for intermittingly revolving the loop-hook to double the loop-band, substantially as described.

4. In a loop-banding machine, a combined holding and twisting jaw, consisting of the hollow spindle provided with an external gear e^3, a spring-resisted stem, as *s*, seated in and passing longitudinally through the spindle having a head *s'* provided with an eye to receive the yarn and mechanisms for rotating, and opening the jaw, substantially as described.

5. The combination with yarn-feeding mechanism and combined holding and twisting jaws and means for revolving the jaws, of nipping-jaws for holding the free end of the yarn while a length of the latter is being drawn off, a longitudinally movable loop-hook, means for revolving the hook and a knife located between the said feeding and twisting mechanisms for severing the yarn, substantially as described.

6. In a loop-banding machine, the combination with yarn feeding, cutting, twisting and band-removing mechanisms and an endless belt traveling continuously in one direction, of a suitably mounted holding carriage, a loop-hook mounted in the carriage and means for detachably securing the carriage to the traveling belt to propel it to and fro intermittingly, substantially as described.

7. In a loop-banding machine, twisting mechanism, a reciprocating yarn-feeding device having a tube or trumpet through which the yarn extends provided with a yielding mouth or outlet to prevent the free end of the yarn from retracting into the tube, and an auxiliary yarn-check located at or near the opposite end of the tube, substantially as described.

8. In a loop-banding machine provided with yarn-holding and twisting mechanisms, a yarn-carrying tube or trumpet, as *o*, provided at its free or delivery end with a yielding checking device, means for reciprocating the tube to and fro transversely of the machine, a yarn holder or supply spool, as *u*, and a pivotally mounted tension device or brake in frictional contact with the spool, substantially as described.

9. In a loop-banding machine, an endless chain or band, means for driving it continuously in one direction, in combination with a holding carriage connected to the said belt to be propelled to and fro longitudinally of the machine, means for locking the carriage to the chain and detaching it therefrom, a spindle provided with a loop-hook mounted in bearings secured to the carriage, and an intermittingly revolving hollow tail-stock spindle arranged to receive and rotate said hook-spindle, substantially as described.

10. A holding carriage, means for propelling it to and fro at predetermined intervals, a loop-hook mounted on the carriage, means for revolving the hook, and a latch, as l^3, pivoted to the carriage, in combination with a counterweighted cross-head mounted to slide on fixed ways adapted to be locked to the carriage by means of the latch, and means for tripping the latch, substantially as described.

11. The combination with a hook-carrying holding carriage and mechanism for propelling it to and fro, of a counterweighted cross-head mounted to slide on fixed ways, means for attaching the carriage to the cross-head and detaching it therefrom, and a cushioned stop for arresting the cross-head in its rearward movement after it has been detached from the carriage, substantially as described.

12. In a loop-banding machine, the driving chain, as *c*, means for propelling the chain continuously, the holding carriage provided with a loop-hook, means for revolving the hook, means for locking the carriage to the chain and detaching it therefrom, a counterweighted cross-head and means for attaching it to the carriage, in combination with a tripping bar, as l^4, and a cam-actuated rod connected therewith to operate the tripping-bar for the purpose of detaching the carriage from the cross-head, substantially as described.

13. In a loop banding machine, a suitably mounted holding-carriage and means for propelling it to and fro, in combination with fixed ways, a tail-stock adjustably secured thereto, a counterweighted cross-head mounted to slide on said ways, means for attaching the carriage to the cross-head and detaching it therefrom and having the tail-stock counterbored to form a cushioned stop for the cross head, substantially as described.

14. In a loop-banding machine, a holding carriage, means for propelling it to and fro and a hook-spindle mounted in the upper portion of the carriage, in combination with a hollow tail-spindle arranged to receive and rotate said hook-spindle, means for intermittingly rotating the tail-spindle and a mechanically operating stop-lever for arresting the rotation of the tail-spindle, whereby the latter when at a state of rest will be in position to properly receive the hook-spindle, substantially as described.

15. In a loop-banding machine, suitably mounted fast and loose head-stock pulleys, p, p', the continuously running belt p^6, mechanisms actuated by said belt for twisting the two strands of yarn drawn off to be converted into a loop-band, fast and loose tail-stock pulleys, h^3, h^4, the continuously running belt h^5, a loop-hook rotated by the said belt h^5 for doubling the said strands together, in combination with the yielding initial driving-pulley p^7 the continuously running driving belt p^8, and mechanisms for shifting the said belts p^6 and h^5, said belt-shifting mechanisms being actuated and controlled by the initial driving-belt p^8, substantially as described.

518,426. WIRE-FENCE MACHINE. WILLIAM P. RANDALL, Le Roy, N. Y. Filed Apr. 1, 1893. Serial No. 468,666. (No model.)

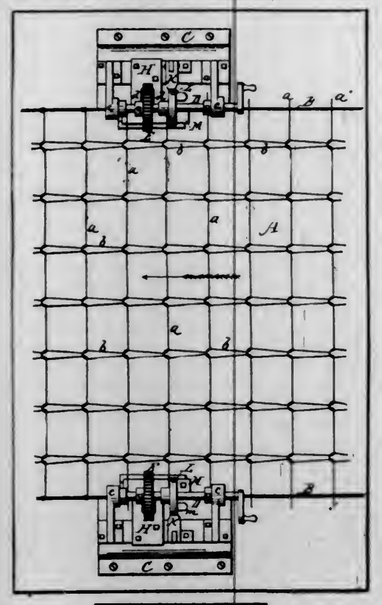
Claim.—1. In a wire fence machine, the combination of a slotted roller resting in slotted bearings and capable of a rotary and an end movement, gearing for imparting the rotary motion, a spring connection for giving the end movement, a stud on one end of the roller for engaging the wire to be coiled, and a clamp for holding the wire while being coiled, as herein shown and described.

2. The combination, of a slotted roller resting in slotted bearings and capable of a rotary and an end movement, gearing for imparting the rotary motion, a spring connection for giving the end movement, a stud on one end of the roller for engaging the wire to be coiled, a clamp for holding the wire while being coiled, and a guide outside the clamp for directing the wires into the throat of the machine, as herein shown and described.

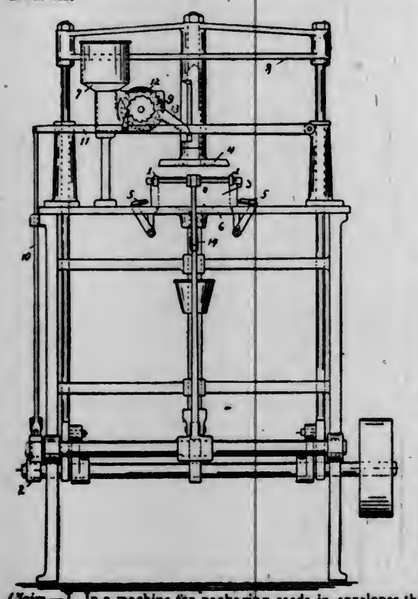
3. The combination, with the block and clamp for fastening the ends of the fence wires when in position, of the slotted roller provided with a projection at one end, and a stud on the projection, as and for the purpose specified.

4. The combination, with the slotted roller resting in bearings and having free end movement, of a slide, a clutch connecting the roller with the slide, and a spring for forcing the slide outward, as herein shown and described.

5. The combination, with the slotted roller provided with a projecting stud for catching and coiling the wire, of a block on which the cable is clamped, provided on one side with an incline or swell against which the end of the stud rides and is pressed back on its first revolution to allow the free end of the wire to pass the laid portion of the same, as herein shown and described.



518,427. MACHINE FOR PACKAGING SEEDS IN ENVELOPES. EMANUEL RAU, Brooklyn, N. Y. Filed Jan. 9, 1894. Serial No. 496,248. (No model.)



Claim.—1. In a machine for packaging seeds in envelopes the combination with a plunger on which the envelope flaps are partially folded, of a folding box, a seed receptacle, a discharge therefrom into the folding box, means for feeding seeds, means for folding envelope blanks and means for closing down and sealing all the flaps, substantially as described.

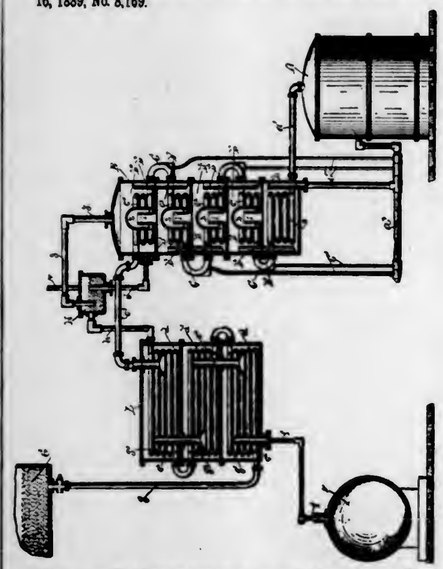
2. In a machine for packaging seeds in envelopes the combination with a plunger on which the envelope flaps are partially folded, of a seed receptacle, a conduit therefrom through the plunger, means for feeding seeds, means for holding envelope blanks and means for closing down and sealing all the flaps, substantially as described.

3. In a machine for packaging seeds in envelopes the combination with a plunger on which the envelope flaps are partially folded, of a folding box, a seed receptacle, a discharge therefrom into the folding box, a wheel with pockets for seeds, means for rotating said wheel, means for folding envelope blanks, and means for closing down and sealing all the flaps, substantially as described.

4. In a machine for packaging seeds in envelopes the combination with a plunger on which the envelope flaps are partially folded, of a folding box, a seed receptacle, a discharge therefrom into the folding box, a wheel with pockets for seeds, conveyers for the envelope blanks, a conveyer cam, means actuated by said cam for rotating said wheel and reciprocating said conveyers, means for folding envelope blanks, and means for closing down and sealing all the flaps, substantially as described.

5. In a machine for packaging seeds in envelopes the combination with a plunger on which the envelope flaps are partially folded of a folding box, a seed receptacle, a discharge therefrom into the folding box, a conduit from the foundation of said folding box, means for feeding seeds, means for folding envelope blanks, and means for closing down and sealing all the flaps, substantially as described.

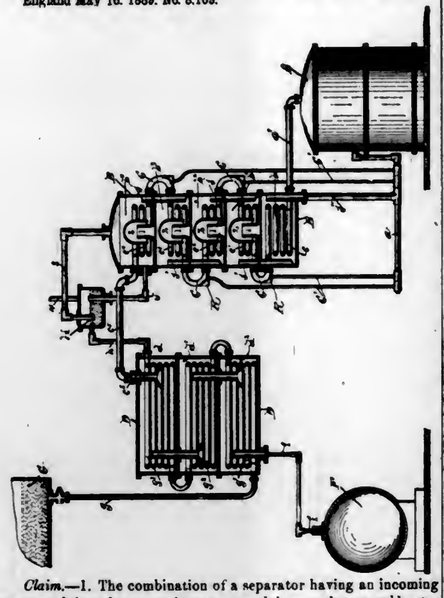
518,428. PROCESS OF PURIFYING AMMONIA. ERNEST SOLVAY, Brussels, Belgium, assignor to the Solvay Process Company, Syracuse, N. Y. Filed Dec. 7, 1889. Serial No. 332,923. (No specimens.) Patented in Belgium Oct. 19, 1888, No. 83,661; in Germany Nov. 4, 1888, No. 49,500; in France Apr. 15, 1889. No. 197,483, and in England May 16, 1889, No. 8,169.



Claim.—1. The herein described process of purifying a flowing stream of ammonia liquor consisting in raising the temperature of separate portions of said stream to unequal heat increasing in the direction of flow and thereby evolving carbonic anhydride and sulphureted gases from the warmer portion, then passing the evolved gases through the cooler portions of said liquor for preventing the escape of ammonia, evolving similar gases from said cooler portions, passing said gases through an independent cooler portion of said liquor, distilling the purified liquor, and finally passing the heated vapors thereof in proximity to and in a direction opposite to the flow of said stream of liquor for heating the same unequally, as and for the purpose above set forth.

2. The herein described process of purifying a flowing stream of ammonia liquor, the same consisting in raising the temperature of separate portions of said stream of ammonia liquor to unequal heat increasing in the direction of the flow and thereby evolving carbonic anhydride and sulphureted gases from the warmer portion, then passing the evolved gases through the remaining and cooler portions of said ammonia liquor for preventing the escape of ammonia, and finally distilling said purified liquor and passing the heated vapors thereof in proximity to and in a direction opposite to the flow of said stream of liquor for heating the portions thereof to unequal degrees as set forth, substantially as described.

518,429. APPARATUS FOR CAUSTICISING AMMONIA-LIQUOR. ERNEST SOLVAY, Brussels, Belgium, assignor to the Solvay Process Company, Syracuse, N. Y. Filed Dec. 7, 1889. Serial No. 332,924. (No model.) Patented in Belgium Oct. 19, 1888, No. 83,661; in Germany Nov. 4, 1888, No. 49,500; in France Apr. 15, 1889. No. 197,483, and in England May 16, 1889. No. 8,169.



Claim.—1. The combination of a separator having an incoming liquor conduit and an outgoing vapor conduit, a condenser and heater having an incoming liquor conduit and an outgoing vapor conduit connected respectively to the incoming and outgoing conduits of the separator, a pipe leading from the separator for discharging the volatile gases, and a washer connected to the incoming liquid conduit of the separator and to the incoming liquor conduit of the condenser and heater and to the gas discharging pipe of the separator, substantially as and for the purpose specified.

2. The herein described apparatus, the same comprising a separator, provided with a series of connected liquor chambers of different temperatures for successively receiving the liquor conducted to the separator and gradually raising its temperature, a series of coiled vapor pipes within said chambers, elbows having enlargements and connecting said coils outside the separator, a still connected to the outlet liquid chamber of the separator for receiving the liquor therefrom, and to the coil in said chamber for discharging the distilled vapors thereinto, and condensation-conveying pipes connecting said enlargements with the still, substantially as and for the purpose set forth.

3. The herein described apparatus, the same comprising a separator provided with a series of connected chambers of different temperatures for successively receiving the liquor conducted to the separator and gradually raising its temperature, a series of connecting tubes between said chambers for discharging the gas liberated in the said chambers into the liquor in the chamber of the next lower temperature, a series of coiled vapor pipes within said chambers, elbows connecting said coils outside the separator a still connected to the outlet liquor chamber of the separator for receiving the liquor therefrom and connected to the vapor coil in said chamber for discharging the distilled vapors thereinto, substantially as and for the purpose set forth.

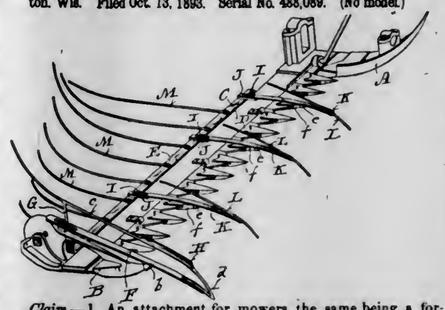
4. The herein described apparatus, the same comprising a separator provided with a series of connected liquor chambers of different temperatures for successively receiving the liquor conducted to the separator and gradually raising its temperature, a series of connected coiled vapor pipes within said chambers, a still connected to the outlet liquor chamber of the separator for receiving the liquor therefrom and connected to the inlet vapor coil in said chamber for discharging the distilled vapors thereinto, a condenser and heater having a series of connected vapor chambers one of which is connected to the coiled pipes in the separator whereby the vapors are successively passed through said chambers of the condenser and heater, and a series of coiled liquor pipes or tubes in the chambers of the condenser and heater connected to the inlet liquor chamber of the separator for receiving the raw liquor, raising its temperature and discharging the same into the separator, substantially as and for the purpose specified.

5. The herein described apparatus, the same comprising a separator provided with a series of connected liquor chambers of different temperatures for successively receiving the liquor conducted to the separator and gradually raising its temperature, a series of connecting gas tubes between said chambers for discharging the gas liberated in the said chambers into the liquor in the chamber of next lower temperature, a series of connected coiled vapor pipes within said chambers, a still connected to the outlet liquor chamber of the separator for receiving the liquor therefrom and connected to the vapor pipe in said chamber for discharging the distilled vapors thereinto, a condenser and heater having a series of connected vapor chambers the outlet one of which is connected to the vapor coil in the inlet liquor chamber of the separator whereby the vapors are successively passed through said coils of the separator and chambers of the condenser and heater, and a series of coiled liquor pipes in the chambers of the condenser and heater connected to the inlet liquor chamber of the separator, for receiving the raw liquor, raising its temperature and discharging the same into the separator, substantially as and for the purpose set forth.

6. The combination of a washer, a separator having an incoming liquor conduit connected to the washer and having an outgoing vapor conduit, a condenser and heater having an incoming liquor conduit connected to the washer and having a vapor conduit connected to the outgoing vapor conduit of the separator, a pipe opening from the separator and discharging into the washer for conducting the volatile gases in the separator into the washer, a still connected to the incoming and outgoing conduits of the separator, and a receiver connected to the outgoing conduit of the condenser and heater, substantially as and for the purpose set forth.

7. The herein described apparatus, the same comprising a separator provided with a series of connected chambers of different temperatures, a series of connecting tubes between said chambers for discharging the gas liberated in the said chambers into the liquor in the chamber of next lower temperature, a series of connected pipes within said chambers, a condenser and heater having an incoming liquor conduit and having an outgoing vapor conduit connected to the pipe in the inlet liquor chamber of the separator, a still connected to the outlet liquor chamber of the separator for receiving the liquor therefrom and connected to the pipe in said chamber for discharging the distilled vapors thereinto, and a washer connected to the inlet liquor chamber of the separator and to the incoming vapor conduit of the condenser and heater, substantially as and for the purpose specified.

518,430. MOWER ATTACHMENT. MARIAN SZUKALSKI, Newton, Wis. Filed Oct. 13, 1893. Serial No. 488,089. (No model.)

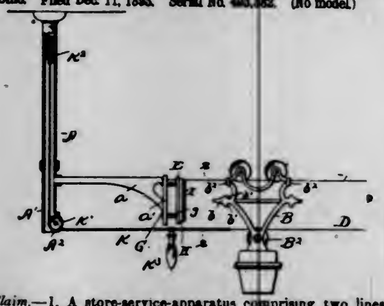


Claim.—1. An attachment for mowers, the same being a forwardly extended plate that connects at its rear with the cutting apparatus of such a machine, a thimble on the under side of the plate for the reception of the point of a finger forming part of said apparatus, and a spring-metal rod on the plate, the front portion of the rod being turned downward and its rear portion inclined upward, substantially as set forth.

2. A mower, combined with a bar having an angular outer end, clamp-plates and bolts connecting the bar with the rear portion of the cutter-bar of the mower, a swath separating device connected to the outer end of the former bar and the outer mower-shoe in advance of said cutter-bar, a series of vine-lifters connected to the clamp-bolts and guard-fingers of said mower also in advance of the aforesaid cutter-bar, and a series of fingers extending rearward from the rear bar.

these fingers being of variable length, curvature and elevation, substantially as set forth.

518,431. STORE-SERVICE APPARATUS. JOHN W. THEW, Marion, Ohio. Filed Dec. 11, 1893. Serial No. 493,382. (No model.)



Claim.—1. A store-service-apparatus comprising two lines located, the one above the other, the upper line constituting a track and the lower line constituting the propelling line, a cash or parcel-carrier having wheels mounted upon the track, and having a wheel engaging the under side of the propelling-line, a suitable stop for arresting the carrier upon its arrival at the station, the lower line consisting of a wire terminating a suitable distance forward of the stop of the station and a rope or cord attached to the extremity of said wire at the station, a spring connected with the other end of said cord or rope, and a handle attached to the rope or cord below the stop, the point of attachment of the rope or cord with the propelling wire being located such a distance forward of the stop that the lower wire shall not be materially affected by pulling downwardly upon the aforesaid handle in propelling the carrier from station to station, substantially as set forth.

2. A store-service-apparatus comprising a track-line, C, and a propelling-line, D, a cash or parcel-carrier having one or more wheels mounted upon the track-line and having a wheel engaging the under side of the propelling-line, a tubular hanger supported at each station from the ceiling or other support overhead, a spring supported in the upper part of said hanger, a sheave or pulley supported at the lower end of said hanger, and the propelling-line leading over said pulley or sheave and thence leading to and being suitably secured to the aforesaid spring, a suitable stop supported from the hanger to arrest the carrier upon its arrival at the station, and the propelling-line being provided with a handle below the stop, substantially as set forth.

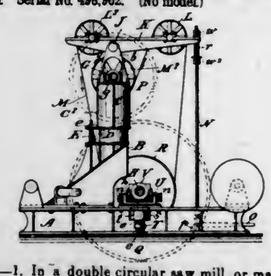
3. A store-service-apparatus comprising a track, a carrier mounted upon the track, suitable means for propelling the carrier along said track, a stop for arresting the carrier upon its arrival at the station, said stop comprising a vertically arranged plate, E, supported in any suitable manner, elastic material suitably secured to the forward face of the said plate with a hole *h* formed centrally thereof, the carrier having a tapering and shouldered projection adapted to enter said hole and lock the carrier to the stop, the size of said hole being such relative to the tapering projection on the carrier that the material of the elastic section of the carrier shall be compressed as the aforesaid hole is entered by the tapering projection, and shall be free to expand upon the engagement of the back side of said elastic section by the shoulder of the projection on the carrier, the aforesaid plate of the stop being perforated to accommodate the operation of the locking-projection on the carrier, substantially as set forth.

4. A store service-apparatus comprising a track, a cash or parcel-carrier mounted upon said track, suitable means for propelling the carrier from station to station, a stop for retaining the carrier upon its arrival at a station, said stop comprising a plate *a'* and another plate E supported from and a suitable distance forward of plate *a'*, one or more springs confined between said plates, elastic material suitably secured to the front face of plate E, with a hole or perforation *h* formed centrally thereof, and the carrier being provided with tapering projections *b* adapted to enter, respectively, hole *h* in the stop of the respective station and lock the carrier at the station by the engagement of the shoulder of the projection with the back side of the elastic material of the stop, and plate E of the stop being perforated to accommodate the operation of the respective locking projection of the carrier, substantially as set forth.

5. In store-service-apparatus, the combination with a track, carrier mounted upon said track and suitable means for propelling the carrier, of a stop for arresting the carrier upon its arrival at the station, said stop comprising a plate E and elastic segments suitably secured to and arranged upon said plate in such a manner as to form a hole *h* centrally between the segments, said segments being adjustable radially, and tapering and shouldered locking projection on the carrier for entering said hole and locking the carrier to the stop, plate E being perforated to accommodate the operation of the locking-projection on the carrier, substantially as set forth.

6. In store-service-apparatus, the combination with a track, carrier mounted upon said track, and suitable means for propelling the carrier, of a stop for arresting the carrier upon its arrival at the station, said stop comprising a stationary-plate *a'*, another plate E supported from plate *a'* by means of bolts or screws, coiled-springs confined upon said bolts or screws between the plates, elastic segments H mounted upon said bolts against the front side of plate E and arranged upon said plate in such a manner as to form a hole *h* centrally between the segments, the bolt-holes in the aforesaid segments being elongated radially to accommodate a radial adjustment of the segments, a plate I for retaining the segments in the desired adjustment, and a tapering and shouldered locking projection on the carrier for entering said hole and locking the carrier to the stop, plates E and I being perforated to accommodate the operation of the locking projection of the carrier, substantially as set forth.

518,432. CIRCULAR SAWING MACHINE. EDWIN R. THOMAS, Bay City, Mich., assignor to Michael Garland, same place. Filed Feb. 3, 1894. Serial No. 498,962. (No model.)



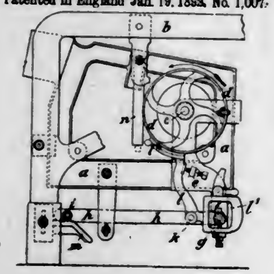
Claim.—1. In a double circular saw mill, or machine, the combination, with the husk, or frame, which carries the mandrel of the lower saw, of a top saw-frame supported by the said husk and adapted to oscillate laterally about an axis of motion and thus turn to one side and out of the way the top saw and its attachments; substantially as hereinbefore set forth.

2. In a double circular saw mill, the combination with the frame, or husk, which carries the lower saw mandrel, of a top saw frame support, mounted on said husk; and a top saw frame arranged to oscillate round about a vertical cylindrical stem, or column, of said support; all substantially as and for the purposes set forth.

3. In a double circular saw mill, the combination, with the two frames, carrying, respectively, the lower and upper saw mandrels, the top frame being capable of oscillation relatively to the lower frame, of means for adjusting the upper frame, both vertically and in the direction of its oscillatory path of motion; substantially as and for the purposes set forth.

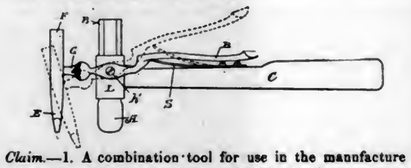
4. In a double circular saw mill, the combination with the upper and lower saw mandrel frames; and a drive-pulley mounted fast on the lower saw mandrel, of a pulley fast on the upper saw mandrel; a tilting pulley frame, provided with two loose pulleys; and mounted on a fixed axis arranged over the upper saw mandrel, and intermediately of said loose pulleys, a belt banded over all of the aforesaid pulleys; and suitable means for adjusting, or setting, the said tilting frame, to either effectuate the driving of the upper saw mandrel, from the pulley of the lower one, or let the top saw mandrel remain undriven; substantially as set forth.

518,433. SELF-ACTING MULE AND TWINER. JAMES R. WAIN, Manchester, England. Filed Dec. 21, 1893. Serial No. 494,252. (No model.) Patented in England Jan. 19, 1893, No. 1,007.



Claim.—The improved automatic brake for the tin roller shaft of self-acting mules consisting in the combination of said shaft and a brake drum fixed thereon, with a long lever mounted on the spindle carriage, a bell-crank brake lever pivoted to said long lever near its fulcrum, and with the mule end having an incline to act upon said long lever, for the purpose of stopping the spindles when the carriage has "run out" and releasing the same as soon as the "backing off" commences, substantially as herein described.

518,434. COMBINATION-TOOL FOR PUNCHING AND CREASING HORSESHOES. JOHN WHALIN, Schenectady, N. Y. Filed Jan. 6, 1894. Serial No. 495,990. (No model.)



Claim.—1. A combination tool for use in the manufacture of horse shoes, comprising a creaser secured to the head, a hammer rest opposite said creaser secured to said head, a handle secured to said head, a puncher secured to a pivoted handle, said pivoted handle movable upon a pivot secured to said head, substantially as described and for the purpose set forth.

2. A combination tool for use in the manufacture of horse shoes, comprising a creaser secured to the head, a hammer rest opposite said creaser secured to said head, a handle secured to said head, a punch secured to a pivoted handle, said pivoted handle movable upon a pivot secured to said head, a spring attached to said first mentioned handle operating upon the pivoted handle, substantially as described and for the purpose set forth.

518,435. GIG-SADDLE. CORNELIUS A. WHITE, Carlisle, Ky. Filed Aug. 18, 1893. Serial No. 483,442. (No model.)



Claim.—1. In a reversible saddle, the combination, with a saddle skirt and cover, and a permanent recess between said skirt and cover, of a plate and crupper loop integral therewith sliding in said recess, and means, such as described for coupling the saddle seat to said plate, substantially as shown and described.

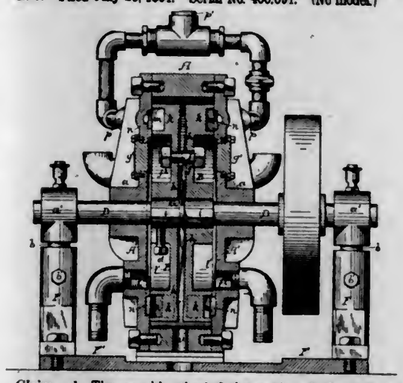
2. In a reversible saddle, the combination, with a saddle skirt and cover, and a permanent recess between said skirt and cover, of a plate and crupper loop integral therewith sliding in said recess, saddle seat, with means, such as described, for coupling the same to the plate at one end and a check rein hook to secure said seat and plate at the other end, substantially as shown and described.

3. In a reversible saddle, the combination, with a saddle skirt and cover provided with a permanent recess between the same, and said skirt having openings into said recess from above at each end thereof, of a plate and crupper loop integral therewith sliding in said recess, saddle seat with means, such as described, for coupling same to the plate at one end and check rein hook to secure said seat and plate at the other end, through either of said openings in the skirt, whereby the plate may be removed and reversed without taking the saddle apart, substantially as shown and described.

4. In a gig saddle, the combination, with the skirt and pads, provided with a permanent recess between the same extending through the saddle from side to side and having also a lengthwise recess or channel between the same, of a plate and crupper loop integral therewith sliding in said first mentioned recess, saddle seat, with means for attaching the same to the plate at one end, and check rein hook to secure said plate and seat at the other end, and a single tug bearer strap riding in said lengthwise channel, with roller thereon by which roller said strap is supported to allow a lengthwise movement thereof, substantially as shown and described.

5. In a gig saddle the combination with the skirt, of jockey plate with means for removably securing it to the skirt and leather terrets provided with out turned feet whereby the terrets may be clamped between the jockey and skirt substantially as shown and described.

518,436. ROTARY ENGINE. BURWOOD M. WILKINSON, Camden, N. J. Filed July 20, 1891. Serial No. 400,091. (No model.)



Claim.—1. The combination of the engine shaft, with the disk carried thereby and having an annular series of pockets in its outer face, and a head having in its inner face a segmental channel for the motive fluid, in line with the pockets of the disk and having between the termination of said channel and the inlet end of the same, a drainage recess communicating with a drainage outlet, and serving to receive the contents of the pockets of the disk as they successively pass the same, substantially as specified.

2. The combination of the engine shaft, with a pair of disks mounted thereon and each having an annular series of pockets in its outer face, a drum or casing inclosing said disks and having in each of its heads an internal channel for the motive fluid, and an exhaust port and a spring interposed between the disks and serving to maintain the outer faces of the same in contact with the inner faces of the heads of the fixed casing, substantially as specified.

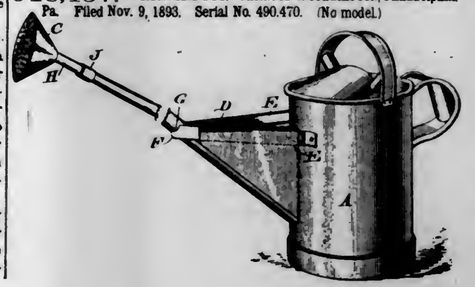
3. The combination of the engine shaft, two disks mounted thereon, and each having an annular series of pockets in its outer face, the outer drum or casing having in each head an inlet and exhaust port, and a spring interposed between the two disks and having a series of projecting arms or fingers, some of which act upon one disk and the others upon the opposite disk, substantially as specified.

4. The combination of the engine shaft, the two disks mounted thereon, and each having an annular series of pockets in its outer face, a drum or casing inclosing said disks, and having in each of its heads an inlet for the motive fluid, and an exhaust port, a spring for forcing the disks apart and into contact with the heads of the outer casing, and set screws for limiting said separation of the disks, substantially as specified.

5. The combination of the engine shaft, the two disks mounted thereon, and each having, in its outer face, an annular series of pockets, an outer casing or drum inclosing said disks and having in each of its heads an inlet for the motive fluid, an exhaust port, a spring for forcing the disks apart and into contact with the heads of the casing, set screws for limiting the separation of the disks, and a detachable cap closing an opening in one of the heads through which access can be had to said set screws, substantially as specified.

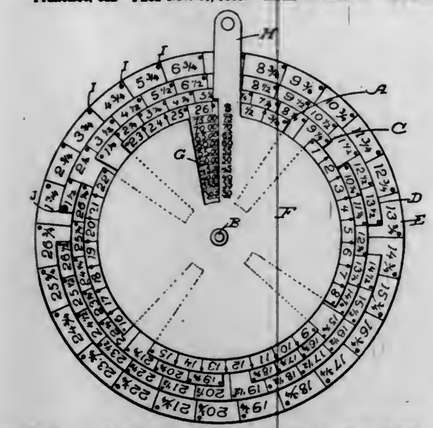
6. The combination of the engine shaft, the disks each having an annular series of pockets in its outer face, the outer casing having, in each head, inlet and exhaust ports, a spring for separating the disks, set screws and lock nuts for limiting said separation, and detachable caps closing openings in both heads of the casing, in line with said set screws and nuts, substantially as specified.

518,437. WATERING-POT. JAMES R. WOTHERSPOON, Philadelphia, Pa. Filed Nov. 9, 1893. Serial No. 490,470. (No model.)



Claim.—A watering pot having a brace for the spout consisting of a bent piece with ends adapted to be secured to the body of the pot, and provided with a recess in the upper edge of its bend, forming a seat for said spout, said parts being combined substantially as described.

518,438. CALCULATOR FOR WAGES. DAVID L. ALBERT, San Francisco, Cal. Filed Nov. 28, 1893. Serial No. 492,253. (No model.)



Claim.—1. A calculating device consisting of a series of disks of successively increasing diameter from the top toward the bottom, said disks having marked upon the periphery whole days and whole days and fractions, respectively, an outer stationary disk through which and the inner movable tabular disks a central pivot pin passes, said outer disk having a radial slot made in it with the rate of wages per month marked upon one side of the slot, and an arm extending radially outwardly in line with this table and above the edges of the movable disks so that they pass beneath it, holes made in the peripheries of each of the disks for the insertion of an implement by which they are turned so as to bring any days or fractions of days into line with the radial slot in the outer disk, and corresponding radial slots made through the successive inner disks whereby the lines of figures upon any of the lower disks may be seen through said slots, substantially as herein described.

2. A mechanical calculating device, consisting of a series of disks increasing in diameter from the outermost to the innermost all turning upon a common pivot pin, an outer fixed disk through which the said pin passes, said outer disk having a radial slot made upon one side with the different rates of wages paid per month marked upon the edge of said slot, and a radial arm projecting outwardly in line with said line of figures, figures arranged radially upon each of the inner disks representing the amount of wages payable for any number of days and fractions of days at any rate per month, slots made through each of said inner disks whereby they may be brought to coincide with the slot in the outer disk to allow the figures upon the disks beneath to be inspected when brought into line with said slots, and raised stops upon the edges of said slots adapted to form a contact with the projecting arm of the outer disk, and thus retain the disks in a stationary position with the slots in line while the other disks are being turned beneath them, substantially as herein described.

518,439. METALLIC TIE AND RAIL FASTENER. WILLIAM T. ARMSTRONG and GEORGE H. WADSWORTH, Cleveland, Ohio. Filed Nov. 11, 1893. Serial No. 490,621. (No model.)

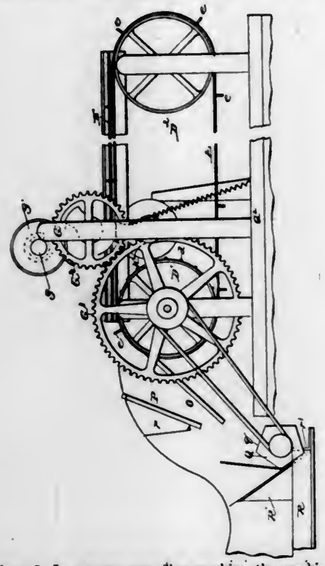


Claim.—1. In combination with a rail fastener, a metallic tie provided at each end with two slots having their outer edges beveled, adapted to co-operate with a clip or dog the distance between the inner edges of said slots being a little less than the width of the bottom of a rail, and two elongated openings outside of said slots, in the manner substantially as and for the purpose set forth.

2. In combination with a metallic tie and rail fastener, a dog terminating in a forward projecting nose and having a square hole therein, an integral lug, beveled at the back, depending from the bottom of said dog near the front, and adapted to co-operate with the wedging wall of the tie, a bolt provided with a square body between the head and thread, and a nut, in the manner substantially as and for the purpose set forth.

3. In a metallic tie and rail fastener, a tie provided with slots and elongated openings, and a rail on said tie slightly overlapping said slots, in combination with one or more perforated dogs terminating in projecting noses adapted to overlie the flanges of said rail, integral lugs beveled at the back and depending from said dogs, said lugs adapted to engage with said slots, bolts having square bodies, and nuts, said bolts being passed through square holes in said dogs and arranged to enter the enlarged portions of said tie openings and slide into the contracted portions of the same with the heads bearing on the under side of said tie, substantially as specified.

518,440. STAMP-CANCELING MACHINE. GEORGE E. BARNARD, Fitchburg, Mass. Filed Sept. 13, 1893. Serial No. 485,402. (No model.)



Claim.—1. In a stamp canceling machine, the combination with the transversely inclined stationary support having the longitudinal slots therein, of a driving belt running beneath the support and having points or projections thereon extending through the slots in the support, and the rotary printing mechanism; arranged at a point intermediate the ends of the support and driving belt substantially as described.

2. In a stamp canceling machine, the combination with the stationary transversely inclined support having the longitudinal slots therein enlarged at one end, of the drive belt arranged beneath the supports and having the projections or points passing through the slots therein and adapted to enter said slots at the wider or enlarged end, of the printing mechanism arranged at a point intermediate the ends of the support and driving belt for operating on the letters passing over the support; substantially as described.

3. In a stamp canceling machine, the combination with the stationary transversely inclined support having the longitudinal slots therein, and an opening for the printing mechanism below said slots, of the belt arranged beneath the support with the points or projections thereon passing through the slots in the support, the printing cam working through the opening in the support and the printing die cooperating therewith; substantially as described.

4. In a stamp canceling machine, the combination with the support, and the rotary printing die, of the reciprocatory cam for cooperation with the die, having one edge, when in normal position, lying in such proximity to the path of travel of the die as that the die will normally rotate without engaging the cam, but will bind against and move the cam when a letter or equivalent is interposed between the two; substantially as described.

5. In a stamp canceling machine, the combination with the support along which the letters are caused to travel and the rotating die, of the cooperating cam having a portion of its face arranged in such proximity to the path of travel of the die as that the die will rotate past the cam when nothing is interposed between the two, but

will bind against and move the cam when a letter or equivalent is interposed between the two and a spring for returning the cam when released from the die; substantially as described.

6. In a stamp canceling machine, the combination with the support on which the letters are caused to travel, of the rotary printing die and reciprocatory cam for cooperation therewith, with projections on the die arranged in proximity to, but out of the plane of rotation of the projecting portion of the die, whereby the die is permitted to rotate freely under normal conditions and is caused to bind against and move the cam to take an impression when a letter or equivalent is interposed between the two and against the projection; substantially as described.

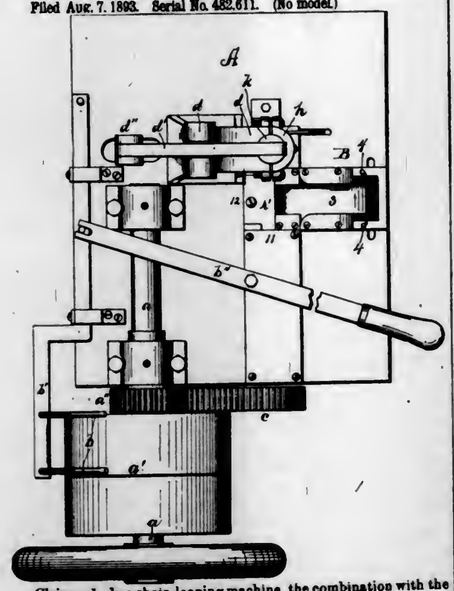
7. In a stamp, canceling machine, the combination with the support and the rotary printing die, of the normally stationary reciprocatory cam thrown into operation by the introduction of the thing to be printed and cooperating and advancing in unison with the die to make the impression with means for independently and automatically returning the cam to normal position; substantially as described.

8. In a stamp canceling machine, the combination with the support on which the letters are carried and the rotary printing die having the oppositely arranged operative faces and central cylindrical opening, of the shaft, the cam rigidly mounted thereon and fitting within the cylindrical opening in the die, whereby the die may turn on said cam to throw either face outward from the center of rotation, with means for holding the die in adjusted position: substantially as described.

9. In a stamp canceling machine, the combination with the support along which the letters are carried, the die shaft and the cam held in position on said shaft by a set screw, of the die journaled on the cam, the collar keyed to the shaft and having a limited movement longitudinally thereof and the pin for uniting the collar and die, whereby the die is held in adjusted position; substantially as described.

10. In a stamp canceling machine, the combination with the support along which the letters are caused to travel and the printing mechanism, of the incline down which the letters are discharged, the swinging gate above said incline, the driven roller at the bottom of the incline rotating away from the same and formed with facets and projections as described, the movable abutment against which the letters are forced by the roller and the fingers entering grooves in the roller for preventing the letters from being discharged beneath the roller; substantially as described.

518,441. CHAIN-MAKING MACHINE. RALPH G. BARNES, Syracuse, and HARRY D. POMEROY and ERNEST W. KEYES, Phœnix, N. Y. Filed Aug. 7, 1893. Serial No. 482,611. (No model.)



Claim.—1. In a chain-looping machine, the combination with the bed, of a sectional feed-chute, one section being stationary and the other adapted to be adjusted upon the arc of a circle.

2. In a chain looping machine, the combination with the bed, of a sectional feed-chute, one section being stationary and provided with a transverse passage, and a swinging cover, and the other section adapted to be adjusted laterally.

3. In a chain-looping machine, the combination with the bed, and the sectional feed-chute and means to adjust one section relative to the other, the stationary section being provided with a transverse passage and an adjustable cover thereto, of a plunger adapted to be reciprocated in said passage, and a table adapted to receive the link-blanks from the chute.

4. In a chain-looping machine, the combination with the bed, and the table thereon, provided with an adjustable throat, and means to feed the links onto the table upon their edges, of a shaft below the bed, a cam thereon, a frame reciprocated by the cam, and a curved link-turner rocked upon its pivot by said frame and engaging with the link.

5. In a chain-looping machine, the combination with the bed, and the table thereon, provided with an adjustable throat, and means to feed the links onto the table upon their edges, of a shaft below the bed, a cam thereon, a frame reciprocated by the cam, and a curved link-turner reciprocated upon its pivot by said frame and engaging with the link, and a vertically reciprocating plunger adapted to engage with the link after it has been turned flatwise onto the table.

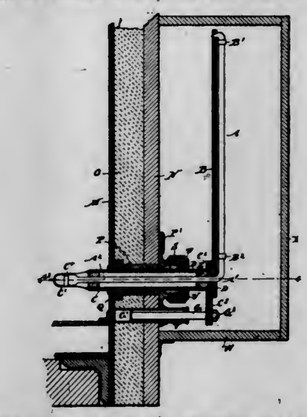
6. In a chain looping machine, the combination of a rotating shaft, and a wedge secured thereto, projecting therefrom and rotated thereby, with reciprocating link-closing jaws, adjustable points thereon between which said wedge passes to close said jaws, and means to reopen them after its passage.

7. In a link-looping machine the combination with the bed, and the table thereon provided with an adjustable throat, of a vertically reciprocating plunger pointed to bend a link centrally in said throat and shouldered to engage with the preceding bent link and force it through said throat, a rotatable shaft, a wedge secured thereon, jaws adapted to be closed by said wedge to squeeze the link-arms together and means to open said jaws.

8. In a chain looping machine the combination with a reciprocating link-bending plunger, of a yielding link-guide with which the plunger engages.

9. In a chain looping machine the combination with a reciprocating link-bending plunger, and a rocking link-turner, of a yielding link-guide with which the plunger engages to release the link to be turned flatwise and bent.

518,442. THERMOMETER. MICHAEL BYRNE, New York, N. Y. Filed Aug. 21, 1893. Serial No. 483,598. (No model.)



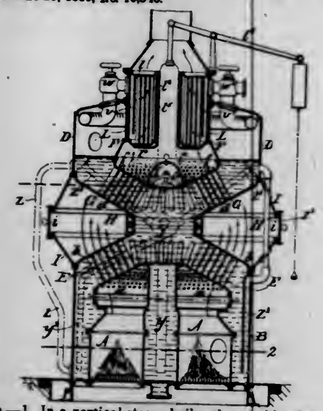
Claim.—1. A thermometer extending through the shell arranged to indicate on a scale on the outside the temperature obtaining in the interior, in combination with provisions as the sliding tube C inclosing casing P and stuffing box S, for allowing such thermometer to be moved inward and outward through such shell, all substantially as herein specified.

2. A thermometer extending through the shell, arranged to indicate on a scale on the outside the temperature obtaining in the interior, in combination with provisions as the sliding tube C inclosing casing P and stuffing box S, for allowing such thermometer to be moved inward and outward through such shell, and with the inner end of the tube C formed as shown to support the bulb of the thermometer and expose such bulb to the current of fluid or semi-fluid in the tub, all substantially as herein specified.

3. The combination with a mash-tub or analogous vessel, of a movable thermometer arranged to allow its bulb to stand in the interior of the vessel or to be withdrawn at will, in combination with

the pin G having a head G' arranged to perform the double function of a guide and a stop for the thermometer, all substantially as herein specified.

518,443. STEAM-BOILER. GEORGE CAWLEY, London, England. Filed Mar. 6, 1893. Serial No. 464,911. (No model.) Patented in England June 29, 1889, No. 10,540.



Claim.—1. In a vertical steam boiler the combination of a fire-box or of fire-boxes having its or their upper part or parts of conical shape; a lower shell surrounding the fire box or boxes, and having its upper part formed to the frustum of a cone, and terminating in a tube or opening, tubes connecting the coned top of the fire box or boxes, with the frustum of the lower shell, an upper outer shell terminated below by an inverted frustum of a cone, and a short tube or opening connected to the tube, or opening of the frustum of the lower shell, an inner tube or shell in the upper part of the boiler having its lower end formed to the inverted frustum of a cone, tubes connecting the frusta of the upper shell and of the inner tube or shell of the upper part of the boiler, the several frusta being of the same angle, a crown plate connecting the inner tube or shell and the shell of the upper part of the boiler so as to close in the steam space, and a casing connecting the upper and lower shells, so as to inclose a space constituting a supplementary combustion chamber, substantially as hereinbefore described.

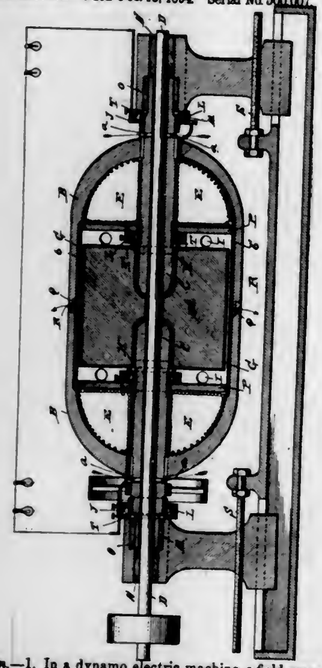
2. In a vertical steam boiler, the combination of cylindrical fire boxes having their upper parts of conical shape, and water spaces between the fire boxes, a lower shell surrounding the fire boxes and having its upper part formed to the frustum of a cone, and terminating in a tube, or opening, tubes connecting the coned top of the fire boxes with the frustum of the lower shell, an upper outer shell terminated below by an inverted frustum of a cone, and a short tube or opening connected to the tube, or opening of the frustum of the lower shell, an inner tube or shell in the upper part of the boiler having its lower end formed to the inverted frustum of a cone, tubes connecting the frusta of the upper shell and of the inner tube or shell of the upper part of the boiler, a crown plate connecting the inner tube or shell and the shell of the upper part of the boiler so as to close in the steam space, and a casing connecting the upper and lower shells so as to inclose a space constituting a supplementary combustion chamber, substantially as hereinbefore described.

3. In a vertical steam boiler, the combination of a fire-box, a lower shell surrounding the fire-box and having its upper part formed to the frustum of a cone and terminating in an opening, tubes connecting the top of the firebox with the frustum of the lower shell, an upper outer shell terminated below by an inverted frustum of a cone and an opening connected to the opening in the frustum of the lower shell, an inner shell in the upper part of the boiler, tubes connecting the frusta of the upper outer shell and the lower part of the inner shell, a crown plate to close in the steam space, a casing connecting the upper and lower outer shells to inclose a space constituting a supplementary combustion chamber, and tubes or passages opening at their upper end into the water space a little below the lowest working water level and at their other end opening into the lower part of the water space, substantially as and for the purposes set forth.

4. In a vertical steam boiler, the combination of a fire-box in the lower part, an inner shell in the upper part, a water space between the fire-box and the inner shell, and passages leading from the top of the fire-box to the lower part of the said shell, with a tubular steam superheater at the upper part of the shell, and an annular valve which can close all the tubes so that the products of combustion can be caused to pass only through the central space or partly through the said space and partly through the tubes, substantially as hereinbefore described.

5. In a vertical steam boiler, the combination of a fire-box in the lower part, an inner shell in the upper part, a water space between the fire box and the inner shell, and passages leading from the top of the fire-box to the lower part of the said shell, with a tubular steam superheater at the upper part of the shell, and an annular valve attached to a tube sliding in the central space and a bearing surface beneath so that the products of combustion can be caused to pass only through the central space or only through the tubes or partly through the said space and partly through the said tubes, substantially as hereinbefore described.

518,444. DYNAMO-ELECTRIC MACHINE. HENRY E. DIKEMAN, Berkeley, Cal. Filed Feb. 13, 1894. Serial No. 500,007. (No model.)



Claim.—1. In a dynamo electric machine, a field magnet having an exterior circular-faced magnetic-pole and an interior circular-faced magnetic-pole, forming a substantially uniform annular magnetic field, means for rotating the poles together whereby the annular magnetic field may be bodily rotated, a rotating cylindrical armature journaled concentrically with the magnetic-poles and moving within the magnetic-field, whereby the lines of force constituting said magnetic field cut the armature about its entire peripheral surface, substantially as described.

2. In a dynamo electric machine, the combination of the rotary shell and longitudinal central cores, and the rotary armature hollowed longitudinally to form recesses at opposite sides, into which recesses extend said cores, whereby a magnetic field encompassed virtually by the entire body of the armature is presented to such armature, substantially as described.

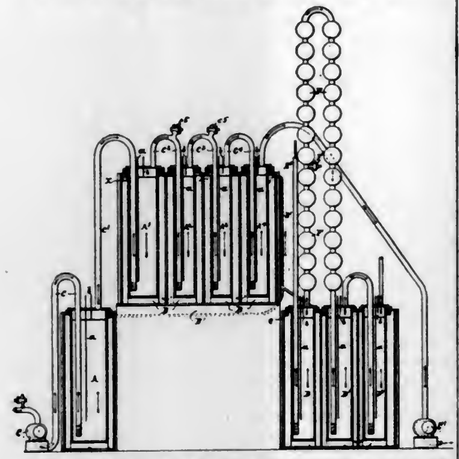
3. In a dynamo electric machine, the combination of rotating inner and exterior poles and the exciting coils, whereby the magnetic field may be rotated, said inner poles having exterior extensions which form the axles of rotation, and the adjacent edges of the outer poles being connected together, and an armature, substantially as described.

4. An electrical collector having, as a means of electrical transmission between parts movable with respect to each other, the loose, rolling parts moving in an annular space triangular in cross-section, so that the centrifugal and gravity forces shall always hold the rolling parts against the moving parts between which is to be a transfer of the electricity, substantially as described.

5. An electrical collector consisting of a rotating member, another member supported adjacent to the rotating member and forming therewith an annular space, and loose, independent, rolling conducting-devices inclosed within said annular space, the centrifugal and gravity forces causing said devices to establish a rolling electrical contact between said members, substantially as described.

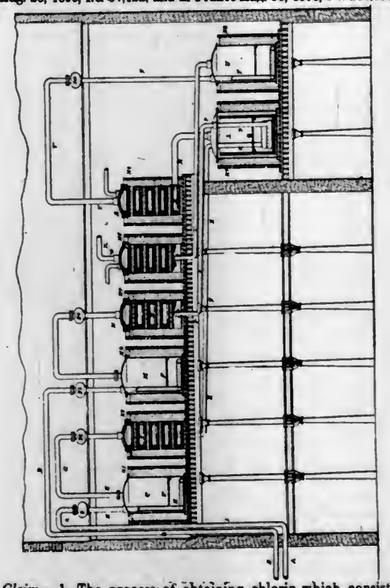
6. In a dynamo electric machine, the combination of a base, sliding standards thereon, means for adjusting the standards to and from each other, a shaft journaled in the standards and carrying an armature, and the separable field magnets also journaled upon the standards in independent bearings, substantially as described.

518,445. PROCESS OF MAKING CHLORIN. WILLIAM DONALD, Saltcoats, Scotland. Filed Sept. 29, 1891. Serial No. 407,137. (No specimens.) Patented in England Jan. 3, 1887, No. 62; in France Oct. 6, 1887, No. 186,261, and in Germany Oct. 12, 1887, No. 45,104.



Claim.—The process of obtaining chlorin which consists in subjecting dry and cool hydrochloric acid gas to a mixture of strong nitric and sulfuric acids kept at a low temperature, subjecting the resulting chlorin and nitrogen oxid to dilute nitric acid; and finally to strong sulfuric acid, substantially as herein set forth.

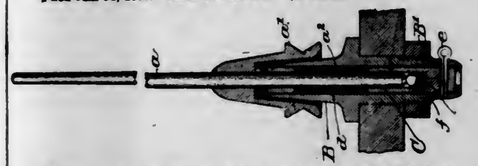
518,446. PROCESS OF MAKING CHLORIN. WILLIAM DONALD, Saltcoats, Scotland. Filed Oct. 6, 1891. Serial No. 407,832. (No specimens.) Patented in England Apr. 11, 1890, No. 5,488; in Germany Aug. 28, 1890, No. 57,122, and in France Aug. 30, 1890, No. 207,959.



Claim.— 1. The process of obtaining chlorin which consists in subjecting hydrochloric acid gas to a mixture of nitric and sulfuric acids, and subjecting the resulting gaseous mixture of chlorin and nitric peroxid together with additional hydrochloric acid gas to nitric acid and finally to sulfuric acid, substantially as set forth.

2. The process of obtaining chlorin, which consists in subjecting hydrochloric acid gas to a mixture of nitric and sulfuric acids, and subjecting the resulting gaseous mixture of chlorin and nitric peroxid together with additional hydrochloric acid gas and air to nitric acid and finally to sulfuric acid, substantially as set forth.

518,447. COMBINED BEARING FOR SPINDLES. GEORGE O. DRAPER, Hopedale, Mass., assignor to George Draper & Sons, same place. Filed Jan. 31, 1893. Serial No. 460,208. (No model.)



Claim.—1. A whirl spindle; a supporting-case open at its bottom, a bolster or lateral bearing therein adapted to sustain the spindle at the line of the band pull; and a metallic step located within said bolster or lateral bearing; combined with a locking device to lock said bearing and bolster together, substantially as described.

2. A spindle; a supporting-case; a bolster or lateral bearing therein for said spindle; and a cushion interposed between the said bolster or lateral bearing and the interior of said supporting-case; combined with a locking device adapted to both lock the bearing and case together and to support the weight of said bearing, and the spindle within it, substantially as described

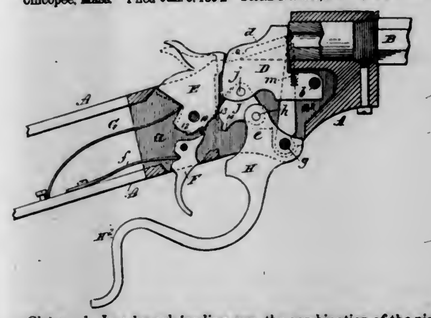
3. The combination of a supporting case open at its bottom, a non-metallic bolster or lateral spindle bearing tube inserted in and removable from said case from its open bottom, means to connect said case and bearing, a spindle and a loose ball bearing for said spindle within said bearing tube, substantially as described.

4. The combination of a supporting case open at its bottom, a non-metallic bolster or lateral spindle bearing tube inserted in and removable from said case from its open bottom, means to connect said case and bearing, a foundation plate of hard substance in the bottom of said bearing, a ball bearing placed upon said foundation plate and a spindle supported upon such ball bearing, substantially as described.

5. The bolster-case and spindle, and a non-metallic bearing closed at its lower end, and a support to sustain the weight of said bearing, and a spherical bearing to sustain the spindle, combined with an elastic or yielding packing interposed between the lateral bearing and the interior of the bolster-case, substantially as described.

6. A supporting case open at its bottom, a non-metallic bolster or lateral bearing inserted therein from its lower end, a spindle to enter said bolster and means to connect the said bolster or lateral bearing and said supporting case, combined with a ball bearing composed of an appropriate number of balls contained within said bolster or lateral bearing and directly supporting the weight of said spindle, substantially as described.

518,448. BREECH-LOADING FIREARM. EDWARD H. ELDER, Chicopee, Mass. Filed Jan. 6, 1894. Serial No. 496,913. (No model.)



Claim.—1. In a breech loading gun, the combination of the pivoted breech block, pivoted lever, and link pivoted to both breech block and lever, the pivot connecting the lever to the link, resting, when the breech block is closed, slightly in advance of a straight line between the pivots which connect the lever to the frame and the link to the breech block, substantially as described.

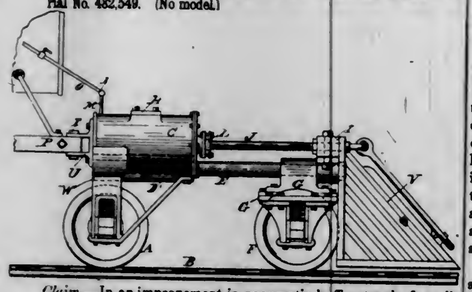
2. In a breech loading gun, the combination with the pivoted breech block, pivoted lever, and link pivoted to the block and lever,

of a movable abutment by which the breech block may be stopped in its closing position, whereby the friction of the link and lever in closing or opening the breech may be regulated, substantially as described.

3. In a breech loading gun, the combination with the pivoted breech piece, pivoted lever, and a link pivoted to both said parts (said pivots being nearly in line when the breech is closed) of a set screw adjustable with relation to the breech-block and acting as an abutment to determine its closed position, whereby the relative position of the pivots and consequent strain in starting the breech open may be regulated, all substantially as described.

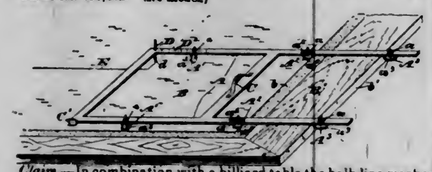
4. In a breech loading gun, the pivoted breech, pivoted lever, and reversible link connecting said breech and lever, said link having a plurality of cam projections of unequal length, (one or the other of which cams may be made operative by the reversal of said links as desired) and the hammer having some part in the path of movement of one of said cam projections, whereby the hammer may be swung back by the link movement, all combined substantially as described.

518,449. PNEUMATIC BUFFER-TRUCK FOR RAILWAY-TRAINS. CHARLES J. GRAY, Oshkosh, Wis. Filed Aug. 7, 1893. Serial No. 482,549. (No model.)



Claim.—In an improvement in pneumatic buffers trucks for railroad trains, two pairs of air cylinders located side by side, and each pair of cylinders cast of a single piece of metal with a guide orifice between them—a guide orifice between the two pair of cylinders and exterior lugs supported by a rear truck, and both pairs of cylinders rigidly secured together in combination with a front buffer beam, also supported on trucks; and carrying three guide rods operating in said orifices, and carrying the piston rods to the cylinders; as and for the purpose specified.

518,450. DEVICE FOR MARKING BALK-LINES ON BILLIARD-TABLES. STEPHEN S. HARMAN, New York, N. Y. Filed Oct. 31, 1892. Serial No. 450,472. (No model.)



Claim.—In combination with a billiard table the balk line marker herein described, which consists of the frame A, supported upon the plane of said table by the rollers A', said rollers being attached to shanks which extend through said frame, said shanks being adapted to be adjusted by means of nuts *a*, *a*, the said frame A being also adjustably held in position to the cushion *b* and table frame B' by the rollers A^2, and A^2, adjustable holder D, and stop C', as herein described and set forth

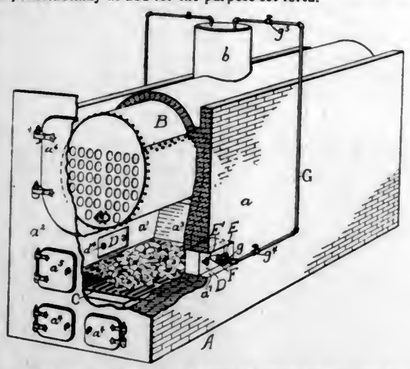
---

518,451. AIR AND GAS MIXING APPARATUS. WILLIAM HAY and WILLIAM M. KEARNS, Kansas City, Mo., assignor of one-third to Charles H. Joy, same place. Filed July 26, 1893. Serial No. 481,565. (No model.)

Claim.—1. An apparatus for the mixture of decarbonizing gases, consisting of a retort having air passages, and a case provided with valves having an interior mixing chamber connected with the retort, and within the heating agent, and means for regulating the discharge of the mixed gases from the mixing chamber, substantially as and for the purpose described.

2. In an apparatus for mixing decarbonizing gases a retort having a pipe extending within said retort, and passages for the air in said retort, concentric with said pipe, and a plate upon said pipe having pins each tapering toward a point and extending with the said air passages, as and for the purpose described.

3. In an apparatus for mixing decarbonizing gases, the combination with a retort having perforations to admit air, and a steam-supply pipe communicating with the interior of said retort, of a plate, tapering pins projecting from said plate, and means to adjust said plate so that the pins thereof shall engage the perforations of the retort, substantially as and for the purpose set forth.

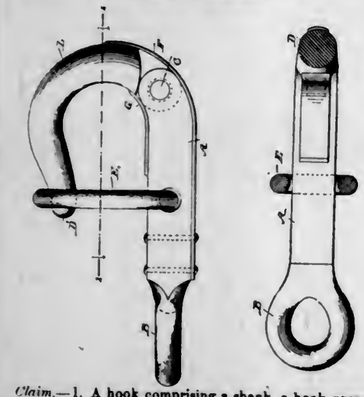


4. The combination with a furnace of a superheating case for the mixture of decarbonizing gas, having gas mixing chambers, and discharge outlets, provided with valves and a retort for the admission of air, and steam connected with said superheating case, a boiler having live steam, and a conductor connected therewith, and extending to and within the said retort, having orifices for its air in rear of the inner end of said conductor within said retort, means for creating a suction through the said conductor within said retort, and adjustable air closing valves for said orifices for the air as shown and described.

5. In a furnace an apparatus for mixing decarbonizing gases consisting of a superheating case arranged within the furnace and in proximity to the heat having interior gas mixing tortuous passages and valves for holding said mixed gases within said superheating case, means for operating said valves and a retort having a supply pipe and inlet for the live steam and air connected with the superheating case for the purpose described.

6. The method herein described of decarbonizing fuel within a furnace, consisting, first, in leading air and live steam into a compartment of a super-heated gas mixing casing; secondly, in retarding the passage of the mixed air and decomposed steam within the casing until gas is formed by the agency of the heat from the furnace fuel; and, thirdly, in admixing the products of combustion of the fuel with the flame of the decarbonizing gas from the said casing, substantially as set forth.

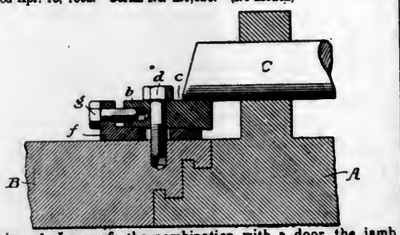
518,452. HOOK. DAVID W. HOLDEN, Gardiner, Oreg. Filed Mar. 1, 1893. Serial No. 464,168. (No model.)



Claim.—1. A hook comprising a shank, a hook proper pivoted on one end of said shank, a locking link held on the said shank and adapted to engage the point of the said hook, and the curved lip, or flange, G, secured to the inner side of the said shank, and extending over the joint and lapping the body of the hook, whereby it covers and protects the joint and is adapted to engage the hook to limit its inward movement, as shown and described.

2. A hook comprising a shank, a hook proper pivoted on one end of the said shank, a locking link held on the said shank and adapted to engage the point of the said hook, a projection arranged on the inside of the said shank and adapted to be engaged by the said hook near its pivot end, and a spring secured on the back of the said shank and having its free end curved onto the back of the pivot end of the said hook, substantially as shown and described.

518,453. SAFE-LOCK. WILLIAM H. HOLLAR, Philadelphia, Pa. Filed Apr. 18, 1892. Serial No. 429,626. (No model.)

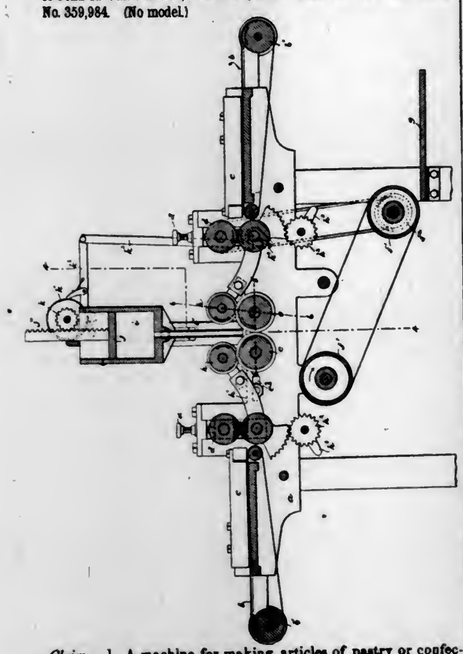


Claim.—1. In a safe the combination with a door, the jamb against which the door shuts, the bolt on the interior of the door, an adjustable surface interposed between the bolt and that portion of the inner surface of the jamb opposite the extended bolt, and means for retaining such surface in its adjusted position, substantially as set forth.

2. In a safe the combination of the door, the jamb against which the door shuts, the bolt on the interior of the door, an adjustable anti-friction roller interposed between the bolt and that portion of the inner surface of the jamb opposite the extended bolt, and means for retaining said roller in its adjusted position, substantially as set forth.

3. In a safe the combination of the door, the jamb against which the door shuts, the bolt on the interior of the door, an adjustable block affixed to the inner surface of the jamb opposite the extended bolt, an antifriction roller carried by the block and opposing its periphery to the bolt, and means for retaining said block in its adjusted positions, substantially as set forth.

518,454. MACHINE FOR FORMING ARTICLES OF PASTRY OR CONFECTIONERY. DANIEL M. HOLMES, Arlington, N. J., assignor to John R. Van Derveer, New York, N. Y. Filed July 26, 1890. Serial No. 359,984. (No model.)



Claim.—1. A machine for making articles of pastry or confectionery, consisting of feeding and sheet forming rollers in combination with auxiliary forming rollers and with forming and uniting rollers whereby portions of the article are fed toward each other and formed and then brought together and caused to unite and form entire articles, substantially as set forth.

2. A machine for making articles of pastry or confectionery, consisting of feeding and sheet forming rollers in combination with auxiliary forming rollers and with forming and uniting rollers, whereby portions of the article are fed toward each other and formed and then brought together and caused to unite, and with a reservoir provided with ducts for supplying suitable filling substance to and between the formed portions, substantially as set forth.

3. In a machine for forming articles of pastry or confectionery, the combination of the feeding apron *b*, the rollers *d d* and the rollers *e* and *h*, and mechanism for operating the above parts, substantially as described.

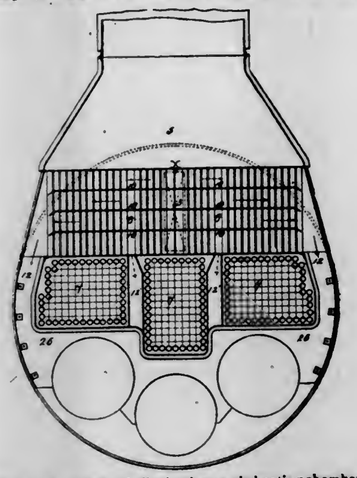
4. In a machine for forming articles of pastry or confectionery, the combination of the feeding aprons *b b*, the rollers *d d*, the rollers *e e* and *h h*, and suitable filling devices and mechanism for operating the above parts, substantially as described.

5. In a machine for forming articles of pastry or confectionery, the combination of the feed apron, *b*, the rollers, *d d*, the rollers, *e* and *h*, and the rock arm, *k'*, and mechanism for operating the above parts, substantially as set forth.

6. In a machine for making articles of pastry or confectionery, the combination of the feeding aprons *b b*, the rollers *d d*, the rollers *e e* and *h h*, and the reservoir *i*, for filling material having outlets or spouts, the plunger *j*, therein, the automatic operating mechanism thereof consisting of the levers k^3 k^3 bearing a pawl entering the teeth of a ratchet-wheel *k'*, said wheel being connected to a pinion working in a rack connected to the plunger, and mechanism for operating the above parts, substantially as set forth.,

---

518,455. APPARATUS FOR HEATING AIR. JAMES HOWDEN, Glasgow, Scotland. Filed Aug. 21, 1893. Serial No. 483,657. (No model.)



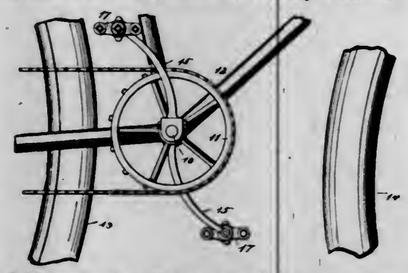
Claim.—1. A steam-boiler having an air-heating chamber in connection with the smoke box and through which pass the products of combustion, an air inlet or inlets to the chamber, flues for the passage of heated air from said chamber and a partition or partitions in the latter to give divided streams of air through the chamber, substantially as described.

2. A steam boiler having an air-heating chamber in connection with the smoke box, with vertical tubes therethrough for the passage of the products of combustion, an air inlet or inlets to the chamber, flues for the passage of the heated air from said chamber, and horizontal partitions in the chamber, substantially as and for the purpose set forth.

3. A steam boiler having an air-heating chamber in connection with a smoke box with a central vertical division plate and horizontal partitions for the distribution of the air, a central air inlet at the said division plate and side flues for the passage of the heated air from the chamber to the furnace, all substantially as described.

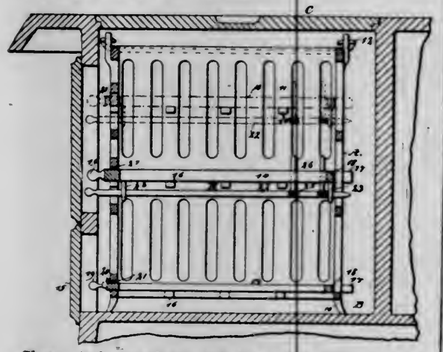
518,456. BICYCLE-CRANK. FERDINAND F. IDE, Peoria, Ill., assignor to the F. F. Ide Manufacturing Company, same place. Filed Jan. 25, 1894. Serial No. 497,963. (No model.)

Claim.—1. As an improved article of manufacture, a curved bicycle crank made of spring material, substantially as described.



2. The combination, with the pedal shaft of a bicycle, of a curved crank secured thereto and adapted to straighten under pressure, substantially as described.

518,457. FIRE-BOX AND GRATE FOR RANGES, STOVES, OR HEATERS. AUGUSTA R. ISAACS, New York, N. Y. Filed June 28, 1893. Serial No. 479,062. (No model.)

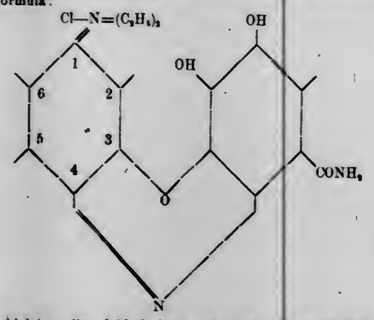


Claim.—An improved removable fire pot for stoves, consisting of a grated like body or shell, having a series of lugs 16 arranged in different horizontal planes, a grate section adapted to be slid horizontally into the shell, and to rest at its sides on such lugs, said grate having depending hangers 23, and a raker member held for horizontal reciprocation in such hangers, and formed with rake fingers 26, held to project through the horizontal grate bars, all arranged substantially as shown and for the purposes described.

518,458. BLUE DYE. KARL KREKELER and PAUL KRAIS, Elberfeld, Germany, assignors to the Farbenfabriken, vormals Fr. Bayer & Co., same place. Filed May 9, 1893. Serial No. 473,593. (Specimens.)

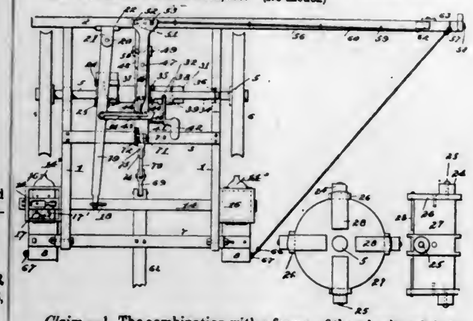
Claim.—1. The process above described for producing blue coloring-matter by the reaction of nitrosodiethylanilin hydrochlorate and gallamic acid in the presence of solvents as for example alcohol or acetic acid.

2. As a new article of manufacture the coloring-matter having the formula:



and which is easily soluble in hot water with a clear blue color, soluble in concentrated sulphuric acid with the same color, which color turns into red on the addition of water, soluble in hydrochloric acid with red color and dyeing wool and cotton mordanted with chromium salts from blue to bluish-violet, substantially as described.

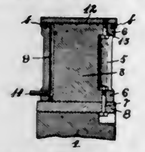
518,459. CORN-PLANTER. GEORGE P. KUHN, Brookside, Ill. Filed Dec. 16, 1893. Serial No. 493,315. (No model.)



Claim.—1. The combination with a frame, of the wheels and their axle journaled therein, a drum adapted to be rotated from said axle, roller bars pivoted to the periphery of said drum and each provided with a notch at each end and at one end with a roller, springs mounted on the sides of said drum with their free ends in position to engage the notches in the ends of said roller bars, shoes and seed hoppers, mounted on said frame and provided with dropping devices, a lever pivoted to said frame at one end and connected at its other end to the seed dropping mechanism, and a wedge, mounted on the intermediate portion of said lever in position to be engaged by the rollers on said drum, substantially as and for the purpose described.

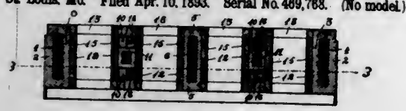
2. The combination with the frame, of the wheels and their axle journaled therein, shoes and seed hoppers mounted on said frame and provided with seed dropping mechanism, an operating lever pivoted at one end to said frame and connected at its other end to the seed dropping mechanism, means for actuating said operating lever, a marking bar pivoted to the central portion of frame and adapted to be braced in position so as to project at right angles on either side thereof, a marker rod mounted in guides on said marking bar, a marker arm pivoted to the end of the marking bar, a link connecting said marker arm with said marker rod, a connecting lever pivoted on the frame and connected at one end to said marker rod, and a link, pivoted at one end to the operating lever and connected at its opposite end to the other end of the connecting lever, substantially as and for the purpose set forth.

518,460. PLUNGER FOR BRICK-MACHINES. JACOB LEONHARDT, St. Louis, Mo. Filed Apr. 10, 1893. Serial No. 469,767. (No model.)



Claim.—A plunger for brick-machines and the like, consisting of a solid rectangular block of material provided upon diagonally opposite corners with vertical recesses 5 terminating in flanges 6, in combination with a head, bolts 7 passed through the lower flanges 6 and through holes in said head and securing the plunger to the head, said plunger having a vertical feed passage 9, the lower end of which is closed, and the upper end of which communicates with a series of oil ducts or passages extending in various directions in the upper portion of the plunger, a marginal packing "*b*" carried by said plunger and arranged to be supplied with lubricant by way of said ducts, and a face-plate 12 mounted upon the upper face of said plunger, substantially as herein specified.

518,461. MOLD FOR BRICK-MACHINES. JACOB LEONHARDT, St. Louis, Mo. Filed Apr. 10, 1893. Serial No. 469,768. (No model.)



Claim.—1. The improved brick-machine mold having a body 1 constructed with an outer-wall 2 separated from an inner wall 3 by means of a steam-space 4 and inclosing a press-box space, a double-walled partition 5 having a steam space 6 communicating at its opposite ends with the steam-space 4 and separating said press-box space into two separate divisions, and a pair of press-boxes detachably located in each division of said press-box space, and provided with means for securing each pair of press-boxes in position independently of the remaining boxes in said mold, substantially as herein specified.

2. A portable brick-mold detachable from the machine, and constructed with a detachable press-box having one of its walls separably in contact with a heating surface, substantially as herein specified.

3. A portable brick mold constructed with a detachable press box having each of its vertical walls separably in contact with a heating surface, substantially as herein specified.

4. The improved portable mold for brick machines, constructed with a main body 1 made hollow with a steam space entirely surrounding it, a hollow partition extending transversely across said body and having a steam space 6 which communicates at each of its ends with the main space in said body, said partition separating the press-box spaces of said mold into two separate divisions, a pair of press-boxes removably located in each of said divisions, key-ways formed in said body and extending transversely therethrough, and keys located in said key ways and extending across said body therein and engaging the adjacent sides of each pair of said press-boxes to retain same in position, substantially as herein specified.

5. The improved portable mold for brick machines, constructed with a body 1 made hollow and provided with a steam-space which entirely surrounds the press-box space therein, a transverse partition 5 having a steam-space 6 and extending across the press-box space of said mold so that the steam-space 6 of said partition communicates with the steam-space of said body, press boxes detachably located in pairs in each of the press-box divisions of said mold, one pair upon each side of said partition, a key-way 10 extending transversely across the mold at points adjacent to the upper and lower faces thereof and across each division of the press-box space, two of said key-ways extending in vertical alignment and parallel to each other across each division of said space, a pipe or tube 11 located in vertical alignment with and parallel to a pair of key-ways 10 with its opposite ends communicating with the steam-space of the mold body, press boxes detachably located in pairs in each of the press-box-divisions of said mold, and keys 16 extending through the key-ways 10 and contacting with the outer surfaces of adjacent side sections of pairs of press-boxes so as to simultaneously lock two adjacent press-boxes in position in the mold, substantially as herein specified.

6. The improved brick mold constructed of a portable body inclosing press-box space, a press-box formed of four separate sections and detachably secured in said press-box space, and each of said sections provided with a separate detachable lining-plate, substantially as herein specified.

7. The improved mold for brick-machines, constructed with a portable body 1 surrounding a press-box space, a detachable press-box composed of separable side sections 12 and end sections 13, the outer surfaces of which are held in forcible contact with the inner surface of the mold wall, the said side sections 12 extending parallel across the press-box space, and the end sections 13 having their ends in contact with the inner surface of said side sections, one at each end thereof, the inner walls of said side and end sections being provided with horizontal dovetail recesses 14, having opposite beveled or overhanging edges, a thin wearing-plate or lining 15 detachably located in each of said recesses, the opposite edges of said lining-plates 15 being beveled to correspond with the beveled edges of the dovetail recesses 14, the ends of said lining-plates, which are carried by said side sections, abutting against the inner surface of said lining-plates carried by said end sections, and means for securing said sections and said lining-plates in the positions described, substantially as herein specified.

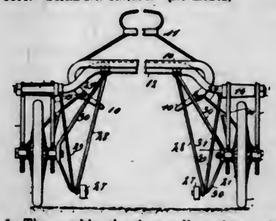
8. A portable brick mold constructed with a press-box formed in four separable sections and four separable lining sections secured one to the inner surfaces of each of said first mentioned sections, substantially as herein specified.

9. A brick mold constructed with detachable press-box sections and thin lining sections dovetailed in place upon said sections, substantially as herein specified.

10. A brick mold constructed with separate side and end sections separable from the main body of the mold and from each other, and thin lining sections separable from the side and end sections and from each other, in combination with keys and screws, which hold said sections in position in the mold substantially as herein specified.

11. A brick mold constructed with key-ways in its body, press-boxes detachably held in place in said body, and keys in each key-way which secure said press boxes in said body, substantially as herein specified.

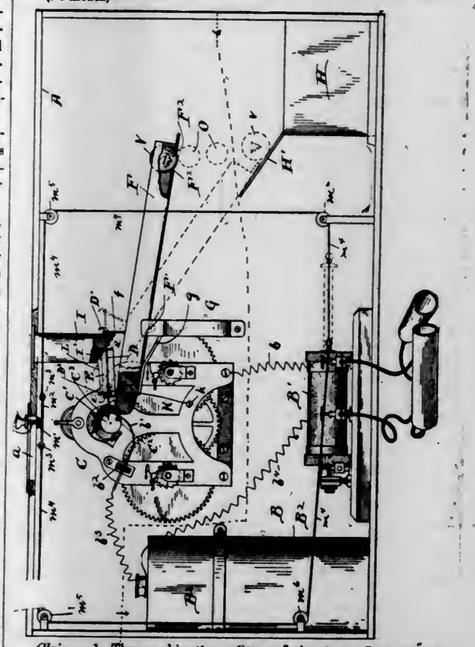
518,462. SULKY. GILBERT J. LOOMIS, Westfield, Mass. Filed Sept. 26, 1893. Serial No. 486,521. (No model.)



Claim.—1. The combination in a sulky, of an axle having spindles at its ends, wheel hangers arranged upon the outer end and inner end of each spindle, the said hangers being composed each of two parallel branches having a perforation at their united upper ends to receive the spindle and screw threaded lower ends, journal boxes carrying a wheel and having extensions on each side provided with perforations large enough to allow of the sliding of the branches of the hangers through them, and two screw nuts arranged upon each branch of the hangers, the one nut above the other below the extended portions of the journal box, substantially as and for the purpose described.

2. In a sulky, the combination of an axle, hangers depending from the ends of its axle, supporting wheels carried in bearings in the lower part of said hangers, means for adjusting these hangers and supporting wheels forwardly or rearwardly, and a brace wheel arranged in the rear of the sulky and normally out of contact with the ground, and connected to the sulky by three braces; one extending from the brace wheel to the middle part of the axle, another from the brace wheel to the outer part of the axle, and the third extending from the brace wheel to the axle and connected at an intermediate point with the axis of the supporting wheel, substantially as shown and described.

518,463. COIN-CONTROLLED ELECTRIC MACHINE. ROBERT J. MERKER, Cleveland, Ohio. Filed Oct. 10, 1892. Serial No. 448,412. (No model.)



Claim.—1. The combination with an induction-coil or electro-medical apparatus, a clock-work located in the electric-circuit of said coil or apparatus, a circuit-breaker, and an inclosing casing, of a coin-receiving slot in said casing, a tilting trough adapted to receive the coin dropped into said slot, a tube for conducting the coin from the slot to said trough, said tube being located at the side of the fulcrum of said trough opposite to the discharging-end of the latter, suitable mechanism for starting and arresting after a certain interval of time

the operation of the clock-work, and suitable means operatively connected with the trough for actuating said mechanism, the arrangement of parts being such that said trough shall be tilted by the weight of the coin and the aforesaid circuit breaker shall have broken the circuit when the operation of the clock-work stops, substantially as set forth.

2. The combination with an induction-coil or electro-medical apparatus, a clock-work located in the electric-circuit of said coil or apparatus, a circuit-breaker, and an inclosing casing, of a coin-receiving slot in said casing, a coin-receptacle, a tilting-trough adapted to conduct the coin to said receptacle, a tube for conducting the coin from the aforesaid slot to said trough, the bottom of the latter near its discharging-end having a slot to permit the escape of a coin having a smaller diameter than that of the requisite coin, suitable mechanism for starting or permitting the resumption of, and arresting after a certain interval of time, the operation of the clock-work, and suitable means operatively connected with the trough for actuating said mechanism, the arrangement of parts being such that said trough shall be tilted by the weight of the coin and the aforesaid circuit-breaker shall have broken the circuit when the operation of the clock-work ceases, substantially as set forth.

3. The combination with an induction-coil or electro-medical apparatus, a clock-work located in the electric-circuit of said coil or apparatus, a circuit-breaker operatively connected with the clock-work, and an inclosing casing, of a coin-receiving slot in said casing, a tilting-trough adapted to conduct the coin to said receptacle, a tube for conducting the coin from the aforesaid slot to said trough, said tube being located at the side of the fulcrum of said trough opposite to the discharging end of the latter, suitable mechanism for starting, and arresting, after a certain interval of time, the operation of the clock work, and suitable means operatively connected with the trough for actuating said mechanism, the arrangement of parts being such that said trough shall be tilted by the weight of the coin and the aforesaid circuit-breaker shall have broken the circuit when the operation of the clock-work stops, substantially as set forth.

4. The combination with a coil or electro-medical apparatus, a clock-work and contact-spring located in the electric-circuit of said coil or apparatus, an inclosing casing, a circular disk or wheel operatively connected with the clock-work and adapted to travel in contact with said contact-spring, and a circuit breaker set into and flush with the periphery of said disk or wheel, of a coin-receiving slot in the inclosing casing, a coin-receptacle, and tilting-trough for conducting the coin to said receptacle, suitable means for limiting the descent of the discharging end of said trough, a tube for conducting the coin from the aforesaid slot to said trough, suitable mechanism for starting, and arresting after a certain interval of time, the operation of the clock-work, and suitable means operatively connected with the aforesaid trough for actuating said mechanism, the arrangement of parts being such that said trough shall be tilted by the weight of the coin and the aforesaid circuit-breaker shall have electrically disconnected the aforesaid contact-spring and clock-work when the operation of the latter is stopped, substantially as set forth.

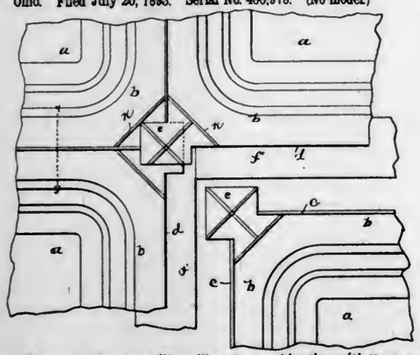
5. The combination with an induction-coil or electro-medical apparatus, a clock-work located in the electric-circuit of said coil or apparatus, an inclosing casing, a circuit-breaker, and a revolving pin or member operatively connected with the clock-work, of a coin-receiving slot in said casing, a coin-receptacle, a tilting-trough for conducting the coin to said receptacle, a tube for conducting the coin from the aforesaid slot to said trough, a reciprocating-rod or bar adapted to arrest the movement of the aforesaid revolving pin or member, said rod or bar being provided with a hook, a bent arm or member rigid with the aforesaid tilting-trough for engaging said hook to effect the actuation of said rod or bar to release the aforesaid revolving pin or member; and suitable means for returning said rod or bar and tilting-trough to their normal position, the arrangement of parts being such that said trough shall be tilted by the weight of the coin and the aforesaid circuit-breaker shall have broken the circuit when the aforesaid revolving pin or member is arrested, substantially as set forth.

6. The combination with an induction-coil or electro-medical apparatus, a clock work located in the electric-circuit of said coil or apparatus, an inclosing casing, a circuit-breaker, and a revolving pin or member operatively connected with the clock-work, of a coin-receiving slot in said casing, a coin-receptacle, a tilting-member for conducting the coin to said receptacle, a tube for conducting the coin from the aforesaid slot to said tilting-member, a reciprocating rod or bar and suitable means operatively connected with said tilting-member for actuating said rod or bar to release said revolving pin or member, said rod or bar at the point where it is adapted to engage said revolving pin or member being beveled, and suitable means for returning said rod or bar into position for starting and subsequently arresting the movement of the aforesaid revolving pin or member, the arrangement of parts being such that said trough shall be tilted by the weight of the coin and the aforesaid circuit-breaker shall have broken the circuit when the operation of the clock-work stops, substantially as set forth.

7. The combination with an induction-coil or electro-medical apparatus, a clock-work located in the electric-circuit of said coil or apparatus, an inclosing casing, a circuit-breaker, and a revolving pin or member operatively connected with the clock-work, of a coin-receiving slot in the inclosing casing, a coin-receptacle, a tilting-member for conducting the coin to said receptacle, a tube for conducting the coin from the aforesaid slot to said tilting-member, a reciprocating-rod or bar adapted to arrest the movement of said revolving pin or member, the end of said rod or bar, that is adapted to engage and be engaged by said revolving pin or member, having a limited vertical movement, suitable means acting to lift said end of the rod or bar, suitable means operatively connected with the aforesaid tilting-member for actuating said rod or bar to release the aforesaid revolving pin or member, and suitable means for returning said rod or bar into position to arrest the movement of said revolving pin or member when the latter has made a revolution, the arrangement of parts being such that the aforesaid tilting-member shall be actuated by the weight of the coin and the aforesaid circuit-breaker shall have broken the circuit when the operation of the clock-work stops, substantially as set forth.

8. The combination with an induction coil or electro-medical apparatus, a clock-work located in the electric-circuit of said coil or apparatus, an inclosing casing, a circuit-breaker, and a revolving pin or member operatively connected with the clock-work, of a coin-receiving slot in the inclosing casing, a coin-receptacle, a tilting-member for conducting the coin to said receptacle, a tube for conducting the coin from the aforesaid slot to said tilting-member, a reciprocating rod or bar adapted to start and to arrest the movement of said revolving pin or member, the end of said rod or bar adapted to engage and be engaged by said revolving pin or member having a limited vertical movement and being beveled at the point where it is adapted to engage said revolving pin or member, suitable means acting to lift the beveled end of the rod or bar, suitable means operatively connected with the aforesaid tilting-member for actuating said rod or bar to release the aforesaid revolving pin or member, and suitable means for returning said rod or bar into position to start and subsequently arrest the movement of said revolving pin or member, the arrangement of parts being such that said trough shall be tilted by the weight of the coin and the aforesaid circuit breaker shall have broken the circuit when the operation of the clock-work stops, substantially as set forth.

518,464. METALLIC CEILING. CHARLES C. MOORE, Columbus, Ohio. Filed July 20, 1893. Serial No. 480,978. (No model.)

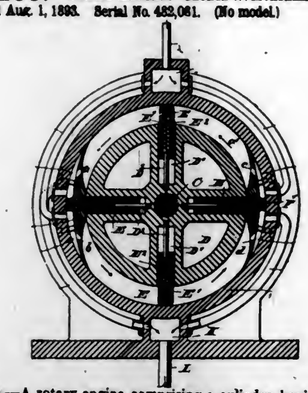


Claim.—1. In a metallic ceiling the combination with the panels and means for joining the sides or edges thereof, of corner tongues *e* adapted to overlap each other as described when said panels are joined, substantially as and for the purpose specified.

2. In a metallic ceiling the combination with the panels and oppositely located hooked and flanged edges as described on said panels, of corner tongues *e* projecting from the corner of said panels and adapted to overlap each other when said panels are joined and a suitable cap adapted to cover the outer panel corner tongue, substantially as and for the purpose specified.

3. In a metallic ceiling the combination with the panels and means for joining the edges thereof, of corner tongues *e* projecting as described from the corners of said panels and adapted to overlap each other when said panels are joined, ribs *k* extending across the corners of said panels as described and a cap piece having corner notches or recesses and adapted to fit over the outer tongue *d* and having its inner edges abutting against the ribs *k* substantially as and for the purpose specified.

518,465. ROTARY ENGINE. GEORGE W. MORTELAND, Lead, S. D. Filed Aug. 1, 1893. Serial No. 482,081. (No model.)



Claim.—A rotary engine comprising a cylinder having a steam inlet chest and an exhaust chest, abutments secured to the inside of the cylinder on opposite sides thereof, each abutment being provided with a steam receiving chamber and a steam exhaust chamber, having the angular ports arranged as specified, and which connect it with the interior of the cylinder, a wheel mounted to rotate in the said cylinder, spring-pressed pistons fitted to slide in the said wheel and adapted to engage the inner surface of the said cylinder and the said abutments, pipes connecting the steam receiving chambers with the said steam inlet chest and other pipes connecting the steam exhaust chambers with the said exhaust chest, substantially as shown and described.

518,466. MODE OF AND APPLIANCE FOR PLASHING HEDGES. MICHAEL NEIL, Dayton, Ohio, assignor of two-thirds to Martha J. Neil, same place. Filed Oct. 7, 1893. Serial No. 487,429. (No model.)



Claim.—A plashed live hedge fence having the canes with their foliage inclined and so maintained by being through wire clips attached to a series of stringer wires secured to posts and engaged by wire intermediary stays which also engage the canes; and having a series of vertically supported wooden stays attached to the stringers and maintaining the plants between the stringers and stays, the lowest stringer being attached to short intermediate stakes that enter the ground, substantially as and for the purposes set forth.

518,467. TAWED SKIN AND PROCESS OF MAKING SAME. WILLIAM M. NORRIS, Princeton, N. J., and HENRY BURK, Philadelphia, Pa. Filed Jan. 23, 1893. Serial No. 459,441. (No specimens.)

Claim.—1. The within described improvements in the art of tanning or tawing hides or skins, consisting in first subjecting such hides or skins to the action of a solution of a chromic acid compound; second to the action of a reducing bath, and third, to the action of another and different mineral tanning or tawing bath, as and for the purpose set forth.

2. The within described improvement in the art of tanning or tawing hides or skins, said improvement consisting in subjecting the skins first, to the action of a solution of the chromic acid compound, second, to the action of a reducing bath, and third, to the action of a bath containing sulphate of alumina, substantially as specified.

3. The within described improvement in the art of tanning or tawing hides or skins, by the chrome process, said improvement consisting in subjecting the skins first, to the action of a solution of a chromic acid compound, second to the action of a reducing bath, and third to the action of a bath containing sulphate of alumina, and chloride of sodium, substantially as specified.

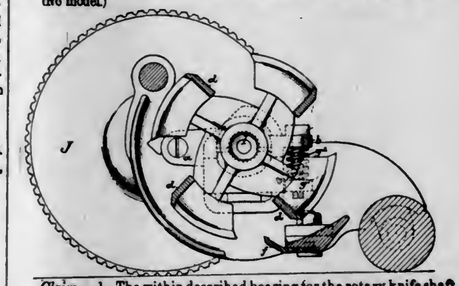
4. The within described improvement in the art of tanning or tawing hides or skins by the chrome process, said improvement consisting in first, subjecting the skin or hides to the action of a solution of a chromic acid compound, second, to the action of a reducing bath, third to the action of a bath containing sulphate of alumina, and fourth permitting the skins to become dry, and to remain in the dry condition until the chromium compound is reduced, and sufficient oxide of alumina separated from the salt to complete the tanning, substantially as specified.

5. The within described improvement in the art of tanning or tawing hides or skins by the chrome process, said improvement consisting in subjecting the skins first, to the action of a solution of a chromic acid compound, second to the action of a reducing bath, third to the action of a bath containing sulphate of alumina and chloride of sodium, and fourth permitting the skins to become dry and to remain in the dry condition, until the chromium compound is reduced and sufficient oxide of alumina is separated from the salt of alumina, to complete the tanning, substantially as specified.

6. As a new article of manufacture a dry chrome tanned hide or skin saturated with a metallic salt susceptible of removal by washing to render the hide or skin capable of absorbing water in the subsequent treatment, substantially as described.

7. As a new article of manufacture a dry chrome tanned hide or skin uncolored and unfinished, and containing sulphate of alumina capable of removal by washing and serving to permit the thorough wetting of the hide or skin as a preliminary to the subsequent treatment, substantially as specified.

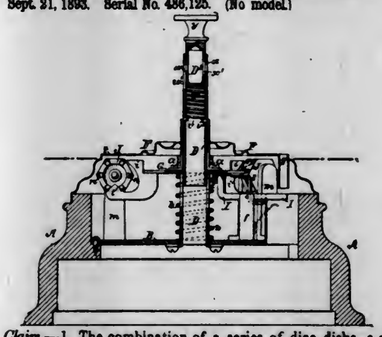
518,468. BEARING FOR SHAFTS OF LAWN-MOWERS. EVERETT G. PASSMORE, Haverford, Pa. Filed June 12, 1893. Serial No. 477,351. (No model.)



Claim.—1. The within described bearing for the rotary knife shaft of a lawn mower, said bearing consisting of a portion normally fixed and having a seat for one side of the shaft, a movable block bearing upon the other side of the shaft, a wedge acting upon said block and having teeth engaging with a correspondingly toothed bearing for preventing undue retraction of the wedge, and a spring acting upon said wedge to move the same forward, substantially as specified.

2. The combination of the fixed and rotary knives of a lawn mower, the rotary knife shaft, means for rotating the same, a normally fixed bearing for said shaft, a movable block bearing upon the shaft, a wedge interposed between said movable block, and a support upon the normally fixed portion of the bearing, both wedge and support being provided with teeth for preventing undue retraction of the wedge, and a spring acting upon said wedge to move the same forward, substantially as specified.

518,469. CIGAR-TIP CUTTER AND DICE-THROWING APPARATUS. ROBERT RABIGER and EMIL RABIGER, Philadelphia, Pa. Filed Sept. 21, 1893. Serial No. 486,125. (No model.)



Claim.—1. The combination of a series of dice disks, a spring supported plate having fingers for operating said dice disks, a coin

receiving lever for locking said plate, and a cigar tip cutter carried by the plate and having a spring supported knife, the plate supporting spring being stiffer than that which supports the knife, substantially as specified.

2. The combination of the series of dice disks mounted upon horizontal axes and each having a series of projecting fingers at one side, with the spring supported plate having for each of the dice disks an upper and a lower finger so located in respect to the projecting pins of the disk that on the downward movement of the plate the upper finger will strike one of said pins in order to turn the disk forward, and on the upward movement of the plate the lower finger will engage with two of said pins in order to lock the disks in position, substantially as specified.

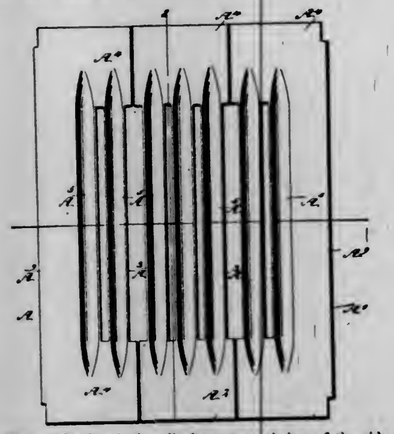
3. The combination of the series of dice disks, the spring supported plate having disk operating fingers, the coin receiving locking-lever, and means for supporting said lever after the coin is deposited thereupon and the lever has moved sufficiently to unlock the plate, said lever being so constructed and so located that further movement of the plate will cause a further tripping of the lever and the discharge of the coin therefrom, substantially as specified.

4. The combination of the series of dice disks, the spring supported plate having disk operating fingers, the coin receiving lever for locking said plate, and an arm carried by the plate and serving as a stop for the lever when the same has been moved so as to unlock the plate, substantially as specified.

5. The combination of the series of dice disks, the plate having disk operating fingers, a coin receiving and locking lever for said plate, a tube carried by the plate and having an opening therein for receiving the tip of a cigar, and a spring supported cutter mounted inside of the said tube, substantially as specified.

6. The combination of the base frame, a perforated supporting plate therein having a guide tube, a series of dice disks, a plate for operating the same, having a tube adapted to said guide tube and perforated to receive a cigar tip, a coin receiving and locking lever for said plate, and a tip cutter mounted within the perforated tube, substantially as specified.

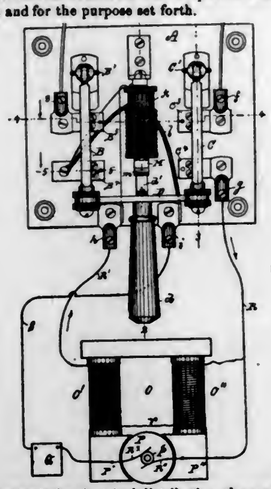
518,470. GRATE. JAMES W. SMITH, Moscow, Ky. Filed July 22, 1893. Serial No. 481,189. (No model.)



Claim.—The herein described grate, consisting of the side sections A A', having solid ends and sides A^4 A^5 and the middle section A^3, having solid ends A^4, the sections being provided with the bars A^2 integral with the ends and having longitudinal grooves A^8 in their upper surfaces, the depending ribs A^6 A^6 on the lower surfaces of the bars A^2 and sides A^5 respectively, and the transverse bars A^7 on the under side of the ends A^4 and integral with the ribs A^6 A^6, as set forth.

518,471. ELECTRIC SWITCH. JOSEPH B. SMITH, Manchester, N. H. Filed Oct. 10, 1893. Serial No. 487,763. (No model.)

Claim.—1. In an electric switch or current controlling device a pair of switch levers adapted when closed to be metallically connected to the line wires, field coils and armature of the motor combined with an electro-magnet having one winding in the field circuit and having an oppositely wound wire in circuit with the motor armature and having a movable armature and means for holding said switch closed when the field current is flowing and automatically opening it when the field current ceases as well as openi- it when the armature current reaches a certain predetermined value, substantially as and for the purpose set forth.



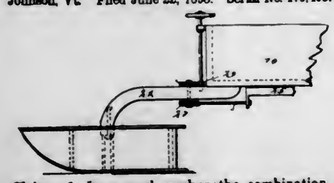
2. In a circuit for electrical distribution, the combination of one or a pair of switch levers located in the circuit, a magnetic field energized by said circuit and having two opposed windings, one arranged as a shunt to said circuit and the other in series with it, a movable armature acting to hold said switch closed when the electrical pressure in the circuit equals a predetermined amount and to open said switch and break the circuit in each wire of the main line when the electrical pressure falls below a certain amount, or when the current in said circuit increases above a certain amount, substantially as described.

518,472. SCREW-DRIVER. SAMUEL I. SNYDER, Clearfield, Pa. Filed Feb. 10, 1894. Serial No. 499,786. (No model.)



Claim.—A screw-driver comprising a point adapted to enter the slot in the screw and to bear the strain of the screwing operation, and a spring-arm having an outward tendency and secured to lie adjacent to the point and adapted to bear against one side of the slot in the screw, whereby the screw may be held by the tool, substantially as described.

518,473. ROAD WORKER AND SCRAPER. OTIS W. STEARNS, Johnson, Vt. Filed June 22, 1893. Serial No. 478,495. (No model.)

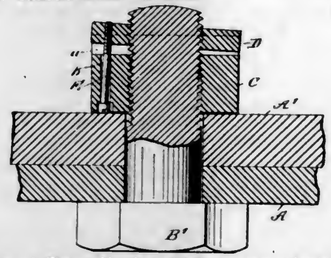


Claim.—1. In a road worker, the combination, with a body, adapted to receive a weight, and means, substantially as shown and described for supporting the body above the surface of the ground, a platform pivotally connected with the bottom of the body, an adjusting shaft, and a connection between the adjusting shaft and the ends of the platform, whereby the latter may be laterally moved upon its pivot, of a scraper having hinged connection with the platform, and an adjusting shaft carried by the platform and connected with the scraper, whereby the latter may be raised and lowered, as and for the purpose set forth.

2. In a road worker, the combination, with a body, a roller journaled beneath the body and adapted to travel over the surface of the ground, a platform pivoted to the body in advance of the roller, an adjusting shaft, and a connection between the ends of the platform and the said shaft, of a scraper having a hinged connection with the platform, an adjusting device carried by the platform and connected with the scraper, whereby it is raised and lowered, and a scraper bar engaging with the roller, said bar being capable of use as a brake, as and for the purpose specified.

3. In a road worker, the combination, with a body, a roller journaled beneath the body, a platform pivotally connected with the body in advance of the roller, an adjusting shaft, gearing connected with the adjusting shaft, and a belt connection between the gearing and the ends of the platform, of a scraper pivotally connected with the platform, an adjusting shaft journaled upon the platform, and curved arms projecting downward from the shaft and passed through keepers connected with the scraper, as and for the purpose set forth.

518,474. NUT-LOCK. FREDERICK B. WALLACE, Orion, Mich., assignor to himself and C. Homer Spencer, same place. Filed Sept. 2, 1893. Serial No. 484,625. (No model.)

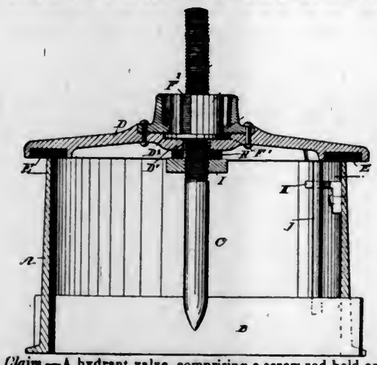


Claim.—1. The combination; with the nut proper, having a transverse channel in its outer face, and a hole, *b*, parallel to the bolt hole, of a block, D, adapted to fit loosely in said channel, and having a central threaded bolt-hole, and a device attached to the block and projecting through the said hole, *b*, in which it fits loosely, as shown and described

2. The combination with a nut perforated at one side of its threaded hole, and channeled transversely on one face, of an independent locking block perforated and threaded to conform with the bolt hole in the nut and seated in the channel, and a tilting pin fast in the block and fitted loosely in the side perforation in the nut and projecting beyond the inner face of the latter, substantially as described

---

518,475. VALVE FOR HYDRANTS. CHRISTOPHER H. WATSON, Riverside, Cal. Filed Aug. 18, 1893. Serial No. 483,593. (No model.)



Claim.—A hydrant valve, comprising a screw rod held on a bar attached to the casing, a cover through which passes the said screw rod, a nut mounted to turn in bearings in the said cover and screwing on the said screw rod, means for preventing the said cover from turning, a gasket engaging the under side of the cover around the said screw rod, and a nut screwing on the screw rod and abutting against the said gasket, substantially as shown and described.

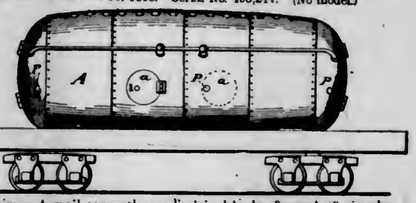
518,476. WASTE-PAPER BASKET. EDWARD L. WESTON, Washington, D. C. Filed Feb. 27, 1894. Serial No. 501,698. (No model.)

Claim.—1. An improved basket substantially as described comprising the upright strips and the rows of connections encircling the basket and composed of strips arranged in pairs between the several uprights the short strips of each pair being secured together and to the uprights substantially as described and for the purposes set forth.

2 The improved basket herein described composed of the upright strips extended and curved at their ends to form feet and headings, and the plurality of rows of connections extending around the basket said connections being composed of short strips arranged in pairs between the uprights the strips of each pair being clasped together at their middles and lapped near their ends against the upright strips and clasps securing the connections upon the opposite sides of the strips to such strips and to each other substantially as described and for the purposes set forth.

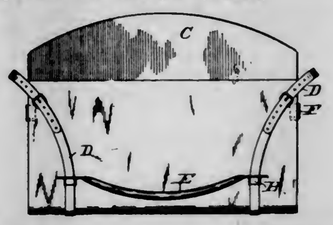


518,477. MAIL OR EXPRESS CAR. CASPER ZIMMERMAN, Chicago, Ill. Filed Dec. 30, 1893. Serial No. 495,217. (No model.)



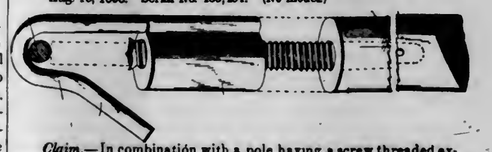
Claim.—A mail car with a cylindrical body, formed of circular curved end-plates and circular bands, all lapping and riveted together, with windows at top for lighting the inside and windows, fastening on the inside, at each side of body for the inlet and outlet of mail or merchandise, as shown and described.

518,478. HAND-BAG. JOHN M. ALLEN, Marion, Mass. Filed Aug. 30 1892. Serial No. 444,585. (No model.)



Claim.—As an improved article of manufacture, a hand bag, consisting of a bag A, having a flap C, made of flexible leather sewed together at the ends with an inturned seam, cross pieces *a*, sewed within the bag to cover said seams and constituting pockets; loops B, on the side of the bag; straps D, passing through said loops and a handle E, on said straps D, and adapted to be moved on the same, for the purpose mentioned, substantially as set forth.

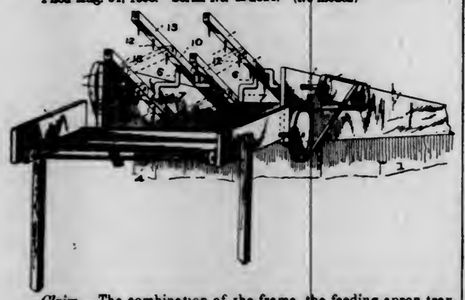
518,479. LINE-PROP. WILLIAM C. APPLEGATE, Sharon, Pa. Filed Aug. 18, 1893. Serial No. 483,431. (No model.)



Claim.—In combination with a pole having a screw threaded extension upon its end, a screw threaded collar movable on said extension, and a hook projecting from the upper portion of said collar with the

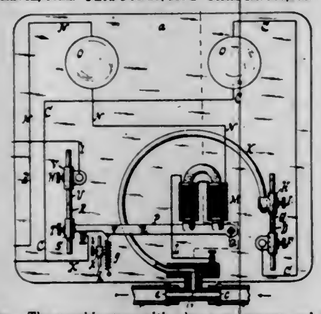
space between its opposing sides adapted to be closed by said extension when it is screwed through the collar, substantially as described.

518,480. CLOVER-FEEDER. WILLIAM E. AYERS, Collett, Ind.
Filed Aug. 31, 1893. Serial No. 484,526. (No model.)



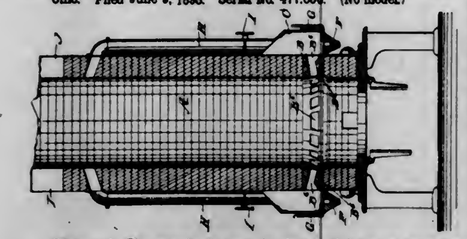
Claim.—The combination of the frame, the feeding apron traveling therein, the trough adjacent to the frame, the shafts mounted in the trough and having two sets of reversely arranged cranks, mechanism for rotating the shafts, the feeding bars having teeth and secured to the cranks, and hinged sections at the outer end of the feeding bars, adapted to move above the feeding apron and descend to take the clover from said apron.

518,481. ELECTRICAL CONTACT MECHANISM. JOHN F. BLAKE, New Haven, Conn. Filed Feb. 23, 1894. Serial No. 501,266. (No model.)



Claim.—The combination with a base or support, and a pressure-actuated spring mounted thereupon, of a circuit closer composed of two carbons, one carried by the base or support, and the other carried by one end portion of the spring, an electro-magnet and resistances in the circuit of the circuit closer, an armature actuated by the electro-magnet, and a secondary circuit closer composed of two carbons one carried by the base and the other carried by the armature, substantially as described

518,482. CUPOLA-FURNACE. JAMES BLAKENEY, Springfield, Ohio. Filed June 9, 1893. Serial No. 477,033. (No model.)



Claim.—1. The cupola furnace having radial tuyere openings which gradually increase in width from the inside to outside, and whose bottoms are obtuse-angled, as and for the purpose specified.

2. In a cupola furnace, the combination, with the stack having a series of radial tuyere openings and the pockets, B', arranged transversely of a surrounding air-blast chamber, C, whose bottom is provided with vertical passages, F, substantially as and for the purpose specified.

3. A cupola furnace provided with a tuyere made circular and formed with radial openings, and pockets arranged in the bottom of the said tuyere below the said openings, substantially as shown and described.

518,483. ANIMAL-TRAP. FRANK J. BRAGUNIER, Topeka, Kans.
Filed Sept. 19, 1893. Serial No. 485,846. (No model.)



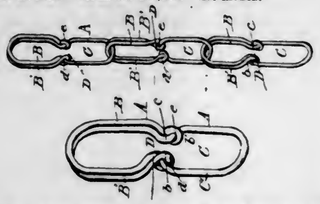
Claim.—1. An animal trap, comprising a bait box provided with an entrance opening, a tripping platform located in the bait box, a cage arranged laterally of the bait box, a swinging door controlling the passage from the bait box to the cage, a spring-revolved shaft journaled in the bait box, a ratchet wheel secured to the said shaft, a pawl operatively connected with the tripping platform and adapted to engage the ratchet wheel, and a series of arms carried by the shaft in the bait box, as and for the purpose set forth.

2. An animal trap, comprising a bait box provided with an entrance opening, a tripping platform located in the bait box, a cage arranged laterally of the bait box, a swinging door controlling the passage from the bait box to the cage, a spring-revolved shaft journaled in the bait box, a ratchet wheel secured to the said shaft, exteriorly of the box, a pawl for the ratchet wheel, a bent rod connecting the platform with the pawl and constructed to clear the entrance opening of the bait box, and a series of arms secured to the said shaft within the bait box, as and for the purpose set forth.

3. An animal trap, comprising a bait box provided with an entrance opening, a tripping platform located in the bait box, a stationary inclined guard plate rigidly secured to the bottom of the trap between the cage and the bait box, a swinging door extending from the top of the trap to the said guard plate and controlling the passage from the bait box to the cage, a spring-revolved shaft journaled in the said box, an operative connection between the platform and the shaft, and a series of arms carried by the said shaft in the bait box, substantially as described

4. The combination, with the revoluble shaft and the radiating arms thereon, of a ratchet mechanism for holding the shaft, a belt connected with the shaft and having numbers and gage marks produced thereon, and a spring secured to an adjacent support and to the outer end of the belt, substantially as specified

518,484. CHAIN. RICHARD A. BREUL, Bridgeport, Conn. Filed June 23, 1893. Serial No. 478,600. (No model.)



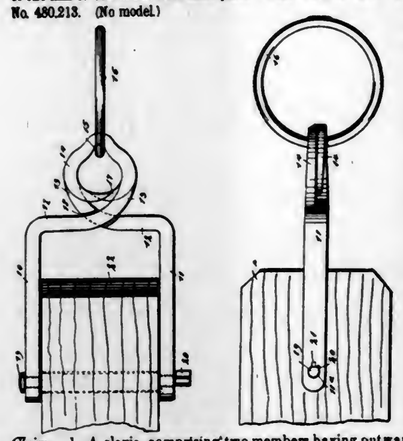
Claim.—As an improved article of manufacture, a chain of wire links, each link comprising a loop B, B', of two contiguous thicknesses of wire, and a loop C, C', of a single thickness in the same plane; said loops consisting of a single continuous piece of wire bent into offsets *b*, *c*, *b'*, and *c'*, with a narrow space or neck D, therebetween; the ends *d* and *e* of the wire being secured to the offsets *c* and *c'*, whereby a butt joint is formed between said ends and the contiguous surfaces of the wire, substantially as and for the purpose specified.

518,485. SNAP-HOOK. RICHARD A. BREUL, Bridgeport, Conn.
Filed Aug. 25, 1893. Serial No. 484,030. (No model.)



Claim.—In a snap hook, the combination with the hook A *a*, provided with an aperture *c*, and a slot *b*, of the spring B, one end of which is inserted in said slot, the cheeks or nuts D, D', and the rivet E, passing through said cheeks or nuts and the aperture *c*, and clamping and holding said spring in the slot, substantially as specified.

518,486. CLEVIS. SOLOMON E. BRICKER, Arco, Idaho, assignor of one-half to Ora G. Puckett, same place. Filed July 12, 1893. Serial No. 480,213. (No model.)

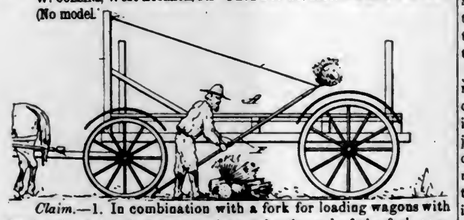


Claim.—1. A clevis, comprising two members having outwardly curved arms terminating in nearly circular and oppositely curved hooks lying side by side, the openings between the points of the hooks and the curved arms being out of register, substantially as described.

2. A clevis, comprising two members having outwardly curved arms crossing each other and terminating in nearly circular hooks curved in opposite directions and lying side by side, the curved arms being recessed where they cross each other substantially as described.

3. A clevis consisting of two members having nearly circular hooks curved in opposite directions and lying side by side, the inner end of one member being provided with a key hole slot, and a pin or bolt pivoted to one member and provided with a radial flange adapted to enter the key-hole slot of the other member, substantially as described.

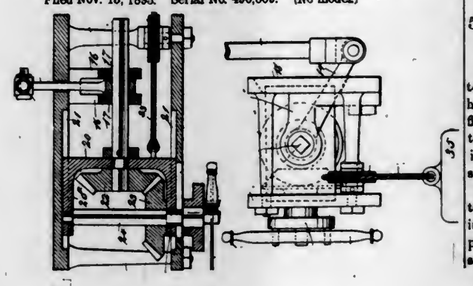
518,487. DEVICE FOR LOADING SHOCKS OF CORN. GEORGE W. COLLINS, West Lebanon, Pa. Filed Dec. 28, 1893. Serial No. 494,957. (No model.)



Claim.—1. In combination with a fork for loading wagons with shocks, sheaves or hay, an attachment for the end of the fork comprising a curved point and a shield, and means for connecting said attachment to the fork, substantially as shown.

2. The combination, with a wagon having an upright *a* and a flexible connection adapted to be attached thereto and to the fork, of a hand fork having a handle with a pointed end and a shield adjacent to said pointed end, the tines of the fork having a cross-bar with which the flexible connection engages, substantially as shown.

518,488. COMPENSATOR. WILLIAM DAVES, Jersey City, N. J.
Filed Nov. 13, 1893. Serial No. 490,809. (No model.)

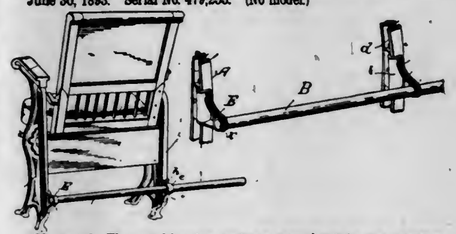


Claim.—1. A compensator, comprising a supporting frame, a slide mounted in the frame, gear wheels meshing with each other and carried by the said slide, a signal arm operatively connected with the shaft of one of said gear wheels, a lever operatively connected with the shaft of the other gear wheel and with the signal working wires, and means substantially as described for pulling the slide against the tension of the wires, as and for the purpose set forth.

2. A compensator, comprising a supporting frame, a slide mounted in the frame, a longitudinal shaft carried by the slide, a crank arm mounted on the shaft and operatively connected with a signal arm, a transverse shaft carried by the slide and geared to the longitudinal shaft, a lever operatively connected with the transverse shaft and with the signal wires, and means, as a weight, to pull the slide against the tension of the wires, substantially as described.

3. A compensator, comprising a supporting frame, a slide held to move longitudinally in the frame, a longitudinal shaft carried by the slide, a crank arm on the shaft arranged to have the shaft slide through it, a transverse shaft carried by the slide and geared to the longitudinal shaft, a collar on the transverse shaft, a lever pivoted on the collar and adapted to engage the end of the transverse shaft, the signal operating wires secured to the opposite ends of the lever, and means, as a weight, for moving the slide against the tension of the wires, substantially as described.

518,489. FOOT-REST. CORNELIUS R. DEMAREST, Brooklyn, assignor to Andrews Demarest Seating Company, New York, N. Y. Filed June 30, 1893. Serial No. 479,253. (No model.)



Claim.—1. The combination with seat standards having recesses on opposite sides and elongated openings connecting said recesses, of brackets having attaching plates a foot rest held by said brackets, said plates adapted to fit in the recesses on either side of the standards, clamping plates fitting in the opposite recesses and secured to the brackets and standards, the foot rest being adjusted in height by turning the brackets upside down and changing them from one side to the other of the standards, as and for the purpose set forth.

2. The combination with seat standards having shallow and deep recesses between their bars on opposite sides thereof and elongated openings connecting the said deep recesses, of brackets having attaching plates fitting in the shallow recesses and lugs on the plates projecting into the deep recesses and resting on ribs of the bars in the deep recesses and clamping plates with lugs, fitting in the opposite recesses in the standards, said plates being secured together and to the standards through the elongated openings, and the brackets holding a foot rest bar, as and for the purpose set forth.

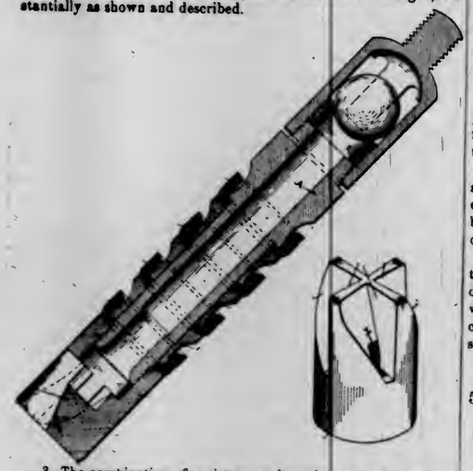
3. The combination with seat standards having shallow and deep recesses on opposite sides, and elongated openings connecting the said deep recesses, of foot rest brackets having attaching plates fitting in the shallow recesses with outwardly curved portions fitting over the edge of the bars, said plates having lugs thereon resting on ribs of the bars in the deep recesses and clamping plates having lugs thereon fitting into the recesses of the standards on the opposite sides of the bars from the brackets, said plates being secured together and to the standards through the elongated openings, and the brackets holding a foot rest bar, as and for the purpose set forth.

518,490. PISTON FOR ARTESIAN OR OIL WELLS. WILLIAM H. DOWNING, Goodell, Pa. Filed May 13, 1893. Serial No. 474,055. (No model.)

Claim.—1. The combination of a piston, washers thereon, a bottom section adapted to be secured on the lower end of the piston for holding the washers in place and which is formed with one or more fluid passages, and deflecting blades at the lower end of the said bottom section for engaging the fluid being operated upon thus revolving said section and screwing it into position and there holding it, substantially as shown and described.

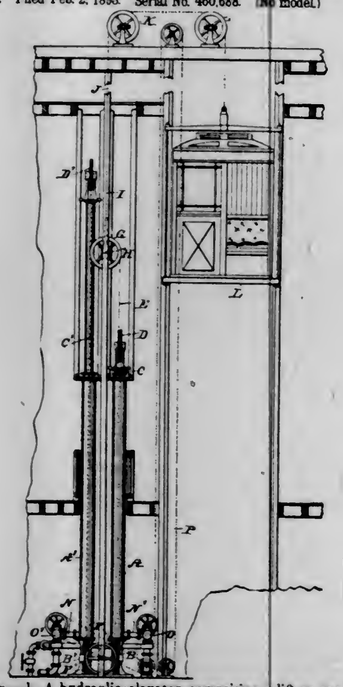
2. The combination with a piston, washers thereon, a bottom section adapted to be screwed on the lower end of the piston for holding the washers in place and which is formed with one or more fluid passages, and depending deflecting blades integral with the bottom section for engaging the fluid being operated upon, thus revolving

said section and screwing it into position, and there holding it, substantially as shown and described.



3. The combination of a piston, washers thereon, a bottom section adapted to be screwed on the lower end of the piston for holding the washers in place deflecting blades carried by the said section for the purpose stated, which taper toward their lower ends, thus forming depressions E, the bottom section being formed with passages I which place the said depressions in communication with the piston, substantially as described.

518,491. HYDRAULIC ELEVATOR. CHARLES J. DUDLEY, Mobile, Ala. Filed Feb. 2, 1893. Serial No. 460,688. (No model.)



Claim.—1. A hydraulic elevator comprising a lift or cage, cylinders and pistons, pulleys on the pistons, an auxiliary sliding cross-head between the cage and pistons, idler pulleys between the piston pulleys and the cross-head, and ropes passing over said pulleys and connected with the cross-head, substantially as described.

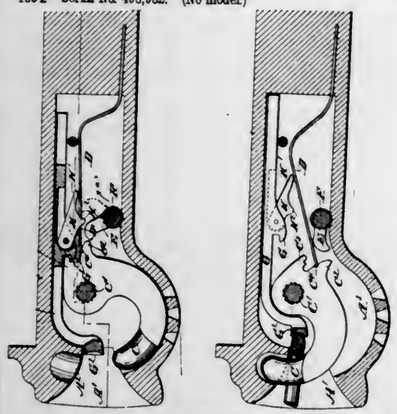
2. A hydraulic elevator comprising a cage, two or more hydraulic cylinders, pistons therein provided with pulleys, ropes passing over said pulleys, a sliding cross-head connected with said ropes, and with the lifting rope of the cage, idler pulleys between the piston pulleys and crosshead, over which idlers the ropes pass, independent valves for the cylinders, to regulate the inlet and outlet of water, and a valve rope passing through the lifting cage and serving to actuate the said valves, substantially as described.

3. A hydraulic elevator, provided with a plunger or piston comprising a thin metallic tube, wood sections fitted into the said tube to fill the same, and caps for closing the ends of the said tube, substantially as shown and described.

4. A hydraulic elevator, comprising a cage, duplicate cylinders and pistons therein counterbalanced independent cylinder ropes operated by the pistons, and a cage crosshead adapted to be engaged by either or both the said cylinder ropes, substantially as shown and described.

5. A hydraulic elevator, comprising a cage, cylinders, having pistons therein a crosshead connected with the elevator cage rope, cylinder ropes loosely passing through the said crosshead and each formed with a stop dog adapted to be seated on the crosshead, and ropes carrying counterbalancing weights, connected with the said stop dogs, substantially as shown and described.

518,492. CAR-COUPLING. WILLIAM DUNLAP, San Diego, Cal., assignor of one-half to Edward M. Reinhardt, same place. Filed Feb. 3, 1894. Serial No. 498,982. (No model.)



Claim.—1. A car coupling, comprising a spring-pressed coupling hook adapted to engage the link, and a slide for locking the said hook in an open position, the said slide being adapted to be engaged by the entering link, substantially as shown and described.

2. A car coupling, comprising a spring-pressed coupling hook provided with two lips, of which one is pressed on by the spring, and a slide provided with a hook adapted to engage the other lip to lock the hook in an open position, the said slide being provided at its forward end with a head adapted to be engaged by the entering link, to shift the slide rearwardly to move its hook out of engagement with the said lip, to permit the hook to close, substantially as shown and described.

3. A car coupling, comprising a spring-pressed coupling hook provided with two lips, of which one is pressed on by the spring, a slide provided with a hook adapted to engage the other lip to lock the hook in an open position, the said slide being provided at its forward end with a head adapted to be engaged by the entering link, to shift the slide rearwardly to move its hook out of engagement with the said lip, to permit the hook to close, a dog pivoted on the said slide and provided with a lug, and a cam adapted to engage the lug of the said dog to impart a forward sliding movement to the said slide, substantially as shown and described.

4. A car coupling, comprising a spring-pressed coupling hook provided with two lips, of which one is pressed on by the spring, a slide provided with a hook adapted to engage the other lip to lock the hook in an open position, the said slide being provided at its forward end with a head adapted to be engaged by the entering link, to shift the slide rearwardly to move its hook out of engagement with the said lip, to permit the hook to close, a dog pivoted on the said slide and provided with a lug, a cam adapted to engage the lug of the said dog to impart a forward sliding movement to the said slide, and means, substantially as described, for operating the said cam from the side of the car, as set forth.

5. A car coupling, comprising a spring-pressed coupling hook provided with two lips, of which one is pressed on by the spring, a slide provided with a hook adapted to engage the other lip to lock the hook in an open position, the said slide being provided at its forward end with a head adapted to be engaged by the entering link, to shift the slide rearwardly to move its hook out of engagement with the said lip, to permit the hook to close, a dog pivoted on the said slide and provided with a lug, a cam adapted to engage the lug of the said dog to impart a forward sliding movement to the said slide, and means, substantially as described, for operating the said cam from the side of the car, and means, substantially as described, for limiting the swinging motion of the said cam, as set forth.

6. A car coupling, comprising a coupling hook mounted to swing and adapted to engage the link, the said coupling link being provided with a lip having a notch, and a spring pressing on the said lip and adapted to engage with its free end the said notch, to lock the hook in a closed position, substantially as shown and described.

7. A car coupling, comprising a coupling hook mounted to swing in the drawhead and adapted to engage the link, a spring pressing on the said hook and formed with a slot, a slide fitted for longitudinal movement in the drawhead and provided with a hook adapted to engage a lip on the said link, the forward end of the said slide being provided with a head adapted to be engaged by the coupling link, a dog pivoted on the said slide and resting with its free end on the said spring, the said dog being provided with a lug extending into the slot in the said spring, and a cam mounted to swing and adapted to engage the said spring and the lug of the said dog, substantially as shown and described.

518,493. FURNACE. AUGUSTUS L. ENGELBACH and SIDNEY E. BRETHERTON, Leadville, Colo. Filed Apr. 6, 1893. Renewed Mar. 6 1894. Serial No. 502,593. (No model.)

Claim.—1. A furnace comprising the fire box, a combustion chamber leading therefrom to the chimney, air pipes E crossing the combustion chamber, a recess opening upwardly into the combustion chamber under the said air pipes and a wheeled settler movable into and out of said recess, substantially as set forth.

2. The settler formed of a cast iron box lined with fire clay and provided on its outer side at its corners with slotted lugs and the wheeled frame L into which the settler fits and provided on its vertical corner uprights with pivoted bolts to swing into the slots of said lugs, substantially as set forth

---

518,494. SASH-HOLDER. JOSEPH W. EVANS, Newburyport, Mass. Filed Sept. 16, 1893. Serial No. 485,669. (No model.)

Claim.—1. In a sash holder the base or body C and the laterally-movable friction-piece D anchored thereto, having the oppositely inclined faces, in combination with a spring-actuated wedge working between said faces and with a lever forming part of the sash lifter suitably connected with and adapted to retract such wedge against the resistance of its spring, substantially as set forth.

2. In a sash-holder, the base or body C, adapted to be secured in the edge of the sash and the laterally movable friction-piece D adapted to bear against the sashway of the casing, said parts having the upwardly-converging dovetailed faces as described, in combination with the dovetailed wedge F engaging with said parts, the spring J serving to press it between them, and with the arm H, stem G and lever L to support and compress said spring and thereby actuate the friction piece, substantially as set forth.

518,495. COOLER FOR CINDER-NOTCHES. SAMUEL R. FELLOWS, Hubbard, Ohio. Filed Dec. 2, 1893. Serial No. 492,610. (No model.)

Claim.—1. In combination with the furnace wall having an opening therein, an annular channel in the brick work around said opening, a thimble located in said channel having a closed inner end and an open outer end, and a supply pipe for directing a spray into said thimble.

2. In combination, with the furnace wall and jacket having an opening through the same, the annular thimble having double walls of different length with its outer shorter wall secured to the hearth jacket, a guard plate secured to the longer wall and also having bolt connection with said jacket, and a supply pipe placed over the extended wall of the thimble and having perforations for directing the spray into the thimble, substantially as described.

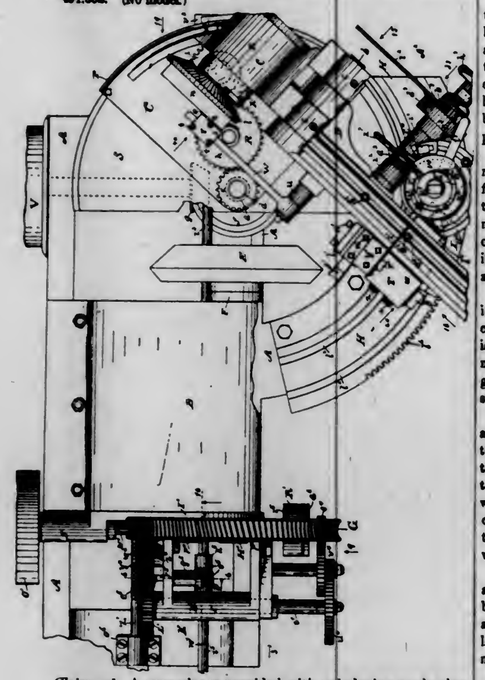
518,496. MEANS FOR OPERATING ELEVATOR-LEGS. JAMES H. FINLEY, Buffalo, N. Y., assignor of one-half to George S. Gatchell, same place. Filed Oct. 11, 1893. Serial No. 487,817. (No model.)

Claim.—1. An apparatus for operating elevator legs comprising an outer frame having guideways, an inner frame seated in said ways and carrying the leg, an operating shaft mounted in said outer frame and passing through the upper part of the elevator leg and through the inner frame, a driving pulley on one end of said shaft, means for vertically adjusting said outer and inner frames, and means for laterally adjusting the inner frame and the leg carried thereby.

2. Means for operating an elevator-leg comprising a stationary frame work, an outer frame adapted to move on guides in said stationary frame, an inner frame slidable on ways on the last named frame and carrying the leg, a drive shaft mounted in the outer frame, passing through the upper portion of the leg, and adapted to drive the conveyer in the leg, and means connected with one side of the inner frame for adjusting said frame laterally.

3. Means for operating an elevator-leg comprising an outer frame, an inner frame in which is mounted the leg, means for vertically adjusting the said frames and the leg carried thereby, a slotted socket mounted on one side of the inner frame, a screw-threaded bearing having a hinged portion and mounted on the outer frame, and a screw-threaded rod having a flanged end seated in said socket and its outer portion in the screw-threaded bearing.

518,497. AUTOMATIC GEAR-PLANER. WILLIAM GLEASON and JAMES R. GLEASON, Rochester, N. Y. Filed Nov. 24, 1893. Serial No. 491,852. (No model.)



Claim.—1. A gear planer provided with an indexing mechanism and a detent or stop for said mechanism, in combination with a pivotal turret, an arm carrying the cutting tool held by the turret, and means to give the turret a retrograde motion and actuate said detent or stop, substantially as shown and described.

2. A gear planer provided with an indexing mechanism, in combination with a pivotal turret, an arm carrying the cutting tool, held by the turret, mechanism to turn the turret to move the tool backward, a detent for the indexing mechanism, and a trip arm carried by the turret to actuate the detent, substantially as shown and described.

3. A gear planer having an indexing mechanism and a detent therefor, in combination with a pivotal turret, an arm carrying the cutting tool, held by the turret, a feed mechanism to turn the turret in one direction, a pull-back mechanism to turn the turret in an opposite direction, and a trip for the detent operated by the pull-back mechanism, subtantially as shown and described.

4. An automatic gear planer having an indexing mechanism and a detent therefor, in combination with a continuously-rotating friction wheel to drive the indexing mechanism, and means to operate the detent, substantially as shown and described.

5. An automatic gear planer having an indexing mechanism consisting of a driving shaft and a worm and intermediate gearing connecting said shaft and worm, an adjuster for the work interposed between said shaft and the worm and connected with both by said intermediate gearing, said adjuster consisting of two parts joined, one part adapted to turn the worm and the other part adapted to be turned by the shaft, said parts of the adjuster being adapted to be turned independently of each other, substantially as shown and described.

6. An automatic gear planer comprising an indexing mechanism having a rotatory gear L' provided with a stop, a spring-pressed bolt adapted to engage said stop, a shaft adjacent to said gear, and an arm on the shaft adapted to operate said spring-pressed bolt, and means to turn the shaft, substantially as shown and described.

7. An automatic gear planer comprising an indexing mechanism having a rotatory gear L' provided with a stop, a spring-pressed bolt adapted to engage said stop, a shaft adjacent to the gear, and an arm on the shaft adapted to operate said bolt, and means to turn the shaft, said arm being adapted to turn with the shaft but to slide longitudinally thereon, substantially as and for the purpose specified.

8. An automatic gear planer having a turret or body C supporting parallel shafts d^3 and c^4 connected by gearing adapted to cause them to turn with unequal velocities, a crank arm adapted to be placed upon either shaft, and means to rotate said shafts, substantially as shown and set forth.

9. A gear planer having a frame, a pivotal turret supported by the frame, a tool-carrying arm held by the turret, a horizontal base block adapted to be made rigid relative to the frame, a base plate adapted to slide upon the base block, a feed mechanism controlling the tool-carrying arm, rigid with the base plate, a weighted lever connected with the base block and with the parts supported by the latter, the feed mechanism serving to move the parts upon the base block in one direction and the weighted lever adapted to move said parts in the opposite direction, substantially as shown and described.

10. A gear planer having a frame, a horizontal toothed segment rigid with the frame, a shiftable base block held by the segment, a feed mechanism held by the base block, a tool-carrying arm controlled by the feed mechanism, a toothed pinion held in bearings beneath said arm rigid with the base block adapted to engage the teeth of the segment, said pinion being adapted to move the base block with its superincumbent parts along the segment, substantially as shown and described.

11. A gear planer having a pivotal turret and a rigid base block, in combination with a feed mechanism held by the base block, a tool-carrying arm held by the turret and controlled by the feed mechanism, the base block being formed with a series of gear teeth, the feed mechanism having a vertical rotatory post, a pinion on the post to engage the teeth of the base block, and means to turn the post, substantially as shown and described.

12. A gear planer having a toothed base block and a base plate adapted to slide thereon, in combination with a feed stand rigid with the base plate, a rotatory post held by the stand, a pinion on the post to co-act with the base block, a toothed worm gear on the post, a toothed rocker held to turn with the post and adapted to engage the worm gear, a tilter for the rocker, a toothed relief lever on the post co-acting with the rocker, a notched plate over the lever rigid with the post, and a stop or actuator for said lever, and means to turn the worm gear, substantially as shown and described.

13. A gear planer having an indexing mechanism, a feed mechanism, a tool-carrying arm controlled by the feed mechanism, a pull-back mechanism for the arm, a detent for the indexing mechanism, and a trip for the detent operated by the pull-back mechanism, the latter acting upon the arm in advance of the action of the indexing mechanism, substantially as shown and described.

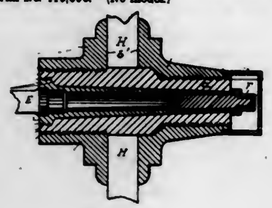
14. A gear planer having a pivotal turret, a tool-carrying arm held by the turret, a stationary base block, a feed mechanism held movably upon the base block and controlling said arm, a weighted lever connected with the base block and with the mechanism upon the latter, and a dash pot or buffer for the lever, substantially as and for the purpose specified.

15. A gear planer having a pivotal turret, a shaft c^4 held by the turret, a crank arm on the shaft, a tool-carrying arm held by the turret, a tool-carrying reciprocating slide in said arm, and an adjustable connecting bar for said crank arm and the tool-carrying slide, and means to turn the crank arm, substantially as shown and described.

16. An automatic gear planer having a frame and an indexing mechanism supported thereby, a detent for the indexing mechanism, a pivotal turret supported by the frame, an actuator for the detent controlled by the turret, said actuator being at one end of the frame and the indexing mechanism at the opposite end of the frame, with a shaft to connect the actuator and the indexing mechanism, substantially as shown and described.

17. A gear planer having a toothed base block, in combination with a feed stand supported by the base block, a rotatory post in the feed stand, a pinion on the post to co-act with the base block, a worm gear on the post, a rocker held by the post to turn therewith and adapted to engage the worm gear, a tilter for the rocker, a toothed relief lever over the rocker, a notched plate rigid with the post co-acting with the lever, a yielding stop for the lever, and means to turn the latter against said stop, substantially as shown and described.

518,498. METALLIC HUB. JOHN H. GRAY, Elwood, Nebr., assignor of one-half to Rolland H. Bouck, Jackson, Mich. Filed Dec. 24, 1891. Serial No. 416,090. (No model.)

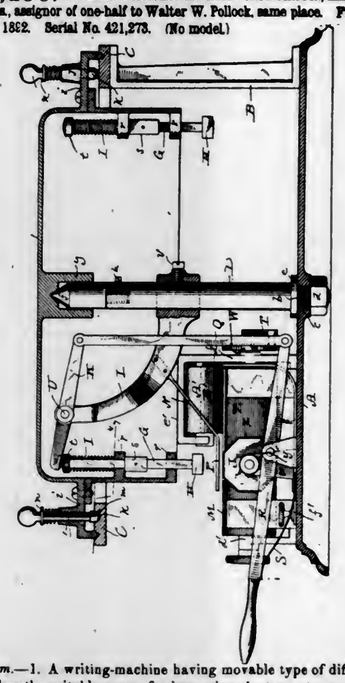


Claim.—1. A hub consisting of the two clamping sections, the spokes fitting between the flanges thereof, the sleeve fitting in the sections, the collar surrounding the sleeve, the washer adjacent to the sleeve, the spokes resting against the sleeve and collar and the skein in the sleeve.

2. A hub consisting of the two clamping sections, the spokes secured between the flanges of the sections, the beveled sleeve and washer wedging the spokes the sleeve having the reduced and enlarged ends engaging the sections, and the skein fitting in the sleeve and having the threaded shoulder.

3. A hub consisting of the clamping sections, the spokes between the same, the sleeve fitting in the clamping sections, and the collar and washer serving as wedges for the spokes, as described.

518,499. WRITING-MACHINE. ELLSWORTH GRIFFIN, Milwaukee, Wis., assignor of one-half to Walter W. Pollock, same place. Filed Feb. 12, 1892. Serial No. 421,273. (No model.)



Claim.—1. A writing-machine having movable type of different reading lengths, suitable means for impacting the type at a common printing point, other suitable means for regulating the travel of each type in proportion to its reading length, a paper support, and a variable spacing-mechanism cooperative with the type, substantially as set forth.

2. A writing-machine having movable type of different reading lengths, suitable means for regulating the travel of each type in proportion to its reading length, a paper support and feed rollers, a pawl-and-ratchet mechanism governing the movement of the feed-rollers, a platen, an impact device for the type at a common printing point, and a lever-mechanism controlling the pawl and ratchet mechanism and impact device, substantially as set forth.

3. A writing-machine having movable type certain of which express an assemblage of letters forming syllables and words, suitable means for impacting the type at a common printing point, stops arranged to regulate the travel of each type in proportion to its reading length, a variable spacing mechanism cooperative with the type, a paper support, and a platen, substantially as set forth.

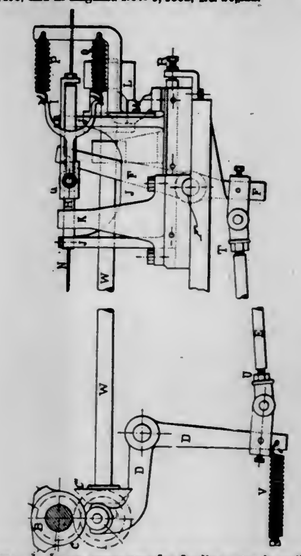
4. A writing machine having a pivotal shell, a series of type that are movable on the shell and having different reading lengths, suitable means for regulating the travel of each type in proportion to its reading length, an impacting-mechanism for the type, a variable spacing-mechanism cooperative with said type, a paper support, and a platen, substantially as set forth.

5. A writing-machine having a horizontal circular track recessed at a certain point, a vertical center post provided with an adjustable section in the form of a bearing, a rotative shell supported on the bearing and provided with a flange movable on the track, spring-controlled stop-pins carried on the flange, a series of type-bars loose on the shell, an impacting-mechanism for the type-bars, suitable mechanism for automatically returning said type-bars to their normal position after impact, a paper support, and a platen, substantially as set forth.

6. A writing-machine having a center-post provided with an arm, a shell having pivotal connection with the post and carrying vertically reciprocative type-bars, an impact-lever fulcrumed on the post-arm and positioned to come over any type-bar brought to the printing point, a hand-lever linked to the impact-lever, a pair of feed-rollers one of which is provided with a ratchet, another lever controlled by the link connecting those aforesaid, and a pawl connected to the latter lever and positioned to engage said ratchet, a paper support, and a platen, substantially as set forth.

7. A writing machine for designating on bank-checks or analogous orders in numerals and letters any amount from one to nine hundred ninety nine thousand nine hundred ninety nine inclusive, the same comprising a series of movable type-embraced in a scheme that essentially consists of the ten characters of the arabic notation, words one, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve; syllables thir, for, fif, teen, twen, hund, ty, red, thous, eigh, and the character $/_{00}$; suitable means for impacting the type at a common printing point, other suitable means for regulating the travel of each type in proportion to its reading length, a paper-support, and a variable spacing mechanism co-operative with the type, substantially as set forth.

518,500. FEEDING MECHANISM FOR WIRE-NAIL-MAKING MACHINES. ALPHONSE GUTTIN, Paris, France. Filed Dec. 2, 1893. Serial No. 453,851. (No model.) Patented in France May 9, 1892, No. 221,468, and in England Nov. 9, 1892, No. 20,223.



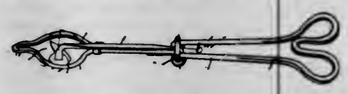
Claim.—1. In an apparatus for feeding wire in nail-making and other like machinery, in which two unequal forward or feed movements are imparted to the wire at each revolution of the drive shaft, the combination with the driving-shaft, of a cam mounted thereon, a bell-crank vibrated by said cam, a lever vibrated by said bell-crank, a movable carriage provided with a fulcrum for said lever, a jaw operated by the lever to clamp the wire upon a jaw on the carriage, and means for varying the amplitude of the movements of said carriage, substantially as described.

2. In an apparatus for feeding wire, the combination with a driving-shaft and with a driven shaft at right angles thereto, of bevel gearing connecting the same, a cam on the driving-shaft, a bell-crank lever vibrated by said cam, a lever vibrated by said bell-crank, a feed-carriage having a jaw to engage the wire, a jaw-actuating lever fulcrumed on said carriage, and connected to the bell-crank lever, and stops for limiting the feed-movement, of the carriage and for varying the amplitude thereof, substantially as described.

3. In an apparatus for feeding wire, the combination with a driving shaft and with a driven shaft at right angles thereto, a bevel gearing connecting the same, a cam on the driving shaft, a bell-crank lever reciprocated by said cam, a lever vibrated by said bell-crank, a feed-carriage having a jaw to engage the wire a jaw-actuating lever

fulcrumed on said carriage, and connected to the bell-crank lever, and a lever fulcrumed upon the support for the feed-carriage, one end of said lever having engagement with a cam-groove formed in a device mounted on the driven shaft, and its other end having an adjustable connection with the movable supports of the feed-carriage, substantially as described.

518,501. FRUIT-PEELING KNIFE. NAPOLEON B. HALE, San Bernardino, Cal. Filed Apr. 24, 1893. Serial No. 471,583. (No model.)

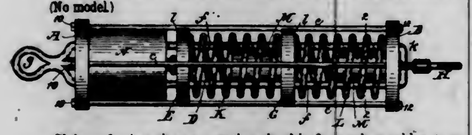


Claim.—1. The fruit peeling knife set forth comprising the combination of the blade guard adapted to rest upon the peel of the fruit and provided with a suitable handle; a peel splitting blade arranged to project below the guard at substantially right angles to the guard and provided on its lower end with a transverse peel severing blade arranged substantially parallel with the guard and projecting upon each side of the splitting blade and having its other end provided with the spring shank attached to the handle upon the upper side thereof.

2. The joint set forth comprising the two guard members each having its rear end respectively formed into a loop arranged at substantially right angles to such members and to respectively encircle the members of the handle; the two handle members each respectively arranged in one of the loops of the guard members and bent to form a loop arranged to encircle the lower portion of its respective loop of the guard members.

3. The fruit peeling knife set forth comprising the combination of the blade guard adapted to rest upon the peel of the fruit and provided with a suitable handle; a peel splitting blade arranged to project below the guard at substantially right angles to the guard and provided on its lower end with a transverse peel severing blade arranged substantially parallel with the guard and projecting upon each side of the splitting blade and having its other end provided with the spring shank attached to the blade guard, and the tension ring encircling the spring shank and arranged to slide along the guard and shank to increase or diminish the tension or strength of the spring.

518,502. COMBINED SPRING-SHACKLE AND OIL-DISTRIBUTER. ROBERT A. HAMMOND, Provincetown, assignor of one-half to George T. McLaughlin, Sandwich, Mass. Filed June 2, 1893. Serial No. 476,384. (No model.)



Claim.—1. A spring connecting-shackle for anchor-cables, towing-hawsers, &c., composed of a pair of connected heads or ends, each provided with means for attachment to a cable or anchor, combined with a draft-rod and a spring for producing a yielding resistance, and an oil tank or reservoir arranged between said heads or ends, said reservoir being provided with a discharge-valve connected with and adapted to be opened by said draft-rod to permit the oil to escape when a predetermined compression of the spring has been effected; all constructed to operate substantially as and for the purpose set forth.

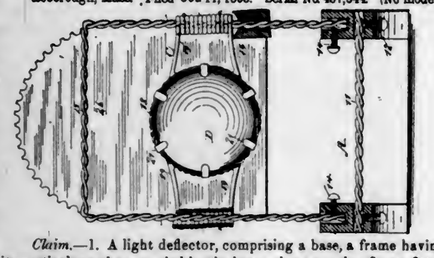
2. In a spring-shackle, the combination of the heads A, B, connected by the rods *c*, the central rod or bar D and the rods *f*, said bar and rods being welded together at one end to form an eye *g* outside the head A, the disks E, G, adapted to slide upon the rod D, the draft-rods *m*, secured to the disk E and passing through holes in the disk G and head B, and united outside the latter into a draft-eye H, and the springs K, L, the former placed between the disks E and G, and the latter between the disk G and head B, all operating substantially as described.

3. In a spring-shackle, the combination of the heads A, B, connected by the rods *c*, the central rod or bar D and the rods *f*, said bar and rods being welded together at one end to form an eye *g* outside the head A, the disks E, G, adapted to slide upon the rod D, the draft rods *m*, secured to the disk E and passing through holes in the disk G and head B, and united outside the latter into a draft eye H, the springs K, L, the oil tank or reservoir N provided with valves connected with and adapted to be operated by the disk E when the springs are compressed by strain or draft upon the shackle, and the outer casing P, all constructed and arranged to operate substantially as set forth.

4. In a spring-shackle, the combination, with the heads A, B, rods *c*, *f*, D, for connecting the same, the disk E adapted to slide on the rod D, the draft rods *m*, and a spring, of the oil reservoir N provided with a central passage *r* for the rods D, *f*, said passage having walls *s* provided with outlet apertures *w*, and the slide valves *d* attached to the sliding disk E and adapted to normally lap or extend beyond said outlet apertures *w*, substantially as and for the purpose set forth.

5. In a spring-shackle, the combination of the heads A, B, connected by the rods *c*, *f*, and the central rod D, the draft rods *m*, the disks E, G, the springs K, L, and the rubber buffers M, encircling the rod D and applied to the disk G and head B, substantially as described.

518,503. LIGHT-DEFLECTOR. DEXTER E. HAWKINS, North Attleborough, Mass. Filed Oct. 11, 1893. Serial No. 487,844. (No model.)



Claim.—1. A light deflector, comprising a base, a frame having its vertical members carried by the base, a lens carrying frame fitted to slide on the said vertical members of the said frame, means for vertically adjusting said lens carrying frame, and an apertured shield secured to the frame in rear of the lens, substantially as described.

2. A light deflector, comprising a base consisting of legs and a cross bar connecting the legs, a frame having its vertical members detachably secured to the base, a lens carrying frame mounted to slide on the vertical members of the said frame, means for adjusting the lens carrying frame vertically, and an apertured shield secured to the rear of the frame, substantially as described.

3. In a light deflector, the combination with a base, of a frame having its vertical members threaded and secured to the base, a lens carrying frame provided with sleeves loosely encircling the vertical members of the said frame, and a nut on one of the said vertical members, substantially as described.

4. In a light deflector, the combination with a base, of a frame formed of twisted wires and having its vertical members provided with threads formed by twisting the wires together and secured to the base, a lens carrying frame provided with sleeves loosely encircling the vertical members of the frame, and a nut on one of the vertical members of the said frame, substantially as described.

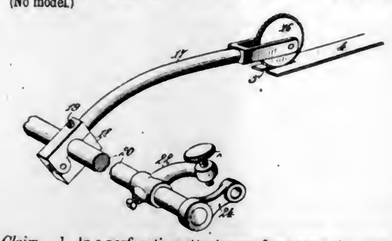
518,504. TWINE-BOX. JOHN W. HERRIOTT, Hubbell, Nebr. Filed Dec. 10, 1892. Serial No. 454,763. (No model.)



Claim.—1. A twine holder comprising a frame adapted to be suspended from its upper end, a laterally extending arm rigidly attached at its inner end to the upper portion of the frame and having a cord guide at the outer end, a weight at the lower end of the frame to give stability and steadiness to the structure, a twine box supported on the frame between the said arm and the weight, a spool supported by and located within the said weight and a weighted cord for automatically returning the twine box to a normal position after being turned by drawing off a quantity of cord and on releasing the end of the latter, substantially as described.

2. A twine holder composed of a frame adapted to be suspended from its upper end, a weight at the lower end of the frame to steady and give stability to the structure, a twine box supported between the upper and the lower portions of the frame above and journaled in the said weight, a spool on the journal of the twine box located within the said weight, a weighted cord adapted to wind on the said spool to return the box to a normal position, and a guide arm attached to the upper end of the said frame and having its outer end bent down and provided with a guide eye for the cord, substantially as described.

518,505. PERFORATING MECHANISM FOR CYLINDER PRINTING-PRESSES. EUGENE KELLNER, Waco, Tex., assignor of one-half to Foster W. Fort, same place. Filed July 28, 1893. Serial No. 481,756. (No model.)



Claim.—1. In a perforating attachment for presses, the combination of a series of slotted feed tongues, a rock-shaft provided with arms, a perforating wheel mounted on one of said arms and adapted to work in the slot of one of said feed tongues, a set screw supported by another of said arms to adjust the pressure of the perforating wheel, a spring to draw down the perforating wheel as far as the adjustment of the set screw will permit, and a series of adjustable feed guides arranged to rest on the other slotted feed tongues, substantially as described.

2. In a perforating attachment for printing presses, the combination with the impression cylinder, of a rock shaft having an arm, a perforating wheel mounted on said arm, a crank on the rock shaft, a lever pivoted to the press frame, a rod connecting said crank and lever, a roller mounted on said lever, and a cam located on the cylinder shaft and adapted to act on said roller to actuate the lever and its connections with the rock shaft for the purpose of lifting the perforating wheel at intervals, substantially as described.

3. In a perforating attachment for printing presses, the combination of an impression cylinder, a rock shaft having arms 17 and 22, a perforating wheel mounted on one of said arms, a set screw 23 supported by the other arm and having a fixed bearing against a portion of the press frame to regulate the pressure of the perforating wheel, a crank arm 24 on the rock shaft, a cam 28 on the cylinder shaft, lever connections between said cam and crank arm to cause the lifting of the perforating wheel at intervals, and a spring 30 to draw down the perforating wheel, substantially as described.

4. In a perforating attachment for printing presses, the combination with the impression cylinder, and the feed board, of a slotted feed tongue, and a perforating wheel having a central circumferential series of teeth and provided on both sides with annular rims or shoulders, the teeth of said wheel being arranged to work in the slot of the feed tongue while the wheel rims or shoulders bear on the tongue at the sides of said slot, substantially as described.

5. In a perforating attachment for printing presses, the combination with the impression cylinder and feed board, of a series of slotted feed tongues, a perforating wheel having a central circumferential series of teeth adapted to work in the slot of one of said feed tongues, said wheel provided with annular rims or shoulders to bear on the tongue at opposite sides of the slot therein, an arm on which said wheel is mounted, and a shaft on which said arm is adiustably supported, substantially as described.

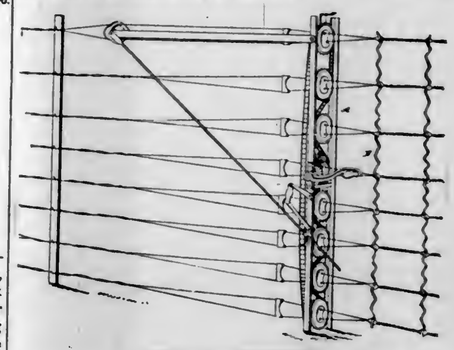
6. In a perforating attachment for printing presses, the combination with the impression cylinder and feed board, of a series of slotted feed tongues, a perforating wheel adapted to work in the slot of one of said feed tongues, a laterally adjustable support for said perforating wheel to bring it into operative relation with either slotted feed tongue, means for regulating the pressure of the perforating wheel, and adjustable feed guides arranged to rest on the other feed tongues, substantially as described.

7. In a perforating attachment for printing presses, the combination with the impression cylinder and feed board, of a slotted feed tongue, a sectional perforating wheel having a removable segment, and a spring for returning said wheel to its initial position, substantially as described.

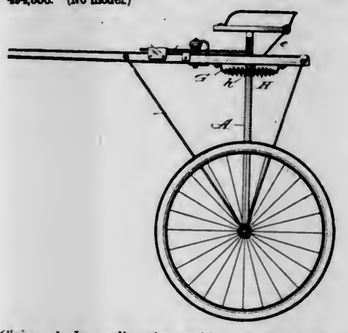
518,506. WIRE FENCE. JOHN LANE and CORNELIUS LANE, Holly, Mich. Filed July 18, 1893. Serial No. 480,804. (No model.)

Claim.—1. In a wire fence, the combination of corrugated metal pickets, and two or more longitudinal strands composed of double wires, each wire of said strands being drawn into the corrugations upon opposite sides of the picket by the operation of twisting, and each strand being reversely twisted upon the picket with reference to any adjacent strand substantially as described.

2. A wire fence composed of two or more longitudinal strands of wires, each strand composed of two wires, said strands engaging metal pickets having corrugations transversely to the lines of the strands, each wire of the strands being drawn into either side of the corrugations respectively and locked therein by the twisting, the strands being alternately twisted upon the pickets from right to left and left to right, substantially as described.



518,507. SULKY. WILLIAM F. LIMPUS and SHERMAN E. LIMPUS, Alpine, Ind. Filed Apr. 20, 1893. Renewed Dec. 21, 1893. Serial No. 494,358. (No model.)



Claim.—1. In a sulky, the combination of an axle having thills or shafts pivotally connected thereto, and stirrups attached to the axle and held in movable engagement with the thills, for the purpose set forth.

2. In a sulky, the combination of the arched axle carrying a seat, thills connected to the axle by rods so that the axle and thills will be held in pivotal engagement with each other, and stirrups or foot-rests secured at one end to the axle and held in movable engagement with the thills, substantially as shown, and for the purpose set forth.

3. In a sulky, the combination with the thills and axle pivotally connected to each other and provided with bent bars forming stirrups, one of the ends of said bars being held in rigid engagement with the axle while the other ends enter sockets carried by the thills, and springs for limiting the swinging or pivotal movement of the thills with respect to the axle, for purpose set forth.

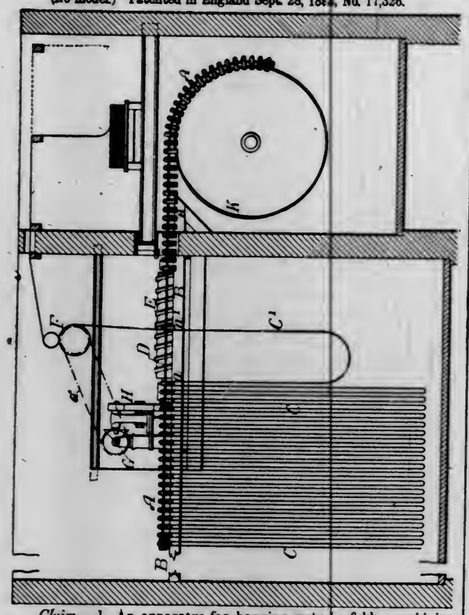
4. In a sulky, the combination of an arched axle having at its lower ends spindles upon which the supporting wheels are mounted, brace-rods extending from the lower ends of the axle to the thills on each side of the axle, springs carried by the thills and means for connecting the axle with said springs to limit the swinging movement of the axle and thills with respect to each other, substantially as shown.

5. In a sulky, the combination of an axle carrying a seat and having supporting wheels connected thereto, rods or bars pivotally connecting the thills to the axle, said thills carrying a bar which is encircled by a spring, and means for holding the axle in engagement with said bar and spring, for the purpose set forth.

6. In a sulky, the combination of an axle having supporting wheels and seat, bars carried by the thills, said bars being provided with springs, loops attached to the axle and adapted to encircle the bars carried by the thills and engage with the springs on said bars, substantially as shown, and for the purpose set forth.

7. In a sulky having the thills pivotally connected to the axle, bars carried by the thills, springs encircling said bars, and a staple or loop attached to the axle and adapted to engage with the springs, each spring being made of a single piece with the central part of which the loop engages, so that both end portions of the spring will act upon the loop, one of the end portions being compressed while the other is expanded.

518,508. APPARATUS FOR HANGING WEBS IN FOLDS IN DRYING-CHAMBERS. WILLIAM MATHER, Manchester, England, and JOHN CHRISTIE, Alexandria, Scotland, assignors to Mather & Platt, Limited, Manchester, England. Filed Aug. 1, 1893. Serial No. 482,107. (No model.) Patented in England Sept. 28, 1892, No. 17,326.

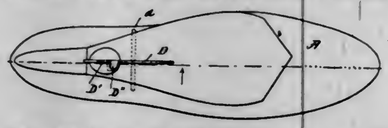


Claim.—1. An apparatus for hanging webs in folds, combining in its structure a chamber provided with parallel supports D located at its opposite sides, a series of parallel spars A crossing the said chamber, and each having its opposite ends engaged with and movable upon the said supports, mechanism arranged above the spars for hanging a web in folds between the same, and advancing mechanism acting upon opposite ends of the spars for moving each spar in turn up to and to take the place of the preceding spar after a fold of the web is hung down between two adjacent spars, substantially as described.

2. An apparatus for hanging webs in folds, combining in its structure a chamber having parallel supports D located at its opposite sides, a series of parallel spars A crossing the said chamber and each having its opposite ends engaged with and movable upon the said supports, means for hanging a web in folds between the spars, advancing mechanism acting upon the opposite ends of the spars for moving each spar in turn up to and to take the place of the preceding spar after a fold of the web is hung down between two adjacent spars, and a drying chamber into which the empty spars are successively delivered when the web is being removed therefrom, substantially as described.

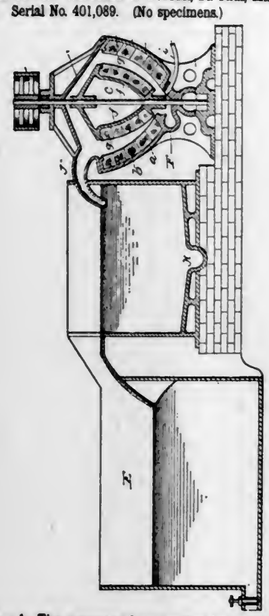
3. The combination with a drying chamber, of a pair of flanged drums, a series of spars having hooks for engaging the flanges of the drums, and inclined side guides for the ends of the spars, substantially as described.

518,509. LAST-BLOCK FASTENER. CLARENCE W. MOORE, Peabody, Mass. Filed Nov. 21, 1893. Serial No. 491,548. (No model.)



Claim.—The combination with a last having a recess C in its upper side, and a removable last block B provided at its upper end portion with a tooth *b*, and a vertically arranged orifice F, of a lever D pivoted in the recess of the last and having a hooked upper end D′ to engage said tooth, and a laterally projecting lip or ear D″ arranged coincident with the said orifice so that an instrument inserted through the latter will act on the lip or ear to disengage the hooked end of the lever from the tooth, and a spring E having one end secured to the lever and the other end bearing against the bottom wall of the recess for moving the hooked end of the lever upward into engagement with the tooth, substantially as shown and described.

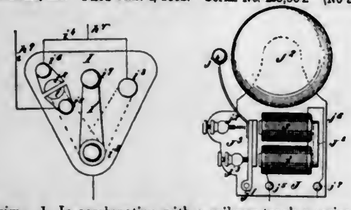
518,510. PROCESS OF EXTRACTING IMPURITIES FROM HEMATITE ORES. WINFIELD S. POTTER, St. Paul, Minn. Filed July 29, 1891. Serial No. 401,089. (No specimens.)



Claim.—1 The process of extracting impurities from hematite ores, consisting, first in reducing the ores to grains, of the size of coarse sand, triturating the ores in the presence of water to reduce the particles of ferric oxide to a smooth paste, subjecting the whole mass to a hot water bath, stirring or agitating the same therein, drawing off the water, and permitting the same to stand until the iron oxide settles therein and then drawing off the water therefrom, as set forth.

2. The process hereinbefore described of treating hematite ores to separate the oxide of iron from impurities which consists, first in crushing or reducing the ores to a coarse sand, triturating the reduced ores in the presence of water between yielding surfaces to a smooth paste without disintegration of the impurities, immersing the whole mass in boiling water and agitating the same, drawing off the water and allowing the same to stand until the ferric oxide settles therein, and then drawing off the water from the settlings, substantially as set forth.

518,511. ELECTRIC RAILWAY-SIGNAL. BENJAMIN F. REX, St. Louis, Mo. Filed Mar. 4, 1892. Serial No. 423,804. (No model.)



Claim.—1. In combination with a railway track a series of two or more conductors of electricity insulated from each other and arranged in blocks, each block having a separate conductor extending substantially from one end of the block to the other, with the track, and a motor, on said track within the limits of one of said blocks, having connected and movable with it, an electric alarm electrically connected with the conductor of the block on which the motor is, an automatic circuit breaker and one or more contact parts connected and movable with said motor, in contact with the conductor of said block independently of the contact of the alarm connection and conducting an intermittent current of electricity to said conductor, substantially as described.

2. In combination with a railroad track, a series of two or more conductors of electricity, insulated from each other, and arranged in blocks, each block having a separate conductor extending substantially from one end of the block to the other, with the track, and a motor on said track having connected and movable with it a contact breaker, making and breaking contact at intervals automatically, and an electric alarm, both said contact breaker and said alarm being independently connected with the conductor of the block on which the motor is, substantially as described.

3 In combination with a railroad track, a series of two or more conductors of electricity, insulated from each other and arranged in blocks, each block having a separate conductor extending substantially from one end of the block to the other, and two or more motors on said track, each having connected and movable with it, a contact breaker making and breaking contact automatically at intervals, and an electric alarm, both connected with the conductor of the block on which the motor with which they move is, and said contact breaker making and breaking contact non-synchronously.

4. In combination with a railroad track, a series of two or more conductors of electricity, insulated from each other and arranged in blocks, each block having a separate conductor extending substantially from one end of the block to the other with the track and each block having at or near one or both ends an electric signal connected with the conductor of the block, and two or more motors on the track, each motor having connected with it and movable with it, a contact breaker making and breaking contact automatically at intervals, and an electric alarm, each connected with the conductor of the block on which the motor with which it is movable is, and said contact breakers making and breaking contact non synchronously substantially as described.

5. In combination with a railroad track, a series of two or more conductors of electricity, insulated from each other and arranged in blocks, each block having a separate conductor of electricity extending substantially from one end of the block to the other, with the track and two or more motors on said track, each having connected and movable with it an automatic contact breaker, making and breaking contact automatically at intervals, and an electro-magnetic single tap alarm, and each of said contact breakers and alarms being electrically connected with the conductor of the blocks on which the motors with which they are respectively movable are, and said contact breakers making and breaking contact non synchronously substantially as described.

6. In combination with a railroad track, a series of conductors insulated from each other and arranged in blocks, each block having a separate conductor running substantially from one end of the block to the other, with the track and a motor on said track, having connected and movable with it a contact breaker making and breaking contact automatically at intervals, and an electric alarm, and said contact breaker and alarm being connected with separate movable contact parts and by them with the conductor of the block on which the motor is, substantially as described.

7. In combination with a railroad track, a series of conductors insulated from each other and arranged in blocks, each having a separate conductor running substantially from one end of the block to the other with the track, and a motor on said track having connected and movable with it a contact breaker and an electric alarm each connected with the conductor of the block on which such motor is, and a resistance coil interposed between said alarm and block conductor, substantially as described.

8. The combination of a conductor, a trolley wheel in contact with it, a stirrup supporting said wheel and allowing it lateral play, and a spring connecting said stirrup to its support, substantially as described.

9. In combination with the trolley *f*, a housing supporting and inclosing the same and brushes pivoted to the lower outside edges of said housing, substantially as described.

10. The combination in a contact breaker of a row of contact pieces and a hand having a contact wheel attached to it by a universal joint and making contact with said contact pieces when said hand is caused to revolve.

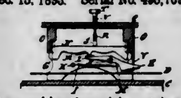
11. The combination in a contact breaker of a dial having arranged thereon a row of contact pieces, the contact wheel H^3 connected with a hand by a universal joint and said hand being flexible and movable upon and attached to its pivot substantially as described.

12. The combination of a contact breaker of two or more sets of contact pieces each set insulated from the other except when connected by a movable part of a switch, and each set being connected together by one or more conductors of electricity, a switch having two or more contact parts and a movable lever or other part making contact with different contact parts in different positions, and a movable contact part making contact when moved, with the contact pieces of said contact breaker substantially as described.

13. In combination with a railroad track, a series of two or more conductors of electricity insulated from each other and arranged in blocks, each block having a separate conductor extending substantially from one end of the block to the other with the track, a stationary object or mark, at or near each end of each block marking its termination, and two or more motors on said track, each supplied with a contact breaker making and breaking contact automatically at intervals and an electric alarm, both electrically connected with the conductor of the block on which the motor is, and said contact breakers making and breaking contact non synchronously substantially as described.

14. The combination of a railroad track, a conductor of electricity fastened in place and running with said track, a motor on said track, means for generating a current of electricity, a contact breaker making and breaking contact automatically at regular intervals, an electric alarm, and a resistance coil, located between said conductor and said alarm, and said means for generating a current being connected with said contact breaker and both said contact breaker and alarm being electrically connected with said conductor, and said contact breaker, alarm and resistance coil being attached to and movable with said motor substantially as described

518,512. HARP. WALTER J. RICHIE, Lima, Ohio, assignor, by mesne assignments, to the C. F. Zimmermann Company, Dolgeville, N. Y. Filed Dec. 15, 1893. Serial No. 493,769. (No model.)



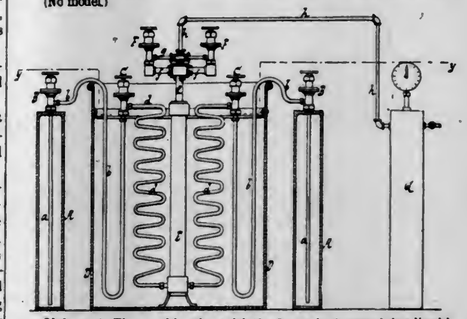
Claim.—1. The combination with a stringed instrument, of a series of pivoted, rocking dampers, springs acting on the dampers and normally holding them in contact with the strings of the instrument, slides movable to and from the dampers and having fingers acting thereupon to rock them out of contact with the strings when said slides are pressed toward said dampers, means for guiding the slides in their movements, spring-retracted keys arranged at one side of the slides, and devices acted on by the keys for moving the slides and causing their fingers to move the dampers out of contact with the strings, substantially as described.

2. The combination with a stringed instrument, of a series of pivoted dampers having tail pieces, springs acting on the dampers and normally holding them in contact with the strings, vertically movable slides having fingers for acting on the tail pieces of the dampers to move the latter out of contact with the strings, vertically movable bars exteuding over the said slides and adapted to engage and depress the latter to rock the dampers and move them out of contact with the strings, and spring pressed keys for actuating said bars, substantially as described.

3. The combination with a series of dampers, of releasing fingers for the dampers, an actuating bar provided with lugs S made to act on a portion of the fingers and to leave the remaining fingers unactuated, and a key for the actuating bar, substantially as described.

4. The combination with a series of dampers, of releasing fingers for the dampers, slides from which the fingers extend, an actuating bar for the slides, and a key for actuating the bar substantially as described.

518,513. APPARATUS FOR DISTRIBUTING CARBONIC ACID. EMIL RUEFF, New York, N. Y. Filed Apr. 13, 1893. Serial No. 477,230. (No model.)



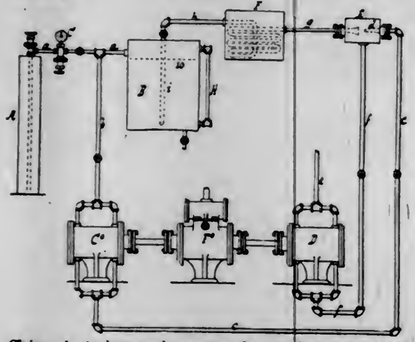
Claim.—1. The combination with the fountain A containing liquid carbonic acid and with the gas distributer G of a heating tank D, a pressure regulator C, a pipe *b* connecting the fountain A′ with the pressure regulator C and extending down into the heating tank D, a receiver E situated in the heating tank, a pipe *d* extending from the gas regulator C to the receiver E, a pressure regulator F and connec-

tions between this pressure regulator, the receiver E and the distributer G substantially as described.

2. The combination with the fountain A and with the gas distributer G of a heating tank D, a pressure regulator C, a pipe *b* extending down into the heating tank and forming the connection between the pressure regulator C and fountain A, a receiver E situated in the heating tank, a serpentine pipe *d* extending from the pressure regulator C to the bottom part of the receiver E, a pressure regulator F and connections between this pressure regulator, the receiver E and the distributer G substantially as described.

518,514. APPARATUS FOR CHARGING LIQUIDS WITH GAS.

EMIL RUKFF, New York, N. Y. Filed Apr. 13, 1893. Serial No. 470,231. (No model.)

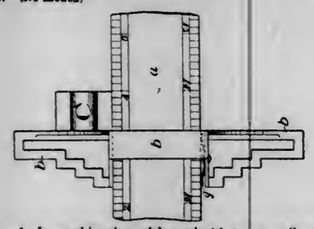


Claim.—1. An improved apparatus for aerating or charging liquids with gas, which is composed of a fountain A, a receptacle B, connections between the fountain and the receptacle, a gas pump C', and a mixing chamber E, connection between the receptacle and the gas pump and between the gas pump and the mixing chamber, a liquid pump D, a liquid supply pipe *e* connected to this pump, a delivery pipe *f* leading from this pump to the mixing chamber and connection between the mixing chamber and the said receptacle, substantially as described.

2. An improved apparatus for aerating or charging liquids with gas which is composed of a fountain A, a receptacle E, connections between the fountain and the receptacle, a gas pump C' and a mixing chamber E, connection between the receptacle and the gas pump and between the gas pump and the mixing chamber, a liquid pump D, a liquid supply pipe *e* connected to this pump, a delivery pipe *f* leading from this pump to the mixing chamber, the aerating chamber F and connections between the mixing chamber and aerating chamber and also between the aerating chamber and the receptacle B substantially as described.

518,515. HAND PRINTING DEVICE.

RICHARD H. SMITH and WILLARD F. TRIPP, Springfield, Mass. Filed June 15, 1893. Serial No. 477,679. (No model.)



Claim.—1. In combination with a suitable beam or line former to use with hand printing type, the combined square, type guide and spacer, constructed to slide thereon, and adjustable feet substantially as and for the purposes described.

2. In a hand printing device the combination of a beam having one or more grooves in its lower face, with a foot provided with one or more projections to enter and slide in said grooves substantially as shown.

3. The combination in a hand printing device of a beam and a movable guide to slide thereon, the latter being formed of varying widths substantially as and for the purposes stated.

4. The combination in a hand printing device of a beam, a type guide and a movable presser foot, the latter being provided with a yielding lower surface substantially as and for the purposes stated.

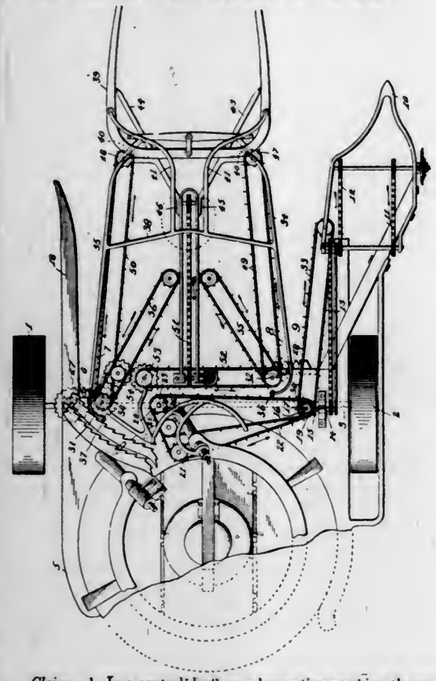
5. In a hand printing device, the combination of a beam or line former having a vertical wall, and a type spacing guide constructed with a vertical wall to move along the vertical wall of the beam at an angle thereto and having its lower surface so raised as not to smear fresh ink prints, substantially as described.

6. In a hand printing device, the combination of a beam or line former, one or more feet with yielding lower surface whereby the beam is raised out of contact with the surface to be printed upon, and a type guide having a vertical wall to move along the vertical wall of the beam at an angle thereto and having its lower surface so raised as not to smear fresh ink prints, substantially as described.

7. In a hand printing device, the combination of a beam or line former and presser feet secured thereon which raise the beam entirely out of contact with the surface to be printed one at least of said presser feet being movable along said beam, substantially as described.

518,516. CORN-HARVESTER.

EZRA E. WITTER, Milford Centre, Ohio. Filed July 27, 1893. Serial No. 481,631. (No model.)

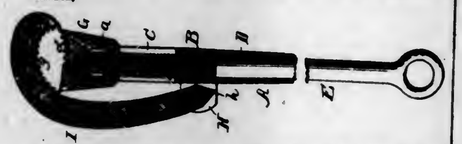


Claim.—1. In a central draft corn harvesting machine, the combination of the main frame having the side entrances for the corn to be cut, the cutting mechanism, the side elevating and gathering devices leading to the said side entrances, the centrally arranged draft-bars secured to the main frame at points on each side adjacent to the entrances and extending forwardly so as to guide the stalks of corn from the sides and center to the said entrances, the thills attached to the draft-bars, elevating and gathering points located between and below the draft-bars and thills for elevating the down corn between the rows, and suitable gathering chains supported in proximity to the draft bars and central elevating points for carrying the corn from the elevating points along the guiding draft-bars to the entrances, substantially as and for the purposes set forth.

2. In a central draft corn harvesting machine the combination of the main frame having the side entrances for the corn to be cut, the cutting mechanism, the side elevating and gathering devices leading to the said side entrances, the centrally arranged draft-bars secured to the main frame at points on each side adjacent to the entrances and extending forwardly so as to guide the corn from both the sides and the center to the said entrances, the thills attached to the draft bars, the centrally supported outwardly diverging elevating points located between and below the draft-bars and thills for elevating the down corn between the rows, and the gathering chains extending from the rear of the central elevating points below the draft-bars to points near the rear ends of and above the draft-bars, for carrying the corn from the central elevating points along the guiding draft-bars to the entrances, substantially as and for the purpose set forth.

518,517. PIPE-WRENCH.

JOHN P. WYNN and THOMAS W. GILLESPIE, Lock Haven, Pa. Filed Jan. 2, 1894. Serial No. 495,452. (No model.)



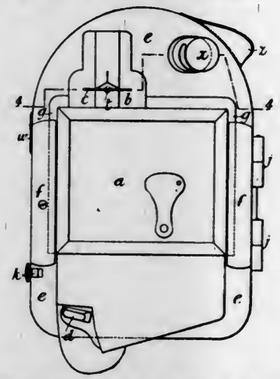
Claim.—1. In a pipe wrench, the combination of the body A, having the lugs C, the sliding jaw G, working within said lugs, the handle E, for advancing and retracting said sliding jaw, and the jaw I pivoted to said body and composed of the curved body *e*, and the sharply curved serrated head, substantially as set forth.

2. In a pipe wrench the combination of the body A, having the neck B, and the parallel lugs C, the internally screw threaded chamber D, in said neck, the handle E, engaging with said chamber, the sliding jaw G, swiveled to said handle and working between the lugs C, and the jaw I, pivoted to said body and working over the face of said sliding jaw, substantially as set forth.

3. In a pipe wrench, the combination with the body A, having the neck B and the lugs C, of the sliding jaw G, working between the said lugs and having a chamber *a*, and opening *b*, therein, the handle *e*, screw threaded within the neck B, and extending through the opening *b*, in the sliding jaw G, the cap *c*, on the end of the handle E, within the chamber *a*, and the jaw I, pivoted to the body A, and working over the face of the sliding jaw G, substantially as set forth.

518,518. TICKET-PUNCH.

JOHN M. BLACK, London, England. Filed Mar. 23, 1893. Serial No. 467,279. (No model.)



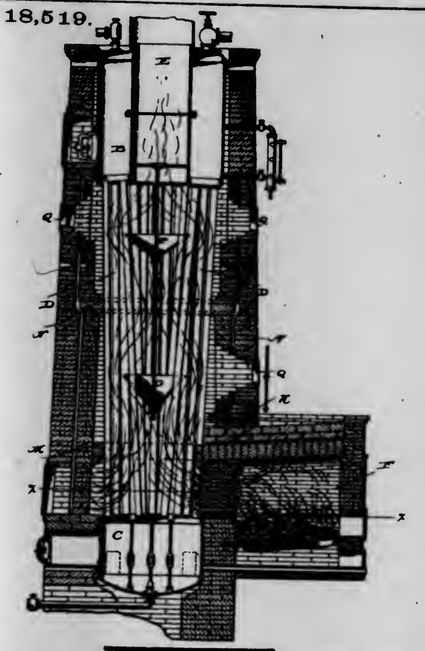
Claim.—The combination with a ticket-punching apparatus of an electric lamp and an accumulator carried in a casing adapted to be connected with and disconnected from the casing of the punching apparatus, and a spring-rod projecting into the ticket-slot of the punching apparatus and adapted, when pressed by the introduction of a ticket into the said slot, to complete the circuit of the lamp, substantially as described.

518,519. STEAM-BOILER.

JOHN CAHALL, Mansfield, Ohio, assignor to H. E. Cahall and W. H. Cahall, same place. Filed Nov. 11, 1893. Serial No. 490,653. (No model.)

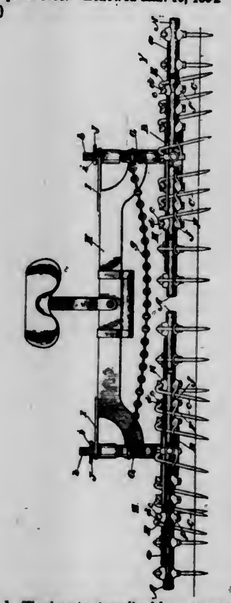
Claim.—1. The combination with a vertical water tube boiler, and a furnace situated at one side of the boiler and having its bridge wall provided with the upright deflector which forms divergent flame passages between said furnace and the boiler, of the deflector M on the inside of the vertical boiler and substantially level with the roof of the furnace, another deflector N outside of the rows of water tubes and above the deflector M, and the suspended deflectors O, P, within the rows of water tubes and on opposite sides of the upper deflector N, substantially as and for the purposes described.

2. The combination with a furnace, of the vertical boiler having the inclined water tubes, a deflector M situated within the boiler, outside of the series of water tubes, and substantially on a level with the roof of the furnace, an upper deflector N which incloses the series of water tubes, and the inverted conical deflectors O, P, suspended within the series of water tubes and arranged respectively above the outside deflectors M, N, to direct the course of the products of combustion in sinuous lines, substantially as and for the purposes described.



518,520. ROTARY HARROW.

HIRAM CROMER, Muscatine, Iowa. Filed Apr. 5, 1893. Renewed Mar. 19, 1894. Serial No. 504,273. (No model.)



Claim.—1. The herein described harrow tooth having a straight body, and its upper end bent like a horizontally disposed letter S, substantially as described.

2. The combination with a tooth bar, and a tooth loosely secured to the top thereof and depending below it at one side thereof; with a loop attached to said bar and projecting laterally therefrom, so that the tooth can swing at right angles to the bar substantially as and for the purpose specified.

3. In a harrow the combination of a tooth bar, a harrow tooth having its upper end bent over and loosely secured to the top of the

bar and depending beside and below the same; with the loop attached to the bar and projecting laterally therefrom at right angles thereto, through which the vertical part of the tooth loosely passes, substantially as and for the purpose set forth.

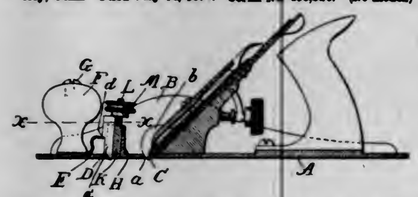
4. In a harrow the combination of the tooth bar, the eye-bolt passing therethrough, the harrow tooth having its upper end loosely engaging the eye of the bolt, and a loop casting secured to the bottom of the bar by said bolt, and projecting laterally therefrom, through which the tooth passes, substantially as and for the purpose described.

5. In a harrow the combination of the tooth bar, the eye-bolt passing therethrough, the saddle interposed between the eye and bar, the loop casting secured to the bottom of bar and projecting laterally therefrom, all constructed and arranged to operate substantially as and for the purpose set forth

6. In a rotary harrow the combination with the harrow frame composed of a series of radial bars connected to a central hub, with the series of teeth loosely secured to the upper side of each bar and depending beside the same, and the loops attached to the lower side of bar and projecting laterally therefrom at one side thereof through which the teeth pass, whereby the teeth are permitted a limited movement longitudinally of the bar, and a swinging movement transversely thereof, substantially as and for the purpose set forth.

7. The combination of a pair of harrow frames each composed of a series of radial bars connected to a central hub, and a beam connecting said hubs to hold the frames in proper relative position; with the series of harrow teeth loosely connected to each bar depending below the same at one side thereof and capable of a limited gyratory movement the teeth on the adjoining bars of the harrow frames being secured to the same, front or rear, sides of such bars, whereby the harrows are caused to rotate in opposite directions when drawn forward, substantially as and for the purpose specified.

518,521. CARPENTER'S PLANE. William R. Crompton, Park City, Utah. Filed July 14, 1893. Serial No. 480,526. (No model.)



Claim.—1. In a plane, the combination with a bit of a splitting knife D adjustably mounted in front of said bit, a spring E normally supporting said knife, a guide lug K inclosing the rear sides of said knife, a screw L attached to said lug, and a thumb wheel M adapted to bear on the upper part of said knife, substantially as and for the purposes described.

2. In a plane the combination with the bottom piece A slotted as at *a* and *a'*; the rear handle, the front handle F, and screw G, the bit C, the knife D, the spring E, the guide lug K, screw L and thumb wheel M, substantially as and for the purpose described.

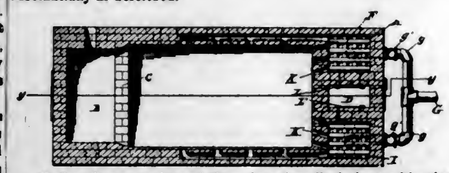
518,522. THERMOSTATIC REGULATOR FOR INCUBATORS. George Ertel, Quincy, Ill. Filed Sept. 15, 1893. Serial No. 485,573. (No model.)



Claim.—In an incubator, a thermostatic regulator therefor, comprising a movable strip, an expansible thermostatic bar, secured at its ends to the said strip, and a valve operated by the thermostatic bar and adapted to control the temperature of the incubator; substantially as described.

518,523. REVERBERATORY AND REGENERATIVE FURNACE. Edward F. Gray, Bethlehem, Pa. Filed June 21, 1893. Serial No. 478,406. (No model.)

Claim.—1. In a furnace, the combination with a working chamber, an uptake, and a neck, of the rear flue-wall constructed with two series of blast-flues situated respectively on opposite sides of the neck and uptake and converging, in the line of discharge of the blast, into the rear part of the working chamber, flues or checker-work within said flue-wall, and a blast-pipe connected with said flue-wall, to discharge thereto, whereby the blast is heated during its passage through the flues or checker-work and divided by the series of blast-flues to produce counter currents in the rear part of the working chamber, substantially as described.



2. In a furnace, substantially such as described, the combination with a working chamber, an uptake, and a neck, of the rear flue-wall constructed with vertical flues or checkerwork on opposite sides of the neck and uptake, and with discharge ports which are situated below the roof and lead from said flues or checkerwork into the working chamber to discharge counter currents into said chamber, and a branched blast-pipe connected to the flue-wall on opposite sides of the uptake to supply the blast to said vertical checker-work or flues, substantially as and for the purpose described.

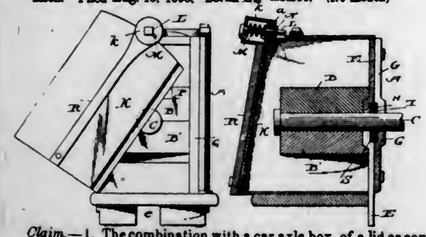
3. In a furnace, substantially such as herein shown and described, the combination with a working chamber, an uptake, and a neck, of the checker-work arranged in separate chambers formed in the rear flue wall on opposite sides of the uptake and neck, the blast pipe arranged to discharge into the lower part of said checker-work, and the series of discharge ports K formed in the rear flue wall and adapted to discharge the heated blast from the checker-work into the working chamber at the upper rear part thereof, substantially as and for the purposes described.

4. In a furnace, substantially such as herein described, the combination with a working chamber, an uptake, and a neck, of the flues or checkerwork formed in the rear flue wall on opposite sides of the neck and uptake, the series of discharge ports which converge toward the central line of the furnace and discharge blast from the flues or checker-work into the upper rear part of the working chamber, and the blast pipe connected with the lower part of the checker-work or flues, as and for the purpose described.

5. In a furnace, substantially such as herein shown and described, the combination with a working chamber, an uptake, and the neck, of the side chambers formed in the rear flue wall on opposite sides of the neck and uptake and having the doors L, L', on opposite sides of the stack normally closed, the checker-work situated in said side chambers, the converging discharge ports K, K, formed in the rear flue wall to discharge the blast from the checker-work into the upper rear part of the working chamber, and the valved blast pipe having its branches connected to the lower parts of the side chambers, substantially as and for the purposes described.

6. In a furnace, substantially such as described, the combination with a working chamber, an uptake, and a neck, of the rear flue wall constructed with vertical flues or checkerwork and with discharge ports which lead counter currents from said flues or checkerwork into the upper rear part of the working chamber, the longitudinal flues in the side walls of the furnace which are connected to receive the blast from the flues or checkerwork and provided with discharge ports which lead the blast into the working chamber at the sides thereof and a blast-pipe arranged to discharge to the flues or checker-work of the rear flue-wall, substantially as and for the purpose described.

518,524. CAR-AXLE BOX. Griffith W. Griffiths, Tecumseh Mich. Filed Aug. 15, 1893. Serial No. 483,209. (No model.)

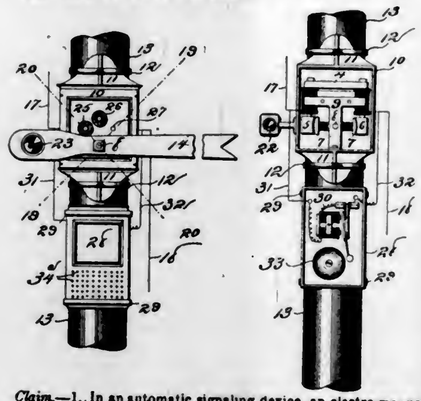


Claim.—1. The combination with a car axle box, of a lid or cover pivoted to the box and having one edge sharpened to form a cutter and its opposite edge provided with a flange, O, adapted, when the lid is closed, to bear against one side of the box, and a guard secured on the box and adapted to cover the knife edge of the lid when the latter is closed, substantially as described.

2. The combination of a car axle box provided with a vertically movable back plate, E, a cap plate G, detachably attached to the back plate, and a washer fitted in a seat formed in the adjacent faces of the cap and back plates, around the axle passages therein, substantially as described.

3. The combination with a car axle box provided at its rear end with flanges, D, of a back plate, E, provided with a central longitudinal slot, *e*, which opens through the lower end of said plate, and, on opposite edges, with flanges in which are formed ways to receive the flanges, D, on the box, and a cap plate, G, detachably attached to the back plate and provided with a central longitudinal slot, *g*, that opens through the upper end of said plate and aligns, for a portion of its length, with the slot, *e*, in the back plate, E, substantially as described.

518,525. AUTOMATIC ELECTRIC SIGNALING DEVICE FOR CROSSINGS. Edward A. Hermann, St. Louis, Mo. Filed Sept. 25, 1893. Serial No. 486,446. (No model.)



Claim.—1. In an automatic signaling device, an electro-magnet mounted in a box or inclosure constructed to be connected to a pole, a semaphore or arm having a bracket connected to one end, carried by the armature-shaft of said electro-magnet, detachable stops or rings connected to the front side of said inclosure for limiting the movement of said arm or semaphore, and electrical conductors leading to and from said electro-magnets for energizing the armature for operating said semaphore or arm, substantially as set forth.

2. In an electric signaling device, an electro-magnet mounted in a suitable inclosure, in combination with a post or support, an arm having a suitable aperture and a glass located in one end carried by the armature-shaft of the electro-magnet, a lamp connected to one side of said inclosure in such a position that when the arm is in a horizontal position the light reflecting from said lamp will pass through the glass in the end of said arm, detachable stops or rings connected to the front of said inclosure for limiting the movement of the semaphore or arm, a box or inclosure having an electro-magnet and a bell located therein beneath the first mentioned box carrying the arm, and electrical conductors leading to and from said boxes for energizing the electro-magnets therein for moving the arm or semaphore and ringing the bell, substantially as set forth.

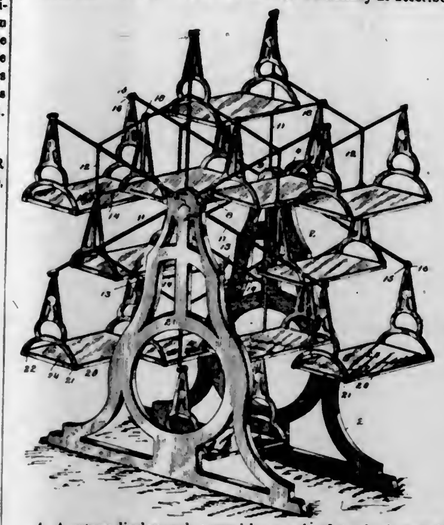
3. In combination with a trolley-pole, a casing having a rock-shaft mounted therein, a signal-trolley connected to said shaft, a trolley-wheel revolubly mounted in a bifurcation formed in said last mentioned trolley, a spring connected to said shaft and said casing for holding said trolley-wheel in contact with the signal-wire from the time it reaches the run-on until it reaches the run-off, a lug or projection connected to the interior of said casing, and a lug or projection connected to the shaft for engaging the first mentioned lug or projection and prevent the spring from throwing the signal trolley past a vertical plane, substantially as set forth.

518,526. ROTARY DISPLAY-RACK. Francis A. Jewett, Saugerties, N. Y., assignor to Martin Cantine, same place. Filed Dec. 29, 1893. Serial No. 495,141. (No model.)

Claim.—1. A rotary display rack comprising a horizontal shaft, and a vertical wheel-frame having an inner and outer series of hangers, substantially as described.

2. A rotary display rack comprising a pair of standards, a main shaft, a vertical wheel-frame having a sleeve fixed on the main shaft, and provided with radial spokes having grooved anti-friction rollers, and the removable hangers having hooks by which they are supported on the rollers, substantially as described.

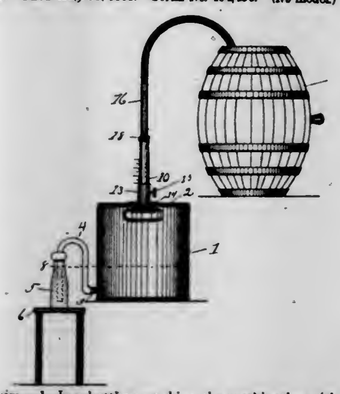
3. A rotary display rack comprising a pair of standards, a main shaft, a sleeve having collars, radial rods or spokes extending from the collars, circumferential connecting rods located midway of between the radial rods or collars, having brackets, anti friction grooved rollers mounted on the brackets, and the removable hangers having hooks by which they are supported on the rollers, substantially as described.



4. A rotary display rack comprising a pair of standards, a main shaft, a vertical wheel-frame having a sleeve mounted on the main shaft, and provided with an inner and outer circumferential series of anti friction grooved rollers, and inner and outer series of removable hangers, substantially as described.

5. A hanger constructed with a pair of side frames, strips having horizontal flanges, providing shelf supports, and lips, and fastenings by which the lips are secured to the side frames, substantially as described.

518,527. BOTTLING-MACHINE. Robert Kolliker, Pittsburg, Pa. Filed Aug. 31, 1893. Serial No. 484,456. (No model.)



Claim.—1. In a bottling machine, the combination with the supply tank having a sleeve or collar at the top thereof, of the graduated supply pipe adjustably secured within said collar, the automatic cut-off valve attached to the lower extremity of said supply pipe, the float controlling said valve and a series of flexible discharge tubes leading from the supply tank, substantially as described

2 In a bottling machine, the combination with a tank provided with a liquor gage flexible discharge tubes and a closed top, as described, and a collar at the top of said tank, of the supply pipe adjustably secured within said collar, an automatic cut-off valve attached to the supply pipe and a float to control said valve for the purpose set forth.

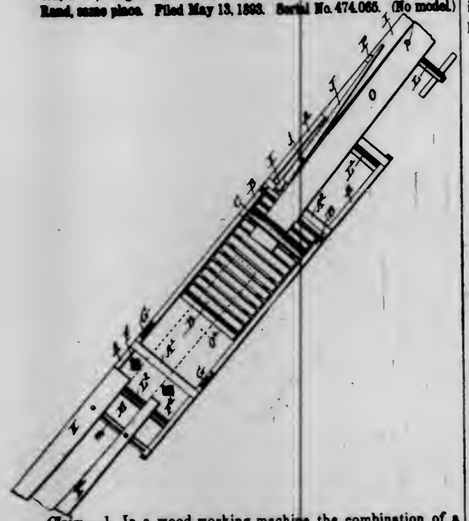
518,528. GRAIN-DOOR FOR BOX-CARS. CHARLES F. LARSELL, Fort Scott, Kans. Filed Sept. 7, 1893. Serial No. 484,965. (No model.)



Claim.—1. A grain door formed in upper and lower sections, the lower section being of less area than the upper section and capable of being raised or lowered, and suitable levers fulcrumed to the upper section for raising or lowering the lower section, substantially as set forth.

2. The combination of a grain car door formed in upper and lower sections, the lower section being of less area than the upper section; bell crank levers connected with said lower section by which the same can be lowered and raised, and a cam shaped latch for holding said lower section locked when the car door is closed; substantially as described and for the purpose set forth.

518,529. WOODWORKING-MACHINE. WILLIAM LYON, Burlington, Iowa, assignor of two-thirds to William Carson, Jr., and Horace S. Rand, same place. Filed May 13, 1893. Serial No. 474,065. (No model.)



Claim.—1. In a wood-working machine the combination of a frame with two vertical cutter-heads supported thereon; guides carried by said frame and capable of adjustment with reference to each other; the feed chain D; the presser-roll C, pivotally supported in its bearings and provided with means for vertical action and reaction; and means for guiding a joist or board between the feed chain D, and presser-roll C, to the cutter-heads and into said guides in a predetermined angle, whereby said joist or board will be crowned or edged in lines conforming to the lines of said guides, all substantially as shown.

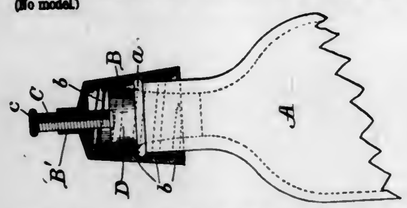
2. In a wood-working machine the combination of a frame, with two vertical cutter-heads supported thereon; guides carried by said frame, and capable of adjustment with reference to each other; the feed chain D operated by the sprocket wheels *d d*; the slide or table E; the presser roll C pivotally supported in its bearings, and provided with means for vertical action and reaction; and the guide I and the lever J pivotally located thereon; whereby a joist or plank may be fed, to and between said feed chain, and presser-roll at a pre-determined angle and in its onward travel will thereby be fed and carried to and between the cutter-heads and into said guideway in the required position, and said joist or plank will be crowned or edged in parallel lines conforming to the lines of said guides; all substantially as shown.

3. In a wood-working machine the combination of a frame, with two vertical cutter-heads supported thereon; mechanism for feeding a joist or board to said cutter-heads; a guide I supported on said frame and a lever J, supported and held by a pivot; whereby a joist or plank, may be fed to said feeding mechanism at such predetermined angle, as will cause the feeding mechanism to feed it to the cutter-heads in the required position for crowning or cutting: all substantially as shown.

4. In a wood working machine, substantially such as herein described, the combination with a frame, and vertical cutter-heads supported thereon, of a feed mechanism disposed at one side of and in line with the cutter-heads, a pair of spaced parallel guides disposed on the opposite side of said cutter-heads and in line with the same and with the feed mechanism to receive the material between themselves after it has passed through and between the cutter heads, a longitudinal stationary guide, as I, for guiding the material to the feed mechanism, and manually-controlled devices on said stationary guide I arranged to act against the edge of the material and to guide the same in a predetermined angle thereto and to the cutter heads as and for the purposes described.

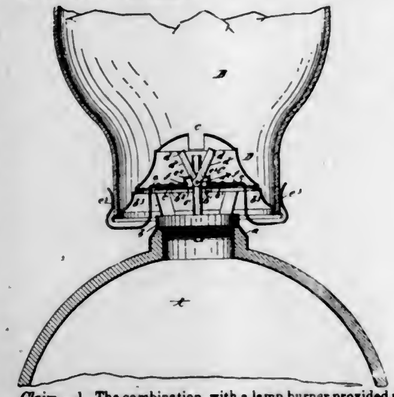
5 In a wood working machine, the combination with a frame, and a pair of vertical parallel cutter-heads supported thereon, of a longitudinal stationary guide, as I, against which the material is fitted edgewise on its entrance to the machine, a feed-mechanism between the cutter-heads and said longitudinal fixed guide, I, a movable guide-device sustained adjacent to said feed-mechanism and the stationary guide and adapted to bear against the material to direct the same in a predetermined angle to the feed mechanism and the cutter-heads, and the longitudinal spaced guides K, K', disposed at the opposite end of the machine from the feed mechanism and in line with the cutter heads and the feed mechanism to receive the material between themselves after it has passed between the cutter-heads, the inner adjacent edges of the spaced guides being parallel to each other and conforming to the contour edge of the material to be crowned, as and for the purposes described.

518,530. COMBINED CUP, FUNNEL, AND STOPPER-SECURER. AARON C. MCALPIN, Guyton, Ga. Filed Nov. 14, 1893. Serial No. 490,897. (No model.)



Claim.—A combined cup, funnel, and stopper securer consisting of a cup having its interior in the form of a truncated cone and having a coarse screw thread on said interior adapted to engage the bead on the neck of the bottle, with a screw-threaded outlet in the base of said cup; and a screw adapted to engage in said screw-threaded outlet, and to project into said cup, substantially as and for the purposes described.

518,531. LAMP. GEORGE A. MCCAY, Brooklyn, assignor of one-third to Frederick Leach, New York, N. Y. Filed June 2, 1893. Serial No. 476,316. (No model.)



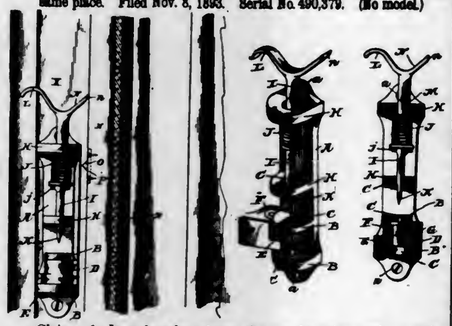
Claim.—1. The combination, with a lamp burner provided with a wick-tube and with an air distributer, and a lamp chimney, of an extinguisher consisting of two members pivoted to such burner and arranged on opposite sides of the wick-tube, longitudinally movable rods for co-operating with such members and the lamp chimney, and a spring for normally forcing said rods inwardly toward the wick-tube, substantially as described.

2. The combination, with a lamp burner provided with a wick-tube and with an air distributer, and a lamp chimney, of an extinguisher consisting of two members pivoted to the wick-tube and disposed on opposite sides thereof, longitudinally removable rods for co-operating with such members and provided with upturned ends for engagement with the outer surface of the lamp chimney, resilient devices for normally forcing such rods inward toward the wick-tube, whereby, when the chimney is in place on the lamp, the longitudinally movable rods are held outward and the members of the extinguisher allowed to fall back away from such wick-tube, but upon the removal of the chimney, the rods are forced inward by the resilient devices and the members thereby closed over the wick-tube, to extinguish the flame, substantially as described.

3. The combination, with a lamp burner provided with a wick-tube and with an air distributer, and a lamp chimney, of an extinguisher consisting of two members pivoted to such burner and arranged on opposite sides of the wick-tube, longitudinally movable rods for co-operating with such members and with the lamp chimney, a spring for normally forcing said rods inward toward the wick-tube, and devices by means of which they may be forced outward, substantially as described.

4. The combination, with a lamp burner provided with a wick-tube and with an air distributer, and a lamp chimney, of an extinguisher consisting of two members pivoted to such burner and arranged on opposite sides of the wick-tube, longitudinally movable rods for co-operating with such members and with the lamp chimney, a spring for normally forcing said rods inward toward the wick-tube, and levers by means of which they may be forced outward, substantially as described.

518,532. BURGLAR-ALARM. GEORGE W. MCLAUGHEN and WILLIAM L. GALLANT, Gastonia, N. C., assignors of one-third to T. G. Pegram, same place. Filed Nov. 8, 1893. Serial No. 490,379. (No model.)

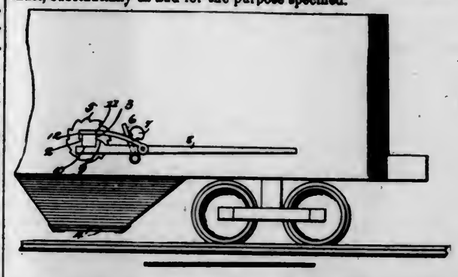


Claim.—1. In a burglar alarm, the combination with a strike plate; of an attachment plate having separate perforated holder and guide lugs, a shell holder pivoted or hinged to one of the holder lugs and adapted to be swung between and out of the same, said holder being adapted to fill the space between the holder lugs and having a central shell opening agreeing with the perforations in the lugs above and below the holder and a spring-actuated hammer-rod mounted in said guide lugs and provided with a catch shoulder adapted to engage one edge of the upper one of the lugs, and an off-standing trip-arm at its outer end, substantially as set forth.

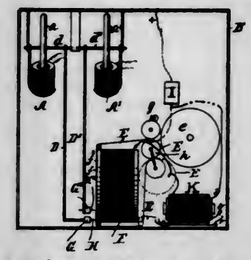
2. In a burglar alarm, the combination of a suitably arranged attachment plate having separate pairs of perforated holder and guide lugs, a swinging perforated shell holder pivoted or hinged at one end to one of the holder lugs and adapted to register in the space therebetween, a reciprocating hammer rod mounted in the guide lug and provided at its inner end with a firing point, an intermediate catch shoulder, adapted to engage on one of the guide lugs and at its outer end with a curved off-standing finger grasp and an oppositely extending angularly disposed trip arm having an outer beveled extremity, and an actuating spring mounted on the hammer-rod between the guide lugs, either said finger grasp or said trip arm being adapted to be engaged by a suitable trip, substantially as set forth.

518,533. SAFETY-WRENCH FOR UNLOADING CARS. THOMAS NICHOLSON, Jr., Ashbourne, Pa., assignor of one-half to Emily H. Nicholson. Filed Jan. 27, 1894. Serial No. 498,251. (No model.)

Claim.—In a safety wrench for unloading cars, the combination of a long arm having an angular recess 10 near the outer end thereof and a vertical lug 9 at the rear of said recess, and a shorter arm 11 pivotally attached to the said longer arm in rear of the lug 9, said shorter arm having its rear end curved and bifurcated and its outer upper end straight and provided with a depending lug whose inner surface is in line parallel with the outer end of the said longer arm and formed with the lug 12, for resistance in engaging a square ended shaft, substantially as and for the purpose specified.



518,534. ELECTRIC-CURRENT RECORDER. JOHAN W. TH. OLAN, New York, N. Y. Filed July 7, 1893. Serial No. 480,277. (No model.)



Claim.—1. An instrument for making a unitary and correlative record of the quantity and tension of an electric current, comprising a record sheet, time mechanism for moving said record sheet, recording needles adapted to move in concentric arcs across the sheet and governed respectively by variations in the quantity and tension of the current, the path of movement of each of said needles being unobstructed by the other and a support for the sheet sufficiently flat to retain the sheet within operative range of the needles at all points of the deviations of the latter produced by the current; substantially as described.

2. An instrument for making a unitary and correlative record of the quantity and tension of an electric current, comprising a record sheet, time mechanism for moving said record sheet, recording needles adapted to move in concentric arcs across the sheet and governed respectively by variations in the quantity and tension of the current, the path of movement of each of said needles being unobstructed by the other mechanism for bringing said needles into intermittent contact only with the sheet so as to avoid undue friction, and a support for the sheet sufficiently flat to retain the sheet within operative range of the needles at all points of the deviations of the latter produced by the current; substantially as described.

3. An instrument for making a unitary and correlative record of the quantity and tension of an electric current, comprising a record sheet, time mechanism for moving said record sheet, recording needles adapted to move in separate arcs across the sheet and governed respectively by variations in the quantity and tension of the current, armatures carried by the ends of the needles, a magnet arranged in the rear of the record sheet and in proximity to the needle end armatures and a circuit breaker for intermittently energizing and de-energizing the magnet, substantially as described.

4. An instrument for making a unitary and correlative record of the quantity and tension of an electric current, comprising a record sheet, time mechanism for moving said record sheet, recording needles adapted to move in separate arcs across the sheet and governed respectively by variations in the quantity and tension of the current, armatures carried by the ends of the needles, a magnet arranged in the rear of the record sheet and in proximity to the needle end armatures and in an arc corresponding to the movement of the marking points of the needles, and a circuit breaker for intermittently energizing and de-energizing the magnet; substantially as described.

5. An instrument for making a unitary and correlative record of the quantity and tension of an electric current, comprising a record sheet, time mechanism for moving said record sheet, recording needles adapted to move in concentric arcs across the sheet and governed respectively by variations in the quantity and tension of the current,

the path of movement of each of said needles being unobstructed by the other a support for the sheet sufficiently flat to retain the sheet within operative range of the needles at all points of the deviations of the latter produced by the current, a supply device for feeding the record sheet over the support, and a receiving device for storing up the sheet as it leaves the support; substantially as described.

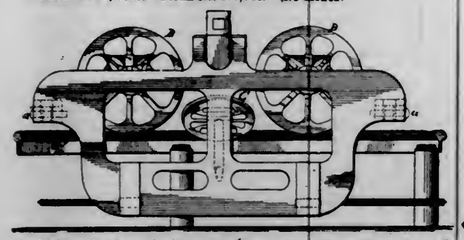
6. In an electric current recorder the combination of two coils or magnets, armatures therefor, arbors or pivots for the armatures, said arbors being mounted in line arms or pointers connected with said arbors, one of said arms or pointers being longer than the other so that the two will describe concentric arcs a record sheet to indicate the simultaneous and corresponding movements of said arms or pointers respectively, said sheet being moved by time mechanism from a supply device to a receiving device in order to allow a sufficient supply of record surface and records to be made of said movements for a practical and desirable length of time, substantially as described.

7. In an electric current recorder the combination of two coils or magnets, armatures therefor, arbors or pivots for the armatures, said arbors being mounted in line, arms or pointers connected with said arbors, one of said arms or pointers being longer than the other so that the two will describe concentric arcs a record sheet to indicate the simultaneous and corresponding movements of said arms or pointers respectively, said sheet being moved by time mechanism from a supply device to a receiving device in order to allow a sufficient supply of record surface and records to be made of said movements for a practical and desirable length of time and means acting through said arms or pointers periodically to mark the sheet, substantially as described.

8. In an electric current recorder the combination of a vibrating arm or pointer, a coil or magnet for moving it along a record sheet, moved by time-mechanism, an armature carried by the vibrating free end of said arm or pointer, an electro-magnet for moving said armature and means carried by said arm or pointer to mark said sheet, substantially as described.

9. In an electric current recorder the combination of a vibrating arm or pointer, a coil or electro-magnet for moving it along a record surface, moved by time-mechanism, an armature carried by the vibrating free end of said arm or pointer another electro-magnet for moving said armature, means carried by said arm or pointer to mark said sheet and a connector or interrupter moved by time-mechanism to determine the number of marks, substantially as described.

518,535. TRUCK. JOHAN M. K. PENNINK, Haarlem, Netherlands. Filed Dec. 8, 1893. Serial No. 493,141. (No model.)



Claim.—1. A truck for an engine, motor-car, or car, composed of sections hinged together, and supporting-wheels designed to bear upon and run over a single rail, attached to the frame, substantially as described.

2. A truck for an engine, motor-car, or car, composed of sections hinged together, supporting-wheels attached to the frame and designed to bear upon and run over a single rail, and driving and guide wheels connected to the frame and designed to bear upon the rail, substantially as described.

3. A truck for an engine, motor-car, or car, composed of sections hinged together, supporting-wheels attached to the frame and designed to bear upon and run over a single rail, driving-wheels and guide-wheels attached to the frame and designed to bear upon the rail, the sections of the frame being connected by a point above the rail, whereby the weight of the frame and appurtenances tends to hold the driving and guide-wheels in contact with the rail, substantially as described.

4. A truck for an engine, motor-car, or car, composed of sections hinged together, supporting-wheels attached to the frame, a single rail, and driving and guide-wheels arranged at an angle on the frame, and provided with flanges bearing upon the under side of the tread of the rail, the frame being pivotally connected at a point or points above the rail, substantially as described.

5. A truck for an engine, motor-car, or car, composed of sections hinged together, supporting-wheels arranged on the frame, driving and guide-wheels connected to the pivoted sections, and means for drawing the sections together to press the driving and guide-wheels upon the rail, substantially as described.

6. A truck for an engine, motor-car, or car, made of sections hinged together, the frame being provided with openings for the reception of a steam-engine, electric motor, or the like, supporting wheels designed to bear upon and run over a single rail attached to the body, and driving and guide-wheels connected to the pivoted sections and designed to bear upon the rail upon which the supporting-wheels run, substantially as described.

7. A truck for an engine, motor-car, or car, composed of sections hinged together, supporting-wheels attached to the frame and designed to bear upon and run over a single rail, driving and guide-wheels, and spring-seated wheels or rollers arranged in the lower ends of the sections and designed to bear upon the rail, substantially as described.

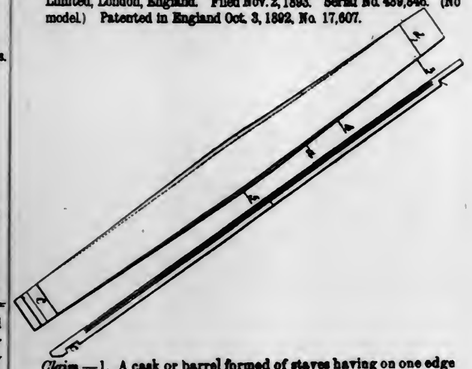
8. A truck for an engine, motor-car, or car, composed of duplicate sections arranged one on each side of a single main rail and hinged together at a point above the rail, the upper portions of these sections being crossed or extended to opposite sides of the rail, suitable means for adjusting these opposing upper portions, whereby they may be moved toward or away from each other, a plurality of supporting and guide-wheels, and a motor or motors carried by the truck, substantially as described.

518,536. COCK FOR GAS-BURNERS. GEORGE A. RIES, San Francisco, Cal. Filed Aug. 8, 1893. Serial No. 482,693. (No model.)



Claim.—The combination, with a gas cock, having its key-shank flattened on opposite sides, of a spring-clamp, having uneven-lengthed arms, the longer one adapted to be fixed to the burner, and the shorter one being free to flex or spring as the key is manipulated, and both arms resting flat against the flattened sides of said key-shank, substantially as set forth.

518,537. CASK. THOMAS G. STEVENS, Swanscombe, and JOSEPH BAKER, Greenhithe, assignors to the Stevens Cask and Barrel Company, Limited, London, England. Filed Nov. 2, 1893. Serial No. 489,846. (No model.) Patented in England Oct. 3, 1892, No. 17,607.



Claim.—1. A cask or barrel formed of staves having on one edge a tongue tapering toward and disappearing altogether at the ends, and a groove on the other edge corresponding to the tongue.

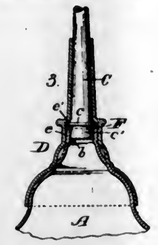
2. A cask or barrel formed of staves, each having on one edge a tongue tapering toward and disappearing altogether at the ends, and a groove on the other edge corresponding to the tongue, the staves being confined at the ends with broad hoops which project beyond the staves until finally driven home.

518,538. PROCESS OF PURIFYING SACCHARINE JUICES. GUSTAV G. TIEMANN, San Francisco, Cal. Filed Nov. 17, 1892. Renewed Mar. 14, 1894. Serial No. 503,641. (No specimens.)

Claim.—The process of treating sugar juices, consisting in first subjecting the raw filtered juice to the combined action of ozone and heat; secondly, subjecting it to fractional treatment with caustic alkali in the presence of heat; thirdly, subjecting the juices to a fractional treatment with carbonic acid and finally to the action of a mixture of carbonic acid gas and sulphurous acid gas, substantially as above specified.

518,539. OIL-CAN. FRANK E. WILLIAMSON, Chicago, Ill. Filed Feb. 15, 1894. Serial No. 500,316. (No model.)

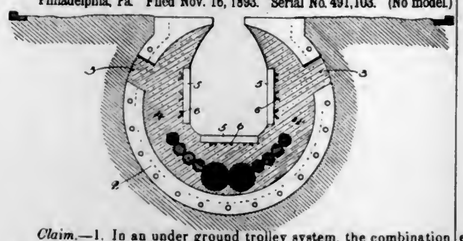
Claim.—1. In an oil can, the combination of the can body having its neck with an external screw thread and a smooth orifice, a nozzle having a smooth portion adapted to fit tightly in the said orifice and thereby form a slip joint and a flange above the said smooth portion, and a clamping nut adapted to engage with the screw-thread of the neck and with the flange on the nozzle, whereby the nozzle is held in place on the can, substantially as set forth.



2. In an oil can, the combination with the can body having the neck B externally screw-threaded, and having a smooth orifice through it, a detachable nozzle having a smooth portion c' adapted to fit the said orifice, and a flange c above the said smooth portion, and a funnel adapted to slip over the nozzle and having an internal screw-thread which is adapted to engage with the thread on the neck of the can body, and having a shoulder which is adapted to be brought against the flange on the nozzle, substantially as set forth.

3. In an oil can, the combination of the can body having an externally screw-threaded upper portion and a funnel having a body portion which fits onto and conforms to the upper or top part of the can body, and having a spout which fits closely around and extends along the nozzle, the said funnel being arranged to screw onto the said threaded part of the can body, whereby it is drawn down close upon the upper portion of the can and the lower part of the nozzle, thereby serving to strengthen them, substantially as set forth.

518,540. ELECTRIC-RAILWAY CONDUIT. PAUL P. BANHOLZER, Philadelphia, Pa. Filed Nov. 16, 1893. Serial No. 491,103. (No model.)

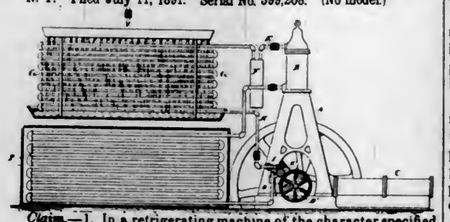


Claim.—1. In an under ground trolley system, the combination with a conduit having openings in its sides in addition to the slot opening, of conductors arranged in the said conduit, a plastic material forced into the conduit through the side openings, and securing the said conductors in place substantially as described.

2. The herein described conductor for under ground systems, composed of a plate having a series of prongs on one face to anchor the plate in a plastic material, substantially as set forth.

3. The conduit or pipe herein set forth having perforations or openings therein and a plastic material inserted in said opening to the inner surface of the pipe and flush with the outer surface of the pipe in the said opening substantially as described.

518,541. REFRIGERATING-MACHINE. LOUIS BLOCK, New York, N. Y. Filed July 11, 1891. Serial No. 399,208. (No model.)

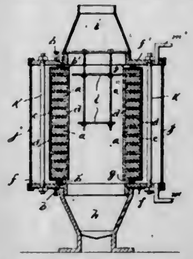


Claim.—1. In a refrigerating machine of the character specified, the combination with the retainer for the liquefied refrigerant, the evaporator, and the compressing mechanism, of a measuring device located between the retainer and evaporator, and mechanism for operating the measurer at the rate of the compressor mechanism, substantially as and for the purpose set forth.

2. In a refrigerating machine of the character specified, the combination with the retainer for the liquefied refrigerant, the evaporator, and the compressing mechanism, of a measuring device located between the retainer and evaporator, and means for operating the measurer connected with and operated by the compressor mechanism, substantially as and for the purpose set forth.

3. The herein described refrigerating machine operating by means of liquefied gaseous refrigerant, such as ammonia, and comprising a set of closed vaporizing coils, a compressor, or equivalent means for compressing the volatilized refrigerant, a surface condenser, a measurer such as the plug J *j*, for the liquefied refrigerant, a connection between the liquid space of said condenser and the said measurer, a connection between the said measurer and the said vaporizing coils, a connection between the said vaporizing coils and the said compressor, a connection between such compressor and the condenser, and mechanical means for operating the said measurer to transfer the liquefied refrigerant at intervals varying in frequency with the speed at which the machine is run, the capacity of said compressor for removing and compressing vapor for each such transfer being as much greater in volume than the size of said measurer as the density of the said liquefied refrigerant is required to be greater than the density of the said vapor under the low pressure necessary to insure vaporization at the low temperature obtaining, whereby the pressure in said vaporizing coils is without requiring careful manipulation, kept within the limits of effective refrigeration with the liquefied gaseous refrigerant, said pressure being always low enough to insure the vaporization of the said liquefied refrigerant at the low temperature obtaining, and its delivery in the aeriform condition to the compressor at the different speeds of the said machine, substantially as set forth.

518,542. THERMO-ELECTRIC GENERATOR. HARRY B. COX, Hartford, Conn. Filed Apr. 28, 1892. Renewed Feb. 2, 1893. Again renewed Oct. 6, 1893. Serial No. 487,394. (No model.)



Claim.—1. The herein described mode of constructing thermo electric generators which consists in connecting and arranging the thermo couples to form the pile, coating the same with fire proof material, such as cement or clay, and then hardening or baking the same, and then placing a metallic jacket or coat on the pile by electro plating or other means on said fire proof coating, substantially as described.

2. The thermo electric pile having the ends of the couples coated with hardened fire proof material and provided with a metal jacket or coating, as and for the purpose set forth.

3. A thermo electric generator comprising the open pile arranged to be interiorly heated, the outer face thereof being coated with hardened cement, clay or the like rendered water proof, and a water space surrounding the same, substantially as described.

4. In a thermo electric generator the open pile coated externally and interiorly with hardened cement or clay and provided with an external metallic jacket, substantially as described.

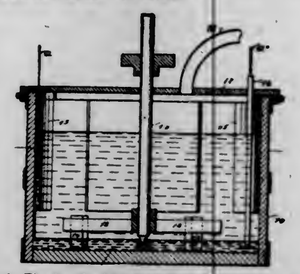
5. In combination, a thermo pile coated with hardened fire proof material, as clay or other substance, an exterior metal jacket extending over the ends thereof, a water jacket around the pile, end pieces, packing between the end pieces and ends of the pile, and means for holding the end pieces together, substantially as described.

6. In a thermo electric generator, the combination of the open rigid pile, coated with refractory material the annular end pieces on the ends of the same, the water jacket clamped between said end pieces, and forming a water space around the outer surface of the pile the bolts uniting the same, the fire pot attached to the lower end piece and the hood attached to the upper end piece, substantially as described.

7. A thermo electric pile having the closely fitted metallic jacket forming its outer surface, as and for the purpose set forth.

8. A thermo electric pile having its outer surface provided with a closely fitted metallic jacket, and refractory material between said jacket and the ends of the thermo electric elements, substantially as described.

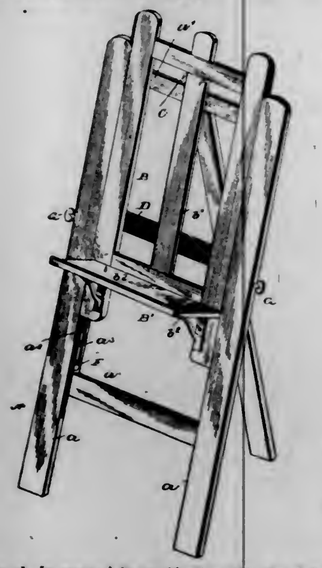
518,543. METHOD OF AND APPARATUS FOR AMALGAMATING ORES. HUBERT F. EDWARDS, Butte, Mont., assignor of five-sixths to C. H. Hand, Pony, Mont., A. W. Hand, Silver City, N. Mex., and J. G. Merrill, G. H. Smith, and I. S. Merrill, Butte, Mont. Filed Mar. 17, 1893. Serial No. 466,498. (No model.)



Claim.—1. The herein described method of amalgamating ores, which consists in reducing the same to pulp, charging the latter into a vessel and mixing it with a solution of cyanide of potassium in the presence of ferrous oxide, providing an amalgamating material in the bottom of the vessel, and passing an electric current through the pulp and the amalgamating material by connecting the latter with the negative pole and the solution with the positive pole, substantially as set forth.

2. An electrolytic tank, provided with electrodes secured to the sides thereof and insulated from the bottom of the tank, in combination with agitators adapted to move close to the bottom of the tank to agitate the mercury which is adapted to be placed in the tank, substantially as and for the purpose set forth.

518,544. EASEL. GEORGE FAIRY, Indiana, Pa. Filed July 20, 1893. Serial No. 481,011. (No model.)



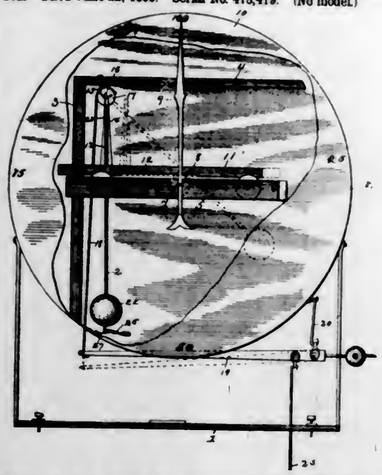
Claim.—1. In an easel, in combination with the sliding frame having a shelf attached to it, and having tongued sides, the grooved side rails and the counter-balance weight, all substantially as described.

2. In an easel, as described, the combination of the sliding frame and the grooved side rails, with the counter-balance weight having tongued ends, substantially, as set forth.

3. In a easel the combination of the shelf having pin points in its upper face, with the bent wire attached to the upper part of the sliding frame, substantially as and for the purposes set forth.

4. In an easel in combination with the grooved sliding frame and the counter-balanced weight having tongued ends, the rubber at the base of the grooves in which the weight moves.

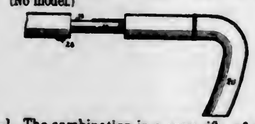
518,545. PENDULUM-SCALE. WILLIAM J. GRAVES, Gainesville, Tex. Filed June 22, 1893. Serial No. 478,419. (No model.)



Claim.—1. In a scale, the combination of a frame supporting sheaves near each end, a shaft journaled in the frame and carrying a pinion and a pointer, a rack-bar working on the sheaves and meshing with the pinion, uprights carried by the said bar, a pulley supported above the rack-bar, a flexible connection uniting the pulley and the scale-beam, and a pendulum carried by the said pulley and carrying an arm working between the said uprights, substantially as described

2. In a scale, the combination of a frame supporting grooved sheaves near each end, a shaft journaled in the frame and carrying a pinion and a pointer, a rack-bar working on the sheaves and meshing with the pinion, uprights carried by said bar, a pulley working on knife edge bearings, a flexible connection uniting the periphery of the pulley and the scale-beam, and a pendulum carried by the said pulley and carrying an arm working between the said uprights, substantially as described.

518,546. CANE-GUN. OTTO JANER, St. Louis, Mo., assignor of one-third to John L. Nelle, same place. Filed Dec. 18, 1893. Serial No. 493,952. (No model.)



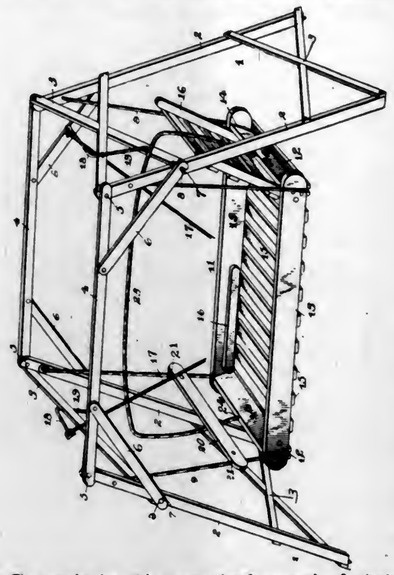
Claim.—1. The combination in a cane rifle, of a rifle barrel, separable from the section containing the breech block, and the cartridge holder formed on the breech-block section with the hinged lip arranged to close around the cartridge; substantially as described.

2. The combination, in a rifle cane, of the barrel-section separable from the breech-block section, the plunger 15, the tubes 13 and 14, in which the plunger operates, the lower end of the tube 13 being closed by the breech block 9, containing the firing pin 10, and said tube 13, forward of the breech block 9, being chambered out to receive the cartridge and provided with the hinged lip 8, which closes over the cartridge and forms with the part 7, an extractor for the shell; substantially as described.

3. The combination, in a rifle cane, of a barrel-section, a breech-block and lock section separable from the barrel section, and secured thereto by a bayonet catch, the plunger 15, having the sear catch 27, the sliding ferrule 19 for drawing back said plunger 15, the transversely sliding trigger block 24, through which the plunger 15 passes, provided with the catch-pin 25, and push button 27, and operated by the flat spring 28, and the cartridge holder made with the hinged lip 8 for inclosing the shell; all substantially as described.

518,547. SWINGING COUCH. JEFFERSON KELLER, Frederick, Md., assignor of one-half to G. F. Keller, same place. Filed June 15, 1893. Serial No. 477,769. (No model.)

Claim.—1. The combination with a supporting frame-work, of swinging loops, a boat detachably connected at its ends to said loops, a foot-bar or treadle, and means for connecting the ends thereof to the side arms of either swinging loop, substantially as specified.

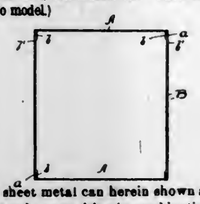


2. The combination with a supporting frame-work, of swinging loops, a boat detachably connected to the lower ends of said loops, folding head rests pivotally connected to the boat, respectively, at the opposite ends thereof a foot-bar or treadle and means whereby said foot-bar or treadle may be applied to either swinging loop, substantially as specified.

3. The combination with a supporting frame-work, swinging loops connected thereto, and a boat supported by said swinging loops, of a yielding arm, a torsion spring connected to said arm and attached to the supporting frame-work, and an operating cord connected at one end to the free extremity of said arm, substantially as specified.

4. The combination with a supporting frame work, swinging loops, a boat detachably secured at its ends to the loops, of a mosquito-net bar extending longitudinally over the boat and having down-turned ends removably fitted in sockets at the extremities of said boat, substantially as specified.

518,548. SHEET-METAL CAN AND ART OF MANUFACTURING SAME. JOHN LEE, San Mateo, Cal. Filed Aug. 21, 1893. Serial No. 483,629. (No model.)



Claim.—1. The sheet metal can herein shown and described for hermetically sealed goods, comprising in combination, a head A, having integral flange *a*, and a body B, having a circumferential portion *b* and a circumferential portion *b'*, the two differing in size by the thickness of the tin in said can head flange, the portion *b* of the can body corresponding in diameter to the interior diameter of the can head flange, and the largest portion *b'* of the can body corresponding in diameter to the greatest exterior diameter of the can head, whereby the can body is adapted to be sized and rounded and the can head centered and aligned with the body in the heading of the can in a plain cylindrical heading device or ring, the can head flange fitting outside the can body on the end thereof and having a frictionally tight fit therewith, substantially as specified

2. The sheet metal can herein shown and described for hermetically sealed goods comprising in combination two heads A A made from separate disks, and having each an integral flange *a*, and a body B made in a separate piece from each of said heads, and having a circumferential portion *b* and a circumferential portion *b'* the two differing in size by the thickness of the tin in said can head flanges, the portion *b* of the can body corresponding in diameter to the interior diameter of the can head flange, and the largest portion *b'* of the can body corresponding in diameter to the greatest exterior diameter of the can head, whereby the can body is adapted to be sized and rounded and the can head centered and aligned with the body in the heading of the can in a plain cylindrical heading device or ring, the can head flanges fitting outside the can body on the ends thereof and having each a frictionally tight fit therewith, substantially as specified

3. The improvement in the manufacture of sheet metal cans having exterior tight fitting heads, which consists in forming a can body of sheet metal with two circumferential portions *b* and *b'*, differing in size by the thickness of the tin in the flange of the can head, the portion *b* corresponding in diameter to the interior diameter of the can head flange, and the portion *b'* to the exterior diameter of the can head, placing the can head and can body in a suitable ring or heading device of an interior diameter corresponding to the exterior diameter of the can head, and serving to center the head in line with the body and to size and round the body, and then forcing the head and body together and removing the headed can from the heading device, substantially as specified

4. The improvement in the art of applying exterior tight fitting heads to can bodies, which consists in taking the can body having two cylindrical portions *b* and *b'*, differing in size by the thickness of the tin in the can head flange, placing such can body and the can head within a ring or device corresponding in size or diameter to the exterior diameter of the can head, the exterior pressure of said ring or device on the larger portion *b'* of the can body serving to size and round the smaller portion *b* thereof, to adapt it to correspond to and enter the interior of the can head flange while the same is centered in line with the body by said ring or heading device, and then forcing the head and body together and removing the headed can from the heading device, substantially as specified.

518,549. METHOD OF TREATING JUTE OR OTHER BAGGING. ABRAHAM LEHMAN and CHARLES J. KRAUS, Peru, Ind. Filed Aug. 17, 1893. Serial No. 483,427. (No specimens.)

Claim.—The herein described method of treating jute bagging or analogous material, consisting in winding the same upon a roll and spraying it with a fluid sizing solution previous to the winding operation, and allowing it to remain wound in its moist condition, substantially as specified.

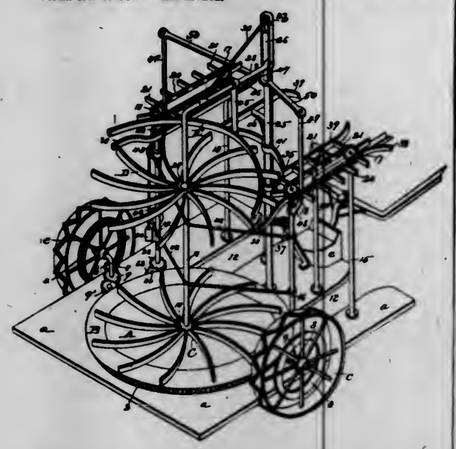
518,550. MILK-CAN ATTACHMENT. ALFRED D. RICHMAN, Daretown, N. J. Filed Dec. 22, 1893. Serial No. 494,434. (No model.)



Claim.—In combination with a milk can cover, of a concavo-convex bar extending diametrically across the top of the same and secured thereto, links movably attached to the opposite ends of the said bar and lower links pivotally connected to the lower ends of the first mentioned links and having their opposite ends connected to the outer portions of the band around the upper portion of the neck of the can proper said links being of such length as to permit the cover to be swung backward and clear of the neck, and when said cover is

in engagement with the neck said links are adapted to fall downwardly on the outer side of the neck, substantially as and for the purposes specified.

518,551. MACHINE FOR CUTTING AND SHOCKING STANDING CORN. AARON B. ROBINSON, Marysville, Ohio. Filed Jan. 20, 1894. Serial No. 497,476. (No model.)



Claim.—1. In a corn-harvester, the combination, with a platform having slotted openings through which the cornstalks pass, an axle on which the platform is secured, and carrying-wheels mounted on said axle, of a table on which the shock is formed, revolubly mounted on the platform, a circular knife secured on said table, an upper and a lower gatherer, each comprising a hub and radial arms, the lower gatherer being rigidly secured on the table above the knife, a vertical shaft on which the gatherers are mounted, the lower end of said shaft being removably fixed in the table in a manner to permit the shaft to rotate with the latter, and means for rotating the table.

2. In a corn-harvester, the combination, with a platform having slotted openings through which the cornstalks pass, means for forcing the corn rearward through the slotted openings, an axle on which the platform is secured, and carrying-wheels mounted on said axle, of a table on which the shock is formed mounted on the platform, a circular knife secured on the table, an upper and a lower gatherer, each comprising a hub and radial arms, the lower gatherers being rigidly secured on the table above the knife, a vertical shaft on which the gatherers are mounted, the lower end of said shaft being removably fixed in the table in a manner to permit the shaft to rotate with the latter, a yielding compressing-bar, and means for rotating the table.

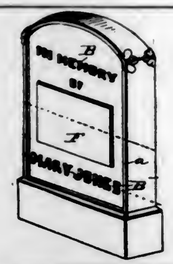
3. In a corn-harvester, the combination, with the slotted platform, of the revoluble table mounted thereon, means for revolving the table, the circular knife secured on said table, the upper and lower gatherers each comprising a hub and curved radial arms, the vertical shaft adapted to turn with the table and having the gatherers mounted thereon, a vertically-swinging hanger to which the upper gatherer is revolubly attached, and means for raising and lowering the hanger and gatherer

4. In a corn-harvester, the combination, with the slotted platform, of the revoluble table mounted thereon, means for revolving the table, the circular knife secured on said table, the upper and lower gatherers each comprising a hub and curved radial arms, the vertical shaft adapted to turn with the table and having the gatherers mounted thereon, a vertically-swinging hanger to which the upper gatherer is revolubly attached, means for raising and lowering the hanger and gatherer, and one or more ropes secured at one end to a fixed support on the machine, passed horizontally in rear of the vertical shaft and over pulleys and carrying weights on their free ends.

518,552. GRAVE-STONE OR MONUMENT. ORSON W. SMITH, Charlevoix, Mich., assignor of one-half to August G. Chaloupka, same place. Filed Apr. 29, 1893. Serial No. 472,311. (No model.)

Claim.—A grave-stone or monument made of a composition of matter and having suitable characters or designs affixed thereto by means of a stud on the back of the character or design, said stud extending longitudinally along the back of the character or design and tapering to a sharp edge so as to be more readily pressed into the substance of which the stone is made when the latter is in a plastic state, substantially as set forth.

518,552.

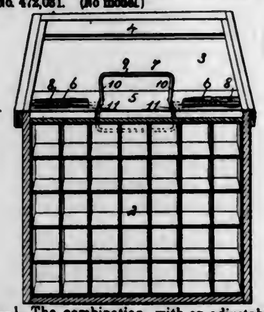


518,553. BURIAL-CASKET. LEO STEIN and NICHOLAS RAFFLEYRA, Rochester, assignors to the National Casket Company, New York, N. Y. Filed June 17, 1891. Serial No. 396,556. (No model.)



Claim.—In a casket, a sliding head panel made of sheet metal or other thin material adapted to move in grooves inclining slightly downward under the foot panel, substantially in the manner as and for the purpose set forth.

518,554. ADJUSTABLE BOX-COVER. GEORGE W. STOKER, Kansas City, Mo., assignor to Orrin L. Hulbert, same place. Filed Apr. 27, 1893. Serial No. 472,081. (No model.)



Claim.—1. The combination, with an adjustable box-cover; of a block, fixed to the top thereof, having an inclined face, a prong, formed of a single piece of wire pointed at its outer end, having a handle in one piece therewith, by which the outer end is projected beyond the edge of the box-cover so as to engage the body of the receptacle, and means whereby the prong is guided in its movement; the handle being pressed on the inclined face of the block for moving the prong outward; substantially as described.

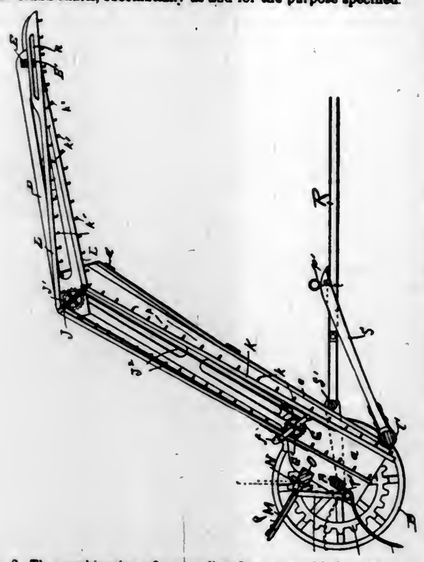
2. The combination, with an adjustable box cover; of a block fixed to the top thereof, having an inclined face, two prongs formed of a single piece of wire pointed at its outer ends, having a handle in one piece therewith, by which the outer ends are projected beyond the edges of the box-cover so as to engage the body of the receptacle, and means whereby the prongs are guided in their movement; the handle being pressed on the inclined face of the block for moving the prongs outward; substantially as described.

3. The combination, with an adjustable box-cover; of a block, fixed to the top thereof, having inclined faces, two prongs formed of a single piece of wire, pointed at its outer ends, having handles in one piece therewith, by which the outer ends are projected beyond the edges of the box-cover so as to engage the body of the receptacle, and means whereby the prongs are guided in their movement; the handles being pressed on the inclined faces of the block for moving the prongs outward; substantially as described.

4. An adjustable box cover comprising a cross piece having oblique openings providing inclined faces, and longitudinal openings, and the prongs sliding in the longitudinal openings, having handles, working between the inclined faces of the oblique openings, and connected by a horizontal portion; substantially as described.

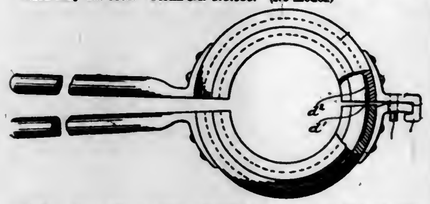
518,555. HAY-LOADER. IRA E. STUMP, Richville, assignor of one-half to Joseph E. Van Nostran, Canton, Ohio. Filed Dec. 4, 1893. Serial No. 492,687. (No model.)

Claim.—1. The combination of the rake head A, having attached thereto the rake teeth *b*, the flanges *a*, the traveling wheels B having fixed thereto the gear wheels F, the pinions *f* loosely mounted on the crank shaft G, the crank shafts G and J provided with cranks *g* and *g'*, the elevating-bars K provided with teeth, the reciprocating bars L journaled to the crank shaft J and provided with hooked teeth, the bars E and E', the forward extending arms D carrying the cross-bars E and E', and means for communicating uniform movement to the crank-shafts, substantially as and for the purpose specified.



2. The combination of a traveling frame, provided at its top or upper end with forward extending bars or arms, an axle provided with rake teeth, reciprocating bars L located at an angle to the elevating bars K, the tongue R, journaled at its rear end to the cross-bar, the bar S, and the pin *g'*, substantially as and for the purpose specified.

518,556. PIPE-JOINING DEVICE. WILLIAM A. TIPSON, San Francisco, Cal., assignor to the Pacific Asphaltum Pipe Company, of California. Filed May 29, 1893. Serial No. 475,833. (No model.)



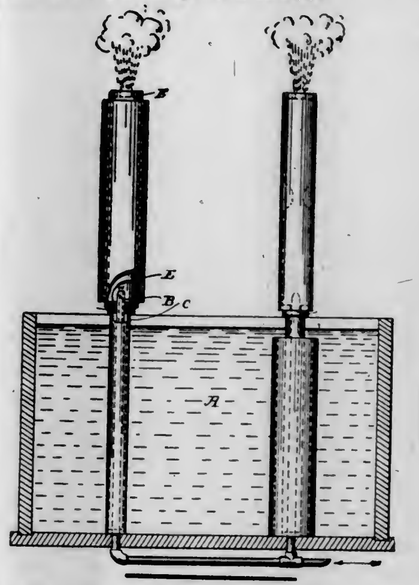
Claim.—As a new article, a device for joining the ends of pipes, consisting of two half-semi-circular sections, each section provided with an internal groove or channel, of the male and female sections of the lock-joint secured to each respectively, of the pin or stud projecting from the male section which fits within a groove formed within the female section when the two are placed together, and of the handles for closing the sections of the device.

518,557. REMOVING ARTIFICIAL PIPE FROM MANDRELS. WILLIAM A. TIPSON, San Francisco, Cal., assignor to the Pacific Asphaltum Pipe Company, of California. Filed May 29, 1893. Serial No. 475,834. (No model.)

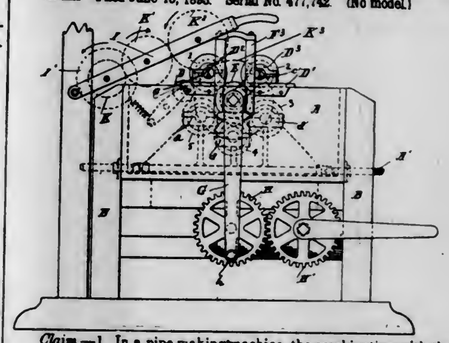
Claim.—1 The method of removing and cooling asphaltum or similar pipe from a hollow mandrel, which consists in subjecting the interior of the mandrel to the action of steam, or hot air, maintaining the same so exposed until the inner wall of the pipe is softened to such a degree as to be moved by its own weight, and causing the pipe to move from off the mandrel into a liquid bath and permitting the same to remain submerged therein until cooled

2. In an apparatus for cooling and removing asphaltum or similar pipes from a hollow mandrel, the combination with a receiving tank containing a liquid bath, of the steam or hot air supply pipe extending above said tank, said pipe designed to discharge into the hollow mandrel.

3. In an apparatus for cooling and removing asphaltum or similar pipes from a hollow mandrel, the combination with a receiving tank containing a liquid bath, said tank designed to receive the pipe as moved from the mandrel, of the steam pipe extending through and above the receiving tank, and over which the hollow mandrel fits, and of the outer shell for preventing the liquid bath within the receiving tank from contacting with the steam pipe.



518,558. PIPE-MAKING MACHINE. WILLIAM A. TIPSON, San Francisco, Cal., assignor to the Pacific Asphaltum Pipe Company, of California. Filed June 15, 1893. Serial No. 477,742. (No model.)



Claim.—1. In a pipe making machine, the combination with the heating tank, of the supporting rolls located therein, the pressure rolls, the endless belt secured over said rolls, the hollow mandrel upon which the pipe is formed, the rod for locking the mandrel in proper position, and suitable mechanism for imparting motion to the mandrel and pressure rolls.

2. In a pipe making machine, the combination with the heating tank, of a series of supporting rolls secured therein, the adjustable pressure rolls working within sliding bearing boxes, the endless belt secured over the rolls, the vertically movable hollow mandrel axles, the links or straps forming connection between the pressure rolls and hollow axles, so as to impart an inward or outward movement to said rolls with the vertical adjustment of the hollow axles, the hollow mandrel, the bar for locking the mandrel between the hollow axles, a device for raising or lowering the mandrel, and suitable mechanism for rotating the rolls and mandrel

3. In a pipe making machine, the combination with the heating chest, a series of supporting rolls secured therein, the pressure rolls having a longitudinal movement, the vertically adjustable mandrel axles, connecting mechanism between the vertically adjustable mandrel axles and longitudinally movable pressure rolls, in order that the

latter will be forced in or out with the vertical movement of the former, the endless belt secured over the rolls, the hollow mandrel fitting between the mandrel axles, and suitable mechanism for imparting motion to the mandrel and rolls.

4. In a pipe making machine, the combination with the heating tank, supporting rolls secured therein, the pressure rolls, endless belt secured thereover, the mandrel axles, gear mechanism between the pressure rolls, supporting rolls and mandrel axles, the swinging bracket, power transmitting gears working therein, and the driving gear, for imparting motion to the machine, which engages with one of the power transmitting gears when the bracket is lowered.

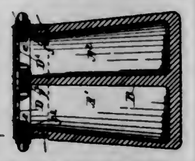
5. In a pipe making machine, the combination with the heating tank, the supporting rolls located therein, the longitudinally movable rolls, endless belt secured over the rolls, vertically adjustable mandrel axles connected to the pressure rolls, the gears secured upon the ends of supporting and pressure rolls, gear wheels secured to the mandrel axles which intermesh with gears of the supporting and pressure rolls, mechanism for transmitting motion to the mandrel axles and rolls, the mandrel secured between the axles, a crank rod for imparting vertical movement to the mandrel axles, and mechanism for operating the crank rod.

6. In a pipe making machine, the combination with the heating tank, the supporting rolls, the longitudinally movable pressure rolls, endless belt secured thereover, vertically movable mandrel axles, a mandrel secured therebetween, the cutting collars or flanges projecting from the pressure and supporting rolls and mandrel axles, connecting mechanism between the pressure rolls and mandrel axles, a device for vertically adjusting the mandrel axles, which causes the pressure rolls to move in or out, and suitable mechanism for imparting motion to the mandrel shafts and rolls.

7. In a pipe making machine, the combination with the heating tank, the supporting rolls, the pressure rolls, endless belts secured thereover, the mandrel axles carrying a forming mandrel therebetween, flanges projecting from the rolls and axles for cutting the surplus material from the ends of the mandrel in order to give clean ends to the pipe, when formed, and of suitable mechanism for imparting motion to the mandrel axles and rolls.

8. In a pipe-making machine, the combination with the hollow mandrel axles, of the hollow mandrel fitting therebetween and provided with internal guides *f'*, and a locking bar inserted through the axles and mandrel and between said guides.

518,559. SALT AND PEPPER DISTRIBUTER. CHARLES M. BERRY, San Francisco, Cal., assignor of one-half to R. F. Millard, same place. Filed Sept. 28, 1893. Serial No. 486,650. (No model.)

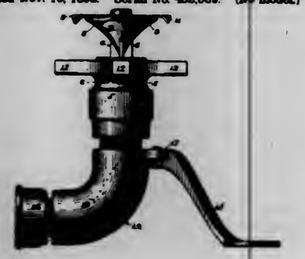


Claim.—1. In a salt and pepper distributer, the combination with the holding receptacle, the partition for dividing it into separate compartments, the perforated cap, the perforated slide plates, the bridge plate for holding the slide plates in position, and the packing located between the bridge plate and the partition wall of the receptacle.

2. In a salt and pepper distributer, the combination with the holding receptacle, the partition for dividing it into separate compartments, the perforated cap, the perforated slide plates, the bridge plate for holding the slide plates in position, and spring actuated arms for causing the inward and outward movement of the slide plates

---

518,560. LAWN-SPRINKLER. STEPHEN A. BLACK, Pasadena, Cal. Filed Nov. 18, 1892. Serial No. 452,389. (No model.)



Claim.—1. In a sprinkling apparatus, the combination with the nozzle of longitudinal septa in the mouth thereof which divide the passage into channels and project beyond the delivery orifice, and a stream deflector in the form of an inverted cone secured at its apex to the projecting ends of the septa, substantially as described.

2. In a sprinkling apparatus the combination with a nozzle of two longitudinal septa in the mouth thereof which cross each other at right angles, each being provided with a transverse slot in position to receive the middle portion of the other, and which divide the passage into four channels and project beyond the delivery orifice, and a stream deflector in the form of an inverted cone with concaved sides provided with crossed slots in its apex, which engage with the projecting ends of the septa for the purpose of securing it thereto, substantially as described.

3. In a sprinkler apparatus the combination with the nozzle, of longitudinal septa in the mouth thereof which divide the passage into channels and project beyond the delivery orifice, and a stream deflector in the form of an inverted cone with concave sides provided with recesses adapted to receive the projecting ends of the septa for the purpose of securing it thereto substantially as described.

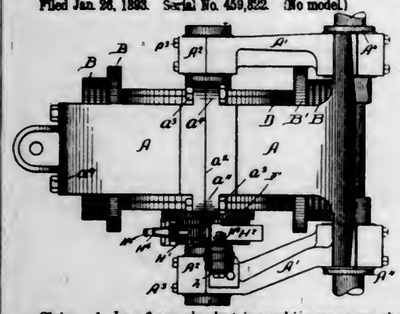
4. In a sprinkling apparatus the combination with the nozzle of longitudinal septa which divide the passage into channels and project beyond the delivery orifice, a deflector in the form of a cone with its apex toward the delivery orifice secured to the projecting ends of the septa, and a vane pivotally mounted upon the base of the cone, having wings which project over the edge of said base toward the nozzle and are laterally inclined toward the direction of the stream as it leaves the cone, substantially as described.

5. In a sprinkling apparatus the combination of a nozzle and an inverted cone stream deflector having segments of the margin of the base depressed forming lips thereon, as described, and suitable means for the supporting of cone with apex toward the delivery orifice substantially as described

6. In a sprinkling apparatus the combination with a spraying device of an elbow shaped standard having lugs projecting from its vertical portion and suitably curved legs adapted to form a horizontally movable joint on said lugs whereby the feet may be extended radially or swung around parallel with the horizontal portion of the standard substantially as described and illustrated

---

518,561. ELECTRIC MOTOR. HAROLD P. BROWN, New York, N. Y., assignor to the Edison General Electric Company, same place. Filed Jan. 26, 1893. Serial No. 459,822. (No model.)



Claim.—1 In a four pole electric machine or motor, the system or means of varying or changing the strength of the field magnets consisting in connecting two field coils in parallel to the first of a series of switch contact pieces, the other of said series being connected to different portions of one of said coils, so that when the strength of the magnets is to be reduced, the current may divide differentially in one coil, a portion of the current flowing backward in said coil in order to reach the other coil, thus keeping the magnetic strength of the two coils equal, substantially as specified.

2. In an electric machine or motor, the system or means for varying or changing the strength of the field magnets, consisting in a switch having a series of contact pieces connected at or to different portions of the coil on one of the two opposite poles, and one contact piece connected to both of the two opposite coils, so that the current may divide, when the strength of the magnet is to be weakened, between a fraction of the coil on one pole and the remainder of the coil on that pole (flowing in the opposite direction) plus the coil on the opposite pole, thus maintaining the opposite poles of equal intensity, substantially as specified

3. In an electric machine or motor, the field magnet frame made in two parts A A, the meeting faces of which are provided with interfitting tongues and grooves to relieve the clamp bolts from shearing strains, in combination with the clamp bolt for securing the two parts

together, and extending longitudinally from one part to the other substantially as specified.

4. In an electric machine or motor, a pole piece composed in part of a central core *a* integral with the frame A and in part of a supplemental removable collar surrounding the central core, thus properly distributing the lines of force and permitting the coil ready wound to be slipped on the central core portion of the pole, and a supplemental coil to be ready wound on the removable collar portion of the pole before it is applied to the core portion, substantially as specified.

5. In an electric machine or motor, a pole piece composed in part of a central integral core and in part of a supplemental removable collar surrounding the central core, thus permitting the coil ready wound to be slipped on the central core portion of the pole, and a supplemental coil to be ready wound on the removable collar portion of the pole before it is applied to the core portion, in combination with a removable coil B and a removable supplemental coil B', substantially as specified.

6. In an electric machine or motor, the armature having a core composed of a series of thin soft iron rings, in combination with insulating plates or rings placed at intervals or between some of the iron rings, but not between others, substantially as specified.

7. In an electric machine or motor, the armature having a core composed of a series of thin soft iron rings, in combination with asbestus or mica insulation plates or rings placed at intervals or between some of the rings but not between others, substantially as specified.

8. In an electric machine or motor, the armature having a core composed of a series of thin soft iron rings, in combination with insulating plates or rings placed at intervals or between some of the iron rings but not between others, said soft iron rings having an oxide or black coating on the surface thereof to partially insulate the individual rings from each other by the electric resistance offered by such coating substantially as specified.

9. In an electric machine or motor an armature having a core composed of a series of thin rings made of black iron sheets, the oxide or black coating on the surface of the sheets serving to partially insulate the individual rings from each other, substantially as specified.

10. In an electric machine or motor having a four pole field magnet, a two parallel connected armature having an even number of coils, in combination with a commutator having double the number of segments that there are coils on the armature, the opposite segments of the commutator being electrically connected together, and one terminal of each coil being connected to one of the segments, with the exception of two opposite segments marked 1 1', with one of which two coil terminals are connected, and with the other of which, 1', no terminals are connected excepting through its opposite fellow segment, 1, substantially as specified.

11. In an electric machine or motor, the combination of the armature core and its coils with the armature end-plates provided with projecting teeth, and the spiders having a projecting rim, shoulders or notches engaging said teeth, and peripheral keys for securing the armature on the spiders, said keys being inserted between the teeth of the armature end plates, substantially as specified.

12. In an electric machine or motor the armature in combination with the spider to which it is secured, said spider having a projecting rim to engage said armature and provided with pockets cored therein, and adapted to receive metal or other weight for balancing the armature, substantially as specified.

13. In an electric machine or motor, the combination with the commutator, of a pivoted brush holder furnished with a clamp for holding the brush, said clamp being arranged to hold the brush radially to the commutator, and positive mechanical devices for operating or holding the clamp to grip the brush, substantially as specified.

14. In an electric machine or motor, the combination with the commutator of a pivoted brush holder furnished with a counterbalance arm, so that said brush and its holder may be supported at or near the center of gravity, substantially as specified

15. In an electric machine or motor, the combination of a commutator with a brush holder furnished with a clamp for gripping the brush and a toggle arm or lever for operating and holding said clamp, substantially as specified.

16. In an electric machine or motor, the combination of a commutator with a brush holder furnished with a clamp for gripping the brush, and a toggle arm or lever for operating and holding said clamp, and a screw for operating and holding said toggle arm or lever in position, substantially as specified.

17. In an electric machine or motor, the combination of the commutator with a brush holder furnished with a clamp for gripping the brush, and a toggle arm or lever for operating and holding said clamp, a screw for operating and holding said toggle arm or lever in position, and a device for locking said screw from turning, substantially as specified.

18. In an electric machine or motor the combination of a brush holder and its support, with a tension spring for holding the brush against the commutator, and an insulating bushing for said spring to prevent the current passing through the same and thus destroying the elasticity of the spring, substantially as specified.

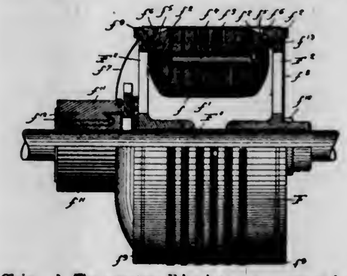
19. The combination of a pivoted brush holder, with its shaft or pivot A, a bolt or pin projecting therefrom through an opening in the brush holder, the tension spring attached to said bolt at one end and to the brush holder at the other, said bolt or pin serving also as a stop to limit the radial movement of the brush holder on its pivot or shaft, substantially as specified.

20. In an electric machine or motor, a pivoted brush holder furnished with a hollow counterbalance arm adapted to receive a counterbalance weight, substantially as specified.

21. In a dynamo-electric machine or motor, a pivoted brush holder, a carbon brush and a clamp for exerting pressure on said brush for the purpose of reducing its resistance and the contact resistance between said brush and said holder, substantially as specified.

22. In a dynamo-electric machine or motor, a pivoted brush holder supported at or near its center of gravity, substantially as specified.

518,562. ARMATURE FOR ELECTRIC MOTORS. HAROLD P. BROWN, New York, N. Y., assignor to the Edison General Electric Company, same place. Filed Feb. 6, 1893. Serial No. 461,282. (No model.)



Claim.—1. The armature F having a core composed of a series of separate annular disks or thin rings *f* and coils *f'* wound thereon, in combination with end plates f^2 united by screws or bolts f^3, said end plates f^2 being provided in their outer edges with beveled projections f^4, and spiders F^2 having corresponding faces or rims f^5 engaging said beveled projections on said end-plates, substantially as specified.

2. The armature F having core composed of a series of separate annular disks or thin rings *f* and coils *f'* wound thereon, in combination with clamping end plates f^2 united by screws or bolts f^3, said screws or bolts being insulated electrically from one or both of the two end plates, and from all of the soft iron rings *f* composing the armature, by tubes of insulating material f^4, said end plates f^2 being provided on their upper edges with beveled projections f^4, and spiders F^2 having corresponding beveled or wedging faces or rims f^5 engaging said beveled projections on said clamping rings, substantially as specified.

3. In an armature, the combination with the shaft, spiders and armature rings provided with coils, of annular disks f^6 f^6 of non-conducting material adapted to resist moisture and heat, such as vulcabeston, secured at the ends of the armature to exclude dirt and moisture therefrom, substantially as specified.

4. In an armature, the combination with the shaft, spiders and armature rings provided with coils, of annular disks f^6 f^6 of non-conducting material adapted to resist moisture and heat, such as vulcabeston, secured at the ends of the armature to exclude dirt and moisture therefrom, said disks f^6 f^6 being secured to the spiders by clamping rings f^9, substantially as specified.

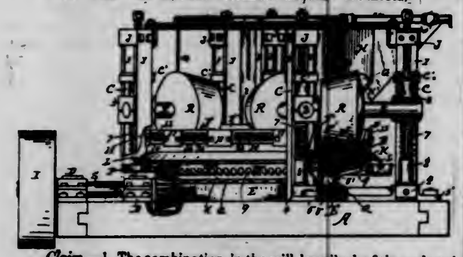
5. The commutator furnished with segments, and having a hollow ring f^{12} containing a gum or lubricant, substantially as specified.

6. A commutator furnished with segments and mica strips between the segments, and provided with a hollow ring or space between the shaft and the segments containing burned shellac, substantially as specified.

7. In an electric motor, the armature having spiders F^2 and end plates f^2 provided with screws f^{13} uniting said spiders and end plates, in combination with rings f^9 secured to said spiders and overlapping said screw f^{13} whereby said screws are locked in place, substantially as specified.

8. The armature having a core composed of a series of separate annular disks or thin rings *f* and coils *f'* wound thereon, in combination with clamping end-plates f^2 united by screws or bolts f^3, said end-plates being provided on their outer edges with projections f^4 and spiders F^2 having corresponding faces or rims f^5 engaging said projections on said end plates, substantially as specified.

518,563. ORE-CRUSHING MILL. HARVY BURNS, Wichita, Kans., assignor of one-third to John H. Hopass and Joel H. Wheeler, Pueblo, Colo., John M. Ware, Arkansas City, Kans., and Thomas Russell, Pueblo, Colo. Filed June 13, 1892. Serial No. 436,613. (No model.)

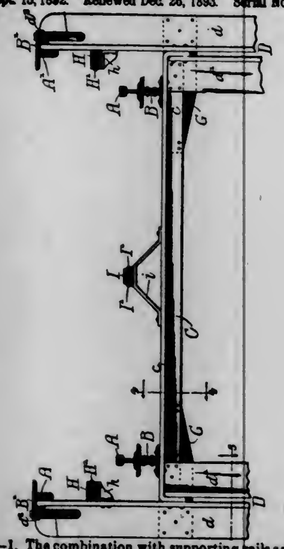


Claim.—1. The combination, in the mill described, of the pedestal, the spider fixed upon the pedestal, and provided with the radial arms, having the heads to which the housing uprights are secured, and with the grooved ball track; the housing uprights and their connecting head blocks, and tie bars; the rotable crusher bed mounted on balls arranged to travel in said spider track; the gear mechanism for driving said bed; the crushing rolls mounted on shafts journaled in said housings, by means of vertically sliding bearings, and the pressure screws and interposed cushions, for imposing a yielding and variable pressure of said rolls upon the crushing bed, substantially as and for the purpose set forth.

2. The combination, in the mill described, of the crushing bed provided with equidistant upright portions arranged about upon its side flange; of the screen plates placed to span the spaces between said upright portions; and of the plates, and screws, for holding said screens into position, substantially as set forth.

3. In the mill described, the combination with the ore crushing bed of the chilled plate or plates arranged to form the wearing surface of said bed; and an interposed bed of spelter, or like material, substantially as specified.

518,564. ELEVATED RAILWAY. CHARLES C. BURTON, Utica, N. Y., assignor, by direct and mesne assignments, of a part of his right to George M. Ludlow, Chicago, Ill., Louis R. Holden, Beloit, Wis., and Curtis G. Hussey, Allegheny, and John C. des Granges, Pittsburg, Pa. Filed Sept. 15, 1892. Renewed Dec. 26, 1893. Serial No. 494,690. (No model.)



Claim.—1. The combination with supporting rails and guide rails located above and outside of the same, of an elevated structure comprising longitudinal stringers sustaining the supporting rails and guide rails, cross-pieces extending beneath and outside of the stringers which sustain the supporting rails, and upright parts or posts attached to said cross-pieces and to the stringers supporting the guide rails, substantially as described.

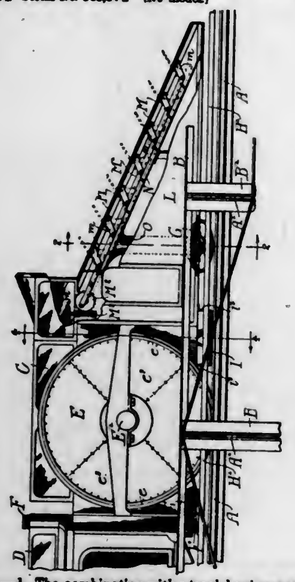
2. The combination with supporting-rails and guide-rails located above and outside of the same, of a track-supporting structure comprising lower and upper stringers sustaining the supporting and guard-rails, supporting posts, cross-pieces attached to said posts and supporting the lower stringers, intermediate cross-pieces attached to said stringers and uprights attached to said intermediate pieces and to the upper stringers, said uprights and upper stringers forming respectively the vertical struts and upper longitudinal members of trusses between the supporting posts, substantially as described.

3. The combination with supporting rails and guide rails located above and outside of the same, of a track supporting structure comprising lower and upper stringers sustaining the supporting and guide rails posts or uprights which extend upwardly to and sustain the upper stringers, cross-pieces attached to said posts and supporting the lower stringers, intermediate cross-pieces between the posts attached to said stringers, vertical struts attached to said intermediate cross-pieces and to the upper stringers and tension members or tie rods sustaining the said struts from the posts, substantially as described.

4. An elevated track supporting structure comprising lower and upper longitudinal stringers, cross pieces attached to the lower stringers and supporting posts consisting of inner and outer bars of which the outer bars extend upwardly to and sustain the upper stringers and are attached to the ends of the cross-pieces, and the inner bars terminate at and are secured to the said ends of the cross-pieces, substantially as described.

5. A track supporting structure comprising lower and upper longitudinal stringers, transverse pieces attached to the lower stringers and supporting posts each consisting of two outer and two inner bars, of which the outer bars extend upwardly to and sustain the upper stringers and the inner bars terminate at and are attached to the said ends of the cross-pieces, and vertical plates G G, attached to the ends of the cross-pieces and extending between and secured to the said inner and outer bars of the posts, substantially as described.

518,565. RAILWAY TRACK AND CAR. CHARLES C. BURTON, Chicago, Ill., assignor, by direct and mesne assignments, of a part of his right to George M. Ludlow, Chicago, Ill., Louis R. Holden, Beloit, Wis., and Curtis G. Hussey, Allegheny, and John C. des Granges, Pittsburg, Pa. Filed Sept. 15, 1892. Renewed Aug. 18, 1893. Again renewed Mar. 12, 1894. Serial No. 503,374. (No model.)



Claim.—1. The combination with a track having supporting rails and external guide or bearing rails located above the same, of a car provided with supporting wheels and with guide wheels mounted on inclined axes and bearing upwardly and outwardly against the said bearing rails, substantially as described.

2. The combination with a car consisting of two end sections provided with supporting wheels and a middle section pivoted to and suspended between the end sections, of a track structure embracing supporting rails, and bearing rails located above and outside of the supporting rails, and guide wheels on the end sections of the car, arranged at front and rear of the supporting wheels and bearing upwardly and outwardly against the said bearing rails, substantially as described.

3. The combination with a track structure comprising supporting rails and bearing rails located outside of and above the supporting rails, said bearing rails being provided with vertical and horizontal flanges, of a car provided with supporting wheels and with guide wheels mounted on inclined axes and provided with V-shaped rims adapted to extend into the angle formed by said vertical and horizontal flanges of the said bearing rails, substantially as described.

4. The combination with a track structure embracing supporting rails, and bearing rails located above and outside of the same, of electric conductors extending along the rails between the bearing and supporting rails and above the latter, a car provided with supporting wheels and bearing wheels, and yieldingly supported contact wheels on the car, arranged to bear outwardly against the said conductors, substantially as described.

5. The combination with a track structure embracing supporting rails and bearing rails located above and outside of the same, of a conductor located between the supporting rails, a car provided with supporting wheels and with guide wheels acting upwardly and outwardly against the said bearing rails, and a contact wheel on the bottom of the car acting against said conductor, substantially as described.

6. The combination with a car provided with a prow having an inclined surface, of a plurality of transversely arranged pivoted strips or slats, and means for actuating the same, substantially as described.

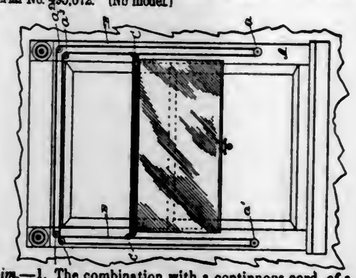
7. The combination with a car having a prow provided with inclined surfaces, of a plurality of transversely arranged slats or blades pivoted to the said prow, and an inner wall or partition closing the spaces between the blades when the latter are open, substantially as described.

8. The combination with a car provided with a prow having an inclined surface, of a plurality of transversely arranged blades pivotally connected with the prow, and means for actuating said blades comprising arms rigidly attached to the same, a rod connecting all of said blades with each other and means for giving endwise movement to the said rod, substantially as described.

9. The combination with a car or motor, of a prow thereon having a wide downwardly and forwardly inclined top surface operating to deflect the air in the forward movement of the car and also to increase the pressure of the traction wheels of the car against the rails, substantially as described.

10. The combination with a car having a prow provided with inclined surfaces, of a plurality of transversely arranged slats or blades pivoted to the prow, an inner wall or partition for closing the spaces between the blades when the latter are open, and discharge tubes extending from said partition downwardly through the bottom of the car, substantially as described.

518,566. ATTACHMENT FOR VERTICALLY ADJUSTING WINDOW-SHADES. ALFRED W. COLLISON, Chicago, Ill. Filed Dec. 29, 1893. Serial No. 495,072. (No model.)



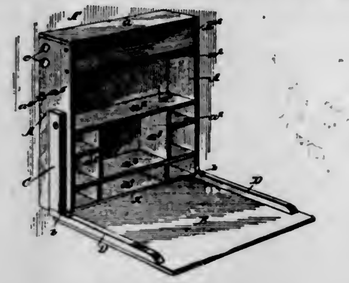
Claim.—1. The combination with a continuous cord, of a series of pulleys attached to the casing to support the cord, a clamp-hook to support the shade-roller, composed of the tubular piece C, having the forked projection c, the hook D, having the cam-extension *d*, pivotally secured within the fork, attached to the cord on each side of the casing, substantially as described.

2. In a shade attachment a clamp-hook to support the shade-roller, consisting of the tubular piece C, having the forked extension c, the hook D, having the cam-extension *d*, pivotally secured within the fork, substantially as described.

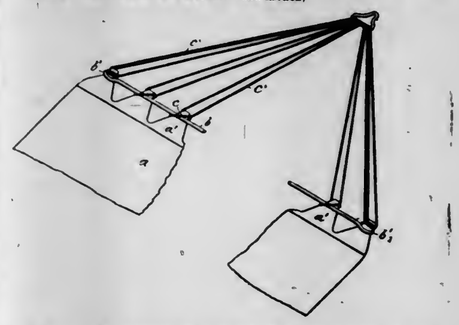
518,567. WALL-DESK. JOSEPH F. FIGGINS, Washington, D. C., assignor of one-third to William Franklin Zang, Harrisburg, Pa. Filed May 12, 1893. Serial No. 473,921. (No model.)

Claim.—1. In a desk, a case, having notched sides, the rigid strips secured to the sides of the case, above the notches, the lid having side strips hinged to the rigid strips the lower edge of the case being rounded and the rear faces of the notches being vertical for the purposes set forth.

2. An improved desk comprising the side, top and bottom pieces and dividing partitions, the side pieces being notched and the bottom piece rounded as described, the rigid side strips, the folding lid and projecting side strips, and the hinges connecting the rigid side strips and said lid and side strips substantially as shown and described.



518,568. HAMMOCK STRETCHER OR SPREADER. ROBERT C. FUNKE, Philadelphia, Pa., assignor to Samuel Corkran, same place. Filed Oct. 28, 1893. Serial No. 489,347. (No model.)



Claim.—1. In combination, a hammock having a series of tabs or tags at its end, a stretcher or spreader secured to the end tabs or tags, and a series of suspension cords whereof the intermediate ones pass around said stretcher or spreader and tie the intermediate tabs or tags firmly thereto, substantially as described.

2. In combination, a hammock having a series of tabs or tags, a stretcher or spreader provided with transversely ranging end shoulders, and a cord or cords passing around the stretcher or spreader and the end shoulders and tying the intermediate and end tabs or tags thereto, substantially as described.

3. In combination, a hammock having a series of tabs or tags at its end, a stretcher or spreader provided with transversely ranging end shoulders or enlargements, and a series of suspension cords whereof the intermediate ones are tied around said stretcher or spreader and support the intermediate tabs or tags and whereof the end ones are tied around the shoulders or projections on opposite sides of the spreader and support the end tabs or tags, substantially as described.

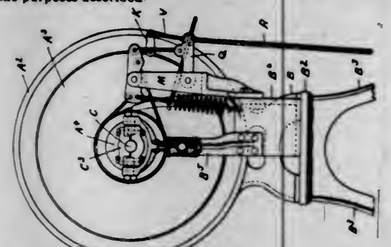
4. In combination, a hammock having a series of tabs or tags, a stretcher or spreader having transversely ranging end shoulders or enlargements, and a cord or cords passing around the spreader or stretcher and the end shoulders and tying the end tabs or tags of said series thereto, substantially as described.

5. In combination, a hammock having a series of tabs or tags, and a stretcher or spreader secured to some of said tabs or tags and comprising two members whereof one is provided with two eyes and whereof the other is provided with a loop engaging one of said eyes and adapted for insertion in and removal from the other of said eyes, substantially as described.

518,569. MACHINE FOR DRYING MATRICES. EDGAR HALL and ALBERT E. HALL, Cambridge, Mass. Filed Nov. 26, 1892. Serial No. 453,254. (No model.)

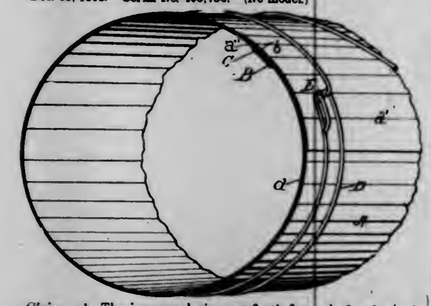
Claim.—1. A stationary drum A open at its lower portion, and burners N, located opposite to said open portion of the drum, in combination with a rotating wire screen cylinder D contained within the drum A, and a stationary chamber E about the lower portion of and separate from said rotating cylinder and open to the burners N, and at one of its upper ends closed and at the other of its upper ends hav-

ing a damper adapted to open and close it substantially as described, for the purposes described.



2. A stationary drum A open at its lower portion, and burners N, located opposite to said open portion of the drum, in combination with a rotating wire screen-cylinder D contained within the drum A and having a screen partition dividing it into sections, and a stationary chamber E about the lower portion of and separate from said rotating cylinder and open to the burners N, and at one of its upper ends closed and at the other of its upper ends having a damper adapted to open and close it, substantially as described, for the purposes described.

518,570. SHEET-METAL PIPE. CHARLES S. HAMLIN, Los Angeles, assignor of one-half to Arthur C. Harper, University, Cal. Filed Dec. 15, 1893. Serial No. 493,736. (No model.)



Claim.—1. The improved pipe set forth formed of a single sheet of metal comprising two sections and provided between such sections with a longitudinally arranged S shaped fold or lap which forms a seat for the edge of one of the sections: said sheet being rolled into convolute form with the edge of one section of the sheet inserted in the seat formed by the lap, and the outer section of the sheet rolled about the inner section and fastened by suitable means.

2. The improved pipe set forth formed of the single sheet of metal comprising two sections and provided between such sections with a longitudinally arranged S shaped fold or lap which forms a seat for the edge of one of the sections: said sheet being rolled into convolute form with the edge of one section of the sheet inserted in the sheet formed by the lap, and the outer section of the sheet rolled about the inner section and extended over and beyond the lapped portion and fastened by suitable means.

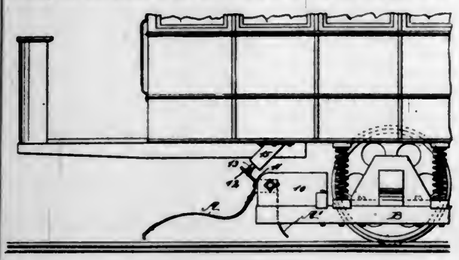
3. The combination of a single sheet of metal provided between its edges with a longitudinally arranged S shaped fold or lap which forms the seat for one of the edges of the sheet: said sheet being rolled into convolute form with the edge of one section of the sheet inserted in the seat formed by the lap: and the outer section of the sheet rolled about the tube formed by the inner section, and suitable bands wrapped about the tube thus formed to fasten the same

518,571. FENDER FOR TRAM CARS. FRANKLYN S. HOGG, New York, N. Y. Filed Nov. 6, 1893. Serial No. 490,128. (No model.)

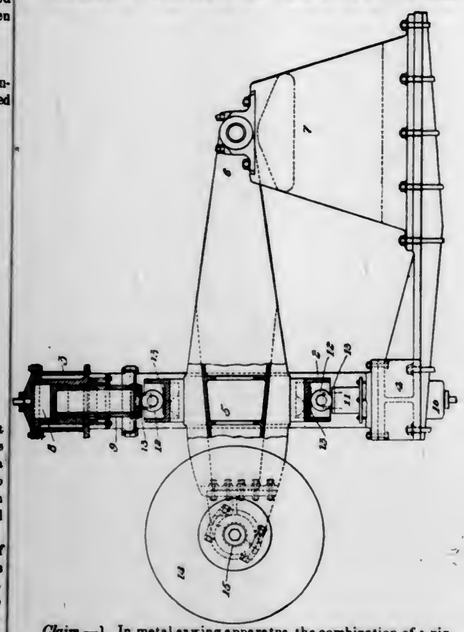
Claim.—1. In a tram car or like vehicle, a fender having pivotal connection with the vehicle, and spring controlled plungers connected to the fender and having limited sliding movement in bearings on the vehicle frame, substantially as described.

2. In a tram car or like vehicle, a rock shaft, a fender secured to the forward face of the rock shaft, extending downwardly and forwardly therefrom, a second fender extending from the opposite side of the shaft, plungers connected with the main fender, and means, substantially as shown and described, for limiting the movement of the plungers, as and for the purpose set forth.

3. In a fender for tram and other cars, the combination, with a fixed support, and a shaft journaled in the support, of a fender secured to the forward face of the shaft, an auxiliary or guard fender attached to the rear face of the shaft, one fender being elevated when the other is depressed, and a spring-controlled guide mechanism controlling the movement of the shaft, as and for the purpose set forth.



518,572. METAL-SAWING MACHINE. JOHAN F. LUNDAHL, Homestead, Pa. Filed June 30, 1892. Serial No. 438,544. (No model.)



Claim.—1. In metal-sawing apparatus, the combination of a pivotally movable saw-holding lever, posts between which it is set and by which it is guided and supported laterally, and a motor by which said lever is moved on its pivot and the saw is forced against the metal piece to be cut; said posts being situated between the position of the saw and the pivot of the lever; substantially as described.

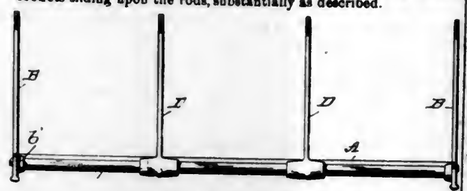
2. In metal-sawing apparatus, the combination of a pivotally movable saw-holding lever, posts between which it is set and by which it is guided and supported laterally, a motor comprising a cylinder and plunger, acting on the lever in one direction, and a counterbalance acting thereon in the opposite direction; substantially as described.

3. In metal-sawing apparatus, the combination of a pivotally movable saw-holding lever, posts between which it is set and by which it is guided and supported laterally, a motor comprising a cylinder and plunger acting on the lever to force the saw into the metal piece to be cut, and a roller interposed between the lever and the movable part of the motor; substantially as described.

518,573. BOOK-RACK. GEORGE W. PARKER, New York, N. Y. Filed Nov. 16, 1893. Serial No. 491,174. (No model.)

Claim.—A book rack comprising the base portion, the end portions secured at each end of the base portion and projecting to each side thereof, annular flanges carried by the projecting portions, rods having their ends supported by said annular flanges and intermediate

partitions having downwardly extended corners carrying tubular sockets sliding upon the rods, substantially as described.



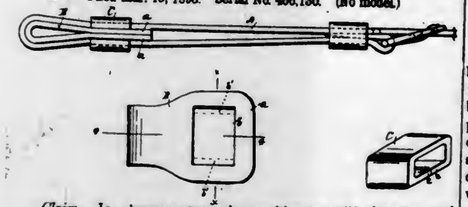
518,574. SACK-FASTENER. ALFRED S. PROCTER, Denver, Colo. Filed Aug. 14, 1893. Serial No. 483,063. (No model.)



Claim.—1. In a sack fastener, the combination of the sack having a pocket formed around its mouth, four loose stiffening bars of substantially equal length concealed within the pocket, and approximately filling the same, and a cord passed through both sides of the sack below the bars and tied between their adjacent extremities, outside of the pocket, substantially as described.

2. In a sack fastener, the combination of the sack having a continuous pocket formed therein around its mouth, four wood bars of equal length placed loosely therein, and approximately filling the pocket, and a fastening cord passed through eyelets placed in the sides of the sack below the bars and tied between their adjacent extremities outside of the pocket, substantially as described.

518,575. HARNESS-STRAP. GEORGE A. WHIPPLE, Diamond Hill, R. I. Filed Mar. 15, 1893. Serial No. 466,130. (No model.)



Claim.—In a harness strap, the combination with the strap, and a transverse band embracing the loop of the strap, of the folded chafing piece held within the loop of the strap, and provided with perforations which embrace the band, substantially as described.

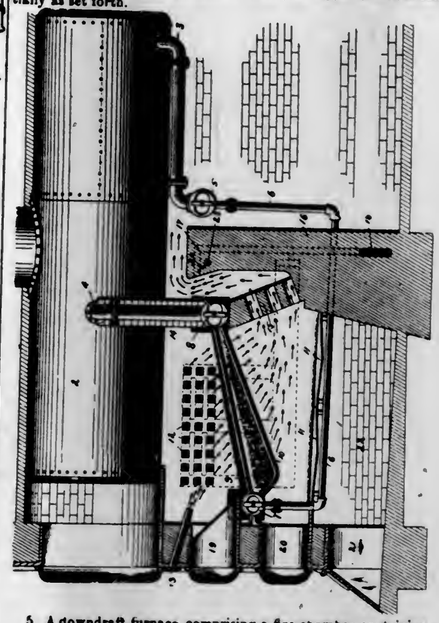
518,576. SMOKE PREVENTING FURNACE. JUDSON A. BALDWIN, Benton Harbor, Mich., assignor to George W. Hale, Chicago, Ill. Filed Mar. 18, 1892. Serial No. 425,377. (No model.)

Claim.—1. A downdraft-furnace, comprising an upper downdraft grate composed of upper grate-bars and a lower set of grate-bars so disposed relatively to the upper bars as to produce an intervening space of greater depth adjacent to a draft-inlet and of less depth remote from such draft-inlet, and a blind down-draft grate located below the upper grate and receiving its draft wholly downward from such upper grate, substantially as set forth.

2. A downdraft-furnace, comprising an upper downdraft-grate composed of a plurality of sets of upper and lower water-grate bars so disposed relatively to each other as to produce an intervening space of greater depth adjacent to a draft-inlet and of less depth remote from such draft-inlet, and a blind-grate located below the upper grate and supported upon water-heating pipes, and also receiving its draft wholly downward from the upper grate, substantially as set forth.

3. A downdraft-furnace, comprising an upper and also a lower grate each composed of a plurality of sets of grate-bars so disposed relatively to each other as to produce an intervening space of greater and less depth, hot-air inlets located above said upper grate and in the sides of the furnace-chamber, and other air-inlets located in the front of the furnace-chamber and also above said upper grate, substantially as set forth.

4. A downdraft furnace, comprising a fire-chamber containing a bridge-wall provided with air-heating inlet-passages, a plurality of water-heating drums located at the front and rear of said chamber, an upper downdraft grate composed of a set of upper tubular grate-bars connected to said drums, and a lower set of tubular grate-bars also connected to said drums and so disposed relatively to the upper grate-bars as to produce an intervening space of greater depth adjacent to a draft-inlet and of less depth remote from such draft-inlet, and a blind downdraft grate located below the upper grate and receiving its draft wholly downward from said upper grate, substantially as set forth.



5. A downdraft furnace, comprising a fire-chamber containing a bridge-wall having air-heating inlet-passages, a pair of drums one of which is located in the front and the other in the rear of the chamber, a plurality of pipes connecting the rear drum to a boiler and supporting a closed wall or lining, an upper downdraft grate composed of an upper set of tubular bars connected to said drums, and a lower set of tubular bars also connected to the drums, and a blind downdraft grate located below the upper grate and receiving its draft wholly downward from said upper grate, substantially as set forth.

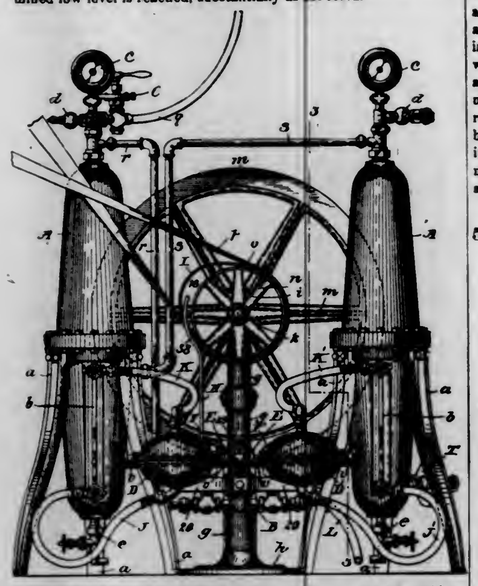
518,577. APPARATUS FOR MAKING CARBONATED BEVERAGES. JOHN MACKEEY and WILLIAM HELMER, Boston, and GEORGE E. BARTON, Somerville, assignors to the American Soda Fountain Company, Boston, Mass. Filed Jan. 4, 1894. Serial No. 495,710. (No model.)

Claim.—1. In a machine for making carbonated beverages, the combination of a mixing vessel, a pipe for admitting gas to said mixing vessel, a pump for forcing liquid into said mixing vessel, a device for automatically starting and stopping the pump, said device controlling and being operated by the level of the liquid in the said mixing vessel, and a mixing device for subdividing the liquid in the mixing vessel containing gas under pressure, whereby the said gas and liquid are intimately mixed and combined within said vessel, substantially as set forth.

2. In a machine for making carbonated beverages, the combination of a mixing-vessel, a pipe for admitting gas to said mixing-vessel, a pump for forcing liquid into said mixing-vessel, a device for automatically starting and stopping the pump, said device controlling and being operated by the level of the liquid in the said mixing-vessel, a mixing-device arranged within said mixing-vessel, whereby the liquid is sub-divided within the mixing-vessel containing gas under pressure, and an automatic regulating valve, whereby a uniform pressure of gas is constantly maintained in the mixing-vessel, substantially as set forth.

3. In a machine for making carbonated beverages, the combination of a mixing-vessel, a pipe for admitting gas to said mixing-vessel, an automatic regulating valve for maintaining a uniform pressure of gas in said mixing-vessel, a pump for forcing liquid into said mixing-vessel, a mixing device arranged within said mixing-vessel, whereby the liquid is sub-divided within said mixing-vessel, a rock shaft carry-

ing on one side a vessel and on the opposite side an arm provided with a counterbalance weight, the said vessel being connected with the mixing-vessel by flexible tubes and arranged to control the level of the liquid within the mixing-vessel by stopping the pump when the liquid has risen to the desired level, and starting it again when a predetermined low level is reached, substantially as set forth.



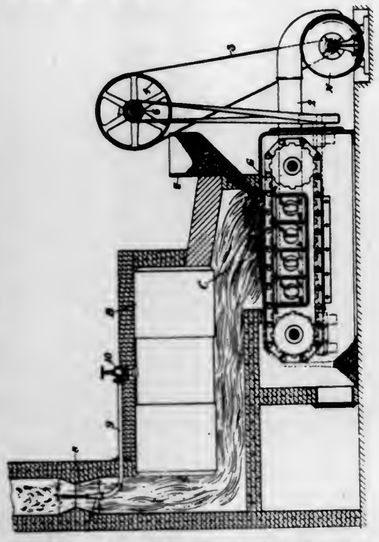
4. In a machine for making carbonated beverages, the combination of a mixing-vessel, a pipe for admitting gas to said mixing-vessel, an automatic regulating valve for maintaining a uniform pressure of gas in said mixing-vessel, a pump for forcing liquid into said mixing-vessel, a mixing device arranged within said mixing vessel, whereby the liquid is sub-divided within said mixing-vessel, a rock-shaft carrying on one side a vessel and on the other side an arm provided with a counterbalance weight, the said vessel being connected with the mixing-vessel by flexible tubes and arranged to control the level of the liquid within the mixing-vessel by stopping the pump when the liquid has risen to the desired level and starting it again when a predetermined low level is reached, and a belt-shipper connected with said rock-shaft for shipping a belt and thereby stopping or starting the pump, substantially as described.

5. In a machine for making carbonated beverages, the combination of a mixing vessel, a pipe for admitting gas to said mixing-vessel, an automatic regulating valve for maintaining a uniform pressure of gas in said mixing-vessel, a pump for forcing liquid into said mixing-vessel, a mixing-device within said mixing-vessel, whereby the liquid is sub-divided within said mixing vessel, a rock shaft carrying on one side a vessel and on the opposite side an arm provided with a counterbalance weight, the said vessel being connected with the mixing-vessel by flexible tubes and arranged to control the level of the liquid within the said mixing vessel by stopping the pump when the liquid has risen to the desired level, and starting it again when a predetermined low level is reached, and means substantially as described connected with said rock shaft for connecting the pump with the driving power or disconnecting it therefrom, substantially as set forth.

6. In a machine for making carbonated beverages, the combination of a mixing-vessel, a pipe for admitting gas to said mixing-vessel, an automatic regulating valve for maintaining a uniform pressure of gas in said mixing vessel, a pump for forcing liquid into said mixing-vessel, a mixing-device arranged within said mixing vessel, whereby the liquid is sub-divided within said mixing vessel, a rock-shaft carrying on one side a vessel and on the opposite side an arm provided with a counterbalance weight, the said vessel being connected with the mixing-vessel by flexible tubes and arranged to control the level of the liquid within the mixing-vessel by stopping the pump when the liquid has risen to the desired level, and starting it again when a predetermined low level is reached, a belt shipper connected with said rock-shaft for shipping a belt, and thereby stopping or starting the pump, and a loose friction belt interposed between the driving-belt and the pulley over which it runs for the purpose of preventing noise when said driving-belt is shipped from the loose to the fast pulley, substantially as described.

7. In a machine for making carbonated beverages, the combination of a primary mixing-vessel, a pipe for admitting gas to said mixing-vessel, a pump for forcing liquid into said mixing-vessel, a device for automatically starting and stopping the pump, said device controlling and being operated by the level of liquid in the said mixing-vessel, a mixing device arranged within said primary mixing-vessel, a secondary mixing vessel, a pipe connecting the primary and secondary mixing vessels, a mixing-device arranged within the secondary mixing-vessel, a distributing device provided with outlet valves through which the liquid is drawn off for use, a counterbalanced rock-shaft, a vessel attached to said rock shaft and connected with the primary mixing-vessel by flexible tubes, and a second vessel attached to said rock shaft and connected with the secondary mixing-vessel by flexible tubes, whereby the level of the liquid in the said secondary mixing-vessel is controlled, and gas from the primary mixing vessel admitted intermittingly to the secondary mixing-vessel, substantially as set forth.

518,578. FURNACE. ECKLEY B. COXE, Drifton, Pa. Filed Nov. 27, 1893. Serial No. 492,083. (No model.)



Claim.—In a furnace of the class specified, the combination with the furnace-chamber and its inclosing walls, and with the furnace-floor located under said chamber, of high-pressure and low-pressure air-blast apparatus located below and in communication with the furnace-floor, and a blast-apparatus located near the discharge-end of the furnace-chamber and adapted for reducing the absolute air-pressure in said chamber to a pressure below that of the lowest-pressure air-blast apparatus, to prevent re acting back-pressure, substantially as described and for the purpose set forth.

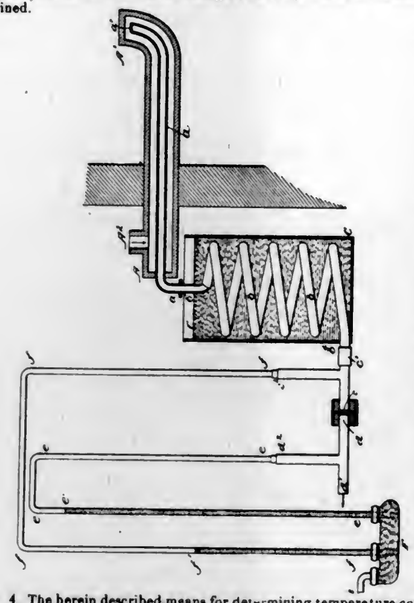
REISSUES.

11,418. PYROMETER. EDWARD A. UEHLING and ALFRED STEINHART, Birmingham, Ala. Filed Dec. 8, 1893. Serial No. 493,134. Original No. 503,337, dated Aug. 15, 1893.

Claim.—1. The herein described method of determining temperature, which consists in passing the measuring fluid into a tube or chamber through a minute aperture, subjecting the said fluid to a change of temperature in its passage through the said tube or chamber the fluid having the temperature to be measured in its passage through one of said apertures and a normal temperature in its passage through the other aperture, and utilizing the change in the tension of the measuring fluid between the said apertures as a means to ascertain the degree of the temperature to be indicated.

2. The herein described method of determining temperature which consists in passing a gas through a tube or chamber having two apertures, the gas being raised to the degree of temperature to be indicated prior to entering one of the apertures, then reducing the gas to a normal degree before it flows through the other aperture the change in tension of the said gas between the said apertures being a measure of the temperature to be determined.

3. The herein described means for determining temperature, consisting of a tube having two apertures, through which the gas is passed under pressure, the gas entering one aperture at the degree of temperature to be determined, and a reducing device to bring the gas to a normal temperature before flowing through the other aperture, the change of tension of the gas between the two apertures being a measure to determine the degree of temperature to be ascertained.



4. The herein described means for determining temperature consisting of a tube having two apertures, through which the gas is passed under pressure, the gas being raised to the degree of temperature to be ascertained before entering one aperture, a reducing device to bring the gas to a normal temperature before flowing through the other aperture and a manometer having connection with the tube to indicate the change in tension between the said two apertures and the degree of temperature to be determined.

5. A pyrometer consisting of a chamber in which the gas is raised to the degree of temperature to be ascertained, a tube having a portion projecting into the said chamber and having two apertures, a reducing device applied to the other portion of said tube to bring the gas to a normal temperature before leaving the tube, a manometer having connection with the said tube to indicate the change in tension of the gas between the said apertures and as it is passed under pressure through said tube substantially as and for the purpose set forth.

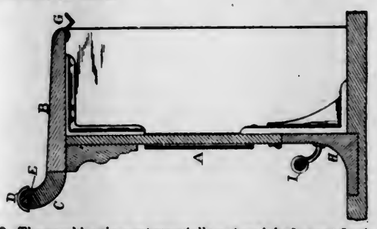
6. A pyrometer consisting of a tube having two small apertures and in communication with a partial vacuum at *d*, the gas being raised to the degree of temperature to be determined before entering one aperture, a cooling device to reduce the temperature of the gas to a normal or certain degree before flowing through the other aperture, and a manometer to indicate the change in tension of the gas between the said apertures, substantially as described.

7. An apparatus to determine temperature consisting of a chamber or tube having minute inlet and outlet apertures and into which chamber or tube gas is passed, a reducing device to bring the gas to a normal temperature at or before its passage through one of said minute apertures, the gas being heated to the temperature to be ascertained before its passage through the other aperture, and the change in the tension of the gas between the minute apertures being utilized, by a suitable indicator, to ascertain the temperature to be determined.

11,414. COMBINED ARM-REST AND GUARD FOR COUNTERS, BARS, &c. WILLIAM C. HUSS, Cincinnati, Ohio, assignor, by mesne assignments, to the Brunswick-Balke Collender Company, of Ohio. Filed Oct. 27, 1892. Serial No. 450,189. Original No. 470,002, dated Mar. 1, 1892.

Claim.—1. The combination with a smooth, counter top, of a guard-rail curved upwardly and forwardly from the front edge of said top, and terminating in a round rail; substantially as and for the purposes hereinbefore set forth.

2. The combination with the horizontal bar, or counter, top B, of a combined guard and arm-rest; the said guard extending upwardly from the counter top substantially as and for the purposes hereinbefore set forth.



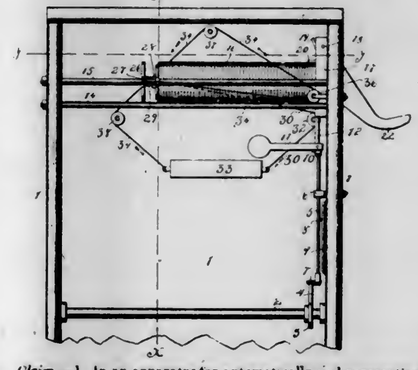
3. The combination, substantially as hereinbefore set forth, of the counter B; and the guard rail C, curved upwardly and forwardly from the front edge of said top and terminating in a rounded rail E.

4. The combination, substantially as hereinbefore set forth, of the counter A; top B, terminating in an upwardly and forwardly projecting guard and arm-rest C, E; and the gutter G, arranged at the rear edge of the top.

5. The combination, substantially as hereinbefore set forth, of the counter A; the top B, having its outer edge projecting upwardly and forwardly as shown; and the metal finishing-strip D, covering, or partially covering, the outwardly and upwardly projecting front edge of the counter.

6. The combination of a bar, or counter, B; guard C, projecting forwardly and upwardly therefrom and made solid from end to end; a rail E, secured to the upper edge of this guard; and a sheet metal cap D, applied to said rail; all as herein described.

11,415. COIN-CONTROLLED MACHINE. WILLIAM T. LEWIS, Bay City, Mich., assignor to Samuel Welsh, Philadelphia, Pa. Filed Sept. 8, 1893. Serial No. 485,115. Original No. 495,498, dated Apr. 18, 1893.



Claim.—1. In an apparatus for automatically and consecutively delivering checks from a coin controlled machine, the combination of a magazine to hold a series of checks, a discharge chute adjacent to the magazine but out of line with the lower support of the magazine, a coin controlled shaft, a discharging piece operated by the shaft adapted to engage the foremost check and remove it from the magazine, and means to remove the check from the discharge piece and direct it to the outlet of the discharge chute, whereby a check is automatically discharged upon the deposit of a coin, substantially as set forth.

2. In an apparatus for automatically and consecutively delivering checks from a coin controlled machine, the combination of a magazine to hold a series of checks, a discharge chute adjacent to the magazine having its outlet above the lower support of the magazine, a coin controlled shaft, and a discharge rod operated by the shaft having a shoulder adapted to engage the foremost check in the magazine and elevate it to the outlet of the discharge chute, whereby the released check is free to pass out of the discharge outlet of the chute when the shoulder rod descends, and means to deflect the raised check and direct it toward the discharge outlet, substantially as set forth.

3. In an apparatus for automatically and consecutively delivering checks from a coin controlled machine, the combination with the magazine 14 15 15, with keepers 21 for holding the checks under pressure.

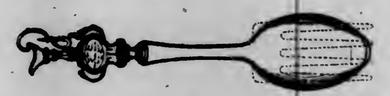
of the releasing device consisting of the rod 5 operated by the cam 3 4 on the main shaft, the rods 12 12 shouldered at 13 and weighted arm or arms pivoted to the rod 5, the springs 19 and chute 22, all operating substantially as shown and described.

4. In a coin-controlled machine, an apparatus for automatically and consecutively delivering checks consisting of the magazine 14 15 15, with keepers 21 and plate 26, the rod 5, operated by the cam 34 on the main shaft the rods 12 12 shouldered at 13 and weighted arm or arms pivoted to the rod 5, the springs 19 and chute 22 and the suspended weight 33 connected to the sides of the plate 26 by the cords 30 and 34, and pulleys 32 36 37 and 38, all combined and operating substantially as shown and described.

5. In an apparatus for automatically and consecutively delivering checks from a coin controlled machine, the combination of a magazine to hold a series of checks, a discharge chute adjacent to the magazine, a keeper adjacent to the end of the magazine to retain the foremost check therein, a coin controlled shaft, a discharging piece operated by the shaft to remove the foremost check in the magazine from behind the keeper, and means to deflect the check when so removed by the discharging piece away from the keeper so that it may pass to the discharge chute substantially as set forth.

DESIGNS.

23,194. SPOON. HARRY H. CABOT, Bristol, assignor to the Kent & Stanley Company, Providence, R. I. Filed Mar. 8, 1894. Serial No. 502,916. Term of patent 14 years.



Claim.—The design for handles of spoons and similar articles as herein shown and described.

23,195. SPOON. HARRY H. CABOT, Bristol, assignor to the Kent & Stanley Company, Providence, R. I. Filed Mar. 8, 1894. Serial No. 502,917. Term of patent 14 years.

Claim.—The design for spoons as herein shown and described.

23,196. SPOON. GEORGE ROCKWELL, Meriden, assignor to Rogers & Brother, Waterbury, Conn. Filed Mar. 12, 1894. Serial No. 503,370. Term of patent 7 years.



Claim.—The design for spoons as herein shown and described.

23,197. KEY-TOP. ROBERT S. GRAHAM and WILLIAM R. SAVELL, Newark, N. J. Filed Mar. 14, 1894. Serial No. 503,643. Term of patent 14 years.



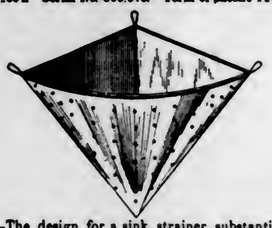
Claim.—The design for a key top substantially as shown and described.

23,198. KEY-TOP. ROBERT S. GRAHAM and WILLIAM R. SAVELL, Newark, N. J. Filed Mar. 14, 1894. Serial No. 503,644. Term of patent 14 years.



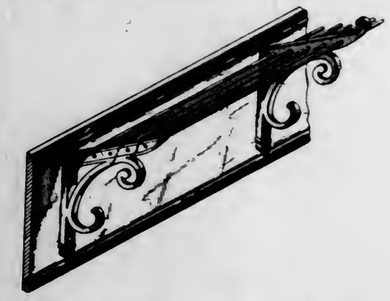
Claim.—The design for a key-top, substantially as shown and described.

23,199. SINK-STRAINER. LIEBIE PICKARD, Toronto, Canada. Filed Feb. 13, 1894. Serial No. 500,078. Term of patent 14 years.



Claim.—The design for a sink strainer, substantially as herein shown and described.

23,200. RACK. WILLIAM W. ENSIGN, Cincinnati, Ohio, assignor to the Bennett & Peck Heating and Ventilating Company of Ohio. Filed Mar. 12, 1894. Serial No. 503,365. Term of patent 7 years.



Claim.—The design for a rack, substantially as shown and described.

23,201. MIRROR-FRAME. JAMES F. LOCKWOOD, Philadelphia, Pa. Filed Mar. 10, 1894. Serial No. 503,207. Term of patent 3½ years.



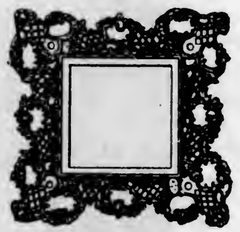
Claim.—The design for a mirror frame, substantially as shown and described.

23,202. SLAB FOR TABLE-TOPS. FRANK YOKEL, Meriden, Conn., assignor to the Meriden Bronze Company, same place. Filed Mar. 5, 1894. Serial No. 502,448. Term of patent 3½ years.



Claim.—The design for a slab for table-tops as herein shown and described.

23,203. SLAB FOR TABLE-TOPS. FRANK YOKEL, Meriden, Conn., assignor to the Meriden Bronze Company, same place. Filed Mar. 5, 1894. Serial No. 502,449. Term of patent 3½ years.



Claim.—The design for a slab for table-tops as herein shown and described.

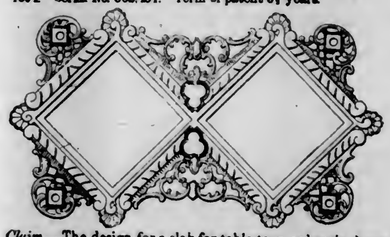
23,204. SLAB FOR TABLE-TOPS. FRANK YOKEL, Meriden, Conn., assignor to the Meriden Bronze Company, same place. Filed Mar. 5, 1894. Serial No. 502,450. Term of patent 3½ years.

23,204.



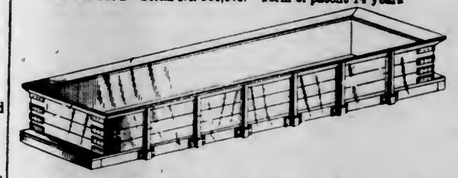
Claim.—The design for a slab for table-tops, as herein shown and described.

23,205. SLAB FOR TABLE-TOPS. FRANK YOKEL, Meriden, Conn., assignor to the Meriden Bronze Company, same place. Filed Mar. 5, 1894. Serial No. 502,451. Term of patent 3½ years.



Claim.—The design for a slab for table tops, as herein shown and described.

23,206. CAR-BODY. JOHN COMMERFORD, Columbus, Ohio. Filed Feb. 28, 1894. Serial No. 501,873. Term of patent 14 years.



Claim.—The design for a car body substantially as herein shown and described.

TRADE-MARKS

REGISTERED APRIL 17, 1894.

24,522. WRITING-PAPER AND ENVELOPES. George B. Hurd & Co., New York, N. Y. Filed Mar. 6, 1894.

Royal Quality.

Essential feature.—The words "Royal Quality." Used since July 10, 1893.

24,523. WRITING-PAPER AND ENVELOPES. George B. Hurd & Co., New York, N. Y. Filed Mar. 6, 1894.

NAME IN THE PAPER.

Essential feature.—The words "Name in the Paper." Used since September 11, 1893.

24,524. JEWELRY ORNAMENTED WITH PRECIOUS STONES, DIAMONDS EXCEPTED. Horace R. Benedict, New York, N. Y. Filed Jan. 22, 1894.

ALMANDINE AD DIAMOND DOUBLET

Essential feature.—A monogram composed of the letters "A D," together with the words "Almandine, Diamond Doublet." Used since May, 1893.

24,525. SILVER TABLEWARE. M. C. Eppenstein & Co., Chicago, Ill. Filed Feb. 13, 1894.

R. COIN.

Essential feature.—The letter and word "R Coin" Used since September, 1892.

24,526. OPERA-GLASSES. Arthur Levy, Paris, France. Filed Oct. 10, 1893.

La Iena

Essential feature.—The words: "La Iéna." Used since September 1, 1893.

24,527. HAIR AND CLOTHES BRUSHES. Florence Manufacturing Company, Northampton, Mass., New York, N. Y., and Chicago, Ill. Filed Mar. 17, 1894.

COSMEON

Essential feature.—The word "Cosmeon." Used since January, 1894.

24,528. BOOTS AND SHOES. Verstegg-Grant Shoe Company, St. Louis, Mo. Filed Mar. 12, 1894.

VG

Essential feature.—The letters "V G." Used since August 1, 1893.

24,529. DYED RABBIT-SKINS. Lafrique & Pinton, Paris, France. Filed Feb. 19, 1894.

P.L.

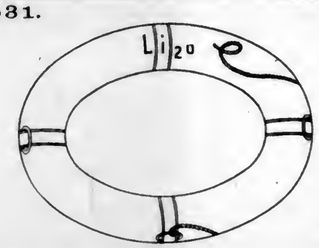
Essential feature.—The letters "P. L." Used since 1877.

24,530. MINERAL WATERS. Gerolsteiner Sprudel W. Castendyck, Gerolstein, Germany. Filed Oct. 11, 1893.

Essential feature.—The representation of a heraldic lion upon a star. Used since 1888.

24,531. NATURAL MINERAL WATER. Waukesha-Lithia Spring Company, Chicago, Ill. Filed Feb. 8, 1894.

24,531.



Essential feature.—The representation of a pneumatic cylindrical life preserver, with the symbols "Li_2O" upon it. Used since January 15, 1894.

24,532. COGNAC BRANDY. Moullon & Cie., Cognac, France. Filed Mar. 21, 1894.



Essential feature.—The representation of an oval shield surmounted by a helmet with three plumes and crossed obliquely by a bandrol bearing the name of the registrants. Used since July 1, 1893.

24,533. COGNAC BRANDY. Moullon & Cie., Cognac, France. Filed Mar. 21, 1894.



Essential feature.—The representation of a helmet with three plumes. Used since January 1, 1874.

24,534. WHISKY. Robert Hewson, San Francisco, Cal. Filed Jan. 29, 1894.

WHITE HOUSE

Essential feature.—The words "White House." Used since April 22, 1876.

24,535. VERMOUTH. Giuseppe & Luigi Fratelli Cora, Turin, Italy. Filed Mar. 21, 1894.



Essential feature.—The representation of works encircled with an oval bandrol around which bunches of grapes extend. Used since June 5, 1889.

24,536. MEDICINAL WINES. F. Comar et Fils & Cie., Paris, France. Filed Mar. 21, 1894.



Essential feature.—The words: "Vin Nourry," and the fac simile signature: "J. Nourry." Used since December 31, 1888.

24,537. LINIMENT. William C. Johnson, Eau Claire, Wis. Filed Feb. 19, 1894.

VOLCO

Essential feature.—The word "Volco." Used since October, 1893.

24,538. EYE-WATER. Ann E. Brady, New York, N. Y. Filed Mar. 24, 1894.

DIAMOND



WATER

Essential feature.—The words "Diamond Water," in connection with the representation of an eye. Used since February, 1878.

24,539. LINE OF PROPRIETARY PREPARATIONS. Foley & Co., Chicago, Ill. Filed Mar. 13, 1894.

A FRIEND OF THE FAMILY

Essential feature.—The words "A Friend of the Family." Used since February 20, 1894.

24,540. FLUID MEDICINE TO NEUTRALIZE THE EFFECT OF MICROBES ON THE PHYSICAL SYSTEM. Goodman & Macatee, New York, N. Y. Filed Mar. 19, 1894.

Macatee's MICROBICIDE

Essential feature.—The words "Macatee's Microbicide," in two parallel lines, one letter, "M," serving as the initial letter of both lines or words. Used since December 15, 1893.

24,541. SHAMPOO FOR THE HAIR. James Whitney Barbur, Louisville, Ky. Filed Dec. 26, 1893.

SHAMPONA

Essential feature.—The word "Shampona." Used since May 10, 1893.

24,542. TOILET SOAP. THE J. B. WILLIAMS COMPANY, Glastonbury, Conn. Filed Feb. 19, 1894.



Essential feature.—The representation of a cow's head. Used since May 28, 1892.

24,543. SOAP AND SAPONACEOUS COMPOUNDS. HERBERT M. SHALL and HENRY R. TEED, Baldwinsville, Mass. Filed Nov. 21, 1893.



Essential feature.—The word "ASBESTOS" in fanciful letters approaching the rustic in design, and the representation of a piece of asbestos rock. Used since August 1, 1893.

24,544. WASHING FLUID. WILFORD M. WILLIAMS, Indianapolis, Ind. Filed Jan. 9, 1893.

NINE O'CLOCK



WASHING TEA.

Essential feature.—The representation of a clock face indicating nine o'clock and the words "NINE O'CLOCK WASHING TEA." Used since October 5, 1891.

24,545. FLAVORING AND PERFUMING EXTRACTS. CHARLES S. NETTER, New York, N. Y. Filed Mar. 21, 1894.

LOVE'S EXTRACT

Essential feature.—The words "LOVE'S EXTRACT." Used since March 14, 1894.

24,546. SPICES AND FLAVORING EXTRACTS. JOHN BIRD COMPANY, Rockland, Me. Filed Mar. 16, 1894.



Essential feature.—The representation of three crows. Used since April 1, 1890.

24,547. CONFECTIONERS' OIL DRESSING. THE CHESAPEAKE OIL CO., Baltimore, Md. Filed Mar. 20, 1894.

Purity

Essential feature.—The word "PURITY." Used since December 16, 1893.

24,548. ORANGES, LEMONS, TANGERINES, AND GRAPE FRUIT. WILLIAM R. HILLYER, Citra, Fla. Filed Mar. 12, 1894.



Essential feature.—The representation of a running stag within a triangle. Used since November 1, 1888.

24,549. TAPIOCA. CEYLON SPICE CO., Philadelphia, Pa. Filed Mar. 3, 1894.

INSTANTANEOUS.

Essential feature.—The word "INSTANTANEOUS." Used since December 15, 1893.

24,550. SALT. FREDERICK I. W. BURSCH, Brooklyn, N. Y. Filed Feb. 16, 1894.



Essential feature.—The word "ALDEN." Used since February 1, 1894.

24,551. FLOUR, OATMEAL, AND CRUSHED CEREALS. EDWARD ELSWORTH & CO., New York and Buffalo, N. Y. Filed Nov. 23, 1893.



Essential feature.—The representation of a seal shaped disk bearing a clover blossom. Used since July 1, 1893.

24,552. WHEAT-FLOUR. SHIPTON GREEN, New York, N. Y. Filed Mar. 2, 1894.

CEARENSE

Essential feature.—The word "CEARENSE." Used since April 15, 1893.

24,553. WHEAT-FLOUR. THOMPSON MILLING COMPANY, Lockport, N. Y. Filed Dec. 19, 1893.

UNEQUALED

Essential feature.—The word "UNEQUALED" composed of letters divided by spaces approximately in half and having small circles within the spaces, the circles being so arranged as to leave curved margins or spaces of white between them and the adjacent stems of the letters above and below. Used since January 2, 1891.

24,554. LARD. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Dec. 7, 1891.

LEGITIMIDAD

Essential feature.—The word "LEGITIMIDAD." Used since March 1, 1891.

24,555. LARD. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Dec. 7, 1891.



PEACH

Essential feature.—The representation of a peach and the word "PEACH." Used since December 2, 1881.

24,556. LARD. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Dec. 7, 1891.



Essential feature.—The representation of the packing house plant of the registrants, across which the word "PUREZA" appears. Used since October 1, 1891.

24,557. LARD. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Dec. 7, 1891.



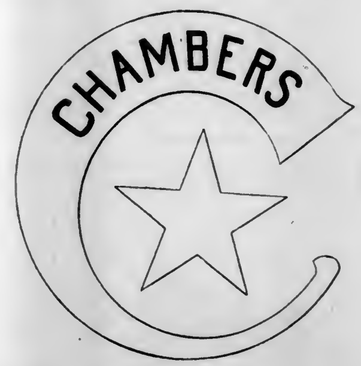
Essential feature.—The representation of a marshal or army officer, seated on a horse, and the words "MARCA EL MARISCAL." Used since October 1, 1891.

24,558. PLAIN OR GROUND SHEET-GLASS. CHAMBERS GLASS COMPANY, New Kensington, Pa. Filed Dec. 6, 1892.



Essential feature.—The representation of a star. Used since November 23, 1892.

24,559. PLAIN, GROUND, OR CHIPPED SHEET-GLASS. CHAMBERS GLASS COMPANY, New Kensington, Pa. Filed Feb. 26, 1894.



Essential feature.—The representation of a C-shaped symbol, bearing the word "CHAMBERS" upon its upper part, and inclosing the figure of a star. Used since November 23, 1892.

24,560. PLAIN, GROUND, OR CHIPPED SHEET-GLASS. CHAMBERS GLASS COMPANY, New Kensington, Pa. Filed Feb. 26, 1894.

CHAMBERS.

Essential feature.—The word "CHAMBERS." Used since November 23, 1892.

24,561. PLAIN, GROUND, OR CHIPPED SHEET-GLASS. CHAMBERS GLASS COMPANY, New Kensington, Pa. Filed Feb. 26, 1894.



Essential feature.—The representation of a horn or C-shaped symbol. Used since November 23, 1892.

24,562. BRACES, BOLTS, NAILS, SCREWS, WASHERS, FASTENINGS, AND SIMILAR ARTICLES OF BUILDERS' HARDWARE. THE STANLEY WORKS, New Britain, Conn. Filed Feb. 7, 1894.



Essential feature.—The representation of a heart shaped figure accompanied by the initials "S. W." Used since June, 1893.

24,563. FOOT-GUARDS FOR RAILWAY-FROGS. MICHAEL RILEY, London, Ohio. Filed Nov. 27, 1893.

N.R.F.G.

Essential feature.—The letters "N. R. F. G." Used since November 1, 1893.

24,564. HEATING AND POWER BOILERS. HOWE, HOPKINS & BARRETT, Rochester, N. Y. Filed Aug. 29, 1893.



Essential feature.—The word "ELECTRIC" and the representation of a cloud, with electric flashes. Used since July 10, 1893.

24,565. WATER MOTORS OR PUMPS. GEORGE J. ROBERTS & Co., Dayton, Ohio. Filed Mar. 26, 1894.

GEM

Essential feature.—The word "GEM." Used since September, 1884.

24,566. ELECTRICAL INSTRUMENTS FOR MEASURING CURRENT, POTENTIAL, AND RESISTANCE. QUEEN & COMPANY, INCORPORATED, Philadelphia, Pa. Filed Mar. 12, 1894.

ACME

Essential feature.—The word "ACME." Used since April 1, 1893.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

SEABURY *et al. v.* AM ENDE.

Decided April 2, 1894.

1. AM ENDE—BORATED COTTON—NOVELTY AND PATENTABILITY—VALID.

The invention secured by Letters Patent No. 181,024, dated August 15, 1876, to Charles G. Am Ende, for an improvement in borated cotton, examined in view of the state of the art and *Held* to be both novel and patentable.

2. BURDEN OF PROOF ON ACCOUNTING BEFORE A MASTER.

Certain deductions from accountable profits *Held* to be for defendant to clearly establish.

3 SAME—INFRINGEMENT—INFRINGER'S PROFITS—COST OF INFRINGING THING—NO ALLOWANCE THEREIN IN THIS CASE FOR INTEREST ON CAPITAL INVESTED IN ITS MANUFACTURE.

Where the infringer's plant and real estate were used for other kinds of manufacture than the infringing article, and the evidence offered by the infringer to distinguish between the profits derived from the use of the plant and real estate for making the infringing thing and those attributable to the other sources of profit was not sufficient to enable the master to apportion the interest between the several kinds of business, *Held* that the infringer could not be allowed as part of the cost of the infringing thing interest on his plant and capital invested.

4. SAME—SAME—SAME—SALARY OF THE PRESIDENT OF THE INFRINGING COMPANY—NO ALLOWANCE THEREFOR IN THIS CASE.

Where the infringer fails to show that the salary of the president of the infringing company was actually paid, *Held* that the salary was properly disallowed, on the ground that to have allowed salaries which had never been paid would have been to permit a dividend of profits under the guise of salaries.

APPEAL from the Circuit Court of the United States for the Southern District of New York.

STATEMENT OF THE CASE.

Charles G. Am Ende, a citizen of the State of New Jersey, filed a bill of complaint in the Circuit Court of the United States for the Southern District of New York, against Seabury & Johnson, a corporation of the State of New York, in which he alleged that he was the patentee and owner of Letters Patent of the United States, dated August 15, 1876, and numbered 181,024, for an improvement in borated cotton, and that the defendant corporation, in disregard of his rights, was engaged in making and vending borated cotton made in accordance with the method described in said Letters Patent. The defendant corporation, by its answer, raised the issues of novelty and patentability, which were determined in favor of the complainant, and the case resulted in a decree, restraining the defendant from further infringement, and awarding the complainant the sum of $2,349.15 with costs; from which decree this appeal was taken.

Mr. Edwin H. Brown and *Mr. R. T. M. Melliss* for the appellant.

Mr. A. v. Briesen for the appellee.

Mr. Justice SHIRAS delivered the opinion of the Court.

The specification and claim of the patentee were in the following terms:

This invention has for its objects to combine the various advantages of cotton-fiber with those possessed by boracic acid and glycerine for preserving animal and vegetable matter from decay.

Heretofore boracic acid has been used as a preservative agent in a fluid state, and also as a powder. In use, the matter to be preserved had to be immersed in the solution of boracic acid, or completely covered with the powder. In either case, a very large quantity of boracic acid was used.

My present invention, which consists in saturating cotton-fiber with boracic acid and glycerine in a manner hereinafter described, enables me to apply a very small proportion of boracic acid and glycerine to the cotton-fiber with fully as good an effect as though the matter to be preserved were entirely embedded in large quantities of the solution or powder. It enables me, at the same time, to utilize the germ-filtering properties of the cotton, and its elasticity as a superior material for packing or covering delicate tissue.

I produce my improved borated cotton as follows: I first prepare a solution of boracic acid in the usual manner, and add thereto a small proportion of glycerine. For the preservation of tender substances, such as veal, I may also add from ten to forty per cent. of soda or potash, never sufficient, however, to reach neutrality. The cotton, either in bulk or wadding, is next immersed in the solution until well impregnated therewith, and then pressed, to discharge all surplus solution, or so much thereof as may be required. The cotton is then dried and ready for use.

When applied to the material to be preserved, either as a covering or as a wrapping or packing, the cotton will constitute a filter for keeping germs of putrefaction from passing through, and the boracic acid absorbed by the cotton will, at the same time, preserve the surfaces from decay, and counteract all injurious influences of germs, or other elements of destruction, already in contact with such surfaces.

The glycerine is added to increase the preserving power of the borated cotton. It renders the cotton slightly hygroscopic, thus aiding in the diffusion of the acid and in the preservative effect of the prepared cotton.

I have found that the impregnated fiber shows, even under a good microscope no difference from a fiber not impregnated with boracic acid, and that, therefore, although a very thin film of acid may adhere to the exterior surface of the fiber, the main proportion of the acid is absorbed by and diffused within the fibers. In consequence, the acid can, in use, be but gradually released from the fiber, and will thus produce a constant and lasting effect.

I claim—

The borated cotton, being cotton fiber which is saturated with boracic acid and glycerine, substantially as herein shown and described.

The first ground of defense relied on is that the patentee has failed to describe his invention in such full, clear, and exact terms as to enable persons reading the description of the invention to construct and use it; and it is contended that the strength of the boracic-acid solution is not prescribed, nor the precise proportion of glycerine. In considering this objection it must be remembered that the description is addressed to persons skilled in the art to which it relates. The solution of boracic acid is referred to, not as anything new, but as an article well known to druggists and physicians, and when the patentee says that he "prepares a solution of boracic acid in the usual manner," he means as it has formerly and customarily been prepared. When he directs that a small proportion of glycerine shall be added, it is obvious that the quantity of the glycerine is to vary with the amount of cotton and boracic acid used, but that the merits of the in-

vention will not depend on whether, in a given case, a little more or less glycerine is used. Such general directions are common in the arts, as appears in some of the very publications introduced by the defendant to show anticipation. Thus in the *Druggists' Circular and Chemical Gazette* it is stated that Doctor Edmunds had used "a solution of boracic acid;" and in the *Journal de Pharmacie* it is said that, in making his dressing, Professor Gubler saturated his wadding with "a certain quantity of glycerine," and his formula is thus given:

It is only necessary to pour a small quantity of glycerine over the square sheet, &c.

We, therefore, agree with the court below in thinking that—

an intelligent chemist, setting out properly to combine the enumerated ingredients into which the cotton is to be immersed, and with which it is to be impregnated, could hardly go astray.

It is also to be observed that neither the defendant, in making the infringing article, nor the several witnesses of eminence in the medical profession, who testified to the practical value of the patented dressing, seem to have had any difficulty in understanding and applying the description contained in the patent.

In *Webster Loom Co.* v. *Higgins*, (21 O. G., 2031; 105 U. S., 580,) where the sufficiency of a description was in question, it was held that a specification in Letters Patent is sufficiently clear and descriptive when expressed in terms intelligible to a person skilled in the art to which it relates.

The next contention is, that as the plaintiffs' patented dressing was composed of materials whose specific virtues and modes of operation were well known, there was no invention shown in combining them in the manner described. It is, indeed, true that the patentee did not claim to have been the first to suggest the use of cotton-fiber as a means of excluding germs from wounds or from the article to be protected. Nor did he claim to have first discovered the antiseptic qualities of boracic acid or the hygroscopic property of glycerine. But the patentee was the first to perceive that by combining these articles, in the manner he pointed out, there would be formed a convenient and permanent dressing with the desirable qualities of the several constituents. The complainant's evidence satisfactorily shows that, in such a dressing, the cotton acts as a screen to exclude germs and as a vehicle to hold the other ingredients; that the boracic acid possesses marked antiseptic qualities, but is liable, if used alone, to dry on the cotton and to form crystals, which impair the antiseptic qualities of the acid, and which mechanically scratch or irritate the sensitive surface of a wound; and that the glycerine, owing to its property of absorbing moisture from the atmosphere, keeps the boracic acid from hardening or crystallizing, and besides adds somewhat to the healing and preservative power of the dressing.

The merits of the complainant's invention received immediate and widespread recognition, and the article came into use, not only to protect animal substances for alimentary purposes, but, and chiefly, to protect wounds from infection and suppuration. It was introduced into hospitals and into the private practice of physicians, and, in fact, has become a staple article for medicinal purposes.

But it is further contended that there was no novelty in complainant's invention, because it had been anticipated by others. To sustain this contention the defendant put in evidence an article published in the *American Journal of Pharmacy* for November, 1871, at page 516, where it is stated that Professor Gubler, at a recent meeting of the Academy of Medicine, had exhibited some specimens of wadding prepared by saturating it with a certain quantity of glycerine, which he had found to render it permeable to all medicinal liquids, without causing it to lose any of its suppleness and lightness. Also, an article in the same journal, for March, 1867, at page 149, wherein Doctor Adolphus stated that—

applied to suppurating surfaces which are painful and produce an ichorous pus, glycerince dressings change the abnormal condition by arresting the degenerating process, through its antiseptic and astringent properties.

The defendant likewise put in evidence a copy of *The Druggists' Circular and Chemical Gazette*, for June, 1875, wherein there is an account of treatment by Doctor Edmunds, in the case of an amputated thigh, by a dressing of lint steeped in a hot solution of boracic acid, with most satisfactory results in preventing putrefactive discharge.

Undoubtedly this evidence shows that the specific qualities of glycerine and of boracic acid were known, and that those articles had been successfully used in the instances narrated. But we agree with the court below in thinking that—

this evidence does not disclose that any one prior to Am Ende accomplished what he has described and claimed; that the fact that others had done something quite similar, and had used separately, or in different combinations, the ingredients of his claim, should not affect his patent. All that is described in the prior publications the defendant may use with perfect immunity. They may use "lint steeped in a hot saturated solution of boracic acid," or "wadding saturated with a certain quantity of glycerine," or boracic acid dissolved in glycerine; but they should not be permitted to use cotton combined with a solution of boracic acid and glycereine in the manner described in the specification, for that belongs to Am Ende.

Errors are complained of in the action of the court below in overruling defendant's exceptions to the master's report. So far as those exceptions are based on the computations and findings of the master, under the evidence before him, as to the profits made by the defendant, we see no reason to differ with the court below in overruling them. The claim that the appellants should be allowed, as part of the cost of the borated cotton during the period covered by the accounting, interest on plant, and capital invested, calls for more particular notice.

A similar claim was disallowed in the case of *Rubber Co.* v. *Goodyear*, (9 Wall, 804,) but it is claimed that in *Goulds Manufacturing Co.* v. *Cowing*, (21 O. G., 1277; 105 U. S., 257,) such an item was allowed. In the latter case, which this court styled an "exceptional one," it was said that, in charging the defendant with profits, he should be allowed for "the use of tools, machinery, power, and other facilities employed in the manufacture." It may be, as was observed by the court below in the present case, that it did not appear, in *Goulds Manufacturing Co.* v. *Cowing*, but that the use of the tools, machinery, and power was a hired use. At any rate, in that case, the infringement consisted in making and selling a pump, which was the only one that could successfully compete with that controlled by the patent, and

the machinery was used for no other purpose. In the present case, the defendant's plant and real estate were used for several other and wholly different kinds of manufacture than the patented article, and the evidence offered to distinguish between the profits derived from the use of the plant and real estate for making the borated cotton and those attributable to the other sources of profit, was not sufficient to enable the master to make a satisfactory apportionment or allowance for interest on the investment.

We do not wish to be understood as holding that in no case where the plaintiff's damages are measured by the defendant's profits, ought there to be an allowance, in the latter's favor, of interest on the money invested in the plant. Nor do we say that such an allowance may not be properly made, even where the use of the plant is not wholly restricted to making the infringing article. But the evidence, in such a case, should enable the master to satisfactorily apportion the interest between the several kinds of business.

The appellant further complains of the action of the master in disallowing the sum of $15,000 per annum for salary of the president of the defendant company. The defendant introduced evidence tending to show what would be reasonable compensation for such services as were performed by the president, but did not show what sum, or that any sum was actually paid him. To have allowed salaries, which had never been paid, would have been, as was said in *Rubber Co.* v. *Goodyear*, to permit a dividend of profits under the guise of salaries

Other exceptions that were taken to the master's report were satisfactorily disposed of by the court below, and do not call for further discussion.

The decree of the circuit court is accordingly affirmed.

Supreme Court of the United States.

SARGENT *et al. v.* COVERT.

Decided April 2, 1894.

COVERT—HITCHING DEVICE—LACK OF INVENTION—VOID.

The invention patented to James C. Covert by Letters Patent No. 161,757, dated April 6, 1875, for an improvement in clasps or thimbles for hitching devices, examined in view of the state of the art and *Held* to be void for want of invention.

APPEAL from the Circuit Court of the United States for the Southern District of New York.

STATEMENT OF THE CASE.

This was a bill filed by James C. Covert against Joseph B. and George H. Sargent in the Circuit Court of the United States for the Southern District of New York for infringement of Letters Patent No. 161,757, dated April 6, 1875, issued to complainant for improvement in clasps or thimbles for hitching devices, upon which a final decree was entered adjudging the patent to be good and valid; that the defendants had infringed the same; and that complainant should recover of the defendant Joseph B. Sargent the sum of $750, and of the defendant George H. Sargent, $250; and costs. From this decree an appeal was taken to this Court.

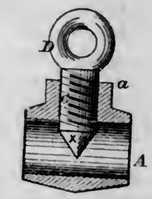
Mr. John K. Beach for the appellants.

Mr. H. A. Toulmin for the appellee.

Mr. Chief Justice FULLER delivered the opinion of the Court.

The patent in suit was issued April 5, 1875, and relates to a device used upon rope halters. That device consists of a tube adapted to slip upon a rope, and having on one of its sides an enlargement with interior screw-threads. A sharp-pointed screw is fitted to pass through the projection at right angles to the bore of the tube so as to enter the rope and hold the tube fast in any given position upon it. This set screw is provided with an eye for the reception of a snap-hook on the end of the hitching-rope whereby a loop may be formed to pass around the neck or other part of the animal; the size of the loop being determined by the position of the thimble or tube on the rope.

The specification is accompanied by a drawing, in which Figure 1 is a perspective view, and Fig. 2, a longitudinal section, of the alleged invention, Fig. 2 being as follows:



This is thus described in the specification:

A represents a thimble of any suitable dimensions provided on one side with a nut or enlargement, *a*, having a hole through it with female screw-threads. The thimble A is fastened on the rope B at any desired place by means of a sharp pointed screw, C *x*, which passes through the thimble at the nut *a* and the rope. This screw is provided with a round eye, D, for the reception of a snap hook.

The claim is:

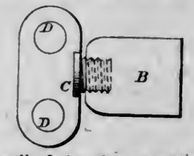
The combination of the tube A, having the projection *a*, with interior screw-threads cast therewith, and the screw C, having the eye D and the sharp point *x*, for entering into the rope, all constructed as and for the purposes set forth.

The file-wrapper and contents showed that the original claim was:

The combination of the thimble A, rope B, and sharp-pointed screw C, provided with the eye D, substantially as, and for the purposes herein set forth.

But the projection *a* in the claim allowed was not an essential qualification, and complainant insists that the words "cast therewith" do not refer to the "interior screw-threads," and only appear to do so through erroneous punctuation. Defendant's screw-threads were made with a tap in the ordinary way.

In support of the defense of invalidity, defendants introduced a patent issued to John Wiard, June 9, 1868, for an improvement in cattle-tie, in the drawings accompanying which, Fig. 2 represented "the adjustable socket of the halter," as follows:



This was described in the specification in these words:

B is a socket, constructed so as to pass freely over the rope, as in Fig. 1, and in one side of which is fitted a thumb-screw, C, so that when the said thumb-screw is turned hard down upon the rope, the socket will be held firmly in that position, and may be adjusted to different positions on the rope by loosening the screw, and sliding the socket accordingly. The head of the thumb-screw C is constructed with a hole, D, at each end, so as to form a means of attachment of the end of the rope thereto.

Comparing these two figures, it will be seen that they are alike except that the end of the screw in the patent sued on is sharpened and the screw has but one eye, whereas the end of the screw in the Wiard patent is blunt and it is provided with two eyes. And these are the particular differences pointed out by complainant's expert, who also testified on cross examination that if the end of the screw in the Wiard socket were made substantially like the sharpened point x of the Covert patent, that would be, in his opinion, an infringement. According to his view, the most essential advantage of the invention in suit was that which resulted from having the end of the screw sharpened instead of flat, though, he added, "there are advantages in having a single eye to the screw, instead of a double one;" but, nevertheless, that he did not "think the use of a double eye instead of a single one would evade the charge of infringement."

The advantages resulting from sharpening the point of the screw were stated by him to be:

A sharp-pointed screw will enter the material of which the rope is composed and hold the thimble in a positive manner, and this is true even if the screw becomes slightly slackened; a flat-ended screw simply holds by frictional contact, and if the screw is slightly slackened does not prevent the thimble from being slipped out of place.

It appeared that the Wiard socket as actually made and sold had a convex end; that conical-pointed screws were in common use prior to the patent in suit; that complainant was acquainted with prior devices, including that of Wiard, and sought to improve upon them; and that the sales of his device were large.

Reference was made on the argument to testimony adduced on behalf of complainant tending to show an essential mechanical difference between the two devices in the use of one eye centrally located in the one, and the use of two eyes, each placed one side of the center, in the other, and it was contended that the former was superior in that the latter was more exposed to being struck and unscrewed, and also exposed to the liability of the attaching-hook being snapped—

into the wrong eye, especially at night and in the dark, which is constantly the case during the winter months, when much of the caring for stock is done after nightfall

But be this as it may, the claim of the patent was not limited to the use of a single eye, and it is apparent that the only material difference between the patented thimble and the Wiard socket to be considered is that the screw of the one had a rounded end and the other a sharpened point, while the difference of operation is manifestly that a sharpened point will enter a material upon which it is directed, farther than a rounded point. We cannot perceive in the recognition of the fact that facility of penetration is greater in a sharpened point than in a blunt one, any such evidence of invention as is sufficient to sustain this patent. Moreover, the Wiard screw, which is rounded at its end, is shown to enter the rope when screwed down hard, and in respect of the engagement between the rope and the socket or thimble to operate in the same way as the patented thimble. In other words, it holds by something more than frictional contact. Each of these screws compresses the rope within the socket, but the Covert screw, being sharpened, penetrates farther than the other. The change is in degree and not in function.

We think the evidence fails to show that the Wiard socket was not a practicable and successful article, and agree with the remark of Judge Wallace in his opinion overruling the exceptions to the master's report, (47 O. G., 1354; 38 Fed. Rep., 287, 238,) that—

the patented articles are not so superior to the other fastening devices as to give rise to any cogent presumption that those who purchased them of the defendants would have bought them of the plaintiff in preference to the other devices, and without reference to the difference in price, if they could not have bought them elsewhere.

We are of opinion upon this record that the alleged improvement was such a one as would have occurred to any one practically interested in the subject, and that it did not involve such an exercise of the inventive faculty as entitled it to protection.

The decree is reversed and the cause remanded with a direction to dismiss the bill.

Mr. Justice JACKSON did not hear the argument, and took no part in the decision of this case.

U. S. Circuit Court of Appeals—Third Circuit.

RICHTER *v.* REYNOLDS *et al.*

Decided December 12, 1893.

1. TRADE-MARKS—INTENTION TO ADOPT.
   Sales of medical preparations in this country by a foreign manufacturer, to a limited extent, upon special orders, to supply particular customers, do not amount to use in such circumstances as to publicity and to such length of use as show an intention to adopt a symbol placed upon such preparations as a Trade-Mark. (*Kohler Manufg. Co.* v. *Beshore*, 62 O. G., 592; 53 Fed. Rep., 262, followed; 52 Fed. Rep., 455, affirmed.)
2. SAME—REGISTRY AS EVIDENCE OF INTENTION.
   The registry of a Trade-Mark under the act of March 3, 1881, may be evidence in a suit to restrain infringement of a common-law Trade-Mark used for the same article in domestic commerce to show what complainant really claimed. (*Kohler Manufg. Co.* v. *Beshore*, 53 Fed. Rep., 262, followed.)
3. SAME.
   The registry of a Trade-Mark, the essential feature of which is described as "the representation of a red anchor in an oval space," is not proof of intention to adopt a Trade-Mark consisting of the word "Anchor" and the symbol of an anchor, irrespective of color and surroundings. (52 Fed. Rep., 455, affirmed.)
4. TREATY WITH GERMANY—CONSTRUCTION.
   The treaty of 1871, between the United States and Germany, (article 17, 17 Stat., 931,) which provides that, with regard to the marks of labels of goods or of their packages, the citizens of Germany shall enjoy in the United States the same protection as native citizens, does not give to a citizen of Germany who has acquired the right to a Trade-Mark in that country a similar right to the Trade-Mark in the United States.

APPEAL from the United States Circuit Court for the Western District of Pennsylvania.

Suit by Dr. F. Ad. Richter, doing business as F. Ad. Richter & Co., against W. E. Reynolds and John Sullivan, doing business as the Anchor Remedy Company, for infringement of a Trade-Mark.

Mr. William L. Pierce and *Mr. Arthur v. Briesen* for the appellant.

Before DALLAS, BUTLER, and GREEN, Judges.

DALLAS, *J.*:

There are seventeen assignments of error in this case. Only two of them relate to matters of fact, and by them it is alleged that the Circuit Court erred—

in finding that complainant had made no sales in this country of medicinal compounds bearing the Trade-Mark in issue prior to the date of the opening of his New York branch house, and in finding

that the complainant had not made sales in the United States, nor importations thereto, prior to his registration of 1885.

What the Court said is:

The proofs show that the plaintiff's factory is at Rudolstadt, Germany, where his goods are and always have been manufactured, marked, labeled, and put up for the market. All the plaintiff's medical compounds, of which we have before us many specimens, are unmistakably German preparations, with printed labels, directions, etc., thereon in that language, although having also labels in English, and they are all distinctly marked "Manufactured by F. Ad. Richter & Co." The bill, it will be perceived is quite indefinite as to the length of time the plaintiff had been engaged in the city of New York in the sale of his medicines before this suit was brought; nor do his proofs certainly fix the date when his branch sales-house was established in that city. It was undoubtedly after May 1, 1887, for Charles Bernhart Drugulin, who opened that house for the plaintiff, did not leave Rudolstadt until that date. Prior to that time the plaintiff had no establishment in the United States. Neither had he ever sold any of his medical compounds in this country before he opened his New York branch house. It is true there had been previously some importations, to a limited extent, into the United States, of the plaintiff's medicines, but by druggists and others who sent orders for the medicines to Rudolstadt to supply persons who had lived in Europe and there had used them.

The record sustains this finding, and the other material facts are so well and fully presented by the learned judge of the court below that it would be superfluous to here detail them at length, especially in the absence of any specification respecting them.

The propositions affirmed by the remaining assignments, so far as they raise any question which it is necessary for us to consider, are that (1) the complainant had a common-law right to the word "Anchor" as his Trade-Mark in this country, and also to the symbol of an anchor, irrespective of color and surroundings; (2) the complainant had, by registry in this country, a Trade-Mark consisting of the word "Anchor" and the symbol of an anchor, irrespective of color and surroundings, and (3) by virtue of a certain treaty between Germany and the United States the acquisition by complainant, as alleged, of a right to the Trade-Mark in issue in Germany was also the acquisition of that right in the United States.

The first of these propositions cannot be maintained, in view of the opinion of this court delivered by the circuit justice during the present term in the case of *Manufacturing Co.* v. *Beshore*, (59 Fed Rep., 572.) That opinion deals with the character of the use which is requisite to the acquisition of title to a Trade-Mark, and also with the effect of the registry of one device upon a claim made by the same person to a different device as a common-law Trade-Mark for use upon the same kind of goods. In that case the use shown was the sale of a few dozen bottles of a proprietary medicine having written labels thereon which displayed the collocation of words which was claimed, and the registry in the Patent Office was of the words "One Night Cure," while those set up by the plaintiff, and to which he asserted a common-law title, were "One Night Cough Cure." This Court said:

Complaint is also made of the court below in holding that there was no sufficient evidence that the plaintiff had acquired a Trade-Mark in the collocation of words stated. It may be, as is argued by complainant's counsel, that the interference of a court of equity does not depend on the length of time the name has been used, and that the rule is that he who first adopts a Trade-Mark acquires the right to its exclusive use in connection with the particular class of merchandise to which its use has been applied. Nevertheless, however short the time may be in which a person may acquire a title to a Trade-Mark, there must be shown an actual intention to acquire such a title. A merely casual use, interrupted, or for a brief period, would not support a claim to a Trade-Mark. (*Menendez* v. *Holt*, 46 O. G., 971; 128 U. S., 514; 9 Sup. Ct., 143.) Nor will a court of equity recognize by injunction a proprietary right in a phrase or name, unless it has been used in circumstances, as to publicity and length of use, as to show an intention to adopt it as a Trade-Mark for a specific article. We agree with the court below in thinking that the complainant's evidence in these particulars was very unsatisfactory. A sale of a few dozen bottles, with written labels pasted on the bottles, in the circumstances disclosed by the evidence, could not suffice to establish such an intentional use and appropriation of the words as a Trade-Mark as to warrant the interference of a court of equity.

Moreover, while we do not think it necessary to hold that mere registry in the Patent Office of the United States of a Trade-Mark for a specific article of manufacture would of itself prevent the use and adoption of another device as a common-law Trade-Mark in domestic markets, yet such registry can operate as evidence tending to show what was really claimed by the complainant.

Reference was also made to the decision of the present case by the Circuit Court, as reported in 52 *Federal Reporter*, at page 455, as follows:

That was the case of a foreigner, who, prior to his registration, had never sold any of his medicines in the United States, and who, not having here a common-law Trade-Mark, had to depend upon his registry. He alleged in his bill of complaint that the defendants were infringing his Trade-Mark as registered; and, when met by the defense that the defendants had used the Trade-Mark prior to the plaintiff's registry, he sought to invoke the doctrine of a common-law Trade-Mark, and this the court rightfully held he could not do, but that he was restricted to the Trade-Mark described in his registry. The complainant in that case was unable to support his claim that he had acquired, as against the defendants, a common-law right to the exclusive use of certain words in connection with the manufacture and sale of medical compounds.

The defendants in the case before us had, in good faith, used the Mark complained of as early as in the fall of 1887, and, as appears from the findings of the court below, the complainant, although there is evidence of his having established a branch house in New York at some time not fixed, but certainly after May 1, 1887, has not shown sales of his medicines in this country prior to the defendants' use, nor any importations, except to a limited extent upon especial orders to supply particular customers. This is not enough. It does not amount to use "in such circumstances as to publicity and length of use as to show an intention to adopt it as a Trade-Mark for a specific article." It indicates no intention to acquire title, and therefore none was acquired. The judgment in *Manufacturing Co.* v. *Beshore* is conclusive, also, as to the effect of the registry made by the complainant in this country. As late as July 7, 1885, he registered as his Trade-Mark an accurately and distinctively defined design, the "essential feature of which" [as he then declared] "is the representation of a red anchor in an oval space." As evidence tending to show what was really claimed or had been intended to be appropriated the court below was clearly right in taking this into consideration, and, in our opinion, it was right, also, in concluding therefrom that the complainant's intention was to confine his claim of Trade-Mark to the specific device designated and described, and which he further declared to be the one which he had "adopted." Upon both the grounds which have been discussed the complainant's claims to the word "Anchor" and to the symbol of an anchor, irrespective of its being red and inclosed in an oval space, were properly rejected.

The complainant registered twice in this country—once in 1885, as already mentioned, and again in 1889. The Mark was not the same in both instances. The registry of 1885 is not set up in the bill, and that, if it had been, it could not have availed the complainant is apparent from what has already been said, inasmuch as the defendants have not marked their goods with anything which, in the sense of the law of Trade-Mark, is at all like a red anchor in an oval space. The registry of 1889 was made after defendants' rights had accrued and this suit had been threatened. Further-

more, as is said by the learned judge below, the defendants never used the device covered by this registry, or any design in imitation or simulation of it. This disposes of the matter, and no further discussion of it would be profitable.

The courts of the United States take judicial notice of its treaties with other countries; but where a treaty is relied on the burden is on the party asserting it to inform the court, when, in fact, without knowledge of the subject, of its existence and terms. In this case it does not appear that the point was considered by the court below; but the brief for the complainant informs us that the treaty which he invokes was made between the United States and Germany, in 1871—

to remain in force for ten years, and in case neither party gave notice was extended each year for an additional year.

The brief adds—

It is therefore understood that its terms are still effective.

Article 17 is quoted, as follows:

With regard to the marks of labels of goods, or of their packages, and also with regard to patterns and marks of manufacture and trade, the citizens of Germany shall enjoy in the United States of America, and American citizens shall enjoy in Germany, the same protection as native citizens.

We accept this statement and the quotation. But what stipulation does the latter disclose of which the complainant has not had the benefit? His right to enjoy the same protection as, under the laws of the United States, is enjoyed by citizens of the United States has been fully recognized, and the question raised by him as to the effect in this country of his alleged acquisition of a right in Germany to the Mark which he claims in this suit has been adjudicated in the manner and under the laws of this country precisely as any similar question would be adjudicated if presented to the same court for decision by one of our own citizens. To more than this the complainant was certainly not entitled. The plain intent of the treaty is to reciprocally assure to the citizens of the respective countries the protection of the laws of the other. It was not intended to give to the official acts or laws of either country any peculiar extra-territorial effect.

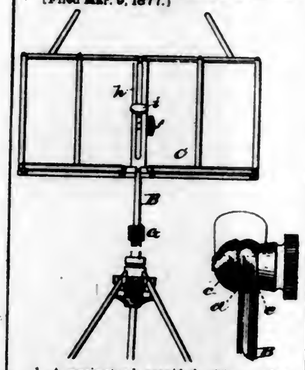
It follows from what has been said that the Mark used by the defendants is not used in violation of any right of the complainant, and therefore the decree of the circuit court dismissing his bill, with costs, is affirmed.

PATENTS

Expired, April, 17 1894.

The term of these patents granted during the week ending April 17 1877, have expired. The reissues expired at an earlier date.

189,544. MUSIC-STANDS. Jos. D. Alvord and Chas. E. Alvord, Bridgeport, Conn. [Filed Mar. 9, 1877.]



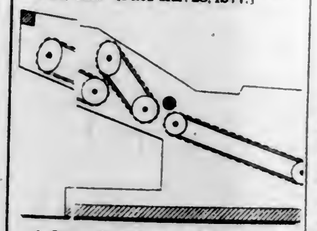
1. A music-stand provided with a wedge-like thimble, sliding on its post or standard, and adapted to hold the legs extended or folded, substantially as described.

2. The combination of legs having beveled ends with a wedge-like thimble and a casting, D, substantially as shown and described.

3. The combination of the frame C, having a slotted bar, with the arm c, wedge-shaped spline g, and set-screw i, substantially as shown and described.

4. A music-stand having the articulated arm c, with a wedge-shaped spline, g, and serrated surface d, adapted to engage with the desk C and rod B, substantially as shown and described.

189,545. GRAIN-SEPARATORS. C. P. Ballard, L. H. Pursell, and J. D. Little, Springfield, Ohio. [Filed Mar. 28, 1877.]



1. In a grain-separator, an inclined endless carrier-apron, carried at its discharging end upon an elliptical roller or elliptical pulleys, substantially as and for the purpose set forth.

2. The combination, with two or more straw carriers or sections, of an intermediate endless carrier-apron, carried at its upper or discharging end upon an elliptical roller or pulleys, and having a steeper inclination than the other carrier-sections, substantially as and for the purpose set forth.

3. The combination, in a series, of two or more endless carrier-aprons, each of said aprons being carried at its upper or discharging end upon an elliptical roller or pulleys, substantially as and for the purpose set forth.

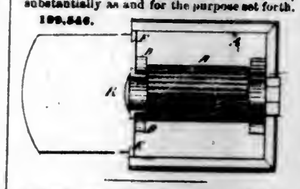
4. The combination, with the primary carrier apron or section, of an endless carrier-apron arranged at a steeper inclination, and carried at its upper end upon an elliptical roller or pulleys, and a rotary beater above the space between the two carriers, substantially as for the purpose set forth.

189,546. FLUTING-IRONS. B. B. Bignall, Chicago, Ill. [Filed June 13, 1876.]

1. The hollow roller B, stand A, and straight fluting-iron H, constructed and arranged to operate as described.

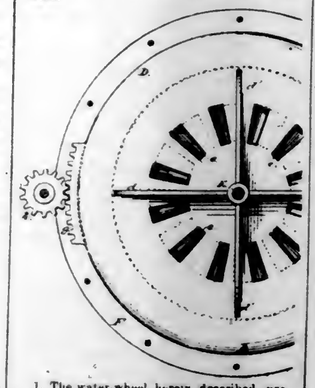
2. The combination of the roller B, stand A, provided with bearings D E, and table R, substantially as and for the purpose set forth.

189,546.



189,547. WATER-WHEELS. J. S. Boddie, Jr., Nashville, N. C. [Filed Mar. 2, 1877.]

Brief.—A wheel having a double set of radial buckets, divided by a partition, in connection with a single gate having one set of ports or openings in the top to correspond with the inner row of buckets, and another set of ports or openings in the side, to correspond with the outer row of buckets, and which can be adjusted to suit the requirements of the work.



1. The water wheel herein described, provided with an inner and outer set of buckets divided by a partition, in combination with an outer case, provided with openings in its top and wedge-shaped openings in its side, and a single gate, having openings corresponding with said openings, substantially as shown and specified.

2. The combination of the water-wheel A, having inner and outer buckets e e', with the case C, provided with ports d in its top and wedge-shaped ports d in its side, and a single gate, D, having ports e and f, and teeth g, operated by pinion h, all constructed and arranged as shown, and for the purpose specified.

189,548. ATTACHMENTS FOR KEY-BOARD MUSICAL INSTRUMENTS. G. N. Carrozzi, Chicago, Ill. [Filed Aug. 24, 1876.]

Brief.—To enable a singer to play accompaniments in a standing position, (the preferable one for vocalization,) an auxiliary key-board of the proper height is arranged over the keys of an ordinary piano or organ, to operate the keys thereof underneath.

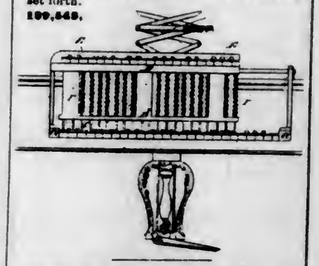
1. The herein-described attachment for key-board musical instruments, consisting, essentially, of the auxiliary removable key-board D E, the pins F F, and a frame for supporting the same, substantially as and for the purposes specified.

2. A removable auxiliary key-board, substantially as described, having its supports made adjustable as to length and height, as set forth.

3. The vertically-extensible music stand or holder, in combination with an auxiliary removable key-board, both together constituting an attachment, for the purposes set forth.

4. The apparatus, substantially as herein specified, consisting of a vertically-extensible music stand or holder, an auxiliary removable key-board, and an extension pedal-lever, all adapted for operation together in connection with each other, and a key-board musical instrument having a pedal, for the purposes set forth.

189,549.

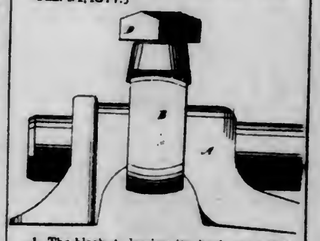


189,550. STENCH-TRAPS FOR CATCH-BASINS AND SEWERS. Henry W. Clapp, Concord, N. H. [Filed Nov. 10, 1876.]



The conical frustum e, in combination with the channeled flap-valve b, having a raised central portion, and provided with the weight d, all arranged and operating as and for the purpose set forth.

189,550. ATTACHING CULTIVATOR-SHOVELS. R. Elwood, Sycamore, Ill. [Filed Jan. 24, 1877.]



1. The block A, having its back extended around the standard, and fitting against the standard, where the pressure is applied, and provided with the end holes b and suitable rivet-holes, substantially as specified.

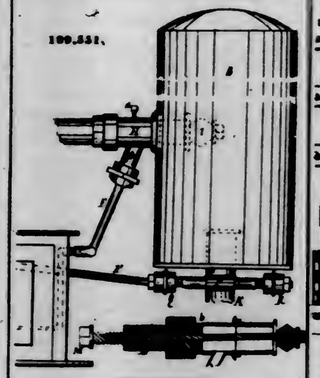
2. The combination of the block A, constructed as described, with the clamp B and screw D, arranged to clamp the standard against the back of the block and support it under the set-screw, substantially as set forth.

189,551. WATER-HEATERS FOR STOVES. J. J. Elwood, Cleveland, Ohio, assignor of one-half his right to S. Sloss, same place. [Filed Jan. 20, 1877.]

1. The connection valve pipe H and valve I, in combination with the boiler B, pipes E and F, and fire place, in the manner substantially as described, and for the purpose set forth.

2. The divergent pipe P, provided with union-caps Q and E, in combination with the boiler B and pipe F, in the manner substantially as and for the purpose specified.

189,551.



189,552. TICKET-REELS. Walter N. Evans, Chicago, Ill. [Filed July 31, 1876.]



The combination, with an imperforate cylinder, A, constructed with parallel flanges, the cylinder and flanges formed of a single piece of material, of a removable slotted cap, which is retained on the cylinder by the tension of the flanges, substantially as described, and for the purpose set forth.

189,553. SPRING BED-BOTTOMS. James H. Frisselle, Boston, Mass. [Filed Jan. 20, 1877.]



1. The herein-described spring slat-fastener *a b b*, having the lug or projection *c*, as set forth.

2. In combination with the spring slat-fastener *a b b*, a coiled or other spring, as and for the purpose set forth.

3. The combination, with the slat-fastener *a b b*, as described, of the flexible strap or connection *f*, as set forth.

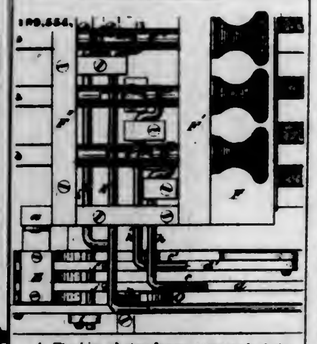
4. The combination, with the slat-fastener *a b b* and its flexible strap *f*, as described, of conoidal or spiral springs *d d*, substantially as set forth.

5. The combination of the fastener *a' b' b'*, the spring-rail *g*, and the framing-stile *h*, substantially as and for the purpose set forth.

6. The combination of the slat-fastener *a b b*, chain *e e*, straps *f*, springs *d d*, rails *g g*, and stile *h*, as and for the purpose set forth.

189,554. REED-ORGAN ACTIONS. Levi K. Fuller, Brattleborough, Vt., assignor to J. Estey & Co., same place. [Filed Jan. 6, 1877.]

189,555.



1. The hinged stop-frame, composed of the hinging-arms H, base-board F, name-board F', and back-strip F'', in combination with stops G G', links *c c'*, and cranked stop-rods *h h'*, all arranged to operate substantially as herein set forth.

2. The combination of the hinged stop-frame, the stops G G', links *c c'*, stop-rods *h h'*, slides *d d'*, and dampers K K', all arranged to operate substantially as set forth.

3. The combination of the hinged stop-frame, the stop G'', link *c''*, stop-rod *h''*, swell-lever J, and swell I, all arranged to operate substantially as herein set forth.

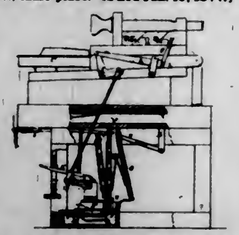
4. The combination of the standard E, the stop-frame hinged thereto, the stops G G', and stop-rods *h h'*, the slides *d d'* provided with projections *e e'*, and bearings in the standard E, and the dampers K K', all arranged to operate substantially as herein set forth.

5. The combination of the rod M, crank N, rod *n*, lever O, and rod *h'''*, all arranged to operate in the manner substantially as herein set forth.

6. The combination of the cranked rod *h'''*, the slides *d d'*, connecting with all the dampers in the organ, and provided with pins or projections *f f'*, the lever O and suitable rods connecting the same with the knee-lever *n*, substantially as herein set forth.

7. The combination, with slides arranged to actuate the dampers of a reed-organ, of a rod, *h'''*, arranged to be actuated by the knee, to throw open simultaneously all the dampers of the organ without actuating the individual stop mechanism, or in the least degree disturbing it, all substantially as herein set forth.

189,556. REED-ORGANS. Levi K. Fuller, Brattleborough, Vt., assignor to J. Estey & Co., same place. [Filed Jan. 19, 1877.]



1. In a reed-organ, the combination of the rod H, provided at one end with a crank-arm, arranged to simultaneously engage projections on the slides *b b*, and a branch, *l*, to engage the upright *m*, and at the other end with a crank, *g*, to engage a sliding bar, *h*, with the slides *b b*, the rod J, and the pedal K, when all are arranged to operate substantially as herein set forth.

2. The combination of the rod H, provided with the branch *l*, with the upright *m* unattached thereto, but arranged to engage said branch, the cranks L *e*, rods *n g*, slides *b b*, and dampers *c c*, all arranged substantially as set forth.

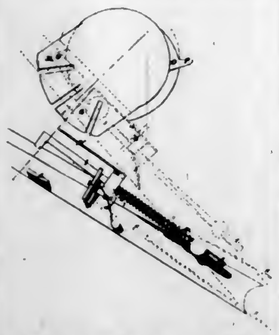
3. The arrangement of the pedal-rods N and chamber M at the lower edge of the bellows O, and in connection therewith by means of the throat *q*, substantially as and for the purposes set forth.

4. The bellows O of a reed-organ, provided with a throat, *r*, at its upper edge, and a throat, *q*, at its lower edge, arranged to take air from separate sets of reeds, substantially as herein shown.

5. The combination of a bellows arranged to take air through throats at its upper and lower edges, with an ordinary set or sets of reeds, arranged to communicate with the upper throat, and a lower or pedal set or sets of reeds, arranged to communicate with the lower throat, substantially as specified.

189,556. PRINTING-PRESSES. F. W. Griffith and Geo. P. Byrne, New York, N. Y. [Filed Jan. 17, 1876.]

Brief.—The frame carrying the friskat-fingers slides in studs swiveled on the platen-arms, and is held from the platen by springs. Stops on the roller-frame press the fingers to the platen as it approaches the bed, and as it retreats projections push the finger-frame downward, so that the fingers draw the printed sheet from the platen to endless tapes below. Spiral springs give the frame backward motion.



1. The reciprocating fingers to overcome the adhesion of the sheet to the platen and draw it therefrom, in combination with the mechanism for operating them, substantially in the manner described and specified.

2. In combination, the rods I I, springs *j j*, fingers N N, and stops for coming in contact with and depressing the rods, constructed and operating substantially in the manner described and specified.

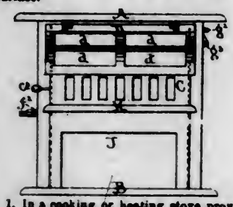
3. In combination, the rods I I, springs *j j*, fingers N N, and cams O O, for keeping the fingers depressed during the early descent of the platen, substantially as described and specified.

4. In combination, the rods I I, springs *j j*, springs *m m*, fingers N N, cams O O, projections P P, and ledges L L, substantially as described and specified.

5. The combination of the stripping-fingers N N, for drawing the sheet off the platen, with the tapes R R, situated in the same plane with the top of the platen, for receiving and conveying away the sheets, constructed and operating substantially in the manner described and specified.

189,557. STOVES. C. A. Hamlin, Albany, N. Y., assignor to S. H. Ransom & Co., same place. [Filed Jan. 22, 1877.]

Brief.—The grate F is hinged at the bottom, and may drop to expose a larger fuel-surface.



1. In a cooking or heating stove provided with a permanent projection, *e'*, of the front plate C, a fire-box having an adjustable front plate, F, for extending the upper surface of the burning fuel into said projection within the exterior casing of the stove, and beyond the area of the grate E, for the purposes of broiling, radiation, or illumination, in the manner herein specified.

2. The permanent projection *e'* of the front plate C, in combination with the inclined front plate F of the fire-box extending thereinto, as and for the purpose herein specified.

3. The combination, with the projection *e'* of the front plate C, having the grooves *d'*, of the end pieces *e'*, having the shoulders *e''*, as and for the purpose herein specified.

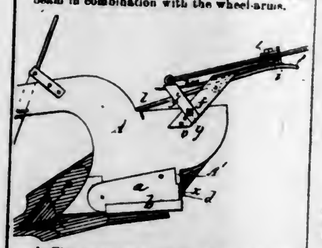
4. The combination of the adjustable front plate F with the damper G, as and for the purpose herein specified.

5. The damper G and door D, combined and arranged to co-operate in the manner and for the purpose herein specified.

6. The combination, with the projection *e'* of the front plate C, provided with the means, substantially as herein described, for holding the gridiron L, of the hearth-plate K, arranged in relation to the gridiron in the manner and for the purpose herein specified.

189,558. REVERSIBLE PLOWS. E. C. Hodge, Oneonta, N. Y., assignor of one-half of his right to De Witt Ford, same place. [Filed Nov. 22, 1876.]

Brief.—Pivoted land-side plates and adjustable heel-plate. The handles swing to alternate sides with the turning of the mold-board, and both are locked in position by the same spring-lever. Mold-board strengthened by cross-ribs on its inner side. The bent beam in combination with the wheel-arms.



1. The combination of the plates *a* a and shoe *b*, the parts being hinged at the forward ends thereof, and the rear adjustable vertically, as set forth.

2. The combination of the lever by which the mold-board is locked, the spring by which it is held down, and the pin or stud fixed thereon to lock the handles, as set forth.

3. The combination of the bars *f f*, pivoted to A', the plates *i i*, and the adjustable handles, as set forth.

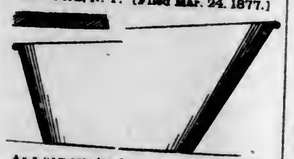
4. The yoke *f*, in combination with the pivoted handles and with the locking-lever *l*, arranged within the yoke, as set forth.

5. The improved mold-board for plows, formed with the checkered interior surface.

6. In combination with the point, having the two cutting edges, the mold-board, formed with both its edges continuous with the straight edges of the point, and arranged in the described relation to the curve of the beam, as set forth.

7. The curved end of the beam A, in combination with the arms *u u* and straps *u' u'*, by which the wheel is raised or lowered, as set forth.

189,559. BATH-TUBS. Chas. B. L. Holmes, New York, N. Y. [Filed Mar. 24, 1877.]

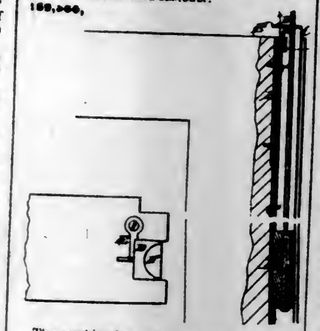


As a new article of manufacture, a bath-tub in which are combined a body or backing, *a*, of zinc and a facing of block tin or tin compound united face to face to the zinc, as set forth.

189,560. SASH-CORD FASTENERS. Nelson Holmes, Ypsilanti, Mich. [Filed Feb. 24, 1877.]

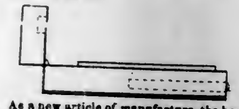
Brief.—A long box or case, fitting tightly in the sash-grooves, is provided near its lower end with a tubular block for the reception of the cord, and recessed at its upper end to receive a swinging catch pivoted to the top of the sash, the recessed part abutting against a lip in a stationary plate attached to the sash, constituting an adjustable and readily removable sash-cord fastener.

189,560.



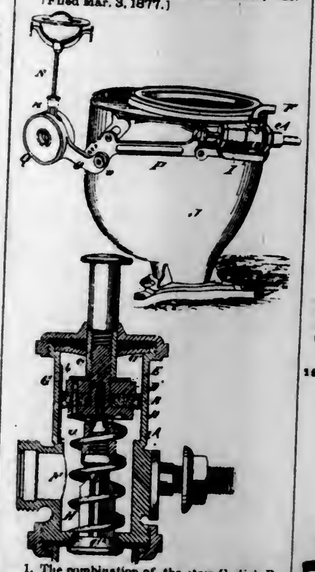
The combination, with a grooved sash, of the recessed box or case G, having the tubular block F and catch E, substantially as described, and for the purpose set forth.

189,561. POCKET HONE-STROP AND OIL-CUP COMBINED. Fredk. A. Ketchum and Henry Wilde, Cleveland, Ohio. [Filed Jan. 31, 1877.]



As a new article of manufacture, the herein-described combined pocket hone, strop, and oil-vessel, having a hinged cap or cover, substantially as set forth and specified.

189,562. WATER-CLOSETS. John C. Kupferle and Peter White, St. Louis, Mo. [Filed Mar. 3, 1877.]



1. The combination of the stem C, disk B, flange D, lock-nut D', having the perforations *b b b*, washer E, and valve-case A, substantially as described.

2. The combination of the valve-case A, stem C, extension *c*, flange D, disk B, nut D', having the perforations *b b b* and washer E, substantially as described.

3. The combination of the valve-case A, wire G, and valve B, substantially as described.

4. The combination of the valve-case A, wire G, valve B, flange D, nut D', having the perforations *b b b*, washer E, and stem C, substantially as described.

5. The combination of the nut D', having the perforations *b b b*, washer E, stem C, and extension *c*, substantially as described.

6. The combination of the valve-case A, pipe I, and trunk J, the said pipe leading from the valve-case at a point above the main valve therein to the trunk, and to provide means for draining the valve-case after the main valve is closed.

7. In a water-closet, the trunk J, having the bearing *k*, and the cover J' having the bearing *k'*, said bearings, for the purpose set forth, being cast directly in said trunk and cover, respectively, substantially as described.

8. In a water-closet, the trunk J, having the bearing *k*, the cover J', having the bearing *k'*, said bearings, for the purpose set forth, being cast directly in said trunk and cover, respectively, and the hinge K, having the shoulder *k'''* and washer *k''''* combined, substantially as shown.

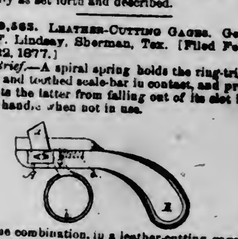
9. The cover J', having the tapering recessed lug L and plug *l*, in combination with the pan M, substantially as shown, for the purpose set forth.

10. The lever O, having the lug *o'*, and the lever P, having the openings *p p p*, combined and operating substantially as described.

11. The weight Q, having the grooves *n'' n''*, and the pull-rod extension *n* having the lug *n' n'*, combined and operating substantially as set forth and described.

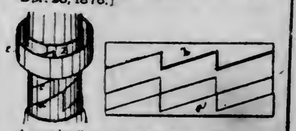
189,563. LEATHER-CUTTING GAGES. Geo. F. Lindsay, Sherman, Tex. [Filed Feb. 22, 1877.]

Brief.—A spiral spring holds the ring-trigger and toothed scale-bar in contact, and prevents the latter from falling out of its slot in the handle when not in use.



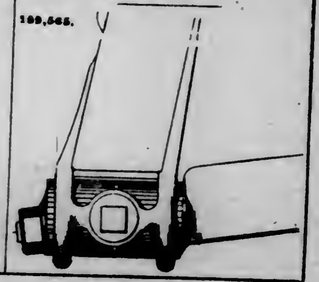
The combination, in a leather-cutting gage, substantially as described, of a beveled and notched rule, A, trigger *b*, and spiral spring *d*, with a handle or stock, B, for holding the same.

189,564. UMBRELLA-TIP CUPS. Robt. Rubinski, London, England, assignor to Ardon S. Fitch, New York, N. Y. [Filed Apr. 28, 1876.]



An umbrella-tip fastener formed of the cap *c*, the inclines *a b*, the sleeve *c*, having inclines on both edges, and to which is secured the said cap, all combined to operate as and for the purpose described.

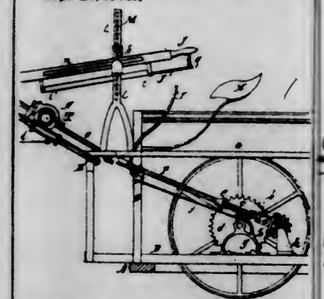
189,565.



189,565. SCYTHE-FASTENINGS. F. Ludden, Bridgeport, Conn., assignor of one-half his right to C. B. Alvord, same place. [Filed Jan. 31, 1877.]

In a scythe-fastening, a sleeve adapted to be rotated and held in different positions within a suitable holder, and having a receptacle for the tang of the blade, extending from near one side of one end to near the opposite side of the other end of the sleeve, substantially as shown and described.

189,566. HARVESTER-RAKES. O. W. Marsh and W. W. Marsh, Sycamore, Ill. [Filed Sept. 28, 1876.]



1. The sliding cap N, in combination with the sliding bearings T t, rock-supporting arm, shaft O, and wheels U V, substantially as and for the purposes specified.

2. The sliding collar *k*, arm *j*, and lever J J', in combination with the post M, substantially as and for the purpose specified.

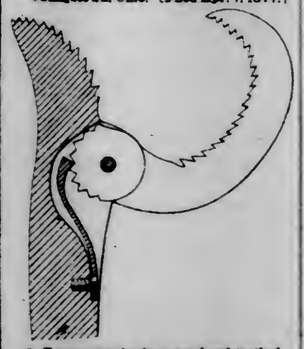
3. The combination of the lever J J', the section J, having holes *m*, with the standard M, having holes *l*, and locking-arm *j*, substantially as and for the purpose described.

4. The lever J, having the slot *n*, in combination with the pin *o*, and sliding collar *k*, whereby the reel may be vertically adjusted at any point of its forward and backward adjustment, substantially as described.

5. The combination of the lever J, having holes *m*, and slot or groove *n*, pivoted bar J', spring *q*, lock *j*, sliding collar *k*, and pin *o*, with the standard M, having holes *l*, and pivoted reel-support K, substantially as and for the purposes specified.

6. The reel-driving shaft P, in combination with the clutch *a b*, spring *c*, lever *d*, rod *f*, lever I, and wheels R S, whereby the reel has an independent attachment to the main driving-shaft, and does not revolve when the machine runs backward, and can be thrown out of operation altogether at will, substantially as set forth.

189,567. PIPE-WRENCHES. H. R. Mathews, Youngstown, Ohio. [Filed Apr. 7, 1877.]



1. Two or more hooks, curved and toothed, of varying sizes, and adapted to be pivotally attached to the bar of the wrench, as and for the purpose set forth.

2. A hook having a two-way ratchet, in combination with a spring-catch attached to the bar of the wrench, as and for the purpose set forth.

189,568. POTATO-DIGGERS. Jos. P. Maull, St. Louis, Mo. [Filed Nov. 2, 1876.]

Brief.—The digging device consists of a series of bars secured together and acting as one, hinged to the axle-tree of a pair of wheels. Rigid plows are attached to the center bars, and reversible plows to the outer ones. Every alternate bar has a supplemental one near the top, for the purpose of conveying the vines to a pair of rollers, which convey them to a conveyer, which deposits them in a row on the near side of the machine, while the potatoes pass between the supplemental bars, and are carried beneath the rollers upon a shaking-screen, and into a receptacle placed to receive them.



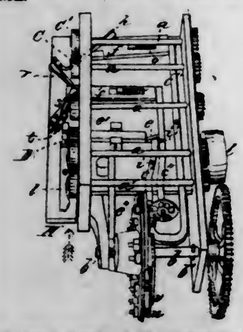
1. The bounds C and arched frame H, in combination with the rollers D D, conveyer F, obliquely-inclined separator B, vibrating bar *a*, and cam *d*, all arranged and operating substantially as and for the purpose set forth.

2. The sloping apron, consisting of a series of finger-bars, the rear ends of which are hinged to the axle-tree, in combination with the rigidly-attached plows *i i* and the reversible plows *i' i'*, substantially as and for the purpose specified.

3. The dividing-fingers *c*, in combination with alternate sloping apron-bars, as and for the purpose specified.

189,569. MACHINES FOR FITTING SIDINGS FOR WHIPS. Moses B. Moore, Westfield, Mass. [Filed Sept. 18, 1876.]

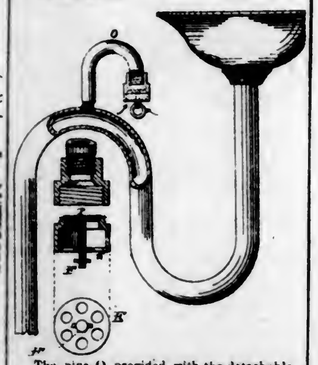
Brief.—The tapering form is given to whip-centers, and the cutting of the siding so that when placed around the wedges of the whip the pieces of siding will fit together, and give an approximate elongated conical form to receive the covering, by means of a series of pivoted levers and bars, actuated by cams attached to, kept in place and adjusted by, a disk; a series of upper yielding feed-rolls arranged immediately over a series of rigid feed-rolls; a vertically-moving presser-roll mounted between the upper rolls; a shaving knife secured upon either side of the upper rolls, and a similar knife attached below the bed; a suitable platform or bed, on which the strips, as they are passed along, are pressed against the knives; and suitable operating mechanism.



1. The combination of the cams *u v w*, the levers *a' a'' a'''*, the feed-rolls C C', the vertically-moving presser-roll D, and the knives *N r h*, and platform for holding the strip to be operated upon, all substantially as herein described.

2. As a means of moving the bars *f*, *f'*, and *f''* in a machine for shaving siding for whips, the combination of the cams *u v w* and the pivoted levers *a' a'' a'''*, substantially as herein set forth.

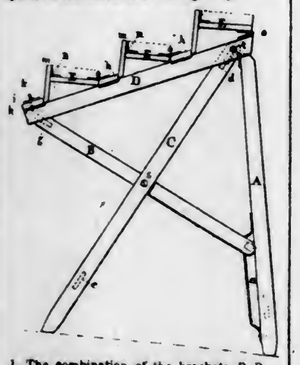
189,570. STENCH-TRAPS. P. F. Morey, Oakland, Cal., assignor of one-half his right to J. W. Musser, same place. [Filed Mar. 1, 1877.]



The pipe O, provided with the detachable part B, having perforated bottom E and air-valve P F, in combination with the bent pipe and bowl of a stench-trap, substantially as and for the purposes herein set forth.

189,571. FOLDING FLOWER-STANDS. S. R. Pay, Peoria, Ill. [Filed Mar. 3, 1877.]

Brief.—A folding flower-pot stand with folding legs and shelves, without taking apart, for convenience of storing away.



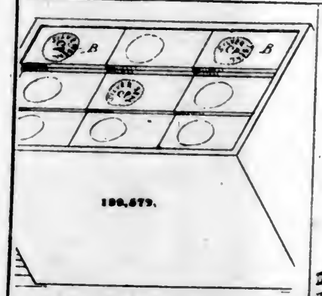
1. The combination of the brackets B B, connected by cross-bar *g*, pivoted at *e*, or centered on the middle part of legs C, each in combination with the respective rear legs A, said brackets B so combined with said legs A by means of slots *a* and the cross-rod *f* or detent, and said legs A hinged or pivoted to said legs C or their cross-piece *d*, at their upper extremities, to sustain the flower-shelf supports D D, substantially as and for the purposes described.

2. The combination, in a flower-stand, of the folding shelf-frame D D, the legs A A, pivoted to the legs C C near the pivot which unites both to said shelf-frame, and the brackets B B, substantially as and for the purposes described.

3. The combination of the hinged shelves E, and inclined pivoted shelf-supports D, substantially as and for the purposes described.

189,572. MAKING PLUG-TOBACCO. C. Peper, St. Louis, Mo. [Filed Feb. 5, 1877.]

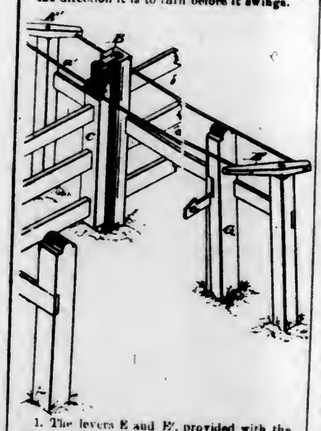
A label, B, impressed into a plug of tobacco by a superimposed plate, C, which remains on the surface, between the plugs in a package, until removed for use, substantially as described.



189,573.

189,573. GATES. Cyrus Pool, Ottawa, Ill. [Filed Jan. 29, 1877.]

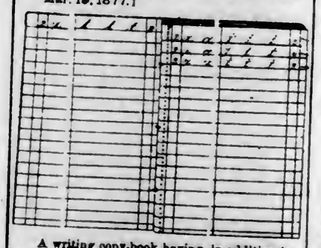
Brief.—The upper hinge is connected to the post by a link, so that the rods that open and close the gate throw the weight of it in the direction it is to turn before it swings.



1. The levers E and E', provided with the wires *a a'*, each one running to the far side of the hinge-post C, and the wire *b*, attached to the levers, as shown, and for the purpose set forth.

2. The combination, with an ordinary gate, of the levers E E', wires *a a' b*, double hinge B, post G, and catches *c c'*, substantially as and for the purpose set forth.

189,574. COPY-BOOKS. M. Augusta Requa and Eleanor Dunn, New York, N. Y. [Filed Mar. 19, 1877.]

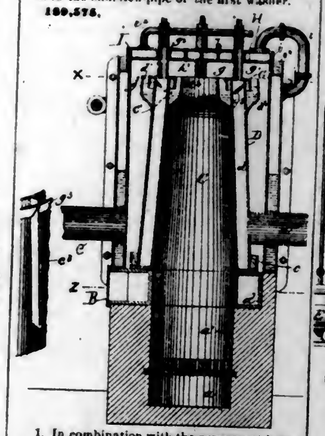


A writing copy-book having, in addition to the usual pages of set copy or words and letters to be imitated, interposed removable trial-leaves, provided with one or more lines of letters corresponding with the set copy, outlined or indicated by dots or other suitable means, and with a space for free handwriting, substantially as and for the purpose specified.

189,575. GAS APPARATUS. James Rigby, Montreal, Quebec, Canada. [Filed Mar. 19, 1877.]

Brief.—Gas is generated from oil, and is forced by a steam-jet into a washer, from which it is exhausted by a steam jet. Hydrogen or other gas is forced by a steam-jet, and mixed with the hydrocarbon gas, for diluting it in the eduction-pipe of the first washer.

189,576.



1. In combination with the permanent base A, the removable vertical boiler, composed of similar semicircular independent sections E and F, substantially as described.

2. In combination with the boiler having a removable section, F, the removable annular retort C D, having the central flue-passage, substantially as described.

3. In combination with the permanent base A and the relatively-fixed section E of the boiler, the removable section F and the removable annular retort C D, having a central flue-passage, as described.

4. In combination with the relatively-fixed section E, having recess *e*, the removable shell D, having the outlet-pipe *d* rigidly attached thereto, as described.

5. In combination with the boiler E F, having the seal-basin *e'*, the removable top plate H I, as described.

6. In combination with the permanent base, the removable superstructure and the removable annular bridge, as described.

7. In combination with the fire-chamber *a'* and the smoke-pipe *d'*, the annular retort C D, the cover-plate, and the inclosing-boiler, forming main and return flues, as described.

8. In combination with the retort, having a central passage, forming the main flue, the cover-plate and boiler, forming a return-flue, as described.

9. In combination with the conical shell, the removable shell D, forming the annular closed retort, as described.

10. The retort described, consisting of the shell C, with seal-cups *c c'*, shell D, with seal-cup *d'*, and covering-plate G, as described.

11. In combination with the retort, the deflecting and distributing plates *g'*, as described.

12. The vertical retort, provided with the vertical partition-plates and independent oil-pipes, as described.

13. The removable cover-plates H I, having the vertical division plates *h*, forming a superheating-chamber, as described.

189,576. PROCESSES AND APPARATUS FOR MANUFACTURING GAS. Jas. Rigby, Montreal, Quebec, Canada. [Filed Mar. 20, 1877.]

Brief.—Gas is made by passing heated air and steam through layers of incandescent anthracite coal and lime. The gas is exhausted by a steam-jet and forced into a washer, where particles of lime are deposited in the water, forming a milk of lime, which acts as a purifying agent to the gas.

1. The furnace described, having the outer shell B, with base *b'*, and inner shell C, with base *c'* and projection *c''*, as described.

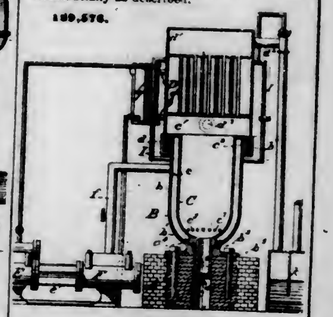
2. In combination with the furnace B C, having the flange *b''* and seal-cup *b'''*, the tubular boiler having the extension *d*, as described.

3. In combination with the furnace and boiler, the double-acting pump, adapted to supply water and air, substantially as described.

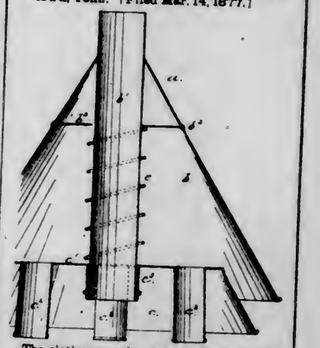
4. The method described of making gas, consisting essentially in causing air and steam to pass through the burning fuel and lime layers, and in subjecting the resulting products to the action of steam, substantially as described.

5. The method described of making gas, consisting essentially in subjecting air and steam to the action of burning fuel and lime, substantially as described.

189,576.



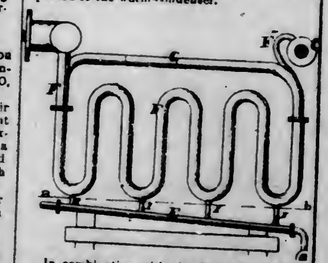
189,577. CLOTHES-POUNDERS. J. R. Roberts, D. P. Rowe, and L. G. Lane, Morristown, Tenn. [Filed Mar. 14, 1877.]



The clothes-pounder, consisting of the two parts *b* and *c*, the part *b* being constructed with the central stem *b'*, and the inner part *c* being constructed with a flat top, *c'*, and sliding vertically on the stem *b'*, and provided with a series of air-pipes, *c''*, and so that when pressed up into the outer part *b* it will fit snugly therein and form an air-chamber, *d*, all substantially as and for the purpose set forth.

189,578. APPARATUS FOR THE REDISTILLATION OF SPIRITS. P. G. Rooney, Cincinnati, Ohio. [Filed Apr. 22, 1876.]

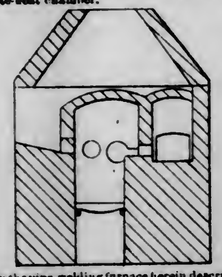
Brief.—The fusel-oil and heavier substances in the vapor condense at the lower bends of the coils, and are returned to the still, while the spirit-vapor at a high "sweet" proof is passed to the worm-condenser.



In combination with the drum B and the pipe F''', leading to the condenser, the separator composed of two or more coiled pipes, F and F, the return-pipes G and G, and the pipes E, connecting with the pipes F F by means of the pipes I, the whole arranged to operate substantially as described.

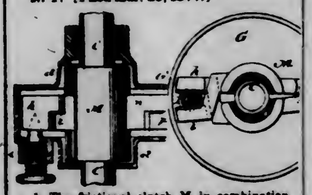
189,570. TUBE-WELDING FURNACES. W. B. Sandford, Chicago, Ill., assignor to Crane Brothers Manufacturing Company, same place. [Filed Feb. 6, 1875.]

Brief.—The combustion chamber communicates with a lateral waste heat chamber by perforations in the wall that separates them, and a ledge or shelf within the first-named chamber, over which the heat must pass on its way into the other, is designed to be a place of deposit for the partly-heated tubes as they are successively removed from the waste-heat chamber.



In the pipe-welding furnace herein described, the offset or shelf *a* for supporting the pipe-blanks, in combination with opening *b*, arranged to admit of the insertion and removal of the pipe-blanks, as specified.

189,580. FRICTION-CLUTCHES FOR GAS-CHANDELIERS. J. H. Seaman, Brooklyn, N. Y. [Filed Mar. 29, 1877.]



1. The frictional clutch M, in combination with the sliding tube C of an extension-light gas-chandelier, substantially as and for the purposes herein specified.

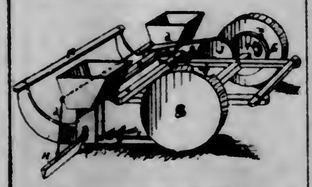
2. The combination of a regulating device, D, with the legs *h i*, and the clutch M, substantially as and for the purposes herein specified.

3. The combination, with the two parts of the clutch M, having the legs *h i*, of the hinge *n p*, substantially as and for the purposes herein specified.

4. The combination, with the two parts of the clutch M, provided with legs *h i*, of the frictional lining *p*, substantially as and for the purposes herein specified.

5. The combination, with the inclosing-case G, sliding tube C, clutch M, and regulating point I, arranged and having a mode of operation substantially as shown in Figs. 3 or 6.

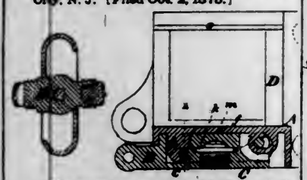
189,581. DROPPING AND MARKING ATTACHMENTS FOR CORN-PLANTERS. F. Silsbee, N. Silsbee, and P. Silsbee, Little Sioux, Iowa. [Filed Dec. 15, 1876.]



1. The wheel J, having the pinion *g*, cards *d d*, and notch *r*, in combination with the hinged markers H, the spring *m*, and the wheel G, having the pinions *f f* and cams *a a*, substantially as and for the purposes shown and described.

2. The grooved cam-wheel G, having the pinions *f* and cams *a*, the pivoted lever *e*, and seed-slide *c*, the wheel J, having the pinion *g*, notch *r*, and cords *d d*, the hinged markers H, and the spring *m*, all arranged and combined substantially as shown and described, to simultaneously plant and mark.

189,582. SEAL-LOCKS. J. N. Smith, Jersey City, N. J. [Filed Oct. 2, 1875.]



1. The casing A, provided with the notched bracket *b*, in combination with the removable clasp B, constructed to fit within said casing, and the pivoted bolt C, having a limited sliding movement and a point, *a*, for engaging with the notch of the bracket, substantially as and for the purpose herein specified.

2. The casing A, notched bracket *b*, removable clasp B, provided with the socket *w*, in combination with the pivoted sliding bolt C, having the cavity *k* for the reception of the seal *i*, and stamp *j*, substantially as and for the purpose herein specified.

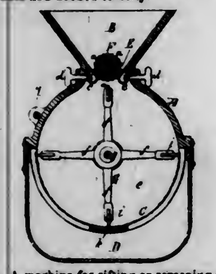
3. The combination of the casing A, provided with the frame D, and the removable clasp B, having the projecting flange A, with the pivoted and sliding bolt C, substantially as and for the purpose herein specified.

4. In combination with the casing A, clasp B, and bolt C, forming a seal-lock as described, and the seal *i j*, the sealing tool or key E, substantially as and for the purpose set forth.

5. In combination with the casing A, clasp B, and bolt C, forming a seal-lock as described, and the hasp F, staple G, and staple H, the link I, pin K, and clevis J, substantially as and for the purpose set forth.

189,583. MOLDING-SAND SIFTERS. John Stockpole, Woburn, Mass. [Filed Nov. 21, 1876.]

Brief.—The comminuted substance passes between guard and adjustable wings in throat. Lumps are disengaged from either side of rotary guard by reversing its direction. A removable hod hooked to body.



1. A machine for sifting or screening molders' sand, flour, or other finely comminuted substances, constructed as herein described—that is to say, as composed of the case A, rotary guard F, variable and adjustable wings or sides *a*, dash G, screen C, and the trap *h* or its equivalent, the whole being substantially as and for the purposes stated.

2. In combination with the case A, dash G, and screen C the rotary guard F, constructed substantially as shown and described, so that a reversal of its movement shall detach and bring up substances too large to pass the throat E, substantially as and for the purposes stated.

3. In combination with the hopper B and guard F, the adjustable wings *a a*, for varying the extent of the passage between the sides of the throat E and the periphery of the guard, substantially as and for purposes stated.

189,584. ARMATURES FOR ELECTRO-MAGNETS. Henry Stroh, Edwardsville, Ill. [Filed Sept. 14, 1876.]

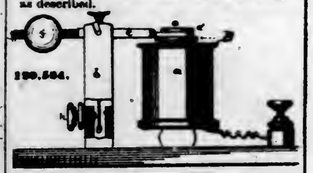
1. The herein-described armature B, provided with the perforations *d d*, operating substantially as described.

2. The combination of the standards *b b*, arm *c*, magnet *a*, poles *e e*, and armature B, having the perforations *d d*, substantially as described.

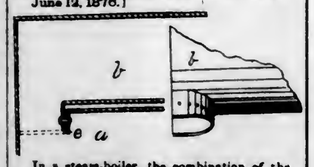
3. The combination of the armature B, provided with the perforations *d d*, arm *c*, standards *b b*, spring *g*, screw *h*, and magnet *a*, substantially as described.

4. The combination of an electro-magnet, *a*, and a perforated armature, B, substantially as described.

189,584.

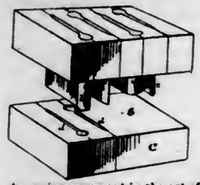


189,585. CONSTRUCTION OF STEAM-BOILERS. Danl. Sullivan, Bangor, Me. [Filed June 12, 1876.]



In a steam-boiler, the combination of the boiler *a* and dome or cylinder *b*, united by a nozzle, B, formed, in part, by the turned metal of said boiler and dome, and in part by the boiler-head, substantially as set forth and shown.

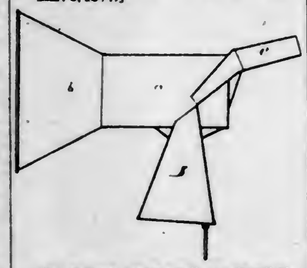
189,586. MANUFACTURE OF HORSESHOE-NAILS. I. C. Tate, New London, Conn., assignor to P. Williams, same place. [Filed Mar. 6, 1877.]



1. As an improvement in the art of making horseshoe-nails by stamping impressions of nails upon or into a sheet of metal, and then cutting out said impressed portions by punching, in the usual manner, I claim so operating upon the metal while cold, in virtue of which the same is tempered and finished, as set forth, before being punched.

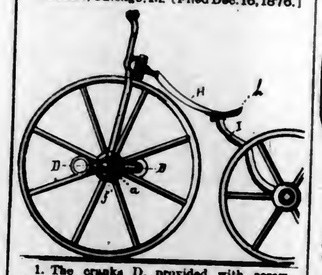
2. In combination with the cutting-dies *b b*, the compressing and finishing dies *c c* and the die and anvil block C, substantially as set forth.

189,587. FOG-HORNS. P. Thompson, Calais, Me., assignor to himself, W. B. Taylor, and G. A. Blake, same place. [Filed Mar. 6, 1877.]



The fog-horn, substantially as described, composed of the trumpet A, the bellow cone or vessel B, and the blast or induction pipe C, arranged essentially as set forth.

189,588. VELOCIPEDES. H. Will and C. Uebele, Chicago, Ill. [Filed Dec. 16, 1876.]

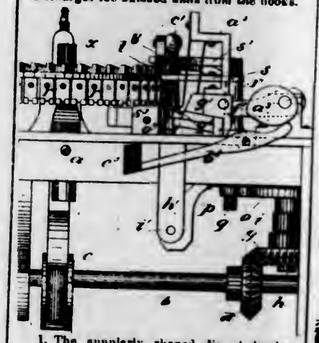


1. The cranks D, provided with screw-threads on their outer ends, and with flanges *d* and shoulders *d'*, as shown, combined with the screw box or sleeve E shorter than the hub, as set forth, and provided with ribs *e* on the outer side, for the purpose described.

2. The seat H, provided with lugs *h'* upon its under side, in combination with the reaches I and plate *i*, provided with a slot, *i'*, and bolted to the seat, substantially as described.

189,589. MACHINES FOR FINISHING HORSESHOE-NAILS. C. W. Woodford, Montreal, Quebec, Canada. [Filed Jan. 29, 1877.]

Brief.—The nail-blanks hang by their heads in the peculiarly-formed hooks of an intermittingly-revolving wheel. The shearing-die is carried in a vibratory rest, and trims the nail against the usual fixed punch. Legs for holding the point-beveling dies are formed in the rest. A cup on the end of a pivoted lever discharges the finished nails from the hooks.



1. The annularly-shaped die *w'*, having acute-angled space *w*, substantially as and for the purposes set forth.

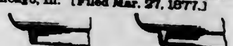
2. The combination of the wheel *c* with hooks *r'*, having horizontal part *u'*, upturned ends *v'*, and slit *w*, substantially as and for the purposes described.

3. The hooks *r'*, constructed with upwardly-turned and slotted ends *v'*, substantially as described, in combination with the cup *c'*, constructed, arranged, and operated substantially as described, for the purposes set forth.

4. The annularly-shaped die *w'*, having bevels forming acute-angled recess *w*, in combination with the punch *o'*, substantially as and for the purposes set forth.

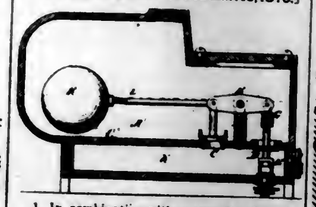
5. The combination of the vibrating rest *g'*, constructed as described, with cramp *b'* and removable part *i'*, and having a segmental annulus formed therein, with the annularly-shaped die *w'*, having acute-angled spaces *w'*, substantially as and for the purposes herein set forth.

189,590. PANS AND BASINS. Geo. Wright, Chicago, Ill. [Filed Mar. 27, 1877.]



As an improved article of manufacture, a sheet-metal pan or basin, provided with a bead, *a*, upon the bottom thereof, such bead being filled with solder or block tin, or other suitable material, substantially as and for the purpose specified.

189,591. STEAM-TRAPS. C. H. Yeager, St. Louis County, Mo. [Filed Mar. 16, 1876.]

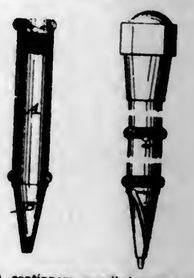


1. In combination with a wrench adapted to adjust the valves from the outside of the case, the valves C D and beam B, as and for the purposes set forth.

2. In combination with the wrench E, valves C and D, beam B, and float E, as and for the purposes set forth.

3. The combination of the water-chamber A, discharge-chamber K, partition C', valves C and D, beam B, and float E, as and for the purposes set forth.

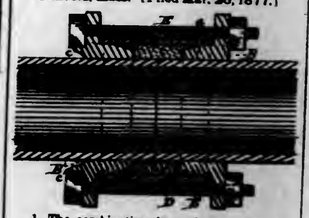
189,592. PENCIL-SHARPENERS. G. Agnew, Titusville, N. J. [Filed Jan. 29, 1877.]



1. A continuous pencil-sharpener, having an interior feed thread and small way-cutting blade at the end of the guide part, substantially as and for the purpose set forth.

2. The conical point of the sharpener, having an interior threaded surface or lead-die, substantially as set forth.

189,593. PIPE-COUPLINGS. Michael Allen, Danvers, Mass. [Filed Mar. 26, 1877.]



1. The combination, in a pipe-coupling, of collars B B' and sleeve D, constructed and operating substantially as described.

2. The combination, in a pipe-coupling, of collars B B', sleeve D, and bolts E, constructed and operating substantially as described.

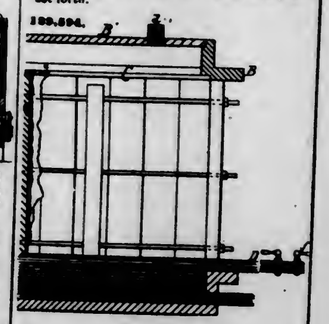
3. A pipe-coupling having the plastic material used in cementing the joint confined between collars on the adjacent ends of pipes to be joined, and a connecting-sleeve interposed between and covering said collars, the said collars and sleeve being brought in close contact, and the plastic compressed between them by bolts extending from collar to collar, substantially as described.

189,594. STRAP AND SUGAR FILTERS AND PROCESSES OF CLEANING THE SAME. W. J. Allen, Buffalo, N. Y. [Filed Jan. 24, 1877.]

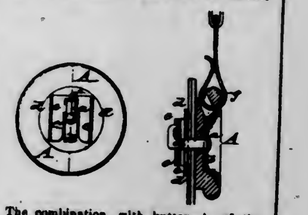
1. The combination of the filter proper containing a series of filter-plates, A, covered with a layer of pasteboard, and a layer of cloth, the perforated cover C, and removable cover B, substantially as herein specified.

2. The combination of the filter proper and its series of filter-plates, the perforated and removable covers and the pipes D and *d*, the whole arranged to operate substantially as set forth.

189,594.



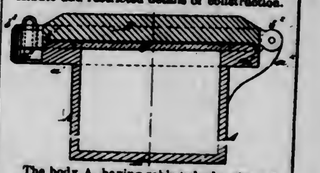
189,595. BUTTONS. Benjamin Bailey, Yale, British Columbia. [Filed Dec. 28, 1876.]



The combination, with button A, of the headed hook *a*, apertured plate *b*, slotted plate *d*, and open-slotted plate *c c'*, having recess *c''*, substantially as and for the purpose specified.

189,596. CAST-IRON EXTERIOR COFFINS OR VAULTS. Robert Beachman, Lyons, N. Y. [Filed Mar. 19, 1877.]

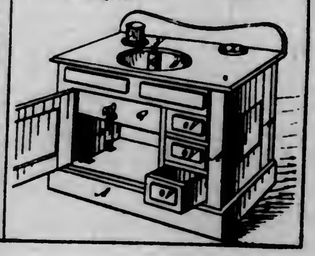
Brief.—Improvement consists in certain minute and restricted details of construction.



The body A, having rabbeted edge flanged at *a'*, and having lugs *a² a²*, the latter of which is provided with a staple, in combination with plate C and cover B, the latter having lip *b'* and lugs *b² b²*, as and for the purpose specified.

189,597. PORTABLE WASH-STANDS. N. O. Bond, Fairfax Court-House, Va., assignor to H. A. Richardson, New York city. [Filed Feb. 17, 1877.]

Brief.—The flanges, passing through the cover of the stand, form an extension of the water-tank, and allow the tank to be completely filled with water, thus aiding the action of the siphon.

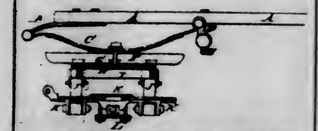


1. The bowl, having a circumferential flange supported on screws attached to lugs of the water-tank, as and for the purpose set forth.

2. In combination with the siphon, the tank C and the flanges W, forming upward extensions of the latter, as shown and described, for the purpose stated.

3. In combination with bowl Q, the supports C, hinged to the bottom of stand A in such manner that they will fold toward each other, as shown.

189,598. PLATFORM-WAGONS. Ebenezer H. Booth, West Colesville, N. Y. [Filed Feb. 26, 1877.]

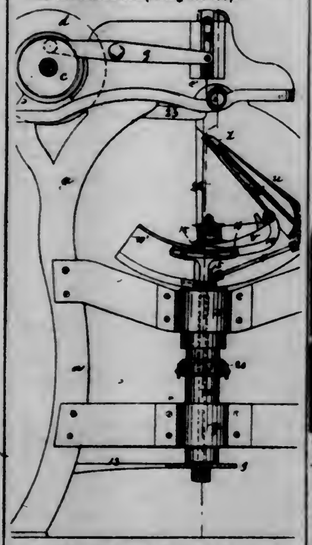


1. The combination of arms B, having outwardly-bent ends, the springs C, the shackles D, the cross-bar E, frame F, and fifth-wheel, having upper part G, as and for the purpose described.

2. The combination of fifth-wheel having lower part H, the frame I, the springs J, and the lugged bars K, with the axle L and tongue-irons having eyes, as and for the purpose specified.

189,599. SHOE-SEWING MACHINES. Jos. Bond, Jr., Woonsocket, R. I. [Filed Dec. 7, 1876.]

Brief.—The horn is provided with a take mechanism, to take up the slack thread occasioned by carrying a loop of the under thread around a tubular shuttle-race above the work, through which loop and race the shuttle is passed without coming in contact with the thread composing the loop.



1. The combination, in a shoe-sewing machine, of a horn containing a looper carrying a waxed thread, and provided with a thread-controller, a thread-carrier penetrating the material from the outside, and carrying the lower waxed thread through the same in the form of a loop, a shuttle reciprocating above the horn, a tubular race, *h h*, and a rotating and sliding sleeve, *e*, and hook *e'*, whereby the said loop is opened to permit the passage of the shuttle, without contact, through the loop, and the loop is drawn, with the upper waxed thread, to the material, all as set forth.

2. The combination, in a shoe-sewing machine, of a horn, a thread-carrier within the same, and a thread "take-up" mechanism for operating the thread passing through the horn to the carrier, substantially as set forth.

3. The combination of a horn, take-up lever 14, and slotted bar 18, all carried by the horn, substantially as set forth.

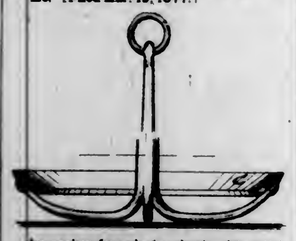
189,600. WATCH-WINDING DEVICES. W. E. Bracy, Boston, Mass. [Filed Feb. 24, 1877.]



1. As a new article of manufacture, a detachable winding device, consisting of a base, a pipe secured thereto, and a thumb-piece pivoted thereon, all arranged and adapted to be applied to the arbor, and contained and folded beneath the outer case of a watch, substantially as and for the purpose set forth.

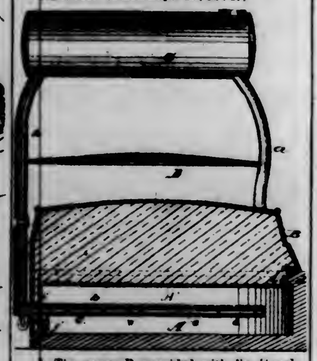
2. The combination, with the thumb-piece C and plate B, of a spring, E, substantially as and for the purpose set forth.

189,601. ANCHORS. F. A. Buck, Eastport, Me. [Filed Mar. 19, 1877.]



An anchor formed of a shank with radial branching and upwardly-curved arms, carrying at the outer ends an inclined and tapering fluke of circular shape, substantially in the manner set forth.

189,602. SAD-IRONS. S. J. Bugh, St. Joseph, Mo. [Filed Sept. 22, 1876.]



1. The cover B, provided with lip *b'* and groove *d''*, in combination with the part A having rib *d'* and lug *f'*, as and for the purpose set forth.

2. A sad-iron, consisting essentially of bottom A, having rib *d*, cover B, having lip *b'* and groove *d''*, the handle-reservoir C, the rod *e*, the tbe *b*, and the fender D, as shown and described.

189,603. STEERING-PROPELLERS. Jas. H. Carpenter, New York, N. Y., assignor of one-fifth his right to G. Newton, St. Louis, Mo. [Filed Feb. 16, 1877.]

1. The combination of a screw-propeller, B, and a laterally-swinging frame, C, provided with a pivotal post or arm, *c*, and with a rear sustaining-arm, *b*, supported independently of the pivotal arm, substantially as shown.

2. The swinging screw-carrying frame C, having the threaded arms *a* and *b*, provided with the sustaining nuts *d*, substantially as shown.

3. In combination with a vessel, A, a screw-supporting frame, C, provided with a fulcrum or pivot arm, *a*, and a rear sustaining-arm, *b*, sustained by a wheeled carriage, F, substantially as shown.

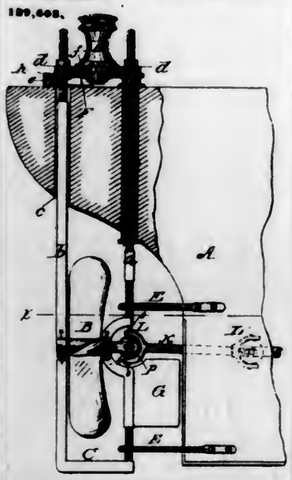
4. The combination of the frame C and carriage F with the pinion-nuts *d* and gear-wheel *f*, mounted on the carriage, as shown.

5. The combination of the vertically-adjustable and laterally-swinging frame C, the screw *b* mounted therein, and the rudder G, attached to the frame in advance of the screw, so as to rise and fall therewith, and retain its position in relation thereto.

6. The combination of a vertically-adjustable screw, mounted in permanently-horizontal bearings, an engine-shaft, located in the hold of the vessel, and a connecting-shaft passing through a slide in the stern of the vessel, and attached at its ends by universal joints to the screw and the engine-shaft, respectively, substantially as shown and described.

7. A vertically-adjustable and laterally-swinging screw, B, connected with and driven by a horizontal engine-shaft in the hold of the vessel, substantially in the manner shown and described.

189,605.

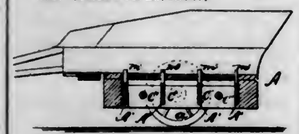


189,604. TOBACCO-PACKAGES. P. Cauhapé, New York, N. Y., assignor to himself and E. Greenfield, same place. [Filed Feb. 17, 1877.]



A tobacco-package covered with a mixture of honey, gum-arabic, and gelatine, as and for the purpose specified.

189,605. SELF-RAKES FOR HARVESTERS. I. N. Cherry and R. N. Cherry, Jersey City, N. J. [Filed Feb. 26, 1877.]



1. The pivoted slide-bar F, having cross-bar G, and pivoted in the arms thereof, a spring-bar, H, said bars being provided with fingers and guard, constructed and arranged as shown and described.

2. The slotted sliding bar F, fingers *d e*, guides E *b*, arm *r*, ropes J *t*, shaft D, pulley *u*, and cam I, in combination, substantially as herein shown and described.

3. The combination of the bar F, catch *n*, lug *m*, and finger *q*, substantially as herein shown and described.

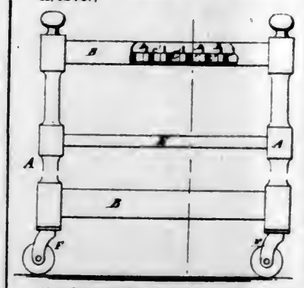
4. The latch *p*, in combination with the cam I and bar F, substantially as herein shown and described.

5. The lever P and screw P', arranged in connection with the wheel L, substantially as and for the purpose specified.

6. The combination of the worm D', rod F', having the lug *o'* and projection *p'*, the triangular block *r'*, cam *q'*, and spring *t*, substantially as herein shown and described.

7. The combination of the ratchet-bars A', rods C', springs E', rod F', and worm D', substantially as herein shown and described.

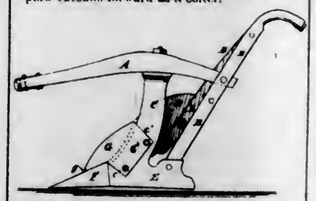
189,606. BROOM AND BRUSH RACKS. Jas. B. Clark, Jr., Vineland, N. J. [Filed Nov. 11, 1876.]



A rack consisting of corner-posts A, bars B, having the bottom rest-board *b'*, parallel notched bars C, having top pins D, and the bars or fenders E, all constructed and arranged as shown and described, whereby all the brooms are displayed brush upward, while the intermediate space is utilized by the aid of the fenders for handled brushes.

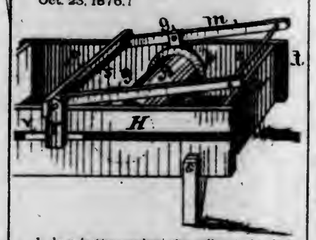
189,607. PLOWS. Wm. Clore, Rising Sun, Ind. [Filed Feb. 3, 1877.]

Brief.—A plate let into the land-side of the plow extends forward as a colter.



The combination of a one-piece standard and land-side, C E, having inclined recess *e'*, share F, and colter G G', the latter having a forward projection, *g*, that rests upon the share, as shown and described.

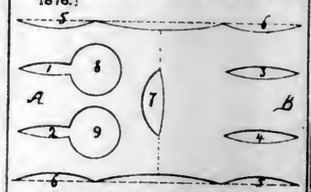
189,608. BUTTER-WORKERS. H. A. Clow, Des Moines, assignor of one-half his right to R. A. Rhoads, Newton, Iowa. [Filed Oct. 23, 1876.]



1. In a butter-worker, the roller A, having the short journals *d*, and annular cavities *e*, and the bent bearers *g*, arranged and combined substantially as and for the purposes shown and described.

2. The movable carriage P, having runners *s* to engage the tracks *t* on the outside of the tray, the hinged arms *m*, carrying the bent bearers *g* inside of the tray, and the roller A, having enlarged ends *b* fitted against the inside faces of the vertical tray sides H, all arranged and combined to operate substantially as and for the purposes shown and described.

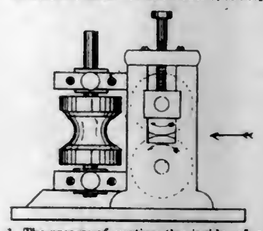
189,609. UNDER-GARMENTS. Susan T. Converse, Woburn, Mass. [Filed Dec. 16, 1876.]



1. The under-garment composed of the two parts A and B, shaped as described, and provided with the openings 1, 2, 3, 4, 7, 8, and 9, of the form shown, substantially as and for the purpose set forth.

2. An under-garment formed with the circular openings 8 and 9, and having the semi-spherical pieces C inserted in such openings, as described.

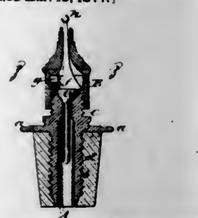
189,610. MACHINERY FOR MANUFACTURING WATER-TIGHT HOSE. Robt. Cowan, Cambridgeport, Mass. [Filed Sept. 7, 1876.]



1. The process of coating the inside of a woven or knit tube of cylindrical or other shape of cotton or other textile fiber, by first drawing a gummy tube into the tube, then inserting a heated incompressible body therein, while applying external pressure, and subsequently vulcanizing the same, all substantially as described.

2. In a machine for the manufacture of water-tight hose, the combination, with one or more pairs of grooved rollers, of a solid head mandrel adapted for use, substantially as shown, and for the purpose set forth.

189,611. VALVE-NOZZLES FOR BOTTLE-STOPPERS. C. Oristadoro, New York, N. Y. [Filed Mar. 19, 1877.]

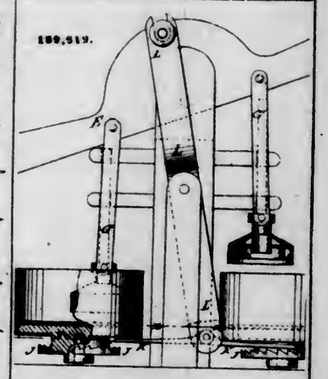


The valve *c*, having the triangular spindle *f*, upon the end of which is formed a head, *h*, in combination with the nozzle B and tube A, substantially as herein shown and described.

189,612. WASHING-MACHINES. David C. Croushorn and William McBee, Panther Springs, Tenn. [Filed Sept. 16, 1876.]

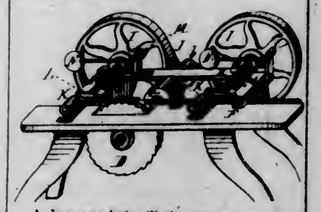
The combination of the swinging handle-beam E, lever L, and reciprocating pawl-rod K, with forked ends, with the ratchet-wheel J of the rotating stands I, to produce the alternating rotary motion of the tubs placed on the stands, substantially as shown and described.

189,613.



189,613. LATH-MACHINES. E. C. Dicey, Grand Haven, Mich. [Filed Nov. 28, 1875.]

Brief.—The saw-mandrel is hollow, and the collars pierced with apertures for the passage of air to cool the saws. A self-adjusting gage guides the operator in placing the lath-bolts upon the table, where they are retained in contact with the feeding-rolls by cranked and weighted presser-rolls.

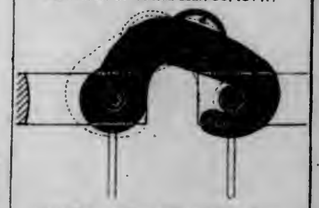


1. In a gang lath mill, the combination, with the table E and the bracket G on the under side of said table, of the step-guide F, having two steps on its upper surface, and a shank, F', playing in the said bracket G, and a spiral spring, *d*, placed around said shank, between it and the head of the step, all substantially as described and shown.

2. The press-rolls K, arms L, shafts M, and weighted levers N, in combination with the frame and feed-rolls of a lath-mill, substantially as described.

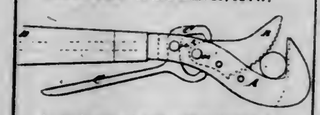
3. In a gang lath mill, the combination of the hollow mandrel C, perforated gage-collars E E E, gang-saws D D D, and V-shaped feed-rollers on shafts H H, constructed to operate substantially as and for the purposes described.

189,614. CAR-COUPLINGS. W. B. Dunning, Geneva, N. Y. [Filed Mar. 30, 1877.]



A hook for coupling cars, constructed with a straight portion extending upward from its pivotal point, and having a portion extending forward therefrom, and terminating in a hook, which embraces a bolt or ferrule between the two bars of the buffer-head, its under portion extending some distance in the rear of such ferrule or bolt, the under surface of said forward-extending portion being straight and raised above the line of its pivotal point, whereby it is prevented from being uncoupled when in use, substantially as set forth.

189,615. PIPE-WRENCHES. W. Eberhard, Akron, Ohio. [Filed Mar. 19, 1877.]

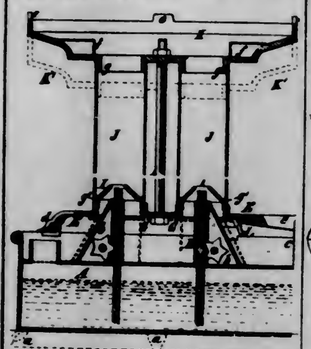


1. An improved pipe-wrench formed of the stationary jaw A, projecting forward nearly at right angles, and formed upon the outer end of a rearwardly-inclined slotted shank, the detachable and adjustable pivoted jaw B, made cam-shaped, and with graduated teeth, the pivoted forked lever C, and the handle D, constructed and combined with each other, substantially as herein shown and described.

2. The lever E, having its forward end bent upward, and a number of holes formed in it, and having a rotary cutter, F, pivoted to its slotted forward end, in combination with the slotted shank of the stationary jaw A of the wrench, substantially as herein shown and described.

189,616. LAMP-STOVES. Geo. H. Ferris, Brooklyn, N. Y. [Filed Apr. 6, 1877.]

Brief.—The legs and hinge which supplies the place of one of the legs support the cone-plate above the lamp.

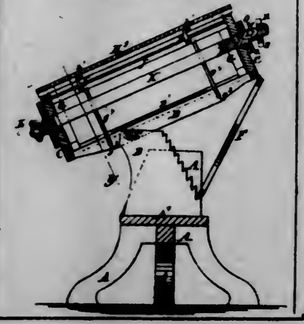


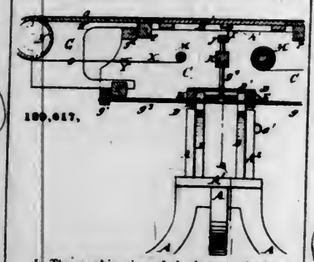
1. The combination, in a lamp-stove, of a base-piece, B, with legs d and hinge e, supported on a lamp, and a combustion-chamber adapted to support articles to be heated, with flues interposed between the base-piece and the combustion-chamber, substantially as described.

2. In a lamp-stove, a cast-metal bottom piece, B, provided with part of a hinge or articulation, and legs d, adapted to be supported on the lamp-reservoir, and to support the flues of the stove, substantially as set forth.

3. The combination of the base-piece B, provided with legs d and hinge e, flanges g' thereof, flues J, combustion-chamber K, flanges g thereof, and bolt L, substantially as and for the purpose set forth.

189,617. TABLE-BASES. C. Fisher, Salisbury, N. C. [Filed Mar. 3, 1877.]





189,617.

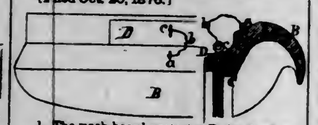
1. The combination of the legs A, the base A^1, the uprights A^2, the notched uprights B, the pivots E, the frame C D g^1, and the hinged pawl F, with each other, to enable the table to be adjusted to any desired inclination, substantially as herein shown and described.

2. The combination of the sliding frames G I^1 P^1, provided with the pins i^2, with the frame C D g^1 g^2, to enable the table to be expanded and contracted, substantially as herein shown and described.

3. The combination of the two cylinders N, the two shafts M, the two gear-wheels S, the intermediate detachable gear-wheel L, the two ratchet-wheels Q, the ratchet-wheel catch R, and the double spring W, with each other, and with the main frame C D g^1 g^2, the two sliding frames G P P^1, and the cross-bar K, substantially as herein shown and described.

4. The combination of the four-armed lock-frame or spider T, and the pins U, with the gear-wheel S and the side board C of the frame C D g^1 g^2, substantially as herein shown and described.

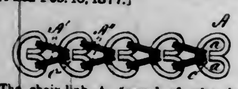
189,618. WASH-BOARDS. Danl. M. Fisher and Saml. B. Warren, New York, N. Y. [Filed Oct. 20, 1876.]



1. The wash-board protector B, for the uses and purposes mentioned.

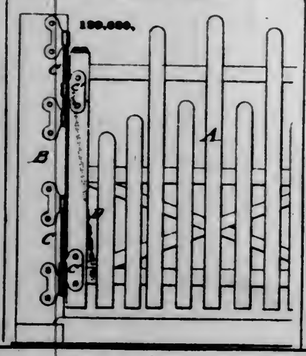
2. The wash-board protector B, provided with flange C and plate D.

189,619. LINKS FOR ORNAMENTAL CHAINS. J. J. Freeman, Attleborough, Mass., assignor to Freeman & Co., same place. [Filed Feb. 10, 1877.]



The chain-link A, formed of wire, bent around, as shown, and having its ends turned inwardly, so as to form the two loops a a, and leaving a space, C, between the ends of the wire and the inner surface of the link, sufficient to receive but one thickness of the wire at a time, substantially as described.

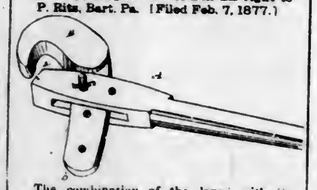
189,620.



189,620. FARM-GATES. O. F. Fuller, Lamont, Mich. [Filed Jan. 13, 1877.]

The combination, with the gate and posts A B, rods C, rigidly secured in sockets C, and the sleeves C', of the chain D fastened at one end near the bottom of gate, and at the other to a superposed hook on gate-post, as shown and described, to enable the gate to be readily adjusted to hang at different heights.

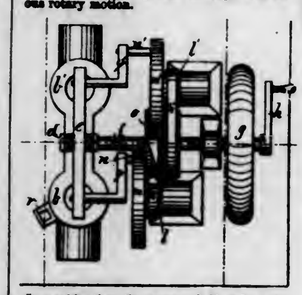
189,621. PIPE TONGS OR WRENCHES. E. R. Girvin, Strasburg Township, Lancaster County, assignor of one-half his right to P. Rits, Bart, Pa. [Filed Feb. 7, 1877.]



The combination of the lever, with its oblique, terminal, fixed jaw a, and slotted head A, for the reception of a shouldered straight extension, b, on the end of a reversible single hook or jaw, B, which end, like the head A, is provided with two or more holes for adjustment by means of a detachable headed pivot-bolt, c, the whole arranged and constructed as and for the purpose set forth.

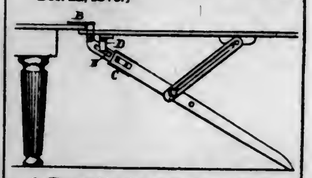
189,622. DRIVING MECHANISM FOR SHIPS' PUMPS. R. Gordon and W. W. Baxter, Boston, Mass. [Filed Oct. 2, 1876.]

Brief.—A rotary driving-shaft provided with a crank when hand-power is used, or with a pulley or its equivalent when steam or other motive power is employed. In combination with said rotary driving-shaft, a pair of intermediate shafts are employed, to which the rotary motion from the driving-shaft is conducted by means of belts, cords, or gears. Each of the said intermediate shafts is provided with a disk or crank having a crank-pin, to which the lower end of a connecting-rod is jointed. The upper ends of the rods are jointed to the walking-beam of a pair of ship's pumps, thus working the pumps up and down from a driving-shaft having a continuous rotary motion.



In combination, the pumps b b', rods c c', standard d, and its walking-beam a, with the connecting-rods q q', cranks m m', pulleys l l' o or their equivalents, and the driving-shaft f, with its balance-wheel g, and crank h, as and for the purpose set forth and described.

189,623. IRONING-BOARDS. Richard W. Hargrave, Marshalltown, Iowa. [Filed Dec. 22, 1876.]

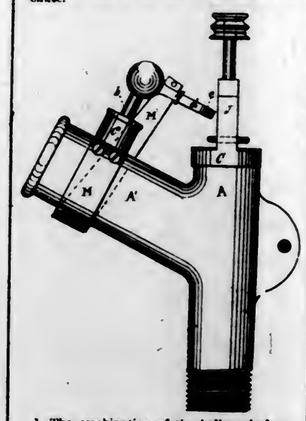


1. The combination of the clamp B C, having the slot B and the stirrup D, constructed substantially as set forth.

2. The combination of the said clamping device, consisting of the clamp, slot, and stirrup, with the leg F and slotted brace G, substantially as and for purposes set forth.

189,624. MOTORS FOR SEWING-MACHINES. J. Haworth and W. H. Newell, Philadelphia, Pa.; said Newell assignor to said Haworth. [Filed Mar. 9, 1877.]

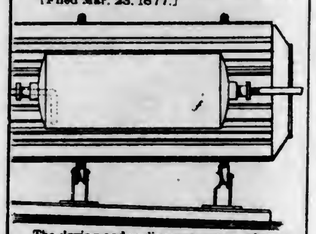
Brief.—The cylinder has a central shaft, which passes through the stuffing-box in the upper end of the cylinder. The lower end of the shaft, which is provided with the water-wheel, turns in the step. The middle part of the shaft revolves within the hollow shaft or tube, the upper end of which is fast to the stuffing box, and permanently connected with the lower end of the tube is the permanent chute.



1. The combination of the hollow shaft or tube H with the stuffing-box C and the stationary chute I, the end of the shaft being permanently connected with the stuffing-box and chute, substantially in the manner and for the purpose set forth.

2. The combination of the check-valve L, having a stem, b, and arm d, the spring M, and link N, with the induction-branch A', substantially as and for the purpose set forth.

189,625. DRYING AND COOLING APPARATUS. C. H. Hersey, Boston, Mass., assignor to himself and F. C. Hersey, same place. [Filed Mar. 23, 1877.]



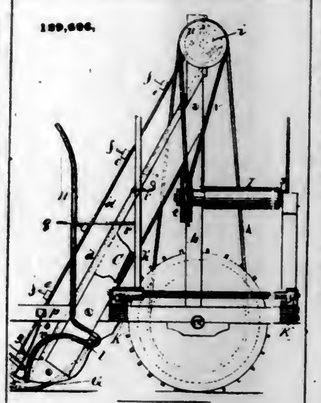
The drying and cooling apparatus, substantially as herein described, consisting of an interior-heated drying-cylinder, f, and a surrounding-cylinder, e, provided with buckets, and of such length, substantially as described, as to permit the material passing beyond the end of the drying-cylinder toward the discharging end of the outer cylinder to become cooled before it is discharged therefrom, all substantially as described.

189,626. HAY RAKERS AND LOADERS. J. S. Hewitt, Wheatland, Mo. [Filed Feb. 26, 1877.]

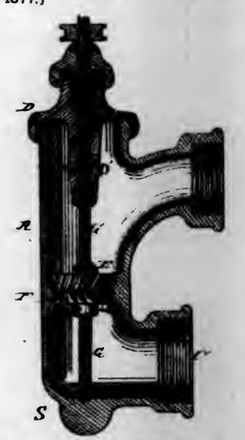
1. The combination of the lever H, rake G, arms a, drum g, and its shaft, slotted piece e, and the springs c, substantially as herein shown and described.

2. The arms K, hinged pieces b', racks d', toothed sectors f', shaft g', and lever h', substantially as herein shown and described.

189,666.



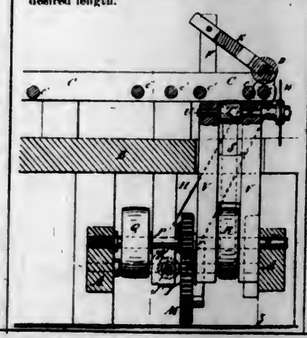
189,627. WATER-ENGINES. John S. W. Johnson, Camden, N. J. [Filed Mar. 23, 1877.]



The above-described flume chamber A, having the lateral discharge C, and solid bottom with the step S therein, in combination with the shaft G, wheel F, chute E, and cap D, substantially as and for the purposes set forth.

189,628. SAWING-MACHINES. G. J. Kauts, Emporium, Pa. [Filed Feb. 27, 1877.]

Brief.—The lumber to be sawed into lath and pickets is fed forward to the saw intermittingly, and the saw automatically fed to the lumber, and adjustable to cut it into any desired length.



1. The combination of the pulleys and belt G I H, the shaft J, the small gear-wheel K, and the segmental gear-wheel L with the large gear-wheel M and the toothed feed-roller e', for feeding the lumber forward to the saw intermittingly, substantially as herein shown and described.

2. The combination of the swinging frame V, the cam X, and the spring Y with the saw-mandrel U, the shaft F, and the large gear-wheel M, for feeding the saw forward to the lumber intermittingly, substantially as herein shown and described.

189,629. ADJUSTABLE ELASTIC BUCKETS FOR CHAIN-PUMPS. T. Kenyon, Hamilton, Ohio. [Filed Mar. 12, 1877.]

Brief.—The cone and lines have screw-threads cut upon them, by means of which the packing can be expanded and contracted to fit the tube and take up the wear of the packing.



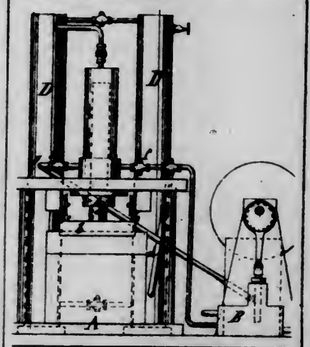
1. The independent cone D, made adjustable under elastic bucket over a one-piece link, A, as shown and described, so as to regulate the adjustment of buckle without shortening the link.

2. The combination of link A, having a hole near each end, a collar, B, and a thread, C, with the internally-threaded cone D, washer E, and elastic bucket F, substantially as and for the purpose specified.

3. The lifting-collar B, formed upon the upper part of the link A, and above the working part of the packing F, when the bucket is in the tube, substantially as herein shown and described.

189,630. HYDRAULIC PRESSES. Francis S. Kinney, New York, N. Y. [Filed Feb. 10, 1877.]

Brief.—Water is forced by the pump into one cylinder to compress air in the other. When the resistance reaches a certain point a safety-valve is opened, and the water is then forced into the tank.

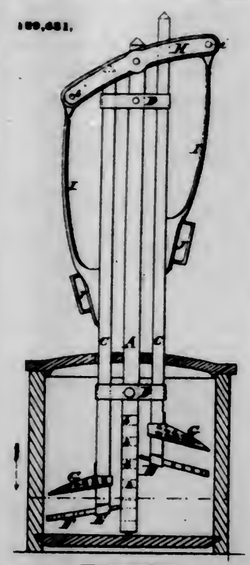


In a hydraulic press, the combination of the force-pump B, the two magazines D D', and the tank E, connected by valved pipes having stop-cocks, to cause an air-pressure in the magazine D', as specified.

189,631. CHURN-DASHERS. W. McQ. Landreth, Johnson City, Tenn. [Filed Oct. 10, 1876.]

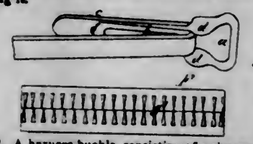
The dashers E F G, vertically-sliding rods C C, having guides D D, connecting-rods I I, and beam H, constructed, combined, and operated substantially as and for the purpose set forth.

189,631.



189,632. HARNESS-BUCKLES. R. G. Latta, Friendship, N. Y. [Filed Feb. 22, 1877.]

Brief.—A harness-buckle cast in a solid piece, adapted to be surrounded by and fastened to a leather sheath, having arranged on its inner side a metallic plate provided with points for stiffening the sheath, and fastening together the edges of the leather composing it.



1. A harness-buckle, consisting of a ring or loop, *a*, bar or plate *b*, and hook-shaped tongue *c*, arranged as shown, and cast in one piece and adapted to be used with a surrounding sheath or loop, F, substantially as and for the purpose herein before set forth.

2. The combination, with the buckle composed of the loop *a*, bar *b*, and tongue *c*, of the sheath F, provided on its inner side with a metallic plate, *g*, having a depression, *h*, substantially as and for the purpose herein before set forth.

3. The leather sheath F, having arranged on its inner side a metallic plate, *g*, provided with points *g'* for stiffening the sheath and securing the two edges of the leather together, substantially as herein before set forth.

4. The combination, with a surrounding sheath, F, of a buckle, composed of a loop, *a*, wedge-shaped plate *b*, tongue *c*, and side flanges *d d*, all formed in one piece, substantially as and for the purpose herein before set forth.

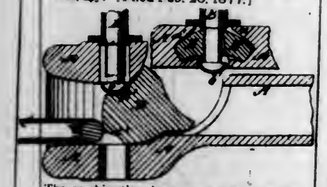
189,633. LOOM-SHUTTLES. C. Lowando, Boston, Mass. [Filed Sept. 18, 1876.]

Brief.—A spurred lever is applied by a pivot inside a hollow spindle, contact with a fixed pin forcing the spurs into the cop-tube, when cop and spindle are closed into the shuttle.



The combination of the lever K K' and the spindle H with the shuttle A and pin M, all operating together substantially as described, and for the purpose set forth.

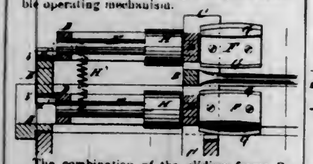
189,634. CAR-COUPLINGS. J. Lips, Louisville, Ky. [Filed Feb. 26, 1877.]



The combination, in a car-coupling, of the bumper-head A, having recesses *a'*, the blocks E, and the collared pin B *b'*, flattened on its opposite sides, as and for the purpose specified.

189,635. OSCILLATING CUTTER-HEADS FOR FINISHING SPOKES. Jos. R. Looke, Amesbury, Mass. [Filed Jan. 19, 1877.]

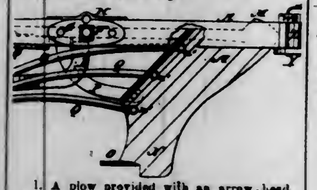
Brief.—The cutter heads can be oscillated, to bring their cutters into proper position for finishing spokes, by means of a sliding frame provided with curved guides, two pivoted spring-frames, in which the cutter-heads are mounted, a main supporting-frame, and suitable operating mechanism.



The combination of the sliding frame B, provided with the curved guides *b'*, the pivoted frames D, the spring H', the shafts E, and the cutter-heads and cutters F G, with each other, and with the uprights C, and the main frame A, substantially as herein shown and described.

189,636. PLOWS. J. M. Looker, Abilene, Kans. [Filed Feb. 26, 1877.]

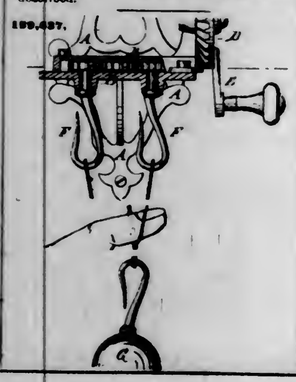
Brief.—The horizontal share projecting beyond the land-side, a vertical cutter at its heel, the curve of its edge.



1. A plow provided with an arrow-head point, M, having its land-side wing projecting beyond the line of the land-side of said plow, substantially as herein shown and described.

2. The share N, formed solid with the arrow-head point M, made nearly flat, and having the outer part of its forward edge carved forward, substantially as herein shown and described.

189,637.

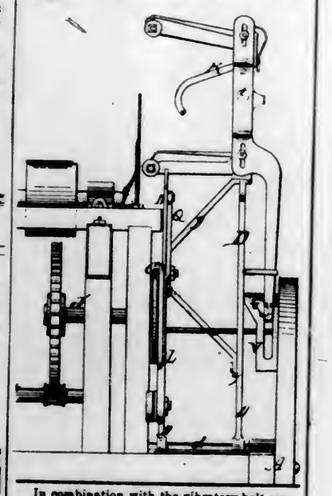


189,637. MACHINES FOR TWISTING WHIP-LASHES. Geo. A. Martin, Myerstown, Pa. [Filed Mar. 12, 1877.]

In a machine for twisting whip-lashes, the combination of the crank-wheel E D, train of gear-wheels C, hooks F F, and weight G, all arranged and operating substantially as shown and set forth.

189,638. MACHINES FOR SAWING SHINGLES. H. J. Morton, Norway, assignor of one-half his right to F. C. Merrill, South Paris, Me. [Filed Feb. 13, 1874.]

Brief.—The shingle-bolt is held, during the operation of sawing, in a vibratory carrier having a slow forward and quick backward movement. The bolt sweeps by the saw on the farther side of the saw-shaft, whereby the teeth of the saw, in all positions of the bolt, are caused to cut "with the grain" of the wood.



In combination with the vibratory bolt-carrier D, the revolving disk or wheel C, vibratory slotted arm L, and connecting-rod Q, substantially as and for the purpose herein specified.

189,639. HINGES OF VESSELS OF ENAMELED IRON-WARE. F. G. Niedringhaus and W. F. Niedringhaus, St. Louis, Mo. [Filed Apr. 2, 1877.]



The combination of the vessel A, wire *a*, cover B, having the slot *b*, strap C, and solder D, substantially as described and shown.

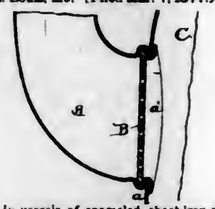
189,640. SPOUTS AND STRAINERS. F. G. Niedringhaus and W. F. Niedringhaus, St. Louis, Mo. [Filed Mar. 7, 1877.]



1. The enameled body A, having the flange *a'*, and the collar B, having the flange *b*, without enamel, combined substantially as and for the purpose described.

2. The combination of the enameled body A, having the flange *a'*, the collar B, having the flange *b*, without enamel, and contracted as described, and the strainer C, substantially as described.

189,641. SPOUTS AND STRAINERS. F. G. Niedringhaus and W. F. Niedringhaus, St. Louis, Mo. [Filed Mar. 7, 1877.]



1. In vessels of enameled sheet-iron ware, the spout A, having the corrugation *a*, and flange *a'*, and the body C, combined substantially as described.

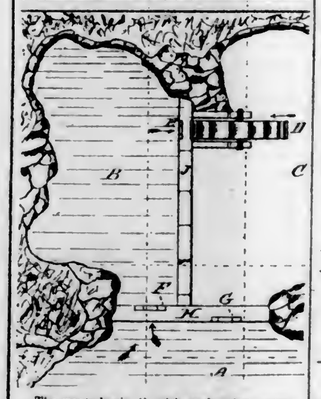
2. In vessels of enameled sheet-iron ware, the spout A, having the corrugation *a* and flange *a'*, the strainer B, and body C, combined, substantially as described.

189,642. NUT-LOCKS. Geo. Neilson, Chelsea, Mass. [Filed Feb. 20, 1877.]



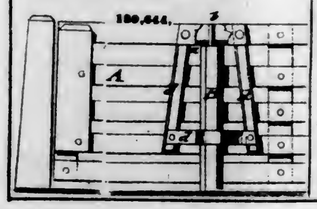
The combination of the nut D and the bent strip H, having its ends inserted in the recesses K K of the fish-plate B, operating substantially as described, and for the purpose set forth.

189,643. TIDE-POWERS. H. Newhouse, Oakland, Cal. [Filed Jan. 4, 1877.]



The waste-basin C, with under-shot water-wheel D, and the reservoir B, the same being separated from the basin by the wall J, and inclosed by the sea-wall H, and the arrangement of the gates E F G in relation thereto and operating as set forth.

189,644.

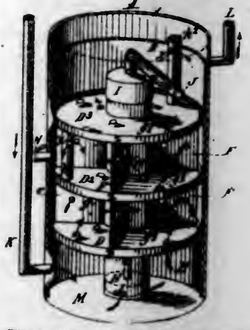


189,644. SWINGING GATES. W. A. Chaver, Monmouth, Ill. [Filed Dec. 4, 1876.]

The combination, with gate A, of the perforated metallic plate *a*, guide-frame *d d'*, and post B, having the top pin *b*, as shown and described.

189,645. CARBURETERS. Jas. M. Palmer, Boston, Mass., assignor of one-half his right to Geo. G. Shaw, Biddeford, Me. [Filed Feb. 22, 1877.]

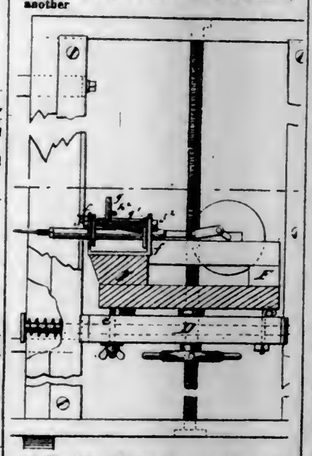
Brief.—The flow of hydrocarbon oil is regulated automatically by a float and a conical valve. Oil flows from one shelf or tray to another by openings having a raised rim or flange, to retain a thin layer on each tray. Absorbent material is placed upon the shelves. The air or gas entering below flows up through the absorbent material saturated with oil, and, if too highly carbureted, is diluted by air or gas admitted to the upper chamber.



The combination, with the case A, provided with induction-pipe K, eduction-pipe L, hollow standard C, having conical cap I, float H, valve-rod *m*, conical valve *i*, supply-pipe J, having a conical aperture, of the horizontally and removably arranged disks D D^2 D^3, radial and perforated vertical partitions F, and pipes A A^2, having lateral apertures *x* and x^2, the several parts constructed, arranged, and operating in the manner substantially as and for the purpose specified.

189,646. SAW-FILING MACHINES. S. V. Pattillo, Greenville, Ala., assignor to himself and F. J. Kohn, same place. [Filed Feb. 17, 1877.]

Brief.—A vertically-sliding frame is regulated by coiled spring, to prevent locking, &c., when the file is moved from one saw to another

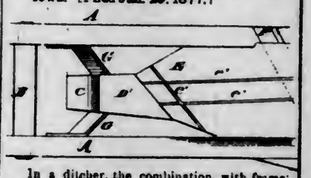


1. The frame F, spring supported in front and hinged in rear to the bed D, in combination with screw bolt and nut, to allow the pressure on file to be increased, as described.

2. The combination, with the spring-actuated arm H, of the lever *h'* and file-stock, having pin *g*, substantially as and for the purpose set forth.

3. The combination, in a filing-machine, of the oblique guides *g'*, slotted lateral plates *f*, file-stock, and clamp-screws, to allow the file to be set for right or left hand work, as specified.

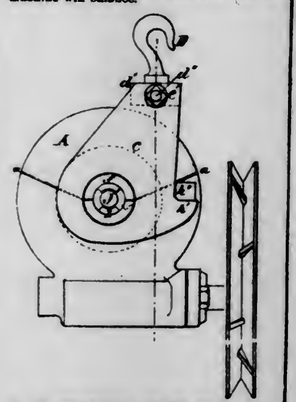
189,647. DITCHERS. W. R. Peet, Viola, Iowa. [Filed Jan. 29, 1877.]



In a ditcher, the combination, with frame A B, share C, side cutters G G, and rest D', having extension D, of the turning-board E, inclined laterally as well as longitudinally, extending above the frame A B, and provided with channels *e'*, as and for the purpose specified.

189,648. HOISTING APPARATUS. Matthias Pennypacker, Philadelphia, Pa. [Filed Mar. 2, 1877.]

Brief.—The suspending-hook D is placed intermediately between the hoisting-wheel in the box and the driving-wheel E, so that the machine will balance.



1. In combination with the box A of a screw hoisting apparatus, a suspension device supporting the apparatus at a point in line with the lifting-chain, and intermediate between the driving-wheel and the worm-wheel axis.

2. The combination, with the divided box A, having gudgeons *f*, of the cheek-plates or yoke for securing the box together, as and for the purpose set forth.

3. In combination with a screw hoisting apparatus, the cheek-plates or yoke, having a swivel-hook, D, adapted to suspend the apparatus in line with the lifting-chain, as and for the purpose set forth.

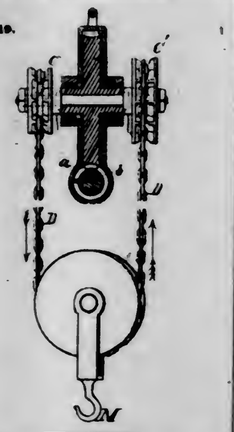
189,649. HOISTING APPARATUS. Matthias Pennypacker, Philadelphia, Pa. [Filed Sept. 30, 1876.]

Brief.—On the same shaft are pulleys of different diameters on opposite sides of a worm-wheel, which is revolved by a haul-rope around a drive-wheel.

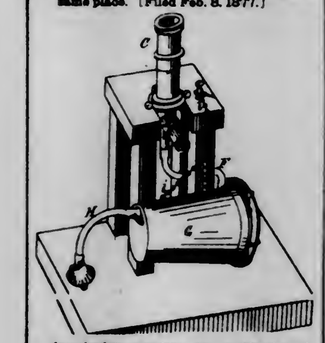
1. A screw hoisting apparatus, constructed with sheaves of different diameters, located on opposite sides of the main wheel and central box, in combination with a hoisting-chain passed diagonally from the smaller to the larger sheave, substantially as described.

2. The combination of a screw hoisting apparatus with differential sheaves or pulleys C C', located on opposite sides of the main wheel and central box, a hoisting-chain, D, and a traveling hook or support, M, for the purposes set forth.

189,649.



189,650. DREDGING-MACHINES. J. W. Philbrick, Waterville, Me., assignor to S. M. Philbrick, I. S. Bangs, and E. R. Emerson, same place. [Filed Feb. 8, 1877.]



In a dredging-machine, the combination of the pump O, flexible pipe F, conical receiver G, and flexible pipe H, provided with the nozzle I, when constructed and arranged as and for the purpose set forth and specified.

189,651. LUBRICATORS FOR STEAM-ENGINES. James Powell, Cincinnati, Ohio. [Filed Aug. 26, 1876.]

1. An improved steam-engine lubricator, consisting of a condensing-chamber and a vacuum-chamber, applied to a common supporting stand or base, substantially as described and set forth.

2. An improved steam-engine lubricator, consisting of a condensing-chamber and a vacuum-chamber contained within a single shell, which latter is applied to a stand or base, through which base the contents of said chambers are discharged into the steam-chest, substantially as described and set forth.

3. An improved steam-engine lubricator, consisting of shell or reservoir F, provided with partition H, that divides said shell into two separate and distinct chambers, I and J, having independent outlets communicating with the steam-chest through the supporting-stand, the former chamber I being adapted to discharge its contents solely by condensation, while the latter chamber J operates only by a vacuum, substantially as herein described, and for the purpose set forth.

4. An improved steam-engine lubricator, consisting of shell F, plate H, semi-cylindrical chambers I and J, stand A, channels C C', common discharge-passage c, and throttle-valves c' B c'' B', as and for the purpose specified.

5. In combination, with condensing-chamber I, discharge-tube K, and sleeve-valve L F, the bridge N n, and vertically-adjustable guide-stop M m m'', as and for the purpose specified.

6. In combination with vacuum-chamber J and tube O o' r, the valve P p, which latter opens downwardly and discharges oil from said chamber when a vacuum is produced in the steam-chest, and closes upwardly to arrest the flow of lubricant the moment a pressure of steam occurs in said chest, the stroke of said valve being controlled by the adjusting devices p' Q, situated externally with reference to tube O, and at the upper end of the same, substantially as herein described and set forth.

7. The vertically-reciprocating sleeve-valve L, when constructed with a series of vertical or nearly vertical apertures, l', in its head l, as and for the purpose herein described and set forth.

8. In combination with the screw-stem p', the nut Q, whose threaded portion is split completely through on one side from end to end, while the upper extremity of said nut is closed, with a solid and grooved head, q', substantially as herein described and set forth.

9. A non-conducting medium, extending from the base-plate to the cap of a lubricator, for the purpose of preventing radiation of heat from the sides of the reservoir, said non-conductor being applied either to the exterior or interior of the shell, substantially as herein described and set forth.

10. The internal non-conducting lining T, secured in a groove, t, at top of the lubricator and confined at bottom by a curb, D, and the shell F, as and for the purpose specified.

11. In combination with the hinged members U u and X x, the notch Y, for reception of the snaps V V', which latter are separated by an interval, v, as and for the purpose specified.

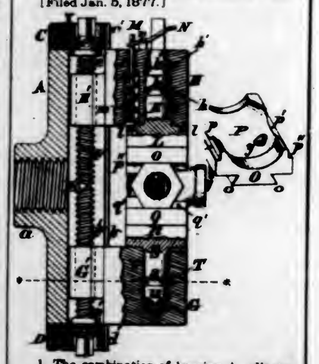
12. The hinge appliances, consisting of cap X Z z z' 2 $2'$ and ring U W w w', whose pivots w w' are retained in their respective sockets z z' by the locking-plate 1 engaging with the under-cut grooves 2 and $2'$, as and for the purpose specified.

13. The combination of plate X', outwardly-projecting lugs or stamps 5, and metallic ring 7, which latter surrounds the central boss 8 of wooden handle or wheel 4, and is secured thereto by screws 6 tapped into said lugs 5 of plate X', substantially as herein described, and for the purpose set forth.

14. The cylindrical guide M, screw-threaded externally at m, split longitudinally at m', and spanned at top with a yoke, m'' m''', which yoke serves as a stop to limit the ascent of vertically-reciprocating sleeve-valve L, substantially as herein described and set forth.

15. In combination with vacuum-chamber J, tube O o' r, and valve P p, the adjusting devices p' Q, and spring E, substantially as herein described and set forth.

189,652. CHUCKS FOR GAS AND WATER FITTINGS. Jas. Powell, Cincinnati, Ohio. [Filed Jan. 5, 1877.]



1. The combination of housing A, adjustable jaws G H, rotable tables L R, and removable chucks O Q, one of said tables, L, being capable of locking at any desired position, substantially as herein described, and for the purpose set forth.

2. An improved lath-chuck, consisting of housing A a O D, reversely-threaded shaft E F F', simultaneously but oppositely-adjustable jaws G G' H H', rotating tables L R, and detachable chucks O Q, one of said tables, L, being capable of locking at any desired position, substantially as herein described, and for the purpose set forth.

3. The combination of housing A a O D, simultaneously-adjustable jaws G G' H H', rotating tables K L R S, and locking devices l M m, or their equivalents, substantially as herein described, and for the purpose set forth.

4. The combination of the pivoted lever N with the pin or bolt M, and the table L with its pintle K, as and for the purpose described.

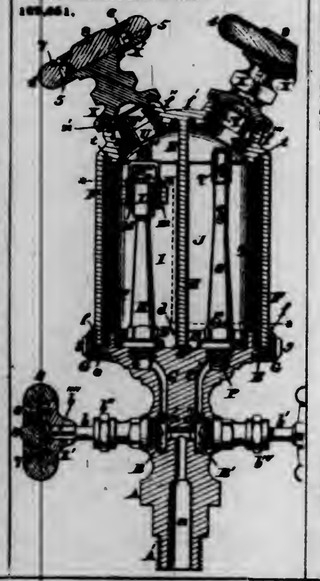
5. The combination, in the jaws of a lathe-chuck, of the anti-friction bearings h' and U, for supporting the respective spindles K and S of rotable tables L and R, substantially as herein described, and for the purpose set forth.

6. In combination with lathe-chuck O and rotable table L, the retaining-screw y, as and for the purpose described.

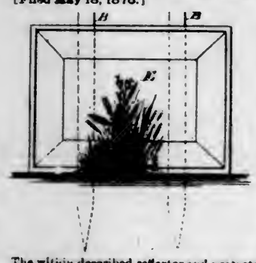
7. The removable chuck O, recessed at P, notched at p p', and provided with ledges or projections p'', which ledges are adapted to grasp the pipe-ends of a cock, substantially as herein described, and for the purpose set forth.

8. The removable chuck O, when constructed with a recess, P, notches p p', ledges p'', and a dovetail tenon, o, which latter engages with the under-cut groove F of the rotable table L, substantially as herein described, and for the purpose set forth.

189,651.



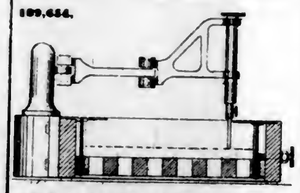
189,653. REFLECTOR AND PLANT-PROTECTOR. August Pudigon, Charleston, S. C. [Filed May 18, 1876.]



The within-described reflector and protector for plants, formed of wood, and consisting of the part A, secured to one or more stakes, B, and provided with the flaring sides C D E, and painted white on the front, substantially as and for the purposes herein set forth.

189,654. MACHINES FOR SHAPING SOLID COLORS FOR PRINTING. Carl H. O. Radde, Hamburg, Germany. [Filed Jan. 17, 1877.]

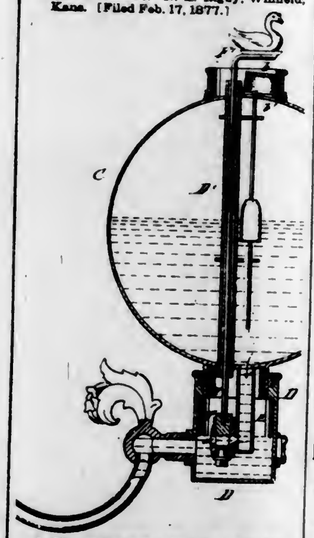
189,654.



1. In a machine for shaping and cutting to shape a printing material composed of aggregated parti-colors, representing a predetermined pattern, the combination, with a knife-supporting mechanism, of a slab for supporting the color composition, and adjusting devices, substantially as described, for regulating the position of such slab and the grate upon which it rests, all as shown and set forth.

2. In combination with the frame and slab adapted for holding the color composition, a knife-supporting mechanism, substantially as described, having capacity for a universal movement horizontally, and carrying a knife or cutter for trimming the composition, the combination being substantially as and for the purpose described.

189,655. LAMPS. N. L. Rigby, Winfield, Kans. [Filed Feb. 17, 1877.]



1. The combination, with a lamp-foot having the air-tube D', of the removable cup attached to under side of said foot, and having arms leading to burners, as shown and described.

2. The combination, with an oil-foot, C, having a bottom exit-pipe, E, of a valve, F, oil-cup D and air-tube D', the valve-rod F, passing through the air-tube, and for the purpose as specified.

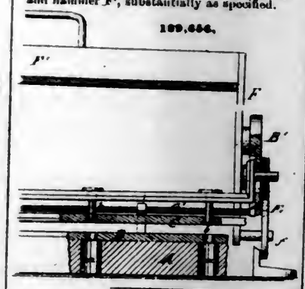
189,656. MACHINES FOR PUNCHING SHEET METAL. Thos. Rowan, Haverstraw, N. Y. [Filed Mar. 3, 1877.]

Brief.—A long hammer-block falls upon the punch-bar, and forces the perforating-pins attached thereto through the metal. Guide-holes for the pins to work through are formed in a long stripper-bar arranged above the dies. Pins projecting from arms of the hammer-block operate the levers for elevating the punch-bar when the hammer is raised.

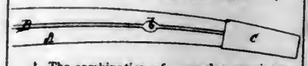
1. In a sheet-metal-punching machine, the combination of a perforated die-bar, perforated guide bar, and vertically-sliding puncher with a swinging hammer-block, that lowers and raises the puncher simultaneously with the dropping and raising of the hammer, substantially in the manner and for the purpose set forth.

2. The combination of the recessed and slotted side standards B' with vertically-sliding puncher C, connecting-pins e, fulcrumed levers E, swinging arms F, having end pins f, and hammer F', substantially as specified.

189,656.



189,657. CARRIAGE-SHAFTS. J. A. J. Sawyer, Lynn, Mass. [Filed Mar. 13, 1877.]

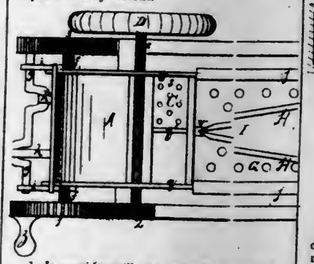


1. The combination of a wooden carriage-shaft, A, and a metallic strip or re-enforce, B, arranged therein, and fastened thereto, and provided with flanges, as set forth.

2. The combination of a wooden carriage-shaft, A, and its metallic thimble or ferrule C, with a metallic strip or re-enforce, B, provided with flanges, and arranged within such shaft and thimble, and fastened to the shaft by rivets, all substantially as specified.

189,658. CIDER AND WINE PRESSES. John Schoepflin, Gardnerville, N. Y. [Filed Mar. 7, 1877.]

Brief.—The apples are ground in the hopper A, and forced through the wedge-shaped passages H H by the presses C, which squeeze the juice out.



1. In a cider-mill, the grinding-barrel B, constructed with the longitudinal segmental pieces l l, holding the knives c c between each, and having the beveled ends n n, and the heads k k', with the beveled circles m m therein, all held together by the screw or screws p, substantially as and for the purpose specified.

2. In combination with the mill A B, the perforated pressers C C, operated by the crank-shaft g, all arranged and operating substantially as and for the purpose hereinbefore specified.

3. In combination with the mill A B, pressers C C, and trough E, the perforated pressing pulp-box I G G' j j, the converging and diverging partitions or sides H H, and cover L, with the tightening screw w, substantially as and for the purpose hereinbefore set forth.

189,659. MACHINES FOR SPLITTING HOOP-POLES. Geo. B. Selden, Rochester, N. Y. [Filed July 13, 1876.]

Brief.—The machine can at will be adapted to split hoop poles into two, three, four, or more parts by combining suitable feeding, centering, and discharging mechanism with a three-part oscillating knife.

1. The oscillating three-part knife C.

2. In combination with suitable feeding mechanism, the oscillating three-part knife C and centering-rolls m n o.

3. In combination with the knife C, the centering-rolls m n o and p q.

4. The combination of the movable plate L, knife C, and centering rolls m n o and p q.

5. In combination with suitable feeding mechanism, the knife C, centering rolls m n o and p q, and suitable discharging-rolls 1 2, 3 4, 5 6.

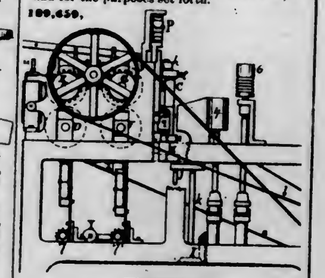
6. In combination with suitable feeding mechanism, the movable plate L, carrying the knife C, and centering rolls m n o and p q.

7. In combination with suitable feeding-rollers, the movable plate L, carrying the knife C, and the centering-rolls m n o and p q, and suitable discharging mechanism.

8. In a machine for splitting hoop-poles, the combination, with a two-part and a three-part knife, and their respective centering devices, of suitable feeding and discharging rollers, operating substantially as and for the purposes set forth.

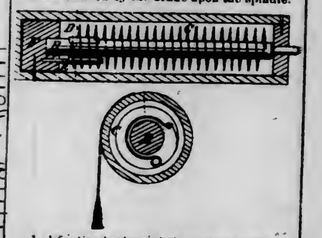
9. The combination of the knife C, slides M N O, rolls m n o and p q, and racks and gears r r' r'', and plate L, operating substantially as and for the purposes set forth.

189,650.



189,660. CURTAIN-FIXTURES. Al B. Shaw, Medford, Mass. [Filed Feb. 6, 1877.]

Brief.—A flexible band or brake is interposed between the spring and the roller-spindle, and whatever degree of tension the spring bears, a corresponding amount of friction is exerted by the brake upon the spindle.

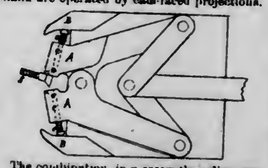


1. A friction-brake for balance shade-rollers, operated by the spring C, and acting continuously upon the roller or spindle with a force proportioned to the tension of the spring, substantially as and for the purpose set forth.

2. The combination of the curtain, roller, spring, spindle, and counterpoise, with a friction-brake, bearing continually upon the roller or spindle, and operated automatically by the direct action of the spring C, substantially as and for the purpose set forth.

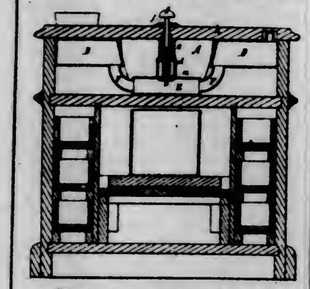
189,661. SCREW-THREADING MACHINES. J. A. Sheldon, Providence, R. I. [Filed Mar. 12, 1877.]

Brief.—Spring-pins for discharging the blank are operated by cam-faced projections.



The combination, in a screw-threading machine, of the griping-jaws A A, cam-faced projections B B, and the punches C C, provided with retracting-springs O, the whole arranged and operating in the manner substantially as described, for the purposes specified.

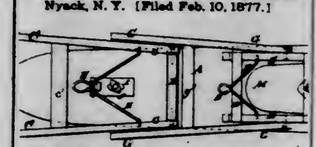
199,663. WASH-STANDS. L. Slater, Cambridgeport, Mass. [Filed Feb. 20, 1877.]



1. The combination of the bowl A, the two tanks D D, the valve *b* and its operative mechanism, the valve-chest E and its pipes, F *f d*, of communication with the bowl and the tanks, all being arranged and applied substantially as set forth.

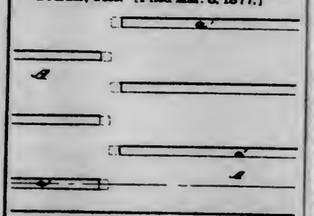
2. In combination with the bowl A, and arranged therewith as set forth, the tank D, valve-case E, pipes *d* and F, and the valve *b* and its operative mechanism, substantially as specified.

199,664. IRONING-TABLES. R. B. Smith, Nyack, N. Y. [Filed Feb. 10, 1877.]



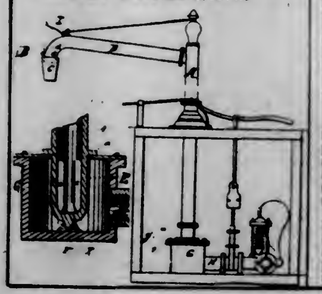
The V-shaped brace-rods H, having eyes formed in their angles, and the studs and buttons I J, in combination with the pivoted legs C G, and the table-top A, substantially as herein shown and described.

199,666. BOARD-LATHS. A. A. Smith, Boulder, Colo. [Filed Mar. 3, 1877.]



Board-lath A, formed by slotting boards of the proper thickness with sets of slots *c'*, alternating or breaking joints with each other, substantially as herein shown and described.

199,665. STAND-PIPES FOR SUPPLYING LOCOMOTIVES WITH WATER. H. Smith, Norwalk, Ohio. [Filed Mar. 3, 1877.]



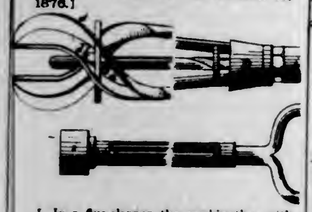
1. The combination of delivery-pipe B and hinged sheet-metal tube C, substantially as described.

2. The combination of delivery-pipe B, pivoted hinge D, and sheet-metal tube C, surrounding and projecting above the mouth of said delivery-pipe, substantially as and for the purpose set forth.

3. The combination of stand-pipe A, pivoted within chamber G, flange *a*, and flexible or elastic ring *g'*, substantially as and for the purpose set forth.

4. The combination of chamber G, having supply-pipe H, base-chamber E of the stand-pipe, having openings *e e e e* and pivot F, step F', flexible or elastic ring *g'*, and flange *a*, substantially as and for the purpose set forth.

199,666. BOILER-FLUE CLEANERS. John S. Smith, Jackson, Mich. [Filed Dec. 13, 1876.]



1. In a flue-cleaner, the combination, with a central rod, of a series of spring-bars, secured at one end to the central rod, and provided at their free ends with spiral cutters or scrapers, substantially as and for the purpose set forth.

2. In a flue-cleaner, the combination, with a central rod, of a series of spring-bars, secured at one end to said rod, the spring-bars provided at their free ends with spiral cutters, and a slotted disk, located on the central rod between the spiral cutters, substantially as and for the purpose set forth.

3. In a flue-cleaner, the combination, with a central supporting-rod, screw-threaded at its outer end, of a series of spring-bars secured at one end to said rod, the spring-bars provided at their free ends with spiral cutters, and a slotted disk adjustably secured to the central rod by means of nuts *d' d'*, substantially as and for the purpose set forth.

4. In a flue-cleaner, the combination, with a central supporting-rod, of a series of round spring-bars secured to said rod, the free ends of said spring-bars provided with spiral cutters or scrapers, and a slotted disk or guide, substantially as and for the purpose set forth.

5. A flue-cleaner consisting, of a series of spring-bars secured to a central supporting-bar, the said spring-bars provided at their free ends with spiral scrapers located at one side of the plane of the bars, whereby the latter have a torsional and lateral resiliency to force the cutters against the flues, substantially as and for the purpose set forth.

6. In a flue-cleaner, the combination, with the central supporting-rod, formed with enlarged end and with perforated faces, of spring-bars provided with hooked ends, and a conical sleeve to secure the several parts in position, substantially as and for the purpose specified.

7. In a flue-cleaner, the combination, with the central supporting-rod, a portion formed with an angular-twisted surface, of the spring-bars, and a slotted adjusting-disk, substantially as and for the purpose set forth.

8. The combination, with a flue-cleaner, of an extensible handle, substantially as and for the purpose set forth.

9. The handle of a flue-cleaner consisting of a slotted tube provided with a sliding rod and means for locking the tube and rod together, substantially as and for the purpose set forth.

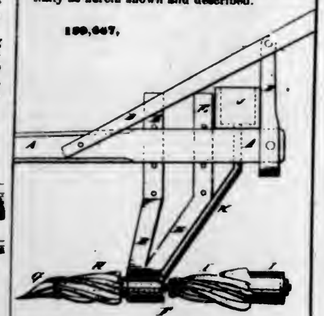
199,667. FLUE-DITCHERS. W. W. Snyder, Martinsville, Ohio. [Filed Feb. 3, 1877.]

Brief.—A horizontal rod carried at the bottom of an adjustable standard has a fixed point, a rotating spirally-ribbed conical mole, and a rotating rear block, having its forward end shaped like the front mole, and its rear end made smooth, to shape and pack the earth around the drain.

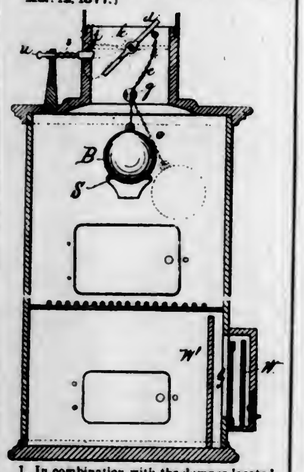
1. The combination of the adjustable branched standard E, the rod F, the point or cutter G, the rotating spirally corrugated or ribbed cutter H, and the rotating cutter and packer I, having its forward part spirally corrugated or ribbed and its rear part smooth, with the beam A, handles B, and upright D, substantially as herein shown and described.

2. The combination of the adjustable branched standard E, the rod F, the rotating spirally corrugated or ribbed cutter H, and the rotating cutter and packer I, having its forward part spirally corrugated or ribbed, and its rear part smooth, with the beam A, the handles B, and the upright D, substantially as herein shown and described.

199,667,



199,668. SAFETY CAR-STOVES. S. Swarts and G. R. Swarts, Buffalo, N. Y. [Filed Mar. 12, 1877.]



1. In combination with the damper located within the exit opening of a car-stove, and adapted to govern the draft, in the usual manner, a weight connected therewith by means of a chain, substantially as set forth, the arrangement being as described, so that the weight will fall within the body of the stove, and close said damper in case of accident, as and for the purposes specified.

2. In combination with a damper adapted to be closed by a falling weight, a spring catch and stop for the purpose of holding said damper in its closed position, as set forth.

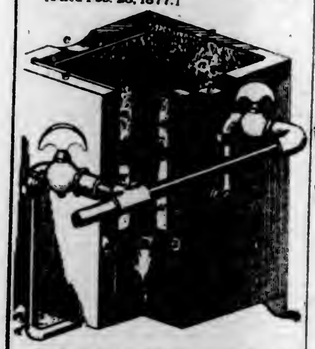
3. The combination of the damper, its attached weight B, and the socket or seat S, as and for the purposes explained.

4. The combination of the damper, its attached weight, the socket or seat S, and the chain-guide *g*, the whole being arranged to operate substantially as set forth.

5. In a car-heater, the combination, with a frame carrying the draft-register, of a wall, and a grate or screen located within said frame, the whole being attached to the outside of the body of the stove, and arranged to operate substantially as shown and described.

6. In a car-heater in which the passage to the draft-register is guarded by means of a wall and a grate or screen, the interior wall W', extending either partially or wholly around the interior of the ash-pit, substantially as shown and described.

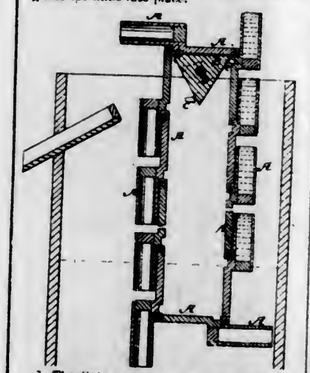
199,669. BOTTLE-WASHERS. E. C. Turbeville, St. Louis, Mo., assignor of one-half his right to Geo. S. Shryock, same place. [Filed Feb. 28, 1877.]



A bottle-washer consisting, essentially, of a double-walled compartment, having the spaces *a a* between the walls thereof, the pipes *d d'*, nozzle O, perforations *i i*, and sponges *s s*, fastened by wires *w* to thin boards *e e*, all substantially as and for the purposes set forth.

199,670. CHAIN-PUMPS. T. Wallis, Scipio, N. Y., assignor to himself, S. Eddy, and O. Piero. [Filed Mar. 24, 1877.]

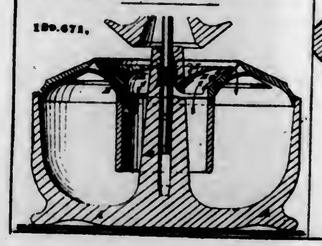
Brief.—The links are made with their forward parts hollow, with an offset at their middle parts, with lugs at their shoulders to receive the rear ends of the preceding links, and with lugs at their rear ends to receive the shoulders of the succeeding links, and in the triangular wheel provided with the guides to guide the links into place.



1. The links A, made with their forward parts hollow, with an offset at their middle parts, and with lugs at their shoulders to receive the rear end of the preceding links, and with lugs at their rear ends to receive the shoulder of the succeeding link, substantially as herein shown and described.

2. The triangular wheel B, provided with the guides C, in combination with the chain of bucket-links A, substantially as herein shown and described.

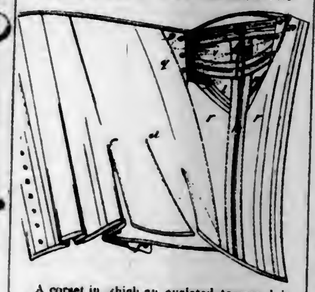
199,671.



199,672. PAPER-PULP ENGINES. J. S. Warren, Cumberland Mills, Westbrook, Me. [Filed Mar. 3, 1877.]

In a paper-pulp engine, the female cone E, provided with the groups of knives G, and the guide-cavities H I in the spaces between said groups of knives, substantially as herein shown and described.

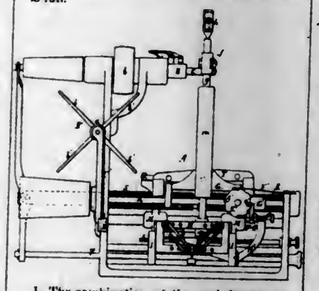
199,673. CORSETS. Elizabeth S. Waldo, New York, N. Y. [Filed Jan. 13, 1877.]



A corset in which an eyeleted tongue, *l*, is combined with a strip, *m*, stays *n o p*, gores *r*, eyeleted flaps *s*, and lacings *t v*, as and for the purpose specified.

199,674. THREAD-SPOOLING MACHINES. J. W. West, Boston, Mass. [Filed Aug. 16, 1876.]

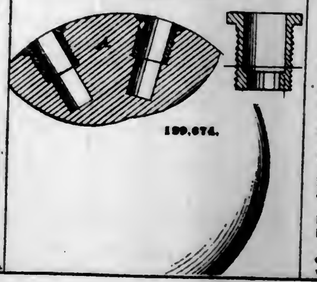
Brief.—The thread is spooled directly to the reel, a cord and weight drag being applied to the reel, and a tension to the thread-guide. A ratchet-wheel applied to the thread-guide carriage and stationary pawl, together with pins upon the wheel, acting upon a sliding block, having an adjustable bolt for engaging a shipping-lever, constitute a stop-motion, acting automatically when the spool is full.



1. The combination of the reel B' and its friction mechanism with the thread-spooling machine A, provided with the guide *h* and tension-spring *i*, essentially as set forth.

2. The combination of the stop-motion with the yarn-spooling machine A, such stop-motion consisting of the ratchet-wheel E', its studs *o'*, the spring F', its catch *d'*, the slide G', the screw-bolt *f'*, nuts *g' h'*, and the shipper-lever H', all being arranged and applied to the machine substantially as specified.

199,674.

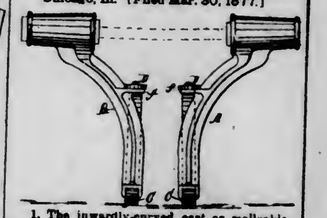


199,675. TEN-PIN BALLS. Wm. Woods, Brooklyn, N. Y. [Filed Oct. 14, 1876.]

Brief.—The metal bushing prevents splitting about the hole, and also, by its weight, tends to restore the equilibrium due to the boring out.

Ten pin balls having metallic bushes inserted in their finger-holes, substantially as herein shown and described.

199,676. SLEIGH-KNEES. A. A. Abbott, Chicago, Ill. [Filed Mar. 30, 1877.]



1. The inwardly-curved cast or malleable iron sleigh-knee A, provided with the thimble *a* to receive the axle of a wheel-vehicle, substantially as specified.

2. The inwardly-curved cast or malleable iron sleigh-knee A, provided with the inwardly-projecting bracket *f* to receive the rave, substantially as specified.

3. The combination, with the runner C and rave D, of the inwardly-curved cast or malleable iron knee A, substantially as and for the purpose specified.

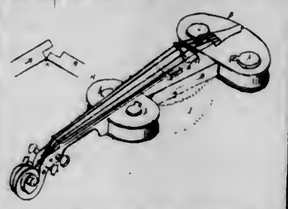
199,676. BRICKS. T. F. Adams, Philadelphia, Pa., assignor to the Peerless Brick Company, same place. [Filed Mar. 15, 1877.]



The binding brick A, having enlarged ends B B, with curved shoulders *y y*, when the spaces from *x* to *z* in the central portion of the brick A are double the width of the enlarged ends B B, the whole constructed and arranged as herein described.

199,677. VIOLINS FOR PRACTICE. Chas. F. Albert, Philadelphia, Pa. [Filed Feb. 2, 1877.]

Brief.—A violin of the ordinary length, provided with diminished sounding capacity, to spare the nerves of both the practitioner and adjoining roomers. It is also provided with a hinge-joint in the middle, so as to fold up within less compass.



1. A practicing-violin, the body of which is composed of two hollow parts, A and B, and a rigid connecting-bar, D, as set forth.

2. The within described violin-body, having two hollow portions, A and B, provided with valved openings, substantially as specified.

3. The combination of the connecting-bar D of the body, with the adjustable bridge H.

4. The violin-body, composed of two parts hinged together, substantially as set forth.

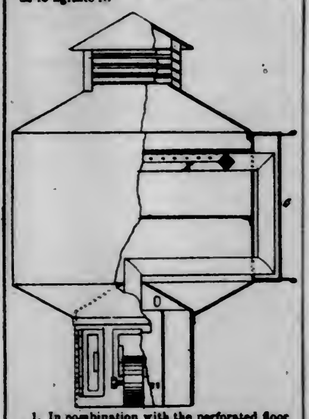
5. The combination of the violin-body and its connecting-bar D, with the supplementary detachable sounding-chamber I.

6. The combination of the hinged connecting-bar D of the body, with the adjustable locking-slide M and bridge H.

7. The combination of the hollow portion B of the body, with the rigid strip D, having a valved chamber, *w*, as set forth.

189,670. MALT-KILNS. H. Altenbrand, Brooklyn, E. D., N. Y. [Filed Jan. 16, 1877.]

Brief.—The perforated pipe, in close proximity to the malt, delivers air in such manner as to agitate it.

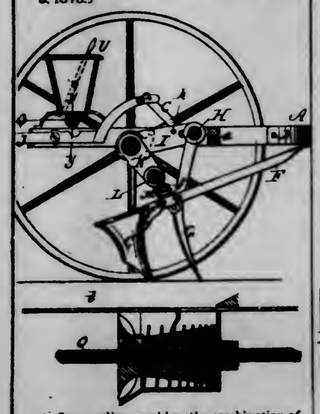


1. In combination with the perforated floor of a malt-kiln, a perforated pipe for conducting air under pressure underneath the malt from a furnace and blower or exhauster, in order that the malt may be agitated by the circulation of the air, substantially as described.

2. The combination of the malt-kiln and hot-air pipe E, cooling-tube G, and dampers for regulating the circulation of the currents of air, substantially as described.

3. The combination of the fan and hot-air pipe with the furnace of a malt-kiln, whereby the malt is kept in agitation, substantially as described.

189,679. SEEDING-MACHINES. John C. Baker, Mechanicsburg, Ohio. [Filed Apr. 5, 1875.]



1. In a seeding-machine, the combination of a bent-wood frame, A, constructed with the straight front bar, as shown and described, and a series of drag-bars, F, having their forward ends attached to said front bar.

2. In combination with the hoes of a grain-drill, a series of clearers, G, suspended on a transverse shaft, and arranged to operate in the manner described.

3. In combination with the arms I, the bar or shaft H, pendent arms G, lever-arm J, and eccentric K, constructed and operating as shown and described.

4. In combination with the arms K', connected by the shaft L, having the links M mounted thereon, and connected to the drag-bars, the hand-lever O, mounted on the main axle, and connected by the sleeve N to one of the arms K', as shown.

5. In combination with the arms K', connected with the drag-bars, and operated by the hand-lever O, the arm I, provided with the pin h, and having the clearer-arm shaft attached thereto, as shown, so that the movement of the lever to raise the hoes will also raise the clearer-arms.

6. In combination with the hand-lever O for raising the hoes, provided with the lock-lug-dog i, the pivoted rack-bar or arm P, carrying one of the feed-operating pinions, and having one end passed through the lever, as shown, so that the hoes and feeding devices may be thrown into and out of action simultaneously by the driver with one hand while on the machine.

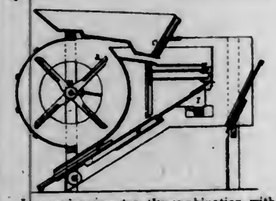
7. In combination with the driving-shaft Q, the feed-roll bearing loosely at one end on the shaft, and supported at the opposite end by the surrounding case or cup, as shown.

8. In combination with the shaft and the journaled feed-roll mounted loosely thereon, the loose fastening-pin k, secured in place by the cup or case encircling the journal, as shown and described.

9. In combination with the feed-regulating slide t, having its end provided with the oblique slot l, the upright hand-lever U, mounted on the end of the hopper, with its lower end in the slot l, as shown.

189,680. GRAIN-SEPARATORS. A. A. Balat, Couvin, Belgium. [Filed Oct. 23, 1876.]

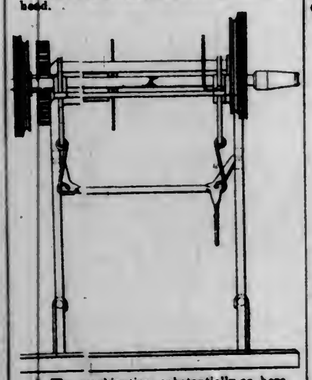
Brief.—The lower end of the separator-shoe rests on rollers, and its upper on transverse vibrating levers, having its free end suspended by link.



In a grain-separator, the combination, with the vibrating lever N, having one end pivoted to one side of the frame and the other end suspended from a rod, for the purposes specified, and the connecting-rod L, and slotted-arm M, of the wedge or bracket I affixed to the shoe containing the grating and screens, and pivoted on the vibrating lever by means of a bolt or pin, to impart to said shoe a reciprocating motion longitudinally of the machine, substantially as specified.

189,681. SAWING-MACHINES. William F. Barnes and John Barnes, Rockford, Ill. [Filed Sept. 9, 1876.]

Brief.—The saw is adjustable toward or from a stationary guide, to regulate the width of strip to be cut, by means of a longitudinally-grooved saw-shaft passing through and movable freely endwise in a feathered pinion-wheel, turning in a suitable yoke, the end of the saw shaft being in a sliding adjustable head.



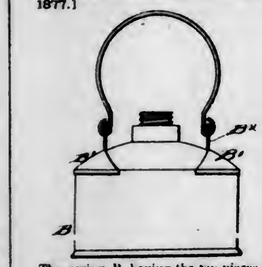
1. The combination, substantially as hereinbefore set forth, of the frame, the driving-shaft, its gear, the pinion wheel, the saw-shaft capable of endwise movement through said pinion, the sliding head supporting the inner end of the saw-shaft, and a stationary gage or guide located at one side of the frame toward and from which the saw is adjustable, for the purpose specified.

2. The combination, substantially as hereinbefore set forth, of the frame of the machine, the driving-shaft, the pulleys carried by said shaft, the feed-rollers provided with pulleys, and both positively driven from the driving-shaft, and the frame swinging around the driving-shaft and supporting one of said rollers, for the purposes specified.

3. The combination of the driving-shaft, the frame mounted upon and free to swing around said shaft, the upper swinging frame and feed-roller driven from the driving-shaft and mounted in said swinging frame, and the lever-frame for adjusting and controlling said feed-roller, these members being constructed and operating substantially as set forth.

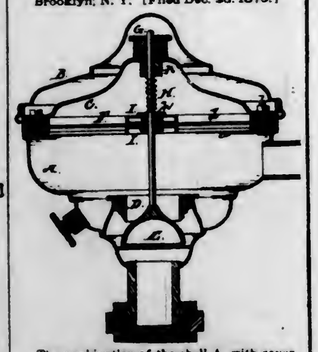
4. The improved sawing-machine, constructed substantially as herein before set forth, consisting of the following instrumentalities, to wit: the frame, the driving-shaft mounted thereon, its cone-pulleys and gear-wheel, the feathered pinion, the grooved saw-shaft adjustable endwise therethrough, the stationary gage, toward and from which the saw is adjustable, the feed-rollers, between which and the driving-shaft the saw is located, the cone-pulleys on the feed-rollers, and the swinging frame carrying the upper feed-roller.

189,682. OIL-CANS. W. H. Bartels, Elgin, assignor of one-half his right to Geo. T. Hunsaker, Carthage, Ill. [Filed Feb. 10, 1877.]



The casing B, having the top pieces B' B' and legs B² B², for the attachment of a ball, in combination with a glass can and an interposed packing, substantially as shown, and for the purposes set forth.

189,683. GAS-REGULATORS. J. Bassemir, Brooklyn, N. Y. [Filed Dec. 23, 1876.]



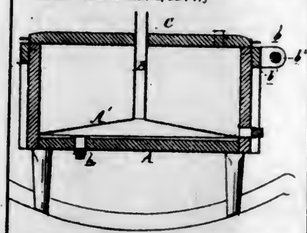
The combination of the shell A, with cover B, annular flange F, with adjustable valve-seat D, semi-spherical valve E, with stem K, flexible diaphragm F, with plates I and stuffing-box A, and the spring B, interior cap C, and regulating-screw G, all substantially as and for the purposes herein set forth.

189,684. ANTI-FRICTION COMPOUNDS. G. B. Behrens, Brooklyn, N. Y., assignor to O. B. Reynolds and J. Smalley, Boundbrook, N. J. [Filed Jan. 16, 1877.]

Brief.—The metal or alloy is intimately mixed and blended with the plumbago in any suitable manner, and then the compound is placed in strong molds or dies formed in the shape of the required journal-box or lining, and subjected to pressure.

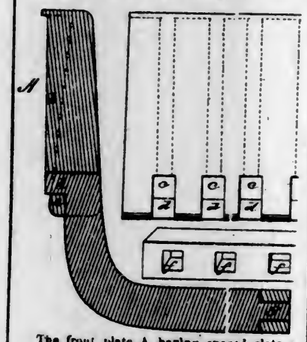
The new material or compound composed of metals or their alloys, mixed and combined with graphite or plumbago, substantially as specified, and in the proportions mentioned, and then molded and pressed into sheets, plugs, tubes, or such other form as required, substantially as described.

189,685. CHURNS. Geo. S. Bell, Sumner, Mich. [Filed Jan. 4, 1877.]



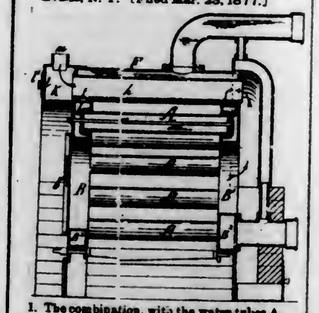
The body A, mounted on rockers, and provided with the cover C, false bottom A', tube B, and strengthening-frame *b b b' b' b² b²*, substantially as described.

189,686. GRATES. M. G. Bell, Glen Gardner, N. J. [Filed Feb. 24, 1877.]



The front plate A, having spaced slots *c* and vertical recesses *d*, the rear bar B, having spaced slots *f*, and the curved grate-bar C, having tenons *h g*, adapted to be received, respectively, in the slots *c f* of the front and rear plates, combined substantially as specified.

189,687. HOT-WATER HEATING APPARATUS. S. Bennett and J. Bennett, North Evans, N. Y. [Filed Mar. 23, 1877.]



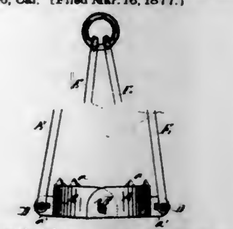
1. The combination, with the water-tubes A, arranged in the form of an arch, and water-spaces B B', of the surrounding arch-shaped water-space F, provided with return-flues h, substantially as and for the purpose hereinbefore set forth.

2. The combination, with the water-tubes A and water-spaces B B', of the arch-shaped water-space F, provided with return-flues h and water-back I, all arranged as shown, for the purpose set forth.

3. The combination, with the water-tubes A and water-spaces B B', of the arch-shaped water-space F, provided with return-flues h, and smoke-box K, provided with openings l and removable covers l', arranged as shown and described, for the purpose set forth.

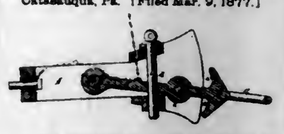
4. The combination, with the water-tubes A', of the water-spaces B B', having recessed sockets b, for the reception of the tubes, substantially as and for the purpose hereinbefore set forth.

189,688. GRAPNELS FOR SUBMERGED FILES. J. N. Bogert and H. C. Holmes, San Francisco, Cal. [Filed Mar. 16, 1877.]



The toothed jaws A A, hinged together by bolt B, and provided with lifting-lugs *a'*, to which the lifting-rods E are attached by the hinge-bolts D, all substantially constructed and operated as and for the purpose set forth.

189,689. CAR-COUPLINGS. George Bower, Catasauqua, Pa. [Filed Mar. 9, 1877.]



1. The coupling-bar C, constructed as described, with head D, forming hooks *a a*, and formed with the swell h with link G passing through the same, and with the swell *d*, for the passage of the coupling-pin I, substantially as herein set forth.

2. The draw-bar A, provided with the open head B, constructed substantially as shown, in combination with the coupling-bar C, having the link G passing through a swell, h, thereon, as and for the purposes herein set forth.

189,690. LADDERS. N. S. Boynton, Port Huron, Mich., assignor to W. L. Bancroft, J. Goulden, and N. S. Boynton, same place. [Filed Oct. 12, 1876.]



1. A ladder in which movable levers H are combined with stays G G', substantially in the manner described.

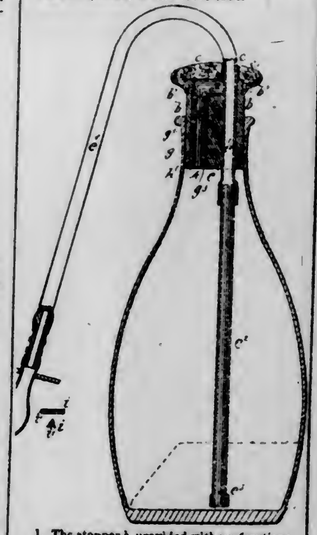
2. The combination of the poles A A' of the ladder, the end rungs of the same, and plates D, for receiving the ends of stays.

3. The combination of the poles A A', stays K, and rung B', to which the said stays are attached.

4. The combination of the opposite poles A and A' of the ladder with the diagonal wire-rope stays I, as set forth.

189,691. NURSING-BOTTLES. Julius Briere, Alencon, France. [Filed Oct. 26, 1876.]

Brief.—The air enters the bottle by an enlarged tube opening in the cork, which leads into a passage closed at its bottom by a rubber disk, with an opening eccentric to the central aperture of the valve-tube.



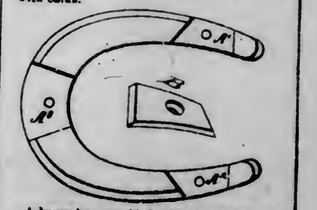
1. The stopper *b*, provided with perforations *a f'*, and an air-chamber, *f*, substantially as described, for the purpose specified.

2. The stopper *b*, having perforations *f' c*, the air-chamber *f*, and a valve, in combination with a capsule, *c*, having enlarged aperture *c'*, and a suction-tube, substantially as described, for the purpose specified.

3. The valve consisting of a valve-tube, *g*, constructed as described, the rubber film h, and a valve-aperture, *h'*, placed eccentric to the central aperture of the valve-tube, substantially as described.

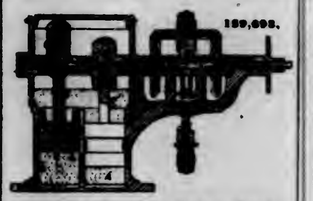
189,692. HORSESHOES. J. C. Brightman, Fall River, Mass. [Filed Jan. 27, 1877.]

Brief.—To provide for bad travel the plain plates are replaced by similar plates provided with calks.



A horseshoe provided with dovetailed recesses for use interchangeably, with the plates B B' B², and calks C D C' D' C' D², and in combination therewith, as and for the purpose described.

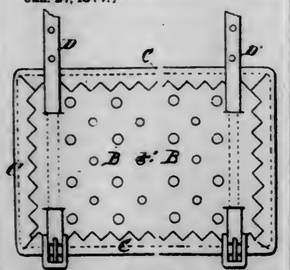
189,693. GOVERNORS FOR ENGINES. A. W. Browne, Brooklyn, N. Y., assignor to himself and W. E. Kelly, New Brunswick, N. J. [Filed Oct. 11, 1876.]



189,693.

In combination with the piston or plungers acting as a resistance, a valve, a swinging frame, and devices for transmitting motion from the motor to the piston through such frame, substantially as set forth.

189,694. HARNESS-PADS. R. O. Burgess, Providence, assignor of one-half his right to W. Blanchard, Woonsocket, R. I. [Filed Jan. 27, 1877.]



As an improved article of manufacture, the harness-pad herein described, consisting of the perforated felt A, having the perforated leather facing B, the holes in the facing and felt registering with each other, border C, attached to the felt and facing, and straps D D', substantially as described, and for the purpose set forth.

189,695. GAS-KEYS. A. G. Busby, Philadelphia, Pa., assignor to E. Anthony, H. T. Anthony, and V. M. Wilcox, New York city. [Filed Feb. 16, 1877.]

Brief.—Designed to supply hydrogen and oxygen to the burners in any desired proportion, and maintain a small permanent jet of hydrogen to ignite the combined gases whenever they are turned on.



1. The combination of two gas-reservoirs and one or more calcium-light apparatus with a distributing-block, consisting of a single homogeneous casting, as set forth.

2. A high-pressure gas-dissolver or quick-light gas-key, in which are combined within a single casing valved passages for the various gases, and a controlling-valve for directing the gases to or cutting them off from said passages.

3. The combination, of two high-pressure gas-reservoirs, A and B, with a distributing-block, D, rigidly secured to one reservoir, and connected to the other by a pipe, P, and detachable coupling, as and for the purpose set forth.

4. The block D, having passages *d* and *e* and valved passages *d'* *d''* or *d²* *d³*, and a valve-plug, E, serving to open or close communication between said passages *d* and *e*, and the valved passages *d'* *d''* or *d²* *d³*, as set forth.

5. The combination of the block D, and its passages *d*, *d'*, and *d²*, and *e*, *e'*, and *e²*, with the valve-plug E, having two openings, each composed of three branches, *f*, *m*, and *n*, as set forth.

6. A valved gas-key, in which the passage in the body, or the passage in the valve, or both, are made V-shaped, for the purpose set forth.

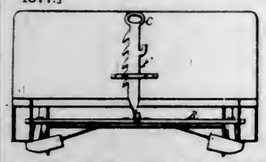
7. The combination of the passages *d²* and *e²* of the block D with the passages *s* and *t* of the same, as set forth.

8. The combination of the valve-plug E, having a groove, *w*, with the passage *x* in the block D, as set forth.

9. The combination of the valve-stems and their arms *y* with the tube G, adapted to said arms, as set forth.

10. The combination of the valve-plug E with stops for limiting the movement of the plug, either or both of said stops being movable, as and for the purpose set forth.

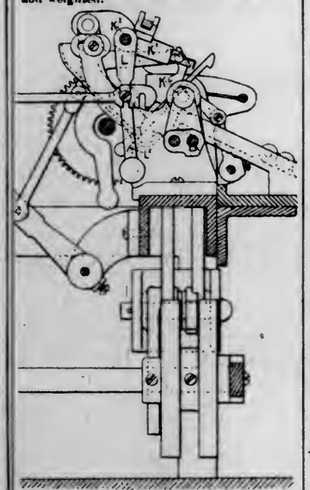
189,696. CAR-TRACK CLEANERS. Jas. N. Clark, Cleveland, Ohio. [Filed Jan. 30, 1877.]



In a track-cleaner, the combination of the pivoted bar B and spring arms and braces C C' E E' with the arm G and the rack-rod F, all constructed and arranged substantially as described and shown.

189,697. MACHINES FOR WINDING THREAD ON SPOOLS. Wm. Clark, Newark, N. J. [Filed Jan. 11, 1877.]

Brief.—To secure the requisite pressure upon the thread-guide a crank-arm is attached to one end of the guide-rod, and extends down into a grooved segment, which is mounted upon an arm, and at its upper end attached to a draw-bar, which is connected with another crank-arm attached to a shaft and weighted.



The combination, with the two mandrels B B', and mechanism for moving the same toward or from each other, of the thread-guide K, guide-rod K^3, arm L, and grooved segment L^3, substantially as and for the purpose described.

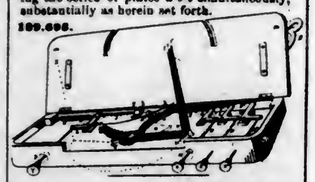
189,698. LEAF-TURNERS. Alfred L. Clark, Dubuque, Iowa. [Filed Apr. 4, 1877.]

1. The combination, with the rack B, of the parallel bars H H, pivoted plates L L, lever m, and pins n, substantially as and for the purposes herein set forth.

2. The combination of the series of cogged segmental plates *a b c*, the rods *g g' g''*, the corresponding series of separately-pivoted elbow-levers G G' G'', and rods D D' D'' with knobs X X' X'', substantially as and for the purposes herein set forth.

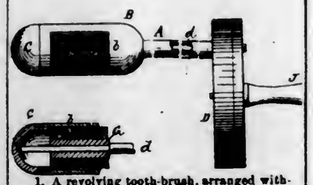
3. The combination of the knob Y, rod *y*, elbow-lever A, spring Z, and rod J, for operating the series of plates *a b c* simultaneously, substantially as herein set forth.

189,699.



189,699. TOOTH-BRUSHES. W. A. Coakley and S. W. Lloyd, Washington, D. C. [Filed Mar. 31, 1877.]

Brief.—A cylindrical brush is rotated within a cylindrical case, having a slotted side, by means of a shaft and gearing.

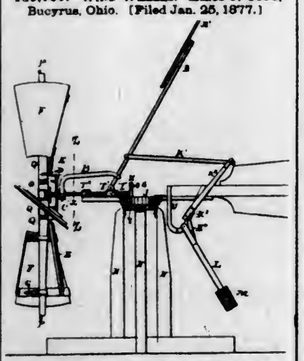


1. A revolving tooth-brush, arranged within a case provided with a suitable aperture in the side, for the purposes herein set forth.

2. The combination of the hollow stem A, cylindrical case B with aperture *b*, cap C, and rotating shaft *d*, with tooth-brush G, substantially as and for the purposes herein set forth.

3. The combination of the hollow stem A and cylindrical case B with the case D, gears *e* E, handle J, shafts *h* and *d*, and brush G, substantially as and for the purposes set forth.

189,700. WIND-WHEELS. Amos J. Cobb, Bucyrus, Ohio. [Filed Jan. 25, 1877.]

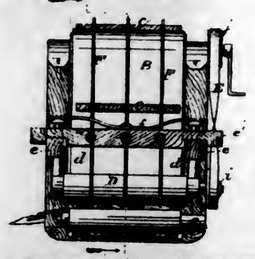


1. The regulator A and wing A', in combination with the weight M, weighted lever L, and levers k^1, k^2, k^3, and k^4, attached as described, and for the purpose of holding the regulator A in proper position, as aforesaid, dispensing with springs and other devices for making the machine automatic.

2. The movable thimble *a*, provided with arms C, in combination with the fans F, hung upon arms Q by hinges, and, by means of the fan-governors E and thimble-rods D, thimble *a*, and connecting-rod, attached to said regulator A, so that the position of the fans F depends upon the position of the regulator, which latter is governed by the force of the weight M, acting through the levers k^1 k^2 k^3 k^4, which tends to sustain it in a perpendicular position, and the force of the wind acting upon the regulator A through the obstruction of the wing A' thereto, which tends to force the regulator to a horizontal position, in the manner and for the purpose afore described.

3. The fans F, attached, by means of strap-hinges, to the stationary arms Q, so that the fans swing laterally, and either present their whole flat surfaces at right angles to the wind-line, or stand at any less angle thereto, and when said regulator is in a horizontal position, said fans present only their lateral edges to said wind-line, and said fans so hung in combination with the regulator A, connecting-rod B, thimble *a*, thimble-arms C, thimble-rods D, and fan-governors E, secured to fans F, in the manner and for the purpose described.

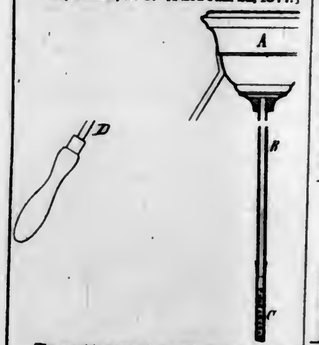
189,701. HARVESTER-ELEVATORS. Frank J. Coddington and Herman N. Kennedy, Piano, Ill. [Filed Feb. 23, 1877.]



1. The suspended-yielding roller D, in combination with the embracing bars or springs F F F, substantially as and for the purpose set forth.

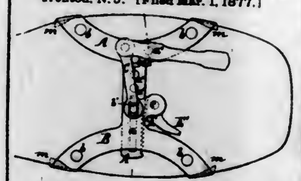
2. The suspended yielding roller D, embracing bars or springs F F F, and endless apron or elevator B, in combination, substantially as and for the purpose set forth.

189,702. LAMP-LIGHTERS. H. W. P. Colson, Buffalo, N. Y. [Filed Jan. 22, 1877.]



The combination of the cup A, in which is held the alcohol or other light burning-fluid, with the handle D, tube B, cap C, and asbestus or wire-gauze wick, substantially in the manner and for the purposes set forth.

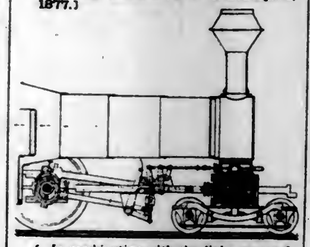
189,703. ICE-CRAMPONS. Joseph Crossley, Trenton, N. J. [Filed Mar. 1, 1877.]



1. The parts A B, adapted to engage with the sole of the boot or shoe, and provided with the points *h*, in combination with an intermediate pawl-and-ratchet mechanism to render the parts adjustable, as herein specified.

2. The creeper described, having the two parts A B and pawl E connected by the pin *b'*, and provided with slot *a* and holes *a' a''*, in combination with each other and with a detachable lever, D, and link C, as herein specified.

189,704. LOCOMOTIVE-ENGINES. Alex. M. Cumming, Elizabeth, N. J. [Filed Apr. 4, 1877.]



1. In combination with the links operated by the eccentrics of a locomotive-engine, the levers connected with the valve-rods of the main or primary cylinders, and with the rock-shafts connected with the valve-rods of the secondary cylinders on opposite sides, substantially as herein set forth.

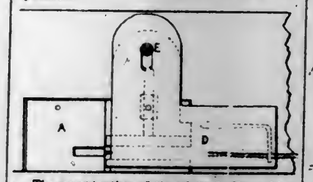
2. The combination of the primary cylinders provided with outside connections, and the secondary cylinders provided with inside connections, substantially as described, for the purpose specified.

3. In a locomotive-engine, the inside connected secondary cylinders, the valves of which are operated by rockers controlled by the links on opposite sides of the locomotive, substantially as herein set forth.

4. The combination of the shaft for operating the secondary engine, and the rocker for operating the primary engine, both being connected by a single link, so that the valves of both may be reversed and controlled, substantially as described.

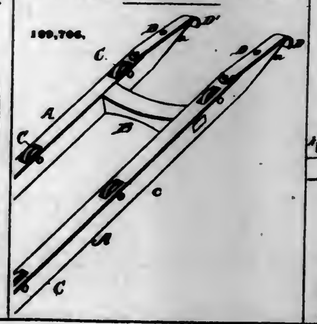
189,705. BRAIDERS FOR SEWING-MACHINES. G. H. W. Curtis, New York, N. Y. [Filed Jan. 11, 1877.]

Brief.—The passage for the braid is adjusted to the size of braid used by sliding guides held to the bed-plate by a T-rivet, and adjustable by means of a set-screw. An L-shaped spring on one of the guide-plates serves to guide the braid which is passed under it, and another spring in the recess between the throat-plate and the guides presses upon the braid from below, thus holding it in position.

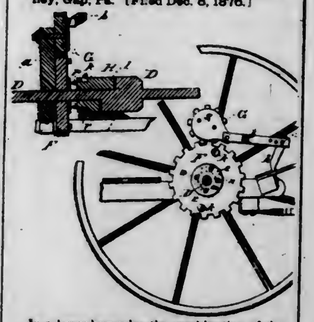


The combination of the slotted adjustable plates D D' and T-rivet H with the recessed throat-plate A, the spring K, arranged in said throat for pressing on the under side of the braid, and the flat spring L on the under side of the plate D, substantially as described.

189,706.



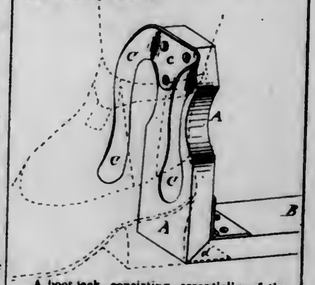
189,707. HORSE HAY-RAKES. M. P. Denney, Gap, Pa. [Filed Dec. 8, 1876.]



In a horse hay-rake, the combination of the axle D, having rigid clutch-collar D', sliding sleeve H, having fingers *l* and projections *p*, loose gear-wheel F, having clutch *m*, pinion G, and reciprocating rod *b*, all arranged to operate substantially in the manner and for the purpose herein shown and specified.

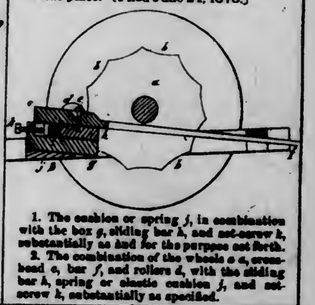
189,708. BOOT-JACKS. Jean F. R. Doisy and Henri L. E. Sarrasin, Paris, France. [Filed Oct. 30, 1876.]

Brief.—The horns are introduced on the inside of a gaiter or bootee, next to the heel, and conform to the shape of the heel, so that, by their striking against the insole, the bootee may be easily removed.



A boot-jack, consisting, essentially, of the plates A B and the hooks or horns C, arranged and operating substantially as described, for the purpose specified.

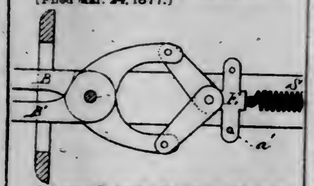
189,709. MOWERS. G. B. Douglas and L. C. Wemple, Evanston, Ill., assignors of two-thirds their right to Thos. K. Mivey, same place. [Filed June 24, 1876.]



1. The cushion or spring *j*, in combination with the box *g*, sliding bar *h*, and set-screw *k*, substantially as and for the purpose set forth.

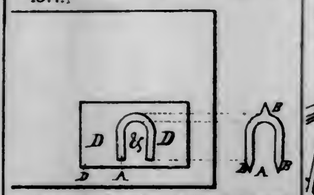
2. The combination of the wheels *c c*, crank-head *e*, bar *f*, and rollers *d*, with the sliding bar *h*, spring or elastic cushion *j*, and set-screw *k*, substantially as specified.

190,710. CAR-COUPLINGS. Chris. C. Dow, Bridgeborough, N. J., assignor of one-half his right to S. C. Upham, Philadelphia, Pa. [Filed Mar. 24, 1877.]



The guide E, having the pins *a'* and spring S, in combination with the crossed pivoted draw-irons B B', and a lazy-tongs connection between said irons and guide, substantially as specified.

190,711. MARKING PLUG-TOBACCO. J. T. Drummond, Alton, Ill. [Filed Feb. 28, 1877.]

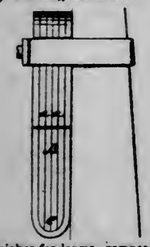


1. A tobacco-marker consisting of a rigid piece of material in the form of a horseshoe, provided with legs or prongs, which pass through a flexible piece of material of greater dimensions than the horseshoe, and serving as a base for the same, the means of connection acting also as a means of securing the marker upon the tobacco, substantially as set forth.

2. A label for plug-tobacco, composed of the part A, in the form of a horseshoe, provided with legs B and part D, of flexible material, the said legs passing through the part D, which is of greater dimensions than the part A, substantially as shown and described.

190,712. STAFF-PICKERS FOR LOOMS. A. I. Earle, Valley Falls, R. I. [Filed Feb. 9, 1877.]

Brief.—A continuous strip passes from the rear to the front face of the picker, and around the lower end of the same. This binds the several layers firmly together, thereby preventing the said layers from curling outward and upward from the bottom, and improperly thrusting the shuttle.



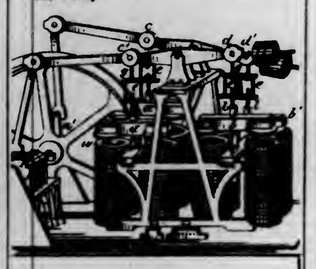
A staff-picker for looms, composed of several layers of hide or other suitable material, compressed and united, and having its front and rear layers composed of a continuous piece of hide bent around the foot of the picker, substantially as described.

190,713. SELF-SEALING FRUIT-JARS. T. Earle, Valley Falls, and F. H. Perry, Providence, R. I. [Filed Feb. 13, 1877.]

1. The combination, with a jar having clamp-engaging recesses molded in the sides thereof, a suitable packing-ring, and a cover, of a non-pivoted inwardly-swinging metallic locking-clamp, having a downwardly-curved strap for engaging with the center of the cover, and inwardly-bent fingers for engaging with the recesses in the jar, for locking the cover and jar together, substantially as described.

2. The combination, with a jar having an annular shoulder surrounding its neck, and a suitable packing-ring fitted thereto, of a cover provided with an annular rim, which encircles the packing-ring, and with an annular shoulder within the rim, which is bevaled upwardly and inwardly from the rim, and bears on the upper surface of the packing-ring, substantially as described, whereby, when the cover is forced upon the jar, the packing-ring is forced inwardly against the exterior of the neck of the jar, as set forth.

190,714. ELECTRO-MAGNETIC ENGINES. M. Egger, Mariaschein, Austria. [Filed Dec. 26, 1876.]



1. In an electro-magnetic engine, an oscillating beam or beams, having a connecting-rod on one extremity, and a pair of armatures suspended therefrom at equal distances from its center of oscillation, and a counterbalancing weight on the other extremity to counterbalance the connecting-rod, while the armatures counterbalance each other, in combination with a pair of electro-magnets or a series of magnets, arranged in pairs, substantially as described.

2. In an electro-magnetic engine the arrangement of india-rubber or leather rings *w w*, at the pole ends of the magnets.

3. In combination with the oscillating beams and the armatures of the frames *e*, to adjust the armatures vertically on said beams, and relatively to their respective electro-magnets, all constructed and operating substantially as described, for the purpose specified.

4. In combination with the oscillating beams, the armatures and their respective electro-magnets of the frames *e*, loosely suspended from said beams in such manner as to permit the downward motion of the oscillating beams after the armatures are in contact with their respective magnets, substantially as described, for the purpose set forth.

5. The armatures *a a' b b'*, in combination with the guide-pieces *p q*, and the slotted transverse pieces of the frame, substantially as described, for the purpose specified.

6. A commutator, consisting essentially of a non-conducting cylinder having a series of conducting-surfaces alternately arranged upon its periphery, and in metallic contact with each other, a series of contact-springs, *t t' t'' t'''*, the metal disk *r* and spring *s*, or their equivalent, to close the circuit from the battery to one magnet, after having opened said circuit to the other magnet, substantially as described, for the purpose specified.

190,715. INJECTORS. J. Fergus, Philadelphia, Pa., assignor of two-thirds his right to G. H. Colket, same place. [Filed Nov. 17, 1876.]

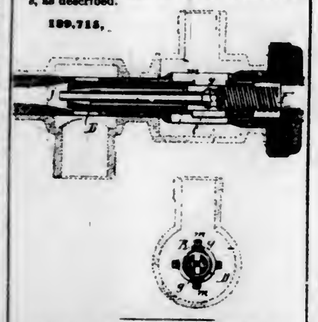
Brief.—The area of the water-inlet can be increased simultaneously with the diminishing of the area of the steam-inlet, and vice versa, so that the injector can be arranged for lifting its supply of water from various depths.

1. The combination of the tube B or the casing and the stem F, having a valve, *i*, with the sliding plug D and its valve-seat *s*, as described.

2. The combination of the tube B and its armsss with the sliding plug D and its grooved arms *g*, as specified.

3. The combination of the casing A of the injector and the tube B with the threaded cap *e*, as described.

190,715,



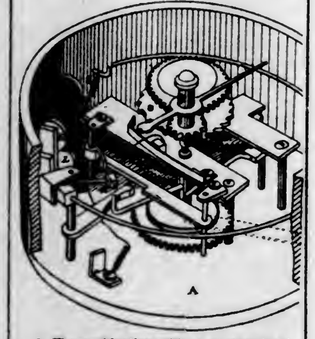
190,716. FEED-DOGS FOR SEWING-MACHINES. H. Feyh, New York, N. Y., assignor to E. W. Johnson, same place. [Filed Feb. 7, 1877.]

Brief.—A circular feed-dog adapted to a universal feed-machine, provided with a smooth flange around the circular row of teeth, to prevent the under thread from accidentally catching on the teeth.



The circular feed-dog A, having the circularly-arranged teeth *a*, and constructed with the circumferential smooth flange *p* outside of the teeth, as and for the purpose described.

190,717. DISTRICT-TELEGRAPH SIGNAL-BOXES. S. D. Field, San Francisco, Cal. [Filed Jan. 2, 1877.]



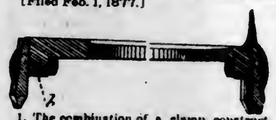
1. The combination, with an electric-signal transmitter, of an electro magnet, L L, of low resistance, the armature of which is connected with a mechanical alarm or sounder, so that said electro-magnet will remain dormant under the ordinary electric current while the message is being transmitted, but is capable of being subsequently magnetized, so as to operate the sounder, by an increase of the main-line battery-power, either by shunting resistance or increasing cells, or by reversal of the main battery, substantially as above specified.

2. A mechanical return-signal or sounder attachment to district-telegraph signal-boxes, which serves also as a cut-out, said cut-out being opened by the operation of setting or operating the main signal, and released and closed by the action of an electro or polarized magnet, by means of an increased current or reversed battery, substantially as and for the purpose above described.

3. In combination with a telegraphic signal apparatus, a mechanical alarm or sounder, operated by an electro-magnet of low resistance, which is interposed in the circuit between the signal apparatus and a distant station, so that after the signal has passed over the wire a response signal or alarm can be sounded by momentarily increasing the battery power, substantially as above specified.

4. In combination with a telegraphic signal-box, A, a mechanical alarm or sounder which is set by the same operation that winds up the signal mechanism, and which remains in its set position until after the message has been transmitted, and which is subsequently operated to give an alarm by an increased battery-current sent over the same wires that transmitted the message, substantially as above specified.

190,718. HORSESHOES. Simon P. Fisher, Franklin Township, Beaver County, Pa. [Filed Feb. 1, 1877.]

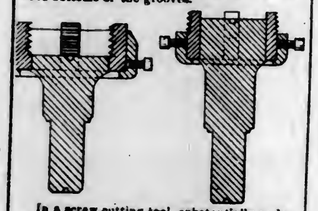


1. The combination of a clamp, constructed substantially as set forth, a wedge-shaped calk, and a suitable projection on the face of the shoe, sustantially as specified.

2. The combination of a clamp, constructed substantially as set forth, a wedge-shaped calk, and a heel, *b*, on the shoe, rabbeted to form shoulders for the clamp, substantially as described.

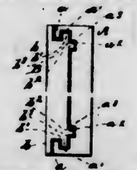
190,719. TAPS AND DIES. James Flower, Detroit, Mich. [Filed Feb. 19, 1877.]

Brief.—The bits, square in cross-section, lie in square grooves in the stock, with their lower ends resting on the bottom of a dish-like collar, through the rim of which set-screws pass, that hold them firmly down upon the bottoms of the grooves.



In a screw-cutting tool, substantially as described, and in combination, removable chaser-cutters, the radially-slotted chuck-head to receive said cutters, and the flanged collar and set-screws to secure them in their relative positions, substantially as set forth.

190,720. WINDOW-SCREENS. Wm. Flood, New York, N. Y., assignor to S. Roebuck, same place. [Filed Mar. 24, 1877.]

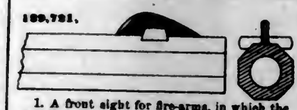


The combination of screen-section A, having vertical tongues *a*, vertical grooves *a'*, horizontal grooves *a''*, and corner ridges *a'''*, with section B, having grooves *b*, tongues *b'* and *b''*, and corner recesses *b'''*, substantially as and for the purpose set forth.

190,721. FRONT SIGHTS FOR FIRE-ARMS. F. W. Freund, Cheyenne, Wyo. [Filed Apr. 7, 1876.]

Brief.—In aiming at dark objects the light portion of the sight, by reason of the contrast, is rendered more clearly visible, and in aiming at light objects the dark portion of the sight forms the contrast, and enables the marksman to take quick and accurate aim.

190,721.

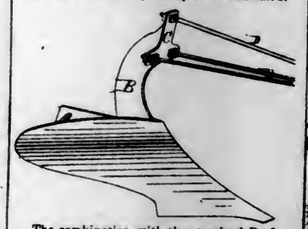


1. A front sight for fire-arms, in which the rear face, or that portion nearest the eye in aiming, presents two contrasting colors, one of which forms a vertical line between two lines of the other color, as and for the purpose described.

2. A front sight for fire-arms in which the rear face, or that portion nearest the eye in aiming, presents a center line of white or light-colored substance, with a dark line on either side, substantially as and for the purpose set forth.

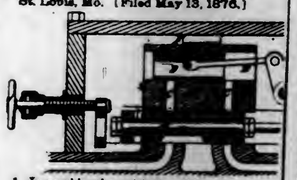
190,722. PLOWS. H. Gale, Albion, Mich. [Filed Jan. 4, 1877.]

Brief.—A skeleton-beam formed of rods converging together at the front, and adjustably connected to a plate upon the standard.



The combination, with the standard B of a plow, of the plate C at the top thereof, and the draft-rods D attached to each plate by means of screw-nuts placed on each side of the said plate, constructed and arranged substantially as described and shown, for the purpose set forth.

190,723. STEAM SLIDE-VALVES. J. Gillies, St. Louis, Mo. [Filed May 13, 1876.]



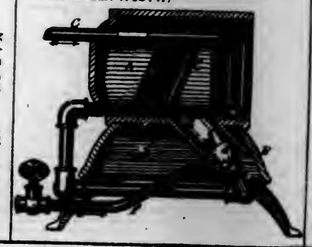
1. In combination with the slide-valve, the cap C, formed with ports and tubular valve-seats, and the balanced tubular valve D, substantially as set forth.

2. In combination with the cap C, inclosing the cut-off valves, the wedge-frame E for regulating the seat of the cap, so as to control the relation of the cap to the slide-valve without disturbing its relation to the cut-off valve.

3. In combination with the slide-valve, the adjustable cap C, containing the tubular cut-off valve D, the oscillating shaft, and governor, substantially as set forth.

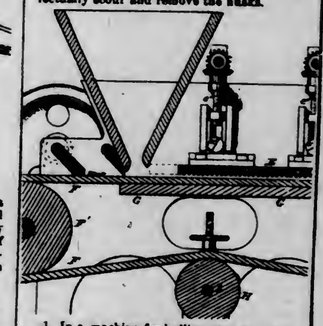
4. The combination of the cap, having ports through it, the adjustable wedge-frame, and the spring F, substantially as set forth.

190,724. GAS-HEATERS FOR SOLDERING-IRONS. George B. Gleason, Chicago, Ill., assignor to Wilson Packing Company. [Filed Mar. 7, 1877.]



190,725. RICE-HULLERS. R. H. Graves, L. L. Graves, and R. A. Graves, Batavia, Ill. [Filed Mar. 10, 1877.]

Brief.—The hopper-fed rice is carried by the belt beneath the corrugated scrubbing-plate, whose reciprocations on the belt effectually scour and remove the husks.



1. In a machine for hulling rice, the yielding feed-belt F, in combination with the adjustable reciprocating and corrugated hulling-plate E, as and for the purposes described.

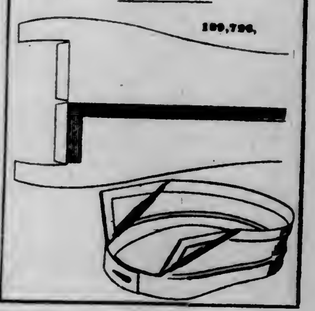
2. In a machine for hulling rice, the combination of the adjustable bed-plate G and the carrying or feed belt F, and a suitable hulling-surface, as and for the purposes substantially as described.

3. In a machine for hulling rice, the combination of the reciprocating and corrugated hulling-plate E with the gear-wheels C C' and pitman D', whereby the hulling-plate is given an unequal motion in its forward and backward movements, substantially as and for the purposes described.

4. In a machine for hulling rice, the combination of a yielding endless feed-belt, F, a reciprocating hulling-plate, E, having a corrugated or roughened hulling-surface, and moving with the belt faster than in its reverse movement, and a bed-plate, G, that is adjustable, to sustain the feed-belt in position with relation to the hulling-plate, substantially as described.

5. In a machine for hulling rice, the reciprocating hulling-plate E, having corrugations in its face at right angles to the direction in which the feeding-belt F moves, substantially as described.

190,726,



189,726. PAPER COLLARS. S. S. Gray, South Boston, assignor to T. N. Page, Boston, Mass. [Filed Mar. 28, 1877.]

1. An integral collar-blank, composed of paper or other textile fabric, or of paper and other textile fabric combined, consisting of two portions which are similar to a finished collar, and adapted to be folded on a line corresponding to the upper edge of the collar, to form an entire finished collar, substantially as hereinbefore set forth.

2. A collar constructed of an integral blank of suitable fabric, the combination of the two similar portions folded on a line corresponding to the upper edge of the collar, substantially as herein set forth.

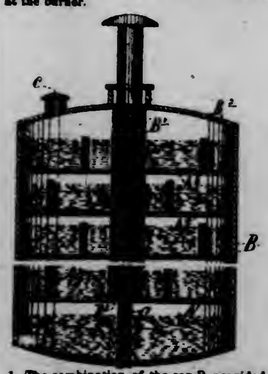
3. The combination of the two portions of an integral collar-blank, each similar in form and construction, with an independent welt, strip, or re-enforce of linen, paper, or other suitable material, secured between the two portions at the line of folding, substantially as set forth.

4. An integral collar-blank, composed of two similar portions, having inwardly-turned edges on the corresponding parts adapted to form, when the two parts are cemented together, a re-enforce for the ends of the collar, substantially as set forth.

5. As a new article of manufacture, a collar consisting of two similar portions formed as an integral, and made of suitable fabric, folded one upon the other, with the re-enforced edges and ends, and having an intermediate longitudinal corrugation between the body of the collar and the neck-band, substantially as set forth.

189,727. APPARATUS FOR PRODUCING ILLUMINATING-GAS. Benjn. F. Greenough, Brooklyn, N. Y., assignor of one-half his right to J. J. Nichols, New York, N. Y. [Filed Aug. 29, 1876.]

Brief.—Air flows in at the top of the apparatus, and down over the volatile liquid hydrocarbon, and through the tubes in each chamber to the bottom of the apparatus, becoming carbureted with volatile vapors. The carbureted air passes up and down through the siphon-tubes in the center of the apparatus to the burner below. The heavy carbureted air falls by gravity to the burner, and thus automatically draws air in at the top of the apparatus, so long as it is consumed at the burner.



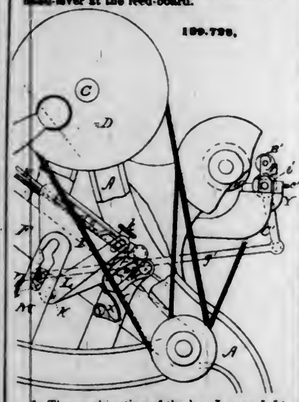
1. The combination of the can B, provided with a series of evaporating-pans, A A¹, carrying a gas-producing liquid, fixed tube B², sliding tube F, and discharge-tube C, forming an adjustable siphon by means of which gas is drawn from the base of the can, carried above the level of the liquid, and thence to a burner, in the manner and for the purposes herein shown and set forth.

2. The combination of the can B, provided with a series of evaporating-pans, A A¹, carrying a gas-producing liquid, central tube B², encircling fixed tube C, and forming a siphon, by means of which gas is drawn from a chamber in the base of the can and conveyed to a burner, in the manner and for the purposes as herein shown and set forth.

189,728. PRINTING-PRESSES. F. W. Griffith, G. F. Byrne, and A. Shedlock, New York, N. Y.; said Shedlock assignor to said Griffith and Byrne. [Filed Aug. 29, 1876.]

Brief.—Grooved cams operate the nipper-fingers, which are reciprocated to draw the printed sheet from the platen to endless delivery-tapes mounted in the platen-frame. The ink-fountain is fixed and its roller adjustable. The transfer-roller frame is mounted on the journals of the latter, and rocked by a bent-lever at the feed-board.

189,728.



1. The combination of the bar J, arms L L′, cam M, arm O, spring P, latch Q, and platen E, constructed and operating substantially in the manner described and specified.

2. In combination, the rock-bar J, arm O, spring P, and spring-latch Q, so constructed and combined that when the arm O is depressed it shall force back the latch, and slip thereunder, and be retained thereby during its backward motion, substantially in the manner described and specified.

3. In combination, the rock-bar J having bearings in the arms L L′, arm O, spring P, and stop S, constructed and operating substantially in the manner described.

4. The combination of the bar T, arm O, and compound cam V W X, constructed and operating substantially in the manner described and specified.

5. The compound cam, consisting of the stationary and movable parts V and W, and retaining-spring X, constructed and operating substantially in the manner described and specified.

6. The combination, with the fountain Y, having a fixed edge, *b′*, of the roller Z, sliding journal-boxes *c′*, and set-screws *d′*, constructed and operating substantially in the manner described and specified.

7. The combination, with the ink-fountain provided with a stationary knife-edge, of a roller adjustable to and from the stationary knife-edge, for the purpose of regulating the supply of ink from the fountain, constructed and operating substantially in the manner described and specified.

8. The combination, with the fountain-roller Y, rocking-roller B′, frame A′, of the mechanism for moving the rocking-roller to and from the taking-roller H from the position of the feeder of the press, constructed and operating substantially in the manner described.

9. The combination, with a roller having a motion to and from the taking-roller H, for supplying such taking-roller with ink from the fountain, of the mechanism, whereby the necessary motion can be imparted to such roller by the feeder of press from his position at the feed-board, and by which such roller can be held in continuous contact with the taking-roller H, substantially in the manner described and specified.

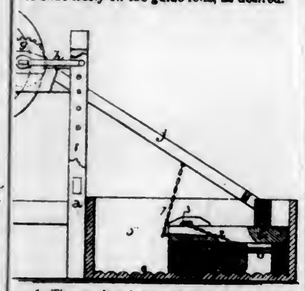
189,729. PATTERNS FOR METALLIC CASTING COMPOSITION. J. Habermehl, Allegheny, Pa. [Filed Apr. 2, 1877.]

1. Beeswax, stearine, or paraffine, incorporated with leather, cloth, paper, or any fibrous material, to be used in the construction of patterns for metallic castings, in manner explained and set forth.

2. A compound as a smoothing cement in finishing patterns for metallic castings, having for its bases beeswax, stearine, or paraffine, in combination with any carbonaceous or calcareous pulverulent substance, substantially as and for the purposes specified.

189,730. WASHING-MACHINES. E. L. Hancock, Cadiz, Ky. [Filed Feb. 15, 1877.]

Brief.—By means of the rack-bar and lever on top of the reciprocating washer, the rubbing-blocks can be held together solidly, or, by releasing the lever, they may be allowed to slide freely on the guide-rods, as desired.

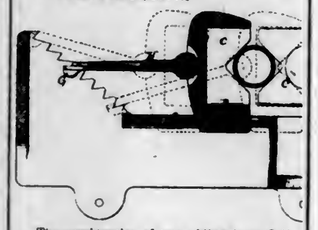


1. The washer *l*, pivoted to the end of the rod *j*, and provided with the rods *e* and sliding pieces 1, substantially as shown.

2. The combination of the washer *l*, rod *j*, chain or cord 2, lever 3, and ratchet 4, guide-rods *e*, and sliding pieces 1, substantially as described.

3. The combination of the frame *a*, and operating mechanism, as described, the washer *l*, chain 2, lever 3, ratchet 4, guide-rods *e*, and sliding pieces 1, chain 7, and the box 5 6, all arranged for operation substantially as described.

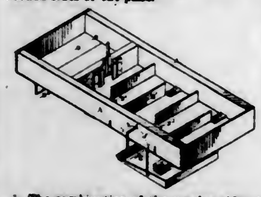
189,731. VISES. T. P. Hardy, Marion, N. J. [Filed Feb. 14, 1877.]



The combination of two sliding jaws, B C, with a stationary frame, which supports and guides the same, a screw-spindle, which is tapped in a standard rising from said frame, and which carries one of the jaws, a brace hinged to the other jaw, and a vertically-inclined stepped abutment rising from the frame, all constructed and operating substantially as shown and described.

189,732. HEATERS AND EVAPORATORS FOR MOLASSES. B. F. Harper, Mount Vernon, Ill. [Filed Nov. 9, 1876.]

Brief.—The flame and hot products of combustion are thrown upon one part of the pan, while they are deflected from another part by a swinging regulator placed below the pan. The folds of sheet metal bent up from the bottom of the pan, forming the division-plates, are fitted into slots or chamfers in the wooden sides of the pans.



1. The combination of the wooden sides A, having chamfers cut in their lower edges, and the bottom B, consisting of a single sheet of metal forming the ends of the pan and bent into the chamfers in the side pieces, to form the interior projecting cross-bars B¹, having openings at alternate ends the bent-down

ends B², and one or more under-projecting and bracing cross-bars, B³, all substantially as set forth.

2. The regulator G, suspended from the crank-shaft H, in combination with the index I and evaporator, with scale J, as and for the purposes herein set forth.

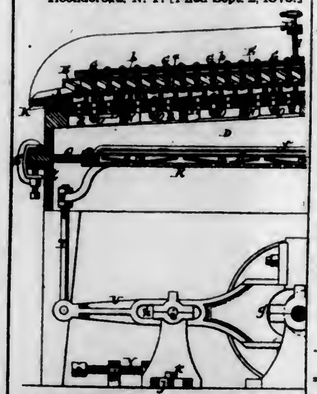
189,733. FILES. P. Heffernan, Philadelphia, Pa., assignor to himself, U. Widmer, and H. Trottman, same place. [Filed Mar. 30, 1877.]



1. As a new manufacture, a round file, in which the teeth are on a spiral rib or ribs, alternating with a spiral groove or grooves, as set forth.

2. The mode herein described of making round files—that is to say, first twisting a bar of steel, and then cutting teeth on the rib or ribs formed by thus twisting the bar, all as set forth.

189,734. ORE-SEPARATORS. Wm. Hooper, Ticonderoga, N. Y. [Filed Sept. 2, 1876.]



1. In a dry-ore separator, the combination of an ore-bed or sieve, A, composed of cloth or other material which is pervious to air and impervious to dust, or nearly so, a grate, B, for supporting the ore-bed, said grate and ore-bed or sieve being inclined both in a lateral and in a longitudinal direction, and a box, C, to inclose the whole, substantially as described.

2. The combination of a supporting-grate, B, having diagonal bars, an ore-bed or sieve, A, which is depressed between the said bars by means of tension wires or cords *c*, so as to form diagonal channels therein, and an ore-box, C, substantially as and for the purpose described.

3. The combination of a series of diagonal skimmers or bars, E, having a passage formed at one end thereof, with the ore-bed or sieve A, its diagonal channels, the supporting-grate B, and ore-box, the said diagonal skimmers extending in a direction contrary to that of the said diagonal channels, substantially as described.

4. The combination, with the ore-bed or sieve A and tension wires or cords *c*, of a bar, H, situated above the said ore-bed, and an adjusting-screw, I, to the said bar being attached a series of springs, G, carrying pins or blocks *h*, to hold the said tension-wires in position, substantially as described.

5. The combination, with the ore-bed or sieve A, supporting-grate B, said ore-box C, of a stationary perforated plate, K, and of movable or adjustable plates L, arranged beneath the said ore-bed and supporting-grate, substantially as described.

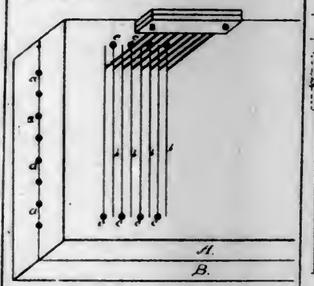
6. The combination of the clamp S, rubber diaphragm Q, its supporting-frame, the perforated plate R, flap-valves *d*, and longitudinal bars *f*, arranged above said valves, substantially as and for the purpose described.

7. The combination of sliding boxes W and adjusting-screws Y with the levers U, their slots *k*, and fulcrum-pins *i*, substantially as described.

8. The combination of an air-cock, *l*, with the air-chamber P, bellows Q, and ore-bed A, substantially as and for the purpose described.

189,735. DENTAL-FOIL CONDENSERS. Jno. Hood and S. H. Reynolds, Boston, Mass. [Filed Oct. 26, 1876.]

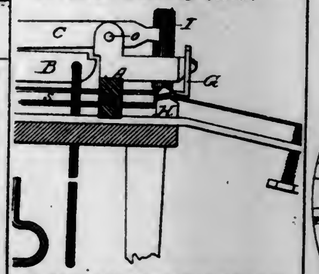
Brief.—The foil is rolled between cushions, and the rolls are then placed in longitudinal grooves of two holders, where they are divided into proper lengths by saws moving in guides in the holders.



1. The holders A and B, provided with longitudinal semicircular grooves *c*, for holding the rolls of foil, and transverse slits *b*, which act as guides for the saws *g*, substantially as and for the purpose set forth.

2. The process of preparing pellets of foil for dentists' use, consisting of the following steps: First rolling the foil between cushions into suitable rolls, placing these rolls within the longitudinal grooves *c* of the holders A B, and then dividing the rolls into pellets by the saws *g*, guided in their action upon the rolls of foil by the transverse slits *b*, all substantially as hereinbefore set forth.

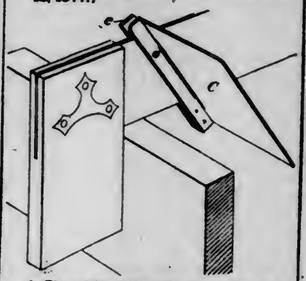
189,736. SAW-SETS. C. B. Hopkins, Topeka, Kans. [Filed Aug. 5, 1876.]



1. The anvil H, in combination with the vertically-moving plunger or punch I, with the operating-levers B C, all constructed and arranged to operate substantially as described.

2. The adjustable guide or clamp G, arranged directly in front of, and close to, the anvil H, for holding narrow blades or saws when being set, substantially as described.

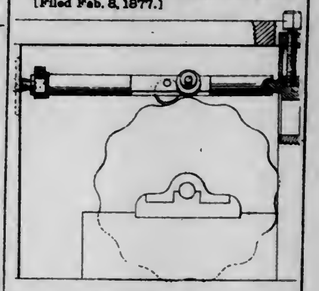
189,737. SHADES FOR TRY-SQUARES. C. B. Hopkins, Topeka, Kans. [Filed Mar. 13, 1877.]



1. The combination, with a try-square, of a shade constructed to operate substantially as described.

2. The shade C, provided with the spring-clamp, *c*, or equivalent device, for attaching it to the blade of a try-square, substantially as, and for the purpose set forth.

189,738. MECHANICAL MOVEMENTS. E. C. Hopping, Madison, N. J., assignor of one-half of his right to E. A. Ely, same place. [Filed Feb. 8, 1877.]

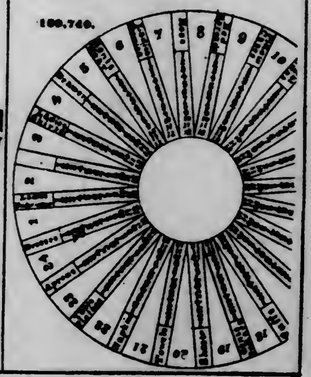


In a mechanical movement for converting rotary motion into reciprocating motion, two rollers, placed one forward of the other, on opposite sides of a rock-shaft or lever-fulcrum, in combination with a wheel having its periphery formed with a single set of corrugations, all substantially as shown and described.

189,739. COMPOSITION FOR WASHING CLOTHES. Robt. B. Hurd, Paterson, N. J. [Filed Jan. 28, 1877.]

A composition consisting of sal-soda, borax, soap, ammonia, and water, proportioned in relation to each other, substantially as described, to form a solution for washing clothes or for other similar purposes.

189,740.

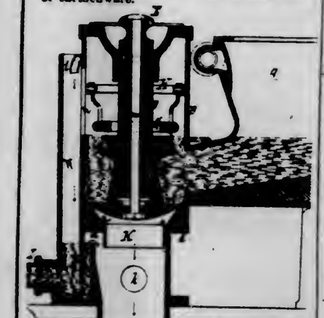


199,740. WASHING-LIST INDICATORS. H. B. Israel, Stockton, Cal. [Filed Mar. 1, 1877.]

As a new article of manufacture, a washing-list indicator, the same consisting of a cushion, A, with a washing-list disposed thereon, substantially as described, whereby the device can be utilized both as an indicator and as a pin-cushion, as set forth.

199,741. WATER-CLOSETS. G. Jennings, London, England. [Filed Mar. 28, 1877.]

Brief.—By means of the trap formed in the side extension of the upright case of the pull-valve, water from bath-tubs, &c., may pass down the waste-pipe of the closet. The stem and handle of the discharge-valve are made of earthenware.



1. The stem or plug D of the discharge-valve C, when made, together with the handle E and shoulder F, of a single piece of earthenware, substantially as and for the purpose described.

2. The combination, with the stem or plug D of the discharge-valve C, and with the weighted lever H and feed-valve E, of the shoulder F and cushion *b*, all constructed and arranged to operate substantially as and for the purposes described.

3. The combination, with the tube or upright limb B, the socket I, and trap J, of a detached thimble, K, arranged in said upright limb, substantially as and for the purpose described.

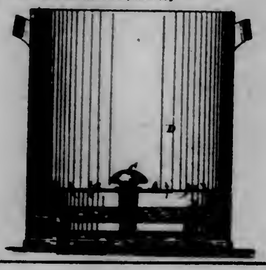
4. The combination, with the tube or upright limb B and thimble K, of flanges *c d*, substantially as and for the purpose described.

5. In combination with the bowl A, the induction and eduction chambers L^1 and L^2, the valve K, and the diaphragm P, provided with the channel *f* and central opening S, all constructed and arranged to operate substantially as described.

6. In combination with the bowl A, the upright limb B, and the feed-valve L, the trap J, connected with said feed-valve by a branch pipe, *i*, and the thimble K, the lower end of which terminates below the discharge-opening of the trap, to prevent the entrance of the matter discharged from the bowl into said trap, substantially as set forth.

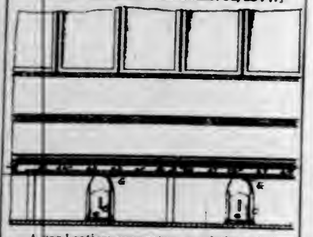
7. The combination, with the bowl A and upright limb B, of the trap J, provided with an extension, W, communicating, by means of an opening, *n*, with the limb B above the valve C, substantially as and for the purposes set forth.

199,742. ATTACHMENTS FOR WASH-BOILERS. C. Kamlah, Jersey City Heights, N. J. [Filed Mar. 14, 1877.]



A removable pan or attachment for wash-boilers composed of the perforated top plate A, the bottom plate B, having upward-projecting spouts *b*, the rim C, and feet *c*, the whole being combined and adapted to operate substantially as described.

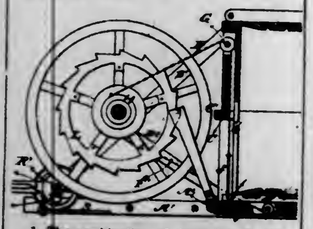
199,743. CAR-HEATERS. Thomas Keech, New York, N. Y. [Filed Mar. 14, 1877.]



A car heating apparatus, consisting of the radiating perforated tube A, conducting-pipes G, lamp-holders C, and lamps *d*, all arranged substantially in the manner shown, to operate as described.

199,744. HAY-PRESSES. Wm. Kelly, Sonora, Cal., assignor to F. J. Kelly, same place. [Filed Dec. 28, 1876.]

Brief.—Devices are arranged for using the draft of the horses for raising the front end of the press, and throwing the weight thereof upon the front wheels for transportation. The beveled ends of the follower and head allow the bale to be of greater size at the ends than in the middle.



1. The combination of draw-bar V with double-grooved eccentric T, axle E^1, chains *s* and *e*, and frame or bar S, fixed to vertically-movable sill-beams A^1 A^1, substantially as and for the purpose set forth.

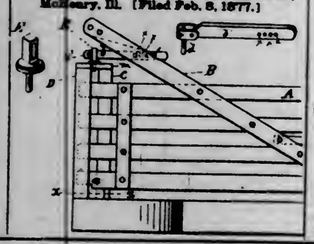
2. The combination of pivoted arms or frame B^2 with curved guide-bar b^2, recessed double-grooved eccentric T, and swiveled axle E^1, substantially as set forth.

3. In a press for hay and similar materials, the combination of a sill which is vertically movable in front with transporting-wheels and axle, and an eccentric which operates to raise the front end of said sill relatively to said wheels and axle when draft is applied, substantially as set forth.

4. In a hay-press, the combination of a follower having its upper face beveled at each end with a head having its lower face beveled at each end, substantially as set forth.

5. The combination of chains F and F^v with pulleys G G^1 *g g'*, arranged as shown, and spirally-grooved hubs or drums H H^1, substantially as set forth.

199,745. GATES. M. Kelter and P. Leiokem, McHenry, Ill. [Filed Feb. 8, 1877.]



1. The combination of shelves O with separating-blocks P, supporting-blocks M and N, pins or studs Q, and casing I, substantially as and for the purpose set forth.

2. The combination of deflector F, rim C^3, shield F^v F^v, and a cut-off slide, substantially as and for the purpose set forth.

3. The combination, with heater A, of hot-air chamber C, recessed supporting-frame B, drying-chamber H, and a valve at the top thereof, substantially as and for the purpose set forth.

199,747. NUT-LOCKS. J. D. Kennard, New Sharon, Iowa, assignor to A. H. Vickers and T. C. Vickers, same place. [Filed Feb. 8, 1877.]



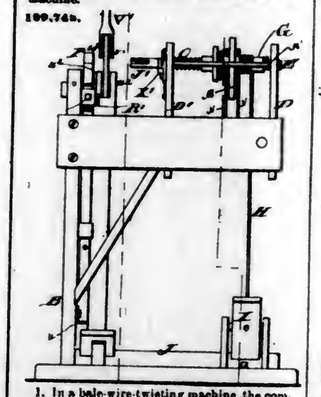
1. The combination, with a bolt, A, of a nut, B, having an interior movable lock-piece, C, inserted from the outer face of the nut, and extending around one-half of the bolt, about one-half the thickness of the nut, and a screw-bolt, D, as and for the purposes herein set forth.

2. The combination of the nut B, provided with the recess *a*, the lock-piece C, having recess *b*, and the screw-bolt D, tapering smaller toward the head, substantially as and for the purposes herein set forth.

199,748. BALE-TIE-TWISTING MACHINES. B. B. Kilmer and I. A. Kilmer, Hovte's Cave, N. Y., assignors of one-half their right to Aug. Kilmer, same place. [Filed Feb. 8, 1877.]

Brief.—A treadle rotates a loose sleeve on the axle of the twisting-jaw. The sleeve rotates the axle by a ratchet-and-pawl connection. A coiled spring rotates the loose sleeve backward to give its ratchet a new hold. The twisting-axle is prevented from rotating backward with the loose sleeve by a second spring-pawl mounted on one of the standards. On releasing the treadle which operates the clamping-jaws, it raises a detaching-finger, which throws the twisted bale-tie from the machine.

199,748.



1. In a bale-wire-twisting machine, the combination of a rotating twisting-shaft with a sleeve turning thereon, a ratchet-and-pawl connection between said sleeve and shaft, and a spring for throwing said sleeve backward, substantially as and for the purpose set forth.

2. In a bale-wire-twisting machine, the combination of a rotating shaft with a relatively-fixed vise and screw for adjusting the vise to wires of different sizes, substantially as and for the purpose set forth.

3. The combination of treadle I, adjustable limiting-screw K, cord H, sleeve G, and twisting-shaft E, substantially as and for the purpose set forth.

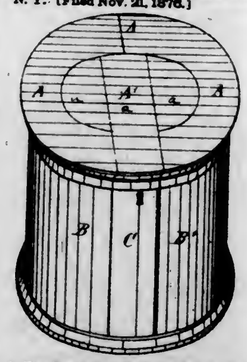
4. The combination of sleeve G with a spring for throwing said sleeve backward, and guide-rods for said spring, substantially as and for the purpose set forth.

5. The combination of treadle U^1 and spring U^2 with reciprocating bar U, lifting-arm V, and finger V^1, adapted to bend upward but not downward, substantially as set forth.

6. The combination of vise-clamping cam S^1 and lifting-finger V^1, with reciprocating bar U, which operates both of them, substantially as set forth.

7. The combination of lifting-arm V slotted at its rear end, with pivoted upward-bending finger V^1, a fixed guiding-stud which sets in said slot, and a vertically reciprocating bar and treadle, substantially as set forth.

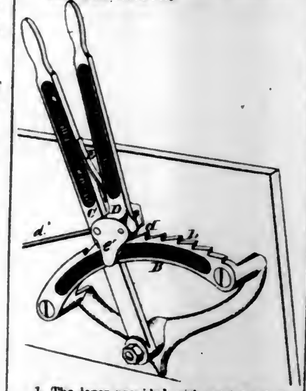
199,749. DESKS. C. H. King, Stapleton, N. Y. [Filed Nov. 21, 1876.]



1. The herein-described circular or many-sided desk, provided with the interior compartments, substantially as set forth.

2. In combination with the above-described desk, the panel or door C and central part A', substantially as set forth.

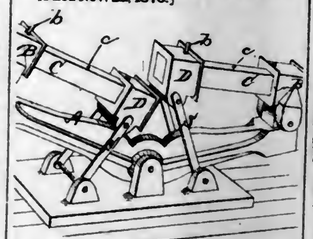
199,750. WAGON-BRAKE LEVERS. Jno. F. Klingiesmith, St. Louis, Mo., assignor of one-half his right to C. Farner, same place. [Filed Feb. 14, 1877.]



1. The lever provided with catch-head D, pivots *a c*, and detent *d*, substantially as described.

2. The lever provided with catch-head D, pivots *a c*, and detent *d*, in combination with lever C, brake-rod $\bar{a}$, and ratchet-sector B, substantially as described.

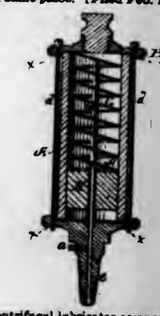
199,751. VARIABLE-POWER-WINDLASS BEAMS. David Knowlton, Camden, Me. [Filed Nov. 22, 1876.]



1. The pivoted sockets B B, in combination with the levers C C, having holes or orifices *c* and pins *b b*, substantially as described, for the purpose specified.

2. The pivoted sockets B B, levers C C, and fulcrum-sockets D D, in combination with the windlass-beam A, substantially as described, for the purpose specified.

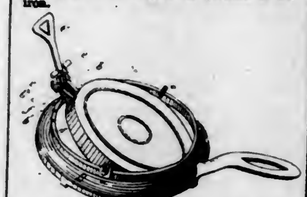
199,752. LUBRICATORS. J. C. Lamb, Middletown, Conn., assignor to himself, W. Rockliff, B. Douglas, Jr., and L. B. Deming, same place. [Filed Feb. 19, 1877.]



A centrifugal lubricator composed of a cylinder, A, a nozzle, *c*, a central tube, *m*, with its mouth extending close to the outer head B, a spring, *g*, and weight H, all constructed and arranged to operate substantially as set forth.

199,753. WAFFLE-IRONS. J. T. Lambert, Detroit, Mich., assignor to the Detroit Iron and Brass Manufacturing Company. [Filed Jan. 13, 1877.]

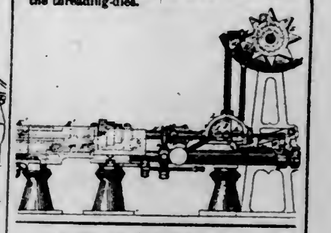
Brief.—The handle may be used either to lift the lid or to reverse the position of the iron.



The lever C, provided with the cross-bar *e*, and pivoted between the slotted hinge-lugs of a waffle-iron, substantially as and for the purpose set forth.

199,754. MACHINES FOR THREADING METAL SCREWS. H. S. Lansdell, Brooklyn, N. Y., assignor to J. A. Kernochan, Pittsfield, Mass. [Filed Mar. 2, 1877.]

Brief.—A notched wheel for lifting the blanks from the hopper and presenting them (one at a time) to the drop-tube, and a sector-shaped vibrating carrier provided with a notch, for receiving one blank from the tube and depositing it in a box in line with the longitudinally-moving plunger, which forces it into the hollow revolving chuck-carrying mandrel. A centering device or tumbler is brought to bear upon the point of each screw-blank, to center it in the chuck relatively to the threading-dies.



1. The combination of the rotating screw-blank lifter E having a series of duplicate radiating teeth or prongs, *e*, with the basin and its hood G and grooved guide F, all constructed and arranged to operate in connection with the drop-tube, substantially as described.

2. The combination of the oscillating carrier I, constructed with a cavity, *f*, for receiving the screw-blanks or screws in an upright or nearly upright position, and the carrier-box L, containing the said carrier, and having a cavity, *h*, into which the blanks or screws are delivered in a horizontal or nearly horizontal position, substantially as herein described.

3. The combination of the plunger *m*, the supply-tube K to the chuck J, the box L, having a screw or blank-receiving cavity, *h*, and the screw or screw blank carrier I, essentially as described.

4. The combination of the sliding mandrel O, which carries the plunger *m*, the arm P, secured on said mandrel, the bell-crank Q, and the rotating screw or screw-blank lifter E, whereby the movement of the said mandrel for forcing the blanks into the chuck is made to operate the said lifter, substantially as herein described.

5. The combination of the sliding mandrel O, the arm S, the bar *w*, and the toe *k* of the carrier I, essentially as described.

6. The combination, with the chuck J, which holds the work to be threaded, of a centering-tumbler, B', constructed to operate substantially as and for the purposes herein set forth.

7. The combination, with mechanism for holding and threading the screw-blanks of the centering-tumbler B', substantially as herein described.

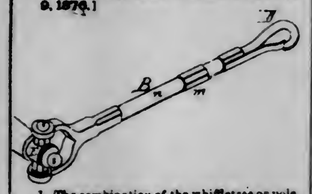
8. The combination of the slide C', with the pivoted centering-tumbler B', the switch f', the fixed guide g', and the lever-catch h', having a stud or pin, θ', essentially as and for the purpose herein set forth.

9. The combination of the fixed guard or projection D', with the pivoted reutering-tumbler B' constructed with a bearing or resting surface, *d'*, substantially as described.

10. The die-holders G' G', in combination with the plate H', constructed to concentrically enter said die-holders, essentially as described.

11. The combination of the cone or wedge J' with the pivoted or swinging die-holders G' G', having reduced portions *d'*, and the frame E', in which said die-holders slide, substantially as specified.

189,756. HARNESS-CONNECTIONS FOR VEHICLES. F. Leclere, Detroit, assignor to W. L. Bancroft, J. Goulden, and N. S. Boyston, Port Huron, Mich. [Filed Oct. 9, 1876.]

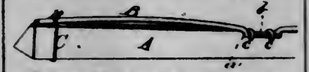


1. The combination of the whiffletree or pole of a vehicle with a rod, B, having at one end a hook, D, and connected at the other end to said whiffletree or pole by a universal joint, as set forth.

2. The combination of the swivel E, pivoted to the whiffletree or pole, with the rod B, having a forked end pivoted to said swivel, as set forth.

189,754. TOBACCO-STICKS. M. M. Ledford, Asheville, N. C. [Filed Oct. 14, 1876.]

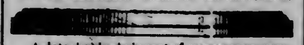
Brief.—Wires are held upon the upper corner of a triangular stick, and hold the tobacco-leaves so that they hang upon each side.



Tobacco stick A, recessed at *a'*, in combination with spring B, having bend *b*, and with wires C C and staples *c c*, substantially as set forth.

189,757. CHAIR-SEATS. J. Lemman, Cincinnati, Ohio. [Filed Apr. 6, 1877.]

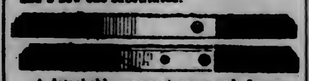
Brief.—A sheet of woven cane is glued to a hoop, and the latter is secured, by screws, within a shouldered recess of the seat-frame.



A detachable chair-seat of woven cane, composed of a bent strip or frame, and cane-cloth which is stretched over the same, lapping around the bottom of the strip, and is secured thereto by gluing, the seat thus made being adapted to fit a shouldered recess of the seat-frame of chairs, substantially as and for the purpose specified.

189,758. CHAIR-SEATS. J. Lemman, Cincinnati, Ohio. [Filed Apr. 6, 1877.]

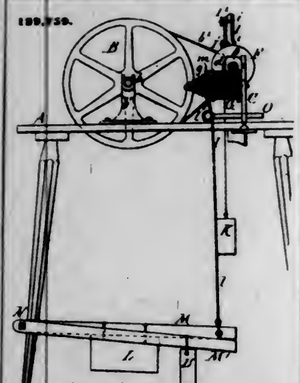
Brief.—A sheet of woven cane is glued to a hoop, the latter being adapted to fit within the frame of the seat, to which it is secured by screws passing laterally through the hoop. An inner hoop may be placed within the splint, to which the cane is fastened, and the two be secured together by screws. By removing the screws the seat may be taken out and a new one substituted.



A detachable cane seat composed of woven cane or cane-cloth, stretched over a continuous bent strip or frame, and permanently secured thereto by gluing, the whole being adapted to be placed within, and detachably secured to, a surrounding frame, in the manner and for the purpose set forth.

189,760. MACHINES FOR MOUNTING FLOWERS, &c., UPON WIRE STEMS. Louis Liebmann Lowinsohn, Berlin, Prussia. [Filed Oct. 20, 1876.]

189,759.



1. In an apparatus for mounting feathers and other objects, the wire upon which such objects are mounted, held immovably stretched by means of counterbalancing-weights acting directly upon the wire on one end, and upon the bobbin containing such wire upon the other end, substantially as described.

2. In combination with the wire upon which the objects are mounted, the weight K, and bobbin G upon which said wire is wound, and the differential grooved disks *g*, of the cord *l*, levers M M', and weights L L', substantially as described, for the purpose specified.

3. The combination of the grooved differential disks *g* and bobbin G, the cord *l*, levers M M', and the weights L L', with the pulleys P and shaft P mounted upon an adjustable bar, O, and the plate C, substantially as described, for the purpose specified.

4. The combination of the cord *l*, from which the levers M M' and weights L L' are suspended, the differential disks and bobbin G, with the pin *m*, to hold said cord *l* in position upon its disk, substantially as described.

5. The combination of the thread-bobbin K, held in frictional contact with the disk F, from which it receives motion through the medium of the driving-wheel B, and a band or cord, said wheel and disk being mounted upon a hollow shaft, *d*, with said hollow shaft *d* and short tube *d'*, the block D, plate C, and the wire upon which the object is to be mounted, substantially as described.

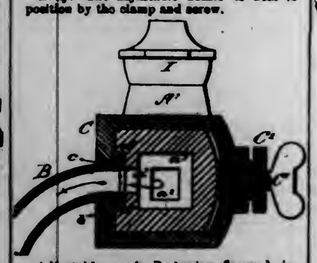
6. The standard H, in combination with the wire, and the binding devices, substantially as above claimed and described.

7. The combination, with the wire, of the arm *h*, and pulleys I' P, and the weight K, substantially as described.

8. In an apparatus for mounting feathers or similar objects, the devices, substantially as above described, by means of which the wire upon which such objects are mounted is kept at an unvarying tension by regulating said tension according to the decrease of the diameter of the wire-containing bobbin, substantially as described.

189,760. BEER-FAUCETS. P. Lyons, Hartford, Conn., assignor of one-half his right to A. J. Bourer, same place. [Filed Jan. 27, 1877.]

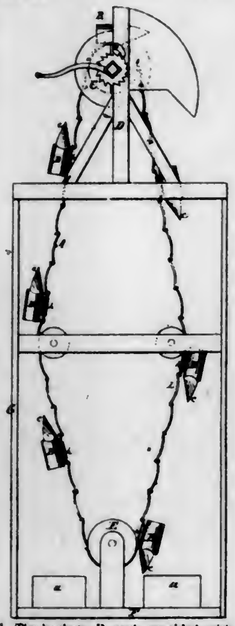
Brief.—The adjustable nozzle is held in position by the clamp and screw.



Adjustable nozzle B, having flange *b*, in combination with clamp C, clamping-screw C', and faucet-tube A, substantially as and for the purpose set forth.

189,761. WATER-ELEVATORS. Christian H. Lykke, Grand Island, Nebr. [Filed Feb. 24, 1877.]

Brief.—The buckets are each provided with loops on the back, through which the links are passed for the purpose of securing the buckets to the chain. A weighted platform in the bottom of the well serves to hold the chain taut.



1. The buckets B, each provided with the transverse loop *b*, in combination with the detachable link-chain, as shown and described.

2. In combination with the bucket-chain and shaft E, the stand F, provided with boxes *a* to receive weights, as and for the purpose specified.

189,762. TEA AND COFFEE POTS. Edward B. Manning, New Haven, Conn. [Filed Nov. 6, 1876.]



1. In tea and coffee pots constructed from sheet metal, coated with a vitreous material, a metallic tip, inclosing the outer end of the spout, substantially as described.

2. In tea and coffee pots constructed from sheet metal, coated with a vitreous material, a metallic tip, inclosing the outer end of the spout, and secured by a wire extending from the tip through the spout and turned onto the inside of the body, substantially as described.

3. In tea and coffee pots constructed from sheet metal, coated with a vitreous material, a metallic tip, inclosing the outer end of the spout, combined with a strainer over the inner end of the spout, and a wire connecting the said tip and strainer through the spout to secure both, substantially as described.

189,763. THREAD-CUTTERS. T. Massey, Philadelphia, Pa., assignor of one-half his right to E. V. Machette, Jr., Agent, same place. [Filed Feb. 27, 1877.]

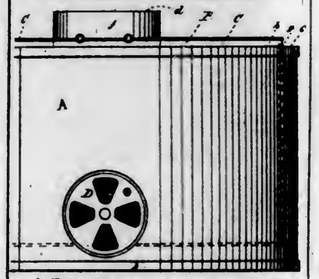


The thread-cutter herein described, consisting of the plate B, having clamping-ends *b b* and notched at *b'*, and adapted to be readily applied to, and removed from, a spool, substantially as and for the purpose set forth.

189,764. FLAVORING AERATED BEVERAGES. John Matthews, New York, N. Y. [Filed Apr. 4, 1877.]

The process herein described for flavoring carbonated beverages, which consists in charging the carbonated liquid with the essential oils, and then adding the syrup to sweeten them when bottled or otherwise drawn off, substantially as set forth.

189,765. WASH-BOILERS. Wm. McIlvain, Philadelphia, Pa. [Filed Mar. 6, 1877.]



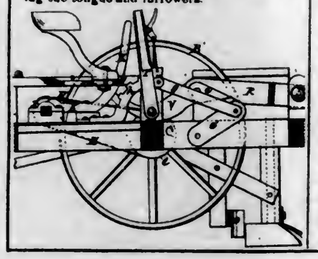
1. The case A, having openings *a*, *d*, and *g*, and a smoke collar, *f*, in combination with the boiler B and the top plate of a cooking-stove, the boiler being so arranged within the case as to form a space or flue between their bottoms and around the sides of the boiler, for the circulation of the products of combustion in their passage to the smoke-pipe, substantially in the manner and for the purpose set forth.

2. In combination with the case A and wash-boiler B, the register D, substantially in the manner and for the purpose set forth.

3. The combination of the register D with the case A, substantially in the manner and for the purposes set forth.

189,766. CORN-PLANTERS. H. Wm. Meyerhoff, Waverly, Iowa. [Filed Jan. 24, 1877.]

Brief.—To the rear end of the tongue is pivoted a curved extension, that passes between the seat-supports, to prevent lateral play. To the tongue and central beam are pivoted toggle-arms, that are connected to the lever by a link, for elevating or depressing the tongue and furrowers.



In a corn-planter, the combination of the frame and tongue pivoted on the upper side of the front bar thereof, the toggle-arms *e e'*, link *g*, pawl-lever T, rack-bar L, and the curved pivoted extension V of the tongue, working in guides, as shown and described, to operate as and for the purpose specified.

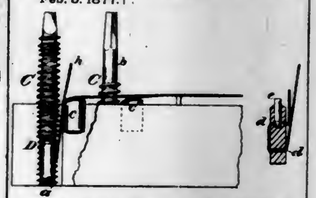
189,767. CLAMPS. J. G. Mole, Batavia, Ill. [Filed Feb. 9, 1877.]

Brief.—The upper jaw is longitudinally adjustable upon the main arm, and secured at any desired point by means of an upper flanged toe gearing into serrations upon the said arm.



The combination of the standard A, having serrations B and fixed arm C, provided with the threaded orifice *c*, with the set-screw D, and adjustable jaw F, all constructed to operate as shown and described, and for the purpose set forth.

189,768. DEVICES FOR STRINGING PIANOS. Gerry Morgan, Andover, N. H. [Filed Feb. 5, 1877.]



1. The tuning-screw C, having a portion, *b*, of its shaft between the threaded part and the wrench-shank adapted to enter the female screw *a* without injuring the threads of the same, when used substantially as and for the purposes set forth.

2. The tuning-screws C C, arranged in the frame A at right angles to the plane of the strings B B, in combination with string-heads D D, disconnected therefrom, but arranged to operate in connection therewith, substantially as herein set forth.

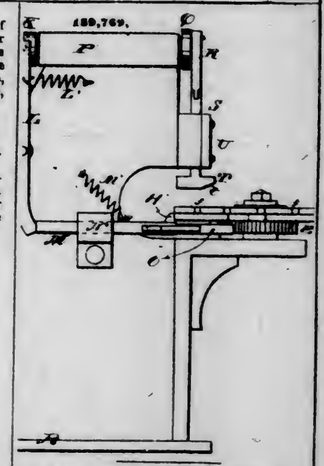
3. In combination with a tuning-screw engaging a female screw in the frame, a piano-string and a suitable head attached to the string, but unconnected with the tuning-screw, a glass saddle, *c*, for the string to rest upon, when all constructed and arranged substantially as herein set forth.

4. The head D, provided with a cross-hole, *d*, and a vertical or longitudinal hole in connection therewith, and a plunger, *e*, arranged to rest in the latter hole and to clamp the string, substantially as set forth.

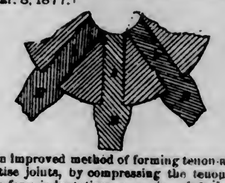
189,769. MACHINES FOR FINISHING HORSE-SHOE-NAILS. S. S. Mortimer and J. R. Robinson, Woonsocket, R. I. [Filed Feb. 10, 1877.]

The combination, with the ratchet-wheel E, having drum E' and stud *e*, and the blank-carrying disk F, having recesses *f* and perforation *a*, of the sliding bar M, pawl O, lever L, cam-faced collar K, driving-shaft I, sleeve P, crank-wheel Q, pitman R, plunger S, springs *l' m'*, and former T, substantially as described, and for the purpose set forth.

189,769.

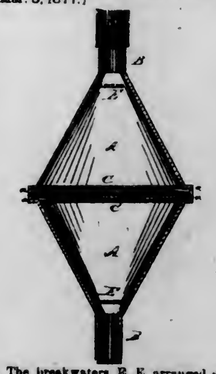


189,770. TENON-AND-MORTISE JOINTS. W. F. Norton, New Haven, Conn. [Filed Mar. 8, 1877.]



An improved method of forming tenon-and-mortise joints, by compressing the tenon so as to form indentations upon its surface, before insertion within its mortise, substantially as and for the purpose specified.

189,771. WATER-FILTERS. C. C. Morgan, Cincinnati, Ohio, assignor to himself, J. Heyl, and V. Heyl, same place. [Filed Mar. 3, 1877.]

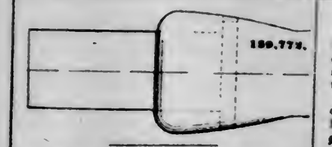


1. The breakwaters E E, arranged within the filtering-case A A, for the purposes herein set forth.

2. The combination of the case A A with tubes B B, the perforated diaphragm C C, pad D *d*, and breakwaters E E, all substantially as and for the purposes herein set forth.

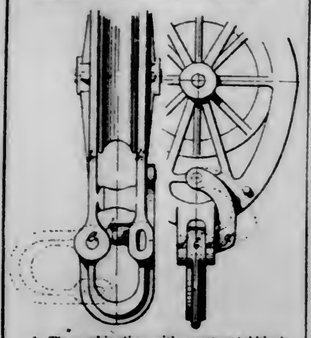
189,772. MILL-PICKS. J. Norman, Springfield, Mo. [Filed Nov. 2, 1876.]

In a millstone-pick, the stock enlarged about the blade-socket, which tapers gradually from said enlargement, as shown, and is provided with key-seat and key B at one side, the whole being arranged so that the blade shall have a square or unbroken bearing at top, and be held in place by the said key, in the manner and for the purposes herein before explained.



189,772.

189,773. TACKLE-BLOCKS. J. W. Norcross, Boston, Mass. [Filed Dec. 9, 1876.]



1. The combination, with a cast-metal block, of the hinged loop E, arranged to be secured to both sides of the block-frame, substantially as and for the purpose described.

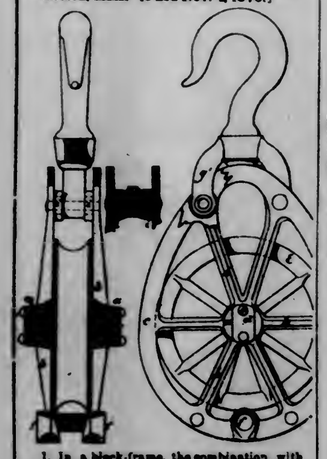
2. The combination, with a cast-metal block-frame, of the hinged loop E and locking-hook *f*, substantially as and for the purpose specified.

3. In a cast-metal block, the combination, with the locking hook or bolt, of the spring-pressed bolt *g*, substantially as and for the purpose set forth.

4. In a cast-metal snatch-block, the axle K, provided with shoulders, and arranged to support the cast-metal sides, substantially as and for the purpose described.

5. A cast-metal snatch-block, in which one of the side frames is provided with an eye and a staple, and the other with a hinged portion arranged to be locked by a hook, substantially as and for the purpose specified.

189,774. TACKLE-BLOCKS. J. W. Norcross, Boston, Mass. [Filed Nov. 4, 1876.]



1. In a block-frame, the combination, with the central hub *a*, of the radial arms *b b*, tapering from the hub toward the rim, and the rim *c*, arranged substantially as and for the purpose described.

2. The combination, with the open cast-metal block-frame *a b c*, of the becket-holes *f f*, arranged in the sides of the frame, substantially as described.

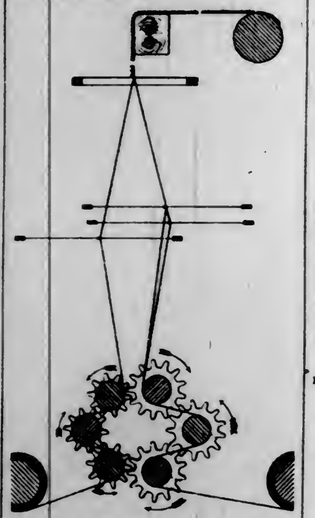
3. The combination, with the open cast-metal block-frame, substantially as described, of the stirrup *g'*, arranged for a single block, and secured within the bosses *i i*, substantially as described.

4. The combination, with the partition-frame of the double block, of the square recessed bosses arranged so as to maintain the stirrup *g* in its proper position, and also relieve the pin, bolt, or rivet from part of the strain, as described.

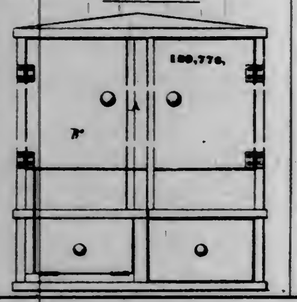
5. A block consisting of the sheave E, one or more of them, the sides or frames having an egg-shaped outline and rim, and radial arms connecting the central hub with the rim, and arranged so that all the strain exerted on the sheave is distributed substantially as described, so as to secure great strength with the least material.

189,775. WARP-REGULATORS. W. Ooth-out, Brooklyn, E. D., N. Y., assignor to himself and G. L. Kelty, same place. [Filed Feb. 14, 1877.]

Brief.—The rollers of the figure or pile warps are geared together, as well as the rollers of the ground-warps, and the two sets of gears are also connected. The gears of the figure or pile rollers are provided with a less number of teeth than the gears of the other set of rollers, in order that the pile-warps may be let off faster than the ground-warps. The ordinary mechanism for operating the let-off may be connected to the shaft of one of the rollers.



In a warp-regulator, the combination of two groups of rollers, one for the surface-warps, and the other for the foundation or back warps, and differential gearing for connecting the rollers and determining the relative speeds of movement of the warps, substantially as set forth.

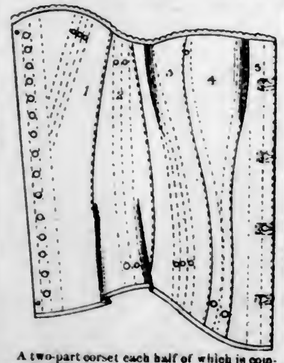


189,776.

189,776. WARDROBE-BEDSTEADS. C. Pabst, Philadelphia, Pa. [Filed Dec. 13, 1876.]

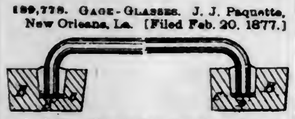
As a new article of manufacture a wardrobe bedstead, consisting of the partitioned case A and the longitudinally-folding bedstead F G, provided with folding supports I, filling-piece M, and weighted end L, adapted to fold within the compartment B, as set forth.

189,777. CORSETS. L. A. Palmer, Boston, Mass., assignor of one-half his right to C. A. House, same place. [Filed Feb. 1, 1877.]



A two-part corset each half of which is composed of the pieces 1, 2, 3, 4, and 5, each piece being cut in the form described and shown, for the purposes set forth.

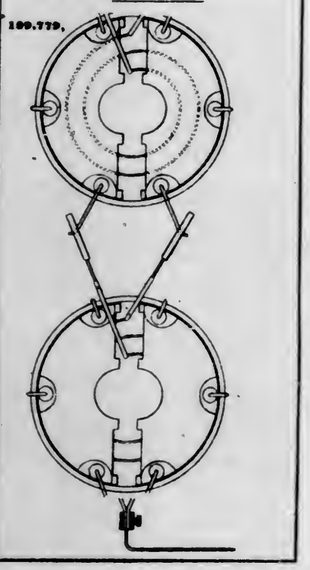
189,778. GAGE-GLASSES. J. J. Paquette, New Orleans, La. [Filed Feb. 20, 1877.]



1. A gage-glass having a cast-metal joint, substantially as described.

2. The method herein described of forming gage-glasses, the same consisting in heating the glass, placing it within a heated mold, and casting molten metal around the glass, substantially as described.

189,779.

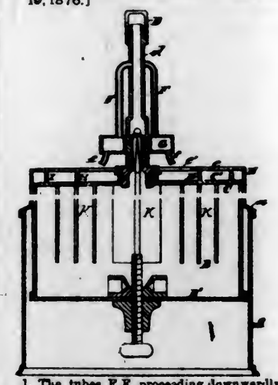


189,779. GALVANIC BATTERIES. Myron W. Parrish, Jackson, Mich. [Filed Jan. 11, 1877.]

1. In a galvanic battery composed of several cells, the combination of a double connection with the positive element of one cell and the negative element of the succeeding cell, substantially as and for the purpose shown and described.

2. The combination, with the jar of a galvanic battery and with the positive element contained therein, of a negative element made in two sections, substantially as and for the purpose set forth.

189,780. HYDROCARBON-GAS LAMPS. R. W. Park, Philadelphia, Pa. [Filed Sept. 19, 1876.]



1. The tubes F F, proceeding downwardly from the burner-stem, and serving to conduct gas to form jets for heating the top of the fount or reservoir, in combination with the fount located below said burner, substantially as set forth.

2. In combination with the downwardly-extending gas-tubes F F, the expansion-chamber G, having the exits *f f* for the issuance of jets for heating the top C, substantially as shown and described.

3. In combination with the tubes F F and the fount B, having the top C, the ribs H H, for receiving the impingement of the gas heating-jets, substantially as shown and described.

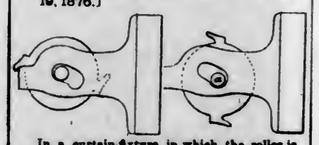
4. The hydrocarbon gas-lamp fount, having a top, C, constructed substantially as described, to form a trough or pan for the reception of liquid, as and for the purpose set forth.

5. In combination with the fount B and heating-tubes F F, the cap E, forming a chamber, C', substantially as and for the purpose specified.

6. In combination with the fount B, the heating-pendants K K, hanging from the top C, or passing through the latter, substantially as shown and described.

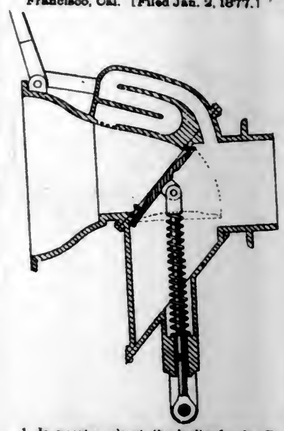
7. A hydrocarbon-vapor apparatus, having a burner provided with jet-apertures, and a reservoir arranged in relation thereto, substantially as shown and described, so that the jets shall heat the top thereof either directly or through the ribs H H or cap C', as and for the purpose specified.

189,781. SPRING SHADE-FIXTURES. Phineas W. Phillips, Salem, Mass. [Filed July 19, 1876.]



In a curtain-fixture in which the roller is provided with an internal spring for automatically winding up the shade, the combination therewith of a support for the roller in its bracket, and a clutch constructed in parts, arranged in relation to the roller and its supports, the said roller being adapted to move to and fro on its supports, substantially as set forth, whereby the clutch is disengaged by a downward pull of the shade against the spring in the roller and engaged by the action of the said spring, as set forth.

189,782. WATER-CLOSETS. F. Pohley, San Francisco, Cal. [Filed Jan. 2, 1877.]



1. In a water-closet, the inclined valve D, mounted upon the horizontally-moving stem F, said stem being provided with the guides H, and the operating-spring I for closing the valve, substantially as herein described.

2. In combination with the inclined valve D, with its stem F and spring I, the operating-lever K M and the connecting-rods J, substantially as herein described.

3. The lever K M, for operating the valve D by means of the stem F and rods J, said lever having a supplemental arm, N, to simultaneously open a valve in the water-supply pipe O, substantially as herein described.

4. In combination with the pipe B of a hermetically-closed water-closet, the overflow P and the trap Q, with its partitions R, the whole constructed and operating substantially as herein described.

189,783. PARLOR-SKATES. John W. Post, New York, N. Y. [Filed Apr. 4, 1877.]



1. The lateral strengthening-ribs, formed on the foot-supporting plate by the downwardly-projecting flange or flanges along the forward part of the plate, and the upwardly-projecting flanges along the rear part of the same, substantially as described.

2. The combination, with the heel-clamp and engaging-screw, of the independent fulcrum-plate, the latter having notched sides engaging with the double rack-side of the foot-supporting-plate slot, in which it is longitudinally adjustable, substantially as described.

3. The downwardly turned flange or flanges, in combination with the sole-clamp plates, the latter having grooved faces, in which the flanges are seated, so as to secure the clamps against transverse displacement, while the same are adjustable by an ordinary stud-and-slot engagement, substantially as described.

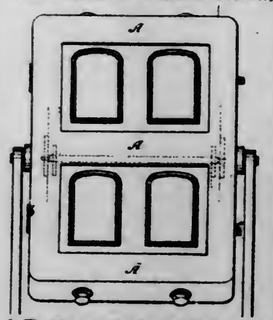
4. The front standard, formed of a metallic piece directly secured to the main plate, and having the bifurcated arms extremity, in combination with a roller-axle, the latter seating in a rocking bearing between the said bifurcated arms, and connected thereto by a single engaging-pin, the said standard having elastic cushions or springs on either side of its pivotal center, on which the axle directly bears, substantially as described.

5. The combination of the rear standard and the foot-supporting plate, the two connected by the countersunk wall of the annular slot seating in the globular bearing of the standard, the said standard carrying the U-formed lever-arm, upon the free extremity of which the guiding-stem has a sleeve bearing as it rotates, in its fixed socket, substantially as described.

6. A skate-roller the rim of which is made of one continuous piece of metal, and the spokes of which are made tubular, substantially as described.

7. The combination, with a skate-roller, of the inner tapering axle-shoulder and the loose outer conical sleeve, whereby lost wear is taken up by the tightening of the ordinary washer-nut, in connection with an oscillating axle pivoted to the standards of a roller-skate, arranged to operate substantially as described.

189,784. PICTURE-EXHIBITORS. F. Prince, Patchara, England. [Filed Feb. 20, 1877.]



1. The case A, in combination with the rod *f* and pieces C C, working in a slot, *m*, substantially as described, so that, upon turning the case A over, the mounts or cards D may change one after the other, as specified.

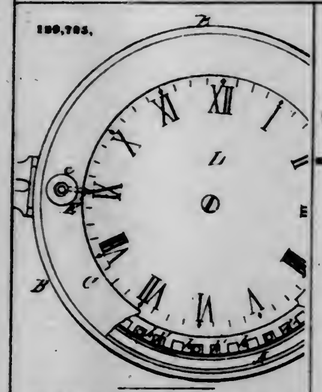
2. The cards or mounts D, with thickness-pieces *g g*, for the purposes set forth, substantially as described and represented.

189,785. WATCHMEN'S TIME-DETECTORS. Joseph A. J. Redier, Paris, France. [Filed Feb. 1, 1877.]

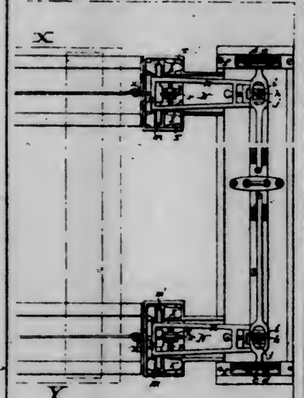
1. In a watchman's time-detector, a wheel, H, recessed in the center to receive the dial, and having its periphery toothed and provided with an annular flanged plate to form a series of revolving receptacles or chambers, substantially as described, for the purpose specified.

2. The main arbor of a clock-movement, the wheel H having a series of chambers formed around its periphery, and a recess for the reception of the dial, the dial L, Nd B, having a flange or rim C, provided with a perforation or aperture, *a*, and a stationary hand affixed to said flange C, all combined, constructed, and operating substantially as described, for the purpose specified.

189,785.



189,786. PLATFORM-SCALES. I. Rigdon, Cincinnati, Ohio. [Filed Aug. 21, 1876.]



1. The combination of the vertical multiplying-lever No. 1 and the multiplying and equalising lever No. 2, substantially as and for the purposes set forth.

2. The combination of the vertical multiplying-lever No. 1, and the multiplying and equalising lever No. 2, and the horizontal multiplying-lever No. 3, substantially as and for the purposes specified.

3. The multiplying-lever No. 1, made open or hollow for the reception of pivot and pivot-bearing, whereby the double loop S r is supported.

4. The multiplying and equalising lever No. 2, made open or hollow for the reception of pivot and pivot-bearing, whereby the double loop S r is supported.

5. The combination of the seat R, provided with guiding-studs T T, and the bearing l, substantially as and for the purposes set forth.

6. The box N or Q, provided with seats R and guiding-studs T T, for the reception and maintenance of the bearing l, substantially as and for the purposes set forth.

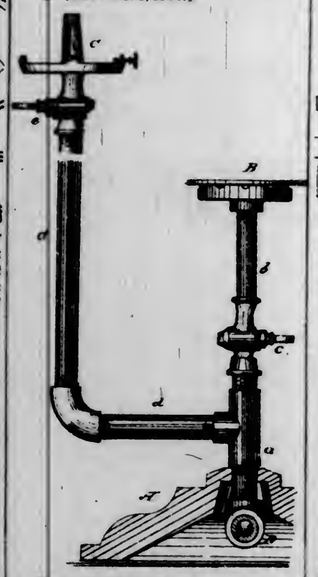
7. The combination of the multiplying-lever No. 1, and the multiplying and equalising lever No. 2, and the cross-piece J, substantially as and for the purposes specified.

8. The double loop S r, in combination with the loose bearing resting upon the multiplying-lever No. 1, or the multiplying and equalising lever No. 2, as and for the purposes set forth.

9. The arrangement of the platform within the frame cross-pieces J, and within the suspension-loops, substantially as and for the purposes set forth.

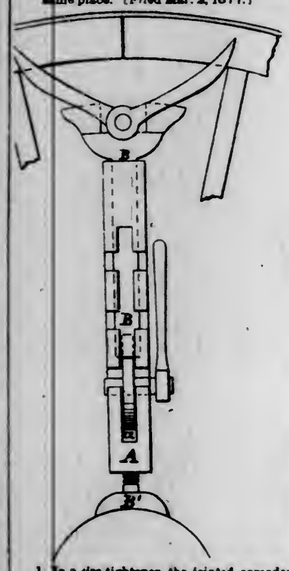
10. The combination of the box N or Q and the sill of the platform, the box being mortised or sunk in the said sill, so that the top of the box is flush with the top of the sill, substantially as and for the purposes set forth.

189,787. NURSERY GAS AND HEATING STOVES. S. Rothschild, Jr., Brooklyn, N. Y. [Filed Jan. 2, 1877.]



The combined heater or stove and burner, consisting of the base A, pipes a and d, heater B, burner C, detachable pipe b, and turn cocks c and e, substantially as and for the purpose set forth.

189,788. TIRE-TIGHTENERS. W. F. Rowe, Lyons, Iowa, assignor to E. S. Gibbs, same place. [Filed Mar. 2, 1877.]



1. In a tire-tightener, the jointed spreader B, substantially as and for the purposes described.

2. The spoke-drawing devices, consisting of the slip G and rod K, in combination with the standard A, follower B, and cam C, substantially as described.

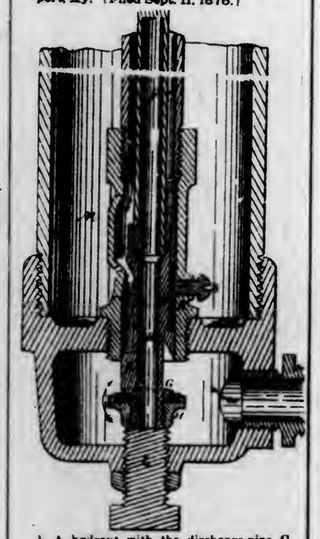
189,789. FIRE-BARS FOR FURNACES. E. Rowland and G. E. Rowland, Manchester, assignors of one-half their right to Robt. Harlow, Heaton-Norris, England. [Filed Sept. 20, 1876.]

Brief.—The oscillating bars are journaled on projections cast upon the sides of the stationary bars, and operated by link-and-lever mechanism.



The combination of the bell-crank shaped oscillating fire-bars *b b* with the ordinary fixed fire-bars, carrying gauge C C, when mounted, operated, and arranged substantially as and for the purpose described.

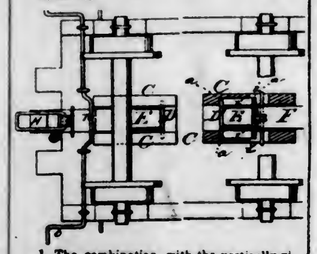
189,790. HYDRANTS. Jos. K. Rugg, Newport, Ky. [Filed Sept. 11, 1876.]



1. A hydrant with the discharge-pipe C, valve-stem E, and annular plug or deflector O, arranged in relation to each other in such manner as to deflect the water to the side or sides of the discharge-pipe, as set forth.

2. The hollow valve-rod F, and valve-stem E, forming an air-chamber to cushion the valve G in closing against the pressure of the water, substantially as set forth.

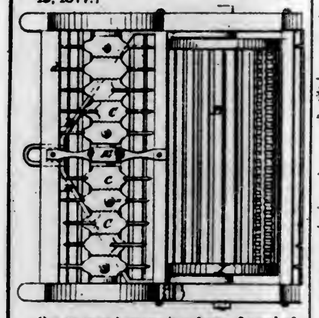
189,791. CAR-COUPLINGS. A. C. Rumble, Lima, Ohio, assignor of one-half his right to C. B. Phinney, same place. [Filed Mar. 3, 1877.]



1. The combination, with the vertically-vibrating barbed draw-bar F, of the blocks C, having slots *i*, the draw-spring E, compressor-plates D D', draw-rod *d*, and pin *e*, entering said slots and connecting-rod *b* and draw-bar F, substantially as specified.

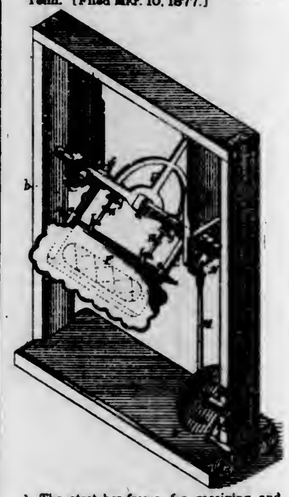
2. The combination, with a vertically-vibrating endwise-movable draw-head, of the draw-spring E, the rearwardly-movable compressor-plate D, the forwardly-movable plate D', the cheek-blocks C C, having grooves *f f* and slots *i i*, and the connecting-rod *b*, substantially as specified.

189,792. HARROW-CULTIVATORS. A. Saur and J. Wilson, Franklin, Ind. [Filed Feb. 19, 1877.]



One or more harrows in a frame, formed of a series of collars, C C, having serrated faces, and arranged upon a shaft, said collars being provided with teeth *d d*, as and for the purpose set forth.

189,793. FANS. J. G. Schmidt, Memphis, Tenn. [Filed Mar. 10, 1877.]



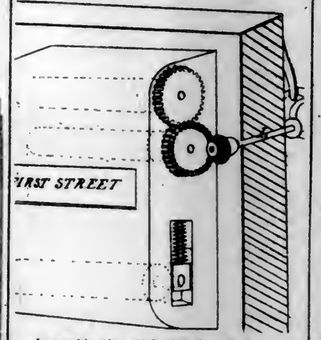
1. The stretcher-frame for receiving and sustaining the fan F, consisting of the arms C secured radially upon the shaft A, the rod D having its ends *d* contained within the outer ends of said shaft, and the bar E provided with the sleeves *e* extending between and encircling said shaft, and provided with the set-screws *e'*, said parts being combined with each other and with said fan, substantially as specified.

2. In combination with the shaft A, bar E, and fan F, the loops G, nuts *g*, rods H, and hooks I, substantially as and for the purpose shown.

3. In combination with the fan F and its supporting-frame, the balls O secured upon the radial arms of the frame P, and said frame attached to or upon the shaft A, substantially as and for the purpose set forth.

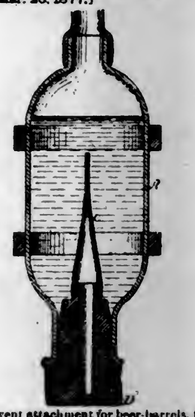
4. The hereinbefore-described device, in which the shaft A, stretcher-frame C, D, *d*, E, and *e*, the fan F, the stretcher-rods G, *g*, H, and I, the shaft K, disk L, crank-pin l, connecting-bar M, and crank N are constructed and combined to operate in the manner and for the purpose substantially as shown and described.

189,794. STATION-INDICATORS. John P. Schmitz, San Francisco, Cal. [Filed Feb. 12, 1877.]



In combination with the slotted case, the apron bearing the names of streets or stations, the rollers, meshing-gears, notched wheel, and spring-stop, as and for the purpose specified.

189,795. VENT ATTACHMENTS FOR BEER-BARRELS. Fridrich Schultz, Chicago, Ill. [Filed Mar. 26, 1877.]

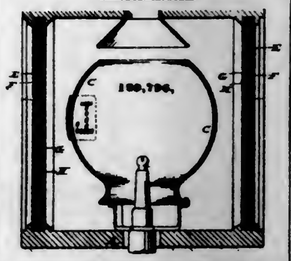


1. In a vent attachment for beer-barrels, the bulb A, in combination with the perforated stopper B, substantially as and for the purpose set forth.

2. In a vent attachment for beer-barrels, the perforated stopper B, in combination with the tube C and bulb A, substantially as and for the purpose set forth.

3. In a vent attachment for beer-barrels, the perforated stopper B and perforated cap D, in combination with the bulb A, substantially as and for the purpose set forth.

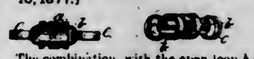
4. In a vent attachment for beer-barrels, the perforated stopper B, provided with the tube C, in combination with the bulb A, provided with the cap D, all constructed to operate substantially as and for the purpose set forth.



189,796. ILLUMINATING-SIGNS. Chas. H. Seawell, St. Louis, Mo. [Filed Feb. 13, 1877.]

The illuminating-sign having the combination in its face or faces of the outer transparent pane E, the lettered and perforated plate F, the semi-transparent pane or plate G, and inner transparent pane H, substantially as set forth.

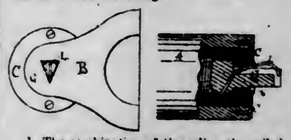
189,797. ORNAMENTAL CHAIN-LINKS. H. F. Seery, Providence, R. I. [Filed Feb. 10, 1877.]



The combination, with the open loop *b* and connecting-rings *c c*, of the sleeve *a*, made in a single piece, substantially as and for the purpose set forth.

189,798. CURTAIN-FIXTURES. Al B. Shaw, Medford, assignor to A. B. Russell, D. Low, and J. F. Almy, Salem, Mass. [Filed Dec. 9, 1876.]

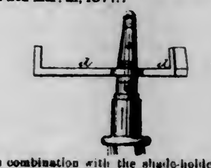
Brief.—A locking-spring is attached to the spindle, and arranged to enter notches in the roller-cap, when the roller is removed from the bracket, so as to prevent the spring in the roller from uncoiling.



1. The combination of the roller, the coiled spring, the notched cap, the grooved spindle, and the spring-lock, substantially as specified.

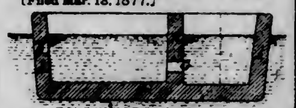
2. The combination of the roller, the coiled spring, the notched cap, the grooved spindle, the spring-lock, and the bracket, substantially as specified.

189,799. SHADE-HOLDERS AND GAS-BURNERS. F. S. Shirley, New Bedford, Mass. [Filed Mar. 21, 1877.]



In combination with the shade-holder *d*, a gas-burner that is made in two parts, *a c*, the holder being fastened to one of the said parts, so as to cause it to turn around, and thereby control the flow of gas, substantially as shown and described.

189,800. MANUFACTURE OF GLASS. Frederick Siemens, Dresden, German Empire. [Filed Mar. 13, 1877.]

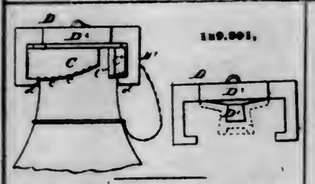


In an apparatus for continuously fining and working out glass from glass-tank furnaces or pots, consisting of a boat or vessel adapted to float in the molten glass, said boat being provided at one end with apertures, through which the glass flows from a point just below its level in the tank, the partition between the two compartments being provided with holes near its bottom, from which the glass flows to the final compartment, substantially as and for the purpose specified.

189,801. BOTTLE-STOPPERS. Jos. Slim, Lockport, N. Y. [Filed Feb. 24, 1877.]

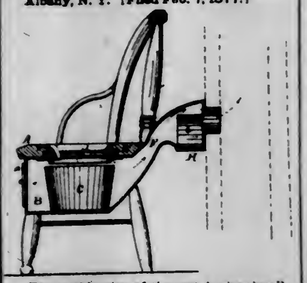
Brief.—When the clamp is turned in the proper direction, the depending plug expands the rubber stopper.

Clamp D, having plug D', in combination with tapering screw or rim-pieces C C, having corrugations *c c*, and a hollow rubber stopper, substantially as and for the purpose set forth.



189,801.

189,802. CHAMBER-CLOSETS. B. Smith, Albany, N. Y. [Filed Feb. 7, 1877.]



The combination of the seat A, chamber B, flue F, and heating-chamber H, as and for the purpose herein specified.

189,803. BURGLAR-ALARMS. W. J. Smith, Dayton, Ohio. [Filed Mar. 6, 1877.]

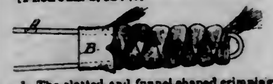


1. The herein-described combined burglar-alarm and window-catch, composed of the plate C, with its bearing-ears, and the spring-hammer D, with its nipple *c* pivoted thereto, when constructed as described, and operated by pins E, substantially as and for the purpose described.

2. The annulus *b*, in combination with the plate C and hammer D, as and for the purpose specified.

3. The combination, with the hammer of a burglar-alarm, of the adjustable and removable arm F, constructed and applied as shown, whereby the device may be applied to a door, as and for the purpose specified.

189,804. HAIR-CRIMPING PINS. Albert M. Smith, Brooklyn, assignor of one-half his right to James B. Colt, New York, N. Y. [Filed Jan. 8, 1877.]



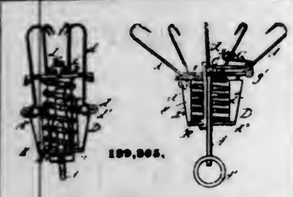
1. The slotted and funnel-shaped crimping-pin slide B, substantially as and for the purpose set forth.

2. In combination with the crimping-pin A, the slotted funnel-shaped slide B, substantially as and for the purpose set forth.

189,805. FISH AND OTHER TRAPS. Benj. F. Smith, Philadelphia, Pa., assignor of one-half his right to Wm. E. Bowman, same place. [Filed Aug. 16, 1876.]

1. The combination, with the pivoted hooks *d*, connected to a snapping-spring, of a suitable bait-holder, latch, and dog, which will retain said spring and hooks when the trap is set, substantially as described.

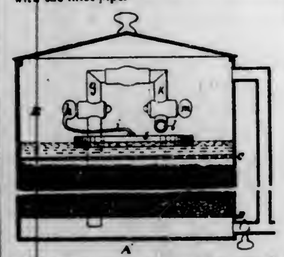
2. The combination of shank A, disk B, latch C, crown D, hooks *d d*, spring H, dog F, and bait-holder G, the several parts being constructed and arranged for operation substantially as shown and described.



189,805.

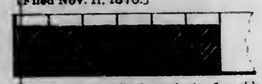
189,806. WATER-FILTERS. W. S. Snook, Oakland, Cal. [Filed Feb. 16, 1877.]

Brief.—The inlet-pipe passes through and supplies water underneath the filtering material. The filtered water is collected in a reservoir above the filtering material. When this receptacle is full, the supply of water is stopped by means of a float-valve connected with the inlet-pipe.



The open-top vessel A, provided with the chamber I below the body of filtering material, and a reservoir or chamber, E, above it, and having the water-pipe *g* arranged to pass vertically down through the chamber E and filtering material, so as to deliver the water below the filtering material, in combination with the cock *h*, rod *i*, and float J, substantially as and for the purpose above specified.

189,807. METHODS OF PUTTING UP CONFECTIONERY. H. H. Snow, New Haven, Conn. [Filed Nov. 11, 1876.]



The herein-described method of packing caramels and like confectionery, consisting of the interposition between adjoining pieces of slips having a wax surface, and forming individual compartments for each article, substantially as described.

189,808.

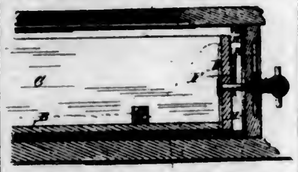


189,809. TOY DANCERS. Benjn. F. Spayd, Philadelphia, Pa. [Filed Nov. 17, 1876.]

The combination of the base D and the bent wire rod *a* and its handle with the figure A and the rod B, the lower end of which is bent to embrace the said rod *a*, as described.

189,809. BURIAL-CASKETS. C. F. Spencer, Rochester, N. Y. [Filed Mar. 29, 1877.]

Brief.—The coffin opens at one end, and a folding cooling-board has its head-piece removably secured to the said end.



1. The combination, with a coffin having an open end, as described, of the dead-board B, constructed with hinged sides C, and having the pivoted pawls F, adapted to recesses in the coffin-body, for confining the dead-board in position, substantially as described.

2. In combination with the dead-board, adapted to be secured in the casket, as described, the cover and screw-bolt for confining the same against the open end of the casket, for the purpose of hermetically closing the casket, substantially as set forth.

189,810. EXTENSION-TABLES. J. E. Spraker, Homer, Ill. [Filed Mar. 1, 1877.]

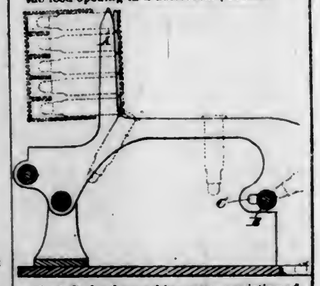


1. The combination of the L-shaped end slides A B and the central supporting-slide C, having grooves *a a* to receive the said end slides, and the lower sides of which are extended, substantially as and for the purpose described.

2. The combination of stops or rails D D and grooves *c c*, having counter-stops *d*, with L-shaped end slides A B and the central supporting-slide C, substantially as and for the purpose described.

189,811. FENDERS FOR MACHINE-GUNS. J. P. Taylor, Carter Depot, Tenn. [Filed Apr. 4, 1877.]

Brief.—When the cartridges are placed upon the bars or grate, the bullet ends drop through the spaces, and they are suspended by their flanges. A cross-bar arranged at a suitable distance from the inclined end catches the bullet ends as they are fed along, and trips them, so that they are delivered to the feed-opening in a horizontal position.



1. A feeder for machine-guns, consisting of a series of parallel bars, with spaces, as shown and described, for the automatic arranging or

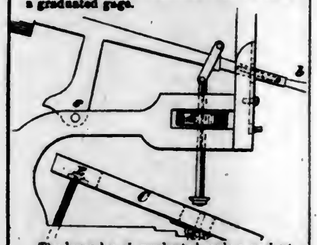
assembling of the cartridges, with their points in corresponding position, preliminary to their introduction into the breech or charge-chamber.

2. The blades A', constructed and arranged substantially as described, for drawing cartridges by their flanges from cases in which they are packed.

3. The trips B, placed at such a point as to operate in combination with the blades or bars, substantially as and for the purposes set forth.

189,812. MOLDING-MACHINES. Albert W. Stoenmeister, Cincinnati, Ohio, assignor to himself and F. W. Kamping. [Filed Aug. 26, 1876.]

Brief.—The cutter can be readily brought to or from the work, and its relative position to the hinged table accurately ascertained by a graduated gage.



The lever *b a d*, graduated scale *e*, and adjustable notched gage *f*, in combination with a hinged table, C, as and for the purpose specified.

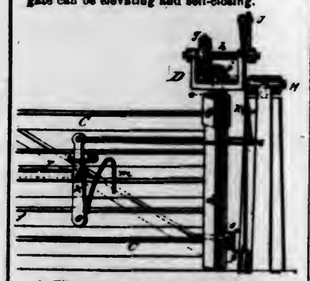
189,813. WRITING-FLUIDS. J. M. Taylor, Indiana, Pa. [Filed Jan. 10, 1877.]

Brief.—A permanent or indelible writing-fluid, consisting of a solution of non-resinous gum or glue and liquid silicate of soda or potash.

In a permanent or indelible writing fluid or ink, the composition consisting of a solution of non-resinous gum or glue and liquid silicate of soda or potash, substantially in the proportion herein described.

189,814. GATES. G. J. Tinsley, Kane, Ill. [Filed Feb. 8, 1877.]

Brief.—The gears that serve to swing the gate are held in a rocking bracket, so that the gate can be elevating and self-closing.



1. The combination of the bracket D, shaft A, gears *g i*, shaft H, lever *j*, and the gate C, as set forth.

2. A gate, C, having lower hinge *o p*, in combination with a bracket, D, having a turning-shaft, H, and suitable gears *g i*, as set forth.

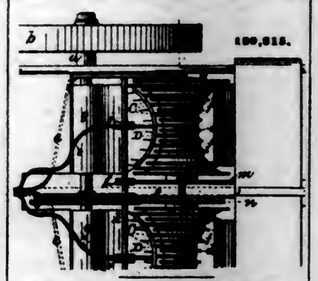
189,815. COTTON-PICKERS. James Tripp, Coldwater, Mich. [Filed Feb. 27, 1877.]

1. The recessed or concaved toothed cylinder B, having a series of circumferential grooves, in combination with the bowed fingers C C, the upper ends of which enter the said grooves, substantially as and for the purposes set forth.

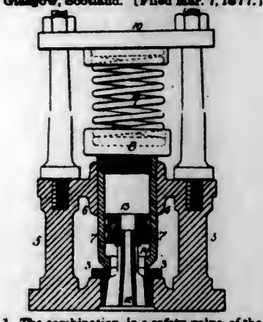
2. The rake D, connected by an eccentric or crank to a shaft, disposed contiguous to the cylinder B, substantially as and for the purpose set forth.

3. In combination with the picking-cylinder B, the fan or blower E, attached to a shaft arranged in proximity with the said cylinder, and driven by gearing, &c., substantially as and for the purpose set forth.

189,816.



189,816. SAFETY-VALVES. Alex. Turnbull, Glasgow, Scotland. [Filed Mar. 7, 1877.]

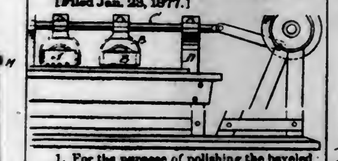


1. The combination, in a safety-valve, of the spring 9 and valve-seat 3 with the hollow valve 7, having the contraction 14 near the lower end, as and for the purpose described.

2. The combination of the valve-seat and the central tube 12 with the loaded hollow valves 7, having a contraction, 14, near the lower end, as specified.

3. The combination of the valve-seat and loaded hollow valve with the central tube 12 and the annular block 13, resting on, but unconnected with, the said tube, as set forth.

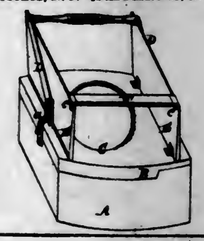
189,817. STONE AND GLASS POLISHING MACHINES. Alex. Vogsley, Brooklyn, N. Y. [Filed Jan. 23, 1877.]



1. For the purpose of polishing the beveled edges of glass plates, the combination of the loose polishers A A, the sliding shaft C, and the holders B B, substantially as shown and described.

2. The construction of the loose polishers A A or holders B B with oblique or beveled ends for the purpose of causing a diagonal lateral motion to be imparted to said polishers to avoid streaking the polished surface of the glass, substantially as shown and described.

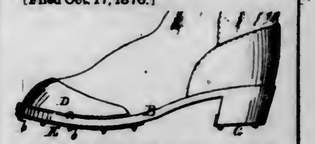
189,818. CHAMBER-CASES. G. Vorrath, Hoboken, N. J. [Filed Mar. 22, 1877.]



1. A chamber-case having a door for the introduction and removal of a chamber-pot, a seat, B, and a hinged bail or handle, D, substantially as and for the purpose described.

2. The combination, with the chamber-case A and its door and seat, of hinged trap-doors or covers E E, and a brace for holding said doors in an elevated position, substantially as and for the purpose described.

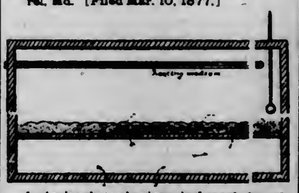
189,819. BOOTS AND SHOES. W. J. Watkins, Mahanoy City, Pa., assignor of one-half his right to Jos. Hughes, same place. [Filed Oct. 17, 1876.]



1. In combination with a boot or shoe, the brass tip D, with flange *c*, the bottom steel plate E, and rivets or screws passing through the sole and said metal parts, as and for the purposes herein set forth.

2. The horseshoe-shaped heel-plate G, formed of sheet metal, with the flange *h*, to extend across the breast of the heel, and provided with sprigs *d*, as and for the purposes herein set forth.

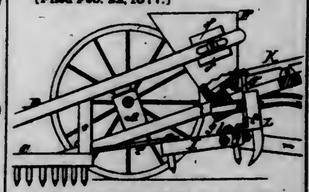
189,820. INCUBATORS. C. C. Weston, Laurel, Md. [Filed Mar. 10, 1877.]



1. An incubator having a bed consisting of a suitable non-conducting material, in which the eggs are partially embedded, substantially as described.

2. The process of artificial incubation herein described, the same consisting in submitting eggs to artificial heat, the lower portions of the eggs being protected from access of the heat, substantially as described.

189,821. COMBINED SEED-DRILL AND HARROW. T. J. Whitecar, Philadelphia, Pa. [Filed Feb. 22, 1877.]



1. In combination with the axle A and adjustable harrow-frame C, the bars D D, resting on said axle, and the handles E E, separate from the bars D D, and rigidly secured to the axle, and arranged, as described, for raising and lowering the harrow, substantially as set forth.

2. In combination with the frame C, the frame L, hinged thereto, and sustaining flukes L, substantially as shown and described.

3. In combination with the harrow-frame supporting-bars D D, the hopper F, secured to said bars by blocks *f*, forming ways or guides, permitting the detachment of said hopper by merely sliding it off, as set forth.

4. The seed-tubes G, formed with heads *g*, which operate as valves to close the openings in the hopper-bottom, substantially as described.

5. The hopper-bottom F', recessed at *g'*, to form seats for the heads or valves *g* on the seed-tubes G, substantially as shown and described.

6. The flukes L, bifurcated at their upper extremities, to form forks for the reception of the tubes G, substantially as shown and described.

7. The flukes L, formed in two parts, one part being vertically adjustable upon the other, substantially as set forth.

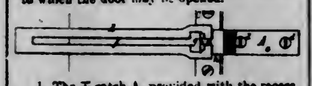
8. In combination with the tubes G, the frame I, supporting the flukes L, arranged and operating substantially as described, so as that when said frame is raised the said tubes will be swung out of registry with the seed-openings in the hopper and the flow of seed stopped.

9. In combination with a seeding-machine, the scraper M, formed of a strip or bar of corrugated metal, arranged for operation substantially as shown and described.

10. The rod k and lever K, in combination with the supplementary harrow-frame and the attached scraper and flukes, substantially as described.

190,892. DOOR-CHECKS. C. S. Whipple, New London, Conn., assignor to himself and G. W. Goddard, same place. [Filed Feb. 20, 1877.]

Brief.—As an improvement on Patent No. 185,466, December 19, 1876, the T-catch is hook-shaped, and not rotary, but so fastened to the door as to be immovable relatively thereto. The support-piece, in which the slotted arm is loosely pivoted or hinged, is provided with a back-stop. When the door is closed, the T-catch receives and laps on the slotted arm at right angles, the T-catch comes into engagement, and determines the extent to which the door may be opened.



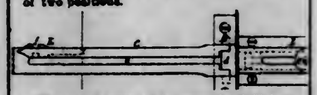
1. The T-catch A, provided with the recess *e*, arranged in it, as and for the purpose set forth.

2. The support-piece C, provided with the back-stop h, in combination with the slotted arm B, pivoted to such support-piece, and arranged with the said back-stop, as shown.

3. The combination of the T-catch A, provided with the recess *e*, with the slotted arm B and its pivotal support-piece C, provided with the back-stop *i* for such arm, all arranged, constructed, and operating substantially as described and shown, for the purpose specified.

190,893. DOOR-CHECKS. C. S. Whipple, New London, Conn., assignor to himself and G. W. Goddard, same place. [Filed Feb. 20, 1877.]

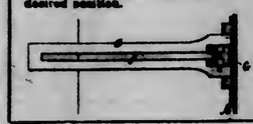
Brief.—As an improvement on Patent No. 185,466, December 19, 1876, instead of the rotary catch, a slide-bolt with T-shaped head engages with a suitable slotted arm, and there is provided a rotary latch with two notches, pivoted near the free end of the arm, which, when turned down upon the head of the T-catch, serves to hold the door open in either of two positions.



The combination of the rotary latch E, having notches *f g*, with the slotted arm C and the T-piece to operate therewith, substantially as set forth, and for the purpose specified.

190,894. DOOR-CHECKS. C. S. Whipple, New London, Conn., assignor to himself and G. W. Goddard, same place. [Filed Feb. 20, 1877.]

Brief.—As an improvement on Patent No. 185,466, December 19, 1876, in place of the rotary catch, an ordinary lock-case and beveled latch-bolt is constructed with a T catch, attached to and made part of the beveled latch, and this is combined with a peculiar catch-plate, having a lateral passage leading out of its bolt-receiving orifice; this compound latch-bolt, in its lock-case, operating as an ordinary beveled latch, until a suitable slotted arm is swung at right angles, and enters into engagement with its T-catch, to hold the door open within certain limits in desired position.



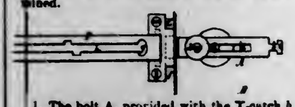
1. The beveled latch-bolt G, constructed with the T-shaped catch *c d*, attached to and made part thereof, and arranged therewith as set forth.

2. The latch-bolt catch-plate A, provided with the lateral passage *a*, leading out of its bolt-receiving orifice, as set forth.

3. The combination of the T-catch and the latch-bolt G, connected and arranged as described, the bolt catch-plate A, provided with the lateral opening *a*, and the slotted arm C, pivoted to such plate or the door-casing, all substantially as described and shown, for the purpose specified.

190,895. DOOR-CHECKS. C. S. Whipple, New London, Conn., assignor to himself and G. W. Goddard, same place. [Filed Feb. 20, 1877.]

Brief.—As an improvement on Patent No. 185,466, December 19, 1876, the place of the rotary catch is supplied by a T-headed rotating bolt, which is slotted longitudinally, and works upon a pivotal screw projecting from the door. This rotating bolt is combined with a slide-bolt receiver, and a slotted arm loosely hinged or pivoted thereto, and when the T-head is brought into engagement, the extent to which the door may be opened is determined.

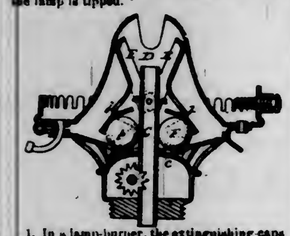


1. The bolt A, provided with the T-catch *b* and the pivotal slot *a*, arranged as set forth, for the purpose specified.

2. The combination of the slide-bolt receiver E, and the slotted arm F pivoted thereto, with the bolt A, provided with the T-catch *b c* and the pivotal slot *a*, and arranged on and so as to turn upon the pivot *e*, projecting from the door D, all substantially as described and shown, for the purpose specified.

190,896. AUTOMATIC LAMP-EXTINGUISHERS. Wm. T. Wood, Mount Juliet, Tenn. [Filed Dec. 16, 1876.]

Brief.—The balls located under the extension-guards operate the extinguisher when the lamp is tipped.



1. In a lamp-burner, the extinguishing-cups B, having the extension-guards *b* near the burner-floor, curved or bent laterally, to form, with the wick-tube, inclosures for the actuating-balls F, substantially as specified.

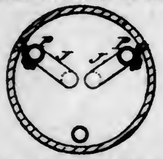
2. The combination of the double-branched lever G with the cups B, having pivot-arms *d* and the extension-guards *b*, said lever passing on each side of the wick-tube, and engaging under the pivot-arms, substantially as specified.

190,897. APPARATUS FOR CEMENTING RUBBER BOOTS AND SHOES. S. S. Woodford, Naugatuck, Conn. [Filed Jan. 20, 1877.]

In a machine for cementing portions of rubber boots or shoes, the combination, with a vertically-reciprocating shaft, arranged in suitable guides or slots, and a work-supporting table, of a pattern-plate attached to the end of the shaft, with its plane surface at right angles thereto, so that the cut stock may be held in position while the cement is applied to the marginal surface, all substantially as shown and described.

190,898. DAMPING-ROLLERS FOR LITHOGRAPHIC PRINTING. Wm. H. Woodcock, Williamsburg, N. Y. [Filed May 9, 1874.]

Brief.—Within the revolving tubular and perforated damping-roller are arranged stationary perforated feed-pipes and cloth wipers, which supply the water to the roller, and distribute it over the inner surface thereof.

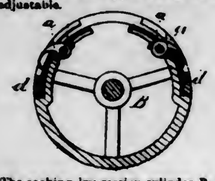


1. A revolving perforated damping-cylinder, E, in combination with stationary perforated pipes F and feed-pipes J, substantially as described.

2. Wipers *g* combined with stationary pipes F and revolving perforated damping-cylinder K, substantially as described.

190,899. PRINTING-PRESSES. William H. Woodcock, Williamsburg, N. Y. [Filed May 9, 1874.]

Brief.—The rocking impression-cylinder has removable sections, so that the extent of its surface may be adjusted to sheets of different sizes, and the nipper-shafts are laterally adjustable.

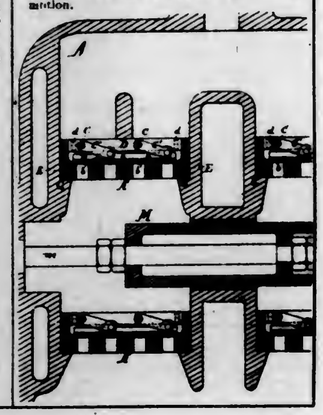


1. The rocking impression-cylinder B, having removable impression-sections *d*, applied to it for the purpose described.

2. The combination of adjustable gripers *e* with sections *d*, removably applied to the cylinder B, substantially as described.

190,900. PUMP-VALVES. W. H. Worthen, New York, N. Y. [Filed Mar. 20, 1877.]

Brief.—Gridiron valves rise and sink on a gridiron-seat, and are controlled in parallel motion.



1. The links O', turning on the fixed centers C, and guiding a gridiron-valve working to and from a gridiron-seat, as and for the purposes specified.

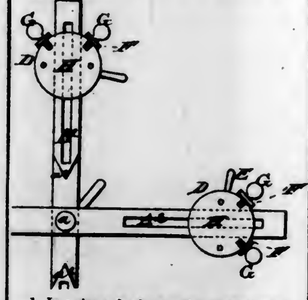
2. The links O' and shafts C in combination with the gridiron-valve B and with the bars D, performing the double functions of bearings and stops, as herein specified.

3. The deflectors *e* in the gridiron-seat between the bars *b* of a gridiron-valve, rising and sinking thereon, as herein specified.

4. The wedges E and soft-metal envelopes G, matched in recesses between a removable valve-seat and the body of a pump, as and for the purposes herein specified.

190,901. CLAMPS FOR MAKING FRAMES. J. Zimmerman, Brunswick, Mo. [Filed Nov. 4, 1876.]

Brief.—Picture-frames of different sizes can be clamped and firmly held, while drying, by means of two centrally-pivoted slotted and graduated arms, and four adjustable flanged metal disks provided with wooden shields, and having threaded bolts attached to their under side, which pass through the slots in the arms, and are secured in position by a clamping-lever.



1. In a clamp for frames, the centrally-pivoted slotted arms A A', in combination with the disks D, having flanges F F, and set-screws G G, said disks being adapted to slide in their slots, and also to be rotated on their axes, and held in any desired position, substantially as described.

2. In a clamp for frames, plate D, provided with screw-tapped flanges F F, and clamping thumb-screws G G, arranged and operating substantially as and for the purpose set forth.

REISSUES.

7,606. MEDICINE-GLASSES. T. G. Boggs, Philadelphia, Pa. Patent No. 86,208, dated Dec. 22, 1868. [Filed Mar. 23, 1869.]

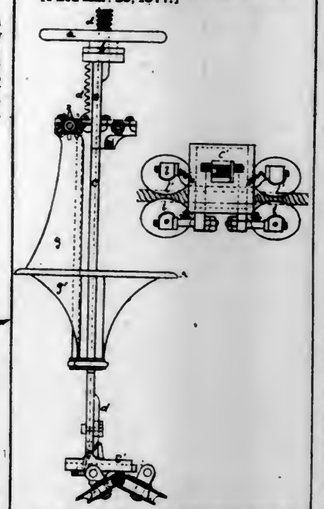


1. A cover for medicine-glasses, consisting of a plate of glass, or similar vitreous substance, roughened, by grinding or other analogous method, upon its top surface, so as to adapt said cover to be written upon, substantially as described.

2. A cover for medicine-glasses, having a ground or roughened surface, as herein described, and upon the same surface words and other markings, arranged substantially as and for the purpose specified.

3. The combination of the above with a graduated medicine-glass, for the purposes described.

7,607. GRIPING ATTACHMENTS FOR ROPEWAYS. A. S. Hallidie, San Francisco, Cal. Patent No. 129,120, dated July 16, 1872. [Filed Mar. 29, 1877.]



1. A griping device for connecting cars and other vehicles with an endless moving rope, consisting of griping jaws or pulleys attached to the lower end of a vertical shank, *c*, said jaws or pulleys being operated by means of suitable mechanism, substantially as above described.

2. A griping device for connecting cars and other vehicles with an endless moving rope, provided with pulleys *l l*, mounted at an angle to each other for the purpose of dropping and picking up the cable at pleasure, substantially as above described.

3. In a device for griping an endless-moving rope, and connecting said rope with a car or other vehicle, the pulleys *l l*, for holding the rope when the car stops its motion temporarily, in order to obviate the complete dropping of the rope, substantially as above specified.

4. The adjustable sliding stem or plate *c*, with its L-shaped foot or block, substantially as and for the purpose above described.

5. The spring-pulleys *l l*, when attached to the oppositely-operating slides *h* and *k*, for the purpose specified.

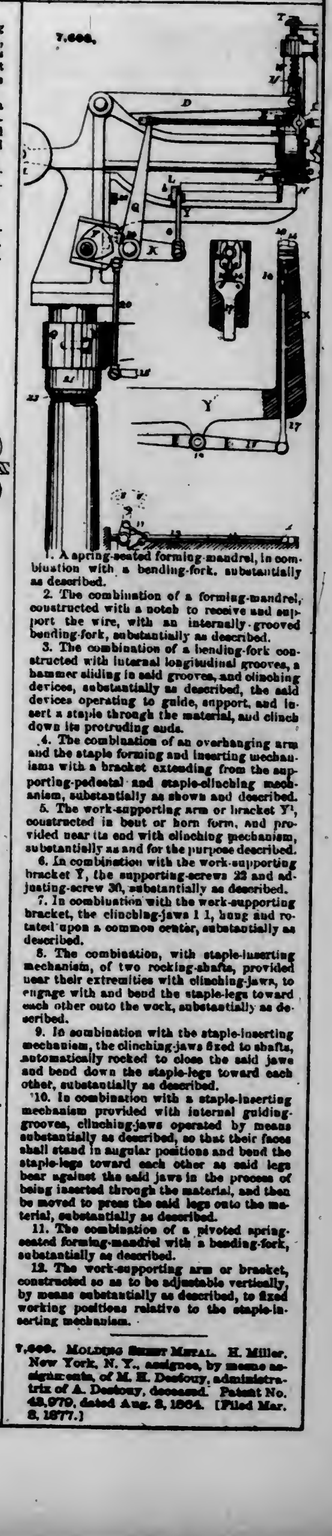
6. The jaws *h'* and *k'*, and pulleys *l l*, when secured to the oppositely-moving slides *h* and *k*, for the purpose specified.

7. The jaws *h'* and *k'*, when secured to the oppositely-moving slides *h* and *k*, for the purpose specified.

8. The sliding bar *d*, operated by the hand-wheel *e*, and having the wedge *f* secured at its lower end, in combination with the oppositely-moving slides *h* and *k*, substantially as and for the purpose above described.

9. Operating griping-jaws *h' k'*, and guide-pulleys *l l*, or either of them, from the deck of the vessel or floor of the vehicle, by means of the sliding rod *d* and wedge *f*, substantially as described, and for the purpose specified.

7,608. MACHINES FOR FORMING AND INSERTING WIRE STAPLES IN PAPER BOXES. H. R. Heyl, Philadelphia, Pa., assignor to the Novelty Paper Box Company. Patent No. 178,497, dated May 30, 1876. [Filed Sept. 26, 1876.]



1. A spring-seated forming-mandrel, in combination with a bending-fork, substantially as described.

2. The combination of a forming-mandrel, constructed with a notch to receive and support the wire, with an internally-grooved bending-fork, substantially as described.

3. The combination of a bending-fork constructed with internal longitudinal grooves, a hammer sliding in said grooves, and clinching devices, substantially as described, the said devices operating to guide, support, and insert a staple through the material, and clinch down its protruding ends.

4. The combination of an overhanging arm and the staple forming and inserting mechanisms with a bracket extending from the supporting-pedestal and staple-clinching mechanism, substantially as shown and described.

5. The work-supporting arm or bracket Y', constructed in bent or horn form, and provided near its end with clinching mechanism, substantially as and for the purpose described.

6. In combination with the work-supporting bracket Y, the supporting-screws 22 and adjusting-screw 30, substantially as described.

7. In combination with the work-supporting bracket, the clinching-jaws 1 1, hung and rotated upon a common center, substantially as described.

8. The combination, with staple-inserting mechanism, of two rocking-shafts, provided near their extremities with clinching-jaws, to engage with and bend the staple-legs toward each other onto the work, substantially as described.

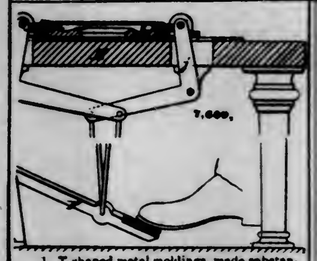
9. In combination with the staple-inserting mechanism, the clinching-jaws fixed to shafts, automatically rocked to close the said jaws and bend down the staple-legs toward each other, substantially as described.

10. In combination with a staple-inserting mechanism provided with internal guiding-grooves, clinching-jaws operated by means substantially as described, so that their faces shall stand in angular positions and bend the staple-legs toward each other as said legs bear against the said jaws in the process of being inserted through the material, and then be moved to press the said legs onto the material, substantially as described.

11. The combination of a pivoted spring-seated forming-mandrel with a bending-fork, substantially as described.

12. The work-supporting arm or bracket, constructed so as to be adjustable vertically, by means substantially as described, to fixed working positions relative to the staple-inserting mechanism.

7,609. MOLDING SHEET METAL. H. Miller, New York, N. Y., assignee, by mesne assignments, of M. H. Desfouy, administratrix of A. Desfouy, deceased. Patent No. 43,979, dated Aug. 2, 1864. [Filed Mar. 8, 1877.]



7,609.

1. T-shaped metal moldings, made substantially as and for the purpose specified.

2. The jaws B or D D', either straight or carved, and tool C, constructed and operating substantially as herein set forth, for the purpose of imparting to the moldings the dual touch, before they are applied to the article to be ornamented.

3. The combination, with a table having a stationary jaw or anvil, of movable jaws, operating as shown and described, to compress the bent metal against said stationary jaw.

4. The combination, with a table having a stationary jaw or anvil and movable jaws, as described, of treadles connected with said movable jaws by levers, substantially as and for the purposes herein set forth.

7,610. REVOLVING FIRE-ARMS. D. Moore, Brooklyn, N. Y., assignor to Merwin, Hurlbert & Co., New York city. Patent No. 157,860, dated Dec. 15, 1874. [Filed Mar. 30, 1877.]

Brief.—The barrel is partly rotated on the center-pin, then drawn forward, drawing the cylinder after it, leaving the extractor and the cartridge-shells behind.



1. In a revolving fire-arm, the combination of a barrel, a cylinder, a forwardly-projecting combined slide-rod and center-pin, and an extractor, substantially as shown, whereby a partial rotation of the barrel on said center-pin permits the sliding forward longitudinally of the barrel and cylinder on said combined slide-rod and center-pin, and extracts the cartridge-shells, as specified.

2. In a revolving fire-arm, a longitudinally-sliding barrel, a cylinder, and a frame-strap, constructed substantially as described, in combination with an extended slide-rod center-pin, as and for the purpose specified.

3. The combination, in a revolving fire-arm, of the center-pin F, provided with the transverse and longitudinal slots *k* and *k'*, the spring-catch L, and the bracket G, as and for the purpose specified.

4. The combination, in a revolving fire-arm, of the center-pin F, the stop-pin *f*, the sleeve K, extractor D, and cylinder B, in which the extractor is permitted to move a little distance forward on the center-pin, away from the recoil-shield *a*, in the act of withdrawing the cartridge-shells, as and for the purpose specified.

5. The combination, in a revolving fire-arm, of the bracket G and the barrel A with the center-pin F, provided with the flattened key-blank *e'* and the key-bolt J, as and for the purpose specified.

7,611. SCREW HOISTING-PULLEY APPARATUS. Louis T. Pyott, Philadelphia, Pa., assignor, by mesne assignments, to Matthias Pennypacker, same place. Patent No. 171,665, dated Jan. 4, 1876. [Filed Mar. 20, 1877.]

Brief.—The central case is made in two parts, with gudgeons at the shaft-bearings, and collars to hold them in place. A main central bolt, provided with clutch devices and nuts at the ends, causes the side sheaves and central worm-wheel to revolve together.



7,611.

1. A screw hoisting-pulley apparatus, constructed with sheaves C C of same diameter, located on opposite sides of the central box inclosing the worm-wheel, in combination with a double chain, D, as and for the purpose set forth.

2. A screw hoisting-pulley apparatus, having a central box, I, forming bearings for the worm-wheel, as and for the purpose set forth.

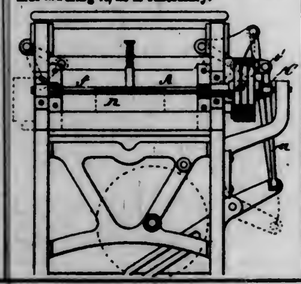
3. A hoisting-machine, constructed with a central worm-wheel, inclosed in a tight case or box, and with sheaves C C projecting on both sides of the said case or box for receiving the hoisting-chains, substantially as described.

4. The combination of a worm-wheel, A, and sheaves C C, provided with clutch-connections G G, and secured together by a bolt, H, as and for the purpose set forth.

5. The box I, constructed with gudgeons *l l*, and secured to the worm-wheel A by collars *l' l'*, all combined and arranged as and for the purpose set forth.

7,612. PAPER-CUTTING MACHINES. Erhard Schleuker, Buffalo, N. Y., assignor of one-half interest to Rufus L. Howard. Patent No. 162,230, dated Sept. 12, 1876. [Filed Mar. 12, 1877.]

Brief.—The knife and clamp descend together, and when the latter strikes the paper it is arrested, and, by reason of its driving friction-clutch, a steady pressure is induced, which firmly holds the paper while the knife acts. The clamp has a vertically operating gage, whereby the paper can be set or graduated with relation to the knife-edge without first lowering it, as is customary.



1. A frictional device, B, arranged to operate in combination with the clamp-bar of a paper-cutting machine, so as to move said clamp against the paper to be cut, and hold the same with uniform pressure, and then be released from further pressure of the actuating mechanism, so that the increased pressure may be exerted upon the cutting-knife without affecting the clamp, substantially as set forth.

2. A frictional device, C, arranged to operate in combination with the clamp-bar of a paper-cutting machine, so as to raise and suspend the same above the paper, and then be released from further pressure of the actuating mechanism, so as not to interfere with or use up the power required to operate, the other parts of the machine, substantially as set forth.

3. The combination of the clamp A with the shaft *f* and connecting-rod *e*, and with the frictional clutch mechanisms B and C, substantially as and for the purpose specified.

4. The plates *b*, *c*, *g*, and *i*, arranged to operate in combination with the shaft *f* and clamp A, substantially as and for the purpose specified.

5. The disk or plate *b*, washer *o*, and jam-nut *m*, arranged to operate in combination with the shaft *f* and clamp A, substantially as and for the purpose specified.

6. In combination with the clamp A, shaft *f*, and plate *i*, the plates *c* and *g*, clamped together by means of adjusting-screws *g'*, so as to vary the pressure on the clamp A, substantially as set forth.

7. The indicator *n*, constructed substantially as described, and arranged to operate in combination with the clamp A, for the purpose specified.

7,613. FLY-FANS. Wm. R. Fowler, Baltimore, Md., assignor to S. W. Lambeth, Philadelphia, Pa., and W. R. Lafourcade, Beverly, N. J. Patent No. 40,746, dated Dec. 1, 1863. [Filed Jan. 12, 1877.]

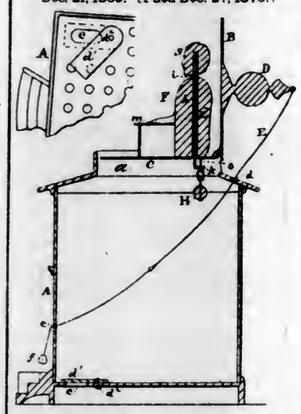
1. Fly-fans arranged to rotate horizontally, and having their edges or narrow sides presented to the course of rotation, substantially as set forth.

2. The sleeve C adjustably fitted to the rotating shaft of the fly-fan arms, substantially as and for the purpose set forth.

3. The combination, with the rotary shaft of a fly-fan, of the projecting-pin F and the movable step G, substantially as and for the purpose set forth.

4. The stand A with clock-work, the sectional shaft B B', adjustable sleeve C, and arms D, combined and operating substantially as and for the purpose set forth.

7,614. TOY MONEY-BOXES. J. Hall, Watertown, Mass. Patent No. 98,055, dated Dec. 21, 1869. [Filed Dec. 27, 1876.]



1. A toy bank provided with a mechanical figure, representing a cashier adjusted to receive and deposit money in the bank, substantially as described.

2. A toy bank provided with a mechanical figure, having a movable head, operated by mechanism, substantially as and for the purposes described.

3. A toy bank having an opening, *a*, door B, platform C, and balance D, and provided with a mechanical figure, F, having a movable head, *g*, and tablet *m*, operated by means of knob and cord or wire E *f*, pendulum H *b*, and rod *i*, substantially as and for the purposes described.

4. A toy bank provided with an opening, *e*, and an adjustable cover, *d*', attached by a screw, *d*', for removing deposits from the bank, substantially as described.

7,615. SEWING-MACHINE SHUTTLES. R. H. St. John, Springfield, Ohio. Patent No. 171,879, dated Jan. 4, 1876. [Filed Feb. 9, 1877.]



1. An external latch adapted to shut against the side of the shuttle-case, in combination with the shuttle-case and a stud or projection to prevent the thread which passes beneath the said latch from slipping back on the shuttle.

2. The combination, with a shuttle-case, of a plate or arm permanently hinged thereto, and guided in a plane perpendicular to the surface to which it is attached, and carrying a heel-piece to close the rear end of the case.

3. In a sewing-machine shuttle-case, one or more tension-pins, *e*, on the upper side of the shuttle, in combination with a latch, *d*, perforated to receive the ends of the said pins, substantially as set forth.

4. In a sewing-machine shuttle-case, the latch *d*, in combination with the beveled heel-piece *c*, hinged thereto, substantially as and for the purposes set forth.

5. In combination with a shuttle-case having a longitudinal slot, 5, one or more tension-pins, *e*, and latch *d*, as and for the purpose set forth.

7,616. CORN-SHELLERS. J. B. Lewis, Worcester, Mass. Patent No. 178,536, dated June 13, 1876. [Filed Mar. 26, 1877.]

1. The combination of the cap E, interacting pivoted centering-arms F, and springs G, substantially as and for the purposes set forth.

2. The combination of the supporting-frame A, ring-gear C having laterally and downwardly projecting annular flanges C' and C², and cap-piece E, having downwardly-projecting annular flange E', substantially as set forth.

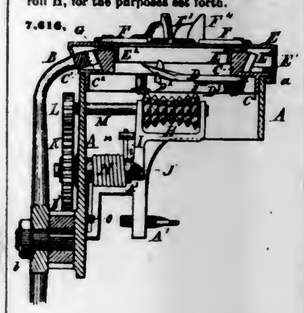
3. The shelling-arms D, when constructed with curved sides *d*, and studs or projections D², said arms being pivoted to the operating-ring-gear C, for combined and uniform action, substantially as set forth.

4. The combination, substantially as set forth, of the shelling-arms D, ring-gear C, pressure-springs D³, and bearing-studs *g*, said arms being pivoted to the ring-gear C D', the springs D³ pressing against the studs *g* on said arms, as herein described, and for the purposes stated.

5. The combination, with the feeding-rolls H, of the arms I J, journaled in projecting bearings A³, pressure-springs N pressing against lugs or pins *n* and *o*, and the stop-pins I, said parts being constructed and arranged for operation as shown and described.

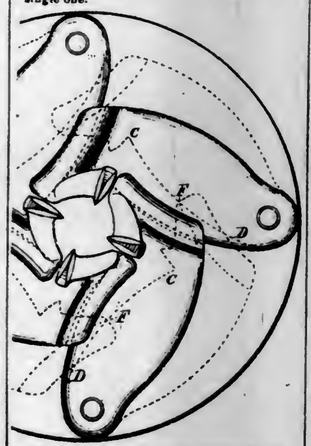
6. In combination, substantially as described, the driving-gear B, having a pinion, B', the intermediate gear K, supported on the arm-journal J, the pinion L, shaft M, and feed-roll H, for the purposes set forth.

7,616.



7,617. MECHANICAL MOVEMENTS. J. Edwin Lewis, Worcester, Mass. Patent No. 178,536, dated June 13, 1876. [Filed Mar. 26, 1877.]

Brief.—The levers have a simultaneous movement though the power be applied to a single one.



The mechanical movement described, consisting of the pivoted levers, having coacting surfaces C, D, and F, whereby they are made to act simultaneously, substantially as and for the purposes set forth.

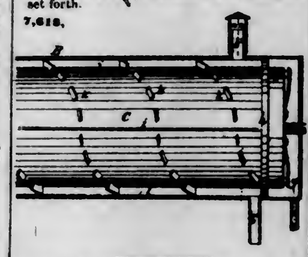
7,618. APPARATUS FOR DRYING GROUND WHEAT. C. S. Fuller, La Fayette, Ind., assignor to C. R. Knickerbocker, Jackson, Mich. Patent No. 162,910, dated May 4, 1875. [Filed Feb. 28, 1877.]

1. The combination, with the outer stationary cylinder B, of the revolving steam-drum C, provided on its outer surface with ribs *i* for elevating the material, substantially as hereinbefore set forth.

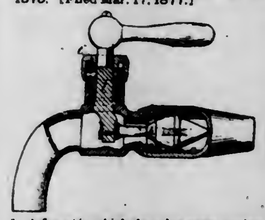
2. The combination, with the outer stationary cylinder B, of the revolving steam drum C, provided with the longitudinal ribs *i* and interrupted spiral plate *k*, substantially as and for the purpose set forth.

3. The herein-described method of purifying middlings, by subjecting to the action of artificial heat, and then removing the impurities by means of air-currents, substantially as set forth.

7,618.



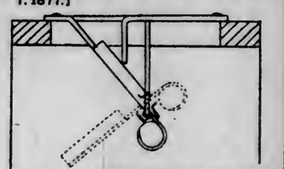
7,619. FAUCETS. A. Fuller, Brooklyn, N. Y. Patent No. 167,092, dated Aug. 24, 1875. [Filed Mar. 17, 1877.]



1. A faucet in which the valve opens against and closes with the pressure, having the nut or rear part of the valve made conical or tapering, substantially as shown and specified, for the purposes set forth.

2. In a faucet having a stuffing-box for the accommodation of the spindle, passing from the handle to the interior of the body, the combination, with the box containing the stuffing, and threaded on its exterior, of a gland and cap composed of two cylindrical portions. *t* and *s*, the combination being and operating as and for the purposes set forth.

7,620. COUNTERFEIT-COIN DETECTORS. William Painter, Baltimore, Md. Patent No. 36,834, dated July 8, 1862. [Filed Mar. 7, 1877.]



1. In a coin-detector, a tilting scale pan, adapted to receive the coin flatwise for testing, and to discharge the same automatically after testing, substantially as and for the purpose set forth.

2. The combination, with a suitable standard or frame, of a scale which is tilted by the coin lying flatwise on its pan, and which, when tilted, permits the coin to slide and fall therefrom, substantially as described, whereby its sounding quality may be tested, as set forth.

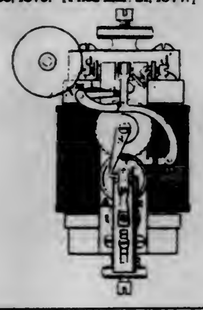
3. The combination, with a scale which is tilted by the coin lying flatwise thereon, of a stationary guide-plate, substantially as described, whereby a coin moved flatwise on the plate may be placed upon the scale-pan without inducing a tilting action other than that due to the weight of the coin, as set forth.

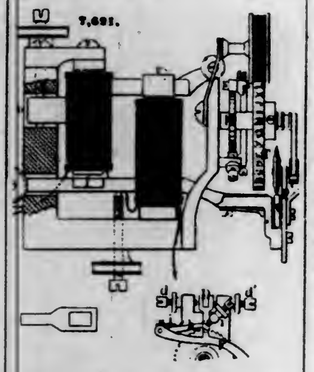
4. The combination, with a scale-pan which is tilted by coin lying flatwise thereon, of a guide-plate and gage for testing the diameter of the coin, substantially as described.

5. In a coin-detector, the combination, with a tilting scale having a flat-faced pan and guiding-plate, of gages which test the diameter and thickness of the coin, substantially as described.

EXPIRED PATENTS.

7,691. PRINTING-TELEGRAPHS. F. L. Pope, Elizabeth, and T. A. Edison, Menlo Park, N. J., assignors, by mesne assignments, to the Gold and Stock Telegraph Company. Patent No. 102,220, dated Apr. 26, 1870. [Filed Mar. 21, 1877.]





1. The method, substantially as herein specified, of operating a printing-telegraph by first moving the type wheel into any required position by the action of alternate positive and negative currents of short and uniform duration, and then locking the type-wheel in such position and at the same time causing the printing to be effected by prolonging the duration of the current last sent, irrespective of its polarity.

2. A type-wheel actuated or controlled by the to-and-fro movements of a polarized armature, under the influence of alternate positive and negative currents of short duration, in combination with an impression device actuated or controlled by a neutral armature, when the arrangement is such that the type-wheel may be locked at any required character, and the neutral armature brought into action to effect the printing of such character, by prolonging the normal duration of one of the said alternate currents, whether positive or negative.

3. The combination of the safety-stops *d d'* with the stops *i i'* and armature-lever D, substantially as and for the purpose specified.

NATIONAL LITHOGRAPHING CO. WASHINGTON, D.C.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 67.—No. 4. TUESDAY, APRIL 24, 1894. PRICE—$5 per year.

CONTENTS.

	Page.
ATTORNEYS	407
SUBSCRIPTION PRICE TO FOREIGN SUBSCRIBERS	407
FILE-WRAPPERS—ENTRIES ON	407
WITHDRAWAL OF CASES FROM ISSUE	407
INDEXES TO PERIODICALS	407
NOTICE	407
OFFICIAL GAZETTE	408
ISSUE OF APRIL 24, 1894	408
APPLICATIONS UNDER EXAMINATION	408
PATENTS GRANTED	409
REISSUES	519
DESIGNS	520
TRADE-MARKS	524
PRINTS	None.
LABELS	None.
COMMISSIONER'S DECISIONS—	
Ex parte Zuber	529
DECISIONS OF THE U. S. COURTS—	
Edison Electric Light Company *et al.* v. Buckeye Electric Company *et al.*	529

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., April 16, 1894

SIR: The Secretary of the Interior has ordered that B. J. Donnell, of Shelby, Miss., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

WM. H. DE LACY,
Acting Chief Clerk.

The Commissioner of Patents.

Official Gazette—Subscription Price to Foreign Subscribers.

DEPARTMENT OF THE INTERIOR,
Washington, March 29, 1894.

SIR: Inasmuch as the two dollars additional required of foreign subscribers to the OFFICIAL GAZETTE of the Patent Office is inadequate to reimburse the Government the cost of the postage required, you are hereby directed to raise the price, for the ensuing fiscal year, to ten dollars per annum for foreign subscriptions.

Very respectfully,

HOKE SMITH,
Secretary.

The Commissioner of Patents.

File-Wrappers—Entries On.

It is directed that entries shall not be made on the back of a file-wrapper, containing the application-papers for a patent, of papers or actions which do not become a permanent part of the contents of the file.

A card (Form 2-384 Office Series of blanks, sample hereto attached) will be placed in the file showing all appellate actions.

Withdrawal of Cases from Issue.

Hereafter all amendments proposed to allowed applications which involve a withdrawal from issue, and all petitions and requests relating thereto, shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action.

Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading room of the scientific library:

Engineering Review, London, a monthly synoptical index of periodical literature in the English, French, and German languages, including hydraulic, railway, mechanical, electrical, mining, metallurgical, marine, military, and gas engineering.

Electrical Engineering, Chicago, a monthly synoptical index of electrical literature.

Electrical World, New York, a weekly digest of electrical articles.

Journal of the Association of Engineering Societies, Chicago, a monthly synoptical index of civil-engineering literature, mostly American.

Engineering Magazine, New York, a monthly title-index of engineering articles in the English language only.

Notice.

(ORDER No. 453.)

Hereafter, when there are two or more interferences pending in this Office relating to the same subject-matter, or in which substantially the same applicants or patentees are parties thereto, in order that the record of proceedings in each particular interference may be kept separate and distinct, all motions and papers sought to be filed therein must be titled in and relate only to the particular interference to which they belong, and no motion or paper can be filed in any interference which relates to or in which is joined another interference, or matter affecting another interference.

The Examiners are also directed to file in each interference a distinct and separate copy of their actions, so that it will not be necessary to examine the records of several interferences to ascertain the status of a particular case.

This order will not, however, apply to the testimony.

All papers filed in violation of this order will be returned to the party or parties filing the same, with a printed copy of this order, which will be considered a sufficient explanation.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $10; single copies, 10 cents, if mailed to foreign countries 10 cents additional for postage; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of April 24, 1894.

Patents	355—No. 518,579 to No.	518,933, inclusive.
Designs	23—No. 23,207 to No.	23,229, inclusive.
Trade-Marks	47—No. 24,567 to No.	24,613, inclusive.
Labels	None.	
Prints	None.	
Reissues	2—No. 11,416 to No.	11,417, inclusive.
Total issue	427	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	.....	Nevada	.....	.....
Arizona Territory	1	.....	New Hampshire	1	.....
Arkansas	1	.....	New Jersey	11	3
California	7	1	New Mexico Territory	.....	.....
Colorado	2	.....	New York	71	13
Connecticut	14	.....	North Carolina	1	1
Delaware	1	.....	North Dakota	.....	.....
District of Columbia	6	.....	Ohio	24	6
Florida	2	.....	Oklahoma Territory	.....	.....
Georgia	.....	.....	Oregon	2	.....
Idaho	.....	.....	Pennsylvania	31	4
Illinois	39	2	Rhode Island	2	.....
Indiana	12	2	South Carolina	.....	.....
Indian Territory	.....	.....	South Dakota	.....	.....
Iowa	7	.....	Tennessee	2	.....
Kansas	4	.....	Texas	1	.....
Kentucky	3	1	Utah Territory	.....	.....
Louisiana	.....	.....	Vermont	1	.....
Maine	1	1	Virginia	4	.....
Maryland	7	2	Washington	.....	1
Massachusetts	31	3	West Virginia	4	.....
Michigan	15	1	Wisconsin	8	.....
Minnesota	7	1	U. S. Army	1	...
Mississippi	.....	.....	U. S. Navy	1	.....
Missouri	16	.....			
Montana	1	.....	Total to citizens of the United States	346	43
Nebraska	3	1			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	.....	.....	Netherlands	.....	.....
Austria-Hungary	1	.....	Newfoundland	.....	.....
Belgium	1	.....	New South Wales	.....	.....
Bermuda	.....	.....	New Zealand	.....	.....
Brazil	.....	.....	Norway	1	.....
Canada	7	...	Queensland	1	.....
Cape Colony	.....	.....	Russia	.....	.....
Colombia	.....	.....	Scotland	1	.....
Cuba	.....	.....	Servia	.....	.....
Denmark	1	.....	South Australia	.....	.....
Ecuador	.....	.....	Spain	.....	.....
England	7	.....	Sweden	.....	.....
France	5	2	Switzerland	.....	.....
Germany	6	2	Tasmania	.....	.....
Hawaii	.....	.....	West Australia	.....	.....
Ireland	.....	.....			
Italy	1	.....	Total to citizens of foreign countries	32	4
Mexico	.....	.....			

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business April 17, 1894

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Mar. 17	Apr. 13	98
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Mar. 17	Apr. 12	95
2	Farm Stock, Products, etc	Mar 19	Apr. 11	109
31	Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Mar. 26	Apr. 9	72
32	Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	Mar. 19	Apr. 9	106
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Mar. 19	Apr. 7	130
13	Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, etc.	Mar 19	Apr. 2	104
7	Harvesters, Games and Toys, and Velocipedes.	Mar. 19	Apr. 2	236
	Between one and two months.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather Working Machinery.	Feb. 19	Apr. 16	259
21	Textiles, etc	Feb. 19	Apr. 12	161
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Mar. 5	Apr. 9	193
4	Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Feb. 23	Apr. 9	315
6	Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Feb. 19	Apr. 7	138
1	Tillage and Fences	Feb. 19	Apr 7	220
12	Mechanical Engineering, Stove-Service, etc.	Feb. 19	Apr. 7	231
19	Stoves and Furnaces	Mar. 5	Apr. 2	284
17	Paper-Manufactures and Printing	Mar. 3	Apr. 2	197
8	Furniture, Toilet, Umbrellas and Canes, etc.	Feb. 28	Apr. 2	271
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Feb. 17	Apr. 2	244
18	Steam-Engineering, etc	Feb. 19	Mar. 24	226
26	Electricity, Generation, Distribution, Electric Railways, etc.	Feb. 19	Mar. 24	206
	Between two and three months.			
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Jan. 22	Apr. 13	213
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Jan. 31	Apr. 9	304
3	Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Feb. 16	Apr. 5	169
23	Instruments of Precision, Acoustics, Optics, etc.	Jan. 17	Apr. 5	365
10	Carriages and Wagons and Railway-Cars.	Feb. 13	Apr. 4	414
22	Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Jan. 31	Mar. 30	230
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Feb. 2	Mar. 21	269
9	Hydraulics, Fire-Extinguishers, etc.	Jan. 18	Mar. 14	536
30	Lamps, Gas-Fittings, Linotyping, Matrix-Making Machines, and Type-Writing Machines.	Feb. 15	Mar. 8	213
	Between three and four months.			
24	Sewing-Machines, Crinoline and Corsets, and Apparel.	Jan. 2	Apr. 4	187
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Jan. 2	Mar. 23	478
	Total number of applications awaiting action			7,268
	Under one month in arrears.			
	Designs	Apr. 6	Apr. 5	69
	Trade-Marks	Apr. 12	Apr. 16	18

PATENTS

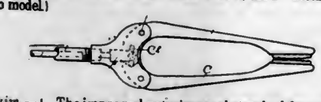
GRANTED APRIL 24, 1894.

518,579. BOOT OR SHOE. SAMUEL ANNENBERG and ERASMUS STAHL, Naugatuck, Conn. Filed Oct. 31, 1893. Serial No. 489,628. (No model.)



Claim.—A boot or shoe formed of rubber or other suitable material and consisting of an upper and a lining, the two stitched or suitably united together, forming between said upper and lining a circular compartment around the ankle portion of said boot, a series of compartments connected with and extending from said circular compartment to the sole of the boot, a supply tube connected with and extending from the circular compartment to the top of the boot and provided with a covering, the whole arranged to permit of the boot being inflated with air or suitable heat-retaining liquid.

518,580. VETERINARY OBSTETRICAL FORCEPS. ORIE Y. BARTHOLOMEW, Des Moines, Iowa. Filed Feb. 9, 1894. Serial No. 499,610. (No model.)



Claim.—1. The improved veterinary obstetrical forceps, comprising the following elements, a stationary handle portion having a screw-threaded opening formed in its outer end, a movable handle portion pivoted thereto, a socket having a screw threaded opening formed therein, two jaws pivoted in said socket, a tube connecting said socket and the stationary handle and a rod pivotally and slidingly connected with the movable handle and with said jaws to operate them when the handle is moved, for the purposes stated.

2. An improved veterinary obstetrical forceps, comprising a stationary handle with a screw-threaded opening therein, a movable handle portion pivoted thereto, a socket having a screw threaded opening formed therein, two jaws pivoted in said socket and provided with cushioned inner faces at their outer ends, slots formed in the inner ends of said jaws as set forth, a tube having screw threaded ends adapted to enter said screw threaded openings, a rod passed through said tube, a bifurcated connecting piece adapted to connect the movable handle with said rod and a like piece to connect the rod with the movable jaws, all arranged and combined to operate as set forth

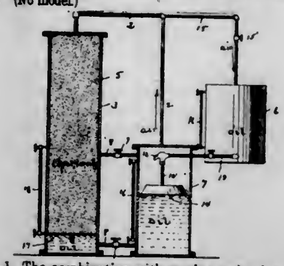
518,581. COMBINATION UMBRELLA-HOLDER AND STAND. JAMES F. BARTLETT, Chicago, Ill., assignor to William Boldenweck, same place. Filed Oct. 2, 1893. Serial No. 486,965. (No model.)



Claim.—1. A combination umbrella holder and table-like stand comprising three rods pivotally connected about mid-length to the interior of a metallic band allowing said rods to swivel and bind in spreading their opposite ends, a sheet metal pan provided with three equidistant recesses in its rim and a stiff bottom, said recesses entering kerfs near one end of said rods and the rods entering said recesses, and a sheet metal band provided with a concave interior and series of holes fitting upon a bead near one end of said rods and secured thereto by screws as specified.

2. A combination umbrella holder and table like stand comprised of rods A secured near their mid-length by an encircling band *a* and screws *a'*, a sheet metal pan B provided with recessed ears *b* and corrugated bottom secured in kerfs in said rods near one end, and a perforated sheet metal band C secured to the outside of said rods near the opposite end by its concavity fitting upon a bead, and screws as specified.

518,582. APPARATUS FOR THE MANUFACTURE OF GAS. ROBERT M. BIDELMAN, Adrian, Mich. Filed June 9, 1892. Serial No. 436,073. (No model.)

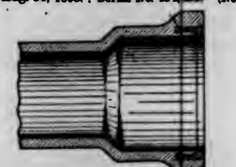


Claim.—1. The combination with an air supply pipe, and forcing apparatus, of a series of carbureting cylinders, the first cylinder being connected with the air supply pipe, pipes connecting the cylinders with one another, an oil tank, connected also with the air pipe, a series of oil reservoirs, one for each cylinder, pipes arranged at the top and bottom of each reservoir, and connected with its respective cylinder, pipes connecting the oil tank with each reservoir, a valve casing arranged upon the end of said pipes within the reservoirs, a needle valve and stem for regulating the supply and a float adjustable upon the stem of the needle valve.

2. In a carbureting apparatus, a carburetor, an oil tank, an air-pipe having branches, one of which enters the carburetor, the other entering the oil tank, an oil reservoir connecting the tank and carburetor, the oil reservoir being connected with the carburetor at its upper and lower ends, whereby an equality of air pressure is maintained throughout the carburetor, oil tank, and reservoir.

3. In a carbureting apparatus, an air supply pipe having branches, a series of carburetors connected with one another, and one of them with a branch of the air pipe, a series of oil reservoirs, one for each carburetor, connected therewith and provided with a regulating float valve, a single oil tank, one of the branch air pipes being connected therewith, and all of the oil reservoirs being connected with the oil tank and to each other, whereby an equality of pressure is maintained throughout the entire apparatus.

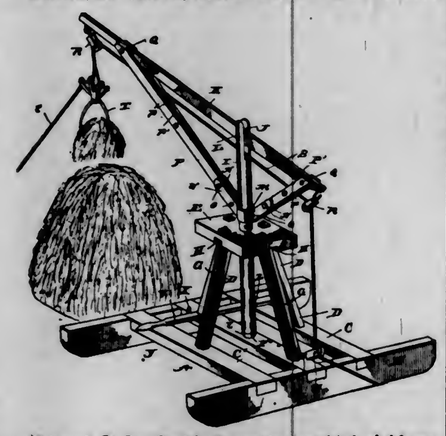
518,583. SOIL-PIPE. JAMES T. BRIEN and THEODORE R. BRIEN, Hoosick Falls, N. Y., assignors of one-third to G. Frank Rising, same place. Filed Aug. 31, 1893. Serial No. 484,423. (No model.)



Claim.—1. A cast iron soil pipe having its faucet-end cast upon an annular tenacious-metal band anchored and embedded in the cast-metal, substantially as described.

2. The combination with a cast-iron soil-pipe, of a wrought-metal band embedded and anchored in the faucet end of the pipe and exposed at the outer end thereof, substantially as described.

518,584. HAY-DERRICK. JAMES R. BUFORD and JAMES GERRY, Lancaster, Mo. Filed July 28, 1893. Serial No. 481,753. (No model.)

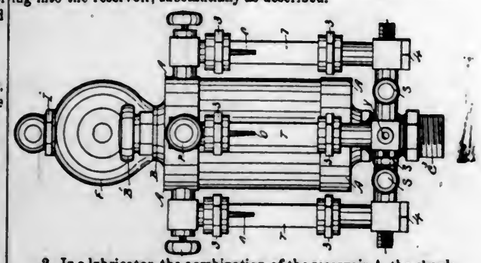


Claim.—1. In a hay derrick, the combination with the sled frame; of a horizontal bearing plate supported above the sled frame, a turning derrick standard journaled on the sled frame and in said bearing plate, an inclined derrick arm braced to the standard above said bearing plate, rope pulleys attached to each end of said derrick arm, an attaching hook adjustably bolted to the sled frame at one side of the turning derrick standard, a swiveled guide pulley connected to said attaching hook, and a fork rope passing over the rope pulleys at the ends of the derrick arm and under said guide pulley to provide means for swinging the derrick arm, substantially as set forth.

2. In a hay derrick, the combination with the sled frame; of an upwardly converging series of supporting legs removably fitted at their lower ends onto the sled frame, a horizontal bearing plate having a central bearing opening and mortise notches in its under side and leading in from its edges to removably fit over or receive the upper ends of said supporting legs, removable tie rods or bolts arranged longitudinally against the outer sides of each supporting leg and bolted at their extremities to the sled frame and to the bearing plate, respectively, to removably clamp the plate and legs together and the turning derrick arm mounted in the bearing opening of said plate, substantially as set forth.

518,585. LUBRICATOR. BENJAMIN A. BURGESS, Hamilton, Canada. Filed Dec. 11, 1893. Serial No. 493,267. (No model.)

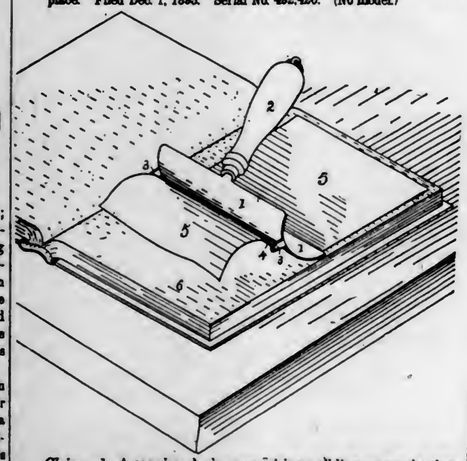
Claim.—1. In a lubricator, the reservoir A, having an upper oil inlet B, said reservoir having the discharge passages on three sides valves P in said passages, the three feed branches in communication with said passages and having regulating valves *s*, the steam pipe D, the vertical bent tube E connected thereto, in combination with the condenser F, supplied with steam deflector J, and a pipe L having a valve therein connected to the lower end of said condenser and opening into the reservoir, substantially as described.



2. In a lubricator, the combination of the reservoir A, the shank c^4 screwed into the lower end thereof provided with a steam inlet c, lateral feed branches extending therefrom, having regulating valves therein, said feed branches communicating with the oil discharge passages and said steam inlet, the steam pipe D, the condenser and connections from said pipe D, the condenser and connections from said pipe D thereto, the plug I screwed into the upper part of said condenser, having an aperture H and steam deflector J, a pipe L having a valve therein and connected to the lower end of said condenser and opening into the reservoir, and the oil discharge passages leading from the reservoir having valves P, therein, substantially as described.

3. The combination of the reservoir A, having oil inlet B and discharge passages on three sides thereof, sight feeds O communicating with said passages and having the tapered feed plugs U with apertures 2 therein, valves P in said discharge passages, the shank c^4 screwed into the lower part of the reservoir, and provided with a steam inlet c and lateral feed branches c^3, valves *s* in said branches, the condenser and connections thereto leading from said steam inlet c, the plug I in the top of the condenser and having aperture H with deflector J, the pipe L having a valve therein and connected to the lower end of said condenser and opening into the reservoir, substantially as described.

518,586. DEVICE FOR COPYING MANUSCRIPTS, &c. JOHN W. CLELAND, Decatur, Ill., assignor to the Specialty Company, same place. Filed Dec. 1, 1893. Serial No. 492,420. (No model.)



Claim.—1. A copying device comprising a sliding presser having a convex bearing surface, and a handle secured to the presser, substantially as set forth.

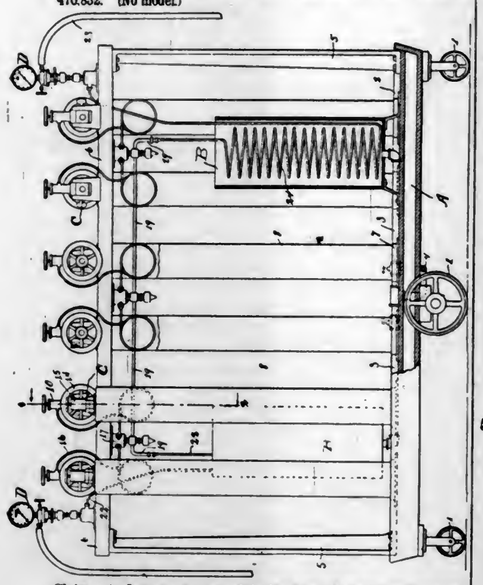
2. A copying device comprising a sliding presser having a convex bearing surface, and a handle secured to the presser at the longitudinal center thereof, substantially as set forth.

3. A copying device comprising a sliding presser having a handle at its longitudinal center, such handle extending, when in an operative position, obliquely upward and backward from the presser, substantially as set forth.

4. A copying device comprising a sliding presser blade concavo-convex in cross section, and a handle secured to the blade.

5 A copying device comprising a presser, and a support on the presser adapted to hold that part of the letter sheet in advance of the presser out of contact with the copying sheet.

518,587. APPARATUS FOR RELEASING CARBONIC-ACID GAS. CHARLES F A. CONVERT, Chicago, Ill. Filed Apr 18, 1893. Serial No 470,832. (No model.)



Claim.—1. In an apparatus of the kind specified, the combination with the main frame, of a valve adjustably mounted thereon, a coupling upon said valve, and a yielding connection between said valve and a coupling 17 upon the main frame and establishing communication between said parts, and pipes or passages communicating with said coupling 17, substantially as described

2. In an apparatus of the kind specified, the combination with the main frame, of a valve adjustably mounted thereon, a coupling upon said valve, a yielding connection between said valve and a coupling 17 in the main frame consisting of a flexible pipe or passage communicating at its opposite ends with said valve and coupling, and pipes or passages communicating with said coupling 17, substantially as described.

3. In an apparatus of the kind specified, the combination with the main frame, of a plurality of valves mounted thereon and provided with couplings, a coupling 17 upon said main frame, a plurality of pipes or passages communicating with said valves and with said coupling 17, and pipes or passages leading from said coupling 17, substantially as described.

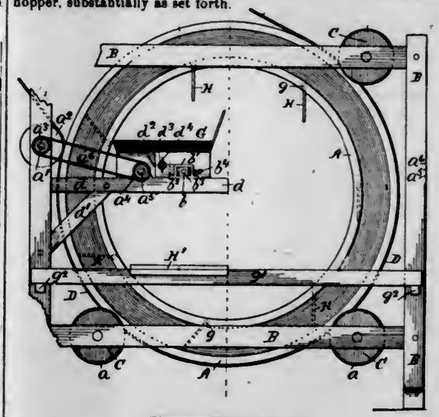
4. In an apparatus of the kind specified, the combination with the main frame, of a plurality of valves adjustably mounted thereon and provided with couplings, a coupling 17 upon said main frame, a plurality of yielding connections between said valves and coupling 17 and establishing communication between said parts, and pipes or passages leading from said coupling 17, substantially as described.

5. In an apparatus of the kind specified, the combination with the main frame, of a guide plate 26 mounted thereon, a valve adjustably secured upon said guide plate and provided with a coupling, and pipes or passages leading from said valve, substantially as described.

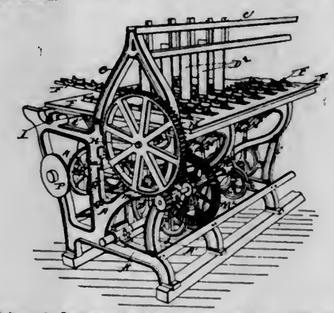
518,588. BUTTER-WORKER. DANIEL J. DAVIS, Chicago, Ill. Filed Dec. 23, 1892. Serial No. 455,981. (No model.)

Claim.—1. In a butter-worker the combination with, the fluted roll F, of the bearing-block, the journal-box, adjustably inserted therein, the adjusting-screw, the hopper, having overlapping edges on its respective sides, and the bolt, adjustably connecting the overlapping edges, whereby the relative position of the rolls may be varied with reference to each other and the hopper adjusted to conform therewith, substantially as set forth.

2. In a butter-worker, the combination with a revolable cylindrical drum open at both ends and provided with inwardly projecting flanges, of a number of carries-boards, arranged at intervals around the inner side of said drum, the inner ends of said boards being mounted on pivot-rods having their respective ends inserted in the edge of said flanges, whereby the opposite or loose ends of said boards are adapted to be brought in contact with the inner circumferential surface of said drum at an oblique angle on the up going side and swing downwardly and discharge their load when over the butter-hopper, substantially as set forth.



518,589. MACHINE FOR SAWING BLOCKS FROM LOGS. FRANK L. DAY, Glens Falls, N. Y. Filed Sept. 15, 1893. Serial No. 485,584. (No model.)



Claim.—1. In a machine for butting logs, the combination with the frame having the table and series of vertical guides above said table, of the gangs of vertical alternately arranged oppositely reciprocating saws having the upper ends independently guided in said guides, a drive shaft, eccentrics thereon and connections between the eccentrics and saws for reciprocating the same: substantially as described.

2. In a machine for butting logs, the combination with the frame having the table, the series of vertical guides above said table and a corresponding series of vertical guides below the table, of the gangs of alternately arranging oppositely reciprocating saws having their upper and lower ends independently guided in said guides, a drive shaft, eccentrics thereon and connections between the eccentrics and saws for reciprocating the latter; substantially as described.

3. In a machine for butting logs, the combination with the frame having the table, the series of vertical guides above said table and a corresponding series of vertical guides below the table, of the gangs of independent alternately arranged oppositely reciprocating saws having their upper and lower ends guided in said guides, a drive shaft below the saws, an eccentric for each saw located on said shaft and a connecting rod between each eccentric and its saw; substantially as described.

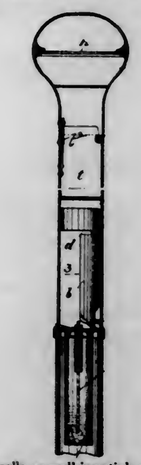
4. In a machine for butting logs, the combination with the table, gang of saws and feeding mechanism passing between the saws, of the series of independent movable pressers located between the saws and arranged one adjacent to and on each side of each saw whereby the block between each two adjacent saws is held independently of every other block; substantially as described

5. In a machine for butting logs, the combination with the table, gangs of vertically reciprocating saws and feeding chains arranged to pass two between each two adjacent saws, of the series of independent movable pressers located in pairs between each two adjacent saws

whereby each section of the log between the saws is held independently of every other section; substantially as described.

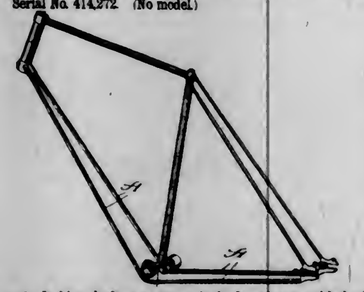
6. In a machine for butting logs, the combination with the table, gang of saws and the pairs of feeding chains passing between each two adjacent saws, of the independent presser rollers arranged between the saws and in vertical planes intermediate the feeding chains; substantially as described.

518,590. COMBINED WALKING-STICK AND LAMP. FRITZ DENINGER, Berlin, Germany. Filed May 20, 1893. Serial No. 474,969. (No model.)



Claim.—An umbrella or walking stick consisting of two separable parts A B, a container C in part B, a cap *a'* to said container adapted to close the same when reversed, a hood *b* with annular end *e* and slot *d* adapted to act as guide for part A, a pin *f* on part A and chambers *t* and *g* therein as and for the purpose set forth.

518,591. BICYCLE. FRANK DOUGLAS, Chicago, Ill. Filed Dec. 7, 1891. Serial No. 414,272. (No model.)



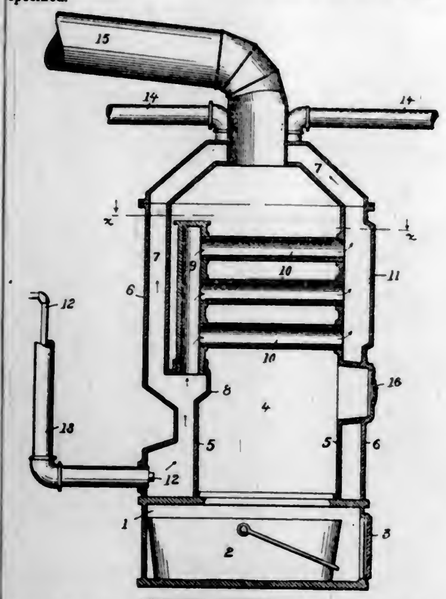
Claim.—1. In bicycle frames, a crank shaft casing provided with an upward central extension adapted to receive a seat post tube, and downward end extensions adapted to receive continuous lower frame truss tubes, substantially as described.

2. In bicycle frames, a crank shaft casing provided with an upward central extension adapted to receive a seat post tube, and downward end extensions adapted to receive lower continuous frame truss tubes, in combination with a central seat post tube and continuous lower frame truss tubes seated and clasped in their several extensions, respectively, substantially as described.

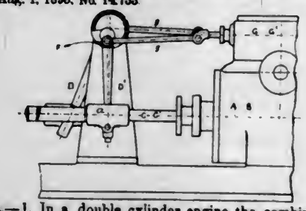
518,592. HOT-WATER BOILER. BRUNEAU RITTNER, Waterbury, Conn. Filed July 19, 1893. Serial No. 480,964. (No model.)

Claim.—1. In a furnace, the combination with a fire chamber, of a heating reservoir surrounding the latter, consisting of an inner and outer lining, the former provided with an inwardly extending angular enlargement, and the latter drawn in to conform with said enlargement a series of vertical tubings and horizontal cross pipes extending across the fire chamber and connecting with opposite sides of the heater reservoir for the purpose of conveying water therein, substantially as shown and described.

2. The combination, in a furnace, of an outer and inner casing, a fire chamber within said casing, a water reservoir surrounding the fire chamber, an enlargement at the rear and bottom of said reservoir, in which the supply is received, a narrow passage above said enlargement to insure the passage of the water through a series of vertical tubes and horizontal pipes, in connection with an enlargement 11 upon the front and top of said reservoir, all as shown and for the purpose specified.



518,593. VALVE-GEAR. JOHN FIELDING, Gloucester, England. Filed Oct. 24, 1893. Serial No. 489,056. (No model.) Patented in England Aug. 1, 1893. No. 14,733.



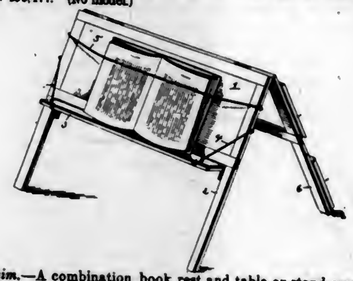
Claim.—1. In a double cylinder engine the combination with two cylinders and a valve and piston rod for each cylinder of a shaft mounted eccentrically in a movable bearing, means connecting one of the piston rods and shaft means connecting said movable bearing with the other piston rod, and means connecting the valves with the shaft, substantially as set forth.

2. In a double cylinder engine, the combination with the cylinders valves and piston rods, of a movable bearing a lever actuated by one of the pistons for giving said bearing a semi-rotary motion a shaft eccentrically mounted in said movable bearing and provided with short levers, devices connecting said short levers and valves and means actuated by the other piston rod for rocking the shaft, substantially as set forth.

3. In a double cylinder engine, the combination with the cylinders valves and piston rods, of a cylinder boss or bearing a lever attached to said boss or bearing and engaging one piston rod, a shaft eccentrically mounted in said boss or bearing, a lever connected to said shaft and actuated by the other piston rod, and devices connecting the shaft and valves, substantially as set forth.

4. In a double cylinder engine, the combination with the cylinders, valves and piston rods, of a cylindrical boss or bearing, a lever attached thereto and actuated by one of the piston rods, a shaft eccentrically mounted in said boss or bearing and provided with short levers so located as to move in opposite directions as the shaft is rocked, a lever connected to said shaft and actuated by the other piston rod, and links connecting the short levers and valves, substantially as set forth.

518,594. COMBINATION BOOK-REST AND TABLE OR STAND. BERNIE V. FITZHUGH, Bowling Green, Ky. Filed Sept. 25, 1893. Serial No. 486,477. (No model.)



Claim.—A combination book rest and table or stand consisting of a body portion having extended legs, and supports hinged to the rear side of the said body portion, said supports when closed adapted to coincide with the extended legs, and legs hinged to the back or under sides of the said supports, as set forth.

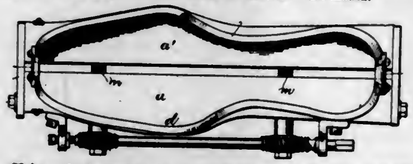
518,595. CUFF-BUTTON. JAMES A. FLOMERFELT, New York, N. Y. Filed Apr. 8, 1893. Serial No. 469,500. (No model.)



Claim.—1. A cuff-button for link cuffs, comprising a connecting-bar having an angular central portion arranged within the cuff to hold the ends thereof apart, and the heads mounted concentrically on the ends of said connecting-bar parallel with the respective sides of the angular central portion and adapted to clamp the cuff against said sides, whereby the ends of the cuff are separated and maintained in a rigid position, substantially as described.

2. A cuff-button for link cuffs, comprising a connecting-bar having an angular central portion *a* arranged within the cuff and between the ends thereof, the outwardly projecting studs formed on the ends of said bar, a rigid head B mounted on one stud and a movable head C arranged on the other stud and having a lever connection therewith whereby the head may be turned into alignment with the connecting-bar, both of said heads being parallel with the sides of the angular central portion when arranged in a cuff, substantially as and for the purpose set forth.

518,596. DIE FOR CUTTING SOLES. ROBERT R. GIBBS, Utica, N. Y. Filed Aug. 22, 1893. Serial No. 483,722. (No model.)



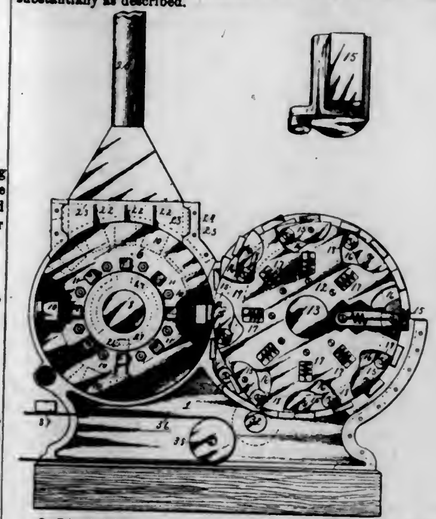
Claim.—1. A cutting die comprising a longitudinally sectional body, plates removably mounted upon the sections, side cutters mounted upon said plates, heel and toe cutters connected to said side cutters, adjusting screws inserted through said body sections, and means to rotate said screws.

2. A cutting die comprising a longitudinally sectional body, side cutters mounted upon said sections, heel and toe cutters mounted upon and overlapping the side cutters, and means to adjust the body sections laterally.

518,597. BRICK-MACHINE. HENRY G. GILBERT, Dayton, Ohio. Filed June 16, 1893. Serial No. 477,868. (No model.)

Claim.—1. In a brick machine, the combination of a casing having cam grooves on its inner surface, a continuously revolving drum arranged adjacent to said cam grooves, and having a series of peripheral recesses, a series of individual plungers having bearings in said recesses, and which are maintained in said bearings and allowed to oscillate therein by means of springs attached thereto and to the drum, a series of individual anti-friction rollers pivoted to said plungers, and projecting into the cam grooves in the casing, so that when the drum revolves the plungers are subjected to an oscillatory motion by the anti-friction rollers traveling in the cam groove, substantially as described.

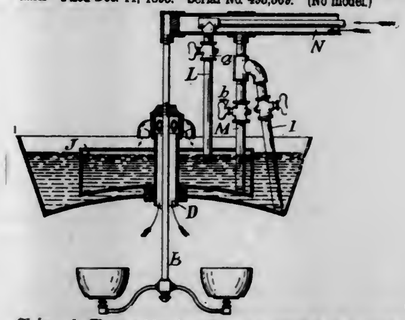
2. In a brick machine, the combination of the die drum with laterally projecting lugs, and mounted on shaft 8, a plunger-carrying drum mounted on shaft 13, and having a series of peripheral recesses, a series of plungers maintained in said recesses and permitted to oscillate therein by spring attachments, so that when shaft 13 rotates the drum carrying said plungers, each plunger is presented to its respective die to form a brick of the clay therein, and to maintain a continuous rotary motion of the die drum by the plungers successively engaging with the dies, and disengaging therefrom as the plunger drum is rotated, substantially as described.



3. In a brick machine, the combination with the casing having cam grooves 19 on its inner surface of the drums 6 and 12, the former having a series of dies 10—10, and the latter carrying a series of oscillating plungers 15—15 having springs 17, and anti-friction rollers 18, that travel in the cam grooves 19 thereby oscillating the plungers to engage with the dies, substantially as described.

4. In a brick machine, the combination of a revolving drum provided with peripheral recesses, a series of plungers movably maintained within said recesses, a series of anti-friction rollers carried by said plungers, and means for rotating said rollers whereby the plungers are oscillated and made to successively register with the dies in drum 6, substantially as herein shown and described.

518,598. GAS-REFLECTOR. THOMAS GILL, Cleckheaton, England. Filed Dec. 11, 1893. Serial No. 493,369. (No model.)



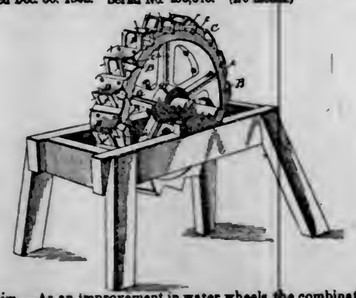
Claim.—1. The combination with a gas pendant, of a water pan supported over the gas burners, and provided with a reflector on its bottom; a water pipe extending to near the bottom of the pan and provided with an extension piece forming a siphon, and a supply valve, and an outlet valve, both connected to the said pipe, substantially as set forth.

2. The combination, with a gas pendant, of a water pan supported over the gas burners, and provided with a reflector on its bottom; a funnel for removing noxious vapors, secured around the gas pipe and provided with bend pipes directing the vapors onto the water in the pan; a water pipe extending to near the bottom of the pan and provided with an extension piece forming a siphon, and a supply valve,

and an outlet valve, both connected to the said pipe, substantially as set forth.

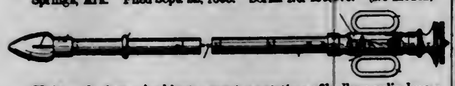
3. The combination, with a gas pendant, of a water pan supported over the gas burners, and provided with a reflector on its bottom; a water pipe extending to near the bottom of the pan and provided with an extension piece forming a siphon; an airtight vessel supported in the water pan, water circulating pipes connected to the said vessel and provided with stop valves; and a supply valve, and an outlet valve, both connected to the said water pipe, substantially as set forth.

518,599. WATER-WHEEL. ANDREW J. GOULD, Quincy, Cal. Filed Dec. 30, 1892. Serial No. 456,813. (No model.)



Claim.—As an improvement in water wheels, the combination of the solid wheel rim having inclined bucket notches indenting the periphery thereof and provided with straight and inclined back walls or shoulders, and integrally constructed attached bucket portions fitted on the periphery of the rim and having a solid integral body portion provided with straight and inclined back walls registering with those formed by the shoulders of the notches so as to complete bucket shoulders or walls partly formed in the rim of the wheel and partly by the attached bucket portions, integral top plates projected beyond the solid body portion and spanning said notches, and integral division walls depending from the outer ends of the top plates and resting at their lower ends on the periphery of the wheel rim in front of the notches therein, substantially as set forth.

518,600. SURGICAL INSTRUMENT. VICTOR H. HALLMAN, Hot Springs, Ark. Filed Sept. 22, 1893. Serial No. 486,170. (No model.)



Claim.—1. A surgical instrument consisting of hollow cylinders *a*, and *a'*, with a detachable slotted bulb *d;* a blade *d'*, hinged in the front end of said cylinder; a rod *c*, one end hinged to the shank of said blade and the other threaded and turning in the threaded end of thumb screw *b;* thumb screw *d*, turning in the end of the cylinder *a*, and provided with a peripherical groove b^3; and thumb screw b^3, screwing into the cylinder *a*, its inner end working in the groove b^3, adapted to hold said thumb screw in place and to lock the same from turning, substantially as shown and described and for the purposes set forth.

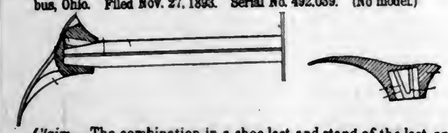
2. A surgical instrument, consisting of hollow cylinders *a*, and *a'*, with a detachable slotted bulb *d;* a blade *d'*, hinged in the front end of said cylinder; a rod *c*, one end hinged to the shank of said blade, and the other threaded and turning in the threaded end of thumb screw *b;* thumb screw *b*, turning in the end of the cylinder *a*, and provided with a peripherical groove b^3; and thumb screw b^3, screwing into the cylinder *a*, its inner end working in the groove b^3, adapted to hold said thumb screw in place and to lock the same from turning; thumb screw *k'*, passing through slot *j*, of cylinder *a*, and screwing into the perforation in the rod *c;* lock plate *i*, provided with slot *l*, and bifurcated end *o*, and pointer i^3; thumb screw *m*, working through the slot *l*, and screwing into the perforation *n*, substantially as shown and described and for the purposes set forth.

518,601. ARM FOR FIRING FULMINATED STICKS. JOHN F. HARDESTY and ROBERT A. SALE, St. Joseph, Mo. Filed July 13, 1893. Serial No. 480,240. (No model.)



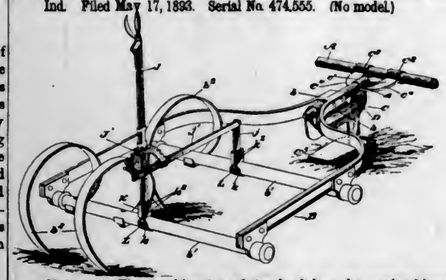
Claim.—In a toy gun, for shooting a fulminated stick, the combination with a barrel having a bore *c* of a larger chamber C, at the breech of the barrel, and communicating with the bore *c*, to form the shoulder D, said chamber being smooth throughout its length, a removable fire plug adapted to snugly fit the chamber, and a head on the plug adapted to close against the end of the barrel in the discharging operation, all arranged and adapted to operate in the manner and for the purpose set forth.

518,602. SHOE LAST AND STAND. ISAIAH G. HATCHER, Columbus, Ohio. Filed Nov. 27, 1893. Serial No. 492,039. (No model.)



Claim.—The combination in a shoe last and stand of the last, an ankle socket therein, diverging grooves in the opposite walls of said socket, a standard and oppositely located ribs or keys on said standard adapted to enter the desired one of said grooves in said socket, substantially as and for the purpose specified.

518,603. PIVOTED TOOTH-BAR. JOHN I. HOKE, South Bend, Ind. Filed May 17, 1893. Serial No. 474,555. (No model.)



Claim.—1. The combination of the draft bar, the casting hinged to said bar, provided with a shoe, a tube detachably secured to said casting lying at right angles to the draft bar, and a harrow section connected to said tube, substantially as described.

2. The combination of the draft bar, a casting upturned at both ends, and loosely hinged at one end to the draft bar, the tube secured between the upturned ends of the casting and lying at right angles to the draft bar, and the harrow section attached to said tube, substantially as described.

3. The combination of the draft bar, the casting upturned at both ends, hinged at one end to the draft bar and lying at right angles thereto, and a harrow section, and a connection between the section and casting, secured to the casting between the upturned ends thereof, substantially as set forth.

4. A casting for the purpose specified having its ends upturned, and one end provided with an inwardly projecting lug, and the other end with an eye, and arms diverging from said eye formed with eyes in their extremities whose axes are at right angles to the axis of the first eye, substantially as and for the purpose described

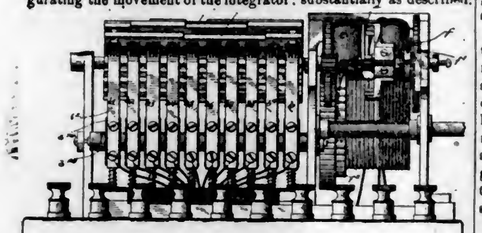
5. A casting for the purpose specified having its ends upturned, and one end provided with an inwardly projecting lug, and the other end with an eye, and arms diverging from said eye formed with eyes in their extremities whose axes are at right angles to the axis of the first eye, and a shoe on the under side of the casting, substantially as described.

518,604. ELECTRICAL CALCULATING SYSTEM. HERMAN HOLLERITH, Washington, D. C. Filed Dec. 9, 1892. Renewed Sept. 22, 1893. Serial No. 486,255. (No model.)

Claim.—1. In a system, such as described, provided with an integrator and a switch mechanism controlling the circuits operated upon by the integrator, the combination therewith of actuating devices governing the movements of the integrator, said actuating devices being controlled in their application by the movements of the switch-mechanism, whereby the circuit connections are established and the integrator put in action by or from the switch mechanism; substantially as described.

2. In a system, such as described, the combination of an integrator provided with a movable section or part arranged to operate upon or through a series of circuit connections, to produce in each circuit a different number of electrical impulses; a motor for driving the

movable section of the integrator; a series of registers; a switch mechanism controlling the circuit connections between the registers and integrator, including movable and fixed contacts and a perforated record card or strip; and a master or actuating circuit controlled from the switch mechanism and provided with starting devices for inaugurating the movement of the integrator: substantially as described.



3. In a system, such as described and in combination with the integrators, the registering devices, and a switch mechanism operated by a record card or strip to set the circuit connections between the integrator and registers, a motor for advancing the movable section of the integrator, and a stopping and starting mechanism controlled by an electro-magnet in a master circuit; substantially as described.

4. In a system, such as described, and in combination with the integrator, and the switch mechanism provided with movable contacts for setting the circuits leading from the integrator, actuating devices controlling the movements of the integrator, a master circuit including an electro-magnet operating upon said actuating devices, and a switch or movable contact in said master circuit operated to close said circuit and start the integrator after the switch mechanism has set the circuit connections, substantially as described.

5. In a system, such as described, the combination of the integrator provided with a movable section; a switch mechanism controlling the circuit connections with said integrator and provided with a movable platen or section carrying a series of contacts or contact actuating devices; a motor for the integrator; a master circuit containing devices for controlling the motion of the integrator; and a contact carried or actuated by the movable section of the switch and operating to close the master circuit and start the integrator after the circuit connections have been established through or by means of the switch mechanism; substantially as described.

6. In a system, such as described, the combination with the electrically operated registering devices, an integrator, and a switch mechanism intermediate the registers and integrator and controlling the circuit connections between the series of contact breakers of the integrator and the several registers through the medium of a perforated record-card or strip, of a motor device controlled by the switch mechanism and operating to throw the integrator into action: substantially as described.

7. In a switching mechanism, such as described, the combination with the bed plate and its contacts, the movable platen carrying the series of groups of contacts, and the perforated record card or strip, of the register circuits or conductors connected to their respective groups of contacts through contacts carried by the platen and engaging contacts on the bed plate, the latter forming terminals of said registering circuits; substantially as described.

8. In a switch mechanism, such as described, the combination with the bed plate provided with a series of groups of contacts, a movable platen provided with a second series of groups of contacts, a perforated record-card or strip for controlling connection between the opposite groups of contacts, gages for locating two sides of the record card, and contact gages carried by the platen and cooperating with contacts on the bed plate beyond the edges of the record-card, said contact gages being arranged in a circuit controlling the operating circuits through the switch, and operating to arrest or prevent the passage of a current when the record card is not properly positioned, substantially as described.

9. In a system, such as described, the combination with an integrator, a switch mechanism provided with two series of groups of contacts, of which one series of groups is movable relatively to the other; circuit connections between one series of groups of contacts and the contacts of the integrator on the one side, and between the other series of groups and the registers on the other; and a perforated record card interposed between and determining connection between the contacts, of a master circuit including devices for starting the integrator; and gage contacts carried by the movable sections of the switch and controlling the master circuit; substantially as described.

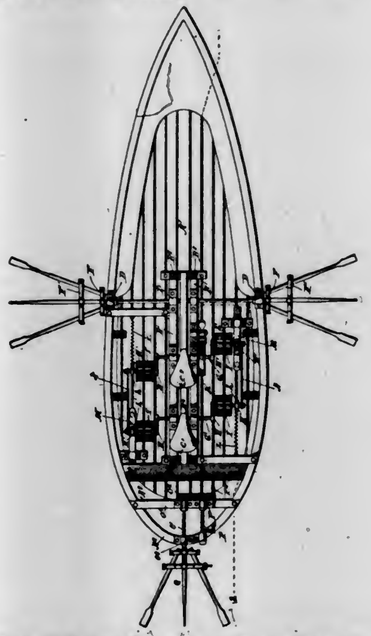
10. In a system, such as described, the combination of the integrator; the registers; the switch mechanism intermediate the registers and integrator; the record-card; the master circuit controlling the integrator; the gage-contacts; and the circuit closer for the master circuit.

11. In a system, such as described, the combination with integrator; registers; switch mechanism operated by record-card; and motor for integrator controlled by master circuit; of the card counter or register located in a circuit controlled by the switch mechanism and receiving its electrical impulses from the unit contact of the integrator through which the circuit is completed; substantially as described.

12. In an integrating apparatus, such as described, the combination with the series of fixed independent contacts or brushes, of the movable section provided with graduated series of contacts bearing successively on an equal number of the fixed contacts but engaging each of the latter a different number of times, whereby the same number of fixed contacts will be caused to engage the contacts of the movable series each time contact is established between the two series, and, at the same time, each of the fixed contacts will be caused to engage in the aggregate a different number of the movable contacts thus equalizing the frictional resistance and producing a graduated series of electrical impulses, substantially as described.

13. In an integrating apparatus, such as described, the combination with the fixed and movable contacts, of a motor or propelling device acting continuously upon the movable section of the integrator, an arm provided with two stop pins located in different planes, a detent lying normally in the path of one of said stop pins and movable into the path of the other stop pin, and an electro-magnet controlling the movement of said detent; substantially as described.

518,605. OAR-PROPELLER FOR BOATS. HORACE HURLBURT, Leavenworth, Kans. Filed Sept. 3, 1892. Renewed Mar. 19, 1894. Serial No. 504,277. (No model.)



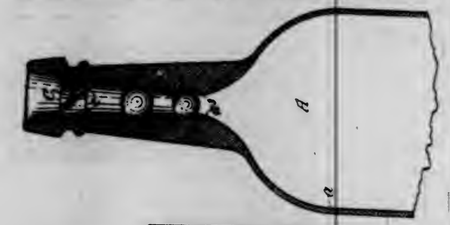
Claim.—1. In a propelling mechanism for boats, the combination with the oar-wheels and shaft, a counter-shaft geared to the oar wheel shaft, and having cranks and operating pedals, a retracting-spring secured to the pedal upon one side and also to the framework, and a spring-actuated presser bar located beneath the companion pedal of the same shaft, substantially as and for the purpose set forth.

2. In a propelling mechanism for boats, the combination with a shaft having crank-arms, a collar carried by the pin of one of said crank-arms, and a roller carried upon the pin of the other crank-arm of the shaft, of a spring-actuated bar engaging the roller at times, and a retracting spring connected to the collar and to a stationary part of the boat, substantially as set forth.

518,606. BOTTLE. FREDERICK H. HUTCHINSON, New York, N. Y. Filed Jan. 10, 1894. Serial No. 496,445. (No model.)

Claim.—The combination with a bottle or other vessel, having an internally flaring neck and a valve seat, of a plug having a sinu-

ous groove and two rolling valves, one coacting with the valve seat and the other with the tapering neck, substantially as specified.



518,607. SAFETY-SWITCH. ALFRED JOHNSON and WILLIAM S. CAMPBELL, West Point, Ind. Filed Dec. 11, 1893. Serial No. 493,377. (No model.)



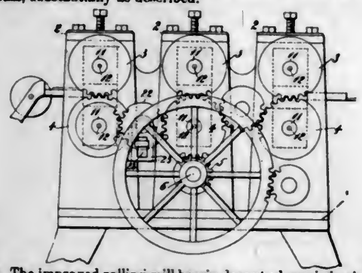
Claim.—1. The combination, in a safety switch for railways, of the switch rails, a single pulley located between the points of said switch rails, a distant single pulley between the two rails, a rope or chain attached at its ends to the points of the switch rail and passing first around the single pulley between said points and thence around the single distant pulley, rock-shafts extending transversely of the track and located between the two pulleys, one extending to each side of the track, crank-arms on said rockshafts connected to the two strands of rope or chain, respectively, and other crank-arms upon said rock-shafts extending up alongside the track, and the contact device upon the moving train adapted to be shifted to come in contact with either of said crank-arms, whereby the switch may be operated from either position by a train moving in either direction, substantially as shown and described.

2. The combination of the switch rails C, and a pivoted lock H therefor, a lever H' connected to said lock, a rod I connected to said lever and running to a distant point, a rock-shaft J at said point to which it is connected, a lever K pivoted to the track and connected to and operating said rock-shaft, and a spring *s* for operating said lever K in the reverse direction, substantially as shown and described.

3. The combination, with a railway switch, and mechanism for operating said switch from a moving train, of a pivoted lock H also connected by means of a rock-shaft and crank-arm with said mechanism, said lock being adapted to engage with the flange of the rail, said flange being cut away to receive said lock, substantially as shown and described.

518,608. MACHINE FOR MAKING HORSESHOE-BARS. WILLIAM J. KENT, New York, N. Y. Filed Sept. 23, 1893. Serial No. 486,307. (No model.)

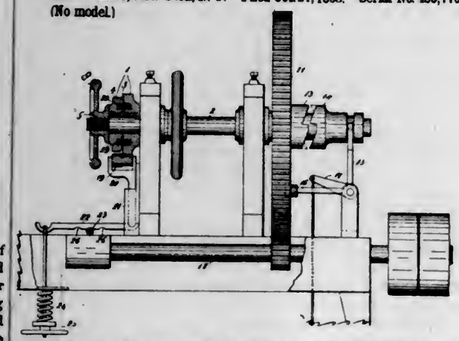
Claim.—1. As an improvement in rolling-mills for making horse-shoe-bars, the combination with a series of pairs of rolls, of a closed guiding channel for the bar placed in front of the first pair of rolls, between each pair and behind the last pair, the top or cover of each of said guiding channels having teeth or projections extending into the pass between the rolls to set as a rake-off, and a take-off roller for carrying off the product of the rolling mill as it emerges from the last pass, substantially as described.



2. The improved rolling-mill herein described consisting in a pair or a series of pairs of rolls, each roll made in sections, keyed together upon a shaft, each section being hollowed out upon its face, thus forming an open space between adjacent sections, and each section having a hole through the hollowed out portion, the shafts upon which the sections are mounted being bored at each end and communicating with the hollowed out portion of each end section, thus forming a passage way for a cooling fluid as described.

3. The improved rolling-mill for forming horse-shoe bars, comprising a series of pairs of rolls geared together each pair consisting of a grooved and a tongued roll, an intermediate gear or pinion being mounted in a stud secured in a slotted bracket, whereby said pinion may be raised and lowered for the purpose described.

518,609. MACHINE FOR BENDING HORSESHOE-BLANKS. WILLIAM J. KENT, New York, N. Y. Filed Oct. 21, 1893. Serial No. 488,776. (No model.)



Claim.—1. In a machine for bending horse-shoe blanks, the combination of the main frame, a rotatable shaft journaled therein, a separable former fixed to said shaft one section of which is slidable to and from the other, said former having in its periphery a groove of horse-shoe shape, springs for separating the sections, and a nut for forcing the sections together, a slidable head, and a roller movable thereon and adapted to force the blank into the peripheral groove of the former, substantially as shown and described.

2. In a machine for bending horse-shoe blanks, the combination of shaft 2, the separable former 1, springs 29, nut 5, presser roller 19 mounted in sliding head 20, lever 22, adjustable fulcrum 23, spring connection 24, and nut 25, substantially as shown and described.

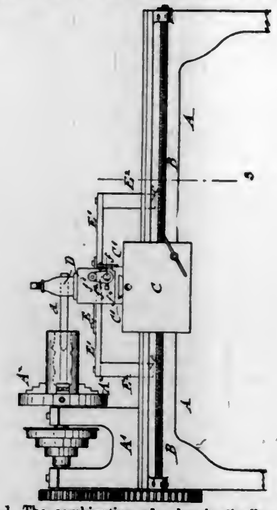
3. In a machine for bending horse-shoe blanks, the combination of a divided former having the peripheral groove of horse-shoe shape, the springs and nut for separating and closing the sections of the former, a rotatable shaft upon one end of which said former is mounted, a driving gear loosely mounted upon said shaft having a cam upon its side face and the hub of said gear provided with a clutch member, a corresponding clutch member slidably mounted upon the shaft, and a pivoted lever connected to the latter clutch member and having an arm extended in the path of said cam, whereby the driving gear may be automatically unclutched from its shaft, substantially as shown and described

518,610. BUNG. MORITZ KRAGEN, Berlin, Germany. Filed Sept. 29, 1891. Serial No. 407,204. (No model.)

Claim.—In a bung, the combination of a rectangular pin screw-threaded at both ends, a shell having a rectangular opening to fit upon said pin, a perforated nut within the said shell to screw upon the end of the pin, a perforated flange upon the said shell to retain the nut therein and also to retain the bung in the hole, points *i* and ribs *i'* upon said flange to enter the sides of the barrel and prevent the rotation of the shell, a nut *g* upon the inner end of the pin, a disk *f* retained by said nut, and elastic disks upon the said pin between the disk *f* and the shell, substantially as and for the purposes described.



518,611. LATHE FOR TURNING IRREGULAR FORMS. CHARLES KUMBE, Newark, N. J. Filed May 2, 1893. Serial No. 472,717. (No model.)



Claim.—1. The combination of a longitudinally reciprocating slide rest, a cross feed slide, a relatively fixed templet, a rod operating against said templet to control the movements of the cross feed slide, means for holding said rod in contact with the templet an adjusting screw carried by the cross feed slide, and independent means for adjustably connecting said adjusting screw with said rod, substantially as described.

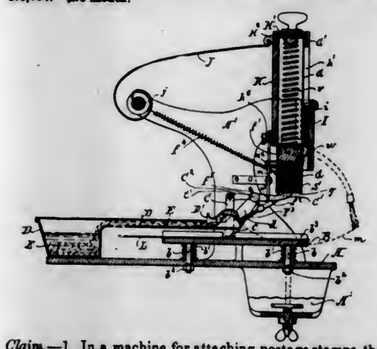
2. The combination, with the slide-rest of an ordinary lathe, of a cross-feed slide guided in ways of said slide-rest, a guide-rod supported in the cross-feed slide and provided with a guide-pin, means for adjusting the rod in the cross-feed-slide, a sliding-bar on the rear-shear of the lathe, a templet attached to said bar, and an elbow-lever fulcrumed to a cross piece of the slide-rest and strapped to the cross-feed-slide, substantially as set forth.

3. The combination, with the slide-rest of a lathe, of a cross-feed-slide guided in ways of said slide-rest, a tool-post on the cross-feed-slide, a guide-rod supported in the cross-feed-slide and provided with a guide-pin at its rear-end, means for adjusting said guide-rod in the cross-feed-slide, a templet supported on the rear-shear of the lathe, a fulcrumed and weighted elbow-lever, and means for connecting the elbow-lever with the cross-feed-slide, so as to hold the guide-pin of the guide-rod on the face of the templet, substantially as set forth.

4. The combination of a longitudinally reciprocating slide rest, a cross feed slide adapted to move on said slide rest, a templet, a rod co-operating with said templet to produce work of corresponding pattern, an adjusting screw working in the cross feed slide, a link held to the adjusting screw so as to move therewith, and a clamping screw for securing the link to the rod, substantially as described.

5. In a lathe, the combination of a longitudinally reciprocating slide rest, a cross feed slide mounted on the slide rest, a rod connected with said cross feed slide and having a guide pin, a templet, a sliding bar having the templet attached, posts for supporting the sliding bar and having lugs thereon, and screws passing through said lugs and securing the posts to the shear of the lathe, substantially as described.

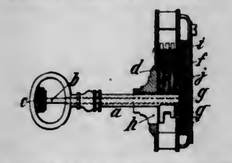
518,612. MACHINE FOR ATTACHING POSTAGE-STAMPS. CHARLES F. LANTRY, New York, N. Y. Filed May 6, 1893. Serial No. 473,197. (No model.)



Claim.—1. In a machine for attaching postage stamps, the combination of an upright plunger mounted in a suitable frame and carrying a removable stamp receptacle with a cushioned table, a retaining clamp, an oscillating brush, and a water tank, as and for the purposes herein shown and described.

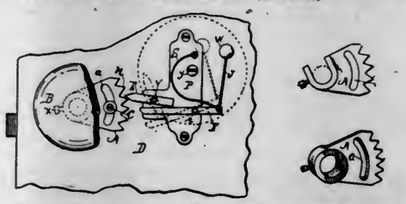
2. In a machine for attaching postage stamps the combination of an upright plunger carrying the stamps and mounted in a suitable frame with a cushioned table, a retaining clamp, an oscillating brush, and a water-tank as and for the purposes herein shown and described.

518,613. PROTECTOR FOR ELECTRIC OR OTHER BELLS. LEON R. LECELLIER, Villedieu, France. Filed July 31, 1893. Serial No. 481,970. (No model.) Patented in France Apr. 7, 1891, No. 212,612.



Claim.—The combination with an electric or other bell operating device, of a protector provided with an auxiliary set of perforated tumblers connected to the key operated tumblers and of a key having a push pin fitted in its barrel and adapted to slide through the apertures in the auxiliary tumblers when the latter are brought to position by the action of the key, and to act on the bell operating device as specified.

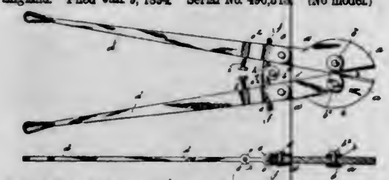
518,614. BURGLAR-ALARM. CHARLES J. LYONS, Joliet, Ill., assignor of two-thirds to Henry J. Weber and Joseph Weber, same place. Filed Jan. 2, 1894. Serial No. 495,805. (No model.)



Claim.—1. In a burglar alarm the combination of the attaching plate P carrying a bell G, lever F pivotally connected to said plate, spring S for connecting the rear end of said lever with said plate, and terminating in a striker arm J, trip lever E pivotally connected to said plate parallel with lever F and in contact therewith, and the notched segment or wheel A connected to the door knob shank and having its teeth engage the outer end of said trip lever, all arranged to operate substantially as and for the purpose set forth.

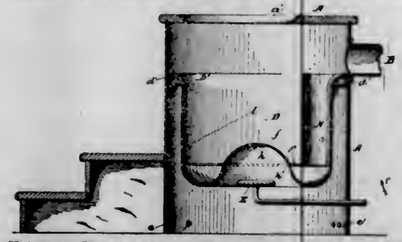
2. In a burglar alarm the combination of an attaching plate carrying a bell, a lever pivotally connected to said plate and carrying a striker arm on its outer end, a trip lever pivotally connected to said plate parallel with and in contact with said striker lever, a spring for preserving the contact of said levers, and a notched segment or wheel arranged on the door knob shank for tripping said trip lever all arranged to operate substantially as and for the purpose set forth.

518,615. BOLT OR ROD CUTTER. WILLIAM MARCH, London, England. Filed Jan 9, 1894. Serial No. 496,313. (No model.)



Claim.—In a bolt or rod cutter the combination with the two levers carrying the cutters of the eye bolts adjustably secured to the said levers and pivotally connected together, substantially as described.

518,616. DRY CLOSET OR COMMODE. JUDSON L. MARVIN, Manston, Wis. Filed July 8, 1893. Serial No. 479,879. (No model.)



Claim.—1. In a dry closet, a receptacle provided with a dome and a surrounding channel in its bottom, combined with a removable tray arranged in said receptacle and forming therewith an evaporating chamber, and an escape flue leading from said chamber, as and for the purpose described.

2. In a dry closet, the combination of a receptacle, having an imperforate bottom formed with a raised dome, a removable tray fitted within the receptacle, around the dome therein, and forming with the bottom an evaporating chamber and provided with openings to permit the passage of liquids into said chamber, an escape flue leading from said evaporating chamber, and a suitable heater, as and for the purposes described.

3. The combination with an external casing having the outlet pipe, of a removable receptacle having an imperforate bottom, a detachable tray supported within said receptacle and forming, with its bottom, an intermediate chamber, a flue leading from said intermediate chamber and connected with the outlet pipe, and a suitable heater below the receptacle, substantially as and for the purposes described.

4. In a dry closet, a receptacle having an imperforate bottom formed with a central dome and a channel, combined with an external casing, a removable tray seated within the receptacle, over the channel therein, and forming the intermediate chamber, a heater situated below the dome of the receptacle, and a flue leading from the chamber between said tray and the bottom of the receptacle, substantially as described.

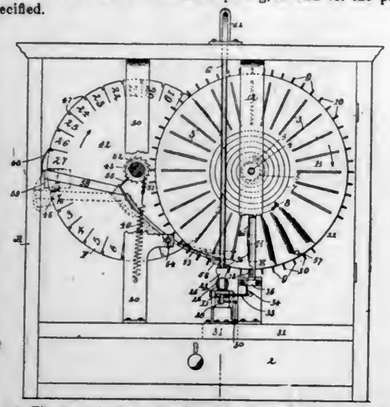
5. In a dry closet, the receptacle having a channel and a central dome which has openings near its upper end, combined with a tray seated in the receptacle around the dome, below the openings therein, and over the channel, a flue leading from the space between the channel and tray, and a suitable heater situated below the dome of the receptacle, substantially as described.

518,617. COIN-CONTROLLED GAME APPARATUS. HERMAN MAYER, Albany, N. Y. Filed Dec. 28, 1893. Serial No. 494,980. (No model.)

Claim.—1. A coin-controlled game apparatus, comprising a spring-actuated ticket-wheel, a spring-actuated number-wheel which is released to rotate by said ticket-wheel, a tilting-lever provided with a coin-receiver, and a sliding-bar that is normally locked by said tilting-lever; the releasement of said sliding-bar being effected by depositing a proper coin in said receiver, and said sliding-bar being provided with means—substantially as described—for interrupting the rotative movement of said ticket-wheel, as and for the purpose specified.

2. The combination of a spring-actuated ticket-wheel provided with a series of slots for containing tickets and having two series of peripheral spurs arranged on different circumferential lines; one series of said spurs being arranged intermediately to the spurs of the other series, and a sliding-bar provided with a standing flange arranged to engage with said spurs successively; whereby the rotative movement of said ticket-wheel will be interrupted to effect a step-by-step rotation of said wheel, as and for the purpose specified.

3. The combination of a spring-actuated number-wheel, a ratchet-wheel secured to the shaft which carries said number-wheel, a lever provided with a detent fitted to engage with said ratchet-wheel; said lever being also provided with a shutter which normally forms a closure for an opening in the casing of the apparatus, and a wheel provided with a stud arranged to effect a tilting movement of said lever; whereby said detent will be disengaged from the ratchet-wheel and the shutter moved from said opening, as and for the purpose specified.



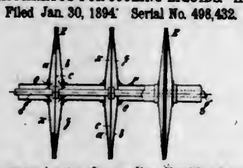
4. The combination of a tilting-lever carrying—at one end—a counter-weight receptacle which is pivoted thereto and is adapted to centralize a counter-weight directly under said pivot and—at the other end—having a coin-receiver provided with a swinging-end connected to an adjusting-screw for adapting said receiver for retaining different sizes of coins, and a sliding-bar that is normally locked by said tilting-lever and is connected to the swinging-end of the coin-receiver; whereby the apparatus can be adapted to be operated by coins of different sizes and weights, and the swinging-end of the coin-receiver be retracted to discharge the coin from said receiver, as and for the purpose specified.

5. In a coin controlled game-apparatus, a number-wheel composed of a principal disk provided with a series of consecutively-arranged numerals, and a supplementary disk having a segmental portion of its surface removed to expose the numerals of the principal disk; said supplementary disk being provided with a lesser number of numerals than the principal disk, and a locking-device for securing the principal and supplementary disks together in such manner that said number-wheel will show either a continuous series of numerals, or two corresponding series of the same, as and for the purpose specified.

6. The combination of a casing provided with a ticket-discharge opening, a swinging-guard fitted to form a closure for said opening, a coin-controlled tilting-lever, and a sliding-bar normally locked in an immovable position by said tilting-lever and arranged to effect a movement of said guard to give free access to said opening, as and for the purpose specified.

7. In a coin-controlled apparatus, a coin-chute having its exterior opening provided with an adjustment manipulated from the interior of the casing of the apparatus; whereby said opening can be adjusted to prevent the introduction of a coin of too great a diameter into said chute, as herein specified.

518,618. APPARATUS FOR COOLING LIQUIDS. HENRI MENDER, Paris, France. Filed Jan. 30, 1894. Serial No. 498,432. (No model.)



Claim.—1. In an apparatus for cooling liquids, the combination with a vat for receiving the liquid to be cooled, of a rotative hollow shaft mounted in said vat, and supporting lens-shaped hollow chambers communicating with said shaft, through which shaft and chambers the cooling liquid circulates, substantially as set forth.

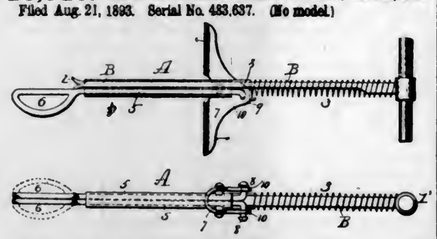
2. In an apparatus for cooling liquids, the combination with a vat for receiving the liquid to be cooled, of a rotative hollow shaft mounted therein, a series of lens-shaped chambers mounted on said shaft, each being composed of two dished disks and a partition between them, which partition has apertures at its rim, substantially as set forth.

3. In an apparatus for cooling liquids, the combination with a vat for receiving the liquid to be cooled, of a hollow shaft mounted therein, which is composed of a series of tubular sections, a series of lens-shaped chambers fixed between the ends of the tubular sections, and communicating therewith, an apertured partition arranged centrally in each chamber, a rod passed centrally through the tubular shaft and fastened to said central partitions, through which hollow shaft and chambers the cooling liquid circulates, substantially as set forth.

4. In an apparatus for cooling liquids, the combination with a vat for receiving the liquid to be cooled, of a tubular rotative shaft arranged in the same, a series of lens-shaped chambers mounted on the same and communicating therewith, through which shaft and chambers the cooling liquid circulates, and scrapers resting on the sides of said chambers, substantially as set forth.

5. The combination, with a vat having a bottom channel, of a rotative tubular shaft mounted in said vat, lens-shaped chambers mounted on said shaft and in communication therewith, a conveyer screw in said channel, a chamber at one end of the vat and in communication therewith, a bucket chain in said end chamber, and means for operating the tubular shaft, conveyer screw and bucket chain from one source of power, substantially as set forth.

518,619. SHOE-BUTTONER. DANIEL H. MUIR, Lincoln, Nebr. Filed Aug. 21, 1893. Serial No. 483,637. (No model.)



Claim.—1. In a buttoner, the combination with a body portion, and jaws connected therewith and capable of rocking axially relative thereto, of a rocking lever pivoted to the body and connected with the jaws for rocking them, substantially as set forth.

2. In a buttoner, the combination with a body portion, of a pair of rocking jaws or loops, a lever for operating the jaws, and a sliding rod having a foot or claw thereon adapted to engage the material in which the button hole is formed in the operation of buttoning, substantially as set forth.

3. In a buttoner, the combination with a body portion and a pair of rocking jaws or loops the shanks of which have laterally bent ends, of a finger lever pivoted to the body portion, said lever connected loosely with the ends of the shanks whereby the jaws or loops are operated by the swinging of the lever, substantially as set forth.

4. The combination with a body portion, rocking jaws or loops, and a rocking lever for operating the jaws, of a spring actuated slide rod having a handle thereon and a foot or claw on one end adapted to engage the material in which the button hole is formed, substantially as set forth.

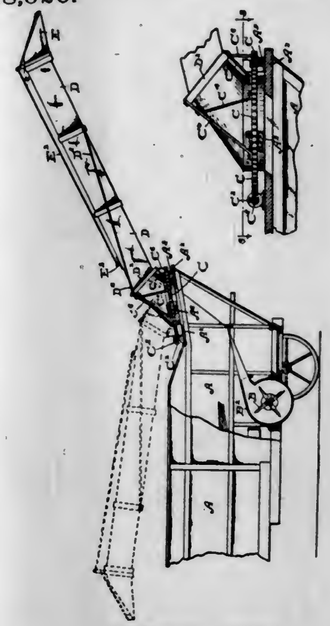
518,620. PNEUMATIC STRAW-STACKER. ARTHUR A. MCKAIN and WILLIAM SEBURN, Indianapolis, Ind. Filed Dec. 27, 1893. Serial No. 494,830. (No model.)

Claim.—1. The combination; of the thrashing machine provided with the platform A' having its highest side at the rear end of the machine, a turn-table secured thereon, and parallel therewith, a straw elevator trunk or chute D secured to said turn-table, and means for revolving said turn-table, whereby said straw elevator trunk is caused to be elevated in its extended position and to be lowered when in its folded up position above the body of the thrashing machine, substantially as shown and described and for the purposes specified.

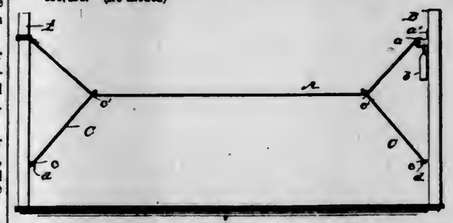
2. The combination of the thrashing machine having the inclined platform A' with its highest side at the rear end of the machine, the turn-table C mounted thereon, and parallel therewith, the rigidly constructed straw elevator trunk or chute secured to said platform by the braces C^3 C^4 C^2 and C^5, the housings and trucks securing said turn-table to the platform, and the shaft and worm gear for revolving said turn-table, the whole being constructed and operating substantially as shown and described.

3. The combination of the thrashing machine having an inclined platform, a turn-table mounted on said platform, and parallel therewith, a rigid straw stacker trunk or chute mounted on said turn-table and secured thereto by means of braces and frame pieces, as C' C^3 C^5 C^4, thus securing said elevator trunk or chute rigidly thereto, substantially as set forth.

518,620.



518,621. CLOTHES-LINE SUPPORT. CHARLES G. MORLIN and FRANK LINDSTROM, Marquette, Kans. Filed July 13, 1893. Serial No. 480,438. (No model.)



Claim.—1. The combination with a line fast to a support at one end, and loosely sustained at the other end, of a weight on the free end of the line, pieces engaging the line intermediately of its supports, and means to hold the line depressed with said pieces, substantially as described.

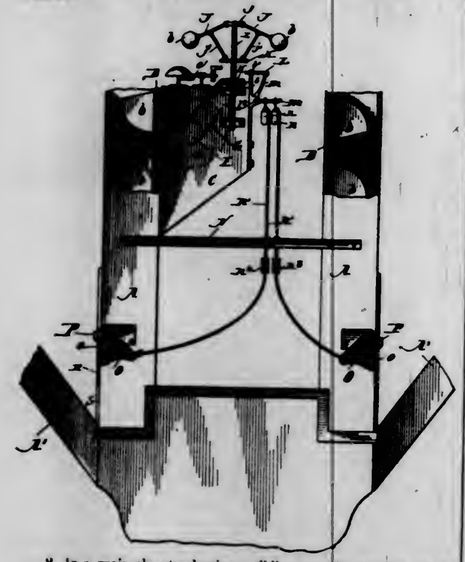
2. The combination, with a line fast at one end to a support, and pendent near its other end on a rotatable pulley held to an opposite support, and a weight on the pendent end of said line, of link bars loose on the line, and hooks on the supports, below the line, adapted to engage the lower ends of the link bars when said bars are depressed, substantially as described.

3. The combination, with two posts, a line fast by one end to one of said posts, a bracketed pulley on the other post loosely engaged by the line that hangs therefrom, and a weight on the pendent end of the line, of two link bars having eyes at their lower ends and loose pulleys at their upper ends that are strung on the line, and two hooks on the posts that the bars will engage when drawn downwardly, substantially as described.

518,622. AUTOMATIC SHUT-OFF FOR GRAIN-ELEVATORS. GEORGE W. NYE, Chicago, Ill. Filed Apr. 27, 1891. Serial No. 390,586. (No model.)

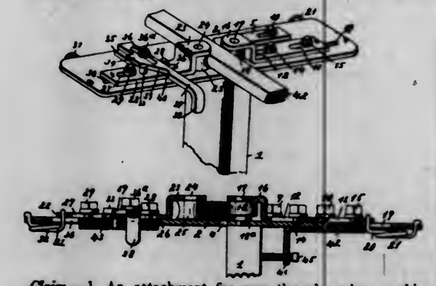
Claim.—1. In an automatic device for shutting off the supply of grain from a grain elevator, a friction wheel operated by the elevator belt, a ball-governor driven thereby, and having a disk or collar adapted to rise and fall, and having a suitable projection thereon, a pivoted hook L adapted to be engaged by said projection, a pivoted lever, having the arms m m', a weight n, adapted to be supported by the arm m', a cord n' attached to said weight and passing over a suitable guiding sheave, a catch secured to the end of said cord, a slid-

ing door and means adapted to be engaged by said catch whereby when the speed of the belt slackens, the hook L will release the arm n, causing the weight n to fall and release the sliding gate, so as to shut off the supply of grain from said elevator, substantially as described.



2. In a grain elevator having a sliding gate for shutting off the supply of grain from the elevator leg, an additional sliding gate outside the said inner gate, said additional outer gate being so arranged as to partially shut off the supply of grain from the leg when such outer gate is closed, the cup-belt, and means connected with the outside gate and adapted to be automatically actuated by the cup-belt of said elevator in such manner that said outer gate will fall when the speed of the cup-belt slackens.

518,623. WORK-GUIDING DEVICE FOR SEWING-MACHINES. JAMES R. OLIVER, Kansas City, Mo. Filed July 13, 1893. Serial No. 480,436. (No model.)

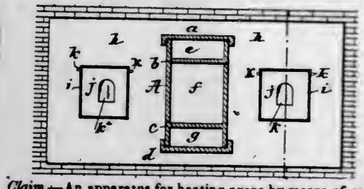


Claim.—1. An attachment for wax thread sewing machines, comprising a horizontal plate or table detachably mounted upon the post or standard of the machine, a plate carrying a roller at its forward end and slotted longitudinally and guide bolts passing through said slots and engaging the table or plate, and a spring secured to the under side of said plate and bearing against the rear end of said sliding plate, and a second slide plate also having slots, and bolts carried by the table and engaging said slots, and a spring secured to the under side of said table and bearing against the outer end of said sliding plate, and a grooved roller carried at the inner end of said plate, and a stud projecting upwardly from said sliding plate, and a locking lever arranged transversely of said sliding plate and having a slot therein, and a bolt carried by the table and engaging said slot, and a handle portion at its front end, and a cam face adapted to bear and operate against the stud of said plate, and terminating in a recess at its forward end, substantially as set forth.

2. An attachment for wax thread sewing machines, comprising a plate or table mounted upon the post or standard thereof and slotted transversely, and a guard-plate having an arm arranged at the side margin of said side slot and having longitudinally extending slots, and bolts engaging said slots and passing into the plate or table, in combination with a sliding plate carrying a roller on its forward end resting upon the arm of said guard plate, and a spring-actuated grooved roller carrying plate adjustable toward said slot, and means to lock said spring-actuated carrying plate at any desired position, substantially as set forth.

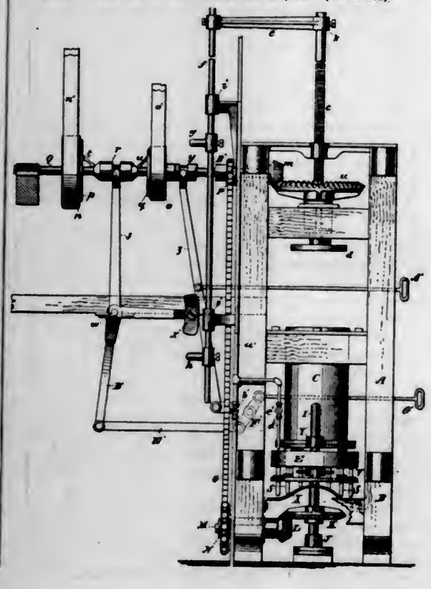
3. In a work-guiding attachment for sewing machines, the combination with a bed-plate slotted transversely, a guard-plate mounted upon the bed-plate and having an extension arm arranged coincident with the adjacent side margin of the bed-plate slot, and a plate mounted upon the bed-plate, a roller carried by said plate and arranged above the extension or arm, and also reduced to bear against the outer margin of the said arm or extension, of a spring-actuated plate mounted upon the bed-plate at the opposite end of the slot and having a pin or stud, a grooved roller carried by the said plate at its inner end, a slide-lever resting upon and arranged transversely of the said plate, and provided with a cam or inclined face to operate against the pin or stud of the said plate, and also provided with a handle-portion, and a guide projecting from the bed-plate and engaging the said lever, substantially as set forth.

518,624. APPARATUS FOR HEATING OVENS BY GAS. JOHAN L. W. OLSEN, Copenhagen, Denmark. Filed Aug. 17, 1893. Serial No. 483,338. (No model.)



Claim.—An apparatus for heating ovens by means of gas, which consists of a supporting-plate adapted to be set into an opening of the wall of the oven, a burner passing through a central opening of said plate and having gas and air-channels, and pendent doors hinged at their upper ends in side-openings of the plate, so as to open inwardly and admit air under the action of the draft, or to open outwardly to permit the gases to escape from the oven when the internal pressure of the gases becomes too great, substantially as set forth.

518,625. MACHINE FOR MOLDING NEUFCHATEL CHEESE. JOHN B. PECHY, New York, N. Y., assignor to Christine Baumert, same place. Filed Jan. 4, 1894. Serial No. 495,638. (No model.)



Claim.—1. In a machine for molding cheese, the receiving cylinder having an open top and a bottom provided with an outlet aperture, the presser plate adapted to enter said cylinder and mechanism connected with said plate for causing its gradual descent against the cheese to slowly expel the same through said outlet, combined with the horizontal revoluble dial containing along its outer upper surface the concentric series of vertical molds adapted to pass below said outlet, the vertical shaft for said dial and located beyond the vertical center of said cylinder so that only a small portion of the dial is below the cylinder at any one time, mechanism intermediate said vertical shaft and the driving shaft of the machine, the plungers in said molds and having the downwardly extending rods, the apertured plate below said dial through which said rods pass, and the inclined plate below said apertured plate and on which the lower ends of the plunger rods ride; substantially as and for the purposes set forth.

2. In a machine for molding cheese, the receiving cylinder having an open top and a bottom provided with an outlet aperture, the presser plate entering said cylinder and adapted to gradually descend against the cheese, mechanism connected with the driving shaft and said plate for effecting the gradual descent and ascent of the latter, two drive wheels and clutches on said shaft, and mechanism intermediate said plate and drive wheels for releasing the clutches at the ends of the movement of said plate, combined with the horizontal revoluble dial containing along its outer upper surface the concentric series of molds adapted to pass below said outlet, the vertical shaft for said dial and located beyond the vertical center of said cylinder so that only a small portion of the dial is below the cylinder at any one time, mechanism intermediate said vertical shaft and the driving shaft of the machine, the plungers in said molds and having the downwardly extending rods, the apertured plate below said dial through which said rods pass, and the inclined plate below said apertured plate and on which the lower ends of the plunger rods ride; substantially as and for the purposes set forth.

3. In a machine for molding, the receiving cylinder having the open top and an outlet in its bottom, and the presser-plate and its connecting mechanism whereby it is caused to gradually descend into said cylinder and against the cheese, combined with the revoluble dial containing a series of molds in line with said outlet, the plungers in said molds, the plate through which the plunger rods pass, the adjustable collars on said rods above said plate, and the inclined plate on which the lower ends of said rods ride; substantially as set forth.

4. In a machine for molding, the receiving cylinder having an open top and an outlet in its bottom, and the presser-plate and its connecting mechanism whereby it is caused to gradually descend into said cylinder and expel the cheese therefrom, combined with the revoluble dial containing a series of molds in line with said outlet, the vertically reciprocating plungers in said molds, and means for heating the interior of said molds by dry steam; substantially as set forth.

5. In a machine for molding, the receiving cylinder having the open top and an outlet at its bottom, the revoluble dial containing a series of molds in line with said outlet, and the plungers in said molds for expelling the cheese therefrom, combined with the revoluble threaded spindle *c*, the presser-plate *d* on the lower end of said spindle, the bevel gear *a* carrying the internally threaded sleeve engaging said spindle, the bevel-pinion *m* on the driving shaft and engaging said gear *a*, the drive-wheels and clutches on the said driving shaft, the bell-crank lever *s* the sliding block intermediate said wheels and engaged by said lever *s*, and the rod carrying arms *g*, *h*, and connected to move with the spindle *c*, the said arms *g*, *h*, being adapted during the movement of the spindle *c* to actuate the lever *s* to stop the machine: substantially as set forth.

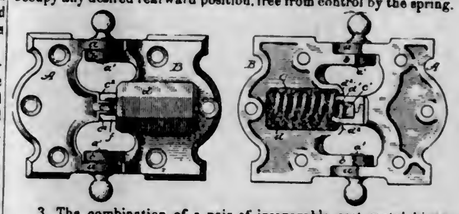
6. In a machine for molding, the receiving cylinder having the open top and an outlet at its bottom, and the revoluble dial containing a series of molds in line with said outlet, combined with the vertical shaft I extending through the dial and carrying the bevel gear K, the shaft M having the bevel-pinion L and sprocket wheel N, the shaft Q having the loose sprocket wheel P, and feathered clutch *y*, the chain O connecting the wheels P, N, the lever for operating clutch *y*, the threaded spindle *c* carrying the presser-plate *d*, the bevel gear wheel *a* having the internally threaded sleeve *b* which encircles the spindle *c*, and the bevel-pinion *m* on the driving shaft and engaging said wheel *a*: substantially as set forth

---

518,626. SPRING-HINGE. LE ROY R. POMEROY, Cleveland, Ohio, assignor to the Van Wagoner & Williams Hardware Company, Jersey City, N. J. Filed May 11, 1893. Serial No. 473,795. (No model.)

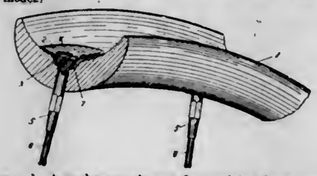
Claim.—1. In a spring hinge, the combination substantially as hereinbefore described, of a pair of hinge leaves having appropriately projecting ears; a spring mounted on one of said leaves, and coupled to the other leaf, and a spring locking stop, which restricts the spring to closing duty, whereby after the hinge has been opened with the spring under tension, a further movement of either leaf, will cause the spring to be locked and rendered inoperative, and permit the movable leaf to be placed, and to remain in, any desired rearward position.

2. In a spring hinge, the combination substantially as hereinbefore described, of a pair of hinge leaves having appropriately projecting ears; a spiral spring transversely mounted on one of said leaves, and provided with a spring rod extending toward the other leaf; a link which is pivotally connected to the outer end of said rod, and also to said other leaf; and a spring locking stop which holds said rod and limits the action of the spring to door closing duty, and locates the pivotal connection of the link and rod adjacent to the line of the hinge axis, for enabling the door carrying leaf of the hinge to occupy any desired rearward position, free from control by the spring.



3. The combination of a pair of inseparable cast metal hinge leaves, one leaf having projecting ears, provided with integral tapered or conical pivots, and the other leaf having similarly integral projecting ears provided with correspondingly tapered eyes, inseparably occupied by the tapered pivots, substantially as described.

518,627. SPOKE ATTACHMENT FOR VEHICLE-WHEELS. LOUIS RASTETTER, Fort Wayne, Ind. Filed Nov. 13, 1893. Serial No. 490,749. (No model.)

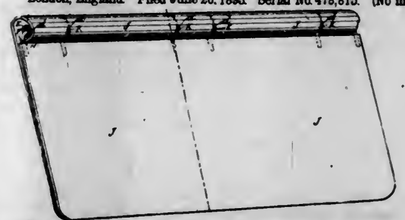


Claim.—1. A spoke attachment for vehicle wheels comprising a concave washer 2 having a beveled perimeter and provided with a perforated hemispherical socket as described adapted to form a nipple-head seat, the said washer being adapted to conform to the contour of the grooved periphery of the rim, all substantially as set forth and described.

2. In a spoke attachment for vehicle wheels the combination of the concave washer 2 provided with a perforated socket 3 for the purpose set forth, and a beveled perimeter, the said washer being adapted to conform to the contour of the grooved periphery of the rim as described, with a nipple 5 having a ball shaped or hemispherical head adapted to fit and form a bearing in the said socket, all substantially as set forth and described

---

518,628. LETTER-CASE, PORTFOLIO, &c. ALFRED E. A. RAY, London, England. Filed June 26, 1893. Serial No. 478,815. (No model.)



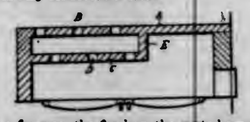
Claim.—1. A letter case or portfolio consisting of the sides and a spring back connecting them, said spring back comprising a tubular spring part and the spring carried thereby for keeping the sides closed, substantially as described.

2. A letter case or portfolio comprising the sides one of which carries a tubular spring back, the spring within and carried by the said tubular back, the arms H' and the rod H, the said arms being attached to one of the sides, substantially as described.

3. A letter case or portfolio comprising the two sides one of which has an integral tubular spring back portion and the spring within said back portion connecting the same with the other side, substantially as described.

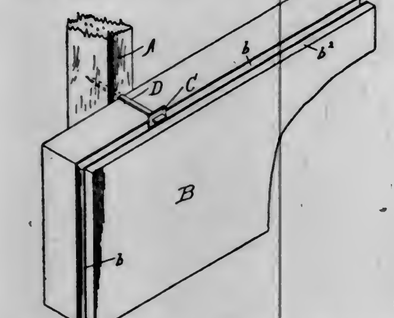
4. A letter case or portfolio comprising the two sides one of which has an integral extension in the form of a tubular spring having a coiled continuation in the form of a spring, the other side being connected thereto, substantially as described.

518,629. FURNACE. MONTAGUE H. C. SHANN, Brisbane, Queensland. Filed Jan. 29, 1894. Serial No. 498,392. (No model.) Patented in Queensland July 13, 1893, No. 2,409.



Claim.—In a furnace, the fire box, the grate bars, the arch A extending across the top of the fire box, perforations in the rear part of said arch, a second perforated arch beneath the first and extending below the perforated part only thereof and an imperforate part E at the end of the second arch between it and the first, substantially as described.

518,630. BUILDING-BLOCK. EUGENE SMITH, Chicago, Ill. Filed Apr. 13, 1893. Serial No. 470,803. (No model.)



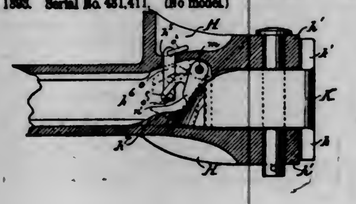
Claim.—1. The combination with a wall or frame to be faced of a series of building blocks forming the facing thereof, each of said blocks provided around its entire edge with a groove and a fastening device adapted to engage said groove at any point and to engage also the wall or frame, substantially as described.

2. The combination with a wall or frame to be faced of a series of building blocks forming the facing thereof each of said blocks provided with a groove on its edge, a washer provided with an orifice, the face of the washer bearing against the face of the groove and a fastening device engaging the washer, and engaging also the wall or frame, the body of the fastening device lying between the two adjacent blocks, substantially as described.

3. The combination with a wall or frame to be faced of a series of building blocks forming the facing thereof, each of said blocks provided on its edge with a groove, one face of said groove provided with a metallic lining and a fastening device, one end of said device engaging said lining and the other engaging the wall or frame, substantially as described.

4. The combination with a wall or frame to be faced of a series of building blocks forming the facing thereof, each of said blocks provided on its edge with a groove, a substantially U shaped metallic lining piece in said groove and a fastening device one end of which engages said lining, and the other end of which engages said wall or frame, substantially as described.

518,631. CAR-COUPLING. STEPHEN T. SMITH, Darien, Conn., assignor of one-half to Charles F. Lantry, New York, N. Y. Filed July 26, 1893. Serial No. 481,411. (No model.)

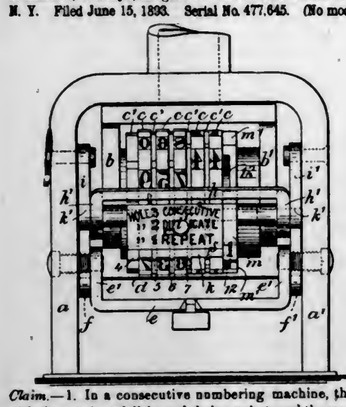


Claim.—1. In a car coupler the combination of a pivoted knuckle with a coupler head, provided in front over the mouth of its central cavity with bearings for a pin *m* and at the bottom of the cavity with a guide block k^7,—and two tumblers *n*, *n'* suspended from said pin and provided with hooks *c c'* and recesses, as and for the purposes herein shown and described.

2. The combination with a coupler-head, a knuckle pivotally connected thereto, and two or more tumblers, of a T shaped pin for tripping and lifting the tumblers simultaneously, as and for the purposes herein shown and described.

3. In a car coupler, the combination of a coupler-head having a paraboloidal recess terminating in a notch, with a knuckle pivotally connected thereto, having an arm, provided at its end with a paraboloidal face, terminating in a hook and fitting respectively the recess and the notch provided in the coupler-head and means for locking and unlocking the knuckle in two or more positions as and for the purposes herein shown and set forth.

518,632. CONSECUTIVE-NUMBERING MACHINE. CHARLES SPIELMANN, Brooklyn, assignor to William A. Force & Co., New York, N. Y. Filed June 15, 1893. Serial No. 477,645. (No model.)



Claim.—1. In a consecutive numbering machine, the combination with the numbered disks and their ratchets and the pawls for operating the same, of the pawl block connected to or formed with said pawls, and letters, numbers, or characters upon its face, indicating the operative positions of the mechanism, a dead pawl pivoted upon the shaft of the pawl block having three transverse holes and characters upon the edge agreeing with those on the pawl block, with the end reduced or cut away to form an engaging point, and with means for connecting the dead pawl and pawl block at either of the three holes, a friction ratchet wheel upon the shaft of the numbered disks having recesses in one side of and adjacent to the alternate teeth thereof to receive the reduced engaging point of the dead pawl, substantially as and for the purposes set forth.

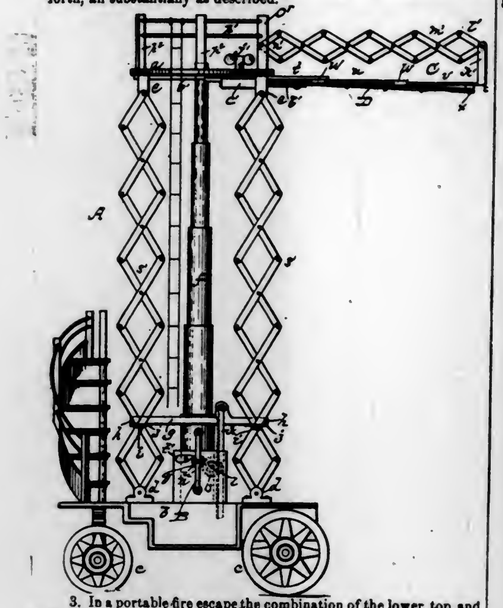
2. In a consecutive numbering machine, the combination with the numbered disks and their ratchets and the pawl block and pawls for operating the same, of the dead pawl *m* having three holes and a reduced end or cut away portion, the pin *l* supported by the pawl block and engaging either hole of the pawl *m* to adjustably maintain their relations to each other, the friction ratchet wheel *m'* upon the shaft of the numbered disks, having shallow teeth around its periphery and recesses 12 in one side coinciding with the alternate teeth to receive the cut away portion of the dead pawl, substantially as and for the purposes set forth

3. In a numbering machine having indicating devices and adapted to repeat, duplicate or print consecutively, the combination with a dead pawl having a reduced end or cut away portion; of a friction ratchet wheel having shallow teeth around its periphery and recesses 12 in one side to receive the cut away portion of the dead pawl, said recesses having edges parallel with radial lines and agreeing with the alternate teeth, substantially as set forth.

518,633. PORTABLE FIRE-ESCAPE. JOHN J. STEUR, Albany, N. Y. Filed July 24, 1893. Serial No. 481,284. (No model.)

Claim.—1. The combination with the lower platform and duplex system of lazy tongs the intermediate platform attached to said lazy tongs the side toothed bars the pinions meshing with the teeth of these bars, crank handle and top platform all substantially as described.

2. The combination in a portable fire escape, of the sets of lazy tongs pivoted at their lower ends to the lower platform and at their upper ends to the under side of the top platform, the central tubular sectional brace connecting the lower and top platform and stairs mounted on the lower platform; the intermediate platform pivoted to the lazy tongs, toothed bars, pinions, hand lever and pawl engaging the ratchet wheel; the top platform provided with the railing and sectional bridge and means for operating the bridge back and forth, all substantially as described.



3. In a portable fire escape the combination of the lower, top, and intermediate platforms, the toothed bars and pinions, ratchet wheel, pawl and crank handle, the tubular central sectional brace connecting the top and bottom platforms to one another, the stairs arranged on the lower platform and the bridge composed of sections, each section sliding upon the other section and operated substantially as described.

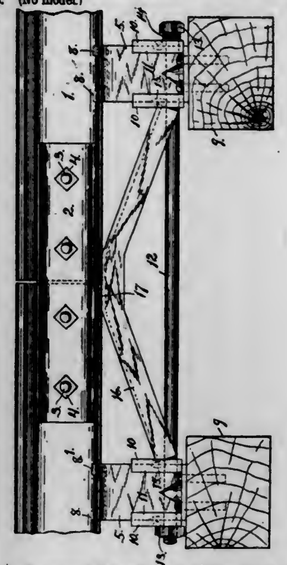
4. In a portable fire escape the combination with the lower, top and intermediate platforms and means as described for lowering and raising the top platform and the tubular sectional brace connecting the top and bottom platforms of the bridge composed of sections each section sliding upon the other, the lazy tongs beneath this bridge and connected at one end thereto and at the opposite end to the under side of the top platform, the sliding skeleton frame connected to the lazy tongs and leaving the side toothed bar, the pinion meshing with this bar and the key engaging the shaft on which the pinion turns, and the lazy tongs forming a rail or fence for each side of the bridge, all substantially as described.

5. The within described improvement in portable fire escapes consisting of the lazy-tongs interposed between the upper and lower platforms and pivoted thereto, both top and bottom, the central sectional tubular brace, serving the double purpose as a brace and a tube for the passage of fire hose, the intermediate platform connected to the lazy-tongs at each end, the toothed bars secured to each side or edge of this latter platform, the pinions engaging said teeth in said bars, ratchet wheel on the shaft of one of these pinions, pawl and double crank handle for operating the device, the stairs secured on the lower platform and the bridge composed of horizontally sliding sections; the lazy tongs for operating these sections, skeleton frame arranged beneath the top platform and pivoted to the lazy tongs and the tooth bar secured to the skeleton frame and the pinion and key for operating the bridge all substantially as described.

6. In a portable fire escape a platform interposed between the top and bottom platforms thereof and pivoted to lazy tongs at each end and suitable gearing for operating said intermediate platform, whereby the top platform is raised and lowered all substantially as described.

7. In a portable fire escape of the class herein-described, the combination with the lazy tongs pivoted both at the top to the upper platform and at the bottom to the lower platform or base, the central tubular base secured to the lower base or platform and at its upper end to the top platform, the intermediate platform, pivoted to the lazy tongs, having the side toothed bars and pinions, ratchet wheel, pawl and double crank handle, the bridge composed of sectional pieces sliding upon one another and provided with the side rails, lazy tongs, side toothed bar, pinion for operating this bar and key all substantially as described.

518,684. SUPPORT FOR RAIL-JOINTS. FLAVIUS P. STIKER, Buffalo, N. Y., assignor, by direct and mesne assignments, of one-half to Anna Van Denvouver, same place. Filed Oct. 28, 1893. Serial No. 489,363. (No model.)



Claim.—1. A support for rail-joints consisting essentially of a metallic strut or arch upon the upper flat surface of which the contiguous ends of the rails rest, chairs which support the ends of the rails and which are provided with seats for the reception of the downwardly extending ends of the strut or arch and a tie-rod having its ends secured to the chairs to prevent their spreading under strain all combined and operating substantially as shown and described.

2. A support for rail joints consisting essentially of a metallic strut or arch, upon the upper flat surface of which the contiguous ends of the rails rest and to which they are secured, chairs which support the ends of the rails and which are provided with seats for the reception of the downwardly extending ends of the strut or arch and a tie-rod having its ends secured to the chairs to prevent their spreading under strain, all combined and operating substantially as shown and described.

3. A support for rail-joints consisting essentially of a metallic strut or arch upon the upper flat surface of which the contiguous ends of the rails rest fish-plates for joining the ends of the rails and provided with downwardly projecting extensions which engage with the top of the strut or arch to hold it in its operative position, chairs which support the ends of the rails and which are provided with seats for the reception of the downwardly extending ends of the strut or arch and a tie-rod having its ends secured to the chairs to prevent their spreading under strain all combined and operating substantially as shown and described.

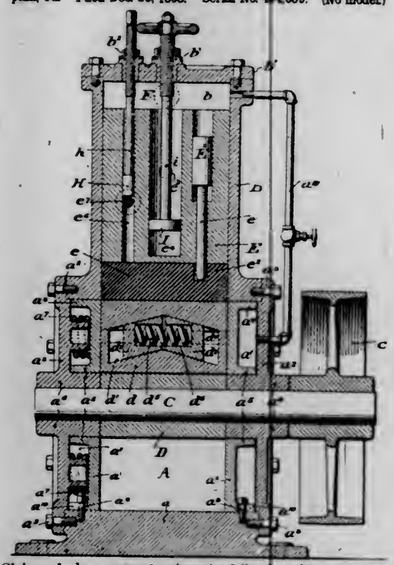
4. A support for rail-joints consisting essentially of a metallic strut or arch upon the upper flat surface of which the contiguous ends of the rails rest, chairs which support the ends of the rails and which are provided with seats for the reception of the downwardly extending ends of the strut or arch and a tie-rod elastically secured to the chairs to prevent their undue spreading under strain, all combined and operating substantially as shown and described.

5. A support for rail-joints consisting essentially of a metallic strut or arch upon the upper flat surface of which the contiguous ends of the rails rest and to which they are secured, chairs which support the ends of the rails and which are provided with seats for the reception of the downwardly extending ends of the strut or arch and a tie-rod elastically secured to the chairs to prevent their undue spreading under strain all combined and operating substantially as shown and described.

6. A support for rail-joints consisting essentially of a metallic strut or arch upon the upper flat surface of which the contiguous ends

of the rails rest fish-plates for joining the ends of the rails and provided with downwardly projecting extensions which engage with the top of the strut or arch to hold it in its operative position, chairs which support the ends of the rails and which are provided with seats for the reception of the downwardly extending ends of the strut or arch and a tie-rod elastically secured to the chairs to prevent their undue spreading under strain all combined and operating substantially as shown and described.

518,635. ROTARY ENGINE. STEPHEN P. M. TASKER, Philadelphia, Pa. Filed Dec. 26, 1893. Serial No. 494,659. (No model.)



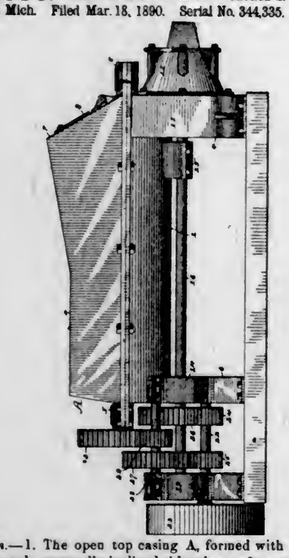
Claim.—1. In a rotary engine, the following elements in combination:—a hollow piston-cylinder;—a revoluble shaft concentrically disposed with respect to the cylinder and extending beyond one of its ends;—a piston eccentrically and fixedly mounted upon the shaft in such manner as to make contact with the walls and ends of the cylinder;—a valve casing extending from the cylinder, opening thereinto, and provided with induction and exhaust ports;—a slide valve conformed to the interior of the valve casing and adapted to reciprocate therein and into the cylinder, provided with induction and exhaust passages, and as to its inner end provided with a bearing block having a concaved surface conformed to and adapted to make close contact with the periphery of the piston;—and a fluid-controlled and automatically operating plunger which acts upon said bearing block and maintains its concaved surface in constant coincidence with the periphery of the piston throughout the revolution of the latter.—substantially as set forth.

2. In a rotary engine, the following elements in combination:—a hollow piston-cylinder;—a revoluble shaft concentrically disposed with respect to the cylinder and extending beyond one of its ends;—a piston eccentrically and fixedly mounted upon the shaft in such manner as to make contact with the walls and ends of the cylinder;—a valve casing extending from the cylinder, opening thereinto, and provided with induction and exhaust ports;—a slide valve conformed to the interior of the valve casing and adapted to reciprocate therein and into the cylinder, having its inner end in contact with the eccentric piston, and provided with induction and exhaust passages;—and adjustable cut-off valves respectively operative in connection with the induction and exhaust passages of the slide valve;—substantially as and for the purposes set forth.

3. In a rotary engine, the following elements in combination:—a hollow piston-cylinder;—a revoluble shaft concentrically disposed with respect to the cylinder and extending beyond one of its ends;—a piston eccentrically and fixedly mounted upon the shaft in such manner as to make contact with the walls and ends of the cylinder;—a valve casing extending from the cylinder, opening thereinto, provided with induction and exhaust passages, and as to its inner end provided with a bearing block having a concaved surface, conformed to and adapted to make close contact with the periphery of the piston;—a plunger under the influence of the steam or other liquid or fluid within the valve casing which acts to maintain constant and automatic contact between the concaved surface of the bearing block and the periphery of the piston throughout the revolution of the latter:—and adjustable cut-off valves respectively operative in connection with the induction and exhaust passages of the slide valve:—substantially as set forth.

4. In a rotary engine, the following elements in combination:—a hollow piston-cylinder;—a revoluble shaft concentrically disposed with respect to the cylinder and extending beyond one of its ends;—a cylindric piston of the length of the cylinder, but of less diameter, eccentrically and fixedly mounted and keyed upon the shaft, and containing a radially disposed plunger adapted to make contact with the peripheral walls of the cylinder and formed with angular ways within which are contained angular sliders conformed to said ways, adapted to be pressed apart by a compressed spiral spring, and formed with lateral tongues adapted to grooves in the piston;—a valve casing extending from the cylinder, opening thereinto, and provided with induction and exhaust ports;—and a slide valve conformed to the interior of the valve casing and adapted to reciprocate therein and into the cylinder, having its inner end in contact with the eccentric piston, and provided with induction and exhaust passages;—substantially as set forth.

518,636. CLAY-WORKING MILL. GEORGE S. TIFFANY, Tecumseh, Mich. Filed Mar. 18, 1890. Serial No. 344,335. (No model.)

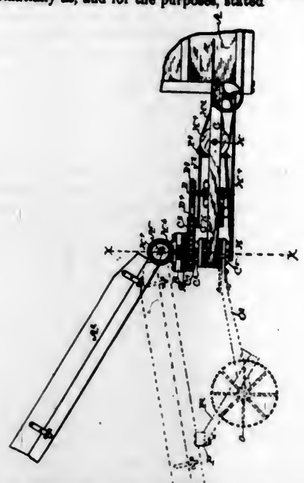


Claim.—1. The open top casing A, formed with exterior bearings at its ends, upwardly inclined side-edges, a forward end inclined inwardly from bottom to top and provided with an opening, and a door hinged to the inclined end to close the opening, substantially as and for the purpose specified.

2. The combination of the open-top casing A having a forward end inclined inward from bottom and extending over the end of the pug-shaft to top, a feed-chamber opening vertically downward from the casing below the said inclined end, the pug-shaft mounted in the casing with its last mixing blade arranged substantially on a line with the inner wall of the feed-chamber, the auger-shaft mounted in bearings under the casing, and having its forward end projecting into the feed-chamber, augers on the projecting part of the shaft, and means for imparting motions to the pug-shaft and auger shaft, as specified.

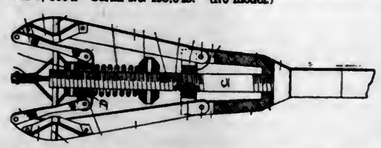
518,637. STRAW-STACKER. ARTHUR VANHOUWELING, Olivet, Iowa. Filed Sept. 25, 1893. Serial No. 486,490. (No model.)

Claim.—1. An improved automatically oscillating straw stacker comprising the following elements to wit; a suitable frame adapted to be attached to a thrashing machine, a segmental sprocket wheel rotatably mounted in the outer end of said frame, a frame mounted upon said sprocket, a carrier connected with said frame and capable of a movement in a vertical plane relative thereto, means for operating said carrier by power derived from the thrashing machine, a vertical shaft also mounted in said frame a sprocket wheel thereon, a chain gearing the said sprocket with the aforesaid segmental shaft, a worm gear in mesh therewith and fixed to a suitable shaft, mechanism adapted to rotate said shaft in either direction, two pins projecting from the said segmental sprocket, a lever fulcrumed to a suitable support and adapted to be engaged by said pins and means whereby a reversal of said lever operates the mechanism for reversing the aforesaid worm gear, and means for operating the device from the thrashing machine, substantially as, and for the purposes, stated



2. In combination with a thrashing machine, a carrier composed of the parts A^3, A^5, A^4, A^6 and A^8, frame B having the shaft A^5 mounted therein, a frame C fixed to the thrashing machine, a plate C^2 mounted in the outer end of the frame C, a segmental gear wheel C^3 having a plate C^4 at its under side to mate with the plate C^2, means for fixing the frame B to the top of said segmental sprocket C^3, a shaft D rotatably mounted in the approximate central portion of the frame C, a gear wheel D^2 fixed to said shaft, a sprocket wheel D^3 also fixed to said shaft, a chain D^4 connecting the wheels C^3 and D^3, a worm F, a shaft F^2 connected therewith, a beveled gear F^3 on the end of said shaft, a shaft H adapted to be driven by power from the thrashing machine, the gear wheels H^2 and H^4 rotatably mounted on said shaft H, a clutch J arranged to be placed in engagement with either of the wheels H^3 and H^4, a lever J^2 pivoted in a suitable support, a fork J^3 at the rear end of said lever J^2, springs J^4 interposed upon the shaft H between the ends of the fork J^3 and bar H^5 connecting the said clutch J with the springs J^4 for the purposes stated, pins K downwardly projecting from the segmental sprocket wheel C^3 to engage the lever J^2, as set forth, a shaft C^5 extended vertically through the forward end of the frame C, sprocket wheels N, N, fixed to the opposite ends thereof, a chain N^4 for connecting the lower sprocket wheel with the thrashing machine and the gearing devices N^5, N^6 and N^7 for driving the mechanism of the carrier, all arranged and combined, substantially in the manner set forth, and for the purposes stated.

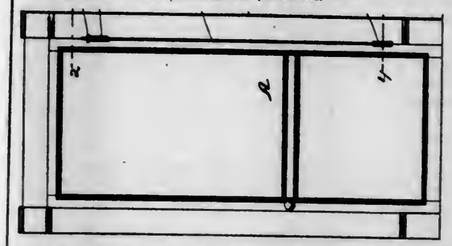
518,638. FLUE-CLEANER. EDWARD D. WESTON, Jackson, Mich., assignor of one-half to Robert Gage and R. D. Legg, same place. Filed Jan. 5, 1894. Serial No. 495,845. (No model.)



Claim.—1. The flue scraper described, comprising the stock having the threaded stem, the scraping blades pivotally connected at their inner ends with the stock, the slidable collar arranged on the threaded stem, the links connecting the outer ends of the blades with said collar, the threaded stop on the stem and on the outer side of the collar, the adjusting nut also on the stem and on the opposite side of the collar and the tension spring interposed between the collar and the adjusting nut, all substantially as and for the purpose set forth.

2. The flue scraper described comprising the stock, having the shoulder, and also having the threaded stem, and the rigid arms extending from said shoulder, the scraping blades, pivoted at their inner ends to said arms, the slidable collar arranged on the threaded stem, the links connecting the outer ends of the blades with said collar, the threaded stop on the stem, and on the outer side of the collar, the adjusting nut also on the stem and on the opposite side of the collar, and the tension spring interposed between the collar and the adjusting nut, all adapted to operate, substantially as specified.

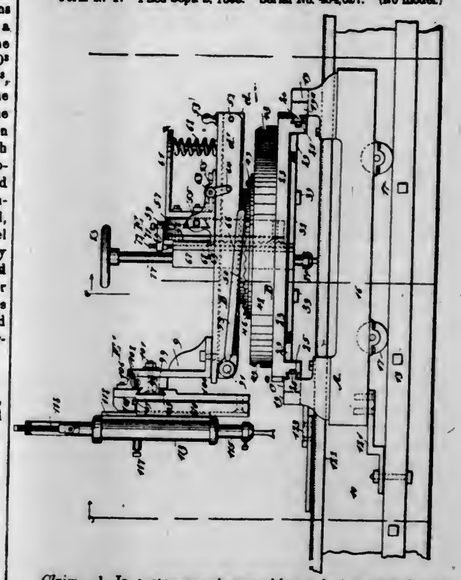
518,639. SPRING-HINGE. AMASA H. WILSON, Chicago, Ill. Filed Aug. 3, 1893. Serial No. 482,230. (No model.)



Claim.—1. In spring hinges, the combination of two hinges with a torsion rod in a single piece extending between said hinges and acting as a common pintle therefor, said rod being secured to opposite leaves one upon each hinge and placed under tension to swing the door.

2. In spring hinges, the combination of two hinges with a torsion rod in a single piece extending through and between said hinges and acting as a pintle therefor, said rod being secured to opposite leaves, one upon each hinge, the engagement with one of said leaves being secured by means of an adjusting device substantially as shown and described.

518,640. STONE-CARVING MACHINE. ANTONIO XANARDO, New York, N. Y. Filed Sept. 2, 1893. Serial No. 484,627. (No model.)



Claim.—1. In a stone-carving machine, a bed, a table having movement in the bed, a tool carriage held to revolve upon the table, a plate adjustably located in the bed, and adjusting devices whereby the bed plate may be set eccentric to the carriage, as and for the purpose set forth.

2. In a stone-carving machine, a bed, an eccentric plate adjustably carried by the bed, a table having sliding movement in the bed over the plate, the plate and table being each provided with a central aperture, a carriage having rotary movement upon the table, a tool-holding mechanism attached to the carriage and extending downward through an opening in the carriage and openings in the table and eccentric plate, and mechanism, substantially as shown and described for changing the position of the eccentric plate with reference to the carriage, as and for the purpose set forth.

3. In a stone carving machine, a bed provided with an eccentric plate having a central aperture and capable of sliding movement in

the bed, a support of substantially circular character having rotary movement upon the body of the bed, a table provided with an opening therein, having sliding movement in the rotary section of the bed, a tool carriage having rotary movement upon the table, and adjusting devices connecting the eccentric plate with the carriage, whereby the said plate may be adjusted concentrically or eccentrically to the carriage, as and for the purpose specified.

4. In a stone-carving machine, a base constructed of adjustable sections, said base having wheeled supports, a bed adjustably connected with the base, a slide capable of lateral movement in ways produced in the bed, and a tool carriage having rotary movement upon the table, as and for the purpose specified.

5. In a stone-carving machine, an adjustable base, a bed adjustably located upon the base, a table having sliding movement in the bed, a collar having a fluted surface secured upon the table, a tool carriage having rotary movement upon the table, and a reciprocating mechanism connecting the fluted section of the collar with the carriage, and imparting to the latter a vibratory movement, as and for the purpose specified.

6. In a stone carving machine, a base, a bed adjustably connected with the base, the bed being provided with an opening to admit a tool, a table having sliding movement in the bed and likewise provided with a tool-receiving opening, means for anchoring the table to the bed, a carriage having rotary movement upon the table, and a tool-carrying mechanism adjustably located upon the carriage and extending through the openings in the bed and table, as and for the purpose set forth.

7. In a stone carving machine, an adjustable base, a bed adjustably connected with the base, a table having sliding movement in the bed, and means for anchoring the table to the bed, a carriage having rotary movement upon the table, a tool-carrying mechanism having spring-controlled connection with the table and comprising a series of sections adjustably connected with the table and with each other, substantially as shown and described.

8. In a stone-carving machine, the combination, with a carriage, of a tool-holding device, the same consisting of a tool-post having yielding spring connection with the carriage, an adjusting device connected with the tool post, whereby it is moved horizontally upon its support, a tool plate having pivotal connection with the tool post and lateral adjustment thereon, and a tool casing having vertical adjustment upon the tool plate, as and for the purpose specified.

9. In a stone-carving machine, the combination, with a carriage, of a tool-holding device, the same consisting of a tool post having yielding spring connection with the carriage, an adjusting device connected with the tool post, whereby it is moved horizontally upon its support, a tool plate having pivotal connection with the tool post and lateral adjustment thereon, a tool casing having vertical adjustment upon the tool plate, a limiting device controlling the vertical movement of the tool casing, a tool holder held to revolve in the casing, and means, substantially as shown and described, for connecting the holder rigidly with the casing, as and for the purpose set forth.

10. In a stone-carving machine, the combination, with a bed comprising an adjustable body, and a support having rotary movement in the body, a sliding table carried by the rotary section of the bed, and means for anchoring the table to the bed, the table being provided with an opening, of a fluted surface located upon the table around its opening, a carriage comprising a body section and a tool carrying section having hinged connection with the body section, the body section being held to turn upon the table, a rock shaft carried by the body section of the carriage, an arm projected from the rock shaft and engaging with the tool-carrying section of the carriage, and a connection between the rock shaft and the fluted surface of the table whereby a vibratory movement is imparted to the tool-carrying section of the carriage, as and for the purpose set forth.

11. In a stone-carving machine, the combination, with an adjustable base having a wheeled support, a bed comprising a body section having adjustable connection with the base, and a supporting section having a rotary movement upon the supporting section, and a table having sliding movement in the supporting section of the bed, of a carriage constructed in two sections, a body section having rotary movement upon the table, and a cover section having hinged connection with the body, a spring-controlled pivotal support located upon the cover section of the carriage, a tool post having sliding movement upon the spring-controlled support, and a tool holder having lateral and vertical adjustment upon the tool post, the tool holder being adapted to extend through the carriage, the table, bed and base, substantially as shown and described.

12. In a stone-carving machine, the combination, with a bed comprising an adjustable body section and a supporting section mounted to turn upon the body section, both sections being of ring-like construction, a slide carried by the body section of the bed, having an opening therein for the reception of a tool, and a table provided with an opening registering with that of the slide, the table having lateral movement upon the supporting section of the bed, of a tool carriage having rotary movement upon the slide, and adjusting devices having fixed connection with the carriage and adjustable connection with the slide of the bed, whereby the said slide may be placed eccentrically or concentrically to the carriage, substantially as shown and described.

13. In a stone-carving machine, the combination, with a bed comprising a sliding and a rotary section, both sections being of substantially ring-like construction, an apertured plate having sliding movement in the sliding section of the bed, an apertured table having sliding movement in the bed over the rotary section, and means, substantially as shown and described, for anchoring the table to the bed, and a fluted rib carried by the table, of circular construction, a carriage comprising a bed and a cover section, one hinged to the other, the body section having rotary movement upon the slide, a vibratory mechanism connecting the cover section of the carriage with the slide, an adjusting mechanism fixedly secured to the body of the carriage and adjustably connected with the slide in the bed, whereby the latter may be placed concentric or eccentric to the carriage, and a tool-holding mechanism adjustably supported upon the cover section of the carriage, the said tool holding mechanism comprising sections, the several sections having independent adjustment in various directions, as and for the purpose set forth.

14. In a stone carving machine, the combination, with an expansible base, a bed adjustably connected with the base, a slide having rotary and sliding movement on a portion of the base, a tool-carriage having rotary movement upon the slide, a tool-holding mechanism located upon the carriage and extending through the central portion of the carriage, slide and base, the said tool-holding mechanism being adapted to carry a finishing tool, and a second tool-holding mechanism removably attached to the carriage near one end and adapted to carry a roughing tool, both of the tool-holding mechanisms having independent adjustment laterally and vertically, substantially as shown and described.

15. In a stone-carving machine, the combination, with an expansible base having wheeled supports, a bed comprising a body having sliding movement upon the base, and a supporting section having rotary movement upon the body, an eccentric plate or slide adjustably located upon the body of the bed, and a table having sliding movement in the rotary section of the bed, of a tool carriage, an adjusting mechanism adjustably connected with the eccentric plate and having fixed connection with the carriage, and tool-holding mechanisms supported by the carriage, one tool holding mechanism being located at the end of the carriage and another about centrally thereof, both tool-carrying mechanisms having independent adjustment vertically and laterally, the inner mechanism being spring-controlled, as and for the purpose set forth.

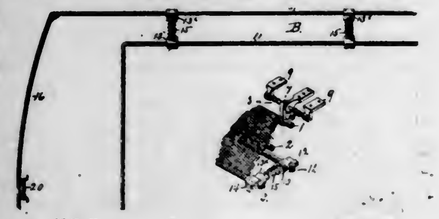
518,641. NUT-LOCK. EDWARD C. BAYNES and HARRY HENDERSON, Buffalo, N. Y. Filed July 1, 1893. Renewed Mar. 5, 1894. Serial No. 502,441. (No model.)



Claim.—1. A nut lock consisting of a single piece of bar steel having two downward and inward bends 3, at opposite ends of the same, and at points near the center of the device larger upward and outward bends, 5, the two ends, 6, of which project outward horizontally in opposite directions and are adapted to rest on the flat sides o the nuts to prevent them from turning substantially as described.

2. A nut lock consisting of a single piece of bar steel having two downward and inward bends, 3, at opposite ends of the same, and at points nearer the center two larger upward and outward bends the two ends of which project horizontally outward in opposite directions, in combination with a fish plate having the raised portion, 9, substantially as and for the purposes described.

518,642. CAR-WHEEL FENDER. SYLVESTER A. BREEN, Alexandria, Va. Filed Nov. 23, 1893. Serial No. 491,706. (No model.)

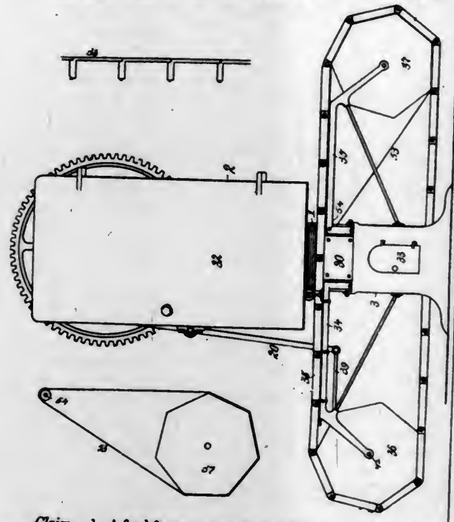


Claim.—1. A wheel-fender and safety-attachment for cars, consisting of a frame extending the length of the car and having extensions running under the steps of the car; hinges to support the frame having hinge bars wherein the frame has longitudinal play, a bar secured behind and parallel with the lower bar of the frame, and springs between the said bar and the lower bar of the frame, substantially as described.

2. A wheel-fender and safety attachment for cars, consisting of a frame extending the length of the car and having extensions running under the steps of the car: hinges to support the frame having hinge bars whereon the frame has longitudinal play, a bar secured behind and parallel with the lower bar of the frame; springs between the said inner bar and the lower bar of the frame, end-fenders having spring-connections to the ends of the side-fenders, and spring fastenings between their meeting-edges, substantially as described.

3. A wheel-fender and safety-attachment for cars, consisting of a frame extending the length of the car and having extensions running under the steps of the car; hinges to support the frame having hinge bars whereon the frame has longitudinal play, springs on the hinge-bars, a bar secured behind and parallel with the lower bar of the frame, springs between the said inner bar and the lower bar of the frame, end-fenders having spring-connections to the ends of the side-fenders, and spring fastenings between their meeting-edges, substantially as set forth.

518,643. RE-PRESS BRICK-MACHINE. DAVIS BROWN, Decatur, Ill., assignor of one-half to the Decatur Leader Manufacturing Company same place. Filed July 26, 1893. Serial No. 481,511. (No model.)



Claim.—1. A feed for re-press brick machines comprising an endless intermittently acting carrier with a plunger above, and a stationary matrix under said carrier, said matrix having vertical sides to inclose a brick.

2. A feed for re-press brick machines comprising an endless intermittently acting carrier having openings therein to receive and advance the already molded bricks under a plunger, with said plunger above, and a stationary matrix under said carrier, said matrix having vertical sides to inclose a brick.

3. In re-press brick machines, a shaft, a cam thereon opposite quadrants of which are eccentric while the others are concentric with the shaft, a brick expeller having a bearing in the cam, and a feed actuating bar also having a bearing in the cam at a distance approximating ninety degrees from the bearing of the expeller.

4. The movement for re-press brick machines comprising shaft 9, disk 10 having cam groove 11, pitman 12 connecting a crank pin on the disk with the slide of the press, brick expelling rod 16 having a bearing in the cam groove in vertical alignment with the shaft, and feed bar 20 also having a bearing in the groove in horizontal alignment with the shaft, substantially as set forth.

5. A feed for re-press brick machines comprising an endless chain with open links to receive bricks and conduct them under a plunger, with said plunger above, and a matrix under said carrier, said matrix having vertical sides to inclose a brick.

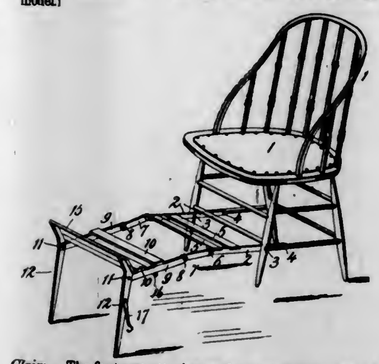
6. A feed for re-press brick machines comprising an endless chain with open links to receive the bricks, pulleys carrying the chain, a ratchet wheel on a shaft of a chain-carrying pulley, an arm mounted loosely on the shaft, and a pawl on the arm engaging the ratchet wheel.

7. A feed for re-press brick machines comprising an endless feed chain, pulleys to carry the chain, a ratchet on a shaft of a chain carrying pulley, a pawl to drive the ratchet and throw off at the end of its stroke, and a weight, or equivalent tending to retract the chain, substantially as set forth.

8. A feed for re press brick machines comprising an endless feed chain, pulleys to carry the chain, a ratchet on a shaft of a chain carrying pulley, a pawl to drive the ratchet, and a weight, or equivalent tending to retract the chain, substantially as set forth.

9. In re-press brick machines, the combination of a chain adapted to feed and off-bear, and a belt running under the off bearing portion of the chain.

518,644. FOOT-REST ATTACHMENT FOR CHAIRS. DAVID S. CLARK, Kingston, Pa. Filed May 29, 1893. Serial No. 476,942. (No model.)



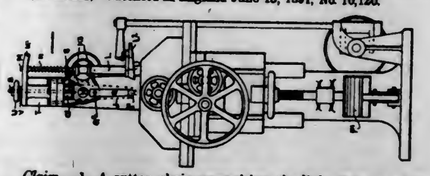
Claim.—The foot rest attachment for chairs composed of the two outwardly extending side bars adapted to be rigidly secured to the lower portion of the chair proper, a second set of side bars having the upright legs pivotally connected to their outer ends so as to swing longitudinally thereof, and the links intermediate of said second set of side bars and the side bars attached to the chair and pivotally connected at opposite ends to both sets of said side bars, whereby the rest may be adjusted to various positions and permit the chair to be tilted while the rest is extended, substantially as and for the purposes described.

518,645. SHEET-METAL STUD. MASON H. CRITTENDEN and FRANK V. EMERY, Minneapolis, Minn. Filed Apr. 3, 1893. Serial No. 468,833. (No model.)



Claim.—A stud, joist or like building member, formed of flanged sheet-metal sections having plain surface backs, such sections being fastened together back to back and being sufficiently elastic to receive and hold nails driven in the joints between them, substantially as set forth.

518,646. CHAIN-MORTISING MACHINE. JOHN H. HALL and DENIS PARRY, London, England. Filed Dec. 1, 1893. Serial No. 492,477. (No model.) Patented in England June 15, 1891, No. 10,120.



Claim.—1. A cutter chain comprising the links formed of the table portion A having a cutter edge, the depending stem B, said cutter portion projecting laterally of the stem B and the connecting links fitting under the overhanging part of the cutter table, substantially as described.

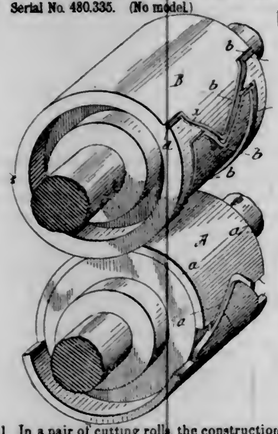
2. In a cutter chain of a chain mortising machine the connecting link which immediately precedes the cutter link provided with a fence or guard extending into proximity to the cutting edge and in front of the same to act in conjunction therewith for regulating the depth of cut substantially as described, and for the purpose specified.

3. In a cutter chain of a chain mortising machine the combination of the cutter links constructed of channel or T section, the head or table A of which forms the cutting part, and the stem or stems B a link or links of the chain, with the connecting links which immediately precede the cutter links provided with a fence or guard extending into proximity to the cutting edge and in front of the same to act in conjunction therewith for regulating the depth of cut substantially as described, and for the purpose specified.

4. In a chain mortising machine, the cutter chain, the means for driving the same and the guard arranged to bear on the material at the end of the mortise where the cutters emerge from the material, and the yielding support for the guard, said guard being adjustable toward and from the chain cutters and arranged to yield in all its positions, substantially as described.

5. In a chain mortising machine a spring guard arranged to bear on the material to be mortised, at that end of the mortise where the chain cutters emerge from the material, said spring guard consisting of tube L sliding in bearings in an adjustable plate K, foot L' having an adjustable shoe L^3, spindle M secured at its lower end to foot L', spring N and arm M' combined, arranged and operating substantially as described, and for the purpose set forth.

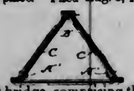
518,647. CUTTING-ROLLS. JOHN A. HESS, Philadelphia, Pa., assignor to the Holyoke Envelope Company, Holyoke, Mass. Filed July 13, 1893. Serial No. 480,335. (No model.)



Claim.—1. In a pair of cutting rolls, the construction of the part of the one thereof,—which has the cutting edge to pass with a shear cut down past the border of a corresponding depression in its fellow-roll,—with a groove at a slight distance to the rear of the cutting edge or face, whereby a narrow rib is constituted, on one side of which is said cutting face, substantially as described.

2. In a pair of cutting rolls, the construction of the part of the one thereof,—which has the cutting edge to pass with a shear cut down past the border of a matching depression in its fellow-roll,—in the form of a narrow rib on one side of which is said cutting edge, and which rib may be set over to take up wear, substantially as described.

518,648. BRIDGE. FRANK H. HOPLER, Philadelphia, Pa., assignor to Lewis Barnes, same place. Filed Aug. 3, 1893. Serial No. 482,258. (No model.)

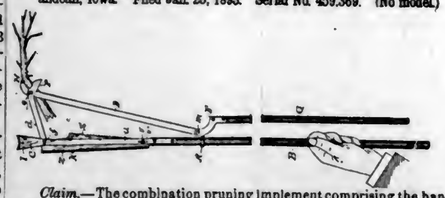


Claim.—1. A culvert bridge, comprising the base pieces, the top piece, the braces uniting said pieces, and the side covering secured to the braces, substantially as described.

2. A culvert bridge, comprising the base pieces formed of angle iron, the top piece formed of a T-bar, the braces connected to the angle base pieces and the top T-bar, and the side plates interposed between the braces, substantially as described.

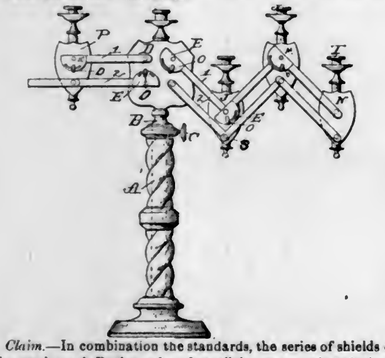
3. A culvert bridge, comprising the angle bars forming the base pieces, a T-bar forming the top piece, inside and outside braces, connected to the angle base pieces and top piece, side plates interposed between the braces, and a stay piece connecting the base pieces, substantially as described.

518,649. PRUNING IMPLEMENT. THOMAS E. B. MASON, Shenandoah, Iowa. Filed Jan. 23, 1893. Serial No. 459,369. (No model.)



Claim.—The combination pruning implement comprising the handles B and G; the guide E carried by said handle G; the bar D provided with the hook H, and the arm *d* provided with the blade P, and pivoted to said bar, and adapted to be operated by said handle G; the arms *a*—*a'* fixed to said handle B and pivotally connected with said arm *d;* one of which terminating in the chisel C, and provided with the saw blade S adjustably fixed thereto, substantially as and for the purpose specified.

518,650. CANDELABRUM. ALPHONSE C. MCKERCHER, Montreal, Canada, assignor to Albert Gauthier, same place. Filed Aug. 3, 1893. Serial No. 482,324. (No model.)



Claim.—In combination the standards, the series of shields each having rack teeth R, the series of parallel arms or rods 1, 2, the said rods 2 being pivoted to the shields, each of the said rods 1 having at one end a slotted face plate E pivoted to one shield and having its opposite end pivoted to the next shield and axially of the face plate of the next arm 1 and the clamp screws for holding the slotted face plates, the pairs of arms 1, 2, with their respective face plates and shields being capable of adjustment independent of the other pairs of arms with their shields and face plates, substantially as described.

518,651. VALVE-CONTROLLING MECHANISM. IRVING H. REYNOLDS, Milwaukee, Wis., assignor of one-half to the Edward P. Allis Company, same place. Filed Dec. 4, 1893. Serial No. 492,765. (No model.)

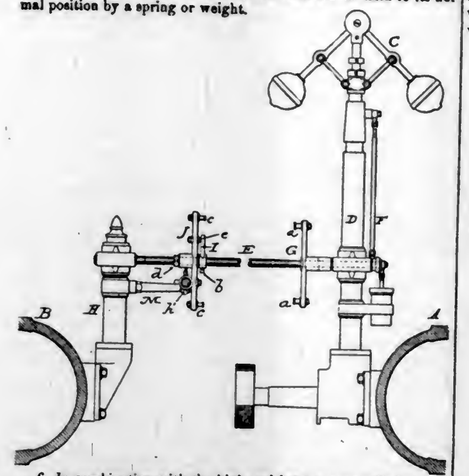
Claim.—1. The method of controlling the cut-off mechanism of the cylinders of compound or other forms of multiple expansion engines, which consists in actuating the cut-off mechanism of the low pressure cylinder or cylinders by means of the governor controlling the cut-off of the high pressure cylinder, only, however, when there is an increase in the load upon the engine.

2. In combination with the high and low pressure cylinders, and their respective cut-off mechanisms; a governor for actuating the cut-off of the high pressure cylinder, but having no connection with the cut-off of the low pressure cylinder except on an increase in the load upon the engine.

3. In combination with the low pressure cylinder and its cut-off, the high pressure cylinder provided with a cut-off; and a governor to actuate the cut-offs of the cylinders upon an increase in load, but normally independent of the low pressure cut-off.

4. In combination with the high pressure cylinder and its cut-off arm G; the governor C adapted to move said arm; the low pressure cylinder and its cut-off arm J; and means for actuating the said arm J from the governor upon an increase in load upon the engine.

5. In combination with the high pressure cylinder and its cut-off a governor which shall actuate said cut-off; a low pressure cylinder and a cut-off for said cylinder, actuated by the movement of the governor upon an increase in the load, and returned or held to its normal position by a spring or weight.



6. In combination with the high and low pressure cylinders and their independent cut-offs; a governor to actuate said cut-offs upon an increase in load; and means for returning the low pressure cut-off to its normal position.

7. In combination with a high pressure cylinder, a shaft E, cut-off arm G, and governor C; a low pressure cylinder; the cut-off arm J journaled loosely upon the shaft; and an arm I secured to the shaft to engage the arm J.

8. In combination with a high pressure cylinder, shaft E, cut-off arm G and governor C; a low pressure cylinder; the loose cut-off arm J; an arm I secured to the shaft to move the arm J in one direction; and means for returning the arm J to its normal position.

9. In combination with the shaft E and arm I; the arm J provided with block *f;* the slotted guide K; the spring *g* therein; the adjustable stem L; and means for throwing the arm I into contact with arm J.

10. In combination with the low pressure cylinder and its cut-off arm J; means for setting or adjusting said arm; a high pressure cylinder and its cut-off arm G; and a governor for actuating the cut-off arms G and J upon an increase in load; and means for returning the arm J to its original position when the engine is working under normal load.

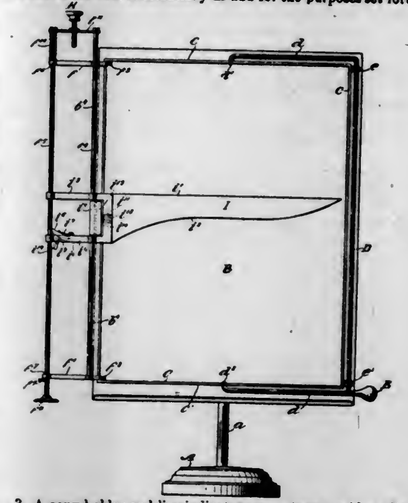
11. An engine having a fixed cut-off on the low-pressure cylinder in combination with means whereby, when the engine is stopped, the cut-off shall be automatically thrown out of action by means of the governor controlling the high pressure cylinder or cylinders said cut-off being normally independent of the governor.

12. An engine having the cut-offs of the compound cylinder or cylinders fixed and independent under ordinary conditions, and adapted to be thrown out of action by the regulator when the engine is stopped and shall be automatically thrown into action when the engine is started again,—the cut-offs taking the same fixed position as before the engine was stopped.

518,652. COPY-HOLDER. ROBERT H. ROSS, Philadelphia, Pa. Filed Jan. 18, 1894. Serial No. 497,237. (No model.)

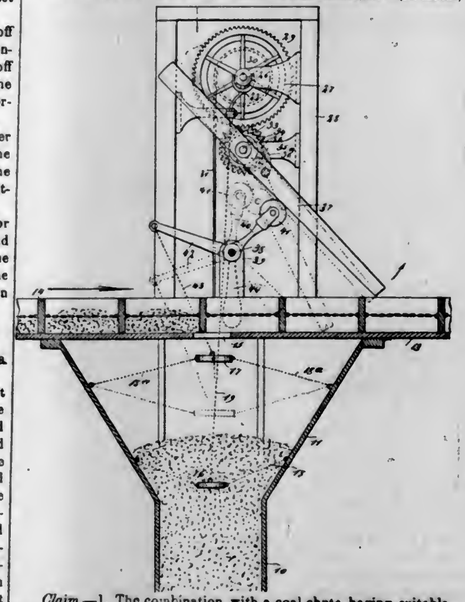
Claim.—1. A copy-holder and line-indicator, comprising a tablet adjustably supported to the stem of a stand or base, a skeleton frame movably connected with the projecting ends of a lever-arm pivoted to said tablet and provided with an operating finger, arms connected with said frame and supporting vertical rods, whereof one is movable and is provided with a coiled spring, a back stop and a knob and whereof the other is stationary, a spanning strip with an adjustable screw in sliding engagement therewith, a line indicating device provided with a straight edge and two arms embracing said rods, and one of said arms provided with a spring buffer or pawl and a cam-lever, and a spring positioned block engaging the arms of said indicating device and provided with a feather frictionally contacting with one of said vertical rods, substantially as and for the purposes set forth.

2. A copy-holder and line-indicator, comprising a tablet adapted to support manuscript or other matter, a line indicator provided with two arms embracing fixed and movable rods, a spring buffer or pawl and releasing device, the movable rod provided with a spring, a back-stop and a knob, a spanning-strip with a space adjusting device, said strip in sliding engagement with the fixed rod and means connected with said indicator and held under spring tension in frictional contact with said fixed rod, substantially as and for the purposes set forth.



3. A copy-holder and line-indicator, comprising a tablet adjustably supported from the stem of a stand or base and having a frame with a pivotal lever-arm having an operating finger, a line indicator provided with a spring buffer or pawl for maintaining the same in contact with a movably supported spring controlled rod with a back-stop and a spanning-strip with an adjusting screw in sliding engagement with a fixed rod, substantially as and for the purposes set forth.

518,653. COAL-CHUTE REGULATOR. JOHN F. SCHMADEKE, Brooklyn, N. Y. Filed July 7, 1893. Serial No. 479,803. (No model.)



Claim.—1. The combination, with a coal chute having suitable doors, of a float suspended in the chute, means for thus suspending it and means for opening the doors set in operation by the depression of the float, substantially as described.

2. The combination, with a coal chute having suitable doors, and a conveyer or carrier arranged to deliver coal to the chute, of floats

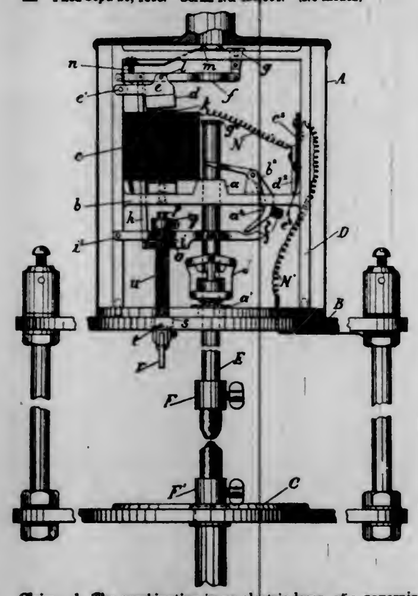
suspended in the chute, a gear-mechanism actuated by the conveyer or carrier to operate the doors, and means for throwing the gear mechanism out of and into gear by the rise and fall of the floats, substantially as described.

3. The combination, with a coal chute having suitable doors, and a conveyer or carrier arranged to deliver into the chute, of floats mounted in the chute, a winding drum operatively connected by a cable with the doors, means for throwing the drum out of and into gear by the rise and fall of one float, a tilting lever adapted to drop into the path of the conveyer, a gear and ratchet mechanism for turning the winding drum by the tilting of the lever, and mechanism actuated by the rise and fall of the second float for throwing the tilting lever into and out of engagement with the conveyer, substantially as described.

4. The combination, with the chute having suitable doors, and the conveyer arranged to move above the chute, of the winding drum operatively connected by a cable with the doors, a float arranged in the chute, a clutch operated by the rise and fall of the float to throw the drum into and out of gear, a tilting lever having one end extending into the path of the conveyer, a ratchet and gear connection between the tilting lever and the drum, whereby the tilting of the lever will turn the drum, a second float in the chute, and means, actuated by the rise and fall of the second float, for throwing the lever into and out of engagement with the conveyer or carrier, substantially as described.

5. The combination, of the chute, the float therein, the conveyer or carrier extending across the top of the chute, the tilting lever having one end adapted to extend into the path of the conveyer or carrier, the doors of the chute, the winding drum operatively connected with the doors, a gear and ratchet mechanism for operating the drum by the tilting lever, an arm on the shaft adapted to hold the lever out of contact with the conveyer, a second arm on the shaft, and a chain connecting the second arm with the float, substantially as described.

518,654. ELECTRIC-ARC LAMP. RUDOLPH SEGERDAHL, Chicago, Ill. Filed Sept. 29, 1893. Serial No. 486,301. (No model.)



Claim.—1. The combination in an electric lamp, of a governing electro-magnet, with an armature therefor, a lifting lever having one end linked in a suitable connecting point to the frame of the lamp and its other end to the clutch mechanism that controls the action of the movable electrode, said lifting lever also being movable with said armature, a tension spring adapted to establish the arc between the respective electrodes in the lamp, and means to regulate the tension of said spring, whereby said electrodes are normally held a distance apart.

2. In an electric arc-lamp the combination with the feed-magnet, its armature and armature lever, of a lifting-lever which at one end is linked in a suitable connecting point to the frame of the lamp and at its other end to the clutch mechanism to operate the feed rod, said lifting-lever also being connected to the armature and movable therewith, and a tension spring secured to the frame of the lamp substantially parallel with the movement of said lifting-lever and arranged to operate the free end of the same, whereby the weight of the feed-rod with its carbon is sustained, substantially as set forth.

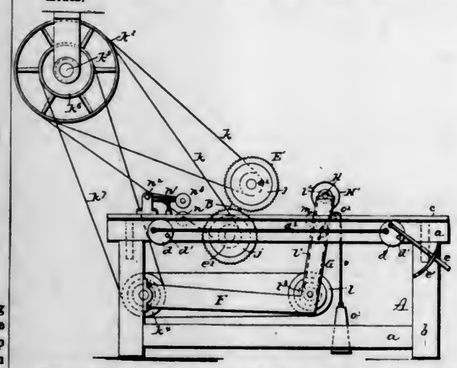
3. The combination in an electric arc-lamp, of a feed magnet shunted around the arc, its armature and armature lever, with a lifting lever which at one end is linked in a suitable connecting point to the frame of the lamp and its other end linked to the clutch mechanism to operate the feed-rod, said lifting lever also being connected to the armature lever and movable therewith, and a tension spring adapted to raise the free end of said lifting lever and the clutch mechanism with the feed rod whereby the respective carbons are normally held out of contact with one another, substantially as set forth.

4. In an electric arc-lamp having its feed-rod raised and held by the action of a tension spring —*m*— lifting-lever —*f*— clutch lever —*i*— and the clutch —*j*— means whereby said feed rod is released, consisting of an arbor —*p*— projecting through the frame of the lamp and the clutch-lever —*i*—, said arbor being provided at its upper end with a collar —*q*— and at its lower end with a thumb-piece —*r*—, a pin or stud —*t*— secured in said arbor and arranged to act against the cam —*s*— secured to the frame of the lamp and adapted to lower the clutch mechanism to release the feed-rod, substantially as set forth.

5. In an electric arc-lamp provided with a mechanism consisting of a feed-magnet its armature and armature lever, a lifting lever at one end linked to the frame of the lamp and at its other end by means of a connecting rod —*h*— to the clutch lever —*i*— supporting the clutch —*j*— and the feed-rod —E—, the proper adjustment of said mechanism being dependent on the length of said connecting rod, means whereby to facilitate said adjustment, consisting of having that portion of the clutch lever —*i*— into which the connecting rod —*h*— is held, "movable," and adapted to be raised or lowered as the condition of the mechanism may require, substantially as set forth

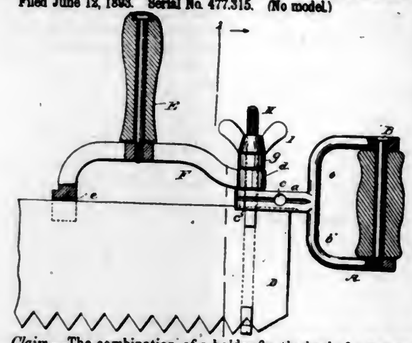
6. The combination in an electric arc lamp, provided with a suitable feed-magnet, of a cut-out device arranged to throw the said feed-magnet out of circuit automatically when the carbon is consumed to a certain point, consisting of a normally closed contact in circuit with said feed magnet, a cam lever —a^2— pivoted to the frame of the lamp and arranged to move in the direction of said contact by the action of the descent of the feed-rod —E— and to open the circuit at said contact, and the clutch-lever —*i*— arranged so that when it returns to its normal position after the shunt circuit in the lamp is broken, it acts to lock said cam-lever, whereby the circuit in the feed-magnet after being broken by the action of the feed-rod is maintained open by the action of the clutch-lever until the operation of renewing the carbons in the lamp takes place, substantially as set forth.

518,655. MACHINE FOR RIPPING OR DIVIDING BOARDS. HENRY W. STOW, New Haven, Conn.; Theodore F. Booth administrator of said Stow, deceased. Filed Aug. 25, 1892. Serial No. 444,132. (No model.)



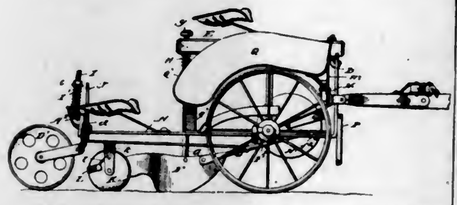
Claim.—The combination with a frame, a stationary and adjustable table, said tables having openings therein, of a yoke axially supported and carrying shafts, said shafts having cutters thereon, means for setting and locking the yoke, L-shaped arms pivoted at one end to the frame and their upper ends passing up through an opening in the stationary table, a shaft journaled in the upper ends of these L-shaped arms and carrying feed wheel above the table, means for balancing these arms and for driving the saws and feed wheel, substantially as set forth.

518,656. SAW-HANDLE. ASKEL B. VAN CAMPEN, Raymond, Cal. Filed June 12, 1893. Serial No. 477,315. (No model.)



Claim.—The combination, of a holder for the heel of a saw, provided with a longitudinally grooved and perforated shank *a* having arms *b b'*, the tap bolt B, the handle C loosely fitted to the tap bolt, the arm F provided with the eye *d* and slotted end *e*, the tap bolt G inserted in the arm F, the handle E loosely fitted to the tap bolt G, and the hooked bolt H provided with the wing nut I, substantially as specified.

518,657. TRANSPLANTER. MAL C. WHITWORTH and WILLIAM R. WHITWORTH, Donelson, Tenn. Filed Nov. 27, 1893. Serial No. 492,158. (No model.)



Claim.—1. In a plant transplanter, the combination with a frame composed of side and end cross-bars, of an opening plow centrally located between the side bars, beams extending diagonally from the plow to the frame, and loosely secured at their forward ends, a spring-pressed rod on the plow, and laterally and vertically adjustable rollers on opposite sides and in the rear of the plow, substantially as described.

2. In a plant transplanter, the combination with a surrounding frame, of an opening plow consisting of two outwardly inclined wings below the frame, a fixed beam above the plow, oppositely diverging plow beams, rollers in the rear of the plow and on opposite sides thereof, frames in which the rollers are mounted, extensions on the roller frames loosely connected to the plow beams and adjustable spring-pressed connections between the plow frame and rear of the roller beams, substantially as described.

3. In a transplanter, a yoke having downwardly and inwardly inclined ends, in combination with the frame supporting the same, and rollers adjustably secured on the inclined ends of the yoke, substantially as described.

4. In a transplanter, the combination with a frame, of inclined supports thereon, and rollers adjustably secured to the supports, and adapted to be adjusted vertically and laterally thereon substantially as described.

5. In a transplanter, the combination with the frame, of movable inclined supports thereon, springs engaging the supports, and rollers adjustably secured to the supports, and having vertical and lateral adjustments thereon substantially as described.

6. In a transplanter, the combination with a frame, of a spring-pressed support, rollers on the support, and an opening plow, having plant supporting extensions carried back between the rollers substantially as described

7. In a transplanter, the combination with the frame, of a plow, a colter, a sliding block in which the colter is pivoted, suspending plates on the frame between which the block is placed and bolts passing through the plate on opposite sides of the block, substantially as described.

8. In a transplanter, the combination with a frame having an arched cross-bar at its front, of an adjustable leveling board extending directly across the frame and adjustably secured at opposite ends to the vertical portions of cross-bar, substantially as described.

9. In a transplanter, the combination with the wheels, of curved plant receptacles located over the wheels, and seats adjacent to the receptacles, substantially as described.

10. In a transplanter, the combination with the wheels, of plant receptacles located above and extending downward in the rear thereof, substantially as described.

518,658. ARTIFICIAL LEG. WILLIAM ANDREWS, Lowell, Mass. Filed Sept. 30, 1892. Serial No. 447,388. (No model.)



Claim.—1. The combination of the shell, an elastic envelope, an inelastic core arranged therein and an attaching-bolt, rigidly secured to said core and entering said shell, as and for the purpose specified.

2. The combination of the shell, an elastic envelope, and a metallic core, provided with an attaching-bolt and with steady pins formed in one piece with said core, as and for the purpose specified.

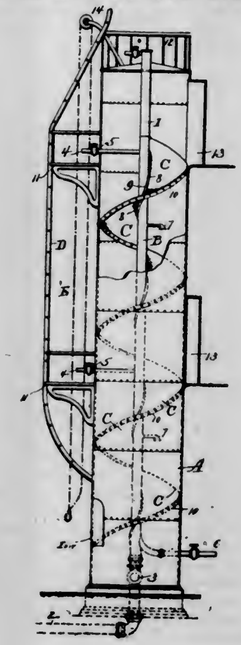
3. The combination of the shell, an elastic envelope and a core, provided with an attaching-bolt and with an oblong steady-plate, arranged to enter and fill a recess with which the lower end of said shell is provided, and a downward projection secured on said steady-plate to enter said envelope, as and for the purpose specified.

4. An artificial foot consisting of an inelastic core and an elastic envelope of the shape of the natural foot, the bottom of said core extending from below the place of the natural ankle-joint to the ball of the foot and said elastic envelope filling the entire space back of the place of said natural ankle-joint, as and for the purpose specified.

5. The combination of the leg or shell, having a concavity in the lower end and a foot attached to said leg and having an elastic upper surface compressed into said concavity, as and for the purpose specified.

6. The combination, in an artificial foot, of the core, a layer of hard rubber next the core and an outer elastic covering, as and for the purpose specified.

518,659. FIRE-ESCAPE. FREDERICK M. BENDER, Louisville, Ky. Filed Dec. 18, 1893. Serial No. 493,914. (No model.)



Claim.—1. In a fire escape, the combination with a hollow tower, of a series of open thimbles or sleeves, one located upon the next below, and a spiral chute made in leaves or sections the inner edges of which are secured to the thimbles or sleeves, substantially as set forth.

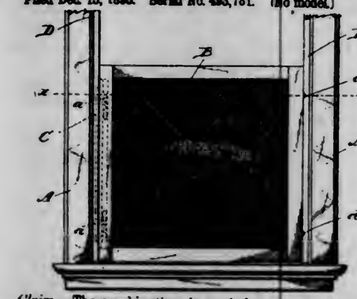
2. In a fire escape, the combination with a hollow tower, of a series of thimbles or sleeves open on one side and a spiral chute composed of leaves or sections secured together and secured to the thimbles or sleeves at their inner edges and to the wall of the tower at their outer edges, substantially as set forth.

3. In a fire-escape, the combination with a hollow tower, and a support or stand-pipe therein, of a series of thimbles or sleeves strung on the stand pipe, the thimbles or sleeves having a spiral opening, and a spiral chute composed of leaves or sections the inner edges of which are inserted and secured between the edges of the thimble or sleeve and to the outer edges of the wall of the tower, substantially as set forth.

4. In a fire escape, the combination with a hollow tower, and a stand-pipe therein, of a series of thimbles or sleeves having a spiral opening in the side and flanges at the edges of this opening, one thimble or sleeve adapted to rest above another and the lower end of each surrounding or overlapping the upper end of the next one beneath, and a spiral chute composed of sections secured together, the inner edges located and secured between the flanges of the thimbles and sleeves, and the outer edges provided with flanges secured to the wall of the tower, substantially as set forth.

5. In a fire-escape, the combination with a hollow tower, of a series of thimbles or sleeves having a spiral opening in the side and flanges projecting outwardly from the edges of the opening the upper ends of the flanges terminating below the upper end of the thimble or sleeve to form a seat for the lower ends of the flanges of the thimble or sleeve next above and a spiral chute composed of leaves or sections the inner edges of which are secured between the flanges of the thimbles or sleeves, substantially as set forth.

518,660. WINDOW-SCREEN. GEORGE R. BLAINE, Alliance, Ohio. Filed Dec. 15, 1893. Serial No. 493,781. (No model.)



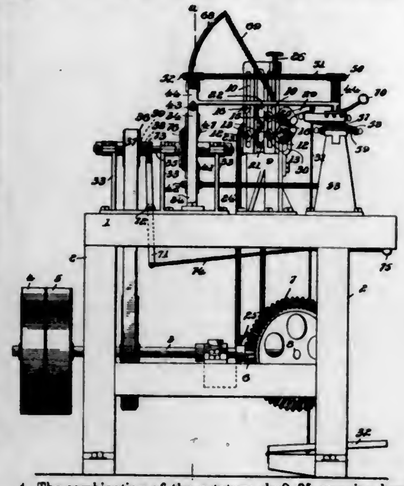
Claim.—The combination, in a window screen, of a screen frame having one of its sides mortised nearly the entire length, a friction strip fitted in said mortise and provided with shoulders at each end, springs within said mortise normally pressing the friction strip outward, retaining clips overlapping the ends of said mortise and engaging the shouldered ends of said friction strip to hold the latter in the mortise, and adjustable projections on the opposite side of said screen frame, together with ways having vertical grooves which are engaged by said friction strip and adjustable projections on the screen frame, one of said ways being provided with transverse grooves to permit the ready insertion of the screen frame to its seat in the ways, substantially as described.

518,661. MACHINE FOR POUNCING BRIMS OF HATS. GEORGE R. BRUSH, Danbury, Conn. Filed Aug. 26, 1893. Serial No. 484,065. (No model.)

Claim.—1. In a machine for pouncing hat brims, the combination of suitable means for revolving the brims, the upper and lower pouncing pads, on which latter the brims are supported, separate and independent shafts eccentrically connected to said pads, the primary shaft which is connected to the power shaft, and operative connections between the latter shaft and the shafts to which the pads are secured, whereby simultaneous movements may be imparted to said shafts, substantially as set forth.

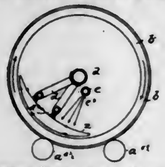
2. In a machine for pouncing hat brims, the combination of the two vertical shafts journaled respectively in the stationary frame of the machine and in a frame capable of a vertical swinging movement, the pouncing pads eccentrically secured to the ends of said shafts, the shaft to which the power is communicated to drive the machine, and independent operative connections between the latter shaft and the first mentioned shafts, substantially as set forth.

3. The combination of the shafts 49, 54, the guided reciprocatory pads, eccentric connections between said shafts and pads whereby the latter may be actuated in reverse directions, means for revolving said shafts independent of each other, and devices for revolving the hat brims during the operation of said pads, substantially as set forth.



4. The combination of the rotatory shaft 35 carrying beveled gear 76, the rotatory shafts 40, 46, carrying beveled pinions 41, 47 meshing with said gear, the shaft 54 carrying sprocket 55, the sprocket 42 carried by shaft 40, the chain 56 connecting said sprockets, the top frame 44 capable of an independent swinging movement, the shaft 45 journaled in said frame and gimbal jointed to shaft 46, the shaft 49 journaled in said frame, sprockets 50, 52 carried by shafts 49, 45, chain 51 connecting said sprockets, the upper and lower pouncing pads capable of being reciprocated within ways, and eccentric connections between the shafts 49, 54 and said pads whereby the latter are actuated, substantially as set forth.

518,662. FURNACE FOR TREATING REFRACTORY ORES. FESSENDEN C. BUTTERFIELD, Minneapolis, Minn., assignor of three-fourths to Louis S. Cass, Sumner, Iowa, and Daniel R. Burdett, Minneapolis, Minn. Filed Apr. 24, 1893. Serial No. 471,565. (No model.)



Claim.—1. A furnace for treating refractory ores or similar materials, comprising a rotary drum, arranged for supporting and agitating the ores on its inner surface, and a burner, within the drum and below its axis, for the direct application of flames to the ores, substantially as described.

2. A furnace for treating refractory ores or similar materials, comprising a rotary drum arranged for supporting and agitating the ores on its inner surface and a burner arranged longitudinally in the drum and below its axis for the direct application of flames to the ore, substantially as described.

3. A furnace for treating refractory ores and similar materials, comprising a rotary drum, having its ore-bearing surface inclined downward from its receiving to its delivery end and a burner arranged longitudinally within the drum and below its axis, for the direct application of flames to the ores, whereby, under the rotation of the drum the ores will be agitated and worked from the receiving to the delivery end of the drum, substantially as described

4. The combination with the rotary drum, of the pivoted platform supporting the drum and provided with means for sustaining it in any desired adjustment, supports fixed upon said platform, and a burner carried by said supports and located within and below the axis of the drum, for the direct application of flame to the ore, and means carried by said platform for supporting and revolving said drum, substantially as described.

5. The combination with the revolving drum, arranged to support and agitate the ores on its interior surface, of the burner inside the drum consisting of a fuel supply pipe, around which the drum revolves, and tuyeres projecting radially downward from said supply pipe into position to deliver the flames directly upon the ores during the action of said drum, substantially as described.

6. The combination with the rotary drum, of the fuel supply pipe around which the drum revolves, provided with radially projecting tuyeres and adjustable in its seat to vary the discharging position of the tuyeres, substantially as described.

7. The combination with the revolving drum, arranged for supporting and agitating the ores on its interior surface, of a burner located within and below the axis of the drum, for the direct application of flames to the ore, and a spraying pipe within the drum for treating the ores with water or liquid solutions, substantially as described.

8. The combination with the revolving drum, arranged for supporting and agitating the ore, on its interior surface, of a burner inside the drum, for the direct application of flame to the ores, a spraying pipe inside the cylinder provided with valved discharge openings and a valve controlling device arranged to be operated by some of the moving parts, with an intermittent action, substantially as described.

9. The combination with the revolving drum, arranged on a downward pitch, for supporting and agitating the ores and working the same from its receiving to its delivery end, of a burner inside the drum, for the direct application of flames to the ores, a spraying pipe inside of the drum, extending the entire length of the same, provided with valved discharge openings spaced apart from each other, and a valve controller arranged to be operated by some of the moving parts, substantially as described.

10. The combination with the revolving drum, of the burner inside the drum, for the direct application of flames to the ores, the spraying pipe inside the drum provided with the valved discharge openings, a common valve-rod, under tension, to normally hold the said valves in their closed positions and a valve controller comprising a rocker arranged to be operated by the drum, with an intermittent action, and provided with connections to said valve rod, substantially as described.

11. The combination with the rotary drum, of the burner inside the drum, the spraying pipe inside the drum provided with perforated valve seats and rotary valves, normally covering said perforated seats, and connected by a common rod, for uncovering the whole or any part of the discharge openings through said seats, substantially as described.

12. The combination with the rotary drum of the burner inside the drum, the spraying pipe inside the drum having perforated valve seats, rotary valves fitting said seats, a common valve rod, a rocker arranged to be intermittently operated by said drum, and a spring applied to hold said valve rod and rocker in their normal position.

13. The combination with the rotary drum arranged for supporting and agitating the ore on its interior surface, of the fuel supply pipe inside said drum and longitudinally thereof, provided with radially projecting tuyeres and a spraying pipe with valved discharge openings arranged parallel with and to one side of the tuyeres, substantially as described.

14. The combination with the rotary drum, of the longitudinal fuel supply pipe provided with radially extended tuyeres inside the drum and adjustable into different positions, and the longitudinal spraying pipe provided with valved discharge passages and also adjustable into different positions relative to the tuyeres, substantially as described.

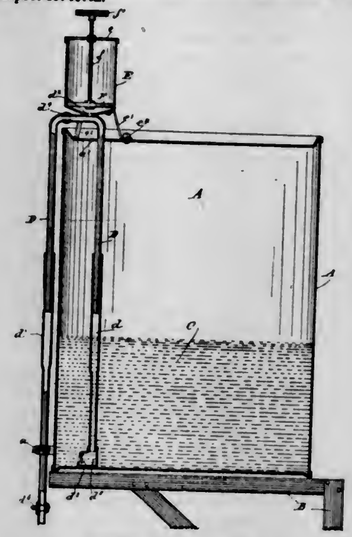
15. The combination with a rotary drum, arranged as described, of the interior fuel supply pipe extending longitudinally of the drum and provided with radially projecting tuyeres set in advance of the lowest traverse of the drum and the spraying pipe with valved discharge openings inside the drum and set to discharge between the tuyeres and the lowest traverse line of the drum, substantially as and for the purpose set forth.

16. The combination with the rotary drum arranged for supporting and agitating the ore on its interior surface, of the longitudinal fuel supply pipe inside the drum and the pair of yoke-like radial tuyeres projecting from said supply pipe, one in advance of but near to the other, and having their respective discharge or burner openings in staggered arrangement with respect to each other, substantially as and for the purpose set forth.

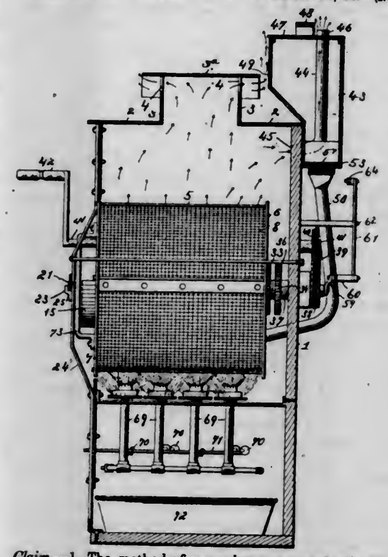
17. The combination with the rotary drum arranged for supporting and agitating the ores on its interior surface, of a burner inside the drum, for the direct application of flames to the ores, a breeching for conducting off the products of combustion and the volatilized metals and a blast pipe applied to the receiving end of the furnace, above the burner for driving off said gases, substantially as described.

518,663. SIPHON. JAMES A. CAMP, Minneapolis, Minn. Filed Mar. 6, 1893. Serial No. 464,774. (No model.)

Claim.—The combination with the siphon-tube, constructed with telescoping branches, the inner branch of which terminates in the valve box having the check-valve, and the outer section of which is provided with a pair of stop cocks, one located at the crown of the siphon outward of the pump, and the other of which is located at a point below the liquid level, and the pump located on the crown of the siphon and in communication therewith, substantially as and for the purpose set forth.



518,664. CORN-POPPING MACHINE. WILLIAM B. DONATHEN, Kansas City, Mo. Filed Apr. 24, 1893. Serial No. 471,529. (No model.)



Claim.—1. The method of preparing pop-corn for the popping operation which consists in pre-heating the pop-corn before placing it in the popping chamber of the popper; substantially as set forth.

2. The method of treating pop-corn for the popping operation which consists in preheating the pop-corn and keeping the same in a heated condition until it is placed in the popper; substantially as described.

3. The method of treating pop-corn for the popping operation which consists in placing the pop-corn in a closed reservoir, heating the reservoir so as to pre-heat the contents and discharging the pre-

heated pop-corn directly into the popper while in its pre-heated condition; substantially as set forth.

4. The combination of a reservoir for pop-corn, a popper in close proximity to the reservoir, a burner for heating the contents of the popper, and a casing, in which the heated products of combustion are gathered, having openings through which the products of combustion are directed onto the reservoir for pre-heating the contents of the latter; substantially as set forth.

5. The combination of a reservoir for pop-corn, a popper in close proximity to the reservoir, a burner for heating the contents of the popper, a casing, in which the products of combustion are gathered, and a pipe conducting the products of combustion from the casing through the reservoir for pre-heating the contents of the latter: substantially as described.

6. In a corn popping machine, the combination of a shell having a popping device located therein; a ventilator to said shell through which a portion of the heat atoms pass; a reservoir secured to said shell against which a portion of the heat atoms passing from said ventilator impinge; means for conducting heat from said shell through said reservoir; and a feeding device for conducting the corn from said reservoir to the popping device; substantially as set forth.

7. In a corn popping machine, the combination of a suitable shell; a popping device located therein; a reservoir attached to said shell for holding the unpopped corn and an automatic device for feeding the corn from said reservoir to the popping device, said automatic device consisting in a reciprocating slide having apertures for holding a quantity of corn, and tubes into which said corn is discharged from said heating device and conveyed to the popping device: substantially as and for the purpose set forth.

8. In a corn popping machine, the combination of a suitable shell for retaining the heat; a popping device located therein; a reservoir for holding the corn connected with said shell; means for introducing heat from said shell to said reservoir and an automatic feeding device consisting of a reciprocating slide having openings therein for receiving a charge of corn; openings in the bottom of said reservoir with which the openings in the slide register as the same is reciprocated; a suitable driving mechanism, and suitable means for connecting said driving mechanism with said reciprocating slide for operating the same; substantially as and for the purpose set forth.

9. In a corn popping machine, the combination of a suitable popping device; a reservoir connected therewith for holding the unpopped corn; openings in the bottom of said reservoir; tubes leading from said openings to the popping device; a reciprocating slide having openings therein working within said reservoir; brushes for limiting the amount of corn discharged by said sliding device; means for operating the popping device, and arms 60, 61, and bar 64, connecting therewith and with the feeding slide for feeding the corn to the popping device; substantially as and for the purpose set forth.

10. In a corn popping machine, the combination of the popping cylinders; a shell in which said cylinders are located; means for revolving said cylinders; a reservoir for holding a supply of corn means for heating the corn in the reservoir; a tube extending from said reservoir through the shell and extending into an opening at the end of said popping cylinder for discharging the unpopped corn therein; substantially as and for the purpose set forth.

11. In a corn popping machine, the combination of a cylinder provided with heads at each of its ends to which an outer gauze is secured; an annular opening in one of said heads through which corn can be conveyed, and an auxiliary annular head set some distance inside of the cylinder and connected by suitable means with the outer head; substantially as and for the purpose set forth.

12. In a corn popping machine, the combination of a popping cylinder having heads 6, 7, and an annular opening 32, in the head 6; section 28, of the head 6, secured by suitable means to the outer section; a gauze 8, connected with the heads 6, 7; a coarser gauze 12, connected with the head 7, and with the section 28, of the head 6, said coarser gauze leading toward the center of the cylinder; a trough 15, supported at its rear end by a sleeve 18, and supported at its forward end by a collar 20, resting in a cross-bar 21, and a screw 26, working in said trough, and secured to the sleeve 18; substantially as set forth.

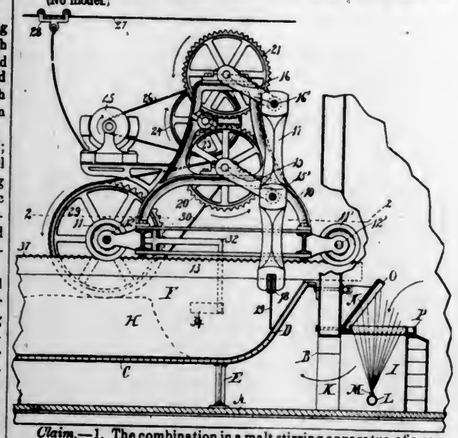
13. The combination of a popping device, a heating device, a reservoir, and means for retaining the heat for preheating the pop corn in the reservoir; substantially as described.

14. The combination of a popping device, a reservoir, and a heating device common to both the popping device and the reservoir for preheating the reservoir and popping the pop-corn; substantially as described.

15. The combination of a popping device, a heating device for the popping device, a reservoir, and means for preheating the contents of the reservoir before they are discharged into the popping device; substantially as described.

16. In a corn popping machine, the combination of a suitable cylinder having gauze in connection therewith for popping corn and conveying it toward the center; a trough for receiving the pop corn; means for supporting said trough stationary within said cylinder; a sleeve within said cylinder having a screw in connection therewith; suitable gear wheel attached to said sleeve and to said cylinder, said gear connecting with suitable gear attached to the device which supports said cylinders, and means for driving said gear whereby the screw and cylinder may be operated at variable speed while the trough remains stationary; substantially as described and for the purpose set forth.

518,665. STIRRING AND AERATING APPARATUS. JOHN F. DORNFELD, Watertown, Wis. Filed Mar. 13, 1893. Serial No. 465,705. (No model.)



Claim.—1. The combination in a malt stirring apparatus, of a carriage reciprocable over a malting floor, a plurality of shafts journaled in the carriage distant from but parallel with each other, each shaft revolving about a distinct and constant axis, cranks on the several shafts, wrists on the cranks at equal distances from the axes of their shafts respectively, and vertically disposed shovels mounted on the wrists of the cranks, whereby by the synchronous revolution of the shafts the shovels are revolved in a constantly vertical position, substantially as described

2. In a malt stirring apparatus, a malting floor, a track adjacent to the floor, a carriage arranged to travel on the track, vertically disposed shovels mounted transversely of the floor in an arm or arms pivoted on the wrists of a plurality of cranks revolving isochronously and describing equal arcs about different parallel and distant axes in the carriage, all combined substantially as described.

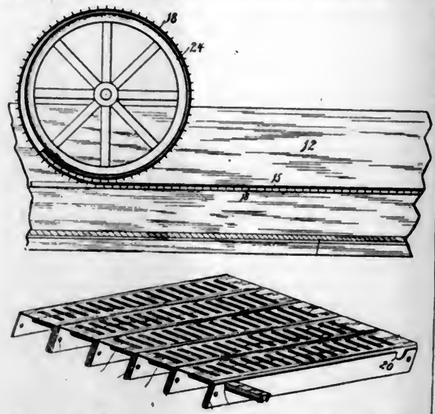
3. In a malt stirring apparatus, the combination with a traveling carriage, of a plurality of horizontal parallel shafts, cranks on the shafts, wrists on the cranks at equal distances from the axes of their shafts, an arm or arms mounted on the wrists, and vertically disposed shovels fixed in the arm or arms so as to move in vertical circles in vertical positions constantly, substantially as described.

4. In a malt stirring apparatus a traveling carriage, a plurality of horizontal cranked shafts journaled in the carriage unitedly carrying vertically disposed shovels moving in a circle vertically and adapted to dip intermittingly into and stir the grain, cog wheels on the shafts, an interposed pinion meshing with the cog wheels, means for communicating motion to the pinion, and means connected operatively to one of said shafts and to an axle of the carriage, for reciprocating the carriage adjacent to the grain, substantially as described.

5. In combination with a perforated malting floor and a malt-stirring apparatus, a device for cooling and attemperating the air admitted thereto, consisting of a chamber in the passage for air thereto, a water pipe through the chamber, which pipe is provided with a series of spraying nozzles or apertures, a cover for the chamber having a flanged rim, and a groove about the top aperture of the chamber adapted to receive the flange on the cover and also water therein, whereby the chamber can be hermetically sealed, substantially as described.

518,666. MALTING-FLOOR. JOHN F. DORNFELD, Watertown, Wis. Filed Apr. 4, 1893. Serial No. 469,000. (No model.)

Claim.—1. The combination, of a malting room, supports, and a malting floor resting upon the supports, comprising a series of longitudinal lengths, each length in turn comprising a series of flexibly united sections forming a flooring of separate windable lengths, said sections having suitable spaces or openings for the passage of air, and one end of each length of the floor resting loosely upon or detachably connected to the supports to permit of its attachment to a winding drum, whereby the separate lengths of the floor may be cleaned, as the drum is rolled from one end of the room to the other, and the lengths separately convolved or wound thereon, substantially as set forth.



2. A malting floor, consisting of one or more longitudinal lengths, each length, in turn, composed of a series of adjacent sections arranged lengthwise transversely of the longitudinal length which they unitedly constitute, whereby the narrow portions of the sections are disposed longitudinally, said several sections flexibly united to form a flexible longitudinal length, adapted to be wound longitudinally upon a drum or cylinder, substantially as set forth.

3. The combination, of a malting room, supports, a malting floor resting upon the supports, one end resting loosely upon or detachably connected thereto to permit of its attachment to a winding drum, whereby the floor may be cleaned during the process of winding upon the drum, as the latter is rolled from one end of the room to the other, said floor comprising a series of sections provided with air passages and with depending side flanges, the side flanges of the contiguous sections being adjacent, clamps embracing the contacting side flanges, said clamps having their opposite sides, near opposite extremities, provided with notches or recesses, and reinforcing strips having their opposite ends seated in the notches or recesses beneath the upper sides of the sections, substantially as set forth.

4. The combination, with a malting room, of a malting floor consisting of one or more longitudinal lengths, a length composed of a series of sections flexibly united to form a flexible longitudinal length, one end thereof being loose to permit of its attachment to a winding drum, whereby the length may be cleaned, as the drum is rolled from one end of the room to the other, and the length convolved or wound thereon, substantially as set forth.

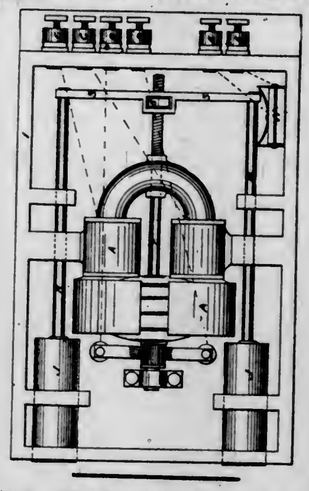
5. In combination with a perforated malting floor, a device for cooling and attemperating the air consisting of a chamber in the passage of the air to said floor the chamber provided with a groove about its top aperture, said groove receiving water, a water pipe through the chamber, which pipe is provided with a series of spraying nozzles or apertures, and a cover for the chamber having a flanged rim, said flanged rim adapted to enter the water containing groove of the top aperture of the chamber, whereby the chamber is hermetically sealed, substantially as set forth.

6. A malting floor, consisting of one or more longitudinal lengths, each length, in turn, composed of a series of adjacent sections arranged lengthwise transversely of the longitudinal length which they unitedly constitute, whereby the narrow portions of the sections are disposed longitudinally, said several sections united to form a flexible longitudinal length, adapted to be wound longitudinally upon a drum or cylinder, and each section having a flat top, with a leg, or legs, depending from the same, substantially as set forth.

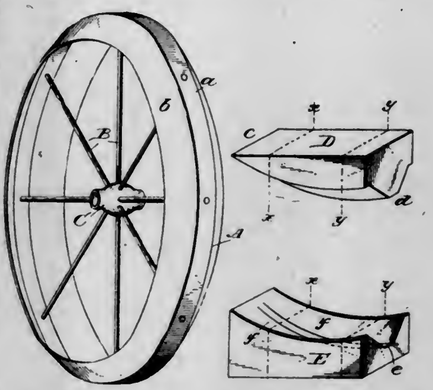
518,667. ELECTRIC LOCK. JAMES ELDON, Lock Haven, Pa. Filed Oct. 31, 1892. Serial No. 450,592. (No model.)

Claim.—1. In an electric lock the combination with an electric motor, having a shaft provided with a screw thread on the rear end thereof, the bolts J J, having rear extensions R R, connected by the cross-piece S S, of an angular nut G working on the screw threaded end of shaft F F and located within an opening in the cross-piece, whereby rotation of the shaft will operate the bolts, substantially as described.

2. The combination in an electric lock of an electric motor, having a shaft provided with a screw thread on the rear end thereof, the bolts J J, having rear extensions R R, connected by a cross-piece S S with an angular nut G, working on the screw threaded end of shaft F F, and located within an opening in the cross-piece S S, whereby the rotation of the shaft in one direction will move the bolts forward to lock, and in the reverse direction backward to unlock together with the metal spring H, so arranged that when the bolts arrive at their destination, either in locking or unlocking, the frame R R S S will strike the spring H and thereby close an electric current (outside the lock) upon an alarm or bell, substantially as described and for the purposes set forth



518,668. DIE FOR SHAPING METAL PRESS-WHEELS. ALBERT J. GREEN, Dayton, Ohio, assignor to the Stoddard Manufacturing Company, same place. Filed Aug. 16, 1893. Serial No. 483,284. (No model.)

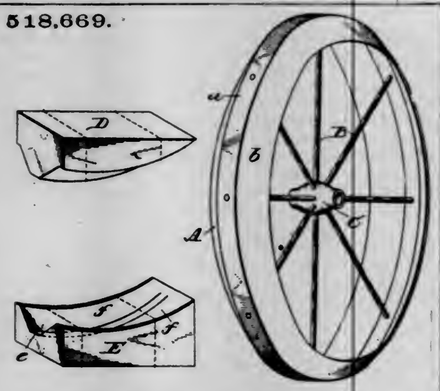


Claim.—The curved dies D and E having inclined sides to form a V-shaped rim, the angles of inclination of said sides gradually increasing from the feeding-in ends of said dies to the discharge ends thereof, to give gradually increasing projection and decreasing width to the male die D and increasing depth and decreasing width to the female die E, to operate substantially as set forth.

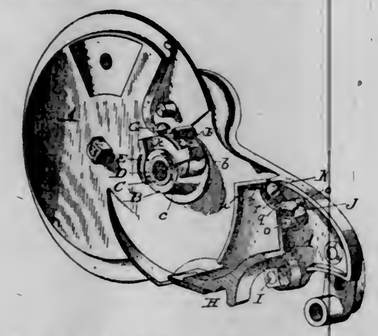
518,669. PRESS-WHEEL FOR GRAIN-DRILLS. ALBERT J. GREEN, Dayton, Ohio, assignor to the Stoddard Manufacturing Company, same place. Original application filed Aug. 16, 1893, Serial No. 483,284. Divided and this application filed Oct. 6, 1893. Serial No. 487,338. (No model.)

Claim.—In a press wheel for drills, the rim or tire, constructed of sheet metal, without longitudinal joints, and substantially V-shaped in cross section with the apex of the V outward, substantially as described.

518,669.



518,670. LAWN-MOWER. MICAJAH C. HENLEY, Richmond, Ind. Filed Dec. 15, 1893. Serial No. 493,749. (No model.)

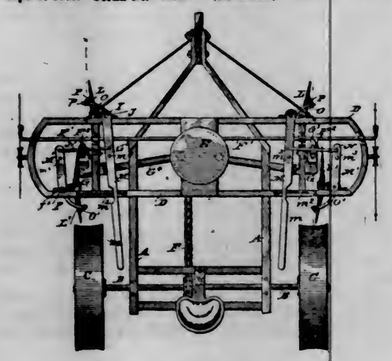


Claim.—1. In a lawn mower, the combination with the side frame or plate having the box B with the depression c therein; of a cap E; a slotted bushing C provided with lugs *d* and *e*; and the screw F carried by the cap and having a nut *f*.

2. In a lawn mower, the combination with the side frame or plate having the box B; of the cap E provided with socket *f*; and bushing C provided with a lug *e* of less width than the socket whereby longitudinal adjustment is permitted.

3. In a lawn mower, the combination with the side plate or frame having box B with a depression c therein; of a slotted bushing C seated in said box and provided with lugs *d* and *e*; a cap E applied to the bushing; a screw F and nut *f* for expanding the bushing; and a screw G and nut *i* for holding the cap and bushing in place.

518,671. PLANTER. LEVI R. LANCASTER, Massillon, Iowa. Filed Sept. 5, 1893. Serial No. 484,357. (No model.)



Claim.—1. The combination with the front and rear disks in different longitudinal planes for opening and closing the furrow, respectively, of a seed delivering box or spout discharging in the longitudinal plane between said disks and at a point intermediate of their axes; whereby the seed will be deposited in the furrow formed by the front disk and be covered by the soil thrown into the furrow by the rear disk, substantially as herein described.

2. The combination with the front and rear disks connected for simultaneous oblique adjustment and adapted to respectively open and close the furrow, of a seed delivery mechanism discharging in the longitudinal plane between said disks and at a point intermediate of their axes; whereby the seed will be deposited in the furrow formed by the front disk, and be covered by the soil thrown into the furrow by the rear disk, substantially as herein described.

3. The combination with the vertical horizontally turning shafts having transversely extending lower ends; said shafts being at opposite sides of a line extending longitudinally through the machine, disks journaled on the said lower ends and a lever mechanism connecting the said shafts for simultaneous adjustment, of a seed delivery spout or box discharging between the front and rear disks, substantially as herein described.

4. The combination with the vertical horizontally turning shaft having a transversely bent lower end, an integral filling piece or block in the angle formed thereby, and provided with a flat outer face and a sand band, and a loose thimble on the said lower end, of the disk provided with opposite, flanged hub-sections receiving said thimble and a nut provided with a sand band, substantially as herein described.

5. The combination with the vertical horizontally turning disk-carrying shaft, of a laterally projecting arm secured to said shafts extending across the disk and provided at its outer end with an adjustable scraper blade engaging the concave face of the disk, substantially as herein described.

6. The combination with the vertical front and rear bearings at opposite sides of a longitudinal line through the machine, and the vertical shafts turning in said bearings and carrying the furrow-opening and closing disks respectively on their lower ends, and the seed delivery mechanism discharging in the plane between said disks and at a point intermediate of their axes of the adjustable collared arms on the said shafts adjacent to the lower ends of the bearings, set screws extending through said collars into engagement with the shafts, and the adjustable scraper blades on the outer ends of said arms and engaging the concave disk faces, substantially as herein described.

7. The combination with the front and rear vertical horizontally turning shafts in different planes, and provided with transverse lower members, and the furrow-opening and closing disks thereon, of the rearwardly extending apertured lever connected with the forward shaft, the oppositely projecting lever on the rear shaft, an adjustable link connecting said two levers, and a seed delivery mechanism delivering between the said two disks, substantially as herein described.

8. The combination with the seed hopper, of the seed delivery spout suspended by an arm from the frame to yield rearwardly, and provided with a seed supply pipe pivoted at its upper end in register with the outlet from the seed box, substantially as herein described.

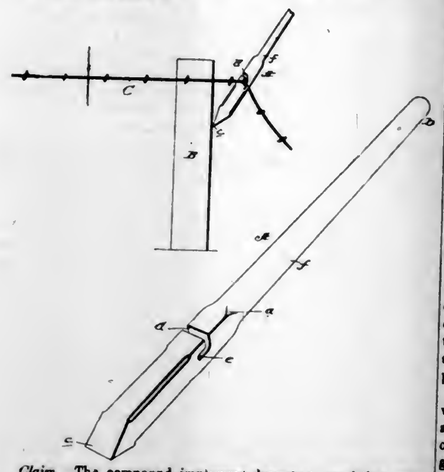
9. The combination with the seed delivery spout having a lateral seed-inlet member between its ends and a plunger working past said inlet, of a spring tongue crossing the outlet end of the spout in the path of the plunger and a locking device to hold the spring tongue or valve retracted and permit a continuous flow of seed through the spout, substantially as herein described.

10. The combination with the seed delivery spout having a lateral inlet or branch section, a spring tongue secured in the bottom of said section and projecting across the spout outlet, apertures in the spout below said branch section and a pin for locking said spring retracted, of the spring-retracted plunger normally lying in the upper portion of the spout above the branch section, substantially as herein described.

11. The combination with the seed hopper having a plate at its outlet and provided with a nipple and an eye, of the seed delivery spout having a branch seed supply pipe provided at its upper end with a hook engaging said eye and holding the pipe or tube in register with said nipple, an arm extending upwardly from the seed delivery spout and pivoted to the frame, whereby the seed delivery spout may yield rearwardly, the spring tongue in the lower part of the seed delivery spout, the vertically reciprocating plunger, and its operating mechanism and the furrow opening and closing disks in front and rear and at opposite sides of the seed delivery spout, substantially as herein described.

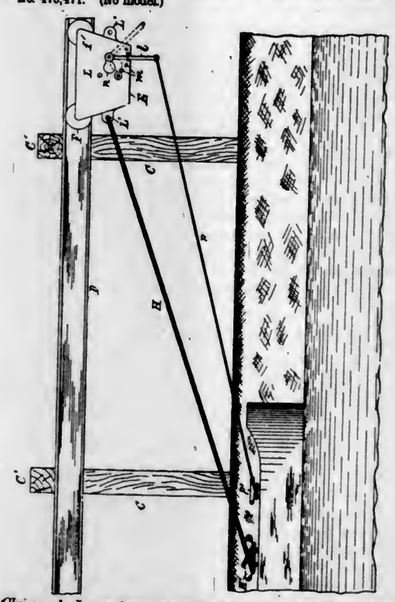
12. The combination with a furrow opener, and a seed tube or spout in rear of the said opener to discharge the seed into the furrow formed thereby, of a furrow closer in rear of the seed tube or spout and in a different longitudinal plane from said furrow opener to cover the seed in the furrow and operative connections between the said furrow opener and closer for relatively and simultaneously adjusting them, substantially as herein described.

518,672. FENCE-WIRE CARRIER AND STRETCHER. WILLIAM H. MERRITT, Minden, Mich. Filed Feb. 23, 1893. Serial No. 463,515. (No model.)



Claim.—The compound implement described, consisting essentially of the bar, having the angular portion provided with the chisel or beveled end *c* and the transverse slot *d*, and the communicating, longitudinal slot *e*, in said angular portion, and the portion *f*, round in cross section from the point *a*, to the end *b*, substantially as shown and described.

518,673. ELECTRICAL DEVICE FOR TOWING VEHICLES. THOMAS P. MILLIGAN, South Orange, N. J. Filed June 3, 1893. Serial No. 476,471. (No model.)



Claim.—1. In an electrical device for towing vehicles, the combination, with a fixed rail, of a carriage sustaining an electric motor and geared to the rail, a coupling or drag rope attached to the carriage, a switch lever for directing the electric current to the motor, and a pull rope for actuating such switch lever, substantially as set forth.

2. In an electrical device for towing vehicles, the combination, with a fixed rail, of a carriage sustaining an electric motor and geared to the rail, a coupling or drag rope attached to the carriage, a switch lever with means for automatically breaking the circuit through the motor, and a pull rope for shifting the switch lever when desired, substantially as herein set forth.

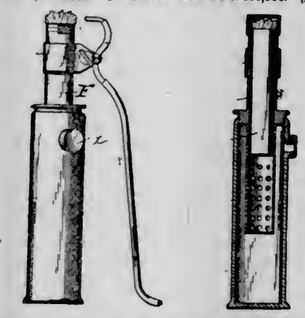
3. In an electrical device for towing vehicles, the combination, with a fixed rail, of a carriage sustaining an electric motor and geared to the rail, a coupling or drag rope attached to the carriage, a switch lever and contacts arranged to automatically break the circuit through the motor, a weight or spring for resisting the motion of the switch lever, and a pull rope for shifting the lever when required, as herein set forth.

4. In an electrical device for towing vehicles, the combination, with a fixed rail, of a carriage sustaining an electric motor and geared to the same, a coupling or drag rope attached to the carriage, an electric conductor parallel with the rail, a trolley wheel with spring arm pivoted upon the carriage to make contact with such conductor, a switch with lever for leading the current from the trolley to the motor, and a pull rope for actuating such lever, substantially as set forth.

5. In an electrical device for towing vehicles, the combination, with a rail having laterally projecting flanges upon opposite sides of a carriage having wheels fitted between such flanges, a rack upon one edge of the rail, a pinion fitted to such rack, an electric motor geared to the same, a coupling or drag rope attached to the carriage, a switch with lever for directing the current through the motor, and a pull rope for actuating such lever, as herein set forth.

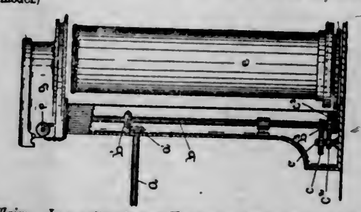
6. In an electrical device for towing vehicles, the combination, with a rail having laterally projecting flanges upon opposite sides of a carriage having wheels fitted between such flanges, a rack upon one edge of the rail, a pinion fitted to such rack, an electric motor geared to the same, an ear upon the end of the carriage to attach a coupling or drag rope, an electric conductor parallel with the rail, a trolley wheel with spring arm pivoted upon the carriage, a switch with lever for leading the current from the trolley to the motor, and contacts for automatically breaking the circuit through the motor, and a pull rope for actuating such switch lever, substantially as herein set forth.

518,674. PLUMBER'S BLOWPIPE. WILLIAM M. MURPHY, Putnam, Conn. Filed July 14, 1893. Serial No. 480,500. (No model.)



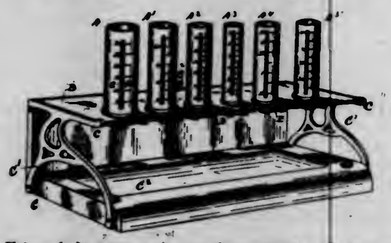
Claim.—In combination, the reservoir, the wick tube, an adjustable collar secured thereto, a blow pipe a clamp therefor supported from the collar and a thumb screw for securing the ends of the collar and clamp together, substantially as described.

518,675. COILER FOR CARDING-MACHINES, &c. HENRY MCDERMOTT, Norwich, Conn. Filed June 23, 1893. Serial No. 478,672. (No model.)



Claim.—In a coiler, in combination, a loosely supported coiler-disk and mechanism for revolving the same, a ratchet-disk located in the vertical path of said disk, and a bell and clapper; said clapper being located in the path of the ratchet-disk and actuated thereby, substantially as specified.

518,676. COIN COUNTER AND DELIVERER. FREDERICK W. HALL, Detroit, Mich., assignor, by direct and mesne assignments, to George Huntington, Hugh E. Kenny, and Samuel I. Slade, same place. Filed Apr. 14, 1893. Serial No. 470,284. (No model.)



Claim.—1. In a money changer, the combination of a base plate provided with a series of coin tubes communicating therewith, and delivery devices located underneath said plate to deliver the coin from each of the tubes through said plate, said devices each provided with a forwardly moving self retracting operating key, projecting downward therefrom at the rear of said coin tubes, whereby the coin may be delivered and received by one hand, substantially as described.

2. In a money changer, the combination with a base plate, of a series of coin tubes opening therethrough, delivery slides located beneath said plate to deliver the coin from each of the tubes through said plate, provided with a downwardly projecting operating key located rearward of the coin tubes, movable with the slide and rigidly connected therewith, the coin dropping through the base plate upon the slides, said slides working forward to deliver the coins, and made self-retracting, substantially as described.

3. In a money changer, the combination of a support, a base plate provided with a series of coin tubes communicating therethrough, a guide plate located below each of said tubes on the under side of said base plate, a delivery slide engaged with said guide plate between it and the under side of the base plate, and an operating key rigidly connected rearward of the tubes with said slide and movable therewith, said slide cut away permitting the coin to drop upon the guide plate below and to be ejected by the movement of the slide, substantially as described.

4. In a money changer, the combination of a support, a base plate, a series of coin tubes opening therethrough, self-retracting delivery slides located beneath the base plate to deliver the coin from said coin tubes, each of said slides constructed with a coin orifice at its forward end and provided with a key located rearward of the forward portion of said slides, whereby the coin will be delivered in advance of the keys, substantially as described.

5. In a money changer, the combination of a base plate, a series of coin tubes supported thereon, and communicating therethrough, a countersunk guide plate located beneath each of said tubes, and a delivery slide made horizontally reciprocatory in the countersunk portion of the guide plate between the guide plate and the base plate, said slide constructed with an orifice to receive the coin, and a downwardly projecting operating key at the rear of said orifice, substantially as described.

6. In a money changer, the combination of a base plate, a series of coin tubes supported thereon, and communicating therethrough, a countersunk guide plate located beneath the base plate and beneath each of said tubes, and a delivery slide made reciprocatory in the countersunk portion of the guide plate between the guide plate and base plate, said slide constructed with an orifice at its forward end to receive the coin, and with a downwardly projecting operating key, said guide plate cut away on its forward end and projecting beneath the adjacent coin tube to form a seat for the coin, substantially as described.

7. In a money changer, the combination with a support, of a removable base plate provided with a series of coin tubes communicating therethrough, and delivery devices engaged upon the under side of the base plate to deliver the coin from each of the tubes, substantially as described.

8. In a money changer, the combination of a base plate, a series of coin tubes opening at the base thereof through the base plate, a reciprocatory slide located beneath the base plate to deliver the coin, a retracting spring to restore the slide into normal position, a post engaging one end of the spring, and a rod connecting the slide with the opposite end of said spring, substantially as described.

9. In a money changer, the combination of a base plate, a series of vertical coin tubes communicating therethrough and arranged to hold the coin in horizontal position, a countersunk guide plate located beneath said base plate and spaced from said plate a distance equal to the thickness of the coin to be delivered, and a reciprocatory slide located between the guide plate and base plate constructed with an orifice at its forward end to receive the lower coin in the tubes, and with a downwardly projecting operating key, the remaining coin supported on the rear end of the slide while the lower coin is being delivered, substantially as described.

10. In a money changer, the combination of a base plate, a coin tube opening at its base through said plate, a rest or support for the coin located beneath the said tube and spaced therefrom the thickness of a single coin, a delivery slide located between said support and said plate constructed to move forward the lower coin to deliver the same to the operator, and to support the balance of the coin in said tube while the lower coin is being delivered, and a downwardly projecting operating key rigidly connected to the rear of the tubes with said slide and movable therewith, said coin being delivered through the base plate, support and slide therebeneath, substantially as described.

11. In a money changer, the combination with a base plate, of a coin tube opening at its base therethrough, a horizontally reciprocating slide provided with a downwardly projecting operating key rigidly connected therewith, located beneath the base plate and made self-retracting, said key located rearward of the coin tube, the construction being such that the operator may deliver and receive the coin with a single hand, substantially as described.

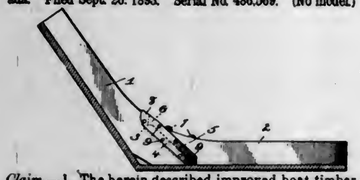
12. In a money changer, the combination with a support, of a base plate provided with a series of coin tubes communicating therethrough, a series of independent countersunk guide plates, each located on the under side of the base plate below a corresponding coin tube, a horizontally reciprocatory delivery slide engaged between each of the guide plates and the under side of the base plate, and a downwardly projecting operating key rigidly connected with said slide and movable therewith, substantially as described.

13. In a money changer, the combination of a support, a base plate, a coin tube opening at its lower end through said base plate, a countersunk guide plate located beneath the base plate, a reciprocatory slide engaged between said guide plate and the base plate to deliver the coin, a spring engaged with said base plate at one end and with said plate at the opposite end, the construction being such that the operator may deliver and receive the coin with a single hand, substantially as described.

14. In a money changer, a base plate, a coin tube opening at its lower end therethrough, a guide plate located therebeneath constructed with an elongated slot, a reciprocatory self retracting slide located between the base plate and guide plate, provided with a downwardly projecting operating key rearward of said tubes extended through said elongated slot and with a delivery orifice forward of said key, and a stop to limit the movement of said slide, the construction being such that the operator may deliver and receive the coin with a single hand, substantially as described.

15. In a money changer, the combination of a base plate B, a series of coin tubes communicating therethrough, a guide plate engaged upon the under side of the base plate, a delivery slide E engaged to reciprocate between said guide plate and base plate, provided with a downwardly projecting operating key rearward of said tube and with a delivery orifice forward of said key, and a retracting spring G, the construction being such that the operator may deliver the coin through the base plate and receive the coin therebeneath with the same hand, substantially as described.

518,677. BOAT-KNEE. ADONIRAM J. NICKERSON, Argyle, Canada. Filed Sept. 26, 1893. Serial No. 486,569. (No model.)

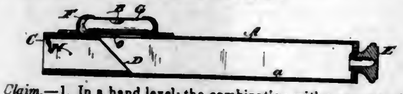


Claim.—1. The herein described improved boat timber or knee, the same consisting of the inclined side-section 1 and transverse bottom section 2, the same overlapping each other and one side of the angle thereof, the bolts passed through the sections at their overlapping ends, and sheet metal strips applied to the opposite sides of the joint and bolted by transverse bolts to the sections, substantially as specified.

2. The herein described improved boat timber or knee, the same consisting of the section 1 provided at its inner edge near its lower end with the angular mortises 3, and below the same with the inclined cut-away portion 4, the transverse bottom section 2 having its outer end upon its under side cut away, as at 5, to conform to the inclined cut away portion 4 of the section 1, and upon this cut away portion 5 provided with the angular tenon 6 for engaging the mortise 3, and the bolts 7 passed through the two sections, substantially as specified.

3. The herein described improved boat timber or knee, the same consisting of the section 1 provided at its inner edge near its lower end with angular mortise 3 and below the same with the inclined cut away portion 4, the transverse bottom section 2 having its outer end upon its under side cut away as at 5 to conform to the inclined cut away portion 4 of the section 1 and upon this cut away portion 5 provided with the angular tenon 6 for engaging the mortise 3, the bolts 7 passed through the two sections, and the sheet-metal strips 8 applied to the opposite sides of the knee and overlapping the joint and bolted to the said sections, substantially as specified.

518,678. HAND-LEVEL. JOHN PAOLI, Hoboken, N. J. Filed June 22, 1893. Serial No. 478,452. (No model.)

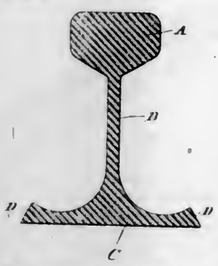


Claim.—1. In a hand level, the combination with a narrow mirror, adapted to reflect the bubble and crossing the field of vision in a vertical plane, of a horizontal rod in the same horizontal plane as the center of the mirror.

2. In a hand level, a mirror of rhomboidal form, and having its longest and shortest diagonals coincident with the vertical and horizontal center lines of the field of vision.

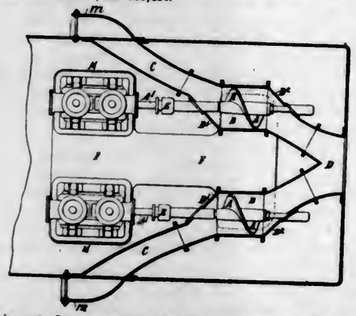
3. A hand level having a substantially square field of vision and provided with a rhomboidal mirror the diagonals of which are coincident with the center lines of said field of vision, and which is adapted to remain stable when the bubble is in its central position.

518,679. RAILROAD-RAIL. STEPHEN A. ROAKE, Peekskill, and FRANK G. SMITH, Williams Bridge, N. Y. Filed Aug. 15, 1893. Serial No. 483,169. (No model.)



Claim.—In a rail, the combination with a head A, and web B, of a flange C having inclined sides D, substantially as described.

518,680. MEANS FOR PROPELLING CANAL-BOATS. BERTIE C. SCOTT, Bruges, Belgium. Filed Feb. 21, 1893. Serial No. 463,227. (No model.) Patented in France July 7, 1892, No. 222,856, and in Belgium July 7, 1892, No. 100,411.

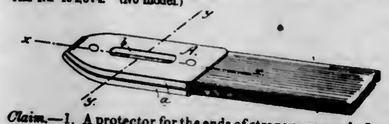


Claim.—1. In an apparatus for the propulsion of canal boats or flats or other vessels, the combination of a propeller chamber having ingress and egress apertures, a propeller working in the said chamber, a motor for driving the said propeller, and a base or foundation plate on which the said chamber, the propeller and the motor are mounted, and which is removable therewith from the boat or vessel for the purposes above specified.

2. In an apparatus for the propulsion of canal boats or flats or other vessels, the combination of a propeller chamber having ingress and egress apertures, tubes connecting the said ingress and egress apertures with the shell of the vessel, valves in the said tubes whereby the ingress and egress passages may be closed, a propeller working in said chamber, a motor for driving the said propeller, and a base or foundation plate on which the said chamber, the propeller and the motor are mounted, and which is removable therewith from the boat or vessel, substantially as and for the purpose above specified.

3. In an apparatus for the propulsion of canal boats or flats or other vessels, a propeller chamber consisting of a hollow metal cylinder B, end pieces having inclined walls B^2, B^3, and having ingress and egress apertures respectively, packing rings c in grooves b' in the said end pieces and bearing against the ends of said cylinder, and means for securing these said end pieces together, with the said cylinder between them, substantially as and for the purposes set forth.

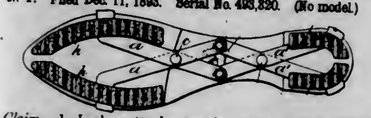
518,681. CLIP, &c., FOR MAIL-BAG AND OTHER STRAPS. RADOLPHUS D. S. TYLER, Washington, D. C. Filed Dec. 27, 1893. Serial No. 494,874. (No model.)



Claim.—1. A protector for the ends of straps composed of a single piece of metal bent upon itself and having an eye or opening closed at both ends and coincident with a similar eye or opening in the strap, said protector having inwardly extending flanges bounding the sides and both ends of its eye or opening, and also the side edges of the strap.

2. As an article of manufacture, a clip, grommet or like device for a mail bag strap, composed of a single piece of metal returned upon itself, and provided with an eye or opening with closed ends, the return members of the device being provided with flanges projecting inwardly to bound the sides and both ends of the eye or opening, and also the outer side edges of the strap, to protect said outer edges and the edges contiguous to the eye or opening.

518,682. SHOE ATTACHMENT. CHARLES L. WEYAND, New York, N. Y. Filed Dec. 11, 1893. Serial No. 493,320. (No model.)



Claim.—1. In shoe attachments, four arms or levers, each curved inwardly toward its middle portion to overlap its mate, said arms being pivotally connected at the point of overlap in pairs, and the two pairs being pivotally connected; lugs at the free ends of said arms, and means for moving and holding the same to and in their clamped position, substantially as described.

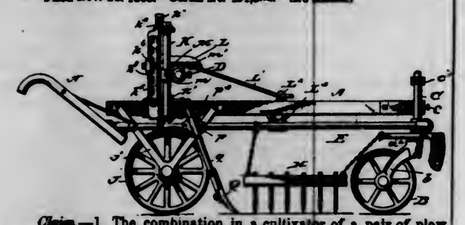
2. The combination with four arms or levers, each curved inwardly toward its middle portion to overlap its mate, said arms being pivotally connected at the point of overlap in pairs, the two pairs being pivotally connected, and provided with lugs at their free ends, of a clamp for the front of the heel, and means for moving and holding said arms to and in their clamped position, substantially as described.

3. The combination with two pairs of curved arms or levers pivoted together, and provided with lugs at their free ends, of a serrated cam located at one of the pivotal connections of said pairs of levers, and adapted to be engaged with a projection upon the opposite pivotal connection, thus moving and holding the free ends of said levers to and in their clamped position, substantially as described.

4. The combination of four pairs of arms or levers, each curved inwardly toward its middle portion to overlap its mate, said arms being pivotally connected at the point of overlap in pairs, the two pairs being pivotally connected, provided with lugs at their free ends and carrying strips or plates; protective surfaces for said strips or plates, and means for moving and holding said arms to and in their clamped position, substantially as described.

5. The combination with two pairs of curved levers pivoted together, and provided with lugs at their free ends, of strips or plates carried by said levers and provided with protective surfaces; a clamp for the front of the heel, and a serrated cam located at one of the pivotal connections of said pairs of levers and adapted to be engaged with a projection upon the opposite pivotal connection, thus moving and holding the free ends of said levers to and in their clamped position, substantially as described.

518,683. CULTIVATOR. GEORGE L. WHITING, Waterbury, Nebr. Filed Nov. 21, 1893. Serial No. 491,548. (No model.)

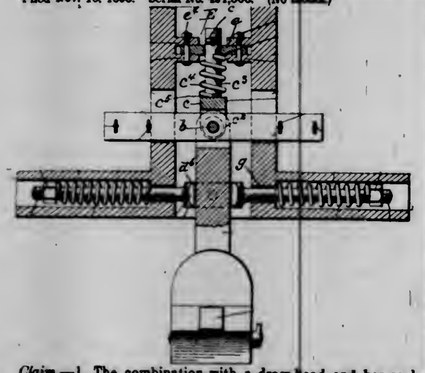


Claim.—1. The combination in a cultivator of a pair of plow beam frames each supported in front by and pivoted on a caster wheel and having a horse attaching device therefor, together with the upright frames having the bearings for the plow beam frames and the vertically adjustable bearings for a connecting bar, with the connecting bar pivotally and adjustably connected to each upright frame, and cultivator blades or devices carried by said plow beam frames, substantially as and for the purpose set forth.

2. The combination in a cultivator of a pair of plow beam frames, each supported in front by and pivoted on a caster wheel and having a horse attaching device therefor, with a central bar for each frame pivoted in front to the caster wheel and carrying near its rear end a supporting wheel, and a connecting bar joining the said central bars near the rear ends thereof and pivotally and adjustably connected therewith, substantially as and for the purpose set forth.

3. The combination in a cultivator of the pair of plow beam frames carrying the cultivator blades, with the center bars for each frame and the supporting wheels at the rear end of said center bars, the forward caster wheel for each frame, with the upright frames having the bearings for the plow beam frames, the caster wheel, and the forward end of the center bar, and the rear upright frames pivoted on the center bars and having the adjustable bearings for the connecting bar, together with the bar connecting the two center bars, substantially as and for the purpose set forth.

518,684. CAR-COUPLING. FRANK H. YEAGER, Zanesville, Ohio. Filed Nov. 18, 1893. Serial No. 491,360. (No model.)



Claim.—1. The combination with a draw-head and bar as described, of the bolster in which the draw-bar is mounted, and a transverse rod carrying said bolster for the purpose specified.

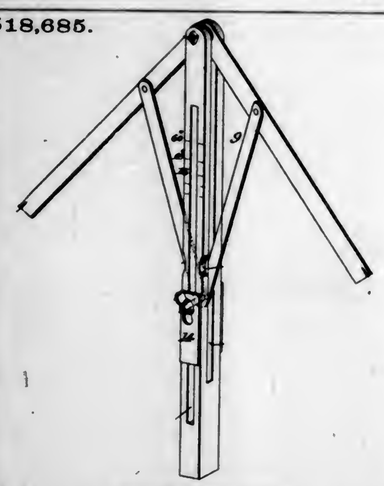
2. The combination with a drawhead and bar, of means for adjusting said head transversely and vertically, and the recessed bolster, in which the draw bar is slidingly mounted for the purpose described.

3. The combination with a drawhead and bar, of the bolster pivotally mounted on a rod carrying tension nuts which serve as shoulders; and the spiral springs inclosing said rod for the purpose described.

518,685. ADJUSTABLE ANGLE-SQUARE. LOUIS K. BARTLEY, Winona, Minn. Filed June 29, 1893. Serial No. 479,113. (No model.)

Claim.—In an adjustable square, the combination with the square bar having slots in its sides and top and bottom, and graduating marks and characters on its top, of the pivoted marking or ruling blades, the connecting bars pivoted thereto, the headed screw bolt, having a thumb nut, passing through the top and bottom slots of said bar, the slidable plates, through which said bolt passes, the guide block secured to said plates and passing through said slots, substantially as described.

518,685.



518,686. STRAW-STACKER ATTACHMENT. WILEY BRENTON, Carlisle, Ind., assignor of one-half to C. A. Ellis, same place. Filed Jan. 19, 1894. Serial No. 497,432. (No model.)



Claim.—1. In an attachment of the class described, the combination with an inclined elevator; of a suitably arranged closed air-trunk or spout connected with a suitable blast fan and having its upper end disposed under the upper delivering end of the elevator, substantially as set forth.

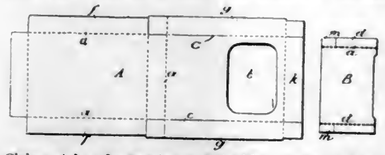
2. The combination with an inclined elevator, of a closed air trunk or spout having its upper end disposed under the upper delivering end of said elevator and its other end connected with a blast fan, and an adjustable distributing board connected to the upper end of said trunk or spout, substantially as described.

3. In a straw stacker attachment, the combination with the inclined elevator; of the closed air trunk or spout attached to the under side of said elevator and connected at one end with a suitable blast fan, the other end of said trunk or spout extending near to the upper end of said elevator, and an adjustable hooded distributing board connected to the upper end of said air trunk or spout, substantially as set forth.

4. The combination with a stacker elevator; of a closed air-trunk suitably arranged beneath said elevator and having its upper end extending near to the delivering end of the same, a blast fan connected with the lower end of said air trunk, an adjustable distributing board disposed directly under the delivering end of said elevator and having a hooded rear top portion, and a flexible hinge covering for the joint between the hooded distributing board and the air trunk or spout, substantially as set forth.

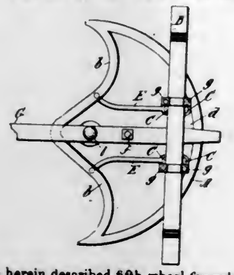
5. The combination with a stacker elevator, of a closed air trunk having its upper end extending near to the delivering end of the elevator and its lower end connected with a suitable blast fan, an adjustable distributing board hinged at its inner edge to the upper end of said trunk and having flanged sides and a top wind-hood, a flexible hinge covering for the joint between the board and trunk, a spring arranged under the distributing board to normally hold the same aligned with the trunk, and an adjusting cord connected to said board, substantially as set forth.

518,687. PAPER BOX FOR MATCHES. GIOVANNI G. CARBONE, Genoa, Italy. Filed Nov. 15, 1893. Serial No. 491,041. (No model.)



Claim.—A box for matches, and the like consisting of a single blank A having a side opening *b*, and having edges *f*, *g*, bent up contiguous to each other and forming the sides of the box, the sliding cover arranged to move across the opening in the box and having right angular edges *d*, *d*, fitting between the edges *f*, *g*, of the box and the finger piece or projection on the cover for sliding the same, substantially as described.

518,688. FIFTH-WHEEL FOR VEHICLES. ROBERT CARR, Newburg, N. Y. Filed July 20, 1893. Serial No. 481,006. (No model.)



Claim.—The herein described fifth wheel for vehicles, the same comprising the curve plate recessed as explained and secured upon the axle body by the clevis clamps located in the recesses and reaching over the curve plate, said plate being provided with braces extending from the axle and with a socket, and the reach plate secured upon the reach and upon the spring bar and provided with a hollow projection entering the socket, substantially as and for the purposes set forth.

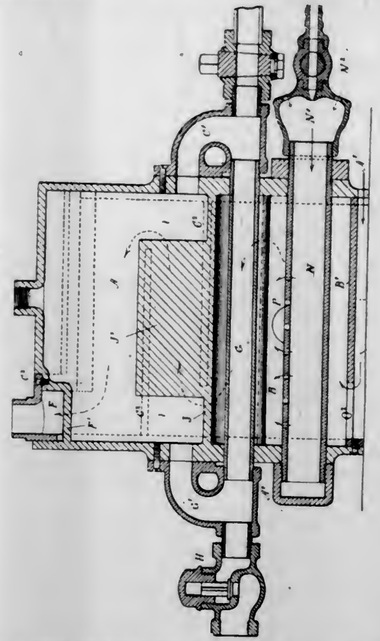
518,689. STEAM-GENERATOR. JOHN E. DAME, Brooklyn, N. Y. Filed Nov. 21, 1893. Serial No. 491,599. (No model.)

Claim.—1. A steam generator comprising the steam chamber, the fire chamber thereunder, the heating jacket in sections each covering one side of the steam chamber, return flues in both sections of the jacket; the lower one of which flues communicates with the fire chamber, a cross flue over the steam chamber inter-connecting the upper return flues of the sections, and an outlet from the cross flue, all substantially as and for the purpose herein described.

2. A steam generator comprising the steam chamber, with a transverse depression in the top thereof, the fire chamber under the steam chamber, the heating jacket in sections each covering one side of the steam chamber, each formed with the inwardly projecting flanges, to create return flues, the lower one of which communicates with the fire chamber; each also formed with a transverse cap-plate overlapping said depression of the steam chamber, to create a cross flue interconnecting the upper return flues of the sections, and with a semi-orifice at the junction of the two cap plates, to create an outlet from the cross flue, all substantially as and for the purpose herein described.

3. A steam generator comprising the steam chamber, the fire chamber thereunder, the water supply pipe extending through the fire chamber, return bends connecting both ends of the supply pipe to the steam chamber, one with a water feed valve, and the other with a blow off cock, all substantially as and for the purpose herein described.

4. A steam generator comprising the steam chamber with a central arch in the bottom extending the whole length thereof, the fire chamber under the steam chamber, the water supply pipe extending through the fire chamber at a point within said arch of the steam chamber, and return bends connecting both ends of the water supply pipe to the steam chamber, all substantially as and for the purpose herein described.



5. A steam generator comprising the steam chamber, with a central arch in the bottom extending the whole length thereof, and a central web upon the arch with openings at its opposite ends, the fire chamber under the steam chamber, the water supply pipe extending through the fire chamber at a point within said arch of the steam chamber and return bends connecting both ends of the water supply pipe to the steam chamber, all substantially as and for the purpose herein described.

6. A steam generator comprising the steam chamber with a central arch in the bottom thereof, the fire chamber under the steam chamber, the water supply pipe extending through the fire chamber at a point within said arch of the steam chamber, return bends connecting both ends of the water supply pipe to the steam chamber, a burner consisting of a perforated tube, which extends through the fire chamber under and parallel to the water supply pipe, and an air space or chamber under the fire chamber, open at one end and communicating with the fire chamber at the other end, all substantially as and for the purpose herein described.

518,690. COMBINATION BRICK-KILN. GEORGE C. FIRESTONE, Benicia, Cal. Filed July 26, 1893. Serial No. 481,506. (No model.)

Claim.—1. A combined continuous brick kiln and drying house, divided into a number of sections by removable sliding partition doors composed of upper and lower sections, substantially as shown and described.

2. A partition door for dividing a brick kiln into sections, consisting of a lower section provided with vertically extending guide lugs on each side, and an upper section adapted to fit between said lugs, substantially as shown and described.

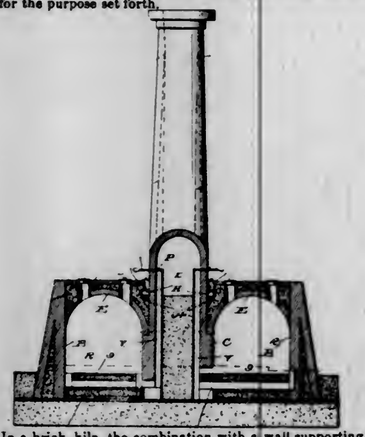
3. A brick kiln provided with a series of separate flues entering the burning chamber through the floor, running beneath the floor of said burning chamber, and entering separate vertical flues, which enter a smoke collecting chamber above the roof, substantially as described.

4. In a brick kiln, the combination with the burning chamber, having a series of separate flues entering through the floor, of separate vertical flues connected therewith, and slide valves or dampers on top of said vertical flues, and means substantially as shown and described for operating said valves or dampers.

5. In a brick kiln, the combination with the burning chamber, of a smoke collecting chamber above the same, provided with an

arched roof and round or square ends, having door therein, and a smoke stack in the center thereof, as and for the purpose set forth.

6. A smoke stack or chimney for brick kilns, comprising the walls J, K, and L, and having its inner upper bore flared outwardly, as and for the purpose set forth.

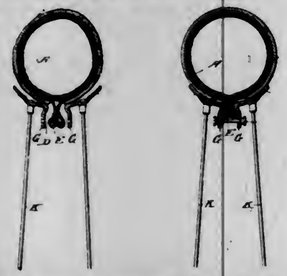


7. In a brick kiln, the combination with a wall supporting the smoke collecting chamber, and provided with a shoulder thereon, of a heat conducting channel upon the said shoulder and between the said wall and the arched dome of the burning chamber, as shown and described.

8. In a brick kiln, the combination with the inner and outer walls thereof, provided with slots cut therethrough, of a movable sliding sectional partition door, the lower section of which is adapted to enter said slots, and the upper section of which is provided with chains or ropes passing through apertures in the roof of the burning chamber, as shown and described.

9. In a brick kiln, a series of sections having a plurality of flues entering through the floor, said flues beginning even with the inside edge of the walls, substantially as described.

518,691. BICYCLE-TIRE. EDGAR GRAUERT, New York, N. Y. Filed Mar. 23, 1893. Serial No. 467,275. (No model.)



Claim.—1. A bicycle tire composed of a continuous air tight tube, an outer tread surface of leather or rubber, and an intermediate strip or layer of flexible non-stretchable material, the edges of which are formed into pockets provided with elastic cords or bands located therein, substantially as and for the purposes set forth.

2. In a pneumatic tire a strip of flexible, non-stretchable material provided with two pockets, each inclosing elastic cords, for the purpose of holding such a tire in position when inflated.

518,692. STOVEPIPE-FASTENER. CLAUDE HEME, Bay City, Mich. Filed Aug. 29, 1893. Serial No. 484,304. (No model.)

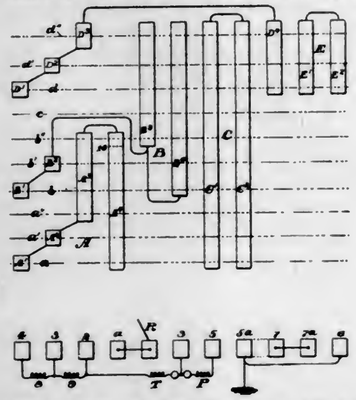
Claim.—1. A stove pipe fastener comprising a thimble split longitudinally and adapted to be partially rolled and compressed, and provided at its inner end with an outwardly extending annular flange adapted to engage positively the inner face of a chimney, and a fastening device arranged adjacent to the outer end of the thimble and securing the longitudinal edges thereof together for holding the thimble in engagement with a stove pipe, said fastening device being arranged to engage the outer face of a chimney, substantially as described.

2. A stove-pipe fastener comprising a thimble split longitudinally and adapted to be partially rolled to enable it to be readily reduced in size for insertion into the stove-hole of a chimney, and provided at its inner end with an outwardly extending annular flange, plates arranged adjacent to the longitudinal edges of the thimble and provided at their adjacent ends with outwardly extending perforated flanges, a screw engaging said flanges and connecting the plates, and an inclined brace mounted on the screw and arranged between the flanges of said plates and adapted to engage the outer face of a chimney to prevent the thimble from moving inward, substantially as described.



3. A stove-pipe fastener comprising a thimble split longitudinally and adapted to be partially rolled to enable it to be readily reduced in size for insertion into the stove-hole of a chimney, and provided at its inner end with an outwardly extending annular flange, plates arranged adjacent to the longitudinal edges of the thimble and provided at their adjacent ends with outwardly extending perforated flanges, and means for adjustably connecting the flanges, substantially as described.

518,693. CONTROLLING-SWITCH FOR ELECTRIC RAILWAYS. PHILIP LANGE, Newark, N. J., and BENJAMIN G. LAMME, Pittsburg, Pa., assignors to the Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Filed Feb. 25, 1893. Serial No. 463,781. (No model.)



Claim.—1. The method of controlling electric vehicles provided with two motors, which consists in the following steps:—connecting said motors in series; establishing a shunt around one of said motors; decreasing the resistance in said shunt, until said motor is short-circuited; cutting out said short-circuited motor; and finally putting said motors in multiple arc with each other, substantially as described.

2. The method of controlling electric vehicles provided with two motors, which consists in the following steps:—connecting said motors in series; establishing a shunt around one of said motors; decreasing the resistance in said shunt until said motor is short-circuited; cutting out said short-circuited motor; putting said motors in multiple arc with a resistance in series with one of them; and finally withdrawing said resistance, substantially as described.

3. The combination in an electrically propelled vehicle of two motors for propelling the same permanently connected in a series, and a series of resistances permanently connected in a series with said motors; with a series of buttons permanently connected with said resistances and motors, and a group of strips adapted to connect said buttons in various groups, substantially as described.

4. In an electrically propelled vehicle, a permanent motor and a temporary motor, permanently connected in a series, and resistances permanently connected in a series with said motors; in combination with a row of buttons, some of said buttons being connected to said motors and resistances, and some being connected to a source of current, means for grounding one end of said permanent series, and groups of switch stripe cooperating with said buttons to connect them in various groups, substantially as described.

5. In an electrically propelled vehicle, a permanent and a temporary motor, means for grounding one end of the circuits thereof, and a row of switch buttons, connected to said motors and to a source of current; in combination with a temporary series strip system, a permanent motor strip system, and a temporary shunt strip system, all cooperating with said buttons to connect them electrically in various groups, substantially as described.

6. In an electrically propelled vehicle, a permanent and a temporary motor, and a row of switch buttons, some of which are connected to the circuits of said motors, some to a source of current, and some to ground; in combination with a temporary series strip system, a permanent motor strip system, a temporary shunt strip system, and a grounding strip system, all cooperating with said buttons to connect them electrically in various groups, substantially as described.

7. In an electrically propelled vehicle, two motors for propelling the same, permanently connected in a series, in combination with a series of buttons permanently connected with said motors, and a group of strips adapted to connect said buttons in various groups, substantially as described.

8. In an electrically propelled vehicle, a permanent and a temporary motor for propelling the same, and a row of switch buttons, some of which are connected to the circuits of said motors, some to a source of current, some to ground, and some adapted simply for spanning arc-drawing stripe; in combination with a temporary series strip system, a permanent motor strip system, a temporary shunt strip system, a grounding strip system, and an arc-drawing strip system, all cooperating with said buttons to connect them electrically in various groups, substantially as described.

9. In an electrically propelled vehicle, two motors for driving the same, permanently connected in a series and having their armatures next each other in the series, substantially as described.

10. In an electrically propelled vehicle, a permanent and a temporary motor permanently connected in a series, and switch buttons permanently connected with the circuits of said motors; in combination with switch strips comprising a temporary series system, and a permanent motor system, the two systems overlapping, substantially as described.

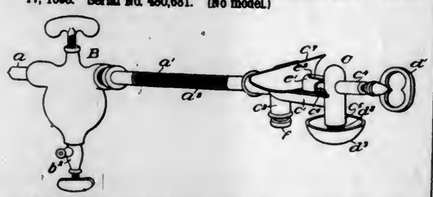
11. The combination in an electrically propelled vehicle of two motors for propelling the same, permanently connected in a series, and a series of resistances permanently connected in a series with said motors; with a row of buttons permanently connected with said resistances and said motors, and a group of switch strips cooperating with said buttons to place said resistances in various relations to said motors and to each of them, substantially as described.

12. In a controller for electric cars, a row of pivoted arms carrying buttons, and two springs, fastened at opposite sides of said buttons, and pressing them outward; in combination with switch strips cooperating with said buttons, substantially as described.

13. In a controller for electric cars, a rotatable axle, a series of conducting sleeves carried thereby, said sleeves being insulated from each other and from the axle, and a curved conducting strip carried by each sleeve; in combination with a row of switch buttons, adapted to cooperate with said strips, substantially as described.

14. In a controller for electric cars, a rotatable axle, a series of sleeves carried thereon, and curved projecting strips carried thereby; in combination with a row of switch buttons, adapted to cooperate with said stripe, substantially as described.

518,694. VAPOR-BURNER. WALTER M. LOCKHART, Philadelphia, Pa., assignor of one-half to J. Walter Douglass, same place. Filed July 17, 1893. Serial No. 480,681. (No model.)



Claim.—1. A vapor-burner comprising a generating chamber with a contracted flame or vapor orifice and means for controlling the flame therefrom, a fluid supply directly connected with said chamber in advance thereof and beneath the adjustable flame deflector plate, a horizontal conduit or channel leading therefrom and provided with a detachable plug, and means for regulating the supply of fluid to said device for controlling the vaporization thereof, substantially as and for the purposes set forth.

2. A vapor-burner provided with vertical and horizontal channels connected with a vertical dome-shaped generating chamber provided with a contracted flame or vapor discharge nozzle, and means for regulating the extent of flame therefrom, a curved seat for the reception of a deflector plate laterally adjustable in connection therewith and provided with a curved two part wind shield, substantially as and for the purposes set forth.

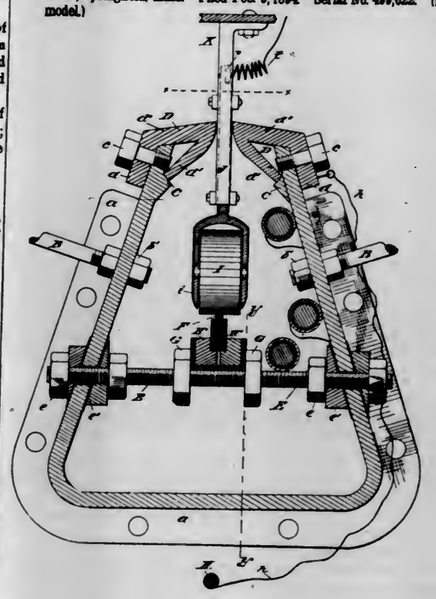
3. A vapor burner provided with a vertical dome-shaped generating chamber having an integral fluid supply conduit in advance thereof and having a plate connected therewith to permit the issuing flame through a contracted orifice to vaporize the fluid in transit to said chamber, a device for controlling the flame or vapor through said orifice, a receptacle connected with and depending from said chamber for the reception of fluid for hastening vaporization and for permitting of access to said chamber, and means for regulating the supply of fluid to said conduit, substantially as and for the purposes set forth.

4. A vapor burner provided with a generating chamber having a contracted vapor exit nozzle, means for controlling the discharge therethrough, a fluid supply conduit in advance of said chamber and having a flame deflector plate seated to the wall thereof so as to vaporize the fluid in transit to said chamber, a receptacle provided with a shank engaging said chamber and adapted to contain fluid to hasten vaporization and removable to permit of access to said chamber, and means for regulating the supply of fluid to said chamber, substantially as and for the purposes set forth.

5. A vapor burner provided with a generating chamber having a discharge nozzle, means for controlling the flame or vapor therethrough, a fluid supply conduit connected with a coupling having a detachable nipple with a surrounding sleeve and engaging a conduit directly connected with said chamber, a flame deflector plate seated in advance of said discharge nozzle to the wall of said supply conduit so as to vaporize the fluid in transit to said chamber and provided with a wind shield and means connected with said coupling for regulating the flow of fluid through said supply conduit, substantially as and for the purpose set forth.

6. A vapor burner provided with a generating chamber having a contracted vapor or flame exit nozzle with means for regulating the flame or vapor therethrough, vertical and longitudinal conduits in communication with each other in advance of said generating chamber and one of them leading thereto and the other provided with a detachable plug, a flame deflector plate seated to one of said conduits in such manner as to permit of vaporization of the fluid in transit, a receptacle provided with a shank engaging said generating chamber for containing fluid for hastening vaporization and for permitting by the detachment thereof access being had to said chamber, substantially as and for the purposes set forth.

518,695. CONDUIT ELECTRIC RAILWAY. CHARLES A. MAYNARD, Springfield, Mass. Filed Feb. 9, 1894. Serial No. 499,622. (No model.)



Claim.—1. In conduit electric railways, the combination with a metal conduit provided upon its inner wall with a longitudinal shelf C—of a metal cover D having a triple bearing upon the conduit, and comprising a brace *d'* adapted to enter the mouth of the conduit and bear upon the shelf, a flange *d* adapted to bear upon the outer wall of the conduit, a central portion *d''* integral with the brace and flange and adapted to be seated upon a top rim of the conduit; and screw bolts *e* through flange *d* and the wall of the conduit, as and for the purpose set forth.

2. The combination and arrangement substantially as shown and described of the conduit A, provided with shelves C. C. upon its inner walls, and the covers D. D, comprising brace portions *d'*, flanges *d* and central bearing portion *d''*—and screw bolts through the flanges and side walls of the conduit to hold all three parts of the covers to a bearing on the conduit.

3. In underground electric conduits, the combination with the conduit A, of transverse screw-bolts E, adapted to be combined with the conduit from the outside thereof, to form an internal brace, and support for the conductor, and provided with insulating bushings and washers in immediate contact with the conduit walls, with nuts *e* for retaining it in position, and having clamp nuts G. G, thereon for holding the conductor and adjusting its position relative to the mouth of the conduit, as shown and described.

4. The combination of transverse screw-bolt E, clamp nuts G G thereon, two part clamp H', and partially insulated conductor F, held between the clamp sections, all arranged and operating as shown and described to hold the conductor, and permit its adjustment vertically and horizontally.

5. The combination with a gravity trolley wheel I, and stem J—of a frame K provided with clearers *m* and side bars *n* inclosing the stem J, and provided with horizontal cross arms *o*, arranged loosely in corresponding staples *s* from the bottom of the car-body to suspend said frame K and permit it both a limited vibrating and sliding movement, as and for the purpose set forth.

6. In conduit electric railways, the combination with a return wire H removed from the conduit, and with removable covers D. D—of auxiliary wires *h* arranged to connect the two, as and for the purpose set forth.

518,696. BED-BRACE. WILLIAM H. PARKER, Roanoke, Va., assignor to James T. Strickland, same place. Filed Jan. 13, 1894. Serial No. 496,784. (No model.)



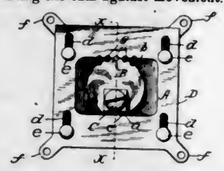
Claim.—1. In combination with the plate A provided with the radial ways B, and the central stud or projection C; the disk D mounted and adapted to turn thereon, and having a continuous spiral passage on its under face; a series of arms H embraced between the disks and working in the ways B, and lugs formed on the arms adapted to engage the spiral passage.

2. In a bed brace or clamp, the combination of the disk A provided with a series of radial ways B and a central stud or projection C; a series of arms H mounted in the ways B, each provided with a lug near its inner end,—the lugs being at different distances from the ends; a second disk D provided with a central circular opening, and a continuous spiral passage or channel E on its under face, said opening and channel engaging respectively the central stud of the disk A and the lugs on the arms, whereby the arms are inclosed between the disks, and are adapted to be held in their adjusted position by the strain of the wires upon them.

518,697. BED-BRACE. WILLIAM H. PARKER, Roanoke, Va., assignor to James T. Strickland, same place. Filed Jan. 13, 1894. Serial No. 496,785. (No model.)

Claim.—1. In a bed brace or clamp, the combination of the plate A provided with ears or eyes *f*; plate D mounted on plate A and provided with ears or eyes *f*, and also an opening E; a cam mounted on plate A and working in the opening E, and means for fastening said cam against movement.

2. In a bed brace or clamp, the combination of the plate A, plate D mounted on plate A and having an opening E; hooks or eyes *f f* secured at opposite ends of the plates; a cam mounted on plate A and adapted to work within the opening E; pins or guides *e e* extending from the lower plate through slots in the upper plate, and means for fastening the cam against movement.



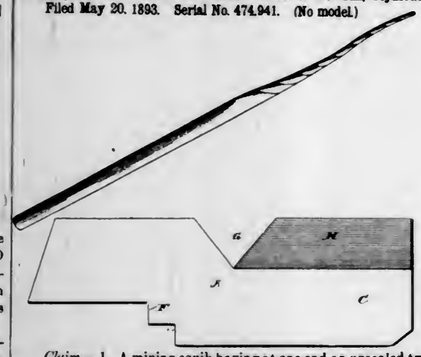
518,698. BICYCLE-SUPPORT. WILLIAM S. PIPES and FRANK T. GUILKER, Waynesburg, Pa. Filed Oct. 25, 1893. Serial No. 489,088. (No model.)



Claim.—1. The combination with a clamp having a curved portion and substantially parallel depending portions, with shoulders and notches, of a rod or bar pivoted in said depending portions and provided with shoulders and a pawl, as set forth.

2. The combination with the bicycle frame, of a clamp embracing a portion thereof and formed with shoulders and notches, a rod pivotally held between portions of the clamp and formed with shoulders and a curved recess, and a pawl on the rod for engagement with the notches of the clamp, substantially as specified.

518,699. MINER'S SQUIB. JOHN R. POWELL, Plymouth, Pa. Filed May 20, 1893. Serial No. 474,941. (No model.)



Claim.—1. A mining squib having at one end an unsealed twisted match portion extending as far as a point beyond the inner closed end of the tube of the squib, and adapted to be untwisted up to such point without affecting other parts of the squib substantially as set forth.

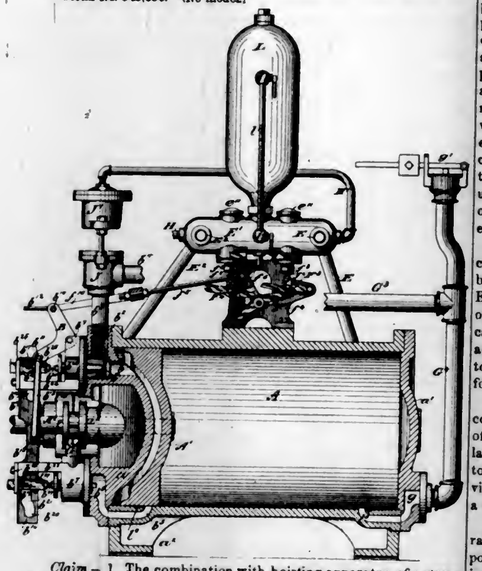
2. A mining squib having a tube portion, an unsealed match roll or twist beyond one end of the tube portion, and a projected closure roll formed intermediate of one end of the tube portion and the beginning of the unsealed match roll or twist, substantially as set forth.

3. A mining squib comprising a paper blank having an end cut at one side edge forming a match and tube portion, and a projected closure piece located at the inner corner of said end cut and intermediate of the match and tube portions, the said blank being adapted to be rolled from one edge to successively form the tube, the intermediate closure roll from said projected closure piece, and a match roll from the match portion, substantially as set forth.

4. In a mining squib, the paper blank having a V-shaped cut or notch in one edge forming at one side a sealing strip and leaving at its opposite side an unsealed match portion, said blank being adapted to be rolled into a tube and match roll, the tube of which is sealed from the apex of said cut to one edge of the blank, while the match portion is left unsealed up to said apex, substantially as set forth

5. In a mining squib, the proper blank consisting of a single rectangular piece of paper having an end cut-away portion forming a match and tube portion, a projected closure piece located at the inner corner of said end cut, and a V-shaped cut or notch in one edge opposite said cut, and forming beyond one side thereof a sealing strip, substantially as set forth.

518,700. HYDRO ENGINE FOR OPERATING ELEVATORS. GEORGE H. REYNOLDS, New York, N. Y., assignor, by mesne assignments, of one-half to the National Company, Chicago, Ill. Filed Mar. 29, 1890. Serial No. 345,856. (No model.)



Claim.—1. The combination with hoisting apparatus, of a steam cylinder provided at one end with an induction port for steam and an exhaust port and at the other end with an exhaust port, valves for said ports, a piston within said cylinder, a connection between said piston and the hoisting apparatus, a communication between said exhaust ports whereby the exhaust may flow from in front of the piston to the rear of the latter when the piston is moving forwardly, a hydraulic cylinder, a piston within said cylinder and a connection between said piston and the hoisting apparatus, the flow of steam to said steam cylinder and the exhaust from one end of said cylinder being controlled by the movements of said hydraulic piston, substantially as specified.

2. The combination with hoisting apparatus, of a steam cylinder provided at one end with an induction port for steam and an exhaust port, and at the other end with an exhaust port, communicating channels leading from said exhaust ports and valves in said channels, a piston within said cylinder, a connection between said piston and the hoisting apparatus, a hydraulic cylinder, a piston within said cylinder, a connection between said piston and the hoisting apparatus, and a regulator and means for shifting the same automatically by the movement of said hydraulic piston in one direction, said regulator being provided with a valve to control the flow of live steam to one side of the steam piston, substantially as specified.

3. The combination with hoisting apparatus, of a steam cylinder provided at one end with an induction port for steam and an exhaust port, and at the other end with an exhaust port, said exhaust ports communicating with connecting channels and valves for said ports, a piston within said cylinder, a connection between said piston and the hoisting apparatus, a hydraulic cylinder, a piston within said cylinder, a connection between said piston and the hoisting apparatus, and a regulator and connections whereby to automatically operate said regulator by the movement of the hydraulic piston in one direction, said regulator provided with a valve arranged to control the flow of the exhaust from one side of the steam piston, substantially as specified.

4. The combination with hoisting apparatus, of a steam cylinder provided at one end with an induction port for steam and an exhaust port, and at the other end with an exhaust port, the exhaust ports communicating with connecting channels and valves for said ports, a piston within said cylinder, a connection between said piston and the hoisting apparatus, a hydraulic cylinder, a piston within said hydraulic cylinder, a connection between said piston and the hoisting apparatus, a communication between opposite ends of said hydraulic cylinder through which liquid will be forced by the movements of the piston from one end of the cylinder to the other, a regulator provided with a valve for controlling the admission of live steam to one side of the steam piston, and a pipe or passage between said communication and said regulator whereby the pressure of the liquid while in circulation is admitted to operate the regulator valve to control the flow of the motor fluid, substantially as specified.

5. The combination with hoisting apparatus, of a steam cylinder provided at one end with an induction port for steam and an exhaust port, and at the other end with an exhaust port connecting channels communicating with said ports, valves for said ports, a piston within said cylinder, a connection between said piston and the hoisting apparatus, a hydraulic cylinder, a piston within said hydraulic cylinder, a connection between said piston and the hoisting apparatus, a communication between opposite ends of said hydraulic cylinder through which liquid will be forced by the movements of the piston from one end of the cylinder to the other, a regulator provided with a valve for controlling the outflow of the exhaust from one side of the steam piston and a pipe or passage between said communication and said regulator whereby the pressure of the liquid while in circulation will operate the regulator valve with valves to control the outflow of the exhaust, substantially as specified.

6. The combination of the steam and water cylinders and pistons connected to move together, of circulating passages for the water between the ends of the water cylinder, two partially automatic valves E^6 E^7 arranged to control the flow of water through said passages in opposite directions and connections between the said valves and the cage and two valves E^8 E^9, and actuating means and constructed and arranged one to open under pressure from one direction and the other to open under pressure from the other direction, substantially as set forth.

7. The combination of the steam and water cylinder and pistons connected to move together, of passages connecting the opposite ends of the water cylinder and provided with controlling valves and regulators connected with said passages upon opposite sides of said valves to be operated by the pressure in said passages, one regulator provided with a valve controlling the motor steam and the other with a valve controlling the exhaust steam, substantially as set forth.

8. The combination with the valves E^6 E^7 constructed and arranged to open automatically under certain pressure and also to be positively opened, and operating means controlling the flow of liquid in opposite directions between the ends of the water cylinder, of two valves E^8 E^9 arranged to lift under pressure of the water in opposite directions, controlled by the valves E^6 E^7 and means for actuating said valves E^8 E^9 substantially as set forth.

9. The combination with hoisting apparatus, of a steam cylinder, a piston within said cylinder, a connection between said piston and the hoisting apparatus, a hydraulic cylinder, a piston in said cylinder, a connection between said piston and the hoisting apparatus, a controller divided internally into two compartments, pipes or passages affording communication between opposite ends of said hydraulic cylinder and separate compartments in said controller, valves for controlling the flow of liquid through the controller, and mechanism substantially such as described operated from the elevator car for operating said valves, substantially as specified.

10. The combination with hoisting apparatus, of a steam cylinder, a piston within said cylinder, a connection between said piston and the hoisting apparatus, a hydraulic cylinder, a piston in said cylinder, a connection between said piston and the hoisting apparatus, a controller divided internally into compartments, pipes or passages affording communication between opposite ends of said hydraulic cylinder and separate compartments in said controller, valves for controlling the flow of liquid through the controller in reverse directions, and mechanism substantially such as described connected with the elevator car, for alternately raising said valves to permit the flow of liquid in either direction, said valves being upon their seats when the elevator car is at rest, substantially as specified.

518,701. DENTAL DISK-CARRIER. GEORGE B. RICHMOND, Lansing, Mich. Filed Sept. 15, 1893. Serial No. 485,607. (No model.)

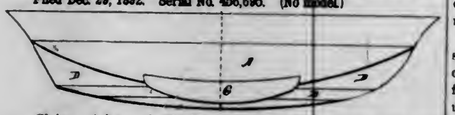


Claim.—1. A dental disk-carrier provided with a curved spring arm having an inward extension to the center of the disk, the curved portion and the inward extension being in the same plane, substantially as described.

2. A dental disk-carrier, comprising a screw-threaded stem having a hub at one end, a plate having a plain surface sliding on the hub, a bearing piece or arm secured to the stem and arranged parallel with the plate, and a spring mounted on the hub and bearing on the plate, substantially as described.

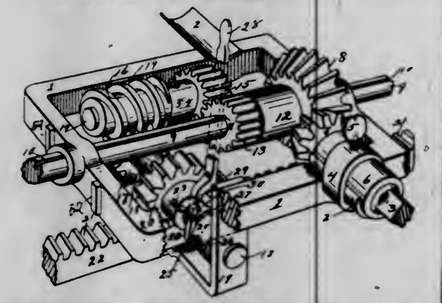
3. A dental disk-carrier, comprising a stem D, a plate C, a curved spring arm or bearing piece E having an inward extension e' secured to the stem, and a free end e^2, substantially as described.

518,702. VESSEL. GEORGE W. SCHERMERHORN, Philadelphia, Pa. Filed Dec. 29, 1892. Serial No. 456,695. (No model.)



Claim.—A boat, the body portion of which, beneath the load-water line is in the form of a section of a circular spindle of coinciding curvature upon every longitudinal section, and having a ballast keel or shoe in the form of half of a circular spindle, and a dead wood secured to and connecting said vessel and ballast shoe, substantially as described.

518,703. COAL-DRILL. JOHN W. SHALLENBERGER, Canal Fulton, assignor of one-half to Frank Shallenberger, Massillon, Ohio. Filed Dec. 1, 1893. Serial No. 492,409. (No model.)

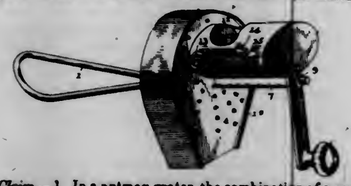


Claim.—1. The combination of the frame 1, provided with the arms 2, having concaved faces, the power shaft, removably attached to the arms 2, the gear wheels, 7 and 8, the drill shaft 9, provided with the longitudinal groove 10, the key 11, the wheels 13 and 15, the shaft 14 provided with the worm 16, the wheel 17, mounted on the shaft 18, the feed wheel 20 loosely mounted on the shaft 18, an interlocking clutch mechanism connected with said feed wheel, the feed bar 22, provided with teeth, and the drill head 35, substantially as and for the purpose set forth.

2. The combination of the frame 1, provided with the arms 2 the power shaft 3, the clamp 4, the thimble or bearing 6, the screw 5, gear wheels for communicating rotary motion to the drill shaft 9, and longitudinal movement to the feed bar 22, the drill shank 31, and the drill head 35, provided with the flanges 36, having adjustably attached to said flanges the blades 37, substantially as and for the purpose set forth.

3. In a coal drill the combination of a frame provided with the gear wheels 7, 8, 13 and 15, the worm 16, the wheel 17, the feed wheel 20, the drill shaft 9, having fixed thereto the collars 48 and 49, and the feed bar 26, substantially as and for the purpose set forth.

518,704. NUTMEG-GRATER. GEORGE V. STRAW, Dubuque, Iowa, assignor of two-thirds to James S. Donelian and Otto R. Ridgeway, same place. Filed June 29, 1893. Serial No. 479,137. (No model.)



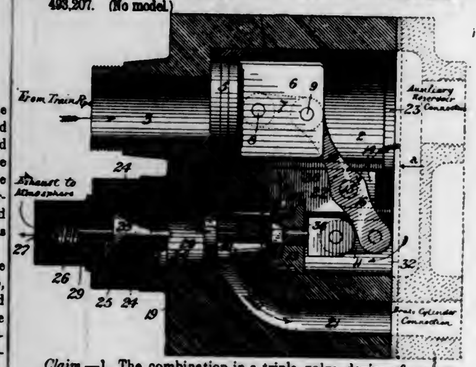
Claim.—1. In a nutmeg grater, the combination of a grating box provided at one side with a grating surface, a shank or stub shaft extending outward from the grating box and arranged centrally of the grating surface, a handle extending horizontally from the opposite sides of the grating box, whereby the grating box may be held firmly by hand, and a carrier having at one side a longitudinal sleeve movably mounted on the shank or stub shaft and provided with a crank handle for rotating the carrier over the grating surface, substantially as described.

2. In a nutmeg grater, the combination of a handle, a grating box or receptacle mounted on said handle, the latter having a shank or stub-shaft extending centrally outwardly therethrough, a flange extending around the edge of the box on the grating side, and a rotatable carrier having at one side a longitudinal sleeve loosely mounted on the said stub-shaft outside the grating surface of the said box or receptacle, substantially as described.

3. In a nutmeg grater, the combination of a handle having a shank or stub-shaft, a grating box or receptacle of approximate circular form having a delivery spout at the bottom and a grating surface at the side of the same, said box or receptacle being mounted upon the said shank or stub shaft, a sleeve loosely mounted on said shank or stub-shaft outside the box or receptacle and having a carrier connected thereto of tubular form, with an opening in one side thereof, the inner end of said carrier being open and the outer end closed, and opposite slots therein, an elliptical plunger or follower mounted in said carrier and having oppositely-located handles projecting through the slots of the latter, a coiled spring located between said follower or plunger and the outer end of the carrier and acting to hold the follower in, and a crank-handle connected to the said sleeve and carrier for rotating said parts and causing the inner end of the carrier to travel over the grating surface of the box or receptacle, substantially as described.

4. The combination with a grating box having a grating surface, of a rotary carrier provided at its inner end at one side with an opening to permit the insertion of a nutmeg, and provided at opposite sides with longitudinal slots having at their outer ends shoulders, the spring pressed follower arranged in the carrier, and the opposite handles extending from the follower and arranged in the slots and adapted to engage the shoulders thereof, substantially as described.

518,705. TRIPLE VALVE FOR FLUID-PRESSURE BRAKE SYSTEMS. JOSEPH SOUCEK, Allegheny, Pa. Filed Dec. 9, 1893. Serial No. 493,207. (No model.)



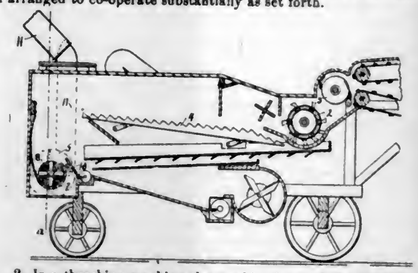
Claim.—1. The combination in a triple valve device of a movable abutment, a main valve controlling the passage of fluid from the auxiliary reservoir to the brake cylinder, a stem connected to and movable independent of the main valve, and a lever connection from the movable abutment to the stem, substantially as set forth.

2. The combination in a triple valve device of a movable abutment, a main valve, a lever connection between the abutment and the main valve, and a separate exhaust valve, substantially as set forth.

3. The combination in a triple valve device of a movable abutment, a puppet valve connected to the movable abutment by means of the lever connection, and a graduating port formed in the valve for releasing fluid under pressure from the auxiliary reservoir to the brake cylinder in making graduated applications of the brakes, substantially as set forth.

518,706. THRASHING-MACHINE. WILLIAM N. SPRINGER, Fortville, assignor to the Springer Automatic Thrasher Company, Anderson, Ind. Filed Aug. 16, 1893. Serial No. 483,266. (No model.)

Claim.—1. In a thrashing machine, the combination with the thrashing cylinder, a cutter arranged to cut the straw into short lengths on its way to said cylinder, and suitable separating mechanism and its inclosing casing arranged to receive the straw and grain after they leave the thrashing cylinder, and terminating in an otherwise closed chamber of an exhaust-fan mounted upon one side of said casing, a tubular receiver open at its upper side and arranged to receive the straw and chaff from the separating mechanism, one end of said receiver being connected with the eye of the exhaust-fan and the other being open and communicating with the exterior through the casing, all arranged to co-operate substantially as set forth.



2. In a thrashing machine, the combination with the separating mechanism and its inclosing casing, terminating in an otherwise closed chamber of an exhaust-fan mounted upon one side of said casing, a tubular receiver open on its upper side and arranged to receive the straw and chaff from the separating mechanism, one end of said receiver being connected with the eye of the exhaust-fan and the other being open and communicating with the exterior through the casing, all arranged to co-operate substantially as set forth, whereby a current of air is established from the exterior across the interior of the thrasher-casing for the purpose set forth

---

518,707. PAIL. JOHN A. STEWARD, East Clarendon, Vt. Filed Aug. 18, 1893. Serial No. 483,439. (No model.)



Claim.—1. A can or pail body having at an end thereof an inwardly projecting bead merging into a seam-flange, and a cover therefor having an outwardly-projecting bead directly at its seam-flange,—substantially as specified.

2. A can or pail body having at an end thereof an inwardly-projecting bead merging into a seam flange, and a cover therefor having an outwardly projecting bead terminating in a seam-flange, the respective extreme diameters of the beaded portions being such as to separably connect the parts when assembled and to form contact portions of the body and cover seam when permanently united, substantially as specified.

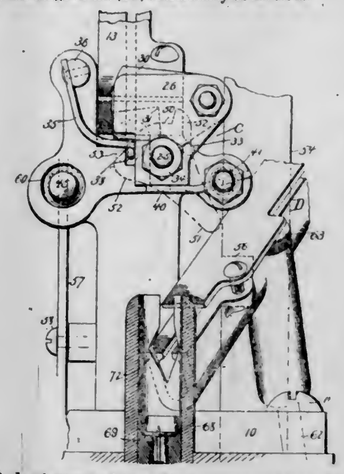
3. The combination with a can body having at its end an inward bevel and an outwardly-projecting seam-flange, of a cover or head having an outward bevel and seam-flange, said bevels being proportioned to permit the insertion of the cover and its separable retention within the body, substantially as specified.

4. A can or pail body having at an end thereof an inwardly-projecting bead merging in a flange projecting outwardly at substantially a right angle to the body and a cover having an outwardly-projecting bead and a flange projecting outwardly in a plane substantially parallel with the main portion of the cover, said cover being frictionally held within the body with its flange in position to be seamed with the flange of the body, substantially as specified.

518,708. BUTTON-SETTING MACHINE. ALEXANDER G. WILKINS, Meadville, Pa., assignor to the Wilkins Shoe Button Fastener Company, same place. Filed Oct. 20, 1893. Serial No. 488,724. (No model.)

Claim.—1. In a button setting machine, the combination with a shaft adapted to rock axially, of a clamp comprising a plate secured to the shaft, said plate having a laterally projecting flange, and a jaw hinged to the plate and adapted to receive and clamp a button between it and the laterally projecting flange, substantially as set forth.

2. In a button setting machine, a clamp consisting of a plate having a flange or projection extending laterally therefrom, and a jaw hinged to the plate, said jaw having a notch formed therein adapted to receive the head of a button between itself and an edge of the flange, said notch inclining inward whereby to draw the button toward the hinge of the jaw, substantially as set forth.



3. In a button setting machine, a clamp consisting of a plate having a laterally projecting die holding flange or projection, and a hinged jaw for holding the button head between it and the flange or projection, substantially as set forth.

4. In a button setting machine, the combination with a rocking shaft having a flattened face, of a clamp having a laterally projecting die holding flange or projection, the rear face of which lies against the flattened face of the shaft, substantially as set forth.

5. In a button setting machine, the combination with a rocking shaft, and a clamp secured on one end thereof adapted to receive and hold a button, of a segment secured on the shaft, and a reciprocating lever constructed to engage and rock the segment, substantially as set forth.

6. The combination with a rocking shaft, and a clamp secured on one end of the latter, of a segment on the rear of the shaft, a reciprocating cross-head, and a lever hinged to the cross-head and constructed to engage and rock the segment with the shaft and its clamp, substantially as set forth.

7. The combination with a reciprocating cross-head, and a rocking shaft having a clamp on one end, and a segment with a projection on the other end, stops for limiting the rocks of the clamp shaft, and a lever hinged to the cross-head and normally bearing against the projection on the segment, said lever constructed to rock the segment back and forth, substantially as set forth.

8. The combination with the frame of the machine, button fastening mechanism, and a clamp comprising two parts and having pivotal or rocking connection with the frame whereby it may be swung or rocked from its normal position in which it receives the button, to the button fastening mechanism, of a clamping bar in position to engage the clamp during the button fastening operation whereby to lock it firmly upon the button, substantially as set forth.

9. The combination with a clamp adapted to receive and hold a button between its parts of a spring actuated sliding clamp bar for engaging the clamp, a cam lever for moving said bar, and a reciprocating cross head adapted to vibrate the cam lever, substantially as set forth.

10. The combination with a button chute, of a clamp located at the lower end of the chute and adapted to receive buttons directly from the chute, and a pivoted detent adapted to bear on the clamp and having a notch therein which constitute a continuation of the chute and is adapted to receive the shank or eye of the button and form a stop for it, substantially as set forth.

11. The combination with a button chute, of a clamp having a hinged jaw and a rearwardly extending flange or projection and a pivoted detent having a notch therein, said notch located in alignment with the button chute and adapted to receive a button eye or shank therein, substantially as set forth.

12. The combination with a rocking shaft, and a clamp thereon, said clamp carrying a die, of a pivotally supported plate having an edge in position to form a backing for the pin of the button fastener when the latter is being clinched, substantially as set forth.

13. The combination with a rocking shaft, means for rocking the shaft and a clamp secured on the shaft, of a spring actuated rocking bolt split at one end, and a plate adjustably secured in the split end of the bolt, said plate having an edge in position to form a backing for the pin of the button fastener when the latter is being clinched, substantially as set forth.

14. The combination with a button chute, a rocking shaft, a clamp located on said shaft at a point adjacent to the lower end of the chute in position to receive buttons from the latter, a pivoted detent, an adjustable pivoted plate, and a sliding clamping bar of a reciprocating cross head, two levers operated by the cross head, one to rock the rocking shaft and the other to slide the clamping bar, substantially as set forth.

15. The combination with a fastener chute, and a cut-off therein said cut-off having a laterally projecting shank, of a reciprocating cross-head, a lever pivotally connected therewith and a link having pivotal connection with the lever and with which the shank of the cut-off is connected, substantially as set forth.

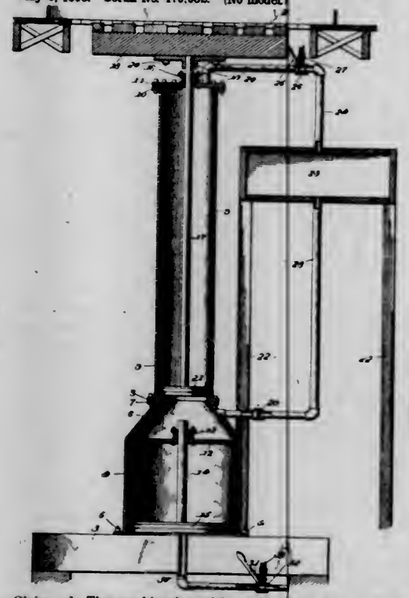
16. The combination with a fastener chute, of a rocking cut off therein, a rocking shank the end of which is bent laterally, of a reciprocating cross-head, a lever hinged thereto, and a link pivoted to the lever and loosely connected with the shank of the cut-off, substantially as set forth.

17. The combination with a button chute, and a rocking clamp comprising two jaws hinged together, said clamp located at the lower end of the chute and adapted to receive and clamp the button and turn its eye or shank from a vertical to a horizontal position, of a die carried by a clamp, and an anvil rod for forcing the fastener through the button eye, substantially as set forth.

18. The combination with a button chute, and a clamp located at the lower end of the chute in position to receive and hold a button means for rocking the clamp and a clamping bar, of a die carried by the clamp, and an anvil rod for forcing the fastener against the die, substantially as set forth.

19. In a button setting machine, the combination with a head, of a removable casting adjustably supported thereon, and a removable fastener chute adjustably connected with the casting, substantially as set forth.

518,709. COTTON-PRESS. SILAS J. WILLIAMS, Floyd, Tex. Filed July 3, 1893. Serial No. 479,952. (No model.)

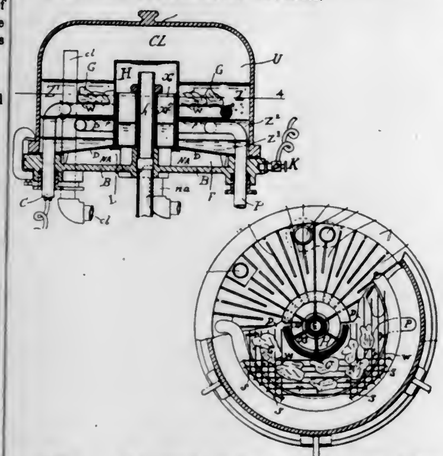


Claim.—1. The combination with a baling chamber, a subjacent hydraulic-cylinder, a piston-rod and head mounted therein, the former extending beyond the upper end of the cylinder and provided with a follower, of a steam-cylinder of greater diameter than the hydraulic-cylinder, a piston rod and head mounted therein, said steam-cylinder communicating with the hydraulic-cylinders and an overflow-pipe extending from the hydraulic cylinder, a tank elevated above the steam cylinder and communicating with the overflow-pipe, a return-pipe depending from the tank and communicating with the steam-cylinder above the piston-head therein, a steam supply-pipe leading from a source of supply to the lower end of the steam cylinder, and a check valve located in the return-pipe.

2. The combination with a baling-chamber, a subjacent hydraulic-cylinder, a piston-rod arranged therein, a piston-head at the lower end of the rod, and a follower at the upper end thereof above the cylinder, of a steam-cylinder arranged below the hydraulic-cylinder and supporting the same and having an upper contracted dome agreeing in diameter with the hydraulic-cylinder, and an internal guide, a piston-rod arranged in the guide, a piston-head secured to the lower end of the rod, a water receiving-tank supported above the steam-cylinder, a return-pipe leading from the upper end of the hydraulic-cylinder to the receiving-tank, a steam supply-pipe communicating with the overflow-pipe, a three-way valve arranged at the union thereof, a return-pipe leading from the tank to the upper end of the steam-cylinder, an inwardly opening check-valve arranged in the return-pipe, a steam-supply pipe leading to the lower end of the steam-cylinder, an exhaust-pipe leading therefrom, and a three-way valve located at the union of the two pipes, substantially as specified.

3. The combination with a baling chamber, a subjacent hydraulic-cylinder, a piston-rod and head mounted therein, the former extending beyond the upper end of the cylinder and provided with a follower, of a steam-cylinder of greater diameter than the hydraulic-cylinder, a piston-rod and head mounted therein, said steam-cylinder communicating with the hydraulic-cylinder, and an overflow pipe extending from the hydraulic-cylinder, a tank elevated above the steam-cylinder and communicating with the overflow-pipe, and a return pipe depending from the tank and communicating with the steam-cylinder above the piston-head therein, substantially as specified.

518,710. METHOD OF AND APPARATUS FOR ELECTROCHEMICAL DECOMPOSITION. HENRY CARMICHAEL, Malden, Mass. Filed Jan. 23, 1892. Serial No. 419,068. (No model.)



Claim.—1. An electro-chemical process which consists of displacing an ion in solution in an electrolyte by supplying the electrolyte to the electrolytic cell, and withdrawing the displaced ion from the electrolytic cell; such supply of the electrolyte and withdrawal of the ion being at a rate corresponding substantially to the rate of diffusion of the ion from its electrode through the electrolyte toward the opposite electrode.

2. An electro-chemical process which consists of displacing an ion in solution in an electrolyte by supplying the electrolyte to the electrolytic cell and withdrawing from the electrolytic cell the ion thus displaced; such supply of the electrolyte and withdrawal of the ion being at a rate equal to or greater than the rate of diffusion of the ion from its electrode through the electrolyte toward the opposite electrode said displacement being in a direction substantially opposite to the direction of said diffusion.

3. An electro-chemical process which consists of displacing an ion of superior specific gravity by supplying the electrolyte to the electrolytic cell, and withdrawing the displaced ion from the electrolytic cell; such supply of the electrolyte and withdrawal of the ion being at a rate corresponding substantially to the rate of diffusion of the ion through the electrolyte toward the opposite electrode.

4. An electro chemical process which consists in maintaining within the electrolytic cell a zone of undecomposed electrolyte interposed between the ions at the electrodes by supplying to such zone

fresh quantities of the electrolyte, thereby displacing the ions toward appropriate electrodes, and by withdrawing from the electrolytic cell the ions thus displaced; the supply of the electrolyte and the withdrawal of the ion being made to proceed at such a rate as to maintain the zone of undecomposed electrolyte between the ions substantially constant in volume.

5. An electro chemical process for producing sodium hydrate and chlorine from a solution of sodium chloride which consists of maintaining within the electrolytic cell a zone of undecomposed solution of sodium chloride interposed between the sodium hydrate and chlorine at their respective electrodes by supplying to such zone fresh quantities of sodium chloride solution so as to displace the sodium hydrate toward its appropriate electrode and by withdrawing from the cell the sodium hydrate thus displaced; the supply of sodium chloride solution and the withdrawal of sodium hydrate being made to proceed at such a rate as to maintain the zone of undecomposed sodium chloride between the ions substantially constant in volume.

6. A process of progressive concentration of an ion in solution in an electrolytic cell, which consists of conducting the ion from that region in the electrolytic cell where it is diffuse; and passing it across the surface of the electrode where the ion is being liberated, thus giving the diffuse ion, in its passage, successive increments of concentration from the electrode, and withdrawing from the electrolytic cell the ion thus laden with increments of concentration after its passage across the electrode.

7. A process of progressive concentration of an ion, which consists of displacing the diffused ion by introducing fresh electrolyte to that region into which the ion tends to diffuse, conducting the diffused ion thus displaced from that point in the said region where it is most concentrated to the electrode at which the ion originates, and there passing the ion across the surface of the said electrode where constant increments of concentration are being supplied, and finally discharging the ion laden with increments of concentration after its passage across the electrode.

8. A process of progressive concentration of the solution of sodium hydrate obtained from electrolysis of a solution of sodium chloride which consists in displacing the diffused sodium hydrate by introducing a supply of sodium chloride into that region in the electrolytic cell into which sodium hydrate tends to diffuse from the cathode, conducting the diffused sodium hydrate thus displaced by the fresh supply of sodium chloride from the point in the said region where the sodium hydrate is most concentrated to the cathode where sodium hydrate originates, and there passing the diffused sodium hydrate across the surface of the cathode, where constant increments of sodium hydrate are added to the solution, and discharging the sodium hydrate solution after it has received increments of concentration in its passage across the cathode.

9. An electrolytic apparatus containing in combination with horizontal electrodes, a diaphragm located between the electrodes and separating the electrolytic cell into compartments, a supply inlet to one compartment, a passage between the compartments, and a discharge outlet from the other compartment, substantially as and for the purpose described.

10. In an electrolytic apparatus the combination of electrodes situated in diaphragm separated compartments, a supply inlet to one compartment, a discharge outlet from the other compartment, and a passage between the compartments, substantially as and for the purpose set forth.

11. In an electrolytic apparatus the combination of electrodes situated in diaphragm separated compartments, a supply inlet to one compartment, a discharge outlet from the other compartment, a passage between the compartments and a gas-chamber, so situated as to receive the gases rising in the lower compartment, substantially as and for the purpose set forth.

12. In an electrolytic apparatus, the combination of compartments separated by a porous diaphragm, a gravity contact electrode situated in one compartment, a supply pipe for electrolyte, entering the apparatus on one side of the diaphragm, a discharge pipe from the apparatus on the other side of the diaphragm, a passage between the compartments, and a gas chamber, so situated as to receive the gases rising in the lower compartment, substantially as and for the purpose set forth.

13. In an electrolytic apparatus, the combination of compartments separated by a porous silicious diaphragm, an electrode of carbon in gravity contact with platinum wires situated in one compartment, a supply pipe for electrolyte on one side of the diaphragm, a discharge pipe on the other side of the diaphragm, a passage between the compartments and a gas chamber, so situated as to receive the gases rising in the lower compartment, substantially as and for the purpose set forth.

14. In an electrolytic apparatus, the combination of an inclined diaphragm supported by a corrugated electrode, and a gas-chamber at the uppermost part of the inclined diaphragm, substantially as and for the purposes set forth.

15. In an electrolytic apparatus, the combination of a concavo-convex porous diaphragm supported by a corrugated electrode and a gas-chamber, situated at the highest point in the diaphragm, substantially as and for the purposes set forth.

16. In an electrolytic apparatus, an electrode containing a series of connecting chambers, a supply inlet to one end of the series, and a discharge outlet from the other end thereof, substantially as described.

17. The combination in a containing vessel composed of separable parts, of electrodes, leading wires, a supply pipe for electrolyte, and outlets for electrolytic products all of whose connections are made through one of the separable parts of the containing vessel, substantially as and for the purpose set forth.

18. The combination, in a containing vessel having a separable base of electrodes, leading wires, a supply pipe for electrolyte, and outlets for products of electrolysis, all of whose connections pass through the separable base, substantially as and for the purpose set forth

19. An electrolytic apparatus whose cathode is the base of the apparatus, and in which the leading wire of the anode, the supply pipe for electrolyte and the discharge pipes for the products of the electrolysis pass through the cathode-base, substantially as described.

20. In an electrolytic apparatus the combination of electrodes, diaphragm separated compartments and a conduit from one compartment to the other provided with a gas-trap,—substantially as and for the purpose set forth.

21. In an electrolytic apparatus, a containing case, electrodes situated in diaphragm separated compartments, the diaphragm, a passage between the compartments, a supply inlet to one compartment, a series of connecting chambers in the other compartment, a supply inlet for said series arranged at one end thereof, and a discharge outlet for said compartment and series located at the other end of the series, substantially as described.

22. An electrode which consists of two systems; first, an internal system of corrodible conductors surrounded and insulated by non-corrodible material; second, an external system of uninsulated, non-corrodible conductors, the internal and external systems being connected electrically by non-corrodible metallic pins, which pass through the insulation of the internal system in such manner as to exclude all corrosive agents from the internal system while maintaining and preserving good electrical contact with the external system.

23. A leading-in wire composed of a copper conductor enveloped in a rubber jacket, and platinum-pins which pass through the rubber jacket to the copper, establishing electric contact with the latter, the ends of the platinum pins which project out of the rubber being adapted to the attachment of electrical connections with an electrode.

24. The combination with an insulated leading-in wire, of metallic conductors which pierce the insulation and make contact with the leading-in wire, and an electrode consisting of non-metallic conducting pieces in gravity contact with metallic conductors, the latter attached to the metallic conducting points, which pierce the insulation of the leading-in wire.

25. The method of constructing a porous diaphragm, which consists in filling a reinforcing framework with Portland or analogous cement, and molding the framework thus filled, while plastic, into the shape desired.

26. A diaphragm of porous Portland or analogous cement, reinforced by fibrous or textile material, the fibrous or textile material, being filled and protected by the cement.

27. A diaphragm of porous Portland or analogous cement, reinforced by asbestus fibers, substantially as herein described.

28. The method of increasing the disparity of the specific gravities of gravimetrically disposed strata in an electrolyte, which consists in maintaining the upper strata at a temperature higher than the lower strata, meanwhile preserving the said strata from agitation and disarrangement of their gravimetric distribution.

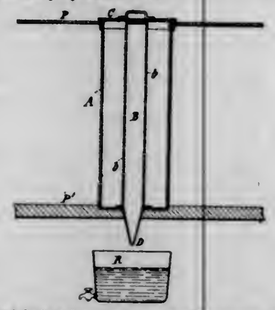
29. The method of increasing the disparity of the specific gravities of gravimetrically disposed strata in an electrolyte, which consists of permitting the heat of the electrolyte to radiate more freely from the lower strata than from the upper strata, meanwhile preserving the said strata from agitation and disarrangement of their gravimetric distribution.

30. In an electrolytic apparatus, a metallic, corrugated base, and sides of non-heat conducting material.

518,711. PRODUCING METALLIC ZINC. PARKER C. CHOATE, New York, N. Y., assignor to the Electrical Zinc Company, of New Jersey. Filed Dec. 9, 1891. Serial No. 414,468. (No specimens.)

Claim.—1. The hereinbefore described process of producing zinc anodes from an impure ore of zinc, which consists in first separating the zinc from the less volatile constituents of the ore by heating the ore in the presence of a reducing agent in a furnace to which air is admitted, so as to volatilize the zinc and those constituents of the ore more volatile than zinc, and condensing and collecting the volatilized product in the shape of fume; second, reheating the fume to

revolatilize and eliminate the metallic constituents more volatile than zinc, and finally subjecting the fume to reduction and distillation and casting the resulting product into anodes of suitable form substantially as and for the purposes set forth.

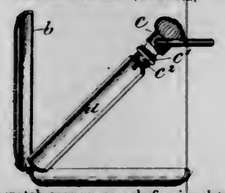


2. The hereinbefore described process of producing commercially pure metallic zinc which consists in first separating the zinc from the less volatile constituents of the ore by heating the ore in the presence of a reducing agent in a furnace to which air is admitted, so as to volatilize the zinc and those constituents of the ore more volatile than zinc, and condensing and collecting the volatilized product in the shape of fume; second, reheating the fume to revolatilize and eliminate the volatile constituents more volatile than zinc; third, subjecting the fume to reduction and distillation and casting the resulting product into anodes and finally depositing the zinc from the anodes by electrolysis substantially as set forth.

3. The hereinbefore described process of producing commercially pure metallic zinc which consists in reducing the distilling zinc fume freed from its lighter soluble constituents, casting its resulting product into anodes, and separating the zinc from such anodes by means of electrolysis in the presence of an acid electrolyte.

4. The hereinbefore described process of producing commercially pure metallic zinc which consists in immersing in a zinc sulphate electrolyte containing chlorine, a zinc anode so prepared as to contain no metal which is both soluble in such electrolyte and depositable by zinc upon itself therefrom, and depositing the zinc by electrolysis, therefrom substantially as set forth.

518,712. WATCHCASE. CALEB K. COLBY, Brooklyn, N. Y. Filed Aug. 18, 1893. Serial No. 483,432. (No model.)



Claim.—1. A watch case composed of a ring *d*, to hold the movement provided with a pendant or stem, and two caps, *a* and *b*, which are hinged together and to the ring *d* at a common point opposite to the pendant, said caps having undercut and matched marginal flanges which snap together when the caps are closed, the caps thus forming a housing for the ring, as set forth.

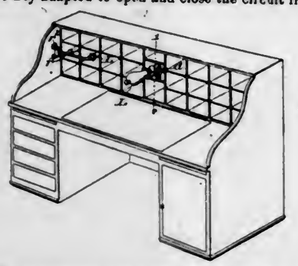
2. A watch case composed of two caps hinged together and arranged to snap together when closed, a ring to hold the movement hinged to the caps at the point where they are hinged, and a pendant or stem secured to the said ring and provided with a packing ring about its neck at the point where the caps embrace said neck when the case is closed, substantially as set forth.

518,713. SUPPORT FOR ELECTRIC LIGHTS. WILLIAM H. CONNELL, Wilmington, Del. Filed Mar. 23, 1893. Serial No. 467,920. (No model.)

Claim.—1. The combination with walls forming a recess or housing, of a support, an incandescent electric light on said support and adapted to be moved into and out of said recess, an electric circuit leading to said lamp and means for opening and closing said circuit operated by the movement of the light into and out of the recess.

2. The combination with walls forming a recess or housing, of a support, an incandescent electric light on said support and adapted to be moved into and out of said recess, a stop to limit the movement of the lamp out of the recess, an electric circuit leading to said lamp and means for opening and closing said circuit operated by the movement of the light into and out of the recess.

3. The combination with a desk or other article of furniture having a recess or pigeon hole therein, of a movable support carried on the desk or other article of furniture, an electric lamp secured to said support and adapted to be moved into and out of the recess by the movement of the support, an electric circuit leading to said lamp and a suitable key adapted to open and close the circuit from said lamp.



4. The combination with a desk having a recess or pigeon hole, of a carriage or support therein, an electric light secured on said support and adapted to be moved into and out of said recess, an electric circuit leading to said light and means for opening or closing said circuit operated by the motion of the light.

5. The combination with a desk having a recess or pigeon hole and a guide in said recess of a carriage sliding on said guide, an electric lamp secured on said carriage, a circuit leading to said lamp, and means as contact plates on the carriage and poles in the line of the travel thereof for connecting and disconnecting the lamp and circuit.

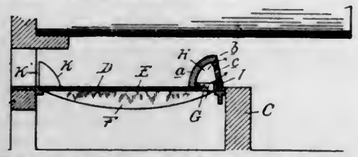
6. The combination with a guide secured to a desk or other article of furniture, of a carriage guided by said guide, insulated contact pieces on said carriage and on the guide, said pieces adapted to come in line with each other and close an electric circuit on movement of the lamp, an electric circuit leading to the contact pieces on the guide and a lamp carried by the support, substantially as and for the purpose specified.

7. The combination with a desk having a recess or pigeon hole, of a movable support arranged in said recess, an electric lamp secured to said support and adapted on the movement of the support to be carried into and out of the recess, an electric circuit leading to the lamp and a key for making and breaking the circuit.

8. The combination with a desk having a recess therein, of a movable support situated in said recess, an electric lamp secured to said support and adapted on the movement of the support to be carried into and out of the recess, a stop to limit the movement of the support, an electric circuit leading to the lamp and a key for making and breaking the circuit.

9. The combination with a desk having a recess therein of a movable support situated in said recess and guided therein, an electric lamp secured to said support and adapted on the movement of the support to be carried into and out of the recess, a stop to limit the movement of the support, an electric circuit leading to the lamp and a key for making and breaking the circuit.

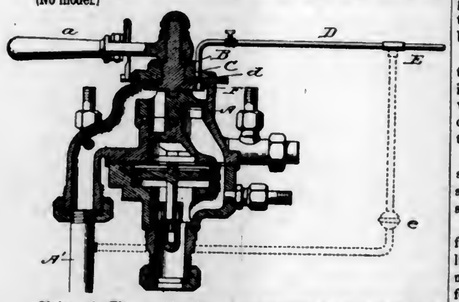
518,714. GRATE. THOMAS CRANEY, Bay City, Mich. Filed Jan. 29, 1894. Serial No. 498,409. (No model.)



Claim.—1. In a furnace grate, the combination of a series of apertured grate bars, having passage ways G at the rear end of each bar, of the flanges I around such passage ways on the bars, and the hollow bridge wall formed in sections the width of each bar and comprising the curved front wall *a* and the inclined rear wall *b* provided with inclined apertures the lower side of the wall being open and fitting around the flanges, substantially as described.

2. In a furnace, the combination of the grate comprising the perforated grate bars, having at their rear ends a hollow raised bridge or cross bar, having its rear face formed with a series of upwardly inclined perforations, of the side grate bar having a raised air chamber J at their front ends consisting of the rear inclined perforated wall K and the front vertical wall K', substantially as described.

518,715. AUTOMATIC TRACK-SANDING APPARATUS. MATTHEW M. DODD, Portsmouth, Va., assignor to the Automatic Track-Sanding Company, of Maine. Filed Mar. 30, 1893. Serial No. 468,392. (No model.)



Claim.—1. The combination of the engineer's brake valve, a key carrying the valve for supplying air to the track sanding apparatus, and the engineer's lever *a*, all adapted to be moved around the same vertical axis, and the said valve for supplying air to the track sanding apparatus being within the same housing as the engineer's valve, substantially as and for the purpose specified.

2. The combination with the engineer's brake valve, a lever for operating said valve, and a key having a valve integral therewith for supplying air to the brake sanding apparatus, the said two valves being inclosed in one case, substantially as specified.

3. The combination with the engineer's brake valve, the lever for operating said valve and the part B interposed between the said operating lever and said engineer's valve, and not only serving as a key between the two, but also containing an opening *f* for automatically supplying air to the sanding apparatus, substantially as shown and described.

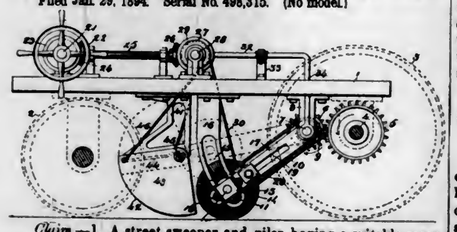
4. The combination with the brake valve lever and the key for operating the brake-valve, of a cap nut, a pipe connected with the cap nut, and a valve integral with the key, whereby air is automatically supplied to said pipe by the movement of the said lever, as and for the purpose specified.

5. The combination with the air brake valve lever, a key for operating the brake valve having a valve integral therewith for supplying air to the track sanding apparatus, of a pipe for supplying air to the sand box, the said valve for supplying air to the sanding apparatus being operated by the brake valve lever to admit air to the said pipe, substantially as set forth.

6. The combination with the brake-valve lever, a key for operating the brake valve and the valve for supplying air to the track sanding apparatus, integral with the said key, and the cap-nut, of a pipe connected with the cap nut whereby air is automatically supplied to the said pipe by the movement of the said lever, as and for the purpose specified.

7. The combination with the engineer's brake valve and the lever *a* for actuating the same, of a valve between said engineer's brake valve and said engineer's valve lever, adapted to supply air to the track-sanding apparatus which intermediate valve for supplying air to the track sanding apparatus is integral with the key B, between the engineer's lever and the engineer's brake valve A, and connects the cavity of the casing of the engineer's valve with the track sanding apparatus, substantially as shown and described.

518,716. STREET-SWEEPER. TAYLOR W. DOWNS, St. Louis, Mo. Filed Jan. 29, 1894. Serial No. 498,315. (No model.)



Claim.—1. A street sweeper and piler having a suitable receptacle, a brush for sweeping dirt into the same, means for positively forcing the contents from the receptacle, means for simultaneously elevating the brush upon dumping the receptacle, means for dumping said receptacle and suitable running gear for the brush, substantially as set forth.

2. A street sweeper and piler having a suitable receptacle, a brush for sweeping dirt into the same located adjacent thereto, means for positively forcing the contents from the receptacle, suitable running gear for the brush, and means for simultaneously dumping the receptacle, elevating the brush and disengaging the running gear of the brush, substantially as set forth.

3. A street sweeper and piler comprising a suitable open receptacle, a brush located adjacent to the open end of the same for sweeping dirt thereinto, suitable running gear for said brush, means for elevating said brush, and a scraping plate co-operating with the bottom of said receptacle for forcing out the contents from the same, substantially as set forth.

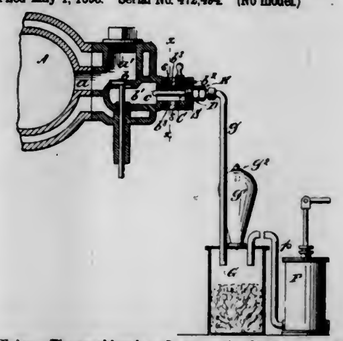
4. In a street sweeper and piler, a segmental open swinging trough, suitable supports for the same, and a scraping plate attached to the sweeper frame and co-operating with the bottom of the trough, substantially as set forth.

5. In a street sweeper and piler, a suitable rotating trough, a brush for sweeping dirt into the same, suitable ropes or chains for controlling said receptacle and brush, means for winding said ropes and simultaneously elevating said brush and rotating the receptacle, a shaft for said pulleys, suitable driving mechanism for said brush, a main driving shaft, and intermediate mechanism between the shaft carrying the pulleys and driving mechanism of the brush for disengaging the latter from the main driving shaft upon elevation of the brush, substantially as set forth.

6. In a street sweeper and piler, a suitable revolving brush, a shaft for the same, bearings for said shaft, suitable slotted guide plates for said bearings, a second shaft, sprocket wheels on said shaft, a second pair of sprocket wheels on the shaft of the brush, sprocket chains connecting the said sprocket wheels, arms loosely embracing the second shaft at one end, slots in said arms embracing the brush-shaft at the opposite end, and means for elevating the free ends of said arms thus elevating the brush at that end, substantially as set forth.

7. A street sweeper and piler comprising a suitable swinging receptacle, a brush located adjacent to the open end thereof for sweeping dirt into the same, suitable means for bodily forcing the contents from said receptacle while the latter is being dumped, means for dumping said receptacle, means for elevating said brush, and suitable running gear for said brush, substantially as set forth.

518,717. IGNITER FOR GAS-ENGINES. FEODOR HIRSCH, Steinway, assignor to himself, and Eugene M. Jerome, New York, N. Y. Filed May 1, 1893. Serial No. 472,494. (No model.)



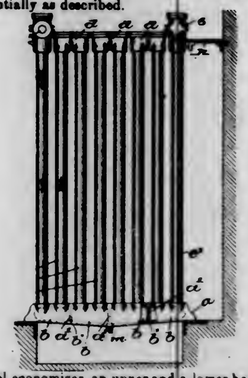
Claim.—The combination of a gas engine ignition chamber formed with a cylindrical extension having lateral ports, an igniter having a torch or cap of platinum projecting into said extension of the ignition chamber, and an annular sleeve surrounding the said cylindrical extension formed with ports which may be brought into coincidence with the said ports in the extension, for the purpose and substantially in the manner described.

518,718. FUEL-ECONOMIZER. LOUIS J. HIRT, Somerville, assignor to Henry W. Peabody & Co., Boston, Mass. Filed May 9, 1893. Serial No. 473,516. (No model.)

Claim.—1. In a fuel economizer, an upper and a lower header, each consisting of a plurality of independent chambers, the chambers of the lower header being rigidly connected, combined with a series of pipes connecting the headers and opening into the chambers therein to form an inlet and outlet for each chamber, whereby the fluid to be heated traverses the successive pipes and chambers alternately in its passage through the headers, said lower headers being supported at their ends and sustaining the pipes and upper headers, substantially as described.

2. In a fuel economizer, an upper and a lower header, each consisting of a plurality of independent chambers, the chambers of the

lower header being separated by walls forming a part thereof, combined with a series of pipes connecting the headers and opening into the chambers therein, to form an inlet and outlet for each chamber, and sediment exits in the walls separating the chambers of the lower header, substantially as described.

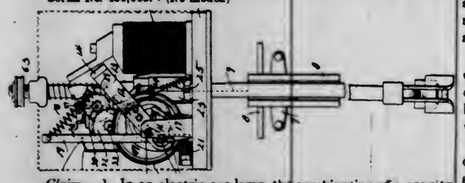


3. In a fuel economizer, an upper and a lower header, each consisting of a plurality of independent chambers, the chambers of the lower header being separated by walls forming a part thereof, combined with a series of pipes connecting the headers and opening into the chambers therein, the bottom of the lower header being inclined continuously from its ends to its center, a blow-off at the lowest point, and sediment exits in the separating walls of the several chambers, of the lower header, substantially as described.

4. In a fuel economizer, a series of upper and lower headers arranged side by side respectively, each header consisting of independent chambers, combined with a rank of pipes connecting each upper header with a lower header, and opening into the chambers therein to form inlets and outlets therefor, the intermediate pipes of each rank being shorter than the end pipes, connections between the upper ends of the longer end pipes of a plurality of ranks, and lateral fluid passages between adjacent ranks of connected upward headers whereby the fluid is made to traverse said adjacent ranks in opposite directions, substantially as described.

5. In a fuel economizer, a series of lower headers arranged side by side and supported at their ends, an upper header connected to each lower header by a series of pipes, the headers consisting of independent chambers into which the pipes open to form an inlet and outlet for each, combined with independent rigid connections between the upper ends of the end pipes of a plurality of lower headers, and lateral fluid passages between adjacent ends of the upper headers, substantially as described.

518,719. ELECTRIC-ARC LAMP. CARL HOFFMANN, Berlin, Germany, assignor to Siemens & Halske, same place. Filed Sept. 28, 1893. Serial No. 486,665. (No model.)



Claim.—1. In an electric arc lamp, the combination of a gravity feeding carbon carrier, a permissive controlling means tending to raise said carbon carrier but which allows it to feed downward uniformly and gradually, means which permit the controlling means to act and means controlled by the upward movement of the carbon carrying mechanism for disengaging the carbon carrying mechanism from the permissive controlling means so as to enable the carbons to be rapidly separated and raised.

2. In an electric arc lamp, the combination of a gravity feeding carbon carrier, a permissive controlling means tending to raise said carbon carrier but which allows it to feed downward uniformly and gradually, electro-magnetic means allowing the first means to act, and means controlled by the upward movement of the carbon carrying mechanism for disengaging the carbon carrying mechanism from the permissive controlling means so as to enable the carbons to be rapidly separated and raised.

3. In an electric arc lamp, the combination of weighted carbon carrying mechanism, escapement mechanism for permitting the feeding of the upper carbon uniformly, electro-magnetic means for controlling the escapement mechanism, a spring actuated means for lifting the upper carbon, and means which permit the upward movement of the carbon independent of the escapement mechanism.

4. In an electric arc lamp, the combination of weighted supporting mechanism for the carbon, escapement mechanism, a drum carrying the supporting mechanism, said drum controlled by the escapement mechanism, electro-magnetic means for controlling the movement of the escapement mechanism, and means which is controlled by the reverse movement of the drum to separate the supporting mechanism from the escapement mechanism, thereby permitting the upper carbon to be quickly raised from the lower carbon to increase the distance between the carbons.

5. In an electric arc lamp, the combination of gravity feeding carbon mechanism, escapement mechanism comprising a train of gears, a drum carrying the carbon feeding mechanism, a spring for rotating the drum in a direction to lift the carbon, and means controlled by the reverse movement of the drum to separate the feeding mechanism from the escapement mechanism, so as to permit the upper carbon to be quickly lifted and separated from the lower carbon.

6. In an electric arc lamp, the combination of a weighted carbon supporting and gravity feeding mechanism, means for controlling the supporting and feeding mechanism, means controlled by the upward movement of the carbon for disengaging the carbon supporting and feeding mechanism from the controlling mechanism so as to enable the carbons to be separated and the upper one to be raised quickly when the arc is to be lengthened, and a device for short-circuiting the lamp consisting of means which divert current from the means which control the feeding mechanism.

7. In an electric arc lamp, the combination of weighted carbon feeding and supporting mechanism, a high resistance magnet in shunt to the circuit through the carbons, and means controlled by the high resistance magnet for starting and stopping the carbon feeding and supporting mechanism, a low resistance magnet carrying the main current with the carbons, and means controlled by the said magnet to allow the carbon feeding mechanism to continue to act.

8. In an electric arc lamp, the combination of carbon supporting and feeding mechanism, consisting in part of a drum which carries the carbon supporting mechanism, a spring which tends to rotate the drum in a reverse direction, and a pivot stop or dog which prevents the drum from being rotated too far so as to prevent the upper carbon being fed too far down.

9. In an electric arc lamp, the combination of a weighted holder, escapement mechanism which controls the feeding of the upper carbon toward the lower carbon, said escapement mechanism consisting in a train of gears and a rotating drum driven by the weighted holder, an electro-magnet in shunt to the carbons for controlling the escapement mechanism, a spring which tends to rotate the drum in a reverse direction, and means controlled by the reverse movements of the drum to separate the parts of the train of gears, so as to permit a rapid upward movement of the carbon to take place.

10. In an electric arc lamp, the combination with carbon feeding mechanism, escapement mechanism which permits the gradual and uniform relative adjustment of the carbons, electro-magnetic means for releasing the escapement to allow the carbons to feed, and adjustable electro-magnetic auxiliary means for retaining the escapement mechanism under the influence of its controlling electro-magnet, and augmenting the controlling influence of said electro magnet.

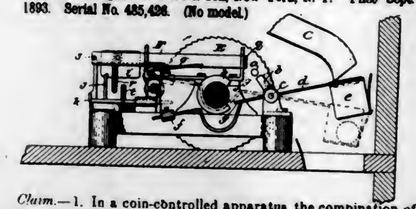
11. In an electric arc lamp the combination of a weighted carbon carrier, a flexible support therefor, means for producing a gradual downward movement of the carbon carrier, an electro-magnet for bringing the carbons into apposition, and auxiliary means in shunt with said magnet for maintaining their juxtapositions.

12. In an electric arc lamp the combination of a weighted carbon carrier, a flexible support therefor, a spring actuated drum over which said flexible support is wound, mechanism for regulating the feeding action for said drum, and a shunt magnet acting to bring said feeding mechanism into and out of action, and an auxiliary means for augmenting the attractive influence of said shunt magnet.

13. In an electric arc lamp the combination of a pivoted frame, a carbon feeding and supporting mechanism carried thereby, an electro-magnet operating to lower said frame and to release the feeding mechanism and bring the carbons into apposition, and an auxiliary electro-mechanically operated device energized by an intense current for maintaining the carbons in juxtaposition and to shunt the current round the said electro-magnet.

14. In an electric arc lamp, the combination with the herein described mechanism; of electro-mechanical means for diverting the main current of the lamp through a plurality of paths; and a make and-break for bringing into circuit the said electro-mechanical means, said make-and-break having its actuating electro-magnet in shunt with the main circuit of the lamp.

518,720. COIN-CONTROLLED APPARATUS. CHARLES H. JACOT, Stapleton, assignor to Jacot & Son, New York, N. Y. Filed Sept. 13, 1893. Serial No. 485,426. (No model.)



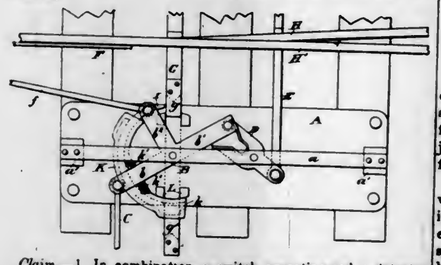
Claim.—1. In a coin-controlled apparatus, the combination of a suitably mounted counterbalanced coin receptacle open at the top and one side, together with a cam on a shaft adjacent thereto adapted to rock the receptacle to eject the coin, whereby the coin will be retained within the receptacle when it is in its lowered position and discharged when it is again forced into its normal position substantially as described.

2. In a coin-controlled apparatus, an arresting lever engaging with and holding the mechanism at rest, a releasing device therefor, consisting of a slide having thereon a projection adapted to engage and rock the arresting lever, and an auxiliary stop engaging with the mechanism until the slide has completed its movement, substantially as described.

3. In a coin-controlled apparatus, an arresting lever engaging with a fly, and holding the mechanism at rest, a releasing mechanism therefor, consisting of a slide having thereon a projection adapted to engage and rock the arresting lever, and means for automatically operating the slide substantially as described.

4. In a coin-controlled apparatus, an arresting lever engaging with and holding the mechanism at rest, a releasing mechanism therefor, consisting of a slide having thereon a projection adapted to engage and rock the arresting lever, and a stud on a winding drum engaging with and moving said slide when the drum is rotated to wind the mechanism, substantially as described.

518,721. SWITCH AND LOCK MOVEMENT. ARTHUR H. JOHNSON, Rahway, N. J. Filed May 23, 1893. Serial No. 475,202. (No model.)



Claim.—1. In combination, a switch operating rod, a detector bar, a multiple armed operating lever for moving the switch operating rod and detector bar, a sliding locking device engaged with an arm of the operating lever and abutments on the front rod with which the sliding locking device is adapted to engage as the operating lever is rocked, substantially as set forth.

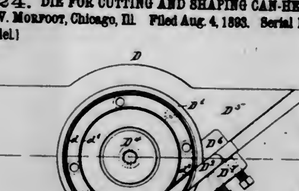
2. In combination, a switch operating rod, a front rod, an operating lever for imparting motion to the switch rod, a curved track and a locking device mounted to slide on the curved track into and out of locking engagement with the front rod, the said locking device being under the control of the operating lever to throw it into and out of locking position, substantially as set forth.

3. The combination with a base plate and a bar spaced therefrom and secured thereto, of switch operating jaws and a lever pivotally secured between the base plate and bar, an operating lever pivotally secured between the base plate and bar in position to engage the switch operating jaws, a switch operating rod, a front rod and a locking device under the control of the said operating lever to lock the front rod, substantially as set forth.

518,722. FIRE-ALARM BOX. WILLIAM H. KIRNAN, Bayonne, N. J., assignor to The Gamewell Fire Alarm Telegraph Company, New York, N. Y. Filed Jan. 31, 1894. Serial No. 498,570. (No model.)

Claim.—1. The combination with a signal box having a non-interfering or disabling device controlled by the movement of the box door, of means operated by a citizen's key for operating the disabling device and pulling the box, without opening the door, substantially as set forth.

2. The combination with a signal box, of a lever engaging the disabling device, and a lever for operating the pull of the box, both levers being operated by a key, substantially as set forth.

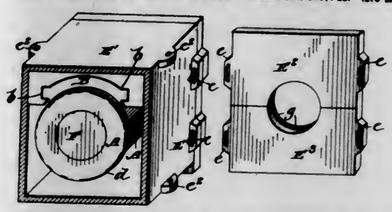


3. The combination with a signal box, of a lever engaging the disabling device, and a lever for operating the pull of the box, one of said levers being operated by the act of inserting a key and the other being operated by the act of turning the key, substantially as set forth.

4. The combination with a signal box, of a lever engaging the disabling device, a lever for operating the pull of the box, both said levers being operated by a key, and a lever for trapping said key, substantially as set forth.

5. The combination with a signal box, of a lever engaging the disabling device, a lever for operating the pull of the box, both said levers being operated by a key, and a guard permitting the operation of said levers by a certain key only, substantially as set forth.

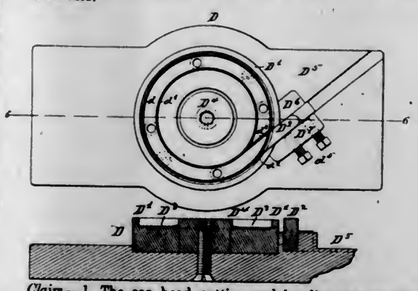
518,723. AXLE-BOX FOR RAILWAY-CARS. UPTON S. LANDERS, Fulford, Md. Filed July 6, 1893. Serial No. 479,743. (No model.)



Claim.—1. An axle box having a back consisting of two parts, ears or lugs on said back having elongated openings therein, corresponding lugs with openings on the sides of the axle box, and bolts for securing said back to the box, whereby the said parts can be adjusted on the box to close tight around the axle or be moved away from it, as set forth.

2. An axle box having a back consisting of two parts and provided with a recess or chamber surrounding the axle opening on the inside of the box and adapted to hold a washer or suitable packing, ears or lugs on said back having elongated openings therein, corresponding lugs with openings on the rear sides of the axle box, and bolts for securing said back to the box, whereby the said parts can be adjusted on the back of the box to close tight around the axle or be moved away from it, as set forth.

518,724. DIE FOR CUTTING AND SHAPING CAN-HEADS. BENJAMIN W. MORFOOT, Chicago, Ill. Filed Aug. 4, 1893. Serial No. 482,342. (No model.)



Claim.—1. The can head, cutting and bending dies described, having the recess and punch for forming the tongue and, upon the surface of one of the members, the ribs adapted to form weakened lines

in the top of the cover and branches thereof directed to the edges of the tongue-forming devices.

2. The can head, cutting and bending dies described, having the recess and punch for forming the tongue and, upon one member, ribs and in the opposing member grooves, adapted to form parallel weakened lines in the top of the cover and branches thereof directed to the edges of the tongue-forming devices

3. The die member C having the rim C' provided with the outwardly directed recess C^3, in combination with the opposing member D having the rim D' and the punch D^3, the latter fitted to co-act with the recess C^3 to form the tongue on the can cover.

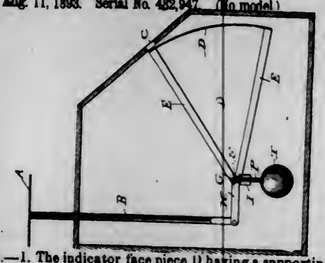
4. The die member C having the rim C' provided with the recess C^3, in combination with the opposing member D having the rim D' and the punch D^3, the latter projecting beyond the face of the rim D' and being fitted to the recess C^3, substantially as and for the purposes set forth.

5. The die member C having the rim C' provided with the recess C^3 and having also the less raised center separated from the rim C' by the annular space c, in combination with the opposing member D provided with the rim D' adapted to enter the space c and provided with the branch D^3 adapted to enter the recess C^3, the opposing members being provided one with ribs and the other with grooves having branches directed to the edges of the said branch punch D^3 and recess C^3, substantially as and for the purposes set forth.

6. The die member having the branched ribs for forming weakened lines in a metal sheet, the branches of said ribs being formed on a piece separate from the body of the die and suitably fastened in place, in combination with an opposing die member, the whole being adapted for cutting and forming a can head having weakened lines producing a detachable strip.

7. The die member D having the rim D' and the tongue punch D^3 formed of a separate piece secured in place, in combination with an opposing die member, the whole being for cutting and forming a can head having a detachable strip and a projecting tongue.

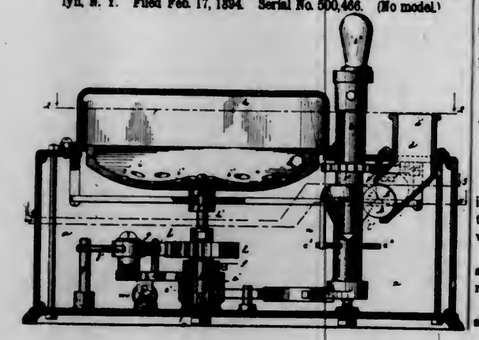
518,725. POSTAL SCALE. ISAAC S. MCGIFFIN, New York, N. Y. Filed Aug. 11, 1893. Serial No. 482,947. (No model.)



Claim.—1. The indicator face piece D having a supporting frame provided with the counter-weight T and with balance points F resting upon cleats I, said frame and face piece being adapted to be actuated by weight applied to the spindle B connected therewith, in combination with a slotted face scale box, substantially as described.

2. In a postal scale, the indicator face piece D provided with the graduated scale, suitable arms connecting it with the balance bar G, the suspended counterweight T, and rearwardly projecting arm H supporting the spindle B and platform A, in combination with the slotted face scale box, as and for the purpose specified.

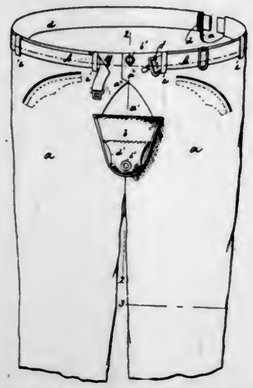
518,726. COIN-CONTROLLED GAME. JULIUS ROEVER, Brooklyn, N. Y. Filed Feb. 17, 1894. Serial No. 500,466. (No model.)



Claim.—1. The combination of slotted shaft *b*, with slotted shaft *c*, provided with nose c^3, a lever *e*, operated thereby, a pawl pivoted to the lever, a ratchet wheel engaging the pawl, and a platform mounted on the spindle of the ratchet wheel, substantially as specified.

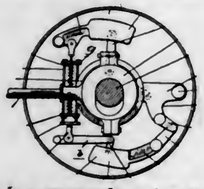
2. The combination of a slotted shaft *b*, with a slotted shaft *c*, provided with nose c^3, a lever *e*, operated thereby, an inclosed hollow post *f*, a pawl pivoted to the lever, a spindle *h'*, turning in the hollow post, and a ratchet wheel *h*, and platform *i*, mounted upon the spindle, substantially as specified.

518,727. TROUSERS. SAMUEL SCHOENBRUN, New York, N. Y., assignor of one-half to Abraham Sellner, same place. Filed Jan. 26, 1894. Serial No. 498,116. (No model.)



Claim.—A pair of trousers having an inner pocket and outer straps, a flap having a corresponding inner pocket and outer strap, and a belt adapted to be received by said pockets or straps, substantially as specified.

518,728. STEAM-ENGINE GOVERNOR. DUNCAN SYMINGTON, Detroit, Mich., assignor of one-half to the Frontier Iron Works, same place. Filed Dec. 19, 1891. Serial No. 415,581. (No model.)



Claim.—1. In a governor for engines, the combination of the shaft, the shifting eccentric and the governor therefor, of counterbalance weights for the eccentric pivoted to the disk and acting through a lever to oppose the weight of the eccentric, a sliding connection between the weights and a spring at the connection substantially as described

3. In a governor for steam engines, the combination with the drive shaft, the disk thereon, an eccentric having an arm pivoted at its outer end to one side of the disk, suitable governing devices for the eccentric, of a counterbalance weight pivotally suspended from the disk and a lever on said weight engaged with the eccentric whereby the eccentric is counterbalanced, substantially as described.

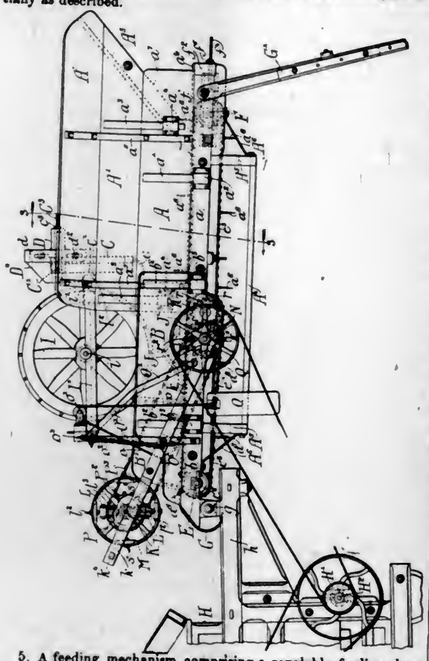
518,729. BAND-CUTTER AND FEEDER FOR THRASHING-MACHINES. ANDREW WEMPLE, Chicago, Ill., assignor of one-half to John S. Pihlstrom, same place. Filed Nov. 17, 1892. Serial No. 452,236. (No model.)

Claim.—1. A feeding mechanism for thrashing machines comprising a pair of revoluble spreading arms having a movement alternately toward and from each other in the direction of their axis of revolution whereby the straw is spread laterally, substantially as described.

2. A feeding mechanism for thrashing machines comprising a shaft, spreading arms pivotally journaled on said shaft, and means for revolving and oscillating said arms, substantially as described.

3. A feeding mechanism for thrashing machines comprising a shaft, spreading arms pivotally journaled on said shaft, means for revolving the arms, and cams on the shaft for oscillating the arms, substantially as described.

4. A feeding mechanism for thrashing machines comprising an endless carrier provided with projecting spurs, and having a pair of revoluble spreading arms mounted above said carrier and having a lateral movement alternately toward and from each other whereby the straw is evenly distributed laterally as it is fed forward, substantially as described.



5. A feeding mechanism comprising a revoluble feeding drum provided with one or more longitudinal rows of feeding fingers and revoluble spreading arms turning with the said feeding drum and arranged intermediate with the rows of feeding fingers thereon, substantially as described.

6. A feeding mechanism comprising a revoluble feeding drum provided with one or more rows of feeding fingers and with one or more longitudinal slots intermediate with the said feeding fingers, and laterally movable spreading arms mounted concentrically with the drum and extending through said slot or slots, substantially as described.

7. A feeding mechanism comprising a receptacle for the bundles, means located in the bottom of the receptacle for feeding forward the bundles, a feeding drum located above the bottom of the receptacle and provided with one or more rows of feeding fingers, and revoluble spreading arms turning with the drum and located between the rows of feeding fingers, said feeding fingers and spreading arms being driven at a speed greater than that of the feeding mechanism in the bottom of the receptacle, substantially as described.

8. A feeding mechanism comprising a receptacle for the bundles, a carrier belt located in the bottom of the same, a feeding drum located over the carrier belt and provided with feeding fingers at one or more points in its circumference, revoluble spreading arms mounted concentrically with the drum and arranged intermediate with the feeding fingers thereon, said drum and the spreading arms being driven at a speed greater than that of the carrier belt, substantially as described.

9. A band cutting and feeding mechanism comprising a receptacle for the bundles, a carrier belt or belts located in the bottom of the same, a stationary band cutter, a revoluble feeding drum located over the carrier belt or belts and provided with feeding fingers at one or more points in its circumference, revoluble laterally movable spreader arms mounted concentrically with the drum and arranged at points intermediate to the feeding fingers thereon, and means for actuating the carrier belt or belts, the feeding drum and spreading fingers, giving a more rapid movement to the said feeding drum and spreading arms than to the carrier belts, substantially as described.

10. A feeding mechanism, comprising a number of revoluble laterally movable spreading arms, a non-revoluble shaft on which the same are mounted and a stationary cam-plate or block carried by said shaft and serving to move said arms laterally away from each other, substantially as described.

11. A feeding mechanism, comprising a non-revoluble shaft, a stationary cam thereon, a number of revoluble spreading arms revoluble upon the shaft and engaging said cam so as to be moved laterally outward thereby, and a revoluble actuating-casing surrounding the shaft and slotted to receive the ends of the arms, substantially as described.

12. A feeding mechanism, comprising a non-revoluble supporting shaft, a stationary cam mounted thereon and a number of revoluble spreading arms revoluble upon said shaft and engaging the cam, and contraction springs connecting said arms in pairs for maintaining engagement of the arms with the cam, substantially as described.

13. A bundle feeding mechanism, comprising means for feeding forward the bundles and a spreading mechanism consisting of a plurality of revoluble and laterally movable arms, of which the opposite pairs are connected rigidly with each other, and a stationary cam for effecting the lateral movement of the arms, substantially as described.

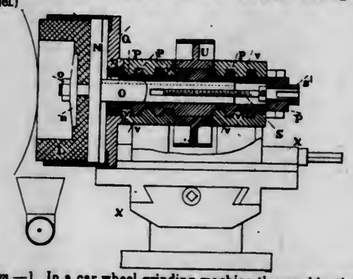
14. A feeding mechanism, comprising means for feeding forward the bundles, a revolving drum and spreading arms mounted in the drum and having a combined lateral inward and outward movement whereby in the operation of said spreading arms the latter may be retracted within the outer surface of the drum at the termination of their outward lateral movement, substantially as described.

15. A feeding mechanism, comprising means for feeding forward the bundle, a revoluble drum, revoluble and laterally movable spreading arms mounted in the drum, said arms being pivotally supported within the drum whereby they are adapted to recede toward the center of the drum as they are moved outwardly, and means for giving oscillatory movement to the said arms, substantially as described.

16. A band cutting and feeding mechanism comprising a receiving hopper adapted to contain a plurality of bundles, means for feeding forward each successive lowermost bundle, and a horizontally and vertically adjustable pivoted gate at the exit end of the hopper for restraining all bundles above the lowermost bundle, substantially as described.

17. A feeding mechanism comprising a receiving hopper adapted to contain a plurality of bundles and made wide enough in its lower part to contain one bundle only, an endless carrier for feeding forward the lowermost bundle, and a gate at the exit end of the hopper for restraining all bundles above the lowermost bundle, substantially as described.

518,730. CAR-WHEEL-GRINDING MACHINE. WILLIAM P. BARCLAY, Chicago, Ill. Filed Sept. 26, 1889. Serial No. 325,174. (No model.)



Claim.—1. In a car wheel grinding machine the combination of an abrading tube L, follower plate N, spindle O, taking into thrust spindle P, provided with external thrust collars *p*, of the pillows *v*, of the bracket V, provided with internal thrust collars *v'*, said pillows carrying spindle P, substantially as shown and described.

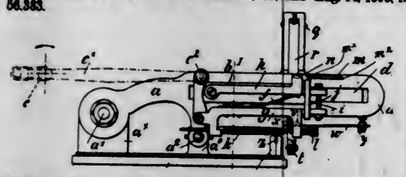
2. In a car wheel grinding machine the combination of an abrading tube L, follower plate N, spindle O, thrust spindle P, provided with pulley U, and face plate Q, having a shield R, of the screw S, supported from thrust spindle and taking into spindle O, of the bracket V, with pillows *v*, adapted to thrust spindle P, and duplex slide rests X supporting said bracket V, substantially as shown and described.

3. In a car wheel grinding machine the combination of head stock B, spindle C and projecting mandrel D, with loose sleeve E, of an abrading tube L, surrounded by a revolving shield R, of the pillows *v* projecting from bracket V, and duplex slide rests X, adapted for supporting said bracket V, with its appurtenances substantially as shown and described.

4. In a car wheel grinding machine the combination of mandrel D, and divided sleeve E, formed of several sections *e*, with head-plate *e'*, attached by bolts *e''*, and a bolt *ee* securing sleeve to mandrel, of the rubber rings *e'''*, encircling sections *e*, of sleeve, permitting expan-

tion and contraction of said sleeve to mandrel, substantially as shown and described.

518,731. MACHINE FOR SHARPENING SAWS. FRIEDERICH R. BAUER, Hamburg, Germany, assignor to the Firm of MAX FRIEDHEIM, same place. Filed June 6, 1892. Serial No. 435,532. (No model.) Patented in Germany Apr. 13, 1890, No. 54,532, and Aug. 14, 1890, No. 56,383.



Claim.—1. In a saw sharpening machine, the combination with a saw clamp or holder, a fixed race arranged at right angles to the holder above the same, and a switch connected with said race, of a slide block reciprocally movable along the race, and a file carrier one end of which is articulated to the block and provided at its free end with a lug adapted to be engaged by the switch to lower the carrier toward the saw holder when said carrier is moving in one direction and lift the same from the holder when the carrier moves in a reverse direction, for the purpose set forth.

2. In a saw sharpening machine, the combination with a saw clamp or holder, a fixed race arranged at right angles to the holder above the same, and a switch connected with said race, of a slide block reciprocally movable along the race, and a file carrier articulated to the block and provided with a spring supported lug adapted to be engaged by the switch to lower the carrier toward the saw holder when said carrier is moving in one direction and lift the same from the holder when the carrier moves in a reverse direction, for the purpose set forth.

3. In a saw sharpening machine, the combination with a saw clamp or holder, a fixed race, a fixed supporting and guide track, both arranged at right angles to the saw clamp above the same, a slide block reciprocally movable along the race, and a file carrier articulated to the block and supported and guided by the track when moving in one direction, of switching devices adapted to switch the carrier onto said track when moving in one direction and switch the same off the track when moving in a reverse direction, for the purpose set forth.

4. In a saw sharpening machine, the combination with a saw clamp, a fixed race, a fixed supporting and guide track, both arranged at right angles to the clamp above the same, a slide block reciprocally movable along the race, and a file carrier articulated to the block and supported and guided by the track when moving in one direction, of spring controlled switching devices adapted to switch the carrier onto its track when moving in one direction, and off its track when moving in a reverse direction, for the purpose set forth.

5. In a saw sharpening machine, the combination with a saw clamp, a fixed race, and a more or less elastic supporting and guide track, both arranged at right angles to the clamp, a slide block having reciprocal motion along the race, and a file carrier articulated to the block and having motion in one direction on the track, of switching devices adapted to switch the carrier onto its track when moved in one direction and off said track when moved in a reverse direction, for the purpose set forth.

6. In a saw sharpening machine, the combination with a saw clamp, a fixed race, and a more or less elastic supporting and guide track, both arranged at right angles to the clamp above the same, a slide block having reciprocal motion along the race, and a file carrier articulated to the block and having motion in one direction on the track, of spring controlled switching devices adapted to switch the carrier onto its track when moved in one direction, and off said track when moved in a reverse direction, for the purpose set forth.

7. In a saw sharpening machine, the combination with a saw clamp, a fixed race, and a more or less elastic supporting and guide track, both arranged at right angles to the clamp above the same, said track vertically adjustable, a slide block having reciprocal motion along the race, and a file carrier articulated to the block and having motion in one direction on the track; of switching devices adapted to switch the carrier onto its track when moved in one direction and off said track when moved in a reverse direction, for the purpose set forth.

8. In a saw sharpening machine, the combination with a fixed saw clamp, a fixed race, and a more or less elastic supporting and guide track, both arranged at right angles to the clamp above the same, means for vertically adjusting either end of said track, a slide block having reciprocal motion along the race, and a file carrier articulated to the block and having motion in one direction on the track, of switching devices adapted to switch the carrier onto its track when moved in one direction and off said track when moved in a reverse direction, for the purpose set forth.

9. In a saw sharpening machine, the combination with a saw clamp or holder, a fixed race arranged at right angles to the holder above the same, a slide block reciprocally movable along the race, a file carrier and file, said carrier articulated to the slide block, and switching devices adapted to lower and lift the file carrier toward and from the saw clamp; of means substantially such as described and operating to clear the file from an undercut portion of a saw tooth before the carrier is lifted by the switching devices to move the file from between the saw teeth.

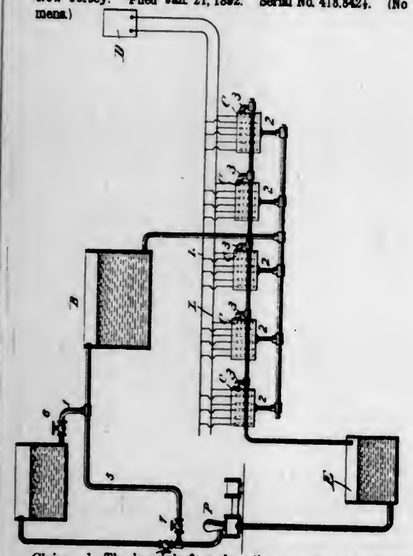
10. In a saw sharpening machine, the combination with a saw clamp and a file carrier reciprocally movable across the clamp, of a saw feeding device comprising a spring-controlled pawl lever, and an inclined face near one end of the file carrier adapted to engage and move the lever against the stress of its spring, substantially as and for the purpose set forth.

11. In a saw sharpening machine, the combination with a saw clamp and a file carrier reciprocally movable across the clamp, of a saw feeding device comprising a spring controlled pawl lever and a longitudinally adjustable inclined face near one end of the file carrier adapted to engage and move the lever against the stress of its spring, substantially as and for the purpose set forth.

12. In a saw sharpening machine, the combination with a saw clamp, and a file carrier reciprocally movable across the clamp, of a saw feeding device comprising a spring controlled pawl lever, a fixed inclined plane near one end of the carrier, and an inclined plane adjustable longitudinally of the carrier near its opposite end, said planes adapted to alternately engage and move the pawl lever against the stress of its spring during the reciprocations of the file carrier, for the purpose set forth.

13. In a saw sharpening machine, the combination with the saw clamp, a fixed race provided with a vertical standard, and a file carrier reciprocally movable along the race and provided near one end with a longitudinally adjustable wedge; of a spring-controlled lever pivoted in said standard, having its free end curved about the saw clamp, a curved arm pivotally connected with the free end of the lever, and a pawl normally in contact with the upper face of the aforesaid saw clamp, said pawl pivotally connected with the free end of the curved arm, substantially as and for the purpose set forth.

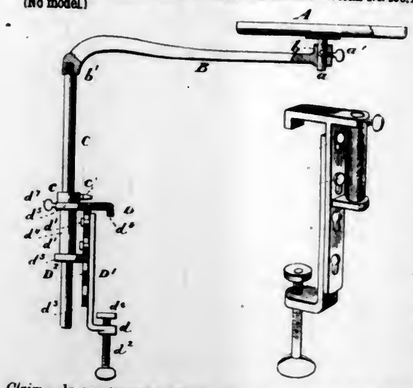
518,732. ART OF PRODUCING METALLIC ZINC. PARKER C. CHOATE, New York, N. Y., assignor to the Electrical Zinc Company, of New Jersey. Filed Jan. 21, 1892. Serial No. 418,842. (No specimens.)



Claim.—1. The hereinbefore described process of continuously producing metallic zinc by electrolysis, which consists in depositing the zinc from an acidulated solution of a zinc salt, drawing off from the bath the free acid liberated therein, dissolving in such acid oxidized zinc, in the state of fume, freed from its more volatile soluble impurities, and returning the solution thus formed to the bath from time to time, as required, to maintain the electrolyte, substantially as set forth.

2. The hereinbefore described method of maintaining and regenerating an acid zinc electrolyte which consists in dissolving in the acid set free in the bath during electrolysis oxidized zinc in the state of fume, freed from its more volatile soluble impurities, and maintaining the electrolyte with the solution thus formed.

518,733. ADJUSTABLE WAITER FOR INVALID BEDSTEADS OR CHAIRS. DANIEL COOK, Philadelphia, assignor of one-half to Nehemiah Lossand, Sharon Hill, Pa. Filed Jan. 31, 1893. Serial No. 460,186. (No model.)



Claim.—In an attachment for invalid beds or chairs, the combination of the waiter A, horizontal bar B, staff C, and clamp D, the clamp section D^3 provided with a series of key hole slots, and parallel arms connected by a tube through which the staff passes, and the clamp-section D' carrying headed rivets to engage the key hole slots; whereby the waiter, horizontal bar, staff and outer section of clamp may be readily removed from the inner section of the clamp, so as to be out of the way when not in use.

518,734. SIGHT FOR FIREARMS. FREDERICK W. DORRELL, San Francisco, Cal. Filed Aug. 17, 1893. Serial No. 483,381. (No model.)



Claim.—1. A sight for fire-arms consisting of a barrel open at both ends and pivotally mounted at its lower so that it may be raised and lowered, a stem fitted therein throughout the length of the barrel having at its upper end a sight aperture, and on its face a series of teeth, a disk pivoted upon the bearing plate of the barrel and having its rear face provided with teeth adapted to engage the teeth on the stem said disk having an annular exposed series of markings or graduations, and a pointer fixed upon the pivotal center of the disk, substantially as herein described.

2. A sight for fire-arms consisting of a base plate adapted to be secured to the gun, a hollow standard pivotally mounted upon the same upon pivots which enter the barrel partially whereby the center cavity of the latter is left clear for the movement of the stem, a sight stem slidable throughout the barrel and having its face provided with teeth, a disk pivoted upon the face of the barrel having its front face graduated in annular series and its rear face provided with teeth adapted to engage the teeth on the stem, and a pointer fixedly secured over the outer face of the disk.

3. In a sight for fire-arms, a hinged hollow barrel open throughout its length having the upper portion of its front face cut-away, a stem slidable within the barrel having teeth adapted to project through the cut-away portion of the barrel, a disk mounted to turn on the barrel having teeth on its rear face entering the cut-away portion of the barrel to engage the teeth on the stem, and a pointer over the exterior of the face of the disk and provided with means engaging said disk to indicate the adjustment of the disk, substantially as herein described.

4. In a sight for fire arms, the combination of a pivotally mounted hollow standard or barrel, a vertically movable sight stem therein, a rotary disk having markings around the periphery of its outer face denoting the several ranges, and having devices on its rear face engaging the stem to adjust it, and a fixed pointer, substantially as herein described.

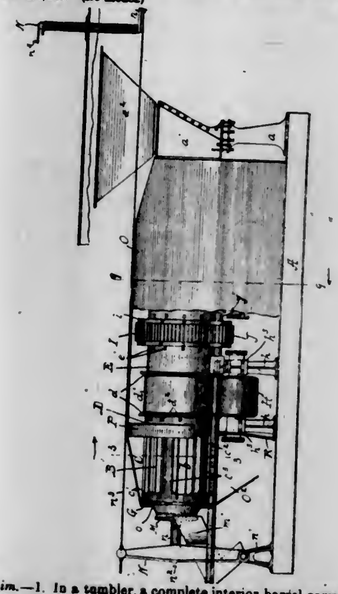
5. In a sight for fire-arms having a standard or barrel and vertically adjustable sight stem, a graduated disk on the barrel having a series of sockets corresponding to the graduations, and a pointer having a spring finger adapted to successively click into the sockets to indicate the adjustment of the disk.

6. In a sight for fire-arms, the combination of a hollow standard or barrel, a vertically movable sight stem fitted thereto and having a rack, a rotatable pinion disk on the front of the standard and engaging the rack of the sight stem, said pinion having on its face, markings or graduations representing the several ranges, and an annular series of small sockets corresponding to said markings, and the fixed spring finger with its pin, on the face of the pinion disk and successively clicking into the sockets, substantially as herein described.

7. In a sight for fire-arms, the combination of a hollow standard or barrel, a vertically movable sight stem fitted thereto and having a rack, a rotatable pinion disk on the front of the standard and engaging the rack of the sight stem, said pinion having on its face, markings or graduations representing the several ranges, and an annular series of small sockets corresponding to said markings, and the washer on the face of the disk, having a pointer and a spring finger with its pin successively clicking into the sockets, substantially as herein described.

8. In a sight for fire-arms, the combination of a hollow standard or barrel, a vertically movable sight stem fitted thereto and having a rack, a rotatable pinion disk on the front of the standard and engaging the rack of the sight stem, said pinion having on its face markings or graduations representing the several ranges, and an annular series of small sockets corresponding to said markings, the adjustable washer on the face of the disk having a pointer and a spring finger with a pin successively clicking into the sockets, and a stop pin on the pinion disk adapted to come in contact with the spring finger, substantially as herein described.

518,735. TUMBLER. WILLIAM W. DOOLITTLE, Chicago, Ill., assignor to the Crane Company, same place. Filed Mar. 10, 1892. Serial No. 424,449. (No model.)



Claim.—1. In a tumbler, a complete interior barrel composed of independent slats or staves, in combination with a complete exterior cylinder or barrel surrounding the former, with a narrow space between the two, and devices whereby the slats of the interior barrel are each independently secured to the outer cylinder, substantially as described.

2. In a tumbler, an inner barrel B, composed of staves *b*, provided with T slots or recesses b^4, on their outer faces, in combination with an outer barrel surrounding the former, and bolts with their heads adapted to fit said T slots and passing through the outer barrel to secure the two together, substantially as described.

3. In a tumbler, an inner barrel B, composed of separate slats, in combination with an outer barrel surrounding the former and composed of the separate sections C, D, and E, abutting against each other, and through rods G', securing said sections together, substantially as described.

4. In a tumber, an inner barrel B, in combination with an outer barrel section C of skeleton form, surrounding each end of the former, and entire middle sections D and E arranged between the end sections and detachably connected therewith, substantially as described.

5. In a tumbler, an inner barrel B, in combination with an incasing section D, connected to the former, and provided with a tread d', having beveled flanges d in combination with bearing rollers H, having beveled edges at the ends on which the tumbler is mounted and which are adapted to fit said flanged tread, substantially as described.

6. In a tumbler, an inner barrel B, in combination with outer casing sections E, connected thereto and provided with circumferential flanges e, and an annular gear I, seated on said flanges and secured thereto, substantially as described.

7. In a tumbler, an inner barrel B, composed of separate slats b, in combination with an outer barrel composed of the separate sections C, D, and E, connected respectively to the inner barrel, the end rings F, and G, applied to the respective ends of the barrel, and through rods G', extending from one end ring to the other, substantially as described.

8. In a tumbler, the end ring F, arranged at the front end of the barrel, in combination with a hard metal ring K, arranged in the former, and the sliding plates k, arranged to embrace the ring K, and adjustably attached to the ring F, substantially as described.

9. In a tumbler, the front end ring F, in combination with the hard metal delivery ring K, arranged therein, the sliding plates k, provided with concave inner edges, recesses k^2 at their outer edges, and slots k^3, the fastening bolts k', for securing said plates to the ring F, and the set screws f', in the ring F, adapted to adjust the plates k, substantially as described.

10. In a tumbler, an inner barrel B, in combination with the front end ring F, a hard metal delivery ring K, arranged within the former, and a hard metal gasket f^3, arranged between the ring F, and the end of the barrel B, to protect the latter from wear, substantially as described.

11. In a tumbler, an inner barrel B, in combination with an outer barrel surrounding the former and connected thereto, an end ring G, applied to the rear end of the latter, and a discharge funnel L, mounted in said ring, substantially as described.

12. In a tumbler, a discharge funnel L, mounted in the rear end of the barrel, in combination with a closing cap M, provided with a stem m', an upright pivoted standard N, provided with a bearing in which said stem is mounted, and actuating devices whereby the attendant may swing said standard to open and close the funnel, substantially as described.

13. In a tumbler, an inner slatted barrel B, in combination with an outer barrel C, D, E, within which the former is mounted and to which it is secured, and an outer independent casing O, covering the whole barrel structure, substantially as described.

14. In a tumbler, an outer covering case O, in combination with bands P, secured on the inside thereof and provided with flanges p', p', the outer barrel sections C, provided with vertical flanges c^4, and a flange ring Q fastened to said flanges c^4 and entering loosely between the flanges p' on the band P, substantially as described.

15. In a tumbler, a long continuous barrel provided with a skeleton cage section at each end thereof and having receiving and discharge openings in its opposite ends or heads, in combination with a delivery chute at the receiving end and devices for opening and closing the discharge opening at will, substantially as described.

518,736. WHEEL. GEORGE P. HOBBS and ALONZO L. EDWARDS, Wheeling, W. Va. Filed Aug. 30, 1893. Serial No. 484,371. (No model.)

Claim.—1. A double spoke having its connecting portion arranged to lie lengthwise of the rim, and its two inwardly projecting spoke portions arranged to terminate in and be secured in the hub; substantially as described.

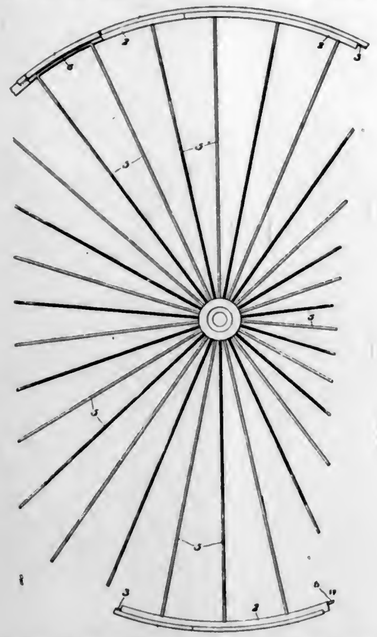
2. A double spoke having an intermediate portion arranged to lie longitudinally of the rim, the spoke portions passing to opposite ends of the hub and terminating therein, substantially as described.

3. A double spoke composed of a single integral wire having an intermediate portion arranged to lie longitudinal of the rim, the two spoke portions extending to opposite ends of the hub and having bent ends arranged to be engaged therein; substantially as described.

4. A wheel having a hollow sheet metal rim composed of an outer and inner circular part, the abutting ends of the respective parts being fixed together, and the joints being located at opposite portions of the circumference of the wheel; substantially as described.

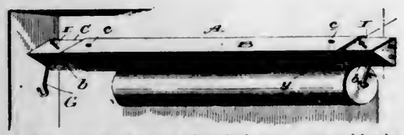
5. A wheel, having a rim composed of a sheet metal trough portion provided with a central bottom groove or depression and flaring sides, a sheet-metal cover portion having flanges bent about the sides of the trough portion, and a double spoke having an intermediate portion lying in the grove or depression; substantially as described.

6. A wheel having a rim provided with an outer longitudinal depression, and double spokes having their intermediate portions resting upon the rim in said depression; substantially as described.



7. The method of making a wheel, consisting in stamping a sheet-metal strip into trough form, at the same time curving it into circular form, punching holes therein, inserting the spokes and tying them in the hub, stamping a cover rim in the same manner as the trough, and rolling it on over the trough; substantially as described.

518,737. ADJUSTABLE WINDOW-SHADE SUPPORT. JEREMIAH M. HOFFMAN, Cressona, Pa. Filed Jan. 12, 1894. Serial No. 496,654. (No model.)

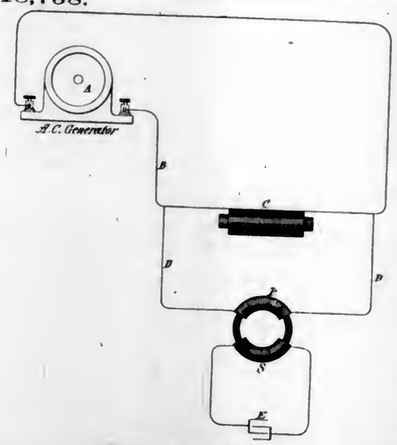


Claim.—An adjustable window shade support comprising in combination an angular ferrule B, the two angular window cases engaging sections telescoping with the ferrule B, pins for holding the sections in a fixed relation, spurs for engagement with the window casing, adjustable bracket hooks held in apertures on corresponding faces of the end sections, and adapted to hold a shade roller against the face of a window casing, the upper edge of the roller being held in a plane above the lower angular edge of the support, to prevent the rays of sun light passing between, substantially as shown and described.

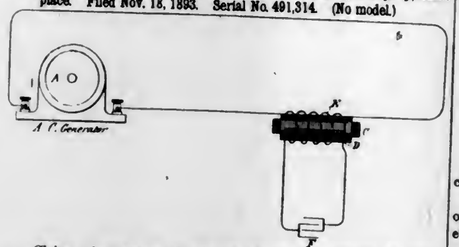
518,738. APPARATUS FOR NEUTRALIZING THE EFFECTS OF SELF-INDUCTION IN ALTERNATING-CURRENT CIRCUITS. JOHN F. KELLY and CUMMINGS C. CHESNEY, Pittsfield, Mass., assignors to the Stanley Laboratory Company, same place. Filed Nov. 18, 1893. Serial No. 491,312. (No model.)

Claim.—The combination with an alternating current working circuit possessing self induction, of a transformer having its primary in derivation to said circuit, and a condenser in the circuit of its secondary, the transformer and condenser being proportioned as herein described so as to produce in the current in the primary of the transformer a negative lag for neutralizing the effects of the self induction in the working circuit, as herein set forth.

518,738.

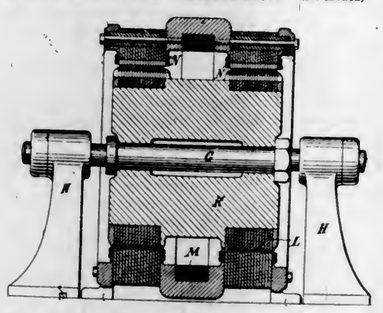


518,739. MEANS FOR REDUCING THE APPARENT ENERGY SUPPLIED TO ALTERNATING-CURRENT MAGNETS. JOHN F. KELLY, Pittsfield, Mass., assignor to the Stanley Laboratory Company, same place. Filed Nov. 18, 1893. Serial No. 491,314. (No model.)



Claim.—As a means of reducing the current required for energizing an electro-magnet by an alternating current, the combination with said electro-magnet and in inductive relation to its primary or energizing coil of a secondary coil and a condenser in the circuit of said coil and of a capacity less than that required for neutralizing the self induction of said secondary for a given frequency, as set forth.

518,740. ALTERNATING-CURRENT DYNAMO. JOHN F. KELLY, Pittsfield, Mass., assignor to the Stanley Laboratory Company, same place. Filed Dec. 22, 1893. Serial No. 494,393. (No model.)

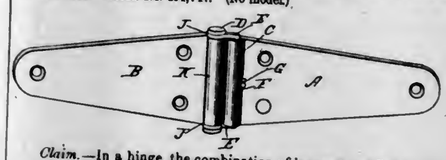


Claim.—1. An armature or secondary element for an alternating current generator comprising polar projections in combination with induced coils thereon, and a body or yoke bridging the said projections—the reluctance of the body being high relatively to that of said projections.

2. An armature or secondary element for an alternating current electrical generator comprising polar projections in combination with induced coils thereon, and a body or yoke bridging the projections, the said body being of high density relatively to the polar projections, as set forth.

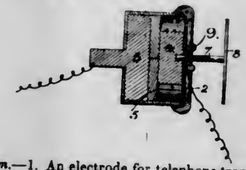
3. In an alternating current induction machine the combination of a rotary core having outwardly projecting poles and constituting the field or primary element of the machine, a stationary magnetic annulus provided with corresponding and inwardly projecting polar extensions, an intermediate ring or body of high density, forming a bridge between the polar extensions, an energizing coil between the polar extensions and induced coils wound upon said extension, as set forth.

518,741. HINGE. JOHN H. LAWRENCE, Sterling, Ill. Filed Nov. 23, 1893. Serial No. 491,747. (No model.)



Claim.—In a hinge, the combination of leaves A and B, provided respectively, with loops C and K, pintle D loosely seated in loop K, and projected beyond the ends of said loop, and a wire E looped around said projected ends of said pintle, and inserted and rigidly held in said loop C; substantially as shown, and for the purpose described.

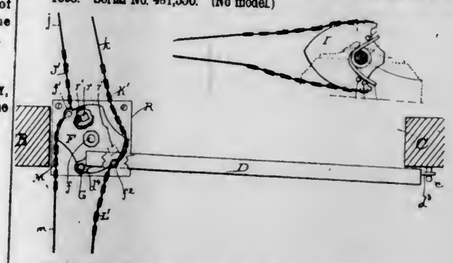
518,742. TELEPHONY. WILLIAM C. LOCKWOOD, New York, N. Y., assignor of one-fourth to John H. Flagg, same place. Filed June 27, 1892. Serial No. 438,149. (No model.)



Claim.—1. An electrode for telephone transmitters consisting of chloride of silver, as specified.

2. An electrode for telephone transmitters consisting of chloride of silver fused, molded into shape and subjected to the action of an electric current substantially as specified.

518,743. GATE. JOHN MASON, Petaluma, Cal. Filed July 26, 1893. Serial No. 481,550. (No model.)



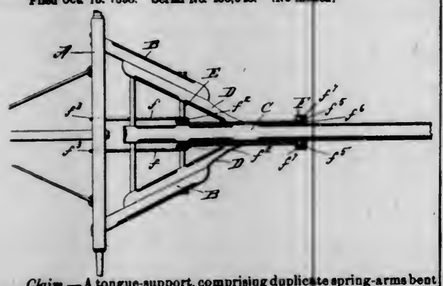
Claim.—1. The gate having the stationary hinge connection above, in combination with the horizontally oscillating pulley F with its pin forming a variable hinge connection below, said pulley having an open bottom and provided with the lugs r' on its inner surface; the foundation plate R on which the pulley F oscillates, said plate having the fixed stop r with which the lugs r' come in contact to limit the oscillation of the pulley; and means for oscillating said pulley to throw the hinge connections out of the same perpendicular plane whereby the gate swings by gravity, substantially as herein described.

2. The swinging gate having the stationary hinge connection above, and an oscillating pulley with a pin forming a variable connection for the gate below, in combination with cranks in the roadway; the double or pointed cams on the crank shafts, and fixed thereon so that their points extend in a plane at right angles to the plane of the cranks; and the chain connections from said arms to the oscillating pulley, substantially as herein described.

3. In a gate, the crank shaft having the cam with connections to operate the gate, in combination with the coil spring N, on the shaft just within the cam, said spring having the ends n and n' the pins o and o' on the cam side against which said ends bear oppositely; the fixed stop p on the boxing cap of the cam shaft for limiting the

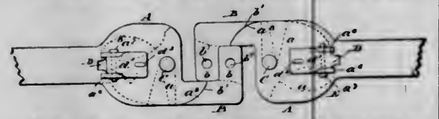
return of the spring end *n*, and the lower fixed stop *p'* on the boxing, for limiting the return of the spring end *n'*, substantially as herein described.

518,744. TONGUE-SUPPORT. GEORGE H. MILLS, Laurel, Mont. Filed Oct. 13, 1893. Serial No. 488,043. (No model.)



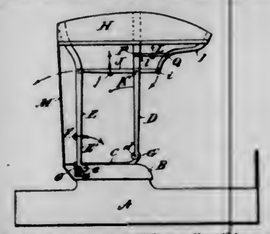
Claim.—A tongue-support, comprising duplicate spring-arms bent substantially centrally of their length into coils and having the inner ends suitably formed to engage the axle of a vehicle and approximately U-shaped clip adapted for supporting the tongue and horizontally disposed coils formed by the bent up extremities of said arms encircling the legs of said U-shaped clip, as specified.

518,745. CAR-COUPLING. CHARLES H. W. RELYEA, North Adams, Mich. Filed Jan. 17, 1894. Serial No. 497,122. (No model.)



Claim.—In a car coupler, the combination of a draw head having its extremity bifurcated whereby a top plate and a bottom plate are formed, the said top plate and bottom plate provided with registering pin holes extending through them and having on their adjacent faces recesses a^3, extending radially from said pin holes, the jaw B, pivoted at the pin holes in said top and bottom plates and provided on opposite sides with projections or lugs of less width than and arranged in the recesses in the adjacent faces of said plates, said jaw having a lateral lug at its forward end and a transverse arm between said shoulder and the pivot point, said arm engaging when in its locked position some fixed portion of the draw head, the rear end of the jaw being provided with an inclined slot, and an uncoupling lever D, pivoted in the draw head behind the rear end of the jaw and in position to engage the inclined slot therein, said lever having its upper end weighted and bent forward, substantially as set forth.

518,746. CARRIAGE-TOP. EMIL A. SOMMERFRUECHTE, St. Louis, Mo. Filed Dec. 26, 1893. Serial No. 494,722. (No model.)



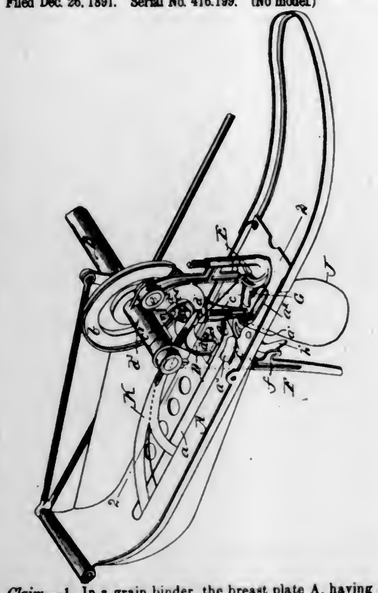
Claim.—1. The combination with a collapsible top, of a pair of substantially vertical side arms on each side, each arm pivoted at its lower end and adapted to turn toward its mate, and one arm of each pair having a hinge-joint breaking inward, and a horizontal brace for each pair near the top to press them apart and put said top under tension.

2. In a carriage top, the combination with the main bows and a front bow having short side arms, of a jointed brace pivoted to said main bows,—the forward portion constituting a lever-support for said front bow pivotally secured thereto, and a secondary brace for said front bow.

3. In a carriage top, the combination with a pair of main bows having substantially vertical side arms pivotally supported at their lower ends,—one bow having hinge-joints in the side arms,—and a front bow with short arms, of a jointed lever-brace on each side of the top pivotally secured to the main bow arms and extending forward to support the corresponding end of the front bow arm, and a secondary jointed brace for said front bow, adapted to be broken at the joint when the said lever brace is broken.

4. In a carriage top, the combination with the seat-rail having opposing stops, of the main bows and their side arms, D, and E E having the joint F, the brace J fulcrumed at K, the front bow I, the secondary brace L, and the top proper H,—all substantially as shown and described.

518,747. GRAIN-BINDER. BENJAMIN F. STEWART, Canton, Ohio. Filed Dec. 26, 1891. Serial No. 416,199. (No model.)



Claim.—1. In a grain binder, the breast plate A, having an unobstructed irregular shaped slot *a*, *a'*, a^2, and provided with a projecting lip or flange a^3 at the lower end of the curved section, in combination with a revolving knotting hook C arranged above the bend in the slot and a swinging gate H pivoted to the breast plate and provided with a curved wing *h* adapted to extend into the bend *a'* in the slot to deflect the twine to the heel of the knotting hook and to fit over the said flange when closed, substantially as described.

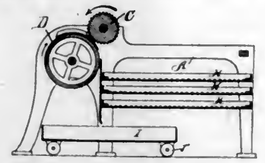
2. In a grain binder, the breast plate A, provided with a slot *a*, *a'*, a^2 and having a curved upright flange a^4 at the beginning of the bend *a'*, in combination with the swinging gate H, provided with a curved inwardly projecting wing *h* on its forward end, and the revolving knotting-hook C, substantially as described.

3. In a grain binder, a slotted breast plate, having a bend *a'* in the slot, in combination with a revolving knotting-hook C, a swinging gate H, adapted to close the slot in the breast plate underneath the knotting-hook, and the bundle discharge arm adapted to open the gate during its revolution for the discharge of the bundle, substantially as described.

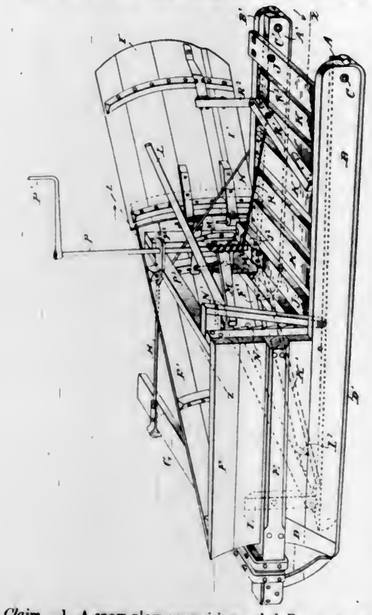
4. In a grain binder, the slotted breast plate A, having the bend *a'* in the slot, in combination with the revolving knotting head C, the gate H pivoted to the breast plate and provided with the arm *h'* projecting out at one side thereof, and the discharge arm F provided with a projection *f* on the front edge thereof and arranged to make contact with the projecting gate arm, substantially as described.

518,748. PROCESS OF MAKING FISH MEAL. PETER WAAGE, Christiania, Norway, assignor to the Aktieselskabet Norsk Fiskemel Company, same place. Filed June 18, 1892. Serial No. 437,199. (No specimens.)

Claim.—The mode of treating fish, which consists in dividing the same longitudinally, removing the bones, then removing the flesh and at the same time disintegrating or shredding the same and leaving the skin intact, by presenting the flesh side of the divided fish to the action of a rapidly revolving disintegrating device as a toothed or serrated roller, drying the disintegrated or shredded flesh by exposure to a strong draft of air, then grinding the dry, disintegrated flesh to a coarse powder, exposing the coarse powder again to the action of a strong draft of warm air, and regrinding to a fine powder, for the purpose set forth



518,749. SNOW-PLOW. WARREN F. WHEELER, Stoneham, Mass. Filed Jan. 26, 1894. Serial No. 498,063. (No model.)



Claim.—1. A snow-plow comprising a sled B; a plow mounted thereon consisting of an upright side F, an oblique, overhanging side F', a wing I hinged to side F', a share D into which said sides converge, and a shoe D' upon which said share is seated; an auxiliary sled A the runners of which are interposed between and pivoted to the runners of sled B at their rear ends, and the platform of which is beneath the platform of sled B; and mechanism mounted upon sled A, whereby sled B and its plow may be raised, and supported on sled A, as and for the purposes specified.

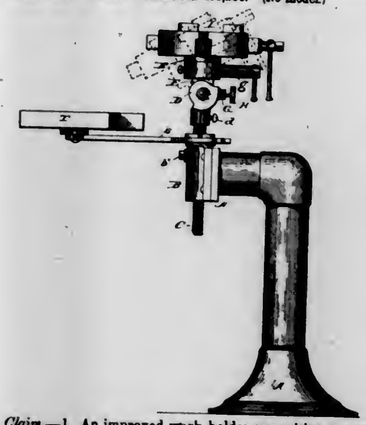
2. A snow-plow comprising sleds A and B pivoted together as described; a body composed of an upright side F, and an oblique overhanging side F', united at their front ends, and mounted on sled B; a wing I hinged to side F' and to sled B; and mechanism supported upon sled B by which said wing may be spread into line with side F', substantially as and for the purposes specified.

3. A snow-plow embodying the combination of sleds A and B pivoted to each other as described; a body composed of convergent sides F and F', mounted upon sled B; wing I hinged to side F' and to sled B; crank P' mounted on sled B and connected by cord R to hinge R'; the transverse lever M pivoted to the frame of the plow; a fulcrum block M^2 seated on the platform of sled A and upon which lever M acts; the longitudinal lever L pivoted to side F and arranged so that in its movement downward it acts on lever M; a fulcrum block seated on the platform of sled A and on which lever L acts, whereby the plow is raised and wing I swung outwardly as and for the purposes specified.

4. A snow-plow comprising a body composed of parts F and F' and wing I, mounted upon a sled B and provided with overhanging scrapers F^3 and I'; an auxiliary sled A arranged beneath and connected with sled B to support the plow and upper sled when raised from the ground; and means for raising the plow from the ground and securing it in such position; all substantially as and for the purposes specified.

5. The combination of sleds A and B pivoted together at their rear ends and loosely chained together at their front ends; a plow composed of converging sides F and F' meeting in a share D and resting in a common shoe D' on sled B; means for raising sled B, and its plow and supporting it on sled A; and a draw-bar G attached to the front of the plow; all substantially as and for the purposes specified.

518,750. WORK-HOLDER. CHARLES E. BLUE, Wheeling, W. Va. Filed July 12, 1893. Serial No. 480,268. (No model.)



Claim.—1. An improved work holder comprising a support, an annular clamping band upon its upper end, a table, and a boss depending therefrom which extends into the said annular clamp, substantially as shown and described.

2. An improved work holder comprising a table having transverse depressions upon its upper and lower sides, a vertical slot connecting the depressions, heads movable in the slot and enlarged at their opposite ends to fit the depressions, clamping jaws carried by the heads, and a means for adjusting one or both of them substantially as shown and described.

3. An improved work holder comprising a table having a transverse slot, a head movable therein, a jaw removably secured to the head and projecting over the table, a stud depending from the jaw which engages one of a series of openings in the top surface of the table, and a second jaw adjustable in relation with the first named jaw, substantially as shown and described.

4. An improved work holder comprising a table having depressions in its upper and lower sides, the said depressions being connected by two slots which are in line, a head movable in each slot, which heads are enlarged laterally at their respective ends to fit the recesses of the support, jaws carried by the heads, a means for holding one of the heads rigid with the support or table, and a screw extending longitudinally through the other head for adjusting it, substantially as shown and described.

5. An improved work holder comprising a table having inwardly extending cuts I' upon opposite sides, and dogs adjustable in a line substantially at right angles and adjacent to the line of said cuts, substantially as shown and described.

6. An improved work holder comprising a base, a vertically recessed support secured thereto which support is slit vertically upon one side, a means for contracting the edges of the said slit, a standard movable vertically in said support, and a work holding device carried by said standard, substantially as shown and described.

7. An improved work holder comprising a base, a vertically recessed support secured thereto, standard movable in the support and a work holding device upon the upper end of the standard, and a projection upon the upper end of the said support having an annular groove, and a tool box support clamped in said groove in which it is adapted to turn, substantially as shown and described.

518,751. RECLINING-CHAIR. SOLOMON CHAMBERS, Bay City, Mich., assignor of one-half to John G. Meyers, same place. Filed Apr. 3, 1893. Serial No. 468,796. (No model.) Patented in Canada Aug. 1, 1890, No. 34,788.

Claim.—1. In a reclining chair, the combination with a base or support provided with a projection in front and at the top of the said base, of the back side pieces pivoted to the base, a foot rest, the side

pieces thereof pivoted to the projection in front of the base and projecting above the base, the projecting arm turning outward, the pivoted chair arms, pivoted to the bowed arm of the foot rest and to the side pieces of the back so as to be nearly level, and the suspended back hung from the top of the back frame, the swing bottom hinged to the suspended back and supported in front by a swing pivoted to the sides of a foot rest below its pivotal support, substantially as described and as and for the purpose set forth



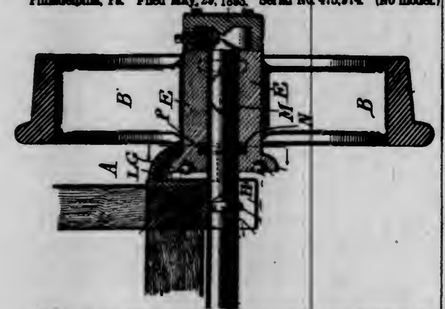
2. In a reclining chair, the combination with the base, of a back frame pivoted thereto, a back suspended from the top of said frame, a foot rest frame pivoted to the base, a swing frame pivoted to the foot rest frame at a point below the pivotal connection of the foot rest to the base, a suspended seat pivotally held at its front edge in the swing frame and at its rear edge hinged to the back, and arms hinged respectively to the foot rest and back frames, substantially as described.

3. A reclining chair consisting of front legs pivoted near the top to legs extending rearwardly to the ground and forwardly of the said front legs, a foot rest 6 and 7 pivoted to the said rear legs in front of the front legs, a movable back suspended in a frame that is supported from the rear legs, arms pivoted to said frame and to the top of the foot rest, and a seat suspended from the movable back and from the foot rest, substantially as described.

4. In a reclining chair, the combination with the base of the chair, a frame back adjustably pivoted to the rear of the base, the base being provided with a series of holes into either of which a removable pivot carried by the back may be placed, a foot rest pivoted to the front of the base, the chair arms pivoted to the side pieces of the frame back and to the projecting arms of the foot rest so that the distance from their pivotal connection, to the frame back, to the base support will be greater than the distance from the pivotal support of the arms to the foot rest to the foot rest support on the base, the swinging back hinged to the top of the frame back, of the seat suspended in the rear by the swinging back and supported in front by a swing pivoted to the foot rest below the pivotal support of the foot rest, substantially as and for the purpose set forth.

5. An adjustable reclining chair, consisting of a base provided with removable front legs, and reversible rear legs, the rear legs bowing frontward beyond the front legs and having pivoted to the front ends thereof a movable foot rest provided with a swing pivoted to it below the pivotal support of the foot rest, a movable back adjustably secured to the rear legs, a swinging back suspended from the movable back, a bottom hinged to the swinging back and secured to the swing in the foot rest, and arms pivoted to the back and to the arms of the foot rest, the distance from the pivotal connection of the arm to the back to the rear legs being greater than the distance from the pivotal connection of the arm to the foot rest to the support of the foot rest, whereby when the chair is operated the foot rest will raise more than the back reclines, substantially as described.

518,752. RUNNING-GEAR FOR CARS. WILLIAM H. DANIELL, Philadelphia, Pa. Filed May 29, 1893. Serial No. 475,974. (No model.)



Claim.—1. A running gear for cars having an axle mounted in a journal-box which is formed of side pieces and a pin passing through the same and below said axle substantially as described.

2. A running gear for cars having an axle, a groove therein, a journal box formed of side pieces and a pin passing through said side pieces and below said axle said pin entering said groove substantially as described.

3 A running gear for cars having an axle and a wheel mounted thereon, a flange on the hub of said wheel, a journal-box and a hood forming part of said journal box and loosely engaging said flange substantially as described

4. A running gear for cars having an axle a journal box in which said axle is mounted, a wheel on said axle a flange on the hub of said wheel and a hood forming part of the journal box and adapted to engage said flange substantially as described

5. A running gear for cars consisting of a journal box formed of side pieces, a pin secured to the same, a hood on said box, an axle having a groove, mounted in said journal box and a wheel on said axle, the hub on said wheel being provided with a flange which is adapted to be engaged by said hood, said parts being combined substantially as described.

6 A running gear for a car having a journal box formed of side pieces, a pin secured to the same, an axle mounted in said box a wheel on said axle said wheel being provided with a flange and a hood on said box which is adapted to engage said flange substantially as described.

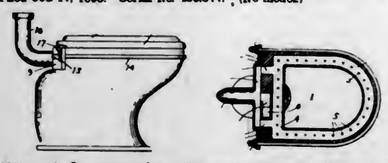
7 A running gear for cars having a journal box with a boss and a pin, an axle mounted in said box and having a groove into which said boss and pin are adapted to enter substantially as described.

8. A running gear for cars having a journal box with a boss, an axle mounted in said box having a groove into which said boss is adapted to enter substantially as described

9. A running gear for cars having a journal box, an axle, a hood on said journal box, a wheel with a flange and balls on the inner face of the hub of said wheels said balls being held by springs substantially as described.

10. A running gear for cars having a journal box, an axle, a wheel, an oil cup, a groove in said axle, one end of which communicates with said oil cup and packing at the other end bearing on said axle by means of a spring substantially as described.

518,753. WATER-CLOSET. WILLIAM T. FOX, Rochester, N. Y. Filed Oct. 17, 1893. Serial No. 488,377. (No model.)



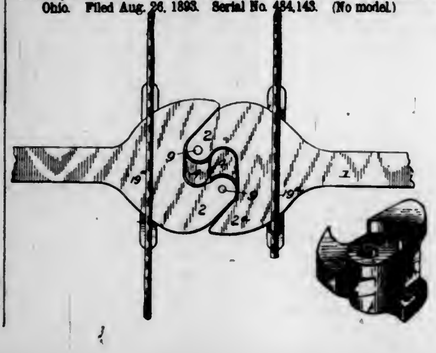
Claim.—1 In a water-closet, the combination with the bowl, and a plate at the rear thereof, of a band encircling the bowl and connected to said plate, and a seat hinged to the plate and extending over the bowl, substantially as described.

2. In a water-closet, the combination with the bowl having the water-passages therein, and a plate at the rear thereof having a pipe connection, and the seat hinged to said plate, of the band encircling the bowl and connected to said plate, substantially as described.

3 In a water-closet, the combination with the bowl having water passages therein, of a plate fastened to the bowl and having the pipe connection thereon, and a seat secured to said plate and extending over the bowl, substantially as described

---

518,754. CAR-COUPLING. JOHN R. HALL, Jr., Fort Recovery, Ohio. Filed Aug. 26, 1893. Serial No. 484,143. (No model.)

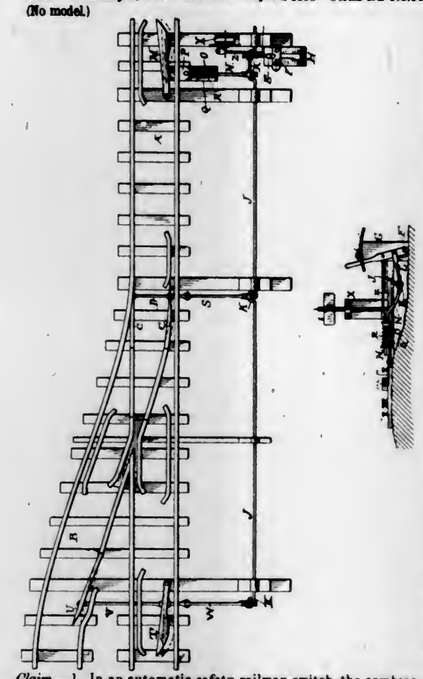


Claim.—1 In a car coupler the combination with the draw head formed with jaws at its front end, one of which is formed with a central recess and the pivoted jaw, comprising a curved projection and a head with a recess in its outer or lower side, of the reciprocating spring actuated locking bar and means for actuating the same substantially as described

2. In a car coupler the combination with the draw head formed with two jaws at its outer end one of which is provided with a central recess and lugs, and the hook pivoted to said lugs, comprising the curved projection and the head having a recess in its outer or under side, of the horizontally reciprocating locking bar seated in a recess in the draw head, having a slot and a roller, the coiled spring located in said recess and bearing against said bar, the transverse bar passing through said slot and through the draw head and having a curved recess in its rear edge with which said roller engages, the rollers journaled in the draw head against which the front edge of said bar works, and the shifting bar having depending arms passing loosely through holes or apertures in the said transverse bar, substantially as described

---

518,755. RAILWAY-SWITCH. GEORGE W HANNER, Holbrook, Ariz. Filed May 2, 1892. Renewed May 24, 1893. Serial No. 475,383. (No model.)



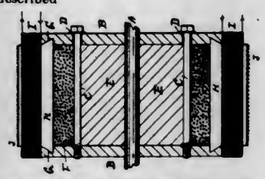
Claim.—1. In an automatic safety railway switch, the combination of a main track, a siding, a switch connecting the two, a switch rod therefor, a track lever pivoted within the rails of the main track, a switch-rod therefor, a spring connection between the track-lever and the latter switch-rod, a second track-lever within the main track rails on the opposite side of the switch, a switch rod therefor, a car derailing switch in the siding, a rod connecting the latter switch and the track-lever, and a main operating shaft along the track, the several switch rods being connected thereto for simultaneous operation.

2. In an automatic safety railway-switch, the combination of a main switch, two track levers one on each side thereof, a car-derailing switch connected to one of the track-levers, and a spring switch-rod connected to the other, said switch-rods being connected for simultaneous operation.

518,756. ARMATURE FOR DYNAMO-ELECTRIC MACHINES OR ELECTRIC MOTORS. THOMAS H. HICKS, Detroit, Mich. Filed Jan. 9, 1893. Serial No. 457,811. (No model.)

Claim.—1. In an electric machine, an armature consisting of a shaft, heads B B, non-conducting material E about the shaft, supports C, a wire cylinder F, and cores H, each wound with wire bobbins, substantially as described.

2. In an electric machine, an armature consisting of a shaft, heads B B secured to the shaft, non-conducting material about the shaft, and a wire cylinder F located about said non-conducting material, substantially as described



3 In an electric machine, an armature consisting of a shaft, heads B B secured to said shaft, cores H non-conducting material E about the shaft, a wire cylinder F located about said non-conducting material, and coils I located parallel to the shaft, said heads constructed with annular grooves to hold the cores of said coils, substantially as described

4 In an electric machine, an armature having laminated cores arranged parallel to and radially about the armature shaft, and a magnetizable cylinder, said cores being also arranged radially around said cylinder, substantially as described

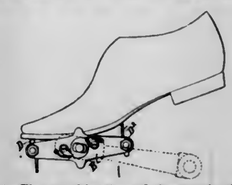
5 In an electric machine, an armature having a shaft A, flanges B, B secured to the shaft, provided with grooves G, and cores H, laminated in a direction parallel to the shaft and the ends of the cores being arranged in said grooves, substantially as described.

6 In an electric machine, an armature having a magnetizable cylinder F supported to rotate with the shaft by flanges B and non-conducting material E, substantially as described

7 In an electric machine, a magnetizable cylinder F, an armature having laminated cores H arranged upon said cylinder, and a band J wound upon said cores, substantially as described.

8 In an electric machine the combination of an armature, and pairs of field magnets, the armature having cores laminated in a direction parallel to the shaft of the armature and wound with bobbins of wire I, the field magnets arranged alternately of opposite magnetic sign around said armature, substantially as described.

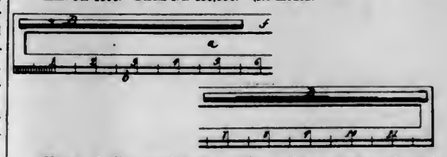
518,757. PEDAL FOR CRANK-POWERS. ANDREW J. HOYT, Philadelphia, Pa. Filed July 7, 1893. Serial No. 479,833. (No model.)



Claim.—1 The combination of the crank, the pedal having a front foot rest in advance of the pedal pin, a yielding rear foot rest, and means for preventing the forward rotation of said pedal on the pedal pin, substantially as described.

2. The combination of the crank, the pedal having a front foot rest in advance of the pedal pin, an elastic rear foot rest, and means for preventing forward rotation of the pedal on the pedal pin, substantially as specified.

518,758. RULER. MAJOR R. JEWELL, Rochester, N. Y. Filed Mar. 31, 1893. Serial No. 468,536. (No model.)



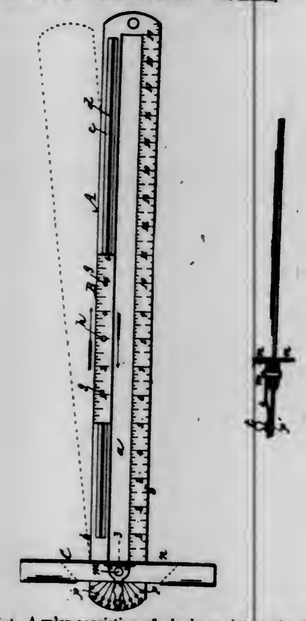
Claim.—1. The combination, with a ruler consisting of a thin plate, of a supporting strip seated loosely in the ruler adjacent to one edge only, and projecting on opposite sides in the same coincident line, whereby the opposite edge of the ruler can be brought in direct contact with a supporting surface either side up, said strip extending longitudinally of the ruler and being of such length as to support the same, as herein shown and described.

2. A ruler consisting of a body or plate and a supporting strip extending longitudinally of the same adjacent to one edge thereof.

the plate having a slot to receive the strip and the strip provided with grooves in its sides to embrace the edges of the slot, as specified.

3. A ruler consisting of a body or plate and a supporting strip extending longitudinally of the same adjacent to one edge thereof, the plate provided with a slot to receive the strip, said slot having an offset to allow the entrance of the strip, and the strip provided with grooves to embrace the edges of the slot as specified.

518,759. T-SQUARE RULE. MAJOR R. JEWELL, Rochester, N. Y. Filed Mar. 31, 1893. Serial No. 468,537. (No model.)



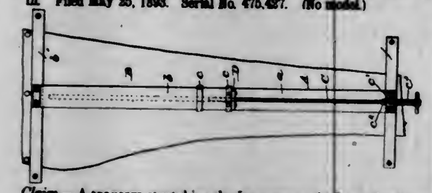
Claim.—1. A ruler consisting of a body or plate and a slide movable forward and back thereon, the ruler being struck up and slotted to form a seat for the slide, and the slide provided with a rivet or rivets that rests in the slot of the seat, as and for the purpose specified.

2. A ruler consisting of a body or plate and a T-head to which the ruler is pivoted, the T-head consisting of a strip folded double and slotted for the passage of one end of the ruler, one or both the flanges being bent at right angles to form a riding edge, as herein shown and described.

3. The combination of the T head, consisting of a strip folded double and slotted for the passage of the end of the ruler, the ruler projecting through the head, pivoted thereto, and provided with holes in the projecting end registering with degree lines, and the spring attached to the head and provided with a pin entering the holes, as shown and described and for the purpose specified.

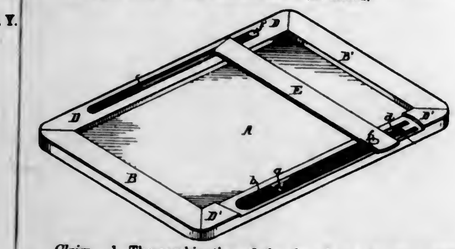
4. The combination of a ruler provided with two or more sets of holes alternating with each other and arranged in line with graduations on the scale, a T-head attached to one end of the ruler, and a graduated slide attached to the ruler and fitted to move over a convex seat of the same, as shown and described and for the purpose specified.

518,760. TROUSERS-STRETCHER. MARQUIS LATHAM, Chicago, Ill. Filed May 25, 1893. Serial No. 475,427. (No model.)



Claim.—A trousers stretching device composed of two duplicate oppositely arranged T-shaped sections, each section having a longitudinal bar and transverse clamp bars, the longitudinal bar of one section having a groove in its inner face, and a nut with its aperture in the longitudinal lines of the groove, and the other longitudinal bar having secured to it a screw rod which lies in said groove, and between the said two longitudinal bars, substantially as set forth.

518,761. SCHOOL-SLATE. EDWIN L. LLOYD, Philadelphia, Pa. Filed Sept. 21, 1893. Serial No. 486,104. (No model.)



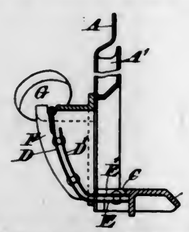
Claim.—1. The combination of the slate frame having a longitudinal slot in one of the side bars of the same, with a ruler carried by a pivot pin free to slide in said slot, whereby the ruler can be turned either into a position in line with the bar of the frame, or into a position across the slate, and when in the latter position can be moved to and fro, substantially as specified.

2. The combination of the slate frame having a longitudinal slot in one of the side bars of the same, with a ruler carried by a pivot pin free to slide in said slot, said ruler being longer than the width of the slate so that when turned across the latter its free end will rest upon and be supported by the opposite side bar, substantially as specified.

3. The combination of the slate frame having a longitudinal slot in one of the side bars, a ruler, and a pivot pin therefor adapted to said longitudinal slot but confined to the ruler and to the side bar of the frame, so that said ruler can be turned in line with the frame, or across the slate, and can be moved to and fro when in the latter position, but cannot be detached from the slate frame, substantially as specified.

4. The combination of the slate frame having a longitudinal slot in one of the side bars, a ruler, and a pivot pin therefor adapted to said longitudinal slot, and having a head contained within a recess formed in the under face of the slotted side bar, so that the latter will present a flush surface, substantially as specified.

518,762. STEAM-BOILER OR OTHER FURNACE. DONALD B. MORISON, Hartlepool, England. Filed June 8, 1893. Serial No. 476,947. (No model.)



Claim.—1. A furnace having a dead plate formed with a recess in its outer side opposite the fire door opening, and a door adapted when in its closed position, to close said recess substantially as herein described for the purpose specified.

2. A furnace constructed with a recessed dead plate and with a door having an inward extension adapted to close the recess in said dead plate for the purpose specified.

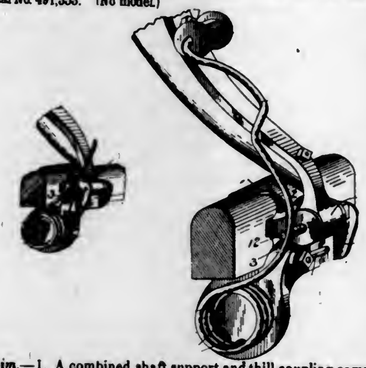
3. A furnace constructed with a recessed dead plate, and with a door having an inward extension adapted to close the recess in said dead plate, and having a corresponding extension on its baffle plate substantially as described for the purpose specified.

4. In a furnace the combination of a dead plate formed with a recess C, and a door having at its lower part an inward extension adapted to fit said recess substantially as described.

5. The combination with a furnace front plate of a dead plate formed with a recess C opposite the fire door opening in said front plate, a door having a lower inward extension E, and a baffle plate secured to the inner side of said door and formed with a corresponding inward extension E' substantially as described.

6. The combination with a furnace front plate, of a dead plate formed with a recess C opposite the fire door opening, a metal fire door D having its lower portion bent inwardly so as to form an extension E adapted to close the said recess when the door is in its closed position, balance weights secured to said door, brackets secured to said front plate and whereon said door is mounted to turn about a horizontal axis and a baffle plate D' secured to the inner side of said door and having its lower portion bent to form an inward extension E' arranged above the extension E, substantially as described.

518,763. COMBINED SHAFT-SUPPORT AND THILL-COUPLING. WILLIAM E. MURBARGER, Indianapolis, Ind. Filed Nov. 18, 1893. Serial No. 491,353. (No model.)



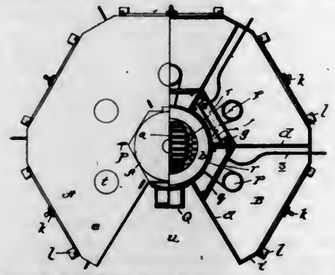
Claim.—1. A combined shaft support and thill coupling comprising the tension plate having the curved bearing neck and formed with the circular recess and circle of adjusting apertures, the spring coil entering said recess and having the straight end adapted to be adjusted in any of said apertures, and having the single bent arm carrying a roller at its outer end which contacts with the under side of the shaft; substantially as set forth.

2. The combination with the tension plate, arranged as set forth, of the transverse slide-plate secured thereto immediately below the coupling joint and formed with the retaining end or ends extending up at right angles to the plate, for the purpose specified.

3. The combination with the tension plate, arranged as set forth, of the transverse adjustable slide-plate secured thereto immediately below the coupling joint, having the adjusting slot through which the retaining screw passes, and formed with the retaining end extending up at right angles to the plate, for the purpose specified.

4. The herein-described combined shaft support and thill coupling, comprising the tension plate formed with the circular recess and circle of adjusting apertures, the retaining plate mounted on the front of the tension plate immediately below the coupling joint, the coil entering the circular recess of the tension plate and having the straight end adapted to be inserted in the circle of adjusting apertures, and having the single bent arm formed with the transverse outer end, and the roller mounted on said transverse end to contact with the under side of the shaft and formed with the retaining flanges which prevent it from slipping from the shaft; substantially as set forth.

518,764. COOKING STOVE OR RANGE. JAMES W. NORTON, Washington, D. C. Filed Dec. 26, 1893. Serial No. 494,807. (No model.)



Claim.—1. In a cooking stove, the combination of an upright body provided with a fire box or combustion chamber, a series of ovens grouped about the upright body, and a series of heat conduits communicating with the fire box or combustion chamber of said body and extending through the ovens, substantially as specified.

2. In a cooking stove or range, the combination of an upright body provided with a combustion chamber or fire box; of a series of ovens grouped about the body in the same plane as the fire box or combustion chamber and so arranged as to form spaces or chambers *h*, between them and the body, walls as M, arranged beneath the ovens and serving in conjunction with the bottom walls of the same to form spaces or chambers *n*, and dampers controlling communication between the chambers or spaces *h*, *n*, substantially as and for the purpose set forth.

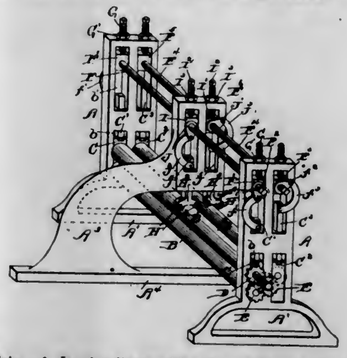
3. In a cooking stove or range, the combination of an upright body provided with a combustion chamber or fire box, a series of ovens grouped about the body and so arranged as to form spaces or chambers *h*, between them and the body and having openings as *q*, in one of their walls communicating with the spaces or chambers *h*, and dampers controlling the said openings *q*, substantially as and for the purpose set forth.

4. In a cooking stove or range, the combination with an upright body provided with a fire box or combustion chamber; of a series of ovens grouped about the body and formed by the side walls *d*, the top horizontal wall *e*, the bottom horizontal walls *f*, the inner vertical walls *g*, arranged at a distance from the body so as to form spaces or chambers *h*, and the outer vertical walls, the horizontal walls M, connected to the body and to the walls *d*, and *i*, and arranged in a plane below the ovens so as to form spaces or chambers *n*, and dampers controlling communication between the spaces or chambers *n*, and the spaces or chambers *h*, all substantially as and for the purpose set forth.

5. In a cooking stove or range, the combination with an upright body provided with a fire box or combustion chamber; of a series of ovens grouped about the body and formed by the side walls *d*, the top horizontal wall *e*, the bottom horizontal walls *f*, the inner vertical walls *g*, arranged at a distance from the body so as to form spaces or chambers *h*; and the outer vertical walls, the horizontal walls M, connected to the body and to the walls *d*, and *i*, and arranged in a plane below the ovens so as to form spaces or chambers *n*, dampers controlling communication between the chambers or spaces *n*, and the chambers or spaces *h*, and conduits communicating with the fire box or combustion chamber and extending through the ovens and having removable lids at their upper and outer ends, all substantially as and for the purpose set forth.

6. In a cooking stove or range, the combination of an upright body comprising a grate, a fire box or combustion chamber, and a fuel magazine and having a waterback or receptacle for water to be heated, a series of ovens grouped about the body in such a manner as to form an open space at the front of the same; and said ovens being formed by the side walls *d*, the top horizontal wall *e*, the bottom horizontal walls *f*, the outer vertical walls and the inner vertical walls *g*, arranged at a distance from the body so as to form spaces or chambers *h*, the horizontal walls M, connected to the body and to the walls *d*, and *i*, and arranged in a plane below the ovens so as to form spaces or chambers *n*, and conduits communicating with the fire box or combustion chamber and extending through the inner vertical and top walls of the ovens and having removable lids at their upper ends, all substantially as and for the purpose set forth.

518,765. BENDING-MACHINE. WILLIAM J. PLECKER, Peoria, Ill. Filed Nov. 29, 1893. Serial No. 492,356. (No model.)



Claim.—1. In a bending machine, the combination with the stationary roll, of a movable roll mounted above said stationary roll, whereby the metal blank is fed between said rolls, the bearings for said movable roll, means for adjusting said bearings, and means for moving said bearings vertically independently of said adjusting means, substantially as set forth.

2. In a bending machine, the combination with the stationarily mounted roll, of the movable roll mounted above said stationary roll, the bearings for said roll, means for adjusting said bearings means for positively moving said bearings simultaneously, and a lock for holding said bearings in position against upward movement, substantially as set forth

3. In a bending machine, the combination with the stationarily mounted roll, the movable roll, the bearings therefor, a rock shaft, means connecting said bearings with said shaft for moving said bearings positively, and devices for adjusting said rock shaft relatively to said stationarily mounted roll substantially as set forth.

4. In a bending machine, the combination with the side frames or standards, having guides, and the roll B mounted in said standards, of the roll B', the bearings therefor mounted in said guides, the adjusting devices for adjusting the bearings radially relatively to said roll B, and means for moving said bearings simultaneously relatively to said adjusting devices, substantially as set forth.

5. In a bending machine, the combination with the roll B, of the roll B', the bearings therefor, the rock shaft, the means connecting the rock shaft with the said bearings for moving them positively, the bearings for the said rock shaft, and means for adjusting the said rock shaft bearings, substantially as set forth.

6. In a bending machine, the combination with the two opposing rolls B, B', a bearing for each end of said roll B', anti-friction rollers to receive the thrust of said roll B', and arranged intermediate of its ends, and means for simultaneously adjusting both of said bearings and said anti-friction rollers toward and from said roll B, substantially as set forth.

7. In a bending machine, the combination with the two forming rolls, anti friction rollers arranged in proximity to one of said rolls intermediate of its ends, means for positively lifting said roll in parallelism with the other forming roll, means for lifting said anti-friction rollers, and power devices connecting said means whereby they may be simultaneously operated, substantially as set forth.

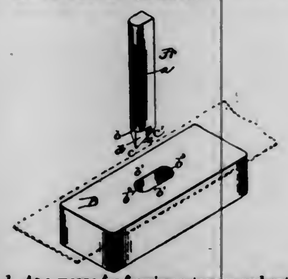
8. In a bending machine the combination with the stationarily mounted roll, of the movable roll having bearings at each end, devices for adjusting said bearings independently of each other, anti-friction devices arranged to bear against said movable roll intermediate of its ends, and means independent of the adjusting devices for moving said movable roll and said anti-friction devices toward and from the stationarily mounted roll whereby the same relative adjustment of the rolls may be preserved though they may be separated temporarily, substantially as and for the purposes set forth.

9. In a bending machine, the combination with the opposing rolls, one of said rolls having movable bearings and the anti-friction rollers for the last said roll, of the rock shaft, the series of crank arms on said rock shaft and the series of links connecting said crank arms with said bearings and said friction rollers respectively, whereby they may be all moved simultaneously, substantially as set forth.

10. In a sheet metal bending machine, the combination with the two forming rolls, of the guide roll mounted in front of the rolls, the guides in planes parallel to the plane of the axes of the two rolls, the bearings for the guide roll sliding in the said guides, means for positively lifting the said bearings entirely independently of the forming rolls, and a lock to hold said bearings against vertical movement when in position, substantially as set forth.

11. In a sheet metal bending machine, the combination with a forming roll, of an opposing forming roll, and a guide roll, each of the last said rolls being supported adjustably in a carrier or support adapted to move simultaneously and uniformly both ends of the roll relative to the axes of the first aforesaid forming roll, substantially as set forth.

518,766. PUNCH. WILLIAM J. PLECKER, Peoria, Ill. Filed Dec. 18, 1893. Serial No. 493,935. (No model.)



Claim.—1. As a means for forming a tongue and cutting an enlarged aperture in a sheet of metal, the herein-described punch provided with a shear or cutting edge oblique to the longitudinal lines of the punch whereby a tongue is cut in the sheet metal and bent back from the planes thereof, and a supplemental shear or cutting edge arranged above the first said edge and in a position to enlarge the aperture cut thereby, substantially as set forth.

2. As a means for forming a tongue, and cutting an enlarged aperture in a sheet of metal, the herein described punch having a shear or cutting edge and a smooth edge c^3 whereby a tongue can be cut in a sheet of metal, and also having a supplemental shear or cutting edge in transverse planes above the first said cutting edge and in a position to enlarge the aperture cut by the first said cutting edge, substantially as set forth.

3. As a means for forming a tongue, and cutting an enlarged aperture in a sheet of metal, the herein-described punch, having a shank with a flat face at the rear, and terminating in an end c' beveled in planes oblique to the said flat face, said end having a shear edge at all points except at the intersection of the planes of the flat face and the bevel whereby a tongue can be cut in a sheet of metal and bent back from the plane thereof, said punch also having a supplemental cutting edge arranged above the first said cutting edge, and in a position to enlarge the aperture cut by the first said edge, said supplemental shear edge extending around said shank except at points in the plane of the flat face, substantially as and for the purposes set forth.

4. As a means for forming a tongue and cutting an enlarged aperture in a sheet metal blank, the herein-described punch having two shear edges, one edge being V-shaped, and the other cutting edge being curved and arranged above and in position to round the angle of the V-cut made by the first said edge, substantially as and for the purposes set forth.

5. The herein-described punch, having the shank portion a, the cutting edge b, said shank being reduced at d d and beveled at c' whereby is produced an inclined V-shaped cutting or shear edge e e, below the first said cutting edge, substantially as set forth.

6. The combination with a punch having at one end an oblique shear edge e e adapted to cut a tongue in a sheet of metal, and also having a supplemental shear edge b arranged above and in a position to enlarge the cut made by the said shear edge e e, of a die having an aperture, one wall of which forms a shear edge b^3 conforming to the shear edge b of the punch, substantially as set forth.

518,767. CONDUCTOR-PIPE AND METHOD OF JOINING EDGES OF SAME. WILLIAM J. PLECKER, Peoria, Ill. Filed Dec. 18, 1893. Serial No. 493,936. (No model.)



Claim.—1. The herein described method of joining the edges of a pipe blank, it consisting in forming duplicate tongues on the opposite sides of said blank, bending the blank into tubular form, inserting the tongues into the apertures left by cutting the opposing tongues, and then bending the said tongues upon the said blank, substantially as set forth.

2. The herein described method of joining the edges of a pipe blank, which consists in forming oppositely extending wedge shaped tongues whose bases are diametrically opposite, bending the tongues on either side upwardly and downwardly respectively, from the face of the blank, then enlarging the wedge-shaped apertures left by the tongues, then bending the blank into tubular form, inserting each tongue into its opposing aperture, and finally crushing the tongues into the planes of the opposing edges, substantially as set forth.

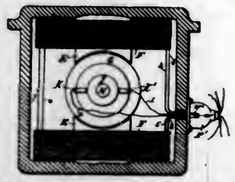
3. The herein-described method of joining the edges of a metallic plate or plates, which consists in cutting oppositely extending tongues in said edges or plates, bending said tongues at an angle in either direction respectively to the faces of the plates or edges, inserting each tongue in the aperture formed in the edge or blank by cutting the opposing tongue, and then bending the tongues into planes parallel with the faces of the edges or plates, substantially as set forth

4. The herein-described method of joining the edges of a pipe blank, it consisting in forming oppositely extending tongues whose bases are substantially diametrically opposite, bending the tongue on one edge upward from the face of the blank, bending the tongue from the opposite edge downward from the face of the blank, bending the blank into tubular form and inserting each tongue into the aperture formed by cutting the opposing tongue and then bending the tongues down into the plane of the opposing edges, substantially as and for the purposes set forth.

5. As a new article of manufacture, the herein-described pipe blank provided at one edge with a series of upwardly extending tongues, and at the opposite edge a series of downwardly extending tongues, said series of tongues extending in opposite directions and having their bases diametrically opposite each other, substantially as set forth.

6. As a new article of manufacture, the herein described pipe blank provided on one longitudinal edge with a series of wedge shaped tongues, and on the opposite edge with a similar series of wedge shaped tongues, whose bases are diametrically opposite those of the first said series, the apertures at the bases of the tongues of one of said series, extending in an opposite direction from those at the bases of the tongues of the other said series, substantially as and for the purposes set forth.

518,768. DYNAMO-ELECTRIC MACHINE OR MOTOR. ANDREW L. RIKER, New York, N. Y. Filed Jan. 29, 1894. Serial No. 498,367. (No model.)



Claim.—1. In a dynamo or motor comprising as an integral part of its structure a sealed casing or inclosure, the combination with a magnetic section and cap sections secured to the sides of said magnetic section, of a terminal block consisting of a cover and a base or stationary part, the latter being secured to one of the sections comprising the casing, substantially as described.

2. In a dynamo or motor a terminal block for the electrical conductors, comprising a base or stationary part and a cover or removable part, terminal sockets on one part and terminal pins on the other adapted to make electrical contact in the sockets when the cover is placed over the base, substantially as described.

3. A terminal block for electrical conductors, comprising a base or stationary part and a cover or removable part, terminal sockets on one part, terminal pins on the other adapted to make electrical contact in the sockets when the cover is placed over the base, and insulating supporting plates on the cover and base for the sockets and pins, substantially as described.

4. A gas and water tight terminal block comprising a base and a cover adapted to fit over said base, packing interposed in the joint between said parts and means for clamping the parts together, substantially as described.

5. A gas and water tight terminal block comprising a base having a recessed outer end, packing in said recess, a cover the inner edge of which projects into the recess against the packing, a clamping ring or sleeve embracing the juncture of the cover and base and by means of which these parts are drawn together, substantially as described.

6. The combination with a casing having an opening therein, of a gas and water tight terminal block comprising a base and a cover, the former being secured to the casing over the opening, packing interposed at the joint between the base and casing, conductors passing from the interior of the casing through the opening therein, contact devices on the base, conductors passing through one end of the cover to contact devices corresponding to those on the base, and means for making a gas and water tight joint between the cap and base, substantially as described.

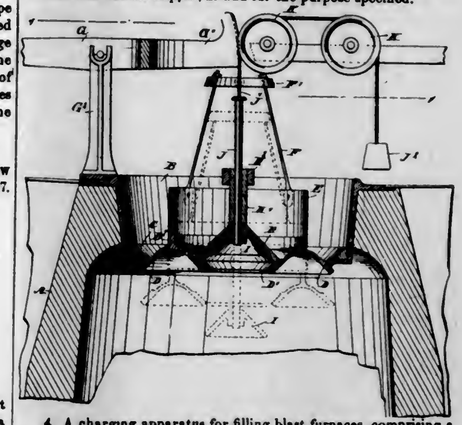
7. In a terminal block comprising a base and a cover, terminal pins on one part and terminal sockets on the other in which said pins make electrical contact, and means for preventing such contact except in certain relative positions of the cover and base, substantially as described.

518,769. CHARGING APPARATUS FOR FILLING BLAST-FURNACES. THOMAS F. WITHERBEE, Port Henry, N. Y. Filed June 27, 1893. Serial No. 478,963. (No model.)

Claim.—1. A charging apparatus for blast furnaces, which comprises an annular movable bell having a central aperture, the spreading bell, I, which is of less diameter than said aperture and thereby adapted to pass through it so as to occupy a position either above or below the annular bell, and means for raising and lowering the said spreading bell, as shown and described.

2. A charging apparatus for filling blast furnaces, comprising a movable bell having a central aperture, and a spreading bell adapted to pass through the said central aperture below the said movable bell and centrally thereof, and a fixed bell adapted to close the said central aperture of the movable bell and also adapted to receive the said spreading bell, substantially as shown and described.

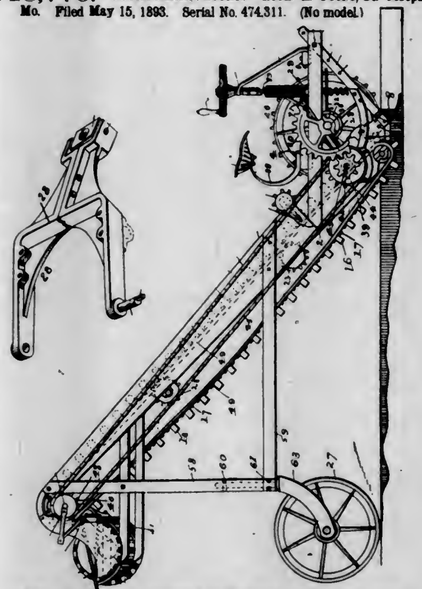
3. A charging apparatus for blast furnaces, which comprises an annular bell arranged within a hopper, and having a vertical, circular extension, E, constituting a supplemental inner hopper, a bell for closing such inner hopper, and means for raising and lowering the annular bell and its hopper, as and for the purpose specified.



4. A charging apparatus for filling blast furnaces, comprising a hopper secured to the stack of the blast furnace, an annular movable bell adapted to be seated on the contracted end of the said hopper, the said movable bell having a central aperture, a second hopper secured on the crest of the said movable bell, a fixed bell adapted to close the said central aperture of the said movable bell, and a spreading bell adapted to be seated within the said fixed bell and adapted to pass through the said central aperture of the movable bell, substantially as shown and described

---

518,770. POTATO-HARVESTER. LOUIS I. YOUNG, St. Joseph, Mo. Filed May 15, 1893. Serial No. 474,311. (No model.)



Claim.—1. A potato harvester comprising a plow, an elevator, a separator designed to remove the vines and weeds from the earth and potatoes and arranged at the upper end of said elevator, an inclined slatted trough arranged beneath said separator, and a slatted revolving cylinder arranged to deliver the cleaned potatoes at one side of the elevator; substantially as set forth.

2. In a potato harvester, the combination of a plow, an elevator, the inclined slatted trough, the inclined oscillating finger bars, and a revolving slatted cylinder at the outer end of said trough; substantially as set forth.

3. In a potato harvester, the combination of a plow, an elevator,

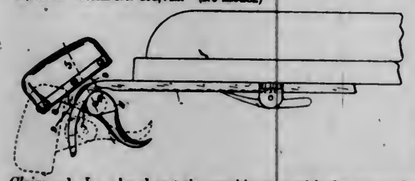
the inclined slatted trough, the inclined stationary finger bars, the inclined oscillating finger bars, and a revolving slatted cylinder at the outer end of said trough; substantially as set forth.

4. In a potato harvester, the combination with a plow, an elevator, and an inclined trough, of the revolving cylinder formed with the slatted sides, the central shaft, and the interior wide spiral flange or "worm" extending from the central shaft to the slatted sides of the cylinder, substantially as and for the purpose set forth.

5. In a potato harvester, the combination, with the inclined frame carrying the plow at its lower end, and the fixed horizontal frame, of the yoke-lever pivotally secured to the lower end of the inclined frame at its inner end, having the axle 30 mounted in bearings centrally on its under side, and having pivoted in its recessed outer end the threaded sleeve, and the adjusting screw working through said threaded sleeve, having the braces 34, 35, to prevent it from rising, and having a suitable crank or hand-wheel on its upper end; substantially as set forth.

6. In a potato harvester, the combination with the revolving axle having the large gear wheel 40 secured thereon, of the pivoted bolt 42 having its outer end formed into the eccentric pivot pin 43, the sprocket wheel 44, around which the drive chain of the harvester passes, loosely mounted on said eccentric pivot-pin 43, and having secured to its outer side a sprocket pinion adapted to mesh with the gear wheel 40, and a hand lever secured at its inner end to the pivot bolt 42 and adapted to turn the same, substantially as and for the purpose set forth.

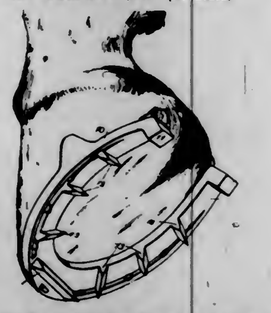
518,771. HEAD-REST. GEORGE W. ARCHER, Rochester, N. Y., assignor to the Archer Manufacturing Company, same place. Filed Oct. 14, 1891. Serial No. 408,712. (No model.)



Claim.—1. In a head rest the combination with the supporting stem having the rearwardly curved and slotted upper portion, of the rest or pad bearing on the upper side thereof and having the extension passing through the slot and the eccentric clamp for engaging the under side of the stem pivoted on said extension on a pivot extending transversely of the stem and having the operating handle, substantially as described.

2. In a head rest the combination with the supporting stem having the rearwardly curved and slotted upper portion, of the rest or pad having the two projections engaging the upper side of said curved part on each side of the slot and the extension passing through the slot, and the eccentric clamp pivoted on said extension on a pivot extending transversely of the stem and having the operating handle, substantially as described.

518,772. HORSESHOE. FREDERICK W. BACH, New York, N. Y. Filed May 26, 1893. Serial No. 475,543. (No model.)



Claim.—A horse-shoe provided on its under side with a toe calk and heel calks, and a plurality of wedge-shaped side calks between the heel and the toe, said calks being spaced so as to prevent foreign matter from sticking between them, and placed diagonally at an angle to each other and with their outer ends ahead, the sharp edges of the said side calks and of the toe calk terminating interiorly of the outer edge of the shoe, substantially as described, whereby the horse is protected against injury by the sharp edges of the calks, as set forth.

518,773. TELEPHONE SYSTEM. UPTON H. BAILEY, Philadelphia, Pa. Filed Apr. 29, 1889. Serial No. 308,904. (No model.)



Claim.—1. In a telephone apparatus, the combination with the line wires of the subscribers, of switches located in the line wires, a double contact plug adapted to be inserted in said switches to complete the circuit through said switches, two sliding contacts insulated from each other and connected respectively to the two contacts of the plug, and electrical connections between said sliding contacts and the subscribers' wires.

2. In a telephone switch board device for a central station, the combination with the switches arranged in the line wires of the subscribers, of plugs adapted to be inserted in said switches to complete the circuit through them having two contacts insulated from each other, two movable contact devices insulated from each other and in circuit with said subscribers' wires, and a flexible connection between said movable contacts and the two contact portions of the plug.

3. In a telephone switch board device for a central station, the combination with the switches arranged in the line wires of the subscribers, of plugs having two contact parts insulated from each other and adapted to be inserted in the switches, two fixed guides in circuit with said subscribers' wires, two movable contacts insulated from each other, adapted to move in contact with said fixed guides, and electrical connections between said movable contacts and the two contact portions of said plug respectively.

4. In a telephone switch board device for a central station, the combination with the switches arranged in the line wires of the subscribers, of plugs having two contact parts insulated from each other and adapted to be inserted in the switches, two fixed guides in circuit with said subscribers' wires, two movable contacts insulated from each other, adapted to move in contact with said fixed guides, electrical connections between said movable contacts and the two contact portions of said plug respectively, and spring devices to keep said movable contacts in constant electrical connection with said guides when moving therein.

5. In a telephone switch board device for a central station, the combination with the switches arranged in the line wires of the subscribers, of plugs having two contact parts insulated from each other and adapted to be inserted in the switches, two fixed guides in circuit with said subscribers' wires, two movable contacts insulated from each other, and provided with spring contact surfaces adapted to move in contact with said fixed guides, and electrical connections between said movable contacts and the two contact portions of said plug respectively.

6. Two vertical or upright guides formed like a split tube and insulated from each other and also in electrical connection with the subscribers' circuits, in combination with a heavy slide moving within the guides and having two contacts working in electrical connection with the guides respectively, and a switch plug having two contacts of the plug respectively with the contacts of the slide.

7. Two parallel insulated guides arranged in an upright position, two contacts guided thereby and respectively connected with each of said guides, a two contact switch plug, connecting flexible conductors connecting the two contacts of the plug respectively with those guided by the guides, and line wires from the subscriber connecting with the insulated guides.

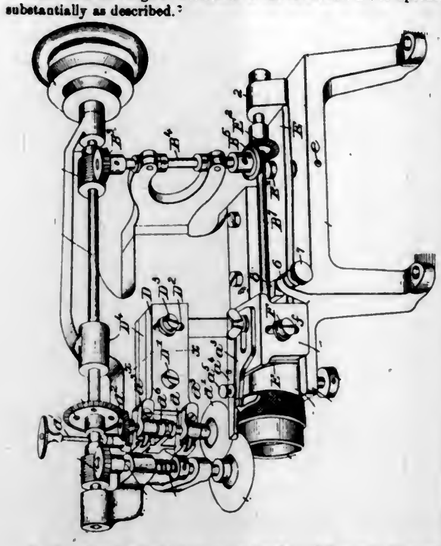
518,774. SKIVING-MACHINE. CHARLES H. BAYLEY, Boston, Mass. Filed Nov. 4, 1893. Serial No. 489,976. (No model.)

Claim.—1. In a skiving machine, the combination with a cutter to skive the material, of a rotating work-supporting or feeding wheel, its shaft, and a yoke or frame therefor, and adjusting devices to adjust said yoke or frame toward and from said cutter and in a plane parallel with the plane of said cutter, substantially as described.

2. In a skiving machine, the following instrumentalities, viz.:—a skiving cutter, a disk-like presser or clamp, means to rotate it, a work-supporting and feeding wheel, a movable yoke or frame supporting said wheel, and devices to effect the adjustment of said wheel toward and from and in a plane parallel with the plane of said cutter, for the purposes set forth.

3. In a skiving machine, the following instrumentalities, viz:—a skiving cutter, a disk-like presser or clamp, means to rotate it, a work-supporting and feeding wheel, a movable yoke or frame supporting said wheel, devices to effect the adjustment of said wheel toward and from said cutter, and a guide and spring to co-operate with the edge of the material resting on said wheel and under said spring, said guide and spring following the wheel in its adjustments, substantially as described.

4. In a skiving machine, the main shaft; the cutter shaft, connecting gearing between them, a disk cutter; a work-supporting and feeding wheel; its shaft, a pivoted yoke for said shaft, a gear on the shaft carrying the work-supporting and feeding wheel, and a shaft, as B^4, and gears between it and the main shaft and between it and the shaft carrying the said work-supporting and feeding wheel, the pivotal point of the yoke or frame in which the shaft carrying the work-supporting or feeding wheel is mounted being substantially coincident with the longitudinal center of the said shaft B^4, to operate, substantially as described.



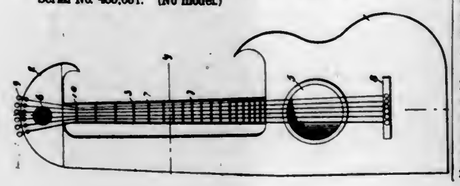
5. In a skiving machine, a cutter shaft, a disk cutter mounted thereon, a shaft B^4, means to rotate it and the said cutter shaft, a gear on said shaft B^4, a yoke or frame having its pivotal point substantially coincident with the center of rotation of said shaft B^4, a shaft as B^7 mounted in said yoke or frame and provided with a gear, as E^3, and with a work-supporting or feeding wheel; devices to adjust said yoke or frame about said pivot; and a stand, and a gage thereon, said stand being connected to and movable with said frame or yoke, to operate, substantially as described.

6. In a skiving machine, the following instrumentalities, viz: a work supporting and feeding wheel, a rotating skiving cutter, bearings for the same and a carrier for the said cutter and its bearings, said carrier being adjustable longitudinally with relation to said work-supporting and feeding wheel, substantially as described.

7. In a skiving machine, the following instrumentalities, viz:—a frame; a work-supporting and feeding wheel; a carrier mounted in said frame and adjustable longitudinally with relation to said work-supporting and feeding wheel; a block pivoted to said carrier; bearings thereon, a cutter, and its shaft journaled in said bearings, substantially as described.

8. In a skiving machine the following instrumentalities, viz:—a rotating work-supporting or feeding wheel, its shaft, a rotating cutter to skive the material, its shaft, an actuating shaft connected with and to rotate said cutter shaft, bearings for the said cutter and actuating shafts to maintain the same always in fixed relative position, and means to vary the relative position of the said cutter and work-supporting or feeding wheel, whereby the said cutter is caused to stand in a position nearer to or farther from said wheel without changing the plane of said cutter, substantially as described.

518,775. MUSICAL INSTRUMENT. JOHN B. BIRRER, Newton, Kans., assignor to Charles W. Chase, same place. Filed Sept. 7, 1893. Serial No. 485,031. (No model.)

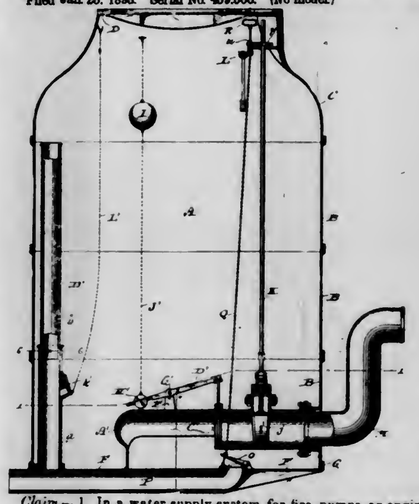


Claim.—1. A musical instrument having a hollow body, a hollow head, and a lateral hollow chamber connecting said body and head, substantially as set forth.

2. A musical instrument having a hollow body, a hollow head, a lateral hollow chamber connecting said body and head, a neck connecting said head and body and having a series of frets located exclusively on said neck, substantially as set forth.

3. A musical instrument comprising a hollow body 1 having a square corner at one end thereof, a head 2 also hollow, a hollow lateral chamber 4 connecting the body and head, a neck connecting the body and head and located to one side of the chamber 4, frets located exclusively on the neck, sounding holes 2 and 5, strings passing from the body to the top of the head and over the sounding holes 2 and 5, a toothed ridge or nut near the top of the neck over which the strings pass, the head being inclined or beveled from its juncture with the neck to the top of the instrument, substantially as set forth.

518,776. WATER-SUPPLY SYSTEM FOR FIRE PUMPS OR ENGINES. HENRY C. CAMPBELL, ISABELLA CAMPBELL, and MINNIE A. MILLARD, executors of Gardiner Campbell, deceased, and GEORGE G. CAMPBELL, Milwaukee, Wis.; said executors of said Gardiner Campbell assignors to George G. Campbell and Henry E. Campbell, same place. Filed Jan. 23, 1893. Serial No. 459,500. (No model.)



Claim.—1. In a water supply system for fire pumps or engines the combination of a water reservoir A, inlet hand actuated water controlling valve J, vertical valve rod K, communicating from said hand valve J to the mouth of said reservoir, outlet duct B' communicating from near the top of said reservoir with the exterior and drain-pipe P provided with valve O and operating chain Q, substantially as and for the purpose set forth.

2. In a water supply system for fire pumps or engines the combination of the water reservoir A, inlet water controlling valve J, outlet duct or pipe B', S-shaped inlet duct H, drain pipe P provided with valve O, and operating chain Q, substantially as and for the purpose specified.

3. In a water supply system for fire pumps or engines the combination with a water reservoir provided with inlet duct and water controlling valve and an outlet duct for the escape of surplus water of a cap or shield A', and a secondary float actuated valve located between said water controlling valve and said cap or shield, substantially as and for the purpose specified.

4. In a water supply system for fire engines or pumps the combination with a water reservoir provided with inlet duct and water controlling valve and an outlet duct for the escape of surplus water, of a secondary float actuated valve C' centrally pivoted valve supporting lever D' counter-weight H' operating chain J' communicating from said pivoted lever D' to an actuating float I' all substantially as and for the purposes specified.

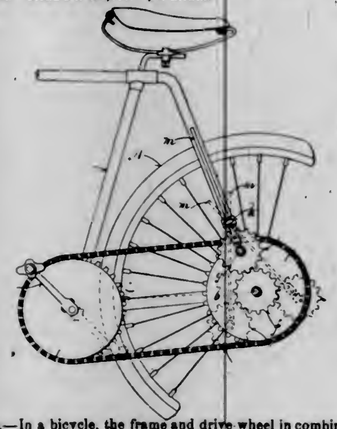
5. In a water supply system for fire pumps or engines the combination of the water reservoir A provided with inlet and outlet ducts, water controlling valves and an over flow discharge pipe or duct of the drain duct P communicating from the bottom of the reservoir with the exterior, valve O and valve operating chain Q connecting from said valve to the mouth of said reservoir, substantially as set forth.

6. In a water supply system for fire pumps or engines the combination of the valve rod K, ratchet wheel M, pawl N, operating chain Q, handle R provided with a supporting collar U; supporting bracket T provided with recess S for the reception of said handle, said pawl N being adapted to simultaneously engage said collar U, and hold said handle and said ratchet wheel and to be disengaged from said collar and handle by the action of said ratchet wheel, substantially as and for the purpose set forth.

7. In a water supply system for fire pumps or engines the combination with the water reservoir A provided with inlet duct and with water controlling valve located near the bottom of said reservoir of an over-flow pipe B' provided with a valve K' located above the level of said inlet ducts, said inlet and outlet valves being adapted to be so relatively adjusted as to maintain a constant flow of water at a uniform height near the bottom of said reservoir substantially as and for the purposes specified.

8. In a water supply system for fire pumps or engines the combination with the inlet water controlling valve J and the inclosing water reservoir A of the cap or shield A' located above and extending downwardly in front of and partially around the sides of the discharge duct of said valve and adapted to check the surging motion of the water as it is discharged into said reservoir substantially as and for the purposes specified.

518,777. BICYCLE. CHARLES H. CASE, Lynn, Mass. Filed Jan. 6, 1894. Serial No. 496,890. (No model.)



Claim.—In a bicycle, the frame and drive wheel in combination with a sprocket journaled on said frame, a sprocket of like diameter loose on the axle of the drive-wheel; a chain connecting said sprockets; a gear fast on said axle; a stub-shaft adjacent the periphery of said loose sprocket; a gear of like diameter with the axle gear journaled on said stub-shaft and meshing with said axle-gear; a guide rod fast to said sprocket-gear and restrained by a connection with the frame.

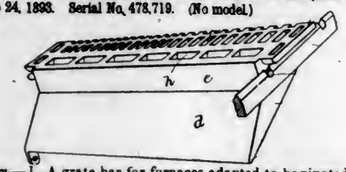
518,778. COMBINED DESK AND TYPE-WRITER CABINET. ALBERT B. DICK, Chicago, Ill., assignor to the A. B. Dick Company, same place. Filed Dec. 19, 1892. Serial No. 455,585. (No model.)



Claim.—1. A combined desk and writing machine cabinet having a desk portion and a writing machine compartment at or near one end of said cabinet provided with a platform for supporting a writing machine, said machine being movable into and out of said compartment in the same plane, substantially as described.

2. A combined desk and writing machine cabinet having a desk portion and an L-shaped writing machine compartment provided with a platform for supporting a writing machine, said machine being movable into and out of said compartment in the same plane, substantially as described.

518,779. SHAKING AND DUMPING GRATE. WILLIAM FITZGERALD, Everett, Mass., assignor of three-fourths to William E. Fitzgerald, John J. Fitzgerald, and Helen M. Fitzgerald, same place. Filed June 24, 1893. Serial No. 478,719. (No model.)

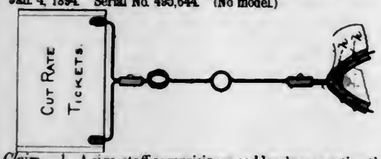


Claim.—1. A grate bar for furnaces adapted to be pivoted at its ends, having a front wall inclined rearwardly and upwardly at its lower part and having its upper part vertical, and a rearward wall beginning substantially at the lower edge of its front wall and running rearwardly and upwardly, and vertically extending flues formed through the bar to the rear of the vertical part of the front wall, as set forth.

2. A grate bar for furnaces provided at its ends with flue-provided flanges and pivots or trunnions beyond the ends of said flanges and supporting bars upon which said grate bar is pivoted, and upon which said flanges bear said supporting bars having substantially sharp upper edges and inclined sides, as set forth.

3. A grate for furnaces, &c., consisting of a series of bars arranged side by side and pivoted at their ends, each bar having a front wall inclined rearwardly and upwardly at its lower part and having its upper part vertical, and a rearward wall beginning substantially at the lower edge of its front wall and running rearwardly and upwardly, and vertically extending flues formed through the part to the rear of the vertical part of the front wall, as set forth.

518,780. SIGN-STAFF. GEORGE O. FOGG, Boston, Mass. Filed Jan. 4, 1894. Serial No. 495,644. (No model.)



Claim.—1. A sign-staff comprising a rod having a portion thereof coiled to form a spring, substantially as and for the purpose set forth.

2. A sign staff having portions thereof coiled to form two springs arranged at an angle to each other, substantially as described.

3. The combination with the staff, C, coiled to form the springs f, f^3, arranged at an angle to each other, of a forked base-support provided with a socket in which said staff is detachably secured; a socket on the upper end of said staff; and a sign bracket detachably secured in said socket.

518,781. ELECTRIC OPERATING MECHANISM FOR VEHICLES. LOUIS E. FREEDLEY, Boston, Mass. Filed Dec. 29, 1893. Serial No. 495,026. (No model.)

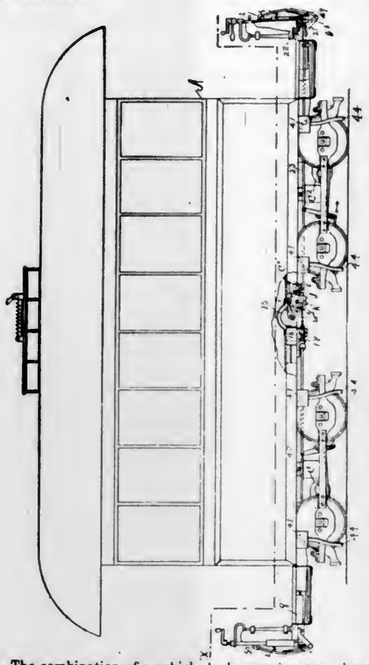
Claim.—1. The combination of a vehicle body, running gear therefor, a driving electric motor connected with said running gear, a brake mechanism comprising a brake shoe for operating against a wheel of said running gear, a supplemental motor connected with said brake mechanism, electric conductors connected with said motors, mechanism for switching the current alternately into the driving and supplemental motors, mechanism operative from the vehicle body for moving the switch mechanism, and automatic mechanism for breaking the current when the brakes become set, substantially as described.

2. The combination of a vehicle body, running gear therefor, a driving electric motor connected with said running gear, an electric circuit therefor, cut outs therein, a brake mechanism comprising a brake shoe for operating against a wheel of said running gear, a supplemental motor connected with said brake mechanism, a shunt circuit therefor, an electric switch, a spring plunger on the vehicle platform, a bar operated by said plunger and connecting said switch and cut outs to pass the current alternately into the driving and supplemental motors, substantially as described.

3. The combination of a vehicle body, running gear therefor, a driving electric motor connected with said running gear, an electric circuit for said driving motor, a brake mechanism comprising a brake shoe for operating against a wheel of said running gear, a supplemental motor connected with said brake mechanism, a shunt circuit for said supplemental motor, a switch common to both circuits, cut outs for breaking the driving circuit, bars connected at their inner ends with said switch, each bar being connected also with one of said cut outs, and actuators at each end of the car for operating said bars to switch

the current alternately into the driving and supplemental motors, substantially as described.

4. The combination of the vehicle body, running gear therefor, a brake mechanism, an electric motor for setting said brake mechanism, an electric circuit passing through said motor, and automatic mechanism for breaking the circuit when the brake becomes set, substantially as described.



5. The combination of a vehicle body, running gear therefor, a brake mechanism comprising a brake for operating against a wheel of said running gear, an electric motor, a rotary winding shaft operated by said motor, a chain connecting said shaft with the brake mechanism, an electric circuit connected with said motor, an electric switch in said circuit, means for operating said motor, and a flexible strap longer than said brake chain connecting said winding shaft with said switch for automatically breaking the circuit when the brake becomes set, substantially as described.

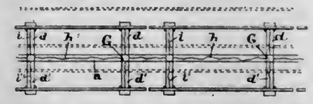
6. The combination of a vehicle body, running gear therefor, a brake mechanism thereon, the shaft, the chain connecting the same with a bar for said brake mechanism, the supplemental motor geared to said shaft, means for shunting the electric current from the drive motor to said supplemental motor, whereby said shaft may be rotated to set the brake, and automatic mechanism for breaking said current when the brake becomes set, substantially as described.

7. The combination of a vehicle body, running gear therefor, a brake mechanism thereon, a switch interposed in the circuit of the drive motor of said vehicle, the supplemental motor having its conducting wires tapping said circuit and connecting with a post of said switch, the rotary winding shaft geared to said supplemental motor, the brake mechanism, a chain connecting a bar of said brake mechanism with said winding shaft, mechanism for operating said switch from the vehicle platform, whereby the current may be shunted to said supplemental motor, and means for connecting said winding shaft with the tongue of said switch, whereby said circuit may be automatically broken, substantially as described.

8. The combination of a vehicle body, running gear therefor, a driving electric motor connected with said running gear, a brake mechanism comprising a brake shoe for operating against a wheel of said running gear, a supplemental motor connected with said brake mechanism, electric conductors connected with said motors, mechanism for switching the current alternately into the driving and supplemental motors, and automatic mechanism for breaking the circuit when the brake becomes set, substantially as described.

9. The combination of a vehicle body, running gear therefor, a brake mechanism thereon, the shaft, the chain connecting the same with a bar of said brake mechanism the supplemental motor geared to said shaft, means for shunting the electric current from the driving motor to said supplemental motor, whereby said shaft may be rotated to set the brake, mechanism for automatically breaking said current, and mechanism for freeing the brake after the same has been set, substantially as described.

518,782. DISTRIBUTION SYSTEM FOR ELECTRIC RAILWAYS. JAMES E. GOODHAND, Baltimore, Md. Filed Jan. 20, 1894. Serial No. 497,474. (No model.)

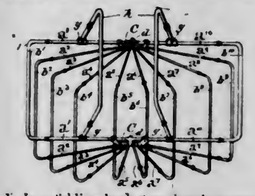


Claim.—1. In a conduit electric railway, the combination of the feeder and working conduits; branch conduits arranged transversely to and connecting the feeder and working conduits; feeder wires in the feeder conduit, electrical conductors arranged in sections in the working conduits; a connecting block at the intersection of the branch and feeder conduits; and branch wires connecting the feeder wire with the working conductor.

2. In a conduit electric railway, the combination of the feeder and working conduits; branch conduits arranged transversely to and connecting the feeder and working conduits; feeder wires in the feeder conduit; a connecting block at the intersection of the branch and feeder conduits; a union or junction box inclosing said connecting blocks and provided with insulated plugs; and branch wires passing through the plugs in the union box and connecting the feeder wire and working conductors.

3. In a conduit electric railway, the combination of the feeder and working conduits; branch conduits arranged transversely to and connecting the feeder and working conduits; a spring-returned electrical contact making device at each end of the branch conduits; electrical conductors arranged in sections in the working conduits and resting upon the spring returned contact devices; feeder wires in the feeder conduit; a connecting block at the intersection of the branch and feeder conduits; and branch feeder wires connecting the connecting block and spring-returned contact device.

518,783. FOLDING BASKET. EMILY M. HUDGIN, Cincinnati, Ohio. Filed Aug. 28, 1893. Serial No. 484,256. (No model.)



Claim.—1. In a folding basket or hand-receptacle, in combination with two opposite center-pieces, a series of yoke-shaped braces independently pivoted thereto and adapted to fold together in adjacent parallel cross planes, substantially as set forth.

2. In a folding basket or hand-receptacle, a skeleton-frame consisting of a plurality of yoke-shaped braces, each independently pivoted to two opposite center-pieces and adapted to fold together in adjacent parallel cross-planes,—each arm of each brace being hinged to its yoke-portion so that when thus brought together the hinges at opposite sides are in a common axis, adapting the stems to fold inward as a body, substantially as set forth.

3. The combination, in a folding basket or hand-receptacle, of opposite center-pieces, a plurality of yoke-shaped braces independently pivoted thereto in adjacent relations, to swing outward; and catches at each side adapted to engage the inner ends of the two outer braces of the series, and retain them connected with the center-pieces, substantially as set forth.

4. In a folding basket or receptacle the combination of the yoke-shaped braces; the center-pieces consisting of the opposite plates with pins or rivets extending through and between them as pivots for the braces; and the spring catches adapted to project a hood over the joint formed by the abutting ends of the outer braces of the series, substantially as set forth.

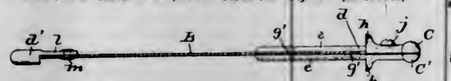
5. In a folding basket or hand-receptacle, the combination of the described system of folding braces, the center-pieces to which they are pivotally attached, and the yoke-handles pivoted to the outer braces between the center pieces and the yoke-bows so as to fold downward with said braces, and when in use, aid in keeping the receptacle in proper distended position.

518,784. PLASTER. THOMAS JONES, Chicago, Ill. Filed Sept. 19, 1892. Serial No. 446,272. (No specimens.)

Claim.—1. As a composition of matter, a compound for plastering in the form of a powder and containing over calcined gypsum, sulphate of alumina, sulphate of potash, silicate of potash and free silica in a finely divided condition, in substantially the proportions herein stated.

2. The herein-described process for the production of plaster, consisting in calcining clay, boiling it with sulphuric acid, adding potash thereto and mixing therewith over-calcined gypsum in about the proportions stated.

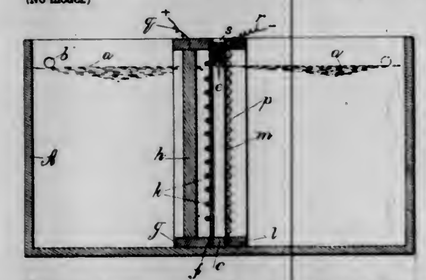
518,785. DAMPER FOR PIPES. LOUIS T. LENDERKING, Baltimore, Md. Filed Jan. 27, 1894. Serial No. 498,178. (No model.)



Claim.—1. The combination of a damper plate, and a handle and journal combined consisting of two pieces or halves, C, C', each having a shank—said shanks taking on opposite sides of the plate—one shank being provided with a groove and the other with pins, *g*, which pass through the damper plate, and a screw, *j*, securing the said two pieces or halves together.

2. The combination of a damper plate, a handle and journal combined consisting of two pieces or halves, C, C', each having a shank—said shanks taking on opposite sides of the plate—one shank being provided with a groove and the other with pins, *g*, which pass through the damper plate, a screw, *j*, securing the said two pieces or halves together, and a journal, *d'*, diametrically opposite the handle, having a flange, *l*, secured to the disk, as set forth.

518,786. DIAPHRAGM FOR ELECTROLYTIC CELLS. ERNEST A. LE SUEUR, Ottawa, Canada. Filed Aug. 29, 1892. Serial No. 444,488. (No model.)



Claim.—1. An electrolytic cell having in combination with the diaphragm thereof a pervious sheet or layer interposed between said diaphragm and the electrode of the cell, and separated from said diaphragm by a space forming a chamber containing liquid under greater relative pressure than the liquid in the adjacent compartment of the cell, whereby the movement of the liquid in the cell due to the said greater pressure will be from said diaphragm and through the pervious sheet or layer, substantially as set forth.

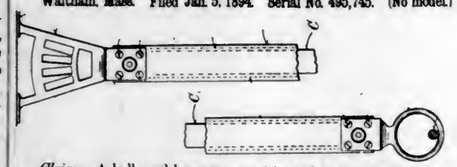
2. In an electrolytic cell, the combination with the diaphragm of a sheet or layer separated from said diaphragm and interposed between the same and the electrode of the cell, and suitable frames for preventing said diaphragm and said pervious sheet from bulging under the pressure of the liquid, all substantially as described, and whereby the level of the liquid in the space between the diaphragm and the pervious sheet may be maintained at a higher level than the level of the liquid in the compartment of the cell, substantially as set forth.

3. The combination with the cell A provided with a suitable overflow *b*, of the frame *c* provided with holes *e*, the diaphragm *m* and pervious sheet *f* at opposite sides of the frame *c* and the side frames *g l*, for the electrodes, placed respectively beside the said pervious sheet and the diaphragm substantially as shown and described.

4. The combination with the frame *c* of the pervious layer *f* at one side thereof and the frame *g* and rods *k*, at the side of the pervious layer substantially as shown and described.

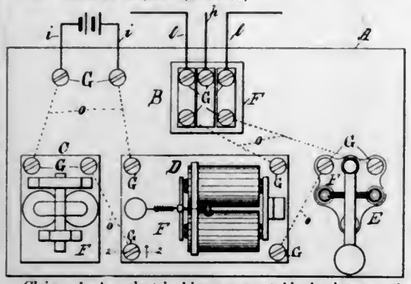
5. The method of protecting the diaphragm of an electrolytic cell, which consists in first producing a diaphragm wall or layer of fluid between the said diaphragm and the contents of the cell adjacent to the said diaphragm, then occasioning pressure upon the fluid, and keeping the latter under pressure and thereby maintaining in the said fluid lateral pressure with tendency to lateral flow away from the diaphragm, substantially as described.

518,787. BELL-CORD HANGER FOR CARS. ALDIS H. MARDEN, Waltham, Mass. Filed Jan. 5, 1894. Serial No. 495,745. (No model.)



Claim.—A bell-cord hanger comprising a bracket attachable to the car top; the flat bar of spring metal, C, pendent from said bracket with its breadth arranged transversely of the car and a cord guide secured to the lower end of said bar.

518,788. ELECTRICAL-INSTRUMENT TABLE. JACOB F. MEHREN, Chicago, Ill., assignor to John P. Barrett, same place. Filed Feb. 7, 1893. Serial No. 461,339. (No model.)

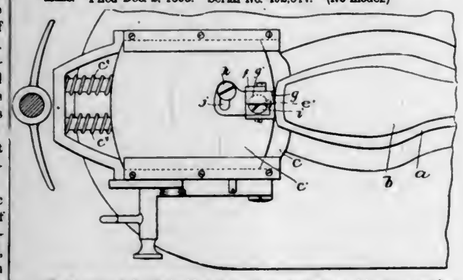


Claim.—1. An electrical-instrument table having at suitable points in its top conducting terminals interconnected by circuit-wires, in combination with a set of electrical instruments and withdrawable fasteners connecting the instrument-wires with said terminals and engaging said instruments to fasten them to the table against separation therefrom, substantially as and for the purpose set forth.

2. An electrical-instrument table having at suitable points in its top the metallic studs provided with threaded sockets in their upper end and interconnected by conducting wires, in combination with a set of electrical instruments on bases having the metallic bushings with which the instrument-wires are connected and which correspond with said studs, and screws passing through said bushings into the threaded sockets of the studs, thereby fastening the instruments on the table and closing the circuit of the said interconnecting wires, substantially as and for the purpose set forth.

3. An electrical instrument table having at suitable points in its top the metallic studs provided with threaded sockets in their upper ends and interconnected by conducting wires, the table being provided in its under side with grooves containing said wires and in which they are sealed, in combination with a set of electrical instruments on bases having the metallic bushings with which the instrument-wires are connected and which correspond with said studs, and screws passing through said bushings into the threaded sockets of the studs, thereby fastening the instruments on the table and closing the circuit of the said interconnecting wires, substantially as and for the purpose set forth.

518,789. KNIFE-HOLDER FOR SOLE-ROUNDING MACHINES. AUSTIN E. PERRY, Wakefield, assignor to George H. P. Flagg, Boston, Mass. Filed Dec. 2, 1893. Serial No. 492,617. (No model.)

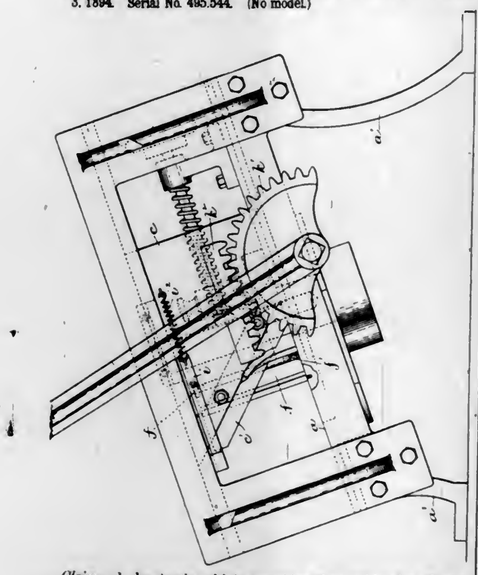


Claim.—1. A knife-holder for sole-rounding machines, comprising in its construction a base having a stud or pivot whereby it may

be pivotally connected to the carriage of the machine, a top-plate having means for holding the knife and mounted adjustably on the base so that the knife may be adjusted in the direction of its cutting movement to compensate for wear of its cutting edge, and means for positively securing the top-plate to the base in any position to which it may be adjusted.

2. A knife-holder for sole-rounding machines, comprising in its construction a base having a stud or pivot whereby it may be pivotally connected to the carriage, a top-plate having means for holding the knife and pivoted to the base at a point back of the cutting edges of the knife so that a movement of the top-plate on its pivot will cause an adjustment of the knife substantially in the direction of its cutting movement, and a clamping-screw engaged with the base-plate and passing through a segmental slot in the top plate, whereby the latter may be positively secured in any position to which it may be adjusted.

518,790. LEATHER-SKIVING MACHINE. AUSTIN E. PERRY, Wakefield, assignor to George H. P. Flagg, Boston, Mass. Filed Jan. 3, 1894. Serial No. 495,544. (No model.)



Claim.—1. In a leather skiving machine, the combination of a supporting bed or table, a knife carriage movable in guides or ways thereon and provided with a trimming knife, a work rest adjustable in the arc of a circle on said table and having a shearing edge coinciding with the path of the knife, a gage pivotally connected to said rest and formed to project, when in its operative position, across said shearing edge, and a spring-pressed gage-controlling slide movable with and independently of the knife carriage and adapted to move the gage in its operative position when the knife is being retracted, as set forth.

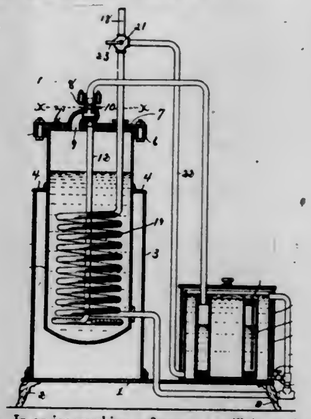
2. In a leather skiving machine, the combination of a supporting bed or table, a knife carriage movable in guides or ways thereon and provided with a trimming knife, a work rest adjustable in the arc of a circle on said table and having a shearing edge coinciding with the path of the knife, a gage which is pivotally connected with the rest and projects across said shearing edge when in its operative position, and a slide movable with the knife carriage and having an elongated finger formed to engage a projection on the gage and draw the latter to its operative position when the knife is being retracted, said slide being yieldingly connected with the knife so that it may yield during the backward movement of the knife after bringing the gage to its operative position, as set forth.

3. In a leather skiving machine, the combination of an inclined bed or table, having guides or ways, a knife carriage and knife movable in said guides, a work rest adjustable in the arc of a circle on said table and having an inclined shearing edge standing at right angles with the table, a gage pivotally connected with the said rest and formed to project over said shearing edge when in its operative position, the inclination of said edge causing the gage to normally swing away from its operative position by gravitation, and a slide movable with the knife carriage and having an elongated finger formed to bear on a projection on the gage and draw the latter to its operative position when the knife is being retracted, said finger releasing the gage when the knife is moved forward, as set forth.

4. In a leather skiving machine, the combination of a supporting bed or table, a knife carriage movable in guides or ways thereon and provided with a trimming knife, a work rest adjustable in the arc of a circle on said table and having a shearing edge coinciding with the path of the knife, a clamp movable toward and from said rest in guides beside the path of a knife, a rod affixed to said clamp and passing through a fixed ear or guide, the rear end of said rod being screw threaded, a spring on said rod interposed between the said clamp and guide and adapted to press the clamp toward the rest, and an adjustable nut or head engaged with the threaded end of the rod and adapted to regulate the forward movement of the clamp, said nut or head being arranged to project into the path of the knife carriage, so that the retracting movement of said carriage also retracts the clamp, as set forth.

5. In a leather skiving machine, the combination of the table having the concentric slots d^7 d^{10}, the block d^8 engaged as described with said slots, and the work rest having a shearing edge and detachably connected with said block, substantially as set forth.

518,791. APPARATUS FOR MANUFACTURING ICE AND FOR REFRIGERATING. JOSEPH SCHEUERECKER, Indianapolis, Ind., assignor of seven-eighths to W. A. Miles and O. H. Perry, Columbus, Ohio, E. E. Perry, Indianapolis, Ind., and John W. Hahn, Toledo, Ohio. Filed Nov. 5, 1892. Serial No. 451,040. (No model.)



Claim.—In an ice machine and furnace, a still located therein, a cover for said still, a casing arranged in the cover, a multiplex cock arranged in the casing, a water tank, a cooling receptacle or condenser located in said water tank, a pipe leading from the casing to the cooling receptacle, a pipe leading into the still and coiled and perforated at the bottom, a water pipe passing through the still and coiled about the perforated pipe, an over flow or discharge pipe leading from the water tank and communicating with the water pipe after passing through the still, and a water pipe leading into the water tank.

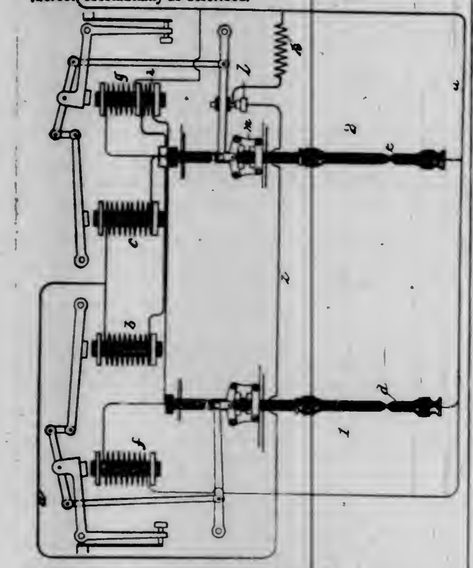
518,792. DUPLEX ARC LAMP. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Dec. 10, 1890. Renewed Oct. 16, 1891. Serial No. 408,863. (No model.)

Claim.—1. The combination with a pair of electric arc lamps, of the lifting magnets and carbons thereof placed in series multiple, the fine wire coil of the feeding magnet of each lamp being each in a different shunt around the carbons of both lamps and an extra coil upon the feeding magnet of one lamp wound to oppose the fine wire coil thereof, said extra coil being included in circuit with the carbons of the other lamp, whereby one lamp is caused to burn after the other, substantially as and for the purpose specified.

2. The combination with the lifting magnets and carbons of two lamps placed in series multiple, of the feeding magnets of the two lamps each included in a different shunt around the carbons of both lamps and a loop connected between the feeding magnet and carbons of one of the lamps which includes turns of wire upon the core of the feeding magnet of the other lamp wound to oppose the fine wire coil upon the same core, substantially as and for the purpose specified.

3. The combination with two arc lamps each included in one branch of a divided circuit, of an electro magnet in shunt of the carbons in each lamp, regulating mechanism for each lamp controlled by the shunt magnets respectively thereof, and a helix included in

the branch with one lamp and adapted to act upon the regulating mechanism of the other lamp in opposition to the shunt magnet thereof, substantially as described.



518,793. LIGHTNING-ROD AND COUPLING. JOHN W. SMITH, Galesburg, Ill. Filed Jan. 6, 1893. Serial No. 457,512. (No model.)



Claim.—1. A lightning rod, comprising sections of rod formed of a core of steel, or iron, or other suitable metal, having an enveloping tube of copper, or other metal of superior conducting power, said sections of rods having conical or tapered ends which extend well on to the copper envelope; and a sleeve of copper or other metal having superior conducting power, and provided with socketed ends having a conformity of outline with the conical ends of the rod sections, and extending on to and over the tapered or conical-shaped part of the copper enveloping tube whereby there may be an extended surface contact of the copper of the sleeve and rod section, and thereby an adaptation of structure to function, substantially as described.

2. A lightning rod, comprising sections of rod A, formed of a core A′, and enveloping tube A^3, and having tapered or conical screw threaded ends *a*; and coupling sleeve B, with socketed screw threaded ends having a conformity of outline with the conical ends of the sections A of rod, and which seat snugly upon and well on to the conical or tapering ends of the enveloping tube A^3, substantially as described.

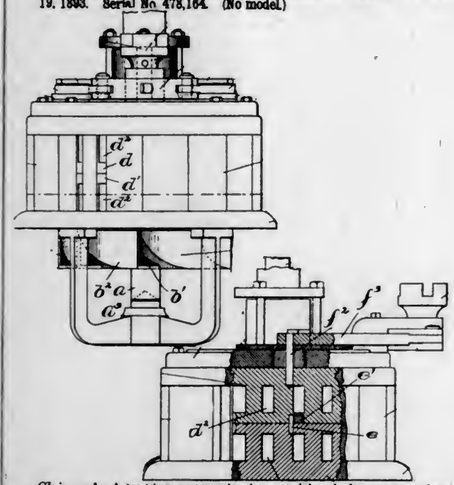
518,794. LIQUID-FUEL FURNACE. ERWIN S. SPERRY, Bridgeport, Conn., assignor, by mesne assignments, to the Waldo Foundry, of New Jersey. Filed Sept. 6, 1893. Serial No. 484,915. (No model.)



Claim.—1. In a liquid fuel furnace, substantially inclosed within an opening in the furnace wall, a burner consisting of an open, substantially trough shaped tray having on its front and rear edges ledges raised above the level of the lateral or end edges of the tray, and projecting beyond the same, said tray being also constructed with downwardly extending lips attached to the projecting edges at their extremities, and forming therewith and with the ends of the tray ducts or conduits for the overflowing fuel, and in combination therewith and below the burner, a suitable open receptacle to receive the overflowing fuel, substantially as and for the purposes set forth.

2. In a liquid fuel furnace the combination of two super-posed burners or fire bars substantially inclosed within an opening in the furnace wall and supported on ledges or projections attached to said wall, the upper and principal burner or fire bar consisting of an open substantially trough shaped tray having on its front and rear edges ledges raised above the lateral or end edges of the tray, and projecting beyond the same, said tray being also provided with downwardly extending lips attached to the projecting ledges at their extremities, and forming therewith and with the ends of the tray overflow ducts or conduits, and the lower or auxiliary burner consisting of an open substantially trough shaped tray of substantially the same width as the principal or upper burner, and long enough in either direction to extend below the ducts or conduits b^4 b^4 and to receive the fuel overflowing from the upper burner, substantially as shown and described.

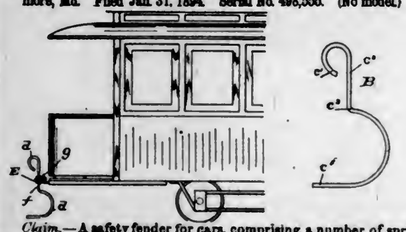
518,795. TURBINE WATER-WHEEL. JOHN H. STAPLES, Boston, assignor of one-half to Enoch Picoott, Somerville, Mass. Filed June 19, 1893. Serial No. 478,164. (No model.)



Claim.—1. A turbine water wheel comprising in its construction the wheel proper provided with buckets; an oscillatory gate controlling the entrance of water to said buckets and composed of two annular sections having interlocking parts in each other's paths of movement under oscillations of the gate, with a clearance for limited movement of one section independent of the other; and oscillating means connected with one of said sections.

2. A turbine water-wheel, comprising in its construction the wheel proper provided with buckets, an oscillatory gate controlling the entrance of water to said buckets and composed of two annular sections, one having a slot and the other a pin engaging said slot, and oscillating means connected with one section.

518,796. SAFETY CAR-FENDER. AUGUST W. STIEFEL, Baltimore, Md. Filed Jan. 31, 1894. Serial No. 498,555. (No model.)



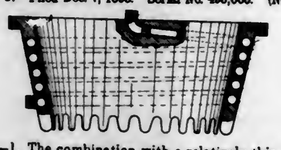
Claim.—A safety fender for cars, comprising a number of spring-metal arms each having at its upper part a forward down-curved pendent end, c', which forms a spring-buffer, below said spring buffer a vertical part, c^2, and at the lower end of said vertical part a rearward semi-circular curve; c^3, the lower part of which terminates in a horizontal forward-pointing end, c^4; in combination with a cross-bar, A, to which each spring-metal arm is secured by its said vertical part, c^2.

518,797. POCKET REGISTER AND INDICATOR. THOMAS STOCKER, St. Louis, Mo. Filed Mar. 20, 1893. Serial No. 466,814. (No model.)



Claim.—An improved pocket register and indicator, comprising a casing of a size to be carried in the pocket, and provided with a large dial and a series of small dials, the latter being located in a circle and all of such dials fixed to said casing, said large dial having a circumferential portion 8 which extends around it, and said circumferential portion provided with marks indicating the consecutive days of the week, a large pointer mounted above said dial, a shaft 17 upon which the large pointer is mounted, a horizontal bevel-gear-wheel 18 fixed upon said shaft, a bevel-gear-wheel 20 meshing with said bevel-gear-wheel 18, a horizontal shaft 21 located within said casing beneath said large dial and extending radially to a point adjacent the marginal edge of said casing, and upon the inner end of which the said bevel-gear-wheel 20 is fixed, a vertical ratchet-wheel 22 fixed upon the outer end of said shaft 21, a vertical push-pin 23 mounted in said casing so that its inner end may engage the teeth of said ratchet-wheel, a push-button mounted upon the outer end of said push-pin, a spring for retaining said push-pin at the limit of its outward movement, a series of small pointers mounted to rotate one above each of said small dials, and means for imparting movement to each of said small pointers independently of each other and of said large pointer, substantially as herein specified.

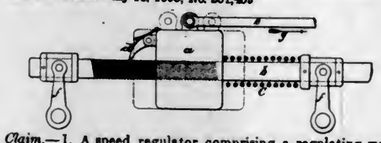
518,798. HEATING APPARATUS. ROLAND H. STUBBS, Waterford, N. Y. Filed Dec. 7, 1893. Serial No. 493,003. (No model.)



Claim.—1. The combination with a relatively thin flexible pipe, and a metal wall cast around the same, of relatively thick coupling-sections secured directly to the casting in communication with the respective terminals of the pipe, substantially as described.

2. In a fire-pot for heating apparatus, the combination with a relatively thin flexible pipe, and relatively thick coupling-sections severally contiguous to and communicating with the respective pipe-terminals, of a fire-wall cast upon and around the pipe and the contiguous communicating ends of the pipe and coupling-sections, substantially as described.

518,799. SPEED-REGULATOR. FREDERIC A. WEYHER, Pantin, France. Filed Jan. 15, 1894. Serial No. 496,944. (No model.) Patented in France July 11, 1893, No. 231,459



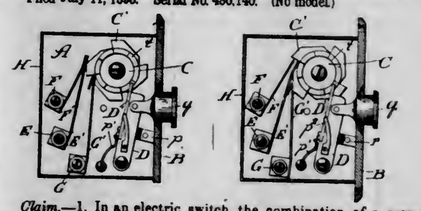
Claim.—1. A speed regulator comprising a regulating weight, two drivers therefor, one of the said drivers exerting a constant and adjustable force, the other exerting variable force, the said weight being connected with the regulating device (throttle or expansion valve) of a steam engine or other motor, the said weight producing on each driver reactions due to the inertia of the weight, thereby displacing itself and the two drivers, mechanism actuated by the engine or motor to be governed, to subject the second or variable driver to a displacement in the opposite direction to the first, all substantially as hereinbefore described.

2. A speed regulator or governor comprising a weight, a part having an oscillating motion imparted to it by the engine and adapted to push the weight in one direction, and to positively move the weight a certain distance in the other direction, in combination with a spring or counterweight tending to move the weight in the last named direction, all substantially as and for the purposes set forth.

3. In a speed regulator or governor the combination of a circular weight, bearings upon which the weight partakes of an oscillating movement, a drum inclosing the weight and adapted to be oscillated about a center, connections between the said drum and the weight whereby the said weight is pushed in one direction by one movement of the drum and turned a certain distance in the opposite direction by the other movement of the drum, with a spring or counter-weight and a lever actuated thereby and connections between the drum and the weight to which connections the said lever is pivoted, whereby the said pivoting point is changed by a change in the relative positions of the drum and weight, all substantially as set forth.

4. In a speed regulator or governor, the combination of a circular weight provided with teeth, bearings upon which the weight may oscillate, a drum inclosing the weight and adapted to be oscillated about a center by the engine to be governed, a worm shaft carried by the drum, a gear-wheel gearing with the said worm and provided with pawls to engage the teeth in the weight, with a spring or counterweight and a lever *v* actuated thereby, a lever *s* pivoted to the said drum and to which the lever *v* is pivoted and a lever *r* connected to the weight and to the lever *s*, all substantially as and for the purposes set forth.

518,800. ELECTRIC SWITCH. ERNST WOLTMANN, Chicago, Ill. Filed July 11, 1893. Serial No. 480,140. (No model.)



Claim.—1. In an electric switch, the combination of a rotary ratchet wheel provided with peripheral cams, a contact terminal, a second, resilient, contact terminal, normally out of engagement with the first named terminal, riding upon the said cams and actuated thereby, in successive predetermined partial rotations of the wheel, alternately to engage and separate from the said first named terminal, a push button, and spring pawl mechanism between the push button and ratchet wheel actuated by the push button in each operation thereof to engage and turn the wheel a said predetermined partial rotation, substantially as and for the purpose set forth.

2. In a multiple electric switch the combination of two branch-wire contact-terminals, a main resilient contact terminal, movable between said branch-wire terminals, a rotary cam of insulating material, against which said main terminal bears, operating in predetermined partial revolutions to produce movement of said main terminal, whereby in successive operations the main terminal engages and releases the respective branch terminals alternately, and means for actuating the cam, substantially as described.

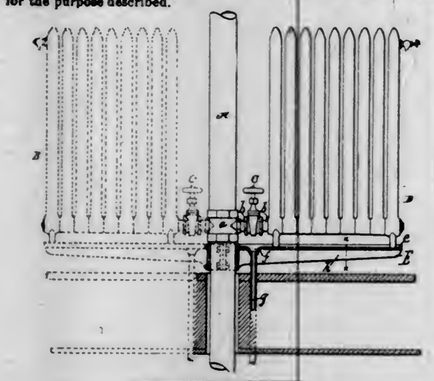
3. In an electric switch, the combination of a rotary wheel of insulating material formed with peripheral cams and a crown ratch, a contact terminal, a second, resilient, contact terminal riding upon the said cams and actuated thereby in successive partial rotations of the wheel, alternately to engage and separate from the said first named terminal, a pawl engaging the said ratch and means for actuating the pawl to rotate the wheel a partial revolution with each operation, substantially as and for the purpose set forth.

4. In a multiple electric switch, the combination of a rotary wheel of insulating material formed with peripheral cams, a push-button for actuating said wheel to rotate a partial revolution with each operation, a contact terminal, F′, a resilient, contact terminal E′ riding upon the said cams and normally out of contact with the terminal F′, a contact terminal G′ with which the terminal E′ tends normally to contact, the cam wheel operating in every second partial rotation to move the terminal E′ into contact with the terminal F′, and in every second intermediate partial revolution to release the terminal E′, whereby it springs to the terminal G′, substantially as and for the purpose set forth.

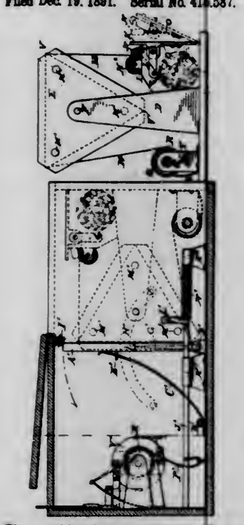
518,801. ATTACHMENT FOR RADIATORS. WILLIAM J. BALDWIN, Brooklyn, N. Y. Filed Sept. 7, 1893. Serial No. 485,037. (No model.)

Claim.—1. The combination with a steam rising line, of a clamp fixed thereon and moving therewith, a platform secured to said clamp, and a radiator set freely on said platform so as to be adapted to move laterally over the surface thereof and also being operatively connected with the said steam rising line, substantially as and for the purpose described.

2. A platform for radiators adapted to be fixed on a steam pipe and forming a safe and support for the radiator substantially as and for the purpose described.



518,802. ROLL-HOLDER CAMERA. ERASTUS B. BARKER, Newark, N. J. Filed Dec. 19, 1891. Serial No. 415,587. (No model.)



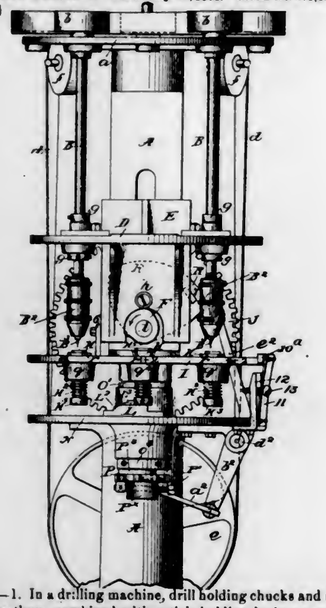
Claim.—1. The combination in a camera of means to support a roll of sensitive film and a rotatable film feeding and supporting frame having flat sides, both of said devices being attached to a movable portion of the camera, so that they may be removed from its interior, a roll or shaft, operated by a key from the outside of the camera, a sliding bar connected with the shutter and pins upon the rotatable feeding and supporting frame, which engage with said sliding bar, substantially as set forth.

2. The combination in a camera of means to support a roll of sensitive film, a friction device to retard the movement of the film, a rotatable film supporting frame having flat sides, a roll or bar operated by a key from the outside of the camera, a frame pivoted to the camera, and which extends transversely across it in front of said film supporting frame, adapted to rest against said film supporting frame and be oscillated by it during its revolution, springs which press it against the film supporting frame, a gusseted bellows-like device, connecting the frame and the sides of the camera, and a shutter, substantially as set forth.

3. The combination in a camera of a rotatable film supporting frame having flat sides, a movable frame which extends transversely across the camera, located in front of said film supporting frame, and resting against it, springs which press it against the film supporting frame, means to exclude the light attached to the movable frame and to the sides of the camera adjacent to it, a sliding bar connected with the shutter mechanism at one end, a retractile spring therefor and pins upon the rotatable film supporting frame, which engage said sliding bar during its rotation, and a shutter, substantially as set forth.

4. The combination in a camera of a hinged rear portion of the camera box having mounted upon it supports for a roll of film, a spring actuated friction pad having a roller or bar in front of it, between which the film may pass, also a rotatable film supporting frame having flat sides, a bar or shaft adapted to take up the sensitive film after exposure operated by a key from the exterior of the camera, prick points upon the edges of the rotatable film supporting frame, a frame pivoted to the camera and extending transversely across it, provided with light excluding bellows-like device attached to it and to the camera, a spring which normally presses said frame against the rotatable film supporting frame and a shutter, substantially as set forth.

518,803. DRILLING-MACHINE. JOSEPH BÖHM and RUDOLPH BÖHM, New York, N. Y. Filed May 22, 1893. Serial No. 475,025. (No model.)



Claim.—1. In a drilling machine, drill holding chucks and means for actuating them, combined with article holding devices, a support for the latter, and means for adjusting one of said sets of devices laterally and eccentrically to the other, substantially as described.

2. In a drilling machine, drill holding chucks arranged in a circle and means for actuating them, combined with article holding devices arranged in a circle, a disk or plate carrying said devices, a pivot or spindle for said disk or plate, and an eccentrically adjustable bearing for said pivot or spindle, as and for the purpose specified.

3. In a drilling machine, drill holding chucks arranged in a circle and means for actuating them, combined with article holding devices arranged in a circle a disk or plate carrying them, means for adjusting said disk or plate eccentrically to the circle of said drill chucks, and an adjustable holder or dog for retaining the disk or plate in the operative position, substantially as described.

4. In a drilling machine a disk or plate adapted to hold chucks, a spindle for said disk, a bearing or sleeve O for said spindle, said bearing having a bore at one side of its longitudinal center to receive said spindle, a support for said bearing, and means for holding said bearing from turning in its support, substantially as described.

5. In a drilling machine, a rotative disk or plate having aperture *x*, a chuck or holding device within said aperture, said chuck having clamping jaws at its end, and a bore *s*, combined with an ejector within said chuck, means for moving said chuck sidewise, and an incline upon which said chuck can ride to raise it to open the jaws, and an incline upon which said ejector can ride to eject an article from the chuck after its jaws are open, substantially as described.

6. In a drilling machine, drill holding chucks, longitudinally movable spindles carrying them, means for turning said spindles, a bracket or support in which said spindles are journaled and a cam for actuating said bracket, said bracket being movable in one direction only, said chucks being arranged in a circle, combined with article holding devices also arranged in a circle that is eccentric to the circle of the drill chucks and means for carrying said article holding devices around in said circle, so that said devices will cross the circle of the drill chucks, and means for adjusting said article holding devices more or less eccentrically to said drill chucks substantially as described.

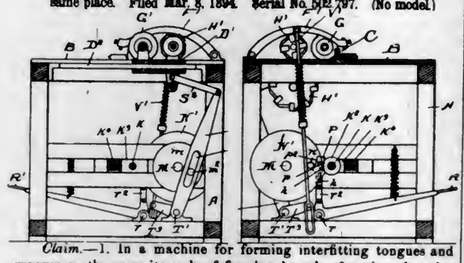
7. In a drilling machine, drill holding chucks arranged in a circle, means for rotating said chucks and means for raising and lowering said chucks, combined with article holding devices in line with said chucks and arranged in a circle eccentric to the circle of the drills, a disk or plate carrying said devices, and means for adjusting said disk or plate more or less eccentrically to said drills a cam and intermediate mechanism between said disk and cam for turning the former by the latter said cam being operated by and simultaneously with the mechanism that operates the drill chucks, whereby said disk is given an intermittent rotary motion, substantially as described.

8. In a drilling machine, the combination of drill holding chucks, a disk or plate arranged to carry said chucks, a spindle for said disk, a ratchet, pawl and lever connected with said spindle, crank b^3, connected with said lever, rock shaft d^3, crank c^3 and cam R, all arranged substantially as and for the purposes specified.

9. In a drilling machine, a rotative chuck-holding disk or plate, and means for changing its center of motion combined with an adjustable holding dog, a support for said dog, and means for actuating said dog to release said disk, substantially as described.

10. In a drilling machine, a rotative chuck holding disk or plate and means for changing its center of motion, combined with a holding dog 3, a slotted support 4, for said dog, screws for holding said support and means for actuating said dog, substantially as described.

518,804. MACHINE FOR MATCHING ENDS OF FLOORING-BOARDS. JOHN P. BURNHAM, Chicago, Ill., assignor to Thomas Wilce, same place. Filed Mar. 8, 1894. Serial No. 502,797. (No model.)



Claim.—1. In a machine for forming interfitting tongues and grooves on the opposite ends of flooring boards of various lengths, the combination of the following parts or elements, to wit: a table for supporting the board; a guide on the table for the side edge of the board to fit against; a clamp near one end of the guide; a transversely reciprocating cross head; a cut off saw mounted on this cross head; a grooving tool mounted on this cross head; mechanism for reciprocating the cross head; mechanism for automatically operating said clamp; a second transversely reciprocating cross head; a cut off saw mounted on said last mentioned cross head; tonguing tools mounted on said last mentioned cross head; a second clamp for holding the board in position while being operated upon by the tools carried by said second cross head; mechanism for reciprocating said cross head; mechanism for automatically operating said second mentioned clamp, substantially as specified.

2. In a machine for forming interfitting tongues and grooves on the opposite ends of flooring boards of various lengths, the combination of the following parts or elements, to-wit: a table for supporting the board; a guide on the table for the side edge of the board to fit against; a clamp near one end of the guide; a transversely reciprocating cross head; a grooving tool mounted on this cross head; mechanism for reciprocating the cross head; mechanism for automatically operating said clamp; a second transversely reciprocating cross head; tonguing tools mounted on said last mentioned cross head; a second clamp for holding the board in position while being operated upon by the tools carried by said second cross head; mechanism for reciprocating said cross head; mechanism for automatically operating said second mentioned clamp; and two levers R and R′ for independently seting in operation the two independent mechanisms for independently operating said cross heads, substantially as specified.

3. The combination with a table B, of a guide C thereon for the side edge of the board to fit against, a clamp F, a transversely reciprocating tool carrying cross head G, mechanism for reciprocating said cross head, and mechanism for automatically operating said clamp, substantially as specified.

4. The combination with table B, of guide C thereon for the side edge of the board to fit against, a clamp near the end of said guide for holding the board in position, a transversely reciprocating cross head a cut off saw mounted on said cross head, a grooving tool mounted on said cross head; mechanism for reciprocating said cross head, and mechanism for automatically operating said clamp and releasing the board, substantially as specified.

5. The combination with a table B, of a guide C thereon for the side edge of the board to fit against, a clamp F, a transversely reciprocating tool carrying cross head G, mechanism for reciprocating said cross head, mechanism for automatically operating said clamp, and a clutch lever R for setting said cross head reciprocating mechanism in operation, substantially as specified.

6. In a machine for forming interfitting tongues and grooves on the opposite ends of flooring boards of various lengths, the combination of the following parts or elements, to-wit: a table for supporting the board; a guide on the table for the side edge of the board to fit against; a clamp near one end of the guide; a transversely reciprocating cross head; a cut off saw mounted on this cross head; a grooving-tool mounted on this cross head; mechanism for reciprocating the cross head; mechanism for automatically operating said clamp; a second transversely reciprocating cross head; a cut off saw mounted on said last mentioned cross head; a secondclamp for holding the board in position while being operated upon by the tools carried by said second cross head; mechanism for reciprocating said cross head; mechanism for automatically operating said second mentioned clamp, and two clutch levers R R′ for independently setting in operation the mechanisms for operating said cross heads, substantially as specified.

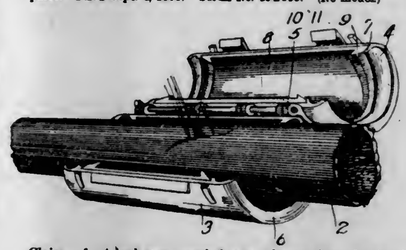
7. In a machine for forming interfitting tongues and grooves on the opposite ends of flooring boards of various lengths, the combination of the following parts or elements, to-wit: a table for supporting the board; a guide on the table for the side edge of the board to fit against; a clamp near one end of the guide; a transversely reciprocating cross head; a grooving tool mounted on this cross head; mechanism for reciprocating the cross head; mechanism for automatically operating said clamp; a second transversely reciprocating cross head; tonguing tools mounted on said last mentioned cross head; a second clamp for holding the board in position while being operated upon by the tools carried by said second cross head; mechanism for reciprocating said cross head; mechanism for automatically operating said second mentioned clamp; and two levers R and R′ for independently seting in operation the two independent mechanisms for independently operating said cross heads, substantially as specified.

8. The combination of table B with guide C; two independently transversely reciprocating tool carrying cross heads D D′; two independently and automatically operated clamps F F′; a driving shaft K mounted in movable spring actuated boxes or bearings K^2 and provided with friction wheels K^2 K^2; shafts M furnished with friction wheels N N′; cam bars P P′; pins *n* on the friction wheels N N′ and adapted to engage said cam bars P P′; treadles R R′ connected to said cam bars P P′; crank wheels *m m′* on said shafts M M′; levers S S′ connected therewith and operated thereby; links S^2 connecting said levers S S′ with said cross heads D D′; rock shafts T T′ connected to and operating said clamps F F′, substantially as specified.

9. The combination of table B with guide C, tool carrying cross head D, clamp F, movable driving shaft K furnished with friction wheel K^2, shaft M, furnished with crank wheel *m* and with friction wheel N having pin *n*, sliding cam bar P, lever R for operating said cam bar, and lever S operated by said crank *m* and connected to said cross head, substantially as specified.

10. The combination of table B with guide C, tool carrying cross head D, clamp F movable driving shaft K furnished with friction wheel K^2, shaft M, furnished with crank wheel *m* and with friction wheel N having pin *n*, sliding cam bar P, lever R for operating said cam bar, and lever S operated by said crank *m* and connected to said cross head, rock shaft T secured to said lever S and connected to said clamp F for operating the same, substantially as specified.

518,805. HOSE-LEAK STOP OR JACKET. JAMES B. COOPER, Minneapolis, Minn., assignor of one-fourth to Charles M. Way, same place. Filed Sept. 4, 1893. Serial No. 484,685. (No model.)



Claim.—1. A leak stop, consisting in a sleeve adapted to be closed about a pipe or hose and considerably larger than the same, and said sleeve provided with the flexible and inwardly flared lips or flanges adapted to be forced against and around the hose or pipe by their own elasticity and by pressure of air or water within the sleeve, substantially as described.

2. The sleeve or jacket divided longitudinally, in combination, with means for securing the two parts about a hose or pipe, the ends of said sleeve or jacket being provided with the inwardly flared flexible annular lips or flanges adapted to be forced against and around the pipe or hose by pressure of air or water within the space between the jacket and the pipe or hose, substantially as described.

3. The combination, with the metal sleeve or jacket provided with the inwardly flared metal flanges 7, of the flexible packing rings held in place by the metal flanges, and themselves being flared inwardly, whereby said rings are adapted to be forced against a pipe or hose by pressure of air or water within the sleeve, substantially as described.

4. The combination, with the inflexible sleeve, or jacket having the inflexible internal flanges, of the flexible lining provided with the inwardly extending and inwardly flared beveled lips or flanges 9, substantially as described and for the purpose set forth.

5. The combination, with the divided sleeve arranged to be locked upon a pipe or hose, of the acute-angled and inwardly-flared flexible packing flanges, said flanges having the two outward bevels 10 and 11, substantially as described.

6. The combination, of the metal jacket or sleeve composed of the hinged parts, and having in its ends the inwardly flared acute-angled flanges or lips, with the clasp 13 upon one of the hinged parts, the shoulder upon the other part to be engaged by said clasp, a seal to prevent the unlocking of said clasps, and the guide lugs 15 and 16 upon opposite parts, substantially as described.

7. The combination, with the metal jacket composed of the hinged parts arranged to be locked about a hose or pipe, and considerably larger than the same, of the two-part flexible lining for said jacket, said lining being somewhat larger than the jacket, whereby the longitudinal edges of the lining are pressed together upon closing the jacket, and said lining provided with the acute-angled inwardly-flared flexible flanges or lips to engage a pipe or hose, substantially as described.

518,806. MANUFACTURE OF GLASS PAINTINGS. OTTO DILLMANN, Munich, Germany. Filed Aug. 29, 1893. Serial No. 484,320. (No specimens.) Patented in England June 26, 1890, No. 9,942; in Luxemburg July 14, 1890, No. 1,857; in Belgium July 15, 1890, No. 91,032; in Germany July 30, 1890, No. 57,870; in France Oct. 20, 1890, No. 206,627, and in Austria-Hungary Oct. 22, 1890, No. 28,823 and No. 43,964.



Claim.—1. The process of producing colored pictures, which consists in applying to separate surfaces the various colors which make up the complete picture, each surface bearing but one color, then stacking the various surfaces together, the location of each color on its respective surface being determined by the desired position of such color or some combination of it in the complete picture.

2. The process of producing colored pictures, which consists in applying to separate transparent surfaces the various colors which make up the complete picture, each surface bearing but one color, then stacking the various transparent surfaces together, the location of each color on its respective surface being determined by the desired position of such color or some combination of it in the complete picture.

3. The process of producing colored pictures, which consists in applying to separate panes of glass the various colors which make up the complete picture, each surface bearing but one color, then placing the various panes one upon the other, the location of each color on its respective pane being determined by the desired position of such color or some combination of it in the complete picture.

4. The process of producing colored pictures, which consists in applying to separate surfaces the various colors which make up the complete picture, each surface bearing but one color graduated in tone as desired, then stacking the various surfaces together, the location of each color and its graduations on its respective surface being determined by the required position of such color or some combination or shade of it in the complete picture.

5. The process of producing colored pictures, which consists in applying to separate transparent surfaces the various colors which make up the complete picture, each surface bearing but one color graduated in tone as desired, then stacking the various transparent surfaces together, the location of each color and its graduations on its respective surface being determined by the required position of such color or some combination or shade of it in the complete picture.

6. The process of producing colored pictures, which consists in applying to separate panes of glass the various colors which make up the complete picture, each pane bearing but one color graduated in tone as desired, then stacking the various panes one upon the other, the location of each color and its graduations on its respective surface being determined by the required position of such color or some combination or shade of it in the complete picture.

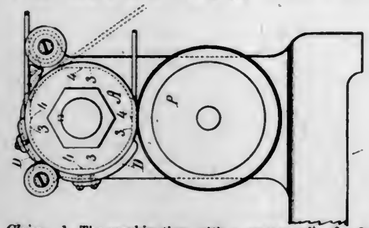
7. As an article of manufacture, a picture consisting of several separate sheets stacked together, one surface of each sheet bearing one color, the location of each color on its respective surface being determined by the desired position of such color or some combination of it in the complete picture.

8. As an article of manufacture, a picture consisting of several separate sheets stacked together, one surface of each sheet bearing one color graduated in tone, as desired, the location of each color and its graduations on its respective surface being determined by the desired position of such color or some combination or shade of it in the complete picture.

9. As an article of manufacture, a picture consisting of several panes of glass stacked together, each pane bearing one color, the location of each color on its respective pane being determined by the desired position of such color or some combination of it in the complete picture.

10. As an article of manufacture, a picture consisting of several panes of glass stacked together, each pane bearing one color graduated in tone, as desired, the location of each color and its graduations on its respective pane being determined by the desired position of such color or some combination or shade of it in the complete picture.

518,807. MEANS FOR FORMING SPECTACLE-BOW WIRE OR OTHER ARTICLES. FREDERIC ECAUBERT, Brooklyn, N. Y. Filed Jan. 8, 1894. Serial No. 496,027. (No model.)



Claim.—1. The combination with a presser roll, of a form roll having a surface adapted to the production of a wire or strip that is thicker at one part than it is at another, and means for holding the wire or strip in contact with the surface of the form roll a sufficient distance to prevent slip of the form roll upon the wire and that the wire passed through will hence be accurate in its shape and measurements, substantially as set forth.

2. The combination with a presser roll, of a form roll, the surface of which is recessed and adapted to the production of a wire or strip that is thicker at one part than at another, means for holding the wire in contact with the surface of the form roll, so that such wire is carried around by the form roll a sufficient distance to prevent slip between the surface of the form roll and the wire, and means for separating the wire from the form roll, substantially as set forth.

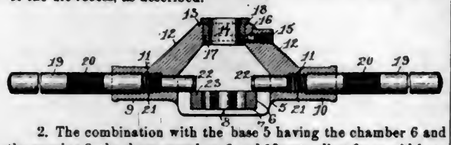
3. The combination with a presser roll, of a form roll, the surface of which is recessed and adapted to the production of a wire or strip that is thicker at one part than at another, a roller for holding the wire in contact with the surface of the form roll, so that such wire is carried around by the form roll a sufficient distance to prevent slip between the surface of the form roll and the wire, substantially as set forth.

4. The combination with a presser roll, of a form roll, the surface of which is recessed and adapted to the production of a wire or strip that is thicker at one part than at another, a shoe and roller for holding the wire in contact with the surface of the form roll, so that such wire is carried around by the form roll a sufficient distance to prevent slip between the surface of the form roll and the wire, substantially as set forth.

5. The combination with a presser roll, of a form roll, the surface of which is recessed and adapted to the production of a wire or strip that is thicker at one part than at another, a shoe and roller for holding the wire in contact with the surface of the form roll, so that such wire is carried around by the form roll a sufficient distance to prevent slip between the surface of the form roll and the wire and means for removing the wire from the groove, substantially as set forth.

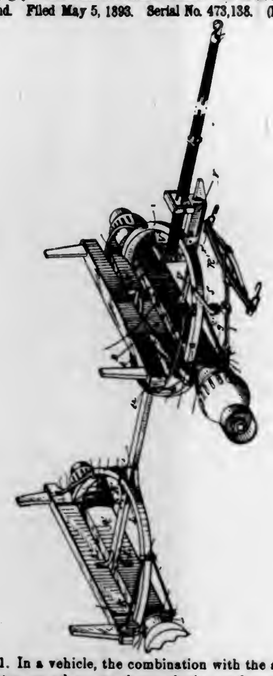
518,808. DIE-STOCK. JAMES E. FAHY, New York, N. Y. Filed Feb. 23, 1894. Serial No. 501,115. (No model.)

Claim.—1. In a die-stock, the combination with a base having a die recess or chamber with a central opening, a laterally-extending sleeve-member screw-threaded on its interior, a bridge spanning the base open at the side and having a guide-collar at the top in axial alignment with the opening of the die-recess, and a guide removably secured in said guide-collar, of a lever-arm having a screw-thread for engaging the thread of the sleeve-member bore and adapted to be screwed inward until the inner end of the arm extends beyond the wall of the die-recess, as described.



2. The combination with the base 5 having the chamber 6 and the opening 8, the sleeve-members 9 and 10 extending from said base the bores of which are screw-threaded, the raised bridge 12 having the collar 13 connecting the sleeve-members, a spring-latch 16 located in a lateral perforation of said collar, and a removable guide 14 having an annular recess 17 adapted to be engaged by said latch, of the arms 19—19 having ends adapted to fit the bores of the sleeve-members and furnished with screw-threads corresponding with the screw-threads of said bores, as and for the purpose described.

518,809. VEHICLE RUNNING-GEAR. DAVID A. FOSTER, Indianapolis, Ind. Filed May 5, 1893. Serial No. 473,138. (No model.)



Claim.—1. In a vehicle, the combination with the axle and the sand bar, bolster, or other superimposed piece, of a curved hound having its ends impinged between the axle and the said superimposed piece, and a clip to bind the several parts together and so arranged that the vertical stems of the clip are on opposite sides of the hound.

2. In a wagon gear a front axle, a semicircular hound secured at its ends to the axle and projected forward to support the tongue of the wagon and by the shape of the hound providing an open space between the hound and the axle; and whiffle trees connected with the axle so as to dispense with the double tree and together with the open hound forming an open construction in front of the axle such as will allow of the unobstructed fall of the contents of the wagon bed in the operation of dumping.

3. In a vehicle a tongue constructed of tubular sections, brace plates to spread the tubes apart and also to bind them together and forming a trussed construction of the tubes, yokes secured to the axle or front hound of the gear and adapted to receive the rear end of the trussed tongue, and pins projected through suitable openings in the frame of the yokes and through the spaces between the tubular sections of the tongue and serving to give an adjustable attachment of the tongue to the vehicle gear substantially as described.

4. A bolster constructed of two equal longitudinal sections which will be spread apart at their middles to admit the bolster pin without cutting away the material of the bolster, in combination with said bolster pin and with standards, said standards being dovetailed into the ends of the bolster and inserted by spreading the ends of the two part bolster sufficiently to admit the standard, and bolts to hold the several parts together, substantially as described and specified.

5. In a vehicle gear an angle plate or bar overlapping the top of the sand bar and connecting the sand bar with the axle and forming a place of attachment for the reach, a stud pin secured to the angle bar and engaging a clevis on the end of the reach and forming a swivel joint therewith, a clevis pivotally secured to the reach, and a reach connecting the rear with the front axle.

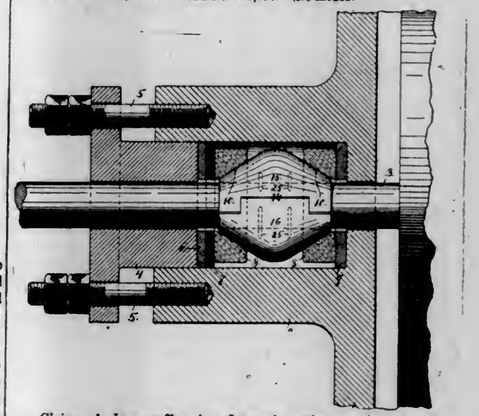
6. In a vehicle, a segmental plate secured to the sand bar and projected forward concentrically with the bolster pin, and a superimposed plate secured to the under side of the bolster and having a forwardly projected arm integral with the superimposed plate; the said arm having two downwardly projected lugs to bear against the front and back edges of the segmental plate and take the strain of the load off of the bolster pin, substantially as described.

7. The combination with a semi-circular or bent hound and a reach, of a coupling pin projected through the reach in front of the hound and then bent to conform to the shape of the front, top, and back sides of the hound, and thence projected in close contact with the upper face of the reach, for a suitable distance to the rear of the hound and thence bent down and projected through the reach in the manner substantially as shown and for the purposes specified.

8. The combination in a vehicle of an axle, a thimble skein, a sand bar or bolster, a curved hound, and a clip to hold these several parts together, with a metallic plate interposed between the wagon skein and the hound and also a plate under the skein to lock the depending ends of the clip together, both of said plates being provided with grooves to fit over the bead on the skein and by so doing to prevent the longitudinal movement of the clip on the axle.

9. The combination with an axle, a curved hound and a brace bar secured at one end to the hound and thence passing around in close contact with the axle and terminating in front of the axle in an eye for the attachment of the single tree, of a bar secured to the eye and having a longitudinal slot in its outer opposite end, to receive the single tree which will be secured therein, and a curved tubular single tree having a semi elliptic spring interposed between it and the point of attachment with the slotted bar, and spring connected trace hooks secured to the ends of the single tree all substantially as described and for the purposes specified.

518,810. STUFFING-BOX. LOUIS C. S. FRICK, Buffalo, N. Y. Filed Nov. 13, 1893. Serial No. 490,758. (No model.)



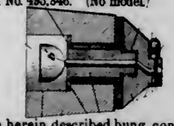
Claim.—1. In a stuffing box for engines, the combination with the conical packing; of the hard metal packing ring provided with an outwardly tapering cavity for the packing and comprising a main section having a radial opening, and a removable section with dove tails at its sides engaging grooves in the sides of said opening, as and for the purpose set forth.

2. In a stuffing box for engines, the combination with the conical packing; of the hard metal packing ring provided with an outwardly tapering cavity for the packing and comprising a main section having a radial opening, and a removable section with dove tails at its sides engaging grooves in the sides of said opening, said dove tails and grooves tapering inwardly, as and for the purpose set forth.

3. In a stuffing-box for engines, the combination with a soft metal reversible packing consisting of two longitudinally separable halves which when fitted around the piston-rod has its two tapering ends of similar configuration, of a retaining gland and two hard-metal packing rings having tapering cavities for the reception of the tapering ends of the soft-metal packing such packing rings having removable sections with dovetails at their sides, substantially as and for the purpose stated.

4. In a stuffing-box for engines the combination with a soft-metal reversible packing consisting of longitudinal halves each composed of transversely separable sections; of a retaining gland and two hard-metal packing rings having cavities for the reception of the ends of the soft metal packing, such packing rings having dovetailed removable sections substantially as and for the purpose stated.

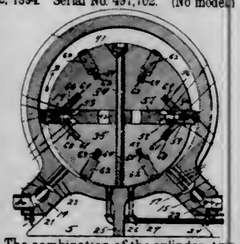
518,811. BUNG. NATHAN FUCHS, Louisville, Ky., assignor of two-thirds to Thomas Craney and Thomas C. Stokes, same place. Filed Dec. 16, 1893. Serial No. 493,846. (No model.)



Claim.—1. The herein described bung, consisting of a body having a central shouldered opening, and a metallic tube inserted in said opening having a disk on its upper end fitting upon the shoulder of said opening and threaded on its lower end: and an ear rising from said disk, within the bore, a compressible washer slipped on the lower end of the tube, against the end of the body, and a metallic conical washer having a screw-threaded recess to engage the threaded end of the tube and screwed thereon so as to compress the compressible washer, and also having a passage communicating with the bore of the tube, and a valve seat around the exterior end of the passage, a valve guard below said seat rigidly secured to the face of the washer, and a detachable valve interposed between said seat and guard, substantially as described.

2. The combination of the body having a central shouldered bore, a disk seated on the shoulder of the bore, and a tube depending from said disk through the body, a washer screwed on the lower end of said tube, having a passage communicating with the bore of the tube, a valve seat on the washer at the outer end of said passage; a valve guard suspended below said seat by a U-shaped support having a central opening, directly under the valve, and upstanding flanges at its sides to prevent lateral displacement of the valve, and a valve fitted between said guard and seat and having a shank lying between the legs of the U-shaped support, and detachably secured thereto, substantially as described.

518,812. ROTARY ENGINE. ALBERT HAMPE, St. Louis, Mo. Filed Jan. 22, 1894. Serial No. 497,702. (No model.)

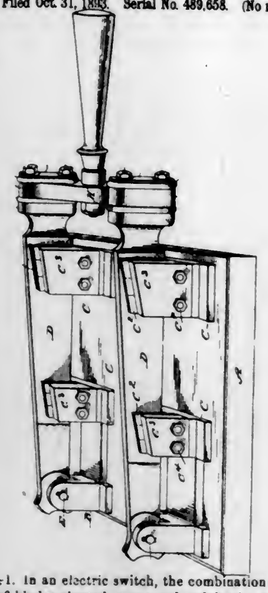


Claim.—1. The combination of the cylinder, two separate shafts, a T-head on each shaft, a piston-body comprising two mating semi-circular-parts spaced apart by said T-heads, one of which is fixed upon one end of said body and the other fixed on the opposite end of said body, blocks located in the space between said mating-parts, bolts engaging said mating-parts and passing through said blocks, a piston-plate having slots and located also to slide in the said space with said slots engaged by said blocks, packings for said piston-plate, and packings for said piston-body, said T-heads being let into the ends of the latter so as to lie flush therewith, substantially as herein specified.

2. In a rotary engine, a packing for the piston, composed of a rectangular plate having a groove in its upper edge occupied by a semi-circular packing-tongue, said tongue having downwardly projecting ends provided with lugs engaging in segmental slots, substantially as shown and described.

3. In a piston for rotary engines, the two mating semi-circular parts held together by T-headed shafts and an oscillating piston-plate having on its ends spring-actuated packings carrying semi-circular packing-tongues, packings spring-actuated and located in angular slots formed in the mating parts of the piston, said packings bearing against the packings of the oscillating piston-plate, and auxiliary packings spring-actuated and carrying rocking packing-tongues, substantially as shown and described.

518,813. ELECTRIC SWITCH. WARREN S. HILL, Hyde Park, Mass. Filed Oct. 31, 1893. Serial No. 489,658. (No model.)

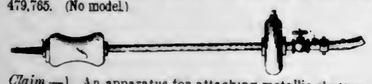


Claim.—1. In an electric switch, the combination with the contact-pieces, of blades pivoted at one end and having their free ends broadened, said blades adapted to connect with said contact pieces to close the electric circuit, and a connecting yoke for joining said blades together, having its ends broadened to match the broadened ends of the blades, and secured at each end to said blades by two bolts, whereby movement of one upon the other is prevented.

2. In an electric switch, the combination with the contact pieces, of blades adapted to connect therewith to close the electric circuit, said contact pieces having flexible plates between which the blades pass to close the electric circuit, and rigid reinforcing plates secured thereto to increase the carrying capacity of the said contact pieces.

3. In an electric switch, the combination with the contact pieces curved inwardly at their upper ends, of blades contacting therewith to close the circuit, said contact pieces having flexible plates between which the blades pass to close the circuit, and rigid reinforcing plates secured thereto to increase the carrying capacity of the contact pieces, the said reinforcing plates terminating at their upper ends a short distance below the curved upper ends of the contact pieces.

518,814. METAL-DRILLING ATTACHMENT FOR FIRE-HOSE. JOHN G. VON HOFE, New York, N. Y. Filed July 6, 1893. Serial No. 479,765. (No model.)

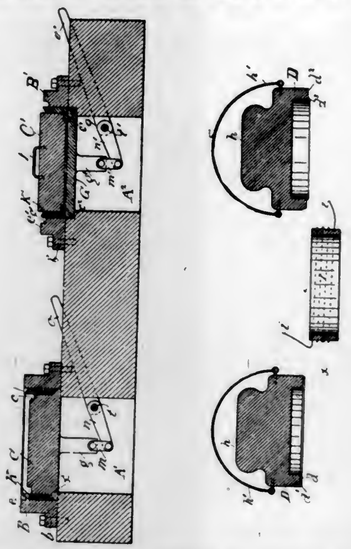


Claim.—1. An apparatus for attacking metallic shutters, doors, and like guards for buildings in case of fire to enable firemen to gain access thereto from the outside, which consists of a water motor provided with a coupling for connecting it with fire hose to receive the hydraulic pressure therefrom to drive it, a metal cutting tool and a driving shaft interposed between the cutting tool and the motor, substantially as described.

2. An apparatus for attacking metallic shutters, doors, and like guards for buildings in case of fire to enable firemen to gain access thereto from the outside, which consists of a water motor provided with a coupling for connecting it with fire hose to receive the hydraulic pressure therefrom to drive it, a metal cutting tool, a driving shaft interposed between the cutting tool and the motor, and a hand-piece next the cutting tool, substantially as described.

3. An apparatus for attacking metallic shutters, doors, and like guards for buildings in case of fire to enable firemen to gain access thereto from the outside, which consists of a water motor provided with a coupling for connecting it with fire hose to receive the hydraulic pressure therefrom to drive it, an eye connected with some part of said motor by which it may be supported in position for operation, a metal cutting tool, and a driving shaft interposed between the cutting tool and the motor, substantially as described.

518,815. APPARATUS FOR FORGING TIRES. ISRAEL HOGELAND, Chicago, Ill. Filed June 20, 1893. Serial No. 478,283. (No model.)



Claim.—1. In a tire-forging apparatus, the combination of a die for holding a tire-blank, a removable electric heater placed on the blank in the die, and a forging-die, substantially as and for the purpose set forth.

2. In a tire-forging apparatus, the combination of a base A having seated thereon tire-blank holding-dies B and B', an electric heater I, comprising an annular metal body surrounded by an induction-coil *i* and adapted to be heated by electricity, and to seat on the edge of a tire-blank, and forging-dies D and D' for the respective holding-dies, substantially as and for the purpose set forth.

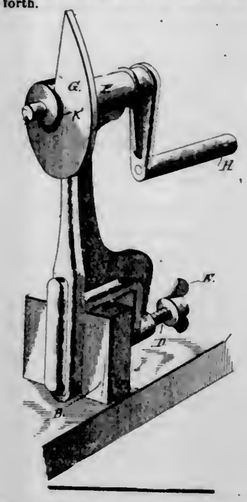
3. In a tire-forging apparatus, the combination of a base A, having seated thereon tire-blank holding-dies B and B', formed, respectively, with stationary annular bodies *e* and *e'* and removable cores C and C', an electric heater I, comprising an annular metal body surrounded by an induction-coil *i* and adapted to be heated by electricity, and to seat on the edge of a tire-blank, and forging-dies D and D' for the respective holding-dies, substantially as and for the purpose set forth.

4. In a tire-forging apparatus, the combination of a base A having seated thereon tire-blank holding-dies B and B', the die B comprising a stationary annular body *e* and removable core C having an offset *c*, and the die B' comprising a stationary annular body *e'* having an offset *c'*, a removable head G seated on said base and a removable core C' having an offset c^3, an electric heater I, and forging-dies D and D' for the respective holding-dies, substantially as and for the purpose set forth.

5. A tire-forging apparatus comprising, in combination, a base A provided with openings A' and A^3 and having seated at the openings tire-blank holding-dies B and B', the die B comprising a stationary annular body *e* and removable core C having an offset *c* and provided with a stem *g* having linked to it a lever *n*, and the die B' comprising a stationary annular body *e'* having an offset *c'*, a removable head G provided with a stem *g'* having linked to it a lever *n'* and a removable core C' provided with an offset c^3, an electric heater I, and forging-dies D and D' for the respective holding-dies, substantially as and for the purpose set forth.

518,816. TOOL FOR MAKING CURVES OR OTHER FORMS IN VENETIAN IRON. MILAN H. HULBERT, New York, N. Y. Filed Jan 2, 1894. Serial No. 495,327. (No model.)

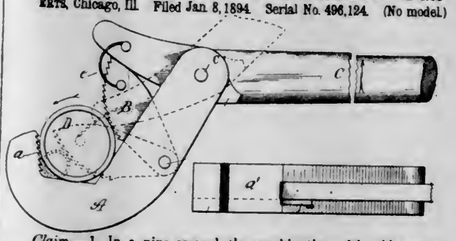
Claim.—The flat forming tool G provided with an axial stud J having a slot or recess K and having its side retreating to constitute a forming shoulder, K' merging at one end with the stud J and at the other into the forming face or edge L of the tool, substantially as hereinbefore set forth.



518,817. GUTTA-PERCHA OR RUBBER COMPOUND. ROBERT HUTCHISON, Cowlairs, Scotland. Filed Aug. 1, 1893. Serial No. 482,085. (No specimens.)

Claim.—The herein described composition, consisting of gutta percha or rubber or mixtures thereof and wool cholesterine

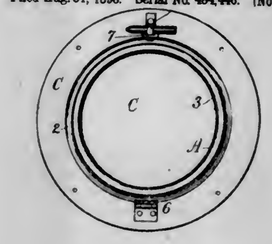
518,818. PIPE-WRENCH. EDWIN M. JACKSON and FRANK ROBERTS, Chicago, Ill. Filed Jan. 8, 1894. Serial No. 496,124. (No model.)



Claim.—1. In a pipe wrench the combination with a V-shaped jaw, A, a clamping jaw, B, pivoted to one arm of the jaw, A, so as to extend across its mouth, a hand-lever, C, pivoted to the same arm of the jaw, A, above the pivotal point of the jaw, B, and adapted to have its toe end bear upon the back of said jaw B, substantially as described and for the purpose specified.

2. In a pipe wrench the combination of a hooked jaw, A, a clamping jaw, B, having its face longitudinally convex and being pivoted to the jaw, A, so as to extend across its mouth, a lever, C, of the first class, pivoted to the jaw, A, above, and adapted to bear upon the back of the jaw, B, substantially as described and for the purpose specified.

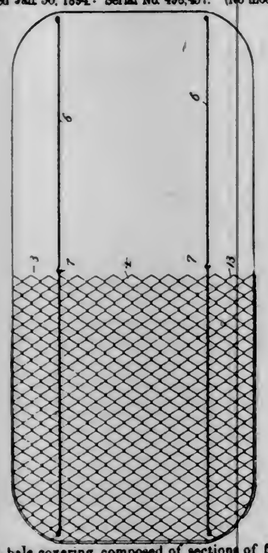
518,819. SALT-HOLDER FOR CATTLE. HENRY A. LEE, Orange, N. J. Filed Aug. 31, 1893. Serial No. 484,446. (No model.)



Claim.—1. A frame open at the back and front and adapted to surround a block of salt, the opening at the front being smaller than the opening at the back, to prevent such block of salt slipping through, in combination with a backing adapted to be permanently secured to a wall or partition, a hinge connecting the frame and the backing, and a hasp for holding the moving edge of the frame to the backing, substantially as set forth.

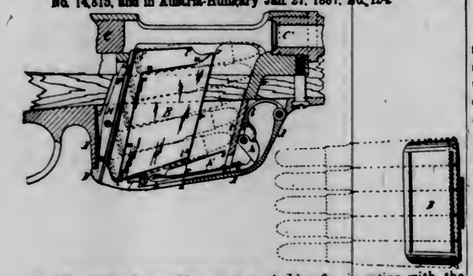
2. A frame open at the back and front and adapted to surround a block of salt, the opening at the front being smaller than the opening at the back to prevent such block of salt slipping through, in combination with a backing adapted to be permanently secured to a wall or partition, a movable connection between the frame and the backing on which the frame can be turned in opening the same, and an interlocking device for holding the moving edge of the frame to the backing when closed, substantially as set forth.

518,820. BALE-COVERING. CHARLES E. MALLETT, New York, N. Y. Filed Jan. 30, 1894. Serial No. 498,457. (No model.)



Claim.—A bale covering, composed of sections of flexible open mesh wire cloth having wavy side edges forming loops, the loops of adjoining sections intermeshing when said sections are placed in position about a bale, and removable tie-rods adapted to be inserted alternately through the loop openings or meshing edges of said sections, substantially as shown and described.

518,821. FEED MECHANISM FOR MAGAZINE-GUNS. FERDINAND MANNLICHER, Vienna, Austria-Hungary. Filed July 24, 1889. Serial No. 318,576. (No model.) Patented in France May 26, 1885, No. 169,154; in Belgium June 3, 1885, No. 69,114; in Italy June 30, 1885, No. 356; in Germany Sept. 5, 1886, No. 39,900; in England Nov. 15, 1886, No. 14,815, and in Austria-Hungary Jan. 27, 1887, No. 124.



Claim.—1. A cartridge-clasp or holder for insertion with the cartridges into the magazine of fire-arms, struck or formed from a blank of elastic metal into a body open on three sides, having a rigid back and two elastic sides, the latter having their top edges slightly bent inward, and provided with straight indentations, parallel to the back, forming interior ribs suited to engage with the space or recess in front of the cartridge rims; substantially as and for the purpose set forth.

2. In repeating fire arms a magazine having a detachable bottom with the cartridge feeder or follower fulcrumed thereto and actuated by a spring, substantially as and for the purpose described.

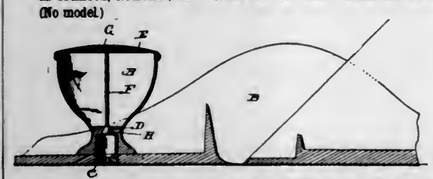
3. In magazines having a detachable bottom and the cartridge feeder or follower fulcrumed to the forward part of the latter, an opening in said bottom or left thereby large enough to permit the dropping through of an emptied cartridge clasp in the direction in which it was introduced into the magazine, substantially as and for the purpose set forth.

518,822. PROTECTOR-MASK. WILLIAM T. MORAN, Atlantic, Mass. Filed Mar. 13, 1893. Serial No. 466,589. (No model.)



Claim.—A protective mask, comprising in its construction an outer shell adapted to envelop the head of the wearer and provided with transparencies in its front and a ventilating outlet at the top and vertically-extending sockets on its interior above the transparencies, a concavo-convex crown-piece occupying the top part of the mask and having vertical projections which removably engage the sockets in the shell, air-pipes communicating with the interior of the shell at the lower part, and a flexible skirt attached to the lower edge of the shell.

518,823. LUBRICATOR. ROYAL W. MCINTYRE and GUSTAVUS A. H. SPRAGUE, Redlands, Cal. Filed Jan. 23, 1893. Serial No. 459,385. (No model.)

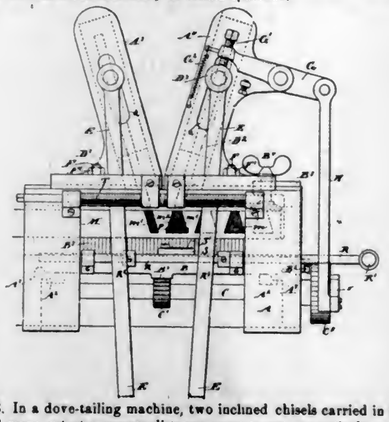


Claim.—The combination with a plane, having an opening through the bed of the front portion thereof, of an oil cup resting on said bed, and having a spring actuated valve therein which is operated from the upper end, and a screw plug, C, seated within the perforated base of the cup with an opening therethrough by means of which the said oil cup is secured to the bed plane, the upper portion of said plug being formed with an enlarged chamber, with which said valve communicates, and a lower reduced opening, and the lower end of said plug extending only partially through the side of the plane, substantially as described.

518,824. DOVETAILING-MACHINE. WILLIAM MCPHERSON, New York, N. Y. Filed Dec. 5 1892. Serial No. 454,073. (No model.)

Claim.—1. In a dove-tailing machine, two inclined chisels carried in inclined ways, set at such distance apart that they will each cut respectively parts of two separate and distinct dove-tail recesses, in combination with mechanism adapted for bringing down both chisels simultaneously and with mechanism to feed the wood forward a proper amount at each cut and with mechanism to change the position of the table carrying the wood after each recess is completed, substantially as herein specified.

2. In a dove-tailing machine, two inclined chisels carried in inclined ways, adapted to cut respectively parts of two dove-tail recesses, and mechanism adapted to feed the wood forward a proper amount at each cut, in combination with stops B^5 B^6 on the carriage and with pawls J K and means for operating them from the treadles, the pivoted hammer L and the spring O, substantially as specified for automatically liberating and allowing the carriage to be returned after each movement, substantially as herein specified.



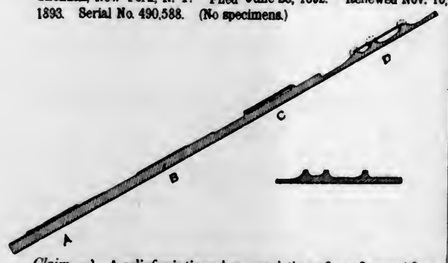
3. In a dove-tailing machine, two inclined chisels carried in inclined ways, set at a proper distance apart to cut respectively parts of two separate dove-tail recesses, and mechanism adapted to feed the wood forward a proper amount at each cut, in combination with the horizontal chisel and the lever Q adapted to be operated after the dove-tail recess is otherwise completed, and to remove at a single operation a small quantity from the bottom of each dove-tail recess, all arranged for joint operation substantially as herein specified.

518,825. PIPE-HANGER. FRANCIS A. PELTON, New Britain, Conn., assignor of one-half to Charles J. White, same place. Filed Apr. 28, 1893. Serial No. 472,201. (No model.)



Claim.—The combination of two curved hooks arranged side by side with bolt space between, and a hanger supporting bolt and nut with the body of the bolt in the space between said hooks and two corners of the nut resting on said hooks while the other two corners extend in between said hooks and prevent rotation, substantially as described and for the purpose specified.

518,826. MANUFACTURE OF PRINTING-PLATES. RALPH J. SACHERS, New York, N. Y. Filed June 28, 1892. Renewed Nov. 10, 1893. Serial No. 490,588. (No specimens.)

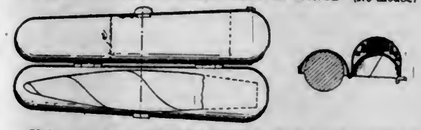


Claim.—1. A relief printing plate consisting of a soft metal foundation and a surface coating of hard metal, said plate having an etched or engraved face, the depressed portions of which extend through the surface coating into the soft metal base, the edges of said coating remaining on the raised portions being sharp, substantially as set forth.

2. The process herein described of making relief-plates for printing purposes, which consists of the following steps: first, coating a soft metal plate by electro deposition with a surface-layer of a hard metal, second, transferring the picture to be produced on that plate, third, etching the uncovered parts by galvano-caustic means, and fourthly, deep-etching by the use of a suitable acid, substantially as set forth.

3. The process of making relief plates for printing purposes, which consists in coating a soft metal plate by electro deposition with a surface-layer of a hard metal; then transferring the picture to be produced onto said plate; and then etching the uncovered parts through the surface layer, substantially as set forth.

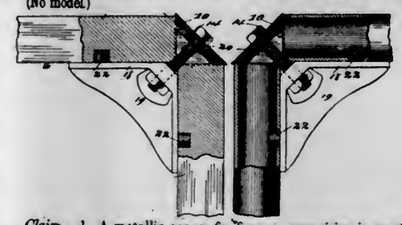
518,827. CIGAR-STUMP RECEPTACLE. AUGUST SCHOLZ, New York, N. Y. Filed Nov. 14, 1893. Serial No. 490,944. (No model.)



Claim.—1. A receptacle for partly smoked cigars, composed of two hinged shells having suitable locking means, one of the shells being provided with an exterior shell having a cap at one end, so as to give access to the space between the exterior shell and the shell to which it is attached, substantially as set forth.

2. A receptacle for partly-smoked cigars, consisting of two shells hinged together at one side and provided with a spring-catch at the opposite side, one of the shells being provided with an exterior shell so as to form a space for matches between the interior and exterior shells, the exterior shell being provided with a cap hinged to the inner shell, said cap having means for locking it in position, substantially as set forth.

518,828. METAL CORNER-PIECE FOR FRAMES. EDWARD F. SHELLABERGER, De Kalb, Ill. Filed June 27, 1893. Serial No. 478,970. (No model.)



Claim.—1. A metallic corner for frames, comprising in combination two corner pieces adapted respectively to receive frame members angularly disposed with reference to each other, one of said pieces being disposed in the outer angle of the corner and providing abutments for the side pieces of the frame and the other fitting the interior angle of the corner and providing seats for the sides and having lugs to engage the frame members, and a clamping bolt for binding said pieces together, substantially as described.

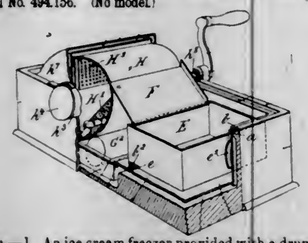
2. A metallic corner for frames, comprising in combination two corner pieces having their opposing surfaces triangularly formed and disposed with their apices toward each other and adapted for engagement with the frame members, the inner member having lugs to engage the frame members and prevent lateral movement thereof and a clamping bolt extending through the apices of the corner pieces and provided with tightening means, substantially as described.

3. In a joint for the corner of frames, the combination with the sides arranged angularly with reference to each other but not overlapped, of a metallic corner comprising two corner pieces, one of which is adapted to the space between the adjacent ends of the sides of the frame and provides abutments for said ends, and the other fits the interior angle of said sides and has lugs to engage the frame members, a clamping bolt arranged diagonally to the sides of the frame, passing between the adjacent ends thereof and engaging the metallic corner pieces, and tightening means applied to said bolt, substantially as described.

4. In a joint for the corner of frames, the combination with the sides arranged angularly with reference to each other but not overlapped, of a metallic corner comprising two corner pieces, one of which fits the space between the adjacent ends of the sides of the frame and provides abutments for said ends and has flanges to engage the said ends to prevent lateral movement thereof and the other of said corner pieces fits the interior angle of said sides and has lugs to engage the frame members, a clamping bolt engaging the metallic corner pieces and tightening means applied to said bolt, substantially as described.

5. In a joint for the corner of frames, the combination with the sides arranged angularly with reference to each other but not overlapped, of a metallic corner comprising two corner pieces, one of which fits the space between the adjacent ends of the sides of the frame and provides abutments for said ends and has flanges to engage the said ends to prevent lateral movement thereof, and the other of said corner pieces fits the interior angle of said sides and has lugs to engage the frame, one of said corner pieces being provided with a hinged member, a clamping bolt engaging the metallic corner pieces and tightening means applied to said bolt, substantially as described.

518,829. ICE-CREAM FREEZER. WILHELM VOGT, Philadelphia, Pa., assignor to George H. Holgate, same place. Filed Dec. 20, 1893. Serial No. 494,156. (No model.)

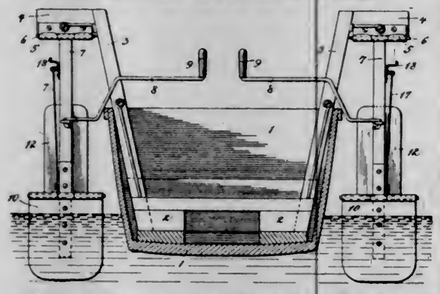


Claim.—1. An ice cream freezer provided with a drum having internal movable wings or vanes adapted to support refrigerating matter, and means for rotating said drum, substantially as and for the purposes set forth.

2. In an ice cream freezer, a drum provided with internal perforated pivoted vanes or wings and means for rotating said drum, substantially as and for the purposes set forth.

3. An ice cream freezer provided with a cream receptacle with an oppositely inclined bottom, rolls of different diameters journaled to said receptacle, a rotatable drum contacting with said rolls and in the rotation thereof adapted to permit of the discharge of frozen cream or the like therefrom, substantially as and for the purposes set forth.

518,830. PADDLE PROPELLER. ANDREW BEERS, Dansville, Mich. Filed Dec. 1, 1893. Serial No. 492,483. (No model.)

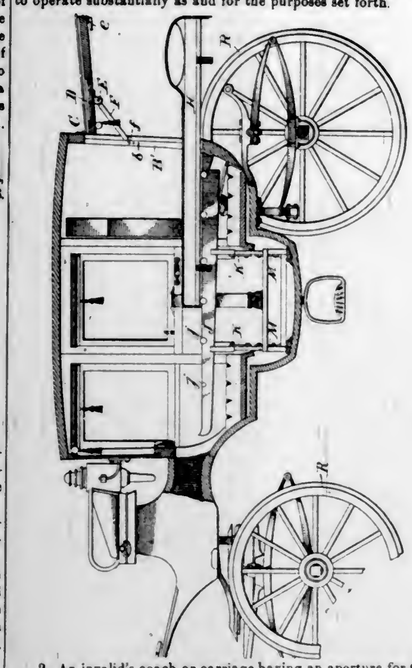


Claim.—1. The combination with a boat, a frame therein having standards, levers pivoted to and depending from said standards, rods connected to said levers for moving the same, and paddles connected to the front and rear sides of the levers, the latch on the rear of the levers to hold the rear paddle out of operation, the rods pivoted to the levers, and the short levers connected to the long levers and having the arms engaging the front paddles to throw them out of operation.

2. The combination with a boat, a frame carried thereby having inclined standards, levers pivoted to and depending from the standards, rods connected to the levers for moving them, paddles secured to the front face of the levers and to the rear face thereof abutments or stops on the paddles for holding them in operative position when in use, a lever having an arm engaging the front paddles, a rod connected to said lever and a lever connected to the rod for operating the same to throw the front paddles out of operation.

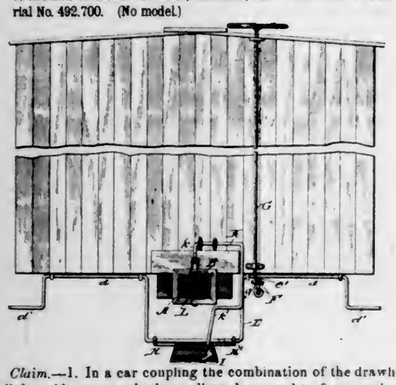
518,831. INVALID'S COACH. RUDOLF R. BENNETT, Brooklyn, N. Y. Filed Oct. 6, 1893. Serial No. 487,320. (No model.)

Claim.—1. A coach or carriage for invalids having a rear aperture provided with a suitable door, a bed supporting frame arranged within the coach substantially as shown and described, a bed or litter supported by said frame and means for shifting the said bed and its supporting frame transversely of the coach, all arranged and adapted to operate substantially as and for the purposes set forth.



2. An invalid's coach or carriage having an aperture for the insertion of the bed or litter and provided with a swinging door as shown, in combination with the bed or litter and a longitudinally arranged bed supporting frame arranged to be moved transversely of the coach, with seats for passengers on the sides of the coach opposite to the litter when the latter is in its normal position.

518,832. CAR-COUPLING. JOHN COCHRAN, Jr., Collins, assignor of one-half to Samuel F. Hurt, Stockton, Mo. Filed Dec. 4, 1893. Serial No. 492,700. (No model.)



Claim.—1. In a car coupling the combination of the drawhead, the link guide arranged when adjusted upward to form an incline upon which to direct the link into the drawhead and the swinging parallel carriers for said link guide arranged one in rear of the other and connected together and to the link guide substantially as set forth.

2. In a car coupling the combination with the swinging bails arranged one in rear of the other of rods or bars connecting said bails and extended in advance thereof and the inclined link guide supported by said extended ends substantially as set forth.

3. In a car coupling the combination with the swinging bails arranged one in advance of the other and provided with cranks of a shaft extended to the top of the car and connected with one of said cranks and the link guide substantially as set forth.

4. In a car coupling the combination of the drawhead the link guide the swinging bails arranged one in rear of the other and connected as described and provided with crank arms two of which extend to the opposite sides of the car, and the shaft journaled to the car and connected with one of the crank arms of the bails substantially as set forth.

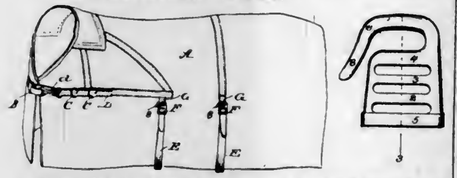
5. The improvement in car couplings consisting of the drawhead, the front bail having its shaft extended to the sides of the car and provided with hand cranks, the rear bail having its shaft provided with a crank, the shaft journaled at the end of the car and extended to the top thereof and having a crank connected with that of the rear bail and the link guide and its support substantially as set forth.

6. The combination with the drawhead and the coupling pin of the link guide having swinging supports and the pin support having an arm connected with the pin and an arm arranged for operation by the link guide all substantially as set forth.

7. The combination in a car coupling of a movable link guide and a movable pin support having an arm directly engaged with and operated by the link guide and means independent of said pin support for operating the link guide substantially as set forth.

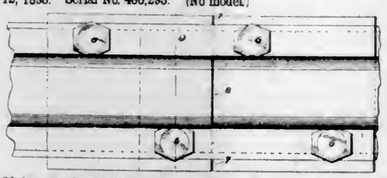
8. The improved car coupling herein described consisting of the drawhead, the coupling pin, the front bail having its shaft extended to the sides of the car and provided with crank handles the rear bail having its shaft provided with a crank, the rods connecting the bails and extended in advance of the front bail and supporting the link guide, the end shaft journaled to the car and extended to the top thereof and having a crank arm connected with that of the rear bail, and a pin support having an arm connected with the pin and a second arm arranged for engagement and operation by the link guide all substantially as set forth.

518,833. HORSE-COVER. EDWARD H. COOPER, Fond du Lac, Wis., assignor of one-half to Frank M. Givens, same place. Filed July 24, 1893. Serial No. 481,296. (No model.)



Claim.—In a horse cover as an improved article of manufacture the girth hook herein described having at one end the hook proper having the cross bar provided at one end with the extension or wing projected laterally beyond the side of the hook and inclined rearwardly as described, and having its opposite end provided with a loop or keeper the opening of which is arranged in the plane of the hook and provided above said loop with a plurality of cross bars arranged in a common plane and in a plane with the opening in the lower loop or keeper all substantially as and for the purposes set forth.

518,834. RAIL-JOINT. WILLIAM C. CRANMER, Philadelphia, Pa., assignor of one-half to Robert C. Matlack, Jr., same place. Filed July 12, 1893. Serial No. 480,293. (No model.)



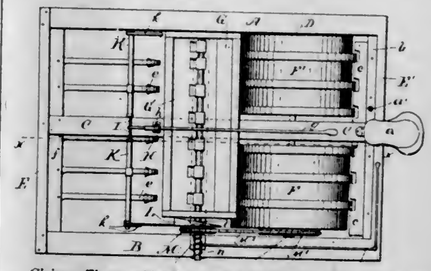
Claim.—1. In a rail joint adapted to rest between supporting ties, the combination of a bottom flange plate having longitudinally disposed ears, top angle plates fitting into the said flange plate, railroad rails seated in said bottom flange plate and having the top angle plates mounted over opposite flanges thereof, and securing bolts passing through the top angle plates, the flanges of the rails and the bottom flange plate, said bolts being arranged apart from each other and crossing diagonally through the under portion of the said bottom flange, substantially as described.

2. In a rail joint adapted to be located between ties, the combination of a bottom flange plate, having upper longitudinally disposed ears, railroad rails having their abutting ends seated in said flange plate, top angle plates mounted on the rail flanges and abutting against the ears of the bottom flange plate, said parts having alternately arranged openings at oblique angles of inclination, and bolts having their heads resting on the top angle plates, and engaging the said bolt openings, substantially as described.

3. In a rail joint adapted to be located between supporting ties, the combination of a bottom flange plate, with longitudinally disposed ears having slots extending transversely throughout, said flange plate being also provided with vertical openings in line with said slots, rails mounted in said flange plate, top angle plates located over the rail flanges, and alternately arranged below for securing said parts together, substantially as described.

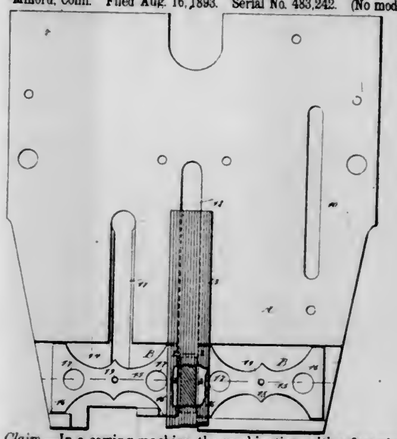
4. In a rail joint, the combination with the rail sections and supports therefor, and bolts passing through said rail sections and supports, and apart from each other and crossing under the rail sections through the central plane of said sections, substantially as described.

518,835. SEEDING-MACHINE. GABRIEL W. CROSSLEY, JOHN W. STOUT, and WILLIAM RIGDON, Humansville, Mo. Filed July 14, 1893. Serial No. 480,525. (No model.)



Claim.—The combination with a seeding machine, of the seed feeding shaft having alternate square and round portions, the clutch secured to the shaft, the spiral spring also secured upon the shaft, the sprocket wheel having a cam face, and slidably secured to the said shaft between the clutch and spring, and adapted to be kept in engagement with the said clutch by the pressure of the said spring, and means such as shown for disengaging the wheel and clutch, substantially as shown and described.

518,836. WEAR-COMPENSATING DEVICE FOR NEEDLE-BARS OF SEWING-MACHINES. HENRY A. DODGE, Boston, and WILLIAM T. RICHARDS, Newton, Mass., assignors to the Bosworth Machine Company, Milford, Conn. Filed Aug. 16, 1893. Serial No. 483,242. (No model.)

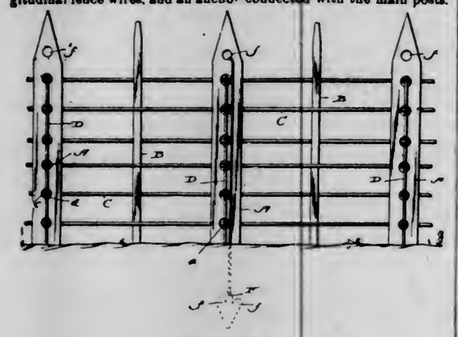


Claim.—In a sewing machine, the combination, with a face plate having a guide slot for the needle bar stud, and opposing transverse grooves, of gibs arranged one in each of said grooves, each gib having a projecting edge flush with one of the guide walls of the needle bar stud, as and for the purpose described.

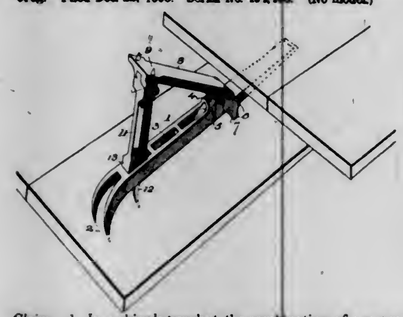
518,837. IRON FENCE. THOMAS J. FARISS, Camp Hill, Ala. Filed Sept. 4, 1893. Serial No. 484,683. (No model.)

Claim.—The fence herein described consisting of the main posts having vertically disposed openings, the longitudinal fence wires having bends or indents fitting in said openings, the vertical binding

wires having the upper end fastened to the upper wire and having bends engaging the bends of the longitudinal wires, the intermediate posts having notches on each side edge to alternately receive the longitudinal fence wires, and an anchor connected with the main posts.



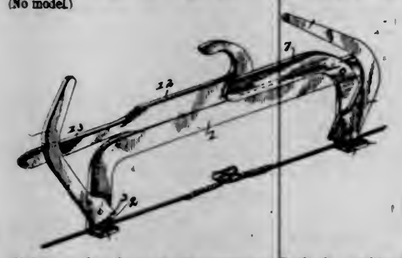
518,888. SHINGLE-BRACKET. JULIUS W. FLOWERS, Newport, Oreg. Filed Dec. 22, 1893. Serial No. 494,486. (No model.)



Claim.—1. In a shingle bracket, the combination of a cast metal bed piece having divergent spurs at one end, and having the opposite end tapered and provided midway of its ends with an abutment, and having a series of slots between the said abutment and the end provided with the spurs, a brace pivotally connected with the said bed in front of the abutment, and a leg pivoted to the free end of the brace and having a spur at its opposite end to project through one of the said series of slots, and having shoulders on each side of the spur to bear upon the bed and limit the movement of the said spur, substantially as set forth.

2. The herein shown and described shingle bracket, composed of a cast metal bed, having feet on the under side between its ends, and having divergent spurs at one end, an abutment on the upper side, and having a series of slots between the said abutment and the spurs, a brace pivoted to the bed in front of the abutment, and provided with spurs on its upper face, and a leg pivoted to the free end of the said brace, and having a spur at its free end to be thrust through one of the said series of slots, substantially as set forth

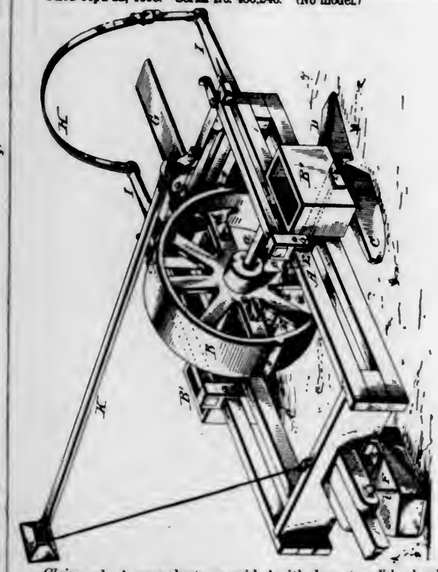
518,839. DEVICE FOR UNTYING BALE-WIRES, &c. OLIVER C. FRANK, Pasadena, Cal. Filed Aug. 17, 1893. Serial No. 483,387. (No model.)



Claim.—1. In a device for the purpose set forth, the combination of a main bar having a jaw at one end thereof, an elbow arm pivotally attached to said main bar and carrying another jaw and an operating lever pivotally attached to said elbow arm, and having an eccentric head at its inner end adapted to engage the said bar, substantially as described.

2. In a device of the character set forth, the combination of a main bar having one end thereof depended and formed into a jaw, another jaw pivotally connected to said depended end, an elbow arm pivotally connected to the opposite end of said bar, and having the lower part thereof formed as a jaw, another jaw pivoted to said elbow arm, the jaws pivoted to said elbow arm and to said depended end of the bar being formed with serrated heads and the elbow arm having an upper extended handle, and an operating lever eccentrically attached to the elbow arm and having a segmental head, the latter engaging the upper edge of the bar, substantially as described.

518,840. CORN-PLANTER. MARQUIS L. HALL, Omaha, Nebr. Filed Sept. 22, 1893. Serial No. 486,240. (No model.)

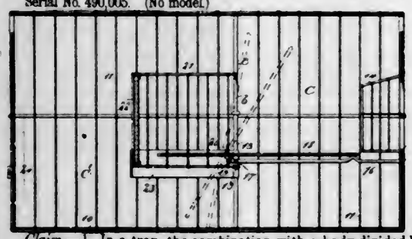


Claim.—1. A corn-planter provided with dropping slides having at their inner ends incline slots or grooves and at their extremities inclined bearings, and cams upon the sides of the wheel to act alternately upon the grooves and incline bearing faces, substantially as and for the purpose set forth.

2. A corn-planter provided with a float hinged or pivoted to its front end and having guides upon the rear end of the float, substantially as and for the purpose specified.

3. In a corn-planter, seed dropping slides having inclined grooves and inclined bearing shoulders at one end, cams upon the wheel to act therewith in operating the slides, a pivoted or hinged float at the front end of the planter, markers upon the periphery of the wheel, and an adjustable strap at the rear end of the planter and adapted to pass over the shoulders of the driver, substantially as and for the purpose described

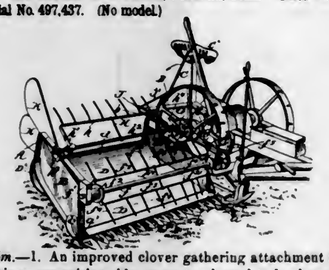
518,841. ANIMAL-TRAP. FRANK D. HAY, Keokuk, Iowa, assignor to himself and Robert J. August, same place. Filed Nov. 4, 1893. Serial No. 490,005. (No model.)



Claim.—1. In a trap, the combination with a body divided by a partition into a receiving compartment and a prison compartment, an entrance being provided from the exterior into the receiving compartment and an entrance to the prison compartment being provided in the partition, and a housing partially surrounding said opening in the partition and extending into the prison compartment, said housing being open at its lower end, of a pivoted platform leading from the entrance in the receiving chamber and extending through the entrance formed in the partition and over the opening in the bottom of the housing, the said platform being pivoted near the lower portion of the partition opening, the end of the platform in the receiving compartment being heavier than that in the prison compartment and a support for the platform located in the receiving compartment, substantially as shown and described.

2. In a trap, the combination, with a body section divided into a receiving and into a prison compartment, the partition between the two compartments having an opening therein, the trap being likewise provided with an entrance opening, of a housing located around the partition opening and extending into the prison compartment, said housing being open at its bottom and provided with a transparent pane or panel in its rear end, a second housing located around the receiving compartment, a platform pivoted at the partition, the longer end whereof extends into the receiving compartment substantially to the entrance opening, the shorter end extending into the housing of the prison compartment, a support for the receiving end of the platform, and a guard located at the housing in the said prison compartment, substantially as and for the purpose herein set forth.

518,842. MOWING-MACHINE ATTACHMENT. WILLIAM L. HAY and ROBERT L. JOHNSTON, Franklin, Tenn. Filed Jan. 19, 1894. Serial No. 497,437. (No model.)



Claim.—1. An improved clover gathering attachment for mowing machines, comprising side supports adapted to be detachably secured on the sickle portion of the mower frame, a receiving platform supported on such frame, a revolving rake at the front of such frame, a revolving discharging rake journaled over the rear end thereof, having a crank arm at one end, the lower rake shaft having a sprocket gear at one end, a drive chain, and an independent sprocket wheel having a lateral stud, said wheel adapted to be fitted on the mower axle, and to engage the crank member on the upper rake shaft, when fitted on the mower axle to rotate therewith, all substantially as shown and for the purposes described.

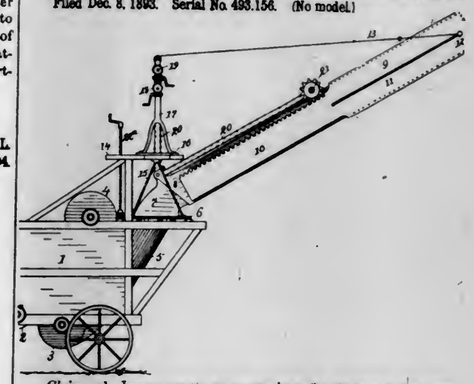
2. The combination with a mower, having a drive wheel on its axle provided with a projecting stud, of supporting members held over the sickle frame, having a receiving platform, a revolving gathering rake journaled on such supports to operate over the sickle bar, and provided at one end with a drive wheel, a discharging rake mounted over the rear portion of the receiving platform, having a crank arm at one end projected in the path of the stud on the mower axle drive wheel, and connections between such wheel and the lower rake shaft drive wheel, all arranged substantially as shown and described.

3. In combination with a mower, and a drive wheel mounted on its axle, and provided with a projecting stud, of supports secured on the outer and inner ends of the sickle frame, a rearwardly extending receiving platform held thereby, a revolving rake, journaled transversely on the front of such supports and having a drive wheel at one end, and a pair of oppositely extending rake heads or members, a revolving discharging rake journaled over the rear portion of the platform, having a single rake head or member, its shaft having a crank arm at one end, adapted to be engaged by the stud on the axle drive wheel, and the connection between such wheel and the front rake operating wheel, all arranged substantially as shown and for the purposes described.

4. A clover gathering attachment for mowers, comprising a frame adapted to be detachably secured on the sickle bar, provided with a receiving platform, a revolving gathering rake journaled transversely over the sickle bar, a revolving discharging rake journaled over the receiving platform, its shaft having a crank arm at one end, a drive wheel having a lateral stud adapted to be fitted on the mower axle and to engage the aforesaid crank arm with its stud member, when fitted on such axle, and a lever mechanism connected with such discharging rake, adapted to shift such rake to move its arm in or out of engagement with such stud wheel, all arranged substantially as shown and described.

5. In attachments for mowers, the combination with the main and sickle frame portions of the mower, of the supports A A', secured at their front end to the sickle frame section, the platform D and end guides E secured thereto, the outer guides having rear extensions or wings K K, the gathering rake F, and discharging rake H, journaled respectively at the front and near the rear of the supports, the rake F having a drive wheel, the rake H having a crank arm and held for longitudinal movement in its bearings, the drive wheel G mounted on the axle, having a stud member adapted to engage the said crank arm, the chain connection between such wheel G, and the lower rake drive wheel, the yoke frame B, the lever C and the vibrating rod or lever J, connected with the upper rake shaft and the lever C, all arranged substantially as shown and described.

518,843. STRAW-STACKER. WILLIAM A. HINKLE, Forsyth, Ill. Filed Dec. 8, 1893. Serial No. 493,156. (No model.)

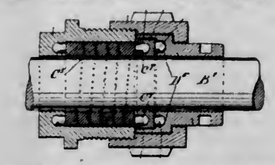


Claim.—1. In pneumatic straw stackers for thrashers, the combination of a blast trough at the discharge end of the thrasher, such trough having converging sides and a transverse incline whereby the straw &c. is guided toward the back and lower end of the trough, a preliminary blast fan at the lower end of the trough, a secondary blast fan at the upper end of the trough, both fans receiving air from outside the thrasher, and a stacker tube extending from the upper end of the trough, substantially as set forth.

2. In pneumatic straw stackers for thrashers, the combination of a stacker tube mounted on a turn-table on the thrasher, a platform above the turn-table, supported from the thrasher, a standard frame connected with the turn-table and extended through the platform, and mechanism on the standard frame above the platform, whereby the movements of the stacker tube may be directed, substantially as set forth.

3. In pneumatic straw stackers for thrashers, the combination of a stacker tube composed of telescoping sections mounted on a turn-table on the thrasher and pivoted to swing vertically, a platform above the turn-table supported from the thrasher, a standard frame connected with the turn-table and extending through a bearing in the platform, and a line extending from the upper part of the standard frame around idlers at the hinge of the tube with the turn-table and means operated by said line to telescope the sections of the tube, substantially as set forth.

518,844. METALLIC PACKING. FREDERICK A. IVES, Grant's Pass, Oreg. Filed Sept. 8, 1893. Serial No. 485,059. (No model.)



Claim.—1. A metallic packing provided with a coil having uncut ends forming steam-tight bearing faces, substantially as described.

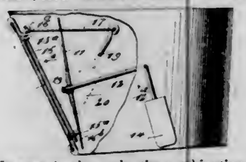
2. A metallic packing provided with a coil having uncut ends forming bearing faces, and pins extending from the faces of the said ends, substantially as described.

3. A metallic packing comprising a coil having uncut ends provided with pins, of which the pins at one end engage recesses in the

fixed casing, a gland having recesses engaged by the pins in the outer ends of the coil, and a nut screwing on the casing and engaging the said gland to hold the latter in place, substantially as described.

4. A metallic packing comprising a casing, a coil held in the said casing and provided with pins engaging recesses in the bottom of the casing, a gland abutting on the said casing, a nut for holding the gland in place, and a yieldingly mounted collar in the said gland and connected with the said coil, substantially as shown and described.

518,845. ANIMAL-MUZZLE. THOMAS H. JOHNSON, Plymouth, Fla. Filed Jan. 5, 1894. Serial No. 495,816. (No model.)

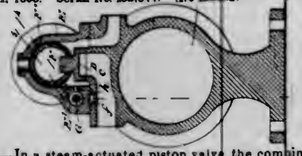


Claim.—1. In an animal muzzle, the combination, with a frame fitting the muzzle of the animal, and a gravity-actuated guard piece at the nose of the frame, of a gravity-actuated locking device for the guard piece, substantially as described.

2. In an animal muzzle, the combination, with a frame fitting the muzzle of the animal, of a guard piece in disk form, limbs arranged to support the guard piece in loose engagement with the frame, weights on said limbs adapted to rock the guard piece, and a locking device for the guard piece, substantially as described.

3. In an animal muzzle, the combination, with a frame fitting the muzzle of the animal, and a gravity-actuated rocking guard piece, of a locking device comprising a supported rock shaft at the front of the frame, an arm on the upper end of said shaft, a finger on the lower end of said shaft, a weighted rock arm on the side of the frame, and a link connecting the rock shaft and the weighted rock arm, substantially as described.

518,846. STEAM-ACTUATED VALVE. JOSEPH J. KWIS, Findlay, Ohio, assignor to the Adams Brothers Company, same place. Filed Aug. 11, 1893. Serial No. 482,877. (No model.)

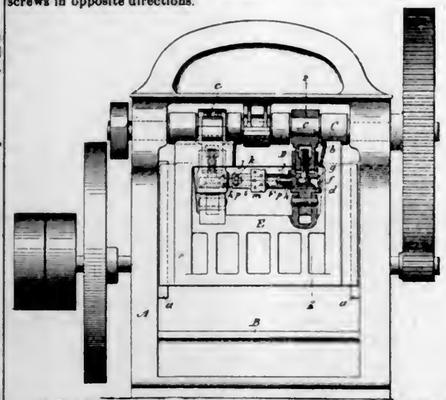


Claim.—In a steam-actuated piston valve, the combination with a steam-chest having a main bore and an auxiliary bore, steam inlet ports leading from the auxiliary bore to the ends of the main bore and exhaust ports which are independent of the inlet ports and lead from the end of the said main bore transversely through the auxiliary bore to the common exhaust passage, of a main piston valve fitted to slide in the said main bore and connected with and carrying the main slide valve, the auxiliary, balanced piston valve fitted to slide in the said auxiliary bore and extending through both ends of the steam-chest, the same being provided with the three reduced portions, G', G^2, G^3, of which one controls the said steam inlet ports and the other the exhaust port for the first named bore, and means, substantially as described, for imparting a sliding motion to the said auxiliary piston valve from the main piston rod, as shown and described.

518,847. ADJUSTABLE POWER-PRESS. FRANK M. LEAVITT, Brooklyn, N. Y., assignor to the E. W. Bliss Company, same place. Filed July 8, 1893. Serial No. 479,916. (No model.)

Claim.—1. In a double-crank power press, the combination with the crank shaft and sliding head, and two pitmen connecting the cranks with the head, each pitman constructed in two sections so as to be adjustable in length, with a longitudinal adjusting screw for relatively adjusting them, of the means for effecting the simultaneous adjustment of the two pitmen, consisting of a transverse shaft extending between them, and supported by them, so as to participate in their movements and gears on said shaft and on the respective screws whereby the turning of said transverse shaft turns both screws to like extent.

2. In a double-crank power press, the combination with the crank shaft and sliding head, and two pitmen connecting the cranks with the head, each pitman constructed in two sections so as to be adjustable in length, with an adjusting screw for relatively adjusting them, the two screws having respectively right and left threads, of the means for effecting the simultaneous adjustment of the two pitmen, consisting of a transverse shaft extending between them, and bevel gears on the opposite ends of said shaft, and similarly-arranged bevel-gears meshing therewith fixed on the respective screws to rotate the two screws in opposite directions.



3. In a double-crank power press, the combination with the crank shaft and sliding head, and two pitmen connecting the cranks with the head, each pitman constructed in two sections the one sliding telescopically into the other and the one formed with internal screw-threads, and a screw having threads engaging said internal threads and itself swiveled to the opposite section so as to be adapted to rotate therein, but incapable of longitudinal motion independent thereof and means for effecting the simultaneous adjustment of the two pitmen consisting of a transverse shaft extending between them, and gears on said shaft and on the respective screws.

4. In a double-crank power press, the combination with the crank shaft and sliding head, and two pitmen connecting the cranks with the head, each constructed in two sections so as to be adjustable in length, with an adjusting screw for relatively adjusting them, and bevel gears fixed on the respective screws, of a transverse shaft extending between the pitmen consisting of end shaft sections having bevel gears meshing with those on the screws, and an intermediate section detachably connected to said end sections.

5. In a double-crank power press, the combination with the crank shaft and sliding head, of two pitmen each constructed in two sections, with an adjusting screw for relatively adjusting them, and bevel gears fixed on the respective screws, and a transverse shaft F extending between the pitmen consisting of end shaft sections $j\,j$ carrying bevel pinions $h\,h$ meshing with said bevel gears, and an intermediate sleeve i constructed to be detachably connected to the shaft sections $j\,j$.

6. In a double-crank power press, the combination with the crank shaft and sliding head, of two pitmen D D each constructed in two sections $b\,d$, the latter formed with a recess g open at one side, an adjusting screw e for relatively adjusting said sections, and a bevel gear f fixed on said screw within said recess, and a transverse shaft extending between the pitmen comprising end shaft sections j and bevel pinions h, and a bushing p applied to each pitman to close said recess and form a bearing for one of said shaft sections.

518,848. MILK-WAGON. NICHOLS MILBANK, New York, N. Y., assignor to the New York Condensed Milk Company, same place. Filed Dec. 8, 1893. Serial No. 493,081. (No model.)

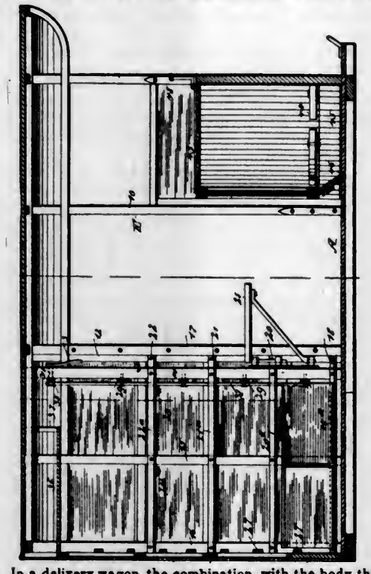
Claim.—1. In a milk delivery wagon, a series of compartments having slideways for supporting milk receptacles, a series of latches pivoted to supports adjacent to such compartments, and a device pivotally connected with said latches and adapted to turn them into or out of the said compartments, for securing or releasing the milk receptacles, as shown and described.

2. In a wagon for the delivery of milk, a series of compartments, slide-ways located in said compartments, a support located between the compartments, latches pivotally connected with the support and capable of extending into transversely opposing compartments, a trip bar connected with the latches, and a lever connected with the trip bar, whereby it is operated, substantially as set forth.

3. In a delivery wagon, the combination, with the body thereof provided with a series of communicating compartments, each compartment being provided with slide-ways, of a post located at one end of all of the compartments, latches eccentrically pivoted upon the said posts, one latch being adapted to extend beyond the post into two adjoining compartments, a trip bar connecting the latches, and a crank connected with the bar whereby it may be drawn on vertically, as and for the purpose set forth.

4. In a delivery wagon, the combination, with the body thereof

provided with side posts or uprights, a central set of posts or uprights, tie bars connecting the sides, and slide-ways arranged in transverse alignment along the side uprights and both sides of the central uprights, of boxes or cases adapted to be supported upon the slide-ways, latches pivoted to one of the outer central uprights and adapted to extend beyond opposite sides of the uprights to an engagement with the outer faces of the boxes or cases, a trip bar connecting the latches, and a means, substantially as shown and described, for operating the bar and limiting its downward movement, as and for the purpose set forth.



5 In a delivery wagon, the combination, with the body thereof provided with side posts or uprights, a central set of posts or uprights, tie bars connecting the sides, and slide-ways arranged in transverse alignment along the side uprights and both sides of the central uprights, of boxes or cases adapted to be located on the slide-ways, latches eccentrically connected with one of the outer central uprights, said latches when in locking position being adapted to engage with the outer surface of the cases, a connecting rod eccentrically attached to all of the latches and provided with recesses to receive the slide-ways, a crank arm connected with the connecting rod, and a lever attached to said crank arm, as and for the purpose specified.

518,849. PNEUMATIC TIRE. JOSEPH G. MOONY, Erie, Pa. Filed Nov. 20, 1893. Serial No. 491,464. (No model.)



Claim.—1. In a pneumatic tire, the combination with the casing thereof; of an air tube constructed substantially as shown and described and that is substantially inexpansible longitudinally throughout its transverse circumference, and is expansible transversely

2. In a pneumatic tire, the combination with the outer casing thereof; of an air tube constructed substantially as shown and described and that is substantially inexpansible longitudinally, and is expansible transversely throughout its transverse circumference.

3. In a pneumatic tire, the combination with the outer casing thereof, of an air tube constructed substantially as shown and described and that is substantially inexpansible longitudinally throughout its transverse circumference and is expansible transversely throughout its transverse circumference

4. In a pneumatic tire, the combination with the casing thereof, of an air tube formed of material composed in part of an elastic substance, such as rubber, and in part of an unwoven fiber, the general direction of which is longitudinal of the tube, said tube expanding against, and being limited by, said casing

5. In a pneumatic tire, the combination with the casing thereof; of an air tube formed of material composed in part of an elastic substance, such as rubber, and in part of a raw fiber, the general direction of which is longitudinal of the tube, said tube expanding against, and being limited by, said casing.

6. In a pneumatic tire, the combination with the casing thereof, of an air tube formed of material composed in part of an elastic substance, such as rubber, and in part of a raw cotton fiber, the general direction of which is longitudinal of the tube, said tube expanding against, and being limited by, said casing.

518,850. PNEUMATIC TIRE. JOSEPH G. MOONY, Erie, Pa. Filed Nov. 20, 1893. Serial No. 491,465. (No model.)



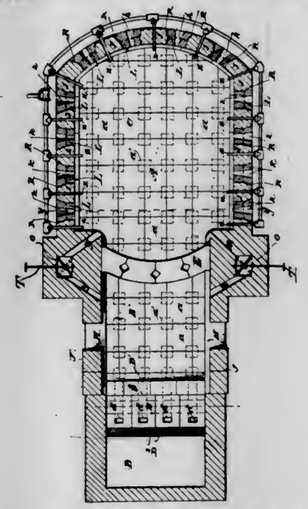
Claim.—1. In a pneumatic tire, the combination with the rim of the wheel, of the tire having an outwardly turned flap that contacts the outer surface of said rim, and has an annular rib on its upper side, and a flanged binder strained circumferentially on said flap and on said rib thereby binding said flap to said surface of the rim for the purposes set forth.

2. In a pneumatic tire, the combination with the rim of the wheel, of the tire having an outwardly turned flap that contacts the outer surface of said rim and has an annular rib on its upper side, and a double flanged binder that fits over said rib and is strained circumferentially thereon thereby binding said flap to said surface.

3 In a pneumatic tire the combination with the rim of the wheel having an annular groove therein; of the tire having an outwardly turned flap which has an annular rib on its under side which fits into the groove in the outer surface of the rim and also an annular rib on its upper side and a flanged binder that is strained circumferentially on said flap upon said upper rib.

4 The combination with a tire binder having perforations, $d\,d$, at the ends thereof, of fastener plate having perforated studs $f\,f$ thereon which are passed through said perforations in the binder, and a locking pin F' passed through the perforations in the studs.

518,851. RECUPERATIVE TANK-FURNACE. REASON R. MORRISON, Mineral Point, Ohio. Filed Mar. 23, 1892. Serial No. 426,166. (No model.)



Claim.—1. In a recuperative tank furnace, the combination of a perforated bridge wall and a solid tank wall between the fuel and batch chambers, a vertical air inclosure D^2 between said bridge and chamber wall, perforated blocks D^3 placed over and covering said bridge and air space, a shoulder D^4 on chamber wall against which said block D^3 abuts, and block d^3 separating the lower portions of the bridge and chamber wall, in combination with the passages d and passages underneath the furnace, substantially as described.

2. In a recuperative tank furnace, the combination with combustion, batch and liquid metal chambers, of a perforated bridge wall and a solid tank wall separating the combustion and batch chambers, a floating bridge between the batch and fluid metal chambers, open air passages underneath the batch and liquid metal chambers communicating with vertical air passages in the bridge, an arched roof covering the chambers, a line of springer blocks supporting said roof and provided with openings, supports for said springer blocks located exterior to the lining wall of the furnace, and side flues and chimneys on either side of the floating bridge, substantially as described.

3. In a recuperative tank furnace, the combination of combustion, batch and liquid metal chambers, bridge and chamber walls separating the combustion and batch chambers, a floating bridge separating the batch and liquid metal chambers, an arched roof over the chambers, springer blocks supporting the roof, supports for the springer blocks exterior to the lining wall of the furnace, side flues piercing the wall of said springer blocks and located on either side of the floating bridge, and chimneys communicating with said side flues substantially as described.

4. In a recuperative tank furnace, substantially as described, the combination of combustion, batch and liquid metal chambers, a floating bridge between the batch and liquid metal chambers, an arched roof over the chambers, side flues and chimneys located on each side of the floating bridge whereby the draft can be excluded from either the batch or liquid metal chambers, substantially as described.

5. In a recuperative tank furnace, the combination of combustion, batch and liquid metal chambers, a bridge and chamber wall separating the combustion and batch chambers, vertical air passages in the bridge, and stools transversely grooved on their upper surfaces for free air circulation and located underneath the adjacent corners of the floor blocks, whereby continuous open air passages are formed communicating with the vertical passages aforesaid, substantially as described.

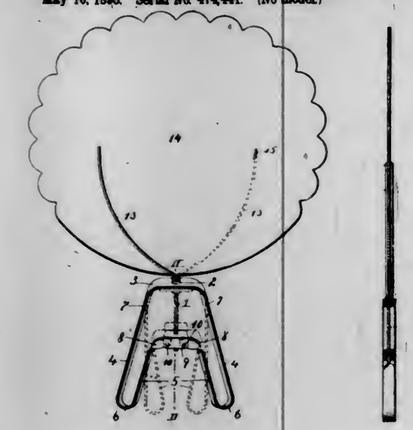
6. In a recuperative tank furnace, the combination of combustion, batch and liquid metal chambers, a bridge and chamber wall separating the combustion and batch chambers, vertical air passages in the bridge, and stools located underneath the adjacent corners of the floor blocks whereby continuous open air passages are formed communicating with the vertical passages aforesaid, substantially as described.

7. In a recuperative tank furnace, an arched roof F of low degree of curvature, springer blocks J, perforated at R, as described, exterior supports G, upon which the springer blocks rest, and blocks I, connecting said blocks with the inner walls of furnace, substantially as described.

8. In a recuperative tank furnace, the combination of an arched roof F, supported independently of the furnace walls upon springer blocks resting upon exterior supports, a layer of detachable connecting blocks, between the springer blocks and inner wall, side openings through the springer blocks, for working holes, and flues leading to side chimneys, substantially as described.

9. The combination with a tank furnace of the floor blocks and the grooved supporting stools for the same; said stools being so located under said blocks that their grooves lie directly under the joints of the same, substantially as described.

518,852. RECIPROCATING FAN. WILLIAM W. MCCALL, Kansas City, Mo., assignor of one-half to William T. Waite, same place. Filed May 16, 1893. Serial No. 474,441. (No model.)



Claim.—1. The combination of a fan having a screw stem secured thereto; a threaded head engaging said stem and a spring bar secured to said stem and head for the purpose of reciprocating said screw and fan; substantially as and for the purpose set forth.

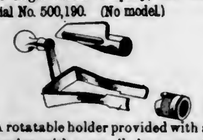
2. The combination of a fan; a threaded stem secured thereto; a spring bar to which said stem is journaled, spring arms 4; a threaded head and means for connecting said arms with said head; substantially as and for the purpose set forth.

3. The combination of a fan; a threaded stem having extending prongs thereon for securing said stem to the fan; a bar to which said threaded stem is journaled; a head working on said screw stem and a spring connecting said head with said bar; substantially as and for the purpose set forth.

4. The combination of a fan; a threaded stem formed of twisted wire and having extensions for connecting the same to a fan; a bearing in which said threaded stem is journaled, and means in connection with said bearing whereby said threaded stem may be reciprocated; substantially as set forth.

5. The combination of a fan, a threaded stem, means for connecting the same with the fan; a spring bar 3, having outwardly extending arms 4, and return arms 5, bent at 6; a head 9, to which said return portions 5, are connected, said head being apertured so as to engage with said threaded stem; substantially as described and for the purpose set forth.

518,853. PENCIL-SHARPENER. FRANK MCINTYRE, Brooklyn, assignor to the Eagle Pencil Company, New York, N. Y. Filed Feb. 15, 1894. Serial No. 500,190. (No model.)

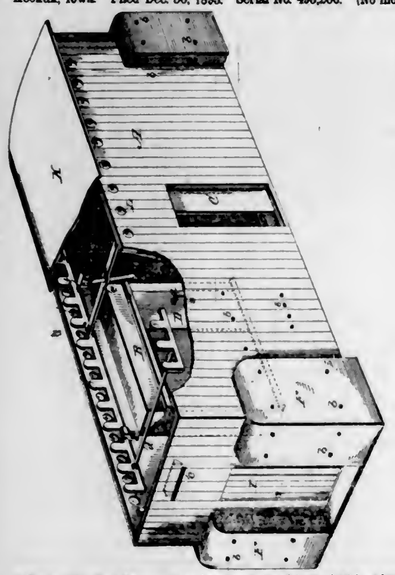


Claim.—1. A rotatable holder provided with a socket and a crank handle, in combination with a pencil sharpener detachably mounted in said socket, but incapable of rotation therein, substantially as set forth.

2. The combination substantially as hereinbefore set forth, of the sharpener, the frame having jaw-like ends to clasp the neck of the sharpener, and a crank handle at its front end, and the ring for clamping said jaws upon the sharpener

---

518,854. SAFETY RAILROAD CAR. CHARLES R. MCMANIS, Keokuk, Iowa. Filed Dec. 30, 1893. Serial No. 495,206. (No model.)



Claim.—1. A safety-car having upon its sides suitable windows, and means for covering or exposing the windows to light or darken the interior of the car, consisting of a plurality of blinds connected together and to transverse rods and a central slotted bar, and an operating hand-lever pivoted to a bracket projecting down from the roof of the car, said lever projecting through the slot in the bar whereby the entire number of blinds upon both sides of the car may be operated simultaneously, substantially as and for the purpose set forth.

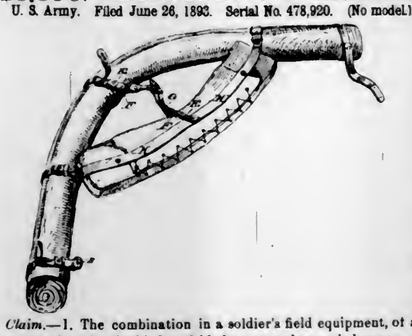
2. A safety-car provided with defense-chambers located at the corners thereof and having port-holes and slides therefor, compartments located within the car and having doors upon both its sides and at one end, suitable windows upon the sides of the car connected together and to transverse rods and a central slotted bar, and a pivoted hand-lever projecting from the roof of the car and extending down through the slot in the bar, whereby the blinds upon both sides of the car may be operated simultaneously, substantially as and for the purpose specified.

518,855. NECKTIE-FASTENER. ISAAC NOAR, New York, N. Y. Filed Oct. 17, 1893. Serial No. 488,421. (No model.)



Claim.—As a new article of manufacture, the herein described improved neck-tie fastening, said fastening comprising a pin made from a single piece of metal pointed at one end, and shaped to form a straight portion *b*, an oblong loop A substantially parallel with the said straight portion, which is centrally disposed with relation to said loop, said loop being offset laterally at the head of the pin, and having its free end terminating in close relation to the said offset, said offset and free end being arranged to pinch the fabric between them and prevent backward movement of the pin, the lower portion of the said loop partially overlying the said straight portion *b*, and adapted to serve as a guard for the neck band, substantially as specified.

518,856. SOLDIER'S FIELD EQUIPMENT. GEORGE H. PALMER, U. S. Army. Filed June 26, 1893. Serial No. 478,920. (No model.)



Claim.—1. The combination in a soldier's field equipment, of a roll arranged to be doubled or folded so as to be carried over one shoulder, and a valise or baggage receptacle detachably connected at each end to the roll near its ends and adapted to be carried on the other shoulder, substantially as specified and for the purposes set forth.

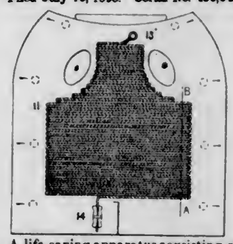
2. The combination in a soldier's field equipment, of a roll arranged to be doubled or folded so as to be carried over one shoulder, a flexible valise or baggage receptacle detachably connected at each end to the roll near its ends and adapted to be carried on the other shoulder, and a strap or connection arranged to pass behind the back and to loosely connect the roll and valise at a point near the middle thereof substantially as shown and described.

3. The combination in a soldier's field equipment, of a half-shelter tent, having triangular pieces J J, which form the ends of said half-shelter tent, roll straps A A, arranged about the ends and provided with connective straps B B, strap D fastened near the middle of the roll and carrying the metal loop or ring F substantially as specified and for the purposes set forth.

4. The combination in a soldier's field equipment, of a flexible valise with strap H running along its middle and provided at its ends with roll straps C C, and strap E connected to the valise and carrying the metal loop or ring F substantially as specified and for the purposes set forth.

5. The combination in a soldier's field equipment, of a half-shelter tent adapted to be rolled, a flexible valise roll straps A A, embracing the ends of the roll and having connective straps B B, straps C C and H connecting the ends of the valise to the roll and straps D, E E with metal loops or rings F F, loosely connecting the roll and valise near their middle parts substantially as specified and for the purposes set forth.

518,857. LIFE-SAVING APPARATUS. LEWIS E. PEASE, Abington, Mass. Filed July 10, 1893. Serial No. 480,042. (No model.)

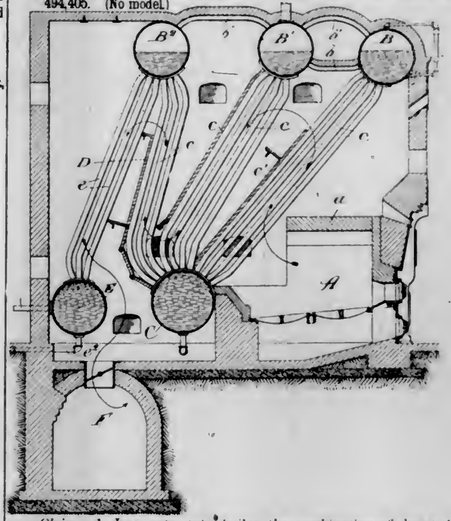


Claim.—1. A life saving apparatus consisting of a fireman's coat provided with a coil of rope which is secured to the coat by means of a lining or straps, as shown and described, so that the rope can be readily separated from the coat, in case of need, substantially as described.

2. A fireman's coat provided with a detachable coil of rope secured to the inner back portion of the coat, said rope being provided with the stop guards, substantially as described.

3. In a life saving apparatus, the combination of a fireman's coat and a coil of rope secured in a detachable manner thereto, said coils being disposed in horizontal courses, substantially as described.

518,858. STEAM-BOILER. HARRY S. PELL, Akron, Ohio, assignor to the Stirling Company, Chicago, Ill. Filed Dec. 22, 1893. Serial No. 494,405. (No model.)



Claim.—1. In a water tube boiler, the combination of elevated drums having steam and water communication with each other, a lower mud drum, tubes connecting the elevated drums with the lower mud drum, a lower feed drum, tubes connecting the lower feed drum with one of the elevated drums, and means for supplying water to the lower feed drum, substantially as described.

2. In a water tube boiler, the combination of three elevated steam and water drums, B and B' and B^2, a lower drum, C, series of tubes connecting the lower drum with each of the elevated drums, pipes affording steam and water communication between the drums B and B' and steam communication between the drums B' and B^2, a lower feed water drum, E, a series of tubes connecting the lower feed water drum, E, with the elevated steam and water drum, B^2, and means for supplying water to the lower feed water drum, substantially as described.

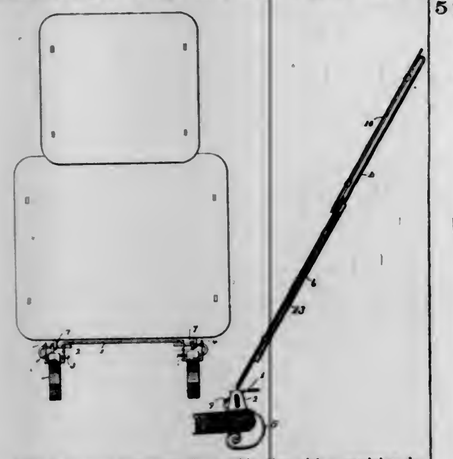
518,859. GARMENT-PROTECTOR. GEORGE ROOKE, Emporia, Kans. Filed Sept. 29, 1893. Serial No. 486,812. (No model.)

Claim.—1. The combination with an extensible garment shield, of mechanism adapted to fixedly adjust the same, substantially as specified.

2. In a garment protector, the combination with an extensible frame and shield, of mechanism at one end thereof secured thereto

adapted to pivotally secure the same to a suitable support, substantially as specified.

3. In a garment protector, the combination of a plurality of shields adjustable with respect to each other and means for securing said shields in any desired adjustment, substantially as specified.



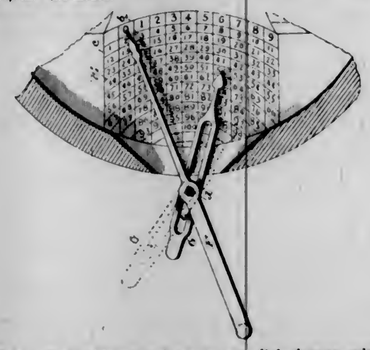
4. In a garment protector, the combination with a retaining device, of an adjustable extensible shield pivotally carried thereon, substantially as specified.

5. In a garment protector, the combination with a movable shield, of a retaining device pivotally supporting the shield and adapted to be secured to a table, and stop mechanism adapted to limit the movement of the shield, substantially as specified.

6. In a garment protector, the combination with a plurality of frames adjustable with respect to each other, of shields of impervious material secured to said frame, substantially as specified.

7. The combination with a frame, shield and bridge, of a clamp secured thereto, a leaf pivoted to the clamp, one part of a cam secured to the leaf and another part pivoted opposite thereto to the clamp, substantially as and for the purposes specified.

518,860. GAME-TABLE. JOHN L. SCHACHEL, New York, N. Y., assignor to John Blum, same place. Filed Dec. 23, 1893. Serial No. 494,542. (No model.)



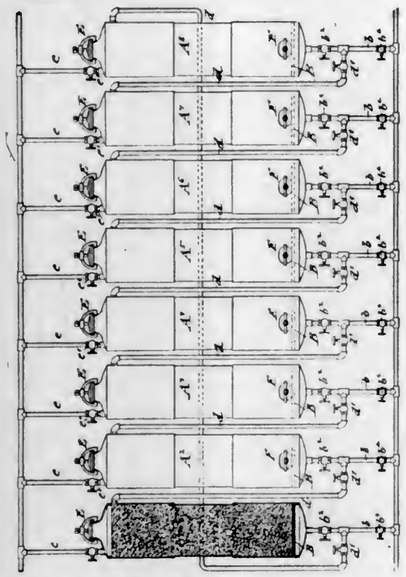
Claim.—1. A table-top and one or more dials thereon, said dial having horizontal and vertical rows of numbers, and two pivoted pointers for each dial, one of said pointers having a sliding or longitudinal movement, substantially as and for the purpose set forth.

2. A table-top provided with one or more dials having a series of numbers thereon, and two separate pointers for each dial connected to the under side of the table-top by a screw-pivot and a nut with which it engages, said nut having exterior screw threads for connecting it to the under side of the table, substantially as and for the purpose described.

3. A table-top having suitable dials with series of figures thereon, and pointers pivoted to the under side of the table-top, one of said pointers having in addition to its pivoted movement a longitudinal movement, substantially as and for the purpose set forth.

4. A table-top having one or more dials with series of numbers thereon, two pointers for each dial pivoted to the table top and one of said pointers having a sliding movement, and means for tightening the pointers upon their pivot, substantially as and for the purpose specified.

518,861. PROCESS OF PRODUCING GLUE AND GELATINE FROM BONES. MAX SCHROEDER, Dusseldorf, assignor of one-half to the Actien-Gesellschaft für Zink-Industrie, vormals Wilhelm Grillo, Oberhausen, Germany. Filed Mar. 10, 1894. Serial No. 503,127. (No specimens.)



Claim.—1. The process herein-described of treating bones for producing glue and gelatine from the same, which consists in the following steps: first, subjecting the bones to dry disintegration by the action of sulphurous acid gas, second, dissolving the brittle disintegrated bones by boiling water or steam, third, neutralizing the acid glue-solution obtained thereby, and lastly, separating the glue-solution from the precipitates for further treatment, substantially as set forth.

2. The process herein described of producing glue and gelatine from bones, which consists of the following steps, first: subjecting the bones to dry disintegration by the action of sulphurous acid gas, second, subjecting the disintegrated or converted bones to the action of boiling water or steam until an acid glue-solution, containing acid calcium-sulfite and bi-calcium phosphate, and a residue containing neutral calcium-sulfite, mono-calcium phosphate and insoluble organic substances is obtained, third, neutralizing the acid glue-solution, and lastly, separating the clear glue solution from the precipitate for further treatment, substantially as set forth.

3. In the process of treating bones for producing glue and gelatine from the same, the dry disintegration or conversion of the bones by subjecting them to the action of sulphurous acid gas, substantially as set forth.

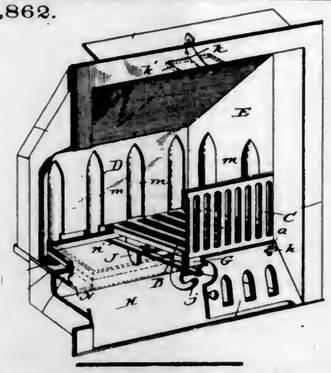
4. In the process of treating bones for producing glue and gelatine from the same, subjecting the bones to dry disintegration by the action of sulphurous acid gas up to the point of saturation, and then permitting them to stand for a certain length of time, substantially as set forth.

518,862. FIREPLACE-HEATER. HORACE B. SCOVILLE, New Waterford, Ohio. Filed June 9, 1893. Serial No. 477,086. (No model.)

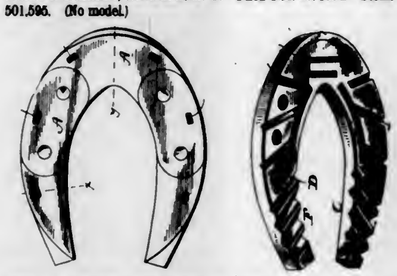
Claim.—1. In a fire place heater having vertical air passages in the back and sides leading from the ash pit, a single damper constructed to control the said back and side air passages located at the top of the ash pit immediately below the grate, substantially as described.

2. In a fire place heater, the combination with the back and the side tilings having vertical air passages in the inner sides, a grate rest having openings corresponding with the said air passages, and a single damper located on the under side of the grate rest to control the openings therethrough, substantially as set forth.

518,862.

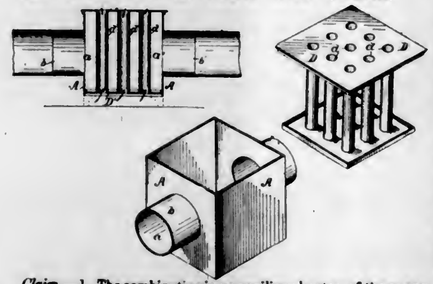


518,863. COMBINATION RUBBER AND STEEL HORSESHOE. ELMER C. SCRIBNER, Neversink, N. Y. Filed Feb. 26, 1894. Serial No. 501,595. (No model.)



Claim.—A horseshoe comprising in combination a metallic base portion made up of two or more sections pivoted together with two free ends tapering as described, a rubber shoe vulcanized to the lower or calked surface of the metallic portion, apertures in the rubber portion for the reception of the calks, nail holes which register with holes in the metallic portions, rubber corrugations as shown, the said compound shoe being capable of adjustment to hoofs of different sizes, substantially as shown and described.

518,864. AUXILIARY HEATER. EDWIN SHEPPARD, Philadelphia, Pa. Filed Mar. 6, 1893. Serial No. 464,926. (No model.)



Claim.—1. The combination in an auxiliary heater, of the casing, inlet and outlet for the gas or hot air, with a cover plate, air pipes and bottom plate secured together and removable from the casing, substantially as described.

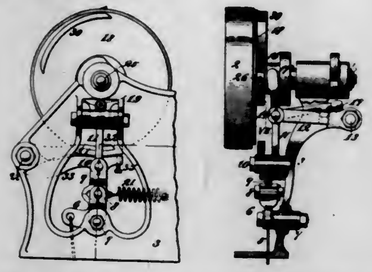
2. The combination in an auxiliary heater, of the casing, inlet and outlet therefor, a cover plate and tubes secured together and removable from the casing, with a support for the casing independent of the connecting pipes, substantially as set forth.

3. The combination in an auxiliary heater, of the inclined casing, vertical hot air or gas passages with pipes, cover plates and bottom plate, secured together and adapted to the inclined casing, substantially as set forth.

4. The combination in an auxiliary heater, of the series of casings connected together, inlets and outlets therefor, removable tubes and cover plates adapted to each casing, with a support upon which the several casings rest, substantially as set forth.

5. The combination in an auxiliary heater, of the casing, inlet and outlet for the gas or hot air, with a cover plate overlapping the casing and sealed, a flanged bottom plate adapted to snugly fit in the casing, tubes extending through and attached to both the top and bottom plates whereby the tubes and plates can be removed bodily from the casing, substantially as set forth.

518,865. CLUTCH. CHARLES SINNING, St. Louis, Mo., assignor to the Sinning Lasting Machine Company, same place. Filed Nov. 4, 1893. Serial No. 489,996. (No model.)



Claim.—1. The combination of a pulley, a clutch adapted to engage the pulley, a shaft upon which the pulley and clutch are mounted, a spring for forcing the clutch into engagement with the pulley, means for disengaging the clutch from the pulley, and a cam turned by said shaft, and which is adapted to engage said means to force the clutch out of engagement with the pulley; substantially as set forth

2. The combination of a pulley, a clutch adapted to engage the pulley, a shaft upon which the pulley and clutch are mounted, a spring for forcing the clutch into engagement with the pulley, a bell-crank lever engaging the clutch, a cam carried by said shaft, and which is adapted to engage one end of the bell crank lever, to disengage the clutch, and means for moving the bell-crank out of the path of said cam, substantially as and for the purpose set forth

3. The combination of a pulley, a clutch adapted to engage the pulley, a shaft upon which the pulley and clutch are mounted, a spring for forcing the clutch into engagement with the pulley, a bell-crank lever engaging the clutch, a pivoted link to which the bell-crank lever is secured, a cam carried by said shaft, and which is adapted to move said lever to disengage the clutch, and means for drawing said bell-crank lever and pivoted arm downwardly away from said cam; substantially as and for the purpose set forth.

4. The combination of a pulley, a clutch adapted to engage the pulley, a shaft upon which the pulley and clutch are mounted, a spring for forcing the clutch into engagement with the pulley, a bell-crank lever engaging said pulley, a cam adapted to engage one end of the bell crank lever, and means for supporting and moving said lever out of the path of said cam; said means consisting essentially of a pivoted link 12, links 9 and 11, a bell-crank lever 6, secured at one end to said link 9, and at the other end to a moving lever, and a spring 21: substantially as and for the purpose set forth.

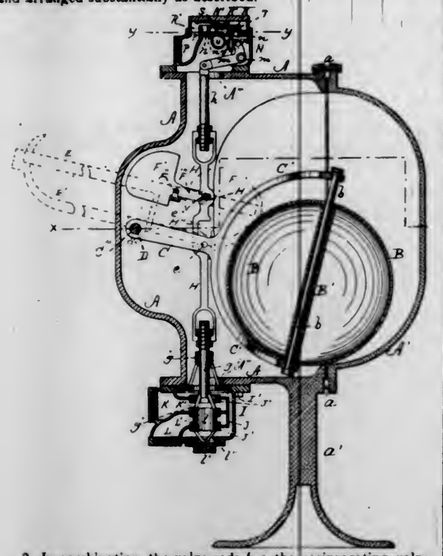
5. The combination of a pulley, a clutch adapted to engage the pulley, and having a brake rib 30, a shaft upon which the pulley and clutch are mounted, a spring for forcing the clutch into engagement with the pulley, a bell crank lever engaging the clutch, a cam carried by the shaft, and which is adapted to engage said bell-crank lever, and means for moving said bell crank lever, and applying a brake; consisting essentially of links 9 and 11, a bell crank lever 6, a brake bar 31, and a lever 33; substantially as and for the purpose set forth.

518,866. AUTOMATIC WATER-FEEDER. CHARLES A. SOUTHWICK, Peabody, Mass. Filed Sept. 2, 1891. Serial No. 404,514. (No model.)

Claim.—1. In an automatic water feeder, the combination of the reservoir A, the valve shell N secured to the upper side thereof and provided with the internal horizontal ledge or valve seat *n* having the openings or ports *n'* and steam inlet P, the sliding valve R provided with the ports R' and held down upon the valve seat by the spring 8, the cap N', the bell crank *m* pivoted to the shell, the vertical rod T extending down from the sliding valve R through one of the openings in the valve seat, the sliding tube *t* on said vertical rod, the exhaust U, the valve rod *h*, and actuating mechanism, constructed and arranged substantially as set forth.

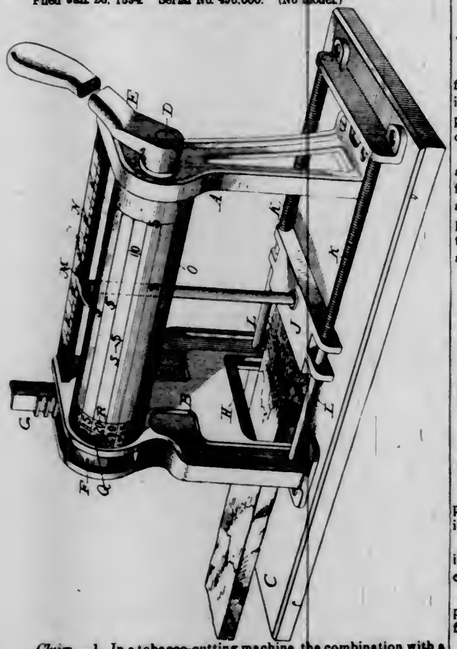
2. In an automatic water feeder, the combination of the reservoir A, the valve-shell I and internal shell J provided with the tubular portion J', said tubular portion having the ports K' L', the water-

inlet K, water-outlet L, tubular valve *l*, and valve-rod *g*, all constructed and arranged substantially as described.



3. In combination, the valve-rods *h g*, the reciprocating valve-rod frame H connecting said valve-rods, said frame provided with the opening H″ and notch H′, the swinging frame C C′ pivoted to the reservoir and engaging the frame or stem H by means of the opening H″ and itself engaged by the float B sliding on the rod *b* held by said frame C C, the tilting-frame E E′ sustaining the ball F and actuated by the shaft D, and the reservoir, substantially as set forth

518,867. TOBACCO-CUTTER. RUFUS T. STEDMAN, Winston, N. C. Filed Jan. 26, 1894. Serial No. 498,080. (No model.)



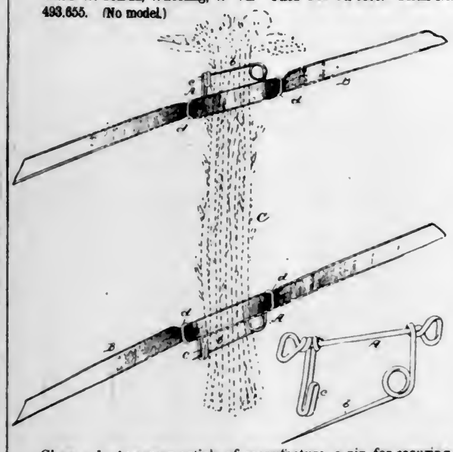
Claim.—1. In a tobacco-cutting machine, the combination with a main frame, cutter and its actuating mechanism; of a gage or follower provided with a pointer: and a scale graduated to indicate the length and value of the plug to be cut, and also the value of a stated portion of such plug.

2. In a tobacco-cutting machine, the combination with the main frame, the cutter and its actuating mechanism; of a gage or follower, a scale N divided into inches; a scale O graduated to indicate the length and value of the plug to be cut, and also the value of a portion of such plug, and a pointer carried by the follower and working in conjunction with both scales.

3. In a tobacco-cutting machine, the combination with a main frame, a cutter, and means for actuating the latter; of a gage or follower, a scale divided into inches, a second scale indicating the values of different plugs of given length and the values of portions of such different plugs; and a pointer carried by the follower and working in conjunction with both scales.

4. In combination with a main frame, cutter, and its actuating mechanism, a gage or follower provided with a pointer; and a rotary scale indicating the length and values of different plugs, and also the values of portions of said plugs.

518,868. PIN FOR ATTACHING FLOWERS TO DRESSES. EDWARD W. STIFEL, Wheeling, W Va. Filed Dec. 14, 1893. Serial No. 493,655. (No model.)



Claim.—1. As a new article of manufacture, a pin for securing flowers to dresses, consisting of a piece of wire bent and twisted about itself to form a body terminating in two closed loops, a projecting portion adjacent to each loop, and a spring pin and hook at the ends of the said projecting portions, as shown and described

2. In a pin for securing flowers to dresses, the combination with a pin, consisting of a piece of wire bent and twisted about itself to form a body terminating in two closed loops, a projecting portion adjacent to each loop, and a spring pin and hook at the ends of the projecting portions, of a ribbon passed through the closed loops of the pin with its ends projecting therefrom to adapt them to be tied around the flowers, substantially as herein shown and described

518,869. FRETTED MUSICAL INSTRUMENT. WILLIAM H. R. TOYE, Philadelphia, Pa., assignor of one-half to George N. Wright, same place. Filed May 26, 1892. Renewed Mar. 14, 1894. Serial No. 503,639 (No model.)



Claim.—1 A fretted and stringed instrument having its head provided with a telescopic casing having a closed bottom and openings in its top and sides, substantially as and for the purpose set forth

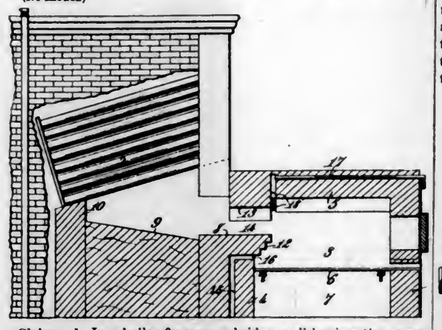
2. A fretted and stringed instrument having a casing inclosing its head, and a tube secured to said casing and passing through said casing, said parts being combined substantially as described

3. A fretted and stringed instrument having a casing for its head provided with a sound reflector therein, said reflector having a muffler, substantially as described.

4. A fretted and stringed instrument having a casing for its head provided with a sound reflector therein, and a spring-controlled pin adapted to contact with said reflector, substantially as described.

5. A fretted and stringed instrument having a head with a casing, and a tube with one end in said casing, and the other end connected with the key board, said parts being combined substantially as described.

518,870. BOILER-FURNACE AND SMOKE-CONSUMER. ROBERT R. TURNER, Columbus, Ohio. Filed Feb. 17, 1894. Serial No. 500,581. (No model.)



Claim.—1. In a boiler furnace, a bridge wall having the upper end of its front portion provided with a series of forwardly projecting angular courses successively extending one beyond another, and a series of tuyeres formed in the body of the bridge wall and discharging horizontally directly beneath the said angular courses, substantially as described..

2. In a boiler furnace, a bridge wall having the upper end of its front part provided with a series of projecting angular courses successively extending one beyond another, tuyeres formed in the body of the bridge wall and discharging horizontally directly beneath the said angular courses, and an arch forming the top wall of the fire-chamber and having the rear portion overhanging the bridge wall projected downwardly below the inner face of the remaining portion and formed with a series of tuyeres which discharge downwardly in front of the front face of said downwardly projected end of the arch, substantially as described.

3. In a boiler-furnace, a fire-chamber separated from the boiler-chamber by a fire-bridge having a portion of its wall lying above the grate projected toward the outer end of the fire-chamber, the top of the latter being provided with a downwardly projecting portion which overhangs the fire-bridge and drops below the remaining part of the top wall, said fire-bridge and top being provided with tuyeres discharging beneath the projection of the former and in front of the dropped portion of the latter, substantially as described.

4. In a boiler-furnace, the combination with a fire-bridge having a series of tuyeres discharging, beneath a projecting portion of the wall, overhanging the rear end of the fire-chamber, of an arched top to the fire-chamber, having a series of tuyeres discharging downwardly in front of a downwardly projected portion which overhangs the fire-bridge, substantially as described.

5. In a boiler-furnace, a fire-bridge having a series of angular projecting courses which extend successively and overhang the rear end of the fire-chamber, a series of tuyeres discharging beneath the lower angular course, an arched top wall having that portion which overhangs the fire-bridge dropped below the remaining portion, and a series of tuyeres discharging downward in front of said dropped portion, substantially as described.

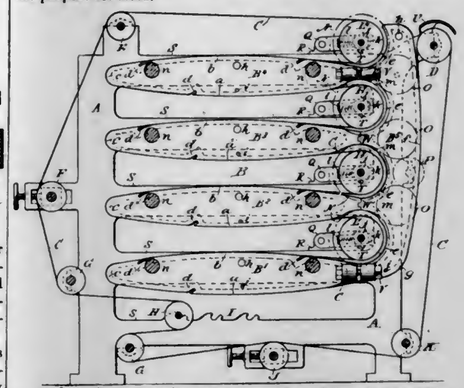
6. In a boiler furnace an upwardly arched, or convex fire-bridge, having a series of successively projecting angular courses which overhang the rear end of the fire-chamber, a series of tuyeres discharging air beneath the lower angular course, an arched top wall having that concave portion which overhangs the curved fire-bridge dropped below the remaining portion and a series of tuyeres discharging in front of said dropped, concave part, substantially as described.

518,871. IRONING-MACHINE. FREDERICK C. WENDELL, Brooklyn, N. Y. Filed Mar. 20, 1893. Serial No. 466,957. (No model.)

Claim.—1. In an ironing machine, an oblong drum having frictional polishing ironing faces on its opposite sides against and across which the goods to be ironed are successively passed, and means for pressing the goods against and rubbing them over the ironing faces of said drum successively and in opposite directions, on the different faces, substantially as and for the purpose set forth.

2. In an ironing machine, an oblong drum having ironing faces on its end connecting said faces on its sides, over which faces the goods to be ironed are successively passed, and means for pressing the goods against and rubbing them over said ironing faces substantially as and for the purpose set forth.

3. In an ironing machine, a stationary drum having a curved frictional polishing ironing face on its one side, and a frictional polishing ironing face on its opposite side, and means for pressing the goods to be ironed against and rubbing them over one ironing face of said drum in one direction to the end of such face, and means for receiving said goods after traversing said face and pressing them against and rubbing them over the other ironing face of said drum to the end thereof in the opposite direction, whereby the goods traverse the respective faces of said drum successively, substantially as and for the purpose set forth.



4. In an ironing machine, a stationary heated drum having a frictional polishing ironing face on one of its sides, and a convex frictional polishing ironing face on its other side, an apron passing across said convex face and pressing the goods to be ironed thereagainst and rubbing them thereover in one direction, and means for pressing said goods against and rubbing them over the other of said ironing faces of said drum in the opposite direction, substantially as and for the purpose set forth.

5. In an ironing machine, a stationary drum having frictional polishing ironing faces on two of its sides, and a curved intervening frictional polishing ironing face between and connecting said ironing faces, and means for pressing the goods against and rubbing them over one of the ironing faces on one of the sides of the drum, and an apron moving against said intervening face and across the ironing face on the other side of the drum and pressing the goods against and rubbing them over said faces successively, substantially as and for the purpose set forth.

6. In an ironing machine, an oblong drum having frictional polishing ironing faces on its opposite sides, in combination with means for pressing the goods against and rubbing them over one of said ironing faces in one direction, then transferring them to the other side of the drum, and then pressing them against and rubbing them over the other ironing face of the drum in the opposite direction.

7. In an ironing machine, an oblong drum having convex ironing faces on its opposite sides, in combination with an apron for carrying the goods to be ironed against said faces, whereby the goods to be ironed can be passed successively over said faces, and by reason of the convexity thereof will be held by said apron in intimate contact therewith.

8. In an ironing machine, an oblong drum having long convex ironing faces *a* and *b* on its opposite sides, and an intermediate rounded end face *c* connecting said faces *a* and *b*, substantially as and for the purpose set forth.

9. In an ironing machine, an oblong drum having ironing faces on its opposite sides, in combination with an apron embracing both sides of said drum, a feed roller carrying said apron to the entrance end of one face of said drum, and a transfer roller over which said apron passes at the delivery end of the other face of said drum, whereby the goods to be ironed can be fed on to said apron, and will be drawn by the latter across the one face of the drum and then back across the other face of the drum, substantially as and for the purpose set forth.

10. In an ironing machine, an oblong drum having ironing faces on its opposite sides, in combination with an apron for carrying goods to be ironed against said faces, a feed roller over which said apron passes in approaching the entrance end of the first ironing face, a transfer roller over which said apron passes at the delivery end of the other face, and a curved ironing face embracing said apron opposite said transfer roller, whereby the goods are successively drawn over

said ironing faces of said drum, and then over said curved ironing face while traversing said transfer roller.

11. In an ironing machine, a drum having an ironing face, in combination with an apron for carrying the goods to be ironed against said face, a yielding transfer roller over which said apron passes at the end of said face, and a concave ironing face fixed relatively to said drum opposite said roller and embracing the goods while passing thereover on said apron, whereby the goods are ironed while traversing said roller, and the latter can yield to prevent jamming of the goods against said curved face, substantially as and for the purpose set forth.

12. In an ironing machine, a plurality of stationary drums disposed in proximity, and each of said drums having an ironing face on its side adjacent to the ironing face of the next drum, in combination with means for carrying the goods to be ironed in contact with and rubbing them against said faces successively, substantially as and for the purpose set forth.

13. In an ironing machine, a plurality of oblong drums having convex ironing faces on their opposite sides, in combination with a transfer roller between the adjacent drums, and an apron for carrying the goods to be ironed and traversing successively the opposite faces of one drum, said transfer roller, and the face of the adjacent drum.

14. In an ironing machine, a plurality of drums disposed in proximity, and having ironing faces on their adjacent sides, in combination with a curved ironing face between said drums and connecting the ironing faces thereof, a transfer roller between said drums adjacent to said curved ironing face, and an apron passing over said roller and traversing successively the ironing face of one drum, said curved ironing face, and the ironing face of the adjacent drum, substantially as and for the purpose set forth.

15. In an ironing machine, a plurality of oblong drums disposed in proximity, and having ironing faces on the opposite sides, in combination with a drum opposite the end of said drums and having a curved ironing face at one side communicating between the adjacent ironing faces of said oblong drums, and an outer ironing face on its opposite side communicating with the opposite ironing face of one of said drums, a transfer roller between said oblong drums within said curved ironing face, and an apron traversing successively said outer ironing face, the ironing face of the drum with which said outer ironing face connects, said transfer roller, and the curved ironing face opposite it and the ironing face of the succeeding drum, substantially as and for the purpose set forth.

16. In an ironing machine, a plurality of horizontally disposed oblong drums having ironing faces on their outer sides and arranged in proximity, in combination with a vertical drum, curved faces on its inner side communicating respectively between the adjacent ironing faces of the adjacent horizontal drums, and having a substantially vertical outer ironing face communicating with the ironing face of the end drum of said horizontal series, transfer rollers between the adjacent faces of said horizontal drums, a feeding roller opposite the outer face of said vertical drum, a delivery roller beyond the last drum of the horizontal series, and an apron passing over said feeding roller and traversing successively the outer face of said vertical drum, the opposite faces of the horizontal drum in connection therewith, the curved ironing face between said drum and that adjacent to it, the transfer roller between said drums, the corresponding ironing faces and rollers of the succeeding drums, and said delivery roller, whereby said apron traverses the opposite sides of said drums, substantially as and for the purpose set forth.

17. In an ironing machine, an ironing face constructed with a moisture-escape groove *d* inclined relatively to the line of the face and having a curved wall merging into the surface of the face to permit the free passage of the goods over such groove, substantially as and for the purpose set forth.

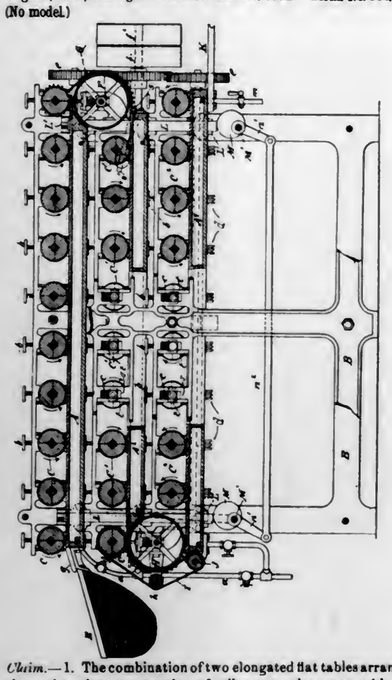
18. In an ironing machine, a sinuous frictional polishing ironing surface, in combination with an endless apron for carrying the goods to be ironed in contact with said surface, traversing the latter throughout all its sinuosity substantially as and for the purpose set forth.

19. In an ironing machine, a plurality of ironing surfaces disposed in proximity and one above another, in combination with an endless apron for carrying the goods to be ironed traversing successively all such ironing surfaces, and moving in a sinuous path, substantially as and for the purpose set forth.

20. In an ironing machine, the drums B′ and B² having opposite ironing faces, the curved ironing face *e* communicating between said faces and having the recess *m* at top, in combination with a transfer roller yieldingly mounted within said face *e* opposite said recess *m*, and an apron traversing said ironing faces and passing over said roller, whereby when the latter yields it can move into said recess *m*, substantially as and for the purpose set forth.

21. In an ironing machine, the drums B′, B², B³ and B⁴ having ironing faces on their opposite sides, in combination with curved ironing faces *e* communicating between the adjacent faces of adjacent drums, transfer rollers L′, L², L³ between said drums respectively, gears N on said transfer rollers, idlers O meshing with said gears, and drive-pinion P driving one of said idlers, and an apron traversing the respective ironing faces and each of said transfer rollers, whereby the driving power is applied to said apron between each of said drums, substantially as and for the purpose set forth.

518,872. IRONING-MACHINE. FREDERICK C. WENDELL, Brooklyn, N. Y. Filed Jan. 9, 1890. Renewed Oct. 29, 1892. Again renewed Aug. 23, 1893, and again renewed Mar. 22, 1894. Serial No. 504,724. (No model.)



Claim.—1. The combination of two elongated flat tables arranged one above the other, a succession of rollers over the upper table and means for revolving them to propel the goods to be smoothed over the table in one direction, a similar succession of rollers over the second table and means for revolving them in the opposite direction, mechanism intervening between the delivery end of one table and the receiving end of the other table for transferring the goods from one table to the other, and separate uprights and frames supporting said tables and said rollers constructed to permit their relative movement.

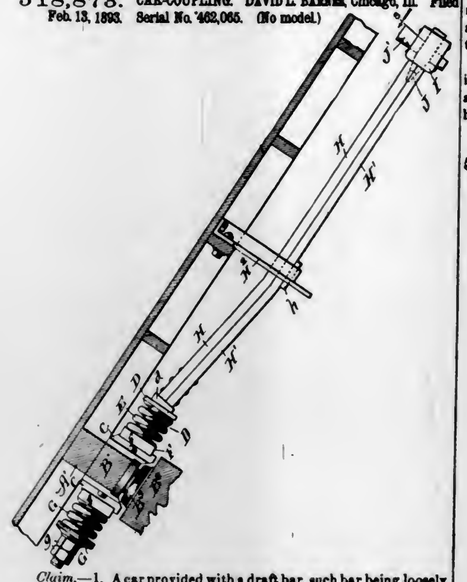
2. The combination of two tables arranged one above the other, a succession of rollers over the upper table and means for revolving them to propel the goods to be smoothed over the table in one direction, a similar succession of rollers over the second table and means for revolving them in the opposite direction, a roller or cylinder arranged to receive the goods at the delivery end of the upper table and transfer them to the receiving end of the lower table, and means for holding the goods against the surface of said cylinder during their transfer from one table to the other.

3. The combination of two tables arranged one above the other, a succession of rollers over the upper table and means for revolving them to propel the goods to be smoothed over the table in one direction, a similar succession of rollers over the second table and means for revolving them in the opposite direction, a cylinder arranged to receive the goods from the delivery end of the upper table and transfer them to the receiving end of the lower table, and a hood held firmly close against said cylinder to retain the goods in contact therewith during their transfer and movable away therefrom to get access to the surface of the cylinder.

4. The combination of three tables arranged one above another a succession of rollers over each table and means for driving them to propel the goods to be smoothed in one direction over the first table in the opposite direction over the second table and again in the original direction over the third table, means for transferring the goods from the delivery end of the first table to the receiving end of the second and means for transferring them from the delivery end of the second table to the receiving end of the third table, the latter means consisting of a cylinder intervening between the upper surfaces of the second and third tables, and a succession of tapes passing partly around said cylinder for holding the goods against the cylinder during their passage between the tables.

5. The combination of supporting side frames, a succession of rollers extending between said frames and having their journals guided thereby, a long flat table arranged beneath said rollers and movable up and down relatively to the side-frames, vertical tracks on the latter, provisions on the table engaging and traveling on said tracks, and mechanical means for so raising or lowering the table at will constructed to simultaneously and uniformly move both ends thereof at the one operation.

518,873. CAR-COUPLING. DAVID L. BARNES, Chicago, Ill. Filed Feb. 13, 1893. Serial No. 462,065. (No model.)



Claim.—1. A car provided with a draft bar, such bar being loosely mounted upon the king-bolt of the car and provided with a coupling head adapted to be rigidly connected to a similar coupling head on the adjacent car, and springs mounted on the draft bar and abutting against the bolster of the car, whereby the cars are coupled through their bolsters, substantially as described.

2. In a car, the combination of a king-bolt, a draft bar loosely mounted thereon, a coupling head upon the draft bar, means whereby such coupling head is rigidly connected to a similar head upon an adjacent car, plates secured to the car, and plates mounted upon the draft bar and engaging with those attached to the car, whereby the cars are coupled together through their bolsters, substantially as described.

3. In a car, the combination of a king-bolt, a draft bar loosely mounted thereon, plates secured to the car and plates mounted upon the draft bar and engaging with those attached to the car, and means whereby the plates are kept in engagement with each other, substantially as described.

4. In a car, the combination of a king-bolt, a draft bar loosely mounted thereon, curved plates secured to the car and curved plates mounted upon the draft bar and engaging with those attached to the car, and springs abutting against the plates, whereby the cars are coupled together through their bolsters, substantially as described.

5. The combination of a king bolt, a draft bar connected to such bolt and to the car by means of substantially a ball and socket connection, and a coupling head upon such draft bar, substantially as described.

6. In a railroad car, the combination of a king bolt, a draft bar provided with a slot surrounding such bolt, curved plates secured to the car, curved plates mounted upon the draft bar and engaging with those attached to the car, and suitable springs mounted upon the draft bar and engaging with the curved plates upon such bar and with suitable washers thereon, substantially as described.

7. A draft bar comprising a solid portion D, provided with a slot to receive the king bolt, and with a lug D^4, a portion made of the two channel irons inclosing and secured to the lug, and a head inclosing the forward end of the channel irons and secured thereto, substantially as described.

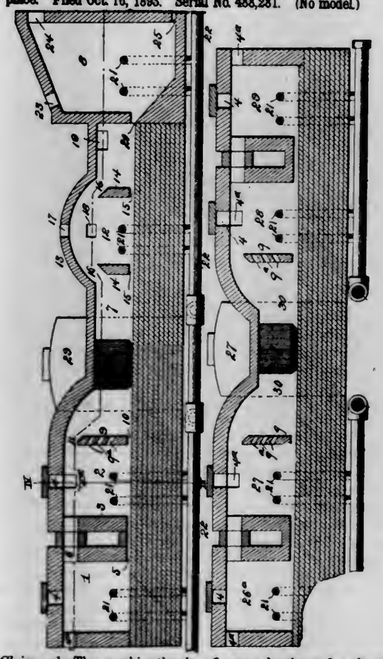
8. In a railroad car, a draw bar secured to the car bolsters by a universal joint and carrying a coupling head adapted to be rigidly connected to a head carried by a draw bar similarly attached to the adjacent car, substantially as described.

9. In a railroad car, the combination of a slotted bolster, a slotted draft bar passing therethrough, a king bolt passing through the bolster and draft bar, and curved friction plates mounted respectively on the bolster and the draft bar, whereby such draft bar is enabled to move forward and back and sidewise, substantially as described.

10. In a railroad car, the combination of a slotted bolster, slotted curved plates secured thereto, a slotted draw bar passing through the slot in the plates and bolster, slotted curved plates mounted upon such draw bar and engaging with the plates on the bolster, springs mounted upon the draw bar and abutting against washers on such bar and against the curved plates thereon, and a king bolt passing through the bolster and the slot in the draw bar, substantially as described.

11. The combination of a hollow draw bar provided with heads inclosing and secured to the same, a link within such draw bar, and a beveled link pin, whereby such head is rigidly secured to a similar head upon an adjacent draw bar, substantially as described.

518,874. FURNACE FOR SMELTING AND REFINING ORES. LOUIS R. BOWERS, St. Louis, Mo., assignor to William H. Swift, same place. Filed Oct. 16, 1893. Serial No. 488,281. (No model.)



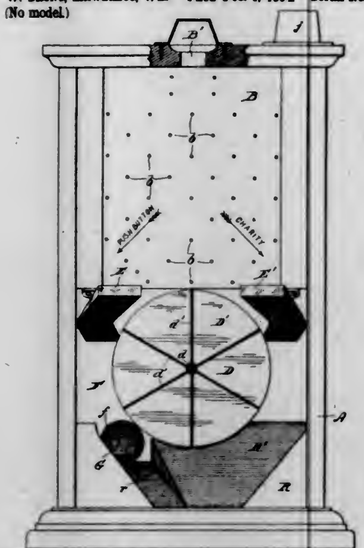
Claim.—1. The combination in a furnace, having a fire chamber, an epurator, and a purifier; the purifier being formed with ingress, egress and charging openings, the epurator being formed with openings for the passage of metal and gases and for charging, and a passage 7 connecting the fire chamber with the epurator and passages connecting the epurator and purifier, substantially as shown and described.

2. The combination of a furnace, a purifier having ingress, egress and charging openings, a conduit connecting the furnace with the purifier, and an epurator located in the conduit near the purifier, and consisting of a dome in the top of the furnace, and partitions extending across the conduit, and with openings above and below them; substantially as and for the purpose set forth.

3. The combination of a double furnace located at one end of a conduit, a double furnace located on each side of the conduit, and communicating therewith, a purifier having ingress, egress and charging openings communicating with said conduit, and an epurator having openings for the passage of metal and gases and for charging located in the conduit between the furnaces and the purifier; substantially as and for the purpose set forth.

4. The combination of a purifier having openings 25 and 26, a conduit communicating with the purifier through an opening 20, and having a chimney flue 19 near the purifier, an epurator 12 located in the conduit and having openings for charging it with fuel and for the passage of metal and gases, and furnaces communicating with said conduit; substantially as and for the purpose set forth.

518,875. CHECK-CONTROLLED GAME APPARATUS. GEORGE W. BRONG, Milwaukee, Wis. Filed Feb. 1, 1894. Serial No. 498,686. (No model.)



Claim.—1. A game apparatus comprising a suitable casing, having a slot in its upper end for the admission of checks or chips, a plurality of obstructions in the path of said checks or chips, a wheel located in the lower part of the casing, and provided with a plurality of compartments for checks or chips, a locking device for normally holding said wheel stationary, a chute adapted to receive checks or chips, and a lock freeing device adapted for engagement by a check or chip, which passes through said chute, and a device extending to the outside of the casing and adapted for operation by hand, to free said locking device, and effect a partial rotation of the wheel substantially as and for the purpose described.

2. A game apparatus comprising a suitable casing, having in its upper end a slot for the insertion of checks or chips, a movable receptacle for checks or chips, in the lower part of the casing, a device for normally locking said receptacle from movement, a chute adapted to receive certain of said chips or checks, a lock freeing device adapted for engagement by a check or chip which descends through said chute, and adapted to engage with and adjust said receptacle and a device extending to the outside of the casing and adapted for operation by hand to adjust said lock-freeing device, substantially as described.

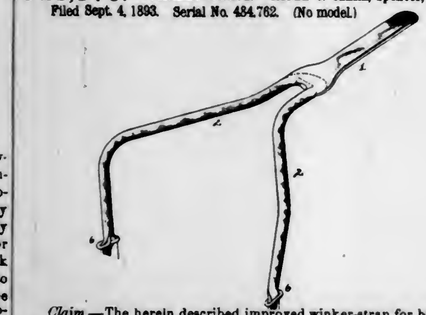
3. A game apparatus comprising a suitable casing, provided in its upper end with a slot for checks or chips, a plurality of obstructions in the path of said checks or chips a receptacle for checks or chips movably supported in the bottom of said casing, a device for normally holding said receptacle from movement, a chute adapted to receive certain of said checks or chips, a device adapted for engagement by a check or chip which passes through said chute, and adapted for operation by a suitable device which extends to the outside of the casing, to adjust said receptacle, so as to discharge its contents and a hopper or receptacle adapted to receive the discharged checks or chips, and provided with an outlet aperture through which said checks or chips may discharge from the casing, substantially as described.

4. A game apparatus comprising a suitable casing, provided in its upper end with a slot for checks or chips, a plurality of obstructions in the path of said checks or chips, a receptacle for checks or chips movably supported in the bottom of said casing, a device for normally holding said receptacle from movement, a chute adapted to receive certain of said checks or chips, a device adapted for engagement by a check or chip which passes through said chute, and adapted for operation by a suitable device which extends to the outside of the casing, to adjust said receptacle, so as to discharge its contents and a hopper or receptacle adapted to receive the discharged checks or chips, and provided with an outlet aperture for the discharge of said checks or chips from the casing, the lower end of said chute being also arranged to discharge into said hopper or receptacle, substantially as described.

5. A game apparatus comprising a casing having a slot in its upper end for the insertion of checks or chips, a plurality of obstructions in the path of said checks or chips a receptacle for checks or chips movably supported in the bottom of the casing, a device for normally holding the receptacle from movement, a chute adapted to receive certain of said checks or chips, a device adapted for engagement by a check or chip, which passes through said chute, and adapted for operation by suitable devices extending to the outside of the casing, to adjust said receptacle so as to discharge its contents, a hopper, adapted to receive the discharged checks or chips and provided with an outlet aperture for the discharge of said checks or chips from the casing, and a second chute adapted to receive certain of the checks or chips, and arranged to discharge into a suitable compartment or receptacle within the casing substantially as described.

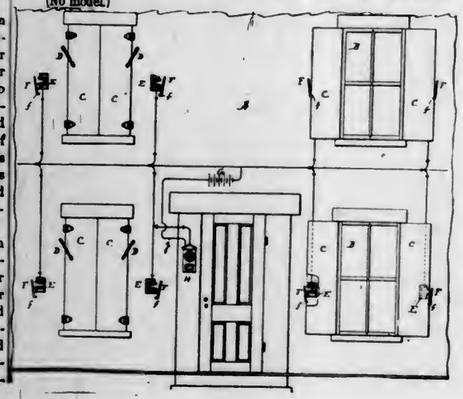
6. A game apparatus comprising a casing A having a slot in its upper end, board B, provided with obstructions *b*, arranged beneath said slot, the revoluble wheel D, adapted to receive checks or chips, chute E leading into the back part of the casing, chute E leading to the locking mechanism, bell crank I, arm L connected with said bell crank and adapted to adjust the wheel by engagement with the wheel H on the axis thereof, push rod J engaged with the bell crank and provided with the push button J', and the hopper R' communicating with the discharge aperture *a* and arranged to receive checks or chips discharged from the wheel D and the locking mechanism, substantially as described.

518,876. WINKER-BRACE. ABNER C. CLARK, Spencer, Mass. Filed Sept. 4, 1893. Serial No. 484,762. (No model.)



Claim.—The herein described improved winker-strap for bridle-blinds, the same comprising the forked branches, and the V-shaped wire around which the branches are stitched to points near their lower ends, below which said branches terminate in flexible tabs for attachment to the winkers or blinds, the branches of the said wire extending from the branches of the strap above the tabs and bent upon themselves and outward at an angle to form loops or eyes through which the tabs are passed, substantially as specified.

518,877. ELECTRIC RELEASING DEVICE FOR DOORS. SAMUEL H. CURWEN, Salem, Mass. Filed July 12, 1893. Serial No. 480,198. (No model.)



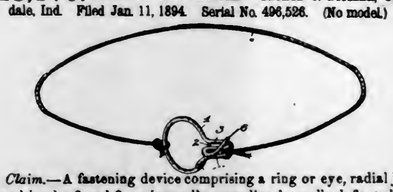
Claim.—The combination with a series of automatically closing shutters or doors, of a main line having interposed therein a current generating device, a series of branch circuits each including an electro-magnet controlling an armature acting to hold the shutter or door open, a circuit closer interposed between the main line and the branch circuits consisting of a stationary disk provided with a number of insulated contact points each connected with one of the branch circuits, a contact arm adapted to successively contact with the insulated contact points, a mechanical motor for rotating said contact arm, and a pivoted lever normally holding said motor against rotation but permitting, when released, one complete revolution of the said contact arm, substantially as shown and described and for the purpose specified.

518,878. FLOCK-PAPER. LOUIS DANOIS, Paris, France. Filed Dec. 20, 1892. Serial No. 455,837. (Specimens.)

Claim.—1. As a new article of manufacture, flock paper consisting of a tinted paper having a pattern imprinted in its surface in colored paste, a coating of boiled oil and white lead applied over said pattern, and an outer coating of silk flock applied over said compound, substantially as described.

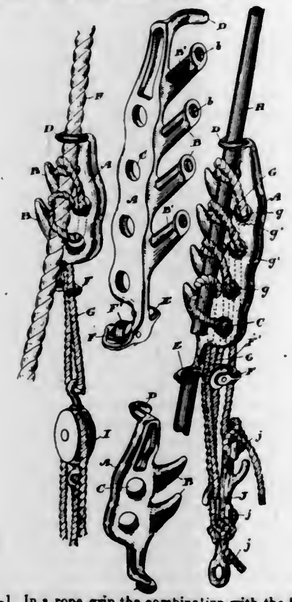
2. The process herein described of making silk flocked paper, consisting in first imprinting a pattern in the surface of the paper with colored paste, applying a coating of boiled oil and white lead thereto, sprinkling silk flock over the pattern, agitating the paper, and finally brushing the same, substantially as described and for the purpose specified.

518,879. BAG OR FODDER TIE. GEORGE C. DITZLER, Uniondale, Ind. Filed Jan. 11, 1894. Serial No. 496,526. (No model.)



Claim.—A fastening device comprising a ring or eye, radial juxtaposed hooks, 2 and 3, an inwardly extending laterally deflected engaging finger 4, and an outwardly extending laterally deflected guard or stop-finger 6, said engaging finger and guard or stop-finger being carried respectively by said hooks and forming the extremities thereof, substantially as specified.

518,880. ROPE-GRIP. ARTHUR K. EVANS, Toronto, Canada. Filed Nov. 10, 1893. Serial No. 490,513. (No model.)



Claim.—1. In a rope grip the combination with the body plate having laterally extending hooks and a corresponding number of holes made in the body plate of a gripping rope designed to be passed over the rope to be gripped, over the hooks, through the holes and have the power applied to it as specified, the said body plate having a retaining hook extending from the body nearest the portion of the rope to which the strain is to be applied as and for the purpose specified.

2. In a rope grip the combination with the body plate having laterally extending hooks and a corresponding number of holes in said body plate, of a gripping rope adapted to be passed over the rope to be gripped, through the holes, and have power applied as specified the said body plate having arms or hooks E F extending from opposite sides of its lower end with a pulley journaled in one of said hooks, substantially as described.

3. In a rope grip the combination with the body plate having laterally extending hooks and a corresponding number of holes made in the body plate of a gripping rope designed to be passed over the rope to be gripped, over the hooks, through the holes and have the power applied to it as specified, the said body portion having a retaining hook extending from the body nearest the portion of the rope to which the strain is to be applied and an oppositely turned retaining hook situated on the opposite end of the body of the plate as and for the purpose specified.

4. In a rope grip the combination with the body plate having laterally extending hooks recessed and having rollers rotatably secured within such recesses and a number of holes corresponding in number to the hooks made in the body plate of a gripping rope designed to be passed over the rope to be gripped, over the hooks, through the holes, and have the power applied to it as specified, the said body plate having a retaining hook extending from the body of the plate nearest the portion of the rope to which the strain is to be applied as and for the purpose specified.

518,881. VEHICLE-WHEEL. FREDERICK A. FISCH, St. Louis, Mo., assignor of one-third to George H. Miller, same place. Filed Aug. 21, 1893. Serial No. 483,677. (No model.)



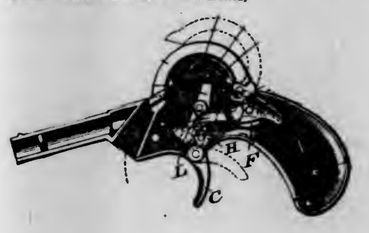
Claim.—1. A wedge for expanding vehicle wheels constructed of two pieces 8 and 9 held together by rivets 12, and projections 13 and 14 formed on the opposite sides of said pieces, substantially as set forth.

2. An expansion vehicle wheel constructed with a ferrule one end of which is closed and provided with a screw threaded aperture therein, a washer located in said ferrule, a screw-threaded shaft constructed to engage the screw threaded aperture in the closed end of the ferrule, and means for operating the same, substantially as set forth.

3. A tire tightener, consisting of a ferrule 22 which is constructed with one end closed, a slot 23 formed in the side of said ferrule, a screw-threaded shaft 25 constructed with a flattened portion, a head 27 formed on one end of said shaft to engage a washer 28, and means for operating the same, substantially as set forth.

4. In combination with a vehicle wheel, a ferrule 22 adjustably located on the end of the spoke, a washer 28 located in said ferrule adjacent the end of the spoke, a screw threaded shaft 25 having an enlarged head 27 formed thereon which is constructed to pass through the closed end of said ferrule and engage said washer, a nut 30 so constructed that when it is turned it will turn the screw-threaded shaft, all arranged and combined to operate in the manner set forth.

518,882. TOY PISTOL. JONATHAN GOOD, Ridley Park, Pa.; Mary P. Good administratrix of said Jonathan Good, deceased. Filed May 29, 1893. Serial No. 475,966. (No model.)



Claim.—1. In a toy pistol, the arm J pivoted to a dog which is connected with the pistol hammer and adapted to be engaged by the trigger, and a stationary guiding pin in a slot in said arm for guiding the latter in its movement, said parts being combined substantially as described.

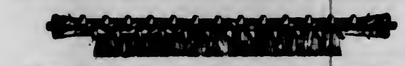
2. The hammer, the dog pivotally connected with said hammer, the rising and falling arm pivotally connected with said dog, and the trigger adapted to engage with said dog and advance and afterward raise the same, said arm being provided with a finger which is adapted to sweep over the bed on which the fulminate strip is supported, substantially as described.

3. In a toy pistol, a bed on which the fulminate strip is supported and guided, a spring above the same a pivoted arm provided with a feeding finger which is adapted to sweep over said bed and afterward contact with said spring, and mechanism substantially as described for vibrating said pivoted arm substantially as described.

4. In a toy pistol, an arm having a finger and a slot, a dog connected with said arm and with the hammer, and a trigger having an elevating head which is adapted to engage said dog, and thus raise said arm, the frame having a guiding pin in the slot of said arm, substantially as described.

5. In a toy pistol, a hammer with a dog pivoted to its heel, a trigger with a head engaging a shoulder on said dog, an arm pivoted to said dog, and provided with a finger at its upper end, a pin secured to the casing of the pistol and inserted in a slot in said arm a bed over which said finger moves, a spring bearing against said bed, a spring bearing against the heel of the hammer and a post in the handle on which to wind a roll of fulminates, said parts being combined substantially as described.

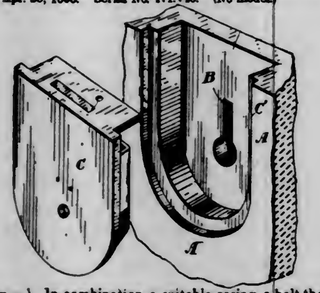
518,883. WOVEN PILE FABRIC. HARRY HARDWICK, Philadelphia, Pa. Filed May 9, 1892. Serial No. 432,285. (No model.)



Claim.—1. The within described warp thread consisting of a twisted coarse yarn of material incapable of use alone as a warp thread, and a finer twisted yarn wound upon the surface thereof, the twist being in the same direction in both yarns and the said yarns being substantially of the same length whereby they may bear equal strain, substantially as and for the purpose set forth.

2. The within described cut pile fabric consisting of a backing of interwoven warps and wefts, and pile-forming warps combined with said backing fabric, and consisting of twisted coarse yarns of material incapable of use alone as warp threads, and finer twisted yarns wound upon the surface thereof, twisted in the same direction therewith, the said yarns being substantially of the same length whereby they may bear equal strain, substantially as and for the purpose set forth.

518,884. LOCK. FREDRICK W. HARRIS, Woodstock, Canada. Filed Apr. 25, 1893. Serial No. 471,746. (No model.)

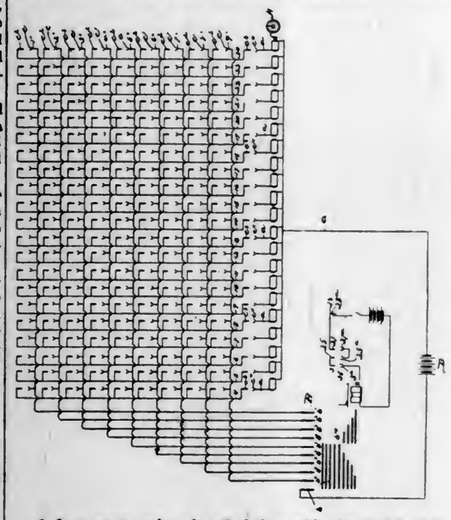


Claim.—1. In combination, a suitable casing, a bolt therein having a notched lower part E', a key guide having a series of wards, a spring H secured to the bolt and holding the same in position and a key having bits, substantially as described.

2. The combination with the bolt, E, provided with the shank, E', and the key guide, F, provided with the wards, *f*, the innermost ward of which has a notch, *f'*, of the spring, H, having the lug, *h*, designed to project slightly into the notch, *f'*, as and for the purpose specified.

518,885. TABULATING SYSTEM. HERMAN HOLLERITH, Washington, D. C. Filed Aug. 1, 1889. Serial No. 482,007. (No model.)

Claim.—1. The combination of a switch mechanism controlled by a record card, a series of independent circuits each containing a relay and connected with said switch mechanism and a normally open independent local circuit including the circuit controlling devices of said relays arranged in series; substantially as described.



2. In a system, such as described, the combination with the controlling record card or strip, the switch mechanism and circuits controlled thereby, of a relay included in each switch circuit and a normally open master or starting circuit including a series of circuit controlling devices operated by the relays of the switch circuits.

3. In a system, such as described, containing an integrating mechanism, a switch mechanism controlling a plurality of circuits and a starting or master circuit, the combination therewith, of a series of relays controlled by the switch circuits and having their circuit controllers arranged in the master or starting circuit.

4. In a system, such as described, containing an integrating mechanism, a switch mechanism controlling a plurality of circuits and a starting or master circuit, the combination therewith of a series of relays controlled by the switch circuits and having their circuit controllers in the master or starting circuit and a device for setting in action the integrating mechanism controlled from the master or starting circuit.

5. In a system, such as described, the combination of the following elements: an integrating mechanism, a switch mechanism controlling a plurality of circuits, a motor; a master circuit, a detent mechanism controlled from the master circuit and a relay included in one of the switch circuits and having its circuit controller in the master circuit.

6. In a system, such as described, the combination of the integrating mechanism, a master or starting circuit, a motor, a detent mechanism provided with a magnet in the master circuit and a circuit including the magnet of the detent mechanism and a circuit closer operated by the integrator mechanism to effect a second movement of the detent mechanism.

7. In a system, such as described, the combination of the following elements, an integrating mechanism, a switch mechanism having two series of groups of contacts one of said series communicating with the integrator and the other with circuit connections containing relay magnets, a circuit closer such as the bar b^{11}, a detent mechanism for the integrator, a master or starting circuit including the magnet of the detent mechanism and the contacts of the relays, and a separate or branch circuit including the magnet of the detent mechanism and a circuit closer operated by the integrator mechanism.

8. In a system, such as described, the combination of a switch mechanism provided with two series of groups of contacts and a record card or strip controlling communication between the respective series of groups of contacts, a magnet connected to each group of contacts of one series and a switch, operating periodically to connect all the groups of the other series of contacts with the generator.

9. In a system, such as described, the combination of a switch mechanism provided with two series of groups of contacts and a record card controlling communication between the contacts of the two series, a relay magnet connected to each group of contacts of one series, an integrator mechanism controlling the flow of current through the circuits of the switch mechanism and a series of local register circuits each including the contacts of one of the relay magnets.

10. In a system, such as described, the combination of the integrator mechanism; the switch mechanism; the series of relays in circuit with the switch mechanism, a series of local register circuits each including the circuit controller of one of the relays and a circuit closer operated by the integrator mechanism to connect the local register circuits with a generator or source of power.

11. In a system, such as described, the combination of the switch mechanism provided with two series of groups of contacts and a record card; a series of relay magnets in circuit with the switch mechanism; an integrator mechanism controlling the flow of current through the circuits of the switch mechanism, a switch or bar for simultaneously and preliminarily closing all the circuits through the switch mechanism; and a series of local register circuits each including a relay contact and a circuit closer forming part of the integrator mechanism.

12. In a system, such as described, the combination of a switch mechanism adapted to be controlled by a record card, a series of relays connected to the switch mechanism; a series of local register circuits each controlled by one of said relays and an integrating mechanism controlling the transmission of current or power through the switch mechanism circuits and through the local register circuits respectively.

13. In a system, such as described, the combination of the following elements: a switch mechanism whose circuits are controlled by a record card; a series of relays connected to the switch mechanism; a series of local register circuits controlled by said relays; an integrator mechanism controlling the transmission of the current through the local register circuits and provided with a detent or starting mechanism; and a master circuit controlled by relays connected to the switch mechanism and operating upon the starting or detent mechanism to inaugurate the movement of the integrator mechanism when the switch mechanism circuits are closed.

14. In a system, such as described, the combination of the following elements: a switch mechanism comprising two series of groups of contacts and a record card; a series of relay magnets connected to one of the said series of groups of contacts; an integrator mechanism connected to the other of said series of groups of contacts and provided with means for simultaneously closing all of the several circuits through the switch mechanism; a series of local register circuits controlled by the said relay magnets and by the integrator mechanism; and a master or starting circuit for the integrator mechanism controlled by relays included in the several circuits through the switch mechanism.

15. In a system, such as described, the combination of the following elements; a switch mechanism whose circuits are controlled by a record card; a series of relays connected to the switch mechanism, a series of local register circuits controlled by said relays; an integrator mechanism controlling the passage of currents through the local register circuits; a detent mechanism for starting the integrator mechanism operating to arrest the integrator mechanism at intervals during one complete movement; a master or starting circuit controlled by relays connected to the switch mechanism and a separate or branch circuit controlling the detent mechanism and in turn controlled by the integrator mechanism, whereby after the integrator mechanism has been set in motion by the closing of the circuits through the switch mechanism it will be arrested before arriving at the starting point and held until the circuits through the switch mechanism are opened.

16. In a system, such as described, the combination of the following elements; a switch mechanism controlled by a record card; a series of relays connected to the switch mechanism; an integrator mechanism controlling the passage of current through the circuits of the switch mechapism and the relays; a series of local register circuits arranged in multiple arc with a generator circuit; and a circuit closer forming part of the integrator mechanism operating to complete the generator circuit.

17. In a system, such as described, the combination of the following elements; a switch mechanism controlled by a record card; two series of relays connected to the switch mechanism, an integrator mechanism controlling the passage of current through the circuits of the switch mechanism and the relays; a series of local register circuits arranged in multiple arc with a generator circuit, each of said local register circuits being controlled by one of the said relays; a master or starting circuit controlling the movements of the integrator mechanism and including the contacts of one of said series of relays arranged in series.

18. In a system, such as described, the combination of the following elements: a switch mechanism whose circuits are controlled by a record card, relays connected to the switch mechanism; an integrator mechanism and a master or starting circuit including two sets of contacts, the one controlled directly by the movement of the switch mechanism and the other by the relays.

19. In a system, such as described, provided with a switch mechanism an integrator mechanism, register circuits and a master or starting circuit for the integrator mechanism and in combination with said master or starting circuit, a mechanically operated circuit controller affected by the position of the record card and an electrically operated circuit controller in circuit with the switch mechanism, said circuit controllers cooperating to start the integrator mechanism.

20. In a system, such as described, the combination of a switch mechanism whose circuits are controlled by a record card, an integrator mechanism; a master or starting circuit controlling the movements of the integrator mechanism and two circuit controlling means connected to the master circuit one of said circuit controlling means being governed by the movement of the switch mechanism and the record card or strip and the other circuit controlling means being governed by the circuit connections of the switch mechanism.

21. In a system, such as described, the combination with the integrator mechanism and the switch mechanism, of a master or starting circuit for the integrator mechanism provided with a mechanically operated circuit controlling device and an electrically operated circuit controlling device, the former actuated by contact with the record card and the latter by the failure to close a circuit through the switch mechanism, to prevent the starting of the integrator mechanism.

22. In a system, such as described, the combination with the integrator, the switch mechanism whose connections are controlled by a record card and a master or a starting circuit through which the movements of the integrator mechanism are controlled of a contact carried by the movable section of the switch mechanism and included in the master circuit and a series of relay contacts also included in the master circuit and controlled by relays in the circuits of the switch mechanism.

23. In a system, such as described, the combination of the following elements; a series of register circuits; an integrator mechanism; a switch provided with two series of groups of contacts, the one connected to the integrator mechanism for controlling the production of different series of electrical impulses in the register circuits and the other connected to a series of relay magnets one for each register circuit; a master circuit through which the movements of the integrator mechanism are controlled, said master circuit containing two circuit controlling devices, the one operated directly by the movement of the switch mechanism and the other by the relay magnets; and a record card through which connection is made between the two series of groups of contacts of the switch mechanism, whereby, when the record card is properly placed between the members of the switch and the movable section of the latter is brought down, the circuit controller connected to the switch will close the master circuit at one point, and if the record card contains a hole in each column, the several relays will be operated to close the other circuit controlling device in the master circuit and start the integrator mechanism, but in case a card is not properly located or has not at least one hole in each column, the master circuit will not be completed and the integrating mechanism will be prevented from starting.

24. In a system, such as described, the combination of an integrator mechanism, a register circuit; a switch mechanism provided with a series of conductors, such as b' to b^9 connected to the integrator and each adapted to control the production of a different series of electrical impulses in the register circuit, an opposing conductor having a series of contacts, such as one of the group of contacts 4 to 24 and a record card by means of which communication is established between any one or more of the series of conductors and the opposing series of contacts; and a series of tell-tale registers one for each of said series of conductors, adapted to register the number of impulses controlled by said conductors, whereby at each complete movement of the integrator, the tell-tale registers will each indicate the number of impulses controlled by its conductor or circuit, and in the event that two contacts are connected with two of the series of conductors the tell-tale register belonging to the conductor of lower value will receive the number of impulses controlled by the conductor of higher value thereby indicating a defective record card.

25. In a system, such as described, the combination of a series of register circuits; an integrator mechanism adapted to control the production of different numbers of impulses in the register circuits; a switch mechanism provided with two series of groups of contacts the one series connected with the integrator and each group of said series controlling the production of a different series of impulses in the register circuits, the other series of groups of contacts serving to connect any one or more of the contacts of the first series and to designate the register circuit in which the impulses are to operate, and a record card for controlling the connections between the said two series of contacts; and a series of tell-tale registers one for each of the first mentioned series of groups of contacts.

26. In a system, such as described, the combination of the following elements: a switch mechanism provided with two series of groups of contacts and a record card controlling communication be-

tween the contacts of the two series; a relay magnet connected to each group of one series of contacts; an integrator mechanism connected to the other series of groups of contacts and controlling the flow of current to the circuits of the switch mechanism, a series of local register circuits each controlled by one of the relays and a series of local tell tale circuits each controlled by a relay connected to one of that series of groups of contacts which is in communication with the integrator.

27. In a system, such as described, the combination of the following elements, an integrator mechanism; a switch mechanism; a relay in a circuit controlled by the switch mechanism; a master or starting circuit for the integrator mechanism, including a contact controlled by the relay of the switch mechanism; and a series of local tell tale register circuits controlled by relays connected to the switch mechanism.

28. In a system, such as described, the combination of the following elements, an integrator mechanism, a switch mechanism, a series of relays in the circuits controlled by the switch mechanism, a master or starting circuit for the integrator mechanism including the circuit controller of the relays arranged in series; a series of local register circuits; and a series of local tell-tale register circuits each controlled by a relay connected to the switch mechanism.

29. In a system, such as described, and in combination with an integrator mechanism, and a switch mechanism, the master or starting circuit provided with two circuit controlling devices the one operated mechanically by the switch mechanism and the other electrically through the circuits of the switch mechanism and the series of tell-tale registers controlled by the switch mechanism, whereby the starting of the integrator mechanism is prevented when the record card is incorrectly positioned, or not fully punched, and whereby also the overpunching of the card is indicated to the operator

30. In a system, such as described, the combination of an integrating mechanism for producing different series of impulses, a series of register circuits, a switch mechanism for directing the transmission of any given series of impulses through any designated register circuit, and mechanism for automatically preventing the starting of the integrator mechanism when the record card of the switch mechanism is improperly placed or insufficiently punched.

31. A system, such as described, consisting of the following elements in combination, an integrating mechanism, a series of register circuits, a switch mechanism for directing the transmission of any given series of electrical impulses, through any given register circuit; mechanism for automatically starting the integrator when the record card is properly positioned and fully punched; and devices connected with the switch mechanism for indicating overpunching of the record card.

32. In a system, such as described, the combination with the switch mechanism, the series of relays connected to one section of the switch mechanism a record card or strip controlling the latter and the series of contacts or brushes connected to the other section of the switch mechanism of an integrator formed or provided with a conducting plate, such as B^2 of varying width in the direction of the motion of said plate operating to close the circuits through the switch mechanism during different intervals.

33. In a system, such as described, the combination with the switch mechanism, a series of relays connected to one section of the switch mechanism and a series of contacts or brushes connected to the other section of the switch mechanism of the integrator provided with a conducting plate, such as B^2, of varying width, a series of local register circuits each controlled by one of the relays and a circuit breaker moving in unison with the said conducting plate and operating to produce electrical impulses in the local register circuits.

34. In a system, such as described, the combination with the switch mechanism, and its record card, a relay in circuit with the switch mechanism, an integrator provided with a conductor, such as B^2, for closing the circuits through the switch mechanism, a local register circuit controlled by the relay a circuit breaker moving in unison with the integrator conductor operating to produce electrical impulses in the local register circuit when closed by its relay.

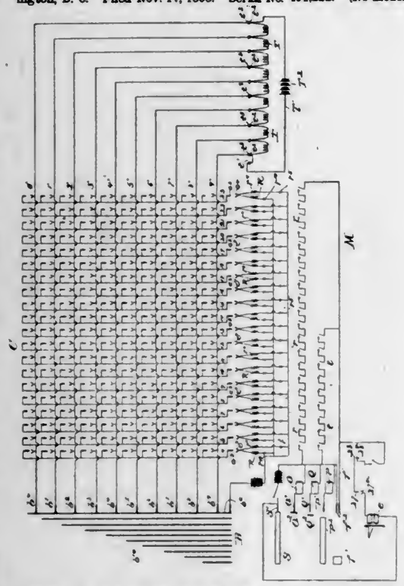
35. In a system, such as described, the combination with the switch mechanism and its record card, a relay in circuit with the switch mechanism, an integrator provided with a conductor for closing the circuits through the switch mechanism during different intervals, a local register circuit controlled by the relay, a series of local tell-tale register circuits each controlled by a relay connected to the switch mechanism, and a circuit breaker for transmitting electrical impulses through the local register circuits and local tell tale register circuits while the latter are held closed by their relays.

36. In a system, such as described, as a means for controlling the movements of the integrator, the combination with the latter, of the détent mechanism, comprising the two stops carried by the shaft of the integrator, the arm engaging said stops alternately, a master or starting circuit, a branch circuit, circuit controlling devices for said circuits and the magnet in the master or starting circuit, said magnet being energized to start the integrator by the closing of the master circuit and again energized before the integrator completes its movement by the closing of the branch circuit.

37. In a system, such as described, the combination with the integrator, of the detent mechanism comprising the two stops carried by the shaft of the integrator, the arm engaging said stops alternately, a master or starting circuit, a branch circuit, circuit controlling devices for said circuits, and the magnet in the master or starting circuit controlling the movement of said arm, said magnet operating to start the integrator when the master circuit is closed through the switch mechanism, and to stop the integrator by the automatic closing of the branch circuit just before the integrator completes its movement.

38. In a system, such as described, the combination of the switch mechanism and the integrator, of a motor, a detent mechanism, a master or starting circuit, including a magnet controlling the detent mechanism and contacts controlled by the switch mechanism, said magnet being operated by the closing of the master circuit to release the integrator and again operated by the closing of a second or branch circuit by the integrator to arrest the movement of the latter, said branch circuit including a contact connected to the switch mechanism and operating to open the circuit and permit the completion of the movement of the integrator upon the opening of the switch mechanism.

518,886. TABULATING SYSTEM. HERMAN HOLLERITH, Washington, D. C. Filed Nov. 17, 1893. Serial No. 491,222. (No model.)



Claim.—1. In a system, such as described, the combination of a switch mechanism controlled by a record card; a starting or releasing circuit; magnets arranged in series in a local circuit and controlling contacts in the said starting or releasing circuit; and circuit connections between the switch mechanism and the local circuit magnets operating to short circuit or cut out one or more of the magnets when cross connections are formed in the switch mechanism; substantially as described.

2. In a system, such as described, the combination with a switch mechanism provided with two opposing series of groups of contacts and a record card controlling the same; a contact connected to each group of one of said series of groups of contacts; a local circuit containing magnets controlling a starting or detent circuit; and contacts at opposite ends of each of said last named magnets, cooperating with the said contacts of the switch-mechanism, for short circuiting said magnets; substantially as described.

3. In a system, such as described, the combination of the switch mechanism; an integrator mechanism connected with said switch mechanism; a master circuit and detent controlled thereby; contacts in series in a branch of the master-circuit; a series of magnets controlling said branch contacts; and contacts for short circuiting the magnets of said last named series through the switch mechanisms substantially as described.

4. In a system, such as described, the combination with the integrator, switch-mechanism and record-card, of the series of relay magnets in a local circuit, with intermediate connections leading to the

switch mechanisms; the contacts of said relays being arranged in a circuit including the starting magnet for the integrator, substantially as described.

5. In a system, such as described, the combination with the integrator, switch mechanism, registers, and a starting circuit controlled from the switch-mechanism, of a series of circuit controllers located in a branch of the starting circuit and controlled through relays connected to the switch-mechanism, substantially as described.

6. In a system, such as described, the combination of the following elements, an integrator-cylinder; a switch mechanism controlled by a record card; a master or starting circuit for the integrator, containing relay contacts arranged in series; relay magnets connected to the switch mechanism and controlling the relay contacts in the master circuit; and contacts or circuit closers in the relay-magnet circuits, said contacts being controlled by the integrator: substantially as described.

7. In a system, such as described, the combination of the following elements: an integrator cylinder; a switch mechanism controlled by a record-card; a series of register controlling magnets connected to the switch mechanism; and a series of circuit closers in the register magnet circuits controlled from the integrator cylinder, substantially as described.

8. In a system, such as described, the combination of the following elements: an integrating cylinder; a switch mechanism controlled by a record-card; a master circuit containing relay contacts in series; relay magnets connected to the switch mechanism and controlling the relay contacts in the master circuits; a series of register controlling magnets connected to the switch mechanism; and circuit closers or contacts in the register and relay circuits controlled from the integrator, substantially as described.

9. In a system such as described, the combination of the following elements: an integrator cylinder; a switch mechanism controlled by a record-card; a master circuit with relay contacts in series; relay magnets controlling said relay contacts connected to the switch mechanism; a series of register controlling magnets connected to the switch-mechanism; contacts in the relay and register circuits controlled from the integrator cylinder; a series of relays in a local circuit; relay contacts in a branch of the master circuit; and contacts controlled from the integrator cylinder for closing and connecting said local relay circuit to the switch mechanism: substantially as described.

10. In a system, such as described, the combination of the following elements: a switch mechanism containing two opposing sections each containing a plurality of contacts; a master or starting circuit, a local circuit including a magnet, a circuit closer for said local circuit, connections between said local circuit and separate contacts of the switch mechanism for short circuiting or cutting out said local circuit magnet, and circuit connections in the master circuit controlled by the local circuit magnet; substantially as described.

11. In a system, such as described, the combination of the following elements: a switch mechanism controlled by a record card and provided with two series of conductors, a starting or master circuit containing relay contacts controlled through connections with one series of conductors of the switch, a branch of the starting or master circuit containing contacts controlled through connections with the other series of conductors of the switch; substantially as described.

12. In a system, such as described, the combination with the integrator cylinder, the switch mechanism and the starting or master circuit, of the following elements: register magnets connected with one series of groups of contacts of the switch, relay magnets connected to the same series of groups of contacts, circuit closers in each of said relay and register circuits, contacts arranged in series in the master circuit and controlled by said relays, a local circuit containing a second series of relays, contacts for connecting the switch mechanism to said local circuit, a contact for closing said local circuit contacts controlled by said local circuit relays located in a branch of the master circuit, and actuating devices controlled by the integrator cylinder for successively closing and opening the first mentioned relay circuits, the local relay circuit and the register circuits, respectively, substantially as described.

13. In combination with the integrator, the detent mechanism provided with three stop pins operating in conjunction with a movable pin, a magnet controlling said movable pin, a master-circuit containing relay contacts in series and including the aforesaid magnet, a branch of the master circuit including a second series of relay contacts, a second branch of the master circuit including contacts movable with the integrator to close said branch and actuating devices controlling the two series of relay contacts said devices being controlled through the switch mechanism and integrator: substantially as described.

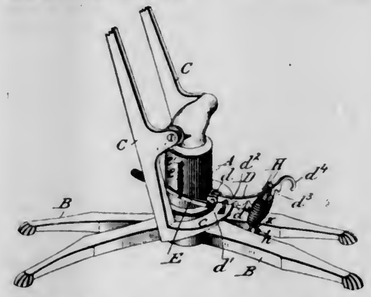
14. In a system, such as described, the combination with the integrating cylinder and the switch mechanism adapted to be controlled by a record, of the series of relay magnets T, in a local circuit containing contacts t^2 and a circuit closer t' contacts t^3, connected to the switch mechanism, relay contacts t arranged in series in the master circuit and magnet Q, brush Q' and contact O^3 controlling said contacts $t\ t'\ t^2$; substantially as described.

15. In a system such as described and in combination with the integrator, the switch mechanism and master or starting circuit, a series of magnets R, each connected in circuit with the switch through a contact r^{10}, contacts r arranged in series in the master circuit and controlled by magnets R, and a magnet O in circuit with brush O' and contact O^3 for operating said contacts r^{10}; substantially as described.

16. In a system, such as described, and in combination with the integrator, switch mechanism and master circuit, a series of register magnets r^4, a series of magnets R, contacts r^{10} for the circuits of magnets R, contacts r^5 for the circuits of magnets r^4, contacts r in the master circuit controlled by magnets R, magnet O, controlling contacts r^{10} and controlled by contacts O' O^3, magnet P controlling contacts r^5 and controlled by contacts P', P^3, a detent controlling magnet in the master circuit and a detent mechanism controlling the integrator; substantially as described.

17. The combination to form a system, such as described, of the following elements: the integrator, the switch mechanism, adapted to be controlled by a record card, the master circuit controlling the movements of the integrator, the two relay circuits, each connected to one member of the switch mechanism and controlling the master circuit or branches thereof, and circuit controlling devices operated by the integrator cylinder to successively close the contacts of the two relay circuits, substantially as described.

518,887. DENTAL CHAIR. JOHN HOOD and STEPHEN H. REYNOLDS, Boston, Mass. Filed Jan. 17, 1893. Renewed Mar. 29, 1894. Serial No. 505,645. (No model.)



Claim.—In a dental chair, the combination of the base, the frame hinged thereto, the lugs projecting from the base, the rack adapted to engage with the said frame, the bolt passing through the lugs and the inner end of the rack placed between the said lugs to hinge the rack to the base, and the spring pressed foot lever connected with an end of the said bolt, the said rack and foot lever being firmly attached to the said bolt, substantially as described.

518,888. VENTILATING VAULT-COVER. JACOB JACOBS, New York, N. Y. Filed June 9, 1893. Serial No. 477,093. (No model.)



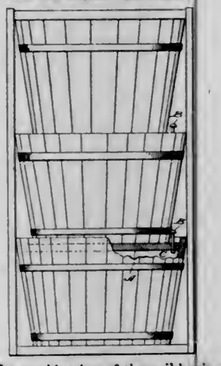
Claim.—1. In combination with a stationary vault cover provided with ventilating openings, a ring below such cover, within the line of such openings, and provided with openings in its side for the passage of air, and independent plates to close said openings connected to a common operating means, substantially as and for the purpose specified.

2. In combination with a stationary vault cover provided with ventilating openings, a ring below such cover provided with openings in its side for the passage of air, and a pivoted plate for each opening that is offset so that a portion thereof is on each side of its opening and adapted to engage the inner and outer sides of the ring, respectively, substantially as and for the purpose shown.

3. In combination with a stationary vault cover provided with ventilating openings, a vertically arranged ring below such cover, provided with openings in its side for the passage of air, pivoted plates for the openings and rods running from the plates to the center of the ring where they are connected together, substantially as and for the purpose specified.

4. In combination with a stationary vault cover provided with ventilating openings, a vertically arranged ring below such cover provided with openings in its side, pivoted, weighted plates to cover such openings, and means to swing the plates in opposition to the action of the weights, substantially as and for the purpose shown.

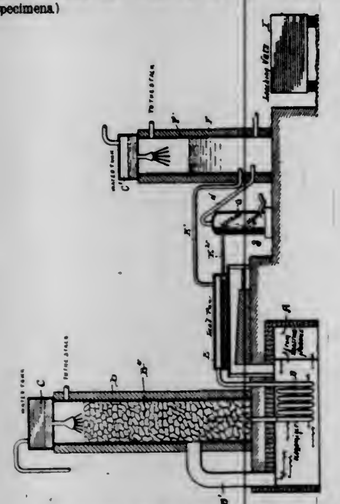
518,889. PAIL-COVER. ROBERT J. KIDD, Cincinnati, Ohio. Filed Jan. 18, 1894. Serial No. 497,321. (No model.)



Claim.—1. The combination of the pail having a flaring mouth with the cover having a beveled edge and fitting within the mouth and a headed screw passing through said cover and projecting above it, near the edge and engaged with a plate on the under side of the cover, all as and for the purpose set forth.

2. In combination with a pail a cover setting inside its upper edge and having secured thereto at one side a headed pin by means of a plate on the under side of the cover and transverse to its grain, said pin passing up through the cover and in convenient proximity to the side of the pail to be removed by a claw head hammer.

518,890. PROCESS OF EXTRACTING ZINC FROM ORES. LUDWIG KLOZ, Leadville, Colo. Filed Apr. 24, 1893. Serial No. 471,643. (No specimens.)



Claim.—1. The herein described process of treating zinc ores which consists first, in roasting the ores, and conducting the sulphurous acid gases from the roast into a suitable tower, and absorbing them in water; second, heating the solution so formed to set free part of the sulphurous acid gas, and scattering the remainder of the solution to set free the balance of the gas; third, reabsorbing the gas so set free in water to form a concentrated solution, fourth, leaching the ores or furnace products with this solution, and fifth, scattering the resulting zinc sulphite solution with steam, to dispel the sulphurous acid and precipitate the zinc in the form of the sulphite, substantially as specified.

2. The herein described process of treating zinc ores which consists first, in the preparation of a concentrated solution of sulphurous acid, second, in leaching the ores or furnace products with this solution to form a concentrated zinc sulphite solution free from sulphates; and third, scattering this solution by steam to dispel the sulphurous acid, and precipitate the zinc sulphite, substantially as specified.

3. The herein described process of treating zinc ores, which consists first, in roasting the ores and conducting the sulphurous acid gases from the roast into a suitable tower, and absorbing them in water; second, heating the solution so formed to set free part of the sulphurous acid gas, and scattering the remainder of the solution to set free the balance of the gas; third, reabsorbing the gas so set free in water, to form a concentrated solution, and fourth, leaching the ores or furnace products with this solution, substantially as specified.

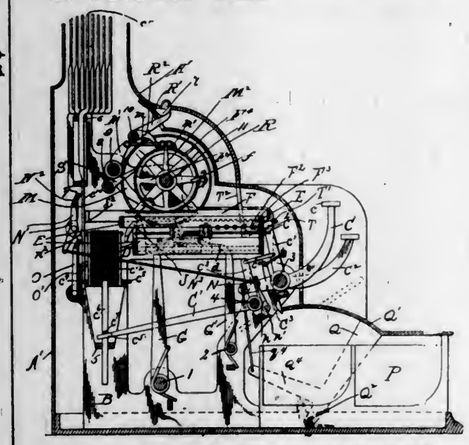
518,891. CRACKER AND PROCESS OF MAKING SAME. MORRIS B. MANWARING, Boston, Mass., assignor of three-fourths to William E. Eastman, Laconia, N. H. Filed Dec. 29, 1893. Serial No. 495,114. (No specimens.)

Claim.—1. The process of making cakes or crackers, consisting in forming the desired farinaceous compound, baking the same, to form cake of ordinary consistency, crumbling the baked compound, providing the crumbs with binding material and moisture and compressing the crumbs together, substantially as specified.

2. The process of making cakes or crackers, consisting in forming the desired compound, to form cake of ordinary consistency, baking the same, crumbling the baked compound, providing the crumbs with binding material and with moisture applied in the form of spray or vapor so as to moisten the mass uniformly though but slightly, and in compressing the crumbs together, substantially as specified.

3. As an article of manufacture, a cake or cracker made of a baked granulated and compressed farinaceous compound, said cake or cracker having a mottled appearance, substantially as specified.

518,892. CASH-REGISTER. HARRY M. NEER, Chicago, Ill., assignor of two-thirds to Samuel Cochran, same place. Filed Mar. 30, 1893. Serial No. 468,313. (No model.)



Claim.—1. In a cash register the combination of a series or keys, a registering wheel, a reciprocating fack released by a key, a catch to hold it until released, mechanism to move the rack, and mechanism engaged to the rack adapted to engage and move the registering wheel, substantially as described.

2. In a cash register the combination of a series of keys, a registering wheel, a reciprocating rack released by a key, a catch to hold it until released, mechanism to move the rack, and a segment meshing with the rack and carrying a pawl and engaging the registering wheel, substantially as described.

3. In a cash register the combination of a series of keys, a registering wheel, a horizontally reciprocating rack released by a key, a catch to hold it until released, mechanism to move the rack, and a segment meshing with the rack and provided with a pawl that engages the registering wheel to move it, substantially as described.

4. In a cash register the combination of a series of keys, a registering wheel, a reciprocating rack a catch to hold it until released, mechanism between the keys and rack for releasing the latter, means for causing the rack to move, a segment meshing with the rack, and a pawl on the segment adapted to engage and move the registering wheel, substantially as described

5. In a cash register the combination of a registering wheel, a reciprocating rack, a spring for causing the rack to move it from its initial position, mechanism adapted to engage the rack bar and move it in the opposite direction, and a lever engaging the rack and adapted to engage and move the registering wheel, substantially as described.

6. In a cash register the combination of a registering wheel, a reciprocating rack, a spring for causing the rack to move in one direction, spring mechanism adapted to engage it and move it in the opposite direction and a gear segment meshing with the rack and provided with a pawl that engages the registering wheel and moves it, substantially as described.

7. In a cash register the combination of a registering wheel, a reciprocating rack, a spring for causing the rack to move in one direction, spring mechanism adapted to engage and move it to its normal position and a segment meshing with the rack and engaging the registering wheel to move it when the rack is moved to its normal position, substantially as described.

8. In a cash register the combination with the registering wheel, the reciprocating rack and the segment meshing with the rack and adapted to operate the registering wheel, of a spring impelled pinion engaging said rack to move it in one direction, substantially as described.

9. In a cash register the combination with a series of keys of vertically immovable horizontally reciprocating rack bar a catch for holding it until released, a spring for causing the rack bar to move in one direction, and mechanism between the keys and rack bar for releasing it, a registering wheel, a segment between the rack bar and registering wheel whereby the movement of the bar is communicated to the wheel and means for moving the rack bar to its normal position, substantially as described.

10. In a cash register the combination with a series of keys, of a reciprocating block positively connected with each of said keys, means for returning said block to its normal position and a rack bar connected with a registering wheel adapted to be engaged and moved to its normal position by the reciprocating block, substantially as described.

11. In a cash register the combination of a reciprocating block, a series of keys positively connected therewith, a spring for returning said block to its normal position, a rack bar adapted to be engaged by said block and moved to its normal position, a registering wheel and mechanism between the rack bar and wheel whereby the wheel is moved by the rack bar, substantially as described.

12. In a cash register the combination of a series of keys, a reciprocating block positively connected therewith and adapted to be moved by the depression of any one key, a catch for engaging and holding said block when moved, a vertically immovable horizontally reciprocating spring impelled rack bar also released by the movement of any one of said keys, and a spring for returning said block and rack bar to their normal positions when the block is released, substantially as described.

13. In a cash register the combination of a series of operating keys, a reciprocating block connected with each of said keys, two auxiliary reciprocating blocks in advance of the first and adapted to be moved by the movement of the first, catches for engaging and holding each of said blocks when moved, a releasing key for disengaging the catch which holds the first named reciprocating block, a spring for returning it to its normal position, a shoulder on said first named block adapted to operate upon and release the engaging catch for the second reciprocating block, a spring for returning said latter to its normal position, and a shoulder on said second reciprocating block adapted to release the third reciprocating block, substantially as described.

14. In a cash register the combination of two or more series of operating keys, a reciprocating block in positive connection with each key of one series, two more reciprocating blocks in advance of the first and adapted to be moved by the movement of the first, catches for engaging each of said blocks independently, means connected with the catch which engages the first or principal block and adapted to disengage the same from the block, a shoulder on the principal block adapted to engage and withdraw the catch which holds the second block, a shoulder on the second block adapted to disengage the third block, and means on the third block adapted to engage connecting mechanism which operates to withdraw the catch that holds the principal reciprocating block of the adjacent series, substantially as described.

15. In a cash register the combination of two or more series of operating keys, a reciprocating block positively engaged with each key of a series, two auxiliary reciprocating blocks in advance of the first and adapted to be moved by the movement of the first, catches for engaging each of said blocks separately, a releasing key engaged to the catch which holds the first block and adapted to release it, a shoulder on the first block adapted to operate upon and disengage the catch which holds the second block, a shoulder on the second block adapted to disengage the catch which holds the third block, and a shoulder on the third block adapted to engage connecting mechanism to disengage the catch which holds the first block of the next adjacent series, substantially as described.

16. In a cash register the combination with two or more series of keys of three reciprocating blocks adapted to be moved by any one of the keys of the series to which they belong, catches for engaging said blocks to hold them in the position to which they are moved, releasing mechanism for releasing the blocks successively, and a connecting piece between the catch which holds the first block of one series and the corresponding catch on the next adjacent series, said connecting piece connecting the two catches when the principal reciprocating block is in its normal position, but disengaged from said catches by the movement of said principal reciprocating block, substantially as described.

17. In a cash register the combination with two or more series of keys, reciprocating blocks D, D′, D^2 for each series, catches h, h', h^2 for engaging said reciprocating blocks when moved, the connecting piece K adapted to engage and connect the catches h of two adjacent series when the block D is in its normal position, means on the block D for disengaging said connecting piece when the block is moved and a shoulder on the block D^2 adapted to engage and move the connecting piece as the block D returns to its normal position, substantially as described.

18. In a cash register the combination with two or more series of keys of reciprocating blocks D, D′, D^2 for each series, catches h, h', h^2, for engaging each of said blocks independently, a releasing key engaged to the catch h of the first series, the piece K connecting the catches h of two adjacent series, means on the block D for disengaging said connecting piece when the block is moved from its normal position, a shoulder on the block D for disengaging the catch of the block D′ as the block D returns to its normal position, a shoulder on the block D′ for disengaging the catch that holds the block D^2, and a beveled shoulder on the block D^2 adapted to engage the piece K and move it after the block D has returned to its normal position, substantially as described.

19. In a cash register the combination with a series of keys, a series of fingers adapted to be elevated by said keys, means for holding the fingers in an elevated position, a spring impelled rack bar adapted to be disengaged by the movement of said keys and its motion limited by said finger of a reciprocating block connected with each of said keys and adapted to be moved thereby, a spring for returning said block to its normal position, and intermediate mechanism between said block, and the means for holding the finger in an elevated position whereby the movement of the block in returning to its normal position disengages the fingers and allows them to drop, substantially as described.

20. In a cash register the combination with a series of keys of a stationary cash receptacle, a movable cover for protecting the same, and intermediate connections between the keys and cover whereby the latter is released by a key to open it and closed by the movement of another key, substantially as described.

21. In a cash register the combination with a series of keys of a stationary receptacle, a movable cover for protecting the same, a spring for throwing said cover out of its normal position and a key positively connected with said cover for throwing it into its closed or normal position, substantially as described.

22. In a cash register the combination with a series of keys of a stationary cash receptacle, a spring impelled movable cover for protecting the same, a catch for holding said cover in its closed position, mechanism between said catch and the keys whereby the latter disengage the catch and a key for closing said cover, substantially as described.

23. In a cash register the combination of a series of keys adapted to operate recording and indicating mechanism of a releasing key for releasing said recording mechanism, said releasing key adapted also to close the money receptacle, substantially as described.

24. In a cash register the combination with a series of keys for operating and recording, and indicating mechanism of a key for releasing said recording and indicating mechanism, said key positively engaged with a cover adapted to close a stationary cash receptacle and to close said cover by the movement of the key, substantially as described.

25. In a cash register the combination of two or more series of operating keys, a reciprocating block positively engaged with each key of a series, two auxiliary reciprocating blocks in advance of the first and adapted to be moved by the movement of the first, catches for engaging each of said blocks separately, a releasing key engaged to the catch which holds the first block and adapted to release it, a shoulder on the first block adapted to operate upon and disengage the catch which holds the second block a shoulder on the second block adapted to disengage the catch which holds the third block, and a shoulder on the third block adapted to engage connecting

mechanism to disengage the catch which holds the first block of the next adjacent series, and a cash receptacle adapted to be closed by the movement of the releasing key, substantially as described.

26. In a cash register the combination with the registering mechanism and a cover for concealing said mechanism, of means for locking the registering mechanism against rotation when the cover is moved from its normal position, consisting of a lever, one end terminating adjacent to the cover and adapted to be moved by a movement of the cover and the opposite end engaging the registering mechanism and hold it positively against rotation while the cover is out of its normal position, substantially as described.

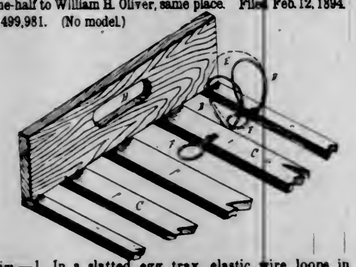
27. In a cash register the combination with a registering wheel and a cover for concealing the same, of means for locking said wheel when the cover is raised, consisting of a lever having one end adjacent to the periphery of the wheel, and the other end adjacent to the point where the cover is hinged, and a cam on the cover adapted when the cover is raised to bear upon the lever and cause it to engage and lock the wheel, substantially as described.

28. In a cash register the combination with a series of operating keys, the registering mechanism, and a cover in the case for concealing said registering mechanism of a bar adapted to be operated by the movement of said cover, said bar locking said operating keys, substantially as described.

29. In a cash register the combination with a series of operating keys, registering wheels, and a cover in the case for concealing said registering wheels of a pivoted bar, adapted, when lowered to engage and lock said keys, said bar lowered by the movement of the cover to expose the registering wheels, substantially as described.

30. In a cash register the combination with a series of keys of a reciprocating block to which each of the keys of the series is connected, said block adapted to be moved by any one of the keys and a spring impelled lever engaging said block and adapted to return it to its normal position, substantially as described.

518,893. EGG-CRATE. JOHN R. OLIVER, Portage, Mich., assignor of one-half to William H. Oliver, same place. Filed Feb. 12, 1894. Serial No. 499,981. (No model.)



Claim.—1. In a slatted egg tray, elastic wire loops in pairs shaped like the outline of an egg, the lower ends of the loops being brought together at a common point where they are attached to the contiguous vertical edges of the slats, said loops being on a straight incline, converging toward each other from the bottom to the top, substantially as set forth.

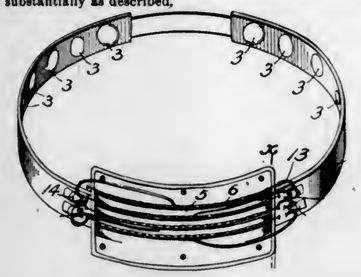
2. A slatted tray, provided with elastic wire egg shaped loops attached in pairs to the contiguous edges of the slats, and on an incline to each other converging from the lower to the upper end, and an elastic base loop between the lower end of the main loops, and adapted to receive the lower end of the egg therethrough substantially as set forth.

3. A slatted egg tray, provided with main elastic loops between which the eggs are inserted, and elastic base loops between the lower ends of the main loops and adapted to receive the lower end of the egg therethrough, substantially as set forth.

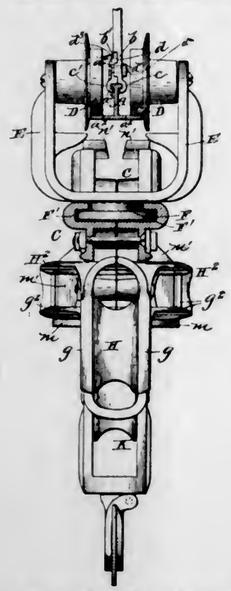
518,894. ELECTRIC BELT. PER E. PETTERSON, Minneapolis, Minn. Filed July 26, 1892. Serial No. 441,253. (No model.)

Claim.—1. The combination, in an electric belt, of the belt proper, with the pocket portion arranged thereon and provided with a series of shallow pockets 5, the battery chains arranged in said pockets and composed of zinc and copper elements respectively, said elements in each battery being separated by a felt lining 29, the end wires 18 and 24 of each chain, contact plates arranged on the inner side of said belt, flexible cord connections extending therefrom to the outside of said belt and arranged to lap over the pocket portion, each of said cords provided with a bent U-link or snap 15 adapted to make a strong and permanent connection with any portion of said battery chains or the wire connections thereof, substantially as described and for the purpose specified.

2. A battery chain for electric belts, made up of a series of batteries connected by wire links 27, each battery being composed of a bent zinc plate 28, absorbing felt folded about said plate, said plate secured upon one side of a connecting link and a long and single piece of sheet copper having its end curled about the side of the next link 27 and thence extending entirely around said felt and lapping upon itself, substantially as described.



518,895. HAY-CARRIER AND TRACK. JOSEPH E. PORTER, Ottawa, Ill. Filed Jan. 17, 1893. Serial No. 458,680. (No model.)



Claim.—1. In combination with a hay carrier track having curvatures in it, a hay carrier C having horizontal integral bearing or supporting extensions *f*, *f'* on a plane lower than the upper edges of the deep intermediate side portions of said carrier, bearings fitted by swiveling means to the extensions of the carrier, and in proper relation to the ends of the said side portions of the carrier, short fixed axles attached to the swiveling bearings, and revolving wheels on said axles, substantially as described.

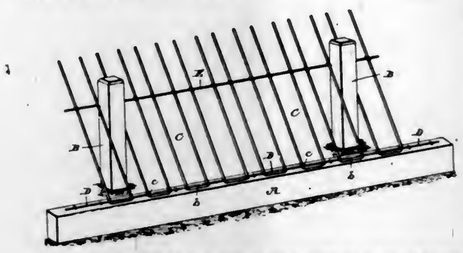
2. In a hay elevator and carrier, a suspending hook formed with clasping jaws made in two parts, which parts are respectively formed with tongue and groove matching faces and united upon the bead of the rail by means of a bolt passed through the thickest or tongue portion of the jaw, substantially as described.

3. In a hay elevator and carrier, the combination of a beaded and flanged rail, a hay carrier track, and the suspending hooks formed with clasping jaws made in two parts which are respectively formed with tongue and groove matching faces and united upon the bead of the rail by means of a bolt passed through the thickest or tongue portion of the jaw, substantially as described.

518,896. FENCE. JESSE C. QUINBY, Norway Ridge, Wis., assignor of one-half to L. W. Quinby, Wilmington, Ohio. Filed May 4, 1893. Serial No. 473,007. (No model.)

Claim.—1. A fence consisting of inclined pickets secured together at their lower ends by wire and supported near their upper ends by a line of posts set a short distance from the lower line of support of said pickets, as and for the purpose set forth.

2. A fence consisting of a base, a line of posts set at a slight distance from said base, and inclined pickets pivotally secured at their lower ends to the base and near their upper ends secured to the posts, as and for the purpose set forth.



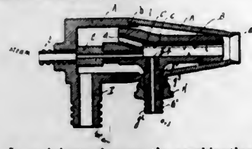
3. A fence consisting of a base, a line of posts set a short distance from said base, a set of inclined pickets, a base line wire coiled or wrapped around the lower ends of the pickets and fastened to the base, and an upper line wire coiled or wrapped around the bodies of the pickets and secured to the line of posts substantially as and for the purpose set forth.

4. A fence consisting of a base, a line of posts set a short distance from said base, a set of inclined pickets a base line wire coiled or wrapped around the lower ends of the pickets and fastened to the base by staples whereby a pivotal movement of the pickets on the base is permitted and an upper line wire coiled or wrapped around the bodies of the pickets and secured to the line of posts substantially as and for the purpose set forth.

5. The fence herein described consisting of the double wire pickets connected at their lower ends, the base to which said double pickets are pivotally secured, and the line of posts at a short distance from the base to which the pickets are secured, as and for the purpose set forth.

6. A fence provided with a top rail or board, and a line of posts set a short distance from the fence, in combination with inclined pickets secured at their lower ends to the top board or rail, and near their upper ends to the said line of posts as and for the purpose set forth.

518,897. HYDROCARBON INJECTOR BURNER. FRANKLIN M. REED, Anderson, Ind., assignor of three-fourths to Charles E. Jones, William A. Jones, and William H. Ziegler, same place. Filed June 30, 1893. Serial No. 479,236. (No model.)

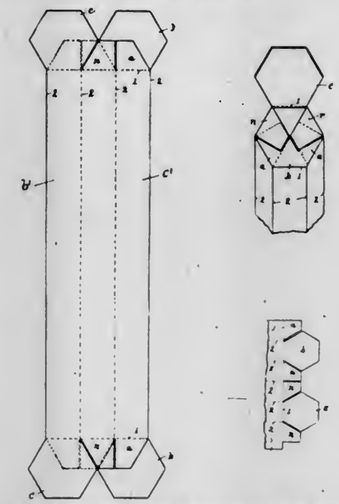


Claim.—1. In an injector burner, the combination of the shell A having a tapering nozzle portion, the atomizer B consisting of a short tube having a longitudinal passage *c* therethrough, and supported in the forward portion of the chamber of said shell, a flange *l* on the rear end portion of said atomizer, an oblique passage *d* through said flange and joining the passage *c*, a jet pipe C entering the rear end of said passage *c* and having a threaded seat at its opposite end portion in the rear wall of said shell, a hot air supply pipe opening into the rear portion of the shell chamber, and an oil supply pipe extending up through the lower wall of the said shell, and through the lower wall of the atomizer into the passage *c* forward of the point where said passage is joined by the passage *d*.

2. In an injector burner, the combination of the shell A, the atomizer B supported in the forward portion of said shell, a passage *c* through said atomizer, an oblique passage *d* leading from the interior of the shell and joining the passage *c*, the projections *h* in said passage, the jet pipe entering the passage *c* at one end, the hot air pipe opening into the rear portion of the shell, the oil supply pipe entering said shell and atomizer at the under side, its nozzle G' having a reduced threaded portion *g* which engages the atomizer, a threaded portion g^2, the coupling G attached thereto, the unthreaded portion g^3 fitting an opening in the shell, and the nut H between said portions g^2 and g^3, substantially as specified.

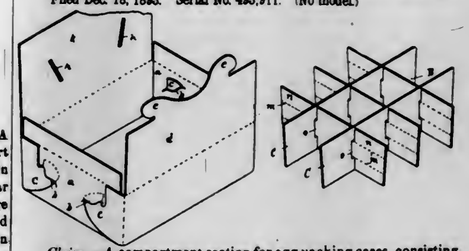
518,898. PAPER BOX. THEODORE F. W. SCHMIDT, Dayton, Ohio, assignor of one-half to the Dayton Paper Novelty Company, same place. Filed Dec. 18, 1893. Serial No. 493,909. (No model.)

Claim.—1. A box formed from a blank scored longitudinally, as at 2, 2, and transversely near its ends, as at 1, 1, and having at one edge a flap 3 overlapping the opposite edge of the blank and pasted thereto, two side sections of said blank being provided with hexagonal flaps *b*, *c*, and the remaining sections having each a tetragonal flap of substantially half the length of the flaps *b*, *c*, said flaps being folded, substantially as shown and described.



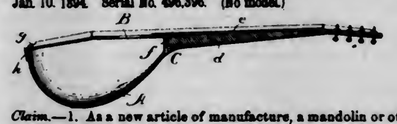
2. A hexagonal box formed from a blank scored longitudinally, as at 2, 2, and transversely near its ends, as at 1, 1, and provided at one edge with a flap 3 overlapping the opposite edge of the blank and pasted thereto, two side sections of said blank being provided with hexagonal flaps *b*, *c*, and the remaining sections having each a tetragonal flap of substantially half the length of the flaps *b*, *c*, said flaps being turned inward and secured together by paste, substantially as shown and described.

518,899. EGG-CASE. THEODORE F. W. SCHMIDT, Dayton, Ohio, assignor of one-half to the Dayton Paper Novelty Company, same place. Filed Dec. 18, 1893. Serial No. 493,911. (No model.)



Claim.—A compartment section for egg packing cases, consisting of longitudinal paper strips C provided with equidistant vertical slots *c* extending substantially one quarter the width of said strips upon both sides of the longitudinal center thereof, and cross strips B provided upon the top and bottom edges with equidistant slits *i* of substantially one quarter the width of said strips, the latter being scored in parallel lines from the base of said notches to the ends of the strips, all of said strips being of the same width and interlocked, substantially as shown and described.

518,900. MANDOLIN. THEODORE T. SEAL, Bellaire, Ohio. Filed Jan. 10, 1894. Serial No. 496,396. (No model.)

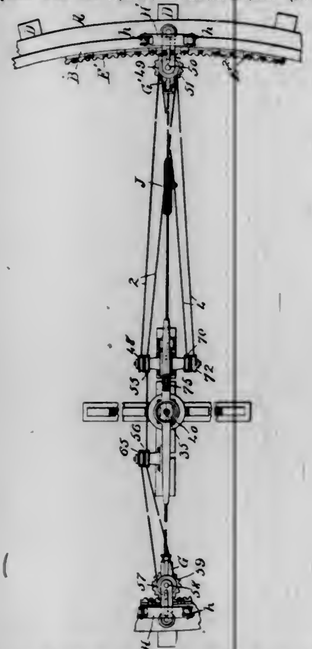


Claim.—1. As a new article of manufacture, a mandolin or other musical instrument, having a glass body blown in one piece with a

sounding board having an opening B, therein, and with an open cylindrical upper end, and a neck C, having a tenon *f*, thereon, engaging within said open cylindrical upper end and being glued therein, substantially as described.

2. As a new article of manufacture, a mandolin or other musical instrument having a glass body blown in one piece, with a sounding board having an opening B, therein, and with an open cylindrical upper end; and a neck C, consisting of a lower part *d*, having a tenon *f* thereon, engaging with said open cylindrical upper end, and glued therein, and the upper part *e*, secured to said lower part *d*, and glued to the sounding board of the instrument, substantially as described.

518,901. HOISTING AND TRANSFER APPARATUS. WILLIS D. SHERMAN, Brooklyn, N. Y., assignor to himself, Charles B. Johnson, John J. Wilson, Ellis H. Baillie, Frank B. Johnson, and Elbert Snedeker, same place. Filed Jan. 16, 1894. Serial No. 497,115. (No model.)



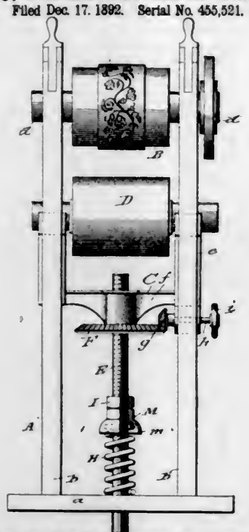
Claim.—1. In hoisting and transfer apparatus, the combination of a track shaped on a circular arc; a pivotal support at the center of said arc, a carriage traveling on said track; a trolley bridge attached at one end to said carriage, and at the other end to said pivotal support; a trolley on said bridge and cables for operating said carriage and trolley, substantially as described.

2. In hoisting and transfer apparatus the combination of a track shaped on a circular arc; a rack thereon; a carriage traveling on said track and provided with a pinion meshing with said rack; an endless cable for operating said pinion, and a drum for said cable, substantially as described.

3. In hoisting and transfer apparatus the combination of a track shaped on a circular arc; a pivotal support at the center of said arc, a rack on said track; a carriage traveling on said track and provided with a pinion meshing with said rack, a trolley bridge attached at one end to said carriage, and at the other end to a pivotal support at the center of said circular arc; a trolley traveling on said trolley bridge; a fall rope carried by said trolley, a carriage rope for operating said pinion; a trolley rope for operating said trolley, and drums for said carriage rope said trolley rope and said fall rope all actuated from a shaft pivoted at the center of said circular arc, substantially as described.

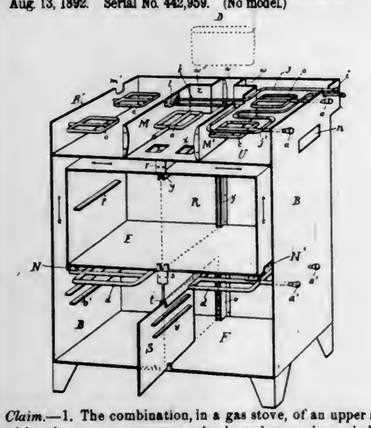
4. In hoisting and transfer apparatus, the combination of a track, a carriage adapted to travel thereon, a bridge operated by said carriage, a trolley adapted to travel on said bridge, and a fall rope carried by said trolley, a power shaft, and a hoisting engine adapted to be driven from said power shaft, and a main shaft and a plurality of drums which are adapted to be independently driven from said main shaft, and any two of which drums are also adapted to be simultaneously revolved in opposite directions, substantially as described.

518,902. WOOD-EMBOSSING MACHINE. GEORGE STABER, Brooklyn, N. Y. Filed Dec. 17, 1892. Serial No. 455,521. (No model.)



Claim.—In a machine for embossing wood and other material, the combination with a design or die roller, a pressure roller, a vertically movable frame supporting the pressure roller, a threaded rod bearing in the main frame, the spring surrounding the threaded rod and bearing at one end against the main frame, a nut mounted on the threaded rod above the spring, and a check nut also mounted on the threaded rod above said nut; of a gear wheel having the central, vertical threaded aperture for the passage of the threaded rod and adapted to support the movable frame, and a shaft journaled in the movable frame and carrying a pinion at its inner end in mesh with the gear wheel, and a hand wheel at its outer end, all substantially as and for the purpose set forth.

518,903. GAS-STOVE. LAURA M. STONE, Rochester, N. Y. Filed Aug. 13, 1892. Serial No. 442,959. (No model.)



Claim.—1. The combination, in a gas stove, of an upper section comprising three compartments, each adapted to receive an independent burner and having an independent exit flue in close proximity with the others and formed by partitions in the said upper section and a single escape pipe communicating with the exit at the top of the stove, substantially as described.

2. In a gas stove, roasting ovens each provided with a separate burner capable of independent use, baking ovens situated above said first named ovens, each baking oven being adapted to be heated by the burner of a roasting oven, a separate flue for each burner passing about a baking oven and having an individual exit leading to a common flue, substantially as set forth.

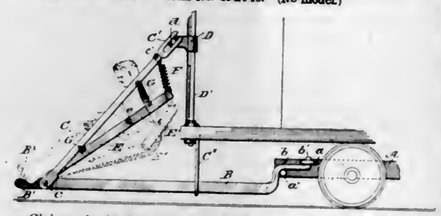
3. In a gas stove, roasting ovens each provided with a separate burner capable of independent use, baking ovens situated above the first named ovens, each baking oven being adapted to be heated by the burner of a roasting oven, a separate flue for each burner passing about a baking oven and having an individual exit leading to a common flue, said flue being provided with a cooking opening in its top and with a gas burner, substantially as set forth.

4. In a gas stove roasting ovens each provided with a separate burner capable of independent use, baking ovens situated above the first named ovens, each baking oven being adapted to be heated by the burner of a roasting oven, a separate flue for each burner passing about a baking oven and having an individual exit leading to a common flue, said flue being provided with a cooking opening in its top and with a gas burner, and situated between combustion chambers and adapted to be laterally heated thereby, substantially as set forth.

5. In a gas stove, roasting ovens each provided with a separate burner capable of independent use, baking ovens situated above said first named ovens, each baking oven being adapted to be heated by the burner of a roasting oven, a separate flue for each burner passing about a baking oven and having an individual exit leading to a common flue, said flue being provided with a cooking opening in its top and with a gas burner, and situated between combustion chambers and adapted to be laterally heated thereby, all the said chambers having adjacent exits into a single escape pipe or chimney, substantially as set forth.

6. The combination, in a gas-stove, of an upper section having a central flue or compartment provided with an exit, the baking oven, the roasting oven below the baking oven, and provided with a partition and the burners *d*, the separate flues surrounding the baking oven, and the openings *x x* communicating between the flues and the central compartment, substantially as described.

518,904. CAR-FENDER. CHARLES F. THOMAS, Buckeystown, Md. Filed Dec. 28, 1893. Serial No. 494,946. (No model.)



Claim.—1. An improved car fender, comprising a main fender frame adapted to be connected to the truck frame and held rigid therewith, brace bars pivoted at their lower ends to the said main frame, and having their upper ends formed for a detachable and sliding connection with the car dash, all substantially as shown and for the purposes described.

2. An improved car fender, comprising a main frame adapted to be connected to the truck frame, brace bars pivotally connected at their lower ends to the main frame and having their upper ends constructed to detachably connect with and have a limited movement, relatively to the dash, and a supplemental or net frame, having a hinged connection at the lower end with the main frame, and yielding connections between the upper portion of the net frame and the brace bars all substantially as shown and for the purposes described.

3. In combination with the main fender frame adapted to be rigidly connected at its rear end to the truck frame, and guide members on the dash, of brace bars pivoted at their lower ends to the main fender frame, and having forked upper ends engaging the dash guides, all arranged substantially as shown and for the purposes described.

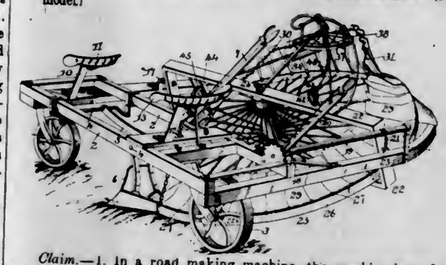
4. A car fender, comprising a horizontal main or supporting frame, and diagonally arranged brace bars connected with the car dash, and a net frame held on the horizontal frame and side bars, by yielding connections, all arranged substantially as shown and described.

5. A car fender comprising a main supporting frame, adapted to be connected rigidly with the truck frame, and formed with side bars having a movable connection with the car dash, and a net frame having a hinged connection at the lower end with the main frame, and a yielding connection with the side bars at the upper end; said net frame including side bars, having hinged joints near their upper ends, all arranged substantially as and for the purposes shown and described.

6. The combination in a car fender, with the main supporting frame, having a front cross bar and side bars connected at their lower ends to the main frame, of the net frame having hook members adapted to engage the lower cross bar of the main frame, spring supports for suspending such net frame from the side bars, and means for connecting the upper ends of such side bars to the car dash, all arranged substantially as shown and for the purposes described.

7. In a car fender, the combination with the main supporting frame, and means for holding it on the car body, and from a swinging movement, of the side bars, pivoted at their lower ends to the main frame, and having a movable connection at their upper end with the dash board, the net frame E× having side members hinged to fold inward, and formed with long lower portions and short upper portions, and having upper and lower cross bars, and spring supports connecting the net frame to the side bars all arranged substantially as shown and for the purposes described.

518,905. GRADING AND DITCHING MACHINE. WILLIAM H. TIDLAND, Nicollet, Minn. Filed Oct. 31, 1893. Serial No. 489,654. (No model.)



Claim.—1. In a road making machine, the combination of a framework, a plow arranged at the inner side of the framework, a ditching wheel inclined and arranged in the framework at the side of the plow and provided with a series of flexibly connected dirt conveying cups hinged at their lower ends to the wheel, and a dumping wheel arranged at one side of the ditching wheel and engaging the inner faces of the cups, whereby the latter are swung outward for dumping, substantially as described.

2. In a road-making machine, the combination with a semicircular frame, longitudinal connecting-beams at the ends thereof, a revolving inclined ditching-wheel supported within the semicircular frame and provided with hinged cups, and means for raising and lowering the cups, of a pair of crank-shafts arranged in the beams, a pair of plow-beams carried by the crank-shafts and connecting the same, a plow at the lower ends of the beams, a lever connected with the crank-shafts and provided with locking-devices, substantially as specified.

3. In a road-making machine, the combination with a framework, and a plow at the inner side thereof, of a frame loosely suspended in the framework at the side of the plow, means for raising and lowering the frame, a ditching-wheel carried by the frame, ditching-cups arranged upon the wheel, and means for raising the ditching-cups for the purpose of dumping the same, substantially as specified.

4. In a road-making machine, the combination with a frame, a plow at the inner side thereof, a front standard, a pair of rear standards, a rock-shaft arranged in the rear standards, a lever for operating the rock-shaft, and a chain wound upon said shaft, of an oblong frame having an eye at its front end loosely connected with the eye of the front standard and loosely coupled at its rear end to the free end of the chain, an inclined shaft arranged in the frame, a ditching-wheel arranged upon the shaft, a series of cups hinged upon the wheel, means for rotating said wheel, and means for elevating the cups, substantially as specified.

5. In a road-making machine, the combination with a framework, and a plow at one side thereof, of an inclined ditching-wheel supported at the side of the plow, means for rotating said wheel, a series of curved ditching-cups hinged at their outer ends to the rim of the wheel, a slack connection between the inner ends of the cups, and a dumping-wheel over which such connection travels arranged above the ditching-wheel, substantially as specified.

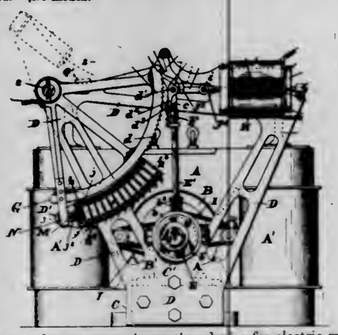
6. In a road-making machine, the combination with a framework, and a plow at one side thereof, of an inclined ditching-wheel supported at the side of the plow, means for rotating said wheel, a series of curved ditching-cups hinged at their outer ends to the rim of the wheel, a slack connection between the inner ends of the cups, a dumping-wheel over which such connection travels arranged above the ditching-wheel, and means for adjusting the dumping-wheel, substantially as specified.

7. In a road-making machine, the combination with the framework, the plow at the inner side thereof, the oblong frame arranged within the framework and having a central axis, means for supporting said oblong frame, of a ditching-wheel arranged upon the axis, a series of cups hinged at their outer ends to the rim of the wheel, a slack connection between the inner ends of the cups, a curved guide above the ditching-wheel, an arm carried by the axis and arranged for movement at its outer end upon the guide, a dumping-wheel having its axis journaled in the outer end of the arm in the path of the cups, and a lever for swinging said arm, substantially as specified.

8. In a road-making machine, the combination with the framework, the plow at the inner side thereof, the oblong frame arranged in the framework, the inclined axis arranged in the frame, the ditching-wheel arranged upon the inclined axis at the moldboard side of the plow, a series of cups hinged at their outer ends to the rim of the ditching-wheel, and a slack connection between the inner ends of the cups, of a superimposed curved guide-bar, a yoke-bar of U-shape having its ends loosely mounted on the guide-bar, a swinging arm connected to the upper end of the axis and at its outer end bifurcated and having an eye for engaging the guide-bar, a dumping-wheel having its axis arranged in the bifurcated ends of the arm and in the yoke, a guide-eye arranged upon the frame, and a curved lever pivoted at its outer end to the axis of the dumping-wheel and at its inner end terminating in a handle and passed through the guide-eye, substantially as specified.

9. In a road-making machine, the combination with the framework, the plow, and the revolving dumping-wheel, of a series of bearing eyes arranged upon the rim of the wheel, a bearing-rod passed through the eyes, a series of curved cups hinged upon the rod and having eyes at their inner ends, a chain connecting the eyes, and a dumping-wheel arranged in the path of the chain, substantially as specified.

518,906. AUTOMATIC DEVICE FOR REMOVING RESISTANCE IN STARTING ELECTRIC MOTORS AND REPLACING SAME. GEORGE H. WHITTINGHAM, Baltimore, Md., assignor to the Automatic Switch Company of Baltimore City, of Maryland. Filed Apr. 4, 1893. Serial No. 469,032. (No model.)



Claim.—1. In an automatic starting device for electric motors, the combination of a motor; a resistance in series with the armature when starting the motor; a contact shoe engaging the resistance; and a direct mechanical connection between the armature and the contact shoe, whereby each revolution of the armature imparts to the contact shoe a positive movement and gradually cuts out the resistance from the armature circuit and maintains said circuit at the point of lowest resistance during the run of the motor.

2. The combination of a motor; a resistance coil in electrical connection with the armature; a movable contact device in circuit with said coil, a pawl and ratchet operated by the motor armature and adapted to impart to the contact device a limited movement in the direction which reduces the resistance of the armature circuit; and means for disengaging the pawl and ratchet when the supply of electricity is cut off.

3. In an automatic starting device for electric motors, the combination of a motor; a resistance in series with the armature when starting the motor; a contact shoe engaging the resistance; a direct mechanical connection between the armature and the contact shoe which is operative in the direction of cutting out the resistance from the armature-circuit, whereby said circuit is maintained at the point of lowest resistance during the run of the motor; and further means whereby the cessation of the current disengages the said mechanical connection and allows the contact shoe to return to its original position where the highest resistance is replaced, for the purpose set forth.

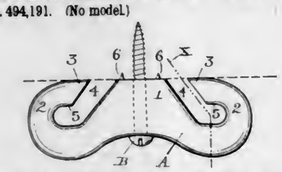
4. In an automatic starting device for electric motors, the combination of the field magnets; the armature; a resistance coil in series with the armature; a series of contact plates connected with the said coil; a movable ratchet bar; a contact shoe connected with said bar and movable over said contact plates; a ratchet pawl actuated by the armature; and means for causing the ratchet pawl to engage said ratchet bar and impart to it an intermittent movement only in the direction which reduces the resistance of the armature circuit, for the purpose set forth.

5. In a resistance controlling device for electric motors, the combination of the field-magnets; the armature; a resistance coil; a series of contact-plates each connected with the said coil; a movable ratchet bar; a contact-shoe connected with the said ratchet bar and moving over the contact plates successively; said field-magnets, armature, resistance coil and contact shoe all being connected with a line circuit; a reciprocating ratchet pawl to engage the said ratchet bar and impart an intermittent movement to it and the contact shoe; and means to disengage the pawl from the ratchet bar when the motor circuit is broken to allow the ratchet bar and contact shoe to return to their normal position.

6. In a resistance controlling device for electric motors, the combination of the field-magnets; the armature; the armature shaft; a resistance coil; a series of contact plates each connected with the said coil; a contact shoe to engage the said plates and in circuit with the resistance coil, field-magnets, armature and line circuit; a movable ratchet bar; a ratchet pawl to engage the ratchet bar and impart an intermittent movement to it and to the contact shoe; an eccentric on the armature shaft to reciprocate the ratchet pawl; a spring to co-act with the ratchet pawl and keep it away from the ratchet bar; and an electro magnet energized simultaneously with the field-magnets and armature to co-act with the said ratchet pawl and place it into engagement with the ratchet bar against the action of the spring.

7. In a resistance controlling device for electric motors, the combination of the field-magnets; the armature; the armature shaft; a resistance coil; a series of contact plates each connected with the resistance coil; a contact shoe to engage the said plates and in circuit with the resistance coil, field-magnets, armature and line circuit; a movable segment-shaped ratchet bar; a ratchet pawl to engage the ratchet bar and impart an intermittent movement to it and to the contact shoe; an eccentric on the armature shaft to reciprocate the ratchet pawl; a spring to co-act with the ratchet pawl and keep it away from the ratchet bar; an electro-magnet energized simultaneously with the field-magnets and armature to co-act with the said ratchet pawl and place it into engagement with the ratchet bar against the action of the spring; and a holding pawl to engage the ratchet bar but like the ratchet pawl dependent upon said electro-magnets and springs.

518,907. CLEAT FOR SUPPORTING CONDUCTING WIRES FOR ELECTRIC CIRCUITS. HORACE B. WYMAN, Slingerlands, assignor of one-half to Albert C. Goodwin, Albany, N. Y. Filed Dec. 20, 1893. Serial No. 494,191. (No model.)



Claim.—1. An insulating-cleat for electrical-conducting-wires; the same being composed of material that is a non-conductor of electricity and consisting of a central body, 1, whose upper face is fitted to bear directly against a ceiling or wall and is perforated to receive a fastening-screw that will be surrounded by the insulating material of the cleat to its point of contact with said ceiling; said central body having—at each end—a hook, 2, which is integral therewith and has a terminal, 3, whose end ranges—either approximately or positively—with the upper face of said central body; whereby slotted openings, 4, with practically parallel sides are formed between said body and hooks in such manner that said openings will be entirely insulated from the fastening-screws and no lodgment for moisture afforded in said openings, as and for the purpose specified.

2. An insulating-cleat for electrical-conducting-wires, composed of material that is a non-conductor of electricity and consisting of a central body, 1, having its upper face fitted to bear directly against the plane to which the cleat is attached; said central body being perforated to receive a fastening-screw, B, which secures said cleat to its place and which will be surrounded by the insulating material of the cleat to the point of junction of the central body with the plane to which said cleat is attached; each end of said central body having a hook, 2, that is integral therewith and is provided with a terminal, 3, ranging—either approximately or positively—with the plane of the upper face of the central body; whereby slotted openings, 4, are formed to extend—first downwardly inclined and then horizontally—from said central body so as to form shoulders, 5, in said openings; the latter being formed with practically parallel sides and being entirely insulated from the fastening-screw, as and for the purpose specified.

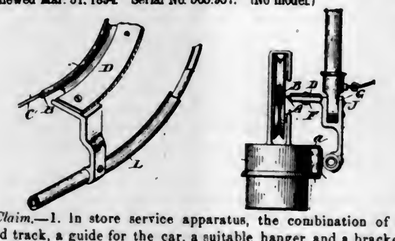
3. An insulating-cleat for electrical-conducting-wires, composed of material that is a non-conductor of electricity and consisting of a central body, 1, whose upper face is fitted to bear directly a plane whereto said cleat is fastened; said central body being perforated to receive a fastening-screw, B, which will be surrounded by the insulating material of said cleat to the point of junction of said central body with the plane to which the cleat is attached; said central body having at each end a hook, 2, whose terminal ranges—either approximately or positively—with the plane of the upper face of the central body; whereby slotted openings, 4, with practically parallel sides will be formed between said hooks and central body and said openings will be entirely insulated from said fastening-screw, in combination with a conducting-wire, C, secured to a hook of said cleat by means of a hitch or turn, 7, of said wire around said hook, as and for the purpose specified.

518,908. MANUFACTURE OF ARMOR-PLATE. ALBERT A. ACKERMAN, U. S. Navy, assignor of one-half to Thomas T. Crittenden, Washington, D. C. Filed Oct. 26, 1893. Serial No. 489,195. (No model.)



Claim.—In the manufacture of armor plates, the method of treating the plate or ingot which consists in providing on one of the faces thereof a plurality of grooves or corrugations, in heating the surface so increased in contact with a carburizing agent, in removing the unabsorbed portion of the carburizing agent from the plate, and in forging the projections down to an approximately smooth surface substantially as and for the purposes described.

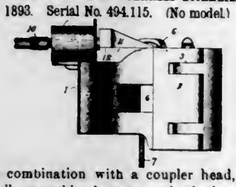
518,909. CURVED TRACK FOR STORE-SERVICE APPARATUS. THOMAS E. BARROW, Mansfield, Ohio, assignor to the Mansfield Cash and Package Carrier Company, same place. Filed Aug. 13, 1892. Renewed Mar. 31, 1894. Serial No. 505,957. (No model.)



Claim.—1. In store service apparatus, the combination of a curved track, a guide for the car, a suitable hanger and a bracket pivotally mounted on said hanger and supporting said track and guide in the same relative position at all times, substantially as described

2. In store service apparatus the combination of a curved track, a guide for the car, a stationary hanger, a bracket pivotally mounted on said hanger and supporting said track and guide in the same relative position at all times and provided with a slot which engages a bolt connected to said hanger whereby the track and guide may be set at any desired angle substantially as described.

518,910. CAR-COUPLING. CHARLES BICKMEIER, Bellaire, Ohio. Filed Dec. 19, 1893. Serial No. 494,115. (No model.)

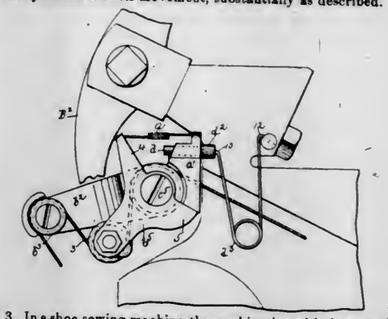


Claim.—The combination with a coupler head, of a pivoted knuckle, a vertically movable pin, a recess in the head of the pin, a cylinder, a spring-actuated piston, and a beveled ended finger carried by the piston and in line with the recess in the pin, substantially as set forth.

518,911. TAKE-UP FOR SHOE-SEWING MACHINES. HENRY BRIGGS, Hasbrouck Heights, N. J., assignor to the Goodyear Shoe Machinery Company, Portland, Me. Filed July 13, 1893. Serial No. 480,327. (No model.)

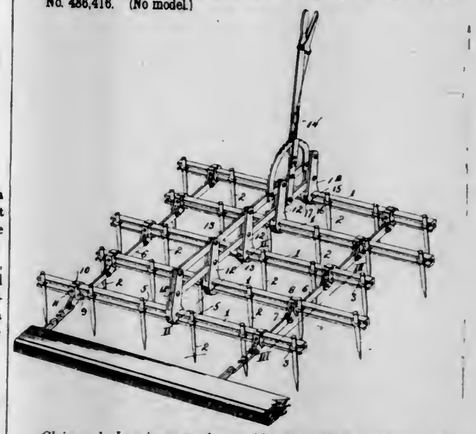
Claim.—1. In a shoe-sewing-machine, the combination with a main takeup an auxiliary take-up, and a stop to arrest or limit the movement of the said take-up, of a cushioning device normally extended beyond the stop into the path of movement of the auxiliary take-up and resisting the movement of the auxiliary take-up before the engagement of the latter with its stop, substantially as described.

2. In a shoe-sewing machine, the combination with a main takeup an auxiliary take-up, and a stop to arrest or limit the movement of the said take-up, of a cushioning device, consisting of a spring actuated plunger or rod normally extended beyond the said stop but moved backward by the auxiliary take-up to permit the latter to be gradually arrested in its movement, substantially as described.



3. In a shoe-sewing-machine, the combination with the main takeup b^2, and the auxiliary take-up b^3, of the stop a' for the said auxiliary take-up provided with a hole or cylinder, the rod or plunger d normally extended through said hole or cylinder into the path of movement of the auxiliary take-up, and means to act on the said rod or plunger to resist the movement of the piston by the auxiliary take-up substantially as described.

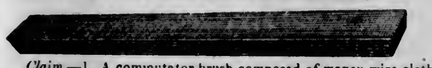
518,912. HARROW. JOHN W. BROWN, Quincy, Ill., assignor to the Collins Plow Company, same place. Filed Sept. 25, 1893. Serial No. 486,416. (No model.)



Claim.—1. In a harrow, the combination of U-shaped bars, and clips 8, slotted at 10, and having fillets 9 fitting in the open sides of the bars and the bolts 11; substantially as and for the purpose set forth.

2. In a harrow, in combination with U-shaped bars, the levers 12 having fillets 15 and openings 16, and the bolts 17; substantially as and for the purpose set forth.

518,913. COMMUTATOR-BRUSH. GEORGE W. BROWN, Deering, Me. Filed Nov. 15, 1893. Serial No. 491,062. (No model.)

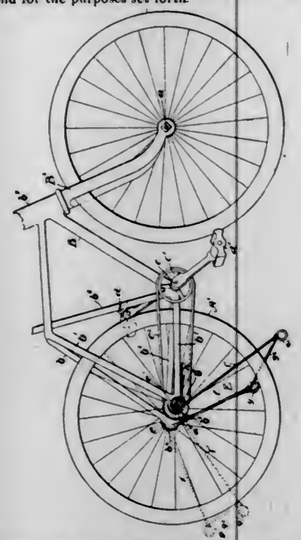


Claim.—1. A commutator brush composed of woven wire cloth folded together and the inner layers only of which are impregnated with a graphite compound left in a soft yielding condition and adapted to make contact at its end with a commutator.

2. A commutator brush composed of woven wire cloth folded together and having its inner layers only saturated with a graphite compound, the whole being in a flexible condition and adapted to make contact at its end with the commutator.

518,914. AUTOMATIC CYCLE-SUPPORT. RICHARD B. CHAMBERS, West Chester, assignor to Crosby M. Black, Chester, Pa. Filed Jan. 3, 1894. Serial No. 495,498. (No model.)

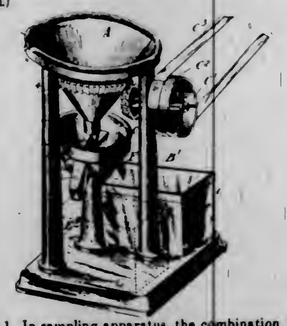
Claim.—1. A support for a bicycle, comprising a skirt or frame composed of a single piece of wire or the like formed into coils on each side with extensions having lugs or projections forming seats and having legs with feet and the respective feet linked together, substantially as and for the purposes set forth.



2. The combination with a bicycle or similar vehicle, of a support provided with coils mounted on the hub or axle bearing on each side of one of the wheels of the vehicle and having extensions with inwardly projecting lugs seated to certain of the forked arms of the backbone of the vehicle and having inclined legs with feet linked together, substantially as and for the purposes set forth

---

518,915. SAMPLER FOR GRAIN, MINERALS, &c. THOMAS CLARKSON, Sutton, England. Filed July 22, 1893. Serial No. 481,173. (No model.)



Claim.—1. In sampling apparatus, the combination with a rotatory hopper, having an annular discharge outlet, of a receptacle into which it discharges, and sampling chutes in said receptacle; substantially as described.

2. In a sampling apparatus, the combination with a rotatory hopper and means for rotating the same, of a plug or valve in its outlet arranged to produce an annular stream, and a receiving vessel having a sampling chute projecting thereinto; substantially as described.

3. In a sampling apparatus, the combination with a rotatory hopper, having a projecting flange, a standard provided with a ring having a ball bearing for said flange, means for rotating the hopper, and a receptacle having sampling chutes therein; substantially as described.

4. In a sampling apparatus, the combination with a rotatory hopper having a central outlet, of a receptacle having a central discharge through which the main body of the material is discharged, and one or more sampling chutes projecting into said receptacle; substantially as described.

5. In a sampling apparatus, the combination with a rotatory hopper having a central outlet, of a receptacle having a central discharge through which the main body of the material is discharged, one or more sampling chutes projecting into said receptacle, and receptacles for the material discharged from the sampling chutes; substantially as described.

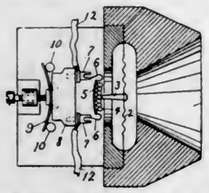
6. In a sampling apparatus, the combination with a rotatory hopper and means for rotating the same, of an adjustable plug or valve in its outlet arranged to produce an annular stream, and a receiving vessel having an adjustable sampling chute projecting thereinto; substantially as described.

7. In a sampling apparatus, the combination with a rotatory hopper and a receptacle having sampling chutes, of means for adjusting the distance which they project within said receptacle; substantially as described.

8. In a sampling apparatus, the combination with a rotatory hopper and a receptacle having sampling chutes, of means for adjusting the distance which they project within said receptacle, and an index to show the amount of the sample; substantially as described.

9. In a sampling apparatus, the combination with a rotatory hopper and a receptacle having pivoted sampling chutes, of means for adjusting the distance which they project within said receptacle; substantially as described.

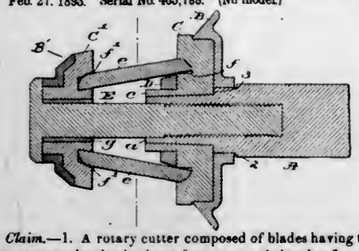
518,916. TELEPHONE-TRANSMITTER. HERBERT COTTRELL, Newark, N. J. Filed Mar. 15, 1894. Serial No. 503,707. (No model.)



Claim.—1. In a telephone transmitter, a variable resistance piece, consisting of a conducting base having projections extending therefrom, a diaphragm susceptible of being vibrated by sound waves, and means for varying the contact between the projections, in correspondence with the vibrations of the diaphragm, to produce variations in the current, substantially as described.

2. In a telephone transmitter, a variable resistance piece, consisting of a conducting base and projections extending therefrom, a diaphragm susceptible of being vibrated by sound waves, and means for varying the contact between the projections by communicating the vibrations of the diaphragm to the base of the resistance piece to produce variations in the current, substantially as described.

518,917. ROTARY CUTTER. HADLEY P. FAIRFIELD, West Medford, assignor to James W. Brooks, trustee, Petersham, Mass. Filed Feb. 27, 1893. Serial No. 463,788. (No model.)



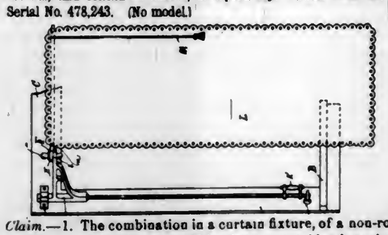
Claim.—1. A rotary cutter composed of blades having their side edges quarter-circular in shape from one to their other face, and two disks or plates C, C', one disk or plate having a groove substantially V-shaped in cross section, while the other disk or plate has grooves sufficiently larger than the quarter-circular edges of the blades entering them to let said edges tip in said grooves, to thereby adapt the blades to the diameter of the disk or plate having the substantially V shaped grooves, said latter grooves holding the edges of the blades firmly so that they cannot tip therein, substantially as described.

2. A rotary cutter composed of blades having their side edges quarter-circular in shape from one to their other face, and two disks or plates C, C', one disk or plate having a groove substantially V-shaped in cross section, while the other disk or plate has grooves sufficiently larger than the quarter circular edges of the blades entering them to let said edges tip in said grooves, to thereby adapt the blades to the diameter of the disk or plate having the substantially V-shaped grooves, said latter grooves holding the edges of the blades firmly so that they cannot tip therein, and a clamping device to clamp the said disks together, substantially as described.

3. A rotary cutter composed of two disks or plates having blade-

receiving grooves, blades entering said grooves, the side edges of the blades integral therewith being substantially quarter circular in cross section to enter and tip in said grooves to adapt the blades to the distance of the grooves from the center of rotation of the said disks or plates, combined with a tread guard and a blade adjusting device to simultaneously adjust the said blades longitudinally, substantially as described.

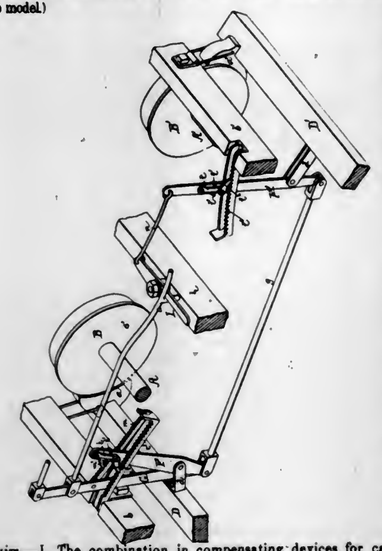
518,918. CURTAIN-FIXTURE. JOHN H. FITZGERALD, Frankfort, W. Va., and MARIA A. GAUGH, Newport, Ky. Filed June 20, 1893. Serial No. 478,243. (No model.)



Claim.—1. The combination in a curtain fixture, of a non-rotary bracket D, a curtain rod-support E having a rotatable plate pivoted to the bracket and provided with the stops *m* adapted to strike the bracket to limit the rotary motion of the rod-support, and a curtain-rod having a sliding connection with the rotatable rod-support, substantially as described.

2. The combination in a curtain fixture, of an angular socket H, a stud I, a bracket D adapted to engage the angular socket and having a leg for engaging the stud, a curtain rod support having a rotatable plate pivoted to the bracket, and a curtain rod engaged with the rotatable plate, substantially as set forth.

518,919. SLACK-ADJUSTING DEVICE FOR BRAKE MECHANISM. MATTHEW J. GRIER, Philadelphia, Pa., assignor of one-fourth to J. Warren Coulston, same place. Filed Aug. 1, 1893. Serial No. 482,083. (No model.)



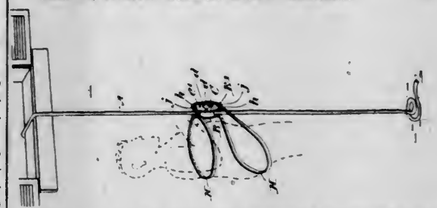
Claim.—1. The combination, in compensating devices for car brake mechanism, of the compensating lever, an actuating device therefor which moves the lever in one direction, but has no control over its movement in the opposite direction, a retainer for holding that portion of the movement of the compensating lever which is due to slack in the brake gear, and a lost motion connection between said retainer and the compensating lever to permit of a limited independent movement of the latter in order to free the brake shoes from contact with the wheels, substantially as specified.

2. The combination in compensating devices for car brake mechanism, of the compensating lever, an operating device having a ratchet and pawl connection with said compensating lever whereby provision is afforded for advancing the end of the compensating lever in respect to said operating device, a retainer for holding the lever in such advanced position, and a lost motion connection between said retainer and the lever, substantially as specified.

3. The combination in compensating devices for car brake mechanism of the compensating lever, a supplementary lever connected to the brake operating mechanism, and having a pawl and ratchet connection with said compensating lever, a retainer for holding the compensating lever in successive positions of advancement, and a lost motion connection between said retainer and the compensating lever, substantially as specified.

4. The combination of the two brake shoe operating levers, of a car truck, an interposed lever connected to one of said brake shoe operating levers, a brake operating device which, on its forward movement, acts both upon said interposed lever and upon one of the brake shoe operating levers, but on the reverse movement has no effect upon either of said levers, and a lost motion retainer for holding either or both of said brake operating levers in its advanced position, substantially as specified.

518,920. FIRE-ESCAPE. CYRUS E. HARVEY, Waterloo, Canada. Filed May 25, 1893. Serial No. 475,531. (No model.)

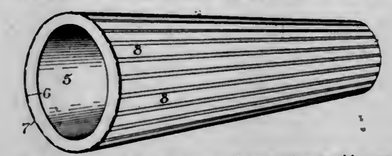


Claim.—1. In a fire escape, the combination of a suspended rope; a traveling friction block composed of an outer perforated frame or casing, an inner cylindrical drum around which a portion of said rope is wound and a cleat bar or projection on the exterior of said casing, as set forth.

2. In a fire escape, the combination of a suspended rope; a traveling friction block composed of an outer perforated frame or casing formed of an outer cylinder and two sides the cylinder and the sides having interlocking points, an inner cylinder or drum around which a portion of said rope is wound, a central screw bolt and a cleat shaped nut, as set forth.

3. In a fire escape, the combination of a suspended rope; a traveling friction block composed of an outer perforated frame or casing formed of an outer cylinder and two sides the cylinder and the sides having interlocking points, an inner cylinder or drum around which a portion of said rope is wound a central screw bolt, a cleat shaped nut, and a body support secured to said frame or casing, as set forth.

518,921. PANTOGRAPH ROLL OR PLATE. JOHN HOPE, Providence, R. I. Filed July 28, 1893. Serial No. 481,744. (No model.)



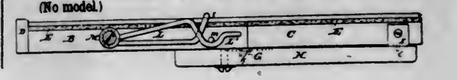
Claim.—1. A roll, for a pantograph engraving-machine, consisting of a base, the articles to be engraved removably secured to the base, and a coat of varnish applied to cover the articles.

2. A roll, for a pantograph engraving-machine, consisting of a base having recessed portions, articles to be engraved contained within said recesses and a coat of varnish applied to the surface of the same.

3. A roll, or plate, for a pantograph-engraving-machine having depressions in the surface thereof adapted to receive the articles to be engraved and to gage the proper location of the same.

4. A roll, or plate, for a pantograph-engraving-machine, consisting of the base 5 having the grooves 6—6, and the ribs 7—7 separating the grooves, articles to be engraved secured within the grooves, and varnish applied to the surface of the whole.

518,922. PHOTOGRAPHIC-PRINTING FRAME. RUDOLPH M. HUNTER, Philadelphia, Pa. Filed Sept. 13, 1893. Serial No. 485,384. (No model.)



Claim.—1. In a photo printing frame, the combination of a back of suitable material severed transversely to its length and having its parts united by hinged joint or joints, spring clamps pivoted to the side edges of one of the parts and provided with laterally projecting parts pointing toward each other adapted to clamp the negative or glass between the hinged joint and end of the frame, catches on the frame for holding the spring clamps in clamping position, and one or more pivoted locking bars carried upon one of the parts of the back to hold the two parts in the same plane.

2. In a printing frame, the combination of a plate of glass or transparent substance, a back of wood of substantially the size and shape of the glass and having a portion made movable by a transverse hinged joint, spring clamps of the character described pivoted to the edges of the back adapted to extend over and clamp the edges of the plate of glass near the junction of two parts of the back to hold the glass firmly upon the back, pins or projections on the back over which the spring clamps are snapped, an interposed soft pad arranged between the back and glass plate, and one or more pivoted locking pieces carried by one of the pieces of the back to hold the several portions making up the back in the same plane and prevent strain coming upon the glass.

3. In a printing frame, the combination of a back of suitable material of substantially the size and shape of the transparent plate through which the light rays are required to pass formed of two or more parts hinged together so that one part may be turned down to expose the print, spring clamps pivoted to the opposite side edges of one or more of the parts of the back having laterally projecting clamping portions extending toward each other and movable about axes parallel with the dividing line of the back and adapted to directly hold the transparent plate to the back by pressing thereon at a distance from its ends and between the end and dividing line of the back, and one or more pivoted locking devices pivoted to the rear of one of the parts of the back to hold the movable part or parts of the back in the same plane with the part or parts carrying the clamps to prevent strain coming upon the glass or transparent plate.

4. In a photo printing frame, the combination of a back of suitable material severed transversely to its length and having its parts jointed together, spring clamps pivoted to the side edges of one of the parts and formed with long spring arms provided with laterally projecting parts pointing toward each other adapted to clamp the negative or glass between the hinged joint and end of the frame and spring arms for locking the clamps, catches on the frame for holding the spring arms of the clamps in clamping position, one or more pivoted locking bars carried upon one of the parts of the back to hold the two parts in the same plane and interposed springs between the ends of the locking bars and back whereby the two parts of the back are held in the same plane with an elastic pressure.

5. In a photo printing frame, the combination of a back of suitable material formed in two or more parts hingedly connected together, clamps carried by one or more of the parts adapted to clasp a glass or transparent plate to the back each formed of bent wire and having a long spring arm provided with a laterally projecting part to clasp the transparent plate a loop for hinging to the back and an arm for locking the clamp in clamping position, and catches on the back to hold the arms of the spring clamps in clamping position.

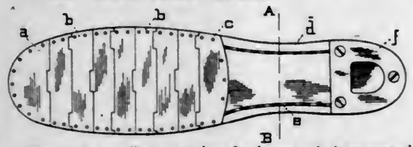
6. In a photo printing frame, the combination of a back of suitable material severed transversely to its length and having its parts united by hinged joint or joints, spring clamps pivoted to the side edges of one of the parts and formed with long spring arms provided with laterally projecting parts pointing toward each other adapted to clamp the negative or glass between the hinged joint and end of the frame and spring arms for locking the clamps, catches on the frame for holding the spring arms of the clamps in clamping position, and one or more pivoted locking bars carried upon one of the parts of the back to hold the two parts in the same plane, and springs I interposed between the free ends of the locking bars and one of the hinged parts of the back whereby the parts of the back are held in the same plane with an elastic pressure.

7. In a photo printing frame, the combination of a back formed of parts B C hinged together at G, two or more spring clamps L substantially of the character shown pivoted to the sides of the back between the end and the hinged division between the parts B and C of the back and provided with laterally projecting parts *l* pointing toward each other, a transverse guide or projecting foot D arranged on one end of the frame to receive and hold one end of the glass in proper alignment, and one or more locking bars H pivoted to the rear of the back for holding the two parts thereof in the same plane.

8. In a photo printing frame the combination of a back formed of parts B C hinged together at G, two or more spring clamps L substantially of the character shown pivoted to the sides of the part B between the end and the hinged division between the parts B and C of the back and provided with laterally projecting parts *l* pointing toward each other, and one or more locking bars H pivoted to the rear of the part B of the back for holding the two parts thereof in of parts B C hinged together at G, two or more spring clamps L substantially of the character shown pivoted to the sides of the part B between the end and the hinged division between the parts B and C of the back and provided with laterally projecting parts *l* pointing toward each other, and one or more locking bars H pivoted to the rear of the part B of the back for holding the two parts thereof in the same plane, whereby the spring clamps hold the glass negative firmly to the part B and the bars hold the part C in the same plane with the part B.

9. In a printing frame, the combination of a back of suitable material of substantially the size of the transparent plate through which light rays are required to pass having a transversely hinged part; and metallic clamps carried by the back at its opposite side edges adapted to clamp the plate to the back, the said clamps being made of bent wire formed with a long spring arm having a laterally projecting part to clasp the transparent plate with spring pressure, a loop for hinging to the back on an axis parallel to the transverse hinge, and an arm for locking the spring clamp in clamping position; catches on the back close to the projecting clamping part to hold the locking arms; and means to hold the parts composing the back in the same plane.

518,923. SOLE AND HEEL PLATE. JOHN S. KILGORE, Salida, Colo., assignor of one-half to Wilmot W. Shay, same place. Filed July 17, 1893. Serial No. 480,684. (No model.)



Claim.—A metallic wear plate for boots and shoes comprising the grooved and perforated shank sole substantially as described, and the toe strip "*a*," terminating strip "*c*," and intermediate stripe "*b*" extending transversely across the shoe sole, and provided with the alternating lugs "*g*" and recesses "*h*," each having tapering perforations for the reception of securing tacks substantially as described.

518,924. HOUSE MAIL-BOX. EDWIN F. KINSEY, Washington, D. C. Filed July 18, 1893. Serial No. 480,853. (No model.)



Claim.—1. In a letter box the combination with a horizontally sliding drawer arranged in the upper front part of the box; of a hinged leaf C closing access to this drawer except when tilted, an indicator plate made vertically adjustable, and mechanism connecting the hinged leaf and the indicator plate to cause the latter to be lifted and sustained in elevated position when the said hinged leaf is deflected substantially as shown and described.

2. In a letter box, the combination with a horizontally sliding drawer arranged in the upper front part of the box; of a hinged leaf C closing access to the drawer except when tilted and having rearwardly projecting lift wings C^3 at its ends, lever latches L, the indicator plate resting upon said latches and arranged to be lifted through the lift wings, and a catch fixed to the drawer and arranged to hold the latch and indicator in the elevated position until the drawer is pulled out substantially as shown and described.

3. The letter box having a supporting lip *d* with a slot behind it formed in the back of the case; in combination with the indicator plate resting above the same and playing through an opening in the top of the box substantially as shown and described.

4. A letter box having a stamp selling device and consisting of an adjustable want indicator, a separate mail compartment provided with a door and lock, and connecting mechanism extending from said door to the stamp selling devices, whereby the latter are rendered inoperative except when said door is open substantially as shown and described.

5. The combination in a letter box, of endless belts carrying markings for stamps, &c., adjustable sprockets arranged to be thrown into or out of gear with the belts to actuate them, a locking device to hold said sprockets out of gear and a door and connecting mechanism arranged to release the locking device by the opening of the letter box substantially as shown and described.

6. The combination in a letter box of the case F with window *f*, the endless belts F' F^2 F^6, the longitudinally adjustable shafts *a'* with sprockets *a* springs a^2 and knobs a^3, the locking bar G with holes a^4, link G', lever G^2, and the door for fixing the position of the parts substantially as shown and described.

7. The combination with the stamp selling device having endless belts with markings thereon and arms *h*, of the sliding drawer for the postman having hook or arm *i* arranged to act upon the tappet arms of the belt and set them to zero by the movement of the drawer substantially as shown and described.

8. The combination with a letter box having a hinged leaf E^3 operated by the lid or cover of the box; of a pull wire E^5 for a signal bell, a grooved pulley E^4 fixed in the back of the box, and a loop or keeper E^5 embracing the wire and retaining it upon the pulley substantially as shown and described.

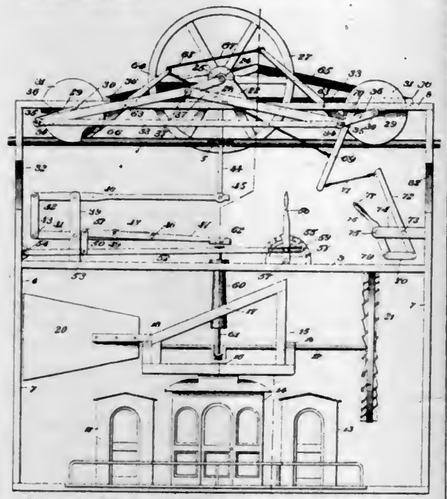
9. The combination with a letter box; of a stamp selling device composed of endless belts, and distending rollers of different diameters, actuating sprockets of different diameters for adjusting them, tappet arms affixed to the belts and lying in different planes, and a setting arm operating upon the tappets substantially as shown and described.

10. In a letter box, the combination of a case having a deep upwardly projecting flange around its upper opening or mail inlet, a hinged lid having a deep downwardly projecting flange fitting around the same, both flanges being deeper at the front than at the back, a hinged partition leaf connected to the hinged lid, and a bell wire attached to the hinged partition leaf, to insure the sounding of a signal before giving access to the box substantially as shown and described.

11. The combination with the letter box, the hinged leaf C with lift wings, and latches; of an internal lining Z arranged as described to screen the working mechanism from entanglement with mail matter substantially as shown and described

---

518,925. ELEVATED RAILWAY. BENJAMIN ROBERTS, Jacksonville, Fla. Filed Sept. 14, 1891. Renewed Mar. 12, 1894. Serial No. 503,371. (No model.)



Claim.—1. The combination with an overhead track and its support, of a frame having supporting-wheels mounted for movement on the track, a wind-wheel and its shaft supported in the frame, mechanism for communicating motion from the shaft to the supporting wheels, and a reversing mechanism connected with said mechanism, substantially as specified.

2. The combination with the overhead track, of the rectangular frame, the wheels mounted in the frame and supporting the same upon the track, of a turn-table pivoted in the frame, a wind-wheel and its shaft journaled in the turn-table, and connections between the wind-wheel and shaft and the supporting wheels, substantially as specified.

3. The combination with the overhead track and its supports, of the rectangular frame, the grooved wheels mounted on the track and journaled upon axles in the frame, the cranked fly-wheel shaft journaled in the frame and carrying the fly-wheel, a wind-wheel shaft carrying a wind-wheel and journaled in the frame below the fly-wheel shaft, and mechanism for connecting and conveying motion from the wind-wheel shaft to the crank of the fly-wheel shaft, substantially as specified.

4. The combination with the overhead tracks, of a rectangular frame, the upper transverse bar provided with a longitudinal slot, and at opposite sides of the same with bearing standards, a fly-wheel shaft mounted in the bearings and terminating at its ends in cranks, a fly-wheel located upon the shaft, axles journaled in bearings in the slot at opposite sides of the fly-wheel shaft, wheels mounted on the axles and adapted to ride upon the track, said axles terminating at their ends in cranks, opposite pitmen pivotally connecting corresponding ends of the cranks of the two axles and connecting-rods connecting said ends of the cranks with the corresponding cranks of the fly-wheel shaft, a wind wheel, a shaft for the same, the latter mounted in the frame-work, and connections between the wind-wheel shaft and the fly-wheel shaft, substantially as specified.

5. The combination with the overhead track, and its support, of the rectangular framework, the upper transverse bar provided with a longitudinal slot, and at opposite sides of the same with bearing-standards, a fly-wheel shaft terminating at its ends in cranks mounted in the bearing, a fly wheel located upon the shaft, axles journaled in bearings in the slot at opposite sides of the fly-wheel shaft, wheels mounted on the axles and adapted to ride upon the track, said axles terminating at their ends in cranks, opposite pitmen pivotally connecting corresponding ends of the cranks of the two axles and connecting-rods connecting said ends of the cranks with the corresponding cranks of the fly-wheel shaft, opposite brake-rods pivoted in the slot and adapted at their inner ends to bear upon and fit the peripheries of the supporting-wheels, a brake-rope connecting the two rods and loosely passing through one of the same, and a lever pivoted at one end and intermediate its ends connected to the brake-rope, a bracket, a lever pivoted thereto, a hand-lever pivoted to the bracket, and a link connecting the lower end of the same with the lever of the bracket, and a rope leading from said latter lever to the lower end of the pivoted lever to which the rope-brake is connected, a wind-wheel shaft journaled in the framework, a wind-wheel on the same, and mechanism for conveying motion from the wind-wheel shaft to the fly-wheel shaft, substantially as specified.

6. The combination with the overhead track, and its supports, of a rectangular framework, the fly-wheel shaft journaled in the same having a central and end-cranks and carrying a fly-wheel, opposite track-wheels mounted for rotation in the frame-work, and adapted to ride over the track, means for conveying motion from the fly-wheel shaft cranks to cranks of the axles of the track-wheels, a beam pivoted below the fly-wheel, a rod connecting the free end of the beam with the crank of the fly-wheel shaft, a lever pivoted below the beam and connected in rear of its pivot with the rocking-beam, a wind-wheel shaft having a crank and carrying a wind-wheel journaled in the lower portion of the framework, a rod connecting the crank of the latter with the free end of the last mentioned lever, substantially as specified.

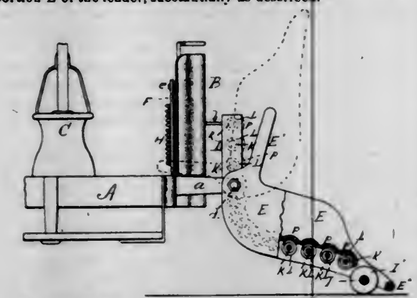
7. The combination with the overhead track, and its supports, of the rectangular frame, the track-wheels therein mounted on the track, an intermediate crank-shaft, connections between the same and the axles of the wheels, a vibrating pivoted rocking-beam, a rod connecting the same with the intermediate crank-shaft, a lever pivoted below the beam, loosely connected thereto in rear of their pivots by a link, a wind-wheel shaft carrying a wind-wheel, a rod extending upwardly from a crank in the shaft, a bar pivoted to the free end of the lever intermediate its ends, and transversely slotted in rear of its pivots, a pin passing through the lever and through the slot in the bar, loose connections between the rod of the wind-wheel shaft and the front end of the bar, a link pivotally connected to and loosely depending from the rear end of the bar, a shifting-rod pivoted at its rear end to the frame-work and between its ends to the link, and a pivoted hand lever loosely connected with the rod, substantially as and for the purpose described.

8. The combination with an overhead track, of the rectangular frame, the track-wheels mounted therein and the swiveled turn-table located below the track-wheels, the wind wheel shaft journaled in the turn-table, a vane at one end and a wind-wheel at the opposite end, and mechanism leading from the wind-wheel shaft to the wheels, substantially as specified.

518,926. FENDER FOR STREET-CARS. HENRY F. ROONEY, Randolph, Mass. Filed Sept. 12, 1893. Serial No. 485,320. (No model.)

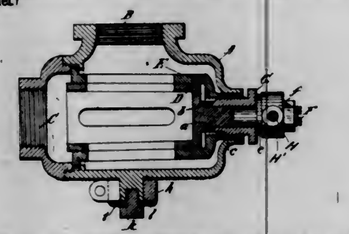
Claim.—1. A car fender comprising a stationary vertical portion D supported by the car body in front of the dash-board, the pivoted portion or fender proper, E, having a hinged connection with the car body and provided with a rearward extension E', and a catch secured to the car under the control of the motor-man or driver, which holds said arm normally in a horizontal position and the portion E normally in a raised position, substantially as set forth.

2. In a car fender, the combination of the elbow F F″ pivoted to the dash-board and provided with the notch F′, a spring connecting said elbow with the car body, the portion E or fender proper held pivotally in front of the dash-board by the horizontal bars *a* and provided with the arm E′ for engagement with said notched elbow, and the vertical portion D extending up from the rear edge of the pivotal portion E of the fender, substantially as described.



3. A car fender, comprising the hinged frame E having its body or central portion entirely filled in with horizontally set spiral springs L, and the rigid vertical frame D having its body or central portion filled in with similar horizontally set spiral springs, both said sets of springs being furnished with a sufficiently soft or elastic covering P, substantially as described.

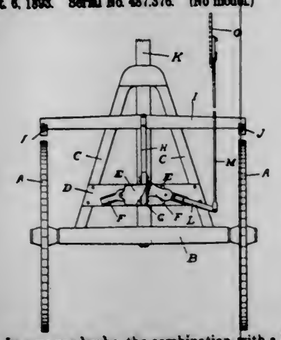
518,927. PUMP-REGULATOR. JOSEPH ROTHCHILD, Bath Beach, assignor to George W. Benton, George C. Cranford, and Robert L. Cranford, Brooklyn, N. Y. Filed Oct. 10, 1893. Serial No. 487,795. (No model.)



Claim.—1. In a regulator composed of a rotary valve and pressure piston connected as explained, the combination with the valve casing, of the removable plug mounted in the side thereof to facilitate the initial setting of the valve, substantially as and for the purposes set forth.

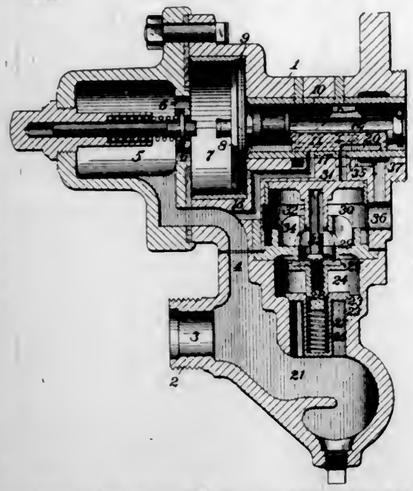
2. The combination with the casing of the rotary valve, and the pressure cylinder, of the arm connecting the two, the pressure cylinder being adjustable in the arm, substantially as explained and for the purposes set forth.

518,928. VEHICLE-BRAKE. JOHN F. SHEPARD, Jackson, Mich. Filed Oct. 6, 1893. Serial No. 487,376. (No model.)



Claim.—In a wagon brake, the combination with a fixed portion of a vehicle, of a brake beam extending across the vehicle and carrying shoes on its ends, a draw bar centrally secured to the beam and extending back, its rear end being provided with a rack bar having side racks of a width less than the bar, a top and bottom plate E having grooves therein in which the rack bar is closely fitted, brake levers pivoted to the outer ends of the plates and extending in between the same and having segmental racks on their inner ends meshing with the racks on the rack bar, and the actuating rod and lever for the brakes, substantially as described.

518,929. QUICK-ACTION TRIPLE VALVE. HENRY H. WESTINGHOUSE, Pittsburg, Pa. Filed Dec. 14, 1893. Serial No. 493,647. (No model.)



Claim.—1. In an automatic fluid pressure brake system, the combination with a movable abutment and a release valve controlling a passage for the release of fluid under pressure from the train pipe, of a main valve of a triple valve, controlling the admission of fluid from the train pipe to the movable abutment, for opening the release valve, substantially as set forth.

2. In an automatic fluid pressure brake system, the combination, with a release valve controlling a passage from the train pipe, of a movable abutment having normally an equilibrium of fluid pressures on its opposite sides, a passage through which fluid may be admitted from the train pipe to the abutment, and a valve operated by the triple valve piston for admitting fluid under pressure from the train pipe to the movable abutment for opening the release valve, substantially as set forth.

3. In an automatic fluid pressure brake system, the combination, with a release valve controlling a passage from the train pipe, of a movable abutment exposed on one side to brake cylinder pressure and a valve operated by the piston of a triple valve for admitting train pipe pressure to the other side of the movable abutment, substantially as set forth

4. In an automatic fluid pressure brake system, the combination, with a triple valve, of a release valve controlling a passage from the train pipe, a supplementary, movable abutment having, normally, an equilibrium of fluid pressures on its opposite sides, and a valve operated by the triple valve piston and adapted to admit fluid under pressure from the train pipe to the supplementary movable abutment when the triple valve piston is in the emergency position, substantially as set forth.

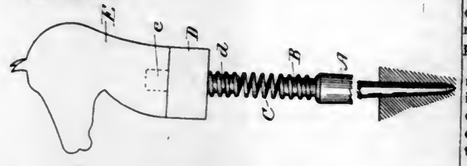
5. In an automatic fluid pressure brake system, the combination, with a triple valve, of a release valve controlling a passage for the release of fluid under pressure from the train pipe, a movable abutment, for operating the release valve, which is fitted in a chamber normally disconnected from the train pipe, and a valve, operated by the movement of the triple valve piston, for admitting fluid under pressure from the train pipe to the movable abutment, substantially as set forth.

518,930. VIBRATING TARGET. WILLIAM Y. ALLEN, Boston, Mass. Filed Mar. 15, 1893. Serial No. 466,036. (No model.)

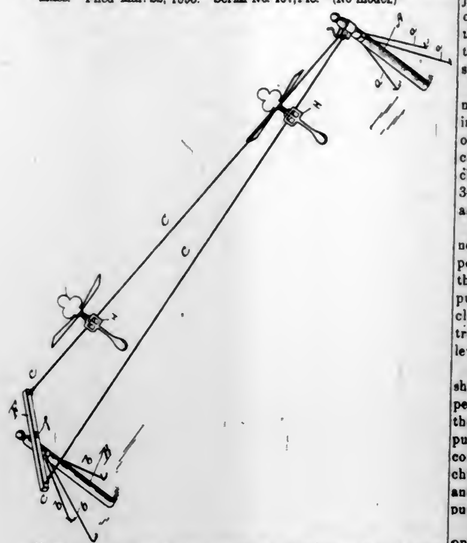
Claim.—1. A vibrating target consisting of a stake provided with a spring and detachable end piece, substantially as described.

2. A vibrating target consisting of the stake A, the spring C, the block D, and end piece E, substantially as described.

518,930.

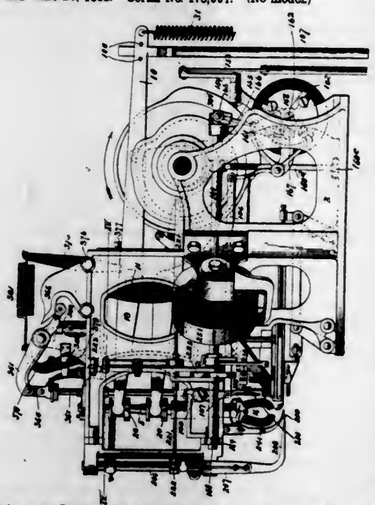


518,931. TRAVELING TARGET. WILLIAM Y. ALLEN, Boston, Mass. Filed Mar. 22, 1893. Serial No. 467,148. (No model.)



Claim.—A traveling target consisting of the supports, A B, cross bar F, tracks C C, the weighted conveyer H, and head piece J, substantially as described.

518,932. LASTING-MACHINE. CHARLES SINNING, St. Louis, Mo., assignor to the Sinning Lasting Machine Company, East St. Louis, Ill. Filed June 27, 1893. Serial No. 478,991. (No model.)



Claim.—1. In a lasting machine, the combination of a spindle, nippers pivoted to the spindle, means for moving the spindle, a vertically movable sleeve surrounding the spindle, means for moving the sleeve, a slotted head carried by the sleeve, rollers fitted in the slot of the head, springs for forcing said rollers inwardly, and a fixed roller secured centrally to the head; substantially as and for the purpose set forth.

2. In a lasting machine, the combination of a spindle, nippers carried by the spindle, means for moving the spindle, a sleeve surrounding the spindle, and having a head adapted to bear against the jaws of the nippers, a lever for moving the sleeve and cams 33, 34, for operating the sleeve lever; said cam 34 being adjustable relatively to the cam 35; substantially as and for the purpose set forth.

3. In a lasting machine, the combination of a spindle, nippers carried by the spindle, means for moving the spindle, a sleeve surrounding the spindle, and provided with a head adapted to bear against the jaws of the nippers, a lever for moving the sleeve, and cams 33, 34, for operating the sleeve lever; said cam 34 having a portion 41 and fitting on the hub of the cam 33, and said cam 33 having a gap to receive the body of the cam 34, and permit the movement of the latter; substantially as and for the purpose set forth.

4. In a lasting machine, the combination of a spindle, means for moving the spindle, nippers carried by the spindle, a sleeve surrounding the spindle and having a head adapted to bear against the jaws of the nippers, a lever for moving said sleeve and cams 33, 34; said cam 33 having a gap 33ª, and a recess 47; and said cam 34 being clamped to the hub of the cam 33, and having a portion 41 and rim 34ª adapted to overlap the notched rim of the cam 33, all substantially as and for the purpose set forth.

5. In a lasting machine, the combination of suitable power-connections for driving the machine, having an interposed clutch, nippers for grasping the leather, a pump for regulating the tension of the nippers on the leather, a treadle for operating the valve of the pump, and which is provided with a lug 88, a lever connected to the clutch of the machine, and adapted to be engaged by said lug on the treadle, and a hinged bar 93 adapted to engage in a notch in said lever; substantially as and for the purpose set forth

6. In a lasting machine, the combination of a suitable power-shaft having a clutch for communicating motion to the machine nippers for grasping the leather, a pump for regulating the tension of the nippers on the leather, a treadle for operating the valve of the pump, and which is provided with a lug 88, a spring-actuated bar 81 connected to said treadle, a lever connected to the clutch of the machine, and which is adapted to be engaged by said lug on the treadle, and a hinged spring-actuated bar 93, all substantially as and for the purpose set forth.

7. In a lasting machine, the combination of nippers, a lever for operating the nippers, a tension spring connected to the lever, a pump regulating the tension of the spring, and a forked rod 107, under the control of the pump, and which serves as a stop; substantially as and for the purpose set forth.

8. In a lasting machine, the combination of nippers, a lever through which the nippers are operated, a pump having spring connection with said lever, a forked rod 107 engaging said lever, and an eccentric for moving said rod, and which is connected to the piston of the pump; substantially as and for the purpose set forth.

9. In a lasting machine, the combination of nippers, a lever for operating the nippers, a pump having spring connection with said lever, a rod engaging said lever, an eccentric to which the lower end of the rod is connected, a shaft upon which the eccentric is mounted, a lever on said shaft, and a bar or rod connecting said lever to the cross-head on the piston rod of the pump; substantially as and for the purpose set forth.

10. In a lasting machine, the combination of an adjustable work-feed, tack-feed devices containing tacks of different sorts, a side shaft having working connections for adjusting the work-feed, and for throwing either tack-feed into operation, and an escapement device for shifting the position of the side shaft, substantially as set forth.

11. In a lasting machine, the combination of the adjustable work-feed and tack-devices feeding tacks of different sorts, a side shaft having working connections for adjusting the work-feed, and for throwing in either tack-device, an escapement connected to the side-shaft, and means for imparting movement to the escapement; substantially as and for the purpose set forth.

12. In a lasting machine, the combination of an adjustable work-feed, separate tack-devices feeding tacks of different lengths, a side shaft adjusting the work-feed and throwing in either tack-device, an escapement-wheel having crank and link connection with the side shaft, a shaft upon which the escapement-wheel is mounted, a loose pulley on said shaft, a fixed disk on said shaft, a spring for forcing the pulley against the disk, and means for moving the arms of the escapement; substantially as and for the purpose set forth.

13. In a lasting machine, the combination of an adjustable work-feed and tack-devices feeding tacks of different kinds, a side shaft adjusting the work-feed and changing the tack-devices, an escapement having crank-and-link connection with the side-shaft, a shaft on which the escapement is mounted, mechanism for turning said shaft, a bar

connected to the arms of the escapement, and a pivoted finger-piece to which said bar is also connected; said finger-piece being located at the forward end of the machine; substantially as and for the purpose set forth.

14. In a lasting machine, the combination of an adjustable work-feed, tack-devices feeding different kinds of tacks, a side shaft adjusting the work-feed and throwing in either tack-device, an escapement having crank and link-connection with the side-shaft, means for turning the escapement, and means for releasing the escapement; said escapement consisting of an escapement-wheel having projections 182, and arms 186 and 187 for engaging said projections; substantially as and for the purpose set forth.

15. In a lasting machine, the combination of an adjustable work-feed, tack-devices feeding different kinds of tacks, a side shaft having connection with said feed and tack-devices to change them as explained, an escapement-wheel having crank-and-link connection with the side shaft and having strips 183 and notches 185, a shaft for turning the escapement when the latter is released and pivoted arms 187 formed respectively with an end 192 for entering the notches and a hook 19 for engaging said strips; substantially as and for the purpose set forth.

16. In a lasting machine, the combination of an adjustable work-feed and interchangeable tack-devices of substantially the character specified, an escapement having working connections with said work-feed and tack-devices for the purpose of shifting them in the manner explained, a shaft having frictional driving connection with the escapement-wheel and the vibrating arms for impinging said escapement and holding it normally in opposition to said frictional driving connection but having means for releasing them and permitting the escapement to be turned by its shaft when it is desired to shift the feed and tack-devices; substantially in the manner explained.

17. In a lasting machine, a feed point, mechanism for imparting a vertical movement to the feed point, mechanism for imparting a horizontal movement to the feed point, and mechanism for varying the horizontal movement of the feed point, consisting essentially of a side shaft, a hinged lever, an arm secured to the lever, and a bracket on the side shaft having a double cam groove engaging said lever; substantially as and for the purpose set forth.

18. In a lasting machine, the combination of the feed point, mechanism for imparting a vertical movement to the feed point, mechanism for imparting a horizontal movement to the feed point, and mechanism for varying the horizontal movement of the feed-point; consisting essentially of a side shaft, a hinged lever, an arm adjustably secured to the hinged lever, and a bracket having a double groove, and which connects said lever to the side shaft; substantially as and for the purpose set forth.

19. In a lasting machine, the combination of a feed point, mechanism for moving the feed point vertically, mechanism for moving the feed point horizontally, and mechanism for varying the horizontal movement of the feed point; consisting essentially of a side shaft, a bracket secured to the shaft, and having a double V-groove, a hinged lever having a pin fitting in said groove of the bracket, an arm secured to the lever, a rod passing through a slot in said arm, and a lever with which said bar engages, and which is secured to the vertical rod of said feed point; substantially as and for the purpose set forth.

20. In a lasting machine, the combination of a work feed and separate tack-devices, a side shaft having connections for manipulating the work-feed and tack-devices, an escapement having crank-and-link connection with the side-shaft and provided with means by which it is turned, said escapement having a vibrating detent-arm and having notches into which said arm enters to lock the escapement against forward or retrograde movement, as and for the purposes explained.

21. In a lasting machine, the combination of nippers, a lever operating the nippers, a cam for moving the lever, a side shaft, means for operating the side shaft, and means for moving said cam so that it will not operate upon said lever, consisting essentially of a lever 160^{a}, engaging said cam, and having a lug 160^{c} to be engaged by a projection on said side shaft; substantially as and for the purpose set forth.

22. In a lasting machine, the combination of nippers, a lever for operating said nippers, a cam for moving said lever, a side shaft, and an escapement device for operating the side shaft, and means for moving said cam out of position to operate upon said lever; said means consisting essentially of a pivoted lever 160^{a} having a lug 160^{c} adapted to be engaged by a projection on said side shaft; substantially as and for the purpose set forth.

23. In a lasting machine, the combination of nippers, a lever operating the nippers, a cam for moving said lever, a side shaft, a work-feed mechanism, and a tack-feeding mechanism operated by said side shaft, and mechanism for moving said cam out of position to operate upon said lever, consisting essentially of a lever 160^{a} controlling the cam and having a lug 160^{c}, a projection on said side shaft engaging said lug; substantially as and for the purpose set forth.

24. In a lasting machine, the combination of nippers, a lever for operating the nippers, a cam for moving the lever, and which is provided with an extension, and means for moving said cam out of the position for closing said nippers, which consists essentially of a pivoted lever engaging the extension on the cam and having a lug 160^{c}, and a side shaft under control of the operator having a projection 160^{b} for engaging said lug; substantially as and for the purpose set forth.

25. In a lasting machine, the combination with the nippers, the lever for operating the nippers, and a cam having faces for moving the lever; of a side shaft under control of the operator and having working connection with said cam for throwing it out of position; the opening face of said cam projecting beyond the face which operates the lever to close the nippers, so that should the nippers be closed, when the cam is moved they will be opened by said projecting cam, as explained.

26. In a lasting machine, the combination of tack-boxes, race-ways fitting within the tack-boxes, at their upper ends, tappers for striking the race-ways, and means loosely supporting but not attached to the lower ends of the race-ways, consisting of a block 257, and arms 259, and set screws 258, bearing against the race-ways; substantially as and for the purpose set forth.

27. In a lasting machine, a solid race-way formed with a groove 261, and an opening 260, in combination with a plate, 262, and straps 264, securing the plate over the race-way; substantially as and for the purpose set forth.

28. In combination with a lasting machine, a tack carrier plate, a shoe for moving said plate a switch tongue pivoted to the shoe and means for moving said switch tongue, consisting of a side shaft, a lever operated by the side shaft and provided with a projection, a collar on said shaft having an upwardly extending arm adapted to be engaged by the projection on said lever, a downwardly projecting arm on said collar, and which is connected by a spring to a fixed part of the machine, a second collar on said side shaft, carrying an arm and a connection between said last mentioned arm and said switch point; substantially as and for the purpose set forth.

29. In combination with a lasting machine, a tack carrying plate, a shoe adapted to move said plate a switch point pivoted to said shoe, and means for moving said switch point, consisting of a side shaft, a lever having a projection and adapted to be moved by said side shaft, a collar on the side shaft having an upwardly extending projection adapted to be engaged by the projection on said lever, a downwardly extending arm on said collar connected by a spring to a fixed part of the machine, a second collar on said side shaft, an arm on said last mentioned collar, a connection between said last mentioned arm and said switch point, and a spring 295 surrounding said collars and engaging said downwardly extending arms; substantially as and for the purpose set forth.

30. In combination with a lasting machine, a tack carrying plate, a block having a half round opening, and to which the tack carrying plate is pivoted, a holder, a movable housing carrying said holder, and a plate secured to said housing, and having a projection 318, with a half round opening adapted to register with the opening in said block when the movable head of the machine is in its inner position; substantially as and for the purpose set forth.

31. In combination with a lasting machine, a tack carrying plate, a block to which the tack carrying plate is pivoted, and which is provided with a half round opening, a holder, a housing within which the holder is located and which is adjustably secured to the movable head of the machine, a plate having a perforation registering with a perforation in said housing, and a projection on said plate having a half round opening adapted to register with said opening in said block; substantially as and for the purpose set forth.

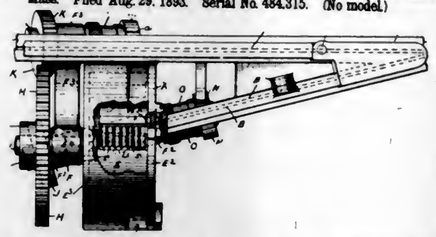
32. In combination with a lasting machine, a tack carrying plate, a notched arm 324, a head 326 receiving said arm, and having a horizontal extension 328, a bracket having a socket to receive the horizontal extension of the head, a spring 331, a lever 332 and a projection 334 on the movable head of the machine; substantially as and for the purpose set forth.

33. In combination with a lasting machine, a tack carrying plate, a notched arm 324, a hollow head 326, a spring 327 located in the hollow head, and adapted to force said arm in a downwardly direction, a horizontal extension on said head, a bracket receiving the horizontal extension of the head, a spring 331, and a lever 332, and a projection 334 on the movable head of the machine; substantially as and for the purpose set forth.

34. In a lasting machine, a pusher consisting of a head having a tongue, a bar to which the head is secured, hinged arms to which said bar is pivoted, a spring for drawing the bar forwardly, and means for causing said bar to be forced rearwardly as the movable head recedes; substantially as and for the purpose set forth

35. In a lasting machine, a pusher consisting of a head having a tongue, a bar to which the head is adjustably secured, hinged arms to which the bar is pivoted, a spring for drawing the bar forwardly, a pivoted arm having a roller 354 adapted to be engaged by the movable head of the machine, and an extension 351 having a set screw 352; substantially as and for the purpose set forth.

518,933. TACK-DISTRIBUTER. WALTER O. WHEELER, Webster, Mass. Filed Aug. 29, 1893. Serial No. 484,315. (No model.)

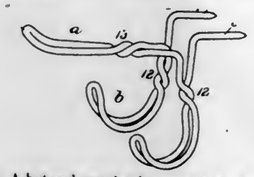


Claim.—1. In a machine for distributing or delivering tacks, the combination with two tack conducting chutes both located for distribution or delivery of the tacks one by one from each chute and at a common point, an appliance for and to operate in conjunction with each chute to distribute its tacks as aforesaid and separate operating means for each tack distributing appliance, of separate clutching mechanisms to clutch and unclutch each tack distributing appliance and its operating mechanism, and means in connection with and adapted to actuate said clutching mechanisms so as to simultaneously clutch one and unclutch the other tack distributing appliance and its operating mechanism, substantially as described and for the purpose specified.

2. In a machine for distributing or delivering tacks, the combination with two tack conducting chutes both located for distribution or delivery of the tacks one by one from each chute and at a common point and a rotatory appliance located in and to operate in conjunction with each chute to distribute its tacks as aforesaid, of a rotating gear wheel H, pinions J, K meshing said gear-wheel, a separate clutching mechanism for each of said pinions and one of said rotatory tack distributing appliances, ratchet-wheels M, N of said pinions, and pawls Q, R to engage said ratchet-wheels, substantially as described, for the purpose specified.

REISSUES.

11,416. COAT AND HAT HOOK. FREDERICK TAYLOR, Lowell, Mass. Filed Nov. 25, 1893. Serial No. 491,998. Original No. 499,609, dated June 13, 1893.

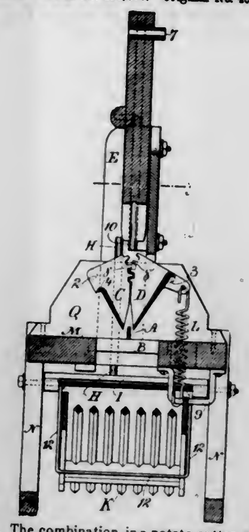


Claim.—1. A hat and coat hook comprising a loop-shaped hat-hook and two independent loop-shaped coat-hooks all made from a single piece of wire, two of the members of the coat-hook being interlocked with the other two members thereof at points below the inner end of the hat-hook, such interlocking of the members serving to prevent sagging of the hat-hook when the device is secured to a wall or other support.

2. A hat and coat hook composed of a single piece of wire, comprising a loop shaped hat-hook, two diverging loop-shaped coat-hooks located side by side below the inner end of the hat-hook, and two attaching devices formed on two of the members of the coat-hooks, the members of the coat-hooks being interlocked at points below the inner end of the hat-hook, whereby sagging of the inner portion of the hat-hook is prevented, as set forth.

3. A hat and coat hook composed of a single piece of wire, comprising a loop-shaped hat-hook, the members of which are relatively arranged as described to present a broad bearing, two diverging loop-shaped coat-hooks located side by side below the inner end of the hat-hook, and each having its members arranged to present a broad bearing and two attaching devices formed on two of the members of the coat-hooks, the members of the coat-hooks being interlocked at points below the inner end of the hat-hook, whereby sagging of the inner portion of the hat-hook is prevented, as set forth

11,417. POTATO-CUTTER. LEWIS A. ASPINWALL, Jackson, Mich., assignor to the Aspinwall Manufacturing Company, same place. Filed Dec. 22, 1893. Serial No. 494,477. Original No. 485,160, dated Nov. 1, 1892.



Claim.—1. The combination, in a potato-cutter, of a longitudinal knife having its cutting-edge upwardly with a series of transverse knives crossing below the same and having their upward cutting-edges at the same level and at increasing inclinations from the center, so that the opening through which the potato-sections pass will be as wide near the backs of the knives as at their edges, a hopper for guiding the potatoes to the knives, and a vertical plunger passing between the knives substantially as set forth.

2. The combination, in a potato-cutter, of a table, transverse knives received at their ends into recesses in the table, a longitudinal cutter, hopper-jaws pivoted near their upper edges and having interlocking gear-segments, a spring to press the lower edges of the jaws toward each other, a plunger and handle for moving the same, and vertical slideways for supporting the plunger, substantially as set forth.

3. The combination, with the handle and plunger having a slotted lower end forming fingers, of vertical slideways for the plunger, a table and frame for supporting the same, stationary hopper ends, hopper-jaws pivoted between the stationary ends, a spring to press the lower edges of the jaws toward each other, a longitudinal knife and transverse knives, and a screen below the table for receiving the cut potato-sections, substantially as set forth.

4. The combination, in a potato-cutter, with the stationary knives, of a movable plunger slotted at its lower end to form fingers, hopper-jaws having rounded ends and interlocking gear-segments, and a spring to press the lower edges of the jaws toward each other, the upper edge of the front jaw being removed to facilitate the insertion of the potato, substantially as set forth.

5. The combination, in a potato-cutter, with the stationary knives and movable plunger, of a yielding hopper into which the potato is passed and a stop for the end of the potato to determine the position of the same in relation to the stationary knives, substantially as set forth.

6. The combination, in a potato-cutter, of a hopper, longitudinal and transverse knives, a plunger slotted at its lower end to form fingers for pressing the potato against and between the cutting-knives, an inclined screen upon which the potato-sections fall, and an agitating device receiving its motion from the plunger for shaking the screen, substantially as set forth.

7. The combination in a potato cutter, of a cutter for separating the potato longitudinally, crossing cutters for separating the potato transversely into sections of approximately the same size regardless of the length of the potato, means for directing the potato to the longitudinal knife, and a plunger slotted at its lower end to correspond to the knives for forcing the potato through the cutting knives, substantially as set forth.

8. The combination in a potato cutter with the longitudinal knife and crossing knives and supports for the knives, of a yielding hopper to present the potato to the longitudinal knife, a plunger slotted at its lower end to correspond to the knives for pressing the potato from the hopper through the knives, substantially as set forth.

9. The combination in a potato cutter, of a longitudinal knife

and crossing knives for cutting the potato longitudinally and transversely, a yielding hopper for receiving the potato and guiding the same to the knives, a plunger slotted at its end to correspond to the knives for forcing the potato from the hopper through the knives, and an inclined screen upon which the potato sections fall, substantially as set forth.

10. The combination in a potato cutter, of a supporting table, a longitudinal knife and a range of crossing knives supported by the table with their edges upwardly, means for guiding the potato to the longitudinal knife, a moving plunger grooved at its end to correspond to the knives and acting to force the potato through between such knives, substantially as set forth.

DESIGNS.

23,207. CARPET. WILLIAM F. BROWN, Newark, N. J., assignor to the Bigelow Carpet Company, New York, N. Y. Filed Mar. 22, 1894. Serial No. 504,725. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body A, substantially as shown.

2. In a design for a carpet, the border B, substantially as shown.

3. The design for carpets consisting of the body A and the border B, substantially as shown

23,208. BRAID. VALENTINE G. SCHUCK, New York, N. Y., assignor to the Sutro Bros. Braid Company, same place. Filed Nov. 13, 1893. Serial No. 490,843. Term of patent 14 years.



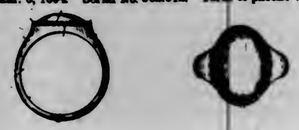
Claim.—The design for a braid herein described, and illustrated in the accompanying drawings.

23,209. HANDLE FOR SPOONS, &c. CHARLES OSBORNE, New York, N. Y., assignor to the Whiting Manufacturing Company, same place. Filed Mar. 1, 1894. Serial No. 502,000. Term of patent 3½ years.



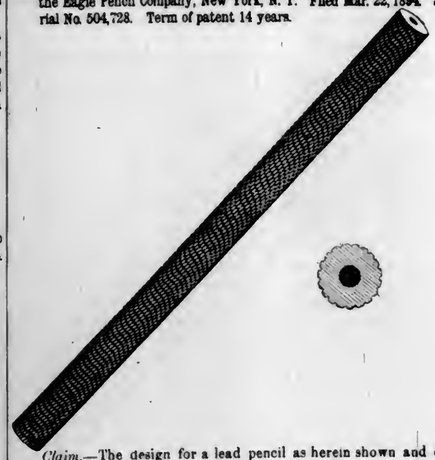
Claim.—The design for a handle for spoons, &c., herein shown and described.

23,210. FINGER-RING. WILLIAM O. HUTCHENS, Providence, R. I. Filed Mar. 8, 1894. Serial No. 502,912. Term of patent 7 years.



Claim.—The design for a finger ring as herein shown and described.

23,211. LEAD-PENCIL. FRANK MCINTYRE, Brooklyn, assignor to the Eagle Pencil Company, New York, N. Y. Filed Mar. 22, 1894. Serial No. 504,728. Term of patent 14 years.



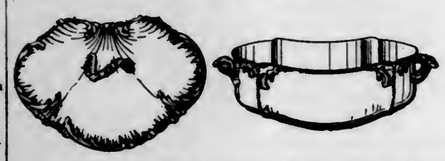
Claim.—The design for a lead pencil as herein shown and described.

23,212. LEAD-PENCIL. FRANK MCINTYRE, Brooklyn, assignor to the Eagle Pencil Company, New York, N. Y. Filed Mar. 22, 1894. Serial No. 504,729. Term of patent 14 years.



Claim.—The design for lead pencils as herein shown and described.

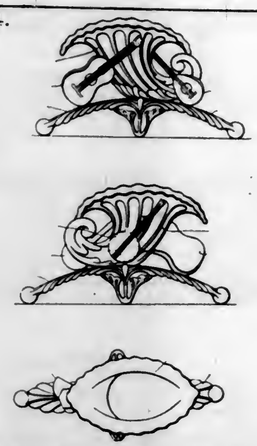
23,213. COVERED DISH. MARTIAL REDON, Limoges, France. Filed Sept. 20, 1893. Serial No. 486,035. Term of patent 7 years.



Claim.—The design for a covered dish substantially as herein shown and described.

23,214. VASE. GEORGE C. SIEBERT, Bridgeport, Conn., assignor to Andrew Krouse, same place. Filed Mar. 14, 1894. Serial No. 503,642. Term of patent 3½ years.

23,214.



Claim.—The design for a vase, substantially as shown in the accompanying drawings.

23,215. PICTURE-FRAME. LOTHAR VON GRAVE, Wallingford, Conn., assignor to the H. L. Judd & Company, New York, N. Y. Filed Mar. 27, 1894. Serial No. 505,343. Term of patent 3½ years.



Claim.—The design for a picture frame substantially as shown and described.

23,216. PICTURE-FRAME. LOTHAR VON GRAVE, Wallingford, Conn., assignor to the H. L. Judd & Company, New York, N. Y. Filed Mar. 27, 1894. Serial No. 505,344. Term of patent 3½ years.



Claim.—The design for a picture frame substantially as shown and described.

23,217. PICTURE-FRAME. LOTHAR VON GRAVE, Wallingford, Conn., assignor to the H. L. Judd & Company, New York, N. Y. Filed Mar. 27, 1894. Serial No. 505,345. Term of patent 3½ years.



Claim.—The design for a picture frame, substantially as shown and described.

23,218. PICTURE-FRAME. LOTHAR VON GRAVE, Wallingford, Conn., assignor to the H. L. Judd & Company, New York, N. Y. Filed Mar. 27, 1894. Serial No. 505,346. Term of patent 3½ years.

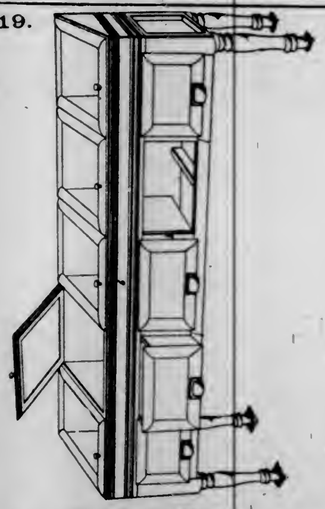


Claim.—The design for a picture frame, substantially as shown and described.

23,219. CABINET. FRED G. SHOUDY, Rockford, Ill. Filed Jan. 30, 1894. Serial No. 498,541. Term of patent 7 years.

Claim.—The design for a cabinet herein shown and described.

23,219.



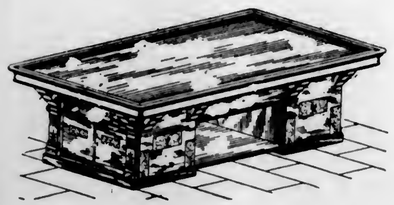
23,220. CABINET. FRED G. SHOUDY, Rockford, Ill. Filed Mar. 20, 1894. Serial No. 504,461. Term of patent 7 years.



Claim.—The design for a cabinet herein shown and described.

23,221. BILLIARD-TABLE. MOSES BENNINGER, Chicago, Ill., assignor to the Brunswick-Balke-Collender Company, same place. Filed Aug. 25, 1893. Serial No. 484,066. Term of patent 14 years.





Claim.—The herein shown and described design for a billiard table, the characteristic features of which are the two cabinet-like members E and F, supporting the horizontally projecting bed A; and the brackets *m*, contiguous to the upper vertical portions of the body, and to the lower surfaces of the horizontally projecting portions of the bed A.

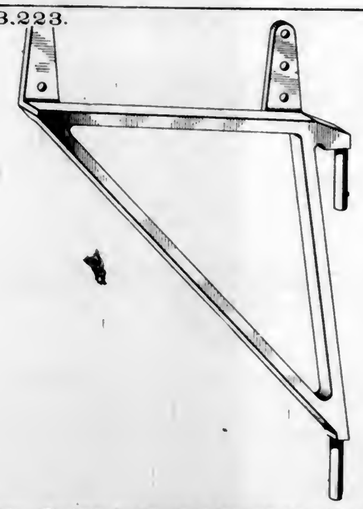
23,222. TABLE-WASHSTAND. RALPH W. EMERSON, Rockford, Ill. Filed Mar. 12, 1894. Serial No. 503,364. Term of patent 7 years.



Claim.—The design for a table wash stand herein shown and described.

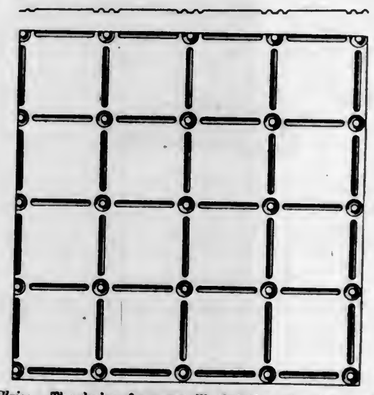
23,223. BRACKET. SILAS H. RANDALL, Wyoming, Ohio. Filed Feb. 26, 1894. Serial No. 501,610. Term of patent 7 years.

23,223.



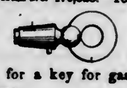
Claim.—The design for a bracket, as herein shown, and described.

23,224. METALLIC FINISHING-PLATE. EDWARD A. LANGENBACH, Canton, Ohio. Filed Mar. 20, 1894. Serial No. 504,458. Term of patent 7 years.



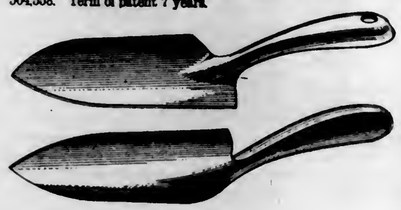
Claim.—The design for a metallic finishing plate herein shown and described.

23,225. KEY FOR GAS-COCKS. ERNST LINDNER, New York, N. Y. Filed June 3, 1893. Serial No. 476,525. Term of patent 7 years.



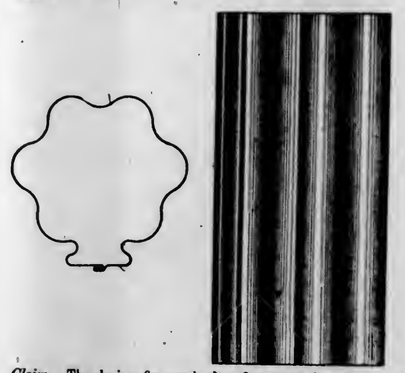
Claim.—The design for a key for gas-cocks substantially as herein described and shown

23,226. GARDEN-TROWEL. HARRISON BRAND, Ilion, N. Y., assignor to A. M. Ross & Co., same place. Filed Mar. 21, 1894. Serial No. 504,558. Term of patent 7 years.



Claim.—The design for a garden trowel herein described and shown.

23,227. CONDUCTOR FOR WATER. SAMUEL SILBERSTEIN, Pittsburg, Pa. Filed Jan. 5, 1894. Serial No. 495,871. Term of patent 7 years.



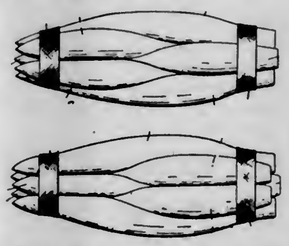
Claim.—The design for conductors for water, &c., substantially as herein shown and described.

23,228. MONUMENT. WILLIAM H. PERRY, Concord, N. H. Filed Sept. 30, 1893. Serial No. 486,911. Term of patent 7 years.



Claim.—The design for a monument herein shown and described.

23,229. CIGAR-BUNCH. EMIL FISCHER, Baltimore, Md., assignor to Elliot, Ottenheimer & Elliot, same place. Filed Nov. 28, 1893. Serial No. 492,303. Term of patent 14 years.



Claim.—The design for a bunch of cigars as herein shown and described.

TRADE-MARKS

REGISTERED APRIL 24, 1894.

24,567. GINGHAMS. JAMES A. HEARN & SON, New York, N. Y. Filed Mar. 26, 1894.



Essential feature.—The representation of a cross within a diamond-shaped figure. Used since 1892

24,568. HOSIERY. BARNARD, SUMNER & PUTNAM COMPANY, Worcester, Mass. Filed Mar. 19, 1894.

NEVER SURRENDER

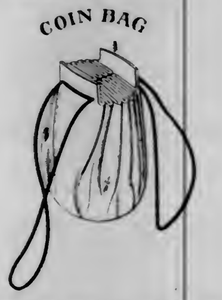
Essential feature.—The words "NEVER SURRENDER" Used since April 22, 1890.

24,569. KNIT UNDERWEAR. WIENER & WECKER, Chemnitz, Germany. Filed Jan. 9, 1894.

The Rival

Essential feature.—The words "THE RIVAL." Used since February, 1890.

24,570. LEATHER BOOTS AND SHOES. B. A. CORBIN & SON, Webster, Mass. Filed Mar. 21, 1894.



Essential feature.—The words "COIN BAG" and the representation of a coin bag. Used since January 8, 1894.

24,571. CHEWING AND SMOKING TOBACCO. R. J. REYNOLDS TOBACCO COMPANY, Winston, N. C. Filed Mar. 20, 1894.

RAZOR BACK

Essential feature.—The words "RAZOR BACK." Used since January 1, 1894.

24,572. WINES AND LIQUORS. WILLIAM C. MUSCHENHEIM, New York, N. Y. Filed Mar. 30, 1894.

ARENA

Essential feature.—The word "ARENA." Used since July 1, 1889.

24,573. CHAMPAGNE-WINE. VEUVE POMMERY FILS & CO., Rheims, France. Filed Mar. 20, 1894.

CHAMPAGNE NATURE

Essential feature.—The words "CHAMPAGNE NATURE." Used since October 13, 1890.

24,574. CHAMPAGNE-WINE. VEUVE POMMERY FILS & CO., Rheims, France. Filed Mar. 20, 1894.

CHAMPAGNE NATURE

Essential feature.—A black field or label, the lateral edges of which are concentric and the longitudinal edges of which incline downward toward each other, the field bearing letters in white arranged in two concentric lines. Used since October 13, 1890.

24,575. CHOCOLATE CREAMS, CARAMELS, AND CANDIES. DARBY MANUFACTURING COMPANY OF BALTIMORE CITY, Baltimore, Md. Filed Mar. 1, 1894.

THE Blue Ribbon BRAND

Essential feature.—The words "THE BLUE RIBBON BRAND." Used since October 17, 1893.

24,576. MAPLE SIRUP. HILL SYRUP COMPANY, Seattle, Wash., and Barre, Vt. Filed Mar. 14, 1894.



Essential feature.—The words "OLD YANKEE GENUINE, 1891 BRAND" and the representation of a man with basket containing bottles and cans of sirup on one arm and a bottle of sirup in the other hand. Used since August 15, 1893.

24,577. TOMATO CATSUP. J. REITZEL & CO., Newark, N. J. Filed Mar. 24, 1894.

PRIDE OF JERSEY

Essential feature.—The words "PRIDE OF JERSEY." Used since December 15, 1890.

24,578. DRIED AND PRESERVED FRUITS. LEO ROSENSTEIN, New York, N. Y. Filed Mar. 31, 1894.



Essential feature.—The representation of an elderly couple, apparently man and wife, the latter being embraced by the former. Used since January 5, 1894.

24,579. CERTAIN NAMED EDIBLES. THE G. H. HAMMOND COMPANY, Hammond, Ind., and South Omaha, Nebr. Filed Mar. 16, 1894.



Essential feature.—The words "COIN SPECIAL" and the representation of a cornucopia out of which coins are pouring. Used since March 1, 1892.

24,580. STARCH. NEBRASKA CITY STARCH COMPANY, Nebraska City, Nebr. Filed Mar. 27, 1894.

ARGO

Essential feature.—The word "ARGO" Used since January 1, 1892

24,581. WHEAT-FLOUR. HENRY W. BOND, Fort Wayne, Ind. Filed Feb. 8, 1894.

Gluten-Germ

Essential feature.—The word "GLUTEN" used in connection with the word "GERM" the two being compounded into the word-symbol "GLUTEN-GERM," printed in a horizontal line the letters composing the two parts of the word-symbol being of the same size and of the same style. Used since January 1, 1894.

24,582. WHEAT-FLOUR. MINKOTA MILLING COMPANY, Duluth, Minn. Filed Mar. 23, 1894.

ALMAKOTA

Essential feature.—The word "ALMAKOTA." Used since March 10, 1894.

24,583. WHEAT-FLOUR. A. F. ROBERTS & CO., New York, N. Y. Filed Mar. 20, 1894.

SEASIDE MILLS
LA PANADERA

Essential feature.—The words "SEASIDE MILLS LA PANADERA." Used since December, 1893.

24,584. LARD. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Dec. 7, 1891.

LA BELLOTA

Essential feature.—The representation of an acorn and the words "LA BELLOTA." Used since December 2, 1890.

24,585. LARD. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Dec. 7, 1891.



Essential feature.—The representation of a palm tree and the words "MARCA PALMETTO." Used since December 2, 1890.

24,586. INSECT-POWDERS. ADOLPH THUKRAYR, Stuttgart, Germany. Filed Mar. 26, 1894.

Thurmeline

Essential feature.—The word "THURMELINE." Used since April 28, 1888.

24,587. TOILET SOAP AND LOTIONS. CHARLES ENSORY CORNELL, New York, N. Y. Filed Mar. 17, 1894.



Essential feature.—The representation of an ear of corn. Used since January 1, 1888.

24,588. FACE-POWDER. HENRY TETLOW, Philadelphia, Pa. Filed Mar. 27, 1894.

BLANC ILLUSION

Essential feature.—The words "BLANC ILLUSION." Used since December, 1874.

24,589. PREPARATION FOR BEAUTIFYING THE COMPLEXION. WILLIAM A. HANER, Springfield, Ohio. Filed Oct. 9, 1893.

DIAMOND DEW

Essential feature.—The words "DIAMOND DEW." Used since July, 1886.

24,590. BALM OR COSMETIC. LYON MANUFACTURING CO., Brooklyn, N. Y. Filed Mar. 14, 1894.

HAGAN'S MAGNOLIA BALM

Essential feature.—The words "HAGAN'S MAGNOLIA BALM." Used since January 1, 1850.

24,591. PREPARATION FOR THE HAIR. LYON MANUFACTURING CO., Brooklyn, N. Y. Filed Mar. 14, 1894.

LYON'S KATHAIRON FOR THE HAIR.

Essential feature.—The words "LYON'S KATHAIRON FOR THE HAIR." Used since January 1, 1850.

24,592. LINIMENT. LYON MANUFACTURING CO., Brooklyn, N. Y. Filed Mar. 14, 1894.

MEXICAN MUSTANG LINIMENT

Essential feature.—The words "MEXICAN MUSTANG LINIMENT." Used since January 1, 1849.

24,593. EXTRACT OF SARSAPARILLA, COUGH-CURE, PILLS, SALVE, AND WORM-TABLETS. CHARLES E. MCINTOSH, Calais, Me. Filed Nov. 11, 1893.

DR. THOMSON'S



Essential feature.—The words "DR. THOMSON'S" and his portrait. Used since 1889.

24,594. REMEDIES FOR THROAT AND LUNG DISEASES. GILPIN, LANGDON & CO., Baltimore, Md. Filed Mar. 22, 1894.

KREOL.

Essential feature.—The word "KREOL." Used since February 1, 1894.

24,595. MEDICAL COMPOUND FOR PURIFYING THE BLOOD, AN ALTERATIVE, AND TONIC. MARA NOVA TONIC CO., Boston, Mass. Filed Mar. 22, 1894.

MARA NOVA

Essential feature.—The words "MARA NOVA." Used since February 1, 1894.

24,596. LAXATIVE AND DIURETIC PREPARATIONS. THE LA VILLE LABORATORY COMPANY, Springfield Ohio. Filed Mar. 19, 1894.

FIGORIA

Essential feature.—The word "FIGORIA." Used since February 1, 1894.

24,597. PILE CURE. PYRAMID DRUG CO., Albion, Mich. Filed Mar. 12, 1894.

PYRAMID PILE CURE.

Essential feature.—The words "PYRAMID PILE CURE" and two isosceles triangles. Used since December 15, 1891.

24,598. CORN-PLASTERS, PILLS, NERVINES, COUGH-MIXTURES, HEADACHE-POWDERS, AND COD-LIVER OIL. CHARLES A. DREFS, Buffalo, N. Y. Filed Oct. 9, 1893.

OUR C.A.DREFS' 1888

Essential feature.—The representation of a diamond-shaped figure having a heavy border upon two sides and the other two sides formed of light lines and inclosing the words, letters, and figures "OUR C. A. DREFS' 1888." Used since January 10, 1893.

24,599. CERTAIN NAMED REMEDIES. THE SPRINGSTEEN MEDICINE COMPANY, Cleveland, Ohio. Filed Feb. 16, 1894.



Essential feature.—A portrait of W. S. Springsteen, and the facsimile of his signature as follows "W. S. SPRINGSTEEN, M. D." Used since June 1, 1891.

24,600. CLEANING MATERIAL FOR WALL-PAPER. ZIEKLMAN & BARTLETT, Cleveland, Ohio. Filed Mar. 17, 1894.



Essential feature.—A representation of the interior of a furnished drawing-room with a woman in an exclamatory position with hands raised, gazing at a man on a step-ladder cleaning a wall, a portion of the wall over which he has gone being white and clean and the remainder of it black and dingy. Used since August 1, 1891.

24,601. INK-ERASING FLUID. HESTER H. COLLINS, New York, N. Y. Filed Feb. 16, 1894.



Essential feature.—The representation of a hand holding a stylus and resting upon an open book having a blot upon its page and a white spot in said blot where the end of the stylus touches it, and the word "EUREKA." Used since January 1, 1894.

24,602. LEATHER-DRESSING. JAS. S. MASON COMPANY, Philadelphia, Pa. Filed Mar. 29, 1894.

CHALLENGE



Essential feature.—The words "CHALLENGE CREAM DRESSING" and the representation of an ornamental shield with scroll corners. Used since March 15, 1894.

24,603. DRESSING FOR SHOES, HARNESS, AND FINE LEATHERS. JAS. S. MASON COMPANY, Philadelphia, Pa. Filed Mar. 29, 1894.

CHALLENGE Black Dressing



Essential feature.—The words "CHALLENGE BLACK DRESSING" and the representation of a lady holding a shoe. Used since March 15, 1894.

24,604. LUBRICATING-OILS. SENECA OIL WORKS, Warren, Pa. Filed Mar. 7, 1894.

VISCOSOLENE

Essential feature.—The word "VISCOSOLENE." Used since March 24, 1893.

24,605. BUILDERS' CEMENT. JOHN WILLIAM PALMER, New York, N. Y. Filed Jan. 6, 1894.

U. S.

Essential feature.—The letters "U. S." in blue, upon a white shield substantially Norman. Used since December 1, 1893.

24,606. BUILDERS' CEMENT. JOHN WILLIAM PALMER, New York, N. Y. Filed Jan. 6, 1894.



Essential feature.—The representation of a cathedral-like building having at its center a steeple surrounded by four towers which are smaller than the steeple, and a transept arm between two of the said towers. Used since April 1, 1893.

24,607. BUILDERS' CEMENT. JOHN WILLIAM PALMER, New York, N. Y. Filed Jan. 6, 1894.

A. 1.

Essential feature.—The characters "A. 1.," inclosed by an equilateral triangle. Used since November 1, 1893.

24,608. CEMENT, LIME, OR PLASTER-OF-PARIS. UNION CEMENT AND LIME COMPANY. Louisville, Ky. Filed Jan. 25, 1894.



Essential feature.—The representation of a black diamond. Used since 1869.

24,609. AMMUNITION. THE PETERS CARTRIDGE COMPANY, Cincinnati, Ohio. Filed Mar. 28, 1894.

VICTOR

Essential feature.—The word "VICTOR." Used since March, 1894.

24,610. CERTAIN NAMED CUTLERY. DURHAM, CARRIGAN & HAYDEN COMPANY, San Francisco, Cal. Filed Mar. 30, 1894.

SPRINGBROOKE KNIFE COMPANY.

Essential feature.—The words "SPRINGBROOKE KNIFE COMPANY." Used since January, 1893.

24,611. MUSICAL INSTRUMENTS. MONTAGUE REDGRAVE, Jersey City, N. J. Filed Mar. 22, 1894.

ÆLICHON

Essential feature.—The word "ÆLICHON." Used since March 5, 1894.

24,612. MOLDERS' TOOLS. FRANK A. DOWNERD, Columbus, Ohio. Filed Jan. 25, 1894.

Essential feature.—The word "DAMASCUS" and the outline of a star inclosing the letter "D." Used since December 1, 1893.

24,613. BICYCLES, VELOCIPEDES, THEIR PARTS AND ATTACHMENTS. CHARLES R. CLARK, Newark, N. J. Filed Mar. 15, 1894.

CYCLONE

Essential feature.—The word "CYCLONE." Used since March 1, 1894.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE ZUBER.

Decided March 24, 1894.

1. AMENDMENT—NEW MATTER—PROPER PRACTICE.

When an amendment is filed which in the judgment of the Examiner substantially varies the scope of the application as originally filed and necessitates a change in the drawings, *Held* that the amendment should be entered and rejected on the ground of new matter and for all other reasons which bar its patentability.

2. SAME—SAME—SAME—THE DRAWINGS.

In such a case the drawings should not be changed unless and until the question of the new matter in the amendment has been determined in favor of the applicant.

ON petition.

NUT-LOCK.

Application of Gottlieb Zuber filed June 13, 1892, No. 436,552.

Messrs. Higdon & Higdon & Longan for the applicant.

SEYMOUR, *Commissioner:*

The applicant offered an amendment on December 1, 1893, substituting a new claim for the claim under a second and final rejection. The Examiner refused to admit the amendment on the ground that it was new matter not shown in the specification or drawings. The applicant desired to change his drawings so that they would correspond with the proposed amended claim; but the Examiner refused to permit any change in the drawings.

This petition is brought that an order may be entered herein directing how and wherein the drawing shall be corrected and directing the Examiner to proceed in the examination of this case upon its merits after proper correction of the drawing has been made.

If it is true that new matter is presented in this claim, affecting its scope, no interlocutory appeal lies from the Examiner to the Commissioner; but the appeal lies to the Examiners-in-Chief. (*Ex parte Sutor*, 59 O. G., 1431.) The amendment should be received not because it is not new matter, upon which no opinion is expressed, but because that question goes to the merits and should be decided by the Primary Examiner in such form that an appeal would lie to the Examiners-in-Chief.

In this case the drawings should not be changed unless and until the Examiner or an appellate tribunal decides that the amended claim is not a material addition to or variance from the original, and that it does not enlarge the scope of the application as filed. (*Chicago and N. W. Ry. Co. v. Sayles*, 97 U. S., 554, 563.)

In a case where the proposed change goes to the merits, as enlarging the scope of the application, it is the duty of the Examiner to decide that point and also the alternative question whether the claim as amended presents patentable subject-matter in all other respects, to the end that upon appeal the Examiners-in-Chief may have the necessary references before them which would enable them to judge of the question of novelty in case they should differ from the Examiner upon the question of the right to amend as proposed.

Let the amendment be received for the purpose of its consideration on the merits.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Northern District of Ohio, Eastern Division.

EDISON ELECTRIC LIGHT COMPANY *et al. v.* BUCKEYE ELECTRIC COMPANY *et al.*

Decided January 23, 1894.

1. EDISON—ATTEMPTED CORRECTION—LIMITING TO EXPIRE WITH FOREIGN PATENTS—ESTOPPEL.

The voluntary act of a patentee in causing his patent to be amended after issuance so as to be limited to expire with a foreign patent secured by him, even though taken under the mistaken view that the law required such limitation to appear on the face of the patent, estops him, as against one who invested money in a manufacturing plant on the faith of his action, from claiming that the amendment was invalid and of no effect or from relying upon a subsequent annulment of the amendment secured by him only a short time before the amended patent would have expired.

2. SAME—NOTICE.

Where the petition for correction in such case states that, while the inventor's American application was pending, "he applied for and obtained" Letters Patent for the same invention in several foreign countries—enumerating such patents, with their dates—and prays that the American patent may be amended so as to be limited to expire with the expiration of that one of them having the shortest time to run, the petition does not, by reason of the indefiniteness of this language, put the public upon investigation as to the laws of the various countries, so as to affect them with notice that the British patent, which was the one first expiring, did not begin to run on the day of its date, but upon the day of its sealing and issuance.

3. SAME—PRELIMINARY INJUNCTION—DISSOLUTION—WHEN GRANTED.

The burden of proof is on defendant to show cause for dissolving a temporary injunction; but nevertheless a dissolution will be granted upon new evidence sufficient to raise grave doubts as to the complainant's right to such injunction.

SUIT by the Edison Electric Light Company and the Edison General Electric Company against the Buckeye Electric Company and others for infringement of a patent. On motion to dissolve a preliminary injunction.

STATEMENT OF THE CASE.

This case is now before the court upon a motion to dissolve the preliminary injunction allowed herein on the 28th day of July, 1893. Said injunction enjoined the defendant from using lamps infringing the second claim of Letters Patent No. 223,898, for the alleged infringement of which the bill of complaint was brought. The motion recites what the record discloses: That the Letters Patent upon which the bill is filed bear date the 27th day of January, 1880, and purport to be for the full term of seventeen years from that date; that after said Letters Patent were issued, and on or about the 15th day of November, 1883, Thomas A. Edison, to whom said Letters Patent were granted, filed with the Commissioner of Patents of the United States a duly-verified petition wherein, among other things, he alleged that while his said application for Letters Patent was pending he applied for and obtained Letters Patent for the same invention in several foreign countries—to wit, British patent, dated November 10, 1879, No. 4,576; Canadian patent, dated November 17, 1879, No. 10,654; Belgian patent, dated November 29, 1879, No. 49,884; Italian patent, dated December 6, 1879, and French patent, dated January 20, 1880, No. 133,756, and that no other patents were granted upon his invention in foreign countries before the grant of said United States Patent No. 223,898, and at the time of filing said application for said United States patent, and while the said application was so pending, he was advised that the rules and practice of the Office, under the prevailing construction of section 4887 of the Revised Statutes of the United States, did not require an applicant to acknowledge, during the pendence of his application, a foreign patent applied for and granted subsequent to the filing of such application, and that he therefore did not acknowledge the above-named foreign patents, and that the United States Letters Patent were granted to him unlimited for the full term of seventeen years. He further in said petition tendered said Letters Patent No. 223,898 to the Commissioner of Patents and requested that they be corrected so that his said patent should be limited to expire with the date of said foreign patent referred to in his petition having the shortest time to run. The said petition of Thomas A. Edison for such correction of his said patent was duly consented to and concurred in, in writing, by the Edison Electric Light Company, to whom the said Edison had assigned the said Letters Patent.

The motion further alleges that the United States Commissioner of Patents, upon the filing and due consideration of said petition for the correction of said patent, granted the said request of the said Thomas A. Edison and the Edison Electric Light Company, and accepted the surrender of said patent for the purpose of such correction, and corrected said Letters Patent in accordance with the request made in said petition, and indorsed thereon such correction, wherein and whereby said Letters Patent were, at the election and request of the said complainants, limited so as to expire at the same time with the foreign patent having the shortest time to run, naming said patents, as hereinbefore described, and certified that the proper entries and corrections had been made in the files and records, and that the said amendment was made that the United States patent might conform to the provisions of section 4887 of the Revised Statutes. Said motion further avers that "said British Patent No. 4,576, dated November 10, 1879, was for the same invention as that for which the said United States Letters Patent aforesaid were granted, and as your petitioners are informed, advised, and believe, and therefore allege, was for the term of fourteen years from the said November 10, 1879," and that said British Patent No. 4,576 has now expired.

Said motion further avers that the defendant, the said Buckeye Electric Company, was organized for the purpose of manufacturing and selling incandescent lamps in the month of February, 1890; that at the time of its organization it had an authorized capital of $100,000, and its investment at that time was about $25,000; that before said business enterprise was started and said capital invested the parties interested in the enterprise made diligent examination of the records of the Patent Office with reference to patents pertaining to incandescent electric lamps, and also informed themselves as to the prevailing understanding of the trade and persons engaged in similar enterprises as to the rights of parties to manufacture incandescent electric lamps notwithstanding said Letters Patent No. 223,898 and other patents professing to cover the manufacture of incandescent electric lamps at that time, and among other things ascertained that the circuit court of the United States, in a case heard by Mr. Justice Bradley, had decided to be invalid a certain patent upon incandescent lamps, known as the "Sawyer-Man patent," which was considered by the trade and all parties interested as being in all respects as valid as the said Letters Patent No. 223,898, which patent was commented upon and referred to in said case, and that at the time of said ruling the electrical engineers and all parties interested throughout the country accepted that decision as holding that the public generally were free to make, sell, and manufacture incandescent electric lamps in the form now claimed and subsequently decided to be an infringement of the Letters Patent in the bill of complaint described; and prior to the time that said Buckeye Electric Company engaged in the business there were many other concerns in the United States manufacturing incandescent lamps, among the principal of whom were the Sawyer-Man Company, of New York city; the Thomson-Houston Company, of Lynn, Mass.; the Bernstein Company, of Boston; the Sunbeam Incandescent Lamp Company, of Chicago; the Perkins Incandescent Lamp Company, of Manchester, Conn.; the Brush-Swan Company, of Cleveland, Ohio, and others; that none of those companies had ever been sued by the owners of the "Edison patent," so called.

Said motion further avers that the defendants and those interested also ascertained from such investigation that the particular patent in suit in this case was then believed to have expired by reason of the termination of the Canadian patent covering the same invention, issued on November 17, 1879, it being, as was then understood by the petitioners, the prevailing opinion of the courts that the termination of the Canadian patent, by the decision of the Deputy Commissioner of Patents, terminated at the same time as the Edison patent sued upon herein, which had been issued in the United States subsequent to the date of said Canadian patent, and it was the distinct understanding of the defendant at the time said company began business that there was no valid patent outstanding which could in any way interfere with their carrying on the proposed business of manufacturing and selling incandescent electric lamps; and the defendant, in common with other manufacturers throughout the United States, continued business with its said investment of about $25,000 until the summer of 1891 without molestation or threat of interference by any one claiming the patents were infringed by the defendant; that in the summer of 1891 the defendant, the Buckeye Electric Company, having some months before that time discovered and put into practical use a filament superior in every respect to that which was then and is now used by the complainants herein, had so far increased its business that it became necessary to largely increase its investment. And thereupon further examination was made by the parties interested in the said Buckeye Electric Company's enterprise as to the patent of the said Thomas A. Edison, and it appeared

from the examination which was then made, for the second time, that said Letters Patent had been, upon the petition of Thomas A. Edison, as hereinbefore described, corrected so that said patent was limited to expire with the aforesaid patents issued by foreign countries having the shortest time to run, and that said patent would expire on the 10th day of November, 1893; that consequently the United States Letters Patent would expire at the same time. And thereupon, and before any ruling had been made by the circuit court of the United States sustaining the validity of the said Edison patent, and in full reliance on said petition, and with the concurrence and consent of complainants, as hereinbefore set forth, and upon the certificate of the patent as issued and corrected, limiting its term as aforesaid, the said defendants, for the further purpose of introducing its improved and superior filaments, further increased its investment in said electric light business, so that it now has, and since said summer of 1891 has had, invested in said business and in connection therewith about the sum of $125,000. The motion avers that said investment was made in good faith, believing that in no event could the United States Letters Patent of the said Thomas A. Edison continue in force longer than November 10, 1893, which said defendant was induced to believe by the action of the said Edison and his associates, as hereinbefore recited.

The motion further avers that after the decision of Judge Wallace, hereinbefore referred to, an appeal was at once taken by the parties to said suit, so that the defendant and others in the same line of business continued to manufacture lamps pending said appeal; that shortly thereafter negotiations were opened between the defendant and complainants with a few of completing some arrangement by which a sale or consolidation of interests could be effected; that these negotiations were carried on constantly from about September, 1892, until February, 1893, during which time the defendants operated their factory with the acquiescence and substantially at the request of said General Electric Company, and materially increased its capacity at the suggestion and request of the said General Electric Company. These negotiations finally failed, and immediately upon such failure the defendant closed its factory by reason of the ruling of the Circuit Court of Appeals for the Second Circuit sustaining said claim of the Edison patent, and said factory remained closed until a subsequent decision of Judge Hallet, in the eastern district of Missouri, in a case in which the Goebel defense to the validity of the Edison patent was presented and the complainants were refused an injunction. Upon such ruling the defendant opened its factory and continued manufacturing until the decision of Judge Seaman, of Milwaukee, when the defendant again closed its factory, and said motion avers that said defendant has at no time knowingly or willfully infringed complainants' rights.

By reason of the premises the defendant avers that said United States Letters Patent No. 223,898, so far as the rights of the defendant to now manufacture lamps is concerned, is no longer in force, said invention having been by the voluntary act of the owners, as hereinbefore described, dedicated and abandoned to the public, and that by reason of said action the public generally, and especially the defendant, has thus made large investments upon the faith of the expiration of said patent at the date to which its term was so expressly limited by request of the owners thereof, and have now the right to manufacture and use and sell the lamps covered by said patent, and that the complainants by reason of the acts aforesaid are estopped to claim any benefits under said patent as against the defendant since November 10, 1893.

This motion is supported by affidavits of the officers of the defendant and by most of its directors, each of whom avers the truthfulness of the facts hereinbefore set forth.

The complainants, in reply, file affidavits in which they admit the proceedings in the Patent Office, substantially as set forth in the defendant's motion, but declare with great particularity the circumstances under which said proceedings were taken, alleging and claiming that the same were taken under a mistake of law and under the advice of eminent counsel. They further deny that the defendant was misled by the negotiations set forth in their motion and that they in any way impaired their legal rights to insist upon a continuation of the injunction now in force. They further deny that the defendant was misled by reason of complainants' conduct because of the proceedings in the Patent Office and deny that they are estopped by virtue of those proceedings to insist that their patent is in force for the full term of seventeen years from the date it was issued.

Mr. William B. Bolton for the complainants.

Messrs. Squire, Sanders & Dempsey and *Mr. Benjamin H. Bristow* for the defendants.

RICKS, *J.*, (after stating the facts:)

It will be seen from the foregoing statement of facts that the complainants do not deny the proceedings instituted by them in November, 1883, in the Patent Office, substantially as set forth in the defendant's motion; but they contend that they are not bound by the action of the Patent Office, taken upon their petition, for several reasons, among these, and chiefly:

First. Because the petition for a limitation upon the duration of their patent, filed by the complainants, and the proceedings in support thereof on their part, were taken under a mistake as to the law and as to their rights under the patent, and that this error was corrected as soon as possible after discovery.

Second. Because the action and orders of the Patent Office were without authority of law, of no force and validity, and therefore did not in any way affect the patent.

The complainants' statement of the facts under which this action of the Patent Office was invoked admits that they were advised and believed at the time that such action was necessary in order to remove doubts as to the validity of the patent as originally issued. These doubts arose because of a decision of one or more of the Federal courts that it was essential to the validity of a patent, where foreign patents for the same invention had been applied for, that the date of such foreign patents and their limitation should be cited in the application, so that the limitation of the American patent would appear on its face. In view of the uncertainties thus existing as to the validity of the Edison patent because of these omissions in the application for the patent and to remove all doubts the patentee and the assignee both joined in a petition to the Commissioner of Patents, in which they stated that while the application for Letters Patent No. 223,898 was pending said patentee applied for and obtained Letters Patent for the same invention in several foreign countries, as hereinbefore fully set forth in the statement of the case. The petitioners further represented that because of the omission of such recitals in the application the United States Letters Patent were granted to the patentee unlimited for the full term of seventeen years. The petitioners further say that they were advised that said Letters Patent, when issued, should have been limited upon their face

to the term of the foreign patent having the shortest term prior to the date of the United States patent. Thereupon the petitioners tendered the said United States Letters Patent to the Commissioner of Patents and requested that they be corrected according to the provisions of the first clause of Rule 164. Upon this petition the Commissioner issued the following certificate:

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., December 18, 1883.

In compliance with the request of the party in interest, Letters Patent No. 223,898, granted January 27, 1880, to Thomas A. Edison, of Menlo Park, New Jersey, for an improvement in electric lamps, is hereby limited so as to expire at the same time with the patent of the following named having the shortest time to run, viz: British patent, dated November 10, 1879, No. 4,576; Canadian patent, dated November 17, 1879, No. 10,654; Belgian patent, dated November 29, 1879, No. 49,884; Italian patent, dated December 6, 1879, and French patent, dated January 20, 1880, No. 133,756. It is hereby certified that the proper entries and corrections have been made in the files and records of the Patent Office. This amendment is made that the United States patent may conform to the provisions of section 4887 of the Revised Statutes.

[L. S.] BENJAMIN BUTTERWORTH,
Commissioner of Patents.

Approved:
M. L. JOSLYN,
Acting Secretary of the Interior.

On the 6th day of March, 1893, the complainants, as petitioners, forwarded another application to the Commissioner of Patents, in which they recited their former petition; the action taken thereon; that subsequent thereto, by decision of the circuit court of appeals of the second circuit, said former action of the Commissioner was declared to have been taken without authority of law, and therefore void, and asking that the former correction of the records by the Commissioner of Patents be canceled. Thereupon the following action was taken by the Commissioner of Patents:

Now, in compliance with the request of the parties in interest, said certificate is hereby canceled, and the proper entries and corrections have been made in the files and records of the Patent Office.

In testimony whereof, I have hereunto set my hand, and caused the seal of the Patent Office to be affixed, this 15th day of March, 1893.

[L. S.] W. E. SIMONDS,
Commissioner of Patents.

Approved:
CYRUS BUSSEY,
Asst. Secretary of the Interior.

What is the legal effect of these applications of the petitioners and the action of the Commissioner of Patents thereon? It is urged on behalf of the defendant that these proceedings deliberately taken by the complainants amounted to a voluntary dedication by them to the public of the patent from and after November 10, 1893, at which time the British patent expired by limitation. It is contended in reply that even though such action was a dedication by the complainants, as claimed, it was a dedication of something which was to be given to the public some time in the future, and long before the dedication was to take effect it was revoked and annulled, and no rights thereby passed either to the defendant or to the public.

Was this conduct and action of the complainants an abandonment of some right or a dedication to the public of a privilege or right conferred? The arguments on this point have taken a wide range in the briefs of counsel. The action of the complainants in this case, while in the nature of a dedication to the public of a part of the time for which the sole enjoyment of the privileges of the patent were conferred, is not in all respects like the abandonment of a part of an invention by a failure to claim all of it or by a disclaimer, in express words, of a part of it. In the latter case the right of the public to at once appropriate the abandoned or disclaimed part of the invention attaches, and the patentee is powerless to prevent such appropriation. In this case the complainants did not abandon or disclaim anything that could be immediately appropriated. It was a voluntary act by which they declared a limitation upon the duration of their patent, which shortened its term. It was not, however, as complainants contend, a simple declaration that, at the expiration of the shortest foreign patent recited in their petition for correction, they would then dedicate to the public the remainder of its full term of seventeen years conferred by the United States patent. If its legal effect was such a dedication, to take effect ten years in the future, it would have been a gift or grant which might have been subject to revocation; but the time for which the patentee is granted the sole enjoyment of the monopoly conferred is just as much the subject of a dedication and grant to the public as a part of the invention or process. The law on this subject is well stated, in Robinson on Patents, (section 345,) to be as follows:

The patent privilege is not a mere reward bestowed upon the inventor for past services, the payment of a debt of gratitude toward one who has already conferred a benefit upon the State. It is also a purchase by the Government, acting on behalf of the whole people, of some new art or instrument capable of beneficial use, for which it recompenses the inventor by securing to him for a time its sole enjoyment; and when, without this recompense, it has obtained the invention through his voluntary act, so far from recognizing him as entitled to remuneration, it unhesitatingly appropriates his invention to itself, whatever loss and difficulty may result to him.

What, then, did the complainants intend to do, and what did they think they had the legal right to do, with reference to the legal difficulties which they believed then surrounded them? There can be no doubt as to what their intentions and purposes then were. They asked for the right to limit their United States patent so that it might expire at the same time with the patent named having the shortest time to run. They named in their petition the British Patent No. 4,576, and therein stated that the said patent was dated as of November 10, 1879. They then believed that said patent would expire November 10, 1893, for, if they correctly stated its date, it would by law then expire. The limitation thus deliberately put upon the duration of their own patent was then believed to be necessary to its validity. Acting under such a belief of their legal relations to the public, they then fixed the limit for their patent for what seemed to them a pressing necessity and a sufficient consideration. Whether the Patent Office was authorized by law, or not, to make such official correction, the petitioners unquestionably had the legal power to voluntarily fix a limit upon the duration of their own patent. Did that power depend upon future revelations as to the correctness of the legal advice under which they acted? That their proceedings were taken under a mistake of law might give them the right to correct their error by proper application, made within proper time; but such misapprehension could not affect their power or authority to make such limitation of the grant conferred upon them.

But it is contended that their petition for correction was of such an indefinite character that it put the

public and all parties interested upon their inquiry as to its legal effect. It is said that the duration of the patents set forth in the petition were not stated, and to ascertain such a limitation involved investigation as to the laws of the respective countries, and that if such investigation had taken place the defendant would have ascertained that the term of the British patent did not begin until it was sealed and granted. But the public and those interested in the duration of the patent had the right to accept complainants' statements as to the date of those foreign patents and to act accordingly. In their petition for correction they aver that they were not advised that the practice of the Patent Office required an applicant to acknowledge during the pendency of his application a foreign patent applied for and granted subsequent to the filing of such application. The application for the Edison patent was filed November 4, 1879, and the patent was granted January 27, 1880, so that, by the admissions of their petition, the British patent was both applied for and granted between those dates and expired between November 10, 1893, and January 27, 1894. The complainants cannot object because the defendant acted upon those representations. If complainants had taken no action whatever, but had relied upon their legal rights as they might be subsequently defined, the public would have acquired no advantages by the proceedings now under consideration. The defendant would have acted at its own peril and have had no claim such as they now assert. The complainants' conduct and public declaration of the facts concerning their patent are binding upon them, and they cannot now be heard to say that they were made in doubt as to their legal rights and made in such uncertain terms as to put the defendant upon examination as to the facts and the law and to be bound by its proper interpretation of them. Even conceding that said petition was filed under mistaken advice as to the law, and that it asked only for such action as the Patent Office might lawfully take, and that the terms in which said action was invoked were such as to put the defendant upon its inquiry as to the law, it was, nevertheless, a solemn and public act by which it limited the duration of its own patent to a term shorter than that granted in the original patent. The petition and prayer was for such a limitation, and the complainants are bound by such declaration and conduct. Can there be any doubt as to their right and power to have made such a declaration and abandonment of an existing right? Such power is clearly recognized in *Insurance Co.* v. *Mowry*, (96 U. S., 547.)

But it is said this dedication was revoked. On the 6th of March, 1893, the complainants filed their petition in the Patent Office, as hereinbefore stated, and recited, further, that, by the decision of the Circuit Court of Appeals for the Second Circuit, said action of the Patent Office was declared to be "without jurisdiction and wholly void," and for these reasons asking that the records of the Patent Office "be amended so as to cancel the said statements and limitations, and so as to restore them to the same condition in which they were at the time of the original grant of said patent," and, further, "that the said certificate of correction attached to the said Letters Patent be canceled, so that the patent will be in the same condition in which it was originally granted." Upon this petition the Commissioner of Patents, on March 15, 1893, ordered "that said certificate is hereby canceled, and the proper entries and corrections have been made in the files and records of the Patent Office."

By these proceedings it is claimed that if the petition for correction and the proceedings thereunder of November, 1883, amounted to a dedication, such dedication was then revoked, and that the patent stands as though no correction had ever been taken or made. It is further contended that the holding by the Circuit Court of Appeals for the Second Circuit that the action of the Commissioner on the first petition for correction was wholly void and that the surrender of the Letters Patent for correction was without legal authority and of no effect should be conclusive of this controversy; but this is not a controversy in which the authority of the complainants to surrender their Letters Patent to the Commissioner of Patents for correction or his power to make such correction and amend the records of his Office are involved. The defendant is not here asserting any such power or claiming any such result as legal or valid. It is here, however, contending that, whether the Commissioner of Patents had legal authority for his action or not, the complainants certainly had the right and power to publicly and solemnly limit the duration of their own patent and make record of their intention to abandon it to the public from and after November 10, 1893, the time of the expiration of their British patent. Having done so, and the defendant having in good faith acted on said public declaration, it now contends that the complainants are estopped from coming into court and asserting that such conduct was a mistake as to the law and therefore not binding upon them. This involves the consideration of the question as to whether the complainants' conduct was a representation as to something it proposed to do in the future, and therefore subject to revocation, or whether it was an abandonment of an existing right. I find the exact question, as it seems to me, fairly settled by the Supreme Court in the case of *Insurance Co.* v. *Mowry*, (96 U. S., 547.) In that case the Court said:

The only case in which a representation as to the future can be held to be an estoppel is where it relates to an intended abandonment of an existing right, and is made to influence others, and by which they have been induced to act. An estoppel cannot arise from a promise as to future act on with respect to a right to be acquired upon an agreement not yet made The doctrine of estoppel is applied with respect to representations of a party, to prevent their operating as a fraud upon one who has been led to rely upon them. They would have that effect if a party who, by his statements as to matters of fact or as to his intended abandonment of existing rights, had designedly induced another to change his conduct or alter his conditions in reliance upon them, could be permitted to deny the truth of his statements, or enforce his rights against his declared intention of abandonment.

But in a later decision the same Court said it is not necessary that there should be a design or a purpose to mislead the opposite party on the part of the person to be estopped. In the case of *Bank* v. *Morgan*, (117 U. S., 108; 6 Sup. Ct., 657,) the Supreme Court approvingly said:

In *Continental Nat. Bank* v. *National Bank of Commonwealth*, (50 N. Y., 575,) it was held not to be always necessary to such an estoppel that there should be an intention upon the part of a person making a declaration or doing an act to mislead the one who is induced to rely upon it. "Indeed," [said Folger, J.,] "it would limit the rule much within the reason of it if it were restricted to cases where there was an element of fraudulent purpose."

Many other cases are cited by counsel, *pro* and *con*,

which it is not necessary to consider and review. The exact question we have under consideration seems to be met by the foregoing decisions, and are conclusive.

While it is true that the complainants' proceedings in the Patent Office were not had with any reference to the defendant, but had reference solely to their relations to the public, the defendant had, as one of the public, the same right to be influenced and governed by the complainants' conduct as though it had been the result of their representations to each other as individuals or corporations. The complainants' proceedings were a matter of public record. Their acts and conduct were of such notoriety that the defendant by law was bound to take notice of them so far as they affected its legal rights under the complainants' patent.

But, conceding that there is doubt as to whether the above decisions are conclusive of the controversy, the revocation which the complainants claim to have made of their dedication to the public was not made until March, 1893, nearly ten years after their voluntary limitation of the term of their patent, as hereinbefore stated. If they were in doubt as to the legality of their conduct in the proceedings in the Patent Office, they should have acted so soon as such mistake was suggested. They could not wait until the public had acted on their dedication, had acquired rights and equities, and then, after the courts had declared their action unauthorized, proceed to revoke their grant.

Did the defendant in good faith act upon the complainants' limitation of the life of their patent, and was it induced so to act by the conduct of the complainants, and is it now in such relation to the complainants as estops them from denying that their conduct induced the defendant to make its investments and act as it has set forth in its motion now under consideration? The circumstances under which the defendant began its enterprise of manufacturing electric incandescent lamps, the different stages in the progress of its development, and the reasons inducing it to increase its capital are fully set forth in its motion and as hereinbefore recited. Whatever may be the complainants' claim with reference to the defendant's statement of the circumstances under which it originally entered into this enterprise, it seems well established by the affidavits of the defendant's directors that its capital stock was increased and its capacity for manufacturing incandescent lamps greatly enlarged by reason of its belief that the complainants' patent, by its own conduct, was limited so as to expire on the 10th of November, 1893. This was a very important fact, and the claim that it largely influenced the defendant in its conduct is both reasonable and natural. For the reasons hereinbefore fully considered it seems to me plain that the complainant is estopped from now claiming that its conduct did not induce such well-deffned belief as to the limitation of its patent on the defendant's part. Without deciding how far others, not similarly situated, had the right to rely upon such conduct on the part of the complainants, or without passing upon the question of how far the public generally acquired rights under the complainants' proceedings in the Patent Office, by which they limited the life of their patent, it is sufficient to find, under this motion, that the defendant, by reason of the circumstances particularly set forth in its motion, did rely in good faith upon the complainants' conduct, and had a right to be, and was, in fact, influenced thereby.

The application for a dissolution of the injunction is based upon evidence as to a fact which did not exist at the time the temporary injunction was allowed. At the time such application was made the complainants' patent had not then expired, according to the limitation put upon it by its proceedings in the Patent Office. The rule is well settled that on such an application the complainants' rights to an injunction must be clearly established. While it is true that, on a motion to dissolve, the burden of proof is on the defendant, yet the rule is equally well settled that evidence which would prevent the allowance of an injunction would be sufficient to dissolve it and that an injunction will be dissolved on new evidence raising grave doubts as to the complainants' right to the temporary injunction in force. The rule is well expressed by Judge Nixon in the case of *Cary* v. *Bed Co.*, (34 O. G., 1158; 26 Fed. Rep., 38.) In that case the complainants' patent, for the protection of which a temporary injunction was asked, had been sustained by three different circuit courts prior to the filing of the bill in Judge Nixon's district. Upon the strength of those prior adjudications, Judge Nixon ordered the injunction "without an examination of the merits or expressing anything upon the validity of the patent;" but upon motion to dissolve new affidavits were offered to show prior use. After an examination of these affidavits Judge Nixon says:

> It does not appear that such testimony of prior discovery, knowledge, and use of the invention was brought to the notice of either of the learned judges who granted the injunction in the other cases. * * * I do not think that I should have seen my way clear to allow the preliminary injunctions in the present case if it had been presented on the original motion, and the rule is a good one that the evidence which would prevent the issuing of an injunction ought to be regarded as sufficient to dissolve one already granted.

For the reasons hereinbefore stated if on the application for the injunction now in force the facts now relied upon in support of the motion to dissolve had been available as a defense I would not have allowed the temporary injunction. The complainants' right to such an injunction under such a defense would have been so doubtful that it would not have been entitled to it under the rules cited. To continue the injunction now, in view of these doubts, would certainly be a great hardship upon the defendant. According to the affidavits now before the court the defendant is a solvent corporation. Under the Ohio law the personal liability of the stockholders is an additional indemnity to which the complainants may look in case, upon a final hearing, its right to a permanent injunction should be established.

As the case is now presented on the motion to dissolve, one of the two parties must suffer loss. If the injunction is continued the defendant is wholly without remedy. It has shown that it was honestly misled by complainants' conduct and in good faith made additional investments upon the belief so formed. The complainants cannot complain if, for this reason, the benefit of the doubts expressed is given to the defendant and the injunction is dissolved. If I am in error as to this conclusion, no great harm can result to the complainants, for if such error is established they can recover for the damages caused thereby, and their right to contest as to other infringers not able to show such meritorious claims to estoppel as defendant has established can be asserted without prejudice from this decision.

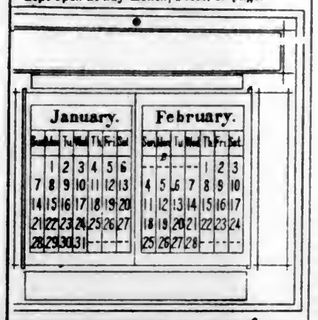
PATENTS

Expired, April 24 1894.

The term of these patents granted during the week ending April 24 1877. have expired. The reissues expired at an earlier date.

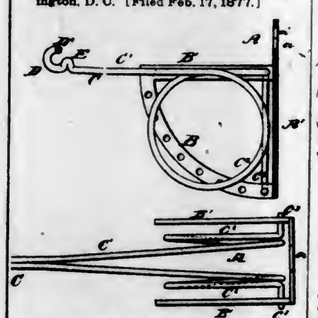
189,822. CALENDARS. A. C. Adams, Cambridge, Mass. [Filed Feb. 20, 1877.]

Brief.—As the leaves are not severed from each other after use, the calendar remains intact for future reference. The slots *a* and *b* hold the leaves so that the calendar can be kept open at any month, sheet, or page.



As a new or improved article of manufacture, the calendar, substantially as described, composed of the slotted advertising card or plate and the calendar-book or series of leaves fixed to such card or plate, and arranged with its slots essentially in the manner and for use therewith, as explained.

189,823. BRACKETS. E. H. Bates, Washington, D. C. [Filed Feb. 17, 1877.]



1. A spring-bracket for suspending bird-cages, in combination with devices for adjusting the tension of the spring, substantially as and for the purpose set forth.

2. The combination of spring C, having bent ends C^1 C^2, with segmental adjusting-plate B^2, substantially as and for the purpose set forth.

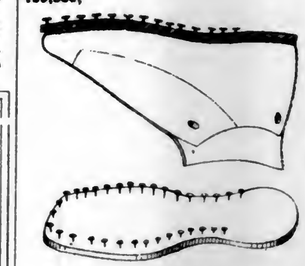
3. Spring C, having hook D, stop E, arm C^1, coils C^2 C^3, and bent rear ends C^4 C^5, substantially as and for the purpose set forth.

4. Bracket A, provided with back plate A^1, arms B^1 and B^2, perforated at *b b*, upward extension *a*, having a key-hole-shaped slot, *a'*, and segmental plates B^2 B^3, having perforations *b' b'*, substantially as and for the purpose set forth.

5. A bracket or base, A, provided with segmental adjusting-plates B^2 B^3, having perforations *b'*, for regulating the tension of the spring C, substantially as described.

6. In a bracket for suspending bird-cages, the hook D, having the side projections or stops E E, for the purpose of preventing a rotary motion to the cage, substantially as described, and for the purpose set forth.

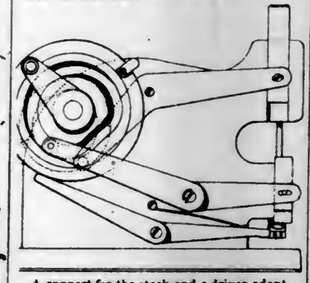
189,824. PROCESSES OF MANUFACTURING NAILED BOOTS AND SHOES. L. R. Blake, Boston, Mass. [Filed Dec. 27, 1876.]



The improved method or process herein described of uniting the soles and uppers of boots and shoes with metallic fastenings, consisting in supplying the outer sole with partially-driven fastenings, then applying the sole (molded to the shape of the lasted shoe, and so studded with metallic fastenings) to the lasted shoe, and driving the said fastenings held in the outer sole down through the outer sole, upper, and inner sole, all substantially as described.

189,825. NAILING-MACHINES FOR BOOTS AND SHOES. L. R. Blake, Boston, Mass. [Filed Dec. 26, 1876.]

Brief.—The nail or metallic fastening is only partially driven into the stock. The undriven portion, in connection with the feed device, operates to feed the stock forward for each successive nail.



A support for the stock and a driver adapted to descend to a position above the surface of the stock equal to the distance it is desired the head of the partially-driven nail shall project above the stock, in combination with a nail-tube adapted to descend below the lowest position of the driver to guide the nail and to be lifted to uncover the head of the partially-driven tack or nail, to permit the stock and partially-driven tack to be moved or fed, substantially as described.

189,826. NAILING-MACHINES FOR BOOTS AND SHOES. L. R. Blake, Boston, Mass. [Filed Dec. 28, 1876.]

Brief.—The nails are but partially driven by this machine. The nail-tube, which rests upon the face of the stock, is slotted at the side to admit of the lateral passage of the nail as the stock is moved for the setting of successive nails.

1. The combination, with the support for the stock, and the driver, of a nail-tube provided with a lateral passage for the head of a partially driven tack or nail as the stock is moved, substantially as described.

2. The support for the stock, and a presser and driver, in combination with a tube adapted to bear upon the stock, and slotted at its side for the passage of a tack or nail, substantially as described.

3. The support for the stock, driver, and side slotted nail-tube, in combination with a tack or nail centering device, adapted to operate substantially as described.

4. A nail-tube, and a driver adapted to rest, at its downstroke, above the lower end of a tack-centering device, in combination with a centering device connected with the nail-tube, and adapted to hold the head or upper end of the tack or nail after the driver reaches the limit of its downstroke, and then, by its separation, permit the lateral passage of the nail from the centering device, substantially as described.

5. A nail tube adapted to permit the lateral passage from it of the head of a partially-driven tack or nail, and a support for the sole, in combination with a driver and mechanism to operate it to cause the driver to terminate its descent above the bottom of the nail-tube in accordance with the distance it is desired that the head of the tack or nail remain above the sole, substantially as described.

6. The combination of a stationary nail-tube, adapted to bear upon the surface of the stock, with a driver adapted to terminate its downstroke above the lower end of the nail-tube a distance corresponding with the distance it is desired the head of the tack or nail to project above the surface of the stock, substantially as described.

189,827. BOOT AND SHOE NAILING MACHINES. Lyman R. Blake, Boston, Mass. [Filed May 5, 1876.]

Brief.—Machine specially adapted to partially drive tacks into the soles preparatory for attachment to a boot or shoe.

1. A tack or nail tube and driver, in combination with a guideway to sustain and direct nails into a rotating carrier, a rotating carrier, and a transferrer to remove a nail from the carrier into the nail-tube to be driven therefrom by the driver, substantially as described.

2. A nail-tube and driver, in combination with a slotted support for the sole, and mechanism to automatically lock and release it, whereby the support is held rigidly during the time the nail is being driven partially into the sole, and is then released to prevent the nail being further driven, leaving the head of the nail projecting above the sole, substantially as described.

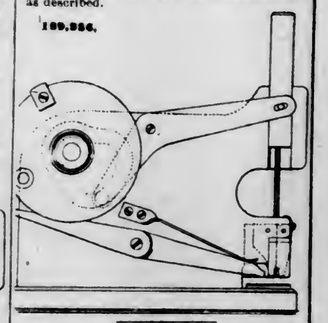
3. A slotted or grooved support, and mechanism to lock and release it, in combination with a guide-rod to prevent the support being turned, whereby the groove of the support is always retained in the same position with relation to the feed and edge-gage, substantially as described.

4. A support for the sole, in combination with a feeding device adapted to engage a partially-driven tack or nail, and move the sole, substantially as described.

5. A tack or nail tube and a carrier, provided with cells 8, and with grooves 17, in combination with a reciprocating transferrer to engage the side of the nail next the center of the carrier, and move it laterally from the cell into the tube to be driven by the driver, substantially as described.

6. In combination, a nail-carrying box adapted to discharge headed nails at inter-

189,828.

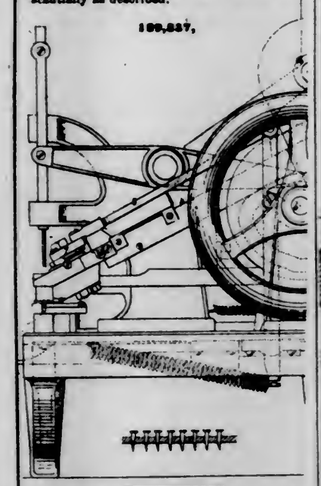


vale into a slotted guideway, a slotted guideway, a rotating carrier adapted to carry the nails singly from the guideway to a position opposite the nail-tube, and a transferrer to remove the tacks or nails laterally into the tube to be driven by the driver, substantially as described.

7. The sole support slotted to receive the points of the nails, in combination with an edge-gage attached to and moving with the support.

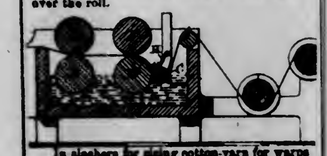
8. The combination, with a nail-tube and driver, of a support for the sole and mechanism to hold it pressed upward against the under side of the sole while the tack is partially driven, and then to release it to prevent the tack being driven its whole length, substantially as described.

189,837.



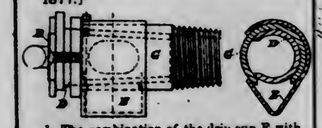
189,838. SLASHERS. J. M. Briggs, J. F. Greene, and J. Radilkin, Providence, R. I. [Filed Jan. 13, 1877.]

Brief.—A board or scraper, pivoted to arms at side of box, rests upon and extends lengthwise of the immersing-roll, to prevent the foam and excess of size from passing back over the roll.



In slashers for sizing cotton-yarn for warps to be used in weaving, a flash-board, H, in combination with the immersing-roll C, whereby the excess of size, which falls back from the yarn, is deflected toward the ends of the immersing-roll, substantially as described, and for the purpose specified.

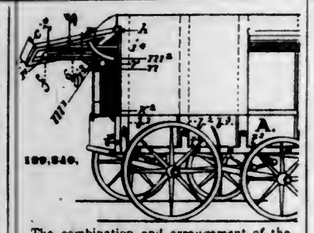
189,839. DRIP-CUPS FOR FAUCETS. Fred. Brigham, Warren, Mass. [Filed Mar. 23, 1877.]



1. The combination of the drip-cup E with the revolving spigot D, substantially as shown and described.

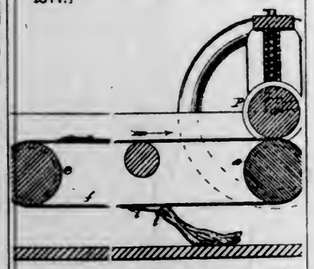
2. The combination of the protecting drip-cup E with the outer shell and mouth of the faucet G, substantially as shown and described.

189,840. WAGON-TOPS. Hugh W. Calderwood, Wilkinsburg, Pa. [Filed Aug. 23, 1876.]



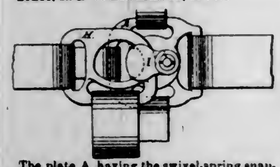
The combination and arrangement of the frame *f*, curtain *c*, supports *g*, guides *m*, loops *n*, springs *k*, hinge *h h'*, and bed A, substantially in the manner and for the purpose specified.

189,841. WASHING-MACHINES. H. Carpenter, Plain City, Ohio. [Filed Jan. 17, 1877.]



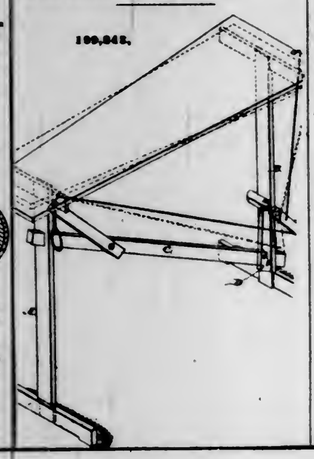
The concave roller P, in combination with the convex rollers *a* and *a*, connected by the belt *f*, which is furnished with the loop *i* and sliding bar *l*, substantially as shown and described.

189,842. DEVICES FOR ATTACHING HORSES TO VEHICLES. H. E. Chadwick, Providence, R. I. [Filed Mar. 13, 1877.]



The plate A, having the swivel-spring snap-hook I, arranged to operate in combination with the looped plate H, substantially as and for the purpose specified.

189,843.



189,843. IRONING-TABLES. David Choate, New York, N. Y. [Filed Nov. 6, 1876.]

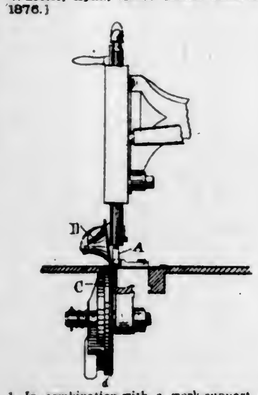
The two vertical mortised bars, A and B, the notched connecting-bar C, and bracket D, as set forth.

189,844. WASH-BOWLS. Wm. H. Cloke, Rahway, N. J. [Filed Apr. 4, 1876.]



The combination of the bowl C, having groove S, the packing T, with the slab B.

189,845. MACHINES FOR CRIMPING BOOT AND SHOE UPPERS. E. Corbett, Boston, assignor of one-half his right to J. E. Wheeler, Lynn, Mass. [Filed June 16, 1876.]



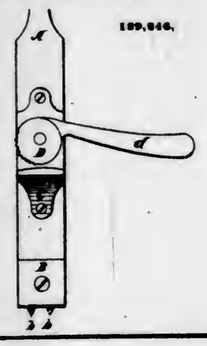
1. In combination with a work support a vertically-reciprocating knife or chisel arranged to cut or slit at right angles to the line of the feed the edge of a vamp or upper, substantially as described.

2. In combination with a vertical reciprocating cutting tool arranged to cut or slit the edge of a material at right angles to the line of feed, a work-support, and feeding mechanism arranged to feed and crease the work, substantially as and for the purpose described.

3. The combination of the vertically-reciprocating knife or chisel with a work-support, and guiding and gaging mechanism, substantially as described.

4. The feed-roll C, beveled as shown, and provided with the groove *c*, in combination with the presser D, and vertically-reciprocating knife A, substantially as described.

189,846.



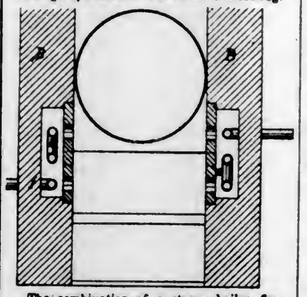
189,846. WIRE-STRETCHERS. M. Davenport and M. H. Hicks, Groton, N. Y.; said Hicks assignor to W. W. Hare, same place. [Filed Feb. 29, 1876.]

1. In a portable wire-stretcher, the combination, with a revolving self-adjustable fulcrum-block, B, provided with spurs *b b*, of a lever, A, provided with a wire-clamping device, substantially as and for the purpose described.

2. A portable wire-stretcher, consisting of the lever A, self-adjustable fulcrum-block B, provided with spurs *b b*, plate C, and eccentric clamp D, substantially as and for the purpose specified.

189,847. FEED-WATER HEATERS FOR BOILERS. A. T. Denison, Mechanics Falls, Me. [Filed July 7, 1876.]

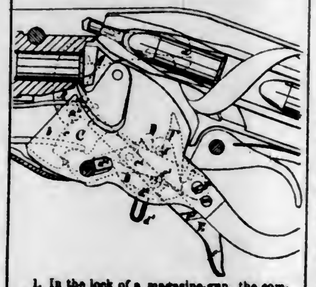
Brief.—The feed-water pipes are located in chambers formed in the sides of the furnace. Said pipes receive the action of the heat through apertures in the brick-work setting.



The combination of a steam-boiler, fire-place, and water-heater, the said heater being located in a chamber in the sides or ends of the brick-work setting, said chamber forming no part of the smoke-flue, and communicating with the fire-place by apertures through the division-wall, separating the said chamber from the fire-place, all substantially as and for the purpose described.

189,848. LOCKS FOR MAGAZINE FIRE-ARMS. George F. Evans, Mechanics Falls, Me. [Filed Jan. 15, 1877.]

Brief.—The invention is designed to permit the arm to be charged by hand, while the magazine is held in reserve, and is an improvement upon Patent No. 119,020, dated September 19, 1871.



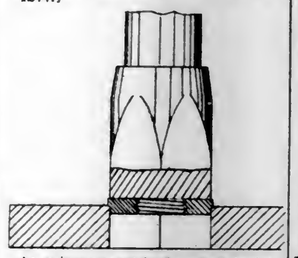
1. In the lock of a magazine-gun, the combination, with the bell-crank lever A, which actuates the cartridge-feeding fluted column of the magazine, of the bar O, having a longitudinal motion in the breech-block, as and for the purpose specified.

2. The combination, with the pivoted breech-block, of the lever D, having the arm *d'* and exposed finger-piece *d*, as and for the purpose specified.

3. In the breech-block of a magazine-gun, the combination, with the hammer F, of the bar E, having a longitudinal movement in the breech block, and pivoted to said hammer, as and for the purpose specified.

4. In the breech-block of a magazine-gun, the combination, with the hammer F and its pivoted bar E, having transverse slot *e*, of the lever D, with its rib *d*, as and for the purpose specified.

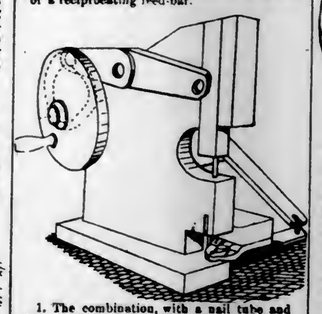
189,849. METHODS OF SHAPING AND FINISHING ARTICLES IN METAL. G. F. Evans, Mechanics Falls, Me. [Filed Feb. 16, 1877.]



As an improvement in the art of shaping and finishing articles of iron and other hard metals, first reducing the metal approximately to the shape and size required, but somewhat larger, and then pushing or forcing the same while cold, by means of a closely-fitting punch, into a hole in a hardened block of metal, said hole being of the exact shape and dimensions required for the finished article, and the edge of whose walls are somewhat rounded at the entering side, in virtue of which the metal so operated on, instead of being drawn out or extended, will be condensed and smoothed, and the excess pinched or drawn off, substantially as set forth.

189,850. NAILING-MACHINES FOR BOOTS AND SHOES. H. P. Fairfield, Boston, Mass. [Filed Dec. 28, 1876.]

Brief.—An auxiliary nail guide, composed of separable jaws, is located immediately below the nail-tube, and permits the partially-driven tack to be moved laterally by means of a reciprocating feed-bar.



1. The combination, with a nail tube and driver, of an auxiliary nail-guide, adapted to receive the nail from the nail-tube and permit its discharge laterally therefrom, substantially as described.

2. The combination, with a nail tube, driver, and work-support, of an auxiliary nail guide, adapted to rise and fall according to the thickness of the stock, and to permit the movement of the partially-driven nail or tack laterally from the guide, substantially as described.

3. A driver, to partially drive a nail or tack, and an auxiliary nail-guide, in combination with a feeding device adapted to move the sole after each nail or tack is driven, and move a previously partially-driven nail or tack laterally from between the jaws of the guide, substantially as described.

4. The combination, with an auxiliary nail guide or holder for a partially-driven nail or tack, of a feeding device arranged to be reciprocated with relation to the jaws of the guide, and to engage a nail previously partially driven, and move it from between the jaws, thereby moving the sole for another nail, substantially as described.

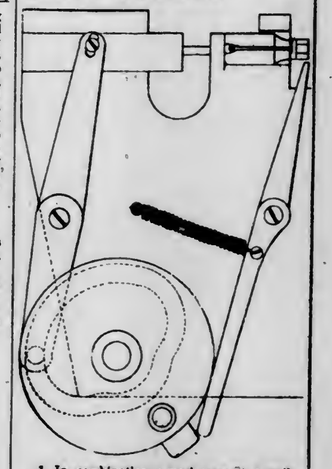
5. The combination, with a nail or tack support and driver, of a vertically-yielding guide, constructed in two parts, adapted to be separated or parted to permit the passage laterally, from between the guide, of a tack or nail partially driven into a sole, substantially as described.

6. A nail-guide, in combination with a feeding device, adapted to enter between the spring-held jaws of the nail or tack guide, separate the guide, for the lateral movement of the partially-driven tack, and then to engage and move the sole, by pressure, against the driven nail or tack.

7. A separable tack or nail guide, arranged between the end of the nail-tube and the surface of the stock, to guide a tack or nail and permit its removal laterally therefrom before driving another nail, substantially as described.

189,851. NAILING-MACHINES FOR BOOTS AND SHOES. H. P. Fairfield, Boston, Mass. [Filed Dec. 28, 1876.]

Brief.—Attached to the nail-tube, and forming the lower portion of it, is a spring-centering device, which holds the nail in proper position until it is forced out by the descent of the driver. The tube does not extend to or rest upon the stock, so that the nail is only partially driven by the machine.



1. In combination, a work-support, a nail-tube, and a driver, the nail-tube being arranged with its lower end above the surface of the stock to permit the lateral movement of the partially-driven nail from under it, and the driver to descend far enough to remove the head of the nail out of the nail-tube and only partially drive the nail, thereby leaving its upper end projecting above the surface of the stock, substantially as described.

2. A shortened nail-tube and driver and a support for the stock, arranged with relation to each other as described, so that the end of the nail-tube and driver are elevated above the stock, as set forth, in combination with a presser, to hold the stock upon the support, substantially as described.

3. The combination, with a shortened nail-tube, a driver, and a work-support, of a nail-centering device, arranged in connection with the nail-tube, having its lower end placed at a distance above the surface of the stock, as described, and adapted to hold and direct the tack or nail while it is partially driven into the stock by the driver, the latter terminating its downward thrust at a distance above the surface of the stock, to prevent driving the head of the tack or nail down completely to the surface of the stock, substantially as described.

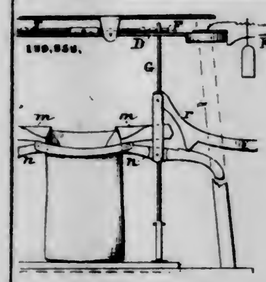
4. A shortened nail-tube and driver, constructed as described, and a work-support and centering device, in combination with a feeder, to move the stock and partially-driven tack or nail laterally from under the path of the driver, substantially as described.

189,852. SACK-SCALES. Calvin Flanders, Bronson, Mich. [Filed Jan. 26, 1877.]

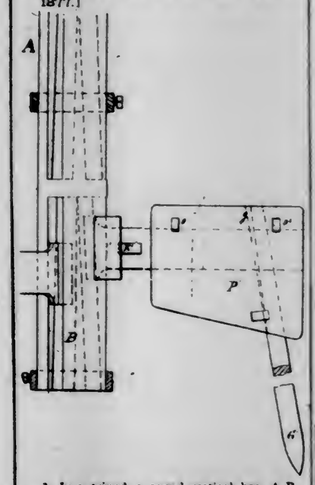
1. Adjustable sack-holders, consisting of the fixed jaws *m*, the pivoted jaws *n*, and the levers *r*, all adjustable at any required height on the rods G, substantially as described.

2. The combination of the frame D, center piece E, having fixed bar F, rods G, platform H, beam K, and adjustable sack-holders *m n r*, substantially as and for the purposes described.

189,852.



189,853. TRIPODS FOR ROCK-DRILLS. T. B. Ford, Newburg, N. Y. [Filed Mar. 7, 1877.]

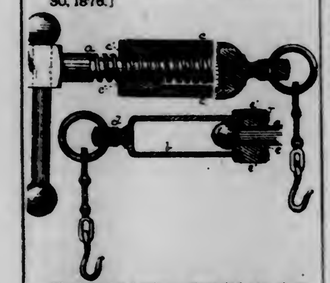


1. In a tripod, a round vertical bar, A B, provided with longitudinal undercut grooves H, in combination with arms F, movable therein, and radially-adjustable weights P and points G, substantially as specified.

2. In a tripod, the radial arms F, vertically adjustable in undercut slots, in combination with the radially adjustable and reversible weights P, with adjustable swinging points G, as specified.

3. In a tripod, a single vertical round bar, A B, with longitudinal undercut grooves, in combination with a horizontal bar, substantially as specified.

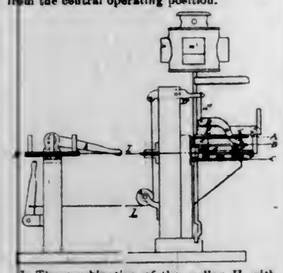
189,854. DRAW-COUPLINGS FOR BOATS, &c. S. M. Fulton, Pittsburg, Pa. [Filed Dec. 30, 1876.]



The barrel *c*, having a threaded nut, *c'*, secured in one end, the stem *a'* of a connecting device in the other, in combination with shaft *a*, swiveled block *c*, and stirrup *b*, substantially as set forth.

189,855. RAILROAD-SWITCHES. Justin J. Golden, Toronto, Ontario, Canada. [Filed Jan. 15, 1877.]

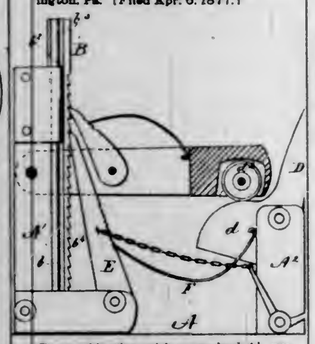
Brief.—The switches at both ends of the siding are operated from a central position, by means of an endless rope attached to and passing around a capstan, and from thence to an arm on an upright cranked axle, to which the ordinary switch-gear is attached. The arm to which the endless rope is attached works between semicircular bars, in which are placed the locking device; said locking device being operated by a lever and rope from the central operating position.



1. The combination of the pulley H with handle *h*, endless cable I, semicircular bars A B C, pulleys *b*², springs *b*³, stops *a'*, slots *b*¹, bracket *s* on arm E, attached to cable I, as shown and described, and for the purposes set forth.

2. The combination, with the pulley H with handle *h*, endless cable I, semicircular bars A B C, pulleys *b*², springs *b*³, stops *a'*, slots *b*¹, bracket *s* on arm E attached to cable I, of the handle K, cable L, pulley *w*, for locking and unlocking the arm E by means of the levers D D', link *d*², and semicircular bar B, with springs *b*³, and stops *a'*, as specified and described, and for the purposes set forth.

189,856. LIFTING-JACKS. F. Griscom, Dolington, Pa. [Filed Apr. 6, 1877.]



The combination, with a standard A', provided with a vertical groove or guide, *b*, and plates or guides *b*¹ *b*², and a lifting-bar, B, having guides or grooves *b*¹ *b*⁴ and teeth *b*³ of a weighted pivoted lever-arm, C', carrying a driving-lever, C, the said arm C' being operated by a cam or extension, *d*, from a lever-arm, D, the whole being constructed and operated substantially as shown and described.

189,857.



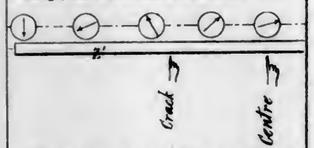
189,857. TOY MONEY-BOXES. John Hall, Watertown, Mass. [Filed Oct. 31, 1876.]

Brief.—The toy figure of a cashier receives the money with open arms, and, upon a spring being pressed, deposits it in the slot at one side.

The lever C, having arm *c*, in combination with the rod *d*, attached to the movable figure B, all constructed and arranged to operate substantially as and for the purposes described.

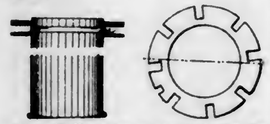
189,858. MODES OF DETECTING DEFECTS IN RAILROAD-RAILS, &c. A. Herring, Cohoes, N. Y. [Filed Feb. 8, 1877.]

Brief.—For the purpose of ascertaining "where latent or hidden defects, such as cracks, flames, imperfect welds, and molecular change, occur in metallic structures."



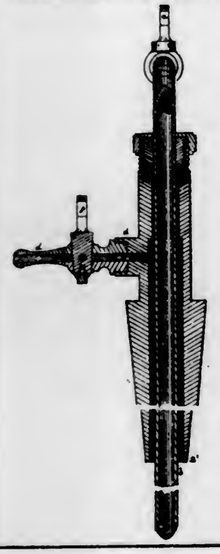
The method, substantially as described, of testing a metallic bar or other mass of metal, consisting in magnetizing the bar or metal, and passing a magnetic compass or dipping-needle or other like magnetic indicator along the bar or metal in contact with its surface, or nearly so, for the purpose set forth.

189,859. UMBRELLA-RUNNERS. J. J. Higgins, New York, N. Y. [Filed Dec. 21, 1876.]



An umbrella runner or notch, having the head, to which the stretchers or ribs are attached, formed of two flat annular disks or rings of metal secured to the barrel, and separated from each other by an interposed bead, circlet of wire, or other suitable projection, substantially as described.

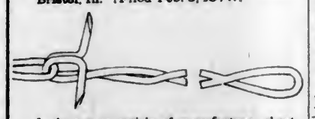
189,860. DRAFT-FAUCETS. Mat. Hogan, Hartford, Conn. [Filed May 13, 1876.]



1. In combination, the tubular plug *a*, the sliding draft-tube *b*, and the stuffing-box *c*, all substantially as described, and for the purposes set forth.

2. In combination, the tubular plug *a*, sliding draft-tube *b*, and pressure-tube *d*, all substantially as described, and for the purpose set forth.

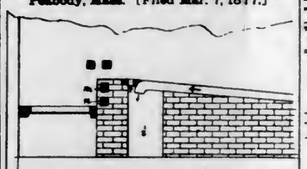
189,861. BARBED FENCES. Geo. G. Hunt, Bristol, Ill. [Filed Feb. 5, 1877.]



1. As a new article of manufacture, short sections of wire folded in the middle and twisted, and having a hook provided with barbs at one end and an open loop or eye at the other end, when such sections are made substantially in the manner and for the purpose herein before specified.

2. A barbed wire for fences, when such wire is made of short sections, made in the manner and hooked together in the manner herein specified.

189,862. BOILER-SETTINGS. K. M. Jarvis, Peabody, Mass. [Filed Mar. 7, 1877.]



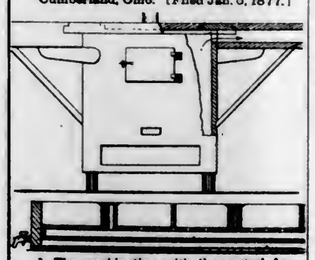
1. The combination, with the side and bridge walls, of ducts leading from the passages in the side walls into and out from the bridge-wall and into the side wall and combustion-chamber, to heat the air passing through such bridge-wall ducts, substantially as described.

2. The ducts *m n* in the bridge-wall, in combination with the duct *p*, and opening in the side wall opposite the combustion-chamber, substantially as described.

3. The ducts in the back of the wall, substantially as at *e*, in combination with the tapering pipes or flues, substantially as described.

4. The side wall, provided with its air-passages, and the back wall and its ducts *e*, in combination with tubes or flues A leading into the chamber *i*, all to heat and discharge air into the combustion-chamber, substantially as described.

189,863. FOOD-STEAMERS. A. Johnson, Cumberland, Ohio. [Filed Jan. 5, 1877.]



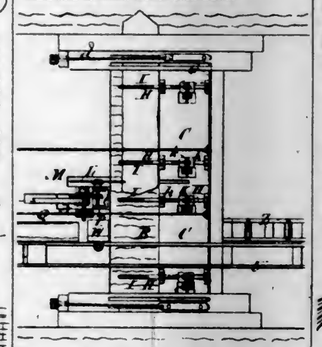
1. The combination, with the central furnace, of auxiliary heating-leaves hinged, respectively, to either side thereof, substantially as described.

2. The combination, with the furnace-chamber, of heating-leaves, having horizontal draft-connection therewith, and supported by detachable braces, substantially as described.

3. The combination, with the steam-chest, of the double perforated plate, the latter having upright steam-pipes corresponding, respectively, to compartments formed in the same by detachable partitions fitting in grooved sides of the chest, substantially as described.

189,864. APPARATUS FOR BUTTING AND DRESSING TIMBER. W. H. Knight, Quebec, Canada. [Filed Feb. 12, 1877.]

Brief.—A channel is formed in a roofed and inclosed floating ponton, into which the logs to be "butted" are introduced, and provided with a feed-piece having a series of projecting dogs, which gripe the log and hold it firmly while being fed to a saw mounted in bearings on the opposite side of the channel, which performs the operation of "butting," after which the feed-piece is drawn backward and the log released. The timber to be dressed is conducted into another channel formed in said ponton, and raised onto a carriage by which it is fed to a cutting-knife, which dresses all four sides of the timber as it is run backward and forward under said knife.



1. A ponton or floating chamber having formed in it one or more channels, into which the timber to be butted or dressed is introduced, as herein set forth.

2. The combination, substantially as specified, of the feed-piece C and the floating channel B, in which it is automatically moved forward and backward.

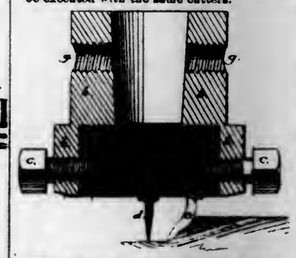
3. In combination with the feed-piece C, the dogs H, arranged in bearings so as to revolve, and drawn back by means of weights and ropes I, set at right angles in the standards K, all substantially as and for the purposes herein set forth.

4. The circular saw L, placed in recess M, and driven by gearing set in dry chamber N, all as herein described.

5. In combination with a carriage carrying the log to be dressed, and advancing at a regulated speed, a cutting-knife, as herein described, moving in guides in a vertical standard, and actuated by the piston-rod of a cylinder, all substantially as and for the purposes set forth.

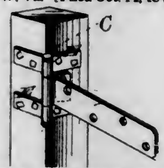
189,865. CUTTER-HEADS. Olof Lindblad, Jamestown, N. Y. [Filed Feb. 10, 1877.]

Brief.—The cutters are laterally and angularly adjustable in a transverse slot formed in the face of the head by means of a series of metallic blocks of suitable size, secured in position by set-screws passing through apertures in a shoulder formed on the head, so that any desired size of surface-molding may be executed with the same cutters.



The combination of the cylindrical head *b*, having shoulder *b'*, threaded apertures *g g*, the transverse slot S, and vertical slot *s* with the cutters *d e e*, metallic pieces *f f f*, and set-screws *c c*, all constructed to operate as shown and described, and for the purpose set forth.

189,866. HINGES. D. W. Long, Parkersburg, W. Va. [Filed Oct. 14, 1876.]

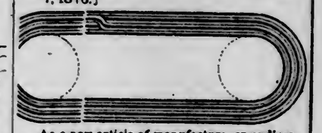


The herein-described sheet-metal hinge, consisting of the angular wings B E, having drive flanges and knuckles *a e* at their intersections, each set of wings and knuckle being made in one piece, and the angular wings *d' d'* made in one piece, and provided with a knuckle at their junction, for the reception of the common pintle C, substantially as and for the purpose set forth.

189,867. PROCESSES FOR BLEACHING AND IMPROVING COTTON-SEED OILS. R. Macdonald, New Orleans, La. [Filed Oct. 16, 1876.]

The process herein described of bleaching cotton-seed oil and improving its quality, the same consisting in heating it to about 300° Fahrenheit, and maintaining it at that temperature for about three hours, substantially as described, and for the purpose set forth.

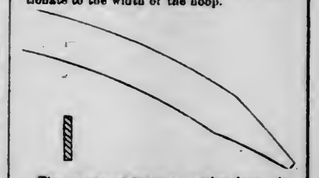
189,868. BLANKETS FOR CALICO-PRINTING. C. McBurney, Boston, Mass. [Filed Apr. 7, 1876.]



As a new article of manufacture, as endless blanket for printing-machines, composed of layers of cloth coated on one and on both sides with rolled layers of vulcanizable gum, thicker than the cloth, and arranged with relation to each other, and to present a fibrous face for the outer surface, and vulcanized, all substantially as set forth.

189,869. WOODEN BARREL-HOOPS. J. D. McEachern, Galt, Ontario, Canada, and D. H. Burrell, Little Falls, N. Y. [Filed Mar. 17, 1877.]

Brief.—A barrel-hoop, formed from veneers of wood of suitable size, is bent edgewise until its curvature or the length of its edges corresponds with the difference in the distance around the tapering part of a barrel proportionate to the width of the hoop.



The process of forming wooden hoops by bending them edgewise after being cut from the sheet of veneer, in the manner and for the purpose hereinbefore specified.

189,870. MACHINES FOR FLANGING BOILER-HEADS. C. Miller and Jos. Boldon, Pittsburg, Pa. [Filed Feb. 15, 1877.]

Brief.—The disk is clamped upon and moves with the revolving table, while the flanging-rollers are raised by the toothed segments. The rollers are adjusted to and from the table for different sizes of disks, and to connect the gearing for raising the roller-frame with that for turning the table an adjustable gear-wheel is employed.

1. The revolving table B in combination with shaft B' and the rolls L L', all constructed and operating as described, for the object set forth.

2. The rolls L L, frame K, segments M M, carriage J, and revolving table B, all combined, constructed, and operating as described, for the object set forth.

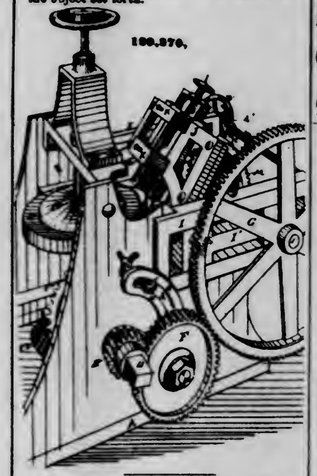
3. In combination with the segments M M, the pinions P P, gear-wheels E F G, as described, and for the object set forth.

4. The adjustable support O in combination with the revolving table B and the rolls L L, for the purpose of supporting the edge of the disks, when being finished, which are of greater diameter than can be supported by the table, as described.

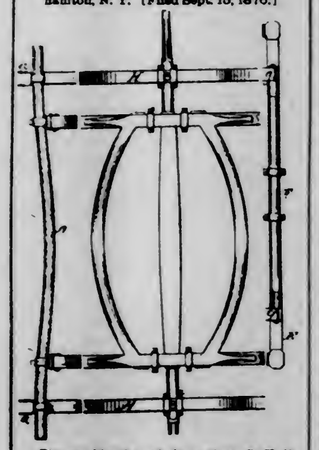
5. The sliding blocks I I, adjusting-screws *g g*, shaft m, wheels *i h i h*, and crank n, in combination with the carriage J, constructed and operating as described.

6. The combination of table B, upright shaft B', wheels C C', main shaft D, wheels E F G, arm H, carriage J, frame K, rolls L L', segments M M, shaft N, supporting-post O, pinions P P, slides I I, adjusting-screws *j g*, all constructed and operating as described, for the object set forth.

190,870.



190,871. PLATFORM-SPRINGS FOR VEHICLES. J. Milks and R. H. Watson, Binghamton, N. Y. [Filed Sept. 15, 1876.]

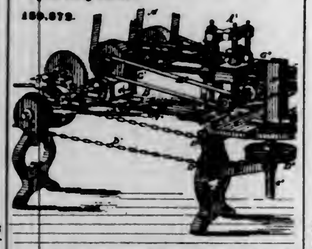


The combination of the springs B H K, cross-bars A F, and pivotal ears *a a*, adapted to receive and support the pole or thills, substantially as set forth.

190,872. MACHINES FOR MAKING PARQUETRY. F. Newhouse and M. H. Allen, Toledo, Ohio. [Filed July 10, 1876.]

Brief.—The board or strip is fed intermittently through a swiveled and flanged guide-plate by a pair of feed-rolls arranged upon said plate, while the channels are formed by means of a revolving cutter, consisting of a series of horizontal blades and a pair of circular saws, and a circular saw or router arranged in front and at the side of the revolving cutter, both mounted in a reciprocating carrier. The prepared pieces of wood are placed in a feed-box attached to one end of the swiveled guide-plate, and are forced into the channels of the strip of board by a sliding feed-plate attached to a sliding bar connected by a rod to the crank which operates the reciprocating carrier.

190,872.



1. The combination, with the cutter-head K and bed-plate B, of the guide-plate *s*, capable of adjustment so as to regulate the angle of the channels for the reception of the ornamental strips or blocks, substantially as described.

2. A carriar, A^3, constructed with a revolving cutter, K, and router Q, arranged one in front and at the side of the other, substantially as and for the purpose described.

3. The feed-box P, formed of the base-plate O^3, provided with the channel O^3, and of the vertical plate I^3 P^1, having the flanges *p p*, substantially as and for the purpose stated.

4. The combination, with a feed-box, P, and the operating mechanism of a parquetry machine of a slide, O, so arranged as to feed a block into a previously formed channel, substantially as described.

5. The combination, with the pivoted guide-plate *s* and feed-rollers F F^1, of the pinions R R^1, index-wheel R^2, and stop S, substantially as set forth.

6. The combination, with the feed-rollers F F^1 and index-wheel R^2, and stop S, of a cam, T, sliding bar T^1, levers T^2 T^3, spring-arm T^4, cam T^5, and sliding bar N^5, substantially as described.

7. The combination, with the bed-plate S, pivoted guide-plate *s*, and feed-rollers F F^1, of the shaft d^3, pulleys D^2 D^3, arm d^3, pulleys D^4 D^5, chain D^6, and friction-pulley D E, substantially as set forth.

8. The combination, with the guide-plate *s* and feed-rollers F^2 F^3, pinions E^2 F^6, and intermediate wheel F^5, of the intermediate wheel F^4, and pivoted arm F^6, substantially as and for the purpose set forth.

190,873. GAS-MACHINES. F. W. Ofeldt, Newark, N. J., assignor to himself and C. C. Coate, same place. [Filed Dec. 28, 1876.]

Brief.—Oil is supplied to a gas-generating pump, where the oil is vaporized by heat applied below. The expansion of the oil-vapor raises a large piston having spring-valves, admitting air, and at the same time operating a pump supplying a further quantity of oil to be vaporized. The quantity of gas supplied to the burner under the generator and size of flame are regulated by the expansion and contraction of a metallic rod acting upon a spring-valve in the lamp.

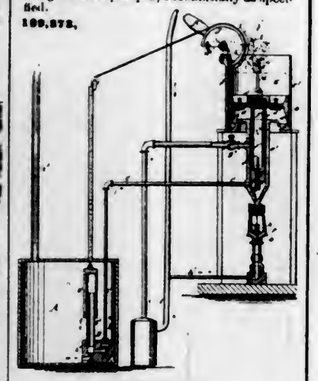
1. A gas-machine effected by the combination of a gas-generating-pump, D, and an oil-supply pump, B, with a supply-tank, A, the supply-pump B being operated by the movements of the generating-pump D, thus acting as a feed-pump to the latter, which again is operated by the expansion of the vapor of the oil thus supplied, the vaporization being continually promoted by heat from the burning of gas derived from said generating-pump, substantially as specified.

2. The feed-pump B, constructed of the combination of the valve-chest b^1 and stationary piston b^2 with the sliding cylinder b^3, in combination with the generator D of a gas apparatus, substantially as and for the purpose specified.

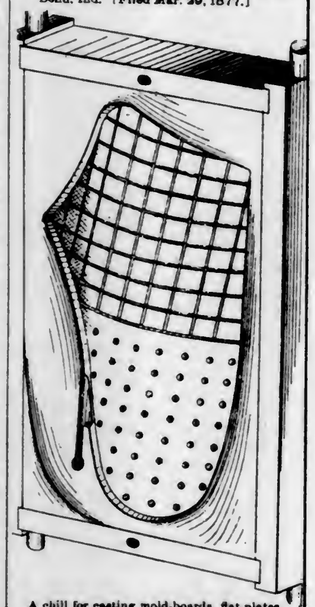
3. The generating-pump D, consisting of the piston F, (formed of the two main parts f^3 and f^4, with their respective valves d^1 and d^2,) in combination with the pump-barrel E, formed of the two parts e^2 and e^3, the latter being provided with the stops or trip-pins e^4 e^5, substantially as specified.

4. The arm K, provided with the pawl I, and the arm M, provided with the set-screw *w'*, in combination with each other, and with the piston F and segment-wheel J, for operating the feed-pump B, substantially as specified.

190,873.



190,874. CHILLS FOR CASTING MOLD-BOARDS FOR PLOWS. Jas. Oliver, South Bend, Ind. [Filed Mar. 29, 1877.]

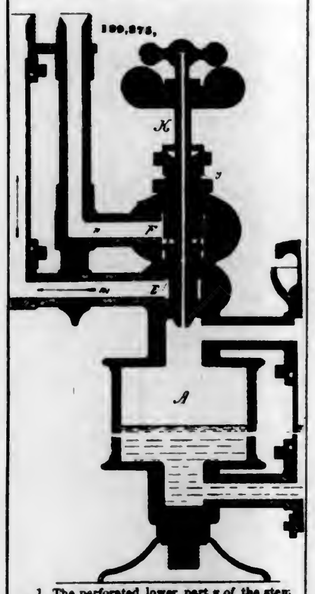


A chill for casting mold-boards, flat plates, &c., provided with a series of grooves or depressions of any form, sufficiently wide and deep to permit the molten metal to enter the same, forming thereby cleats or braces, whereby the casting is prevented from warping while cooling, and serving also as a means of ventilation, substantially as and for the purpose described.

190,875. LUBRICATORS FOR STEAM-ENGINES. W. R. Petrie, New Haven, Conn., assignor to himself, J. D. Payne, and L. P. Woodworth, same place. [Filed Mar. 7, 1877.]

Brief.—When the valves allow, the water-column in the pipe *n* forces the oil into the steam-chest through the steam-pipe *m*.

190,875.

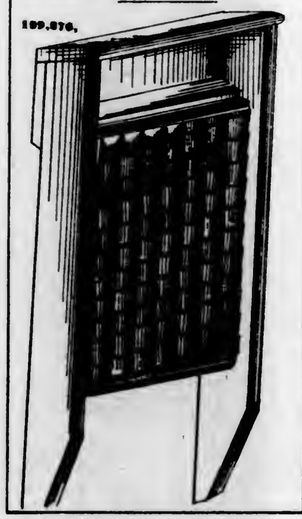


1. The perforated lower part *x* of the stem K, its lower end forming a valve, its upper end forming a valve-seat connected to the upper perforated part *y* by the cap *z*, having the hole *i*, in the way described, substantially as set forth.

2. The stem K, herein described, consisting of two parts, a perforated upper part, *y*, provided with the thumb-screw *v*, for the purpose described, its lower end having a shoulder, *t*, and forming a valve, and a perforated lower part, *x*, the lower end of which forms a valve and its upper end a valve-seat, and the two parts connected together by the cap *z*, having the hole *i*, in the way described, the whole substantially as shown and set forth.

3. In a lubricator, the cylindrical chambers E and F, the larger chamber F being uppermost, arranged above the reservoir A, the pipes *m* and *n* respectively communicating with the same, substantially as shown and described.

190,876.



190,876. WASH-BOARDS. J. Poole, Cleveland, Ohio. [Filed Jan. 3, 1877.]

1. A wash-board plate formed with the screw-like elevations or corrugations C, substantially as and for the purpose described.

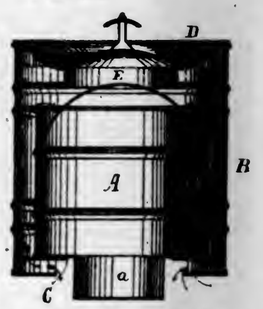
2. In a wash-board plate, the screw-like elevations or corrugations C C C, arranged in parallel rows or columns, substantially as and for the purpose described.

3. In a wash-board plate, the screw-like elevations or corrugations C C C, arranged in parallel rows or columns, and with corrugated grooves *c* between said rows, substantially as and for the purpose described.

4. In a wash-board plate, the screw-like elevations or corrugations C C C, each gradually tapering from its upper to its lower end, and arranged in parallel rows or columns, substantially as described.

5. In a wash-board plate, the screw-like elevations or corrugations C C C, each gradually tapering from its upper to its lower end, arranged in parallel rows or columns, parallel with the sides of the wash-board, and with the corrugated grooves *c* between said rows, substantially as and for the purpose described.

190,877. CULINARY BOILERS. I. A. Robinson, De Kalb, Ill., assignor of one-half his right to J. F. Glidden, same place. [Filed Jan. 29, 1877.]



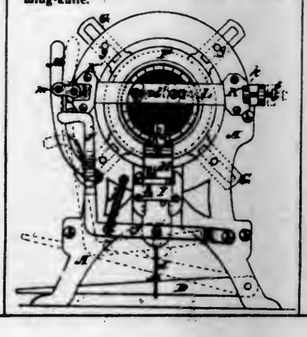
1. The exterior vessel or casing B, having a central opening, *b*, in its bottom, and provided with a false bottom or diaphragm, C, having apertures *c* around its outer edge, substantially as described.

2. The interior vessel A, in combination with the exterior casing B and perforated diaphragm C, all constructed and operating substantially as and for the purpose set forth.

3. The sectional cover, composed of the annular part D, depressed from the outer edge, as described, and the central portion E, substantially as and for the purpose set forth.

190,878. CROZING AND HOWELING MACHINES. John A. Seaman, Chicago, Ill. [Filed Dec. 9, 1876.]

Brief.—The barrel to be worked is clamped between a disk loosely pivoted to a sliding drive-shaft and an adjustable ring having a shoulder to bear on the truss-hoop. A movement of a hand-lever to the right and left operates, respectively, the crozing and howeling tools, and a third lever operates the trimming-knife.



190,879. CIGAR-LIGHTERS. Geo. Selden, Erie, Pa., and J. M. Keep, Jersey City, N. J.; said Keep assignor to said Selden. [Filed Feb. 7, 1877.]

Brief.—The star-wheel passing through a slot in the spring-hammer operates it, and also moves the percussion-tape over a yielding guide-plate.



1. The star-wheel h, in combination with the yielding apron *f*, over which the igniting or percussion tape is fed, substantially as and for the purpose described.

2. The arrangement of the star-wheel h relatively to the nose-piece *e* and hammer-spring d^3, whereby the force of the blow of the hammer is received by the wheel, as described.

3. The combination, with the lighter case or frame, of the star-wheel h, hammer *d*, and yielding feed-apron *f*, arranged and operating substantially as described.

190,880. CHURN-DASHERS. J. H. Starnes, Asheville, N. C., assignor of one-half his right to J. M. McEntire and W. N. Ownbey, same place. [Filed Mar. 7, 1877.]



1. A dasher consisting of the angular paddles and the grooved angular-shaped pegs attached to the dasher-head, substantially as and for the purpose specified.

2. In combination with the angular paddles, grooved pegs, and dasher-head, the handle or hand-hold attached to the top of the staff, substantially as described.

190,881. JOURNAL-BOXES. B. F. Sturtevant, Boston, Mass. [Filed Jan. 10, 1877.]

1. The reciprocating drive-shaft B, having a clamping-plate, E, mounted on its forward end, substantially and for the purpose set forth.

2. The reciprocating shaft B, in combination with the slide O adjustably connected thereto, spring *c'*, and lever D, substantially as and for the purpose set forth.

3. The drive-shaft B in combination with the clamping-plate E, mounted loosely on one end thereof, so as to have a vibratory or yielding movement thereon, substantially as and for the purpose set forth.

4. The holding-ring F, provided with an interior perpendicular flange or shoulder, *f*, against which the truss-hoop abuts when the barrel is put in the machine, substantially as and for the purpose set forth.

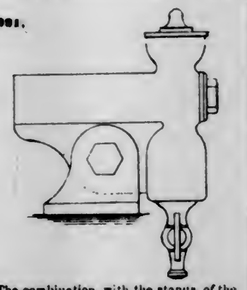
5. The ring F, having an interior flange or shoulder, *f*, in combination with the reciprocating shaft B, and yielding clamp E, mounted thereon substantially, as described.

6. The slide H, provided with the inclined cutter h, and hinged to the lever J, substantially as and for the purpose set forth.

7. The slide H having the inclined cutter h on its upper end, in combination with the adjustable stop *i*, lever J, and spring *j*, substantially as described.

8. The reciprocating bar L, provided with an adjustable stop, *e*, at one end, and a fixed stop at the other, in combination with the howeling and crozing tools N and O, mounted thereon, the holding-ring F, and lever M, substantially as described.

189,881.



1. The combination, with the stands, of the bearing portion, pivoted to the stand, and adapted to be clamped rigidly and immovably to the stands when the bearing portion is placed in line, substantially as described.

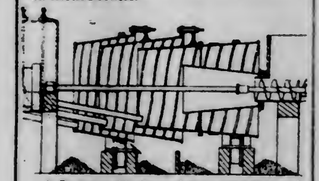
2. The combination, with the stands, of the pivoted bearing portion, provided with the oil-receptacle *f*, passage *g*, and discharge outlet *h*, substantially as described.

3. A pivoted bearing portion and stands, substantially as described, and a locking device to secure the bearing portion and stands, in combination with an end plug to stop up one end of the bearing, substantially as set forth.

4. The bearing portion stopped at its outer end, and provided with an opening at its inner end for exit of oil, in combination with an oil-supplying reservoir, and an oil-receiving reservoir, provided with a discharge-outlet to remove the oil, substantially as described.

189,882. ORE-WASHERS. H. B. Taylor, Chester, England. [Filed Feb. 5, 1877.]

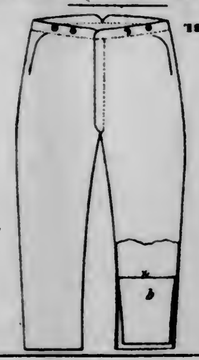
Brief.—A series of conical drums projecting into each other, provided with internal screw-threads, varying in pitch and depth, and each supplied by a pipe with water for washing the minerals to be sized. The whole revolves on friction-rollers.



1. In apparatus for washing, separating, and sizing mineral and other substances, the combination of two or more conical drums having internal screw-threads of varying pitch and depth, one drum being arranged to deliver within the other, substantially as and for the purpose specified.

2. The combination of two or more conical drums having internal screw-threads of varying pitch and depth, one drum arranged to deliver within the other, and a device or devices, substantially as specified, for supplying a stream of water to each drum of the series, substantially as and for the purpose specified.

189,883.

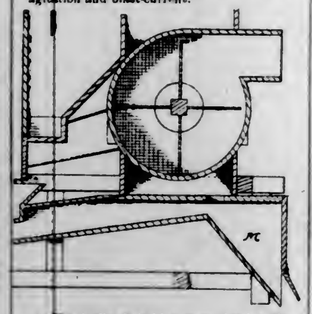


189,883. PANTALOONS. S. L. Thompson and Levi M. Thompson, Kingfield, Me. [Filed Mar. 6, 1877.]

A pair of pants provided with tubular lining-pieces *b*, suspended within the pants-legs, of uniform size therewith, loose at their lower ends, and lying close against the inside of the legs throughout their length, and secured to the body fabric at the upper edges only, all as set forth.

189,884. GRAIN-SEPARATORS. Grant B. Turner, Cuyahoga Falls, Ohio. [Filed Jan. 28, 1877.]

Brief.—Novel construction and combination of parts, for giving material preliminary screening, and subsequently subjecting it to agitation and blast-current.



1. The inclined shaking-spout, having the transverse roughened incline or hog-back, in combination with a fan for inducing an air-current through the spout, substantially as specified.

2. In combination with a grain-separator the vibrating or shaking spout having the transverse incline or hog-back, and means for inducing an air-blast through the same, all substantially as and for the purpose specified.

3. In combination with the shaking-spout the transverse inclines or hog-back, substantially as and for the purpose specified.

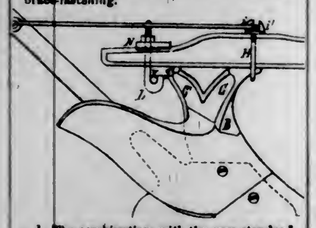
4. In combination with the shaking-spout the incline or hog-back and the valve located over the hog-back, substantially as and for the purpose specified.

5. In combination with the shaking-spout the incline or hog-back, and the receiving and deflecting shelf, substantially as and for the purpose specified.

6. The inclined shaking-spout, having the hopper M, in combination with a fan for inducing an air-blast through the spout, substantially as and for the purpose specified.

189,885. PLOWS. Geo. Wiard and C. W. Hough, East Avon, assignors to the Wiard Plow Company, Batavia, N. Y. [Filed July 17, 1876.]

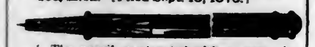
Brief.—Devices for adjusting the beam longitudinally, laterally, and vertically. Movable brace-fastening.



1. The combination, with the rear standard W, cast with the transverse rib E, of the beam A, formed with two or more holes, *m*, adjustable hook-bolt L, and interposed wedge N, all arranged as shown, so that the beam can be adjusted longitudinally, laterally, and vertically from the same standard, as herein-before set forth.

2. The combination, with the standard B and beam A, made longitudinally adjustable, of the U-shaped clamp H and strap K, provided with hooks *i'* for holding the handle-brace I, substantially as and for the purpose herein-before set forth.

189,886. PENCILS. O. M. Allen, Kalamazoo, Mich. [Filed Sept. 15, 1876.]

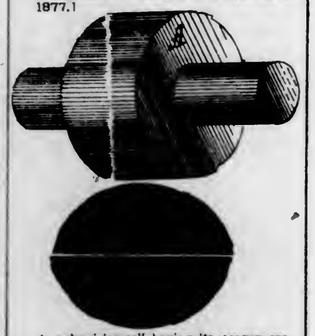


1. The pencil constructed with a reservoir crayon-chamber, forming a single shell case, and adapted to automatically feed its crayons into the tip of the pencil, substantially as described.

2. In a pencil provided with loose leads or crayons, the combination, with a chamber adapted to receive two or more longitudinal series of said leads or crayons, of a small auxiliary feed-cylinder for presenting them singly for use, substantially as and for the purpose described.

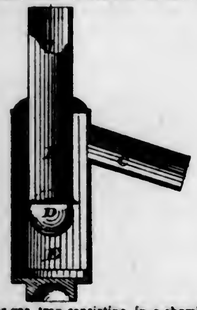
3. The combination, with the stock of a pencil case adapted to hold several layers of loose crayons, of a feed-tube constructed funnel-shaped at its inner extremity for readily presenting a single crayon to the close-fitting bore at the working end of the tube, substantially as described.

189,887. ROLLS FOR PULVERISING-MILLS. E. S. Blake, Pittsburg, Pa. [Filed Jan. 4, 1877.]



A pulverising-roll having its convex surface formed in alternate stripe of chilled and unchilled iron, said stripe running in the direction of the axis of the roll, substantially as and for the purpose described.

189,888. SEWER-GAS TRAPS. B. P. Bowers, Cleveland, Ohio. [Filed Feb. 12, 1877.]



A sewer-gas trap consisting in a chamber having an eduction-pipe leading therefrom, and an induction-pipe extending downwardly below the line of standing water in said chamber, the lower end of said pipe constituting a valve-seat, which latter is closed by a valve, that acts by its floating-pressure to close the valve-seat, substantially as and for the purpose described.

189,889. EXPANDING SCREW-TAPS. J. B. Douglas, Philadelphia, Pa., assignor to Morris, Tasker & Co., (limited,) same place. [Filed Mar. 3, 1877.]

1. In a screw-threaded tap, thread-cutting jaws F, adapted to be both radially projected by an eccentric, C, and radially retracted by springs *f*.

2. In a screw-cutting tap, thread-cutting jaws F, set radially through the shell D, in combination with springs *f*, and with an eccentric, C, provided with crests *e* and hollows *e'*, as and for the purposes set forth.

3. In combination with the shell D, lugs H on the stock A to limit the throw of the shell, substantially as and for the purposes set forth.

4. In combination with the shell D reamer-cutters G, set so as to project beyond the thread-cutting jaws F when the latter are retracted, (and in such relation adapted to ream in a direction the reverse of the cutting of the jaws,) and to be within the cutting-line of said jaws when the latter are projected, substantially as specified.

5. A screw-cutting tap, provided with both fixed reamer-cutters and thread-cutting jaws, and thereby adapted to be used as both a tap and a reamer, substantially as shown and described.

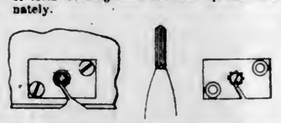
6. The combination of the jaws F and their springs *f* with the stem C, having hollows *e'*, the springs adapted to retract the jaws into the hollows, and the hollows to receive the jaws, substantially as described.

189,889.



189,890. SPINNING-FRAMES. W. F. Draper, Hopedale, Mass. [Filed Oct. 2, 1876.]

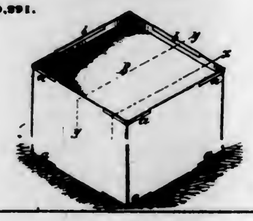
Brief.—A bobbin provided with a bearing at the upper end is, at its lower end, engaged by a whirl. The journal at its upper end, or the bearing-surface therefor, is grooved, so as to form bearing-surfaces and spaces alternately.



1. A whirl, and a bobbin adapted to be moved by the whirl, in combination with a top piece and a guide-surface therefor, the top piece and guide-surface being constructed with projecting bearing-points and intervening spaces for the yarn, to steady the bobbin and to permit the yarn to slip from one to the other space when the yarn is being wound upon the bobbin, substantially as described.

2. In combination, a bobbin and a top piece, and a guide surface or wall constructed to afford projecting bearing-surfaces and spaces at intervals, as described, and having a slot leading to such spaces, substantially as described.

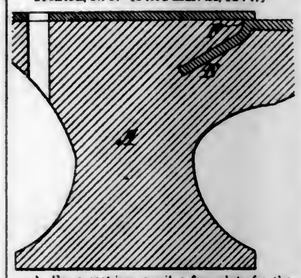
189,891.



189,891. SHEET-METAL CANS. Francis C. Fleming, New York, N. Y. [Filed Apr. 3, 1877.]

A can in which the edges of the head and body are mutually interlocked and overlapped, substantially as and for the purpose set forth.

189,892. CAST-IRON ANVILS. C. Fisher, Trenton, N. J. [Filed Mar. 21, 1877.]

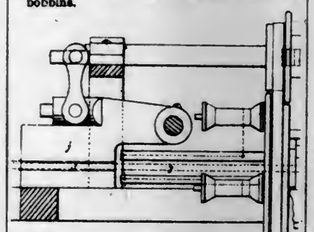


1. For a cast-iron anvil a face plate for the horn or beak, provided with an internally-projecting tongue adapted to be embedded in the cast metal of the body, substantially as and for the purposes set forth.

2. As a new article of manufacture, the cast-iron anvil, the horn of which is provided with and anchored by a face plate projected into the body of the anvil, substantially as shown and described.

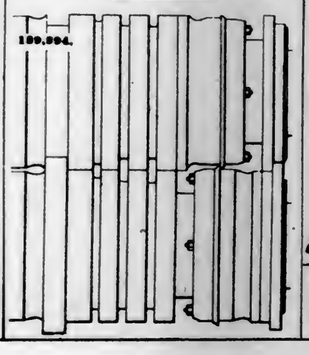
189,893. MACHINES FOR MAKING ASBESTOS PACKING. H. W. Guest, New London, Conn., assignor to the Asbestos Packing Company, Boston, Mass. [Filed Sept 22, 1876.]

Brief.—The asbestus is laid upon a fibrous strip in a groove, and compressed by means of intermittingly-acting jaws. The strand or rope is then wound with cord or thread passing from a revolving carriage provided with bobbins.



In a machine for the manufacture of asbestus packing strands or ropes, the combination, with the intermittingly-acting compressing-jaw *j*, and a grooved box, *l*, of the carriage and bobbins, adapted to wind the fibrous strands about the asbestus to make a packing rope or strand, substantially as described.

189,894.



189,894. MODES OF REDUCING OLD RAILS AND FAG-ENDS OF RAILS TO BARS. J. C. Hill, A. C. Pillitner, and Wm. Williams, Oakfields Works, Parish of Llanternam, England. [Filed Mar. 31, 1877.]

The production of billets or bars from rail-ends and old rails by the combined processes of rolling to reduce the flanges, then dividing longitudinally, and afterward rolling on edge, substantially as hereinbefore described.

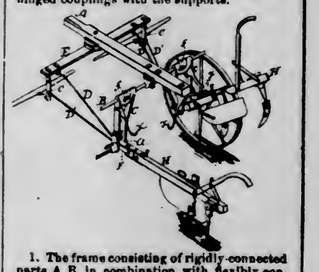
189,895. DRILLING MECHANISMS. Oren S. Hosmer, Boston, Mass. [Filed Feb. 26, 1877.]



The combination, with a round drill and socketed holder or arbor, of a latch, pivoted at right angles to such holder or arbor, and provided with a lip to engage a notch or shoulder of the drill shank, the adjacent surfaces of the lip and notch being flat and (when the drill is locked within its socket) close together, and the whole being so arranged that the latch serves not only to retain the drill in place within the socket, but to prevent turning of such drill in said socket, essentially as and for purposes stated.

189,896. CULTIVATORS. J. M. Long, Hamilton, Ohio. [Filed May 31, 1876.]

Brief.—The axle-arm supports are pivoted upon the axle-shaft, and are held at any desired lateral adjustment by sliding collars or sleeves provided with set screws. Said supports are connected with the double-tree or evener by draft and stay bars, thus allowing a forwardly and rearwardly vibrating motion to the plow-beams, which are connected by hinged couplings with the supports.



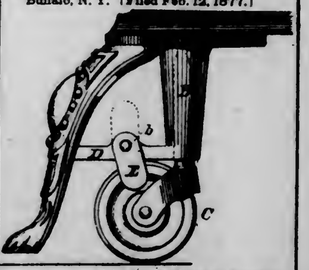
1. The frame consisting of rigidly-connected parts A B, in combination with flexibly connected parts C E D' O and stay D, substantially as and for the purpose described.

2. The combination of the draft-bar D' and stay D with coupling O and double-tree E, as and for the purpose specified.

3. The hinged coupling-block F, in combination with pivoted axle-arm supports C, draft-bar D', stay D, double-tree E, and plow-beam H, as and for the purpose described.

4. In combination with the upper branches of pivoted axle-supports C and shaft B, the collar *f*, with its set-screw for laterally adjusting the plows and carrying-wheels, in the manner and for the purpose specified.

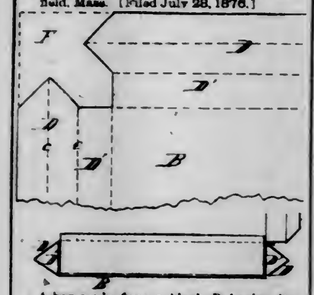
189,897. STOVE-LEG CASTERS. A. Moy, Buffalo, N. Y. [Filed Feb. 12, 1877.]



1. As an article of manufacture, stove-legs having a socket, B, bridge-piece or bearer D, two catches, E, pivoted to said bearer D, and a caster-wheel, C, substantially as hereinbefore set forth and stated.

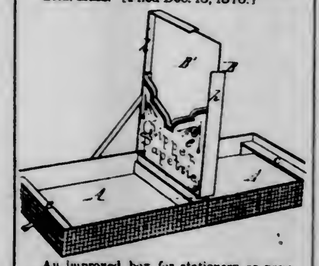
2. In furniture having three or more legs, casters having sockets provided with bearing pieces carrying pivoted catches arranged to engage both faces of the caster-wheels, said sockets being, with their appurtenants, so placed that the locking of the wheels is effected when their lines of travel radiate from a common center, substantially in the manner and for the use and purpose hereinbefore set forth and described.

189,898. PAPER BOXES. E. Morgan, Springfield, Mass. [Filed July 28, 1876.]



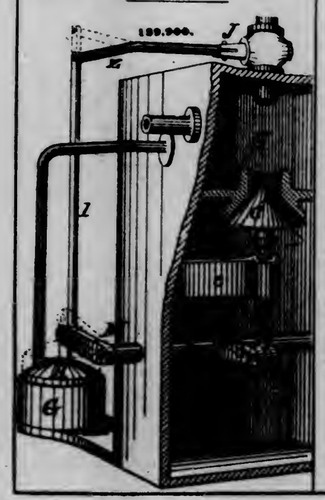
A box made from a blank, B, having its corners cut away at F, and folded to form the brace D upon the outside edges, substantially as set forth.

189,899. PAPER BOXES. E. Morgan, Springfield, Mass. [Filed Dec. 13, 1876.]



An improved box for stationery or paperies, consisting of the combination of the two parts A A, each having the stop *c*, and the double pocket B, provided with the inclosing-band *h*, hinged to said parts A, substantially as herein described.

189,900.



189,901. AUTOMATIC RETORT-EXHAUSTER. P. Munsinger, Philadelphia, Pa., assignor to Morris, Tasker & Co. (limited,) same place. [Filed Dec. 27, 1876.]

Brief.—An excessive pressure of gas in the vacuum-chamber of the exhauster raises a float, which opens a valve in the injection-pipe, permitting a greater flow of injection fluid, and at the same time more widely open a valve in the gas eduction passage of the exhauster, thus causing a more rapid exhaustion of the gas, as required.

1. In a vacuum-exhauster for retorts, the combination of a float, H, adapted to be elevated by an excess of gas in the valve-chamber A, with the injection-cock J, and with the escape-valve O, respectively the lever-system I, Z, and M, substantially as described.

2. As a means of connecting the float H with the injection-cock J and with the escape-valve O, respectively the lever-system I, Z, and M, substantially as described.

189,902. FIRE-KINDLERS. T. Park, Brooklyn, N. Y., assignor of one-half his right to W. C. Boone, same place. [Filed Jan. 22, 1877.]



A fire-kindler consisting of a wrought metal rod, A, attached to a cylinder of asbestus inclosed in a net of reticulated wire-gauze wrapped around the cylinder to protect it from abrasion, substantially as set forth.

189,903. COMBINATION-LOCKS. O. E. Pillard, New Britain, Conn., and E. M. McPherson, Boston, Mass. [Filed Mar. 9, 1877.]



1. The gears *d*, gears *c* on shaft *j*, and bolt *b*, provided with straight mortise *a*, combined and so arranged that, in operation, the said gears are constantly in mesh, substantially as described.

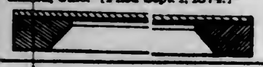
2. The gears *c*, provided with notches *c'*, bolt *b*, bearing pin *i*, and pivoted dog *e*, having inclines c^2 c^3, combined and so arranged that, in operation, the dog must lock into the notch when the bolt is shot out or in, substantially as described.

3. The gears *c* on shaft *j*, and the bolt *b*, provided with straight or horizontal mortise *a* and vertical mortise *a'*, combined and so arranged that the gears *c* can be lifted to unmesh from gears *d* when the bolt is in, substantially as described.

4. Gears *c* on shaft *j*, lever *h*, disk *n*, bearing turn-post m^2, and the spring pawl *s*, all combined substantially as described.

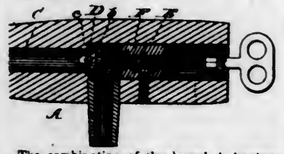
5. The key-disks *h* bearing different letters at the same relative points on the perimeters, substantially as described, and for the purpose set forth.

189,904. METHODS OF MOUNTING SHOW-CARDS, MAPS, &c. Wm. J. Quarry, Cincinnati, Ohio. [Filed Sept. 1, 1874.]



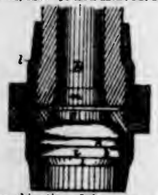
In combination with a card, map, chart, print, or other like article mounted upon a stretcher, with its face inward, so as to be surrounded by the projecting frame, a sheet of stiff straw, tar, or other board glued or cemented to the back of said mounted article, substantially as and for the purpose set forth.

189,904. FAUCETS. L. A. Rebasz, Lockport, N. Y., assignor to F. C. Lillis and N. B. Badgio, same place. [Filed Mar. 23, 1877.]



The combination of the barrel A, having the straight way C and enlarged bore H, with the fixed nut F, screw-stem E, and plug D, all arranged, constructed, and operating as shown, and for the purpose set forth.

189,905. HOSE-COUPLINGS. W. A. Rideout, Richmond, Me. [Filed Mar. 12, 1877.]



1. The combination of the outer part A with the inner part B, the packing C being arranged to adjust itself to the bevel and grooves of the inner part B, substantially as described.

2. The combination of the inner part B with the wedge-flanges *a a* and corresponding parts in the outer part, substantially as described.

3. The combination of the two parts with the tapering pin *d*, substantially as described, and for the purposes specified.

189,906. BOTTLE-STOPPERS. C. Sedgwick, New York, N. Y., assignor to H. W. Putnam, Bennington, Vt. [Filed Apr. 9, 1877.]



The arms of the bottle-stopper yoke arranged in the eyes of the neck-wire, and having the cam-lever pivoted to them below the neck-wire, and in the described relation thereto, for the purpose and in the manner substantially as specified.

189,907. TOY MONEY-BOXES. F. W. Smith, Bridgeport, Conn. [Filed Mar. 18, 1876.]

1. The toy money-box constructed, substantially as hereinbefore set forth, in the form of an image or figure having movable parts, limbs, or features, automatically operated by the direct action of the coin after it is inserted through an opening in the box.

2. The toy money-box hereinbefore set forth, consisting of the combination of the fixed trunk or body of an image or figure, the channel therein for the passage of a coin, and the counterpoised head rocking on a pivot in the image, whereby the head is rocked by the direct action of the coin as it passes into the box.

3. The combination, substantially as hereinbefore set forth, in a toy money-box, of the body or trunk, the pivoted channel therein, through which the coin passes, the head pivoted on the trunk or body, counterpoised eyes pivoted in the head, and links connecting the channel and eyes, whereby the direct action of the coin causes the head to bow and the eyes to roll.

4. The combination, substantially as set forth, in a toy money-box, of an image or figure having a fixed body, and movable limbs, parts, or features, a channel for the passage of the coin pivoted in or upon said body, and link-connections between said channel and the movable parts of the image, whereby the passage of the coin through the channel causes the vibration of the latter, and the consequent movements of the image.

5. The combination, substantially as set forth, in a toy money-box, of the body of the image, movable parts or features mounted thereon, the channel pivoted within the body, the independent supplementary channel pivoted therein, and link-connections, substantially such as described, connecting the channels and parts or features, respectively, whereby the direct action of the coin, in its passage into the body, causes the parts to move, as set forth.

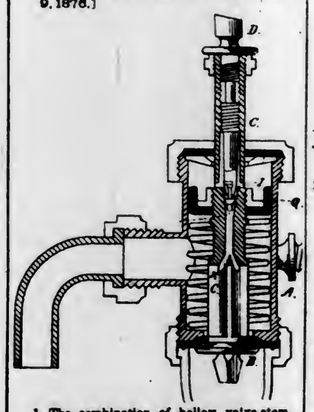
6. The combination, substantially as hereinbefore set forth, in a toy money-box, of a fixed body, the head pivoted thereon, eyes pivoted in the head, the hinged jaw, the vibrating channel through which the coin passes, and the links connecting the channel, the head, the jaw, and the eyes, substantially as set forth, whereby the bowing of the head produces the movement of the eyes and jaw, as set forth.

7. The combination, substantially as set forth, in a toy money-box, of a vibrating channel, pivoted eyes and jaw, link-connections, and the retracting-spring, whereby the parts are restored to the normal position after the passage of the coin.

189,907.



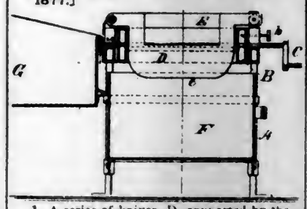
189,908. WATER-CLOSET VALVES. R. J. Thomas, Milwaukee, Wis. [Filed Sept. 9, 1876.]



1. The combination of hollow valve-stem C, valve-regulator D, screwed into valve-stem C, and projecting out of the cock so that the valve may be adjusted without opening the cock, valve H, the stem of which slides into the adjuster D, and valve-seat I, substantially as described.

2. Valve-stem C, valve B, piston-head Q, openings K, adjuster D, and valve H, in combination with case A and valve-seat I, substantially as described.

189,909. VEGETABLE-SLICERS. Joseph H. Alfred, Rosbach, Iowa. [Filed Feb. 3, 1877.]

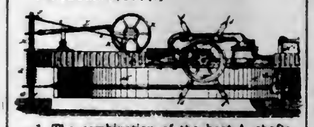


1. A series of knives, D, supported by the frame E, the pivoted frame B, and bars *c*, and the supporting-frame A, constructed and combined substantially as herein shown and described.

2. The combination of the removable receptacle G, frame A, box F, knives D, and rods *c*, and their supporting frame, substantially as herein shown and described.

3. The combination of the crank C, pin *b*, and pivoted frame B, substantially as herein shown and described.

189,910. STEAM ICE-BOATS. Juan Arnao and Juan Arnao, Jr., Brooklyn, N. Y. [Filed Jan. 9, 1877.]



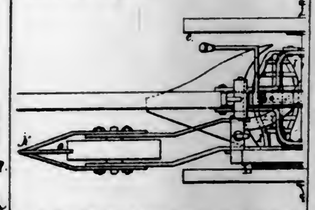
1. The combination of the boat A, shafts B B', with springs *d d'*, and rocking runners G G', as and for the purposes set forth.

2. The combination of the runner G, shaft H, spring *d*, lever J, cords or chains *e e*, and windlass or steering apparatus K, substantially as and for the purposes set forth.

3. The combination of the runners with their shafts, the levers L, cords or chains *h h*, pulleys *i i*, and windlass K, substantially as and for the purposes herein set forth.

189,911. POTATO-DIGGERS. L. A. Aspinwall, Albany, N. Y. [Filed Feb. 22, 1877.]

Brief.—The spade and separator are supported at one side of the machine, and a dividing and lifting apparatus are used at the same side as the spade and separator, so as to allow vines and weeds to pass at the other side of the machine.



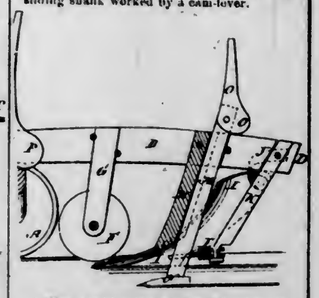
1. The revolving separator I, made of the blades *c*, extending as bows, one at each side of the shaft *d*, and connected with the ring *e*, and provided with fingers *f* between the blades *c*, in combination with the spade D, for the purposes and substantially as set forth.

2. The revolving separator I, in combination with the bracket-bearing *g* at one side only of the separator, and the spade D, substantially as set forth.

3. The combination, in a potato-digger, of the divider N and fence O at one side, and the spade D and the revolving separator I, supported at the same side of the machine as the divider N, so as to allow the vines and weeds to pass through at the other side of the machine, substantially as set forth.

189,912. PLOWS. C. Atkinson, Monterey, Ill. [Filed Feb. 17, 1877.]

Brief.—A link-connection between the plow-beam and axle allows the former to be raised by a cam-lever. Subsoiler with a vertically-sliding shank worked by a cam-lever.

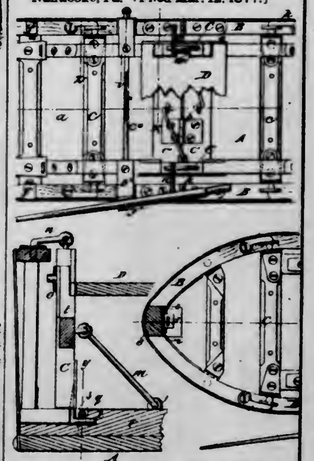


1. The combination of the following elements: the double plow I, to turn opposite furrows, the rolling coiter F, to divide the same, and the subsoiler M N, having ram O, all regulated in working depth by the cam-lever P raising the plow-beam upon the axle B, substantially as shown and described.

2. The combination of the eccentric lever O with the subsoil-standard M and the plow-beam D, substantially as herein shown and described.

3. The combination, with the mold-boards I, of the braces J K and bar L, constructed and arranged substantially as and for the purpose specified.

189,913. FOLDING BOATS. Jno. H. Bates, Nantucke, Pa. [Filed Mar. 12, 1877.]



1. The combination, in a folding boat, of the centrally-hinged bottom A, having cleats *c c'* *c*, the hinged ribs *d d'*, posts *e*, hinged rails B, and water-proof covering E, substantially as herein shown and described.

2. The combination of the standard C, having hooks *l m n*, slot *p*, and ears *o*, braces *i*, seat D, and the bottom and rail of a folding boat, substantially as herein shown and described.

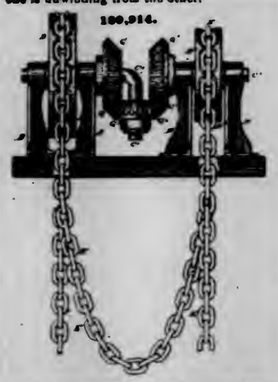
3. The rod d^3, slotted blocks b^2, and forks f^2, in combination with the rail B, having the stud d^4, substantially as herein shown and described.

189,914. ELEVATORS. Wm. W. Blakeslee, Spring Lake, Mich. [Filed Oct. 31, 1876.]

Brief.—Two differential pulleys, each on a separate standard, have bevel-wheels facing one another on their axial line—one fixed to its pulley-axis, the other to its standard. Between the bevel-wheels there is a pinion on

the crank of a shaft passing through the latter wheel. This pinion rolls on one to operate the other. The chain while being wound on one is unwinding from the other.

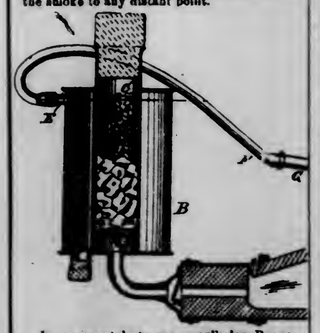
189,914.



The combination of the bed A, with standards B B, the shaft C, with crank C' and chain-wheel D, the shaft C', with chain-wheel D' and gear-wheel G', the stationary gear-wheel G, the gear-wheel G' on the crank C', and the chain E, passed around the chain-wheels D D', all substantially as and for the purposes herein set forth.

189,915. FUMIGATORS. Geo. T. Blanchard, Plymouth, Me. [Filed Mar. 3, 1877.]

Brief.—A fumigator consisting of a bellows, and a fire-chamber for containing the fumigating material, and a flexible tube for carrying the smoke to any distant point.



In an insect-destroyer, a cylinder, B, provided near the top with tubing E F G, in combination with an internal side-perforated tube C, and removable grate *c d*, said tube being connected at the lower end with a bellows, as and for the purpose specified.

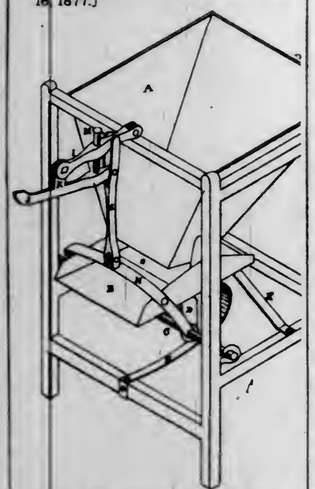
189,916. GAS-BURNERS. F. T. Bliss, New Haven, Conn., assignor of two-thirds his right to J. W. S. Peck and C. A. Chase, same place. [Filed Feb. 22, 1877.]



1. The combination, in a gas-burner, having a main and an auxiliary jet, of a plug-cock which controls only the main jet, and a screw-plug within the main plug, substantially as described.

2. The combination in a gas-burner, with the tapered plug-cock and its spring, of a cap which is connected to the plug, and incloses its projecting end and its spring, substantially as described.

189,917. ORE-FEEDERS FOR STAMPS. M. P. Boss, Virginia City, Nev. [Filed Feb 16, 1877.]



1. The flat-bottomed ore-feeding tray or chute B, mounted upon legs D, which are supported by a shaft, C, and having its rear end supported by the bridge F, in combination with the system of levers I J, arranged as described, rail H, connecting-rod L, set-screw M, and spring N, all combined and arranged to operate substantially as described.

2. The rocking tray or chute B, provided with the transverse ridge or block O, in combination with a hopper, A, provided with the hinged flap or apron F, which depends from the rear edge of its bottom opening, substantially as and for the purpose described.

189,918. METALLIC FENCE-POSTS. Jacob Brinkerhoff, Auburn, N. Y. [Filed Mar. 16, 1877.]

Brief.—The sheet-metal post is corrugated, and has slots for supporting the rails or wires, and the base is twisted to about a right angle, in order to resist strain upon the post from any direction.



1. A sheet-metal fence-post having its base gradually twisted, substantially as and for the purposes herein set forth.

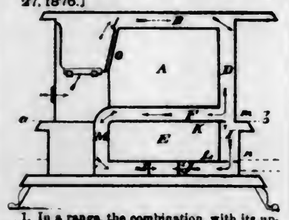
2. A sheet-metal fence-post having its base twisted, and provided with one or more longitudinal corrugations extending the entire length of the base, substantially as herein set forth.

3. A sheet-metal fence-post having a twisted base, and provided with one or more longitudinal corrugations through the post and base, substantially as and for the purposes herein set forth.

4. A sheet-metal twisted fence-post having one or more longitudinal corrugations, and a series of slits or slots in one or both of its edges, substantially as and for the purposes herein set forth.

5. A sheet-metal fence-post provided at the lower end of its base with lips *b' b'*, projecting outward in opposite directions, as set forth.

189,919. RANGES. J. Brownback, Limerick Station, and M. Towers, Jr., Phœnixville, assignors to March, Brownback & Co., Limerick Station, Pa. [Filed June 27, 1876.]



1. In a range, the combination, with its upper and lower ovens, of an intermediate flue, F, and damper G, substantially as and for the purpose set forth.

2. In a range, the combination with the upper and lower ovens of the flues B, D, F, I, J, and M, and damper G, substantially as and for the purpose specified.

3. In a range, the combination with an upper and lower oven and upper intermediate and lower distributing flues, of an exit-flue formed on the side of the range, having openings communicating with the intermediate and lower flue, and a damper located in the intermediate flue, and adapted to govern an opening in the exit-flue, substantially as and for the purpose set forth.

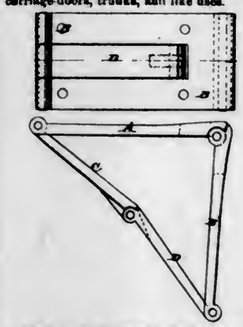
4. In a range, the combination of the perforated plates m and n with the lower oven E, substantially as and for the purpose specified.

5. The combination of the jointed rods or levers h i with the swinging damper G and the stop k, substantially as and for the purpose set forth.

6. The combination, with the flues J and H, of the flue-plates m and n, substantially as and for the purpose set forth.

189,920. STOP-HINGES FOR CARRIAGE-DOORS, &c. C. W. Butler, New York, N. Y. [Filed Mar. 19, 1877.]

Brief.—The wings or plates forming the body of the hinge are longitudinally slotted to receive, when folded in, two bars, which are hinged to each other at their inner ends, and at their outer ends are hinged to the outer ends of the slotted plates, thus forming a convenient double-folding stop-hinge for carriage-doors, trunks, and like uses.



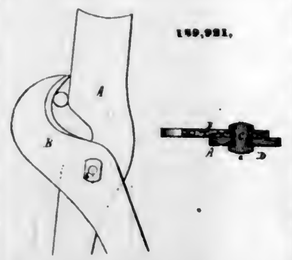
The bars C D, hinged to each other at their inner ends, and at their outer ends hinged to the outer edges of the slotted plates or wings A B of a hinge, substantially as herein shown and described.

189,921. PRUNING IMPLEMENTS. J. Chase, Orange, Mass. [Filed Feb. 17, 1877.]

Brief.—An auxiliary tube or sleeve, forming a tubular pivot, is provided, through which the rivet or bolt passes, and is secured by set or otherwise; the construction serving, in pruning or other shears, to prevent unequal wear, and maintain the original position of the blades with respect to each other.

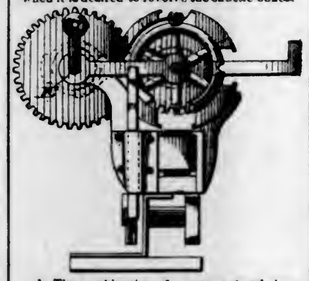
The auxiliary sleeve or tubular pivot D, in combination with the rivet or bolt C and blades A B, substantially as and for purposes stated.

189,921.



189,923. SHUTTLE-BOX MECHANISMS FOR LOOMS. F. Christen, Homestead, Iowa. [Filed Feb. 21, 1877.]

Brief.—A rotary shuttle-box is adapted to be used on a loom in which the shuttle is actuated by a carriage permanently secured to a positively-reciprocated carrier. The cylinder-shaft is provided with a series of gear-wheels, each being secured to said shaft, and each provided with a blank space corresponding to a shuttle-box. There are as many wheels as there are chambers. A shaft parallel to the cylinder-shaft has the same number of gear-wheels loosely mounted upon it. Clutches, operated by pivoted levers controlled by the jacquard, connect the last-mentioned gears to their shaft. The cylinder-shaft is journaled in pivoted bearings or arms, and mechanism actuated by a rack on the carriage lifts the said arms, thereby raising the cylinder out of the way of the carriage when it is desired to revolve the shuttle-boxes.



1. The combination of a rotary shuttle-box cylinder with a series of shuttles and a carriage, the latter permanently secured to a positively-reciprocated carrier, substantially as and for the purpose set forth.

2. In a loom wherein the shuttle is actuated by a positively-reciprocated carriage, the combination, with the shuttle-carriage and rotary shuttle-box cylinder, of mechanism, substantially as described, whereby the carriage, in its travel, serves to raise or lower said cylinder, substantially as and for the purpose set forth.

3. In a loom wherein the shuttle is actuated by a positively-reciprocated carriage, the combination, with the shuttle-box cylinder, journaled in vibrating bearings, and mechanism for operating the cylinder, of the shuttle-carriage, provided with a rack, and a toothed sector, and mechanism arranged to impart vertical movement to the shuttle-box cylinder, substantially as and for the purpose set forth.

4. The combination, with the shuttle-box cylinder and supporting-arms, pivoted upon the driving-shaft, of the shuttle-carriage, rack, toothed sector, rock-shaft, cam, levers, and sliding bars, substantially as and for the purpose set forth.

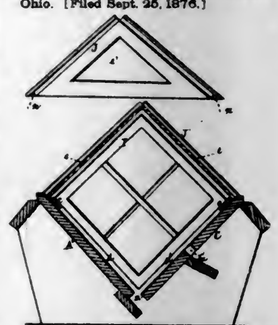
5. The combination, with the driving-shaft having gears loosely mounted upon the same, and sliding clutches adapted to lock said gears to the shaft, of the cylinder shaft, provided with sectional gears, and clutch-levers adapted to throw the gears on the driving-shaft in or out of gear with the sectional gears on the cylinder-shaft, substantially as and for the purpose set forth.

6. The combination, with the loose gears on the driving-shaft, of sectional gears and collars on the cylinder-shaft and clutch-levers pivoted to said collars, substantially as and for the purpose set forth.

7. The combination, with the cylinder-shaft and mechanism for vertically moving the same, of the sectional bearing for its inner end, whereby the weft-thread may pass from the journal when the shuttle leaves the box, substantially as and for the purpose set forth.

8. The combination, with a positively-reciprocated shuttle-carriage and a rotary shuttle-box, the same adapted to be raised and lowered by the shuttle-carriage, of mechanism, substantially as set forth, whereby the cylinder may be actuated to bring any one of its boxes in line with the shuttle-race, substantially as and for the purpose set forth.

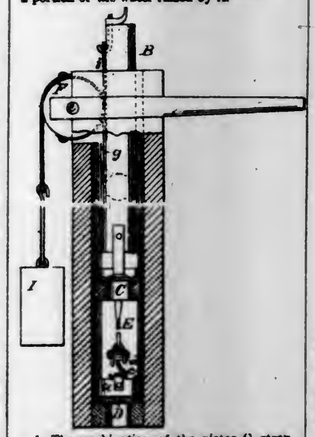
189,923. BEE-HIVES. J. Coates, Camden, Ohio. [Filed Sept. 26, 1876.]



In bee-hives, the detachable ends or gables J J, provided with grooves *a a*, for the admission and removal of the glass covering *c*, in combination with the sides A' C of the hive, frames I, and roof B, in the manner substantially as set forth, and for the purpose specified.

189,924. PUMPS. M. Cook, West Le Roy, Mich. [Filed Feb. 10, 1877.]

Brief.—The hoop fits the bore of the stock loosely, and is provided with two weighted levers having points which engage the side of the pump-stock, when the levers are allowed to drop toward the hoop, and retain the hoop and valve. A strap connected to the surface of the drum is connected to a rod that extends down, and is connected to a weight, which balances the weight of the piston, and a portion of the water raised by it.

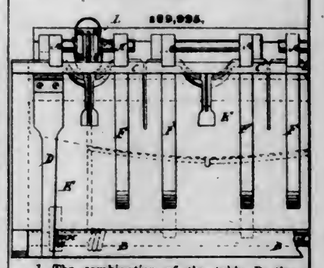


1. The combination of the piston C, strap E, levers *c d*, hoop *a*, and valve D, substantially as herein shown and described.

2. The combination of the counter-weight I, drum F, straps *g i*, and piston-rod B, substantially as herein shown and described.

189,925. CORN-STALK PRESSES. Edgar P. Davis, James H. Davis, and John Fisk, Oreto, Nebr. [Filed Mar. 12, 1877.]

189,925.

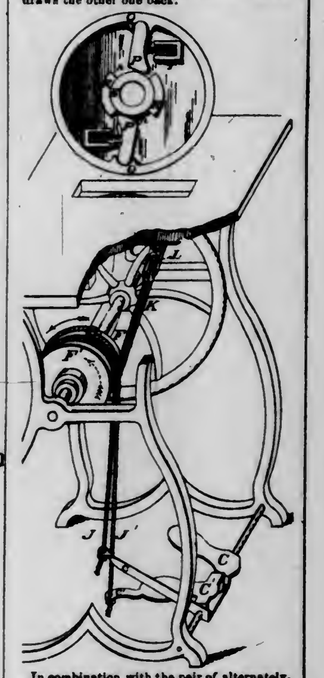


1. The combination of the table B, the cover D E F, bar I, follower J, rope K, guide-pulleys L, and crank-shaft N, with each other and the frame A, substantially as herein shown and described.

2. A fuel formed of corn-stalks and similar material, pressed into bundles of suitable size to enter a stove, and bound with wire bands, substantially as herein shown and described.

189,926. TREADLE-MOVEMENTS. Napoleon Du Brul, Cincinnati, Ohio. [Filed Feb. 2, 1877.]

Brief.—The action of the driving-clutch draws the other one back.

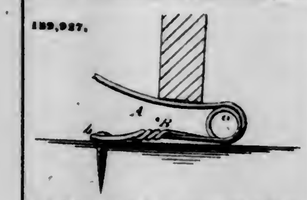


In combination with the pair of alternately-acting treadles C C' and the thongs or cords J J' K and idler L, the pair of wheels or pulleys F F', each provided with eccentric pawls P P', occupying sockets Q and cheeks R, which operative parts in each wheel are separated from those in the other wheel or pulley by the annular plate G, as and for the purposes set forth.

189,927. DOOR-CHECKS. Jas. B. Everett, Yonkers, N. Y. [Filed Mar. 12, 1877.]

Brief.—A single piece of spring-wire is bent into a T-shaped loop, the parallel extremities forming coils, then twisted together, and terminates in eyes, for screw attachment; the device, placed underneath a door, constituting a convenient and inexpensive check to hold it in desired position.

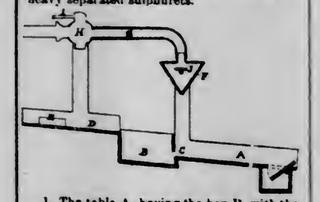
189,927.



A door-holding device consisting of a single piece of spring-wire formed into a loop, A, coils *a a*, and part B, having eyes *b*, substantially as herein shown and described

189,928. ORE SLUICES AND CONCENTRATORS. Geo. R. Evans, Carson City, Nev., assignor of three-fourths of his right to E. S. Scott, D. N. Brule, and A. Tremblay. [Filed Dec. 11, 1876.]

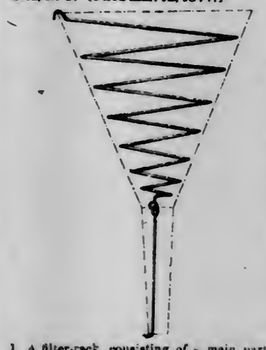
Brief.—The ore fed in upon the head-piece is equally distributed over the table in passing through the apertures of the bridge or sieve, and flows thence along the sluice to the end, while subjected to the sheet-water shower falling from above. A tail-trap catches the heavy separated sulphurets.



1. The table A, having the box B, with the distributing opening C, and the head-box D, with the V or other suitably shaped pieces E, to secure an even discharge upon the table, substantially as herein described.

2. The water-receiver F, supported upon journals, and provided with a spreader, J, whereby the water received from the central pipe G flows equally from the entire length of the box through a suitable opening, substantially as described.

189,929. FILTER-RACKS. B. Fanner, Westfield, N. Y. [Filed Mar. 12, 1877.]



1. A filter-rack, consisting of a main part of spiral wire, having suitable devices for being attached to top and bottom of funnel, substantially as and for the purpose herein specified.

2. A filter-rack, made of a spirally-coiled wire, having outer hooks, and of a jointed center link with lower hook end, substantially as herein shown and described.

189,930. STEAM-BOILERS. P. Fitzgibbons, Oswego, N. Y., assignor of one-half his right to R. R. Stone, same place. [Filed Feb. 21, 1877.]

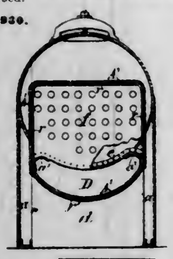
Brief.—The rivet-joints of the boiler are made stronger by strengthening-bands.

1. The throat D, having the shape of an inverted arch, formed by the bottom portion of the shell of the boiler proper at the top, the curved top portion *a'* of the water-leg *a* at the sides, and a segmental or crescent-shaped top of the throat-sheet *d* at the bottom, and the rear smoke-box A', having a correspondingly-curved bottom, all constructed and combined substantially in the manner specified, for the purposes set forth.

2. The back flue-sheet *f*, extended in width to cause its side edges to coincide with the sides of the throat D, and attached to the bottom portion of the shell of the boiler proper and to the curved top portion *a'* of the water-leg *a*, by means of the angle iron or L-shaped band *c*, extended across the bottom portion of the boiler-shell, and over the curved top portion *a'* of the water-leg, substantially as described and shown, for the purpose specified.

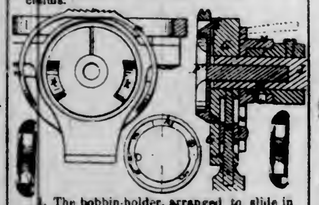
3. The flue-sheet *f* and the throat-sheet *d*, having the rearward-projecting flange *r* forming one continuous flange, and the smoke-box A' attached with its top and sides to the exterior of the flange on the flue-sheet, and with its semicircular bottom to the interior of the flange on the throat-sheet, substantially in the manner and for the purpose shown and described.

189,930.



189,931. SEWING-MACHINES. J. L. Follett, New York, N. Y. [Filed Jan. 22, 1877.]

Brief.—Improvements on Patent No. 162,372, April 26, 1875, fully set forth in the claims.



1. The bobbin-holder, arranged to slide in a recess in the cloth-plate support, in combination with a spring which tends to force it toward the bobbin, and is contained in a recess between the cloth-plate support and the cloth-plate above, substantially as shown and described.

2. The sliding bobbin-holder and its spring, arranged between the cloth-plate support and the cloth-plate, as described, in combination with the adjustable flanged plate or stop on bobbin-holder, substantially as set forth.

3. The rotary hook, formed with a rearwardly-projecting annular rim, in combination with a back plate or standard, provided with a corresponding groove to receive said rim.

4. The double reversible rotary hook and the back plate formed with pockets or recesses, these parts being combined to jointly operate substantially in the manner set forth.

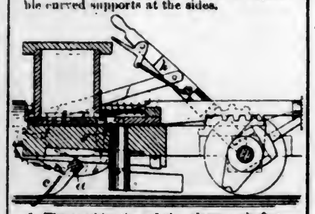
5. The bobbin-thread tension, consisting of a tension-spring in a groove on the back of the bobbin-case, in combination with the adjustable block or presser, held and movable in said groove, for the purpose of regulating the working-length of the spring, substantially as described.

6. The feed, consisting of an arch or curved branches carrying the feed-surface, and united with a hub mounted on an eccentric, as described, in combination with the spring engaging the upper part of the hub, and the adjusting-pin, movable between the diverging arms or tail-pieces of said hub, as set forth.

7. In combination with the cloth-plate and the cloth-plate support, the standard or back plate, attached to the cloth-plate support, and arranged as described, to afford a central bearing for the cloth-plate and the hook, as set forth.

189,932. CORN-PLANTERS. H. Fox, Deerfield, Iowa. [Filed Feb. 3, 1877.]

Brief.—The cross-beam to which the plow-standards are secured is journaled in adjustable curved supports at the sides.

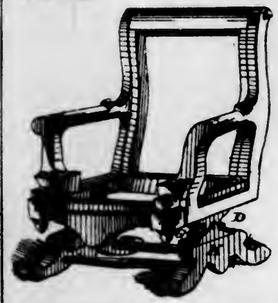


1. The combination of the plows *c*, shaft *e*, adjustable supports *b*, levers *i* and *k*, and the connecting-rods *j*, substantially as herein shown and described.

2. The plow-shaft *e*, journaled in bars *b*, pivoted at one end and slotted near the other, as set forth, to allow said bars to be clamped at different altitudes.

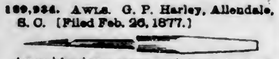
189,933. OSCILLATING CHAIRS. H. Geise, Philadelphia, Pa. [Filed Jan. 26, 1877.]

Brief.—The seat frame is hinged at each side to the base-frame by a double hinge, between the plates of which an elastic cushion-block is held by a central pin, which latter forms the pivot. The block is recessed at its front and rear edges, to prevent the packing of the rubber, and permit the free oscillation of the chair.



The combination, with a chair-seat and its standard, of double-rule hinges D K, and elastic blocks G, the latter provided with central openings, and recessed ends, whereby they are adapted to be centrally secured between the parts of the hinge, and serve to cushion the forward and backward movement of the chair seat, substantially as and for the purpose set forth.

189,934. AWLS. G. P. Harley, Allendale, S. C. [Filed Feb. 26, 1877.]



An awl having a recess and hook back of the point, and tapering side channels running from the recess to the point, substantially as shown and described, for the purpose set forth.

189,935. TALKING AND CRYING DOLLS. W. A. Harwood, Brooklyn, N. Y. [Filed Feb. 26, 1877.]

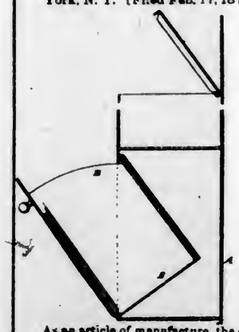
Brief.—To make the sounds "papa," &c., (heretofore caused by the pressure of air to fill a partial vacuum,) by direct blast of the breath of the nurse or feeder applied to the mouth of the reed-pipe C.



1. A tube containing a reed, and having a flanged end provided with lugs, substantially as herein shown and described.

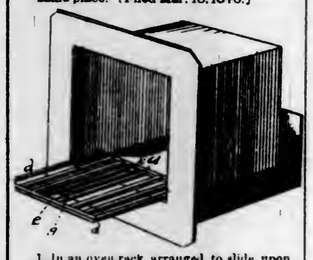
2. A tube containing a reed, and having a flanged end provided with lugs, and also with points for attaching the same to the doll-body, substantially as herein shown and described.

189,936. CARD-HOLDERS. H. J. Herbert, London, England, and E. R. Wilbur, New York, N. Y. [Filed Feb. 17, 1877.]



As an article of manufacture, the card-holder, formed of the case A, the weighted and hinged receptacle B, having an opening in its front side, and provided with a projection on its inner side, as shown and described, for the purpose specified.

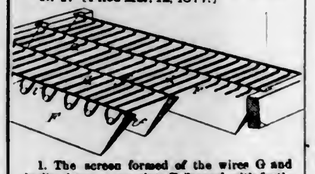
189,937. OVEN-RACKS. J. F. Houghton, Boston, Mass., assignor to S. D. Balkam, same place. [Filed Mar. 13, 1876.]



1. In an oven rack arranged to slide upon the bottom of the oven the combination of the button *c*, attached to the oven or stove-bottom, and rack *d*, provided with flanges *g g*, and opening *e*, said opening being large enough to allow the head of said button to pass through it, all arranged and constructed substantially as herein set forth.

2. In an oven-rack, bars constructed as described, so as to present sharp edges to the oven-bottom, substantially as set forth.

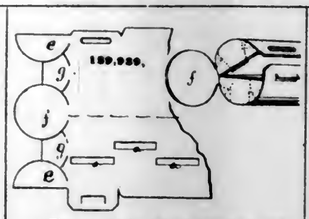
189,938. GRAIN-SEPARATORS. T. J. Hubbell, Yountville, Cal., assignor of one-half of his right to J. A. Boylan, Canandaigua, N. Y. [Filed Mar. 12, 1877.]



1. The screen formed of the wires G and inclined transverse slots F, formed with feather-edges at the under side, and with saw-kerfs at their upper edges, to receive and project above the wires, substantially as herein shown and described.

2. The adjustable slotted lever *h*, pivoted to its frame at its lower end, in combination with the pitman *d*, attached to crank-head *e*, and shoe D, provided with pin *h*, as and for the purpose described.

189,939. COIN-HOLDERS. H. G. Huested, Bridgeport, Conn. [Filed Sept. 19, 1876.]

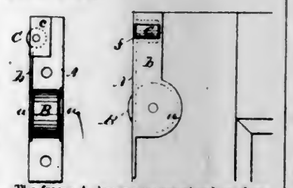


1. The coin-holder herein described, composed of two semi-cylinders jointed together and constructed with oblong slots arranged alternately in two rows, with intermediate connections between the slots, as shown.

2. The coin-holder, having at each end a circular closing flap, *f*, in combination with the semicircular flaps *e e* and the intermediate portions *g g*, as shown and described.

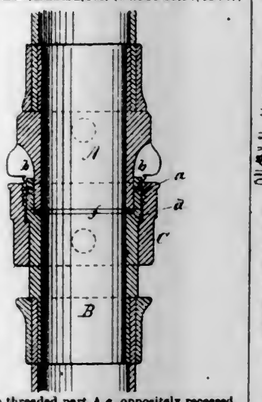
189,940. SASH-HOLDERS. Luther Jones and Jas. Stroud, New York, N. Y. [Filed Mar. 19, 1877.]

Brief.—Two rollers are arranged in a case or shell, at right angles to each other, the larger being the ordinary sash-roller, while the smaller one has a face bearing at right angles thereto; the construction being specially adapted for attachment to the upper corner of omnibus or street-car windows, to prevent binding.



The frame A, having cars *a a'* and *c* and apertures *e f*, in combination with the rollers B C at right angles to each other, substantially as herein shown and described.

189,941. HOSE-COUPLINGS. Wm. B. Kilbourne, Auburn, Me. [Filed Feb. 17, 1877.]



The threaded part A *a*, oppositely recessed at *b*, and the flanged part B *d*, oppositely lugged at *c*, in combination with a revolving screw-sleeve, C, that slides back as well as forward, to allow the parts to be slid together without hinderance.

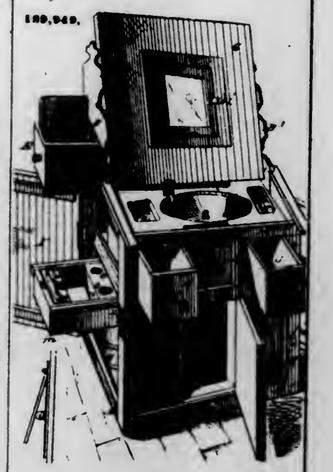
189,942. COMBINED DESK, WASH-STAND, AND BLACKING-CASE. A. O. Kirkwood, Yonkers, N. Y. [Filed Dec. 30, 1876.]

1. The end pieces D D', supporting shelves *f f'*, and one of said end pieces being cut out to admit the sliding reservoir B, as shown and described.

2. In a combined desk, wash-stand, and blacking-case, the drawer m, having the block *o* and the hinged foot-rest P, constructed and arranged substantially as shown and described.

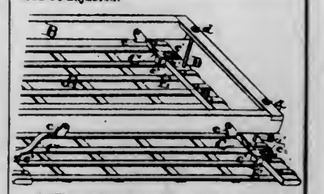
3. The button *i*, provided with projecting ears, in combination with the hinged mirror H, substantially as and for the purpose shown and described.

189,943.



189,943. BED-BOTTOMS. J. J. Lucas, Belleville, Ill. [Filed Feb. 10, 1877.]

Brief.—The mattress is connected with the supporting base-frame by arms or levers, pivoted to the base-frame at one end, and provided at their opposite ends with bearing-shoulders to receive the transverse end rails of the mattress, between which and the bearing-shoulders suitable springs may be interposed. Vertical adjusting-bolts also connect the mattress with the base-frame, whereby the tension of the fabric forming the mattress can be adjusted.

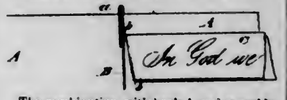


1. The combination of the mattress A, frame B, arms C C C C, and bolts D D D D, substantially as described.

2. The arms C C C C, having the shoulders *c' c' c' c'*, in combination with the end rails *a a*, and springs E E E E, substantially as described.

3. The combination of the end rails *a a* and the pivoted supports C C C C, having the bearings *c' c' c' c'*, the former being movable upon the latter, substantially as described.

189,944. COPY-BOOKS. Jno. W. Manning, Cambria, N. Y. [Filed Jan. 19, 1877.]

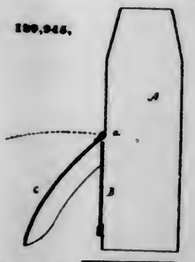


The combination, with book A and movable copy C, of the wire B, having hooks *a* and threads *b*, substantially as and for the purpose specified.

189,945. LAMP-CHIMNEYS. W. H. Mason, Plantsville, Conn. [Filed Mar. 9, 1877.]

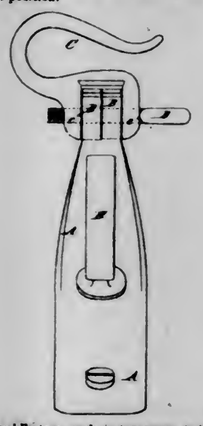
The herein-described lamp-chimney, consisting of the metal body A, with a transparently closed opening, B, and shade C, all substantially as described.

189,945.



189,945. HARNESS-SADDLE TREES. James McCormick, Glidden, Iowa. [Filed Mar. 19, 1877.]

Brief.—The tree is made in two parts, with their upper pivoted ends overlapping, and provided with teeth, which mesh into grooves or notches in the base of the water-hook; are held at any desired angle by a set-screw, which serves as a pivot for holding all the parts in position.

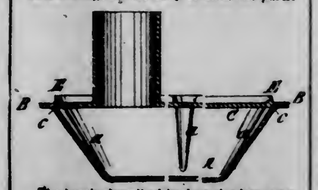


1. A saddle-tree, made in two parts, A, having lugs B formed upon their upper ends, halved to each other, and provided with teeth to mesh into teeth formed upon the under side of the base of the water hook C, substantially as herein shown and described.

2. The screw D, provided with a loop upon its rear end, in combination with the lugs *d* formed upon the ends of the base of the water-hook C and with the lugs B of the parts A of the saddle-tree, substantially as herein shown and described.

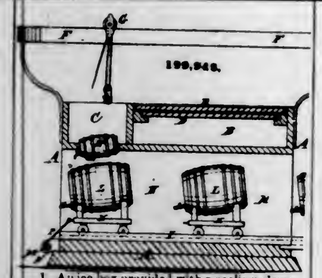
189,947. SERVICE-BOXES FOR WATER-CLOSETS. R. Mitchell, Montreal, Quebec, Canada. [Filed Jan. 31, 1877.]

Brief.—A rib on the cover is melted down onto a flange on the body to unite the parts.



The herein-described lead service-box, composed of body A formed with rim B, and cover C formed with rib E, the body and cover being fused together, all substantially as and for the purpose specified.

189,948. ICE-BOX ATTACHMENTS FOR SUPPLYING AND COOLING ALE AND BEER. J. J. Moloney and I. S. Schuyler, Brooklyn, N. Y. [Filed Feb. 17, 1877.]



1. An ice-box provided with a cooling-chamber, H, below the ice-chamber, and at one side of the latter with keg-compartments C, a track, F, with movable hoisting apparatus being arranged above, all as shown and described.

2. The detachable extension J of the tracks I upon the outside of the ice box, to receive a truck and cask, substantially as herein shown and described.

3. The combination of the crank-shaft M and rope P with the ice-box A, for moving the trucks K upon the tracks I, substantially as herein shown and described.

189,949. ICE-CREEPERS. A. T. Moore, Cadiz, Ohio, assignor of one-half his right to J. L. Conwell, same place. [Filed Feb. 14, 1877.]

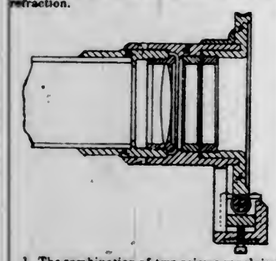


1. The combination, with the boot-heel *f*, constructed with a recess, *g*, of a plate, *a*, constructed with the vertical lug a^1, and calk *c*, hinged to the lug a^1, adapted to be raised to a vertical position, or turned down against the plate *a*, and within the recess *g*, substantially as and for the purpose set forth.

2. The ice-creeper, constructed of the base-plate *a*, having lugs a^1 a^2, calk *c*, and folding plate *d*, arranged and operating substantially as set forth.

189,950. TELESCOPES. Adolph Moser, Aix la Chapelle, Prussia. [Filed Oct. 10, 1876.]

Brief.—Applies two prisms to telescope, for the purpose of measuring minute angles by refraction.



1. The combination of two prisms revolving in the manner described, so that their power may be increased from zero to the sum of the powers of the two prisms, substantially as set forth.

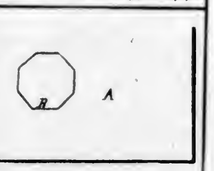
2. A dioptric instrument, provided with two prisms revolving in the manner described, in combination with a micrometer, substantially as set forth.

189,951. MARKING PLUG-TOBACCO. Geo. S. Myers, St. Louis, Mo. [Filed Feb. 26, 1877.]

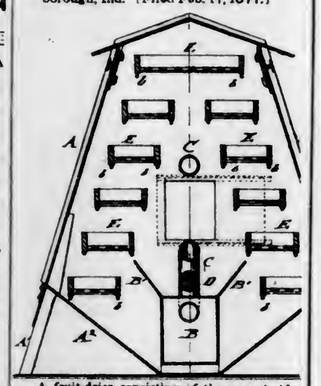
1. The transparent plate B, in combination with the label D, both being impressed into a plug of tobacco, substantially as set forth.

2. The method of attaching trade-marks to plug-tobacco, consisting of superposing a transparent or translucent plate above the mark or design, and then pressing it into the tobacco, carrying with it the design, which may readily be discerned through the plate, substantially as hereinbefore set forth.

189,951.



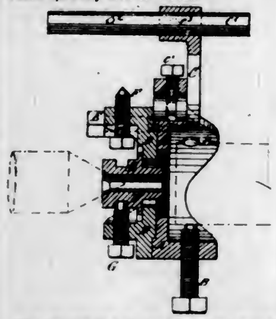
189,952. FRUIT-DRIERS. S. Myers, Adamsborough, Ind. [Filed Feb. 17, 1877.]



A fruit-drier consisting of the case A A', central heater B, having deflectors B', the rear-closed perforated tube D, having register *e*, and the drawers E, arranged at some distance from the sides of the case, and relatively supported on rods *b* as shown and described.

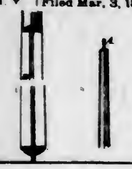
189,953. COMBINED CENTER AND CARRIER FOR LATHES. C. A. Niebell, Scranton, Pa., assignor to himself and P. Franz, same place. [Filed Mar. 3, 1877.]

Brief.—For gas-pipe centers, for cutting off riser on shafts, for facing pipes, and as a check upon any kind of a lathe.



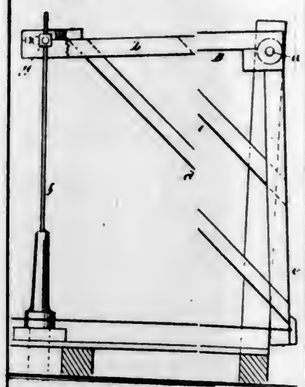
The combination of the flanged or lugged ring-plate A, provided with the screws B, the crank C, and the adjustable driving-pin c^3, the lugged ring-plate D, provided with the two sets of screws G and F, and the flanged or shouldered center guide H, with each other, substantially as herein shown and described.

189,954. WHIPS. George P. Overin, New York, N. Y. [Filed Mar. 3, 1877.]



A whip, having a gut-core surrounded by rattan sections, substantially as shown and described.

189,955. PUMPING APPARATUS. W. F. Plockross, Fagundus, Pa. [Filed Apr. 2, 1877.]



A right-angled lever for pumping apparatus, consisting of the horizontal arm *b*, vertical arm *c*, and braces *d e*, pivoted at *a*, and having the roller-pin *g*, for receiving the pumping-rod, substantially as shown and described.

189,956. COIN-DRAWERS. James A. Read, Decatur, Ill. [Filed Mar. 27, 1877.]

1. A coin-drawer or tray, provided with separate compartments or pockets, having the horizontal arrangement shown and described, and the end walls or partitions, adapting each compartment to contain a fixed amount, as specified.

2. A coin-drawer or tray, provided with several series of horizontal compartments or pockets of different sizes, adapted to coins of different values or denominations, arranged substantially as and for the purpose specified.

3. The coin-drawer A, provided with the several series B B^1 B^2 of horizontal pockets or compartments *b*, separated by notched or grooved end walls or partitions *b'*, and with the change-receptacles D D^1 D^2, all arranged substantially as and for the purpose specified.

189,957. MEASURING MECHANISMS FOR RATTAN-MACHINES. N. H. Richardson, Fitchburg, Mass. [Filed Mar. 3, 1877.]

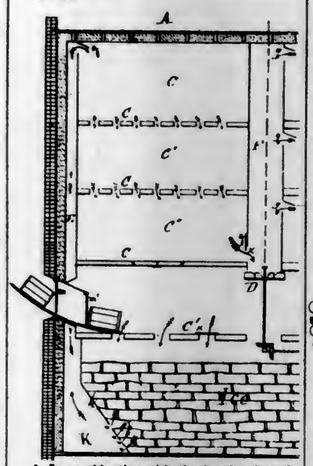
Brief.—The wheel *d'* is separated from the brake by the thickness of the rattan, and is also brought into contact with said brake by the automatic action of shaft *m* and lever *k*.



1. In a rattan-machine, provided with a registering mechanism, the combination of a measuring-roll and a brake, which are automatically separated by the strand to be measured, and brought together again upon the exit of the strand, substantially as described.

2. In a rattan-machine, the combination of a registering mechanism and a brake, provided with a reacting spring, and operated by a wheel auxiliary to the measuring-roll, substantially as described.

189,958. REFRIGERATOR-BUILDINGS. O. L. Riker, New York, N. Y. [Filed Nov. 18, 1876.]



1. In combination with the ice-chamber of a refrigerator-building, the compartment K, of relatively larger size than the air-flues E F, communicating with it, the said compartment being separated from the ice-chamber by perforated walls, substantially as described.

2. In combination with a refrigerator-building, an ice-chamber having slanting walls, the same being perforated only at or near the bottom, as and for the purpose described.

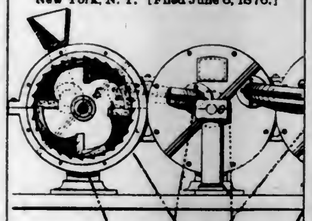
3. The chute G, having doors *m m'*, as and for the purpose set forth.

4. In combination with the building A, the chamber C', into which the air passes from the storage-chambers, as and for the purpose described.

5. The combination of the flue F, fan D, and chambers C', K, E, and C'', substantially as described.

6. The method herein described of regulating and controlling the melting of the ice, the same consisting in diverting the current of air from those portions of the ice-chamber where the ice is most melted, substantially as described.

189,959. APPARATUS FOR REDUCING CEREALS INTO FLOUR. Van Buren Ryerson, New York, N. Y. [Filed June 6, 1876.]



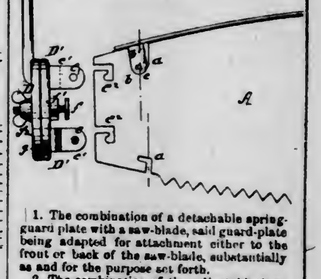
1. In a machine for reducing cereals into flour, or other substances into powder, substantially as described, the combination of a circular case, the interior periphery of which is provided with a succession of abrupt faces, as described, with a revolving disk having radial beaters, and provided with sections of rims, having also a succession of abrupt faces, as described.

2. The combination, with the circular case of a milling-machine, as described, of a revolving disk having radial beaters, as described, and provided with sections of a rim, as described.

3. The combination of machinery, substantially as described, for reducing cereals to flour, substantially as described, with suitable machinery, as described, for bolting flour, whereby the flour is discharged from the mill under blast-pressure directly into the bolt, substantially as specified.

189,960. ATTACHING HANDLES TO CROSS-CUT-SAWS. Chas. A. Sands, Burlington, Kans. [Filed Jan. 29, 1877.]

Brief.—The saw is attached to angularly-adjustable handles by means of disk-shaped plates having pins, which fit in holes in corresponding base-plates, provided with parallel lugs having cross-pins, which look into L-shaped slots in the end of the saw, and clamped by a headed bolt carrying a screw-nut, and passing through both plates, and secured in position by a thumb-nut. The saw is provided with a detachable spring guard-plate, which serves to stiffen the back of the saws, protect the teeth of the saw when not in use, and admits of convenient carrying by the workman.

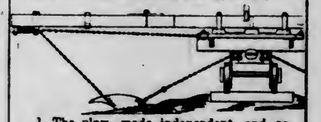


1. The combination of a detachable spring-guard plate with a saw-blade, said guard-plate being adapted for attachment either to the front or back of the saw-blade, substantially as and for the purpose set forth.

2. The combination of the adjustable handle-plate D and the attaching-plate D', having lugs c^1, pins *c*, bolt f^3, and nut *f*, with the saw-blade having L-shaped end slots c^2, substantially as and for the purpose set forth.

3. The combination of crescent-saw A and plate D', clamped at right angles to saw-blade, and provided with holes *g'*, with adjustable handle-plate D, having pin or pins *g*, and with clamping-bolt f^1 and clamping-nuts *f* and f^2, to set the handle at any position to saw-blade, substantially as specified.

189,961. STRAW PLOWING AND SCRAPING ATTACHMENTS TO CARS. S. T. Shankland, Laramie, Wyo. [Filed Feb. 3, 1877.]



1. The plow, made independent, and arranged in advance of scraper, to work longitudinally with track, substantially as and for purpose set forth.

2. A scraper for railroad-grading, receiving a back and forward motion from slides fastened to front and working in back car, substantially as and for the purpose specified.

189,962. DRAWING BROKEN PILES OUT OF THE GROUND. J. P. Sheldon and O. F. Graves, San Francisco, Cal. [Filed Jan. 27, 1877.]

Brief.—There is lowered onto the sunken pile a tubular casting open at both ends, the upper portion being a socket for the end of a round beam fastened by a bolt through slots in the socket. An outside flange near the bottom of the tube holds in place the noose of a chain, its other end being tightened along the beam. The whole being dropped on the pile, and the noose slipped onto it, the device is withdrawn and the pile raised.

1. A pile-drawing machine, constructed as described, and consisting of the shaft D, socket E, and tube A, provided near its lower end with the annular projection B, in combination with the catcher C, and watch-tackle F, all constructed to operate substantially as set forth.

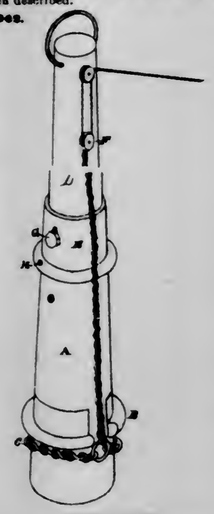
2. The perforation H, with its connecting-chambers, substantially as and for the purpose set forth.

3. The slotted holes through which the bolt O passes, as and for the purposes herein set forth.

4. The tube A, provided with the annular projection B near its lower end, and with the socket E at its upper end, in combination with the shaft D and bolt G, substantially as set forth.

5. The method of placing and firing chains upon broken or submerged piles, the same consisting in guiding and forcing down the noose of the chain by means of a tube, A, and a suitable tackling device constructed to operate substantially as and for the purpose herein described.

189,962.



189,963. TOOTH-BRUSHES. Saml. Stevens, Boston, Mass. [Filed Feb. 14, 1877.]

Brief.—The central row in the brush is made of tucum fiber, and the outer row of bristles.



1. A tooth-brush made of bunches of tucum fiber, surrounded by bunches of hairs or bristles, substantially as and for the purposes set forth.

2. The bunches of tucum fiber *a*, connected to the brush-head *b* by the wire *c*, and secured in a folded condition by the binding wires or threads *d*, as and for the purposes set forth.

3. In combination with the central row of folded fiber, secured by the wire *c*, and sewing at *d*, the rows of fiber at *i*, and outside rows of hairs or bristles *h*, substantially as set forth.

189,964. FOLDING CHAIRS. Cassius L. Stevens and Isabella Wallace, Pittsburg, Pa. [Filed Jan. 2, 1877.]



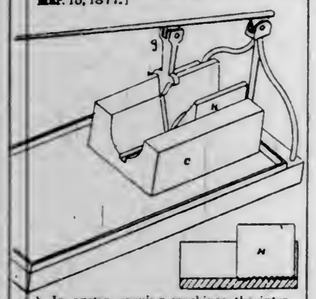
In a folding chair having a stationary seat-frame and seat, a leg-rest, hinged at the front of the seat, and provided with a rigid frame that is finished for use upon both surfaces, so as to be used as a leg-rest when unfolded and as a seat when folded, substantially as set forth.

189,965. GRINDING-MACHINES. T. R. Stewart, Corinth, Ill. [Filed Mar. 28, 1877.]



The stone *b*, mounted with a cog-wheel, D, on a crank-shaft, B, and running at a low velocity, in combination with the bevel-faced stone C, running at a higher velocity than stone *b*, and pinion E on shaft F, and frame-work A, all constructed, arranged, and operated as set forth.

189,966. OYSTER-OPENING MACHINES. T. W. Temple, Los Angales, Cal. [Filed Mar. 15, 1877.]



1. In oyster-opening machines, the interchangeable blocks C H, for holding oysters of different sizes, constructed and arranged as described.

2. In combination with the hand-lever, the suspended dart, having a short thick wedge form for opening the shells quickly, and projections *i*, so that the dart cannot too deeply enter the shells.

189,967. BOX-SCRAPERS. Jno. P. Tierney, Sacramento, Cal. [Filed Jan. 29, 1877.]

Brief.—A roller is placed in a longitudinal concavity formed in the lower portion of the knife, to prevent the scraper from becoming clogged with shavings.



An improved box-scraper, formed of the hopper-shaped knife-box A, the handle B, the knife C, the bolt D, and the roller E, substantially as herein shown and described.

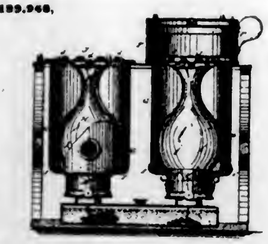
189,968. NURSERY COOKING-RANGES. Lyman Tobey, Naples, N. Y. [Filed Mar. 1, 1877.]

1. The annular grate J, slotted radially around its inner edge to form a series of lips, *i*, that are bent alternately upward and downward, substantially as and for the purposes herein set forth.

2. The combination, with an ordinary removable lamp-burner and glass chimney, of the cylinder G, base I, and grate J, all constructed and arranged substantially as and for the purposes herein set forth.

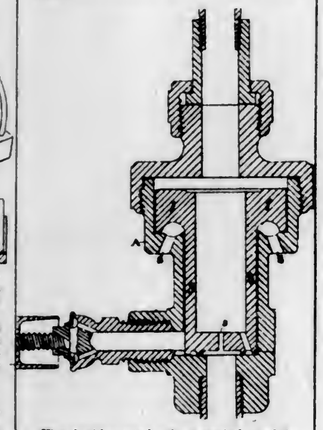
3. The combination, with a lamp burner and chimney, of the cylinder G, base I, grate J, cooking-vessel L, and covering-case I', substantially as and for the purposes herein set forth.

189,969.



189,969. PNEUMATIC SIGNALING APPARATUS. A. N. Towne, San Francisco, Cal. [Filed Mar. 7, 1877.]

Brief.—The lower end of the pipe is connected with a reservoir of compressed air, and the upper end is provided with a stop-cock. When the stop-cock is opened the excess of pressure below the valve lifts the latter, thereby opening a passage through which the compressed air is admitted to the whistle. When the stop-cock is closed, the valve descends by its own gravity, and closes the passage leading to the whistle as soon as sufficient air has passed through an opening in the valve to equalize the pressure above and below.



The double-seated valve, consisting of the enlarged head *f* and stem *g*, with its limited passage O, in combination with a cage, A, constructed to correspond with the shape of the valve, and within which said valve operates, said cage being provided with the opening or openings S and a whistle or other pneumatic signal, substantially as and for the purpose specified.

189,970. WATER-WHEELS. T. Tripp, East Stoughton, Mass. [Filed Mar. 28, 1877.]

Brief.—This wheel has an annular or register-gate, whole or in section, and, in connection with such gate and the corresponding openings in the wheel-case, a series of interposed independent pads, balanced or practically balanced to the outside pressure of water. There is provided, between the outer termini of the chutes and the wheel-case and gate, a space for the reception of a large body of water, under its original head or pressure, in order to bring such water, under such pressure, as close as possible to the buckets of the wheel before directing it into the chutes, while the latter are as short as possible consistent with imparting proper direction to the water as it proceeds to the buckets of the wheel.

1. In a register-gate for water-wheels, the independent balanced pads or valves O O, substantially as and for purposes stated.

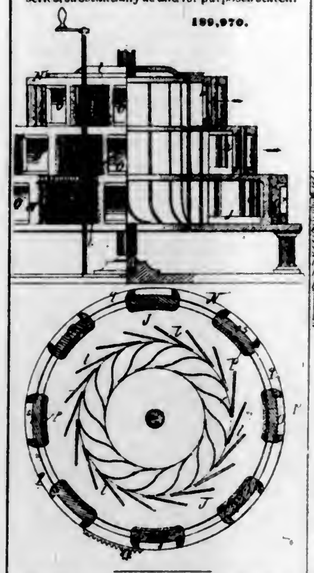
2. The area or space J surrounding the chutes *l l*, substantially as and for purposes stated.

3. The combination, with a turbine-wheel and case of varying capacities, as stated, of the annular or register gate, with its balanced pads or valves, substantially as and for purposes stated.

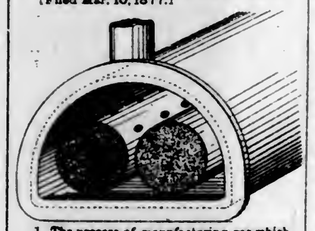
4. The recessions p in the wheel-case, to permit access of water to the inner side of the pad O, substantially as and for purposes stated.

5. In a water-wheel case having two or more independent series of water-approaches, an independent annular or register gate to each series, substantially as and for purposes stated.

189,970.



189,971. MANUFACTURING ILLUMINATING-GAS. Wm. H. Tupper, New York, N. Y., assignor to Amos N. Titus, same place. [Filed Mar. 10, 1877.]



1. The process of manufacturing gas which consists in distilling in the same retort cotton or woolen waste containing oil or grease, and sawdust or similar poor gas-yielding substance, substantially as described.

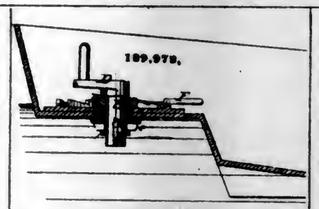
2. In the manufacture of illuminating-gas from cotton or woolen waste, the method of preventing the inflammation of the waste, which consists in inclosing said waste in a cartridge having closed sides, substantially as set forth.

3. In the manufacture of illuminating-gas, a charge for the retort composed of cotton or woolen waste containing oil or grease, and sawdust or similar material yielding poor gas by distillation, inclosed in a metallic cartridge, substantially as set forth.

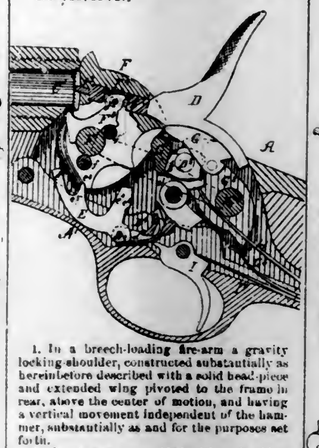
189,972. STEERING-PROPELLERS. Clemens Uller and Jasper N. Bennett, Columbus, Ohio. [Filed Mar. 19, 1877.]

An improved propelling and steering apparatus for vessels, consisting of a revolving shaft with alternately-swinging horizontal paddles placed at right angles to each other, in combination with the cam of a sleeve, and adjusting-lever turning in opposite direction to the shaft to steer and propel the vessel in either direction without stopping the engine, substantially as and for the purpose herein specified.

189,973.



189,973. BREECH-LOADING FIRE-ARMS. H. Updegraff, Smithfield, Ohio. [Filed Nov. 18, 1876.]



1. In a breech-loading fire-arm a gravity locking-shoulder, constructed substantially as hereinbefore described with a solid head-piece and extended wing pivoted to the frame in rear, above the center of motion, and having a vertical movement independent of the hammer, substantially as and for the purposes set forth.

2. The hammer, provided with a shoulder, *d*, adapted to lift the locking-shoulder free from the breech-block before the movement of the latter is commenced, substantially as set forth.

3. The combination, with the hammer D, of a pivoted rocking cam, D^4, adapted to engage and elevate the locking-shoulder G clear of the breech-block, substantially as set forth.

4. The combination with the hammer D, having the extension D^4, of a pivoted forked sear adapted to engage with and open and close the breech-block, and operate the extractor, substantially as set forth.

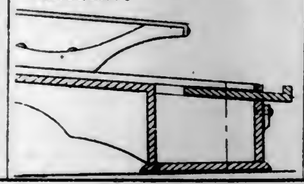
5. The combination, with the breech-block F, having the chamber F^5 and firing-pin F^6, constructed as described, of the pivoted extractor F^8, substantially as and for the purposes set forth.

6. The combination, with the hammer D, provided with extension D^4, and pivoted sear E, having the bearings $e\,e^1$ and arm e^4, of the spring d^3, breech-block F, and bearing A' on the frame A, for the purposes specified.

7. The hammer D, provided with a shoulder or cam, d^3, arranged and adapted to engage the stud *g* on the locking-shoulder, for the purpose set forth.

8. The combination of the locking-shoulder G having a solid head, G^1, and rear wings G^2 G^3 and stud *g* pivoted to the frame, and the hammer D constructed with the shoulder *d* and recess d^3, and the rocking cam D^4, arranged and operating substantially as and for the purpose set forth.

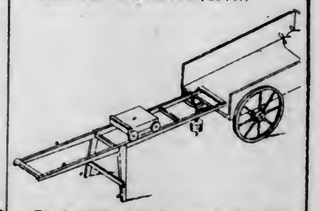
189,974. KNIFE AND FORK CLEANERS. A. E. Van Horn, Sebewaing, Mich. [Filed Mar. 24, 1877.]



1. A knife and fork cleaner, composed of an inclined scouring-table, with side rims and till or receptacle at the lower end for the polishing-powder, and with a fork-shaped support or carrier for a fork cleaning leather strap attached to the table, substantially in the manner described, and for the purpose herein specified.

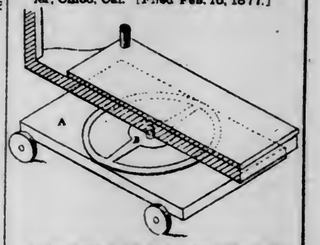
2. A knife and fork cleaner, having an inclined scouring-table, with side rims and powder receptacle or till at the lower end, closed or opened by a sliding lid, substantially as herein specified.

189,975. WAGON-LOADERS. J. J. Verckler, Chico, Cal. [Filed Feb. 16, 1877.]



The double track B, mounted upon the legs C C, at some point between its middle and one end, and having the weight F suspended from the extremity of its long end in combination with the car D, substantially as and for the purpose described.

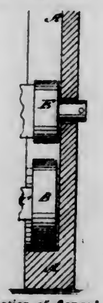
189,976. PLATFORM-SCALES. J. J. Verckler, Chico, Cal. [Filed Feb. 16, 1877.]



1. The truck A provided with the turn-table B, in combination with a weighing-scales, C', substantially as and for the purpose described.

2. The stakes or standards G G, in combination with the platform of a weighing scale, substantially as and for the purpose described.

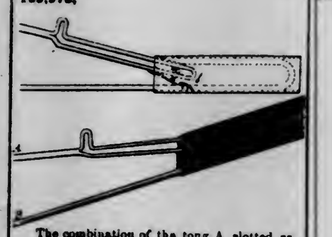
189,977. STEAM ROAD-WAGONS. Geo. W. Wade, Clam Lake, Mich. [Filed Mar. 3, 1877.]



The combination of flanged track-wheels A, shaft C, having wheels B, the axle R, having rod F, the platform having slotted standards G, frames H I, having wheel J, and the track-wheel K, all constructed and arranged as shown and described, to form a steam road-wagon.

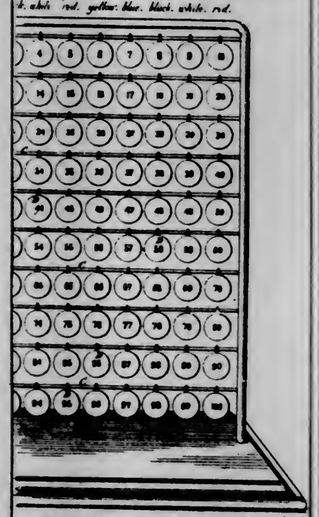
189,978. SHOVELS AND TONGS. Geo. W. Whelan, San Prairie, Wis. [Filed Oct. 21, 1876.]

189,978.



The combination of the tong A, slotted as described, and provided with a guard or thumb-piece, G, the shovel B, having a spring, *d*, and the handle D, having a bolt or rivet, *e*, substantially as and for the purpose set forth.

189,979. ARITHMETICAL TOYS. L. Wiener, Washington, D. C. [Filed Feb. 10, 1877.]



The arithmetical toy herein described, consisting of the base, the frame, and parallel horizontal or cross wires, the latter provided with the sliding and serially-numbered disks, arranged in columns of colors, substantially as set forth.

189,980. PICTURE-EXHIBITORS. O. Williamson, Covington, Ohio. [Filed Mar. 23, 1877.]



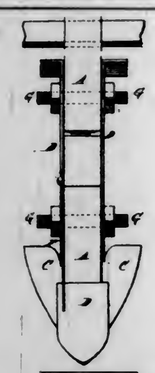
The cabinet or case A, provided with openings *a a*, in combination with the mat *d* and mat-holders *c c*, provided with the handles *b b*, all constructed to operate substantially as and for the purpose described.

189,981. PLOWS. J. F. Wilson and R. L. Wilson, Calhoun, Ga. [Filed Mar. 3, 1877.]

Brief.—A shovel-plow with side wings attached to slotted bars, which slide up and down upon the standard.

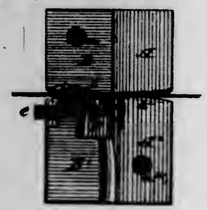
The combination of the adjustable wings C, the slotted sliding bars D, and the bolts G, with the plow-standard A, and the plow-plate B, substantially as herein shown and described.

189,982.



TOOLS FOR MAKING BARBED FENCE-RAILS. L. M. Woodcock, Auburn, N. Y., assignor to Empire Wringer Company, same place. [Filed Mar. 24, 1877.]

Brief.—The dies are formed in two parts, embracing shanks, which carry a punch and a forming-lip in the male and female dies, respectively.

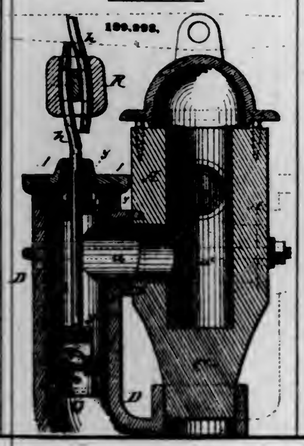


1. The punch C, secured in and projecting from the face of the male die A A, in combination with the female die A′ A′ B′, having lip D, for cutting and bending the barb in a metal fence, substantially as and for the purpose set forth.

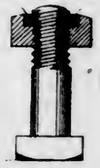
2. The plate B, with its lip D, arranged in the female die A′ A′, as described, in combination with the punch C, having the groove *i* in its back edge, for forming the longitudinal corrugations in the barb at the same time as the barb is cut and bent, substantially as herein set forth.

3. The combination of the male die A A, formed with the beads *d d*, and provided with the punch C, having groove *i*, and the female die A′ A′, formed with the grooves *d′ d′* and recess *b*, and provided with the lip D, all substantially as and for the purposes herein set forth.

189,983.



189,984. NUT-LOCKS. Joseph C. Wright, Philadelphia, Pa. [Filed Mar. 3, 1877.]

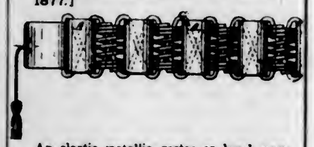


The combination of a nut having annular recess in upper face communicating with tap-hole, a screw-bolt, and an annular tamped packing of soft metal, substantially as and for the purpose specified.

189,985. FUEL COMPOSITION. Charles M. Adams, Ashland, Mass. [Filed Feb. 8, 1876.]

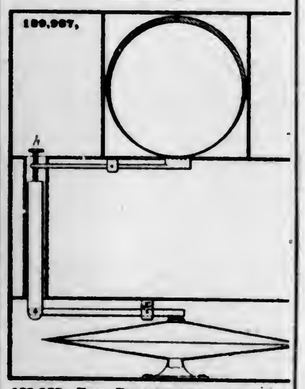
A composition for fuel, consisting of coal-screenings, kerosene-oil, quicklime, and water, combined in the proportions hereinbefore set forth.

189,986. COIL-SPRING BANDS. F. Armstrong, Bridgeport, Conn. [Filed Apr. 6, 1877.]



An elastic metallic garter or band, composed of a series of alternate short metal tubes and coiled-wire springs, strung together as described, and provided, at each end, with a hook or other fastening device, substantially as described.

189,987.



FIRE-EXTINGUISHERS. Amos E. Austin, Philadelphia, Pa. [Filed Apr. 12, 1877.]

189,988. PUMPS. Jos. C. Wright, Cincinnati, Ohio. [Filed Feb. 22, 1877.]

Brief.—The cylinder-head has an annular recess, with packing to make a tight joint with the upper end of the cylinder. The rods are in two parts, and connected by a coupling-block, which has a longitudinal opening for the passage of the two ends of the two parts of the rod, and a transverse slot for the passage of the key, thus enabling the operator to adjust the rod as required.

1. The combination of the cylinder D, head I, with packed recess *y* on its under side, the piston-rod *h*, and the sliding plate P with projecting hub *p*, substantially as and for the purposes herein set forth.

2. The longitudinally and transversely slotted coupling-block K, in combination with the two parts of the rod *h* and the key S, substantially as and for the purposes herein set forth.

Brief.—The space between the two diaphragms is filled with sulphuric ether. When a fire breaks out, the expansion causes the upper diaphragm to act on the levers, thus breaking the acid globe.

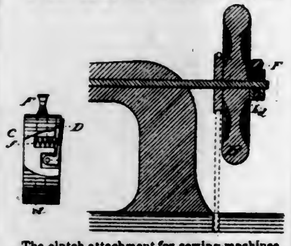
The combination, in a fire-extinguishing apparatus, of a friable vessel containing sulphuric acid, a chamber containing carbonate of lime, an object which will readily expand under the influence of heat, and devices, substantially as described, whereby the movement of the said object, when expanded, is caused to fracture the vessel, all substantially as set forth.

189,989. BELT-FASTENERS. Johann Bechmann, Nurnberg, Germany. [Filed Feb. 22, 1877.]



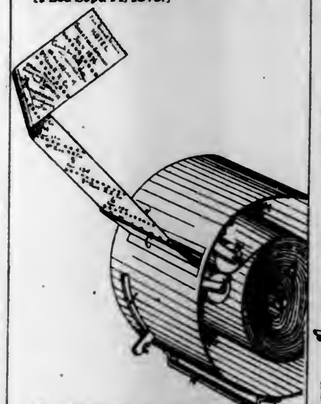
The cross or double-clamp fastening, composed of hinged sections A B, each of which has one or more tongues, *f g*, projecting beyond the joint-pin of the hinge on the opposite side of said pin to that on which the body of the same section projects, the bodies and tongues of said sections being provided with intermediately-arranged teeth *b*, all substantially as shown and described.

189,990. SEWING-MACHINE CLUTCHES. F. A. Barr, Hester, Mo. [Filed Mar. 3, 1877.]



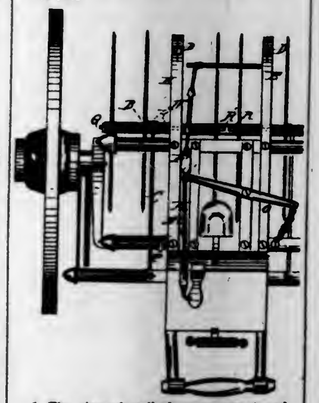
The clutch attachment for sewing-machines herein described, consisting of the collar or box C, set-screw *d*, segmental cam D, having bait or catch E, spring *f*, and thumb-screw F, having cam *g*, all constructed and combined so as to operate in the manner and for the purpose substantially as herein set forth.

189,991. TICKET-REELS. Wm. W. Bierce, Memphis, Tenn., assignor of one-half his right to John C. Spencer, New York city. [Filed Sept. 14, 1876.]



The combination of a ribbon of tickets, one or more, but not all, of which are redeemable for a designated value, an inclosing-box for receiving such ribbon, and a set of intermittently-operating feed-rolls, for projecting the tickets one by one from the box, the parts being arranged to operate substantially as and for the purpose set forth.

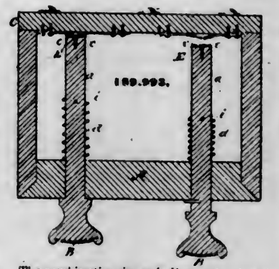
189,992. REVOLVING HORSE-RAKES. L. Bissell, Ghent, Ohio. [Filed Sept. 15, 1876.]



1. The above-described arrangement and combination of the rake B, brace-rods D, slotted arms E, drag-rods C, and elevating-lever F, substantially as and for the purposes set forth.

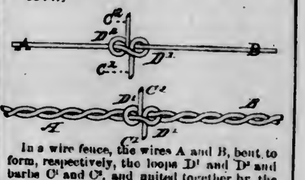
2. The hollow rake-head, in combination with the perforated rods E E′, having burrs Q, for the purpose of fastening the rake-teeth, substantially as set forth.

189,993.



The combination, in an indicator for electric alarms, the box A C D, with knobs B B B B, rods *a a a a*, springs *d d d d*, pin *b*, groove *b*, springs *c c c c c c c c*, with the necessary electric connecting-wires, substantially as and for the purpose herein set forth.

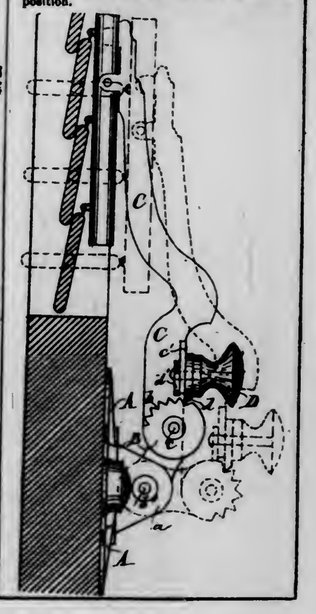
189,994. BARBED-WIRE FENCES. A. B. Bronson, Chicago, Ill. [Filed Jan. 19, 1877.]



In a wire fence, the wires A and B, bent to form, respectively, the loops D^1 and D^2 and barbs C^1 and C^2, and united together by the straight part of each wire passing through the loop of the other, and the barbs passing between the wires in opposite directions, and lying side by side, substantially as herein shown and described.

189,995. BLIND-SLAT ADJUSTERS. John G. Broemser, St. Louis, Mo. [Filed June 9, 1876.]

Brief.—A toro-knob having an eccentric disk and stop is combined with a peculiarly-shaped rod connecting with the slat-bar, and with a pivoted rocking arm, suitably notched, and attached to a face-plate, the construction permitting the ready adjustment of the blind-slats, or the locking of them in any desired position.



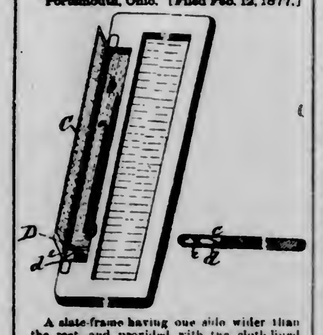
189,996. INDICATORS FOR ELECTRIC BURGLAR-ALARMS. A. Bradford, Amsterdam, N. Y. [Filed Jan. 20, 1877.]

Brief.—For indicating the point where an entrance is attempted. When the proper knob is pulled, the point assailed is indicated by the cessation of the alarm, the circuit to which is through springs controlled by the knobs.

1. A blind-slat adjuster consisting of the rod C, having bearing at *c'* carrying the knob D, the eccentric disk *d*, and stop *d'*, also the pivoted arm B, having notches *b*, and the plate A, having the bearing *a*, all of the said parts being arranged and combined to operate substantially in the manner and for the purpose set forth.

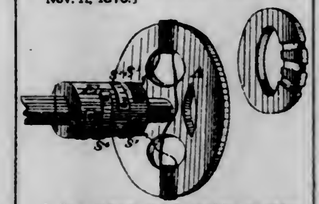
2. The turn-knob D, the eccentric disk *d*, and stop *d'*, in combination with rod C, the notches *b* of the pivoted arm B, and plate A, all parts being combined, arranged, and operating substantially in the manner and for the purpose set forth.

190,996. SLATES. Carl N. Brombacher, Portsmouth, Ohio. [Filed Feb. 12, 1877.]



A slate-frame having one side wider than the rest, and provided with the cloth-lined recess *b*, the partition D, the spring *d*, and the hinged cover C, having knob or projection *s*, all constructed and arranged substantially as set forth.

190,997. MAGNETO-ELECTRIC MACHINES. Chas. F. Brush, Cleveland, Ohio. [Filed Nov. 11, 1876.]



1. In a magneto-electric machine, an armature of iron or other magnetic substance in the form of a ring or endless band, of any convenient form of cross-section, provided with a series of grooves or depressions at right angles with the magnetic axis or circumferential length of the armature, for the reception of the insulated wire with which armatures are wound, substantially as described.

2. In a magneto-electric machine, an armature of iron or other magnetic substance in the form of a ring or endless band of any convenient form of cross-section, provided with a series of grooves or depressions on the sides at right angles with the axis of the armature and with its circumferential length or magnetic axis, for the reception of the insulated wire with which armatures are wound, substantially as described.

3. In a magneto-electric machine, an armature of iron or other magnetic substance in the form of a ring or endless band, of any convenient form of cross-section, provided with a series of grooves or depressions at right angles with its magnetic axis, and with sections or bobbins of wire wound in said grooves around the armature, substantially as described.

4. In a magneto-electric machine, an armature of iron or other magnetic substance in the form of a ring or endless band of any convenient form of cross-section, provided with a series of grooves or depressions at right angles with its magnetic axis, and with sections or bobbins of wire wound around the armature, the first or last coils of diametrically-opposite sections joined together, and their remaining coils to diametrically-opposite segments, substantially as described.

5. In a magneto-electric machine, a commutator-cylinder, consisting of a cylinder of insulating material, provided with metal strips or segments, constituting a series of commutators or conductors, arranged by pairs placed diametrically-opposite each other, each pair occupying a different position longitudinally on the cylinder from any other pair, their ends separated a sufficient distance to prevent the current of an active bobbin or bobbins from escaping through an idle bobbin or bobbins while the latter are at and near the neutral points, substantially as described.

6. In a magneto-electric machine, a grooved armature, provided with sections of wire, in combination with a commutator-cylinder, substantially as described.

7. In a magneto-electric machine, an armature of iron, in the form of a ring or endless band, with or without grooves, and provided with bobbins or sections of wire, in combination with a cylinder-commutator and brushes or conductors, the latter so placed with regard to the strips or segments of said cylinder-commutator and their respective bobbins on said armature as to take off the current generated in the bobbins continuously, except when the said bobbins or sections of wire are at and near the neutral points of the armature, substantially as described.

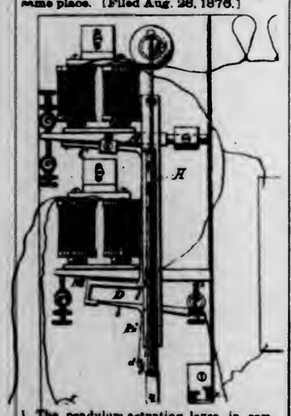
8. In a magneto-electric machine, a grooved armature, provided with sections of wire, the first or last ends of diametrically-opposite sections connected together, in combination with the commutator-cylinder E, to diametrically-opposite segments of which the remaining ends of said sections are attached, substantially as described.

9. In a magneto-electric machine, a grooved armature of iron or other magnetic substance of any convenient form of cross-section, provided with sections of insulated wire, in combination with the magnetic pole-pieces N S and S S, so arranged as to present a magnetic surface simultaneously to two sides of its magnetic axis, substantially as described.

10. In a magneto-electric machine, an armature of iron or other magnetic substance in the form of a ring or endless band, of any convenient form of cross-section, and provided with sections or bobbins of wire wound around the armature at right angles to its circumferential axis, the ends of each section connected to diametrically-opposite segments of the commutator-cylinder, substantially as described.

11. In a magneto-electric machine, an armature of iron or other magnetic substance in the form of a ring or endless band, of any convenient form of cross-section, and provided with sections or bobbins of wire, wound around the armature at right angles to its circumferential axis, one end of the wire of each bobbin being connected to the diametrically-opposite segment of the commutator-cylinder through the coils of the diametrically-opposite section, substantially as described.

190,998. ELECTRIC CLOCKS. C. F. Brush, Cleveland, Ohio, assignor of one-half his right to the Telegraph Supply Company, same place. [Filed Aug. 26, 1876.]



1. The pendulum-actuating lever, in combination with the clutch or dog E, provided with springs *e* and pin *d*, substantially as and for the purpose described.

2. The combination, with the pendulum, of the angular pendulum-actuating lever C D, and angular clutch E, and spring *e*, substantially as and for the purpose described.

3. The clutch or dog E, provided with spring *e* and pin *d*, substantially as and for the purpose described.

4. In an electrical clock, the combination, with a magnet and armature-lever, of adjusting mechanism and contact-surfaces *s*, the latter carried on the shorter arm of the armature-lever, and the whole constituting the relay, substantially as and for the purpose described.

5. The combination of the relay, pendulum H, break-piece, and a battery of low electromotive power, substantially as and for the purpose described.

6. In an electrical clock, the combination, with a relay, of a condenser and main battery, substantially as set forth.

7. In an electrical clock, the combination, with relay, of a condenser and secondary clocks, substantially as and for the purpose described.

8. The combination of a light battery-circuit, embracing break-piece and relay, with a battery circuit embracing condenser, secondary clocks, and electro-magnets B, said magnets B operating, through intermediate mechanism, to vibrate the pendulum H, substantially as and for the purpose described.

9. The combination of a light battery-circuit, embracing break-piece and relay, with a battery-circuit embracing condenser and secondary clocks, said light battery-circuit made or broken by the vibration of the pendulum H, substantially as and for the purpose described.

190,999. ELECTRO-MAGNETIC RAILROAD-SIGNALS. H. Brunius, Jonkoping, Sweden. [Filed Aug. 26, 1876.]

Brief.—Shows on engine and at terminal stations progress of train. Rings alarm-bell at station and on locomotive, when two trains come within a certain distance of one another, and also within certain distance from station. Apparatus on trains for communicating with one another and with station, when stopped at one of the circuit-closers along the line.

1. The clock-works H H', insulated from each other by bone plates *f*, or in any other suitable manner, having hand-spindles *e e'*, arranged one within the other, in the manner described, and for the purpose set forth.

2. The combination of clock-works H H' and electro-magnets P P', operating the spindles *e e'*, respectively, substantially as and for the purpose shown and specified.

3. The dial K, having metal rings *i i* i^2 i^3, connected by wires to the negative and positive poles of the line-battery, respectively, substantially as and for the purpose shown and specified.

4. The combination of rings *i i* and staples i^2 i^3, they being in metal contact by a connecting-strip, *k*, substantially as and for the purpose shown and specified.

5. The dial K, having metal staples i^2 i^3 and rings *i i* i^2 i^3, in combination with the hands I I', substantially as and for the purpose herein shown and specified.

6. The hand I, consisting of two hinged parts, having springs k^4 k^5, and insulating bone plate, carrying the hinged staple K^1, the whole carried by the hollow spindle *e* of the upper clock-work H, substantially as and for the purpose herein shown and specified.

7. The hand I', constructed like the hand I, and carried by the spindle *e'* of the clock-work H', substantially as and for the purpose herein shown and specified.

8. The alarm-bell Q, operated by an electro-magnet, P^3, the winding of which is formed by or connected to the negative wire of the line-battery, before its connection to rings *i i* and staples i^2 i^3 of dial K, substantially as and for the purpose herein set forth.

9. The dial K, having rings or plates i^2 connected to the positive pole of the line-battery, and rings *i i* and staples i^2 i^3 united by strip *k*, and connected to the negative pole of the line-battery, hands I I' having insulated staples K^1 K^2 and contact-springs k^4 k^5, clock-works H H', having spindles *e e'*, through which they are in metal connection with hands I I', respectively, relays O O^2, one end of the windings of which are connected with the clock-works H H', respectively, and the other end with the plates E E' of reversing appliance D, all constructed, combined, and arranged to operate in conjunction with the reading mechanism operated by relays O O^2 when the line-circuit is closed, substantially as and for the purposes herein shown and specified.

10. The combination of the parts H H' *e e'* K *i i* i^2 i^3 i^2 i^3 I I', forming the apparatus for automatically reversing the line-current, with the electro-magnetic alarm-signal Q, the electro-magnet for which, P^3, is embraced in the line-circuit, as described, and with the electro-magnets P P^1 embraced in the local circuit, the electro-magnets P P^1 being arranged to operate the hands I I' whenever the local circuit in which they are embraced is closed by the closing of the line-circuit, substantially as and for the purposes herein shown and specified.

11. The record-cylinder N, having time-sheet O^3, relays O O^2 embraced in the line-circuit, metal framing 49, springs O^3 O^4, armatures O^1 O^2, and markers *p p'* p^2 affixed in the latter, so as to operate when the local circuit is closed by the closing of the line-circuit, the whole forming part of and operating in conjunction with the station apparatus of my improved railway-signal apparatus, as and for the purposes shown and specified.

12. The clock-work M, brackets M^2 M^3, rod m^2 m^3, cylinder N, carrying time-sheet O^3, pinion *n*, gear-wheel *n'*, operated by a coiled spring in box n^3, relays O O^2 and markers p^1, all combined and arranged to operate in conjunction with the remainder of my improved apparatus, substantially as described, for the purpose specified.

13. The connection, through wire 50, between the metal body of the clock-work H' and one end of the winding of the electro-magnet O^2, the other end of which is connected to the station apparatus rail E' of the reversing appliance D, and the similar connection of clock-work H, through wire 54, with one end of the winding of relay O, the other end of which connects to rail E of the reversing appliance, substantially as herein shown and specified.

14. The train-indicating apparatus, consisting of the dials E S, having rotating hand *r* and vibrating hand *s*, arranged, with their operating mechanism, within box S^2 in the engineer's cab on the locomotive, substantially in the manner and for the purpose shown and specified.

15. The shaft U, having projections *w' w'* for operating the wheel V, and arm or bracket W, in combination with the shaft W', having conical circumferential projection *w'*, and spring X, substantially as and for the purpose shown and specified.

16. The device for returning the hand *r* of dial R to zero, by pressing upon button *r'* on the outside of box S^2, consisting of shaft U having bracket W, shaft W' having conical circumferential projection *w'*, and spring X, wheel V, arranged upon the hand-spindle of clock-work T, and having sidewise-projecting pin *v*, all combined and arranged to operate in conjunction with clock-work T and electro-magnet T', substantially as and for the purpose herein shown and specified.

17. In combination with the polarized relay X', keeper *s*, and vibrating spindle *s'*, having upward-projecting arm Y, the alarm-bell Z', and pivoted lever Z, having spring *z*, and hammer *z'*, arranged to sound bell Z', when the hand *s* of dial S, by the action of the electric current and the operating mechanism, is pointed to the division of dial S, marked "block," thus warning the engineer that his train is approaching a station, or is in a dangerous position, substantially in the manner and for the purpose herein shown and specified.

18. The reversing or regulating appliance in the conductor's van, consisting of the six metallic plates 8 9 10 14 15 23, arranged around the central pin 16, upon which turn the two springs 17 and 18, independent of, but in metal contact with, each other, substantially in the manner and for the purpose shown and specified.

19. The connection, through wire r^4, between the upper central plate 8 in the conductor's van, and the contact-screw 1 on box S^2, and through it with the apparatus in the box, substantially as and for the purpose described.

20. The wire connection between plate 10 and the train telegraph apparatus 11, the earth-line of which is established by a wire, 12, leading to a spring, 13, pressing upon the axle of the car, substantially as described, for the purpose specified.

21. The free insulated plate 9, plate 8, connected with the train apparatus in box S^2, plate 10, connected with the train telegraph apparatus; plates 14 and 15, connected with one of the train-contacts *d*, and plate 23, connected with the remaining train-contact *d*, and the springs 17 18, the latter operated automatically by forked lever 19, all combined and arranged to operate in conjunction with my improved railway-signal apparatus, substantially as described, for the purposes herein before set forth.

22. The forked lever 19, having its fulcrum at 20, and operating with its upper forked end the spring 18, and having its lower end arranged to engage with the track mechanism, substantially in the manner and for the purpose herein shown and specified.

23. The arrangement upon a railroad-track of two crescent-shaped bars, 28 28, for correcting the position of lever 19 upon the train, substantially as described, for the purpose specified.

24. The cam 29, arranged upon a railroad-track, beyond bars 28 28, and operated by suitable mechanism, for the purpose of adjusting the position of levers 19 of passing trains, thus putting the signaling mechanism of each train into proper working order, substantially as described, for the purpose specified.

25. The mechanism for operating the cam 29, which slides vertically in guides or standards 30 30, consisting of shaft 31, having eccentric 32 and ratchet-wheel 33, spring-pawl 34, engaging with ratchet-wheel 33, and operated by vertical bar 35, to which it is bolted, coil-spring 36, arranged upon bar 35, and forcing it up against a slanting pivoted bridge, 38, all combined and arranged to operate substantially in the manner and for the purposes herein shown and specified.

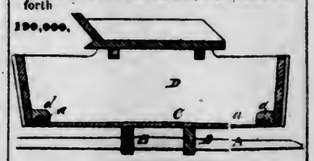
26. The herein-described electric railway-signal apparatus, consisting, besides two lines of telegraph-wires and contact-points, arranged substantially as described, of three principal parts, viz., the "station apparatus," the "road apparatus," and the "train-apparatus," the first consisting essentially of an automatic current-reversing device, operated by electro-magnets in the local circuit, and so constructed as to reverse the current of the line-circuit, and thus, by intermediate mechanism give signals to the train and station officials whenever a train approaches a station or is in danger of collision; and a recording mechanism, by which the time of arrival and departure of trains and their passing certain given points is automatically registered; the second, (the "road apparatus,") consisting essentially of devices for automatically regulating the train-apparatus and putting it in communication with the proper telegraph-line wire; and the third, (the train-apparatus,) consisting essentially of indicating devices, by which the engineer is informed of the exact position of his train, and signal devices, by which he is informed of his approach to a station, or of "danger ahead," and of a current regulating and reversing device by which a train may be placed in telegraphic communication with another train, or with a station, all constructed, combined, and arranged to operate in conjunction with each other, substantially as described, for the purposes shown and specified.

190,000. SPRING-WAGONS. J. D. Brunner, Doylestown, Pa. [Filed Oct. 31, 1876.]

1. The combination, with a carriage-body, D, of the spring-slats C C, cross-bars B B, and side spars A A, substantially as and for the purposes herein set forth.

2. The combination of the spring-slats C, the half-round cross-bars *a a*, and the body D, with grooved cross bars or cleats *d d*, substantially as and for the purposes herein set forth

190,000.

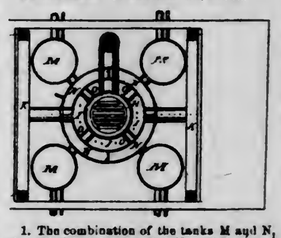


190,001. NECK-TIE ESTAINERS. Wm. T. Buckner, Berea, Ohio. [Filed Mar. 12, 1877.]



The neck-tie attachment consisting of the bowed plate or frame A, and flanges or projections *a a*, all made in one and the same piece, and having the button-slot, substantially as set forth.

190,002. CAR-HEATERS. Le Roy Capron, Akron, Ohio. [Filed Feb. 20, 1877.]



1. The combination of the tanks M and N, the cylindrical fire-chamber H, and the intervening annular hot-air chamber I, having openings for the admission of air, substantially as and for the purpose described.

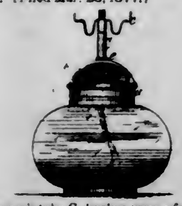
2. The combination, with the cylindrical fire-chamber H, of the annular tanks N N, pipes O O, auxiliary tanks M, and pipes O' O', substantially as and for the purpose described.

190,003. NECK-BANDS. Noah W. Caughy, Baltimore, Md. [Filed Mar. 9, 1876.]



The neck-band A B provided with slide-bands D E, arranged to operate substantially as and for the purpose specified.

190,004. LAMPS. Geo. Chappel, Brooklyn, N. Y. [Filed Mar. 28, 1877.]

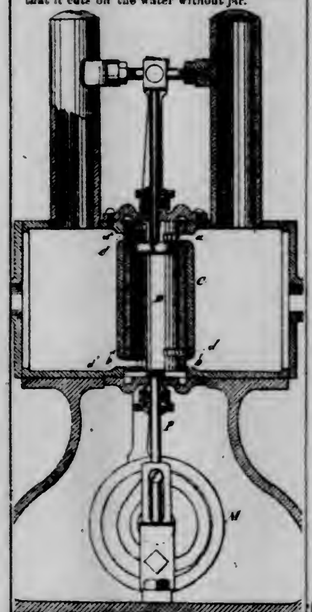


1. The wick-tube C, having arms *c* for supporting the chimney or globe, in combination with the collar B, having the opening *b*, and provided with a movable cap, said cap having its axis on the wick-tube C, substantially as described.

2. In combination with collar of the lamp, provided with a dome-shaped top, having an opening therein, the rotating cap secured on the top of the collar, and the wick-tube passing through said cap, and secured to the dome-shaped top, said tube having supporting-arms formed in one piece therewith, and a shoulder for confining the cap in place, substantially as herein set forth.

190,005. HYDRAULIC ENGINES. Wm. H. Clark, Chicago, Ill. [Filed Mar. 19, 1877.]

Brief.—The valve-sleeve inside of the cylinder is actuated by the cam-wheel and rod from below, while the piston is worked from above. The operation of the valve is such that it cuts off the water without jar.

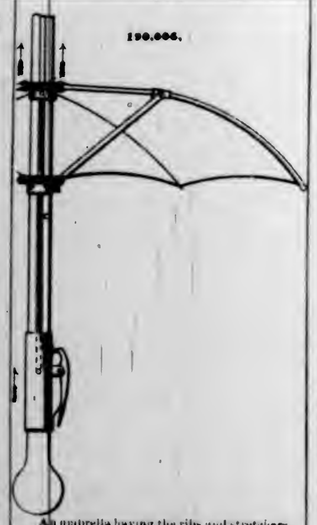


1. In a hydraulic engine, the cylinder C, provided with inlet-openings *a b* and outlet-openings *a' b'*, the sliding sleeve D, provided with corresponding openings *a d c' d'*, in combination with passages for the inlet and outlet of water, and devices for operating the sleeve D, substantially as and for the purposes specified.

2. The cylinder C and sleeve D, in combination with the rod P and cam-wheel M, and passages for the inlet and outlet of water, all constructed and operating substantially as and for the purposes specified.

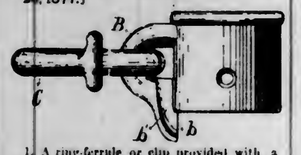
190,006. UMBRELLAS. A. B. Cohn, Philadelphia, Pa., assignor of one-half his right to E. S. Simon, same place. [Filed Feb. 9, 1877.]

190,006.



An umbrella having the ribs and stretchers, the fixed collar, sliding collar and stick, and a sliding sleeve, with attached rods connected to the sliding collar, all combined and arranged to operate substantially as and for the purpose set forth.

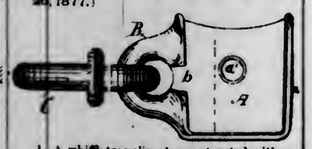
190,007. WHIFFLETREE HOOKS AND CLIPS. J. C. Coonley, Chicago, Ill. [Filed Mar. 20, 1877.]



1. A ring-ferrule or clip provided with a closed loop cast in one piece therewith, and having grooves or depressions *b'* upon both sides thereof, at its junction with the inner ends of the ferrule or clip, in combination with a trace-hook, C, the ring of which is provided with an opening, *c*, thereby adapting the hook and loop to be coupled and uncoupled, substantially as described.

2. The loop B, cast in one piece with a clip or ring-ferrule, and provided with a grooved projection, *b*, extending beyond the ferrule or clip at one end, at the inner edge of which the grooves *b'* commence, so that the entrance to the latter is closed when the ferrule or clip is attached to the whiffletree, substantially as and for the purpose set forth.

190,008. WHIFFLETREE HOOKS AND CLIPS. J. C. Coonley, Chicago, Ill. [Filed Mar. 20, 1877.]

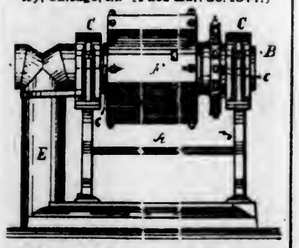


1. A whiffletree-clip, A, constructed with a solid ring, B, in combination with a hook the ring of which is divided by an opening about as wide as the thickness of the clip, the two parts being adapted to couple and uncouple readily when detached from the whiffletree, but permanently connected together by inserting the clip in the whiffletree, substantially as described.

2. The flanged whiffletree-clip A, constructed with a solid ring, B, and provided with recesses or openings *b* in the flanges *a*, adjacent to the ring, substantially as and for the purpose set forth.

3. The flanged clip A, constructed with a solid ring, B, and recesses *b* in the flanges *a* adjacent thereto, in combination with the hook C, having an opening, *d*, in the ring end thereof, substantially as and for the purpose set forth.

190,009. TUMBLING-BARRELS. J. C. Coonley, Chicago, Ill. [Filed Mar. 26, 1877.]



1. The close tumbling barrel A, in combination with tubular journals B communicating with the interior of the barrel, and a suction-pipe, E, leading out of the room and connected to one of the tubular journals, while the other is left open, substantially as and for the purpose set forth.

2. The tumbling-barrel A, in combination with the tubular journals B, and conical perforated caps D, substantially as and for the purpose set forth.

3. The conical cap D, constructed with its exterior surface stepped, as described, and provided with a series of perforations through each segment or section, substantially as set forth.

4. The cover F, having recesses *f'* in its ends, in combination with the pivoted bolts G and nuts H, substantially as and for the purpose set forth.

5. The friction-rollers *e* on the standards C, in combination with the tumbling-barrel A, provided with a guideway, against which the rollers rest, substantially as and for the purpose set forth.

6. The closed tumbling-barrel A, in combination with the tubular journals B, conical perforated caps D, constructed as described, and the suction-pipe E, substantially as and for the purpose set forth.

190,010. CHURNS. Geo. W. Crosby, Bradford, Ark. [Filed Feb. 3, 1877.]

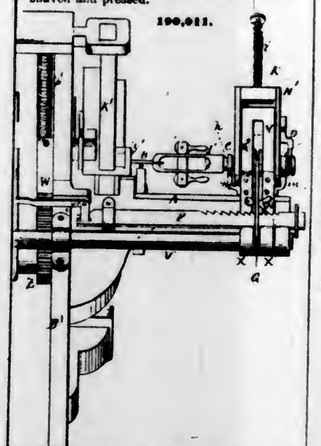


The combination of bottom disk E^1, perforated at $e' e'$, with casing E, perforated at $e^2 e^2$, and cap-piece E^3, with dasher-rod D, having enlargements $d d^1$, substantially as and for the purpose set forth.

190,011. MACHINES FOR MAKING HORSE-SHOE-NAILS. B. M. Cummings, Nashua, N. H. [Filed Apr. 7, 1877.]

Brief.—The feeding device, which is located upon an arm projecting from the frame, consists of a spring-clamp upon a shaft hung in a yoke, reciprocated, to clear the plate in turning, by means of cams upon the said shaft, which cams turn upon ledges on a frame sliding upon the projecting arm. A pawl and a reciprocating rack cause this frame to advance toward the cutter. Side by side with the projecting arm is a reciprocating shaft, on which the rack for turning the nail-plate and clamp is hinged. The blank, having been cut and thrust through the die by those that follow, is pushed by the clearer between the rolls, and thence delivered through guides, and by means of spring-fingers, upon the anvil, to be shaved and pressed.

190,011.



1. The combination of the sliding block V, yoke B^1, carrying the shaft A, with plate-clamp I^1, the rod *k*, and spring *i*, substantially as and for the purposes herein set forth.

2. The combination of the vibrating yoke H^1, the shaft *h*, carrying the plate-clamp I^1, the pinion *f*, rack G^1, arm G, and rocking shaft U, all constructed and arranged to operate substantially as and for the purposes herein set forth.

3. The combination of the arm A, the sliding block V, with collars X X, rocking shaft U, rack-bar F, and pawl H, substantially as and for the purposes herein set forth.

4. The spirally-grooved collar E and guide D, in combination with the rocking shaft A, carrying the plate-clamp I^1, substantially as and for the purposes herein set forth.

5. The cams C C, attached to the rocking shaft A, in combination with the yoke H^1 and sliding block V, with ledges *m m*, substantially as and for the purposes herein set forth.

6. The combination of the longitudinally-grooved guide-bar K', the clearer Y, and sliding block Y^1, operated by means of the rack-bar W, cogged segment Z, and spring *p'*, substantially as and for the purposes herein set forth.

7. The spring-fingers L L, provided with the jaws *s s*, and attached to the sliding block Y^1, to operate substantially as and for the purposes herein set forth.

8. The combination of the sliding block Y^1 with clearer Y, the guide-bar K', rollers T T, guide M, and spring-fingers L L, with jaws *s s*, all constructed substantially as and for the purposes herein set forth.

9. The presser K, in combination with the die J and the spring *t*, substantially as and for the purposes herein set forth.

10. The combination of the reciprocating cutter I and the stationary die J with spring-presser K, substantially as and for the purposes herein set forth.

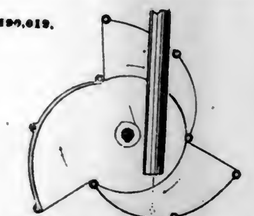
11. The combination of the plunger S, with adjustable cutters $O O_1$, the plunger R, with adjustable presser T', and the former N, substantially as and for the purpose described.

12. The spring-fork P, attached to the plunger S, and operating as and for the purposes herein set forth.

190,012. WATER-WHEELS. Luigi d'Auria, Gaetano, Italy. [Filed Mar. 12, 1877.]

Brief.—The floats of this wheel are constructed on an involute curve, and the stream of water that strikes them causes the working-surfaces of the floats to receive the force of the impelling fluid always in a normal direction, in whatever position the wheel may be.

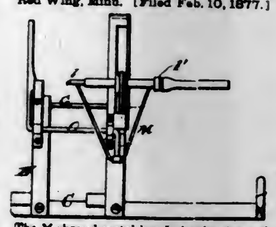
190,012.



1. A water-wheel having its floats so curved that their inner surfaces will form involutes, and so arranged that the water will strike their inner surfaces normally in every position of the wheel, substantially as described.

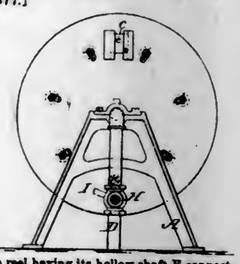
2. In combination with a water-wheel having involute floats, a tube, or its equivalent, so arranged as to discharge the water normally to the inner curves of the floats, substantially in the manner set forth.

190,013. HARVESTER-REELS. J. J. Dewey, Red Wing, Minn. [Filed Feb. 10, 1877.]



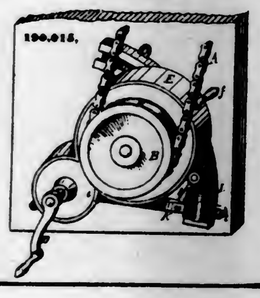
The Y-shaped metal bar L, having journal-bearings *l l'*, Y-shaped brace M, and crank-shaft O, in combination with the vertically-vibrating reel and its operating mechanism, substantially as and for the purpose set forth.

190,014. AUTOMATIC HOSE-REELS. Henry C. De Witt, Chicago, Ill. [Filed Apr. 11, 1877.]



The reel having its hollow shaft E connected to the supply-pipe D, and provided with the adjustable or sliding sted *s*, in combination with the stop-cock H, provided with the arm I, all constructed and arranged to operate substantially as described.

190,015.



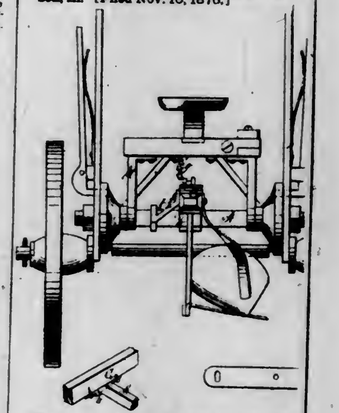
190,015. FIRE-ESCAPES. Charles Dwight, Brookline, Mass. [Filed Mar. 9, 1877.]

1. In a hose-elevator, the combination, with the endless chain A, of the pulley B, operated by a crank, and the case E, of the form substantially as shown, inclosing the operating mechanism, when the said case is pivoted at one end, and adjustably secured at its opposite end, substantially as described, for the purposes set forth.

2. In combination with the frame E, having projecting lugs F and G, the frame K having hub *i*, and segmental rim L, when constructed and arranged substantially as described, and for the purpose specified.

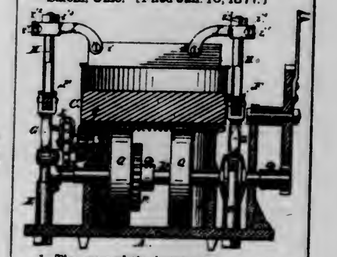
3. In combination with the pulley B, spindle *b*, gear-wheel C, pinion *c*, spindle *d*, and crank D, arranged within a box-frame, E, having lugs F and G, the wall-frame K, having hub *i*, and rim L, substantially as described, and to operate in the manner specified.

190,016. PLOWS. Wm. L. Edwards, Ellison, Ill. [Filed Nov. 16, 1876.]



The combination, in a wheel-plow, of the square axle A, the beam G, supported on top of the same, and held thereto by the clip *b*, and the brace H, connected to the beam, and having a square loop to pass around the axle, thereby providing for lateral adjustment of the beam on the axle, all constructed substantially as and for the purposes herein set forth.

190,017. MEAT-CHOPPERS. M. L. Edwards, Salem, Ohio. [Filed Jan. 10, 1877.]



1. The cup and the knives of a meat-chopping machine, the downwardly-bent knife-carrying arms I, adjustably attached to the reciprocating cross-head extensions H, the cross-head or cross heads F, and their guide-posts E E, arranged and adapted for operation at the side and outside of the tub, substantially as herein set forth.

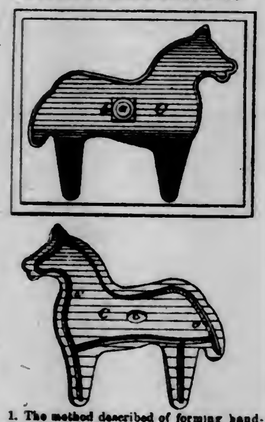
2. The combination, with the tub feeding and knife-operating connections, of the crank-shaft D, its balance-wheels Q Q, the tub C, and its segmental supports B B, the several parts being organized, supported, and adapted for co-operation, substantially as herein set forth.

3. The arms I, having split clamps *i* at their outer ends, and branches *i* for the knives at their inner ends, and the external side cross

head connections H and guide-posts B, for adjustment and support, all constructed and arranged for operation substantially as herein set forth.

4. The meat-chopping machine comprising the feed device, consisting of the pinion K, ratchet-wheel L, ratchet M, counter-shaft N', and gears O P, with the tub C and knife-operating connections, all constructed and adapted for co-operation substantially as herein set forth.

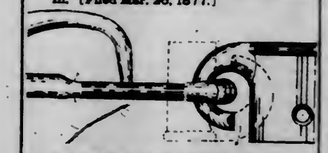
190,018. CAKE-CUTTERS. Henry Brainger, Amana, Iowa. [Filed Mar. 1, 1877.]



1. The method described of forming hand-cutters for confectioners' use, consisting of molding the strip which forms the cutting-edge around a pattern-block, and soldering it to the cutter-plate as each part of the strip is brought in contact therewith successively, as specified.

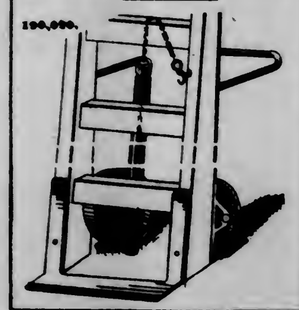
2. An apparatus for the manufacture of cake-cutters, the same consisting, essentially, of a supporting-block and a design-pattern, with mechanism for clamping a main-plate blank between the two, substantially as described.

190,019. WEIGHTLESS HOOKS AND CLIPS. W. D. Ewart and J. C. Coonley, Chicago, Ill. [Filed Mar. 26, 1877.]

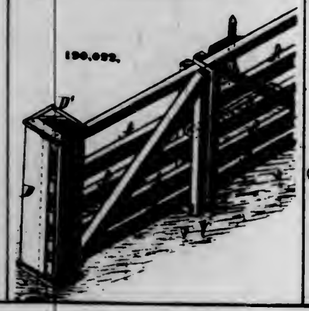


A ring ferrule or clip provided with a loop having a narrow opening at one end, in combination with a trace-hook, the ring of which is depressed at some one point, to adapt it to be passed through the opening in the loop for coupling and uncoupling, substantially as and for the purpose described.

190,020.



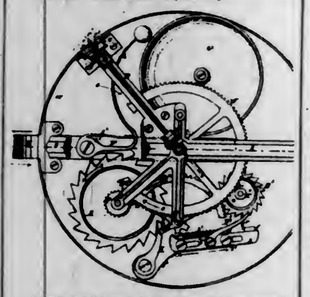
190,022.



190,036. HAND-TRUCKS. Hiram R. Ferris, Cleveland, Ohio. [Filed Feb. 13, 1877.]

The combination, with a hand-truck, of a single chain-receptacle, a chain having a spring or weight secured to one end and a hook to the opposite end, and an automatic chain-clamp, substantially as and for the purpose set forth.

190,021. PASSENGER-REGISTERS. Jno. W. Fowler, D. F. Lewis, W. H. Smith, and L. Fischer, Brooklyn, N. Y.; said Smith and Fischer assignors to said Fowler and Lewis. [Filed Mar. 10, 1877.]



1. The feed-pawl and hammer F, arranged and operating as described, in combination with the ratchet-wheel R, bell or gong G, spring-retracted slide S, and pawl and hammer spring s^3, for rotating the trip-hand shaft, and subsequently sounding an alarm, at each actuation of said slide, in the manner herein set forth.

2. The slide S^2 carrying the feed-pawl F^2, and constructed with the shoulder p, in combination with the ratchet-wheel R^2 on the shaft of the hundreds-dial, the wheel W^2 and its pin p', and the retracting-spring s^2, substantially as shown, for moving the hundreds-shaft instantly when the permanent hand reaches zero.

3. The combination of the inclined pin or flange f, notched crown-flange a, lever r, and spring s', with the slide S^2, and ratchet-wheel R^2, substantially as shown, for locking and unlocking the hundreds-shaft, in the manner set forth.

4. The bevel-gears b b^2, the shaft D having the notched flange c, and the stop-spring s^4, engaging with said flange, in combination with the hub of the trip-hand, for turning the latter by key, and stopping the same at zero, as herein set forth.

5. The guard pawl or pawls g g^2, arranged with reference to the key-hole K, as described, in combination with the key K, and the shaft D adapted to be operated by said key, the object of the same being to insure turning the trip-hand backward to zero when it is reset.

6. The combination of the shafts A B C, gearing P W W^2, ratchet-wheels R R^2, spring-retracted slides S S^2, the feed-pawl and hammer F, and the feed pawl F^2, with the trip-hand H, permanent hand H^2, hundreds-dial H^3, and bell or gong G, for simultaneously registering units on two dials, sounding an alarm after the registration of each unit, and actuating the hundreds-dial instantaneously at the proper moment in the manner herein set forth.

190,023. SWINGING GATES. H. B. Freeman, Charleston, Ill. [Filed Jan. 20, 1877.]

Brief.—The gates are removable from the posts, and can turn on them at any point of elevation, and the pivots are protected from the rain.

In combination with the stationary posts G G, having tenons a a, the gates A A, each provided with a hollow post, D, with closed tops D', which envelope the posts G and revolve on the same, substantially as set forth.

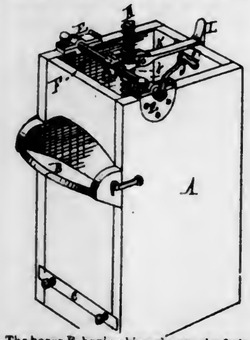
190,025. PROCESSES OF ENAMELING PHOTOGRAPHS. M. B. Freeman, Detroit, Mich. [Filed Mar. 10, 1877.]



1. The process of enameling photographs, consisting in flooding the picture with a gelatine solution, while firmly held in a frame, then in pressing upon it a plate of glass, coated as described, so as to expel the air from between their faces, then in drawing off the surplus gelatine, and finally in leaving the said devices to dry, substantially as and for the purpose set forth.

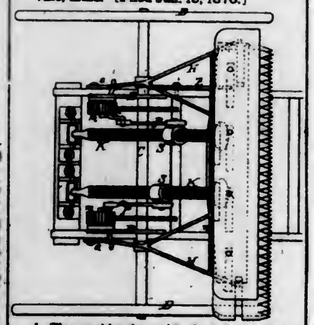
2. Frame A, provided with outlet a, valve or gate A', rests or fastening-plates a^1 a^2, base-board B, and suitable clamping devices, substantially as and for the purpose set forth.

190,024. BUTTER-WORKERS. D. A. Frick, Ottawa, Ohio. [Filed Jan. 13, 1877.]



The boxes E, having hinged caps, the forked guide-bar K, and spring-latch L, in combination with the box A, shaft F, and rack-bar H, as and for the purposes set forth.

190,026. MOWERS. B. L. Gilman, Somerville, Mass. [Filed Jan. 13, 1876.)



1. The combination, with the cutter-bar, of the rock-screw K, its reciprocating traveler S, and the mechanism whereby the latter is operated, substantially as specified.

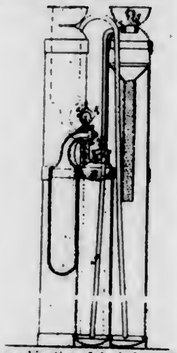
2. The combination, with the cutter-bars and their racks, of the rock-screws, their pinions and reciprocating travelers, the driving-gear, and the shaft of the driving-wheels, substantially as specified.

3. The combination, with the sickle and its pivoted arms H, of the oblique swiveled driving-screws k, and the lifting-lever Z, whereby the sickle is detached from its mechanism and raised simultaneously, substantially as specified.

4. The combination, with the slotted cutter-bars and swiveled driving-screws k, of the sickle-base-plate, its abutment-bearing b, bolts c, and arms H, substantially as specified.

190,028. FIRE-EXTINGUISHERS. Charles F. Girard, Paris, France. [Filed Mar. 26, 1877.]

Brief.—The cylinder numbered 1 acts as a generator. Receptacle No. 2 contains a solution of the triple sulphate of alumina, of soda, and of ammonia, neutral, acting, first, on the excess of bicarbonate coming from the generator. The third cylinder is designed to hold a solution of sulphur and alkaline silicate. The acid contained in the revolving bottle is preferably sulpho-glyceric. The liquids of these receivers are all extinguishing liquids, but the reactions resulting from their mixture augment the extinguishing properties.

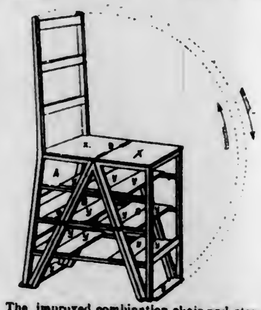


1. The combination of the independent and separate generator and one or more receivers, connected one to the other in succession by plunger-tubes, substantially as set forth.

2. The combination, with the generator, of the acid containing bottle or receptacle arranged outside of the generator and communicating with the same through a two-way cock, through which also the acid-containing bottle is filled, substantially as set forth.

3. The combination, substantially as set forth, of the external acid-containing bottle or receptacle, the generator and one or more receivers connected one to another in succession, the combination being and acting as set forth.

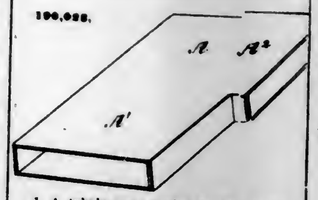
190,027. STEP-LADDER CHAIRS. H. Goffette, Dubuque, Iowa. [Filed May 16, 1876.]



The improved combination chair and step-ladder herein described, consisting of three sections, A B C, having steps y y and seat x x, all hinged together at D, substantially as and for the purpose herein shown and specified.

190,029. FRAME-CORNERS. J. E. Goodrich, Sycamore, Ohio. [Filed Aug. 19, 1876.]

190,033.



1. A tubular, rectangular, metallic frame-corner having the sockets A^1 A^2, substantially as described, and for the purpose set forth.

2. The tubular metallic frame-corner A, constructed by bending over the blank B, made out of a single piece of sheet metal, substantially as described, and for the purpose set forth.

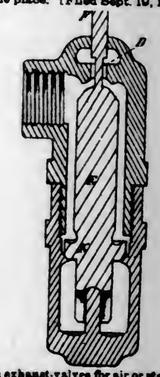
3. The blank B, having recesses B^1 B^2 B^3 and rectangular slots or cuttings B^2 B^3, substantially as set forth.

190,030. WASH-BOILERS. H. Gotthardt, Louisville, Ky. [Filed Mar. 20, 1877.]



The false bottom B, having downwardly-projecting rim or flange C and perforations b b, and provided with downwardly-projecting perforated flanges c, in combination with the detachable plugs or staffs D D, arranged to operate substantially in the manner and for the purpose herein shown and specified.

190,031. EXHAUST-VALVES FOR AIR-BRAKES. A. F. Gue, Boston, Mass., assignor of one-half his right to G. F. Field, same place. [Filed Sept. 19, 1876.]



1. In exhaust-valves for air or steam brakes, the combination, with a suitable valve chamber, of a weighted double-ended valve, provided with a convex head and a single concave flange, and so arranged that the action of the air or steam in passing through the valve will cause the induction and eduction ports to be automatically opened and closed for the purpose of supplying air or steam to the cylinders, or of exhausting the same, substantially as set forth.

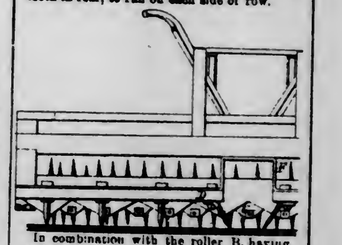
2. The valve-flange K, constructed with a concave upper surface, substantially as and for the purpose set forth.

3. In combination with the valve-chamber, provided with seat L and eduction-port D, the weighted valve E, constructed with flange K, stem F, and the convex head, as described, for the purpose of closing said port by mere abutment.

4. The combination of spindle H and valve E, provided at its lower end with slots O, as set forth.

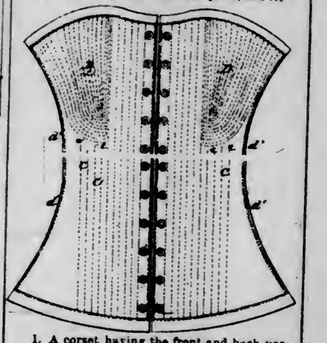
190,034. CULTIVATING-HARROWS. Robert Hamilton, Franklin, Ind. [Filed Mar. 16, 1877.]

Brief.—A cultivating straddle-row harrow, with toothed roller in front, and two pivoted teeth in rear, to run on each side of row.



In combination with the roller B, having teeth arranged thereon each side of a central space, the rear bar D, having bridge F, and provided with two angular pivoted harrow-teeth, G G, all substantially as set forth.

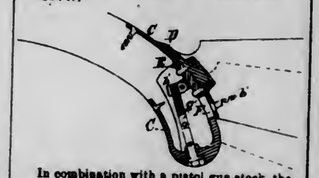
190,035. CORSETS. Maggie M. Harriman, Kansas City, Mo. [Filed Apr. 7, 1877.]



1. A corset having the front and back portions cut as described, so that when united the sides will be straight between the points d' d', substantially as shown, and for the purpose specified.

2. In a corset, the combination of the back-stiffeners C, terminating at s, and the quilted shoulder portions D, of the configuration shown, the whole being arranged as and for the purpose specified.

190,032. ADJUSTABLE GUN-STOCKS. H. Hartley, Pittsburg, Pa. [Filed Feb. 1, 1877.]



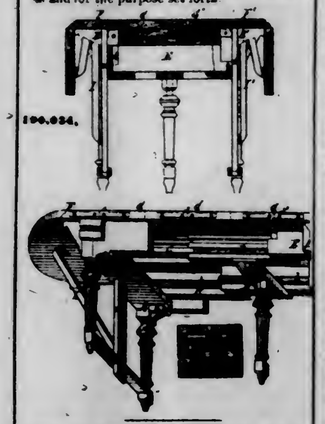
In combination with a pistol gun-stock, the metallic casing U O, provided with the dovetailed slot F, the covering-piece D, the key-slide E, secured by the screws d' d', and pivoted nut h', and screw g', or their equivalents, substantially as and for the purpose herein-before set forth.

190,034. EXTENSION-TABLES. Geo. Hess, New York, N. Y. [Filed Mar. 1, 1877.]

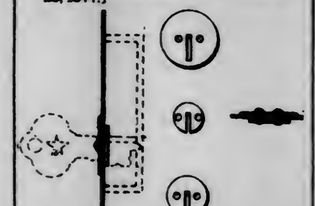
1. The combination, in an extension-table, of rising and falling end sections F F and two sets of hinged leaves, G G', each set of leaves being connected to one of the end sections by hinge-joints, substantially as and for the purpose herein shown and described.

2. The combination, with the extension-rails G D E, of cylindrical sockets *a* and correspondingly cylindrical guides *b*, substantially as and for the purpose set forth.

190,034.



190,035. KEY-GUIDES FOR LOCKS. Louis Hillebrand, Philadelphia, Pa. [Filed Mar. 23, 1877.]



The rotary key-guide for flat keys, the same consisting of a slotted flat disk fitted in the circular opening of the face-plate of the lock, and rotatingly secured to said plate by means of disks, which overlap the wall of said opening on opposite sides, the several disks being formed of sheet metal, substantially as and for the purpose set forth.

190,036. ICE-MACHINES. Daniel L. Holden, Covington, Ky. [Filed Jan. 31, 1877.]

Brief.—The horizontal cylindrical refrigerator-case contains a revolving pipe-coil, through which, by means of suitable axial connections, the brine or other non-congealable liquid is forced. From this coil the cold brine passes to a trough in a case above the congealer, and trickles through perforations in the bottom of the trough, and over wire-gauze screens, and has its temperature transmitted to a blast of air, which is forced in constant circulation through these screens, and through the congealer, in which the water-pans are placed on rollers, and have counterbalanced deflecting-plates swinging above. The brine is drawn from the bottom of the air-cooling case, and pumped back into the revolving brine-coil, which dips in the ether or other volatile liquid, and is cooled by the evaporation thereof. This evaporation takes place to fill a vacuum produced by pumps of peculiar construction. The gas then passes to an ordinary condenser, and from thence in a liquid form to a receiver, from which the gas that may have escaped from the condenser passes to a superimposed dome, which is cooled by the evaporation of a volatile fluid contained in the space between said dome and a surrounding case. From the dome or "purger" the air is allowed to escape through a pipe and stop-cock, and the liquefied gas is precipitated to the receiver, from which the passage of the volatile liquid to the refrigerator-case is regulated by an interposed float-valve.

1. The refrigerator, consisting of an outer case, a rotary shaft, having hollow ends communicating with a supply and exhaust pipe, and a set of pipes, chambers, or passage-ways for the fluid to be refrigerated communicating with the hollow ends of the rotary shaft, and arranged to revolve with the latter, substantially as and for the purpose described.

2. The combination, with the case A for a volatile liquid and gas, and the rotary shaft journaled in the same, of the stuffing-boxes *d*, and the water-sealing boxes *e*, as and for the purpose described.

3. The purger, consisting of the dome O, having a direct communication with the receiver, and a blow-off pipe and cock, and the outer dome O', forming a closed annular chamber about O, and having a communication, *q*, with the receiver, and a connection, *r*, for an exhausting apparatus, substantially as and for the purpose described.

4. The combination, with the refrigerator-case A, and the receiver J, of a communicating-pipe, *s*, provided with an automatic float-valve, *t*, as and for the purpose described.

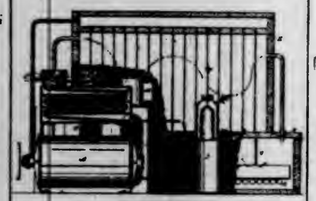
5. The air-refrigerating case K, consisting of the distributing-pan Q for the non-congealable liquid, having its bottom perforated in rows, and combined with subjacent vertical partitions of gauze-wire or fibrous netting, arranged edgewise beneath the rows of perforations, and separated by baffle-plates, as and for the purpose described.

6. The congealing-case P, having doors at both ends, and supporting rollers or ways for the pans, in combination with the counterbalanced deflector-blades U, substantially as and for the purpose described.

7. The combination of the refrigerator A, pumps H, condenser I, and receiver and purger J, substantially in the manner and for the purpose set forth.

8. The combination, with refrigerator A, pumps H, condenser I, and receiver and purger J, of the air-refrigerating case K, the circulating-pump L, the congealing-case P, and the blower N, as and for the purposes specified.

190,026.



190,027. LAMPS. C. T. Holloway and W. H. H. Stineman, Baltimore, Md., assignors to D. H. Flack, same place. [Filed June 26, 1876.]

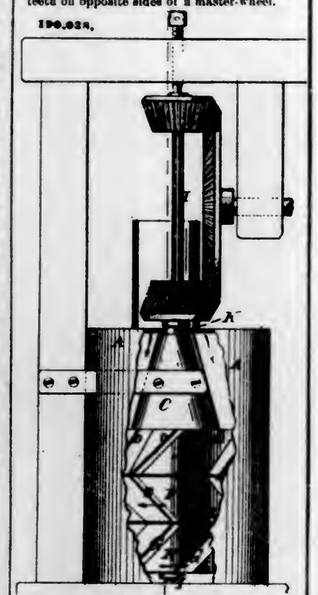


A lamp-wick of round woven material, filling the body of the lamp, in combination with an ordinary lamp-wick inserted therein at one end, leading through the wick-tube, substantially as set forth.

190,028. TURBINE WATER-WHEELS. Jos. Hough, Buckingham, Pa. [Filed Nov. 4, 1876.]

Brief.—Two turbines are placed in a single inclosement, and revolving in opposite directions, the water being delivered at right angles to the buckets of the upper wheel by means of a series of fixed chutes, and discharged from the buckets of said upper wheel upon and at right angles with the buckets of the lower turbine wheel, the shaft of the aforesaid upper turbine wheel being hollow, and inclosing the shaft of the said lower wheel, the opposite rotary motions of the said shafts being converted into rotary motion in a single shaft by means of gears meshing into the teeth on opposite sides of a master-wheel.

190,029.



The combination of the inclosement A, the support C, and inclined chutes D, carried by said support, with the turbine wheel F, having the inclined chutes E, and keyed to the sleeve K, and the wheel H, having the inclined chutes G, and keyed to the shaft I, for operating the master-wheel, the whole being constructed and arranged to operate substantially as herein shown and described.

190,030. WEATHER-STRIPS. Geo. Howver, Mansfield, Ill., assignor of one-half his right to John Clouser, same place. [Filed Mar. 23, 1877.]

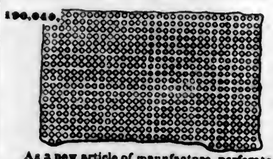


The combination, with the door B, the lower edge of which has a rectangular recess, C, formed thereon, of the swinging weather-strip D, secured to the edge of the door by staples, and metallic plate E, said weather-strip being of sufficient width to rest in direct contact with the angular face of the door-sill, substantially as and for the purpose set forth.

190,040. LEATHER FOR ORNAMENTATION. Henry Huck, Baltimore, Md. [Filed Mar. 16, 1877.]

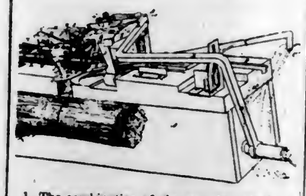
Brief.—Leather is reduced to a proper consistency, and perforated finely and regularly, so as to be adapted for purposes of embroidery or thread ornamentation.

190,040.



As a new article of manufacture, perforated leather prepared in sheets for use in the arts of embroidery and thread ornamentation, the perforations being regularly spaced and shaped, and cleanly cut, as specified.

190,041. GRAIN-BINDERS. H. Hull, West Exeter, N. Y. [Filed Feb. 26, 1877.]



1. The combination of the carrying-pinchers *b*, the looping-pinchers *c*, the tying-pinchers K, the gripers E, and the knife T, substantially as and for the purpose described.

2. The combination, with the tying-pinchers K, of a catch, *m*, arranged to hold the loop while it is being formed, and to be withdrawn into the limits of the loop to allow the same to slip off when the pinchers are closed, as and for the purpose described.

3. The combination, with the tying-pinchers K, of the gripers E, composed of independent pivoted hooks *g* and *d*, arranged to clamp the cord, to move together in line with pincher-jaws, and backward into the same, substantially as described, and for the purpose set forth.

4. The fulcrum-bar C, carrying looping-pinchers, and having a compound motion, in combination with the slotted guide D', having a spring leading tongue or switch, *d'*, substantially as and for the purpose described.

5. The combination of cam-trigger H, connected with bar C, the horizontal spring-arm I, or its equivalent, as described, and throat-plate P, as and for the purpose specified.

6. The combination, with the tying-pinchers, of a hook, L', for drawing the knot down to the bundle, substantially as described.

7. The combination of slide D, having pins *f* and *b'*, the spring-latch Q, sliding plate R, spring-arm I, and rock-arms *r s*, as and for the purpose described.

8. The combination of the cam-trigger H with the releasing-latch f_1 and the pivoted spring-actuated gripers E, substantially as described.

9. The tension-arm A, in combination with the gripers E, tying-pinchers K, and looping-pinchers *c*, for the purpose described.

10. The combination, with the tying-pinchers K, of the looping-pinchers *c*, having lug *i*, and a forked arm, *j*, for the purpose of placing the loop around the tying-pinchers, as described.

11. The link *l*, in combination with the forked arm *j*, the spring-arm I, and the cam-triggers H, as and for the purpose described.

12. The combination, with the pivoted spring-actuated gripers, of the lever-catch *o* and the cam-trigger H, having hook *n*, substantially as and for the purpose described.

13. The slide-arm *m*, moving with slide D, and having a pivoted cam or dog, *u*, and hook *w*, in combination with the carrying-pinchers *b*, having lug *x* and hook *v*, together with the spring-actuated cord-slide N, carrying tension a^1 and arm *y*, substantially as described, and for the purpose set forth.

14. The sliding knife T, having a cam upon its under surface, and moving in a stationary guide-standard, combined with, and located between, the carrying-pinchers *b* and the gripers, substantially as and for the purpose described.

15. The combination, with the knife, the tying-pinchers, and its adjuncts, of the sliding arm M, the latch-detent O, the base-slide P, and the notched base-frame, as and for the purpose described.

16. The combination with the spring-actuated tying-pinchers K, of the pivoted cam-bar b^1, arranged upon the slide D to open the tying-pincher jaws, as described.

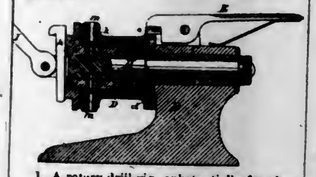
17. The gripers E, having arm h', in combination with the lever-catch *o*, having pin *i*, and the detent d^1, which holds open the tying-pincher jaws, for the purpose described.

18. The notched setting-bar d^2, pivoted to the slide D, and combined with the griping devices, to set the same against the tension of the springs, substantially as described.

19. The slide D, having pendent pin d^2, in combination with the spring-arm I, having flange f^1, as and for the purpose set forth.

190,042. WORK-HOLDING DEVICES FOR DRILLING-MACHINES. A. Hurd, Yonkers, N. Y. [Filed Feb. 21, 1877.]

Brief.—A central stud, of diameter exactly equal to the shaft upon which the work to be drilled is finally placed, is rigidly secured in the gig or holder. The holder is secured in the desired position by a spring-latch, which enters one of a series of notches cut on its periphery.



1. A rotary drill-gig, substantially for the purpose described.

2. A rotary drill-gig, substantially as described, combined with an angular index and stop-latch to determine the proper angular movement of said gig.

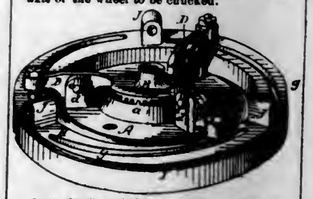
3. A rotary drill-gig, D, combined with a clamping device to hold the blank rigidly, as set forth.

4. A rotary drill-gig, D, provided with peripheral notches *e*, and holding-latch E, combined with the clamp-roll H and cam *l*, as set forth.

5. A rotary drill-gig, D, with drill-guide holes *k* and removable thimbles *m*, adapted to various sizes of drills, as described.

190,043. CHUCKS. A. Hurd, Yonkers, N. Y. [Filed Feb. 21, 1877.]

Brief.—The curved grooves traversed by the screws in the ends of the griping-levers are formed in a ring that is somewhat convex on its under side, and that lies in an annular groove in the chuck-plate, that is somewhat concave, and the grooves first named have inclined bottoms, and are eccentric to the axis of the wheel to be chucked.



1. A chuck for holding special members or devices, provided with a central seat adapted to receive and hold such special member, combined with self-adjusting holding levers or jaws, to gripe and hold said member, substantially as set forth.

2. A chuck provided with a conical seat, *a*, having three bearing-points, *a'*, combined with levers D, actuated by a ring, H, having inclined spiral grooves, whereby the points of said levers are advanced and depressed by a single movement of said ring.

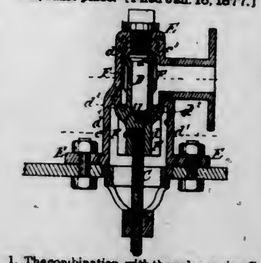
3. The cam-ring H, provided with inclined spiral grooves *g*, seated in the concave rim I, whereby it is capable of self-adjustment, as set forth, combined with the radial levers D, having pins F entering said grooves, whereby said levers are simultaneously advanced and adapt themselves to unequal surfaces, as set forth.

4. The levers D, constructed with longitudinal slots for the fulcrum-pins *s*, combined with a cam-ring provided with spiral grooves, having inclined bottoms, as set forth.

5. A chuck having automatic levers or jaws D D for griping and holding the object to be bored, and the seat *a*, to receive and support said object, combined with a hub at the back and a truly-axial guide-hole, *n*, therein, to receive and guide the point of the boring-tool, as set forth.

6. The teeth *c c c*, constructed on the convex surface of the chuck-plate *a*, substantially as set forth, and for the purpose described.

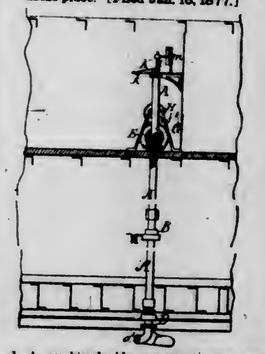
190,044. WATER-FENDERS FOR STEAM-BOILERS. D. Ifland, Hamburg, Germany, assignor of one-half his right to E. Hadenfeld, same place. [Filed Jan. 16, 1877.]



1. The combination, with the valve-casing E, having annular seats e^2 e^3, of the cylindrical valve, having annular faces d^2 d^3, an enlarged base, d^4, and shank *d*, said base being provided with ports *f*, and the guides F, all constructed and operating substantially as described, for the purpose specified.

2. The cylindrical double-seated valve D, the threaded recess *i*, adapted to receive a valve-lifter, in combination with the casing E, having an opening in its head, substantially as described, for the purpose set forth.

190,045. SPEED AND CURRENT INDICATORS. D. Ifland, Hamburg, Germany, assignor of one-half his right to E. Hadenfeld, same place. [Filed Jan. 16, 1877.]



1. A combined side current detecter and speed-indicator for vessels, consisting of a hollow or tubular connection, open at both ends, between an index traveling over a suitably-graduated horizontal scale on one of the decks of the vessel, and a rudder or wing below the keel of said vessel, the hollow connection being adapted to rotate under the action of the rudder, and a rigid connection between a float within said tubular connection and an index traveling over a suitably-graduated vertical scale, all combined, constructed, and arranged to operate substantially as described.

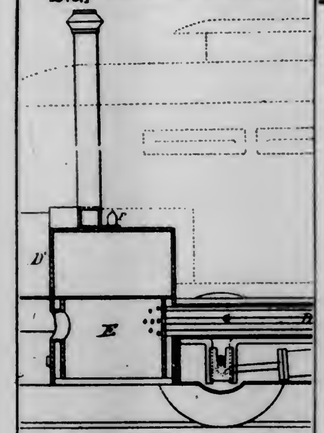
2. The sleeve B and bosses C, having annular groove *b* and annular projection *c*, or their equivalents, the set-screws *c'*, and the pipe A, all combined, constructed, and operating substantially as described, for the purpose specified.

3. The pipe A, having a screw-thread at or near its upper extremity, the bevel-pinion E, having its hub threaded to fit the thread on pipe A and mounted thereon, the bevel-pinion F, and gear-wheel G, mounted on shaft *f*,

the pinion H, mounted on shaft h, and the crank h', all combined, constructed, and operating substantially as and for the purpose specified.

4. The bevel-pinion E, having the inner periphery of its hub threaded, and its lower face provided with an annular projection, e, in combination with the grooved sleeve B and the threaded pipe A, all constructed and operating substantially as and for the purposes specified.

190,646. STEAM STREET-CARS. J. D. Imbodeu, Richmond, Va. [Filed Dec. 28, 1876.]



1. An engine-truck frame, carrying the engine and boiler, having at one end the engineer's cab, and having the rest of its surface level and free for the reception of an independent car-body, substantially as specified.

2. The under truck, carrying the boiler and engine, having a pivotal connection for the car in front, and receiving its weight upon a traverse track or bearing, substantially as specified.

3. In a truck-frame, a horizontal boiler having at each side a horizontal parallel cylinder-heater, at one end a transverse smoke-box, connecting said boiler and heaters, and at the other end the steam-dome and furnace, substantially as specified.

4. The combination, with the flattened elliptical boiler, to economize space under the car, of the parallel lateral cylinder-heaters, connected therein, substantially as specified.

5. In a truck-frame, the combination, with a horizontal-tubed boiler, of lateral-tubed heaters connected therein, transverse smoke-box, and vertical furnace and steam-chamber, substantially as specified.

6. In a car-motor, the combination, with the transverse fixed double-chambered steam-cylinder bearing K, of the oscillating cylinders, having head-bands encircling said bearing, and receiving and discharging steam through the ports in said head-bands, substantially as specified.

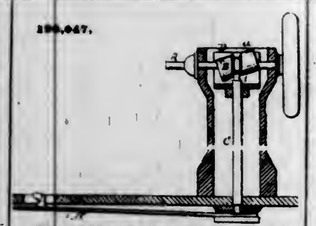
7. The combination, in a truck-frame, of the horizontal boiler D W W and the oscillating engines, arranged thereunder, substantially as specified.

8. In a truck-frame, the combination of the longitudinal horizontal boiler, and, arranged thereunder, the oscillating engines, the ends of which bear on a fixed cylinder provided with double steam-passages, substantially as specified.

9. In a car-motor consisting of a truck, a boiler arranged therein, and an engine arranged under the boiler, the combination of the piston-cylinders and their transverse bearing, the throttle and reversing and stopping valves, and the closed safety-valve, substantially as specified.

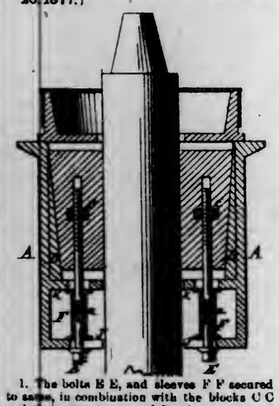
190,647. SEWING-MACHINES. F. Jacob, Newark, N. J. [Filed Jan. 31, 1877.]

Brief.—The rotation of the horizontal shaft causes a reciprocatory rotation or rocking of the upright shaft, and lateral displacement of the upright shaft is prevented by its projection working in the groove in the inclined cylinder.



The combination, in a sewing-machine, of the shaft A, the inclined cylinder carried by said shaft, the vertical shaft C, carrying a box, D, inclosing the cylinder, arranged directly below the shaft A, and provided with a projection, i, adapted to a groove, c, in the cylinder, as set forth.

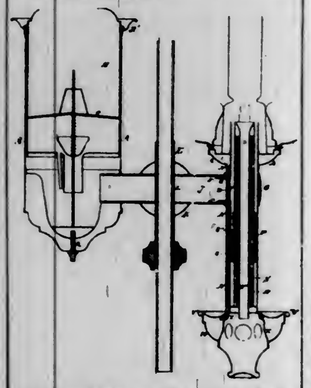
190,648. MILL-BUSHES. R. T. Jennings, Sr., Richmond, Va., assignor of one-half his right to J. B. Crenshaw. [Filed Mar. 20, 1877.]



1. The bolts E E, and sleeves F F secured to same, in combination with the blocks C C and their nuts e e, as and for the purpose set forth.

2. The combination of the case A, wedges D D, bush-blocks C C, bolts E E, the flanged sleeves F F, secured to the bolts by the pins e, and the nuts e e, all constructed substantially as and for the purposes herein set forth.

190,649. STUDENT-LAMPS. J. Kirby, Jr., Cincinnati, Ohio, assignor to Post & Co. [Filed Mar. 2, 1877.]



1. A reservoir or cylinder, A, having a flaring flange, a', to receive any oil that may escape from the reservoir B while being removed or placed in position, substantially as specified.

2. The combination of feed-tube J and smaller slide-tube L, united at the intersection, and covered by globe or ornament K, substantially as and for the purpose specified.

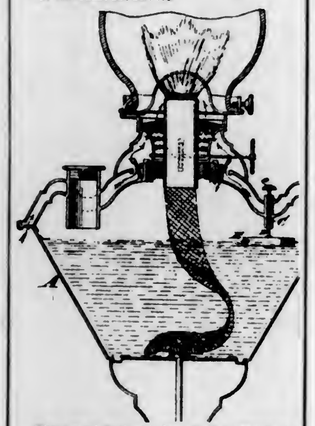
3. The collar O 5 s, in combination with the burner-tube P and feed-tube J, substantially as before set forth.

4. The drip-tube N, leading from the receptacle h to the aperture e, or through said aperture to the drip-cup W, substantially as described.

5. An interior draft-tube, T, constructed so as to form an enlargement at the top, to admit of the expansion of the air before it reaches the flame, said enlarged upper end being wholly within and surrounded by the wick-tube, substantially as and for the purpose set forth.

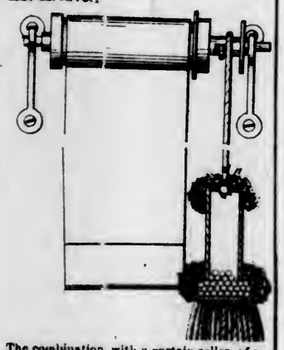
6. The wick-adjusting flange V, in combination with the interior draft-tube T, screw-tube S, slotted tube R i, and wick-sleeve U 3, substantially as and for the purpose specified.

190,650. LAMPS. J. Kirby, Jr., Cincinnati, Ohio, assignor to Post & Co., same place. [Filed Mar. 19, 1877.]



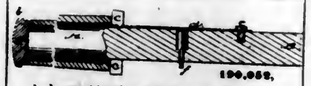
The vessel A C and float D E e, combined substantially as and for the purpose specified.

190,651. CURTAIN-TASSELS. S. H. La Rue, Frenchtown, N. J., assignor of one-half his right to A. Brink, same place. [Filed May 31, 1876.]



The combination, with a curtain-roller, of a cord and tassel, the latter having a hollow metallic body adapted to serve as a receptacle for shot or sand, said cord having at its end a metallic screw-threaded tip constructed to enter and be secured in the aperture through which the shot is introduced, as and for the purpose set forth.

190,652. HUB-ATTACHING DEVICES. Jas. Lathrop and F. H. Allen, Norwich, Conn., assignors to J. Lathrop and J. R. Warner, same place. [Filed Feb. 21, 1877.]



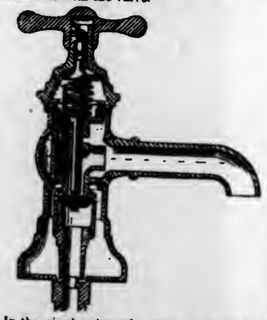
190,652.

1. In combination with the axle A, the tube C, provided with the flange b, locking-lugs a, and openings i, as described, and for the purpose specified.

2. In combination with the axle A and tube C, the spring d and rod f, all arranged and operated as and for the purpose specified.

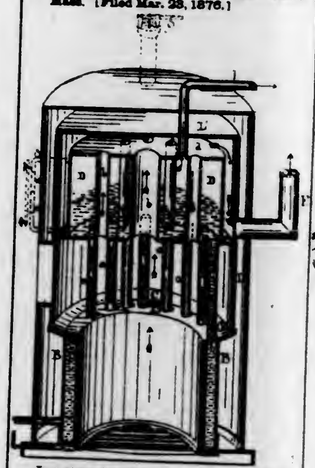
190,653. FAUCETS. H. B. Leach, Boston, Mass. [Filed Mar. 1, 1877.]

Brief.—There is a passage way between the water-inlet and the air-chamber. The latter is supplied with air through an air-valve, opened by means of the main valve-stem, and at the same time with the valve.



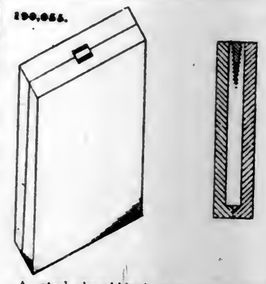
In the air-chamber of a faucet, a passage leading from the main inlet water-way of the faucet into the air-chamber, combined with an air-supplying valve, substantially as shown and described.

190,654. STEAM-HEATING APPARATUS. C. Le Bosquet and J. Le Bosquet, Haverhill, Mass. [Filed Mar. 23, 1876.]



In a steam-heating apparatus, the combination and arrangement of a reservoir, D, surrounded by a chamber, through which the products of combustion are caused to descend and circulate, and which is separated from the combustion-chamber by means of a flange, c, the water-chamber B, the pipes a a, and tubes b b, the flue F, arranged as described, the steam-pipe I, and the casing L and cover L', all constructed and operating substantially as set forth.

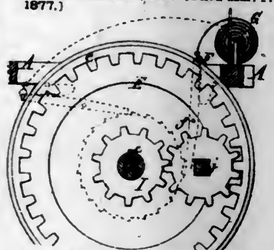
190,655. MANUFACTURE OF SHOVEL-BLANKS. Albert Maltby, Pittsburg, Pa. [Filed Nov. 18, 1876.]



190,655.

A steel shovel-blank cast in one piece, having lugs C C, and a cavity for the reception of the lower end of the handle, the inner walls of the lugs being wrought-iron, substantially as herein described, and for the purpose set forth.

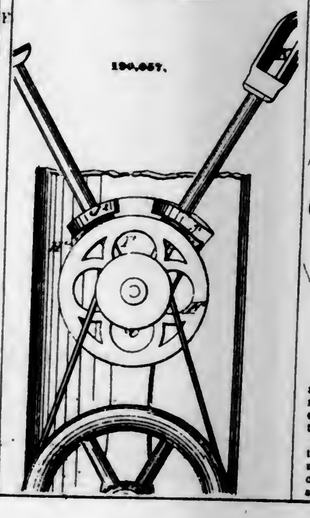
190,656. CAR BRAKES AND STARTERS. W. Marean, Galveston, Tex. [Filed Mar. 17, 1877.]



1. The combination of the ratchet-wheel D, the disk E, having an inner gear, e, and a pawl-lever, F, the spring G, the horizontal sliding wheel J, and the driving-wheel I, all for the purpose of unwinding the spring G and starting the car-wheel, substantially as set forth.

2. The ratchet-wheel D and disk E, provided with an inner gear, e, a clutch, e', and pawl-lever F, and the axle C', having a straight-sided key, c, in combination with the sliding driving clutch-wheel I, the intermediate wheel J, which slides longitudinally upon the axle f, and the independent operating-levers, whereby both the starting and checking of the car are effected, substantially as described.

190,657.

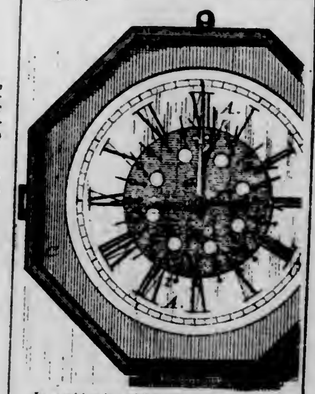


190,657. PEG FLOATS OR OUTTERS. Thos. C. Maris and S. M. Hart, Marietta, Ohio. [Filed Oct. 14, 1876.]

1. The combination of the rotating shaft I with cutter K, having knife-edge side k^1 and serrated side k^2, substantially as set forth.

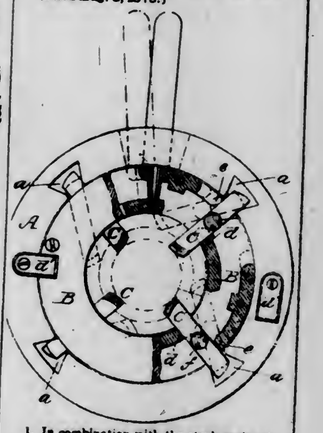
2. The combination, with a rotating cutter, consisting of an elongated beet blade, of fixed shield, shaped like a cylinder open below and tapering to a point in front.

190,658. WATCHMEN'S TIME-DETECTORS. J. H. Marvil, Laurel, Del. [Filed Mar. 21, 1877.]



In combination with the hour-hand shaft of a clock or other time-piece, a rotating disk carrying a series of pointers adapted to pass at stated intervals a key-hole or key-holes in the glass face of the door of the clock, and to be operated by means of a key in the possession of the watchman, the door of the casing of the clock being provided with a locking device, under control of the superintendent or other person in charge, to prevent the fraudulent change of the pointers by the watchman, substantially as described.

190,659. SCREW-CUTTING DIES. Saml. W. Martin, Springfield, Ohio, assignor of one-half of his right to P. P. Mast, same place. [Filed Aug. 3, 1876.]



1. In combination with the stock or ring A, and the case or holder B mounted therein, the reversible pivoted dies or cutters C, constructed and arranged substantially as shown, that they may be turned end for end, as described.

2. In combination with the stock A, having the internal recesses a, the ring or case B mounted therein and provided with the pivoted die C, and with the shoulders d and e to sustain the same when in action.

3. A tool for cutting both right and left hand screw threads, consisting of an annular stock, A, a rotary reversible case or holder, B, mounted therein, and a series of pivoted reversible dies, C, mounted in said case and provided each with right-hand threads on one end, and left-hand threads on the other, as described.

4. In combination with the stock A, the hollow annular case or holder B, provided with the conical pivots *g* on its two inner sides, and the flat dies or cutters C, provided with the recesses *f* in their edges, and mounted in the case upon the pivots, as shown.

5. In combination with the stock or head A, provided with recesses *a*, a ring, B, provided with external studs *c*, and internal recesses *a'*, whereby the stock is enabled to hold die-cases of different sizes.

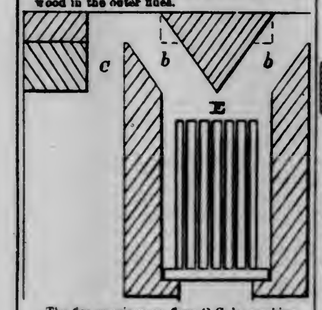
6. In combination with the annular case or ring B, and the dies C pivoted therein, the internal sliding guard-plate or shield G mounted therein, as shown.

7. In combination with the stock A, rotary case B, and pivoted dies C, the hand-lever E attached to the case for the purpose of turning the same within the stock to operate the dies.

8. A tool for cutting both right and left hand threads, consisting of dies having right and left hand threads on opposite ends, and a body or holder adapted to permit the reversal of the dies and for end therein, and to hold them in position for rotating and cutting either to the right or the left as occasion may require, substantially as shown and described.

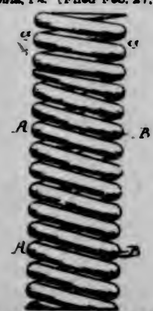
190,060. BRICK-KILNS. R. R. McDougrl, Indianapolis, Ind. [Filed Oct. 18, 1876.]

Brief.—Coal may be used on the grate and wood in the outer flues.



The fire openings or flues C C, in combination with the flues *b b* of the furnace E, with imperforate side walls, constructed as described, so that the flues C C can be used either separately or in conjunction with flues *b b*, to give a greater or less degree of heat, substantially as and for the purpose set forth.

190,061. CAR-SPRINGS. Allen Middleton, Philadelphia, Pa. [Filed Feb. 27, 1877.]



1. The within-described duplex differential spiral, consisting of the coil A, having different pitches, and the shorter coil B, having a pitch corresponding with that of a portion of the coil A, all substantially as set forth.

2. The combination of the duplex differential spiral, with one or more re-enforcing internal spirals, as set forth.

190,062. SAWS. W. P. Miller, New York, N. Y. [Filed Feb. 27, 1877.]

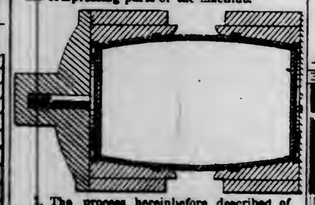


1. The tooth C, provided with the projection on its front *e*, in combination with the saw-plate A, having an inclined hook, *f*, forming a support for the bottom of the tooth, substantially as set forth.

2. The clamp B, having a circular tongue, *m*, in combination with the plate A and soft-metal joining-piece, substantially as and for the purpose specified.

190,063. MANUFACTURE OF BARRELS. R. M. Munroe, Edgewater, N. Y. [Filed Apr. 11, 1876.]

Brief.—A complete double barrel, having a suitable amount of lubricating substance introduced between the two cylinders, is formed at one operation. The head is held in position, while the barrel is being formed, by means of a yielding head-holder arranged within the compressing parts of the machine.



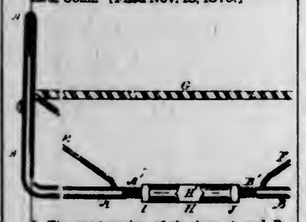
1. The process hereinbefore described of forming a double barrel, consisting of the introduction of a proper amount of lubricating substance between the two cylinders which form the barrels, and then compressing them, while at the same time the head is placed in position, so that a complete barrel is formed in one operation.

2. In combination with barrel-making machines such as described, the movable head-holder, constructed for operation substantially as shown and described.

3. The combination, in a barrel-machine, of the following elements, viz: a movable head-holder, a compressing mechanism, and a spring, all arranged for operation substantially as herein shown and set forth.

4. The combination of a barrel-making machine, such as herein described, with two plate head-holders, which are equal in thickness to the chines of the barrel, so that the inner barrel is forced to take a central position with reference to the outer barrel, substantially as shown and described.

190,064. BEDSTEADS. W. J. Myers, Hartford, Conn. [Filed Nov. 18, 1876.]



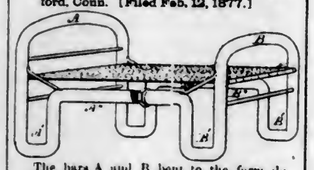
1. The combination of the bars A and B, bent to the form described, the braces E and F, and a central coupling-device, H, with an elastic web G, substantially as herein described.

2. The right and left screw-coupling H, in combination with the side bars of a bedstead-frame of the construction described, for the purpose of adjusting the longitudinal tension of the web, substantially in the manner herein set forth.

3. The combination of the set-nuts I J, with the coupling H, and the bars A B, having the threads A' B', substantially as and for the purpose herein described.

4. A bedstead frame consisting of two bent metallic tubular end sections, as set forth, and connected by central-screw couplings adapted to adjust the tension of the elastic webbing of the bed-bottom, substantially as described.

190,065. BEDSTEADS. W. J. Myers, Hartford, Conn. [Filed Feb. 12, 1877.]



The bars A and B, bent to the form described and shown, in combination with an elastic bed-bottom and a central fastening, substantially as herein set forth.

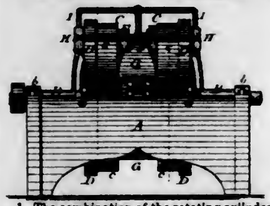
190,066. MECHANICAL MOVEMENTS. Nils Nilson, Minneapolis, Minn. [Filed June 16, 1876.]

Brief.—The adjusting-screw, through the bent lever, operates the slides, whereby the stroke of the rod for working a pump, &c., is increased or diminished.



A mechanical movement for producing a reciprocating motion and regulating the same, consisting of the slotted levers D D' E, bent rod F, and adjusting-screw G, all arranged and combined to operate substantially in the manner and for the purpose herein shown and specified.

190,067. ROTARY ENGINES. Nils Nilson, Minneapolis, Minn. [Filed Apr. 16, 1877.]

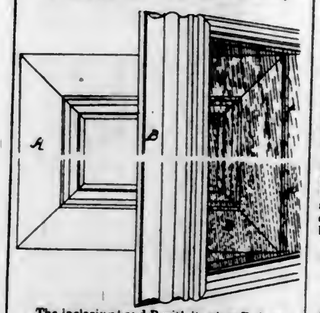


1. The combination of the rotating cylinder C, having steam-chambers C', and sliding abutments E, with the interiorly-arranged guide-plate G, having segmental recesses *g*, substantially as and for the purpose herein shown and specified.

2. The combination of the rotating cylinder C, constructed as herein described, with the disks D, having perforations *h* and *h'* for the induction and escape of the steam or other motive power, steam-chests H, induct-pipe I, and escape-pipe I, all arranged, combined, and operating substantially as and for the purpose herein shown and specified.

3. The rotary steam, water, or air engine herein described, consisting of the rotating cylinder C, having circumferential steam-chambers C', and sliding abutments E, in combination with the stationary guide-plate G, stationary disks D, steam-chests H, adjustable slide-valves *i*, induct-pipe I, and escape-pipes L, all constructed and combined for operation substantially in the manner and for the purpose herein shown and specified.

190,068. PICTURE-FRAMES. F. Odenbaugh, Springfield, Ohio. [Filed Aug. 3, 1876.]



The inclosing band B with its glass D, frame A, and back C, having their auxiliary connecting and fastening devices upon the back thereof only, the said band B adapted to be operated independently of frame A (to which it is hinged) when the latter is suspended by cord *o'*, substantially as described and set forth.

190,069. LAMPS. Leverett H. Olmsted, Brooklyn, N. Y. [Filed Mar. 21, 1877.]

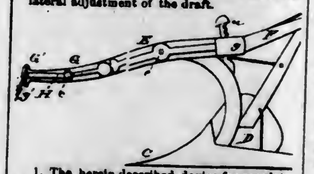


1. The flange *g* formed to fit within or around the cap *e*, in combination with the base *e*, provided with the arms *f*, for supporting the open-bottomed chimney with its bottom at or near the top of the wick-tube, substantially as and for the purpose specified.

2. The base *e*, constructed with an elastic flange or like elastic griping device fitting within or around the cap *e*, and provided with arms for sustaining the open-bottomed chimney, substantially as and for the purpose herein set forth.

190,070. PLOWS. J. A. Olson, Vase, Minn. [Filed Mar. 6, 1877.]

Brief.—The land-side handle is pivoted to the plow-beam, and extended forward to engage with the arm of the clevis. This handle is vibrated vertically, and locked by a spring-pawl and ratchet, causing the clevis-plate to be raised or lowered. Devices for the lateral adjustment of the draft.



1. The herein-described device for regulating the set of a plow, consisting essentially in the combination of the plow-beam A, having segmental ratchet *e*, with the engaging or coupling lever-arms G E, operating-handle F, and spring-catch *f*, substantially as and for the purpose shown and specified.

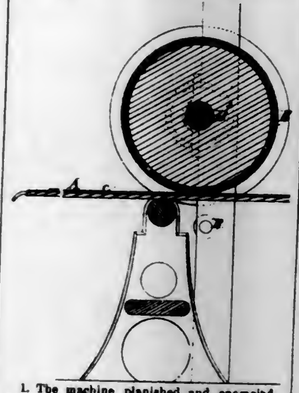
2. The combination of the plow-beam A, having bolt *c*, arm G, having clevis G', swinging bracket H, and bolt I, substantially as and for the purpose herein shown and specified.

3. The adjustable clevis-plate herein described, consisting of an upper plate, *s*, having pin or screw *q*, a correspondingly-shaped lower plate *o*, having perforation *r*, pin L, having step or shoulder *x*, and bolt or screw *z*, all constructed and combined to operate substantially in the manner and for the purpose herein set forth.

4. The combination of plow-beam A, swinging and adjustable arm E, having handle F, pivoted arm G, having clevis G', bracket H, bolt I, parallelogram K, and clevis-plate *n o*, all constructed and combined to operate substantially in the manner and for the purpose herein set forth.

190,071. PREPARING SHEET-ZINC. Andrew O'Neill, Ansonia, Conn. [Filed Sept. 8, 1876.]

Brief.—The transparent enamel is applied to the polished nickel-plated surface, to protect the same in transportation, and when manufactured into articles for which the sheet is intended.



1. The machine planished and enameled compound sheet of zinc and nickel herein described, as a new article of manufacture.

2. The process of preparing sheet-zinc for the market and for use by cold-rolling the sheet, and buffing, nickel-plating, and again buffing one or both sides, and finally coating the polished surface or surfaces with transparent enamel, substantially as herein set forth.

3. The process of preparing nickel-plated sheet-zinc for ship-sheathing, bath-tubs, and other purposes, consisting in cold-rolling the sheet after it is electroplated, as herein specified.

4. In combination with a rotary buff, B, the buffing-board A, having a covering of sheet-copper, to cause sheet-zinc to adhere thereto by friction during the buffing operation without other means of attachment, as herein set forth.

190,072. STATION-INDICATORS. Jacob Ort, Champaign, Ill. [Filed Feb. 26, 1877.]

1. The metallic frames A A, formed with the clinches *a a* at each end, and connected by the tapes B B, passing through said clinches, substantially as herein set forth.

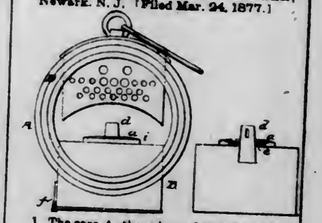
2. The tenons *h h* at the ends of the metallic frames A A, connected as described, in combination with the guides *e e* in the ends of the case, substantially as and for the purposes herein set forth.

3. The combination, with the roller D, of the wheel or case E, with cord *s* and spring *k* the double-acting pawl *p*, and ratchet-wheels G G, substantially as and for the purposes herein set forth.

4. The combination of the spring wheel or case E, having slot *n*, and the stud *m*, as and for the purposes herein set forth.

5. The combination of the roller D, with ratchet-wheels *v v*, the spring-pawls *t t*, and the cams *w w* on the shaft *x*, substantially as and for the purposes herein set forth.

190,073. POCKET-LANTERNS. G. B. Parker, Newark, N. J. [Filed Mar. 24, 1877.]

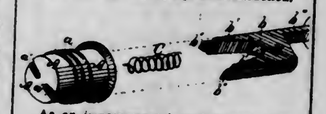


1. The case A, the sides and back of which are spun up from a single piece of sheet metal, having the projections B and aperture at the bottom, through which the lamp is inserted, and the catch or catches *f*, substantially as and for the purposes set forth.

2. In a lamp, the combination of the cap *e*, having an oblong opening, *b*, with the flange *c*, tube *d*, and packing *e*, substantially as and for the purposes set forth.

190,074. SASH-FASTENERS. C. W. Penfield, New Britain, Conn. [Filed Apr. 6, 1877.]

Brief.—The shell is formed with two radial slots within its opposite sides, and an oblong end slot. A bolt loosely fitted, for longitudinal movement, has upon its inner end a central stud, for holding a spiral spring, and bifurcated arms extending inwardly in a line with the body of the bolt, each arm provided at its edge with a lug, that extends outwardly into the contiguous slots. The arms are bent sufficiently inward for the lugs to pass through the end slot, and then outward until the lugs are in place, thus serving the double office of guides and stops, dispensing with the end rivets, and simplifying the construction.



As an improvement in sash-fasteners, the casing A, provided with the peripheral screw-head *a*, and slots *a'* and *a''*, the bolt B, having the prong *b*, arms *b'*, lugs *b''*, and arm *b'''*, and the spiral spring C, said parts being constructed and combined in the manner and for the purpose substantially as specified.

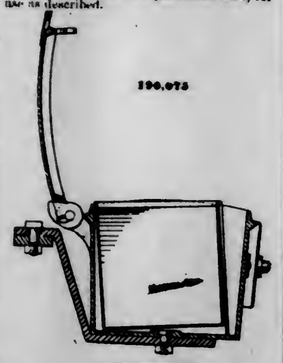
190,075. FARE-BOXES. J. D. Pierce, Milwaukee, Wis., assignor of one-half his right to Dutcher, Voss & Adams, same place. [Filed Feb. 9, 1877.]

1. Applied to a street-car or vehicle, a conductor's or driver's change-box, consisting of a permanently fixed receptacle or pocket and a removable money box adapted to and carried therein.

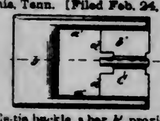
2. A driver's change-box, consisting of the permanent case and a removable interior cash-box, provided with a cover adapted to be turned down to elevate the front side of said cash-box, to permit hand access, for the purpose described.

3. A driver's or conductor's change-box, consisting of the permanent case, the removable change-box, and the push-knob lock, for use as described.

190,075

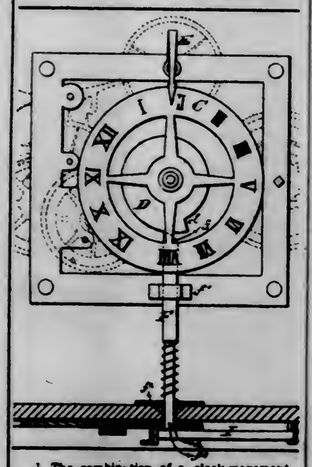


190,076. BALE-TIES. J. M. Pollard, New Orleans, La., assignor to himself, Wm. L. McNeely, same place, and J. D. Milburn, Memphis, Tenn. [Filed Feb. 24, 1877.]



In a bale-tie buckle, a bar, *b'*, provided with cleat C and shoulders *d d*, the cleat being flush with the shoulders for securing the slotted band when the cleat is not used, substantially as specified.

190,077. CHRONOMETRIC GOVERNORS FOR VARIOUS PURPOSES. Edward H. Randall, Poultney, Vt. [Filed Feb. 3, 1877.]



1. The combination of a clock-movement having a cam on its center arbor with a detent-rod and a spring-operated slide, substantially as and for the purpose set forth.

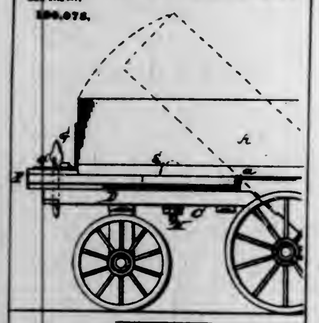
2. The combination of clock-movement B with snail-cam D, dial C, pointer H, and spring-operated detent-rod F, beveled at both ends, and spring-operated slide E, having perforation A and beveled slot *b'*, substantially as and for the purpose set forth.

190,078. DUMPING-WAGONS. L. Bodenhausen, Philadelphia, Pa. [Filed Feb. 8, 1877.]

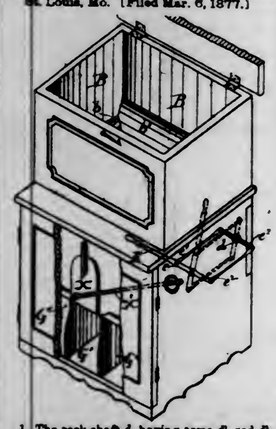
1. The combination of the dumping-wagon body A and rockers C with the sill-pieces B, which extend forward of the hinged joint *a*, provided with fastening device G, ledge F, and rotary platform or wheel D, substantially as and for the purpose set forth.

2. The rotating platform or wheel D, formed of one part having a plain surface, and of another part with alternate elevations and depressions, substantially as and for the purpose set forth.

190,078.



190,079. COAL-CABINETS. G. Rosenqvist, St. Louis, Mo. [Filed Mar. 6, 1877.]



1. The rock-shaft *d*, having arms d^1, rod d^2, series of grate-bars D^1, in combination with the hand-lever attachment, to operate in the manner and for the purpose set forth.

2. The rock-shaft *d*, having arms d^3, rod d^4, series of grate-bars D^2, in combination with the hand-lever attachment, as and for the purpose set forth.

3. The combination of rock-shaft *d*, having arms d^1 d^3, rods d^2, carrying the series of grate-bars D^1 D^2, and the operating-lever attachment, as shown and described, to operate as and for the purpose set forth.

4. The rock-shaft *d*, its arm *f*, connecting-rod f^1, and slide f^2, in combination with hand-lever attachment and bottom C', having outlet c^2, to operate as and for the purpose set forth.

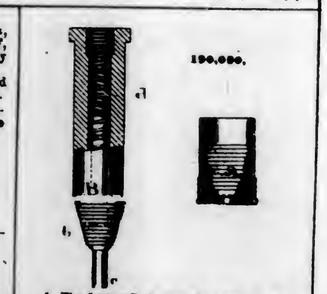
5. The combination of the rock-shaft *d*, its arms d^1 d^3, rods d^2, grate-bars D^1 D^2, arm *f*, rod f^1, slide f^2, bottom C, having outlet c^2, and the hand-lever attachment, to operate in the manner and for the purpose set forth.

6. The slide X, pivoted, and the hand-lever X', in combination with the outlet *c'* of a coal-cabinet, as and for the purpose set forth.

7. The chambers G G^1 G^2, the bottom C', the operating grate, as herein shown and described, and coal or fuel chamber B, all said parts being constructed and combined to operate in the manner and for the purpose set forth.

190,080. CARTRIDGE-BAGS FORMING. G. F. Salisbury, New Haven, Conn., and C. L. Hunt, St. Louis, Mo. [Filed Mar. 7, 1877.]

190,080.

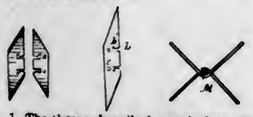


1. The former B, having the point *b* made up of a series of constantly-enlarging ridges, substantially as and for the purpose described.

2. The combination of the former B and the movable spindle *c*, substantially as described.

3. The combination of the former B, spindle *c*, and spring *d*, substantially as described.

190,081. BARBED-WIRE FENCES. Chas. W. Scarlett and Wm. Scarlett, Aurora, Ill. [Filed Aug. 17, 1876.]

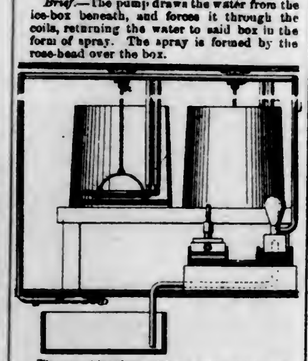


1. The thorns described, matched together in pair, formed with points *a a* and slots *b b*, and bent, as shown, to embrace and be secured to a main wire, as specified.

2. In the thorn formed of two parts applied together, as shown, the locking projection *b'*, and the recess *c*, adapted to engage together and confine the whole firmly to the wire M, as herein specified.

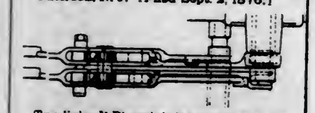
190,082. APPARATUS FOR COOLING LIQUIDS. Herman B. Scharmann, Brooklyn, N. Y. [Filed Apr. 4, 1877.]

Brief.—The pump draws the water from the ice-box beneath, and forces it through the coils, returning the water to said box in the form of spray. The spray is formed by the rose-head over the box.



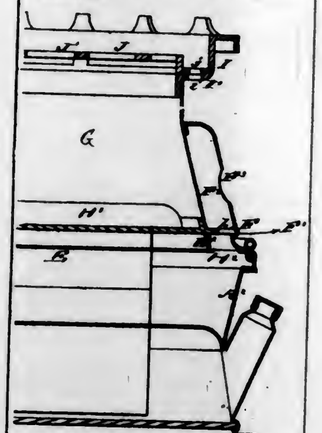
The combination, with a tank which contains the liquid to be cooled, of a double-acting pump, a coil, which is situated in the tank, and a rose-head, which is situated in or over an ice-reservoir, all connected and operating substantially as and for the purpose herein shown and described.

190,083. VALVE-GEARS. Theo. Schoffler, Paterson, N. J. [Filed Sept. 2, 1876.]



Two links, E E', each being operated by an eccentric-rod, and connecting the two links together through a projection of their respective pins a a', by which the eccentric-rods are attached to said links, and arranged to operate the main valve and the expansion-valve, substantially in the manner and for the purpose described.

190,084. OIL-BURNING STOVES. James H. Shaut, Hornellsville, N. Y. [Filed Mar. 24, 1877.]

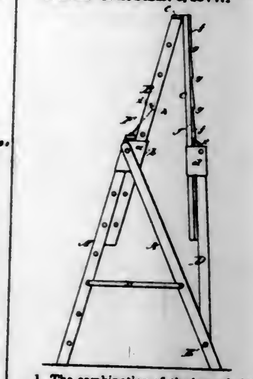


1. The combination, substantially as herein described, of the hinged cap F, the central portion of which is open to receive the stove-body G, and provided with a shoulder, F^1, and a series of openings, F^2, and the stove-bottom H, having draft-openings *h* near its circumference, the said stove-body G and cap F forming a space, F^3, as and for the purpose set forth.

2. The combination, with the casting H and perforated cap or casing F, of stove-body G and perforated disk or partition E, having raised rim E^1, substantially as and for the purpose set forth.

3. The combination of top piece I, having openings *i*, with damper J, having raised grate J^1, and openings *j*, substantially as and for the purpose set forth.

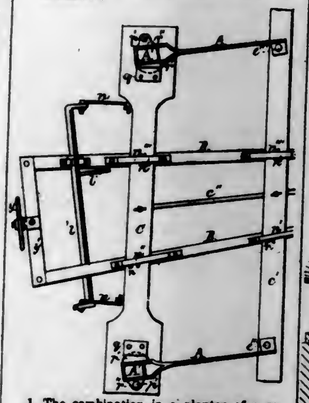
190,085. STEP-LADDERS. O. Sherwood, Jr., Sutton Flats, Quebec, assignor of three-fourths of his right to G. W. Kendall, P. Hoddy, and A. D. Cable, Montreal, Canada. [Filed Mar. 6, 1877.]



1. The combination of the lower ladder-section A, having props or supports A', pivoted cross-brace B, prop D, mortised into cross-brace E, and having sleeve *d* and dog *e*, extension section B, having hinged prop C, and bail F, all arranged and operating substantially in the manner and for the purpose herein shown and specified.

2. The sliding prop C, having a metal plate, *f*, secured upon one of its sides, and said plate provided with notches *g*, arranged at a distance from each other corresponding to the distances at which the steps of the ladder are placed apart, substantially as and for the purpose herein shown and specified.

190,086. CORN-PLANTERS. F. W. Shellabarger, Miami County, Ohio. [Filed Apr. 12, 1876.]



1. The combination, in a planter, of a recessed dropper-plate and a cut-off, consisting of two plates, *r r*, arranged to operate independently, but both simultaneously, in relation to the same hole, as and for the purpose set forth.

2. The combination of the plate *p*, the recessed dropper-plate S, and the two plates *r r*, pivoted side by side to the plate *p*, and arranged to operate simultaneously in relation to the same hole, as set forth.

190,087. CHAIR.



190,088. FISH-SCALERS. Obadiah Sherwood, Jr., Sutton Flats, Quebec, Canada. [Filed Oct. 30, 1876.]



1. The combination of the lower section C of an extension-ladder with the spiked beam I, cross-brace G, and beam H, the latter having brackets *g h*, in which operate the set-screw K and sliding spiked beam *k*, substantially as and for the purpose hereinbefore set forth.

2. The improved extension-ladder herein described, consisting of sections A B C, windlass D, cables E F, pulleys *c d*, pivoted bracket *m m*, sliding beam O, having pulley *o* and windlass P, and braces G I H, the latter having brackets *g h*, in which operate sliding beam *k*, and set-screw K, all combined and arranged to operate substantially in the manner, and for the purpose herein shown and specified.

190,089. CORN-PLANTERS. O. Sherwood, Jr., Sutton Flats, Quebec, assignor of three-fourths of his right to G. W. Kendall, P. Hoddy, and A. D. Cable, Montreal, Canada. [Filed Mar. 6, 1877.]

1. The combination, in a planter, of a recessed dropper-plate and a cut-off, consisting of two plates, *r r*, arranged to operate independently, but both simultaneously, in relation to the same hole, as and for the purpose set forth.

2. The combination of the plate *p*, the recessed dropper-plate S, and the two plates *r r*, pivoted side by side to the plate *p*, and arranged to operate simultaneously in relation to the same hole, as set forth.

3. A rotary dropper-disk, S, constructed with an even number of holes, *s'*, and an odd number of angles, *i*, in combination with a three-pronged or trident-shaped fork-plate, F, for operating the same, substantially as and for the purpose specified.

4. Trident-plate F, with its prongs G G G', and their accessory parts, consisting of push-pawl *k*, catch-pawl *k'*, and stops d^3 and d^4, adapted to operate the rotary disk S, and arrest the motion of the same, as shown and described, for the purpose hereinbefore set forth.

5. The combination of the fork-plate, the disk S, operated thereby, the sliding plate *b'*, and a latch, or its equivalent, whereby the two plates may be connected or disconnected, for the purpose set forth.

6. Latch *e*, with its holes *e' e'*, in combination with plate F and slide-lever *b'*, with their pins *e'' e''*, as and for the purpose specified.

7. The independent or detachable slide-lever *b'*, having its ends lapped over on itself, with a hole, *n'*, in the overlapped part for the insertion of the end of the hand-lever *b* for operating it, and provided with a pin, or equivalent, for connecting it to the fork-plate of the dropper by latch *e*, substantially as shown and described, for the purpose set forth.

8. In combination, lever *b*, slide-lever *b'*, latch *e*, plate F, with its groove *f*, prongs G G G', and their accessories, disk S, plate *p*, cut-offs *r r*, as described and set forth.

9. Flange-plates *f f*, in combination with groove *g* of a pivoted dropper-tube or shoe-post, and the cross-bar C, as and for the purpose specified.

10. In a two-horse corn-planter, with furrowing-shoes attached to its front section, as shown and specified, the pivoted shoe-post A' and shoe A, in combination with the pivoted cross-bars C and *c'*, operated substantially as set forth.

11. Draft-rod *c''*, in combination with main cross-bar C, double-tree c^{iv}, tongue-block b^{iv}, and tongue-bars B, as and for the purpose hereinbefore set forth.

12. Draft-rod c^{iv}, in combination with cross-bar *c'*, tongue-block b^{iv}, draft-rod *c''*, and tongue-bars B, as and for the purpose hereinbefore set forth.

13. The long open stirrups *n'* and *n''* and tongue-bars B, in combination with cross-bars C and *c'*, with their pins n^{iv}, for the purpose of allowing side motion to said cross-bars when operated, as shown and specified.

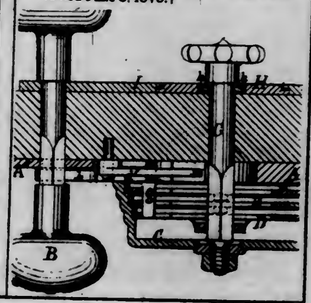
14. The combination of the cross-bar C and the crank-lever *l'*, turning in bearings on the bars B, connected flexibly with the bar C by links *s*, and operating with said bar, substantially as and for the purpose specified.

15. In combination with the shoe-post A', the retaining-plates *q*, flanges *r'* and *r''*, and cross-bar C, as shown and specified, for the purpose herein before set forth.

16. The T-shaped coupling-iron formed in one piece, with its central stem extending backward beneath and secured to the coupling-bar D, (by ring-bolts,) and with its lateral arms pivoted at the ends to the bars B B, connecting the bars B and D, all as and for the purpose specified.

17. The forked coupling-bar D, bolted upon the top of the axle, and connected, by the braces *m'*, with the rear of the same, as a means of strengthening this part, as herein-before set forth.

190,090. COMBINATION-LOCKS. P. Shellenback, Hamilton, Ohio, assignor to Jos. A. Morris and W. H. Drayer, same place. [Filed June 3, 1876.]

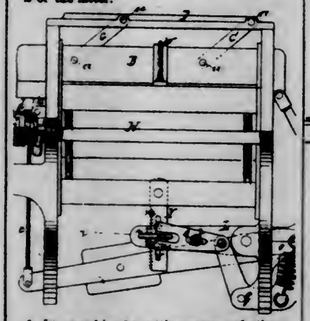


1. The combination of the bolt A with the tongue *g*, the notched rings D E F, and the catch *d'*, for limiting the outward movement of the bolt, substantially as shown and described.

2. The combination of the bolt A, knobs and spindle B K, disk A', cams C, rings D E F, knob and spindle G, movable dial H, and dial-plate J, constructed and arranged to form a combination-lock, and operating in the manner substantially as described.

190,089. MACHINES FOR CUTTING PAPER. E. R. Sheridan and Theo. W. Sheridan, Brooklyn, N. Y. [Filed Mar. 20, 1877.]

Brief.—The clamp descends upon the paper to be cut by gravity, after which it receives a pressure commensurate to the resistance which the knife has to overcome in cutting, by means of lever F, which has a movable fulcrum, *b*, resting on legs *s*, and fitted in the lever L, which latter, in its downward movement, together with slide *z*, throws the locking mechanism into gear, and thus indpces the aforesaid pressure. Projection *l* on the knife trips the clutch mechanism, and the knife also elevates the clamp by striking hook *u* of the latter.



1. In a machine for cutting paper and other materials, the combination, with the knife, the clamping-frame, and with the levers which impart motion to said knife and clamping-frame, of a movable fulcrum, *b*, which rises when the knife begins to bear upon the material to be cut, and causes the clamping-bar to bear upon the material to be cut with a pressure commensurate to the resistance to be overcome by the knife, substantially as herein shown and described.

2. The combination, with the knife, the clamping-bar, the levers imparting motion to the same, and the movable fulcrum *b*, of a locking mechanism, consisting of a rack-bar, K, and dog *n*, substantially as and for the purpose set forth.

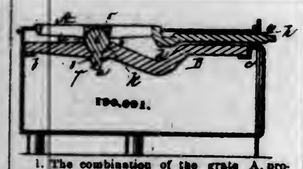
3. The combination, with the knife B and platform H, driving-shaft *f*, clutch *i*, and clutch-lever *j*, of a pin or projection, *l*, secured in the knife, and a releasing-lever, *k*, all constructed and operating substantially as and for the purpose set forth.

190,090. CHUCKS. H. H. Siler and T. A. Brooks, St. Lawrence, N. C. [Filed Oct. 26, 1875.]



The combination, with the triangular slides A, having studs *a*, and arranged to move tangentially, as described, of the rotary adjustable face-plate D, having slots *b d*, together with the clamping and guiding screws *s* arranged in slots *d*, and adapted to hold the plate to the frame carrying the slides, as set forth.

190,091. GRATES FOR STOVES, FURNACES, &c. R. Simpson, Boston, Mass., assignor to the Highland Foundry Company, same place. [Filed Feb. 19, 1877.]

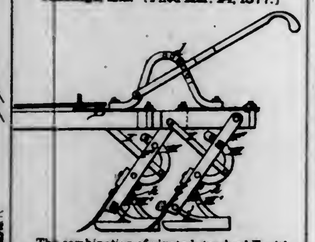


190,091.

1. The combination of the grate A, provided with the central legs, bar B having hole with enlarged portion 6, and pin *e* having the enlarged upper portion pivoted to the grate, and pin 7 for securing pin *a* to the bar B, the several parts constructed and arranged to operate in the manner herein shown and described.

2. A grate pivoted at its center, in combination with a supporting bar or axle extending lengthwise through the ash-pit, and having a crooked portion or depression, *d*, to allow of the grate being tipped down in front, substantially as and for the purpose specified.

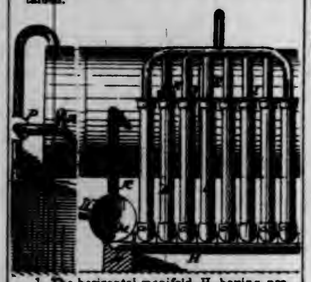
190,092. PLOW-STOCKS. N. J. Skaggs, Talladega, Ala. [Filed Mar. 24, 1877.]



The combination of pivoted standard F with brace bar I and curved pivoted bar H, having a series of holes near its upper end, substantially as and for the purpose set forth.

190,093. STEAM-BOILERS. C. D. Smith, Boston, Mass. [Filed Dec. 12, 1876.]

Brief.—Horizontal manifolds having projections cast thereon, into which vertical pipes are fitted. Said manifolds are located on each side of the furnace, and connected to a drum at the bridge-wall, which, in turn, is connected by pipes to another manifold at the rear of the boiler. Said manifolds are connected by pipes to the top and bottom of the water space of the boiler, through which pipes circulation of the water in the boiler is maintained.

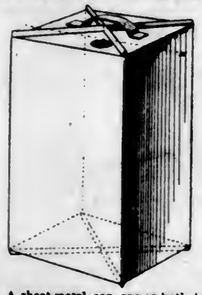


1. The horizontal manifold H, having projections *s* and vertical columns D, in combination with the drum *m*, manifold P, connected with the drum, and pipes E and K', connecting the manifolds P and H with the top and bottom of the boiler, whereby a circulation of the water is maintained through said manifolds and drum, substantially as and for the purpose described.

2. The combination, with the drum M and manifold P at the rear of the boiler, of pipes N, connecting said drum and manifold together, the said manifold communicating with the steam-space of the boiler, substantially as described.

3. The combination of the fire-bridge wall and drum M, the manifold H, vertical columns D, pipe L, connecting the bridge-wall and manifold, and pipe A', connecting the bridge-wall and boiler, substantially as described.

190,094. SHEET-METAL CANS. L. V. Sope, New York, N. Y. [Filed Apr. 5, 1877.]

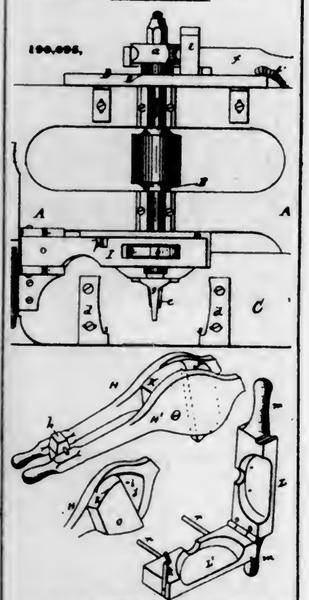


1. A sheet-metal can one or both heads of which are composed of bent-over parts of the blank or blanks which form the body, the edges of the bent-over parts being united into lock-seams traversing the face of the head, substantially as set forth.

2. A sheet-metal can both heads of which are composed, either wholly or in part, of bent-over parts of the blank or blanks which form the body, the edges of the bent-over parts being united into seams traversing the face of the heads, substantially as and for the purpose set forth.

3. A sheet-metal can the head or heads of which are composed of a blank or blanks the edges of which are united into upright seams, or seams which stand out substantially at right angles with the surface of the heads, as set forth.

190,095.



190,095. MACHINES FOR MAKING BROOM-HEADS. D. Squier, Battle Creek, Mich., assignor of one-half his right to J. Scott, same place. [Filed Dec. 14, 1876.]

Brief.—Blanks of suitable size to form wooden blocks for "broom-heads" are placed in a swivel-clamp, the side of which is held against a vertical table attached to the side of the main frame, and provided with an L-shaped guard-arm, through which and the said table the blank is fed to a concave cutter, which forms the outside of the head. The blank is then secured in a hinged locked box, placed on a slotted hinged table, and fed to a circular saw, which hollows it out. The box is then fed on a horizontal table, under a guard, to a routing-cutter, which forms a hole in the "head." The blank is then turned and its face fed to the router, for dressing the inside and finishing the "broom-head block." A mandrel carrying an emery-wheel and a hollow auger, for forming broom-handles, is mounted in a frame attached to the upper part of the main frame.

1. The combination of the table D, mandrel B, with cutter *a*, guide-arm *c*, and spring-bar *f*, substantially as and for the purposes herein set forth.

2. The combination of the table C with adjustable guide-plates *d d*, having notches *s s*, and the router-cutter *e*, substantially as and for the purposes herein set forth.

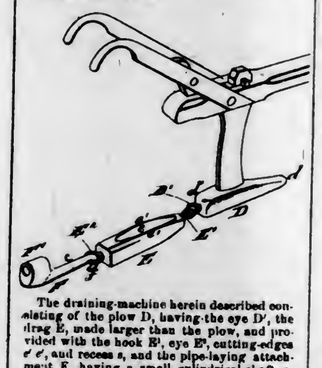
3. The combination of the slotted spring-bar I with stop *p* and the rotating saw *b*, substantially as and for the purposes herein set forth.

4. The swivel-clamp H H', constructed and used substantially as and for the purposes herein set forth.

5. The lock-box L L', provided with spring-catch *k*, handles *n n*, and pins *s s*, substantially as and for the purposes herein set forth.

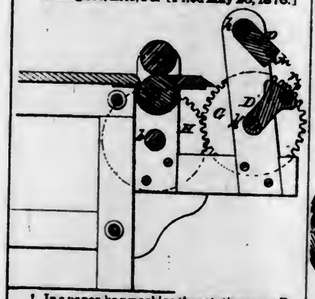
190,096. DITCHING AND DRAINING MACHINES. Almon Swift, East Elmore, Vt. [Filed Jan. 27, 1877.]

Brief.—A mole-plow, an enlarging-block of particular construction, and a second block to receive and hold lead pipe while it is being drawn into the ditch.



The draining-machine herein described consisting of the plow D, having the eye D', the drag E, made larger than the plow, and provided with the hook E', eye E', cutting-edges *e' e'*, and recess *s*, and the pipe-laying attachment F, having a small cylindrical shaft, *c*, with a front hook, *f*, and a rear perforated block, F', the whole constructed, arranged, and operating in the manner and for the purpose set forth.

190,097. PAPER-BAG MACHINES. Reuel H. Thayer, Buffalo, N. Y., assignor to Ellen E. Hughes, Erie, Pa. [Filed May 26, 1876.]

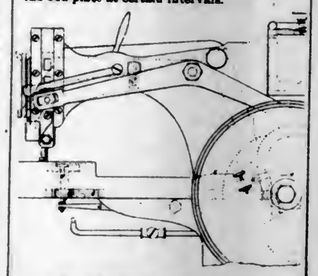


1. In a paper-bag machine the rotating arms D D', carrying the cutting-blade *m*, surface-blade *n*, and griping-piece *p*, as described, and so arranged that they will not come in contact with each other except at the point of severing the tube, substantially as herein set forth.

2. The combination of the driving-shaft *b* with cog-wheel H, the shafts A A' geared together, the cog-wheels E E, the arms D D' carrying the cut-off mechanism, constructed substantially as herein shown and described, and the cog-wheel G placed on the shaft A', and meshing with the wheel M on the driving-shaft, substantially as and for the purposes herein set forth.

190,098. SEWING-MACHINES. William F. Thomas, London, England. [Filed Jan. 16, 1877.]

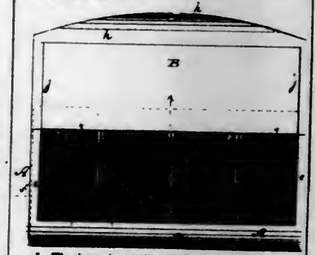
Brief.—A cam on the main driving-shaft operates, through the medium of a spring-retracted lever and an upright bar having an extension or button on its upper end, to nip the shuttle-thread against the under side of the bed-plate at certain intervals.



1. The combination of the sliding spindle F, lever G, spring K, and operating-cam H with the cloth-plate of a sewing-machine, substantially as and for the purpose described.

2. The segmental shuttle D, constructed with an open outer portion, in combination with the flat side *d*, hinged to the shuttle, and forming a lid to such open side, as and for the purpose described.

190,099. SPOOL SHOW-BOXES. R. Trautmann, New York, N. Y., assignor to himself and G. J. Browne, same place. [Filed Mar. 12, 1877.]

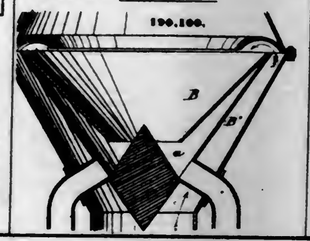


1. The box A, made with semi-cylindrical front and back *a b*, and with inwardly-projecting ledges *c c* at the ends, to partly cover its contents, substantially as herein shown and described.

2. The combination of the box A, having semi-cylindrical front and back, with the lid B, having the curved front lap A, substantially as herein shown and described.

3. The combination of the box A, having semi-cylindrical front and back, with the lid B having curved front lap A, and with the catch *i*, which is attached to the lower part of the curved front, substantially as herein shown and described.

190,100.



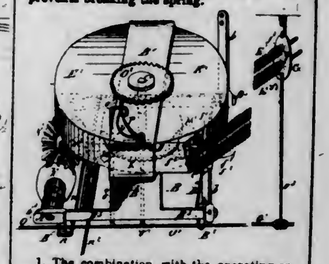
190,100. SPARK-ARRESTERS. W. T. Urie, Warrensburg, Mo., assignor to himself and A. Bettes, same place. [Filed Apr. 13, 1877.]

1. In a spark-arrester, an annular deflecting ring or flange, a two-part hopper, a cone, and conveying-tubes, combined as shown and described.

2. In a spark-arrester, the combination of the cone with the two-part funnel-shaped hopper B B' and connecting-tubes, substantially as shown and described.

190,101. CAR-STARTERS. J. S. Van Pelt, Jr., Evergreen, Va., assignor of one-half his right to A. H. Greene, Brooklyn, N. Y. [Filed Feb. 22, 1877.]

Brief.—The coiled spring which gives motion to the starting devices is attached to a spring, the yielding of which releases the mechanism by which the coiling is done, and prevents breaking the spring.



1. The combination, with the operating or starting mechanism, and one of the drive-wheel axles, of the frame B, having arms B' B', one end of which is hinged to supports or hangers *b*, the other end being provided with flexible or yielding bearings *b'* for said wheel-axle, all constructed and operating as and for the purposes specified.

2. In a spring-motor, a flexible or yielding connection with one end of the main or motive spring, substantially as and for the purposes described.

3. The mainspring E and its shaft C, in combination with an auxiliary spring or springs, substantially as and for the purpose specified.

4. The auxiliary spring or springs, in combination with the outer end of the mainspring C, and a yielding bearing to permit said auxiliary spring or springs to more readily follow the movement of the mainspring C, to operate the throwing-out mechanism, substantially as described.

5. The winding mechanism, consisting of the bevel-pinion M or M', loosely mounted on the wheel-axle, in combination with the bevel-pinion M or M', and the bevel-pinion M', mounted on the counter-shaft D, the bevel-wheel K, shaft C, and spring F, and the yielding supporting-frame, all constructed and operating substantially as described.

6. The winding mechanism above described, and suitable throwing-in and throwing-out cut mechanism for the same, in combination with the main or motive spring and its yielding connection or auxiliary spring or springs, so arranged that the mainspring, when fully wound up, will automatically throw the winding mechanism out of gear, substantially as described.

7. The winding mechanism above described, the clutch-pulley O, shifting-rod O', having arm *o*, the mainspring E, and its yielding connection, and the lever O', all arranged, combined, and constructed to operate substantially as described, for the purpose specified.

8. The winding mechanism, the clutch-pulley O, and shifting-rod O', and its connection *o'*, the plate G, auxiliary springs F' F', and the mainspring, and its shaft or arbor, all combined, constructed, and operating substantially as described, for the purpose specified.

9. The mainspring and its shaft, the winding mechanism, the throwing-in and throwing-out mechanism above described, and the ratchet-wheel O' and spring-pawl P *p*, all constructed and operating substantially as described, for the purpose specified.

10. The reversing-gear, consisting of the clutch-lever n n', constructed as described, in combination with the bevel-pinion N or N', the pinion M', and bevel-pinion M or M', the bevel-wheel K, and spring-shaft and spring

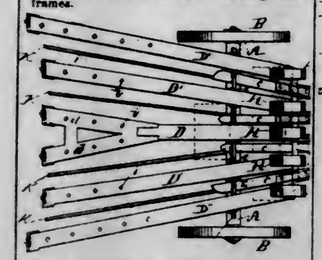
E, all arranged, constructed, and operating substantially as and for the purposes specified.

11. The carrying-frame B, having a shelf or ledge, B^1, in combination with the spring-casing E^2, and its helicoseal spring and shaft C, and the winding and shifting mechanism, all constructed and operating as described.

12. The malaspring E, coiled springs E^1, rods F, and swinging plate G, all combined and constructed to operate as set forth.

190,102. HARROWS. J. J. Vinton, Sharon, Pa. [Filed Feb. 28, 1877.]

Brief.—The harrow frames or bars, each being independently pivoted to the axle, are arranged rearwardly diverging, and are provided with rods for clearing the harrow-teeth, and cam levers for raising or lowering said frames.



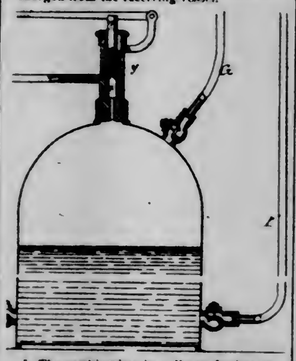
1. The rearwardly-diverging harrow frames or bars D D^1 D^2, each being independently pivoted to the axle A, so as to have a free vertical and independent motion, as and for the purpose described.

2. The independently-pivoted harrow frames or bars D D^1 D^2, operating in combination with the cam levers H, axle A, and wheels B, substantially as and for the purpose specified.

3. In combination with the axle A and wheels B, and with the pivoted harrow-frames having independent motion, as described, the cam-levers H and rods or bars K, operating substantially as and for the purpose specified.

190,103. BEER-FORCING APPARATUS. Jos. S. Von Nieda, Philadelphia, Pa. [Filed Mar. 29, 1877.]

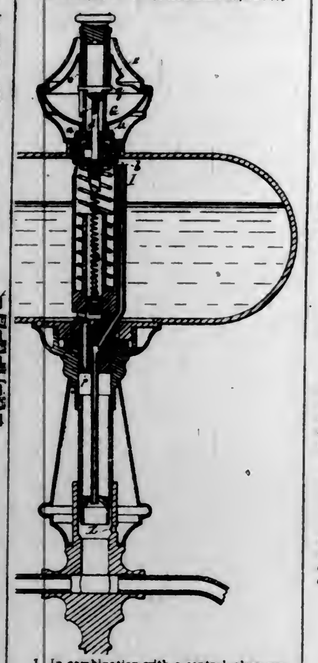
Brief.—Application of the pressure to the barrel itself is avoided, the liquor being discharged from the receiving vessel.



1. The combination, in a liquor-forcing apparatus, of a barrel, A, with a vessel, D, communicating with the barrel to receive the liquor therefrom, and furnished with a pipe, F, for the discharge of the liquor, and the pipe G, through which pressure is applied, as set forth.

2. The combination of a vessel, D, in which liquor is received, and from which it is discharged by compressed air, of a piston or valve, K, which will yield to the pressure of air in the vessel, and will, through the medium of the appliances hereto set forth, serve the twofold purpose of venting the barrel or vat from which the liquor is drawn, and of permitting the audsly-compressed air to escape, all substantially as set forth.

190,104. VACUUM-LAMPS. H. Wellington, Brooklyn, N. Y. [Filed Mar. 13, 1877.]



1. In combination with a central glass reservoir, supplying oil to one or more lateral burners, the upper and lower valves, operated by springs, and adapted to govern the inlet and outlet ports, substantially in the manner and for the purposes explained.

2. In an automatically-regulated feeding-lamp, the combination of the upper and lower valves, adapted to govern the inlet and outlet ports, as specified, the same being simultaneous in their motion, and movable directly and bodily from their seats, as hereinbefore set forth.

3. The combination, with the valve mechanism in an automatically-feeding lamp, of the band-piece E, carrying the cam faces *e*, and the cross-key *g*, movable within the central tube, for the purpose of operating the valve, substantially as shown and described.

4. In an automatically-feeding lamp of the character herein specified, the air-pipe I, conducting air from the vent L upwardly through the oil-tube, and thence to the top of the closed reservoir, substantially as set forth.

5. In combination with the central tube, slotted to receive and hold the cross-key, and to afford a passage for oil to the central reservoir, the cap O, located above the air-vents, for the purpose of directing the inflowing oil, in the manner shown and described.

6. In combination with the pipe conducting oil to the central reservoir from the filling-orifice, the movable collar *c*, affording an air-passage between it and the outer tube, as and for the purposes explained.

7. In combination with a central glass reservoir, supplying oil to one or more lateral burners, a central pipe running therethrough and sustaining above said reservoir mechanism, substantially such as described, for operating the valves within, and affording a chamber within which said valves and their closing-springs are located, substantially as shown and described.

8. In combination with the oil-inlet at the top of a reservoir in an automatically-feeding lamp, a vertically-adjustable valve, held to its seat by the spring S, and adapted to operate substantially as shown and described.

190,105. ORNAMENTAL CHAINS. H. Wexel, East Attleborough, Mass. [Filed Sept. 9, 1876.]

190,105.



As an improved article of manufacture, a double-curb chain formed of the links *a*, bent or twisted into the shape described and shown, and united together without the employment of solder, substantially as specified.

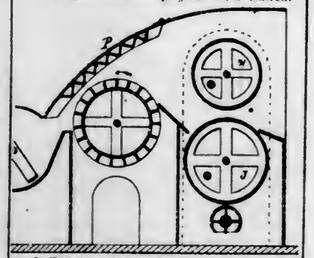
190,106. STOVE-PIPE DAMPERS. N. C. Whitcomb, Oak Hill, N. Y. [Filed Mar. 17, 1877.]



The combination, with a stove-damper, of two adjustable rod-sections, provided with interlocking teeth P, and held together by a spring, and having shoulders for pressing against the outside of a stove-pipe, substantially as and for the purpose set forth.

190,107. MACHINES FOR OPENING AND CLEANING COTTON. Wm. E. Whitehead, Miles Plattin, England, and A. T. Atherton, Lowell, Mass. [Filed Mar, 3, 1877.]

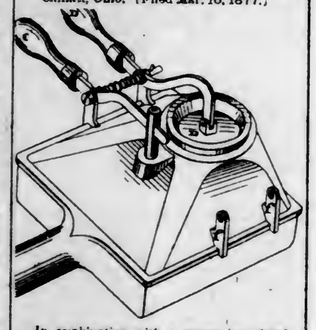
Brief.—For removing dust, &c., a cylinder having a roughened surface is located between the beater and collecting cages. The cover over said cylinder may also be roughened or provided with projections, if desired.



1. The cleaning-cylinder M, having a roughened surface, in combination with the beater B and wire collecting-cages H and J, substantially as herein set forth.

2. The covering P of the frame A, provided with under projections, in combination with the cleaning-cylinder M, the beater B, and wire collecting-cages H and J, all substantially as set forth.

190,108. TUYERES. Charles A. Wolff, Cincinnati, Ohio. [Filed Mar. 16, 1877.]

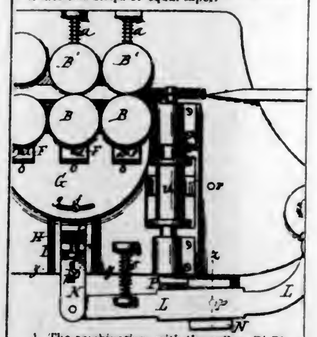


In combination with a tuyere-iron fitted with valves C and D, as described, the levers

C and D', journaled between standards *f*, and pressed between the sides of said standards and the washers *e* by the spring E, for the purpose of retaining the valves in any desired position, as specified.

190,109. MACHINES FOR SAWING RATTAN. Edmund F. Woodbury, Rochester, N. Y. [Filed Jan. 31, 1877.]

Brief.—The object is to split rattan tapering for whips. The stock is fed to the saw by adjustable pressure-rollers, whereby, during the process of sawing, it is gradually carried from one face to the other, thus dividing it into two strips of equal taper.



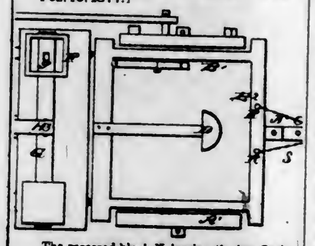
1. The combination, with the rollers B^1 B^1, pressed up by springs against the feeding-rollers B B, of the outer roller B^2, pressed out by a spring in the opposite direction, to open the throat for the entrance of the rattan, and connected with suitable mechanism to be closed upon the rattan, as shown and described, and for the purpose specified.

2. In a machine for sawing rattan, the combination, with the feeding-rollers B B B, of segment G, capable of a swinging or turning movement to vary the position of the rollers, as shown and described, and for the purpose specified.

3. The combination of the carriage H, slide K, and the rock-lever L with the segment G, for producing a motion of the feeding-rollers B B B at right angles to the cut, and allowing lateral adjustment of said rollers, as shown and described, and for the purpose specified.

4. The combination, with the rock-lever L, of the pivoted block N, through which the rock-lever moves freely, and the carriage O, for adjusting the block, as shown and described, and for the purpose specified.

190,110. CHECK-ROWERS AND DROPPERS. S. H. Worth, Memphis, Mo., assignor of one-half his right to A. Snyder. [Filed Feb. 10, 1877.]



The recessed block N, having the bar O pivoted thereto, in combination with the pivoted extension F, carrying the guide-wheel Q, and provided with the perforations *p p*, bracing-chains S S, and rear cross-bar S^1, having studs E E, substantially as described, and for the purpose set forth.

190,111. INDICATORS FOR ELEVATORS. T. S. Young, New York, assignor to H. A. Nichols, Yonkers, N. Y. [Filed Mar. 19, 1877.]

1. The combination, with the indicator rod or cord O, attached to an elevator, of a weighted chain passing through the wall, and serving to indicate the position of the elevator, substantially in the manner herein shown and described.

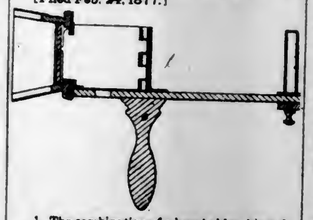
2. The combination, with the indicator rod or cord C, attached to an elevator, of a weighted chain passing over one or more pulleys, and serving to indicate the position of the elevator, substantially in the manner herein shown and described.

190,112.



REISSUES.

7,622. STEREOSCOPES. John Ardito, New York, N. Y., assignee, by mesne assignments, of Antonio Quirolo, same place. Patent No. 52,744, dated Feb. 20, 1866. [Filed Feb. 24, 1877.]



1. The combination of a lens-holder, hinged to the bed-plate of a stereoscopic instrument, with a diaphragm hinged to the said bed-plate, substantially as and described.

2. In combination with a stereoscope and its bed-plate, a movable adjustable sliding picture-holder, and a separate friction clutch or clamp, substantially as described.

3. In combination with a stereoscope and its bed-plate, a movable adjustable sliding picture-holder, and an adjustable clutch, consisting of a set-screw or equivalent mechanism, substantially as described.

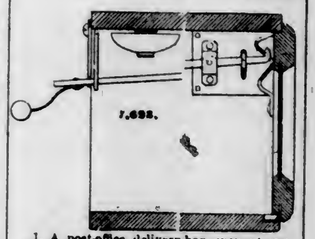
4. In combination with a stereoscope and its bed-plate, a movable adjustable sliding picture-holder, and a handle, whereby said picture-holder may be readily adjusted, substantially as described.

5. In combination with a stereoscope and its bed-plate, a movable adjustable sliding picture-holder, a handle, and an adjustable friction clutch or clamp, substantially as described.

6. In combination with a stereoscope and its bed-plate, a movable adjustable sliding picture-holder, a handle, and the vertical picture-supporting wires N, substantially as described.

7. The combination, in a stereoscopic instrument, of a movable lens-holder, a movable diaphragm, and a sliding picture-holder, whereby the stereoscope can readily be packed in a narrow compass for transportation, substantially as described.

7,623. POST-OFFICE BOXES. J. H. Boldier, Lincoln, Ill., assignor to T. F. Keating, Pittsburg, Pa.; said Keating assignor to the Yale Lock Manufacturing Company, Stamford, Conn. Patent No. 57,464, dated Aug. 28, 1866. [Filed Mar. 28, 1877.]



1. A post-office delivery-box open at one end for the insertion of mail-matter, and closed at the other by a door secured by a key-lock, substantially as and for the purposes described.

2. The combination of a post-office mail-delivery box, open at one end for the insertion of mail-matter, and closed at the other end by a door provided with a key-lock, and a fastening device, by means of which the post-office officials on the inside can permit or prevent access to the interior of the box from the outside at will, without the use of a key, substantially as described.

3. In combination with a post-office lock-box, a locking-lever capable of being operated by a key from without, pivoted to the box and extending to the rear, so as to be readily reached and operated by the postmaster from within, and a corrugated locking-plate secured to the inside of the box-door, whereby the postmaster can open the door without the use of a key, and can prevent it from being opened by a key from without, substantially as set forth.

4. In combination with a post-office lock-box, a locking-lever capable of being operated by a key from without, pivoted to the box and extending to the rear, so as to be readily reached and operated by the postmaster from within, and an inclined face or projection, substantially as described, on the inside of the box-door, against which the locking-lever strikes to start the door open, substantially as set forth.

5. In combination with a post-office lock-box, a locking-lever capable of being operated by a key from without, pivoted to the box and extending to the rear, so as to be readily reached and operated by the postmaster from within, and an alarm-bell, the whole so arranged that the turning of the key to unlock the door will cause the bell to be struck by the lever, substantially as set forth.

6. In combination with a post-office lock box, a locking-lever capable of being operated by a key from without, pivoted to the box and extending to the rear, so as to be readily reached and operated by the postmaster from within, and a vibrating tag for indicating to the postmaster the box that has been unlocked, substantially as set forth.

7,624. POST-OFFICE BOXES. W. H. Bramble, Decatur, Ill., assignor to the Yale Lock Manufacturing Company, Stamford, Conn. Patent No. 53,562, dated Apr. 3, 1866; antedated Mar. 30, 1866. [Filed Jan. 5, 1877.]



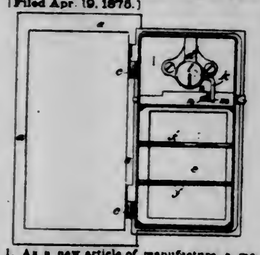
1. A pigeon-hole open at one end, so that letters may be deposited in it, and provided at the other end with a glazed door mounted on proper hinges, so that the letters which are in the box may be delivered or taken out of that end to which the door is applied when such door is open, the construction being substantially such as described.

2. In combination with a pigeon-hole open at one end, and provided at the other end with a glazed door mounted upon proper hinges, a latch or fastening contrivance, substantially such as described, whereby the door may be held shut on the inside, thus preventing the renter of the box, or other person, from opening the same and taking out letters until the postmaster from the inside unlatches the door.

3. In combination with a pigeon-hole open at one end, and provided with a sash-door at the other end, as described, the contrivance by which the postmaster can open the door from the inside.

4. In combination with a pigeon-hole open at one end, and closed by a sash-door at the other end, both a latch or fastening contrivance, and a contrivance substantially as described, for partially opening the door from the inside, the combination being substantially such as herein specified.

7,625. POST-OFFICE BOXES. S. N. Brooks, Chicago, Ill., administrator of L. Yale, Jr., deceased, assignor to the Yale Lock Manufacturing Company, Stamford, Conn. Patent No. 119,212, dated Sept. 19, 1871; reissue No. 4,963, dated July 9, 1872. [Filed Apr. 19, 1875.]



1. As a new article of manufacture, a metallic front for post-office lock-boxes, consisting of a frame and door suitably hinged together, and provided with a lock for controlling said door from the outside, the said front being adapted to fit and close one end of a box, the other end of which is open for the insertion of mail matter, substantially as specified.

2. The combination, substantially as specified, of several door-frames and doors with post-office boxes, whereby a continuous metallic frontage is formed.

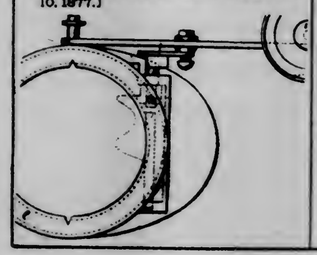
3. The combination, substantially as specified, of two or more metallic frames and doors with post-office boxes, said frames having flanges which protect and inclose the front edges of the pigeon-hole.

4. The combination, substantially as specified, of two or more metallic frames and doors with post-office boxes, the frames connected together by means of rivets passing through them and through the wood-work of the pigeon-holes.

5. The combination, substantially as specified, of a metallic door, provided with a glass panel and a metallic pigeon-hole frame to which the door is hinged.

6. The combination of a post-office box, open at the rear end, and a metallic frame secured to the front end of it, substantially as specified.

7,626. WATER-CLOSETS. Wm. S. Catt, New York, N. Y., assignor to C. M. Keller and C. F. Blake, trustees; said C. F. Blake being surviving trustee. Patent No. 80,708, dated Aug. 4, 1868; reissue No. 5,866, dated May 12, 1874. [Filed Jan. 10, 1877.]



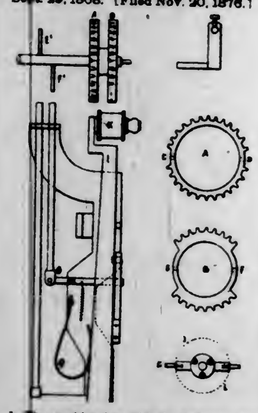
1. A water-closet receiver, adapted to support the basin, and having a flange or top plate with an opening, a portion of which is of less diameter than the pan, and another portion is of larger diameter than the pan, in combination with the removable pan that may be inserted or withdrawn through said opening, substantially as set forth.

2. A water-closet made with a receiver having a top plate or flange with an opening, shaped substantially as set forth, for passing the pan, in combination with such pan, and a separate axis inserted from outside through a hole in the receiver, and connected to such pan, substantially as set forth.

3. In combination with a water-closet pan, a divided axis, constructed substantially as set forth.

4. A slotted link, *u*, interposed between and acting in combination with the pull and the pan-lever, substantially as described.

7,627. PRINTING-TELEGRAPHS. Pierre A. J. Dujardin, Lille, France, assignor to the Gold and Stock Telegraph Company, New York city. Patent No. 82,502, dated Sept. 29, 1868. [Filed Nov. 20, 1876.]



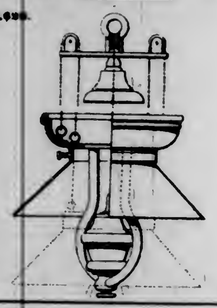
1. The combination, with the printing-lever and two type-wheels, of mechanism for shifting the impression from one type-wheel to the other at certain positions of the type-wheels, substantially as set forth.

2. The impression-pad and shifting-pins F F', in combination with the two type-wheels A B and printing-lever, substantially as set forth.

3. In a printing-telegraph, two adjacent type-wheels, an impression-pad, and shifting mechanism under the control of the printing-magnet, for changing the impression from one type-wheel to the other.

4. In a printing-telegraph, one or more type-wheels, an electro-magnet and its armature, acting by alternate positive and negative currents to set the type-wheel, in combination with a separate electro-magnet included in the main line, its armature, and the printing mechanism, which are brought into action by reaction in the reversal of the currents, substantially as set forth.

7,628.

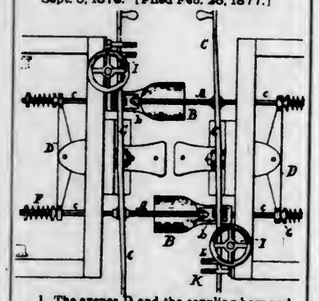


7,629. EXTENSION-LAMP FIXTURES. J. A. Evarts, West Meriden, Conn., assignor to the Bradley & Hubbard Manufacturing Company. Patent No. 163,913, dated Oct 31, 1876. [Filed Apr. 12, 1877.]

1. The combination, in an extension-lamp fixture, of the shade-ring, a device for removably securing the shade to the ring, the lamp attached to said shade-ring, the ring-shaped weight and shade-ring, connected by chains or cords over a support above, substantially as described.

2. The combination in an extension-lamp fixture, of the shade-ring, a device for removably securing the shade to the ring, a shade constructed at its upper edge for attachment to said shade-ring, and engagement with said securing device, the lamp attached to said shade-ring, the ring-shaped weight and shade-ring, connected by chains or cords over a support above, substantially as described.

7,630. CAR-COUPLINGS. R. A. Kelly, Manchester, Iowa. Patent No. 161,947, dated Sept. 5, 1876. [Filed Feb. 26, 1877.]



1. The evener D and the coupling-bars and draw-heads A and B, attached to the ends thereof, so as to vibrate with the evener, as and for the purposes specified.

2. The draw-bars and coupling-heads A and B, connected to a car, making a double coupling, and suspended from a vibrating cross-piece for raising and lowering their front ends, substantially as specified.

3. The combination of the weighted angle-backed washers with the springs, evener, and coupling-bars and draw-heads, as shown and described, for the purpose specified.

4. The combination of the levers C, the coupling-bars, and draw-head supported therefrom, the sliding and rotating rod I, having arm *e* and wing *f*, and the bracket K, constructed with hook and shoulder, as shown and described, for the purpose specified.

7,630.



7,630. MEASURING COAL AND FEEDING IT TO RETORT-CHAMBERS. T. F. Rowland, Green Point, Brooklyn, N. Y. Patent No. 137,487, dated Apr. 1, 1873. [Filed Dec. 18, 1876.]

Brief.—The capacity of the chambers of the revolving meter is increased or diminished by movable plates and fillings, for the purpose of supplying different quantities of coal to retorts of different capacity. Steel knives are secured to the revolving cylinder for cutting through the coal passing from the hopper to the meter-chambers. Swinging valves direct the coal into different spouts for filling different charging-scoops, and delaying devices are secured in the main tunnel, for preventing the shock of falling coal.

1. A revolving meter arranged to receive and deliver a charge or charges of coal, having one or more chambers, combined and arranged with a removable filling or fillings, whereby the capacity of the chambers may be altered, substantially as described.

2. In combination with the revolving meter D, the removable partitions D^1 D^2, adapted to be introduced and removed by a longitudinal motion, as herein specified.

3. In combination with the meter D, hopper B, casing A, spouts E^2 E^3, and movable valves e^2 e^3, the levers F^2 F^3, links G^1 G^2, and cams H^1 H^2 arranged for joint operation, as herein specified

4. In combination with the hopper B, the revolving meter D, provided with the angular steel knives *d* mounted in the meter, and adapted to facilitate the division of the pieces of coal which stand across the mouth, as and for the purposes specified.

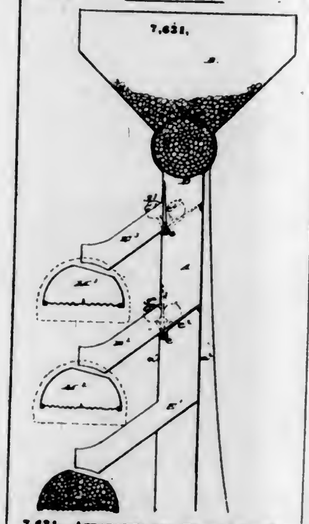
5. In combination with the meter D and several spouts E^1 E^2, mounted at different levels in the casing A, the deflectors I J, arranged as shown, and adapted to retard the descent of the coal to the lower spout or spouts, substantially as and for the purposes herein specified.

6. A revolving meter arranged to receive and deliver a charge or charges of coal, having one or more chambers, which chamber or chambers have a movable side, so that the capacity of the chambers may be altered by altering the position of the side or sides, substantially as described.

7. A revolving meter or coal-receiver, combined with a separate cutting-edge, not formed of the body of the meter itself, so that any substance tending to prevent its revolution is sheared off or crushed, substantially as described.

8. The combination of a retarder or series of retarders with the tunnel or hollow guide of a scoop-charging machine, which apparatus is effectual in diminishing the velocity of the falling coal or the shock or jar of the coal against the coal-scoop, substantially as described.

7,631.



7,631. APPARATUS FOR FILLING GAS-RETORT CHAMBERS. Thomas F. Rowland, Green Point, Brooklyn, N. Y. Patent No. 134,399, dated Dec. 31, 1872. [Filed Dec. 18, 1876.]

Brief.—The opening in the cylindrical meter extends slightly helically from end to end, so that the edge of the cylinder will, by a shearing action, more readily cut through the mass of coal in the hopper, in the act of filling the meter, and so that the coal will be discharged gradually, thus preventing the shock caused by the whole mass falling at once into the conducting-spouts. Hinged weighted valves direct the coal into different spouts.

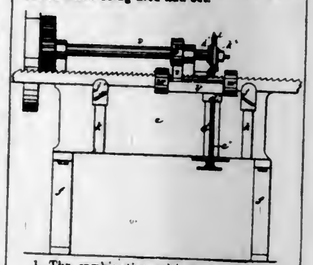
1. The weights G^2 G^3, fixed, as shown, on arms from the valves e^2 e^3, and serving relatively to the valve e^2 e^3, spouts E^1 E^2 E^3, and the gas-retort charges, as herein specified.

2. A cylindrical measure or meter, D, consisting of a revolving barrel or cylinder, having an opening for the reception and discharge of coal and arranged to be revolved completely around its axis, in combination with the hopper B, and one or more guides for measuring and transferring coal into the retort-chargers, substantially as described.

3. A cylindrical measure or meter, D, consisting of a revolving barrel or cylinder, having an opening for the reception and discharge of coal, the said opening being spiral in the surface of the revolving barrel, in combination with the hopper B, and one or more spouts for measuring and transferring coal, substantially as described.

7,632. SAW FILERS AND SETTERS. Thos. L. Shaw, Omaha, Nebr. Patent No. 112,970, dated Mar. 21, 1871. [Filed Mar. 28, 1877.]

Brief.—The saw-clamp is automatically opened while the saw is fed forward, and closed while being filed and set.



1. The combination, with a rotary file arranged to cut always in the same plane, as described, of a feeder arranged spirally in the arc of the filing-edge, substantially as described, and for the purpose set forth.

2. The combination of a rotary file arranged to cut always in the same plane, as described, and a feeder arranged spirally in the arc of the file, with a guideway and clamp adapted to hold the saw during the process of filing, substantially as described.

3. The combination, with a feeder and a clamp for holding the saw, of a bar arranged to vibrate at right angles to the line of saw-feed, and provided with faces upon the opposite side of the line of said feed, adapted to strike against the teeth of the saw to set the same, substantially as described.

4. The rotary annular file *i*, in combination with the spiral feeder-plate *l*, as specified.

5. The rotary annular file, made in sections, as and for the purpose described.

6. The rotary annular file, made in sections, and provided with independent means for adjusting them outwardly to produce an increasing radius.

7. The file *i*, made in sections, loosely held by screws x^1, and adjusted outwardly by set-screws.

8. The file *i*, made in sections, and combined with the clamp-plate k^1, having a flange and the set-screws x^2, arranged in said flange to adjust the sections outwardly, as and for the purpose described.

9. The reciprocating saw-set *n*, in combination with the adjustable wrist-pin *q* and disk *r*, as described.

10. The vibrating block *v*, in combination with the arms *z* and eccentric b^1, as set forth.

11. The vibrating block *v*, in combination with the plate *y* and adjustable block z^1, as explained.

12. The improved saw filing and setting machine, formed by the combination of rotary file *i*, saw-set *n*, vibrating block *v*, and the parts connected therewith, for operating upon and feeding a saw, as set forth.

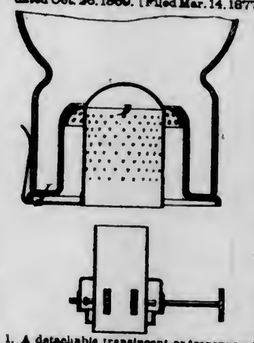
13. The combination, with the rotary file and the spiral feeder-plate, arranged in the arc of the file, of a set-screw, *m*, adapted to adjust the inclination of the feeder-plate to the different-sized teeth of different saws, substantially as described.

7,633. MANUFACTURE OF TABLE-FORKS AND SPOONS. Le Roy S. White, Waterbury, Conn., assignor to Brown & Brothers, same place. Patent No. 178,216, dated May 30, 1876. [Filed Mar. 29, 1877.]



The improvement in the art of manufacturing forks and spoons, consisting in cutting out a blank with a lateral swell in the shank, or with the shank of a width greater than is required for the finished article, and subsequently condensing or hardening the metal in the shank by pressure applied in a direction transverse to the direction of the pressure produced in the rolling of the blank, and of the sheet from which it has been cut, substantially as and for the purpose herein described.

7,634. LAMP-BURNERS. G. H. Chinnock, New York, N. Y. Patent No. 96,200, dated Oct. 26, 1869. [Filed Mar. 14, 1877.]



1. A detachable translucent or transparent holder or base for supporting means for inducing a draft of air to a burner, provided with a tubular portion and a laterally-extending flange, one end fitting around the outer circumference of the air inlet or distributer of a burner, and the other extending outward beyond the said air inlet or distributer, whereby it serves to establish a connection between the latter, and the means for inducing the draft without casting shadows, and without additional parts of transparent or translucent material.

2. A detachable translucent or transparent holder or base, adapted to support means for inducing a draft of air to a burner, provided with a cylindrical tubular portion, a flange extending laterally therefrom, and fitting at the end farthest from the latter around the outer circumference of the air inlet or distributer of a burner.

3. A detachable translucent or transparent holder or base, adapted to support means for inducing a draft of air to a burner, provided with a tubular portion, a flat flange extending laterally therefrom, and fitting at the end farthest from the latter around the outer circumference of the air inlet or distributer of a burner.

4. A detachable translucent or transparent holder or base, adapted to support means for inducing a draft of air to a burner, made separate from the air inlet or distributer of the burner, independent of any deflector-tip, and provided with a tubular portion, partly of conver shape, and a flange extending laterally therefrom for supporting the means for inducing the draft to the burner.

5. A detachable translucent or transparent holder or base, adapted to support means for

inducing a draft of air to a burner, made separate from the burner, independent of any deflector-tip, and provided with a tubular portion, a flange extending laterally from the latter, and a rim extending from said flange in the direction of the length of said holder or base.

6. A detachable translucent or transparent holder or base, adapted to support means for inducing a draft of air to a burner, made separate from the burner, independent of any deflector-tip, provided with a rim formed in the same piece with and extending in the direction of the length of said holder or base, and fitting at the end farthest from said rim around the outer circumference of the air-distributer or inlet.

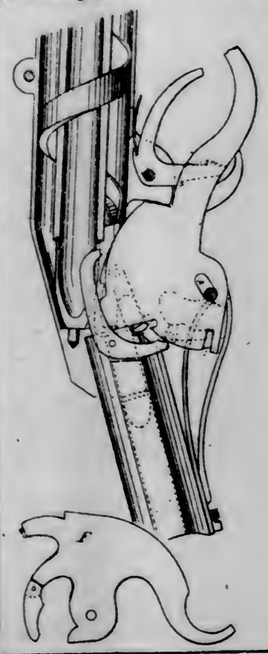
7. The combination, with a burner, of a translucent or transparent holder or base, fitting at one end around the outer circumference of the air inlet or distributer, and at the other extending out laterally beyond the same, means supported thereon to induce a draft of air to the burner, both being capable of adjustment on and removal from the burner without separation.

8. The combination of a translucent or transparent holder or base, fitting at one end around the outer circumference of the air inlet or distributer of a burner, and at the other extending laterally beyond the same, and means supported thereon both contributing to induce a draft of air to a flame issuing from a burner.

9. The combination, with a burner, of a translucent or transparent holder or base, provided with a tubular portion, fitting around the outer circumference of the air inlet or distributer of a burner, and a flange extending laterally beyond the air inlet or distributer, and means extending from the air inlet or distributer of the burner to retain it in place.

7,625. MAGAZINE-GUNS. W. R. Evans, Thomaston, Me., assignor, by means assignments, to the Evans Rifle Manufacturing Company. Patent No. 119,020, dated Sept. 19, 1871; antedated Sept. 16, 1871. [Filed Mar. 8, 1876.]

Brief.—The revolving magazine-tube is turned a quarter-revolution by a bell-crank lever connected to the breech-block. The extractor is attached to the breech-block, and a projection at one end moves in a slot in the frame, to give a suitable motion to the hook for extracting the shell.



1. The hammer, having the notch B, tongue T, and point S, all made to operate as and for the purpose described.

2. The combination of the fluted cylinder B, the spiral coil C, and the breech-block E, with the mechanism described, intermediate the said block and cylinder, whereby the said cylinder is rotated by the movement of said breech-block, all constructed to operate as and for the purpose described.

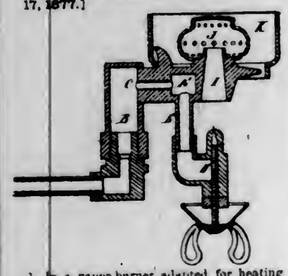
3. The combination of the lever D, the breech-block E, provided with the projection h', and the rotating fluted cylinder B, as and for the purposes described.

4. The breech-block E, composed of two walls, with the space between them, and having the slotted hole i and the notch g'', as described.

5. The cartridge-extractor E, pivoted to the breech-block, and provided with a pin or projection, a, made to work in the slot p in the inner face of the lock-casing, as and for the purpose described.

6. The combination of the hammer F, the breech-block E arranged therein, as described, and trigger W, mainspring u, and lever f, as and for the purpose specified.

7,626. GAS-HEATERS. Chas. H. Prentiss, Cleveland, Ohio, assignor, by means assignments, to Martin L. Hull. Patent No. 136,383, dated Mar. 4, 1873. [Filed Mar. 17, 1877.]



1. In a vapor-burner adapted for heating purposes, the combination, as before set forth, of an enlarged bell or crown perforated as explained, a short tube leading thereto, and a heater-plate surrounding said tube and operating to conduct heat to the other portions of the burner, substantially as and for the purposes explained.

2. In a vapor-burner adapted for heating purposes, the combination, as before set forth, of an enlarged bell or crown having a flat bottom and perforated, as explained, a short tube leading thereto, and a gas-jet orifice located below the mouth of said tube and controlled by a needle-valve, the arrangement being substantially such as described, and for the purposes set forth.

3. In a vapor-burner adapted for heating purposes, the combination, as before set forth, of a support for cooking utensils, an enlarged bell or crown, perforated as explained, a short tube leading thereto, and a gas-jet orifice located below the mouth of said tube and controlled by a needle-valve, for the purposes described.

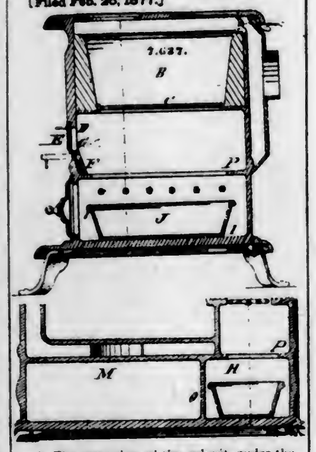
4. In a vapor-burner adapted for heating purposes, the combination, as before set forth, of an enlarged bell or crown having a flat bottom, and perforated as explained, a short tube leading thereto, a gas-jet orifice located below the mouth of said tube and controlled by a needle-valve, and an oil or fluid reservoir having a contracted inlet and outlet, for the purposes explained.

5. In a vapor-burner adapted for heating purposes, the combination, as before set forth, of a support for cooking utensils, an enlarged bell or crown, perforated, as explained, a short tube leading thereto, a gas-jet orifice located below the mouth of said tube, and controlled by a needle-valve, and an oil or fluid reservoir having a contracted inlet and outlet, for the purposes set forth.

6. The chambers B and E, outlet C, jet-point G, and screw-valve H, combined with the tube I, burner J, and cup K, the several parts being constructed and arranged, as and for the purposes specified.

7,627. COOKING-STOVES. N. A. Boynton, New York, N. Y., assignor to himself, H. A. Richardson, and H. T. Richardson.

Patent No. 80,499, dated Feb. 2, 1869; reissue No. 5,203, dated Dec. 24, 1872. [Filed Feb. 26, 1877.]



1. The extension of the ash-pit under the oven, in combination with the warming-chamber or supplementary oven at the back or side of the ash-pit, separated therefrom by a perforated or other partition, substantially as and for the purpose specified.

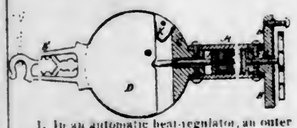
2. The perforated division plate O, which separates the ash-pit H from the supplementary oven M, substantially as described.

3. A cooking-stove constructed with a baking-oven, a warm-closet, M, beneath it, a deep ash-pit, H, separated from the warm-closet by a partition, O, and a deflecting-plate, (or plates,) P, placed above the ash-pit and below the grate, substantially as and for the purposes set forth.

4. The balance-door E, provided with a shoulder, G, which forms its point or line of support, and a tail-piece, F, which aids in operating the door, substantially as described and shown.

7,628. REGULATORS FOR HOT-AIR FURNACES. A. C. Norcross, Boston, Mass. Patent No. 148,132, dated Mar. 3, 1874. [Filed Apr. 17, 1877.]

Brief.—The force of expansion is exerted in a direct line. The head in which the lever is pivoted, and which keeps the latter in one plane, is attached to the expansible tube, which incloses the non-expansible bar. An adjusting-screw, with pointer attached, moving over a dial, bears against an end of the bar.



1. In an automatic heat-regulator, an outer expansible tube or shell, a bar of less expansibility inclosed therein, and a lever pivoted in a head, C, in connection with said inner bar and tube for automatically controlling the heat in a furnace or other heating device, substantially as set forth.

2. The combination of the expansible tube A, rod H, lever D, the interior bar F, of less expansibility, and the adjusting-screw G, and nut or threaded opening, X, substantially as and for the purposes herein set forth.

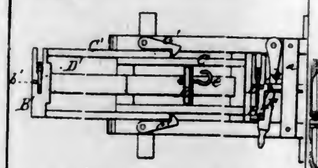
3. In an automatic heat regulator, having an outer expansible tube, an interior bar of less expansibility, and a lever, a dial, and adjusting pointer combined therewith, substantially for the purposes herein set forth.

4. The combination, with expander A, rod H, and lever D, of the non-expansible bar F, pointer-headed screw G M, and dial base B as and for the purpose described.

5. The head C, having a lever, D, in combination with the tube A, rod F, and adjusting-screw and pointer M G, all substantially as and for the purposes herein set forth.

7,629. MACHINES FOR TWISTING HAY FOR FUEL. James S. Foster, Yankton, Dak. Patent No. 181,160, dated Aug. 15, 1876. [Filed Dec. 9, 1876.]

Brief.—The strand of hay is twisted by means of a stationary and a rotating head. An extensible frame carries the fixed head and the device for locking one end of the strand, the other end being secured in the rotating head by like means. After the hay has been twisted, its end in the fixed head is released, and the strand passed into a hook located near its middle. The free portion thereof is then wound around the tense portion, which is left between the hook and rotating head. The ends of the strand are secured by the loop, which is formed during the twisting.



1. In a machine for twisting hay for fuel, the combination of the extensible frame C C', twisting-heads B B', and the adjustable rotating hook *e*, substantially as and for the purpose set forth.

2. In a machine for twisting hay for fuel, the combination of the extensible frame C C', twisting-heads B B', upright pins *b b'*, and latches D D', substantially as specified.

3. In a machine for twisting hay for fuel, the combination, with the rotating head B, having shoulder *g*, of the lever F, substantially as specified.

4. In a machine for twisting hay for fuel, the combination, with a rotating head, B, of a rotating hook, *e*, substantially as specified.

5. The method of putting up hay in fagots, which consists in forming a continuous strand, which has its free part wound around a tense portion that has its end looped, and then in passing said free part through said loop, substantially as specified.

6. In a machine for twisting hay for fuel, the combination, with a rotating head having a looper-pin, *b*, of a latch adapted to hold the strand upon the pin, substantially as specified.

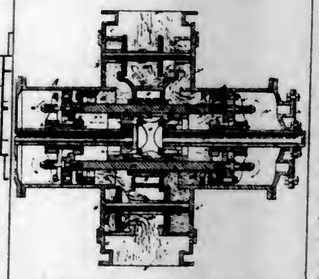


7,640. DEVICES FOR MUSICAL INSTRUCTION. R. S. Hill, Ipava, Ill. Patent No. 185,582, dated Dec. 19, 1876. [Filed Apr. 14, 1877.]

Brief.—The board is covered with finely-reticulated net-work, in the meshes of which the movable notes are hung by means of a pointed hook or claw upon the back of said notes.

The frame A, having reticulated fabric B, and stripe C, in combination with suspended blocks or plates D, substantially as and for the purpose herein set forth.

7,641. COMPOUND HIGH AND LOW PRESSURE STEAM-PUMPS. Arthur J. L. Loreta, Brooklyn, N. Y. Patent No. 139,071, dated May 20, 1873. [Filed June 24, 1876.]



1. The arrangement of the pistons G^1 G^2, in their cylinders A and B, connected by tubular piece H, the partition Q of the vacuum and pump chamber C, the steam chest I^1 I^2, and chambers N^1 N^2, M^1 M^2, and L^1 L^2, all constructed to operate substantially as and for the purpose set forth.

2. The combination of the double valve B^1, its packing-rings and springs, the tubes J^1 J^2, with the cylinder N^1 N^2 and M^1 M^2, all arranged substantially as shown, and for the purpose specified.

3. The combination of the annular valve U, provided with packing-rings, with the double valve B^1, arranged substantially as shown, and for the purpose described.

4. The combination of the steam-chests I^1 I^2, having grooves P^1 P^2, and packing, with the double valve O, tappets Y, connecting-tube H, tubes J^1 J^2, secured to cylinders A and B and suitable valve-openings, substantially as and for the purpose described.

5. The cylinders A B, bolted with flanges D^1 D^2 to the chamber C, containing the suction and delivery valves, in combination with the pistons G^1 G^2, passages S^1 S^2 T^1 T^2, tube H, double valve B^1, annular valve U, steam-chest I^1 I^2, valve O, and tubes J, all arranged substantially as and for the purpose specified.

6. A steam-valve, R^1, in combination with the means, substantially as specified, whereby it is moved by three forces, the movement of the engine, the force of the steam upon its surface, and the action of a compressed spring, the blow of the engine upon the valve being cushioned by means of a spring, and the valve moving slower than it would without the intervention of the spring, substantially as described.

7. The combination of a double valve, R^1, acting as main valve and auxiliary piston and valve O, acting as a main and auxiliary valve, with a spring acting to start the double valve R^1, and move the same toward one of its seats, with the assistance of the steam admitted by valve O, in addition to the functions of cushioning the actions of the tappets Y of valve O against the valve R^1, and cushioning the action of the valve on one of its seats, substantially as described.

8. A compound valve-piece, R^1, in combination with and acting as the connecting-valve between a high and low pressure cylinder, and as the exhaust-valve for a low-pressure cylinder, combined with and carried in the piston of the high or low pressure cylinder, substantially as described.

9. A compound valve-piece R^1, in combination with and acting as the connecting-valve between a high and low pressure cylinder, and as the exhaust-valve for a low-pressure cylinder, and being actuated by the pressure of steam upon its surface, the said valve admitting the steam which acts upon it in the low-pressure cylinder, substantially as described.

10. The combination of a steam-valve and a spring, which spring serves to cushion the action produced by the blow between a tappet and the valve, and to aid in arresting the movement of the valve, substantially as described.

11. The combination of a steam-valve and a spring, which spring serves to cushion the action produced by the blow between a tappet and the valve, and to aid in arresting the movement of the valve, substantially as described.

12. A compound steam-engine arranged with a steam-chest in the center of the system, so that the steam passes into the engine in a space between two high-pressure pistons, the valve of the said steam-chest being operated entirely by forces within the cylinder, and there being no valve-stem or other controlling mechanism connected with motive power outside of the cylinder, in combination with the valves of a low-pressure cylinder, substantially as described.

13. The combination of a water-cylinder, two water-pistons, and a set of suction and delivery valves surrounding the water-cylinder, the said valves and their communicating ports being set between the two pistons, whereby direct passages between the water chambers and the suction and delivery pipes are obtained, substantially as described.

14. The combination of a steam-pump with a packing-ring, which serves to close a sliding joint, and which is packed by means of the continuous pressure of the delivery-water upon its back, substantially as described.

15. The combination of a main valve, an auxiliary valve, and a tappet, concentric with each other and moving on the same central axis, whereby direct action of all the parts on each other is obtained, substantially as described.

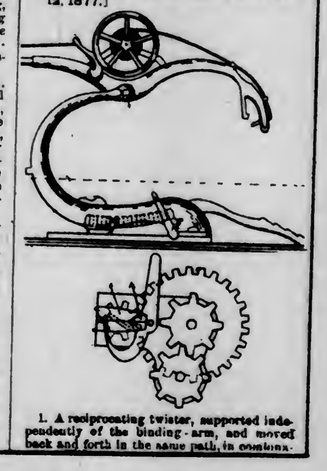
16. The combination of a main valve, an auxiliary valve, an auxiliary piston and a tappet, concentric with each other and moving on the same central axis, whereby direct action of all the parts on each other is obtained, substantially as described.

17. The combination of a main valve, an auxiliary valve, and a tappet, concentric with each other and moving on the same central axis with a spring, which serves to arrest the movement of the main valve, substantially as described.

18. The combination of a main valve, an auxiliary valve, an auxiliary piston and a tappet, concentric with each other and moving on the same central axis with a spring, which serves to arrest the movement of the main valve, substantially as described.

19. The combination of an auxiliary valve and tappet formed of one piece of metal, with a steam-valve and spring, which serves to arrest the movement of the steam-valve, arising from the impact between the tappet and the valve, substantially as described.

7,642. GRAIN-BINDERS. Henrietta L. McCormick, Chicago, Ill., assignee, by means assignments, of A. J. Smith. Patent No. 61,272, dated Jan. 15, 1867. [Filed Mar. 12, 1877.]



1. A reciprocating twister, supported independently of the binding-arm, and moved back and forth in the same path, in combina-

EXPIRED PATENTS.

tion with mechanism whereby said pinion is rotated by its reciprocation, substantially as described.

3. A reciprocating twister, supported independently of the binding-arm, and traveling back and forth in the same path, in combination with a rack, by means of which the twister is rotated as it is reciprocated, substantially as described.

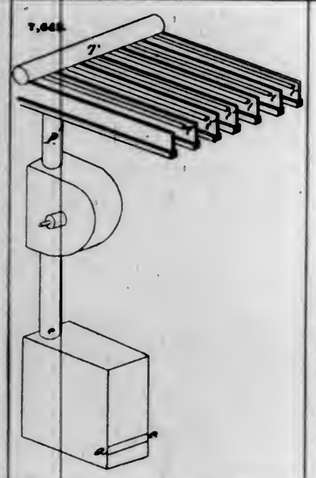
3. A reciprocating twister, in combination with a vibrating wire-carrier, the end of which is carried down around the bundle to place the wire in the twister, and travels with the latter during the twisting of the band, substantially as described.

4. A reciprocating head or block, K, mounted upon ways, on which it is free to move back and forth, in combination with a twister and gearing for rotating the latter, mounted on said carrier-block, substantially as described.

5. A reciprocating block, K, moving on ways, in combination with a twister, h, and driving-pinion m, mounted on its upper side, and a driving-pinion, n, supported on its under side, and connected with the upper pinion m, substantially as and for the purpose set forth.

6. A twister traveling back and forth in the same path, in combination with an independent binding-arm or wire holder and cutter, either or both, moving bodily with the twister, and cams or stops, whereby the holder or cutter is operated by the reciprocation of the carrier, substantially as and for the purpose set forth.

7,642.



7,642. AIR COOLING AND DISTRIBUTING APPARATUS. Moses J. Kelly, Chicago, Ill. Patent No. 44,731, dated Oct. 18, 1864; antedated Oct. 6, 1864. [Filed Jan. 4, 1877.]

1. In an air-cooler or apparatus for cooling carcasses, &c., the combination of a fan-blower, or its equivalent, an ice-chest, or equivalent, and one or more pipes or conduits, which equably distribute the air within the place or apartment to be cooled, substantially as and for the purpose herein set forth.

2. In an air-cooler or apparatus for cooling carcasses, &c., the combination, with the ice-chest, of one or more perforated distributing or equalizing tubes or conduits, substantially as and for the purpose herein set forth.

3. In an air-cooler or apparatus for cooling carcasses by a forced current of air, &c., the ice-chest having an oblong opening at or near its bottom, and extending nearly or quite across the width of the ice-chest, substantially as represented in Fig. 1, for the purpose specified.

4. In an air-cooler or apparatus for cooling carcasses, &c., an ice-chest having an internal partition which is arranged with reference to its inlet *c* and outlet *d*, substantially as shown in Fig. 2, for the purpose specified.

5. In an air-cooler or apparatus for cooling carcasses, &c., the combination of the fan-blower or fanners F, the system of tubes T *t'*, &c., and the ice chest or depository in either of said forms, as and for the purpose shown and represented.

NATIONAL LITHOGRAPHING CO. WASHINGTON, D.C.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 67.—No. 5. TUESDAY, MAY 1, 1894. PRICE—$5 per year.

CONTENTS.

	Page.
CHANGES IN CLASSIFICATION	535
ATTORNEYS	535
ISSUE OF MAY 1, 1894	536
APPLICATIONS UNDER EXAMINATION	536
PATENTS GRANTED	537
REISSUES	668
DESIGNS	668
TRADE-MARKS	672
PRINTS	None.
LABELS	None.
COMMISSIONER'S DECISIONS—	
Glidden v. Buseil.	675
Glidden v Noble	676
Ex parte Butz	677
DECISIONS OF THE U. S. COURTS—	
Kohler Manufacturing Company v Beshore	678
National Cash Register Company *et al. v.* Lamson Consolidated Store Service Company	680

Changes in Classification.

(ORDER NO. 995.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.
Washington, D. C., April 20, 1894.

A new division is hereby established, to be numbered Division XXXIV. To this division are assigned the following classes by transfer:

Class 105, Railway-Cars, from Division X.

Class 188, Fluid-Pressure Railway-Brakes, from Division XXVIII.

Sub classes 3, Car movers, and 80, Mail-bag catchers, from Class 57, Hoisting, Division XII, to become sub-classes under Class 105, Railway-Cars.

Sub-class 9, Car-brakes, from Class 172, Electricity, Motive Power, Division XXVI, to become a sub-class under Class 105, Railway Cars, entitled and numbered 62, Car brakes, electric.

The following transfers of classes and sub-classes are directed:

Class 30, Cutlery, from Division XX to Division XIII.

Sub-class 101, Hay-racks, from Class 56, Harvesters, Division VII, to Class 21, Carriages and Wagons, Division X.

Sub-classes 42, Detaching horses; 43, Draft-equalizers; 34, Neck-yokes; 44, Whiffletrees; 45, Whiffletree-hooks, from Class 54, Harness, Division XI, to Class 21, Carriages and Wagons, Division X.

Class 88, Optics, and Class 33, Drafting, from Division XXIII to Division XXX.

The following sub-classes from Class 20, Carpentry, Division XXIX, to Class 189, Iron Structures, Division IV:

2. Doors—
55 Metallic.
9. Lathing—
42. Metallic,
52. Wire.
14. Shutters—
30. Fireproof,
61. Metallic.
20. Windows—
65. Metallic.

The following sub-classes are hereby abolished:

In Class 37, Excavating, Division IV:

2. Earth-augers—
37. Bits,
38. With carrier,

and the patents therein are transferred to sub-class 3, Drilling and boring, Class 166, Artesian and Oil Wells, Division XXV.

Sub-class 52, Melters, sub-class 14, Tank-feeders, and the patents therein are transferred to a new sub class hereby created in Class 103, Pumps, Division IX, entitled 51, Railway-tank feeders.

Class 72, Masonry, sub-class 24, Waste chutes and sinks, and the patents therein are transferred to Class 150, Packing and Storing Vessels, Division XXXII.

Sub-class 19, Grinding mills, cane, in Class 83, Mills, Division XXV.

The following sub-classes in Class 45, Furniture, Division VIII:

Counters.
Display-racks—
Adjustable-arm,
Enclosed,
Hanging,
Roll,
Rope,
Rotary—
Enclosed,
Sample sheet—
Rotary.
Display-stands.
Dummies.
Paper-bag holders.
Show-cases—
Cabinet,
Lid-lifters,
Revolving.
Store shelving.
Vending devices—
Bins,
Grocers' cabinets,
Spool-cabinets.

Sub-class 43, Twine-holders, Class 65, Kitchen and Table Articles, Division VIII.

Sub class 11, Pegs, Class 12, Boots and Shoes, Division XI.

Sub-class 6, Power-transmitters, Class 170, Wind-Wheels, Division XXVIII.

The following sub-classes are established:

In Class 97, Plows, Division I:

10. Cultivators—
37. Revolving,
38. Rolling.
25. Rotary—
39. Horizontal.
21. Plows—
40. Revolving.

In Class 127, Sugar and Salt, Division VI:

127. Sugar and Salt.
Centrifugal machines—
21. Honey-extractors,
22. Testers,
23. Starch.

A new class is established in Division VIII, to be entitled Class 211, Store-Furniture, with the following sub-classes:

1. Bag and twine holders—
2. Bag-holders.
3. Twine-holders—
4. Take-up—
5. Rotary.
6. Bins.
7. Cabinets—
8. Delivering,
9. Grocers',
10. Spool.
11. Counters—
12. Attachments.
13. Display-forms,
14. Display racks.
Display-racks—
15. Adjustable-arm,
16. Enclosed,
17. Hanging,
18. Roll,
19 Rope,
20. Rotary—
21. Enclosed,
22. Sample sheet—
23. Rotary.
24. Display-stands.
25. Show-cases—
26. Lid-lifters.
27. Shelving.

JOHN S. SEYMOUR,
Commissioner

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., April 19, 1894.

SIR: The Secretary of the Interior has ordered that John G. Chapman, of New Haven, Conn., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

JOSEPHUS DANIELS,
Chief Clerk

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., April 20, 1894.

SIR: The Secretary of the Interior has ordered that James Cooley, of Richwood and York, Ohio, be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

JOSEPHUS DANIELS,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., April 20, 1894.

SIR: The Secretary of the Interior has ordered that C. A. D. Hill, *alias* Albert D. Hill, of Pensacola, Fla., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

JOSEPHUS DANIELS,
Chief Clerk.

The Commissioner of Patents.

Issue of May 1, 1894.

Patents	377—No.	518,934 to No. 519,310, inclusive.
Designs	19—No.	23,230 to No. 24,248, inclusive.
Trade-Marks	39—No.	24,614 to No. 24,652, inclusive.
Labels	None.	
Prints	None	
Reissue	1—No.	11,418.
Total issue	436	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States	Patents and Designs.	Trade-Marks and Labels.
Alabama	2	.....	Nevada	.....	.....
Arizona Territory	.....	.....	New Hampshire	1	.....
Arkansas	.....	.....	New Jersey	19	.....
California	9	.....	New York	58	15
Colorado	2	.....	North Carolina	2	.....
Connecticut	19	1	North Dakota	.....	.....
Delaware	.....	.....	Ohio	41	1
District of Columbia	2	.....	Oklahoma Ter	.....	.....
Florida	.....	.....	Oregon	3	.....
Georgia	.....	.....	Pennsylvania	29	3
Idaho	.....	.....	Rhode Island	2	1
Illinois	26	4	South Carolina	1	.....
Indiana	18	.....	South Dakota	.....	.....
Indian Territory	.....	.....	Tennessee	4	.....
Iowa	6	.....	Texas	2	1
Kansas	3	.....	Utah Territory	1	.....
Kentucky	2	1	Vermont	2	.....
Louisiana	1	.....	Virginia	3	.....
Maine	.....	2	Washington	4	.....
Maryland	8	1	West Virginia	2	.....
Massachusetts	26	2	Wisconsin	8	.....
Michigan	18	.....	Wyoming	.....	.....
Minnesota	6	1	U. S. Army	1	.....
Mississippi	.....	.....	U. S. Navy	.....	.....
Missouri	13	2			
Montana	6	.....	Total to citizens of the United States	356	35
Nebraska	6	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries	Patents and Designs.	Trade-Marks and Labels.	Countries	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	.....	.....	Italy	.....	.....
Austria-Hungary	1	.....	Mexico	.....	.....
Belgium	.....	.....	Netherlands	.....	.....
Bermuda	.....	.....	New South Wales	.....	.....
Brazil	.....	.....	New Zealand	.....	.....
Canada	3	.....	Norway	.....	.....
Chile, Republic of	.....	.....	Queensland	.....	.....
Colombia	.....	.....	Russia	1	.....
Cuba	1	.....	Scotland	.....	.....
Denmark	.....	.....	South Australia	.....	.....
Ecuador	.....	.....	Spain	.....	1
England	15	1	Sweden	2	.....
France	6	1	Switzerland	1	.....
Germany	9	1	Victoria	.....	.....
Hawaii	.....	.....			
India	.....	.....	Total to citizens of foreign countries	40	4
Ireland	1	.....			

APPLICATIONS UNDER EXAMINATION.

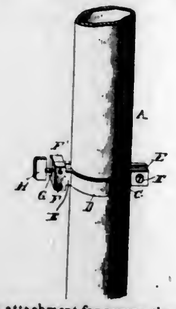
Condition at Close of Business April 24, 1894

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Mar. 26	Apr. 23	79
31	Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Mar. 28	Apr. 19	73
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Mar. 24	Apr. 17	95
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Mar. 26	Apr. 16	163
7	Harvesters, Games and Toys, and Velocipedes.	Mar. 26	Apr. 16	2 8
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Mar. 24	Apr. 16	144
2	Farm Stock, Products, etc	Mar 24	Apr. 14	109
32	Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	Mar. 26	Apr. 13	104
13	Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, etc.	Mar. 26	Apr. 9	97
	Between one and two months.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather Working Machinery.	Mar. 2	Apr. 23	241
3	Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Mar. 5	Apr. 20	140
21	Textiles, etc.	Feb. 26	Apr. 17	137
12	Mechanical Engineering, Stores-Service, etc.	Feb. 24	Apr. 16	215
4	Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Feb 28	Apr. 14	303
6	Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc	Feb. 26	Apr. 14	144
1	Tillage and Fences	Feb. 26	Apr. 14	235
8	Furniture, Toilet, Umbrellas and Canes, etc.	Mar. 2	Apr. 13	300
10	Carriages and Wagons and Railway-Cars.	Feb. 26	Apr. 13	407
17	Paper-Manufactures and Printing.	Mar. 12	Apr. 12	163
19	Stoves and Furnaces	Mar. 8	Apr. 10	300
18	Steam-Engineering, etc	Feb. 26	Apr. 7	234
26	Electricity, Generation, Distribution, Electric Railways, etc.	Mar. 1	Mar. 28	193
30	Lamps, Gas-Fittings, Linotyping, Matrix-Making Machines, and Type-Writing Machines.	Feb. 26	Mar. 20	223
	Between two and three months.			
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Feb. 7	Apr. 16	309
22	Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Feb. 6	Apr. 14	205
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Jan. 25	Apr. 14	216
23	Instruments of Precision, Acoustics, Optics, etc.	Jan. 25	Apr. 13	359
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Feb. 17	Apr. 9	248
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Feb. 9	Mar. 21	243
	Between three and four months.			
24	Sewing-Machines, Crinoline and Corsets, and Apparel.	Jan. 2	Apr. 11	246
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Jan. 8	Apr. 3	429
9	Hydraulics, Fire-Extinguishers, etc.	Jan. 18	Mar. 27	564
	Total number of applications awaiting action			7,116
	Under one month in arrears.			
	Designs	Apr. 16	Apr. 18	41
	Trade-Marks	Apr. 21	Apr. 21	9

PATENTS

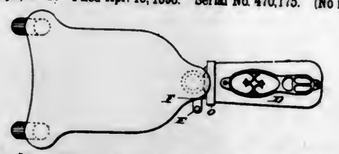
GRANTED MAY 1, 1894.

518,934. VENT ATTACHMENT FOR PUMP-PIPES. LINDLEY ADAMS, Atlanta, N. Y. Filed Oct. 31, 1893. Serial No. 489,627. (No model.)



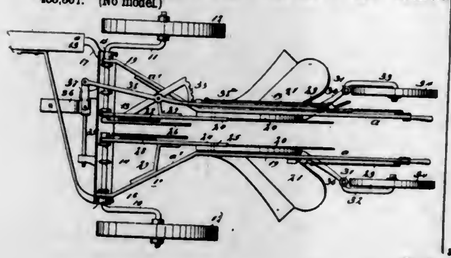
Claim.—In a vent attachment for pumps, the combination with a pump pipe having a side drain or vent opening; of a sectional attachment clamp comprising separate separable curved members provided at their extremities with parallel projected screw lugs, said screw lugs at one side being thickened to abut and form a substantially solid bearing piece having a threaded screw opening formed in the meeting faces of said thickened lugs, clamping screws removably engaging the screw lugs to bind the clamp on the pump pipe, and a thumb valve screw arranged in said threaded screw opening and having a point adapted to be moved into and out of said drain or vent opening, substantially as set forth.

518,935. COMBINED STOOL AND FOOT-REST. PHILIP C. BROWN, Brooklyn, N. Y. Filed Apr. 13, 1893. Serial No. 470,175. (No model.)



Claim.—In combination with a stool and foot rest mounted to revolve upon one of the legs thereof, a socket piece G encircling said leg, secured thereto and provided with a lip L, a second socket piece H also encircling and secured to said leg and provided with a corresponding lip L, a revolving tube B mounted on the said leg and resting in the lips L, and a foot rest secured to and revolving with the tube B and adapted to be turned in front of or under the stool.

518,936. PLOW. JOHN D. BURKHART, CHARLIE H. WATERMAN, and JOHN D. SMITH, Dayton, Wash. Filed Sept. 12, 1893. Serial No. 485,331. (No model.)



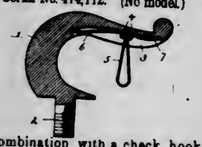
Claim.—1. In a plow, the combination, with a carriage having independent and adjustable crank axles connected therewith, of jointed plow beams having pivotal connection with the carriage, and lift levers and locking devices connected with the plow beams and with the carriage, being fulcrumed upon the latter, as and for the purpose specified.

2. In a plow, the combination, with a carriage, and crank axles connected with the same, the said axles being adjustable upon the carriage and independent one of the other, of a plow beam constructed in pivoted sections fulcrumed upon each axle, lift levers provided with locking devices likewise fulcrumed upon the axles and connected with the plow beams, and adjusting levers connected with the axles and adapted for operation in conjunction with or independent of the lift levers, as and for the purpose set forth.

3. In a plow, the combination, with a carriage, and crank axles adjustably mounted upon the carriage and adapted to carry supporting wheels, of plow beams constructed in pivotally connected sections, said plow beams being removably mounted upon the carriage, one at each side of its center, a lift lever connected with each plow beam and provided with locking devices, adjusting levers connected with the axles and likewise with the plow beams, and swiveled wheels adapted to follow in the track of the plows, said wheels being connected with the plow beams, substantially as and for the purpose set forth.

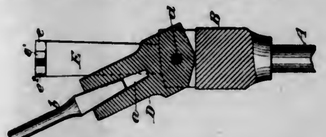
4. In a plow, the combination, with a carriage, crank axles journaled upon the carriage and adapted to carry supporting wheels, and adjusting levers connected with the axles, of a plow beam constructed in pivotally connected sections, pivotally connected with the carriage one at each side of its center, lift levers fulcrumed upon the carriage and connected with the plow beams, a locking device carried by each beam and adapted for engagement with the adjusting levers of the crank axles, arms projected from the rear of the beams, and wheels the axles whereof are pivotally connected with said arms, as and for the purpose specified.

518,937. CHECK-HOOK. PETER F. CAVALIER, Clyde, Ohio. Filed May 13, 1893. Serial No. 474,112. (No model.)



Claim.—The combination with a check hook provided in the under side of its upper portion with a recess, a pair of closely adjacent bars arranged in said recess at a point intermediate of the ends thereof, and a single strip of spring metal bent or looped upon itself to form a depending tongue extending across the entrance to the hook and having a lower rounded end, and at the upper end of the opposite side portions of said tongue having its terminals abruptly bent around and over the bars 4 and disposed within the recess beyond said bars, substantially as set forth.

518,938. BIT-STOCK. FREDERICK J. COLVIN, Hamden, Conn. Filed Oct. 14, 1893. Serial No. 488,119. (No model.)

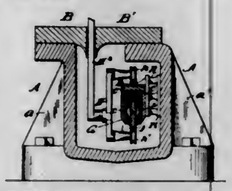


Claim.—In a bit stock, the combination with a head portion, of a block pivoted thereto, and having a socket to receive the head of

the bit, and resilient jaws constructed to engage the shank portion of the bit, and expansible in a direction parallel with the axis of the pivot of the block, or in other words in a direction at right angles to the direction in which the block swings.

518,939. ELECTRIC CONDUCTOR FOR UNDERGROUND CONDUITS.

DANIEL E. CONNER, Covington, Ky., assignor of one-half to James William Gallup, Cleveland, Ohio. Filed Jan. 23, 1893. Serial No. 459,321. (No model.)



Claim.—1. In an electric conduit, a live wire or conductor, in combination with the contact pieces or links loosely supported below said conductor in a slot in insulating material and exposed below to direct contact of a trolley, substantially as described.

2 In an electric conduit, a live wire or conductor partly embedded in insulating material having a downwardly extending slot below the conductor and contact pieces or links loosely supported in said slot, substantially as described.

3. A stringer containing an insulated live wire or conductor having a downwardly extending slot in its lower edge and a contact chain composed of links loosely supported in said slot, substantially as described.

4. In combination with a suitably insulated live wire or conductor, a gravity contact chain composed of contact pieces or links continuously in contact, one with another forming a continuous conductor and loosely supported below said live wire, and adapted to be raised by the trolley and to fall by gravity out of contact, substantially as described.

5. A stringer or casing, containing an insulated live wire or conductor, and having a downwardly extended slot with walls converging toward the lower edge, said slot containing wedge-shaped contact pieces or links loosely supported therein below the conductor, substantially as described.

6. A stringer or casing containing insulating material in which is partially embedded the live wire or conductor and having a downwardly extending slot below said conductor, containing loosely supported contact pieces or links adapted to be raised against the conductor by the trolley and to fall by gravity away from said conductor, substantially as described.

7. In combination with a live wire or conductor and slotted insulating material below the same, contact pieces or links, having transverse openings and transverse pins passing through said openings for loosely supporting said pieces or links in the slot, substantially as described.

8. In combination with a conductor, a contact chain composed of links having their ends provided with notches and tongues fitting one into the other, and means for loosely supporting said links below the conductor, substantially as described.

9. In combination with a conductor a contact chain composed of pieces or links having a continuous wire or rod at their lower edges and means for loosely supporting said links below the conductor, substantially as described.

10. A double live wire or conductor partially embedded and supported in insulating material, in combination with the yielding gravity contact chain supported below the same, in the slot of the insulating material and adapted to be raised into contact with the said live wire by a trolley and to fall out of contact by gravity, substantially as described.

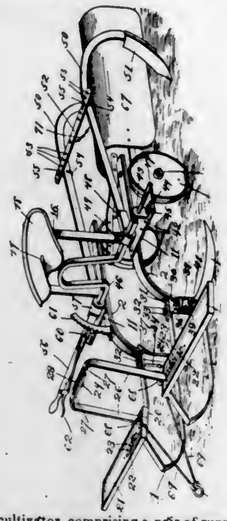
11. In combination with a conduit, a bracket applied to the side wall thereof, a stringer supported by said bracket and containing a conductor and gravity contact chain, a guide rail above said stringer and a trolley having a wheel resting on the guide rail and another wheel bearing upon said contact chain, substantially as described.

518,940. LISTER-CULTIVATOR.

FRANKLIN P. CRAIG, Kansas City, Mo. Filed Aug. 10, 1893. Serial No. 482,739. (No model.)

Claim.—1. A corn cultivator, comprising a frame-work, a pair of runners at the front end of the frame-work, and a pair of wheels near the rear end of the frame-work, and longitudinally aligned with the runners, said runners and wheels being adapted to run in the furrow, substantially as set forth.

2. A corn cultivator, comprising a pair of runners, and a pair of wheels longitudinally aligned with the runners, a frame-work connecting the runners and the wheels, an arch carried by the runners, and an arch connecting the frame-work, substantially as set forth.



3. A corn cultivator, comprising a pair of runners, and a pair of wheels, longitudinally aligned with said runners, an adjustable arch connecting the runners, and an adjustable arch connecting the frame-work, and carrying a seat upon the bridge portion of said arch, substantially as set forth.

4. A corn cultivator, comprising a pair of runners, and a pair of wheels longitudinally aligned with the said runners, a frame-work connecting the runners and said wheels, adjustable arches connecting the runners and the frame-work, laterally extending gangs carried by said runners and adjustably connected with the front arch, and plates or beams carried by the frame-work and adjustably connected to the rear arch, substantially as set forth.

5. A corn cultivator, comprising a pair of runners, and a pair of wheels, a frame-work connecting the runners and said wheels, arches connecting the runners and the frame-work, and vertically and laterally adjustable knives carried by said runners, substantially as set forth.

6. A corn cultivator, comprising a frame-work, a pair of runners at the front end of said frame-work, a pair of wheels near the rear end of said frame-work and longitudinally aligned with the runners, arches connecting the runners and the frame-work, gangs carried by the runners, and knives or blades also carried by said runners, substantially as set forth.

7. In a corn cultivator, the combination with a pair of runners, a pair of wheels, a frame-work consisting of a pair of bars secured to said runners, and a vertical bar provided with a series of openings secured to the frame-work bars and carrying wheels, of a shield or fender, link bars secured thereto, and provided with a series of holes, and bolts adapted to be passed through aligned holes of the wheel carrying bars or brackets and said link bars, and a retaining nut to engage the projecting ends of said bolts, substantially as set forth.

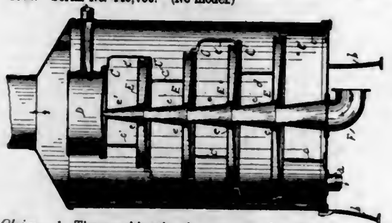
8. A corn cultivator, comprising a frame-work, a pair of runners at the front end of the frame-work, a pair of wheels near the rear end of the frame-work, supporting plates or beams carried by said frame-work, bearing brackets adjustably carried thereby, a crank shaft journaled in said bearing brackets, a pair of arms having shovels at their rear ends, and mounted at their front ends upon the squared portions of said shaft, and set screws to hold said arms from lateral movement, substantially as set forth.

9. A corn cultivator, comprising a pair of runners and a pair of wheels, a frame-work connecting said runners and said wheels, a shaft carried by said framework, and shovel carrying arms carried by said shaft, a transverse bar carried by said arms, a shield or fender pivotally connected to the frame-work, and a chain connecting said shield or fender with the transverse bar of the shovel carrying arms, substantially as set forth.

10. In a corn cultivator, the combination with a pair of runners, a pair of wheels, a frame-work connecting the runners, and the wheels, of a shaft carried by the frame-work, shovel carrying arms carried by said shaft, a lever having a hub portion mounted upon said shaft, and formed with a groove, and a bracket carried by said frame-work and engaging said groove to prevent the independent lateral movement of the lever upon the shaft, substantially as set forth.

518,941. APPARATUS FOR COOLING AND AERATING MALT LIQUORS.

HENRY E. DECKEBACH, Cincinnati, Ohio. Filed Oct. 22, 1892. Serial No. 449,709. (No model.)

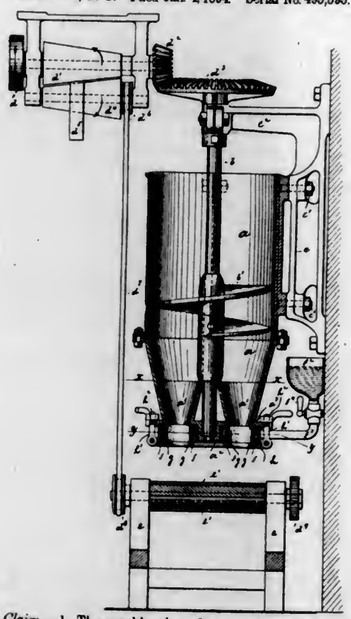


Claim.—1. The combination in a wort cooler of the closed chamber into which the wort is delivered and from which it is discharged, an uptake flue leading centrally from the top of said chamber, a series of pans arranged one above the other and supported centrally within the chamber, a receiving vessel above said series of pans, said pans and receiving vessel having their bottoms perforated to break up the wort and cause it to descend in thin streams from the receiving vessel to the bottom of the chamber, the pipe leading from the boiler to said receiving vessel, a central air flue from the bottom of said chamber to force cold air centrally through the descending streams and carry the heated vapors out of the chamber through the uptake, and a discharge pipe for the cool wort in the bottom of said chamber, substantially as shown and described.

2. The combination of the outer case having removable top, uptake from the top and discharge pipe from the bottom, the stand consisting of a series of rings braced apart, and the feet for supporting it on the bottom of the case, the receiving vessel and pans supported in said stand, and having perforated bottoms to cause the wort to descend in small streams from one to the other, the cone-shaped air flues centrally secured within the pans, the air pipe leading to the bottom of the case, and terminating within the case in a cone-shaped branch which discharges into the lower cone-shaped flue, substantially as and for the purpose set forth.

518,942. MACHINE FOR SHAPING DOUGH.

FRITZ DÜHRKOP, New York, N. Y. Filed Jan. 4, 1894. Serial No. 495,595. (No model.)

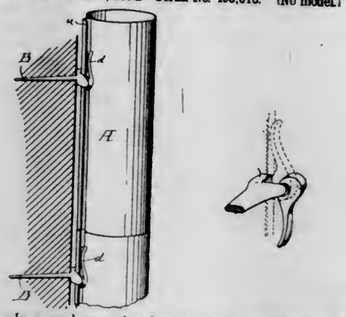


Claim.—1. The combination of an upright shell having a downwardly extending discharge nozzle at its lower end, with a vertically hung conveyer screw within the shell, a lubricating ring at the discharge end of the nozzle and a laterally projecting feed apron below the ring, substantially as specified.

2. The combination of a shell having tapering nozzles with a series of perforated rings at the discharge end of said nozzles, surrounding coverings, a clamp plate that supports the rings and arms for connecting the clamp plate to the shell, substantially as specified.

518,943. CONDUCTOR-PIPE FASTENER.

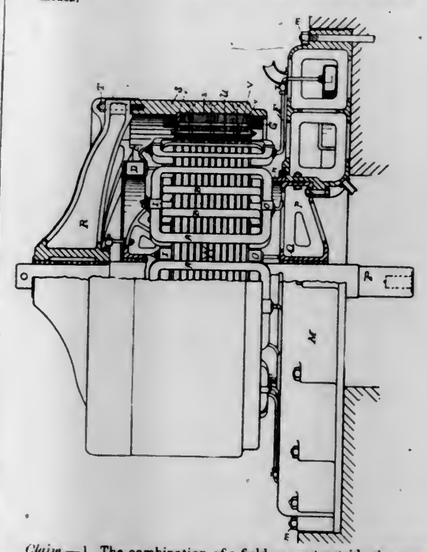
JAMES H. ELLER, Canton, Ohio. Filed Jan. 4, 1894. Serial No. 495,618. (No model.)



Claim.—In a conductor pipe fastener, the combination of pipe sections provided with L shaped flanges, the spikes B, provided with driving heads located at one side of the eccentrics, and the eccentrics, pivoted to the spikes, and provided with arms, all arranged substantially as and for the purpose specified.

518,944. DYNAMO-ELECTRIC MACHINE.

GEORGE FORBES, Niagara Falls, N. Y. Filed Aug. 17, 1893. Serial No. 483,356. (No model.)



Claim.—1. The combination of a field magnet outside the armature rotated by means of a spider attached to the shaft, the spider and field forming a bell-shaped revolving field magnet, with a stationary armature, substantially as set forth.

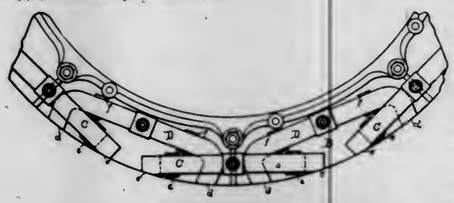
2. The combination of a shaft supported centrally within a stationary armature by brackets attached to the frame of the armature, with a spider and external revolving field substantially as described.

518,945. DYNAMO-ELECTRIC MACHINE.

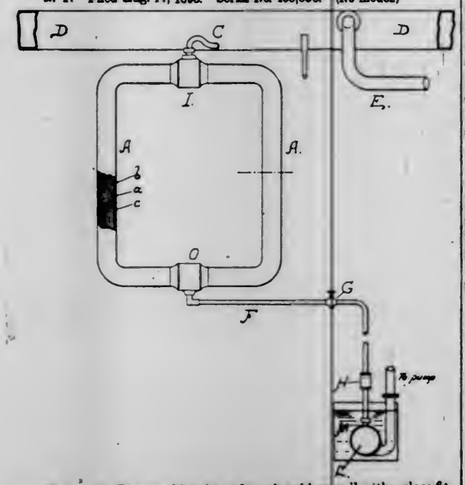
GEORGE FORBES, Niagara Falls, N. Y. Filed Aug. 17, 1893. Serial No. 483,357. (No model.)

Claim.—The combination of an armature having parallel notches with two types of coils or solenoids having corresponding parallel sides,

the ends of the coils of the second type being bent over the ends of the armature and passing within and clear of the coils of the first type, substantially as described.



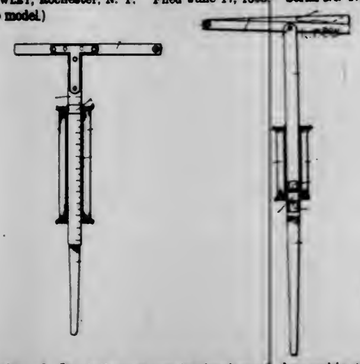
518,946. CONSTRUCTION OF SOLENOIDS OR COILS OF WIRE USED IN ELECTRIC MACHINERY. GEORGE FORBES, Niagara Falls, N. Y. Filed Aug. 17, 1893. Serial No. 483,358. (No model.)



Claim.—1. The combination of a solenoid or coil with a close fitting casing, having an inlet and outlet for oil with a pump for maintaining a forced circulation of oil, substantially as described.

2. The combination of a solenoid or coil having a close fitting casing and an inlet and outlet for oil with means for maintaining a forced circulation of oil, substantially as shown.

518,947. TAILOR'S MEASURING IMPLEMENT. DE WITT HAWLEY, Rochester, N. Y. Filed June 17, 1893. Serial No. 478,017. (No model.)



Claim.—1. In a tailor's measuring implement, the combination of a stationary bar having a cross-handle on one end, an extensible bar, a contractible spring connecting the two bars and adapted to extend the same longitudinally with reference to each other, a clamping device for locking the two bars together and a lever pivoted to said cross-handle and connected to said clamping device for operating the same, substantially as described.

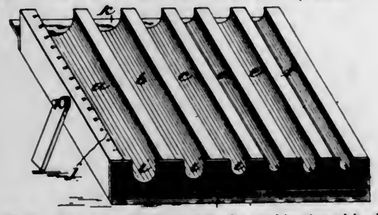
2. In a tailor's measuring implement, a stationary bar provided with a cross-handle on one end, an extension bar, guides for limiting the movement of said two bars longitudinally with reference to each other, a contractible spring or springs connecting said two bars and adapted to extend the same longitudinally with reference to each other, a clamping device for locking the two bars together, a lever pivoted to the cross-handle and a connecting rod pivoted to said lever and connected to said clamping device, substantially as described.

3. In a tailor's measuring implement, a stationary bar provided with a cross-handle on one end, an extension bar, a guide fixed to said stationary bar and extending around said extension bar, a guide fixed to said extension bar and extending around said stationary bar, a contractible spring or springs connected to said guides and adapted to extend said two bars longitudinally with reference to each other, a clamping device for locking the two bars together, a lever pivoted to said cross-handle and a connecting rod pivoted to said lever and connected to said clamping device, substantially as described.

4. In a tailor's measuring implement, the combination of a stationary bar provided with a cross-handle on one end, an extension bar, a contractible spring or springs connecting said two bars and adapted to extend the same longitudinally with reference to each other, a guide fixed to said extension bar and extending around said stationary bar, a guide fixed to said stationary bar and extending around said extension bar, a clamping device as the wedge or wedges *d d* operating under one of said guides and adapted to wedge said two bars together by pressure against said guide, a lever pivoted to said cross-handle and connections with said clamping device for operating the same, substantially as described.

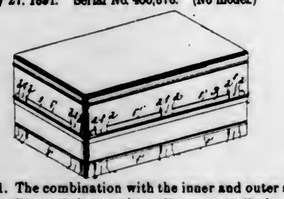
5. In a tailor's measuring implement, the combination of a stationary bar provided with a cross-handle on one end, an extension bar, a guide connected to said stationary bar and passing around said extension bar and a guide connected to said extension bar and passing around said stationary bar, lugs upon said guides and springs connected to said lugs, whereby to extend said bars longitudinally with reference to each other, and a clamping device for fastening said two bars together, substantially as described.

518,948. COIN-TRAY. HENRY A. HAYDEN, Jersey City, N. J., assignor, by direct and mesne assignments, to S. Chittick, New York, N. Y. Filed Sept. 26, 1893. Serial No. 486,537. (No model.)



Claim.—In a coin adder and rack, the combination with a block having in one of its faces a series of open-ended semi-cylindrical coin grooves, of a bottom plate *h* adapted to form a rest for the coins arranged in the coin grooves, said bottom plate being arranged to partially close one end of each of said coin grooves and being provided with a series of thumb recesses *i*, arranged opposite to the respective coin grooves, graduations extending along the said grooves and adapted to indicate the sum of the coins contained therein, folding legs *m*, arranged on opposite sides of said body and adapted to support the same in an inclined position, and a marking plate having an angular cross section, said marking plate being arranged adjacent to the open upper ends of the coin grooves, substantially as set forth.

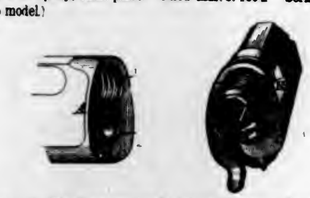
518,949. BALE-COVERING. MARK A. HEATH, Providence, R. I. Filed July 27, 1891. Serial No. 400,876. (No model.)



Claim.—1. The combination with the inner and outer shells, provided with the slits, and the corresponding outwardly bent portions between the slits registering with each other, of the locking rod which passes through the slits under the outwardly turned portions to lock the shells to each other, substantially as described.

2. A metallic bale covering, composed of the inner and outer telescoping shells, both of which are provided near their edges with the slits, and the corresponding outwardly bent portions between the slits, the inner shell being also provided with corresponding slits and outwardly bent portions near its bottom registering with each other, whereby the bale covering after being first filled with the material in a comparatively loose condition for transportation, may be still further compressed and secured, substantially as described.

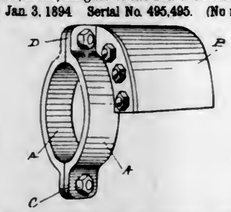
518,950. DETACHABLY SECURING BARRELS TO STOCKS. LEWIS L. HEPBURN, New Haven, Conn., assignor to the Marlin Fire Arms Company, same place. Filed Mar. 5, 1894. Serial No. 502,396. (No model.)



Claim.—1. The combination in a gun, of a barrel having its rear end provided with a screw thread, a receiver provided with a hole having a corresponding screw thread, and a cam ring interposed between the band or shoulder on the barrel for wedging and locking the parts fast and rigid as set forth.

2. In combination with the receiver and barrel of a gun, a cam ring provided with an inclined or wedge shaped face and a lever or handle for operating the same, said cam-ring being located between the face of the receiver and the band or shoulder on the barrel, substantially as and for the purpose set forth.

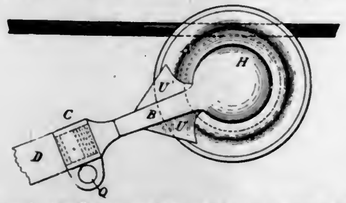
518,951. HUB-PROTECTOR FOR VEHICLES. NELSON D. HODGKINS, Marquette, Mich., assignor of one-half to Frederick O. Clark, same place. Filed Jan. 3, 1894. Serial No. 495,495. (No model.)



Claim.—1. The combination of the circular clamp A provided with lugs C and D, through which bolts, *b*, *b*, pass, holding the two parts of circular rim A together, with shoulder E bolted or welded thereto, with circular shield B bolted to said shoulder E, substantially as shown and described.

2. The combination of the circular clamp A provided with lugs C and D, through which pass bolts, *b*, *b*, holding the two parts of circular clamp together, with shoulder E bolted or welded thereto, with circular shield B bolted to said shoulder E by bolts, *a*, *a*, and attached to wagon axle F, substantially as shown and described.

518,952. TROLLEY FOR ELECTRIC RAILWAYS. GEORGE W. HOOPER, Rochester, N. Y., assignor, by direct and mesne assignments, to James S. Baker, same place. Filed June 1, 1893. Serial No. 476,305. (No model.)



Claim.—1. A trolley comprising a wheel and axle adapted to turn together, a yoke frame provided with lubricant receptacles H closed at their outer ends, bushings fixed in the receptacles and filling openings in the said receptacles, the interior of said bushings communicating freely with said receptacles and the bushings abutting against the wheel about the axle, substantially as set forth.

2. A trolley comprising a wheel and axle adapted to turn together, a yoke frame provided with lubricant receptacles H closed at their outer ends, bushings fixed in the receptacles and filling openings in the said receptacles, the interior of said bushings communicating freely with said receptacles and the bushings abutting against the wheel about the axle, and springs in the bushings bearing against the axle and against the bottom of the receptacles, substantially as set forth.

3. A trolley comprising a divided yoke-frame, bushings located in the frame within lubricant receptacles closed at their outer ends a trolley-wheel having an axle revolving in the bushings, springs in the bushings bearing against the ends of the axle, and the bottoms of the lubricant receptacles and means for preventing the rotation of the bushings, substantially as described

4. A trolley comprising a divided yoke-frame, bushings provided with projecting lugs within recessed lubricant receptacles closed at their outer ends a trolley wheel having an axle revolving in the bushings, springs in the bushings bearing against the ends of the axle and the bottoms of the lubricant receptacles,—the lugs and recesses operating to prevent the rotation of the bushings, substantially as described.

5. A trolley comprising a divided yoke-frame, bushings provided with lateral openings, located in the frame within lubricant receptacles closed at their outer ends a trolley-wheel having an axle revolving in the bushings, and springs in the bushings bearing against the ends of the axle and the bottoms of the lubricant receptacles, substantially as described.

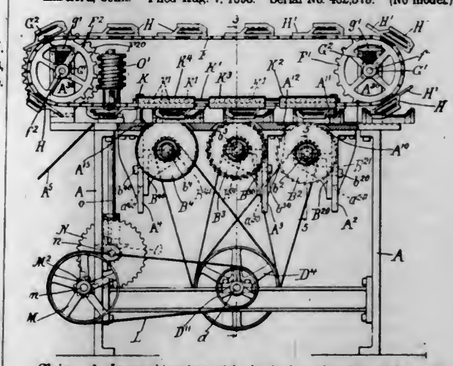
518,953. CLOSURE FOR BOTTLES OR JARS. RENA M. HOWE, Scranton, Pa., assignor to Thomas B. Howe, same place. Filed Mar. 6, 1894. Serial No. 502,579. (No model.)



Claim.—1. A closure for bottles and jars, such as herein described, consisting of a sheet metal cover having a raised central portion with two diametrically opposite apertures therein and a passage way formed by bending the metal of said cover on the outside of said apertures down and up between the apertures and a bail passing through said passage way and having the ends extended downwardly on each side of the cover; substantially as described.

2. In a closure such as herein described, the combination with the cover struck up from sheet metal with the raised central portion having the apertures through the same and with the sides of said apertures bent to form a substantially straight passage way through the raised portion, of the bail bent up from wire with the ears *g* and bends *h*, said parts being assembled by threading the bail through the openings after it is bent up into shape; substantially as described.

518,954. MACHINE FOR DRESSING HALF-SPOOLS. EBER HUBBARD, Chicago, Ill., assignor to the Willimantic Linen Company, Hartford, Conn. Filed Aug. 7, 1893. Serial No. 482,573. (No model.)


A
A
A

said devices succeed each other, said chain being provided with spool-holding shoes separated by intervals as great as those which separate the successive dressing devices, whereby each spool is exposed to only one of the dressing devices at a time; weights overhanging the chain above the dressing devices, respectively, said weights being independent of each other and independently connected to the frame, whereby the spools are respectively and independently held down against the dressing devices: substantially as set forth.

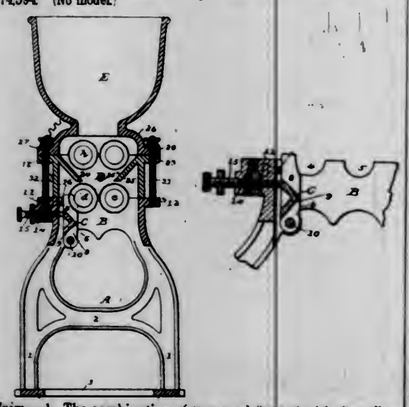
2. In combination with the bed and the successive dressing devices operating up through it, a chain which overhangs the bed above the dressing devices and travels in the direction in which they succeed each other; the chain being provided with spool-holding shoes; weights which overhang the feed ply of the chain above the dressing devices respectively, said weights being independently connected to the frame and adapted, independently of each other, to press yieldingly upon the chain to hold the spools carried by the shoes respectively down onto the dressing devices, and the sprocket wheels by which the chain is driven provided with bearings adapted to yield elastically upward: substantially as set forth.

3. In combination with the bed and the successive dressing devices which operate up through it, the chain overhanging the bed and traveling up in the direction in which the dressing devices succeed each other and provided with spool-holding shoes; the weights overhanging the chain above the dressing devices respectively, said weights being independent of each other, and adapted independently to press the spools which pass under them successively down toward the dressing devices respectively, said weights being connected to the frame without opportunity for horizontal movement, and provided on their under faces with guide channels for the chain, whereby other lateral guards for the chain between the sprocket wheels are dispensed with: substantially as set forth.

4. In combination with the rigid bed and the dressing device operating upward through it, the upper surface of the bed at the receiving side of the dressing devices being reduced below the level of the opposite side, the feeding chain overhanging the bed, and the dressing device provided with shoes or saddles adapted to stride the shaft of the spool and provided with a rearwardly projecting tail to bear upon the rear flange of the spool, whereby the rear end of the spool is held down onto the bed at the receiving side until the forward end is lodged upon the bed at the farther side of the dressing device: substantially as set forth

---

518,955. ROLLER GRINDING-MILL. WILLIAM HUDNALL and LORENZO D. BEARY, Helena, Mont. Filed May 17, 1893. Serial No. 474,594. (No model.)

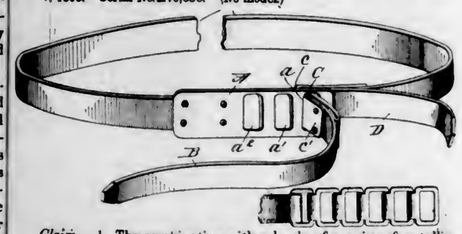


Claim.—1. The combination of the stand formed with the roller-bearings in its upper edge one set of said bearings being elongated, an adjusting-bracket fulcrumed in the top of said stand having end-pieces to bear against a roller in the elongated bearings, said end-pieces being connected by an inclined cross-piece 9 a screw to adjust the said bracket, the middle casing formed with cap-bearings in the under edge, inclined inner sides and a central cross-bar, and bearings in its upper edge, and the hopper having a bottom piece constituting a cover for the middle casing having cap-bearings, all as and for the purpose specified.

2. The combination with the stand and the upper cover sustaining the hopper, of the middle casing D, formed with bearings in its lower and upper ends, downward and inward inclined side pieces and a central cross bar, substantially as and for the purpose specified.

3 The coffee-grinder herein-described, comprising a suitable stand having bearing-boxes formed in its upper edge one of which is elongated, and exterior vertical recesses *b* at the corners grinding-rollers mounted in said bearings, an adjusting-bracket fulcrumed in the vertical recesses in the side of the casing having end-pieces to bear against the necks of the roller in the elongated bearings, and connected by an inclined cross-piece a screw to adjust the bracket, a middle casing having inward inclined sides the lower edges of which set over the lower set of rollers and bearings in the upper edge of the casing, a central cross-bar 25[x] an upper set of grind-rollers in such bearings, a cover carrying a hopper and formed with bearing-caps to set over the neck of the rollers, fastening-bolts to hold the parts together, and gears on the rollers to rotate them, as specified.

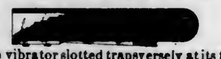
518,956. CLASP. PARKER JAMES, Vandalia, Mich. Filed June 7, 1893. Serial No. 476,858. (No model.)



Claim.—1. The combination with a hook, of a series of metallic eyes attached to the hook by a flexible connection, one extremity of said connection being secured to the inner face of the hook and terminating in projecting branches which are adapted respectively for drawing said eyes into and out of engagement with the hook, as specified.

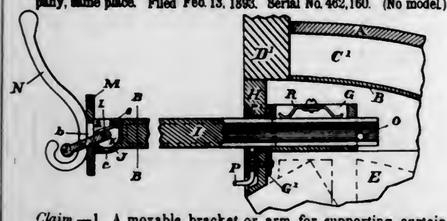
2. The combination with a hook, of a series of pivotally connected links attached to the hook by an interposed flexible connection, and projecting branches of said connection secured to the inner face of the hook, as specified.

518,957. VIBRATOR FOR REED MUSICAL INSTRUMENTS. HENRY JAMES, Waterbury, Vt. Filed Apr. 29, 1891. Serial No. 391,000. (No model.)



Claim.—The vibrator slotted transversely at its free end, as shown and described, for the purpose of producing, in addition to the fundamental tone of the reed, overtones one or more octaves higher.

518,958. CURTAIN-ROD FIXTURE FOR SLEEPING-CARS. JOHN KIRBY, Jr., Dayton, Ohio, assignor to the Dayton Manufacturing Company, same place. Filed Feb. 13, 1893. Serial No. 462,160. (No model.)



Claim.—1. A movable bracket or arm for supporting curtain rods, adapted to be drawn out into the deck space when it is desired to make up the berths for use, and to be moved back out of the deck space when the berths are not in use, said bracket being provided with bearings whereby one bracket will support one end of each of two detachable rods.

2. A movable bracket or arm for supporting curtain rods adapted to be drawn out into the deck space when it is desired to make up a berth for use and to be moved back out of the deck space when the berth is not in use, said brackets being provided with bearings whereby one bracket will support one end of each of two rods, in combination with suitable means for locking the bracket in position.

3. A movable bracket or arm for supporting curtain rods, a sleeve in which the same is adapted to slide, whereby the bracket may be drawn out into the deck space when a berth is to be made up for use, and moved back out of the deck space when the berth is not in use, in combination with means for supporting a detachable rod upon which to hang curtains at the outer end of said bracket.

4. A curtain rod fixture consisting of a movable bracket or arm provided with one or more rod bearings at its outer end and adapted

to be moved out into the deck space when a berth is to be made up for use, and to be moved back out of the deck space when the berth is not in use, a sleeve or other suitable guide in which said bracket is adapted to slide, and a plate as M constituting the front of the bearings and forming a finish for the fixture when not in use.

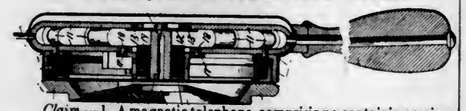
5. A curtain rod fixture consisting of a movable bracket or arm, provided with one or more rod bearings at its outer end, and adapted to be moved out into the deck space when a berth is to be made up for use, and to be moved back out of the deck space when the berth is not in use, a sleeve or other suitable guide in which said bracket is adapted to slide, a bushing or casing attached to the deck to receive said bearings and a plate constituting the front of the bearings and forming a finish for the fixture when not in use.

6. In a curtain rod fixture, the combination of movable bearings for supporting the rods and one or more hooks or equivalent means for supporting clothing adjacent thereto.

7. A movable bracket or arm for supporting curtain rods adapted to be concealed from view when not in use, in combination with one or more hooks, or their equivalent upon which to hang clothing by which means said hooks may be extended out into the berth space.

8. The combination of one or more hooks or their equivalent upon which to hang clothing, a movable bracket or arm to which said hook or hooks are attached, and a sleeve or other suitable guide in which said bracket or arm is adapted to slide, whereby said hook or hooks may be drawn out and withdrawn in substantially the manner shown and described.

518,959. TELEPHONE. EUGENIJ V. KOLBASHEFF, Cronstadt, Russia. Filed Sept. 21, 1893. Serial No. 486,069. (No model.)



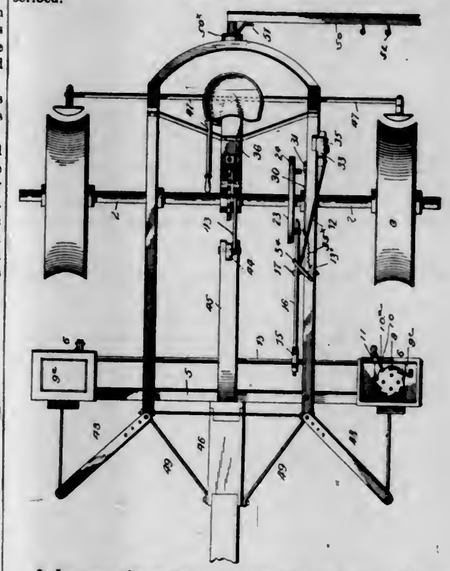
Claim.—1. A magnetic telephone, comprising a containing casing, a plurality of permanent horse-shoe magnets all arranged wholly within the casing and wholly in a common interior plane transverse to the center of said casing, and also in radial relation to said center and furthermore with the ends of their arms adjacent to said center, a central pole-piece structurally connected to one arm of each magnet, a cylindrical pole-piece surrounding the central pole-piece and of opposite polarity therefrom and also structurally connected to the opposite arm of each magnet, and a conductive coil interposed between the two pole-pieces and surrounding the central piece, substantially as set forth.

2. A magnetic telephone, comprising a containing casing, a plurality of permanent horse-shoe magnets all arranged wholly within said casing and wholly in a common interior plane transverse to the center of said casing, and also in radial relation to said center, and furthermore with the extremities of their arms adjacent to said center, a central pole-piece structurally connected to one arm of each magnet, a cylindrical pole-piece of opposite polarity from said central pole-piece and surrounding the same and also structurally connected to the opposite arm of each magnet, a conductive coil surrounding the central pole-piece between the latter and the cylindrical pole-piece, and a diaphragm overlying the outer ends of said pole-pieces, substantially as set forth.

518,960. CORN-PLANTER. JOHANN KURT and JACOB KURT, Richwood, Ohio. Filed Aug. 23, 1893. Serial No. 483,864. (No model.)

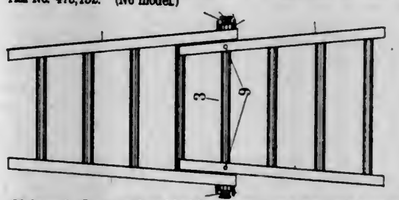
Claim.—1. In a corn planter, the combination with a supporting frame, an axle journaled in the supporting frame and having carrying wheels mounted thereon, and hoppers arranged on the frame in advance of the axle, of toothed feed disks arranged in the hoppers, a rock shaft journaled in the supporting frame and provided with a rearwardly extending arm, upwardly extending arms carried by said shaft, supporting pawls adapted to take into the teeth on the feed disks in the hoppers, a disk secured on the axle and provided on one face with a series of laterally projecting studs or pins, and a lever fulcrumed on the supporting frame and having its ends extending into the paths of the studs on the disk on the axle and the rearwardly extending arm on the rock shaft, substantially as and for the purpose described.

2. In a corn planter, the combination with a supporting frame, an axle journaled in the frame and having suitable carrying wheels mounted thereon, and hoppers carried by the supporting frame in advance of the axle, of feeding disks arranged in the hoppers, a rock shaft journaled in the supporting frame and provided with a rearwardly extending arm. means for operating the feed disks from the rock shaft, a disk secured on the axle and provided on one face with a series of laterally projecting studs or pins, a lever fulcrumed on the side of one member of the supporting frame and having its ends extending into the paths of the studs on said disk and the rearwardly extending arm on the rock shaft, another lever fulcrumed on top of said member of the frame and provided on its under side with a pin which extends on one side of the lever by which the rock shaft is operated, and said lever thrown out of the path of the pins or studs and out of engagement with said rock-shaft; and a rod connecting the lever on the top of the supporting frame with a foot or hand lever fulcrumed in rear of the axle, substantially as and for the purpose described.



3. In a corn planter, the combination with a supporting frame, an axle journaled in said frame and having suitable carrying wheels mounted thereon, and hoppers carried by the supporting frame, of feed disks arranged in the hoppers and adapted to be operated from a rock shaft journaled in the supporting frame, a disk secured on the axle and provided with a series of laterally projecting studs or pins, a lever fulcrumed on the frame and having its ends extending into the paths of the pins on said disk and a rearwardly extending arm on the rock shaft, a guide attached to the supporting frame adjacent to the disk on the axle and extending concentric therewith, and a block adjustably fitted on said guide and adapted to be held at any desired point thereon by a set screw, substantially as and for the purpose described.

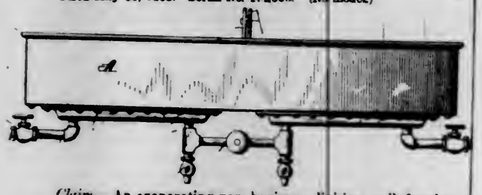
518,961. SECTIONAL LADDER. HENRY H. LANG, Buffalo, assignor to Walter M. Brown, Albany, N. Y. Filed June 19, 1893. Serial No. 478,152. (No model.)



Claim.—1. In a sectional ladder, a unit rung projecting beyond the outer faces of the side bars when in extension, the outer ends thereof being threaded and carrying a threaded nut and arranged to allow of back slack to said nut when the sections are in extension, the ends of the rung being provided with a projection arranged to prevent the nut from being backed off the rung substantially as described.

2. In a sectional ladder, a refractory tubular unit rung projecting beyond the outer faces of the side bars when in extension, the outer ends of said rung being threaded and carrying a threaded nut meshing with the threads on the rung, said rung being arranged to allow of back slack to said nut when the sections of the ladders are in extension, the ends of the rung having an offset that the nut may not be backed off the rung substantially as described.

518,962. EVAPORATING-PAN. HENRY F. MILLER, Lima, Ohio.
Filed May 16, 1893. Serial No. 474,398. (No model.)



Claim.—An evaporating pan having a division wall forming a series of compartments, a sliding gate in the wall controlling communication between said compartments, a lever fulcrumed to the pan for operating the gate, a supplemental bottom secured beneath each compartment and forming a steam space, steam pipes connecting with the steam spaces, a pipe connecting adjoining compartments provided with a cut-off valve, and drip pipes connected with each steam space for drawing off the water of condensation, substantially as described

518,963. PROCESS OF MANUFACTURING PIGMENTS. GIDEON E. MOORE, New York, N. Y. Filed Sept. 19, 1893. Serial No. 485,890. (No specimens.)

Claim.—1. The within described process of manufacturing pigments from manganiferous limestone, which consists in removing carbonic acid from the same, oxidizing the manganese in the same to brown oxide and charging the lime or other alkaline earths present with carbonic acid substantially as described.

2. The within described process of manufacturing pigments from manganiferous limestone which consists in removing carbonic acid from the same, oxidizing the manganese in the same to brown oxide, charging the lime or other alkaline earths present with carbonic acid and removing the particles of foreign impurities from the same by mechanical separation substantially as described

3. The within described process of manufacturing brown pigments from manganiferous limestone which consists in calcining the same, causing the calcined material to slake or disintegrate by hydration, oxidizing the manganese in the same to brown oxide, and acting upon the lime therein with carbonic acid substantially as described.

4. The within described process of manufacturing brown pigments from manganiferous limestone which consists in calcining the same, causing the calcined material to slake or disintegrate by hydration, oxidizing the manganese in the same to brown oxide, separating the calcined and slaked material from intermixed particles of foreign impurities by mechanical separation and acting upon it with carbonic acid substantially as described.

518,964. GARMENT-SUPPORTER. GEORGE W. PARKER, Minneapolis, Minn. Filed July 6, 1893. Serial No. 479,751. (No model.)

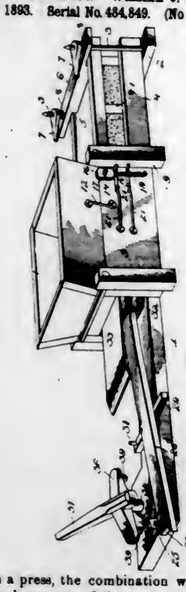


Claim.—1. In a garment-supporter, the combination with the main webbing A, of the malleable metallic eye-plate B, having the web attaching lugs b, the said parts being secured together with the lower pair of said lugs clamping the end of the web and cushioned by the body of the same, and the upper pair of lugs clamping the body of the web and cushioned by the reverse or slack fold a, substantially as described.

2 The garment supporter, comprising the main web A, the web branch or loop A′, the eye-plate B secured to the main web A, provided with the laterally elongated eye b^3, and having its body raised or struck up, as shown at b', to form a garment pocket, and the tongue-plate B, secured to the web-branch A′, the tongue of which has the offset expanded head d', of less cross section than the eye b^3 and of greater section lengthwise of the web than the said eye, and provided with the catch-lugs d^3, the said parts cooperating substantially as and for the purposes set forth.

3. A garment supporter comprising an eye-plate secured to one branch of the webbing, having an elongated eye or slot, said eye-plate being struck up away from the webbing to form a pocket, and a tongue-plate secured to another branch of the webbing, having an expanded head of greater longitudinal dimensions than the eye of said eye-plate, whereby, by a longitudinal angular movement, with respect to each other, the head of said tongue-plate may be inserted into the pocket formed between the webbing and the eye-plate, and the parts interlocked, substantially as described

518,965. HAY-PRESS. WILLIAM J. PEARCE, Pilot Point, Tex.
Filed Sept. 5, 1893. Serial No. 484,849. (No model.)



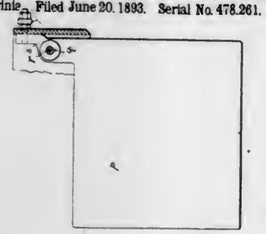
Claim.—1. In a press, the combination with the opposite side walls having vertical recesses, of the interposed tucker-roll having reduced ends passing through and beyond the recesses, blocks arranged on the tucker-roll, metal rings arranged upon and encircling the blocks and terminating at their lower ends in hooks, and coiled springs connected at their upper ends to the hooks and at their lower ends to the sides of the press, substantially as specified.

2. In a baling press, the combination with a baling-chamber, a stud arranged beyond the chamber, an arm mounted upon the stud, adapted to swing, and having a longitudinal slot, of a sweep-head having a depending pin for engaging against the outer side of the arm, a plunger arranged in the baling-chamber, a stem connected pivotally with the plunger and at its outer end having a notch, a stud connecting the plunger-stem with the slot of the arm, and a stop arranged at one side of the plunger-stem, substantially as specified.

3. In a press, the combination with the baling chamber, a stud arranged beyond the same, a slotted arm mounted loosely upon the stud, a bearing-post at one side of the arm, a sweep-head swiveled on the post and having depending roller-carrying pins, and a sweep arranged upon the sweep-head, of a plunger arranged in the press, a stem pivoted to the press and having at its outer end an L-shaped recess, a stud passing through the stem and the slot in the arm, and a stop arranged at one side of the stem, substantially as specified.

4. In a press, the combination with the baling-chamber, a stud arranged beyond the same, a slotted arm mounted loosely upon the stud, a bearing-post at one side of the arm, a sweep-head swiveled on the post and having depending roller carrying pins, and a sweep arranged upon the sweep-head, of a plunger arranged in the press, a stem pivoted to the plunger and having at its outer end an L-shaped recess, a stud passing through the stem and a slot in the arm, a transverse guide-bar arranged under the stem and projecting at one side thereof, and a stop-pin rising from the guide-bar and located in the path of the plunger-stem, substantially as specified

518,966. STORAGE-BATTERY. WILLIAM A. PHILLIPS and JUSTUS B ENTZ, Bridgeport, Conn., assignors to the Waddell-Entz Company of West Virginia. Filed June 20, 1893. Serial No. 478,261. (No model.)



Claim.—1. A battery plate or element made of one or more lobes b of insulated wire formed by a wire doubled at its center and wound thus doubled into a flat spiral, substantially as described.

2. A battery plate or element, having two flat spirals or lobes of insulated wire placed together, edge to edge, to form a mat, means for securing the same together, each of said flat spirals having exposed ends for connection to a circuit, substantially as described.

3. A battery plate or element made of one or more lobes of insulated wire formed by a wire doubled at its center, and wound thus doubled into a flat spiral, each lobe having a separate transverse binding cord, substantially as described.

4. A battery plate or element made of one or more lobes of insulated wire wound into a flat spiral, each lobe having a transverse binding cord secured in place by whiting or similar binding material, substantially as described.

5. A frame for securing the parts of a battery plate, and for separating adjacent plates, said frame consisting of the wire g and the short wires h supported by the wire g, and projecting inward on each side of the wire g, substantially as described.

6. The combination with a mat or plate for a battery element, of a wire g formed to surround the periphery thereof, said wire being provided with bent wires h clamped thereto, and projecting on each side of the mat, substantially as described.

7. The combination with battery plate A of the two loops l, m, one on each face of the plate, and clamped together at top and bottom, substantially as described.

8. In a frame for battery plates, the insulated wire k formed into a spiral of two turns, the ends of the wire forming a coil overlapping and being clamped together and to a part of the wire formiog a coil whereby the frame can be slipped on to a battery plate in the manner described.

9. In an electrode for secondary batteries, the combination of two coils b b, of insulated wire having their free ends placed together, as described, with the sheet metal clips or clamps securing said free ends together, substantially as described.

10. In a storage battery, the combination with the metallic cell, of several steel or other metal plates clamped together and electrically connected to said cell by a bolt, substantially as described.

11 The herein described process of treating batteries which consists in dipping the battery plates previously coated with paraffine or the like into the electrolyte contained in the cell, and applying heat to the electrolyte to remove the coating from the plates, whereby on cooling of the electrolyte, the said coating will be caused to float on the surface of the electrolyte forming a seal therefor during use of the battery, substantially as described.

518,967. EXERCISING-MACHINE. GEORGE F. POOLE, Cleveland, Ohio. Filed May 2, 1893. Serial No. 472,754. (No model.)



Claim.—1. In an exercising apparatus, the combination of a pulley, a strap secured to and adapted to be wound upon and unwound from said pulley, means for revolving said pulley to wind the strap, a brake wheel, a clutch device between said pulley and brake wheel, and brake mechanism arranged to bear against the sides of said brake wheel, substantially as set forth.

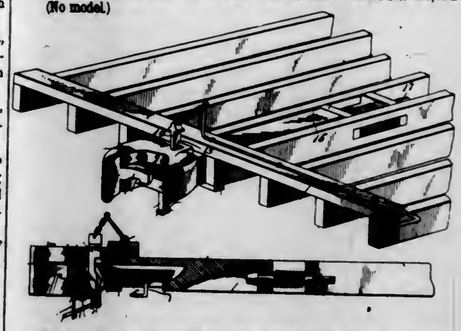
2. In an exercising apparatus, the combination of a casing formed with a brake surface at the inside of one head, a pulley journaled in said casing, a strap secured to and adapted to be wound upon and unwound from said pulley, means for revolving said pulley to wind the strap, a brake wheel, clutch mechanism between the pulley and brake wheel, and a brake bearing against one side of the hub of the brake wheel and provided with means for moving it toward and from said wheel and for moving the wheel toward and from the brake surface in the casing, substantially as set forth.

3. In an exercising apparatus, the combination of a casing formed with an annular brake surface at the inside of one head, a pulley journaled in said casing, a strap secured to and adapted to be wound upon and unwound from said pulley, means for revolving said pulley to wind the strap, a brake wheel, clutch mechanism between the pulley and brake wheel, a sleeve upon which said wheel is journaled and formed with a head at its inner end, a brake disk upon said sleeve between the head and the hub of the brake wheel, and a finger nut upon the sleeve and bearing against the head of the casing, substantially as set forth.

4. In an exercising apparatus, the combination of a pulley having means for revolving it in opposite directions and formed with a flange upon one face having wedges upon its inner side and projections at the narrow ends of said wedges, a brake wheel having its rim within said wedges and projections and opposed to the same, and rollers adapted to catch between said wedges and the periphery of the brake wheel, substantially as set forth.

5. In an exercising apparatus, the combination of a casing formed with a brake surface, a pulley in said casing, a strap secured to and adapted to be wound upon and unwound from said pulley, means for revolving said pulley to wind the strap, a brake wheel, having one face bearing against the brake surface, a clutch device between said wheel and the pulley, and a yieldingly supported brake, bearing against the hub of the brake wheel and provided with means for moving it toward and from said hub, substantially as set forth.

518,968. CAR-COUPLING. RICHARD J. REYNOLDS and GEORGE M. JONES, Springville, Ala. Filed June 6, 1893. Serial No. 476,724. (No model.)



Claim.—1. In a car coupling, the combination of a draw-head, a knuckle pivoted thereto and provided with an arm, a longitudinally-movable locking-bar arranged within the draw-head and provided at its front end with an inclined opening, and a vertically-movable key engaging the opening of the locking-bar and adapted to extend and retract the latter, substantially as described.

2. In a car-coupling, the combination of a draw-head, a knuckle pivoted thereto and provided with an arm, a longitudinally movable locking-bar mounted in the draw-head and provided with an inclined opening forming front and rear inclined walls, and a vertically-movable key mounted in the draw-head and having an inclined portion located in the opening of the locking-bar and adapted to engage the rear wall of the opening when it is raised to retract the locking-bar and to engage the front wall of the opening to extend the locking-bar when it is lowered, substantially as described.

3. In a car-coupling, the combination of a draw-head, a knuckle pivoted thereto and provided with an arm, a longitudinally-movable locking-bar mounted in the draw-head and provided with an inclined opening forming front and rear inclined walls, and a vertically-movable key mounted in the draw-head and provided with an inclined portion arranged in the opening of the locking-bar and provided at its upper end with a shoulder adapted to rest upon the upper face of the draw-head to hold the key elevated, substantially as described.

4. In a car-coupling, the combination of a car provided on its frame with a transverse piece, a draw-head provided in its bottom with a key-hole opening, a knuckle pivoted to the draw-head, a longitudinally movable locking-bar arranged in the draw-head, and having a threaded opening and a depending polygonal pin threaded and secured in the opening of the locking-bar and depending from the draw-bar of the draw-head and arranged in rear of the transverse piece for engaging the same, said pin being of a size to turn freely in the enlarged portion of the key-hole slot and being prevented by its size from turning when in the narrow portion of the slot substantially as described.

5. In a car-coupling, the combination of a draw-head having a pivoted knuckle, a bracket secured to the draw-head and depending therefrom, and a supporting-bar mounted in the bracket and arranged below the draw-head and projecting forward from the bracket to limit the vertical movement of car-couplings on each other to prevent them separating, substantially as described.

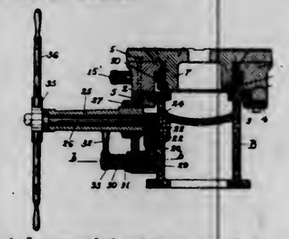
6. In a car-coupling, the combination of a draw-head having a pivoted knuckle, a bracket secured to the draw-head and depending therefrom, and a sliding supporting-bar mounted in the bracket and projecting forward therefrom, substantially as and for the purpose described.

7. In a car-coupling, the combination of a draw-head having a pivoted knuckle, a bracket secured to the draw-head and depending therefrom, and an inclined supporting bar slidingly mounted in the

bracket and having a limited movement and projecting forward from the bracket, substantially as described.

8. In a car coupling, the combination of a draw-head having a pivoted knuckle, a bracket secured to and depending from the draw-head and having sides of unequal length arranged at its front and back and provided at their lower ends with openings, the front side being longer, an inclined supporting-bar slidingly mounted in the openings and provided at its front end with a laterally-extending lug forming a stop, and a stop-ring connected with the sliding supporting-bar between the sides of the bracket and retaining the bar therein, substantially as described.

518,969. TURRET-LATHE. FRANCIS H. RICHARDS, Hartford, Conn., assignor to Walter Wood, Philadelphia, Pa. Filed Dec. 7, 1893. Serial No. 493,067. (No model.)



Claim.—1. In a turret-lathe of the class specified, in combination, a vertically-bored turret-slide having an internal conically-tapered annular flange at its upper edge, a turret having an externally-flanged column extending into the bore of the slide, a clamp-ring interposed between the turret-column and slide-flange and having oppositely-disposed inclined faces, one of which bears against the tapered face of the slide-flange, and a split-ring interposed between the clamp-ring aforesaid and the flange of the turret-column and having an inclined face in bearing contact with one of the inclined faces of said clamp-ring, and means for contracting the last-mentioned ring, substantially as described and for the purpose set forth.

2. The combination with the vertically-bored turret-slide having the internally-projecting annular flange, of the turret revolubly mounted thereon and having the depending column projected into the bore of the slide with the external flange at its lower end, a clamping-ring wedge-shaped in cross-section interposed between the inner face of the slide-flange and outer face of the turret-column, an expansible or flexible wedge interposed between said clamp-ring and the flange of the column, and means, substantially as described, for contracting said wedge diametrically, substantially as and for the purpose set forth.

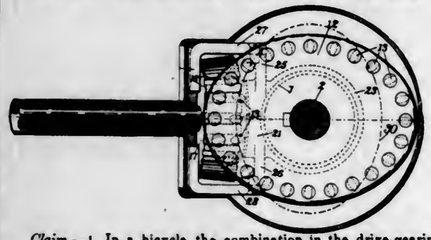
3. In a turret-lathe, the combination of the turret-slide vertically bored to receive a depending column upon the turret and having an internally-projecting flange conically bored from the inner side to form inclined faces, a turret having a depending stem extended into the bore of the slide, a ring or collar secured to the lower end of said stem to form an outwardly-projecting flange, a transversely divided clamp-ring angular in cross-section and constructed to fit the space between the slide-flange and the turret-stem, an annular transversely-divided clamp-ring-actuating wedge having an inclined face and being interposed between the clamp-ring and turret-stem flange, and the wedge-contracting device consisting of the clamp-screws extended through screw-threaded openings in the turret-slide at opposite sides thereof and bearing at their inner ends against projections upon the adjacent ends of the annular wedge, which screws are adapted to contract the wedge to force the clamp-ring upward to clamp the turret with relation to the slide, substantially as described.

4. In a turret-lathe, the combination of the vertically and centrally bored turret-slide having the inwardly-projecting annular flange beveled substantially as described at its inner face, the turret having a depending stem of lesser external diameter than the internal diameter of the bore of the slide and having an outwardly-projected annular flange at its lower end, a series of transversely-divided annular wedges loosely surrounding the stem and interposed between the flange of the stem and flange of the turret-slide, one of said wedges coinciding in cross-sectional shape with the cross-sectional shape of the space between the slide-flange, turret-stem and adjacent wedge, and turret-clamping screws extending transversely through the turret-slide and directly engaging one of said wedges to contract the same and force the adjacent wedge outward in binding-contact with the turret, and means substantially as described for actuating said screw, all constructed substantially as and for the purpose set forth.

5. In a turret-lathe, in combination, the vertically-bored turret-slide having the internal conically-tapered annular flange at the upper edge thereof, the turret having a depending stem of lesser diameter than the internal diameter of the bore of the slide and having an external flange at its lower end, a series of transversely-divided annular rings loosely surrounding the stem and interposed between the flange of the stem and flange of the turret slide, one of said wedges coinciding in cross-sectional shape with the cross-sectional shape of the space between the slide-flange, turret-stem and adjacent wedge, and means in connection with one of said wedges and adapted for contracting the same to clamp the turret, substantially as described.

6. In a turret-lathe of the class specified, in combination, a vertically-bored turret-slide having an internal conically-tapered annular centering flange, a turret having an externally-flanged stem extended into the bore of said slide, a split-ring interposed between the tapered face of the slide-flange and the stem of the turret, a split wedge-ring interposed between the first wedge-ring and the flange of the turret-stem, and clamping-mechanism in direct connection with said wedge-ring and adapted for contracting the same to clamp the turret, substantially as described.

518,970. GEARING FOR BICYCLES. EDWARD L. SHULTS, Springfield, Mass. Filed Mar. 25, 1893. Serial No. 467,618. (No model.)



Claim.—1. In a bicycle, the combination in the drive-gearing thereof, of two shafts located in crosswise positions, and a pair of gears, one on each shaft respectively, one of which gears is oblong, whereby the shafts are driven with varying relative velocities, substantially as set forth.

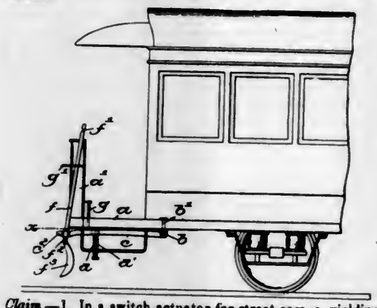
2. In a bicycle, the combination in the driving-gearing thereof, of the pedal-shaft, the intermediate shaft, the gear on the intermediate shaft, and an oblong gear on the pedal-shaft, whereby the pedal-shaft has varying velocities relatively to the side-shaft, substantially as set forth.

518,971. ELECTRIC TIME-ALARM. HENRY P. SOMMER, Chicago, Ill. Filed May 1, 1893. Serial No. 472,462. (No model.)



Claim.—An electric signal alarm for the purpose described having the back "A." an electric annunciator "F." a switch "E." connected to said annunciator "F." screw "B." supporting the gage or clock "B." and electrically connected to annunciator "F." the pointer C pivoted to the glass and provided with a thumb piece C' the wire C^2 fixed in the back "A" and extending up outside the clock B and in contact with the thumb piece C' by the springing action of the wire, said switch "E" and wire C^2 connected to the poles of an electric battery substantially as shown.

518,972. SWITCH-ACTUATOR FOR STREET-CARS. FLETCHER SPARLING, Boston, Mass. Filed June 17, 1893. Serial No. 477,990. (No model.)

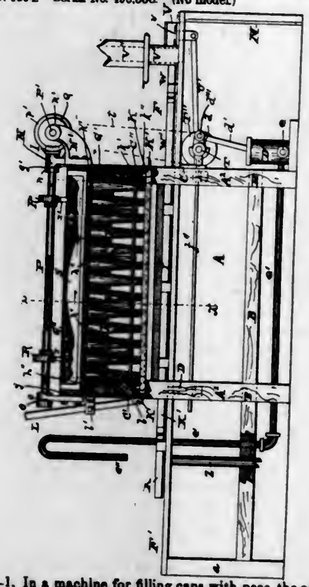


Claim.—1. In a switch actuator for street cars, a yielding support connected to the car, and normally elevated, combined with an actuator connected to said support and adapted to be swung laterally and provided with an operating handle, and independent means to positively depress the support and the actuator, substantially as described.

2. In a switch actuator for street cars, a bifurcated support pivoted to the car, a spring to normally maintain said support in elevated position, combined with an actuator jointed to the bifurcated portion of said support, means to positively depress the support and actuator, and a handle to turn the actuator and throw the switch point, substantially as described.

3. A switch actuator for street cars, consisting of a yielding support, an actuator carried thereby, and a universal joint connecting them, combined with means to move the actuator into operative position, substantially as described.

518,973. CAN-FILLING MACHINE. ALLEN J. TANNER, Franklinville, N. Y., assignor of one-half to Albro O. Holmes, same place. Filed Jan. 29, 1894. Serial No. 498,350. (No model.)



Claim.—1. In a machine for filling cans with peas, the combination, with a fixed receiver, of a series of gaging tubes a vertically-movable plate, to which said tubes are attached, means for normally maintaining said plate off its support, a gate at the lower end of said gaging tubes, and mechanism substantially as described, for jarring the plate to which the tubes are attached, as and for the object stated.

2. In a machine for filling cans with peas, the combination, with a fixed receiver, of a series of gaging tubes a vertically movable plate, to which said tubes are attached, means for normally maintaining said plate off its support, a gate at the lower end of said gaging tubes, mechanism substantially as described for jarring said plate and tubes, and means for moving the cans intermittently, as and for the object specified.

3. In a machine for filling cans with peas, the combination, with a fixed receiver, of a series of gaging tubes a vertically moving plate, to which said tubes are attached, means for normally maintaining said plate off its support, a gate at the lower end of said gaging tubes, mechanism substantially as described for jarring said plate and tubes, means for moving the cans intermittently, and a brining mechanism for brining the cans while at rest, as and for the purpose stated.

4. In a machine for filling cans with peas, the combination, with a receiver for the peas, of a series of gaging tubes secured to a plate as described, and a jarring mechanism consisting essentially of a cross-head striking said plate, eccentrics and connecting rods, a driving shaft, and mechanism for revolving said shaft, as stated.

5. In a machine for filling cans with peas, the combination, with a receiver for the peas, of the gaging tubes having a gate at their lower end, a pusher operated by suitable mechanism, a hopper, a fixed track and a switch-track, for guiding the cans into the ways underneath the tubes, as and for the object set forth.

6. In a machine for filling cans with peas, the combination, with a receiver for said peas and measuring tubes having a gate at their lower end, of mechanism for placing the cans into position underneath the said tubes, consisting of a reciprocating pusher, a hopper, fixed tracks at the ends of the machine switch-tracks for leading the cans into ways underneath the tubes, and means, substantially as described for changing the switch-tracks simultaneously, as and for the purpose stated.

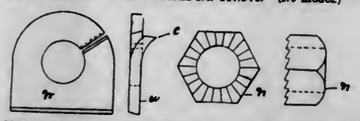
7. In a machine for filling cans with peas, the combination, with the receiver having the recessed bottom G', of the jarring mechanism, the vibrating measuring device consisting of tubes J the tube plate H, to which said tubes are attached, the spiral springs K' underneath the said tube plate, the gate plate K, the slide K' underneath the gate plate, and the adjusting screws for the gate plate, as and for the object set forth

8. In a machine for filling cans with peas, the combination, with a suitable frame, of a stationary receiver, at the upper portion of said frame and having a recessed bottom as described, the tube plate in said recess the springs underneath and means for limiting its upward movement of said plate, the gaging tubes secured to said tube plate, the steadying plate secured to said tube plate by screw rods having adjusting nuts as described, the gate plate having the circular apertures for the reception of the lower ends of the said tubes, a gate having apertures corresponding with those of the gate plate and sliding within grooves in said gate plate, and the adjusting screws on the gate plate, as and for the use and purpose specified.

9. In a machine for filling cans with peas, the combination, with the receiver G, of a rapping mechanism for the filling tubes, consisting, in combination with the tube-plate having studs, as described, of the cross-head S reciprocating in guides S' S^2, above the tube plate, the connecting rods r r', eccentrics R R', shaft P having suitable bearings, the bevel wheel p upon said shaft P, the bevel wheel p', pulley Q and clutch q upon said shaft P', and means for rotating the pulley Q, as and for the purpose set forth.

10. In a machine for filling cans with peas, the combination with the frame, of the track board F secured upon cross-rail D and cross-board C, the fixed tracks W X on the ends of the track-board, the switch-tracks W' X' hinged to said fixed tracks, the tracks f f' f^2 upon said track-board, the connecting rods x x', and the levers Y Y' fulcrumed at y y' and having their meeting ends connected, as described, for moving the switch-tracks simultaneously, as and for the purpose indicated.

518,974. NUT AND BOLT LOCK. ISAAC G. TINNEY, Youngstown, Ohio. Filed Oct. 1, 1892. Serial No. 447,570. (No model.)



Claim.—In a nut and bolt lock for joining rail road rails in combination the bolt b threaded on one end and at the other end provided with a head sufficiently prolonged on one side to impinge the foot

flange of the fish-plate *p*; the washer *w* prolonged in the lower portion to the foot flange of the fish-plate *p*, when in place, and carrying upon its side the pawl *c* formed by the outward curve of the lower edge made by a cut through the plate from the opening to the perimeter and upon that side over which the nut rotates upward in being turned to place; and the nut *n* having upon its inner end a series of ratchets, substantially as described and for the purpose expressed.

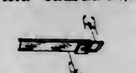
518,975. POWDER-BLOWER. RODT E. WARNER, Pittsburg, Pa. Filed Jan. 15, 1894. Serial No. 496,849. (No model.)



Claim.—1. A powder blower comprising a case, a collapsible bulb therein, having a valve-controlled air inlet communicating with the exterior of the case, a reservoir within the case having communication with the bulb, and a tube leading from said reservoir and extending from the interior thereof so as to afford an indirect exit for the air blown from the bulb and for the powder which is agitated by such air; substantially as described.

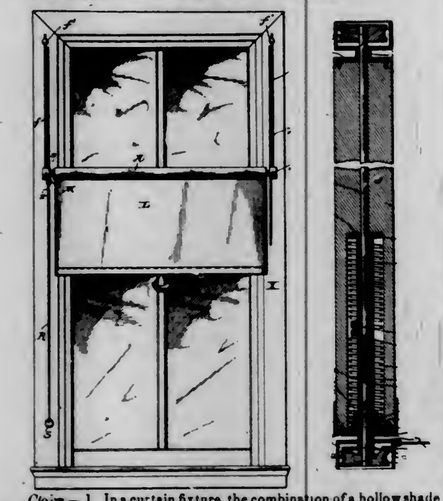
2. A powder-blower, comprising a case having an opening in one face, a bulb therein having a valve-controlled air inlet communicating with the exterior of the case, an opening from the bulb into the powder reservoir in the case, and a discharge tube leading from the reservoir; substantially as described.

518,976. BURIAL APPARATUS. ALBERT E. WHITNEY, Muncie, Ind. Filed May 10, 1893. Serial No. 473,652. (No model.)



Claim.—A casket box lid consisting of cross boards A and longitudinal board B, the said board B having depressions C over which are secured the catches D, the whole in combination with the straps F and links E, all for the purpose set forth.

518,977. CURTAIN-FIXTURE. IRVIN WILLIAMS, Nelson, Mo. Filed Aug. 22, 1893. Serial No. 483,744. (No model.)



Claim.— 1. In a curtain fixture, the combination of a hollow shade roller provided with an ordinary roller spring and arresting pawls, a longitudinal winding shaft extending through the roller, winding wheels or pulleys attached to the extremities of the shaft beyond the roller ends, the hanging cords or tapes, a separate and independent roller lifting spring arranged within the roller and connected with the shaft extending therethrough, and a suitable check attached to one of the winding wheels for checking the rotation of the shaft, substantially as set forth.

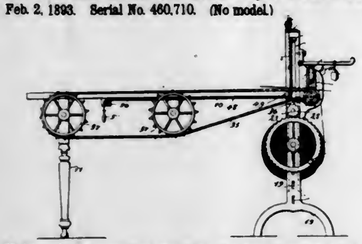
2. In a curtain fixture, an ordinary spring actuated shade roller, a shaft arranged longitudinally in the roller and having winding wheels or pulleys at its extremities, a shaft sleeve located at one end of the roller and loosely embracing the shaft and provided with separate pawl notches in its outer end, the roller lifting spring arranged within one end of the roller and connected to said sleeve and to the shaft, the hanging cords or tapes, and the pawls affixed at one end of the shade roller and to one of the wheels or pulleys, said pawls being adapted to engage the notches in said shaft sleeve to check the roller and also the shade thereof, substantially as set forth.

3. In a curtain fixture, a hollow shade roller carrying a curtain shade, bearing disks attached to opposite ends of the roller and one of which is provided with an inwardly extending bearing neck, a longitudinal shaft having winding wheels at its extremities, a non rotative shaft sleeve located within one end of the roller and having a shoulder working against the inner end of said neck, a cylindrical wheel cap inclosing one of the winding wheels, and pawl notches at both sides of said cap, a duplicate non-rotative cylindrical wheel cap loosely mounted on the other end of the shaft, the curtain spring connected to one end of the roller and to said shaft sleeve, a stronger lifting spring attached to said shaft sleeve and to the shaft, pawls pivoted to one of the end bearing disks of the roller and to one of said winding wheels and adapted to engage the pawl notches in said shaft sleeve, and suitable guides for the fixture, substantially as set forth.

4. In a curtain fixture, an ordinary spring-actuated shade roller, a shaft arranged longitudinally in the roller and having winding wheels at its extremities, non-rotative wheel caps inclosing said winding wheels and each provided at one side with a guide tube, suitably arranged check devices, the hanging cords or tapes, the pull cord attached at one end to one of said cylindrical wheel caps, and the opposite stationary slide rods loosely receiving said guide tubes, substantially as set forth.

5. In a curtain fixture, the combination with the hollow shade roller; of a shaft arranged longitudinally in the roller, winding wheels or pulleys attached to the extremities of the shaft, a spring arranged within the roller and connected to the shaft, a non-rotative shaft sleeve located in one end of the roller and having a cylindrical wheel cap inclosing one of the winding wheels, and pawl notches at both sides of said cap, a duplicate non-rotative wheel cap loosely mounted on the other end of the shaft, the hanging tapes, pawls pivoted to one end of the roller and to one of said winding wheels and adapted to engage the pawl notches at both sides of the sleeve wheel cap, and suitable guides for the fixture, substantially as set forth.

518,978. CUTTING-MACHINE. PERRY E. WILSON and PHILIP M. HESCH, Jr., Titusville, Pa.; said Hesch assignor to said Wilson. Filed Feb. 2, 1893. Serial No. 460,710. (No model.)



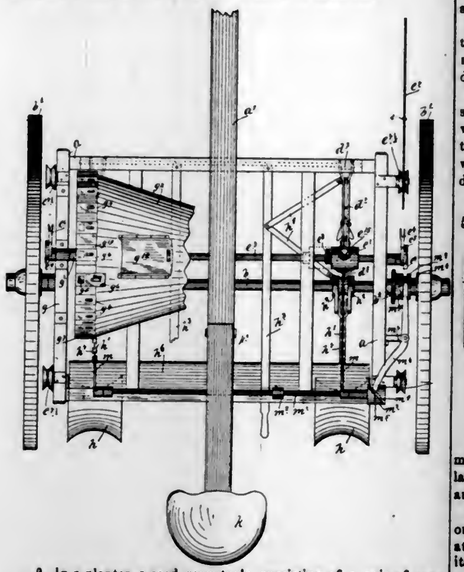
Claim.—1. In a cutting machine, the combination with the feed rollers and the cutting shears, of vertically movable slide blocks arranged beneath the feed rollers and adapted to carry a roll-holding mandrel, and fastening devices to secure the slide blocks at different heights, substantially as described.

2. The combination with the table, the feed rollers and the cutting shears, of vertically movable slide blocks arranged on the table legs and adapted to support a roll-holding mandrel, a vertical row of detents arranged on the table legs and adapted to support the slide blocks, and a hoisting device for lifting the slide blocks, substantially as described.

3. The combination with the table having suitable feeding and cutting mechanism thereon, of the vertically movable slide blocks held to slide on the table legs, the detents for supporting the slide blocks, the hoisting chains secured to the slide blocks, revoluble spur wheels to engage the hoisting chains, and a gear mechanism for turning the spur wheels, substantially as described.

518,979. PLANTER. JAMES N. WILSON, Minneapolis, Minn. Filed Apr. 27, 1893. Serial No. 472,007. (No model.)

Claim.—1. In a planter, a revoluble seed-drum constructed in two parts, each having marginal discharge openings, said parts being adjustable with reference to each other, for adapting the machine for different widths of row space, substantially as described.



2. In a planter, a seed receptacle, consisting of a pair of cone frustums with discharge openings, arranged large ends outward facing opposite sides of the machine, and at least one of which is longitudinally adjustable for adapting the machine for different widths of row spaces, substantially as described.

3. In a planter, the combination with a rotary shaft and a central drum support of a biconiform seed drum, consisting of a pair of cone frustums, supported from said shaft and support, arranged large ends outward and adjustable toward and from each other on said shaft and support, substantially as and for the purpose set forth.

4. The combination with the shaft g', of the central support g^6, the conical drum sections g^8, supported adjustably with their small ends on said support and the heads of their large ends on said shaft, and the clamping bands g^9, for holding the drum sections wherever set, substantially as described.

5. In a planter, a rotary seed drum having a series of discharge openings covered by a corresponding series of slides certain of which slides are double, consisting of a relatively large and a relatively small member, for adapting the machine to either small or large materials, such as corn, cotton and potatoes, substantially as described.

6. In a planter, the combination with a main seed receptacle or reservoir and a graduated forced feed mechanism, of an intermediate feed hopper or transmitter receiving from said main reservoir in small quantities and delivering to said forced feed device, whereby cotton and similar seeds can be successfully delivered with a graduated feed.

7. In a planter, the combination with the biconiform rotary seed drum, arranged large ends outward and provided with marginal discharge openings, of a graduated forced feed mechanism, the intermediate hoppers or transmitters receiving from said seed drum and delivering to said hoppers and the check rower mechanism, substantially as described.

8. A graduated forced feed for planters comprising a celled feed roller and a casing for the same having an annular internal groove in line with the cells of said roller, when in operative position, whereby clearance is afforded for the loaded cells, substantially as described.

9. The combination with the feed roller casing, having a seed receiving mouth and discharge passage and provided with an annular interior groove, of the celled feed roller closely fitting said casing with its operative cells in line with said groove and a spring sweep or scraper in the feed mouth of the casing and working on the periphery of said roller, substantially as described.

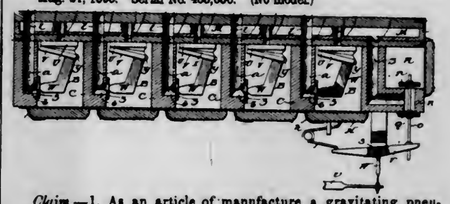
10. In a planter, the combination with the biconiform rotary seed drum, having marginal discharge openings at its large or outer ends, angularly yieldingly seed tubes, corresponding pairs of seed boots and covering devices, at least one set of which are laterally adjustable for adapting the machine to different widths of row spaces, substantially as described

11. In a planter, the combination with the rotary biconiform seed drum constructed in two sections adjustable toward and from each other, of the laterally adjustable seed-boots and covers, cooperating therewith to adapt the machine to different widths of row spaces, substantially as described.

12. In a planter, the combination with the rotary seed drum and the intermediate hopper, of the forced feed mechanism, adjustable away from said hoppers, for permitting a direct delivery from said drum, substantially as described.

13. In a double row planter, the combination with the pairs of seed boots and covering devices, of the rider's seat projecting rearward from the main frame and the loose foot-board within reach from the said seat, whereby the driver may, by resting more or less of his weight on said foot-board, vary the packing action of said covering devices.

518,980. PIPE-ORGAN. PHILIPP WIESCHING, Salem, Ohio. Filed Aug. 21, 1893. Serial No. 483,650. (No model.)



Claim.—1. As an article of manufacture, a gravitating pneumatic for pipe-organs, consisting of a fixed and movable member, the latter bearing a weight or weights and a dependent pallet-carrying arm, substantially as described.

2. As an article of manufacture, a suspended pneumatic for pipe-organs, consisting of a fixed and movable member hinged together at one end, a weight or weights attached to said movable member at its opposite end, and a dependent pallet-carrying arm secured to and moving with said lower member of the pneumatic, substantially as described.

3. In a wind-chest for pipe-organs, a series of exhaust channels provided with pockets communicating with the interior of a corresponding series of pneumatics, and means whereby said pneumatics are inflated or collapsed through the agency of said channels, substantially as described.

4. In a wind-chest for pipe-organs, a series of exhaust channels provided with pockets communicating with the interior of a corresponding series of suspended pneumatics, a pallet-box for containing a supply of compressed air, and a series of key-actuated valves for controlling communication between the box and channels and between said channels and the atmosphere, substantially as described.

5. In a wind-chest for pipe organs, a series of exhaust channels provided with pockets communicating with the interior of a corresponding series of suspended and gravitating pneumatics, a pallet-box for containing a supply of compressed air, a series of independent wind-ways connecting said box and channels, and key-actuated double puppet valves for admitting a supply of compressed air to the channels and exhausting it therefrom, substantially as described.

6. In a wind-chest for pipe-organs, the combination of a series of separate longitudinal channels each closed below by a hinged bottom, and above by a tri-part sound or pipe board, a series of exhaust channels formed in the latter provided with pockets communicating with the interior of a corresponding series of pneumatics, and suitable means whereby said pneumatics are inflated or collapsed through the agency of said channels, substantially as described.

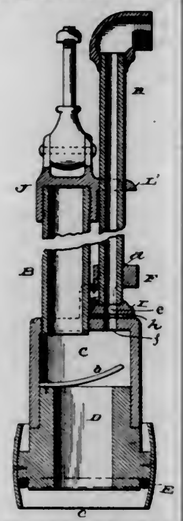
7. In a wind-chest for pipe-organs, the combination of a series of separate longitudinal channels, a transverse compression chamber communicating with each, a series of stop-actuated valves for regulating the flow of compressed air to said channels, musical pipes communicating with the latter, pneumatic valves for closing the entrance to said pipes, pocketed exhaust channels opening into the pneumatics, and key-actuated puppet valves for opening said last named channels to the atmosphere, substantially as described.

518,981. LIFT-PUMP. JOHN WOCK, Canton, Ohio. Filed Dec. 8, 1891. Serial No. 414,437. (No model.)

Claim.—1. The combination of the stock A, the hollow pump rod or pipe B, the valve chamber C provided with the flange F, and the aperture *f*, the removable water-pipe H, and the valve I, provided with the aperture *e*, substantially as and for the purpose set forth.

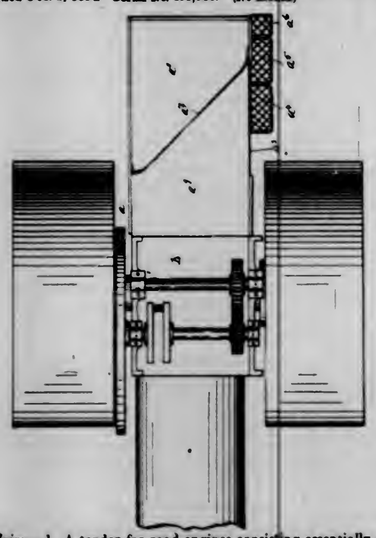
2. The combination of the stock A, the hollow valve rod or pipe B provided with the cap J, the valve chamber C, having attached thereto the hollow rod or pipe B, the sucker-head D fixed to the valve chamber C, and provided with the flap valve *b*, the removable water-pipe H, the valve I, and the apertures *e* and *f*, substantially as and for the purpose set forth.

3. The combination of the stock A, the valve rod or pipe B, fixed to the valve-chamber C, the valve-chamber C, having located on the



top or upper side of said valve chamber the valve I the water-pipe H, located directly above the valve I, and communicating with the valve chamber C, a sucker-head fixed to said valve chamber, and provided with the flap-valve *b*, and the arm L', substantially as and for the purpose set forth.

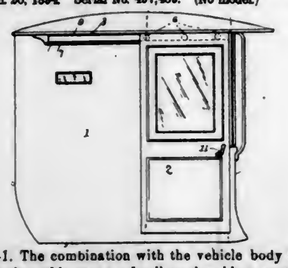
518,982. TENDER FOR ROAD-ENGINES. EDWARD T. WRIGHT, Springfield, Ohio, assignor to the O. S. Kelly Company, same place. Filed Feb. 2, 1894. Serial No. 498,916. (No model.)



Claim.—1. A tender for road engines consisting essentially of a rectangular casing having a horizontal partition, with a water tank in the bottom thereof, and an open-top projecting portion having a side opening above said partition and a diagonally arranged partition to form a combined fuel bunker and foot-board above said tank, substantially as specified.

2. In a tender for road engines, a water tank, a superimposed compartment having a side opening, and a diagonal partition extended across said compartment to form a foot-board and fuel bunker, respectively, and laterally projecting steps leading to said opening, substantially as specified.

518,983. VEHICLE. FREDERICK W. ZIMMER, Rochester, N. Y. Filed Jan. 20, 1894. Serial No. 497,489. (No model.)



Claim.—1. The combination with the vehicle body having the door-opening, the rubber covered rail on the side near the top, the top and the rubber strip above it, of the door guided at the upper and lower ends on the body and having the rollers on the inner side near the top resting upon the rail on the body, substantially as described.

2. The combination with the vehicle body having the door-opening, the grooved top rail, the door-supporting rail on the side near the top, the rubber strip above it, and the rubber strip at the bottom of the door opening, of the door having the groove in its lower edge, the laterally extending rubber strip on the top of the door operating in the grooved top rail, and the rollers on the side of the door resting on the door-supporting rail, substantially as described

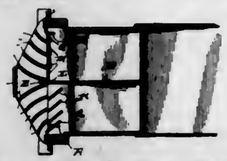
3. The combination with the vehicle body, the dash having the rubber strips on top, the front top rail, the rubber strips thereon forming grooves, and the rubber strips in the bottom of said grooves, of the windows having the grooves entered by the strips on the dash and guided by the strips on the top rail, substantially as described.

4. The combination with the vehicle body, and the dash, having the rein apertures, of the sliding window adapted to cover said apertures when closed, a spring for opening the window and uncovering the apertures, and a catch for holding the window closed against the tension of the spring, substantially as described.

5. The combination with the vehicle body, and the dash having the rein apertures, of the sliding window adapted to cover said apertures when closed, a spring for opening the window, a catch for retaining the window closed against the tension of the spring, the arm connected to the window and extending beneath the rein apertures and the cord connected thereto, substantially as described.

6. The combination with the vehicle body and the dash having the rein apertures, of the sliding window adapted to cover said apertures when closed, a spring for opening the window, a catch for retaining the window closed against the tension of the spring, and a connection extending from the catch to the bottom of the vehicle in position to be operated by the driver's foot, substantially as described.

518,984. COLD-AIR-DRAFT REGULATOR FOR FURNACES. AUGUST H. ZIMMERMAN, Milwaukee, Wis. Filed Aug. 26, 1893. Serial No. 484,149. (No model.)



Claim.—1. In a cold air draft regulator, the combination with a cold air draft pipe; of a draft box removably fitted to the outer end of said pipe and having a central vertical partition, a regulator attachment removably fitted onto the draft box and having separate sets of stationary deflecting slats forming separate sets of air passages communicating at each side of the partition in the draft box, regulating doors hinged at one edge to the inner edges of said slats, and a single connecting strip pivotally connected to the swinging edges of all of said doors connected to both sets of slats, substantially as set forth.

2. In a cold air draft regulator, a centrally partitioned draft box removably fitted to one end of a cold air draft pipe, a regulator attachment connected to the outer end of the draft box and having separate sets of stationary deflecting slats forming there between air passages, and simultaneously controlled sets of regulating doors for said air passages, substantially as set forth.

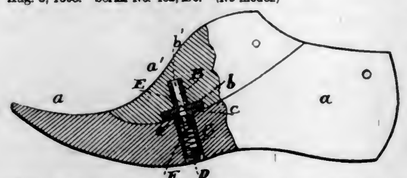
3. In a cold air draft regulator, a cold air pipe draft box having a central vertical partition provided with a front tongue extension, a removable regulator frame having opposite draft openings and fitted

over the outer end of the draft box, opposite sets of vertical deflecting bars or slats fitted at an angle in the draft openings of the regulator frame, the inner bars or slats of each set having their inner ends adjacently disposed to form a space adapted to receive the projecting tongue of said vertical partition, and a series of simultaneously and automatically controlled regulating doors hinged to the inner vertical edges of said bars or slats, substantially as set forth.

4. In a cold air draft regulator, the flanged window casing, a partitioned outwardly flared draft box fitted at one end into said casing, a triangular regulator box removably secured to the outside of said window casing and having opposite draft openings communicating with the interior of the draft box at both sides of its partition, a regularly spaced series of vertical deflecting bars or slats fitted into the draft openings of the regulator frame at an angle, said bars or slats being curved in cross section, a series of connected regulating doors hinged to the inner vertical edges of the bars or slats to cover and uncover the air passages therebetween, and inner end doors hinged to the inner opposite sides of the regulator frame to cover and uncover the end air passages, substantially as set forth.

5. In a cold air draft regulator, a cold air draft pipe box having a central vertical partition, a regulator frame fitted onto one end of the draft box and having separate draft openings, separate sets of inclined deflecting bars or slats fitted into each draft opening of said frame, automatically controlled regulating doors hinged at one edge to the inner vertical edges of said bars or slats and each door being provided at its upper edge with offstanding arms having pivot extremities, and a single horizontal connecting strip or bar having a series of perforations loosely engaging the pivot extremities of the door arms, said strip or bar providing for simultaneously opening one set of doors and closing the other set, and vice versa, substantially as set forth.

518,985. LAST. FRANCIS E. BENTON, Stoughton, Mass. Filed Aug. 5, 1893. Serial No. 482,456. (No model.)



Claim.—The tube seated in the upper last-section *a'* and having a plate *b* with a dovetail tenon, the tube C seated in the bottom last-section and having a plate with the dovetail groove *c* to receive said tenon, the collared pin E in the tube C, and the spiral spring arranged to press the said pin upward, all combined substantially as shown and described, for the purpose set forth.

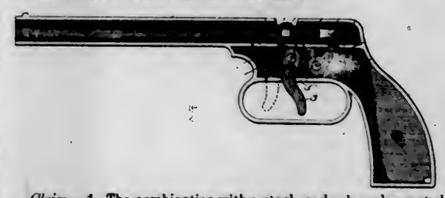
518,986. PORTABLE AND ADJUSTABLE SUPPORT FOR HOSE-NOZZLES. WESLEY A. CAIN, Medicine Lodge, Kans. Filed Nov. 2, 1893. Serial No. 489,891. (No model.)



Claim.—1. As a new article of manufacture, a hose and nozzle supporter comprising a single piece of wire or metal rod, having the one end adapted to be placed in the ground, a loop near its upper portion adapted to admit and retain a hose and its top portion arched and two or more loops and the pendant of the arch adapted to admit and retain a nozzle as shown and described and to operate in the manner set forth for the purposes stated.

2. An improved hose supporter formed of a single piece of wire or metal rod having its lower end adapted to be pressed into the ground and having the loops No. 1, No. 2, and No. 3 formed in its upper end portion and the upper end portion arched, substantially in the manner shown and described, for the purposes stated.

518,987. TOY PISTOL. WILLIAM DUSCHYNE, Chicago, Ill. Filed Jan. 31, 1893. Serial No. 460,457. (No model.)



Claim.—1. The combination with a stock, and a barrel mounted thereon and provided at its rear with a slot in its under side, of a swinging trigger pivoted within said stock and provided with a lug upon its rear side, an arm pivoted at its lower end within said stock and having its upper end extending into said barrel through said slot and provided with a lug upon its front side adapted to engage with the lug upon said trigger and to be released therefrom when the trigger is swung on its pivot, and a spring bearing upon said arm adapted to force it forward, substantially as described.

2. The combination with a stock, and a barrel mounted thereon and provided at its rear end with a slot in its under side, of a swinging trigger pivoted within said slot, a lug upon the rear side of said trigger and having its under side beveled, an arm pivoted at its lower end in said stock behind said trigger and having its upper end extending into said barrel through said slot, a lug upon the front of said arm, having its lower surface adapted to engage with the upper surface of the lug upon said trigger and having its upper side beveled, and a spring bearing upon said arm and adapted to force it forward, substantially as described.

3. The combination with a barrel and stock, of a trigger pivoted within said stock, a lug upon the rear side of said trigger and having its under side beveled, an arm pivoted at its lower end in said stock behind said trigger, a lug upon the front end of said arm, having its lower surface adapted to engage with the upper surface of the lug upon said trigger and having its upper side beveled, a plunger pivoted upon the upper end of said arm and extending forward into said barrel and moving freely therein, and springs bearing upon said trigger and said arm and adapted to force said trigger and arm forward, substantially as specified.

4. In a toy pistol, the combination with a barrel 1 and a stock 2, of a trigger 3 pivoted within said stock 2 and provided with an upward projecting arm 6, a lug 8 upon the rearward side of said trigger, said lug having its under side beveled, an arm 9 pivoted at its lower end in said stock 2, a lug 11 upon the forward side of said arm 9, having its under surface adapted to engage with the upper surface of said lug 8 and having its upper side beveled, a plunger 12 pivoted at its rear end upon the upper end of said arm 9 and extending forward into said barrel 1, a spring 15 bearing against said arm 9 and adapted to force the same forward, and a spring 16 bearing against said trigger and adapted to force the same forward, substantially as described.

518,988. SCHOOL-SEAT HINGE. JAMES W. FISHER, Piqua, Ohio. Filed Dec. 18, 1893. Serial No. 493,937. (No model.)



Claim.—1. In a school desk joint, the combination of a socket-piece secured to the desk standard and provided with a concavity in its center, a flat bearing surface surrounding the concavity, a segmental slot or recess in said bearing surface, and a rim partially surrounding the same, a pivoted or rocking member connected to the seat arm having on one side a ball like protuberance to fit into the concavity in the socket-piece, a flat circular bearing surface, a lug thereon to engage the slot in the socket-piece, and a segmental rim to bear against the periphery of the socket piece, and on its other side a similar ball-like protuberance having a cam or swell, a cap-piece having a flat circular bearing surface, a projecting tang having a lug which extends into a recess in the standard and prevents the rotation of the cap, and notches in the crown, a concavo-convex friction disk having projecting lugs which extend into the notches in the crown of the cap, a projecting cam or swell on the concave side, and a spring metal plate located between the friction disk and the top of the cap, and means such as a bolt for securing all the parts together, substantially as set forth.

2. The combination of a socket-piece having a segmental slot, a pivoted or rocking member having a ball like protuberance to turn in said socket piece, a lug to engage in the slot, and a similar protuberance on its other side provided with a cam or swell, a friction disk fitting over said protuberance and provided with a corresponding cam or swell, a spring bearing against said disk, a cap-piece inclosing said disk and spring, and means for securing said parts together, substantially as described.

3. The combination of a socket-piece, a pivoted or rocking member fitting in said socket-piece and having a ball like protuberance on each of its sides, a concave friction disk fitting over one of the ball like protuberances, a spring bearing on the friction disk, a cap piece, and means for securing the parts together, substantially as described.

4. The combination of a socket piece, a pivoted or rocking member having a semi-spherical or ball like protuberance fitting in said socket piece and a corresponding ball like protuberance provided with a swell on the other side of said member, a concave friction disk provided with a swell fitting over the protuberance with the swell thereon, a spring pressing against the friction-disk, a cap-piece, and means for securing said parts together substantially as described.

5. In a school desk hinge or joint, the combination of a socket-piece, a pivoted or rocking member having on one side a semi-spherical or ball-like protuberance fitting a depression in the socket-piece, a similar protuberance having a swell on the other side, a friction disk provided on one side with a swell, a spring bearing against the other side of the disk, and a cap-piece having a crown inclosing the friction disk and spring, and flanged rim entirely surrounding the crown and bearing against the flat surface of the rocking member, all substantially as described.

6. In a school desk joint the combination of a standard having a socket piece, a seat arm having a member to turn in said socket-piece provided with a ball like projection on each of its sides, a spring pressed friction disk, suitable swells on the ball and friction disk for increasing the friction, a cap piece and means for securing said parts in place.

518,989. PETROLEUM SULFO-ACID. HANS A. FRASCH, Cleveland, Ohio, assignor to the Grasselli Chemical Company, same place. Filed Apr. 19, 1893. Serial No. 471,016. (Specimens.)

Claim.—1. The method of manufacturing sulfo acids from petroleum, which consists in sulfonating the aromatic series of hydrocarbons contained in petroleum, natural mineral oil, or the distillates or residuums thereof, leaching the sulfonated product with cold water, subjecting the remainder to the action of hot water, decanting or otherwise separating the matter soluble in hot water, and then adding a base, such as lime, to the hot water solution, and finally liberating the acids by combining the base with suitable reagents, such as hydrochloric acid, substantially as described.

2. The method of manufacturing sulfo acids from petroleum, which consists in sulfonating the aromatic series of hydrocarbons contained in petroleum, natural mineral oil, or the distillates or residuums thereof, leaching the sulfonated product with cold water, subjecting the remainder to the action of hot water, decanting or otherwise separating the matter soluble in hot water, and then adding a base, such as lime, to the hot water solution, separating the soluble and insoluble sulfo salts thereby obtained, by filtration or other means, and liberating from the solution of the soluble salt an acid by the addition of a suitable reagent, such as hydrochloric acid, substantially as described.

3. As an article of manufacture, a sulfo acid, unaffected by concentrated hydrochloric acid, decomposing into sulfur dioxid and a greenish-black oil when heated to red heat, of greenish-black color when solid, and of greenish-yellow coloration in solution, soluble in water, alcohol, acetone, amyl-alcohol, hot aniline, nitro-benzene and glycerin, having a greenish fluorescence in solution, capable of dyeing silk and wool, without mordant, a yellowish color, whose calcium salt is soluble in water, and whose alkaline salts are of a yellow color and are capable of dyeing wool and silk a bright yellow, substantially as described.

518,990. PETROLEUM SULFO-ACID. HANS A. FRASCH, Cleveland, Ohio, assignor to the Grasselli Chemical Company, same place. Filed Apr. 19, 1893. Serial No. 471,017. (Specimens.)

Claim.—1. The process of manufacturing from mineral oil, or petroleum or derivatives or distillates thereof, an acid whose calcium salt is insoluble in water, which consists in sulfonating the substance under treatment, removing the free sulfuric acid, separating the soluble and the insoluble and oily matters from the remainder, converting the soluble matter into a soluble and an insoluble salt by, for example, the addition of carbonate of lime separating the insoluble salt, and rendering it soluble by the addition thereto of a suitable reagent, such as carbonate of sodium, caustic soda or other substance that will displace the base contained in the insoluble salt and precipitating from such solution the sulfo acid by means of hydrochloric or equivalent acid, substantially as described.

2. The process of manufacturing from mineral oil or petroleum or derivatives or distillates thereof, an acid whose calcium salt is insoluble in water, which consists in sulfonating the substance under treatment, removing the free sulfuric acid, separating the soluble and the insoluble and oily matters from the remainder, converting the soluble matter into a soluble and an insoluble salt by, for example, the addition of carbonate of lime separating the insoluble salt, and finally treating it with hydrochloric acid, substantially as described.

3. As an article of manufacture, a sulfo acid, derived from petroleum, of greenish black color, soluble in water, fluorescent in solution, not reacted upon by muriatic acid, changed to a brown color by chlorid of lime or other oxidizing agent, capable of dyeing wool or silk a brownish color without mordant, emitting when heated to red heat the characteristic odor of burning petroleum and whose calcium salt is insoluble in water, substantially as described.

518,991. BROWN PETROLEUM NITRO DYE. HANS A. FRASCH, Cleveland, Ohio, assignor to the Grasselli Chemical Company, same place. Filed Apr. 19, 1893. Serial No. 471,018. (Specimens.)

Claim.—1. The art of manufacturing dyestuffs by nitration of petroleum, natural mineral oils, or the residuum of the distillation or refining thereof, with nitro-sulfuric acid, washing the resulting products with water, then heating with water, allowing the insoluble matter to settle, and removing the solution from the sediment and treating it with a base, such as lime, and thereby forming a soluble and an insoluble salt, and precipitating from the soluble salt solution the dyestuff by the addition of a reagent, such as sodium chlorid, substantially as described.

2. As an article of manufacture, a petroleum product which is a nitro body in the form of a reddish brown powder, soluble in water, glycerin, and acetone, and which is capable of dyeing wool or silk, without mordant, a reddish brown color, and whose calcium salt is soluble in water, substantially as described.

518,992. PETROLEUM DYE. HANS A. FRASCH, Cleveland, Ohio, assignor to the Grasselli Chemical Company, same place. Filed Apr. 19, 1893. Serial No. 471,019. (No specimens.)

Claim.—1. The method of producing dyestuff from petroleum by subjecting natural mineral oil, the distillates or residuums of the distillation or refining thereof, to sulfonation, washing the products of sulfonation with water, treating the products soluble in hot water with a base, such as lime, and isolating from the sulfo salts thereby obtained a dyestuff by treatment with an alkali and then with a precipitant, such as sodium chloride, substantially as described.

2. The method of producing a yellow dyestuff from petroleum, which consists in subjecting natural mineral oil, the distillates or residuums of the distillation or refining thereof, to sulfonation, leaching the products of sulfonation with water, treating the products soluble in hot water with a base, such as lime, and saturating the solution thereby obtained with a suitable reagent, such as sodium chloride, and thereby precipitating a yellow dyestuff, substantially as described.

3. As an article of manufacture, sulfonated petroleum hydrocarbon, which is capable of dyeing wool or silk, in acidulated solution, without mordant, substantially as described.

4. As an article of manufacture, a sulfo body of the petroleum series of hydrocarbons, solid in form, having a yellow cover, soluble in water, glycerine, and acetone, fluorescent in solution, and dyeing wool or silk, without mordant, in acidulated solution, a canary yellow color, substantially as described.

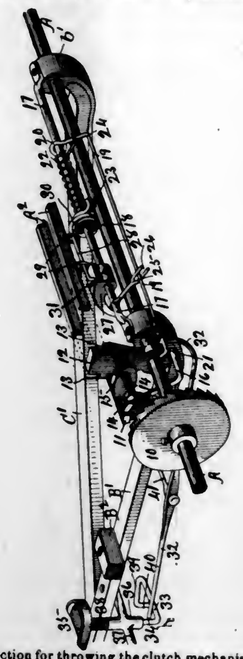
518,993. HAY-RAKE. GEORGE A. GEMMER, Williamsport, Ind. Filed Dec. 1, 1893. Serial No. 492,459. (No model.)

Claim.—1. In a hay-rake, the combination with the axle, of a ratchet-disk, rigidly mounted thereon, a toothed segment, loosely mounted on said axle, an arm 12, loosely mounted on said axle, the upper end loosely engaging with the rake-head, the bars 14, connecting the movable clutch-member and arm 12, the stationary rod 17, the grooved collar 18, loosely mounted thereon, the rod 19, having one end loosely looped around rod 17; the opposite bifurcated end engaging with arm 12, the spiral-spring 22, coiled on rod 17, the cam 27, and rod 28, substantially as and for the purpose set forth.

2. In a hay-rake, the combination of the axle, the clutch segment, arm 12, the cam-plate, located therebetween and moving with the rake-head, the locking angle-bar 16, and the spring, adapted to impart a sliding movement to the cam plate, substantially as and for the purpose set forth.

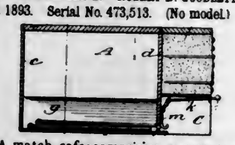
3. In a hay-rake, the combination with the stationary rod 17, of a cam-piece, provided on its face with a diagonal groove and

rigidly mounted on said rod, the rake-head, the sliding-collar 18, the sliding-rod 28, loosely supported from the rake-head and having one end inserted in said diagonal groove, the opposite end engaging with collar 18, the spiral-spring 22, the rod 19, the ratchet-disk, rigidly mounted on the axle, a toothed segment, loosely mounted on the



axle, and the lever connection for throwing the clutch mechanism into an engaged position, substantially as set forth.

518,994. MATCH-SAFE. ROBERT D. GOODLETT, Nashville, Tenn. Filed May 9, 1893. Serial No. 473,513. (No model.)



Claim.—1. A match safe comprising a receptacle for matches having converging side plates near its bottom, and in one end wall a perforation between the converging side plates, and an igniting chamber outside of said end wall, substantially as set forth.

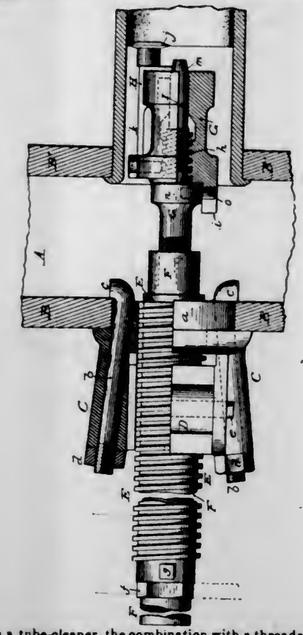
2. A match safe comprising a receptacle for matches having an opening at one end for the withdrawal of the matches, an igniting chamber communicating with said receptacle through said opening,—and a movable cover for said opening having an igniting surface for the matches, substantially as set forth.

3. A match safe comprising a receptacle for matches having an opening at one end for the withdrawal of the matches,—an igniting chamber communicating with said receptacle through said opening, and a hinged cover for said opening having an igniting surface and means for operating the cover, substantially as set forth.

4. A match safe comprising a receptacle for matches,—a pin cushion,—and an igniting chamber, said receptacle having converging side plates and in one end wall a perforation between the converging side plates communicating with the igniting chamber, and a cover for said perforation having an igniting surface within the igniting chamber, one side wall of said receptacle, pin cushion and igniting chamber being a mirror and the other side wall thereof being a writing tablet, substantially as set forth.

518,995. BOILER-TUBE CLEANER. MICAJAH C. HENLEY, Richmond, Ind. Filed Jan. 8, 1894. Serial No. 496,082. (No model.)

Claim.—1. In a tube-cleaner, the combination with a body portion; of a series of cutters carried thereby; a rotatable stem mounted in the body portion to force the cutters outward; and means for limiting the independent rotary motion of the stem, whereby when such limit of motion is reached, the body portion is caused to rotate with the stem.



2. In a tube-cleaner, the combination with a threaded body portion provided with lug *i*; cutters carried by the body portion; and a threaded stem mounted in the body portion and provided with a pin or stop *o* to engage the lug *i*.

3. In combination with a tube-cleaner, and its stem; a hollow screw adapted to receive the stem and to be connected therewith and disconnected therefrom; a frame adapted to be clamped to the boiler manifold; and a removable nut carried by the frame to engage the screw; whereby by removing the nut and disconnecting the screw and stem, the screw may be slid backward upon the stem preparatory to further feed of the cleaner.

4. In combination with the frame C adapted to be applied to the boiler manifold; the bolts *b* provided with bent ends *c* and nuts *d*, and adapted to be turned or rotated within their seats in the frame; a nut carried by the frame; a hollow screw to engage the nut; a tube cleaner; and a rod or stem for the latter, adapted to be connected with and disconnected from the screw.

5. In a device for operating tube-cleaners, the combination with a tube cleaner and its stem; of a frame adapted to be applied to the boiler manifold, a half-nut detachably mounted in said frame; a hollow screw; and means for connecting and disconnecting the stem and screw.

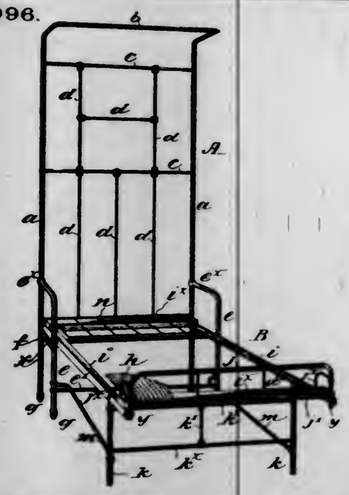
6. In a device for operating tube cleaners, the combination with the frame and means for attaching said frame to the boiler, of a removable nut mounted in the frame; a short feed screw; a flue cleaner provided with an elongated stem to pass through and beyond the end of the screw; and means for connecting the stem and screw.

518,996. FOLDING METAL BED. ADELBERT D. HOUSTON, Brooklyn, N. Y. Filed Sept. 16, 1893. Serial No. 485,696. (No model.)

Claim.—1. In a folding bed, the combination with the standard having tubular uprights *a*, forming rear corner posts or legs, of the tubular front legs *e*, arranged in front of the said rear corner posts or legs of the standard and having their upper ends bent rearwardly and provided with eyes surrounding and welded fast to said uprights *a*, ties or braces *f*, connecting said uprights *a* and legs *e* near their lower ends, and the bed frame pivotally mounted in said standard, substantially as set forth.

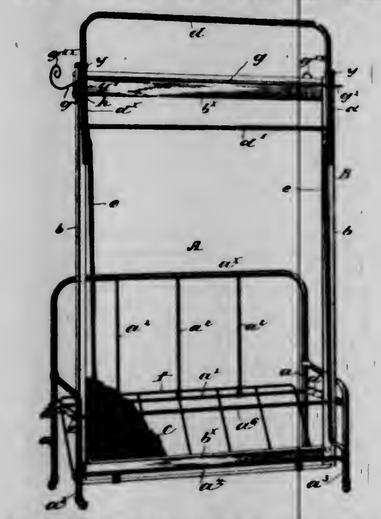
2. In a folding-bed, the combination with the standard having tubular uprights *a*, forming rear legs, of the tubular front legs *e*, having their upper ends bent rearwardly and rigidly secured to said uprights *a*, the ties or braces *f*, connected to the lower portions of said uprights and legs, and the bed-frame pivotally secured in said braces, substantially as set forth.

518,996.



3. In a folding bed, the combination with the standard having tubular uprights *a* forming rear corner posts or legs, said uprights being connected by suitable cross rods and having their upper ends bent forward and connected to form a canopy support, of the tubular front legs *e* connected at their lower ends by suitable cross rods, and having their upper ends bent rearwardly and provided with eyes surrounding and welded fast to the lower portions of said uprights of the standard, ties or braces connecting said uprights *a* and legs *e* near their lower end, and the bed frame pivoted in said braces, substantially as set forth.

518,997. FOLDING METAL BED. ADELBERT D. HOUSTON, Brooklyn, N. Y. Filed Sept. 16, 1893. Serial No. 485,997. (No model.)



Claim.—1. A metallic folding bed having a removable canopy-support comprising a front bar *g*, and side-bars g^x, the side rails of the bed-frame and the side-bars of the canopy-support being respectively provided with interlocking fastenings which are engaged when the canopy-support is in place, substantially as set forth.

2. A metallic folding bed with a low standard, having sockets, *A*, on the foot-end of the bed-frame, and a removable canopy support, comprising a front bar *g*, side-bars, g^x, and pins, *y*, on the respective side bars engaging the respective sockets, *A*, when the canopy support is in place, substantially as set forth.

518,998. TOE-WEIGHT. JAMES D. KELLER, Detroit, Mich. Filed Sept. 14, 1893. Serial No. 485,484. (No model.)



Claim.—1. In a toe weight, the combination with the weight proper having in its rear face an upright groove closed at its lower end, the standard seated removably in said groove and having a tongue at its lower end, such standard being bent to the front between its ends, and a bolt connecting the weight and standard below their upper ends; of a hook secured to the shoe and having a hole wherein said tongue removably fits, as and for the purpose set forth.

2. In a toe weight, the combination with the weight proper, the standard seated against the rear face of the weight and having a tongue at its lower end, and a bolt connecting the weight and standard between their ends, the body of the standard curving to the front between its ends; of a hook secured to the shoe and having a hole wherein said tongue removably fits, as and for the purpose set forth.

3. In a toe weight, the combination with the weight proper having an upright groove in its rear face and a lip at the lower end of the groove projecting to the rear beyond the plane of said face, a standard removably seated in said groove and having a tongue at its lower end, and a bolt connecting the weight and standard; of a hook passing just over the shoe from the inside with its protruding end extending into said groove above the lip and there provided with a hole for the reception of said tongue, as and for the purpose set forth.

4. In a toe weight, the combination with the weight proper having at its lower end a lip projecting beyond the plane of its rear face, a standard seated against said face and having a square tongue projecting from its lower end above said lip, and a bolt connecting the weight and standard; of a hook passing just over the shoe from the inside with its protruding end extending above the lip and provided with a square hole for the reception of said tongue, as and for the purpose set forth.

5. In a toe weight, the combination with the weight proper having at its lower end a lip projecting beyond the plane of its rear face, a standard seated against said face and having a square tongue projecting from its lower end above said lip, a bolt with its head countersunk in the standard and its body passing out through the weight, and a nut on the front end of the bolt, the body of the standard being curved forward between its ends; of a hook passing over the shoe from the inside with its protruding end extending above the lip and provided with a square hole for the reception of said tongue, as and for the purpose set forth.

6. In a toe weight, the combination with the weight proper having an upright groove in its rear face and a lip at the lower end of the groove projecting beyond the plane of said face, a standard removably seated in said groove and having a square tongue projecting from its lower end above said lip, the body of the standard being bent to the front between its ends, and a bolt passed through the standard and weight from the rear and having its nut on the front; of a hook passing over the shoe from the inside with its protruding end extending into said groove above the lip and there provided with a square hole for the reception of said tongue, all as and for the purpose set forth

518,999. BUCKLE. JOHN A. KING, Galesburg, assignor of one-half to Sealy B. Moody, La Grange, Ill. Filed Nov. 9, 1893. Serial No. 490,454. (No model.)



Claim.—1. In a buckle the frame provided with an opening *a* and a hook hinged to a projecting part thereof, a loop lever extended through the opening in the frame and over the hinged hook, and a clamping part adapted to fit loosely in the opening of the frame and to be drawn into said opening and secured therein by the movement and locking of the lever over the projecting part of the frame as specified.

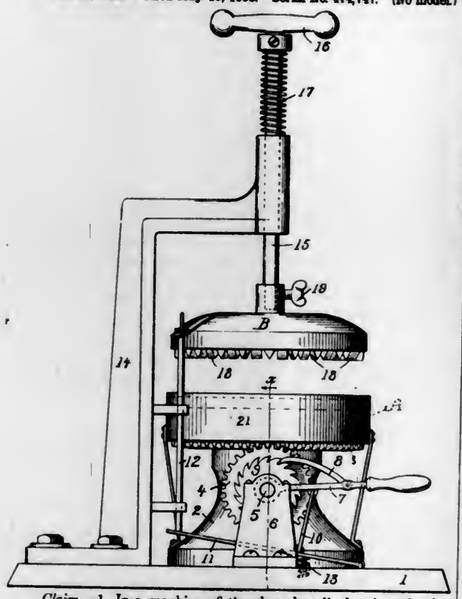
2. In a buckle the frame provided with an opening *a* in one part, a clamping part adapted to fit loosely in said opening and a loop lever connected to said clamping part, fulcrumed on the frame at one side of said opening and adapted to draw said clamping part into said opening, and to spring over and lock upon the opposite side of the frame as specified.

3. In a buckle the frame provided with an opening *a*, a clamping part adapted to pass loosely through said opening and having flanges adapted to bear upon the frame adjacent to said opening and a loop lever connected to said clamping part and fulcrumed on the frame at one side of said opening said lever being adapted to draw said clamping part through said opening and its flanges against the frame on the side opposite to the lever's fulcrum and to spring over the projecting edge of the frame and lock as specified.

4. In a buckle the frame provided with an opening *a*, a clamping part adapted to pass loosely into but not clear through said opening, a loop lever connected with said clamping part and fulcrumed on the frame at one side of said opening and a hook hinged to a projecting part of the frame and lying upon the cross bar of said loop lever as specified.

5. In a buckle the frame provided with an opening *a*, a clamping part adapted thereto a loop lever connected with said clamping part, fulcrumed on the frame at the side of said opening, and adapted to spring over and lock upon the opposite edge of the frame, and a hook hinged to said opposite edge of the frame and provided with a projection b^3 adapted to throw said loop lever back over the frame by the up-turning of the hook as specified.

519,000. MEAT-CHOPPING MACHINE. ALFRED J. KULL, New Haven, Conn. Filed May 19, 1893. Serial No. 474,747. (No model.)



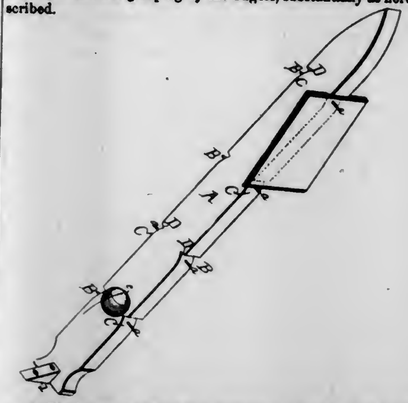
Claim.—1. In a machine of the class described, a base having mounted upon it a rotating table provided with cutting teeth, and upon its under side having beveled gear teeth adapted to mesh with suitable driving mechanism, and an upper reciprocating holder carrying teeth and suitably mounted above said table, and designed to operate in conjunction with the same, for the purpose described and set forth.

2. The combination in a meat-chopping machine, of a base, a table mounted upon said base and adapted to rotate, a shaft suitably journaled and carrying a beveled pinion whereby said table is driven, a pawl and ratchet upon said shaft, and means as shown whereby the same is operated, as shown and described.

3. In a machine for chopping meat, the combination with a rotating table, of a series of reciprocating cutters mounted in a rotating holder, a vertically disposed spring-actuated rod, a standard in which the same is mounted, connections as shown between the holder and the rotating table, and a handle upon the rod whereby the whole is operated, substantially as shown and described.

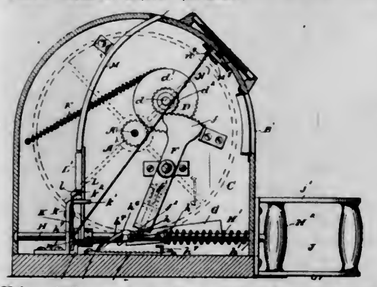
519,001. BAG AND TWINE HOLDER. RUFUS J. MORTON, North Danville, assignor of one-half to James W. Bruce, Danville, Va. Filed Aug. 4, 1893. Serial No. 482,374. (No model.)

Claim.—1. The herein described bag holder comprising a standard having a series of cutaway portions B the upper shoulders D of which extend inwardly and downwardly while the longer walls C of said cutaway portions are inclined downwardly from the inner ends of the shoulders and outwardly to the outer face of the standard the said longer walls being each provided just below the overhanging shoulders D with bag supporting devices; whereby packages of bags may be held with the bottom edges of the bags against the inclined shoulders D thereby imparting a step like arrangement to their opposite edges to facilitate grasping by the fingers, substantially as herein described.



2. The herein described bag holder comprising a standard having a series of cutaway portions B the upper shoulders D of which extend inwardly and downwardly while the longer walls C of said cutaway portions are inclined downwardly from the inner ends of the shoulders and outwardly to the outer face of the standard, the said longer walls being each provided just below the overhanging shoulders D with bag supporting devices; whereby packages of bag smay be held with the bottom edges of the bags against the inclined shoulders D thereby imparting a step-like arrangement to their opposite edges to facilitate grasping by the fingers, and a twine holder on its side at right angles to the notched edges, substantially as herein described.

519,002. COIN-CONTROLLED CARD-EXHIBITING MACHINE. JOHN MCFARLAND and GEORGE H. REID, Cleveland, Ohio. Filed Sept. 4, 1893. Serial No. 484,686. (No model.)



Claim.—1. In a card exhibiting machine, the combination with a pull-rod having a notch, of a lever connected to operate the exhibiting mechanism and having means for returning it to its normal position,—said lever being provided with a spring bolt which engages the notch in the pull-rod, substantially as set forth.

2. In a card exhibiting machine, the combination of a pull-rod and handle,—said rod being formed with a notch,—a lever connected to operate the exhibiting mechanism and provided with means for returning it to its normal position, a spring bolt upon said lever to engage the notch in the pull-rod and provided with a projecting stud, and an inclined track upon which said stud travels so that the bolt may be raised out of engagement with the notch of the pull-rod, substantially as set forth.

3. In a card exhibiting machine, the combination of a pull-rod connected to actuate the exhibiting mechanism, a gravitating pawl pivoted upon said rod, a spring bolt in said rod and engaging said pawl in its raised and lowered position, a ratchet plate engaged by said pawl, and stops for raising and dropping the pawl, respectively arranged at the forward and rear end of the ratchet plate, substantially as set forth.

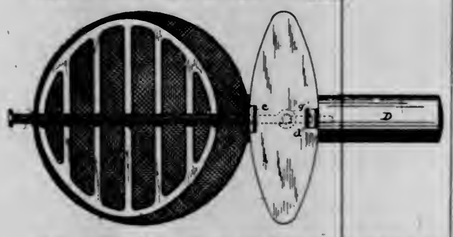
4. In a card exhibiting machine, the combination of a shaft having a pinion at one end, exhibiting wheels journaled upon said shaft and having ratchet wheels and cog wheels, pawls upon the shaft engaging said ratchet wheels, springs having V-shaped ends engaging the notches of the cog wheels, a partly cogged wheel engaging the pinion upon the shaft and provided with a peripheral groove and a pinion upon its hub, a spring secured to the partly cogged wheel and rigidly secured at its other end, a lever having a cogged segment engaging the pinion of the partly cogged wheel, a spring bolt upon said lever having a laterally projecting stud, an inclined track upon which said stud rides, a pull-rod having a notch engaged by said spring bolt, and a spring for returning said rod to its normal position, substantially as set forth.

5. In a card exhibiting machine, the combination of a pull-rod connected to actuate the exhibiting mechanism and formed with a notch, a coin chute having a notch in its side, and a trigger fulcrumed to engage the notch in the pull-rod and to have an oblique end projecting into the notch of the coin chute to be displaced by the actuating coin, substantially as set forth.

6. In a card exhibiting machine, the combination of a pull-rod connected to actuate the exhibiting mechanism and formed with a notch, a stationary coin chute, a movable coin chute portion forming a continuation of the stationary coin chute and supported from the pull-rod and formed with a notch in its side, and a trigger fulcrumed to engage the notch in the pull-rod and to have an oblique end projecting into the notch of the movable coin chute portion, substantially as set forth.

7. In a card exhibiting machine, the combination of a pull-rod connected to actuate the exhibiting mechanism and formed with a notch and stationary coin chute, a movable coin chute portion supported from the pull-rod and formed with a notch in its side, a platform closing the lower end of said movable chute portion, and a pawl engaging the notch in the pull-rod and formed with an oblique end which projects into the notch of the movable portion, substantially as set forth.

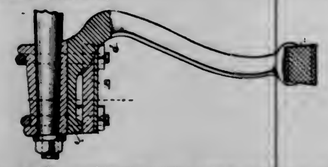
519,003. FLOUR-SIFTER. DONALD MCKENZIE, Cleveland, Ohio. Filed Oct. 19, 1893. Serial No. 488,615. (No model.)



Claim.—1. In a flour sifter the handle having a horizontal hinge in common with the upper rear side of the bucket part thereof, to admit of tossing said bucket by said handle, and the depending arm of said handle in engagement with the eye of the guide rod of the sweeper constructed and arranged substantially as shown and for the purpose described.

2. In a flour sifter the combination with the bucket, screen and sweeper thereof, of a handle having a horizontally arranged, hinged connection with and near the rear top edge of said bucket, and an arm depending from said handle for connection with the rod of the sweeper, to restrain said sweeper when the hinged bucket is tossed by said handle, constructed and arranged substantially as and for the purpose set forth.

519,004. SLEIGH. SOLOMON R. OVIATT, Lansing, Mich., assignor to the Oviatt Wagon Company, same place. Filed Sept. 16, 1893. Serial No. 485,664. (No model.)



Claim.—1. The combination with a runner and a rave, of a knee secured upon its lower end with the runner and constructed at its upper end with a horizontal arm located on the upper face of the rave, a hub or socket located upon the said arm, and means for holding the hub and arm in position upon the rave, substantially as described.

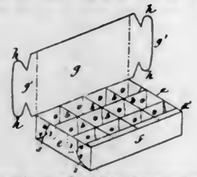
2. The combination with a runner and a rave, of a metal knee engaged at its lower end upon the runner and constructed with an integral horizontal arm at its upper end, resting upon the rave, a hub or socket located upon said arm, and means for securing the hub and arm in position upon the rave, substantially as described.

3. The combination with a runner and rave, of a metal knee engaged at its lower end upon the runner and constructed at its upper end with a horizontal integral recessed arm, a hub or socket resting in the recess of said arm, and clips securing said hub upon said arm, and both the hub and arm upon the rave, substantially as described.

4. The combination with a runner and a rave, of a metal knee engaged with a runner at its lower end and constructed with a horizontal arm at its upper end resting upon the rave, a hub or socket resting upon said arm, and clips securing the hub and arm upon the rave, said arm constructed with integral shoulders to receive said clips, substantially as described.

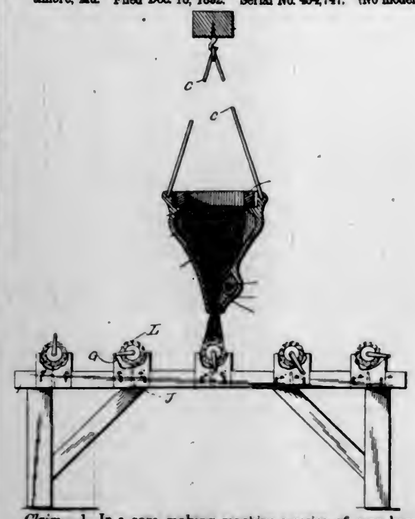
5. The combination with a runner and a rave, of a metal knee engaging the runner at its lower end and constructed with a horizontal arm at its upper end resting upon the rave, a hub located upon said arm, a plate or straps located on the under surface of the rave, and clips securing the hub upon the arm, and the hub, arm and straps upon the rave, nuts engaging the lower ends of the clip, substantially as described.

519,005. PAPER BOX. ARTHUR L. REEVES, Jr., Hamilton, Canada. Filed Aug. 30, 1893. Serial No. 484,362. (No model.)



Claim.—A paper box and its interior partitions *a*, *b*, for the packing and transportation of eggs formed from a single blank A, the box having slits 16, at each end, the sides the double curves 8. 9. the outer ones 8. 8 made to enter the slits 16. when folded, and end projections *h. h*, formed on the cover to enter pockets *s. s*, at each end of the box when folded, all constructed and folded without glue and metal fasteners, substantially as and for the purpose specified.

519,006. CORE-MAKING MACHINE. CHARLES R. SCHMIDT, Baltimore, Md. Filed Dec. 10, 1892. Serial No. 454,747. (No model.)



Claim.—1. In a core making machine a series of core barrels and their supports in combination with a pivotally supported sand supplying receptacle, provided with an outlet for the sand and an air-blast opening, communicating therewith, and an air-blast apparatus for supplying an air blast substantially as described.

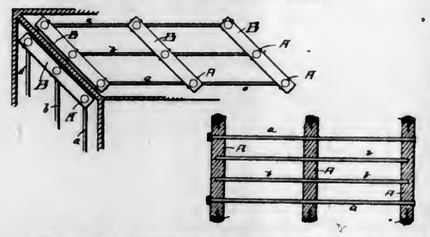
2. In a core making machine the combination of a core barrel support with a pivotally-supported, sand-supplying receptacle, having a tapered opening and provided with an air chamber exteading the entire length of the sand receptacle and an air opening from said chamber along the line of the outlet, in the sand receptacle and above and within the same, and means for supporting a blast to the air chamber substantially as described

3. In a core making machine a core barrel support and a pivotally-supported sand-supplying receptacle, in combination with an air-chamber having an outlet near the outlet of the sand supplying receptacle an outlet at the mouth of the said receptacle and means for supplying air to the air-chamber, substantially as described.

4. In a core making machine a core barrel support provided with a plurality of journal-bearings for core barrels and a pivotally-supported sand-supplying receptacle, provided with a sieve having a curved surface in combination with an air-chamber having an outlet near the outlet of the sand supplying receptacle and an air supply pipe substantially as shown and described.

5. In a core making machine, a plurality of core barrel supports; in combination with a sand supplying receptacle having its mouth adjacent to one of the core barrels and carried by supports which permit it to be moved from one to the other, substantially as described.

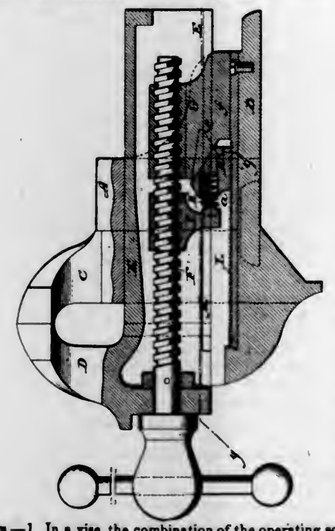
519,007. FOLDING PIE-RACK. THOMAS J. SHANNON, Wolf, Ohio. Filed Feb. 9, 1894. Serial No. 499,620. (No model.)



Claim.—1. The combination of the pivoted posts A, the bars B, attached to the top and bottom ends of said posts, and the wires or bars *a* and *b*, secured to the pivoted posts A, substantially as and for the purpose specified.

2. In a pie rack the combination of the posts A, the cross-bars B attached to said posts at their top and bottom ends, wire gauze or cloth, secured to the rack proper the hinged doors C, and the wires or rods *a* and *b*, secured to the pivoted posts A, substantially as and for the purpose specified.

519,008. VISE. WILLIAM E. SWEDIKER, Trenton, N. J. Filed Oct. 17, 1893. Serial No. 488,406. (No model.)



Claim.—1. In a vise, the combination of the operating screw; a reciprocating nut having a threaded portion contacting with said screw; the case, said nut and case having interlocking guides and guide-ways; a clamping-block having one face beveled and another serrated; a spring bearing against the clamping-block, and a rack constructed to engage the serrated face of said clamping-block; substantially as shown and described.

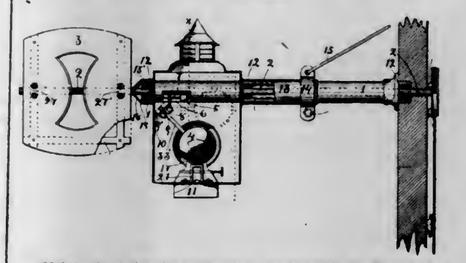
2. In a vise, the combination of the operating screw; a reciprocating nut having a threaded portion contacting with said screw; the case, said nut and case having interlocking guides and guide-ways; a clamping-block having one face beveled and another serrated; a spring bearing against the clamping-block; a rack constructed to engage the serrated face of said clamping-block, and the sliding bar slotted to permit of the clamping-block operating therethrough; substantially as shown and described.

3. In a vise, the combination of the operating screw; a reciprocating nut controlled by the operating screw, and provided with a guide co-operating with a guide formed in or upon the inner side of the case, and having a beveled face; a clamping block having a face beveled oppositely to the beveled face of the reciprocating nut, and provided with serrations on its opposite face; an abutment sleeve, and a spring supported by said abutment sleeve and bearing against the clamping block; a rack having serrations which contact with the serrations on the clamping block; the sliding bar having a longitudinal slot through which the clamping block operates, and the case provided with a guide co-operating with the guide on the reciprocating nut; substantially as shown and described.

4. In a vise, the combination of the operating screw; a reciprocating nut controlled by the operating screw, and having a beveled face; a clamping-block having a face beveled oppositely to the beveled face of the reciprocating nut, and provided with serrations on its opposite face, and having beveled guides on its sides; an abutment sleeve, and a spring supported thereby and bearing against the clamping-block; a rack the serrations of which contact with the serrations of the clamping-block; the sliding bar having a longitudinal slot through which the clamping-block operates, the walls of said slot being off-set and beveled at points where they contact with the beveled guides of the clamping-block; and the case, said case and said reciprocating nut being constructed with interlocking guides and guide-ways; substantially as shown and described.

5. In a vise, the combination of a slotted sliding bar; a plate adjustable to fit in a portion of the slot in said sliding bar; the operating screw; an adjustable abutment sleeve depending upon said screw; a beveled faced clamping block having serrations on its face opposite to the beveled side thereof; an actuating spring sustained by said abutment sleeve and bearing against said clamping block, and a rack with which the serrations on the clamping block engage; a beveled faced reciprocating nut upon the operating screw having a guide and the case provided with a guide with which the guide on said reciprocating nut engages; substantially as shown and described.

519,009. SIGNAL. WILBUR P. SQUIER, Blair, Nebr. Filed Jan 18, 1894. Serial No. 497,325. (No model.)



Claim.—1. A signal-board having a horizontal axis of revolution corresponding with its axis of symmetry, and parallel with its plane and its center of gravity eccentric to said axes, to normally sustain the board in a vertical plane substantially as described.

2. In a train order signal the combination of a revoluble horizontally supported shaft with a signal-board rigidly attached thereto, the axis of symmetry and plane of the board corresponding and parallel with the axis of revolution, and the board integrally and eccentrically weighted, to normally sustain it in a vertical plane, substantially as described.

3. In a train order signal the combination of a horizontal rock-shaft carrying at one end a signal-board, at its opposite end an operating wheel and cord, and journaled in and through a supporting tube disposed through and supporting a lantern-case, with a rock-shaft in said case having arms carrying colored glass disks adjusted to register with sight openings in the lantern-case, an opening in the tube within the case, and means connecting the rock-shaft in the case with the rock-shaft in the tube substantially as described.

4. In a signaling apparatus, a lantern case having oppositely disposed openings with concentric projecting integral thimbles adapted to receive a horizontal supporting tube passed through the openings, a clamping ring to fix one of the thimbles on the tube, the thimble adjacent to the end of the tube having a cone shaped end with an opening at its apex to loosely receive a revoluble shaft journaled in and through the tube, and an opening at the lower edge of its base communicating with a chamber surrounding the shaft within the cone, substantially as described.

5. In a signaling apparatus consisting of a lantern-case supported by a horizontal tube passed through said case and having a revoluble shaft journaled in and through said tube, the combination therewith of a thimble projecting from the side of the case and embracing the end of the tube, the projected end of the thimble cone shaped, with an opening at its apex to loosely receive the shaft, and an opening at the under side of its base communicating with the chamber surrounding the shaft within the cone, substantially as described.

6. In a signaling apparatus, a lantern case having a revoluble shaft projecting therefrom in combination with a cone shaped projection on the case to form a chamber around the shaft, the cone having an opening at its apex to loosely receive the shaft, and an outer opening at its base communicating with the chamber, substantially as described.

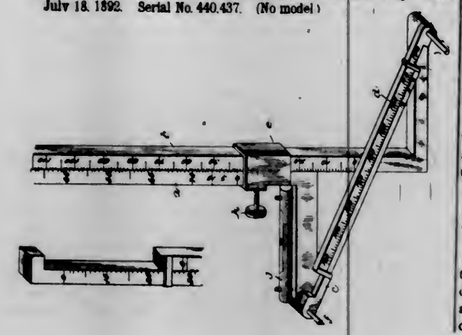
7. In a train order signal the combination of a rock-shaft journaled in and through a horizontal supporting tube, and having a rigidly attached signal board at one end, and means for operating it at its other end, said tube disposed through a lantern case having sight openings with a rock-shaft pivoted in the case, and having arms carrying colored glass disks to register with said sight openings also having an arm attached to one end of a chain, the other end of the chain passed through an opening in the tube within the case, and attached to the shaft within the tube and adapted to wind thereon substantially as described.

8. In a train order signal the combination of a rock-shaft journaled in and through a horizontal supporting tube and having at one end a rigidly attached signal board and at its opposite end means for rocking said shaft, the tube disposed through a lantern case having sight openings, a rock-shaft pivoted in said case and having arms carrying colored glass disks to register with the sight openings, an opening in the tube within the case, a chain one end attached to the shaft in the tube and adapted to wind thereon and depend through the opening in the tube with the opposite end attached to an eye-bolt seated in a slotted arm on the rock-shaft carrying the disks substantially as described.

9. In a train order signal the combination of the supporting tube 1, having the opening 6 with a rock-shaft 2 journaled in and through the tube, the signal board 3 having the bar 20, attached to the outer end of the shaft, and the pulley 16 carrying the cord 25, attached to the opposite end, the rock-shaft having the stud 5 projecting into the opening 6 to limit the motion of said rock-shaft to a one-fourth revolution substantially as shown and described.

10. In a train order signal the combination of the rock-shaft 2 the signal board 3 attached at one end and at its opposite end the wheel 16 carrying the cord 25 and having the teeth 23 and 23′ to engage the stop-block 24 to limit the motion of the rock-shaft, with the lantern case 28 having pivoted therein the rock-shaft 9 having the arms 33 and 33′ carrying the disks 4 and 4′ and having the arm with the slot 29 to receive the eye-bolt 8, the chain 7, one end attached to the eye-bolt the other end attached to the rock-shaft 2 to wind thereon, the buffers 21 and 21′ to stop the descent of the disks 4 and 4′ all substantially as shown and described.

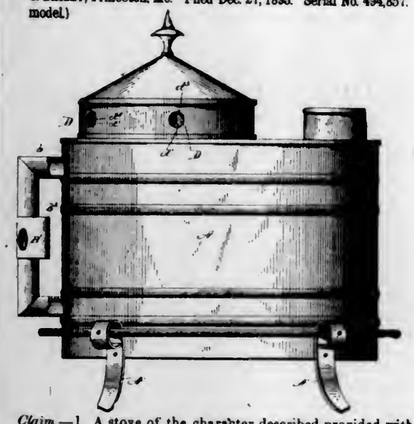
519,010. SURVEYING-INSTRUMENT. WILLIAM R. WHIPPLE, Kellogg, assignor of one-half to W. H. Byars, Portland, Oreg. Filed July 18, 1892. Serial No. 440,437. (No model.)



Claim.—1. In an instrument of the character described, the combination of the L-shaped bars adjustably secured together, and an extensible measuring bar having its ends pivotally connected to the shorter arms of said bars.

2. In an instrument of the character described, the combination of the L-shaped bars, sight-pins in the ends of the shorter arms of said bars, and an extensible measuring rod having its ends pivoted on said sight pins.

519,011. HEATING-STOVE. LEWIS S. N. WRIGHT and CHARLES S. BAILEY, Princeton, Mo. Filed Dec. 27, 1893. Serial No. 494,857. (No model.)



Claim.—1. A stove of the character described provided with a vertical air-supply and gas-circulating pipe opening at its ends into the upper and lower ends respectively of the stove, and having a valved air inlet between its ends to permit air to enter and pass in opposite directions simultaneously into the fuel, and into the combustion space in the top of the stove, to support and promote combustion, whereby when said opening is closed, the air supply will be shut off, and a circulation of gases from the top of the stove and through the fuel will be effected, substantially as herein described.

2. A stove of the character described provided with a vertical air-supply and gas-circulating pipe opening at its ends into the upper and lower ends respectively of the stove, and having a valved air inlet between its ends to permit air to enter and pass simultaneously in opposite directions to the combustion space at the top of the stove, and in the fuel space at the bottom of the stove, and a valved air inlet in the top of the stove above the upper end of said air supply pipe; whereby when the inlet in the said pipe is closed to permit circulation of gases therethrough into the fuel, fresh air may be admitted at the top of the stove to mix with the gases passing down through the said pipe, and also prevent accumulation of gases in the top of the stove, substantially as herein described.

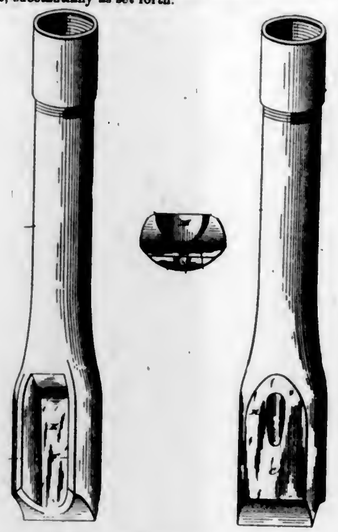
3. The combination with a wood or straw burner and its external vertical air inlet pipe provided between its ends with an aperture and connected at its ends with the interior of the stove; of the apertured sleeve-like damper having one end extended and forming an integral handle, substantially as herein described.

4. A stove of the character described provided with a vertical air and gas circulating pipe B on its outer side, and opening at its ends into the interior of the stove at top and bottom thereof; said pipe having a valved air inlet between its ends to permit air to enter and pass simultaneously in opposite directions into the combustion space and to the fuel space, and a combined filling opening and air inlet in the top of the stove adjacent to the upper end of the said air inlet pipe, and having a removable rotary cap or cover to permit the entrance of fuel, and regulate the admission of air, substantially as herein described.

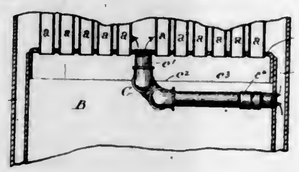
5. A stove of the character described having its legs formed at their upper ends with outwardly extending scroll-like extensions and a foot rail connecting the outer portions of each pair of scrolls, substantially as herein described.

519,012. DRILL FOR WELLS, &c. CHARLES E. WYMAN, Martinsburg, Ind. Filed Oct. 31, 1892. Serial No. 450,522. (No model.)

Claim.—In a drill for wells or mineral prospecting, the combination of a pipe or tube section terminating at one end in a solid integral drill or cutter head provided at one side with a flattened face, beveled at its lower end to form a straight transverse cutting edge D, a channel or groove formed longitudinally in the side or base opposite said flattened side and having its opposing outer edges beveled to form opposite side claw cutters adapted to follow in the wake of the straight transverse cutting edge, said opposing side claw cutters having a clear space there-between formed by said channel, and an escape orifice or perforation piercing the flattened side of the head opposite to the channel or groove and communicating with the interior of the pipe or tube, substantially as set forth.



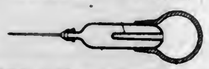
519,013. VERTICAL-FLUE BOILER. CHRISTOPHER AHRENS, Cincinnati, Ohio, assignor to the American Fire Engine Company, same place, and Seneca Falls, N. Y. Filed July 8, 1893. Serial No. 479,872. (No model.)



Claim.—1 In a fire-box steam-boiler, one or more circulating tubes consisting of straight sections of tubing united by curved elbow-connections to present a vertical entrance into the crown sheet and a horizontal entrance into the water-leg, with an intervening horizontal return bend placed at an angle to the horizontal connection, substantially as set forth.

2. In a fire-box steam boiler, a circulating pipe consisting essentially of two horizontal parallel pipe-sections united at one end by a U-coupling to form a "return bend," one end of said return bend being connected by an elbow vertically to the center of the crown sheet, and the other end by an elbow and detachable pipe-section horizontally to the water-leg, substantially as set forth

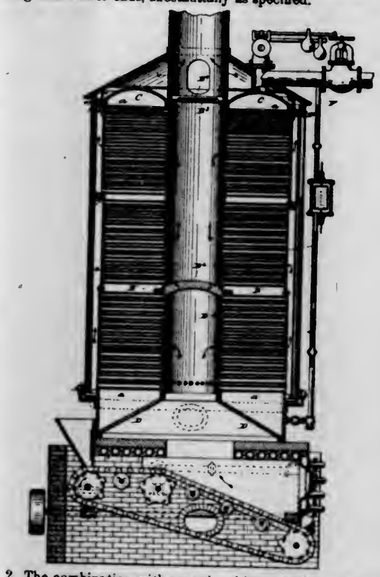
519,014. SYRINGE. GUSTAV BECK, Bern, Switzerland. Filed Oct. 26, 1893. Serial No. 489,421. (No model.)



Claim.—A receptacle adapted to contain liquid and to be attached to the compressor of a syringe, the said receptacle having an orifice for delivering fluid and an orifice for communicating with said compressor, the latter orifice being at the inner termination of a tubular extension of the wall of said receptacle projecting into the interior of the latter.

519,015. BOILER. WILLIAM H. BERRY, Eddystone, Pa. Filed May 21, 1890. Renewed Oct. 2, 1893. Serial No. 487,033. (No model.)

Claim.—1. In a boiler, inner and outer shells and rows of horizontal fire tubes uniting said shells, combined with an annular crowned ring joining said shells at their upper ends and a conical crown sheet joining their lower ends, substantially as specified.



2. The combination with a sectional inner shell having a recess formed by a joint between two sections, of a bulkhead or draft check fitting in said recess, substantially as described.

3. The draft check constructed in sections to admit of its adjustment in the recess in the flue, substantially as described.

4. The combination in a boiler of inner and outer shells, rows of horizontal fire tubes uniting said shells, a revoluble casing surrounding the outer shell, and a series of blast nozzles carried by the revoluble casing and adapted to register with the fire tubes, substantially as specified.

5. In a boiler, a draft check consisting of a sand pocket and a blade or plate suspended therein, free to move, while resisting the passage of air, substantially as described.

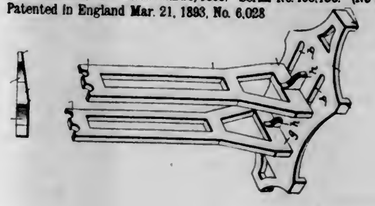
6. The combination in a boiler of an outer casing, a series of I-posts secured to said casing, and an incombustible non-conducting lining made in sections and held between the flanges and webs of the I-posts, substantially as set forth.

7 The combination with a boiler and an outer casing, of a series of I-posts, distance pieces between the I-posts and the outer casing, bolts to secure the casing, posts and distance pieces together, and an incombustible non-conducting lining made in sections and supported by the I-posts; an air space being left between the lining and the casing, substantially as specified.

8. In a boiler, the combination with an inner and an outer shell, of a series of fire tubes connecting the two shells, the tubes being attached to the shells in vertical rows, one vertical row of tubes on the inner shell making two vertical rows on the outer shell, substantially as and for the purpose specified

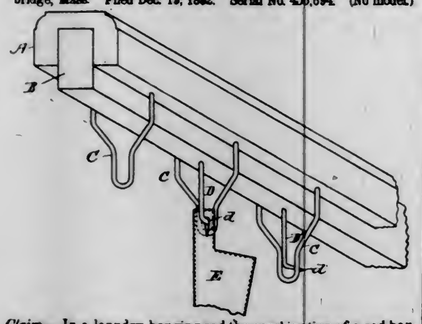
9 In a boiler, inner and outer shells and rows of horizontal fire tubes uniting said shells, combined with an annular crowned ring joining the shells at their upper ends, a conical crown sheet, and an outer casing, substantially as set forth

519,016. BICYCLE STAND OR HOLDER. RALPH DE CLAIRMONT, San Francisco, Cal. Filed Jan. 28, 1893. Serial No. 460,150. (No model.) Patented in England Mar. 21, 1893, No. 6,028



Claim.—The herein described bicycle or tricycle stand or holder, consisting essentially of the following elements in combination, viz: the base plate A, supported upon legs and having the parallel slots *b*, and the holes *c*, and the uprights or standards B, tapering from their vertical centers to one longitudinal edge so as to present a flaring entrance for a wheel and having the notches or recesses *d*, at their upper ends, the lateral, angular brackets or flanges *h*, and the integral depending threaded studs *i*, adapted to engage the slots and holes *b*, *c*, of the base plate and provided with nuts whereby they may be fixed in said slots and holes, all as and for the purpose set forth.

519,017. LAUNDRY-HANGING ROD. WALTER S. COBURN, Cambridge, Mass. Filed Dec. 19, 1892. Serial No. 455,694. (No model.)



Claim.—In a laundry hanging rod the combination of a rod having a series of loops extending beyond and including a second rod (sliding in relation to the first rod) having hooks adapted to hold articles suspended upon them, and to pass forward or backward bodily through the said loops of the first rod; with the sliding rod having hooks substantially as and for the purpose set forth.

519,018. LACE-FASTENER. JOHN R. CRAIG, St. Louis, Mo. Filed July 20, 1893. Serial No. 480,969. (No model.)

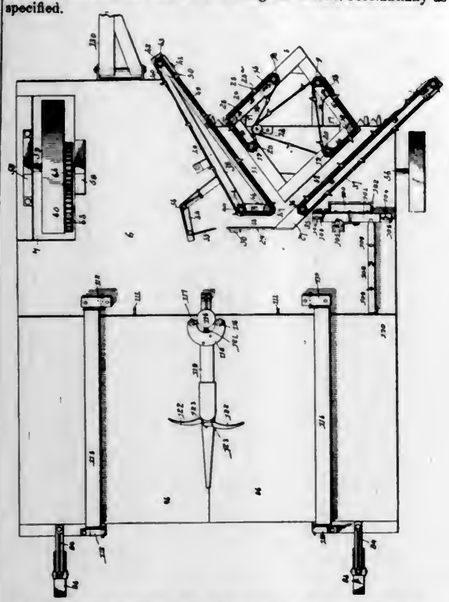


Claim.—In an annular lace fastener, the combination of the wedge shaped annular recess "*b*" stem "C" annular open-space "*b*," and the disk provided with the deflecting edge "*b*," all substantially as shown and described and for the purposes set forth.

519,019. HARVESTER. WILLIAM D. HARMON, Marysville, Ohio. Filed June 29, 1893. Serial No. 479,134. (No model.)

Claim.—1. In a corn harvester, the combination with a platform, a cutting mechanism, and means for operating the same, of a central angular frame located at the front end of the platform and provided at its outer angles with sprocket wheels, chains passing around the wheels at opposite sides of the frame and provided with stalk-engaging projections, opposite side diverging straight frames surmounting the platform and combining with the central frame to form intermediate passages leading to a common exit in rear of the central frame extending beyond the side angles of the central frame, sprocket wheels located on the ends of side frames, and sprocket-chains arranged upon the wheels and provided with stalk engaging projections, and means for operating said wheels, substantially as specified.

2. In a corn harvester, the combination with a platform, a cutting mechanism, and means for operating the same, of a central angular frame located at the front end of the platform and provided at its side angles with sprocket wheels, chains passing around the wheels at opposite sides of the frame and provided with stalk-engaging projections, opposite side straight diverging frames surmounting the platform and combining with the central frame to form intermediate passages leading to a common exit in rear of the central frame and extending beyond the same, sprocket wheels mounted on the side frames, and sprocket chains arranged upon the wheels and provided with stalk-engaging projections, a lateral extension for one of the side frames located in rear of the central frame at the point of meeting between the two passages, and a stalk-receiver arranged at the end of said extension, and means for driving the wheels, substantially as specified.



3. In a corn harvester, the combination with the platform, of a diamond-shaped frame, an intermediate shaft having upper and lower sprocket wheels located upon the platform, a drive shaft, and connections between the same and the sprocket wheel carrying shaft, sprocket wheels at the opposite side angles of the diamond shaped frame, endless sprocket chains engaging the wheels at the sides and front of said frame, and the sprocket wheels of the intermediate shaft, stalk-engaging projections carried by the sprocket chains, opposite side guide frames arranged parallel to the rear sides of the diamond frame and combining therewith to form passages communicating at a point in rear of the diamond frame, sprocket-wheels carried by said side guide frames, sprocket chains mounted on the wheels and having stalk-engaging projections, mechanism between the drive shaft and the sprocket wheels for operating the latter, a lateral extension for the guide frame leading from the point of intersection of the two passages, and an L-shaped arm located at the end of said passage and having an opening at one side covered by a yielding spring-arm, substantially as specified.

4. In a corn harvester, the combination with an upper and a lower diamond shaped frame projecting over the front of the platform, front and rear pairs of sprocket-wheels arranged vertically opposite each other, upper and lower endless chains having triangular pivoted hooks arranged on the chains, and guides at the inner sides of the chains, of the opposite diverging upper and lower bars, intermediate vertical bars, the same combined with the rear bars of the diamond frames to form passages, sprocket wheels at the opposite ends of the upper and lower diverging bars, endless chains connecting the sprocket wheels, triangular hooks carried by the chains, and guards arranged at the inner sides of the chains, the lateral extension bars extending from one set of diagonal bars, the L-shaped arm extending from the other set of diagonal bars, the spring arm secured to the L-shaped arm and extending across the opening thereof, and means for operating the sprocket wheels, substantially as specified.

5. In a corn harvester, the combination with a supporting framework having an opening at its rear end, of separable horizontally slidable table-sections arranged to cover said opening, means for operating the table-sections, and swinging strips supported by the framework slightly above the plane of the table-sections to hold the lower ends of shocks from movement with the sections, substantially as specified.

6. In a corn harvester, the combination with the framework having an opening at its rear end, the opposite table-sections mounted for sliding over the opening, the rack bars 88 secured to the under side of said sections, the longitudinal shafts 90 journaled in the bearings in the framework and having gears 89 engaging the rack-bars, an intermediate shaft 93 having gears 92, and the gears 91 mounted

on the shaft 90 and engaging the gears 92, of the keepers arranged on the framework, inverted T-shaped slides 87 arranged under the table sections and in the keepers, the drive wheel, the transverse drive shaft 62, means for communicating motion from said wheel to said shaft, a beveled gear on the front end of one of the shafts 90 and adjacent to the shaft 62, beveled gears arranged upon the shaft 62 at opposite sides of the beveled gear of the shaft 90, and means for shifting either of said beveled gears of the shaft 62 into engagement with the beveled gear of the shaft 90, substantially as specified.

7. In a corn harvester, the combination with a framework having an opening in its rear side, the opposite slidable table sections, the rack-bars thereunder, the longitudinal shafts 90 under the table sections, gears 89 upon said shafts and engaging the rack bars, the intermediate shaft 93 having end gears 92, the gears 91 arranged on the shafts 90 and engaged by the gears 92, of the ground-wheel, the main transverse drive shaft 62, means for communicating motion from the ground wheel thereto, the opposite hollow cones 97 having beveled gears at their inner ends and arranged to slide upon the shaft 62, the beveled gear 94 on the end of one of the shafts 90 and located between the beveled gears 96, the opposite sleeves arranged at the outer ends of the hollow cones 97, cone pulleys carried by the sleeves, a shifting lever, and devices between the lever and the sleeves for operating the latter, substantially as specified.

8. In a corn harvester, the combination with the framework having an opening at its rear end, the opposite slidable table sections, the rack-bars thereunder, the longitudinal shafts 90, the gear wheels 89 arranged thereon and engaging the rack bars, the intermediate transverse shaft 93, gear wheels 92 on the ends of said shaft, the gear wheels 91 on the shafts 90 engaged by the gear wheels 92, of the drive wheel, the transverse drive shaft operated thereby, the beveled gear 94 arranged on the end of one of the shafts 90 adjacent to the shaft 62, the opposite hollow cones 97 arranged on the shaft 62 at opposite sides of the gear 94, gear wheels at the inner ends of the hollow cones, the outer cone pulleys arranged in the hollow cones and mounted upon reciprocating sleeves, the superimposed slide-bar arranged on the framework, the yoke depending from the slide-bar and engaging the sleeves, the lever fulcrumed at one side of the slide-bar, and the link connected to the lever and to the slide-bar, substantially as specified.

9. In a corn harvester, the combination with the framework having an opening at its rear end, the opposite slidable table-sections, the rack bars thereunder, the longitudinal shafts 90, the gear wheels 89 arranged thereon and engaging the rack bars, the intermediate transverse shaft 93, the gear wheels 92 on the ends of said shaft, the gear wheels 91 on the shafts 90 engaged by the gear wheels 92, of the drive-wheel, the transverse drive-shaft operated thereby, the beveled gear 94 arranged on the end of one of the shafts 90 adjacent to the shaft 62, the opposite hollow cones 97 arranged on the shaft 62 at opposite sides of the gear 94, gear wheels at the inner ends of the hollow cones and mounted upon reciprocating sleeves, the superimposed slide-bar arranged on the framework, the yoke depending from the slide-bar and engaging the sleeves, the lever fulcrumed at one side of the slide bar, the link connected to the lever and to the slide-bar, projections arranged on one of the table-sections, and devices for operating the slide-bar adapted to be struck by the projections on the table-sections and arranged between the same and the slide-bar, substantially as specified.

10. In a corn harvester, the combination with the framework having an opening at its rear end, the opposite slidable table sections, the rack-bars thereunder, the longitudinal shafts 90, the gear-wheels 89 arranged thereon and engaging the rack-bars, the intermediate transverse shaft 93, the gear wheels 92 on the ends of said shaft, the gear-wheels 91 on the shafts 90 engaged by the gear-wheels 92, of the drive wheel, the transverse drive shaft operated thereby, the beveled gear 94 arranged on the end of one of the shafts 90 adjacent to the shaft 62, the opposite hollow cones 97 arranged on the shaft 62 at opposite sides of the gear 94, gear wheels at the inner ends of the hollow cones, the outer cone pulleys arranged in the hollow cones and mounted upon reciprocating sleeves, the superimposed slide-bar arranged on the framework, the yoke depending from the slide-bar and engaging the sleeves, the lever fulcrumed at one side of the slide-bar, the link connected to the lever and to the slide-bars, pins arranged on the front edge of one of the table-sections, and a toggle-lever having its members pivoted upon the framework and arranged in the path of the pins and at its opposite end engaging loosely with the slide-bar, substantially as specified.

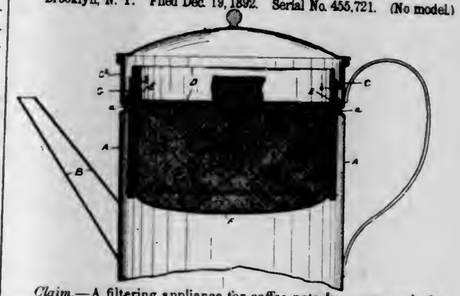
11. In a corn harvester, the combination with the framework, the stationary platform and the rear separable table-sections, of a shocking post rising from the stationary platform, an arm horizontally disposed and mounted movably upon and at a right angle to the shocking post, a spring for supporting the arm, and pivoted short arms arranged on the horizontal arm, substantially as specified.

12. In a corn harvester, the combination with the framework, the stationary platform, and the rear separable table-sections, of the vertical shocking post, the horizontal arm mounted movably thereon and at a right angle thereto, a spring for supporting said arm, a pair of pivoted arms arranged on the horizontal arm, means for locking the same at an angle to the horizontal arm when the latter is raised, and for automatically unlocking the same and permitting them to swing into alignment with the horizontal arm when the latter is lowered, substantially as specified.

13. In a corn harvester, the combination with the framework, the stationary platform, and the rear separable table-sections, of the shocking post extending upwardly from the rear edge of the platform, a vertically movable horizontal arm arranged upon and extending at a right angle from the shocking post, a pair of curved pivoted arms arranged upon the horizontal arm and overlapping each other at their inner ends and beyond their pivots, a pivoted latch mounted in a slot in the horizontal arm and taking in rear of the curved arms, a reciprocating rod mounted in supports under the horizontal arm and loosely pivoted at its rear end to the latch, a spring for normally pressing the arm toward the shocking post, and a cam arranged on the shocking post and adapted to be ridden by the end of the rod, substantially as specified.

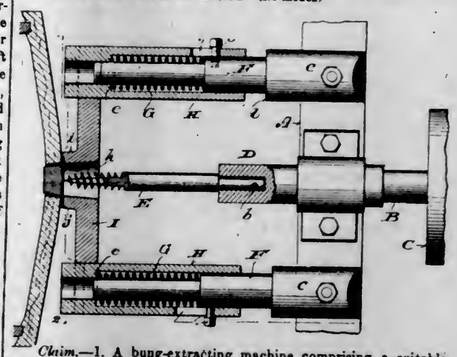
14. In a corn harvester, the combination with the framework, the stationary platform, and the rear separable table-sections, of a shocking post rising from the platform, upper and lower cleats secured to the rear face of the shocking post, vertical guide rods connecting the ends of the cleats, a horizontal arm, a casting on the inner end of the same having perforations for the reception of the guide rods, a suspension spring for the arm, curved pivoted arms arranged on the horizontal arm, and means for locking them in a transverse position, and means for automatically liberating the curved arms at a lowering of the horizontal arm, substantially as specified.

519,020. COFFEE POT AND FILTER. CHARLES H. HUXFORD, Brooklyn, N. Y. Filed Dec. 19, 1892. Serial No. 455,721. (No model.)



Claim.—A filtering appliance for coffee pots &c., composed of a band or ring having an outward projecting flange and an outer bearing face above said flange, and of a filtering bag having a mouth fitting over said outer bearing face and engaging said flange of said ring, in combination with the flange *a* of the pot, substantially as described, for the purposes specified.

519,021. BUNG-EXTRACTING MACHINE. JOHN U. KRAFT, Milwaukee, Wis., assignor of one-half to Henry Rave, same place. Filed Jan. 29, 1894. Serial No. 498,304. (No model.)



Claim.—1. A bung-extracting machine comprising a suitable frame provided with a pair of parallel guide-stems, sleeves loose on

the stems, an apertured plate connecting the sleeves, a rotative bung-engaging tool in line with the plate aperture intermediate of said stems, and suitable means for effecting a yielding resistance to rearward travel of said sleeves as well as an automatic return of the same to normal position substantially as set forth.

2. A bung-extracting machine comprising a suitable frame provided with a pair of parallel guide-stems, spring-controlled sleeves reciprocative on the stems, an apertured plate connecting the sleeves, and a rotative bung-engaging tool in line with the plate aperture intermediate of said stems, substantially as set forth.

3. A bung-extracting machine comprising a suitable frame provided with a pair of parallel guide-stems, sleeves having a differential movement on the stems, an apertured plate connecting the sleeves, a rotative bung-engaging tool in line with the plate-aperture intermediate of said stems, and suitable means for effecting a yielding resistance to rearward travel of said sleeves as well as an automatic return of the same to normal position, substantially as set forth.

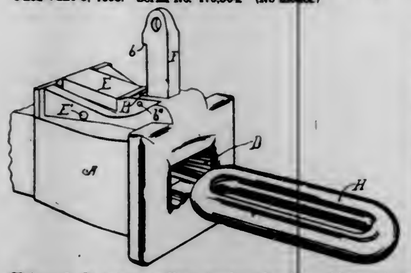
4. A bung-extracting machine comprising a suitable frame provided with a pair of parallel guide stems having shouldered butts and reduced forward extremities, spiral springs on said extremities of the stems, longitudinally slotted sleeves loose on the stems and of such bore as to provide shoulders opposed to the outer ends of the springs, lateral pins on said stems engaging the sleeve-slots, an apertured plate connecting the forward ends of the sleeves, and a rotative bung-engaging tool in line with the plate-aperture intermediate of the aforesaid stems, substantially as set forth.

5. A bung-extracting machine comprising a suitable frame provided with a pair of parallel guide-stems, sleeves loose on the stems, an apertured plate connecting the sleeves, a recessed boss forming a forward extension of the apertured portion of the plate, a rotative bung-engaging tool in line with the plate-aperture intermediate of said stems, and suitable means for effecting a yielding resistance to rearward travel of said sleeves as well as an automatic return of the same to normal position, substantially as set forth.

6. A bung extracting machine comprising a suitable frame provided with a pair of parallel guide-stems, sleeves loose on the stems, an apertured plate having recessed ends straddling the sleeves, lugs extending from said sleeves at opposite sides of the plate, a rotative bung-engaging tool in line with the plate-aperture intermediate of said stems, and suitable means for effecting a yielding resistance to rearward travel of the aforesaid sleeves as well as an automatic return of the same to normal position, substantially as set forth.

7. A bung-extracting machine provided with a rotative pointed tool having a sharp edged spiral thread flat on the side toward the point and beveled on the opposite side, substantially as set forth.

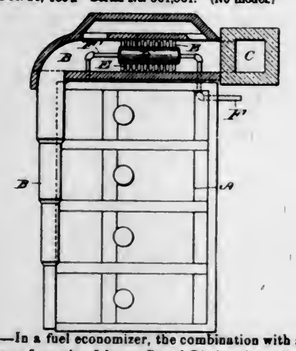
519,022. CAR-COUPLING. JOHN W. LAPP, Los Angeles, Cal. Filed June 5, 1893. Serial No. 476,564. (No model.)



Claim.—1. In a car coupling, the draw-head provided with the vertical pin hole, and provided at the rear of such pin hole with an inclined guideway opening upward and backward from the rear end of the throat of the draw-head; a weighted pin support provided with a longitudinal slot and arranged in such inclined guideway, and having its lower end arranged to project into the pin hole to support the pin when the pin is raised and to also project into the path of the link; a pin arranged in the pin hole and provided with an upwardly sloping shoulder having its face arranged in an angle corresponding to the angle of the guideway, and adapted to be engaged by the lower end of the pin support when the pin support is in its lowest position and the pin is raised, such pin being also provided with two bolt engaging shoulders arranged to allow the pin to be reciprocated in the pin hole: the pin retaining bolt inserted through the draw-head and arranged to engage the bolt engaging shoulders upon the pin to prevent the removal of the pin from the drawhead, and the pin support retaining bolt passed through the drawhead and through the longitudinal slot in the pin support.

2. In a car coupling the draw-head provided with an angular vertical pin hole, and provided at the rear of such pin hole with an angular inclined guideway opening upward and backward from the rear end of the throat of the draw-head; an angular weighted pin support provided with a longitudinal slot and arranged in such inclined guideway, and having its lower end arranged to project into the pin hole to support the pin when the pin is raised, and to also project into the path of the link; an angular pin arranged in the angular pin hole and provided upon its rear face with an upwardly sloping shoulder having its face arranged in an angle corresponding to the angle of the guideway, and adapted to be engaged by the lower end of the pin support when the pin support is in its lowest position and the pin is raised, to thereby support the pin, such pin being also provided with two bolt engaging shoulders arranged to allow the pin to be reciprocated in the pin hole and to engage with a transverse pin retaining bolt inserted through the draw-head at the rear of the pin to prevent the removal of the pin from the draw-head; such pin retaining bolt arranged in the draw-head, and a pin support retaining bolt passed through the draw-head and through the longitudinal slot in the weighted pin support; all so arranged and proportioned, that when the link is forced into the throat of the draw-head it will engage with the end of the pin support and slide such support upward and backward in the inclined guideway to thereby retract the end of the pin support from the pin hole.

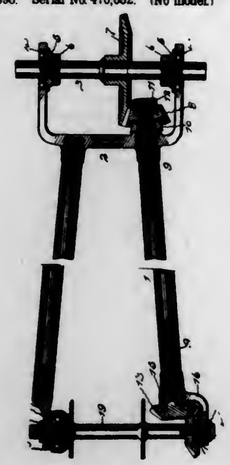
519,023. FUEL-ECONOMIZER. JOHN MILNE, New York, N. Y. Filed Feb. 26, 1894. Serial No. 501,561. (No model.)



Claim.—In a fuel economizer, the combination with a boiler and the flues thereof, a pair of drums D and D' placed parallel one above the other in the flues B of said boiler, a manhole G for each drum located in the end thereof, a series of tubes having their upper and lower ends bent or curved thereby presenting a greater heating surface, a supply pipe F entering the lower drum D and discharge F' leading from the upper drum D', substantially as and for the purpose set forth

---

519,024. BICYCLE. EDWARD J. O'CONNOR, Hartford, Conn., assignor, by mesne assignments, to Austin Brainard, same place. Filed Apr. 17, 1893. Serial No. 470,632. (No model.)



Claim.—1. In combination in a driving mechanism for bicycles, a crank shaft with a gear supported by the frame, a connecting shaft supported in a part of the tubular frame, one end of said shaft bearing a pinion in mesh with a gear on the crank shaft, said pinion being supported upon balls and fastened to the shaft by means of an adjusting sleeve and locking nut on the end of the shaft in front of the pinion, the opposite end of the shaft bearing a gear in mesh with a gear on the hub of the driving wheel, substantially as specified.

2. In combination in a driving mechanism for bicycles, a crank shaft with a gear supported by the frame, a connecting shaft supported in a part of the tubular frame, one end of said shaft bearing a pinion in mesh with the gear, said pinion being supported upon balls, a sleeve with an interior thread screwed upon the end of the shaft, a hollow nut with an exterior thread screwed into a socket in the pinion over the sleeve, the opposite end of the shaft bearing a gear in mesh with a gear on the hub of the driving wheel, substantially as specified.

3. In combination in a driving mechanism for bicycles, a crank shaft with a gear supported by the frame, between the shaft bearings a connecting shaft shorter in length than the distance between the crank shaft and the hub of the driving wheel supported in a part of the tubular frame, said shaft bearing at one end a pinion in mesh with the gear on the crank shaft and bearing at the other end in front of the hub of the driving wheel a gear in mesh with a gear on an extension of the hub of the driving wheel which latter gear is outside the former, substantially as specified.

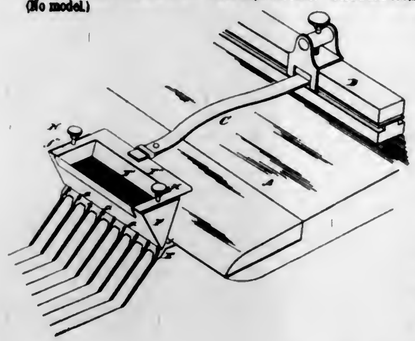
4. In combination in a driving mechanism for bicycles, a crank shaft with a gear supported by the frame, a connecting shaft supported by the frame and bearing at one end a pinion in mesh with the gear on the crank shaft, and bearing at the opposite end a rearwardly facing gear in mesh with an inwardly facing gear on the hub of the driving wheel, substantially as specified.

5. In combination in a driving mechanism for bicycles, a crank shaft with a gear supported by the frame, a connecting shaft supported in a part of the frame and bearing at one end a pinion in mesh with the gear on the crank shaft and at the opposite end a gear in mesh with a gear on the hub of the driving wheel, brackets projecting from the ends of the lower side tubes of the frame to the axle of the driving wheel, said brackets having oblong slots, a tie rod passing through the oblong slots, and adjustable cones connected by the tie rod for holding anti-friction balls in contact with portions of the hub of the driving wheel, substantially as specified.

6. In combination in a driving mechanism for bicycles, a crank shaft with a gear supported by the frame, a connecting shaft supported in a part of the frame and bearing at one end a pinion in mesh with the gear on the crank shaft and at the opposite end a gear in mesh with a gear on the hub of the driving wheel, brackets projecting from the ends of the lower side tubes of the frame, said brackets having oblong slots and longitudinal mortises, cones held to the ends of the brackets in the mortises, and balls between the cones and portions of the hub of the driving wheel, substantially as specified.

7. In a driving mechanism for bicycles, a crank shaft with a gear supported by the frame, a connecting shaft supported in a portion of the frame and bearing at one end a pinion in mesh with a gear on the crank shaft and at the opposite end a gear in mesh with a gear on the hub of the driving wheel, brackets projecting from the ends of the lower side tubes of the frame, studs passing through the ends of the brackets, cones adjustably mounted on these studs, and a tie rod passing through the hollow hub and both of the cone-bearing studs in the ends of the brackets, said rod holding together the independent cone studs and the brackets, substantially as specified.

519,025. INK-FOUNTAIN FOR RULING-MACHINES. RICHARD M. B. PETERSEN, Vinton, Iowa. Filed Sept. 22, 1893. Serial No. 486,202. (No model.)



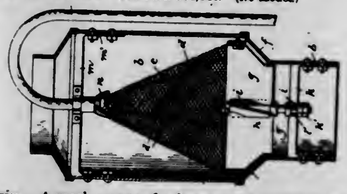
Claim.—1. An ink-fountain for ruling machines having an inner vessel to hold the ink, perforated at the bottom, and provided with suitable means for regulating the flow of ink through the perforations, and an outer vessel with minute perforations in the bottom, adapted to retain the ink when detached from the pens, but permitting the flow thereof when in contact with said pens, substantially as described.

2. In an ink-fountain for ruling machines, the combination of an inner, ink-holding vessel, perforated at the bottom, an adjustable valve adapted to open or close said perforations, an outer vessel with minute perforations in the bottom, and a strip of felt over said perforations, substantially as and for the purpose set forth.

3. In an ink-fountain for ruling machines, the combination of the vessel F having minute perforations at the bottom, and provided with the felt strip f', the inner vessel F' perforated at the bottom, the valve G and adjusting screws H H, substantially as and for the purpose set forth.

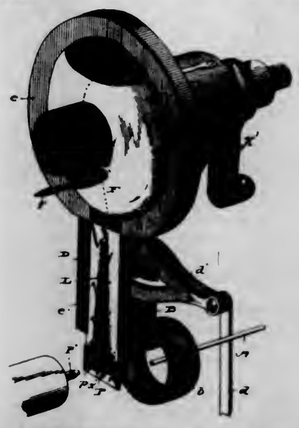
4. In an ink-fountain for ruling machines, the combination of the vessel F having minute perforations at the bottom, and provided with the felt strip f', the ink-holding vessel F' perforated at the bottom, the valve G, adjusting screws H H, and flange F'', substantially as and for the purpose set forth.

519,026. SPARK-ARRESTER. KNUT RINGHEIM, Nevada, Iowa. Filed Feb. 28, 1894. Serial No. 501,846. (No model.)



Claim.—A spark arrester for furnaces and comprising the combination of a smoke stack, a conical sieve mounted therein and revoluble on a vertical axis, said sieve having its lower or large end opening downwardly so as to receive the products of combustion, and provided at its upper or small end with an emitting nozzle, a conductor pipe arranged in the stack and having the said nozzle revolubly seated therein, the conductor pipe being extended outside the stack so as to conduct the sparks therefrom, and a series of diagonally disposed blades mounted radially upon the lower end of the sieve, and adapted to be engaged by the products of combustion in the stack, whereby the sieve is given a continuous rotary movement, substantially as described.

519,027. FEEDER FOR JEWEL-SETTING MACHINES. WILLIAM RUNDQUIST, Elgin, Ill. Filed July 1, 1893. Serial No. 479,400. (No model.)



Claim.—1. The combination of a reciprocating slide, a receiver carried by said slide and capable of oscillating motion independently of the repiprocating motion of said slide, and a channeled feed-plate carried by said reciprocating slide in position to receive from said oscillating receiver and provided with mechanism for controlling the ejectment of the jewels into the jewel-settings, substantially as and for the purposes described.

2. The combination of a vertically reciprocating slide provided with a longitudinal raceway, a receiver carried by said slide in position to discharge to the raceway therein and capable of oscillating movement independently of the reciprocating movements to said slide, and valve and expelling mechanisms to control the discharge of the jewels from said raceway in the slide, substantially as and for the purposes described.

3. The combination of a vertically reciprocating slide provided with a longitudinal jewel receiving groove or slot, an oscillating receiver carried by said slide and provided with a channeled plate at its point of discharge to the jewel slot or groove in the slide, a valve-mechanism at the lower end of the slot or groove to be opened as the slide moves into position opposite a jewel setting, and an expelling plunger, substantially as and for the purposes described.

4. The combination of a slide provided with a jewel receiving slot or groove, an oscillating receiver carried by said slide at one end of the groove or slot therein to supply jewels to said slot or groove, a valve mechanism at the opposite end of said groove or slide to normally cut off the escape of jewels and operated as the slide moves into position opposite to the jewel setting to expose the groove or slot of the slide, and an expelling stud or pin supported in line with the groove or slot, for the purposes described, as set forth.

5. The combination of a slide, a removable slotted or grooved plate carried thereby and provided with a valve and an expelling plunger, and a receiver supported on said slide in position to deliver jewels into the groove or slot of the feed plate, substantially as described.

6. The combination of a slide, an oscillating receiver supported thereon and having a variable discharge opening therein, a removable feed plate carried by the slide and provided with a jewel slot or groove to receive from said opening in the receiver, a valve on the feed plate to normally close the delivery end of the slot or groove, and an expelling plunger, substantially as and for the purposes described.

7. A sectional receiver, substantially such as described, constructed to vary the size of the discharge opening therein, combined with a slide by which said receiver is carried, a feed plate removably attached to the slide and provided with the longitudinal jewel passage or groove which receives from the variable discharge opening of said receiver, and a valve carried by the lower end of the feed plate, as and for the purposes described.

8. A sectional jewel receiver provided with a removable spacing ring arranged to form a discharge opening between the members or sections of the receiver, combined with a feed plate, a valve mechanism, and an expelling plunger, substantially as described.

9 A jewel receiver consisting of sections laterally clamped together and a spacing ring confined between said sections of the receiver and constructed to provide an outlet opening between the same, as and for the purposes described.

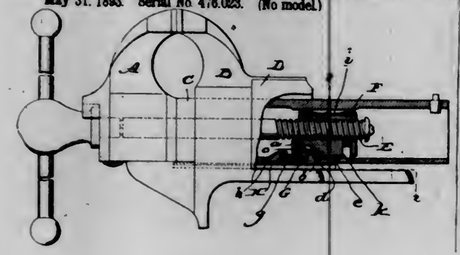
10. A jewel receiver provided with a spacing ring arranged therein to form the discharge opening and a channeled plate situated in said discharge opening, substantially as and for the purposes described.

11. A jewel receiver having one of its sections provided with a channeled surface and a spacing ring clamped between the sections or members of the receiver and having its ends terminating at the channeled surface and forming a discharge opening in one side of said receiver, for the purposes described, substantially as set forth.

12. A jewel receiver having a spacing ring removably clamped between its members or receivers and a detachable channeled plate seated between said receiver members and the ends of the spacing strip, substantially as described, for the purposes set forth.

13. The combination of a rock shaft carrying a sectional receiver having a removable spacing ring clamped between its members and a channeled plate situated in the discharge opening, a reciprocating slide in which the receiver and shaft are mounted to turn, the grooved or slotted feed plate removably attached to the slide, a valve carried by the slide near one end, and an expelling plunger on the slide opposite to the valve thereon, substantially as and for the purposes described.

519,028. VISE. WILLIAM R. SNEDIKER, Trenton, N. J. Filed May 31, 1893. Serial No. 476,023. (No model.)



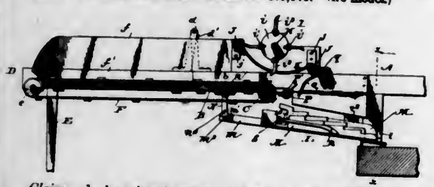
Claim.—1. In a vise, the combination of the operating screw, a reciprocating nut having an inclined face and a shoulder on said face, a toothed clamping block having an inclined face and a shoulder on said face, and a rack; substantially as shown and described.

2. In a vise, the combination of the operating screw, a reciprocating nut having an inclined face and a shoulder on said face, a movable toothed clamping block having an inclined face and a shoulder on said face, an actuating spring bearing upon said clamping block, and a rack; substantially as shown and described.

3. In a vise, the combination of the screw, a reciprocating nut having an inclined face and a shoulder on such face, a movable toothed clamping-block provided with an inclined face and a shoulder on such face, an actuating spring between the clamping-block and the sliding-bar, the sliding-bar, and the rack; substantially as shown and described.

4. In a vise, the combination of the screw, a reciprocating nut having an inclined face and a shoulder on such face and provided with adjusting devices, a movable toothed clamping-block having an inclined face and a shoulder on said face, an actuating spring fixed between the clamping-block and the sliding bar, the sliding bar provided with a slot to receive the clamping block, and a rack; substantially as shown and described.

519,029. FEEDER FOR THRASHING-MACHINES. CASSIUS M. TANQUARY, Spariand, Ill., assignor of one-half to Allison Garrett, same place. Filed May 29, 1893. Serial No. 475,973. (No model.)



Claim.—1. In a band cutter and feeder, the combination with the feeder frame; of the separate bundle carriers arranged within the frame, a reciprocating feed pan arranged in the frame beyond the bundle carriers, an upper rotary band cutting knife located intermediate of the bundle carriers and said pan, and a lower oscillating band cutting device arranged below the upper rotary knife and adjacent to the inner ends of the bundle carriers, substantially as set forth.

2. In a band cutter and feeder, the combination with the feeder frame and the carrier devices therein; of a vertically adjustable fender frame mounted within the feeder frame, and having a parallel series of spaced curved fender strips, and a rotary knife cylinder journaled on the feeder frame in the space above the curved strips of the feeder frame and carrying a series of band cutting knives working in the spaces between said strips thereunder, substantially as set forth.

3. In a band cutter and feeder, the combination of separate parallel bundle carriers, a reciprocating feed pan arranged under the delivering ends of said carriers, upper and lower band cutting knives intermediate of the pan and said carriers, a check feed device beyond the knives, and an auxiliary kicker feed mounted in said pan, substantially as set forth.

4. In a band cutter and feeder, the combination with the fixed feeder frame, and the outer hinged frame; of the endless bundle carriers, side bearing frames arising from opposite top sides of the fixed frame, a curved fender frame adjustably arranged between the bearing frames and having a parallel series of spaced fender strips, and the rotating knife cylinder journaled on said side bearing frames over the fender frame and carrying a series of band cutting knives working in the spaces between said strips, substantially as set forth.

5. In a band cutter and feeder, the combination with the feeder frame and the bundle carriers; of the vertically adjustable fender frame arranged over the delivering end of the bundle carriers and having a parallel series of curved fender strips separated from each other to form receding spaces, a rotating knife shaft journaled on top of the feeder frame above the fender frame, the knife cylinder comprising a regularly spaced series of shaft disks mounted on the knife shaft and a series of knife bars connecting said disks, and band cutting knives attached to said knife bars and working in the spaces between said fender stripe, substantially as set forth.

6. In a band cutter and feeder, the combination with the bundle apron, of the upper rotating band cutter arranged above the delivering end of said apron, and a lower oscillating or rock knife shaft arranged in a line with said apron and carrying a series of undercutting knives, substantially as set forth.

7. In a band cutter and feeder, the combination with the bundle carrier; of an oscillating or rock knife shaft arranged in a line with the delivering end of said carrier and having a series of under cutting knives, substantially as set forth.

8. In a band cutter and feeder, the frame, the bundle carrier, a reciprocating feed pan arranged under the delivering end of said carrier and provided with a series of notched feed bars the outer of which are higher than the central ones, the band cutting knives, and swinging check feed device arranged beyond the band cutting knives, and an auxiliary kicker feed mounted in said pan, substantially as set forth.

9. In a band cutter and feeder, the combination with the frame, the bundle carrier and the band cutting devices; of a reciprocating feed pan arranged under the delivering end of the bundle carrier and provided with bearing notches in its opposite sides, a check feed shaft mounted to rock on top of said frame and carrying a series of swinging check fingers, and a transverse kicker shaft mounted to rock in the bearings of said feeder pan and carrying a series of kicker knife arms adapted to work flat onto and above the pan, substantially as set forth.

10. In a band cutter and feeder, the combination with the frame, the bundle carrier and the band cutting devices; of a reciprocating feed pan arranged under the delivering end of the bundle carrier and working beyond the same and provided with rearwardly extended attachment arms and bearing notches in its sides, notched feed bars secured in said pan, a swinging check feed device mounted on the frame above said feed pan, a transverse kicker shaft mounted to rock in the bearings of said feeder and carrying a series of kicker knife arms, and rock arms at its extremities, stationary spring chains attached at one end to the rock arms of said kicker shaft and adjustably at their other ends to suitable points of attachment, and the main transverse rock shaft connected with the band cutting devices, the attachment arms of the feed pan, and said check devices, to insure simultaneous movement, substantially as set forth.

11. In a band cutter and feeder, the combination with the frame, the apron rollers journaled in said frame, one of which carries at one end a cog wheel provided with a crank, the band cutter having a pinion meshing with said cog wheel and a drive pulley, a reciprocating feed pan having rearwardly extended attachment arms, a lower knife shaft having a crank arm at one end, a check feed shaft having a similar crank arm at one end, the main transverse rock shaft journaled under the feeder frame and having an operating crank arm at one end, and depending rock arms adjustably connected with the attachment arms of the feed pan, a pitman adjustably connected to the crank of said cog wheel and removably to the operating crank arm of the main rock shaft, a double crank or cross arm attached to one end of the main rock shaft, and connecting rods attached to the extremities of said double rock shaft and to the crank arms of the lower knife shaft and said check feed shaft respectively, substantially as set forth.

519,030. HAME-TUG. WILLIAM TIMMINS, Wilsonville, Nebr. Filed Oct. 27, 1893. Serial No. 489,305. (No model.)

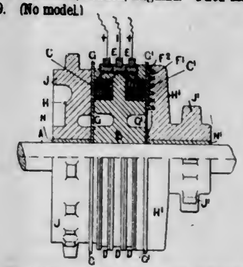


Claim.—1. In a hame-tug, the combination of a tug plate having transverse keepers and provided with a series of transverse slots, and the trace and adjusting plates located respectively at the rear and front ends of the tug plate, and provided at their outer ends with transverse keepers, and having at their inner ends hooks detachably engaging slots of the tug plate, substantially as described.

2. In a hame-tug, the combination with the tug-plate having the opposite side flanges and its bottom provided with a series of transverse slots, the trace-plate slotted at its rear end to engage with the trace and having its front end reduced and bent to form a tongue engaging the rear slot of the tug-plate, of the adjustable-plate arranged in the tug-plate and terminating at its front end in a reduced tongue and at its rear end bent to form a tongue for engaging the slots in the tug-plate keepers formed on the tug, trace and adjustable plates, a buckle-plate bent to engage a buckle and having its rear end slotted to engage the tongue of the adjustable plate, the buckle arranged in the front bent end of the buckle-plate, the tug-strap terminating at its front end in an eye engaged with the buckle and passing under the several keepers of the several plates, the guard at the inner side of the tug and secured to the tug-strap, trace-plate and tug-plate, and the trace engaging the rear end of the trace-plate, substantially as specified.

3. In a hame-tug, the tug-plate 1 having transverse keepers 3, and provided with a series of transverse slots 4 whose edges are rounded or flared, combined with the trace-plate 5 located at the rear end of the tug-plate and engaging with one of the slots thereof and provided with keeper 9 and tongue 8, and an adjusting plate 10 provided with a keeper 13 and tongues 11 and 12, for the purpose set forth.

519,031. ELECTROMAGNETIC VARIABLE-SPEED GEARING. WILLIAM W. BEAUMONT, London, England. Filed Mar. 8, 1893. Serial No. 465,069. (No model.)



Claim.—1. Variable speed transmitting gearing comprising a revoluble shaft, a multi-polar magnet fast thereon, transmitting wheels of different diameters loose on said shaft, an armature rigidly connected with each of the wheels each armature facing a pair of poles of the magnet, a friction device of suitable material interposed between the armatures and their magnet poles, and suitable electrical connections for energizing the magnet coils independently of each other, for the purpose set forth.

2. Variable speed transmitting gearing comprising a revoluble shaft, a multi-polar magnet fast thereon, transmitting wheels of different diameters loose on said shaft each facing a pair of poles of the magnet and forming armature therefor, a friction device of suitable material interposed between the armatures and their magnet poles, and suitable electrical connections for energizing the magnet coils independently of each other, for the purpose set forth.

3. Variable speed transmitting gearing comprising a revoluble spindle, transmitting wheels of different diameters loose on said spindle, a bi-polar double faced discoidal magnet fast on the spindle, armatures each carrying one of said transmitting wheels and having their acting surface opposite one of the faces or pairs of poles of the electromagnet, friction rings interposed between the armature and the magnet provided with annular ribs on their opposite faces adapted to fit corresponding grooves in the proximate faces of the armatures and magnets, and suitable connections between the latter and a source of electricity for transmitting power to one or the other transmitting wheel, substantially as and for the purpose set forth

519,032. MANUFACTURE OF PRINTING-INK. JOSEPH BIBBY and JAMES BIBBY, Liverpool, England. Filed July 31, 1893. Serial No 481,991. (No specimens.)

Claim.—1. In the manufacture of black, blue and analogously colored printing inks, the combination, of cotton seed oil foots, as a basic ingredient, with varying proportions of linseed oil or other varnish forming ingredients ordinarily used in such manufacture, as set forth.

2 In the manufacture of black, blue and analogously colored printing inks, the combination, of cotton seed oil foots, as a basic ingredient, with varying proportions of linseed oil or other varnish forming ingredients ordinarily used in such manufacture, and with lamp black, or other appropriate coloring matters, as set forth.

3. In the manufacture of black, blue, and analogously colored printing inks, the combination, of an admixture of cotton seed oil foots deprived of its contained water but otherwise in its natural condition and of cotton seed oil foots deprived of its contained water and neutralized as to its soapy nature by a suitable acid, in the relative

proportions of about ten per cent. to twenty per cent. of the former and about ninety per cent. to eighty per cent. of the latter; as a basic ingredient, with varying proportions of linseed oil or other varnish forming ingredients ordinarily used in such manufacture, as set forth.

4. In the manufacture of black, blue and analogously colored printing inks, the combination, of an admixture of cotton seed oil foots deprived of its contained water but otherwise in its natural condition and of cotton seed oil foots deprived of its contained water and neutralized as to its soapy nature by a suitable acid, in the relative proportions of about ten per cent. to twenty per cent. of the former and about ninety per cent. to eighty per cent. of the latter, as a basic ingredient, with varying proportions of linseed oil or other varnish forming ingredients ordinarily used in such manufacture, and with lamp-black, or other appropriate coloring matters, as set forth.

519,033. COMBINATION-TOOL. GEORGE J. CAPEWELL, Hartford, Conn. Filed July 3, 1893. Serial No. 479,454. (No model.)



Claim.—1. A combination tool consisting of a handle with a body having a beak shaped jaw, a plate having a jaw and fulcrum loosely held to said body by a stud passing through a slot so that the relative distances of the ends of the jaws from the pivotal stud are variable, and a spring operating between the fixed body and the movable plate to hold the jaws open and also with their ends about equal distances from the pivotal stud, substantially as specified.

2. A combination tool consisting of a handle with a fixed shank having a beak shaped jaw and a hammer head with a socket in the back of the head, a plate having a jaw, fulcrum and a shoulder pivoted to the shank, a hollow plunger borne by the socket in the back of the head, and a spring in the socket and plunger thrusting the latter against the shoulder on the movable fulcrum plate, substantially as specified.

3. A combination tool, consisting of a handle with a fixed body having a beak-shaped jaw, and a driving head with a fixed anvil and nail groove on one side of the head holding the nail in position to be driven by said anvil, and a plate having a jaw, fulcrum and finger pivoted to the body, substantially as specified.

4. A combination tool, consisting of a handle with a fixed body having a beak-shaped jaw, and a driving head with a fixed anvil and nail groove on one side of the head holding the nail in position to be driven by said anvil, and a socket in its back, a plate having a jaw, fulcrum, shoulder and finger pivoted to the body, and a spring plunger located in the socket in the head so as to thrust against the shoulder, substantially as specified.

519,034. NAIL-PULLER. GEORGE J. CAPEWELL, Hartford, Conn. Filed May 12, 1893. Serial No. 473,906. (No model.)

Claim.—1. A nail puller consisting of a bar with a fixed jaw, a lever with a changeable fulcrum and a jaw pivoted to the bar, and a bed having a way for the fulcrum, movably connected to the lever with the fulcrum resting loosely on the way, substantially as specified.

2. A nail puller, consisting of a bar with a fixed jaw, a pivoted jaw with a bed for its fulcrum movably attached to the pivoted jaw, and a spring connecting the fixed jaw with the movable bed, substantially as specified.

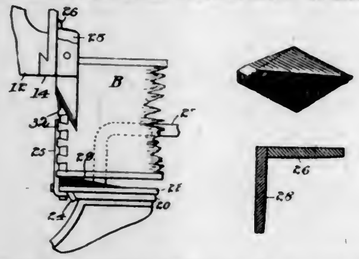
3. A nail puller, consisting of a bar with a fixed jaw, a pivoted jaw with a bed for its fulcrum, said bed being connected with the pivoted jaw by means of a sliding stud, substantially as specified.

4. A nail puller, consisting of a handle bar with a fixed jaw and a lever, with a changeable fulcrum and jaw pivoted to the bar, the latter jaw having a straight grasping edge opposite the end of the fixed jaw, said straight grasping edge, as it extends outward, diverging from the grasping edge of the fixed jaw so that, when in use, there is a wider distance between the grasping edges of the jaw below the nail head than above, and a hook on the end of the movable jaw a greater distance from the pivot than the end of the fixed jaw, substantially as specified.

5. A nail puller, consisting of a bar with a fixed jaw, a lever with a fulcrum and a jaw pivoted to the bar, and a bed for the fulcrum of the pivoted jaw connected thereto by means of a movable stud and an open loop, substantially as specified.



519,035. BOX-BLOCKING MACHINE. CHARLES CRISTADORO, St. Paul, Minn. Filed July 30, 1892. Serial No. 441,657. (No model.)



Claim.—1. A corner trimming knife having the face which plays next the stock convex near the edge opposite the corner of the stock.

2. A corner trimming knife, having a diagonal cutting edge, and the face playing next the stock convex.

3. A right angled corner trimming knife, having bifurcated cutting edges, the face of each blade which plays next the stock being slightly convex near the outer edge.

4. A right angled corner trimming knife, having diagonal cutting edges meeting at the angle of the blades, and extending downward and outward to the outer edges of the blades, said cutting edges being beveled on the outer faces of the blades, and the inner face of each blade being slightly convex near its outer edge.

5. A box corner trimming knife, comprising two similar blades having diagonal cutting edges, and their faces which play next the box convex, and means for securing the same together at right angles with each other, whereby said edges operate with a shearing cut.

6. The combination of the table, the stops having their faces at right angles with each other, the cutter head working toward and from the table, and the corner cutting knives carried by said head, the cutting edges of the knives aligning with the faces of said stops, substantially as described.

7. The combination with the supporting frame, of the tables laterally adjustable thereon, box supports upon said tables, stops at the edges of said tables, cutter heads working to and from said tables, and the corner cutting knives carried by said cutter heads, the cutting edges of the knives aligning with the faces of said stops, substantially as described.

8. A box corner support, consisting of a right angled block having its top surface sloping away from the right angled corner, substantially as described.

9. A box corner support consisting of a rectangular block having an inclined ridge extending between opposite corners, the surface of the block being beveled on each side of the ridge, substantially as described.

10. The combination with a suitable supporting frame, of the tables laterally adjustable thereon, the stops upon said tables, laterally adjustable cutter heads working to and from said tables, corner cutting knives carried by said cutter heads, with their cutting edges aligning with the faces of said stops, and the rectangular blocks upon said tables fitting against said stops having their top surfaces beveled away from the inner corner, substantially as described.

11. A box blocking machine comprising in combination, a support for the corner of the box, stops for the adjacent sides of the box, a cutter head working toward and from said support, a right angled knife carried by said head, its cutting edges and the corresponding inner faces of said stops being in the same plane, substantially as described.

12. A box blocking machine comprising in combination, a rectangular block serving as a support for the corner of the box, the top of said block being beveled away from the corner, stops for the adjacent sides of the box, and a right angled knife working to and from said block with its cutting edges aligning with the sides of the box when in bearing contact with said stops, substantially as described.

13. A box blocking machine, comprising in combination, a support for the corner of the box, stops for the adjacent sides of the box, and a bifurcated right angled knife, the fork forming the cutting edges of the knife, said edges aligning with the sides of the box when in contact with said stops, substantially as described.

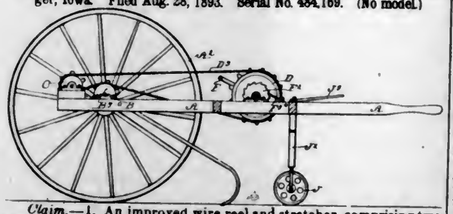
14. The combination with the frame, of the adjustable box supports provided with stops, the cross head working to and from said supports, the adjustable cutter heads carried by said cross head, the corner trimming knives carried by said cutter heads having their faces which play next the box convex, and the means for driving said cross head, substantially as described.

519,036. BROWN PETROLEUM DYE. HANS A. FRASCH, Cleveland, Ohio, assignor to the Grasselli Chemical Company, same place. Original application filed Apr. 19, 1893, Serial No. 471,018. Divided and this application filed Oct. 24, 1893. Serial No. 489,042. (Specimens.)

Claim.—1. The art of manufacturing dyestuffs from petroleum, natural mineral oils, or the distillates or residuums thereof, which consists in nitrating the substance, washing with water, dissolving the nitro products in hot water and decanting or otherwise removing the solution from the remainder and treating it with a base, such as lime, filtering or otherwise separating the insoluble salt thereby formed and rendering it soluble by the addition thereto of an alkali, such as sodium carbonate, dissolving it in water and precipitating the dyestuff from the solution by the addition of a reagent in whose solution the dyestuff is insoluble, such as sodium chlorid substantially as described.

2. As an article of manufacture, a dyestuff which is a brown powder derived from petroleum, emitting the characteristic odor of coal oil when highly heated, soluble in water, acetone and glycerin, and capable of dyeing cotton, without mordant, and whose calcium salt is insoluble in water, substantially as described.

519,037. WIRE REEL AND STRETCHER. HENRY FRICK, Granger, Iowa. Filed Aug. 28, 1893. Serial No. 484,169. (No model.)

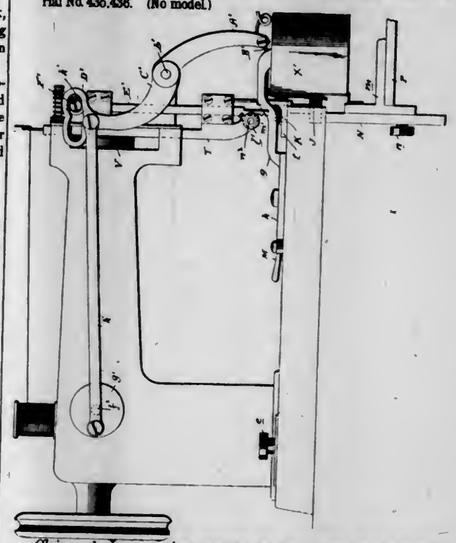


Claim.—1. An improved wire reel and stretcher, comprising two wheels; a suitable frame mounted thereon and having handles at its rear end whereby it may be moved; a steering wheel mounted in the rear of said frame substantially as set forth; a rotatable shaft at the forward end of said frame adapted to receive a spool; a crank at the rear of the frame in position to be operated by a person holding the steering device, and means for rotating the spool by said crank substantially as and for the purposes stated.

2. An improved wire reel and stretcher, comprising two wheels; a suitable frame mounted thereon and having handles at its rear end whereby it may be moved; a steering wheel mounted in the rear of said frame, substantially as set forth; a rotatable shaft at the forward end of the frame adapted to receive a sprocket wheel fixed to said shaft; a sprocket wheel mounted in bearings in advance of the aforesaid sprocket; a shaft rotatably mounted in the rear portion of the frame; a crank fixed to said shaft in position to be operated by a person operating the said steering device; a sprocket wheel on said shaft, and a chain arranged upon the aforesaid sprocket wheels in the manner stated, to rotate the spool in an opposite direction from the crank, for the purposes stated.

3. An improved wire reel and stretcher comprising two wheels; a suitable frame mounted thereon and having handles at the rear end whereby it may be moved; a steering wheel mounted in the rear of said frame, substantially as set forth; a rotatable shaft at the forward end of the frame adapted to receive a spool; a sprocket wheel fixed to said shaft; a sprocket wheel mounted in bearings in advance of the aforesaid sprocket; a shaft rotatably mounted in the rear portion of the frame; a crank fixed to said shaft in position to be operated by a person operating the said steering device; a sprocket wheel on said shaft, and a chain arranged upon the aforesaid sprocket wheels in the manner stated, to rotate the spool in an opposite direction from the crank; a hook fixed to the central portion of the aforesaid shaft; a rope or the like connected with said hook, and means for detachably connecting the said rope with the wire leading to the spool; all arranged and combined substantially as, and for the purposes, stated.

519,038. MACHINE FOR SEWING SWEAT-BANDS INTO HATS. WELCOME P. GANNONS, Jr., New York, N. Y. Filed June 3, 1892. Serial No. 436,436. (No model.)



Claim.—1. In a sewing machine an organized, stitch-forming mechanism, and a vertical rectilinearly sliding frame carrying the same, the said mechanism being adapted to form a stitch at the termination of each downward and upward movement respectively of the frame, substantially as specified.

2. In a sewing machine a vertically and linearly reciprocating organized stitch-forming mechanism, comprising a rocking or reciprocatory needle and a loop-taker having its point directed away from the needle and the path of the materials, and a suitable means for raising and lowering the same so that the needle will take alternately through the material to be united and over the same, substantially as and for the purpose set forth.

3. In a sewing machine, the combination with a vertical rectilinearly sliding frame, and an organized stitch forming mechanism carried thereby; of a cam arranged in a plane parallel with that of the sliding frame adapted to raise and lower the same, and a suitable means for rotating the cam, substantially as specified.

4. In a sewing machine, a rotary feed wheel adapted to impinge upon the material operated upon, and a drive shaft, in combination with a vertical, rectilinearly sliding frame, a stitch forming mechanism carried by said frame, and comprising a needle and a loop taker directed away from the needle, and mechanism intermediate the drive shaft, and the sliding frame, needle, loop-taker, and feed wheel, adapted to raise and lower the frame, and actuate the needle, the loop-taker and the feed wheel, substantially as specified.

5. In a sewing machine, the combination with a needle carrying arm fixed upon a rock shaft and carrying the needle, a crank arm also fixed upon the rock shaft and carrying a cam, and a suitable means for oscillating the crank arm, of a loop taker fixed on a rock shaft, a pinion also fixed on said rock shaft, and a rack bar engaging the said pinion and having a lug in engagement with the cam on the crank arm, substantially as and for the purpose set forth.

6. In a sewing machine, substantially as described, the combination with a feed wheel mounted upon a vertical shaft, and a ratchet wheel also mounted on said shaft, of a drive shaft, a disk mounted on

said shaft and having a cam groove, a lever fulcrumed at an intermediate point in its length and having a lug entering the cam groove of the disk on the drive shaft, the longitudinally slotted lever F connected to the first named lever, a lever fulcrumed adjacent to the vertical shaft and carrying a spring-pressed pawl engaging the ratchet wheel, a pitman connected at one end to the lever carrying the pawl, and a screw adjustably connecting the opposite end of said lever and the slotted lever F, substantially as and for the purpose set forth.

7. In a sewing machine, a vertical rectilinearly sliding frame, a rocking or reciprocatory needle carried by said frame, a rocking loop-taker also carried by the vertically sliding frame and directed away from the needle, and means for intermittently raising and lowering the vertically-sliding frame in a rectilinear plane, and for actuating the needle and the loop taker while the sliding frame is at rest in its upper and lower positions, substantially as specified.

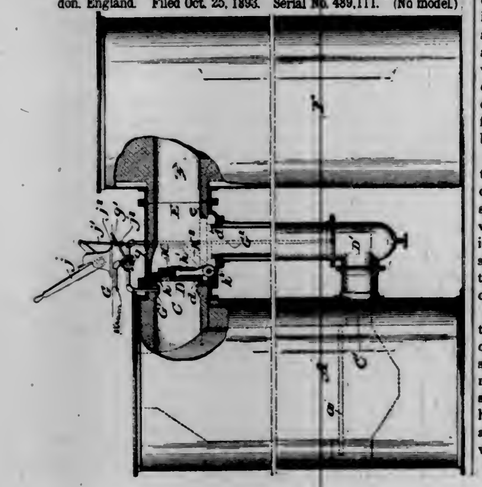
8. In a sewing machine, substantially as described, the combination with the base having parallel guides upon its upper side, and a feeding mechanism carried by the base; of the sliding plate *h*, arranged between the guides of the base and having a longitudinal slot, a screw taking through said slot and into the base, a clamping wheel carried by an arm of the sliding plate, a spring connected to the sliding plate and to the base, and the lever M, having the eccentrically mounted head at one end adapted to engage the sliding plate, all substantially as and for the purpose set forth.

9. In a sewing machine, substantially as described, the combination with the base, an organized stitch forming mechanism mounted thereon, a material guide connected to the base, and a slotted hanger depending from the base; of a platform, a bracket connected to the platform and having a rib to take into the slot of the hanger, and a set screw taking through the slot of the hanger and into the bracket, substantially as and for the purpose set forth.

10. In a sewing machine, the combination with a base, an overhanging and fixed arm mounted on the base, and the drive shaft journaled in said arm and having a cam at its forward end; of a vertical, rectilinearly, slidable frame adapted to be raised and lowered by the cam on the drive shaft, a needle carrying arm fixed upon a rock shaft journaled in the slidable frame and carrying the needle, a crank arm also fixed upon the rock shaft and carrying a cam, a loop taker fixed on a rock shaft carried by the slidable frame, a pinion also fixed on said rock shaft, a rack bar engaging the said pinion and having a lug in engagement with the cam on the crank arm, and mechanism intermediate of the drive shaft and the crank arm adapted to impart an oscillatory movement to the latter, substantially as specified.

11. In a sewing machine, the combination with a base, an overhanging and fixed arm mounted on the base, and a drive shaft journaled in the overhanging and fixed arm; of a vertical, rectilinearly slidable frame mounted in ways in the face of the fixed arm, a needle carrying arm fixed upon a rock shaft journaled in the slidable frame and carrying a needle, a loop taker fixed upon a rock shaft journaled in the slidable frame, mechanism intermediate the drive shaft and the slidable frame adapted to raise and lower the same, and mechanism intermediate of the drive shaft and rock shafts carrying the needle carrying arm and the loop taker, respectively, adapted to rock said shafts, substantially as specified.

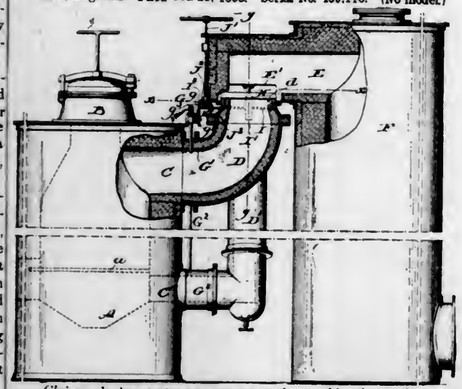
519,039. WATER-GAS APPARATUS. ARTHUR G. GLASGOW, London, England. Filed Oct. 25, 1893. Serial No. 489,111. (No model.)



Claim.—1. In a water gas apparatus, the combination with a generator having passages for gas at its top and bottom, of conduits D D′ leading from said gas passages, a conduit E into which said conduits D D′ open, a swing valve H having seated faces on its front and back and pivoted at h^3 so that when closing either of the openings *d d′* of the conduits D D′ it will be out of the path of the hot gases issuing from the other and means for operating the valve.

2. In a water gas apparatus, the combination with a generator having passages for gas at its top and bottom, of conduits D D′ leading from said gas passages, a conduit E into which said conduits D D′ open, a swing valve H having seating faces on its front and back and pivoted at h^3 so that when closing either of the openings *d d′* of the conduits D D′ it will be out of the path of the hot gases issuing from the other, a steam pipe G having branches G' G^2, a valve adapted to direct the steam from pipe G into either of the branches and means for operating the valve H in the conduit and the steam valve at one operation.

519,040. WATER-GAS APPARATUS. ARTHUR G. GLASGOW, London, England. Filed Oct. 25, 1893. Serial No. 489,110. (No model.)



Claim.—1. In a water gas apparatus the combination with a generator having gas passages at its top and bottom, of separate conduits D D′ leading from said passages, a common conduit E into which the conduits D D′ open, the openings *d d′* of the conduits D D′ into the conduit E being out of line with each other, a common valve arranged in conduit E to alternately close one or the other of the openings *d* and *d′* of the conduits D and D′ and means for operating said valve, all substantially as specified and so that when closing either of the openings said valve will be out of the path of the hot gases issuing from the other.

2. In a water gas apparatus the combination with a generator having gas passages at its top and bottom, of separate conduits D D′ leading from said passages, a common conduit E into which the conduits D D′ open, the openings *d d′* of the conduits D D′ into the conduit E being out of line with each other, a common valve arranged in conduit E to alternately close one or the other of the openings *d* and *d′* of the conduits D and D′, a steam pipe G having branches G' and G^2 leading to the top and bottom of the generator respectively, a valve adapted to direct the steam from pipe G into one or the other of the branches G' or G^2 and means for operating the valve in conduit E and the steam valve at one operation, all substantially as specified and so that when closing either of the openings said valve will be out of the paths of the hot gases issuing from the other.

3. In a water gas apparatus, a generator having passages at its top and bottom, conduits D D′ leading from said passages, a common conduit E into which the conduits D D′ open, the openings *d d′* of the said conduits into the conduit E being side by side, a common slide valve arranged in the conduit E and adapted to slide from one opening to the other and so arranged that when slid across either opening said slide valve will be out of the path of the hot gases issuing from the other, and means for sliding said valve from one opening to the other.

4. In a water gas apparatus, a generator having passages at its top and bottom, conduits D D′ leading from said passages, a common conduit E into which the conduits D D′ open, the openings *d d′* of the said conduits into the common conduit E being side by side, a common slide valve arranged in the conduit E, and so arranged that when slid across either opening said slide valve will be out of the path of the hot gases issuing from the other, a rack secured to said valve, a pinion adapted to mesh with the rack on the valve and operating to slide the valve from one opening to the other.

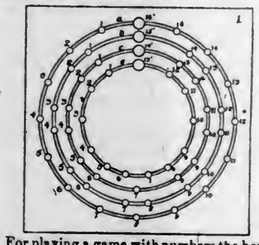
5. In a water gas apparatus, a generator having passages at its top and bottom, conduits D D′ leading therefrom, a common conduit E into which said conduits open, the openings *d d′* thereof being arranged side by side, a common slide valve arranged in the conduit E and adapted to slide from one opening to the other and so arranged that when slid across either opening said slide valve will be out of the path of the hot gases issuing from the other, a steam pipe G having branches G' G^2 leading to the top and bottom of the boiler respectively, a valve *g* adapted to direct the steam from the steam pipe into one or the other of the branches G' G^2 and means for operating both the steam and slide valve at one operation.

6. In a water gas apparatus, a generator having passages at its top and bottom, conduits D D′ leading therefrom, a common conduit E having a side extension E′, the conduit D from the top of the generator opening directly into the conduit E and the conduit D′ into the conduit E through the extension E′, a common slide valve adapted to alternately close the openings *d d′* and so arranged that when moved to open the opening *d* of conduit D it will be slid into the extension E′ out of the way of the hot blast gases escaping from the generator.

7. In a water gas apparatus, a generator having passages for gas at its top and bottom, conduits D D′ leading from said passages, a common conduit E into which the conduits D D′ open, the opening *d d′* of these conduits being side by side, a common slide valve arranged in the conduit E and so arranged that when slid across either opening said slide valve will be out of the path of the hot gases issuing from the other, and means situated entirely out of the path of the hot blast gases escaping through conduit D from the top of the generator for sliding the valve H so that it will cover the opening *d* of the conduit D or the opening *d′* of the conduit D′ as may be desired.

8. In a water gas apparatus, a generator having passages for gas at its top and bottom, conduits D D′ leading from said passages, a common conduit E into which said conduits D D′ open, the openings *d d′* of said conduits being side by side, a common slide valve arranged in the conduit E having a tail piece H^2 and a rack A^3 extending along the tail piece, a pinion I′ arranged to mesh with the rack and slide the valve so as to cover the opening *d* of conduit D or the opening *d′* of the conduit D′.

519,041. GAME-BOARD. WILLIAM HOFFMAN, Boston, Mass. Filed Sept. 12, 1893. Serial No. 485,319. (Model.)



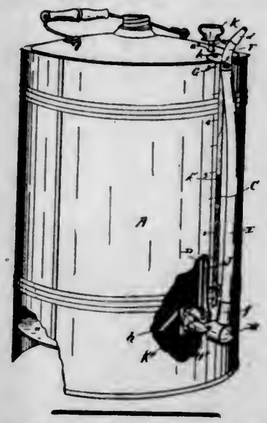
Claim.—1. For playing a game with numbers the herein described board provided with holes or stations arranged on lines, a part of said stations being situated one on each line in proximity to each other to constitute a home or group of initial stations each having a distinct number appropriated thereto said numbers being between proximate powers of the number 2 and said single home stations being each one of a series arranged in said line equaling in number the units of the first named station number in that line, substantially as set forth.

2. For playing a game with numbers the herein described board provided with holes or stations arranged on lines, a part of said stations being situated one on each line in proximity to each other to constitute a home or group of initial stations each having a distinct number appropriated thereto said numbers being between proximate powers of the number 2 and said single home stations being each one of a series arranged in said line equaling in number the units of the first named station number in that line and markers equal in number to the lines, substantially as set forth.

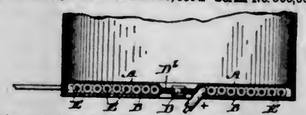
519,042. OIL-CAN. DANIEL J. HOLLIGER, Canton, Ohio. Filed Sept. 4, 1893. Serial No. 484,805. (No model.)

Claim.—1. The combination of the can A having fixed thereto the tube B, provided with the apertures *b* and *c*, the gage tube C, the flexible tube E, provided with the nozzle F having the grooves *e*, the push-rod J provided with a push button K, the rock-bar H′, the spring arm I and the stop *h*, substantially as and for the purpose set forth.

2. The combination of a can provided with an open tube having located therein a gage tube provided with a colored float, the tube B having fixed thereto the flexible tube E, provided with the nozzle F, the push rod J provided at its top or upper end or portion with the notch *a′*, the spring-arm I, the rock-bar H′, and the stop *h*, substantially as and for the purpose specified.



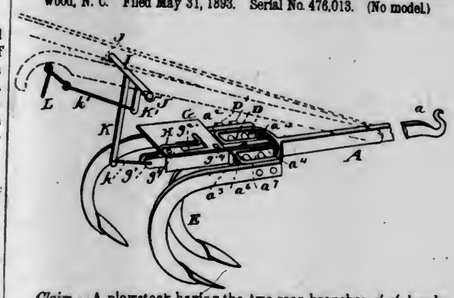
519,043. ELECTRIC HEATER. SAMUEL R. JENKINS, Boston, Mass., assignor to the American Electric Heating Company, same place. Filed Mar. 31, 1893. Renewed Feb. 20, 1894. Serial No. 500,863. (No model.)



Claim.—1. A pair of disks provided with a central rivet and core, in combination with an electric conductor forming part of an electric circuit and wound on the said core between the said disks, the edge of one of the said disks being turned over on the other to complete the inclosure of the said conductor substantially as set forth.

2. The disks A and B pressed together at their central parts to form a core, in combination with a rivet passing through the center of the said core, and an electric conductor forming part of an electric circuit, and wound on the said core, the edge of one of the said disks being turned over on the edge of the other disk to complete the casing substantially as set forth.

519,044. CULTIVATOR AND PLANTER. JOHN E. MILLER, Linwood, N. C. Filed May 31, 1893. Serial No. 476,013. (No model.)

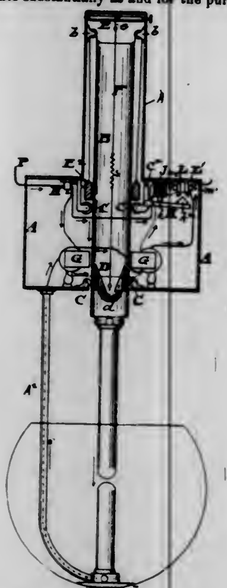


Claim.—A plowstock having the two rear branches *a′ a′*, bends a^2 a^3, parallel arms a^4 a^4 and bolt holes a^5 a^6 a^7; whereby plows may be secured upon it as and for the purposes set forth.

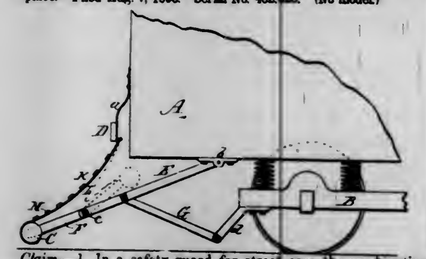
519,045. ELECTRIC-ARC LAMP. JOSEPH B. MCKEOWN, Cleveland, Ohio. Filed Feb. 23, 1894. Serial No. 501,269. (No model.)

Claim.—1. In an electric arc lamp the combination of a tubular rod D, suspended in the chimney by cords attached to the top end and passing over pulleys *b*, *b*, in the top of the chimney; a counterbalance weight E^3 attached to the opposite ends of said cords; guide-wheels *c*, *c*, secured in the casing A; armature D suspended inside of said tube B, and the electro-magnet G outside of the tube and connected in the electric circuit, and adapted to operate substantially as described.

2. In an electric arc lamp the combination of a tubular carbon rod B suspended in the chimney by cords attached to its top ends and passing over pulleys *b*, *b*, in the top of the chimney; a counter-balance weight E^2 attached to the opposite ends of said cords; guide wheels *c*, *c*, secured in the chimney A; armature D suspended inside of said tube B; the electro magnet G outside of tube B and connected in the electric circuit; a solenoid J connected in series by fine wire and by shunt circuit to coarse wire, a lever K pivoted under the solenoid, having armature *k*, bars L, L' having binding posts *m*, *m'*, all constructed to operate substantially as and for the purpose set forth.



519,046. SAFETY-GUARD FOR STREET-CARS. STEPHEN NORTON, Rochester, N. Y., assignor of one-half to William H. Rice, same place. Filed Aug. 7, 1893. Serial No. 482,625. (No model.)



Claim.—1. In a safety guard for street cars, the combination, with the car, of the springs *a a* attached to the end of the car, and the cross bar D attached to the springs, as and for the purpose specified.

2. The combination, with the car, of a supporting frame at the end of the car, a roller resting in the frame provided with a spring which tends to turn it forward, and a flexible covering attached to and partially wound on the roller, its outer end being attached to the car, for the purpose specified.

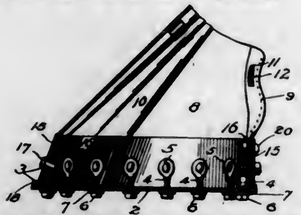
3. The combination, with the car, of a supporting frame at the end of the car, a roller resting in the frame provided with a spring which tends to turn it forward, a spring bar attached to the end of the car, and a flexible covering attached to and partially wound on the roller at one end and attached to the spring bar at the other, as and for the purpose specified.

4. The combination, with the roller C provided with the cavity *l*, and with the flexible covering K attached to and winding on said roller, of the head N provided with the screw *k* entering the end of the roller, and the spring *m* encircling the screw, attached at one end to the roller and at the other to the bar that supports the roller, as and for the purpose specified.

5. The combination, with a street car, of the side bars E E pivoted to the bottom of the car, the supplementary bars F F pivoted to the side bars, the roller C, supported by the supplementary bars, and the braces G G pivoted at one end to the truck and at the other to the side bars, as and for the purpose specified.

6. The combination, with a street car, of the side bars E E pivoted to the car, the braces G G pivoted at one end to the truck and at the other to the side bars, the supplementary bars F F pivoted to the side bars, the spring roller C resting in the supplementary bars, and the flexible covering K attached at one end to the roller and at the other to the car, as and for the purpose specified.

519,047. SOAKING-BOOT. MILTON N. ROGERS, Minneapolis, Minn. Filed Dec. 9, 1893. Serial No. 493,273. (No model.)



Claim.—1. In a soaking boot, the combination, with the crimped flexible top, of means for drawing the upper part thereof together, the metallic plates or rings between which the lower edges of the flexible top are held, the metallic bottom plate, and means for securing the same to the first mentioned plates, substantially as described.

2. The combination, with the flexible top 8 having its forward part crimped, of the metallic parts 15 and 16 embracing the lower edge of the flexible part, the metal plate 2, the eye-bolts secured therein, and the eyes of said bolts being secured to the lower edge of the flexible part and the metal parts 15 and 16, substantially as described.

3. The combination, with the flexible part 8 having crimps 10, of the tightening strap arranged in the crimped top for drawing up the same, the metal parts 15 and 16 embracing the lower edge of the flexible part, the bottom plate 2, the eye-bolts passing through the same, the rivets or screws 17 passing through the parts 15 and 16 and in the eyes of said bolts, the packing 18 interposed between the metal parts and the plate 2, and the nuts 6 provided on the lower ends of the eye-bolts for securing the parts together, substantially as described and for the purpose specified.

519,048. COPY-HOLDER. ROSECRANS SHELDON, Chicago, Ill. Filed Mar. 28, 1893. Serial No. 467,977. (No model.)



Claim.—1. The combination with the copy board, the guide rod ranging lengthwise of the board at one side, a line arm pivoted to and held to slide on the guide rod, a second rod parallel with the guide rod and having connection with the line arm for actuating the latter, and a catch on the line arm limiting the outward movement of the line arm, said catch normally being free from engagement with the rods but having movement with the line arm to engage the second or operating rod when the line arm is swung on its pivotal connection, substantially as described.

2. A copy-holder, comprising the usual flat copy board, a support for the same which permits the inclination of the board to be adjusted, a spring-pressed bail arranged on the face of the board, a guide rod arranged at one side of the board and connected at its lower end with a rock shaft the upper end of the guide rod being free,

a vertically-movable rod held to slide parallel with the guide rod, a line arm carried by the guide rod and extending across the face of the board, and means for moving the line arm line by line by the movement of the vertically movable rod, substantially as specified.

3. A copy-holder, comprising a copy board having means for holding material thereon, an outwardly-swinging guide rod extending normally parallel with the edge of the board, a vertically-movable rod held to slide in guide plates on the guide rod, a handle for depressing the vertically-movable rod, means for limiting the movement of said rod, a line arm carried by the guide rod and extending across the face of the copy board, and a clutch connected between the arm and the vertically-movable rod whereby the movement of the said rod will move the line arm, substantially as specified.

4. The combination, with the copy board having a suitable support, of the bail extending across the front of the board, a rock shaft journaled on the back of the board and secured to the bail, an outwardly-extending crank arm on the rock shaft, a spring arranged to press the crank arm and hold the bail against the face of the board, and a guide rod pivotally connected with the crank arm and passing through said spring substantially as specified.

5. The combination, with the copy-board and the outwardly-swinging guide rod arranged at one side of the board, of a spring pressed handle extending in front of the board, a vertically movable rod carried by the handle and held to slide through guide plates on the guide rod, a sleeve held to slide on the guide rod, a line arm secured to the sleeve and extending across the face of the board, and a spring-pressed clutch plate held in a slot in the sleeve and arranged to run on the vertically-movable rod, substantially as specified.

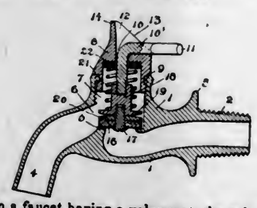
6. The combination of the copy board, the guide rod arranged at one side of the board and provided with a vertically-movable nut or abutment near its upper end, a vertically-movable and spring pressed rod arranged parallel with the guide rod and provided with an abutment to strike the abutment of the guide rod, a line arm carried by the guide rod and extending across the face of the copy board, and means for moving downward the line arm by the downward movement of the vertically movable rod, substantially as specified.

7. The combination, with the copy board, of a rock shaft, a guide arm carried by said rock shaft and extending upward substantially parallel with the copy board, the upper end of the guide rod being free, a line arm carried by such guide rod, an operating rod for the line arm, arranged parallel or approximately so, with the guide rod, means for actuating said operating rod to progressively move the line arm, the said operating rod in its abnormal or excessive movements, contacting with the guide rod, and serving to swing the same outward substantially as described.

8. The combination with the copy board of a rod parallel or approximately so with the copy board, and mounted at its lower end to swing away from the board, a line arm sliding on said rod, a second rod parallel or approximately so with the first mentioned rod, and movable into contact with the latter for swinging the same outward and means for actuating such second rod, substantially as described.

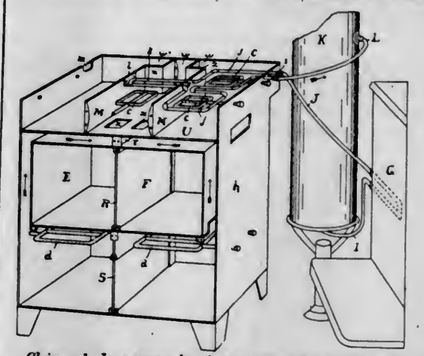
9. The combination with the copy board of a rod parallel or approximately so with the copy board, and mounted at its lower end to swing away from the board, a line arm sliding on said rod, a second rod parallel or approximately so with the first mentioned rod, and movable into contact with the latter for swinging the same outward, an adjustable contact on one of said rods for engaging the other, and means for actuating said second rod, substantially as described.

519,049. FAUCET. MARCELLUS E. SPOFFORD, Keene, N. H. Filed Apr. 3, 1893. Serial No. 468,926. (No model.)



Claim.—In a faucet having a valve seat, the valve and its stem, a spring normally tending to close the valve, the valve stem handle, and a perforated plug having an exterior inclined wall said stem being bent to rest upon and be moved up or down said incline when it is suitably turned, and said plug having its walls 13 and 14 extending above the incline 15 and arranged at an angle to each other to constitute stops for the handle, and said handle being bent and adapted to be screwed into the stem when the plug is separated from the faucet, substantially as set forth.

519,050. WATER-HEATER FOR GAS-STOVES. LAURA M. STONE, Rochester, N. Y. Filed May 31, 1893. Serial No. 476,190. (No model.)



Claim.—1. In a water heating gas stove the combination of a stand boiler, a gas stove having two ovens E, F provided each with a burner said burners being situated in roasting ovens immediately beneath the first named ovens and having two compartments above the ovens provided each with a burner or burners, and a top having pot holes and a water pipe communicating with the boiler and extending under the stove top and into both compartments and having one or more coils in one compartment and in the other a part situated in the path of the products of combustion from the oven burners, substantially as set forth.

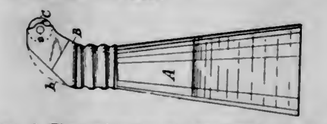
2. In combination with a tank and a gas stove having two compartments provided with burners and with pot holes in their top, the water coil comprising a part *j* provided with one or more rings situated near the top said water coil comprising also a second part *k* extending through a partition into another compartment and situated near its burner and pot hole, and the oven burners, said extension *k* being arranged in the path of the products of combustion from said burners, substantially as set forth.

3. In combination the range having a water heating back or coil, a stand boiler or tank, the gas stove, the water heating coil of said gas stove, a pipe connecting the range coil with the boiler, a pipe connecting the boiler with the gas stove coil, and a pipe J connecting said gas stove coil directly with the range coil, the whole forming a continuous single circuit whereby water is compelled to flow in an undivided current through the pipes, boiler, range coil, and gas stove coil whenever either the gas stove or the range is in use, substantially as set forth.

4. In combination the range having a water heating back or coil, a stand boiler or tank, the gas stove, the water heating coil of said gas stove, a pipe connecting the range coil directly with the boiler, a pipe connecting the boiler with the gas stove coil and a pipe J connecting said gas stove coil directly with the range coil in a continuous single circuit whereby water is compelled to flow in an undivided current through all the coils, pipes, and the boiler said gas stove coil being provided with detachable couplings and the stove having notches and fittings whereby it is adapted to be placed on either side of the range and tank and in connection therewith, substantially as set forth.

5. In combination a tank, a range having a water heating coil, a gas stove having a water heating coil provided with detachable couplings and the continuously connected pipes I, J and L said pipe J connecting the gas stove and range coils directly whereby the water is compelled to flow in one circuit through all the coils, pipes and the boiler, said gas stove being adapted to admit its water coil pipe connections and also gas burner connections on either side, substantially as set forth.

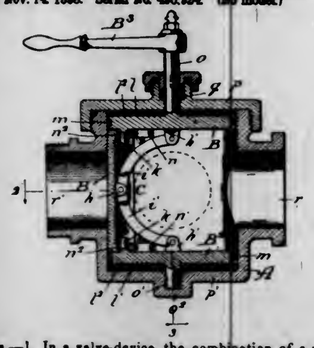
519,051. MUCILAGE-BOTTLE. EUGENE TERRY, Ithaca, N. Y., assignor of one-half to Bradford Almy, same place. Filed Jan. 26, 1894. Serial No. 498,126. (No model.)



Claim.—1. The combination, in a mucilage holder, of a detachable cap, having an elbow bend and an opening at its end, the said opening being closed by a roller journaled in the walls thereof, whereby the mucilage is distributed when the device is in use, substantially as specified.

2. The combination of a mucilage holder, a metallic elbow-shape cap secured to the neck of the holder, and a non-flexible roller, provided with a milled periphery, closing the mouth of the metallic cap and journaled in the walls thereof.

519,052. VALVE DEVICE. CHARLES H. WATTERS, Chicago, Ill. Filed Nov. 14, 1893. Serial No. 490,924. (No model.)



Claim.—1. In a valve-device, the combination of a valve-plate and a head yieldingly seated on an end of the valve-plate and having a flexible connection therewith at a point between its ends, substantially as and for the purpose set forth.

2. In a valve-device, the combination of a valve-plate and heads yieldingly seated on the ends of the valve-plate and having a flexible connection therewith at a point between its ends, substantially as and for the purpose set forth.

3. In a valve-device, the combination of a valve-plate and heads yieldingly seated on the ends of the valve-plate and having a lever-connection C therewith at a point between its ends, said connection comprising the pivotal members i and i', substantially as and for the purpose set forth.

4. In a valve-device, the combination of a valve-plate and heads yieldingly seated upon its ends and having a lever-connection therewith at a point between its ends, said connection comprising the pivotal members i and i' forming a portion of a circle, substantially as and for the purpose set forth.

5. In a valve-device, the combination with the shell having an inlet and an outlet, of a valve-plate for the said outlet having bearing-heads at its opposite ends provided with guides, heads at opposite ends of the valve-plate, having studs engaging said guides, a valve-stem by which to turn the said heads, and a lever-connection formed with members pivotally connected at one end with the valve-plate and at their opposite ends with said heads, substantially as and for the purpose set forth.

6 In a valve-device, the combination with the cylindrical shell having an inlet and an outlet, of a concavo-convex valve-plate for the outlet, having at its opposite ends bearing-heads n and n' provided with guides n^3, heads B' and B³ yieldingly seated on said bearing-heads and provided with studs k engaging said guides, springs l and l' confined against the heads in the shell, a stem for the said heads extending beyond the shell, and a lever-device C formed of the curved members i and i' pivotally connected at one end with the valve-plate near its center and at their opposite ends with the said heads near their centers, substantially as and for the purpose set forth.

519,053. PROTECTOR FOR LADIES' BOOTS. HARRIET J. WESCOTT, Somerville, Mass. Filed June 17, 1891. Serial No. 396,618. (No model.)



Claim.—1. The boot and shoe protector as constructed viz: having a front or instep protecting member tapered both upwardly and downwardly from a wider central portion to which the side and bottom connections are united, and a rear protecting member also made with a taper both upwardly and downwardly from a central wider portion to which the side and bottom connections are united, together with said side and bottom connections of any suitable construction, substantially as described.

2. The two guards united at the sides and underneath by strap-like connections, the rear one being constructed of a form tapering both upwardly and downwardly, and the front one also being constructed of a form tapering both upwardly and downwardly but having also a central narrower waist part between the bases of said front tapering parts, substantially as described.

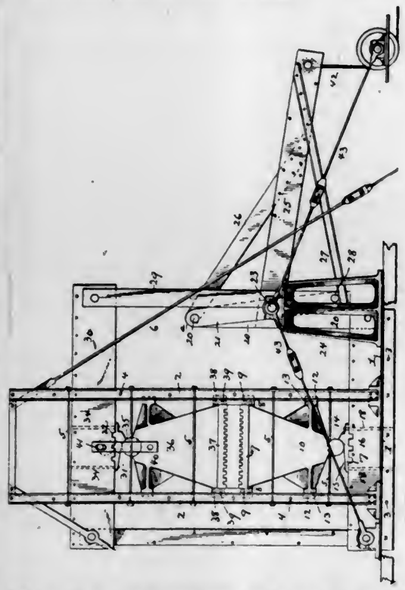
3. A boot and shoe surface protector cut from a single piece of material and having two narrow surface guards to extend up and down longitudinally one over the instep part and one over the surface above the rear end of the boot or shoe heel and having narrow prolongations for connections, provided with fastenings about the ankle and under the boot or shoe, substantially as and for the purpose set forth.

4. In a boot and shoe protector constructed for attachment over the boot as specified, the front guard having both an upwardly and downwardly projecting tongue substantially as shown and described.

5. In a boot and shoe protector constructed for attachment over the boot as specified, the rear guard having both an upwardly and a downwardly projecting tongue, substantially as shown and described.

6. In a boot and shoe protector constructed for attachment over the boot as specified, the front and rear guards both provided with the central tongue like extensions substantially as shown and described.

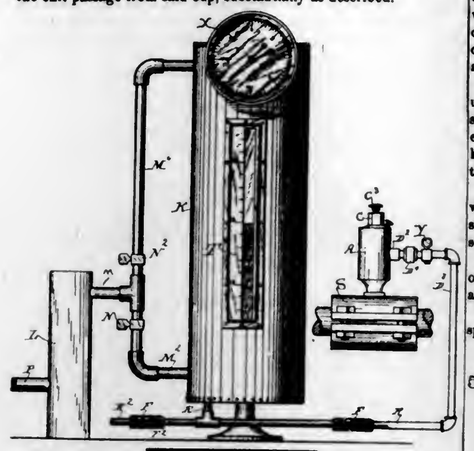
519,054. COTTON-PRESS. FRANK I. WHITE, Monroe, La. Filed June 22, 1893. Serial No. 478,531. (No model.)



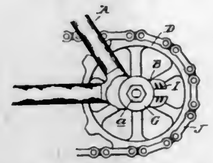
Claim.—In a cotton or other compress, the combination with the upper and lower platens, having semicircular recesses in their outer ends, the pivoted levers provided with blocks, the inner or free sides of which are formed with projections and cut away in a curved sloping line, the rollers seated on and bearing against said blocks and the slotted plates pivotally connected with the upper platen and lever, of the links pivotally connected with said levers, the oscillatory arm to which said links are pivoted and the operating lever, substantially as described.

519,055. LUBRICATOR. PHINEAS S. WHITING, Hiawatha, Kans., assignor, by direct and mesne assignments, to the Wilson & Company, Des Moines, Iowa. Filed Dec. 1, 1893. Serial No. 492,551. (No model.)

Claim.—In an apparatus for lubricating machinery the combination of the following elements, viz: a reservoir adapted to contain oil and receive and contain air under pressure for forcing said oil to the parts to be lubricated, a closed oil cup or oil cups and connections thereto from that portion of the reservoir containing the oil, said oil cup or cups each having a shank at its lower end to adapt it to be attached to the part to be lubricated, and having a longitudinal passage through said shank from said cup, and said cup having a vent and removable plug in the upper portion thereof, and a bearing for a valve stem within, the valve stem adapted to pass through an opening in the top of the oil cup and through said bearing, and to control the exit passage from said cup, substantially as described.



519,056. CHAIN ADJUSTMENT FOR BICYCLES. MELVIN L. WILCOX, Bay City, Mich., assignor to the National Cycle Manufacturing Company, same place. Filed Feb. 13, 1894. Serial No. 500,069. (No model.)

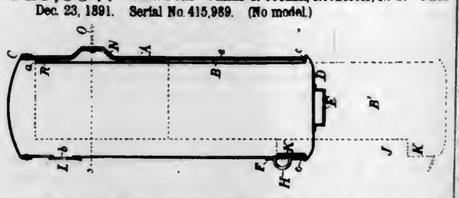


Claim.—1. In a bicycle, the combination of a shaft, a sprocket wheel thereon, a bearing in the frame in which said shaft is longitudinally, adjustably supported, a series of lugs on the frame beside the bearing, and a washer on the shaft having a scroll adapted to engage with said lugs, substantially as described.

2. In a bicycle, the combination of the shaft, a bearing in the frame in which said shaft is longitudinally, adjustably supported clamping nuts to hold the shaft in its adjusted position, washers between the nuts and frame, a scroll on the inner face of washers, and lugs on the frame with which said scroll engages, substantially as described.

3. In a bicycle, the combination of the slotted plate B, the rear shaft engaging therein, the lugs I on each side of the slot, and washers G having a scroll H adapted to engage the lugs, substantially as described.

519,057. MAIL-BOX. JAMES G. CUTLER, Rochester, N. Y. Filed Dec. 23, 1891. Serial No. 415,989. (No model.)



Claim.—1. The combination, in a mail box, of the outer case A, permanently closed at its upper end, and having mailing orifice b, and the inner sliding holder B closed at its lower end and provided with opening J on the side next the mailing orifice, and means for preventing the entire withdrawal of the holder from the case, substantially as described.

2. The combination, with the outer case A having the head C, inwardly turned flange c at its lower end, and mail-orifice b, of the inner sliding holder B having flange a and opening J on the side next the mail-orifice, said opening J being normally in direct communication with the mail-orifice and adapted to be exposed by lowering the sliding holder B, substantially as set forth.

3. The combination in a mail box of the outer case closed at one end and the inner holder arranged to slide within the case and provided with an opening adapted to receive the mail when the box is closed and to expose it when the box is open, and a fastening for said case concealed by the inner holder when closed, said holder being adapted to be suspended from the case, substantially as set forth.

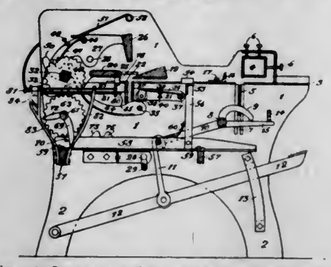
4. The combination, in a mail box, of an outer case closed at its upper end, an inner sliding holder provided with an opening on one side, means for supporting the holder from the case when in its lowest position, and a spring arranged within the case and adapted to keep the holder on its apertured side in contact with the interior of the holder, substantially as described.

5. A swinging mail-box pivoted at or near its upper end, and provided with means for securing it in an approximately horizontal position, for convenience of access to its contents, substantially as described.

6. The combination, with a swinging mail-box, consisting of an outer case and an inner sliding holder, of means for securing it in an approximately horizontal position, substantially as described.

7. The combination, with the mail-box A, of the arm Y carrying spring V, the pivot X and notched disk U, substantially as described.

519,058. FOLDING-MACHINE. CARL EFRAMSON, Minneapolis, Minn., assignor of one-half to Edwin Wiedenbeck, same place. Filed Oct 2, 1893. Serial No. 487,037. (No model.)



Claim.—1. In a folding machine for folding stripe of metal upon the edge of hanging cards and other like articles, the combination of a holder, a first folder, a second folder adapted to follow the action of the first folder, and further complete the fold, spring shoulders against which cams act to press the second folder upon the fold, and a cam shaft having cams to operate the second folder, substantially as set forth.

2. In a folding machine for folding strips of metal upon the edge of hanging cards and other like articles, the combination of feeders adapted to feed the strip to be folded successively into the folding parts, stops against which the strip is fed, and folding parts adapted to fold the strip, with suitable mechanism to operate the parts, substantially as shown and described.

3. In a folding machine for folding strips of metal upon the edge of hanging cards and other like articles the combination of automatic spring feeders adapted to feed the strip to be folded successively into the folding parts, stops against which the strip is fed, and folding parts adapted to fold the strip, with suitable mechanism to operate the parts, substantially as shown and described.

4. In a folding machine for folding strips of metal upon the edge of hanging cards and other like articles, the combination of a cam shaft having cams mounted thereon adapted to engage lugs on a bar, feeders secured to such bar, a table having slots through which the feeders project, and folding parts, substantially as shown and described.

5. In a folding machine for folding strips of metal upon the edge of hanging cards and other like articles, the combination of a cam shaft having cams mounted thereon, adapted to engage lugs on a bar, to move the bar and feeders, feeders secured to such bar, a dog adapted to engage in notches upon the bar, and to swing in a grooved way around such notches, a spring adjusted to move the bar back when the dog is released, and mechanism adapted to fold the strip which is fed into the same by such feeders, substantially as set forth.

6. In a folding machine for folding strips of metal upon the edge of hanging cards and other like articles, the combination of a holder, folding parts adapted to fold a strip of metal upon the edge of a card, automatic feeders adapted to advance the metal successively three times into the folding parts, so that the folding may be performed, the edge of the card inserted, and the completed fold withdrawn, mechanism whereby the feeders are held in the position to which they advance each time but the last when they return to the point of first starting, and stops against which the metal is fed, substantially as specified.

7. In feeding mechanism for the purpose set forth an automatic spring feeder secured to a bar having lugs on which cams upon a cam shaft engage to draw the bar back with a dog adapted to engage in notches upon the bar, and to swing in a grooved way around such notches, and a spring adjusted to move the bar back when the dog is released, substantially as set forth.

8. In a holder for a folding machine for folding strips of metal upon the edge of hanging cards and other like articles, the combination of a stationary jaw, a movable jaw pivoted upon arms, roller arms having rollers upon which the movable jaw is supported, levers adapted to act against the rollers to move the jaw, and a cam shaft having cams adapted to operate against the lever, substantially as specified.

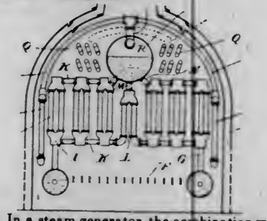
9. In a folding machine for folding strips of metal upon the edge of hanging cards and other like articles the combination of a holder composed of a stationary jaw and a movable jaw, rollers upon which the movable jaw is supported, levers adapted to act against the rollers to move the jaw, a cam shaft having cams adapted to operate against the lever, automatic feeders to feed a strip of metal into the machine, folding parts adapted to fold the strip of metal around and upon the stationary jaw while being held by the holder, and a hammer to close down the fold, substantially as specified.

10. In a folding machine for folding strips of metal upon the edge of hanging cards and other like articles, the combination of automatic feeders, stops against which the metal strip is fed, a first and second folder adapted to move in different directions successively, a hammer and a holder adapted to grasp the metal while the metal is being folded, and then to release it for the action of the feeders in moving the fold away from the bar over which it is folded for the insertion of the paper and for the hammer to close down the folds, substantially as specified.

11. In a machine for cutting strips of metal and folding the same upon the edge of cards and other like articles, the combination of shears adapted to cut such strips of metal from a larger sheet and to deliver them near the feeders of the folding parts, said shears consisting of a stationary jaw and a movable knife actuated by a curved arm upon a rock shaft, a spring adapted to withdraw the knife after a strip is cut, an adjustable gage so placed as to leave the proper space for the width of such strip between the gage and the cutting edge of the knife, folding mechanism, and a table to support the whole, substantially as shown and described

---

519,059. STEAM-GENERATOR. ALEXANDER W. FINLAYSON, Detroit, Mich., assignor, by mesne assignments, of two-thirds to the Finlayson Boiler Company, Limited, same place. Filed Nov. 14, 1893. Serial No. 490,919. (No model.)



Claim.—1. In a steam generator, the combination with a casing, of water legs at opposite ends thereof, a centrally arranged steam drum connecting the tops, and side tubes connecting the bottoms of the legs, a grate, a series of vertically disposed circulating loops above the grate connecting with the side tubes and having connections at top and bottom with the drum, substantially as described.

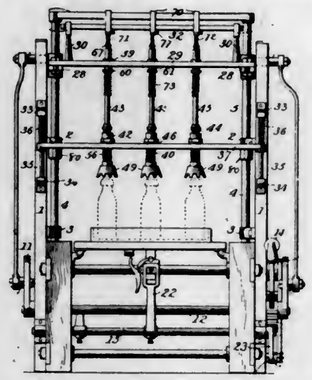
2. In the steam generator, the combination of two end water legs, connections between the two consisting of a steam dome centrally at the top, and by tubes at each side at the bottom, connections from the side tubes to the steam dome consisting of a series of loops connected together at top and bottom, and to the dome and tubes, substantially as described.

3. In a steam generator, the combination with end water legs, a steam drum and side tubes connecting the legs, a series of heating loops, a pipe connection between the loops and tubes, pipe connections between the tops and bottoms of adjacent loops and pipe connections between the top and bottom of the end loops of the series and the steam drum, substantially as described.

4. In a steam generator, the combination with the water legs at each end, a steam dome connecting the legs centrally at the top and the water tubes connecting the legs at each side at the bottom, the circulating pipes connecting the side tubes with a steam dome and superheating coils arranged outside of said circulating pipes and within the casing, and connections at opposite ends of said coils with the steam dome and the steam supply pipe respectively, substantially as described.

5. In a steam generator, the combination with the end water legs, the steam dome connecting said legs centrally at the top, and water tubes connecting said legs at the bottom, the circulating pipes connecting said tubes with the steam dome, and the feed water coils Q arranged on each side of the steam dome, and above the connecting pipes, and connected at one end to the rear ends of the connecting tubes and at the other end to the water supply pipe, substantially as described.

519,060. BOTTLING-MACHINE. MILLER P. HEDDY, Hillburn, N. Y. Filed Jan. 31, 1894. Serial No. 498,645. (No model.)



Claim.—1. In a bottling machine, a filling tube operated to descend into a bottle, a valve closing the lower end of said tube, a stopper-tube, a frame operating said tubes, means for operating the valve on the descent of the frame, and means for operating the stopper-tube in advance of said valve, substantially as shown and for the purpose described.

2. In a bottling machine, a filling tube provided with a valve at its lower end, an operating rod for said valve provided at its upper end with an elongated eye or slot, a stopper-tube, an operating frame for said tubes provided with a slot or eye corresponding to that of the valve-rod, but less in height, and a valve-actuating rod passing through the two eyes, substantially as shown and for the purpose set forth.

3. In a bottling machine, a vertically movable frame, a filling tube operated by said frame to descend into a bottle, a rod or wire extending through the tube and provided at its lower end with a valve or stopper, an eye or loop provided with a stem to which the upper end of the rod or wire is fastened, a spring surrounding the stem and maintaining the valve normally closed, and an actuating rod passing through the eye or loop, substantially as described.

4. In a bottling machine, the filling tube provided at its lower end with a valve or stopper, a wire or rod attached or secured centrally to the valve and sprung to one side so as to rest or bear against the inner side of the tube for its entire length, and means for operating said valve or rod at its upper end, substantially as shown and described.

5. In a bottling machine, a vertically movable frame, a filling tube carried by said frame to descend into a bottle, a wire or rod provided at its lower end with a valve or stopper and sprung for its length to rest or bear against the inner side of the tube, and means for normally maintaining the valve closed, substantially as described.

6. In a bottling machine, the filling tube provided at its upper end with a bearing bored out to constitute a base or seat, and provided with an internal screw-thread, a packing resting on such seat, and a centrally bored nut having a threaded shank screwing into the bearing, an "eye" having a hollow stem working in the nut, a spring surrounding the stem, a rod passing down through these devices, and provided with a valve or stopper, and an actuating rod passing through the eye, substantially as described.

7. In a bottling machine, the filling tube provided at its upper portion with a surrounding spring, the stopper-tube also surrounded by a spring and provided at its lower end with the mutilated cap, a nut fitting the upper end of said stopper-tube and having a conical recess, a conical packing ring or cushion loosely held upon the filling tube, and means for lowering said filling tube, whereby the surrounding spring thereof forces or jams the said conical packing or cushion into the recess of the nut, substantially as shown and for the purpose described.

8. In a bottling machine, the vertically movable frame provided with the brackets supporting the cross-pieces for the filling tubes,

said cross-pieces being provided with the vertical posts having eyes or loops at their upper ends, in combination with valves, and spring controlled connections provided with corresponding eyes at their upper ends, and an actuating rod passing through all of the eyes, substantially as described.

9. In a bottling machine, the stopper tube 40 and its operating adjuncts, and the mutilated cap formed interiorly with annular seats or shoulders and a collapsible cap or lining having its lower edge resting on said seats or shoulders, substantially as described.

10. In a bottling machine, the stopper tube 40, the mutilated cap secured to the lower end of said tube leaving an inwardly projecting portion 48, and the internal collapsible cap or lining provided with the flanges 52, and 54, and supported at its lower edge upon shoulders or seats of the mutilated cap, substantially as described.

11. In a bottling machine, the vertically movable frame, and the horizontally movable table, together with their adjuncts, in combination with the pivoted operating hand lever and its pendent arm, the gearing, and the slotted horizontal rod or connection extending between the rock shaft and receiving the end of said pendent arm substantially as described.

12. In a bottling machine, the combination of the horizontal table, and the automatic feed therefor, of the pivoted operating hand lever, and its pendent arm provided with a stud, the slotted connection extending from the rock shaft and receiving the end of the pendent arm in its slot, and an adjustable block situated in said slot, substantially as shown and for the purpose described.

13. In a bottling machine, the combination with the filling tube and its adjuncts, of the valve casing provided with oppositely working check valves, and a vent tube leading to the filling cask, substantially as described.

14. In a bottling machine, the combination with the filling tube and its adjuncts, of the valve casing having upwardly and outwardly projecting chambers each provided with a conical port or passage and an internal flange or shoulder, a valve in each chamber constructed of a solid portion fitting said port, and a hollow portion, and a flexible vent tube leading from said casing to the filling cask, substantially as described.

15. In a bottling machine, the combination with the filling tube and its adjuncts, of a valve casing provided with upwardly and outwardly projecting chambers each formed with an interior annular ledge or shoulder and a conical port or seat, valves working in said chambers and each provided with a solid conical portion fitting said ports or seats, and having a hollow portion connected to said solid portion and having side passages, substantially as described.

16. In a bottling machine, the combination with the filling tube and its adjuncts, of a valve casing having upwardly and outwardly projecting chambers provided with conical ports having internal annular ledges or flanges, valves working in said chambers each formed or provided with a solid portion fitting said ports, and a hollow portion fitting the chamber, and an intermediate connecting portion with passages on each side thereof, a cross pin or stop for one valve, and an adjustable nipple or stop for the other valve, and a single flexible vent tube leading from said nipple to the filling cask, substantially as described.

17. In a bottling machine, the valve casing *a* provided with upwardly and outwardly projecting chambers, and valves working in said chambers each formed of a hollow portion fitting the chamber, and a solid conical portion fitting a corresponding port in the chamber, said hollow and conical portions being connected by a cross-piece having on each side thereof a port or passage, substantially as described.

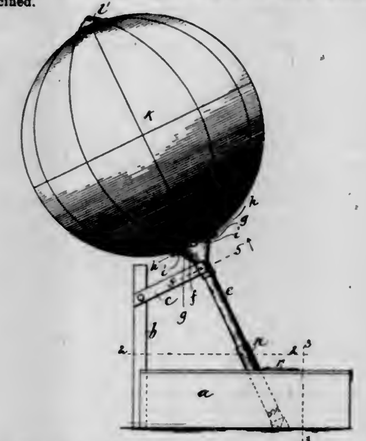
519,061. GEOGRAPHICAL GLOBE. ISAAC HODGSON and MARY A. HODGSON, Chicago, Ill. Filed Feb. 19, 1894. Serial No. 500,723. (No model.)

Claim.—1. A geographical flexible globe being provided with clamping devices at the points indicating the two poles; an air-stem or tube; and mechanism by which one of these clamping devices of the globe are detachably connected to the air-tube or stem, substantially as specified.

2. In a flexible geographical globe apparatus, the air-stem or tube through which the globe is inflated; two inflatable and collapsible globes attached to said tubes, the interior one being permanently secured thereto, the other one detachably secured thereto, by means of clamp-devices, substantially as specified.

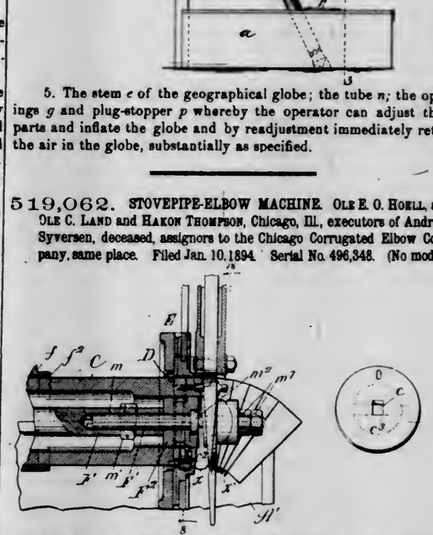
3. In a geographical globe apparatus, the exterior globe *k*, provided at the points of the poles with clamping-devices inserted in the globes; an interior inflatable globe *j*; the hollow-air-tube or stem *e*; locking-devices for locking the clamps of the exterior globe to the stem or air-tube *e*, whereby when the interior globe is inflated the two poles of the exterior globe with the meridian lines thereon, will assume their proper relative position to represent the geography of the world.

4. In a collapsible geographical globe apparatus, the box *a* adapted to receive the stem of the globe and hold it in position; the upright piece attached to the box and bifurcated arm pivoted to the upright piece for supporting the stem of the globe, substantially as specified.



5. The stem *c* of the geographical globe; the tube *n*; the openings *g* and plug-stopper *p* whereby the operator can adjust these parts and inflate the globe and by readjustment immediately retain the air in the globe, substantially as specified.

519,062. STOVEPIPE-ELBOW MACHINE. OLE E. O. HOELL, and OLE C. LAND and HAKON THOMPSON, Chicago, Ill., executors of Andreas Syversen, deceased, assignors to the Chicago Corrugated Elbow Company, same place. Filed Jan. 10, 1894. Serial No. 496,348. (No model.)



Claim.—1. In a machine for making stove-pipe elbows, the combination with the drive-mechanism of an inner die-holder provided with expanding dies, an outer die-holder provided with contracting dies, a movable expander in the inner die-holder actuated from the drive-mechanism to expand the inner dies, means for contracting the outer dies, a crimp-folding mandrel, outer crimp-folding jaws co-operating with the said mandrel, means for opening and closing the said jaws, and swinging means for the jaws and mandrel actuated from the drive-mechanism, substantially as and for the purpose set forth.

2. In a machine for making stove-pipe elbows, the combination with the drive-mechanism, of an inner die-holder provided with expanding dies, a reciprocal expander in said die holder engaging and expanding the dies in its backward movement and releasing the dies in its forward movement, an outer die-holder provided with contracting dies, contracting means for the outer dies, a swinging crimp-folding mandrel, swinging opening and closing crimp-folding jaws about the mandrel, opening and closing means for the said jaws, a spring operating normally to move the wedge and swing the mandrel and jaws in the forward direction, and means actuated from the drive-mechanism against the resistance of the said spring, to move the expander and swing the mandrel and jaws in the backward direction, substantially as and for the purpose set forth.

3. In a machine for making stove-pipe elbows from a straight cylindrical sheet-metal blank, the combination with the drive mechanism of a traveling blank feeder, an inner die-holder provided with expanding dies, a reciprocal expander in said die-holder engaging and expanding the dies in its backward movement and releasing the dies in its forward movement, an outer die-holder provided with contract-

ing dies, contracting means for the outer dies, a swinging crimp-folding mandrel, swinging opening and closing crimp-folding jaws about the mandrel, opening and closing means for the jaws, a spring operating normally to move the feeder and expander and to swing the mandrel and jaws in the forward direction, and means actuated from the drive-mechanism, against the resistance of the said spring, to move the expander and swing the mandrel and jaws in the backward direction, substantially as and for the purpose set forth.

4. In a machine for making stove-pipe elbows, the combination of an inner die-holder provided with radially expanding crimp forming dies, expanding means for the dies movable in the said die-holder, an outer die-holder, radially contracting crimp forming dies in the outer die-holder provided with cams, and a lever, provided with cams engaging the cams on the contracting dies, and operating in its movement in one direction, to move the dies radially inward, substantially as and for the purpose set forth.

5. In a machine for making stove-pipe elbows, the combination of an inner die-holder provided with radially expanding crimp-forming dies, expanding means for the dies movable in the said die holder, an outer die-holder, radially contracting crimp-forming dies p', in the outer die-holder, provided with cams p^3 and p^4, and a lever E^3 engaging the dies at the cams p^3 and p^4 and operating substantially as described.

6. The combination of the inner die-holder D having recesses s and openings s', expanding dies r, q, in the said recesses, having shanks which extend through the said openings and are provided with beveled ends, a wedge movable in the said die-holder against the beveled ends of the said shanks to expand the dies, an outer die-holder, radially contracting dies p in the outer die-holder, provided with cams p^3, and a lever E^3 on the outer die-holder operating, when moved in one direction, to engage the cams p^3 and contract the dies p', substantially as described.

7. In a machine for making stove-pipe elbows, the combination with the drive-mechanism, of an inner swinging crimp-folding mandrel, swinging crimp-folding opening and closing jaws about and swinging with the said mandrel, lever-mechanism connected with the jaws for opening and closing them, and means actuated from the drive-mechanism for swinging the said mandrel and jaws, simultaneously substantially as and for the purpose set forth.

8. In a machine for making stove-pipe elbows, the combination with the drive-mechanism of an inner crimp-folding mandrel pivotally supported toward its upper side to swing, a plunger bar actuated from the drive-mechanism and connected with the said mandrel to swing it on its pivot, swinging crimp-folding opening and closing jaws about and swinging with the said mandrel, lever-mechanism connected with the jaws for opening and closing them, and jaw-swinging means actuated from the said drive-mechanism to swing them with the said mandrel, substantially as and for the purpose set forth.

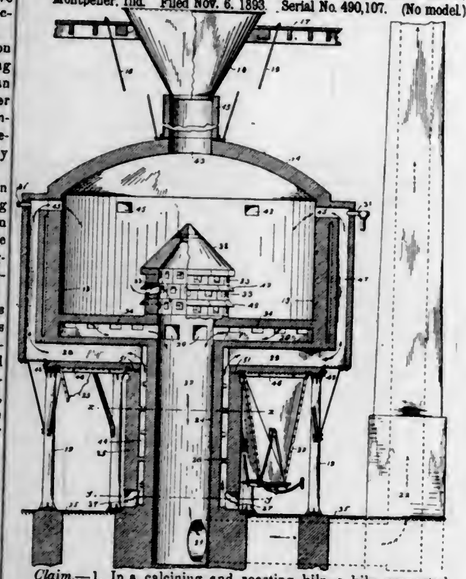
9. In a machine for making stove-pipe elbows, the combination of an inner, swinging, crimp-folding mandrel, and outer crimp-folding mechanism comprising a swinging support, opening and closing jaws pivotally mounted on the support to close about the mandrel, lever-mechanism for opening and closing the jaws, and a shoe k^{11} movable with the jaws, substantially as and for the purpose set forth.

10. In a machine for making stove-pipe elbows, the combination of an inner, swinging, crimp-folding mandrel, and outer crimp-folding mechanism comprising a swinging support, jaws pivotally mounted in the support to extend about the said mandrel, opening and closing means for the jaws, consisting of a sliding plate mounted in guides in the support, pivotal links extending between the said plate and jaws, a rock-shaft on the support provided with an operating handle, a crank on said shaft and a pivotal link extending between said crank and sliding plate, and a shoe on the support actuated by movement of the jaws to bear against the mandrel as the jaws are closed and release the mandrel as the jaws are opened, substantially as and for the purpose set forth.

11. In a machine for making stove-pipe elbows, the combination with the drive-shaft, of the swinging opening and closing crimp-folding jaws H^2, having projecting ends k^2, a pivotal swinging lever h' engaging the ends k^2, a spring operating normally to move the said lever and swing the jaws in the forward direction, and means actuated from the said drive shaft, counter to the spring, for swinging the lever h' and jaws in the backward direction, substantially as and for the purpose set forth.

12. In a machine for making stove-pipe elbows, the combination with the main frame and drive-shaft, of a stationary hollow mandrel, a reciprocable-bar in the mandrel connected with and operated by the drive-shaft to be moved thereby in the backward direction and then released with each revolution of the shaft, a spring operating normally to move the bar in the forward direction, when released by the drive-shaft, a traveling elbow-blank-feeder on the mandrel, a ratch on the said feeder, a pawl supported to move with the bar to engage and advance the feeder in the forward movement of the bar, and means for returning the feeder to its initial position comprising a rack upon the main frame and a shaft journaled upon the feeder having a crank wheel and a pinion engaging the said rack, substantially as described.

519,063. ROASTING AND CALCINING KILN. LUKE HOUZE, Montpelier, Ind. Filed Nov. 6, 1893. Serial No. 490,107. (No model.)



Claim.—1. In a calcining and roasting kiln, a kiln supported above the floor so as to provide space beneath for discharge bins or hoppers, and provided with a charging flue placed above the entrance for the combustible gases: a central down draft flue extended from the foundations up within the kiln proper about one-third its height and provided with inlets, and its lower end connected with and communicating through a horizontal flue to a stack: a deflector or cap for said down draft flue adapted to prevent the entrance of materials and deflect them past its said inlets: radial plates extended horizontally from the bottom of the walls of said kiln to the wall of said central down draft flue sub-dividing the open bottom of the kiln into convenient spaces for separate discharge: heating flues for air placed horizontally and radially at the bottom of the kiln and communicating through the flues or pipes with the gas entrance flue of the kiln, whereby air heated therein is fed to and mingles with the ignited gas at or near its entrance into the kiln: a heating flue space for air formed around said central down draft flue, provided with openings for outside air near the floor, and communicating at its upper end with the horizontal heating flues: horizontal down draft flues placed radially at or near the bottom of the kiln, each provided with a series of inlets protected by deflecting covers and communicating with the central down draft flue: bins or hopper their upper ends flaring outwardly so as to fit in and be attached to the constructions forming said spaces in the bottom of the kiln for discharge, and extended downward so as to form narrower openings of regular form at their lower ends: covers or plates for the lower ends of said hoppers adapted to open and close their openings and to furnish a ledge outside of such ends upon which sand or other material may be placed for sealing the joint: and a gas producing furnace adapted to discharge gas into the kiln.

2. In a calcining and roasting kiln, a kiln supported above the floor so as to provide space beneath for discharge bins or hoppers, and provided with a charging flue placed above the entrance for the combustible gases: a central down draft flue extended from the foundations up within the kiln proper about one-third its height and provided with inlets, and its lower end connected with and communicating through a horizontal flue to a stack: radial plates extended horizontally from the bottom of the walls of said kiln to the wall of said central down draft flue sub-dividing the annular open bottom of the kiln into convenient spaces for separate discharge: heating flues placed horizontally and radially at the bottom of the kiln and communicating through other flues or pipes with the gas entrance flue of the kiln, whereby air heated therein is fed to and mingles with the ignited gas at or near its entrance into the kiln: bins or hoppers their upper ends flaring outwardly so as to fit in and be attached to the constructions forming said spaces in the bottom of the kiln for discharge, and extended downward so as to form narrower openings of regular form at their lower ends: covers or plates for the lower ends of said hoppers adapted to open and close their openings and to furnish a ledge around the outside of such ends upon which sand or other material may be placed for sealing the joint.

3. In a calcining and roasting kiln, a kiln supported above the floor so as to provide space beneath for discharge bins or hoppers, and provided with a charging flue placed above the entrance for the combustible gases: the down draft flues 20 and 28 provided with inlets for the waste gases and with means to deflect materials from entering the said inlets: radial plates extended horizontally from the bottom of the walls of said kiln to the wall of said central down draft flue, sub-dividing the annular open bottom of the kiln into convenient spaces for separate discharge: bins or hoppers their upper ends flaring outwardly so as to fit in and be attached to the constructions forming said spaces in the bottom of the kiln for discharge and extended downward so as to form narrower openings of regular form at their lower ends.

4. In a calcining and roasting kiln, a kiln supported above the floor so as to provide space beneath for discharge bins or hoppers, and provided with a charging flue placed above the entrance for the combustible gases: a central down draft flue extended from the foundations up within the kiln proper about one-third its height and provided with inlets, and its lower end connected with and communicating through a horizontal flue to a stack: radial plates extended horizontally from the bottom of the walls of said kiln to the wall of said central down draft flue sub-dividing the annular open bottom of the kiln into convenient spaces for separate discharge: heating flues for air placed horizontally and radially at the bottom of the kiln and communicating with other flues or pipes with the gas entrance flue of the kiln, whereby air heated therein is fed to and mingles with the ignited gas at or near its entrance into the kiln: a heating flue space for air formed around said central down draft flue provided with openings for outside air near the flue, and communicating at its upper end with the horizontal heating flue: horizontal down draft flues placed radially at or near the bottom of the kiln, each provided with a series of inlets protected by deflecting covers and communicating with the central down draft flue: bins or hoppers their upper ends flaring outwardly so as to fit in and be attached to the construction forming said spaces in the bottom of the kiln for discharge, and extended downward so as to form narrower openings of regular form at their lower ends: covers or plates for the lower ends of said hoppers adapted to open and close their openings and to furnish a ledge around the outside of such ends upon which sand or other material may be placed for sealing the joint: and means to supply gas for combustion in the kiln.

5. In a calcining and roasting kiln, a kiln supported above the floor so as to provide space beneath for discharge bins or hoppers, and provided with a charging flue placed above the entrance for the combustible gases: the down draft flues 20 and 28 provided with inlets for the waste gases with means to deflect materials from entering the said inlets: radial plates extended horizontally from the bottom of the walls of said kiln to the wall of said central down draft flue, sub-dividing the annular open bottom of the kiln into convenient spaces for separate discharge: bins or hoppers their upper ends flaring outwardly so as to fit in and be attached to the constructions forming said spaces in the bottom of the kiln for discharge, and extended downward so as to form narrower openings of regular form at their lower ends: and means to supply gas for combustion in the kiln.

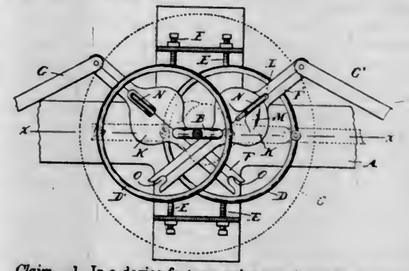
6. In a roasting and calcining kiln arranged for continuous operation, the down draft flue 20 extended from the foundations up within the kiln and provided with a deflector and inlets protected from the entrance therein of the material, and a horizontal flue connecting and communicating with the lower end of said flue and with an outside stack.

7. In a calcining and roasting kiln adapted for continuous operation and supported above the ground or floor: a frame work for such support consisting of a central column: iron columns for the outside walls, rims or plates on top of the iron columns for the walls of the kiln, and radial plates extended horizontally from the iron columns to the central columns, subdividing the bottom of the kiln into a series of discharge openings, all suitably secured.

8. In a calcining and roasting kiln, the series of columns, the rim secured to the columns, the radial plates attached to the said rim to subdivide the bottom of the kiln into a series of discharge openings, and the hoppers secured to the radial plates to register with the said openings, as set forth.

9. In a roasting and calcining kiln arranged for continuous operation, hoppers placed beneath the kiln to receive and discharge the calcined material, their lower ends terminating in a regular form and provided with a swinging cover or plate attached to the hoppers by rods pivoted thereto; the cover of such dimension as to furnish a ledge around the outside of said lower ends to hold sand or other material for sealing the joint.

519,064. DEVICE FOR CONVERTING RECIPROCATING INTO ROTARY MOTION. FRANCIS JACKSON, Raisinville, Mich. Filed Apr. 28, 1893. Serial No. 472,162. (Model.)



Claim.—1. In a device for converting a reciprocating into a rotary motion, the combination of a shaft, a double crank thereon, a lever pivoted on each crank, means for oscillating each lever, frames pivoted beside the cranks carrying fulcrum pins on opposite sides of the cranks, and means for alternately moving the fulcrums on opposite sides of the crank into the path of the levers, substantially as described.

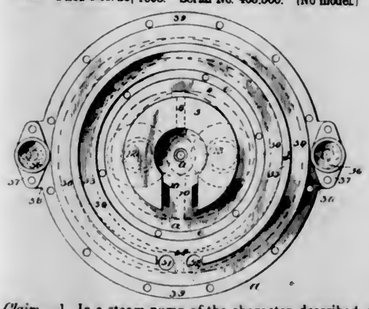
2. In a device of the kind described, the combination of a double crank, levers pivoted on said cranks, levers for oscillating the crank levers, fulcrums, and means for alternately projecting the fulcrums into the path of the crank levers on opposite sides of the cranks, substantially as described.

3. In a device of the kind described, the combination of a double crank shaft, levers pivoted on the cranks, levers for oscillating the crank levers extending from opposite sides of the crank shaft, frames carrying fulcrums for each lever, means carried by said crank levers for oscillating said frames to project the fulcrums on opposite sides of the crank alternately into the path of the levers, the fulcrums on both frames on each side of the cranks being arranged to be moved simultaneously into and out of their operative position, substantially as described.

4. In a device of the kind described, the combination of a double crank, levers pivoted on said cranks, levers for oscillating the crank levers, frames carrying fulcrums adapted to be projected into the path of the crank levers alternately on opposite sides of the cranks, said frames being actuated from the crank levers, substantially as described.

5. In a foot power, the combination of the cranks, the levers pivoted in the crank, the fulcrums means for projecting the fulcrums into the path of each lever on opposite sides of the crank, the bell crank levers for oscillating the crank levers, the conecting rods H, H', and the treadle lever I suspended from the connecting rods and a bracket with which the treadle pivot pin slidingly engages, substantially as described.

519,065. STEAM-PUMP. EDWARD C. JOHNSON, New London, Conn. Filed Feb. 23, 1893. Serial No. 463,500. (No model.)



Claim.—1. In a steam pump of the character described, a base plate having water passages therethrough, and the water cylinder thereon but separate therefrom, said water cylinder having a flat disk base and a broken ring thereon, the ring having curved passages opening through the base and at the ends of the ring.

2. The water cylinder described, consisting of a flat disk base, and a broken ring extending upward from the base thereof, said ring having two chambers each opening at the break in the ring and having a passage through the base, the chambers being divided from each other by a partition.

3. The combination of a water cylinder having a flat base and a broken ring extending therefrom and provided with inlet and outlet

chambers, and the water piston of cup form having a central hub and radial partition said piston inverted on the cylinder, and having its partition extending through the break in the cylinder ring, substantially as described.

4. The combination of the cylinder having disk and broken ring extending therefrom, the cup piston having a radial partition extending through the break in said ring, and the piston cap or thrust piece with packing interposed between said piston and cap, substantially as described.

5. The combination of the water cylinder having base and a broken ring extending therefrom and provided with water passages as described, and the inverted cup piston having a radial partition extending through the break in said ring as described, the thrust piece above said piston, and a water balance chamber between said thrust piece and the piston, substantially as described.

6. The combination with the base disk of the cylinder having an upwardly projecting broken ring and a central depression, of the inverted cup cylinder having a radial partition, the side walls of the cup piston slightly overlapping the base disk as the piston oscillates thereon, substantially as described.

7. The steam cylinder consisting of a flat base ring with a broken ring or cylinder extending upward therefrom, and having the edges of the base ring of reduced thickness, substantially as described.

8. The combination of the flat base, the removable water cylinder having base disk and upwardly extending broken ring, and the removable steam cylinder having base and upwardly extending broken ring concentric with the water ring, the cylinders having supply and exhaust ports through the base, substantially as described.

9. The combination with the steam cylinder having base ring and a broken ring extending upwardly therefrom, and the steam piston having outer and inner walls forming an annular chamber, said chamber divided by a partition passing through the break in the ring of the cylinder, substantially as described.

10. The combination with the base having the upwardly projecting rings as described, and the steam and water pistons covering said rings, said pistons being connected to move together but being separately removable, substantially as described.

11. The combination of the central cup piston having projecting arms, and the surrounding annular piston having lugs with which said arms engage, said piston being separately removable, substantially as described.

12. The combination with the cylinder base having upwardly projecting broken ring and guide cups at opposite sides, of the inverted cup piston having guide pins at its outer sides extending into said cups, substantially as described.

13. The combination with the cylinder base having broken rings extending therefrom, and having guide cups at the sides and movable eccentric bushings therein, of the inverted cup piston having guide pins extending into the eccentrics in the cups, substantially as described.

14. The combination with the cylinder base having broken ring and guide cups as described, and the broken ring piston applied thereto and having pins extending into the guide cups, of the mortised bushings forming eccentrics around said pins, and the keys extending into the mortises of the bushings.

15. The combination of the steam cylinder having broken ring as described, and the ring piston covering said piston as described, with the guide pins on the piston at each side extending into the rotating bushings on the cylinder, whereby the uniform oscillation of the piston is produced, substantially as described.

16. The combination with the central cylinder having broken ring as described, the inverted cup piston having perforated central hub, the thrust piece over said piston, and a bolt passing through said thrust piece, through the hole in the hub, and into the base whereby the piston and thrust piece are held down, substantially as described.

17. The combination with the annular cylinder base having broken ring as described, the ring piston thereon, the thrust piece to said piston, and bolts or rods connecting the thrust piece and base but permitting the oscillation of the piston between the same, substantially as described.

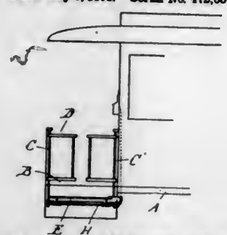
18. The combination with the base and the piston having annular balance chamber and a series of packing rings therein, of a thrust piece against which said packing bears and oscillates relatively thereto, substantially as described.

19. The combination with the fixed concentric cylinders having broken rings as described, of the separate pistons, concentric with each other, and having separate thrust pieces, to permit independent vertical movement between the pistons, substantially as described.

20. The combination with the cylinders and pistons of substantially the character described, of the cover and bottom plate projecting beyond said pistons at its outer periphery and the inclosing casing forming with said plates a steam jacket, substantially as described.

21. The combination of the annular cover and bottom plate, and the chambered cylinders and pistons inclosed therein, of the guide opening in the cover, and the guide piece connected to the piston and extending into said opening, substantially as described.

519,066. PLATFORM-GATE FOR CARS. JOHN KREBBIEL, Cleveland, Ohio. Filed May 3, 1893. Serial No. 472,859. (No model.)



Claim.—1. In a car the combination with a platform and gate, of a movable step, a spring for normally closing the gate, and means actuated by the step to forcibly open the gate against the tension of the spring, substantially as described.

2. In a car the combination with a platform, of a swinging gate therefor, a register actuating rod, a movable step engaging the rod, a swinging support for the step, moved by the movement of the rod, a spring for normally holding the gate closed, and means actuated by the step for forcibly opening the gate against the tension of the spring, substantially as described.

3. In a car the combination with a platform, of a swinging gate therefor, a spring for normally closing the gate, a movable step, levers actuated by the step for forcibly opening the gate against the tension of the spring, a register actuating rod, a lock therefor, and a stop for the step actuated by the movement of the rod, substantially as described.

4. In a car the combination with a platform, of a swinging gate therefor, a spring for normally closing the gate, a movable step, a bell crank having one arm in the path of the step, an arm on the gate, and a link connection between the gate arm and bell crank, substantially as described.

5. In a car the combination with a platform, of a swinging gate therefor, a spring for normally holding the gate closed, a movable step, a locking rod with which the step has a limited sliding engagement, a stop actuated by the rod, and arranged to support the step upon a partial actuation thereof, and to release the same upon the full movement of the locking rod, and a bell crank actuated by the continued movement of the step for forcibly opening the gate, substantially as described.

519,067. LAST. JOHN C. KUPFERLE, St. Louis, Mo. Filed Dec. 26, 1893. Serial No. 494,714. (No model.)



Claim.—1. The combination in a reversible boot and shoe last of the standard-tenon and the mortised last, said tenon being tapered at its side edges, rounded at its end, and provided at each side with a tapered inclined rib, and said last-mortise being cruciform in horizontal section, having side recesses to receive the tenon ribs, and being longer than the width of the tenon, and rounded at the bottom, substantially as described.

2. The combination in a reversible boot and shoe last of the standard-tenon and the mortised last, said tenon being tapered at its side edges, rounded at its end, and provided at one of its sides with a tapered inclined rib, and said last-mortise being shaped in horizontal section to receive the tenon in each of its positions, and being rounded at its bottom, and longer than the width of the tenon, substantially as described.

3. The combination in a reversible boot and shoe last of the standard-tenon and, the mortised last, said tenon being provided at one of its sides with an inclined rib, and said last-mortise being shaped in horizontal section to receive the tenon in each of its positions, and in length being longer than the width of the tenon, substantially as described.

4. The combination in a reversible boot and shoe last, the standard-tenon, and the mortised last, said tenon being rounded at its end and provided at one of its sides with an inclined rib, and said last-

mortise being shaped in horizontal section to receive the tenon in each of its positions, and being rounded at its bottom, and in length longer than the width of the tenon, substantially as described.

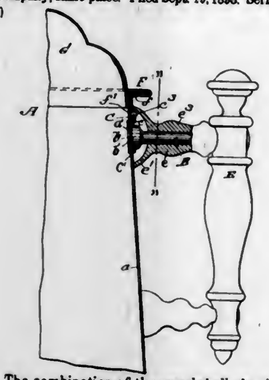
519,068. KNIFE-HANDLE, BRUSH-BACK, &c. FRANK N. LOOK, Northampton, Mass. Filed Sept. 15, 1893. Serial No. 485,550. (No model.)



Claim.—1. A knife handle, brush back, or the like, comprising two or more portions united by engaging or interlocking parts, each of said portions having a layer or covering of celluloid or similar substance, on the exterior surface thereof, said layer being carried over the edge of one of the engaging parts of said portions for the purposes and substantially as set forth.

2. A knife handle, brush back or the like, consisting of two portions, each provided with a flange, and having said flanges overlapped to secure the parts together, both of said portions and their flanges being covered exteriorly with a layer of celluloid, or like substance, said layer passing over the edge of the exterior or overlapping flange whereby the sealing of the celluloid layer at the edges is prevented, substantially as set forth.

519,069. ATTACHING HANDLES AND COVERS TO VESSELS. GEORGE W. NIEDRINGHAUS, St. Louis, Mo., assignor to the St. Louis Stamping Company, same place. Filed Sept. 19, 1893. Serial No. 485,881. (No model.)



Claim.—1. The combination of the vessel-shell, the rivet, the extended pin, and the hinge-leaf, said pin passing through said rivet and connecting with said leaf, substantially as described.

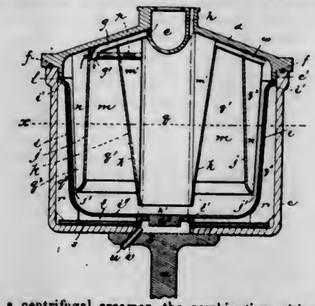
2. The combination of the vessel-shell, the rivet, the pin, said rivet having a head bearing against the inner side of said shell, and being perforated to receive said pin, said pin bearing against the outer side of said shell, and being extended and engaging with said hinge-leaf, substantially as described.

3. The combination of the vessel-shell, the rivet, the pin, the hinge-leaf, and the handle, said rivet having a head that bears against the inner side of said shell, and being perforated to receive said pin, said pin passing through said rivet and bearing against the outer side of said shell, and being extended and engaging with said leaf, as described and said handle being secured to said rivet, and having its inner end bearing against said leaf, substantially as described.

519,070. CENTRIFUGAL CREAMER. OLOF OHLSSON, Newark, N. J., assignor to the United States Butter Extractor Company of New Jersey, of New Jersey. Filed Jan. 21, 1893. Serial No. 459,132. (No model.)

Claim.—1. In a centrifugal creamer, the combination with the rotary bowl *c*, of a cup-shaped partition *i*, removable from said bowl, and a cover *d*, having partitions removable from the bowl *c*, therewith, said cup-shaped partition and partitions of the cover forming chambers or compartments in the main chamber of the bowl, said partitions being provided with ducts or passages for the milk, cream and skim milk, all substantially as and for the purposes set forth.

2. In a centrifugal creamer, the combination with the rotary bowl and its cover, of partitions *j* and *i*, inclined oppositely, the outer walls of said partitions being inclined toward passages *p* and *t'*, leading to the center of the main chamber, and the inner walls of said partitions being outwardly inclined toward outwardly extending blue or skim milk passages or ducts *j'*, *i'*, substantially as set forth.



3. In a centrifugal creamer, the combination with the rotary bowl and its cover, of partitions *i*, *j*, having oppositely inclined side walls and passages or openings therethrough for the cream and skim-milk, the inner walls being inclined toward the skim milk passages and the outer walls to the cream passages, one of said partitions being secured to the cover and being removable therewith and the other resting in the bowl, *c*, and being removable from said bowl, substantially as set forth.

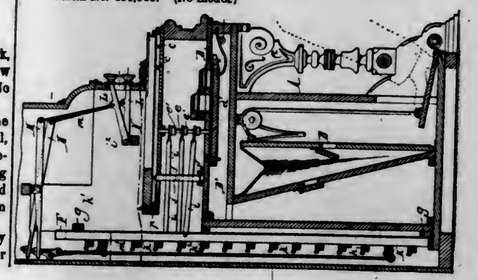
4. In a centrifugal creamer, the combination with the centrifugal bowl and its cover, of a plurality of partitions arranged one within the other and forming a series of vertical chambers or compartments which extend from one end of the bowl to the other as shown, wings for imparting rotary movement to the fluid, inlet ducts for the milk or unseparated fluid to the bowl, exit ducts for the partially separated skim or blue from the inner chambers to the outer chambers of the series and cream inlet ducts from each of the outer chambers to the inner chamber, substantially as set forth.

5. In a centrifugal creamer, the combination with the centrifugal bowl, *c*, of a cover, *d*, having a partition, *j*, extending down from the said cover and forming inner and outer compartments, and a partition, *i*, extending from the bottom upward and subdividing the outer chamber, the said partitions *i* and *j* forming a series of cream separating chambers, and each having ducts or passages for leading the blue or partly separated fluid outward from the inner to the next outer chamber and with ducts or passages leading inward from the outer chamber to the cream chamber at the center, and means for supplying the creamer with the unseparated fluid, substantially as set forth.

6. The combination with the partitions *i* and *j*, extending upward through the bowl of a centrifugal creamer and forming a series of chambers q', q^2, q^3, therein, of a tube, *p*, extending through the partition, *j*, and leading the cream from the chamber, q^2, to the cream wall, a duct leading the blue milk from the inner chamber, q', to the chamber, q^3, and from the chamber q^3, to the chamber q^2, ducts for leading the cream from the chamber, q^3, to the cream wall, and ducts for conveying the unseparated fluid to the creaming chambers and for leading blue milk from the machine, substantially as set forth.

7. In combination with a bowl of a centrifugal creamer, and its cover, a plurality of partitions concentrically arranged, one within the other, and having alternating blue-milk eduction passages, and inwardly-leading cream passages from each of the chambers formed by said partitions substantially as set forth.

519,071. TRANSPOSING-KEYBOARD FOR MUSICAL INSTRUMENTS. MARTIN PHILIPPS, Williamsville, N. Y. Filed July 31, 1893. Serial No. 481,963. (No model.)



Claim.—1. In a transposing key board, the combination with the sound producing parts and the keys, each adapted to be connected with either of the sound producing parts corresponding to its natural tone, its sharp or its flat, of actuating levers controlling said sound producing parts and operated from said keys and shifting bars supporting said levers, whereby the fulcrums of the latter may be raised or lowered, substantially as set forth.

2. The combination with the keys and the sound-producing parts, of actuating levers controlling said sound-producing parts and operated from said keys, shifting bars connected with said levers, whereby the fulcrums thereof are raised or lowered, and transposing bars whereby the shifting bars belonging to the same scale are operated, substantially as set forth.

3. The combination with the keys and the sound-producing parts, of shifting bars, actuating levers connected with said shifting bars and controlling the sound-producing parts, and rods or standards operated by said actuating levers and adapted to engage with the keys, substantially as set forth.

4. The combination with the keys and the sound-producing parts, of shifting bars, slotted rods or standards arranged underneath the keys, and actuating levers connected with said shifting bars, arranged in the slots of the standards and controlling the sound producing parts, substantially as set forth.

5. The combination with the keys and the sound-producing parts, of stickers or operating rods controlling the sound-producing parts and having collars or projections, shifting bars, and actuating levers fulcrumed on said shifting bars, operated from said keys and bearing against the collars or projections of said stickers, substantially as set forth

6. The combination with the keys and the sound producing parts, of the rods or stickers controlling the same and having projections, vertically movable standards arranged underneath the keys and having upright slots, vertically movable shifting bars, and actuating levers fulcrumed at their rear portions on said shifting bars and passing through the slots of the standards and bearing with their front ends against the projections of said stickers, substantially as set forth

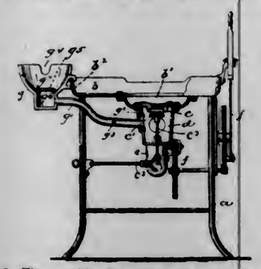
7. The combination with the keys and the sound-producing parts, of a series of vertically movable shifting bars, intermediate actuating devices connected with said shifting bars, operated by the keys and controlling the sound producing parts, and vertically movable transposing bars, each engaging with the shifting bars corresponding to the scale represented by the transposing bar, substantially as set forth.

8. The combination with the keys and the sound-producing parts, of a series of vertically movable shifting bars having pins or projections, intermediate actuating devices connected with said shifting bars, operated by the keys and controlling the sound producing parts, and vertically movable transposing bars, engaging against the pins or projections of the shifting bars, substantially as set forth.

9. The combination with the keys and the sound producing parts, of a series of shifting bars, intermediate actuating devices connected with said shifting bars, operated from the keys and controlling the sound-producing parts, movable transposing bars, each engaging with the shifting bars corresponding to the scale represented by the transposing bar, hand levers arranged adjacent to the key board, and intermediate levers connecting said hand levers with the transposing bars, substantially as set forth

---

519,072. BLACKSMITH'S FORGE. GEORGE E. POST, Newark, N. J. Filed July 28, 1893. Serial No. 481,698. (No model.)



Claim.—1. The combination with a forge having a fire chamber and means for forcing air thereto, of a supplementary fire pot and a tube or duct connecting directly with said air-forcing means and receiving air directly therefrom, substantially as set forth.

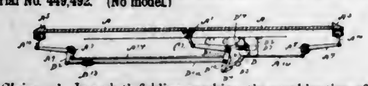
2. The combination with a forge having a fire chamber and a blast chamber separated therefrom by a tuyere plate, of a supplementary fire pot and its duct having a connection with the blast chamber below said tuyere plate and independent thereof, substantially as set forth.

3. The combination with a forge having a frame *a*, hearth *b*, fire box *b'* blast box *d*, tuyere plate *c*, blower *e*, motive mechanisms, *f*, and valve *e'*, of a supplementary fire pot, *g*, removably secured to said hearth and having a valved or dampered pipe, *g'*, extending from the blast chamber thereof, beneath the hearth, to the blast box *d*, substantially as set forth.

4. The combination with the forge and its blast mechanisms, of a supplemental brazing fire pot *g*, connected with said forge by a pipe formed integral with said fire pot, substantially as set forth.

5. The combination with the forge having the blast chamber *d*, of a supplementary fire pot and a connecting pipe formed integral therewith, said pipe and pot being cast in sections, the fire pot being at one end of said pipe and a flange bolted to said blast chamber at the other, substantially as set forth.

519,073. CLOTH-FOLDING MACHINE. WILLIE A. RICHARDSON, Worcester, Mass., assignor, by direct and mesne assignments, to Albert Curtis and Edwin T. Marble, same place. Filed Oct. 20, 1892. Serial No. 449,492. (No model.)



Claim.—1. In a cloth folding machine, the combination of a table upon which the cloth is folded, cloth holding jaws at the ends of said table, means by which said jaws are opened to receive the folds of cloth, a rock-shaft having radial arms upon which the center of said table is supported, a ratchet attached to said rock shaft, actuating and retaining pawls engaging said ratchet, said actuating pawl being operatively connected with the jaw opening mechanism, whereby said rock-shaft is rocked to lower the center of the table as successive folds of cloth are inserted between the cloth holding jaws, substantially as described.

2. In a cloth folding machine, the combination of a table upon which the cloth is folded, cloth holding jaws arranged at the ends of said table, means by which said jaws are opened to receive the folds of cloth, a rock-shaft having radial arms operatively connected with the center of said table by which the center of the table is lowered by the rocking of said shaft, a ratchet attached to said rock-shaft, actuating and retaining pawls engaging said ratchet, said actuating pawl being operatively connected with the jaw opening mechanism, means for adjusting the movement of said actuating pawl in order to vary the movement of the center of the cloth table relatively to the opening of the cloth holding jaws, substantially as described.

3. In a cloth folding machine, the combination of a table upon which the cloth is folded, provided with cloth holding jaws at its ends, fixed jaws overlapping the ends of said table, actuating mechanism operatively connected with said table, whereby the ends of the table are reciprocated to open and close the jaws, a rock-shaft provided with arms upon which the center of said table is supported, a ratchet attached to said shaft, an actuating and a retaining pawl engaging said ratchet, said actuating pawl being operatively connected with the table actuating mechanism, whereby said rock-shaft is moved in order to lower the center of the table in correspondence with the reciprocating movement of its ends, substantially as described.

4. In a cloth folding machine, the combination of a table A, supported at its center upon the radial arms, a rock-shaft C having radial arms by which the center of the table is supported, a ratchet D attached to said shaft and provided with a tooth D^5, a vibrating arm D', an actuating pawl D^4 carried by said arm, rock-shaft A^7 provided with a radial arm D^3, means for operating said rock-shaft and an adjustable rod D^6 connecting said arms D' and D^3, whereby the position of the actuating pawl is varied with reference to the ratchet tooth D^5, substantially as described.

5. In a cloth folding machine, the combination of a table having jaws A^8, fixed jaws A^9, rock-shaft C having arms by which the center of the table is supported, ratchet D attached to said rock-shaft and provided with a tooth D^5 to receive an actuating pawl, an actuating pawl D^4 carried upon a vibrating arm D', rock-shaft A^7 having arms upon which one end of said table is supported, a radial arm D^3 attached to the rock-shaft A^7 and a connecting rod between said arms D' and D^3, whereby the pawl D^4 is moved synchronously with the motion of the rock-shaft A^7, causing the center of the table to be lowered as the jaws A^8 and A^9 are separated by the folded cloth, substantially as described.

6. In a cloth folding machine, the combination of the table A, rock-shaft C, arms C', C', on which the center of the table is supported, ratchet D attached to said shaft, actuating and retaining pawls D^4 and D^7, pivoted tripping lever D^9, provided with a pin D^9 arranged to engage the retaining pawl, and a stud D^{10} carried by said ratchet, substantially as described.

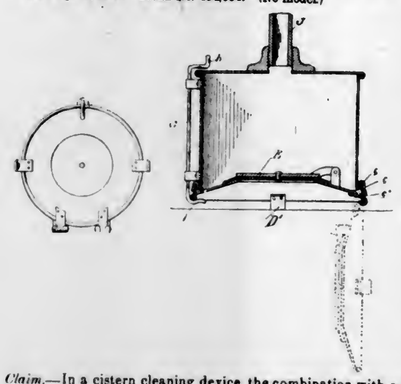
7. In a cloth folding machine, the combination of a table A, rock-shaft C having arms C', upon which the center of the table is supported,

a ratchet attached to said shaft, actuating and retaining pawls engaging said ratchet and studs D^{10} and D^{14} carried by said ratchet, a pivoted tripping lever with its end extending into the path of said studs and provided with a pin engaging said retaining pawl, substantially as described.

8. In a cloth folding machine, the combination with a table upon which the cloth is folded, of a rock-shaft C, provided with radial arms by which the center of the table is supported, a ratchet attached to said shaft, a retaining pawl engaging said ratchet, a stud D^{10} carried by said ratchet, a tripping lever placed in the path of said stud and carrying a pin engaging said retaining pawl, a sliding latch pin D^{11} and a spring D^{12} all combined and operating, substantially as described.

9. In a cloth folding machine, the combination with the table A, of the shafts A^7 and A^8, collars A^{13} on said shafts connected by the connecting rod A^{14}, arm E on one of said collars A^{13}, connected with a foot treadle E', shaft C, arms C', C', supporting the center of the table, collar E^2 on said shaft C, rod E^1 connecting said collar E^2 with one of the collars A^{13}, spring E^4 connecting said collar E^2 with the collar E^3, collar E^5 attached to said shaft C, whereby the motion of said shaft is reversed and the center of the table raised, substantially as described.

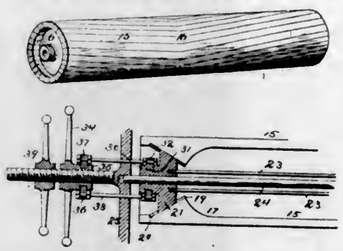
519,074. CISTERN-CLEANING MACHINE. JOHN SHEPHERD, Memphis, Mich., assignor of two-thirds to Gustavus Barton, same place. Filed Sept. 2, 1893. Serial No. 484,636. (No model.)



Claim.—In a cistern cleaning device, the combination with a receptacle having a frusto-conical bottom hinged at one side only, and provided with a central aperture, a flap valve on the bottom over the aperture, brackets on the sides of the receptacles a horizontally rotating crank journaled in the brackets and projecting below the bottom and its opposite end extending above and over the top of the receptacle, an open vent pipe leading out from the receptacle, and a hand actuating valve in the upper end of the vent pipe, substantially as described

---

519,075. PAPER-CUTTING MACHINE. JOSEPH SPENCER, Cornwall, Canada. Filed May 25, 1893. Serial No. 475,460. (No model.)

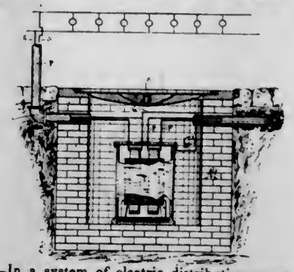


Claim.—1. In a paper cutting machine, the combination with paper cutting mechanism, of an expansible feed roll forming a part of the feeding mechanism and comprising a series of radially movable staves, each provided with a knee or bend, and means, substantially as described, for moving and controlling said staves.

2 In a paper cutting machine, the expansible feed roll composed of a series of closely arranged radially movable staves having lateral bends between their ends deflected in the same direction so that the bends of the staves fit into each other or interlock for the purpose set forth, and sliding heads for controlling said staves.

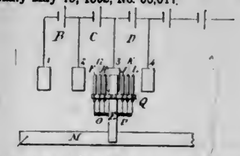
3. In a paper cutting machine, the combination of cutting mechanism, the expansible feed roll composed of radially movable staves, an axial shaft journaled in the frame of the machine, guides for the staves, the connected sliding heads on the shaft controlling and moving the staves, the outer head having a grooved hub, a loose ring in the hub, a screw bolt rigid with the frame, and a nut thereon having a loose ring confined thereon and connected with said first mentioned ring for the purpose described.

519,076. SYSTEM OF ELECTRICAL DISTRIBUTION. ELIHU THOMSON, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Aug. 5, 1889. Serial No. 319,830. (No model.)



Claim.—In a system of electric distribution comprising high potential mains and low potential secondaries, a vault or chamber beneath the ground, a converter, a metal case therefor placed in said vault, underground pipes through which pass the high potential wires to the primary of the converter, low potential wires passing from the secondary of the converter through protecting pipes, and ground wires connecting the secondary of the converter and the converter case respectively, to a low resistance ground connection.

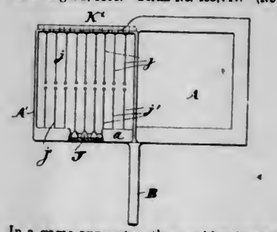
519,077. STORAGE-BATTERY SYSTEM. JAKOB TRUMPF, Hagen, Germany. Filed Nov. 22, 1893. Serial No. 491,622. (No model.) Patented in Germany May 15, 1892, No. 68,017.



Claim.—1 In a storage battery system, the combination of a series of cells connected with each other and at intervals to a series of contact plates, with a circuit-changing switch consisting of a main brush and a series of smaller auxiliary brushes carried by the main brush on each side thereof and connected with each other and to the main brush by resistances, whereby during switching the tension at the main brush is changed by degrees corresponding to the number of side brushes, substantially as described.

2. In a circuit-changing switch, the combination of a main brush, with a series of smaller auxiliary brushes carried thereby and connected with each other and to the main brush by resistances, substantially as described.

519,078. GAME APPARATUS. MARTIN M. WILSON, Llandudno, England. Filed Aug. 22, 1893. Serial No. 483,747. (No model.)



Claim.—1. In a game apparatus, the combination with a frame or hoop, of wires *j*, having forked upper extremities, said extremities of each wire being loosely coupled to the rear face of the upper rim of the frame whereby the said wires are suspended across the opening in the frame, and the ball, substantially as set forth.

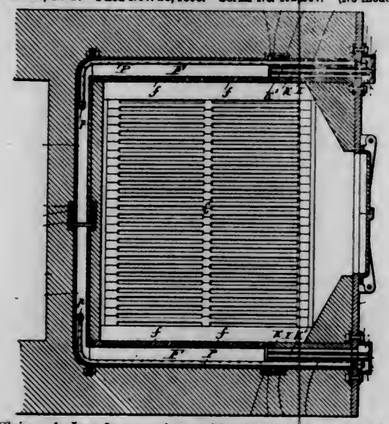
2. In a game apparatus, the combination with a frame or hoop provided with staples K, two for each wire, of the wires *j*, having their upper extremities loosely coupled each to two staples, as described, the said wires being suspended across the aperture through the frame.

3. In a game apparatus, the combination with a frame or hoop A', of an upper series of pendent wires suspended from the upper rim of the frame and extending part way only across the frame, and a lower series of tethered wires which project upward across the space below the upper pendent wires, substantially as set forth.

4. In a game apparatus, the combination with the frame A', of the rods *j'*, having weighted bases, and chains or like flexible connectors by which the rods are attached to the lower rim of the frame, as set forth.

5. In a game apparatus, the combination with the frame A', having an elevated front flange on its lower rim, of the rods *j'*, provided each with a flat bottomed weighted base J, and flexible connectors L, each secured at one end to a rod *j'*, and at the other end to the rear side of the lower rim of the frame, substantially as set forth.

519,079. SMOKE-CONSUMING FURNACE. THOMAS DARK, Sr., Buffalo, N. Y. Filed Nov. 26, 1893. Serial No. 492,217. (No model.)



Claim.—1. In a furnace, the combination with the side walls of the fire-place, of retorts arranged lengthwise in the side walls and having perforations which open into the fire-place, a cross pipe connecting the rear portions of the retorts and having perforations opening into the fire-place, and conduits for the gas forming materials connected with said retorts, substantially as set forth.

2. In a furnace, the combination with the side walls and the fire-bridge, of retorts arranged lengthwise in the side walls and having perforations which open into the fire-place, a cross pipe connecting the rear ends of the retorts, arranged in the fire-bridge and having perforations opening into the fire place, and conduits for the gas forming materials connected with said retorts, substantially as set forth.

3. In a furnace, the combination with the side walls and the fire bridge, of perforated retorts arranged lengthwise in the side walls, and a perforated cross pipe arranged in the fire bridge, and composed of two sections having their outer ends connected with the rear ends of the retorts and their inner ends connected by a sliding joint, substantially as set forth.

4. In a furnace, the combination with the side walls and the fire bridge, of perforated retorts arranged lengthwise in the side walls, a perforated cross pipe arranged in said fire bridge and consisting of two sections connected at their outer ends to the rear ends of the retorts, a hood or enlargement formed at the inner end of one section, a flange formed at the inner end of the other section, and arranged in said hood or enlargement, and a packing arranged between the adjacent portion of the sections, substantially as set forth.

5. In a furnace, the combination with the fire-place, of a perforated retort arranged in the wall of the fire-place, a feed chest also arranged in said wall and provided with independent channels connected with said retorts, whereby the gas forming materials are independently heated in said chest preparatory to entering the retorts, substantially as set forth.

6. In a furnace, the combination with the side walls of the fire place, of perforated retorts arranged lengthwise in said walls and feed chests arranged lengthwise in the side walls, and having their inner sides flush with the inner surface of the side walls, said chests opening with their rear ends into the retorts and conducting the gas forming materials into the same, substantially as set forth.

7. In a furnace, the combination with the side walls of the fire place, of retorts arranged lengthwise in said walls and feed chests arranged in the side walls and connected at their rear ends with the front ends of the retorts by a sliding joint, substantially as set forth.

8. In a furnace, the combination with the side walls of the fire place, of perforated retorts arranged lengthwise in said walls, flush with the inner surface of the latter and provided at their front ends with heads composed of top, bottom and outer plates and inner lugs, of feed chests arranged lengthwise in the side walls, flush with the inner surface of the latter, and provided at their rear ends with flanges extending along their upper, lower and outer sides and with inner recesses, the flanges of the chests being arranged in the hoods of the retorts and the lugs of the latter being arranged in the recesses of the chests, substantially as set forth.

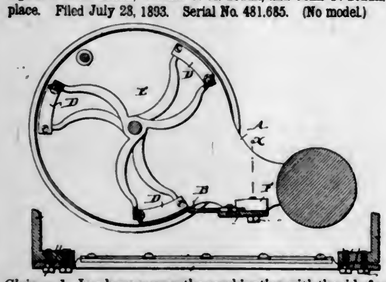
9. In a furnace, the combination with the side walls of the fire place, of retorts arranged lengthwise in said walls, feed chests arranged in the side walls and connected at their rear ends with the retorts and each having longitudinal partitions dividing the same into an inner steam channel an outer fuel channel and an intermediate air channel, substantially as set forth.

10. In a furnace, the combination with the side walls of the fire-place, of retorts arranged in said walls and having perforations opening into the fire place, feed chests having their rear ends connected with the front ends of the retorts and each provided with longitudinal partitions dividing the same into an inner channel, an intermediate channel and an outer channel, receiving heads having inner, intermediate and onter chambers which communicate respectively with the inner, intermediate and outer channels of the feed chests, steam, air and oil or gas supply pipes connected respectively with the chambers of the receiving heads, substantially as set forth.

11. In a furnace, the combination with the side walls of the fire place and the fire bridge, of retorts arranged in said walls and having perforations opening into the fire place, a perforated cross pipe arranged in the fire bridge and connecting the rear ends of the retorts, feed chests arranged in the side walls and having air and steam channels opening into the front ends of the retorts, and perforated spray pipes arranged in the retorts and cross pipe and connected with the oil or gas supply, substantially as set forth.

12. In a furnace, the combination with the side walls of the fire place, of retorts arranged in said walls and having perforations opening into the fire place, feed chests having their rear ends connected with the front ends of the retorts and each provided with longitudinal partitions dividing the same into an inner channel, an intermediate channel and an outer channel, receiving heads having inner, intermediate and outer chambers which communicate respectively with the inner, intermediate and outer channels of the feed chests, steam, air and oil or gas supply pipes connected respectively with the chambers of the receiving heads, and blow-off pipes connected with the outer chambers of said receiving heads, substantially as set forth.

519,080. LAWN-MOWER. HENRY DECK, Philadelphia, Pa., assignor to John Braun, William P. M. Braun, and John F. Braun, same place. Filed July 28, 1893. Serial No. 481,685. (No model.)



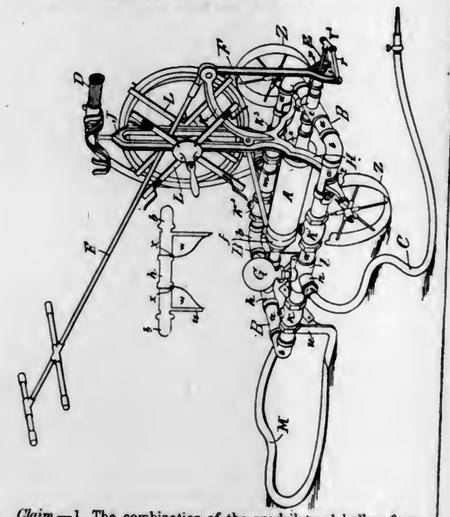
Claim.—1. In a lawn mower the combination with the side frames, of the stationary knife and its bar fastened to the side frames, and means independent of the fastening to adjust the ends of the bar so as to bend the bar and knife.

2. In a lawn mower, the combination with the side frames, of the stationary cutter and its bar fastened at its ends to the side frames, and bearing against said side frames at points adjacent to its ends, said bearing points consisting of projections on one of the parts resting against the face of the other, and adjusting screws between the ends of the cutter or bar and the side frames adjacent to the bearing points adapted to act upon the ends of the bar and bend the bar and force the central portion of the cutter upward so as to take up wear at said central portion.

3. In a lawn mower, the combination with the side frames, of the stationary knife and its bar carried by the side frames and adjusting devices between the bar and side frames to bend the bar and throw the central portion of the stationary knife upward.

4. In a lawn mower, the combination with the side frames, of the stationary cutter and its bar fastened at its ends to the side frames, and bearing against said side frames at points adjacent to its ends, said bearing points consisting of projections on one of the parts resting against the face of the other, and adjusting screws between the ends of the cutter or bar and the side frames adjacent to the bearing points, carried by one of the parts and bearing against the other, adapted to act upon the ends of the bar and bend the bar and force the central portion of the cutter upward so as to take up wear at said central portion.

519,081. PUMP. WILLIAM H. PETTERS, Greentown, Ohio. Filed Jan. 31, 1893. Serial No. 460,393. (No model.)

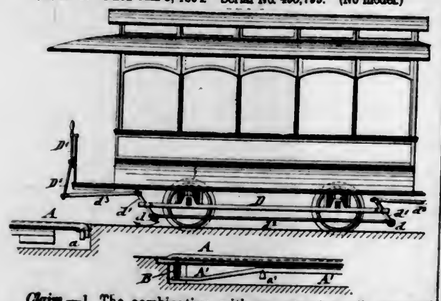


Claim.—1. The combination of the quadrilateral hollow frame and cylinder A of the axle H, having socket *t* to receive the frame, a vertical standard portion J, reels L, and supporting wheels Z, substantially as described and for the purpose set forth.

2. The combination with the frame B, of the bail M, having vertical portions *u*, provided with sleeves at their upper ends embracing said frame, the flanges extending inwardly beyond the sleeves formed with or secured to said portions *u*, the casting *h* on said portion having notches with which the edges of said flanges engage, and the toggle levers pivoted to said flanges, substantially as herein described.

3. The combination with the supporting frame, of a spring bail hinged and normally locked thereto, and toggle levers pivoted to the ends of said bail whereby when said levers are distended the bail is released from its locked position and is allowed to turn on said frame, substantially as herein described.

519,082. RAILWAY-SWITCH. CHRISTOPHER FROELICH, Brooklyn, N. Y. Filed Jan. 5, 1894. Serial No. 495,799. (No model.)



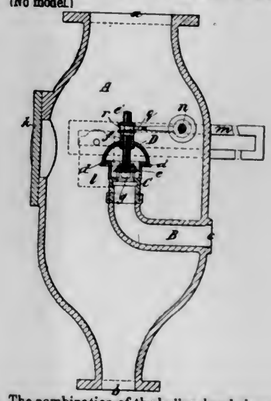
Claim.—1. The combination, with an actuating-rail, arranged alongside of the track-rail, of a fulcrumed counter balancing lever below the actuating-rail, a pivoted switch-tongue and mechanism interposed between the actuating-rail and its counter-balancing lever and connected with said switch-tongue, substantially as set forth.

2. The combination, of an actuating-rail that is fulcrumed at one end and slightly lifted above the track rail at the opposite end, a weighted counter-balancing lever below the actuating-rail, a switch-tongue operating mechanism having a vertically sliding member that is engaged at its upper end by said actuating-rail, at its lower end by the counter-balancing lever, and a pivoted switch-tongue that is connected to said mechanism, substantially as set forth.

3. The combination, with an actuating-rail, and its weighted counter-balancing lever, of a switch-tongue operating mechanism, composed of a guide-casing, a longitudinal shifting-piece, guided in said casing and a cross-shaped slide piece guided in recesses of the casing and shifting piece and connected with the actuating-rail and the balancing lever respectively at its upper and lower ends, and a pivoted switch-tongue connected with the longitudinal shifting-piece, so that the switch-tongue is operated by the vertically-reciprocating motion of the slide-piece, substantially as set forth.

4. The combination, of an actuating-rail arranged alongside of the track-rail, a fulcrumed and weighted counter-balancing lever arranged below the actuating-rail, a switch-tongue operating mechanism provided with a cross shaped slide-piece that is engaged at its upper and lower ends respectively by the actuating-rail and its balancing lever, a stationary guide-piece for said slide-piece, a longitudinal shifting-piece guided in said casing and actuated by the inclined leg or portion of the slide-piece, a pivoted switch-tongue and a pin connecting the switch-tongue with the longitudinal shifting-piece, substantially as set forth.

519,083. WATER-REGULATING VALVE FOR CONDENSERS. WILLIAM F. GARRISON, Brooklyn, N. Y. Filed Feb. 11, 1893. Serial No. 461,932. (No model.)



Claim.—1. The combination of the hollow head piece C having a downwardly flaring external flange constituting a seat and having within it below said seat a bridge in which is a stationary central stem or post and in which below the base of said stem or post there are lateral openings, a cap of the form of an inverted cup fitted to said post and forming a water chamber above said seat, and a spring or weight applied to said cap, substantially as herein set forth.

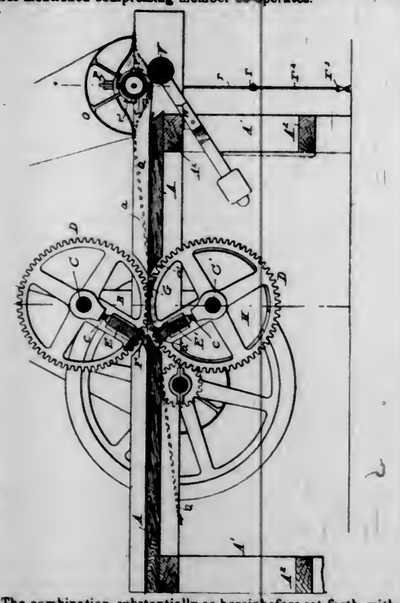
2. The combination of the hollow head piece C having a downwardly flaring external flange constituting a seat and having within it below said seat a bridge in which is a stationary central stem or post and in which below the base of said stem or post there are lateral openings, a perforated cap fitted to said post and a spring or weight applied to said cap, substantially as herein set forth.

519,084. MACHINE FOR JOINING AND ROLLING SHEETS OF METAL. WILLIAM S. GRAFTON and RALPH R. SPEARS, Wheeling, W. Va., assignors to the Wheeling Corrugating Company, same place. Filed Jan. 24, 1894. Serial No. 497,888. (No model.)

Claim.—1. The combination, substantially as hereinbefore set forth, with rolling devices to which the sheets to be rolled are connected, of compressing mechanism comprising cross heads mounted on shafts geared together to move simultaneously and provided with mechanism for stopping their movement temporarily at the end of each revolution.

2. The combination, substantially as hereinbefore set forth, with rolling devices to which the sheets to be rolled are connected, of a compressing member provided with means for revolving it, and with devices for checking or suspending its movement temporarily at the

end of each revolution, and another compressing member with which said first mentioned compressing member co-operates.



3. The combination, substantially as hereinbefore set forth, with the rolling mechanism of the seaming mechanism having compressing members provided with spring bolts and means for revolving the compressing members, and for checking or temporarily suspending the movement of the members at the end of each revolution.

4. The combination, substantially as hereinbefore set forth, of the driving shaft, the cross heads, the shafts to which they are connected, gearing connecting the two shafts, a pinion interposed between said gearing and the driving shaft, a clutch for connecting the pinion with the driving shaft, an operating lever, and lever operating devices connected with the shaft of one of the cross heads and adapted to operate the clutch once in each revolution of the cross heads.

5. In a machine for seaming sheets of metal, the combination of a pair of cross heads movable toward and from each other, and each provided with a rib and a groove, both of which are transverse to the line of movement of the cross head and which are arranged to form matching ribs and grooves on opposite sides of the joint or seam of the metal sheets, outside the folds thereof, and parallel with their edges.

6. The combination, substantially as hereinbefore set forth, with mechanism for joining sheets of metal, of rolling mechanism, comprising a cylinder N, blocks or holders movable radially in straight lines through openings in the cylinder, and provided on their outer ends with hooks, means for moving the blocks inward toward the axis of the cylinder, and mechanism for forcing the blocks outwardly.

7. The combination in a metal rolling machine, of the radially moving holders, springs for moving the holders inwardly, devices operating upon the inner ends of the holders to move them outwardly and mechanism for operating said devices.

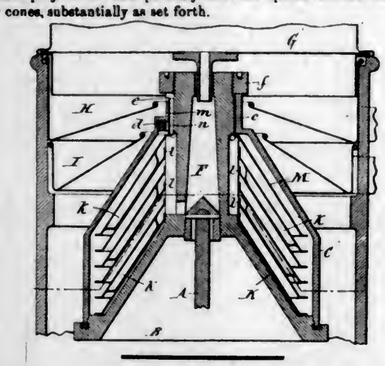
8. The combination of the hollow cylinder, the radially moving blocks carried thereby, an endwise moving rod carrying devices engaging the blocks to move them outwardly, mechanism for operating the rod, and a tension roll adapted to act upon the outside of the roll of plates to keep them from unwinding.

9. The combination with mechanism for joining sheets of metal, of the rolling mechanism comprising the hollow cylinder, the radially moving spring-actuated blocks, an endwise moving rod for moving the blocks outwardly, a tubular shaft to which the cylinder is secured, a driving pulley loose on said shaft, a clutch secured to the tubular shaft and engaging with the pulley, and a lever extending to the front end of the machine for operating the clutch

---

519,085. CENTRIFUGAL LIQUID-SEPARATOR. JOHAN L. JONSSON, Stockholm, Sweden, assignor to the Aktiebolaget Separator, same place. Filed June 30, 1893. Serial No. 479,216. (No model.)

Claim.—The combination with the bowl of a centrifugal liquid separator, of division rings or cones arranged in the liquid space of the bowl, said rings or cones being provided with annular flanges which project into and partially close the spaces between the rings or cones, substantially as set forth.



519,086. DEVICE FOR DRAWING TUBES. CARL G. LARSON, Sandviken, Sweden. Filed Sept. 19, 1893. Serial No. 485,753. (No model.)



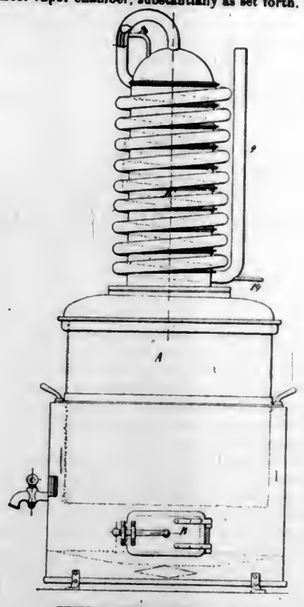
Claim.—1. In a device or tool for drawing pipes and tubes, the combination with a hoop, D, having a flaring aperture or bore, and a tapered core E, adapted to enter the end of the pipe to be drawn, of the sectional pipe-clamping shells, F and H, the shell F being tapered exteriorly to fit within the hoop D, and the shell H being tapered interiorly to fit the core E, substantially as set forth.

2. In a device or tool for drawing pipes and tubes, the combination with the clamp, comprising the ring, the core, and the sectional clamping shells, of the equalizing bar, and connectors coupling the extremities of said bar with the said hoop and core, substantially as set forth.

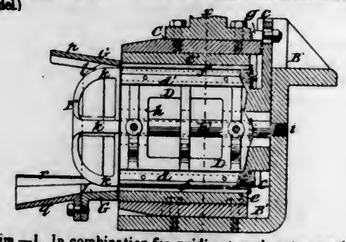
3. In a device or tool for drawing pipes and tubes, the combination with the clamp, comprising the hoop, the core, and the sectional clamping shells, of the equalizer bar K, the drawing link pivotally attached thereto, the links or eyes pivotally secured to the respective ends of said bar, a flexible connector which couples the said core to one of said links or eyes and flexible connectors which couple the said hoop to the other of said links or eyes, substantially as set forth.

519,087. DISTILLING APPARATUS. ALPHONSE LAVY, Paris, France, assignor to the Society Lepage & Cie., same place. Filed Oct. 27, 1893. Serial No. 489,294. (No model.) Patented in France Nov. 26, 1892, No. 225,943.

Claim.—A rectifying apparatus divided into a series of superposed closed chambers, arranged alternately for receiving the liquid to be distilled and the alcoholic vapors, and so that a chamber for receiving the alcoholic vapors is always between two chambers for receiving the liquid, there being a communication between the several vapor-chambers and likewise a communication between the several liquid-chambers, a helically wound tube surrounding the apparatus, and in communication with the uppermost liquid-chamber, and a coil arranged within said helically wound tube and in communication with the uppermost vapor-chamber, substantially as set forth.



519,088. MACHINERY FOR SEAMING METAL CANS. HERMAN MILLER, New York, N. Y. Filed Jan. 19, 1894. Serial No. 497,358. (No model.)



Claim.—1. In combination for guiding together the angular sections of a can body, of an inner guide having the form of a dome-shaped or conical profile, and an outer guide having tapering corners corresponding with the arms of the inner guide, substantially as herein set forth.

2. The combination for guiding together the angular sections of a can body, of an inner guide having the form of a cross the arms of which have a dome-shaped or conical profile, and an outer guide having angular corners corresponding with the arms of the inner guide and widened out between the corners, substantially as herein set forth.

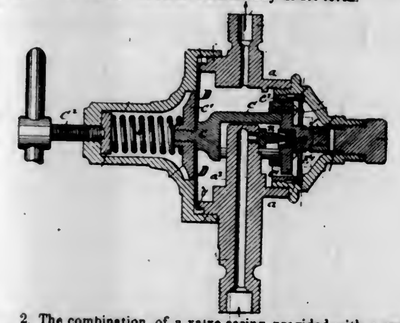
3. The combination in a clinching press, of a reciprocating horn frame, clinching dies on the horns of said frame, a stationary die and a movable die outside of said horn frame, and stationary inside and outside guides arranged in front of the horn frame and conforming to the horns thereof, substantially as and for the purpose herein set forth.

4 The combination in a clinching press, of a reciprocating horn frame, a stationary guide in front of said horn frame and a fixed spindle extended through the said horn frame for the support of said stationary guide, substantially as herein set forth

---

519,089. PRESSURE-REGULATING VALVE. JOHN NAGELDINGER, New York, N. Y. Filed Mar. 10, 1894. Serial No. 503,137. (No model.)

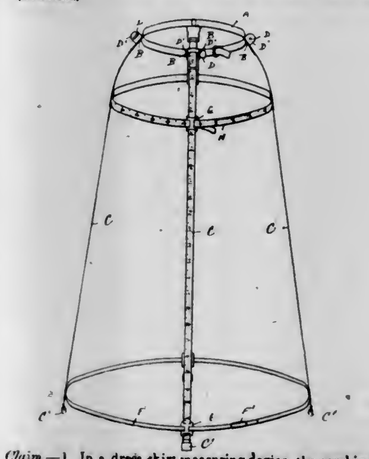
Claim.—1 The combination, of a valve-casing provided with a supply-pipe having a discharge-nozzle at its inner end, a spring-actuated main diaphragm in said casing, a tubular spindle recessed at one side and attached to said diaphragm, a valve attached to the end of the tubular spindle and provided with a seat in line with the discharge-nozzle, and a slitted diaphragm attached to the cap-section of the valve-casing and connected with the shank of the valve so as to guide and steady the same, substantially as set forth.



2. The combination, of a valve-casing provided with a supply-pipe and a discharge-pipe, a discharge-nozzle at the inner end of the supply-pipe, a spring-actuated main-diaphragm in said casing, a tubular spindle attached to said diaphragm, a valve attached to the end of the spindle, and a longitudinally-slitted sleeve supported in the cap-section of the valve-casing and extending over the shank of the valve, so as to neutralize the humming vibratory noise of the same, substantially as set forth

3. The combination, of a valve-casing, provided with a supply-pipe having a discharge-nozzle arranged at right-angles to the supply-pipe, a spring-actuated main-diaphragm in said casing, a tubular spindle attached to said diaphragm and having a side-recess for the supply-pipe, a valve attached to the end of the tubular spindle, a slitted diaphragm attached to the cap-section and to the shank of said valve, and a longitudinally-slitted damper sleeve applied to the screw-plug of the cap-section and extending over the shank of the valve, so as to prevent the humming noise of the latter, substantially as set forth.

519,090. DEVICE FOR MEASURING DRESS-SKIRTS. ABNER S. NEWCOMB, Worcester, Mass. Filed July 8, 1893. Serial No. 479,973. (No model.)



Claim.—1 In a dress skirt measuring device, the combination of a belt A, a series of hooks B, provided with slots B' and adjustable on said belt, a series of graduated tapes C held in said slots and weights C', by which said tapes are drawn over the dress skirt, substantially as described.

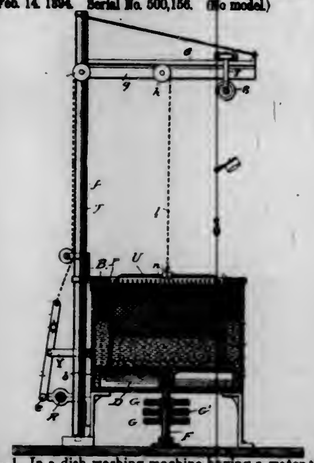
2. The combination of the belt A, hooks B adjustably attached to said belt, a tape winding mechanism carried by said hooks, a series of graduated tapes held by said winding mechanism and weights attached to said graduated tapes, substantially as described.

3. The combination of a belt, a series of hooks adjustably held upon said belt, graduated tapes suspended from said hooks and an elastic expanding hook F supported by said graduated tapes, substantially as described

4. The combination of a belt A, hooks B provided with lugs D' a winding key D held by said lugs, graduated tapes C, weights C', ex-

pending hoop F and adjustable sliding clasps G held by said graduated tapes, substantially as described.

519,091. DISH-CLEANER. FRANKLIN NOBLE, Jersey City, N. J. Filed Feb. 14, 1894. Serial No. 500,156. (No model.)



Claim.—1. In a dish washing machine having a water tank and a dish holding basket, a support provided with guide pulleys, a flexible suspending medium adapted to pass over and to be guided by said pulleys, a device at one end of the suspending medium adapted to engage and suspend the dish holding basket from above, and a power device connected with the opposite end of the suspending medium for imparting a vertical motion to the suspended basket.

2. In a dish washing machine having a water tank, a crane arm provided with guide pulleys, a chain or connection adapted to pass over said pulleys, a dish holding receptacle adapted to be suspended from one end of said connection while submerged in the tank, and a crank shaft with which the opposite end of the connection is attached whereby the submerged basket is reciprocated while suspended from above.

3. In a dish washing machine having a water tank and means for producing an agitation of the water therein, a chain, rope or other connection suspended from above having one end adapted to be attached to the dish holding basket to suspend it within the tank, a crank shaft for operating the opposite end of the chain or connection whereby a vertical reciprocating motion is imparted to said basket, and a take-up in the chain or connection for automatically taking up the slack of the same.

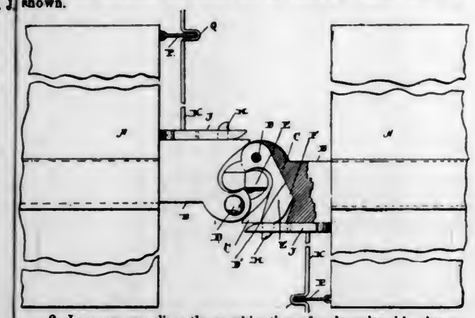
4. In a dish washing machine having a water tank, a crane arm adapted to overhang the same, a chain, rope or other connection suitably guided on said arm having one end adapted to suspend a dish holding basket while submerged in its tank, a rotary shaft having a crank arm, a rod or bar connected therewith, a second rod or bar pivotally connected to the upper end of said first named rod or bar and having the opposite or free end of the chain or connection secured to it, a spring at the joint of the two arms with its ends connected to said arms respectively, and a link pivotally connecting the first named rod or bar with the crane arm.

5. A dish washing machine comprising a series of tanks placed side by side and each provided with a foraminous false bottom and foraminous cage, a propeller or agitator for each tank and means for operating the same, a crane arm overhanging each of said tanks, a flexible connection mounted on each of said arms having one end adapted to engage and suspend a dish holding basket and its opposite end adapted to be connected with mechanism for reciprocating said basket.

6. In a dish washing machine having a water tank, a crane arm journaled contiguous to the frame of the machine and provided with means for suspending and reciprocating a dish holding basket, and a trolley or carrier mounted to travel upon the horizontal member of the arm and provided with means for suspending a dish holding basket while the latter is being transported from one point to another.

519,092. CAR-COUPLING. DAVID D. NOLLEY, Wilson, N. C. Filed Aug. 16, 1893. Serial No. 483,311. (No model.)

Claim.—1. In a car coupling, the combination of a drawhead having a horizontal recess, one end of the recess extending to the outer side thereof, of a jaw pivoted within the said recess with its free end projecting through the open end of the slot beyond the drawhead, and a latch pivoted to and supported at the side of the drawhead and extending parallel therewith, the free end of the latch engaging the projecting end of the jaw for locking it, substantially as shown.



2. In a car coupling the combination of a draw head having a recess in its inner side, the inner wall of the recess having a straight portion, of a jaw pivoted to one side of the said draw head and extending through the opposite side thereof, the said jaw provided with a corresponding straight portion for engaging the straight portion of the inner wall of the jaw, and a lock engaging the projecting end of the jaw, substantially as specified.

3. In a car coupling the combination of a drawhead having a recessed inner end for the reception of the jaw, a jaw pivoted at one side of the draw head and extending through the opposite side thereof, and a latch pivoted at its inner end to the side of the drawhead and having its free end engaging the projecting end of the jaw, substantially as set forth.

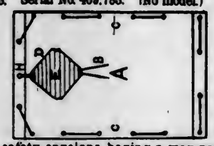
4. In a car coupling the combination of the draw head having a recess in its inner end and extending to one side thereof, of a jaw pivoted in the opposite side of the draw head and its free ends extending through the openings of the draw head and beyond the side of the draw head, and a latch pivoted in rear of the free end of the jaw and engaging the same, and a shaft extending from the latch to or near the outside of the car for operating the same, substantially as specified.

5. A car coupling comprising a draw head having a recess in its inner end, a jaw pivoted in one side of the draw head and its opposite end extending through the draw head, a latch pivoted in rear of the said recess and to the outer side of the jaw, the free end of the latch having a locking notch for engaging the extended end of the jaw, and a shaft extending outward from the latch for operating the same, substantially as shown.

6. A car coupling comprising a draw head having a recess in its inner side, a jaw pivoted to one side of the recess and extending through the opposite side of the draw head, a latch pivoted in rear of the said recess and at the outer side of the draw head, the free end of the latch having a hooked end adapted to engage the extended end of the jaw, and a beveled portion beyond the hooked portion whereby the same is automatically tightened, substantially as described.

7. A car coupling comprising a draw head, a jaw pivoted thereto at one side and having its opposite end extended through the draw head, a latch for engaging the extended end of the jaw, a shaft attached to the latch for operating the same, the said latch having a lateral projection, and a hook upon the car adapted to engage the said projection for holding the said latch uncoupled, substantially as set forth.

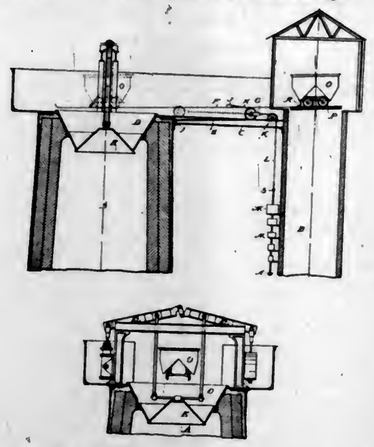
519,093. ENVELOPE. ANDREW J. RITTER, Rahway, N. J. Filed Apr. 10, 1893. Serial No. 469,783. (No model.)



Claim.—A safety envelope having a wax-pan firmly secured to one of its sides, the sides, ends, and flap of the envelope being provided with suitable eyelet-holes, and a securing string, the string being adapted to be passed through the eyelet holes and having its ends secured in the wax-pan, all substantially as and for the purpose set forth.

519,094. BLAST-FURNACE CHARGING APPARATUS. FRANK C. ROBERTS, Philadelphia, Pa. Filed Oct. 18, 1893. Serial No. 488,539. (No model.)

Claim.—1. In a blast furnace charging apparatus, the combination of an elevator, a blast furnace, an elevator car or cage, a car or cars for containing the materials to be charged into the furnace, inclined track or tracks leading from the elevator to and over the furnace, a counterweight or counterpower system brought into position for operation by the movement of a car and operating to return the car to the elevator after the contents have been discharged.



2. In a blast furnace charging apparatus, the combination of an elevator, a blast furnace, an elevator car or cage capable of being tilted toward the furnace, a car or cars for containing the materials to be charged into the furnace, a device for holding the car or cars on the elevator cage until released, an inclined track or tracks leading from the elevator to and over the furnace, a counterweight or counterpower system brought into position for operation by the movement of a car and operating to return the car to the elevator after its contents have been discharged, and a device for holding the car on the elevator cage after it has been returned thereto.

3. In a blast furnace charging apparatus, the combination of an elevator, a blast furnace, an elevator car or cage capable of being automatically tilted or inclined toward the furnace, a car or cars for containing the materials to be charged into the furnace, a device for holding the car or cars on the elevator cage until released, inclined track or tracks leading from the elevator to and over the furnace, a counterweight or counterpower system brought into position for operation by the movement of a car and operating to return the car to the elevator after its contents have been discharged, and a device for holding the car on the elevator cage after it has been returned thereto.

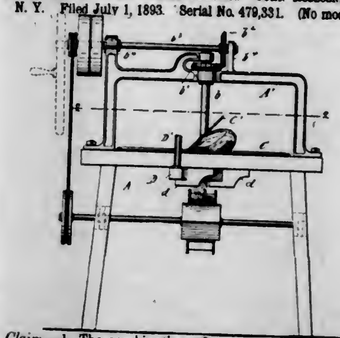
4. In a blast furnace charging apparatus, the combination of an elevator, a blast furnace, an elevator car or cage, a car or cars for containing the materials to be charged into the furnace and capable of automatically discharging its or their contents upon the action of a releasing device operated by the movement of the car, an inclined track or tracks leading from the elevator to and over the furnace, and a counterweight or counter power system brought into position for operation by the movement of the car, and operating to return the empty car to the elevator.

5. In a blast furnace charging apparatus, the combination of an elevator, a blast furnace, an elevator car or cage capable of being tilted or inclined toward the furnace, a car or cars for containing the materials to be charged into the furnace and capable of automatically discharging its or their contents upon the action of a releasing device operated by the movement of the car, an inclined track or tracks leading from the elevator to and over the furnace, a counterweight or counterpower system brought into position for operation by the movement of the car and operating to return the empty car to the elevator and a device for holding the car on the elevator cage after it has been returned thereto.

6. In a blast furnace charging apparatus, the combination of an elevator, a blast furnace, an elevator car or cage capable of being automatically tilted or inclined toward the furnace, a car or cars for containing the materials to be charged into the furnace, and capable of automatically discharging its or their contents upon the action of a releasing device operated by the movement of the car, an inclined track or tracks leading from the elevator to and over the furnace, a counterweight or counterpower system brought into position for operation by the movement of the car and operating to return the empty car to the elevator and a device for holding the car on the elevator cage after it has been returned thereto.

7. In a blast furnace charging apparatus, the combination of two sets or series of cars for delivering materials into the hopper located in the top of the furnace, each car of both sets or series being so designed and constructed that its contents are discharged into the hopper at two diametrically opposite points of the hopper, and the cars of the first set or series being so designed and constructed that their contents are discharged into the hopper at two diametrically opposite points of the hopper situated approximately ninety (90) degrees distant from the two diametrically opposite points of the hopper at which the contents of the second set or series of cars discharge their contents into the hopper.

519,095. VEGETABLE-CUTTER. JOHN KOSLOSNIK, New York, N. Y. Filed July 1, 1893. Serial No. 479,331. (No model.)



Claim.—1. The combination, of a rotary cutter-disk, and a number of cutting-knives, a covering-plate having openings, an inclined guard-plate over the openings for the vegetable to be cut, a reciprocating salt box located below the said cutter-disk, and provided with perforations in the side-walls, means for intermittently reciprocating the salt-box and imparting a quick blow to the same so as to drop a certain quantity of salt on the sliced vegetable dropped below the cutter-disk, substantially as set forth.

2. The combination, of a rotary cutter-disk having a number of cutting knives, a cover extending over said disk and provided with openings, an inclined guard-plate for guiding the vegetable to the cutter-disk, a salt box supported in keepers below the said cutter disk, and provided with discharge openings in its side, means for intermittently reciprocating the salt box so as to impart a quick blow to the same and drop a certain quantity of salt on the sliced vegetables, and an endless conveyer arranged below the cutter disk, substantially as set forth.

3. The combination, of a supporting-frame, a rotary cutter-disk having cutting-knives, supported in bearings of the supporting-frame, a covering-plate extending over the cutter-disk and provided with openings, an inclined guard-plate for guiding the vegetables to the disk, a salt box supported in keepers below the cutter-disk and provided with openings in the side walls, means for imparting a quick intermittent reciprocating motion to the salt box, so that a quick blow is given to the same, and an endless conveyer arranged below the cutter-disk and salt-box, and composed of a number of buckets provided with overlapping side walls and transverse partitions at the rear part, said conveyer being adapted to drop the cut and salted vegetables into a suitable receptacle, substantially as set forth.

519,096. LUBRICANT FOR BICYCLE CHAINS AND BEARINGS. WILLIS L. SARGENT, Norwich, Conn. Filed Oct. 23, 1893. Serial No. 488,967. (No specimens.)

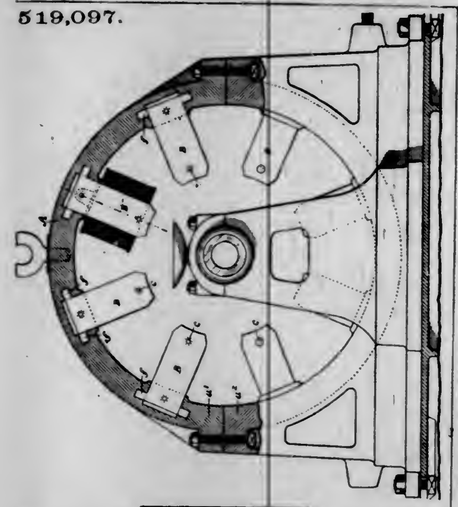
Claim.—The herein described composition of matter to be used for lubricating bicycle chains and bearings of all kinds, consisting of alcohol, castile soap and black lead in the proportions specified.

519,097. FIELD-MAGNET FOR ELECTRIC MACHINES. ALBERT SCHMID, Allegheny, assignor, by mesne assignments, to the Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Filed Dec. 7, 1889. Serial No. 332,961. (No model.)

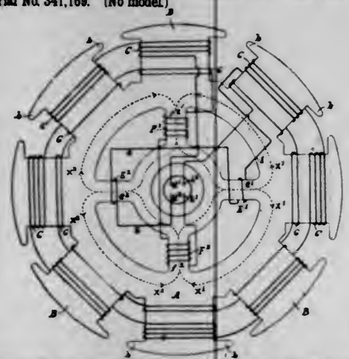
Claim.—1. In an electric generator or motor for alternating currents, field-poles composed of laminæ of sheet iron, a frame for said poles of cast-iron cast about the laminated pole pieces, certain of the laminæ projecting into the cast iron frame a greater distance than the others.

2. In an electric generator or motor for alternating currents, field-poles composed of laminæ of sheet iron placed in contact with each other, a frame for said poles of cast iron, certain of the laminæ having lateral lugs, substantially as described.

519,097.



519,098. SELF-EXCITING CONSTANT-POTENTIAL ELECTRIC GENERATOR. ALBERT SCHMID, Allegheny, and BENJAMIN G. LAMME, Pittsburg, assignors, by mesne assignments, to the Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Filed Feb. 20, 1890. Serial No. 341,169. (No model.)



Claim.—In a self-exciting alternating current electric machine the combination of an armature core having supporting spokes, main armature coils wound upon the core, supplemental armature coils regulating coils connected in series with the main armature coils and wound upon the said spokes regulating coils connected in series with the supplemental coils and wound upon the said spokes and a conductor through which the connections are made from the supplemental coils, with the field exciting coils, substantially as described.

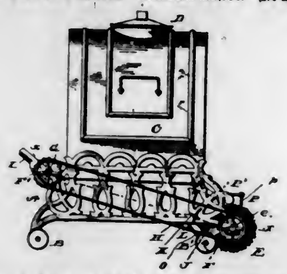
519,099. INCANDESCENT ELECTRIC LAMP. FRANK S. SMITH, Pittsburg, Pa. Filed Nov. 29, 1892. Serial No. 453,552. (No model.)



Claim.—1. In an incandescent lamp, the glass globe and leading in wires, the glass around the wires having substantially the following composition:—silica, fifty to sixty per cent., boracic acid, three and a half to six per cent., sodium oxide, ten to twenty per cent., barium oxide, thirty to forty per cent., zinc oxide, five to six per cent.

2. In an incandescent lamp, a bulb having an open neck, a stopper fitting said neck and leading-in wires molded into said stopper; said stopper having substantially the following composition:—silica, fifty to sixty per cent., boracic acid, three and a half to six per cent., sodium oxide, ten to twenty per cent., barium oxide, thirty to forty per cent., zinc oxide, five to six per cent.

519,100. SCRUBBING-MACHINE. ROBERT W. SOMERS, Fremont, Nebr. Filed Nov. 19, 1892. Serial No. 452,556. (No model.)



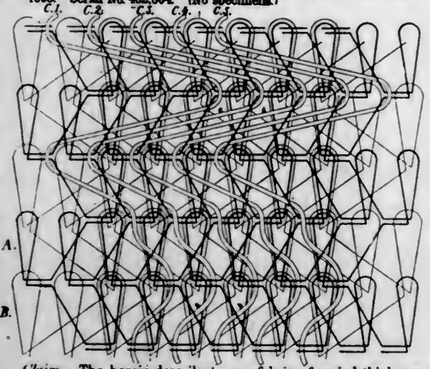
Claim.—1. In an article of the class described, the combination of a frame A supported on rollers, two, of which are vertically adjustable, a water tank C supported by said frame, a handle attached to the frame, a brush having bearings in the frame, a pan N, a valve M adapted to admit water into said pan to distribute the same evenly over the surface of the brush, and a splasher removably secured in the rear of the brush, a rack adapted to hold bars of soap secured to the frame in a position directly over said brush and sufficiently near to the same to allow the soap to come in contact with said brush, and means for operating the several parts, substantially as described.

2. In an article of the class described, the combination of a frame A supported on four rollers, two of which are adjustable, a handle I attached to said frame, a brush having bearings in the frame, a rack adapted to hold bars of soap and secured to the frame directly over said brush and sufficiently near to the latter to allow the soap to come in contact with said brush, a pan N, a valve M having a rod M' attached thereto, and running back to the handle I for convenient engagement, said valve being located over the pan, a splasher removably secured in the rear of the brush, a sprocket wheel in connection with the brush, rear sprocket wheels, and chains engaging said sprocket wheels for transmitting motion, one of the sprocket wheels being mounted on the handle I and adapted to be operated by a crank, substantially as described.

3. In an article of the class described the combination of frame A supported on four rollers, two of which are vertically adjustable, a water tank C supported by said frame, handle I attached to said frame, brush E having bearings in said frame, rack P adapted to hold bars of soap and secured to said frame A in a position directly over said brush and sufficiently near to said brush, as to allow the soap to come in contact with said brush substantially as and for the purpose set forth;

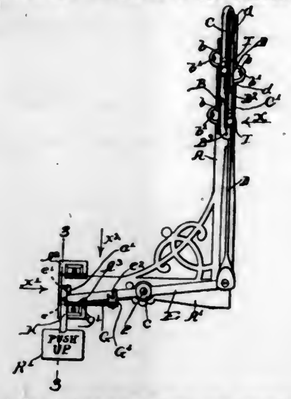
4. In a scrubbing machine, the combination of a frame, a revoluble brush mounted in the lower front portion of said frame, triangular plates J revolubly secured to the axle of the brush on opposite sides, forward rollers B' having bearing in the said plates, said frame having a radial slot therein adjacent to said triangular plates, and a set screw passing through said radial slot, and engaging the said triangular plates whereby the front rollers may be made adjustable rear rollers attached to the said frame, and means for operating the several parts, substantially as described.

519,101. WARP FABRIC. SPENCER SPOONER, Brooklyn, N. Y., assignor to the Jennings Lace Works, of New York. Filed Aug. 10, 1893. Serial No. 482,864. (No specimens.)



Claim.—The herein described warp-fabric of varied thicknesses in the same piece, consisting of a body-fabric formed from a number of threads carried over one another and looped together, and a number of additional threads inserted at the back of said body-fabric and inlaid or trapped under some of the body-threads, said additional threads being laid alternately right and left over one or more loops of the body-fabric where the fabric is comparatively thin, and where the fabric is thick said additional threads being laid alternately right and left over one or more loops of the body-fabric in excess of the loops first traversed, substantially as set forth.

519,102. LOCKING HAT AND COAT HOOK. EMANUEL W. SWEIGARD, Chicago, Ill. Filed Mar. 23, 1893. Serial No. 467,947. (No model.)

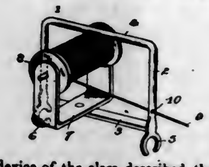


Claim.—1. In a locking garment-hook, the combination with a suitable back plate and two hooks supported thereby, of two pivoted guards supported by the plate and adapted to be swung into or out of contact with said hooks respectively, a reciprocally sliding bar engaging both of said guards and adapted to oscillate them upon their pivots, a lever engaging said sliding bar and adapted to reciprocate it longitudinally, and a swinging key adapted to engage said lever and actuate it for the operation of said sliding bar, the key being detachable when the guards are in contact with the hooks, but not when they are out of contact therewith.

2. In a locking garment-hook, the combination with a suitable back plate and hooks supported thereby, of pivoted guards supported by the plate and adapted to protect the points of the hooks respectively, a reciprocally sliding bar engaging and operating said guards, a lever swinging on a pivot between its ends and having one of its ends in engagement with said sliding bar, a key adapted to engage the opposite end of said lever and swing it in a circle and thereby to reciprocate said sliding bar and a spring adapted to permit sliding movement of the lever upon its pivot to accommodate itself to the motion imparted to it by the key; substantially as shown and described.

3. In a locking garment-hook, the combination with a suitable back plate and hooks supported thereby, of guards pivoted between their ends on arms supported by the back plate, one end of each of said guards being adapted to protect the point of a corresponding hook, a reciprocally sliding bar engaging the opposite ends of said guards respectively, and adapted to operate them, a swinging lever engaging said sliding bar and adapted by its oscillation to reciprocate the same, and a key adapted to be brought into or out of engagement with said lever when the guards are in contact with the hooks and when in such engagement to be swung about a center and oscillate the lever and thereby actuate the guards; substantially as shown and described.

519,103. WIRE-FENCE-WINDING DEVICE. ISAAC V. ADAIR, MacDougall's, N. Y. Filed Nov. 7, 1893. Serial No. 490,248. (No model.)



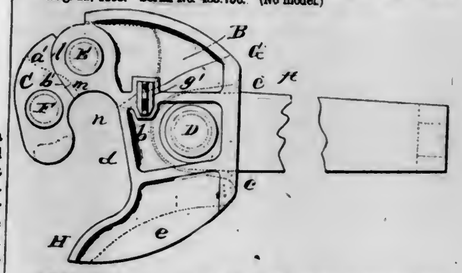
Claim.—In a device of the class described, the combination of a frame having parallel arms, one of which is provided with a wire-guide and terminates in a yoke 5, which is adapted to straddle a fence wire or runner, and the other of which terminates in a hook 6, which is adapted to engage under said fence wire or runner to resist an outward pull upon that end of the frame, and a spool journaled within the frame with its axis arranged transverse to the line of the fence wire or runner, substantially as specified.

519,104. SPADE OR SHOVEL. PETER CALDWELL, Jr., Warrington, England. Filed Nov. 23, 1891. Serial No. 412,734. (No model.) Patented in England Aug. 27, 1890, No. 13,452.



Claim.—A spade or shovel having a handle socket formed integrally with the blade and consisting of two langets or tongues separated down to the line of the treads on a plane coincident with the blade, and embracing the handle on opposite sides, the blade being solid throughout, substantially as described.

519,105. CAR-COUPLING. JOHN COUP, Cleveland, Ohio. Filed Aug. 22, 1893. Serial No. 483,758. (No model.)



Claim.—1. A car coupler-head having a recess or seat provided with curved and angular walls in the rear end of the head the angular walls limiting the lateral movement of the head and a solid wall in front of said recess, in combination with a draw-bar provided with a solid head on its front end to engage the curved walls of said recess.

2. A car coupler-head having a recess or seat provided with curved and angular walls in the center of the rear end of the head the angular walls limiting the lateral movement of the head and a solid wall in front of said recess, in combination with a draw-bar having a solid head in the center on its front end constructed to engage the curved wall of said recess.

3. A car coupler-head having a recess or seat provided with curved and angular walls in the rear end of the solid head the angular walls limiting the lateral movement of the head and a solid wall in front of said recess, in combination with a draw-bar provided with a solid head constructed to engage the curved wall of said recess and shoulders in rear of the head against which the coupler-head bears.

4. A car coupler-head having a recess or seat in the rear end of the head provided with curved and angular vertical walls which angular walls limit the lateral movement of the head and a solid wall in front of said recess; in combination with a draw-bar provided with a head having a rounded end and parallel sides and shoulders in rear of the head on the upper and lower sides of the bar.

5. A car coupler-head having a recess or seat provided with curved and angular walls in its rear end, which angular walls limit the lateral movement of the head a solid contour-face or wall in front of said recess and extending from the guard-arm to or beyond the transverse center of the head; in combination with a draw-bar having a solid head on its front end constructed to engage the curved wall of said recess.

6. A car coupler-head having a recess or seat in its rear end, a solid contour-face or wall in front of said recess and extending from the outer end of the guard-arm to or beyond the transverse center of the head and provided with a recess in the knuckle-jaw and in the head; in combination with a draw-bar and a hook.

7. A car coupler-head having a recess or seat in its rear end, a solid contour-face or wall in front of said recess and extending from the guard-arm to or beyond the transverse center of the head and provided with a recess in the knuckle-jaw and in the head, and a solid body of metal in rear of said latter recess; in combination with a draw-bar and a hook.

8. A car coupler-head having a recess or seat provided with curved and angular walls in the rear end, which angular walls limit the lateral movement of the head and a recess in the front end on one side of the transverse center of the head, and a hook pivoted to the knuckle-jaw of the head and provided with a rearward extension or tongue to swing in the latter recess; in combination with a draw-bar having a solid head on the front end constructed to engage the curved wall of said recess and a pin to lock the hook.

9. A car coupler-head having a recess on one side of the transverse center of the head to receive the tongue of the hook and a solid body of metal in rear of said recess; in combination with a hook pivoted in the knuckle-jaw with the rear end of the tongue abutting the rear wall of said recess.

10. A car coupler-head having a recess on one side of the transverse center of the head, a hook pivoted to the knuckle-jaw of the head and provided with a tongue extending into said recess; a vertical recess in the contour-wall in combination with a pin adapted to said recess and supported upon said tongue when the hook is unlocked and in position for coupling.

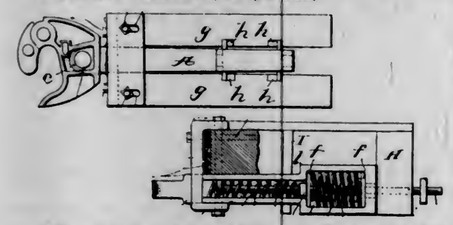
11. A car coupler-head having a solid contour-face or wall extending from the outer end of the solid guard-arm to or beyond the transverse center of the head and from its upper to its lower side; in combination with a hook.

12. A car coupler-head having a solid contour-face or wall extending from the outer end of the guard-arm to or beyond the transverse center of the head and from its upper to its lower side and provided with a recess in the opposite side of the head to receive the tongue of a hook.

13. A car coupler-head, a hook pivotally secured to the head and provided with a rearwardly extending tongue, and a vertical recess in the contour-wall of the head; in combination with a pin having an inclined edge to automatically take up wear and lost motion.

14. A car coupler-head having a recess in the upper surface of the upper lug of the knuckle-jaw and an inclined seat on the inner surface of the lower lug of the jaw; in combination with a pivot-pin connecting the hook to the knuckle-jaw and provided with a transverse pin to rest upon said seat, and said hook secured to said pivot-pin.

519,106. CAR-COUPLING. JOHN COUP, Cleveland, Ohio. Filed Aug. 22, 1893. Serial No. 483,759. (No model.)



Claim.—1. A draw-bar provided with a solid projecting head constructed to enter and engage with the pin of a bull-nose coupling and shoulders on the upper and lower sides in rear of the head to engage the face of said coupling.

2. A draw-bar provided with a solid projecting head integral with the bar, in combination with a plate having an orifice through which the draw-bar passes, and upper and lower flanges.

3. A draw-bar provided with a projecting head integral with the bar, in combination with a plate through which said bar passes and provided with upper and lower rearwardly extending flanges, and a cushion between said plate and the sill of a car.

4. A draw-bar provided with a primary buffing-spring in the front part thereof and a draft and secondary buffing-spring in the rear part.

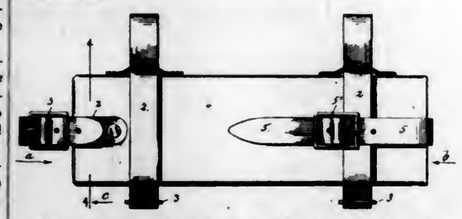
5. A draw-bar provided with a primary buffing-spring, a draft and secondary buffing-spring and suitable followers within the draw-bar, in combination with a tail bolt.

6. A draw-bar having one or more buffing-springs within the bar, in combination with a buffer-plate through which the draw-bar passes and a cushion in rear of said plate.

519,107. BICYCLE-BAG. BAMFORD ELLIOTT, Worcester, Mass., assignor to the J. J. Warren Company, same place. Filed Aug. 23, 1893. Serial No. 484,198. (No model.)

Claim.—1. As an improved article of manufacture, a bicycle tool bag made in two parts, one part adapted to shut into the other, and each part having a closed end made integral therewith, and consisting of two pairs of flaps bent over at right angles to the body portion of the bag, with the ends of each pair of flaps meeting and butting against each other, to make a square, flat end, of two thicknesses of the material, said thicknesses secured together by rivets, substantially as shown and described.

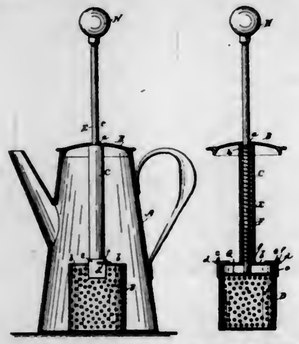
2. In a bicycle tool bag made in two parts, and square in cross section, with one part adapted to shut into the other part, the combination with the body of the bag, having permanently closed ends, each end consisting of two pairs of flaps 6 and 7, bent over at right angles to the body portion of the bag, with the ends of each pair of flaps meeting and butting against each other, of rivets 8 for permanently securing the two pairs of flaps together, substantially as shown and described.



3. As an improved article of manufacture, a bicycle tool bag, having a closed end made integral therewith, and consisting of two pairs of flaps bent over at right angles to the body portion of the bag, with the ends of each pair of flaps butting, to make a flat end, of two thicknesses of material, said thicknesses secured together by rivets, substantially as shown and described.

4. In a bag or case, the combination with the body of the bag, having a permanently closed end, consisting of two pairs of flaps bent over at right angles to the body portion of the bag, with the ends of each pair of flaps butting, of rivets for securing the two pairs of flaps together, substantially as set forth.

519,108. PRESS-STRAINER FOR TEA OR COFFEE POTS. FRANK FONTNEAU, Attleborough, Mass. Filed Aug. 29, 1893. Serial No. 484,318. (No model.)



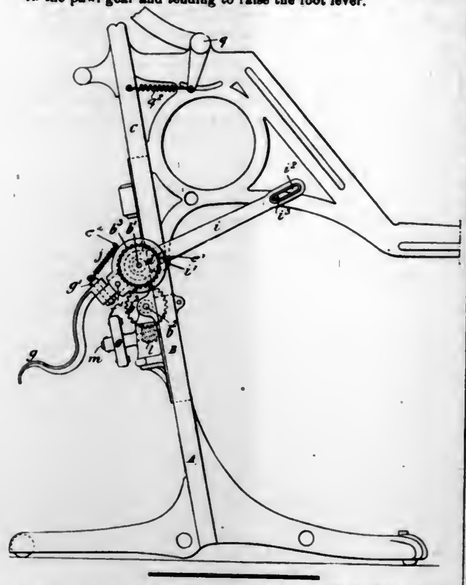
Claim.—1. In a press-strainer for tea or coffee pots, the combination with the foraminous receptacle, of the pot cover, the piston tube, provided with the attaching disk, the piston passing through the cover of the pot, and the actuating spring for the piston, substantially as described.

2. In a press-strainer for tea or coffee pots, the combination with the foraminous receptacle D, provided with the slotted ears *e*, *e*, of the pot cover B, the piston tube C, provided with the disk *b*, the downwardly extending flange *c* and the catch projections *d*, *d*, the piston G, the piston rod E extending through the cover, and the spring F for actuating the piston, substantially as described.

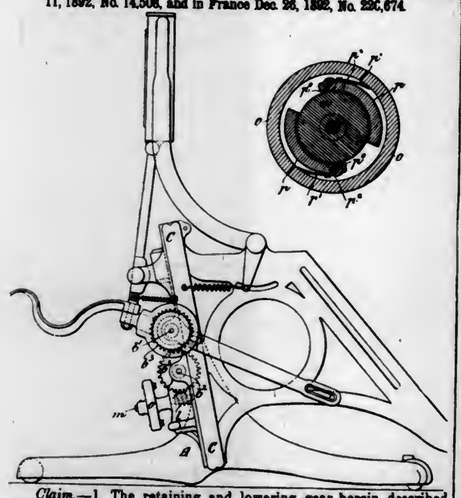
519,109. DENTAL CHAIR. THOMAS H. GARDNER and EDWARD GARDNER, Manchester, England. Filed Dec. 6, 1892. Serial No. 454,252. (No model.) Patented in England Aug. 11, 1892, No. 14,508.

Claim.—1. The combination, substantially as set forth, of the three sections A, B and C, one of which is stationary and the other two movable, shafts, racks and pinions connecting the sections, a disk secured to the shaft carried by the intermediate movable part B, a foot lever movable about the axis of said shaft, silent pawl gear also movable about the shaft and connected with the foot lever, a stop connected with and controlled by the upper moving part or section C and operatively connected with the foot lever and with the pawl gear to limit the movement thereof, and a spring for raising the lever.

2. The combination, substantially as set forth, of the three sections A, B and C, one of which is stationary and the other two movable, shafts, racks and pinions connecting the sections, a disk secured to the shaft and carried by the intermediate movable part B, a foot lever movable about the axis of said shaft, silent pawl gear also movable about the shaft and connected with the foot lever, a stop arm operatively connected with the movable section C, and having a lug or stop operatively connected with the pawl gear, and a spring acting on the pawl gear and tending to raise the foot lever.



519,110. RETAINING OR LOWERING APPARATUS. THOMAS H. GARDNER and EDWARD GARDNER, Manchester, England. Filed Nov. 20, 1893. Serial No. 491,424. (No model.) Patented in England Aug. 11, 1892, No. 14,508, and in France Dec. 26, 1892, No. 226,674.



Claim.—1. The retaining and lowering gear herein described comprising a movable section or part to be raised, a shaft *m*, a worm upon it gearing into a worm wheel which is geared with the part to be raised or lowered, a wheel fast upon the shaft, weighted brake pieces pivoted upon the wheel, a stationary cylindrical surface for the brake pieces to act against when the wheel is revolved too fast, and springs acting upon the brake pieces to hold them against a stationary cylindrical surface when the wheel is at rest and prevent any movement being given to the shaft through the gearing.

2. The retaining and lowering gear herein described comprising a movable section or part to be raised, a shaft *m*, a worm upon it gearing into a worm wheel which is geared with the part to be raised or lowered, a wheel fast upon the shaft, weighted brake pieces pivoted upon the wheel, and springs acting upon the brake pieces to hold them against a stationary cylindrical surface when the wheel is at rest and prevent any movement being given to the shaft through the gearing.

3. The combination of the stationary and movable sections of the chair, a shaft mounted on one of the sections and geared with the other sections, a flanged wheel secured to the shaft, brake pieces pivoted to the wheel, springs operating upon the brake pieces, and a stationary boss having a cylindrical surface with which the brake pieces are adapted to engage both when the wheel is at rest and when it is revolved at too high a speed, substantially as described.

4. The retaining and lowering gear herein described comprising the part to be raised or lowered, a shaft having upon it a worm geared with the part to be raised or lowered, a wheel secured to the shaft, weighted brake pieces pivoted to the wheel, a stationary cylindrical surface for the brake pieces on one side of their pivots to act against when the wheel is revolved too fast, and springs acting upon the brake pieces to cause them to act on the opposite side of their pivots, upon the stationary cylindrical surface when the wheel is at rest.

5. The retaining and lowering gear herein described, comprising the part to be raised or lowered, a shaft geared with the part to be raised or lowered, a wheel secured to the shaft, weighted brake pieces pivoted to the wheel, springs operating upon the brake pieces, a boss having a cylindrical surface with which the brake pieces are adapted to engage on either side of their pivots, substantially as described.

519,111. PROCESS OF EXTRACTING COPPER FROM ITS ORES. GEORGE W. GOETZ, Milwaukee, Wis. Filed Sept. 19, 1893. Serial No. 485,873. (No specimens.)

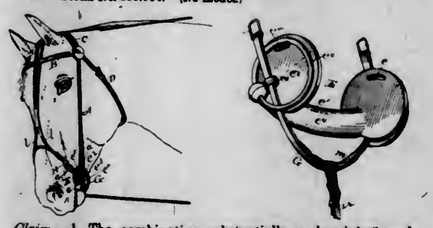
Claim.—1. The process of extracting copper from copper tailings or ore, consisting in mixing the combined copper and foreign substances with a solution consisting principally of chloride of iron and chloride of sodium, and introducing air underneath the mixture so as to agitate the same, substantially as and for the purposes described.

2. The process of reducing copper from copper tailings or ore, consisting in mixing the combined copper and foreign substances with a solution of chloride of iron and chloride of sodium, and introducing air underneath the mixture so as to agitate the same, and thereafter precipitating the copper from the solution by the introduction of metallic iron, substantially as and for the purposes described.

3. The process of reducing copper from tailings or ore, or a mixture of copper and foreign substances, consisting in the mixing of the copper and foreign substances with a solution of chloride of iron and chloride of sodium, the introduction of air beneath the surface of the mixture so as to agitate the same, and the precipitation of the copper from the resulting solution by the introduction of metallic iron and the re-use of the solution separated from the copper in again similarly reducing other ores, substantially as and for the purposes described.

4. The process of extracting copper from copper tailings or ore, consisting in mixing the combined copper and foreign substances with a solution of chloride of iron and chloride of sodium, produced by a mixture of sulphate of iron with an excess of the chloride of sodium, and introducing air underneath the mixture so as to agitate the same, substantially as and for the purposes described.

519,112. BRIDLE-BIT. THOMAS D. GORDON, Monmouth, Ill., assignor of one-half to John W. Gordon, Trinidad, Colo. Filed Oct. 24, 1893. Serial No. 488,981. (No model.)



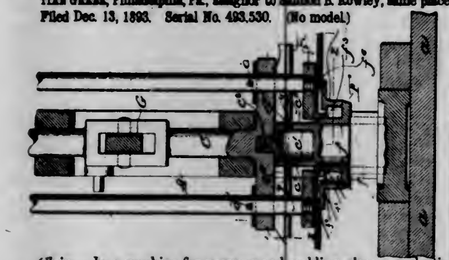
Claim.—1. The combination substantially as hereinbefore described, with a bridle bit comprising in its structure a mouth piece having bit rings and cheek guards at its ends, of loops located exterior to said cheek guards and in rear of the ends of said mouth piece, and fixed in position relatively to the mouth piece and cheek guards, and a chin strap, the ends of which pass through said loops, have free endlong movement therethrough, are held thereby against lateral movement, and in rear of, or above the corners of the horse's mouth.

2. The combination substantially as hereinbefore described, with a bridle bit comprising in its structure, a mouth piece having bit rings

at its ends, cheek guards mounted thereon, and loops fixed to the outer ends of said mouth piece on the outer side of the cheek guards and in rear of the adjacent end of the mouth piece, and a chin strap, the end parts of which are located exterior to said cheek guards, and pass under the lower parts of the bit rings, thence through the loops in which they have free endlong movement, and thence over the upper parts of the bit rings, of an overdraw check rein, the lower ends of which are secured to the ends of said chin strap.

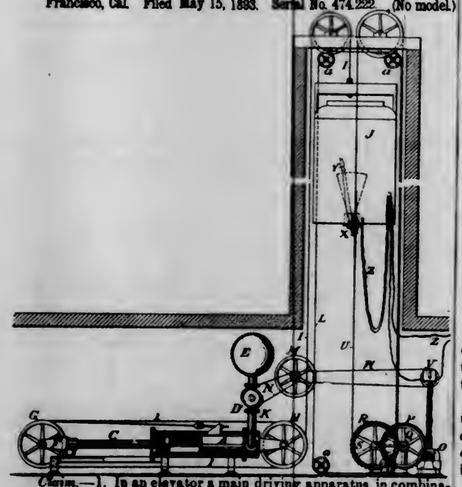
3. The combination substantially as hereinbefore described, with a bridle bit comprising in its structure, a mouth piece having bit rings at its ends, cheek guards mounted thereon, and loops fixed to the outer ends of said mouth piece outside of the cheek guards and in rear of the adjacent ends of the mouth piece, of a chain strip the end parts of which are located exterior to said cheek guards and pass through said loops in which they are free to slide endlong; of a nose strap and an overdraw check rein both connected with the ends of the chin strap, and a standing martingale connected at one end with the midlength part of the chin strap, and at its other end with any suitable part of the harness.

519,113. APPARATUS FOR MOLDING GLASSWARE. CHRISTIAN GREBE, Philadelphia, Pa., assignor to Salmon B. Rowley, same place. Filed Dec. 13, 1893. Serial No. 493,530. (No model.)



Claim.—In a machine for pressing and molding glass, a male die adapted to reciprocate and means for reciprocating said die, a die seat formed of a hollow ring and projecting surface forming one wall of a chamber, there being an upwardly projecting surface from the die forming the other wall of the chamber, said ring having orifices which open into said chamber, a die plunger provided with a chamber and orifices which open into the last named chamber, a source of water supply, flexible connection between said source of supply and one of the die plunger chamber orifices and between said source of supply and one of the male die chamber orifices, and discharge openings from each chamber, substantially as described.

519,114. ELEVATOR FOR BUILDINGS. COFRAN I. HALL, San Francisco, Cal. Filed May 15, 1893. Serial No. 474,222. (No model.)



Claim.—1. In an elevator a main driving apparatus, in combination with a car or platform to be operated thereby, a separate and independent auxiliary motor, a connection between the auxiliary motor and the car and a grip device on the car for engaging said connection so that the power of the auxiliary motor may be temporarily applied to act upon the car in ascending or descending, substantially as described.

2. In an elevator, the combination with the car or platform, of a main apparatus for operating the same, a separate and independent auxiliary motor, suitable gearing connecting with the latter, and a cable actuated by said gearing and running through the car, to which it may be connected or disconnected so that the power of the motor may be temporarily applied to assist the main apparatus, substantially as specified.

3. In an elevator, the combination with the car or carriage, of a hydraulic apparatus for operating the same, consisting essentially of a cylinder, a piston therein, cable connections between the piston and the car and a receiver or vessel containing fluid under pressure which is supplied to the cylinder and a separate and independent auxiliary motor, a cable running therefrom to the car and a gripper on the car for temporarily engaging the said cable so that the auxiliary motor may apply its power to assist the hydraulic apparatus whenever required, substantially as described.

4. In an elevator, the combination with the car or cage, of a hydraulic apparatus for operating the same, a separate and independent auxiliary motor, suitable gearing operated thereby, a cable actuated by said gearing and running through the car and a gripping mechanism on the car for engaging said cable when required so that the power of the auxiliary motor may be applied to assist the hydraulic apparatus in ascending or descending, substantially as described.

5. In an elevator, the combination with the car or cage, of a hydraulic apparatus for operating the same, a separate and independent auxiliary electric motor, gearing driven by said motor, a cable running through the car and actuated by said gearing, electric connections between the car and the motor, a gripper on the car for engaging the auxiliary cable and circuit closing devices on the car whereby the motor is controlled, substantially as specified.

6. In an elevator, the combination with the car or cage, of a hydraulic apparatus for operating the same, consisting essentially of a cylinder, a piston therein, a cable operated by the piston and connected to the car, a fluid receiver containing fluid under pressure which is supplied to the cylinder, and a valve for controlling said supply, and a separate and independent auxiliary motor which actuates a cable running through the car, means extending from said car to the auxiliary motor for stopping and starting the latter and a gripping device on the car for engaging the auxiliary cable and simultaneously therewith starting the auxiliary motor so that the power of the latter may be applied to assist the hydraulic apparatus when required, substantially as specified.

7. In an elevator, the combination of a main driving apparatus, a car or platform to be operated thereby, an auxiliary electric motor, a cable connection between said motor and the car, devices on the car for temporarily engaging said cable and circuit closing devices likewise on the car whereby the electric motor may be controlled, substantially as specified.

8. In an elevator, the combination with the car or carriage, of a hydraulic apparatus for operating the same, consisting essentially of a cylinder, a piston therein, cable connections between the piston and the car and a reservoir or vessel containing fluid under pressure which is supplied to the cylinder, a separate and independent auxiliary electric motor, gearing driven by said motor, a cable running through the car and actuated by said gearing, electric connections between the car and the motor, a gripper on the car for engaging the auxiliary cable and circuit closing devices on the car whereby the motor is controlled, substantially as described.

519,115. ELECTRIC-RAILWAY-CONDUCTOR SUPPORT. JOHN C. HENRY, Westfield, N. J. Original application filed Sept. 27, 1889, Serial No. 325,244. Divided and this application filed Feb. 10, 1893. Serial No. 461,726. (No model.)



Claim.—1. The supports or hangers for the working conductors of an electric railway, of spring material made weaker or less tense on the extreme ends than at other parts, so as to automatically adjust themselves to the varying bends of the working conductors.

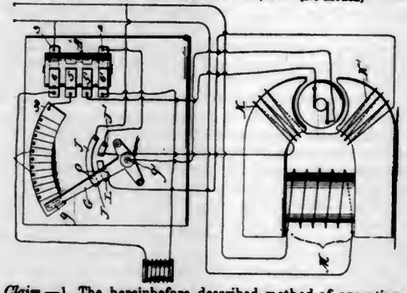
2. The supports or hangers for the working conductors of an electric railway, having arms connected at two points to said working conductors made of sheet metal with radial crimps, whereby the parting of the outer edges of the hanger-arms from the working conductors is prevented.

3. The combination of the two-armed hanger, the sectional conductor connected thereto and the continuous conductor supported from the said hanger by a spring in such manner as to be depressed below the sectional conductor on the passage of a trolley.

4. The combination of two working conductors, one being divided and the other yieldingly supported normally above the point of division so as to pass through and below the division on the passage of the trolley.

5. The combination of two crossing conductors, one being divided and the other yieldingly supported normally to one side of the point of division, and a trolley running on the yieldingly supported conductor and pressing it through the division in its passage.

519,116. ELECTRIC MOTOR. FRANK B. HERRMAN, Indianapolis, Ind. Filed July 19, 1892. Serial No. 440,457. (No model.)



Claim.—1. The hereinbefore described method of operating a motor provided with extra field winding, which consists in admitting current to the regular winding of the field in a circuit parallel to the armature circuit and to the extra winding in a circuit parallel with the circuit to the regular field winding initially admitting current to the armature through resistance and cutting out said extra field winding as the resistance is cut out of the circuit to the armature.

2. The hereinbefore described method of operating a motor provided with extra field winding which consists in admitting current to the regular winding of the field in a circuit parallel to the armature circuit and to the extra winding in a circuit parallel with the circuit to the regular field winding, initially admitting current to the armature through resistance, and cutting out said extra field winding gradually as the resistance is cut out of the circuit to the armature.

3. The hereinbefore described method of operating a motor provided with extra field winding, which consists in admitting current to the regular winding of the field in a circuit parallel to the armature circuit and to the extra winding in a circuit parallel with the circuit to the regular field winding, initially admitting current to the armature through resistance, and regulating the amount of said extra winding in action, proportional upon the amount of resistance in said circuit to armature.

4. The combination of a motor provided with extra field winding, a source of current supply, electrical connection with the armature of the motor, resistance in said circuit, an arm for controlling said resistance, a device for throwing said extra field winding in and out of circuit, and connection between said device and resistance arm, the connection being such that the circuit is closed to the extra winding when the greatest resistance is in the armature circuit, and electrical connection with the regular field winding independent of the circuit to the armature.

5. The combination of a motor provided with extra field winding, a source of current supply, electrical connection with the armature of the motor, resistance in said circuit, an arm for controlling said resistance, a device for throwing said extra field winding in and out of circuit, and means to operate said device to open the circuit to the extra field winding when the resistance arm moves in one direction, and to close said circuit when the arm moves in the other direction, and electrical connection with the regular field winding independent of the circuit to the armature.

6. The combination of a motor provided with extra field winding, a source of current supply, electrical connection with the armature of the motor, resistance in said circuit, an arm for controlling said resistance, a device adapted in its movement in one direction to gradually cut the extra field winding out of action, and in the other direction to gradually throw said winding into action, and means to cause said device to move in the direction to cut out said extra field winding when the resistance arm moves in the direction to cut out the resistance in the armature circuit and in the direction to throw said extra winding into circuit when the resistance arm moves in the direction to throw resistances into the armature circuit, and electrical connection with the regular field winding independent of the circuit to the armature.

7. The combination of a motor provided with extra field winding, a source of current supply, electrical connection with the armature of the motor, resistance in said circuit, a device for throwing said extra field winding in and out of circuit, said device being thrown into action to cut out said extra winding when the resistance in the armature circuit is reduced.

8. The combination of a motor provided with extra field winding, a source of current supply, electrical connection with the armature of the motor, resistance in said circuit, a device adapted in its movement in one direction to gradually cut the extra winding out of circuit, and in the other direction to gradually throw said extra winding into circuit, said device being rendered active and caused to move in the direction to cut out the extra winding when the resistance in the armature circuit is decreased and to move in the other direction when the resistance in the armature circuit is increased, and electrical connection with the regular field winding independent of the circuit to the armature.

9. The combination of a motor provided with extra field winding, a source of current supply, electrical connection between said source of current supply and extra field winding, a device for throwing said extra winding in and out of circuit, a solenoid in circuit with the source of current supply to operate said device, and adapted when said solenoid is energized to throw said coils in circuit, said solenoid being adjusted to the extreme current strength desired in main circuit, and electrical connection between the source of current supply and armature and regular field winding.

10. In combination a source of current supply, a motor provided with coils around the field magnets electrical connection between the source of current supply and the field coils of said motor, a switch, direct electrical connection between said switch and one pole of said source of current supply, a resistance, electrical connection between said switch and the resistance, an arm in electrical connection with the armature of the motor adapted to travel over and be in electrical connection with said resistances, direct electrical connection between the switch and the armature, a contact in direct electrical connection with the switch, a contact in direct electrical connection with the source of current supply, a contact in electrical connection with the other coil of the field magnet, a brush carried by said arm adapted to travel over the resistances, said brush being adapted to travel over and be in electrical connection with either the contact in electrical connection with the source of current supply and the contact in electrical connection with one of the coils, or the contact in direct electrical connection with the source of current supply and the contact in electrical connection with the switch.

11. In combination a source of current supply, a motor provided with coils around the field magnets, direct electrical connection between the field coils and source of current supply, a switch, brushes, as 3, 4, 5, 5′, a resistance, electrical connection between one pole of the current supply and brush 3, electrical connection between the armature of the motor and brush 5′, electrical connection between brush 5 and the resistances, a contact in electrical connection with the source of current supply, a pole opposite to that connected to the brush 3, a contact in electrical connection with one of the coils of the field magnet, a contact in electrical connection with the other coil of the field magnet and with brush 4, an arm adapted to travel over said resistances, said arm being in electrical connection with the armature of the motor, a brush carried by said arm, and adapted to travel over said contacts and to be at one time in connection with contact in electrical connection with the source of current supply and contact electrical connection with one of the coils or contact in electrical connection with the source of current supply and contact in electrical connection with brush 4.

12. In combination a source of current supply, a motor provided with coils around the field magnet, direct electrical connection between said source of current supply and the field coils of said motor, a switch, brushes as 3, 4, 5, 5′, electrical connection between one pole of the source of current supply and brush 3, a resistance, electrical connection between brush 5 and said resistance, electrical connection between brush 5′ and the armature of the motor and contact as J in electrical connection with the other pole of the source of current supply, and contact as J′ in electrical connection with brush 4 and also in electrical connection with one of the coils of the field magnet and contact as L in electrical connection with the other coil of the field, an arm carrying a brush adapted to travel over the resistances and in electrical connection with the armature and brush as O carried by and insulated from said arm and adapted to travel over and be in contact with either contacts J and L or J′ and J.

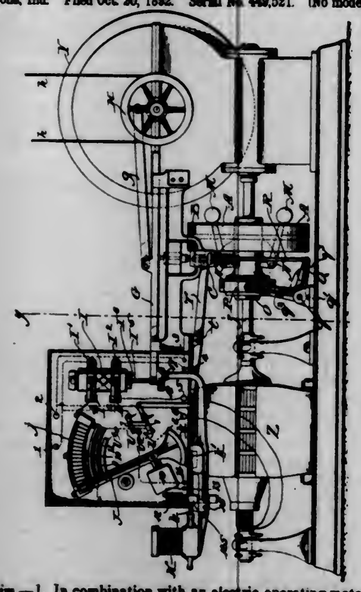
13. In combination a source of current supply, a motor provided with coils around the field magnet, electrical connection between the source of current supply and the field coils of said motor, a switch, direct electrical connection between said switch and one pole of said source of current supply, a resistance, electrical connection between said switch and the resistance, a contact, electrical connection between said contact and one of the coils of the field magnet, an arm carrying a brush adapted to pass over said resistances, said arm being in electrical connection with the armature of the motor, and contact in electrical connection with the other coil of the field magnet and in electrical connection with the switch and solenoid and contact in electrical connection with said solenoid core said solenoid core be-

ing in electrical connection with the source of current supply, an arm carried by said solenoid core, said arm being in electrical connection with the resistance arm, a brush on said arm adapted to travel over and rest against either the contact in electrical connection with one of the coils and the contact in electrical connection with said solenoid core or the contact in electrical connection with said solenoid core and the contact in electrical connection with the switch and the other coil of the field magnet.

14. In combination a source of current supply, a motor provided with coils around the field magnets, direct electrical connection between said source of current supply and the field coils of said motor, a switch, brushes as 3, 4, 5, 5', electrical connection between one pole of the source of current supply and brush 3, a resistance, electrical connection between brush 5 and said resistances, electrical connection between brush 5' and the armature of the motor, and contact as J' in electrical connection with brush 4 and with one of the coils of the field magnet, a contact as L in electrical connection with the other coil of the field magnet, an arm carrying a brush adapted to pass over said resistances, said arm being in electrical connection with said armature and solenoid, an arm carried by said solenoid core, the core of said solenoid being in direct electrical connection with one pole of the source of current supply, a contact as J in electrical connection with said solenoid core, the arm carried by said solenoid core being in electrical connection with the resistance arm, a brush upon said solenoid core arm adapted to rest against contact J and L or contact J and J'.

15. In combination a source of current supply, a motor provided with coils around the field magnets, direct electrical connection between the field coils and source of current supply, a switch, brushes as 3, 4, 5, 5', a resistance, electrical connection between one pole of the current supply and brush 3, electrical connection between the armature of the motor and brush 5, 5' electrical connection between brush 5 and resistance, an arm carrying a brush adapted to travel over said resistance, said arm being in electrical connection with the armature a contact in electrical connection with one of the coils, a contact in electrical connection with the other coil and with brush 4, a solenoid, electrical connection between the core of said solenoid and the source of current supply, an arm carried by said solenoid core, a contact in electrical connection with the solenoid, said arm carried by said solenoid core being in electrical connection with the resistance arm, a brush upon said solenoid arm adapted to travel over and rest against both contact in electrical connection with the solenoid core and contact in electrical connection with one of the coils, or contact in electrical connection with the solenoid core and contact in electrical connection with the switch and with the other coil.

519,117. ELECTRIC ELEVATOR. FRANK E. HERDMAN, Indianapolis, Ind. Filed Oct. 30, 1892. Serial No. 449,521. (No model.)



Claim.—1. In combination with an electric operating motor, an armature circuit controlling switch to said motor, resistances in the armature circuit, an arm in electrical connection with the armature of the motor and adapted to travel over said resistances, a segmental gear at the end of said arm, a secondary motor, as K, an armature circuit controlling switch for said motor, a worm driven by said motor meshing with said segmental gear on the resistance arm.

2. The combination with an electric operating motor, of an armature circuit controlling switch, resistances interposed between said switch and the armature circuit, a resistance arm in electrical connection with the armature of the motor and adapted to travel over said resistance, a secondary motor as K, said motor K being supported on a pivoted frame, connection between the shaft of said motor and the resistance arm, an armature circuit controlling switch for said motor, the frame of the motor K being provided with a roller as 17, an operating bar for operating the operating motor armature circuit controlling switch, an incline on said bar pressed against the said roller.

3. In an elevating apparatus, the combination with a source of power and mechanism for admitting or cutting off said power and operating shaft of a governor operated by said shaft, a lever, a weight upon said lever acting in opposition to the governor, intermediate connection between said lever and the power controlling mechanism and intermediate connection between the governor and the lever.

4. In an elevating apparatus, the combination with a source of power and mechanism for admitting or cutting off said power, of an operating shaft, a brake wheel upon said shaft, a brake upon said wheel, a weight which can be placed in opposition to the action of said brake, a governor operated by and operating the shaft acting against said weight, intermediate connection between said weight and the power controlling mechanism and intermediate connection between the governor and said weight.

5. In an elevating apparatus, the combination with a source of power and mechanism for admitting or cutting off said power, of an operating shaft, a governor operated by said shaft, a lever, a weight adjustable upon said lever and acting against said governor, an operating bar and intermediate connection between said bar and the adjustable weight adapted when said bar is moved to move said weight on said lever, intermediate connection between the lever and the power controlling mechanism, and intermediate connection between the governor and the brake lever.

6. In an elevating apparatus, the combination with a source of power and mechanism for admitting or cutting off said power, of an operating shaft, a governor operated by said shaft, a lever, a weight upon said lever, intermediate connection between said lever and the operating mechanism, a weight upon said lever acting against the governor, a sleeve upon the operating shaft adapted to be operated by said governor, and intermediate connection between said sleeve and brake lever.

7. In an elevating apparatus, the combination with a source of power and mechanism for admitting or cutting off said power, of an operating shaft, a lever, a weight upon said lever, a governor operated by said shaft acting against said weight, intermediate connection between said lever and the power controlling mechanism and intermediate connection between the governor and the lever, a bracket provided with lugs, one on either side of the lever placed above and below said lever in contact with the lugs, a bolt connecting said brakes and a spring arm upon the said bolt.

8. In an elevating apparatus, the combination with a source of power and mechanism for admitting or cutting off said power, of an operating shaft, a lever, a weight adjustable upon said lever, an operating bar, intermediate connection between said bar and the adjustable weight adapted when said bar is moved to move said adjustable weight on said lever, a governor operated by said shaft acting against said adjustable weight, intermediate connection between the lever and the power controlling mechanism and intermediate connection between the governor and the lever, a bracket provided with lugs, one on either side of the lever, plates above and below the lever in contact with the lugs, a bolt connecting said plates and a spring upon said bolt.

9. In an elevating apparatus, the combination with a source of power and mechanism for admitting or cutting off said power, of an operating shaft, a lever, a weight upon said lever, intermediate connection between said lever and the operating mechanism, a governor acting against said weight and operated by the said shaft and sleeved upon said shaft operated by said governor, an intermediate connection between said sleeve and the brake lever, a bracket provided with lugs, one on either side of the lever, plates above and below the lever in contact with the lugs, a bolt connecting said plates and a spring upon said bolt.

10. The combination with an electric operating motor of an armature circuit controlling switch to said motor, resistances in the armature circuit, an arm in electrical connection with the armature of the motor and adapted to travel over said resistances, a secondary motor as K, an armature circuit controlling switch for said motor, connection between the shaft of said motor and said resistance arm, an operating shaft, a lever, a weight upon said lever, a governor operated by said shaft, acting against said weight, intermediate connection between said lever and the armature circuit controlling switch for motor K, and intermediate connection between the governor and the lever.

11. In combination with an electric operating motor, an armature circuit controlling switch to said motor, resistances in the armature circuit, an arm in electrical connection with the armature of the motor and adapted to travel over said resistances, a secondary motor as K, an armature circuit controlling switch for said motor and connection between the shaft of said motor and said resistance arm, an operating shaft, a lever a weight upon said lever, said weight being adjustable upon said lever, an operatig bar and intermediate connection between said bar and the adjustable weight adapted when said bar is moved to move said adjustable weight on said lever, a governor operated by said shaft acting against said adjustable weight, intermediate connection between the lever and the armature circuit controlling switch of motor K, and intermediate connection between the governor and the brake lever.

12. In combination with an electric operating motor an armature circuit controlling switch to said motor, resistances in the armature circuit, an arm in electrical connection with the armature of the motor, and adapted to travel over said resistances, a secondary motor as K, an armature circuit controlling switch for said motor, connection between the shaft of said motor and said resistance arm, an operating shaft, a lever, a weight upon said lever, said weight being adjustable upon said lever, an operating bar and intermediate connection between said bar and the adjustable weight adapted when said bar is moved to move said adjustable weight of said lever, a governor operated by said shaft acting on said adjustable weight, intermediate connection between the lever and the armature circuit controlling switch of motor K.

13. In combination with an electric operating motor, an armature circuit controlling switch to said motor, resistances in the armature circuit, an arm in electrical connection with the armature of the motor and adapted to travel over said resistances, a secondary motor as K, an armature circuit controlling switch for said motor and connection between the shaft of said motor and said resistance arm, an operating shaft, a lever, a weight upon said lever, intermediate connection between the lever and the armature circuit controlling switch of motor K, a governor acting against the weight and operated by the said shaft, a sleeve upon said shaft operated by said governor and intermediate connection between said sleeve and the lever.

14. In combination with an electric operating motor, an armature circuit controlling switch to said motor, resistances in the armature circuit, an arm in electrical connection with the armature of the motor and adapted to travel over said resistances, a secondary motor as K, an armature circuit controlling switch for said motor, and connection between the shaft of said motor and said resistance arm, an operating shaft, a lever, a brake upon said lever, a governor operated by said shaft, acting against said brake, intermediate connection between said lever and the armature circuit controlling switch of motor K and intermediate connection between the governor and the lever, a bracket provided with lugs, one on either side of the lever arm, placed above and below the brake lever in contact with the lugs a bolt connecting said plates and a spring arm upon said bolt.

15. In combination with an electric operating motor, an armature circuit controlling switch to said motor, resistances in the armature circuit, an arm in electrical connection with the armature of the motor and adapted to travel over said resistances, a secondary motor as K, an armature circuit controlling switch for said motor, connection between the shaft of said motor and said resistance arm, an operating shaft, a lever, a weight upon said lever, a governor operated by said shaft, acting against said weight, intermediate connection between said lever and the armature circuit controlling switch of motor K, and intermediate connection between the governor and the lever, a bracket provided with lugs, one on either side of the brake arm, plates above and below the lever in contact with the lugs, a bolt connecting said plates, and a spring arm upon said bolt.

16. In combination with an electric operating motor, an armature circuit controlling switch to said motor, resistances in the armature circuit, an arm in electrical connection with the armature of the motor and adapted to travel over said resistances, a secondary motor as K, an armature circuit controlling switch for said motor, and connection between the shaft of said motor and said resistance arm, an operating shaft, a lever, a weight upon said lever, said weight being adjustable upon said lever, an operating bar and intermediate connection between said bar and the adjustable weight adapted when said bar is moved to move said adjustable weight on said lever, a governor operated by said shaft acting against said adjustable weight, intermediate connection between the lever and the power controlling mechanism, and intermediate connection between the governor and the lever, a bracket provided with lugs, one on either side of the lever, plates above and below the lever in contact with the lugs, a bolt connecting said plates, and a spring upon said bolt.

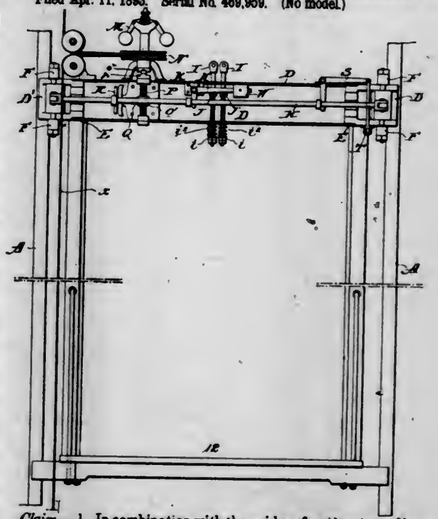
17. In combination with an electric operating motor, an armature circuit controlling switch to said motor, resistances in the armature circuit, an arm in electrical connection with the armature of the motor and adapted to travel over said resistances, a secondary motor as K, an armature circuit controlling switch for said motor, and connection between the shaft of said motor and said resistance arm, an operating shaft, a lever, a weight upon said lever, intermediate connection between the lever and the armature circuit controlling switch of motor K, a governor acting against the weight and operated by the said shaft, a sleeve upon said shaft operated by said governor and intermediate connection between said sleeve and the lever, a bracket provided with lugs, one on either side of the lever, plates above and below the lever in contact with the lugs, a bolt connecting said plates and a spring upon said bolt.

18. In an elevating apparatus, the combination, with power controlling mechanism of an operating shaft, a governor operated by said shaft, a weight acting in opposition to and movable with relation to said governor, and connection between the power controlling mechanism and said weight, and between said weight and the governor, whereby when the governor overcomes the weight the power controlling mechanism is operated.

19. In combination with an electric motor, a source of current supply, an armature controlling switch, resistances, a resistance arm in the armature circuit, electrical mechanism for moving said arm over the resistances, a switch to control the admission of current to the last mentioned mechanism, an operating shaft, a governor operated by said shaft, and connection between said governor and the last mentioned switch.

20. In an elevating apparatus, in combination with the elevating car and power controlling mechanism, an operating shaft, a governor operated by said shaft, means to control the adjustment of said governor (from the car) and intermediate connection between said governor and the power controlling mechanism.

519,118. ELEVATOR. FRANK E. HERDMAN, Indianapolis, Ind. Filed Apr. 11, 1893. Serial No. 469,959. (No model.)



Claim.—1. In combination with the guides of an elevator, of jaws adjacent to each of said guides and adapted to grip said guides, jaw operating devices, a connection between the jaw operating devices on opposite sides of the elevator shaft, lifting cable, a device attached to the elevator car, to which said cable is secured, and intermediate mechanism between said device and the connection between the jaw operating devices, substantially as described, whereby when the cable breaks the arm is operated.

2. In combination with the guides of an elevator, of jaws adjacent to each of said guides and adapted to grip said guides, jaw operating devices, a connection between the jaw operating devices on opposite sides of the elevator shaft, lifting cable, a beam secured to the elevator car, a rod passing through said beam and secured so as to be movable vertically, the lifting cable being secured to the said rod, and intermediate mechanism substantially as described between the connection between the jaw operating devices and the rod.

3. In an elevator the combination with the car and a beam secured to said car, of jaws secured to said beam at each end thereof

and adjacent to the elevator guides and adapted to grip said guides, one of said jaws being pivotally connected to the beam, cams or eccentrics to operate the pivoted jaws, a connection between said cams or eccentrics on opposite ends of the beam, a lifting cable, a device attached to the elevator car to which said cable is secured, an intermediate mechanism between said device and the connection between the jaw operating devices, substantially as described, whereby when the cable breaks the arm is operated.

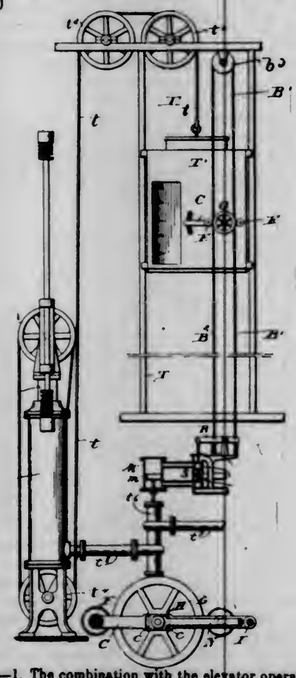
4. In an elevator the combination with the car and a beam secured to said car of a pair of jaws secured to said beam at each end thereof and adjacent to the elevator guides and adapted to grip said guides, one of each pair of said jaws being pivotally connected to the beam, cams or eccentrics to operate the pivoted jaws, a connection between said cams or eccentrics on opposite ends of the beam, a lifting cable, a rod passing through said beam and secured so as to be movable vertically, the lifting cable being secured to said rod, and intermediate mechanism substantially as described between the connection between the jaw operating devices and the rod.

5. In combination with the guides of an elevator, of jaws adjacent to each of said guides and adapted to grip said guides jaw-operating devices, a connection between the jaw-operating devices on opposite sides of the elevator shaft, a governor and connection between said governor and the connection between the jaw-operating devices.

6. In an elevator, in combination, an elevator car, guides for the car, brakes adapted to engage said guides, lifting cables, a weight, a weight-controller, a governor, operative connection between the governor and the weight controller, operative connection between the lifting cables and the weight controller, and connection between the weight and the brakes

---

519,119. ELEVATOR CONTROLLING DEVICE. FRANK E. HERDMAN, Winnetka, Ill. Filed Nov. 22, 1893. Serial No. 491,626. (No model.)



Claim.—1. The combination with the elevator operating mechanism and car of operating cables, connection between said cables and the operating mechanism, a lever, friction devices upon said lever adjacent to which the cables pass, said lever being slotted, a friction device having a bearing adapted to move in said slot and adjacent to which said cables pass, and an arm connected to said friction device, substantially as described.

2. The combination with the elevator operating mechanism and car, of operating cables, connection between said cables and operating mechanism, a lever, friction devices upon said lever adjacent to which the cables pass, said lever being slotted, a block in said slot, a friction device connected to said block adjacent to which the said cables pass, and an arm connected to said block, substantially as described.

3. The combination with the elevator operating mechanism of operating cables, connection between said cables and the operating mechanism, a lever, wheels on said lever adjacent to said cables, said lever being slotted, a wheel having a bearing adapted to move in said slot, said wheel being adjacent to said cables, and an arm connected to said wheel, substantially as described.

4. The combination with the elevator operating mechanism and car, of operating cables, connection between said cables and the operating mechanism, a lever, wheels on said lever, adjacent to said cables, said lever being slotted, a block in said slot, a wheel upon said block and an arm connected to said block, substantially as described.

5. The combination with the elevator operating mechanism and car, of operating cables, connection between said cables and the operating mechanism, a lever, friction devices upon said lever adjacent to which the cables pass, said lever being slotted, a friction device having a bearing adapted to move in said slot and adjacent to which said cables pass, and an arm connected to said friction device, said arm being bent and passing through a slot in the car, and provided with a bifurcated end, and said lever provided with a handle passing through said slot, substantially as described.

6. The combination with the elevator operating mechanism and car, of operating cables, connection between said cables and operating mechanism, a lever, friction devices upon said lever adjacent to which the cables pass, said lever being slotted, a block in said slot, a friction device connected to said block adjacent to which the cables pass, and an arm connected to said block, said arm being bent and passing through a slot in the car and provided with a bifurcated end, and said lever being provided with a handle passing through said slot, substantially as described.

7. The combination with the elevator operating mechanism of operating cables, connection between said cables and operating mechanism, a lever, wheels on said lever adjacent to said cables, said lever being slotted, a wheel having a bearing adapted to move in said slot, said wheel being adjacent to said cables, and an arm connected to said wheel, said arm being bent and passing through a slot in the car and provided with a bifurcated end, and said lever being provided with a handle passing through said slot, substantially as described.

8. The combination with the elevator operating mechanism and car, of operating cables, connection between said cables and operating mechanism, a lever, wheels on said lever adjacent to said cables, said lever being slotted, a block in said slot, a wheel connected to said block, an arm connected to said block, said arm being bent and passing through a slot in the car and provided with a bifurcated end, and said lever being provided with a handle passing through said slot, substantially as described.

9. The combination with the elevator operating mechanism and car, of operating cables, connection between said cables and the operating mechanism, a lever carried by the car, friction devices upon said lever adjacent to said cables, and a friction device having a bearing adapted to move along and with said lever, substantially as described.

10. In combination with the elevator operating mechanism and car, operating cables, connection between said cables and the operating mechanism, a lever carried by the car, wheels upon said lever adjacent to said cables, and a wheel adapted to move along and with said lever, substantially as described.

11. The combination with the elevator operating mechanism, comprising an operating cylinder valve an elevator car, and operating cables, of a controlling device consisting of a lever, friction devices upon said lever adjacent to which the cables pass, said lever being slotted, a friction device having a bearing adapted to move in said slot and adjacent to which said cables pass, an arm connected to said friction devices, and connection between said controlling device and said valve for regulating the speed of the movement of said valve, substantially as described.

12. The combination with the elevator operating mechanism, comprising an operating cylinder valve an elevator car, and operating cables, of a controlling device consisting of a lever, friction devices upon said lever adjacent to which the cables pass, said lever being slotted, a block in said slot, a friction device connected to said block adjacent to which the said cables pass, and an arm connected to said block; and connection between said controlling device and said valve for regulating the speed of the movement of said valve, substantially as described.

13. The combination with the elevator operating mechanism, comprising an operating cylinder valve an elevator car, and operating cables, of a controlling device consisting of a lever, wheels on said lever adjacent to said cables, said lever being slotted, a wheel having a bearing adapted to move in said slot, said wheel being adjacent to said cables, and an arm connected to said wheel, and connection between said controlling device and said valve for regulating the speed of the movement of said valve, substantially as described.

14. The combination with the elevator operating mechanism, comprising an operating cylinder valve an elevator car, and operating cables, of a controlling device consisting of a lever, wheels on said lever, adjacent to said cables, said lever being slotted, a block in said slot, a wheel upon said block and an arm connected to said block, and connection between said controlling device and said valve for regulating the speed of the movement of said valve, substantially as described.

15. The combination with the elevator operating mechanism, comprising an operating cylinder valve an elevator car, and operating cables, of a controlling device consisting of a lever, friction devices upon said lever adjacent to which the cables pass, said lever being slotted, a friction device having a bearing adapted to move in said slot and adjacent to which said cables pass, an arm connected to said friction device, said arm being bent and passing through a slot in the car and provided with a bifurcated end, and said lever being provided with a handle passing through said slot, and connection between said controlling device and said valve for regulating the speed of the movement of said valve, substantially as described.

16. The combination with the elevator operating mechanism, comprising an operating cylinder valve an elevator car, and operating cables, of a controlling device consisting of a lever, friction devices upon said lever adjacent to which the cables pass, said lever being slotted, a block in said slot, a friction device connected to said block adjacent to which the cables pass, an arm connected to said block, said arm being bent and passing through a slot in the car and provided with a bifurcated end, and said lever being provided with a handle passing through said slot, and connection between said controlling device and said valve for regulating the speed of the movement of said valve, substantially as described.

17. The combination with the elevator operating mechanism, comprising an operating cylinder valve an elevator car, and operating cables, of a controlling device consisting of a lever, wheels on said lever adjacent to said cables, said lever being slotted, a wheel having a bearing adapted to move in said slot, said wheels being adjacent to said cables, an arm connected to said wheel, said arm being bent and passing through a slot in the car and provided with a bifurcated end, and said lever being provided with a handle passing through said slot, and connection between said controlling device and said valve for regulating the speed of the movement of the said valve, substantially as described.

18. The combination with the elevator operating mechanism, comprising an operating cylinder valve an elevator car, and operating cables, of a controlling device consisting of a lever, wheels on said lever adjacent to said cables, said lever being slotted, a block in said slot, a wheel connected to said block, an arm connected to said block, said arm being bent and passing through a slot in the car and provided with a bifurcated end, and said lever being provided with a handle passing through said slot, and connection between said controlling device and said valve for regulating the speed of the movement of said valve, substantially as described.

19. The combination with the elevator operating mechanism, an elevator car and operating cables, of a controlling device consisting of a lever carried by the car, friction devices upon said lever adjacent to said cables, a friction device adapted to move along and with said lever, and connection between said controlling device and said operating mechanism for regulating the speed of the movement of said operating mechanism in starting and stopping the same, substantially as described.

20. The combination with the elevator operating mechanism, an elevator car and operating cables, of a controlling device consisting of a lever carried by the car, wheels upon said lever adjacent to said cables, a wheel adapted to move along and with said lever, and connection between said controlling device and said operating mechanism for regulating the speed of the movement of said operating mechanism in starting and stopping the same, substantially as described.

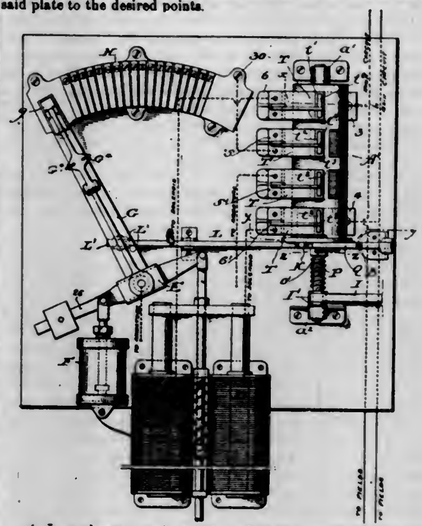
21. The combination with the elevator operating mechanism and car, of operating cables, connection between said cables and the operating mechanism, a lever carried by the car, friction devices upon said lever adjacent to said cables, and another friction device adapted to move with said lever, said last named friction device and the friction devices upon said lever being adapted to have a relative movement toward each other, substantially as described.

519,120. REGULATOR FOR ELECTRIC MOTORS. FRANK E. HERDMAN, Indianapolis, Ind. Filed Apr. 16, 1892. Renewed Jan. 11, 1894. Serial No. 496,546. (No model.)

Claim.—1. In a rheostat, a drum, adapted to be rotated, plates wound around said drum, one end of each plate being bifurcated, a source of current supply, brushes adapted to convey said current to the solid portions of said plates, and brushes adapted to convey current from the bifurcated ends of said plates to the desired points.

2. In a rheostat, a drum, adapted to be rotated, plates wound around said drum, one end of each plate being bifurcated, the bifurcated ends of each plate being of different lengths, a source of current supply, brushes adapted to convey said current to the solid portions of said plates, and brushes adapted to convey current from the bifurcated ends of said plates to the desired points.

3. In a rheostat, a drum, adapted to be rotated, plates wound around said drum, one end of each plate being bifurcated, said plates crossing each other upon said drum, a source of current supply, brushes adapted to convey said current to the solid portions of said plates, and brushes adapted to convey current from the bifurcated ends of said plate to the desired points.



4. In a rheostat, a drum adapted to be rotated, plates wound around said drum, one end of each plate being bifurcated, the bifurcated ends of each plate being of different lengths, said plates crossing each other upon said drum, a source of current supply, brushes adapted to convey said current to the solid portion of said plates, and brushes adapted to convey current from the bifurcated ends of said plates to the desired points.

5. In a rheostat, a drum, adapted to be rotated, plates wound around said drum, one end of each plate being bifurcated said plates crossing each other upon said drum and insulated at the point of crossing, a source of current supply, brushes adapted to convey said current to the solid portions of said plates, and brushes adapted to convey current from the bifurcated ends of said plates to the desired points

6. In a rheostat, a drum, adapted to be rotated, plates wound around said drum, one end of each plate being bifurcated, said plates crossing each other upon said drum and insulated at the point of crossing, a source of current supply, brushes adapted to convey said current to the solid portions of said plates, and brushes adapted to convey current from the bifurcated ends of said plates to the desired points

7. In combination, a drum adapted to be rotated, plates wound around said drum, one end of each plate being bifurcated, said plates crossing each other upon said drum a source of current supply, brushes in contact with said plates, and connected with the source of current supply, brushes two of which are adapted always to be in contact each with one of the plates, brushes intermediate, one adapted to make contact with different plates according to the direction in which the drum is turned, a solenoid, the first two brushes being in electrical connection with said solenoid, an arm adapted to be operated by said solenoid, electrical connection between the arm and armature of a motor, resistances, a brush carried by said arm adapted to pass over said resistances, electrical connection between one of the intermediate brushes and the resistances, and electrical connection between the other intermediate brush and the armature of the motor.

8. In combination, a drum adapted to be rotated, plates wound around said drum, one end of each plate being bifurcated, the bifurcated ends of each plate being of different lengths, said plates crossing each other upon said drum, a source of current supply, brushes in contact with said plates and connected with the source of current supply, brushes two of which are adapted always to be in contact each with one of the plates and brushes intermediate, one adapted to make contact with different plates according to the direction in which the drum is turned, a solenoid, the first two brushes being in electrical connection with said solenoid, an arm adapted to be operated by said solenoid, electrical connection between the arm and armature of the

motor, resistances, a brush carried by said arm adapted to pass over said resistances, electrical connection between one of the intermediate brushes and the resistances, and electrical connection between the other intermediate brush and the armature of the motor.

9. In combination, a drum adapted to be rotated, plates wound around said drum, one end of each plate being bifurcated, the bifurcated ends of each plate being of different lengths, said plates crossing each other upon said drum, a source of current supply, brushes in contact with said plates and connected with the source of current supply, brushes two of which are adapted always to be in contact each with one of the plates and brushes intermediate, one adapted to make contact with different plates according to the direction in which the drum is turned, a solenoid, the first two brushes being in electrical connection with said solenoid, an arm adapted to be operated by said solenoid, electrical connection between the arm and armature of the motor, resistances, a brush carried by said arm adapted to pass over said resistances, electrical connection between one of the intermediate brushes and the resistances and electrical connection between the other intermediate brush and the armature of the motor, a cam plate, a projection on said plate, a spring-actuated arm provided with a stop held against said cam plate, the spring-actuated arm being pivoted, and a bell crank lever attached to said arm in line with the arm moved by the solenoid.

10. In combination, a drum adapted to be rotated, plates wound around said drum one end of each plate being bifurcated, the bifurcated ends of each plate being of different lengths, said plates crossing each other upon said drum, a source of current supply, brushes in contact with said plates and connected with the source of current supply, brushes two of which are adapted always to be in contact each with one of the plates and brushes intermediate, one adapted to make contact with different plates according to the direction in which the drum is turned, a solenoid, the first two brushes being in electrical connection with said solenoid, an arm adapted to be operated by said solenoid, electrical connection between the arm and armature of the motor, resistances, a brush carried by said arm adapted to pass over said resistances, electrical connection between one of the intermediate brushes and the resistances and electrical connection between the other intermediate brush and the armature of the motor, a shaft upon said drum loosely connected to a collar on said shaft, a slot in said collar through which said pin projects, and a spring surrounding the end of said collar and connected to said shaft.

11. In combination, a drum adapted to be rotated, plates wound around said drum, one end of each plate being bifurcated, the bifurcated ends of each plate being of different lengths, said plates crossing each other upon said drum, a source of current supply, brushes in contact with said plates and connected with the source of current supply, brushes, two of which are adapted always to be in contact each with one of the plates and brushes intermediate, one adapted to make contact with different plates according to the direction in which the drum is turned, a solenoid, the first two brushes being in electrical connection with said solenoid, an arm adapted to be operated by said solenoid, electrical connection between the arm and armature of the motor, resistances, a brush carried by said arm adapted to pass over said resistances, electrical connection between one of the intermediate brushes and the resistances, and electrical connection between the other intermediate brush and the armature of the motor, a shaft upon which said drum is loosely connected to a collar on said shaft, a slot in said collar through which said pin projects, a spring surrounding the end of said collar and connected to said shaft, a cam plate, a projection on said plate, a spring-actuated arm provided with a stop held against said cam plate, the spring actuated arm being pivoted, a bell crank lever attached to said arm in line with the arm moved by the solenoid, notches on said cam plate and spring-actuated arm, and a stop connected to said arm and adapted to rest in the notches in the cam plate.

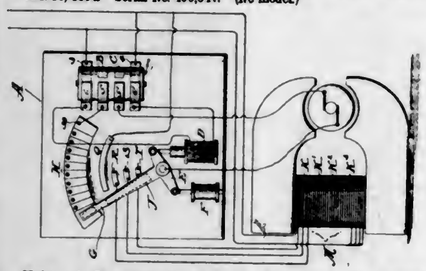
13. In a rheostat, a drum adapted to be rotated, four contacts wound upon said drum in pairs of equal length, each pair differing in length from the other pair, electrical connection between the poles of current supply and each pair of plates, means to convey current from each pair of plates to a separate circuit whereby when the drum is rotated the current is broken in one circuit before the other.

14. In a rheostat, a drum adapted to be rotated, four contacts wound upon said drum in pairs of equal length, each pair differing in length from the other pair, electrical connection between the poles of current supply and each pair of plates, means to convey current from one pair of plates to a translating device, resistances in said circuit, an arm adapted to travel over said resistances to vary the resistance in said circuit, a solenoid for operating said arm, said solenoid being in electrical connection with devices to receive the current from the other pair of plates, said pair of plates being the one of shorter length, whereby in the rotation of said drum the circuit to the solenoid is broken before the circuit to the translating device.

15. In a rheostat, a drum adapted to be rotated, four contacts wound upon said drum in pairs of equal length, each pair differing in length from the other pair, electrical connections between the poles of current supply and each pair of plates, means to convey current from one pair of plates to a translating device, resistances in said circuit, an arm adapted to travel over said resistances to vary the resistance in said circuit, a solenoid for operating said arm, said solenoid being in electrical connection with devices to receive the current from the other pair of plates, said pair of plates being the one of shorter length, a device for returning said arm when the solenoid ceases to act, and intermediate connection substantially as described between said arm and the drum whereby when the drum is rotated the circuit to the solenoid is first broken and said drum prevented from further rotating until the arm is returned over the resistances.

519,121. CONTROLLING DEVICE FOR ELECTRIC MOTORS.

FRANK E. HERDMAN, Indianapolis, Ind. Filed July 19, 1892. Renewed Jan. 11, 1894. Serial No. 496,547. (No model.)



Claim.—1. In combination, a source of current supply, a switch, electrical connection between said switch and the source of current supply, a rheostat, electrical connection between said rheostat and switch, a solenoid, electrical connection between said solenoid and switch, an arm operated by the core of said solenoid and adapted to travel over said rheostat, a motor, electrical connection between the source of current supply and field coils, electrical connection between the armature of motor and switch, an electrical connection between said armature and arm operated by solenoid, coils around the field magnets, contacts to which said coils are separately connected, said contacts being of different length, said coils also connected with the main circuit, and a contact connected with the other pole of the main circuit, and an arm adapted to pass over said contacts.

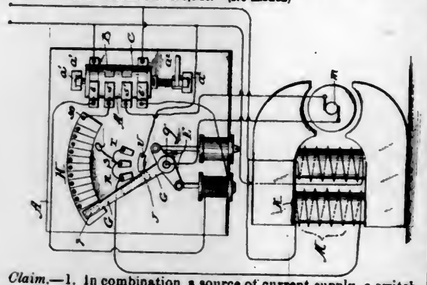
2. In combination a source of current supply, a switch, electrical connection between said switch and the source of current supply, resistances, electrical connection between said resistances and switch, a solenoid, electrical connection between said solenoids and switch, an arm operated by the core of said solenoid and adapted to travel over said resistances, a solenoid in electrical connection with said arm, a motor, electrical connection between the source of current supply and field coils electrical connection between the armature of the motor and the switch, electrical connection between said armature and solenoid in electrical connection with the arm, coils around the field magnets, contacts to which said coils are separately connected, said contacts being of different length, said coils also connected with the main circuit, a contact connected with the other pole of the main circuit, an arm adapted to pass over said said contacts, a toothed wheel on said arm, a trip attached to the core of the solenoid in electrical connection with the armature, said trip being adapted to work in the teeth of said toothed wheel.

3. In combination, a source of current supply, resistances electrical connection between said resistances and the source of current supply, an arm adapted to travel over said resistances, a motor, electrical connection between the source of current supply and the field coils, electrical connection between the armature of the motor and the source of current supply, electrical connection between said armature and said arm, coils around the field magnets, contacts to which said coils are separately connected, said contacts being of different length, said coils also connected with the main circuit and a contact connected with the other pole of the main circuit and an arm adapted to pass over said contacts.

4. In combination, a source of current supply, resistances electrical connection between said resistance and the source of current supply, an arm adapted to travel over said resistance, a solenoid in electrical connection with said arm, a motor electrical connection between the source of current supply and the field coils, electrical connection between the armature of the motor and the switch electrical connection between said armature and solenoid in electrical connection with the arm, coils around the field magnets, contacts to which said coils are separately connected, said contacts being of different length, said coils also connected with the main circuit, a contact connected with the other pole of the main circuit, an arm adapted to pass over said contacts, a toothed wheel on said arm, a trip attached to the core of the solenoid in electrical connection with the armature, said trip being adapted to work in the teeth of said toothed wheel.

519,122. CONTROLLING DEVICE FOR ELECTRIC MOTORS.

FRANK E. HERDMAN, Indianapolis, Ind. Filed July 19, 1892. Renewed Jan. 11, 1894. Serial No. 496,548. (No model.)



Claim.—1. In combination, a source of current supply, a switch, electrical connection between said switch and the source of current supply, a rheostat, electric connection between said rheostat and switch, a solenoid, electrical connection between said solenoid and switch, an arm operated by the core of said solenoid, and adapted to travel over said resistance, a motor, electrical connection between the source of current supply and fields, electric connection between the armature and switch, and electric connection between said armature and the arm operated by the solenoid, an extra coil around the field magnet, a resistance formed of a series of contacts, the first in direct electric connection with said extra coil, said extra coil also being in electrical connection with one pole of the source of current supply, and a contact of extent equal to said resistances in electric connection with the remaining pole of source of current supply, and an arm adapted to pass over said resistance contacts and said contact.

2. In combination, a source of current supply, a switch, electrical connection between said switch and the source of current supply, a rheostat, electric connection between said rheostat and switch, a solenoid, electrical connection between said solenoid and switch an arm operated by the core of said solenoid and adapted to travel over said resistance, a motor, a solenoid in electric connection with said arm, electric connection between the source of current supply and fields, electric connection between the armature of the motor and switch, and electric connection between said armature and solenoid in electric connection with the arm, an extra coil around the field magnet, a resistance formed of a series of contacts, the first in direct electrical connection with said coil, said coil also being in electrical connection with one pole of the source of current supply, and a contact of extent equal to said resistances in electrical connection with the remaining pole of source of current supply, an arm adapted to pass over said resistance contacts, and said contact, a toothed wheel on said arm, a trip attached to the core of the solenoid in electrical connection with the armature, said trip being adapted to work in the teeth of said toothed wheel.

3. In combination a source of current supply, a resistance electrical connection between said resistance and the source of current supply, an arm adapted to travel over said resistance, a motor, electrical connection between the source of current supply and fields electrical connection between the armature and the source of current supply and electrical connection between said armature and said arm an extra coil around the field magnet, a resistance, provided with a series of contacts, the first in electrical connection with said coil, said extra coil also being in electrical connection with one pole of the source of current supply and a contact of length equal to said series of resistance contacts and in electical connection with the remaining pole of the source of current supply and an arm adapted to pass over said resistance contacts and said contact.

4. In combination a source of current supply, a resistance, electrical connection between said resistance and the source of current supply, an arm adapted to travel over said resistance, a motor, a solenoid in electrical connection with said arm, electrical connection between the source of current supply and the field, electrical connection between the armature of the motor and the source of current supply and electrical connection between the armature and solenoid in electrical connection with the arm, an extra coil around the field magnet a resistance formed of a series of contacts, the first in direct electrical connection with said coil, said coil also being in electrical connection with one pole of the source of current supply, and a contact of extent equal to said resistances in electrical connection with the remaining pole of source of current supply, an arm adapted to pass over said resistance contacts and said contact, a toothed wheel on said arm, a trip attached to the core of the solenoid in electrical connection with the armature, said trip being adapted to work in the teeth of said toothed wheel.

5. The hereinbefore described method of operating a motor provided with extra field winding, which consists in admitting the current to the regular winding of the field in a circuit parallel to the armature circuit and to the extra winding in a circuit parallel to the regular field winding circuit, initially admitting current to the armature through resistances, and throwing resistances into the extra winding as the resistances are cut out of the circuit to the armature.

6. The hereinbefore described method of operating a motor provided with extra field winding, which consists in admitting the current to the regular field winding in a circuit parallel to the armature circuit and to the extra winding in a circuit parallel to the regular field winding circuit, admitting current to the armature through resistance, and throwing resistance into the circuit to the extra winding proportionately, but inversely, to the amount of resistance in the circuit to the armature.

7. The combination of a motor provided with extra field winding, a source of current supply, electrical connection with the armature of the motor, resistance in said circuit, an arm for controlling said resistance, electrical connection with the extra field winding, a device for throwing resistance in and out of the circuit to the extra winding, and connection between said device and the resistance arm of the circuit to the armature, the connection being such that the resistance in the circuit to the extra winding is least when the greatest resistance is in the armature circuit, and electrical connection with the regular field winding independent of the circuit to the armature.

8. The combination of a motor provided with extra field winding, a source of current supply, electrical connection with the armature of the motor, resistance in said circuit, an arm for controlling said resistance, electrical connection with the extra field winding, a device for throwing resistance in or out of, and varying the same in, the circuit to the extra winding, and connection between said device and the resistance arm of the circuit to the armature, the connection being such that the resistance in the circuit to the extra field winding is least when the greatest resistance is in the circuit to the armature, and electrical connection with the regular field winding independent of the circuit to the armature.

9. The combination of a motor provided with extra field winding, a source of current supply, electrical connection with the armature of the motor, resistance in said circuit, an arm for controlling said resistance, electrical connection with the extra winding, a device for throwing resistance in or out of the circuit to said extra field winding, connection between said device and the resistance arm, the connection being such that in the movement of the arm in one direction resistance is thrown into the circuit to the extra field winding, and in its movement in the other direction, the resistance is thrown out of the circuit to the extra field winding, and electrical connection with the regular field winding independent of the circuit to the armature.

10. The combination of a motor provided with extra field winding, a source of current supply, electrical connection with the armature of the motor, resistance in said circuit, an arm for controlling said resistance, electrical connection with the extra field winding, a device adapted in its movement in one direction to gradually throw resistance into the circuit to the extra field winding, and in the other direction to gradually cut out said resistance in the circuit to the extra field winding, and connection between said device and the resistance arm, the connection being such that in the movement of said arm in one direction resistance is gradually thrown into circuit to the extra field winding, and in the other direction gradually cut out of the circuit to the extra field winding.

11. The combination of a motor provided with extra field winding, a source of current supply, electrical connection with the armature of the motor, resistance in said circuit, electrical connection with the extra field winding, a device for throwing resistance in and out of circuit to the extra field winding, said device being thrown into action to throw resistance into the circuit to said extra field winding when the resistance in the circuit to the armature is reduced, and electrical connection with the regular field winding independent of the circuit to the armature

12. The combination of a motor provided with extra field winding, a source of current supply, electrical connection with the armature of the motor, resistance in said circuit, electrical connection with the extra field winding, a device adapted in its movement in one direction to gradually throw resistance into the circuit to the extra field winding, and in the other direction to gradually cut out the resistance from the circuit to the extra field winding, said device being rendered active and caused to move in the direction to throw the resistance into the extra field winding when the resistance in the circuit to the armature is decreased, and to move in the other direction when the resistance in the circuit to the armature is increased, and electrical connection with the regular field winding independent of the circuit to the armature.

13 An electric current transmitting or circuit-closing apparatus comprising essentially a circuit closing device, a secondary contact lever, a solenoid for operating the secondary lever, a circuit connection substantially as set forth whereby upon the closing of the circuit by the circuit closing device the secondary lever is automatically set in motion to gradually increase the strength or quantity of current flowing through the circuit, a second solenoid, in said circuit, adjusted to the desired current, and means to stop the movement of said contact lever when said last mentioned solenoid is rendered active.

14. In combination, a source of current supply, a switch, electrical connection between said switch and the source of current supply, a rheostat, electrical connection between said rheostat and switch, a solenoid, electrical connection between said solenoid and said switch, an arm operated by the core of said solenoid adapted to travel over said resistances, a motor, electrical connection between the source of current supply and the fields, an electrical connection between the armature of the motor and switch, said last mentioned circuit passing through the rheostat, a second solenoid, in the armature circuit, and said last mentioned solenoid being set for the desired current strength to the armature, and means to stop the movement of the resistance arm when said last mentioned solenoid is rendered active

15 In combination, a source of current supply, a resistance, electrical connection between said resistance and the source of current, supply and an arm adapted to travel over said resistance, a motor, electrical connection between the source of current supply and fields, electrical connection between the armature and the source of current supply, the strength of the current in said last mentioned circuit being regulated by said arm, a solenoid in the circuit to the armature, said solenoid being adjusted to the desired current, and means to stop the movement of the arm when said solenoid is rendered active

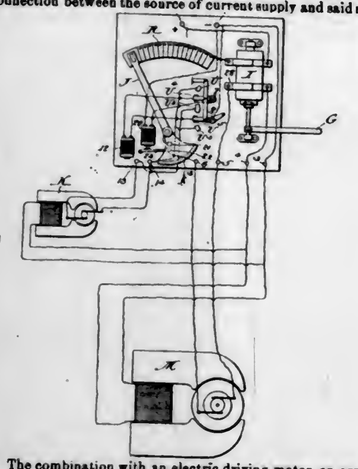
16 In combination, a source of current supply, a switch, electrical connection between said switch and the source of current supply, a rheostat, electrical connection between said rheostat and switch, a solenoid, electrical connection between said solenoid and switch, an arm operated by the core of said solenoid and adapted to travel over said resistances, a motor, electrical connection between the source of current supply and fields, electrical connection between the armature of the motor and switch, the strength of current in said last mentioned circuit being regulated by said arm, a second solenoid in the circuit to the armature, said solenoid being adjusted to the desired strength, a toothed wheel on said arm, a trip attached to the core of the last mentioned solenoid, said trip being adapted to work in the teeth of said toothed wheel.

17 In combination a source of current supply, a resistance, electrical connection between said resistance and the source of current supply, an arm adapted to travel over said resistance, a motor, electrical connection between the source of current supply and field, electrical connection between the armature and source of current supply, the strength of said last mentioned circuit being controlled by said arm, a solenoid, in the circuit to the armature, a toothed wheel on the resistance arm, a trip attached to the core of the last mentioned solenoid, said trip being adapted to work in the teeth of said toothed wheel

519,123. CONTROLLING DEVICE FOR ELECTRIC MOTORS.

FRANK R. HERDMAN, Indianapolis, Ind. Filed Oct. 20, 1892. Renewed Jan. 11, 1894. Serial No. 496,549. (No model.)

Claim.—1. The combination with an electric driving motor, an armature controlling switch, resistances interposed between the source of current supply and armature of motor, an arm, in electrical connection with and adapted to travel over said resistances, a gear on the end of said arm, a worm meshing with said gear, a motor as K, to operate said worm, an armature controlling switch for said motor K, electric connection between the contacts of said switch and armature of motor K, devices for operating said motor switches, a contact as 21 connected to resistance arm, a contact as 22, said last contact being in electrical connection with the armature of driving motor, a pivoted lever to which said contact 22 is connected, said contacts 21 and 22 being in line with each other, an electro-magnet, the armature of which is in line with the lever carrying contact 22, and electrical connection between the source of current supply and said magnet.

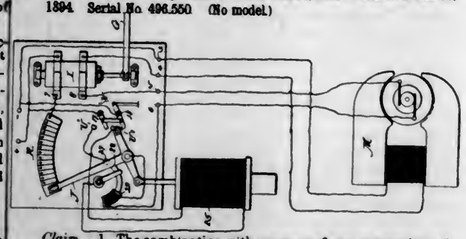


2. The combination with an electric driving motor, an armature controlling switch, resistances interposed between the source of current supply and armature of motor, an arm in electrical connection with and adapted to travel over said resistances, electrical connection between said arm and armature of driving motor, a gear on the end of said arm, a worm meshing with said gear, a motor as K to operate said worm, an armature controlling switch for said motor K, connection between said switch and source of current supply, contacts as U' U^3, U^3, electric connection between one pole of armature of driving motor and contact U' and U^3 and between the other pole of armature and contact U^3 Contacts as U^4 and U^5, a brake on the shaft of motor K, a magnet to operate said brake and electrical connection between said magnet and contacts U^4 and U^5 and controlling mechanism for each of said armature controlling switches

3 The combination with an electric driving motor of an armature circuit controlling switch, resistances interposed in said armature circuit, a resistance arm in electric connection with the armature and resistances and adapted to travel over said resistances, a gear on the end of said arm, a motor the shaft of which operates a worm meshing with said gear, electric connection between said motor and the source of current supply, an armature circuit controlling switch for said motor, an operating bar to operate said switch, a spring connection between said bar and the switch, a bar as 24 connected to said switch, said bar being centrally pivoted, a projection on the resistance arm in line with the end of said arm

519,124. ELECTRIC-MOTOR-CONTROLLING APPARATUS.

FRANK R. HERDMAN, Indianapolis, Ind. Filed Oct. 20, 1892. Renewed Jan. 11, 1894. Serial No. 496,550. (No model.)



Claim.—1. The combination with a source of current supply, and an electric motor of an armature current controlling switch, resistances in circuit with said switch, an arm in circuit with the armature of the motor and adapted to travel over said resistances, a solenoid, the core of which is connected to said arm, an independent solenoid controlling switch, electric connection between said switch and current supply and between said switch and solenoid and independent operating devices for each of said switches.

2. The combination with a source of current supply and an electric motor of an armature circuit controlling switch, resistances in circuit with said switch, an arm adapted to travel over said resistances, electric connection between said arm and armature of motor, a solenoid through which said connection passes, the core of said solenoid carrying a brush, a solenoid the core of which is connected with said resistance arm, a solenoid controlling switch, electric connection between said switch and a contact as 27, and electrical connection between said solenoid and brush 28 carried by first mentioned solenoid core.

3. The combination with a source of current supply, and electric motor, a resistance interposed between the armature of the motor and source of current supply, a resistance arm in electric connection with said resistance and with said armature of the motor, a solenoid the core of which is connected with said arm, electrical connection between said solenoid and the source of current supply, a dash pot, the piston of which is connected with said resistance arm, a cylinder for said piston adapted to receive and contain a fluid and pipes leading from the lower to the upper portion of said cylinder.

4. The combination with a source of current supply, an electric motor, resistances interposed between the armature of the motor and source of current supply, a resistance arm in electrical connection with said resistance and with said armature of the motor, a solenoid the core of which is connected with said arm, electrical connection between said solenoid and the source of current supply, a dash pot, the piston of which is connected with said resistance arm, a cylinder for said piston adapted to receive and contain a fluid, a pipe leading from the upper to the lower portion of said cylinder, said pipe terminating in two branch pipes, cocks on said pipes, a cock on the main pipe and the controlling cock on the main pipe also.

5. The combination with a source of current supply and an electric motor of an armature current controlling switch, resistances in circuit with said switch, an arm in circuit with the armature of the motor and adapted to travel over said resistances, a solenoid the core of which is connected to said arm, an independent solenoid controlling switch, electric connection between said switch and current supply and between said switch and solenoid and independent operating devices for each of said switches, a dash pot connected to said resistance arm, a cylinder adapted to hold liquid, a pipe leading from the upper to the lower portion of said cylinder, a cock on said pipe, connection between said cock and the solenoid controlling the switch operating device.

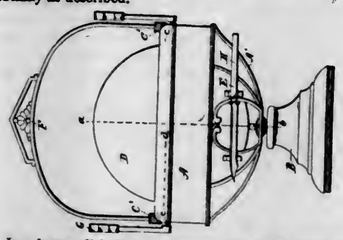
6. The combination with a source of current supply and an electric motor of an armature circuit controlling switch, resistances in circuit with said switch, an arm adapted to travel over said resistances in circuit with said switch, an arm adapted to travel over said resistances, electric connection between said arm and armature of motor, a solenoid through which said connection passes, the core of said solenoid carrying a brush, a solenoid, the core of which is connected with said resistance arm, a solenoid controlling switch electric connection between said switch and a contact as 27, and electrical connection between said solenoid and brush 28 carried by first mentioned solenoid core, a dash pot, the piston of which is connected to the resistance arm, a cylinder adapted to contain liquid, a pipe connecting the bottom and top of said cylinder, a valve in said pipe, a lever connected to the core of the first mentioned solenoid and intermediate connection between said lever and said valve.

7. The combination with a source of current supply and an electric motor of an armature circuit controlling switch, resistances in circuit with said switch, an arm adapted to travel over said resistances, electric connection between said arm and armature of motor, a solenoid through which said connection passes, the core of said solenoid carrying a brush, a solenoid the core of which is connected with said resistance arm, a solenoid controlling switch, electric connection between said switch and a contact as 27, and electrical connection between said solenoid and brush 28 carried by first mentioned solenoid core, an operating bar for operating the armature controlling switch, an inclined plane as 35, attached to said bar said inclined plane having a lever pivoted to a projection on the core of the first mentioned solenoid in line with the end of said lever.

519,125. BUTTER-DISH.

ROWLAND HILL, Meriden, Conn. Filed Feb. 21, 1894. Serial No. 500,971. (No model.)

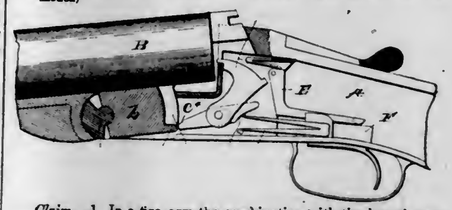
Claim.—1. In a butter-dish, the combination with the frame thereof, of a cover swiveled therein, reversing weights connected with the said cover and extending vertically upward when the same is in its open position, and vertically downward when the same is in its closed position, a knife-holder having geared connection with the said cover, whereby the cover is swung into its closed position when the knife-holder is depressed, and whereby the knife-holder is restored to its elevated position when the cover is swung into its open position, a butter-receptacle smaller in diameter than the cover with which it is concentric, and a counter-weight located in the chamber formed between the butter receptacle and cover, pivotally connected with the latter, supported in an elevated position by the cover when the same is closed so as to start the same in opening when the knife is removed from the knife-holder and the equilibrium of the parts thus destroyed, substantially as described.



2. In a butter-dish, the combination with the frame thereof, of a cover swiveled therein and provided upon its upper edge with an inwardly projecting semi-circular flange forming a weight, reversing weights connected with the said cover, and extending vertically upward when the same is in its open position, and vertically downward when the same is in its closed position, a knife-holder carried by a bail, the inner ends of which have pivotal connection with the said frame, and which has geared connection with the swinging cover, whereby the cover is swung into its closed position when the knife-holder is depressed, and whereby the knife-holder is restored to its elevated position when the cover is swung into its open position, a butter receptacle smaller in diameter than the cover with which it is concentric, and constructed at its upper edge with a horizontal flange cut away to receive the semi-circular inwardly projecting flange of the cover, and with a rim which rests upon the frame, a counter-weight located in the chamber formed between the butter receptacle and cover, pivotally connected with the latter, and supported in an elevated position by the cover when the same is closed so as to start the same in opening when the knife is removed from the knife holder and the equilibrium of the parts thus destroyed, substantially as described.

519,126. COCKING MECHANISM FOR BREAKDOWN GUNS.

FRANK A. HOLLENBECK, Syracuse, N. Y., assignor to the Syracuse Arms Company, same place. Filed June 10, 1893. Serial No. 477,176. (No model.)



Claim.—1. In a fire arm the combination with the barrels provided with cocking shoulders, of the hammers, cocking arms therefor movable longitudinally with respect to said hammers adapted to be engaged by said shoulders, substantially as described.

2. In a fire arm the combination with the barrels, provided with cocking shoulders, of the hammers, cocking arms therefor movable longitudinally with respect to said hammers, main springs engaging said cocking arms for actuating said hammers, and maintaining the said cocking arms in operative relation with said cocking shoulders, substantially as described.

3. In a fire arm the combination with the barrels provided with cocking shoulders, of the hammers, cocking arms movable longitudinally with respect to said hammers, said arms and shoulders having the one cam faces to engage the other parts to move said arms longitudinally, in assembling the parts of the gun, and springs for maintaining said arms in operative position with respect to said shoulders, substantially as described.

4. In a fire arm, the combination with the barrels provided with cocking shoulders, of the hammers, each having a recess provided with parallel walls, cocking arms engaging the recesses of the hammers, and capable of moving longitudinally of said recesses and the springs engaging cam portions of said arms for holding them normally in operative position with respect to said cocking shoulders, substantially as described.

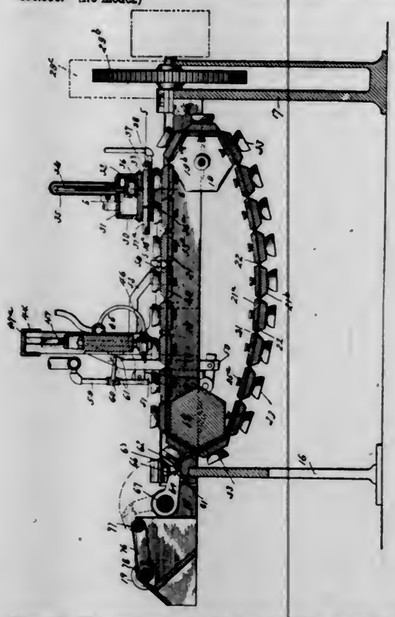
5. In a fire arm the combination with the barrels provided with a lug having the cocking shoulders, of the hammers, the cocking arms for said hammers connected therewith but movable longitudinally with respect to the same, said arms having cam surfaces for en-

gaging the cocking shoulders when the parts of the gun are assembled, and the maid springs for the hammers engaging cam portions of the said cocking arms for holding said arms in operative position with respect to said cocking shoulders, substantially as described.

6. In a fire arm the combination with the barrels, provided with cocking shoulders, of the hammers, each having a recess provided with parallel walls, a pivot bolt for said hammers, and a cocking arm for each hammer engaging the said recess in said hammer and provided with a slot engaging said pivot bolt, substantially as described.

519,127. MACHINE FOR MANUFACTURING CLAY PIGEONS.

WILLIAM G. JONES, Findlay, Ohio. Filed July 24, 1893. Serial No. 481,355. (No model.)



Claim.—1. The combination with a frame, of a cross-head vertically movable upon the frame, sliding blocks arranged upon the frame, bell-crank levers located upon the sides of the machine and having connections with the sliding blocks and the cross-head, whereby movement may be given to the sliding blocks as the cross-head ascends or descends, substantially as described.

2. The combination with a frame and a belt, carrying molds located upon said frame, of fingers carrying pockets thereon and located on the frame, means for raising and lowering said fingers, substantially as described.

3. The combination with a frame and a belt, carrying molds located upon said frame, of fingers mounted upon a shaft located upon the frame and having pockets thereon, the said fingers carrying a locking pin adapted to engage a portion of the shaft, and means for engaging and disengaging the locking pin, substantially as described.

4. The combination with a frame having a receiver comprising a material chamber and a steam chamber, located upon the frame, the said material chamber being located within the steam-chest of the receiver, of a belt composed of sections, with a mold or series of molds arranged upon each section, the said belt having projections adapted to be engaged by pawls carried by sliding blocks located on opposite sides of the machine, and means for giving movement to the sliding block, substantially as described.

5. The combination with a frame provided with wheels journaled on said frame and having a belt with molds carried by the wheels of, ejectors located within the molds and adapted to be forced upwardly by one of the wheels, fingers carrying pockets arranged in front of the wheel, substantially as described.

6. The combination with a frame and a belt, carrying molds arranged upon said frame, the said belt having ejectors located within each mold, of cooling devices arranged above the molds for contracting the articles when molded, fingers carrying pockets arranged to receive the articles when ejected from the molds, substantially as described.

7. The combination with a frame and a belt, carrying molds provided with ejectors located thereon, of fingers adapted to receive the molded articles when ejected, a locking bar located on the frame and engaging the belt, and means for releasing the locking bar, substantially as described.

8. The combination with a frame, of a traveling apron carried by rollers journaled on said frame, a belt composed of sections having a mold or series of molds carried by each section, and fingers arranged between the belt and the apron and adapted to receive the molded articles from the molds and to place them upon the traveling apron, substantially as described.

9. The combination with a frame and a belt, carrying molds located upon said frame, the said belt composed of blocks or sections and having projections therefrom, of a sliding-block located on a slide-bar secured to the frame and carrying a pawl adapted to engage the projections on the blocks or sections of the belt, a cross-head working in guides located on the machine, levers connecting the cross-head to the sliding-blocks, a locking-bar engaging the projections during the backward movement of the sliding-block for holding the belt stationary, and means for actuating the locking bar, substantially as described.

10. The combination with a frame, of a receiver comprising a steam-chest, a material chamber, and valve-chests located within the steam-chest, valves located within the valve-chests and having connections with the material chamber, a rock-shaft arranged upon the receiver and connected to the valves and means for operating the rock-shaft, substantially as described.

11. The combination with a frame, and an endless belt carrying molds located upon said frame, of guides secured to the frame and having a slot extending lengthwise thereof, a cross-head working in guides and carrying plungers, the said cross-head carrying a guide-bar which passes through the slots of the guides and having secured to the ends thereof eccentric rods actuated by eccentrics secured to the drive shafts, a sliding-block located on the frame and moved by the cross-head for giving movement to the belt, substantially as described.

12. The combination with a frame provided with wheels journaled on said frame and having a belt with molds carried by the wheels, of a sliding block located on the frame and carrying a pawl engaging projections on the belt and means for actuating the sliding block, substantially as described.

13. The combination with a frame and guides located upon the frame, of a cross-head working in the guides, and carrying a guide-bar, depending levers connected to the guide-bar and actuating bell-crank levers pivoted to the frame of the machine, levers connecting the sliding-blocks to the bell-crank levers, and means for actuating the cross-head, substantially as described.

14. The combination with a frame and an endless belt carrying molds located upon said frame, the said belt composed of blocks or sections and having projections therefrom, of a sliding-block located on a slide-bar secured to the frame and carrying a pawl adapted to engage the projections of the blocks or sections of the belt, a cross-head working in guides located on the machine, levers connecting the cross-head to the sliding-blocks, and means for actuating the cross-head, substantially as described.

15. The combination with a frame and a belt carrying molds located upon said frame, pipes for cooling purposes located above the molds and each provided with a valve, a cross-head working in guides secured to the frame, means for actuating the cross-head, devices carried by the cross-head for automatically opening and closing the valves of said pipes, substantially as described.

16. The combination with a frame and a belt carrying molds located upon said frame, of a locking-bar engaging a portion of the belt, a bell-crank lever pivoted to the frame and engaging the locking bar at one of its ends, a cam secured to the drive shaft for actuating the bell-crank lever, substantially as described.

17. The combination with a frame and a belt carrying molds located upon said frame, of a sliding-bar held upon the frame and engaging projections on the belt, a bell-crank lever pivoted to the side of the frame and engaging the sliding-bar with one of its ends, and carrying a roller on the other end, a cam secured to the drive shaft and adapted to raise the bell-crank lever, substantially as described.

18. In a machine of the character described, the combination with a frame, of fingers carrying pockets thereon and located on said frame, means for raising and lowering said fingers, substantially as described.

19. The combination with a shaft and means for rotating the shaft, of a locking pin carried by the fingers and adapted to engage a portion of the shaft, means for engaging and disengaging the locking-pin with or from the shaft, substantially as described.

20. The combination with a shaft and means for rotating the shaft, of a locking-pin carried by the fingers and normally pressed against the shaft, a tooth or projection carried by the shaft and adapted to engage the locking-pin, a lever engaging the locking-pin, and means for throwing the locking pin out of engagement with the tooth of the shaft, substantially as described.

21. The combination with a shaft and means for rotating the shaft, of a locking pin carried by the fingers and normally pressed against the shaft by a spring, a tooth or projection carried by the shaft, and adapted to engage the locking pin, a bell-crank lever at one of its ends engaging the locking pin and at its other end a projection adapted to engage a bar located on the machine for releasing the locking pin, means for returning the fingers to their normal position, substantially as described.

22. The combination with a frame, of a traveling apron carried by rollers journaled on said frame, a shaft located in front of the apron, and means for revolving the shaft, the said shaft carrying fingers for depositing objects upon the apron, means for connecting the shaft to one of the rollers of the traveling apron for giving movement to said apron, substantially as described.

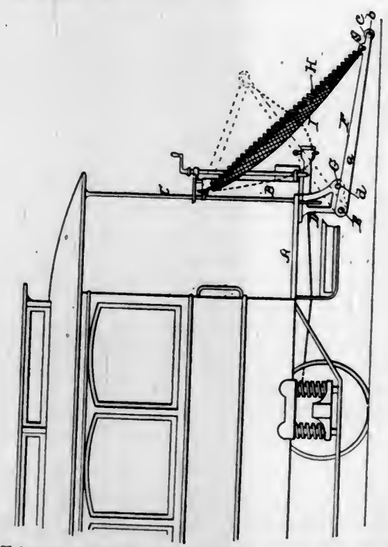
23. The combination with a frame, of a belt comprising a series of sections or blocks, each block composed of two pieces and clamping a flexible apron between the pieces for securing the blocks together, a mold or series of molds provided with a stem which is arranged within a recess in each section or block, a spring-pressed ejector located within and carried by each mold, and means for actuating said ejector, substantially as described.

24. The combination with a receiver, having a material chamber and valve-chests provided with inlet and outlet ports one of which connects with said chamber, of valves located within the valve-chests and having supplemental valves or plungers located in said chests and yieldingly connected to the former, and means for actuating the valves, substantially as described.

25. The combination with a receiver having a material chamber and valve-chests provided with inlet and outlet ports one of which connects with said chamber, of valves located within the valve-chests and having supplemental valves or plungers located in said chests, the said supplemental valves yieldingly held to the main valves, a rock-shaft located on the receiver and engaging the groove of a cam-wheel secured to the drive-shaft, a lever connecting the rock-shaft to the valves, substantially as described.

519,128. CAR-FENDER.

SAMUEL C. KINDIG, Baltimore, Md., assignor of one-half to Lee Biden, same place. Filed Oct. 9, 1893. Serial No. 487,606. (No model.)



Claim.—1. A car fender having a frame consisting of side bars and forward end bar, the side bars being pivoted to brackets pendent from the car, provided with a horizontal bolt passing through said brackets and engaging the top of said frame to hold it normally down, and springs for raising it when released by the withdrawal of the bolt, as set forth.

2. A car fender consisting of a pivoted frame, a flexible net secured thereto in combination with springs for normally raising the frame and forming a bag or pocket of the net, a trip bolt to hold the frame down having a lip to prevent its withdrawal, and a spring to withdraw the bolt when released, as set forth.

3. In combination the car, the brackets dependent therefrom, the cross bar in said brackets, the spring supported frame pivotally supported thereon, the trip bolt passing through the said brackets and having a lip to engage the top of the frame bars, and a withdrawal spring for the bolt as set forth.

4. In combination, a spring supported car fender frame pivoted to the car, a stop bolt held over the sides of the frame by a pendent lip thereby securing the bolt in an inclined downward and forward position, and a withdrawal spring to withdraw the stop bolt when the frame is forced downward by concussion or otherwise, as set forth.

5. In combination, a car fender frame pivoted to the car, springs for supporting the frame whose normal tendency is to raise its outer forward end up toward the car, a stop for holding the frame, against the action of the supporting springs, in a forward and downward inclined position whereby concussion with an obstruction will force the frame downward toward the track and releasing means operated by such concussion whereby the stop is removed and the frame left free to be raised by the supporting springs, as set forth.

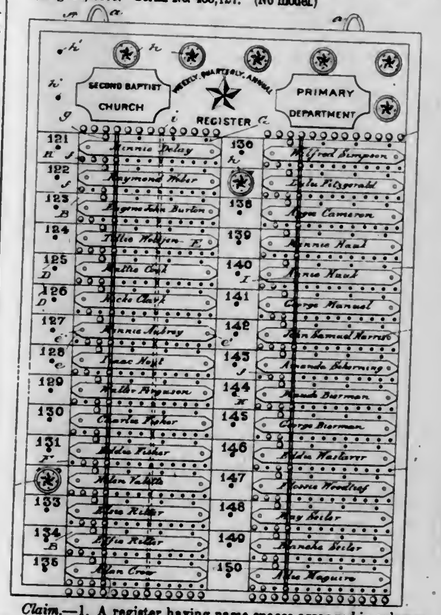
519,129. PROCESS OF SMELTING ORES.

HERBERT LANG, Tacoma, Wash. Filed Sept. 9, 1893. Serial No. 485,164. (No specimens.)

Claim.—The herein described process for smelting ores of gold, silver, copper, cobalt, nickel, and other valuable metals, consisting in smelting the ores to a matte or speiss, melting the matte or speiss, transferring it to the top of a suitable furnace in which smelting is going on, and pouring the matte or speiss into the furnace so as to bring it in contact with the ore and gases in the furnace, substantially as and for the purpose described.

519,130. REGISTER.

FRANCIS H. LUDINGTON, St. Louis, Mo. Filed Aug. 14, 1893. Serial No. 483,127. (No model.)



Claim.—1. A register having name spaces arranged in columns, and having series of holes for weekly registration as described, in combination with a vertically arranged and laterally adjustable guide crossing the series of holes and having openings therein to register with said holes, substantially as described.

2. A register having name spaces arranged in columns and each space having holes for weekly, quarterly and annual registration, and three sets of pins for said registration, in combination with a vertically arranged and laterally adjustable guide crossing the series of holes and having openings therein to register with each of said sets of holes substantially as described.

519,131. EDGE-FOLDER FOR FABRICS.

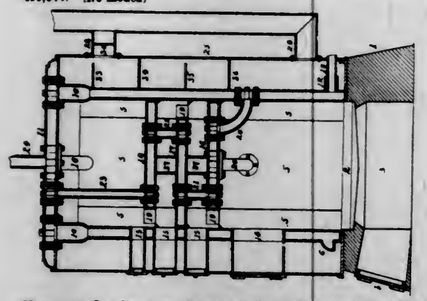
ROBERT W. S. MITCHELL and JOHN MURPHY, Passaic, N. J. Filed May 11, 1893. Serial No. 473,758. (No model.)

Claim.—In edge folders for fabrics the blank herein shown and described consisting of the rectangular body C and the tail piece *e*

constructed integrally, the tail piece being axially perpendicular with the body; the recess *b* formed in the body C approximately centrally having a wide opening on the top and the walls gradually converging toward the bottom, the opposite vertical walls having their lines of curvature approximately concentric so as to produce the lip *g*; and the two counterpart, parallel slots *c c* located adjacently to the upper left corner of the body C as shown.



519,132. HOT-WATER HEATING-BOILER. DOCTOR F. MORGAN, Akron, Ohio. Filed Apr. 14, 1892. Renewed Feb. 12, 1894. Serial No. 499,977. (No model.)



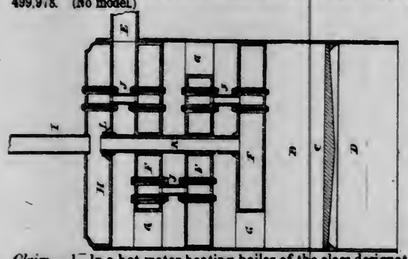
Claim.—1. In a hot water heating boiler, a boiler body consisting of hollow shells in form of segments of a hollow cylinder, internally connected and clamped together, combined with a series of hollow disks mounted in said body and internally connected therewith and with each other, each having a side space to constitute a flue, and hollow dome internally connected with said disks and body, substantially as shown and described.

2. The hollow cylindrical boiler body, having hollow walls, combined with horizontal hollow disks, having side spaces for smoke flues, and a hollow dome, said body, disks and dome being internally connected, the spaces in adjacent disks being arranged alternately on opposite sides of said body, substantially as shown and described.

3. The boiler body having hollow walls, and the hollow disks, and dome, said body and dome being internally connected, combined with pipes connecting said body and lower disk, and pipes connecting said adjacent disks, and the upper disk and dome, the entrance and exit pipes of each disk being arranged to alternate on opposite sides of the body, substantially as shown and described.

4. The combination of the hollow body, consisting of hollow segmental shells internally connected, and the hollow dome internally connected with said body, and the hollow disks having smoke spaces arranged to alternate in adjacent disks, and internally connecting water pipes, uniting said disks, body and dome, the entrance and exit pipes of each disk arranged alternately therein, with the inclosing case connected with the uptake flue, and a series of baffle plates between said case and body, the openings in said plates arranged alternately at the back and near the front, substantially as shown and described.

519,133. HOT-WATER HEATING-BOILER. DOCTOR F. MORGAN, Akron, Ohio. Filed Aug. 9, 1892. Renewed Feb. 12, 1894. Serial No. 499,978. (No model.)

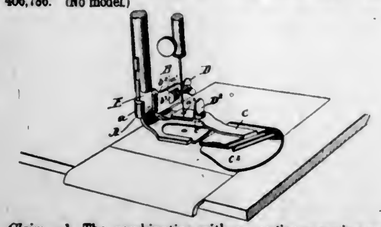


Claim.—1. In a hot-water heating boiler of the class designated, the combination with the upper and lower sections, of a continuous pipe uniting and in communication only with the interiors of said sections, having its lower end directly above the crown-sheet of the lower section and its upper end near, and in alignment with, the flow-pipe, substantially as shown and described and for the purpose specified.

2. In a hot-water heating boiler of the class designated, the combination with the hollow shells, and the dome and its flow-pipe, of a continuous pipe uniting the interiors, and in communication only with the lower shell and dome, through the upper face of the former and lower face of the latter, its upper end being in alignment with the flow-pipe, substantially as described.

3. In a hot-water heating boiler of the class designated, the combination with the lower shell, the dome and its flow-pipe, and the intermediate shells having openings for its passage, of a continuous pipe uniting the interiors only of the lower shell and dome, and passing through the openings in the intermediate shells, substantially as shown and described.

519,134. ATTACHMENT-HOLDER FOR SEWING-MACHINES. WINSLOW R. PARSONS, Chicago, Ill. Filed Sept. 25, 1891. Serial No. 406,786. (No model.)

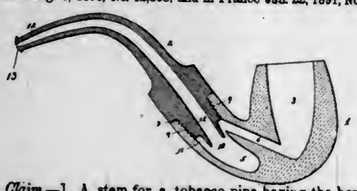


Claim.—1. The combination with an ordinary sewing-machine presser-foot and presser-bar of attachment-holder parts A B, which clamp the presser-foot shank or presser-bar between them and are united by a screw D, said part A having a horizontal or substantially horizontal portion a^3 which projects forward to one side of the needle-hole, and an attachment shank supported by said portion a^3, substantially as hereinbefore specified.

2. The combination with a sewing-machine presser-foot and a presser-bar of an attachment-holder which comprises a part A having a horizontal or substantially horizontal portion a^3, in front of the presser-bar, provided with a stud-pin and a screw-threaded hole perpendicular to its surface, a thumb-screw D^3 fitted to said hole, and a laterally adjustable shank C having a pivot-hole fitted to said stud-pin, and an open slot loosely fitted to said thumb-screw beneath its head, said thumb-screw serving at once to keep said stud-pin and pivot-hole interlocked and to fasten the adjusted attachment-shank, substantially as hereinbefore specified

3. In an attachment-holder for sewing-machines, the part A having the hook *a* and lug *a'*, the latter provided with the screw-threaded hole a^5, in combination with the part B having the oppositely bent end *b* and lip b^2 the opening *b'* in said end *b* the lug b^3 and the slot b^4 behind said lug b^3, and a thumb-screw D fitted to said hole a^5, and serving to unite said parts and to tighten the holder upon a presser-foot shank or presser-bar, substantially as hereinbefore specified.

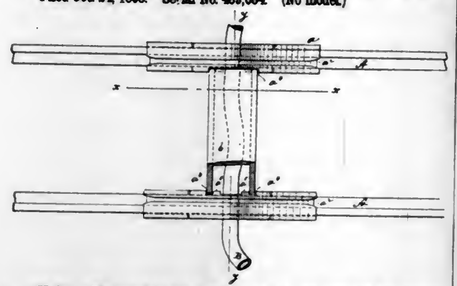
519,135. TOBACCO-PIPE. CHARLES PETERSON, Dublin, Ireland. Filed Sept. 2, 1891. Serial No. 404,495. (No model.) Patented in England Aug. 8, 1890, No. 12,393, and in France Jan. 22, 1891, No. 210,944.



Claim.—1. A stem for a tobacco pipe having the bore at the mouth end abruptly coned and contracted to its meeting with the outer surface of said mouth end, thus leaving a small suction hole bounded by the thin edge at the junction of such conical surface of the bore with the outer surface of the mouth end, substantially as described.

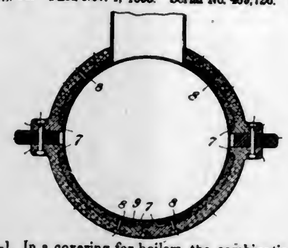
2. A tobacco pipe comprising a bowl with a pocket, and channel connecting the said pocket with the tobacco receptacle of said bowl, and a stem having at the lower end a tubular extension passing beyond the outer end of said channel into the said pocket, substantially as described.

519,136. HOSE-BRIDGE. HENRY SANDROCK, New York, N. Y. Filed Oct. 24, 1893. Serial No. 489,034. (No model.)



Claim.—The combination of blocks *a*, having longitudinal groove *a'*, transverse perforation a^2, flanges a^3, and an open groove a^4, around such perforation with a tubular casing *b*, adapted to engage groove a^4, substantially as specified.

519,137. COVERING FOR BOILERS. WILLIAM A. SCOTT, Jr., Pittsburg, Pa. Filed Nov. 1, 1893. Serial No. 489,726. (No model.)



Claim.—1. In a covering for boilers, the combination of a harness formed of longitudinal and transverse metal strips resting upon the boiler and a series of fire clay tiles secured to the harness whereby the tiles are held upon the boiler, substantially as set forth.

2. In a covering for boilers, the combination of boards or supports running longitudinal of the boiler and a series of fire clay tiles adapted to fit around the boiler and provided with angular portions adapted to be secured to the boards or supports, substantially as set forth.

3. A fire clay tile for covering boilers having its inner face shaped to conform to or approximately to the shell to be covered, and provided at one end with a portion formed at an angle to the body of the tile and perforated for the passage of bolts, whereby the tile may be secured to a suitable support arranged longitudinal of the boiler, substantially as set forth.

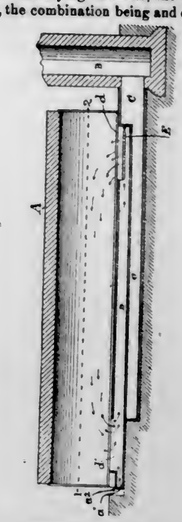
4. In a covering for boilers, the combination of a series of tiles fitting around the boiler and provided on their inner sides with ribs and tie strips provided with lugs engaging said ribs, thereby preventing a separation of the ends of adjacent tiles, substantially as set forth.

519,138. DRYING-KILN. CHARLES H. SEAMAN, St. Joseph, Mo. Filed Feb. 28, 1893. Serial No. 464,143. (No model.)

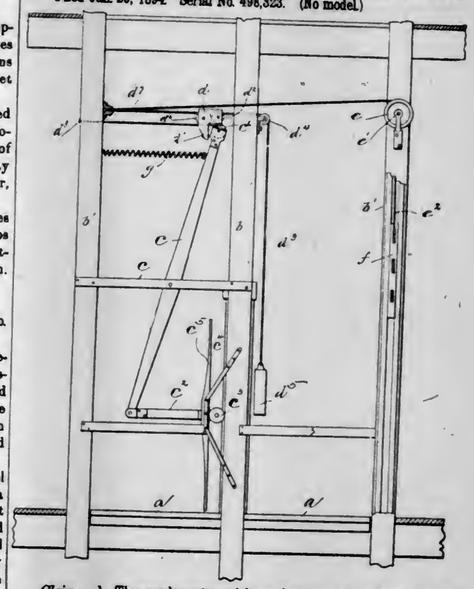
Claim.—1. In combination with a drying chamber having the described bottom flue provided with the openings *d. d'*, the hot air passage D communicating therewith as set forth, and having its rear end closed and a heating furnace therein in its upper side, and the sub-flue or vapor passage C, extending from the stack and located at both sides of and under the hot air passage or flue D, to near its forward end, all substantially as set forth.

2. In a kiln drier, in combination with a drying chamber or tunnel with a stack or chimney beyond and outside of the same as set forth, a vapor passage C, beneath such chamber and parallel therewith, a hot air passage or flue surrounded at its sides and bottom as shown and described by such vapor passage, this vapor passage extending to and terminating at its rear end in said chimney and constituting the only connection between the drying chamber and chimney; the upper side of said vapor passage being flush with the bottom of said chamber and having openings therein to communicate with said chamber, and provided with dampers to open and close said openings as set forth, said hot-air flue communicating near both of its ends with the inside of said chamber, by openings *d. d'*, in its top at its ends, and a furnace in one of its ends operating to draw a current of hot air repeatedly through the chamber and through the hot air flue, all substantially as described.

3. In a drying kiln, the combination with a drying chamber or tunnel, of the vapor passage C beneath such chamber and parallel therewith, having its upper side flush with the bottom of the chamber and provided with openings *c.* to communicate with said chamber, and with dampers *c'.* over said openings, the stack or chimney, B, located beyond and outside of the tunnel, the heat flue D, located within said passage *c.* and having the openings *d. d'*, near its opposite ends directly into the drying chamber, the fresh air inlet *a'*, and its cock or damper, the combination being and operating as set forth.



519,139. SAFETY-GATE FOR ELEVATORS. WILLIAM J. SLYDER, Troy, Ohio, assignor of one-half to Charles Kessler, same place. Filed Jan. 29, 1894. Serial No. 498,323. (No model.)



Claim.—1. The combination with an elevator car, and a movable gate, a vibrating lever operated by said car, and a housing adjacent to said lever, a weight attached to said housing by a flexible connection which passes around a sheave or support in said lever, and means, substantially as described, for connecting said gate to said housing, substantially as specified.

2. The combination with an elevator car and a movable gate, of a vibrating lever, a housing provided with a projection adjacent to said

lever and adapted to contact therewith, a weighted rope or cable connected to said housing and passing over suitable supports in said housing and lever, respectively, a connection from said housing to said elevator gate, and means, substantially as described, for vibrating said lever by the movement of the elevator car, substantially as specified.

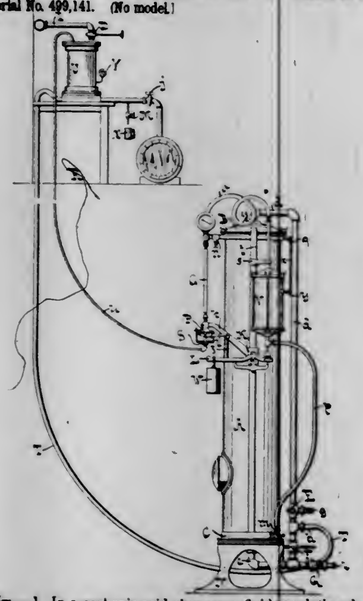
3. The combination with an elevator car, and a moving gate, of a vibrating lever, connections from said lever to said gate, a pivoted arm connected to said lever, a roller on said arm adapted to operate in suitable ways adjacent to said elevator car, a projection on said car to engage with said arm, and a yielding guide for said roller, substantially as specified.

4. The combination with a vibrating lever, and a movable gate, an arm connected to said lever, an elevator car having a projection thereon for operating said arm, a housing adjacent to said lever, said housing being provided with a projection to contact with said lever, a rope or cable connected at one end to said projection and passing in opposite directions around suitable supports in said lever and housing, respectively, a weight on the end of said cable, and a connection from said housing to the movable gate, substantially as specified

5. The combination with an elevator car, of a vibrating lever, a housing adjacent to said lever having a series of supporting pulleys or sheaves therein, a projection on said housing to contact with said lever, and a support or pulley in said lever, a weighted rope connected at one end to said projection and passing in opposite directions over the supporting pulleys in said lever and housing, respectively, and a weight on said rope, operating ropes or cables extending over the supporting pulleys in said housing, and movable gates connected to said ropes or cables, substantially as specified.

6. The combination with an elevator car and a vibrating lever, a pivoted arm connected at one end to said lever, and a spring guide for said arm, a projection on said elevator car to contact with said arm and move the same, a spring connected to said lever, and means, substantially as described, for connecting said lever to a movable gate, substantially as specified.

519,140. APPARATUS FOR CHARGING LIQUIDS WITH CARBONIC ACID. JACOB F. THEURER, Milwaukee, Wis., assignor to the Universal Carbonating Company, Newark, N. J. Filed Feb. 5, 1894. Serial No. 499,141. (No model.)



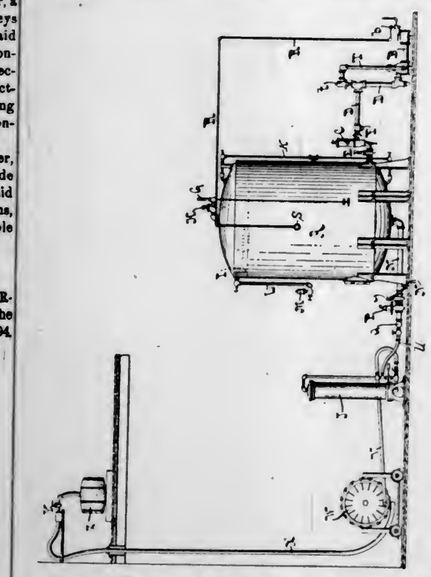
Claim.—1. In a carbonic acid charger, a fluid regulating device automatically operated from the charger, combined with an auxiliary regulating device acting in opposite direction to the primary regulating device, and operative connections between the auxiliary regulating device and a distant station, substantially as described.

2. In a carbonic acid charger of the character specified, the combination with the automatic regulating device, of a regulating apparatus such as described operated from the racking floor, connected with the scale beam and adapted to vary the effective thrust of the scale beam by the hand of the operator, substantially as described.

In a carbonic acid charger of the character specified, the combination with the automatic regulating device, of a diaphragm apparatus connected to the scale beam of the automatic regulating device, a receiver adapted to hold gas under pressure connected by a tube with the chamber of the diaphragm apparatus, a supply pipe for compressed gas connected to the receiver and provided with means for admitting gas to the receiver and for discharging it therefrom, substantially as described.

4. In combination with the charger A, regulating vessel V, scale beam L, diaphragm apparatus P and connections, of a diaphragm apparatus S, gas receiver U connected to the chamber of the diaphragm apparatus S by a tube *u*, a pressure gage B, a supply pipe I for compressed gas, and means for admitting gas to the receiver and for discharging it therefrom, substantially as described.

519,141. IMPREGNATING BEER WITH CARBONIC ACID. JACOB F. THEURER, Milwaukee, Wis., assignor to the Universal Carbonating Company, Newark, N. J. Filed Feb. 5, 1894. Serial No. 499,142. (No model.)



Claim.—1. The within described method of supplying beer to carbonic acid charges, which consists in forcing the beer against pressure into a receiving tank, maintaining a substantially constant pressure in said tank and supplying the beer to the charger at a reduced constant pressure, substantially as specified.

2. In a plant for impregnating beer with carbonic acid, the combination of a receiving tank, a pump adapted to receive beer from the ordinary storage vessels, pipe connections from the discharge opening of the pump to the receiving tank, means substantially as described for establishing a substantially constant gas pressure within the tank, connections with interposed reducing valve from the bottom of the receiving tank to one or more carbonic acid chargers, and connections from the latter to the racking cocks, substantially as shown and described.

3. In a plant for impregnating beer with carbonic acid, the combination of a receiving tank, a beer pump adapted to receive beer from the ordinary storage vessels, pipe connections from the discharge opening of the pump to the receiving tank, means, substantially as described, for maintaining a substantially constant gas pressure within the receiving tank, connections with interposed reducing valve from the bottom of the tank to one or more carbonic acid chargers, thence to one or more filters and from there to the racking cocks, substantially as and for the purpose specified.

4. In a plant for impregnating beer with carbonic acid, the combination of a receiving tank, a beer pump adapted to receive beer from the ordinary storage vessels, pipe connections from the discharge opening of the pump to the lower part of the receiving tank with interposed lantern C, valve E and cock F; means, substantially as described, for maintaining a substantially constant gas pressure within the receiving tank, and connections, with interposed reducing valve, from the bottom of the receiving tank to one or more carbonic acid chargers and thence to the racking cocks, substantially as and for the purpose specified.

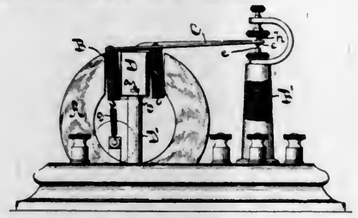
5. In a plant for impregnating beer with carbonic acid, the combination of a receiving tank, a beer pump adapted to receive beer from the ordinary storage vessels, pipe connections from the discharge opening of the pump to the receiving tank, means, substantially as described, for maintaining a substantially constant gas pressure within the receiving tank, a pneumatic regulating device on the steam pipe for the pump connected by a pipe with the upper part of the receiving tank, and connections, with interposed reducing valve, from the bottom of the receiving tank to one or more carbonic acid chargers and thence to the racking cocks, substantially as and for the purpose specified.

6. In a plant for impregnating beer with carbonic acid, a receiving tank, a beer pump adapted to receive beer from the ordinary storage vessels, pipe connections from the discharge opening of the pump to the tank, a by-pass in said connections leading back to the suction chamber of pump and provided with a valve, means, substantially as described, for establishing a constant pressure within the tank, one or more chargers, racking cocks, and connections with interposed reducing valve from the tank to the chargers and thence to the racking cocks, substantially as shown and described.

7. In a plant for impregnating beer with carbonic acid, the combination of a receiving tank, a pump adapted to receive beer from the ordinary storage vessels, connections from the discharge opening of the pump to the tank, a pipe and reducing valve adapted to supply gas under substantially constant pressure to the top of the tank, a gas discharge pipe L with escape valve M and a float valve I, and chargers, racking cocks and connections, substantially as described.

8. In a plant for impregnating beer with carbonic acid, the combination of beer pump B, receiving tank A, connections from the pump to the receiving tank, a pipe G for supplying compressed gas to the tank A, with interposed reducing valve H, a discharge pipe L for the compressed gas with escape valve M and float valve I, one or more carbonic acid chargers connected to the tank,—the connections being provided with a reducing valve P,—one or more filters, racking cocks, and connections from the chargers to the filters and from the filters to the racking cocks, substantially as shown and described.

519,142. RELAY. HORACE S. L. VERLEY, Hoboken, N. J. Filed Jan. 13, 1894. Serial No. 496,737. (No model.)



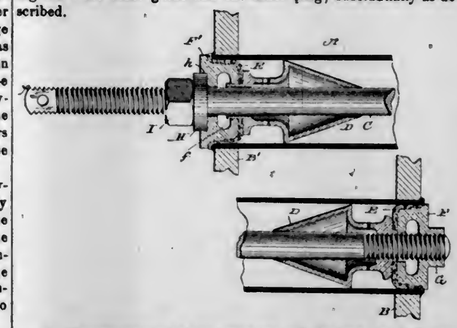
Claim.—1. In a relay, the combination of a primary actuating magnet, a pivoted coil disposed between the poles of the same, a contact arm projecting from said coil and participating in the movements thereof, a contact for the same, and an auxiliary electro-magnet in the circuit of the primary magnet arranged near the free end of the contact arm and acting simultaneously with the primary magnet, substantially as and for the purpose set forth.

2. In a relay, the combination with the primary contact actuating magnet, of an auxiliary magnet arranged in the line circuit to act upon said contact arm and provided with a contact *e* for said arm, substantially as described.

519,143. BOILER-TUBE EXPANDER AND STOPPER. JAMES WATSON, Liverpool, England. Filed Feb. 28, 1893. Serial No. 464,140. (No model.) Patented in England Jan. 26, 1892, No. 1,515.

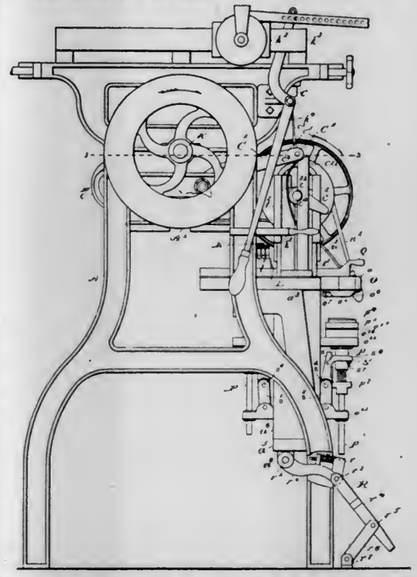
Claim.—1. The combination of the operating rod C, having a screw threaded inner end, the inner guide D, formed with a head having a screw thread connecting it with the inner end of the rod, the inner plug F, formed with a stepped periphery *h'*, an angular projection G, and a screw thread connecting it with the inner end of the rod, a flexible insertion E of sufficient diameter to overlap the stepped periphery of the plug, secured between the guide and the plug the outer guide, and the outer plug; substantially as described.

2. The combination of the operating rod C, having a screw threaded outer end, the outer guide D, formed with a head having a sleeve *f*, provided with a screw-thread, the outer plug F formed with a stepped periphery *h'*, a recess *h* and a screw thread connecting it with the sleeve, a flexible insertion E, adapted to overlap the stepped periphery of the plug, secured on the sleeve between the head and the plug, the lead washer H located in the recess of the plug, a securing nut I the inner guide and the inner plug; substantially as described.



3. The combination of the operating rod, the inner guide D, provided with a head having screw threaded connection with the rod, the inner plug F, having screw threaded connection with the rod, the piece of flexible material E secured between the head and the plug, and adapted to overlap the latter, the outer guide D provided with a head sliding upon the rod, the outer plug F having a recess *h* and screw-threaded connection with the head of the outer guide, a washer H located in the recess, and a securing nut I working on the rod and bearing against the washer; substantially as described.

519,144. HEEL-NAILING MACHINE. ALBERT WHITE, Lowell, Mass., assignor to Samuel C. Smith, same place. Filed Aug. 2, 1893. Serial No. 482,191. (No model.)



Claim.—1. The combination of a table, a clamp, supported thereby, a rod, arranged below said clamp, a pressure-plate, a spring arranged between said rod and pressure-plate, a lever, arranged below said rod to force said rod and pressure-plate toward said clamp, and a spring-actuated catch to engage a projection with which said rod is provided, to prevent said rod from moving away from said clamp, as and for the purpose specified.

2. The combination of a table, a clamp, supported thereby, a rod, arranged below said clamp and movable therewith, said rod being externally screw-threaded, a pressure-plate, carried by said rod, a lever, arranged below said rod to force said rod and pressure-plate toward said clamp, a collar or annular projection, having an internal screw-thread which engages the screw-thread on said rod, to enable said collar to be adjusted on said rod, and a spring-actuated catch to engage said collar, as and for the purpose specified.

3. The combination of a table, a clamp, supported thereby, a rod, arranged below said clamp, a pressure-plate, a knuckle catch-lever, provided with a shoulder to engage a projection, with which said rod is provided, and a spring to hold said catch-lever against said projection, as and for the purpose specified.

4. The combination of the table, having nail perforations and on its under surface provided with a clamp, adapted to hold a heel below said table and said nail perforations, a rotary shaft, a cam fast on said shaft, nail drivers, arranged in line with said perforations and caused to have a reciprocating motion by the revolution of said cam and shaft, a pressure-plate arranged below said clamp, a rod, carrying said pressure-plate and adapted to be raised to force said pressure-plate against a heel in said clamp, a spring-actuated catch, to engage a projection with which said rod is provided and to hold said pressure-plate against said heel, a vertically-sliding releasing-rod, provided with a finger, a spring, normally holding up said releasing-rod, and a pin carried by said shaft and adapted to strike and force downward said releasing-rod and to disengage said catch and allow said pressure-plate to be forced downward by the pressure of said nail-drivers, as and for the purpose specified.

5. The combination of a movable table, a shaft, a clutch, one member of which rotates with said shaft and is movable longitudinally thereon, a constantly rotating pulley, loose on said shaft and carrying the other member of said clutch, a spring, normally closing said clutch, a starting lever, adapted to hold said clutch open and to be moved to allow said clutch to be closed, a bolt and a fixed support in which said bolt is adapted to be moved by said movement of said starting lever to enter a hole, with which said table is provided, when said hole is in line with said bolt, and said table being arranged in the path of said bolt to prevent at other times such movement of said bolt and thereby to prevent said movement of said starting-lever, as and for the purpose specified.

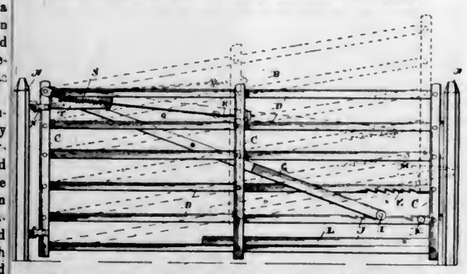
6. The combination of a movable table, having a heel-clamp and a series of nail perforations, an equal series of nail drivers, arranged at equal intervals with said nail-perforations, a clutch-shaft, a clutch, one member of which rotates with said shaft and is movable longitudinally thereon, a constantly-rotating pulley, loose on said clutch-shaft and carrying the other member of said clutch, a spring to close said clutch, a starting lever, adapted to hold said clutch open and to be moved to allow said clutch to be closed, a cam, fast on said clutch-shaft to impart a reciprocating motion to said nail-drivers, when said clutch-shaft is rotated, a bolt and a fixed support, in which said bolt is adapted to be moved by said movement of said starting lever, to enter a hole, with which said table is provided, when said nail-drivers are in line with the corresponding nail perforations, said table being arranged in the path of said bolt to prevent at other times such movement of said bolt; and thereby to prevent said movement of said starting lever, as and for the purpose specified.

7. The combination of a constantly-rotating cam-shaft, cams secured thereon, lifter-levers, operated by said cams, a lifter-bar pivoted in said levers, lifters, lifter-rods, connecting said lifters and said lifter-bar and each formed in two parts jointed to each other, an incline, adapted to be struck by said lifter-bar, to turn said bar and to bend said lifter-rods, a clutch-shaft, a clutch, one member of which rotates with said clutch shaft and is movable longitudinally thereon, the other member of said clutch constantly rotating and loose on said clutch-shaft, a spring, to close said clutch, a starting lever, adapted to hold said clutch open and to be moved to allow said clutch to be closed, nail-drivers, a cam, fast on said clutch-shaft, to give a reciprocating motion to said nail-drivers, when said clutch-shaft is rotated, another cam, fast on said cam-shaft and another lever, moved by said cam to engage said starting lever and to prevent the movement of the same when said lifters are at the highest point of their traverse, as and for the purpose specified.

8. The combination of a constantly-rotating cam-shaft, cams secured thereon, lifter-levers, operated by said cams, a lifter-bar, pivoted in said levers, lifters, lifter-rods, connecting said lifters and said lifter-bar and each formed in two parts jointed to each other, an incline, adapted to be struck by said lifter-bar, to turn said bar and to bend said lifter-rods, a clutch shaft, a clutch, one member of which rotates with said clutch shaft and is movable longitudinally thereon, the other member of said clutch constantly rotating and loose on said clutch-shaft, a spring, to close said clutch, a starting lever, adapted to hold said clutch open and to be moved to allow said clutch to be closed, nail-drivers, a cam, fast on said clutch-shaft, to give a reciprocating motion to said nail-drivers, when said clutch-shaft is rotated, and another cam, fast on said clutch-shaft and adapted to move said incline out of the path of said lifter-bar, once in every revolution of said clutch-shaft, as and for the purpose specified.

9. The combination of a constantly-rotating cam-shaft, cams, secured thereon, lifter-levers, operated by said cams, a lifter-bar pivoted in said levers, lifters, lifter-rods, connecting said lifters and said lifter-bar and each formed in two parts jointed to each other, an incline, adapted to be struck by said lifter-bar, to turn said bar and to bend said lifter-rods, a clutch-shaft, a clutch, one member of which rotates with said clutch shaft and is movable longitudinally thereon, the other member of said clutch constantly rotating and loose on said clutch-shaft, a spring, to close said clutch, a starting lever, adapted to hold said clutch open and to be moved to allow said clutch to be closed, nail-drivers, a cam, fast on said clutch-shaft, to give a reciprocating motion to said nail-drivers, when said clutch-shaft is rotated, and a wiper, fast on said shaft and adapted to strike a projection, with which said lifter-bar is provided, to straighten said lifter-rods, as and for the purpose specified.

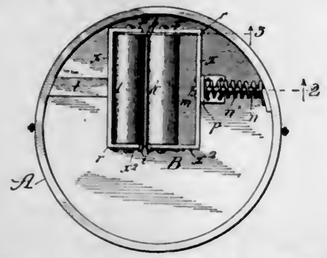
519,145. SWINGING FOLDING GATE. GEORGE M. BEARD, Angola, Ind. Filed Sept. 2, 1893. Serial No. 484,611. (No model.)



Claim.—1. A gate consisting of pivoted vertical and horizontal bars and rails, and a brace having one end pivotally connected to the upper end of the gate, its lower end provided with a transverse bar passing between two of the horizontal rails, the adjacent edges of the two rails between which said transverse bar passes being notched, substantially as shown and described.

2. A gate comprising vertical and horizontal pivoted bars and rails, a brace having one end pivoted to the upper hinged end of the gate and its opposite end provided with a transversely extending rod which passes through between two of the horizontal rails, the upper and lower edges respectively of the rails between which the bar passes provided with notches which respectively extend in opposite directions, whereby when the brace is raised the gate is held in an elevated position and when the brace is dropped the gate is locked in its normal position, substantially as specified.

519,146. MOP-WRINGER. WILLIAM H. BENNETT, Chicago, Ill., assignor of one-half to James O'Gorman, same place. Filed Feb. 26, 1894. Serial No. 501,544. (No model.)



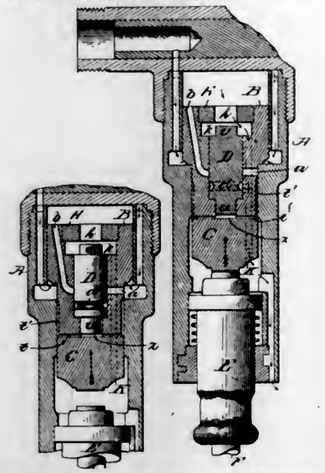
Claim.—1. A mop-wringer comprising, in combination, brackets having the co-operating rollers journaled in them, upright arms to which the brackets are fastened, one bracket-supporting arm being adapted for rigid fastening in a pail and the other arm having a hinge at its lower end for connection with the pail, and a bar to extend from one side of the pail and loosely engaging with the hinge-arm and having a spring confined upon it against said arm, substantially as and for the purpose set forth.

2. A mop-wringer comprising, in combination, brackets having the co-operating rollers journaled in them and provided at one end of the rollers with a mop-guide and at the opposite end thereof with a slotted connecting strap, upright arms to which the brackets are fastened, one bracket-supporting arm being adapted for rigid fastening in a pail and the other arm having a hinge at its lower end for connection with the pail, and a bar to extend from one side of the pail and loosely engaging with the hinge-arm and having a spring confined upon it against said arm, substantially as and for the purpose set forth.

3. In combination with a pail, a mop-wringer comprising an arm

q rigidly fastened in the pail and carrying at its upper end a bracket r having journaled in it a roller l, an arm p hinged at its lower end inside the pail and carrying at its upper end a bracket r' having journaled in it a roller k, a bar n fastened at one end to a side of the pail and passing at its opposite end, provided with a stop m, through a slot m' in said arm, a spring n' confined on the bar against the hinged arm, a slotted strap h connecting the brackets at one end of the rollers, and a guide i on the brackets at the opposite end of the rollers, substantially as and for the purpose set forth.

519,147. ENGINE. PIERRE CHOUTEAU, St. Louis, Mo. Filed Dec. 30, 1893. Serial No. 495,164. (No model.)



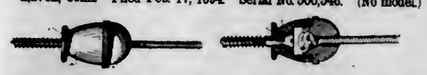
Claim.—1. In a direct acting engine, the combination with a chambered piston, of a solid valve operating in said chamber and formed with a reduced portion which co-operates with ports in the piston to make and break the communication with the live fluid chamber and the space above the piston, stems at the ends of said valve, one of which controls the exhaust, and said exhaust throwing the valve when the piston is in one of its positions, to open the exhaust, and the other stem being operated upon to close the exhaust, when the piston is in another of its positions, and open communication between the live fluid chamber and the space above the piston, substantially as described.

2. In a direct acting engine, the combination with a chambered piston, of a spool valve located and operating in said chamber for controlling the admission and exhaust of the motive fluid to and from the space above the piston, a stem on the lower end of the valve which is operated upon to throw the valve, close the exhaust from the space above the piston and open communication between the live fluid chamber and the space above the piston, said valve being thrown by the pressure in the space above the piston, when the piston is on its down stroke, to open the exhaust for the fluid above the piston, and close communication between the live fluid chamber and the space above the piston, substantially as described.

3. In a direct acting engine, the combination with a chambered piston, of a distributing valve operating in said chamber, said valve comprising a solid body portion formed with an annulus or reduced portion and two stems projecting from each end of said body portion, said lower stem operating in a well which has lead thereinto inlet ports which connect the well with the live fluid chamber to throw the valve in certain positions of the piston, and said upper stem co-operating with a seat on the piston to open or close the exhaust, and suitable ports formed in the piston which open into the live fluid chamber and to the top of the piston, with which the annulus or reduced portion in the valve co-operates to connect or close when the valve is in certain of its positions, substantially as described.

4. In a direct acting engine, the combination with the piston formed with a chamber and a well which opens into said chamber, suitable ports which connect the well with the live fluid chamber when the piston is in certain of its positions, a port leading from the chamber to the side of the piston where it communicates with the live fluid chamber when the piston is near the extreme of its up-stroke, another port which leads from the chamber to the space above the piston, an exhaust chamber formed in the upper end of the piston and an exhaust port leading from said chamber, of a stop collar provided with a central opening forming a seat, which collar partially closes the exhaust chamber, and a solid spool valve, formed with two stems at its ends, one of which extends into the well to operate the valve and the other co-operating with the stop collar to close the exhaust, and an annulus or reduced portion in the spool which makes and breaks communication between the port which leads into the piston chamber from the live fluid chamber, and the port which leads from the piston chamber to the top of the piston, when the valve is in certain of its positions, substantially as described.

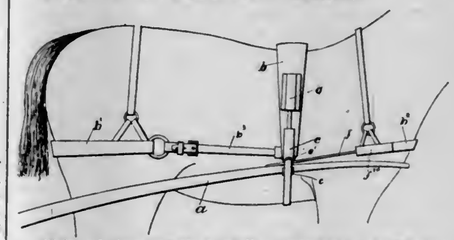
519,148. SHADE-CORD FASTENER. JOHN M. CRAMPTON, New Haven, Conn. Filed Feb. 17, 1894. Serial No. 500,546. (No model.)



Claim.—1. A shade cord fastener having a two part head comprising a body and a cap and furnished with a permanently applied projecting screw, and constructed with a cavity to receive the knotted end of the cord, and an opening leading out of the said cavity in line with and opposite to the screw for the downward passage of the cord, substantially as described.

2. A shade-cord fastener, consisting of a head comprising a body and a removable cap, the head being provided with a projecting screw and the cap being constructed with a passage located opposite to and in line with the screw, and the said parts being also constructed to contain and conceal the knotted end of the cord which passes downward through the said passage in the cap, substantially as described.

519,149. HARNESS. LEWIS H. CREAMER, Mechanicsburg, Ohio. Filed Nov. 27, 1893. Serial No. 492,077. (No model.)



Claim.—1. In a harness, a saddle, a breeching, a shaft holder connected to said saddle, and a connection from said holder to said breeching, said shaft holder being open at the top and provided with oppositely-arranged openings in the sides thereof, a clamping strap extending through said openings, tugs or traces, a projection with which said tugs or traces engage, said clamping strap being adapted to clamp said tugs or traces and also engage the projection which furnished the point of attachment for said tugs or traces, substantially as specified.

2. In a harness, a saddle, a breeching, and a breast collar, open shaft holders on said saddle, a connection from said shaft holders to said breeching, spring cases secured to said breast collar, springs in said spring cases, tugs or traces secured to said springs, said tugs or traces being adapted to be connected to the shafts of a vehicle in proximity to said holders clamping straps passing through openings on opposite sides of said shaft holders so as to clamp said tugs or traces to said shafts and also engage the projections to which the tugs or traces are attached, substantially as specified.

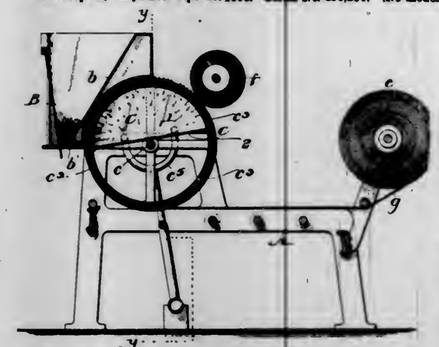
3. In a harness, a breast collar, tugs or traces, spring cases containing springs to which said traces are connected, said spring cases consisting of a metallic tube formed at one end with projecting flanges, and a plug adapted to fit in said tube having similar flanges, and fastening devices extending through said flanges to fasten said spring cases to said breast collar, substantially as specified.

4. In a harness, a breast collar, spring cases consisting of sheet metal tubes having one end sheared and bent, as described, to form laterally-extending flanges, a metallic plug having a central perforation adapted to fit into said tube, and also provided with flanges which extend coincident with the tube flanges, means for securing said flanges together and to the breast collar, a leather sheathing over said spring cases also secured to said breast collar, and springs in said cases to which the tugs or traces are connected, substantially as specified.

5. In a harness, an open hook-shaped shaft-holder provided on opposite sides with slotted and recessed openings, as described, a clamping strap passing through said openings so as to be looped around said shaft holder and clamp a vehicle shaft therein, a spring-connected trace adapted to engage a projection on the vehicle shaft in proximity to said shaft holder, a shaft band below the shaft holder

having a loop through which the clamping strap is adapted to be secured whereby the trace is clamped to the shaft within said shaft holder with the clamping strap engaging the projection to which said trace is secured, substantially as specified.

519,150. MATCH-MAKING MACHINE. JOSEPH C. DONNELLY, Philadelphia, Pa. Filed Sept. 23, 1893. Serial No. 486,259. (No model.)



Claim.—1. In a match making machine, the combination with a hopper or splint-feeding device, of a perforated splint receiver adjacent thereto, a chamber communicating with the perforations in said receiver, and means for exhausting the air from said chamber, the perforations in the receiver being so disposed that the splints in the hopper or feeding device will be drawn upon the perforations when the latter are in the path of the splints and will be thereby maintained upon the receiver at intervals apart, substantially as described.

2 In a match making machine, the combination with a hopper, or splint-feeding device, of a perforated splint carrier communicating therewith, a chamber communicating with the perforations in said carrier, and means for exhausting the air from said chamber, the perforations in the carrier being disposed in parallel rows that the individual splints in the hopper or feeding device shall be drawn to and upon the succeeding rows during the traverse of the latter, substantially as described.

3 In a match making machine, the combination with a hopper of a peripherally perforated rotatable roller or drum, a stationary air chamber within said drum, a pipe or pipes leading from said chamber, and an exhaust communicating with said pipe or pipes, the perforations in the said roller or drum being disposed in parallel series whereby the individual splints will be drawn successively upon said perforations and thus be maintained at intervals apart upon the roller or drum, substantially as described

4. In a match making machine, the combination of a carrier provided with perforations arranged in parallel rows, a chamber below the perforated surface, means for exhausting the air from said chamber, and a bunching spool co-acting with said carrier, whereby the splints fed to the carrier will be maintained thereon at intervals apart, and be conducted thereby to the bunching spool, substantially as described.

5. In a match making machine, the combination of a hopper, a drum communicating therewith, said drum being provided with a circumferential groove and with parallel series of peripheral perforations, a chamber below the perforated surface, means for exhausting the air from said chamber, a bunching tape or web passing around the circumferential groove, and a bunching spool with which said tape or web is connected, substantially as described.

6. In a match making machine, the combination of a splint containing hopper provided with an outlet for the withdrawal of the splints in single file, a carrier provided with perforations arranged in parallel series which are adapted successively to communicate with said outlet, a chamber communicating with the perforated surface, and means for exhausting the air from said chamber, substantially as described.

7 In a match making machine, the combination of a splint containing hopper provided with an outlet for the withdrawal of the splints in single file, a carrier provided with perforations arranged in parallel series which are adapted successively to communicate with said outlet, a chamber communicating with the perforated surface, means for exhausting the air from said chamber, and a splint bunching spool and tape co-acting with said carrier, substantially as described.

8. In a match making machine, the combination of the splint-containing hopper provided with a frame therein, between which and the bottom of the hopper is formed a space for the outward passage of the splints, a carrier provided with perforations which are adapted successively to communicate with said outlet, a chamber communicating with the perforated surface, and means for exhausting the air from said chamber, substantially as described.

9. In a match making machine, the splint carrying drum provided with a median circumferential groove, and with transverse rows of peripheral perforations on each side of said groove, substantially as described.

10. In a match making machine, the splint carrying drum provided with transverse rows of peripheral perforations, in combination with a pair of stationary exhaust chambers arranged side by side within said drum in communication with the perforations, an exhaust engine, and connections between the same and said chambers, substantially as described.

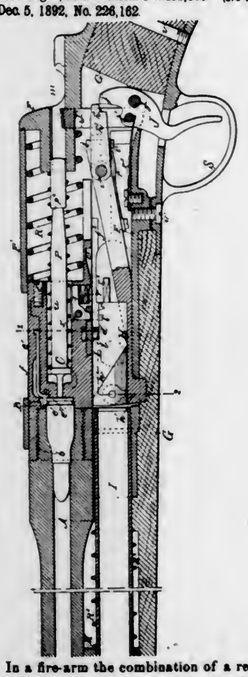
11. In a match splint bunching machine, the combination of a perforated splint carrier, a chamber below the perforated surface, means for exhausting the air from said chamber, a splint bunching or assembling device, its supporting and operating parts, and means for automatically checking the air exhaust when the bunching or assembling operation has reached a predetermined stage; substantially as described.

12. The combination of a perforated carrier, a chamber below the perforated surface, an air exhaust device, a pipe connecting the same with the said chamber, a valve on said pipe, a bunching spool, the rocking arm, supporting said spool, means for rotating said spool, and a connection between said rocking arm and the valve, whereby the latter is closed at a predetermined period; substantially as described.

13. In a match-making machine, the combination of a splint-containing hopper provided with a lateral passage for the withdrawal of the splints singly, of a splint carrier, laterally adjacent to said passage, and means for transferring the splints laterally from said passage to the carrier, substantially as described.

14. In a match-making machine, the combination of a splint-containing hopper provided with a lateral passage for the withdrawal of the splints singly, of a splint carrier, laterally adjacent to said passage, provided with perforations which are adapted successively to communicate with the mouth of said passage, a chamber communicating with the perforations, and means for exhausting the air from said chamber, substantially as described.

519,151. RECOIL-OPERATED FIREARM. PAUL DARCHE, Paris, France. Filed Aug. 1, 1893. Serial No. 482,079. (No model.) Patented in France Dec. 5, 1892, No. 226,162.



Claim.—1. In a fire-arm the combination of a receiver, a movable barrel, a cartridge magazine under the barrel and a spring coiled around the magazine and adapted to be tensioned by the backward movement of the barrel during the recoil, to return the barrel, with a movable breech-block, a second spring bearing at one end against the receiver and at the other end against the movable breech-block and adapted to be tensioned by the recoil of the movable breech-block to return the said breech-block, and means for temporarily retaining the breech-block after the barrel has returned, whereby the breech is opened, substantially as set forth.

2. In a fire-arm, the combination of a receiver, a movable breech-block provided with a recess, and a spring adapted to be tensioned by the recoil of the movable breech-block, with a stop carried by the receiver and adapted to enter the said recess in the breech-block, and a thumb piece to actuate the said stop, all substantially as and for the purposes set forth.

3. In a fire-arm, the combination of a receiver, a movable breech-block provided with a recess, a spring adapted to be tensioned by the recoil of the movable breech-block and a stop carried by the receiver and adapted to enter the said recess in the breech-block, with an oscillating cartridge elevator adapted to rise when the breech-block moves back, the said elevator being provided with a projection adapted to act upon the said stop to automatically disengage it from the breech-block, when the elevator is completely raised, all substantially as and for the purposes set forth.

4. In a fire-arm, the combination of a receiver, a movable breech-block and a spring adapted to be tensioned by the recoil of the movable breech-block and a stop to lock the breech-block at the end of the recoil, with an oscillating cartridge elevator adapted to rise when the breech-block moves back the said elevator being provided with a projection to act upon the said stop when the elevator is raised, a screw stop h to lock the elevator out of operation and a thumb piece also adapted to actuate the said stop, all substantially as and for the purposes set forth.

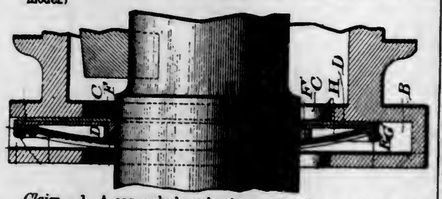
5. In a fire-arm, the combination of a receiver provided with inclines f^3, f^4, a movable breech-block provided with locking levers D, with a barrel, and the part B rigidly secured to the barrel and provided with notches x, the said locking lever adapted to engage with the notches x to lock the breech-block to the barrel, and to engage with the inclines f^3 f^4 to unlock the breech-block from the barrel, all substantially as and for the purposes set forth.

6. In a fire-arm, the combination of a receiver, a movable breech-block provided with a firing bolt and with locking levers D to lock the movable breech-block in its closed position and a safety catch s to engage with the firing bolt, with a hand lever adapted to control the said safety catch and the said locking levers whereby the safety catch cannot release the firing bolt until the movable breech-block is completely closed and locked by the locking levers, all substantially as set forth.

7. In a firearm, the combination of a receiver provided with a movable breech-block, a trigger with an oscillating cartridge elevator adapted to rise when the breech-block is drawn back, and of being lowered by the breech-block when closing and an arm on the elevator adapted to project in the path of the trigger except when the elevator is completely lowered whereby in the automatic action the trigger cannot be pulled until the breech is closed, substantially as set forth.

8. In a fire-arm, the combination of a receiver provided with a movable breech-block, a stop to retain the movable breech-block in its open position, and a trigger, with an oscillating cartridge elevator provided with a projection to act on the said stop to disengage it from the breech-block when raised and a projection to lock the trigger until the elevator is completely lowered, all substantially as and for the purposes set forth.

519,152. DUST-GUARD FOR CAR-AXLE BOXES. NATHAN H. DAVIS, Philadelphia, Pa. Filed May 12, 1892. Serial No. 432,705. (No model.)

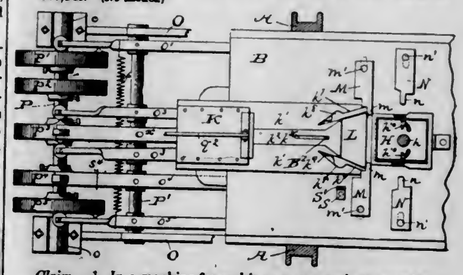


Claim.—1. A car axle box having a chamber, a plate in said chamber with a central opening and a flanged rim, said opening having a flanged wall, a metal ring lining said flanged wall, and a spring bearing against said flanged rim and one of the walls of said chamber, said parts being combined substantially as described.

2. A dust guard for a car axle box, consisting of a plate having a flange around the opening therein, in which the car axle rotates, and provided with a flanged rim, a canvas facing with its edges in said rim, and a spring adapted to bear against said flanged rim and the wall of the chamber of the axle box in which the guard is located, said parts being combined substantially as described.

3. The plate of a dust guard having channeled edges, and the ends of the facing of said plate entering the channels, and clamped by the same, substantially as described.

519,153. MACHINE FOR MAKING PAPER VESSELS. WASHINGTON FOGLESONG, Dayton, Ohio, assignor to the Baker & Fogiesong Manufacturing Company, same place. Filed Jan. 26, 1891. Serial No. 379,143. (No model.)



Claim.—1. In a machine for making paper vessels, the combination with means for holding a paper vessel of bail forming and applying devices cooperating with said holding means, substantially as described.

2. In a machine for making paper vessels, the combination with the male and female dies, of the bail forming and applying devices cooperating with said male and female dies, substantially as described.

3. In a machine for making paper vessels, the combination with the male and female dies, of wire feeding devices, the cutter, and the bail forming and applying devices cooperating with said male and female dies, substantially as described.

4. In a machine for making paper vessels the combination with the male and female dies, of the wire feeding devices, the cutter, the bail forming devices, and the punching slides, the said female die being provided with slots or recesses permitting the passage of the bail therethrough substantially as described.

5. In a machine for making paper vessels the combination with the male and female dies, of the wire feeding devices, the cutter, the bail forming devices, the punching slides located in line with each other and on opposite sides of the dies and the clinching levers, substantially as described.

6. In a machine for making paper vessels, the combination with the male die, of a female die having slots or recesses therein to receive the bail, the bail forming slide, provided with the tongue movable with respect to said slide, the said tongue being adapted to force said bail through the slots or recesses of the female die, substantially as described.

7. In a machine for making paper vessels the combination with the forming block, of the bail forming slide having the tongue provided with a face adapted to engage the said block, said tongue being capable of movement in respect to said slide and the auxiliary bending slides, substantially as described.

8. In a machine for making paper vessels, the combination with the forming block, the bail forming slide, the tongue carried thereby, and a friction device for resisting the movement of said tongue, and mechanism for advancing said slide, whereby the independent forward movement of the tongue is prevented, substantially as described.

9. In a machine for making paper vessels, the combination with the forming block, the bail forming slide the independently movable tongue, a friction device for said tongue and means for adjusting the pressure of said friction device, substantially as described.

10. In a machine for making paper vessels, the combination with the forming block, the bail forming slide the independently movable tongue, and the laterally movable arms, of the auxiliary bending slides, having portions in line with the rear face of the forming block and adapted to engage portions of the bail extending beyond the extremities of said laterally movable arms, substantially as described.

11. In a machine for forming paper vessels, the combination with the forming block the bail forming slide, provided with laterally movable arms, having portions parallel with portions of the forming block, of the auxiliary bending slides having portions in line with the rear face of the forming block the punching slides, adapted to engage the laterally movable arms and means for moving said forming block, out of the plane of the bail forming slide, substantially as described.

12. In a machine for making paper vessels, the combination with the male die, of a female die provided with slots or recesses permitting

the passage of the bail therethrough, of bail forming devices, including laterally movable arms, adapted to form the bail and press it through the said slots or recesses, and punching slides adapted to enter said slots or recesses and engage the said laterally movable arms, substantially as described.

13. In a machine for making paper vessels, the combination with the bail forming slide, of the slotted tongue capable of movement with respect to said slide, and a pin engaging the slot of said tongue and adapted to limit the movement of the same, substantially as described.

14. In a machine for making paper vessels the combination with the forming block, of the bail forming slide and the auxiliary bending slides having portions in line with the rear face of said block, substantially as described.

15. In a machine for making paper vessels, the combination with devices for holding a paper vessel, of the bail forming devices and punching slides arranged in line with each other on opposite sides of the holding devices, substantially as described.

16. In a machine for making paper vessels the combination with the forming block, the bail forming slide, the auxiliary bending slides and the punching slides, substantially as described.

17. In a machine for making paper vessels the combiuation with the forming block, the bail forming slide the auxiliary bending slides, the punching slides and clinching levers, substantially as described.

18. In a machine for making paper vessels, the combination with the bail forming mechanism, comprising two groups of devices, one group consisting of the forming block and the other group consisting of the devices coacting therewith to form the bail upon the block and to bend portions of the bail back upon the rear face of the forming block, of actuating means combined with one of said groups of devices for moving it out of the plane of the other group, substantially as described.

19. In a machine for making paper vessels, the combination with the bail forming devices including the forming block and the auxiliary bending slides adapted to bend portions of the bail back upon the rear face of said forming block, of means for moving said forming block out of the plane of the other bail forming devices, substantially as described.

20. In a machine for making paper vessels the combination with the forming block, of the bail forming slide, the tongue, the auxiliary bending slides, the punching slides and means for moving said forming block out of the plane of the bail forming devices, substantially as described.

21. In a machine for making paper vessels the combination with the movable forming block, of the bail forming slide and tongue, the auxiliary bending slides, the punching slides, a cam for moving said block out of the plane of the bail forming devices and cams for actuating said slides, substantially as described.

22. In a machine for making paper vessels, the combination with the male and female dies and the bail forming devices including laterally movable arms of punching slides, located in line with each other on opposite sides of the male and female dies, adapted to engage said arms, substantially as described.

23. In a machine for making paper vessels, the combination with the male and female dies, and the bail forming devices including the laterally movable arms of the punching slides located in line with each other on opposite sides of said dies, and the clinching levers adapted to clinch the ends of the bail against the resistance offered by said arms and slides, substantially as described.

24. In a machine for making paper vessels the combination with the female die, and the reciprocating plunger provided with a male die, of a cam actuated rod capable of movement with said plunger and of movement in respect thereto, the clinching levers located on said male die, and connected for operation with said rod, a cam for reciprocating the plunger having a supplemental cam grade for actuating said rod and clinching levers, substantially as described.

25. In a machine for making paper vessels the combination with the reciprocating male die, of the clinching levers located thereon, the bell crank levers, engaging said clinching levers and working in slots in said male die, a cam actuated rod connected with said bell cranks capable of movement with the male die and of movement in respect thereto, and a cam for reciprocating the male die having a grade for operating said rod and clinching levers, substantially as described.

26. In a machine for making paper vessels, the combination with the top and bottom plates, having portions held a space apart equal to the thickness of the wire, of the movable wire guide adapted to pass into said space and engage and guide the wire therein, substantially as described.

27. In a machine for making paper vessels, the combination with the top and bottom plates having a recess between them, of the bail forming devices including the former the wire guide separate from the former for holding the wire in position to be engaged by said bail forming devices, means for feeding wire between said plates and into the wire guide, and means for removing the wire guide from engagement with the wire, substantially as described.

28. In a machine for making paper vessels the combination with the top and bottom plates having portions held a distance apart equal to the thickness of the wire, of the wire guide consisting of a stationary central plate and the side plates movable with respect thereto, and adapted to be moved into said space to engage the wire, substantially as described.

29. A machine for making paper vessels provided with a wire guide consisting of a central stationary plate and movable side plates, and means for moving said side plates into position to engage the wire, substantially as described.

30. In a machine for making paper vessels the combination with the wire feeding devices including a revoluble part, a reciprocating lever, and means for operating the same intermittently, of a clutch lever pivoted to said reciprocating lever and provided with a recess having sharp edges adapted to engage opposite lateral faces of said revoluble part frictionally, when moved in one direction and a spring engaging said clutch lever, substantially as described.

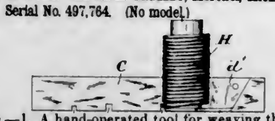
31. A machine for making paper vessels having a male die, and a female die provided on two opposite edges with the guide wire g^3, substantially as described.

32. A machine for making paper vessels having a male die and a female die provided on two opposite edges with the inclined beveled portions meeting in a shoulder, and the curved guide wire extending from said shoulder, substantially as described.

33. In a machine for making paper vessels, the combination with the male die and slotted female die adapted to hold a paper vessel, of the bail forming devices cooperating with said dies adapted to form a bail, and pass it into the slot in the female die, and means for securing said bail to said paper vessel located in line with said slot substantially as described.

34. A machine for making paper pails having means for holding a paper vessel and mechanism for attaching a bail to said vessel operatively combined with said holding means, substantially as described.

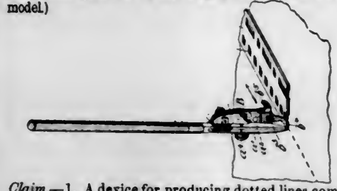
519,154. IMPLEMENT FOR WEAVING FILLER-WIRES IN WIRE FENCES. LEWIS A. GREELEY, Morenci, Mich. Filed Jan. 23, 1894. Serial No. 497,764. (No model.)



Claim.—1. A hand-operated tool for weaving the filler wires in wire fences, comprising a lever-bar; a pin for holding a wire-coil and extending in a transverse direction with respect to the lever-bar and supported so as to leave a space between it and the bar; and a post connecting the bar and one end of said pin.

2. A hand-operated tool for weaving the filler wires in wire fences, comprising a lever-bar; a pin for supporting a wire-coil and extending in a direction transversely with respect to the lever-bar and supported so as to leave a space between it and said bar; a post connecting the lever-bar and one end of said pin; and a guide in the lever-bar in a direct vertical line below the said pin, substantially as described.

519,155. DRAWING-PEN. BERNHARDT HAUG and FRANK HOLLER, Philadelphia, Pa. Filed Aug. 1, 1893. Serial No. 482,132. (No model.)



Claim.—1. A device for producing dotted lines comprising a pen provided with a finger and a straight edge or guide having depressions or cavities, substantially as and for the purposes set forth.

2. A drawing instrument for producing dotted or broken lines, comprising a pen having a finger or detent, in combination with a straight edge having indentations, substantially as and for the purposes set forth.

3. A drawing instrument for producing dotted or broken lines comprising a pen provided with an adjustable finger or detent, in combination with a straight edge in which indentations or cavities have been formed, substantially as and for the purposes set forth.

4. A drawing instrument for producing dotted lines, comprising a drawing pen an attachment adjustably secured thereto and bearing a finger, a straight edge with one or more racks, said finger adapted to be thrown into or out of the path of the rack of the said straight edge, substantially as and for the purposes set forth.

5. In a drawing instrument for producing dotted lines, a drawing pen, an attachment adjustably secured thereto and comprising a stock provided at its upper extremity with a socket and a clamping screw, and at its lower extremity with a bifurcated portion and a hinged finger or pawl in said portion, substantially as and for the purposes set forth.

6. In a drawing instrument for producing dotted lines, a drawing pen, an attachment adjustably secured thereto and comprising a stock provided at its upper extremity with a socket and clamping screw, and at its lower extremity with a bifurcated portion, a hinged finger in said portion and a handle on said finger, substantially as and for the purposes set forth.

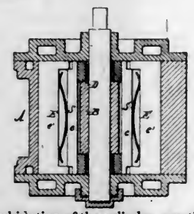
7. A drawing instrument for producing dotted lines comprising a guide, one or more racks formed on said guide, a drawing pen and an attachment, the latter comprising a stock adjustably clamped with its upper end to the said pen, and a finger hinged to the lower end of the said stock, substantially as and for the purposes set forth.

8. A drawing instrument for producing dotted lines, comprising a guide or straight edge one or more racks formed near the edges thereon, a drawing pen, and an attachment comprising a stock secured to the said pen and a finger adapted to be thrown into or out of the path of the said racks, substantially as and for the purposes set forth.

9. A drawing instrument for producing dotted lines comprising a straight edge one or more racks of different pitch formed thereon and placed edge to edge, a drawing pen, and an adjustable finger held to said pen, substantially as and for the purposes set forth.

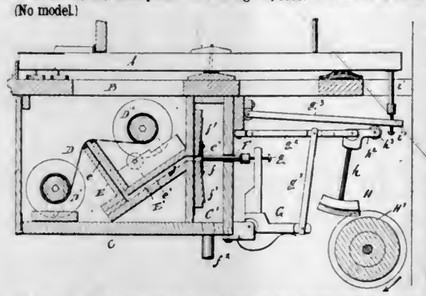
10. In combination with a drawing pen a straight edge or guide provided with one or more racks of different pitch, substantially as and for the purposes set forth.

519,156. ROTARY ENGINE OR PUMP. CHARLES C. KNAUSS and JAMES E. KRAUSE, Bethlehem, Pa. Filed Sept. 12, 1893. Serial No. 485,324. (No model.)



Claim.—The combination of the cylinder, rotating drum and fixed cams of a rotary engine or pump with a series of radial blades carried by the rotating drum, each blade being made in two parts of substantially the same thickness in line with each other, and one having ears 3, 3, adapted to notches in the other, an elliptic spring, S, between the said ears and acting to press one part of the blade against the cams, and the other against the interior of the cylinder, all substantially as and for the purpose set forth.

519,157. SELF-PLAYING ATTACHMENT FOR PIANOFORTES. TELESPHAR L. LEBEAU, New York, N. Y., assignor of one-half to John V. Schaefer, Jr., same place. Filed Aug. 23, 1893. Serial No. 483,849. (No model.)

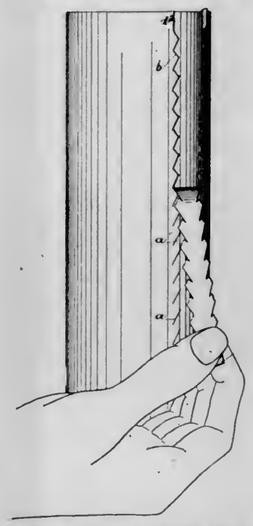


Claim.—1. The combination of a perforated music-sheet, means for continuously moving the same, a wind-chest, pneumatic actions in the wind-chest adapted to be operated through the medium of the music-sheet, intermediate lever-mechanisms operated by the pneumatic actions, depending push-pieces connected to said intermediate lever-mechanisms, a roller located below and adapted to raise the push-pieces moved into contact with the same, levers pivoted at the rear of the wind-chest, and arranged above and engaged by the upper ends of said push-pieces, and stickers arranged upon said levers and operated by the push-pieces for actuating the key-levers, substantially as set forth.

2. The combination, of a perforated music-sheet, means for moving the same, pneumatic actions controlled by means of the openings of said music-sheet, pushers operated by the pneumatic actions, fulcrumed elbow-levers operated by said pushers, push-pieces having V-shaped edges and connected with said elbow-levers, a grooved rotary roller, adapted to receive the V-shaped edges in its grooves and stickers operated by the arms on the shanks of the push-pieces, said stickers operating the key-levers so as to operate the piano action and sound the strings, substantially as set forth.

3. The combination, of a perforated music-sheet, means for moving the same, pneumatic actions composed of a duct-frame, over which the music-sheet is passed, a wind-chest from which the air is exhausted, diaphragms applied to hinged levers located in said wind-chest, ducts extending from the duct-frame to the diaphragms, pushers guided in the wind-chest and an intermediate lever mechanism connected with the key-levers and provided with adjustable stops engaged by the pushers so as to operate the key-levers whenever the perforations of the music-sheet pass over the lug in the duct-frame, substantially as set forth.

519,158. WRAPPER OR ENVELOPE. PERCY J. OGLE, London, England. Filed Dec. 12, 1893. Serial No. 493,508. (No model.)



Claim.—A wrapper or envelope provided with two lines of slits, forming a tearing strip, the individual slits of each line being disposed at such angles to the lines that the line of fracture is prevented from deviating from its proper course by succeeding slits, substantially as set forth.

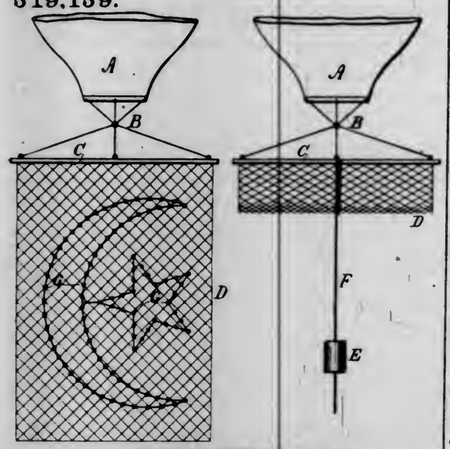
519,159. PYROTECHNIC DEVICE. HENRY J. PAIN, New York, N. Y. Filed Aug. 10, 1893. Serial No. 482,856. (No model.)

Claim.—1. The combination with a balloon and fireworks of a suspending device from the balloon and to which the fireworks are connected and a fuse by which the fire works are ignited after the device has reached the desired height substantially as specified.

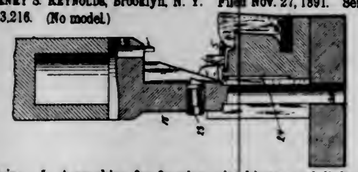
2. The combination with a balloon, of a frame or flexible backing adapted to be secured in a comparatively small compass, and fireworks connected with such frame or backing and arranged to produce letters, characters or designs, an igniting fuse for the respective fireworks and means for holding the backing in its contracted condition, which means are burned away by the fuse to allow the frame or backing to become distended as the fireworks are ignited, substantially as set forth.

3. The combination with a balloon, of a frame or backing suspended from such balloon, fireworks connected to such frame or backing and arranged to produce letters, numbers or emblematic devices, and a time fuse suspended from such backing and adapted to igniting the fireworks nearly simultaneously after the time fuse has burned, substantially as set forth.

519,159.



519,160. MACHINE FOR FORMING WIRE HINGES OR LINKS. HENRY S. REYNOLDS, Brooklyn, N. Y. Filed Nov. 27, 1891. Serial No. 413,216. (No model.)



Claim.—1. A machine for forming wire hinges and links, comprising a die-block, the rear face of which is substantially semi-circular and having extending therefrom a T-shaped extension, the top of which is extended in the shape of an ellipse, and a plunger conforming to the shape of said die, substantially as described.

2. A machine for forming wire hinges and links, comprising a die-block the rear face of which is substantially semi-circular and having extending therefrom a T-shaped extension, the top and front portions of the die-block being cut away to form a shoulder or ledge, and a plunger adapted to surround the T-shaped extension and conform to the semi-circular rearward face of the die-block, substantially as described.

3. The herein described machine comprising a die-block the rear face of which is substantially semi-circular and having extending therefrom a T-shaped extension, the top of which is extended in the shape of an ellipse, and the front and top portions of the die-block being cut away to form a shoulder or ledge, a hook-shaped spreader or separator secured in the face of said die-block and extending over the cut-away portion thereof and normally retained in this position by a spring, and a plunger adapted to surround the T-shaped extension and conform to the semi-circular rearward face of the die, substantially as described

4. A plunger for machines for forming wire hinges and links, comprising a T-slot near the top thereof, the faces of the walls of said slot being obliquely cut away, in combination with a T-shaped die or mandrel substantially as described.

5. A plunger for machines for forming wire hinges and links, comprising a T-slot near the top thereof, the faces of the walls of said slot being obliquely cut away and tapering downwardly and outwardly, in combination with a T-shaped die or mandrel substantially as described.

6. A plunger for machines for forming wire hinges and links, comprising a T-slot near the top thereof, the faces of the walls of said slot being obliquely cut away and tapering downwardly and outwardly, the inner edges thereof being beveled or chamfered, said bevel or chamfer gradually reducing toward the bottom of the plunger, in combination with a T-shaped die or mandrel, substantially as described.

7. The herein described machine for forming wire hinges or links, comprising a die-block having extending from its rearward face a T-shaped extension provided with a vertical groove and having its top extended in the form of an ellipse, in combination with a plunger adapted to surround the T-shaped extension and couform to the rearward face of the die, and provided with a spring catch adapted to work in a vertical groove of said T-extension, substantially as described.

8. The herein described machine for forming wire hinges and links, comprising a die-block, the rear face of which is substantially semi-circular and having extending therefrom the T-shaped extension having its top extended in the form of an ellipse, the front and top portions of said die-block being cut-away to form a ledge or shoulder, a plunger adapted to surround said T-extension and conform to the semi-circular rearward face of the die, and provided near the top and at the front thereof with the downwardly projecting pin or bender extending on the full stroke over the ledge or shoulder on the die-block, substantially as described.

9. The herein described machine for forming wire hinges or links, comprising a die-block the rear face of which is substantially semi-circular and having extending therefrom the T-shaped extension having its top extended in the form of an ellipse, the front and top portions of said die-block being cut away to form a ledge or shoulder, a hook shaped spreader or separator secured in the face of said die-block and extending over the cut away portion thereof and normally retained in this position by a spring, and a plunger adapted to surround the T-extension and conform to the semi-circular rearward face of the die, and provided near the top and at the front thereof with the downwardly projecting pin or bender adapted, on the full stroke, to force the spreader or separator outwardly against the tension of its spring and to extend over the ledge or shoulder in the die-block, substantially as described.

10. The herein described machine for forming wire hinges or links, comprising a die-block, the rear face of which is substantially semi-circular and having extending therefrom the T-shaped extension provided with a vertical groove and having its top extended in the form of an ellipse, the front and top portions of the die-block being cut away to form a ledge or shoulder, a hook-shaped spreader or separator secured in the face of the die-block and extending over the cut-away portion thereof and normally retained in this position by a spring, and a plunger adapted to surround the T-extension and conform to the semi-circular rearward face of the die, and provided with a spring catch adapted to work in the vertical groove of said T-extension, and also provided near the top and at the front thereof with a downwardly projecting pin or bender adapted on the full stroke to force the spreader or separator outwardly against the tension of its spring and to extend over the ledge or shoulder on the die-block, substantially as described.

11. A machine comprising a base-plate, a die, a wire guide and an automatic cutter: and a hollow plunger conforming to the shape of the die and provided with a pin or projection to operate the cutter, and a spring catch for automatically throwing out the finished product, substantially as described.

12. A machine comprising a base-plate, a die, a standard mounted beside said die, and perforated to form a wire guide, and an automatic cutter mounted between said die and guide; and a hollow plunger conforming to the shape of the die and provided with a pin or projection adapted to operate the cutter against the tension of a spring, substantially as described.

13. The herein described machine for forming wire hinges and links, comprising a base-plate, a die-block, the rear face of which is substantially semi-circular and having extending therefrom the T-shaped extension provided with a vertical groove and having its top extended in the form of an ellipse, the top and front portions of the die block being cut-away to form a ledge or shoulder, a hook-shaped spreader or separator secured in the face of the die-block and extending over the cut-away portion thereof and normally retained in this position by a spring, an adjustable wire gage at one side of the die-block, and a wire guide at the opposite side, an automatic cutter operating beside said guide, said cutter being normally held away from the wire by a spring, and having one of its upper faces cut away, and a plunger provided with a downwardly projecting guide pin working through an aperture in the base plate, said plunger being adapted to surround the T-extension of the die-block and conform to the semi-circular rearward face of the die, and provided with a spring catch adapted to work in a vertical groove in said T-extension and provided on one side with a pin or projection for operating the cutter, and also provided at the front and near the top with a downwardly projecting pin or bender, adapted on the full stroke to force the spreader or separator outwardly against the tension of its spring, and to extend over the ledge or shoulder on the die-block, substantially as described.

519,161. COMPOSITION FOR PACIFYING WAVES OF THE SEA. MAX M. F. RICHTER, Hamburg, Germany. Filed Dec. 9, 1893. Serial No. 493,282. (No specimens.)

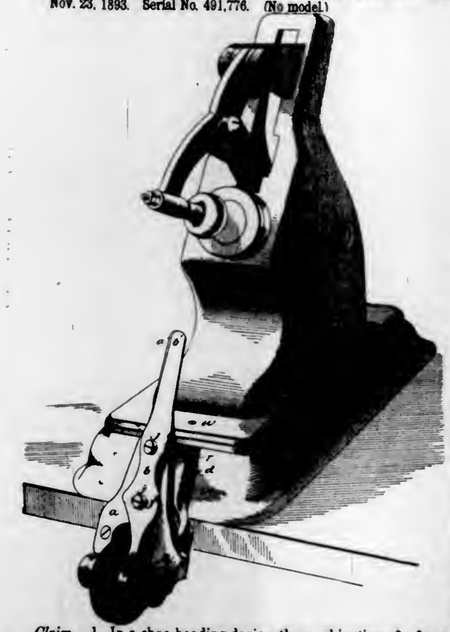
Claim.—1. Means for pacifying the waves of the sea, consisting of an unsaturated fatty acid or a solution thereof in a liquid free from or naturally containing but a small proportion of such acid in a free state, substantially as set forth.

2. Means for pacifying the waves of the sea, which consists of an unsaturated fatty acid, as oleic acid, or a solution thereof in a liquid free from or naturally containing but a small proportion of such acid in a free state and a substance adapted to act as a distributer soluble in the solvent and in water, as amyl-alcohol.

3. A method of pacifying the waves of the sea, which consists in spreading on the waters an unsaturated fatty acid. as oleic acid, substantially as set forth.

4. A method of pacifying the waves of the sea, which consists in dissolving an unsaturated fatty acid in a liquid free from or containing naturally but a small proportion of such acid, adding to the solution a substance soluble in the acid solvent as well as in water and adapted to act as a distributer as amyl alcohol and spreading the solution on the waters, substantially as set forth.

519,162. SHOE-BEADING MACHINE. ANTON I. SCHMIEDL, Philadelphia, Pa., assignor of one-half to James Mundell, same place. Filed Nov. 23, 1893. Serial No. 491,776. (No model.)



Claim.—1. In a shoe beading device, the combination of a fixed finger blade, a finger blade mounted on the front and a finger blade mounted on the back of said fixed finger, the said back finger having a vertically reciprocating movement and the front finger having a laterally reciprocating movement, and mechanism for operating said movable fingers, substantially as described.

2. In a shoe beading device, the combination, of a fixed finger blade, a movable finger blade on the front and a movable finger blade on the rear of said fixed finger, an eccentric for vertically reciprocating the back finger and a cam adapted to give to the said front finger four laterally reciprocating movements to one revolution, and a spring to maintain the contact of said front finger with said cam, substantially as described.

3. In a shoe beading device, the combination of a fixed finger blade, a finger blade on the front and a finger blade on the back of said fixed finger, the back finger having a vertically reciprocating movement, and the front finger arranged to have a laterally reciprocating movement extending beyond the right edge only of the fixed finger, an eccentric for operating the back finger, a double face cam for operating the front finger and a spring acting upon the latter substantially as described

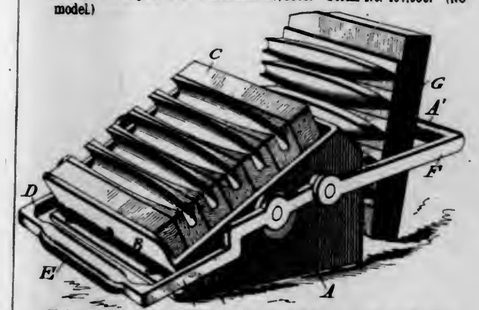
4. In a shoe beading device, two movable finger blades, and a fixed finger blade between them and supporting them, and mechanism for operating the back finger blade vertically and mechanism for imparting to the front finger blade four vibrations to two of the back finger, substantially as described for the purpose specified.

5. In a shoe beading device two movable finger blades, and a fixed finger blade between and supporting them, an eccentric for operating the back finger blade, vertically, a cam for operating the front finger blade laterally, and a spring for cushioning the frontward vibrations of the same in the way and for the purpose stated.

6. In a shoe beading device, two movable finger blades and a fixed finger blade between them, the back finger blade having vertical slots c' and attached to the fixed finger at said slots, the front finger blade pivoted to said fixed finger blade and having a cross slot j^3 below said pivot and a confining screw j therein, and mechanism for reciprocating the back finger vertically and the front finger laterally in the way and for the purpose stated.

7. The combination, in a beading machine for shoe uppers, of the casting d, the shaft e journaled therein, having the power pulley f, an eccentric h on one side and a cam $g\,g'$ on the other, a finger blade a fixed to said casting a finger blade c on the back of said fixed finger engaging said eccentric, a finger blade on the front of said fixed finger engaging said cam, and a spring for cushioning the action of the front finger in and upon the seam line of stitching substantially as described.

519,163. CIGAR-PRESS. CHARLES SCHÜPPLE and CHARLES HÜBLER, Philadelphia, Pa. Filed Mar. 28, 1893. Serial No. 467,959. (No model.)



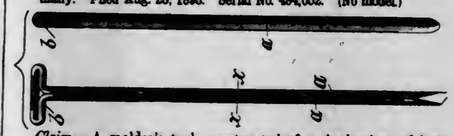
Claim.—1. A cigar mold press having a frame, a lower mold section resting on said frame, toggle levers pivoted to said frame, and connected by a cross bar, and an upper mold section having an ear forming a bearing for said cross bar, said parts being combined substantially as described.

2. A cigar mold press consisting of a frame, the levers D pivoted to said frame, and having the connected handle E, the levers F pivoted to the ends of said levers D and having the cross bar A', a lower mold section supported on said frame, and an upper mold section with a bearing for said cross bar A' said parts being combined substantially as described.

3. A cigar mold press consisting of a frame, upper and lower mold sections, toggle levers pivoted to said frame, and having a connecting cross bar with journal bearings in said upper section, said levers also having a connecting handle E, said parts being combined substantially as described.

4. A cigar mold press having upper and lower mold sections, a bed supporting the lower section, the levers D mounted on said bed, and the levers F pivotally connected with the said levers D, and having a connecting cross bar mounted on the upper section, said parts being combined substantially as described.

519,164. MOLDER'S TACK. FRANZ SCHULTE, Hamburg, Germany. Filed Aug. 25, 1893. Serial No. 484,052. (No model.)

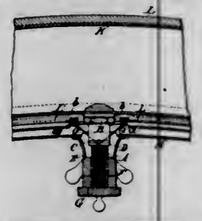


Claim.—A molder's tack constructed of a single piece of half round wire bent to form a cross head b, and shanks a, a, extending centrally therefrom, the proximate faces at the outer end of said shanks being beveled in opposite directions, to form a wedge shaped slot between them, said wire sufficiently elastic to cause the shanks to spread when the tack is inserted into the sand, substantially as and for the purpose set forth.

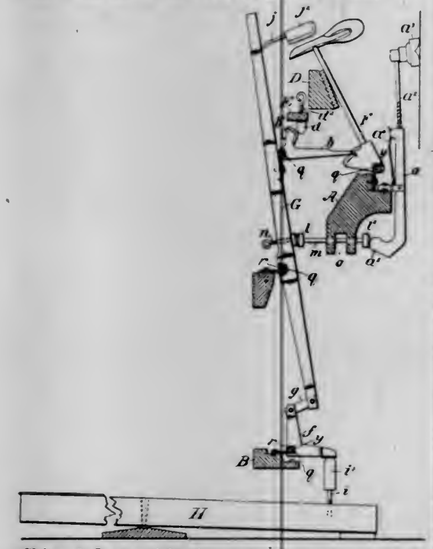
519,165. DEVICE FOR FIXING PNEUMATIC TIRES TO WHEEL-RIMS. EMILE J. VAUZELLE, Paris, France. Filed Sept. 15, 1893. Serial No. 485,585. (No model.) Patented in France Apr. 7, 1893, No. 215,976.

Claim.—In means for fixing pneumatic tires to the rims of wheels, the combination of the air chamber, an air-valve, an inclosing envelope having thickened edges, wires $b\,b$ inserted in the thickened edges of the envelope and provided with loops $a\,a$, with tension wires also

inclosed in the thickened edges of the envelope, the said tension wires being passed through the said loops *a a* and attached to and adapted to be moved by the said air valve, all substantially as and for the purposes set forth.



519,166. PIANO-ACTION. WILLIAM W. WALLACE, Springfield, Mass. Filed Sept. 19, 1893. Serial No. 485,830. (No model.)



Claim.—1. In an upright piano action, the combination with a jack-operating lever and the damper-lever, both pivotally mounted for swinging movements in corresponding vertical planes, of a rod horizontally mounted for a reciprocatory endwise movement adapted to be pushed at one end by the jack-lever, and to push and swing by its other end the damper-lever, substantially as described.

2. In an upright piano action, the combination with a jack-operating lever and the damper-lever, both pivotally mounted for swinging movements in corresponding vertical planes, of a rod horizontally mounted for a reciprocatory endwise movement adapted to be pushed at one end by the jack-lever, and to push and swing by its other end the damper-lever, and a spring for retracting the damper and push-rod on the return movement of the jack-lever, substantially as described.

3. In an upright piano action, the combination with the jack-lever and the damper-lever mounted for swinging movements in vertical planes, of the interposed horizontal endwise reciprocatory push-rod having one end in contact with the damper-lever and having its other end adjacent and in the plane of swing of the jack-lever and the adjusting screw on the jack-lever having an endwise bearing engagement on said push-rod, substantially as described.

4. In an upright piano action, the combination with the center rail and the hammer pivotally mounted thereon, and the damper also pivotally and intermediately mounted therein having the forwardly extended member on its depending arm, and the jack-lever pivotally and intermediately supported forward of the center rail, and the horizontal push-rod playing through guide-ways therefor in the center rail and having buttons on its ends, one of which has a contact engagement with the said member of the damper and the screw adjustable through the jack-lever and having the button on its rear end having a contact engagement with the adjacent push-rod button, and the damper spring, substantially as described.

5. In an upright piano action, the combination with the lower rail, and the elbow lever pivotally mounted thereon, of the key having at its rear the upwardly extended stud in contact bearing upon the horizontally extended member of the elbow lever, the intermediately pivoted upright jack-lever, and a link connecting its lower end to the upwardly extended arm of the elbow lever, substantially as described.

6. In an upright piano action, the combination with the lower rail, and the elbow lever pivotally mounted thereon, of the key having at its rear the upwardly extended stud in contact bearing upon the horizontally extended member of the elbow lever, the shank or stem of said stud having a vertically adjustable screw engagement in the key, the intermediately pivoted upright jack-lever, and a link connecting its lower end to the upwardly extended arm of the elbow-lever, substantially as described.

7. In an upright piano action, the combination with the hammer formed and pivotally mounted as usual, of the upright intermediately pivoted jack-lever having the jack pivoted thereon and provided, near its pivot, with the upwardly extended member, the regulating rail, and the vertical regulating screw having on its lower end the conical button, the apex of which is downward, substantially as described.

8. In an upright piano action, the combination with the pivoted hammer, of the jack, and the upright lever on which the jack is pivotally mounted having in its upper extremity the rearwardly extended stem with the back-check locked at its extremity, substantially as described.

9. In a piano action, a "flange" or journal support for the hammers, jacks, and similar lever-like parts, comprising a metallic body or base, and opposing metallic apertured ear-pieces, sections of wood set in said ear-pieces with aligned journal holes, and bushings of felt, or the like, lining said holes, substantially as described.

10. In a piano action, a "flange" or journal support for the hammers, jacks, &c., formed of a single blank of thin metal with an inclosed rectangular opening therein, as shown, the same having intermediate portions overturned on bending lines traversing said aperture to form the opposing apertured or loop-like ear-pieces, and the superimposed end portions riveted together, substantially as described and shown.

519,167. TOILET-PAPER FIXTURE. SETH WHEELER, Albany, N. Y. Filed July 30, 1889. Serial No. 319,205. (No model.)



Claim.—1. In a toilet paper fixture the combination of an oval roll of toilet paper with a counter balanced cutter bar arranged loosely on the axis of the core plate so that the roll and cutter bar shall, on pulling the free end of the paper revolve, and the cutter bar sever a sheet of paper at each revolution, and permit the free end of the paper to drop down to be again grasped by the hand, substantially as described.

2. In a toilet paper fixture the combination of an oval roll of toilet paper with a weighted core plate and a counter balanced cutter bar arranged loosely on the axis of the core plate, substantially as described.

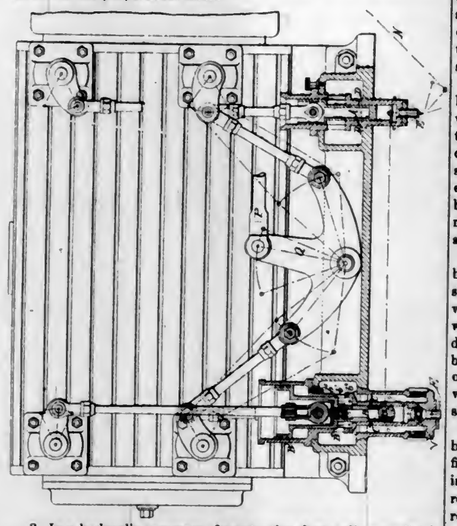
3. In a toilet paper fixture a counter balanced cutter bar arranged loosely on the axis of the core plate and having motion with an oval roll in the revolution of the latter by a pull on the free end of the web of paper in order to sever one convolution of the web of paper, substantially as described.

4. In a toilet paper fixture the serrated cutter bar *c*, having a counter-balance and loosely journaled in the rod *d*, passing through the roll and with its bearings in said arms, so as to have motion with a roll of paper whenever the free end of the paper is pulled and to return to its original position after a sheet has been severed substantially as described.

519,168. HYDRAULIC APPARATUS FOR CONTROLLING FLUID-PRESSURE MOTORS. CLAUDE BONJOUR, Paris, France. Filed July 25, 1893. Serial No. 481,424. (No model.) Patented in France Aug. 14, 1890, No. 207,631; in Italy Apr. 13, 1893, No. 33,776, and in Spain May 5, 1893, No. 14,393.

Claim.—1. In a hydraulic apparatus for actuating from a distance distribution devices or other mechanism, the combination of two cylinders, in communication with each other, each of the cylinders being provided with a piston, one of the said pistons being actuated by the motor shaft, means whereby the first piston actuates the other during only a portion of its stroke, the other piston being connected to the device to be actuated, and means for maintaining a constant volume of incompressible fluid between the two pistons while one is actuating the other, substantially as described.

2. In a hydraulic apparatus for actuating from a distance distribution devices or other mechanism, the combination of two cylinders in communication with each other, each of the cylinders being provided with a piston, one of the said pistons being actuated by the motor shaft and adapted to actuate the other piston during a portion of its stroke, and the other piston being connected to the device to be actuated, with a reservoir for an incompressible fluid and orifices in both cylinders communicating with the reservoir, all substantially as and for the purposes set forth.



3. In a hydraulic apparatus for actuating from a distance distribution devices or other mechanism, the combination of two cylinders in communication with each other, and adapted to contain an incompressible fluid, each of the cylinders being provided with a piston, one of the pistons being actuated by the motor shaft and adapted to actuate the other piston during a portion of its stroke and the other piston being connected to the device to be actuated, with a valve between the two pistons and adapted to be controlled by the governor, all substantially as and for the purposes set forth.

4. In a hydraulic apparatus for actuating distributing devices or other mechanism, the combination of a cylinder A′ provided with a piston A actuated by the motor shaft, a reservoir for an incompressible fluid, and orifices D connecting the cylinder A′ with the reservoir, with a cylinder B′ provided with a piston B connected to the device to be actuated, and also provided with escape orifices C communicating with the said reservoir, and pipes E E′ connecting the two ends of the cylinder A′ with the two ends of the cylinder B′, the said orifices D and C being so arranged as to cause the movements of the piston B and the device connected thereto, to be suspended during certain periods, all substantially as set forth.

5. The combination of a motor with a hydraulic apparatus for actuating the distribution devices, comprising one or more cylinders A′ each provided with a piston connected to the crank shaft, one or more cylinders B′ each in communication with one of the cylinders A′ and each provided with a piston adapted to be actuated by the first said piston during a portion of the first piston's motion, each of the said pistons in the cylinders B being connected to a device to be actuated, a reservoir for an incompressible fluid and orifices in all of the cylinders communicating with the reservoir, all substantially as and for the purposes set forth.

6. In a hydraulic apparatus for actuating distribution devices or other mechanism, the combination of a reservoir for an incompressible fluid, a cylinder having orifices communicating with the said reservoir, and provided with a piston actuated by the crank shaft, with a second cylinder communicating with the first cylinder, and provided with a piston connected to the admission valve, and also provided with two sets of orifices leading to the reservoir one set being of gradually decreasing size adapted to be progressively closed by a part of the piston as the admission valve is being closed, all substantially as and for the purposes set forth.

7. In a motor, the combination of a reservoir for an incompressible fluid, a cylinder having orifices communicating with the reservoir, and provided with a piston, lever arms connecting the said piston with the exhaust valve and means for actuating the lever arms, with a second cylinder provided with orifices communicating with the reservoir and also provided with a piston connected to the admission valve and having buffer and atmospheric springs, and a pipe connecting the two cylinders and provided with a valve controlled by the governor, all substantially as and for the purposes set forth.

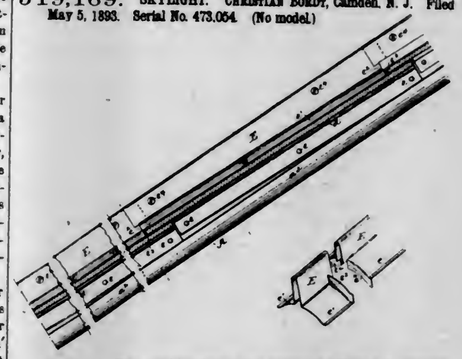
8. In a motor, the combination of a reservoir for an incompressible fluid, two cylinders communicating with the reservoir and provided with pistons connected to the crank shaft, and a second set of two cylinders each communicating with the reservoir and each in communication with one of the first mentioned cylinders, one of the second set of cylinders being provided with a piston connected to the exhaust valves, and the other provided with a piston connected to the admission valve and having buffer and atmospheric springs, all substantially as set forth.

9. In a motor the combination of a reservoir for an incompressible fluid, two cylinders communicating with the reservoir and provided with pistons connected to the crank shaft, and a second set of two cylinders each communicating with the reservoir and each in communication with one of the first mentioned cylinders, one of the second set of cylinders being provided with a piston connected to the exhaust valve, and the other being provided with a valve controlled by the governor and with a piston having differential areas and connected to the admission valve, all substantially as and for the purposes set forth.

10. In a motor the combination of a reservoir for an incompressible fluid, a cylinder provided with a piston actuated by the crank shaft, and also provided with orifices communicating with the reservoir with a second cylinder provided with orifices communicating with the reservoir and also provided with a piston connected to the distribution devices and a passage leading from the first cylinder and branching to each end of the second cylinder, the piston in the second cylinder presenting differential areas to the opposite ends, and a valve controlled by the governor at the branching in the said passage, all substantially as and for the purposes set forth.

11. In a motor, the combination of two motor pumps actuated by the driving shaft and of different capacities, the smaller having a fixed adjustment and the larger a variable adjustment, with two cylinders each connected to one of the said pumps, pistons and piston rods for each cylinder and a cross arm connecting the two piston rods and having connected thereto at its center the connecting rod of the slide valve, all substantially as and for the purposes set forth.

519,169. SKYLIGHT. CHRISTIAN BORDT, Camden, N. J. Filed May 5, 1893. Serial No. 473,054. (No model.)



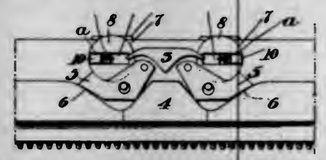
Claim.—1. The combination of the supporting T-bars A, sections of angle bars *d d* secured to each side of the said supporting bars each section being inclined so that the glass on one section will overlap the glass on the section below it, with caps E for each section, the glass of one section abutting against the end of the cap of the section below it, substantially as set forth.

2. The combination of the supporting bars A, the inclined angle bars *d, d* secured thereto, the glass mounted upon said angle bars, the end of one sheet of glass overlapping an adjoining sheet, with caps E, E mounted on the supporting bars A and resting upon the glass, the upper end of one cap being turned up against the lower edge of the glass above and the cap of said glass being turned down over the edge of the lower cap, substantially as described.

519,170. CIRCULAR-KNITTING MACHINE. JAMES L. BRANSON and STEPHEN S. COOK, Philadelphia, Pa., assignors to the Branson Machine Company, same place. Filed Oct. 7, 1893. Serial No. 487,418. (No model.)

Claim.—1. The combination with the cam carrier and its knitting cams, of an adjustable support mounted on said carrier beyond

the nose of the upper knitting cam, and an independently movable needle-controlling device mounted on said support, the former having provisions whereby the needle-engaging portion of said device may be adjusted above or below the nose of said upper knitting cam to perform the function of a needle-raising or needle-depressing cam, as desired, substantially as described.



2. The combination with the cam carrier and its knitting cams, of a rotatable support on said carrier, and an independently-movable needle-controlling device operatively mounted on said support, the former having provisions whereby the said device may be adjusted to perform the functions of a needle-raising and needle-depressing cam, substantially as described.

3. The combination with the cam carrier and its knitting cams, of an adjustable support on said carrier, a vibratory needle-depressing and needle-elevating arm pivoted on said support, and means for maintaining said arm yieldingly in a normal position, substantially as described.

4. The combination with the cam carrier and its knitting cams, of a rotatable support on said carrier, a vibratory needle-depressing and needle-elevating arm pivoted on said support, and means for maintaining said arm yieldingly in a normal position, substantially as described.

5. The combination with the cam carrier and its cams, said carrier being provided with an opening in its wall, of a circular head rotatably fitted to said opening, and an independently-movable needle-controlling device mounted on said head, substantially as described.

6. The combination with the cam carrier and its cams, said carrier being provided with an opening in its wall, of a slotted head fitted to said opening, an arm pivoted to said head so as to project through said opening, and a spring acting upon the said arm, substantially as described.

7. The combination with the cam carrier and its cams, of the circumferentially grooved head, the plates fastened to the carrier and fitted to the groove in said head, and a needle-controlling cam mounted on said head, substantially as described.

8. The combination with the cam-carrier and its knitting cams, of rotatable supports at or adjacent to the respective ends of said cams, and independently-movable needle-controlling arms mounted on said supports, the former having provisions whereby the said devices may be adjusted to perform the functions of needle-raising and needle-depressing cams, substantially as described.

9. The combination with the cam carrier and its knitting cams, of a needle-controlling cam mounted in advance of the end of the upper knitting cam, and provisions whereby said needle-controlling cam may be adjusted to perform the respective functions of a needle-raising, needle-depressing and needle-guard cam, substantially as described.

10. The combination, with the cam carrier and its cams, of a needle-controlling cam mounted in advance of the leading end of the upper knitting cam, and provisions whereby said needle-controlling cam may be adjusted to perform the respective functions of a needle-raising and needle-depressing cam, substantially as described.

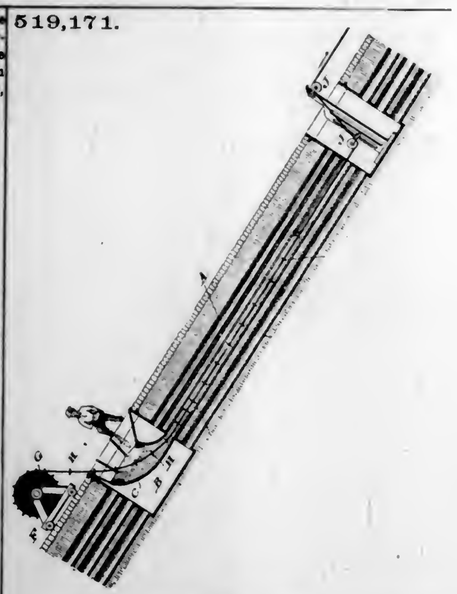
11. The combination, with the cam carrier and its knitting cams, of a vibratory needle-controlling arm mounted in advance of the leading end of the upper knitting cam, and provisions whereby the free or needle-engaging portion of said arm may be adjusted either below or above the end of said upper cam, to perform the function of a needle-raising or a needle-depressing cam, as desired, substantially as described.

519,171. MEANS FOR INTRODUCING INSULATING MATERIAL INTO CONDUITS. DAVID BROOKS, Jr., Philadelphia, Pa., assignor to the Electric Cable Construction and Maintenance Company, of Pennsylvania. Filed Nov. 23, 1892. Serial No. 452,891. (No model.)

Claim.—1. An open-mouthed receptacle suspended within a manhole of a conduit, and communicating with the conduit, a reel outside of said receptacle, and a conveyer leading from said reel through the top of the receptacle to the conduit, said parts being combined substantially as described.

2. In a device substantially as described, a conduit having a manhole, in combination with the flexible receptacle open at top and communicating at bottom with the conduit, and means connected with the receptacle for suspending the latter within said manhole, as set forth

519,171.



519,172. SELF-ATTACHING BOLT. JAMES H. CALKINS, Wakefield, Mass., assignor of one-half to Timothy J. McHugh, same place. Filed Aug. 31, 1893. Serial No. 484,443. (No model.)



Claim.—1. A nut provided with a series of arms permanently connected with the nut and provided with inclined inner faces, said arms collectively forming an expansible head, combined with a screw-threaded bolt engaged with said nut and formed at its inner end to bear on said faces, whereby, when said bolt is turned into the head, it will force the arms outwardly, thereby expanding said head, as set forth.

2. A nut provided with a series of arms or sections, collectively forming an expansible head, and provided at their inner sides with inclined faces and at their outer sides with beveled enlargements; combined with a screw-threaded bolt, engaged with said nut, and formed at its inner end to bear on said inclined faces and force the arms outwardly, whereby said enlargements may be engaged with the wall of a hole in which the head may have been inserted; as set forth.

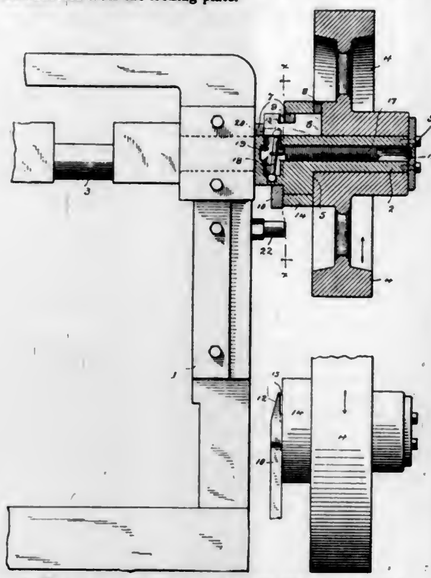
519,173. AUTOMATIC STOP-CLUTCH. ANDREW C. CAMPBELL, Waterbury, Conn., assignor to the Waterbury Farrel Foundry and Machine Company, same place. Filed Jan. 2, 1894. Serial No. 495,323. (No model.)

Claim.—1. The combination, with a shaft having a longitudinal opening 16 and a socket 19, of a belt pulley turning freely on said shaft and having a socket 8, a key adapted to engage socket 8, a pin lying in socket 19 and engaging the key, and a spring lying in the longitudinal opening and connected to the pin, the action of which is to move the key into socket 8 the instant said socket registers with the key.

2. The combination, with a shaft having a longitudinal opening 16, a transverse socket 19 and a recess 7, of a belt pulley turning freely on said shaft and having a socket 8, a sliding key adapted to engage said socket, a pin in socket 19 engaging the key, and a spring in opening 16 one end of which is attached at the outer end of the shaft, the other to the pin, the action of which is to move the key into the socket the instant said socket registers with the key.

3. The combination, with a shaft having a longitudinal opening 16, and a socket 19 at the inner end of said opening, of a belt pulley adapted to turn freely on said shaft and having a socket 8, a sliding key adapted to engage said socket and having a bevel 13, a pin in socket 19 engaging the key, a coil spring in opening 16 one end of which is rigidly secured at the outer end of the shaft and the other to the pin and which acts to move the key into the socket when said parts register, and a releasing lever having a bevel adapted to engage bevel 13 to withdraw the sliding key.

4. The combination, with a shaft, a belt pulley, and a spring actuated sliding pin adapted to engage the belt pulley, of a releasing lever having a locking plate 31 and adapted to engage the key to disconnect it from the belt pulley, a pivoted latch block, a latch pivoted to the latch block and adapted to engage the locking plate, a spring acting to move the latch forward into engagement with the locking plate, and suitable means by which the latch block, latch, and releasing lever may be drawn downward to release the key when the latch is in engagement with the lever, movement of the treadle and latch block having no effect on the releasing lever when the latch is disconnected from the locking plate.



5. The combination, with a shaft, a belt pulley, and a spring actuated key for connecting the belt pulley to the shaft, of a releasing lever having a locking plate 31 and adapted to engage the key to disconnect the belt pulley and shaft, a pivoted latch block, a latch pivoted to said latch block and having a locking shoulder adapted to engage the locking plate and a tail piece, a spring acting to hold said latch in the engaging position, and a treadle adapted to draw the latch block, latch, and releasing lever downward when the latch is engaged, the tail piece being engaged an instant later by the key, whereby the latch is disengaged from the locking plate so that the belt pulley and shaft cannot be again connected until the latch has engaged the locking plate which permits the releasing lever to be again moved out of operative position.

6. The combination, with a shaft, belt pulley, spring actuated sliding key, and a releasing lever having a locking plate 31, of a pivoted latch block, a latch pivoted to said block and having locking shoulders on opposite sides, each of which is adapted to engage the locking plate, a tail piece 27, and a bevel nosed lug 28, a spring acting to throw the forward locking shoulder into engagement with the locking plate so that the device will work automatically, and an adjusting screw engaging the bevel nosed lug and adapted to place the rear locking shoulder in engagement with the locking plate and retain it there so that the parts will operate in the ordinary manner.

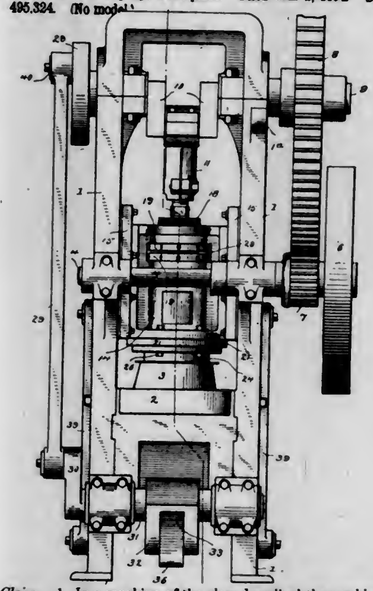
7. The combination, with a shaft, belt pulley, and a spring actuated key adapted to connect the belt pulley to the shaft, of a collar on the shaft through which the key passes and a releasing lever adapted to engage the key to disconnect the belt pulley and shaft, the face of said lever toward the collar being cut away on the side of the collar having the downward movement, the portion of the face of the collar that moves upward only being in contact with the lever so that downward drag upon the lever is wholly avoided, the friction of the collar on the lever tending to hold it in operative position.

8. The combination with the shaft, pulley, sliding key and their operating connections and the releasing lever having a locking plate 31, of a pivoted latch block, a latch pivoted thereto and having a locking shoulder adapted to engage the locking plate, a spring acting to place the latch in the engaging position, suitable means for moving the releasing lever out of operative position when the latch is in the engaged position, and for disconnecting the latch from the locking plate.

9. The combination with the shaft, pulley, sliding key and their operating connections and the releasing lever having a locking plate 31, of a pivoted latch block, a latch pivoted thereto and having locking shoulders on opposite sides, both of which are adapted to engage the locking plate, and a bevel nosed lug 28, a spring acting to place the forward locking shoulder in engagement with the locking plate, suitable means for moving the releasing lever out of operative position when the latch is in the engaged position, and for disengaging the latch from the locking plate so that but one revolution of the shaft can take place before the belt pulley and shaft are disengaged, and an adjusting screw engaging the bevel nosed lug, whereby the rear locking shoulder may be placed in engagement with the locking plate so that automatic action of the releasing lever is prevented.

10. The combination with the shaft, pulley, sliding key and their operating connections, and a releasing lever having a locking plate, of a pivoted latch block, a latch pivoted thereto and having a shoulder adapted to engage the locking plate so that the lever, latch block, and latch move as one piece.

519,174. DOUBLE-ACTING TOGGLE-PRESS. ANDREW C. CAMPBELL, Waterbury, Conn., assignor to the Waterbury Farrel Foundry and Machine Company, same place. Filed Jan. 2, 1894. Serial No. 495,324. (No model.)



Claim.—1. In a machine of the class described the combination with the gate having recesses 17 and 20 and an opening 25, of the draw bar lying in recess 17 and having a threaded hub lying in opening 25, and nuts 19 lying in recess 20 and engaging the threaded hub, whereby the gate may be adjusted relatively to the draw bar.

2. The combination with a lower die, a gate carrying a blank holder, the draw bar and means for adjustably connecting the gate to the draw bar so that the blank holder may be adjusted relatively to the lower die, of an upper die a suitable carrier therefor and means for reciprocating said carrier and die independently of the draw bar and the gate.

3. The combination with the upper and lower dies, the gate and the draw bar, of links 39 connected to the draw bar, a secondary rock shaft having cranks to which said links are connected and a toggle arm 36, a primary rock shaft having a toggle arm 32 engaging arm 36, and means for oscillating the primary rock shaft as and for the purpose set forth.

4. The combination with the upper and lower dies, the gate and the draw bar, of links 39 connected to the draw bar, a secondary rock shaft having cranks to which said links are connected, and a toggle arm 36 having a slot 37, a primary rock shaft having a toggle arm 32 carrying a roller engaging slot 37, and suitable means for oscillating the primary rock shaft whereby the blank holder is moved to operative position and retained there during the operation of the upper die.

5. The combination with the lower die, the upper die, a carrier therefor, shaft 9 having a crank 10, and crank pin 40 crank rod 11

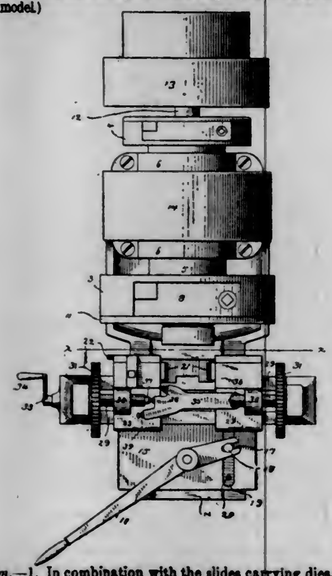
engaging crank 10 by which the carrier is operated, and a crank rod 29 engaging crank pin 40, of a gate carrying a blank holder, a draw bar adjustably secured to the gate, links connected to the draw bar and to cranks 38, a secondary rock shaft carrying said cranks and having a toggle arm 36 and a primary rock shaft carrying a crank 30 to which crank rod 29 is connected and a toggle arm 32 engaging a toggle arm 36.

6. The combination with the lower die, the upper die, a carrier therefor, shaft 9 having a crank 10, and a crank pin 40, crank rod 11 engaging crank 10 by which the carrier is operated and a crank rod 29 engaging crank pin 40, of a gate carrying a blank holder, a draw bar having a threaded hub within which the carrier slides nuts engaging said hub by which the draw bar is adjustably connected to the gate, links connected to the draw bar and to cranks 38, a secondary rock shaft carrying said cranks and having a toggle arm 36 and a primary rock shaft carrying a crank 30 to which crank rod 29 is connected and a toggle arm 32 engaging toggle arm 36.

7. The combination with the lower die, the upper die, a carrier therefor, shaft 9 having a crank 10 and crank pin 40 crank rod 11 engaging crank 10 by which the carrier is operated, and a crank rod 29 engaging crank pin 40, of a gate carrying a blank holder, a draw bar adjustably secured to the gate, links connected to the draw bar and to cranks 38, a secondary rock shaft carrying said cranks and having a toggle arm 36 provided with a slot 37 and a primary rock shaft carrying a crank 30 to which crank rod 29 is connected and a toggle arm 32 having at its outer end a roller which engages the slot in toggle arm 36 whereby the blank holder is placed in operative position and retained there during the operation of the upper die.

8. In a press the combination with the gate, draw bar and blank holder, of links connected to the draw bar, a secondary rock shaft having cranks to which said links are connected and a toggle arm 36, a primary rock shaft having a toggle arm 32 engaging toggle arm 36 and suitable means for oscillating the primary rock shaft.

519,175. PIPE THREADING AND CUTTING-OFF MACHINE. ARTHUR W. CASH, Bridgeport, Conn., assignor to the Armstrong Manufacturing Company, same place. Filed Aug. 14, 1893. Serial No. 483,068. (No model.)

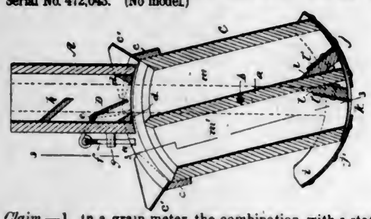


Claim.—1. In combination with the slides carrying dies, a lever pivotally connected to one slide and having a plurality of bearing surfaces for engaging the other die, substantially as described.

2. In combination with the slides carrying dies and means for moving them toward and from each other, a lever pivotally connected to one slide and having a freely swinging stepped end and adjustable bearing pieces carried by said stepped end, substantially as described.

3. The combination with slides 23, dies carried thereby, and right and left threaded screws by which said slides are moved in or out, one of said slides having a hub 37, of a swinging gage pivoted to the slide opposite to hub 37 said gage having a plurality of engaging surfaces, either of which is adapted to engage hub 37 to set the dies in position.

519,176. GRAIN-METER. JAMES W. COKER, Niles, Mich., assignor to himself and Paul Skalla, same place. Filed Apr. 27, 1893. Serial No. 472,043. (No model.)

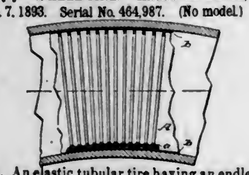


Claim.—1. In a grain meter, the combination, with a stationary grain chute, of a stationary pivot located below the chute, a tilting comparted box mounted to turn on the said stationary pivot and provided with two notches arranged substantially in a circle whose plane is perpendicular to the said pivot, a stationary curved apertured plate acting as a bottom to the comparted box, a movable wing in the chute, and a latch operatively connected with the said wing and adapted to engage either of the said notches to lock the tilting box in either of its normal positions, as set forth.

2. In a grain meter, the combination, with the comparted tilting box whose lower end is cut off circularly, of a curved apertured plate located adjacent to the lower end of the box, the curve of the plate having a less radius than that of the box, and deflectors secured within the box and adapted to move into contact with the said curved plate, substantially as described.

3. The combination in a grain meter, of the chute A furnished with the beveled fillets *d*, the deflector *h*, the wing D and the locking mechanism operated thereby, the tilting comparted box C, provided with the deflectors, and the stationary curved plates *j*, *j'*, substantially as specified.

519,177. WHEEL-TIRE. HARRY M. DEVOE, New York, N. Y. Filed Mar. 7, 1893. Serial No. 464,987. (No model.)



Claim.—1. An elastic tubular tire having an endless coiled spring arranged in its interior, and tie wires interwoven with the coils of the spring, the coils being left free in the outer portion of the tire, substantially as described, whereby the coils are allowed play in the direction of the diameter of the tire, yet prevented from being pressed into one another, the tie wires being adapted to act to restore the individual coils to their normal position, and transfer the strain upon any particular coil to the adjacent coils, as set forth.

2. An elastic tire having an endless wire spring coiled in the interior, the diameter of the coils being essentially equal to the inner diameter of the tire, and tie wires extending longitudinally of the tire and interwoven with the coils of the spring on a portion of the circumference thereof, substantially as described, whereby the coils are allowed play in the direction of the diameter of the tire, yet prevented from being pressed into one another, as set forth.

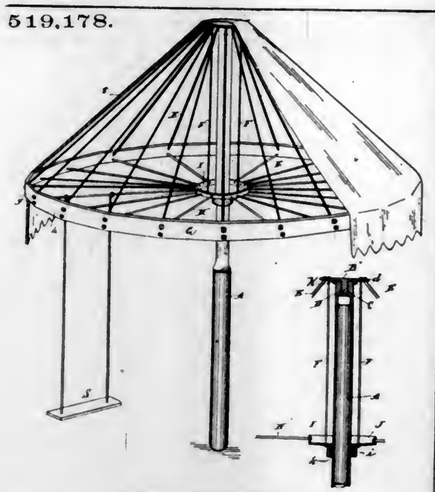
3. As an improved article of manufacture, an elastic tire formed of an elastic tube, a cloth covering applied on the inner surface thereof, an endless, coiled wire spring located in the tube with its coils in essential continuous contact with the said cloth covering, and one or more pairs of elastic tie wires which are interwoven with the coils of the spring passing alternately over and under adjacent convolutions or coils of the spring and being twisted together intermediately thereof, substantially as and for the purpose set forth.

519,178. CLOTHES-DRIER. ROBERT DOUGLAS and JOHN F. AUSTIN, Detroit, Mich. Filed Sept. 7, 1893. Serial No. 484,990. (No model.)

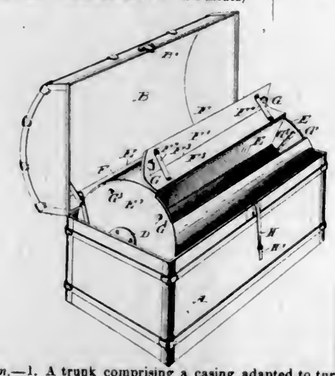
Claim.—1. In a clothes reel, the combination of a central supporting post, a ring supported below the summit, radial arms reaching from said ring to an outer ring, a supporting pin at the summit of the post, tie rods reaching from the supporting pin to the outer ring and means for adjusting the tension of the same, substantially as described.

2. In a clothes reel, the combination of a central supporting post, a reel head composed of an inner and an outer ring and radial arms uniting the two, a tie plate at the top of the post revolubly secured thereto, and tie rods uniting the tie plate to both of said rings, substantially as and for the purpose specified.

519,178.



519,179. TRUNK. ERNST L. FORSGREN, New York, N. Y. Filed Oct. 6, 1893. Serial No. 487,318. (No model.)



Claim.—1. A trunk comprising a casing adapted to turn in an exterior shell and provided with longitudinal partitions forming separate compartments, and a hinged cover for each compartment and made in two spring-pressed sections, substantially as shown and described.

2. A trunk comprising a casing adapted to turn in an exterior shell and provided with longitudinal partitions forming separate compartments, a hinged cover for each compartment and made in two spring-pressed sections, and spring catches for the said cover to lock the same in place over the compartment, substantially as shown and described.

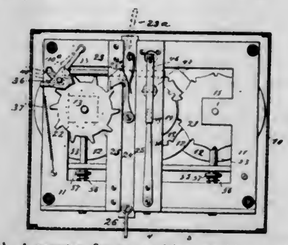
3. A trunk comprising an exterior shell having a cover, a casing mounted to turn in the said shell, and a band secured at one end to the said shell and adapted to engage the said casing to lift the latter out of the shell into the said cover, substantially as shown and described.

4. A trunk comprising an exterior shell having a cover, a casing mounted to turn in the said shell, a band secured at one end to the said shell and adapted to engage the said casing to lift the latter out of the shell into the said cover, and a hook held on the said band and adapted to engage part of the said cover to lock the band and casing in place on the cover, substantially as shown and described.

5. A trunk comprising an exterior shell having a hinged cover, a tray set on cleats in the said shell, a casing provided with trunnions adapted to engage bearings in the ends of the said shell to permit the casing to revolve in the latter, and a band secured on one side of the said shell and adapted to engage the said casing to lift the latter out of the shell to give access to the said tray, substantially as shown and described.

6. A trunk comprising an exterior shell provided with bearings at its ends, a cylindrical casing provided in its heads with trunnions adapted to engage the said bearings, the said casing being provided with compartments and hinged covers, and spring forming a brake for the said casing to prevent the latter from accidentally turning in the said shell, substantially as shown and described.

519,180. COUNTER FOR TYPE-WRITERS. ALFRED V. GEARHART, Wausau, Wis. Filed June 15, 1893. Serial No. 477,699. (No model.)



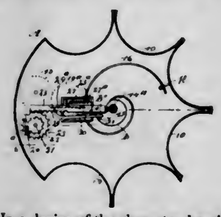
Claim.—1. A counter for typewriting machines, comprising a plurality of shafts having number disks thereon, a gear connection between the shafts whereby the disks are caused to turn in regular numerical order, mechanism for throwing the shafts out of gear, a spring-actuated device for returning the shafts to normal position, and a slide rod operatively connected with one of the shafts to turn it and adapted to connect with the space key of a typewriting machine, substantially as described.

2. A counter for typewriting machines, comprising a plurality of parallel shafts having the usual number disks thereon, suitable gears connecting the shafts so as to advance the disks in regular numerical order, a movable side plate arranged adjacent to the shafts and adapted to be operated by the space key of a typewriting machine, a ratchet connection between the slide and the shaft carrying the units number disk, means for throwing the several shafts out of gear, and a spring-actuated device to return the number disks to normal position, substantially as described.

3. A counter for typewriting machines, comprising a plurality of parallel shafts carrying the usual number disks, a gear connection between the shafts whereby the shafts are turned and the disks advanced in regular numerical order, a slide arranged adjacent to the shafts and adapted to connect with the space key of a typewriter, a ratchet connection between the slide and the units shaft, whereby the movement of the slide will turn the shaft, a locking pawl to engage the ratchet wheel, mechanism for throwing the shafts out of gear and for releasing the locking pawl, and spring-actuated means for returning the number disks to normal position, substantially as described.

4. In a counter for typewriters, the combination, with the parallel number shafts having the usual number disks thereon, of a ratchet mechanism operated by the space key of the typewriter and adapted to turn the units shaft, the frame having bearings in which said shaft is adapted to slide lengthwise, a gear connection between the several shafts whereby the disks are advanced in numerical order, a locking pawl for the ratchet wheel, means for releasing the pawl by the sliding of the tens shaft, and spring-actuated mechanism for returning the disks to normal position, substantially as described.

519,181. DEVICE FOR REGISTERING MEASURES OF LIQUIDS. FRANCIS GERAG, Brooklyn, N. Y. Filed Feb. 27, 1893. Serial No. 463,876. (No model.)



Claim.—1. In a device of the character described, the combination of a support, a casing mounted loosely on the said support and having peripheral recesses adapted to receive receptacles, registering dials mounted in the casing and intermediate mechanism between the support and dials for operating the latter when the casing is turned, substantially as described.

2. In a device of the character described, the combination of a supporting rod, a casing mounted loosely on the rod and having peripheral recesses adapted to receive receptacles, a spring secured to

the rod and casing, registering dials mounted in the casing, and mechanism between the rod and dials for operating the dials when the casing is turned in one direction, substantially as described.

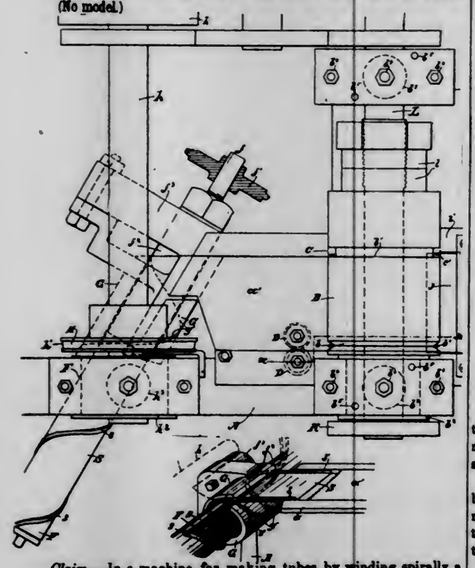
3. In a device of the character described, the combination, with a stationary standard provided with a fixed cam, a casing held to revolve around the standard and provided with recesses in its side edges and a spring secured to the casing and standard, of a registering mechanism, and a rack actuated by the cam and operating the registering mechanism, which rack is operated when the casing is turned in one direction, as and for the purpose specified.

4. In a device of the character described, the combination with a standard, and a casing mounted to turn on said standard and having peripheral recesses, of registering dials mounted in the casing, pinions on dial shafts, a rack meshing with the pinions and provided with ratchet teeth, a pawl engaging the ratchet teeth, and means for operating the rack and disengaging the pawl from the ratchet, substantially as described.

5. In a device of the character described, the combination, with a fixed standard, a cam secured upon the standard, a casing held to revolve loosely around the standard and provided with cavities or recesses in its outer side edges, and a spring connecting the casing with the standard, of a registering mechanism located within the casing, a rack actuated by the cam and acting to actuate the registering mechanism, a ratchet surface located upon the rack, a pawl adapted for engagement with the ratchet surface of the rack, and a trip connection between the pawl and the cam, as and for the purpose specified.

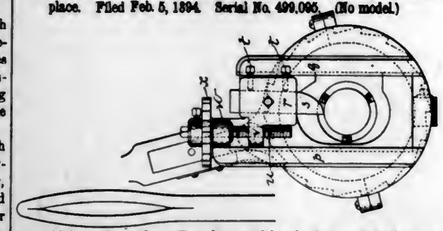
6. In a device of the character described, the combination, with a standard adapted for rigid attachment to a faucet, a cam having an essentially spiral peripheral surface and a straight drop between the outer and inner portions of the spiral, a casing provided with cavities in its outer edge loosely mounted upon the standard, a spring connecting the standard with the casing, and a registering mechanism located within the casing, of a spring controlled rack actuated by the cam and adapted to actuate the registering mechanism, a ratchet surface formed upon the rack, a pawl adapted for engagement with the ratchet surface of the rack, and a trip mechanism between the pawl and cam, as and for the purpose set forth.

519,182. MACHINE FOR MAKING SHEET-METAL TUBES. James Gould, Jr., Oakland, Cal. Filed Oct. 23, 1893. Serial No. 488,946. (No model.)



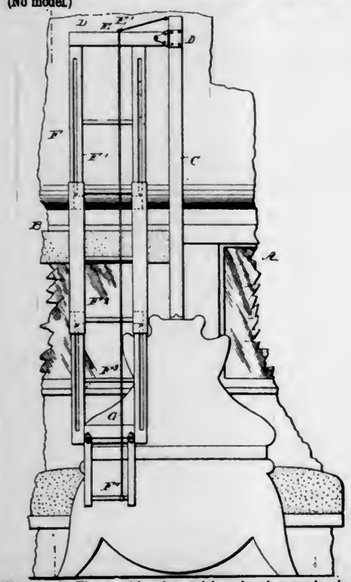
Claim.—In a machine for making tubes by winding spirally a series of metallic sheets, the combination, with a mandrel and directing sleeve separated from each other, of the upper and lower feed rolls for said sheet, said upper roll being mounted in vertically movable boxes controlled by cushions and set screws at both ends, and the depending pieces located between the cushions of each movable box and having their lower ends disposed just over the said boxes and adapted to arrest the movement of the boxes beyond a distance approximately equal to the clearance in the space between the mandrel and directing sleeve whereby the seam is flattened to a uniform thickness before it enters said space.

519,183. CUTTING-OFF TOOL. Ernest W. Gourd, Quincy, Mass., assignor of two-thirds to John R. Gourd and Ernest D. Gourd, same place. Filed Feb. 5, 1894. Serial No. 499,095. (No model.)



Claim.—A cutting-off tool comprising in its construction a split hub, adapted to be rigidly clamped upon the stock to be operated upon, a split revoluble hub, adapted to be moved around the first-mentioned hub, a split revoluble ring, provided with a lever, means for detachably connecting the parts of said split hubs and rings, whereby the same may be operatively connected with the stock without passing the same over the end thereof, a cutter carried by, and a ratchet connected with the revoluble hub, the said cutter being adapted to be fed radially into the stock, a pawl carried by the lever to engage and move the ratchet and revoluble hub, as the said lever is vibrated, and means connected with the lever to actuate the cutter feeding means.

519,184. FOLDING LADDER FOR SLEEPING-CARS. John B. Holbrook, New York, N. Y. Filed Sept. 29, 1893. Serial No. 486,770. (No model.)



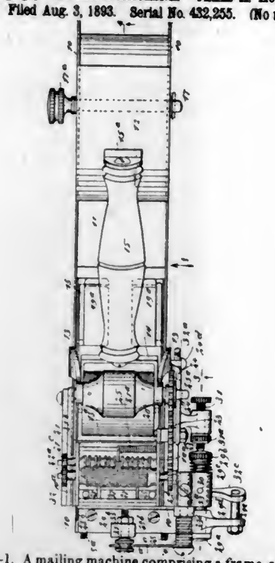
Claim.—1. The combination, with a sleeping car having a partition between adjacent berths, of an extension ladder having a permanent hinged connection with the said partition, as and for the purpose set forth.

2 An extension ladder for sleeping cars, comprising an arm or bar hinged to the partition board of adjacent berths, and a ladder made in sections fitted to slide one on the other, the uppermost section being permanently and rigidly secured to the said arm, substantially as described.

3. An extension ladder for sleeping cars, comprising an arm or bar hinged to the partition board of adjacent berths, a ladder attached to the said arm and made in sections fitted to slide one on the other, and a bottom section hinged to the lowermost sliding section, substantially as shown and described.

4. An extension ladder for sleeping cars, comprising an arm or bar hinged to the partition board of adjacent berths, a ladder attached to the said arm and made in sections fitted to slide one on the other, a bottom section hinged to the lowermost sliding section, and a tape connected with the lowermost hinged section to assist in folding the several sections, substantially as shown and described.

519,185. MAILING-MACHINE. James A. Horton, Greenfield, Mass. Filed Aug. 3, 1893. Serial No. 482,255. (No model.)



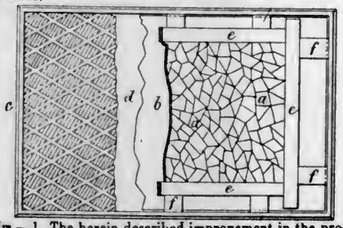
Claim.—1. A mailing machine comprising a frame, a roll supporting shaft, a paste-holding dish, the paste distributing roller arranged in the latter, and drawing or feed rollers and the oppositely-placed paper-guide clips 19*, arranged respectively in front and rear of said distributing roller, whereby the paper ribbon is guided and held down upon the paste roller while being advanced to the cutters, as shown and described.

2. A mailing machine, comprising an elongated frame, a transverse paper-roll holding shaft journaled therein, a paste holding dish in the frame, a removable clip plate on the rear of the dish, adapted to guide a paper ribbon fed from the shaft, a removable paste distributing roller in the dish, a spring-pressed circumferentially-grooved lower feed roller loosely sustained in elongated perforations in the sides of the frame, a longitudinally milled upper feed roller rotatable in the frame, and cutters for severing the paper strip, as shown and described.

3. In a mailing machine, a pivoted knife bar carrying an adjustable and removable upper cutter blade, a set screw adjustable in an ear projecting from said knife bar, and a coiled spring adjustably sustained on the frame of the machine, and having a limb projecting therefrom and engaging a groove in the head of the set screw, substantially as described.

4. In a mailing machine, the combination with a fixed knife bar and a swinging knife bar, of a sliding pivot bolt for the latter, a spring coiled upon said bolt, an adjusting or set screw aligned with the pivot bolt and adapted to bear upon its head, and a device for locking the screw in any adjustment, as shown and described.

519,186. MANUFACTURE OF STAINED-GLASS PANELS. Henry C. Hughes, London, England. Filed Mar. 25, 1893. Serial No. 467,565. (No model.)

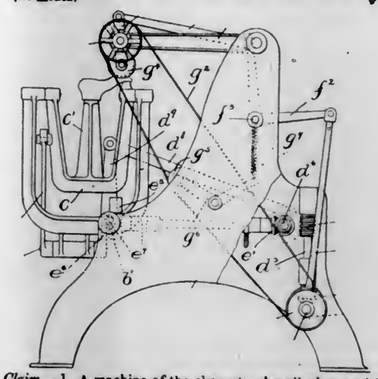


Claim.—1. The herein described improvement in the process of manufacturing stained glass panels, which consists in placing the pieces of glass upon a suitable supporting surface and fitting the edges of said pieces together, applying a vitreous flux to the joints, bringing the juxtaposed edges to a welding point, and then applying a suitable tool locally to the several joints, and pressing the edges into close contact, substantially as specified.

2. A bed for use in the manufacture of stained glass panels, comprising a metallic frame, a heat resisting filling material for said frame, and a sheet of mica supported upon the surface of said filling material, as and for the purpose specified.

3. In the manufacture of stained glass panels, a bed for supporting the pieces of glass, consisting of a metal open work or cellular frame, a filling of whiting or equivalent material held in and covering said frame, a sheet of mica supported upon the upper surface of said filling material, stripe or bars laid on the said sheet of mica to form a frame within which the pieces of glass are arranged—and packing pieces arranged between the said bars and the sides of the metal frame, substantially as herein described.

519,187. SOLE LEVELING AND BURNISHING MACHINE. Edward C. Judd, Boston, Mass. Filed Aug. 17, 1893. Serial No. 483,372. (No model.)



Claim.—1. A machine of the character described comprising in its construction, a leveling and burnishing roll supported in oscillatory bearings, oscillating means connected with said bearings, and producing reciprocations of the roll, and driving mechanism connected with said roll and adapted to rotate the same simultaneously with the reciprocations thereof.

2. A machine of the character described, comprising in its construction a leveling and burnishing roll, rocker arms supporting the same, a gear which is concentric with the bearings of said arms, another gear affixed to the shaft of the roll, means for rotating the first-named gear and thereby the roll, and means for oscillating or reciprocating the rocker arms.

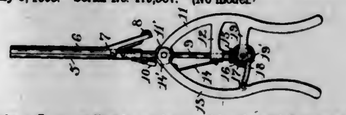
519,188. COMMUTATOR-BRUSH. Rudolf Kersberg, Hohenlimburg, Germany. Filed Jan. 8, 1894. Serial No. 496,070. (No model.)



Claim.—1. A commutator brush formed of a metallic cloth or fabric composed of wire spirals screwing one in the other, substantially as shown and described.

2. A commutator brush comprising a metallic cloth or fabric formed of wire spirals screwing one in the other, and single wire spirals inclosed in the said fabric, substantially as shown and described.

519,189. HAIR-CURLER. John W. Leonard, Chicago, Ill. Filed July 5, 1893. Serial No. 479,587. (No model.)



Claim.—In a curling iron, the combination with a mandrel, of the arm 11 having the head 11' and the brackets 12 and 19, the spindle 9, journaled in the head 11' and in the bracket 12, and provided with means for engaging the end of the mandrel, the beveled-pinion 15 on

the spindle, the beveled-gear 16, furnished with the pinion 17, rotatable on a shaft extending from the bracket 19 and engaging the pinion 15, the arm 13 pivoted to the head 11', and the rack-bar 18 pivoted to the arm 13 and adapted to engage the pinion 17, as and for the purpose described.

519,190. STAMP HOLDER AND MOISTENER. GEORGE LOOMIS, Parkersburg, W. Va. Filed Jan. 31, 1893. Serial No. 460,344. (No model.)



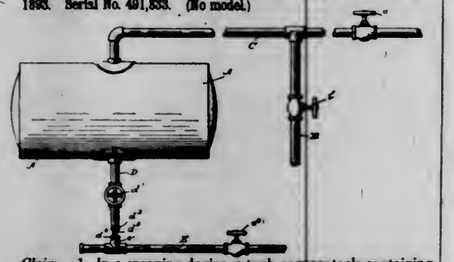
Claim.—1. A stamp holder and moistener, comprising a box having a slotted top and provided on its front side with a projecting ledge having an inclined and roughened upper edge, a spring pressed plate held in the box, and a moistening device at the front side of the box, substantially as described.

2 A stamp holder and moistener, comprising a box having an inclined and slotted top and a detachable back, an upwardly pressed plate arranged within the box and adapted to carry a stamp, a fastening device to hold the plate in a depressed position, a delivery slot arranged in the front upper portion of the box, and a moistening device held in front of the box, substantially as described.

3. The combination with the stamp holding box having a delivery slot at its upper end, of a moistening cup secured in front of the box, the sponge held with the cup, and the plate arranged within the cup and having a lip extending over the front edge of the cup, substantially as described.

4. A stamp holder and moistener, comprising a box having a plurality of vertical compartments therein, and a slotted top, upwardly spring-pressed plates arranged in each compartment and adapted to carry stamps, fastening devices to hold the plates downward in the compartments, a delivery slot arranged along the front upper portion of the box, a moistening cup held in front of the box, and a moistening sponge arranged within the cup, substantially as described.

519,191. DEVICE FOR SPRINKLING CASING MATERIAL UPON TOBACCO. CHARLES L. MARBURG, Baltimore, Md., assignor of one-half to the American Tobacco Company, of New Jersey. Filed Nov. 24, 1893. Serial No. 491,833. (No model.)

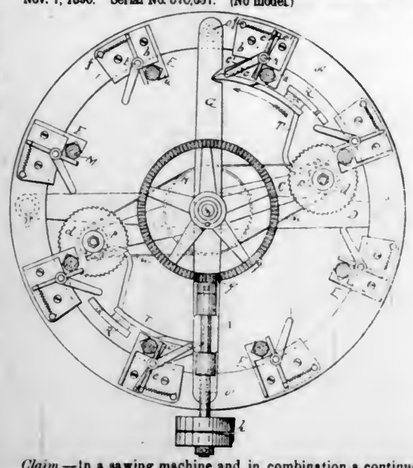


Claim.—1. In a spraying device, a tank or receptacle containing the material to be sprayed, means for supplying a pressure to force the material out of the tank, and means for regulating the same in combination with a tube or pipe to receive the casing from the receptacle provided with a spraying device, a valve controlled connection between the two to regulate the flow of the casing, and means for supplying an additional pressure through the receiving pipe to eject it therefrom through the spraying device.

2. In a spraying device a tank or receptacle containing the material to be sprayed, means for supplying pressure to force the liquid out of the tank, and means for regulating the same in combination with a tube or pipe to receive the casing when forced from the receptacle provided with a spraying device, a valve controlled connection between the two to regulate the flow of the casing, means for supplying an additional pressure through the receiving pipe to eject it therefrom through a spraying device, and means for regulating the latter pressure substantially as described.

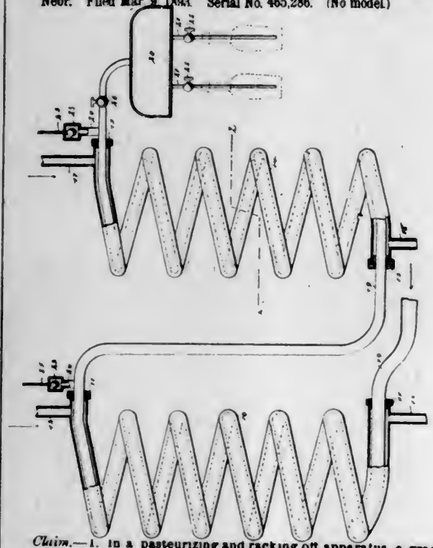
3. In a spraying device a tank or receptacle containing the material to be sprayed, means for supplying a pressure to force the material out of the tank and means for regulating the same, in combination with a tube or pipe to receive the casing from the receptacle provided with a spraying device, a valve controlled connection between the two provided with a contracted conduit, means for supplying an additional pressure through the receiving pipe and means for regulating the pressure, substantially as described.

519,192. SAWING-MACHINE. JOHN H. MORRISON, Pawtucket, R. I., assignor to the Atwood, Crawford Company, same place. Filed Nov. 7, 1890. Serial No. 370,637. (No model.)



Claim.—In a sawing machine and in combination a continuous rotating saw carrier centrally pivoted around a vertical shaft and carrying a saw mounted at each end thereof, a stationary ring shaped bed plate bearing a series of holdfasts and encircling said continuous rotating saw carrier, means for successively operating said holdfasts and an adjustable gage having an incline at the top of its rear end for slightly raising the wooden rods upward before the action of the saws, all supported, arranged and provided with operating mechanism substantially as described and for the purpose specified

519,193. APPARATUS FOR PASTEURIZING AND RACKING OFF BEER. ADELBERT O. MÜLLER and ANDREAS GIESEN, Fremont, Nebr. Filed Mar. 9, 1893. Serial No. 465,286. (No model.)



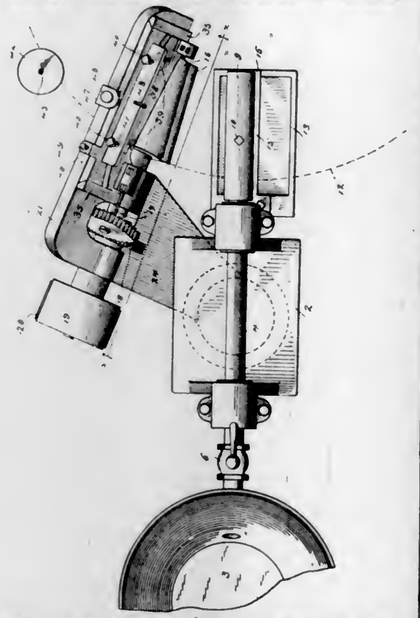
Claim.—1. In a pasteurizing and racking off apparatus, a gradually reduced pipe through which the liquid is adapted to flow, to cause the liquid to travel with a gradually increasing velocity toward the delivery end and keep back the froth and means for heating and cooling, respectively, successive portions of the said liquid-conveying pipe, substantially as described.

2. In a pasteurizing and racking off apparatus, the combination, with a gradually reduced pipe through which the liquid is adapted to flow, of a plurality of independent pipes surrounding successive portions of the said liquid conveying pipe, said surrounding pipes being adapted to contain a heating and a cooling agent, respectively, substantially as set forth.

3. In a pasteurizing and racking off apparatus, the combination, with a gradually reduced pipe through which the liquid is adapted to flow, of a plurality of independent coiled pipes through which the said liquid conveying pipe passes successively, said coiled pipes being adapted to contain a heating and a cooling agent respectively, substantially as set forth.

4. In a pasteurizing and racking off apparatus, the combination, with a gradually reduced pipe through which the liquid is adapted to flow, of a plurality of independent coiled pipes through which the said liquid conveying pipe passes successively, said coiled pipes being adapted to contain a heating and a cooling agent respectively, and the inlets for the said heating and cooling agents being located at that end of each of the said coiled pipes which is next to the reduced end of the liquid conveying pipe, whereby the liquid and the heating or cooling agent respectively are caused to flow in opposite directions, substantially as set forth.

519,194. MACHINE FOR STIFFENING HAT-BRIMS. FRANK J. MURPHY, Danbury, Conn., assignor of one-half to Anthony M. Rundle, same place. Filed Sept. 29, 1893. Serial No. 486,779. (No model.)



Claim.—1. The combination with a trough 13 by which the brims are supported, of a tube for stiffening material closed at its outer end, and distributing tubes connected therewith by which stiffening material is deposited upon the brims one of said tubes serving to convey stiffening material to the trough so that both sides of the brims are stiffened simultaneously.

2. The combination with a trough over which the brims pass, of a tube for stiffening material, distributing tubes 5 connected with said tube by which stiffening material is placed upon the upper side of the brim, a tube 5* by which stiffening material is conveyed to the trough to stiffen the under side of the brim, and cocks 11 in said tubes by which the supply of stiffening material passing to the upper side of the brim and to the trough may be regulated.

3. The combination with the trough, tube 4 and the distributing tubes, of a guard 15 over the trough under which the brim passes the lower side of said guard being even with the lower ends of the distributing tubes so that the brim is held straight while taking stiffening material from the distributing tubes.

4. The combination with trough 13, tube 4 and the distributing tubes, of rollers 16 by which hat brims are drawn forward over the trough and under the distributing tubes.

5. The combination with rollers 16 and plate 21 by which they are carried and which is provided with a base 22, of a plate 23 to which the base is pivoted and which is provided with a dove tail 25 and a lug 27, a plate 24 having a groove to receive the dove tail, a slot 26 through which the lug extends and ears 29, and a screw 28 held in said ears and engaging lug 27 whereby plate 23 and the parts carried thereby may be moved transversely on plate 24.

6. The combination with suitable means for distributing the stiffening material rollers 16, and plate 21 provided with a base 22 having a curved slot, of a plate 23 to which the base is pivoted and to which it is locked by a screw passing through the curved slot so that the inner ends of the rollers may be adjusted relatively to the means for distributing the stiffening material said plate having on its under side a dove tail and lug, a plate 24 having a transverse groove to receive the dove tail, and a screw 28 engaging the lug by which the rollers are adjustable transversely.

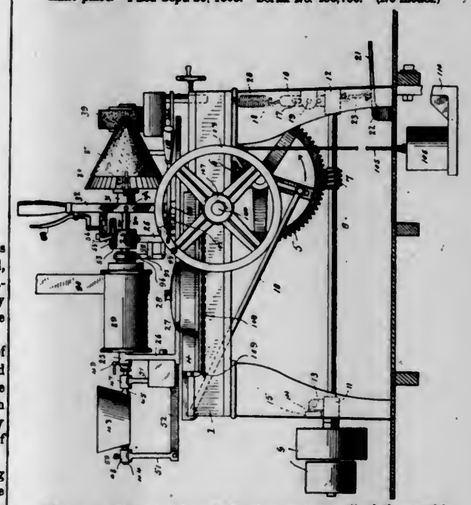
7. The combination with plate 21 having a lip 47 and ways 35, and the lower roller carried by said plate, of a slide 34 adapted to move in said ways and carrying the upper roller, a weight 42 connected to the slide by a rope, a spring 44 bearing upon the upper edge of the slide, a screw 46 engaging lip 47 and bearing upon the spring, and a rod 45 made integral with the screw which passes within the spring and retains it in operative position.

8. The combination with plate 21 having ways 35 and the lower roller carried by said plate, of a slide 34 which moves in said ways and is provided with an arm 48 and carries the upper roller, a weight 42 connected to the slide by a rope by which the slide and parts carried thereby are counterbalanced, a spring acting to hold the slide and upper roller in operative position, and a set screw 49 in arm 48 which engages the top of plate 21 to limit the downward movement of the slide and upper roller.

9. The combination with rollers 16 and plate 21, of slide 34 having ledge 41, a plate 36 by which the upper roller is carried and which is pivoted to the slide and is provided with stumps 39, and set screws 40 engaging the ledge and bearing upon the stumps whereby the upper roller may be placed at any desired angle relatively to the lower roller.

10. The combination with rollers 16 and plate 21, of slide 34 having a ledge 41, a plate 36 by which the upper roller is carried and which is pivoted to the slide and is provided with stumps 39 and a slot 38, a bolt 37 passing through said slot by which plate 36 is pivotally secured to the slide, and set screws 40 engaging the ledge and bearing upon the stumps whereby the upper roller may be held in any desired angle relatively to the lower roller in which position it is locked by bolt 37.

519,195. MACHINE FOR STIFFENING HAT-CROWNS. FRANK J. MURPHY, Danbury, Conn., assignor of one-half to Anthony M. Rundle, same place. Filed Sept. 29, 1893. Serial No. 486,780. (No model.)



Claim.—1. In a machine of the character described the combination with a sliding carriage, a gear wheel, a connecting rod between said gear wheel and carriage, mechanism for imparting rotation to the gear wheel, and means for disconnecting the driving mechanism and the gear wheel, of wheel 103 having a hub 107, a chain connected to the carriage and to said hub, a weight, a rope connected

to said weight and passing partially around the wheel, and a support for the weight whereby the forward movement of the carriage is limited said parts being so arranged that when the carriage is moved backward the rope is wound on the wheel and the weight lifted, and when the driving mechanism is disconnected from the gear wheel the weight will act to draw the carriage forward independently of the gear wheel and connecting rod.

2. The combination with the bed, a gear wheel pivoted thereto, a sliding carriage and a rod connecting said carriage with the gear wheel, of a shaft provided with a worm adapted to mesh with said gear wheel, oscillating boxes for said shaft whereby the worm and gear wheel may be disconnected, wheel 103 having a hub 107, a chain connected to the carriage and to said hub, a weight and a rope connected to said weight and passing partially around the wheel and a support for the weight at the extreme of its downward movement so that when the carriage is moved backward the rope is wound on the wheel and the weight lifted and when the gear wheel and worm are disconnected the weight acts to rotate the wheel and hub winding the chain on the latter and drawing the carriage forward.

3. The combination with the sliding carriage, the gear wheel, the connecting rod, mechanism for imparting rotation to the gear wheel, and means for disconnecting the driving mechanism and the gear wheel, of wheel 103 having a hub 107, a chain connected to the carriage and to said hub, a weight, a rope connected to said weight and passing partially around the wheel so that when the carriage is moved backward the rope will be wound on the wheel and when the driving mechanism is disconnected from the gear wheel the weight will wind the chain on the hub and draw the carriage forward, and a suitable stop which receives the weight to limit the forward movement of the carriage.

4. The combination with slide 31, the expansible cone and operating lever 32, of plate 53 having a slot and a rack, arms 56 and 57 pivoted to the lever said arm 57 having a lug 58 which engages the rack, a spring for holding said lug and rack in engagement, and a hand piece and link by which arm 57 is operated to disconnect the lug from the rack.

5. The combination with slide 31 the expansible cone and operating lever 32, of plate 53 having a slot and a rack, arms 56 and 57 pivoted to the lever said arm 57 having a lug 58 which engages the rack and said arm 56 having a socket 62, a spring in said socket which bears against arm 57, arms 60 extending from arm 56 on opposite sides of arm 57, and the rack, a roller 61 carried by said arms and engaging the slot, and suitable means for lifting arm 57 and disengaging the lug from the rack against the power of the spring.

6. The combination with the stiffening brush, carriage, turning plate, spindle, belt drum having socket 91, and the expanding cone, of sliding cone 92 which is adapted to engage the socket to connect the belt drum and shaft, operating lever 100, intermediate mechanism connecting said lever with the sliding cone, stump 102, and a screw in said lever engaging the stump so that after the sliding cone has been placed in engagement with the socket continued movement of said lever will oscillate the turning plate and place the expanding cone in contact with the stiffening brush.

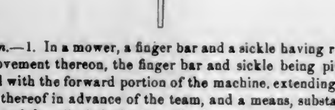
7. The combination with an arm 30 of the expanding cone, and clamping arm 77 pivoted thereto said arm being provided with a slot 85, of angle lever 83 which is pivoted to the clamping arm and the short arm of which extends through the slot and bears upon the cone arm, a spring engaging the clamping arm to hold it in operative position, and a stop to limit the movement of the short arm of the angle lever whereby the clamping arm may be held at the raised position.

8. The combination with an arm 30 of the expanding cone and clamping arm 77 pivoted thereto said arm being provided with slots 82 and 85, of angle lever 83 which is pivoted to the clamping arm and the short arm of which extends through the slot and carries a roller bearing on the cone arm, a clamping plate secured to the clamping arm by a screw passing through slot 82, a spring engaging the clamping arm to hold the clamping plate in operative position, and a stop to limit the movement of the short arm of the angle lever so that the clamping plate may be held at the raised position.

9. The combination with an arm 30 of the expanding cone and a clamping arm 77 which is itself an angle arm, is provided with a slot 85 and is pivoted at the outer end of the cone arm, of angle lever 83 which is pivoted to the clamping arm and the short arm of which passes through the slot and bears upon the cone arm so that the clamping arm will be raised by raising the long arm of the angle lever, a spring engaging the short arm of the clamping arm to hold it in operative position, and a stop adapted to be engaged by the short arm of the angle lever to limit its movement when swung past the center and to hold the clamping arm at the raised position.

10. The combination with an arm 30 of the expanding cone having ears 78, a clamping arm 77 pivoted to said ears the clamping portion of said arm extending along the back of the cone arm and being provided with an adjustable clamping plate, a slot 85 and ears 84, of clamping lever 83 pivoted to ears 84 and extending through slot 85 the long arm of said angle lever lying above the clamping arm, a spring socketed in the cone arm and bearing against the clamping arm to hold the latter in operative position, and a stop adapted to be engaged by the short arm of the angle lever to retain the clamping arm and clamping plate in the raised position.

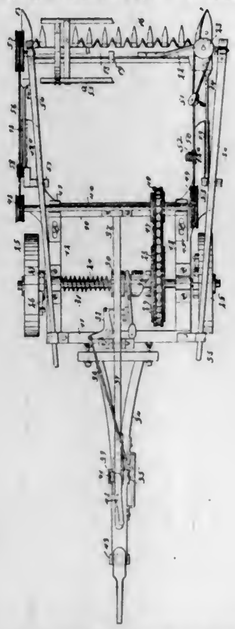
519,196. NUT-LOCK. THOMAS MCDONALD, Jr., Allegheny, Pa. Filed Aug. 26, 1893. Serial No. 484,158. (No model.)



Claim.—1. The herein described nut lock, consisting of the spring plate having the bolt openings at one end and the other end bifurcated to form the pivot bearings, the nut locking lever having the hinge pins or pivots and the post or abutment and heel and the notch for engaging the nut.

2. In a nut lock, the combination of the nut and bolt, the spring plate having the open pivot bearings, the locking lever pivoted in said bearings and having the post or abutment.

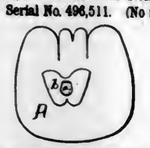
519,197. MOWER. RICHARD MCGAHEY, Walla Walla, Wash. Filed May 19, 1893. Serial No. 474,768. (No model.)



Claim.—1. In a mower, a finger bar and a sickle having reciprocating movement thereon, the finger bar and sickle being pivotally connected with the forward portion of the machine, extending across the front thereof in advance of the team, and a means, substantially as shown and described, for limiting the downward movement of the finger bar, its upward movement being unlimited, as and for the purpose set forth.

2. In a mower, the combination, with a frame, an axle journaled therein, supporting wheels having clutch connection with the axle, a driving shaft, a driving connection between the axle and driving shaft, and a shifting mechanism connected with the driving mechanism, of a finger bar located in the front of the machine in advance of the team and extending practically from side to side, arms pivotally connecting the finger bar with the sides of the machine, a sickle having sliding movement in the finger bar, a crank shaft carried by the finger bar, and a pitman connection between the crank shaft and the sickle, a rope belt connection between the drive shaft and the crank shaft, a reel removably supported over the finger bar, and a belt connection between the reel shaft and the drive shaft, as and for the purpose set forth.

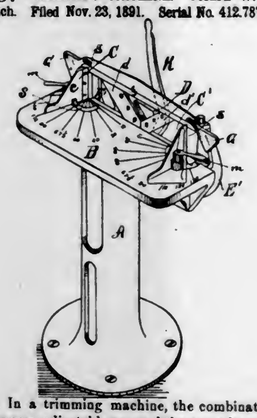
519,198. GLOVE, &c. HENRY L. NORTHROP, Syracuse, N. Y. Filed Jan. 11, 1894. Serial No. 496,511. (No model.)



Claim.—1. A glove or mitten as a new article of manufacture, comprising a body portion having a tongue cut therein and forming an opening for the thumb, a thumb piece having a transverse slot therein and secured in the opening, the tongue extending through the slot in the thumb piece and secured to the exterior face thereof whereby it forms a reinforce.

2. A glove or mitten as a new article of manufacture, comprising a body portion having a bell-shaped tongue cut therein, and forming an opening for the thumb, a thumb piece having a transverse slot therein and secured in the opening, the tongue extending through said slot in the thumb piece and secured to the exterior face thereof whereby it forms a reinforce.

519,199. TRIMMING-MACHINE. JOSEPH W. OLIVER, Grand Rapids, Mich. Filed Nov. 23, 1891. Serial No. 412,787. (No model.)



Claim.—1. In a trimming machine, the combination of a bed plate, an angular gage adjustably secured thereto, a lever actuated, reciprocating trimming knife, supporting guide ways above and below said knife frame, an adjustable shearing edge plate secured to said gage, extending from said bed plate to a point higher than the knife frame and presenting an unobstructed surface from top to bottom of said gage, substantially as and for the purpose specified.

2. In a trimming machine, the combination of a bed-plate, an arched slot having a V-shaped cross section with its wider opening downward, a clamp having two parts, one of which is adapted to fit in said V-shaped slot, and the other of which is adapted to project upward through said slot and to fit into an arched slot on the under side of the gage; a wedge-shaped gage, and a binding bolt and nut adapted to clamp the parts together, substantially as and for the purpose described.

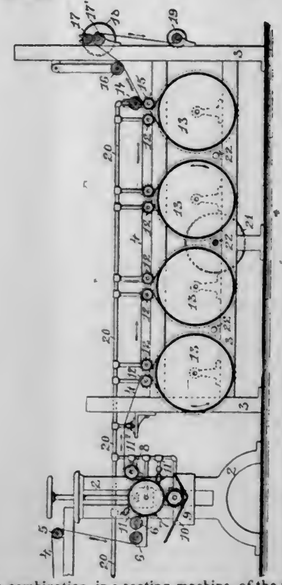
3. In a trimming machine, the combination of the bed, the gage adapted to move around the fixed center, an adjustable shearing edge to said gage at the center, and a holding clamp composed of the described segment of a double coned ring, adapted to fit in a slot having a cross section similar to that of the segment, a bolt passing through said segment of ring and said gage, and a nut adapted to hold the parts together, substantially as and for the purpose described.

4. In a trimming machine the combination of a knife frame movable horizontally, a gage having a shearing edge adjustable thereon, an actuating lever and a rack and pinion adapted to move said knife frame, said rack being located below the knives, and closed in on its upper sides, substantially as and for the purpose specified.

5. In a trimming machine, the combination of the bed B, the rack cover J' and way E, the said rack cover J' being adapted to move in close contact with the forward edge of the bed and protect the way E from dirt and chips, substantially as and for the purposes described.

519,200. CLOTH SIZING AND DRYING MACHINE. RICHARD PARTINGTON, Patchogue, N. Y. Filed Apr. 3, 1893. Serial No. 468,823. (No model.)

Claim.—1. In a machine for coating textile fabrics, the combination of the carrying drum and the coating roll, and means, substantially as herein shown and described, for cooling and sweating the said drum and roll.



2. The combination, in a coating machine, of the feed rolls, the carrying drum, the guide roll, the coating roll and the doctors, the said drum, guide roll, coating roll and doctors having inlet and outlet pipes connected with them for circulating cooling liquid through the same so that during the operation the parts in contact with the fabric are being cooled and caused to sweat, substantially as and for the purpose herein described.

3. The combination of the feed rolls 6—6, the drum 7, the guide roll 8, the coating roll 9, the pan 10, the doctors 11—11', and the pipe 20 with its branches by means of which cold water can be conducted to the said drum, guide roll, coating roll, and doctors, substantially as herein shown and described.

4. The combination of the feed rolls 6—6, the drum 7, the guide roll 8, the coating roll 9, the pan 10, the doctors 11—11'—11², one or more steam drums 13 with a set of guide-rolls 12—12, and the pipe 20 for supplying cold water to the said drum, guide roll, coating-roll, doctors, and guide rolls 12—12, and means for revolving the said drum 7, guide-roll 8, coating roll 9, steam drum or drums 13, and guide rolls 12—12, substantially as herein shown and described.

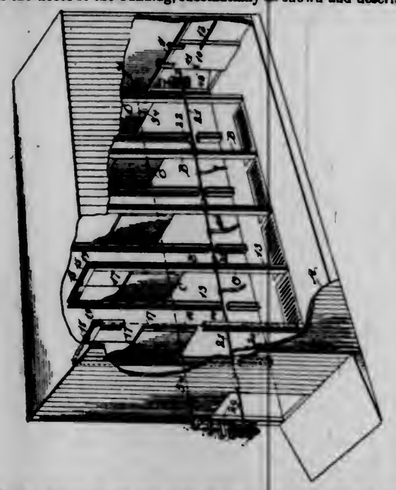
5. The combination of the feed-rolls 6—6, the drum 7, the guide roll 8, the coating roll 9, the pan 10, the doctors 11—11'—11², the guide rolls 12—12—15, the nip roll 14, the steam drums 13—13, the pipe 20 connected to the several parts of the machine for the purpose described, and the take-up rolls 17—17', the said drum 7, rolls 8—9—12—12—15 and steam drum 13 being revolved substantially as herein shown and described.

519,201. DEVICE FOR LIBERATING ANIMALS. CHARLES C. PARTRIDGE, Hyde Park, Mass. Filed Nov. 23, 1893. Serial No. 491,740. (No model.)

Claim.—1. The combination with a series of stalls, each having vertical guides, and a series of partitions adapted to slide in the latter, weights connected with said partitions for raising them and holding them normally elevated, a cable having devices adapted for engagement with and disengagement from the partitions, drums on which the cable is wound at each end of the series of stalls, and devices for temporarily locking the drums, as shown and described.

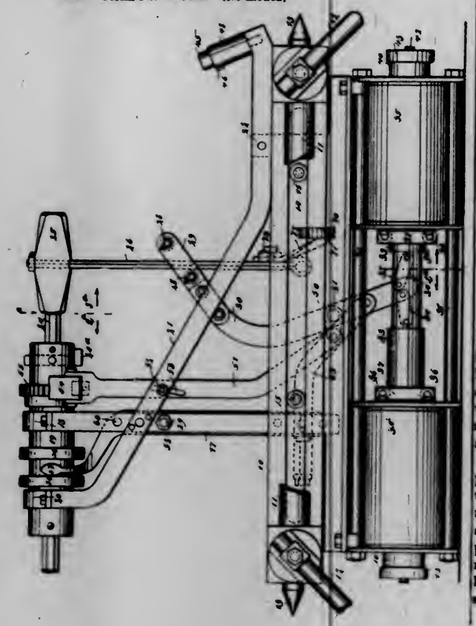
2. In a device of the character described, the combination, with a building having openings therein normally closed by spring-controlled doors, and stalls located in said building, said stalls comprising frames having slide-ways therein, partitions having sliding movement in said frames, and weights connected with the said partitions, whereby they are elevated, of a releasing cable extending through the building and through the openings thereof, shifting and locking devices substantially as shown and described, connected with the cable at the exterior of the building, the said cable being adapted for attachment to the head-stall of an animal, sleeves or collars fixedly located upon

the releasing cable and adapted to enter recesses in the stall partitions when the latter are in their lower position, and sleeves or collars likewise carried by the cable and adapted for locking engagement with the doors of the building, substantially as shown and described.



3. In a device of the character described, the combination, with a building, and stalls located in the building, said stalls consisting of a frame and counter-balanced partitions sliding in the several frames, of a shifting cable passing through the stalls and adapted to have animals attached thereto, locking collars fixedly formed upon the cable and adapted for shifting locking engagement with the stall partitions when in their lower position, drums located exteriorly of the building, to which the ends of the releasing cable are attached, and locking devices connected with the drums, trip devices capable of operation from opposite sides or ends of the building and connected with the locking devices, and means, substantially as shown and described, for revolving the drums, as specified.

519,202. ROCK-DRILL. GEORGE W. PERRETT, Denver, Colo., assignor of nine-sixteenths to Samuel Lesem, same place. Filed June 13, 1893. Serial No. 477,432. (No model.)



Claim.—1. A rock drill, comprising a drill holder, a swinging hammer arranged to strike a drill in the holder, a reciprocating electrically operated plunger, and an operative connection between the plunger and the hammer, whereby the hammer is swung by the movement of the plunger, substantially as described.

2. A rock drill, comprising a drill holder, a swinging hammer to strike a drill in the holder, a reciprocating plunger, oppositely arranged solenoids to work the plunger, and a lever connection between the plunger and the swinging hammer, substantially as described.

3. A rock drill, comprising a supporting main frame, a sliding frame therein, a drill holder supported on the sliding frame, a swinging hammer mounted on the sliding frame, a reciprocating plunger mounted on the sliding frame, solenoids to work the plunger, a lever connection between the plunger and the hammer, and mechanism actuated by the plunger for revolving and sliding the drill holder, substantially as described.

4. A rock drill, comprising a main frame, a sliding frame therein, a drill holder supported on the sliding frame, a swinging hammer mounted on the sliding frame and adapted to swing against a drill in the holder, a reciprocating plunger, solenoids supported on the sliding frame and adapted to work the plunger, a tilting lever connecting the plunger with the hammer shank, and a lever mechanism actuated by the hammer lever and adapted to slide and turn the drill holder, substantially as described.

5. The combination, of the reciprocating plunger, the movable drill holder, the hammer lever connected with the plunger, the swinging hammer operated by the hammer lever, the tilting forked lever to move the drill holder longitudinally, and the connecting rod pivoted to the hammer lever and having a flexible connection with the forked lever, substantially as described.

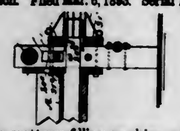
6. In a rock drill, the combination with a movable drill holder, of a swinging hammer operating lever, a pivoted lever having its upper end forked and engaging the tool holder and its lower end transversely slotted, a rod having one end pivoted to the hammer lever and its other end slotted to receive the lower end of the forked lever, a pin passing through the rod and the slot of the forked lever, and a spring bolt in the front end of the said rod, substantially as described.

7. In a rock drill the combination with a movable drill holder provided with a ratchet wheel, of a pivoted hammer operating lever, a crank on the fulcrum pin of the said lever, a pivoted lever having a forked upper end engaging the tool holder, a rod pivoted to the hammer operating lever, and loosely connected with the lower end of the forked lever, and a rod pivoted to the said crank and provided at its upper end with a pawl engaging the said ratchet wheel, substantially as described.

8. In a rock drill, the combination, of the drill holder, the swinging hammer adapted to strike the holder, the reciprocating plunger, the oppositely arranged solenoids for working the plunger, and the tilting lever pivoted to the plunger between the solenoids and slidably connected with the hammer shank, substantially as described.

9. In a rock drill, the combination with the main frame, and a sliding frame thereon, of solenoids, a reciprocating plunger therein, a pivoted hammer shank, a swinging lever pivotally connected to the plunger, and having a slidable connection with the hammer shank, a screw, a ratchet nut on the screw, and a pawl secured to the hammer shank and adapted to engage the ratchet nut, substantially as described.

519,208. MATTRESS-FILLING MACHINE. WILLIAM H. PUTNAM, Durand, Mich. Filed Mar. 6, 1893. Serial No. 464,754. (No model.)



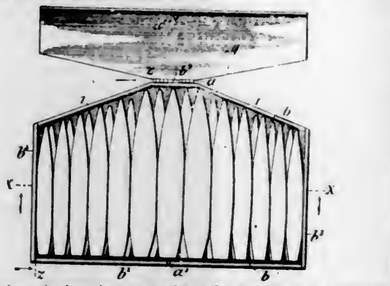
Claim.—1. In a mattress filling machine, a filling device, consisting of upper and lower stretches or pieces of pliable material, a follower connected with one end of said strips or pieces, a take up mechanism connected with the opposite ends of the strips, side boards, and top and bottom boards adapted to be held in contact with the outer surfaces of the said strips to keep them stretched in a plane surface as and for the purpose set forth.

2. In a mattress filling machine, the combination, with a bed, a presser board located above the bed, and adjustable side boards between which the presser board is placed, of a follower having movement upon the bed between the side boards, flexible strips located one above the other and adapted for attachment respectively to the upper and lower portions of the follower, a winding mechanism connected with the ends of the strips opposite the follower, and a case-holding mechanism located opposite the strips, as and for the purpose set forth.

3. In a mattress filling machine, the combination, with a bed, an adjustable follower held to slide upon the bed, adjustable sides supported by the bed, and an adjustable presser board located between the sides, of a winding mechanism located at one end of the bed, flexible strips connected with the winding mechanism and extending in parallel lines rearward over the bed, the strips being adapted for engagement respectively with the upper and lower portions of the follower, a case holding cage formed of longitudinal fingers projecting at the front end of the machine and clamps located one above the other in essentially horizontal alignment with the strips, and adapted for engagement with the said fingers as and for the purpose specified.

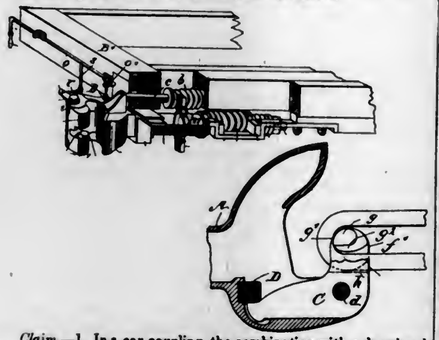
4. In a mattress-filling machine, the combination, with a bed, an adjustable follower held to slide upon the bed, adjustable sides supported by the bed, and an adjustable presser board located above the bed and between the sides, of flexible strips adapted for engagement with the upper and lower portions, respectively, of the follower, guide rollers located at the front end of the machine in essentially horizontal alignment with the upper and lower surfaces of the follower, respectively, winding rollers having a driving connection with one another, each of the said flexible strips being secured to one of the winding rollers and passed over one of the guide rollers to the follower, and a case-holding mechanism located at the front end of the machine in essentially horizontal alignment with the horizontal stretches of the said strips, as and for the purpose specified.

519,204. CIGAR-BOX. LOUIS ROSENFELD, New York, N. Y., assignor to Rosenthal Brothers, same place. Filed Apr. 14, 1892. Serial No. 429,096. (No model.)



Claim.—A cigar box or package for containing an approximately even number of each of several different sizes of cigars, made up of front wall b', and shorter end walls b^3 of equal width, set rectangularly, back board b^3 having angularly or obtusely-set portions l, l, bottom board b, and hinged cover A,—the whole being arranged so that the greatest distance between front and back walls exists at the center, and the least distance at the ends.—substantially as set forth.

519,205. CAR-COUPLING. CHARLES H. SMITH, Birmingham, Ala. Filed Aug. 11, 1893. Serial No. 482,884. (No model.)



Claim.—1. In a car coupling, the combination with a drawhead, on a car frame, and a supporting strap for the drawhead depending from the frame, of a clamp embracing the drawhead rearward of the supporting strap and which will impinge the strap or car frame when the drawhead is abnormally drawn forward, substantially as described.

2. In a car coupling, the combination with a drawhead, of a horizontally-slotted latch block pivoted therein, the lower ear of said block having a knob projected upward therefrom, and the upper ear having a depending boss being adapted to lock a coupling link to the drawhead, substantially as described.

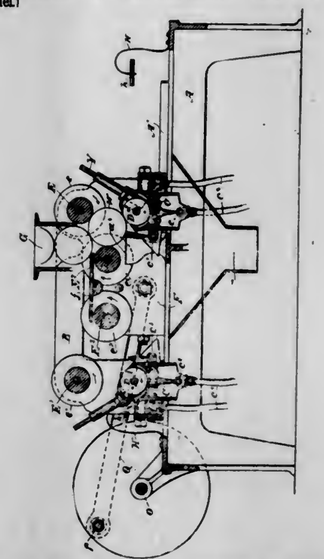
3. In a car coupling of the character described, the horizontally slotted latch block pivoted in the drawhead, the lower ear of said block having an upwardly projecting knob thereon, one side of which is inclined, and the upper ear having a depending boss formed with a concaved outer face opposing the sloped side of the knob, substantially as described.

4. In a car coupling, the combination with a drawhead supported to slide on a car frame, a latch block pivoted to laterally vibrate on the drawhead, and a vertically slidable key for said block, of a rock shaft journaled on the car above the drawhead, a horizontal arm on the shaft loosely connected to the key, a device for rocking the shaft by manipulation, and a depending arm on said shaft loosely connected to the forward end of the drawhead and which will rock the shaft and lift the key when the drawhead is abnormally drawn forward, substantially as described.

5. In a car coupling, the combination with a drawhead, a latch block pivoted thereon, a locking key for said block, a rock shaft journaled on the frame of the car, an arm thereon flexibly connected to the key, and a crank handle on one end of said shaft, of a second arm depending from the shaft, a plate projected from the side of the front portion of the drawhead, and a flexible connection between the plate and the depending arm on the rock shaft, substantially as described.

6. In a car coupling, the combination with a drawhead, and a laterally swinging latch block pivoted thereto, of a knob upwardly projected from the jaw on the free end of the block, and a projection on the block arranged to lock a coupling link on the knob when the latch block is secured from swinging, substantially as described.

519,206. CAN-HEAD-SOLDERING MACHINE. WILLIAM H. SMYTH, Berkeley, Cal. Filed June 12, 1893. Serial No. 477,367. (No model.)



Claim.—1. In a can-head soldering machine, the combination of a rotating disk for applying the solder and means applied to the periphery of the can for holding said can in rotary contact with the rim of the rotating disk, substantially as herein described.

2. In a can-head soldering machine, the combination of a rotating disk for applying the solder and means applied to the periphery of the can for rotating said can in contact with the rim of the rotating disk, substantially as herein described.

3. In a can-head soldering machine, the combination of a rotating disk for applying the solder and a device for operating in rolling contact against the periphery of the can to rotate it in contact with the rim of the rotating disk, substantially as herein described.

4. In a can-head soldering machine, the combination of a rotating disk for applying the solder, and an opposing roll, between which and the rim of the disk the can is held and rotated, substantially as herein described.

5. In a can head soldering machine, the combination of a disk rotating in a plane at right angles to the axis of the can, and adapted to come in contact with the can head seam, a bath of solder in which said disk immerses its rim during a portion of its rotation, and means

applied to the periphery of the can for holding said can in rotary contact with the rim of the rotating disk, substantially as herein described.

6. In a can head soldering machine, the combination of a disk rotating in a plane at right angles to the axis of the can and adapted to come in contact with the can head seam, a bath of solder in which said disk immerses its rim during a portion of its rotation, and means applied to the periphery of the can for rotating said can in contact with the rim of the rotating disk, substantially as herein described.

7. In a can-head soldering machine, the combination of a rotating disk, a solder bath in which said disk immerses its rim during a portion of its rotation, and a device for operating in rolling contact against the periphery of the can to rotate it in contact with the rim of the rotating disk, substantially as herein described.

8. In a can-head soldering machine, the combination of a rotating disk, a solder bath in which said disk immerses its rim during a portion of its rotation, and a series of rolls which rotate the can by rolling contact with its periphery and hold it in contact with the rim of the disk, substantially as herein described.

9. In a can head soldering machine, the combination of a rotating disk for applying the solder, guides for holding the can accurately with the flanges of its head in contact with the rim of the disk, and means applied to the periphery of the can for rotating the can in said contact, substantially as herein described.

10. In a can-head soldering machine, the combination of a rotating disk for applying the solder, guides for holding the can accurately with the flanges of its head in contact with the rim of the disk and means for rotating the can in said contact, consisting of a rotating roll applied in rotary contact to the periphery of the can, substantially as herein described.

11. In a can-head soldering machine, the combination of a rotating disk for applying the solder, a roll applied to the periphery of the can for holding and rotating it in contact with the rim of the disk and flanges on the roll serving as guides to accurately register and hold the can in said contact, substantially as herein described.

12. In a can-head soldering machine, the combination of a rotating disk for applying the solder, rolls adapted to impinge in rotary contact upon the periphery of the can to hold and rotate it in contact with the disk, and means for feeding and directing the can between the rolls, substantially as herein described.

13. In a can-head soldering machine, the combination of a rotating disk for applying the solder, means for holding and rotating the can in contact with the rim of said disk, and means for directing a flame against the rotating can, substantially as herein described.

14. In a can-head soldering machine, the combination of a rotating disk for applying the solder, means for directing the can to contact with the rim of the rotating disk, and a wiper adapted to act upon the rim of the disk at intervals, to remove its excess of solder, substantially as herein described,

15. In a can-head soldering machine, the combination of a rotating disk for applying the solder and a holder for the can movable to and from the disk to press the can into contact with its rim and to remove it therefrom, substantially as herein described.

16. In a can-head soldering machine, the combination of a rotating disk for applying the solder, and a holder movable to and from the disk and adapted to bear on the periphery of the can and press it against the rim of the disk, substantially as herein described.

17. In a can-head soldering machine, the combination of a rotating disk for applying the solder, and a rotating roll movable to and from the disk and adapted to receive the can between itself and the disk and to bear upon its periphery in rolling contact whereby said can is pressed up to and is rotated in contact with the rim of said disk, substantially as herein described.

18. In a can-head soldering machine, the combination of a rotating disk for applying the solder, an overlying driving roll, and a second driving roll movable to and from the plane of the disk and first roll whereby the can is received and held between the disk and rolls and rotated in contact with the rim of the disk, substantially as herein described.

19. In a can-head soldering machine, the combination of a reciprocating carriage, having a rotating disk for applying the solder, means for directing a can into rotary contact with the rim of the disk, and a stationary wiper with which the rim of the disk comes in contact at the end of the carriage movement, substantially as herein described.

20. In a can-head soldering machine, the combination of a freely movable carriage, having at each end a rotary disk for applying the solder, a reciprocating cross-head moving between the ends of the carriage and adapted by alternate contact therewith to reciprocate the carriage, and means carried by the cross-head for holding a can in rotary contact with the rims of the disks at each end of the carriage alternately, substantially as herein described.

21. In a can-head soldering machine, the combination of a freely movable carriage, having at each end a rotary disk for applying the solder, a reciprocating cross-head moving between the ends of the carriage and adapted by alternate contact therewith to reciprocate the carriage, and a driving roll mounted on the cross-head and adapted to press and rotate the cans in contact with the rims of the disks of the carriage, substantially as herein described.

22. In a can-head soldering machine, the combination of a freely movable carriage, having at each end a rotary disk for applying the solder, a reciprocating cross-head moving between the ends of the carriage and adapted by alternate contact therewith to reciprocate the carriage, and a driving roll mounted on each end of the cross-head and adapted to press and rotate the cans in contact with the rims of the disks at each end of the carriage alternately, substantially as herein described.

23. In a can-head soldering machine, the combination of a freely movable carriage having at each end a rotating disk for applying solder, and an overlying driving roll at each end, a reciprocating cross-head moving between the ends of the carriage and adapted by alternate contact therewith to reciprocate the carriage, and the driving rolls carried by the cross-head for holding the cans in rotary contact with the rolls and disks of the carriage, substantially as herein described.

24. In a can-head soldering machine, the combination of a freely movable carriage having at each end a rotating disk for applying solder, and an overlying driving roll at each end, a reciprocating cross-head moving between the ends of the carriage and adapted by alternate contact therewith to reciprocate the carriage, and the driving rolls carried by the cross-head for holding the cans in rotary contact with the rolls and disks of the carriage, and the adjustable stops in the ends of the cross-head for regulating the contact with the carriage ends and the consequent pressure of the rolls and disks on the cans, substantially as herein described.

25. In a can-head soldering machine, the combination of the main frame having the can receiving platform, the freely movable carriage on said frame, and having the feed chute for the cans, the rotating soldering disks and driving rolls of the carriage, the reciprocating cross-head operating between the carriage ends and adapted to reciprocate the carriage, the driving rolls of said cross-head and the plate thereof adapted to temporarily support the cans in the feed chute and to relieve them successively whereby they fall upon the receiving platform in position to be acted upon by the rolls and disks, substantially as herein described.

26. In a can-head soldering machine, the combination of the freely movable carriage having the solder pots, and the rotating disks partially immersed therein, and the reciprocating cross-head operating between the ends of the carriage to reciprocate it, and having the driving rolls for holding the cans in rotary contact with the rims of the disks, substantially as herein described.

27. In a can-head soldering machine, the combination of the freely movable carriage having the solder pots, the rotating disks partially immersed therein, and the overlying driving rolls, and the reciprocating cross-head operating between the ends of the carriage to reciprocate it, and having the driving rolls for holding the cans in contact with the disks and driving rolls of the carriage, substantially as herein described.

28. A can-head soldering machine having a device adapted to rotate a plurality of cans in axial alignment, and a suitable soldering device to apply solder to the cans while in rotation, substantially as herein described.

29. A can-head soldering machine having a device adapted to rotate a plurality of cans in alignment and rotating solder disks adapted to apply solder to the cans, substantially as herein described.

30. A can-head soldering machine having a device adapted to rotate a plurality of cans in alignment, rotating disks for applying solder, and a solder bath in which the rims of said disks are immersed during a portion of their rotation, substantially as herein described.

31. In a can-head soldering machine in which a plurality of cans is rotated in axial alignment, flanges separating and registering the aligned cans, substantially as herein described.

32. In a can-head soldering machine, rotating rolls for receiving and rotating a plurality of cans in alignment, said rolls having flanges separating and registering the aligned cans, substantially as herein described.

33. In a can-head soldering machine, the combination of rotating disks for applying solder, and rotating rolls adapted to receive and rotate a plurality of cans in alignment, said rolls having flanges separating and registering the cans whereby they are directed accurately to the disks, substantially as herein described.

34. In a can-head soldering machine, the combination of a device applied to the periphery of the cans for rotating said cans, a bath of solder, and a suitable conveyer for conducting solder from the bath and applying it to the rotating cans, substantially as herein described.

35. In a can-head soldering machine, the combination of a device adapted to rotate a plurality of cans in axial alignment, a solder bath and a conveyer for conducting solder from the bath and applying it to the rotating cans, substantially as herein described.

36. A can-head soldering machine having a device for rotating a plurality of cans by engagement with their peripheries, a solder bath, and a conveyer adapted to conduct and apply molten solder simultaneously to each end of each can combined, substantially as herein described.

37. In a can-head soldering machine, the combination of a means for effecting the travel of a can, means for rotating it while traveling, a solder bath traveling with the can and traveling means for applying solder to the can, substantially as herein described.

38. In a can-head soldering machine, a rotating disk for applying solder and means for oppositely rotating the can in contact with the rotating disk combined, substantially as herein described.

39. In a can-head soldering machine, a series of solder applying disks and a device adapted to hold and oppositely rotate a plurality of aligned cans in rotary contact with the solder disks combined, substantially as herein described.

40. In a can-head soldering machine, a rotating disk for applying the solder, said disk having its rim formed in portions of different diameters whereby contact is made with both the body of the can and the flange of its head, substantially as herein described.

41. In a soldering machine, the combination of means for feeding a multiplicity of cans simultaneously to suitable soldering devices, and automatic means for simultaneously discharging the same when soldered, substantially as herein described.

42. In a soldering machine, the combination of automatic means for feeding a multiplicity of cans simultaneously, and suitable soldering devices adapted to solder said cans simultaneously, substantially as herein described.

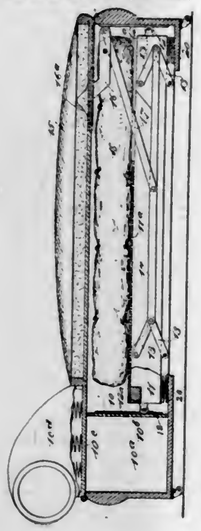
43. In a soldering machine, the combination of means for feeding a multiplicity of cans simultaneously, suitable soldering devices for soldering cans simultaneously, and automatic means for simultaneously discharging the same when soldered, substantially as herein described.

44. In a soldering machine, automatic means for feeding a multiplicity of cans in combination with a series of solder applying disks rotating transversely to the axes of the cans, substantially as herein described.

45. In a soldering machine, means for feeding a multiplicity of cans simultaneously to a series of solder disks secured upon a shaft rotating transversely of the axes of the cans, and suitably spaced to apply solder at each joint of the can heads or covers with the body of the can, and a suitable solder bath in which the solder applying disks immerse themselves during a portion of their revolution, substantially as herein described.

46. In a soldering machine, the combination of a series of rotating disks mounted on a horizontal axis and adapted to apply solder to the joints of the can heads or ends with the bodies of a multiplicity of cans simultaneously, and means for rotating a multiplicity of cans in rotary contact with the solder applying disks, substantially as herein described.

519,207. SOFA-BED. ERIC SODERGREN, Brooklyn, N. Y. Filed Dec. 4, 1893. Serial No. 492,681. (No model.)



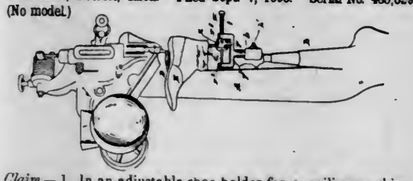
Claim.—1. The combination, with the main frame of a sofa or lounge, of a seat piece pivotally connected thereto to rock or swing on an axis that has movement longitudinally of the main frame and is arranged transversely of the sofa frame, near the foot end thereof, so that the seat piece can be brought into an upright position at the foot end of the sofa, substantially as described.

2. The combination, with the main frame of a sofa or lounge, of a bed bottom frame having vertical sliding movement in the sofa frame, a seat piece having a pivotal connection with the sofa frame at one end thereof to swing in a plane extending longitudinally of the sofa frame, the pivot of the seat having movement longitudinally of the main frame, and an operative connection between the seat piece and the bed bottom frame, substantially as and for the purpose set forth.

3. The combination, with the main frame of a sofa or lounge, of arms pivotally connected with the said frame near one end thereof by means of pivots extending transversely of the sofa frame, and a seat piece pivotally connected with the said arms at a suitable distance from one of its ends, whereby the seat piece can be swung in a vertical plane extending longitudinally of the sofa frame, to bring the seat piece into an upright position with its end portion resting against that of the sofa frame, substantially as described.

4. The combination, with the main frame having a partition to form two compartments therein, of a bed bottom frame having vertical sliding movement in one of the said compartments, links having pivotal connections with the main frame and the bed bottom frame respectively, rods connecting the links, a seat piece having a pivotal connection with the main frame, and an operative connection between the seat piece and the said rods, substantially as described.

519,208. SHOE-HOLDER FOR NAILING-MACHINES. GEORGE W. STACY, Detroit, Mich. Filed Sept. 7, 1893. Serial No. 485,029. (No model.)



Claim.—1. In an adjustable shoe holder for a nailing machine, the combination of the shank, a rotative shaft journaled thereon and capable of longitudinal movement in its bearings, a horn rigidly attached to said shaft and adapted to receive a last at its upper end, substantially as described.

2. In an adjustable shoe holder for a nailing machine, the combination of a shank, a rotative and longitudinally moving shaft located in appropriate bearings formed on said shank, said shaft carrying rigidly attached thereto a horn, a spring controlling the longitudinal movement of said shaft, and means for limiting said movement, substantially as described.

3. In an adjustable shoe holder for nailing machine, the combination of a shank, a horn, a last rotatively placed upon said horn, and intermediate means connecting said shank and said horn, consisting substantially of a rotative and longitudinally moving shaft located in appropriate bearings formed on said shank, said shaft carrying said horn, whereby the latter is permitted to move transversely in line with the axis of the shaft, compelling the upper surface of the last to be constantly in the same transverse plane, substantially as described.

519,209. CHEESE-FORMING MACHINE. HENRY R. VAN EYCK, Zeeland, Mich. Filed Aug. 22, 1893. Serial No. 483,737. (No model.)

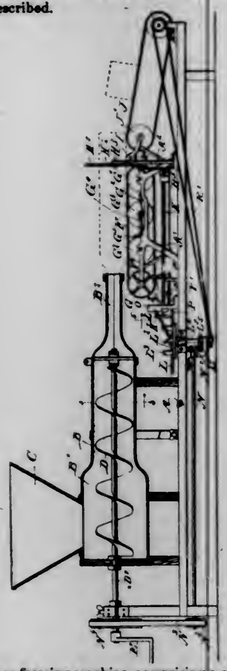
Claim.—1. In a cheese forming machine, the combination with a casing having an outlet, and means for forcing the cheese through said outlet, of a conveyer adapted to receive the cheese discharged from said casing and to be propelled thereby, and means, whereby the resistance offered the cheese will regulate the speed of the conveyer, substantially as described.

2. In a cheese forming machine, the combination with a casing having a contracted outlet, and means for forcing the cheese through said outlet, of a conveyer belt adapted to receive the cheese discharged from the said casing and to be propelled thereby, and means for regulating the speed of the conveyer belt by the weight of the cheese on the said belt, substantially as described.

3. A cheese forming machine, provided with a conveyer belt onto which the cheese is discharged, and rollers over which the said belt passes, one of the said rollers being journaled in a spring-pressed frame and provided with a brake shoe adapted to brake one of the other rollers, substantially as shown and described.

4. A cheese forming machine, comprising a casing having a contracted outlet, a conveyer screw mounted to turn in the said casing, to agitate the cheese therein and force it through the said contracted

outlet, a conveyer belt onto which discharges cheese from the said contracted outlet, and rollers over which the conveyer belt passes, one of the rollers being journaled in a spring pressed frame carrying a brake shoe adapted to brake one of the other rollers, substantially as shown and described.



5. A cheese forming machine, comprising a casing having a contracted outlet, a conveyer screw mounted to turn in the said casing, to agitate the cheese therein and force it through the said contracted outlet, a conveyer belt onto which discharges cheese from the said contracted outlet, rollers over which the conveyer belt passes one of the rollers being journaled in a spring-pressed frame carrying a brake shoe adapted to brake one of the other rollers, and a cheese cutting device adapted to operate in unison with the movement of the said belt, substantially as shown and described.

6. A cheese forming machine, comprising a casing having a contracted outlet, a conveyer screw mounted to turn in the said casing, to agitate the cheese therein and force it through the said contracted outlet, a conveyer belt onto which discharges the cheese from said contracted outlet, rollers over which the conveyer belt passes one of the rollers being journaled in a spring-pressed frame carrying a brake shoe adapted to brake one of the other rollers, a cheese cutting device adapted to operate in unison with the movement of the said belt, and an apron for carrying off the cut off piece of cheese, substantially as shown and described.

7. In a cheese forming machine, the combination with the cutting mechanism provided with a shaft having an arm, of a disk mounted to turn and provided with a series of radially-extending pivoted arms, a cam having a semi-circular groove into which are adapted to pass the free ends of the said pivoted arms, and a switch tongue for controlling the mouth of the said semi-circular groove, substantially as shown and described.

8. In a cheese forming machine, the combination with a cutting mechanism provided with a shaft having an arm, of a disk mounted to turn and provided with a series of radially-extending pivoted arms, a cam having a semi-circular groove into which are adapted to pass the free ends of the said pivoted arms, a switch tongue for controlling the mouth of the said semi-circular groove, and means, substantially as described, for imparting a rocking motion to the said switch tongue, as set forth.

9. In a cheese forming machine, the combination with a knife, and a knife operating shaft provided with an arm at one end, of a rotating disk, pivoted arms carried by said disk, a cam in rear of the arm of the knife operating shaft and having a semicircular groove, and means for guiding the said arms into the said groove, substantially as described.

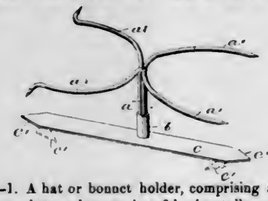
10. In a cheese forming machine, the combination with a knife, and a knife operating shaft provided with an arm at one end, of a rotary disk provided with cam projections, arms pivoted on the disk, a cam in rear of the arm of the knife operating shaft and having a semicircular groove, and an oscillating tongue for controlling the mouth of the said groove, substantially as described.

11. In a cheese forming machine, the combination with a conveyer belt, a knife, and a knife operating shaft provided with an arm at one end, of a rotary disk provided with cam projections, arms pivoted on the disk, a cam in rear of the arm of the knife operating shaft and having a semicircular groove, an oscillating tongue at the mouth of the groove, and means for oscillating the tongue from one of the shafts of the conveyer belt, substantially as described.

12. In a cheese forming machine, the combination with a conveyer belt, radial arms on one of the shafts of one of the rollers of said belt, and a knife operating shaft having an arm at one end, of a rotary disk, a cam in rear of the arm of the knife operating shaft, and having a semicircular groove, a tongue at the mouth of the groove, a shaft upon which the tongue is mounted provided with an arm projecting into the path of the radial arms of the shaft of the conveyer, and means for moving the arm of the tongue carrying shaft out of the path of the said radial arms, substantially as described.

13. In a cheese forming machine, the combination with a conveyer belt, radial arms on one of the shafts of the conveyer, and a knife operating shaft having an arm at one end, of a cam in the rear of the said arm and having a semicircular groove, a rotary disk, arms pivoted on the disk, a tongue at the mouth of the groove, a shaft on which the tongue is mounted provided with a spring actuated arm projecting into the path of the radial arms of the conveyer shaft, means for moving the said arm out of the path of the radial arms from the knife operating shaft, and a locking device for locking the tongue carrying and knife operating shafts together, substantially as described.

519,210. HAT OR BONNET HOLDER. ISAAC D. VAN GORDER, Niles, Mich. Filed Sept. 30, 1893. Serial No. 486,875. (No model.)



Claim.—1. A hat or bonnet holder, comprising a support provided with a socket, and two pairs of horizontally projecting limbs carried by a standard secured in the socket of the support, the members of each pair of limbs being oppositely curved and pointed and the free ends of one pair of limbs being bent outwardly, substantially as described.

2. A hat or bonnet holder, comprising a base constructed to be secured to the bottom of a box and provided with a socket, and two pairs of horizontally projecting and curved limbs carried by a standard secured in the socket of the base, substantially as described.

3. A hat or bonnet holder, comprising a base constructed to be secured in a box and provided with a socket, and two pairs of horizontally projecting and oppositely curved limbs, the limbs being pointed, the free ends of one pair of limbs being bent outwardly, substantially as described.

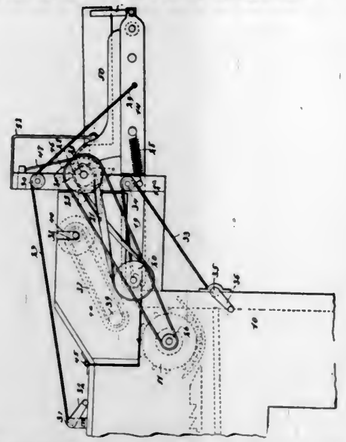
4. The combination, with a base piece, of four wire rods projected upwardly and bent to form four divergent limbs that are curve-bent to separate them in pairs, one pair having straight pointed terminals, and the other pair provided with laterally bent pointed ends, substantially as described.

519,211. BAND-CUTTER AND FEEDER. WILLIAM S. VAN WECHEL and DENNIS L. WYNIA, Orange City, Iowa. Filed May 1, 1893. Serial No. 472,549. (No model.)

Claim.—1. The combination with a thrashing machine having the usual cylinder, of a sliding and vertically adjustable carrier arranged to deliver to the cylinder, a spring for holding the carrier normally in position in the machine, means substantially as described for moving the said carrier outwardly and swinging it vertically, and a feed apron held to move opposite the inner end of the carrier and provided with hooks which point in a direction opposite its line of travel, as and for the purpose set forth.

2. The combination with a thrashing machine having the usual cylinder and provided with a sliding and vertically swinging carrier adapted to deliver to the cylinder, and a feed apron arranged above said carrier, of a hood held above the inner end of the carrier and above the cylinder and carrying said feed apron, said hood having a longitudinal slot at its lower edge to admit of the horizontal movement of the carrier and having a hinged connection at its rear end to the frame of the thrasher, whereby the hood and feed apron may be swung upward when necessary and the cylinder exposed, substantially as shown and described.

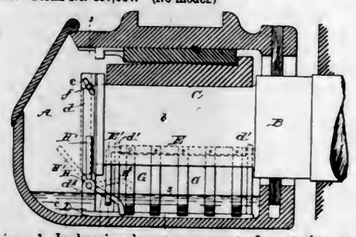
3. The combination in a band cutter and feeder, with the revoluble band cutters, of the carrier arranged to move beneath the cutters, the bracket arm fastened to the frame above the cutters, the guide bar pivoted to said bracket arm in front of the cutters and extending longitudinally above the carrier apron, the supporting arm pivoted to the outer end of the carrier frame and adapted to be turned upward to support the free end of the guide bar when in position over the carrier, substantially as shown and described.



4. The combination, with the thrashing machine having the usual cylinder, of the spring-repressed carrier arranged to deliver to the cylinder and adapted to move outward and also swing vertically, and a crank and cable mechanism for moving the carrier, substantially as described.

5. The combination, with the supporting frame, of the carrier arranged to slide and swing therein, crank shafts arranged above and below the horizontal plane of said carrier, and cable connections between the carrier and the crank shafts, whereby the carrier may be swung vertically and moved longitudinally, substantially as described.

519,212. LUBRICATING DEVICE FOR CAR OR OTHER AXLES OR SHAFTS. JOHN S. WASHBURN, Hackensack, N. J. Filed Oct. 9, 1893. Serial No. 487,687. (No model.)

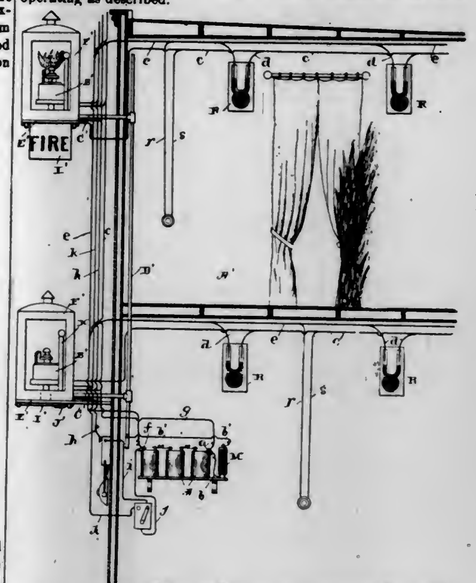


Claim.—1. In bearing boxes or supports for rotating car axles or shafts having end motion or play, the combination, with the box having a lower oil chamber or space, of a free rocking oil-lifting apron carried by said box, and means substantially as described, for operation by the end play of the axle or shaft, to raise the rocking oil-lifter and convey the oil or lubricating material from the well in the box to the journal of the axle or shaft, essentially as set forth.

2. In bearing boxes or supports for rotating car and other axles or shafts having an end motion or play, the combination, with the box A having a lower oil space and adapted to carry the journal of said axle or shaft, of the free rocking oil lifting apron G provided with a crank or arm E', and the bell-crank-like raising device H, H' H² for said apron arranged for operation by the end motion of the axle or shaft, essentially as set forth.

519,213. AUTOMATIC ELECTRIC FIRE ALARM AND SIGNAL. LOUIS A. WERNER and CLEMENT J. WERNER, Boston, Mass. Filed Feb. 7, 1894. Serial No. 499,387. (No model.)

Claim.—1. An electric signaling device comprising a burner outside of the building protected, and carrying an electric lighting device, an electric circuit for said lighting device inclosing a fusible bar adjacent the burner to be severed by the flame thereof, a signal plate, and a trip for said signal plate held by the said fusible bar, the parts operating as described.



2. An electric signaling device comprising a burner carrying an electric lighting device, a circuit for said lighting device, a fusible bar, a signal plate, and a trip for holding the said plate which is itself held by the said fusible bar, whereby when the bar is severed the plate is released.

3. An electric signaling device comprising a burner carrying an electric lighting device, an electric circuit for said lighting device, a bell circuit, a circuit closer within the bell circuit, and a fusible bar within the lighting device circuit and near the burner to be severed by the flame, the said bar holding the bell circuit closer open, whereby the closing of the lighting circuit lights the gas which severs the fusible bar thus closing the bell circuit to sound an alarm, substantially as described.

4. An electric signaling apparatus comprising a burner carrying an electric lighting and a cut-off device, a circuit for the lighting device, a fusible bar within said circuit and adjacent the burner to be severed by the flame thereof, a bell circuit, a circuit closer within the bell circuit held open by said fusible bar, a cut off circuit for the cut off device of the burner, and a switch within the cut off and bell circuits; whereby when the lighting device circuit is closed the same is broken by the severing of the fusible bar and the bell circuit closed, and the bell circuit broken and the cut off circuit closed by said switch, substantially as set forth.

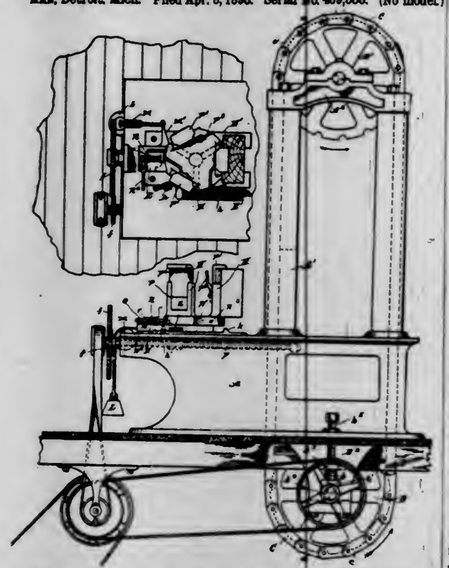
5. An electric signaling apparatus comprising a burner carrying an electric lighting device, an electric circuit for the same, a thermostatic circuit closer with said lighting circuit, a bell circuit, a fusible bar within the lighting circuit, a circuit closer within the bell circuit held open by said fusible bar, and a push button circuit closer having its wires connected respectively with opposite poles of the thermostatic and signaling circuit, whereby the closing of the circuit by said button will cause the closing of the signaling circuit, the fusing of the said fusible bar, and the closing of the bell circuit, substantially as specified.

6. An electric signaling device comprising a burner carrying an electric lighting device, a circuit for said lighting device, a thermostatic circuit closer within said circuit, two standards within said circuit, one being hinged, a fusible bar extending from one standard to the other and within the circuit also, the said bar holding the hinged standard, a bell circuit, a circuit closer within the bell circuit and operated by the swinging of the said hinged standard, the parts operated as described.

7. An electric signaling apparatus comprising a burner carrying a lighting device, an electric circuit for said lighting device, a hinged standard within said circuit, a fusible bar adjacent the burner for the

purpose described and within the circuit, the said bar holding the hinged standard against movement, a signaling plate, and a holding device for said plate carried by the said hinged standard, the parts operating substantially as described.

519,214. EXCELSIOR-CUTTING MACHINE. CHARLES H. WHITMAN, Detroit, Mich. Filed Apr. 8, 1893. Serial No. 469,553. (No model.)



Claim.—1. In an excelsior cutting machine, the combination of sprocket wheels carrying an endless chain having attached thereto cutters and rotating slitters, consisting of sharp edged disks and guides within which such chain operates, and which rigidly hold the cutters and slitters in their movement against the resistance of the material to be operated upon, substantially as described.

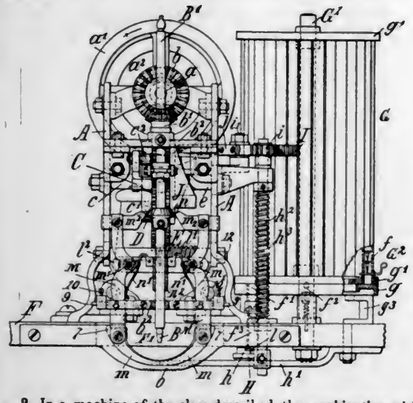
2. In an excelsior cutting machine, the combination of a continuously rotating driving screw, a split nut operating thereon, a reciprocating traveling table connected with said split nut and driven forward by it, means whereby at either extremity of the movement of the traveling table said split nut is disengaged and engaged respectively with said rotating screw, an intermittently rotating turret located upon said table, means for compelling the partial rotation of said turret synchronously with the rearward reciprocations of the traveling table, and stops adapted to hold the turret in position during the forward reciprocation of the traveling table, substantially as described.

3. In an excelsior cutting machine, the combination of a continuously rotating driving screw, a split nut operating thereon, a reciprocating traveling table connected with said split nut and driven forward by it, means whereby at either extremity of the movement of the traveling table said split nut is disengaged and engaged respectively with said rotating screw, an intermittently rotating turret located upon said table, means for compelling the partial rotation of said turret synchronously with the rearward reciprocations of the traveling table, stops adapted to hold the turret in position during the forward reciprocation of the traveling table, and means whereby the said screw is continuously driven in one direction, substantially as shown and described.

4. In a cutter for an excelsior machine, the combination of a transverse bar pivotally uniting the adjacent links of two endless sprocket chains, and carrying an adjustable cutter, substantially as described.

519,215. MACHINERY FOR INSERTING SCREWS INTO LEATHER OR OTHER MATERIAL. MATHÄUS WIEDERIN, Frastanz, Austria-Hungary, assignor of one-half to Friedrich Maerky, same place. Filed Dec. 4, 1893. Serial No. 492,763. (No model.) Patented in Italy Sept. 30, 1893, XXXVIII, 34,653, LXVIII, 67.

Claim.—1. In a machine of the class described, the combination with a revoluble and endwise movable screw driver and a centering device comprising reciprocally movable jaws for centering a screw relatively to said driver, of a vibratory feed lever for feeding one screw after another to the centering device, said lever provided at its free end with an open-ended carrier of greater interior diameter than that of the head of a screw, and means for closing the delivery end of said carrier until it reaches the centering device, for the purpose set forth.



2. In a machine of the class described, the combination with a revoluble and endwise movable screw driver, a centering device for centering the screw to be driven relatively to the driver, and a vibratory feed lever for feeding one screw after another to said centering device, of a delivery tube for the screws, and a movable stop engaging the lowermost screw in the delivery tube, said stop controlled by the movement of the feed lever in one direction, for the purpose set forth.

3. In a machine of the class described, the combination with a revoluble and endwise movable screw driver, a centering device for centering a screw relatively to the driver, a multitubular magazine having tubes of different interior diameter adapted to be brought into register with a delivery tube; of a vibratory feed lever provided with an open ended screw carrier whose interior diameter is substantially equal to that of the magazine tube of greatest interior diameter, and means for closing the delivery end of said carrier during its movement to and from the delivery tube and centering device, for the purpose set forth.

4. In a machine of the class described, the combination with a revoluble and endwise movable screw driver, a centering device for centering a screw relatively to the driver, a fixed plate provided with a single delivery aperture, a magazine comprising a series of open-ended tubes of different interior diameters arranged concentrically with and revoluble about a common axis and adapted to be brought into register with the aperture in the aforesaid plate, and a delivery tube connected with said aperture; of a vibratory feed lever provided with an open-ended screw carrier whose interior diameter is substantially equal to that of the magazine tube of greatest interior diameter, and means for closing the delivery end of the carrier during its movements to and from the delivery tube and centering device, substantially as and for the purpose set forth.

5. In a machine of the class described, a magazine for the screws comprising open ended vertical tubes arranged concentrically with and revoluble about a common axis, in combination with a gate at the lower end of each tube, and a circular plate or ring below the same provided with a single screw passage in the plane of rotation of said tubes, and a locking device to lock the magazine against rotation, for the purposes set forth.

6. In a machine of the class described, the combination with the heads g' of the magazine G provided with axial bearings, the shaft G' passing freely through said bearings, and the open ended tubes f secured in said heads, of a gate G^3 for each of said tubes, the fixed retaining ring or disk g provided with a single screw passage f' adapted to register with any one of the vertical tubes, and a spring actuated locking pin adapted to engage a recess in the under side of the lower magazine head.

7. The combination with a screw driver stock, a pinion connected therewith by groove and feather, a sleeve on said stock, and a weighted lever pivotally connected with said sleeve, of a driving shaft, a pinion thereon in gear with the one on the driver stock, a counter shaft driven from said driving shaft, and a cam on said countershaft working on the weight end of the lever, substantially as and for the purpose set forth.

8. The combination with a screw driver stock, a pinion connected therewith by groove and feather, a sleeve adjustable longitudinally of the stock, and a weighted lever pivotally connected with said sleeve, of a driving shaft, a pinion thereon in gear with the one on the driver stock, a counter shaft driven from said driving shaft, and a cam on said counter shaft working on the weight end of the lever, substantially as and for the purpose set forth.

9. The combination with a screw driver stock and a sleeve thereon, of a two-armed lever one of which arms is extensible and pivotally connected with the sleeve, and actuating mechanism working on the rigid arm of said lever to impart a vibratory motion thereto, for the purpose set forth.

10. The combination with the screw driver, a delivery tube for the screws provided with two openings diametrically opposite each other, and stop pins normally within said openings in the path of the screws, of a vibratory feeding device for feeding the screws from the delivery tube to the driver, and actuating mechanism controlled by the feeding device when vibrated in one direction to move the stop pins out of the path of said screws, for the purposes set forth.

11. The combination with the screw driver, a screw delivery tube provided with two openings diametrically opposite each other, and spring actuated stop pins normally within said openings in the path of the screws, of a vibratory feeding device for feeding the screws from the delivery tube to the screw driver, and actuating mechanism controlled by the feeding device when vibrated in one direction to move the stop pins against the stress of their springs out of the path of the screws, for the purpose set forth.

12. The combination of the vibratory feed lever H provided at its free end with the carrier h having cam plate l, with the delivery tube f^3, the spring actuated levers k k pivoted to opposite sides of said tube in the path of the feed lever and provided each with a shouldered stop pin projecting into said tube in the path of the screws, said levers constructed of two parts hinged together to yield when the feed lever moves away from the delivery tube, substantially as and for the purpose set forth.

13. The combination with the feed lever H and its spindle h^3 carrying pinion i, of means for imparting a slow rotation to said spindle in one direction and a rapid rotation in a reverse direction, consisting of a segment gear meshing with the pinion, said gear having an elastic arm, a revoluble cam working on said spring arm, and a coiled spring on the spindle brought under tension when the latter is revolved by the gearing, substantially as and for the purpose set forth.

14. The combination with a revoluble and endwise movable screw driver stock, of a centering device for centering a screw to be driven relatively to the driver, comprising two jaws, springs acting thereon to open the same, and actuating mechanism controlled by the upward movement of the stock to close said jaws against the stress of the springs, for the purpose set forth.

15. The combination with a revoluble and endwise movable screw driver stock, of a centering device centered loosely on the stock and comprising two jaws, springs acting thereon to open the same, and actuating devices controlled by the upward movement of the stock to close said jaws, for the purpose set forth.

16. The combination with a revoluble and endwise movable screw driver stock, and a conical wheel thereon, of centering devices for centering a screw relatively to the driver, comprising two reciprocally movable jaws, an actuating lever for each of said jaws, said levers provided with a cam projection in the path of the conical wheel on the stock, substantially as and for the purpose set forth.

17. The combination with a revoluble and endwise movable screw driver stock and a conical wheel thereon, of centering devices for centering a screw to be driven relatively to the driver, comprising two reciprocally movable jaws, an actuating lever for each of said jaws provided with a cam projection in the path of the wheel on the stock, said parts loosely centered on the stock, and springs acting on the levers to open the jaws, substantially as and for the purpose set forth.

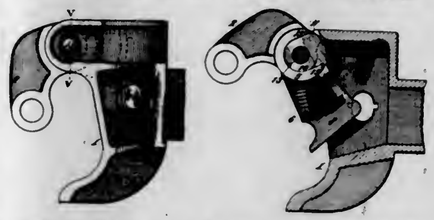
18. The combination with a revoluble and endwise movable screw driver stock and a conical wheel thereon, of centering devices for centering the screw to be driven relatively to the driver, comprising two reciprocally movable jaws, an actuating lever for each of said jaws provided with a cam projection in the path of the wheel on the stock, said parts loosely centered on the stock, a resilient support for said levers and jaws, and springs acting on the levers to open the jaws, substantially as and for the purpose set forth.

19. The combination with a revoluble and endwise movable screw driver stock, and a cone wheel fast thereon, of a sleeve through which said stock passes freely, a yielding support for the sleeve, a cross head thereon, a lever fulcrumed at each end of the cross head and provided on opposite sides of its fulcrum with a cam plate as m^2, and a jaw as m, respectively, and a spring acting on each lever to move the jaws apart, substantially as and for the purpose set forth.

20. The combination with the stock B', its cone wheel n, and the yieldingly supported sleeve n^2 through which said stock passes freely, of two levers supported from the sleeve on opposite sides of the stock, said levers having their fulcra adjustable toward and from said stock, a cam plate as m^2 and a jaw as m respectively at the upper and lower end of each lever, and springs n' acting on the levers to move the jaws apart, substantially as and for the purpose set forth.

21. The combination with the stock B', its cone wheel n, and the yieldingly supported sleeve n^2 through which the stock passes freely, of the levers M M provided at one end with a jaw as m and at the other with a cam plate as m^2 in the path of the cone wheel, springs acting on the levers to move the jaws apart, and means for adjusting the amplitude of vibration of said levers, substantially as and for the purpose specified.

519,216. CAR-COUPLING. WILLIAM V. WOLCOTT and HENRY O'HARA, St. Louis, Mo., assignors to the St. Louis Car Coupler Company, of Illinois. Filed Nov. 10, 1890. Serial No. 370,836. (No model.)



Claim.—1. In a car coupler, the combination of a coupling hook, and a draw-head provided with perforated trunnion bearings reinforced by an abutment extending from the perpendicular wall of the drawhead to the trunnion bearing; and in combination therewith, of a common gravity vertical moving locking pin, resting upon the inner arm of the hook, when open, and riding on said inner arm when the hook is being closed.

2. In a car coupler, the combination of a coupling hook provided with a perforated and recessed hub and ribs on its inner arm, and a drawhead provided with perforated trunnion bearings connected by abutments extending to the perpendicular wall of the drawhead, ledges in the throat of the drawhead, and a gravity vertical moving locking pin, resting upon the inner arm of the coupling hook when open, and riding upon said arm when the hook is closing.

3. In a car coupler, the combination of a coupling hook, provided with a perforated recessed hub, ribs on the inner arm of the hook, and a drawhead provided with perforated trunnion bearings connected by abutments to the perpendicular wall of the drawhead, ledges in the throat of the drawhead, a pin passing through the perforation in the trunnion bearings, and a perforation in the coupling hook hub, and a gravity vertical moving locking pin resting entirely upon the inner arm of the coupling hook when open, and riding on said arm when the hook is being closed.

519,217. PROCESS OF CONVERTING AND SMELTING PRECIOUS ORES. CHARLES M. ALLEN, Butte, Mont. Filed Apr. 18, 1893. Serial No. 470,826. (No specimens.)

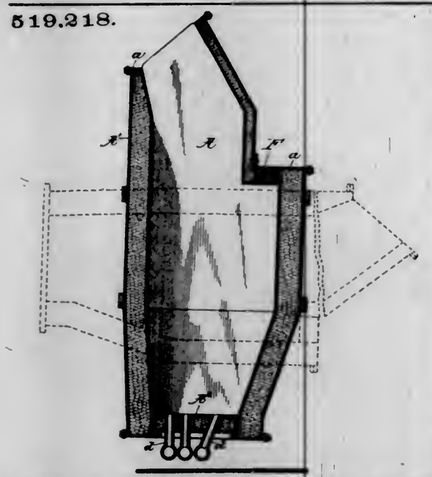
Claim.—The process of smelting and converting precious metals, which consists in supplying raw material to material in a converter already in a molten condition, subjecting the old and new material to the action of a blast of air until a desired quantity is in a molten condition, changing the position of the molten material in the converter to remove it from the action of the blast of air, drawing off a desired quantity of the molten material, and then restoring the remaining portion to its original position to receive additional raw material, substantially as described.

519,218. CONVERTER FOR SMELTING ORES. CHARLES M. ALLEN, Butte, Mont. Original application filed Apr. 18, 1893, Serial No. 470,826. Divided and this application filed Dec. 12, 1893. Serial No. 493,467. (No model.)

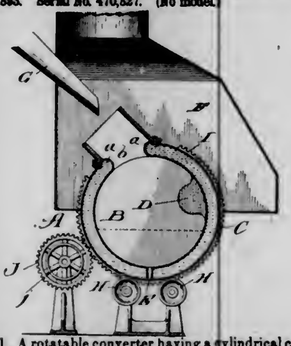
Claim.—1. A tipping, tapping converter having a smelting chamber for the reception of molten materials, tuyeres for the admission of an air blast, a section of brick work arranged above any molten material in such chamber when in its initial working position and below the surface of any such material when the converter is tipped, and means for tipping the converter, substantially as described.

2. A tipping, tapping converter having water jackets entirely surrounding its smelting chamber, hollow trunnions for supporting such converters, tuyeres for the admission of an air blast in the bottom of such converter, blast pipe connecting such tuyeres and leading in through the hollow trunnion, water supply and discharge pipes connected with such water chambers and leading in through the trunnion, and a section of such converter wall formed of brick work arranged at a point above any molten material in such chamber when the converter is in its initial working position and below such material when the converter is tipped, and means for tipping the converter, substantially as described.

519,218.



519,219. CONVERTER. CHARLES M. ALLEN, Butte, Mont. Filed Apr. 18, 1893. Serial No. 470,827. (No model.)

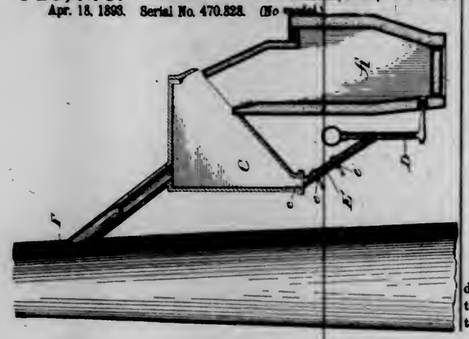


Claim.—1. A rotatable converter having a cylindrical converting chamber for holding molten material, tuyeres in the cylindrical portion for the admission of an air blast, a section D, of brick work in the end of the converter adapted to form a tap, and means for rotating the converter, substantially as described.

2. In a converter, the combination of a cylindrical converting chamber having side and end water jackets composed of metal sheets with the edges of the inner sheets bent outwardly to overlap the edges of the outer sheets to which they are fastened, whereby rivet and other holes in the inner sheets are avoided, and end sections adapted to be punctured or broken to form a tap, substantially as described.

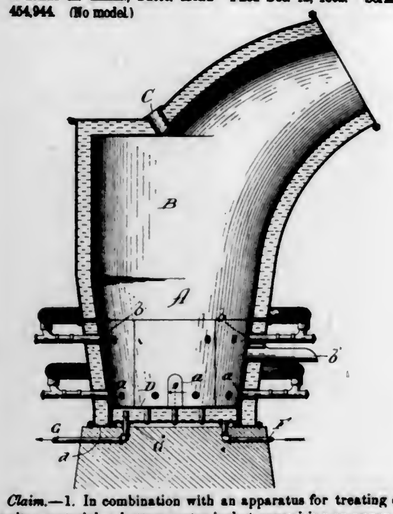
3. In a converter, a cylindrical converting chamber having its sides water-jacketed in combination with truncated cone-shaped water-jacketed ends, substantially as described.

519,220. CONVERTER. CHARLES M. ALLEN, Butte, Mont. Filed Apr. 18, 1893. Serial No. 470,828. (No model.)



Claim.—In a converter, the combination of a converting chamber, a dust chamber, a blast pipe for introducing air into the converting chamber, and a pipe provided with valves communicating with the dust chamber and the converting chamber for conveying the dust from the one to the other, substantially as described.

519,221. SMELTING-FURNACE AND REFINING-CONVERTER. CHARLES M. ALLEN, Butte, Mont. Filed Dec. 12, 1892. Serial No. 454,944. (No model.)



Claim.—1. In combination with an apparatus for treating ores or molten material, a bottom water jacket comprising an upper and a lower plate, a water supply pipe for admitting water into the space between the plates, and an overflow pipe extending up to near the bottom of the upper plate for the exit of water and steam from immediately below the upper plate, substantially as described.

2. In combination with an apparatus for treating ores or molten material, a bottom water jacket comprising an upper and a lower plate, a water supply pipe for admitting water into the space between the plates, and an overflow pipe corrugated or notched at its upper end and extending up to near the bottom of the upper plate for the exit of water and steam from immediately below the upper plate, substantially as described.

3. In apparatus for treating ores or molten material, the combination of side water jackets, and the removable bottom water jacket located within and surrounded by the side water jackets, the water chambers of the side jackets extending down to the plane of the lower face of the removable bottom, substantially as described.

519,222. CRATE. HARVEY ALLEN, Norfolk, Va., assignor of one-half to John J. Snyder and John C. Snyder, same place. Filed Feb. 20, 1894. Serial No. 500,900. (No model.)



Claim.—1. A crate composed of a bottom, hoops arranged at a distance apart and vertical stays upon opposite sides of said hoops, the outer stays terminating at a distance from the upper edge of the top hoop, substantially as specified

2. A crate composed of a bottom, hoops arranged at a distance apart and vertical stays in pairs, the inner ones extending to the top edge of the upper hoop and the outer ones terminating at a distance therefrom, substantially as specified.

3. A crate composed of a bottom, hoops arranged at a distance apart and vertical stays in pairs, the inner ones extending to the top edge of the upper hoop and the outer ones terminating at a distance therefrom, the outer surface of the upper hoop above the upper ends of the outer stays being in a vertical plane, substantially as specified.

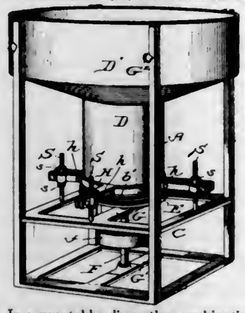
519,223. FOUNTAIN MARKING-BRUSH. RICHARD G. BAILEY, San Francisco, Cal., assignor of one-half to J. F. Halloran and Alfred Holman, same place. Filed Jan. 15, 1894. Serial No. 496,977. (No model.)



Claim.—1. In a marking brush, the combination of a hollow handle adapted to contain the marking substance having a cap at one end and having its opposite end provided with a cross bar, a stem projecting from said bar having a valve at one end provided with a flattened extension, a brush holder threaded upon the handle portion having a seat for the valve and a passage for the marking substance through which said extension projects so as to leave a passage upon each side of the flattened extension, said brush holder having a chamber communicating with the passage and adapted to receive a brush having a flattened handle whereby the marking substance is permitted to flow from said chamber along the sides of the brush handle to the marking point.

2. In a fountain brush, the hollow containing handle, a brush-holder having screw-threads fitting the end of said handle whereby it is attached thereto and movable thereon, a conical seat within said holder having a central passage opening into a chamber in the lower end within which the flattened handle of the brush is secured, a stem projecting from the lower end of the handle having a conical valve face at its lower end adapted to fit the seat in the brush-holder, and a flattened plate extending therefrom into the passage through the seat in the holder, whereby the latter is cleared of sediment when the brush-holder is partially rotated and the marking fluid is allowed to flow down around the outside of the brush-handle, a hollow cone secured to the exterior of the brush-holder and converging so that the small end of the cone has an opening through which the brush extends and by which the latter is supplied, substantially as herein described.

519,224. VEGETABLE SLICER OR GRATER. HERNDON O. BARLOW, Duluth, Minn. Filed July 7, 1893. Serial No. 479,838. (No model.)

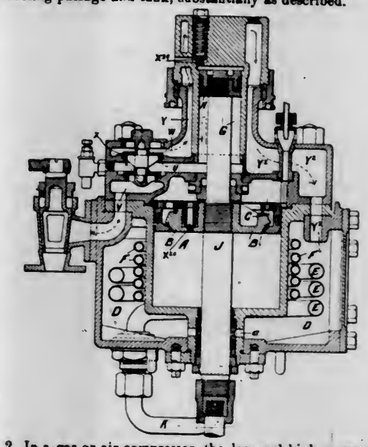


Claim.—1. In a vegetable slicer, the combination of a cutting disk mounted on a vertical shaft, a hopper, a clamp band secured to the hopper and having arms, and vertical standards having their upper ends threaded and passing through the said arms, and provided with pairs of nuts between which the said arms are held, substantially as described for the purpose set forth.

2. In a vegetable slicer, the combination of a cutting disk, a hopper, vertical standards having threaded portions and provided with pairs of nuts, a clamp band composed of sections, each section having its end portions bent outward to form arms which are held between the said pairs of nuts, and bolts for securing the said bent end portions of the sections together, substantially as set forth.

519,225. PUMP FOR COMPRESSING AIR OR GASES. GEORGE E. BELLISS and ALFRED MORCOM, Birmingham, England. Filed Aug. 1, 1893. Serial No. 482,112. (No model.) Patented in England Feb. 16, 1885, No. 2,123, and Feb. 2, 1892, No. 1,992.

Claim.—1. In a gas or air compressor, the low and high pressure cylinders A G, the pistons B H therein, the air conduit leading directly from one end only of the low pressure cylinder to the high pressure cylinder whereby the air will be forced from the cylinder at one stroke, the cooling tank and passages and the inlet for the water connecting with one of the cylinders whereby the water will be forced through the cooling passage and tank, substantially as described.

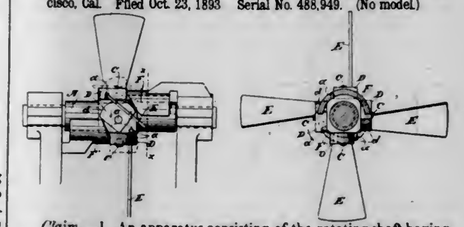


2. In a gas or air compressor, the low and high pressure cylinders, A G, the piston B in the low pressure cylinder having a valve for the passage of air from one end of the cylinder to the other, the conduit leading from the discharge end of the low pressure cylinder to the high pressure cylinder, the air conduit leading from the high pressure cylinder, the cooling tank and the water passage leading thereto from one of the cylinders, substantially as described.

3. In combination in a gas or air compressor, the high and low pressure cylinders, the pistons therein, the air conduit from the low to the high pressure cylinder, the air conduit from the high pressure cylinder comprising the coil, the cooling tank in which said coil is located surrounding the low pressure cylinder and the water channel connected with the cooling tank and through which the water is forced by the operation of the compressor, substantially as described.

4. In combination, the low and high pressure cylinders, the pistons therein, the air conduit from the low to the high pressure cylinders, the water chamber W around the high pressure cylinder, the inlet channel U for the water leading to the high pressure chamber, the valve X opening from the inlet conduit into the chamber W and the water chamber about the low pressure cylinder connected with the water chamber W, substantially as described.

519,226. POWER-WHEEL. APOLINARY BIENKOWSKI, San Francisco, Cal. Filed Oct. 23, 1893. Serial No. 488,949. (No model.)



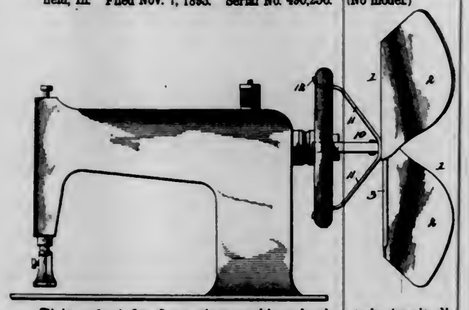
Claim.—1. An apparatus consisting of the rotating shaft having radial vanes projecting therefrom and journal-pins upon which they are allowed to turn about their axes, independent stationary segments supported upon opposite sides of the shaft, and partially inclosing the same, the ends of said segments approaching each other toward a central point so as to impinge upon the hubs of the vanes and rotate the latter by frictional contact, substantially as herein described.

2. An apparatus consisting of a shaft adapted to rotate upon its axis, vanes projecting radially from said shaft having hubs turning loosely upon radial journal-pins, said hubs having two straight sides at right angles with each other, and a quadrant curve of a circle uniting these sides, in combination with fixed segments partially inclosing the shaft upon the opposite sides, the ends of said segments being beveled and approaching each other so that the hubs of the vanes come in contact with the angles of the segments as they pass

and are rotated a quarter revolution until the straight sides of the hubs lie in contact with the ends of the segments which serve as guides to retain the vanes in position until they have passed beyond the segment and made contact with the opposite one, substantially as herein described.

3. An apparatus consisting of a shaft rotatable upon its axis, vanes projecting radially from the shaft and turning loosely about axes radial to the shaft, hubs having two straight sides diverging from each other at right angles, a quadrant curve connecting their opposite ends, fixed segments partially surrounding the shaft upon opposite sides, with the inner ends approaching so as to form contacts alternately with opposite sides of the vane hubs as they pass, whereby the hubs and vanes are rotated about their axes, and stop pins projecting from the hub, whereby the rotation of the hubs in either direction is limited, substantially as herein described.

519,227. SEWING-MACHINE FAN. JESSE F. BULLMAN, Litchfield, Ill. Filed Nov. 7, 1893. Serial No. 490,250. (No model.)



Claim.—1. A fan for sewing machines, having twin longitudinally-slotted wing-bearing members, a spider having legs to engage the rim of a wheel or pulley, and a common bolt for connecting the wing-bearing members and the legs of the spider, whereby the former are longitudinally and the latter are angularly adjustable, substantially as specified.

2. A fan for sewing machines having twin longitudinally adjustable members, pliable wings carried by said members and adapted to be adjusted or altered in curvature deflection, and means for securing the fan to a rotary member of a machine, substantially as specified.

3. A fan for sewing machines having a spider consisting of divergent spring-metal legs provided with concaved terminals or feet to engage the inner convex surfaces of the rim of a pulley or wheel each pair of opposite legs being formed of a continuous strip of metal, whereby all of the legs may be secured by a single bolt to provide for relative angular adjustment, substantially as specified.

4. A fan for sewing machines comprising twin adjustable wing-bearing members provided with webs or flanges having longitudinal slots, an adjusting bolt engaging said slots, and a spider comprising divergent spring-metal legs mounted upon and held in place by said adjusting bolt, provided with concaved terminals or feet to engage the rim of a wheel or pulley and capable of angular adjustment around said bolt, substantially as specified.

519,228. ORE-CRUSHER. FRANK BISHOP, Ogden, Utah. Filed May 31, 1893. Serial No. 476,008. (No model.)

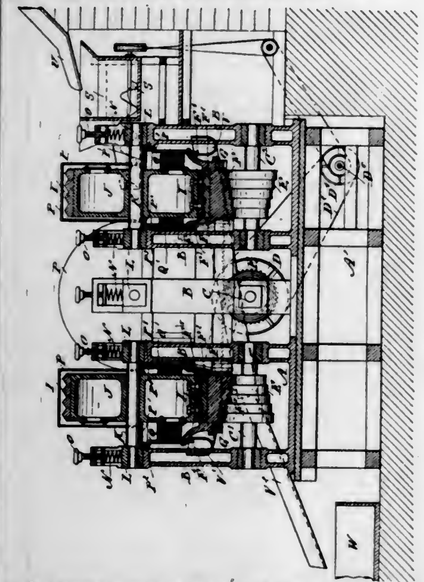
Claim.—1. A crusher, comprising a bed having steps formed on its under side and mounted to revolve on step pulleys, and rollers arranged over the bed, substantially as set forth.

2. A crusher, comprising a bed having steps formed on its under side and mounted to revolve on step pulleys, screens secured to the outer edge of said bed, and rollers journaled loosely in yieldingly mounted bearings, the said rollers being arranged over the revolving bed, substantially as described.

3. A crusher, comprising a bed having steps formed on its under side and mounted to revolve on step pulleys, screens secured to the outer edge of said bed, rollers arranged over the revolving bed, and fixed scrapers for guiding the material to the bed, substantially as shown and described.

4. A crusher, comprising an annular bed mounted to revolve, a screen secured to the outer edge of the said bed, a rim arranged on the inner edge, rollers arranged over the revolving bed and a fixed base carrying covers for the rollers and provided with downwardly projecting flanges to overlap the edges of the screen and rim, substantially as shown and described.

5. A crusher, comprising an annular bed mounted to revolve, said bed being formed with concentric grooves on its top surface, flaring flanges arranged on the outer and inner sides of said bed, upwardly extending screens secured to the outer flange, an imperforate rim secured to the inner flange, rollers formed with ridges to engage the grooves on top of the bed, fixed scrapers extending from the exterior flange of the bed inwardly, and troughs arranged on the outside of said screens, substantially as shown and described.



6. A crusher, comprising an annular bed mounted to revolve, an upwardly extending screen secured to the outer edge of said bed and through which passes the crushed material, an imperforate rim secured to the inner edge of said bed, rollers arranged over the said revolving bed, a fixed base carrying covers for the rollers and having flanges adapted to engage the edges of the screen and rim, said base being provided with feed openings through which the material is delivered to the revolving bed, and conveyers discharging into said feed openings, substantially as shown and described.

7. A crusher, comprising an annular bed having steps formed on its under side and mounted to revolve on step pulleys arranged beneath the said bed, rollers arranged above the bed, sets of posts carrying bearings in which are journaled the shafts of said pulleys, one post of each set being located outside of the annular bed and the other extending upward through the central opening formed by the bed, the upper ends of the said posts carrying yieldingly mounted bearings in which the shafts of the rollers are journaled, substantially as shown and described.

8. A crusher comprising a series of step pulleys, a circular bed formed on its under side with steps engaging the step pulleys, the top of the said bed being formed with V-shaped grooves, and yieldingly-mounted rollers formed with V-shaped ridges engaging the said grooves on top of the bed, and means substantially as described, for imparting rotary motion to the said pulleys, substantially as shown and described.

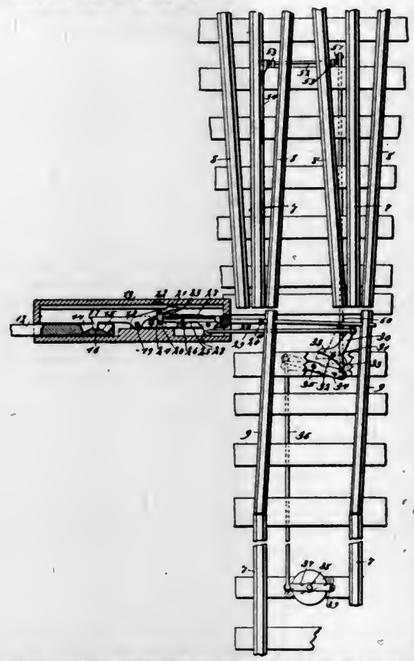
9. In a crusher, the combination with a series of shafts mounted to turn, and each carrying a step pulley and a gear wheel, of a circular bed formed on its under side with steps engaging the step pulleys, a gear wheel secured to the under side of the said bed, and engaged by the gear wheels on the said shafts, a series of rollers having V-shaped ridges engaging corresponding-shaped annular grooves on top of the said bed, and spring pressed boxes carrying the shafts for the said ridged rollers, substantially as shown and described.

519,229. BLUE ALIZARIN DYE. RENÉ BOHN, Mannheim, assignor to the Badische Anilin and Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany. Filed Dec. 27, 1893. Serial No. 494,334. (Specimens.) Patented in England Nov. 12, 1891, Nos. 19,588 and 19,589, and in Germany June 5, 1892, No. 72,685.

Claim.—The new blue alizarin dye hereinbefore described which can be derived by the successive treatment of the dinitro-anthraquinones hereinbefore defined first with fuming and afterward with concentrated sulfuric acid which, when dry, appears in the form of a dark colored powder, soluble in alcohol, almost insoluble in ether and

cold benzene, practically insoluble in cold water, more soluble on boiling, giving a dull claret red solution which changes in color to blue violet on boiling with alum solution, soluble in concentrated sulfuric acid giving a violet blue solution all substantially as described.

519,230. SWITCH-WORKING MECHANISM. ROBERT E. BRACKELSBERG and GEORGE G. EDWARDS, Portland, Oreg. Filed June 27, 1893. Serial No. 478,977. (No model.)



Claim.—1. The combination, with a switch stand and an adjacent switch, of a two part switch rod connecting the stand and switch, the parts being connected by a coupling adapted to hold the parts of the rod in operative position to be thrown by hand but to be separated when thrown by a train, a swinging lever pivoted on a track between the switch rails and connected with devices actuated by the passing of a train, a tilting three-armed lever pivoted on the track and having two of its arms arranged to be alternately struck by the swinging lever, and an operative connection between the three-armed lever and the coupling parts of the switch rod, whereby the tilting of the lever will actuate said parts and throw the switch, substantially as described.

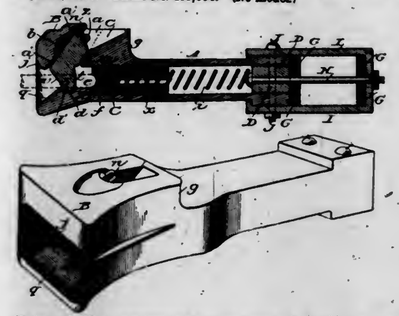
2. The combination, with the switch, the switch stand, the two-part switch rod and the spring coupling connecting the parts of the rod and adapted to hold them in operative position to be moved by the switch stand, of a lever mechanism on the track adapted to be operated by a passing train, and an operative connection between the lever mechanism and the switch rod, whereby the switch may be thrown and the rod coupling released, substantially as described.

3. The combination, of the switch, the switch stand, the two-part switch rod connecting the switch and switch stand, the case inclosing the adjacent ends of the switch rod, a spring-pressed dog pivoted on one section of the switch rod and arranged to engage the adjacent switch rod section and also a notch in the case, a shift rod operatively connected with the dog to release the same, and a lever mechanism on the track adapted to be operated by a passing train and arranged to actuate the shift rod, substantially as described.

4. In a switch mechanism, the combination, with the switch rod and the swinging lever pivoted upon the track and operatively connected with the switch rod, of a pin arranged on one end of the tilting lever and projecting upward, and a vertically movable grooved contact block with flaring ends carried by a locomotive and adapted to engage the pin, substantially as described.

5. The combination, of the switch, the switch stand, the two-part switch rod connecting the switch and stand, one part of the rod having a recess with a convex back wall and a central notch therein, a case inclosing the adjacent ends of the switch rod and provided with a notch in one wall, a tilting spring-pressed dog having a tooth at one end to engage the notch of the switch rod and a head at the other to engage the notch of the case, a spring-pressed lever fulcrumed on one section of the switch rod and pivoted to the dog, a sliding shift rod projecting through one end of the case and pivotally connected with the lever, and a lever mechanism on the track adapted to be operated by a passing train and to move the shift rod, substantially as described.

519,231. CAR-COUPLING. HORACE BRIDGE, Chicago, Ill. Filed Sept. 15, 1893. Serial No. 485,630. (No model.)



Claim.—1. The combination in a car coupling of a drawhead having a flaring opening anteriorly with symmetrical sides, but with the lower surface extending farther downward than the upper surface extends upward, from the central point of the link passage, and also extending farther backward; having an oblique passage, "a," extending from the superior surface of the head downward and forward at an angle with the perpendicular approximating thirty degrees, with the recess, "b," anteriorly, the space, "c," posteriorly, and the depressions, "z," laterally; having the depression or socket, "d," in the floor of the link passage, with its anterior surface "d'," inclined from below upward and forward at an angle with the perpendicular approximating forty-five degrees; having a link passage continued into the drawbar of sufficient length to admit of the entire introduction of the link within the drawhead, and a link slide passage, "i," terminated anteriorly by the stop, "k," extending through the drawbar, being rectangular and provided with rounded corners and at its rear end with two lateral and vertical holes as described.

2. The combination in a car coupling of an automatic coupling pin, the body being flat with rounded anterior and posterior surfaces, "p and o," the latter being much shorter than the former: the point being wedge shaped, its posterior surface, "t," rounded and vertical, its anterior surface, "v," inclined from above downward and backward at an angle with the perpendicular approximating forty-five degrees, with a half link, "n," embedded in the upper part of its superior surface.

3. The combination in a car coupling of an occluding block, "D," distinguished by being perforated with two lateral and vertical holes, and one horizontal hole, for the passage of bolts substantially as and for the purpose set forth.

519,232. PROCESS OF HARDENING PROJECTILES AND APPARATUS THEREFOR. HENRI A. BRUSTLEIN, Unieux, France. Filed Dec. 22, 1893. Serial No. 494,467. (No model.)

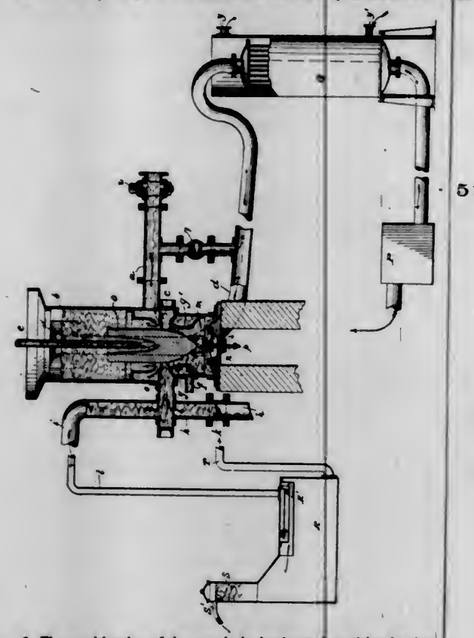
Claim.—1. The process herein described of hardening the exterior surface of a projectile by exposing different portions of such exterior surface simultaneously to the action of different hardening liquids, substantially as described.

2. The process herein described of differentially hardening the exterior surface projectiles by supporting the projectile upon the line of separation of the zones of different hardness, and simultaneously bathing the portions above and beneath said partition with different hardening liquids, substantially as described.

3. An apparatus for differentially hardening projectiles comprising a vessel having a horizontal partition with a circular opening into which a projectile may be fitted, and means for conveying hardening liquids to the compartments respectively above and beneath the partition, substantially as described.

4. In an apparatus for differentially hardening projectiles, the combination with the partition dividing the vessel into two compartments, and having a circular aperture, of a ring or band of metal which is a good conductor of heat, surrounding the aperture and forming a seat or bearing for the projectile during the hardening, said vessel being provided with means for supplying hardening fluid substantially as described.

5. The combination with the vessel, having means for supplying hardening fluid of a partition dividing said wheel horizontally into two compartments, having an aperture, and a removable bearing ring supported at the edge of said aperture, substantially as described.



6. The combination of the vessel, the horizontal partition having a circular opening to receive the projectile, supply and discharge pipes connected with the chamber above the partition, and similar pipes connected with the chamber beneath the partition, the discharge pipe of the lower chamber being carried to a level at or near the level of overflow of the upper chamber for the purpose of equalizing the pressure, substantially as described.

7. The combination of the vessel having a horizontal partition provided with a circular aperture for receiving the projectile, independent supply and discharge pipes for the compartments above and beneath the partition, and an additional pipe entering the upper compartment vertically for conveying liquid to the chamber of the projectile.

8. The combination of the vessel, provided with means for supplying hardening fluid the horizontal partition having a circular aperture upon the edge of which the projectile is adapted to rest during treatment, and means for partly counterbalancing the weight of the projectile, substantially as described.

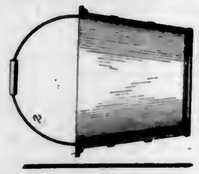
9. In an apparatus for hardening projectiles provided with means for supplying hardening fluid, the combination with the perforated horizontal partition, of the ring or socket for receiving the point of the projectile in the chamber beneath the partition, said ring or socket being carried by a rod passing through the bottom of said chamber, a lever supporting the end of said pin, and a counterbalance weight on the end of said lever, substantially as described.

10. In the manufacture of projectiles the process of differentially hardening a projectile by forming around it a rim or projection, supporting it with the rim seated upon a horizontal partition so that the projectile has a portion exposed on each side thereof, and while so supported bathing the two zones divided by said rim or projection with different hardening liquids, substantially as described.

11. The combination with the hardening vessel, or apparatus and with pipes or conduits for conveying oil and water to different parts thereof, of a discharge pipe for the water, and an apparatus connected with said pipe for separating the oil that may be mixed with the water, said apparatus having a contracted portion into which the oil rises, an overflow pipe for the oil, and an outlet pipe for the water connected with the lower part of the apparatus and carried upward to or beyond the level of the said overflow pipe, substantially as described.

519,233. ATTACHMENT FOR PAILS. FRANCENA M. BUCK, Spokane, Wash. Filed Oct. 20, 1893. Serial No. 488,739. (No model.)

Claim.—A pail having a rim or flange projecting outwardly at a right angle from the upper edge thereof, and a bail attached to the inner side of said pail, said bail having the ends thereof turned upward and engaging the under side of said rim or flange, substantially as described.



519,234. FIRE-ESCAPE TRUCK. EMILIO CARDARELLI, Sumter, S. C., assignor of one-half to George W. Dick, same place. Filed Nov. 30, 1892. Renewed Oct. 6, 1893. Serial No. 487,392. (No model.)



Claim.—1. The combination of a wheel truck, a hollow standard frame revolubly mounted within the truck frame, a vertically adjustable frame mounted to slide within the standard frame, an extensible track pivotally mounted on the upper end of said adjustable frame, a car for the track, and suitable operating mechanism, substantially as set forth.

2. The combination of a carriage or truck, a hollow standard frame revolubly mounted within the truck or carriage, a vertically adjustable frame mounted to slide within the standard frame, counterbalancing devices for the vertically adjustable frame, a track pivotally mounted on the upper end of said adjustable frame, a car, and suitable operating mechanism, substantially as set forth.

3. The combination of a wheel supported truck carrying a central platform or floor, a revoluble standard frame pivotally connected to the platform or floor and adapted to revolve thereon, means for locking the standard frame in any adjusted position, a vertically adjustable frame arranged to slide within the standard frame, counterbalancing devices for the vertically adjustable frame, an extensible track pivoted or fulcrumed on the adjustable frame, and a car adapted to move over the track, substantially as set forth.

4. A wheel supported truck, a central platform or floor suspended centrally from the body of the truck, a revoluble standard frame having a pivot stud working in the center of said platform or floor and a lower base plate carrying anti-friction rollers traveling on the platform or floor, a vertically adjustable frame mounted within the standard frame, an extensible track pivoted at a central point to the top of the vertically adjustable frame, and a car adapted to move over the track, substantially as set forth.

5. The combination of a wheel supported truck, carrying a central suspended stationary platform, a stationary guide ring secured to the truck frame above the platform, a revoluble standard frame pivotally connected to the platform and adapted to work inside of the guide ring, said standard frame having a lower base plate provided with rollers working on the platform, a roller ring secured to the standard frame inside of the guide ring and having anti-friction rollers working over the latter ring, an adjustable frame arranged within the standard frame, an extensible track pivoted to the adjustable frame, and the car, substantially as set forth.

6. A wheel supported truck, carrying a stationary platform, a revoluble standard frame mounted within the truck and working over the stationary platform, said standard frame having opposite tubular guide standards, means for holding the revoluble frame in its adjusted position, a vertically adjustable rack bar frame moving within the tubular guide standards, a transverse operating shaft mounted on the standard frame and having operating pinions meshing with the teeth of the rack bar frame, a stop for said transverse shaft to hold the same stationary, an extensible track pivoted to the upper end of the rack bar frame, the car adapted to move over said track, and suitable operating mechanism, substantially as set forth.

7. The combination of a wheel supported truck, a revoluble standard frame mounted within the truck and having opposite tubular guide standards provided with opposite guides at their inner sides, a vertically adjustable frame moving in said tubular guide standards, means for adjusting said frame, counterbalancing weights moving in said opposite guides, weight cords connected at one end to the weights, passing over suitable pulleys at the upper end of the standard frame and connected at their other lower end to the lower end of the adjustable frame, the track pivoted to the upper end of the adjustable frame, and the car, substantially as set forth.

8. A wheel supported truck, a revoluble standard frame mounted within the truck and having opposite tubular guide standards, a vertically adjustable rack bar frame having opposite rack bars moving in the tubular guide standards of the standard frame, and combined stop and rest shoulders on the top thereof, a transverse operating shaft journaled on the standard frame and carrying operating pinions meshing with the teeth of the rack bar frame, and operating wheels at its ends, an extensible track pivoted to the upper end of the rack bar frame and resting on and bearing against the combined stop and rest shoulders, and a car, substantially as set forth.

9. In an apparatus of the class described, the combination with the standard frame, the extension track, the raising and lowering devices, and a shaft of said devices having a threaded end; alarm bells attached to the standard frame, and the upper extremity of the track, a reel loosely mounted on the threaded end of said shaft, a binding nut engaging the threads of the shaft and adapted to hold the reel stationary or allow the same to revolve, and a bell cord connected at one end to the hammer of the track bell and at the other end to the reel, the slack of the bell cord near the reel being adapted to be connected to the hammer of the other bell when the track is extended, substantially as set forth.

10. The combination in a fire truck, of a revoluble vertically adjustable support, a series of extensible telescoping track sections, one of which is pivoted to the support, said track sections each comprising opposite angular connected rails having inner face grooves or channels, and the car having guides traveling within said face grooves or channels, substantially as set forth.

11. The combination of a revoluble standard frame having the opposite tubular guide standards, anti-friction rollers mounted on said tubular guide standards near their upper ends and projecting into the same, a vertically adjustable frame moving within the guide standard and against the projecting rollers near the upper ends of said standards, anti-friction rollers mounted on the vertically adjustable frame bars near their lower ends and working against the inner sides of the tubular guide standards, the pivoted track, and the car, substantially as set forth.

12. The combination in a fire truck, of a revoluble vertically adjustable support, a series of extensible telescoping track sections, one of which is pivoted to the top of the support, said track sections each comprising opposite connected rails having inner face grooves or channels, operating wires connected with each of the extensible sections, and suitable operating mechanism, and the car having guides traveling within said face grooves or channels of the rails, and guide arms overlapping the sides of the rails, substantially as set forth.

13. The combination in a fire truck, of an adjustable support, a fixed track section pivoted at its center to the top of said support, and having a rail bridle at one end a sliding ground track section arranged to be extended from one end of the fixed track section, and having a corresponding bridle adjacent to the fixed track rail bridle; a locking and strengthening strap adapted to connect the adjacent bridles of the extended ground and fixed track sections to stiffen up and brace the track sections, a series of outer telescoping extension sections adapted to be nested within the fixed track section and extended therefrom, and a car adapted to move over the track, substantially as set forth.

14. In a fire truck, the combination of an adjustable support, an extensible track pivoted to the top of said support and having at its lower end a socket, a sectional locking bar comprising duplicate members having adjustment perforations adapted to receive a locking pin, one of said members being pivoted or hinged to the truck body, and the other member being provided with a locking tongue adapted to be inserted in the socket at the lower end of the track to hold the same in its tilted position, and a catch or clamp for holding the locking bar to the body of the truck, substantially as set forth.

15. The combination in a fire truck, of an adjustable supporting standard frame, a fixed angular track section pivoted to the top of said frame, a series of extensible telescoping angular track sections adapted to be nested within and extended from the rails of the fixed track section, and having bridles at their lower ends stop flanges arranged at one end of the fixed track section, and the extensible sections except the last, guide pulleys or wheels mounted at the same end of the same sections near the stops, operating wires connected at one end to the lower bridles of each extensible track section and passing over the guide pulley or wheel secured to the track section in which such section slides, said bridles being adapted to be drawn against the stop flanges by the operating wires, suitable winding devices for each separate wire, and the car moving over the track, substantially as set forth.

16. The combination in a fire truck, of a supporting frame, a series of extensible telescoping track sections one of which is pivoted to the support, separate operating wires connected at one end to each of the extensible section and passing over suitably arranged guide wheels or pulleys, a stationary shaft supported off from the supporting frame, winding drums loosely mounted on said stationary shaft side by side, and having a series of laterally projecting hollow hand spokes sliding locking bolts adapted to engage any one of said spokes to hold the drums at any point at which they stop, said drums each receiving an operating wire, and the car moving over the track, substantially as set forth.

17. The combination in a fire truck; of the supporting frame, an extensible track pivotally mounted on the frame and having a guide roller or pulley at its upper end, a car moving on the track, a drum or windlass journaled in suitable supports at one side of the supporting frame and having an operating wheel, a spring actuated brake shoe supported alongside of said wheel, an adjusting screw moving against the brake shoe and adapted to regulate the pressure of the same against the wheel, to properly ease the descent of the car and a hoisting wire connected at one end to the car, passing over the guide wheel or pulley at the upper end of the track and connected at its other end to the drum or windlass, substantially as set forth.

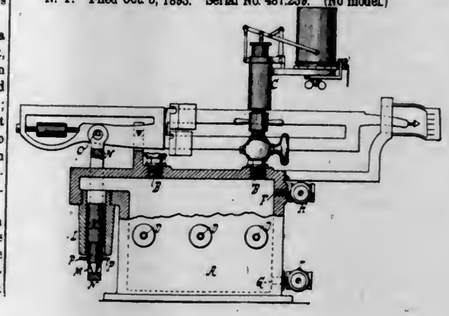
18. The combination in a fire truck, of a supporting frame, an extensible track pivotally mounted on the frame and comprising opposite inner face grooves or channels, a car moving over the track and having opposite guide rollers or wheels moving inside of the grooves or channels of the rails, opposite depending guide arms overlapping the opposite sides of the rails, and suitable supports for persons and a hose, and means for operating said car, substantially as set forth.

19. The combination in a fire truck, of the inclined track, a car adapted to move over said track and provided with a retaining pocket upon its face and an adjacent retaining loop, and an auxiliary ladder adapted to be passed through said loop and have one end thereof rest in said retaining pocket, substantially as set forth.

20. The combination in a carriage or wheel truck for fire escapes; of a truck or carriage leveler comprising opposite connected inclined or beveled flanged rails or blocks adapted to receive the wheels of the truck or carriage which are in the lowest position, and provided at their ends with stops, substantially as set forth.

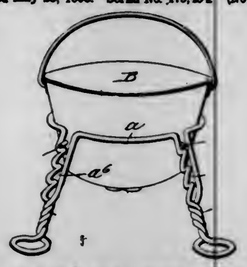
21. The combination in a fire truck; of the track having a buffer spring at its lower end, and the car having a flexible roll at its lower end adapted to strike the buffer spring to ease the descent thereof, substantially as set forth.

519,235. APPARATUS FOR TESTING INDICATOR-SPRINGS AND STEAM-GAGES. ROLLA C. CARPENTER, Ithaca, N. Y., assignor to Schäffer & Budenberg, Magdeburg-Buckau, Germany, and New York, N. Y. Filed Oct. 5, 1893. Serial No. 487,239. (No model.)



Claim.—A vessel or steam chamber having its top plate or cover provided with an indicator and with a scale beam fulcrumed on said top plate or cover, combined with a yoke connected to the scale beam, a piston connected to the yoke, and an inclosing cylinder for the piston made to communicate with the interior of the chamber, substantially as described.

519,236. PORTABLE FURNACE. WILLIAM I. CASTLEMAN, Allen's Spring, Ill., assignor of one-half to Pleasant Green Ditterline, same place. Filed May 25, 1893. Serial No. 475,454. (No model.)



Claim.—In a portable furnace, a supporting stand or tripod consisting of a ring-like body portion having downwardly inclined legs with one or more pockets or rests formed on each of said legs, in combination with a vessel provided with projections adapted for entering the pockets, as specified.

519,237. KNIFE. RUSH J. CHRISTY, Fremont, Ohio. Filed Apr. 18, 1893. Serial No. 470,814. (No model.)



Claim.—1. The combination of the shankless knife blade having notched edges, one being oblique, of the bent wire handle having an oblique end grooved to embrace said notched portion of the blade, and compressed to the blade, substantially as described.

2. The knife or spatula having oblique edges with dovetailed notches therein, and the wire handle having obliquely bent ends, said handle having grooves embracing the edges of the blade and compressed into said notches, substantially as described.

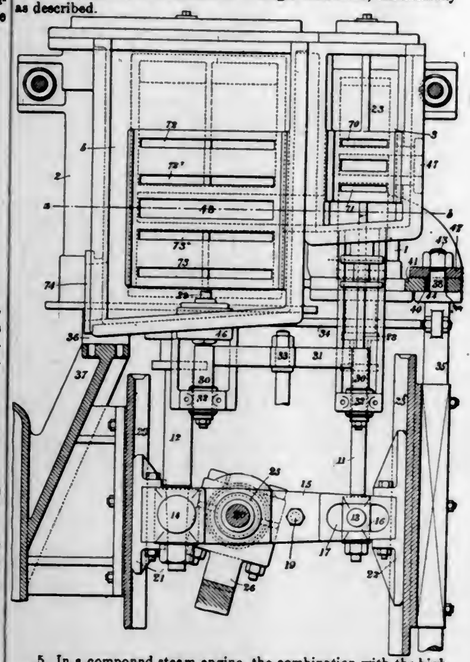
519,238. STEAM OR OTHER MOTIVE-FLUID ENGINE. WALTER C. CHURCH, London, England. Filed June 14, 1893. Serial No. 477,516. (No model.)

Claim.—1. In a compound steam engine the combination with high and low pressure cylinders arranged side by side, or parallel to one another, and pistons in said cylinders all adapted to operate simultaneously in the same direction, of a valve for the high pressure cylinder having its interior cavity in communication with the live steam supply, a separate valve for the low pressure cylinder having an interior cavity, and means for supplying the cavity of the valve to the low pressure cylinder with steam direct from the valve chest of the higher pressure cylinder, substantially as described.

2. In a compound condensing steam engine, the combination with the valve of the low pressure cylinder, and the valve casing, of a cylinder or passage communicating at one end with the interior of the valve casing and at its other end with the atmosphere, and a piston connected with the valve and working in said cylinder or passage whereby the atmospheric pressure on the piston serves to sustain, in whole or in part, the weight of the valve, substantially as described.

3. In a compound steam engine, the combination with high and low pressure cylinders arranged side by side or parallel to one another, pistons in said cylinders, and piston rods for the pistons all connected to a single cross-head, of a valve for the high pressure cylinder having its interior cavity in communication with the live steam supply, a valve for the low pressure cylinder having its interior cavity supplied with exhaust steam from the higher pressure cylinder, the exhaust steam passing from the cavity of the low pressure valve into the low pressure cylinder simultaneously with the admission of live steam into the high pressure cylinder, the steam being admitted to each cylinder upon corresponding sides of the pistons to cause both or all of the pistons to move in the same direction, substantially as described.

4. In a compound steam engine the combination with high and low pressure cylinders arranged side by side or parallel to one another, pistons in said cylinders and piston rods for the pistons all connected to a single cross-head, of a valve for the high pressure cylinder having its interior cavity in communication with the live steam supply, a valve for the low pressure cylinder having its interior cavity supplied with exhaust steam from the higher pressure cylinder for admitting it to the lower pressure cylinder simultaneously with the admission of live steam into the high pressure cylinder, the steam being admitted to each cylinder upon corresponding sides of the pistons, to cause them to travel in the same direction and valve rods for the valves of the respective cylinders all connected to a single cross-head, substantially as described.



5. In a compound steam engine, the combination with the high and low pressure cylinders each having a valve chest into which the steam from the cylinder exhausts, the bottom of each valve chest being on its inner face or surface inclined toward an exhaust passage, the exhaust passage of the high pressure valve chest leading from the interior cavity of the valve to the low pressure cylinder, substantially as described.

6. In a steam engine, the combination with the valve chest or casing, of a slide-valve having live steam admitted to the interior thereof, and a cap or cover fitting over the back of said valve, said cap or cover having a rectangular bearing surface which bears against the internal surface of the chest or casing, substantially as and for the purpose set forth.

519,239. STEAM-ENGINE. WALTER C. CHURCH, London, England. Original application filed June 14, 1893, Serial No. 477,516. Divided and this application filed Nov. 10, 1893. Serial No. 490,599. (No model.) Patented in England Feb. 15, 1893, No. 3,396; in Italy June 30, 1893, No. 34,310; in Canada July 24, 1893, No. 43,718, and in Brazil Aug. 11, 1893, No. 1,630.

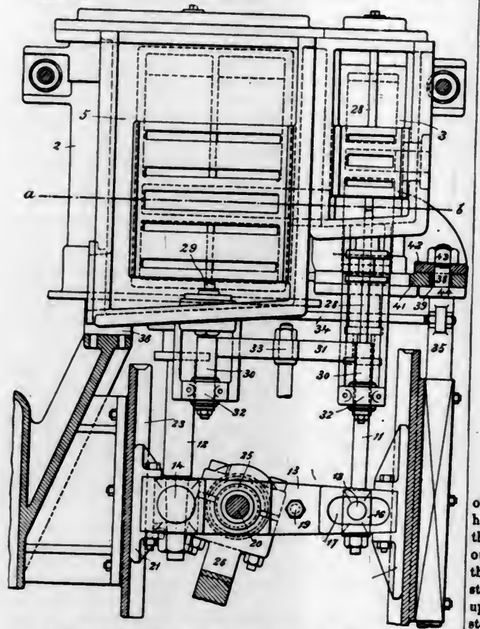
Clrim.—1. In a steam or other fluid-pressure engine, the combination with the cross-head, of a piston rod having a connection therewith which allows the point of connection of the piston rod automatically to shift its position with respect to the cross-head during the running of the engine, substantially as described.

2. The combination with the cross-head, of a piston rod and a block or piece to which the end of said rod is secured, said block or piece being free to slide in or upon the cross-head, in a direction lengthwise thereof substantially as described.

3. In a compound or multiple-cylinder engine, the combination with the piston rods of a single cross-head to which all of said rods are connected, said rods being attached to said cross-head by movable connections so as to admit of motion of the rods toward, and from each other upon the contraction and expansion of the cylinders, substantially as described.

4. The combination with the cross-head, of a piston rod and a block or piece to which the end of said rod is jointed or flexibly connected, so as to be capable of a rocking movement with respect thereto, said block or piece being free to slide in or upon the cross-head, substantially as described.

5. The combination with the cross-head composed of slabs or cheeks connected together to form ways or spaces between them, of a block or blocks mounted to slide between said slabs or cheeks, and a piston rod or rods connected to said block or blocks, substantially as described.



6. The combination with the cross-head, of a piston rod having concaved contact surfaces, and correspondingly convexed bearing surfaces carried by said cross-head, and movable in or upon the same substantially as described.

7. The combination with the cross-head having spherical bearing surfaces movable in or upon the same, of a piston rod having corresponding cup-shaped contact surfaces, constituting a universal connection between the rod and cross-head, substantially as described.

8. In a steam or other fluid pressure engine in which the cylinder or cylinders is or are subject to movement under changes of temperature, the combination of the supports, the guides carried by said supports, and the cross-head moving in said guides, the cylinder or cylinders being connected to said supports by a sliding connection, substantially as described.

9. The combination with the parallel guides rigidly connected together, of the cross-head working in said guides, and the cylinder or cylinders connected thereto by means which allow expansion and contraction of the metal without affecting the parallelism of the guides, substantially as described.

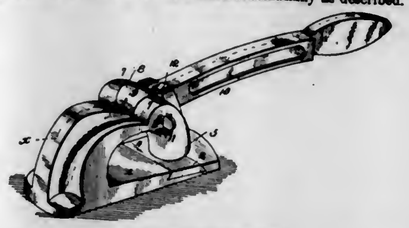
10. The combination with the cross-head, the crank-shaft and the connection rod, of a piston-rod connected to the cross-head at a point between the end of the cross-head and the point where the connection rod is attached to the cross-head, substantially as described.

11. In a compound or multiple cylinder engine, the combination with the valve rods of a single crosshead to which all of said rods are connected said crosshead being made in parts connected together telescopically, so as to be capable of varying its length to accommodate movements of the cylinders, substantially as described.

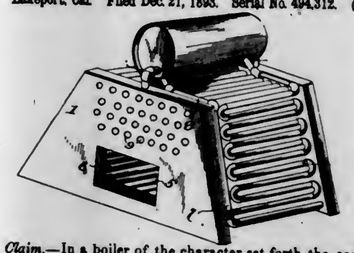
12. In a compound or multiple cylinder engine, the combination with the valve rods, of a cross-head to which all of said rods are connected, said cross-head being provided with long bosses sliding in guides, substantially as described.

519,240. METAL-PUNCH. THEODORE E. CLARK, Cleone, Oreg. Filed Aug. 17, 1893. Serial No. 483,384. (No model.)

Claim.—In a punch, the combination of a bed having a removable center-plate with an opening therein and a goose-neck rising from the rear thereof with a head provided with oppositely disposed slotted ears, a handle having a head eccentrically mounted between said ears, and a yoke mounted on said handle and carrying a punch which extends downwardly through said head, the rear portion of said yoke being adapted to engage the rear parts of the slots in the ears to limit the upward movement of the handle, substantially as described.

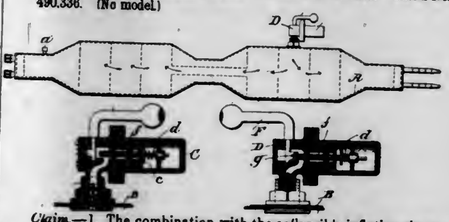


519,241. BOILER. PAGE R. COLLIER and JOSEPH H. DIGNARD, Lakeport, Cal. Filed Dec. 21, 1893. Serial No. 494,312. (No model.)



Claim.—In a boiler of the character set forth the combination of opposite end water jackets with a lower tubular grate thereto and having outer ends extending upwardly, a steam dome mounted above the said water jackets and connected thereto, and also to the said outer ends of the grate sections, tubes extending from one section to the other, inner up-flow coils attached to the water jackets and the steam dome, outer up-flow coils removably placed against the inner up-flow coils, and super-heating coils located on opposite sides of the steam dome connected to the latter as well as to the outer removable up-flow coils, substantially as described.

519,242. AUTOMATIC LIFE-PRESERVER, BUOY, &c. ANTOINE COLOMES, Clermont-Ferrand, France. Filed Nov. 8, 1893. Serial No. 490,336. (No model.)



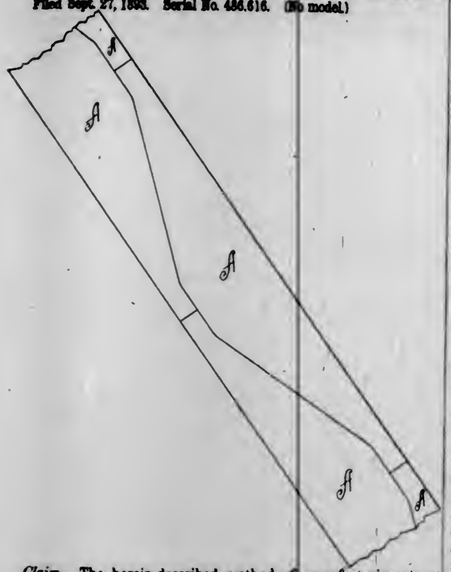
Claim.—1. The combination with the collapsible inflation chamber, of a cartridge containing a liquefiable inflating medium, and provided with a self-closing valve for confining the charge in the cartridge, a coupling connecting the chamber and cartridge and having a communicating passage therethrough from one to the other, and a lever and connections under control of the operator for opening the valve, substantially as described.

2. The combination of the collapsible inflation chamber, the cartridge for the compressed inflating medium having a detachable connection with said chamber, a cut-off valve for closing said chamber when the cartridge is detached, a self-closing valve in the cartridge, and means under the control of the user for opening said valve, substantially as described.

3. As a new article of manufacture, a life-preserver comprising a collapsible impermeable belt, and a cartridge charged with liquefied gas and detachably connected with said belt, said cartridge being provided with a self-closing valve, and with an operating lever and connections for opening the same and putting the cartridge into communication with the interior of the belt, substantially as described.

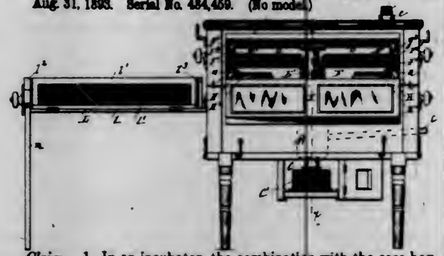
4. The inflating cartridge for use in connection with life preservers and analogous buoyant bodies having a valve adapted to be closed by the pressure of the liquefied inflating medium, and having a screw-threaded mouth, and an operating lever for opening said valve substantially as described.

519,243. MANUFACTURE OF STRAP-HINGES. THOMAS CORSCADEN, New Britain, Conn., assignor to the Stanley Works, same place. Filed Sept. 27, 1893. Serial No. 486,616. (No model.)



Claim.—The herein described method of manufacturing strap hinges which consists in cutting blanks for a pair of hinge leaves with each tapering leaf blank having one straight edge and one oblique edge as shown, then swaging said blanks edgewise throughout their tapering portion into a symmetrical shape with two oblique edges, and subsequently forming hinges from said blanks, substantially as described and for the purpose specified.

519,244. INCUBATOR. HUBER R. DAVIS, Cardington, Ohio. Filed Aug. 31, 1893. Serial No. 484,459. (No model.)



Claim.—1. In an incubator, the combination with the case having the egg-chamber F situated in the upper portion of said case, of the tank above said egg chamber, the brooding chamber J immediately below said egg chamber, the heater underneath said brooder, an air passage from said heater into said brooder, hot water pipes leading from said heater and extending up through the corner portions of the said case and discharging into said tank, said pipes being exposed when they pass through said brooding and egg chambers, a return pipe leading from the center of said tank to the lower portion of said heater, evaporating pans in said egg chamber, and connections with the water pipes for supplying heat to said pans, substantially as specified.

2. In an incubator, the combination of an egg chamber, a tank above said chamber, a heater below said chamber, a pipe leading from said heater upward through each corner portion of said chamber and entering said tank, a return pipe from said tank to the heater, evaporating pans in said egg chamber, and pipes leading from the corner pipes into said pans, substantially as specified.

3. In an incubator, the combination with the case, the tank at the upper portion of said case, and the egg chamber underneath said tank, of the heater D below said egg chamber, said heater having a water chamber *d*, surrounding a central heating chamber *D'*, said heating chamber *D'* increasing in diameter from its lower end upwardly, and causing a corresponding decrease in the diameter of the chamber *d*, a system of hot water pipes leading from the upper portion of said chamber *d* through the corner portions of the egg chamber to the said tank, and a return pipe from said tank to said chamber, *d*, substantially as specified.

4. In an incubator, the combination with an egg chamber, and egg trays therein, of a series of hot water pipes extending through the corner portions of said chamber, a series of water pans underneath said trays, and pipes leading from said hot water pipes into said pans, substantially as specified.

5. In an incubator, the combination with an egg chamber, and the hot water pipes leading therethrough, of a series of open pans therein, movable supports for said pans, and pipes leading from said hot water pipes to said pans, substantially as specified.

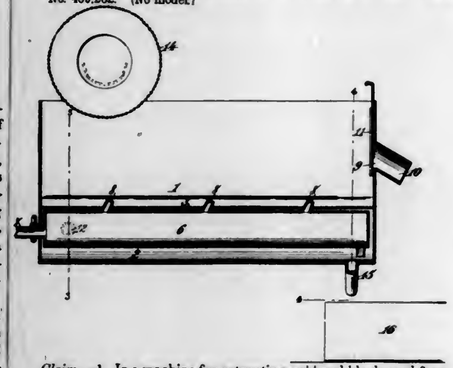
6. In an incubator, the combination of an egg tray having a slotted bottom, a yielding covering for said bottom the egg turner slidably supported in said tray, and consisting of a rectangular frame and a filling composed of wires crossing each other at right angles and fastened to each other at each point of crossing, the meshes of said filling being sufficiently coarse to receive the eggs, a lug or projection *g'* on the said frame, and a crank-shaft having a crank arranged to engage said lug, whereby said turner may be reciprocated, substantially as specified.

7. In an incubator, the combination with a brooding chamber, of a run-way attachment, said run-way having a bottom portion, legs adapted to fold up against said bottom portion, and sides and ends adapted to be assembled upon said bottom portion in compact arrangement whereby when the device is not in use, it may be slid into and contained within said chamber, substantially as specified.

8. In an incubator, the combination with a brooding chamber and a door therefor, of a run-way attached to said door, said run-way comprising a bottom board, side pieces *l*, *l*, hinged to said bottom board, an end piece *l'*, a rear end piece *l''*, having openings therethrough, a slide arranged to close said openings when desired, and legs, said legs and side pieces, and the end piece *l''* being arranged to fold upon and against the bottom piece, the end piece *l'*, and its slide being removable, and capable of being placed in compact position upon said bottom piece whereby the entire run-way may be slid into and contained in said brooding chamber, substantially as specified.

9. An incubator and brooder comprising essentially the case A, the tank at the upper portion of said case, the egg chamber underneath said tank, the egg holding and egg turning devices, the brooding chamber immediately below said egg chamber, the run-way having folding sides, ends and legs and normally contained in said brooding chamber, the heater below said brooding chamber, the hot-water pipes leading from the water chamber of said heater up through the corner portions of said case, said pipes being exposed where they pass through said brooding and egg-chambers, the evaporating pans in said egg-chamber, the closed pipes leading from the hot-water pipes to said pans, and a return pipe from the said tank to the heater, substantially as specified.

519,245. APPARATUS FOR EXTRACTING GOLD AND BLACK SAND. SAMUEL G. DORR, Buffalo, N. Y. Filed Oct. 27, 1893. Serial No. 489,282. (No model.)

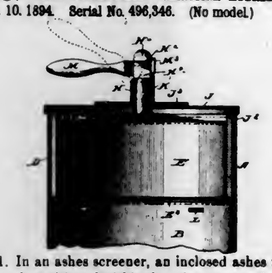


Claim.—1. In a machine for extracting gold and black sand from auriferous ores and gravels, the combination with a tank having in its lower portion a longitudinally extended chamber provided at one end with an outlet, a grating or perforated false bottom separating said chamber from the body of the tank, and a water conduit located in said chamber and provided with jet nozzles extended upward through the false bottom, of a separate and independent water inlet pipe communicating with the end of the lower chamber opposite the outlet therefrom and provided with a valve for regulating the force of the current of water admitted to the lower chamber and the upward currents passing therefrom through the perforated false bottom into the body of the tank, substantially as described.

2. In a machine for extracting gold and black sand from auriferous ores and gravels, the combination with a tank having a chamber in its lower portion, a grating or perforated false bottom extended horizontally across said tank at the top of the lower chamber, and a water conduit located in said chamber and provided with jet-nozzles extended upward through the false bottom, of a separate and independent water inlet pipe communicating with one end of the lower chamber and provided with a valve for regulating the force of the current of water admitted to the lower chamber and passing therefrom through the perforated false bottom into the body of the tank, and an outlet pipe leading from the other end of the lower chamber, substantially as described.

3. In a machine for extracting gold and black sand from auriferous ores and gravels, the combination with a tank having a lower chamber, a grating or perforated false bottom extended horizontally across the top of said chamber, and a water conduit provided with jet-nozzles extended upward into the tank, of a separate and independent water inlet pipe communicating with one end of the lower chamber and provided with a valve, an outlet pipe leading from the other end of said chamber, and a settling tank into which said outlet pipe discharges, substantially as described.

519,246. ASH-SCREENER. CHRISTINA EBERLE, Chicago, Ill. Filed Jan. 10, 1894. Serial No. 496,346. (No model.)



Claim.—1. In an ashes screener, an inclosed ashes receptacle, a screener receptacle positioned within the ashes receptacle and adapted to be moved therein, a screen secured to said screener receptacle, means for sustaining the latter when not in use, an attachable and detachable handle, a connector between the handle and the screener receptacle, and a stationary inclined plane or planes acting as a fulcrum in the attachment of the handle to the connector, whereby the screener receptacle and screen may be raised clear of the means by which the same are held when not in operation.

2. In an ashes screener, an ashes receptacle, a cover therefor, a sleeve mounted on said cover having inclined planes formed thereon, a screener receptacle positioned within the ashes receptacle, means for sustaining the screener receptacle when not in use, an attachable and detachable handle, and a connector between the handle and screener receptacle.

3. In an ashes screener, an ashes receptacle, a cover therefor, a sleeve mounted on said cover having inclined planes formed thereon, a screener receptacle positioned within the ashes receptacle, means for sustaining the screener receptacle when not in use, an attachable and detachable handle having a slotted engaging end, and a connector having a shank adapted to be engaged by the slotted end of the handle, which connector is secured to the screener receptacle and passes through the sleeve.

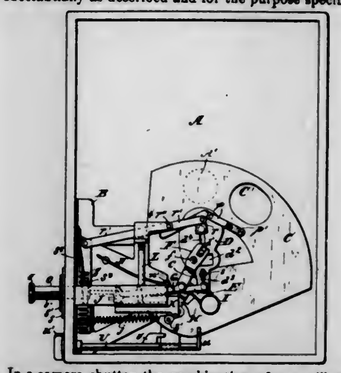
519,247. CAMERA-SHUTTER. LEO F. EIDEN, East Warren, Pa. Filed Dec. 29, 1893. Serial No. 495,110. (No model.)

Claim.—1. In a camera shutter, the combination of an oscillating shutter, a pivoted plate, a bent spring secured at one end to the shutter and at its other end to the plate, push-rods operating to rock said plate in opposite directions, and a push-button for actuating said push-rods, substantially as described and for the purpose specified.

2. In a camera shutter, the combination of an oscillating shutter, a pivoted plate, a bent spring secured at its opposite ends to said shutter and plate, push-rods operating to alternately rock said plate in opposite directions, and a push-button for alternately actuating each of said push-rods at each inward thrust, substantially as described and for the purpose specified.

3. In a camera shutter, the combination of an oscillating shutter, a pivoted plate, a bent spring secured at its opposite ends to said shutter and plate, push-rods operating to alternately rock said plate in opposite directions, a push button for alternately actuating each of said push-rods at each inward thrust, and means for regulating the speed of the shutter, substantially as described.

4. In a camera shutter, the combination of an oscillating shutter, a pivoted plate, a bent spring secured at one end to the shutter and adjustably connected at its other end to the pivoted plate, push-rods operating to alternately rock said plate in opposite directions, a push-button for alternately actuating each of said push-rods at each inward thrust, and mechanism controlled by the push button for adjusting the point of connection between said spring and the pivoted plate, substantially as described and for the purpose specified.



5. In a camera shutter, the combination of an oscillating shutter, a pivoted plate, a bolt adjustably secured to said plate, a bent spring secured at one end to the shutter and at the other end to said bolt, a push-button and push-rods for actuating said spring to oscillate the shutter, and means for adjusting the said bolt relatively to said plate to vary the tension of the spring, substantially as described.

6. In a camera shutter, the combination of an oscillating shutter, a pivoted plate carrying an adjustable bolt, a bent spring connected at its opposite ends to said bolt and plate, a push-button and push-rods for actuating said spring to oscillate the shutter, and means controlled by said button for adjusting the bolt relatively to the plate to vary the tension of the spring, substantially as described.

7. In a camera shutter, the combination of an oscillating shutter, a spring acting to oscillate said shutter in opposite directions, a push-button and push-rods for actuating said spring, and means, substantially such as described, for varying the tension of said spring, for the purpose specified.

8. In a camera shutter, the combination of an oscillating shutter, a spring acting to oscillate said shutter, means for actuating said spring, a projection carried by the shutter, and a rocking rod provided with a hooked end adapted to be turned into the path of said projection to arrest the motion of the shutter and having a projecting lug to limit the movement of the rod, substantially as described.

9. In a camera shutter, the combination of an oscillating shutter, a pivoted plate, a bent spring secured at its opposite ends to said shutter and plate, means for rocking said plate in opposite directions, a spring secured to said plate and having outwardly and downwardly projecting ends, and a projection carried by the shutter and adapted to alternately engage the opposite ends of said spring, substantially as described.

10. In a camera shutter, the combination of an oscillating shutter, a pivoted plate acting to oscillate said shutter in opposite directions, means for rocking said plate, a spring secured to said plate and extending on each side thereof, and a lug carried by said shutter, the ends of said spring alternately engaging said lug as the shutter oscillates in opposite directions, substantially as and for the purpose specified.

11. In a camera shutter, the combination of an oscillating shutter, a pivoted plate, a bent spring secured at its opposite ends to said shutter and plate, a push-rod connected to said plate, a pivoted lever at one end engaging said plate, a push-rod connected to the opposite end of said lever, and a push-button adapted to alternately engage said push rods, substantially as described.

12. In a camera shutter, the combination of an oscillating shutter C, the pivoted plate D, a push-rod E connected to said plate, a pivoted lever F bifurcated at one end and engaging a pin *d'* on the plate D, a push-rod G connected to the other end of said lever, means for alternately reciprocating said rods, and a spring I secured at its opposite ends to the plate D and shutter C, substantially as described.

13. In a camera shutter, the combination of an oscillating shutter C, a pivoted plate D, a bent spring secured at its opposite ends to said shutter and plate, a pivoted lever F loosely connected at one end to the plate D, push-rods connected to the plate D and lever F, and a push-arm K provided with lugs *k*, *k*, arranged to alternately engage said push-rods, substantially as described.

14. In a camera shutter, the combination of an oscillating shutter C, a pivoted plate D, a bent spring I secured at its opposite ends to said shutter and plate, a pivoted lever F loosely connected at one end to the plate D, push-rods E, G, pivotally connected to the plate D and lever F, a push-arm K provided with lugs k, k, for actuating said push-rods, and springs arranged to cause the said push-rods to first recede from and then approach the lugs k, k, substantially as described, and for the purpose specified.

15. In a camera shutter, the combination of an oscillating shutter C, a pivoted plate D, a bent spring I secured at its opposite ends to said shutter and plate, a pivoted lever F loosely connected at one end to the plate D, push-rods E, G, pivotally connected to plate D and lever F, a push-arm K provided with lugs k, k, for actuating said push-rods, springs arranged to cause the said push-rods to first recede from and then approach the lugs k, k, a button for moving the push arm K in one direction and a spring j for retracting it, substantially as described.

16. In a camera shutter, the combination of an oscillating shutter C, a pivoted plate D, a bent spring I secured at its opposite ends to said shutter and plate, a pivoted lever F loosely connected at one end to the plate D, push-rods E, G, pivotally connected to plate D and lever F, a push-arm K provided with lugs k, k, springs arranged to cause the said push-rods to first recede from and then approach said lugs, and a spring N carrying at its free end anti-friction rollers n' bearing on the upper side of said push-rods, substantially as described and for the purpose specified.

17. In a camera shutter, the combination of the oscillating shutter C, a spring adapted to oscillate said shutter in opposite directions, push-rods E, G, arranged to alternately actuate said spring, a push-arm K provided with lugs k, k arranged to alternately engage said push-rods, a button sliding on said push-arm, and means for locking said button to said push-arm, substantially as and for the purpose specified.

18. In a camera shutter, the combination of the oscillating shutter C, a spring adapted to oscillate said shutter in opposite directions, push-rods E, G, arranged to alternately actuate said spring, a push-arm K provided with lugs k, k, arranged to alternately engage said push-rods, a collar k' on said push-arm, a button sliding on said push-arm and provided with a detent o' adapted to engage the collar k', substantially as described and for the purpose specified.

19. In a camera shutter, the combination of an oscillating shutter C, a spring I for oscillating said shutter, means for actuating said spring, a slide Q, a bolt i connecting said slide and one end of the spring I, a pivoted lever r' connected at one end to said slide, a rack-bar s connected to the other end of said lever, and a pinion s^4 for actuating said rack-bar to adjust the tension of the spring, substantially as described.

20. In a camera shutter, the combination of an oscillating shutter C, a spring I for oscillating said shutter, means for actuating said spring, a rack-bar S, and attached mechanism for adjusting the tension of said spring, a pinion s^4 gearing with said rack-bar, a stationary perforated disk s on the outside of the shutter casing, a rotatable disk s' superimposed upon the disk s and provided on its rear side with a pin s^3 adapted to engage the perforations in the disk s, the said disk s' and pinion s^4 being rigidly connected together, and a button adapted to disengage said disk and rotate said pinion, substantially as described and for the purpose specified.

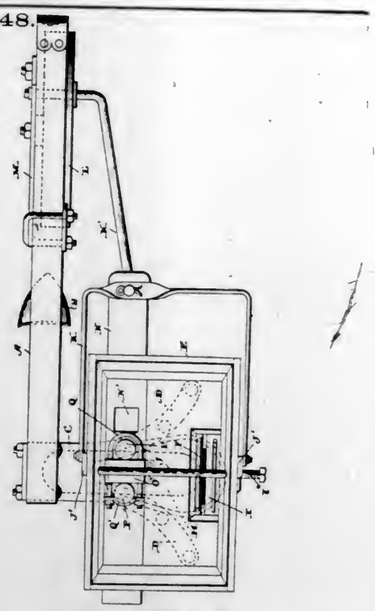
21. In a camera shutter, the combination of an oscillating shutter C, a spring I for oscillating said shutter, means for actuating said spring, a rack-bar S, and attached mechanism for adjusting the tension of said spring, a pinion s^4 gearing with said rack-bar and rigidly connected with a disk s' carrying an index hand and provided on its rear side with a pin s^3, a stationary disk s arranged beneath the disk s' and provided with perforations adapted to be engaged by the pin s^3, a button adapted to disengage said disks and rotate the pinion, and a spring for forcing said disks into engagement, substantially as described and for the purpose specified.

519,248. PLANTER. JAMES A. ELAM, Murfreesborough, Tenn. Filed Feb. 8, 1893. Renewed Mar. 3, 1894. Serial No. 502,279. (No model.)

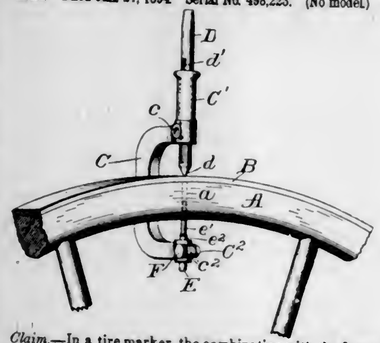
Claim.—1. In a convertible planter, the combination of a hopper provided with a slide and an agitator, a yoke secured detachably to the slide and at its ends to the cranks of the agitator, wheel L and rod K' connecting the wheel and yoke, substantially as shown and described.

2. The combination of a hopper having seed openings in its bottom, a suitable support for the hopper, a longitudinally movable slide in the hopper having formed therein seed perforations, a post, a bent metallic band to which the same is secured and the ends of which band extend down on opposite sides of the said slide to the hopper bottom, and a brush clamped to each side of the post, substantially as shown and described.

519,248.

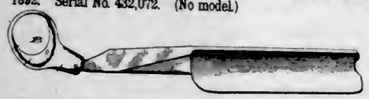


519,249. TIRE-MARKER. OSCAR F. FARWELL, Woodstock, Vt., assignor to the Wiley & Russell Manufacturing Company, Greenfield, Mass. Filed Jan. 27, 1894. Serial No. 498,223. (No model.)



Claim.—In a tire marker, the combination with the frame C provided with the arm C' having the hollow sleeve and screw c secured therein; and the arm C³ bifurcated as at c'; of the center punch D slotted as at d' to receive said screw c; the centering piece E, mounted in said bifurcated arm C³; and the clamp screw F for clamping said centering pieces in place, substantially as and for the purposes described.

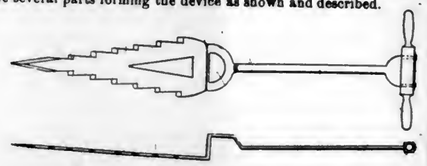
519,250. RAZOR-HANDLE. ORIS E. FEARN, Haigler, Nebr., assignor of one-half to Samuel Gould Porter, same place. Filed May 6, 1892. Serial No. 432,072. (No model.)



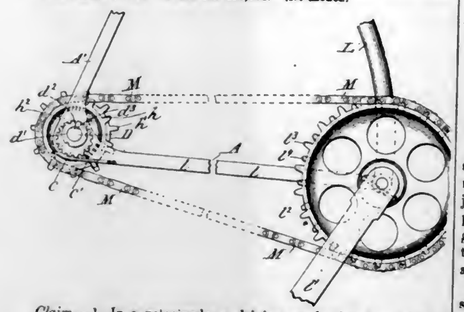
Claim.—As an improved article of manufacture, a razor having a rigid shank projecting therefrom provided with an outer curved or reduced end, a ring or loop having a socket projecting therefrom in which said curved or reduced end is fitted and a rivet holding said socket, substantially as set forth.

519,251. HAY-KNIFE. FREDERICK J. FENERAN and ELBERT D. MILES, Machias, N. Y. Filed Oct. 23, 1893. Serial No. 488,919. (No model.)

Claim.—A hay knife comprising the following features in its structure, viz., the spear pointed blade having cutting teeth on each edge, the contracted and horizontal shoulder above the blade forming a bearing for the foot, the opening C, for the foot, and finally the shank and handle, the blade and the shank being made integral, and the several parts forming the device as shown and described.



519,252. BICYCLE. CHARLES E. FORD, Leavenworth, Kans. Filed May 3, 1892. Serial No. 431,711. (No model.)



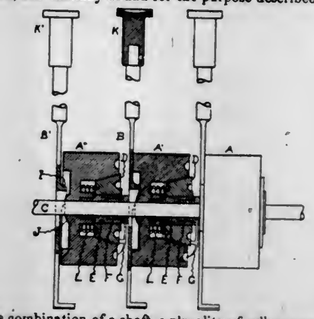
Claim.—1. In a velocipede, a driving mechanism consisting of two gear wheels mounted respectively on the crank spindle and the hub of the driving wheel, each of said wheels having two toothed peripheries of unequal diameter arranged on the same side of the driving wheel to permit the driving chain to be shifted from one periphery to the other of the gear wheels without removing the driving wheel from its bearings, an eccentric mounted to normally hold one of said gear wheels in a position to keep the drive chain taut and when moved in the opposite direction to adjust both peripheries of one wheel toward the other gear wheel to permit the drive chain to be shifted from one set of peripheries to the other, and the drive chain, substantially as and for the purposes described.

2. In a velocipede, the combination of the supporting frame, the driving wheel, the sleeves rotatably mounted in the said frame, the driving wheel spindle eccentrically mounted in said sleeves with its eccentricity such as normally to hold one of two gear-wheels in a position to keep the drive chain taut and when shifted in the opposite direction to adjust one gear wheel toward the other gear wheel to permit the drive chain to be transferred from one set of gear-wheels to the other, the crank spindle, the gear wheels mounted on said crank spindle and the hub of said wheel respectively, each of said gears having two toothed peripheries and both being on the same side of the driving wheel, whereby the driving chain can be shifted from one to the other periphery of the gear wheels without removing the driving wheel from its bearings, and the driving chain, substantially as and for the purposes described.

3. In a velocipede, the combination of the supporting frame, the driving wheel, sleeves rotatably mounted in said frame, one of the sleeves having a notched flange, the driving wheel spindle eccentrically mounted in said sleeves, with its eccentricity such as normally to hold one of two gear wheels in a position to keep the drive chain taut and when shifted in the opposite direction to adjust one wheel toward the other gear wheel to permit the drive chain to be transferred from one set of gear wheels to the other, holding means adapted to engage said notched flange to hold the sleeves against rotation, the crank spindle, the gear wheels mounted on said crank spindle and the hub of said wheel, respectively, each of said gears having two toothed peripheries and both being on the same side of the driving wheel to permit the driving chain to be shifted from one to the other periphery of the gear wheels without removing the driving wheel from its bearings, and the driving chain, substantially as and for the purposes described.

519,253. ACTUATING DEVICE FOR MANUAL RECORDERS. HARRY M. GEIGER, Grand Rapids, Mich., assignor to the Champion Cash Register Company, same place. Filed Nov. 25, 1893. Serial No. 491,984. (No model.)

Claim.—1. In a manual recorder and cash-drawer the combination of a revolving shaft, a plurality of rollers supported thereon, a plurality of cones, one for each roller, rigid with the shaft, a plurality of adjusting nuts, one for each cone, a plurality of keys, each key provided with a wedge-shaped projection and an abutting surface on each roller with which the incline or wedge-shaped portion of the key engages, all so combined that the depression on each key will attach its corresponding roller to its corresponding cone and thereby to the shaft, substantially as and for the purpose described.



2. The combination of a shaft, a plurality of rollers supported on said shaft, a plurality of cones rigid with the shaft, one for each roller, an adjustable nut for each cone, suitable mechanism for adjusting such nut, a plurality of keys, each having a wedge-shaped projection, an abutting surface on each roller with which the key engages in its downward stroke, whereby the downward movement of the key attaches its corresponding roller to its corresponding cone and thereby to the shaft, substantially as described.

3. The combination of a shaft, a plurality of rollers supported on said shaft, a plurality of cones attached to the shaft, an adjusting nut on each cone, a plurality of keys each provided with a wedge-shaped projection, an abutting surface on each roller with which its corresponding key engages in its downward stroke, an arm or lever connected to the adjusting nut, and a series of stops or notches adapted to engage said lever and retain the same in its adjustment, substantially as described.

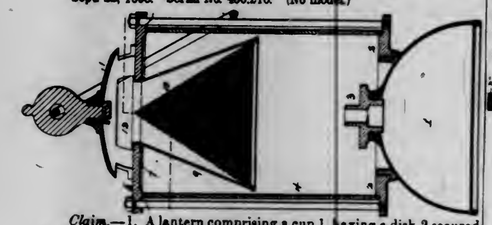
519,254. PIPE-WRENCH. JOHN GEISENDORFER, Welmar, Cal. Filed Sept. 25, 1893. Serial No. 486,435. (No model.)



Claim.—In a pipe wrench, the combination of a shank having a series of serrations or teeth thereon and a series of openings adjacent thereto, a jaw pivotally connected to the upper end of said shank and having an angular head, a sliding jaw having a spring attached thereto bearing against the aforesaid part and also supplied with an upper angular head with serrations and a lower nose adapted to engage the serrations of the shank and clips secured to said sliding jaw and en-

gaging the shank and aforesaid jaw, one of said clips having an opening therethrough to align with the openings of the shank and receive a pin, substantially as described.

519,255. LANTERN. GEORGE C. GILL, Chicago, Ill., and LA MOTTE C. ATWOOD, St. Louis, Mo.; said Atwood assignor to said Gill. Filed Sept. 22, 1893. Serial No. 486,210. (No model.)

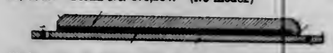


Claim.—1. A lantern comprising a cup 1, having a disk 2 secured thereto by an air-tight joint, a globe 4 seated on the disk, a cap 5 having a central opening and air inlets at the top of the globe, rods 6 by which the cap is tied to the disk, a cone frustum 9 having its smaller end fitted in the central opening of the cap and its larger end extending about half way of the length of the globe and contiguous thereto, and a hood 11 seated on the cap having outlets 13: substantially as described.

2. A lantern comprising a cup 1, having a disk 2 secured thereto by an air-tight joint, a globe 4 seated on the disk, a cap 5 having a central opening and projections 8 by which it is supported on the globe so as to provide air inlets 7 at the top of the globe, rods 6 by which the cap is tied to the disk, a cone-frustum 9 having its smaller end fitted in the central opening of the cap and its larger end extending about half way of the length of the globe and contiguous thereto, and a hood 11 seated on the cap having outlets 13: substantially as described.

3. A lantern comprising a cup 1, having a disk 2, secured thereto by an air-tight joint, a globe 4 seated on the disk, a cap 5 having a central opening, and projections 8, by which it is supported on the globe so as to provide air inlets 7 at the top of the globe, rods 6 by which the cap is tied to the disk, a cone frustum 9 having its smaller end fitted in the central opening of the cap and its larger end extending about half-way of the length of the globe, and contiguous thereto; a perforated cone 10 within the cone frustum, and a hood 11 seated on the cap having outlets 13; substantially as described.

519,256. GLASS DOOR-PLATE. HENRY W. GREENE, North Dana, assignor of one-half to John F. Barnes, Peterham, Mass. Filed Apr. 21, 1893. Serial No. 471,257. (No model.)



Claim.—1. A door-plate formed of a rear or base section, and a cover which joins the base section at its top, bottom, and one side, forming a door plate which is thus provided with a pocket into which a card or sign can be inserted from one end, substantially as described.

2. A glass door-plate consisting of a base section and of a top section having a top, bottom, and a side rib, which are cemented to the base section, thus forming a door plate into which a card or sign can be inserted from one end, substantially as described.

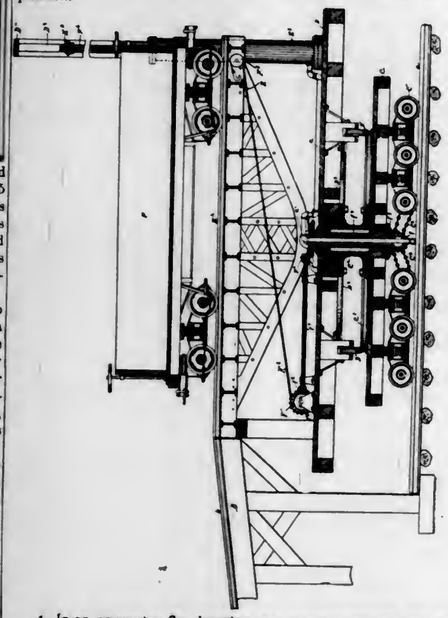
3. A door-plate consisting of a base section having perforated lugs to receive the securing screws, and a top section having a top, bottom and side rib, which are cemented to the base section, the top section having its edges beveled to conceal the joint, thus forming a door-plate having a pocket into which a card or sign can be inserted from one end, substantially as described.

519,257. APPARATUS FOR DUMPING CARS. PATRICK H. HAGENEY, Harbor, Ohio. Filed May 22, 1893. Serial No. 475,146. (No model.)

Claim.—1. In an apparatus for dumping cars, the combination with a dumping table that is tilted by the weight of the loaded car; of a hoisting device connected with said table for returning said table and empty car from their tilted position; and means whereby said hoisting device is actuated by power derived from the force generated by the downward movement of the loaded car.

2. In an apparatus for dumping cars, the combination with a dumping table that is tilted by the weight of the loaded car; of a hoisting device connected with said table for returning said table and empty car from their tilted position; means whereby said hoisting device is actuated by power derived from the force generated by the downward movement of the loaded car; and means for controlling the movement of said table at its different points of travel

3. In an apparatus for dumping cars, the combination with a dumping table that is tilted by the weight of the loaded car, of a hydraulic hoisting device connected with said dumping table that is depressed by the downward movement of said table, and an accumulating device that accumulates the waste fluid under pressure as it is expelled by the depression of the hoisting device and retransmits the power derived from the energy so accumulated, to the hoisting device and thereby returns the table and empty car from their tilted position.



4. In an apparatus for dumping cars, the combination with a dumping table that is tilted by the weight of the loaded car, of a hydraulic hoisting device connected with said dumping table that is depressed by the downward movement of said table, an accumulating device that accumulates the waste fluid under pressure as it is expelled by the depression of the hoisting device and retransmits the power derived from the energy so accumulated to the hoisting device and thereby returns the table and empty car from their tilted position, and a controlling cock through which the fluid passes and repasses for controlling the movement of the actuated parts.

5. In an apparatus for dumping cars, the combination with a dumping table that is tilted by the weight of the loaded car, of a hydraulic hoisting device connected with said dumping table that is depressed by the downward movement of said table, an accumulating device that accumulates the waste fluid under pressure as it is expelled by the depression of the hoisting device and retransmits the power derived from the energy so accumulated to the hoisting device and thereby returns the table and empty car from their tilted position, a pipe connecting said hoisting device and the accumulating device that extends to the operating platform, and a controlling cock in said pipe and on said platform for the purposes set forth.

6. In an apparatus for dumping cars the combination with a dumping table that is tilted by the weight of the loaded car, of a hydraulic hoisting device connected with said dumping table that is depressed by the downward movement of said table, an accumulating device that accumulates the waste fluid under pressure as it is expelled by the depression of the hoisting device and retransmits the power derived from the energy so accumulated to the hoisting device and thereby returns the table and empty car from their tilted position, and a pump intermediately connected for the purposes set forth.

7. In an apparatus for dumping cars, the combination with a base; a revolving table thereon: and a dumping table on said revolving table; of hydraulic cylinders, E^3, at the dumping end of said revolving table; plungers in said cylinders operatively connected with the dumping table; pipe, *e*, leading from said cylinders through the center of the revolving table to an accumulating device on the base; a joint, *e'*, in said pipe to allow its axial movement: and said accumulating device.

8. In an apparatus for dumping cars, the combination of a traveling base; a revolving table thereon; a tilting dumping table on said revolving table that is tilted by the weight of the loaded car; a hoisting device connected with said dumping table for returning said table and empty car from their tilted position; and means whereby said hoisting device is actuated by power derived from the force generated by the downward movement of the loaded car.

9. In an apparatus for dumping cars, the combination with a traveling base and a revolving table on said base, of a tilting dumping table on said revolving table that is tilted by the weight of the loaded car, a hydraulic hoisting device connected with said dumping table that is depressed by the downward movement of said table and an accumulating device that accumulates the waste fluid under pressure as it is expelled by the depression of the hoisting device and retransmits the power derived from the energy so accumulated to the hoisting device and thereby returns the table and the empty car from their tilted position.

519,258. DARNING OR EMBROIDERING FRAME. GEORGE P. HILL, Richmond, Va. Filed May 1, 1893. Serial No. 472,554. (No model.)



Claim.—1. The combination with a darning and embroidering frame continuous in outline, of a series of independently revoluble angular fingers secured to said frame and means of holding the same in predetermined positions, and a clamping ring, said clamping ring to hold a fabric stretched across the frame while the fingers hold the unstretched portion against the side of the frame.

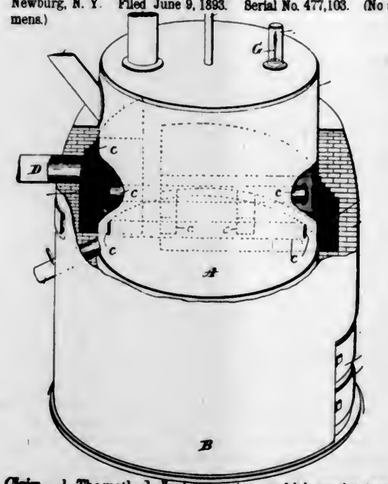
2. The combination with a darning and embroidering frame of spring loops secured to such frame, and angular fingers secured in the loops and each provided with a cam-like portion such portion seated in said loop.

3. The combination with a darning and embroidering circular frame of a yielding strip secured to the inside of such frame loops formed in said strip, and fingers of substantially L shape secured and working in such loops, substantially as described.

4. A darning and embroidering frame consisting of a strip of suitable material one end of which is provided with a slot, and the other end with a T head adapted to work in such slot, a pinion secured to the slotted end and a rack and set screw secured to the T headed end, substantially as described.

5. A darning and embroidering frame consisting of a strip of suitable material one end of which is slotted, and the other end provided with a T head adapted to work in the slotted end, a pinion secured to the slotted end and a rack and set screw secured to the T headed end; spring loops secured to said frame, and fingers secured and working in said loops, substantially as described.

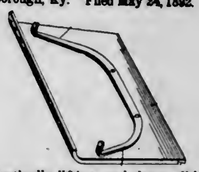
519,259. MANUFACTURE OF PLASTER. HENRY C. HIGGINSON, Newburg, N. Y. Filed June 9, 1893. Serial No. 477,103. (No specimens.)



Claim.—1. The method of calcining plaster which consists in heating it within a kettle to a temperature of about 395°, permitting it to cool to a temperature of about 365°, then giving it a temperature of about 380° and finally discharging it at such temperature, substantially as and for the purpose specified.

2. The method of calcining plaster which consists in boiling it within a suitable vessel, preventing the temperature rising above 395° and falling below 365°, and removing it from such vessel at a temperature of 380°, substantially as and for the purpose shown.

519,260. SNAP-SLIDE FOR SEWING-MACHINES. JOHN K. HUNTER, Owensborough, Ky. Filed May 24, 1892. Serial No. 434,379. (No model.)

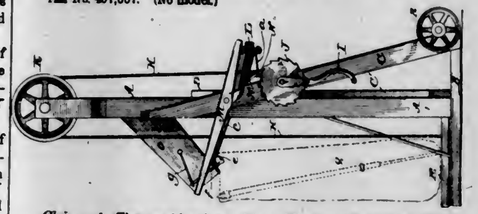


Claim.—1. A vertically lifting and depressible sewing machine slide, having a spring secured thereto at the edge of its under side which spring is provided with a depending holding lip at a point below the under face of the slide adapted to engage the adjacent wall of its slide-way, substantially as shown and described.

2. A slide for sewing machines having a spring secured to and extending across the under face thereof, the free ends of said spring having holding lips at opposite edges of the slide, substantially as specified.

3. A slide for sewing machines having a U-shaped spring secured to the under side thereof, the free ends of said spring extending to opposite edges of the slide and having depending holding lips, substantially as specified.

519,261. PORTABLE ELEVATING AND BAG-HOLDING MACHINE. GEORGE S. INGLE, Evansville, Ind. Filed Mar. 27, 1893. Serial No. 467,887. (No model.)



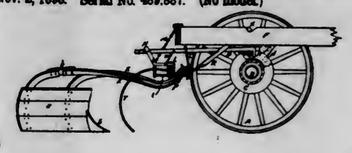
Claim.—1. The combination, with guiding uprights and a platform and movable standard adapted to slide on said uprights, a roller, and cords attached thereto and to said platform, of a band, passing around said roller, and means for locking the platform at different heights, also for applying tension to said band and simultaneously releasing the locking mechanism, substantially as shown.

2. The combination, with grooved uprights, the platform and a standard adapted to slide in the former, of a roller journaled in rear of the uprights, cords connecting it with the platform, a hand lever, pivoted pawl, and ratchet, a lever bar, pivoted at one end and connected with the hand-lever at the other, and a friction band, wrapped around the roller and attached at its respective ends to said lever bar and the upright frame, as shown and described.

3. The combination, with the vertically adjustable platform and a standard, and means for hoisting and lowering them, of a detachable spout, a bar attached to its rear end for engaging the standard, and a pivoted hook and fixed stop for supporting the spout at any required height, as shown and described.

4. The combination, with a platform and standard, F, of the vertically-adjustable spout, O, means for hoisting and lowering said parts, and movable devices, *e f*, attached to the spout for engaging the mouth of the bag, as shown and described.

519,262. AUTOMATIC CENTER-DELIVERY HAY-RAKE. LEWIS H. KIMBALL and OWEN N. KIMBALL, Iowa, Jackson County, Iowa. Filed Nov. 2, 1893. Serial No. 489,887. (No model.)



Claim.—1. The combination with a draft frame or sulky, of a rake, means for raising it to discharge the hay gathered thereby, and a wind-row-former in rear of the rake and inclined from its outer end backwardly and inwardly to guide the hay toward the central line of draft.

2. The combination with a draft frame or sulky, of a pair of rakes, one on each side of the line of draft, a pair of wind-row-formers in rear of the rakes and inclined from their front or outer ends rearwardly and inwardly, and means for operating the rakes to discharge the hay gathered thereby into the path of the wind-row-formers.

3. The combination of a draft frame, a rake, a wind-row former in rear thereof, and a shoe or divider on the outer front end of the wind-row-former.

4. The combination of a draft frame, a rake, a wind-row-former in rear thereof, and adjustable connections between the draft frame and the wind-row-former.

5. The combination of a draft frame, the cross rod P connected to the draft frame in rear of the wheels, the rakes hinged to the cross rod, and the wind-row-formers connected to the cross-rod and arranged in rear of the rakes.

6. The combination of the draft frame, the cross rod secured thereto in rear of the wheels, and extending laterally in opposite directions from the draft frame, a pair of rakes, one on each side of the central line of draft and separated from each other at their inner ends, connections between the rakes and the cross rod, wind-row-formers in rear of the rakes connected to the cross-rod and inclined from their outer front ends rearwardly and inclined toward the central line of draft.

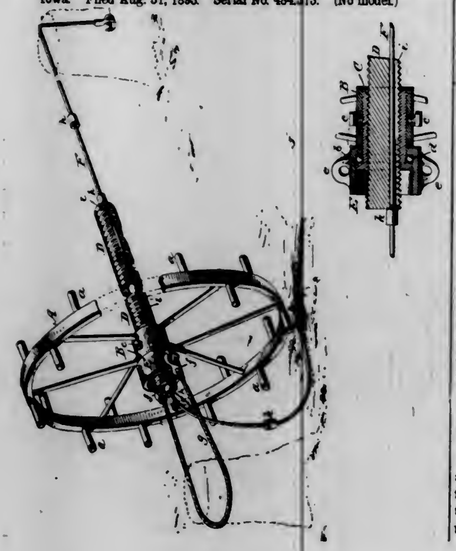
7. The combination of a sulky, comprising the wheels, axle and frame, of a projection or roller c, carried by one of the wheels, a hinged rake, and a rod connected with the rake and having a projection extending into the path of the projection or roller c, whereby the rake is lifted to discharge the hay gathered thereby automatically once in each revolution of the wheel.

8. A horse hay rake comprising a sulky, a hinged rake, and devices connecting the rake with the wheels and axle of the sulky to automatically lift the rake periodically as the sulky advances.

9. The combination of a draft frame or sulky, a pair of rakes connected therewith, projections carried by the hubs of the wheels, rods connected with the rakes, and extending into the path of the projections on the wheels, whereby the rakes are automatically lifted periodically as the sulky advances.

10. The combination of the sulky, the cross-rod secured thereto in rear of the wheels, rakes hinged to the rod, wind-row-formers also hinged to the rod and arranged in rear of the rakes on opposite sides of the central line of draft, guides on the wheels having lateral projections and hooked rods connected with the rakes and projecting into the path of the lateral projections in the guides, the organization being such that the rakes are lifted once in each revolution of the wheels, and the hay dropped by the rakes is collected by the wind-row-formers and formed into a single wind-row in the central line of draft.

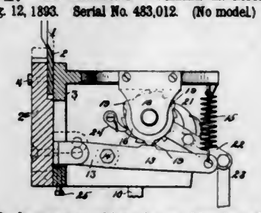
519,263. STUMP-PULLER. ARTHUR J. LARKIN, Council Bluffs, Iowa. Filed Aug. 31, 1893. Serial No. 484,513. (No model.)



Claim.—1. In a stump-puller, a suitable wire-cable provided with means for connecting it to the stump to be pulled, one or more tension screws having longitudinal grooves for engaging with the cable, buttons or stops upon the cable, and means for moving forward the screws, substantially as and for the purpose described.

2. A stump-puller consisting of a suitable cable provided with means for connecting it with the stump to be pulled, one or more longitudinally grooved tension-screws engaging with the cable, buttons or stops upon the cable, a screw thread feeding-sleeve engaging with the tension screw, and a swivel coupling upon the sleeve, and means for connecting the sleeve with a stationary object, and suitable means for turning the sleeve whereby the tension screw is operated, substantially as and for the purpose set forth.

519,264. TAG-MACHINE. WILLIAM M. LITTLE, Vandalia, Ill. Filed Aug. 12, 1893. Serial No. 483,012. (No model.)



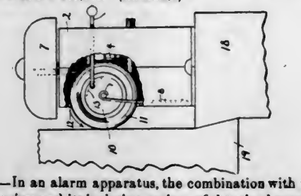
Claim.—1. In a tag machine, the combination of a fixed knife, a movable head having an adjustable knife, and means for adjusting the adjustable knife, consisting essentially of a pivoted lever, a spring for drawing the lever in one direction to retract the adjustable knife, and an operated disk, having projections for engaging said lever to move it in opposition to the spring to project the adjustable knife; substantially as described and for the purposes set forth.

2. In a tag machine, the combination of a fixed knife, a movable head, a knife adjustably held in said head and means for moving said adjustable knife with relation to the head, consisting essentially of a pivoted lever, a spring for drawing the lever in one direction to retract the adjustable knife and a disk having projections on its periphery for moving the lever in opposition to the spring to project the adjustable knife; said disk being moved through means of a ratchet-wheel and pawl; substantially as and for the purposes set forth.

3. In a tag machine, the combination of a fixed knife, a movable head, a knife adjustably held in said head, and mechanism for adjusting the adjustable knife with relation to the head, consisting of a spring lever, and means for shifting the lever; said adjustable knife having an inwardly diverging cutting edge; substantially as and for the purposes set forth.

4. In a tag machine, the combination of a fixed knife, a movable head having the slotted and perforated plate 2^2, the knife 2 held to said plate by screws fitting in said slots and perforation, and mechanism for moving said plate with relation to said head, substantially as set forth.

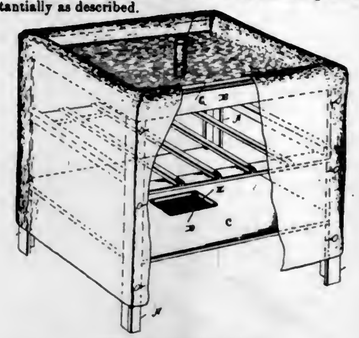
519,265. BURGLAR-ALARM. HARVEY A. MOORE, Indianapolis, Ind., assignor of one-half to Samuel D. Pray, same place. Filed Sept. 8, 1893. Serial No. 485,073. (No model.)



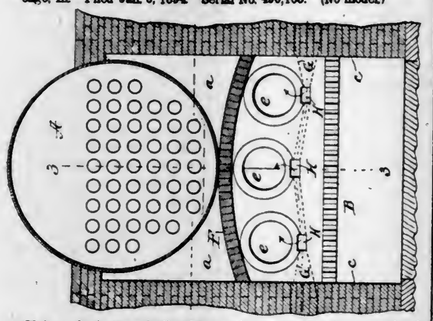
Claim.—In an alarm apparatus, the combination with the clock-alarm mechanism and its inclosing casing, of the wheel provided with a lug arranged to engage and stop said alarm mechanism, said wheel being mounted on a yielding bearing and arranged to project through the side of the inclosing casing, and the rod pivoted to said wheel and provided with a lug adapted to engage the casing, all arranged to co-operate substantially as and for the purpose set forth.

519,266. PORTABLE DAIRY. JAMES H. MCILVEEN, Fairfield, Tex. Filed Aug. 25, 1893. Serial No. 484,073. (No model.)

Claim.—A portable dairy consisting of a framework having legs, a pan supported at the top of the framework, with a tube extending from the bottom of the pan and communicating with the interior of the frame, a perforated bottom for the said dairy, and an imperforate cloth surrounding the said dairy and extending below the said bottom but above the lower end of the framework to permit the circulation of air, the upper end of said cloth extending into the pan, substantially as described.



519,267. STEAM-BOILER FURNACE. JAMES MCMILLAN, Chicago, Ill. Filed Jan. 8, 1894. Serial No. 496,103. (No model.)

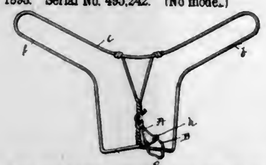


Claim.—1. A steam boiler furnace having its fire-box completely inclosed by masonry, and having discharge flues in tubular form and of such capacity as to secure free draft and insure complete combustion within the flues leading from its fire-box through such masonry, substantially as described and for the purpose specified.

2. In a steam boiler furnace the combination of a grate, side walls, a solid arch covering the fire-box, a bridge wall extending to and joining the rear end of the arch, and flues, in tubular form leading from the fire-box through the bridge wall and of such capacity as to secure free draft and insure complete combustion within the flues, substantially as described and for the purpose specified.

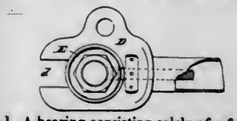
3. In a steam boiler furnace the combination with a boiler, of a fire-box, an arch, F, covering the fire-box and separating it from the boiler, and a bridge wall extending to the arch and having flue openings, *e*, *e*, leading outwardly from the fire-box, and air ducts leading from without the furnace and opening to the fire-box below the flue openings, *e*, *e*, said bridge wall being of such thickness that the flue openings serve the purpose of retorts, substantially as described.

519,268. NECKTIE-SHIELD. ISAAC NOAR, New York, N. Y. Filed Dec. 30, 1893. Serial No. 495,242. (No model.)



Claim.—The herein described combined shield and loop for neck-wear, comprising a wire frame, having a central, transverse, integral brace formed by bringing the end portions of the wire together at the central portion of the shield and rigidly intertwisting them, for about one-half the depth of the shield, then spreading said end portions and connecting them at different points to the opposite arm of the frame, a piece of elastic intertwisted with said end portions and thereby held without other fastening means, and a metallic loop for the neck button, said loop having eyes through which said elastic passes, substantially as specified.

519,269. BEARING FOR VELOCIPEDES. FREDERICK D. OWEN, Washington, D. C. Filed Mar. 29, 1893. Serial No. 468,157. (No model.)



Claim.—1. A bearing consisting solely of a female member having two substantially parallel annular surfaces arranged stepwise, and a male member formed of a single block of metal also provided with two substantially parallel annular surfaces arranged stepwise to fit within the annular surfaces of the female member, substantially as described.

2. A bearing having double interlocking surfaces and an interposed packing or washer substantially as described.

3. A bearing comprising a socket having a cup or case seated therein, and a cone having an annular shoulder to fit within the mouth of the cup and a flange to fit within the mouth of the socket, substantially as described.

4. A bearing comprising a socket having a cup or case seated therein, a cone having an annular shoulder fitting within the mouth of the cup and a flange fitting within the mouth of the socket, and a washer seated on the annular shoulder of the cone and confined between the outer end of the cup and the face of the cone flange, substantially as described.

5. An adjusting cone for bearings comprising an adjustable barrel provided at one end with a cone head and at the other end with a tubular extension adapted to support a fork end, said tubular extension having at its outer end an irregular surface for the engagement of an adjusting implement, substantially as described.

6. An adjusting cone for bearings comprising a threaded barrel provided at one end with a cone head and at the other end with a tubular extension adapted to support a fork end, said tubular extension having at its outer end an irregular surface, and a metal adjusting washer fitting the irregular surface of said tubular extension and adapted to rotate the cone to adjust it longitudinally upon the axle, substantially as described.

7. An adjusting cone for bearings comprising a barrel provided with a tubular extension adapted to support a fork end or the like, said tubular extension having at its outer end an irregular surface to receive a washer shaped to engage said irregular surface, substantially as described.

8. The combination with a bicycle fork, and axle, or other relatively fixed objects, of an adjusting cone provided with a flange and with a tubular extension projecting outward from said flange to receive or support said fork, said tubular extension having at its outer end a hexagonal or other irregular surface, a washer having an irregular surface to engage that of the cone, and a jam nut threaded upon the axle and adapted to bind upon the washer, substantially as described.

9. An adjustable bearing comprising male and female members shaped to form double interlocking surfaces, said male member being provided at the outer end with a tubular extension having an irregular surface for the engagement of an adjusting implement, substantially as described.

10. An adjustable bearing comprising male and female members shaped to form double interlocking surfaces, and a packing or washer interposed between said interlocking surfaces, said male member being provided at its outer end with a tubular extension having an irregular surface for the engagement of an adjusting implement, substantially as described.

11. An adjustable bearing comprising a socket having a case or cup seated therein, and a cone the head of which is provided with an annular shoulder to enter the mouth of the cup and with a flange to enter the mouth of the socket, and a washer seated on said shoulder between the mouth of the cup and the flange of the cone, the cone barrel being provided at its outer end with a tubular extension having an irregular surface for the engagement of an adjusting implement, substantially as described.

12. An adjustable bearing comprising male and female members shaped to form double interlocking surfaces, said male member being provided with a tubular extension having an irregular surface at its outer end, and a metal washer shaped to engage said irregular surface, substantially as described.

13. An adjustable bearing comprising male and female members shaped to form double interlocking surfaces, said male member being provided with a tubular extension adapted to support a fork end and having at its outer end an irregular surface, and a washer shaped to engage said outer end of the tubular extension, substantially as described.

14. An adjusting cone for bearings comprising a tubular barrel internally threaded for engagement with a threaded shaft and pro-

vided at one end with a tubular extension adapted to support a fork end and at its other end with a cone head of tempered metal, said tubular extension having an irregular surface for the engagement of an adjusting implement, whereby the cone may be rotated for longitudinal adjustment upon a shaft, substantially as described.

15. An adjusting cone for bearings comprising a barrel of untempered metal provided at its inner end with a cone head of tempered metal, and at its outer end with a tubular extension having an irregular surface, and a metal washer shaped to fit said irregular surface, substantially as described.

16. An adjustable bearing comprising a socket and bearing cup seated therein, and a cone barrel provided with a removable tempered head having an annular shoulder to enter the bearing cup and a flange to enter the socket, said cone barrel having at its outer end a tubular extension terminating in an irregular surface, and an adjusting washer shaped to fit said irregular surface of the cone barrel, substantially as described.

17. A bearing one of the members of which is movable to automatically maintain an equal pressure upon the bearing surfaces thereof, at opposite sides of the axis of rotation, substantially as described.

18. A bearing one of the members of which is movable with relation to the other member to automatically maintain an equal pressure between the bearing surfaces of said members at opposite sides of the axis of rotation, and means to prevent the rotation, of said movable member upon or within its support, substantially as described.

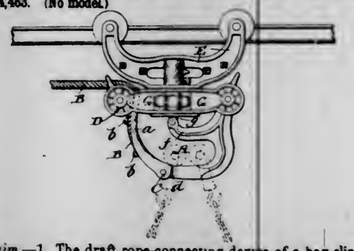
19. A cone for bearings comprising a barrel, and a cone head carried by said barrel and adapted to yield to compensate for imperfections in the bearing, substantially as described.

20. A cone for bearings comprising a barrel, and an independent cone head mounted thereon to permit a slight movement of the outer edge of the flange of said cone head in the direction of the length of the barrel, substantially as described.

21. A cone for bearings comprising a barrel, a washer seated near the inner end of said barrel, and a cone head loosely mounted on the inner end of said barrel and resting against said washer, substantially as described.

22. A cone for bearings comprising a barrel, a washer seated near the inner end of said barrel, a cone head loosely mounted on the inner end of the barrel and resting against said washer, and means to prevent the rotation of said cone head upon the barrel, substantially as described.

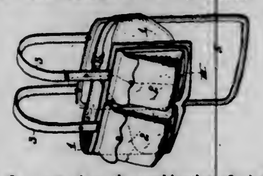
319,270. HAY ELEVATOR AND CARRIER. JOSEPH E. PORTER, Ottawa, Ill. Filed May 25, 1893. Renewed Mar. 20, 1894. Serial No. 504,463. (No model.)



Claim.—1. The draft rope-connecting device of a hay sling and carrier, having a branch arm for supporting a locking bolt, an end by which it is pivoted to the carriage, and a longer arm, jointed between the pivotal end and the end by which it is attached to the draft rope, substantially as and for the purpose described.

2. The combination of the wheeled carriage draft rope pulley frame, the draft rope, the double armed connecting device having a joint in its longest branch or arm, and the trolley pulleys provided with means for attachment to a fork or sling, substantially as and for the purpose described.

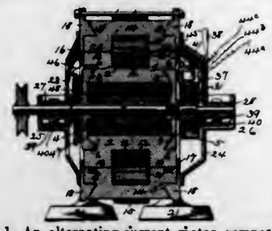
519,271. GAME-BAG. GEORGE H. RAWLINGS, St. Louis, Mo. Filed Aug. 25, 1893. Serial No. 484,050. (No model.)



Claim.—1. In a game bag, the combination of a belt having one or more cartridge pockets, shoulder pieces connected to the belt, an apron secured to the back ends of the shoulder pieces, a cross strip secured to the shoulder pieces outside of the apron, and loops fitting in eyes formed in the cross strip; substantially as and for the purpose set forth.

2. In a game bag, the combination of the belt 1, having pockets 2, shoulder pieces 3 buttoned to the belt, an apron 5 secured to the back ends of the shoulder pieces, a cross strip 7 secured to the shoulder pieces outside of the apron, and having eyelets 8, and game loops 9 fitting in said eyelets, substantially as and for the purpose set forth.

519,272. ELECTRIC MOTOR. ELIAS E. RIES and GORDON J. SCOTT, Baltimore, Md. Filed July 27, 1893. Serial No. 481,623. (No model.)



Claim.—1. An alternating current motor composed of several groups of sectional, laminated and interlaced circularly arranged field-magnets, a concentric sectional laminated armature and circuit connections and a commutator for shifting the polar lines of the field of force, substantially as described.

2. An alternating current motor having a number of interlaced groups of circularly arranged field magnets, with the energizing coils of each group in inductive relation to the coils of the adjacent group or groups, as described, so as to reduce the counter electro-motive force of self induction in each; a concentric, sectional, laminated armature, and circuit connections and a commutator for shifting the polar lines of the field of force, substantially as described.

3. An alternating current motor having a number of interlaced groups of circularly arranged field magnets with the adjacent sides of the coils of adjacent groups substantially parallel and in inductive proximity, circuit connections for passing the energizing currents simultaneously through the adjacent sides of adjacent groups of magnet coils in opposite directions, an armature composed of sections arranged concentric with the field magnets and a commutator for shifting the polar lines of the field in continuous succession, substantially as described.

4. An electric motor composed of interlaced groups of parallel field electro magnets, circularly arranged and in inductive proximity to each other, an armature composed of a circular series of magnetic sections and a commutator and brush for passing current through some of the adjacent groups of field magnet coils in progressive succession, and circuit connections substantially as described whereby the energized field magnets act upon the armature by repulsion and the non-energized field magnets by attraction, substantially as described.

5. An electric motor composed of three interlaced groups of parallel field electro-magnets, circularly arranged and in inductive proximity to each other, an armature having a circular series of as many parallel sections as there are field magnets in each group and a commutator and brush for passing current through two adjacent groups of field magnet coils in progressive succession whereby two groups of field magnets act upon the armature by repulsion and one group by attraction, substantially as described.

6. In an alternating current electric motor the combination of a field magnet system composed of groups of circularly arranged electro magnets each group being connected to a separate group of connected commutator bars; with an armature likewise composed of a number of circularly arranged electro magnets, and connections for including the armature winding in circuit with groups of field windings in regular succession, substantially as described.

7. In an alternating current motor, the combination of a field magnet system composed of groups of circularly arranged electro-magnets, each group being connected in series and to a separate group of connected commutator bars; with an armature likewise composed of a number of circularly arranged electro-magnets, and connections for including the armature winding in circuit with groups of field windings in regular succession, substantially as described.

8. In an alternating current motor the combination of a field magnet system composed of three groups of circularly arranged electro magnets, each group being connected to a separate group of connected commutator bars; with an armature likewise composed of a number of circularly arranged electro-magnets, and connections for including the armature winding in circuit with two adjacent groups

of field windings in regular succession, substantially as described.

9. In an alternating current electric motor, the combination of a field magnet system composed of groups of circularly arranged electro magnets, each group being connected to a separate group of connected commutator bars; with an armature likewise composed of a number of circularly arranged electro magnets having a single winding common to all, and connections for including the armature winding in circuit with successive groups of field windings in regular succession, substantially as described.

10. In an alternating current electric motor, the combination of a field magnet system composed of separate groups of circularly arranged electro magnets, the magnets of each group being connected in series and to a separate group of connected commutator bars; with an armature likewise composed of a number of circularly arranged electro-magnets having a single winding common to all, and connections for including the armature winding in circuit with successive groups of field windings in regular succession, substantially as described.

11. In an alternating current electric motor, the combination of a field magnet system composed of three groups of circularly arranged electro magnets, the magnets of each group being connected in series and to a separate group of connected commutator bars; with an armature likewise composed of a number of circularly arranged electro magnets having a single winding common to all, and connections for including the armature winding in circuit with two adjacent groups of field windings in continuous succession, substantially as described.

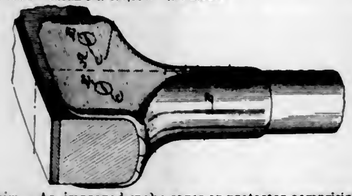
12. In an alternating current electric motor, the combination of a field magnet system composed of interlaced groups of circularly arranged electro magnets, the energizing coils of which are all wound in the same direction and each core and coil in inductive relation and proximity to the next adjacent cores and coils of the adjacent groups; with an armature likewise composed of a circular group of electro magnets having a coil or coils wound in the same direction as the field coils, and a commutator and circuit connections for passing currents through the armature and through successive adjacent groups of field magnets in continuous succession: substantially as described.

13. In an alternating current electric motor, the combination of a field magnet system composed of three interlaced groups of electro magnets, circularly arranged, and a concentric group of armature sections, each field magnet core being in inductive relation and proximity to the cores of the adjacent magnets of the adjacent groups; with a commutator and circuit connections for passing currents in the same direction through the armature and through two adjacent groups of field magnets in continuous succession; whereby the armature is rotated by simultaneous repulsion from the active and attraction by the passive field magnets, substantially as described.

14. An alternating current motor having groups of sectional field bar electro magnets, circularly arranged, whose poles, when directly energized, are of like denomination at each end and of opposite denomination in the middle, and an armature composed of circularly arranged bar sections in close proximity to the poles of the field bars, whereby the magnetic lines of force of each magnet form two short parallel circuits of normally low reluctance, substantially as described

---

519,273. SPOKE-SOCKET. PHILIPP SCHNEIDER, Chattanooga, Tenn., assignor of one-half to George C. Witte, same place. Filed Jan. 11, 1894. Serial No. 496,537. (No model.)

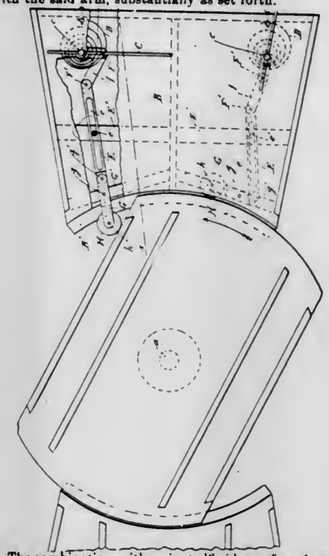


Claim.—An improved spoke saver or protector comprising two half sections each formed with a semi-circular lower or end portion B, constructed to have their adjacent edges join to completely encircle the spoke when fitted thereon, having a straight rear wall and terminating at the top in a laterally extending flattened head portion C, the front edges of such portions being extended laterally, to form wings or seat portions D, which merge into the head portion, said head and circular portions having screw apertures, all arranged substantially in the manner shown and for the purposes described

---

519,274. BRIDGE-GATE. JOSEPH SEGO and CHARLES FAUCHER, Valparaiso, Ind. Filed Feb. 3, 1894. Serial No. 498,957. (No model.)

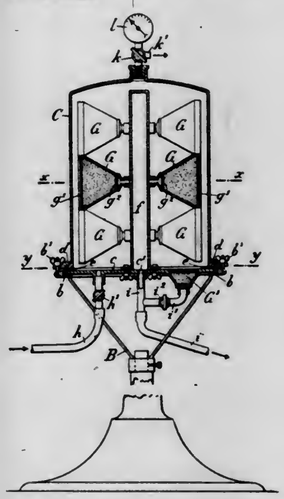
Claim.—1. The combination, with a pivoted bridge; of a gate secured on a vertical shaft, an automatic operating device—such as a spring—normally holding the said gate closed, an arm secured on the gate shaft, the bar E provided with a guide, a pivoted operating lever arranged in the path of the bridge and pivoted to one end of the said bar, and a link pivotally connecting the other end of the said bar with the said arm, substantially as set forth.



2. The combination, with a pivoted bridge; of a gate secured on a vertical shaft, a spring normally holding the said gate closed, an arm secured on the gate-shaft, the bar E provided with a long slot and a guide roller, a pivoted operating lever provided with a roller at one end for the bridge to come in contact with, and having its other end pivoted to the said bar; and a link pivotally connecting the said bar and arm, substantially as set forth.

3. The combination, with a pivoted bridge; of a gate secured on a vertical shaft, the helical spring secured to the said shaft and adapted to close the gate automatically, an arm secured on the gate shaft, the bar E and its guide roller, a pivoted operating lever arranged in the path of the bridge and pivoted to one end of the said bar, and a link pivotally connecting the said bar and arm, substantially as set forth.

519,275. FILTER. CARL SELLENSCHEIDT and LEONHARD LEPER, Berlin, Germany. Filed Dec. 2, 1892. Renewed Mar. 30, 1894. Serial No. 505,780. (No model.)



Claim.—In combination, the casing C, having the hollow column and the inlet and outlet pipes, the latter leading from the column, the filtering receptacles extending radially from the hollow column the supplemental filtering receptacles G' about the bottom of the casing C, and the pipes i', extending therefrom to the main outlet pipe i, substantially as described.

519,276. MAGAZINE PLATE-HOLDER. AUGUST STEGEMANN, Berlin, Germany. Filed Dec. 29, 1892. Serial No. 456,702. (No model.)



Claim.—1. In an apparatus for exposing and transferring plates, the combination with a changing box A, of a case B for the reception of the plates after exposure, said changing box and case being detachably connected together, a suitable locking device, slide for closing the adjacent ends of said box and case, and mechanism, such substantially as described, for automatically closing said slides when the box and case are disengaged, for the purpose specified.

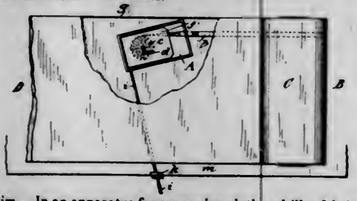
2. The combination with the changing-box A of a spring-pressed follower for holding the plates against the transparent front of the box, levers i—i, having noses i'—i', adapted to enter between the two foremost plates and press the rearward plates backward, spring-rods h, h, having noses h', h', for actuating said levers and a case B connected to the changing-box A and having metallic plates 14, adapted to press the said noses h', when said case is brought into position to receive the exposed plates, substantially as described.

3. The combination with a changing-box A and case B, of slides d and d', the latter being provided with holes 12, and the former having pins 22, the pivotally connected levers 31, 33, the latter having fulcrums 32, the shaft 23 having toothed wheels engaging teeth on the slides, and the noses 34 on the changing-box A, substantially as described.

4. The combination with the changing box A, of the spring-plate p, a cord 7 connected to said plate, an arm 8 to which the cord is led over guide pulleys, a lever arm 10 upon which the arm 8 is rigidly mounted, a locking device for the lever arm 10, and a spring operating, and a spring acting in opposition to the spring plate p, to keep the cord 7 taut, substantially as described.

5. The combination with the changing-box A, of the spring-plate p, the cord or chain 7, the lever 8 to which said cord is led over guide-pulleys, a lever-arm 10 upon which the arm 8 is rigidly mounted, a locking device for the lever-arm 10, and a graduated sector over which said lever arm moves, substantially as described.

519,277. APPARATUS FOR MEASURING TEXTILE FABRICS. FRIEDRICH C. STEPHAN, Crimmitschau, Germany. Filed July 13, 1892. Serial No. 439,921. (No model.)



Claim.—In an apparatus for measuring cloth and like fabrics, the combination of the flat slotted box A having a rod or handle i, the screw staple or fastening k for securing said handle to a counter, while the said box is inserted between two doubled layers of the fabric to be measured, and the roller c located in the flat box and having a graduated measuring tape b wound thereon and extended through a slot in one end of the box, substantially as described.

519,278. BOILER-TUBE EXPANDER. HENRY STRECKER, Marietta, Ohio. Filed Mar. 14, 1894. Serial No. 503,576. (No model.)

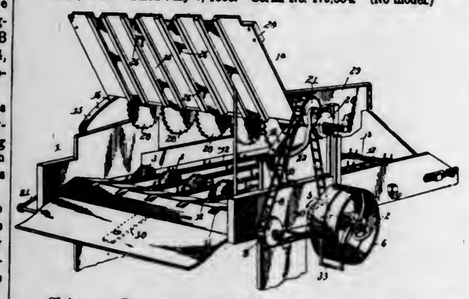


Claim.—1. In a boiler tube expander, the combination with the tapering central mandrel, of a rotating hub turning upon the mandrel and having recesses in its periphery outwardly adjustable frames arranged in said recesses and open at top and bottom and containing rollers arranged in direct contact with the mandrel through said frames, and adapted to be projected through the said frames to contact with the tube to be expanded the said frames having openings on their inner faces larger than the diameter of the rollers and on their outer faces smaller than the diameter of the rollers substantially as shown and described.

2. In a boiler tube expander, the combination with the tapering central mandrel; of a rotating hub having outwardly adjustable frames made larger at their sides next the mandrel whereby they are locked or permanently retained within recesses in the hub and open at top and bottom, and freely moving rollers retained in said frames in direct contact with the mandrel substantially as and for the purpose described.

3. In a boiler tube expander, the combination with the central tapering mandrel; of a rotating hub with tapering openings in its periphery converging outwardly, and frames with loosely held rollers, the said frames being made with a converging outward taper so as to be retained by the hub, and also constructed with an open top and bottom substantially as and for the purpose described.

519,279. BAND-CUTTER AND FEEDER. EDWARD TURNELL, Elm Creek, Nebr. Filed July 7, 1893. Serial No. 479,834. (No model.)



Claim.—1. The combination with a framework having a table, feed-chains, band-cutters, and means for operating the same, of a pivotal pressure platform, stationary perforated segmental brackets 15 carried by the framework, bearings adjustably bolted to said brackets, and a shaft mounted in said bearings and carrying the pressure platform, substantially as specified.

2. The combination with a framework having a table, band-cutters 3, feed-chains 12, and means for operating the same, of a transverse shaft 19 arranged above the plane of the feed-chains and operatively connected to the same, agitator-disks 28 carried by said shaft and arranged respectively above said feed-chains, a pressure platform fulcrumed upon said shaft, and agitator belts carried by said platform and operatively connected to the shaft, substantially as specified.

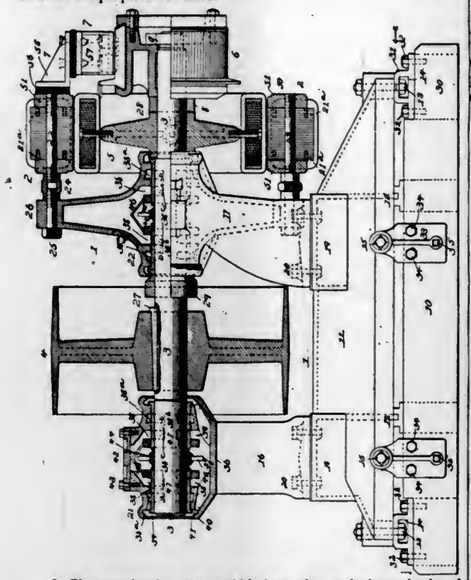
3. The combination with a framework having a feed-table, of spaced feed-chains, band-cutters arranged in the intervals between the feed-chains, means for operating said chains and cutters, a shaft 19 operatively connected to the feed-chains, spaced agitator-disks carried by the shaft and arranged respectively above the feed-chains, a pressure platform fulcrumed upon said shaft, and agitator-belts carried by the platform, arranged respectively above the band-cutters, and operatively connected to the shaft, substantially as specified.

4. The combination with a framework, alternately-arranged band-cutters and feed-chains, and means for operating the same, of a shaft arranged above the plane of the feed-chains and operatively connected thereto, agitator-disks fixed to said shaft, a pressure platform fulcrumed upon the shaft and comprising spaced longitudinal plates 23 provided with depending side guiding-flanges and cross-pieces 24, and agitator-belts arranged between said flanged plates and operatively connected to the shaft, substantially as specified.

519,280. ELECTRIC GENERATOR. WILLIAM BAXTER, Jr., Baltimore, Md. Filed May 12, 1891. Renewed Oct. 16, 1893. Serial No. 488,327. (No model.)

Claim.—1. In a dynamo electric machine, the combination of the bed 10, the base 11, the seats 18, 19, formed on said base, the vertical supports 16, 17, bolted to said seats and extending upwardly therefrom, the shaft journaled in said supports and carrying the commutator and armature and the field magnet secured to one of said supports, substantially as and for the purpose set forth.

2. In an electrical machine, the combination of a suitable base, the vertical supports extending upward from the base, the shaft journaled in said supports, the pulley secured to the shaft between the supports, the armature and commutator secured to the shaft outside of one of the supports and the field magnets secured to one side of one of said supports and surrounding the armature; all substantially as and for the purposes set forth.



3. The combination of a suitable base, the vertical standard and the four armed spider extending upward from said base, the shaft, bearings in said standard and spider for the shaft, the pulley secured to said shaft between the standard and spider, the field magnets secured to the spider on the opposite side from the pulley, the armature located within the field magnets, keyed to the shaft and having a hub abutting against the outer end of the bearing of said spider, a fixed collar on the shaft abutting against the opposite bearing in said spider, and the commutator on the outer end of the shaft adjacent to the armature; all substantially as and for the purposes set forth.

4. The combination of the frame, the field magnets mounted on the frame, the shaft fixed rotatably in the frame, the armature and commutator mounted on the shaft, the sleeve between the armature and commutator and the nut on the shaft, impinging against the commutator, whereby said armature and commutator are secured, as explained.

5. The combination, in a brush holder of a bracket, the hangers secured to the bracket and each having a downwardly flared guide sleeve and a socket, and the presser rod passing through said sleeve and engaging a brush held in said socket, substantially as set forth.

6. The combination, in a brush holder, of a bracket, the hangers secured to said bracket and each having a sleeve and a socket, the brush arranged in the socket and the presser-rod passing through said sleeve and having feet embracing said brush, substantially as set forth.

7. The combination in a brush holder, of a bracket, the hangers secured to said bracket and each having a sleeve and a socket, the brush held in said socket, and the presser rods having engagement with said brush and provided with end projections engaging slots in said socket, substantially as set forth.

8. The combination of the bracket, the hangers secured thereto and having the downwardly flared sleeves and the sockets, the brushes held in said sockets and the spring pressed presser rods passing through said sleeves and having the feet engaging said brushes and end projections engaging slots in said socket, substantially as set forth.

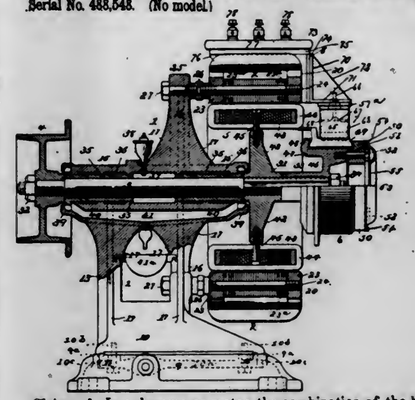
9. In a brush holder the combination of the hanger having the lower brush socket and the upper guide sleeve, the presser rod adapted to bear with its lower end above the socket and working in the guide sleeve, and the spring for forcing said presser rod downward, substantially as set forth.

10. In a brush holder the combination of the hanger having the brush socket and the guide sleeve, the presser-rod working in said sleeve and having a cross head adapted to bear about said socket and a spring confined between the sleeve and cross head, substantially as and for the purpose set forth.

11. The combination of the hanger, having the brush socket and the guide sleeve, the presser rod working in the guide sleeve, and adapted to press above the socket, and a spring for projecting the presser rod; said guide sleeve being enlarged so as to permit the deflection of the rod, and said hanger being provided with a shoulder, adjacent to the socket, upon which the rod may rest, as and for the purpose set forth.

12. The combination of the hanger having a brush socket and a guide sleeve, the presser rod working in said guide sleeve and adapted to enter said socket, and a projecting spring on said presser-rod; said socket being provided with transverse slots and said presser rod being provided with transverse projections adapted to enter said slots substantially as and for the purpose set forth.

519,281. ELECTRIC MOTOR OR GENERATOR. WILLIAM BAXTER, Jr., Baltimore, Md. Filed May 12, 1891. Renewed Oct. 16, 1893. Serial No. 488,548. (No model.)



Claim.—1. In a dynamo or motor the combination of the bed, having a suitable track, a sliding base adapted to said track, means for holding the base to the bed, set screws carried by one of said parts and engaging the other, the vertical standard and spider, the bearing carried by said standard and spider, the shaft journaled in said bearing, the pulley, armature and commutator fixed to the shaft, and the field magnets supported on the spider, substantially as and for the purpose set forth.

2. In an electrical machine of the character stated, the combination of the base, the standard and spider, extending from the base, the bearing supported upon said standard and spider, the shaft journaled in the bearing and carrying the pulley, armature and commutator, and the field magnets supported on the spider, substantially as set forth.

3. The combination of the spider, having the projections 26 on the arms of said spider, and the field magnets supported on the spider through the medium of said projections, substantially as and for the purpose set forth.

4. An electric motor or dynamo-electric machine having the field magnets composed of an annular series of symmetrically arranged magnets whose poles and windings lie in the vertical plane of the armature, and whose adjacent poles are of like polarity and connected together by the integral polar face-plate, substantially as and for the purpose set forth.

5. An electric motor or dynamo-electric machine having the field magnets composed of an annular series of magnets whose adjacent poles are of like polarity and connected together by the polar face-plates 23 and suitable screws or rivets 24, and held against shifting by dowel-pins 23^a, substantially as explained.

6. The combination of the base, the vertical supports, the bearing on said supports, the field magnets also supported from the base, the shaft journaled in the bearing, and the pulley and the armature on said shaft on opposite sides of the bearing and abutting against the bearing to prevent longitudinal movement of the shaft, substantially as explained.

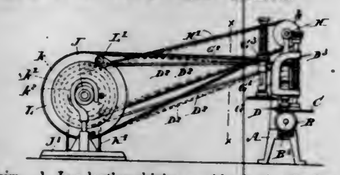
7. The combination with the frame, the shaft, the field magnets supported on the frame, and the armature supported on the shaft; of the commutator consisting of the collar, the plates, the securing ring held by screws on said collar, and the disk or cap placed over the end of said commutator and the end of the shaft, substantially as set forth.

8. The combination of the frame, the field magnets mounted on the frame, the shaft journaled in the frame, the armature and commutator secured to the shaft, the bracket secured to the field magnets, and the hanger secured to the bracket, and carrying the brushes, substantially as set forth.

9. The combination of the frame, the field magnets supported on the frame, the shaft journaled in the frame, the armature and com-

mutator secured to the shaft, the bracket secured to the field magnets, the board resting between the poles, and carrying the binding posts and the hangers extending downward from the bracket and carrying the brushes, substantially as and for the purpose set forth.

519,282. LEATHER-SKIVING MACHINE. NAPOLEON DUFRESNE, Montreal, Canada, assignor of one-half to Robert White, same place. Filed Nov. 9, 1892. Serial No. 451,469. (No model.)



Claim.—1. In a leather skiving machine having feeding and cutting devices and a main shaft, such as H, and gear mechanism for operating the feeding devices:—a single separate and independent counter shaft J, carrying pulleys k k' k^3 of varying diameters or speeds and pulleys l, l' and being interposed between the initial source of power and said shaft H, a band connection between the initial source of power and the pulley k^3 on the intermediate shaft J, an independent band connection between either of the pulleys k k' and said shaft H running the feed operating mechanism and another independent band connection between either of the pulleys l l' and the shaft of the cutting device, for the purposes set forth.

2. In a leather skiving machine having feeding and cutting devices and a main shaft, such as H, and gear mechanism for operating the feeding devices,—a single separate and independent counter shaft J (suitably mounted in similar fixed bearings j j j) carrying pulleys k k' k^3 of varying diameters or speeds and pulleys l l', the pulley l being of a smaller diameter than that l', and such shaft J being interposed between the initial source of power and said shaft H, a band connection between the initial source of power and the pulley k^3 on the intermediate shaft J, an independent variable band connection between either of the pulleys k k' and said shaft H running the feed operating mechanism and another independent variable band connection between either of the pulleys l l' and the shaft of the cutting device, for the purpose set forth.

3. In a leather skiving machine having feeding and cutting devices and a main shaft, such as H', and gear mechanism for operating the feeding device; a single separate and independent counter shaft J, interposed between the initial source of power and said shaft H, pulleys k k' k^3, l and l' of varying speeds fixedly connected with said counter shaft, a band connection between the initial source of power and the pulley k^3, an independent band connection between either of said pulleys k k' and said shaft H running the feed operating mechanism, and another independent band connection between either of the pulleys l l' and the shaft of the cutting device, as set forth.

4. In a leather skiving machine, a clearance device or barrier in the form of a single guide plate or strip of metal slightly inclined out of the vertical and extending tangentially and fixedly outward from the collar or bearing immediately above the cutter and being shaped along its lower edge so as to be flush with the upper surface of the cutting edge and hub of such cutter as and for the purpose set forth.

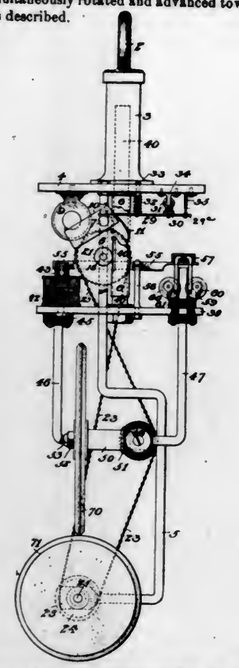
5. In a leather skiving machine, a stock protecting device in the form of a guide consisting of a bar or strip of metal curved or bent to correspond with the circular edge of the cutter disconnected from such cutter and its shaft but adjustably held adjacent to such edge and with one end projecting in a downward direction below same. as and for the purpose set forth.

6. In a leather skiving machine, a stock protecting device in the form of an adjustable guide consisting of a bar or strip of metal curved or bent to correspond with the circular edge of the cutter disconnected from such cutter and its shaft but held adjacent to such edge and with one end projecting in a downward direction below same, and means for effecting the lateral adjustment thereof, as and for the purposes set forth.

519,283. ELECTRIC-ARC LAMP. JOHN C. FYFE, Chicago, Ill., assignor of one-half to James Hayes, same place. Filed Dec. 29, 1893. Serial No. 495,266. (No model.)

Claim.—1. In an electric lamp, the combination with the rotary supports upon which the carbons are mounted, a movable support or frame on which one support is mounted, of a feed gearing cooperating with the rotary supports to rotate the carbons and also with the movable support or frame to advance the same and decrease the distance between the carbons, and a feed magnet controlling said feed gearing, located in shunt with the arc; substantially as described.

2. In an electric lamp, the combination with the stationary and movable frames, and the rotary carbon supports carried by the respective frames, the support on the movable frame having a limited independent movement, of the solenoid on the movable frame for moving the support to separate the carbons and form the arc, a feed mechanism gearing with the movable frame and carbon supports respectively, and a feed magnet controlling the feed mechanism, whereby the carbons are simultaneously rotated and advanced toward each other; substantially as described.



3. In an electric lamp, the combination with the stationary and movable frames, the rack bar on the latter, the feed gear on the stationary frame in gear with the rack bar, and the feed magnet, of the relatively fixed and movable carbon supports carried respectively by the stationary and movable frames and the solenoid for lifting the movable support to form the arc carried by the movable frame; substantially as described.

4. In an electric lamp, the combination with the rotary supports upon which the carbons are mounted, movable toward and from each other, and the insulated sprocket wheel for one carbon, of a feed magnet and a chain driven thereby meshing with the sprocket wheels on both rotary carbon supports for simultaneously rotating them without establishing an electrical connection between them; substantially as described.

5. In an electric lamp, the combination with the stationary frame, the movable frame sliding thereon, with the depending carbon supports on said frames respectively, and the upwardly extending rack bar on the movable frame, of the feed magnet and train of gearing on the stationary frame in mesh with the rack bar for advancing the movable frame, the solenoid on the movable frame, and a clutch connection operated thereby for moving the depending carbon support with relation to said movable frame for forming the arc; substantially as described.

6. In an electric lamp, the combination with the stationary and movable carbon supports, of a clutch connection for the movable support consisting of the U-shaped spring member, the grooved eccentrics journaled therein, the inverted U-shaped spring link member connected with the eccentrics, the pivoted operating lever with which said spring links are connected, the solenoid and plunging core for operating said lever; substantially as described.

7. In an electric lamp, the combination with the stationary frame having the depending supports with the rotary support at the lower end upon which one carbon is mounted, and the movable frame having the depending supports with the rotary support at the lower end, upon which the other carbon is mounted, and the rack bar supporting the movable frame, of the feed magnet in shunt with the carbons, a ratchet wheel driven by said feed magnet, a feed chain moved thereby and cooperating with both rotary supports upon which the carbon is mounted, and a train of gearing interposed between said ratchet

wheel and rack bar for advancing the movable frame; substantially as described.

8. In an electric lamp, the combination with the carbon supports and feed gearing, of the feed magnet wound in two sections in shunt with each other and both in shunt with the carbons, a vibrating magnet in circuit with one of the windings of the feed magnet, an armature for the feed magnet and contacts controlled by said armature for interrupting the circuit through the vibrating magnet; substantially as described.

9. In an electric lamp, the combination with the stationary frame, having the depending supports, the movable frame sliding thereon, with the depending and independently movable support and the solenoid for moving said support, of the feed gearing, the feed magnet in shunt with the arc, the yoke armature adapted to embrace said magnet when operated thereby, the lever connected with said armature and the adjustable spring for regulating the movement of the armature; substantially as described.

10. In an electric lamp, the combination with the stationary frame having the depending supports with the transverse rotary support at the bottom upon which the carbon is mounted, of the movable frame having the upwardly projecting rack bar and the depending supports, with the transverse rotary support upon which the carbon is mounted, of the feed gearing on the stationary frame having a feed chain for driving the rotary supports and a pinion meshing with the vertical rack on the movable frame and the feed magnet for operating the feed gear, said magnet being in shunt with the arc; substantially as described.

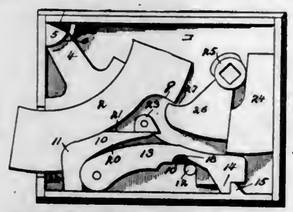
11. In an electric lamp, the combination with the base or stationary frame, and the movable frame, sliding thereon with the insulated depending supports, of the leading in wire connected with said supports, a solenoid for forming the arc connected with the leading out wire and with the stationary frame and a feed magnet connected with the leading in wire and with said frame, whereby said feed magnet is in shunt with the arc and the entire current is caused to pass through the solenoid; substantially as described.

12. In an electric lamp, the combination with the stationary frame having the depending supports and the movable frame sliding on the stationary frame and having the depending support, of the solenoid on the movable frame, the lever operated by said solenoid with a clutch connection between said lever and the depending support, the feed magnet and a cut out having one contact connected with the leading in wire and the other moved by said lever, whereby when the solenoid is energized said contacts are brought together and the feed magnet put in circuit; substantially as described.

13. In an electric lamp, the combination with the stationary frame having the depending carbon supports, the movable frame sliding on the stationary frame with the depending carbon supports thereon, the solenoid and the lever operated thereby with a clutch connection between said lever and support depending from the movable frame, of the feed magnet, a contact in connection with the leading in wire, a second contact in connection with the feed magnet, a spring for advancing said contact to establish the feed magnet circuit and a pin or projection on said contact cooperating with the lever, whereby when the solenoid is energized the feed magnet circuit is established and vice versa; substantially as described.

14. In an electric lamp, the combination with the depending supports, of the horizontal supports carried thereby and projecting beyond the depending supports at one end, with disk carbons secured on said projecting ends at angles to each other; substantially as described.

519,284. COMBINED LATCH AND LOCK. NATHAN B. GREGORY, Joplin, Mo., assignor of one-half to Elbridge B. Hobson and George E. James, same place. Filed Mar. 31, 1893. Serial No. 468,462. (No model.)



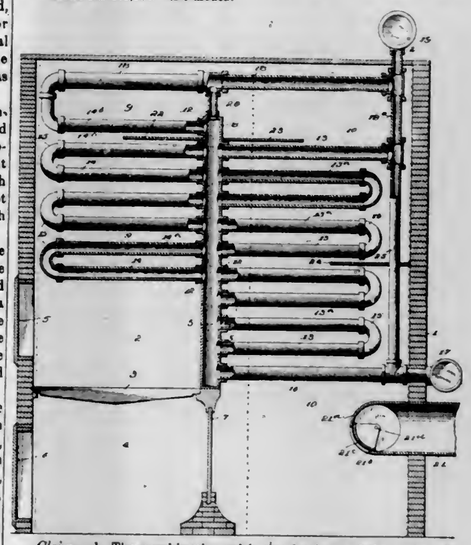
Claim.—1. The combination of a casing provided at a point above its bolt-opening with a seat having a curved flange 8, of a segmental bolt provided with a radial arm having a convexed shoulder to fit the concaved surface of said flange, and means for retracting the bolt, substantially as specified.

2. The combination with a casing having an angular seat 7, of a reversible, right and left segmental gravity bolt, provided with a radial arm having an angular head which is shouldered upon opposite sides to engage a segmental flange of said seat, and means to retract said bolt, substantially as specified.

3. The combination with a swinging segmental bolt provided with a pivoted arm and having shoulders, 9, in its convex side, of a horizontally slidable locking-bar provided with a head to engage a shoulder 9, pivotal tumblers arranged between parallel webs carried by the locking-bar and provided with projections to engage stationary lug, and a weight resting upon the free terminals of said tumblers, substantially as specified.

4. The combination of a reversible segmental gravity bolt operating upon a concentric pivot and provided in its convex side with shoulders, 9, a tumbler-controlled locking-bar slidably mounted in operative relation with the bolt to engage one of said shoulders, and an operating lever, 26, arranged to engage the remaining shoulder, substantially as specified.

519,285. BOILER. CHARLES S. HOPKINS, Arlington, N. J., assignor to the Electric Boiler Company, Rochester, N. Y. Filed May 9, 1893. Serial No. 473,567. (No model.)



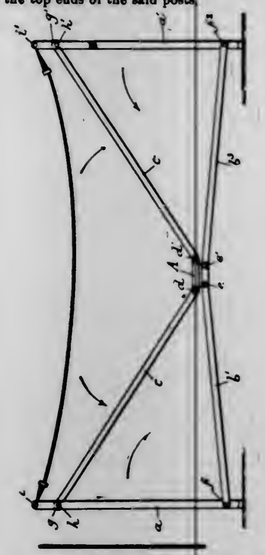
Claim.—1. The combination with the fire-box, of the series of stand-pipes conjunctively forming a water-back for the fire-box, a front series of circulating pipes connected with the said series of stand-pipes and located above the fire-box, a rear series of circulating pipes also connected with said series of stand-pipes, lower supply pipes connected to said stand-pipes and upper eduction pipes extending from front to rear of the casing and communicating with each stand pipe, and a smoke-pipe whereby the products of combustion are permitted to pass up through the spaces between the front circulating pipes over the series of stand-pipes, down through the space between the rear circulating pipes, and out through the smoke pipe, substantially as set forth.

2. The combination of the series of stand-pipes conjunctively forming a water-back for the fire-box, circulating pipes, some of which are located above the fire box and others at the rear, each stand pipe and its circulating pipes forming a section, eduction pipes located above the stand-pipes, spaced pipes connecting the eduction pipes and series of stand pipes, and arranged to permit the passage of the products of combustion between them and over the series of stand pipes, substantially as set forth.

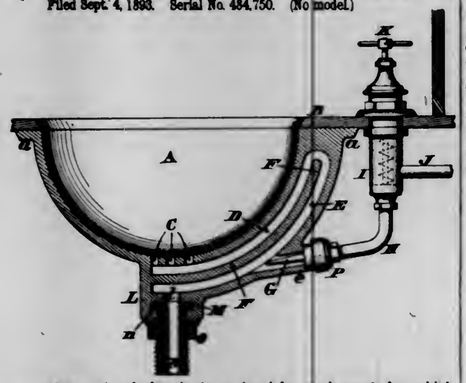
3. In a water-tube boiler, a group of sections, each section being separate and distinct from the other, and stand-pipes provided with circulating-pipes, said stand-pipes being arranged closely together and conjunctively forming a water-back for the firebox, and said circulating pipes being staggered and arranged in pairs so that the top pipes of the pairs on one side of each stand pipe will be opposite the bottom pipes of the pairs on the opposite side thereof, substantially as set forth.

519,286. FOLDING FRAME FOR HAMMOCKS. ALBERT KARNBACH, Barby, Germany. Filed Aug. 23, 1893. Serial No. 483,840. (No model.)

Claim.—The combination of the end posts *a a'*, the lower stays *b' b² b³ b⁴* pivoted to the outside of the lower part of said end posts and bent to correspond in shape with the same when folded together and pivoted also to the central joint block A, the ties *c c'* pivoted to the block A, as described, at *d d'* and having hooks at their farther ends, suitable attachment devices *h h'* at the upper part of the said end posts over which said tie hooks engage and means for suspending the hammock from the top ends of the said posts.



519,287. WASHBASIN. JOHN F. LAMPING, Cincinnati, Ohio. Filed Sept. 4, 1893. Serial No. 484,750. (No model.)

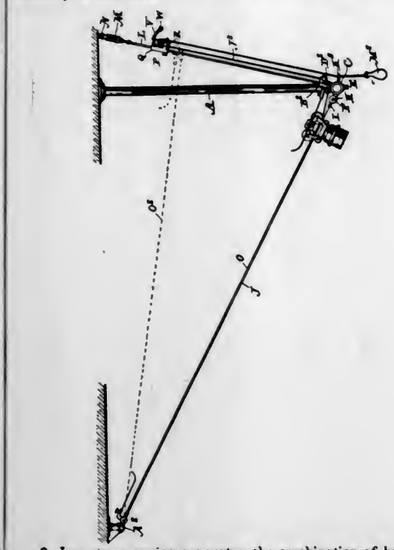


Claim.—A valveless basin or bowl for wash-stands &c., which basin has an integral siphon consisting of an ascending channel D, and descending channel E, separated by an imperforate partition F, outlets C, *l*, communicating, respectively, with the lower ends of said channels D, E, a passage leading into the channel E, an injector inserted within this passage, and a cock that controls the flow of water through said injector, for the purpose described.

519,288. STORE-SERVICE APPARATUS. DAVID LIPPY, Mansfield, Ohio, assignor to Charles T. McCue, same place. Filed Mar. 18, 1893. Renewed Mar. 31, 1894. Serial No. 506,955. (No model.)

Claim.—1. In a store service apparatus, the combination of hangers or supports, a foot secured to one of said hangers, a track wire secured to said foot, a propelling wire placed above said track wire and a guide wire, the said propelling wire being adapted to slide upon said guide wire, which latter is secured at its lower end to said foot, and by its upper end to any suitable mechanism in the ceiling, whereby a car can be propelled up any grade, substantially as described.

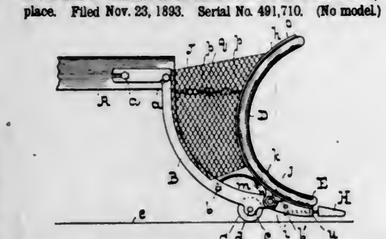
2. In a store service apparatus, the combination of suitable hangers or supports, a foot secured to one of said hangers, a guide wire, a sleeve adapted to slide on said guide wire, a stationary track wire secured to said foot, a propelling wire secured to said sleeve, an operating cord attached to said sleeve, an adjustable friction pulley mechanism adapted to be secured at any desired point on the guide wire, the operating cord passed through the friction pulley mechanism and adapted to automatically release its grip on the operating cord as the latter is pulled upon by the operator and to automatically grip the operating cord again when the latter is released by the operator, substantially as described.



3. In a store service apparatus, the combination of hangers or supports, a track wire connected to said support, a propelling wire placed above the track wire and a guide wire, said propelling wire extending from station to station and adapted to spread by sliding up the guide wire, and means for sliding the propelling wire up the said guide wire, substantially as described.

4. In a store service apparatus, a pulley mechanism comprising a sleeve having a slotted arm, a frame pivoted in said arm, pulleys on the frame arranged one above the other, a rod secured to the upper portion of the sleeve and passing through the upper end of the pivoted pulley frame, and a compression spring, substantially as described.

519,289. WHEEL GUARD OR FENDER FOR CARS. JAMES F. MORTON, Baltimore, Md., assignor, by direct and mesne assignments, of one-half to William H. H. Anderson and Nicholas S. Hill, Jr., same place. Filed Nov. 23, 1893. Serial No. 491,710. (No model.)

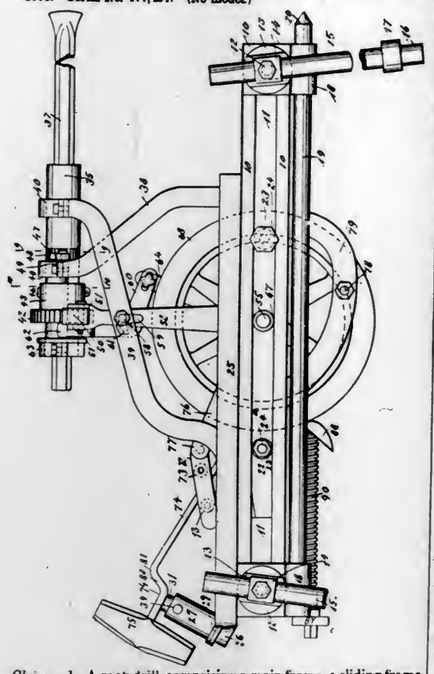


Claim.—1. In a wheel fender, the combination of supporting bars secured at their upper ends to the car platform, a cradle hinged near its lower end to the lower ends of the said supporting bars and springs to yieldingly hold the upper part of the cradle from or away from the said supporting bars, substantially as specified.

2. In a wheel fender, the combination of supporting bars secured at their upper ends to the platform of the car, a cradle hinged near its lower end to the said supporting bars, springs to yieldingly hold the upper end of the cradle from or away from the supporting bars, and locking mechanism having as an element thereof a guard which projects beyond or in front of the lower end of the cradle which upon being struck releases the cradle and admits of its being pressed back and the compression of the supporting springs, substantially as specified.

3. In a wheel fender, the combination of a tilting cradle, side curtains, and jointed bars adapted to bend in one direction only and thereby push out the said curtains as the cradle is tilted backward, substantially as specified.

519,290. ROCK-DRILL. GEORGE W. PICKETT, Denver, Colo., assignor of nine-sixteenths to Samuel Leeem, same place. Filed June 13, 1893. Serial No. 477,431. (No model.)



Claim.—1. A rock drill, comprising a main frame, a sliding frame held to move thereon, a revoluble and slidable drill holder carried by the sliding frame, a swinging hammer held to strike the drill in the holder, a lever mechanism slidably connected with the hammer shank for operating the hammer a revoluble driving shaft adapted to operate the hammer levers, a lever mechanism operated by the driving shaft for feeding the drill holder forward and back after each blow of the hammer, a ratchet mechanism operated by the driving shaft and adapted to turn the drill holder, and a screw mechanism operated by the mechanism of the hammer and adapted to feed forward the sliding frame at each blow of the hammer, substantially as described.

2. A rock drill, comprising a supporting frame, a revoluble and longitudinally movable drill holder carried by the frame and adapted to receive a drill, a revoluble driving shaft journaled in the frame, a swinging hammer arranged behind the drill holder and adapted to engage the drill, an eccentric-operated lever mechanism driven by the driving shaft and slidably connected with the hammer shank to swing the hammer, a ratchet mechanism operated by the driving shaft and arranged to turn the drill holder after each blow of the hammer, and a lever mechanism operated by the driving shaft for moving the drill holder and drill forward and back at each blow of the hammer, substantially as described.

3. A rock drill, comprising a main frame, a sliding frame held to move in the main frame and provided with drilling mechanism employing a swinging hammer, a screw operatively connected with the two frames and adapted by turning to move the sliding frame, a ratchet wheel keyed to the screw, and a pawl carried by the hammer shank and adapted to engage the ratchet wheel and turn the screw at each swing of the hammer, substantially as described.

4. In a rock drill, the combination with a pivoted hammer, of an eccentrically operated lever mechanism connected with and sliding on the hammer shank, substantially as described.

5. In a rock drill, the combination with a pivoted hammer, of an eccentrically operated lever mechanism having between the outer ends of two members of the same spaced stops, between which the hammer shank projects, substantially as described.

6. In a rock drill, the combination with a pivoted hammer shank, of eccentric-operated levers having spaced stops between their outer ends and between which the hammer shank projects, and pivoted guide levers having their upper ends pivoted to the eccentric-operated levers, substantially as herein shown and described.

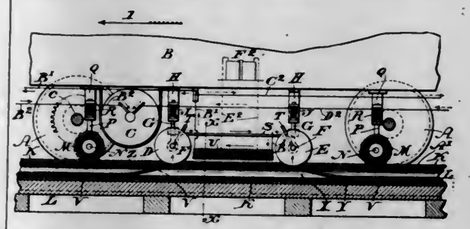
7. A rock drill, comprising a supporting frame, a driving shaft therein provided with eccentrics, a drill holder supported on the frame, a swinging hammer pivoted in the frame and adapted to strike a drill in the holder, the hammer arms or levers carried by the eccentrics and having rollers arranged before and behind the shank of the hammer, and guiding levers pivoted to the hammer levers and to a point on the frame forward of the driving shaft, substantially as described.

8. In a rock drill, the combination of the swinging hammer having a depending shank, the driving shaft having eccentrics thereon, the hammer levers carried by the eccentrics and arranged to embrace the hammer shank, and the guiding levers pivoted independently of and parallel with the driving shaft and also pivotally connected with the hammer levers, substantially as described.

9. In a rock drill, the combination with a main frame, and a sliding frame carried by said main frame, of a pivoted hammer, means for operating the hammer, a screw for operating the sliding frame, and a pawl and ratchet mechanism for operating the screw, the pawl being secured to the hammer shank, substantially as described.

10. In a rock drill, the combination, with the swinging hammer, of a socket arranged in the path of the hammer shank, a wool cushion arranged within the socket, and a substantially solid cushion held upon the wool cushion and adapted to engage the hammer shank on the return movement of the hammer, substantially as described.

519,291. ELECTRIC RAILWAY. WILLIAM B. PURVIS, Philadelphia, Pa., assignor of one-half to Halsey J. Tibbals, same place. Filed Apr. 14, 1893. Serial No. 470,290. (No model.)



Claim.—1. A tube composed of insulated sections, inside and outside tubes formed of non-conducting material and slotted, and a loose electric wire within said inside tube, said parts being combined substantially as described.

2. A car with hangers, axles mounted on rods guided in said hangers, springs in connection with said rods, wheels on said axles, a bar supported on said rods and carrying brushes contacting with said axles, and an electro magnet suspended from said bar, said parts being combined substantially as described.

3. A car, the spring-controlled wheels E and F supported by said car, the cross bar S, the electro magnet U, suspended from said bar, the motor C and the wires B' and B², said parts being combined substantially as described.

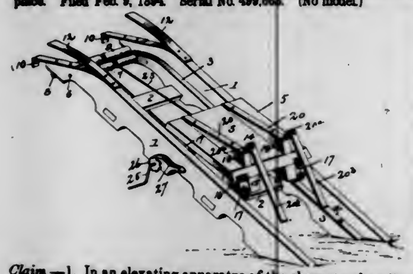
4. A car with hangers, a motor on said car, spring-controlled wheels depending from said car, an electro magnet suspended from said car, a switch board and wires substantially as described connecting said magnet, motor and switch board, said parts being combined substantially as described.

5. A car provided with the motor C, the switch board W, the bar S, the magnet U, the wire B' leading from the bar S to the magnet and switch board W, and the wire B² leading from said switch board to said motor, and the wire E² leading from a battery to said magnet, substantially as described.

6. A car provided with the motor C, the switch board W', the wire C², the wire B' connected with said wire C² and the wire D² leading from said switch board to said motor, a magnet, wheels on said cars, a bar connected with the bearings of said wheels, and brushes on said bearings, in combination with a conduit having a tube with which said wheels are in contact, and a raising and lowering electric conductor in said tube, substantially as described.

7. A car provided with the wheels D, E, the bar S connecting the bearings of said wheels, the brushes T on said bar, contacting with the studs F of said bearings, the wire B', a magnet which is connected with said wire and said bar, and a motor in combination with a conduit tube and an electric conductor therein, said tube being exposed to said wheels D and E, substantially as described.

519,292. ELEVATOR. GEORGE QUACKENBUSH, Whitehall, Wis., assignor of two-thirds to Alonzo C. Knight and Thomas R. Phillips, same place. Filed Feb. 9, 1894. Serial No. 499,663. (No model.)



Claim.—1. In an elevating apparatus of the character described, the combination with the beams having their upper ends beveled, the forwardly extending springs secured to the said beams and the tracks having their upper ends curved, of the carriage, the rope or cable secured thereto and the windlass; substantially as specified.

2. In an elevating apparatus, the combination with the beams, having beveled upper ends, the forwardly extending springs, secured to said beams, the transverse rollers and the tracks having curved upper ends, of the carriage, having hooks on its under side adapted to engage with one of said rollers, the rope or cable secured to said carriage and the windlass; substantially as specified.

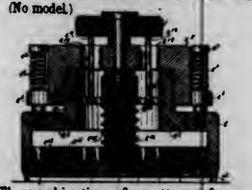
3. In an elevating apparatus, the combination with the beams, having their upper ends beveled and provided with forwardly projecting springs the rollers and the tracks having their upper ends curved, of the carriage comprising the wheels, the platform, and the bent rails secured to said platform and the rope or cable and windlass; substantially as specified.

4. In an elevating apparatus, the combination with the beams having their upper ends beveled and provided with forwardly extending springs, the rollers, the tracks having their upper ends curved, and the rope or cable and the windlass, of the carriage comprising the platform, the wheels, the hooks, for limiting the movement of the carriage and the bent rails secured to the platform; substantially as described.

5. A carriage for an elevating apparatus comprising the platform, the wheels and axles, and the rails 20, secured to said platform and formed with shoulders 20^a and tracks 20^b; substantially as specified.

6. A carriage for an elevating apparatus, comprising the platform, the wheels and axles, the hooks on the under side, and the rails 20 secured to said platform and bent at or near their centers to form shoulders 20^a and tracks 20^b; substantially as specified.

519,293. CRACKER-CUTTER. LUCIUS A. ROCKWELL and WOLCOTT A. HULL, New York, N. Y.; said Rockwell assignor to Fowler & Rockwell, same place. Filed Feb. 18, 1892. Renewed Jan. 17, 1894. Serial No. 497,199. (No model.)



Claim.—1. The combination of a cutter or former having two telescopic sections, one provided with an opening and the other provided with a valve and a reciprocating bar to which one of said sections is connected, substantially as specified.

2. The combination of a cutter or former having two telescopic sections, one provided with an opening and the other provided with a valve, a reciprocating bar to which one of said sections is connected and springs for producing such relative adjustment between the two sections as to cause the said valve to close the said opening, substantially as specified.

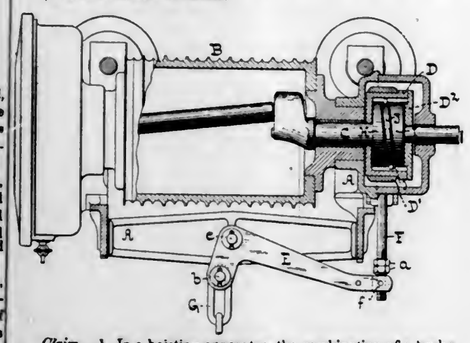
3. The combination of an air box and a cutter composed of two telescopic sections, one having a valve and the other an opening and one of said sections having an opening communicating with the air box, substantially as specified.

4. The combination with a reciprocating bar, of a cutter or former having two telescopic sections provided respectively with an opening and a valve, and one of which is attached to the reciprocating bar and a valve for controlling the communication of that section which is connected with the reciprocating bar with a source of air or other gas, substantially as specified.

5. In a cutter or former, a section provided with a valve and another section provided with an opening or seat, the two sections being so constructed that air may act upon the one to cause the opening of said valve, substantially as specified.

6. In a cutter or former, two telescopic shells one provided with a valve and the other with a valve opening and combined so that upon the expansion of the shells, the valve will open and upon the contraction of the shells the valve will close, substantially as specified.

519,294. HOISTING APPARATUS. WILLIAM ROTH, New York, N. Y., assignor to T. Shriver & Co., same place. Filed Oct. 11, 1893. Serial No. 487,894. (No model.)



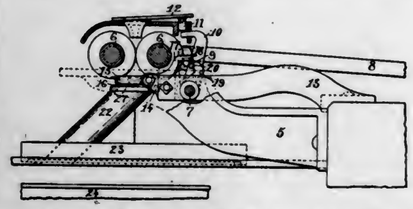
Claim.—1. In a hoisting apparatus, the combination of a brake drum arranged in line with the winding drum, a lever pivoted below the drum and having the end of the lifting chain attached to one arm thereof, a brake strap encompassing the brake drum, and a rod connecting the second arm of the lever with the brake strap, substantially as described.

2. In a hoisting apparatus, a brake drum mounted loosely on the shaft and containing an oblique side cam H made fast to the shaft and provided with a tooth h, and a second oblique cam I opposite to cam H, loosely mounted on the shaft and provided with an abutment i opposite to tooth h, combined with a lever having one arm connected to the brake strap of the drum and the other arm to the lifting chain, substantially as described.

3. In a hoisting apparatus, the combination, with the brake drum loosely mounted on the shaft, of the oblique side cam H made fast to the shaft and provided with a tooth h, and a second oblique cam I opposite cam H, loosely mounted on the shaft and provided with an abutment i opposite to the tooth h, substantially as and for the purpose set forth.

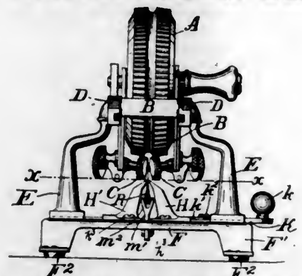
4. In a hoisting apparatus, the combination with the brake drum loosely mounted on the shaft, of the oblique side cam H made fast to the shaft and provided with a tooth H, a second oblique cam I opposite cam H, loosely mounted on the shaft and provided with an abutment i opposite to the tooth h, and a ring cross J between said cams and held from rotating, substantially as described.

519,295. STOP-MOTION. CYRUS A. TAFT, Whitinsville, Mass., assignor to the Whitin Machine Works, same place. Filed Feb. 24, 1892. Serial No. 422,647. (No model.)



Claim.—In a full can stop-motion for drawing-frames, the combination with the coiler and its tunnel and a vibrating arm connected to stopping mechanism, of a pivoted lever, a rider, connected with the forward part of the lever, said rider having inclined sides adapted to ride on the flange surrounding the inlet end of the tunnel, the rear end of the lever forming a stop adapted to engage with the vibrating arm so that the drawing-frame will be stopped automatically when the can is full and also when the sliver accumulates above the tunnel, as described.

519,296. RAZOR HOLDING AND ADJUSTING DEVICE FOR SHARPENING-MACHINES. CHARLES A. WORDEN, U. S. Army, assignor to the Worden Machine Company, Omaha, Nebr., and New York, N. Y. Filed Feb. 23, 1894. Serial No. 501,233. (No model.)



Claim.—1. In a machine of the character described, the combination with a slotted base plate of two sliding jaws mounted on said base plate, one of said jaws having a cavity in the base thereof, and the opposite jaws having lugs projecting into said cavity, of levers pivoted to the jaw in the cavity thereof, lugs on the opposite jaw adapted to bear against said levers, a projection on the base plate adapted to bear against the opposite ends of said levers, and means for pressing one of said jaws toward the other on said base plate, and so moving both jaws toward the closed position, substantially as and for the purposes described.

2. In a machine of the character described, the combination with a slotted base plate of two sliding jaws mounted on said base plate, one of the said jaws having a cavity in the base thereof, and the opposite jaws having lugs projecting into said cavity, of levers pivoted to the jaw in the cavity thereof, lugs on the opposite jaw adapted to bear against said levers, a projection on the base plate adapted to bear against the opposite ends of said levers, a cam mounted on said base plate and adapted to move one of said jaws, and a cam lever for operating said cam, substantially as and for the purposes described.

3. A razor holding and adjusting device for use in machines of the character described, consisting of means for nipping the sides of the razor blade, and a lever pivoted near its center and having an upwardly projecting arm adapted to hold the back of the razor blade, with an adjusting device near the opposite end of said lever, and equidistant with the razor supporting arm from said pivot, substantially as and for the purposes described.

4. A razor holding and adjusting device for use in machines of the character described, consisting of means for nipping the sides of the razor blade, and a lever pivoted near its center and having an upwardly projecting arm with a groove therein adapted to hold the back of the razor blade, with an adjusting device provided with a similar groove near the opposite end of said lever, and equidistant with the razor supporting arm from said pivot, and a device near said groove for moving said lever, substantially as and for the purposes described.

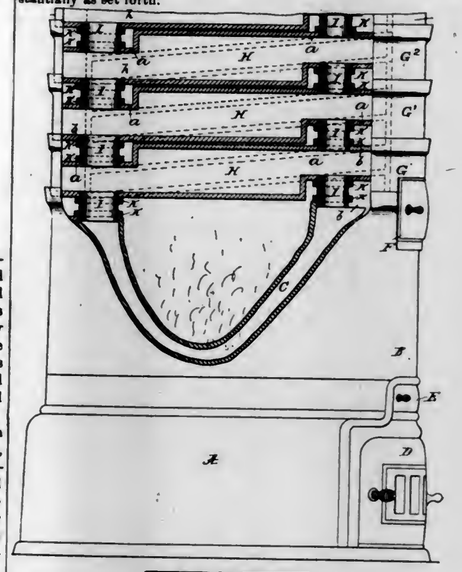
5. A razor holding and adjusting device for use in machines of the character described, consisting of means for nipping the sides of the razor blade, and a lever pivoted near its center and having an upwardly projecting arm with a groove therein adapted to hold the back of the razor blade, with an adjusting device provided with a similar groove near the opposite end of said lever, and equidistant with the razor supporting arm from said pivot, and a device near said groove for moving said lever, and projecting above said second groove the same distance that the opposite groove is below the center of the sharpening buttons, substantially as and for the purposes described.

519,297. SECTIONAL BOILER OR HEATER. ALBERT C. A. BAUER and FREDERICK D. JOHNSON, Utica, N. Y., assignors to Russel Wheeler and Frank E. Wheeler, same place. Filed June 14, 1893. Serial No. 477,616. (No model.)

Claim.—1. The combination in a sectional boiler, of sections having water ways running across them from side to side upon an inclination, pockets for the reception of nipples made in said sections and connecting with the water ways at their upper and lower ends, and nipples connecting the several sections within the said pockets, said pockets being within the peripheral lines of the sections, substantially as set forth.

2. A section for a boiler or heater, having inclined water ways, extending across it from its lower to its upper surface, recesses or pockets for the reception of nipples, one of them extending upwardly beneath the higher ends of the water ways and the other extending downwardly over their lower ends, substantially as set forth.

3. The combination in a boiler of a series of horizontal sections, each having inclined water ways, which extend from their lower to their upper surfaces, recesses or pockets in the several sections beneath the higher ends and above the lower ends of the inclined water ways, and within the peripheral line of the sections and nipples connecting the said sections within said pockets or recesses, substantially as set forth.



519,298. RAILWAY-SWITCH. HENRY C. BENAGH, Nashville, Tenn., assignor, by mesne assignments, to the Johnson Company, Johnstown, Pa. Filed May 26, 1893. Serial No. 475,546. (No model.)



Claim.—1. In a railway tongue switch, a movable tongue having its pivotal pin rigidly secured thereto and having a recess or offset in one end to engage a holding-down plate.

2. In a railway tongue switch, a movable tongue having its pivotal pin rigidly secured thereto and an extending portion thinner than the body of the tongue, said portion being adapted to extend under a plate secured to the frame of the switch.

3. In a railway tongue switch in combination with the main frame of the switch, a movable tongue having a horizontal recess and adapted to swing on a vertical pivot rigidly secured to said tongue, a removable plate adapted to engage said recess and means as a bolt for tightening down the tongue by means of the plate.

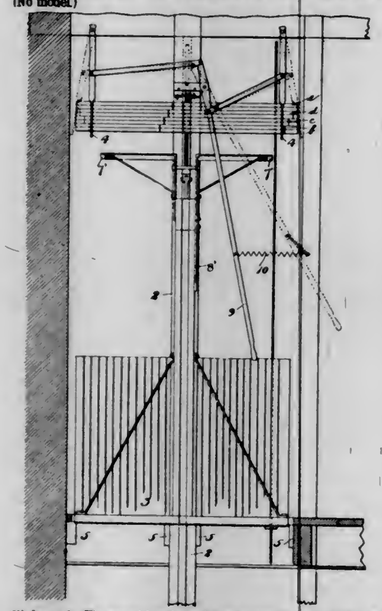
4. In a railway tongue switch of the character described, in com-

bination with the body of the switch having a vertical socket, a pivoted tongue the pivot pin of which is rigidly secured to said tongue and adapted to turn in said socket, and a holding-down plate adapted to overlap a portion of the tongue and hold it in place, said plate being secured to the body of the switch.

5. In a switch the combination of a switch block provided with a socket, and with a shoulder having a semi-circular recess, a switch tongue having its end formed to fit the recess and provided with a boss to enter the socket, and a plate applied to the upper side of the shoulder and having its end extended beyond the end of the same over the tongue and serving to hold the same in place.

6. In a switch the combination of a switch block provided with a socket, and with a shoulder having its end recessed, a switch tongue having its end formed to enter the recess provided with a depending boss to enter the socket and having its upper side cut away to form a shoulder, and a plate applied to the first named shoulder, the end of said plate extending beyond the shoulder in the cut away portion of the tongue.

519,299. ELEVATOR-HATCH. SILAS W. BLANCHARD and WILLIAM A. LAMBIE, Pittsburg, assignors of one-third to George Washington Porter, Allegheny, Pa. Filed Sept. 24, 1893. Serial No. 446,784. (No model.)



Claim.—1. The combination of an elevator car, a series of hatch-guards above the same and adapted to be carried thereby, means for upholding the hatch-guards respectively at the several floors, a hatch-guard-upholder at the top of the elevator-shaft, and automatic means for retracting the hatch-guard-upholder when the hatch-guards are lifted therefrom; substantially as described.

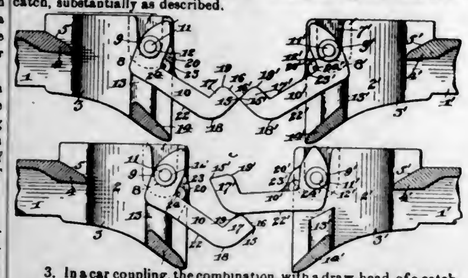
2. The combination of an elevator car, a series of hatch-guards above the same and adapted to be carried thereby, means for upholding the hatch-guards respectively at the several floors, and swinging yokes at the top of the elevator-shaft adapted to fit under and uphold the hatch-guards and means for retracting the yokes automatically; substantially as described.

3. The combination of an elevator car, a series of hatch-guards above the same and adapted to be carried thereby, means for upholding the hatch-guards respectively at the several floors, yokes for upholding the hatch-guards at the top of the elevator-shaft, and automatic means for retracting the yokes when the hatch-guards are lifted therefrom by the elevator; substantially as described.

519,300. CAR-COUPLING. PHILIP C. BROWN, Washington, D. C. Filed Aug. 24, 1893. Serial No. 483,969. (No model.)

Claim.—1. In a car coupling, the combination, with a draw-head, of a catch pivoted thereon, having a hook at its long end a lip for engagement with such a hook at its short end, and a convex surface between the lip and hook forming, when said hook extends outwardly from the draw-head, an upwardly and rearwardly inclined surface for engaging and reversing the catch pivoted on the opposite drawhead, substantially as described.

2. In a car coupling, the combination, with a drawhead of a catch pivoted thereon, having a hook at its long end, and a lip for engagement with such a hook at its short end, said lip and the surface, adapted to engage therewith, of said hook extending divergently from said catch, substantially as described.



3. In a car coupling, the combination, with a draw-head, of a catch pivoted to swing longitudinally thereon, reversible end for end, projecting beyond the drawhead in one position, and having a hook at such projecting end, having on its upper side when so projecting a surface rising from the surface immediately behind said hook, substantially as described.

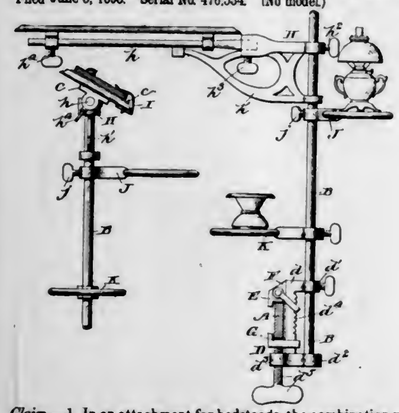
4. In a car coupling, the combination, with a draw-head, of a catch pivoted thereon, reversible end for end, the opposite ends on two such catches on opposite draw-heads engaging one another to couple the cars, and there being opposite surfaces on two such catches which engage each other, as the draw-heads come together, to automatically reverse one of said catches, substantially as described.

5. In a car coupling, the combination, with a pair of draw-heads, of catches pivoted thereon to turn end for end about a transverse axis, each catch having an upper surface which co-operates with an under surface, on the other catch, both catches pointing outward from the drawheads forcing the latter catch over on its pivot, substantially as described.

6. In a car coupling, the combination, with a draw-head, of a catch pivoted about a transverse axis thereon, and a shoulder on a side wall of the draw-head having a forwardly and downwardly inclined upper face upon which the catch rests, substantially as described.

7. In a car coupling, the combination, with a draw-head, having recessed sides forming bearings, of a catch having hubs mounted in said bearings, and a bolt, passing through said catch and hubs and said sides, substantially as described.

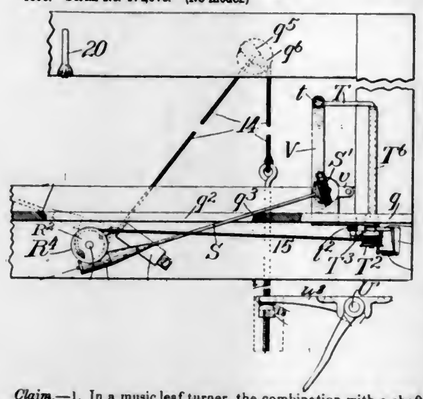
519,301. ATTACHMENT FOR BEDSTEADS. EDWARD BRULÉ, Neillsville, Wis., assignor of one-third to Thomas Thompson, same place. Filed June 3, 1893. Serial No. 476,534. (No model.)



Claim.—1. In an attachment for bedsteads, the combination with a book support and its supporting rod, of a supporting clamp adjustably mounted on said rod and consisting of a rack portion, a clamping block sliding on the upper part of said portion and provided with a pivoted stirrup engaging said rack, a clamping block sliding on the lower portion of said rack, and a clamping screw mounted in an extension of said rack and adapted to actuate said lower clamping block substantially as described.

2. In an attachment for bedsteads, the combination of a vertical supporting rod, a book supporting bracket adjustably mounted thereon, an extension portion adjustably connected to said bracket, a book support provided with lugs adjustably mounted on said extension so that said support can be adjusted in inclination and longitudinal position, a supporting clamp adjustably mounted on said supporting rod and consisting of an adjustable rack portion, a clamping block sliding on the same and provided with a pivoted stirrup arranged to engage said rack, and a clamping screw attached to a portion of said rack, substantially as described.

519,302. MUSIC-LEAF TURNER. JOHN W. DARLEY, Jr., Baltimore, Md., assignor of one-half to David E. Evans, Philip Hamburger, Michael Holzman, and Leon Hamburger, same place. Filed May 20, 1893. Serial No. 474,970. (No model.)



Claim.—1. In a music leaf turner, the combination with a shaft and means for revolving said shaft in alternate directions through any desired angle, of a spiral gearwheel rigidly attached to said shaft, a frame revolubly mounted on said shaft and having a limited angular motion relative to said gear wheel, a rolling wire mounted in said frame; an adhesive tip attached to said wire and adapted to bear on the music sheet, and a spiral pinion meshing in said gear wheel, and rigidly mounted on said rolling wire, substantially as and for the purposes described.

2. In a music leaf turner, the combination with a shaft and means for revolving said shaft in alternate directions through any desired angle, of a spiral gearwheel rigidly attached to said shaft, a frame revolubly mounted on said shaft and having a limited angular motion relative to said gear wheel, the said frame being provided with a slot parallel to the axis of said shaft, a rolling wire pivoted in said frame and having its rear end projecting through said slot and its front end provided with an adhesive tip adapted to bear on the music sheet; and a spiral pinion meshing in said gear wheel and rigidly mounted on said rolling wire, substantially as and for the purposes described.

3. In a music leaf turner, the combination with a rolling wire provided with an adhesive tip adapted to engage the leaf, and a pivoted catch adapted to pass behind said leaf, of a spring normally pressing said tip on said leaf, and means for increasing the pressure of said tip on said leaf, of revolving said wire, and of swinging the said wire and turning said leaf, substantially as described.

4. In a music leaf turner, the combination with a shaft and means for revolving said shaft in alternate directions through any desired angle, of a spiral gear wheel rigidly attached to said shaft, a stop attached to said gear wheel a frame revolubly mounted on said shaft and having a curved slot therein adapted to engage said stop and allow a limited angular motion relative to said gear wheel, a rolling wire mounted in said frame; an adhesive tip attached to said wire and adapted to bear on the music sheet, and a spiral pinion meshing in said gear wheel, and rigidly mounted on said rolling wire, substantially as and for the purposes described.

5. In a music leaf turner, the combination with a shaft and means for revolving said shaft in alternate directions through any desired angle, of a spiral gear wheel rigidly attached to said shaft, a stop attached to said gear wheel, a frame revolubly mounted on said shaft and having a curved slot therein adapted to engage said stop and allow a limited angular motion relative to said gear wheel, the said frame being provided with a slot parallel to the axis of said shaft; a rolling wire pivoted in said frame and having its rear end projecting through said slot and its front end provided with an adhesive tip adapted to bear on the music sheet; and a spiral pinion meshing in said gear wheel and rigidly mounted on said rolling wire, substantially as and for the purposes described.

6. In a music leaf turner, the combination with a pivoted rolling wire provided with an adhesive tip adapted to engage the leaf, and a pivoted catch mounted on said tip and adapted to pass behind said leaf, of a spring normally pressing said tip on said leaf, means for pressing the inner end of said wire outward and the outer end carrying said tip inward and so increasing the pressure of said tip on said leaf, of revolving said wire, and of swinging the said wire and turning said leaf, substantially as described.

7. In a music leaf turner, the combination with a shaft, of a pulley on said shaft, a system of cords and pulleys and a lever or knee swell and an operating spring connected thereto, for revolving said shaft in alternate directions through any desired angle, of a spiral gear wheel rigidly attached to said shaft, a stop attached to said gear wheel, a frame revolubly mounted on said shaft and having a curved slot therein adapted to engage said stop and allow a limited angular motion relative to said gear wheel, a frame revolubly mounted on said shaft and having a curved slot therein adapted to engage said stop and allow a limited angular motion relative to said gear wheel, a rolling wire mounted in said frame; an adhesive tip attached to said wire and adapted to bear on the music sheet, a spiral pinion meshing in said gear wheel, and rigidly mounted on said rolling wire, and a vertical shaft connected to said operating spring and provided with a holding arm and means for releasing said arm as said rolling wire is swung over, substantially as and for the purposes described.

8. In a music leaf turner, the combination with a shaft, of a pulley on said shaft, a system of cords and pulleys and a lever or knee swell and an operating spring connected thereto, for revolving said shaft in alternate directions through any desired angle, a spiral gear wheel rigidly attached to said shaft, a stop attached to said gear wheel, a frame revolubly mounted on said shaft and having a curved slot therein adapted to engage said stop and allow a limited angular motion relative to said gear wheel, the said frame being provided with a slot parallel to the axis of said shaft; a rolling wire pivoted in said frame and having its rear end projecting through said slot and its front end provided with an adhesive tip adapted to bear on the music sheet; and a spiral pinion meshing in said gear wheel and rigidly mounted on said rolling wire, substantially as and for the purposes described.

9. In a music leaf turner, the combination with a shaft, of a pulley on said shaft, a system of cords and pulleys and a knee-swell or lever and an operating swing connected to said shaft for revolving said shaft in alternate directions through any desired angle, of a spiral gear wheel rigidly attached to said shaft, a stop attached to said gear wheel, a frame revolubly mounted on said shaft and having a curved slot therein adapted to engage said stop and allow a limited angular motion relative to said gear wheel, a rolling wire mounted in said frame; an adhesive tip attached to said wire and adapted to bear on the music sheet, a spiral pinion meshing in said gear wheel, and rigidly mounted on said rolling wire, and a vertical shaft connected to said operating spring and provided with a holding arm and means for releasing said arm as said rolling wire is swung over, substantially as and for the purposes described.

10. In a music leaf turner, the combination with a shaft, of a pulley on said shaft, a system of cords and pulleys and a knee swell or lever and an operating spring connected to said shaft for revolving said shaft in alternate directions through any desired angle, of a spiral gear wheel rigidly attached to said shaft, a stop attached to said gear wheel, a frame revolubly mounted on said shaft and having a curved slot therein adapted to engage said stop and allow a limited angular motion relative to said gear wheel, the said frame being provided with a slot parallel to the axis of said shaft; a rolling wire pivoted in said frame and having its rear end projecting through said slot, and its front end provided with an adhesive tip adapted to bear on the music sheet; and a spiral pinion meshing in said gear wheel rigidly mounted on said rolling wire, a vertical shaft connected to said operating spring and provided with a holding arm and means for releasing said arm as said rolling wire is swung over, substantially as and for the purposes described.

11. In a music leaf turner, the combination of a pivoted rolling wire provided with an adhesive tip adapted to engage the leaf, a pivoted catch mounted on said tip and adapted to pass behind said leaf, a curved lever pivoted on said tip and adapted to operate said catch, a spring normally pressing said tip on said leaf, means for pressing the inner end of said wire outward and the outer end carrying said tip inward and so increasing the pressure of said tip on said leaf, of revolving said wire, and of swinging the said wire and turning said leaf, substantially as described.

12. In a music leaf turner, the combination with a shaft, of a pulley on said shaft, a system of cords and pulleys and a lever or knee swell and an operating spring connected thereto, for revolving said shaft in alternate directions through any desired angle, of a spiral gear wheel rigidly attached to said shaft, a stop attached to said gear wheel, a frame revolubly mounted on said shaft and having a curved slot therein adapted to engage said stop and allow a limited angular motion relative to said gear wheel, a rolling wire mounted in said frame; an adhesive tip attached to said wire and adapted to bear on the music sheet, a pivoted catch and a curved lever for operating said catch both mounted on said tip, and a spiral pinion meshing in

said gear wheel, and rigidly mounted on said rolling wire, substantially as and for the purposes described.

13. In a music leaf turner, the combination with a shaft, of a pulley on said shaft, a system of cords and pulleys and a lever or knee swell and an operating spring connected thereto, for revolving said shaft in alternate directions through any desired angle, a spiral gear wheel attached rigidly to said shaft, a stop attached to said gear wheel, a frame revolubly mounted on said shaft and having a curved slot therein adapted to engage said stop and allow a limited angular motion relative to said gear wheel, the said frame being provided with a slot parallel to the axis of said shaft; a rolling wire pivoted in said frame and having its rear end projecting through said slot and its front end provided with an adhesive tip adapted to bear on the music sheet; a pivoted catch and a curved lever for operating said catch both mounted upon said tip; and a spiral pinion meshing in said gear wheel and rigidly mounted on said rolling wire, substantially as and for the purposes described.

14. In a music leaf turner, the combination with a shaft, of a pulley on said shaft, a system of cords and pulleys and a knee-swell or lever and an operating spring connected to said shaft, for revolving said shaft in alternate directions through any desired angle, of a spiral gear wheel rigidly attached to said shaft, a stop attached to said gear wheel, a frame revolubly mounted on said shaft and having a curved slot therein adapted to engage said stop and allow a limited angular motion relative to said gear wheel, a rolling wire mounted in said frame; an adhesive tip attached to said wire and adapted to bear on the music sheet, a pivoted catch and a curved lever for operating said catch both mounted upon said tip, a spiral pinion meshing in said gear wheel, and rigidly mounted on said rolling wire, and a vertical shaft connected to said operating spring and provided with a holding arm and means for releasing said arm as said rolling wire is swung over, substantially as and for the purposes described.

15. In a music leaf turner, the combination with a shaft, of a pulley on said shaft, a system of cords and pulleys, and a knee swell or lever and an operating spring connected to said shaft, for revolving said shaft in alternate directions through any desired angle, of a spiral gear wheel rigidly attached to said shaft, a stop attached to said gear wheel, a frame revolubly mounted on said shaft and having a curved slot therein adapted to engage said stop and allow a limited angular motion relative to said gear wheel, the said frame being provided with a slot parallel to the axis of said shaft; a rolling wire pivoted in said frame and having its rear end projecting through said slot, and its front end provided with an adhesive tip adapted to bear on the music sheet a pivoted catch and a curved lever for operating said catch both mounted upon said tip; and a spiral pinion meshing in said gear wheel rigidly mounted on said rolling wire, a vertical shaft connected to said operating spring and provided with a holding arm and means for releasing said arm as said rolling wire is swung over, substantially as and for the purposes described.

16. In a music leaf turner, the combination with a device for turning the leaves, of a leaf holding and releasing device comprising a shaft journaled in the music rack, an arm projecting from said shaft and adapted to hold the music, a second arm rigidly connected to said shaft, a pulley loosely journaled on said shaft, a spring connecting said second arm and said pulley, and means for revolving said pulley synchronously with the operation of the leaf turner, whereby said second arm is drawn first to one side and then to the opposite side by said spring, substantially as and for the purposes described.

17. In a music leaf turner, the combination with means for turning the leaves of a leaf holding and releasing device comprising the shaft T provided with the arms T and T^4 and the pulley T^2, and the spring T^3, the cord 15, and means for pulling on said cord synchronously with the operation of the leaf turner, whereby the music is alternately held and released, substantially as and for the purposes described.

18. In a music leaf turner, the combination with means for turning the leaves, of a leaf holding and releasing device comprising the shaft T bent as at T, the arm T^4 rigidly attached to said shaft, the pulley T^2 loosely journaled on said shaft, the cord 15 is wound on said pulley, the spring T^3 normally tending to revolve said pulley and wind up said cord, means for unwinding said cord against said spring, and a spring T^3 connecting said pulley T^2 and said arm T^4, substantially as and for the purposes described.

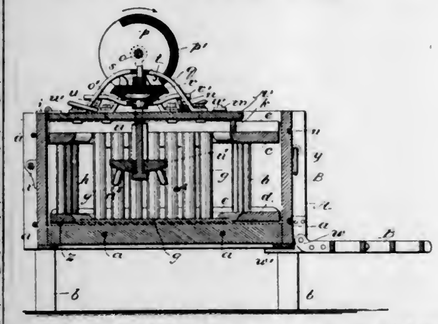
19. In a machine of the character described, the combination with a rolling wire and means for revolving the same, of an adhesive tip attached to said wire for lifting and turning the leaf, comprising a frame, a piece of rubber or other adhesive material in the form of a segment of a ring mounted in said frame, and a disk journaled on said wire at one side of said frame and extending nearly to the edge of said rubber piece, the said disk being adapted to clear the music when said rubber piece is lifting a leaf, and to bear upon the music at the beginning and end of the revolution of the rolling wire, substantially as and for the purposes described.

20. In a machine of the character described, the combination with a rolling wire and means for revolving the same, of an adhesive tip attached to said wire for lifting and turning the leaf, comprising a frame, a piece of rubber or other adhesive material in the form of a segment of a ring mounted in said frame, and a disk journaled on said wire at one side of said frame and extending nearly to the edge of said rubber piece, the said disk being adapted to clear the music when the said rubber piece is lifting a leaf, and to bear upon the music at the beginning and end of the revolution of the rolling wire, a pivoted catch mounted on said frame, and means for operating said catch, substantially as and for the purposes described.

21. In a machine of the character described, the combination with a rolling wire and means for revolving the same, of an adhesive tip attached to said wire for lifting and turning the leaf, comprising a frame, a piece of rubber or other adhesive material in the form of a segment of a ring mounted in said frame, and a disk journaled on said wire at one side of said frame and extending nearly to the edge of said rubber piece, the said disk being adapted to clear the music when the rubber piece is lifting a leaf, and to bear upon the music at the beginning and end of the revolution of the rolling wire, a pivoted catch mounted on said frame, a curved lever also pivoted on said frame and adapted to operate said catch, substantially as and for the purposes described.

22. In a machine of the character described, the combination with a rolling wire and means for revolving the same, of an adhesive tip attached to said wire for lifting and turning the leaf, comprising a frame, a piece of rubber or other adhesive material in the form of a segment of a ring mounted in said frame, and a disk journaled on said wire at one side of said frame and extending nearly to the edge of said rubber piece, the said disk being adapted to clear the music when the rubber piece is lifting a leaf, and to bear upon the music at the beginning and end of the revolution of the rolling wire, a pivoted catch lever having a downward projecting arm on one side of said frame and teeth on the opposite side of said frame, a lever pivoted to said frame provided with teeth adapted to engage with the teeth of the catch lever, and having a curved arm adapted to engage the sheets of music not being lifted, substantially as and for the purposes described.

519,303. WASHING-MACHINE. ANDREW ERBOR, Coplay, Pa. Filed Nov. 22, 1893. Serial No. 491,653. (No model.)

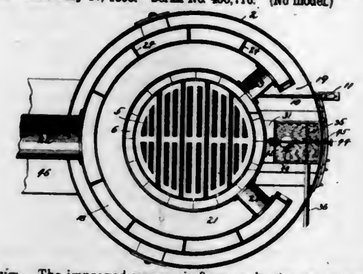


Claim.—1. In a washing machine, the combination with a suds box, and a shaft projecting into the suds box and carrying an agitator, of two wheels on a horizontal shaft mounted on the suds box and having gear segments on their inner faces, a beveled pinion mounted to slide on the upper end of the shaft carrying the agitator, but to turn therewith, a carrier bar for supporting the said pinion, and means for vertically adjusting said carrier bar, substantially as described.

2. In a washing machine, the combination, with the suds box, and a shaft projecting into the suds box and carrying and agitator of two spaced segmental driving wheels oppositely fixed on a rotary horizontal shaft, a beveled pinion supported on said shaft between the gear segments and alternately engaged therewith, studs on said pinion, and a stud on each segmental wheel near opposite terminals, which studs alternately impinge the studs on the beveled pinion, substantially as described.

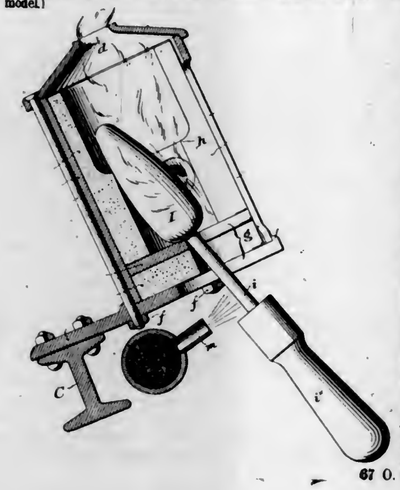
3. In a washing machine, the combination, with the suds box, two spaced segmental friction gear wheels mounted on a horizontal rotatable shaft supported on the lid of the suds box, an intermediate upright shaft projecting into the suds box, a slidable head at the lower end of said shaft, and a bevel-faced friction pinion at the upper end of said shaft, of rock arms on the lid, and a carrier bar arranged to press the pinion upwardly when the arms are rocked to lift the bar, substantially as described.

519,304. HOT-AIR FURNACE. GEORGE W. FRIDERICH, St. Louis, Mo. Filed July 17, 1893. Serial No. 480,716. (No model.)



Claim.—The improved warm air furnace, having an outer shell and a combustion chamber, an annular radiating-chamber 18, having its upper and lower ends closed, and located in the warm air-chamber surrounding said combustion-chamber, a smoke-pipe connection 22 passing through the outer shell and communicating with the interior of said radiating-chamber, short horizontal pipes 23 connecting the interior of said radiating-chamber at points adjacent its upper end, and remote from said smoke-pipe connection, with the interior of the combustion chamber, a series of parallel vertical partitions 24 arranged radially within said radiating-chamber with their inner edges secured to the inner wall of said chamber, and with their outer edges secured to the outer wall thereof throughout their lengths, said partitions being located one upon each side of the smoke-pipe opening and closely adjacent the same so as to form a pair of partitions in such location, and like ends of such pair being in contact with one end wall of said annular chamber, and the opposite ends of said pair being separated a distance from the opposite end of such chamber and forming a smoke-passage thereat and between said pair communicating with the smoke outlet and with spaces on each side of said pair, a partition 24 located in the annular chamber a distance in the rear of the opening of one short horizontal pipe 23, and having its upper end separated a distance from the top of said chamber and its lower end separated a distance from the bottom thereof, and another of said partitions similarly located adjacent another short horizontal pipe 23, the remaining partitions of the series being located intermediate the partitions just mentioned a distance apart and forming vertical smoke passages between each and horizontal passages at top and bottom ends of each partition thus intermediately located and spaced apart, the upper ends of the partitions 24, which are intermediate of the front and rear partitions being arranged to form a passage above, which gradually tapers or widens vertically from rear to front, and which connects with the upper ends of all the vertical passages between said partitions except the one at the rear, and a suitable fire-door and operative connections, substantially as herein specified.

519,305. HEATER FOR SOLDERING-IRONS, &c. GEORGE H. PERKINS, Philadelphia, Pa., assignor of one-half to the Atlantic Refining Company, same place. Filed Aug. 26, 1893. Serial No. 484,088. (No model.)



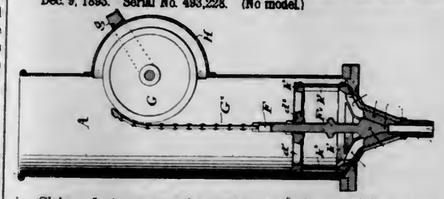
Claim.—1. A heater for soldering irons and kindred implements, which consists of a casing constituting a fire chamber embodying in its side wall an opening of sufficient size to admit the head of the implement and in its bottom a slot constituting an extension of said opening but of width less than the diameter of the head, combined with means for supplying fuel to said chamber, substantially as set forth.

2. A heater for soldering irons and kindred implements, which consists of a casing constituting a fire chamber embodying in its side wall an opening of sufficient size to admit the head of the implement and in its bottom, which is inclined from the horizontal, a slot constituting an extension of said opening but of width less than the diameter of the head, combined with means for supplying fuel to said chamber, substantially as set forth.

3. A heater for soldering irons and kindred implements, which consists of a casing constituting a fire chamber embodying in its side wall an opening of sufficient size to admit the head of the implement and in its bottom which is inclined from the horizontal a slot constituting an extension of said opening but of width less than the diameter of the head, a lining of fire brick within said chamber embodying a shoulder situated at a distance from the floor of the chamber less than the length of the head of the implement, combined with means for supplying fuel to said chamber, substantially as set forth.

4. In combination with a heater for soldering irons and kindred implements, comprising a casing constituting a fire chamber and adapted to receive the head of the implement, means of keeping the implement handle cool comprising a pipe in communication with a source of supply of air under pressure, the discharge nozzle of which is in such position that the handle of an implement will when its head is within the fire chamber, exist in front of said nozzle, substantially as set forth.

519,306. OIL-VALVE. GEORGE H. PERKINS, Philadelphia, Pa., assignor of one-half to the Atlantic Refining Company, same place. Filed Dec. 9, 1893. Serial No. 493,228. (No model.)



Claim.—1. In combination with a reservoir embodying an outlet, a reducer having a vertical bore and externally adapted to said outlet, and means for elevating the reducer to a position within the reservoir and clear of the outlet, substantially as set forth.

2. In combination with a reservoir embodying an outlet, a reducer having a vertical bore and externally adapted to said outlet, and a valve head adapted to the bore of the reducer, substantially as set forth.

3. In combination with a reservoir embodying an outlet, a reducer having a vertical bore and externally adapted to said outlet, a valve head adapted to the bore of the reducer, and means for withdrawing the valve head from the bore of the reducer and withdrawing the reducer from the reservoir outlet, substantially as set forth.

4. In combination with a reservoir embodying an outlet, a reducer having a vertical bore and externally adapted to said outlet, a valve head adapted to the bore of the reducer, and having an upwardly extending valve stem, means for occasioning the vertical movement of said valve stem, and a connection between said valve stem and the reducer, substantially as set forth.

5. A liquid reservoir the bottom of which is provided with a tubular outlet of a given diameter, in combination with an annular reducer fitted to a seat in said bottom, axially apertured and provided with a discharge tube of less diameter than the first mentioned outlet, said reducer being adapted to occupy a position within the first mentioned outlet, a valve adapted to close the aperture of said reducer, and means for controlling said reducer and operating the valve, substantially as set forth.

6. In combination with a reservoir having an outlet embodying a reducer seat, an annular reducer fitted to said seat, a valve head fitted to the bore of the reducer, and provided with a valve stem, a connection between said valve stem and said reducer, a windlass mounted in the upper portion of the reservoir, and a flexible connection between said windlass and the valve stem, substantially as set forth.

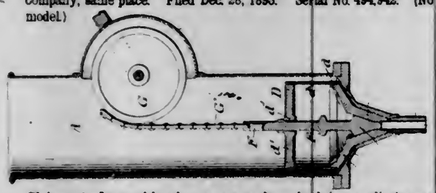
7. In combination with a reservoir having an outlet embodying a reducer seat, a conduit leading from said seat, an annular reducer, a pipe leading from said reducer, a valve head, a valve stem, and a connection between the reducer and the valve stem, substantially as set forth.

8. In combination with a reservoir having a funnel bottom embodying a reducer seat, a conduit fitted to said bottom, a reducer adapted to fit within said seat, a pipe fitted to said reducer, a skeleton frame connected with said reducer and embodying a head plate, a valve head adapted to fit within the reducer, a valve stem extending through the head plate of the skeleton frame and provided with a projection adapted to encounter said head plate, substantially as set forth.

9. In combination with a reservoir having a funnel bottom embodying a reducer seat, a conduit fitted to said bottom, a reducer adapted to fit within said seat, a pipe fitted to said reducer, a skeleton frame connected with said reducer and embodying a head plate, a valve head adapted to fit within the reducer, a valve stem extending through the head plate of the skeleton frame, and provided with a projection which when the valve head is seated in the reducer is somewhat below the head plate, but which, in the elevation of the valve head and stem, after the valve head leaves the reducer, encounters the head plate and occasions the elevation of the reducer and skeleton frame, substantially as set forth.

10. In combination with a reservoir having a funnel bottom embodying a reducer seat, a conduit fitted to said bottom, a reducer adapted to fit within said seat, a pipe fitted to said reducer, a skeleton frame connected with said reducer and embodying a head plate, a valve head adapted to fit within the reducer, a valve stem extending through the head plate of the skeleton frame, and provided with a projection which when the valve head is seated in the reducer is somewhat below the head plate, but which, in the elevation of the valve head and stem, after the valve head leaves the reducer, encounters the head plate and occasions the elevation of the skeleton frame and reducer, and means for occasioning the elevation of said valve stem and head, substantially as set forth.

519,307. APPARATUS FOR FILLING CANS. George H. Perkins, Philadelphia, Pa., assignor of one-half to the Atlantic Refining Company, same place. Filed Dec. 28, 1893. Serial No. 494,942. (No model.)



Claim.—1. In combination, a reservoir embodying a discharge liquid outlet, and a reserve funnel embodying a discharge outlet smaller than that of the reservoir and in alignment with it, said funnel being mounted within the reservoir, substantially as set forth.

2. In combination, a reservoir, embodying a liquid discharge outlet, a reserve funnel mounted within the reservoir and embodying a discharge outlet smaller than that of the reservoir, and a liquid valve head fitted to the outlet of said funnel, substantially as set forth.

3. In combination, a reservoir embodying a discharge outlet, a reserve funnel embodying a discharge outlet smaller than that of the reservoir, said funnel being externally adapted to the discharge outlet of the reservoir, a valve head fitted to the discharge outlet of the reserve funnel, and means for occasioning the withdrawal of the valve head from the outlet of the funnel and the withdrawal of the funnel from the outlet of the reservoir, substantially as set forth.

4. In combination, a reservoir having a funnel shaped bottom embodying an outlet, a reserve funnel having an imperforate upwardly extending wall, and provided with an outlet and externally adapted to the outlet of the reservoir, a valve head fitted to the outlet of the funnel, means for withdrawing the valve head from the outlet of the funnel and for supporting the funnel above and clear of the bottom of the reservoir, substantially as set forth.

5. In combination, a reservoir embodying a discharge outlet,—a reserve funnel provided with an outlet, the lower portion of which funnel is adapted to fit within the outlet of the reservoir,—a valve head adapted to fit within the outlet of the reserve funnel,—a valve stem, connected with the reserve funnel.—and means for operating said stem, substantially as set forth.

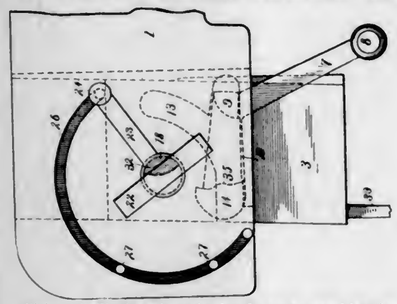
6. In combination,—a reservoir provided with a discharge outlet,—a conduit leading from said outlet,—a reserve funnel provided with an outlet, the lower portion of which funnel is adapted to fit within the outlet of the reservoir,—a pipe fitted to said reserve funnel axially with respect to the conduit of the reservoir,—a stem provided with a head adapted to the outlet of the reserve funnel, and with means for engaging with the upper portion of the reserve funnel,—and means for operating said valve stem to occasion the withdrawal of its head from the outlet of the reserve funnel and the elevation of the said reserve funnel,—substantially as set forth.

7. In combination,—a reservoir provided with a discharge outlet,—a reserve funnel provided with an outlet,—a stop or head plate supported upon the upper portion of the reserve funnel,—a valve stem provided with a head adapted to the outlet of the reserve funnel and with a boss adapted to engage the stop or head plate,—and means for operating said valve stem,—substantially as set forth.

8. In combinatinn, a reservoir provided with a discharge outlet,—a conduit fitted in said outlet,—a reserve funnel the lower portion of which is adapted to the outlet of the reservoir and provided with an outlet,—a pipe fitted to said outlet,—a head plate supported upon the upper portion of the reserve funnel,—a valve stem provided with a head adapted to the outlet of the reserve funnel and with a boss to engage the head plate,—and means for operating said valve stem.—substantially as set forth.

9. In combination, the reservoir, the reserve funnel, the valve head, the valve stem connected with said reserve funnel, the windlass, and the connection between the windlass and the valve stem, substantially as set forth.

519,308. BREECH-LOADING ORDNANCE. Julius H. Althof, New York, N. Y. Filed Feb. 6, 1893. Serial No. 461,207. (No model.)



Claim.—1. The breech mechanism for guns comprising the movable breech block, a shaft transverse of the breech carried by said block, a lever connected with said shaft, a stud or support carried by said lever, the gun breech having a groove or recess to receive said stud to support said lever and the breech block in different positions and means for regulating the movements of said shaft for the various purposes described.

2. A gun breech having an opening, a breech block adapted to slide therein and having a shoulder 17, combined with a shaft carried by said breech block, a lever connected with said shaft and a stud or support carried by said lever and adapted to travel in a groove in the breech to support said lever and breech block, substantially as described.

3. A gun breech having an opening, a breech block sliding therein, a shaft carried by said breech block and a lever for operating said shaft combined with a stop bolt carried by said breech and having a part adjustable to engage and disengage with said shaft and arranged to hold the latter from descending and to permit it to decend, as and for the purposes specified.

4. In combination with a gun-breech, a breech-block having movement therein, an operating lever therefor and a stop-bolt carried by the breech adjustable to engage and disengage a part carried by said block and arranged in one position to allow the block to move, and in the other to arrest its movement in its closed or nearly closed position, substantially as set forth.

5. In combination with a gun breech, a breech-block an operating shaft therefor journaled in said block and having a part impinging upon a solid abutment on or part of the breech, whereby the block is positively started, substantially as set forth.

6. In combination with a gun breech, a breech block adapted to move therein, a lever for operating said block, carried by said breech block and a stop bolt carried by the breech and having a part placed in the path of said lever, so as to operate as an abutment to positively move the block substantially as set forth.

7. A gun breech having an opening, a breech block sliding therein, a shaft carried thereby, a lever connected with said shaft, means for supporting said lever and a projection 33 connected with said lever combined with a stop bolt having a part which permits said shaft to descend, and which engages the projection 33 to limit the rotation of said shaft, substantially as set forth.

8. A gun breech having an opening, a breech block adapted to slide therein, a shaft carried by said breech block, a lever connected with said shaft, means to support said lever and a projection or shoulder 35 connected therewith combined with an adjustable stop bolt having a stud or part 32 which in oce position permits said shaft to descend

and which in another position is engaged by the shoulder 35, as and for the purposes set forth.

9. A gun breech having an opening and a breech block adapted to slide therein, a shaft carried thereby, a lever connected with said shaft and means to support said lever combined with an adjustable stop bolt regulating the movement of said shaft and means for holding said stop bolt in its several positions, substantially as set forth.

10. A gun breech having an opening, a breech block carried thereby, a shaft connected with said breech block, a lever connected with said shaft and means to support said lever combined with a stop bolt regulating the movements of said shaft, a spring arm connected with said stop bolt, a projection 25 connected with said spring arm and depressions 27 in the gun breech to hold said spring arm, substantially as described.

11. A gun breech having an opening, a breech block adapted to travel therein, a firing pin carried by said breech block and a projection connected with said firing pin to be engaged by a cocking device combined with a shaft journaled in said breech block, transverse of the breech and of the firing pin a projection connected therewith for directly engaging and cocking the firing pin, a detent and trigger for holding and releasing said firing pin and a lever connected with said shaft for supporting the breech block and cocking said firing pin, as set forth.

12. In a gun breech having a sliding breech block a shaft journaled in said block a lever connected with said shaft and means for supporting said lever and breech block combined with a firing pin carried by the breech block, a spring to move said firing pin, means connected with said shaft for cocking the firing pin, a detent to be pressed upon by said spring, a projection carried by said detent to hold the firing pin cocked, said spring being arranged to hold said projection in engagement with said firing pin and a trigger to release said firing pin, substantially as described.

13. In a gun breech, the combination of a movable breech block, a firing pin carried thereby, a shaft journaled in said breech block, a lever connected with said shaft and means for supporting said lever and the sleeve journaled on said shaft and having an arm 37, detent 48 and trigger 39, a projection 49 on said detent adapted to hold the firing pin, a shoulder or projection 47 on the firing pin, a spring located between the arm 37 and the shoulder 47 and devices intermediate of said shaft and said firing pin for cocking the latter by the former, substantially as described.

14. In a gun breech, a movable breech block, a firing pin carried thereby, and having shoulder 45, a spring for actuating said firing pin and devices for holding and releasing said firing pin combined with a shaft 14 journaled in said breech block and having a projection 44 to coact with the projection 45 on the firing pin, a lever connected with said shaft and means for supporting said lever and the breech block, substantially as described.

15. The combination of a gun breech, a block adapted to move therein, a lever carried by said block and adapted to move the same, and a stop-bolt arresting the lever when the block has reached its closed position, and removable to allow the separation of the parts.

16. The combination of a gun breech, a breech block, a shaft carried thereby, a lever connected with said shaft, a stud or support carried by said lever, the gun breech having a recess or groove 10 arranged to receive said stud and to support said lever and breech block in different positions, the groove 10 having an extension 10^a to permit removal of the block when the lever is moved past the position at which the breech is closed, substantially as set forth.

17. The combination of a gun breech, a breech block, a shaft carried thereby, a lever connected with said shaft, for actuating it and supporting the block, a stud or support carried by said lever, the gun breech having a recess or groove 10 provided with extended part 10^b to engage the stud as it travels through the groove to draw down the breech block to give it an initial movement, substantially as described.

18. The combination of a gun breech, a breech block a shaft carried thereby, a lever connected with said shaft, a stud on said lever and a solid abutment on the breech to be engaged by said stud to give the breech block initial movement, substantially as described.

19. The combination of a gun breech, a breech block, a shaft 14, a lever for moving the breech block, a stud on said lever, said breech having a groove 10, 13 to receive said stud and a stop bolt to limit the movement of said breech block and permit said stud to enter groove 13 as and for the purposes specified.

20. The combination of a gun breech having its wall grooved, a block carrying a firing pin and adapted to move in said breech, means for supporting the breech block and an operating lever for moving said block and cocking the firing pin and having a stud or part engaging the grooved wall of said breech, the said groove having the extension 13 permitting the lever to move to recock the firing pin without the opening of the breech, substantially as set forth.

21. The combination of a gun breech, a breech block adapted to move therein, a firing pin carried by said breech-block, an adjustable bolt which may be adjusted to support said breech block or to allow it to descend and an operating lever connected to said firing pin and supported by the block, the breech reinforce having an internal groove to engage said lever provided with an upward extension to permit it to play freely when relieved of the weight of the block by said bolt whereby the lever may be operated to recock the firing pin without opening the breech, substantially as set forth.

22. The combination in a gun of a breech-block adapted to slide therein, a firing pin supported in said breech block, a detent for holding said firing pin in cocked position, and a spiral spring surrounding said firing pin and bearing between a projection on said pin and an arm of said detent, substantially as set forth.

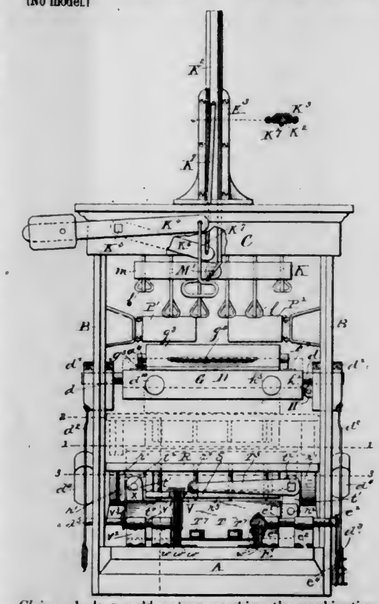
23. The combination of the gun breech, the breech-block adapted to slide therein, the movable stop-bolt 18 having segmental stud 32, and the lever 7 and shaft 14 said lever having nose 33, cut-away portion 34 and shoulders 32^a, 35 and 7^a, substantially as and for the purposes set forth.

24. The combination of the gun-breech having its reinforce provided with groove 10, 10^a, the block adapted to slide in said breech and the lever carried by said block and having stud 9 engaging said groove 10 and adapted to pass through the part 10^a thereof, substantially as set forth.

25. In breech mechanism, the combination of the breech block, an operating shaft and its lever mounted in said block acting against the wall of the reinforce to move the block and having shoulder 35 and a movable stop bolt 18 having an eccentric stud 32 adapted to engage said shoulder and prevent the opening of the breech, substantially as set forth.

519,309. WITHDRAWN.

519,310. MACHINE FOR MAKING MOLDS. Louis Ribereau y Marteaux, Havana, Cuba. Filed Aug. 4, 1893. Serial No. 482,386. (No model.)



Claim.—1. In a mold making machine, the combination with a supporting frame of a detachable, reversible, and sliding table on which the molding is done, and a vertically reciprocating tamping frame provided with adjustable rammers, adapted to ram the sand around a pattern placed within a half flask on said table, substantially as described.

2. In a mold making machine, the combination with a suitablo supporting frame, of a detachable, reversible, vertically reciprocating mold table, a vertically reciprocating tamping frame provided with adjustable rammers, a vertically reciprocating platen below said mold table, and a frame attached to said platen provided with venting pins, said platen perforated to permit said pins to be forced through the same into the mold, and means for operating said several parts, substantially as described.

3. In a mold making machine, a detachable, reversible, verti-

cally reciprocating mold table, provided with a square open detachable frame F, a plate G, placed within said frame on which is secured a half pattern, an under plate G', to which the former plate is secured, the plate G', provided on its under surface with notched pins, and a spring push bar adapted to release said plate, substantially as described.

4. The tamping frame K, composed of separate slats and a screw bolt to hold said slats together, in combination with separate, independent adjustable rammers, held in position by said slats, substantially as described.

5. In combination with a platen, a frame secured to the under surface of said platen and provided with tubes extending through said platen, a venting pin frame pivoted to said platen, a lever for raising the said connected platen tube frame and pin frame, together, and a separate lever connected to said venting frame for lifting the same against the said platen and forcing the pins through the same, substantially as and for the purpose described.

6. In a mold making machine, a venting pin frame T, composed of the separate slats for holding the pins, and the wedges T^7, whereby said pins may be adjusted and set, substantially as and for the purpose described.

7. The combination of the table, the platen beneath the said table, the vent frame and pins beneath the said platen, the foot levers connected with and operating the table, platen and venting frame and pins, said levers composed of segmental toothed plates, the foot piece, an open plate on the base provided with a projecting ledge to engage with each plate, and a spring plate for each segment, substantially as and for the purpose described.

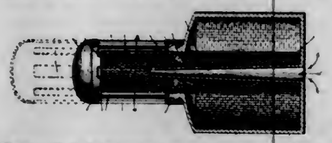
8. The combination of the two flask halves parts g^2 and g^3, the pattern half G^2, pattern half G^3, provided with pins g^{11}, the table D, and the plates G and G', substantially as and for the purpose described.

9. The mold table D, provided with the vertically adjustable catch pins d^4, for holding a half flask to the table, in combination with racks and a pinion and finger shaft, for moving said pins laterally to lock the flask, and a screw and screw cap for adjusting the said pins vertically and sleeves in which said pins are adjusted, substantially as described.

10. In combination with a mold table D, provided on its top surface with an open frame F, a plate G, within said frame, a half pattern provided with pins to enter said plate, an under plate G', secured to plate G, and provided on its under surface with notched pins i, and a spring push bar i^2, i^3, adapted to engage with said notched pins, substantially as described.

REISSUES.

11,418. DISINFECTING APPARATUS. JAIRUS L. STRATTON, Chicago, Ill., and FRANK MURDOCK, Kansas City, Kans. Filed Jan. 30, 1894. Serial No. 498,527. Original No. 510,825, dated Dec. 12, 1893.



Claim.— 1. A disinfecting apparatus, having a fluid receptacle to which is secured a suitable metallic tube provided with a series of elongated openings, and covered by a cap having similar openings, adapted to register with the openings in the tube through which the vaporized fluids pass off, substantially as described.

2. A disinfecting apparatus, having a fluid receptacle and provided with a tube and cap, each having a series of elongated openings adapted to register, and a wick to extend into said receptacle and to project up into said tube for absorbing and evaporating the fluids, substantially as described.

3. A disinfecting apparatus having a fluid receptacle with an air-tube extending through the same, said receptacle provided with an upwardly extended tube having a series of elongated openings; and a cap fitting over said tube and having similar openings adapted to register with the openings in said tube, the bars between said openings being wide enough to cover the openings in said tube, thus enabling the flow of the fluid to be regulated by turning the said cap, substantially as described.

4. A disinfecting apparatus having a fluid receptacle with an air-tube extending through the same, said receptacle provided with an upwardly extended tube having elongated openings, a wick extending through said receptacle to near the top of the tube; a stopper fitting inside of the wick and around the air tube; and a cap fitting over said tube having elongated openings adapted to register with the openings in said tube; the bars between said openings being wide enough to cover the openings in said tube, thus enabling the flow of the liquid to be regulated by turning the said cap substantially as described.

5. In an apparatus of the class described, the combination with a suitable receptacle for the liquid having an opening in its walls, a wick passing through said opening and a cork fitted within the opening and adapted to bear against the wick; substantially as described.

6. In an apparatus of the class described, the combination with a suitable receptacle having an opening of variable size to the atmosphere and an inner chamber connected with the outer by a small opening or passage, a wick partly within said inner chamber and extending through the small opening into the outer chamber, and a cork fitted to said small opening adapted to both cut off communication between the liquid and the atmosphere except through the wick, and to also compress said wick to limit the passage of the liquid therethrough; substantially as described.

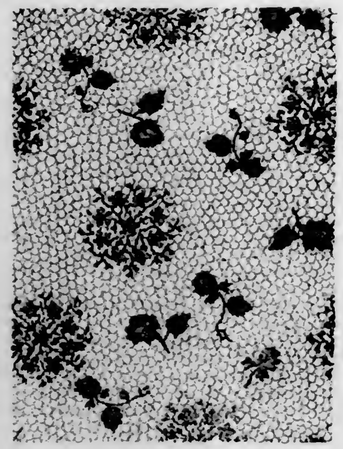
DESIGNS.

23,230. LACE FABRIC. JOHN KEYWORTH FLETCHER, Nottingham, England. Filed Mar. 22, 1894. Serial No. 504,727. Term of patent 3½ years.



Claim.—The design for a lace fabric substantially as shown and described.

23,231. CARPET. WINTHROP L. JACOBS, East Orange, N. J., assignor to the Lowell Manufacturing Company, Boston, Mass. Filed Apr. 2, 1894. Serial No. 506,115. Term of patent 3½ years.



Claim.—The design for a carpet, as shown in the accompanying drawing

23,232. CARPET. EMIL G. SAUER, Brooklyn, N. Y., assignor to the Lowell Manufacturing Company, Boston, Mass. Filed Apr. 2, 1894. Serial No. 506,116. Term of patent 3½ years.



Claim.—The design for a carpet as shown in the accompanying drawing.

23,233. CARPET. HENRY HORAN, East Orange, N. J., assignor to the Lowell Manufacturing Company, Boston, Mass. Filed Apr. 2, 1894. Serial No. 506,117. Term of patent 3½ years.



Claim.—The design for a carpet, as shown in the accompanying drawing.

23,234. BOOT BENJAMIN NATHAN, New York, N. Y. Filed Dec. 12, 1893. Serial No. 493,507. Term of patent 14 years



Claim.—The design for a boot substantially as herein shown and described.

23,235. BADGE. JULIANA WOOD, Philadelphia, Pa. Filed Mar. 29, 1894. Serial No. 505,644. Term of patent 14 years.



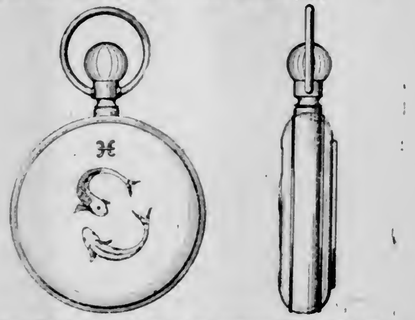
Claim.—The design for a badge, substantially as shown and described.

23,236. WATCHCASE. WALLACE DURAND, Newark, N. J. Filed Feb. 28, 1894. Serial No. 501,875. Term of patent 7 years.



Claim.—The design for a watch case, herein shown and described.

23,237. WATCHCASE. WALLACE DURAND, Newark, N. J. Filed Feb. 28, 1894. Serial No. 501,876. Term of patent 7 years.



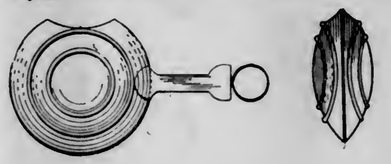
Claim.—The design for a watch case, substantially as shown and described.

23,238. BACKS OF PLAYING-CARDS. JOHN OMWAKE, Cincinnati, Ohio, assignor to the United States Printing Company, same place. Filed Apr. 2, 1894. Serial No. 506,114. Term of patent 14 years.



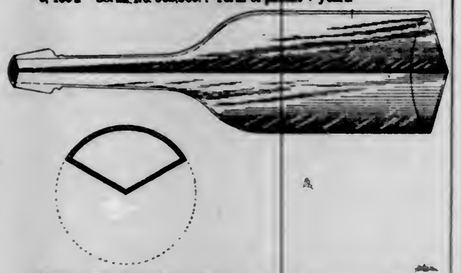
Claim.—The design for the backs of playing cards substantially as shown and described.

23,239. MUSICAL INSTRUMENT. MONTAGUE REDGRAVE, Jersey City, N. J. Filed Mar. 23, 1894. Serial No. 504,870. Term of patent 14 years



Claim.—The design for a mouth musical instrument substantially as herein shown and described.

23,240. BOTTLE. ALPHONS DRYFOOS, New York, N. Y. Filed Mar. 6, 1894. Serial No. 502,589. Term of patent 7 years.



Claim.—The design for a bottle, as herein shown and described.

23,241. METAL VESSEL. SETH WILLIAM BABBITT, Meriden, Conn. Filed Apr. 2, 1894. Serial No. 506,113. Term of patent 3½ years.



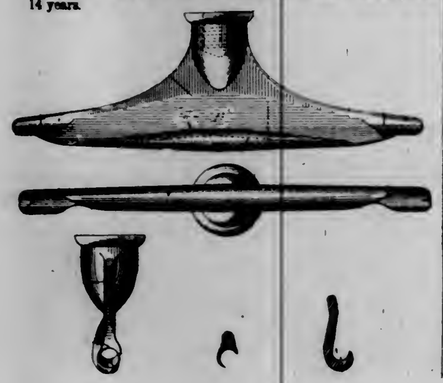
Claim.—The design for a metal vessel as herein shown and described.

23,242. COMBINED KEY-RING AND GUARD. JOHN B. MERKELS and MATHIAS BIEVESH, Chicago, Ill. Filed Mar. 23, 1894. Serial No. 504,868. Term of patent 3½ years.



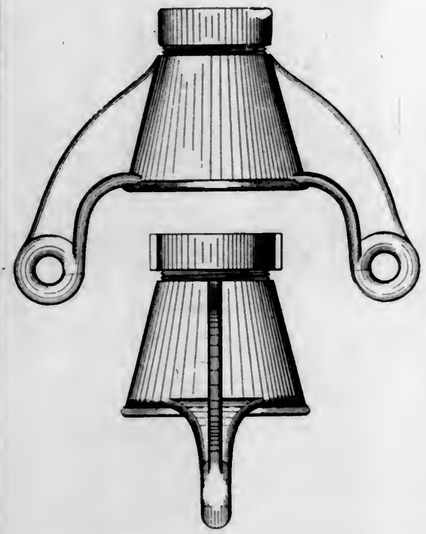
Claim.—The design for a combined key ring and guard, substantially as shown and described.

23,243. TROLLEY-WIRE CLIP. WILLIAM F. D. CRANE, East Orange, N. J. Filed Mar. 21, 1894. Serial No. 504,566. Term of patent 14 years.



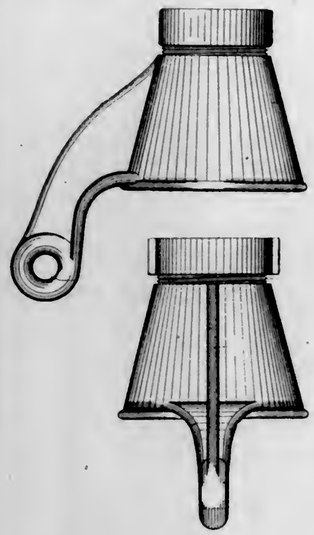
Claim.—The design for a trolley wire clip, herein shown and described.

23,244. HANGER. JOHAN M. ANDERSEN, Boston, Mass. Filed Feb. 23, 1894. Serial No. 501,309. Term of patent 14 years.



Claim.—The design for a double pull off herein shown and described.

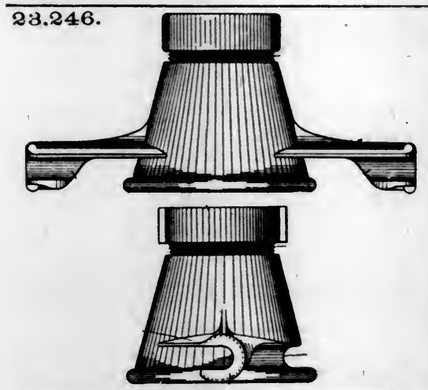
23,245. HANGER. JOHAN M. ANDERSEN, Boston, Mass. Filed Feb. 23, 1894. Serial No. 501,310. Term of patent 14 years.



Claim.—The design for a single pull off herein shown and described.

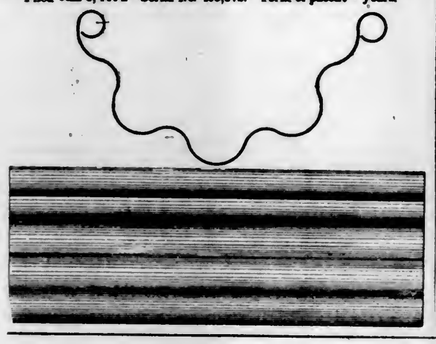
23,246. HANGER. JOHAN M. ANDERSEN, Boston, Mass. Filed Feb. 23, 1894. Serial No. 501,311. Term of patent 14 years.

23,246.



Claim.—The design for a straight line hanger consisting of the design herein shown and described.

23,247. EAVES-TROUGH. SAMUEL SILBERSTEIN, Pittsburg, Pa. Filed Jan. 5, 1894. Serial No. 496,872. Term of patent 7 years.



Claim.—The design for eaves troughs substantially as herein shown and described.

23,248. DESK AND SEAT. JOSIAH C. GOODING, Covington, Ind. Filed Mar. 27, 1894. Serial No. 505,342. Term of patent 14 years.



Claim.—The design for a desk and seat substantially as herein shown.

TRADE-MARKS

REGISTERED MAY 1, 1894.

24,614. LADIES' CORSETS. WORCESTER CORSET COMPANY, Worcester, Mass. Filed Mar. 15, 1894.

BON TON

Essential feature.—The words "BON TON." Used since January 1, 1876.

24,615. LEATHER BOOTS AND SHOES. J. B. LEWIS COMPANY, Portland, Me., and Boston, Mass. Filed Mar. 26, 1894.

LIFE AND ACCIDENT

Essential feature.—The words "LIFE AND ACCIDENT." Used since March 22, 1894.

24,616. KNIT UNDERWEAR, GLOVES, HOSIERY, AND NECKWEAR. JOEL J. BAILY & Co., Philadelphia, Pa. Filed Mar. 10, 1894.



Essential feature.—The representation of a shield crossed obliquely by a bar bearing the letter "B," and having a spray of vine on each side thereof. Used since December, 1891.

24,617. WRAPPING AND WRITING PAPER. R. H. MACY & Co., New York, N. Y. Filed Nov. 24, 1893.



Essential feature.—The representation of a five-pointed red star. Used since 1862.

24,618. SOUVENIR ARTICLES OF SILVER. KENT & STANLEY COMPANY, Providence, R. I. Filed Mar. 21, 1894.



Essential feature.—The representation of a pitcher-shaped cup having an enlarged body divided into convex panels, a small base below the body, a contracted neck, having a pitcher-shaped top, above the body, and a scrolled handle. Used since March 1, 1894.

24,619. SLATE AND SLATE ARTICLES. E. J. JOHNSON & Co., New York, N. Y. Filed Mar. 20, 1894.

"CENTRAL"

Essential feature.—The word "CENTRAL." Used since March, 1886.

24,620. CONFECTIONERY. CALLARD & BOWSER, London, England. Filed Feb. 20, 1894.

CALLARD & BOWSER

Essential feature.—The words and character "CALLARD & BOWSER." Used since January, 1860.

24,621. OYSTERS. JOHN L. BEST, Chicago, Ill. Filed Apr. 3, 1894.

ELK

Essential feature.—The word "ELK." Used since August 1, 1889.

24,622. LAUNDRY STARCH. THE NATIONAL STARCH MANUFACTURING COMPANY, New York, N. Y. Filed Jan. 11, 1894.

BON TON

Essential feature.—The words "BON TON." Used since 1877.

24,623. LAUNDRY STARCH. THE NATIONAL STARCH MANUFACTURING COMPANY, New York, N. Y. Filed Jan. 11, 1894.

SUN GLOSS

Essential feature.—The words "SUN GLOSS." Used since 1876.

24,624. TOILET AND LAUNDRY SOAP. ALLEN B. WRISLEY, Chicago, Ill. Filed Mar. 31, 1894.

I'm all right

Essential feature.—The words "I'M ALL RIGHT." Used since January 1, 1894.

24,625. MEDICATED WINE. W. C. BEVAN & Co., Malaga, Spain. Filed Mar. 3, 1894.

VINO DE SALUD
(WINE OF HEALTH.)

Essential feature.—The words "VINO DE SALUD (WINE OF HEALTH)." Used since October, 1893.

24,626. COGNAC. JOSEPH CUKOR, New York, N. Y. Filed Mar. 12, 1894.



Essential feature.—A representation of Louis Kossuth. Used since December 1, 1893.

24,627. LIQUID COMPOUND OF CELERY-SEED AND FLUID EXTRACT OF SARSAPARILLA. KING'S MEDICINE COMPANY, Pittsburg, Pa. Filed Feb. 12, 1894.



Essential feature.—The capital letter "B" having the words "CELERY & SARSAPARILLA COMPOUND" inclosed by, and following its outline with a bull's head protruding from the upper loop of the letter and a bunch of celery from the lower one. Used since June, 1891

24,628. REMEDY FOR KIDNEY, LIVER, AND OTHER DISEASES. HORATIO N. SPAULDING, Vandalia, Ill. Filed Feb. 28, 1894.



Essential feature.—The letters and character "SK&LV" the "S" being several times larger than "K," "L" and "V" with "K" and "V" appearing in its curves, and the character "&" at its right and "L" at its left centrally and all inclosed by a circle. Used since 1892.

24,629. NERVINE, TONIC, RESTORATIVE, AND REPARATIVE REMEDY. JOHN H. WINKELMANN, Baltimore, Md. Filed Mar. 22, 1894.

CO-CEL-IN

Essential feature.—The word "CO-CEL-IN." Used since September 1, 1893

24,630. MEDICINE FOR THE CURE OF CATARRH. ROOT-TEA-NA HERB CO., Akron, Ohio. Filed Mar. 26, 1894.



Essential feature.—The words "RED LION," and the representation of a lion, the attitude of which indicates that he is in quest of prey. Used since January 1, 1894.

24,631. MEDICATED SOAPS AND PLASTERS AND REMEDIES FOR DISEASES OF THE BLOOD, SKIN, AND NERVES. EDGAR F. HANSON, Belfast, Me. Filed Apr. 4, 1894.

Nutriola

Essential feature.—The word "NUTRIOLA." Used since January 1, 1894.

24,632. LIQUID DETERGENT. VALENTINE BELIKAN, Detroit, Minn. Filed Mar. 22, 1894.

BANNER

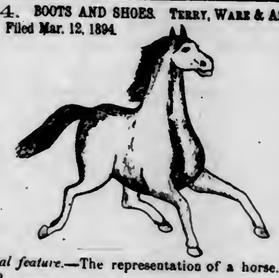
Essential feature.—The word "BANNER." Used since February, 1894.

24,633. DISINFECTANTS. READ HOLLIDAY & SONS, LIMITED, New York, N. Y. Filed Apr. 4, 1894.

MICROMORT

Essential feature.—The word "MICROMORT." Used since January 1, 1894.

24,634. BOOTS AND SHOES. TERRY, WARE & ALLEY, Brockton, Mass. Filed Mar. 12, 1894.



Essential feature.—The representation of a horse. Used since July 1, 1892.

24,635. WHALEBONE. THE ARCTIC WHALEBONE COMPANY, New York, N. Y. Filed Mar. 30, 1894.

ARISTON

Essential feature.—The word "ARISTON." Used since March 27, 1894.

24,636. LAGER-BEER. THE STANDARD BREWERY, Chicago, Ill. Filed Mar. 17, 1894.



Essential feature.—The representation of a spread eagle holding in his talons a staff, about which is draped an American flag. Used since April, 1892.

24,637. WHEAT-FLOUR. CLEVELAND BAKING POWDER COMPANY, Brooklyn, N. Y. Filed Mar. 22, 1894.

Peptik

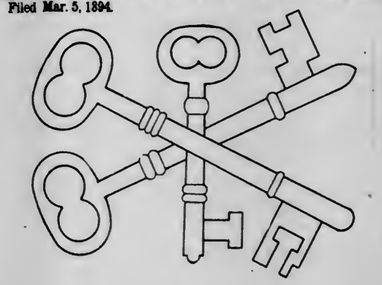
Essential feature.—The word "PEPTIK." Used since March 1, 1894.

24,638. WHEAT-FLOUR. KUNHARDT & Co., New York, N. Y. Filed Mar. 24, 1894.

EL TROCADERO

Essential feature.—The words "EL TROCADERO." Used since May 26, 1879.

24,639. TALLOW SOAP. KATIE M. RAPELJE, New York, N. Y. Filed Mar. 5, 1894.



Essential feature.—The representation of three keys, two of which are crossed like a letter X with the third one crossing them horizontally at the center. Used since February 1, 1889.

24,640. DENTIFRICE. LUIS J. DE CARBALLO, New York, N. Y. Filed Apr. 2, 1894.

Eulalia

Essential feature.—The word "EULALIA." Used since December 1, 1893.

24,641. TONIC MEDICINE. ANHEUSER-BUSCH BREWING ASSOCIATION, St. Louis, Mo. Filed Mar. 13, 1894.

Columbian Malt Tonic

Essential feature.—A blue colored band extending diagonally across the label and bearing the words "COLUMBIAN MALT TONIC." Used since March 17, 1893.

24,642. CREME DE MENTHE. E. CUSENIER FILS AINÉ & COMPAGNIE, Paris, Ornans, Charenton, and Marseilles, France, Mulhouse, Germany, and Brussels, Belgium. Filed Jan. 26, 1894.



Essential feature.—The representation of a crescent figure bearing three medals upon its center and also another medal on either side within a border encircling the lower curve which bears the words "CRÊME DE MENTHE GLACIALE." Used since 1867.

24,643. LACTYL DERIVATIVES OF PARAPHENETIDIN. C. F. BOEHRINGER & SÖHNE, Waldhof, near Mannheim, Germany. Filed Mar. 31, 1894.

LACTOPHENIN

Essential feature.—The word "LACTOPHENIN." Used since September, 1893.

24,644. REMEDY FOR HEADACHE AND NEURALGIA. ROBERT BLACK, Brooklyn, N. Y. Filed Mar. 19, 1894.

HEADINE

Essential feature.—The word "HEADINE." Used since October 1, 1893.

24,645. ROLLER-SKATES. GEORGE E. CURTIS, Philadelphia, Pa. Filed Apr. 9, 1894.

SKACYCLE

Essential feature.—The word "SKACYCLE." Used since April 5, 1894.

24,646. FIREARMS. WIEBUSCH & HILGER, LIMITED, New York, N. Y. Filed Mar. 27, 1894.

STANLEY

Essential feature.—The word "STANLEY." Used since December, 1893.

24,647. FIREARMS. WIEBUSCH & HILGER, LIMITED, New York, N. Y. Filed Mar. 27, 1894.

RUSSELL

Essential feature.—The word "RUSSELL." Used since December, 1893.

24,648. PAPER SHOT-SHELLS. THE UNION METALLIC CARTRIDGE COMPANY, Bridgeport, Conn. Filed Mar. 31, 1894.

WALSRODE

Essential feature.—The word "WALSRODE." Used since December, 1892.

24,649. CEMENT, LIME, AND PLASTER-OF-PARIS. UNION CEMENT AND LIME COMPANY, Louisville, Ky. Filed Jan. 25, 1894.



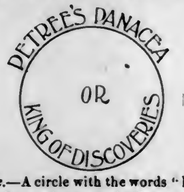
Essential feature.—The representation of an anchor. Used since 1867.

24,650. DISINFECTANTS. READ HOLLIDAY & SONS, LIMITED, New York, N. Y. Filed Apr. 4, 1894.

GERMOL

Essential feature.—The word "GERMOL." Used since January 1, 1894.

24,651. MEDICINE FOR CERTAIN NAMED DISEASES. PETER PETREE & Co., near Huntsville, Tex. Filed Mar. 13, 1894.



Essential feature.—A circle with the words "PETREE'S PANACEA" following its outline at the top, and "KING OF DISCOVERIES" its outline on the lower side, with "OR" in its center. Used since January 1, 1894.

24,652. CERTAIN NAMED RIBBONS. ROSENHEIM-LEVIS-ZUKOSKI MERCANTILE COMPANY, St. Louis, Mo. Filed Nov. 20, 1893.

LEADER

Essential feature.—The word "LEADER." Used since October 1, 1893.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

GLIDDEN *v.* BUSELL.

Decided March 21, 1894.

1. INTERFERENCE—REDUCTION TO PRACTICE—EXPERIMENTAL MACHINE IS NOT.

Where one of the parties to an interference had first made a machine upon which the issue can be read, but which was inoperative and was dismantled and not assembled until and except for the purpose of the interference, and, furthermore, after such dismantling the party continued to experiment in that line with other devices and finally was only successful by substituting in his machine a device of another inventor, *Held* that the first machine was an experiment and not a reduction to practice.

2. SAME—SAME—SAME—PRIORITY.

Glidden constructed, in 1886, a heel-trimming machine in which the rand-knives were connected with the hollow heel cutter shaft by a flexible coil-shaft, and with it trimmed and randed a few heels. It was treated as an experimental machine, was dismantled, and never assembled until it became necessary for the purposes of this interference. He experimented with other devices for driving the rand-cutter, and adopted finally the "Winter invention," a small shaft with a universal joint, by which the rand-cutter was driven. *Held* that the flexible-wire coil-shaft is not such a connection for the rand-cutter and the cutter-head as completes the invention, and that the 1886 machine was experimental and does not afford the basis of a judgment of priority in favor of Glidden as against Busell's patent.

APPEAL from the Examiners-in-Chief.

HEEL-TRIMMER.

Application of Charles W. Glidden filed June 2, 1888, No. 275,880. Patent granted James H. Busell October 9, 1888, No. 390,750.

Messrs. Crosby & Gregory and *Messrs. Lange & Roberts* for Glidden.

Messrs. Maynadier & Beach for Busell.

SEYMOUR, *Commissioner:*

This is an appeal taken by Glidden from the decision of the Examiners-in-Chief, reversing the decision of the Examiner of Interferences and awarding priority of invention in favor of Busell.

The issue in interference is as follows:

1. In a heel trimming machine, a rotary heel cutter, a recessed rand guard, and a rotary rand cutter having its blades projecting outwardly between the blades of the rotary heel cutter adjacent to the rand guard whereby the position of the rand guard, with its cutter and the rotary heel cutter, may be changed relatively to expose more or less of the acting edges of the blades of the heel cutter as the contour of the heel being trimmed varies

2. In a heel trimming machine, the combination with a rotary heel cutter, of a rotary rand cutter and a rand or counter-guard, both located at the end of the heel cutter, and both together made movable in substantially the line of the axis of the said heel cutter, and with relation to the end thereof, to uncover more or less of the heel cutter blades as the rear of the heel is being trimmed,

This interference is between Glidden's application filed June 2, 1888, and the patent of Busell, issued October 9, 1888, upon an application filed December 18, 1886, for the same invention.

The case turns upon the question of Glidden's alleged reduction to practice in and by what is known in this record as "Glidden's 1886 machine," and both parties base their arguments upon this proposition.

Before either of the applications was filed machines for trimming heels were old. A separate machine was used for randing. The attention of manufacturers and inventors was directed toward the combination of the trimming and randing devices in one machine, such that heels of any form, and particularly of the ogee or Pompadour style, could be randed and trimmed at the same time. It was believed by many that such a machine could be devised It was recognized as a thing much to be desired, and invention took two paths toward its object. The one was to employ in a heel-trimming machine the ordinary heel-cutter with a recessed rand-guard covering that part of the cutter-knives not brought into use for trimming the lowest part of the heel. The lip of the rand-guard fitting in the rand-crease yields under the mild pressure applied to it by turning the heel, uncovering more of the cutter-knives, as when the shoe was turned in position so that the rear of the heel with its greatest curve was presented to the knives, and as the position of the shoe was further changed so as to turn the other side of the heel the rand-guard by a spring was brought back gradually to its first position, again covering all that part of the heel-cutter knives not needed when the lowest part of the heel was trimmed. The rand cutter was placed between the cutter-knives of the heel-cutter so as to run close to the edge of the rand-guard and was driven by a small shaft within the hollow shaft driving the heel-cutter, to which it was attached by a pin through a slot, a spring holding this small rand-knife shaft to its innermost position by a moderate tension, but allowing it to yield precisely with the motion of the rand-guard when more of the cutter-knives was uncovered. The hub upon which the rand-knives are carried is so attached to the rand-guard that the rand-knives always run close to the edge of the rand-guard, whatever the position of the rand-guard may be. In this device the rand-guard yields axially when uncovering more or less of the cutter-knives.

The other path which invention took in this matter resulted in a machine which gave the rand-guard and

the rand-knives a combined or tipping motion away from the cutter-knives, which was obtained by placing the rand-guard with the rand-knives running next it upon a rand-carriage supported by links. This required the rand-knives to be moved by a different device from the first, one yielding not only axially, but also transversely. This was finally accomplished in a machine put upon the market about February 26, 1889, by a small shaft with a universal joint working within the hollow heel-cutter shaft, and from which it was driven.

Glidden's 1886 machine connected the rand-knives with the hollow heel-cutter shaft by a flexible coil-shaft. The question is whether the rand-knives and the heel-cutter knives so connected and in combination with the yielding rand-guard constitute the machine described in the issues within the meaning of the law of patentability. This flexible-wire shaft, it must be admitted, connects the rand-knife and the heel-trimmer shaft by which the heel-cutter knives are driven in some fashion. It is a step beyond the position of the inventor when he has in mind merely that the rand-cutter and the shaft must be connected somehow, but without the conception of any defined means, however imperfect. Moreover, this machine trimmed and randed a few heels.

But if Glidden had a complete invention in this 1886 machine he himself did not know it. He not only called it an "experimental machine," (Record, p. 47,) but he treated it as such. It was dismantled and was never assembled until it became necessary for the purposes of this interference. Not only so, but at this point his experiments took an entirely different turn, and he spent nearly two years in groping among various mechanical devices for driving the rand cutter, first by a counter-shaft, V-grooved pulleys, and belt, then by a train of gears, and by other devices, none of which was accepted by Glidden as the last step in an inventive process, leaving nothing more but to adapt one part to another skillfully, so as to make an acceptable machine for the market. The 1886 machine was taken apart and packed away, and Glidden experimented on the gear-driven trimmer, which was tried on the same stand. The experiment with the gear-driven trimmer in turn gave way to experiments upon the improved jack-trimmer. The improved jack-trimmer gave place to the two-link rand-knife carriage, and that to the slot-and-link knife-carriage, and that to the modern rand-carriage, which the association to which Glidden belonged put upon the market in February, 1889. This modern machine, as before stated, contained what is known in this case as the "Winter invention"—the short shaft with the universal joint by which the rand-cutter was driven and which Glidden in 1885 and 1886 had attempted to drive by the flexible-wire coil-shaft.

Not only not in the spring of 1886, but apparently not until after June 2, 1888, did Glidden think of the machine with the flexible-wire coil-shaft as the completed invention, for in his drawings forming part of his application of that date he does not show that method of driving the rand-knife, but in place of it shows the counter-shaft with the V shaped pulley and belt.

The case cannot be decided upon what Glidden thought, although his judgment touching the question when the invention of a randing and trimming machine would be complete, exercised at the time and evidenced by his actions as well as his words, is important evidence upon that point and is unfavorable to him; but apart from his own judgment it is considered that the flexible-wire coil-shaft not only was not thought to be by Glidden, but is not, in fact, such a connection for the rand-cutter and the cutter-head as completes the invention. It follows that the 1886 machine, like the one that preceded it and those that followed it until Winter's invention came out, was experimental and does not afford the basis of a judgment of priority in favor of Glidden as against Busell's patent.

The decision of the Examiners-in-Chief is affirmed.

GLIDDEN *v.* NOBLE.

Decided March 21, 1894

INTERFERENCE—INOPERATIVENESS—PRIORITY OF INVENTION.

Where the structure of one of the parties to an interference is inoperative, *Held* that priority of invention cannot be awarded to him.

APPEAL from the Examiners-in-Chief.

HEEL-TRIMMER.

Application of Charles W. Glidden filed June 2, 1888, No. 275,880. Application of Oscar L Noble filed February 23, 1888, No. 264,911.

Messrs. Crosby & Gregory and *Messrs Lange & Roberts* for Glidden.

Messrs. Wright, Brown & Crossley and *Messrs. Maynadier & Beach* for Noble.

SEYMOUR, *Commissioner:*

This is an appeal taken by Glidden from the decision of the Examiners-in-Chief reversing the decision of the Examiner of Interferences and awarding priority of invention in favor of Noble.

The issue in interference is as follows:

In a heel trimming machine, a rotary heel cutter a carriage, a support for it, a rand guard attached thereto and shaped to project over the heel cutter, and a rotary rand cutter carried by the said carriage, the said parts combined whereby the position of the rand guard with its rand cutter and the rotary heel cutter may be changed relatively to expose more or less of the edges of the cutter blades as the contour of the heel to be trimmed varies.

In the case of *Glidden* v. *Busell*, tried and argued by stipulation on the same record as this case, it was held that Glidden's 1886 machine was experimental and was not the complete invention. The decision upon that point is reiterated here. It must also be added that without the Winter invention the Glidden device never embodied a useful combination of the rand cutter and the rotary heel-cutter with the other elements of the issue. Judgment of priority, therefore, cannot be given to Glidden upon this record.

Turning now to Noble's case, while its deficiencies are apparent, the record furnishes no ground for reversing the decision of the Examiners-in-Chief, and as Winter's application, upon which his Patent No. 447,744, of March 3, 1891, was granted, filed October 9, 1888, was pending in the Office at the same time with Noble's and appears to disclose and substantially to claim the issue in this interference, it would seem that

judgment of mere priority in this case would be followed by a new interference with Winter, in which the question of originality attempted to be raised upon this record would be necessarily determined.

Under these circumstances the decision of the Examiners-in-Chief is affirmed.

EX PARTE BUTZ.

Decided March 21, 1894.

METHOD—FUNCTION—ANTICIPATION—PATENTABILITY.

Where the essential feature of the improvement in the method of manufacturing structural material by working the material from the center toward the ends consists in operating upon all parts of the cross-section of the material at every pass, and the best mode of applying the improvement is explained in connection with the applicant's machine for rolling structural material, and the references only indirectly disclose methods for shaping round and convex forms in the art of rolling iron bars, *Held* that the method is not the mere function of applicant's machine nor a discretionary variation of the well known practices indicated by the references.

APPEAL from the Board of Examiners-in-Chief.

MANUFACTURE OF STRUCTURAL MATERIAL.

Application of Edward M. Butz filed April 24, 1893, No. 471,603.

Mr. George H. Christy for the applicant.

SEYMOUR, *Commissioner:*

Appeal is taken to the Commissioner from the decisions of the Examiners-in-Chief rejecting the claims in this application. The case has been twice before the Examiners-in-Chief; first, on appeal from the rejection by the Examiner of the following claims:

1. As an improvement in the art of manufacturing structural shapes, such as I beams, &c., the method herein described which consists in laterally displacing, by a wedge-like action during the process of rolling, more or less of the metal which constitutes the middle portion of an ingot, bloom or slab, so as to push it over toward the "ends" or flange portions thereof and simultaneously and in the same rolling operation subjecting such "ends" or flange portions to a rolling compression, with reference to a uniform or nearly uniform reduction of all portions of the ingot, bloom, or slab while being brought to the finished form desired substantially as set forth.

2. As an improvement in the art of manufacturing structural shapes, such as I beams, &c., the method herein described, which consists in progressively and simultaneously compressing the metal of an ingot, bloom, or slab at all points toward the center lines of the web and flanges by a rolling action at all points, with particular reference to the embodiment of the invention illustrated in Fig 11, substantially as set forth.

The references cited were Gustin, November 7, 1865, No. 50,516; Seaman, May 26, 1885, No. 318,513; Moxham, July 7, 1885, No. 321,627; Reed and Rowley, January 28, 1890, No. 420,100; Meatyard, August 10, 1886, No. 347,005; Sack, July 8, 1890, No. 431,623; British Patents No. 1,091 of 1863 and No. 3,549 of 1881, and French Patent No. 20,298, February 1, 1858, to Talabot.

After the adverse decision of the Board on these claims applicant was permitted to add the following claim, under Rule 142:

As an improvement in the art of manufacturing structural material, the method herein described, which consists in forming the flanges by displacing the metal along the middle portions of the ingot, bloom, or slab, and simultaneously compressing the "ends" or flange portions at all points whereby any upsetting of the metal is avoided, and the ingot, bloom, or slab is shaped and reduced in cross-sectional dimensions at every point, substantially as set forth.

This claim was rejected by the Primary Examiner, and a second appeal was taken to the Board, the references cited being Alleyne, November 27, 1866, No. 59,940; Seaman, above cited; Reed and Rowley, above cited, and Sack, above cited.

The Examiners-in-Chief affirmed the rejection of this claim, and thereupon appeal was taken to the Commissioner on all the claims.

Until recent times only small girders—up to twelve inches—were rolled in the ordinary trains satisfactorily. In the larger forms the bad effects of unequal stretching rendered the product of doubtful value because of the strain which it underwent in the process of rolling or of the flaws which would come in the flanges by tearing. The process disclosed in this application is not the mere function of the appellant's machine, and is a true process, although a mechanical process, and as such is patentable if new. The question then is, "Is the process as such disclosed in any of the references?"

At the outset it may be stated that none of the references contain a claim for the method in question, nor, indeed, for any method. All methods indirectly disclosed in the patents cited for the apparatus of rolling round or convex forms may be laid out of the case, for none of the difficulties attempted to be met by this process are found when rolling such forms.

The appellant's method of working the material from the center toward the ends of the finished product and of working upon and reducing all parts of the cross-section at every pass were pronounced impracticable by the distinguished experts present at the meeting of the Iron and Steel Institute, in London, in 1889, by Mr. Hugo Sack, in a luminous paper read by him upon this subject in the presence of Sir Henry Bessemer, Mr. Jeremiah Head, and others, in the course of which he said, in substance, that it was obvious that no pressure could be exerted upon the outer surface of the flanges, and that their width could not be much reduced, and that, therefore, the inner surface alone offered a point of attack for reducing their thickness; and, while it was claimed by Mr. Sack that his invention—one of the references in this case—differed from all others so far as the working surfaces of the rolls covered the section on all sides, it is apparent both from his patent drawings and from the illustrations presented with his paper that this was not the case for any of the earlier passes. In the discussion which followed it appeared that Mr. Sack had aimed at rolling every part of every section equally, so as to make and finish it under equal physical conditions and avoid the tearing at the edges of the flanges resulting from any different method.

But a careful examination of the Sack mill—of all that he discloses by way of method concerning it—shows that it is not a full anticipation of the appellant's method as hereinbefore described, or at least if Sack expresses the thought his apparatus does not carry it fully into effect.

Seaman's patent, while containing language which by a liberal construction might be called a verbal anticipation of the appellant's method, is nevertheless merely verbal and his apparatus will not execute it.

It is considered that the appellant discloses and claims a method of rolling structural iron of concave cross-section which is more than mere discretionary variation upon well-known practices and which is not the function of the improved machinery employed by him.

The decision of the Board of Examiners-in-Chief is therefore reversed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Third Circuit.

KOHLER MANUFACTURING COMPANY *v.* BESHORE.

Decided December 4, 1893.

1. TRADE-MARKS—INTENTION TO ADOPT.
   Sales of a few dozen bottles of a medicinal preparation, with written labels affixed, bearing a name different from that previously used for such preparation, do not amount to use in such circumstances as to publicity and to such length of use as to show an intention to adopt the written words as a Trade-Mark. (62 O. G., 592; 53 Fed. Rep., 262, affirmed.)
2. SAME—REGISTRY AS EVIDENCE OF INTENTION.
   Although registration of a Trade-Mark under the act of March 3, 1881, may not prevent the adoption of another device as a common-law Trade-Mark for the same article in domestic markets, such registry may be evidence, in a suit to restrain infringement of such common-law Trade Mark, to show what complainant really claimed.
3. SAME—STATEMENT TO OBTAIN REGISTRATION.
   In such suit the statement filed to obtain registration and attached to the affidavits on motion for a preliminary injunction may be considered on the final hearing.
4. SAME—INFRINGEMENT.
   "One Night Cure," used as a Trade-Mark for a cough remedy and for a corn remedy, is not infringed by the use of the words "Beshore's One Night Cough Cure." (62 O. G., 592; 53 Fed. Rep., 262, affirmed.)
5. SAME—INJUNCTION—QUACK MEDICINES.
   Query whether equity will intervene by injunction to protect the use of words claimed as a Trade-Mark between owners of quack medicines.
6. SAME—WORDS MAKING FALSE ASSERTION.
   It seems that an injunction should not be granted to protect the use of words as the Trade-Mark of a medicinal preparation which assert a manifest falsehood or physiological impossibility.

APPEAL from the Circuit Court of the United States for the Eastern District of Pennsylvania.

Bill by the Kohler Manufacturing Company, of Baltimore city, against Ellsworth S Beshore, for infringement of a Trade-Mark.

STATEMENT OF THE CASE.

During the year 1888 the firm of the Kohler Medicine Company, composed of Louis Yakel and Charles W. Greble, carried on the proprietary medicine business in Baltimore, Md. Among other preparations, the firm made and sold a cough remedy called "Rocky Mountain Cough Syrup." The formula for this medicine the firm had received from the estate of Dr. P. W. Kohler, together with formulas for other medicines, and also the right to use the name "Kohler" in connection with said remedies and the business in which they were manufactured. The firm also purchased from the Kohler estate a quantity of the sirup which had been prepared by Dr. Kohler, and all the labels which he had on hand at the time of his death. The cough sirup thus purchased was bottled and labeled and sold by the Kohler Medicine Company during the spring and summer of 1889, and when the stock was exhausted more sirup was made and sold under the same label that had been used by Dr. Kohler. During the early part of 1889, the Kohler Company began to make and extensively sell an article which they called "One Night Corn Cure." During November, 1889, the labels for the "Rocky Mountain Cough Syrup" gave out, and the firm concluded to change the name of the remedy, and adopted the name "One Night Cough Cure." They did not use printed labels, but wrote the name upon paper which was pasted on the bottles containing the sirup. Several dozen bottles with this written label appear to have been sold from time to time during November and December, 1889, and perhaps later. The label bore the words "One Night Cough Cure" alone; but the agents who sold it stated that the sirup was made and sold by the Kohler Medicine Company. In February, 1890, a corporation of the State of Maryland was formed, styled the "Kohler Manufacturing Company," and the assets, Trade-Marks, and business of the firm were transferred to it, and the previous business was continued under the same management. In December, 1890, the corporation filed an application for the registration of the words "One Night Cure" as a Trade-Mark for a corn remedy and a cough sirup, and on January 20, 1891, a certificate, numbered 18,867, was issued to the Kohler Manufacturing Company for said Trade-Mark. On January 28, 1891, Ellsworth S. Beshore filed an application for registration of the words "One Night Cough Cure" as a Trade-Mark for a cough remedy, and for which a certificate was issued to him, dated March 3, 1891, and numbered 19,112.

On February 17, 1892, the Kohler Manufacturing Company, as a corporation organized under the laws of the State of Maryland, filed its bill of complaint in the Circuit Court of the United States for the Eastern District of Pennsylvania against Ellsworth S. Beshore as a citizen of the State of Pennsylvania. In this bill the complainant alleged that ever since the summer of 1889 it and its predecessor, the Kohler Medicine Company, had been engaged in the manufacture and sale of a medicinal preparation for the cure of coughs and colds, bearing the arbitrary symbol or name of "One Night Cough Cure," which name it had duly adopted as a Trade-Mark for said article and had caused the same to be fixed to the bottles containing said sirup by means of labels, and that said article was sold to the public generally, was known to the public as an article made and sold by the complainant company, and that the name "One Night Cough Cure" was recognized as an indication of the ownership and origin of the same. The bill charges that the defendant, Beshore, in the month of November, 1890, and ever since, had manufactured and sold a medicinal preparation of substantially the same descriptive properties as those of the complainant, and bearing printed labels and wrappers, with the name "One Night Cough Cure," in such a manner as was likely to mislead and deceive careless or ignorant purchasers into buying the medicine of defendant in mistake for that of the complainant. The bill prayed for an injunction, account, etc.

On March 15, 1892, the defendant answered, denying that complainant had, since November, 1889, manufactured and sold an article with the name "One Night Cough Cure" as a Trade-Mark, and denying that complainant was the owner of the said words as a Trade-Mark. The answer admitted that defendant had, since November, 1890, sold an article of merchandise with label bearing the words "One Night Cough Cure" as a Trade-Mark, but not with intent to mislead or deceive, and claimed that he was the lawful owner of the Trade-Mark described—viz., "One Night Cough Cure"—by virtue of his having registered the same and procured a certificate therefor from the United States Patent Office on March 3, 1891. The defendant further alleged in his answer that the complainant never had affixed the said words to its medicine until defendant had duly adopted it as his Trade-Mark, and that complainant had interpolated the word "Cough" into the words "One Night Cure," which it had previously used as a Trade-Mark for a corn remedy, with the purpose of getting the public to mistake complainant's cough cure for that of the defendant.

Issue was joined, evidence taken, and the cause was argued on November 10, 1892, and on November 22, 1892, the opinion and decree of the circuit court were filed, dismissing the bill of complaint, with costs, from which decree the present appeal was taken.

Mr. Arthur Steuart (*Price & Steuart*, of counsel) for the appellant.

Mr. William Henry Browne for the appellee.

Before SHIRAS, Circuit Justice, and ACHESON, Circuit Judge.

SHIRAS, Circuit Justice, after stating the facts, delivered the opinion of the Court.

It has been more than once held in this circuit that courts of equity will not intervene by injunction in disputes between the owners of quack medicines, meaning thereby remedies or specifics whose composition is kept secret, and which are sold to be used by the purchasers without the advice of regular or licensed physicians. (*Fowle* v. *Spear*, Nov. term, 1847, 7 Pa. Law J., 176; *Heath* v. *Wright*, 3 Wall., Jr., 141.) A similar view has prevailed in several State courts. (*Wolfe* v. *Burke*, 56 N. Y., 115; *Smith* v. *Woodruff*, 48 Barb., 438; *Laird* v. *Wilder*, 9 Bush., 132.) In the present case, the so-called "Trade-Mark," "One Night Cough Cure," asserts a manifest falsehood or physiological impossibility. A cough or cold so far seated as to require medical treatment cannot be cured in a single night, and a pretense to the contrary is obviously an imposition on the ignorant. If it be said that the court cannot take notice of such a state of facts, and that there is no evidence from which the court can infer it, we can, at all events, take notice of the plaintiff's evidence, whereby it is shown that the Trade-Mark in question was not selected because experience had shown that the nostrum availed to cure coughs and colds within the period of a single night, but because a similar Trade-Mark or designation, "One Night Corn Cure," had proved to be a popular and taking one.

This view of the case was not called to the attention of the court below, nor has it been urged in this court. As the contest is really for the ownership of the Trade-Mark, the defendant could not be expected to resort to a defense which, if successful, would deprive the coveted words of any market or legal value. It does not appear that the Supreme Court of the United States has, in any reported case, expressed an opinion on the right of owners of so-called "patent medicines" to protection by injunction. The reports do show that that court has dealt with Trade-Mark cases in which proprietary medicines whose composition was not disclosed were involved without condemning them as unfit to receive the protection of courts of equity. Thus the case of *McLean* v. *Fleming* (13 O. G., 913; 96 U. S., 245) is a leading case, often referred to, and related to a Trade Mark of a patent medicine. So, too, in the Southern District of New York, in the case of *Filkins* v. *Blackman*, (13 Blatchf., 440,) Judge Shipman protected the Trade-Mark, "Dr. I. Blackman's Healing Balsam." We therefore prefer to determine this case upon the facts and law as dealt with in the court below.

The plaintiff, in its bill, puts itself upon its adoption and use of a certain phrase or name as a Trade-Mark, and does not allege the fact that it has registered a Trade-Mark in the Patent Office. The Trade-Mark so registered was "One Night Cure," and the accompanying statement was as follows:

> The Trade-Mark of said company consists of the words "One Night" preceding the word "Cure" or "Remedy." These have generally been arranged as shown in the accompanying fac simile of one of their labels, which represents the words "One Night Cure" printed on a circular label; but the style of printing and the shape of the label are unimportant and can be varied at will without affecting the character of the Trade-Mark, the essential features of which are the words "One Night Cure."

Exception is taken to an expression in the opinion of the court below, in which it was said that—

> The registration was notice to everybody that the Trade-Mark claimed was what is there set up, and nothing else.

It may be that this statement by the court below of the effect of registration was too broad. We are not willing to affirm the proposition that the registration in the Patent Office of a certain name or phrase as a Trade-Mark for an article made and sold by the owner will in all cases prevent or estop the owner from adopting and using another name or phrase as a Trade-Mark which might become his property by reason of such adoption and use. If, indeed, the legal effect of registry of a Trade-Mark would be to protect the owner in all markets from infringement of the name so registered, it would probably follow that registry of a given name for an article would conclude the owner, and he could not be permitted to claim that his Trade-Mark was other than that which the registry notified the public was claimed by him. But as the effect of such a registry in the Patent Office of the United States is restricted by the act of March 3, 1881, (21 R. S., 502,) to the case of a Trade-Mark to be used in commerce with foreign nations or Indian tribes the contention that as to domestic commerce he might adopt and use a different Trade-Mark than that registered would seem to be reasonable. As the scope and operation of a Trade-Mark act is constitutionally confined to foreign commerce, trade with Indian tribes, and commerce between the States, and as the act of March 3, 1881, provides only for a Trade-Mark to be used in commerce with foreign states and with Indian tribes, a Trade-Mark might well be adopted and registered for the purpose of those trades and a different one be used in domestic commerce. (*Trade-Mark Cases*, 16 O. G., 999; 100 U. S., 82; *Ryder* v. *Holt*, 128 U. S., 525; 9 Sup. Ct. Rep., 145.) This view is not inconsistent with the doctrine of the case of *Richter* v. *Reynolds*, decided in the Western District of this Circuit and reported in 67 O. G., 404; 52 *Federal Reporter*, 455. That was the case of a foreigner who, prior to his registration, had never sold any of his medicines in the United States, and who, not having here a common-law Trade Mark, had to depend upon his registry. He alleged in his bill of complaint that the defendants were infringing his Trade-Mark as registered, and when met by the defense that the defendants had used the Trade-Mark prior to the plaintiff's registry he sought to invoke the doctrine of a common-law Trade-Mark, and this the court rightfully held he could not do, but that he was restricted to the Trade-Mark described in his registry. The complainant in that case was unable to support his claim that he had acquired, as against the defendants, a common-law right to the exclusive use of certain words in connection with the manufacture and sale of medical compounds.

Complaint is also made of the court below in holding that there was no sufficient evidence that the plaintiff had acquired a Trade-Mark in the collocation of words stated. It may be, as is argued by complainant's counsel, that the interference of a court of equity does not depend on the length of time the name has been used, and that the rule is that he who first adopts a Trade-Mark acquires the right to its exclusive use in connection with the particular class of merchandise to which its use had been applied. Nevertheless, however short the time may be in which a person may acquire a title to a Trade-Mark, there must be shown an actual intention to acquire such a title. A merely casual use, interrupted, or for a brief period, would not support a claim to a Trade-Mark. (*Menendez* v. *Holt*, 46 O. G., 971; 128 U. S., 514; 9 Sup. Ct. Rep., 143.) Nor will a court of equity recognize by injunction a proprietary right in a phrase or name unless it has been used in such circumstances as to publicity and length of use as to show an intention to adopt it as a Trade-Mark for a specific article.

We agree with the court below in thinking that the complainant's evidence in these particulars was very unsatisfactory. A sale of a few dozen bottles, with written labels pasted on the bottles, in the circumstances disclosed by the evidence, could not suffice to establish such an intentional use and appropriation of the words as a Trade-Mark as to warrant the interference of a court of equity.

Moreover, while we do not think it necessary to hold that mere registry in the Patent Office of the United States of a Trade-Mark for a specific article of manufacture would of itself prevent the use and adoption of another device as a common-law Trade-Mark in domestic markets, yet such registry can operate as evidence tending to show what was really claimed by the complainant, and in the statement accompanying the complainant's application for a certificate of registry it is stated that the words "One Night Cure" have been used by the corporation as a Trade-Mark continuously since the middle of January, 1890, and such continuous use is not alleged to have been restricted to the trade of the company with foreign nations and Indian tribes, if, indeed, it has such. We agree with the court below in thinking that the defendant's label or Trade-Mark "Beshore One Night Cough Cure" was so materially different from the Trade-Mark "One Night Cure" as not to lead to any mistake of one article for the other.

It is indeed said that the court cannot take notice of the contents or statements of the complainants' statement in the Patent Office because it was neither set up in the bill nor put in evidence. However, it seems to have come into the case as an exhibit attached to one of the complainant's affidavits used on a motion for a preliminary injunction, and, as the correctness of the copy is not denied, we think that the court below, where it had been read on the preliminary argument, might legitimately refer to it at the final hearing.

Upon the whole we think the court below was right in its conclusion and that its decree dismissing the bill should be affirmed.

U. S. Circuit Court—District of New Jersey.

NATIONAL CASH REGISTER COMPANY *et al. v.* LAMSON CONSOLIDATED STORE SERVICE COMPANY.

Decided February 9, 1894

1. LORD—CASH REGISTER AND INDICATOR—PATENT VOID—NOT THE FIRST INVENTOR.
   Letters Patent No. 398,898, dated March 5, 1889, issued to Charles E. Lord, for an improvement in cash-registers, *Held* to be void for the reason that Charles A. Juengst was the first and original inventor of the devices, &c., covered by the patent.
2. BOYER—SAME—SAME—SAME.
   Letters Patent No. 416,029, dated November 26, 1889, issued to Israel D. Boyer, for an improvement in cash registers and indicators, *Held* to be void because Charles A. Juengst was the first inventor of the improvement.
3. JUENGST—SAME—PATENT SUSTAINED—FIRST AND ORIGINAL INVENTOR—SECTION 4918, REVISED STATUTES
   Letters Patent No. 499,294, dated June 13, 1893, granted to Charles A. Juengst, for an improvement in cash registers and indicators, examined and *Held* to be valid.
4. SAME—SAME—EXHIBIT—REDUCTION TO PRACTICE—EXPERIMENT.
   Where the exhibit relied on to establish priority of invention has all the necessary parts to a full-sized working machine, and is fully accomplished at the date of its construction the purpose for which it was intended and its mode of operation and utility were understood and appreciated by those who saw it operate, *Held* that such exhibit was a reduction to practice, regardless of the question whether the various other mechanisms entering into the machine all worked with practical success or not.

Mr. Edward Rector and *Mr. Melville Church* for the complainant.

Messrs. Gilman & Rusk, *Mr. M. B. Phillipp*, and *Messrs. Keasbey & Sons* for the defendant.

ACHESON, *J.*:

This suit is brought under section 4918 of the Revised Statutes of the United States, relating to interfering patents. The plaintiffs are the owners of the two Letters Patent—namely, No. 398,898, dated March 5, 1889, granted to Charles Edgar Lord on an application filed October 11, 1888, and No. 416,029, dated November 26, 1889, granted to Israel Donald Boyer on an application filed July 8, 1889. The defendant is the owner of Letters Patent No. 499,294, dated June 13, 1893, granted to Charles A. Juengst on an application filed September 24, 1890. The inventions in controversy relate to and are improvements in machines known as "cash registers and indicators," and consist in the combination, with the registering keys of such a machine, of a key-coupler adapted to couple the displaced keys together during their registering motion, and an arrester for compelling the displaced keys to make a complete stroke before returning to their normal position. The improvements are capable of conjoint use, and are covered, on the one hand, by the Lord and Boyer patents, and, on the other, by the Juengst patent.

In the Patent Office there were interference proceedings between Juengst and Lord and between Juengst and Boyer, resulting in each case in a decision by the Commissioner of Patents awarding priority of invention to Juengst; and a patent having been issued to him this bill was filed to avoid the same.

The dates of filing the applications by Lord and Boyer—namely, October 11, 1888, and July 8, 1889—are to be accepted as the dates of their respective inventions, no evidence having been given to establish earlier dates therefor. The invention by Juengst is alleged to have been made in the year 1886 and embodied in a machine—"Juengst Exhibit No. 2"—put in evidence by the defendant. That this exhibit is the original machine made by Charles A. Juengst, that it was constructed by him in its present form in the summer of 1886, at the works of Juengst & Sons, at Croton Falls, in the State of New York, and that it fully illustrates the improvements in controversy are matters not seriously contested, and, indeed, under the evidence, are not open to doubt. The case, then, seems to turn upon the question whether this machine was a reduction to practice of the inventions or an abandoned experiment.

The Juengst Exhibit No. 2 lacks a casing and a cash-drawer; but it has all the other necessary parts of a cash-register. It is a full-sized working machine, of permanent structure, and made of the usual materials. As respects the keys, the key-coupler, and arrester, its mechanism is complete and practically operative and undoubtedly contains the inventions involved in this suit. A number of credible witnesses testify that in the summer of 1886 this mechanism was operated with entire practical success in their presence. It fully accomplished the purposes for which it was intended, and its mode of operation and utility were understood by those persons, some of whom were practical machinists. It is true that the machine was never brought into such a perfectly-finished state as to be fit for employment as a cash-register for ordinary business purposes, and its registering and indicating devices are defective, and seem always to have been so; but the test of perfected invention here is not whether the various distinct mechanisms entering into Juengst's machine all worked with practical success. In themselves cash registers and indicators were old and were in common use. The inventions in question were only improvements upon such machines—additions thereto designed to give them increased efficiency. The mechanism in which Juengst embodied his inventions was amply sufficient to demonstrate the practical success thereof. This it actually did to the satisfaction of those to whom it was exhibited. To apply to the old machines the improvements which Juengst thus devised, put in operative form, and disclosed, required only common mechanical skill. Upon the proofs and under the authorities I am entirely satisfied that what Juengst did in 1886 was a reduction to practice of the inventions in controversy, and that his machine then built and operated, since preserved in its original shape, and now produced in evidence, contains the inventions in a completed and practical form. (Curtis on Patents, sec. 87*a*; *Reed* v. *Cutter*, 1 Story, 590; *Coffin* v. *Ogden*, 18 Wall., 120; *Pickering* v. *McCullough*, 104 U. S., 310, 319.) I am therefore of the opinion that Letters Patent for the same were rightly granted to Charles A. Juengst, assignor to the defendant company.

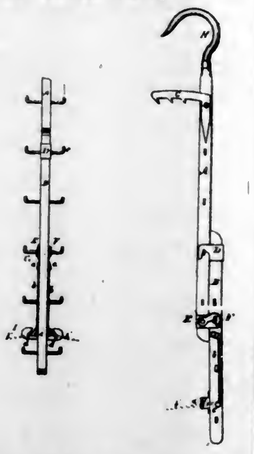
Let a decree be drawn in accordance with this opinion.

PATENTS

Expired, May 1 1894.

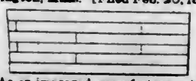
The term of these patents granted during the week ending May 1 1877, have expired. The reissues expired at an earlier date.

190,113. LADDERS. J. W. Allen, Republic, Ohio. [Filed Apr. 7, 1877.]



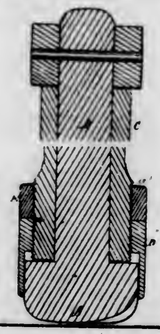
1. The hook C, braces *b b*, plate I, and clasps *a a*, substantially as and for the purposes set forth.
2. The combination of the hook C, braces *b b*, plate I, clasps *a a*, sections A B, with rounds bent up near the ends, bands D E, hooks F G, and grappling-hook H, substantially as and for the purposes described.

190,112. MANUFACTURE OF HEELS FOR BOOTS AND SHOES. W. B. Arnold, North Abington, Mass. [Filed Feb. 20, 1877.]



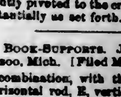
1. As an improved manufacture, a heel-lift composed of a series of peripheral pieces dovetailed together, and a filling arranged between or with them, all substantially as shown and described.
2. As an improved manufacture, a heel made as specified—viz., with each of its outside lifts of a single piece of material, and each of its intermediate lifts composed of a series of peripheral pieces dovetailed together, and a filling, as explained, and arranged to break joints with the next adjacent composite lift, or lifts, all as set forth.

190,114. PEG-FLOATS. Wm. B. Arnold, North Abington, Mass. [Filed Mar. 21, 1877.]



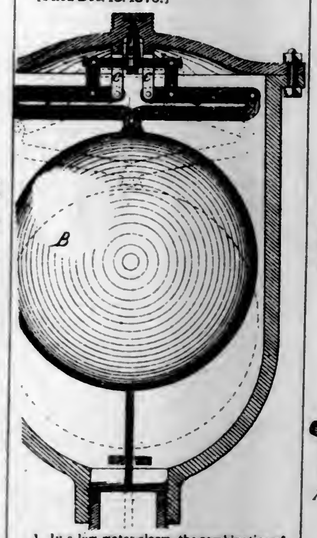
The combination of the adjustable gage D, its check-nut E, and screw *a* with the rotary peg-rasper A, and its arbor B, and the carrier C thereof, all being arranged substantially as set forth.

190,115. DENTAL TOOLS. S. Babcock and C. E. Mason, Springfield, Ill. [Filed Nov. 29, 1876.]



A dental polishing or grinding tool, formed of thin soft metal, in which diamond-dust is permanently embedded by pressure, all as described.

190,116. LOW-WATER ALARMS. T. Bingham and T. J. McTighe, Pittsburg, Pa., assignors of five-eighths their right to J. L. Lewis and Wm. J. Lewis, same place. [Filed Dec. 16, 1876.]

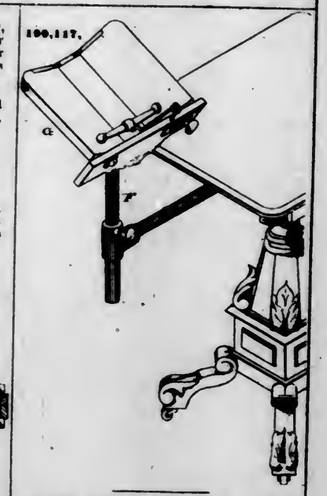


1. In a low-water alarm, the combination of the following elements, to wit: a longitudinally-reciprocating valve, a float, and a duplicate system of independent levers, independently connecting the valve and float together, arranged and operating substantially as shown and described.
2. The combination of the valve, the cross-bar carrying the same, and the combined pivot-bearings, and slotted guides depending from the cap, and constructed substantially as shown, so as to form fulcra for the levers, as set forth.
3. The combination, with the float B, of the cross-bar *d*, carrying the valve *c*, the independent levers *g*, and the links *f*, respectively and independently pivoted to the cross-bar and levers, substantially as set forth.

190,117. BOOK-SUPPORTS. J. Boudeman, Kalamazoo, Mich. [Filed Mar. 24, 1877.]

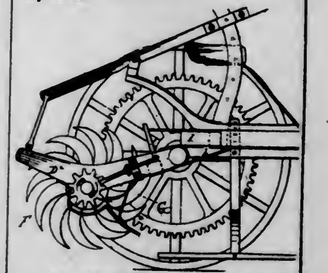
1. The combination, with the table, of a sliding horizontal rod, E, vertical adjustable stem F, and the hinged adjustable book-rest, desk, or holder, G, substantially as described.
2. A book-desk, G, having a number of leaves jointed one to another, and provided with a base-piece pivoted to one outer leaf, and adjustably connected with the other outer leaf by a pin and slot, said leaves being capable of being fixed in a given position, substantially as described.

190,117.



190,118. CORN-STALK CUTTERS. Jonathan P. Brower, Cornstalk, Ind. [Filed Nov. 9, 1876.]

Brief.—Curved rotary knives, with reversed spiral arrangement, operating to pick up the stalks from the ground, and to carry them forward to be cut against the curved stationary knives.



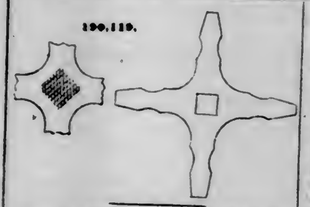
1. The combination, with the stationary knives G, of the curved rotating knives F, operating to pick up the stalks from the ground, and to carry them forward and cause the same to be cut against said knives G, as described.
2. The curved rotating gathering-knives F, having the reversed spiral arrangement whereby they are made to cut in pairs, as described, in combination with the curved stationary knives G, arranged substantially as described.
3. In a corn-stalk cutter, the combination of the curved rotating gathering-knives F and curved stationary cutters G with the vibrating adjustable cutter-frame D, for adapting said cutters to be set nearer to or farther from the ground, as described.

190,119. SCREW-DRIVERS. Bern L. Budd, Fairfield, Conn. [Filed Mar. 17, 1877.]

Brief.—A screw-driver formed of a flat piece of metal, and having four blades of different sizes, is provided with a perforation in its center, adapted to be used as a wrench.

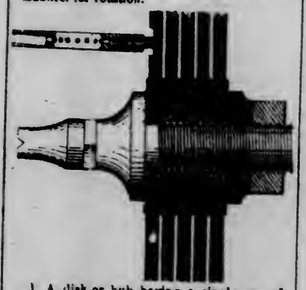
As a new article of manufacture, a screw-driver consisting of a flat piece of metal provided with three or more uniformly-diverging blades of different sizes, and having an enlarged central portion, and a perforation in said central part adapted to serve as a wrench, constructed to operate as shown and described, and for the purpose set forth.

190,119.



190,120. BRUSHES. B. L. Budd, Fairfield, Conn. [Filed Mar. 21, 1877.]

Brief.—A wheel-brush made of a series of disks, each having a row of bristles in its periphery, and the said disks secured on a mandrel for rotation.



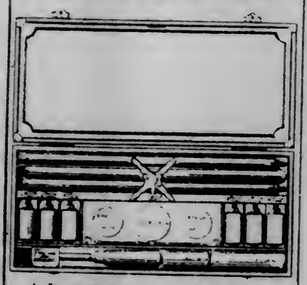
1. A disk or hub having a single row of radial perforations and provided with a series of independent knots set in said perforations, substantially as and for the purpose described.

2. The combination of a series of disks, each having a row of radial perforations and provided with fixed and independent peripheral knots with a mandrel and suitable clamping devices, substantially as described.

3. The combination of a series of disks, each provided with peripheral knots, with a mandrel upon which they may be individually rotated or changed in relative position, and with clamping devices, whereby they may be held positively in references to each other when adjusted, substantially as described.

4. The combination of a series of disks, each having peripheral knots, with a shouldered mandrel, whereupon their relation to each other may be altered, which is adapted to be held at one end against rotation, and at the other end having a nut, whereby the disks may be clamped and held in position, substantially as described.

190,121. GUN-CLEANING CASES. B. L. Budd, Fairfield, Conn. [Filed Mar. 22, 1877.]



1. In a gun-cleaning case provided with compartments, the combination, with a division-strip, of the pivoted clasp for holding the screw-driver, whereby the contents of the compartment are held in place, all substantially as set forth.

2. In a gun-cleaning case, the combination, with the body of the case provided with compartments, of an intermediate cover, and an outer cover provided with corner metallic holders, all substantially as and for the purpose described.

3. A gun-cleaning case, having an outer cover provided with corner metallic holders, adapted to hold in place an intermediate cover, and also protect the edges of the cover from unnecessary wear, all substantially as set forth.

4. In a gun-cleaning case, the arrangement, substantially as described, of the receptacle in the lid, the longitudinal compartment in the body for the jointed cleaning-rod, with overlying clasp for the screw-driver, whereby the lengths of the rod are held in position, the lateral compartments for the cleaning and polishing implements, the medium compartments for the compounds and lubricating material, and the longitudinal compartments for the special instruments, as set forth.

5. A gun-cleaning case, the body of which is divided into compartments, and provided with the clamp for holding the screw-driver, which is adapted to hold the rods in place, in combination with an intermediate cover held in place by suitable fastening devices attached to the outer cover, all substantially as shown and described.

6. A gun-cleaning case, consisting of a body divided into compartments, an intermediate cover, and an outer cover provided with the metallic swinging corner holders, whereby the intermediate cover is held in place, all arranged and constructed substantially as shown and described.

190,122. COMPOSITION PARAVASELINE PASTE. Bern L. Budd, Fairfield, Conn. [Filed Mar. 23, 1877.]

A composition of vaseline and paraffine, substantially as and for the purpose specified.

190,123. GUN-CLEANING BRUSHES. B. L. Budd, Fairfield, Conn. [Filed Mar. 19, 1877.]



1. In a gun-cleaning implement, the combination of a series of disks provided with peripheral knots with a mandrel and suitable clamping devices, substantially as described.

2. In a gun-cleaning implement, the combination of a series of disks provided with knots alternating with disks of thin hard felt with a mandrel and suitable clamping devices, substantially as described.

3. In a gun-cleaning implement, the combination of a series of disks provided with peripheral knots, with a mandrel adapted to be secured to a suitable holder and with clamping devices, whereby the disks may be clamped and held in any desired adjustment in relation to each other, substantially as and for the purpose described.

4. In a gun-cleaning implement, the combination of a series of disks having peripheral knots with a mandrel headed at one end, and adapted to be held against rotation, and at the other having a thumb-nut, whereby the disks may be clamped in position, the said mandrel terminating in a screw suitable for adjustment in a handle, or in one of the joints of the ordinary gun-cleaning rod, or perforated to receive a cord, substantially as and for the purpose described.

190,124. FIELD-WIPERS FOR GUNS. Bern L. Budd, Fairfield, Conn. [Filed Mar. 10, 1877.]

Brief.—A pocket gun-wiper and attachments specially adapted to sporting arms.



1. The field-wiper consisting of the swab, the string, and the weight inclosed in a close-fitting case, all constructed substantially as described.

2. The combination of the swab, the string, and the cylindrical weight, constructed substantially as described, and adapted for inclosure within a close-fitting cylindrical case, as set forth.

3. The cylindrical weight adapted to serve as a spool, upon which the cord connecting it with the swab may be wound, in combination with the said swab and cord, as and for the purpose described.

4. The cylindrical weight flanged at its ends, and with a notch cut in one of the said flanges next to the point of attachment of the cord, substantially as and for the purpose described.

5. The cylindrical weight attached to the swab, and having an internal receptacle for a bottle of oil, and suitable means for opening and closing said receptacle, substantially as described.

6. The cylindrical weight having a removable bottom or end, to which is attached a vessel of oil, substantially as described.

7. The kit herein described, consisting of the felt swab, the metal shank, the cord, the cylindrical weight, and the inclosed vessel of oil, and their close-fitting cylindrical case, substantially as and for the purpose described.

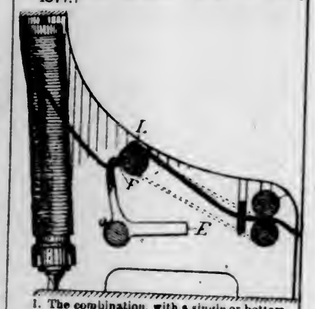
190,125. COMPOSITION EMERY-PASTE. B. L. Budd, Fairfield, Conn. [Filed Mar. 14, 1877.]

A composition of emery and vaseline, substantially as and for the purpose specified.

190,126. COMPOSITION ROUGE-PASTE. B. L. Budd, Fairfield, Conn. [Filed Mar. 14, 1877.]

A composition of the oxide of iron and vaseline, substantially as and for the purpose specified.

190,127. ELECTRIC STOP-MOTIONS FOR DRAWING-FRAMES, &c. John Bullough, Accrington, England. [Filed Mar. 23 1877.]



1. The combination, with a single or bottom roller, of the system of levers threaded on a shaft, the combination being such that the cotton or thread shall pass between any given lever and the roller, and prevent a metallic connection, substantially as and for the purpose set forth.

2. The levers described, adapted to be threaded upon a shaft, and provided with a spur, E, nose F, and slit H, all substantially as and for the purposes set forth.

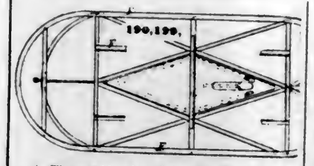
3. The rollers provided with a longitudinal rib or ribs, L, and operating in combination with the levers, to lift and drop them suddenly, as and for the purpose set forth.

190,128. PROCESSES OF PRESERVING MEAT IN TRANSIT. Jas. Campbell, Chicago, Ill. [Filed July 29, 1876.]

The herein-described process for preserving meats in transit, which consists in packing packages of meat between layers in the following order: first, a layer of sawdust; then a composition of salt, sal ammoniac, niter, and sulphate of soda; then a layer of ice; then a package of meat; then sawdust again, and so on, substantially as described.

190,129. CONSTRUCTION OF BOATS AND VESSELS. A. Crosby, New York, N. Y., assignor to Central Propelling Company, same place. [Filed Feb. 5, 1877.]

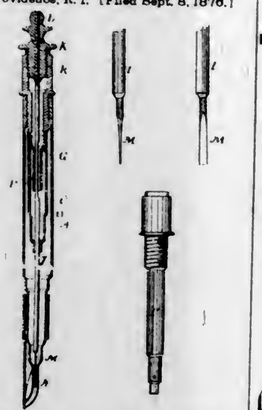
190,129.



1. The combination of the bilge-keel C with the metal frame-work and wooden planking, when the bilge-keel is made an integral part of the strength of the internal frame, and also of the outer skin of the vessel, as herein shown and described.

2. A composite boat having a metal frame and wooden planking, in which the frames a of the bow and stern are set radially to the curve of contour, as herein shown and described.

190,130. FOUNTAIN-PENS. A. T. Cross, Providence, R. I. [Filed Sept. 8, 1876.]



1. The combination of the valve-spindle I, air-tube C, and case A, each part, respectively, being contained within the other, and made separately removable, substantially as described.

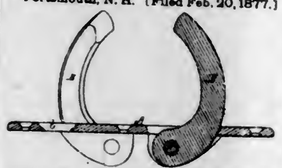
2. The nut K and check-nut L, for regulating the simultaneous opening or closing of the air-vent and the lower valve in fountain-pens.

3. The short annular capillary chamber O, combined with an upper air-chamber having a greater area in its cross-section.

4. The air-tube C, divided into upper and lower chambers by means of the tube F and flange G, forming the inverted annular space P in the lower chamber.

5. The flattened needle M, combined with the tube N, substantially as described.

190,131. ROWLOCKS. Peter A. Danielson, Portsmouth, N. H. [Filed Feb. 20, 1877.]

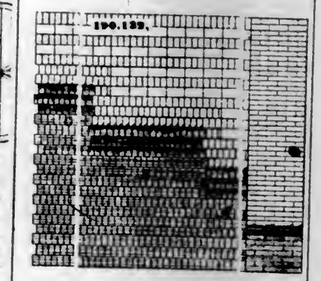


The base A, provided with the recesses *b b*, in combination with the two horns B B, pivoted to the said base, and to operate with respect to each other and the said recesses, all substantially as set forth.

190,132. BRICK-KILNS. H. Dickson, Homestead, assignor to himself and W. S. Colwell, Pittsburg, Pa. [Filed Oct. 7, 1876.]

In a brick-kiln, a series of arches, A B C, increasing in depth from the outside to the center of the kiln, substantially as herein described, and for the purpose set forth.

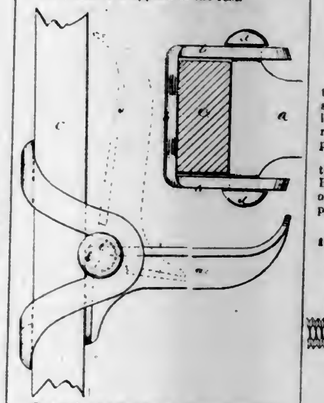
190,133. SPECTACLES. I. S. Doten, Bristol Station, Ill. [Filed Oct. 2, 1876.]



In combination with a spectacle-frame, a revolving secondary frame, *e*, carrying glasses provided with sections having different foci, substantially as and for the purposes specified.

190,134. STILTS. J. S. Ebert, New York, N. Y. [Filed Nov. 9, 1876.]

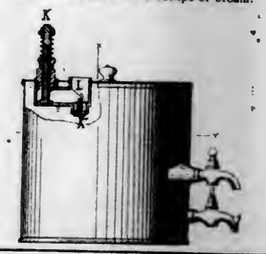
Brief.—The foot-rest is pivoted to the staff-clamp by lugs, which interlock therewith, and has a cam arranged to crowd against the staff when pressure is applied to the rest.

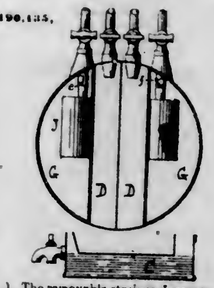


In a stilt, the foot-rest a, eccentrically pivoted to the three-sided clamp-piece *c* by means of the projections *d d*, and adapted to form with the staff a readily-adjustable clamp, substantially as set forth.

190,135. TEA AND COFFEE POTS. Robt. A. Gardner, Providence, R. I. [Filed Mar. 13, 1876.]

Brief.—One valve admits water to the vessel, and the other allows escape of steam.

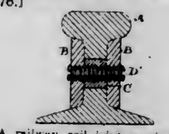




1. The removable strainer J, constructed as described, to constitute also a reservoir for the filtered or strained liquid, in combination with the outlet or spout of a tea or coffee urn, substantially as specified.

2. In an apparatus for making tea or coffee, the combination of the following instrumentalities: a water space or boiler, C, for generating steam, a steam chest or space, D, connecting with the boiler, and provided with valves K K' to control the pressure of the steam, and a chamber or receptacle, G, in which the tea or coffee is steeped and retained, receiving its heat from the steam-chest, substantially as described.

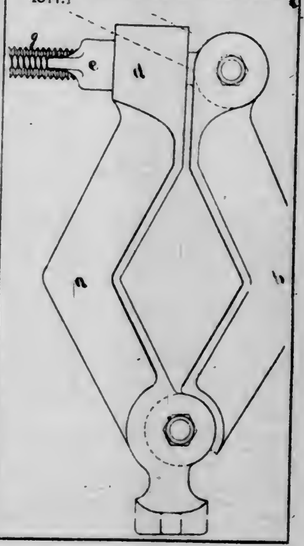
190,136. RAILROAD-RAIL JOINTS. Geo. H. Grant, Richmond, Ind. [Filed Oct. 21, 1876.]



1. A railway-rail joint consisting of the threaded blocks C, threaded fish-bars B, and screw-bolts D, threaded throughout their length, operating in combination with the rails A A, substantially as and for the purpose specified.

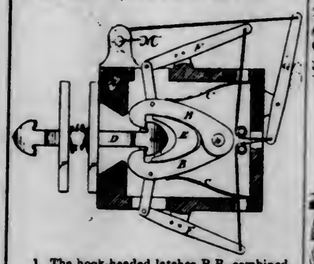
2. The combination of the rails A A and threaded bolts D with threaded fish-bars B B, having outwardly curved or bent ends, operating substantially as and for the purpose specified.

190,137. CARRIERS FOR LATHE-WORK. G. Harman, Philadelphia, Pa. [Filed Apr. 2, 1877.]



The combination of arms *a* and *b* with screw *g* and nut *c*, when arranged in the manner described, for the purpose set forth.

190,138. CAR-COUPLINGS. M. Heines, Fort Sill, Ind. T. [Filed Apr. 10, 1877.]



1. The hook-headed latches B B, combined with the operative shaft M and the connecting mechanism, consisting of levers F F and G, with the connecting cords or chains, as described.

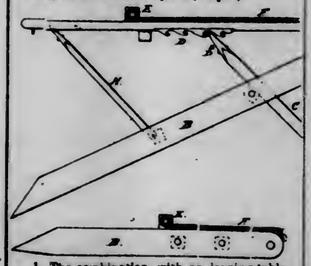
2. The hook-headed latches B B, actuated by springs C C, combined with the draw-bar D, provided with the buffer-plates *p p* and springs, wound one over the other in opposite directions, substantially as set forth.

190,139. WIRE-COILING MACHINES. A. D. Hoffman, Chicago, Ill., assignor to J. E. Whittlesey and J. W. C. Peters, same place. [Filed Mar. 22, 1877.]



The spindle B, provided with a shoulder, E, in combination with a roller, L, for feeding the coil from a smaller to a larger circumference, substantially as specified and shown.

190,140. IRONING-TABLES. B. C. Hotchkiss, Buffalo, and C. W. Hebard, Rochester, N. Y. [Filed Sept. 15, 1876.]



1. The combination, with an ironing-table, of a bosom-stretcher, when one end of table is made to form part of such stretcher, in combination with a device, as set forth, for griping the end of the garment, and stretching, substantially as and for the purpose shown.

2. The additional support H, as shown, combined with the cross-legs B C, and notches I I I I.

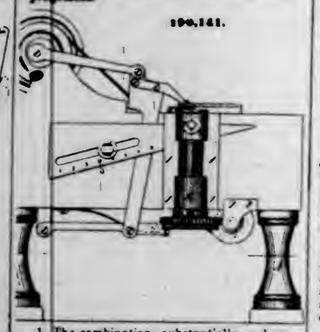
3. The bar E in combination with the cord F, and the ring G, substantially as and for the purpose set forth.

4. The ratchets formed by the hawksbills D, and in combination with the leg C, having metal tips D^3.

190,141. MACHINES FOR MANUFACTURING SAWS. Jos. A. House, Bridgeport, Conn. [Filed Apr. 11, 1877.]

Brief.—The machine comprises a vertical slot or guideway, in which is located a tapering and adjustable plate for supporting a saw-blank plain pinned edgewise upon it; a pair of rolls operated by ratchet and pawl, for feeding the blank plate forward; a reciprocating cutter operating in the plane of the plate, to cut teeth upon the edge of the plate; and a rotating cutting-disk that shears the toothed ribbon from the plate as the tooth-cutting progresses.

190,141.



1. The combination, substantially as hereinbefore set forth, of a guideway for the saw-blank, and a reciprocating chisel operating upon the edge of the blank, and automatically thrown into and out of operation at intervals, to form series or different sets of teeth with intervening untoothed spaces, whereby a number of blades are toothed at a single traverse of the blank.

2. The combination, substantially as hereinbefore set forth, of the reciprocating chisel and the saw-blank-feeding rollers by which the blank is presented to and firmly held against the thrust of the chisel reciprocating at an acute angle to the edge of the blank above the rollers, to successively cut the teeth thereon, as set forth.

3. The combination of the saw-blank clamping and feeding rollers, the cutter for severing the blank longitudinally into stripe to form saw-blades, and the reciprocating chisel for toothing the blank edge, these members being constructed and operating substantially as hereinbefore set forth.

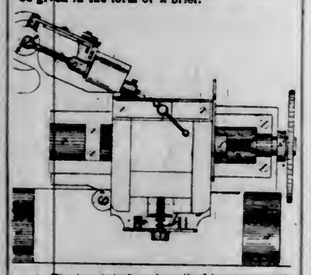
4. The adjustable endwise-moving anvil for supporting and adjusting the saw-blank, substantially as set forth.

5. The combination, substantially as hereinbefore set forth, of a guideway, in which the blank is traversed, a chisel operating upon the edge of the blank, and reciprocating above in the same plane as and at an inclination to the blank, and an anvil adjustable in the blank guideway, and supporting the blank.

6. The combination of the chisel reciprocating above the traversing saw-blank, the rocking lever, to one end of which the chisel is secured, the vibrating arm, to which said lever is pivoted at its opposite end, and a cam operating upon said vibrating arm, these members being constructed and operating substantially as hereinbefore set forth, to automatically throw the chisel into and out of operation.

190,142. ART OF MANUFACTURING SAW-BLADES. J. A. House, Bridgeport, Conn. [Filed Apr. 11, 1877.]

Brief.—The claims in this case afford a clearer description of the invention than could be given in the form of a brief.



1. The hereinbefore-described improvement in the art of manufacturing saw-blades, which consists in forming the teeth successively by cutting the saw-blade from the edge inward toward the center or back at an acute angle, and pressing out the teeth sidewise alternately to the right and left, substantially in the manner set forth, to cut and set the teeth simultaneously.

2. The hereinbefore-described improvement in the art of manufacturing saw-blades by machinery, which consists in cutting the teeth upon the blank by successive cuts of a chisel operating in the plane of the blank, reciprocating in a path at an acute angle to that traversed by the blank, and acting upon its edge to displace or force up the metal thereof to form the teeth, substantially in the manner described.

3. The combination, substantially as hereinbefore set forth, of a saw-blank carrier traversed step by step in a fixed path, and a chisel reciprocating at an acute angle to and in the plane of the blank, whereby the teeth are formed by forcing up or displacing the metal at the edge of the blank by cutting from the edge inward, as set forth.

4. The combination, substantially as hereinbefore set forth, of a traversing saw-blank carrier, a reciprocating chisel, and the blank-severing cutter, whereby a strip to form a saw-blade is gradually severed from the blank as the teeth are being cut on its edge by the chisel.

5. The combination, substantially as hereinbefore set forth, of a traversing saw-blank carrier, a reciprocating chisel acting upon the edge of the blank to cut the teeth, and the adjustable chisel-carrying frame automatically elevated and depressed to throw the chisel out of operation at the ends of the blank, and hold it in working position to cut the teeth centrally upon the blank.

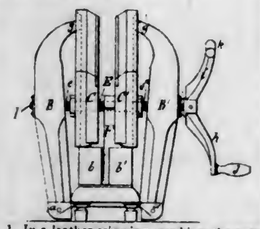
6. The combination, substantially as hereinbefore set forth, of the supporting-frame, the blank-carrier traversing endwise thereof, and in which carrier the blank is clamped and adjusted, the chisel for cutting the teeth, and the cutter for shearing the blades from the blank above the carrier.

7. The combination, substantially as hereinbefore set forth, of the blank-carrier, the reciprocating chisel, and mechanism, substantially such as described, for axially oscillating the chisel in its guideway, to alternately press the teeth in opposite directions as they are cut in the edge of the blank, as set forth.

8. The combination, substantially as hereinbefore set forth, of the pivoted chisel-carrying frame, the chisel reciprocating therein, the pitman connected with the chisel-holder by a swiveling joint, the vibrating arm actuated by a cam on the driving-shaft, and the universal-joint connection between said arm and an arm on the chisel-holder, whereby the chisel is reciprocated and rocked axially, and its frame left free to be elevated and depressed to throw the chisel out of and into operation.

190,143. LEATHER-CRIMPING MACHINES. A. J. F. Howard, Milford, Mass. [Filed Mar. 19, 1877.]

Brief.—The clamping-plates and levers are operated together by a compound right-and-left screw. The plates have each a notch, by which they are loosely connected with nuts that are adjustable on a central screw-rod, whereby the plates may be readily thrown out of parallelism with each other.



1. In a leather-crimping machine, the combination of the jaws or clamp-plates C C′ and levers B B′ with the compound screw-shaft E and nuts D D′ and H H′, the arrangement being such that the upper ends of the levers act upon the upper portions of the jaws simultaneously, or thereabout, with the action of the nuts D D′ upon the central portion of such jaws, substantially as and for purposes stated.

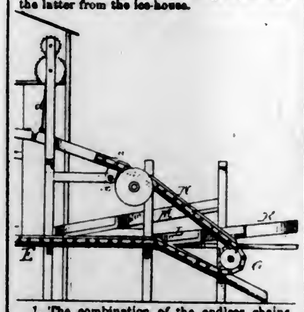
2. In a leather-crimping machine, the compound screw-shaft E, as formed with the twin pairs of right-and-left screws *e f* and I I′, in combination with and adapted for operating the jaws C C′ and levers B B′, substantially as and for purposes stated.

3. In a leather-crimping machine, the combination of the clamp-plates C C′, screw-shaft E, and nuts D D′ and H H′, as arranged, so that the position of one or both pairs of nuts, with respect to each other and to said plates, may be varied upon the screw, to adjust the relative vertical positions of the said plates, essentially as and for purposes stated.

4. In a leather-crimping machine, the combination of the compound screw-shaft E and nuts D D′ and H H′, substantially as herein described, whereby the relative positions of the nuts upon their respective screw-threads may be varied, essentially as and for purposes stated.

190,144. IOE-CONVEYERS. Aug. Hunt, Philadelphia, Pa. [Filed Apr. 4, 1877.]

Brief.—The object of this invention is to readily move ice from a vessel into the ice-house, or from a vessel into wagons, or into the latter from the ice-house.



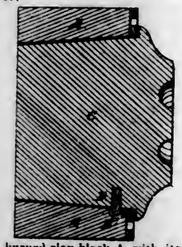
1. The combination of the endless chains and their cross-bars with the inclined guide N and inclined chute K.

2. The combination of the inclined chute L with the platform E, traversed by the endless chains.

3. The combination of the inclined chutes K and L and switch *n* with the endless conveying-chains and platform E.

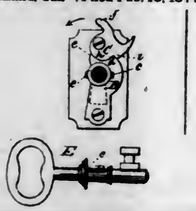
4. The combination of the endless chains and cross-bars with the inclined guide N, inclined chute M, and switch *q*.

190,145. STOVE-FLUE THIMBLE-TILES. W. Kendall, St. Louis, Mo. [Filed May 15, 1876.]



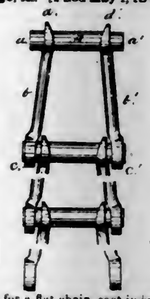
The burned-clay block A, with its stopper-hole B and locking-groove E, in combination with the stopper C and its lock-spur D, as and for the purposes herein described.

190,146. KEY-FASTENERS. L. W. Kennedy, Oakland, Cal. [Filed Feb. 10, 1877.]



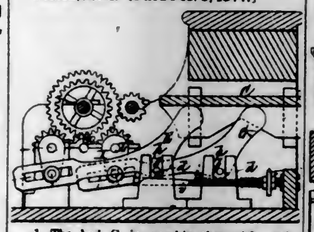
The cover B, formed with opening *a*, notch *b*, curved seat *d*, and cam *e*, in combination with the plate C, formed with shoulder *h*, stop *i*, lever *f*, and the key E, with shoulders *c*, substantially as and for the purpose set forth.

190,147. DRIVE-CHAINS. J. F. Kingwill, Chicago, Ill. [Filed May 1, 1876.]



A link for a flat chain, cast in one piece and consisting of the cross-bar A, with flanges *d d′* and projecting ends *a a′*, and the draw-bars *b b′*, eyes or hooks *c c′* at their inner ends, formed as described, to adapt them to receive the projecting ends of an adjacent link, substantially as and for the purpose set forth.

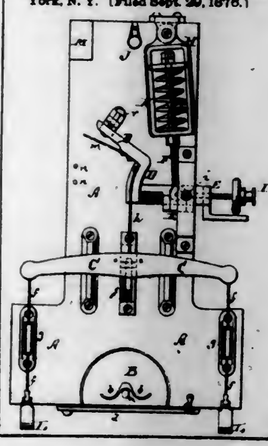
190,148. EMBOSSING-PRESSES. D. Koenig, Boston, Mass. [Filed Feb. 9, 1877.]



1. The bed C, in combination with, and raised by, the four levers E E G G, upon which it bears at four separate and independent points, substantially as and for the purpose set forth.

2. The wedges *i*, connected together and operated simultaneously by the screw *u*, in combination with the bearing-blocks *d* and levers E E G G, substantially as and for the purpose described.

190,149. HEALTH-LIFTS. A. W. Losier, Orange, N. J., assignor, by mesne assignments, to Mrs. J. de la M. Losier, New York, N. Y. [Filed Sept. 29, 1876.]



1. In a health-lift, the combination of the bed-plate A with the vertically-adjustable heel-plate B and screw *a*, substantially as specified.

2. The adjustable heel-plate B, combined with the recessed bed-plate A, substantially as described.

3. In a health-lift, the combination of the horizontally-movable equalizer-bar C with the handles L L, cord *k*, and segmental lever D, substantially as specified.

4. The combination of the segmental lever D with the adjustable slide E and spring-plunger F, substantially as described.

5. In combination with the lever D of a health-lift, and with the vibrating clapper *m*, the fixed pin *n*, all arranged to constitute an alarm attachment, substantially as specified.

6. In combination with the segmental lever D and adjustable slide E, the adjustable stop *r*, substantially as specified.

7. The chain-fastener composed of the L-shaped recess *t* and gate *u*, substantially as specified.

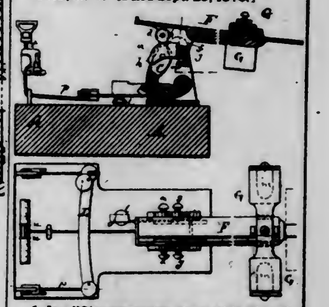
8. The handle L, in combination with the adjustable block *w*, over which the chain is placed, substantially as specified.

9. In the handle L, the combination of the rigid gripe-bar *v* with the upper elastic and flexible pad *y*, substantially as specified.

10. In the handle L, the combination of the rigid gripe-bar *v* with the upper elastic and flexible pad *y* and adjustable clamp or fastener *z*, substantially as specified.

11. The vertically-adjustable time-glass J, arranged on a supporting-rod, in combination with a health-lift, substantially as described, and for the purpose specified.

190,150. HEALTH-LIFTS. A. W. Losier, Orange, N. J., assignor, by mesne assignments, to Mrs. J. de la M. Losier, New York, N. Y. [Filed Sept. 29, 1876.]



1. In a lifting apparatus, the combination of the lever C, carrying the friction-roller *b*, with the weighted bar F, having the toe *h*, substantially as specified.

2. The combination of the vibrating lever C with the trigger *i* and hammer *j*, substantially as and for the purpose set forth.

3. The adjustable weight G, made with hollow ends, and provided with gates *n*, as specified.

4. In a health-lift, the chain-lock, composed of the chamber *o*, and latches *q* and *r*, substantially as specified.

5. The combination of the lifting-machine handle with the adjustable rings *u u*, as specified.

190,151. EXERCISING-MACHINES. A. W. Losier, New York, N. Y., assignor, by mesne assignments, to Mrs. J. de la M. Losier, same place. [Filed Feb. 6, 1877.]

1. The combination of the bed-plate A with the curved lever B, which, by its pivoted member *d*, connects with the tension spring or device D, said spring being contained within the hollow of the curved lever, and interposed between the operating-bar and the pivot *h*, substantially as specified.

2. The combination of the curved lever B with the adjustable box C, which connects with the resisting spring or weight D, substantially as herein shown and described.

3. The combination of the curved lever B with the adjustable box C, spring D, and pivoted plate *h*, substantially as herein shown and described.

4. The wedge *i*′, combined with plate *h*, for the purpose of shortening or lengthening the spring, and securing it when so adjusted, substantially as shown and described.

5. The curved lever B, having its portion *d* made corrugated or roughened, and combined with the sliding box C, set screw *f*, and elastic friction plate *e*, substantially as specified.

6. The combination of the curved lever B, and operating-handle E, with the stop *x*, which is applied at or near the pivoted end of said lever, substantially as herein shown and described.

7. The combination, in a health-lift, of the segmental portion *d* of curved lever B with the hollow box F, containing the ball *g*, substantially as specified.

8. The combination, in a health-lift, of the operating-chain *j*, with the handle-shank *l*, the shank having the locking-wedge *m*, and friction-spring *n*, substantially as shown and described.

9. In a health-lift, the combination of the curved lever B, with the sliding index *s*, and chain or cord *t*, substantially as specified.

10. In a health-lift, the foot-support G, constructed of a layer of felt, *a*', and a layer of rubber, *b*', substantially as herein shown and described.

11. The surrounding frame *d*', combined with the felt layer *a*', and the rubber layer *b*', substantially as specified.

12. In a health-lift, the combination of a curved lever, B, having a graduated scale and a spring, with the pivot-pin *s*', to which the curve of said lever is concentric, substantially as described.

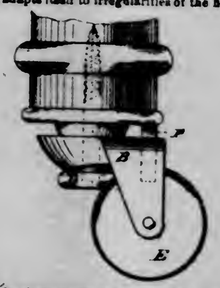
13. The handle E, made with the central threaded projection *l*' for connection with the threaded shank *l*, and combined with the sliding handles *g*' *g*', that have sockets, and are fastened by set-screws, substantially as specified.

190,131.



190,132. FURNITURE-CASTERS. Alex. C. Martin, Hamilton, Ohio. [Filed Sept. 16, 1876.]

Brief.—The frame, which carries double caster-wheels and a single friction-wheel, oscillates by means of an elliptical bearing, and thus adapts itself to irregularities of the floor.



A furniture-caster composed of the following elements: the floor-wheels E E, the anti-friction pivot-wheel F, the housing B, the elliptical housing-opening, or its mechanical equivalent, and the rocker-formed collar-bearing, or its mechanical equivalent, all combined so as to allow the floor-wheel axis to oscillate horizontally, substantially as and for the purpose specified.

190,133. PROCESSES OF MAKING SHOES. G. McKay, Cambridge, Mass. [Filed Dec. 11, 1876.]

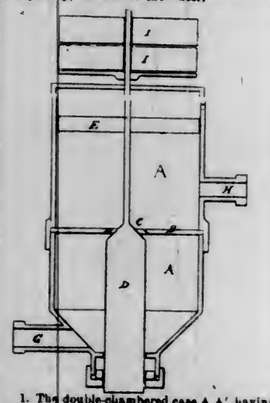
1. In the manufacture of boots and shoes, first lasting the upper over the last and inner sole by means of a lasting machine, and then applying to the lasted shoe while in the lasting-machine a sole set or studded with nails, and then further driving the nails into the outer sole and into the upper and inner sole, substantially as described.

2. In the manufacture of boots and shoes, the process of applying a sole, loaded or set with nails, as described to a lasted shoe having its upper held in position by the lasting devices of a lasting machine, and then driving the nails held by the outer sole into the upper held by the lasting devices, or into the upper and inner sole, substantially as set forth.

3. In the manufacture of boots and shoes, the described process of attaching the outer sole to the upper and inner sole by a series of nails or metallic fastenings held by, and partially driven into, the outer sole, from which they are subsequently driven into the upper and inner sole, while the lasting devices hold the upper about the last and inner sole, substantially as described.

190,134. WATER-GOVERNORS. C. Nash, Indianapolis, Ind. [Filed Feb. 26, 1877.]

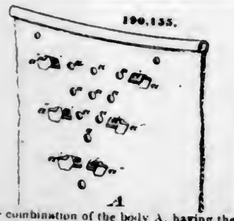
Brief.—When the valve is loaded so as to hold it down, and leave the opening clear open under a minimum pressure, it will be raised by any increasing pressure acting on the plunger, thereby diminishing the opening in proportion to the increased pressure, and, consequently, the flow of the water.



1. The double-chambered case A A', having the partition B with its opening C, and having connections G R with the service-pipe, as shown, in combination with the valve D and plunger E, arranged and operating substantially as and for the purpose set forth.

2. In combination with the chamber A, piston E, and weights 1, the valve D, extending through the bottom of chamber A, as and for the purpose described.

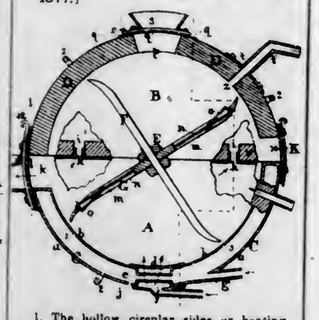
190,135. LIPS AND STRAINERS. Fredk. G. Niedringhaus and Wm. F. Niedringhaus, St. Louis, Mo. [Filed Apr. 2, 1877.]



A

The combination of the body A, having the perforations *a a* and *a' a'*, and the flanges *a'' a''*, and the lip B, having the flanges *b b*, substantially as described.

190,136. FEATHER-RENOVATING MACHINES. M. L. Palmer, Trivoli, Ill. [Filed Mar. 23, 1877.]



1. The hollow circular sides or heating-chambers on each side of the feather-chamber, with pipes *e h*, separable in the middle horizontally, and respectively clamped against an intermediate ring composed of two half-cylinders, the whole inclosing a central feather-chamber, substantially as and for the purposes described.

2. The four hollow half-sides A B A B, or heaters, inclosing a central feather-steaming chamber and stirrer, with steam-ducts *e h*, in combination with the segmental or semi-cylinders C D, the lower one made hollow to receive steam as a heater, substantially as and for the purposes described.

3. The hollow half-sides A B, with steam-pipes *e* and connecting-pipes *h*, (acting also as connecting-pins or nipples, to unite the adjoining half-sides,) arranged with segmental half-cylinders C D and their four openings K *p k d* into the feather-chamber, and induction-pipe *f'* and eduction-pipe *t* into and from said chamber, substantially as and for purposes described.

4. The hollow segmental or semi cylinder C, with steam-pipes *g e*, screen *d*, in combination with and clamped between the lateral chambers A A, provided with flanges S, substantially as and for the purposes described.

5. The upper semi-cylinder D, with opening *p* for feathers, and eduction *s t t'* for steam, extending entirely through it into the feather-chamber, in combination with lateral half-sides B B and clamps 2.

6. The combination, with the shell A B C D, the sliding spout J and its screen *i* and door 12, and the sliding hopper *s*, its screen *q* and door *r*, and the door K and screen 10, substantially as described.

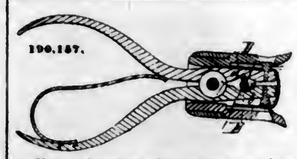
7. The combination, with the hollow chamber C, the sliding door *f*, pierced with induction-pipe *f'* to feather-chamber, substantially as and for the purposes described.

8. The stirrer having large openings *m* in each arm G, filled with sliding slats *n*, for the purpose of forming or constituting a convertible feather-stirrer and blower or fan, substantially as and for the purposes described.

9. The stirrer F G E, having large openings *m* in two of its arms G, closable by means of movable slats *n*, followed by narrower arms F, all the arms being curved in the direction of rotation when used as a stirrer, substantially as and for the purposes described.

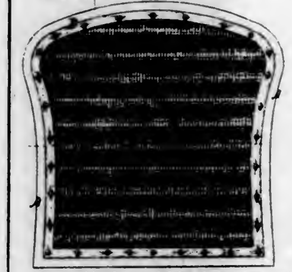
190,137. TICKET-PUNCHES. C. E. Parks, North Somerville, Mass. [Filed Feb. 23, 1877.]

190,137.



The combination, with the two punches consisting of the jaws *a b* D E, provided with male and female dies, of mechanism adapted to operate substantially as described, whereby one punch may be rendered inoperative without changing its position while the other is in use, as and for the purpose specified.

190,138. CHAIR-SEATS. J. N. Provensano and S. de Gaetano, New York, N. Y. [Filed Jan. 26, 1877.]



The combined material for chair-seats, and for similar purposes, herein described, consisting of an outer facing of woven rushes or matting, of the character herein designated, and a backing of canvas or other textile material, arranged and combined substantially in the manner and for the purposes set forth.

190,139. NON-CONDUCTING FELT. Squires Radcliffe, Little Falls, N. J. [Filed Nov. 13, 1876.]

The felt hereinbefore described, composed of the fiber of cat-tail flag and hair, and having a portion of its thickness made either of hair alone, or having a greater proportion of hair mixed with the fiber of cat-tail flag than that contained in the remainder of its thickness, substantially as hereinbefore set forth.

190,140. STEREOSCOPES. M. J. Rice, Boston, Mass., assignor to himself and J. L. Bates, same place. [Filed Feb. 27, 1877.]



1. In combination with the stereoscope A and its handle E, the screw *d* (projected from the latter,) and the piece C, fixed to the instrument and provided with a socket, *b*, to receive the projection *c* of the hinge-arm D, and with a female screw to receive the screw *d* extended from the handle.

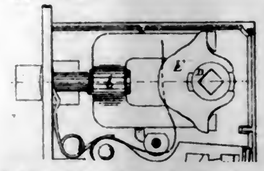
2. The arm D, hinged to the stand B, and provided with the tenon *c*, in connection or for use with the piece C, provided with the tenon-socket *b*, having the screw *d* of the handle E applied to it, as set forth.

190,141. SLEEVE OR CUFF BUTTONS. Chas. H. Rose, Providence, R. I. [Filed Nov. 25, 1876.]



The combination, substantially as set forth, of the button-body and the bar or plate beneath, provided each with a hook, and joined together by the shank of the button-body hook as a pivot, the combination being and acting substantially as specified.

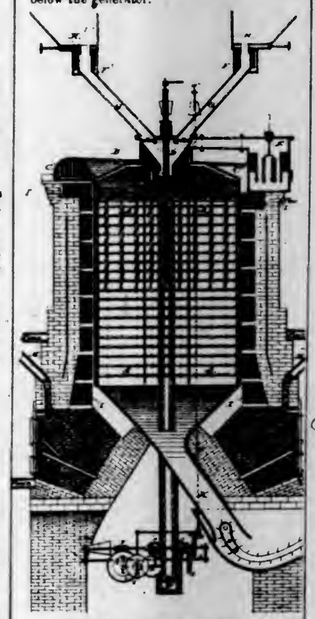
190,142. REVERSIBLE KNOB-LATCHES. W. E. Sparks, New Britain, Conn., assignor to P. & F. Corbin, same place. [Filed Mar. 17, 1877.]



In a reversible latch, the hub D, slotted as described, in combination with the slotted plate E, having V-shaped depressions in the side walls of the slot, substantially as described, and for the purpose specified.

190,143. GAS-GENERATORS. T. S. Stewart, Philadelphia, Pa. [Filed June 18, 1876.]

Brief.—Fine coal is spread in thin layers, by a distributing device, upon successive series of "louvers" or pivoted plates, forming generating-beds, where it is rapidly distilled, the gas passing into an inclined heated hydraulic main, having condensing and delaying plates, where the volatile vapors of the tar are given off and mixed with the gas. The coke remaining after distillation falls into a water-sealed chamber, from which it is removed by an endless carrier, and fed to the fire-boxes below the generator.



1. The gas generating beds or floors A, &c., formed by combination of ranges of pivoted louvers U, &c., placed in vertical tiers surmounted above each other, forming compartments of any required size, number of tiers, or of any horizontal sectional form, inclosed in an outer gas-tight case or retort, T, with mechanism for operating the same, substantially as hereinbefore described and shown, for the purposes set forth.

2. The adjustable chutes or directors of the flow of coal, formed by the pivoted vertical louvers B', placed around the circumference of the horizontal revolving box or case B, whether operated with the full circle of louvers, or of any segmental part thereof, substantially as hereinbefore described and shown, for the purposes set forth.

3. The combination of the adjustable chutes or directors B', with the revolving box, inclosed horizontal revolving disk-wheel B (Figs. 12 and 13) hopper D, coal feed-regulating valves V, with mechanism for operating the same, substantially as hereinbefore described and shown, for the purposes set forth.

4. The series of projecting check ribs forming the evaporators C, fixed in inversely-inclined order upon the bottom plate inside of the inclined hydraulic main C'', substantially as hereinbefore described.

5. The oblique vertical deflecting condensers C', formed and arranged in V-shaped series on the inside of the hydraulic main C, substantially as hereinbefore described.

6. The combination of generating beds A, distributer B, feed-valves V, conduits G, hydraulic connections F, weighing-bins H, with the mechanism for operating and effecting the self-charging and discharging of each louver-formed generating-bed in succession, substantially as hereinbefore described and shown, for the purposes set forth.

7. The combination of numerous ranges of louver formed carbonizing-bed A, automatically worked within the sealed gas-tight case or retort T, receiving their charge of coal and discharging it when coked without opening said retort, or the admittance of atmospheric air, with mechanism for operating the same, substantially as hereinbefore described and shown, for the purposes set forth.

8. The combination, throughout the interior of the inclined hydraulic main C'', placed over and heated by the hot-air flues I, of a series of condensers, C', and evaporators C, for the recovery by distillation and evaporization of the liquid hydrocarbons condensed and carried down by the tar, &c., substantially as hereinbefore described and shown, for the purposes set forth.

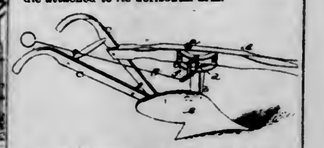
190,144. CHECK-HOOKS FOR HARNESS. S. W. Stickney, Buffalo, N. Y., assignor to Pratt & Letchworth, same place. [Filed Mar. 17, 1877.]



The hook A, formed with the transverse cross bar C, stud *c*, and rear loop D, whereby the strap is laced and secured, substantially as hereinbefore set forth.

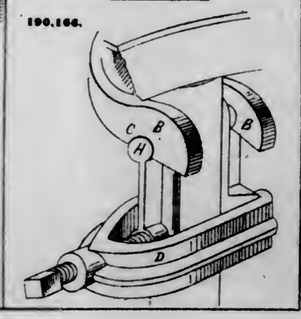
190,145. PLOW-CLEANING ATTACHMENTS. Jas. H. Storm, Mitchellville, Iowa. [Filed July 25, 1876.]

Brief.—The cleaner held against the front and land side of the standard by a spring drawn front and toward the furrow by a handle attached to its horizontal arm.



As an improved article of manufacture, a plow-cleaning attachment, composed of the bent and pivoted weed-catcher *b*, having an elbow-form branch, *f*, and handle *g*, the skeleton bracket *c*, and the spring *d*, substantially as and for the purposes shown and described.

190,146.

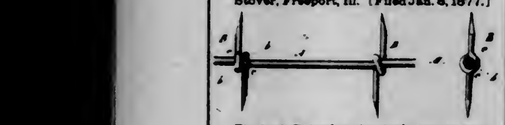


190,166. TIRE-TIGHTENERS. F. T. Stone, Greenfield, Wis. [Filed Mar. 16, 1877.]

1. The lever A, provided with the bifurcation shown, and the eccentrics B B and bearings C C, substantially as specified.

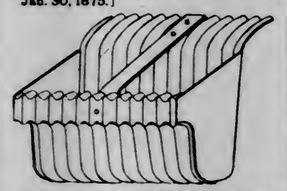
2. The combination of lever A, jaws F and G, constructed with round pivotal projections H H, and clamp D, constructed as described, and provided with screw E, as and for the purposes specified.

190,167. BARBED FENCE-WIRES. Daniel C. Stover, Freeport, Ill. [Filed Jan. 6, 1877.]



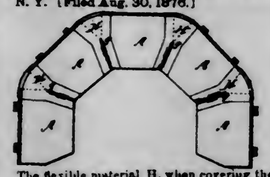
The barb B, having the single turn or wrap *a* around the main wire, and the locking quarter-turns *b* and shoulders *c*, in combination with the main wire A, substantially as and for the purposes specified.

190,168. GUTTERS AND MOLDINGS. Herman Strater, Jr., Boston, Mass. [Filed Jan. 30, 1875.]



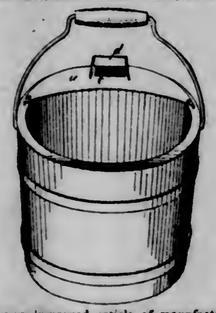
A gutter constructed of corrugated sheet metal, the corrugations of which shall be transverse to it, and a cross-section of the gutter shall form an ogee or similar molding, as shown and specified.

190,169. SETTEES. A. Taylor, New York, N. Y. [Filed Aug. 30, 1876.]



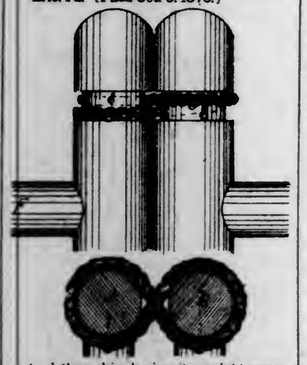
The flexible material H, when covering the angular spaces between the settees, in combination with the sections A A, hinged together, substantially as described, and for the purpose set forth.

190,170. STRAINER-PAILS. W. H. Thrift, Newton, Iowa. [Filed Jan. 4, 1877.]



As an improved article of manufacture, a wooden bucket having a combined straining and pouring device, *a c d*, rigidly attached and tightly joined by embedding the metallic flange *b* in the top edges of the wooden staves, substantially as and for the purposes specified.

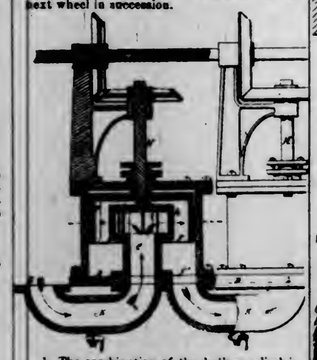
190,171. CLOTHES-DRIERS. G. S. Walker, Erie, Pa. [Filed Oct. 6, 1876.]



A clothes-drier having its upright posts united by a flexible metallic loop passing around each post, and crossed upon itself between said posts, to which it is secured by nails, or equivalent devices, all as and for the purposes described.

190,172. COMBINING AND OPERATING A SERIES OF TURBINE WATER-WHEELS. J. T. Welham, Philadelphia, Pa., administrator of T. Welham, deceased, assignor to R. Burr, same place. [Filed Oct. 9, 1876.]

Brief.—A hollow cylindrical head provided with chutes and openings in the sides, for directing the water onto the buckets, and a vertical conduit at the bottom of the supply, is placed in the interior of each wheel, and is inclosed with the wheel in an air-tight casing. The wheel and the head are elevated above the bottom of the casing, and the supply-water, after passing onto the buckets, is discharged at the lower part of the wheel, and, falling into the bottom of the casing, flows thence through a suitable conduit to the next wheel in succession.



1. The combination of the hollow cylindrical head A, turbine wheel F, and hollow column C, with the bed-plate D, provided with induction and eduction openings, and horizontal return-bends or conduits E and E', substantially as shown and described.

2. The combination of the hollow column C, head A, turbine wheel F, pivot and step *d*, and vertical spindle H, substantially as shown and described.

190,173.

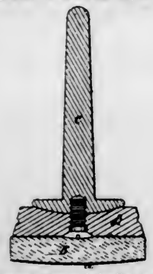


190,175. PRUNING-SHEARS. H. T. White, Buford, Ohio. [Filed Jan. 19, 1877.]

Brief.—A hook of peculiar construction is removably attached to the fixed blade or jaw of the ordinary pruning-shears.

In combination with the stationary blade of pruning-shears, the detachable hook H, secured by a bolt and lug, K, in the holes in said stationary blade, the hook-edge for cutting on upper side, all as and for the purposes set forth.

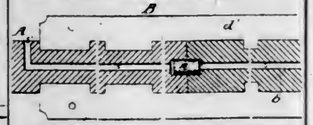
190,174. BOOT AND SHOE SOLE BUFFERS. F. Winslow, Salem, Mass., assignor to himself, J. W. Rogers, and S. W. Winslow, same place. [Filed Mar. 21, 1877.]



1. The rotary shoe-sole buffer, substantially as described, composed of the supporting wooden conic frustum A and the felt disk or conic frustum B and its abrasive covering *a*, arranged and applied essentially as set forth.

2. The combination of the shank C, the wooden frustum A, the felt frustum B, and the abrasive covering *a*, all arranged and applied substantially as shown and described.

190,175. CAR-AXLES. W. Winslow, Lowville, N. Y. [Filed Mar. 21, 1877.]



1. The combination of the sections A A', their annular grooves, recesses, and channels *a a'*, the box B divided longitudinally, and adapted and applied to the axle and secured by transverse bolts, as set forth, and the pin *n*, fitting coinciding recesses in both sections, all as described.

2. The box consisting of the sections *d d'*, adapted to the axle, its projections and grooves, each section having longitudinal ribs *n* and transverse ribs *a'*, as set forth.

190,176.



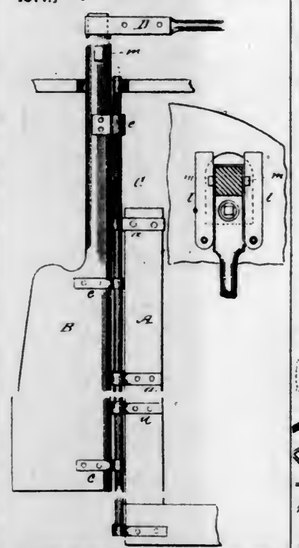
190,176. TRANSOM-OPENERS. J. F. Wollensak, Chicago, Ill. [Filed Mar. 17, 1877.]

Brief.—As an improvement on the three several Patents Nos. 136,801, 148,538, and 154,126, dated, respectively, March 11, 1873, March 10, 1874, and November 7, 1876, the operating rod is adapted both to slide vertically and to partially rotate, and there is also provided, in combination with the crank connections, a vertically-engaging pin and plate, coacting with the set-screw at the lower end of the rod, to form a double locking device; the construction, when the set-screw is released, permitting the opening or closing of the transom laterally by partial rotation of the rod, or locking and unlocking by vertical movement of the same.

1. The combination of the rod R, the crank-connection *r s* of the transom, and the vertically-engaging pin A and plate *n*, whereby the transom is locked or unlocked by the vertical movement of the rod, and opened or closed by the partial rotation of the rod, substantially as described.

2. The combination of the rod R and crank-connection *r s* of the transom, locking or unlocking by the vertical movement of the rod, with the set-screw at the lower end of the rod, whereby the lock is prevented from being operated from the outside, substantially as described.

190,177. STEERING APPARATUS. Edward L. Young, Norfolk, Va. [Filed Mar. 29, 1877.]



1. The rudder B, with shoulders *m*, in combination with the pivoted or swinging bars *l*, substantially as and for the purpose specified.

2. The rudder B, secured to the stern-post A by gudgeons *a c* and screw-rod C, with screw-sleeve *e*, in combination with shoulders *m* upon the rudder, and the swinging bars *l*, substantially as and for the purpose set forth.

190,178. WATER-CLOSETS. J. Zane, Boston, Mass., assignor of one-half his right to F. Roach, same place. [Filed Feb. 17, 1877.]

Brief.—The shape of the outlet-pipe allows of sufficient inclination without making the seat of undue height.

1. In a reservoir water-closet, the combination of reservoir B with the bowl A, by means of the inclined outlet C of less vertical than horizontal measure, and fitted and formed to receive the bowl A, substantially as described.

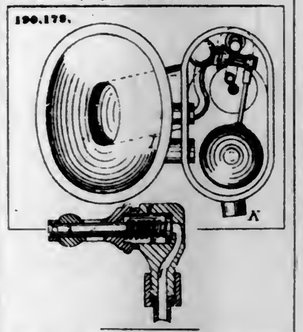
2. The described means of ventilating the reservoir B and bowl A by the communication *t* between the reservoir and bowl, and the communication K from the reservoir to a ventilating-flue, substantially as described.

3. The spring compression-cock herein described, in which the valve is compressed to the seat against the flow of the water solely by an independent spring, and the spring-pressure is relieved and the valve raised by single-acting screw-cams rotated against the pressure of the spring by a short-handled ball deeply immersed, and with very slight power of flotation.

4. In a reservoir water-closet, the combination of the covered reservoir H, automatically supplied with water discharged into the bowl, and regulated in quantity by mechanism in the reservoir, and having a gas-escape, I, provided between the reservoir and bowl, with a soil-pipe, D, whose capacity for discharge is sufficiently in excess of the water-supply to create a draft through said communication I during the discharge of bowl, substantially as and for the purpose described.

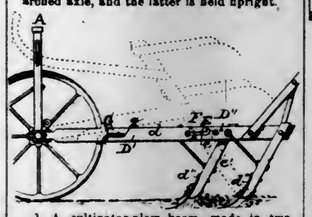
5. The combination of the stench-trap *c*, with the cock *h*, provided with a hole for the escape of water into the top of the stench-trap, when the cock is open, whereby the water-seal in the stench-trap is prevented from being broken by evaporation, substantially as and for the purpose described.

190,179.



190,179. CULTIVATORS. R. W. Alexander, Galesburg, Ill. [Filed Nov. 9, 1876.]

Brief.—Plow-beams in two parts—one sliding into the other. The rear part is drawn back and held rigid for work by means of curved slots and studs. When pushed forward the rear part turns up, and forms a runner for holding the plows elevated, and transporting the machine from place to place. The handles are provided with rests upon the arched axle, and the latter is held upright.



1. A cultivator-plow beam, made in two parts, D' D'', the latter made to slide back and forth within the former, as described, and having its forward end formed as a shoe or runner, substantially as and for the purpose specified.

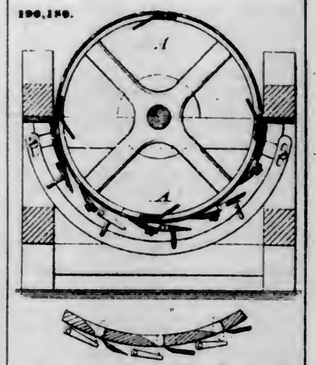
2. The plates *d d*, having slots G and bolt F, arranged to operate with the beam D'', having slot E and studs *g*, substantially as described, and for the purpose specified.

3. The hook *a* on the side of the axle A, combined to operate with the hinged plow-beams D D, substantially as described, and for the purpose specified.

190,180. GRAIN-REDUCING APPARATUS. C. Bailey, Akron, Ohio. [Filed Mar. 24, 1877.]

Brief.—Revolving cylinder, provided with perforations countersunk on inside, feeds the grain-kernels to fixed knives, which present their cutting-edges close to the outer periphery of the cylinder. The length of the projecting kernel portion to be sliced off is regulated by adjustable guard-plates, thus providing for the manufacture of different grades of meal in the same apparatus.

190,180.

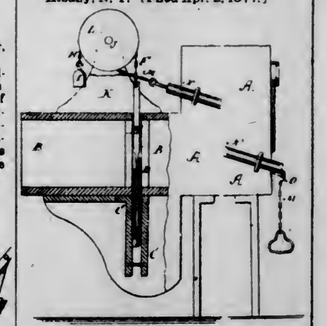


1. A grain-cutting machine constructed of an inclined revolving cylinder or reel, having exit holes for the grain, of adjustable guard-plates, and of fixed cutting-knives, all arranged and operated substantially as and for the purpose specified.

2. The combination of the pivoted guard-plates, having fixed rods or lugs, with the arc-shaped adjusting plate or band, secured by clamp-screws at the slotted ends, to regulate distance of guard-plates from cylinder for cutting different grades of meal, substantially as herein specified.

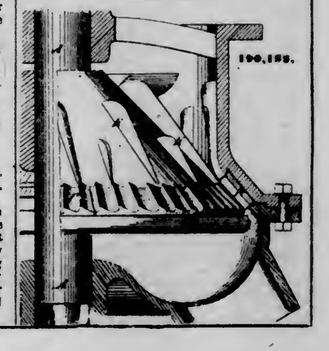
3. The revolving cylinder A, having exit perforations with straight ends toward the cutting-knives, and countersunk or tapering ends at the opposite sides, for the purpose herein specified.

190,181. DRAFT-REGULATORS. T. Baker, Albany, N. Y. [Filed Apr. 2, 1877.]



The combination of the open-bottomed case C, the damper, bar, and chain, D E F, the weight and chain I H, the pulleys and shaft G L J, and the chain, guard, and pin M N O, with each other and with the flue B of a furnace, A, substantially as herein shown and described.

190,182.



190,182. BARK-MILLS. Wm. H. Barber, Allentown, Pa. [Filed Jan. 30, 1877.]

Brief.—Clamps the toothed segments in their seats by means of dovetailed tenons and mortises.

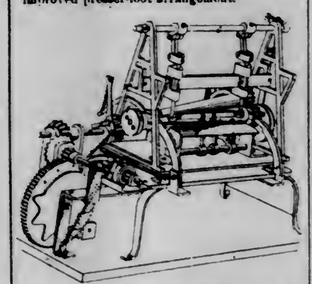
The combination, in a bark mill, of detachable grinding segments F, having dovetail tenons, with an external casing and a revolving wheel, having dovetail grooves or seats to receive said segments, substantially as and for the purpose set forth.

190,183. PAINT COMPOSITION FOR ROOFS. A. Blaisdell, Nashua, N. H. [Filed Mar. 10, 1877.]

The roof paint composed of gas tar, wood-tar, naphtha, and solution of iron, substantially as above described.

190,184. QUILTING-MACHINES. A. Beck, New York, N. Y., assignor to L. Dryfoos and J. Dryfoos, same place. [Filed Feb. 27, 1877.]

Brief.—The cloth is fed forward by means of feed-rolls actuated by a peculiar clutch arrangement, set forth in the claims, and the frame carrying the needles is moved laterally by a pitman and eccentric, and similar clutches on the shaft carrying the eccentric, actuated one in one direction by a cam-plate on one side of the pattern-wheel, and the other in the reverse direction by another cam on the opposite side of the pattern-wheel, said cams being removable from said wheel. Also an improved presser-foot arrangement.



1. The combination, substantially as set forth, with a series of vertically-reciprocating needles, of a like number of vertically-yielding and elastic annular presser-feet, one for each needle, each presser-foot surrounding its needle, and attached to and moving with the needle-bars or boiler, and rising from the cloth-plate when the feed takes place.

2. The combination of the laterally-reciprocating sewing-frame and independent forward feed with a series of needles carried by said sewing-frame, and a like number of vertically-yielding annular presser-feet, one for each needle, each presser-foot surrounding its needle, and attached to and moving with the needle-bar or boiler, as shown and set forth.

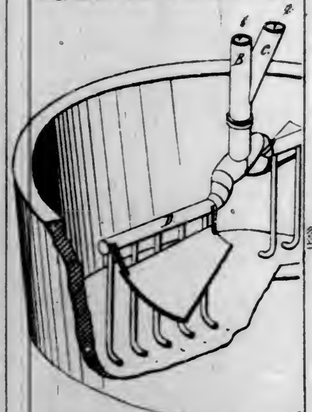
3. The described mechanism for operating the feed, consisting of a friction-clutch clasping the feed-shaft, in combination with a vibratory pivoted lever, supported on one end of the clutch, and having one of its arms overhanging, but not attached to, the other and free end of the clutch, substantially as set forth, so that the movement of said lever shall cause the clutch first to close upon the shaft, and then to rotate the same, as set forth, and this I claim whether the said mechanism be used to operate the forward or the lateral feed.

4. The combination of the friction-clutch, the feed-shaft embraced by the same, and the vibratory lever, provided at that end which acts on the clutch with means of adjustment, whereby the lost motion of the lever may be increased or decreased at pleasure, to regulate the length of the feed.

5. The combination, with the sewing-frame, of the pattern-wheel and removable pattern-cams, one set on each face of the wheel, the one set designed to move the sewing-frame in one direction, the other set in the other direction, each set acting alternately on the frame, and both being removable to allow different sets of pattern-cams to be interchangeably used on the same wheel.

6. The pattern-wheel, with removable pattern-cams, one set on each face of the wheel, in combination with friction-clutches and their operating-levers, one set for each set of pattern-cams, and a rock-shaft, on which said clutches are mounted, connected with and imparting a laterally-reciprocating movement to the sewing-frame, substantially as herein shown and set forth.

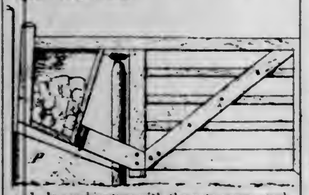
190,185. MASHING-MACHINES. J. Brandenburg, Oxford, Ohio. [Filed Oct. 9, 1876.]



The combination, in a tubular mash-rake, of the two inlets B and C, communicating with the horizontal tubes D D, with the curved tubes E E E open at their curved ends only, and delivering steam, air, or water near the bottom of the mash-tub only, and in a nearly horizontal direction, substantially as described.

190,186. SWINGING GATES. Jno. R. Brott, Geneva, N. Y. [Filed Feb. 21, 1877.]

Brief.—The weighted end of the gate is braced at an angle and astride of the post upon which it turns.



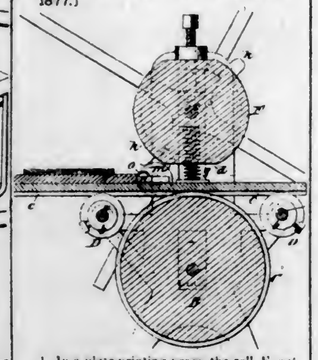
1. In combination with the gate proper and the upper beam thereof, the weight-receptacle, secured to said beam, and provided with braces at its lower end, straddling the stand-ard upon which the gate is pivoted, and secured to the lower portion of the gate proper, substantially as herein set forth.

2. In combination with the weight-receptacle of a gate and the supporting-standard and fence post, the board P, for preventing the accumulation of snow or dirt below the receptacle, or the passage of small animals under the same, substantially as set forth.

190,187. WATER-CLOSET PROTECTORS. B. R. Brown, Petersburg, Va. [Filed Jan. 13, 1877.]

A sheet of paper provided with two circles or lines, B C, of punctures, forming a ring, D, having an inwardly-projecting narrow flap, *b'*, and an outwardly-projecting wide flap, *d'*, substantially as herein shown and described.

190,188. PLATE-PRINTING PRESSES. H. W. Browne, Philadelphia, Pa. [Filed Mar. 3, 1877.]

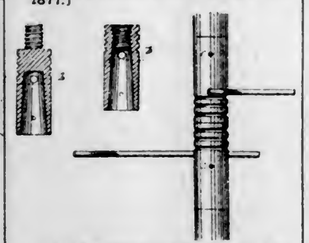


1. In a plate-printing press, the roll F, cut away or flattened at two opposite sides, to permit of making two impressions by one revolution of the roll, in combination with the disk H, having arc slot *j* and arms *k k*, substantially as herein shown and described.

2. The combination of the disk H, having the slot *j*, the arms *k*, screw *l*, roll F, wheel *m*, slotted plate *n*, and table E, substantially as herein shown and described.

3. The combination of the bed E, having the central groove *e*, the roll B, having the collar C, and the wheels D, substantially as herein shown and described.

190,189. GUN-CLEANING RODS. Bern L. Budd, Fairfield, Conn. [Filed Mar. 14, 1877.]



1. A gun-cleaning rod made in parts, each part bearing a male or female screw coupling, riveted thereto, and having an aperture, *c*, extending through the coupling between the end of the rod and the bottom of the tapered hole in the coupling, substantially as described.

2. A gun-cleaning rod-coupling, having the perforations *c* for rivets or pins, and a perforation, *b*, for a wrench, substantially as and for the purpose set forth.

3. A jointed gun-cleaning rod, which has upon the surface of the couplings circumferential grooves or rings, which vary and correspond in number at and designate the mating-joints, substantially as and for the purpose described.

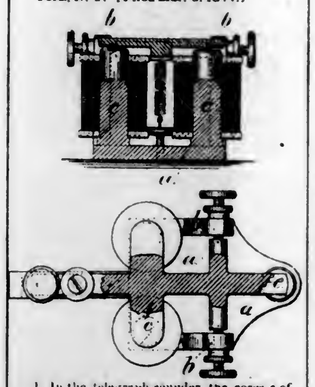
190,190.



190,190. CARTRIDGES. B. L. Budd, Fairfield, Conn. [Filed Oct. 12, 1876.]

A cartridge-shell having fine circumferential grooving or chasing immediately above the portion which receives the explosive material, substantially as and for the purpose described.

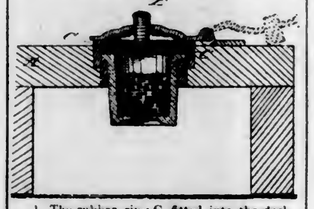
190,191. TELEGRAPH-SOUNDERS. Jesse H. Bunnell and Miles W. Goodyear, New York, N. Y. [Filed Mar. 6, 1877.]



1. In the telegraph-sounder, the cores *c* of the electro-magnet, and the frame *a* and standards *b*, made in one piece of malleable cast iron, substantially as set forth.

2. The armature-lever, armature, and axis of the telegraph-sounder, made in one piece of malleable cast-iron, substantially as set forth.

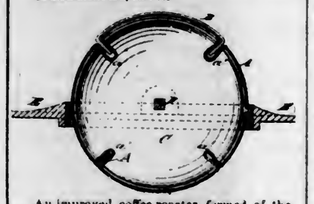
190,192. INKSTANDS. H. H. Burrington, Providence, R. I. [Filed Feb. 15, 1877.]



1. The rubber ring C, fitted into the desk A, and projecting above the mouth of the ink-well, substantially as and for the purposes set forth.

2. The india-rubber bumper E, in combination with the hinged covers, substantially as specified.

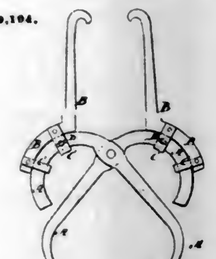
190,193. COFFEE-ROASTERS. J. A. Caldwell and A. F. Pleitz, Brownsville, Tenn. [Filed Mar. 24, 1877.]



An improved coffee-roaster, formed of the rim or ring E, provided with the bearings F, the shaft D, the body A, having long inwardly-projecting loops or hanges *a'* formed upon it, the sliding doors B, the convex ends C, and the locking-nuts *d'*, constructed and combined with each other substantially as herein shown and described.

190,194. LIFTING-TONGS. J. T. Campbell, Rockville, Ind. [Filed Apr. 2, 1877.]

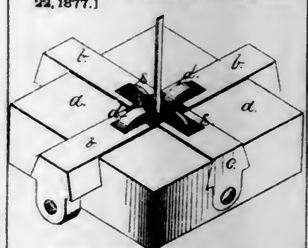
190,194.



1. A lifting tongs in which the handles B are connected with the shanks of the jaws A with an adjustable and reversible joint, substantially as herein shown and described.

2. The combination of the jaws A, having their shanks bent outward upon a true curve, the handles B, having their inner ends bent upon the same curve as the shanks of said jaws A, the loops or bands C, and the set-screws D, with each other, substantially as herein shown and described.

190,195. WIRE-DRAW PLATES. James W. Cameron, Providence, R. I. [Filed Mar. 22, 1877.]



The combination, with the plate *a*, of the adjustable slides *b b b* and *c*, and the disks *d d* and *e e*, arranged and operating substantially as and for the purpose described.

190,196. CIGAR-LIGHTERS. I. N. Clawson, Philadelphia, Pa. [Filed Apr. 7, 1877.]



The device, substantially as hereinbefore described, for securing and packing the tinder in cigar-lighters, consisting of a drum upon which to wind and pack the tinder, having an annular disk at one end to prevent the escape of the tinder, and which serves as a shield thereto, and as the means for operating the device.

190,197. HORSE-DETACHERS. W. A. Clark, Jacksonville, Ga. [Filed Feb. 16, 1877.]

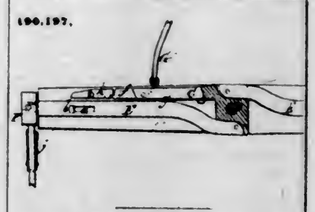
1. In combination with the pins B' on the ends of the single-tree, the arms E E, having the cuffs F F, and slots *a*, guided by pins *b* on the single-tree, the said arms being constructed to move horizontally with the single-tree when operated by the lever C, and caused to remain horizontal with the single-tree when latched, substantially as described.

2. The combination of the strap G, operated as specified, spring-catch *f*, latching-piece A, lever-arms E E, cuffs F F, and single-tree, substantially as and for the purpose described.

3. The combination of the trace provided with a spring, *j*, and oblong slot, and the U-shaped cuffs F of the arms E, substantially as described.

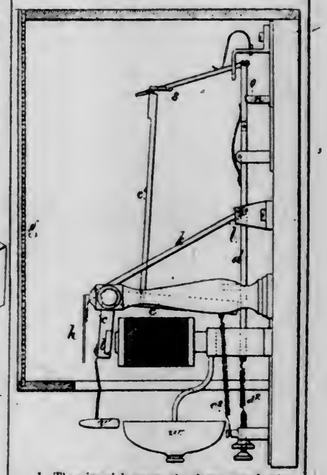
4. The angular lever C, having a hinged latching portion on its long arm, substantially as and for the purpose described.

190,197.



190,198. ELECTRIC STATION-INDICATORS FOR RAILWAYS. J. I. Conklin, Jr., New York, assignor to himself and C. A. Dresser, Brooklyn, N. Y. [Filed June 2, 1876.]

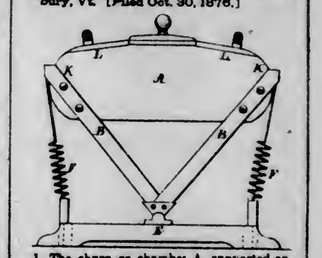
Brief.—For indicating whether or not section of track in front of station is occupied, the position of indicator in station being controlled by circuit passing through signals at each end of section.



1. The signal A upon the lever-arm *k*, pivoted to the sliding bar *b* and passing through the fulcrum-plate *l*, in combination with the armature A, electro-magnet *e*, catch *c*, and armature-lever *c c'*, substantially as set forth.

2. The signaling-instruments at A B C and circuit-connections, arranged as specified, in combination with the track-circuit closers at A and C, operated by the passing train, substantially as set forth, whereby the signals at A and B are operated simultaneously and remain visible until the train reaches C and closes a reversing-circuit, as set forth.

190,199. CHURNS. O. W. Davis, Waterbury, Vt. [Filed Oct. 30, 1876.]

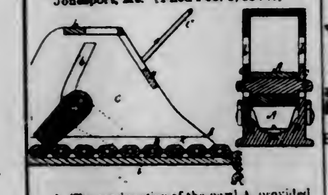


1. The churn or chamber A, supported on a vibrating frame, which has its pivotal bearings in a stationary frame, said chamber having no internal appliances to break or interrupt the currents, and having not only a flat bottom and curved ends K K, but also the two upward inclines L L at the top, made continuous with such curved ends, the whole operating to give to the cream a continuous and

overturning course, as and for the purposes set forth.

2. In combination with the churn A, having the upward inclines at its top and the curved ends and flat bottom, as shown and described, the supporting frame or braces B B, the base upon which the braces are pivoted and swung, and springs F F, directly connecting the ends of the churn with such bed or base, the whole operating as and for the purposes set forth.

190,900. CABLE-STOPPERS. J. P. Dorr, Jr., Jonesport, Me. [Filed Feb. 6, 1877.]

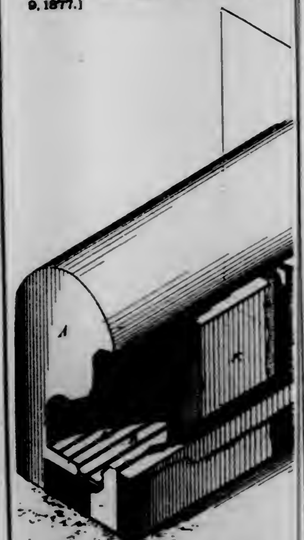


1. The combination of the pawl A, provided with the journals *a a*, with the carrier B, slotted and recessed in its opposite standards, as set forth.

2. The combination of the tripper C with each journaled pawl A, and with the carrier B, slotted and recessed in its standards, as shown and described.

3. The combination of the inclined guides *b b* with the slotted and recessed carrier B and the journaled pawl A, all being arranged and applied substantially as specified and represented.

190,901. BRICK-KILN FURNACES. Andrew W. Duty, Cleveland, Ohio. [Filed Feb. 9, 1877.]



The air-chambers F and G, flue I, and openings *a* and *b* arranged in relation to each other and in combination with the furnace A, substantially as herein described, and all adapted to a brick-kiln, as set forth, and for the purpose specified.

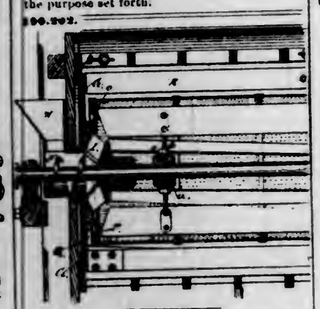
190,902. FLOUR-BOLTING MACHINES. Ferdinand Feistel, Berlin, Prussia. [Filed Mar. 31, 1877.]

1. The combination, in a flour-dressing machine, of an inner distributing and separating cylinder, an outer bolting-cylinder, an inner set of revolving beaters, and an outer set of beaters revolving around the inner cylinder or within the bolting-cylinder, substantially as and for the purpose set forth.

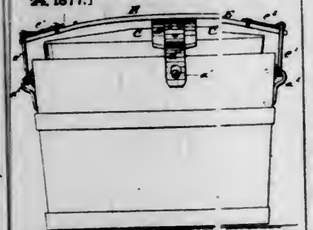
2. The combination of the revolving shaft E, end plate G, having hub portion H, with openings I therein, and the outer set of beaters B, attached to said end plate, with the bolting-cylinder B, inner separating-cylinder D, and feeding-hopper M, as and for the purpose set forth.

3. The combination of the ring-brush O P with the end plate G and the inner cylinder D, having end cap Q, substantially as and for the purpose set forth.

190,903.



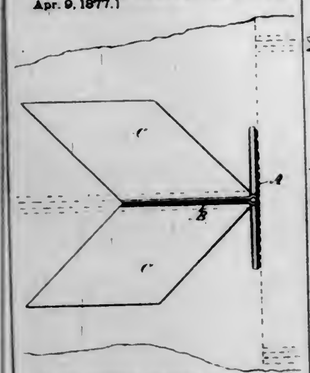
BUTTER-PAIL COVERS. Joe. G. Fisher, Grand Rapids, Mich. [Filed Mar. 24, 1877.]



1. The combination of knobs a^1 on the pail, loop-straps d^1, and spring D, with the cross-bar C attached to the upper side of the cover as and for the purpose set forth.

2. The combination, with the spring D, of the cross-spring E, pivoted loop-handle c^1, straps c^2, and double-pointed tacks c^3, as shown and described.

190,904. SNOW-GUARDS FOR ROOFS. G. F. Folsom, Boston Highlands, Mass. [Filed Apr. 9, 1877.]



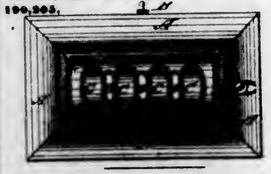
As an improved article of manufacture, a snow-guard for roofs, consisting of an L-shaped strip of sheet metal, having two equal arms, the same being bent to form the square A, brace B, wings C, and slit to form prongs *c*, all as herein shown and described.

190,905. STEAM-RADIATORS. W. M. Fuller, New York, N. Y. [Filed Apr. 7, 1877.]

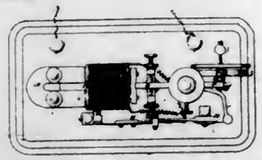
1. A series of alternate steam-tubes, connecting with the steam-chamber, and air-tubes connecting with the air-chamber, both steam and air series cast in one piece with each other and with passage C', no screw-threads being used to connect the pipes and base, substantially as specified.

2. The combination of the steam-tubes C, air tubes D, passage C', and base A with register B, all constructed substantially as and for the purpose set forth.

190,905.



ELECTRO-MAGNETIC MOTORS. W. W. Gary, Huntingdon, Pa. [Filed Oct. 3, 1876.]



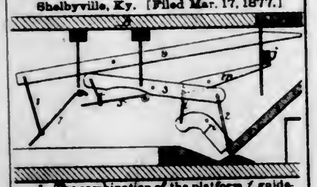
1. The combination, in an electric motor, of two permanent magnets, A B, and an electro-magnet, C, connected with a pole-changing device, and arranged to vibrate between the permanent magnets, substantially as described and shown.

2. The combination of two permanent magnets, arranged with their reverse poles opposite to, but separated from, each other, and a reciprocating electro-magnet connected with an automatic pole-changing device, substantially as shown and described.

3. The combination, in an electric motor, of a reciprocating electro-magnet, connected with an automatic pole-changing device, and two compound permanent magnets, arranged on opposite sides of the electro-magnet, each consisting of a series of thin magnets, united in such manner that the series may be increased or diminished in number, at will, for the purpose of increasing or diminishing the power of the motor.

4. In combination with the magnets A B and the vibrating electro-magnet C, the beam D, provided with the tappet *e*, and the arm H, provided with the fingers *d* and *e*, moving upon the plates *f f*, as shown.

190,907. ANIMAL-TRAPS. G. W. Gibson, Shelbyville, Ky. [Filed Mar. 17, 1877.]



1. The combination of the platform *f*, guide-posts, connecting-rod *g*, lever *h*, and trigger *i*, whereby the trap is sprung when constructed, and arranged substantially as shown.

2. The combination of the door *e*, spring *k*, lever *j*, trigger *i*, and post *l*, substantially as described.

3. The combination of the door *e*, levers *j m*, rod 1, and latch *p*, substantially as set forth.

4. The combination of the door *e*, rod 2, lever 3, rod 4, and gate 5, substantially as specified.

5. The combination of the gate 7, rod 8, lever 9 *j*, trigger *i*, door *e*, and spring *k*, substantially as shown and described.

190,908. METALLIC CARTRIDGES. J. H. Gill, Philadelphia, Pa. [Filed Feb. 19, 1877.]

1. A metallic cartridge-shell, having longitudinal corrugations formed in its body, and having its front end left smooth and cylindrical, substantially as shown and described.

2. The anvil 1, composed of the dome-shaped central body *r*, and the arched and latterally-projecting arms *t*, three or more in number, substantially as shown and described.

190,909.



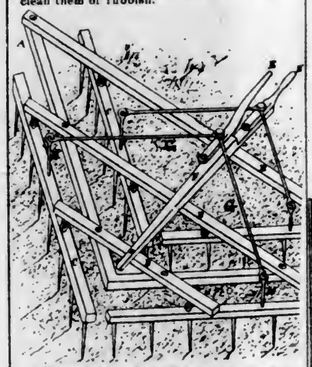
190,909. SLEEVE-BUTTONS AND STUDS. A. Goll, Frankfort-on-the-Main, Prussia, Germany. [Filed Feb. 3, 1877.]



A sleeve button or stud having an elastic piece of metal, C, doubled or open-slotted, and attached to a flat pivot at the end of its bent shank, as and for the purpose specified.

190,910. HARROWS. J. B. Greene, Elliott, Cal. [Filed Dec. 4, 1876.]

Brief.—Teeth-holding bars hinged to a supplemental frame on opposite sides of the center, and diagonally to the line of travel, and provided with rods connecting the opposite pairs of harrows with an operating-lever, for alternately inclining the teeth rearward to clean them of rubbish.



1. The triangular frame A, having the swinging harrows C hinged to it in pairs on opposite sides of the center, and diagonally to the line of travel, said harrows having suitable operating levers by which alternate sections are inclined backward, either singly or in pairs, so that they are cleaned of dirt and rubbish, substantially as herein described.

2. In combination with the triangular frame A, having the harrows C hinged to it in pairs, and diverging upon each side of a central line, the standards H and connecting-rods G, uniting the opposite pairs of harrows with the operating lever E, so that the harrows are alternately inclined backward to clean them of dirt and rubbish, substantially as herein described.

190,911. APPARATUS FOR CARRYING RAILROAD-RAILS. A. J. Gustin, St. Albans, Vt. [Filed Mar. 3, 1877.]

Brief.—This apparatus takes up the rails when deposited upon a central platform, and conveys them to the cooling-bed; said rails having had imparted to them, by means of bending-rolls, the proper camber to enable them to cool straight.

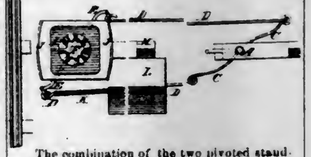


1. The combination, with an endless chain, B, subject to expansion by hot rails, of a pulley, *b*, arranged in a slide-bearing, D, held by a movable weight, as shown and described.

2. The combination of the guides F^1 with the screws, dogs, and latches for carrying the rails *en masse*, and operated substantially in the manner described.

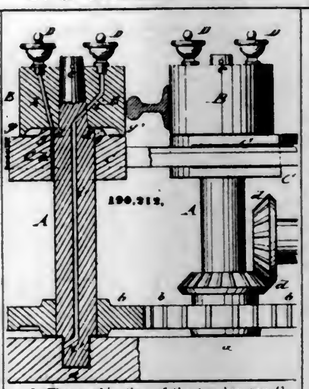
190,912. RAILROAD-SIGNALS. Chas. Haise and Frank Haise, Atlanta, Ill. [Filed Jan. 19, 1877.]

Brief.—The device serves as both day and night signal, and is operated by hand.



The combination of the two pivoted standards A F, the two equal-armed levers C E, the two connecting-wires D D, the hand-lever B, the flag K, and the box or cover L, with each other, substantially as herein shown and described.

190,913.

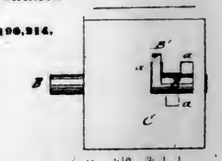


190,913. Reissue. **CORN-PLANTERS.** Jas. Hall, Jr., Lexington, Ky. [Filed Feb. 19, 1877.]

1. The combination of the top bearing C, having raised collar *g* around center shaft A, with the concaved base or bottom of top roll, having circumferential nose, for preventing water and impurities from getting into bearings, substantially as specified.

2. The combination of the top roll B, having lubricating-cups D and ducts *h* and *i*, with the upper bearing C, having communicating duct *h'*, with shaft A, having center duct *i'*, and with lower bearing *a*, substantially as and for the purpose shown and described.

190,914.



190,914. SASH-FASTENERS. Joseph Hatal, Spades, Ind. [Filed Apr. 2, 1877.]

Brief.—A sliding, double-end spring-actuated bolt, having a suitably notched or recessed face-plate, is arranged between the guide-strips of the window-casing, there being also a longitudinal groove in the casing, provided at intervals with socket-holes. The operating knob or handle fits into notches of the face-plate, to hold the bolt in three positions, for locking, guiding, or readily removing the sash, as may be desired.

1. The combination of a sash, having sliding and adjustable guide and lock bolts B, with a longitudinal groove, D, of the window-casing, having socket-holes *b* at suitable distances apart, substantially in the manner shown and specified.

2. The combination of the guide-socket C of the sash-holder, having face-plate with recesses *a a a*, with the sliding guide-and lock bolt B, having handle B' fitting into the recesses to retain the bolt in drawn-back position, or when thrown into the guide-groove, substantially in the manner specified.

190,915. MACHINES FOR FORCING AIR INTO VESSELS CONTAINING LIQUIDS. J. F. Hess, Massillon, Ohio. [Filed June 30, 1876.]

Brief.—The tank, being filled with water, and the compressor raised and filled with air, will, by its weight, descend (when the chain is loosened) and force the air into the barrel through the flexible tube.

1. The herein-described apparatus for compressing air, consisting of the water-tank H, the air-compressing tank I, the flexible tube K, chain O, and pulleys M P, substantially as set forth.

2. The water-tank H, provided with supports A^1, in combination with the ring N' and arch N, substantially as set forth.

3. The water-tank H provided centrally with the overflow-pipe A^1, the upper part of the tank serving as a support for pulleys M P, substantially as set forth.

190,916. ICE-PLOWS. C. A. Hiles and T. L. Hiles, Chicago, Ill. [Filed Nov. 29, 1876.]

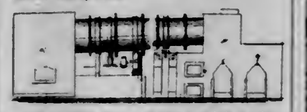
Brief.—When the points of the tooth become worn off, new ones are provided by simply cutting through to the slot.

1. A removable ice-plow tooth having slots *f* and tongue *e*, substantially as and for the purpose specified.

2. The combination, in an ice-plow, of the beam A, base or socket F, and removable tooth C, provided with slots *f* and tongue *e*, substantially as and for the purpose set forth.

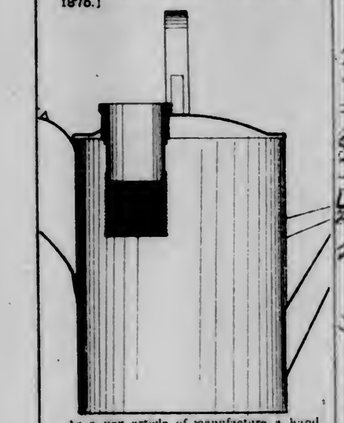
190,217. REVOLVING ORE-ROASTERS. J. Howell, Benton, Cal. [Filed Jan. 19, 1877.]

Brief.—Provides a secondary furnace at the fume-discharging end of the roasting-cylinder, to effect a more complete dechloridizing action. Constructs the supporting friction-rollers in sliding bearings, to adjust the inclination of the cylinder.



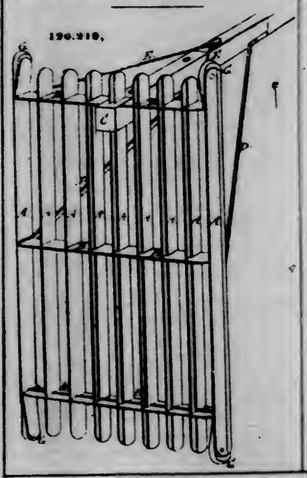
The combination, with the revolving tube, of the furnace at the receiving end, having the chambers D and Q, and the furnace at the lower end, having the pit E, substantially as specified.

190,218. GARDEN WATERING-POTS. Edw. Hunter, Norwich, Conn. [Filed June 11, 1876.]



As a new article of manufacture, a hand garden watering-pot provided with a filter, sieve, or strainer at the opening where the water is introduced, to strain out solid matter from the water and insure its free discharge at the rose-head, substantially as and for the purpose specified

190,219.



190,219. CURD CUTTERS AND AGITATORS. M. P. Jackson, Boonville, N. Y. [Filed Feb. 10, 1877.]

Brief.—Double-edged blades of lapping sheet metal at right angles to and through transverse blades of greater width. A straight handle, nearly perpendicular to this cutter, is secured at one end.

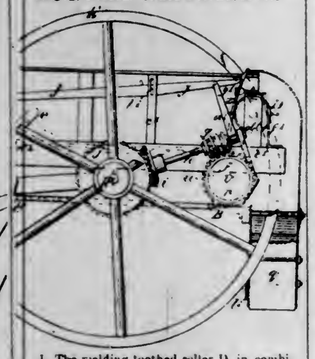
1. The bladed braces D, interposed between the blades A and handle C, and constructed of wire, with a strip of metal locked around said wire, so as to present a projecting cutting edge to the curd, substantially as set forth.

2. The blades A, provided with cushions G, projecting beyond the intermediate blades, to keep said blades from contact with the curd-vat, substantially as set forth.

3. The cutting-blades A A, each constructed of two strips or pieces of tin or other metal, lapped and joined or locked together in the center in such manner as to form one solid blade with two cutting-edges, each edge being of a single thickness of the material used, substantially as described.

4. The combination of longitudinal and horizontal blades, the ends of the longitudinal blades being extended beyond the horizontal blades, so as to form cutting-edges.

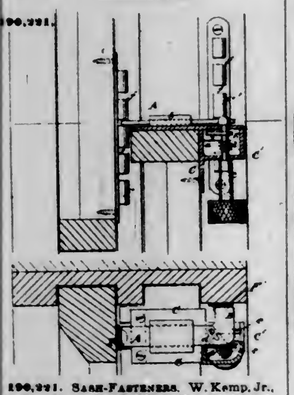
190,220. MANURE-SPREADERS. J. S. Kemp, Magog, Canada. [Filed Feb. 28, 1877.]



1. The yielding toothed roller D, in combination with the spring *f*, coupling *g'*, and spring *e*, substantially as and for the purpose set forth.

2. The spring-lever *d*, connected to the gearing operating the slatted belt or bottom B C, in combination with the spring *e*, coupling *g'*, roller D, pivoted bearing *d'*, and spring *f*, substantially as and for the purpose set forth.

190,221.

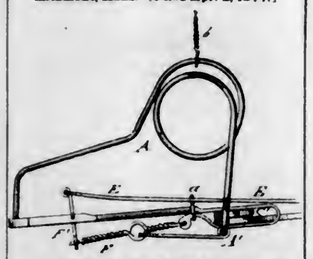


190,221. SASH-FASTENERS. W. Kemp, Jr., New York, N. Y. [Filed Mar. 24, 1877.]

Brief.—A right-angled bolt, arranged in suitable case on the upper corner of the meeting-rail, has a slotted arm and downwardly projecting spring encircled spindle, a half-turn of which actuates the double bolts. There are also two notched or slotted bars—one attached to the rail of the upper sash, and the other to the window-jamb, with which the ends of the bolts engage, to hold the sash in desired position.

The right-angled bolt A, having the pin *a*, L-shaped support C, spindle *c*, having the slotted arm E, spring *d*, and slotted bars F F' in combination, substantially as herein shown and described.

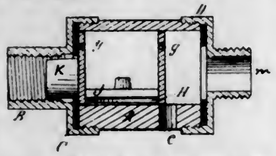
190,222. SPRING FISH-HOOKS. J. O. King, Altamont, Kans. [Filed Apr. 2, 1877.]



1. The combination of the fulcrumed grab-hooks, having U-shaped extensions back of the fulcrum, with the encircling loop of an actuating spiral spring, to open or close the grab-hooks, substantially as shown and specified.

2. The combination of the fulcrumed and spring-acted grab-hooks E with a swinging trip-lever, F, connected with the actuating spring-loop A' of the hooks, and with the latch piece F' of the sliding bait-hook E, substantially in the manner specified.

190,223. RELIEF-VALVES FOR AIR-BRAKES. S. R. Kneeland, Boston, Mass. [Filed Mar. 2, 1877.]

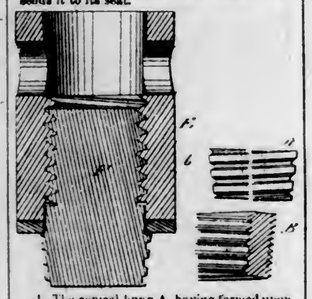


1. The combination, with the case A, having port *c*, and caps C D, and valve J, constructed substantially as described, of the plate H, substantially as and for the purpose specified.

2. The combination, with the case A, having port *c*, and caps C D, neck B, and plate H, of the valve J, having the arm K, substantially as and for the purposes specified.

190,224. BUNGS AND BUNG-INSERTERS. W. Kromer, San Francisco, Cal. [Filed July 28, 1875.]

Brief.—The bung has flat threads, and when it is placed in the bush, a short turn sends it to its seat.



1. The conical bung A, having formed upon its exterior flat screw-threads *b*, in combination with the bushing B, with flat screw-threads *c*, substantially as and for the purpose set forth.

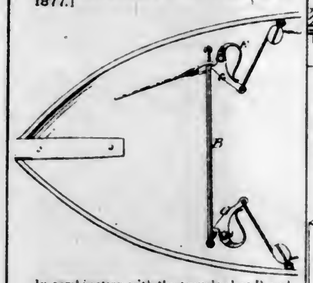
2. The combination, with the standard or tubing E, having screw-threads upon its interior, of the screw-threaded plug F, when constructed to operate substantially as and for the purpose described.

190,225. WINDOW-SASHES. L. Landeker, San Luis Obispo, Cal. [Filed Mar. 15, 1877.]



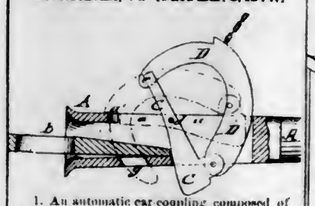
The combination, with the side rails of the frame A B C D, provided with a slot or slots, *h*, of the dovetailed grooved mullions *b c* and double-headed bars *f*, substantially as and for the purpose specified.

190,226. TRAVELERS FOR JIB-SHEETS. H. S. Lawson, Baltimore, Md. [Filed Apr. 7, 1877.]



In combination with the traveler-bar B and traveler-ring C, the spring-catch G, pivoted to a standard adjacent to the traveler-bar, substantially as and for the purpose described.

190,227. CAR-COUPLINGS. G. D. Lease, Jeffersonville, Vt. [Filed Mar. 3, 1877.]



1. An automatic car coupling composed of a slotted draw-head, A, coupling link B, fulcromed lever-bar C, and curved or hook-shaped pin D, pivoted to the rear end of the lever-bar C, all arranged and operated substantially as and for the purpose set forth.

2. The combination of the draw-head A, having top slot *a*, front extension or recess *a'*, and bottom pin hole *g*, with the notched end of the fulcrumed lever-bar C, and with curved or hook-shaped pin D, having projection *h*, to throw the pin forward for coupling on entrance of link, substantially in the manner and for the purpose specified.

3. The combination of the slotted draw-head A, and of the fulcrumed and weighted lever-bar C, having notched front end, with the curved or hook-shaped coupling-pin pivoted to the weighted rear end of lever C, to be retained in uncoupled position, substantially as described.

190,228. REED-ORGAN ACTIONS. R. E. Letton, Quincy, Ill. [Filed Oct. 18, 1876.]

Brief.—For holding down any key pressed by the finger after removal of the finger therefrom.

1. In an organ or other analogous wind-instrument, a pivoted jack having a stud, which, when the jack is depressed, is, and when elevated is not, beneath a device capable of vertical movement, substantially as specified

2. In an organ or other analogous wind-instrument, a pivoted jack, through the end of which the sticker-pin has a free movement, and provided with a stud to engage the key, substantially as set forth.

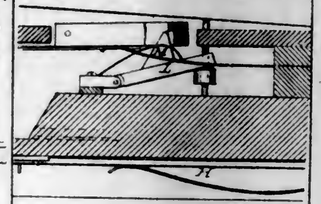
3. The action-frame N, provided with the recess A, substantially as set forth.

4. The action-frame N, pivoted to the case of the instrument, and provided with a spring arranged to give it an upward tension, substantially as set forth.

5. The jack L, forked at its rear extremity, pivoted at its front extremity, and provided with the stud M on its upper surface, as set forth.

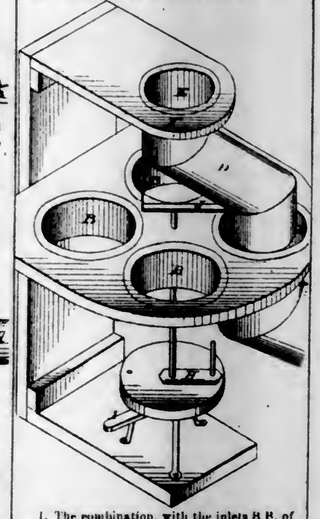
6. The jack L, provided with the stud M, and having an apertore at its end to receive the sticker-pin, substantially as set forth.

190,228.



190,229. GRAIN-DISTRIBUTERS. John W. Lewis, Scipio Township, Seneca County, Ohio. [Filed Oct. 9, 1876.]

Brief.—The main pipe swings around and distributes the grain from the elevator into the various bins on the lower stories.



1. The combination, with the inlets B B, of the revolving elbow D, shaft K, arm H, pedal I, stop-pin F, and perforated table G, constructed as described, and for the purpose set forth.

2. The elbow lined with sole-leather to prevent the destruction thereof, constructed as described, and for the purpose set forth.

190,230. HAIR-SPRING STUDS FOR WATCHES. F. M. Martin, Cambridge, Ill., assignor to himself and J. A. Hart, same place. [Filed Jan. 6, 1877.]



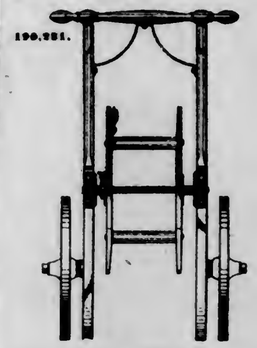
The combination of tapering screw D, fastened into the watch-plate and outside of the balance-wheel, and the downwardly-projecting jaws B C, the jaw B being rigidly fixed to the end of bridge *a*, and the movable jaw C being attached to a sliding arm, *d*, arranged in a longitudinal recess in the upper side of bridge, as shown and described.

190,231. HOSE-CARRIAGES. I. W. McCaffey, Chicago, Ill. [Filed Feb. 24, 1877.]

1. The hose-carriage, constructed of two side pieces, braced together by the cross handle and a rigid shaft, which latter serves as a pivot for the reel, and provided with feet or extensions, and with wheels that are journaled upon axles projecting from the side pieces, the reel and parts being relatively arranged and constructed substantially as specified.

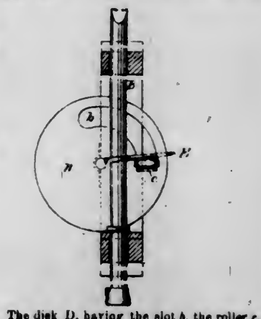
2. The malleable-metal holder attached to the reel, in combination with the interposed spring, substantially as specified.

190,231.



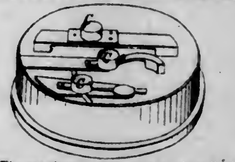
190,232. ROCK-DRILLING MACHINES. A. J. Merahon, Warsaw, Ind. [Filed Apr. 9, 1877.]

Brief.—As the disk is rotated, the arm projecting from the drill-shaft is carried upward by the roller in the slot, thereby raising the drill-shaft, and at the same time turning it through part of a revolution. As the roller passes beyond the line vertical to the disk's shaft, the arm is released, and with the drill-shaft falls.



The disk D, having the slot *b*, the roller *c*, arm E, and drill-rod B, in combination, substantially as herein shown and described.

190,233. WATCH DUST-CAPS. L. D. Merrill, Sparta, Wis. [Filed Mar. 22, 1876.]



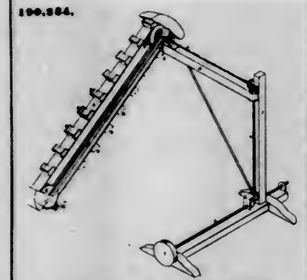
1. The regulator, constructed as described, in combination with the dust-cap, substantially as described, and for the purposes set forth.

2. The combination with the glass plate with holes for winding and regulating, dust-caps C, winding-post, and regulator, substantially as described, and for the purposes set forth.

190,234. DEVICES FOR ELEVATING EARTH. Geo. B. Milliken, Los Angeles, Cal. [Filed Mar. 1, 1877.]

Brief.—The elevating-buckets can be turned in any direction, owing to the universal joint connecting it with the crane arm.

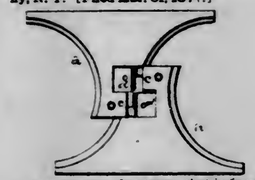
190,224.



1. The endless elevator-belt A, with its frame B, mounted so as to turn about the axis F, in combination with the vertical axis E, the gears H and I, and the shaft L, the whole designed to allow a universal movement of the elevator without deranging its action, substantially as herein described.

2. The elevator A, having a universal joint motion at its upper end, in combination with the crane-arm G, horizontal and vertical driving-shafts L N O, and bevel connecting-gears, the whole constructed to operate substantially as herein described.

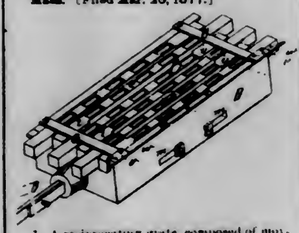
190,225. STOVE-PLATES. H. Miner, Albany, N. Y. [Filed Mar. 31, 1877.]



1. A center piece for stoves, that is formed in two or more pieces, *e*, each one of which has a portion of its inner end formed to both rest upon the top, and pass under the end of the adjoining piece, whereby each piece is made to support the other, substantially as shown.

2. A center-plate for stoves, which is made in two or more pieces, each piece having a a projecting corner, *c*, and a recess, *d*, formed on its inner end, substantially as specified.

190,226. GRATES. Jno. A. Moffitt, Boston, Mass. [Filed Mar. 20, 1877.]



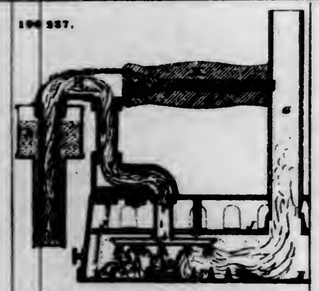
1. A reciprocating grate, composed of movable sections *c k*, each provided with a series of alternate and independently-removable bars, connected with and operated by a longitudinally-divided shaft, whereby the alternate grate-bars are adapted to move in opposite directions, substantially as and for the purpose described.

2. The longitudinally-divided shaft B, cross-rods *k*, and independently-removable bars of the sectional reciprocating grate C, with its frame D, and fire-box A, in combination with a single or double shaking lever or handle, E, substantially as and for the purpose set forth.

3. The transverse pieces G, with the cleat *e* and pin *w*, in combination with the grate-frame D and a series of independently-removable bars, *i*, constructed substantially as described, for the purpose set forth.

190,227. FLAT-IRON HEATERS. Oscar F. Monfort, Burlington, Iowa. [Filed Feb. 21, 1877.]

190,227.



1. The combination of the reservoir A, wick-tube B, and gas-generator C in a flat-iron heater, substantially as described.

2. The combination, in a flat-iron heater, of the gas-generator C, supplied with oil or other fluid, as described, the cup D, and the points F.

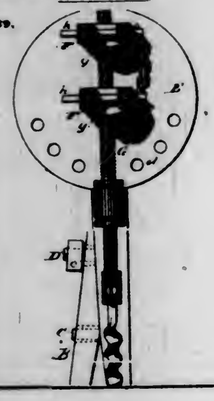
3. The combination of reservoir A, tube B, generator C, cup D, base E, having the points F, chimney G, plate J, with the chamber above it, and non-conducting handle K.

190,228. EGG-BEATERS. Jas. F. Monroe, Fitchburg, Mass. [Filed Nov. 13, 1876.]



In an egg-beater, the frame B, provided with the clamp D, cog-wheel G, pinions F F', belts *b b*, beaters C C, and support E, the several parts constructed and arranged to operate substantially as described.

190,229.



190,229. MINING-DRILLS. T. J. Morgan, Plymouth, Pa. [Filed Apr. 10, 1877.]

Brief.—The drill may be applied in any direction by changing the position of the disk, which revolves for that purpose.

1. The combination of the expansible stock A B, substantially as described, with a drill for coal-mining, and the like.

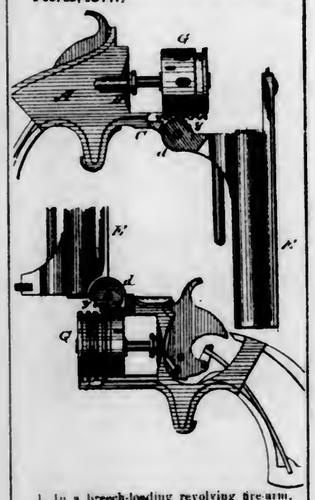
2. The expansible stock A B, provided with toes *a b* and *s* drilling mechanism, substantially as and for the purpose described.

3. The combination of an expansible stock, a rotary disk or turn-table, and a drilling mechanism, substantially as and for the purpose described.

4. The combination of the rotary disk or turn-table, the bearing-lugs F F', bearing-pieces *g*, pin *h*, and feed-screw G, all arranged and operating substantially as described.

5. The combination of the expansible stock A B with a rotary table, E, having a series of holes *d*, lug F, having shank *f*, and set-screw *e*, substantially as shown and described.

190,240. REVOLVING FIRE-ARMS. Daniel Moore, Brooklyn, assignor to Merwin, Hulbert & Co., New York, N. Y. [Filed Feb. 19, 1877.]

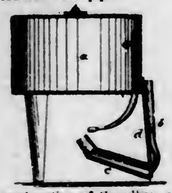


1. In a breech-loading revolving fire-arm, the hinged barrel E, having the lug *d*, that forms part of the hinge, provided with a series of cogs, *y*, for operating the revolving cylinder longitudinally, substantially as and for the purposes herein set forth.

2. The many-chambered revolving cylinder G, provided with a rack, in combination with the hinged barrel E, having lug *d* and cogs *y*, substantially as and for the purpose set forth.

190,241. COMBINED SPIRIT-LAMP AND BLOW-PIPE. S. Needles, Holden, Mo., assignor to I. Nichols and B. F. Metzler, same place. [Filed Jan. 8, 1877.]

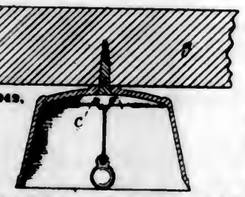
Brief.—The wick contained in the elbow-pipe is supplied with alcohol from the main cup by the small feed-pipe.



The combination of the elbow *c* with the supply-tube *b* and the leg *d*, all connected with the main cup *a*.

190,242. BELLS. Wm. H. Nichols, East Hampton, Conn. [Filed Feb. 12, 1877.]

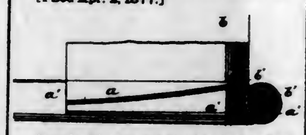
190,243.



1. A bell all in one piece, and having the two sets of holes *b c* in the top for the attachment of the tongues, substantially as described.

2. A bell all in one piece, having the two sets of holes *b c* in the top for the tongue-wires, and the central screw-hole *e*, for the attaching-screw, substantially as described.

190,244. JOINTS OF VESSELS OF ENAMELED SHEET-IRON WARE. F. G. Niedringhaus and Wm. F. Niedringhaus, St. Louis, Mo. [Filed Apr. 2, 1877.]



In a sheet-iron vessel, the herein-described joint consisting of the flange *a'* and end *b'* upturned into a double hollow bead, substantially as set forth, the end *b'* forming a complete circle and meeting the side of the vessel.

190,245. URINALS FOR INVALIDS. Richard H. Olmstead, Napa City, Cal. [Filed Oct. 21, 1876.]

Brief.—The urinal is of rigid material, of such form as to fit between the limbs of a female when lying in bed, and provided with an abrupt inwardly-projecting flange, to prevent any drip or overflow.



A hard-rubber or rigid elongated urinal of the shape shown, provided with the inwardly-inclined flange B and discharge-opening C, substantially as and for the purpose above described.

190,245. VALVE-MOTION AND CUT-OFF. E. O'Neill, Oakland, Cal. [Filed Mar. 15, 1877.]

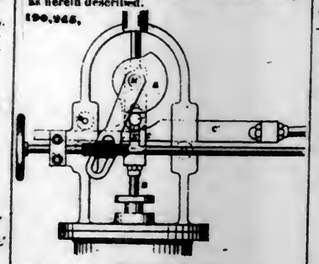
1. The reciprocating operating-bar, having its two levels C and C' connected by the inclined curve F, so formed that the valve shall be started from its seat by a slow movement, and its opening completed by a more rapid movement, substantially as herein described.

2. The cam G, with its offset or curve, the cam being attached to, and moving with, the valve-stem B, in combination with the independent inclined curved face F of the operating-bar, said cam being so placed as to allow the valve to be opened and closed, substantially as herein described.

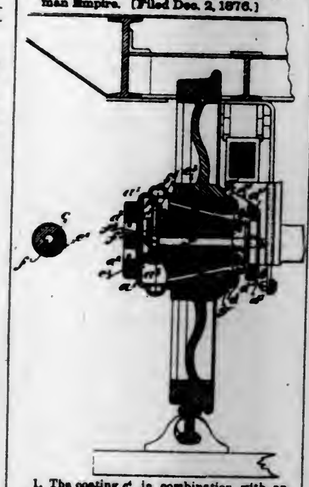
3. The valve-stem B, having the longitudinal slots made in its sides transversely to each other, in combination with the bar C and the rollers E, so that the valve-stem and rollers may be moved independent of the bar and of each other, substantially as herein described.

4. The bar C, with its inclined curved face F, in combination with the cam G, attached to the valve-stem, and the independently-moving roller E, which supports the cam until the valve is opened, and is then released by it to allow the valve to close, substantially as herein described.

190,246.



190,246. RAILWAY-WHEELS. J. A. Oesterbrock, Hemelingen, near Bremen, German Empire. [Filed Dec. 2, 1876.]



1. The coating c^4, in combination with an axle, *e*, an internal filtering-chamber, *f*, one or more passages, e^3, and oil-chamber e^2, substantially as set forth.

2. The coating c^4, in combination with the ring or bush *i*, disk c^5, ring g^3, and hard blocks g^4 g^5 for keeping the nave in place on the axle shaft or stud, and taking the axial end thrust or wear of one against the other, substantially as set forth.

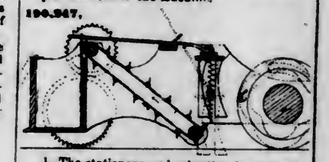
3. The boss or nave of a wheel revolving loosely on its axle, and formed with a chamber, a^3, pockets a^4, and catch-basin f^4, chamber *d*, and one or more slanting communicating passages, *e*, in combination with a catch-tube, *f*, fastened to the axle shaft or stud, a passage, f^3, a filtering-chamber, *f*, and passage or passages e^3, communicating with the upper journal wearing-surface, substantially as set forth.

4. The pockets a^4, formed or fitted in a revolving nave, and the catch-basin f^4, in combination with a pipe or passage for leading the oil from the basin f^4 to the journal, substantially as and for the purposes set forth.

190,247. STRAWBERRY AND VEGETABLE CULTIVATORS. Wm. Pierce, Stoneham, Mass. [Filed May 5, 1876.]

Brief.—The cultivator is mounted on wheels, and upon each side of the frame is a cutting device, to trim off the running vines. A series of cultivator-teeth dig up the ground between the wheels, and an endless apron, with projecting points, picks up the severed vines, and conveys them into a receptacle upon the rear of the machine.

190,247.



1. The stationary and vibrating blades and cam-grooved roller, in combination with the belt to pick up, and the box to contain, the vines severed from the row, substantially as described.

2. In combination, the vibrating vine-cutting blades, the cultivator, the toothed belt, and the box or receptacle *s* to contain the vines, substantially as described.

190,248. ARTIFICIAL FLOWERS. S. Potts, Philadelphia, Pa. [Filed Mar. 24, 1877.]



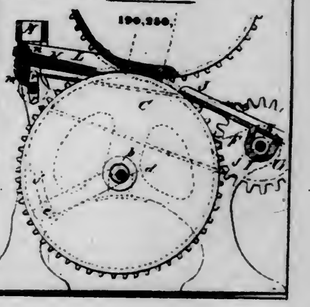
The combination of the tube A, flanged at one end and flared at the other, the arms or sepals B, having circular hooks formed upon their inner ends, the rubber spring C, the threads D, provided with a bead, d^3, the petals F, and their connections f^3, with each other, substantially as herein shown and described.

190,249. LAMP-BURNERS. J. Rasch, Christiania, Norway. [Filed Dec. 18, 1876.]



The chimney-support of a round burner, consisting of a ring-plate, B, and surrounding cylinder C, the former having guides *a*, adjustable to notch-rests at different elevations, and in a slot, *b*, of the latter, as shown and described.

190,250.



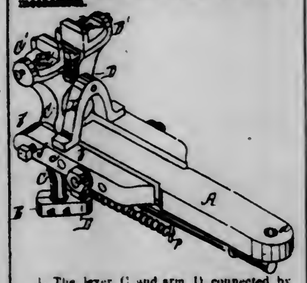
190,250. GRAIN-CRUSHERS. Joseph Reid and Robert Reid, Philadelphia, Pa. [Filed Nov. 11, 1876.]

1. The combination of shaft F, pinion G, and plate H, with the chambered boss I, and valved chute J, the plate H being provided with notch *s* and rim *t*, as set forth.

2. The combination, with chute L, of hopper M, having double bottom N, with notched lug *u*, spring *v*, and bar *p*, for the purpose specified.

190,251. FEEDING MECHANISMS FOR CUT-NAIL MACHINES. B. F. Rice, East Weymouth, Mass. [Filed Feb. 12, 1877.]

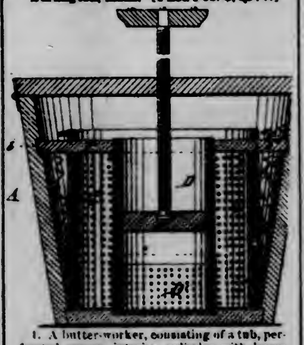
Brief.—The lever of the movable jaw is connected by a link to an arm operated by the push-rod, said arm being pivoted on the same shaft on which the jaws vibrate, and between them the levers of the griping-jaws are pivoted in a frame which is adjustable on and independently of the bar supporting the feed mechanism.



1. The lever C and arm D, connected by the link E, in combination with the lever B, push-rod I, and springs a J, constructed to operate substantially as and for the purpose set forth.

2. The levers B C, hung in a frame, *b*, in combination with the bar A and screw-shaft *c*, substantially as and for the purpose described.

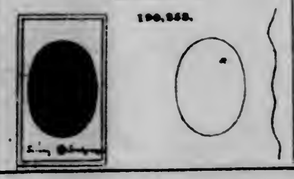
190,252. BUTTER-WORKERS. C. A. Sands, Burlington, Kans. [Filed Feb. 3, 1877.]



1. A butter-worker, consisting of a tub, perforated screen, interior cylinder with lower perforated part, and sliding follower, the whole constructed and operated substantially as and for the purpose set forth.

2. The combination of the interior cylinder D, recessed screen C, and tub A, having L-shaped recesses with a detachable locking-bar, F, seated in the recesses of screen and tub, and encircling the inner cylinder, to admit ready taking out and cleaning of parts, substantially as specified.

190,253.



190,254. PHOTOGRAPHIC-PRINTING APPARATUS. O. Sarony, Scarborough, England. [Filed July 26, 1876.]

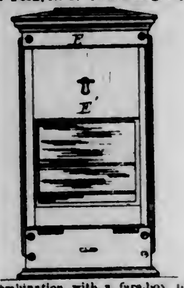
A photographic-printing apparatus, provided with a short tube having outer tissue-paper *e* and inner ground glass *f*, substantially as shown and described, to form a cap, as specified.

190,255. BOTTLE-STOPPER FASTENINGS. F. Schlich, New York, N. Y. [Filed Sept. 11, 1876.]



The lever *h*, having a slot, and the yoke *c*, passing through the slot of the lever, in combination with the bottle-stopper *a b*, bearing *c*, and fulcrum projection upon the stopper for the end of the lever, substantially as set forth.

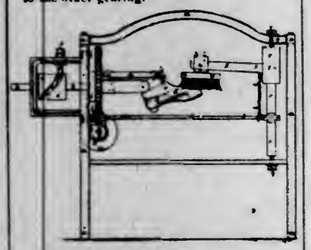
190,256. FARE-BOXES. John B. Slawson, New York, N. Y. [Filed Aug. 14, 1876.]



In combination with a fare-box provided with two or more slides running in opposite directions to each other, and supported on the side walls of the box, a door, E, and lock, for the purposes set forth.

190,257. BOOT-CLEANERS. C. H. Southall, Leeds, England. [Filed Mar. 26, 1877.]

Brief.—An expansible last is attached to a horizontal sliding bar, which is operated by gearing and a worm-wheel. The brush is operated by a lever and rocking bar connected to the other gearing.

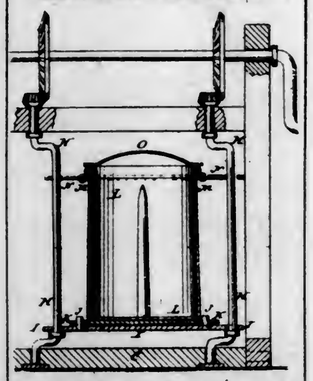


1. The sliding shaft *b*, in combination with the revolving shoe-holder and polishing-brush, substantially as set forth.

2. The combination, in a boot or shoe polishing machine, of an expansible last, *d*, revolving holder, and polishing-brush, substantially as set forth.

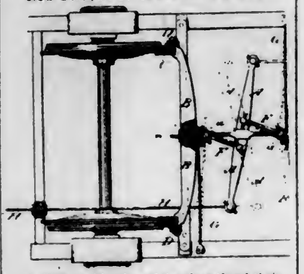
3. In the boot or shoe polishing machine, the combination, with the holder, of the rocking shaft *r*, arm *s*, brush *u*, and mechanism for rocking the shaft *r*, as set forth.

190,258. POWER-CHURNS. W. H. Sterns, Humboldt, Nebr. [Filed Feb. 26, 1877.]



The combination, with the churn L, of lugged ring N M, pin-bar J I, apertured bar K, and crank-shafts H H, substantially as and for the purpose specified.

190,259. CAR-BRAKES. John Stephenson, New York, N. Y. [Filed Oct. 19, 1876.]



1. The combination of the clogs C and their bars B with the actuating horizontal lever A, all being suspended at the inner sides of the car-wheels, and the clog-bars connected with said lever by short connecting-rods F, having free joints at both ends, so that the power may be transmitted by a push motion through the connecting-rods to the clog-bars and clogs, substantially as described.

2. The combination of the lever A with the clog-bars B by connecting-rods F, having free joints at both ends, substantially as described.

3. The combination of the clog-bars and connecting-rods with adjustable eyebolts, substantially as set forth.

4. The combination of the clog-bars with diagonal stays, arranged to connect the clog-bars with the bottom of the car-body, to deprive the clog-bars of end motion, substantially as described.

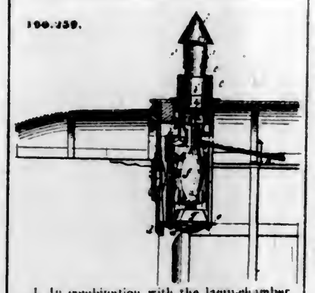
5. The combination of the lever A, connecting-rods F, adjustable eyebolts *a*, diagonal stays G, clog-bars B, and clogs C, suspended between the two pairs of wheels of a street-car, the whole forming an efficient system of car-brakes.

6. The combination of the chain-rods H with the lever A, connecting-rods F, adjustable eyebolts *a*, diagonal stays G, clog-bars B, and clogs C, suspended between the two pairs of wheels of a street-car, the whole forming an efficient system of car-brakes.

190,260. CAR-LAMP HOUSES. John Stephenson, New York, N. Y. [Filed Jan. 5, 1877.]

Brief.—A draft through the lamp-chamber, independent of the air in the car, is maintained in such manner as to clear the chamber of vapors, and keep the reflectors cool.

190,259.



1. In combination with the lamp-chamber M of a lamp-house, a street-car provided with one or more ducts, channels, or openings, leading from the atmosphere outside of the car to the space around the lamp on the interior of the lamp-chamber, substantially as and for the purposes set forth.

2. In combination with the lamp-chamber M of a lamp-house, a street-car provided with one or more ducts, channels, or openings, *d*, arranged to lead from the external atmosphere to the space around the lamp on the interior of the lamp chamber, at or near its floor-line, substantially as and for the purpose described.

3. A lamp-house provided with a smoke-stack for carrying off the gases generated by the lamp, in combination with a car provided with one or more ducts, channels, or openings leading from the atmosphere outside of the car to the space around the lamp on the interior of the lamp-chamber, in the manner substantially as and for the purpose set forth.

4. A lamp-house of a street-car, the bottom of which is constructed with a tight concavity, extending below the floor-line, to form a suitable lodgment for the lamp and provide space for use, in connection with the lamp, of a chimney of proper height to insure thorough combustion, substantially as described.

5. A lamp-house of a street car, provided with a cavity in its door, and a dish or receptacle for catching the oil drip from the lamp, substantially as set forth.

6. A lamp-house provided with a lamp and a lens, glass, or other transparent device, through which the light from the lamp may be projected beyond the car for signaling purposes, and a smoke-stack for exhausting the lamp-chamber of the gases generated by the lamp, in combination with a car provided with one or more ducts, channels, or openings, which lead from the atmosphere outside of the car to the space around the lamp on the interior of the lamp chamber, in the manner substantially as and for the purposes set forth.

7. A lamp-house provided with a lamp and mirrors arranged to reflect the light within the car, and with a smoke-stack for carrying off the gases generated by the lamp, in combination with a car provided with one or more ducts, channels, or openings, which lead from the atmosphere outside of the car to the space around the lamp on the interior of the lamp-chamber, in the manner substantially as and for the purposes set forth.

8. A street-car provided with one or more ducts, channels, or openings for supplying air to the lamp-house from the external atmosphere, in combination with a lamp-house constructed to admit the air to its interior from these openings at a point in the rear of the reflectors, for the purpose of keeping them cool, substantially as set forth.

9. A lamp-house arranged within the car, and constructed to prevent atmospheric communication between the lamp-chamber M and the interior of the car, save when the door is incidentally or intentionally opened, in combination with a car provided with one or more ducts, channels, or openings, *d*, arranged, substantially as described, to lead from the external atmosphere to the space around the lamp on the interior of the lamp-chamber, for the purposes set forth.

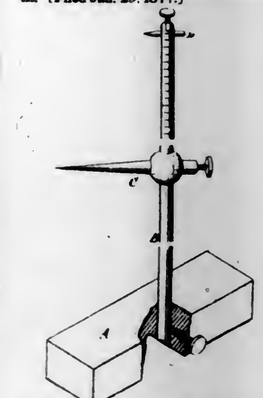
10. A lamp-house of a street car, in which the space around the lamp on the interior of the lamp-chamber M is supplied with air drawn from the outside of the car by means of one or more ducts or channels formed in the wall or walls of the car, in combination with a smoke-stack enlarged between the lamp-chamber and its discharge-opening, and in which enlargement is located a shield, A, of suitable shape, such as an inverted dish, to prevent downward rush of air to the lamp-chamber, substantially as set forth.

11. In combination with the chimney or smoke-stack of the lamp-house of a car, a cap-piece, c^3, provided with a series of small openings, and with a curved or cone-shaped supplemental cap-piece, c^4, substantially as and for the purpose set forth.

12. A lamp-house provided with a shield, *h*, and a cap-piece, c^3, having a cover, c^5, provided with a number of small openings, and with a convex or conical cap-piece, c^4, substantially as set forth.

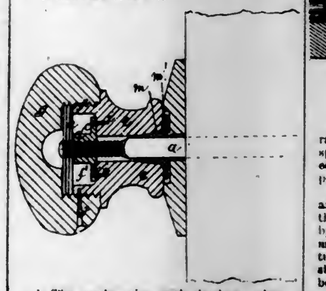
13. A lamp-house of a street-car, provided with pendent fingers *o*, to steady the top end of the glass chimney, and with a tight concavity in its bottom, to hold the lamp in place and catch the oil as it drips therefrom, substantially as set forth.

190,260. GAGES. B. F. Stoner, Rockford, Ill. [Filed Jan. 29, 1877.]



An instrument consisting of head A, notated rod B, adjustable in said head, and the adjustable fingers C D, substantially as shown and described.

190,261. ATTACHING KNOBS TO SPINDLES. Wm. Sutherland, Manchester, England. [Filed Jan. 9, 1877.]



1. The combination, with the base *e*, having a screw-threaded projection, *f*, and cavity *f'*, of the fingered nut *c d*, adapted to be lodged and secured in such cavity, the spindle *a'*, and the threaded knob or handle *g*, as and for the purpose set forth.

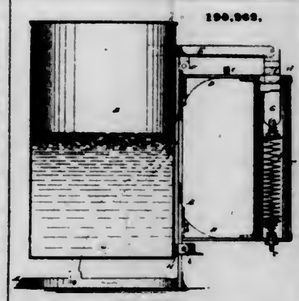
2. In combination, the parts *e*, *g*, *c*, *d*, *b*, and *m m'*, constructed and applied to each other substantially as shown and described.

190,262. APPARATUS FOR WEIGHING LIQUIDS. J. G. Vallentine, Florence, Mass., assignor to himself and E. Vallentine, same place. [Filed Feb. 26, 1877.]

1. The combination of the frame A, having the tubular bundle C, spring F, scale G, lever K, and receptacle B, substantially as herein shown and described.

2. The combination of the arm H, frame A, and receptacle B, substantially as shown and described.

190,263.



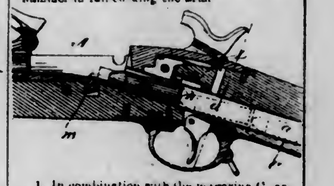
190,263. SIGNAL-CARTRIDGES. E. W. Very, Annapolis, Md. [Filed Feb. 14, 1877.]



A percussion-capped signal cartridge or shell, having a charge of gunpowder, and being provided with two or more signal balls, directly ignited by the flame of the burning gunpowder, and showing their light from the time they leave the cartridge-case and pistol until they are entirely consumed, substantially as and for the purpose specified.

190,264. MAGAZINE FIRE-ARMS. Wm. W. Wetmore and T. G. Bennett, New Haven, Conn. [Filed Feb. 24, 1877.]

Brief.—After the empty shell is thrown out a new cartridge is released from the magazine by pressing a stud, which operates a stop. Said stud may be pressed by hand or by the hammer in full-cocking the arm.



1. In combination with the magazine C, arranged as described, the lever D, with the spring-hook *h*, and thumb-piece *k*, constructed to operate substantially as and for the purpose set forth.

2. The lever E, provided with the stud *m*, and arranged to operate in connection with the lever D, substantially as described, whereby said stud is depressed as the cartridge moves forward from the magazine and is returned to position to throw out the empty shell as the latter is ejected from the chamber of the gun.

3. In combination with a magazine, C, the spring-hook *h*, with its stop or stirrup *f*, arranged to operate substantially as described.

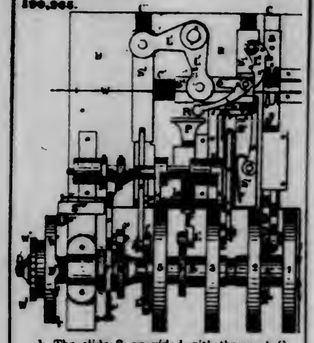
4. In combination with the receiver A, having the magazine-opening through its rear end, a detent for holding and releasing the cartridges of the magazine, said detent being arranged to be operated substantially as described.

190,265. WIRE-DOUBLING MACHINES. O. D. Woodbury and E. C. Woodbury, New York, and S. H. Cole, Brooklyn, N. Y.; said O. D. and E. C. Woodbury assignors to said Cole. [Filed Apr. 12, 1875.]

Brief.—Serpentine or zigzag folds of wire for corsets are made by finger-shaped dies, alternately interlocking endwise, the wire being fed along between the intervals of contact, and at proper and regulated distances longer loops are made, to serve as hooks or

eyes for use when the corset is worn. The long loops are made by the engagement and disengagement of hook-levers, which cause a longer and shorter throw to be imparted to the dies.

190,265.



1. The slide S, provided with the comb G, arranged and operating in the manner shown and described.

2. The slides S and S^1, provided with the combs G G, as shown and described, in combination.

3. The slide S^2, provided with the clamp L, and operating in the manner and for the purposes set forth, in combination with the parallel bar P and the cam No. 4.

4. The slide S^2, clamp L, and parallel bar P, operating in the manner shown and described, and in combination.

5. The slides S and S^1, arranged and operating to grasp and form the wire at the forward side of the loop, in combination with the slide S^2, arranged and operating to grasp, carry, form, and release the wire at the rear side of the loop, as set forth.

6. The combination of the slides S and S^1, the slide S^2, and griping-clamp L, and the plunger P^1, all operating in the manner and for the purposes described.

7. The slide S^3, provided with and carrying the plunger P^1, and the feeding-lever L^2, each operating alternately in the order and manner shown and described.

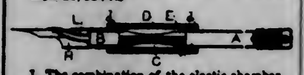
8. The combination of ratchet and pattern wheels W^2 and W^1, and the thrusting-slide S^3, when arranged and operated to alter the throw of clamp and plunger slides S^2 and S^3.

9. The slide-rods H H, provided with upper and lower cushets O and O^1, arranged to take on the rolls M M^1, placed on the rock-shaft arms L^2 L^3 at different distances from the center of motion, as shown.

10. The spring-stop T, in combination with the wedge X, as placed on the clamp-slide S^2 as to take on and elevate the spring-stop when the slide S^2 makes its long motion to take up a long length of wire.

11. The subordinate rock-shaft K^1, provided with the arms and studs shown and described, in combination with the slide-rods H H and the carriers V V.

190,266. FOUNTAIN-PENS. H. Berlie and F. X. Lamboley, New York, N. Y. [Filed Apr. 13, 1877.]



1. The combination of the elastic chamber, the reservoir A, and the supplemental chamber, having a tube for carrying the ink to the pen, substantially as described.

2. The combination, with the reservoir A, of the plunger M, the rod C, having the groove E, the elastic tube D, the supplemental chamber B, and the tube H, having the vent-opening I, substantially as described.

190,267. PRUNER AND FRUIT-PICKER. A. L. Bevens, Flushing, N. Y. [Filed Mar. 13, 1877.]

Brief.—Implement adapted to pruning with knife or rod, and to picking fruit.

1. The stock *d*, provided with the hook *r* and guide lips *i i*, in combination with the plate *n*, cap *o*, rod *e*, and pole *a*, substantially as set forth.

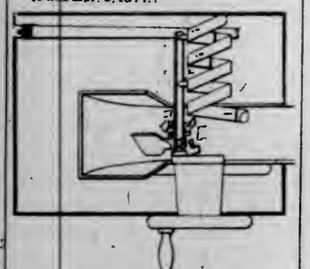
2. The stock *d*, hook *r*, lips *i i*, handle *c*, and screw-rod *s*, constructed substantially as set forth, so as to be adapted to receiving either the sliding cutter *g*, or the sliding plate *s*, of the saw *r*, substantially as set forth.

3. In the pruning instrument, the holes in the stock for the hooks *l* of the removable bag, and the ring *t* upon the handle *a* for the wire-lever *k*, substantially as and for the purposes set forth.

190,267.



190,268. MECHANISMS FOR AUTOMATICALLY SELECTING AND PRESENTING STAPLES. J. W. Bicknell, Boston, Mass., assignor to Boston Machine Company, same place. [Filed Apr. 9, 1877.]



1. The combination, with a staple-receiver, of a picking-up device adapted to automatically pick up staples from a mass of staples, and present them upon the receiver, substantially as described.

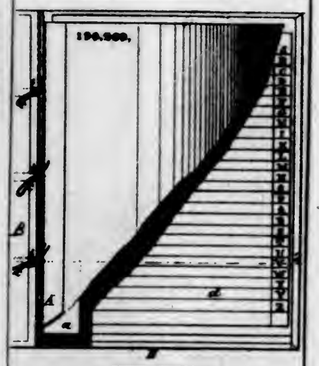
2. The shaft *c*, revolved in a circular path, in combination with its attached picking-up device, made as a coil, and adapted to pick up and move a staple laterally and discharge it, substantially as described.

3. The hopper, the shaft *c*, the picking-up device *f* attached thereto, and the agitator, in combination with the receiver, all substantially as described.

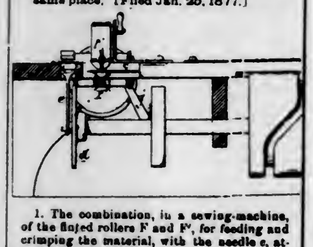
190,269. TEMPORARY BINDERS. W. P. Bissell, Richmond, Va. [Filed Jan. 31, 1877.]

As a new article of manufacture, the invoice or bill file herein described, consisting of a stub, *a*, having a number of stub ends, *c*, and at suitable intervals between said stub ends the alphabetized index-leaves *d*, the stub being attached to a removable cover, *B*, by strings, cords, or bands engaging with loops or rings *b* on the cover.

190,269.



190,270. STRAW-SEWING MACHINES. F. Blackburn and V. Mosslein, Philadelphia, Pa., assignors to themselves, H. Friedberger, H. L. Strouse, and B. Strouse, same place. [Filed Jan. 26, 1877.]

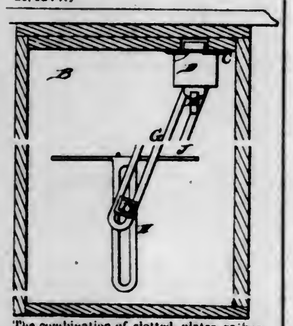


1. The combination, in a sewing-machine, of the fluted rollers F and F^v, for feeding and crimping the material, with the needle *c*, attached to its needle-bar, and having a reciprocating motion in and out of the said material, as set forth.

2. The combination of the crimping and feeding rollers F and F^v with the reciprocating needle *c* and shuttle mechanism, substantially as described.

3. The combination of the reciprocating needle *c* with the notched crimping-roller F, having rigid bearings, and the roller F^v, having yielding bearings, as set forth.

190,271. LAMP-BRACKETS. C. Bliven and Geo. D. Parker, Norfolk, Va. [Filed Mar. 31, 1877.]



The combination of slotted plates or bar C G H, casing B, block D, lamp-support J, and clamping screws and bolts, substantially as and for the purpose set forth.

190,272. CAR-AXLE LUBRICATORS. John W. Bollman and John G. Ernst, Baltimore, Md. [Filed Mar. 3 1877.]

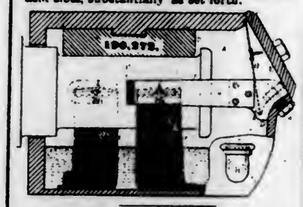
1. In combination with a car-axle box, spring supporting-arms for holding the wicks, the said arms being of unequal lengths, as described, whereby the wicks are held against different parts of the journal, substantially as and for the purposes specified.

2. Spring-arms of unequal lengths for holding the wicks, combined with a removable bar, forming the base of the said arms, and suitable locking devices for securing the said bar to the axle-box, substantially as described.

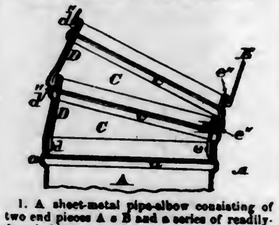
3. Spring-arms of unequal lengths for supporting the wicks, provided at their free ends with serrated slots for receiving the said wicks, thereby admitting the oil to flow freely, as specified.

4. The free ends of the spring-supports for the wicks, slotted substantially as described, and provided with the projecting lips and hinged locks for holding the wicks within the said slots, substantially as set forth.

190,273.



190,273. PIPE-ELBOWS. Wm. Borrman, Cincinnati, Ohio. [Filed Feb. 21, 1877.]



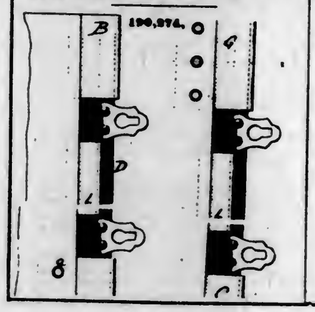
1. A sheet-metal pipe-elbow consisting of two end pieces A *a* B and a series of readily-detachable intermediate sections, C *c*, which end pieces and sections are connected by means of slip-joints, and are united together with one or more internal binders, said binder or binders being locked to one or more of the slip-joints of the elbow, substantially as herein described, and for the purpose set forth.

2. A sheet-metal pipe-elbow consisting of two end pieces, A *a* B, and a series of intermediate detachable sections, C *c*, which end pieces and sections are united together by an internal binder, D, riveted to end piece A *a* at *d*, and clinched to end piece B at d', substantially as herein described, and for the purpose set forth.

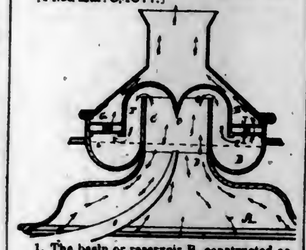
3. A sheet-metal pipe-elbow consisting of two end pieces, A *a* B, and a series of intermediate detachable sections, C *c*, which end pieces and sections are united together by an internal binder, D d d', having crimps d'', located at one or more joints or laps of said elbow, substantially as herein described, and for the purpose set forth.

4. A sheet-metal pipe-elbow consisting of two end pieces, A *a* B, and a series of intermediate detachable sections, C *c*, which end pieces and sections are united together by one internal binder, D d d' d'', extending along the extrados of the curve, and another internal binder E *e* e', extending along the intrados of said curve, substantially as herein described, and for the purpose set forth.

190,274.



190,275. SPARK-ARRESTERS. R. Brayton, D. June, and O. S. French, Fremont, Ohio. [Filed Mar. 3, 1877.]



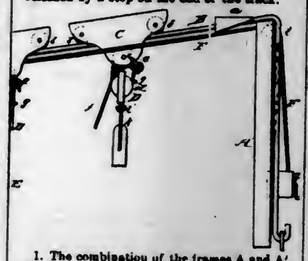
1. The basin or reservoir B, constructed as shown, and fine C made or cast in one piece, in combination with the base A, substantially as and for the purpose set forth.

2. The base A, consisting of one piece of metal, in combination with the reservoir or basin B, constructed as shown, fine C, and shell E, as herein described, and for the purpose specified.

3. The perforated plates I and J, constructed and arranged in relation to each other, and in combination with the reservoir B, substantially as described, and for the purpose set forth.

190,276. HOISTING APPARATUS. D. Brobston, Chicago, Ill. [Filed Aug. 9, 1876.]

Brief.—Two parallel wire track-ropes are supported by a derrick at each end. A carriage on each track is drawn by a rope, which passes to the end, and downward over, at each turn, two grooved drums in a frame, winding at one side and unwinding at the other, to pass upward to the other carriage. Each carriage suspends, by fall-tackle, a bucket, which latches itself by a hook, and is released by a stop on the end of the track.

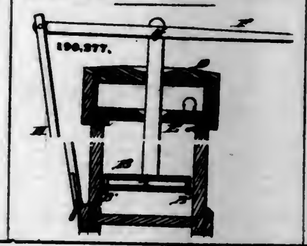


1. The combination of the frames A and A' and traveling-ropes B B with the carriages C C, single rope F, and windlass G, for carrying and returning by the same movement, substantially as specified.

2. The combination of the hook *g* and stop A with the carriage C, sheave *c*, pulley-block D, and rope F, having its ends attached to the carriage, substantially as described.

3. The combination of the windlass G with the frames A A' and rope F, for operating the hoisting apparatus in either direction, substantially as set forth.

190,277.

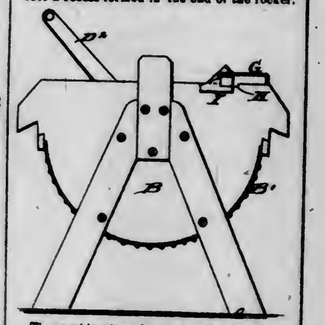


190,277. RECIPROCATING CHURNS. A. F. Brooking, Milton, Ill. [Filed Mar. 31, 1877.]

The combination of churn-box A and dasher B, having end pieces F' B' and two rows of cross-bars, *b*, with rod C, lever F, detachably-hinged standard H, and perforated or slotted covers D and E, substantially as and for the purpose set forth.

190,278. WASHING-MACHINES. James H. Brown, Stewartsville, Mo. [Filed Mar. 10, 1877.]

Brief.—To insert the clothes between the carved rocker and the bottom of the wash-box, one end of the said rocker is tipped above the top of the box, and the stop-bar is slid into a recess formed in the end of the rocker.



The combination of wash-box B, having recesses H and guide staples G, with rocker D, having recesses F, and stop-bar E, having blocks I I on its ends, substantially as and for the purpose set forth.

190,279. ELECTRO-VOLTAIC BELTS. James Bryan, New York, N. Y. [Filed Aug. 20, 1876.]

Brief.—Relates to method of securing the battery-plates together and to the conducting-plates; also, to means for securing the terminal plates to the belt.



1. In an electro-voltaic and magnetic appliance, the battery-leaves hinged at one end, and having the other end disconnected and overlying the contiguous leaves throughout the battery, substantially as and for the purpose herein set forth.

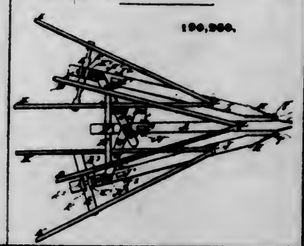
2. In an electro-voltaic and magnetic appliance, the combination of the narrow oblong conductors with the overlying battery-leaves, hinged at one end to said conductors, substantially as and for the purpose herein set forth.

3. The conductor-lipped caps, in combination with the loop-eyed fastenings and the battery, as and for the purpose herein set forth.

4. The terminal plates *d* d', provided with the edge lips d^2, adapted to fit one within the other, in combination with the battery, the covers, and the clamp-screws, substantially as and for the purpose herein set forth.

5. The combination, with the terminal plates, constructed as described, of the pads and clamp-screws, whereby all the parts are united by the same screw.

190,280.

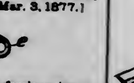


190,980. CULTIVATORS. A. Buesinger, Mill Brook Depot, Va. [Filed Mar. 17, 1877.]

Brief.—A shovel-plow having three beams, to be used in combination, or separated and used as single-shovel plows, each beam being provided with a set of handles.

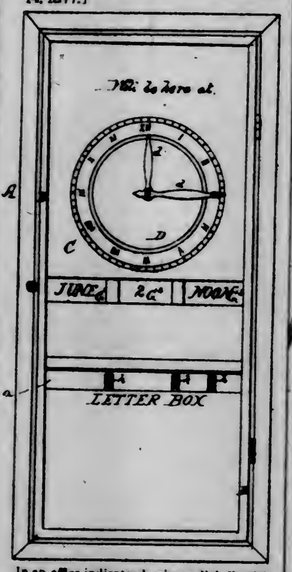
The plow-beam A, constructed as described, and provided with the handles D, in combination with the plow-beam J, provided with the eye L, perforated plate H, of plow-beam J, and upright K', hinged to the beam J at h', whereby the cultivator may be transformed into a double-shovel plow with a single pair of handles, and the upright K' folded down on its plow-beam out of the way, substantially as described.

190,981. SAFETY-PINS. Wm. A. Butler, New York, N. Y. [Filed Mar. 3, 1877.]



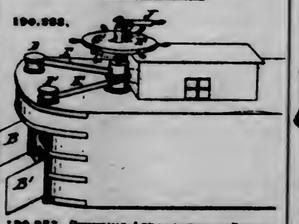
In a safety-pin, the re-enforcing-ring c, placed and fastened in the bent portion of said pin, substantially as and for the purpose specified.

190,982. OFFICE-INDICATORS. James R. Cluxton, Hillsborough, Ohio. [Filed Feb. 14, 1877.]



In an office-indicator having a dial, D, with hands d, the endless belts G^1 G^2 G^3 guided and separated by the cleats m, the rollers G G G arranged on a line with each other, and provided with operating wheels A, and the slotted shield J, all constructed as described, and inclosed within a case, A B, substantially as and for the purpose herein set forth.

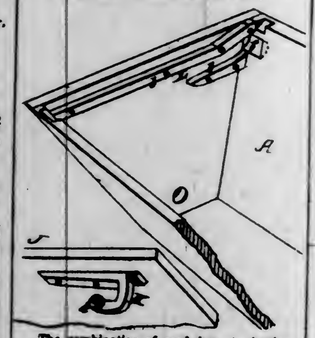
190,983. STEMMING APPARATUS FOR CANAL-BOATS. B. R. Cole, Buffalo, N. Y., assignor of one-half his right to D. P. Dobbins, same place. [Filed Apr. 6, 1877.]



Brief.—The shaft of the steering-wheel bears a fast and a loose pulley, which may be locked together in one position, so that both rudders are operated together by chains from the wheel; or, by operating the wheel and locking-lever, both rudders may be turned back against the stern of the boat.

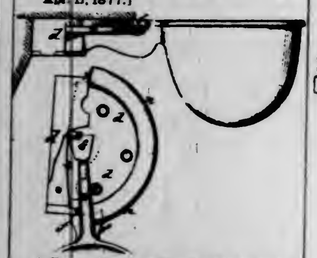
The steering-wheel G', provided with the lever J, shaft G, and rod H', in combination with the chains E E', or their equivalents, pulleys D D', and rudders B B', for the purposes described.

190,984. BROADCAST-SOWERS. L. Coller, Flint, Mich. [Filed Mar. 17, 1877.]



The combination of sand-box A, having guide-ways L, upwardly inclined at the rear, and recess P, with a sliding cover, J, having arm K, rounded at its lower end, and stud h, substantially as and for the purpose set forth.

190,985. BILLIARD CHALK-CUPS. Hugh W. Callender, New York, N. Y. [Filed Apr. 11, 1877.]



1. The combination of the vibrating or swing ing chalk-cup, provided with a bearing-lug, f, with the plate d, to which the arm is pivoted, formed with a depressed flange or lip, z, at its outer circumference, substantially as described.

2. In combination with the swinging chalk-holder device, and the stand or fixture to which it is pivoted, means, substantially as described, for effecting the movements of the vibratory arm toward and its retention in the several positions in which the chalk-cup will be exposed for use; or held in an out-of-the-way position, as herein before set forth.

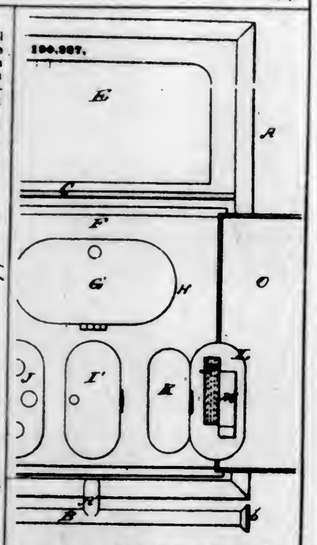
190,986. PIPES AND CIGAR-HOLDERS. Jno. T. Connolly, New York, N. Y. [Filed Feb. 5, 1877.]



A pipe-stem and filtering chamber, a b, with diaphragm i, and packing material m, with extension g, adapted to receive a cigar or connect with a pipe-bowl, substantially as described.

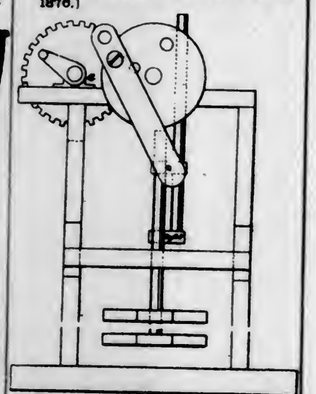
190,987. TOILET-CASES. G. H. Crain, Morrisville, N. Y. [Filed Feb. 24, 1877.]

190,987.



As a new article of manufacture, a toilet-case consisting of the frame A, towel-rack B, shelf C, mirror E, casing F, having compartments G and I, pin-cushion J, door L, match-holder M, friction-surface N, and cover O, substantially as described, and for the purpose set forth.

190,988. RECIPROCATING CHURNS. John J. Curd, Rockfield, Ky. [Filed Dec. 23, 1876.]



The churning apparatus consisting of dashers arranged to advance toward, and recede from, each other vertically, the rods of the same being adjustably connected to pitmen operated by mechanism above, attached to the said frame, the piston-rods passing through a vertically-adjustable cross-beam, which permits the entrance and rests upon the top of churn-vessels of different degrees of height, substantially as specified.

190,989. SEWING-MACHINE SHUTTLES. D. A. Daly, Detroit, Mich. [Filed Sept. 11, 1876.]

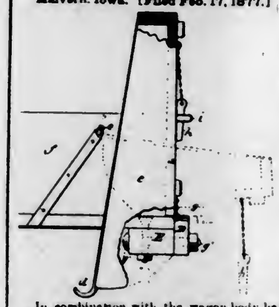
Brief.—To the upper side of the shuttle-case is hinged a gate, provided on its inner side with a pair of tension-disks, adjustable, to vary the tension, by means of a spring on the inside, operated by a screw extending to the outside of the gate.

The combination, with the shuttle-case A, of the gate A', hinged to the top side of the said case, the leaf-spring U, secured to the inside of the said gate by the screw d, and the tension-disks c, whereby the tension is changed without removing the shuttle from the race, constructed and arranged substantially as described and shown.

190,989.

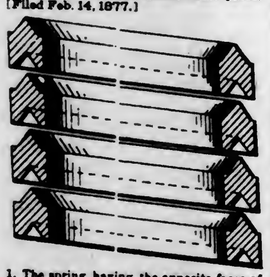


190,990. WAGON END-GATES. S. D. Davis, Malvern, Iowa. [Filed Feb. 17, 1877.]



In combination with the wagon-body having the slotted projecting arms f, side legs e, and end sill E, the hinged end-gate, having the end piece b and extended sides c, provided with curved arms d, the detachable bar D, and screw-bolts g', all as shown and described.

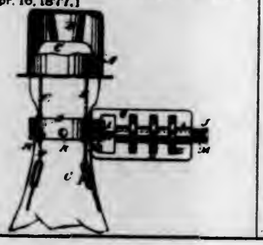
190,991. COILED SPRINGS. Aug. B. Davis, Philadelphia, Pa., assignor of one-third of his right to John B. Quirk, same place. [Filed Feb. 14, 1877.]



1. The spring having the opposite faces of each convolution formed with a centrally-coincident projection and depression, and coincident shoulders or bearing-faces, substantially as and for the purpose set forth.

2. A spring having upon its respective faces a projection and a depression, and bearing-shoulders upon each face, whereby the face of each convolution enters the face of the adjacent convolution, and is supported thereon on both sides and restrained by the bearing-shoulders, substantially as and for the purpose set forth.

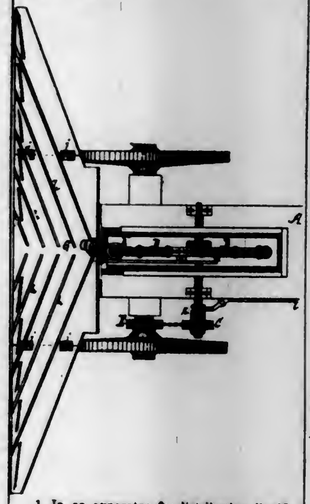
190,992. LOCKING DEVICES FOR BOTTLES. Edward M. Deey, New York, N. Y. [Filed Apr. 16, 1877.]



1. The combination of the vibrating wheel-carrying frame H and its loaded governing-arm K the wind blades or vanes G G' applied to the beam F, substantially as described.

2. The combination of the bolt J, the spring M, the disks L, the frame G, and the hasp or collar D, combined and arranged substantially as specified.

190,993. APPARATUS FOR DISTRIBUTING LIQUID MANURE. Julius d'Heureuse, Schmetedorf, Prussia, assignor to R. d'Heureuse, New York, N. Y. [Filed Apr. 4, 1877.]



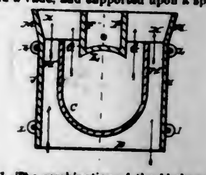
1. In an apparatus for distributing liquid manure, the combination of an endless bucket-chain, D, tube K, chute G, and box A, substantially as and for the purpose herein set forth.

2. In an apparatus for distributing liquid manure, the combination of a swivel-spout, F, with the endless bucket-chain D, tube K, and box A, substantially as and for the purpose described.

3. In an apparatus for distributing liquid manure, the combination of a chute, G, having slats h, and made in sections, with a wagon-box, A, and with a pumping mechanism, all constructed and operating substantially as and for the purpose herein set forth.

190,994. VENTILATORS FOR CHIMNEYS. J. Drake, New York, assignor of one-half his right to A. Van Horn, Brooklyn, N. Y. [Filed Mar. 23, 1877.]

Brief.—The ventilator is to be surmounted with a vane, and supported upon a spindle.



1. The combination of the U-shaped vertical smoke-pipe C with the deflector E, having its sides F within the mouth of the U, and extending beyond the same to the end of the case or box, as and for the purposes set forth.

2. The combination of the U-shaped vertical smoke-pipe C and deflector E, having side walls F, as described, with the side plates I and J of a square box, and air-passage-ways H between them and the sides of the vertical smoke-pipe, as and for the purposes set forth.

3. The combination of the horizontal slats N, side walls F of deflector E, slots G of vertical smoke-pipe, and atmospheric-air passage-ways H, all arranged and operating as and for the purposes described.

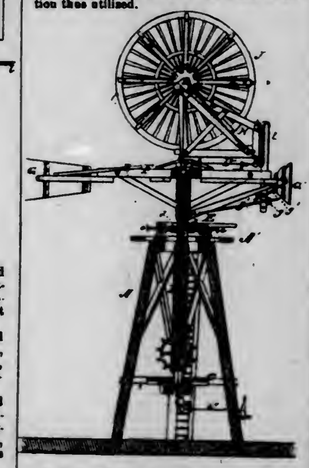
190,995. FAUCETS. Paul E. Dummer and Peter E. Malmstrom, New York, N. Y. [Filed Mar. 22, 1877.]



In combination with the spigot A and faucet-body or shank B, the cushion b, spring c, and adjusting screw d, the whole arranged to operate substantially as described.

190,996. WINDMILLS. E. H. Earle, Cameron, Mo., assignor of one-half his right to Wm. Hollington, same place. [Filed Feb. 10, 1877.]

Brief.—The shaft has its bearings in the overhanging portions of a frame, which is suitably pivoted to an upright, which is located at that end of the horizontal beam nearest to the wind-blade. The upright extends both above and below the beam, and it is pivoted to the latter, so that it can be adjusted by means of nuts on brace rods, and thus swagging of the wheel-frame is prevented. By means of rods the rotary motion of the wheel can be transmitted to various kinds of machines, and the power of the wheel in motion thus utilized.



1. In a self-regulating windmill the slotted frame B, on platform C, adjustable, as described, ad provided with adjustable half-bores d d, in combination with the main shaft D, substantially as set forth.

2. The upright I, adjustable on the beam F, as described, in combination with the horizontally-swinging frame H, and with the movable weight w and rope l, substantially as described.

3. The arm K, pivoted to a frame, H', springing from beam F, and provided with an adjustable weight, w, in combination with the vibrating wheel-frame H, substantially as described.

4. Wheel J, having its blades secured to a flanged hub, n, and also to loops o, in combination with dished or bracing spokes R, and radial braces q, all put together as described and shown.

5. In combination with the vibrating wheel-carrying frame H and its loaded governing-arm K the wind blades or vanes G G' applied to the beam F, substantially as described.

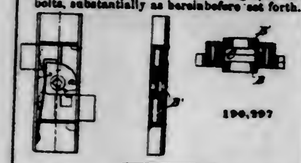
190,997. LOCKS FOR DRAWERS, &c. Fredrick Eggo and Friend W. Smith, Bridgeport, Conn. [Filed Mar. 26, 1877.]

1. The stamped lock hub or cam, constructed of separately-made and rigidly-united sections, with the hollow trunnions B B', formed by the metal displaced at and around the opening for the key, as set forth.

2. A sectional lock hub or cam composed of two or more main parts stamped out of sheet metal, recessed upon their inner sides or con-

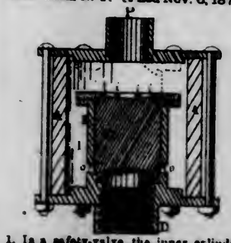
tiguous surfaces to form a central chamber, and secured together by riveting or otherwise, as set forth.

3. The combination of the trough-like lock-back, the cap or covering plate, having ends which project through, and are headed against the lock-back, and the cam or hub mounted in said back and plate and operating upon the bolts, substantially as hereinbefore set forth.



190,897

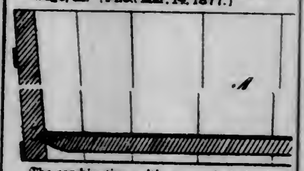
190,898. SAFETY-VALVE. Wm. M. Brust, New York, N. Y. [Filed Nov. 6, 1876.]



1. In a safety-valve, the inner cylinder B, provided with orifices *o o* and valve-seat *s*, in combination with piston-valve C and outer cylinder A, provided with outlet P in the cover of said cylinder, all arranged and operating together, as shown and described.

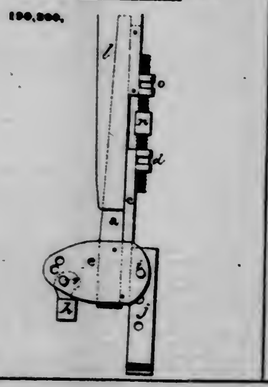
2. The valve C, provided with the orifices *i i*, in connection with the inner cylinder B, provided with the orifices or outlets *o o*, and outer cylinder A, provided with outlet P, as herein shown and described.

190,899. TUBS, PAILS, CASKS, &c. Henry W. Farley and Marcius C. Richards, Oswego, Ill. [Filed Mar. 14, 1877.]



The combination, with a vessel, A, having an annular groove, *b'*, and the bottom or head having a beveled edge, *c*, adapted to be received in said groove, of the metallic shield applied upon the inside of said bottom or head, and turned or spun over upon the said beveled edge, substantially as specified.

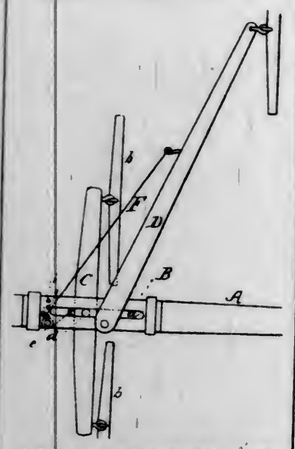
190,900.



190,901. PAINT COMPOSITIONS. J. Fetzer, Rolla, Mo. [Filed Mar. 20, 1877.]

A paint composition consisting of calcined clay, plaster-of-paris, borax, calcined magnesia, alum, hydrochloric and sulphuric acid, shellac, carbonate of soda, glue, tragacanth gum, linseed and castor oil, and water, in the proportions substantially as herein set forth and described.

190,902. DRAFT-EQUALIZERS. John M. Forney, Victor, Iowa. [Filed Mar. 10, 1877.]



1. In combination with the pole A, having bridge-strap B, provided with slot *a*, the double-tree C, having plate *c* and spur *d*, substantially as specified.

2. The combination of the pole A, having the longitudinally-slotted bridge-strap B, provided with pulley *e*, with the third-horse lever D, and the rope or chain passing over said pulley, and secured at its ends, respectively, to the double-tree and lever, substantially as specified.

3. The laterally-adjustable pulley *e* and cord F, in combination with the vibrating lever D, and the vibrating and front and rearwardly movable double-tree C, substantially as specified.

4. The longitudinal bridge-strap B, having slot *a*, in combination with the double-tree *c*, having *d* projecting spur working in said slot, substantially as specified.

5. The combination, with a vibrating lever, D, a draft-pole, A, and a vibrating and front and rearwardly movable double-tree, of the bridge-strap B, having spaced perforations *f*, the pulley *e*, the pin *f*, and rope or chain F, substantially as specified.

190,903. TICKET-PUNCHES. J. S. Foster, Auburn, N. Y., assignor to himself and D. M. Dunning, same place. [Filed Feb. 14, 1877.]

1. In a ticket-punch having a main punch for perforating the ticket, and an auxiliary punch for perforating a paper tape, the main punch made in two parts, G G', and the part G' also forming the auxiliary punch A, and the two parts having the shoulders *m n*, constructed and arranged as described, so that the resistance of the ticket against the part G' of the main punch will cause the auxiliary punch A to perforate the tape, substantially as herein set forth.

2. The combination of the slide D, the main punch G G', made in two parts, the part G being fastened in the slide, and the part G' loosely passed through the same, and extended to form the auxiliary punch *h*, and the collar *f*, fastened on said auxiliary punch, substantially as and for the purposes herein set forth.

3. The stationary pin or stop *k*, in combination with the slide D, auxiliary punch *h*, and collar *f*, substantially as and for the purposes herein set forth.

4. The passages *x* and *y*, made through the part D' of the slide D, and through the case A and handle C, substantially as and for the purposes herein set forth.

5. The cam *w* upon the hammer L, in combination with the inclined flange *v* thereon, and the pin *t*, for the purposes set forth.

6. The operating-slide made in two parts, H and H', the plate H carrying the devices for sounding the alarm and operating the register, and the plate H' carrying the device for winding the tape, substantially as herein set forth.

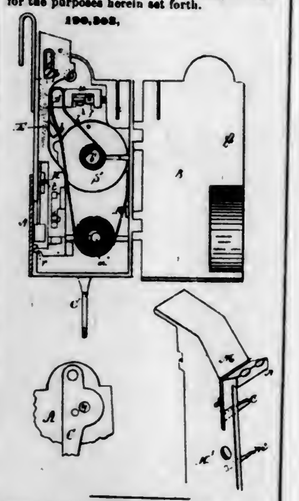
7. The plate H', provided with the finger-piece M, having the finger projection N, for the purposes herein set forth.

8. The sword O, attached to the plate H', and operating in the ticket-slot *o*, for the purposes herein set forth.

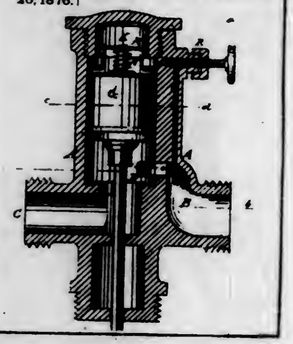
9. The pin *w'*, attached rigidly or stationary to the plate H', for operating the tape winding mechanism, as herein set forth.

10. The combination of the cap *b'*, slotted and slitted as described, with the ratchet-wheel T, having hollow hub *d'*, with lug *i'* on its side, and the disk S, substantially as and for the purposes herein set forth.

190,905.

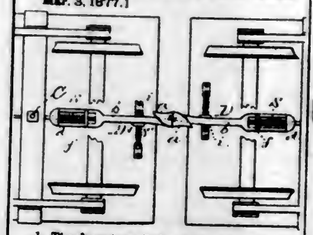


190,904. VALVES FOR WATER-CLOSETS. M. F. Gale, Brooklyn, E. D., N. Y. [Filed Oct. 26, 1876.]



The combination, with the casing A, having the passage S, of the plug-valve L, spring N, hollow stem K, having one or more openings or outlets, P, and the cylinder G, as and for the object specified.

190,905. CAR-COUPLINGS. F. Gibford and L. C. McCormick, Newton, Iowa. [Filed Mar. 3, 1877.]



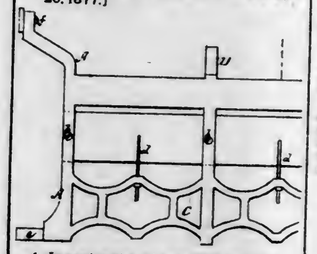
1. The draw-bars D, having enlarged locking-heads *a*, provided each with a longitudinal central groove, *c*, in front, adapted to receive the shank *b* of the other between its flanges *r*, and having the plane rear shoulders *t*, each adapted to bear on the other across the shank, combined, substantially as specified.

2. The combination, with a car-body, its truck and king-bolt, of the bar E, having an eye, *h*, adapted to receive said bolt C, the draw-bar D, having enlargement *d'*, provided with oblong slot *e*, the non-rotating slide-nut *f*, and spring S, substantially as specified.

3. The combination, with a horizontally-vibrating draw-bar, D, of the stirrup F, having slot *i*, carrying a non-rotating slide-nut, *j*, the rod *l*, and spring S', substantially as specified.

4. The combination, with a car-body, its truck and king-bolt, of the draw-bar attached directly to said bolt, and a brace secured at one end to said bolt, and at the other to the car-body, substantially as specified.

190,906. UPRIGHT-PIANO ACTION-FRAMES. P. Gmehlin, New York, N. Y. [Filed Apr. 20, 1877.]



1. In combination with the metallic action-frame and wooden hammer-rail, the tension-bolts *d d*, substantially as and for the purpose described.

2. In combination with the metallic action-frame A B C, the horizontally-projecting pivot-pins *e* at or near the foot of the uprights A B, substantially as specified.

3. The uprights A B of a metallic action-frame, bent or extended laterally outward, and provided at their upper ends with screws *f f*, by which they can be fastened to the piano-case, substantially as specified.

4. The uprights A B of a metallic action-frame, provided at their lower ends with projecting pivot-pins *e*, and bent or extended laterally outward at their upper ends, to be fastened by screws *f* to the piano-case, substantially as specified.

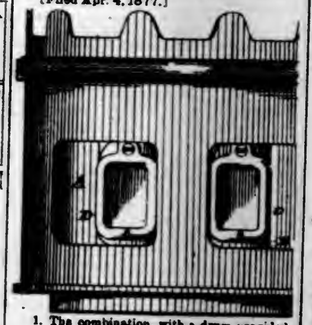
190,907. REAMERS. A. Goddard, Essex, Conn., assignor of one-half his right to E. A. Goddard, New York city. [Filed Feb. 5, 1877.]

As a new article of manufacture, a reaming-tool of which the bit portion is constituted of a series of longitudinal projections or ribs, starting from the body of the stock, and extending, with a spiral inclination from the right toward the left, to the end of the same, the right salient angles of said ribs severally being the cutting angles, as described and shown.



190,907.

190,908. OIL AND GAS STOVES. Dexter W. Goodell, Florence, Mass., assignor to Florence Machine Company, same place. [Filed Apr. 4, 1877.]



1. The combination, with a drum provided with a free side opening, of a chimney having a door or movable window opposite the said opening, substantially as described.

2. The combination, with one or more chimneys inclosed by a drum, having free openings in its wall, of doors or movable windows, provided with mica lights, and corresponding to the said openings, substantially as described.

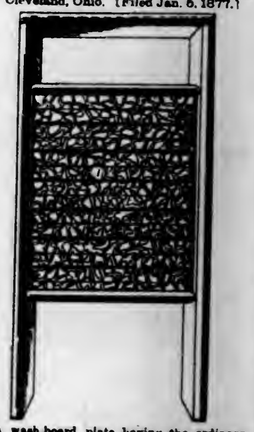
3. The combination, with a chimney provided with a swinging door or window, of a drum having a corresponding side opening, the same constructed as described, whereby the said door or window swings out through the side opening beyond the circular plane of the drum, substantially as described.

4. The combination, with the swinging door or window-frame, provided with a mica light, of the independent guard-plate and loose pivotal engaging device, substantially as described.

5. The combination, with the door or window, provided with a locking-finger, of a supporting-frame made with the finger-engaging stud, substantially as described.

6. The combination, with the door or window provided with a mica light, of the loose guard-plate, made with the upper slotted extension, and the clamping screw or pin passing through the latter, substantially as described.

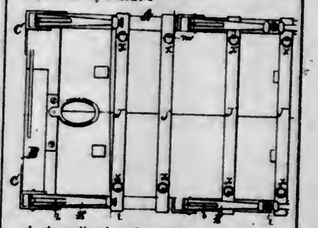
190,909. WASH-BOARDS. J. M. Gorham, Cleveland, Ohio. [Filed Jan. 5, 1877.]



A wash-board plate having the ordinary main crimps, and an irregularly-nodaled or morocco-finished surface, substantially as described.

190,910. COOLING-BOARDS. T. H. Graves, Granville, Ohio. [Filed Sept. 9, 1876.]

Brief.—The frame is composed of two parallel side rails, connected by end rails, each of which is made in two pieces, sliding together, so as to make the frame adjustable in width. The corners are secured by corner-plates, constructed with top and bottom loops, to receive the legs and pail-posts. Said legs and posts are pivoted in the sockets, and secured in position by spring-catches. The bottom of the frame is formed by movable doors, secured to the side rails by hinges, and held in position by catches.

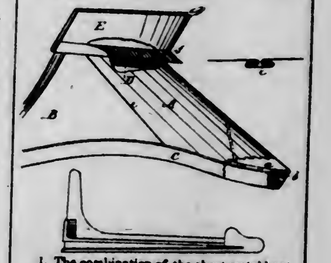


1. A cooling-board the frame of which is adjustable sidewise, having hinged doors G G, forming the bottom of the same, and a series of detachable cross-straps, J, for supporting the corpse, substantially as herein set forth.

2. The combination, in a cooling-board, of the metallic plate C at each corner of the same, having top and bottom loops *a a*, the hinged folding legs D D, and hinged folding posts E E', the legs and posts having spring-catches *b*, and capable of being folded independently of each other, all substantially as and for the purposes herein set forth.

3. The combination, in a cooling-board, of the laterally-adjustable frame A E, the doors G G, connected to the same by the slotted hinges *d d*, and the latches *f f*, all constructed substantially as and for the purposes herein set forth.

190,911. METAL WAGON-BODIES. S. P. Graham, Loudon, Ontario, Canada. [Filed Oct. 16, 1876.]



1. The combination of the sheet-metal boot A, having the inward-turned flange *b* around its lower edge, with the plate *c* and the screws or bolts passing through the sill C, and confining the boot by clamping the flange upon the upper side of the sills, as shown and described, for the purpose specified.

2. The L-shaped brackets, provided with a groove, as shown, in combination with the sides of the body, as and for the purpose specified.

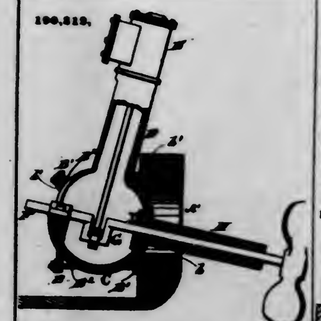
3. The carriage-body formed of the sheet-metal back or boot A and side pieces B, united by the lock-joints *a*, as and for the purpose specified.

190,912. COMBINED ADJUSTABLE ENGINE AND SCREW-PROPELLER. E. N. Gray and G. E. Noyes, Washington, D. C. [Filed Mar. 31, 1877.]

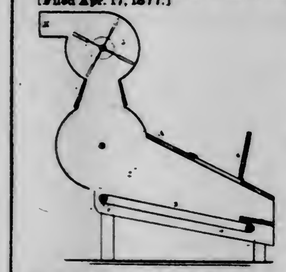
1. A propeller-shaft and propelling mechanism attached directly to a ball-and-socket joint, whereby water is excluded, but both vertical and lateral motion of the propeller allowed, substantially as and for the purpose set forth.

2. The combination of metal socket-frame B, ball C, engine-frame D, cylinder E, propeller-shaft F, and sleeve H, substantially as and for the purpose set forth.

190,313.



190,312. COTTON CLEANERS AND CONDENSERS. James Greaves, Waco, Texas. [Filed Apr. 17, 1877.]

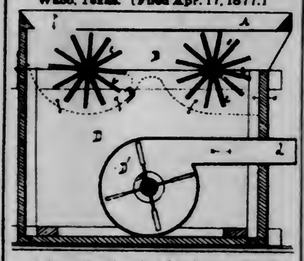


1. In a cotton-condenser, the combination of an endless apron, a revolving screen, and a fan-blower, all arranged substantially as described.

2. In combination with the screen C, the apron B, having slotted bearings *b*, substantially as described, and for the purpose set forth.

3. The case A, having lid *a*, in combination with the apron B, screen C, and fan G, substantially as described.

190,314. COTTON-CLEANERS. J. Greaves, Waco, Texas. [Filed Apr. 17, 1877.]



1. In a machine for cleaning cotton, the combination of a series of pickers, to agitate and whip the lint, a screen over which the lint is carried, and a fan-blower, to induce a current of air through the screen, arranged substantially as described.

2. The pickers *c c*, in combination with the curved screen B' and fan D', all arranged as set forth.

3. The combination of the hopper A, pickers *c c*, screen B', and fan D', all arranged substantially as described.

190,315. FORMERS FOR MAKING FOLLOWER-PLATES FOR DRAW-HEADS. John Green, Duxbury Pa., assignor of one-half his right to J. M. McKee, same place. [Filed Mar. 24, 1877.]

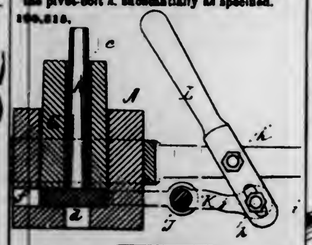
1. The combination, with the die-box A, having slot F, slideways *b b'*, the punch-aperture, and exit slot *f*, of the die G, having a central orifice, *c*, registering with the orifice *d* aforesaid, substantially as specified.

2. The combination, with a die-box, A, having an exit-slot for the struck-out plate, of the pusher-rods I and the cross-head J, connecting said pushers, the connecting-rod K, and a vertically-vibrating lever, L, substantially as specified.

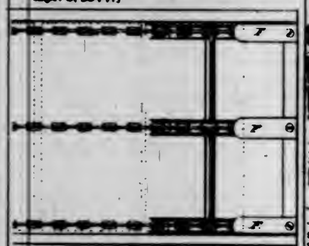
3. In combination with a die-box, the yoke S, embracing said box, and provided with a handle and set-screws, substantially as specified.

4. In combination, the die-box A, having exit-slot *f*, the spaced pushers I, the cross-head J, its connecting-rod K, having an eye, *j*, the furnished lever L, having oblong slots *i*, and the pivot-bolt *h*, substantially as specified.

190,316.



190,317. APPARATUS FOR PICKLING SHEET-IRON. J. D. Grey, Baltimore, Md. [Filed Apr. 6, 1877.]

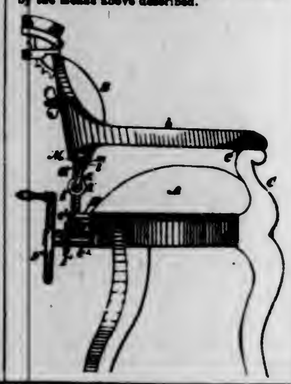


1. For use in the process of pickling iron, the acid-tank, traveling chains, and cross-shafts, combined as shown and described.

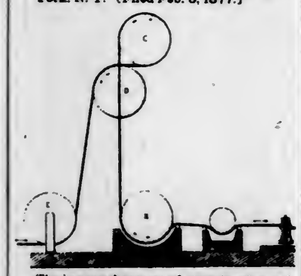
2. For use in the process of pickling iron, the combination of the inclines F with the tank and endless chains, as shown and described, for the purpose specified.

190,317. BARBERS' CHAIRS. J. Grieadling, Sr., Philadelphia, Pa. [Filed Dec. 22, 1876.]

Brief.—A bracket attached to the rear of the seat-frame supports a horizontal shaft and a vertical adjusting screw, connected together by bevel-gears, and operated by a hand-wheel. A set having transoms and traveling on the adjusting-screw is connected by links with the rear of the chair-back, which, being pivoted at the front end of the seams to the front standards, can be adjusted by the means above described.



190,318. PROCESSES OF STRAIGHTENING AND COATING WIRE. J. L. Haigh, New York, N. Y. [Filed Feb. 8, 1877.]



The improved process of straightening and coating steel wire by conducting it under tension from the last bath or heater in a substantially vertical direction, and maintaining it in that direction through a sufficient distance to permit the wire to be cooled, as set forth.

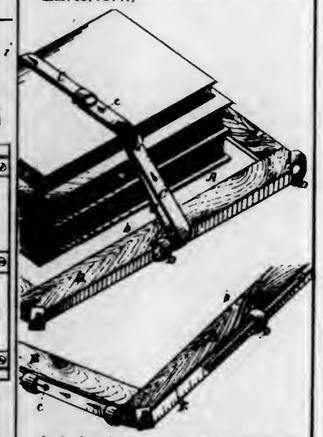
1. The bracket E, having flange *e'* and stud or boss *e²*, the latter forming a socket or bearing for the shaft *f* and step for the screw-spindle G, substantially as shown and described.

2. The combination, with the shaft *f*, having its bearing in the stud *e²*, of the screw-spindle G, having bevel-gear *g*, located below the flange *e* of the bracket E, and meshing with the wheel *f'* on said shaft *f*, substantially as shown and described.

3. The combination of the screw-spindle G, nut I, having trunnions *i i*, swiveled arms K K, and plates M M, secured to the chair-back B, substantially as shown and described.

4. The chair A, having back B, hinged to standards C, in combination with bracket E, formed with flange *e'* and boss *e²*, shaft *f*, having gear *f'* and hand-wheel F, screw-spindle G, secured to gear-wheel *g*, and nut I, having trunnions *i i*, swiveled arms K K, and plates M M, constructed and arranged for joint operation, substantially as shown and set forth.

190,319. COMBINED SLATE AND BOOK-CARRIER. John Haggerty, Corry, Pa. [Filed Mar. 19, 1877.]

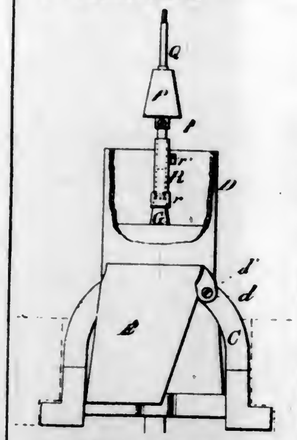


1. A slate-frame provided upon its outer edge with the loops D, or their equivalents, arranged to receive and retain the removable strap C, substantially as and for the purposes described.

2. A slate frame having the loops D, or their equivalents, arranged as described, the mortises *b*, and the strap C, substantially as and for the purposes mentioned.

3. A slate-frame having the loops D, or their equivalents, arranged as described, the mortises *b*, and the strap C, having measures of length thereon, substantially as and for the purposes mentioned.

190,320. FEED-REGULATING DEVICES FOR MILLSTONES. N. Hamer, Hooversville, Pa. [Filed Jan. 13, 1877.]



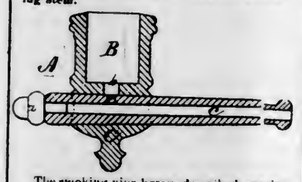
1. The combination of the conveyer D, provided with the arched bottom block F, inclined diverging chutes E E, and perforated lugs *d*, with the arched balance-rynd C, substantially as described, and for the purpose set forth.

2. A conoidal damsel, provided with an extensible shank, substantially as and for the purpose set forth.

3. The combination of the damsel P with tapering solid shank Q and sleeve R, having socket *r* and clamping-screw *r'*, substantially as set forth.

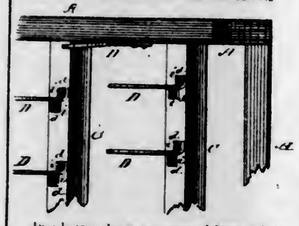
190,321. TOBACCO-PIPES. H. D. Haraden, Hartford, Vt., assignor of a part of his right to A. L. Pease, same place, and P. B. Smith, Lebanon, N. H. [Filed Feb. 17, 1877.]

Brief.—The base of the bowl has a horizontal opening filled by the removable tapering stem.



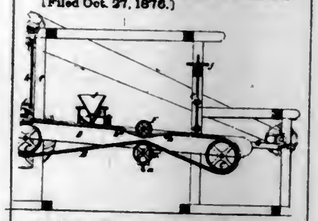
The smoking-pipe herein described, consisting of the bowl A, having the chamber B, the transversely-perforated body portion C, and perforation *b*, and the removable stem D, having the opening *c* and detachable end-piece *z*, substantially as specified.

190,322. HARROWS. T. J. Holmes, Sr., Mason City, Ill. [Filed Jan 26, 1877.]



In a harrow having connected frames A A, with diamond-shaped cross-bars C C, the double-edged reversible cutters D, having their upper ends split, and the parts turned outward in opposite directions, forming tips or flanges *d*, and fastened to the cross-bars C of the harrow-frame by the bolts *f* through said flanges, all constructed and arranged as described, whereby the cutters may be reversed and fastened by the same bolts in the same bolt-holes in the cross-bars, as set forth.

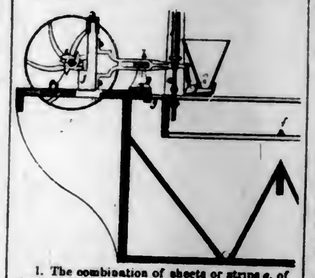
190,323. WET-ORE SEPARATORS. William Hooper, Ticonderoga, N. Y., assignor to New York Ore Separator Company. [Filed Oct. 27, 1876.]



1. The combination of the roller F and rolls *b b*, forming a depression in the sluiced apron B, with said apron, its two supporting-rollers, C C, and the shoe, substantially as described.

2. The combination of suspended links *d*, jointed bars *e*, connecting-rods G, cranks *e*, crank-shaft H, and springs O (one or more) with the shoe D and sluiced apron B, substantially as and for the purpose described.

190,324. TROUGH-JIGS. William Hooper, Ticonderoga, N. Y., assignor to New York Ore Separator Company. [Filed Oct. 27, 1876.]



1. The combination of sheets or strips *g*, of India-rubber or other flexible material, with a jig hinged at one end, and connected at its opposite end to a tossing mechanism and with a tank, which contains the jig, and supports its hinged end, substantially as and for the purpose set forth.

2. The combination of a shoe, F, hinged to a hopper, with a tossing mechanism, and with a jig, which is situated in a tank, to which it is hinged at one end, its opposite end being connected to the same tossing mechanism, which imparts motion to the shoe, whereby the supply of ore to the jig is adapted to the demand, substantially as shown and described.

190,325. PROCESSES OF SEPARATING SLUDGE FROM IRON ORES. Wm. Hooper, Ticonderoga, N. Y., assignor to New York Ore Separator Company. [Filed Oct. 27, 1876.]

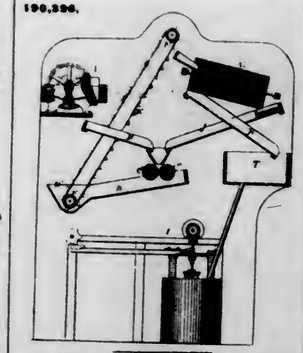
The within-described process of removing sludge from iron ore by exposing the ore, while being subjected to the action of the crusher, the rolls, and the separating-sieves, to a current of air produced by suction, substantially as herein set forth.

190,326. APPARATUS FOR BRUSHING, GRINDING, AND SEPARATING ORE. Wm. Hooper, Ticonderoga, N. Y., assignor to New York Ore Separator Company. [Filed Oct. 27, 1876.]

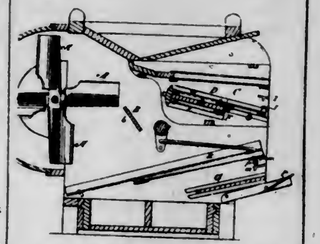
Brief.—The crusher, grinding-rolls, separating sieves, and jig are arranged in such relation to one another that the material passes automatically and successively through each, without the necessity of handling.

The combination, in an apparatus for treating ore, of an ore-crusher, A, inclined sieve B, crushing-rollers C C', inclined chute D, and well D', elevator E, rotary sifter G, chutes H J, and separator I, the whole being constructed and operating substantially as described.

190,326.



190,327. GRAIN-SEPARATORS. R. J. Horton, Massena, N. Y. [Filed Mar. 20, 1877.]



1. The fan with curved blades A, in combination with adjustable wind-guides B, substantially as described.

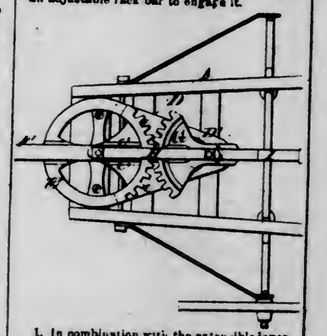
2. The reversible sieve-box D, consisting of the coarse screen *a*, the finer screen *c*, and the intermediate chute-board *d*, dividing the space between the sieves into two compartments having separate discharge-outlets, substantially as described.

3. In combination with the screen and the casing having grooves M, the rod *p*, formed with journals or spindles at the ends, substantially as and for the purpose set forth.

4. In combination with the long sieve Z and fan, the chaff-divider P below the tail-board, working in grooves *r* in the pivoted arms, substantially as described.

190,328. CULTIVATOR ATTACHMENTS. W. P. Hubbard and J. W. Robinson, Farmland, Ind. [Filed Jan. 6, 1877.]

Brief.—A horizontally-pivoted tongue operated by a horizontally-pivoted lever, each having cogged segments, and both turning on the same bed-plate. An extensible lever and an adjustable rack-bar to engage it.

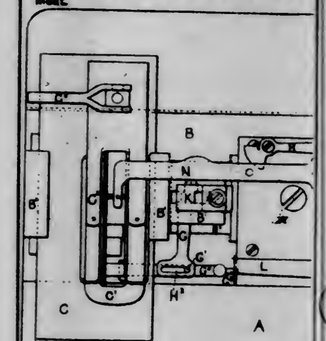


1. In combination with the extensible lever I and adjustable rack-bar J, the plate D and the tongue and lever gears K O, substantially as described, and for the purpose set forth.

3. In a wheel-cultivator, the supporting-plate D, with its extension D', made in one piece, and attached to the transverse braces of the wooden frame A, in combination with the pivoted tongue F, having gear E, and the pivoted lever I, having gear G, whereby the gears are supported by said plate, always held in engagement with each other, and shielded from obstructions from below, substantially as described, and for the purpose set forth.

190,220. BUTTON-HOLE ATTACHMENTS FOR SEWING-MACHINES. Thos. S. Huntington, New York, N. Y. [Filed Feb. 5, 1877.]

Brief.—The material in which the button-hole is to be made is fed either forward or back, or allowed to remain without longitudinal motion, (the sidewise reciprocation continuing as long as the machine is in operation,) by means of a rack and pinion operated by a double clutch on the shaft of the pinion, the motion being governed by the movement of an adjusting-lever, which, as desired, throws an operating-bar into contact with either or neither toe of the clutch to feed in either direction, or causes the longitudinal feed to cease entirely while barring the button-hole. The same adjusting-lever, by the same adjustment, determines which side of the button-hole shall come into position under the needle. The movement of the clamp sidewise is caused by an eccentric on the main shaft of the attachment.



1. The combination, with the bed-plate of the attachment, and the mechanism for clamping the material, of a friction-clutch and pawl constructed substantially as described, and operating mechanism, whereby the material being operated on may be fed in opposite directions, or be brought to a state of rest, essentially as described.

2. The combination, with the sleeve E' and pinion-shaft F', of the double pawl E, pivoted in said sleeve, and provided with toes, as described, whereby the said shaft may be revolved in either direction by pressing upon either of said toes, as and for the purposes set forth.

3. The combination, with the sleeve E', pinion-shafts F', and double pawl E, pivoted in said sleeve, as described, of the tripping-piece G', sleeve G, and operating mechanism, whereby either of the projections or the said tripping-piece may be brought in contact with its appropriate toe on the double pawl, and thereby revolve the pinion-shaft in either direction, as and for the purposes set forth.

4. The combination, with the tripping-piece G' and slide G', of the lever G', connected with said tripping piece, as and for the purposes set forth.

5. The combination, with the mechanism for clamping the material, the pinion-shaft F', and the friction-clutch and pawl for operating the same, of the tripping-piece G', levers G' and G', cam H, and spring E', whereby the proper motions are imparted to the said clamping mechanism, as and for the purpose set forth.

6. The combination, with the actuating-lever G' and tripping-piece G', of the spring-gage L, as and for the purposes set forth.

7. The combination, with the clamping mechanism and the slide B', for carrying the same, of the slide B, adapted to be reciprocated in suitable guides, of a mechanism interposed between said slides for adjusting the position of the button-hole with respect to the stitch-forming mechanism, as and for the purposes set forth.

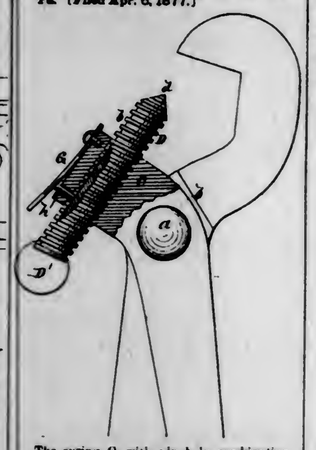
8. The combination, with the slides B' and B' and gage or key G, constructed as described, of the adjustable stops K and K', whereby the amount of lateral movement of the clamp may be varied without moving said gage or key, as and for the purposes set forth.

10. The combination, with the slides B' B', gage or key G, and tripping-piece G', of the lever G' and spring-gage L, whereby the button-hole is brought in the proper relative position to the stitch-forming mechanism for stitching its sides and barring its ends, and the foot at the same time is adjusted to move the proper direction, or be brought to a state of rest, as and for the purposes set forth.

11. The combination, with the slide B', provided with the projection P', of the spring presser-foot N, whereby it is caused to rest upon the material during the time that the needle is in said material, as and for the purposes set forth.

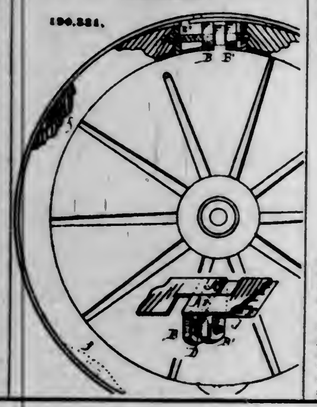
12. The combination, with the slide B' and spring presser-foot N, of the lever E, for raising the said spring presser-foot from the material, as and for the purposes described.

190,230. PIPE-TONGS. A. H. Jarecki, Erie, Pa. [Filed Apr. 6, 1877.]



The spring G, with pin A, in combination with the head C and the bolt D, having longitudinal groove i, and thumb-piece D' on the lower end of same, substantially as and for the purposes herein set forth.

190,231.



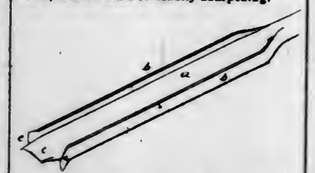
190,251. TIRE-TIGHTENERS. C. H. Jacobs, Winnebago, Ill. [Filed June 5, 1876.]

1. A wagon-wheel tire having the lateral laps A A', terminating in the perforated and screw-tapped lug B, and the perforated lug B' having a dust-guard, F, in combination with the bolt D having a tenon, d, and so arranged that by forcing the laps apart the tire may be tightened, all substantially as described and shown.

2. In combination with a wagon-wheel tire, having the lateral lapped ends A A' and lugs B B' and f, the screw-bolt D, and the sockets E E', fastened to the meeting-ends of the felly, substantially as described and shown.

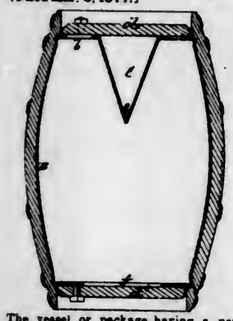
190,252. DRILL-BITS. M. John, Pitteton, Pa. [Filed Mar. 12, 1877.]

Brief.—The drill is adapted for mining coal, and to admit of readily sharpening.



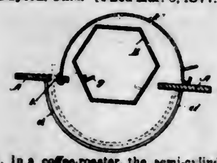
As a new article of manufacture, a drill-bit consisting of a blade, a, and parallel ribs b at both edges and on both sides of said blade, the lower ends of the ribs being formed into sharp-edged lips c, and the end of the blade being sharpened, and projecting beyond said lips, as set forth.

190,253. REFRIGERATING OYSTER-PACKAGES. James C. Jones, New York, N. Y. [Filed Mar. 6, 1877.]



The vessel or package having a permanent or irremovable metal lining, B, provided with one or more ice-chambers, C, at one end of the vessel, and with a filling-opening, b, at said end, in combination with a removable head, b', which covers and closes an enlarged discharge-opening, f, in said lining at the opposite end of the vessel, substantially as specified.

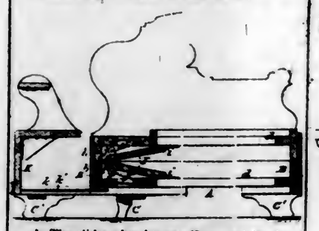
190,254. COFFEE-ROASTERS. A. Jungclas, Dayton, Ohio. [Filed Mar. 6, 1877.]



1. In a coffee-roaster, the semi-cylindrical shiftable shield F, arranged to cover the revolving coffee-receptacle, or be interposed between it and the fire, substantially as and for the purpose specified.

2. The herein-described coffee roaster, consisting of the prism B, with its door c and strip g, and axial spindles D, mounted upon the friction-rollers C, that are supported in bearings on the plate A, and the shield F and rods d d, the whole constructed and united substantially as and for the purpose specified.

190,225. SOFA-BEDSTEADS. O. Kade, St. Louis, Mo. [Filed Feb. 28, 1877.]



1. The sliding head-frame K, as and for the purpose set forth.

2. The combination of the upper and lower sections A B and D E with the hinges G and sliding head-frame K, substantially as set forth.

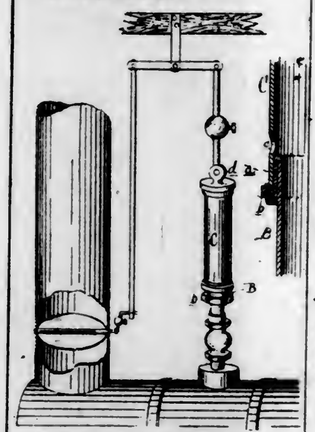
3. The pillow-boards I, hinged to the frames A B D E, in combination with the springs J and sliding head-frame K, as and for the purpose set forth.

4. The pillow-boards I, hinged to the frame A B D E, springs J, and anti-friction roller j, in combination with the sliding head-frame K, as and for the purpose set forth.

5. The hinges G, having long arms H and enlargements or heads h, in combination with the top and bottom frames A B C D, as and for the purpose set forth.

6. The combination of the sliding head K, having guide-rails k and kerfs k', with the rails A, having metallic slide-plates L, as and for the purpose set forth.

190,226. DAMPER-REGULATORS FOR STEAM-BOILERS. D. C. Kellam, Detroit, Mich. [Filed Sept. 11, 1876.]



The hollow cylinder B, provided with the packing-ring a, mounted upon the discharge-opening of a safety-valve, and the sleeve C, combined therewith for operating a draft-regulator, substantially as described.

190,227. HAY-ELEVATORS. Chas. S. Kershaw, Sherburne, N. Y. [Filed Feb. 17, 1877.]

1. The carriage constructed and arranged as herein described, having detaching-hooks centered on the journals of the grooved rollers b b', forming bearings thereof, and hooking onto the studs c c', as and for the purposes specified.

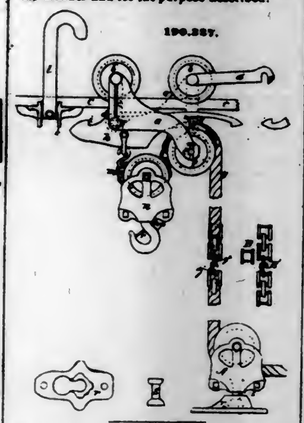
2. The hook-fastening p, consisting of a straight bolt passing diagonally through the shank of the hook to close its throat, as above specified.

3. The flexible shackles or fastenings B for the rope-splicing, constructed and affixed as herein described.

4. The slotted foot-piece r, constructed as described, and the spherical-headed swivel-pin s, for connecting therewith the block A, combined and arranged as and for the purpose specified.

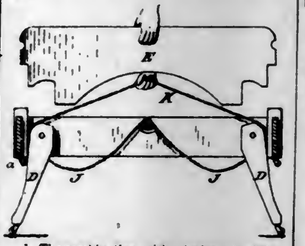
5. The stop-piece k combined with the rod c, and hook l for supporting it, substantially in the manner and for the purpose described.

190,227.



190,228. FOLDING BEDSTEADS. Frank M. Kibbey, Mayfield, Ky., and John C. Hall, Cincinnati, Ohio; said Hall assignor to said Kibbey. [Filed Jan. 22, 1877.]

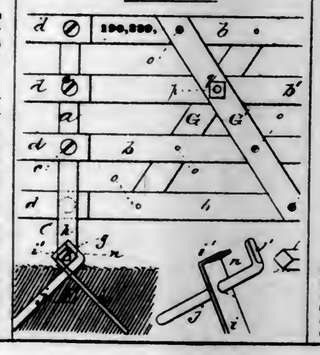
Brief.—Pockets are formed at the head and foot of the bedstead, between the head and foot rails and corresponding interior rails, into which the legs are folded when the bedstead is not in use, and the detachable head and foot boards have recesses formed in them, to engage with the upper ends of the legs, and hold them open when the bedstead is in use.



1. The combination, with a bedstead, of the supplementary legs D, capable of being locked to their extended position by means of the head and foot boards E within the pockets L, or of being folded within said pockets in the manner explained.

2. In combination with the folding supplementary legs D, the cords or thongs J K, as and for the purpose designated.

190,229.



190,229. FENCES. P. Kirby, Seneca Falls, N. Y. [Filed Mar. 3, 1877.]

Brief.—The horizontal part of the post is held in place and to the ground by two drive-spikes, having angular ends, one passing through the other.

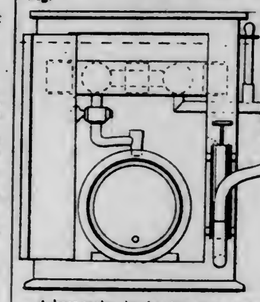
1. In a portable fence, the combination of the angular drive-plate i i', having a perforation, l, and the angular drive-spike j j', with the edgewise-arranged sill B, substantially as specified.

2. The fence-panel consisting of the uprights a a', the spaced horizontal rails b b', the crossed inclined braces G G', having pivot-bolt p and fixing-bolts e, whereby they are secured in position, the sills B, inclined plates h, the angular drive-plates i i', and the angular drive-spikes j j', substantially as specified.

3. An anchor for a portable fence, consisting of the angular perforated drive-plate i i and the angular drive-spike j, adapted to enter the perforation in said plate, and to form with it an eye, n, substantially as specified.

190,240. BEER-COOLERS. Adam Kunkle, Bellaire, Ohio, assignor of one-half his right to W. L. Tripp, same place. [Filed Mar. 20, 1877.]

Brief.—The cold air in the chest is pumped into the air-chambers, and thence into the keg.



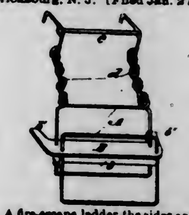
A beer-cooler having two or more communicating cold-air chambers, forming, in connection with a frame to which they are attached, an ice-shelf, in combination with an air-pump, substantially as and for the purpose set forth.

190,241. LOCK-CASES. Chas. H. Lambkin, Mount Vernon, N. Y. [Filed Apr. 12, 1877.]



The body A of a lock-case, constructed with externally-tapering projections D D, in combination with the face-plate B, having the claws C C, adapted to slide over the said projections, said face-plate being rigidly fixed in an oblique plane to the body of the lock-case, as and for the purpose described.

190,242. FIRE-ESCAPES. Ezra B. Lake, Bricksburg, N. J. [Filed Jan. 27, 1877.]



1. A fire-escape ladder the sides and step or round supports of which are formed of metal frames A A, adapted to slide or fold upon one another, and to support and rest upon the steps lengthwise of the latter, so as to avoid shortening of the foot-surface as the ladder extends upward, substantially as set forth.

3. A fire-escape ladder having steps or rounds made of cast metal, with flat surfaces, and formed or provided with feet or projections *b*, cast in one piece with the steps, which serve to prevent said ladder from hugging the wall too closely.

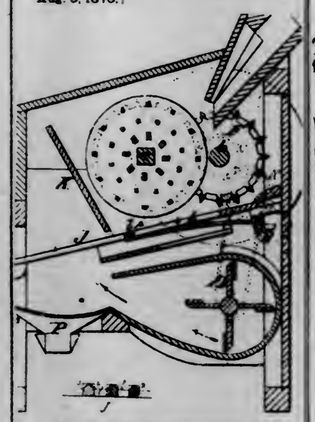
3. In a fire-escape ladder, the plates B, having ribs *b* to strengthen the same and stiffen the frames A, composing the sides and step or round supports, as set forth.

190,242. HINGES. J. S. Lash, Philadelphia, Pa. [Filed Dec. 22, 1876.]



As a new article of manufacture, a hinge having a ribbed or roughened back, substantially as set forth, to facilitate the fixing of the wood to which such hinge is secured, and to partially relieve the fastening-screws of lateral and downward strain, as specified.

190,244. CORN-SHELLING MACHINES. Jas. Lippincott, Jr., Mount Holly, N. J. [Filed Aug. 5, 1876.]



1. The longitudinally-reciprocating riddle J, having longitudinal bars *s*, beveled upward on each side, and the transverse stop or connection *l*, having shoulders or corners *z* on each side of said beveled bars, substantially as specified.

2. The inclined longitudinally reciprocating riddle J, having longitudinal bars beveled on each side, and the transverse stop or connection *l*, in combination with the guide-board K, terminating near said stop, and the shelling mechanism, substantially as specified.

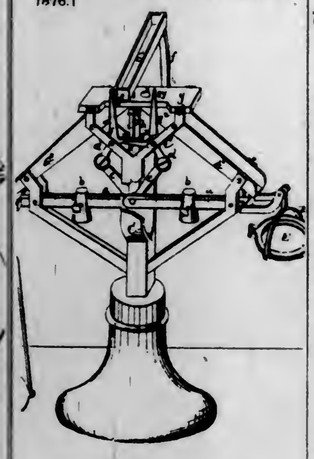
190,343. CAGES FOR RESTRAINING COWS WHILE BEING MILKED. Benj. B. Mann, Hiawatha, Kans. [Filed Feb. 17, 1877.]

1. The combination, with the pen walls A B, of the hinged end gate C, having a vertically-vibrating trough, D, adapted to lock the gate, substantially as specified.

2. The combination, with the main line of fence A, having aperture *a* and sliding door *b*, of the parallel fence-section B, having milking-opening *c*, and the gate C, having hinged trough D, adapted to be thrown into a horizontal position for locking the gate, substantially as specified.

3. The milking-pen A B C, having an anti-kicking bar, E, a removable anti-backing bar, F, the sacking-aperture *e*, the sliding door *b*, closing the latter, and the milking-aperture *c* on the pasture side of the pen, substantially as specified.

190,346. SACK-SCALES. Edwin A. Martin, Licking County, Ohio. [Filed Aug. 12, 1876.]

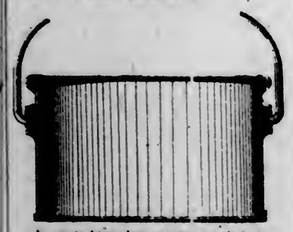


1. The pivoted levers J J, each formed with three arms or fingers, *d d' d''*, and connected to the scale-beams *a a*, for operating the spout G and latch *i*, substantially as and for the purposes herein set forth.

2. The combination, with the scale-beams *a a*, provided with weights *b b*, and bag-holders E E, the connecting-links *c c*, three-armed levers J J, and spout G, with pin *l*, substantially as and for the purposes herein set forth.

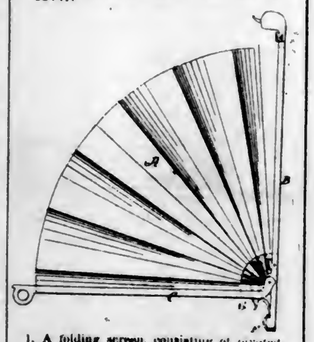
3. The combination of the spout G, cap-board *g*, latch *i*, spring *m*, and arms *d'* of the levers J, operated by the scale-beams *a*, all substantially as and for the purposes herein set forth.

190,347. CANS. J. W. Masury, New York, N. Y. [Filed Feb. 28, 1877.]



An air tight package or can, consisting, essentially, in the combination, with a can or package having an upper wired edge, of a soft metal top soldered to the outer surface of the can, substantially as and for the purpose set forth.

190,348. CAR-SCREENS. Wm. De Courcy May, Baltimore, Md. [Filed Mar. 30, 1877.]



1. A folding screen, consisting of pivoted bars B C, the body A, and a locking device, combined substantially as shown and described.

2. In combination with the slotted keeper, the pivoted folding screen, said parts being constructed and arranged as shown and described, whereby the inclination of the screen may be changed as required.

3. The combination of the arm G with the bars B C and the blades composing the body A of the screen, said blades having enlarged slots, through which the arm passes, as shown and described, for the purpose specified.

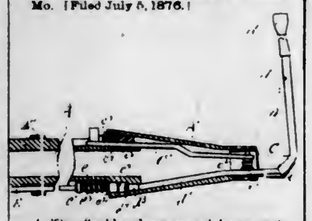
4. The combination, with the pivot-bar B and folding bar C, of the spring-arm D, having a notch or shoulder to adapt it to act as a catch or locking device, as specified.

190,349. METAL-COVERED KNOBS. Robt. McManus and R. R. Colburn, Ansonia, Conn. [Filed Mar. 30, 1877.]



As an article of manufacture, the herein-described knob consisting of the non-conducting body incased within a metallic shell formed in a single piece of sheet metal, and closed upon the said body, substantially as described.

190,350. FAUCETS. F. Messmer, St. Louis, Mo. [Filed July 6, 1876.]



1. The shoulder *c'*, upper and lower packing *c' c''*, rod C, in combination with faucet A, as and for the purpose set forth.

2. The rod C, coiled spring *c''*, bearing *c'*, slide C, faucet shank A', combined to operate as and for the purpose set forth.

3. The combination of a hollow slide, C, rubber hose D, faucet shank A', by means whereof the folding of the hose in the slide is accomplished, in the manner described and shown, as and for the purposes set forth.

4. The combination of a hollow slide, C, hose D, rod C, and faucet A, to operate in the manner shown, and for the purpose set forth.

5. The tube *c'*, having shoulder *d'*, in combination with hose D and faucet A, having valve *e'*, as and for the purpose set forth.

6. The sleeve *e*, its shoulder *e'*, washer *d'*, spring *d''*, packing *d'*, in combination with rod E and faucet A, as and for the purpose set forth.

7. The rod E, its sleeve *e*, having shoulder *e'*, washer *d'*, packing *d'*, spring *d''*, the sleeve *d''*, its shoulder *d'*, hose D, all said parts being in combination with a faucet, A, having vent *d''*, to operate as and for the purposes set forth.

8. The sliding collar E', rod E, and faucet A, as and for the purposes set forth.

190,351. SLEEVE-BUTTONS. J. W. Miller and I. M. Miller, Newark, N. J. [Filed Mar. 16, 1877.]



The collar D, provided with rivets *c c*, in combination with disk B, stem *c*, lower disk A, and plate C, provided with pins *b b*, substantially as described.

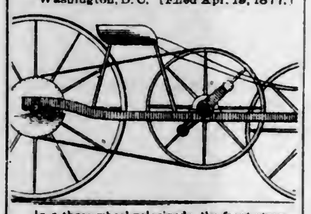
190,352. DISH-HOLDERS. H. C. Milligan, South Orange, N. J. [Filed Mar. 21, 1877.]



1. An ornamental holder for baking-pans, consisting of a ring with a flange turned inward within said ring, and from the top, or thereabout, and having fastenings adapted to catch and hold the pan, when inserted under said flange, said ring being deeper than the pan to hold it above the table, substantially as described.

2. The combination of the pan A, having a flange, B, or other projections, and the ring C, having the inwardly-projecting flange D, and fastenings E, adapted to catch and hold the pan up to the ring above the table, substantially as described.

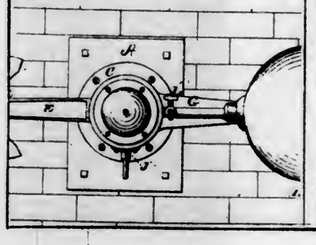
190,353. VELOCIPEDES. Wm. S. Mitchell, Washington, D. C. [Filed Apr. 19, 1877.]



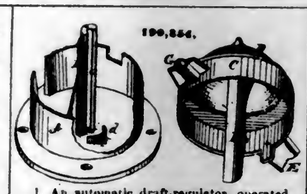
In a three-wheel velocipede, the front steering-wheels and steering mechanism, with the single rear propelling-wheel, having pulleys to which motion is imparted by the fly-wheel through the medium of endless belts or chains, said fly-wheel being provided with foot cranks or treadles, substantially as described.

190,354. AUTOMATIC DRAFT-REGULATORS FOR STEAM-BOILERS, &c. A. C. Noroross, Boston, Mass. [Filed Apr. 14, 1877.]

Brief.—Air is compressed in a vessel by the pressure of water from the boiler. The vessel is located on one end of tilting beam, balanced by a fixed weight on the other end, and adjusted to any given pressure by an adjustable weight on the graduated beam. The conduit-pipe serves as a sensitive flexible joint, and the apparatus swings upon knife-edges, so that any increase or decrease of pressure in the boiler will be felt by corresponding pressure in the air-vessel, by the pulsating action of the water from the vessel to the boiler, and vice versa; said action being conveyed to the dampers by which the draft of the furnace is regulated.



190,354.



1. An automatic draft-regulator, operated by water forced from the boiler into an air-chamber, and returned by the expansive force of the compressed air, constructed substantially as herein set forth.

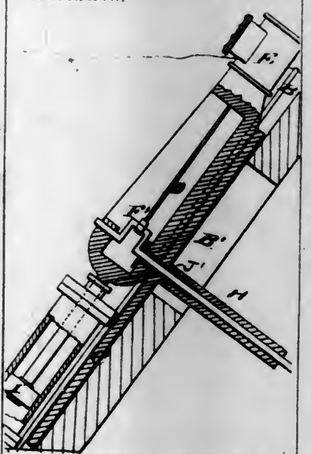
2. The coil I, arranged within the casing A, and forming a flexible oscillating conduit-joint, substantially as set forth.

3. The combination of the casing A, with grooved arm B, rim C, cap D, with arm B', having knife-edges *b b*, and the overlapping projections or flanges *d d*, substantially as and for the purposes herein set forth.

4. The curved pipe E, extending from the arm G to the bottom of the air-chamber H, in combination with the said chamber, arm, and the coil I, substantially as set forth.

5. The combination of the tilting rim C, beam E, with weights, flexible-joint conduit-pipe I, hollow arm G, and air-chamber H, substantially as and for the purposes herein set forth.

190,355. COMBINED ADJUSTABLE ENGINE AND SCREW-PROPELLER. Geo. E. Noyes, Washington, D. C., assignor to himself and Edwin N. Gray, same place. [Filed Mar. 31, 1877.]



1. The combination of a slide carrying the propeller-shaft, and engine-frame, with a slotted guideway, a water-cylinder, and a plunger working therein, substantially as and for the purpose set forth.

2. The combination of engine-frame and its steam-cylinder, slide C, guideway B, plunger I, sleeve H, and propeller shaft F, substantially as and for the purpose set forth.

3. The combination of slide C, or engine-frame D, with sleeve H, rigidly attached thereto, and propeller-shaft F, substantially as and for the purpose set forth.

4. A vertical engine-frame, steam-cylinder, and propeller, raised and lowered bodily by hydraulic pressure, the engine-frame, steam-cylinder, and hydraulic engine being arranged in the same vertical plane, substantially as and for the purpose set forth.

190,356. REVERSIBLE KNOB-LATCHES. N. O'Brien, Branford, Conn. [Filed Mar. 17, 1877.]

The combination of the hub, provided with the auxiliary arm *c'*, the hub-lever, the bolt hinged to the said lever through the link *h*, the stop *i*, and spring between the said stop and the end *g* of the link, substantially as described.

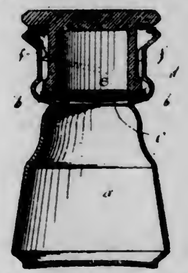
190,357. SEWER-TRAPS. H. A. Palmer, Rochester, N. Y. [Filed Apr. 11, 1877.]



1. The valve H, provided with the offset hanger-hooks *h*, in combination with the inclined bearing-face of the ledges *c*, substantially as shown and described.

2. In combination with an open-hinged automatically acting valve for sewer-traps, a guard, *a*, substantially as and for the purposes set forth.

190,358. BOTTLES AND STOPPERS. Jas. H. Parker, Newark, N. J. [Filed Feb. 23, 1877.]



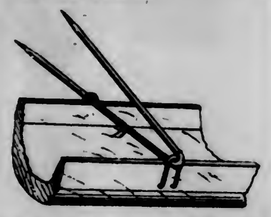
1. In combination with a bottle or jar provided in its throat or neck with the spiral recesses *e e*, connecting with the vertical grooves *f f*, and having a shoulder, *h*, the loose packing disk or disks applied to rest upon such shoulder and to cover the opening in the neck, substantially as shown and described.

2. The stopper for glass and other bottles, made as described—that is, with a cylindrical body, having two ribs, *g g*, which jointly serve not only to hold the stopper in place within the bottle-neck, but also, when turned, operate to fasten the stopper to a tightened position by compressing a loose sheet or disk packing between the lower end of the stopper and a shoulder in the bottle-neck.

3. In combination, the bottle, having in its neck the vertical and spiral recesses and the base or shoulder, as described, the stopper provided with projecting ribs, and a water-proof or other disk or sheet packing applied,

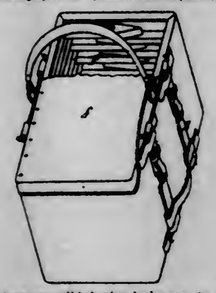
as shown, to sever the mouth of the sack below the stopper, the combination being and operating as and for the purpose set forth.

190,860. GUTTER-HANGERS. C. M. Peet, Waverly, Ill., assignor of one-half his right to Wells & Biggin, same place. [Filed Mar. 21, 1877.]



The combination, with an eaves-trough having eyes or loops, as described, of the supporting rods or wires D, bent to form a triangle having the end of one of its arms turned at right angles to the main portion, and adapted to be driven into the roof, while the other arm is driven under the eaves of the building, as and for the purposes set forth.

190,861. FOLDING BASKETS. J. J. Pentaguer, Brooklyn, N. Y. [Filed Mar. 19, 1877.]



1. A compressible basket-body or crate, consisting of a frame having inwardly-folding ends and a removable bottom, with a flexible jacket or covering for the frame, substantially as herein shown and described.

2. A detachable handle for a compressible basket, in combination with a pair of yokes to which the handle is attached in central position, and a pair of straps extending from the yokes beneath the bottom of the basket, said straps being adapted to serve as means for securing the compacted basket after the handle is detached.

3. A supplemental handle for a compressible basket, in combination with a pair of straps, each consisting of two parts, and each part provided with a buckle, said straps being threaded through loops at the ends of the said supplemental handle, and adapted to serve as means for securing the compacted basket, and attaching the supplemental handle thereto in convenient position, and also to serve in combination with a detachable main handle when the basket is opened or expanded.

190,862. METAL COMPOSITIONS. Francis Porter, Ticonderoga, N. Y., assignor to the New York Ore Separator Company. [Filed Oct. 27, 1876.]

A metal composition consisting of No. 3 and No. 5 pig-iron, white pig-iron, and cast-steel, all melted together, in about the proportions set forth.

190,863. TOY WATCHES. John G. Powell, Philadelphia, Pa. [Filed Nov. 9, 1876.]

1. The toy-watch having a stem-winding rod, in combination with a centrally-arranged pinion connected by the power-spring to the ballet-cap, substantially as and for the purpose set forth.

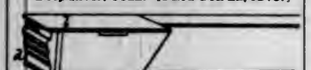
2. The case G, with turned-up lips *a*, in combination with the cap-pinion K, the spring J, and cap H, substantially as and for the purpose set forth.

3. The elastic arm N, intermediate of the pallets M, and toothed segment P, substantially as and for the purpose set forth.

4. The case G, cap H, spring J, pallets M, toothed segment P, and balance R, in combination with the pinion K, pinions E F, and stem-rod C, substantially as and for the purpose set forth.



190,865. PIANO-FORTE KEYS. U. Pratt, Deep River, Conn. [Filed Oct. 22, 1875.]



A molding, *d*, for the ends of piano-forte keys, composed of celluloid, glass, porcelain, or other similar material capable of being cast or molded in a plastic state into the desired shape, substantially as herein shown and described.

190,864. THREE-HORSE EQUALIZERS. J. Pratt, Jr., Princeville, Ill., assignor of two-thirds his right to J. A. Pratt and O. S. Pratt. [Filed Feb. 16, 1877.]

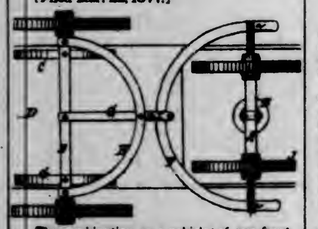


1. A draft-equalizer, consisting of a shaft, B, turning in supports on a bar, A, and provided with short end arms *c c* and long central arm *d*, extending in opposite directions, as set forth.

2. The combination of the shaft B, its arms *c d d*, and the bar A, with its straps *a a'* supporting the shaft at the rear of the bar, as described.

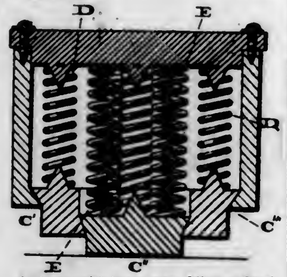
3. The shaft B, provided with arms *d c c*, and turning in supports at the rear of the bar A, as set forth.

190,865. RUNNING-GEAR FOR VEHICLES. Frederick A. Franke, New York, N. Y. [Filed Mar. 22, 1877.]



The combination, in a vehicle, of two front wheels mounted on a common axle, A, a spring, C, connecting the axle with the body B, a segmental plate, F, which is detachably fastened to the outer ends of the axle A, and a reach, G, extending from the rear axle, and provided with a guide-box, I, for the segmental plate F, as and for the purpose described.

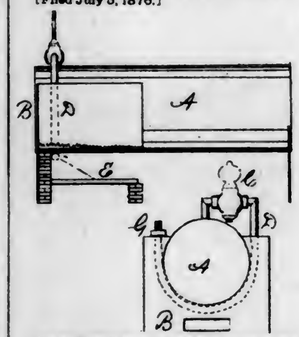
190,866. CAR-SPRINGS. J. B. Quirk, Philadelphia, Pa., assignor of one-half his right to A. B. Davis, same place. [Filed Feb. 14, 1877.]



1. A case with two or more followers fitted thereto telescopically, and projecting beyond each other and beyond the case, in combination with springs which are successively brought into action by successive action of the different followers, substantially as and for the purpose set forth.

2. The case A, with one or more telescopic followers and stop-ledge C''', in combination with the short-range springs D and the long-range spring or springs E, substantially as and for the purpose set forth.

190,867. DEVICES FOR FEEDING STEAM TO FURNACES. Wm. Ramsey, Dayton, Ohio. [Filed July 5, 1876.]



In combination with the steam-boiler A and furnace B, the pipe D, provided with stop-cock C, issuing from the top of the boiler, and passing under and in close contact with the same through furnace B, the pipe D being provided with perforations, through which jets of steam may be forced, obliquely, upon the burning fuel, the force of said jets being regulated by stop-cock C, substantially as and for the purpose herein shown and specified.

190,868. AUTOMATIC FRUIT-DRIERS. Asa Q. Reynolds, Chicago, Ill. [Filed Apr. 2, 1877.]

1. In combination with a series of fruit-drying trays, located one above the other, a second or supplementary series smaller than the first, and adapted to operate as and for the purposes explained.

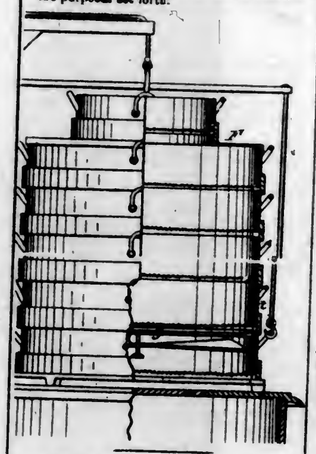
2. The plate F, adapted to cover the flue formed by the lower series of trays, and to receive and hold the upper series, the whole being arranged and combined substantially as set forth.

3. In combination with a fruit-drying tray, a fan-wheel operated by the ascending currents of heated air, movable independently of said tray, and adapted to equalize the currents of air, in the manner set forth.

4. In combination with a fruit-drier, the outer wall of which is made up of the frames of the several trays, as explained, a suspending device, operating substantially as described, and supporting said drier from a point in or on the lowermost tray thereof, for the objects named.

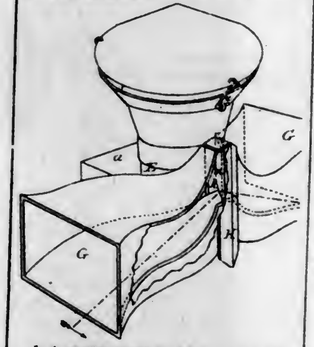
5. In combination with a fruit-drier adapted to be elevated, in the manner described, and

suspended above a stove or furnace, a suspending device, substantially as shown, provided with a swivel-connection, as and for the purposes set forth.



190,869. VENTILATORS FOR VEHICLES. J. B. Richard, New York, N. Y. [Filed Sept. 16, 1876.]

Brief.—A suction-tube having an inclined spiral wall or walls, opening by a mouth or mouths in the direction of motion, whereby the centrifugal action of a whirling current or eddy of external air is utilized to draw out the interior air.



1. A suction-ventilator for cars and other vehicles, having a spiral draft-passage, an induct, and an exit-spout communicating centrally with the induct and tangentially with the draft-passage, substantially as specified.

2. A suction-ventilator consisting of the body portion, having an induct, *a*, annular diaphragm *c*, flanged central opening *a'*, and lateral opening *l*, the guarded exit-spout, the draft-mouth G, and the valve *m*, substantially as specified.

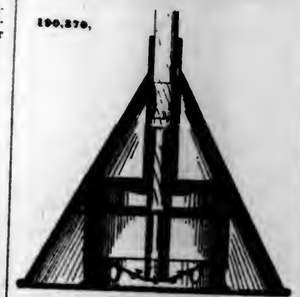
3. The combination, with the exit-spout, induct *a*, and tangential draft-mouths G, of the body E, having the annular flanged diaphragm *c*, and the lateral valved opening *l*, substantially as specified.

4. The combination, in a ventilator, of the spiral exterior draft-flues and the central induct, through which the exterior air is drawn by the whirling motion of the external air passing through said draft-flues, substantially as specified.

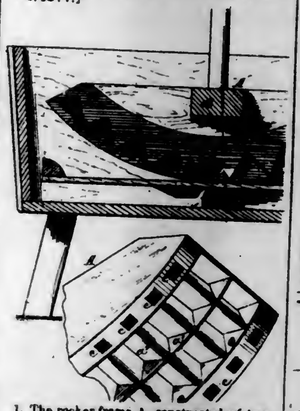
190,870. CLOTHES-POUNDERS. Wm. T. Robertson, Asheville, N. C., assignor of one-half his right to Jas. W. Cheek, same place. [Filed Mar. 27, 1877.]

1. The rocker-frame A, constructed of two parallel side pieces, having in their under edge a series of air spaces or recesses, *c c*, and an intermediate fluted section, *a*³, the said rocking frame adapted to operate in a tub or tank, substantially as and for the purpose described.

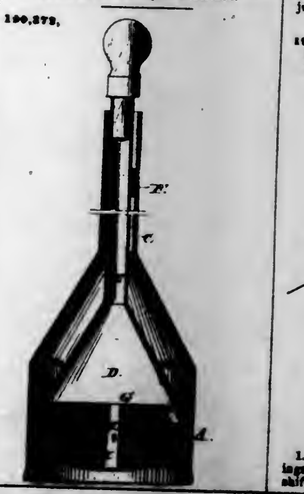
2. In combination with the segmental rocker, provided with air-spaces on its under side, and the tank or tub in which said rocker is operated, the removable slotted bottom, adapted to operate substantially as described.



190,871. WASHING-MACHINES. Harvey G. Robertson, Asheville, N. C. [Filed Feb. 6, 1877.]



190,872,



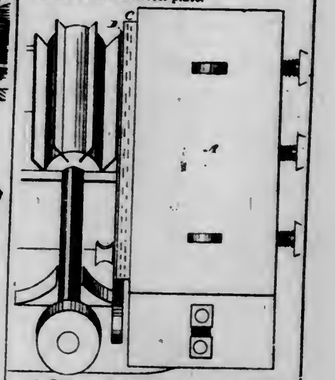
190,872. CLOTHES-POUNDERS. Wm. T. Robertson, Asheville, N. C., assignor of one-half his right to Jas. W. Cheek, same place. [Filed Feb. 5, 1877.]

1. The combination, with the outer shell A and its tube C, of the inner shell D, constructed with the horizontal perforated partition G, depending perforated tube I, and partitions H, radiating from said tube, the inner shell being provided with the operating-rod E and packing F around the same, all substantially as and for the purpose described.

2. The outer shell A and its tube C, in combination with the inner shell D, having the operating-rod E, provided with the surrounding packing F, and the inner shell being constructed with the horizontal perforated partition G and radial partitions H, having rounded lower edges, substantially as described.

190,873. MACHINES FOR DRESSING THE FLY-BARS OF PAPER-MILL ROLLS. Jas. H. Robinson, Christiana, assignor of one-half his right to Chas. Arthur, New London Township, Pa. [Filed Apr. 6, 1877.]

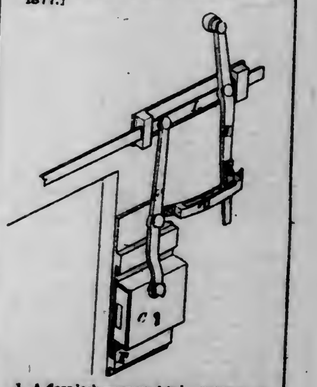
Brief.—Of two box-like frames, one within the other, the inner one is adjustable vertically, and is covered at top by a steel plate, of which the upper surface is concave, and also serrated after the manner of a file. Journal-bearings are affixed to the outer frame, to accommodate the shaft of the roll, which latter is so located that the edges of the fly-bars shall pass across and against the file-surface of the steel plate.



1. The plate D, having a concave face, with serrations or file-like grooves *g*, substantially as and for the purpose set forth.

2. The concave plate D in combination with the box C and frame A, said box being adjustable as and for the purpose described.

190,874. LOCKS FOR CELL-DOORS. George Ropes, Boston, Mass. [Filed Mar. 28, 1877.]

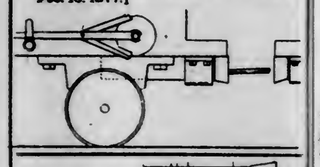


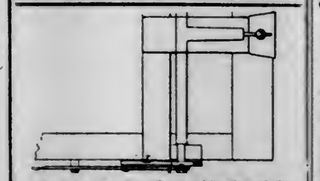
1. A door-lock supported in suitable bearings or supports, and susceptible of lateral shifting movements to and fro in such sup-

ports with respect to the door, substantially as and for purposes stated.

3. The combination of the lock C, lever P, bar I, and lever L, under the arrangement and for operation substantially as and for purposes stated.

190,276. CAR-COUPLINGS. B. Rowell, West Sparta, assignor of one-half his right to Geo. M. Cogswell, Nunda, N. Y. [Filed Feb. 16, 1877.]





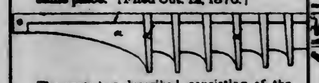
In a car-coupling, the combination of the lever and pivoted V-shaped pawl, the T rock-shaft, the ratchet or toothed link fixed on the end thereof, and the coupling-pin and draw-head, all constructed and arranged as shown and described, to operate as specified.

190,276. POSTAGE AND REVENUE STAMPS. Jas. Sangster, Buffalo, N. Y., assignor of one-half his right to Robert Dunbar & Co., same place. [Filed Mar. 17, 1877.]



A postage or other stamp, one surface of which is provided or printed with a series of fine lines or dots in a colorless material, soluble in water, and over or on which rests the desired design, printed in ordinary printer's ink, whereby such portions only of the printing-ink lines composing such design, which rest upon the lines of the soluble material, may be removed by the application of a liquid, and rubbing with a force sufficient to remove, or partly remove, the ink which may be used in the cancellation of the stamp, substantially as and for the purposes described.

190,277. GRATE-BARS FOR BOILER-FURNACES. P. J. Schmitt, Chicago, Ill., assignor of one-half of his right to P. Fish, same place. [Filed Oct. 12, 1876.]

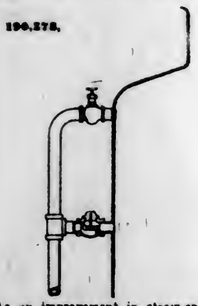


The grate bar described, consisting of the top flange *b*, shaped substantially as shown, the spacing-lugs *c*, the web *a*, and the vertical ledges *d*, projecting below the said web, and increasing in length toward the rear end of the bar, the several parts being constructed and arranged as and for the purposes set forth.

190,278. MODES OF RELIEVING HIGH-PRESSURE ENGINES. T. Shaw, Philadelphia, Pa. [Filed Mar. 3, 1877.]

Brief.—The invention consists in locating a check-valve in communication with the steam-pipe leading to the cylinder and the boiler; also, in locating it between the throttle-valve and the cylinder, in order that, when the valve of the cylinder is reversed, the air which is drawn in through the exhaust-port may be utilized by being forced into the boiler, and, by so doing, preventing accident to the cylinder and connecting parts by the compression of such air.

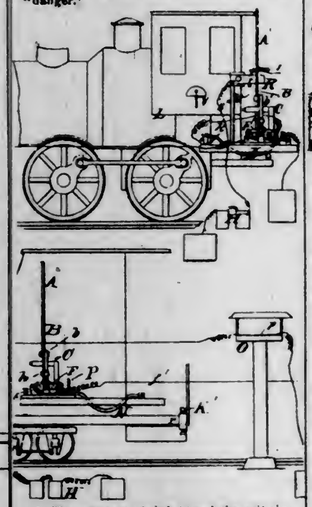
190,278.



As an improvement in steam-engines, a check-valve in communication with the steam-pipe and the boiler, and located between the throttle-valve and the engine, in the manner described, for the purpose set forth.

190,279. ELECTRO-MAGNETIC RAILROAD-SIGNALS. C. S. Shivler, New York, N. Y. [Filed Feb. 12, 1877.]

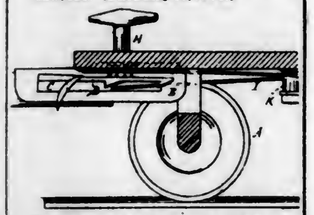
Brief.—Circuit normally closed, holding signals in "safety" position. Train, on entering section, breaks the circuit, allowing signal at each end of section to move to "danger." On leaving section, train mechanically sets signal to "safety," a circuit-closer upon the signal completing the circuit, whereby signal at entrance end of section is reset to "safety," and both signals are held at "safety" until passage of a train again breaks the circuit. Alarm on locomotive operated when train approaches within certain distance of signal set to "danger."



1. The entrance-signal A′ and the exit-signal A, placed at the ends of a railway-section, in combination with a battery, the conductor or conductors of an electric circuit, and two magnets, F F′, for operating said signals; a circuit-closer, I, placed at the entrance of a railway-section, and operated to open the circuit by a lifter on the locomotive, and closing automatically when the locomotive has passed the same; a circuit-closer, *h*, so arranged at the exit of said railway-section that the movement toward the exit-signal-operating magnet F of its armature-lever shall close the circuit; two armature-levers, *b b′*, having armatures *d d′*, and connected with the levers of the signals A A′; a lever, P, rigidly connected with the armature-lever *b*; and a lifting device, N, operated by a lifter placed on the last car of the train, substantially as and for the purposes set forth.

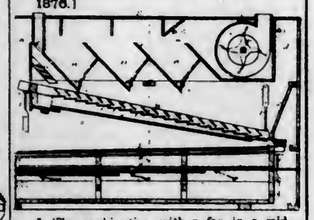
2. The combination, with exit and entrance-signals operated by a battery and electro-magnets, of the plates *p p* placed parallel to each other and the line of a railway-section, in advance of the entrance-signal thereof, and forming part of the circuit of an electric current, generated by a separate battery, H′; a circuit-closer, E, closed by the action of the lever B, in assuming the position of danger; the lever B of said signal, and a circuit-closer, V, attached to the locomotive, to act upon the plates *p p*, for closing the circuit of a sound-signaling apparatus carried by the locomotive, substantially as and for the purpose described.

190,280. CAR-STARTERS. D. Shoup, Warsaw, Ind. [Filed May 17, 1876.]



The combination of the ratchet-wheel A, spring-pawls B, cross-bar C, horizontal beam C, chain I, pulley K, and windlass H, all operating together as and for the purposes described.

190,281. MIDDLINGS-SEPARATORS. C. N. Smith, Dayton, Ohio. [Filed Sept. 16, 1876.]



1. The combination, with a fan in a middlings-purifier, of the vacuum-chambers B, the riddles I, the intermediate slatted shaker H, and the flues *d d′*, substantially as specified.

2. A middlings-purifier, having the vacuum-chambers B B, and valves *c*, a shaker, and a riddle, in combination with the end flues *d d′*, fan-box, and valves D D, substantially as specified.

3. The shaker H, having the closed bottom *e*, a lower series of carrying-slats, *f*, and above these a series of fine-slats, *g*, reversely inclined, substantially as specified.

4. The riddle-knocker M in combination with the slotted anvil-plates K, substantially as specified.

5. The combination, with a reciprocating riddle, of the vibrating automatic gravitating knockers M suspended therefrom and having V-bearings thereon, substantially as specified.

6. The elastic supporting-arms I, having the cylinder-heads *g′* and slotted socket-plates K′, substantially as specified.

7. The combination, with an endwise-moving riddle or shaker, of elastic supporting-arms I, having cylindrical journal-head *g′* working in the cylindrically-recessed bearing-plates K′ on the under side of the riddle aforesaid, substantially as specified.

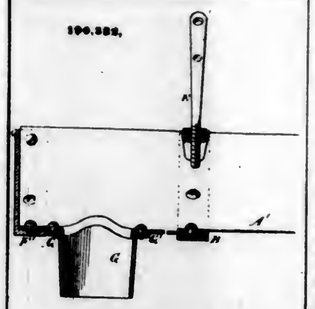
190,282. EAVES-TROUGHS. Peter Snyder, Louisville, Ky. [Filed Mar. 27, 1877.]

1. An eaves-trough having the plates connected by screws passing through the overlapping plates and held in encircling metallic band B, substantially as set forth.

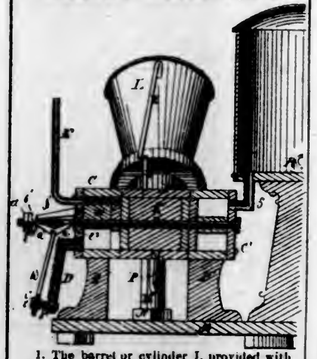
2. In combination, the brace D, secured by screws passing through the plate to the band B, and the adjustable hanger E, substantially as set forth.

3. A sheet-iron eaves-trough, in which the sheets A and A′ are connected to the bands B and flanges F′ and G′ by screws passing outwardly into threads formed in the said attachments, which form the connections for the section ends and spout, substantially as set forth.

190,282.



190,283. BOILER-FEEDERS. A. I. Sternberg, Carthage, N. Y. [Filed Nov. 20, 1876.]



1. The barrel or cylinder I, provided with central partitions *k*, flanged projections J J, water-vessels L L, steam-pipes K K, and ports A A, i i, and *m m*, in combination with the heads C C′ and their respective ports, substantially as and for the purposes herein set forth.

2. The combination of the tank G with pipes K *f*, the head C′ with ports *e e*, rocking cylinder I with water-vessels, steam pipes and ports, as described, and the head C with ports *b b*, steam-pipe E, and discharge-pipe D, substantially as and for the purposes herein set forth.

3. The combination of the oscillating cylinder I with its water-vessels, the arm F, rods O O, adjustable cushioned standards M M, and springs *s s*, and nuts *t t*, as and for the purposes herein set forth.

4. The combination, with the heads C C′ and oscillating cylinder I, of the central rod *n*, with nuts *b′ d′* and washer *d*, the levers *e′*, rod *h′*, with nuts *i′ i*, and the stationary collar *f′* on the expansible discharge-pipe D, substantially as and for the purposes herein set forth.

190,284. HAY-ELEVATORS. H. C. Stouffer, Camfield, assignor of a part of his right to L. T. Foster and U. A. Andrews, Youngstown, Ohio. [Filed Apr. 5, 1877.]

Brief.—In the adjustment of the fork for elevating hay the tines are in an inclined position, with the hooks out and up, so as to hold the hay thereon. When the hay is brought to the place for unloading, the tines are caused to hang within the supplemental tines, whereby the hooks are covered and permit the hay to slide off.

I. In a hay elevator and carrier, a fork having hooked tines, in combination with a supplemental fork pivoted to the hooked tines, and adapted to uncover and cover the hooks of said tines in elevating and discharging the hay therefrom.

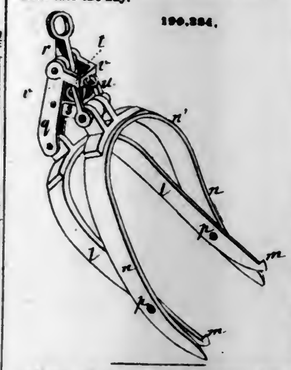
2. A hay elevating and carrying fork, *l*, having hooks *m* rising from its tines, and a supplemental fork, *n*, constructed and adapted to form a back, *n′*, for said hooked fork to hold and carry the hay and present smooth tines, to disengage and discharge the hay from and over the hooked tines.

3. The combination, with a fork having hooked tines and supplemental pivoted fork opening and closing therewith, of a locking and tripping device adapted to hold the hooked and supplemental tines to carry the hay, and to automatically withdraw said hooks from holding positions when said locking device is tripped.

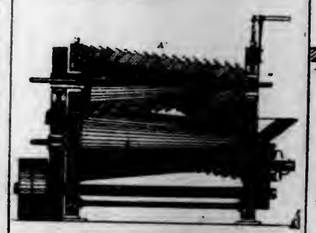
4. The combination, with the hooked and supplemental forks, pivoted to operate as described, of the pivoted arm or link *q* and its coupling *s*, uniting the heel-ends of the fork, the draft-rope coupling *r*, its pivoted catch *t*, the fixed eye *u*, and the pivoted detent *v*, adapted for co-operation to hold the hooked ends of the fork up for action, and the supplemental fork in proper relation thereto.

5. The locking and tripping device of a hay elevator and carrier, having the pivoted catch *t*, the couplings *r* and *s*, the pivoted detent *v*, and the fixed eye *u*, arranged in relation to each other and the pivoted fork-tines, to bring and catch automatically in position to receive the detent in adjusting the hooked tines to catch into the hay.

190,284.



190,285. MACHINES FOR SQUEEZING PUDDLERS' BALLS. E. Buckow, Buffalo, N. Y. [Filed Feb. 12, 1877.]



1. As an improvement in the process of squeezing puddlers' balls, the application of pressure, and simultaneous compound rotary and rectilinear motion to the ball by the action of rollers having peripheral spiral grooves or ribs, arranged substantially as described.

2. The standards B B′, having the bearings for the rollers, and in combination therewith a series of rollers provided with spiral projections, and arranged to revolve all in the same direction for operating upon a puddler's ball, in the manner and for the use and purpose stated.

3. The combination, with the rollers A A′, of the auxiliary roller E, arranged below said rollers, substantially as stated.

4. The combination, with the roller A″, of the sliding bearing *a*, the forward one being arranged with capability of automatic and independent adjustment, as described, for the object stated.

5. The combination, with the rollers A A′, of the shields K, as described.

6. An improved puddlers' ball-squeezer, consisting, essentially, of rollers, combined substantially as described, and designed to operate, as stated, in virtue of the arrangement of them and their peripheral V-shaped spiral grooves or ribs.

7. An improved puddlers' ball-squeezer, consisting, essentially, of rollers, combined substantially as described, and designed to operate as stated, in virtue of the arrangement of them and their peripheral spiral ribs or projections of varying depth, as set forth.

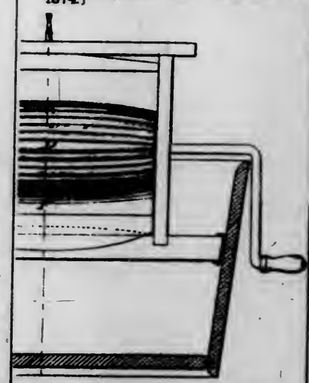
8. An improved puddlers' ball-squeezer, consisting, essentially, of rollers, combined substantially as described, and designed to operate, as stated, in virtue of the arrangement of them and their peripheral spiral ribs or projections of varying depth, as set forth.

9. An improved puddlers' ball-squeezer, consisting, essentially, of rollers, combined substantially as described, and designed to operate, as stated, in virtue of the arrangement of them and their spiral ribs or projections of varying pitch, as set forth.

10. An improved puddlers' ball-squeezer, consisting of a combination of spirally-ribbed rollers, the ribs of each varying in pitch from those of the other rollers, substantially as described.

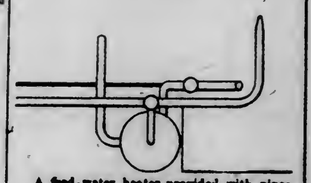
11. An improved puddlers' ball-squeezer, consisting, essentially, of rollers, combined substantially as described, and designed to operate, as stated, in virtue of the arrangement of them and their scored or notched spiral ribs or projections, as set forth.

190,286. WASHING-MACHINES. Robt. Talmadge, Coshocton, Ohio. [Filed Oct. 20, 1874.]



In a washing-machine, the combination of an upper convex fluted roller, D, and a lower smooth concave roller, F, substantially as described, for the purposes specified.

190,287. MEANS FOR UTILIZING EXHAUST STEAM. W. H. Thomas, Wilmington, Cal. [Filed Feb. 17, 1877.]



A feed-water heater provided with pipes and valves to convey and direct the ascending steam either to the chimney or to the vessel containing the feed-water supply.

190,288. CHAIRS. T. Tostevin, Council Bluffs, Iowa. [Filed Apr. 26, 1877.]

1. In a chair having supporting side posts or standards, a continuous elastic back and seat, as and for the purpose described.

2. A chair having an elastic supporting-frame, combined with a suspended elastic back and seat, formed in one piece, as set forth.

3. A chair formed of a wooden or metallic frame, the posts and rear legs and the arms and front legs being each formed in one piece, bent inwardly, and united beneath the seat, as and for the purpose set forth.

4. A chair having the spring-connection *f*, uniting the extremities of the side posts, with or without the suspended back and seat formed in one piece, as and for the purpose set forth.

5. The legs B, having a re-enforce at their point of junction, to distribute the elasticity over the upper and lower parts of the chair-frame, as set forth.

6. In combination with the leg-frame, the cross-braces C C, and side braces D D, said braces being fastened to each other at the point *m*, and their lower ends connected with the legs at *d*, by the bolt which enters and secures the side braces, as set forth.

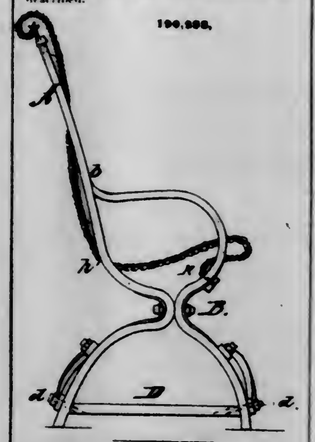
7. In combination with the frame F and F, the spring-support *f*, and bar *e*, adapted to the furnish the supports for the fabric of the back and seat, substantially as specified.

8. A chair composed of the elastic frame F F', spring-bar *f*, and supporting-bar *e*, secured to the extremities of the part F', as and for the purpose set forth.

9. A chair having a seat composed of an elastic fabric, doubled upon itself at *i*, and bent, as shown at *k*, to adapt it to be secured to the frame, as and for the purpose set forth.

10. A chair having an elastic supporting-frame, consisting of the elastic side posts, bent forward and brought under the seat, with the arm-pieces and front legs formed in a similar manner, the two being united at B, in the manner and for the purpose shown and described.

190,288.



190,289. MACHINES FOR GRINDING ORES. H. Trumbull, Ticonderoga, N. Y., assignor to New York Ore Separator Company. [Filed Oct. 27, 1876.]

Brief.—The rubber cushions allow the rollers to give slightly. The guide-rods serve to keep the axis of the rollers always parallel.

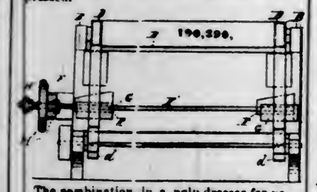


The combination, with crushing-rollers A B, their axles C D, standards E K G, and guide-rods H I, of elastic cushions L, situated between the standards G and K, substantially as and for the purpose set forth.

190,290. PULP-DRESSERS FOR PAPER-MACHINES. W. C. Tuttle, Worcester, Mass., assignor to Rice, Barton & Fales Machine and Iron Company, same place. [Filed June 10, 1876.]

Brief.—The screen pulp-box, through which, upon its being raised, the pulp is sucked into the main pulp-box below, is hinged to the latter, and caused alternately to rise and fall by means of the contact between cam-wheels and projecting side arms upon the screen-box. The height of the screen-box with relation to the main box—that is, the depth to which it is to dip, and the consequent suction—is regulated by vertically-sliding standards on the main box, which are adjusted simultaneously and uniformly by blocks having inclined or wedge-shaped upper edges, the said blocks sliding horizontally in grooved ways, and being connected together by a shaft having screw-threaded end, fixed bearings, and an operating crank-wheel, by turning which to the right or left the blocks are moved forward or back, and the standards supporting the screen pulp-box are, consequently, elevated or depressed.

190,290.



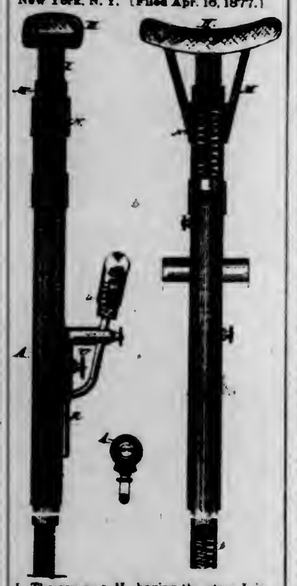
The combination, in a pulp-dresser for paper machines, with the screen pulp-box A B' B'' and cam-wheels *d d*, of side arms D, standards *b b*, and regulating mechanism, consisting of the blocks F F, shaft F', and its operating crank-wheel H, substantially as and for the purposes set forth.

190,291. LIGHTNING-RODS. N. Van Loon, St. Cloud, Minn. [Filed Feb. 24, 1877.]



The combination of the core A, consisting of the central galvanized-iron rod *a*, intertwisted with the surrounding galvanized-iron rods *a'*, and soldered together with the inclosing copper strips B, soldered to the core, and having intervening spaces *b* between them, substantially as described, and for the purpose set forth.

190,292. CRUTCHES. Lawrence F. Weldon, New York, N. Y. [Filed Apr. 16, 1877.]



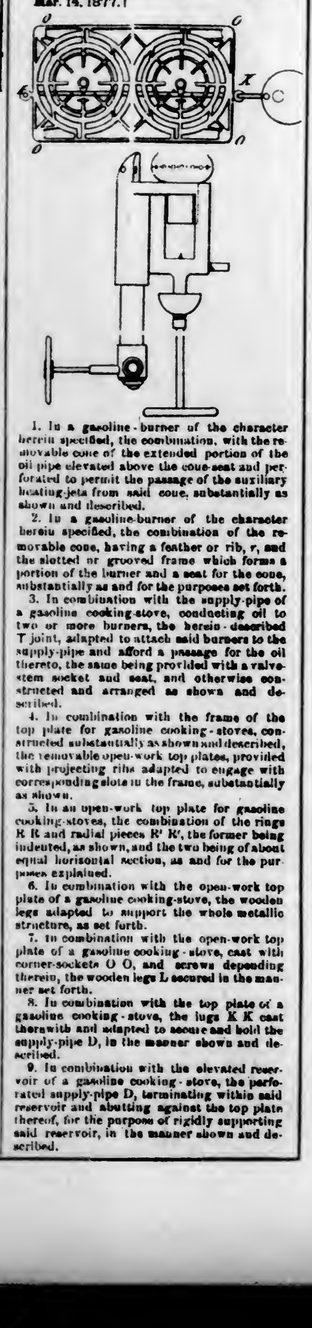
1. The arm-rest H, having the stem I, inclined braces M, and collar N, in combination with the staff A, provided at its upper end with a spring, K, as and for the purpose described.

2. The combination, with the staff A, having on its side the dovetailed feather R, of the laterally-projecting hand-hold, having a dovetailed recess adapted to the feather R, and a set-screw for fastening it in any adjusted position, substantially as described.

3. The combination, with the upper end of the crutch, of an arm-rest provided with a slotted collar adapted to slide upon said upper end, and the slot sitting over a lug on the latter, for the purpose of preventing the arm-rest from turning, substantially as set forth.

4. The combination, in a crutch, of the two telescoping sections, their fastenings, a yielding arm-rest and foot-piece, and a yielding hand-hold, all constructed and arranged to operate together substantially as and for the purposes set forth.

190,293. GASOLINE COOKING-STOVES. H. Wellington, Brooklyn, E. D., N. Y. [Filed Mar. 14, 1877.]



1. In a gasoline-burner of the character herein specified, the combination, with the removable cone of the extended portion of the oil-pipe elevated above the cone-seat and perforated to permit the passage of the auxiliary heating-jets from said cone, substantially as shown and described.

2. In a gasoline-burner of the character herein specified, the combination of the removable cone, having a feather or rib, *r*, and the slotted or grooved frame which forms a portion of the burner and a seat for the cone, substantially as and for the purposes set forth.

3. In combination with the supply-pipe of a gasoline cooking-stove, conducting oil to two or more burners, the herein-described T joint, adapted to attach said burners to the supply-pipe and afford a passage for the oil thereto, the same being provided with a valve-stem socket and seat, and otherwise constructed and arranged as shown and described.

4. In combination with the frame of the top plate for gasoline cooking-stoves, constructed substantially as shown and described, the removable open-work top plates, provided with projecting ribs adapted to engage with corresponding slots in the frame, substantially as shown.

5. In an open-work top plate for gasoline cooking-stoves, the combination of the rings R R and radial pieces R' R', the former being indented, as shown, and the two being of about equal horizontal section, as and for the purposes explained.

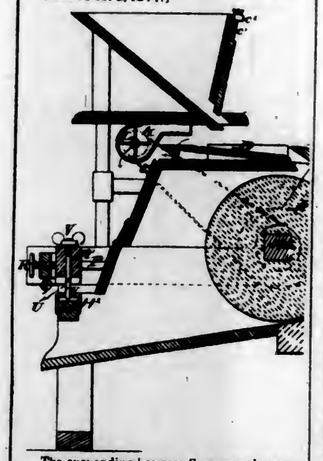
6. In combination with the open-work top plate of a gasoline cooking-stove, the wooden legs adapted to support the whole metallic structure, as set forth.

7. In combination with the open-work top plate of a gasoline cooking-stove, cast with corner-sockets O O, and screws depending therein, the wooden legs L secured in the manner set forth.

8. In combination with the top plate of a gasoline cooking-stove, the lugs K K cast therewith and adapted to secure and hold the supply-pipe D, in the manner shown and described.

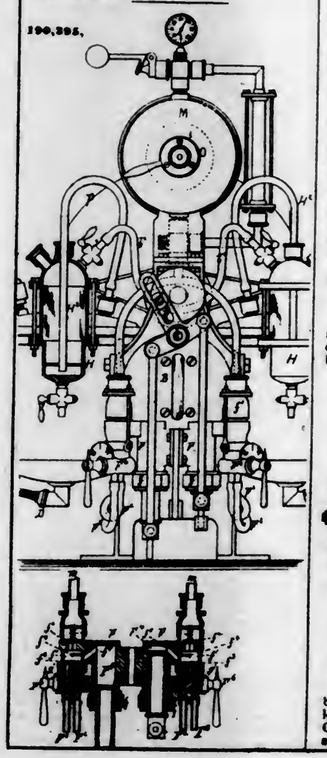
9. In combination with the elevated reservoir of a gasoline cooking-stove, the perforated supply-pipe D, terminating within said reservoir and abutting against the top plate thereof, for the purpose of rigidly supporting said reservoir, in the manner shown and described.

190,294. ADJUSTING DEVICES FOR GRINDING-MILLS. H. F. Wescott and R. O. Randall, Gadsden, Ala., assignors to the Gadsden Grange Mill Company, same place. [Filed Feb. 3, 1877.]

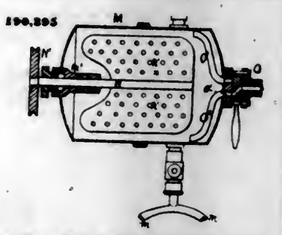


The suspending hangers S, arranged on opposite sides of the case E, and provided with the inwardly-extending lower flanges *s*, and outwardly-extending perforated upper flanges *s'* and adjusting-screws S' S', in combination with the inclined blocks T T, attached to the frame, stirrup H', rod U, and thumb-nut V, substantially as described, and for the purpose set forth.

190,295.



190,295. [illegible]



190,296. SODA-WATER APPARATUS. Fred. W. Wiesebrock, Brooklyn, N. Y. [Filed Nov. 15, 1876.]

Brief.—From the generators the gas passes through washers to the equalizing-chamber, the latter having a water-supply. The gas and water, under uniform pressure, pass from said chamber to the pumps, and in a uniform given quantity. By the cocks the quantity of each can be regulated. Thus the beverages can be charged with a given quantity of gas, and uniformly. From the valve-chambers the liquid and gas is forced up to the agitating-vessel. If gas has escaped in filling a fountain, the desired pressure may be obtained by turning the slide-cock so as to register with the gas-pipe of the agitator.

1. In a soda-water apparatus, an equalizing-chamber by means of which both water and gas are fed to the pump at a uniform pressure, irrespective of the pressure in the generator, substantially as described.

2. In a soda-water apparatus, the valve-chamber f^1, connected with the chamber F^4 of the pump F by an inclined channel, f^3, and valves f^1 f^2, located as described, the whole constructed and arranged to operate substantially as described.

3. In a soda-water apparatus, the agitating-vessel M, provided with a sliding cock, O, said cock so constructed as to connect with either the gas-pipe O^1 or the water-pipe O^2, substantially as described.

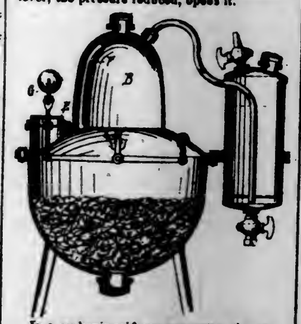
4. In a soda-water apparatus, the combination of the generator A, provided with perforated paddle *b*, spindle *c*, and pulley F^6, with the acid-chamber C, valve c^2, pipe D^2, ball-valve c^3, and discharge-valve D, substantially as described.

5. In a soda-water apparatus, the combination of the generator A, constructed as described, purifying-cylinder H, constructed as described, equalizing-chamber B, having float-valve b^1, and pipes H^2 b^2 b^3, substantially as described.

6. In a soda-water apparatus, the combination of the generator A, purifying-cylinder H, equalizing-chamber B, pump F, constructed as described, agitating-vessel M, constructed as described, and pipes F^5 F^6 H^1 b^2 b^4 m, substantially as described.

190,296. AUTOMATIC CARBONIC-ACID-GAS GENERATORS. F. W. Wiesebrock, Brooklyn, N. Y. [Filed Nov. 9, 1876.]

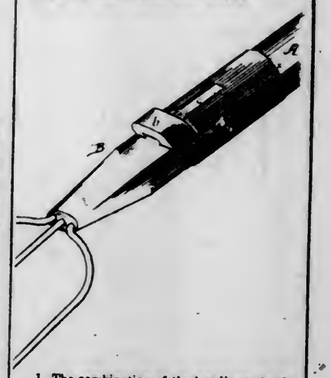
Brief.—The acid is automatically supplied as the gas-pressure upon the diaphragm operates to close the valve, while the weighted lever, the pressure reduced, opens it.



In a carbonic-acid-gas generator, the combination of the acid-chamber B, valve *c*, valve-lever D, flexible diaphragm E, weighted lever G, equalizing-pipe F, and generator A, substantially as described.

190,297. COMBINATION TOOLS. J. L. Williams, Jasupe Junction, Ga. [Filed Dec. 19, 1876.]

Brief.—A cross-piece connects the two sides of the slotted handle. A slotted sliding and revolving sleeve, with rear inclined edge, secures the pivoted arm in a longitudinal position, or at right angles to the handle.

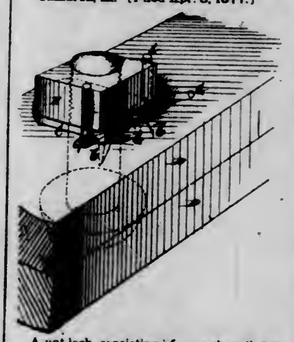


1. The combination of the handle or shank A, the pivoted arm B, the sliding and rotating slotted sleeve C, and the locking device whereby the sleeve is retained when in its forward position, all as set forth.

2. The combination of the slotted handle or shaft A, pivoted arm B, and sleeve C, having a slot, *s*, and inclined rear edge *s'*, as specified.

3. The combination of the shank A, pivoted arm B, sleeve C, and cross-piece *b*, for the purpose specified.

190,298. NUT-LOCKS. Frank L. Williams, Tamaroa, Ill. [Filed Apr. 3, 1877.]



A nut-lock consisting of a washer, C, constructed with one or more pointed projections or spurs, *b*, and a wire, G, placed crosswise under the washer, and having its end bent up or nut, for use in relation with the nut, substantially as shown and described.

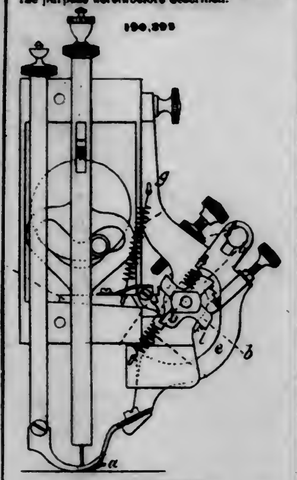
190,299. RUFFLING OR PLAITING ATTACHMENTS FOR SEWING-MACHINES. Newton Wilson, High Holborn, England. [Filed Feb. 6, 1877.]

Brief.—A pin on a frame attached to the head of the machine enters a slot in the arm which carries the ruffling-blade, and which moves on the pin to the extent of the slot. The blade is moved forward and downward by springs, and held up and back by a series of tappets on a shaft, which is intermittingly rotated by a ratchet-wheel and pawl-lever, the latter being operated by the needle-bar and a retracting-spring.

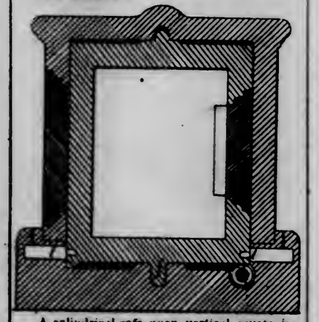
1. The frame *g*, adapted to be secured to the side of the needle-arm of a sewing machine, and carrying the lever *e*, to which the ruffling or plaiting blade *c* is attached, same *b*, ratchet *l*, and pawl-lever *n*, arranged to be operated by the needle-bar, all as set forth.

2. The slotted lever *e*, with its moving fulcrum at *f*, the bar or blade *a*, and adjustable screw or finger *h*, in combination with the revolving tappets, cams, or wipers *b*, ratchet-wheel *l*, pawl-lever *n*, the spring *p*, and adjustable stop-screw *q*, all arranged to operate together, substantially in the manner and for the purpose hereinbefore described.

190,399

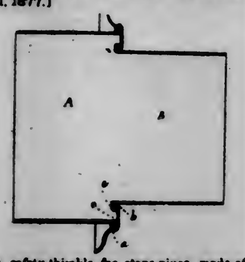


190,400. BURGLAR-PROOF SAFES. Arthur T. Woodward, New York, N. Y. [Filed Oct. 26, 1876.]



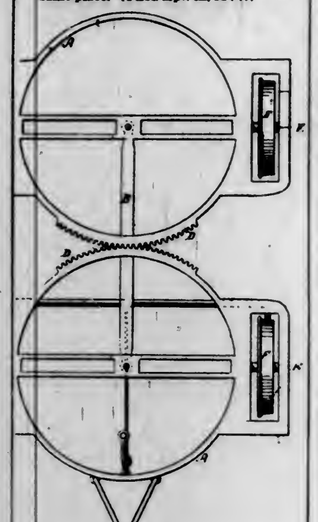
A cylindrical safe upon vertical pivots, in combination with a burglar-proof casemate and base, surrounding the safe and fitting the same closely, the gearing for revolving the safe, and the bolts *l* in the base for holding the safe, substantially as set forth.

190,401. STOVE-PIPE SAFE-THIMBLES. A. F. Wright, Cleveland, Ohio. [Filed Jan. 31, 1877.]



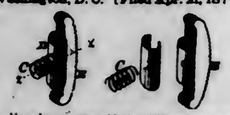
A safety-thimble for stove-pipes, made of sheet metal, and consisting of two sections of pipe, A B, of unequal diameters, in combination with a ring, C, to which said sections are connected by lap-joints or seams *a* and *b*, as herein described, and for the purpose specified.

190,402. STREET-CARS. Geo. S. Clements, Indianapolis, Ind., assignor of two-thirds of his right to S. I. Lovett and E. S. Field, same place. [Filed Apr. 21, 1877.]



The circular frames A A, provided with the toothed bars D D, in combination with the coupling B, wings C C, short axles E, and wheels F, all constructed to operate substantially as and for the purpose set forth.

190,403. EYEGLASSES. S. Oppenheimer, Washington, D. C. [Filed Apr. 21, 1877.]



1. Eyeglasses provided with nose-clamps, which are each connected with the glass-frame by means of a spiral spring, substantially as and for the purpose specified.

2. A rubber nose-clamp for eyeglasses, having one of its sides adapted to bear upon or against the nose, and its opposite side formed with an enlargement or rib, which is fitted to be embraced by a metal clasp or back, substantially as and for the purpose shown.

3. The combination of the glass-frames A, springs C, clasps D, and nose-pads E, substantially as and for the purpose set forth.

REISSUES.

7,644. FURNACES FOR HEATING STEEL IN TEMPERING. John B. Armstrong, Guelph, Ontario, Canada. Patent No. 170,430, dated Nov. 30, 1875. [Filed Feb. 26, 1877.]

Brief.—The retort may be of fire-clay, fire-brick, or of cast or wrought iron. The flues are formed by flanges which are a part of the retort.

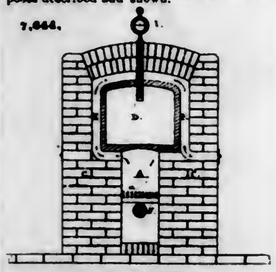
1. In a furnace for heating steel in tempering, the retort D, formed at intervals around its entire length with partitions F, to form narrow passages or flues E, said flues being arranged to open alternately, first on one side and then on the other, so that they take the draft from and deliver it at alternate sides of the furnace, thus equalizing the distribution of the heat over the whole surface of the retort, substantially as described.

2. The blast-pipe F, consisting of the inner pipe F^1, perforated with the spirally-arranged holes *f'*, in combination with the outer pipe F^2, perforated with the holes *f*, arranged and operating substantially as described, and for the purpose specified.

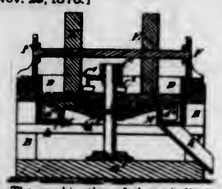
3. The doors H, consisting of the frames H^1, constructed to leave a margin of brick-work between the inner edge of the furnace and retort openings, and the iron door H^2, fitted in with fire-brick *h*, arranged and operating substantially as described, and for the purpose specified.

4. The combination and arrangement, in a furnace for heating steel in tempering, of furnace A C, retort D, constructed with alternate opening and discharging flues E E', blast-pipe F^1 F^2, and doors H H^1 H^2, composed of iron and fire-brick, all constructed and adapted to operate substantially as and for the purpose described and shown.

7,644.



7,645. CLAY AND ORE CRUSHERS. T. Clifford and J. Clifford, Pittsburg, Pa. Patent No. 151,276, dated May 26, 1874. [Filed Nov. 29, 1876.]



1. The combination of the spindle having its bearings below the cross-shaft, the revolving pan, and independent rollers E, loosely mounted on a cross-shaft supported above the spindle and pan by sliding boxes, substantially as set forth.

2. The revolving pan D, provided with perforated plates outside the track of the roller E, in combination with the scrapers C' and C², stationary circular trough H H^3, and wings d^3, fixed to the bottom of pan D, substantially as and for the purpose specified.

7,646. MANUFACTURE OF GAITERS, BOOTS, AND SHOES. P. Fischer, New York, N. Y., assignor of one-half interest to H. Lange, Jr. Patent No. 179,779, dated July 7, 1876. [Filed Apr. 28, 1877.]



As an improved article of manufacture, a gaiter, boot, or shoe the quarter, the vamp, the leg, and the button-piece of which are made out of one piece, said button-piece being formed from that portion of the material opposite the vamp, so that the finished gaiter, boot, or shoe has but a single seam situated on the opposite side to that occupied by the button-piece, as shown and described.

7,647. METALLIC CARTRIDGES. S. Glover and B. L. Budd, Fairfield, Conn., assignees of S. E. Allen, executrix of E. Allen, deceased. Patent No. 47,668, dated May 16, 1865. [Filed Apr. 23, 1877.]

7,647.



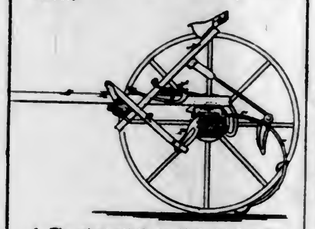
1. A cartridge-shell the base of which is provided with an opening to receive a cap, and with a powder-tube extending inwardly from the anvil toward the center of the explosive charge, whereby the fire is first communicated to the powder in the tube, and is then radiated from the center of the charge, substantially as described.

2. A cartridge-shell having a grooved or roughened inner surface, adapted to bite into the edges of and hold the wad against chance displacement, substantially as described.

3. In a cartridge-shell, the base B, grooved to form an anvil for the cap, and having powder-tube *b* prolonged toward the interior of the explosive charge, substantially as described.

4. A cartridge-shell composed of the cylindrical case A and the base B, provided with three flanges, *a*, *b*, and *c*, substantially as described.

7,648. HORSE HAY-RAKES. H. H. Hathaway, Clockville, N.Y. Patent No. 181,337, dated Aug. 22, 1876. [Filed Feb. 20, 1877.]



1. The rake-teeth C, provided with S-shaped bends at the rear side of the axle B, substantially as herein shown and described.

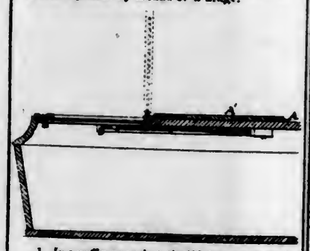
2. The rake teeth C, having their lower ends bent downward, forward, and upward to form runners to slide upon the ground, substantially as herein shown and described.

3. A flexible rake-tooth loosely attached to axle and having bends that support it against axle in heavy work, but drop in gleaning or other light work, as set forth.

4. The downwardly-projecting axle-arm F, slotted and combined with bars Q R and cross-bar d^3, as and for the purpose set forth.

7,649. COFFINS. F. H. Hill, Chicago, Ill. Patent No. 83,964, dated Nov. 10, 1868. [Filed Jan. 5, 1877.]

Brief.—A glass face-plate slides beneath the lid when open, or may be drawn forward and turned upward by means of a hinge.



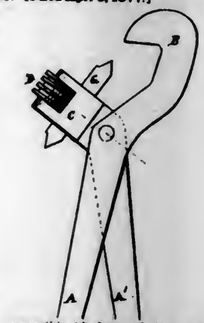
1. In a coffin or casket, the lid A, constructed so as to lie in substantially the same horizontal plane, in combination with an independent face-glass, loosely fitted in the lid, so as to slide back to open the coffin, and a supplementary cover, A', arranged immediately above the lid, and adapted to be moved over the face-glass and permanently close the casket, substantially as described.

2. The coffin-lid A, in combination with a movable face-glass, supported in the opening in the lid, the two parts being constructed and arranged so that the glass may be depressed and moved back beneath the lid, substantially as described.

3. The coffin-lid A, in combination with a face glass hinged to the lid, whereby the face-glass may be swung up and down to open and close the coffin, substantially as described.

4. The coffin-lid A, in combination with a hinged reciprocating face-glass, which may be either slid back or swung upward on its hinges to open the coffin, substantially as described.

7,650. PIPE-TONGS. A. E. Jarecki, Erie, Pa. Patent No. 138,161, dated Apr. 22, 1873. [Filed Apr. 6, 1877.]



1. A reversible bit inserted in a slotted head made at the extremity of one of the handles of pipe-tongs, for the purpose set forth.

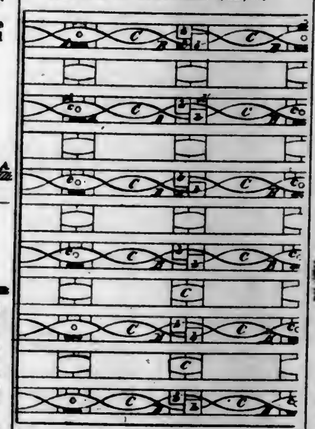
2. The head C on one of the handles, having a slot or mortise extending through the same, in combination with a detachable and reversible bit inserted in the slot, and in combination with a hook, B, on the other handle, substantially as and for the purposes herein set forth.

3. The combination, in pipe-tongs, of a forked head on one of the handles, a reversible and detachable bit movable through a mortise in such head, and a device in the forked head for operating the bit, for the purposes set forth.

4. The bit G, pointed and sharpened on both ends, serrated on one face, and operated by the worm wheel D, as and for the purposes herein set forth.

5. The combination of the handles A A', hook B, forked and mortised head C, worm-wheel D, and reversible and serrated bit G, all constructed and arranged substantially as and for the purposes herein set forth.

7,651. METALLIC LATHING. J. W. Kennett, Troy, N. Y. Patent No. 181,861, dated Sept. 5, 1876. [Filed Mar. 7, 1877.]



1. A twisted or spiral lath.

2. A twisted or spiral lath of tin or sheet metal.

3. The combination of a twisted or spiral lath with a surface to receive plaster.

4. The combination of a corrugated surface with one or more laths arranged longitudinally in the corrugations.

5. The combination of a twisted or spiral metallic lath, C, with the depressions B and clamp or chair fastenings *b b*, as and for the purpose described.

6. The combination of a twisted or spiral metallic lath, C, with a corrugated metallic holder for the plaster, substantially as described.

7,652. CANDLE-HOLDERS. Chas. Kirchhof, Newark, N. J. Patent No. 72,506, dated Dec. 24, 1867; reissue No. 6,605, dated Dec. 14, 1875. [Filed Mar. 8, 1877.]



As an improved article of manufacture, the candle-holder *c*, in combination with the hook *a b* and rod *d*, arranged to connect with a suitable weight, *f*, in the manner and for the purposes substantially as described.

7,653. INJECTORS OR EJECTORS FOR STEAM-ENGINES. Geo. H. Little, Peabody, Mass. Patent No. 163,876, dated June 1, 1875. [Filed Dec. 16, 1876.]

1. The combination of a central main steam-tube, C, having a central discharging-bore, constructed substantially as shown, and lateral outlets with a nozzle, D, receiving its steam only from such outlets, substantially as and for the purpose set forth.

2. The combination, in an injector, of the steam-tube C, the nozzle D, the nut *n*, and channel *z*, these tubes being adjustable together or independently of each other, and

adapted to be locked to position by such single nut relatively to the channel *x*, substantially as and for the purpose set forth.

3. The combination of an inlet, G, steam-nozzle D, inner steam-tube C, constructed substantially as shown, the nut *n*, channel *x*, chamber H, and an outlet, I, substantially as and for the purposes set forth.

4. The described construction, consisting of the main steam-tube C, having the small outlet *k*, and the openings into the outer tube D, and through which it is supplied with steam, in combination with such outer tube, the one tube being adjustable relatively to the other, as set forth, and whereby, when the tubes are seated together, the letting on of steam will draft water without moving any of the parts, and the unseating of these tubes from each other will force the drafted water into the boiler.

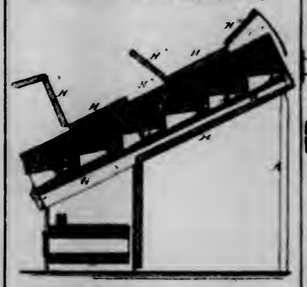
5. The main and central steam-tube C, provided with side steam outlets, and with the small orifice *k* in its end, adapting it for drafting water when seated, in combination with nozzle D, and adapted, when unseated, to permit the steam passing through the orifice to assist the steam in nozzle D to force the water into the boiler.

6. The combination of the longitudinally-adjustable nozzle D, and the central and longitudinally-adjustable steam-tube C, provided with small outlet *k*, and lateral outlets for supplying steam to nozzle D, whereby the admission of both water and steam may be regulated.

7. The combination, with the inner steam-tube C, adapted to supply steam to the outer or surrounding tube or nozzle D, of said nozzle D, and a lever-handle, L, connected to, and serving to slide, one of these tubes telescopically relatively to the other.

8. In combination, the inner steam-tube C, the outer tube D, the regulating nut or nuts, the overflow cock, having a full-sized opening, the overflow-chamber, and the outlet I, these parts being arranged and operating substantially as shown and described.

7,654. FRUIT-DRIERS. B. L. Ryder, Chambersburg, Pa. Patent No. 133,060, dated Nov. 12, 1872. [Filed June 23, 1876.]



1. In a fruit-drier, the combination of an upper and a lower inclined hot-air chamber or flue and a series of perforated trays, constituting the partition between the two inclined flues, substantially as set forth.

2. In a drier, the combination of an upper and a lower inclined hot-air chamber or flue and a series of perforated trays, each tray forming a short vertical flue leading from the lower to the upper inclined flue, substantially as specified.

3. In a drier, the combination of a lower and an upper inclined hot-air chamber or flue, the lower communicating with the upper by passages formed in each of a series of trays, which separate the two inclined flues, the whole adapted to convey heated air through the contents of the trays, and then discharge it directly into a flue connecting with the open air.

4. The construction and arrangement of the series of trays and isolated flues A B D E F, in combination with the inclined box H, said flues and trays being placed between the air-supply passage G and the escape-passage G', substantially as described.

5. The inclined box or flue H, divided or separated by the trays and flues A B D E F into a lower air-supply passage and an upper escape passage, substantially as set forth.

6. In a drier, a series of sliding trays, in combination with the inclined box or flue, H, substantially as and for the purposes set forth.

7. The inclined chamber or box H, in combination with the perforated fruit trays or screens and a stove or hot-air-supply chamber or passage, substantially as specified.

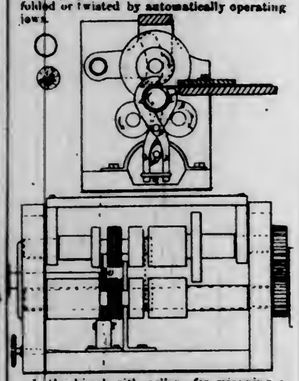
8. The tray B for drying fruit, constructed with beveled ends *a' b*, close sides and ends, and slat bottom *c c c*, substantially as and for the purpose described.

9. A series of flues, formed substantially in the manner described, for dividing the general supply-current of hot air, thus directing each smaller current to a separate parcel of fruit upon a perforated tray or screen, substantially as set forth.

10. A series of trays arranged in contact on an inclined slide or slides, and adapted to be moved, one after the other, over the same track, the lowest tray pushing the others before it, substantially as set forth.

7,655. MACHINE FOR PATCHING BULLETS. S. W. Wood, Cornwall, N. Y. Patent No. 136,362, dated Feb. 26, 1873. [Filed Oct. 4, 1875.]

Brief.—The bullets are placed between revolving cylinders, by which they are rotated. They are moistened, to cause the patch to adhere, by means of a disk or wheel, which rotates in the moistening substance, and supplies the latter to one of the revolving cylinders, by which it is imparted to the bullet. The patch is fed through a curved guide, and, after being rolled upon the bullet, that part which projects over the base of the bullet is folded or twisted by automatically operating jaws.



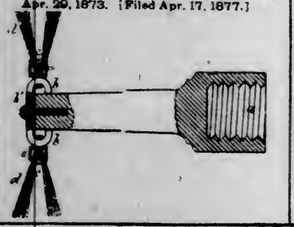
1. Combined with rollers for wrapping a patch around a bullet, substantially in the manner herein set forth, folding jaws for automatically folding, gathering, or closing the patch over or around the end of the bullet, in the manner described.

2. A guide, in combination with a series of rollers, for directing the patch around the bullet, constructed and arranged substantially as herein described.

3. The process herein described of patching bullets, consisting in rolling strips of paper upon the bullets, and afterward dampening or moistening the same and allowing them to shrink upon the bullets, as described and set forth.

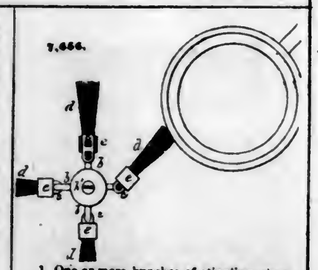
4. In a machine for patching bullets, one or more revolving cylinders or surfaces for giving rotation to the bullets while the patches are being wound upon the same.

7,656. PROCESSES AND APPARATUS FOR STIPPLING METALLIC SURFACES. Riobd. Dimes, New York, N.Y., assignor to Tiffany & Co., same place. Patent No. 128,290, dated June 25, 1872; reissue No. 5,378, dated Apr. 29, 1873. [Filed Apr. 17, 1877.]



The process of stippling satin or pearl finishing by the impingement upon the surface required to be finished, without interference with each other, of the points of a number of fine wires, substantially as described.

7,656.



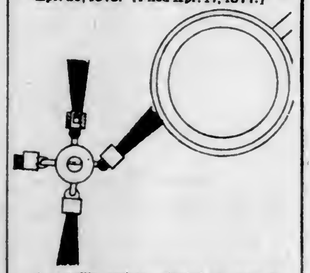
1. One or more bunches of stippling-wires, loosely connected to a revolving chuck or mandrel, substantially as described.

2. The combination of one or more bunches of stippling-wires with links loosely connecting said bunches to loops on the chuck or mandrel, substantially as described.

3. The combination of the link *c*, cap *e*, and stippling-wires *d*, substantially as described.

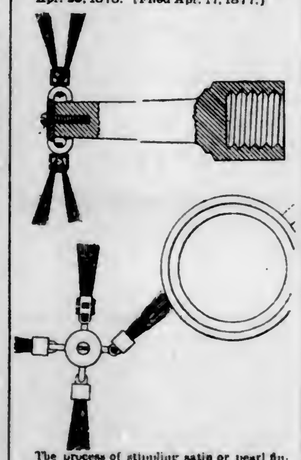
4. The chuck-head *b'*, carrying the loops *b*, substantially as described

7,657. PROCESSES AND APPARATUS FOR STIPPLING METALLIC SURFACES. Riobd. Dimes, New York, N.Y., assignor to Tiffany & Co., same place. Patent No. 128,290, dated June 25, 1872; reissue No. 5,378, dated Apr. 29, 1873. [Filed Apr. 17, 1877.]



A metallic surface, stippled or satin-finished, substantially as described.

7,658. PROCESSES AND APPARATUS FOR STIPPLING METALLIC SURFACES. Riobd. Dimes, New York, N.Y., assignor to Tiffany & Co., same place. Patent No. 128,290, dated June 25, 1872; reissue No. 5,378, dated Apr. 29, 1873. [Filed Apr. 17, 1877.]



The process of stippling satin or pearl finishing by the impingement upon the surface required to be finished, without interference with each other, of the points of a number of fine wires, substantially as described.

THE NATIONAL LITHOGRAPHING COMPANY, WASHINGTON, D. C.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 67.—No. 6. TUESDAY, MAY 8, 1894. PRICE—$5 per year.

CONTENTS.

	Page.
OFFICIAL GAZETTE	681
ATTORNEYS	681
CHANGES IN CLASSIFICATION	681
INDEXES TO PERIODICALS	682
ISSUE OF MAY 8, 1894	682
APPLICATIONS UNDER EXAMINATION	682
PATENTS GRANTED	683
REISSUES	None.
DESIGNS	804
TRADE-MARKS	807
PRINTS	None.
LABELS	None.
COMMISSIONER'S DECISIONS— Ex parte Silvers	811
DECISIONS OF THE U. S. COURTS— Morgan *v.* Daniels	811
L. Durand, Huguenin & Co., *v.* Green, Schulze-Berge & Koechl	814

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $10; single copies, 10 cents, if mailed to foreign countries 10 cents additional for postage; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., April 20, 1894.

SIR: The Secretary of the Interior has ordered that F. H. Barker, of Kansas City, Kans., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

JOSEPHUS DANIELS,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., April 20, 1894.

SIR: The Secretary of the Interior has ordered that Christian Quien, of Danbury, Conn., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

JOSEPHUS DANIELS,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., April 23, 1894.

SIR: The Secretary of the Interior has ordered that W. M. Bushfield, of Cambridge, Ohio, be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

JOSEPHUS DANIELS,
Chief Clerk.

The Commissioner of Patents.

Changes in Classification.

(ORDER No. 998.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 2, 1894.

Class 128, Surgery, is hereby transferred from Division XX to Division VI.

Class 33, Drafting, is hereby transferred from Division XXX to Division XXIII.

The following sub-classes are established in Class 97, Plows, Division I:

Cultivators—	Colters—	Attachments—
41. Hand,	43 Rolling	44. Harrow.
42. Wheel.		

The sub-class 16, Plows, hand, is abolished in the same class.

Sub class 34, Wheel-fenders, under Track-cleaners, is abolished in Class 104, Railways, Division IV. In the same division sub-class 30, Shutters, fireproof, in Class 189, Iron Structures, is abolished, and sub class 9, Shutters, fireproof, is established in Class 183, Fireproof Buildings.

The following sub-classes are established in Division XVI:

178. Telegraphy—	Electric lighting—
Lightning-arresters—	Lights, arc—
Magnetic,	Gravity-feed,
Thermal.	Pivot-dog clutch,
176. Electric lighting—	Ring-clutch.
Lights, arc—	Positive feed—
Gravity-feed,	Electric-gear clutch,
Double-dog clutch,	Step gear clutch.

The following sub-classes are established in Division XXV:

166. Artesian and oil wells.
11. Earth-augers—
12. Bits,
13. With carrier.

In Division XXXI the sub-classes under Class 149, Hides, Skins, and Leather, are abolished and the following sub-classes established:

149. Hides, skins, and leather:	Apparatus—
Processes and compositions—	13. Tanners' tools,
1. Preserving,	14. Rotary cylinders,
2. Depilating,	15. Rotating tools,
3. Bating,	16. Helical tools,
4. Tanning,	17. Reciprocating tools—
5. Tawing,	18. Rocking frames,
6. Currying,	19. Endless belts,
7. Coloring and polishing.	20. Putting out and stretching—
8. Apparatus—	21. Stretching-frames,
9. Tanning,	22. Coloring and polishing,
10. Vats,	23. Rolling and embossing.
11. Tumbling-drums,	
12. Tables and frames.	

JOHN S. SEYMOUR,
Commissioner.

Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading room of the scientific library:

Engineering Review, London, a monthly synoptical index of periodical literature in the English, French, and German languages, including hydraulic, railway, mechanical, electrical, mining, metallurgical, marine, military, and gas engineering.

Electrical Engineering, Chicago, a monthly synoptical index of electrical literature.

Electrical World, New York, a weekly digest of electrical articles.

Journal of the Association of Engineering Societies, Chicago, a monthly synoptical index of civil-engineering literature, mostly American.

Engineering Magazine, New York, a monthly title-index of engineering articles in the English language only.

Issue of May 8, 1894.

Patents	380—No. 519,311 to No.	519,690, inclusive.
Designs	10—No. 23,249 to No.	23,258, inclusive.
Trade-Marks	48—No. 24,653 to No.	24,700, inclusive.
Labels	None.	
Prints	None.	
Reissues	None.	
Total issue	438	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	.....	Nevada	.....	.....
Arizona Territory	1	.....	New Hampshire	1	.....
Arkansas	.....	.....	New Jersey	14	.....
California	10	.....	New Mexico Territ'y	.....	.....
Colorado	4	.....	New York	71	8
Connecticut	9	3	North Carolina	2	.....
Delaware	.....	.....	North Dakota	1	.....
District of Columbia	4	.....	Ohio	24	4
Florida	1	.....	Oklahoma Territory	.....	.....
Georgia	5	.....	Oregon	.....	.....
Idaho	.....	.....	Pennsylvania	35	11
Illinois	27	7	Rhode Island	4	.....
Indiana	12	.....	South Carolina	1	.....
Indian Territory	.....	.....	South Dakota	1	.....
Iowa	5	.....	Tennessee	2	.....
Kansas	1	.....	Texas	6	.....
Kentucky	5	.....	Utah Territory	1	.....
Louisiana	2	1	Vermont	2	.....
Maine	.....	.....	Virginia	4	.....
Maryland	7	2	Washington	2	1
Massachusetts	31	5	West Virginia	1	.....
Michigan	14	.....	Wisconsin	9	3
Minnesota	4	.....	U. S. Army	.....	.....
Mississippi	.....	.....	U. S. Navy	.....	.....
Missouri	24	.....			
Montana	2	.....	Total to citizens of the United States	351	45
Nebraska	1	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	.....	.....	Netherlands	.....	.....
Austria-Hungary	1	.....	Newfoundland	.....	.....
Belgium	.....	.....	New South Wales	.....	.....
Bermuda	.....	.....	New Zealand	.....	.....
Brazil	.....	.....	Norway	.....	.....
Canada	2	.....	Queensland	.....	.....
Cape Colony	.....	.....	Russia	1	.....
Colombia	.....	.....	Scotland	.....	.....
Cuba	.....	.....	Servia	.....	.....
Denmark	.....	.....	South Australia	.....	.....
Ecuador	.....	.....	Spain	.....	.....
England	13	2	Sweden	.....	.....
France	5	1	Switzerland	2	.....
Germany	15	.....	Tasmania	.....	.....
Hawaii	.....	.....	West Australia	.....	.....
Ireland	.....	.....			
Italy	.....	.....	Total to citizens of foreign countries	39	3
Mexico	.....	.....			

APPLICATIONS UNDER EXAMINATION.

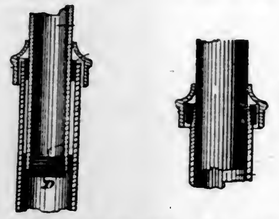
Condition at Close of Business May 1, 1894.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
32	Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	Apr. 2	Apr. 28	96
31	Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Apr. 9	Apr. 25	80
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Apr. 2	Apr. 23	106
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Apr. 2	Apr. 23	118
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Apr. 2	Apr. 21	142
2	Farm Stock, Products, etc	Apr. 2	Apr. 18	106
	Between one and two months.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Mar. 2	Apr. 28	247
7	Harvesters, Games and Toys, and Velocipedes.	Mar. 31	Apr. 23	204
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Mar. 24	Apr. 23	160
22	Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Mar. 6	Apr. 23	178
6	Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Mar. 5	Apr. 21	141
1	Tillage and Fences	Mar. 2	Apr. 21	242
8	Furniture, Toilet, Umbrellas and Canes, etc.	Mar. 7	Apr. 20	278
18	Steam-Engineering, etc	Mar. 6	Apr. 20	225
3	Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Mar. 5	Apr. 20	148
19	Stoves and Furnaces	Mar. 15	Apr. 18	205
4	Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Mar. 8	Apr. 18	253
12	Mechanical Engineering, Store-Service, etc.	Mar. 12	Apr. 17	199
21	Textiles, etc.	Mar. 2	Apr. 17	157
10	Carriages and Wagons	Mar. 2	Apr. 17	261
17	Paper-Manufactures and Printing	Mar. 19	Apr. 16	166
26	Electricity, Generation, Distribution, Electric Railways, etc.	Mar. 6	Mar. 31	201
34	Railway-Cars and Fluid-Pressure Railway-Brakes.	Mar. 2	Mar. 1	262
	Between two and three months.			
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Feb. 1	Apr. 26	218
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Feb. 23	Apr. 23	337
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Feb. 24	Apr. 13	246
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Feb. 10	Mar. 24	283
	Between three and four months.			
23	Instruments of Precision, Acoustics, Optics, etc.	Jan. 31	Apr. 21	308
9	Hydraulics, Fire-Extinguishers, etc.	Jan. 18	Apr. 17	533
24	Sewing-Machines, Crinoline and Corsets, and Apparel.	Jan. 15	Apr. 17	213
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Jan. 12	Apr. 10	455
13	Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, etc.	Jan. 2	Apr. 9	206
30	Lamps, Gas-Fittings, Linotyping, Matrix-Making Machines, and Type-Writing Machines.	Jan. 31	Mar. 20	299
	Total number of applications awaiting action			7,363
	Under one month in arrears.			
	Designs	Apr. 23	Apr. 23	57
	Trade-Marks	Apr. 26	Apr. 28	30

PATENTS

GRANTED MAY 8, 1894.

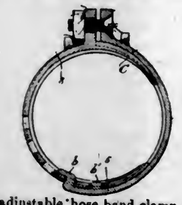
519,311. TUBULAR METALLIC POST. WILLIAM ANDREW and CHARLES ANDREW, Cincinnati, Ohio. Filed June 26, 1893. Serial No. 478,866. (No model.)



Claim.—1. A metallic post embodying sections of tubing telescoped one within the other, one of said tubes being screw-threaded and longitudinally slitted at its end, and forced and held against the other tube by a correspondingly screw threaded conical plug or ring engaging the threads at the end of the slitted tube, substantially as set forth.

2. A tubular metallic post embodying in combination, an outer tube: an inner tube, interiorly threaded and longitudinally slit at its lower end; and a conical screw-threaded-plug, screwed into the lower end of the inner section, thereby expanding the same against the outer tube, substantially as set forth.

519,312. ADJUSTABLE HOSE-COUPLING BAND. EVAN R. ARTHUR, Portage, Wis. Filed Apr. 26, 1892. Serial No. 430,804. (No model.)



Claim.—1. An adjustable hose band clamp made in two parts, which are interlocking, one part being provided with lugs and the other with a series of openings adapted to engage with said lugs, substantially as set forth.

2. The combination of an adjustable hose band made in two adjustably interlocking parts, one of said parts being provided with an underlapping tongue of the width and form of the band, and a screw for securing the band upon hose, substantially as and for the purposes set forth.

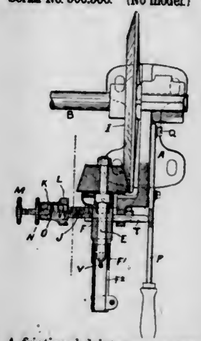
3. An adjustable hose band consisting of two adjustably interlocking parts provided with lugs or ears for drawing them together and securing them upon hose, substantially as and for the purposes set forth.

4. An adjustable hose band consisting of two adjustably interlocking parts each formed with an internal longitudinal groove or recess and the underlapping part being formed with an external longitudinal rib or projection constructed to fit into the internal groove or recess in the overlapping part, substantially as and for the purposes set forth.

5. A hose band made in two separable parts, one part being formed at one end with an underlapping tongue of the full width of the overlapping part of the band and having an external longitudinal rib or projection, and the other overlapping part being formed with an internal longitudinal groove or recess to receive said rib or projection, substantially as and for the purposes set forth.

6. A hose band provided at one end with an underlapping tongue of the full width of the overlapping part of the band and formed on the outside with a longitudinal rib or projection, the opposite overlapping end of the band being formed on the inside with a longitudinal groove or recess to receive said rib or projection, and ears or lugs for drawing and holding the ends of the band together, substantially as and for the purposes set forth.

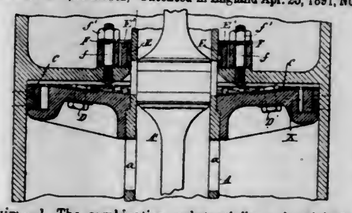
519,313. DRIVING MECHANISM. PHILIP ASHBERRY and WALTER BARNES, Sheffield, England. Filed Feb. 10, 1893. Renewed Feb 17, 1894. Serial No. 500,580. (No model.)



Claim.—1. A frictional driving mechanism, for clippers and the like, consisting of a bracket A, friction wheel I, adjustable sliding carriage F, friction cone D and its spindle E, pressure spring J and adjusting screw M, hand lever P with inclined face S, rod T attached to carriage F, and shaft-supporting socket F' attached to the cover of the cone-spindle, substantially as hereinbefore described and as shown.

2. In a frictional driving mechanism, the combination with the friction cone and its spindle of a sliding carriage carrying the same and provided with a projecting rod, an adjustable spring forcing said carriage in one direction, and a lever with an inclined face acting against said rod to force the carriage in the opposite direction, substantially as hereinbefore described.

519,314. METALLIC PACKING. WILLIAM D. BALDWIN, Washington, D. C., administrator of Peter William Willans, deceased, assignor to Edith Ellen Willans, London, England. Filed June 6, 1893. Serial No. 476,979. (No model.) Patented in England Apr. 25, 1891, No. 7,189.

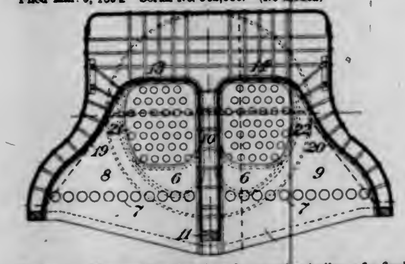


Claim.—1. The combination, substantially as hereinbefore set forth, of a piston having a groove or recess in its periphery, a series of spring rings mounted in the groove or recess and adapted to press against the working surface of the cylinder, a spring plate secured directly to the piston and having a yielding spring edge overlapping the groove or recess in the piston and bearing upon the rings, said

overlapping edge having perforations to admit steam into the recess behind the rings.

2. The combination, substantially as herein before set forth, of the piston head having an annular groove or recess in its periphery, the separate overlapping spring rings mounted in the recess and by their own elasticity pressing against the sides of the cylinder, the spring disk or plate secured directly to the piston head and having an outer edge overlapping the recess and bearing directly on the rings, said overlapping edge having perforations communicating with the space in the recess in rear of the rings, the organization being such that the spring plate is exposed to steam pressure to supplement its elasticity in bearing upon the rings to hold them in place, and the steam pressure admitted through the perforations of the plate supplements the elasticity of the rings to cause them to pack the joint.

519,315. LOCOMOTIVE-BOILER. DAVID L. BARNES, Chicago, Ill. Filed Mar. 9, 1894. Serial No. 502,989. (No model.)



Claim.—1. The combination, in a locomotive boiler, of a firebox which is extended laterally to a greater width at base than at top, a longitudinal water wall forming the inner sides of two separate furnaces in said firebox and having the top of its water space in communication with the space above the crown sheets of both of said furnaces, a combustion chamber located within the waist of the boiler at its rear end, and a transverse water wall extending across the lower portion of the combustion chamber at its rear end and communicating with the water space below the combustion chamber and with the longitudinal water wall, substantially as set forth.

2. The combination, in a locomotive boiler, of a laterally extended firebox, a combustion chamber located within the waist of the boiler at its rear end, a transverse water wall extending across the lower portion of the combustion chamber and communicating at bottom with the water space below the same, a transverse water connection extending across the front of the firebox and communicating at top with the waist of the boiler, said water connection being downwardly inclined from the sides of the firebox to its center, and a longitudinal water wall forming two separate furnaces in the fire box, and downwardly inclined from the rear thereof to the transverse water wall and water connection, substantially as set forth.

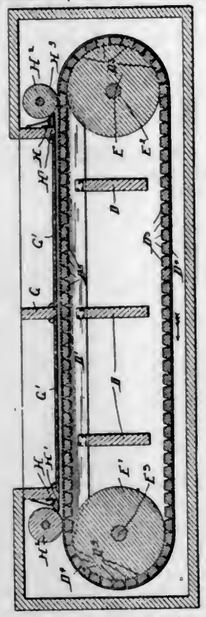
3. The combination, in a locomotive boiler, of a laterally extended firebox, a combustion chamber located within the waist of the boiler at its rear end, a transverse water wall sheet having forwardly extending flanges at its top, sides, and bottom and riveted, through said flanges, to the adjacent sheets of the combustion chamber, and also having rearwardly extending flanges on its top, sides and at a level above its bottom, a longitudinal water wall forming two separate furnaces in the firebox, and communicating with the rear water space thereof, front furnace sheets, each having forwardly extending flanges riveted to the rearward flanges of the transverse water wall sheet, and rearwardly extending flanges, riveted to the side sheets of the longitudinal water wall, and furnace crown and side sheets riveted to rearwardly extending flanges on the front furnace sheets, substantially as set forth.

519,316. CONCENTRATING-MACHINE. IRVING BESLY, Leadville, Colo. Filed Jan. 4, 1890. Serial No. 336,944. (No model.)

Claim.—1. In an ore concentrator the combination of a case for containing water with rollers, and a belt which passes through the same and is inclined to the surface of the water therein, and a plate parallel with and adjacent to such belt, the space between such plate and belt opening within the box at the surface of the water and opening out of the box at a considerable distance below the line of the surface of the water.

2. In an ore concentrator the combination of a case for containing water with rollers, and a belt which passes through the same and is inclined to the surface of the water therein, and a plate parallel with and adjacent to such belt, the space between such plate and belt opening within the box at the surface of the water and opening out of the box at a considerable distance below the line of the surface of the water, and rollers parallel to such belt and adjacent to the plate so as to form a chute between the belt and surface for the escape of the water from the box.

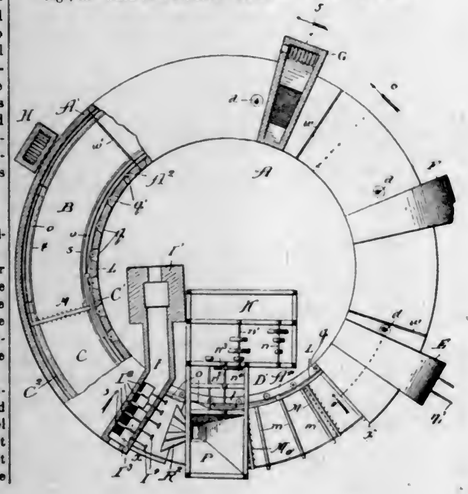
3. In an ore concentrator the combination of a case for containing water with rollers, and a belt which passes through the same and is inclined to the surface of the water therein, and a plate parallel



with and adjacent to such belt, the space between such plate and belt opening within the box at the surface of the water and opening out of the box at a considerable distance below the line of the surface of the water, and rollers parallel to such belt and adjacent to the plate so as to form a chute between the belt and surface for the escape of the water from the box and a hinged strap across the lower end of such plate whereby the flow of water can be regulated.

4. In an ore concentrator the combination of an inclined surface of concentration with means for carrying a current of water thereover and an adjustable outlet for such water whereby the rapidity of flow may be regulated independent of the inclination of such surface.

519,317. ORE-ROASTING FURNACE. HORACE F. BROWN, Chicago, Ill. Filed June 24, 1893. Serial No. 478,695. (No model.)



Claim.—1. In combination with a curved ore roasting furnace, a longitudinally slotted wall at the side of the roasting chamber, an endless cable mounted upon a series of guide-wheels located at intervals throughout the length of the furnace adjacent to the slotted wall, power mechanism for moving the cable, a traveling carrier adjacent to the cable, connecting means between the carrier and the cable, and an arm projecting from the carrier through the slot of the wall over the hearth and carrying stirrers, substantially as described.

2. In combination with a curved ore-roasting furnace, a longitudinally slotted wall at the side of the roasting chamber, an endless cable mounted upon a series of guide wheels located at intervals throughout the length of the furnace adjacent to the slotted wall, power mechanism for moving the cable, a traveling carrier adjacent to the cable, automatic mechanism upon the carrier for gripping and releasing the cable at predetermined points in the course of the carrier, and an arm projecting from the carrier through the slot of the wall over the hearth and carrying stirrers, substantially as described.

3. In an ore-roasting furnace, the combination with the roasting chamber, chambers C' C^2 on opposite sides thereof, a heat generating fire box communicating therewith, and means for stirring and advancing the ore along the roasting chamber, comprising carriers running in the chambers C' C^2, a stirrer arm mounted upon the carriers and extending across the roasting chambers, stirrer blades on the stirrer arm, and means for moving the carriers of an opening d in the top of the roasting chamber adjacent to the generating fire box and provided with a door, substantially as and for the purpose set forth.

4. In combination with a curved ore-roasting furnace a longitudinally slotted wall at each side of the roasting chamber, an endless cable mounted upon a series of guide-wheels located at intervals throughout the length of the furnace adjacent to one of the slotted walls, power mechanism for moving the cable, a traveling carrier adjacent to the cable, connecting means between the carrier and cable, an arm projecting from the carrier through the slots in both walls, stirrers upon the arm, and a traveling support at the free end of the arm, substantially as described.

5. In combination with a curved ore-roasting furnace having an open portion between the terminals of the roasting chamber, and a longitudinally slotted wall at the side of the roasting chamber, an endless cable mounted upon guide-wheels located at intervals around the entire circuit of the structure, power mechanism for moving the cable, traveling carriers on a track extending throughout the whole circuit of the structure adjacent to the cable, an arm extending from the carrier through the slotted wall over the hearth and carrying stirrers, and automatic mechanism upon the carriers for gripping the cable at the entrance end of the roasting chamber, and releasing it at the exit end thereof, substantially as described.

6. In combination with a curved ore roasting furnace having an open portion between the terminals of the roasting chamber, and a longitudinally slotted wall at each side of the roasting chamber, a track adjacent to the outer side of each slotted wall and extending throughout the whole circuit of the structure including the open portion, traveling carriers upon one of the tracks, a stirrer arm extending from each carrier through both slotted walls and mounted at its free end upon a traveling support on the other track, an endless cable mounted upon guide-wheels located at intervals throughout the whole circuit of the structure, adjacent to the carrier track, power mechanism for moving the cable, and automatic means upon each carrier for gripping the cable at the entrance end of the roasting chamber and releasing it at the exit end thereof, substantially as described.

7. A curved ore roasting furnace having its masonry formed in sections which do not meet when the furnace is cool, substantially as and for the purpose set forth.

8. The combination with an ore-roasting furnace A having a slotted wall at the side of the roasting-chamber, an open portion between the terminals of the roasting-chamber and stops y y' at the open portion, an endless cable adjacent to the slotted wall, power mechanism for moving the cable, and traveling carriers having stirrer arms projecting into the roasting chamber through the slotted wall, of mechanism upon each carrier for gripping the cable at the entrance end of the roasting chamber and releasing it at the exit end thereof, comprising a stationary jaw, a rock-shaft provided with oppositely extending switch fingers to strike the stops on the furnace, a movable jaw and a link connection between the rock-shaft and movable jaw, substantially as described.

9. The combination with an ore-roasting furnace A having a slotted wall at the side of the roasting-chamber, open portion between the terminals of the roasting-chamber and stops y y' at the open portion, endless cable adjacent to the slotted wall, power mechanism for moving the cable and traveling carriers having stirrer arms projecting into the roasting chamber through the slotted wall, of mechanism upon each carrier for gripping the cable at the entrance end of the roasting chamber and releasing it at the exit end thereof, comprising jaws K i', a switch finger connected with the jaws and operating by contact with the stop y' to close the jaws, a switch finger connected with the jaws and operating by contact with the stop y to open the jaws, an automatic locking mechanism for the jaws when closed arranged to be released by engagement with a stop just before the switch finger strikes the stop y, substantially as described.

10. The combination with the traveling carrier, of a stirrer arm comprising a bar g, fixed to the carrier, and a bar f^3, carrying a series of oblique stirrer blades, and clamping means for fastening the bar f^3 removably against the bar g, whereby the series of stirrer blades upon a stirrer arm may be simultaneously and quickly attached and detached, substantially as and for the purpose set forth.

11. The combination with the traveling carrier, of a stirrer arm comprising a bar g fixed to the carrier, a shield secured around three sides of the said bar and separated therefrom by an air space, and a bar carrying stirrer-blades and detachably connected to the face of the bar g, substantially as described.

12. The combination with the traveling carrier, of a stirrer arm comprising a bar g fixed to the carrier, a shield secured around three sides of the said bar and separated therefrom by an air-space, and a bar carrying stirrer blades detachably connected to the bar g, out of contact therewith, whereby an air-space intervenes between them, substantially as described.

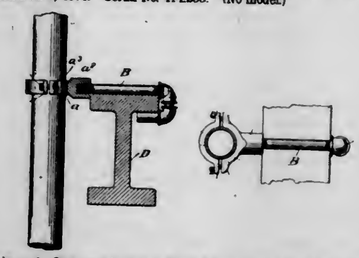
13. The combination with the traveling carrier, of a stirrer arm comprising a bar g fixed to the carrier, clips g' upon the bar, a bar f^3 carrying stirrer blades and keys passing through the clips for detachably connecting the bar f^3 to the bar g, substantially as described

14. In combination with an ore-roasting furnace having stirrers moving throughout the length of the hearth, a feed device for the ore arranged to be operated by the movement of the stirrers to discharge ore upon the hearth, substantially as described.

15. In combination with an ore-roasting furnace, intermittent feed mechanism for discharging ore upon the hearth comprising a counterbalanced upsetting platform, to receive the ore, a revoluble wheel having pockets receiving the ore from an ore supply and discharging it upon the platform, and means for stopping the wheel when the platform is upset by the weight of the ore deposited thereon, substantially as described.

16. In combination with an ore-roasting furnace, intermittent feed-mechanism for discharging ore upon the hearth, comprising an upsetting platform to receive the ore provided with an adjustable counterbalance, a revoluble wheel having pockets receiving the ore from an ore-supply and discharging it upon the platform, and means for stopping the wheel when the platform is upset by the weight of the ore deposited thereon, substantially as described.

519,318. PIPE-HANGER. ALEXANDER BRYANT, New York, N. Y. Filed Dec. 7, 1891. Serial No. 414,233. (No model.)



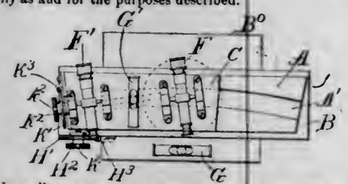
Claim.—1. In a pipe hanger adapted to be secured to a support, a ring comprising two members; the said members being secured together by bolts inclining toward each other and arranged tangentially with respect to the opening of the ring, and means for securing the ring to the support, substantially as and for the purpose described.

2. A pipe hanger adapted to be secured to a beam or girder comprising a hook engaging one side of the girder, a ring engaging the pipe and having a screw-threaded socket the face of which abuts against the side of the beam opposite the hook, and a tie-rod having oppositely arranged screw-threaded ends engaging with one of its ends the screw-threaded portion of the hook and with the opposite end the socket of the ring, for securing them rigidly to the beam, substantially as described.

519,319. DISTANCE-MEASURING INSTRUMENT. JEFFERSON L. BUFORD, Birmingham, Ala. Filed June 23, 1893. Serial No. 478,624. (No model.)

Claim.—1. In a distance measuring instrument, the combination of two telescopes or sighting instruments arranged with their axes in parallel vertical planes, and means for moving one of said telescopes along the circumference of an arc of known diameter, substantially as and for the purposes described.

2. In a distance measuring instrument, the combination of two telescopes or sighting instruments arranged with their axes in parallel vertical planes, an arc of known diameter perpendicular to the axis of one of said sighting instruments, means for moving said telescopes along said arc, and means for measuring the distance so moved, substantially as and for the purposes described.



3. In a distance measuring instrument, the combination of two telescopes or sighting instruments arranged with their axes in parallel vertical planes, a sliding plate supporting said sighting instruments and provided with an arc-shaped tongue, a guide plate provided with an arc-shaped groove perpendicular to the axis of one of said sighting instruments, and adapted to receive said tongue, and means for moving said sliding plate along said groove, substantially as and for the purposes described.

4. In a distance measuring instrument, the combination of two telescopes or sighting instruments arranged with their axes in parallel vertical planes, a sliding plate supporting said sighting instruments and provided with an arc-shaped tongue, a guide plate provided with an arc-shaped groove perpendicular to the axis of one of said sighting instruments, and adapted to receive said tongue, and a tangent screw adapted to move said arc sliding plate along said arc-shaped groove, and means for measuring the distance the said sliding plate has been moved tangentially, substantially as and for the purposes described.

5. In a distance measuring instrument, the combination of two telescopes or sighting instruments arranged with their axes in parallel vertical planes, a sliding plate supporting said sighting instruments and provided with an arc-shaped tongue, a pivoted guide plate provided with an arc-shaped groove perpendicular to the axis of one of said sighting instruments and adapted to receive said tongue; means for turning said guide plate about its pivot; and means for moving said sliding plate along said groove, substantially as and for the purposes described.

6. In a distance measuring instrument, the combination of two telescopes or sighting instruments arranged with their axes in parallel vertical planes, a sliding plate supporting said sighting instruments and provided with an arc-shaped tongue, a pivoted guide plate provided with an arc-shaped groove perpendicular to the axis of one of said sighting instruments and adapted to receive said tongue; a screw and thumb wheel for turning said guide plate about its pivot; and means for measuring the number of revolutions and fractions thereof that said screw is turned; a tangent screw adapted to move said sliding plate along said arc-shaped groove, and means for measuring the distance the said sliding plate has been moved tangentially, substantially as and for the purposes described.

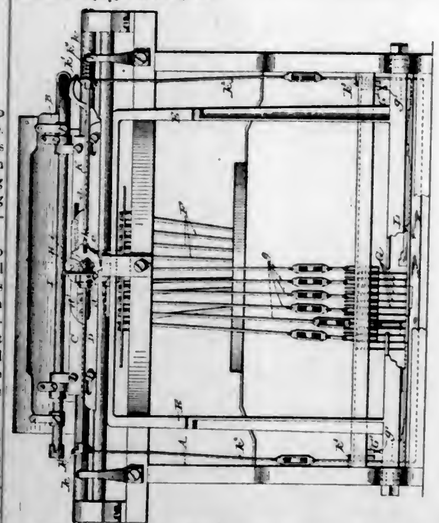
7. In a distance measuring instrument, the combination with the guide plate A provided with the arc-shaped groove A' and a suitable support for said plate; of the sliding plate C provided with tongue C' registering with said groove, the telescopes F and F' mounted on said sliding plate C and having their axes in parallel vertical planes, the axis of the telescope F' being in a vertical plane passing through the center of said arc; and the screw K for moving said sliding plate along said arc, substantially as and for the purposes described.

8. In a distance measuring instrument, the combination with the pivoted guide plate A provided with the arc-shaped groove A' and a suitable support for said plate, of the sliding plate C provided with tongue C' registering with said groove, the telescopes F and F' mounted on said sliding plate C and having their axes in parallel vertical planes; the axis of the telescope F' being in a vertical plane passing through the center of said arc; the screw H for moving said guide plate about its pivot, and the screw K for moving said sliding plate along said arc, substantially as and for the purposes described.

519,320. TYPE-WRITING MACHINE. WILLIAM CLARK, Greenfield, Wis. Filed Apr. 16, 1892. Serial No. 429,426. (No model.)

Claim.—1. In a type writing machine the combination with the fixed and slip racks of the paper carriage and the letter space dog, of a stop comprising a stationary and a movable member arranged to limit the movement of one rack upon the other, a rock shaft arranged to be turned more or less by the depression of the key levers and a rocking arm mounted upon and movable endwise of said rock shaft and connected with or constituting the movable member of said stop, substantially as and for the purposes set forth.

2. In a typewriting machine the combination with the fixed and slip racks of the paper carriage and the letter space dog, of a rock shaft adjacent to and parallel with said racks, a bar located underneath, adjacent, and crosswise to the key levers and connected by rods with arms mounted on said rock shaft, and a variable stop comprising two members, one of which has a constant sliding connection with said rock shaft and a connection with one of said racks whereby it is caused to advance simultaneously therewith, the other member being connected and movable with the other rack, substantially as and for the purposes set forth.



3. In a typewriting machine the combination with the fixed and slip racks of the paper carriage and the letter space dog, of a variable stop comprising a graduated member mounted upon and movable with the slip rack and adapted to engage with a projection constituting the other member which is attached to the fixed rack, so as to permit of a greater or less movement of the slip rack with reference to the fixed rack, and a rock shaft adjacent to and parallel with said racks having connections whereby the depression of the key levers of certain characters will turn it more or less, the graduated member of said stop having a constant sliding connection with said rock shaft whereby it is shifted by the depression of the key levers transversely to the movement of the slip rack, and a greater or less advance movement of the paper carriage is permitted, substantially as and for the purposes set forth.

4. In a typewriting machine the combination with the fixed and slip racks of the paper carriage and the letter space dog, of a stop wheel revolubly mounted upon and movable with the slip rack and having a series of notches of varying depth which are arranged to be turned opposite a projection on the fixed rack so as to variably limit the movement of the slip rack thereon, and a rock shaft with which said stop wheel has a sliding connection adjacent to and parallel with said racks.

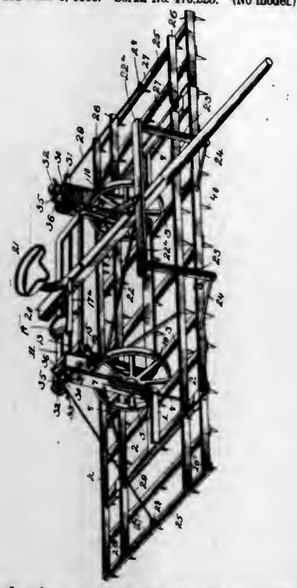
5. In a typewriting machine, the combination with the fixed and slip racks of the paper carriage, the letter space dog and the key levers, of a graduated bar placed underneath said key levers and having its greater projections adjacent to the key levers of characters of greater width, a rock shaft adjacent to and parallel with said racks, and having one or more rocking arms connected with said graduated bar, and a stop for variably limiting the movement of said slip rack upon the fixed rack, having a constant sliding connection with said rock shaft and a connection with one of said racks whereby it is caused to advance therewith, substantially as and for the purposes set forth.

6. In a typewriting machine, the combination with the fixed and slip racks of the paper carriage and the letter space dog, of a stop wheel mounted upon the slip rack and having a series of notches or steps in its periphery which are adapted to engage with a projection on the fixed rack and limit the advance movement of the slip rack thereon at different points, a rock shaft adjacent to and parallel with said racks having connections by which it is turned more or less by the depression of the key levers of characters of different widths, and a gear having a sliding connection with said rock shaft and connected with the movable rack so as to be advanced therewith in engagement with a pinion on the stop wheel, substantially as and for the purposes set forth.

7. In a typewriting machine, the combination with the fixed and slip racks and the letter space dog, of a stop wheel having graduated notches or steps mounted upon the slip rack and adapted to engage with a projection on the fixed rack and limit the advance of the slip rack thereon at different points, a rock shaft connected with a graduated bar located adjacent to and underneath the key levers, a gear engaging with a pinion on the stop wheel and mounted upon and having a sliding connection with said rock shaft, and an arm fixed to said movable rack and engaging with an annular groove in the hub of said gear, substantially as and for the purposes set forth.

8. In a typewriting machine, the combination with the fixed and slip racks of the paper carriage and the letter space dog, of a rock shaft adjacent to and parallel with said racks, operated by the key levers, and a stop wheel adapted to variably limit the movement of the slip rack upon the fixed rack, and having a constant sliding connection with said rock shaft, substantially as and for the purposes set forth.

519,321. RIDING-HARROW. WILLIAM F. COCHRAN, Osborne, Kans. Filed June 1, 1893. Serial No. 476,225. (No model.)



Claim.—1. In a harrow of the class described, the combination with the main harrow section having openings at each side of its center, the opposite U-shaped standards, slotted and bridging said openings, and the arched axle arranged between the standards and having lower cranked bearings extending through the slots and carrying ground-wheels, of a frame supported by the axle, bearings in the frame, a rock-shaft supported in the bearings and provided therebeyond with rock-arms, loose connections between said rock-arms and the standards, a hand-lever for operating the rock-shaft, and means for locking the same, substantially as specified.

2. In a harrow of the class described, the combination with the main harrow section having the openings at each side of its center, the transverse harrow bar spanning the section from end to end and arched above the openings and provided with slots, the arched axle having cranked bearings extending through the slots of the arches and provided with ground-wheels, of the frame supported by the axle and provided with opposite bearings, the rock-shaft journaled in the bearings and beyond the same provided with rock-arms, brackets extending from the inner sides of the standards, loose links connecting the brackets with the extremities of the rock-arms, a hand-lever mounted upon the shaft, a toothed segmental locking standard supported by the frame and axle and spanning the shaft, and a pawl arranged upon the hand-lever for engaging the teeth of the standard, substantially as specified.

3. In a harrow of the class described, the combination with the main harrow section having openings at each side of its center, inverted U-shaped standards arranged over the same and provided with slots, an arched axle having cranked bearings passing through the slots, ground-wheels arranged upon the bearings, means for raising and lowering said main frame, of opposite supplemental frames hinged to the opposite ends or sides of the main frame, eyes located in the free ends of said supplemental frames, drums carrying crank shafts journaled in bearings at the upper ends of the standards, cables between the same and the eyes, ratchet-wheels arranged upon said drum shafts, and U-shaped pawls arranged in bearings on the standards one branch of each pawl being bent to form a handle, substantially as specified.

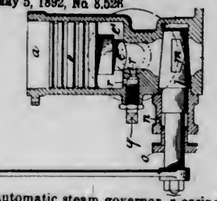
4. In a harrow of the class described, the combination with the harrow-bar L-shaped in cross-section, provided at intervals with pairs of perforations in its vertical flange and below and between the same and in the horizontal flange with an opening, of a tooth loosely arranged in the opening and having a rounded convexed head located between the perforations a clip-block binding the convexed head against the vertical portion or flange of the L-shaped harrow-bar and having a curved lug at one end engaging one of the perforations and at its opposite end provided with a perforation aligning with the remaining perforation of the harrow bar, a bolt passed through said perforations and provided with a nut, said clip-block having an intermediate beveled recess for receiving the upper end and binding upon the head of the harrow-tooth, substantially as specified.

5. In a harrow of the class described, the combination with the harrow-bar L-shaped in cross section, provided in the horizontal flange with an opening, of a tooth arranged loosely in the opening and having an enlarged rounded head, a clip-block having an intermediate beveled recess for receiving the upper end and binding the head of the harrow-tooth against the vertical flange of the L-shaped harrow-bar, and means for securing the clip-block to the vertical flange of the harrow bar, substantially as specified.

6. In a harrow of the class described, the main harrow section having the opposite arches or U-shaped standards, the sides of which are slotted, the wheels received within the arches or standards, the arched axle having its lower cranked ends passing through the slots and carrying the wheels, and mechanism for raising or lowering the axle and thereby raising or lowering the wheels, substantially as specified.

7. In a harrow of the class described, the main harrow section having the opposite arches or U-shaped standards, the sides of which are slotted, the wheels received within the arches or standards, the arched axle having its lower cranked ends passing through the slots and carrying the wheels, mechanism for raising or lowering the axle and thereby raising or lowering the wheels, the side harrow sections, and drums carried by the arches or standards and provided with ropes connecting with the side harrow sections, substantially as specified.

519,322. AUTOMATIC GOVERNOR. WILLIAM COOKE, Orton England. Filed July 11, 1893. Serial No. 480,190. (No model.) Patented in England May 5, 1892, No. 8,526.



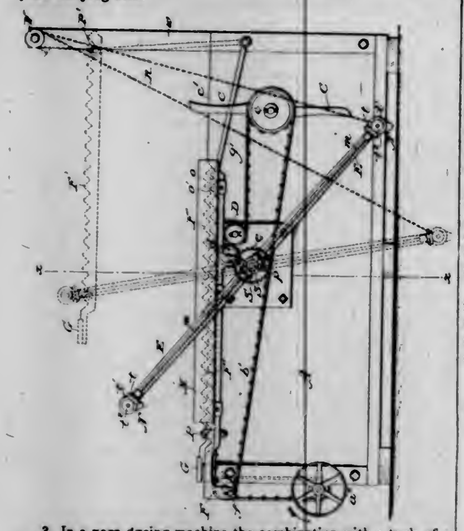
Claim.—1. In an automatic steam governor, a casing having inlet and discharge ports and a valve seat between the same, a spring pressed valve having faces of different areas, with one of said faces fitting the valve seat, and a by pass connecting the inlet with the outlet and valve chamber for permitting the passage of steam to the pump or winch to keep it normally working when no load is on and to create back pressure on the valve when the load is on in order to open said valve automatically, substantially as described.

2. In combination, the casting having a cylindrical portion, and inlet and discharge openings, a cylinder valve within said cylindrical portion having an annular steam face, and a contracted valve closing the inlet port, a by pass admitting steam from the inlet port against said annular steam face, a metallic cover closing the upper end of the cylindrical portion, a screw passing through the same carrying a block *h*, a spring extending between the block and valve, and a cap upon the cover covering the upper end of the screw, substantially as described.

519,323. DYEING-MACHINE. GEORGE H. CRAVEN, Philadelphia, Pa., assignor to James S. Craven, same place. Filed Jan. 23, 1893. Serial No. 459,388. (No model.)

Claim.—1. The combination in a yarn dyeing machine, of the tank, the yarn carrying bars, means for moving said bars from end to end of the tank, and arms pivoted on the opposite sides of said tank adapted to carry the bars from one end of the tank to the other.

2. In a yarn dyeing machine the combination of the tank the yarn carrying bars, means for moving the same along the edge of the tank, and pivoted arms adapted to carry the yarn carrying bars from one end of the tank to the other with sockets at the outer ends of said arms said sockets having pockets for the reception of the yarn carrying bars.



3. In a yarn dyeing machine the combination with a tank of a carrier operating to give the yarn an intermittent forward motion through the tank and means for returning the yarn to the rear of the tank.

4. A yarn dyeing machine having in combination a tank, yarn carrying bars, a carrier for moving the yarn carrying bars forward along the edge of the tank means for returning the yarn carrying bars to the rear of the tank and means adapted to push the yarn carrying bars into the carrier.

5. In a yarn dyeing tank the combination of the tank, yarn carrying bars, two sets of devices arranged to act consecutively for removing the yarn carrying bars forward along the edge of the tank each set giving the yarn carrying bars a different speed and means for returning the bars to the rear of the tank.

6. In a yarn dyeing machine the combination with a tank of yarn carrying bars, means for advancing the yarn carrying bars along the edge of the tank, pivoted arms for returning the yarn carrying bars to their first position and means for rotating the yarn carrying bars.

7. A yarn dyeing machine having in combination a tank, yarn carrying bars, moving racks for giving the yarn carrying bars an intermittent forward motion along the edge of the tank and pivoted bars for returning the yarn carrying bars to the rear of the tank.

8. A yarn dyeing machine having in combination a tank, yarn carrying bars, two sets of devices for advancing the yarn carrying bars along the edge of the tank each set giving the bars a different speed means for returning the yarn carrying bars to the rear of the tank and means for rotating the yarn carrying bars.

9. In a yarn dyeing machine the combination of a tank, yarn carrying bars two sets of devices for advancing the yarn carrying bars along the edge of the tank, one set giving the yarn bars a uniform and the other an intermittent forward motion, with means for returning the yarn bars to the rear of the tank.

10. In a yarn dyeing machine the combination of a tank yarn carrying bars, and several sets of devices for advancing the yarn carrying bars along the edge of the tank each set giving the yarn bars a different rate of speed, and means for returning the yarn carrying bars to the rear of the tank.

11. In a yarn dyeing machine the combination with a tank of a carrier operating to advance yarn carrying bars along the edge of the tank and pivoted arms having sockets in the outer end thereof for engaging with the yarn carrying bars and operating to return the yarn carrying bars to the rear of the tank.

12. A yarn dyeing machine having in combination a tank yarn carrying bars, means for advancing the yarn carrying bars along the edge of the tank, pivoted arms with rotating sockets for rotating the yarn bars, and returning them to the rear end of the tank.

13. In a yarn dyeing machine the combination of the tank the yarn carrying bars devices for moving the same along the edge of the tank, pivoted arms adapted to return the yarn carrying bars from one end of the tank to the other with sockets at the outer end of said arms said sockets having pockets for the reception of the ends of the yarn carrying bars.

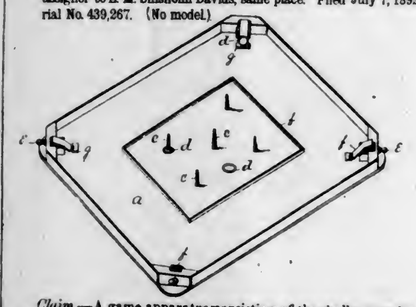
14. The combination in a yarn dyeing machine of the tank the yarn carrying bars, devices for conveying these bars along the edge of the tank, arms on the opposite sides of the tank, sockets N on the outer ends of said arms, pockets in the sockets N for the reception of the yarn carrying bars and devices for operating upon said sockets.

15. In a dyeing machine the combination with a tank, a frame normally supported on said tank, yarn and yarn carrying bars supported on said frame and mechanism for moving the yarn carrying bars along the tank, of means adapted to connect the frame to a moving part of the said mechanism whereby the frame and the yarn carrying bars carried thereby may be raised from the edge of the tank when so connected.

16. In a yarn dyeing machine the combination with a tank, a frame adapted to rest on said tank and support yarn carrying bars, of means as pins P for securing the frame to one end of the arm E and a connection as the band R for securing the other end of the frame to the other end of the arm E, whereby as the arm E is rotated the frame will be lifted from the edge of the tank.

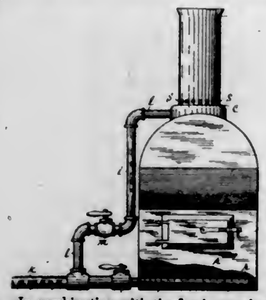
17. In a yarn dyeing machine the combination with a tank, a frame adapted to rest on said tank and support yarn carrying bars, of means for securing both ends of the frame to a moving part of the machine as the arm E whereby as the moving part of the machine is operated the frame and the yarn bars carried thereby will be raised.

519,324. GAME-BOARD. JOHN B. DAVIDS, Dartmouth, Mass., assignor to E. M. Chisholm Davids, same place. Filed July 7, 1892. Serial No. 439,267. (No model.)



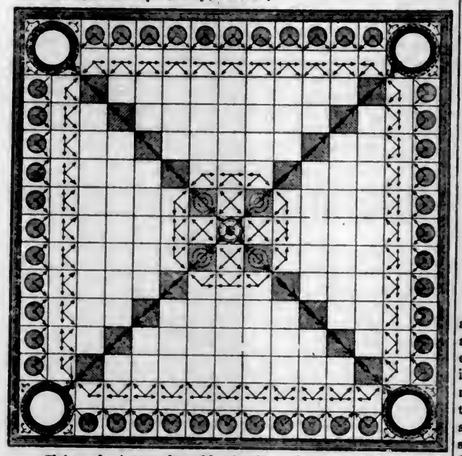
Claim.—A game apparatus consisting of the shallow quadrangular tray *a*, having its upper surface divided into two fields, by a raised edge *b*, and having its inner field provided with the pins or stakes *c*; and having the corners of said tray provided with pivoted levers *f*, adapted to be actuated by a spring impelled plunger, or the finger; and metallic rings, adapted to be cast by the levers *f*, within the central field and encircle the pins *c*, all as shown and described.

519,325. METHOD OF PROMOTING COMBUSTION IN FURNACES. JOHN B. DAVIDS, Dartmouth, Mass., assignor to E. M. Chisholm Davids, same place. Filed Apr. 29, 1893. Serial No. 472,391. (No model.)



Claim.—In combination with the fire-box and smoke stack of a steam boiler, the pipe *k*, leading from an air reservoir containing air under pressure, and having openings *q*, opening into the fire room adapted to be closed by a slide *r*, and having the branch *o*, provided with the valve *n*, and perforations *p*, extending into the fire box under the fire; and having the branch *l*, provided with the valve *m*, extending into the chamber *c*, surrounding the base of the smoke stack; whereby the blast of air through said pipe, may be directed wholly below the fire, or wholly into the smoke stack, or wholly into the fire room, or divided between said points, or shut off from any or all of said points, as and for the purpose specified.

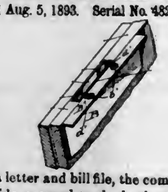
519,326. GAME OR AMUSEMENT. JOHN B. DAVIDS, Dartmouth, Mass., assignor to E. M. Chisholm Davids, same place. Filed Apr. 29, 1893. Serial No. 472,392. (No model.)



Claim.—1. A game board having its surface marked into an odd number of squares, so that one of said squares shall occupy the center of the series, and having the central square distinctively marked; and having the four squares cornering on the said central square distinctively marked; and having the sixteen squares bordering on said central and four cornering squares, distinctively marked; and having the four rows of squares leading from said cornering squares to the corners of the board, distinctively marked; and having the four corner squares of the board distinctively marked; and having the two outer rows of squares on the edges of the board distinctively marked from each other and from the other squares; in combination with pieces of distinctive color or shape, to successively occupy said central square; and battling pieces, having their opposite sides distinctively marked.

2. A game board, having its surface marked into a series of squares or spaces having one of said spaces occupying the center of said series, and distinctively marked; in combination with pieces of distinctive color or shape from the battling pieces, to successively occupy said central space, exclusively, as described.

519,327. LETTER OR BILL FILE. GEORGE H. DIETZ, Louisville, Ky. Filed Aug. 5, 1893. Serial No. 482,438. (No model.)

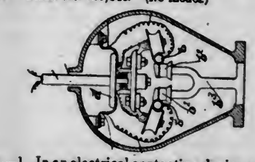


Claim.—1. In a letter and bill file, the combination with an index leaf holder, and a slide, secured to the back of said leaf holder, and provided with sides extending at an angle with its back and with wings extending from said sides at an angle therewith, of the filing box, and a plate secured to the back thereof and provided with sides extending at an angle with its back and with holding flanges extending from the ends of said sides at an angle therewith, said plate being adapted to be engaged by said slide, substantially as shown and described.

2. In a letter and bill file, the index leaf holder, and a slide, secured to the back thereof and having its ends held away from said holder, said slide having its sides extending at an angle with its back and having wings extending from said sides at an angle therewith, in combination with the filing box, and a plate, secured to the back of said box and provided with sides extending at an angle with its back and with holding flanges extending from the ends of said sides at an angle therewith, said plate being adapted to be engaged by said slide substantially as shown and described.

3. The herein-described letter and bill file, consisting of the filing box; a plate secured therein, said plate having sides extending at an angle with its back and holding flanges, extending from said sides at an angle therewith, reinforcing and strengthening strips, secured to the back of the box and engaging at their opposite ends the ends of said box and the sides of said plate; the index leaf holder; and a slide, secured to the back thereof and having its ends held out of contact therewith, said slide having sides extending at an angle with its back and wings extending from said sides at an angle therewith, said slide engaging said plate, substantially as shown and described.

519,328. CONTACTING DEVICE FOR ELECTRIC RAILWAYS. DAVID F. GRAHAM, Springfield, Ohio, and WILLIAM P. ALLEN, Chicago, Ill., assignors of one-third to Oliver S. Kelly, Springfield, Ill. Filed Oct. 25, 1893. Serial No. 489,140. (No model.)



Claim.—1. In an electrical contacting device, a supporting standard, main and auxiliary contacting devices connected to said standard, a main conductor and auxiliary conductors adapted to form an electrical connection with the respective contacting devices, said auxiliary contacting device being supported on said standard so as to move positively therewith when said standard is turned on its longitudinal axis, and said main contacting device being pivoted to said auxiliary device so as to move independently of said standard when said standard is moved on its longitudinal axis, substantially as specified.

2. In an electric railway, a conduit having branched connections, as described, an electrical conductor or conductors leading from opposite sides of said branched connections but intercepted at points to permit the passing of a contacting device from one branch to another, and a moving frame adapted to contact with said main conductors, said frame being provided with a pivoted shuttle, and auxiliary connecting plates arranged within said conduit and connected electrically to said conductors and adapted to establish an electrical connection with said shuttle at the point where the continuity of said main conductors is broken, substantially as specified.

3. In an electrical contacting device, a vertical standard, a shuttle connected thereto, and contacting plates secured to said shuttle but insulated therefrom, a pivoted frame below said shuttle, and hinged trolley wheels on said frame insulated therefrom, and electrical connections from said trolley wheels through said standard, and a branched connection from said trolley wheels to said auxiliary plates, main conductors adapted to contact with said trolley wheels, and auxiliary conductors adapted to contact with the opposite sides of said shuttle at points where the continuity of the main conductors is broken, substantially as specified.

4. The combination with the insulated electrical conductors, of a carrying frame supported on a central standard, contacting devices insulated from said carrying frame and adapted to contact with the respective conductors, and a shuttle also carried on said standard and having on opposite sides contacting devices insulated therefrom, and an electrical connection from said trolley wheels to the contacting devices on said shuttle, and auxiliary contacting plates adapted to contact with opposite sides of said shuttle at points where the continuity of said main conductors is broken, and a connection from said conductors to said auxiliary plates, substantially as specified.

5. The combination with the shuttle, the supporting standard, the frame pivoted to said shuttle and having the interposed springs which permit a yielding movement of said frame, and insulated bearings extending laterally from said frame, and the pivoted bars journaled in said bearings, and trolley wheels on said bars, and an electrical connection from said trolley wheels through said standard, substantially as specified.

6. The combination with the pivoted supporting frame having the yielding connection, as described, of the hinged bars on opposite sides of said frame, and the curved trolley wheels on said bars, electrical conductors adapted to contact with said bars, said conductors being arranged below and between the respective connections with said bars, whereby a downward pressure on said frame causes said wheels to impinge against said conductors, substantially as specified.

7. A contacting device for electrical railways, a branched conduit having intercepted electrical conductors, as described, a main contacting device adapted to establish a connection from said conduc-

tors to a moving vehicle, and auxiliary contacting devices arranged on each side of said conduit at the branched portions thereof, and a shuttle arranged above and pivotally connected to said main contacting device, said shuttle being adapted to form an electrical connection with said auxiliary contacting devices during the time that said main contacting device is out of circuit with said main conductor, substantially as specified.

8. The combination with the supporting standard, the shuttle thereon, a projecting stud on said shuttle, a frame journaled on said stud, engaging projections on said frame and shuttle respectively, and interposed springs between said projections, hinged bars on said frame, and trolley wheels on said bars, and main and auxiliary conductors adapted to successively contact with said trolley wheels and said shuttle, substantially as specified.

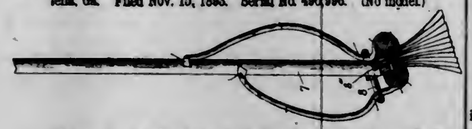
9. The combination with the conductors, of the hinged rods or bars carrying the grooved wheels, a hollow standard supporting said bars, and insulated conductors extending from said hinged bars through said standard, substantially as specified.

10. In an electrical contacting device, the combination with the main trolley wheels, of an auxiliary plate or shuttle and a supporting standard, said shuttle being hinged to said standard, substantially as specified.

11. The combination with the supporting standard, of a hinged shuttle on the bottom thereof, a pivoted frame on said shuttle, and contacting devices on the shuttle and frame respectively, substantially as and for the purpose specified.

12. In an electrical contacting device, a central standard, a hinged shuttle connected thereto, and a pivoted frame connected to said shuttle, contacting devices on said frame and shuttle respectively, and an electrical connection between the respective contacting devices, substantially as and for the purpose specified.

519,329. MOP OR BRUSH HOLDER. ALFORD D. GRANGER, Molena, Ga. Filed Nov. 15, 1893. Serial No. 490,996. (No model.)

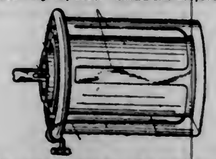


Claim.—1. An attachment or holder designed to be applied exteriorly to a mop or similar implement, and consisting of the opposite outwardly curved resilient arms terminating at their lower ends in gripping plates for engaging the opposite sides of a mop head and having their upper ends enlarged to receive a mop handle, whereby the arms are spread to cause the gripping plates to clamp the mop head, and means for connecting the arms above the gripping plates whereby the arms are fulcrumed, substantially as described.

2. An attachment or holder designed to be applied exteriorly to a mop or similar implement, and consisting of the opposite outwardly curved resilient arms terminating at their lower ends in gripping plates for clamping the head of a mop and provided above the gripping plates with inward bends forming seats, the upper ends of said arms being shaped to receive and engage a mop handle, whereby the gripping plates are caused to clamp the head of a mop, and a link adapted to encircle a mop handle and arranged in the seats formed by said bends, whereby the arms are connected and fulcrumed, substantially as described.

3. The combination with the mop-head, the opposite curved arms, one of which is longer than the other, both of said arms terminating at their lower ends in clamping-plates, above the same provided with bends and at their upper extremities bifurcated and having their branches curved and adapted to embrace the handle, the link arranged in the bends, the handle interposed between the arms and terminating below the link, and a stop in the lower end of the handle below the link, substantially as specified.

519,330. GALVANIC BATTERY. CARL W. A. HERTEL, Berlin, Germany. Filed July 14, 1893. Serial No. 480,461. (No model.)



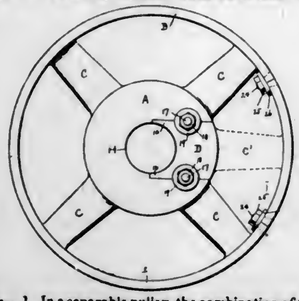
Claim.—1. In a galvanic battery, the combination of the vessel A the outer carbon cylinder B having the copper bottom and the copper terminals *a* embedded in a depolarizing compound in the vessel A the second carbon cylinder C closed at the bottom and electrically connected with the copper bottom *b* and the zinc electrode D arranged within the inner cylinder C, substantially as described.

2. In combination, the vessel A, the carbon cylinder B arranged therein, the terminals connected therewith, the removable carbon cylinder C arranged within the cylinder B, and electrically in connection or contact therewith and the zinc electrode arranged within the inner cylinder, said inner cylinder having a closed bottom adapted to catch the electrolytic precipitates of the zinc and prevent them from settling upon the electrode B, substantially as described.

3. In combination, the vessel A, the carbon electrode, the porous carbon cylinder C, the zinc electrode within the same and a glass rod passing through the stem of the electrode and resting upon the top of the cylinder C, substantially as described.

4. In combination, the vessel, the carbon electrode therein, the zinc electrode consisting of the sheet of zinc wound spirally, the glass rods passing through the zinc electrode to hold the same in position and insulate it and the rubber rings on the glass rods, between the zinc windings, substantially as described.

519,331. SEPARABLE PULLEY. ALEXANDER C. HODGE, Menasha, Wis. Filed May 15, 1893. Serial No. 474,253. (No model.)



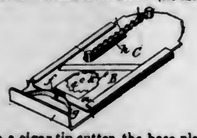
Claim.—1. In a separable pulley, the combination of the hub having partial transverse tapered holes as 13, and a removable section as D having the partial transversely tapered holes 11, pins as D', consisting of two tapered pins 15 and 16 adapted to fit into the partial holes 13 and 11 to hold the section D in place, and means for holding the pins, substantially as described.

2. In a separable pulley, the combination of a rim having partial conical holes 20 formed therein, and a removable section of rim having the partial conical holes 21 formed in the same, the pins E having two sections adapted to fit into the holes 20 and 21, and means for holding the pins securely in place, substantially as described.

3. A separable pulley having a portion of its rim removable, and having the partial conical holes 20 and 21 formed in the pulley rim and the removable portion respectively, the tapered pins E having a section adapted to fit into each of the holes 20 and 21, and an extending screw-threaded portion 24, the washer 26 placed upon this extending screw-threaded portion 24, and the nuts 25 threaded thereon, whereby the removable section will be held in place and the face of the pulley left flush, substantially as described.

4. A separable pulley consisting of the hub A, rim B and arm C, the hub A having a removable section D, the hub A and the removable section D having mating partial conical holes 13 and 11 on their joining edges, the double conical pins D' adapted to fit into these holes 13 and 11, a portion of the rim B also being removable, the removable portion of the rim and the rim of the pulley having the partial conical mating holes 20 and 21 and the double conical pins E fitting in these holes 20 and 21, and means for securing the pins D' and E in place, substantially as described.

519,332. CIGAR-TIP CUTTER. ALBERT A. HOPKINS, Brooklyn, assignor to himself, and Wilkinson De Forest Wright, New York, N. Y. Filed Nov. 11, 1893. Serial No. 490,657. (No model.)



Claim.—1. In a cigar tip cutter, the base plate A provided with an opening *e* and having serrations *d*, the apertured clamping plate B provided with serrations *d'*, the movable knife C arranged to slide along the face of the clamping plate, and means, substantially as described, for causing the serrated edges of the base plate and clamping plate to engage the cigar in advance of the knife C, as specified.

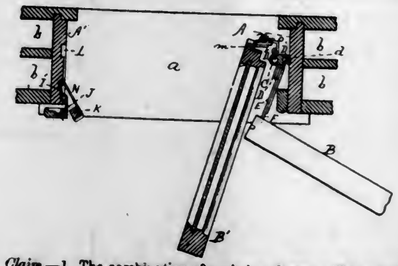
2. The combination in a cigar tip cutter, of an apertured base plate, a sliding knife, and two curved guides located upon the lower surface of the base plate and parallel with the knife, one of the guides being held in a fixed position at one side of the opening of the base plate, the other guide being adjustable and located at the other side of the opening of the base plate, the guides being adapted to regulate the length of the tip removed, by admitting to the cutter more or less of the tip according to the adjustment of the guides, as herein described.

3. The combination in a cigar tip cutter, of the base plate A, having the foot *b* at one end thereof and provided with guide grooves *a* and the opening *e*, a movable clamping plate B having an opening *e* therein, the knife C, the said plate and knife having their edges inserted in the guide grooves *a*, a fixed clamping jaw *d* formed on the base plate at one side of the opening therein, a movable clamping jaw *d'* formed on the clamping plate B and moving therewith, the jaws being arranged in the same plane parallel with the knife and on opposite sides of the opening in the base plate and the spring *l* connecting the knife C with the clamping plate B, whereby the clamping plate and knife are made to move together until the clamping plate strikes the cigar tip, when the yielding of the spring *l* allows the knife to sever the cigar tip, as herein specified.

4. The combination in a cigar tip cutter, of the base plate A, having the foot *b* at one end thereof and provided with guide grooves *a* and the opening *e*, a movable clamping plate B having an opening *e* therein, the knife C, the said plate and knife having their edges inserted in the guide grooves *a*, a fixed clamping jaw *d* formed on the base plate at one side of the opening therein, a movable clamping jaw *d'* formed on the clamping plate B and moving therewith, the jaws being arranged in the same plane parallel with the knife and on opposite sides of the opening in the base plate the retractile spring *g* for returning the clamping plate B to the point of starting, and the spring *l* connecting the knife C with the clamping plate B, whereby the clamping plate and knife are made to move together until the clamping plate strikes the cigar tip, when the yielding of the spring *l* allows the knife to sever the cigar tip, as herein specified.

5. The combination in a cigar tip cutter, of the base plate A, having the foot *b* at one end thereof and provided with guide grooves *a* and the opening *e*, a movable clamping plate B having an opening *e* therein, the knife C, the said plate and knife having their edges inserted in the guide grooves *a*, a fixed clamping jaw *d* formed on the base plate at one side of the opening therein, a movable clamping jaw *d'* formed on the clamping plate B and moving therewith, the jaws being arranged in the same plane parallel with the knife and on opposite sides of the opening in the base plate, the retractile spring *g* for returning the clamping plate B to the point of starting, the spring *l* connecting the knife C with the clamping plate B, the adjustable cigar tip gage, the casing F, and the movable guide G, as specified.

519,333. WINDOW FRAME AND SASH. MARGARET E. KNIGHT and ALBERT B. HARRINGTON, South Framingham, assignors to said Knight and John S. Lockwood, Boston, Mass. Filed May 12, 1893. Serial No. 473,919. (No model.)



Claim.—1. The combination of a window frame, a slide moving vertically therein, an expansible connection between the slide and the sash, and a sash hinged to said connection, said connection supporting the sash and capable of being expanded so that the entire sash may be swung entirely out of the frame against the building and describe a full half turn or rotation on its pivot, substantially as set forth.

2. The combination of the sash, the window frame, the slide moving vertically therein, and the lazy-tongs secured to said slide and to said sash, said sash being hinged to said lazy-tongs, whereby the sash may be swung entirely out of the frame and enabled to describe a half circle and fold back against the building, substantially as described.

3. The combination of a sash, as B, hinges on said sash, one of which is provided with an elongated pintle, the slides D D' moving vertically in suitable channels in the bead A, and the levers or lazy-tongs E pivotally secured to said slides and to the hinges on the sash, substantially as set forth.

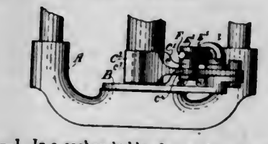
4. In combination, a window frame provided with casings for the weights and cords, a sash supported at one edge by a slide to which it is pivotally secured by an expansible connection, said sash being provided at its opposite edge with the recess *l*, the bracket *h'* extending horizontally from the sash into said recess, and the latch *h* pivotally suspended in said recess from said bracket, substantially as described.

5. The combination of the jamb A' of the window-frame, the stop-rail H, and the hinges consisting of leaves or plates I', secured to the jamb, the leaves or plates I secured to the stop-rail, and the connecting leaves J pivotally secured to the pintles on said leaves or plates I and I', substantially as set forth.

6. In a window frame provided with an upper sash swinging as well as sliding in said frame, a bead set between the sashes and consisting of the stationary portion K and the movable portion K', said portion K' resting normally within the groove L in the jamb and being rigidly secured to bars N which lie in horizontal grooves in the jamb next the edge of the lower sash and have their front edges pivotally secured to said jamb, substantially as set forth.

7. The combination of the jamb A' provided with the plate S perforated at S', and the latch T pivotally secured to said plate, and the stop-rail H hinged to said jamb and provided with the bolts or posts R notched at R', said bolts being adapted to enter said perforations, substantially as described.

519,334. CARBON-HOLDER FOR ARC LAMPS. ERWIN LAVENS, Brooklyn, assignor to Sigmund Bergman, New York, N. Y. Filed Sept. 30, 1893. Serial No. 486,925. (No model.)



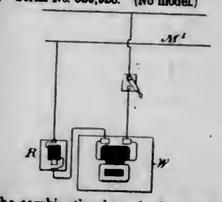
Claim.—1. In a carbon holder for an electric lamp the combination of a base piece or supporting piece, two arms, one pivotally connected to the other, and both being connected to the base piece or supporting piece, and means for oscillating the movable arm, substantially as specified.

2. In a carbon holder for an electric lamp the combination of a base piece or supporting piece, two arms, one pivotally connected to the other, and both being connected to the base piece or supporting piece, means for oscillating the movable arm, and a screw for adjusting the movable arm relatively to the other, substantially as specified.

3. The combination in a carbon holder for an electric lamp, of a base piece or supporting piece, two arms pivotally connected together, means for adjustably securing one of said arms to the base piece or supporting piece, and means for moving one of the arms relatively to the other, substantially as specified.

4. In a carbon holder for an electric lamp the combination of a base piece or supporting piece, two arms pivotally connected to each other and a cam or wedge movable between the said arms, so as to move one of them relatively to the other, substantially as specified.

519,335. REACTIVE COIL. HERMANN LEMP, Lynn, Mass., assignor to the Thomson Electric Welding Company, of Maine. Filed Nov. 21, 1889. Serial No. 329,928. (No model.)



Claim.—1. The combination in a single circuit, of a reactive or motive coil for alternating electric circuits, provided with means for changing its reactive effect without changing its winding or the continuity of its core, a sectional conductor, a switch apparatus, and connections from such sections whereby the connections of the terminals may be interchanged for the purpose of changing the said sections from multiple to series or series multiple.

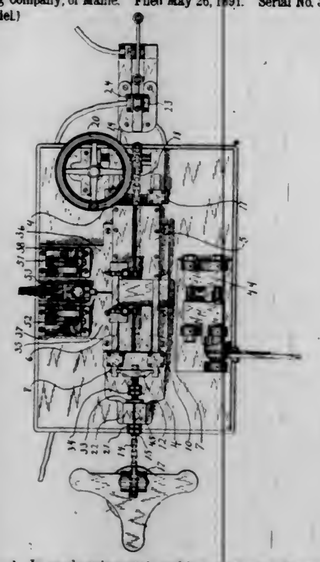
2. In an alternating current regulating or motive device consisting of two electric conductors movable in inductive relation to one another on a magnetic core, an electric switch apparatus having connections from its several plates or portions to the terminals of sections of one of such conductors whereby the conductivity and reaction of such sections may be changed without varying the amount of conductor producing or subject to inductive effects from the other.

3. In an alternating current regulating or motive device, the combination with a sectional conductor and a conductor or band on locally closed circuit, and adjustable in inductive relation to the first, of switch contacts, and connections to the terminals of the said sectional conductor for changing said sections from series to series-multiple or to multiple and vice versa.

4. The combination with a sectional coil placed in an alternating current circuit and surrounding an iron core, of a second closed band or coil whose inductive relation to the first is variable or adjustable, and switch contacts and connections to the terminals respectively of the said sectional coil for permitting the said sections to be changed from a series to multiple connection and vice versa, as and for the purpose described.

5. In an alternating current regulating or motive device, the combination of two conductors or coils adjustable in inductive relation to one another on an iron core, one of said coils being divided into sections and provided with connections to a suitable switch whereby its conductivity and reaction may be changed without varying the total number of windings in action, as and for the purpose described.

519,336. ELECTRIC WELDING-MACHINE. HERMANN LEMP and CARL G. ANDERSON, Lynn, Mass., assignors to the Thomson Electric Welding Company, of Maine. Filed May 26, 1891. Serial No. 394,201. (No model.)



Claim.—1. In an electric metal working apparatus, the combination with a transformer whose secondary supplies the heating currents, of a cut off for controlling the flow of currents in the primary, and a controlling magnet in a secondary circuit independent of the circuit through which the heating current flows.

2. In an electric metal working apparatus, the combination of a cut off consisting of a circuit breaker in the primary circuit of the apparatus, a secondary circuit supplying the work, a controlling device for said cut off responsive to an electric current, and an additional secondary connected to said controlling device.

3. The combination in an electric welding or other electric metal working apparatus, of the two work holders 4, 5, one of which (5) is movable to and from the other, the ropes or chains connected to the sliding movable clamp at opposite ends thereof, adjustable weights connected to one of said chains for moving the slide in a direction to apply the pressure to the work, and mechanism connected to the other chain or cord for retracting the slide.

4. The combination in an electric metal working apparatus, of a clamp slide 5, a cord or chain 14, connected therewith, the weights 13, sustained by said cord or chain, chain 18, hand wheel 20, and intermediate mechanism for actuating the chain.

5. The combination in an electric welding apparatus, of a movable work holder 5, a rod 15, secured thereto and connected with devices for applying pressure to the work, and the adjustable stop nuts 21, 34, upon said rod, for limiting the movement of said work-holder in both directions.

6. The combination in an electric metal working apparatus, of a movable work holder 5, an adjustable stop connected therewith, a contact in the path thereof, and a cut off magnet the circuit of which is connected to said contact.

7. In an electric metal working apparatus, the combination substantially as described, of a movable work holder 5, provided with means constantly tending to move it forward, a retracting chain 18, wheel 19, and the operating hand wheel 20.

8 The combination in an electric metal working apparatus, of the cut off switch mounted upon a suitable support, an actuating chain therefor extending down through said support and connected at its foot with a lever, a vertical arm 29, connected to the said lever for holding the switch closed, and releasing device for said arm.

9. The combination substantially as described, in an electric metal working apparatus, of a cut off switch mounted upon a suitable standard or support, a chain extending down through said standard and connected to the lever 27, an arm 29, and a cut off magnet controlling a catch in the path of the arm.

10. In an electric metal working apparatus, the combination substantially as described with the movable work holder, of the bars 6, 7, guide posts or bearings 8, 9, &c., cross head 12, bar or rod 15, connected therewith and carrying suitable adjustable stops, a chain connected with said bar or rod 15, and an adjustable weight sustained by the chain.

11. The combination in an electric metal working apparatus, of a movable clamp slide or holder connected to a number of weights variable for different diameters of stock to be welded, and mechanism for retracting the clamp slide or holder and at the same time lifting the weights, as and for the purpose described.

12. The combination substantially as described with a stationary work-holder the movable clamp slide or holder, a rod 15, connected to said movable holder and adjustable nuts 21, 34 thereupon at opposite sides of the standard 22, as and for the purpose described.

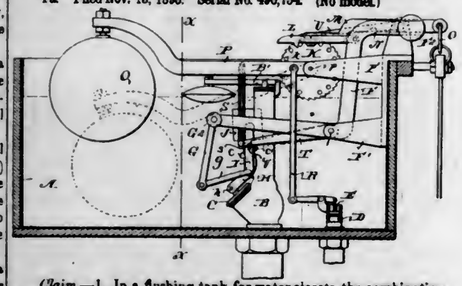
13. The combination substantially as described, in an electric welding apparatus, of work holders 4, 5, and additional stationary holders 37, 38, mounted in connection with a source of heating currents, supplying heating currents to holders 4, 5, and a hammer or compressing device mounted in position between said holders.

14. The combination in an electric metal working apparatus, of the two work holders 4, 5, means for moving one of them toward the other, and additional or auxiliary supports 37, 38, for the work fixed with relation to one another, and mounted upon extensions of the terminals or electrodes which carry the holders 4, 5, as and for the purpose described.

15. The combination in an electric metal working apparatus, of suitable work holders 4, 5, provided with means for moving one toward the other, fixed holders 37, 38, mounted on extensions of the terminals which carry the holders 4, 5, and a suitable hammer or other device for operating upon the heated metal and mounted in position to operate upon the work supported by the holders 37, 38.

16. The combination in an electric welding apparatus, of two work holders 4, 5, provided with means for moving one toward the other, the additional fixed work holders 37, 38, mounted upon a support in electrical connection with the terminals of the heating source which supplies holders 4, 5 a burr reducer 49, and a hammer as and for the purpose described.

519,337. FLUSHING-TANK. JOHN MOLONEY, Jr., Philadelphia, Pa. Filed Nov. 13, 1893. Serial No. 490,754. (No model.)



Claim.—1. In a flushing tank for water closets, the combination of an automatically acting outlet valve controlling lever, with a positively actuated lock adapted to hold the valve controlling lever out of action, and a lock controller operated by the valve controlling lever for controlling the positively actuated lock.

2. In a flushing tank for water closets, the combination of an automatically acting outlet valve controlling lever, with a positively actuated lock adapted to hold the valve controlling lever out of action, a lock controller operated by the valve controlling lever for controlling the positively actuated lock, a float lever, and a second lock actuated by the float lever for controlling the outlet valve lever.

3. In a flushing tank for water closets, the combination of an automatically acting outlet valve controlling lever, a positively actuated lock adapted to hold the valve controlling lever out of action, and lock controlling devices controlled by the automatically acting lever for temporarily throwing the positively actuated lock out of re-engagement with the automatic lever.

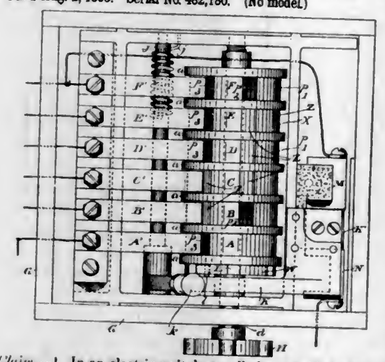
4. In a flushing tank for water closets the combination of a weighted lever connected with the outlet valve, a positively actuated lock for holding the lever against movement, and a wheel K controlled by the weighted lever having projections and recesses for controlling the engagement of the positively actuated lock with the weighted lever.

5. In a flushing tank for water closets, the combination of an automatically actuated outlet valve operating lever, a positively actuated lock for holding the valve operating lever out of action, devices operated by the valve operating lever for controlling the engagement of the lock, a float lever arranged when it descends to operate the valve actuating lever, and a second lock controlled by the float lever to temporarily lock the valve actuating lever in a raised position.

6. In a flushing tank for water closets, the combination of an automatically acting lever, a positively actuated lock therefor, a lock controller, for the positively actuated lock operated by the automatically actuated lever, an outlet valve, intermediate connections between the automatic lever and the valve, a float lever arranged in descending to operate the automatic lever, and a lock controlled by the float lever to lock the intermediate connections between the automatic lever and outlet valve.

7. In a flushing tank for water closets, the combination of a weighted lever F fulcrumed above the tank, a lock M located adjacent to the lever F and adapted to normally hold the lever out of action, a lock controller K adjacent to the lock M and adapted to control it, the outlet valve C from the tank, a movable frame H within the tank carrying the valve C, connections between the lever F and frame H for actuating the valve C when the lever is permitted to operate, a lock adjacent to the frame H for locking said frame, a float lever fulcrumed over the tank, and connections between the float lever and the lock for locking the frame H, substantially as and for the purpose specified.

519,338. ELECTRIC SWITCH. JAMES F. MCELROY, Albany, N. Y., assignor to the Consolidated Car-Heating Company, Wheeling, W. Va. Filed Aug. 2, 1893. Serial No. 482,180. (No model.)



Claim.—1. In an electric switch, a cylinder provided with a series of passage ways cored therefrom and extending in a path parallel to its axis, a series of metallic plugs placed within said passage ways, insulating material placed between said metallic plugs, the periphery of the cylinder cut away immediately above each of said plugs, leaving each of said metallic plugs flush with the surface, substantially as described and for the purpose set forth.

2. In an electric switch, a cylinder provided with a series of passage ways cored therefrom and extending in a path parallel to its axis, a series of metallic plugs placed within said passage ways, insulating material placed between said metallic plugs, the periphery of the cylinder cut away immediately above each of said plugs leaving each of said metallic plugs flush with the surface, substantially as described and for the purpose set forth.

3. In an electric switch, a cylinder provided with a series of passage ways cored therefrom and extending in a path parallel to its axis, a series of metallic plugs placed within said passage ways, insulating material placed between said metallic plugs, with the periphery of the cylinder cut away immediately above each of said plugs leaving each of said plugs flush with the surface, a spindle upon which said cylinder is mounted, a series of electric fingers in contact with said metallic plugs, each of said fingers attached to a wire carrying the current of electricity to the switch, one of said fingers attached to a wire connected with the ground, substantially as described and for the purpose set forth.

4. In an electric switch, a cylinder provided with a series of passage ways cored therefrom and extending in a path parallel to its axis, a series of metallic plugs placed within said passage ways, insulating material placed between said metallic plugs, with the periphery of the cylinder cut away immediately above each of said plugs leaving each of said plugs flush with the surface, a series of metallic fingers arranged to come in contact with said metallic plugs in the course of a revolution of the cylinder in such a manner that all the metallic plugs in each series will be in contact with their corresponding fingers simultaneously, substantially as described and for the purpose set forth.

5. In an electric switch, a cylinder provided with a series of passage ways cored therefrom and extending in a path parallel to its axis, a series of metallic plugs placed within said passage ways, insulating material placed between said metallic plugs, with the periphery of the cylinder cut away immediately above each of said plugs leaving each of said plugs flush with the surface, a series of metallic fingers arranged to come in contact with said metallic plugs in the course of a revolution of the cylinder in such a manner that all the metallic plugs in each series will be in contact with their corresponding fingers simultaneously, a spindle upon which said cylinder is mounted, said spindle journaled in a suitable frame, with a knob at the end of said spindle by means of which the cylinder may be rotated, substantially as described and for the purpose set forth.

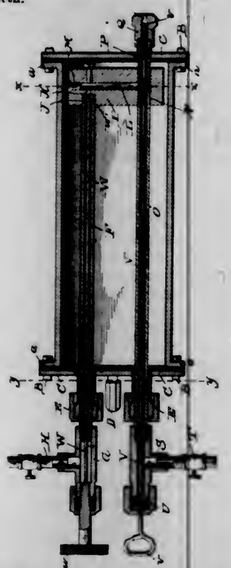
6. In an electric switch, a cylinder provided with a series of passage ways cored therefrom and extending in a path parallel to its axis, a series of metallic plugs placed within said passage ways, insulating material placed between said metallic plugs, with the periphery of the cylinder cut away immediately above each of said plugs leaving each of said plugs flush with the surface, a series of metallic fingers arranged to come in contact with said metallic plugs in the course of a revolution of the cylinder in such a manner that all the metallic plugs in each series will be in contact with their corresponding fingers simultaneously, a spindle upon which said cylinder is mounted, said spindle journaled in a suitable frame, with a knob at the end of said spindle by means of which the cylinder may be rotated, a rocking shaft mounted in said frame, a bell crank lever secured to said rocking shaft, a metallic disk on one arm of said bell crank lever adapted to make and break the circuit by entering or leaving the space between the two poles of the switch, substantially as described and for the purpose set forth.

7. In an electric switch, a cylinder provided with a series of passage ways cored therefrom and extending in a path parallel to its axis, a series of metallic plugs placed within said passage ways, insulating material placed between said metallic plugs, with the periphery of the cylinder cut away immediately above each of said plugs leaving each of said plugs flush with the surface, a series of metallic fingers arranged to come in contact with said metallic plugs in the course of a revolution of the cylinder in such a manner that all the metallic plugs in each series will be in contact with their corresponding fingers simultaneously, a spindle upon which said cylinder is mounted, said spindle journaled in a suitable frame, with a knob at the end of said spindle by means of which the cylinder may be rotated, one end of said cylinder provided with a wheel, a notched or corrugated periphery on said wheel, a lever mounted upon a shaft suitably journaled to the frame of the switch, one arm of said shaft provided with a lug fitted to engage in the notches in said wheel by means of which said cylinder may be locked, with a disk at the end of said lever arm adapted to fit between the poles of the switch, substantially as described and for the purpose set forth.

519,339. HYDROCARBON-BURNER. TRUMAN K. NICKERSON, Maquoketa, Iowa. Filed Oct. 13, 1893. Serial No. 488,074. (No model.)

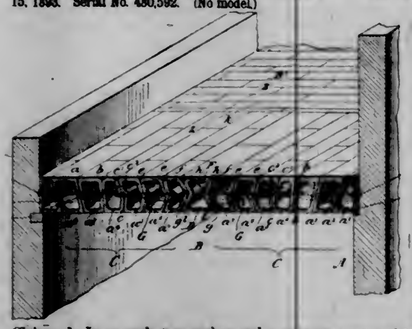
Claim.—1. In a hydrocarbon burner, the combination with a steam tight shell or casing having removable heads one of which is provided with packing boxes; of a connecting head located within one end of said casing and provided with a pipe opening and a vertical vapor passage communicating therewith, an oil feed pipe arranged within said casing and extending through one of the packing boxes and fitted at its inner end into said connecting head to com-

municate with the vertical vapor passage, a suitable valve arranged within the oil feed pipe to control the opening into the vapor passage, a combined air and burner pipe also disposed within the casing and extending through the other packing box and having its inner end fitted in the pipe opening of the connecting head and extending through an opening in that end of the casing, a burner tip removably fitted onto one end of the combined air and burner pipe, and a suitable valve arranged within the combined air and burner pipe, substantially as set forth.



2. In a hydrocarbon burner, the combination with an inclosing steam heating casing; of the connecting head located within and at one end of said casing and provided with a transverse pipe opening, a vertical vapor passage, a socket or recess at one side, and a tapered valve opening located in the base of said socket or recess and opening into said vertical vapor passage, an oil feed pipe disposed within said casing and provided at its outer end with a packing box and having its inner end fitted in said socket or recess of the connecting head, a reciprocating valve rod mounted to work in said packing box of the oil pipe and to work into said tapered valve opening, a separate and independent combined air and burner pipe disposed within said casing and projecting through and beyond one end thereof, said air and burner pipe being fitted in the pipe opening of said connecting head and provided with a vapor opening registering with said vapor passage and at one outer end with a packing box, a removable burner tip fitted to the other end of said air and burner pipe, and the reciprocating cleaning rod arranged to work inside of said air and burner pipe, substantially as set forth.

519,340. ARCH. WALTER O'BRIEN, Brooklyn, N. Y. Filed July 15, 1893. Serial No. 480,592. (No model.)



Claim.—1. In an arch, two arches, and a voussoir supported by said arch and between and supporting said arches.

2. In arches, a major arch composed of two minor arches having arcs of less radius than that of the major arch, the keystone of the major arch constituting the abutment for the minor arches, and the voussoirs of each arch serving as voussoirs for both the major and minor arches.

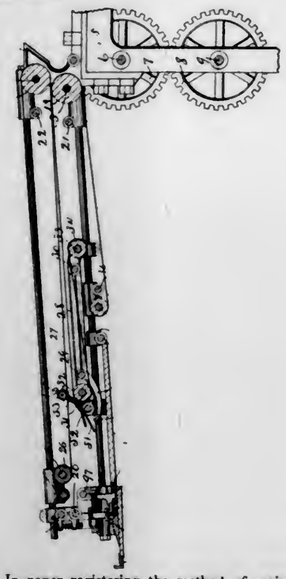
3. In a flat arch, an arch B having voussoirs constructed with grooved ends *j*, and an arch B' disposed at right angles to said arch B and having an abutment voussoir *k* fitting the grooved ends of the voussoirs of said arch B and supported thereby.

4. In a flat arch, a plurality of voussoirs, abutment voussoirs at the flanks and an intermediate keystone, in combination with tie-bars traversing said abutment voussoirs and the remaining voussoirs of the arch at one side of the keystone, and locking said voussoirs in position.

5. In an arch, a voussoir having at bottom inclined wedge-shaped faces forming a voussoir for an arch of short radius, and at top inclined wedge-shaped faces differing in direction from those at bottom and forming a voussoir of an arch of different radius than that to which said bottom faces are adapted.

6. In an arch, a voussoir having at top inclined faces *e f*, and at bottom reversed inclined faces *e g*, and having intermediate of said faces shoulders e^3, substantially as and for the purpose set forth.

519,341. METHOD OF AND MACHINE FOR FEEDING PAPER. ROBERT S. ODER, Kansas City, Mo. Filed Nov. 26, 1892. Serial No. 453,284. (No model.)



Claim.—1. In paper registering, the method of registering a sheet which consists in advancing the front edge of the sheet toward a given point, secondly, communicating an agitating motion to the sheet, and thirdly, giving the sheet a sidewise motion toward another given point, substantially as described.

2. In sheet registering machines, a carrying belt or a series of carrying belts upon which the sheet lies, a gage against which the front edge of the sheet is brought, means for imparting an agitating motion to the sheet, means for taking the sheet to a side gage, and means for suitably timing said operations substantially as described.

3. In sheet registering machines, the combination with means for forwarding the sheet against a front gage, of means for imparting an agitating motion to said sheet, means for taking the sheet to a side gage, and means for suitably timing the said operations, substantially as described.

4. In sheet registering machines, the combination with means for carrying the sheet against the front gage, a reciprocating gripping mechanism for taking the sheet to a side gage, means for imparting an agitating motion to the sheet, and means for suitably timing the said operation, substantially as described.

5. In a sheet registering machine, the combination with the carrying belt or a series of belts upon which the sheet rests, with means for operating said belt or belts, the gage against which the front edge of the sheet is brought, a reciprocating gripping mechanism for carrying the sheet against the side gage, means for imparting an agitating motion to the sheet, and means for suitably timing the said operation, substantially as described.

6. In a sheet gripping device, the combination with a U-shaped jaw operating upon one side of the sheet, of a jaw operating upon the other side of the sheet, and between the arms of the U-shaped jaw, and means for closing and opening said jaws, substantially as described.

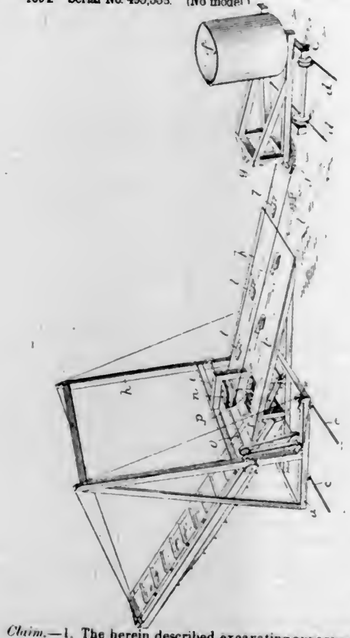
7. In a sheet gripping device, the combination with a reciprocating carriage provided with a suitable means of support, of a U-shaped jaw connected to said carriage and operating upon one side of the sheet, of a jaw also carried by said carriage and operating upon the other side of the sheet, and between the arms of the U-shaped jaw, and means for opening and closing said jaws, substantially as described.

8. In sheet registering machines, the combination with means for carrying the sheet forward against a gage or stop, of a suitable propelling means, a reciprocating carriage carrying a U-shaped jaw operating upon one side of the sheet, of a jaw also carried by said carriage, and operating upon the other side of the sheet, means for opening and closing the one jaw between the arms of the other, and a side gage for forcing the sheet from between the jaws, substantially as described.

9. In sheet registering machines, the combination with means for carrying the sheet forward against a gage or stop, of means for agitating the sheet, a reciprocating carriage, a U-shaped jaw connected to said carriage and operating upon one side of the sheet, a jaw also carried by said carriage and operating upon the other side of the sheet, means for opening and closing the jaws and a side gage for forcing the sheet from between the jaws, substantially as described.

10. In sheet registering machines, the combination with a carrying belt or a series of belts, of means for imparting motion to said belt or belts, a gage against which the front edge of the sheet is brought, a reciprocating carriage, a U-shaped jaw carried by said carriage and operating upon one side of the sheet, a jaw also carried by said carriage and operating upon the other side of the sheet, means for opening and closing the jaws and a side gage for forcing the sheet from between said jaws, substantially as described

519,342. EXCAVATOR. JOHN OIE, Marshall, Tex. Filed Jan. 3, 1894. Serial No. 495,538. (No model.)



Claim.—1. The herein described excavating apparatus comprising the movable truck *a* carrying the horizontally arranged return pulley, a movable platform provided with an upward incline, a drive shaft vertically arranged provided with a pulley, the endless cable extending between said pulleys and provided with excavating means arranged to slide up said incline, and a conveyer arranged beneath the incline into which the contents of said excavating means are dumped, when on the incline, substantially as described.

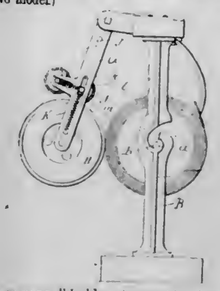
2. In an excavating apparatus, the combination of a movable truck provided with a counterweight on one end and an overhanging frame at the other end provided with a horizontally arranged pulley, a movable truck provided with an upright shaft carrying a horizontally arranged pulley, means for driving said shaft, and the endless cable passing around said pulleys and provided with excavating means, substantially as described.

3. In an excavating apparatus, the combination of a support, the inclined platform carried thereby extending upwardly above the same and provided with an opening on the side having a grating, the endless conveyer arranged beneath said opening, the vertical shaft provided with a pulley and arranged above said incline, and the cable provided with excavating means and carried by said pulley and provided with the support on the opposite side of the field and means for driving said pulley.

4. In an excavating apparatus, the movable truck provided with the inclined platform extending upwardly from the earth at a distance to one side of the platform to a point above the platform and having the opening, the conveyer arranged beneath said opening, the upright frame carried by said platform, the vertically movable conveyer having one end arranged beneath said first mentioned conveyer and its opposite end supported by cables passing over said frame and attached at their opposite ends to the truck, and the vertical shaft provided with the pulley above said incline and supporting the cable to which the scrapers are attached, said cable being supported at the opposite end of the ground by another pulley.

5. In an excavating apparatus, the combination of a platform, the inclined platform, the vertical frame, a vertical shaft supported therein having a horizontal pulley, a horizontal worm wheel on said shaft, the horizontally arranged drive shaft mounted in the frame and provided with a worm engaging said worm wheel, and a cable driven by said pulley, as and for the purpose set forth.

519,343. PAPER-ROLL HOLDER. CHARLES H. PAINE and NETTIE S. HOFFMAN, Brainerd, Minn. Filed June 15, 1893. Serial No. 477,724. (No model.)



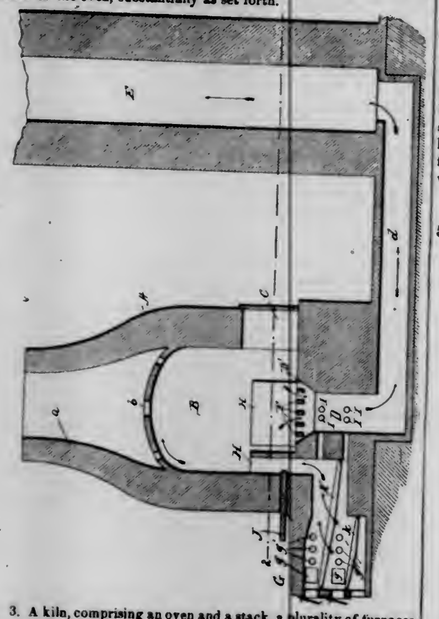
Claim.—In a paper roll holder, the combination with a frame and a roller journaled therein, of bracket arms connected to the frame, the pivoted frame G, connected with the bracket arms and having the slots *l*, extending in the direction of the length of its side bars and also having the lateral arms *p*, provided with slots *n*, extending at right angles to the slots *l*, the printing roller H, journaled in the frame G, the inking roller having its trunnions arranged in the slots *l*, the ink-supply roller L, having its trunnions arranged in the slots *n*, of the arms *p*, the springs K, connected with the trunnions of the inking roller and the frame G, and adapted to yieldingly hold the inking roller against the printing roller, the springs M, extending at right angles to the springs K, and connected with the trunnions of the ink-supply and inking rollers and adapted to yieldingly hold the ink supply roller against the inking-roller, and a spring exerting a pressure upon the frame G, so as to hold the printing roller against the paper roll, all substantially as and for the purpose set forth.

519,344. KILN FOR BAKING BRICKS, TILES, POTTERY, &c. THOMAS POLIVKA, Chicago, Ill., assignor to the American Mosaic Brick and Tile Company, same place. Filed Aug. 27, 1892. Serial No. 444,269. (No model.)

Claim.—1. A kiln, comprising an oven and a stack, a flue-passage leading from the bottom of the oven to the stack, a furnace communicating with the interior of the oven and containing a plurality of grates placed one above another, and by-passages leading from the furnace at points above and intermediate of the grates and also communicating with the stack-flue at points beneath the oven, substantially as set forth.

2. A kiln, comprising an oven and a stack, a flue-passage leading from the bottom of the oven to the stack, a furnace communicating

with the interior of the oven and containing a plurality of grates placed one above another, by-passages leading from the furnace at points above and intermediate of the grates thereof and also communicating with the stack-flue at points beneath the oven, and a damper for cutting off communication between the furnace and the interior of the oven, substantially as set forth.

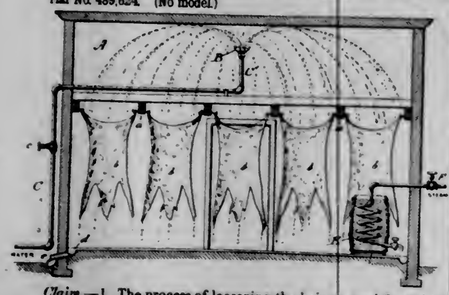


3. A kiln, comprising an oven and a stack, a plurality of furnaces communicating with the interior of the oven, a plurality of dampers for cutting off communication between the furnaces and the oven, a plurality of grates placed one above another in each furnace, a flue-passage leading from the bottom of the oven to the stack, and a plurality of by-passages leading from each furnace at points above and intermediate of its grates and communicating with the stack flue at points below the oven, substantially as set forth.

4. In a kiln, the combination with the oven of a fire box or furnace extending outwardly from said oven at the base thereof, and being provided with fuel ports or doors in its side walls, substantially as set forth.

5. In a kiln, the combination with the oven, of a fire box or furnace, having communication with said oven, means for closing said communication, upper and lower grates in said fire box or furnace, and a discharge flue leading from said oven and having direct communication with said fire box, or furnace above and below the upper grate, substantially as set forth.

519,345. PROCESS OF AND APPARATUS FOR UNHAIRING SKINS. CÉCILE L. PUECH, Mazamet, France. Filed Oct. 31, 1893. Serial No. 489,624. (No model.)

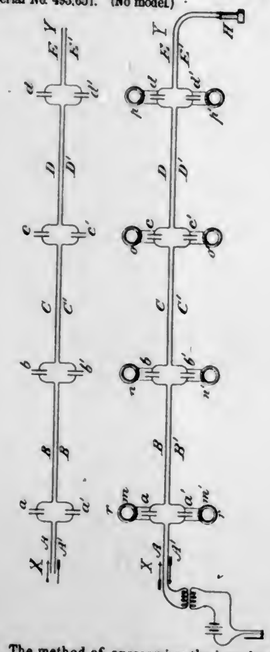


Claim.—1. The process of loosening the hair or wool from skins consisting in suspending them in a closed chamber, maintaining therein a temperature approximating 15° to 18° centigrade and there subjecting them to a spray of water which falls on the skins and trickles over them, thereby opening their pores by keeping them moist, and simultaneously washing them, whereby the wool or hair is loosened without apparent fermentation and all ammoniacal gas is absorbed and washed away.

2. The process of unhairing skins consisting in suspending them in a closed chamber, and there subjecting them to a spray of water which falls on the skins and trickles over them, and at the same time maintaining the chamber sufficiently warmed by disengaging therein the vapor from a bath of heated water and subsequently mechanically removing the loosened wool or hair.

3. An apparatus for unhairing skins, consisting of a close chamber having hooks for suspending the skins, arranged to leave a free space above the skins, a valved water-pipe, a spray-nozzle or sprinkler supplied by said pipe and adapted to discharge the water into said free space in a spray, and an outlet for continually discharging the water at the bottom of the chamber.

519,346. APPARATUS FOR TELEGRAPHIC OR TELEPHONIC TRANSMISSION. MICHAEL I. PUPIN, New York, N. Y. Filed Dec. 14, 1893. Serial No. 493,651. (No model.)



Claim.—1. The method of overcoming the impedence which a circuit divided into sections offers to variable currents which consists in tuning the various sections of the circuit to give a selected periodicity to the circuit by interposing a capacity or capacities large in comparison with the distributed capacity of the sections.

2. The method of overcoming the impedence which a circuit divided into sections disposed in inductive relation and in series offers to variable currents which consists in tuning the various sections of the circuit to give a selected periodicity to the circuit by interposing a capacity or capacities large in comparison with the distributed capacity of the sections.

3. The art of transmitting articulate sounds telephonically by causing undulations similar in form to the vibrations in the air accompanying said sounds to pass by electro-static induction from one member to the rest of a series of conductors tuned to a periodicity which is considerably outside of the periodicity of said electrical undulations.

4. The art of transmitting articulate sounds telephonically by causing undulations similar in form to the vibrations in the air accompanying said sounds to pass by electro-static induction from one member to the next of a series of conductors tuned to a periodicity considerably higher than that of the notes in the average human voice.

5. A circuit for variable currents divided into sections having the various sections tuned to a selected periodicity by the interposition of a capacity or capacities large in comparison with the distributed capacity of the sections.

6. A circuit divided into sections disposed in inductive relation and in series having the various sections tuned to a selected periodicity by the interposition of a capacity or capacities large in comparison with the distributed capacity of the sections.

7. An electric circuit for variable currents divided into sections in inductive relation and in series and tuned to give a selected periodicity by the interposition between the sections of substantially equal capacities which are large in comparison with the distributed capacity of the sections.

8. An electric circuit for variable currents divided into sections by means of condensers interposed between said sections, a coil in shunt with each condenser and a closed or substantially closed magnetic circuit surrounded by said coil, the line being tuned to a selected periodicity by having the interposed condensers of a capacity which is large in comparison with the distributed capacity of the sections.

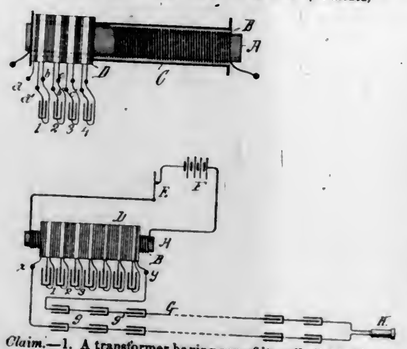
9. The combination of electric transmitting and receiving instruments and a circuit joining them divided into sections and having the various sections tuned to a selected periodicity by the interposition of a capacity or capacities large in comparison with the distributed capacity of the sections.

10. The combination of telephonic transmitting and receiving instruments and a circuit joining them divided into sections and having the various sections tuned to a selected periodicity by the interposition of a capacity or capacities large in comparison with the distributed capacity of the sections.

11. In combination with an electrical conductor tuned to a periodicity of higher pitch than a given sound, a telephone transmitter having a diaphragm tuned to a lower pitch than said sound: whereby the tendency of the telephone diaphragm to strengthen the lower harmonics of said sound is counterbalanced or substantially counterbalanced by the tendency of the conductor to strengthen the upper harmonics so that said sound becomes transmitted substantially without distortion.

12. An electric conductor composed of sections placed in series, the said sections being tuned by the predetermined proportioning of the electro-magnetic constants so that the total periodicity of the conductor shall approximately equal a certain predetermined periodicity, substantially as described.

519,347. TRANSFORMER FOR TELEGRAPHIC, TELEPHONIC, OR OTHER ELECTRICAL SYSTEMS. MICHAEL I. PUPIN, New York, N. Y. Filed Feb. 10, 1894. Serial No. 499,716. (No model.)



Claim.—1. A transformer having one of its coils divided into sections, the said sections being connected in series and in electrostatic inductive relation and each section being tuned to a certain predetermined periodicity.

2. A transformer having its secondary coil divided into sections, and condensers connected in series and interposed between said sections and each section being tuned to a certain predetermined periodicity.

3. A transformer having its primary coil in circuit with a source of electricity and a means of varying the electrical condition of said circuit, and its secondary coil connected to a line conductor, the said secondary coil and line conductor being each divided into sections, the said sections being placed in series and in electrostatic inductive relation.

4. A transformer having its primary coil in circuit with a source of electricity and a means of varying the electrical condition of said circuit and its secondary coil connected to a line conductor, the said secondary coil and line conductor being each divided into sections the said sections being placed in series in electrostatic inductive relation and each tuned to a certain predetermined periodicity.

5. A transformer having its primary coil in circuit with a source of electricity and a means of varying the electrical condition of said circuit and its secondary coil connected to a line conductor and condensers, the said secondary coil and line conductor being each divided into sections, and connected in series with said condensers: and the said sections being tuned so that the total periodicity of the secondary coil and line conductor shall equal or very nearly equal a certain predetermined periodicity.

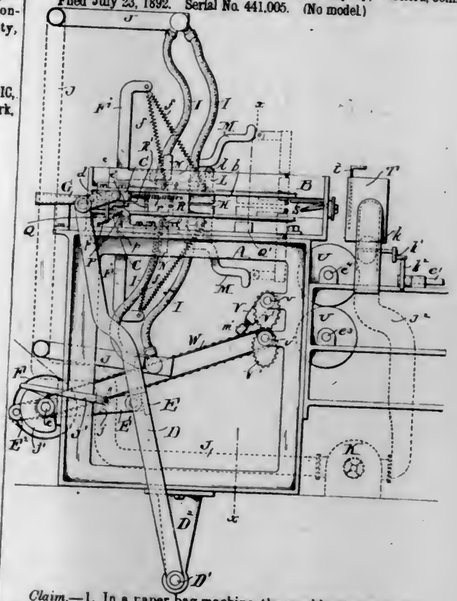
6. In combination a transformer having its primary coil in circuit with a source of electricity and a telephone transmitter, and a secondary coil divided into sections disposed in series and in electrostatic relation: a line conductor also divided into sections disposed in series and in electrostatic inductive relation, and a telephone receiver connected with said line conductor.

7. In combination a transformer having its primary coil in circuit with a source of electricity and a telegraphic transmitter and a secondary coil divided into sections disposed in series and in electrostatic inductive relation, a line conductor also divided into sections disposed in series and in electrostatic relation, and a telegraphic receiver connected with said line conductor.

8. In combination, a transformer having its primary coil in electrical circuit with a telephone, and its secondary coil divided into sections disposed in series and in electrostatic inductive relation and a telegraphic transmitter and receiver connected with said line conductor.

9. In combination a transformer having its primary coil in circuit with a source of electricity and a means of producing periodic electrical vibrations, and a secondary coil divided into sections disposed in series and in electrostatic inductive relation, a line conductor also divided into sections disposed in series and electrostatic relation and a telegraphic transmitter and receiver connected with said line conductor.

519,348. PAPER-BAG MACHINE. WILLIAM B. PURVIS, Philadelphia, Pa., assignor to the Eastern Paper Bag Company, Hartford, Conn. Filed July 23, 1892. Serial No. 441,005. (No model.)



Claim.—1. In a paper bag machine, the combination of reciprocating suction formers by which the tube is carried and mechanism to move the formers apart during their reciprocation.

2. In a paper bag machine, the combination of reciprocating suction formers by which the tube is carried consisting of hinged sections.

3. In a paper bag machine, the combination of reciprocating frames, suction formers carried by the frames and movable with respect thereto, and mechanism to move said formers apart during their reciprocation with the frames.

4. In a paper bag machine, the combination of reciprocating suction formers between which the tube to be formed is carried, and cams to cause the said formers to move apart from one another during their reciprocation.

5. In a paper bag machine, the combination with a guide frame, of two reciprocating carriers, clamping devices to clamp the carriers together, suction formers carried by the carriers and reciprocating therewith, and cam devices to guide said formers apart during their reciprocation in the guide frame.

6. In a paper bag machine, the combination of reciprocating carriers, with the suction formers hinged thereto, each consisting of the two sections H', H³ hinged together.

7. In a paper bag machine, the combination of reciprocating carriers, with the suction formers hinged thereto, each consisting of the two sections H', H³ hinged together, and an independent cam device for each former section to guide it independently of the others during the reciprocation of the carrier.

8. In a paper bag machine, the combination of suction formers, a suction flue connected therewith, and an intermittently operated damper in the flue to produce an interrupted suction in the formers.

9. In a paper bag machine, the combination of a pair of reciprocating suction formers, cam devices to guide the suction formers apart during their reciprocation, whereby the paper tube is opened and partially formed, and movable side folding wings to fold in the sides of the paper tube.

10. In a paper bag machine, the combination with the reciprocating and expanding suction formers of the side folding wings R. R, and the springs S, S, to operate said wings.

11. In a paper bag machine, the combination of reciprocating suction formers, a suction flue, a suction creating device connected with the flue, and flexible tubes connecting the air flue and suction formers.

12. In a paper bag machine, the combination of the reciprocating carriers C, C, the suction formers H H, hinged thereto, the folding wings R, R, hinged to one of the carriers adjacent to the formers H, H, and on a transverse axis, the springs S, S, located in the path of the wings when the carriers are reciprocated and means to move the formers apart during the reciprocation thereof.

13. In a paper bag machine, the combination of reciprocating suction formers means to move said formers apart during their reciprocation to open up the end of the tube, side folders to fold in the sides of the open end of the tube, and strippers to strip the folded tube from the formers.

14. In a paper bag machine, the combination of reciprocating suction formers, means to move said formers apart during their reciprocation to open up the end of the tube, side folders to fold in the sides of the open end of the tube, a blower to blow a blast of air between the formers.

15. In a paper bag machine, the combination of a pair of suction formers between which the end of the paper tube is formed, a suction flue connected with the former, a blower opening between said formers to blow a blast of air into the opened tube while it is being formed, and intermittently operated dampers, in the suction flue and blower to produce an interrupted suction and blast therein.

16. The combination with the suction formers of a paper bag machine of the stripping rollers, the stripping fingers, between the rollers and formers, and elliptical gears to impart an accelerated and retarded rotation to the stripping fingers.

17. In a bag machine, the combination of reciprocating suction formers, cams to guide said formers apart during their reciprocation, projecting parts carried by the formers and running in contact with the cams, and springs to hold the projecting parts in contact with the cams.

18. In a paper bag machine, the combination of a pair of reciprocating carriers, suction formers carried thereby, means to move said suction formers apart during their reciprocation, and means to clamp said carriers together during their reciprocation.

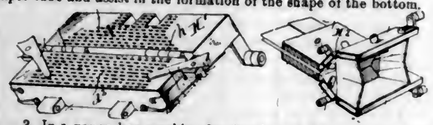
19. In a paper bag machine, the combination of perforated suction formers, between which the end of the paper tube to be formed is received, consisting of hinged sections, and mechanism to move said formers apart from a substantially horizontal to a substantially vertical position.

20. In a paper bag machine, the combination of perforated suction formers, between which the end of the paper tube to be formed is received, consisting of hinged sections, and mechanism to move said formers apart and vary the angular relations of their sections.

519,349. PAPER-BAG MACHINE. WILLIAM B. PURVIS, Philadelphia, Pa., assignor to the Eastern Paper Bag Company, Hartford, Conn. Filed Apr. 25, 1893. Serial No. 471,748. (No model.)

Claim.—1. In a paper bag machine, the combination with reciprocating formers by which the paper tube is carried, and mechanism to move the formers apart during their reciprocations, of folding fingers actuated to act upon the sides of paper tube while it is being opened by the reciprocation of the formers and assist the formers in the formation of the bag bottom.

2. In a paper bag machine, the combination with reciprocating formers by which the paper tube is carried, and mechanism to move the formers apart during their reciprocations, of folding fingers carried by the formers, and mechanism to actuate the folding fingers during the reciprocation of the formers to act upon the sides of the paper tube and assist in the formation of the shape of the bottom.



3. In a paper bag machine for forming satchel square bottom bags, the combination with reciprocating sectional suction formers by which the paper tube is carried, and mechanism to cause the formers to move apart during their reciprocations, of pivoted folding fingers carried by one of the sections of each former, and mechanism adapted to act upon the folding fingers during their reciprocation to move the fingers over the face of the section by which they are carried and assist the formers in forming the square box shape on the end of the paper tube.

4. In a paper bag machine for forming satchel square bottom bags, the combination with reciprocating sectional suction formers by which the paper tube is carried, and mechanism to cause the formers to move apart during their reciprocations of pivoted folding fingers carried by one of the sections of each former, mechanism adapted to act upon the folding fingers during their reciprocation to move the fingers over the face of the section by which they are carried and assist the formers in forming the square box shape on the end of the paper tube, and springs to normally hold the fingers out of action until they are acted upon by said mechanism.

5. In a paper bag machine for forming satchel square bottom bags, the combination with reciprocating sectional suction formers by which the paper tube is carried, and mechanism to cause the formers to move apart during their reciprocations of pivoted folding fingers carried by one of the sections of each former, mechanism adapted to act upon the folding fingers during their reciprocation to move the fingers over the face of the section by which they are carried and assist the formers in forming the square box shape on the end of the paper tube, and a lock to hold said finger when they are operated.

6. In a paper bag machine for forming satchel square bottom bags, the combination with reciprocating sectional suction formers by which the paper tube is carried, and mechanism to cause the formers to move apart during their reciprocations, of pivoted folding fingers carried by one of the sections of each former, and mechanism adapted to act upon the folding fingers during their reciprocation to move the fingers over the face of the section by which they are carried and assist the formers in forming the square box shape on the end of the paper tube, a lock to hold said fingers when they are operated, and devices to operate the lock and release the fingers.

7. In a paper bag machine for forming satchel square bottom bags, the combination with reciprocating sectional suction formers by which the paper tube is carried, and mechanism to cause the formers to move apart during their reciprocation, of pivoted folding fingers carried by one of the sections of each former, and actuating fingers adapted to act upon said folding fingers and operate them during the reciprocation of the formers to act upon the sides of the paper tube and assist in the formation of the square box shape upon the bottom of the tube.

8. In a paper bag machine, for forming satchel square bottom bags, the combination with reciprocating sectional suction formers by which the paper tube is carried, and mechanism to cause the formers to move apart during their reciprocation, of pivoted folding fingers carried by one of the sections of each former, springs to normally hold said fingers out of action, and actuating fingers adapted to act upon said folding fingers to operate them during the reciprocation of the formers to act upon the sides of the paper tube and assist in the formation of the square box shape upon the bottom of the tube.

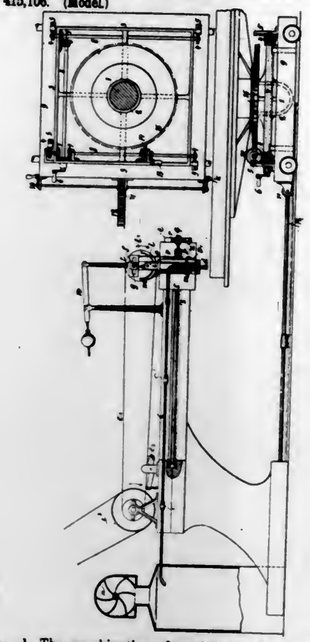
9. In a paper bag machine for forming satchel square bottom bags, the combination with reciprocating sectional suction formers by which the paper tube is carried, and mechanism to cause the formers to move apart during their reciprocation, of pivoted folding fingers carried by one of the sections of each former, actuating fingers adapted to act upon said folding fingers and operate them during the reciprocation of the formers to act upon the sides of the paper tube and assist in the formation of the square box shape upon the bottom of the tube, and locking devices to lock said fingers when they have been operated.

10. In a paper bag machine for forming satchel square bottom bags, the combination with reciprocating sectional suction formers by which the paper tube is carried, and mechanism to cause the formers to move apart during their reciprocation, of pivoted folding fingers carried by one of the sections of each former, and actuating fingers adapted to act upon said folding fingers and operate them during the reciprocation of the formers to act upon the sides of the paper tube and assist in the formation of the square box shape upon the bottom of the tube, locking devices to lock said fingers when they have been operated, and means to release said locking devices after the square box shape has been formed.

11. In a paper bag machine for forming satchel square bottoms on paper tubes, the combination with reciprocating sectional suction formers by which the tube is carried, and mechanism to move the formers apart during their reciprocations, of the pivoted folding fingers V carried by the formers, springs acting on the fingers to hold them normally out of action, and stationary actuating fingers X to act upon the pivoted folding fingers V and actuate them to act upon the side folds of the paper tube while it is being opened by the formers and to assist in the formation of the square box shape on the tube end.

12. In a paper bag machine, the combination with suction formers, between which the end of the paper tube to be formed is received, consisting of hinged sections, and mechanism to move said formers apart and vary the angular relative relation of their sections so as to form the end of the tube in the manner described, of movable folding fingers actuated to move over the faces of the suction formers as they are opened, to assist the suction of the moving formers in shaping the side creases in the bellows side fold of the paper tube.

519,350. APPARATUS FOR FORMING SAND-MOLDS. REINHOLD RICHTER, Gablonz, Austria-Hungary. Filed Dec. 15, 1891. Serial No. 415,106. (Model.)



Claim.—1. The combination of an exhaust fan with a tube, a hollow cutting tool connected thereto, a bar *i* supporting the tool, a revolubly supported disk *e* and a bar *h* that receives a crank pin on the disk and is connected to bar *i*, substantially as specified.

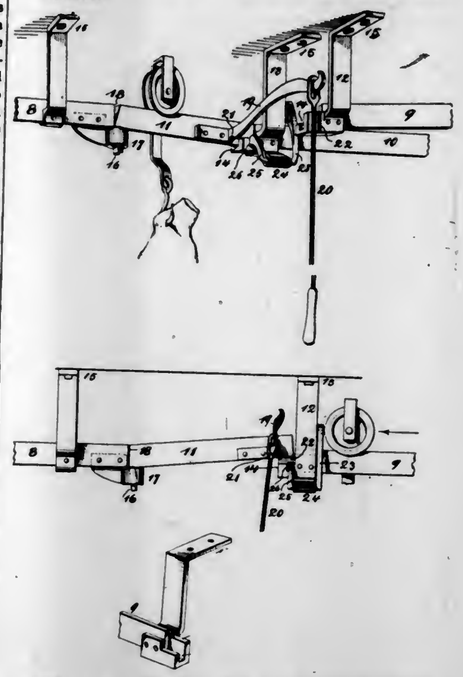
2. The combination of revolubly supported disk *e* having projection *l*, lever *m* arranged to engage the same with its upper end, a support *t*, to which the lever is pivoted, a cutting tool *d* and a bar *i* arranged in the path of the lower end of the lever substantially as specified.

3. The combination of revolubly supported disk *e*, bar *h*, receiving a crank pin on the disk, bar *i* cutter *d* and hook *o* pivoted to bar *h*, ratchet wheel *p* engaged by the hook, toothed wheel *q* connected to wheel *p*, toothed wheel *r* engaged by wheel *q* and having threaded spindle *s*, and with support *t* engaged by the spindle and arranged to slide and carry the disk *e*, bars *h i*, hook *o* and wheels *p q*, substantially as specified.

4. The combination of a vertically reciprocating slide with a tool-carrying bar pivoted thereto and with a lever for tilting the bar, substantially as specified.

5. The combination of a vertically reciprocating slide with a tool-carrying bar pivoted thereto, a lever for tilting the bar, a movable support upon which the slide is mounted and a feed mechanism for imparting a lateral motion to the support, substantially as specified.

519,351. SWITCH FOR OVERHEAD TROLLEY-TRACKS. CHAS. G. SCHMIDT, Cincinnati, Ohio. Filed Nov. 7, 1893. Serial No. 490,313. (No model.)



Claim.—1. In a switch for overhead trolley-tracks, the combination of the single track 8, the switch hinged thereto, a bracket 19, extending out laterally from the latter, an operating handle thereon, whereby the switch is operated, the branch tracks 9, 10, and supports at their ends into which the swinging switch-end drops.

2. In a switch for over-head trolley tracks, the combination of the single track 8, the switch hinged thereto, having its end adjoining track 8, cut away slantingly, a bracket 19, rigidly secured to the latter and extending out laterally therefrom, a handle loosely supported on the bracket, whereby the switch is operated, the branch-tracks 9, and 10, and the hangers with the U-shaped receiving sockets at their ends, which support the swinging end of the switch, as well as the track-ends.

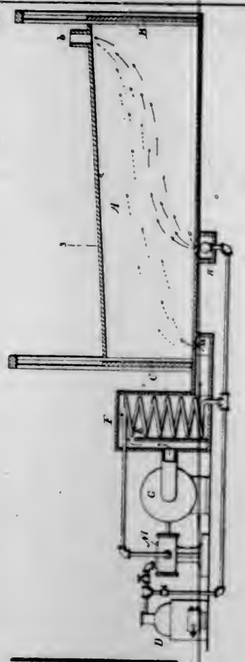
3. In a switch for over-head trolley-tracks, the combination of the single track 8, the switch hinged thereto, the branch-tracks 9, 10, the hangers to support their ends, having the receiving sockets 14, into which the swinging switch-end drops and a guard 23, to close the open track-end hinged to the switch-support and provided with the heel 25, which reaches within the path of the switch-end, whereby this latter is enabled to displace it, to hold the track open and permits, when released, the guard by gravitation, to close the track again.

4. In a switch for over-head trolley-tracks, the combination of the single track 8, the switch hinged thereto, the branch-tracks 9, and 10, the hangers to support their ends, having the receiving sockets 14, into which the swinging switch-end drops and a bracket 19, extending out laterally from the switch to serve as a support for a handle whereby to operate the switch and bent upwardly as shown, to serve when opposite it, as a guard for one of the branch tracks when open.

519,352. APPARATUS FOR DRYING LUMBER. GEORGE T. SCHULTZE, Evansville, Ind. Filed Nov. 6, 1893. Serial No. 490,074. (No model.)

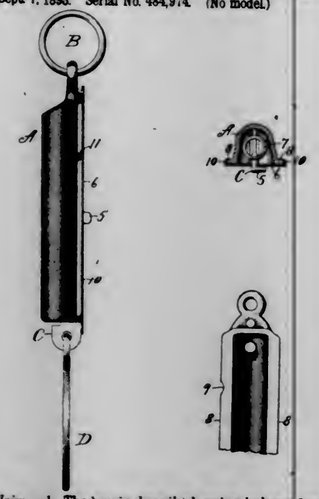
Claim.—The elongated drying chamber having a hot-air inlet at its dry end and an air outlet at its green end, and means for maintaining a longitudinal current of air within the drying chamber from the air inlet to the air outlet, in combination with an inlet to the drying chamber for steam or vapor intermediate between the air inlet and the air outlet, whereby the atmosphere at the green end of the chamber is damp, and at the dry end of the chamber is dry, substantially as set forth.

519,352.



3. A spring balance having the case provided with side flanges that form its front face, the face plate 6 fitted to said front face and held thereon by side flanges of its own that extend over the outer edges of said side flanges of the case, and means for permanently locking said face plate to said side flanges of the case after said face plate is properly adjusted thereon, substantially as described and for the purpose specified.

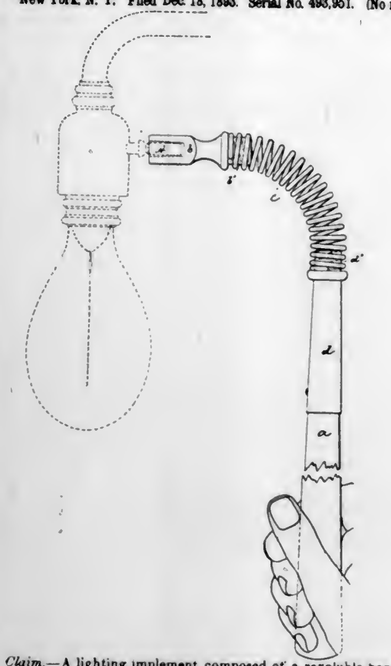
519,353. SPRING-BALANCE. AMOS SHEPARD, Plantsville, assignor to the Peck, Stow & Wilcox Company, Southington, Conn. Filed Sept. 7, 1893. Serial No. 484,974. (No model.)



Claim.—1. The herein described spring balance having the case A provided with a trough shaped body and formed with straight edged side flanges projecting laterally from said body in one plane and having their outer edges beveled backwardly and the face plate 6 on the front face formed by said laterally projecting flanges and having side flanges 10 secured thereon by being bent over the backwardly beveled edges of the side flanges of the case, substantially as described and for the purpose specified.

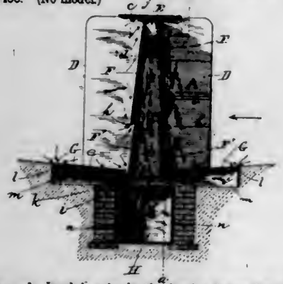
2. A spring balance, the case of which is provided with side flanges one of which has a notch 9 in its edge, and having the face plate 6 provided with side flanges 10 bent over the edge of the flanges of the case and further secured against longitudinal movement by an indented portion 11 extending into the notch 9, from one of said side flanges, substantially as described and for the purpose described.

519,354. LIGHTING IMPLEMENT. WILLIAM H. SHEPPARD, New York, N. Y. Filed Dec. 18, 1893. Serial No. 493,951. (No model.)



Claim.—A lighting implement composed of a revoluble handle, a spring and a rectangular jaw closed at the sides and open at the top, and which is adapted to be revolved by the revolution of the handle, substantially as specified.

519,355. VENTILATED URINAL. FRED P. SMITH, Worcester, assignor, by direct and mesne assignments, to the Smith Heating and Ventilating Company, Boston, Mass. Filed Sept. 2, 1891. Serial No. 404,488. (No model.)



Claim.—1. In slab urinals, the backs thereof made in two parts F F' arranged one above the other and the upper part overlapping the lower one with a short space between their overlapping edges to form a ventilating opening, *h* horizontally across said back at or about the level of the fouling point, substantially as and for the purpose set forth.

2. In slab urinals, the combination of the back, the dividing partitions between the stalls or compartments and the floor, with the bottom or floor slab G made of the proper width and arranged to form longitudinal ventilating openings at both its front and back edges

communicating with the main ventilating duct H, substantially as and for the purpose set forth.

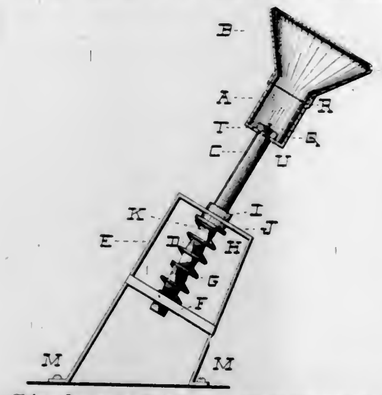
3. In slab urinals, the combination of the top and bottom horizontal, longitudinal slabs E, G, and the usual division partitions, with the back made in two parts F F' arranged one above the other and the upper part overlapping the lower one with a short space between their overlapping edges to form a ventilating opening *h* horizontally across said back at or about the level of the fouling point in addition to the usual top and ventilating openings *j*, *k*, substantially as and for the purpose set forth.

4. In slab urinals, the combination of the top slab E, the usual transverse division partitions and the floor with the back made in two parts F F' one above the other and the upper part overlapping the lower one with a short space between their overlapping edges to form a ventilating opening *h* horizontally across said back at or about the level of the fouling point in addition to the usual top and bottom ventilating openings *j*, *k*, and the bottom or floor slab G made of the proper width and arranged to form a longitudinal ventilating opening *l* at its outer edge between the same and the floor in addition to the usual ventilating opening *k* at its inner edge, substantially as and for the purpose set forth.

5. In slab-urinals, the combination of the horizontal top piece E having transverse grooves therein to receive the upper edges of the vertical, transverse partitions D; the bottom, horizontal piece G, having transverse grooves therein to receive the bottom edges of the transverse partitions; said transverse partitions having substantially vertical grooves in the sides thereof to receive the side edges of the back pieces F F' and said back pieces arranged between the transverse partitions with the upper one overlapping the bottom one at a short distance apart, substantially as and for the purpose set forth.

6. In slab urinals, the combination of the back forming the fouling surface, and the floor, with the bottom or floor-slab G made somewhat narrower than the space between said back and the edge of the floor in front thereof, and arranged to form a longitudinal, ventilating opening *l* at its outer edge between the same and the floor, in addition to the usual ventilating opening *k* at its inner edge, and communicating with the main ventilating duct H, substantially as and for the purpose set forth.

519,356. BILLIARD-CUE CHALKER. GEORGE SOUTHWELL, Westport, Mo. Filed Feb. 10, 1893. Serial No. 461,771. (No model.)



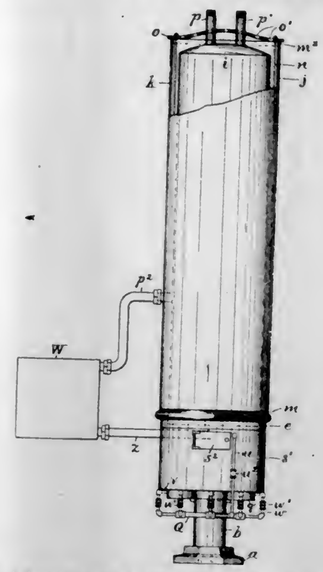
Claim.—In a cue chalker, the combination with a chalk holder, of a spiral guide rod connected therewith, the guide frame E, provided at its upper end with a guide opening O, through which the guide rod operates, the transverse guide plate F, provided with another guide opening L, through which the guide rod passes, a projection at each corner of the guide plate F, adapted to fit within the notches P, in the legs of the guide frame E, and means for retracting the guide rod, substantially as described.

519,357. GAS WATER-HEATER. SAMUEL STEWART, Newark, N. J., assignor to the Stewart Manufacturing Company, same place. Filed June 23, 1893. Serial No. 478,606. (No model.)

Claim.—1. A stand for upright heating-boilers provided with gas burners to heat the boiler, a ring with projections to sustain the boiler above the ring, and a jacket forming a flue about the boiler and supported upon the ring, as set forth.

2. A stand for upright heating-boilers, provided with gas burners to heat the boiler, a ring with flange having a jacket centered thereon, and removable blocks with shoulders, supported upon the ring to center the boiler, as set forth.

3. A duplex jacket for heating-boilers, consisting in inner and outer sheet metal shells, and rings *m*, *m*³ fitted between the shells and drawn together by bolts *n*, substantially as herein set forth.



4. A duplex jacket for heating-boilers, consisting in inner and outer sheet metal shells, a cover provided with tapering ring *m*³, the bottom ring *m* having inwardly projecting flange *m'*, a non-conducting lining between the shells, and bolts to clamp the rings together, substantially as herein set forth.

5. A stand for upright heating-boilers, provided with gas burners to heat the boiler, a duplex jacket with metallic rings at the top and bottom connected by bolts *n* and centered upon the ring *d*, and a cover upon the jacket with holes o^3 adapted to retard the exit of the heated products from the casing, substantially as herein set forth.

6. The stand for heating-boilers, consisting in the foot *a*, column *b*, arms *c* and ring *d*, and provided with a series of cylindrical burner casings *q*, means for sustaining the casings below the ring, and gas pipes extended beneath the casings, and provided with separate cocks, substantially as herein set forth.

7. The stand for heating-boilers, consisting in the foot *a*, column *b*, provided with casing clamp *q'*, the arms *c* carrying ring *d*, and having the skeleton frames *t*, *t'*, in halves, secured thereto, burner casings supported within the clamp and the frames, and gas pipes extended to the casings and provided with separate cocks, as set forth.

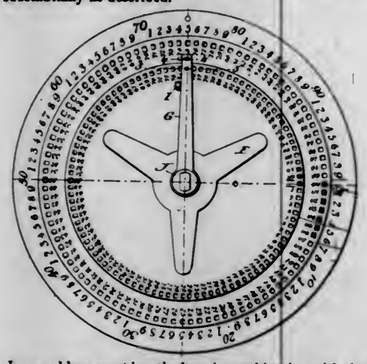
8. The combination, with a heating boiler and a stand for the same comprising the base *a*, hollow column *b* and supporting arms *c* projecting therefrom, of the central gas burner mounted in the upper end of the column *b* and lateral burners sustained upon the stand adjacent thereto, each of said burners comprising the cylindrical casing *q* with screen *r* at the upper end and perforated gas pipe *v* at the lower end, the header Q for connecting the said gas pipes, and the supply pipe P passed through the column *b* below the central burner and connected with the header, as and for the purpose set forth.

519,358. ADDING-MACHINE. FRANK SWEET, Kirksville, Mo. Filed Oct. 6, 1891. Serial No. 407,970. (No model.)

Claim.—1. In an adding machine, the base in combination with the disks or rings mounted thereon, the carrying mechanism between said disks or rings, means whereby the reverse movement of one of the said disks or rings carries with it another of said disks or rings until the latter reaches its zero point, where it is automatically stopped, substantially as described.

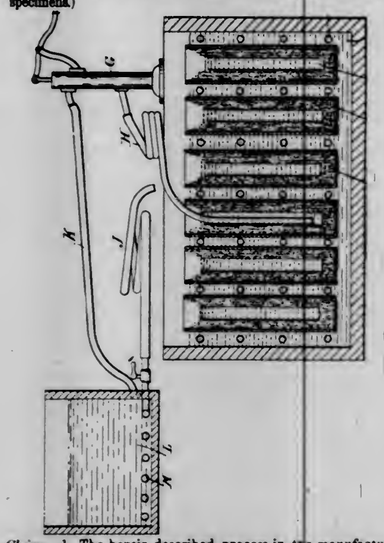
2. In an adding machine, the base in combination with the rings or disks mounted thereon, the carrying mechanism between said rings, means whereby the reverse movement of one of said rings or disks carries with it another of said rings or disks, and a projection on said latter ring or disk which contacts with a projection on said base when it reaches its zero point, substantially as described.

3. In an adding machine the base in combination with the disks or rings mounted thereon, one of said disks or rings frictionally carried by another of said disks or rings during its reverse movement, a catch on the first mentioned disk which contacts with the stationary arm mounted on said base, when said disk or ring reaches its zero point, substantially as described.



4. In an adding machine, the base in combination with the disks or rings mounted thereon, one of said disks or rings carried by another of said disks or rings during its reverse movement until a catch on the secondary disk or ring contacts with a stationary arm mounted on said base, when said secondary disk or ring, reaches its zero point: and a lug on said base for stopping said primary disk or ring when it reaches its zero point in its reverse movement, substantially as described.

519,359. MANUFACTURE OF ARTIFICIAL ICE. ROBERT M. TAYLOR, Melrose, Mass. Filed May 17, 1893. Serial No. 474,520. (No specimens.)

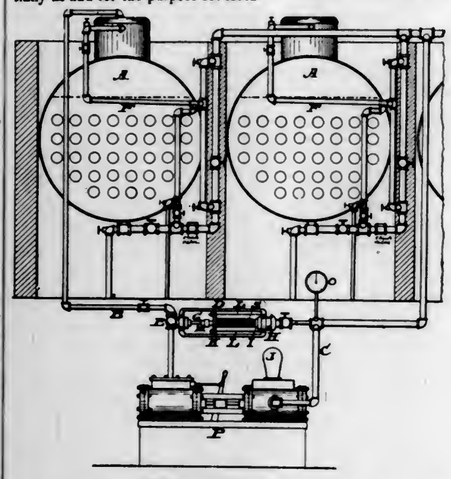


Claim.—1. The herein described process in the manufacture of artificial ice which consists, first, in removing from the freezing can during the formation of the block of artificial ice the water which contains the impurities and air bubbles, and, second, in substituting other water for the water withdrawn, substantially as set forth.

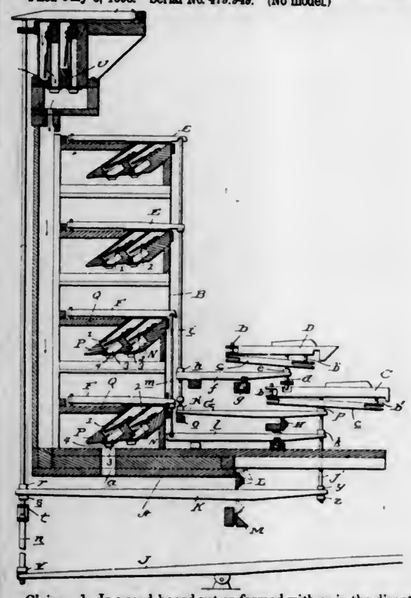
2. The herein described process in the manufacture of artificial ice which consists, first, in removing from the block of artificial ice during its formation the water which contains the impurities and air bubbles; second, in utilizing the water withdrawn to cool other water; third, in substituting for the withdrawn water the other water cooled thereby, substantially as set forth.

519,360. GOVERNOR FOR FEED-PUMPS. JOSHUA THOMAS, Cleveland, Ohio. Filed Feb. 27, 1893. Serial No. 463,844. (No model.)

Claim.—The combination in a governor for feed pumps for steam boilers, of a frame D, cylinder H in one end of said frame, piston I in said cylinder actuated by the water pressure from the boiler; valve E attached to opposite end of said frame D and joined to said piston by joint piston rod and valve stem G, said valve actuated by the steam pressure from the boiler in opposition to said water pressure; a cross-head K on said rod G, rods L L connecting said cross head to the frame D; and springs S on said rod G having its bearings against said cross head and piston, constructed and adapted to operate substantially as and for the purpose set forth



519,361. REED-ORGAN. JOHN W. TRAINER, Fort Wayne, Ind. Filed July 3, 1893. Serial No. 479,949. (No model.)



Claim.—1. In a reed board cut or formed with or in the direction of the grain in the wood so as to afford an end grain surface to seat a valve, substantially as specified.

2. A reed board having a longitudinal slot communicating with its reed-cells and having its ends closed, in combination with a mute adapted to cover and close said slot, substantially as specified.

3. The combination of a set of valves, a manual of keys, and a set of normally idle levers intermediate of the keys and valves; of a fulcrum pivotally connected to a stationary support and having an adjustment with respect to said normally idle levers, whereby it may

be swung into engagement with the same to change them from idlers to elementary levers or levers of the first class, substantially as and for the purpose set forth.

4. The combination with a set of valves as E, pusher rods as *i*, engaging said valves and having collars, a manual of keys D, for operating said valves and mechanism intermediate of said keys D, and the pusher rods *i*; of another manual of keys C, pusher rods disposed below the keys C, and having collars as *p*, a set of normally idle levers intermediate of the pusher rods of the valves E, and the pusher rods of the keys C, and engaging the collars of said pusher rods, and an adjustable or movable fulcrum adapted to be placed in engagement with said levers, substantially as and for the purpose set forth.

5. The combination with a set of valves E, rods *i*, engaging the same and having collars, a set of valves F, and rods M, engaging the same; of a manual of keys D, levers intermediate of said keys and the rods *i*, a manual of keys C, pusher rods disposed beneath the keys C, and having collars as *p*, levers *l*, intermediate of the keys C, and the rods M, a set of normally idle levers intermediate of the pusher rods of the keys C, and the pusher rods *i*, and resting in engagement with the collars on said pusher rods, and an adjustable or movable fulcrum adapted to be placed in engagement with said normally idle levers, substantially as and for the purpose set forth.

6. The combination with a valve, a key and a normally idle coupling lever intermediate of the key and valve; of fulcrums pivotally connected to stationary supports and arranged above and below the coupling lever, and having an adjustment with respect to said coupling lever, substantially as and for the purpose set forth.

7. The combination with a valve, a key and a normally idle coupling lever intermediate of the key and valve; of the adjustable or movable fulcrums of triangular form in cross section, pivotally connected to stationary supports above and below the said lever, substantially as and for the purpose set forth.

8. The combination with a set of valves F, rods *m*, engaging the same, a manual of keys having thrust pins or rods *j*, mechanism intermediate of the pins or rods *j*, and the rods *m*, a set of valves I, rods *q*, engaging said valves, pedal or foot levers adapted to move the rods *q*, and operate their valves, and normally idle levers engaging and connecting the rods *j*, and *q*; of an adjustable or movable fulcrum adapted to be placed in engagement with the said normally idle levers, substantially as and for the purpose set forth.

9. The combination with a set of valves I; of pedal or foot levers, the rods *n*, engaging the pedal or foot levers, and the rods *q*, engaging the valves I, and bearing loosely upon the ends of the rods *n*, and adapted to move independently of said rods *n*, substantially as and for said purpose set forth.

10. The combination with a set of valves I; of pedal or foot levers, the rods *n*, engaging the pedal or foot levers and carrying guides as *t*, at their upper ends, and the rods *q*, engaging the valves I, and taking loosely through the guides *t*, and bearing upon the ends of the rods *n*, substantially as and for the purpose set forth.

11. The combination with a set of valves I, pedals or foot levers, rods as *q*, intermediate of the levers and valves and having collars *r*, *s*; of a manual of keys C, thrust pins or rods disposed beneath said keys and provided with collars *y*, *z*, a set of valves F, mechanism intermediate of the thrust pins or rods and the valves F, normally idle levers arranged intermediate of the thrust pins or rods of the keys C, and the rods *q*, and resting between the collars *y*, *z*, of the former and the collars *r*, *s*, of the latter, and fulcrums arranged above and below the said normally idle levers, all substantially as and for the purpose set forth.

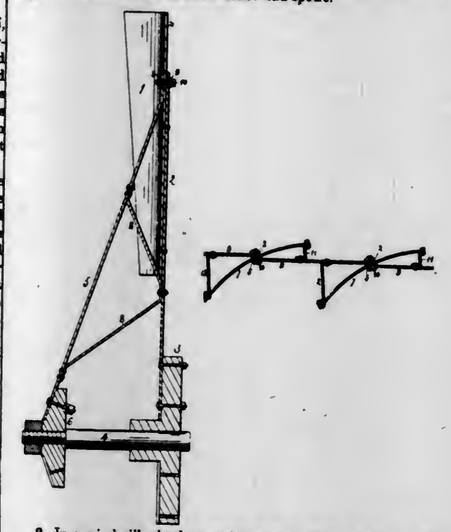
12. The combination with a set of valves, rods *i*, engaging the same, buttons or collars *k'*, adjustably mounted on the rods *i*, a manual of keys C, rods *j*, depending from said keys and having buttons *p*, and a set of normally idle levers intermediate of the rods *j*, and the rods *i*, of an adjustable fulcrum adapted to be placed in engagement with said normally idle levers, substantially as and for the purpose set forth.

13. The combination with a set of valves, rods *i*, engaging the same, a manual of keys C, rods *j*, depending from said keys and having buttons *p*, and a set of levers intermediate of the rods *j*— and the rods *i*, of buttons *k'*, adjustably mounted upon the rods *i*, and adapted to engage the levers, substantially as and for the purpose set forth.

14. The combination with a set of valves as I, pedal levers as J, rods as *q*, intermediate of the pedal levers and valves I, valves as F, a manual of keys as C, having depending rods as *j*, and mechanism intermediate of the manual of keys and the valves F; of normally idle coupling levers intermediate of the rods *j*, and *q*, and adjustable or movable fulcrums arranged above and below said coupling levers, all substantially as and for the purpose set forth.

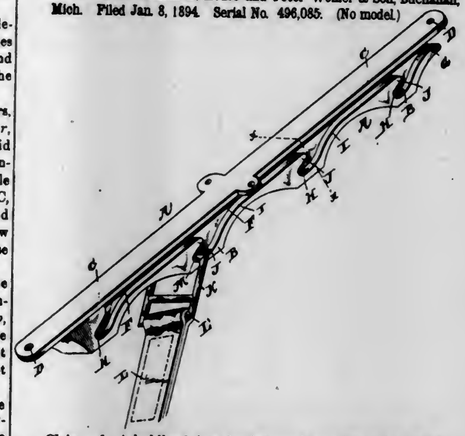
519,362. WINDMILL. JOHN WALLACE, Union, Ill. Filed Nov. 25, 1893. Serial No. 491,922. (No model.)

Claim.—1. In a windmill wheel; a series of sails having a spoke connection with a hub and a front brace extending forward obliquely having a connection with a suitable hub and an angular brace forming a connection with the front brace and spoke.



2. In a windmill wheel; a series of sails, each having a spoke connection with a hub and a brace extending forward obliquely having a connection with a suitable hub, angular braces located between the oblique brace and spoke and having a connection therewith, a brace connecting the front of one sail with the rear of the next, a brace having a connection with this connecting brace and connecting the rear edge of the sail, and a brace having a connection with the connecting brace and with the front edge of the sail.

519,363. HOLDBACK. DANIEL WARNER, Bronson, assignor of two-thirds to William D. House and Peter Womer & Son, Buchanan, Mich. Filed Jan. 8, 1894. Serial No. 496,085. (No model.)



Claim.—1. A holdback iron having catch notches on both sides, combined with a strap connecting link having catch tongues adapted to engage said notches, substantially as set forth.

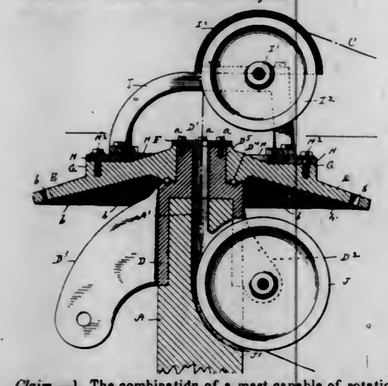
2. A holdback iron consisting of an elongated catch bar provided on both sides with longitudinal grooves and catch notches in the base or bottom sides of said grooves, and the strap connecting link having inturned catch tongues adapted to slide in said grooves and engage any of said notches, substantially as set forth.

3. A holdback consisting of an elongated catch bar provided with an attachment flange, longitudinal rounded or concaved slide grooves on both sides thereof and leading into end openings at one end of the bar, and a series of catch notches in the base or bottom sides of said grooves, and the strap link having catch tongues adapted to be inserted through said end openings into said grooves for engagement with any of said catch notches, substantially as set forth.

4. An elongated holdback iron having longitudinal slide grooves at both sides, and hook catch notches in the base or bottom sides of said grooves, said notches having curved shoulders at their forward sides and overhanging hook projections, and the connecting link adapted to engage the notches at both sides of the iron, substantially as set forth.

5. The combination of a holdback iron having catch notches on both sides, and a strap connecting link provided with an inclined or angled end bar adapted to be connected to a holdback strap and at its opposite end with inturned catch ends terminating short of each other and adapted to engage the notches of the holdback iron, substantially as set forth.

519,364. DERRICK. WILLIAM E. WHITCOMB, Barre, Vt. Filed Oct. 2, 1891. Serial No. 407,579. (No model.)



Claim.—1. The combination of a mast capable of rotation and provided with a central passage at its upper end, a boom carried by said mast as it rotates, a guide pulley carried by said mast, by which the boom rope is conducted to the central passage in said mast, a stationary guy plate in which the upper end of said mast is journaled and provided with a central passage in alignment with the central passage in said mast, a plate adjustably attached to the top of said guy plate, and a guide pulley supported on said adjustable plate, whereby said guide pulley can be adjusted relatively to said guy plate and the boom rope conducted toward a fixed winding drum, substantially as described.

2. The combination with the rotating mast of a derrick provided with a central passage at its upper end, of a stationary guy plate in which the upper end of said mast is journaled, a boom hinged to and carried by said mast as it is rotated, a guide pulley carried by said mast, by which the boom rope is conducted to the central passage in said mast, a stationary guy plate in which the upper end of said mast is journaled, an annular plate provided with concentric slots, attached bolts passing through said slots into said guy plate, by which said annular plate is adjustably attached to said guy plate and a guide pulley mounted upon said annular plate, by which the boom rope is conducted to a winding drum, substantially as described.

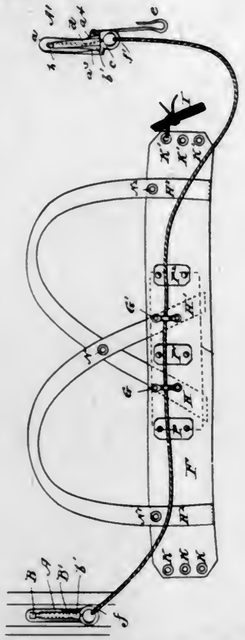
3. The combination with the mast of a derrick, of the cap D provided with ears D^3, rotating sheave J, guy-plate E, rotating sheave I^3 adjustably mounted upon said guy-plate, said sheaves J and I^3 being placed tangential to the axis of said mast, said mast having a central passage through which the boom-rope is carried from one sheave to the other, substantially as described.

519,365. SAFETY APPARATUS. HIRAM K. WHITNER, Chicago, Ill. Filed Nov. 25, 1893. Serial No. 491,955. (No model.)

Claim.—1. The herein described safety apparatus for window cleaners, consisting of the combination, of the two or more protruding headed bolts, and the slotted plate adapted to carry the rope, said slotted plate having the single longitudinal slot therein, engaging both said bolts, said slot extending through the end of the window-frame engaging part of the plate and being bridged by the part bearing the ring or means for attaching a rope.

2. The herein described safety apparatus for window cleaners consisting of the combination, of the protruding headed bolts, the slotted plate engaging said bolts, and the spring or similar device by which said plate is keyed to said bolts, all substantially as shown and described.

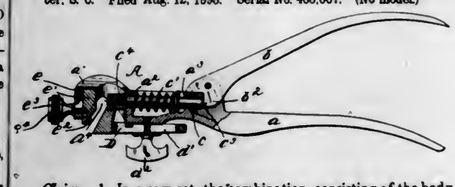
3. In a safety apparatus the combination, with a rope sliding freely in a rope-way secured about the body of a window-cleaner, of the rope-terminal having a slotted plate *a*; bolt-way *b* and *b'*; bench *c*; spring-plate *d*; and thimbled rope-eye *f*', adapted to engage with the protruding headed bolt secured into the window-frame, substantially as and for the purpose set forth.



4. In a safety apparatus the combination, with a rope sliding freely in a rope-way secured about the body of a window-cleaner, of the rope-terminal having a slotted plate *a*; bolt-way *b* and *b'*; bench *c*; spring-plate *d*; thimbled rope-eye *f*'; herring-bone a^4; pail-hook *e* adapted to engage with the protruding headed bolt secured into the window-frame, substantially as and for the purpose set forth.

5. In a safety apparatus as herein shown and described, a balcony or seat E, having a foot-board *i*, adapted to engage with bracket arms H^4, H^5, and bracket arms H, H', H^2, H^3, with their terminal slotted plates adapted to engage with protruding headed bolts, secured into the sides of a window frame and with snap-hooks S, S', the rope terminals of a safety jacket as a means of anchorage for said balcony and for said jacket and in combination with means for securing said jacket about the person of a window cleaner substantially as and for the purpose set forth.

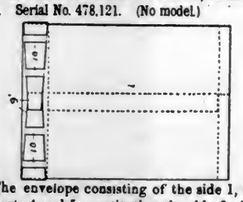
519,366. SAW-SET. CHARLES WHITUS and JOHN W. WILES, Chester, S. C. Filed Aug. 12, 1893. Serial No. 483,007. (No model.)



Claim.—1. In a saw set, the combination, consisting of the body A, having the handle *a*, provided with circular throats a^3, a^4, cylindrical plunger e, working in said throats, and having a smaller cylindrical end leaving a shoulder e^4, a die having one or more teeth to impinge against the saw teeth; said die pivoted on the front end of the plunger; combination guide and gage D, provided with the guides *d*, one working against each side of the die; anvil *e'*, adjustably secured in the nose of the body and lever handle *b*, provided with a friction roller c^3, operating against the rear end of the plunger, substantially as shown and described and for the purposes set forth.

2. In a saw set, the combination, consisting of the body A, having the handle *a*, provided with circular throats a^3, a^4; cylindrical plunger e, working in said throats and having a smaller cylindrical end leaving a shoulder e^4; a die having one or more teeth to impinge against the saw teeth, said die pivoted on the front end of the plunger; combination guide and gage D, provided with the guides *d*, one working against each side of the die; anvil *e'*, adjustably secured in the nose of the body; lever handle *b*, operating against the rear end of the plunger, substantially as shown and described and for the purposes set forth.

519,367. ENVELOPE. SAMUEL WHYBREW, Richmond, Va. Filed June 19, 1893. Serial No. 478,121. (No model.)

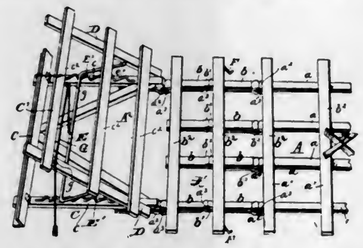


Claim.—1. The envelope consisting of the side 1, having bands 10, overlapping parts 4 and 5 constituting the side 6, the end flap 8, the end flap 9 having the tongues adapted to be entered under the bands and overlap between them, said bands being situated at or near the end of side 1, substantially as set forth.

2. For producing a folded and fastened envelope, the blank cut from a single piece of paper and provided with bands formed by slits 10, and having the side 1 and parts 4 and 5 and the end parts 8 and 9, the latter being provided with tongue extensions 9'; substantially as specified.

3. For producing a folded and fastened envelope, the blank cut from a single piece of paper and provided with bands formed by slits 10, and having the side 1 and parts 4 and 5 and the end parts 8 and 9, the latter being provided with tongue extensions 9' adapted to extend through and overlap between the bands, and the part 4 being provided with a notch 7, whereby a triple thickness is avoided at the point where the corner of part 4 is overlapped by part 8 adjacent to said notch in the completed article, all substantially as set forth

519,368. SPRING BED-BOTTOM. LA FAYETTE WILDERMUTH, Columbus, Ohio. Filed Apr. 10, 1890. Serial No. 347,324. (No model.)



Claim.—1. The combination with a bed bottom, of an auxiliary frame pivoted thereto provided with a pawl or bail adapted to be swung entirely beyond and out of engagement with the rack when the frame is completely depressed for the purpose specified, and an L-shaped bar pivoted to the bed bottom and adapted to permit the disengagement of the pawl and rack or to prevent the same when the device is in use, substantially as specified.

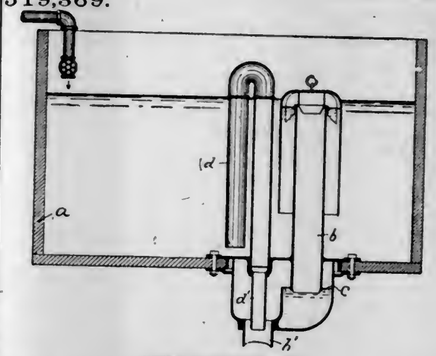
2. The combination with a suitable support, of a bed bottom having a flexible central portion, an auxiliary frame as a head rest pivotally secured at one end of the bed, pawl and ratchet mechanism adapted to sustain the frame in the adjusted position, an operating cord secured to the pawl and extending to one side of the bed, an L-shaped bar adapted to limit the depression of the frame when desired, a hook secured to the bed bottom and adapted to be secured to the support, and another hook adapted to retain the bed bottom in the folded position, substantially as and for the purpose specified.

519,369. AUTOMATICALLY-ACTING FLUSH-TANK. BENEZETTE WILLIAMS, Western Springs, Ill. Filed Sept. 4, 1893. Serial No. 484,727. (No model.)

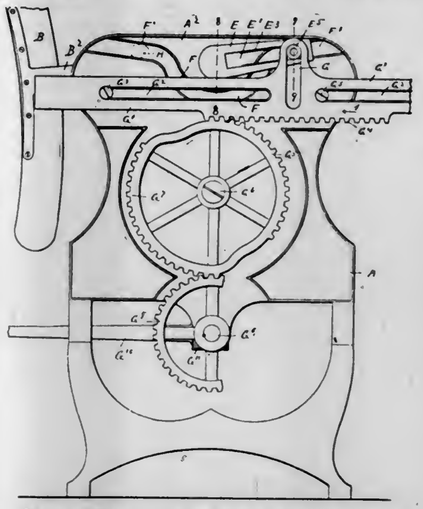
Claim.—1. The combination with an automatically filling flush-tank provided with a trapped primary siphon and an eduction pipe at the side of said trap, of a secondary siphon with discharging end entering the mouth of said eduction pipe, substantially as specified.

2. The combination with an automatically filling flush tank provided with a trapped primary siphon and an eduction pipe at the side of the trap, of a secondary siphon with contracted discharging end entering the mouth of said eduction pipe, substantially as specified.

519,369.



519,370. APPARATUS FOR LOCKING AND TURNING CAR SEATS. JOSEPH S. WINSOR, Worcester, Mass., assignor of one-half to Osgood Bradley, same place. Filed July 7, 1893. Serial No. 479,856 (No model.)



Claim.—1. The combination with the fixed arms of a car seat, of a spindle journaled in one of said arms, connected operative mechanism, by which said spindle is rotated, a circular disk attached to the end of said spindle, levers pivoted concentrically with said spindle and carrying a seat back; one of said levers inclosing said disk and a clutching device carried by said lever and arranged to engage said disk, substantially as described.

2. The combination with the fixed arms of a car seat, of a spindle journaled in one of said arms, a disk attached to said spindle, levers pivoted concentrically with said spindle and carrying a seat back, a sliding bolt held in one of said levers and arranged to engage said disk and a spring applied to said bolt to carry it into engagement with said disk, substantially as described.

3. The combination with the arms of a car seat, of spindles journaled in said arms, levers carrying a seat back and operatively connected with said spindles, an arm attached to one of said spindles and provided with a radial slot, a sliding block sliding in said slot, a friction roll carried by said sliding block, a sliding bar provided with a slot at right angles with the line of its motion, said slot inclosing said friction roll, a curved track in the arm of the seat, by which the movement of the sliding block is controlled in the radial slot of the spindle arm, substantially as described.

4. The combination with the arms of a car seat, of spindles journaled in said arms, levers operatively connected with said spindles and carrying a seat back, an arm attached to one of said spindles and provided with a radial slot forming ways for a sliding block, a friction roll carried upon one side of said sliding block, a curved track in the seat arm inclosing said friction roll, a second friction roll carried

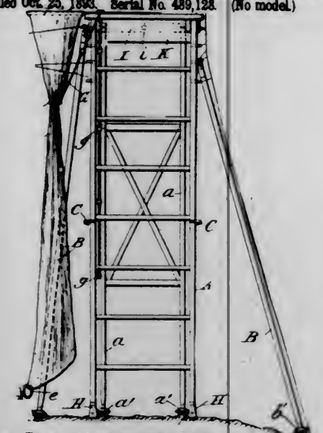
upon the opposite side of said block, and a sliding bar provided with a slot at right angles to its line of motion inclosing said friction roll, whereby said spindle is rotated by the longitudinal movement of said bar, substantially as described.

5. The combination with a rotating spindle, a pivoted seat back operatively connected with said spindle, a radial arm attached to said spindle, a sliding rack operatively connected with said radial arm, a gear provided with two segmental sections of gear teeth of different radii, one of said segments engaging said rack and the other of said segments engaging an actuating gear, substantially as described.

6. The combination with the fixed arms of a car seat, of a spindle journaled in one of said arms, a pivoted seat back connected with said spindle, a radial arm attached to said spindle and operative mechanism, by which an angular motion is imparted to said radial arm, a block capable of sliding radially in said arm, a roll carried by said block and a curved track in the frame of the car seat and having at its ends straight sections which are non-tangential to its curved section, in which said friction roll is held against a force applied to the seat back to rotate said radial arm, substantially as described.

7. The combination with the seat arm A^1, of a spindle C journaled in said arm, a pivoted seat back connected with said spindle, an arm E provided with a slot E', a block E^2 capable of sliding in said slot, a roll E^4 carried by said block and running in a curved track in said seat arm, a roll E^3 carried by said block, a sliding bar G' having a slot G inclosing said roll E^3, substantially as described.

519,371. FRUIT-PICKER. BURRELL A. WRIGHT, San Jacinto, Cal. Filed Oct. 25, 1893. Serial No. 489,128. (No model.)



Claim.—1. The combination, with a ladder and a conducting tube supported from the ladder, of a contracting ring movable on the tube, a cord attached to the contracting ring, and means for securing the cord to the ladder at any desired point, whereby the ring may be raised and lowered or held on the tube at any height, substantially as set forth.

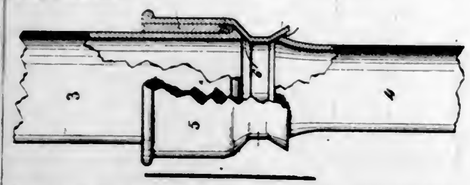
2. The combination, with a ladder and a conducting tube supported from the ladder, of a contracting ring movable on the tube, a cord attached to the contracting ring, a series of rings attached to the cord at suitable intervals, and a stud fixed to the top of the ladder and arranged to be engaged by any one of the rings on the cord, substantially as set forth.

3. The combination, with a ladder and a conducting tube supported from the ladder and having its lower end cut at a slope, of a contracting ring movable on the tube, and means for lowering the ring below the upper end of the sloped portion, substantially as set forth.

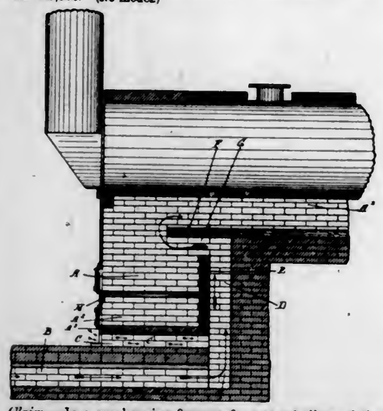
4. The combination, with a ladder and a conducting tube supported from the ladder and having its lower end cut at a slope, of a contracting ring movable on the tube, means for lowering the ring below the upper end of the sloped portion, and a stop-device attached to the tube at its extreme lower end, substantially as set forth.

519,372. CALKING-HUB WITH SOLDERING NIPPLE OR FERRULE. GEORGE W. YOUNG, Cincinnati, Ohio. Filed Apr. 17, 1893. Serial No. 470,638. (No model.)

Claim.—In a pipe-joint for connecting the leaden branch 4, rising up from a water-closet or similar trap, with the cast-iron branch 3, of a main vent-pipe reaching down from above, the combination with these two branches 4, and 3, of the calking-hub 5, which receives the cast-iron branch from above, being of an internal diameter sufficiently in excess of pipe 3, to provide space to receive and retain the molten lead for the calking-joint, a shoulder 6, against which the end of the said iron branch butts, and which forms with it and the receiving end of the calking-hub, the socket or mold which receives the lead and holds it while hardening and the soldering-nipple or ferrule integrally combined with the receiving hub or part of the calking hub, and depending from below the latter to receive the leaden branch rising from below.

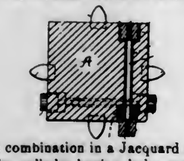


519,373. GAS-BURNING FURNACE FOR STEAM-BOILERS. GEORGE E. BELMOR, San Francisco, Cal. Filed Sept. 12, 1892. Serial No. 445,590. (No model.)



Claim.—In a gas burning furnace for steam boilers of the character described the combination of a fire-box for solid fuel; with an air and gas mixing chamber behind said fire-box and separated therefrom by the rear wall of the said fire-box, channels or passages connecting said mixing chamber with a gas holder, channels or passages connecting said mixing chamber with the atmosphere, openings connecting said mixing chamber with the said fire-box, and a deflecting plate over the top of said chamber and extending forward into the fire-box, all constructed and arranged substantially in the manner and for the purpose set forth.

519,374. JACQUARD ATTACHMENT FOR LOOMS. SQUIRE BENTLEY, Paterson, N. J., assignor of one-third to Alfred Woodier, same place. Filed July 10, 1893. Serial No. 480,094. (No model.)

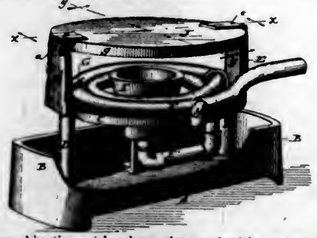


Claim.—The combination in a Jacquard mechanism, of the pattern cards, and the cylinder having holes transversely through the ends thereof and pegs for positioning the cards, with the plungers moving loosely in the said holes and operating by gravitation to strike the card upon the rotation of the cylinder to disengage the card from the said pegs, substantially as set forth.

519,375. HYDROCARBON-BURNER. ERNEST BATE, Washington, D. C. Filed Oct. 2, 1893. Serial No. 487,007. (No model.)

Claim.—1. In combination with a base plate A provided with a raised guard or closed wall B, a coil or retort F, having an extension F' provided with an orifice *d*, a mixing funnel or tube I above the orifice and of increasing diameter from its lower toward its upper end, and a top plate or cover located above the funnel I.

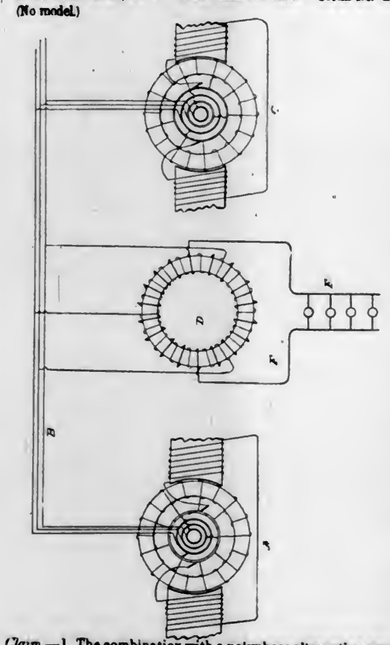
2. In a burner, the combination of a base plate, a retort or vaporizer above said base plate, a mixing tube or funnel extending upward through the retort or vaporizer, and a closed guard rising from the base plate to a plane approximately coincident with that of the lower end of the mixing tube or funnel.



3. In combination with a base plate and with a retort or vaporizer above said base plate, a mixing tube or funnel extending upward within said retort but separated therefrom, and a top-plate above the retort, having a downwardly-turned rim or flange to direct the flame against the retort.

4. The herein described burner, consisting of the following elements in combination a base plate A provided with a raised wall or guard B, a platform C raised above the base plate, a coil or retort F resting upon said platform, a delivery pipe F' extending downward from said retort and provided with a delivery orifice *d*, a mixing tube or funnel I located above the delivery orifice, extending upward within the coil F, and of increasing diameter toward its upper end, and a top plate or cover J, located above the coil and mixing tube and provided with a depending rim, all substantially as set forth.

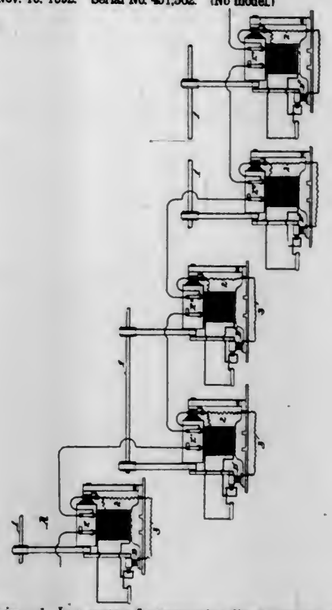
519,376. ALTERNATING-CURRENT TRANSFORMER. CHARLES S. BRADLEY, Avon, N. Y. Filed Mar. 15, 1892. Serial No. 425,038. (No model.)



Claim.—1. The combination with a polyphase alternating current circuit of a transformer having its primary connected at a number of points with such circuit so as to develop a rotation of magnetism in the core of the transformer, and a single secondary circuit having its convolutions uniformly distributed with reference to the coils of the primary winding connecting with a single distribution circuit.

2. The combination with a polyphase alternating current circuit of a transformer having a closed coil winding connected with the several wires of the polyphase circuit, said transformer being provided with a closed coil secondary winding tapped at two opposite points for connection with the distribution circuit.

519,377. GENERATING AND UTILIZING ELECTRIC CURRENTS OF HIGH POTENTIAL. CHARLES S. BRADLEY, Avon, N. Y. Filed Nov. 10, 1892. Serial No. 451,502. (No model.)



Claim.—1. In a system for generating direct current of high potential a multiplicity of generators located at a series of stations distant from one another, each generator being highly insulated from earth and having a local generator for exciting its field-magnet circuit, the frames of both the generator and its exciter being electrically connected with a brush of the former so as to bring them to the potential of said brush.

2. In a system for generating direct current of high potential a multiplicity of generators located at a series of stations distant from one another, each generator being highly insulated from earth and having a local generator for exciting its field-magnet circuit, the frames of both the generator and its exciter being electrically connected with a brush of the former so as to bring them to the potential of said brush; the generators at the several stations being provided with one or more platforms highly insulated from earth, upon which an attendant must mount to gain access to the machine.

3. In a system for generating direct current of high potential a multiplicity of generators connected in series relation, each generator being highly insulated from earth, and having a highly insulated local generator for exciting its field-magnet circuit, the frame of each generator being electrically connected with one of its brushes, and a highly insulated platform upon which an attendant must stand to gain access to any generator.

4. In a system for generating or utilizing direct current of high potential a series of generators or motors having their supports surrounded by oil, thereby highly insulating them from earth, and provided with a highly insulated platform or platforms upon which an attendant must mount to gain access to the machine.

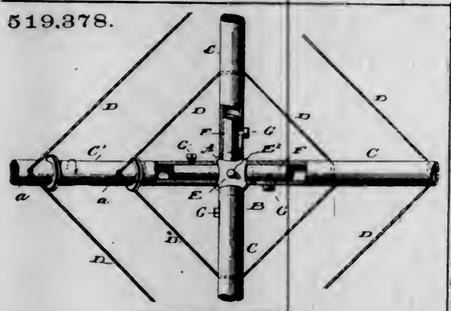
5. An electric generator or motor mounted upon supports insulated in oil and provided with an insulated platform upon which an attendant must mount to gain access to the machine.

519,378. CLOTHES-DRIER. CHARLES F. CASPER and TITUS S. DARLING, Conewango, N. Y. Filed Mar. 2, 1894. Serial No. 502,113. (No model.)

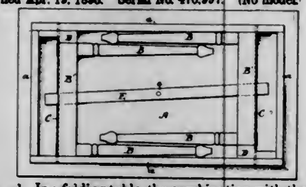
Claim.—1. In combination, the casting E having central aperture and upwardly and outwardly inclined integral arms, the tubular line supports carried by said arms, and the set screws for adjusting the supports upon the arms, substantially as described and for the purpose specified.

2. In a clothes drier, in combination with the supporting post, of the casting swiveled at the upper end of the post, the line supports C, C, consisting of hollow metallic tubes carried by arms upon the casting and having openings *a a* for the passage of the lines, and the line support C' having swiveled connection with the casting, substantially as shown and described and for the purpose specified.

519,378.



519,379. FOLDING TABLE. ERNEST G. CHORMANN, Philadelphia, Pa. Filed Apr. 19, 1893. Serial No. 470,997. (No model.)



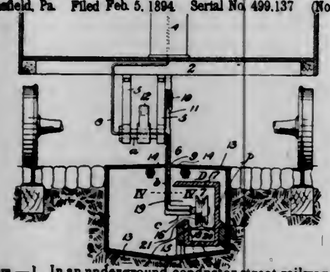
Claim.—1. In a folding table, the combination with the top thereof, of legs pivotally secured to said table, arranged symmetrically at the corners of the table when open, and laterally movable a distance greater than half the diameter of the legs, whereby said legs may be folded past each other and lie against the under side of the top when folded, substantially as specified.

2. The combination in a folding table, of the table top, the flange or boxing thereunder, pivots at each end of the table, leg sections mounted on said pivots so as to swing thereon, and arranged symmetrically when open said leg sections being less in length than the width of the box so they can slide laterally on the pivots to pass one another in folding, substantially as described.

3. The combination in a folding table, of the box top, pivots mounted therein, end leg sections mounted on said pivots and adapted to slide laterally thereon, blocks in front of said sections so that when the sections are moved in one position they are locked by the blocks, and when moved in the other position are clear of the blocks and can be folded, substantially as described.

4. The combination in a folding table, of the table top, the end leg sections pivoted thereto and laterally movable, blocks for locking the legs in the vertical position at equal distances from the four corners of the table, with an operating lever connecting the two end sections together whereby they are moved in unison, substantially as described.

519,380. CONDUIT ELECTRIC RAILWAY. JAMES F COOK, Mansfield, Pa. Filed Feb. 5, 1894. Serial No. 499,137. (No model.)



Claim.—1 In an underground-conductor street railway system a trolley arm having a horizontal upper arm or arms journaled in bearings secured to the framework of the car, a downwardly extending middle portion made narrower than the arms for passage through a slot, and a lower horizontal arm provided with a wheel, the entire trolley arm being made of two halves secured together, and inclosing a wire in the center substantially as described.

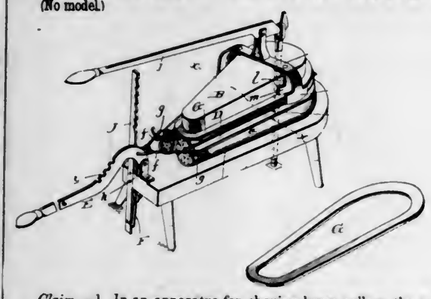
2. In an underground-conductor street railway system a trolley arm having a horizontal upper arm journaled in bearings, secured to the framework of the car, a downwardly extending middle portion, and a lower horizontal arm provided with a wheel, the upper horizontal arm being provided with a socket for the insertion of a reversing lever, or other reversing apparatus, and an upwardly extending arm for attaching tension springs, substantially as described.

3. A conduit for a conducting wire for street railway service consisting of sections of earthenware, glass, or other non-conducting hollow boxes, placed end to end, the bottom portions forming a trough, with perforations at intervals, and having one side somewhat higher than the other, and a top shield extending out over the edge of the shorter side;—each side being provided with lugs having outwardly and downwardly sloping top faces, substantially as described.

4. A conduit for a conducting wire for street railway service consisting of sections of earthenware, glass, or other non-conducting hollow boxes placed end to end provided with an opening at the side, and a top or shield somewhat wider than the bottom, projecting out over the opening, the conducting wire being supported at intervals by cross wires, insulated from and attached to the inside faces of the sides, substantially as described

5. The combination of the outer surrounding conduit or casing provided with a slot at the top and a gutter or channel in the bottom, with the conduit for the conducting wire, consisting of earthenware, glass, or other non-conducting hollow boxes, placed end to end, provided with an opening at the side and a top or shield, somewhat wider than the bottom projecting out over the opening and the lugs on each side of the conduit boxes resting on stringers supported by brackets on the outer conduit, substantially as described.

519,381. APPARATUS FOR SHAPING HORSE-COLLARS. ALBERT F. DUNAVAN, Harvey, Ill. Filed Jan. 22, 1894. Serial No. 497,687. (No model.)



Claim.—1 In an apparatus for shaping horse collars, the combination with a bed and a former block arranged thereon; of pressure plates D, disposed on opposite sides of the former block, a pressure plate G, and means for exerting pressure on the plates D, and G, substantially as and for the purpose specified.

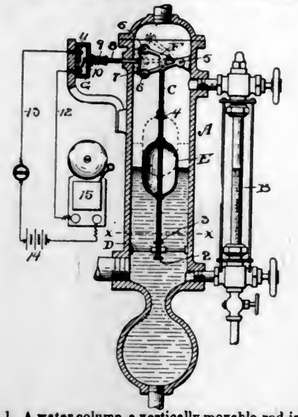
2. In an apparatus for shaping horse collars, the combination with a bed and a former block arranged thereon; of pressure plates D, disposed on opposite sides of the former block, a pressure plate G, a yoke engaging the plates D, and G, and a suitable means for exerting pressure on the yoke, substantially as specified.

3. In an apparatus for shaping horse collars, the combination with a bed and a former block arranged thereon; of pressure plates D, disposed on opposite sides of the former block, a pressure plate G, surrounding the former block and disposed in a plane above the plates D, means for moving the plates D, toward the former so as to form a hame-receiving recess in the collar, and means for exerting a downward pressure on the plates D. and G, all substantially as and for the purpose specified.

4. In an apparatus for shaping horse collars the combination with a bed, a former block arranged on said bed, plates D, disposed on opposite sides of the former block and a plate G, surrounding the former block and disposed in a plane above the plates D; of a yoke straddling the former block and having depending portions engaging the plates D, and G, a lever fulcrumed on the former block and connected to the yoke, and a rack bar connected to the bed and adapted to hold the said lever in its depressed position, substantially as and for the purpose set forth.

5 The herein described apparatus for shaping horse collars comprising the bed, the former block arranged on the bed, the plates D, disposed on opposite sides of the former block and having their rear ends loosely connected, a hand lever fulcrumed on the bed, chains connecting said lever and the forward end of the plates D, a keeper connected to the bed and adapted to hold the lever in its depressed position, a plate G, surrounding the former block and disposed in a plane above the plates D, a yoke straddling the former block and having depending portions bearing on the plates D, G, a lever fulcrumed on the former block and connected to the yoke, and a rack bar connected to the bed and adapted to hold the said lever in its depressed position, all substantially as and for the purpose set forth.

519,382. SAFETY WATER COLUMN. HENRY ENGEL, Cleveland Ohio. Filed Feb. 9, 1894. Serial No. 499,593. (No model.)



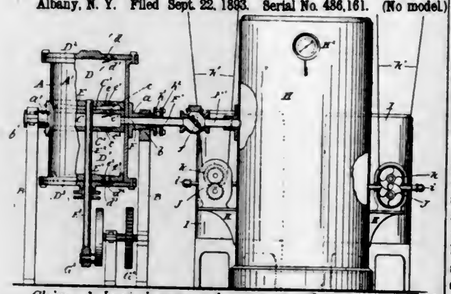
Claim.—1. A water column, a vertically movable rod in said column and a float on said rod, in combination with a push rod through said column having a shoe on its inner end and a part with two separated contact points to bear against said shoe and actuated by the float rod, substantially as set forth.

2. A safety column, a vertical rod confined wholly within the column, a float and a stop on said rod engaged by the float in its upward movement, a push rod extending into said column and contact points actuated with said float rod to operate the push rod, substantially as set forth.

3. The safety water column described, a rod in said column having stops to limit its movement and having both its ends within the column, in combination with a float on said rod and free to rise and fall thereon, and a stop on the rod engaged by the float, a part having separate contact points pivoted in the column and pivotally connected with said rod, and a push rod to make electrical contact extending into the said column and engaged by said contact points, substantially as set forth.

4. The water column, the float in the column the rod passing through the float and having a stop above the float and engaged thereby when the float rises to its upward limit, and stops between which said rod has limited movement, in combination with a double contact device in said column and connected with said rod, a lateral push rod actuated by said device and electrical contact points outside the column having electrical connection with said push rod, substantially as set forth.

519,383. AIR-COMPRESSING APPARATUS. MATTHEW FLOOD, Albany, N. Y. Filed Sept. 22, 1893. Serial No. 486,161. (No model.)



Claim.—1. In an air compressing apparatus, the combination with a compressed air receiver, and a primary air compressor supported on trunnions one of which is tubular, a pipe connecting said tubular trunnion with said receiver, a stuffing box and gland making a tight joint between the said trunnion and the said pipe, an air check valve in the course of the said pipe, and mechanism for operating the said primary air compressor, substantially as and for the purposes set forth.

2. In an air compressing apparatus, the combination with a compressed air receiver, of a series of super compressed air receivers, pipes corresponding in number with the number of said super compressed air receivers and communicating from said compressed air receiver to the respective super compressed air receivers to be supplied with compressed air, an air force pump in the course of each said pipe, pipes for connection of the one to the other of the latter receivers, valves, under control of an operator, in the course of said connecting pipes, and a discharge pipe from the said connecting pipes, substantially as and for the purposes set forth.

519,384. BICYCLE. RICHARD J. GATLING, Hartford, Conn. Filed Nov. 5, 1892. Serial No. 451,032. (No model.)



Claim.—1. In combination with the wheel supported frame of a bicycle, a pedal shaft with the sprocket wheel supported by the frame between the wheels, a sprocket chain passing around the sprocket wheel on the pedal shaft and a sprocket wheel on the shaft of the rear wheel, a slide movable along the sprocket chain, said slide bearing a pawl that engages with the links of the chain, a cord connected with one end of the slide and provided with handles for drawing the slide in one direction, and a cord attached to the other end of the slide and connected with the spring actuated drum supported by the frame back of the rear axle, for moving the slide in the opposite direction, substantially as specified.

2. In combination with the wheel supported frame of a bicycle, a pedal shaft with the sprocket wheel supported by the frame, a sprocket chain passing around the sprocket wheel on the pedal shaft and a sprocket wheel on the shaft of the driving wheel, a slide movable along the chain, a pawl pivoted to the slide and adapted to engage with the chain, a cord secured to one end of said pawl for pulling it in one direction, a spring connected with the other end of the pawl for pulling it in the opposite direction, and a cord connecting the slide with a spring actuated drum, substantially as specified

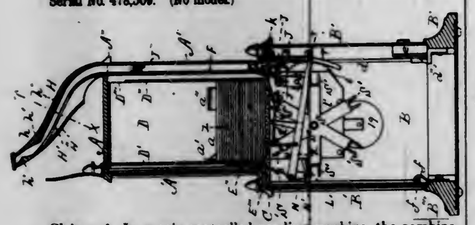
3. In combination with the wheel supported frame of a bicycle, a pedal shaft with a sprocket wheel supported by the frame, a sprocket chain passing around the sprocket wheel on the pedal shaft and a sprocket wheel on the shaft of the driving wheel, a slide provided with a spring actuated pawl movable along the chain, a cord connected with the slide passing over drums on the frame, one of said drums being borne by a shaft bearing drums connected with the handle cords, and a spring actuated drum connected with the movable slide, substantially as specified.

4. In combination with a wheel supported frame of a bicycle, a pedal shaft with a sprocket wheel supported by the frame, a sprocket chain passing around the sprocket wheel on the pedal shaft and a sprocket wheel on the shaft of the driving wheel, a slide movable along the chain, a pawl pivoted to the slide and adapted to engage the chain, a cord connected with handles secured to one end of said pawl for pulling it and the slide in one direction, and a spring connected with the other end of the pawl for pulling it in the opposite direction, substantially as specified.

5. In a foot and hand propelled bicycle in combination with the frame, a horizontally oscillating seat loosely held by a vertical pivot in the axis of the seat to a sleeve below the center of the seat, said sleeve being horizontally adjustable on a vertically adjustable bar supported by the frame, a non-elastic rigid connection removably attached to

the horn of the horizontally movable seat in front of the axis of its support, said non-elastic connections also being removably attached to the handle bar on each side of its pivotal axis, substantially as described and for the purpose specified.

519,385. COIN-CONTROLLED VENDING-MACHINE. ALEXANDER KEITH, Everett, and JACOB P. TIBBELL, Boston, Mass., and JOHN W. WILLARD, Pittsford, Vt., assignors to said Willard. Filed June 22, 1893. Serial No. 478,509. (No model.)



Claim.—1. In a coin-controlled vending machine, the combination with the coin-chute or coin-conduit, of the trap comprising the leaf or plate K provided with a notch in its outer edge and pivotally hung in the passage in the chute so as to swing normally against the farther wall thereof, substantially as set forth.

2. In a coin-controlled vending machine, the combination with the coin-chute or coin-conduit, of the trap comprising the leaf or plate K provided with a notch having sharp edges in its outer edge and pivotally hung in the passage in the chute so as to swing up normally against the farther wall thereof, substantially as described.

3. In a coin-controlled vending machine, the combination with the coin-chute or coin-conduit, of the trap comprising the heavier plain leaf K′ and lighter notched leaf K, bent at right angles to each other and hinged to the conduit so as to cause the notched leaf to swing into the passage in the coin-chute and close it against a rising object, substantially as set forth.

4. The combination of the back plate A‴ provided with the chute H and flanges I I′, and the tray or plate F provided with the raised guide *g′* and flange *g*, substantially as described.

5. The combination of the upper case A, integral coin-conduit H and back plate A‴, plate F provided with the flange F′ perforated at F‴, partition C perforated at C‴, lower case B provided with the inner flange or bead *f*, base B‴ provided with the lip *f′*, and the rod *d* extending from the lower case through said perforations, substantially as set forth.

6. The combination of the back plate A‴ and plate F provided with the perforated flange F′, spring F‴ projecting over said perforation, partition C provided with a perforation C‴ coincident with the perforation in the flange, lower case provided with a suitable lock, and rod or bolt *d* provided with a head *d′* and held normally down by said spring and extending through said perforations into the lower case, substantially as described.

7. The commodity chamber, comprising side walls and the front wall D′ cut away at the bottom to form a delivery slot and having the end portions of said slot higher or broader than the central portion, substantially as described.

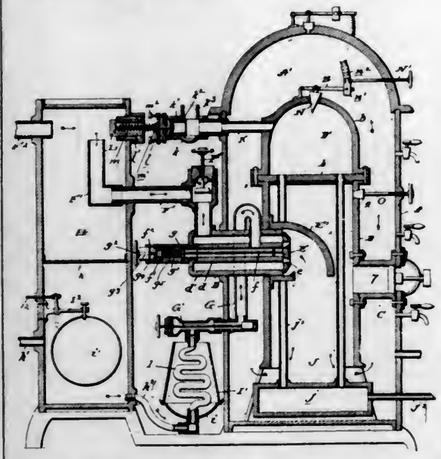
8. In combination, the trip lever R directly actuated by the descending coin, the tension spring V, secured to the under side of the partition C adjustably by the screw W and nut W′, the link U connecting said spring with the trip lever, the shaft P actuated by said trip lever and supported by the case, the pawl N fast on said shaft and provided with the pin N′, and detent L actuated by the train, whereby the tension is adjusted to the force of the blow of the descending coin as it impinges against the trip lever, substantially as set forth.

519,386. STEAM-BOILER. THOMAS A. MARRIOTT NEWBERRY, Mich. Filed Mar. 24, 1893. Serial No. 468,367. (No model.)

Claim.—1. The method of generating steam herein described, which consists in mingling a highly heated compressed current of commingled air and gas and igniting the same in a close chamber and supplying a spray of water to the combustion, substantially as and for the purpose set forth.

2. In a steam-generator, the combination of an outside shell, an inner shell within the same, and communicating therewith, a combiner and burner extending into the inner shell and having separate air and gas chambers, adapted to be discharged from said mixer and burner, directly into the inner shell, and supply pipes for air and gas, connected directly to the isolated air and gas chambers of the mixer and burner, substantially as and for the purpose described.

3. In a steam generator, the combination of an outer shell, an inner shell within the same, and communicating therewith, a combiner and burner arranged to discharge directly into the inner shell, and having separate concentric chambers for air and gas, which are mixed and burned at the points of exit from the burner, suitable supply pipes to the separate chambers of the combiner and burner, and a regulating valve having the apertures *e*, operating to open and close the discharge ports from the chambers of the combiner and burner, substantially as described.



4. In a steam generator, the combination of an outside shell, an inside shell within the same and communicating therewith, an air and gas combiner and mixer arranged to discharge into the inner shell only, and a high pressure auxiliary boiler within the inner shell, substantially as described.

5. In a steam generator, the combination of an outer shell, an inner shell within the same, and communicating therewith, a combiner and burner having isolated gas and air chambers arranged to discharge into the inner shell only and a high pressure auxiliary boiler within the inner shell, and having its water tank in or under the lower part of said inner shell, and its steam dome in the upper part or above of said inner shell, the tank and dome being connected by intermediate tubes which extend longitudinally through the inner shell, substantially as described.

6. In a steam generator, the combination of an outer shell, an inner shell connected thereto, a combiner and burner discharging into the inner shell, a divided supply tank, having the air and fuel chambers, an air pipe connecting the air chambers of the tank and burner, and means for vaporizing the liquid from the liquid chamber of the tank, and conducting the same to the gas chamber of the burner, substantially as described.

7. In a steam generator, the combination of the outer and inner shells connected together, an auxilliary high pressure boiler, within the inner shell, and having its steam dome in the upper part of the inner shell, a combiner and burner, arranged to discharge into the inner shell, a supply tank having its air chamber connected to the air chamber in the burner and combiner, a steam supply pipe leading from the dome, of the auxiliary boiler, and an automatic valve mechanism in said steam pipe controlled by the pressure of air in the supply tank—substantially as and for the purpose described.

8. In a steam generator, the combination of the outer and inner shells communicating directly with each other, a combiner and burner discharging into the inner shell, an auxiliary high pressure boiler within the inner shell, a supply tank having its air and fuel chambers connected to the chambers of the combiner and burner, a steam pipe leading from the dome of the auxiliary boiler, a valve operating in said steam pipe to open and close its port to the branch pipe leading to an engine or motor, and an automatic valve connected to the steam valve, and arranged in the air chamber of a supply tank, to be operated by changes of pressure therein, substantially as described.

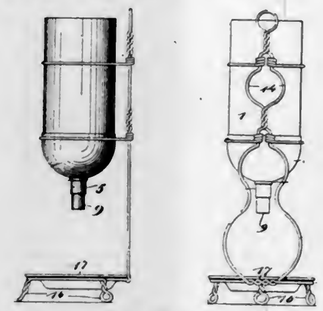
9. In a steam generator, the combination of the connected outer and inner shells, the combiner and burner, arranged to discharge into the inner shell, and having an automatic controlling valve adapted to be operated by increased pressure in the air chamber of said mixer and burner, an auxiliary high pressure boiler, within the inner shell, a supply tank having its compartments connected to the chambers of the combiner and mixer, a steam pipe leading from the dome of the auxiliary boiler, and an automatic valve mechanism in the steam pipe, and arranged to be operated by changes of pressure in the air chamber of the supply tank, substantially as described.

10. In a steam generator, the combination of the outer and inner shells connected directly with each other, the combiner and burner, having its air and gas chambers arranged to discharge into the inner shell, an automatic pressure valve which controls the outlet ports from the combiner and burner, an auxiliary boiler within the inner shell, a supply tank divided into air and liquid fuel compartments, a pipe from the air chamber of the tank to the combiner, another pipe from the fuel chamber of said tank to the combiner, and having means for vaporizing the fuel on its passage to the combiner, a steam pipe leading from the steam dome to the auxiliary boiler, and having a valve, and independent regulator mechanism in the air and fuel chambers of the supply tank, substantially as described.

11. In a steam generator, the combination of the outer and inner shells communicating directly with each other, the combiner and burner, having the separate chambers for air and gas arranged to discharge directly into the inner shell, a single regulating valve for both chambers of the combiner and mixer and having suitable tension mechanism, and suitable supply pipes for the air and gas chambers of the combiner and burner, substantially as described.

12. In a steam generator the combination of the inner and outer shells, communicating at the lower ends thereof, the combiner and burner, having its valve, air, and gas chambers discharging into the inner shell, an auxiliary boiler with its water chest at the base of the inner shell, and having the tubes, connected to the separate steam dome near the upper part of the inner shell, and pipes leading from a source of supply to the combiner and burner, substantially as described.

519,387. POWDER HOLDING AND DELIVERING DEVICE. JACOB C. MICHAEL, New York, N. Y. Filed July 14, 1892. Serial No. 439,987. (No model.)



Claim.—1. In a powder holding and delivering device, the combination with a receptacle for holding the powder, of a stationary tube projecting upward through the bottom thereof into the same, a movable tube located within the stationary tube, and means connected with the inner tube and projecting below the bottom of the outer tube by which the inner tube may be actuated; said tubes being open at the bottom, and provided with openings which register with one another and form a communication between the interior of the receptacle and the inner tube only when the inner tube is moved from its normal position, substantially as shown and described.

2. In a powder holding and delivering device, the combination with a receptacle for holding the powder, of a stationary tube projecting upward through the bottom thereof into the same, a movable tube adapted to slide up and down therein located within the stationary tube, means by which the inner tube is kept normally depressed in the outer tube, and means connected with the inner tube and projecting below the bottom of the outer tube by which the inner tube may be pushed up into the outer tube; said tubes being open at the bottom and provided with openings which register with one another and form a communication between the interior of the receptacle and the inner tube, only when the inner tube is moved from its normal position up into the outer tube, substantially as shown and described.

3. In a powder holding and delivering device, the combination with a receptacle for holding the powder, of a stationary tube closed at the top and open at the bottom projecting upward through the bottom of the receptacle into the same, a movable tube open at the bottom located within the stationary tube, and means connected with the inner tube and projecting below the bottom of the outer tube by which the inner tube may be moved from its normal position, said tubes being provided with openings which register with one another and form a communication between the interiors of the inner tube and of the receptacle only when the inner tube is moved from its normal position, substantially as shown and described.

4. In a powder holding and delivering device, the combination with a receptacle for holding the powder, of a stationary tube open at the bottom and closed at the top, projecting upward through the bottom of the receptacle into the same, a movable tube open at the bottom located within the stationary tube, means by which such inner tube is kept normally depressed in the outer tube and means connected with the inner tube and projecting below the bottom of the outer tube by which the inner tube may be moved from its normal position; said tubes being provided with openings which register with one another and form a communication between the interiors of the inner tube and the receptacle only when the inner tube is moved from its normal position, substantially as shown and described.

5. In a powder holding and delivering device, the combination with a receptacle for holding the powder, of a stationary tube projecting upward through the bottom thereof into the same, a movable tube located within the stationary tube, agitating wires attached to the movable tube and projecting into the receptacle, and means for actuating the movable tube; said tubes being open at the outer end, and provided with openings which register with one another and form a communication between the interior of the receptacle and the inner tube only when the inner tube is moved from its normal position, substantially as shown and described.

6. In a powder holding and delivering device, the combination with a receptacle for holding the powder, of a stationary tube projecting upward through the bottom thereof into the same, a movable tube located within the stationary tube, means for agitating the powder in the receptacle operated by the movement of the inner tube, and means for actuating the inner or movable tube; said tubes being open at the outer end, and provided with openings which register with one another and form a communication between the interior of the receptacle and the inner tube only when the inner tube is moved from its normal position, substantially as shown and described.

7. In a powder holding and delivering device, the combination with a receptacle for holding the powder, of a sliding tube provided with openings in the sides thereof extending upward through the bottom of the receptacle into the same, such openings being normally out of communication with the interior of the receptacle, but adapted to be brought into communication therewith when the tube is forced into the receptacle, and means connected with such movable tube, and projecting below the bottom of the receptacle by which the same may be moved from its normal position, substantially as shown and described.

8. In a powder holding and delivering device, the combination with a receptacle for holding the powder, of a stationary tube projecting into the same, a movable tube adapted to slide up and down therein located within the stationary tube, agitating wires attached to the movable tube and projecting into the receptacle, means for imparting a rotary motion to the inner tube and the agitating wires as such tube is moved in and out of the stationary tube, and means for moving the inner tube up and down in the stationary tube, substantially as shown and described.

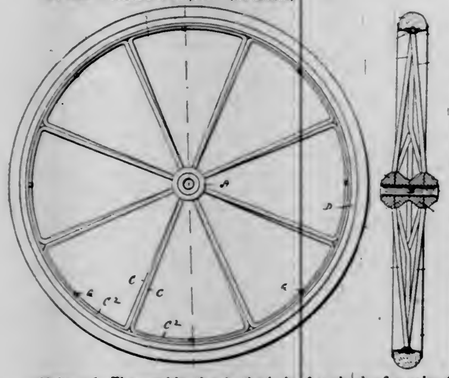
9. In a powder holding and delivering device, the combination with a receptacle for holding the powder, of a stationary tube projecting upward through the bottom thereof into the same, open at the bottom and provided with an opening or openings in the side walls thereof, a movable tube adapted to slide up and down therein located within the stationary tube likewise open at the bottom and provided with like openings in the side walls thereof, agitating wires attached to the movable tube and projecting into the receptacle, means for imparting a rotary motion to the inner tube and the agitating wires as such inner tube is moved in and out of the stationary tube, and means operated from beneath the receptacle for moving the inner tube up and down in the outer tube, the construction being such that the openings in the side walls of the stationary and movable tubes register with one another only when the inner tube is moved from its normal position, substantially as shown and described.

10. In a powder holding and delivering device, the combination with a receptacle for holding the powder, of a stationary tube projecting upward through the bottom thereof into the same, and a normally depressed movable tube adapted to slide easily up and down therein located within the stationary tube, and having a portion of the lower end thereof projecting below the lower end of the stationary tube in such manner that upward pressure exerted thereon will force the movable tube up into the outer tube; said outer tube being closed at the top and both being open at the bottom, and provided with openings which register with one another and form a communication between the interior of the inner tube and the receptacle only when the inner tube is pushed back into the outer tube, substantially as shown and described.

11. In a powder holding and delivering device, the combination with a receptacle for holding the powder, of a stationary tube closed at the top and open at the bottom projecting upward through the bottom of the receptacle into the same, a movable tube open at the bottom, adapted to slide up and down therein located within the sta-

tionary tube, a spring by which the inner tube is normally forced toward the outer end of the stationary tube, and a projection of the inner tube extending below the outer tube by which the inner tube may be forced back into the outer; said tubes being provided with openings which register with one another and form a communication between the interior of the receptacle and the inner tube, only when the inner tube is moved from its normal position, substantially as shown and described

519,388. VEHICLE-WHEEL. HOMER N. PARKER, Winchendon, Mass., assignor of one-half to Orlando MASON, same place. Filed July 19, 1892. Serial No. 440,565. (No model.)

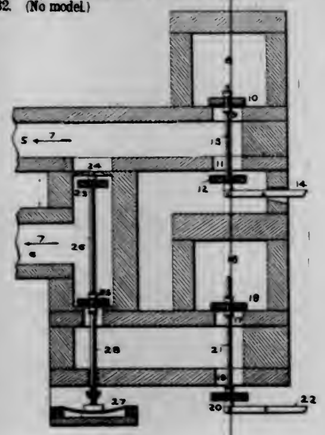


Claim.—1. The combination in the hub of a wheel, of a pair of disks having a central hole and a tube extending through the central hole of said disks with its ends expanded, in order to unite the disks together, said tube forming the bearing of the wheel, substantially as described.

2. The combination with the hub and rim of a wheel, said rim having a channel or groove in its inner surface, of a series of spokes formed in pairs, each pair of spokes consisting of a rod, or wire, bent at its central section to correspond with said rim, said curved section resting in the channel, or groove in said rim, whereby the outer ends of said spokes are held from lateral movement. substantially as described

3. The combination of a rim, a hub provided with two series of radial chambers in different planes to receive the inner ends of the spokes and a series of spokes formed of rods, or wires, bent at their central sections to correspond with the inner surface of said rim, each rod, or wire, forming a pair of spokes with their inner ends held in said hub, but in different planes, and having the curved sections of said rods, or wires, resting against the center of the inner surface of said rim, whereby said spokes are inclined from a vertical plane and the inner surface of said rim is supported, substantially as described.

519,389. AUTOMATIC COUPLER FOR PNEUMATIC ORGANS. JOHN V. PILCHER, Louisville, Ky. Filed Sept. 16, 1893. Serial No. 485,732. (No model.)



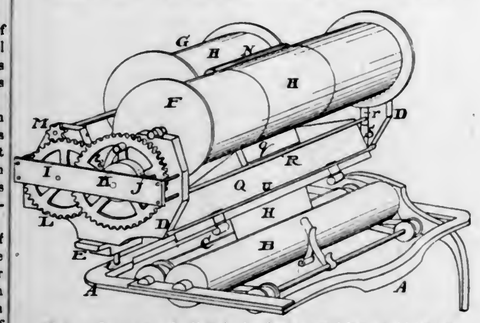
Claim.—1. The combination in a channel-coupler for organs, of two pneumatic motor-supply air channels, each provided with an independent inlet port and exhaust port; valves for the said ports; keys for the said valves; a compressed air chamber connected with each channel by its inlet port; a port communicating between the two channels; a valve for the said port, and connected with this valve, a check valve for the secondary channel substantially as described, whereby the action which opens the said communicating valve will close the said check valve and the action which closes the communicating valve will open the check valve.

2. The combination in a channel-coupler for organs, of two pneumatic motor-supply air channels, a port communicating between these channels; a check valve for one of the channels, and a valve for the communicating port connected with the check valve, substantially as specified.

3. The combination in a channel-coupler for organs, of two pneumatic motor-supply air channels; a port communicating between the channels, a pneumatically operated valve for the said port, and a check valve for one of the channels adapted to be opened by the action which closes the communicating valve, and to be closed by the action which opens the same, substantially as described.

4. The combination in a channel-coupler for organs, of two pneumatic motor-supply air channels; a coupler port communicating between the channels; a pneumatically operated valve for the said port; a check-valve for one of the channels, and a motor adapted to close the coupler valve and to open the check-valve substantially as described, whereby the coupled channels may be set free to operate independently of each other.

519,390. TYPE-WRITING MACHINE. GEORGE L. RAWDON, Cleveland, Ohio. Filed Oct. 4, 1893. Serial No. 487,187. (No model.)



Claim.—In a paper feeding device for type-writing machines the combination with the impression and feed rollers on the type-writer, of a supporting frame mounted on the carriage of the type-writer, rollers F and G, journaled in said frame; ribbon H attached to said rollers and passed under the feed roller C of the type-writer; a spring K and gear train J, L M, attached to the roller frames D D, and connected with and operating said ribbon roller G; a spring actuated pressure roller N, bearing against rear side of ribbon roller F, and a self-adjusting guide plate Q, journaled in grooves S, S, in end plates D D, all constructed and combined to operate substantially as described and for the purpose set forth.

519,391. METHOD OF UTILIZING IRON ORE. JACOB REESE, Philadelphia, Pa. Filed Jan. 23, 1894. Serial No. 497,761. (No specimens.)

Claim.—1. The method of utilizing the entire contents of phosphoretic iron ores, which consists in first crushing the ores and magnetically separating therefrom the larger part of the magnetic oxide, secondly crushing the tailings still finer and magnetically separating therefrom a further portion of the magnetic oxide, continuing said alternate crushing and separating operations until the magnetic oxide has been substantially removed, and finally reducing the remaining tailings to a fineness sufficient for plant food; substantially as described.

2. The method of utilizing the entire contents of phosphoretic iron ores, which consists in first crushing the ores and magnetically separating therefrom the larger part of the magnetic oxide, secondly crushing the tailings still finer and magnetically separating therefrom a still further portion of the magnetic oxide, continuing said alternate crushing and separating operations until the magnetic oxide has been substantially removed, mixing together the separated iron ore of the various degrees of fineness incident to said operations, and finally reducing the remaining tailings to a fineness sufficient for plant foot; substantially as described.

3. The method of utilizing the entire contents of phosphoretic iron ores, which consists in first crushing the ores and magnetically separating therefrom the larger part of the magnetic oxide, secondly crushing the tailings still finer and magnetically separating therefrom a further portion of the magnetic oxide, continuing said alternate crushing and separating operations until the magnetic oxide has been substantially removed, reducing the remaining tailings to a fineness sufficient for plant food, and converting the insoluble phosphates of said tailings into soluble phosphates by the use of sulphuric acid: substantially as described.

4. The method of utilizing the entire contents of phosphoretic iron ores, which consists in first crushing the ores and magnetically separating therefrom the larger part of the magnetic oxide, secondly crushing the tailings still finer and magnetically separating therefrom a further portion of the magnetic oxide, continuing said alternate crushing and separating operations until the magnetic oxide has been substantially removed, and finally reducing the remaining tailings until seventy-five per cent. thereof will pass through a sieve of one hundred and fifty mesh and the remainder through a sieve of one hundred mesh; substantially as described.

5. The method of utilizing the entire contents of phosphoretic iron ores, which consists in partially separating the magnetic oxide therefrom, then magnetically separating from the tailings substantially all of the remaining magnetic oxide, and then subjecting the said tailings to the action of sulphuric acid, whereby the product is prevented from assuming a sticky or mushy condition and from reverting to the insoluble condition; substantially as described.

6. The method of utilizing the entire contents of phosphoretic iron ores, which consists in magnetically separating therefrom the larger portion of the magnetic oxide, and reducing the tailings until seventy-five per cent. of said tailings will pass through a sieve of one hundred and fifty mesh and the remainder through a sieve of one hundred mesh, substantially as described.

519,392. HYDROCARBON-BURNER. ROBERT REID, Philadelphia, Pa. Filed May 4, 1893. Serial No. 473,020. (No model.)

Claim.—1. In a hydrocarbon burner the combination of a gas generator having a central opening therein and provided with a suitable supply pipe, a gas nipple located beneath the central opening in the generator, with a cover or bonnet placed over and above the generator in such position that the flame will pass through the central opening and be deflected over, downward and around the outside of the generator, as set forth.

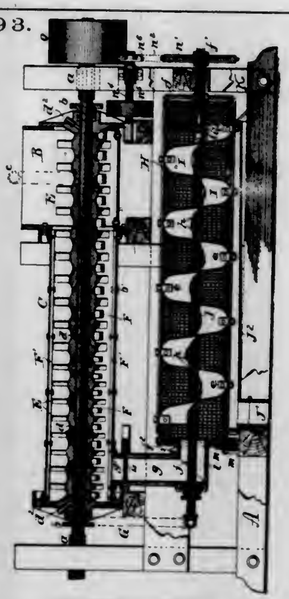
2. In a hydrocarbon burner, the combination of an annular gas generator A, having a supply pipe F and a draw-off pipe B', a partition *a* in said generator between the supply and draw-off openings, a gas nipple located beneath the central opening in said generator and connected with said draw-off pipe, with a cover or bonnet placed over and above the generator in such position that the flame will pass through the central opening and be deflected over, downward and around the outside of the generator, as set forth.

3. In a hydrocarbon burner the combination of a gas generator having a central opening therein and provided with supply and draw-off pipes, with a bonnet B having a removable spreader G, as set forth.

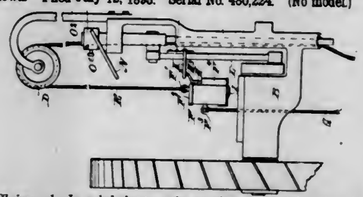
519,393. APPARATUS FOR TREATING PHOSPHATE ROCK. RUFUS E. ROSE, Kissimmee, Fla. Filed Dec. 16, 1892. Serial No. 455,398. (No model.)

Claim.—The combination with a washer and agitator, of a revoluble screen, a spiral conveyer located within said screen and adapted to be carried thereby, a chute connecting said washer and agitator with the screen, and a perforated pipe passing loosely through the conveyer and through the end of said chute, substantially as set forth.

519,393.



519,394. LUBRICATOR. WILLIAM A. SKIBEL, Independence, Iowa. Filed July 12, 1893. Serial No. 480,224. (No model.)



Claim.—1. In a lubricator, the combination with a projection on the part to be lubricated, of a suspended oil can having an oil discharge opening in one side, a sliding and spring pressed valve on the exterior of the can and provided with an opening adapted to register with the discharge opening of the can, and with an outwardly projecting arm, and means for manipulating the can to cause the arm of its valve to engage the said projection, substantially as described.

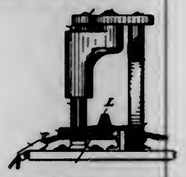
2. In a lubricator, the combination with a projection on the part to be lubricated, of a suspended oil can having an oil discharge opening in one side and provided with a guide way on its exterior, a valve fitted to slide in the guide way and provided with an opening at its lower end and with an outwardly and upwardly projecting arm at its upper end, a spring secured to the bottom of the can and having its free end engaging the lower end of the slide valve, and means for manipulating the oil can to bring the arm of its valve into engagement with the said projection, substantially as described.

3. In a lubricator, the combination with the machinery to be lubricated provided with movable projections and with a bracket carrying a pulley, of an oil can having an opening in one side and provided with a spring pressed slide valve having an arm adapted to engage the movable projections, a lifting rope secured to the top of the can and passing over the pulley, and a guide rope secured to the side of the can, substantially as herein shown and described.

4. In a lubricator, the combination with an oil box provided with a hinged and spring actuated lid having a projection at its free end, of an oil can having an opening in one side and provided with a spring pressed slide valve having an opening in one end and an outwardly projecting arm at its other end adapted to engage the projection of the oil box lid, a lifting rope secured to the top of the can passed over a pulley above the oil box and extending down within reach of the operator, and a guide rope secured to one side of the can, substantially as and for the purpose set forth.

519,395. KNOTTER FOR HARVESTING-MACHINES. JOHN F. STEWARD, Lake Odessa, Mich. Filed Apr. 8, 1893. Serial No. 469,625. (No model.)

Claim.—1. In a knotter in combination with an arm pivoted near one end, and means for reciprocally rotating said arm about said pivot, a concavo-convex lug on said arm, a curved bill opposite said lug, a hook on the end of said bill and a stationary hook traversing said bill, substantially as described.



2. In a knotter, a shaft having an arm at its end, a lug at one side of said arm, having a concave and convex side, a bill projecting from the opposite side of said arm, a divided end to said bill, an inwardly turned hook in the opening of said divided end, a hook adapted to traverse said bill, and means for reciprocally rotating said shaft, substantially as described.

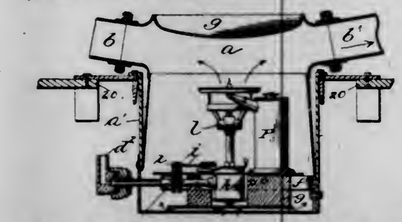
3. In combination with a reciprocally rotating shaft, an arm, a concavo-convex lug, a bill having a groove, and a divided end, and an inwardly projecting hook in said divided end, a stationary hook traversing said groove, and a pivoted and grooved trip lever adjacent to the path of said bill, substantially as described.

4. In a knotter, a shaft having the moving parts of the knotting mechanism attached, a reciprocating bar carrying an arm, a pivoted lever engaged at one side by said arm, a crank attached to said shaft and engaged by the other side of said lever, whereby a reciprocative rotary motion is imparted to said shaft, substantially as described.

5. In a knotter, a shaft having the moving parts of a knotter attached, a crank on said shaft, having a roll at its movable end, a reciprocating bar, having a roll attached a lever having slots engaging said rolls, and an intermediate pivot, and a twine cutter attached to said bar, having an inclined outer end and a cutting edge at an angle to its line of motion, substantially as described.

6. In a knotter a reciprocating bar, having a knife and arm attached, a shaft having a crank and arm attached at its respective ends and intermediately journaled, a lever having slots at each end respectively engaging said arm and crank, and an intermediate fixed pivot, a lug and bill on the arm on said shaft, a hook on the end of said bill, and a fixed hook near the path of said bill, substantially as described.

519,396. OIL-VAPOR HEATING APPARATUS. EMIL STRAUSS, Berlin, Germany. Filed Jan. 23, 1893. Serial No. 459,467. (No model.)



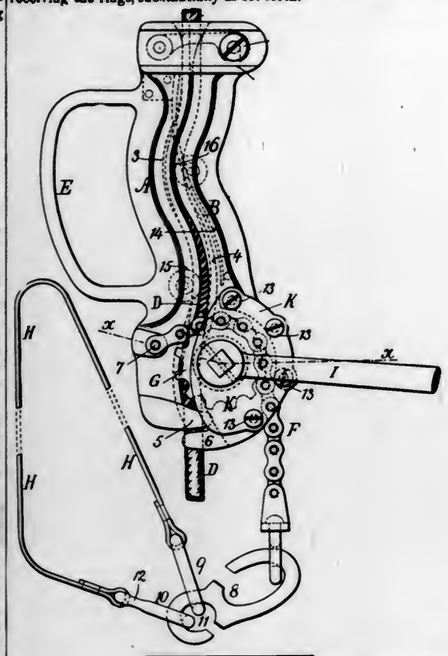
Claim.—In an oil vapor heating apparatus, a vapor chamber, the ring *e*, the forked plate *g* supporting said vapor chamber, the S shaped springs *f* connecting the forked plates with the ring *e* and the burner connected with the vapor chamber, substantially as described.

519,397. FIRE-ESCAPE. CHARLES A. STURTEVANT, Plainfield, N. J. Filed Aug. 21, 1893. Serial No. 483,543. (No model.)

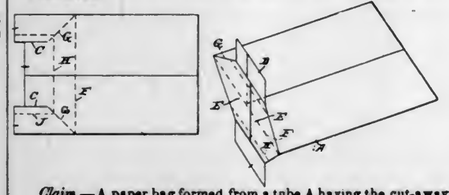
Claim.—1. The combination with the jaws A and B pivoted together, of a sprocket wheel pivoted upon one of the jaws, a lever handle for moving the sprocket wheel, a chain passing over the sprocket wheel and connected to the other jaw, and means for suspending the person from the chain, substantially as set forth.

2. The combination with the jaws A and B pivoted together and having guide fingers passing at each side of the rope, of a sprocket wheel pivoted upon one of the jaws, a lever handle for moving the sprocket wheel, a chain passing over the sprocket wheel and connected to the other jaw, and means for suspending the person from the chain, substantially as set forth.

3. The combination with the jaws A and B and pivot C, of the rope received between the undulating faces of the jaws, a sprocket wheel pivoted upon one of the jaws, a lever handle for the same, a chain passing over the sprocket wheel and attached to the other jaw, a belt having a ring reduced in thickness at one portion, a hook for connecting the belt with the end of the chain, and a notched eye for receiving the rings, substantially as set forth.



519,398. PAPER BAG. EDWARD THOMPSON, Middletown, Ohio, assignor, by mesne assignments, to the Titus-Gardner Paper and Manufacturing Company, same place. Filed Sept. 19, 1892. Serial No. 446,355. (No model.)



Claim.—A paper bag formed from a tube A having the cut-away notch B in one end and having cuts C extending in prolongation of the end margins of said notch, and having the flaps E overlapped and pasted and having the flaps D and D' overlapped and pasted, as and for the purpose set forth.

519,399. ROBE-HOLDER. FRANK E. WOODRUFF, Calis, W. Va. Filed Aug. 7, 1893. Serial No. 482,667. (No model.)



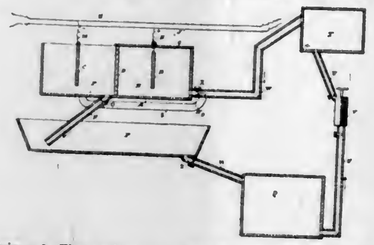
Claim.—1. The combination of a bearing pin, spring wire encircling the same in separated coils, resisting arms formed of the free ends of the wire, operating arms formed by extending upward the adjacent ends of the coils, and clamping arms depending from the said operating arms having pivotal support between their ends, substantially as shown and described.

2. The combination of a bearing pin, coils of spring wire thereon having their ends turned upward to form resisting arms and operating arms, clamping arms pivotally supported between their ends, and a connection between the operating and clamping arms, substantially as shown and described.

3. An improved robe holder comprising a support, a coil of spring wire secured thereto, depending arms formed by continuing the said arms, the lower ends of said arms being formed into eyes, a clamping block, and a strip arranged on opposite sides of the said eyes, and secured nails connecting the strips and block which project through the eyes, substantially as shown and described.

4. An improved robe holder comprising a support, a plate secured thereto having bearing ears upon its opposite sides, a pin supported thereby, a robe holding clamp formed of a single piece of wire coiled about the said pin, the said coil being formed in two sections, resisting arms formed by the outer ends of the coil, operating arms formed by turning upward and then downward the adjacent ends of the coil, and depending clamp carrying arms formed by continuing the said operating arms after having been coiled about the said pin, substantially as shown and described.

519,400. ELECTROLYSIS. HENRY BLUMENBERG, Jr., Mount Vernon, N. Y. Filed May 6, 1893. Serial No. 473,240. (No model.)

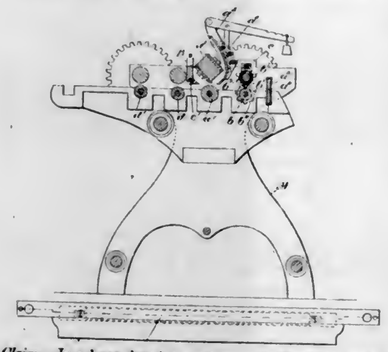


Claim.—1. The combination of an electrolytic bath having positive and negative compartments, a pipe connecting the two, a settling tank connected with said bath, another tank, located between the settling tank and bath, and pipes connecting them into a continuous system.

2. The herein described process which consists in placing an electrolyte containing a haloid salt in a vat, electrolyzing the same thereby setting free the halogen at the positive electrode, and the base at the negative electrode, and finally transferring the liberated gas from the positive to the negative electrode, and thereby bring it into contact with the base.

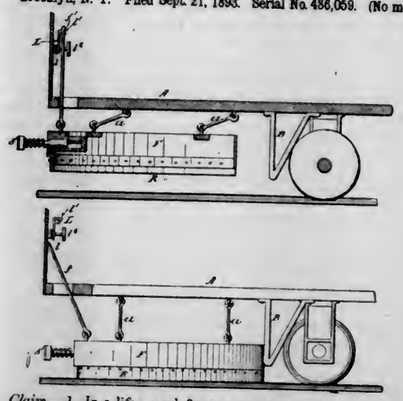
3. The herein described process which consists in placing an electrolyte containing a haloid salt in a vat, then electrolyzing the same thereby setting free the halogen at the positive electrode and the base at the negative electrode, transferring the liberated gas from the positive to the negative electrode, then conveying the liquid electrolyte to a settling tank, and then leading the by products of the electrolyte to a resaturator and back to the vat.

519,401. HOOP-DRESSING MACHINE. HENRY F. CAMPBELL, Malden, Mass., assignor to Geo. B. James, trustee. Filed Apr. 3, 1888. Serial No. 269,434. (No model.)



Claim.—In a hoop dressing machine a yielding bed, upper and lower feed rolls, one of which is automatically adjustable vertically to accommodate stock of varying thickness, and gears to drive said rolls positively, combined with a cutter, and a presser bar B having a roller *e'* resting upon the stock, said roller being adjustable independently of the said presser bar substantially as and for the purpose specified.

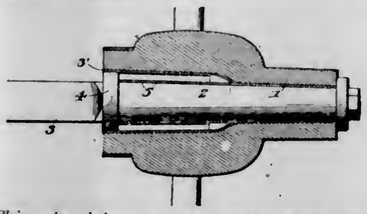
519,402. LIFE-GUARD FOR STREET-CARS. JAMES CAMPBELL, Brooklyn, N. Y. Filed Sept. 21, 1893. Serial No. 486,059. (No model.)



Claim.—1. In a life guard for street cars, &c., the combination of a V-shaped fender suspended on links; a lifting rod formed with a shoulder; and a spring latch, upon the body of the car, for engaging said shoulder on the rod and holding it and said fender in an elevated position, substantially in the manner and for the purpose described.

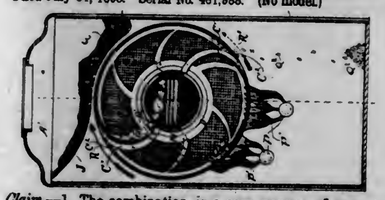
2. In a life guard for street cars, &c, the combination of a V-shaped fender suspended on links; a lifting rod formed with a shoulder; a support, upon the body of the car, for engaging said shoulder and holding it and said fender in an elevated position; and stationary back rests upon the bottom of the car, for reinforcing and sustaining the fender in its lowest position, substantially in the manner and for the purpose described.

519,403. AXLE-BOX. TONY LO CASTO, Marshall, Tex., assignor of one-half to Henry Yakel, same place. Filed Nov. 15, 1893. Serial No. 491,019. (No model.)



Claim.—An axle box comprising the tapered thimble conforming to the configuration of the spindle of an axle and closely fitting the same and adapted to abut against the collar of the axle at the base thereof, and provided at its inner portion with perforations, and the external encircling box 3' spaced from and forming a lubricant receiving chamber around the inner perforated portion of the thimble, said chamber being unobstructed from end to end and its outer end being open for the introduction of the lubricant, and said box having one end permanently secured to the thimble intermediate of the ends thereof, so as to close the lubricant receiving chamber at its inner end, and extending beyond the end of the thimble to receive and pase over the collar of an axle and resting upon and supported by the collar, whereby the outer end of the lubricant receiving chamber is closed by the said collar when in use, substantially as described.

519,404. CORN-POPPER. LEVI R. HIFFNER, Grand Rapids, Mich. Filed July 31, 1893. Serial No. 481,988. (No model.)



Claim.—1. The combination, in a corn popper, of an outer inclosing case having open ends and annular central bearings, a perfo-

rated cylinder supported to revolve upon said bearings the ends of said cylinder being open through said bearings, an endless chain for conveying the popped corn out through said openings, an idler across one end of said case and a driving shaft across the other end thereof to support and drive said endless chain through the center of said cylinder and guards at each edge of said chain and a heating appliance, substantially as, and for the purpose set forth.

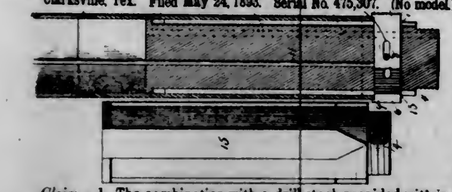
2. The combination, in a corn popper, of an outer inclosing case having the ends open and provided with annular bearings for the support of the popping cylinder, a perforated popping cylinder within said case, having annular bearings corresponding with the bearings on the case the space within said annular bearings being open, a storage chamber in the case above said cylinder, a feed worm in said chamber, an opening in the front wall of the case for the discharge of corn, a conveyer therefrom to the center of the cylinder, a conveyer through the center of the cylinder lengthwise to convey the popped corn therefrom, mechanism for driving said cylinder, conveyer and feed worm, and a heating appliance, substantially as, and for the purpose set forth.

3. In a corn popper, an outer inclosing case, a cylinder within said case, assorting arms within said cylinder and wire netting around its periphery, an annular bearing at each end of the cylinder, one of said bearings passing through the end of the inclosing case and provided with a sprocket wheel, a shaft across the end of the case, a sprocket wheel on said shaft, an idler shaft across the opposite end of the case, an endless chain supported on said shafts and driven, thereby, through the center of the cylinder and a guard through the cylinder at each edge of the chain, and a heating appliance substantially as shown and described.

4. The combination, in a corn popper, of an inclosing case having open ends and annular bearings, a cylinder having annular bearings corresponding therewith, anti-friction rollers in said bearings, guards passing through said cylinder and attached at the ends to the sides of the annular bearings in the case, assorting arms within the cylinder, the peripheral covering of the cylinder extending well down on the front of said arms and provided with a narrow opening back of them, a storage chamber in the case above the cylinder, a feed worm therein, an opening in the case at the front end of said feed worm, a conducting tube thence into the center of the cylinder, a conveyer for conveying the popped corn out at the center of the end of the cylinder and case mechanism for driving the cylinder, the feed screw, and the conveyer, and a heater, substantially as specified and shown.

5. In a corn popper, an outer inclosing case, arms projecting from each end of said case and terminating in inwardly projecting annular rims, a revoluble cylinder within said case having annular bearings at the ends to co-operate with, and travel around the annular rims of the outer case, anti-friction rollers between said bearings, one of the annular bearings on the cylinder being provided with sprockets a shaft supported across the back end of the outer frame and provided with a sprocket—or a bevel gear—to mesh at right angles with the cylinder sprocket and a corresponding idler supported across the front end of the outer frame, an endless chain supported upon, and driven by said shaft and idler, guards at each side of said chain passing through the center of the cylinder and secured at the ends to the annular rims of the outer case, and open above and below the chain for the free passage of corn, assorting arms projecting from the periphery of the cylinder to, and supported near the outer surface of said guards, a perforated cover extending well down from the outer ends of each set of arms around the periphery of the cylinder to near the back of the other set and leaving an opening back of each set of arms, a storage chamber and feed screw in the top of the outer case, a sprocket chain for transmitting power to drive the cylinder, and appliances for heating the same, substantially as shown and described.

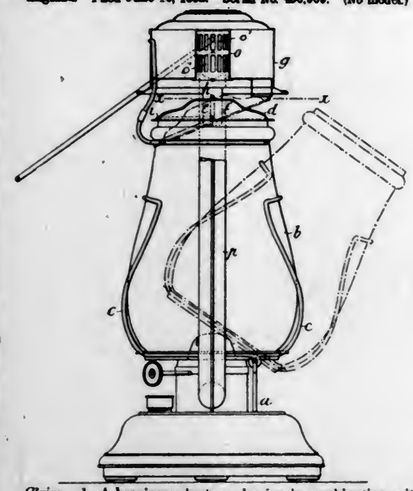
519,405. WELL-DRILLING APPARATUS. STEPHEN A. HORTON, Clarksville, Tex. Filed May 24, 1893. Serial No. 475,307. (No model.)



Claim.—1. The combination with a drill stock provided with interior spaced ribs, of a bit-carrying core or stem provided with exterior grooves to receive said ribs, the upper ends of said grooves being closed, and locking devices carried by the core or stem to engage the lower edge of the stock, substantially as specified.

2. The combination of a drill stock provided with interior alternate ribs and grooves, a core or stem fitting within said stock and provided with corresponding alternate grooves and ribs to interlock with those of the stock, the grooves of the core or stem being closed at their upper ends by stops or flanges to engage the upper ends of the ribs of the stock, adjustable rests carried by the core or stem, and means to extend the same to engage the lower end of the stock, substantially as specified.

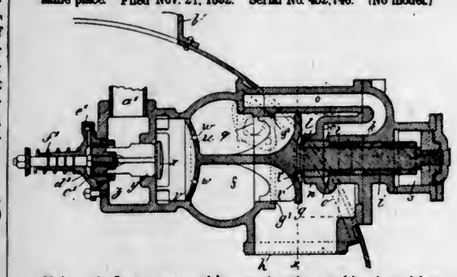
519,406. HURRICANE-LANTERN. WILLIAM LIGHBODY, London, England. Filed June 16, 1892. Serial No. 436,969. (No model.)



Claim.—1. A hurricane lantern, having in combination with a swinging or hinged globe, a dome shaped perforated plate or screen fitted to and resting on said globe and supported on vertically movable pivots, and weighted at one side, substantially as set forth, and whereby when the globe is tilted this plate may by its own gravity assume an inclined position and so remain until the globe in returning to its upright position, impinges upon the under side of the plate, lifts it up and allows the globe to pass freely beneath it, the plate then dropping to its place on the globe.

2. In combination with the swing gallery and its globe, and with the perforated screen or plate attached to and swinging with the globe as set forth, the air chamber above the same, and the perforated tube *o. o.* within said chamber, all substantially as set forth.

519,407. COMPOUND LOCOMOTIVE. CARL J. MELLIN, Richmond, Va., assignor to the Richmond Locomotive and Machine Works, same place. Filed Nov. 21, 1892. Serial No. 452,748. (No model.)



Claim.—1. In a compound locomotive the combination with the intercepting valve in the steam receiver between the high and low pressure cylinders, of the device for closing said valve by the live steam pressure, consisting of the piston and reducing sleeve fitted on the stem of said valve and within the surrounding cylinder therefor said sleeve being movable on the stem independently of the intercepting valve substantially as described.

2. In a compound locomotive, the combination with the intercepting valve in the steam receiver between the high and low pressure cylinders, of the device for closing said valve by the live steam pressure, consisting of the piston and reducing sleeve fitted on the stem of said valve and within the surrounding cylinder therefor having the larger and the smaller bores, said piston and sleeve made with the shoulder for receiving the live steam, and the sleeve extended in the smaller bore past the steam port and being movable independently of the intercepting valve substantially as described.

3. In a compound locomotive the combination with the intercepting valve in the steam receiver between the high and low pressure cylinders, of the piston, steam reducing sleeve, and the live steam branch pipe communicating therewith, and adapted to close said intercepting valve when the receiver is exhausted, and admit live steam from said branch to the low pressure cylinder in limited amount, said piston being movable independently of the intercepting valve and thereby adapted to be closed independently of the intercepting valve by overbalancing pressure of live steam, when above the predetermined limit in said low pressure cylinder substantially as described.

4. In a compound locomotive the combination with the intercepting valve in the steam receiver between the high and low pressure cylinders, of the device for closing said valve by the live steam pressure consisting of the piston and reducing sleeve fitted on the stem of said valve and within the surrounding cylinder therefor having the larger and the smaller bores, said piston and sleeve made with the shoulder for receiving the live steam and the sleeve extended in the smaller bore past the steam port, and the stem of the intercepting valve extended through the case and provided with the adjusting nut and spring to regulate the opening of said valve according to pressure in the receiver substantially as described.

5. In a compound locomotive, the combination with the intercepting valve in the steam receiver between the high and low pressure cylinders, of the device for closing said valve by the live steam pressure consisting of the piston and reducing sleeve fitted on the stem of said valve and within the surrounding cylinder therefor, said piston being movable independently of the intercepting valve and thereby adapted to be closed independently of the intercepting valve by overbalancing pressure of live steam when above the predetermined limit in said low pressure cylinder steam chest, substantially as described.

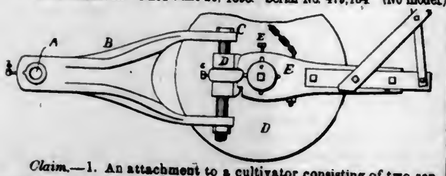
6. In a compound locomotive the combination with the intercepting valve in the steam receiver between the high and low pressure cylinders, of the device for closing said intercepting valve by the live steam, consisting of the piston, steam reducing sleeve, and the live steam branch pipe communicating therewith, and adapted to close said intercepting valve when the receiver is exhausted, and admit live steam from said branch to the low pressure cylinder, steam chest, said piston and reducing sleeve arranged axially with, and movable on the stem of the intercepting valve independently of said valve substantially as described.

7. In a compound locomotive the combination with the intercepting valve in the steam receiver between the high and low pressure cylinders, of the piston and live steam branch pipe communicating therewith and adapted to close said intercepting valve when the receiver is exhausted, and admit live steam from said branch to said low pressure cylinder, and be closed in turn by said intercepting valve, said intercepting valve and piston relatively adjusted to close communication through either one prior to the opening of communication through the other substantially as described.

8. In a compound engine the combination with the intercepting valve in the steam receiver between the high and low pressure cylinders, of the emergency valve, the exhaust passage of said valve and the piston connected with the intercepting valve intermediately of said valve and the emergency valve and subject to steam exhaust through the said emergency valve for positive effect in closing said intercepting valve, said emergency valve arranged independently of the intercepting valve, and adapted to open the high pressure side of the receiver to said exhaust at the will of the engineer substantially as described.

9. In a compound locomotive, the combination of the intercepting valve in the steam receiver between the high and low pressure cylinders, and adapted to be normally held open by the steam exhausting from the high pressure cylinder into the low pressure cylinder, the live steam piston and reducing sleeve normally open to the live steam and opposing but overbalanced by the pressure of exhaust steam on the intercepting valve, and the emergency valve subject to the control of the engineer substantially as described

519,408. ATTACHMENT FOR CULTIVATORS. JOSEPH MEIER, Rock Island, Ill. Filed June 29, 1893. Serial No. 479,184. (No model.)



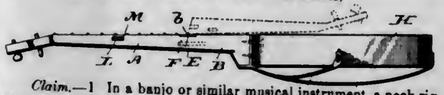
Claim.—1. An attachment to a cultivator consisting of two separate, parts, similar each to each and operating in conjunction, each consisting of a combination of a coupling beam B pivot bolt C, sleeve D vertically adjustable upon said pivot bolt, disk beam E, gang of revolving disks D, brace *f* and loop L.

2. In an attachment to cultivators, the combination of a sleeve A' upon the axle of the cultivator, the coupling beam B, pivot bolt C, disk beam E, gang of disks D, brace *f*, loop L, and handle H.

3. The combination with a cultivator having axle and wheels, of two gangs of revolving disks journaled in disk beams and braces, coupling beams moving upon said axle as a horizontal pivot and being connected with said disk beams by vertical pivots, braces bearing loops, and handles, all as set forth.

4. In an attachment to cultivators, the combination of a sleeve A' upon the axle of the cultivator, the coupling beam B, pivot bolt C, disk beam E, gang of disks D, brace *f* and loop L, as described.

519,409. BANJO. HOBART C. MIDDLEBROOKS, Rock Rapids, Iowa. Filed May 20, 1893. Serial No. 474,944. (No model.)



Claim.—1 In a banjo or similar musical instrument, a neck rigidly attached to the body of the instrument and composed of two parts which are hinged together, the outer part adapted to fold on the inner part of the said neck and on the body of the instrument, substantially as described.

2. A banjo or similar musical instrument having a folding neck, the parts being connected by a hinge the butt of which forms a fret, substantially as set forth.

3. A banjo or similar musical instrument having a neck rigidly attached to the body of the instrument, composed of two parts which are hinged together, and a bolt to project across the joint between the hinged parts to brace, strengthen and lock the said hinged joint, substantially as set forth.

4. A banjo or similar musical instrument having a neck rigidly attached thereto and composed of two parts which are hinged together, a bolt attached to one of the parts and having its projecting end notched, a plate adapted to work across an opening in the other part to engage with the notched end of the bolt and adapted to be actuated from the under side of the neck, and a spring for actuating the said plate, substantially as described for the purpose specified.

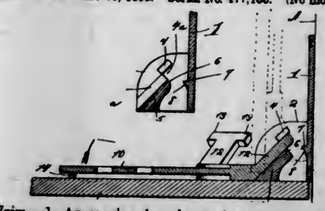
5. In a banjo having a recess in the side of its neck to receive the head of the fifth or thumb string key, the combination of a key composed of a cylindrical portion having a pin projected from the inner side, and a key proper having a groove to receive the pin and form a lock, and having an annular groove to permit said key to turn freely when in register with said pin so that the head of said key may be seated in the said recess, substantially as set forth.

6. In a banjo a metallic connection for securing the rim or hoop to the neck having a series of arms which are attached to the hoop at different points, substantially as set forth.

7. In a banjo, a metallic connection for securing the rim or hoop to the neck having a series of arms and means for adjustably connecting the hoop or rim to the said arm, substantially as set forth.

8. In a banjo, a metallic connection for securing the hoop or rim to the neck having a series of arms which curve downward between their ends, and which are attached at their free ends at different points in the periphery of the hoop, substantially as set forth.

519,410. IRONING-BOARD. JOHN Y. MOORE, Kansas City, Mo., assignor of two-thirds to Willard F. Nicol and Thomas P. Douglas, same place. Filed June 10, 1893. Serial No. 477,166. (No model.)



Claim.—1. An ironing board attachment, comprising a wall-bracket, having a pair of vertical ears, and an inclined bridge-portion, and retainer-blocks secured to the inner sides of said vertical ears, in combination with a plate carrying the ironing board, and having an arm inclined to correspond with the inclination of the bridge-portion of the wall bracket, and lateral extensions or lugs formed at the ends of said arm, substantially as and for the purpose set forth.

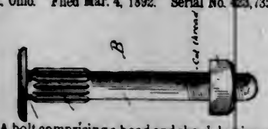
2. In an ironing board attachment, the combination with a wall-bracket having vertical ears and an inclined bridge-portion connecting said ears, and retainer-blocks at the inner sides of said ears, of a plate having its rear end adapted to be arranged parallel with the wall, and having forwardly or outwardly divergent sides, and arms or necks projecting from the rear end at right angles thereto and also from and at right angles to the oblique or inclined sides thereof, and having lateral extensions or lugs at their outer ends, and an ironing board secured to the under side of the plate, and having its rear end parallel with the rear end of the plate, and having oppositely inclined or oblique sides parallel with the inclined sides of said plate, substantially as and for the purpose set forth.

3. An ironing board attachment, comprising a wall-bracket having vertical ears, and parallel and inclined guide strips at the inner side of said ears, and parallel and inclined retainer-blocks at the inner side of said ears and also having their lower inclined sides in the same plane with the upper sides of the guide-strips, and a bridge-portion having its upper or outer side inclined and arranged in the same inclined plane with the lower side of the guide-strips, in combination with a plate carrying the ironing board, and having an arm or neck extending therefrom at the same inclination as the guide-strips and of width to lie snugly between the same to prevent lateral movement and adapted to rest against the inclined upper or outer side of the bridge-portion, and having lateral extensions or lugs adapted to bear against the under side of the retainer-blocks, substantially as set forth.

4. In an ironing board attachment, the combination with a wall-bracket having parallel vertical ears, and an inclined bridge-portion connecting said vertical ears, and a shoulder having an inclined face, of a plate carying the ironing board and having an arm or neck projecting therefrom at an inclination to correspond with the inclination of the bridge-portion of the wall bracket, and adapted when folded to rest between said ears and against the inclined face of the shoulder and the upper end of the bridge-portion of the wall bracket, substantially as set forth.

5. The combination with a wall-bracket, an ironing board having a squared rear end, and oppositely inclined or beveled sides, and a plate secured to the board, and having arms projecting outwardly and at right angles to the squared end and inclined sides of the ironing board, any one of which may engage the wall-bracket, of an extensible and contractible brace pivotally connected to the board at its upper end, to operate in a vertical plane, and pivotally supported at its lower end, to operate laterally, substantially as set forth.

519,411. BOLT. WILLIAM C. NORTH and SAMUEL W. SESSIONS, Cleveland, Ohio. Filed Mar. 4, 1892. Serial No. 423,732. (No model.)



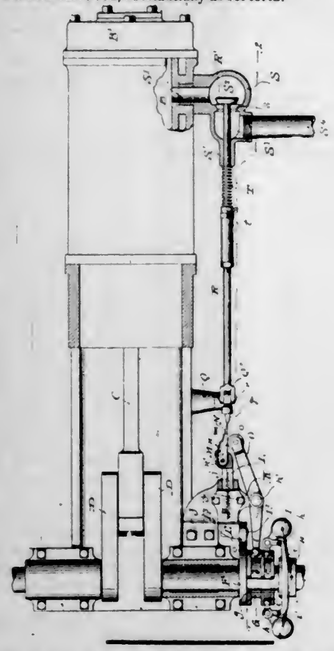
Claim.—A bolt comprising a head and shank having screw threads cut on the end opposite the head, a portion of the remainder of the shank constructed with longitudinal ribs located a short distance from the head and formed by the displacement of a portion of the stock constituting the shank, leaving a space between the head and ribs of less diameter than the latter, substantially as described.

519,412. GOVERNOR. ANDREW J. PIERCE, Racine, Wis., assignor to the Pierce Engine Company, same place. Filed June 19, 1893. Serial No. 478,096. (No model.)

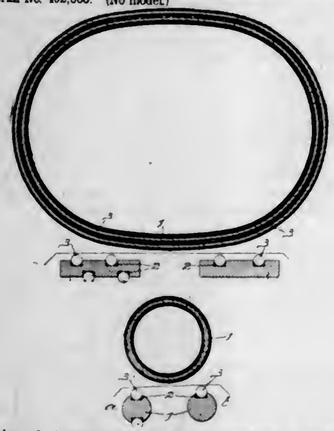
Claim.—1. In an engine, the combination with a suitable frame, and a valve-casing, valve and valve-rod supported thereon, and an arm pivoted to said frame and to said valve-rod, and carrying a tapered lug, of a revolving shaft, a cam-wheel fast thereon and a grooved sleeve splined thereon, a governor on said shaft connected to said grooved sleeve, a slide carrying a wheel in engagement with said cam-wheel and provided with a pivoted finger normally in engagement with the said tapered lug, and a pivoted lever in engagement with said grooved wheel and said finger, substantially as set forth.

2. In an engine, the combination with a suitable frame, and a valve-casing, valve and valve-rod supported thereon, of a revolving shaft, a cam-wheel fast thereon and a grooved sleeve splined thereon, a governor on said shaft, the shanks of the governor balls fitting in one of the grooves of said sleeve, a bracket projecting from said frame, and provided with a recess, a slide movable in said recess and carrying a wheel at one end in line with said cam-wheel, and a pivoted finger at its other end, an arm pivoted to the frame and to the valve-rod, and carrying a tapered lug normally in line with the said finger, and a lever pivoted to said bracket, and having two arms, one in engagement with the described grooved sleeve, and the other bearing against the said finger, substantially as set forth.

3. In an engine, the combination with a suitable frame, and a valve-casing, valve and valve rod supported thereon, and an arm pivoted to said frame, and to said valve-rod and carrying a tapered lug, of a revolving shaft, a cam-wheel fast thereon and a double grooved sleeve splined thereon, a governor on said shaft comprising a collar with arms, balls having shanks pivoted to said arms and terminating in knobs fitting in one of the grooves of said sleeve, and retracting springs connecting said collar and balls, a bracket on the frame provided with a recess, and a depending lug, a slide in said recess, provided with a head at each end and a depending lug, a spring connecting the said depending lugs, a wheel on one of the slide-heads, and a spring-controlled pivoted finger on the other head, a lever pivoted about midway on the said bracket and carrying a knob at one end fitting within the other groove of the said sleeve, and a wheel at its other end impinging against the said finger, and a retracting spring on the said valve-rod, substantially as set forth.



519,413. GASKET. THEODORE SAUNDERS, Danbury, Conn., assignor of one-half to Edmund Tweedy, same place. Filed Dec. 5, 1893. Serial No. 492,865. (No model.)



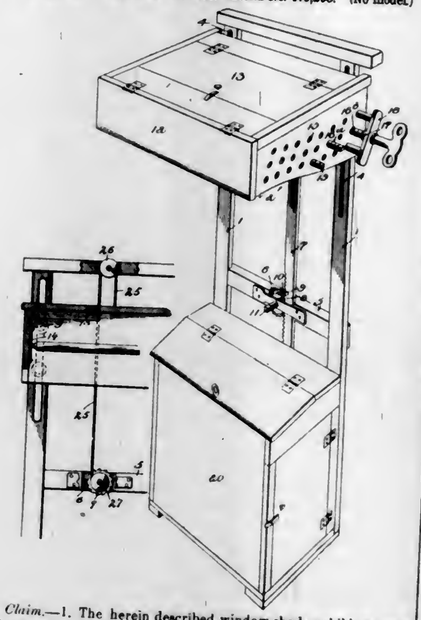
Claim.—1. A gasket composed of a grooved body of pliable metal with fibrous cord held in place by the groove which it occupies, substantially as specified.

2. A gasket composed of a grooved body of pliable metal with cord of non-elastic fibers held in place by the groove which it occupies, substantially as specified.

3. A gasket composed of an endless ring of pliable metal having longitudinal grooves, and fibrous asbestus cord held in place by said grooves with a portion projecting above the surface of the metal, substantially as specified.

4. A gasket composed of an endless ring of pliable metal of rectangular cross-section having longitudinal grooves in its upper and lower faces, cord of asbestus fibers held in said grooves, with a portion projecting above the surface of the metal, and a cement that hardens by heat for holding the cord in the grooves, substantially as specified.

519,414. WINDOW-SHADE EXHIBITOR. JAMES STURGISS, Edgerton, Mo. Filed June 30, 1893. Serial No. 479,293. (No model.)



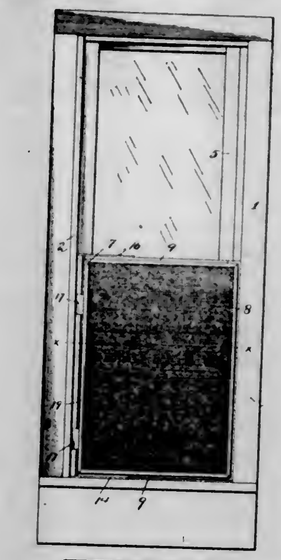
Claim.—1. The herein described window-shade exhibitor, comprising a base, parallel uprights arranged at the rear angles of said base and provided with longitudinal slots, a receptacle connecting the lower ends of the uprights, a vertically movable hood having parallel side walls and front and top hinged doors, sockets carried by the side-walls for the reception of shade-roller trunnions, guide-pins projecting rearward from the rear side of the hood and slidably fitted in the slots of the uprights, means for adjusting the hood vertically, and locking-devices to secure the hood at the desired adjustment, the means for adjusting and locking the hood being located between the uprights and slightly above the plane of the upper side of the said receptacle whereby it is within reach of an operator from the floor substantially as specified.

2. In a window-shade exhibitor, the combination with an upright supporting frame, of a hood carried by such frame and provided upon one side wall with slotted sockets and in the other side wall with aligned perforations, and adjustable sockets fitted in said perforations and provided with a threaded intermediate socket and adjacent parallel sliding sockets, substantially as specified.

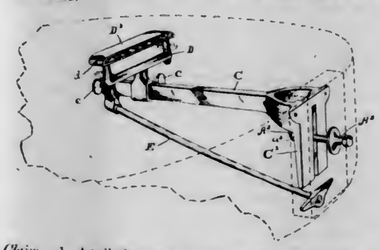
3. In a window shade exhibitor, the combination with an upright supporting frame, of a hood carried by such frame and provided upon one side wall with slotted sockets and in the other side wall with aligned perforations, and adjustable sockets fitted in said perforations, substantially as specified.

519,415. WINDOW-SCREEN. ALEXANDER THOMAS, Nevada, Mo. Filed Aug. 5, 1893. Serial No. 482,471. (No model.)

Claim.—The window screen shown having its vertical stile 8, longitudinally rabbeted on the outer side, and its vertical stile 7, longitudinally rabbeted on the inner side, the vertical outwardly pressed strip 13, arranged in the rabbeted portion of stile 7, and of substantially the same thickness as the depth of said portion, means loosely confining said strip to the frame, and the rib 20, longitudinally secured on the outer side of said strip at a point between the vertical edges thereof and arranged opposite the inner unrabbeted edge of stile 7, for the purpose described.



519,416. TAILPIECE FOR MUSICAL INSTRUMENTS. ROBERT L. TURNER, Indianapolis, Ind. Filed Feb. 6, 1894. Serial No. 499,248. (No model.)



Claim.—1. A tail-piece for musical instruments adapted to be secured within the instrument, and having parts which are adapted to extend up through holes in the sounding board of the instrument, to which the strings are attached, said tail-piece thus being wholly inclosed, and free from contact with the sounding board of the instrument.

2. The combination, in a tail-piece for musical instruments, of an arm C, and a part D having arms extending up through holes in the top of the instrument, and a cross-bar D′ on the top of said arms to which the strings are attached, the tail-piece being secured to the inner side of the lower end of the instrument, substantially as set forth

3. The combination, in a tail-piece for musical instruments, of the arm C, the part D adjustably mounted thereon and having arms which extend up through the top of the instrument, and a cross-bar D′ to receive the strings, secured on the top of the arms of said adjustable part, substantially as set forth

4. The combination, with a musical instrument, of a tail-piece adapted to be secured inside thereof, consisting of an arm C with a base C′, and a bolt A^3 by which it is secured to said instrument, a part D mounted on said arm C and having arms which extend up through holes in the top of said instrument, and a suitable part on the top of said arms to which to attach the strings.

5. The combination, with the tail-piece for musical instruments adapted to be secured inside of the same, of a brace E, substantially as and for the purpose set forth.

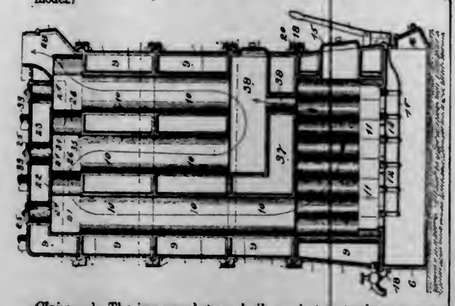
6. The combination, with a musical instrument, of a tail-piece consisting of a main portion and a cross portion and adapted to be secured within the instrument, means for so securing the said tail piece, and tie-rods F for steadying the cross piece, substantially as shown and described.

519,417. DISH-COVER. THOMAS YORK, Portsmouth, Ohio. Filed Mar. 24, 1894. Serial No. 505,451. (No model.)



Claim.—The improvement which consists in providiug the cover A with the aperture *g* in the inner wall thereof, and the dish B with the orifices *h*, in the manner described; for the purpose of creating a constant current of air through the interior of the combined dish and cover, whereby the cooling properties of the said apparatus are materially increased.

519,418. STEAM-BOILER OR HOT-WATER HEATER. ARTHUR BOYCE, St. Louis, Mo. Filed July 10, 1893. Serial No. 479,983. (No model.)



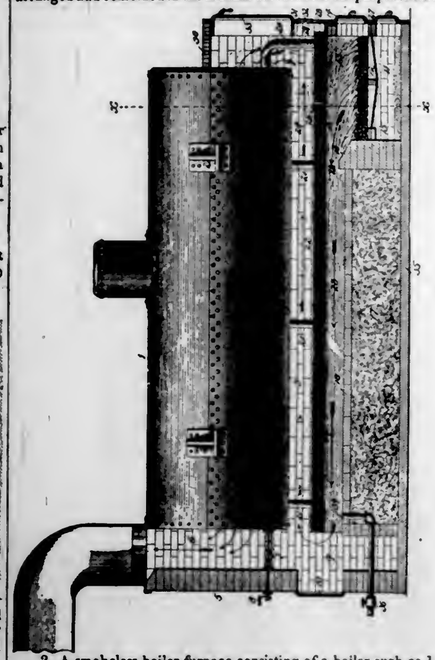
Claim.—1. The improved steam boiler or hot-water heater, comprising a number of sectional rectangular frames superposed and bolted to each other upon a base-frame, a smoke box formed in the upper portion of the boiler, a water or steam-space above and below said smoke-box, a fire-box formed in the lower portion of the boiler, an igniting chamber, formed in the boiler intermediate of said smoke box and said fire-box, a comparatively thin water receptacle formed in the boiler directly above the fire-box so that its lower wall will be subjected to the direct action of the heat of said fire-box, and said water-receptacle being located directly beneath said igniting-chamber and provided with a passage which places the said igniting-chamber and said fire-box in direct communication, and separate fire-passages which connect said fire box to said smoke-box and said igniting-chamber to the smoke-box, substantially as herein specified.

2. The improved steam-boiler or hot-water heater, constructed with an exterior shell, a fire-box, a smoke-box at the top, an igniting chamber above said fire-box but separate therefrom, a direct communication between said fire-box and said igniting-chamber, a group of long fire-passages surrounded by water-space and connecting said fire-box with said chamber at the top of the boiler, the direction of draft in said long passages and in said connection between the fire-box and the iguiting-chamber being upward, a series of shorter fire-passages connecting said chamber at the top with said igniting-chamber, and in which the direction of draft is downward, and a third series of passages connecting said igniting-chamber direct with a smoke-pipe connection, substantially as specified.

3. An improved steam boiler or hot-water heater, having a series of frames containing water-spaces and located one above the other, end-plates separating said water spaces, fire-passages connecting said plates and forming continuous passages from the fire-box upward to a smoke box, thence downward to an igniting-chamber and upward to the smoke outlet, a direct passage connecting the upper portion of the fire box with said igniting-chamber, grate bars located in the fire-box, an ash pit under said grate-bars, and a damper in said smoke-box, substantially as herein specified.

519,419. BOILER-FURNACE AND STEAM-GENERATOR. ARTHUR BOYCE, St. Louis, Mo. Filed July 10, 1893. Serial No. 479,984. (No model.)

Claim.—1. A smokeless boiler furnace, comprising a boiler, a water receptacle located beneath the boiler and having communication therewith and provided with a passage, a fire-box or chamber located below the passage in the water receptacle, an igniting chamber located above the passage in the water receptacle, an air passage located below the water receptacle and providing communication for the smoke and products of combustion from the fire-box to the igniting chamber, a damper located in the rear of the fire-box whereby the flow of smoke and products of combustion is deflected and directed, and a mud exhaust pipe located in the rear of the receptacle, arranged and combined in the manner set forth for the purposes stated.



2. A smokeless boiler furnace consisting of a boiler such as 1, a receptacle such as 19 curvilinear in cross section, water legs such as 20 and 21 for affording communication between said boiler and receptacle, a fire chamber located beneath said receptacle, an igniting chamber located above the same, a passage formed in said receptacle for affording communication between said igniting chamber and fire chamber, a mud exhaust pipe 34 secured to the rear of said receptacle, a damper 7, a front plate 28 provided with a series of air passages 31 and dampers 32, substantially as set forth.

519,420. FENCE. ORLANDO E. CHURCHILL and CLAUDE W. BENNETT, Penn, Mich. Filed Nov. 6, 1893. Serial No. 490,198. (No model.)

Claim.—1. In combination with fixed posts, portable posts having supports of sled form as set forth, and horizontal wires connecting said posts; the portable posts being adjustably mounted upon their supports, as and for the purpose specified.

2. In combination with fixed posts *a*, and end posts *d*, intervening portable posts mounted upon supports of sled form, and wires connecting said posts; the end posts being provided with thimbles and binding keys substantially as specified.

3. A post for a portable fence, mounted upon runners of sled form having cross-bars or braces through which said post passes, said post having a vertically-adjustable engagement with said braces, substantially as described.

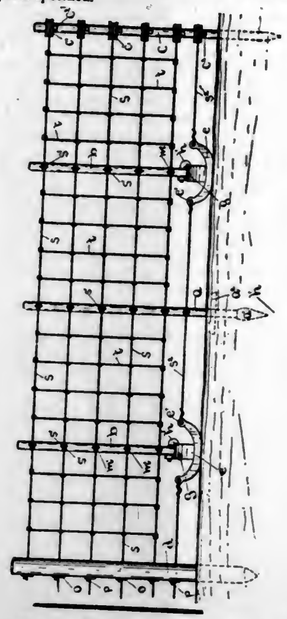
4. A post, having an opening, in combination with a support therefor, an upwardly-extending brace, engaged by said post, and a hook, having its shank extending through said opening in the post and engaged by a clamping nut and its head engaging said brace, substantially as shown and described.

5. A post, having an elongated opening, in combination with a support therefor, said post having a vertically-adjustable engagement with said support, and a hook, having its shank extending through said opening in the post, and engaged by a clamping nut, and its head engaging said brace, substantially as shown and described.

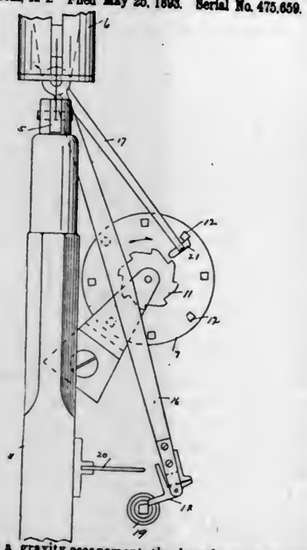
6. A post for a portable fence, having a threaded lower end, in combination with supports for said post, said supports having a cross-bar, formed with a threaded opening engaged by the threaded end of said post, a brace having an opening through which said post extends, and a clamp engaging said brace and post, substantially as shown and described.

7. As an improvement in wire fences, fixed posts, as *a* and *d*, and

the intervening movable posts mounted on runners, wires, attached to said posts, and wires connecting said runners of the movable posts, all arranged, combined and operating substantially as described and for the purposes specified.



519,421. GRAVITY-ESCAPEMENT FOR CLOCKS. HEZEKIAH CONANT, Lincoln, R. I. Filed May 25, 1893. Serial No. 475,659. (No model.)

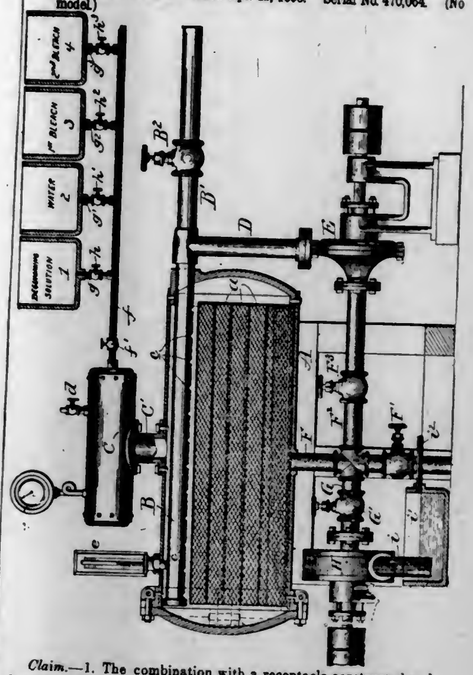


Claim.—1. In a gravity escapement, the bent lever 18, pivoted to the gravity lever 16 fixed upon the shaft 13 journaled in bearings 14, and rigidly connected through said shaft 13, and the arm 17 with the detent 21, in combination with the pendulum rod, the arm 20 projecting therefrom, and the stud 19, substantially as shown.

2. In a gravity escapement, in combination, a shaft 8 bearing a pinion 9 an escapement disk 7, pallets 12—12, and the ratchet shaped cam 11 all rotated by the clock-train, and the detent 21 rigidly connected with the gravity lever 16 carrying pivoted to its lower end the bent lever 18 all mounted upon the shaft 13 whose axis lies in the same line with that of the pendulum, as described.

3. In a gravity escapement, the combination with a clock train, of an escapement disk bearing a series of pallets, a ratchet shaped cam, a detent rigidly connected with a gravity lever and mounted upon a shaft whose axis ranges with that of the pendulum, a stud on the clock frame, and an arm on the pendulum rod, all arranged to operate substantially as herein shown and described, and for the purpose set forth.

519,422. APPARATUS FOR TREATING RAMIE. WALTER T. FORBES, Atlanta, Ga. Filed Apr. 12, 1893. Serial No. 470,064. (No model.)



Claim.—1. The combination with a receptacle constructed and adapted to hold the material under treatment, a dome in communication with the receptacle, pipe leading into the dome, a valve in said pipe, a number of vats, pipes connecting said vats to the pipe leading into the dome, and valves in said vat pipes, of a steam pipe discharging into the receptacle, a pipe leading from the receptacle, for discharging liquids therefrom, and means connected with this pipe for removing moisture from the material contained in the receptacle, substantially as set forth.

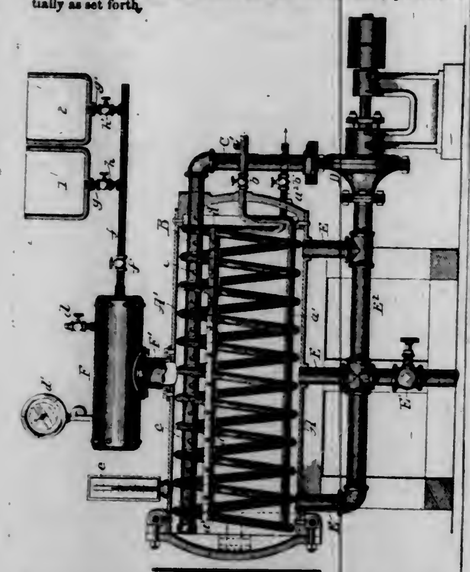
2. The combination with a receptacle for holding the material to be operated upon, a dome, and vats discharging into this pipe, of a steam pipe discharging into the receptacle, a valve in the steam pipe, a pipe F leading from the receptacle, a valve in the lower end of said pipe F, pipes G and F^2 leading from pipe F, valves in pipes G and F^2, pipe D leading from pipe F^2 to the steam pipe, circulating pump E at the juncture of pipes D and F^2 and a vacuum pump H connected with pipe G, substantially as set forth.

519,423. APPARATUS FOR TREATING RAMIE OR OTHER FIBROUS GROWTHS. WALTER T. FORBES, Jersey City, N. J. Filed Oct. 30, 1893. Serial No. 489,515. (No model.)

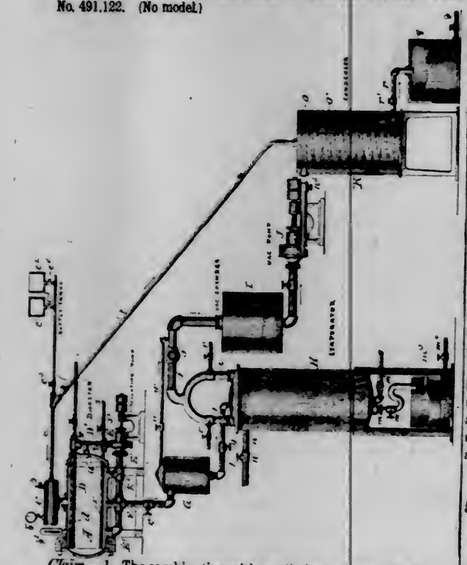
Claim.—1. The combination with a cylinder or receptacle, a steam pipe spirally coiled therein with its ends extending outside of the cylinder or receptacle, of a pump, a perforated circulating pipe extending from the pump through the cylinder or receptacle, pipes leading from the bottom of the cylinder or receptacle to the pump, a dome discharging into the cylinder or receptacle, a pipe leading into the dome, and tank discharging into said pipe, substantially as set forth.

2. The combination with a cylinder or receptacle having a steam pipe spirally coiled in the interior thereof throughout the length of the cylinder or receptacle and entering and returning through one end thereof, of perforated circulating pipe extending the length of the receptacle or cylinder, pipes leading from the lower end of the cylinder or receptacle, in communication with the circulating pipe.

a pump, a dome discharging into the cylinder or receptacle, a pipe leading to the dome and tanks leading into the said pipe, substantially as set forth.



519,424. APPARATUS FOR EXTRACTING OIL FROM COTTON-SEED. WALTER T. FORBES, Atlanta, Ga. Filed Nov. 16, 1893. Serial No. 491,122. (No model.)



Claim.—1. The combination with a cylinder or digester, of means for causing a circulation of fluid through said digester, a tank communicating with said cylinder or digester, a separator or evaporator communicating with said tank, a vacuum chamber communicating with said separator or evaporator, a vacuum pump communicating with said vacuum chamber and a condenser communicating with said vacuum pump, substantially as set forth.

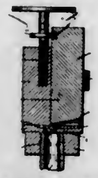
2. The combination with a cylinder or digester adapted to receive the material to be treated, a pipe for conveying naphtha or other solvent into the cylinder or digester, and a valve in said pipe, of a condenser, a pipe leading from the naphtha or solvent conducting pipe at a point between the valve and the cylinder or digester, to the condenser, and a steam pipe discharging into the cylinder or digester, substantially as set forth.

3. The combination with a cylinder or digester adapted to receive the material to be treated, means for creating a circulation within the cylinder or digester, of a pipe for conducting naphtha or other solvent from a suitable supply tank into the cylinder or digester, a valve in said pipe, a condenser, a pipe leading from the naphtha pipe at a point between the cylinder or digester and the valve therein, to the condenser, and a pipe for conducting steam into the cylinder or digester, substantially as set forth.

4. The combination with a cylinder or digester, means for supplying the contents thereof with naphtha or other solvent, and for creating a circulation therein, of a tank, a pipe leading from the cylinder, or digester into the tank, a pipe for the discharge of the contents of the tank, and a pump having communication with the upper portion of the tank for withdrawing air therefrom, substantially as set forth.

5. The combination with a cylinder or digester, means for creating a circulation of its contents, and a tank into which its contents are discharged, of a separator or evaporator into which the contents of the tank are discharged, a vacuum pump, a pipe leading out of the separator or evaporator in communication with the pump, a pipe leading from the tank into said pipe, and valves in both of said pipes, substantially as set forth.

519,425. SPRAYING DEVICE FOR TOBACCO-CASING MACHINES. JOHN C. FROST, Winston, N. C. Filed June 12, 1893. Serial No. 477,255. (No model.) Patented in Canada Nov. 5, 1892, No. 40,922.



Claim.—1. In a spraying nozzle for a tobacco casing machine, the combination of a main body portion, a cap provided with a discharge orifice and capable of adjustment to vary the size of said orifice, a spray regulating disk provided with discharge passages of different diameters, said disk being capable of rotation and adjustment concentrically with the body of the nozzle, and means for locking the disk in different positions when the different sized openings are brought in alignment with the discharge orifice, substantially as set forth.

2. In a spraying nozzle for tobacco casing machines, the combination of a main body portion provided with a central screw-threaded aperture, a disk provided with diverging apertures, and a deflecting cap provided with a spreading groove on its under side; said disk and cap being so arranged that when one of the apertures corresponds in position, with said spreading groove, it will produce a fan like spray, substantially as set forth.

3. In a spraying nozzle for a tobacco casing machine, the combination of a main body portion, a spray regulating plate a cap portion therefor comprising a vertically adjustable bar or gate for freeing the nozzle of obstructing matter provided at its lower end with a deflecting discharge orifice which communicates with an opening in the regulating plate, substantially as described.

4. In a spraying device for a tobacco casing machine, the combination of a main body portion, a spray regulating plate a cap portion, a vertically adjustable gate or bar provided at its lower end with an outwardly and upwardly flaring discharge opening which communicates with an opening in the cap portion, and a screw for raising and lowering the said bar or gate, substantially as described.

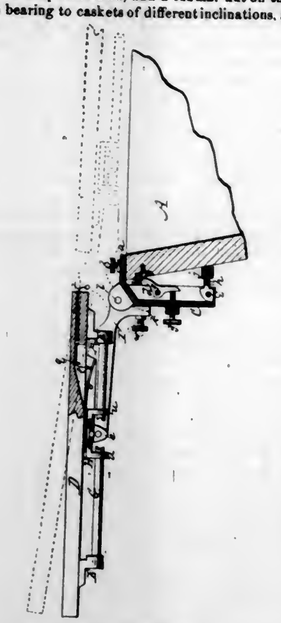
519,426. FLOWER-BRACKET FOR BURIAL-CASKETS. BENJAMIN F. GLEASON, Brockport, N. Y. Filed Dec. 24, 1888. Serial No. 294,513. (No model.)

Claim.—1. In a bracket for burial caskets, the combination of a bearing with attachments for fastening it to the casket, an arm pivoted to the bearing so as to be turned up and down and be inverted, a bracket resting over the arm, rods attached to the under side of the bracket, a runner also attached to the under side of the bracket, and a swivel block connecting the arm with the runner, as described.

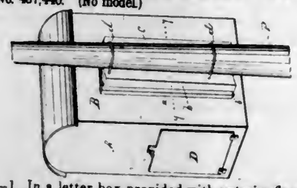
2. The combination of the bearing, the pivoted arm, and the bracket jointed to the end of the arm, the arm provided with a hook that engages with a socket of the bracket, and a spring that rests behind the hook and locks the same in place, as set forth.

3. The combination, with the bearing and with the stop on the casket, of a pivoted clamp attached to the bearing, a set screw passing through the bearing and acting on the clamp, and a set screw or screws passing through the top of the bearing and fastening to the casket, as set forth.

4. The combination, with the bearing, of a screw pivoted to the same so as to turn up and down, and a tubular nut on the screw for adjusting the bearing to caskets of different inclinations, as set forth.



519,427. LETTER-BOX. SAMUEL A. GROFF, Washington, D. C., assignor of one-half to Diller B. Groff, same place. Filed Oct. 7, 1893. Serial No. 487,440. (No model.)



Claim.—1. In a letter box provided with exterior flanges a base plate having counter flanges adapted to removably engage said exterior flanges and having an automatic spring catch to engage a hole in the box and which is detachable only from within the box and means to secure said base plate to a support substantially as herein set forth.

2. A letter box having exterior flanges overlapped by a cross projection in combination with a base plate having counter flanges to removably engage said flanges on the box a spring on the base plate having a button which automatically engages a hole in the box when the latter is in operative position and means for securing said base plate to a support as herein set forth.

3. A letter box base plate having a forward projecting rim which abuts against the box, flanges formed upon two of its opposite sides to engage flanges on the box, a spring catch adjustable by means of a slot therein and a screw bolt, and having a button to automatically engage a hole in the box a curved back to fit upon a lamp post and holes to receive the threaded ends of the bands which by means of nuts screwed upon said bands bind the said plate securely to the post as herein described.

4. In a letter box an indicator formed of a frame having a recess around its inner edge to receive the inscribed plate, an inclined lug adapted to engage a recess in the box and opposite thereto a spring catch to automatically engage a hole in the box when the indicator is in position as herein described.

519,428. COP-HOLDER FOR SEWING-MACHINE SHUTTLES. JOHN T. JONES, Utica, N. Y. Filed Nov. 20, 1890. Renewed Oct. 2, 1893. Serial No. 487,034. (No model.)

Claim.—1. The combination with a sewing machine shuttle having a central cavity and a pin extending into said cavity, of a cylindrical cop holder consisting of two separable parts formed separate from the said shuttle and suitably fitted together, the inner of said parts being provided with a hollow cone loosely fitting said pin, and the outer of said parts having a central thread delivery hole and a thread passage, the latter being formed within the outer face of said part and extending from said delivery hole to the periphery of the case, and the said outer part of said case being also provided with a tension device.



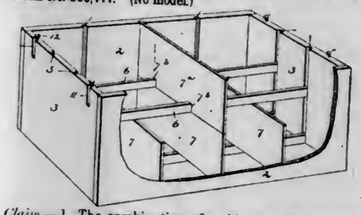
2. A cop holder for sewing machine shuttles consisting of a circular shell formed in two sections or portions fitted together, one of said sections being provided with a central hollow spindle to receive the pin or spindle of the shuttle, the said hollow spindle extending into and nearly across the cavity of said cop holder, and the other section of the said cop holder being provided in its outer face with a centrally arranged thread delivery throat or hole which is opposite the end of the said hollow spindle.

3. A cop holder for sewing machine shuttles consisting of a circular shell formed in two sections or portions, one of which is provided interiorly with a centrally arranged conical hollow spindle extending into and nearly across the cavity of the said cop holder, the other section or portion having in its outer face a central thread delivery throat or hole which is opposite the apex of the said spindle.

4. A cop holder for sewing machine shuttles consisting of a circular shell formed in two sections or portions one of which is provided with an interior hollow spindle extending into and nearly across the cavity of the cop holder and the other of which has in its outer face a centrally arranged thread delivery hole or throat, combined with a tension device attached to the periphery of the said portion having the thread delivery hole or throat.

5. The combination with a sewing machine shuttle provided with a post or spindle a', of a cop holder formed in two sections or portions, one of which is provided with an interior hollow spindle fitting the said post a' and extending into and nearly across the cavity of the said cop holder, and the other of which is provided with a centrally arranged thread delivery hole or throat opposite the end of the said hollow spindle.

519,429. SHIPPING-CASE. JAMES M. LEAVER and EMERY J. VANCE, Bay City, Mich. Filed June 21, 1893. Renewed Apr. 7, 1894. Serial No. 506,777. (No model.)



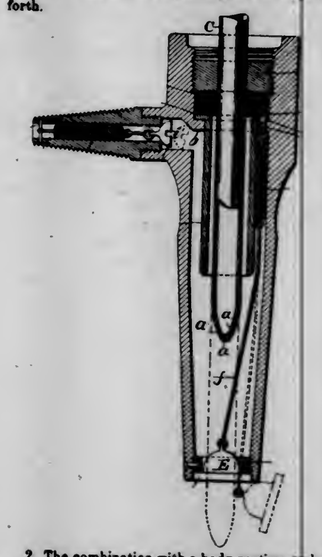
Claim.—1. The combination of a shipping case provided at the inner faces of its sides and ends with vertically disposed continuous recesses, the non-interlocked longitudinal and transverse partition strips arranged in horizontal tiers upon one another and having their ends removably fitting in said grooves, and a transversely disposed locking strip arranged above the partition strips and having its ends fitted in recesses at the sides of the case and provided at its lower edge with slots receiving the upper longitudinal strips, said locking strip having its lower edge supported upon the upper edge of the adjacent transverse strip, substantially as described.

2. The combination of a shipping case provided at one end on its outer face with vertical recesses, resilient headed fastening devices secured in the bottoms of the recesses of the shipping case and having their shanks free to swing outward and projecting from the upper edge of the same and adapted to be sprung outward, stationary headed fastening devices projecting from the upper edge of the other end of the shipping case, and a top or cover provided at its ends with recesses receiving the fastening devices, substantially as and for the purpose described.

519,430. TAP FOR DRAWING LIQUIDS FROM CASKS. PETER C. LEIDICH, Ashland, Pa. Filed Dec. 8, 1893. Serial No. 493,114. (No model.)

Claim.—1. In a tap, the combination with a body portion, a sleeve or ferrule held therein, and a pipe having sliding connection within the body portion, of a collar or bush at the lower end of the body portion, a valve adapted to be seated upon this collar or bush,

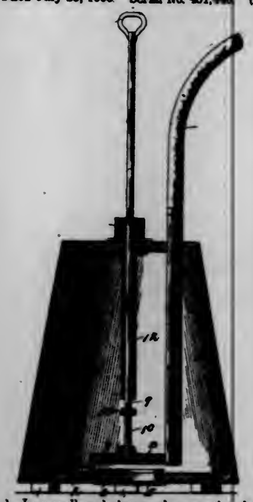
an elastic device between the sleeve and body portion for returning the valve to its seat, a nipple leading laterally into the body portion, and a check valve operating in said nipple, substantially as set forth.



2. The combination with a body portion, and a nipple extending laterally therefrom, of an approximately cone shaped check valve yieldingly supported in the nipple, said valve of greater diameter than the passage way into the body portion and provided with slotted inner face, substantially as set forth

---

519,431. WELL OR CISTERN CLEANER. JOSEPH MILLER, Sr., Huntingburg, Ind., assignor of one-half to Francis M. Battles, same place. Filed July 25, 1893. Serial No. 481,446. (No model.)



Claim.—1. In a well and cistern cleaner, the closed bucket having a bottom valve opening an inwardly extending guide attached at its upper end to the top of the bucket, a vertically moving hollow tube working through the top of the bucket and said guide and having an air vent and a stop above said vent adapted to engage the lower end of said guide, the valve attached to the inner end of said tube, and a pump suction pipe leading into the bucket, substantially as set forth.

2. In a well and cistern cleaner, a closed bucket having bottom supporting feet, a bottom valve opening, and a raised valve seat surrounding said opening, an inner guide tube depending from the top of said bucket, a vented valve stem or tube moving vertically within said guide tube and carrying at its inner lower end a valve disk working onto said raised valve seat, and a pump suction pipe arranged within the bucket and depending to within a short distance of the bottom thereof, substantially as set forth.

3. In a well and cistern cleaner, the closed cleaner bucket having a screened bottom valve opening and a raised valve seat surrounding the inner edge of said valve opening, a combined guide and stop tube depending within the bucket from the top thereof, a stuffing box arranged on top of said bucket in a line with said guide and stop tube, a vertically moving hollow valve stem sliding through said stuffing box and the combined guide and stop tube, said stem having a handle at its upper end and provided with air vents or openings near its inner lower end, a valve disk connected to the inner lower end of said valve stem and working over the raised valve seat, a stop-collar attached to the valve stem above the valve disk, and a suction discharge pipe leading through the top of the bucket and projecting within the same near to the bottom thereof, substantially as set forth.

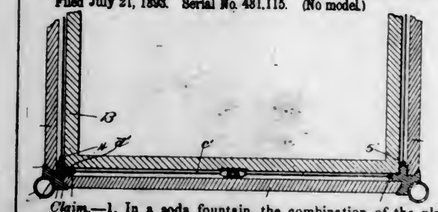
519,432. ICE-RACK FOR REFRIGERATORS. FRED. E. RANNEY, Greenville, Mich. Filed Aug. 19, 1893. Serial No. 483,509. (No model.)



Claim.—1. An ice rack for refrigerators, comprising a rectangular frame embracing longitudinal side bars and a center bar, and transversely arranged cross-bars secured thereon, each of said bars being provided with two skeleton-formed legs or supports placed intermediate of and at a distance from its ends, the legs of said center bar being located farther from the ends of the rack than are the legs of the side bars, a curved deflecting plate secured transversely underneath the central part of said frame, substantially as set forth.

2. An ice rack for refrigerators, comprising a rectangular frame embracing longitudinal side bars and a center bar, and transversely arranged cross-bars secured thereon, each of said bars being provided with two skeleton-formed legs or supports placed intermediate of and at a distance from its ends, the legs of said center bar being located farther from the ends of the rack than are the legs of the side bars, a curved deflecting plate secured transversely underneath the central part of said frame and a flat deflecting plate of greater width than the said curved deflecting plate, secured transversely on said frame above the latter, substantially as set forth.

519,433. SODA-FOUNTAIN. THOMAS C. RILEY, Boston, Mass. Filed July 21, 1893. Serial No. 481,115. (No model.)



Claim.—1. In a soda fountain, the combination of the plates thereof, the corner pieces provided with grooves to receive the plates, the seat within the said corner pieces to support an inner box away from the plates, and connecting rods attached to the corner pieces, substantially as described.

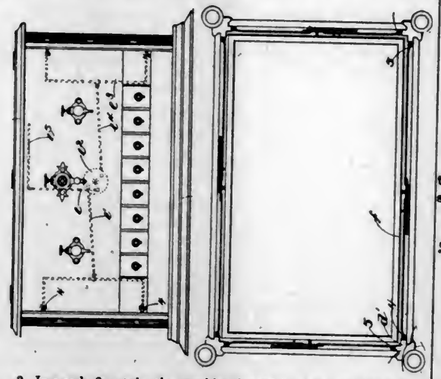
2. In a soda fountain, the combination of the plates thereof having beveled edges, the corner pieces provided with grooves to receive the beveled edges of the plates, the seat within the said corner pieces to support an inner box away from the plates, and adjustable connecting rods attached to the corner pieces located within the frame, substantially as described.

3. In a soda fountain the combination of the plates, the corner pieces having cylinders seated in their outer edges, grooves to receive the edges of the plates, the seat within the said corner pieces to support an inner box away from the plates, and connecting rods attached to the corner pieces, substantially as described.

519,434. SODA-FOUNTAIN. THOMAS C. RILEY, Boston, Mass. Filed Jan. 10, 1894. Serial No. 496,358. (No model.)

Claim.—1. In a soda fountain, the combination of a base and cover, several corner posts placed vertically between said base and cover, each having two longitudinal grooves, and several plates *a*, likewise placed vertically between said base and cover, the side edges of which enter the grooves in said corner posts, and adjustable interior connections, connecting the adjoining corner posts, and operating to draw the same toward each other to engage and hold the plates, the inner box *f* placed within the inclosing case thus formed, the draft tubes and sirup gates substantially as described.

2. In a soda fountain, the combination with a base and cover, several corner posts placed vertically between said base and cover, each having two longitudinal tapering grooves, several plates *a* likewise placed vertically between said base and cover, and having beveled side edges which enter the grooves in the corner posts, and adjustable interior connections connecting the adjoining corner posts, and operating to draw the same toward each other to engage and hold the plates, the inner box *f* placed within the inclosing case thus formed, the draft tubes and sirup gates, substantially as described.



3. In a soda fountain, the combination with a base and cover several corner posts placed vertically between said base and cover, each having two longitudinal grooves, the inner side walls of said grooves being at right angles with relation to each other, and the outer side walls of said grooves being in alignment with each other, several plates *a* likewise placed vertically between said base and cover having beveled side edges which enter the grooves in the corner posts, and adjustable interior connections connecting the adjoining corner posts, and operating to draw the same toward each other to engage and hold the plates, the inner box *f*, contained within the inclosing case thus formed, the draft tubes and sirup gates, substantially as described.

4. In a soda fountain, the combination with a base and cover, several corner posts placed vertically between said base and cover, each having two longitudinal grooves, several plates *a* likewise placed vertically between said base and cover, the side edges of which enter the grooves in the corner posts, and adjustable interior connections connecting the adjoining corner posts, comprising yokes *e*, e^3, connected with the corner posts, links e^1 e^2 connected therewith, disks e^3, pivoted to the inner box *f* to which said links are connected, and means for turning said disk, substantially as described.

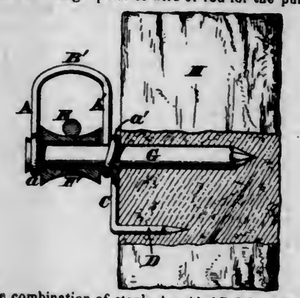
5. In a soda fountain, the combination of the base and cover, several corner posts placed vertically between said base and cover, each having two longitudinal grooves, several plates *a* likewise placed vertically between said base and cover, the side edges of which enter the grooves in the corner posts, and means for securing said corner posts with the plates held between them, the inner box *f* placed within the casing thus formed, the draft tubes and sirup gates, substantially as described.

6. In a soda fountain, the combination of the base and cover, several corner posts placed vertically between said base and cover, each having two longitudinal grooves, several plates *a* likewise placed vertically between said base and cover, the side edges of which enter the grooves in the corner posts, and the box *f* placed within the inclosure formed by the plates, and means for securing the corner posts with the plates held between them, which is connected with said box *f*, substantially as described.

7. In a soda fountain, the combination of several vertical corner posts having longitudinal grooves, several plates forming the side walls, set edgewise with their side edges entering the grooves in said corner posts, and means for securing the corner posts with the plates held between them, the front wall of the fountain comprising essentially two pieces, one above and the other below the row of sirup gates, and draft tubes projecting from the upper piece, an inner box *f*, and a base and cover, substantially as described.

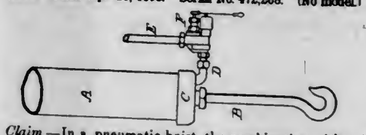
519,435. ROLLER-STAPLE. OLIVER P. SCHRIVER, Newport, Ky. Filed Feb. 8, 1894. Serial No. 499,496. (No model.)

Claim.—1. As a new article of manufacture, a staple composed of side bars A, A', united by a cross bar B, eyes *a*, *a'*, formed by bending the bars A, A', an extension C proceeding from the eye *a'*, and a shank D projecting laterally from said extension C, all of said parts being made of a single piece of wire or rod for the purpose stated.



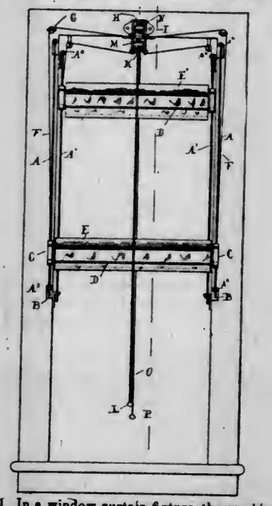
2. The combination of staple A *a* A' *a'* B C D, roller F and fastening G, which latter traverses said roller and the eyes *a*, *a'*, of said staple, for the purpose described.

519,436. PNEUMATIC HOIST. HERMAN SCHWEIN, Detroit, Mich., assignor of one-half to George Stark and Warren E. Brinkerhoff, same place. Filed Apr. 28, 1893. Serial No. 472,268. (No model.)



Claim.—In a pneumatic hoist, the combination with a hoisting cylinder and a piston therein, an air supply pipe for the cylinder, a longitudinally reciprocating plug valve in the pipe acting in the direction of the cylinder pressure and having a restricted port therein, an adjustable pressure spring on the valve, a casing having a portage to the air pipe at and across which the valve moves, a supply opening in the casing, an exhaust passage from the air pipe to the casing, and a valve in the casing controlling the air supply and exhaust, substantially as described.

519,437. WINDOW-SHADE FIXTURE. HERBERT R. SHILEY, Chicago, Ill. Filed Mar. 6, 1894. Serial No. 502,521. (No model.)



Claim.—1. In a window curtain fixture, the combination of two carrier frames, each carrying a spring actuated roller shade, two pair of vertical guide rods for said carrier frames, one pair arranged to guide one of the carrier frames in the space within the window casement and the other to guide the other carrier frame in front and out of the way of the other, and two sets of cords for vertically adjust-

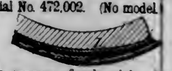
ing the carrier frames independently of each other, substantially as described.

2. In a window curtain fixture the combination of two spring actuated rollers and shades, a carrier frame for each, composed of two bracket boxes in which the roller is supported and of a bar connecting the bracket boxes, two sets of vertical guide rods, one secured by laterally projecting brackets inside of the window casement on opposite sides of the window, and the other by outwardly projecting brackets to the stile of the casement, whereby the two carrier frames are out of the way of each other, and means for vertically adjusting each carrier frame independently of the other, substantially as described.

3. In a window curtain fixture, the combination with a curtain roller carrying frame slidingly engaging upon vertical guide rods, of two cords passing jointly over a single pulley secured centrally of the casement and from there outwardly and downwardly over suitable guide pulleys to the opposite ends of the roller carrying frame respectively, a spring pressed lever arranged to press upon the top of the single pulley to nip the two cords and a releasing cord attached to the lever, substantially as described.

4. In a window curtain fixture, the combination of two spring actuated roller shades, carrying frames for each composed of two bracket boxes connected by a cross bar, two sets of vertical guide rods, one secured in the space between the casement, and the other to the face of the stile of the casement, and adjusting cords for each set of rollers each comprising two ropes secured to the opposite ends of the curtain carrying frame, guide pulleys for guiding the ropes to the center of the window casement and guide pulleys secured in a housing in the center of the casement, one of which is common to both cords, and a spring pressed lever acting upon said roller to nip the cords, and a releasing cord attached to said lever, substantially as described.

519,438. BICYCLE-TIRE. JOHN J. C. SMITH, Passaic, N. J. Filed Apr. 27, 1893. Serial No. 472,002. (No model.)



Claim.—1. In the process of vulcanizing hollow rubber articles, laying up the rubber on a core of paraffine, wax or equivalent material which may be removed by flowing liquid through the article, substantially as set forth.

2. A core or mandrel for forming rubber articles preparatory to vulcanizing consisting of paraffine, wax or equivalent material.

3. A core or mandrel for forming rubber articles preparatory to vulcanizing consisting of a tube of paraffine, wax or equivalent material.

4. A bicycle tire composed of rubber having an inner and an outer tube or layer of rubber and interlaid segmental strips of metal between said rubber layers laid edge to edge around the tire, and of greater length than one-half the tire's circumference, substantially as set forth.

5. A bicycle tire composed of rubber having two overlapping layers of independent interlaid segmental metallic strips somewhat less in length than the circumference of the tire in cross section, substantially as set forth.

6. A bicycle tire of rubber having interlaid metallic strips coated on one side with a strip of rubber and on the other with cloth and adapted to operate substantially as set forth.

7. In combination with the rubber tubes of a pneumatic bicycle tire, interlaid metallic strips having rubber on one side of greater length than the strips and cloth facings on the other side extending beyond the rubber, substantially as and for the purposes set forth.

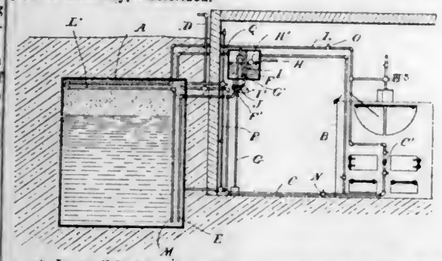
8. The method of making a bicycle tire consisting in forming a core of paraffine, wax or equivalent material, laying thereon a coating of rubber, covering the same with segmental metallic strips which nearly but not quite surround the tire in cross section, lay thereover an exterior coating of rubber and removing the core and vulcanizing, substantially as set forth.

519,439. APPARATUS FOR STORING AND FEEDING OIL. LUTHER C. SNELL, Detroit, Mich. Filed Oct. 17, 1893. Serial No. 488,404. (No model.)

Claim.—1. In an oil feed apparatus, the combination of an oil tank, a steam generator, a heating pipe leading from the generator to the top of the tank and having a coil located in the top of the tank, and a discharge pipe from the coil for the water of condensation leading to and discharging at the bottom of the tank, substantially as described.

2. In an oil feed apparatus, the combination of an oil tank, an oil pipe and a water pipe leading therein, an automatic valve for controlling the water supply, a tank in which said valve is located, an overflow pipe leading therefrom above the level of the supply pipe, and means for supplying oil under pressure into the tank to force the water out through the overflow pipe, substantially as described.

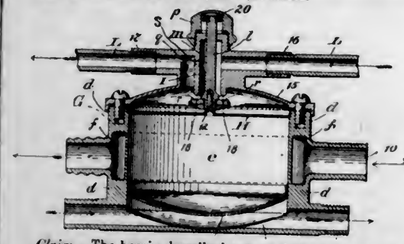
3. In an oil feed apparatus, the combination of an oil tank, an oil supply pipe, a water supply pipe, a source of water supply under pressure connected with the water supply pipe, an automatic valve controlling the connection, means for closing said valve upon the ingress of oil into the tank, an overflow, and means actuated by the liquid from the overflow for controlling the water pipe valve, a valve in the water pipe, substantially as described.



4. In an oil feed apparatus, the combination of an oil tank, an oil pipe, a water pipe, a tank into which said water pipe leads, a water supply pipe leading into the tank, an automatic valve controlling said water supply pipe, an overflow pipe having a branch leading from near the bottom to a point above the water supply, an auxiliary overflow above the top of the primary overflow, a valve in the water pipe between the two tanks, and means for closing that valve when the secondary overflow takes place, substantially as described.

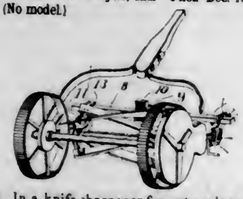
5. In an oil feed apparatus, the combination of a tank having oil and water pipes leading thereto, the water adapted to be forced out upon the ingress of oil, and automatic means for closing the out-flowing pipe when the tank is filled with oil, substantially as described.

519,440. AUTOMATIC HEAT-REGULATOR FOR HOT-SODA APPARATUS. JAMES W TUFTS, Medford, and WILLIAM HELMER, Boston, assignors to the American Soda-Fountain Company, Boston, Mass. Filed Nov. 6, 1893. Serial No. 490,159. (No model.)



Claim.—The herein described automatic heat-regulator for hot-soda apparatus, consisting of a casing containing an air-chamber and provided on the outside of said air-chamber with a steam or hot-water jacket having inlet and outlet pipes connected therewith, whereby the air in said chamber is heated, and said casing having a separate passage connected with other inlet and outlet pipes through which the cold water from the source of supply passes in contact with the outside of said air chamber on its way to the boiler, in combination with a flexible diaphragm forming one side of said air chamber, and a gas-supply-pipe provided with a valve connected with said diaphragm, all constructed to operate substantially in the manner and for the purpose set forth.

519,441. LAWN-MOWER SHARPENER. ISRAEL ADAMS and JOHN H. DOSWELL, Fort Wayne, Ind. Filed Dec. 18, 1893. Serial No. 493,887. (No model.)

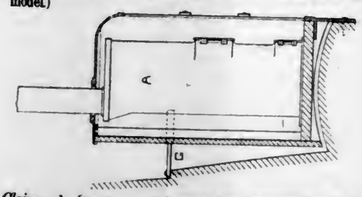


Claim.—1. In a knife sharpener for rotary lawn mowers, a slide bar as 8: a follower moving on said slide bar: grinding or sharpening material attached to said follower: holders adapted to be attached to the mower for holding the slide bar parallel with the axis of the revolving knives: and means to turn the slide bar so that the follower and its attached sharpening material shall be held at a given angle to the cutting edge of the knives.

2. In a knife sharpener for rotary lawn mowers, a slide bar having a follower provided with sharpening material mounted thereon: sleeves adapted to receive said slide bar and be secured thereto at adjustable distances from each other: sleeve holders adapted to be clamped upon the sleeves: holders for the slide bar adapted to be attached to the mower and hold said sleeve holders: and means to adjust the sleeve holders independently of each other, to and from the axis of the revolving knives.

3. In a knife sharpener for rotary lawn mowers, the sleeve holders 14: rotary sleeves 15: the slide bar holder 11, provided with the upper frame 12 and set screws 13: the slide bar 8: the follower 9: and the file 10, the parts being connected substantially as described.

519,442. STOVE FOR HEATING STREET-CARS. MENARD K. BOWEN, Chicago, Ill. Filed Oct. 14, 1893. Serial No. 488,195. (No model.)



Claim.—1. In street car heaters the combination of a circular back casing with the braces (G) which where they come in contact with the casing of the stove possess a form corresponding to that of said casing and which may be moved forward or backward around the arc of the casing to fasten it to any car seatback of whatever width substantially as set forth.

2. In street car heaters the combination of a stove and casing and braces (G) which where they come in contact with the casing of the stove possess a form corresponding to that of the said casing and which may be adjusted to any width of seat by moving forward or backward around the arc of the casing and the metal plate (D) with the car seat, so that as the stove and casing does not touch the seat or seat back neither the car seat nor the stove casing is cut in placing it in position.

519,443. CHILD'S OR INVALID'S CHAIR. LEMUEL A. CHICHESTER, Chichester, N. Y., assignor to Elizabeth H. Chichester, same place. Filed May 27, 1893. Serial No. 475,668. (No model.)

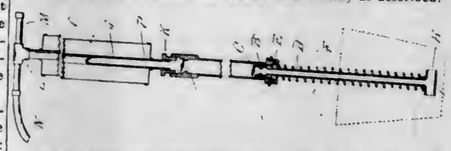


Claim.—1. A wheeled chair having downwardly projecting stops *f* behind the rear wheels, each of said stops being formed in one piece with a side brace B on which the front and rear wheels *e* and *d* are directly carried, substantially as described and for the purpose set forth.

2. The combination of the braces B B and the stops *f f* formed thereon with rear supporting pieces A A leading up from the rear portions of said braces B B to the handle *a* and forming a proper handle support at the upper ends and with the front supporting pieces C C which extend from said rear supporting pieces A A to the braces B B, substantially as described and for the purpose set forth.

519,444. HAND-PUMP. JOHN CLARK, Pontiac, Mich. Filed Jan. 17, 1893. Serial No. 458,643. (No model.)

Claim.—1. In a pump, the combination with a cylinder, of a tubular piston rod working in the cylinder and projecting below the same, a spring sleeved on the outside of the rod and outside of the cylinder, a valved piston mounted directly on the upper end of the rod within the cylinder, a tubular discharge extension connected directly to the upper end of the cylinder, a hollow handle on the extension and a discharge pipe leading from the handle, substantially as described.

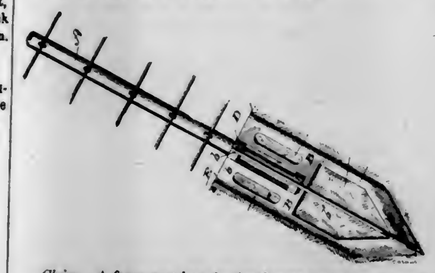


2. In a pump, the combination with a cylinder, of a tubular piston rod working on the cylinder and projecting below the same, a spring sleeved on the rod outside the cylinder, a projection on the rod with which the spring engages, a valved piston head fixed on the upper end of the rod and a discharge extension rigid on and forming a direct continuation of the cylinder, substantially as described.

3. In a pump, the combination with a cylinder, of a tubular piston rod working therein, having a lateral projection on its lower end, a valved piston fixed on the upper end of the rod, a spring sleeved on the rod outside the cylinder, its ends abutting against the lower end of the cylinder and extension on the piston, a discharge extension rigidly united directly on the cylinder and an air drum surrounding the extension and secured at the top and bottom thereto, substantially as described.

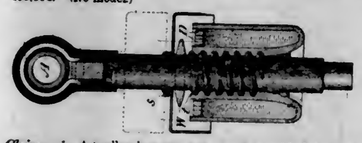
4. In a pump, the combination with a cylinder having an air chamber, discharge and handle thereon, of a tubular piston rod of smaller diameter than the cylinder and working therein, a valved piston on the upper end of the rod, a lateral projection on the lower end of the rod, a collar E on the lower end of the cylinder, and a spiral spring surrounding the outside of the rod having its upper end abutting against the collar and its lower end against the projection, substantially as described.

519,445. BASE FOR FENCE-POSTS. JOHN H. COOPER, Milford, Ind., assignor of one-half to Samuel Lavering, Fairbury, Ill. Filed Dec. 22, 1893. Serial No. 494,375. (No model.)



Claim.—A fence post base having flanges at right angles to each other provided with open work as described, two collars integral with the said flanges for the reception of the post, the slot *d* to receive a key to lock the post to the collar, and the rounded beads on the edges of the flanges, all as and for the purposes set forth.

519,446. TROLLEY-WIRE HANGER. ALBERT B. CROUNSE and CHARLES A. RUTLEDGE, Passaic, N. J. Filed July 21, 1893. Serial No. 481,158. (No model.)



Claim.—1. A trolley hanger or support provided at its upper end with means for insulating it from the sustaining arm, in combination with an insulating cup containing oil or a liquid insulating medium, substantially as described.

2. A trolley hanger or support insulated at its upper end from the sustaining arm and surrounded by an insulating sleeve, in combination with a petticoated insulator secured to the insulating sleeve by a screw thread, substantially as described.

3. A trolley hanger or support insulated at its upper end from the sustaining arm and throughout its body by an insulating sleeve which sleeve in turn sustains an insulating cup, substantially as described.

4. A trolley hanger or support insulated from its sustaining arm, in combination with an insulating cup containing an insulating liquid which surrounds the hanger or support, said cup being provided with means for preventing the liquid from escaping, substantially as described.

5. A trolley hanger or support insulated from its sustaining arm and surrounded by an insulating cup containing an insulating liquid, in combination with adjustable means for preventing the liquid from escaping, substantially as described.

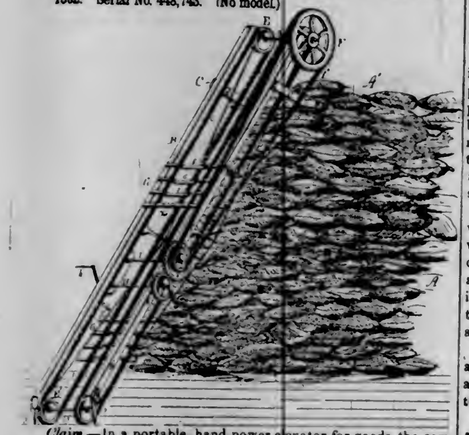
6. A trolley hanger or support provided with an insulating cup containing a liquid insulating medium and a floating washer which retains the liquid in place, substantially as described.

7. A trolley hanger or support provided with an insulating cup containing a liquid insulating medium, in combination with an adjustable cup or cover, substantially as described.

8. A trolley hanger or support insulated throughout its length by an insulating sleeve; a surrounding insulating cup containing an insulating liquid, in combination with a movable cap for the cup adjustably secured above its top, substantially as described

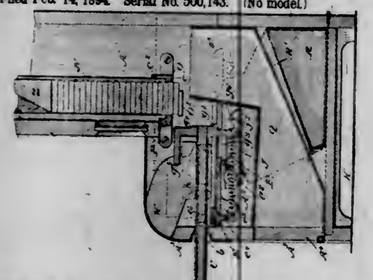
---

519,447. TRANSPORTABLE ELEVATOR FOR GOODS. DANIEL DART and THEODORE R. PARKER, Binghamton, N. Y. Filed Oct. 13, 1892. Serial No. 448,743. (No model.)



Claim.—In a portable, hand power elevator for goods, the combination, the rails (B) and the sprocket chain (*f*), of the bearers (G) composed of the inwardly bent bars (*g*) (*g*) (*g*), and the straight bar (*x*), substantially as described, and for the purpose specified.

519,448. VENDING-MACHINE. FRED G. DIETERICH, Washington, D. C., assignor to the Lauer Chemical Company, Baltimore, Md. Filed Feb. 14, 1894. Serial No. 500,143. (No model.)



Claim.—1. A coin operated machine, comprising a main or fixed frame, having a channel or coin passage, and a coin passage thereunder, and a coin abutment, integrally formed therewith, and a lock or tripper pawl pivoted to such main frame, said pawl having a lock member and a trip portion, a slide plate having a pusher member and a coin pocket and a lock portion adapted to engage the lock end of the pawl, said tripper portion of the pawl being projected under the said pocket to form a bottom support for the coin, all substantially as shown and described.

2. A coin operated mechanism comprising a stationary base plate, having a fixed coin abutment, and a fixed coin receiving channel terminating at the abutment, a lock lever pivoted to such base plate having a trip member or crank-like portion disposed at a point below the abutment, a slide plate having a coin pocket movable under the fixed coin channel and abutment and arranged to form with the pawl crank portion a stop for the coin, said member having a stop portion adapted to engage the lock pawl, all arranged substantially as shown and for the purposes described.

3. In a coin operated vending machine, the combination with a supporting frame, having a coin pocket or channel and an abutment fixedly connected therewith, and a slidable pusher frame, having a coin pocket held on said frame, said pocket arranged to receive the coin from the fixed channel or guide and adapted to move the coin against the abutment, of a lock or trip pawl having a lock portion for holding the pusher from operation and a trip portion adapted to form a back stop and engage the rear edge of the coin and thereby hold the said pusher frame from a backward movement after it has been partially moved toward its thrust or operative movement, substantially as and for the purposes set forth.

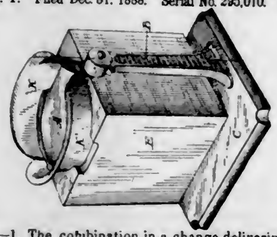
4. As an improvement in coin operated machines, the combination with the main plate having a coin channel terminating in an overhanging portion, and formed with a coin abutment, and a pawl pivoted on such frame having a lock member and a trip portion projected in the same direction, said trip member having a coin engaging portion or extension projected above the axis of the pawl, said portion formed with a hold-back member arranged to form a seat for the rear edge of the coin after it has tripped the pawl, and thereby prevent a return or backward movement thereof, and the slidable pusher frame, all substantially as shown and specified.

5. In coin operated machines, a main supporting plate, having integrally formed therewith a coin channel and abutment, and a tripper pawl pivot, a sliding plate having formed therewith a plunger or pusher member, a coin pocket and lock member, a pawl adapted to be held on the main plate pivot, having a lock member and a trip member projected in the direction of the thrust of the pusher, said trip member constructed to form a rest for the coin and back lock, and the spring devices for operating the slide frame, and the pawl substantially in the manner and for the purpose set forth.

6. In a vending machine, of the kind described, the combination with a casing, a coin operated mechanism at each end, delivery devices, arranged intermediate such coin mechanisms, and a delivery chute arranged under such delivery devices, of a coin box, formed of a main portion, adapted to extend under the delivery chute and having a projecting or throat portion at each end adapted to extend at the ends of the delivery chute under the coin mechanisms, all substantially as shown and described.

7. As an improvement in coin mechanisms for vending machines, a stationary base or supporting plate having a coin channel, a coin abutment and a tripper pawl pivot or pintle member integrally formed therewith, all arranged substantially as shown and described.

519,449. CASH-DELIVERING DEVICE. SIDELL E. FISH, Greenport, N. Y. Filed Dec. 31, 1888. Serial No. 295,010. (No model.)



Claim.—1. The combination in a change-delivering device of a coin-delivering tray, a pivotal support therefor, and a balancing weight suspended therefrom, said weight being hollow and constituting a receptacle, substantially in the manner and for the purpose herein set forth.

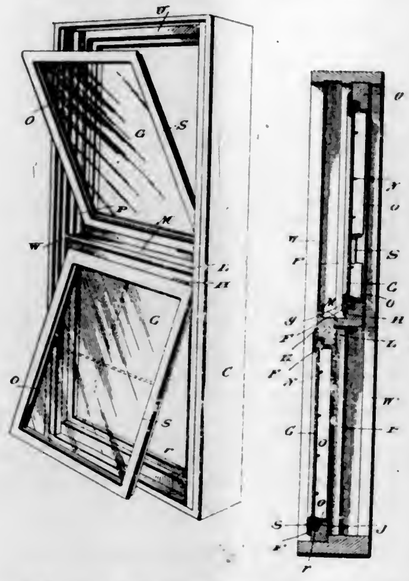
2. The combination in a change-delivering device of a coin-delivering tray, a pivotal support therefor, and a hollow case dependent from the tray and provided with panels for advertising purposes, substantially in the manner and for the purpose herein set forth.

3. The combination with the oscillating, self-righting, coin-delivering tray, of an independent upper rim against which the tray is closed in its normal position, and from a portion of which it moves when oscillated, substantially in the manner and for the purpose herein set forth.

4. The combination with the pivoted, self-righting, coin-delivering tray, of the divided rim whose sections are pivoted to swing on the axis of the tray, substantially in the manner and for the purpose herein set forth.

5. The combination of the supporting base-plate, the vertical standards secured thereto, the oscillating case pivoted at its upper end to swing between said standards and provided with a coin-receptacle on its upper face, the detached, divided rim inclosing said receptacle and whose sections are severally pivoted to the axis of the swinging case each to move upwardly with the corresponding end of the case, and the stops to prevent a descent of either section below the level of its pivotal axis, substantially in the manner and for the purpose herein set forth.

519,450. SASH FOR WINDOWS. SIMON FUCHS, St. Louis, Mo., assignor to D. Ind Neudorf, same place. Filed Jan. 22, 1894. Serial No. 497,629. (No model.)



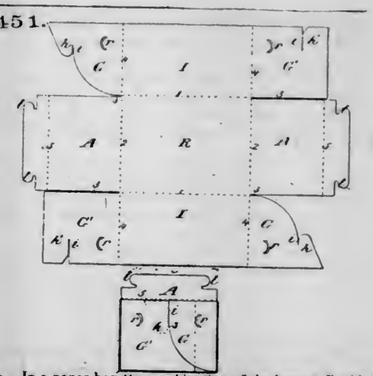
Claim.—1. In a window, the combination with a sliding sash having a rabbet at its inner corner; of a swinging sash hinged to the inner face of the sliding sash and normally fitting within said rabbet, said swinging sash having a surrounding groove, glass mounted in the swinging sash with its edge in said groove, and a metallic strip secured to the inwardly disposed edges of the swinging sash with its inner edge against said glass and its body covering the junction between the outer face of this sash and the inner face of the rabbet in the sliding sash, as and for the purpose set forth.

2. In a window, the combination with a sliding sash; of a swinging sash hinged to the inner face of the sliding sash, said swinging sash having a surrounding groove, glass mounted in the swinging sash with its edge in said groove, and a metallic strip secured to the inwardly disposed edges of the swinging sash with its inner edge against said glass and its body covering the junction between the outer face of this sash and the inner face of the sliding sash, as and for the purpose set forth.

3. In a window, the combination with a sliding sash having a rabbet at its inner corner; of a swinging sash hinged to the inner face of the sliding sash and normally fitting within said rabbet, glass mounted in the swinging sash, and a metallic strip secured to the inwardly disposed edges of the swinging sash with its inner edge against said glass and its body covering the junction between the outer face of this sash and the inner face of the rabbet in the sliding sash, as and for the purpose set forth.

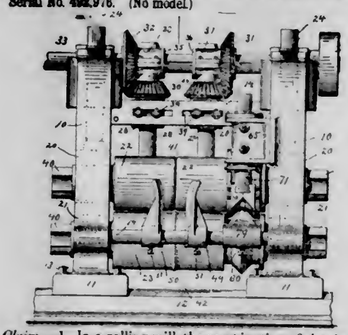
4. In a window, the combination with a sliding sash; of a swinging sash hinged to the inner face of the sliding sash, glass mounted in the swinging sash, and a metallic strip secured to the inwardly disposed edges of the swinging sash with its inner edge against said glass and its body covering the junction between the outer face of this sash and the inner face of the sliding sash, as and for the purpose set forth.

519,451. PAPER BOX. ROBERT GAIR, Brooklyn, N. Y. Filed Nov. 15, 1892. Serial No. 452,023. (No model.)



Claim.—In a paper box the combination of the bottom R, sides I I having end parts G G′ respectively the said parts provided with hooks *h h′* and crescent shaped slots *r r*, end flaps A A having overlapping flaps provided with laterally projecting tongues *t t*, whereby when the box is set up the two parts G G′ at each end of the box are hooked together and the tongues on the overlapping flaps are thrust into the crescent shaped slots, and the ends of the box thereby double locked together, substantially as specified.

519,452. MACHINE FOR ROLLING ANGLE-BARS. ARNOLD L. HANNARBERG and ALGOT BERGLOF, Worcester, Mass. Filed Dec. 7, 1893. Serial No. 492,976. (No model.)



Claim.—1. In a rolling mill, the combination of shaping or bending rolls, and a reciprocating compressing device for shaping the end of the billet or blank to conform to the rolls, substantially as described.

2. In a rolling mill, the combination of bending or shaping rolls, a shaping device, and means for intermittently actuating said shaping device, whereby the end of the billet or blank is shaped to conform to the rolls, substantially as described.

3. In a rolling mill, the combination of rolls having corresponding configurations which form a reducing pass and a bending pass, with means for shaping the end of the billet or blank to conform to the bending pass, substantially as described.

4. In a rolling mill, the combination of rolls having a corresponding peripheral groove and projection, which form part of a reducing pass, and also having a corresponding groove and projection, which form a bending pass, with means for shaping the end of the billet or blank to conform to the bending pass, substantially as described.

5. In a universal rolling mill, the combination of rolls having a corresponding peripheral groove and projection forming a reducing pass which is adapted to receive billets or blanks of different sizes, and having a corresponding peripheral groove and projection, which form a bending pass, with adjustable means for truing up the ends of the billet or blank, substantially as described.

6. In a rolling mill, the combination of bending rolls for bending the billet or blank to the desired form, and a hydraulic cylinder and piston for compressing the end of the billet or blank to conform to the pass between the bending rolls, substantially as described.

7. In a rolling mill, the combination of bending rolls, a suitable anvil and a hydraulic cylinder and piston carrying a die or former to shape the end of the billet or blank so that it may be readily introduced between the bending rolls, substantially as described.

8. In a rolling mill, the combination of suitable bending rolls, and a differential hydraulic piston for shaping the end of the billet or blank

to conform to the bending rolls, the hydraulic piston having a small area under constant pressure tending to raise the piston, substantially as described.

9. In a rolling mill, the combination of bending rolls, a hydraulic cylinder and piston carrying a former which co-operates with a suitable anvil, and a secondary piston for holding the end of the billet or blank in position while it is being acted upon by the former, substantially as described.

10. In a rolling mill, the combination of bending rolls, a hydraulic cylinder having a differential piston mounted therein, which carries a die or former, said die or former co-operating with an anvil to compress the end of the billet or blank, to conform to the bending rolls, substantially as described.

11. In a rolling mill, the combination of bending rolls, and a hydraulic cylinder and piston carrying a die or former, the former being provided with a stop or gage, substantially as described.

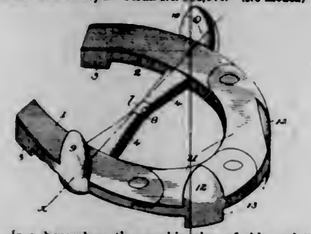
12. In a rolling mill, means for shaping the end of the billet or blank, consisting in the combination of a cylinder, a differential piston, an inner piston for holding the billet or blank while acted upon by a former carried by the piston, the inner piston having a square portion fitting into a guide formed in the cover of the cylinder, and a suitable anvil co-operating with the former, substantially as described.

13. In a rolling mill, the combination of a cylinder, a differential piston mounted therein, an inner piston which prevents the main piston from turning by means of a blade at its lower end, and a square portion at its upper end, substantially as described.

14. In a rolling mill, the combination of a hydraulic cylinder, a differential piston mounted therein, and an inner piston, the inner piston being raised with the differential piston by means of a shoulder, substantially as described.

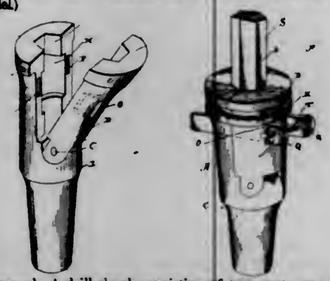
15. In a rolling mill, the combination with the horizontal rolls, the adjustable vertical rolls, the adjustable front guide 60, the feed rolls, a hydraulic piston for shaping the end of the billet, and suitable guides for receiving the completed bar, substantially as described.

519,453. SECTIONAL HORSESHOE. ELMER HOBBIN, Camden, N. J. Filed Feb. 27, 1894. Serial No. 501,671. (No model.)



Claim.—In a horseshoe, the combination of side and front sections pivotally connected to each other and having upwardly projecting and inwardly extending ears, the side sections also having inwardly extending arms which are hollow and oppositely screw-threaded, and a head having right and left screws engaging the said arms, substantially as and for the purpose specified.

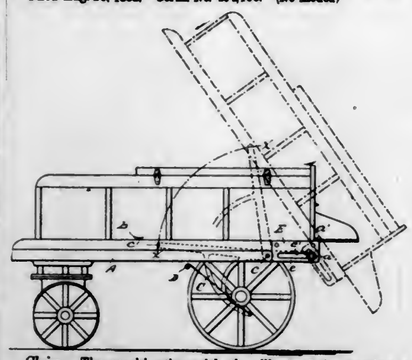
519,454. DRILL-CHUCK. ROBERT J. HOLLAND, Nevada, Cal. Filed Aug. 19, 1892. Renewed Feb. 27, 1894. Serial No. 501,727. (No model.)



Claim.—1. A drill chuck consisting of two parts, one of which is hinged to the other and both of which are formed with an interior groove enlarged at the center and adapted to align when the parts are closed, the mouth of the united groove of the two parts being polygonal in shape, and of less diameter than the remaining portion of the groove, a drill, having a shoulder, and a shank of polygonal form, which is grasped by the said polygonal mouth of the groove to prevent the said drill from turning, and means for holding the two parts closed, substantially as described.

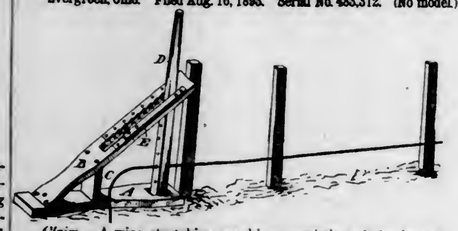
2. In a drill chuck, the combination of two parts, one of which is hinged to the other and both formed with inner opposing grooves enlarged at the center and adapted to align with each other, the said parts being also formed with rectangular transverse holes on opposite sides of the said grooves, a pair of wedges removably fitted in said holes, and a transverse fastening for said wedges, substantially as described.

519,455. DUMPING-WAGON. JAMES A. KLEES, Reading, Pa. Filed Aug. 28, 1893. Serial No. 484,166. (No model.)



Claim.—The combination with the sills A of the running gear, of the movable body B, radius arms C, pivoted to the rear portion of the sills and arranged to elevate the body and side plates E and pins *a* at the rear of the body and sills respectively, said plates being provided with horizontal slots *c* arranged to engage and ride upon said pins, substantially as set forth.

519,456. WIRE-STRETCHING MACHINE. WILLIAM A. LAMBERT, Evergreen, Ohio. Filed Aug. 16, 1893. Serial No. 483,312. (No model.)



Claim.—A wire stretching machine, consisting of the base A; the perforated lever D pivoted to the base near one end, the oblique slotted bar B, secured to the other end of the base and having ratchet teeth on each edge of the slot the slide E pivoted to B, for covering the ratchet teeth, and the brace C, connecting parts A and B substantially as shown

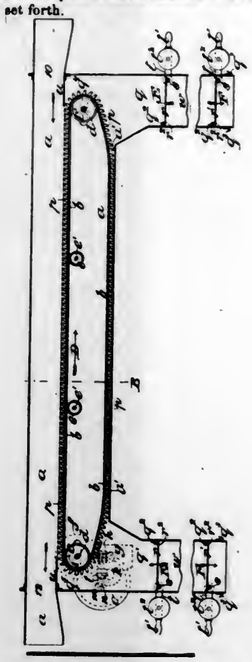
---

519,457. DUST-TRUNK FOR COTTON-OPENERS. THOMAS R. MARSDEN, Oldham, England. Filed Jan. 23, 1892. Serial No. 419,006. (No model.) Patented in England Apr. 13, 1889, No. 6,306.

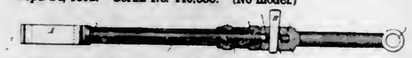
Claim.—1. The combination with a dust trunk having in its bottom a receptacle for dust and dirt, of a traveling lattice entirely inclosed within said trunk and having cleaning bars between which are pockets for the collection of dust and dirt to be deposited in said receptacle, the said trunk having within it above said traveling lattice an entirely unobstructed space, substantially as herein set forth.

2. The combination with a dust trunk having in one end an opening for the entrance of cotton or other fibrous material and in the other end an opening for the exit of said material and having in its bottom near each end a receptacle for dust, of a traveling lattice inclosed within said trunk below said inlet and outlet openings and with its ends over said receptacles, doors in said receptacles for the removal of their contents, and plates *u u* arranged in said trunk below said inlet and outlet openings and extending over the spaces between the ends of the traveling lattice and the ends of said receptacles, substantially as herein set forth.

3. The combination of a dust trunk, a traveling lattice having both ends inclosed within said trunk and having cleaning bars and pockets between said bars, a receptacle for dust and dirt in the bottom of said trunk and two doors in said receptacle which may be separately opened for the removal of the dust and dirt from said receptacle without interruption of the operation of the trunk, substantially as herein set forth.

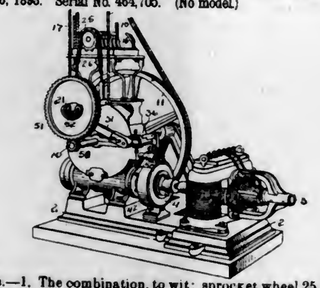


519,458. ROD FOR SLIDE-VALVES. JOHN H. SHEPHEARD, Albany, N. Y., assignor of one-half to Robert C. Blackall, same place. Filed Sept. 24, 1892. Serial No. 446,833. (No model.)



Claim.—A reciprocating-rod having at or near its inner end an abutment; its outer end being fitted to couple to a socket, a socket removably secured to said rod, a removable sleeve fitted to surround the periphery of said rod and to take against said abutment; the outer end of said sleeve having a screw-thread formed on its periphery, and a nut fitted to screw onto said screw-thread and to take against the inner end of said socket, as and for the purpose specified.

519,459. CONTROLLER FOR ELEVATORS. WILLIAM C. SMITH, Cleveland, Ohio, assignor to M. J. O'Donnell & Co., same place. Filed Mar. 6, 1893. Serial No. 464,705. (No model.)

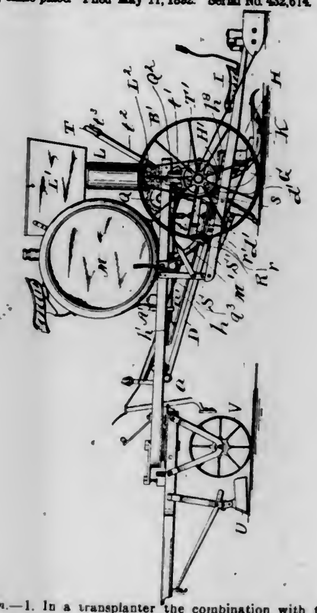


Claim.—1. The combination, to wit: sprocket wheel 25, rocking bar 19, chain 26 connecting the bar and wheel, cam 29 movable with the rocking bar, lever 31 constructed at one end to engage and be operated by the cam, a wedge connected with the other end of said lever, levers 40 40 arranged to be engaged by the wedge, the brake wheel 4, brake band 42 connected with the levers 40 40, a projection 53 on cam 29, pinion 50, the large wheel 51 meshing with said pinion, and a pin or stud 52 on wheel 51 to engage projection 53, all constructed, arranged, and operating, substantially as set forth.

2. The combination comprising, to wit: brush 15, contacts 16 16, sprocket wheel 25, rocking bar 19, chain 26 connecting the bar and wheel, cam 29 movable with the rocking bar, lever 31 constructed at one end to engage and be operated by the cam, a wedge connected with the other end of said lever, levers 40 40 arranged to be engaged by the wedge, brake wheel 4, brake band 42 connected with the levers 40 40, all constructed, arranged, and operating, substantially as set forth.

3. The combination, to wit: shaft 14, brush 15 thereon, contacts 16 16, cam 29 having communicating grooves 29′ 29′ formed symmetrically with respect to the axis of the cam, means for transmitting motion between the cam and shaft 14, lever 31 constructed at one end to engage and be operated by said grooves, a wedge connected with the other end of said lever, levers 40 40 arranged to be engaged by the wedge, brake wheel 4, and brake band 42 connected with the levers 40 40, substantially as set forth.

519,460. TRANSPLANTING-MACHINE. ABRAM W. STEVENS and LESTER D. SWART, Auburn, N. Y., assignors to A. W. Stevens & Son, same place. Filed May 11, 1892. Serial No. 432,614. (No model.)



Claim.—1. In a transplanter the combination with the main frame, of the pivoted supporting bar, a ground opener, a fertilizer spout or tooth and a separate water discharge pipe rigidly connected with said bar, substantially as described.

2. In a transplanter the combination with a main frame, of a supporting bar movable in a vertical direction toward and from said frame, a ground opener secured to said bar, means for raising and lowering said bar, a fertilizer spout and a separate water discharge pipe connected with said supporting bar for vertical movement therewith, substantially as described.

3. In a transplanter the combination with a main frame, of a pivoted supporting bar, a fertilizer hopper and a water receptacle mounted on the main frame, a ground opener, fertilizer discharge spout or tooth and a separate water discharge pipe rigidly connected with the supporting bar and movable toward and from the frame with said bar, substantially as described.

4. The combination with the water chamber and valve, of the valve lever, the shouldered rod or bar adapted to engage said valve lever, the gear wheel having pins or tappets, the tappet lever having a tappet projection curved oppositely to the path of the tappets and connections between said lever and the said shouldered rod, whereby a short sharp movement is given to the said valve, substantially as described.

5. In a transplanter the combination with the supporting bar provided with the annular or spout engaging portion and slotted forwardly and rearwardly of said portion, of the closing plates and brackets with which they are connected, said brackets being secured to the bar by bolts passing through the slotted portions of the same, substantially as described.

6. In a transplanter the combination with the pivoted supporting bar, of the yoke having a pivoted connection with said bar and with the axle, the seat bars and the hooked links connecting said bars with said yoke, substantially as described

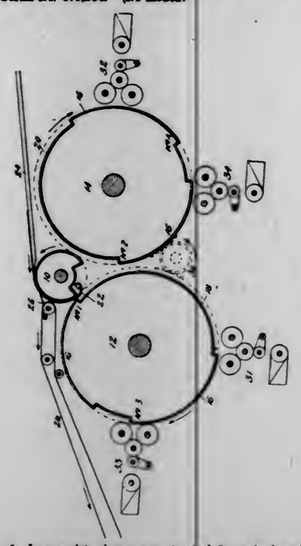
7. In a transplanter the combination with the supporting bar, of a ground opener secured thereto, the closing plates and the slotted brackets connecting the said plates and bar, whereby the said plates can be adjusted toward and from the ground opener and vertically, substantially as described

8. In a transplanter, closing plates provided at their rear ends with means to scratch or roughen the ground in rear of said plate, substantially as described.

9. The combination with the water chamber and valve of the bell crank valve lever having pins on opposite sides of its upwardly extending portion, the shouldered rod for engaging one of said pins on one side of said lever and the hook for engaging the pin on the opposite side, substantially as described.

10. In a transplanter the combination with the pivoted supporting bar, of the yoke having a pivoted connection with said bar and with the axle, and the seat bars suspended from said yoke and independently adjustable thereon substantially as described.

519,461. MULTICOLOR-PRINTING PRESS. WILLIAM C. WENDT, Boston, Mass., assignor to Emma L. Forbes, same place. Filed June 30, 1893. Serial No. 479,281. (No model.)



Claim.—1 In a multicolor press adapted for printing sheets; an impression-cylinder provided with grippers, in combination and in operative contact with two form-cylinders equal to each other in size and adapted to carry an equal number of forms, each form cylinder being related in diameter to the diameter of the impression-cylinder as half the whole number of forms plus one is to one: substantially as described.

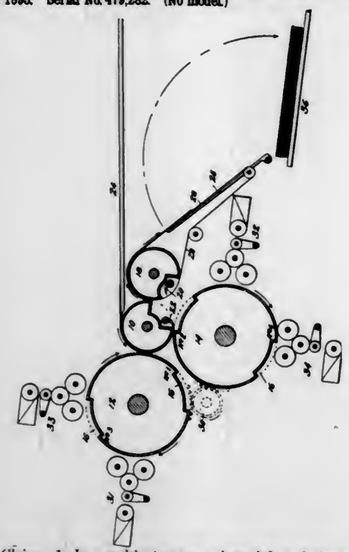
2. A multicolor printing press consisting of an impression-cylinder provided with grippers, in operative relation with two form-cylinders bearing form-supports each of length equal to the circumference of the impression-cylinder less its gap, and in addition a depressed delivery-space of like length on each form-cylinder, both delivery-spaces being adjusted angularly to pass the impression cylinder when the same is delivering its sheet; substantially as described.

3. In a multicolor printing machine adapted for printing sheets, consisting of two form-cylinders of equal size, each bearing forms and a depressed delivery-space, and driven in the same direction; in combination and operative contact with an impression-cylinder having its entire periphery occupied by an impression-surface and gap, and corresponding in size to the forms and gap-spaces upon the form-cylinders and also to the depressed delivery-space and gap-space upon each of the same, and adjusted angularly to receive upon the leading edge of the impression-surface the leading edges of the said forms, first from one form-cylinder and then from the other, in alternating sequence; substantially as described.

4. In a multicolor printing press for printing sheets, two form-cylinders of equal size provided with one or more forms and a delivery-space on each; in combination and in operative contact with an impression-cylinder provided with an impression-surface and with grippers therefor, and arranged to make one revolution for each form on one of the form-cylinders, pending the several printings, and one beside for the delivery-spaces on both, pending the delivery of the sheet; substantially as described.

5. A multicolor printing press consisting of an impression-cylinder in operative relation with two form-cylinders of equal size, each having forms of length equal to the packed portion of the impression-cylinder; and in addition a depressed delivery-space of like length on each form-cylinder, together with inking apparatus for each of the forms and means for elevating and depressing said apparatus to ink or avoid any particular form as it passes; substantially as described.

519,462. MULTICOLOR-PRINTING PRESS. WILLIAM C. WENDT, Boston, Mass., assignor to Emma L. Forbes, same place. Filed June 30, 1893. Serial No. 479,282. (No model.)



Claim.—1. In a multicolor press adapted for printing sheets; an impression-cylinder having its entire periphery occupied by an impression surface and a gap containing grippers, in combination and in operative contact with two form-cylinders of equal size, and with one or more form-supports separated by gap-spaces upon each, one gap-space and one form-support being equal in length to the circumference of the impression-cylinder; and with an endless delivery-belt of flexible material carrying grippers, and adjusted and timed to seize and carry the printed sheet face up from the impression-cylinder to the delivery-tapes pending a partial revolution of the impression-cylinder; substantially as described.

2. In a multicolor press adapted for printing sheets; consisting of two form-cylinders of equal size covered with forms and with gaps between the forms and driven in the same direction; in combination and in operative contact with an impression-cylinder having an impression-surface and gap, together equal in length to a form and gap-space on the form-cylinder, and adjusted angularly, to receive upon the leading edge of the impression-surface the leading edges of the several forms, first from one form-cylinder and then from the other in alternating sequence; substantially as described.

3. In a multicolor press for printing sheets, two form-cylinders of equal size provided and covered each with one or more forms separated by the necessary gaps; in combination and in operative contact with an impression-cylinder having its entire periphery occupied by an impression-surface and a gap containing grippers, and arranged to make one revolution for each form on one of the form-cylinders only, pending the printing of all the colors by the two form-cylinders and all the forms and the delivery of the sheet bearing said impressions from the press; substantially as described.

4. A multicolor printing press for printing sheets, consisting of two form-cylinders each of size sufficient to carry half the number of forms to be printed; an impression-cylinder having its entire periphery occupied by an impression surface and a gap containing grippers arranged to make one revolution for each form on one of the form-cylinders pending the complete printing and delivery of a sheet, with inking apparatus for each of the forms, and means for elevating and depressing said apparatus to ink or avoid any particular form as it passes; substantially as described.

519,463. STOP-MOTION. SAMUEL B. WESTCOTT, Hill's Grove, R. I. Filed Sept. 4, 1893. Serial No. 484,724. (No model.)

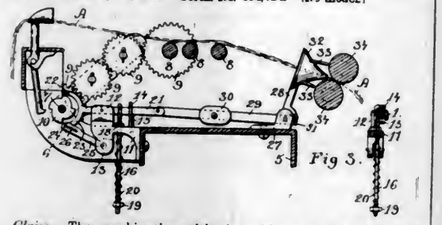
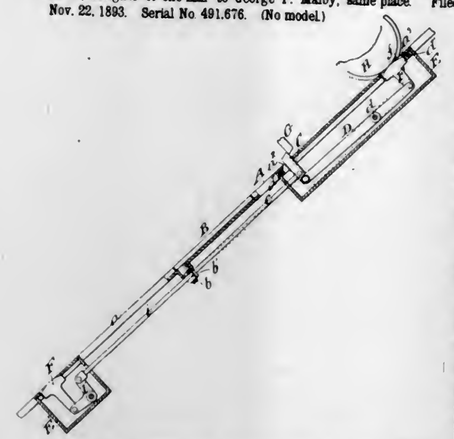


Fig 3.

Claim.—The combination with the table-top 5, brackets, as 6, extending rearwardly therefrom, the drive-shaft 7 journaled in the brackets, the wiper 10 mounted on the shaft, the bracket 11 also extending from the rear of the table, the lever 21, having arms 22 and 23, pivoted to the upper portion of the bracket 11, the pin 24 extending from the arm 23, the connecting-rod 25 having the slot 26 pivoted to the lower portion of the bracket, the slot being engaged with the pin 24, the rod 16, having the bent end 17, extending through a perforation in the bracket 11, the nuts 18 and 19 adjustable on the rod, and the spring 20 encircling the rod, of the bracket 27 mounted on the forward portion of the table, the lever 29 pivoted at one end to the lever 21 and at the other in the bracket 27, the weight 30 adjustable on this lever, the trumpet-base 28 also pivoted in the bracket 27 and adapted to operate the lever 29, and the trumpet 32, having the detectors 33—33, mounted at the upper portion of the base 28, as and for the purpose described.

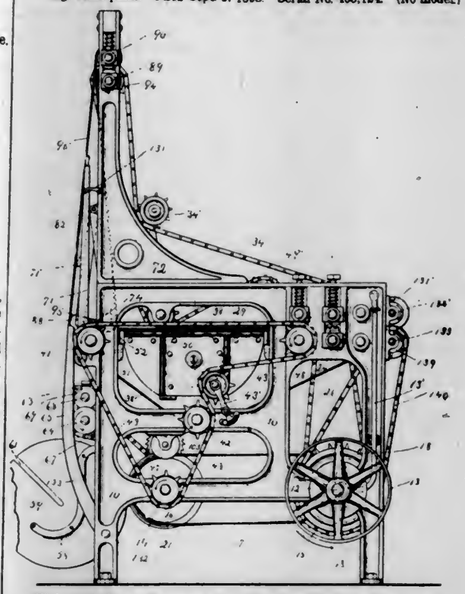
519,464. RAILWAY-SWITCH. CHARLES F. WILSON, Brooklyn, N. Y., assignor of one-half to George F. Malby, same place. Filed Nov. 22, 1893. Serial No. 491,676. (No model.)



Claim.—1. In combination, the horizontally arranged vibrating lever, the bearing piece mounted on one arm of the lever, the switch operating lever mounted on the other arm of the vibrating lever and free to swing in the direction of the moving train, the swinging switch tongue and the connection between the switch tongue and the operating lever whereby the forward thrust of the switch operating lever advances the connection in a longitudinal direction to swing the switch tongue, substantially as set forth.

2. In combination, the swinging switch tongue, the vertically movable operating lever located in advance of the switch tongue and having a swinging movement in the direction of the moving train, the bell-crank lever located on the opposite side of the switch tongue, the arms extending in an opposite direction from the pivot to which the switch tongue is secured, connections leading from the said operating and bell-crank levers to the arms upon the pivot and bearing pieces connected with said levers and under the control of a passing car to swing the switch tongue in opposite directions substantially as set forth.

519,465. MACHINE FOR FOLDING OR PLAITING PAPER. WALTER L. ALLEN, Norwich, Conn., assignor of two-thirds to Frank W. Browning, same place. Filed Sept. 8, 1893. Serial No. 485,124. (No model.)



Claim.—1. In a plaiting machine, in combination, longitudinally fluted crimping dies, and conveyer belts leading from the delivery side thereof, said belts being so guided that they gradually approach each other and pressure rolls adapted to compress the crimped paper as it leaves said dies, all being substantially as described.

2 In combination with a pair of meshing crimping dies, edge trimming cutters operating in advance of said dies, and conveyer belts as set forth extending from a point between said edge trimmers and dies to a point beyond said dies, and rolls for forcing together the said belts, as and for the purpose specified.

3. In combination with a pair of meshing crimping dies, edge trimming cutters operating in advance of said dies, conveyer belts as set forth rolls 141—142 located respectively above and below said belts, means for adjusting said rolls and, pressure rolls in the rear of said dies, substantially as and for the purpose specified

4. In combination with a pair of meshing crimping dies, and pressure rolls operating in the rear thereof, a conveyer consisting of upper and lower endless belts as set forth, the said dies and pressure rolls being formed with circumferential grooves for the passage of said belts, whereby the upper dies and rolls may be forced into close engagement with the companion, or lower, dies and rolls for the object stated.

5. In combination with a pair of meshing crimping dies, conveyer belts operating immediately in the rear of said dies, to partially flatten the crimped paper as set forth, pressure rolls operating in succession to receive and compress the partially flattened paper, and pasting mechanism consisting of a paste-pan having revolubly mounted therein rolls whose circumferential faces lie in the path of the plaited product of the machine; substantially as and for the purpose specified.

6. In combination with a pair of meshing crimping dies, conveyer belts operating in the rear of said dies to gradually flatten the crimped paper as set forth, pasting mechanism consisting of a pan having journaled therein rolls whose circumferential faces are in the path of the plaited product of the machine, and axial supports for reels of binding strips corresponding in number and position with said paste rolls, all substantially as specified.

7. In combination with mechanisms for crimping, pasting and binding a web of paper, a roll upon which the finished product is wound, vertical ways between which said roll is supported one of said ways being of lever form, adapted to be lowered to release the roll and its load and a roll 36 located immediately beneath the said roll and adapted to revolve the latter and the finished product wound thereon, substantially as and for the purpose specified.

8. In combination with mechanisms for crimping, pasting and binding a web of paper, and mechanism as set forth for rolling up the finished product, frictionally acting belts 95 engaging portions of the circumference of said roll, said belts being supported, and guided, by

fixed rolls at the top of the machine and by pulleys 88 journaled in the free ends of arms mounted to slide vertically, as described.

9. In combination with mechanism for rolling up a web of plaited paper, frictionally acting belts engaging portions of said roll of paper, said belts being supported and guided by fixed rolls at the top of the machine and by pulleys 88 journaled in the free ends of arms mounted to slide vertically and to spread laterally, mechanism for controlling the lateral movements of said arms consisting of cords having one end attached to said arms and the other ends coiled upon drums as set forth, and mechanism substantially as described for releasing said cord from the drums at stated times, for the purpose specified.

10. In combination with a pair of meshing crimping dies, pressure rolls, conveyer belts, pasting and binding mechanisms and mechanism for forming the finished product into a marketable roll as described, a grooved rod 109, devices for securing said bar to the roll of paper, a knife coincident with the groove of said bar, and mechanism for moving said knife; all being substantially as described.

11. In a plaiting machine, in combination with a spindle 74 on which the finished product may be rolled, vertical ways for said roll, one of said ways 71 being of lever form, adapted to be dropped to a horizontal position, a rod 109 and means for suspending the same from the spindle 74, and arms 117 connected and movable with said lever and adapted to engage the rod 109 and force it underneath the roll of finished paper when lever 71 is raised to a vertical position; all being substantially as specified.

12. In combination with a spindle 74 on which a web of plaited paper may be rolled, clamping rod 109 having secured to each end a spring terminating with a hook adapted to embrace the said roll 74, in the manner, and for the purpose specified.

519,466. COAL-DRILL. GEORGE H. BITTENBENDER, Plymouth, Pa. Filed Mar. 24, 1893. Serial No. 467,428. (No model.)

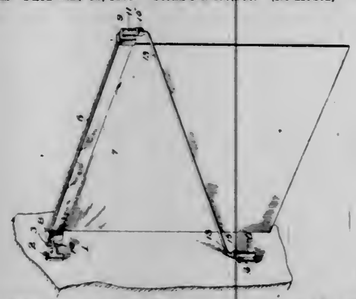


Claim.—1. The combination with the cutter-head, one or more cutters situated in a recess thereof and at an inclination to the longitudinal axis of the head, said cutter or cutters being adjustable and reversible, substantially as specified.

2. In combination with the cutter-head, having one or more doubly inclined recesses, of a cutter or cutters located in said recess or recesses, substantially as described.

3. In combination with a cutter-head, firmly secured to the drill stem, of a central forward leading cutter and lateral cutters located adjustably and reversibly in doubly-inclined recesses on the sides of the cutter-head, in the manner and for the purpose specified.

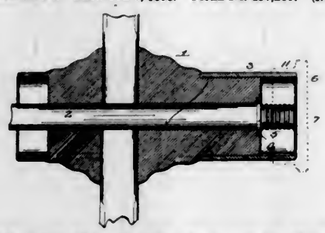
519,467. CHART-HANGER. WILLIAM S. CRANMER, Suisun City, Cal. Filed July 12, 1893. Serial No. 480,260. (No model.)



Claim.—1. In a chart hanger, the combination of a head consisting of two separable strips, removable end caps for holding said strips together, said caps being provided with bearings, the bearing of the inner cap forming a pivotal connection with a support, and a diagonal brace having its upper end engaging the bearing of the outer cap, and a lower bearing with which the said brace removably and pivotally engages, substantially as described.

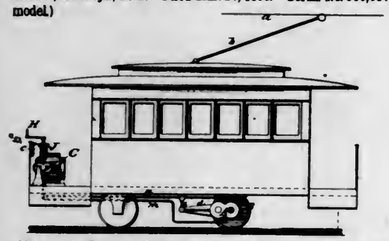
2. In a chart hanger, the combination of a pair of strips between which the upper end of the chart is held, caps removably mounted on the ends of said strips, one of which is provided with an eye, and the other with a vertical socket, an upper plate having a vertical arm with which said eye engages, a lower plate with a vertical socket, and a diagonal brace having a bearing end revolubly mounted in said socket of the lower plate and snugly fitted at its upper end in the socket of the outer cap, said brace being provided with collars, which form shoulders for supporting the chart, substantially as described.

519,468. AXLE-NUT. JOHN S. DEATS and THOMAS R. STEWART, Phœnix, Ariz. Filed Oct. 5, 1893. Serial No. 487,269. (No model.)



Claim.—The herein described cap or axle nut having a central screw threaded socket adapted to engage the end of the axle and a concentric surrounding flange to take over and bear on the hub-band, the edge of the nut being milled for the purpose of removable attachment, substantially as described.

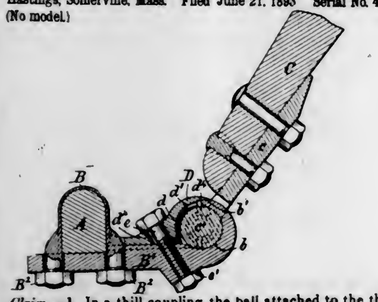
519,469. ELECTRO-HYDRAULIC CAR-MOTOR. CHARLES E. EMERY, Brooklyn, N. Y. Filed Mar. 27, 1891. Serial No. 386,687. (No model.)



Claim.—1. In combination with an electric motor, a series of pumps of different sizes operated thereby, a hydraulic motor operated by the fluid delivered by such pumps and suitable valves and connections all operable at will to transmit fluid from the pumps to the hydraulic motor and operate the same at different relative velocities proportioned to the size and number of pumps at the time in use, substantially as and for the purposes specified.

2. In combination with the frame of a car truck, and in combination with an axle of such car, a hydraulic car motor provided with a lever arm articulated to such frame, and with flexible fluid connections, whereby the frame will be free to accommodate itself to changes in the position of the axle relative to it without interference with the operation of the motor, substantially as and for the purposes specified.

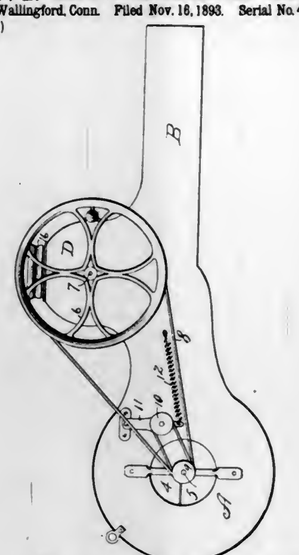
519,470. THILL-COUPLING. JOHN E. FISHER, Boston, Mass., assignor of one-half to Cuthbert C. Munroe, same place, and Charles F. Hastings, Somerville, Mass. Filed June 21, 1893. Serial No. 478,342. (No model.)



Claim.—1. In a thill coupling, the ball attached to the thill, the cross bar attached to the axle of the vehicle having the socket to receive the ball and the cap for the socket adjustable upon the cross bar toward or from the axle to properly adjust it upon the ball to prevent rattle, combined with the elliptic spring d^4 within the cap, having one end attached to the cap and the other end resting upon the ball to compensate for any slight looseness of the ball within the socket, substantially as set forth.

2. In a thill coupling, the ball attached to the thill, the cross bar attached to the axle of the vehicle having the socket to receive the ball, combined with the cap for the socket adjustable on the cross bar toward or from the axle, to properly adjust the cap on the ball, and the lip d^4 to cover the joint between the cap and cross bar at all adjustments of the cap to exclude dust or dirt from the ball and socket, substantially as set forth.

519,471. INSECT-POWDER DISTRIBUTER. SEYMOUR E. HOTCHKISS, Wallingford, Conn. Filed Nov. 16, 1893. Serial No. 491,095. (No model.)



Claim.—1. The herein described powder distributer, consisting essentially of a case having the fan chamber and chute, a fan within said fan chamber and a revolving barrel having side openings each one of which is covered with a sieve for sifting the material in a finely powdered condition into the air blast within the chute, substantially as described and for the purpose specified.

2. In an insect distributer, the chute B, revolving barrel C and pocket or offset in the side of said barrel, with a sieve at its outer end for discharging into said chute, substantially as described and for the purpose specified.

3. In an insect distributer, the chute, a revolving barrel having two or more offsets or pockets in the side of said barrel provided with the sieve for discharging into said chute and an attachable and detable cover for said offsets substantially as described and for the purpose specified.

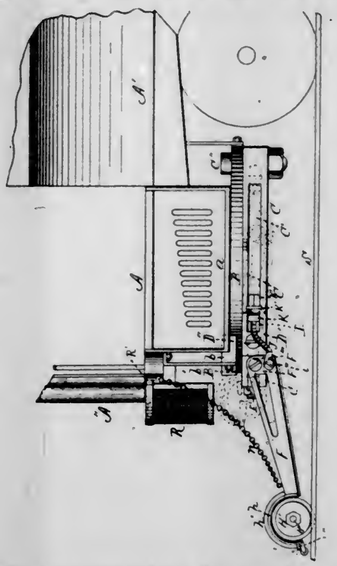
4. In an insect distributer, a revolving barrel provided with offsets or pockets in the form of screw necks and sieves and screw caps for securing said sieves thereto, substantially as described and for the purpose specified.

5. In an insect distributer having a fan chamber and chute leading therefrom, the cross flange 18 forming a pocket at the junction of said chute and fan chamber, substantially as described and for the purpose specified.

6. The combination of the fan chamber and chute in continuation thereof, said chute being provided with an inclosing wall on its upper side, the distributing chamber D above said upper wall and having an opening or space leading from the bottom of said distributing chamber into said chute, the distributing barrel mounted in said distributing chamber and means for creating an air blast through said chute and at the same time revolving said barrel, substantially as described and for the purpose specified.

7. The combination of the fan chamber and chute forming the case, the shaft, a driving wheel without the chute and the distributing barrel discharging into the chute, the fan and its shaft 5 having the double grooved pulley 9, the pulley 10, the swinging frame 11 upon which it is mounted, the spring 12 and the belt 8, substantially as described and for the purpose specified.

519,472. FENDER FOR CARS. ARTHUR H. JELLY, Cambridge, Mass. Filed July 11, 1893. Serial No. 480,113. (No model.)



Claim.—1. In combination with a fender pivotally secured to the car and traveling on the rails whereby it is held radial to the curvature of the track, a curved track against which the supporting swinging arm of the fender bears, said track being supported below and secured to the car step, brake support and car, substantially as set forth.

2. A car fender, comprising a frame supported by the car, a horizontally swinging arm pivotally supported by the frame, a slide traveling longitudinally on or with relation to said arm, and a vertically swinging fender or scoop pivotally connected with the slide, substantially as described.

3. A fender adapted to travel on the rails and be held radial to the curvature of the track, comprising a frame and a horizontally slotted and horizontally swinging arm whose rear end is pivotally supported by said frame, a slide traveling longitudinally in said slot, and a vertically swinging fender or scoop whose rear portion is pivotally connected with the front end of said slide, substantially as set forth.

4. A fender adapted to travel on rails and be held radial to the curvature of the track, comprising a frame and a horizontally slotted and horizontally swinging arm whose rear end is pivotally supported by said frame, a slide traveling longitudinally in said slot, a vertically swinging fender or scoop whose frame is pivotally connected with the front end of said slide, and a spring bearing against the rear portion of the slide and connected with the frame of the fender whereby the front portion of said fender is held normally on the track, substantially as described.

5. In combination, the segmental frame B B′ provided with the longitudinal brace B″, and the swinging arm C for supporting the fender, pivoted near its rear end to said frame and adapted to be locked to said brace, substantially as set forth.

6. In combination, the horizontally swinging arm C pivoted to a frame secured beneath the car, the slide D D′ moving in said slot, the cross bar E rigid with said slide, and the vertically swinging fender arms F pivotally secured to the opposite ends of said cross bar, substantially as described.

7. In combination, the fender frame comprising the parallel side arms F having the vertically broad rear ends or heels F″, and the horizontal bar E, the said rear ends being pivotally connected with the said bar so as to swing vertically, the slide D, slotted arm C, spring K bearing against said slide within the slotted arm, and the adjustable threaded links J the rear ends of which are secured to the opposite ends of said spring and the front ends of which are pivotally secured to said rear ends F″ below the connection of said ends with the bar E, whereby the forward end of the fender is held normally down, substantially as set forth.

8. A car fender, comprising a bar sliding longitudinally with relation to a suitable support sustained by the car, a fender or scoop hinged vertically to said bar, and a spring bearing against said bar

and acting on the fender, whereby the front end of said fender is held normally down on the car track, substantially as described.

9. In combination, the fender frame, supplemental guard N pivotally secured to the fender and held normally raised by the springs *m* bearing on its under side, said guard being provided with the end wings or extensions N', and the wheel guards *h* provided on their forward sides with the stops *h''*, substantially as described.

10. The fender frame provided with the wheel boxes *g* having the chambers *g'* and wheel guards *h* extending from said boxes over the fender wheels, substantially as described.

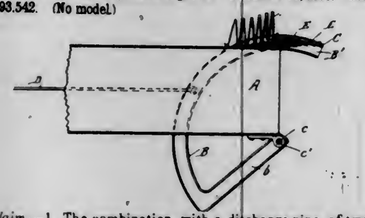
11. The fender frame provided with the wheel boxes *g* having the chambers *g'* and wheel guards *h* extending from said boxes over the fender wheels, said guards being provided externally with the elastic shields *h'*, substantially as set forth.

12 The fender provided with the stationary nettings or grates L and the central swinging door L'' of substantially the same material, substantially as described.

13. In combination, the bar E provided with the lip E' and button E'' and the latch *f* pivoted at *f'* and provided with the recess *f''*, substantially as set forth.

14. In combination with the fender and car, the bunter guard R secured to the car in front of the bunter and above the fender and acting as a supplement to the latter, said guard R being curved centrally forward to clear the bunter, substantially as set forth.

519,473. DEFLECTOR FOR PNEUMATIC STRAW-STACKERS. FRANK F. LANDIS, Waynesborough, Pa. Filed Dec. 13, 1893. Serial No. 493,542. (No model.)



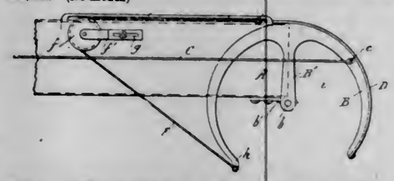
Claim.—1. The combination, with a discharge pipe, of two segments of disks pivoted to the under side of the pipe at its mouth, and extending upwardly on each side of the pipe to its top, and a series of substantially flat deflector plates operatively connected together and slidable one above the other, the front plate of the series being secured to the front ends of the said segments, and the rear plate being secured to the top of the discharge pipe, substantially as set forth.

2. The combination, with a discharge pipe, of two segments of disks pivoted to the under side of the pipe at its mouth and provided with grooves in their sides, a bar connecting the front ends of the said segments, and a series of superposed plates operatively connected together and engaging with the said grooves, one end of the series being connected to the said bar and the other end to the top of the discharge pipe, substantially as set forth.

3. The combination, with a discharge pipe, of two segments of disks pivoted to the under side of the pipe at its mouth, a series of deflector plates slidable one above the other, the front plate of the series being secured to the front ends of the said segments and the rear plate being secured to the top of the discharge pipe; and flexible connecting straps secured to each plate of the series, substantially as set forth.

4. The combination, with a series of superposed plates, of the bands of flexible material, the clips pressing on the bands, engaging with their edges, and secured to the said plates; a discharge pipe, and the oscillatory segments of disks pivoted to the under side of the pipe at its mouth and supporting and operating the said series of plates, substantially as set forth.

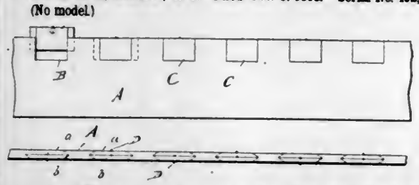
519,474. MOUTHPIECE FOR PNEUMATIC STRAW-STACKERS. FRANK F. LANDIS, Waynesborough, Pa. Filed Dec. 13, 1893. Serial No. 493,544. (No model.)



Claim.—1. The combination, with a discharge pipe, of two segments of disks each provided with an arm pivoted to the discharge pipe at its mouth and having an open space between the said arm and the peripheral portion of the segment, to permit the lateral escape of the blast, and a flexible deflector having its front end secured to the front ends of the said segments, substantially as set forth.

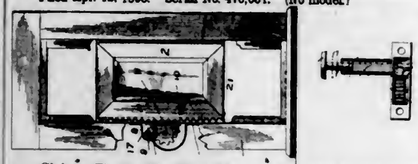
2. The combination, with a discharge pipe, of two segments of disks pivoted to the under side of the discharge pipe at its mouth, a flexible deflector attached to the front ends of the segments, cords attached to the rear ends of the deflector and to the rear ends of the segments, and guide pulleys for the said cords to pass over, substantially as set forth.

519,475. INSERTIBLE DIAMOND SAW-TOOTH. RUDOLF MARQUART, New York, N. Y., assignor of one-half to G. Schneider, same place, and L. Tisch, Hoboken, N. J. Filed Dec. 5, 1893. Serial No. 492,536. (No model.)



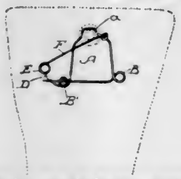
Claim.—The combination, with a saw-blade provided with recesses in its edge, the ends of which recesses are grooved V-shape, of a saw-tooth composed of two plates having their flat sides in contact, which plates both are of a height equal to the depth of the recess in the blade and extend the entire length of the recess, the ends of the plate being beveled to fit the V-shaped grooves in the ends of the recesses of the blade and a diamond held between and embedded in the inner surfaces of said plates, substantially as set forth.

519,476. SASH-FASTENER. JOHN F. MILTONBERGER, JOHN S. WYNANT, and CYRUS SCHOTT, Warsaw, Ind., assignors to said Wynant and Schott and T. J. Shackleford and Charles Kirkpatrick, same place. Filed Apr. 12, 1893. Serial No. 470,031. (No model.)



Claim.—The combination with a sash having a groove in its side, of an elastic or spring rack bar arranged in said groove, a casing secured in the window frame and having a horizontal sleeve, a toothed wheel rotatively mounted in said casing in position to engage the rack bar on the sash, a headed stem slidingly mounted in the sleeve of the casing and having a detent adapted to engage the toothed wheel in the same, a stop to limit the movement of said stem and a coil spring arranged between the head of the stem and the casing and adapted to return said stem to its normal position, substantially as set forth.

519,477. NECKTIE-FASTENER. CATHARINE MCNEIL, San Francisco, Cal. Filed Dec. 11, 1893. Serial No. 493,391. (No model.)

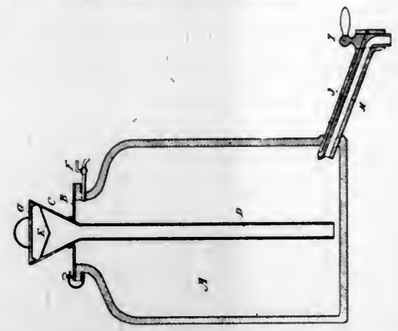


Claim.—1. A scarf or necktie-fastener consisting of a yoke, the upper part or bight of which is adapted to fit over the neck of the collar button, coils formed at the lower ends of the yoke, from one of which a pin extends across the bottom of the yoke, while the other one has its turns separated at the bottom to admit the pointed pin and form a holder therefor, an extension from this coil outwardly, behind which the point of the pin is locked when it is in position, and means for clamping the collar button substantially as herein described.

2. A scarf or necktie fastener consisting of a yoke, the upper end of which forms a bight adapted to fit over the neck of the collar button, coils at the lower ends of the sides of the yoke, from one of which

a pin extends across the lower part of the yoke, while the turns of the other are separated to admit the point of the pin, an extension exterior to the second coil, a spring arm extending from the outer end of said extension across the yoke and having a loop slidable upon the opposite side of the yoke whereby the arm is forced up against the bottom of the collar button by its elasticity, and the device locked thereto, substantially as herein described.

519,478. LIQUID CONTAINING AND DISCHARGING DEVICE. ADOLPH H. SCHLUETER and THEODORE A. SCHLUETER, Oakland, Cal. Filed Aug. 17, 1893. Serial No. 483,382. (No model.)



Claim.—1. A vessel for containing liquids having the open top, the removable cap by which it is hermetically closed, a funnel and pipe passing through said cap extending to a point near the bottom of the vessel said vessel having an air escape cock to be opened when the vessel is being filled, and closed after it is full, a discharge cock leading from the lower part of the vessel and having the outer end of the faucet barrel thereof below the level of the bottom of the vessel, and having an air passage whereby the liquid will be compelled to flow and the air to pass in to take the place of the discharge liquid, substantially as herein described.

2. A containing vessel for milk having the open top fitted thereto by which the top is hermetically closed, a funnel fitting into said cap and a pipe forming a continuation of the funnel and extending to a point near the bottom of the containing vessel, a strainer fitting the funnel, an air cock fixed in the upper part of the containing vessel, through which air is allowed to escape when the vessel is to be filled through the funnel and pipe, said cock being closed while the liquid is being drawn from the vessel, a cock projecting from the lower part of the vessel and inclining downwardly so that the faucet barrel inside of the plug of the cock is below the level of the bottom of the vessel, said faucet barrel having an air passage whereby the liquid is caused to flow and a vacuum produced into which the air passes, substantially as herein described.

3. A vessel hermetically closed and provided with means for filling it and an air escape cock, a faucet having an inclined barrel with independent passages for the escape of the liquid and the ingress of air into the body of liquid within the vessel, and a plug with ports corresponding with the passages.

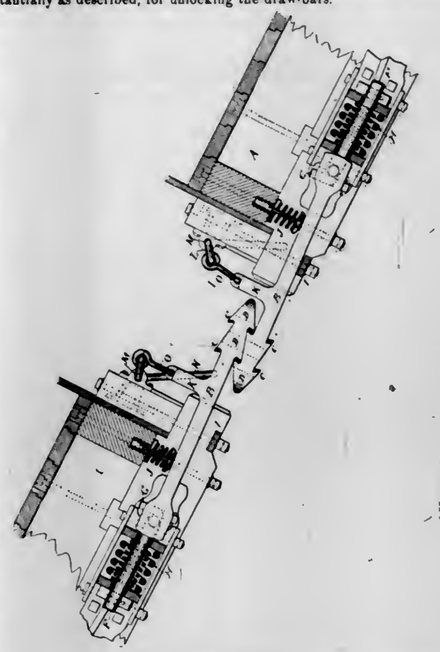
519,479. SAFETY-RAZOR. EGON L. SCHMITZ, New York, N. Y. Filed Dec. 19, 1893. Serial No. 494,111. (No model.)



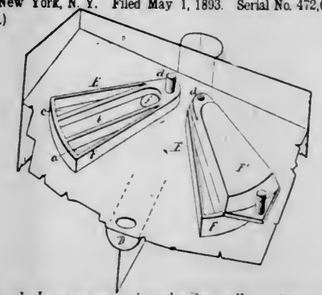
Claim.—In a safety-razor, the combination with a blade-holding frame having a screw threaded stem on its bottom, of a tapering handle provided at its smaller end with an internally threaded ferrule into which the stem on the blade holding frame can be screwed, said ferrule also having an internal projection, and a blade-holder having a tubular lower spring end fitting in the ferrule of the handle, which tubular end of the blade-holder is provided with a slit into which the interior projection of the ferrule can pass, when the blade-holder is inserted into said ferrule, substantially as set forth.

519,480. CAR-COUPLING. TIM SHEA, Knoxville, Tenn. Filed Jan. 9, 1894. Serial No. 496,249. (No model.)

Claim.—In an arrowhead twin-jaw coupler the combination of spring draw-bars having barbs or teeth at their outer ends upon both their upper and lower edges, and pin holes in each draw-bar which register when coupled with the pin-holes of the opposite barbed coupler, whereby a coupling pin will couple them in addition to the barbs, pieces for supporting the draw-bars, springs for forcing the bars against the pieces, springs upon the ends of the draw-bars, and means substantially as described, for unlocking the draw-bars.



519,481. VALVE FOR AIR AND GAS METERS. JOHN SHEARMAN, New York, N. Y. Filed May 1, 1893. Serial No. 472,645. (No model.)

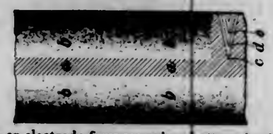


Claim.—1. In a gas meter the valve device E, consisting of a boxing F, subdivided internally into compartments *a*, *b*, and *c*, having bottom outlets as shown, and a valve plate F', as cover for boxing F, pivoted at *d*, to swing laterally over the upper edge of boxing F, which serves as a valve seat—the valve plate having interiorly a chamber *b'*—and adapted for operation as set forth.

2. In a gas meter—the valve device E, consisting of the boxing or base F, internally divided into compartments *a*, *b*, *c*,—and cover F', formed with chamber *b'*,—the cover pivoted to the boxing or base at *d*, to swing thereupon—in combination with bellows rod and lever connection, and all constructed and arranged for operation as set forth.

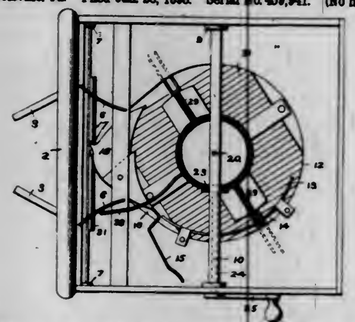
519,482. ELECTRIC ACCUMULATOR OR SECONDARY BATTERY. ARTHUR J. SMITH, London, England, assignor of one-half to Henry John Wright, same place. Filed July 20, 1893. Serial No. 481,041. (No model.) Patented in England Aug. 13, 1892, No. 14,658; in France July 10, 1893, No. 231,437; in Belgium July 10, 1893, No. 105,496; in Sweden July 15, 1893, No. 4,938, and in Italy Aug. 3, 1893, LXVIII, 450.

Claim.—1. The improved method or process of manufacturing a plate or electrode for a secondary battery or accumulator, consisting in repeatedly covering or coating a metal sheet or plate with the metallic oxide and driving or kneading such oxide into the metal by means of pointed rods or needles, substantially as hereinbefore described.



2. A plate or electrode for a secondary battery, having a layer *a* of solid metal and a layer of stratum *b* composed of particles of active material intermingled or kneaded with the metal, the proportion of particles of active material to particles of metal increasing gradually from the said solid layer to the surface of the plate, whereby the conductivity of the said plate is graduated, substantially as and for the purpose set forth.

519,483. AUTOMATIC DISPLAY DEVICE. BENJAMIN J. SMITH, Pottsville, Pa. Filed Jan. 23, 1893. Serial No. 459,941. (No model.)



Claim.—1. In a display or exhibiting device, the combination of a casing or housing, a door or doors for controlling the sight opening of the casing, a revoluble carrier in the casing a series of display devices in the carrier, and mechanism operated by the carrier for opening the door or doors and closing same at the proper time, for the purpose described.

2. In a display or exhibiting device, the combination of a casing or housing, a door or doors for the casing or housing, a carriage or carrier mounted in the casing and mechanism for revolving the same, and a series of display frames carrying objects for display and mounted in the carriage, substantially as and for the purpose described.

3. In a display or exhibiting device, the combination of a casing or housing having doors connected by suitable means to open and close, arms secured on the doors, a revolving carriage mounted in the casing and carrying display frames, mechanism for revolving the carriage, and an arm on the carriage adapted to contact with the arms on the doors to first open and then close them, substantially as and for the purpose described.

4. In a display or exhibiting device, the combination of a casing or housing, a stationary frame therein having guides or ways, a carriage mounted and adapted to revolve in the frame, and display frames carried by the carriage and adapted to travel in the guides of the frame, substantially as and for the purpose described.

5. In a display or exhibiting device, the combination of a casing or housing, a stationary frame mounted in the casing at an incline, guides or ways in the said frame, a revolving carriage mounted in the stationary frame, display frames mounted in the carriage and movable therein and adapted to travel one at a time in the guides of the stationary frame, substantially as and for the purpose described.

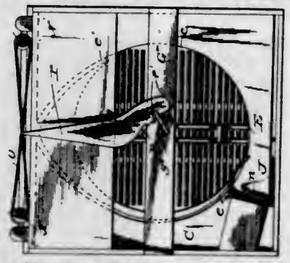
6. In a display or exhibiting device, the combination of a casing or housing, a stationary frame therein, segmental or arc shaped guides carried by said frame, a revolving carriage mounted in the frame and display frames in the carriage adapted to travel one at a time in the guides of the frame, substantially as and for the purpose described.

7. In a display or exhibiting device, the combination of the casing or housing, having the open front, a door or doors for controlling said opening, a stationary frame in the casing or housing having curved or circular openings, segmental guides within the curved openings of the frame, a carriage revolving in the stationary frame and having guides, a series of display frames carrying display objects and movable in the guides of the carriage and adapted to enter one at a time the segmental guides of the frame and be presented at the front opening of the casing, and means for revolving the carriage and opening and closing the doors, substantially as and for the purpose described.

8. In a display or exhibiting device, the combination of the casing or housing having the opening, the doors mounted therein and having the rollers, the endless band or belt passing around the rollers, the stationary frame in the casing, the supporting bail in rear of the doors, the arms on the doors, the revolving carriage in the frame carrying display frames, the arm carried by the carriage and adapted to contact with the arms on the doors, and mechanism for revolving the carriage, substantially as and for the purpose described.

9. In a display or exhibiting device, the combination of a casing or housing, a stationary frame therein, the rigid and pivoted guide pieces secured to the frame and forming a segmental way or channel, the notches or recesses in the frame forming rests or supports for the display frames, the display frames having the extended ends movable in the segmental way and adapted to rest in the notches or recesses the revolving carriage having guides or ways in which the ends of the frames travel, and mechanism for revolving the carriage, substantially as and for the purpose described.

519,484. AUTOMATIC EXHIBITING DEVICE. BENJAMIN J. SMITH, Pottsville, Pa. Filed Sept. 23, 1893. Serial No. 486,277. (No model.)



Claim.—1. The combination with a casing having the eccentric ways, a revoluble carrier having the track-bars, and a series of holders each constructed to carry two objects for display and fitted with their ends between said track-bars in said carrier, substantially as described, for the purpose set forth.

2. In a cabinet of the class described, the holder I provided with the trunnions and with clamping devices on each side and end thereof, combined with a cabinet having a revoluble carrier, said carrier having the diametrically arranged track-bars in which the holders fit and the ways or paths arranged eccentric to the circle described by the carrier in its rotations, substantially as described.

3. In a cabinet of the class described, the holder I having the central lips on each side and at each end and the corresponding prongs on opposite sides of the central lips and near to the edges of said holder, combined with a carrier, the plates in which the carrier operates, and the eccentric ways to receive the trunnions on the holders, substantially as described.

4. The combination with a cabinet having the eccentric ways, of a revoluble carrier, a holder or holders having projections fitted in the carrier and adapted to the ways, and automatic detents to normally close the entrances to said ways and arranged to be operated by the carrier to permit a holder to pass into said ways, substantially as described.

5. The combination with a cabinet having eccentric ways, of a carrier, one or more holders, and automatic detents to close the entrances to said ways, one of the detents serving to normally close one of the ways and the other detent being operated by the carrier to close the other way, substantially as described.

6. The combination with a cabinet having the eccentric ways, and a revoluble carrier operating within said ways, of the series of holders provided with studs fitted in the carrier and adapted to pass one after the other into said eccentric ways, and two detents one pivoted above the upper way and normally closing one end thereto and the other hung below the lower way and having an arm in the path of the carrier whereby it may be lifted to close the entrance to the lower eccentric way, substantially as described.

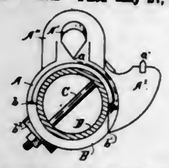
7. The combination with a cabinet having the top and bottom plates and the eccentric ways, a revoluble carrier hung within the plates and having the slotted track-bars G', G'' each provided with the projections, a series of holders having trunnions fitted in the slotted track-bars and adapted to pass, one after the other on the rotations of the carrier, into the eccentric ways, and two detents hung at the entrances to the eccentric ways and each provided with a detaining arm and with a lifting arm that lies in the path of the projections on the track-bars, substantially as and for the purpose described.

8. In a cabinet of the class described, the revoluble carrier consisting of the upright open frame and the track-bars rigid with the frame at the top and bottom thereof and provided with the longitudinal slots, combined with the top and bottom plates having openings in which is fitted the carrier, the eccentric ways, and the series of holders having lugs fitted in the slotted track-bars, for the purpose described, substantially as set forth.

9. The combination with a casing and a revoluble carrier therein, of the doors hung on rock-shafts connected for simultaneous operation, a lever provided with cams at one end and with its other end connected with the means for operating the door-shafts, and an operating arm on the carrier adapted to strike the cams on the door-operating lever, substantially as described.

10. The combination with a cabinet and a revoluble carrier substantially such as described, of the front having the viewing opening and a door, a holder, and a yielding arresting mechanism on the inside of the front, said arresting mechanism consisting of a tape, cord or ribbon loosely supported and having an intermediate elastic or yielding section, substantially as described.

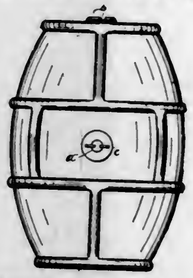
519,485. PIVOT-BEARING FOR PLATFORM-SCALES. EDWARD TANNEWITZ, Grand Rapids, Mich. Filed May 27, 1893. Serial No. 475,783. (No model.)



Claim.—1. In a pivot bearing, a body fitted for the reception of the shaft and divided to form semicircles, one line of division being upon the radial line of the circle, and the opposite line of division being upon a tangent to the periphery of the shaft and at right angles with the radial line of division, and a bolt for clamping said semicircles together and securing them firmly to the shaft substantially as shown and described.

2. In a pivot bearing for scales, a body fitted to encompass one half of the circumference of the shaft, a head projecting upward from said body and provided at each end with an over-hanging pivot bearing, the body projecting longitudinally beyond the ends of the pivot bearings and provided, immediately below each, with an opening, an arm projecting out from one side of said body and provided with a second pivot bearing, a segment for encompassing the shaft opposite the body, one of the lines of division between said body and segment being radial, and the other at right angles therewith and tangential to the periphery of shaft, and a bolt for securing the same to the shaft, substantially as and for the purpose set forth.

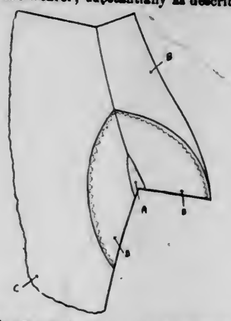
519,486. KEG OR ANALOGOUS PACKAGE. FRANK H. WAITE, Holly, N. Y. Filed June 16, 1893. Serial No. 477,806. (No model.)



Claim.—The combination with a glass keg having grooves *d* in the chines and parallel grooves *d* in the bulge, and having longitudinal grooves *e* communicating with the grooves *d*, and corresponding grooves *e'* located opposite the space between the grooves *e* and connecting at their ends with the said grooves *d* and the chine grooves *d'*, and a protective jacket composed of a series of rings to fit into the grooves *d* and *d'* and project beyond the sides and the ends of the barrel and longitudinal bars corresponding in position with and adapted to be seated in the grooves *e* and *e'* and connecting the said rings together, substantially as described.

519,487. BODY-GARMENT. FREDERICK W. WARNER, Rochester, N. Y. Filed July 29, 1893. Serial No. 481,903. (No specimens.)

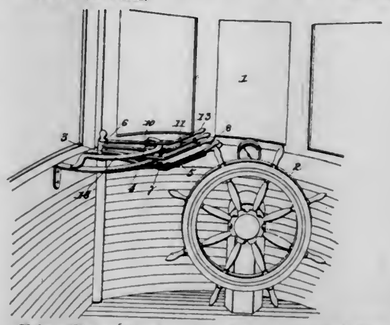
Claim.—1. A body garment having the arm opening and a pocket formed in the garment directly below said arm opening with its mouth in close proximity to it, whereby one side of a dress shield may be inserted in said pocket and the shield removably held directly beneath the arm of the wearer; substantially as described.



2. As an article of manufacture, a body garment having the arm opening, the sleeve secured thereon and a pocket formed in the body of the garment directly beneath the arm hole, and a pocket in the under side of the sleeve close to the arm opening, said pocket adapted to receive the two sides of a dress shield and hold it directly beneath the arm of the wearer, substantially as described.

3. A garment, such as described, having an arm opening and a sleeve secured therein and pockets in the body of said garment and sleeve respectively opening at the sleeve hole or seam uniting the sleeve and body and adapted for the reception of the two halves of a dress shield; substantially as described.

519,488. ENGINE ATTACHMENT. DANIEL R. WOODSUM and FRANK M. WOODSUM, Sunapee, N. H. Filed June 23, 1893. Serial No. 478,604. (No model.)



Claim.—The combination of a bracket or support, a guide tube secured thereby, a series of telescoping tubes or rods arranged in said guide, levers connected at their inner ends to said tubes or rods to move them, a main curved or segmental rack having teeth on the outer face and having the inner face plain, a supplemental curved or segmental plate arranged a short distance away from the main rack, and spring detents carried by the levers and arranged to engage the inner and outer faces of the main and supplemental curved plates, substantially as shown.

519,489. THILL-COUPLING. FRANK P. ZIEGLER, Milwaukee, Wis. Filed Aug. 28, 1893. Serial No. 484,177. (No model.)

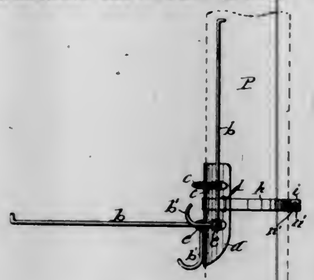


Claim.—1. A thill coupling, comprising a clip having means by which it is secured to an axle, which clip is provided with a forwardly projecting ear having a transverse circular aperture tapering its entire length from one side of the clip to its opposite side, and a thill iron comprising a tang by which the iron is secured to the thill, a medial laterally curved neck, a circular tapering bearing part disposed at a right angle to and in the line of the extension of the thill, said tapering bearing part being longer than the eye or tapering aperture in the clip in which it is fitted, a diametrically contracted screw-threaded

extension of the thill iron beyond the bearing part, a nut turning on the screw-threaded extension, a washer fitted loosely on and projecting somewhat beyond the outer extremity of the tapering bearing part of the thill iron and between the nut and the side of the clip, said washer having an interior straight or faced part fitting a complementary flat face on the side of the tapering bearing part at and near its outer extremity, whereby the washer is prevented from rotation on the thill iron, substantially as described.

2. A thill coupling comprising a clip adapted to be secured to an axle, which clip has a forwardly projecting part provided with a transverse circular tapering aperture parallel with the axle, and a thill iron having a shank formed to be secured to a thill, a laterally extending medial neck, a circular tapering bearing part arranged substantially at a right angle to the thill but in the line of an extension thereof and parallel to the axle, said tapering bearing part being somewhat longer than the transverse aperture in the clip which receives the tapering bearing part of the thill iron fitted therein, a nut turning on the contracted extremity of the thill iron, and a washer on and movable along the thill iron interposed between the clip and the nut, substantially as described.

519,490. TOWEL-RACK. SPENCER T. AXTELL, Oswego, N. Y. Filed Dec. 26, 1893. Serial No. 494,687. (No model.)



Claim.—1. In combination with the plate —*a*— provided with perforated ears —*c*—*c*— and clasps —*c*—*c*—, the main bars —*b*—*b*— formed with shorter hook-shaped supplemental bars —*b'*—*b'*— extending at right angles therefrom and perforated at the junction of the main bars and supplemental bars and inserted thereat between the ears, and the wire —*f*— passing through the perforations of the ears and bars, each of said main and supplemental bars forming two arms placed interchangeably in position for suspending articles therefrom as set forth.

2. In combination with the plate —*a*— and bars —*b*—*b'*— connected thereto, the adjustable attaching hoop —*h*— provided with the fixed ear —*i*— and a plurality of slots —*l*—*l*— and the ear —*i'*— provided with the tongue —*o'*— passing through one of said slots, the ears of said hoop being perforated for the reception of the bolt by which the hoop is fastened to the stove-pipe as set forth.

519,491. SPINNING MACHINERY. EDMUND K. BAKER, Springfield, Mass. Filed Jan. 5, 1894. Serial No. 495,808. (No model.)

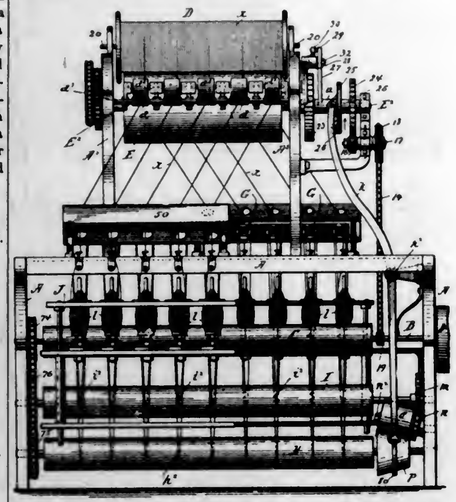
Brief.—The roving is delivered intermittently, and during the time of delivery the speed of the drawing-rollers in the twisting-head is accelerated, so that the drawing action in proportion to the twist is greater during the time of let-off than during the interval between the times of let-off.

Claim.—1. In a spinning machine, the combination with an intermittently operating let-off device for controlling the delivery of the roving, of a uniformly rotating twister, and drawing-rolls having a continuous rotary motion and means for accelerating said motion concurrently with the let off of the roving, substantially as described.

2. In a spinning machine, the combination with a cylinder for controlling the let-off of the roving, the feed-rolls, devices for intermittently imparting rotational movements for let-off to the said cylinder, and mediums of driving connection between the said cylinder and feed-rolls, of the rotary twisting head carrying also the independently rotatable drawing-rolls, and means for accelerating the rotation of the drawing-rolls concurrently with the let-off of the roving, substantially as described.

3. In a spinning machine, the combination with a cylinder for controlling the delivery of the roving provided on its arbor with a fixed ratchet wheel, 23, and a sleeve, *a*, loose on the arbor, having an arm, 27, a pawl, 28, on said arm, the finger, or projection, 29, the guard covering a portion of the circumference of the ratchet wheel and means for rotating the said sleeve, substantially as described.

4. In a spinning machine, the combination with a cylinder for controlling the delivery of the roving from the supply having on its arbor the fixed ratchet wheel and the loose sleeve with the gear, 24, the arm, 27, and the pawl, 28, having the finger, 29, the guard, 32, overlying a portion of the circumference of the ratchet-wheel a stud, or shaft, 17, with the gear wheel, 16, and a suitably driven shaft of the machine, and a medium of driving connection between the shaft and said gear stud, 17, substantially as described.



5. In a spinning machine, a mechanism for intermittently delivering forward a certain length of the roving, in combination with a rotating twister carrying a pair of drawing-rolls whose axes of rotation are at right angles to the axis of rotation of the twister, means for rotating the twister, a driving mechanism for the drawing-rolls and means for accelerating the motion of this driving mechanism concurrently with the let-off of fresh roving, substantially as described.

6. In a spinning machine, the combination with a mechanism for intermittently delivering roving from its supply support, of a twisting head comprising a rotatable body with a pair of drawing-rolls turning bodily therewith and rotating about axes angularly to the axis of rotation of the twister-body, means for driving the twister at a uniform speed, a drum and a driving connection between it and the drawing-rolls, a cone having a continuous uniform rotary motion, a medium of driving connection between this cone and the said drum, one part of which is in peripheral contact with, and movable endwise along, said cone, and means for automatically and intermittently moving the said part along the cone, substantially as described.

7. In a spinning machine, the combination with an intermittently operating let-off mechanism for the roving, and the rotary twisting body having the drawing-rolls which rotate independently and angularly to the axis of rotation of the said body, of a drum, having a driving connection with the twister-body and a drum, having a driving connection with the drawing-rolls, means for driving the first drum at a regular rate of speed, a differential driving mechanism for running the second drum at variable speeds and movable controlling connections between the intermittent let-off mechanism for the roving and said differential driving mechanism, substantially as and for the purpose set forth.

8. In a spinning machine, the combination with the rotary twister-body having the angularly arranged pair of drawing-rolls and a wheel, having driving connection with the drawing-rolls, a regularly rotating cone, a band running around said cone, and rotary driving connections driven by and intervening between it and the said drawing-roll drum, a band shipping lever, the rotary let-off mechanism for intermittently delivering new quantities of the roving, having, movable in conjunction therewith, a cam which periodically, and concurrently with the let-off, swings the band-shifting lever, substantially as described.

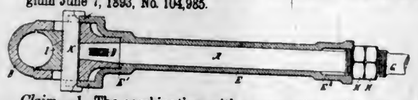
9. In a spinning machine, the combination with cylinder, E, controlling the let-off of the roving, having on its arbor the fixed ratchet wheel and the loose sleeve with the pawl-carrying-arm and pawl and the cam, 26, and the guard, 32, covering a portion of the periphery of the ratchet-wheel, of the regularly rotating cone, the drum, I, with a gear thereon, a cylinder, *o*, with gear *n*, the loose band, 80, running in contact with both the cone and cylinder, and the lever, *k*, connected to the band and having its extremity in operative contact upon said cam, all substantially as described.

10. In a spinning machine, the combination with an intermittently operating let-off device for controlling the delivery of the roving, of the twister-head comprising the intermediate box-like part with hollow cylindrical end portions which constitute journals, one thereof having the fixed pulley, *h*, while the other receives the loose sheave, *i*, with a gear thereon, in combination with a pair of fluted drawing-rolls one of which is journaled in fixed bearings in the said box-like part, while the other has bearings which are yielding relative to the box against the pressure of springs which are applied for action upon said movable bearings, said drawing-rolls being adapted to be driven the one from the other and the primary one having a gear in mesh with the gear on the said sheave, *i*, and means for accelerating the rotation of the sheave, *i*, intermittently and concurrently with the let-off of the roving, substantially as described.

11. In a spinning machine, the twister-head having the tubular ends, 53, 53, and the hollow box-like intermediate part with the journal-receiving recesses, 59, 59, and a fluted drawing-roll mounted therein in fixed journal bearings transversely of, and to one side of the common axis of the said tubular ends, and the other fluted drawing-roll journaled yieldingly within the recesses of the box-like part, springs for pressing the movably journaled roll toward its fellow, the fixed sheave, *h* on one of the tubular ends and the sheave *i*, loose on the other tubular end and having a gearing engagement with the journal-shaft of one of the drawing-rolls, in combination with intermittently operating let-off mechanism for controlling the delivery of the roving, means for uniformly driving the twister-head and means operating in conjunction with the intermittent let-off for insuring an accelerated driving of the drawing-rolls concurrently with the let-off, substantially as described.

12. In a spinning machine, the combination with an intermittently operating mechanism for the let-off or delivery of the roving, of a uniformly rotating twister having drawing-rolls mounted therein and adapted for continuous rotary motions, means for accelerating the motions of the drawing rolls independently of the motion of the twister, and concurrently with the let-off of the roving, the spindles, means for driving the same, and the ring-rail, for imparting the final yarn twist to the drawn roving which is continuously delivered thereto from the variably speeded drawing and twisting mechanism, substantially as described.

519,492. ADJUSTABLE BEARING FOR CONNECTING-RODS. WILHELM BROCKHAUSEN and FRIEDRICH BROCKHAUSEN, Riga, Russia. Filed Oct. 18, 1893. Serial No. 488,500. (No model.) Patented in Belgium June 7, 1893, No. 104,985.



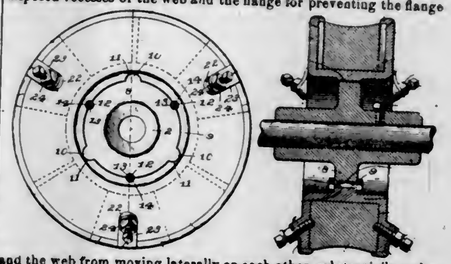
Claim.—1. The combination, with a connecting rod or link, of a bearing-head on one end of the same, a bearing-block in said head, a sleeve surrounding said rod, a gib in the head, which gib rests against the bearing-block, lugs on the sleeve resting against said gib, and nuts on the threaded part of the rod or link, which nuts serve for shifting the sleeve in the direction of its length, substantially as set forth.

2. The combination, with a connecting rod, provided with a raised screw-thread a greater or less distance from one end, a head provided with a slotted opening and with a neck for receiving the end of the connecting rod, a key passing through the neck of the head and through the end of the rod within said neck, a bearing-block in the head, a gib fitted to slide in the slotted opening of the head and to bear against said bearing-block, a sleeve surrounding the rod and having lugs extending over the head and embracing the gib, and nuts on the threaded part of the connecting rod, substantially as set forth.

3. The combination, with a connecting-rod, provided with a raised screw-threaded part a greater or less distance from one end, of a head provided with a slotted opening and having a neck for receiving the end of the connecting-rod, a key passing through said neck and the end of the connecting rod, a bearing block in said head, a gib fitted in the slotted opening of the head, to rest against said bearing-block, a sleeve mounted loosely on the connecting rod and provided at one end with a socket for receiving the neck of the head and with lugs projecting from said socket over the head, said lugs having recessed ends, and said sleeve being also provided at the opposite end with a socket for receiving the screw-threaded part of the rod, and nuts on the screw threaded part of the rod, substantially as set forth.

519,493. PULLEY. PHILIP CONYNGHAM and WILLIAM R. GIBBONS, Wilkes-Barré, Pa. Filed Aug. 4, 1893. Serial No. 482,357. (No model.)

Claim.—1. A pulley, comprising a hub provided with an annular web having transversely-disposed ribs, a rim provided with an annular flange conforming to the configuration of the web and forming a continuation thereof and having recesses corresponding in shape to and receiving the ribs, and fastening devices passing through oppositely disposed recesses of the web and the flange for preventing the flange



and the web from moving laterally on each other, substantially as described.

2. A pulley, comprising a hub provided with an annular web having transversely disposed projecting ribs of semi-cylindrical shape, a rim provided with a flange conforming to the configuration of the web and forming a continuation thereof and having curved recesses receiving the ribs, and transverse bolts passing through oppositely disposed recesses of the web and the flange and arranged in registering recesses thereof and securing the parts against lateral movement, substantially as described.

3. A pulley, comprising a hub, a rim having an annular space and provided at its opposite outer edges with inwardly extending curved flanges forming overhanging edges and having entrance spaces between the flanges, wedge-shaped blocks inserted at the entrance spaces and arranged within the annular space, curved plates closing the entrance spaces and having curved flanges completing the curved flanges of the rim and projecting inward over the adjacent blocks, and screws passing through the plates and the sides of the rim and securing the plates in position and engaging the adjacent blocks, substantially as described.

4. A pulley, comprising a hub, a rim having an annular space and provided in the same with radial flanges having circumferential curved flanges arranged at intervals, said rim being provided with interiorly threaded bosses wedge-shaped blocks arranged in series in the annular space of the rim, curved plates arranged at the intervals between the curved flanges of the rim and provided with shanks arranged adjacent to the sides of the rim, inclined screws passing through the shanks and the bosses of the rim and engaging the adjacent blocks, and jam-nuts arranged on the screws and engaging the shanks of the plates, substantially as described.

5. A pulley, comprising a hub provided with an annular web having transversely-disposed projecting ribs, a rim having an annular space and provided with an annular flange conforming to the configuration of the web and provided with recesses receiving said ribs, said rim being provided at its circumference with inwardly-extending curved flanges arranged at intervals, fastening devices passing through the web and the annular flange and securing those parts from moving laterally on each other, wedge-shaped blocks arranged in series on the annular space of the rim, and curved plates arranged at the intervals between the curved flanges of the rim and projecting inward over the adjacent blocks, substantially as described

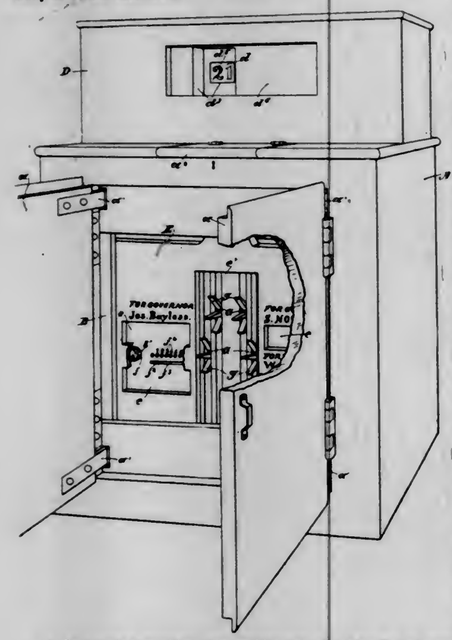
---

519,494. VOTING-MACHINE. WILLIAM M. CUTTER, Marysville, Cal. Filed Nov. 17, 1893. Serial No. 491,247. (No model.)

Claim.—1. A voting machine comprising a shaft provided with means for rotating it by the voter, and having an indicating mechanism to register its movement, a lock normally engaging the shaft and preventing its rotation, means for retracting the lock by the action of the voter to render the machine active, a trip to release the said lock when the voter has operated said shaft to register his vote; the said trip lying in the path of a projection or arm carried by the said shaft; whereby when the trip is operated it releases said lock, and the shaft will be locked against further rotation until the machine is again rendered active by the next voter, substantially as herein described.

2. In a voting machine, the combination of a plurality of independently rotatable shafts, each having an indicator to register its movement, a lock for normally holding each of said shafts from turning, means for relieving the shafts of their lock, and connected tripping devices for said lock, operated in unison by a given movement of any one of the plurality of shafts, to permit the return of the lock to its normal engagement, to hold all the shafts, substantially as herein described.

3. In a voting machine, the combination of a rotatable shaft having a hand wheel for turning it, and an indicator for registering its movement, a movable locking block adapted to normally engage and hold the hand wheel to prevent the shaft from turning, means for removing the locking block from its engagement to relieve the wheel and its shaft, and a catch to temporarily hold said block, said catch being tripped by a given movement of the wheel to permit the return of the block to its normal engagement to lock said wheel, substantially as herein described.



4. In a voting machine, the combination of a plurality of independently rotatable shafts, each having a hand wheel for turning it, and an indicator for registering its movement, a movable locking block adapted to normally engage and hold each hand wheel to prevent its shaft from turning, means for removing the locking block from its engagement to relieve all the wheels and shafts, and connected catches to temporarily hold said block, said catches being operated in unison by a given movement of any one of said wheels, to permit the return of all the blocks to their normal engagement, to lock all of said wheels and shafts, substantially as herein described.

5. A voting machine comprising a shaft provided with means for rotating it by the voter, and having an indicating mechanism to register its movement, a lock normally engaging the shaft and preventing its rotation, levers connected with the said lock for operation by the voter to retract the lock and render the machine active, a trip to release the said lock and permit it to again lock the said shaft after the voter has turned it to register his vote; the said shaft having a projecting portion or arm to release said trip as soon as the voter operates the shaft, and thus render the machine inactive until the next voter actuates said levers, substantially as herein described.

6. In a voting machine, the combination of an exterior box, having a swinging door, a rotatable shaft within, having an indicator for registering its movement, a normally engaged lock to prevent said shaft from turning, a slidable frame within the box adapted to relieve the shaft of said lock, said frame being operated by the opening and closing of the door of the box, and a tripping device operated by a given movement of the shaft, to permit the return of the lock, substantially as herein described.

7. In a voting machine, the combination of an exterior box, having a swinging door, a rotatable shaft within, having a hand-wheel for turning it and an indicator to register its movement, a movable locking block normally engaging the hand-wheel to prevent it from turning, a slidable frame operated by the opening and closing of the doors to relieve the hand-wheel of its locking block, and a catch for temporarily holding said block and operated by a given movement of the hand wheel to release the block to permit it to return to its normal engagement, to hold the wheel and shaft, substantially as herein described.

8. A voting machine comprising a hand operated shaft provided with an indicating mechanism to register its movement, a lock normally engaging the shaft and preventing its rotation, a slide for retracting the lock whenever the voter places the machine in active condition by operating the slide, a trip to hold the lock retracted, and actuated by the shaft when the voter operates it to release the lock and permit it to again lock the shaft and render the machine inactive until the slide is operated by the next voter, a pawl carried by the slide, and a registering mechanism having a ratchet in the path of said pawl to register the number of times the slide is operated, substantially as herein described

9 A voting apparatus comprising an upright casing provided with vertical double doors to form a booth or inclosure when swung open, lever arms carried by the hinged ends of the doors, and entering the interior of the casing, a shaft within the casing having operating means extending through the front of the casing for actuation by the voter, and having an indicator to register its movement, a sliding frame in the casing and in the path of the said lever arms, and a locking mechanism retracted by said lever arms upon opening the doors, a trip operated by the shaft for releasing the said lock to permit it to again lock the shaft, and a registering mechanism operated by the said slide to register every time the doors are opened, substantially as herein described.

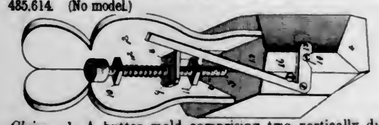
10. A voting machine comprising a casing having swinging doors provided at their hinged edges with lever arms projecting past said edges, a spring pressed frame in the casing and having inclines at its corners engaging said lever arms, and by which said arms retract the frame when the doors are being opened, and which through said arms hold the doors closed, a registering mechanism operated by the said frame every time the doors are swung in one direction, a shaft having mechanism for registering its movement when rotated by the voter, a locking bar for the shaft retracted by said sliding frame, a trip for temporarily holding the lock retracted, and released by the shaft upon an attempt to further operate the shaft, substantially as herein described.

11. In a voting machine, the combination of the slidable frame adapted by the exigencies of the machine to be operated by the performance of each voter in exercising his franchise, the rotatable drum having the spirally directed indicating figures, and the means for operating the drum consisting of the pawl on the frame, the shaft having the ratchet with which the pawl engages, and gearing between the shaft and drum, a casing for said drum provided with a slot, and the means for exhibiting the indicating figures, consisting of the apertured sliding cover plate over said slot, and the traveler nut seated on the shaft and having an arm engaging said cover plate, substantially as herein described.

12. A voting machine comprising a casing having a hinged lid and a front provided with sight apertures, a registering mechanism in the casing, the numerals of which are visible through said apertures, operating hand wheels exposed for actuation through said front, hinged front doors adapted to render said mechanism operative, and a vertically movable slide E, over said front and adapted to be raised and lowered upon opening the lid of the case to expose and cover said sight apertures, substantially as herein described.

13. In a voting machine, the rotatable shafts with their indicator drums and hand wheels, the sliding locking blocks, the slidable frame and the catches, in combination with the swinging holding arm M for the frame, the cam rod c' of said frame and the vertically movable bar L with its stop blocks operated by said cam rod and adapted to lock the catches, substantially as herein described.

519,495. BUTTER-MOLD. WALTER DORSEY, Dorseyville, and JOHN E. BRENNEISEN, Unionville, Md. Filed Sept. 15, 1893. Serial No. 485,614. (No model.)

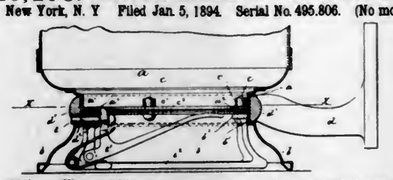


Claim.—1. A butter mold comprising two vertically disposed hinged sections provided at their bottoms with opposite corresponding mold recesses forming a mold chamber having lower cutting edges, the upper portions of said sections forming a handle, substantially as described.

2. A butter mold comprising two vertically disposed sides or sections hinged together and provided at their bottoms with opposite mold recesses forming a mold chamber when the sides or sections are closed and provided with lower cutting edges, the upper portions of said sections forming a handle, and a follower or plunger mounted on one of the sides or sections and arranged in the mold recess and located at the top thereof and designed to bear on its lower face a suitable design, substantially as described.

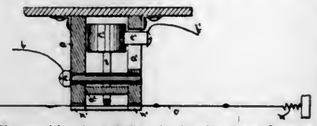
3. A butter mold comprising two vertically disposed sections hinged together and provided at their bottoms with opposite mold recesses forming a mold chamber provided at the lower edges with beveled cutting portions, the upper portions of said sections forming a handle, an arm extending from one of the sections at the inner side thereof, a threaded stem arranged in an opening of the arm and provided above and below the same with nuts, a plunger arranged within the mold recesses and connected to the lower ends of the stems, and a spring for raising the plunger, substantially as described.

519,496. ROTATABLE SIGNAL-LAMP. FREDERICK W. DRESSEL, New York, N. Y. Filed Jan. 5, 1894. Serial No. 495,806. (No model.)



Claim.—The combination of a lamp having a divided neck, to constitute a removable foot, with means for attaching the foot to the upper part of the neck, a surrounding bracket ring, and a catch moving substantially in a horizontal plane and adapted to lock the lamp in its signaling positions, substantially as specified.

519,497. ELECTRIC FIRE-ALARM TRANSMITTER. ADOLF DUNISE, Ravenna, Ohio. Filed Jan. 16, 1894. Serial No. 497,106. (No model.)



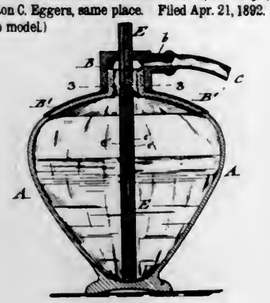
Claim.—1. The combination of electric circuit terminals; a tubular insulating base formed with a slot, a movable binding post in said base and projecting through said slot, a stationary binding post extending into said base, a cord easily separable by heat; a rod connecting the cord with said movable binding post and retaining the latter from contact with the other binding post.

2. The combination of electric circuit terminals; a tubular insulating base formed with a slot and a grooved end; a movable binding post in said base and projecting through said slot; a stationary binding post extending into said base, a cord easily separable by heat; a rod connecting the cord with said movable binding post and retaining the latter from contact with the other binding post

3. The combination of electric circuit terminals, a tubular insulating base formed with a slot; a movable binding post in said base and projecting through said slot, a stationary binding post extending into said base; a cord easily separable by heat and provided with a tension device, a rod connecting the cord with said movable binding post and retaining the latter from contact with the other binding post.

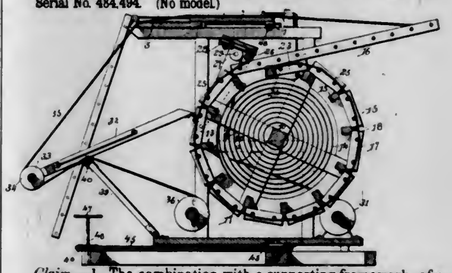
4. The combination of electric circuit terminals; a tubular insulating base formed with a slot and plug: a movable binding post in said base and projecting through said slot: a stationary binding post extending into said base; a cord easily separable by heat; a rod extending through said plug and connecting the cord with said movable binding post and retaining the latter from contact with the other binding post.

519,498. ATOMIZER. WILLIAM EGGERS, Brooklyn, N. Y., assignor to Anton C. Eggers, same place. Filed Apr. 21, 1892. Serial No. 430,010. (No model.)



Claim.—The combination of a vessel for containing liquid, a cap attached to the neck of the vessel, an air supply pipe connected with said cap, and a combined suction and air tube extending into the vessel and provided with separate air and liquid channels in the same integral structure, the air channel having an orifice opening into the vessel above the liquid, and an atomizing nozzle at the outer end of the combined suction and air tube, substantially as set forth.

519,499. FIRE-ESCAPE LADDER. WIATT O. ELLIS, Tekoa, assignor to David B. Keagy, Farmington, Wash. Filed Aug. 31, 1893 Serial No. 484,494. (No model.)



Claim.—1 The combination with a supporting framework, of a rotary platform, an elevated landing carried by said platform, ground-ladders depending from the landing, an extensible ladder arranged adjacent to the landing, and means for operating the ladder, substantially as specified.

2. The combination with a platform, of an elevated landing provided with an adjustable section, means connected to said section to extend the same, a drum, a sectional ladder reeled upon the drum, and means for operating said parts, substantially as specified.

3. The combination with an upright framework, of a drum, a sectional ladder connected to said drum to be reeled thereon, an actuating spring connected to the drum to rotate the latter in a direction to reel the ladder, and means for rotating the drum in an opposite direction and for bracing the ladder in its extended position, substantially as specified.

4. In a fire escape, the combination of a spring-actuated drum, a jointed ladder connected to the drum to be reeled thereon, and operating and bracing devices connected to said parts, substantially as specified.

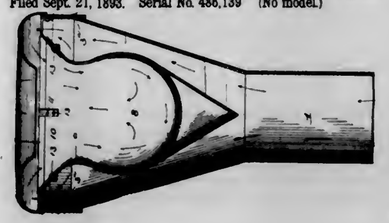
5. The combination with a framework, an elevated landing, an extensible ladder terminating at said landing, and means for extending and folding the ladder, of ground-ladders pivotally connected at their upper extremities to the said landing, and a brace 39 adjustably connected to the framework and adapted to engage said ladders near their lower ends to hold them in inclined or operative positions substantially as specified.

6 A sectional ladder having the contiguous ends of its sections hinged together, and a tension cable secured to the side-bars of the sections and cross-looped over the said joints or connections, substantially as specified.

7 A sectional ladder having its sections hinged together, lateral studs carried respectively by the contiguous ends of connected sections, and a continuous tension cable arranged upon each side of the ladder and cross-looped around said studs at each joint, substantially as specified

8. The combination with a supporting frame, of a rotary drum provided with an actuating spring, a jointed ladder reeled upon said drum, bracing devices connected to the ladder, a swinging yoke carrying a roller to bear against the ladder as it leaves the drum, an operating cable carried around guide-pulleys upon said yoke and connected to the drum, and means for reeling and unreeling the operating cables, substantially as specified.

519,500. SPARK-ARRESTER. AREND HASPER, Westfield, N. D Filed Sept. 21, 1893. Serial No. 486,139 (No model.)



Claim.—1. The combination of a stack having a conical head, of a superposed deflecting hood or cap, a rounded receptacle suspended centrally in the head and having a contracted neck terminating in an upwardly flared mouth or flange to direct the products to the outer side of the hood or cap, substantially as specified.

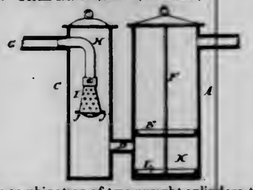
2. The combination with a stack having a conical head terminating in a vertical rim, of a sleeve surrounding and vertically adjustable upon said rim, a deflecting hood or cap connected to and carried by the sleeve, and a receptacle suspended centrally in the head, substantially as specified.

3. The combination with a stack, of a sleeve threaded exteriorly upon the upper end thereof, a deflecting hood or cap carried by said sleeve, and a receptacle suspended within the stack, substantially as specified.

4. The combination with a stack having a conical head terminating in a vertical rim, of a sleeve surrounding and adjustably connected to said rim, a deflecting hood or cap hinged to the upper edge of said sleeve, and a receptacle suspended within the head, substantially as specified.

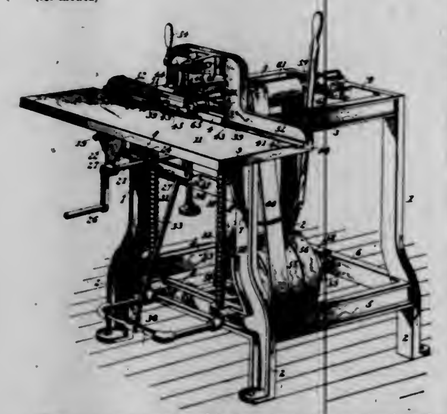
5. The combination with a stack and a superposed deflecting hood or cap, of a receptacle arranged centrally within the stack and having an upwardly flared-mouth and supporting braces fixed at their outer terminals to the side walls of the stack and adjustably connected at their inner ends to the flared mouth of the receptacle, substantially as specified.

519,501. GREASE-TRAP. ISAAC HEFFRON, Galveston, Tex. Filed Dec. 19, 1893. Serial No. 494,095. (No model.)



Claim.—The combination of two upright cylinders, the first being provided with an intercepting strainer device or piston normally resting some distance above the bottom, an imperforate disk located upon the bottom of said cylinder, a rod connecting the strainer and disk for the purpose of removing the same, a collecting chamber between the strainer and disk, a second cylinder having a discharge outlet near the top, a downwardly projecting strainer located midway of the second cylinder and connected with the discharge, means as described for detaching and removing said strainer from the second cylinder, a pipe uniting both cylinders at a point some distance above the bottoms thereof, and an inlet at the upper end of the first cylinder.

519,502. MORTISING-MACHINE. JAMES HOLMES and KARL PETERSON, Jamestown, N. Y. Filed Nov. 8, 1892. Serial No. 451,371. (No model.)



Claim.—1. In a wood-working machine, the combination of a frame, a bracket mounted for vertical reciprocation on the frame, a table carried by the bracket and mounted thereon for longitudinal and transverse movement, and a rock-shaft journaled on the bracket and disposed transversely of the table and having an arm engaging the latter to move the same longitudinally, substantially as described.

2. In a wood-working machine, the combination of a frame provided at its front with vertical ways, a bracket having opposite depending sides arranged in the ways and adapted to reciprocate therein, vertically movable rods mounted on the frame and having their upper ends connected to the bracket, a treadle secured to the lower ends of the rods, spiral springs disposed on the rods and interposed between the bracket and the frame, a table carried by the bracket and mounted thereon for longitudinal and transverse movement, and a rock-shaft journaled on the bracket and disposed transversely of the table and provided with an arm engaging the latter, substantially as and for the purpose described.

3. In a wood working machine, the combination of a frame, a horizontally disposed cutter shaft, a table provided on its lower face with ways disposed longitudinally of it, a bracket mounted for reciprocation on the frame, and provided with ways disposed transversely of the table, the parallel transverse and longitudinally disposed slides fixed together and arranged in said ways, and a rock shaft journaled on the bracket and having an arm engaging the table and arranged to move the same longitudinally, substantially as described.

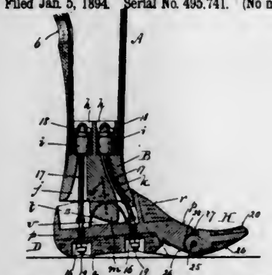
4. In a wood working machine, the combination of a frame, a longitudinally disposed shaft journaled therein for carrying a cutting tool, a table provided with ways arranged longitudinally of it, a bracket mounted for vertical reciprocation on the frame and provided with ways disposed transversely of the table, the transverse and longitudinally disposed slides arranged in said ways, vertically movable rods mounted on the frame and having their upper ends connected to the bracket, a treadle secured to the lower ends of the rods, spiral springs disposed on the rods and interposed between the bracket and the frame, a rock shaft journaled in the bracket and provided with an arm engaging the table and adapted to move the same longitudinally, and means for limiting the movements of the table, substantially as described.

5. In a wood working machine, the combination of a frame provided at its front with vertical ways, a table having on its lower face ways disposed longitudinally of it, a bracket having opposite depending sides arranged in the ways of the frame and adapted to reciprocate therein and provided with ways disposed transversely of the table, the parallel transverse and longitudinally disposed slides arranged in the ways of the table and the bracket and fixed together and provided with a depending lug having a threaded opening, a transversely disposed adjusting screw swiveled in the bracket and engaging the threaded opening of said lug, the longitudinally disposed adjusting screws carried by the table and arranged to engage said bracket, a vertically disposed adjusting screw located beneath the bracket and arranged to engage the latter, a treadle connected with the bracket and adapted to depress the same, springs for raising the bracket, a rock-shaft journaled in the bracket and having an arm engaging the table to move the latter longitudinally, and a crank handle arranged at the front end of the rock-shaft, substantially as described

6. In a wood working machine, the combination of a frame, a horizontally disposed shaft, a table capable of vertical and longitudinal movement, and a cutting tool carried by the shaft, and arranged at the outer end thereof and having a regularly curved concave front face with the peripheral edges in the same vertical plane and provided with opposite peripheral cutting edges, substantially as described.

7. In a wood working machine, a cutter designed for cutting mortises in the faces of doors, windows, and the like, and having a concaved front face and provided at opposite sides with curved peripheral recesses of equal depth forming a pair of similar cutting-edges at opposite sides of the tool, substantially as described.

519,503. ARTIFICIAL LEG. WILLIAM R. HONSUCLE, Boston, Mass. Filed Jan. 5, 1894. Serial No. 495,741. (No model.)



Claim.—1. In an artificial leg, a chambered foot portion provided with the two segments in combination with the hollow leg mounted to rock on said segments; devices for holding the leg in engagement with the segments and a projection on the leg entering between said segments.

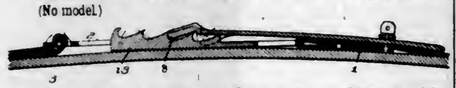
2. In an artificial leg, the leg, A, in combination with the foot, D, having the segments, *v*; the flange, *m*, on said leg projecting between said segments; the springs, *w*, connecting the segments and leg and the flexible connections, 17, all being arranged substantially as specified.

519,504. FASTENING DEVICE. BUCKINGHAM ST. J. HOYT, New York, N. Y. Filed Mar. 24, 1893. Serial No. 467,421. (No model.)



Claim.—A removable fastening device, comprising a socket piece having yielding teeth formed on its outer inturned edges integral therewith and extending obliquely inward from the margin of its mouth in position to engage an article inserted within the mouth, a sufficient space being left between the opposite sides of the mouth to permit the insertion of a thin blade within the mouth upon opposite sides of the article inserted within the mouth to spring back the yielding teeth to release the article, substantially as set forth.

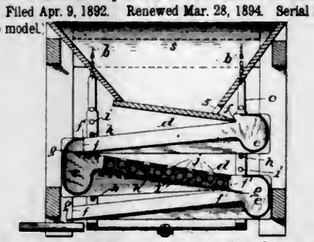
519,505. TRUNK-STRAP FASTENER. PETER MUNDRY and HENRY PONTIER, Delta, Colo. Filed May 22, 1893. Serial No. 475,145. (No model.)



Claim.—1. In a trunk strap fastener, the combination with a strap, of a ratchet bar permanently attached to one end of the strap, a link provided with a series of cross-bars forming strap openings, one of the cross-bars being arranged in a plane higher than the end one, whereby the other end of the strap is adapted to be passed over the higher bar and backward between the strap and the under side of the end bar to clamp the strap adjustably, and a locking lever pivotally secured to the link and engaging the ratchet bar, substantially as described.

2. In a trunk strap fastener, the combination with a strap, of a ratchet bar attached to one end of the strap, a link connected with the other end of the strap, and a locking lever pivotally connected with the link and adapted to engage the ratchet bar and provided at its engaging end with a groove 9 forming oppositely situated shoulders 10 and having a recess 11 forming side flanges to hold the lever against lateral movement, substantially as described.

519,506. GOLD-WASHER. HARVEY W. MURDOCK, Ogden, Utah, assignor of two-thirds to Murray R. Stewart and Samuel H. Abbott, same place. Filed Apr. 9, 1892. Renewed Mar. 28, 1894. Serial No. 505,494. (No model.)



Claim.—1. In an ore separating machine, a series of separator sections inclined in opposite directions and having a pocket formed in their upper ends, said sections being arranged in a true vertical line so that the lower end of one will empty directly into the pocket of the one below it, and a series of riffle-bars located in the sections and arranged alternately one above the other, substantially as described.

2. In an ore separating machine, a series of separator sections inclined in opposite directions and located in a true vertical line, each section having the shoulders *f*, and *f'*, and pockets *e* formed thereon and so arranged that when the parts are assembled such shoulders will register with each other and the chute *g* will project into the pocket *e* of the section below it, substantially as described.

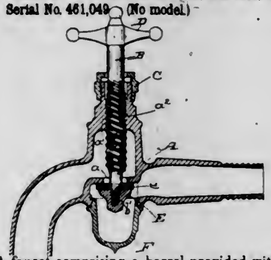
3. In an ore separating machine, the combination with a stationary frame, of a swinging frame hung therefrom, a series of inclined separator sections located in the swinging frame and arranged in a true vertical line, a pocket formed in the inner end of each section into which the chute of the section above it empties, a grooved disk or eccentric mounted on the side of the frame, a lever actuated thereby, a link located under the machine connecting the lever and swinging frame, and a chute at the lowest point on the stationary frame for receiving the tailings, all substantially as described.

519,507. BAND-TIGHTENER. ELAM A. OLIVER, Belleville, Wis. Filed Feb. 24, 1894. Serial No. 501,424. (No model.)



Claim.—A band fastener consisting of two duplicate heads adapted to be secured one to each end of the band and each formed of two sections, one section having a main portion adapted to lie upon the band, a depression in said section and opening toward the band and a longitudinally perforated arm projecting at right angles to the main portion and away from the band, and the remaining section having a main portion adapted to lie upon the main portion of the first and having longitudinal flanges on its sides and adapted to embrace the first section, a transverse arm on the second section and adapted to pass under the band and to press the same into the depression of the first section, a longitudinally perforated arm on the second section and projecting away from the band, and a bolt adapted to pass through the perforations of the arms on the two sections and from one head to another, whereby the band is clamped between the two sections and the heads connected, substantially as described.

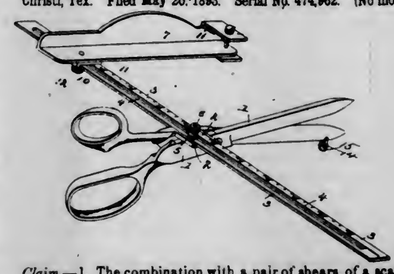
519,508. FAUCET. WILLIAM J. OSWALD, San José, Cal. Filed Feb. 4, 1893. Serial No. 461,049. (No model.)



Claim.—1. A faucet comprising a barrel provided with a valve seat, a coarsely threaded spindle or stem extending down through the upper side of the faucet barrel and through the valve seat opening and provided with oppositely extending threads on its lower end below the valve seat and of finer pitch than the first named threads, and a valve head having a threaded aperture or recess receiving said lower threaded end and a packing disk on its upper face; the said valve head closing upwardly against the valve seat and accessible from the lower portion of the faucet for repair or replacement, substantially as herein described.

2. A faucet consisting in a barrel A having a transverse valve seat *a*, a removable cup-like plug in the lower side of the barrel below the valve seat, a coarsely threaded stem B extending down through an opening a^2 in the top of the barrel and through the valve seat opening, and having a reduced lower end provided with threads of finer pitch, and the upwardly closing valve head E inserted through the opening in the lower side of the barrel, and having a threaded aperture receiving the threaded lower end of the stem and a packing disk on its upper face, substantially as herein described.

519,509. GAGE FOR BIAS-CUTTERS. NEVADA STERN, Corpus Christi, Tex. Filed May 20, 1893. Serial No. 474,962. (No model.)



Claim.—1. The combination with a pair of shears, of a scale-bar mounted adjustably upon and extending at right angles to the shears, and a gage-strip parallel to the shears L-shaped in cross-section located at one end of said scale-bar, substantially as specified.

2. The combination with a pair of shears, of a scale-bar mounted adjustably upon and extending at right angles to the shears, and a gage-strip L-shaped in cross-section removably and adjustably located at one end of said scale-bar and disposed parallel to the shears, substantially as specified.

3. The combination with a pair of shears, of a scale-bar adjustably mounted upon and extending at right angles from the same, an L-shaped gage-strip, and a thickness gage-screw carried thereby, substantially as specified.

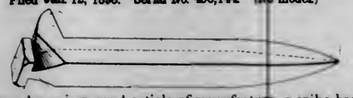
4. The combination with a pair of shears having a transverse flanged guide-plate, a central stud, and a thumb-nut, of a scale-bar longitudinally slotted to receive the stud and mounted for sliding in the plate, an L-shaped gage-plate arranged at one end of the bar, a flanged guide-plate upon the under side thereof receiving said bar, a stud depending from the plate, a milled nut for the stud, a clip embracing the advance end of the gage-plate and provided with a perforation in its upper terminal above the plate, and a thickness gage-screw arranged in said perforation, substantially as specified.

519,510. BOTTLE-STOPPER. WILLARD R. STEVENS, New York, N. Y. Filed June 22, 1893. Serial No. 478,434. (No model.)



Claim.—A bottle-stopper, adapted for permanent insertion into a bottle, consisting of a head having a central discharge-aperture, a guard-cup located at the under side of said head and inclosing said discharge-aperture, said cap having perforated sides and an imperforate bottom, a cage extending from the under side of the head downward and provided with a valve-seat at its lower end, and a gravity valve received by said seat when the bottle is in upright position and adapted to rest on said imperforate bottom when the bottle is in reversed position, substantially as set forth.

519,511. RAILROAD-SPIKE. GEORGE W. THOMPSON, Leadville, Colo. Filed Jan. 12, 1893. Serial No. 458,144. (No model.)



Claim.—As an improved article of manufacture, a spike having a shank 1 rectangular in cross-section, provided with a lateral main head 3, a superjacent supplemental head 4 flush at its rear edge with the back of the shank, and a neck 8 connecting the supplemental head with the upper end of the shank, such neck being V-shaped or tapered in cross-section with its sides converging toward the rear of the shank, concaved or beveled outwardly toward the lower end of the neck to intersect the sides of the spike in lines extending from the rear angles of the shank to the top of the main head and terminating abruptly at the upper end of the neck to form shoulders 6 which taper in width toward the front of the supplemental head, an interval being formed between the edge of the supplemental head and the upper surface of the main head at the front of the former substantially as specified.

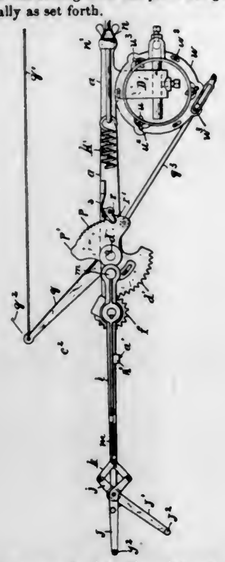
519,512. SELF-FEEDING TARGET-TRAP. HERBERT W. TICHENOR, Irvington, N. J. Filed Nov. 25, 1893. Serial No. 491,975. (No model.)

Claim.—1. In a target thrower, the combination, with a pivoted throwing arm arranged to make a complete rotation about its pivot at each actuation, of a crank-pin with spring extending the arm, and a setting lever and gearing adapted to set and release the throwing arm by successive movements of the setting lever, the parts being arranged and operated substantially as herein set forth.

2. In a target thrower, having a pivoted throwing arm arranged to make a complete rotation at each actuation, the combination, with the spindle *c*, of a throwing arm pivoted thereon, a crank and spring extending the throwing arm, a lever with pull cord and gearing rotating the spindle to retract the throwing arm, and a stop movable with the lever for "setting" the throwing arm when retracted, the parts being arranged and operated substantially as herein set forth.

3. In a target thrower having a pivoted throwing arm arranged to make a complete rotation at each actuation, the combination, with the spindle *c*, of a throwing arm pivoted thereon, a crank and spring extending the throwing arm, a lever with pull cord and gearing rotating the spindle to retract the throwing arm against the tension of the spring, and a stop to arrest and "set" the arm at the maximum tension of the spring, the parts being arranged and operated substantially as herein set forth.

4. In a target thrower having a pivoted throwing arm arranged to make a complete rotation at each actuation, the combination, with the spindle *c*, of a throwing arm pivoted thereon, a crank and spring extending the throwing arm, a lever with pull cord and gearing rotating the spindle to retract the throwing arm against the tension of the spring, and a stop movable with the lever arresting the throwing arm when retracted, and releasing the throwing arm upon the further movement of the setting lever the parts being arranged and operated substantially as set forth.



5. In a target thrower having a throwing arm adapted to make a complete rotation at each actuation, the combination, with the spindle *c*, of the throwing arm *i* pivoted thereon and provided with a target clamp, the crank *m* and spring *k'* extending such arm, the pinion *f* connected with the spindle by a pawl, a toothed segment and setting lever rotating the pinion, and a stop arresting the arm when retracted, the parts being arranged and operated as herein set forth.

6. In a target thrower having a throwing arm adapted to make a complete rotation at each actuation, the combination, with the spindle *c*, of the throwing arm *i* pivoted thereon and provided with a target clamp, the crank *m* and spring *k'* to extend such arm, the pinion *f* connected with the spindle by a pawl, a toothed segment and setting lever for rotatating the pinion, a safety pawl for holding the arm during retraction, and a stop for arresting the arm when retracted, the whole arranged and operated substantially as herein set forth.

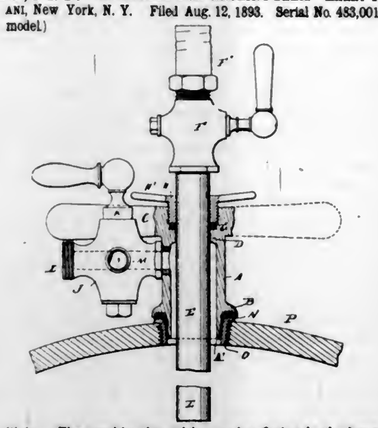
7. In a target thrower, the combination, with a spindle, of a throwing arm pivoted thereon, a spring extending said arm, a pinion connected with the spindle by a pawl, a toothed segment and setting lever rotating the pinion, a segmental ratchet and safety pawl holding the arm during retraction, means holding the pawl in an operative and inoperative position, and projections at opposite ends of the segmental ratchet shifting the pawl alternately into such positions, and a stop arresting the throwing arm when fully retracted, as herein set forth.

8. In a self-feeding target thrower having a pivoted throwing arm arranged to make a complete rotation about its pivot at each actuation, the combination, with a throwing arm carrying a target clamp at its outer end, of means setting and releasing the arm, a target magazine supported over the path of the clamp, dogs projecting through the sides of the magazine and mechanism for actuating the same, and the hopper *t* extending vertically and laterally from the magazine in a curve, the whole arranged and operated as herein set forth.

9. In a self-feeding target thrower having a pivoted throwing arm arranged to make a complete rotation about its pivot at each actuation, the combination, with a throwing arm carrying a target clamp at its outer end, of means retracting the arm, a target magazine supported over the path of the clamp, dogs projected through the sides of the magazine, means connected with the retracting mechanism actuating such dogs, means arresting the arm when retracted, and means releasing the arm, the whole arranged and operated as herein set forth.

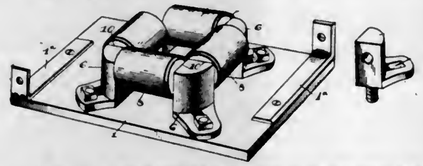
10. In a self-feeding target thrower, the combination, with a throwing arm arranged to make a complete rotation about its pivot at each actuation, of a clamp having jaws pivoted upon the arm, a spring or springs having an unequal tension upon the jaws, a target magazine supported over the path of the clamp, and a stop temporarily checking one of the jaws and thereby opening the clamp beneath the magazine, the parts being arranged and operated substantially as herein set forth.

519,513. APPARATUS FOR RACKING BEER. HARRY TORCHIANI, New York, N. Y. Filed Aug. 12, 1893. Serial No. 483,001. (No model.)



Claim.—The combination with a casing fitting in the bung-hole of a barrel or keg to be filled, of a sliding-tube passing through said casing and provided at its upper end with a cock, and a three-way cock connected with said casing, which three-way cock has an opening into the outer air, substantially as set forth.

519,514. BRACE AND GUIDE FOR WINDMILL PUMP-RODS. ARNE S. TRAGETHON, Kensett, Iowa. Filed Aug. 22, 1893. Serial No. 483,743. (No model.)



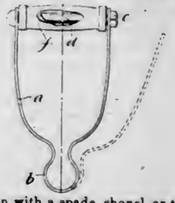
Claim.—1. A guide and brace for pump rods comprising a flat, horizontally disposed support having a central pump rod opening, the horizontally disposed rollers provided at their ends with journals and arranged in a rectangular form around the opening and projecting inward over the same to bear against a pump rod, the diagonally adjustable bearings arranged between the adjacent ends of the rollers and having vertical bearing faces arranged at right angles to each other and provided with openings receiving the journals of the rollers, and means for fastening the bearings to the support, substantially as described.

2. A guide and brace for pump rods, comprising a support having an opening to receive a pump rod and provided beyond the same with diagonally disposed slots, bearings mounted on the support and provided in their inner adjacent faces with bearing openings and having depending shanks arranged in the slots of the support, rollers arranged between the bearings and having journals fitted in the same, and means for securing the shanks of the bearings at the desired adjustment, substantially as described.

3. A guide and brace for pumps, comprising a support having a pump rod opening and provided beyond the same with diagonally-disposed slots, bearings mounted on the support and having bearing openings and provided with depending shanks secured in the slots of the support, said bearings being provided with outward extending slotted attachment plates arranged on the upper face of the support and having their slots registering with those of the support, the rollers mounted in the bearings, and bolts passing through the slots of the support and the attachment plates, substantially as described.

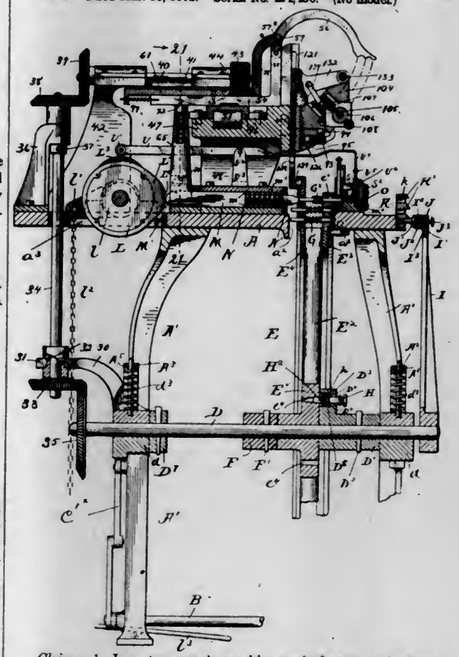
519,515. ATTACHMENT FOR SHOVELS, SPADES, &c. THOMAS WALSH, Montreal, Canada. Filed Oct. 16, 1893. Serial No. 488,219. (No model.)

Claim.—1. In combination with a shovel or the like, an auxiliary handle situated about midway of its length and formed of a single integral flexible strip of metal bent to clip the implement handle and adapted to carry a rigid hand piece, for the purpose set forth.



2. The combination with a spade, shovel or the like, of the attachment comprising the spring clamp *a*, formed of a single integral strip of metal having annular reduction *b*, midway of its length, the bolt *d*, nut *c*, and handle or grip *f* adapted to be set on the handle of the spade or similar implement all substantially as set forth.

519,516. TYPOGRAPHIC MACHINE. EMIL WERNER, Cleveland, Ohio. Filed Mar. 10, 1892. Serial No. 424,450. (No model.)



Claim.—1. In a typograph machine, a shaft, a type-die-wheel loosely mounted on said shaft and carrying two or more sets of type-dies, the type-dies of the respective sets of type-dies being arranged in series concentric with the axis of the wheel, said shaft having bearing in sliding-boxes, of suitable means whereby said sliding-boxes and type-die-wheel may be elevated or lowered, and suitable means for locking said wheel to the shaft, substantially as and for the purpose set forth.

2. In a typograph machine, the bed whereof is supported upon two pairs of legs, as at A', said legs having inwardly-extending arms, as at A^2, sliding-boxes, as at *d*, adapted to slide up and down between the inwardly-extending arms of the respective pairs of legs, a shaft having bearing in said boxes, a type-die-wheel, substantially as indicated, mounted upon said shaft, suitable means whereby said wheel may be rotated and suitable means whereby said sliding-boxes may be elevated and lowered as required, substantially as and for the purpose set forth.

3. In a typograph machine, the bed whereof is supported upon two pairs of legs, as at A', said legs having inwardly-extending arms, as at A^2, sliding-boxes, as at *d*, adapted to slide up and down between the inwardly-extending arms of the respective pairs of legs, a shaft having bearing in said boxes, a type-die-wheel mounted on said shaft.

and carrying or adapted to carry type-dies arranged substantially as indicated, suitable means whereby said wheel can be turned on its axis, suitable lever-mechanism for elevating said sliding-boxes, and springs acting in the direction to lower said boxes, substantially as and for the purpose set forth.

4. In a typograph machine, vertically-sliding-boxes, a shaft having bearing in said boxes, a type-die-wheel mounted on said shaft and carrying or adapted to carry several sets of type-dies with the dies arranged in series substantially as indicated, suitable lever-mechanism adapted to elevate said sliding-boxes, and suitable means for locking said lever-mechanism in the desired adjustment of the parts, substantially as and for the purpose set forth.

5. In a typograph machine, vertically-sliding-boxes, a shaft having bearing in said boxes, a type-die-wheel mounted on said shaft, and carrying or adapted to carry several sets of type-dies with the dies of a set arranged in two or more series concentric with the axis of the wheel, suitable lever-mechanism for elevating said sliding-boxes, suitable means for locking said lever-mechanism in the desired adjustment of the parts, and springs adapted to act in the direction to lower said sliding-boxes, substantially as and for the purpose set forth.

6. In a typograph machine, two pairs of supporting-legs, as at A', the respective pairs of legs having inwardly-extending arms, as at A^1, sliding-boxes adapted to move up and down between the inner ends of the inwardly-extending arms, a shaft having bearing in said sliding boxes and a type-die-wheel, substantially as indicated, suitably mounted on said shaft, suitable lever-mechanism connected with the legs at one side of the machine and adapted to elevate said sliding-boxes, suitable means for locking said lever-mechanism in the desired adjustment, and springs adapted to act in the direction to lower said sliding-boxes, substantially as set forth.

7. In a typograph machine, vertically-sliding-boxes, suitable means for guiding said sliding-boxes in their up and down movement, a shaft having bearing in said boxes, a type-die-wheel suitably mounted on said shaft and carrying or adapted to carry two or more sets of type-dies with the dies arranged in series substantially as indicated, suitable lever-mechanism adapted to elevate said sliding-boxes and adapted to be operated from the front of the machine, and suitable means for locking said lever-mechanism in the desired adjustment of the parts, substantially as set forth.

8. In a typograph machine, one of the forward supporting-legs or members of which is provided with holes, as at a', a type-die-wheel adapted to be moved in a vertical plane and carrying or adapted to carry two or more sets of type-dies arranged in series, substantially as indicated, suitable lever mechanism whereby said vertical movement of the type-die-wheel may be effected and suitable means connected with said lever-mechanism and adapted to lock the same in the desired adjustment, said locking means comprising a pin or bolt adapted to enter either or any of holes a' in the forward supporting member aforesaid, the arrangement of holes a' being such that the type-die-wheel is elevated or lowered according as said lever-mechanism is actuated to move said pin or bolt of the locking means from its engagement with the one to another of holes a' aforesaid, substantially as and for the purpose set forth.

9. In a typograph machine, vertically-sliding-boxes, a shaft having bearing in said boxes and a type-die-wheel loosely mounted on said shaft and suitable means for preventing said type-die-wheel from moving endwise said shaft, said type-die-wheel carrying two or more sets of type-dies, said sets of type-dies being located in the same circular plane with the dies thereof arranged in series concentric with the axis of the wheel, a collar rigid with the shaft, immediately forward of the hub of the wheel, and suitable means whereby said wheel is adapted to be locked to said collar in as many different positions as there are sets of type-dies, substantially as and for the purpose set forth.

10. In a typograph machine, a shaft, as at D, a type-die-wheel loosely mounted on said shaft, suitable means for preventing said type-die-wheel from moving endwise on said shaft and comprising a collar rigid with said shaft immediately forward of the hub of said wheel, said hub being provided with tapering holes or perforations, as at c^4, and the collar aforesaid being provided with a suitable pin or peg, as at H, adapted to enter any of said holes or perforations c^4 and lock said type-die-wheel to said collar, and a spring acting in the direction to retain said pin or peg in engagement with the respective hole or perforation c^4, substantially as and for the purpose set forth.

11. In a typograph machine, a shaft, as at D, a type-die-wheel loosely mounted on said shaft, said type-die-wheel carrying two or more sets of type-dies, said sets of type-dies being located in the same circular plane with the dies thereof arranged in series concentric with the axis of the wheel, suitable means for preventing said type-die-wheel from moving endwise on said shaft, and comprising a collar rigid with the shaft, immediately forward of the hub of the wheel, said hub having a lateral hole or perforation for each set of type-dies and said collar having a lateral perforation adapted to register with the respective holes or perforations in the hub of the wheel, a pin or peg adapted to enter said perforations, and lock the type-die-wheel in the desired adjustment, substantially as set forth.

12. In a typograph machine, a type-die adapted to impress the matrix-blank or matrix, in combination with suitable type-die actuating mechanism adapted to engage, actuate and cause a second impulse to be given to the die during the latter's impression of the matrix-blank or matrix, and suitable means for returning the type-die and its actuating mechanism to their normal position, substantially as and for the purpose set forth.

13. In a typograph-machine, a type-die adapted to impress the matrix-blank or matrix, in combination with mechanism, substantially as shown, for engaging, actuating and causing a second impulse to be given to the type during the latter's impression of the matrix-blank or matrix, substantially as and for the purpose set forth.

14. In a typograph machine, the combination with type-die, of an upright feed-bar, as at R, feed-rollers, as at S S' and a conveyer-belt, as at P, said feed-rollers, feed-bar and conveyer-belt being operatively connected with each other, the type-die being adapted to engage the lower end of the feed-bar and thereby actuate the feeding-mechanism, substantially as set forth.

15. In a typograph machine, a type-die adapted to impress the matrix-blank or matrix, and provided with a laterally-projecting nose or rib, in combination with suitable mechanism for feeding the matrix-blank or matrix, said feeding-mechanism comprising an upright bar or member terminating at its lower end in a bevel or incline adapted to be engaged by said nose or rib of the type-die preparatory to the impression of the matrix-blank or matrix and suitable means for maintaining the verticality of said upright bar or member of the feeding mechanism, said feeding-mechanism also comprising feed-rollers located at opposite sides of the line of endwise travel of the type-die and adapted to take hold on the matrix-blank or matrix, substantially as set forth.

16. In a typograph machine, a type-die adapted to impress the matrix-blank or matrix, and provided with a laterally-projecting nose or rib, in combination with suitable mechanism for feeding the matrix-blank or matrix, said feeding mechanism comprising an upright bar or member terminating at its lower end in a bevel or incline adapted to be engaged by said nose or rib of the type-die preparatory to the impression of the matrix-blank or matrix, and suitable means for maintaining the verticality of said upright bar or member of the feeding mechanism, said feeding-mechanism also comprising feed-rollers located at opposite sides of the line of endwise travel of the type-die and adapted to take hold on the matrix blank or matrix, and a conveyer-belt adapted to feed the matrix-blank or matrix to the adjacent feed-roller, said upright bar or member, feed-rollers, and conveyer-belt being operatively connected with each other, substantially as set forth.

17. In a typograph machine, a type-die adapted to impress the matrix-blank or matrix, in combination with suitable mechanism for feeding the matrix-blank or matrix, said mechanism comprising an upright bar or member, as at R adapted to be engaged and elevated by the type-die preparatory to the impression of the matrix-blank or matrix by the die, feed-rollers, as at S S', located at opposite sides of the line of endwise travel of the type-die, and suitable mechanism adapted to communicate motion from said upright bar or member to said feed-rollers, and comprising an annular disk or ring loosely mounted on the respective feed-rollers, and suitable means for temporarily establishing frictional contact between said annular disks or rings and the respective feed-rollers, substantially as and for the purpose set forth.

18. In a typograph machine, a type-die adapted to impress the matrix-blank or matrix, in combination with suitable mechanism for feeding the matrix blank or matrix, said mechanism comprising an upright bar or member, as at R adapted to be engaged and elevated by the type-die preparatory to the impression of the matrix-blank or matrix by the die, feed-rollers, as at S S', located at opposite sides of the line of endwise travel of the type-die and suitable means operatively connecting said feed-rollers, with said upright bar or member, said connecting-means comprising an annular disk or ring mounted on the respective feed-rollers outside the line of travel of the matrix-blank or matrix, and provided with curved grooves or slots on the inner periphery, a pin or roller located within the respective grooves or slots, and a spring located between the respective pins or rollers and the adjacent wall of the respective groove or slot opposite to the direction in which said annular disks or rings move to feed the matrix-blank or matrix, said springs being adapted to act in the direction to wedge the respective pin or roller within the reduced portion of the respective groove or slot, between the periphery of the respective feed-roller, and the opposing wall of said groove or slot, substantially as and for the purpose set forth.

19. In a typograph machine, a horizontal reciprocating type-die adapted to impress the matrix-blank or matrix, and provided with a laterally-projecting rib or nose at its forward end, in combination with suitable mechanism for feeding the matrix-blank or matrix and comprising a bar or member provided with a bevel or incline adapted to be engaged by said nose or rib of the type-die, and feed-rollers operatively connected with said bar or member, the periphery of said feed-rollers being milled or knurled or provided with suitable projections whereby said rollers are adapted to take a positive hold upon the matrix blank or matrix, substantially as set forth.

20. In a typograph machine, a cam and a lever, as at U, actuated by said cam, said lever being fulcrumed to any suitable support, and terminating at its forward end in a depending member, as at U^4, the latter at its lower extremity being provided with a roller adapted to bear upon the matrix-blank or matrix, substantially as described, in combination with suitable means for maintaining the verticality of said depending member of the lever, substantially as set forth.

21. In a typograph machine, a type-die adapted to impress the matrix-blank or matrix, and provided with a laterally projecting nose or rib, a box, as at O, open at the ends and top, suitable mechanism for feeding the matrix-blank or matrix and comprising an upright bar or member, as at R, extending into a vertical bore or perforation in the rear wall of said box, and being provided at its lower end with a bevel or incline, substantially as indicated, adapted to be engaged and elevated by said rib or nose of the type-die preparatory to the impression of the matrix blank or matrix, the rear side of said box being perforated laterally with the perforation in open relation with the vertical perforation or bore aforesaid, said lateral perforation being funnel-shaped with the smaller end next adjacent to the path of the matrix-blank or matrix and just large enough to accommodate the passage of the type-die, said rear wall of the box aforesaid also having a slot in open relation with said last mentioned perforation and of such size as to accommodate the reception of the nose or rib of the type-die aforesaid, substantially as set forth.

22. In a typograph-machine, a horizontal reciprocating type die adapted to impress the matrix-blank or matrix and provided with a laterally-projecting nose or rib, G^2, of suitable mechanism for feeding the matrix-blank or matrix, said feeding-mechanism comprising a conveyer-belt, an upright bar or member operatively connected with said conveyer-belt and provided at its lower end with a bevel or incline adapted to be engaged by said rib or nose of the type-die, and suitable means for positively returning said upright bar or member and attachments to their normal position immediately upon the recession of the type-die from the matrix-blank or matrix, substantially as set forth.

23. In a typograph-machine, the combination with mechanism for feeding the matrix-blank or matrix and comprising a conveyer-belt, feed-rollers operatively connected with said conveyer-belt, an upright bar or member, as at R operatively connected with said feed-rollers, said upright bar or member at its lower end being provided with a bevel or incline of type-dies having, respectively, a laterally-projecting member, as at G^2, for actuating said feed-bar, substantially as and for the purpose set forth.

24. In a typograph machine, suitable mechanism for feeding the matrix blank or matrix, said mechanism comprising two feed rollers located, respectively, at opposite sides of the point at which the matrix blank or matrix receives its impression and suitable means for bearing upon the matrix preparatory to its delivery to said feed-rollers, said means comprising a roller extending transversely of the path of the matrix-blank or matrix, and one or more springs bearing downward on said roller, substantially as and for the purpose set forth.

25. In a typograph machine, suitable mechanism for feeding the matrix-blank or matrix, said mechanism comprising two feed rollers located, respectively, at opposite sides of the point at which the matrix-blank or matrix receives its impression, a roller adapted to bear upon the matrix preparatory to its delivery to said feed rollers, said roller having a limited upward movement, substantially as and for the purpose set forth.

26. In a typograph machine, the combination with suitable mechanism for feeding the matrix-blank or matrix, of a spacing-lever, as at X, adapted to actuate said feeding-mechanism, buttons, as at Z, seated upon the power-arm of said lever, and adapted respectively to be pressed downward, the arrangement and construction of said buttons, relative to each other, being such that said feeding-mechanism is actuated more or less according to the button receiving the downward pressure, and one or more springs adapted to return the spacing lever to its normal position, substantially as set forth.

27. In a typograph machine, the combination, with suitable mechanism for feeding the matrix-blank or matrix and comprising an upright bar or member, as at R, of a spacing-lever, as at X, adapted to lift or elevate said bar, hollow-posts or barrels, as at Y Y' Y^3, buttons, as at Z, seated upon the power-arm of said spacing-lever within the respective barrels, the barrels and shanks of the buttons being slotted, substantially as indicated, and the power-arm of the spacing lever extending through said slots, the shanks of said buttons terminating at different distances, relative to each other, below the spacing-lever, and a spring mounted upon the shank of the buttons between the spacing-lever and bottom of the respective barrel, substantially as and for the purpose set forth.

28. The combination with the type-die-carrier of a typograph-machine, of typewriter mechanism comprising a series of type-levers operatively connected with said type-die-carrier in such a manner that the movement of said type-die carrier in the one direction or the other will cause said type-levers to be moved sidewise, the arrangement of parts being such that the corresponding type-die and type-lever will simultaneously be brought into position for operation, substantially as set forth.

29. In combination with a typograph machine comprising type-die supporting-members adapted to be moved in a circular plane, of typewriter mechanism comprising a series of type-levers operatively connected with said type-die supporting members in such a manner that the movement of said type-die supporting-members in the one direction or the other will cause said type-levers to be moved sidewise, the arrangement of parts being such that the corresponding type-die and type-lever will simultaneously be brought into position for operation, substantially as set forth.

30. The combination with a type-die-carrier of a typograph-machine of type-writer mechanism and suitable mechanism operatively connecting the type writer mechanism with the aforesaid type-die-carrier, said type-writer mechanism comprising a supporting-bed, as at 47, rigid with the supporting-bed of the typograph machine, a sliding-block adapted to move endwise bed 47, a series of type-lever bars supported transversely of said block, a series of type-levers fulcrumed to any suitable support and operatively connected with the respective type-lever-bars, a rack connected with and extending lengthwise of said sliding-block and in mesh with a gear of said connecting-mechanism, substantially as set forth.

31. The combination, with the type-die-carrier of a typograph-machine, of type-writer mechanism, and suitable mechanism operatively connecting the type-writer mechanism with the aforesaid type-die-carrier, said type-writer mechanism comprising a sliding block, as at 46, a series of type-lever-bars supported transversely of said sliding-block, a series of type-levers fulcrumed to any suitable support and operatively connected with the respective type-lever-bars, a rack extending lengthwise and adapted to communicate motion to said sliding-block from the connecting mechanism aforesaid, said connecting-mechanism comprising a horizontal shaft, as at 40, intergeared with said rack and with an upright shaft, as at 34, the latter being operatively connected with the type-die-carrier, substantially as set forth.

32. The combination, with a typograph machine comprising a vertically sliding-shaft and a type-die-wheel suitably mounted on said shaft, said type-die-wheel carrying two or more sets of type-dies with the dies arranged concentric with the axis of the wheel, of suitable type-writer mechanism comprising a series of type-levers provided, respectively, with as many type as there are series of type-dies in a set of type-dies of the type-die-wheel and suitable mechanism operatively connecting said type-levers with the type-die-wheel supporting-shaft in such a manner that the type-die-wheel may be elevated without operatively disconnecting the type-writer mechanism, substantially as and for the purpose set forth.

33. The combination with the type-die-carrier of a typograph-machine, of suitable type-writer mechanism comprising a supporting-bed, as at 47, a sliding-block, as at 46, operatively connected with the aforesaid type-die-carrier and adapted to move endwise on said bed upon and between rollers arranged at suitable intervals lengthwise said block, said block having grooves on its upper side and extending transversely thereof, type-lever-bars supported in the respective grooves and type-levers operatively connected with the respective type-lever-bars, substantially as set forth.

34 The combination with the type-die-carrier of a typograph-machine, of suitable type-writer mechanism, comprising a supporting-bed, as at 47, a sliding-block, as at 46, adapted to move endwise on said bed, said sliding-block being operatively connected with the type-die carrier aforesaid, having grooves or recesses on its upper side and extending transversely thereof, type-lever-bars supported in said respective grooves or recesses, a cap-plate, as at 61, adapted to hold said type-lever-bars to their seats in said grooves or recesses of the sliding-block, and type-levers operatively connected with said type-lever-bars, substantially as set forth.

35. The combination with the type-die actuating-mechanism, of a typograph machine and type-writer mechanism comprising a series of type-levers, of suitable mechanism operatively connected with the aforesaid type die-actuating mechanism for actuating said type-levers to cause the latter to make their imprint, substantially as set forth.

36. The combination with the type-die actuating-mechanism, of a typograph-machine and the type-levers of typewriter mechanism, of suitable mechanism operatively connected with said type-die actuating mechanism and adapted to actuate said type-levers, the arrangement of parts being such that the imprint by the type-levers will follow the impression of the matrix-blank or matrix by the corresponding type-die, substantially as set forth.

37. The combination with cam-actuated mechanism for actuating the type-dies of a typograph-machine and type-writer mechanism comprising a series of type-levers, of suitable means operatively connected with the type-die actuating mechanism and adapted to actuate said type-levers, the arrangement of parts being such that the imprint of a type-lever will immediately follow the impression of the matrix-blank, or matrix by the corresponding type-die, substantially as set forth.

38. The combination with a typograph machine comprising a cam-and-spring-actuated plunger adapted to engage and actuate the type-die substantially as indicated, and type-writer mechanism comprising a series of type-lever-bars and a series of type-levers operatively connected with said type-lever-bars, the latter being notched, respectively, on their under surface, the type-die-actuating plunger aforesaid having an upwardly-extending arm or member, of suitable mechanism adapted to operatively connect said type-lever-bars and type-die-actuating plunger, said connecting mechanism comprising a bolt located within said upwardly-extending arm or member of the plunger with the head thereof adapted to engage the notch in the under side of the type-lever-bar immediately above said bolt, an incline located at one or either side of said bolt, the latter having a lateral pin or pins adapted to engage and ride upon said incline or inclines, and a spring acting in the direction to retain the bolt in its shot position, substantially as set forth.

39. The combination with the type-die actuating mechanism of a typograph-machine and type-levers of typewriter mechanism of suitable means operatively connected with the type-die actuating mechanism and adapted to actuate the aforesaid type-levers and a spring for each type-lever adapted to act in the direction to return said lever to its normal position, substantially as set forth.

40. In combination with a typograph machine comprising suitable mechanism for actuating the type-dies, of typewriter mechanism comprising a series of type-lever-bars and a series of type-levers operatively connected with said type-lever-bars, suitable mechanism adapted to operatively connect said type-lever-bars with the aforesaid type-die actuating mechanism, and a spring for each type-lever-bar and adapted to act in the direction to retain said bar in its normal position, said type-lever-bars being adapted to travel on rollers, substantially as and for the purpose set forth.

41. In combination with a typograph machine comprising suitable type die-supporting members or a type-die-carrier movable in a vertical plane, of type-writer mechanism comprising a paper-carriage, and suitable means operatively connecting said paper-carriage with the type-die carrier, whereby the paper carriage will be elevated or lowered with the raising or lowering of the type-die carrier, substantially as set forth.

42. The combination with a typograph-machine comprising a type-die-carrier movable in a vertical plane, of a typewriter comprising a paper-carriage and one or more reciprocating racks operatively connected with the type-die-carrier and with the paper-carriage, the arrangement of parts being such that the paper-carriage is elevated or lowered with the type-die-carrier, substantially as and for the purpose set forth.

43. The combination with a typograph-machine comprising a type-die-carrier movable in a vertical plane, of a typewriter comprising a paper-carriage, a vertically reciprocating slide, one or more racks rigid or integral with said slide, a toothed sector in mesh with said rack or racks and operatively connected with the paper-carriage, the arrangement of parts being such that the paper-carriage is elevated or lowered with the type-die-carrier, substantially as and for the purpose set forth

44. The combination with a typograph-machine comprising a type-die carrier movable in a vertical plane, and a typewriter comprising a supporting-bed, as at 47, provided with forwardly extending arms or brackets, as at 104, and slides adapted to slide in an inclined plane up and down said arms or brackets and operatively connected with the paper-carriage, of one or more reciprocating racks operatively connected with the type-die-carrier and operatively connected with said slides, the arrangement of parts being such that the paper-carriage and type-die-carrier are elevated and lowered simultaneously, substantially as and for the purpose set forth.

45. The combination with a typograph-machine comprising a type die-carrier movable in a vertical plane, of a typewriter comprising a bed and vertically-reciprocating slide secured to said bed and operatively connected with the type-die-carrier, and a paper-carriage operatively connected with said slide in such a manner that said carriage is elevated or lowered with the elevation or descent of the type-die-carrier, substantially as set forth.

46. In combination with a typograph machine, a type-die-wheel carrying sets of type dies, arranged, respectively, in two or more series concentric with the axis of the wheel, said type-die-wheel being adapted to be raised or lowered, of type-writer mechanism comprising a paper carriage and a series of type-levers provided, respectively, with as many type as there are series of type-dies in a set of type-dies carried by the type-die-wheel aforesaid, and suitable mechanism connecting said paper-carriage with the type-die-wheel in such a manner that said type-die-wheel and paper-carriage are elevated or lowered simultaneously, said connecting mechanism comprising a vertically-sliding-plate, provided with a rack at or near either end of said plate, a sector in mesh with the respective racks and suitable means operatively connecting said sector with the sliding carriage, substantially as and for the purpose set forth.

47. In combination with a typograph machine comprising a type-die-wheel substantially as indicated, and having a groove as at 130, concentric with the axis of the wheel, and typewriter mechanism comprising a paper-carriage and a series of type-levers, provided, respectively, with as many type as there are series of type-dies in a set of type-dies of the type-die-wheel aforesaid, of suitable mechanism operatively connecting said paper-carriage and type die-wheel and comprising a vertically-sliding-plate, as at 120, terminating at its lower extremity in a roller in engagement with the said groove in the type-die-wheel aforesaid, a rack rigid or integral with said vertically sliding-plate at or near either end of the same, a sector in mesh with the respective racks and suitable means operatively connecting said sectors and the paper-carriage aforesaid, substantially as and for the purpose set forth.

48. The combination with a typograph machine comprising a type-die-wheel carrying two or more sets of type-dies arranged in series concentric with the axis of the wheel, of type-writer-mechanism comprising a supporting-bed, 48, a longitudinal plate, as at 120, adapted to slide up and down the forward end of said bed, racks, 131, rigid or integral with said sliding-plate, forwardly-extending brackets, 104, rigid with said supporting-bed, sectors, 132, in mesh with said racks and pivotally connected with said forwardly-extending brackets, said brackets having recesses, 135, plates or blocks, 103, adapted to slide endwise said recesses, and afford bearing for the supporting shafts of the cylindrical platen and paper-guide-roller of the paper-carriage, and links, 134, connecting said sliding-plates or blocks. 103, with the respective sector 132, aforesaid, substantially as and for the purpose set forth.

49. The combination with a typograph machine comprising a type-die-wheel carrying two or more sets of type-dies with the type-dies arranged in series concentric with the axis of the wheel, said type-die-wheel having a groove, as at 130, also concentric with the axis of the wheel, of type-writer mechanism comprising a supporting bed, 47, a longitudinal vertically-sliding-plate, 120, provided with a roller or suitable member in engagement with the groove in the type-die-wheel aforesaid, guides, 124, and 137, racks, 131, sectors, 132, sliding-plates or blocks, 103, a paper-carriage, the shafts of the cylindrical platen and paper-guide-roller whereof have bearing in said last-mentioned sliding-plates or blocks, and links 134, substantially as and for the purpose set forth.

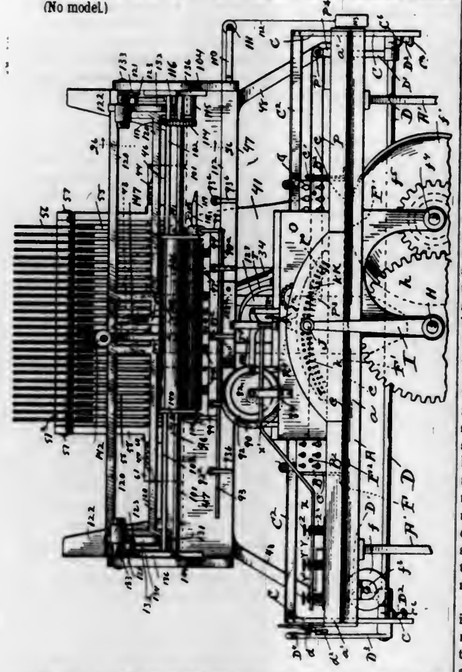
50. In combination with a typograph machine comprising suitable type-die-supporting members or a type-die-carrier movable in a vertical plane, of typewriter-mechanism comprising a paper carriage, and suitable means operatively connecting said paper-carriage with the type-die carrier, whereby the paper-carriage will be elevated or lowered with the raising or lowering of the type-die carrier, and one or more springs adapted to act in the direction to return said paper-carriage to its lowermost position, substantially as set forth.

51. The combination with the matrix-feeding-mechanism of a typograph-machine, of typewriter mechanism comprising a paper carriage and suitable means adapted to operatively connect said paper-carriage with the matrix-feeding mechanism aforesaid and advance said paper-carriage as required, said connecting means comprising a wheel, as at 90, operatively connected with the paper carriage and provided with a pin or lug, as at 89, and a wheel or disk as at 82, operatively connected with the matrix feeding mechanism and having a dog, as at 88, adapted to engage the pin or lug of the wheel aforesaid, substantially as and for the purpose set forth.

52. The combination with the matrix-feeding-mechanism of a typograph machine, of typewriter-mechanism comprising a paper-carriage and suitable means adapted to operatively connect said paper-carriage with the matrix-feeding-mechanism aforesaid and advance said paper-carriage as required, said connecting-mechanism comprising a rack, 93, a gear-wheel 90, in mesh with said rack, and provided with a pin or lug, as at 89, an annular disk or ring 86, operatively connected with the matrix-feeding-mechanism, a wheel or disk, 82, located within said annular disk or ring, slots, 85, on the inner periphery of said annular disk or ring, rollers, 86, and springs, 87, located within the respective slots, all substantially as indicated, wheel or disk 82 being arranged eccentric with gear 90 and having a dog, as at 88, adapted to engage pin or lug 89 of gear 90, substantially as and for the purpose set forth.

53. The combination with the matrix-feeding-mechanism of a typograph machine, of typewriter-mechanism comprising a paper-carriage and suitable means adapted to operatively connect said paper-carriage with the matrix-feeding-mechanism aforesaid and advance said paper-carriage as required, said connecting-mechanism comprising a rack and gear, as at 93 and 90, and suitable means adapted to communicate motion from said matrix-feeding-mechanism to said gear, the paper-carriage at either end having boxes or sleeves and the rack having arms, as at 99, extending through the respective box or sleeve, substantially as and for the purpose set forth.

519,517. TYPOGRAPHIC MACHINE AND ATTACHMENTS. EMIL WERNER, Cleveland, Ohio. Filed Aug. 29, 1892. Serial No. 444,450. (No model.)



Claim.—1. In a typograph-machine, the combination with the type-die impressing-plunger, a vertically reciprocating frame provided with a horizontal track extending lengthwise of said frame and a type-die-carrier mounted upon said track and provided with two or more series of reciprocating type-dies arranged substantially as indicated, of suitable means whereby said vertically reciprocating frame and horizontal reciprocating type-die-carrier are actuated to bring the selected die in either or any of the series of type-dies in proper position relative to the type-die impressing-plunger, substantially as set forth.

2. In a typograph-machine, the combination with the type-die impressing-plunger, a vertically-reciprocating frame provided with a horizontal track extending lengthwise of said frame and a wheeled type-die-carrier mounted upon said track and provided with two or more series of reciprocating type-dies arranged substantially as indicated, of suitable means whereby said vertically reciprocating frame, and horizontally-reciprocating type-die-carrier are actuated to bring the selected die in either or any of the series of type-dies in the proper position relative to the type-die impressing-plunger, substantially as set forth.

3. In a typograph-machine, the combination with the type-die impressing-plunger, a vertically reciprocating frame, a type-die-carrier adapted to reciprocate endwise of said frame and provided with two or more series of reciprocating type-dies arranged substantially as shown, said vertically-reciprocating frame comprising, at each end, a U-shaped member, as at C, flanged inwardly, as at C′, and plates or bars, as at C², secured to said inwardly-projecting flanges, rigidly connecting said U-shaped members with each other and constituting a track, the type-die carrier having upwardly-extending arms d^2, provided at their upper ends, respectively, with a wheel mounted on the adjacent rail or way of the track aforesaid, of suitable means whereby said vertically reciprocating frame and said horizontally-reciprocating type-die-carrier may be actuated to bring the selected die in either or any of the series of type-dies in proper position relative to the impressing-plunger, substantially as set forth.

4. The combination with the bed of the typograph-machine, a vertically-reciprocating-frame, slideways, as at a', for said frame, the latter being provided with a track extending lengthwise thereof, a horizontally-reciprocating type-die carrier mounted on said track, two or more series of type-dies having suitable bearing in said type die-carrier and arranged substantially as indicated, and suitable mechanism for actuating the type-dies to impress the matrix-blank or matrix, of a shaft extending in the direction of the length of said vertically-reciprocating-frame, suitable means operatively connecting said frame with the shaft aforesaid, and suitable means for oscillating said shaft, the arrangement of parts being such that by oscillating said shaft in the one direction or the other the aforesaid frame and type-die-carrier supported thereby are elevated or lowered to bring the desired series of type-dies at the proper elevation relative to the aforesaid type-die plunging or actuating mechanism, substantially as set forth.

5. The combination with the bed of a typograph-machine, a vertically-reciprocating-frame, slide-ways for said frame, the latter being provided with a track extending lengthwise of the frame and a type-die-carrier mounted upon and adapted to reciprocate endwise of said track, two or more series of type-dies having suitable bearing in said type die-carrier and arranged substantially as indicated, and suitable mechanism for actuating the type-dies to impress the matrix-blank or matrix, of a shaft extending lengthwise of said vertically-reciprocating frame, rock-arms operatively mounted on the shaft and operatively connected with said frame, a lever operatively mounted on said shaft for oscillating the same, the arrangement of parts being such that by manipulating said lever in the one direction or the other the aforesaid frame and type-die-carrier supported thereby are elevated or lowered to bring the desired series of type-dies at the proper elevation relative to the aforesaid type-die plunging or actuating mechanism, substantially as set forth.

6. In a typograph-machine, the combination with the type-die impressing-plunger, a vertically-reciprocating frame, a type-die-carrier mounted upon and adapted to reciprocate endwise of said frame, said type-die-carrier having two or more series of type-dies arranged substantially as indicated, of a shaft extending in the direction of the length of said supporting-frame, suitable means for operatively connecting said frame with the shaft, and a hand-lever operatively mounted on the shaft, of a stationary segment provided with as many notches or recesses as there are series of type-dies and with the notches or recesses arranged in a plane concentric with the axis of the aforesaid shaft, a latch pivoted to the aforesaid hand-lever and adapted to engage either or any one of said notches or recesses, the arrangement of parts being substantially as and for the purpose set forth.

7. In a typograph-machine, the combination, with the mechanism for actuating the type-dies to cause the latter to impress the matrix-blank or matrix, of a vertically-reciprocating type-die-carrier, two or more series of type-dies having suitable bearing in said carrier, and arranged substantially as indicated, a horizontally-reciprocating slide, suitable means rigidly connected with said slide to engage or adapted to engage and cause the type-die-carrier to reciprocate therewith, and suitable means whereby said vertically-reciprocating type-die-carrier and horizontally-reciprocating type-die-carrier slide may be actuated to bring any type-die in either or any of the series of type-dies in proper position relative to the aforesaid type die actuating means, substantially as set forth.

8. In a typograph-machine, the combination with a horizontally-reciprocating slide provided at or near each end with an upwardly-extending member, a vertically-reciprocating type-die-carrier confined between said upwardly-extending members of the slide, two or more series of type-dies having bearing in said type-die-carrier and arranged substantially as indicated, of a type-die impressing-plunger and suitable means whereby said vertically-reciprocating type-die-carrier and horizontally-reciprocating slide may be actuated to bring any type-die in either or any of the series of type-dies in proper positiou relative to the type-die impressing-plunger, substantially as set forth.

9. In a typograph-machine, the combination with suitable means for actuating the type dies to cause the latter to impress the matrix-blank or matrix, of a horizontally-reciprocating slide provided at or near each end with an upwardly-extending member, a vertically-reciprocating type die-carrier supported between said upwardly-extending members, two or more series of type-dies having bearing in said type-die-carrier and arranged substantially as indicated, suitable means whereby said vertically-reciprocating type-die-carrier and horizontally reciprocating slide may be actuated to bring any type-die in, either or any of the series of type-dies in proper position relative to the aforesaid type-die-actuating means, and a spring interposed between the one end of the type-die-carrier and the adjacent upwardly-extending member of the type-die-carrier slide, the arrangement of parts being substantially as and for the purpose set forth.

10. In a typograph-machine, the combination with suitable means for actuating the type-dies to cause the latter to impress the matrix-blank or matrix, of a horizontally-reciprocating slide provided at or near each end with an upwardly-extending member, a vertically-re-

ciprocating type-die-carrier supported between said upwardly-extending members, two or more series of type-dies having bearing in said type-die-carrier and arranged substantially as indicated, suitable means whereby said vertically-reciprocating type-die-carrier and horizontally-reciprocating slide may be actuated to bring any type-die in either or any of the series of type-dies in proper position relative to the aforesaid type-die-actuating means, and means, substantially as indicated, for preventing upward displacement of the aforesaid slide, substantially as set forth.

11. In a typograph-machine, the combination with suitable means for actuating the type-dies to cause the latter to impress the matrix-blank or matrix, of a horizontally-reciprocating slide provided at or near each end with an upwardly-extending member, a vertically-reciprocating type-die-carrier confined between said upwardly-extending members, two or more series of type-dies having bearing in said type die-carrier and arranged substantially as indicated, suitable means whereby said vertically-reciprocating type-die-carrier and horizontally-reciprocating slide may be actuated to bring any type-die in either or any of the series of type-dies in proper position relative to the aforesaid type-die-actuating means, and means, substantially as indicated, for holding the slide aforesaid, strictly in line, both horizontally and vertically, substantially as set forth.

12. The combination with the bed of the typograph-machine, and type-die-impressing plunger, the bed being offset downwardly, as at a_1, of a horizontally-reciprocating slide operating endwise of said downwardly offset portion of the bed, means, substantially as indicated, for guiding said slide, the latter at or near each end of the same having an upwardly-extending member, a type-die carrier confined between said upwardly-extending members of the slide, two or more series of type-dies having bearing in the type-die-carrier and arranged the one series above another, means substantially as indicated for propelling the slide, and suitable means for elevating and lowering the type-die carrier and holding it at the desired elevation relative to the type-die-impressing-plunger, the arrangement of parts being substantially as shown and described.

13. In a typograph-machine, the combination with the type-dies and matrix-feeding mechanism adapted to be actuated by the dies, said matrix-feeding mechanism comprising a pair of feed-rollers adapted to feed the matrix-blank or matrix past the point at which it is impressed, of a single spring bearing upon the top of both of said feed-rollers, substantially as and for the purpose set forth.

14. In a typograph-machine, the combination with a pair of guides arranged at opposite sides, respectively, and extending lengthwise of the path of the matrix-blank or matrix, of one or more springs located in a recess in one of said guides and adapted to act against the matrix-blank or matrix in the direction of the impression, substantially as and for the purpose set forth.

15. In a typograph-machine, the combination with a pair of guides arranged at opposite sides, respectively, and extending lengthwise of the path of the matrix-blank or matrix, of a spring, at each side of the point at which the matrix-blank or matrix receives its impression, acting against the matrix-blank or matrix in the direction of the impression, substantially as and for the purpose set forth.

16. The combination with a type-die, of a plunger for actuating the type-die to cause the die to impress the matrix-blank or matrix, and suitable means for reciprocating said plunger, of a rearwardly and upwardly-extending incline on the plunger, a lever, as at U, said lever being adapted to be actuated by the aforesaid incline, and suitable means connected with the lever for exerting a pressure downward upon the matrix-blank or matrix, the arrangement of parts being such that said lever will be operated to actuate said pressure-exerting means preparatory to the impression of the matrix-blank or matrix by the type-die and to cause said pressure-exerting means to remain in action during the impression, substantially as and for the purpose set forth.

17. In a typograph-machine the combination with a rotating-shaft, type-die-carrier, a series of type-dies having bearing in said carrier, type-die impressing-plunger, a cam-wheel loosely mounted on said shaft and adapted to actuate said plunger, a wheel operatively mounted on the shaft, and suitable clutch-mechanism for operatively connecting said wheels, of a stationary index provided with a series of holes representing, respectively, a die in the aforesaid series of type-dies, an index-key operatively connected with the type-die-carrier in such a manner that the selected type-die, by manipulating or actuating said index-key as required, is brought into the proper position relative to the impressing-plunger, a movable plate at the rear of the index adapted to be actuated by the index-key upon the engagement by said key of any of the aforesaid holes in the index-plate, a rod rigidly connected with said movable plate and adapted to actuate the clutch-mechanism to establish operative connection between the aforesaid wheels, and suitable means for automatically operatively disconnecting said wheels, the arrangement of parts being substantially as described and for the purpose specified.

18. In a typograph-machine, the combination with the type-die-impressing-plunger, of a rotating shaft, a cam-wheel loosely mounted on said shaft and adapted to actuate said plunger, a grooved wheel operatively mounted on said shaft within said cam-wheel, suitable clutch-mechanism adapted to establish frictional contact between said wheels, suitable means for applying said clutch-mechanism and stationary means for actuating said clutch-mechanism to operatively disconnect the wheels aforesaid, substantially as and for the purpose set forth.

19. In a typograph-machine, the combination with the type-die impressing-plunger, of a rotating shaft, a cam-wheel loosely mounted on said shaft and adapted to actuate said plunger a grooved wheel operatively mounted on said shaft within said cam-wheel, suitable clutch-mechanism adapted to establish frictional contact between said wheels, suitable means for applying said clutch-mechanism, a spring acting in the direction to retain said clutch mechanism in its operative position and suitable means for automatically operatively disconnecting the aforesaid wheels, substantially as and for the purpose set forth.

20. In a typograph-machine, the combination with a type-die-impressing-plunger, a rotating-shaft, a cam-wheel loosely mounted on said shaft adapted to actuate said plunger, said cam-wheel having a hole, as at L^3, a grooved wheel operatively mounted on said shaft within said cam-wheel, a friction-shoe, as at h^3, located between the side-walls of said groove and having a pin or member, l^3, extending outwardly through hole L^3 in the cam-wheel and terminating at its outer end in a comparatively large head, suitable means for engaging said head to cause the friction-shoe to establish frictional contact between the aforesaid wheels preparatory to the actuation of the impressing-plunger, and suitable means for automatically actuating said clutch-mechanism to operatively disconnect the wheels aforesaid, substantially as set forth.

21. In a typograph machine, the combination with a type-die impressing-plunger, a rotating-shaft, a cam-wheel loosely mounted on said shaft adapted to actuate said plunger, said cam-wheel having a hole, as at L^3, a grooved wheel operatively mounted on said shaft within said cam-wheel, a friction-shoe, as at h^3, located between the side-walls of said groove and having a pin or member, l^3, extending outwardly through hole L^3 in the cam-wheel and terminating at its outer end in a comparatively large head, suitable means for engaging said head to cause the friction-shoe to establish frictional contact between the aforesaid wheels preparatory to the actuation of the impressing-plunger, and a stationary fork for automatically engaging and actuating said clutch-mechanism to operatively disconnect the wheels aforesaid and adapted to permit the passage of said clutch-mechanism upon the performance of its function, substantially as set forth.

22. In a typograph-machine, the combination with a rotating-shaft, type-die-carrier, type-dies having bearing in said carrier, type-die-impressing-plunger, a cam-wheel loosely mounted on said shaft and adapted to actuate said plunger, a wheel operatively mounted on the shaft, and suitable clutch-mechanism for operatively connecting said wheels, of a stationary index provided with a series of holes representing, respectively, one or more of the aforesaid type-dies, an index-key operatively connected with the type-die-carrier in such a manner that the selected type-die, by manipulating or actuating said index-key as required, is brought into the proper position relative to the impressing-plunger, a movable plate at the rear of the index adapted to be actuated by the index-key upon the engagement by said key, of any of the holes in the index-plate, a rod operatively connected with said movable plate and adapted to actuate the clutch-mechanism to establish operative connection between the aforesaid wheels, suitable means for automatically operatively disconnecting said wheels, and suitable means for returning the aforesaid plate to its normal position upon the disengagement of the index by the index-key, substantially as set forth.

23. In a typograph-machine, the combination with a rotating-shaft, type-die-carrier, type-dies having bearing in said carrier, type-die-impressing-plunger, a cam-wheel loosely mounted on said shaft and provided with a peripheral cam for actuating said plunger, a wheel operatively mounted on said shaft and suitable clutch-mechanism for operatively connecting said wheels, of a stationary index provided with a series of holes representing, respectively, one or more of the aforesaid type-dies, an index-key operatively connected with the type-die-carrier in such a manner that the selected type die by manipulating or actuating said index-key as required is brought into the proper position relative to the impressing-plunger, a tilting-plate at the rear of the index adapted to be actuated by the index-key upon the engagement by said key of any of the holes in the index-plate, a rod or suitable member operatively connected with said index-plate and adapted to actuate the clutch-mechanism to establish operative connection between the aforesaid wheels, suitable means for operatively disconnecting said wheels and suitable means for returning the aforesaid tilting-plate to its normal position upon the disengagement of the index by the index-key, substantially as set forth.

24. In a typograph-machine, the combination with a rotating shaft, type-die-carrier, type-dies having bearing in said carrier, type-die-impressing-plunger, a cam-wheel loosely mounted on said shaft, and provided with a peripheral cam for actuating said plunger, a wheel operatively mounted on said shaft, and suitable clutch-mechanism for operatively connecting said wheels, of a stationary index provided with a series of holes representing, respectively, one or more of the aforesaid type-dies, an index-key operatively connected with the type-die-carrier in such a manner that the selected type-die by manipulating or actuating said index-key, as required, is brought into the proper position relative to the impressing-plunger, a movable plate at the rear of the index adapted to be actuated by the index-key upon the engagement by said key of any of the holes in the index, a rod or suitable member operatively connected with said movable plate and adapted to actuate the clutch-mechanism to establish operative connection between the aforesaid wheels, and a peripheral cam on the aforesaid cam-wheel adapted to engage and actuate the aforesaid rod to return the aforesaid movable plate to its normal position upon the disengagement of the index by the index-key, substantially as set forth.

25. In a typograph-machine, the combination with a rotating shaft, type-die-carrier, type-dies having bearing in said carrier, type-die-impressing plunger, a cam-wheel loosely mounted on said shaft and provided with a peripheral cam for actuating said plunger, a wheel operatively mounted on said shaft, suitable clutch-mechanism for operatively connecting said wheels, of a stationary index provided with a series of holes representing, respectively, one or more of the aforesaid type-dies, an index-key operatively connected with the type-die-carrier in such a manner that the selected type-die by manipulating or actuating said index-key, as required, is brought into the proper position relative to the impressing-plunger, a movable plate at the rear of the index adapted to be actuated by the index-key upon the engagement by said key of any of the holes in the index, a rod or suitable member operatively connected with said movable plate and adapted to actuate the clutch-mechanism to establish operative connection between the aforesaid wheels, and one or more springs acting in the direction to retain said movable plate in its normal position, substantially as set forth.

26. In a typograph-machine and attachments, the combination with a horizontally-reciprocating type-die-carrier, of type-writer-mechanism comprising a series of type-levers operatively connected with said type-die-carrier, the arrangement of parts being such that the corresponding type-die and type-lever will simultaneously be brought into position for operation, substantially as set forth.

27. The combination with a typograph-machine comprising a horizontally-reciprocating type-die-carrier, a shaft, as at H, and suitable means for operatively connecting the type-die-carrier with said shaft, a stationary index having a series of lateral holes or perforations concentric with the axis of said shaft, an arm, as at I, bearing an index-key, operatively mounted on the forward end of said shaft, of type-writer mechanism comprising a series of type-levers operatively connected with said shaft, the arrangement of parts being such that upon the engagement by the index-key of any of the lateral holes or perforations in the index to bring the selected type-die and type-lever of the typographic and type writer mechanism, respectively, will simultaneously be brought into position for operation, substantially as set forth.

28. The combination with a typograph-machine comprising a horizontally-reciprocating type-die-carrier, a shaft, as at H, and suitable means for operatively connecting the type-die-carrier with said shaft, a stationary index having a series of lateral holes or perforations concentric with the axis of said shaft, an arm, as at I, bearing an index-key, operatively mounted on the forward end of said shaft, of a shaft, as at f^4, intergeared with the aforesaid shaft H, substantially as indicated, and a series of type-levers of type-writer mechanism operatively connected with said shaft f^4, the arrangement of parts being such that the corresponding type die and type-lever will simultaneously be brought into position for operation, substantially as set forth.

29. The combination with a typograph-machine comprising a horizontally reciprocating type-die-carrier movable in a vertical plane, and an oscillating-shaft, of type-writer mechanism comprising a paper-carriage, and suitable means operatively connecting said paper-carriage with said oscillating shaft in such a manner that the paper-carriage will be elevated or lowered according as said shaft is oscillated to elevate or lower the type-die-carrier, substantially as and for the purpose set forth.

30. The combination with a typograph-machine comprising a type-die-carrier, a shaft, as at D, rock-arms mounted on said shaft and operatively connected with the type-die-carrier and suitable means for oscillating said shaft, of typewriter mechanism comprising a paper-carriage and suitable means operatively connecting said paper-carriage with said shaft in such a manner that the paper-carriage will be elevated or lowered according as the aforesaid shaft is oscillated to elevate or lower the type-die-carrier, substantially as set forth.

31. The combination with a typograph-machine comprising a reciprocating type-die-carrier, an oscillating-shaft, suitable means operatively connecting the type-die-carrier with said shaft, and suitable means for oscillating said shaft, of typewriter mechanism comprising a paper-carriage, one or more vertically-reciprocating racks operatively connected with the aforesaid shaft, and operatively connected with the paper-carriage, the arrangement of parts being such that the type-die-carrier and paper-carriage will be simultaneously elevated or lowered according as the aforesaid shaft is oscillated in the one direction or the other, substantially as set forth.

32. The combination with a typograph-machine comprising a type-die-carrier, a horizontal shaft, as at D, rock-arms operatively connecting the type-die-carrier with said shaft, of a vertically-reciprocating slide operatively connected with said oscillating shaft, racks rigid or integral with said slide, typewriter-paper-carriage, and toothed sectors operatively connected with said carriage and meshing with the aforesaid racks, the arrangement of parts being substantially as shown and for the purpose specified.

33. The combination with an oscillating-shaft, as at D, and a type-die-carrier and typewriter paper-carriage operatively connected with said shaft in such a manner that the oscillation of said shaft in the one direction or the other will simultaneously elevate or lower said type-die-carrier and paper-carriage, and suitable means for operating said shaft, of suitable means for locking the type-die-carrier and paper-carriage at the desired elevation, substantially as set forth

34. The combination with the matrix-feeding-mechanism of a typograph-machine, of typewriter mechanism comprising a paper-carriage, a pulley, as at 90, a cord or band operatively connecting said pulley with the paper-carriage and adapted to propel the latter in the one direction, and suitable means for communicating motion from the matrix-feeding mechanism to said pulley, substantially as set forth.

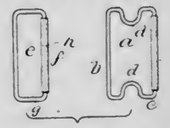
35. The combination with the matrix-feeding-mechanism of a typograph-machine, of typewriter mechanism comprising a paper-carriage, suitable mechanism operatively connecting the paper-carriage with the matrix-feeding-mechanism and adapted to advance the paper-carriage as required, said connecting mechanism comprising a bar, 93, a pulley, 90, a cord or band 93^a operatively connecting said bar and pulley, of suitable means for communicating motion from the matrix-feeding-mechanism to said pulley, and suitable means for preventing the lifting or upward displacement of said bar, substantially as set forth.

36. The combination with the type-die-actuating-mechanism of a typograph-machine and typelevers of typewriter-mechanism, of suitable means operatively connected with the type die-actuating mechanism and adapted to actuate the aforesaid type-levers, and suitable means for preventing lateral movement or deflection of the type-levers in their operation of rendering the imprint, substantially as and for the purpose set forth.

37. The combination with the type-die-actuating-mechanism of a typograph-machine and type-levers of typewriter mechanism, of suitable means operatively connected with the type-die-actuating mechanism and adapted to actuate the aforesaid type-levers, and a forked guide, substantially as indicated, for receiving the type-levers and preventing lateral movement or deflection of the levers in the performance of their function, substantially as and for the purpose set forth.

38. The combination with the type-die-actuating-mechanism of a typograph-machine and type-levers of typewriter-mechanism, of suitable means operatively connected with the type-die-actuating mechanism and adapted to actuate the aforesaid type-levers, and an inking-roller for said type levers, said inking-roller being located substantially as shown, for the purpose specified.

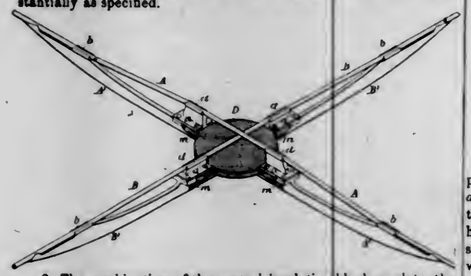
519,518. BUCKLE. PEDRO G. WINKFIELD, Quincy, Mass. Filed Sept. 11, 1893. Serial No. 485,238. (No model.)



Claim.—A buckle comprising in its construction two independent members, each composed of a length of wire bent to form side-bars and parallel end-bars, the side-bars of one member being shorter than those of the other, and the member being provided with the longer side-bars having inward bends or bows formed therein, as set forth.

519,519. TROLLEY-WIRE CROSSING. EDWARD H. ALLEN, Cramer's Hill, N. J. Filed Feb. 2, 1894. Serial No. 498,893. (No model.)

Claim.—1. The combination in a crossing device for electric railways, of a central block or plate of insulating material having a series of projecting arms forming continuations of the conductors and provided with clamping devices for engaging said conductors, substantially as specified.



2. The combination of the central insulating block or plate, the projecting arms and plates whereby said arms are secured to said insulating block, substantially as specified.

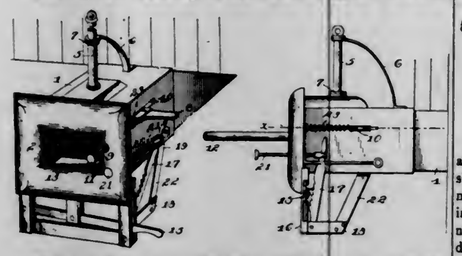
3. The combination of the central insulating block, the projecting arms, and the plates whereby said arms are connected to said insulating block, both the plates and arms having jaws for embracing the conductor wires and suspending the crossing structure therefrom, substantially as specified.

4. The combination of the central insulating block, with the trolley guide arms carried thereby, and insulating blocks whereby the continuity of said guide arms is interrupted so that the inner ends of the arms adjacent to the crossing point receive no current, substantially as specified.

5. The combination of the central insulating block, the trolley guide arms forming continuations of the conductor but separated from each other at the crossing point, and a central pin or stud serving to retain the trolley in proper lateral position at the crossing point, substantially as specified.

6. The combination of the central insulating block, the projecting arms forming continuations of the conductor, a plate secured to the under side of said insulating block, and having arms which form continuations of the said projecting arms, and insulating blocks interposed between the projecting arms and the arms on the plate, substantially as specified.

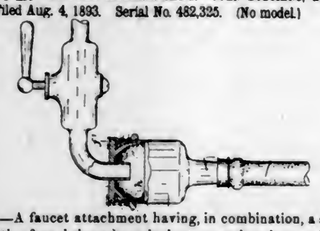
519,520. CAR-COUPLING. EDWIN N. ANDERSON, Lilly Dale, N. Y., assignor of two-thirds to T. C. Alden, same place, and E. W. Morley, Andover, Ohio. Filed Aug. 15, 1893. Serial No. 483,202. (No model.)



Claim.—1. In a car coupling, the combination of a vertically movable link support mounted in the draw-head and depending therefrom, a depending frame mounted on the draw-head and arranged transversely thereof, a transversely disposed lever having one end fulcrumed on the frame and pivoted intermediate of its ends to the lower end of the link support, a pivoted rack-bar supported by said frame and arranged in rear of the lever and adapted to engage the same to hold the link support at the desired elevation, and means for releasing the lever from engagement with the rack-bar, substantially as described.

2. In a car coupling, the combination of a vertically movable link support mounted in the draw-head and depending therefrom, a depending frame mounted on the draw-head and arranged transversely thereof, a transversely disposed lever having one end fulcrumed on the frame and pivoted intermediate of its ends to the lower end of the link support, a pivoted rack-bar supported by said frame and arranged in rear of the lever and adapted to engage the same to hold the link support at the desired elevation, and a longitudinally disposed push-rod mounted on the draw head and adapted to project beyond the same and having its inner end connected to the rack-bar, substantially as described.

519,521. FAUCET ATTACHMENT. JOHN BOLGIANO, Baltimore Md. Filed Aug. 4, 1893. Serial No. 482,325. (No model.)



Claim.—A faucet attachment having, in combination, a shell, A, provided with a funnel-shaped nozzle, *b*, at one end, an inturned flange, *d*, at the other end, and an external screw-thread, *e*, around the latter end; a rubber packing having a flat circular top with a central hole and a rim-flange *d'* projecting in the plane of the flat top, a bell-shaped flange, *h*, pendent from said top and fitting against the inner wall of the shell below the point where the screw-threads, *e*, are located—said rim-flange resting on the inturned flange of the shell; and a screw-ring having an inturned flange, *f'*, to clamp the said rim flange, *d'*, as shown and described.

519,522. POLYAZO YELLOW DYE. JOHANN J. BRACK, Basle, Switzerland, assignor to L. Durand, Huguenin &, Co., St. Fons, France, Basle, Switzerland, and Hüningen, Germany. Filed Jan. 17, 1894. Serial No. 497,163. (Specimens.) Patented in France Dec. 2, 1892, No. 226,107, and in England Dec. 2, 1892, No. 9,182.

Claim.—1. The herein described process of manufacturing polyazoic coloring matters which consists in combining one molecule of dioxydiphenylmethane with two molecules of diazo-compounds, one of said compounds constituting the intermediate product resulting from the union of one molecule of sulfanilic acid with one molecule of the tetrazo-derivative of a paradiamin such for instance as benzidin, substantially as set forth.

2. The herein described process of manufacturing polyazoic coloring matters which consists in combining one molecule of dioxydiphenylmethane with two molecules of the intermediate product resulting from the union of one molecule of sulfanilic acid with one molecule of tetrazo-diphenyl, substantially as set forth.

3. The herein described polyazoic coloring matter derived from the combination of dioxydiphenylmethane with sulfanilic acid and tetrazo-diphenyl which dyes unmordanted cotton in an alkaline bath yellow and which in its dry state is a brown powder soluble in water and soluble in sulfuric acid with a reddish violet coloration, substantially as set forth.

519,523. POLYAZO YELLOWISH DYE. JOHANN J. BRACK, Basle, Switzerland, assignor to L. Durand, Huguenin & Co., St. Fons, France, Basle, Switzerland, and Hüningen, Germany. Filed Jan. 17, 1894. Serial No. 497,164. (Specimens.) Patented in France Dec. 2, 1892, No. 226,107, and Mar. 13, 1893, No. 228,593; in England Dec. 2, 1892, No. 9,182, and Apr. 27, 1893, No. 8,511, and in Germany Mar. 14, 1893, No. 71,377.

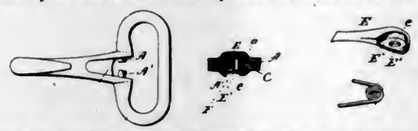
Claim.—1. The herein described process of manufacturing polyazo-coloring matters varying in color from red to orange, which consists in combining one molecule of dioxydiphenylmethane with two molecules of diazo-compounds of which compounds one at least is the intermediate product resulting from the union of one molecule of naphthionic acid and one molecule of the tetrazo-derivative of a paradiamido-base such, for instance, as benzidin, tolidin, tolidin-formaldehyde, dianisidin or dianisidin-formaldehyde, substantially as set forth.

2. The herein described process of manufacturing polyazo-coloring matters varying in color from red to orange, which consists in combining one molecule of dioxydiphenylmethane with two molecules of the intermediate product resulting from the union of a molecule of naphthionic acid with a molecule of the tetrazo derivative of a paradiamido-base, such, for instance, as benzadin, tolidin, tolodin-formaldehyde, dianisidin, or dianisidin-formaldehyde, substantially as set forth.

3. The herein described polyazoic coloring matter prepared from dioxydiphenylmethane tetrazoditolyl and naphthionic acid, which dyes unmordanted cotton a yellowish red color in an alkaline bath, said coloring matter when dry being a brown powder, soluble in water and dissolving in concentrated sulfuric acid with a blue coloration, substantially as set forth.

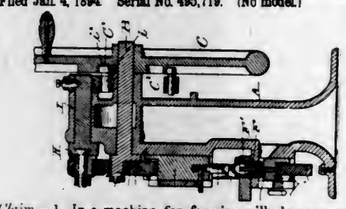
519,524. SNAP-HOOK. CHARLES R. BRISTOL, New Haven, Conn., assignor to the W. & E. T. Fitch Company, same place. Filed Oct. 30, 1893. Serial No. 489,475. (No model.)

Claim.—1. The herein described snap-hook having two studs A A located in line with each other upon the opposite walls of the tongue-slot B formed at the bases of the eye C and the hook proper D; a tongue E, having a chambered base, one side of which is closed by a wall E^3, containing a hole E', receiving the stud A; and a coiled wire spring F, adapted in size to fit over the stud A', and to enter the chamber in the base of the tongue through the open side thereof, and having its two ends respectively adapted to be engaged with the hook and with the tongue, substantially as set forth, and whereby the tongue is exclusively supported by one stud, and the spring exclusively supported by the other stud, substantially as and for the purpose set forth.



2. A snap hook having two studs located in line, respectively formed upon the opposite walls of its tongue-slot, and a tongue and a spring mounted independently of each other upon the said studs, the lower face of the spring-stud being grooved or beveled, and the stud-hole of the tongue having a corresponding bevel, whereby the tongue will be firmly held in place by the coaction of the bevels under the influence of the spring, substantially as set forth.

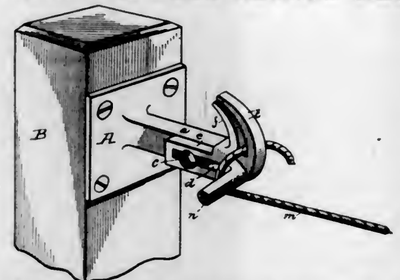
519,525. PILL-MACHINE. ARTHUR G. BROWN, Elmira, N. Y. Filed Jan. 4, 1894. Serial No. 495,719. (No model.)



Claim.—1. In a machine for forming pills by compression, the combination with an upper die, and means for reciprocating the same, of a lower stationary die, the compressing faces of said dies being of spherical form to make a round pill, a reciprocating ejector, and means for carrying the said ejector up and down through the said lower die, the upper end of said ejector cut out to correspond and be flush with the concavity of the lower die, and a perforated bed plate L above the top of said lower stationary die, on the line of which plate the pill is raised by the said ejector and out of the said lower die, substantially as described.

2. In a machine for forming pills by compression, the combination with an upper die and means for reciprocating the same, of a lower stationary bed die and a cylindrical casing for said lower die, the said casing internally screw threaded and the said bed die externally screw threaded, whereby the lower die may be adjusted and set in relative position to the upper die, substantially as described.

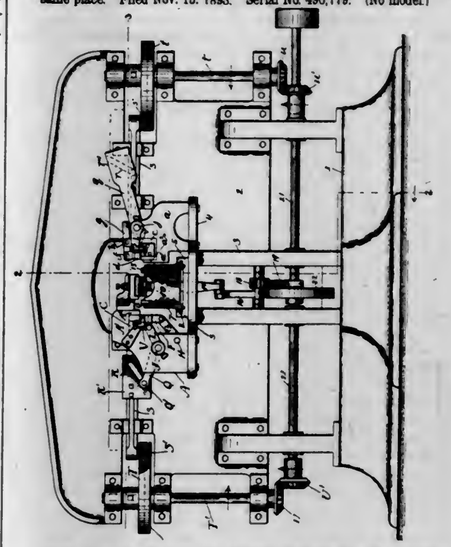
519,526. CLOTHES-LINE FASTENER. CHARLES S. BUCKWALTER, Royersford, Pa. Filed Oct. 21, 1893. Serial No. 488,761. (No model.)



Claim.—1. A clothes-line fastener provided with a stationary jaw, a sliding jaw mounted to slide longitudinally toward and from the stationary jaw, and a projection extending laterally from the sliding jaw and in front of the outgoing clothes line; whereby a strain exerted upon the clothes-line will cause the sliding jaw to be shifted forward longitudinally to clamp the line between it and the stationary jaw, substantially as described.

2. A clothes-line fastener, consisting of the stationary jaw having the pin *c*, the co-operating longitudinally shiftable or sliding jaw having the slot *d* through which said pin works, and the projection *n* extending laterally from the sliding jaw; substantially as described.

519,527. MACHINE FOR FLANGING SHEET METAL. JOHN CARROLL, Chicago, Ill., assignor to the Chicago Stamping Company, same place. Filed Nov. 13, 1893. Serial No. 490,779. (No model.)



Claim.—1. In a machine for flanging sheet-metal, the combination of means for holding the sheet, a former, a fixed race located opposite the working face of the former so as to leave between them a space into which the sheet to be bent projects, a laterally movable bender located in said space and filling it save for a sufficient space to accommodate the sheet to be bent, and means for producing a continuous movement of the bender which completes the bending operation, the race having a working face which follows a course that first crosses the plane of the sheet and then proceeds around the former and toward the sheet, the working face of the race and the bender having direct contact with each other whereby the movement of the bender is directed, substantially as set forth.

2. In a machine for flanging sheet-metal, the combination of means for holding the sheet, a former, a fixed race located opposite the working face of the former so as to leave between them a space into which the sheet to be bent projects, a laterally movable bender located in said space and filling it save for a sufficient space to accommodate the sheet to be bent, said bender being round in cross section and capable of revolving, and means for producing a continuous movement of the bender which completes the bending operation, the race having a working face which follows a course which first crosses the plane of the sheet and then proceeds around the former and toward the sheet, the working faces of the race and bender being in direct contact with each other whereby the movement of the bender is directed, substantially as set forth.

3. In a machine for flanging sheet-metal, the combination with means for holding the sheet, of a laterally movable bender, a pair of links by which said bender is carried, a pair of arms to which said links are loosely jointed, a rock-shaft to which said arms are attached, means for moving said rock-shaft, and a fixed race with which the bender has direct contact and by which its movement is directed substantially as set forth.

4. In a machine for flanging sheet-metal, the combination with a bender, of the clamping jaws B and D, the spring E engaging the jaw D, whereby it is supported, guided and held normally out of contact with the jaw B, and means for moving the jaw D toward and from the jaw B, substantially as set forth.

5. In a machine for flanging sheet-metal, the combination with the block A, the fixed clamping jaw B and the race C, of the movable clamping jaw D, means for operating said jaw, the rock-shaft J journaled in the block A, the arms L carried by said rock-shaft, the links M carried by the arms, and a bender carried by the links and adapted to work in the space between the clamping jaws and the race, substantially as set forth.

6. In a machine for flanging sheet-metal, the combination with the block A, the fixed clamping jaw B and the race C, of the movable clamping jaw D, a lever connected to said movable jaw, the rock-shaft J journaled in the block, the cam I fixed to the rock-shaft and engaging the lever, the arms L attached to the rock-shaft, the links M carried by the arms, and a bender carried by the links and occupying the space between the clamping jaws and the race, substantially as set forth.

7. In a machine for flanging sheet-metal, the combination of two sets of clamping jaws, each set being adapted to clamp the sheet near one of its edges, means for operating said jaws, and flanging mechanism adapted to operate upon the edges of the sheet, of a third set of clamping jaws located between the two sets aforesaid and adapted to hold the central portion of the sheet against bending, and means for operating the third set of clamping jaws independently of the others, substantially as set forth.

8. In a machine for working sheet-metal, the combination with mechanism for simultaneously operating upon opposite edges of the sheet, of the plates 33 and 36 adapted to engage the intermediate portion of the sheet and prevent its bending, and springs holding said plates normally in contact with each other substantially as set forth.

9. In a machine for working sheet-metal, the combination with mechanism for operating upon the sheet and a reciprocable carriage adapted to carry the sheet into position to be operated upon, of a pair of clamping jaws for engaging the intermediate portion of the sheet, and means for holding said jaws normally in contact with each other with a yielding pressure, substantially as set forth.

10. In a machine for working sheet-metal, the combination with a reciprocable carriage, of the plate 33, the plate 35, the plate 36 interposed between plates 33 and 35, springs interposed between the plates 35 and 36, and means for preventing the displacement of the plate 36, substantially as set forth.

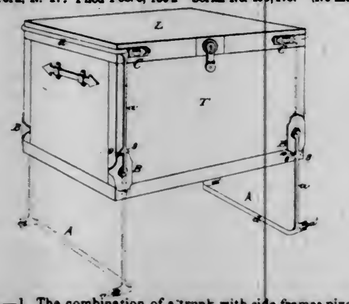
11. In a machine for working sheet-metal, the combination with the reciprocable carriage, of the plate 33, the plate 35 having hollow bosses 38, the plate 36 interposed between the plates 33 and 35, springs 39 located within said bosses and engaging the plate 36, and the bolts 37 passing through said bosses and engaging the plate 36, substantially as set forth.

12. In a machine for working sheet-metal, the combination with a reciprocable carriage of the plate 33, the plate 35, the plate 36 interposed between the plates 33 and 35, springs engaging the plate 36 and forcing it toward the plate 33, and means for limiting the approach of said plates, substantially as set forth.

13. In a machine for working sheet-metal, the combination with the mechanism for operating upon the sheets, of two sets of clamping jaws B—D, *b*—*d*, a reciprocable carriage located between the two pairs of jaws and having the bars 13, and a friction clamp located between the bars 13, and adapted to engage and hold the sheet while being operated upon substantially as set forth.

14. In a machine for working sheet-metal, the combination with a reciprocable carriage, of a rock-shaft 17, connections between said shaft and the carriage, a pinion secured to said shaft, a rack engaging said pinion, and means for imparting reciprocating movement to said rack, substantially as set forth.

519,528. ATTACHMENT FOR TRUNKS. CLIFTON W. CLIFTON, New York, N. Y. Filed Feb. 8, 1894. Serial No. 499,473. (No model.)



Claim.—1. The combination of a trunk with side frames pivoted thereto near the lower outer corners whereby they can be turned down to serve as supports for the trunk, and catches near the pivoting points to lock the supports in their operative positions, substantially as described.

2. The combination of a trunk with side-frames pivoted thereto with a lost motion and catches on the pivoting parts, constituting a gravity latch to lock the side frames in their turned-down positions to serve as supports for the trunk, substantially as described.

3. The combination of a trunk having bearing plates provided with bearings, with side frames having pivots adapted to said bearing so as to be free to have a vertical play therein, and engaging catches on the side frames and bearing plates, to constitute a gravity latch, substantially as and for the purpose described.

4. The combination of a trunk having bearing plates provided with circular bearings with side frames having oval pivots whose long axes are less than the diameters of the bearings and engaging catches on the plates and frames, substantially as and for the purpose described.

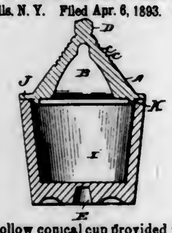
5. The combination of a trunk, having bearing plates, provided with recessed bearings with side frames having pivots adapted to the bearings with a lost motion and retaining washers adapted to said recesses with engaging catches on the plates and side frames, substantially as and for the purpose described.

6. The combination of a trunk, having bearing plates provided with shoulders 12 with side frames pivoted to the said bearing plates and having shoulders 11 to engage therewith to hold the frames in a partially open position, substantially as described.

7. The combination of a trunk with opposite side frames pivoted thereto near the lower outer corners, whereby they can be turned down to serve as supports for the trunk or be turned up so as to constitute braces for the same, and spring clasps on the lid to engage with projections on the side frames, substantially as described.

8. A trunk having bearing plates provided with teats to engage the trunk and with bearings in combination with side frames pivoted to said bearing plates, as and for the purpose described.

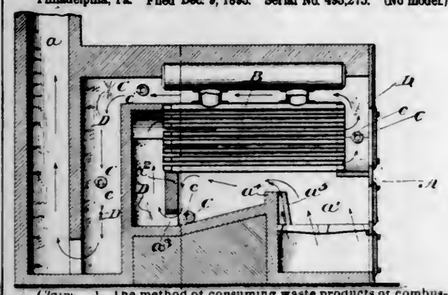
519,529. COMBINED CUP AND BASE-PIECE. HARVEY R. T. COFFIN, Glens Falls, N. Y. Filed Apr. 6, 1893. Serial No. 469,251. (No model.)



Claim.—1. A hollow conical cup provided with a smooth pointed head and a series of recesses C on its outside, said cup also having a projecting flange or rib to adapt it to fit as a cover which will not slip off when placed over a cup either side up, substantially as and for the purpose set forth.

2. A hollow, conical cup made of glass, and having a projecting flange or rim provided with a series of recesses C on its outside and having a plain, smooth head, the outer end of which projects, forming a point; in combination with a base piece or cup having a smooth hole in its bottom on the outside of the base piece, said hole adapted to receive the smooth head on the cup, and said base piece also adapted to receive the conical cup when put together either side up forming a covered cup or receptacle, &c., substantially as described.

519,530. SMOKE-CONSUMING FURNACE. MAHLON FULTON, Philadelphia, Pa. Filed Dec. 9, 1893. Serial No. 493,275. (No model.)



Claim.—1. The method of consuming waste products of combustion in furnaces, which consists in introducing air thereto, and then igniting the combined gases by means of an electric spark, substantially as described.

2. The method of consuming waste products of combustion in furnaces, which consists in introducing air thereto at intervals, and igniting the combined gases at alternate points by means of electric sparks, substantially as described.

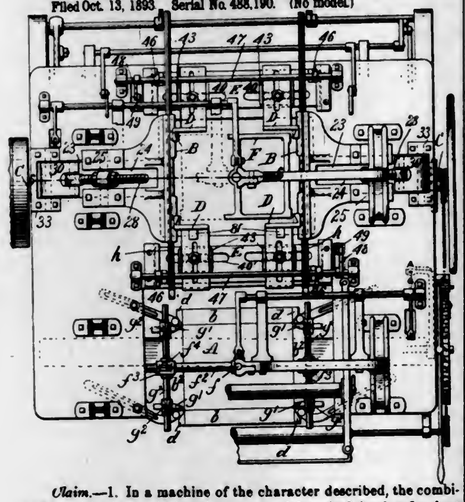
3. In a furnace, the combination with the combustion chamber, of an air feeding tube or duct communicating with said chamber, and an electric sparking device in advance of said tube or duct, substantially as described.

4. In a furnace, the combination with the combustion chamber, of a series of air feeding tubes or ducts intermediate said chamber and the smoke stack, and a series of electric sparking devices alternating with said tubes or ducts, substantially as described.

5. In a furnace, the combination with the combustion chamber, of an air feeding tube intermediate said chamber and the smoke stack, an electric sparking device forward of said tube, a storage battery electrically connected with said sparking device, and a dynamo electrically connected with said battery, substantially as described.

6. In a furnace, the combination with the combustion chamber of an air feeding duct, an electric sparking device forward thereof, and a grated or perforated wall or partition between said duct and sparking device, substantially as described.

519,531. PAPER-BOX MACHINE. CHAUNCEY W. GAY, Springfield, assignor of one-half to L. W. Brown & Co., Brightwood, Mass. Filed Oct. 13, 1893. Serial No. 488,190. (No model.)



Claim.—1. In a machine of the character described, the combination with the vertical reciprocatory picker-shaft having fixed at its lower end the horizontal bar, f^3, the bars, $g^\times$, $g^\times$, adjustably secured upon, and at right angles to, the end portions of the said bar, f^3, and having the pickers individually supported upon and detachably connected for longitudinal adjustment along the end portions of said bars, $g^\times$ $g^\times$, substantially as and for the purpose set forth.

2. In a machine of the character described, the combination with the vertical reciprocatory shaft having fixed at its lower end, by its middle the horizontal transverse bar, f^3, with the adjustably confined collars, f^3, at its ends, the horizontal bars, $g^\times$, $g^\times$, ranging in parallelism fore-and-aft and secured in socket-lugs of said adjustable collars, and the individual pickers having split socket-lugs and set screws whereby they have adjustable engagements along the end portions of said bars, $g^\times$, $g^\times$, substantially as and for the purposes set forth.

3. In a paper-box machine, the combination with the table having the aperture and reciprocatory folding plunger, movable relative thereto, of the slide-followers which constitute opposite sides of the throat or folding-box and the bottom sections hinged to the working ends of the follower-slides and means for imparting reciprocatory movements to the follower-slides, and swinging movements to the hinged bottom sections, while the followers are in their approached relations, substantially as described.

4. In a paper-box machine, the combination with the table having the aperture and the plunger vertically movable relatively thereto, of the followers each comprising the horizontal slide base with the aperture, 24, and a vertical inner end member, B, the collar, 27, supported within said aperture and having lateral journals in bearings at the top of the slide at each side of the said aperture, the link member, 30, pivotally secured upon the table, the screw-shaft, 28, pivotally connected to the link member and having its shank extended through said collar, with the lock-nuts thereon at each side of the collar, the cam, and the thrust-rod actuated thereby which has a connection with one of the said link members, substantially as described and for the purposes set forth.

5. In a paper box machine, the combination with the movably supported followers with slide-ways, of the blank conveyer having the side bars thereof longitudinally movable through said ways of the followers, and also bodily movable transversely of their length in unison with said followers, and means for imparting the approaching and retreating movements to the followers, and for moving the conveyer bars longitudinally, substantially as and for the purpose set forth.

6. In a paper-box machine, the combination with the movably supported followers with ways, of the blank-conveyer comprising the parallel side bars longitudinally movable through said ways of the follower and bodily movable transversely of their length in unison with said followers, and having at their rear ends the angularly extended perforated lugs, 75, 75, the bar, 78, extended transversely of said bars loosely through the said perforated lugs, and driving connections for imparting to said bar a forward and rearward reciprocatory movement, substantially as described.

7. In a paper-box machine, the combination with the reciprocatory plunger, and the throat or folding-box consisting of opposing sets of vertical plates, or members, which are movable toward and from each other, and means for imparting said movements thereto, of a clearer or stripper set within a recess which is formed within the face of one of said vertical plates and which has, by a hooked portion thereof, a position of extension outwardly beyond the plane of the face of said member, substantially as described.

8. In a paper-box machine, the combination with the plunger and the throat or folding-box constituted by the plates, D, D, and the follower members B, B, of the slides on which said members are mounted and means for imparting to the respective sets thereof reciprocatory movements at right angles to each other, and the hinged bottom sections, G, G, secured to the lower inner edges of the follower-slides and means for swinging them into their horizontal positions when the followers are in their approached relations to the plunger, substantially as described.

9. In a paper-box machine, the combination with the plunger and the folding-box or throat, the walls of which are constituted by upright members of opposing end followers, and the upright opposing plates, D, D, at right angles to the followers, and which have projections at the tops of their vertical edges adjacent the followers, the upper edges of the followers and plates constituting edges by and upon which are bent, as the plunger descends, the end and side sections of the box blank while the integral stay sections are, by said corner projections, turned in at right angles to the side sections, substantially as described.

10. In a paper box machine, the combination with the plunger, of a folding-box or throat having one or both of its opposite sides constituted by one or more upright plates, D, each with an edgewise longitudinal projection, *g*, at an upper corner thereof which is also laterally extended relative to the inner face of the plate and having with the plate proper the common upward and outward beval, 52, 53, and said projection having the inner surface, 54, which is in a plane perpendicular to the face of the plate downwardly and inwardly inclining toward the plane of movement of the vertical end of the plunger, substantially as described.

11. In a paper box machine, the combination with the plunger and the follower slides, 20, and the slides, E, E, and means for imparting slight reciprocatory movements thereto, of a folding-box or throat constituted by the opposing upright members, B, B, of the end followers, and the upright plates, D, D, of the slides, the said plates having a height greater than that of the members, B, and having their upper edges beveled, and with the projections, *g*, at the corners near and above the followers which have the beveled surfaces, 53 and 54, all substantially as and for the purpose set forth.

12. In a paper-box machine, the combination with a reciprocating folding-plunger, and the followers, B, B, movable toward and from the ends thereof, and adjustable for insuring at pleasure variations as to their normal relative dispositions of the slides at opposite sides of the plunger and having the upright plates, D, D, which are adjustable along the lengths of the slides, substantially as and for the purpose set forth.

13. In a paper-box machine, the combination with a reciprocating folding-plunger and the followers, B, B, movable toward and from the ends thereof and adjustable for insuring at pleasure variations as to their normal relative dispositions, of the slides at opposite sides of the plunger having the upright plates, D, D, which are adjustable on the slides in the direction of the movement thereof, and which are also adjustable along the lengths of the slides at right angles to the slide movement, all substantially as and for the purposes set forth.

14. In a paper-box machine, the combination with the reciprocating folding plunger and the end followers, of the slides E, E, each longitudinally slotted, and having the clamp-block, 43, with the rib, 42, and the edge flanges, 44, and the vertical plates, D, D, with the beveled upper edges, the upper edgewise corner projections, *g*, and having the foot members, 45, which are slotted at right angles to the slot of the slide, the locking bolt for rigidly clamping the slide, clamp-

block, and foot-member, and means for imparting a fore-and-aft movement to the slide, substantially as described.

15. In a paper-box machine, the combination with the end followers, of the side plates, D, and the slides, E, in which they are mounted, the cams, the rock-shafts, 47, having arms, 46, connected to the slides and having the arms, 48, and the thrust-rods, 49, in operative relations to said cams and connected to said arms. 48, substantially as described.

16. In a paper-box machine, the combination with the folding plunger and the end followers and conveyer having its movement at about the level of the top of the end followers and the front and rear plates, D, D, constituting the side folders, the upper edges of which are higher than the conveyer, and the front plates, D, having the deflectors, 81, substantially as described.

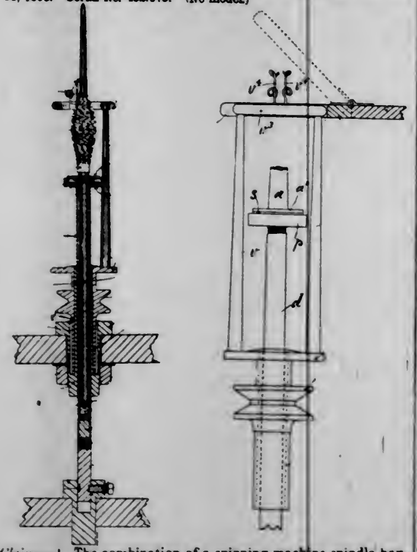
17. In a paper-box machine, the combination with the followers, B, B, having the ways in their upper portions, of the blank conveyer comprising the bars, *h*, *h*, with the upwardly extended ribs or feathers, 70, movable through the said ways, the upper edges of the feathers standing above the tops of the followers, substantially as and for the purpose set forth.

18. In a paper-box machine, the combination with the followers, of the conveyer bars, *h*, movable in the ways of the follower and transversely bodily movable with the follower, and the bar, 78, having the sliding connection, substantially as described, with the conveyer, of the levers, 80, and the rock-shaft, 83, on which they are mounted, the links, 79, connecting the upper ends of said levers to said bar, 78, the cam, 88, and the intermediately pivoted lever, 87, one arm of which is in operative relation to the cam, and an arm on the rock-shaft having a connection with the other arm of the lever, substantially as described.

19. In a paper-box machine, the combination with the reciprocatory plunger, of a throat consisting of opposing upright plates with the projections, *g*, for folding the side and stay sections and the end followers at right angles to the plates which, together with the said plates, are mounted for reciprocatory movements, the said followers and plate being adjustable in directions of their movement whereby they may, at pleasure, be caused to have, normally, relations to constitute different sized folding throats, substantially as described.

20. In a paper-box machine, the combination with the parallel upright front and rear plates, D, D, with the projection, *g*, extended longitudinally edgewise and also laterally inward at the upper outer corners of the plates, of the end followers at right angles to the said plates and having their working faces of greater extent than the distance between the plates, D, D, and having their tops slightly lower than the under sides of the said projections, *g*, substantially as shown and described.

519,532. SPINDLE AND SUPPORT FOR SPINNING AND DOUBLING MACHINES. JOSEPH HARGREAVES, Bolton, England. Filed Aug. 11, 1893. Serial No. 482,875. (No model.)

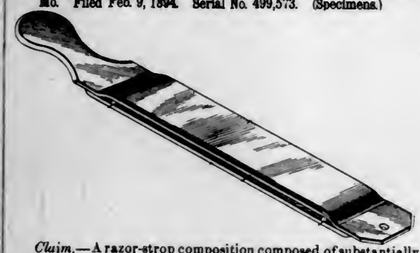


Claim.—1. The combination of a spinning machine spindle having a friction disk secured thereto, a friction washer operating in connection with said disk, a resilient support for said washer, and a yielding bearing for said spindle, all as and for the purposes set forth.

2. The combination of a spinning machine spindle having a friction disk attached thereto, a bearing tube formed to receive said spindle, resilient supports mounted within said tube to allow said spindle to descend as its weight is increased by the winding thereon of the yarn, an adjustable disk mounted on said tube, and a spring and friction washer operating in connection with the disk on said spindle substantially as herein set forth.

3. The combination of a spinning machine spindle having a friction disk fixed upon it, a bearing tube formed to receive said spindle, and to receive the end of a screw for attaching to its foot-step, the drag device between the bearing tube and said friction disk a foot-step into which said tube is made to fit a screw for attaching said bearing tube to said foot-step, a sleeve forming the flier to fit over and into bearings forming its support, on said sleeve being also formed the wharve or grooved driving pulley bearings attached to a fixed rail for supporting said flier and a hinged guide piece for steadying the outer end of said flier substantially as specified.

519,533. RAZOR-STROP COMPOSITION. JOHN HESEL, St. Louis, Mo. Filed Feb. 9, 1894. Serial No. 499,573. (Specimens.)



Claim.—A razor-strop composition composed of substantially one pound of emery flour, one pound of crocus of mars, one and one-half pounds of paraffin wax, one-half ounce of powdered alum, one-fifth ounce of castor oil, one-eighth ounce of powdered rosin thoroughly heated and intermixed, substantially as set forth.

519,534. FAUCET FOR CANS. WILLIAM A. JAMES, Chicago, Ill., assignor to the Chicago Stamping Company, same place. Filed Sept. 28, 1893. Serial No. 486,745. (No model.)



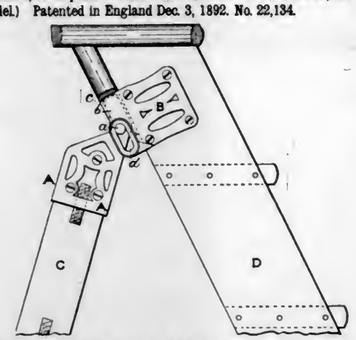
Claim.—1. A can having in its side a recess extending to its bottom, said bottom having a notch or opening registering with the bottom of the recess, and a spout pivoted to the can within said recess, substantially as set forth.

2. The combination with a can having a recess in the side thereof, the side-walls of said recess being provided with openings, of a tube passing through both of said openings and secured to the said side-walls, so as to be incapable of turning said tube having an opening in its side, a sleeve embracing the tube and adapted to turn thereon, said sleeve having an opening adapted to be brought to register with the opening of the tube, and a spout secured to the sleeve and having a bore registering with the opening of the sleeve, substantially as set forth.

3. The combination, with a can having a recess in the side thereof, the side-walls of said recess having openings, of a tube passing through both of said openings and secured to the said side-walls, so as to be incapable of turning said tube having an opening in its side, a split sleeve embracing the tube and being capable of turning thereon, said tube having an opening adapted to be brought to register with the opening of the tube, a spout secured to the sleeve and having a bore registering with the opening of the sleeve, and means for adjusting the split tube upon the sleeve, substantially as set forth.

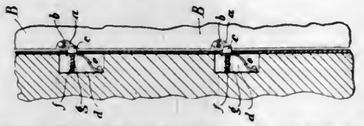
4. The combination, with a can, having a recess in the side thereof, the side walls of said recess having openings, of a tube passing through said openings and secured to said side walls so as to be incapable of turning, said tube having an opening in its side, a split sleeve embracing the tube and being capable of turning thereon, said sleeve having an opening adapted to be brought to register with the opening of the tube, a spout secured to the sleeve and having a bore registering with the opening of the sleeve, and a screw tapped into the sleeve on one side of the split and passing through a perforation on the other side, substantially as set forth.

519,535. HINGE FOR STEP-LADDERS, &c. JACOB KOEHLER and CONRAD KOEHLER, Manchester, England, assignors to Hugo Ewald Wollmer, same place. Filed Jan. 10, 1894. Serial No. 496,350. (No model.) Patented in England Dec. 3, 1892. No. 22,134.



Claim.—The combination of the ladder D and strut C with the hinge elements A B respectively attached thereto, the element A being provided with a lateral stud and a terminal tongue extending obliquely to the length of the said strut and the element B being provided with a slot *d* and cavity *c* respectively receiving the said stud and tongue and extending parallel to the said ladder D substantially as set forth.

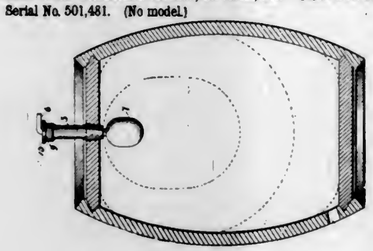
519,536. SASH-HOLDER. CARL KOHNEMANN, Wiesbaden, Germany. Filed Sept. 28, 1893. Serial No. 486,691. (No model.) Patented in Germany Apr. 29, 1893, No. 73,019.



Claim.—1. The sash-holder herein described consisting of a recess *a* in the sash, having its bottom inclined outwardly, a fixed roller *b* pivoted in the top of the recess *a*, a recess *d* in the frame, a spring fixture in the recess *d*, and a rounded head *c* carried by said spring, to be projected thereby and gripped between the inclined bottom of the recess *a* and the roller *b* therein, to secure the sash, and to be pushed inward by said inclined bottom of the recess *a* and by the fixed roller *b* when force is exerted upon said sash, as herein set forth.

2. The combination, with the casing, the vertically and outwardly movable sash having the recesses *a* and the continuing grooves *i* formed on the arcs of the circles on which the sash swings, rollers *b* in the recesses *a*, and springs held on the sash-guides having curved heads *c* to enter the recesses *a* and move outwardly in grooves *i*, and to engage the rollers *b*, substantially as herein described.

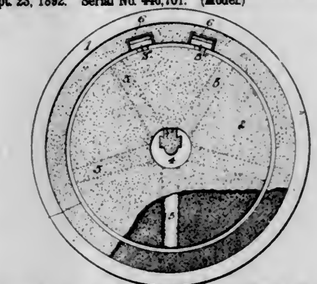
519,537. APPARATUS FOR DISPENSING BEVERAGES. LOUIS KOHOUT and FREDERICK KOHOUT, St. Louis, Mo. Filed Feb. 26, 1894. Serial No. 501,481. (No model.)



Claim.—1. A dispensing apparatus comprising a suitable hollow casing, a perforated disk movable within the casing, a movable pipe passing through said casing and adapted to carry an inflatable sack at the free or inner end thereof, said perforated disk fitting said casing for clearing the inner walls of the same, and guiding and limiting the movement of the pipe, substantially as set forth.

2. A dispensing apparatus comprising a suitable hollow casing, a perforated disk movable within the casing, a suitable pipe passing through the disk and movable within the casing, the lower end of the pipe projecting a suitable distance beyond the disk, an inflatable sack secured to the said end of the pipe, a cylindrical ring at the upper end of the casing embracing the pipe, a solid bottom for said ring, said ring having a suitable depression above said bottom, a packing ring on said bottom embracing the pipe, a tightening nut above said packing ring, a shoulder in said ring for limiting the movement of the tightening nut, and a suitable striking rim on said ring superposed above the surface of the tightening nut, substantially as set forth.

519,538. CORE FOR CASTING. ORTON C. LITTLE, Menasha, Wis., assignor of one-half to Duncan T. H. MacKinnon, same place. Filed Sept. 23, 1892. Serial No. 446,701. (Model.)

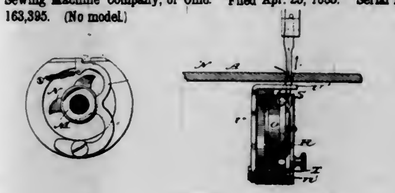


Claim.—1. A core for a pulley mold, consisting of a core print having a thin strip of metal embedded therein, for dividing a pulley rim transversely thereof into sections, said strip having a length corresponding with the width of the pulley face, and a width for allowing it to project from said core print a distance, equaling, or slightly exceeding the thickness of said rim mold, said core print having also, one or more cavities therein for receiving melted metal and forming lugs upon the pulley rim in casting it, said lugs connecting the sections of the pulley rim separated by the aforesaid strip of metal, substantially as set forth.

2. A core for a pulley mold, consisting of a core print having a thin strip of metal embedded therein, for dividing a pulley rim transversely thereof into sections, said strip having a length corresponding with the width of the pulley face, and a width for allowing it to project from said core print a distance, equaling, or slightly exceeding, the thickness of said rim mold, said core print having also, one or more cavities therein for receiving melted metal and forming lugs upon the pulley rim in casting it, said lugs connecting the sections of the pulley rim separated by the aforesaid strips of metal, said core print being also provided with projections suitably arranged for forming bolt head seats in each end of said rim sections, substantially as set forth.

3. The combination with a pulley mold of two core bolders, each having a core with a thin strip of metal embedded in the print thereof, said strips being adapted to divide the pulley rim transversely thereof in casting it, into two sections, the print of each core being provided with cavities for receiving melted metal and forming a connecting lug between the ends of each section, and also having projections suitably arranged thereon for forming seats in the ends of each section, for receiving the heads of bolts adapted for connecting said rim sections together, substantially as set forth and described.

519,539. THREAD-GRIPPING MECHANISM FOR SEWING-MACHINES. WILLIAM A. MACK, Norwalk, Ohio, assignor to the Standard Sewing Machine Company, of Ohio. Filed Apr. 25, 1885. Serial No. 163,395. (No model.)



Claim.—1. The combination in a sewing machine provided with a vertically arranged reciprocating needle, a circular race-way, and a vertical wall forming a fixed jaw, adjacent to, and in line of the needle, of a movable gripping jaw and means for operating the said movable jaw in conjunction with said fixed jaw to grasp and hold the needle thread during the formation of a thread loop and the passage of the shuttle through it, substantially as and for the purpose set forth.

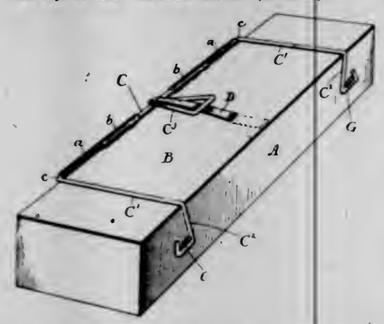
2. In a sewing machine, the combination with the vertically reciprocating needle, and a circular shuttle-race frame or support, of a thread gripping or retaining device secured to or supported by said frame, consisting of a stationary jaw and a movable jaw located adjacent to the path of the needle in position to receive between the same one side of the thread loop thrown out by the needle, and means for operating the movable jaw to impinge and release the interposed thread, substantially as and for the purpose set forth.

3. In a sewing machine, the combination with the vertically reciprocating needle and circular-shuttle-race frame or support, of a thread gripping or retaining device secured to or supported by said frame, consisting of a stationary jaw and a movable jaw located adjacent to the path of the needle in position to receive between the same one side of the thread loop thrown out by the needle, and means for operating the movable jaw elastically in one direction to impinge the thread and positively in the opposite direction to release the same, substantially as described and for the purpose set forth.

4. In a sewing machine, the combination with the vertically reciprocating needle and circular shuttle-race frame or support, of a thread gripping or retaining device secured to or supported by said frame in position adjacent to the path of the needle, consisting of a stationary jaw and a pivoted lever carrying a movable jaw to operate in combination with said stationary jaw to impinge and release the needle-thread alternately, and means for operating the lever carrying said movable jaw, substantially as described and for the purpose set forth.

5. In a sewing machine, the combination with the vertically reciprocating needle and circular shuttle-race frame or support, of a thread gripping or retaining device secured to or supported by said frame, consisting of a stationary jaw located adjacent to the path of the needle and a lever pivotally secured to said frame at the rear side thereof provided with an arm for engaging with the said stationary jaw, a spring for operating said lever elastically in one direction, and a cam or eccentric located on the lower driving shaft for engaging with said lever to operate the same positively in the opposite direction, substantially as described and for the purpose set forth.

519,540. BOOK-LEAF HOLDER. JOSEPH MEYER, Chicago, Ill. Filed Sept. 28, 1893. Serial No. 486,747. (No model.)



Claim.—1. A book-leaf holder, having in combination a base, the rod C pivoted thereto and having arm C^3 and arms C' provided with downturned portions C^3, and a spring D secured to the base and engaging the arm C^3, the arms being rigid with the rod substantially as set forth.

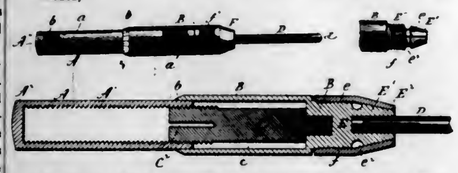
2. A book-leaf holder, having in combination a base, the rod C pivoted thereto, and having the arm C^3 and arms C', and the spring D secured to the base and engaging the arm C^3, the extremity *d* of the spring being bent to form a stop for limiting the upward movement of the arms, substantially as set forth

3. The combination, with a box comprising a body A and a lid B, of the arms C' pivoted to the box and crossing the lid thereof, said arms having the downturned portions C^3 adapted to engage the body of the box and hold the lid closed, and a spring for forcing said arms toward the box substantially as set forth.

4. The combination, with a box comprising the body A and hinged lid B, the body being provided with protuberances G, of the arms C' pivoted to the box, and having the downturned L-shaped portions C^3 adapted to engage the protuberances G, substantially as set forth.

5. The combination, with a box comprising the body A and lid B, said body and lid having tubes *a* and *b*, respectively, of the rod C extending through said tubes, and having arms lying normally upon the lid, a spring for forcing said arms toward the lid, and means for holding the lid closed, substantially as set forth.

519,541. MICROMETER-GAGE. HENRY MCBRIDE, New Haven, Conn., assignor to Wilbur F. Day and Joseph P. Lavigne, same place. Filed Jan. 7, 1893. Renewed Oct. 27, 1893. Serial No. 489,315. (No model.)

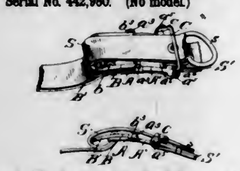


Claim.—1. In a micrometer gage, the combination with a graduated, internally threaded hollow beam, of a measuring sleeve fitting over the same, a measuring-screw connected with the outer end of the said sleeve, and taking into the beam, a chuck located at the outer end of the sleeve, and a removable measuring piece inserted into the said chuck in line with the beam, sleeve and screw, substantially as described.

2. In a micrometer gage, the combination with a graduated, internally threaded hollow beam, of a measuring-sleeve having its inner end open, and adapted to fit over the said beam, a measuring-screw connected with the outer end of the said sleeve, and taking into the beam, a chuck located at the outer end of the said sleeve, having its body formed integral therewith, and comprising an independent shell, and a removable measuring-piece inserted into the said chuck, substantially as described

---

519,542. BUCKLE. ALBERT E. MCCLURE, Sedalia, Mo., assignor to the McClure Manufacturing Company, same place. Filed Aug. 13, 1892. Serial No. 442,960. (No model.)

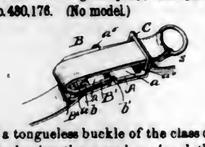


Claim.—1. The herein described improved buckle, comprising the base plate A having the openings *a* and a^3 forming the end cross bars *a'* and a^4 and provided with the projecting ears or lugs a^5 and the projecting lugs a^5 at its rear end, the upper link or member B pivotally mounted in the ears or lugs a^5 and having the dividing cross bar *b* and the outer projecting portion B', and the rear link or bail C extending across the rear end of the base plate and having its ends pivotally mounted in the ears or lugs a^5, substantially as and for the purpose set forth.

2. An improved buckle, comprising a base plate provided with an open front portion, as at *a*, and widened at its rear end, substantially as set forth, ears or lugs, as at a^5, being provided at its widened portion, an upper link or member pivotally connected with the base plate at a point in rear of the opening *a* and having a cross bar adapted to operate in conjunction therewith, and a wire link or bail, C, of approximately U-shape and extending across the rear end of the base plate and having its ends pivotally mounted in the ears or lugs a^5, the length of the rear link C being thus greater than the width of the opening *a*, substantially as and for the purpose set forth.

3. As an improvement in buckles, the combination of a base plate provided with an open front portion, as at *a*, and a rear cross bar, as at a^4, an upper link or member pivotally mounted upon the base plate at a point in rear of the opening *a* and provided with a cross bar operating in conjunction with said opening, a widened rear link mounted at the rear end of the base plate, securing devices connected with the cross bar a^4 and adapted to secure the buckle in place, and a strap passing through the opening *a* and over the cross bar of the upper link and provided at its free end with a ring or equivalent retaining device, the retaining device being greater in width than the opening *a* and the rear link being adapted to permit the passage of the retaining device and receive and secure the free end of the strap when the latter is secured by the buckle, substantially as set forth.

519,543. BUCKLE. ALBERT E. MCCLURE, Sedalia, Mo., assignor to the McClure Manufacturing Company, same place. Filed July 11, 1893. Serial No. 480,176. (No model.)

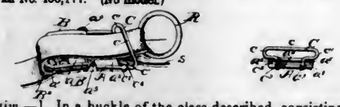


Claim.—1. In a tongueless buckle of the class described, consisting of the base plate having the cross-bar *a'* and the rear cross-bar a^4, and the upper plate or member pivotally mounted upon the base plate in rear of the cross-bar *a'* and having the cross-bar *b* operating in conjunction with the cross-bar *a'*, substantially as shown, the fixed rear retaining link C forming a loop extending across the rear end of the base plate and projecting above the cross-bar a^4 at an angle to the base plate, the fixed rear retaining link being adapted to receive and retain the free end of the strap when the strap is secured by the cross-bars *b* and *a'*; substantially as and for the purpose set forth.

2. An improved buckle of the class described, comprising a base plate formed with the front and rear cross-bars *a'* a^4 and having its rear end bent or turned upwardly to form an integral fixed retaining link, C, said fixed link being disposed at an angle to the base plate and forming practically a continuation of the latter and extending across the rear end of the base plate proper, over and above the rear cross-bar a^4 and an upper plate or member pivotally mounted upon the base plate and having the cross-bar *b*; substantially as and for the purpose set forth.

3. An improved buckle of the class described, comprising a base plate embodying the opening *a* and the front and rear cross-bars *a'* a^4 and widened at its rear end, the widened rear end being bent or turned up to form an integral fixed rear retaining link, C, projecting above the rear cross-bar a^4 and extending across the widened portion of the base plate, the fixed retaining link C being formed by the continuation of the widened part of the base plate and being of a greater width than the opening *a*; and an upper plate or member pivotally mounted upon the base plate and embodying the cross-bar *b*; substantially as and for the purpose set forth.

519,544. BUCKLE. ALBERT E. MCCLURE, Sedalia, Mo., assignor to the McClure Manufacturing Company, same place. Filed July 11, 1893. Serial No. 480,177. (No model.)



Claim.—1. In a buckle of the class described, consisting of the base plate having the front and rear cross-bars, *a'* and a^4, and the upper plate or member pivotally mounted upon the base plate at a point in rear of the cross-bar *a'* and having a cross-bar, *b*, operating in conjunction with the cross-bar *a'*, the pivoted rear retaining link embodying a flat loop, *c*, and having its ends formed with bearing eyes mounted upon the rear cross-bar a^4, said rear retaining link extending transversely across the rear end of the base plate and being adapted to receive and secure the free end of the strap when the strap is secured by the cross-bars *b* and *a'*; substantially as set forth.

2. An improved buckle of the class described, comprising a base plate embodying the front cross-bar *a'* and the rear cross-bar a^4 having circumferential grooves or channels, a^6, at its ends, a pivoted retaining link bent or shaped of wire and embodying the main loop or body portion *c* and having its ends turned inwardly and downwardly and provided with eyes engaging the grooves or channels a^6, the pivoted link being thus mounted upon the rear cross-bar and having a bearing thereon and extending transversely across the rear end of the base plate, and an upper plate or member pivotally mounted upon the base plate and having the cross-bar *b*; substantially as set forth.

3. An improved buckle of the class described, comprising a base plate having the opening *a* and the front and rear cross-bars *a'* a^4, the pivoted retaining link C bent or shaped of wire to form the main loop or body portion *c* having its ends projecting over and beyond the sides of the base plate and having the ends of the link turned inwardly and downwardly and provided with eyes embracing the rear cross-bar a^4, the pivoted link being thus pivotally mounted upon said cross-bar and extending across the rear end of the base plate and having its main loop or body portion of a greater width than the opening *a*, and an upper plate or member pivotally mounted upon the base plate and having the cross-bar *b*; substantially as set forth.

519,545. BUCKLE. ALBERT E. MCCLURE, Sedalia, Mo., assignor to the McClure Manufacturing Company, same place. Filed July 11, 1893. Serial No. 480,178. (No model.)

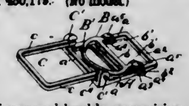
Claim.—1. An improved buckle, comprising the under link or member having the cross-bar *a'* and provided with bearing eyes or openings in rear of said cross-bar and with locking devices adjacent to said bearings, and the upper link or member having the cross-bar *b* operating in conjunction with the cross-bar *a'* and provided with spring arms projecting rearwardly from said cross-bar *b*, mounted in said bearings, and engaging the locking devices, substantialy as set forth.



2. The herein described improved buckle, comprising the under link or member, A, provided with the bearing eyes or openings, a^3, and the projecting lugs, a^5, having the shoulders or recesses, a^6; and the upper link or member, B, having the cross-bar, *b*, and the projecting spring arms, *b'*, provided with the gudgeons or ends entering the openings a^3 and bearing against the recessed or shouldered lugs, substantially as and for the purpose set forth.

3. The herein described improved buckle, comprising the under link or member A having the side bars *a* provided with the eyes or openings a^3 formed by the downwardly bent portions a^4 and the projecting lugs a^5 formed with recesses or shoulders a^6, and the upper link or member B having the projecting portion B' forming a free lifting end and provided with the cross bar *b* and the rearwardly projecting spring arms *b'* having the ends or gudgeons b^3 entering the openings a^3 and engaging the recessed and shouldered lugs; substantially as and for the purpose set forth.

519,546. BUCKLE. ALBERT E. MCCLURE, Sedalia, Mo., assignor to the McClure Manufacturing Company, same place. Filed July 11, 1893. Serial No. 480,179. (No model.)

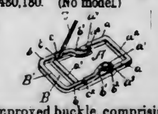


Claim.—1. An improved buckle, comprising a main link or base plate having the intermediate cross bar a^x; an upper link pivotally mounted upon the main link at a point in rear of the cross bar a^x and having the cross bar *b* and the front projecting portion; and a retaining link comprising spring arms having gudgeons or ends bearing in eyes in recessed or shouldered lugs projecting from the sides of the main link at its front end, said pivotal retaining link being adapted to swing rearwardly over the front of the buckle and carry the strap; substantially as set forth.

2. An improved buckle, comprising a main link or base plate having the intermediate cross bar a^x and provided with bearing eyes or openings and projecting locking devices; an upper link having the cross bar *b* and front projecting portions and provided with projecting spring arms bearing in the eyes or openings of the main plate and engaging the locking devices thereon; and a retaining link comprising spring arms pivotally mounted in eyes at the sides of the front end of the main link and engaging locking devices thereon, the retaining link being adapted to swing rearwardly over the front of the buckle and carry the strap; substantially as set forth.

3. In a buckle, the combination, with a main link or base plate having a cross bar, a^x, and with an upper link pivotally mounted upon the main link and provided with a cross bar, *b*, of a retaining link having its rear end pivotally mounted at the front of the main link and adapted to swing over rearwardly across the front of the buckle and carry the strap; substantially as set forth.

519,547. BUCKLE. ALBERT E. MCCLURE, Sedalia, Mo., assignor to the McClure Manufacturing Company, same place. Filed July 11, 1893. Serial No. 480,180. (No model.)



Claim.—1. An improved buckle, comprising an under link or base plate having a cross bar, *a'*, and an upper link or member pivotally mounted upon the under link and having a pivoted or hinged cross bar, C, operating in conjunction with the cross bar of the under link substantially as set forth.

2. An improved buckle, comprising the under link or base plate having the front cross bar *a'*, and an upper link or member pivotally mounted upon the under link and provided with side bars and a front projecting portion forming a free lifting end, a cross bar, C, being piv-

oted or hinged upon one of the side bars of the upper link in rear of the front projecting portion and having its free end received by a recess in the opposite side bar; substantially as and for the purpose set forth.

3. An improved buckle, comprising the main link or base plate having the cross bar *a'*, and an upper link or member having spring arms forming a pivotal locking connection with the under plate and carrying a pivoted cross bar, C, operating in conjunction with the cross bar of the main link; substantially as set forth.

519,548. COMPOSITION OF MATTER FOR PLASTER. JOHN D. PRESTON, Taylorville, assignor of one-half to John T. Ross, Litchfield, Ill. Filed Aug. 16, 1893. Serial No. 483,310. (No specimens.)

Claim.—The above named composition of matter for plaster consisting of calcined gypsum, sand, ground lime rock, calcined clay, shipstuff, sal soda, sugar, linseed oil and hair, in about the proportions herein before set forth.

519,549. PAN-LIFTER. WILLIAM REISSE, St. Louis, Mo. Filed Jan. 3, 1894. Serial No. 496,158. (No model.)



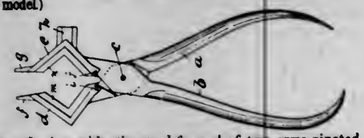
Claim.—1. The combination of the shovel having the blade and handle parts, as described, the latter also constructed to form guides for the hooks, the hooks movable in said guides by means of levers, and the hook levers, substantially as set forth.

2. The combination of the shovel having the blade and handles, as described, the hooks vertically movable in guides in said handles by means of levers, the hook levers, and springs, substantially as set forth.

3. The combination of the shovel having the blade and handles, as described, and the hooks vertically movable in guides by means of levers, substantially as set forth.

4. In a pan lifter, the combination of the blade, a handle extended vertically and horizontally, as described, a hook vertically movable in guides in the handle, and a lever for operating said hook, substantially as described.

519,550. COMBINATION-TOOL FOR CARRIAGES. JOSEPH A. RIORDAN, Harrison, N. J. Filed Mar. 10, 1894. Serial No. 503,099. (No model.)



Claim.—1. A combination tool formed of two arms pivoted together and provided at their forward ends with triangular jaws having inwardly extending projections, said jaws and their respective projections forming wrenches of two different sizes, a hammer head arranged on one of said jaws, cutting blades removably arranged in the lower portions of the jaws, and projections on the outer portions of said jaws adapted to form nippers or pliers, all said parts, substantially as described.

2. A combination tool formed of two arms pivoted together and provided at their forward ends with triangular jaws having inwardly extending projections, said jaws and their respective projections forming wrenches of two different sizes, a hammer head on one of said jaws, removable cutting blades arranged in the lower portions of the jaws, a hoof-hook formed at the rear end of one of the handles and a nail puller at the rear end of the other handle, all said parts, substantially as described.

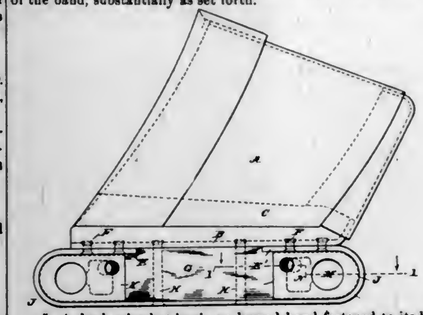
519,551. DREDGE-BUCKET. ARTHUR W. ROBINSON, Milwaukee, Wis. Filed Nov. 23, 1893. Serial No. 491,754. (No model.)

Claim.—1. A dredge bucket, having a looped band fastened to its back and bearing boxes for the link pins placed within the said looped band, substantially as set forth.

2. A dredge bucket having a looped band fastened to its back, a block located centrally within the looped band and bearing boxes for the link pins placed between the said block and the ends of the band, substantially as set forth.

3. A dredge bucket having a looped band as wide as the back of the bucket fastened to the back thereof, a block located centrally within the looped band and bearing boxes, as long as the band is wide, placed between the said block and the ends of the band, substantially as set forth

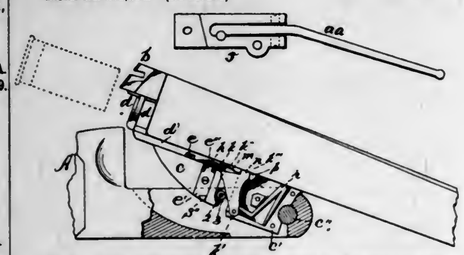
4. A dredge bucket having a looped band fastened to its back, bearing boxes for the link pins placed at the ends of the looped band and within the same, and means to hold the said boxes at the ends of the band, substantially as set forth.



5. A dredge bucket having a looped band fastened to its back, bearing boxes for the link pins placed at the ends of the looped band and within the same, said boxes each having a hole for the link pin, and a chamber for the lubricating material, and means to separate the bearing boxes and hold them at the ends of the looped band, substantially as set forth.

6. The combination of a dredge bucket having a looped band fastened to its back, bearing boxes for the link pins placed at the ends of the looped band and within the same, means to hold the boxes at the ends of the looped band, a link pin, one end whereof is squared and a pair of links for each bucket, one of them having round opening for engagement with the pins, and the other having squared holes to conform to the squared end of the pin, substantially as set forth.

519,552. EJECTOR AND MAINSPRING MECHANISM. JOSEPH A. ROSENBERG and JAKOB HURST, Syracuse, N. Y. Filed May 31, 1893. Serial No. 476,054. (No model.)



Claim.—1. An automatic ejector consisting of an extractor head and stem connected thereto, an extractor hammer engaging with said stem, an ejector spring engaging with said hammer and compressed by the return of the extractor and stem to their normal positions, a sear engaging with said stem, and means to disengage it therefrom, in combination.

2. The combination with the barrels and frame of a fire-arm, of an ejector comprising an extractor head and stem seated in the barrels, an extractor hammer pivoted upon a lug below the barrels and engaging said stem, an ejector spring engaging with said hammer, and a sear engaging said stem and means to operate said sear to release the ejecting mechanism.

3. The combination with the firing hammer, of an extractor rod fitting in the frame and having a flexible neck, and a head thereon provided with a cam-face, and a fore-end provided with a cam recess receiving said head and a horizontal recess receiving said head when it is sprung laterally out of said cam recess.

4. The combination with the firing hammer and the trigger-plate, of a main-spring mounted in a vertically rocking bearing and directly engaging with and having its bearing in a recess in the hammer, and a lever adapted to rock said bearing, pivotally mounted in said plate and engaging with said bearing and means to adjust the tension of the main-spring.

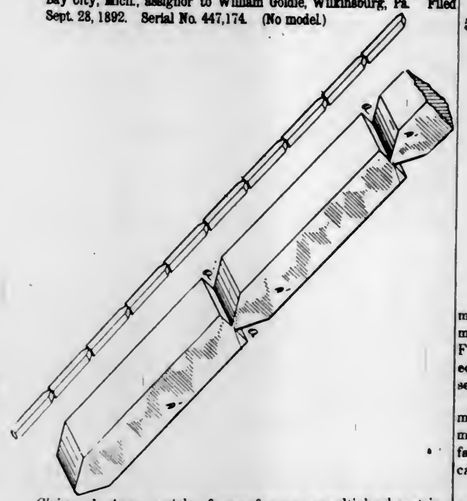
5. The combination with the firing-hammer and the trigger-plate, of a main-spring adjustably mounted in a vertically rocking bearing and engaging with a recess in the hammer, and a lever adapted to rock said bearing, pivoted upon said plate and engaging with said bearing.

6. The combination, with the firing-hammer, the main-spring mounted in a vertically rocking bearing and engaging directly with the hammer, of a lever operatively engaged with said bearing, and pivotally mounted, and a bolt adapted to engage with said lever to lock it.

7. The combination, with the firing-hammer, the main-spring mounted in a rocking bearing, a pivotally mounted tension-lever operatively engaging with said bearing, a bolt adapted to engage with said lever to lock it, and a top-lever operatively connected to said bolt to disengage it from said tension lever.

8. The combination, with the firing-hammer, of a main spring engaging therewith and mounted in a slot-way, having diverging faces, in a rocking bearing, and set screws adjustably engaging with the main spring on opposite sides.

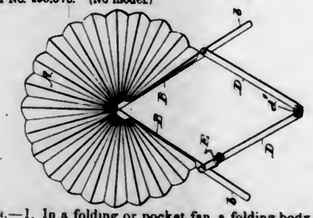
519,553. MULTIPLE-PLUG STRIP. HERBERT G. ROUNDS, West Bay City, Mich., assignor to William Goldie, Wilkinsburg, Pa. Filed Sept. 28, 1892. Serial No. 447,174. (No model.)



Claim.—1. As an article of manufacture, a multiple-plug-strip, for the purpose described, consisting of a strip of wood, forming individual plugs, united at their adjacent ends by an integral connecting neck, said strip being cut away only at the adjacent ends of said individual plugs on opposite sides, the kerf of the cut away portion on its under side, extending at right angles to the bar to form a flat head on the one plug, when they are disconnected, each kerf at its upper portion constructed on a bevel to form a driving point on the end of the adjacent plug, the main body of each plug remaining of the full size of the original strip, substantially as set forth.

2. As an article of manufacture, a multiple-plug-strip for the purpose described, consisting of a strip of wood of square form in cross-section, cut away at intervals to form individual plugs, united at their adjacent ends by integral connecting necks, the lower portion of the kerf extending into the wood at right angles to the bar to form a flat driving head on the end of one plug, the upper portion of the kerf constructed in the form of a bevel to form a driving point on the end of the adjacent plug, the main body of each individual plug remaining of the original form of the strip, substantially as described.

519,554. FAN. MAX RUBIN, New York, N. Y. Filed Jan. 4, 1894. Serial No. 495,576. (No model.)

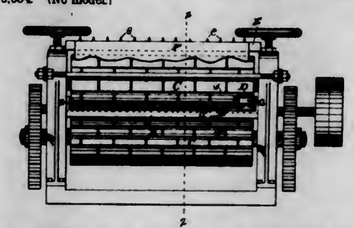


Claim.—1. In a folding or pocket fan, a folding body, retaining arms secured to the body and adapted to fold with it, and receiving arms connected with one another and with the retaining arms, substantially as shown and described.

2. In a folding or pocket fan, a folding body, retaining arms secured to one edge of the body, extending from a point centrally of the body outward in opposite directions and adapted to fold with the body, receiving arms attached one to each retaining arm and connected one with the other, the said receiving arms being adapted for the reception of the retaining arms, and a locking device adapted to engage both sets of arms, substantially as shown and described.

3. In a folding or pocket fan, the combination, with a folding body, and retaining arms secured to one edge of the body, extending from a point centrally of the body outward in opposite directions beyond the periphery of the body, of receiving arms consisting of parallel members bridged for a portion of their length, the said receiving arms being pivotally attached one to each retaining arm and to one another, and a locking device, substantially as described, whereby the receiving arms constitute an envelope for the body when folded, and a handle when said body is opened, as set forth.

519,555. MACHINE FOR STAMPING SHEET METAL. LONGLEY L. SAGENDORPH, Philadelphia, Pa. Filed June 26, 1893. Serial No. 478,834. (No model.)



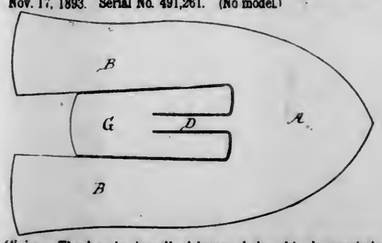
Claim.—1. In combination with a pair of roller-dies suitably mounted in a rotatable position, the liquid lubricating trough suitably mounted above said dies, and provided with a conducting fabric strip, F, one edge of said strip being secured within said trough the other edge of said strip impinging against one of said dies, substantially as set forth.

2. The roller-dies, C, rotatably mounted on the end frames, and mechanism for rotating said dies, in combination with trough E mounted over said dies, hooks or pins *e* secured to said trough, and fabric strip, F, attached to said hook for conducting the liquid lubricant from said trough to the dies, for the purposes specified.

3. The roller-dies mounted one above the other and journaled upon the end frames, in combination with the liquid trough E, feeding-strip F attached at one edge within said trough, and adjustable gage D, substantially as set forth.

4. The roller-dies mounted upon the end frames, and means for rotating said dies, in combination with bar A attached to said frames, and provided with an adjustable gage, said gage consisting of a strip of metal bent to form the angular portions d^2, d^3 and d, the two latter portions being secured together at substantially right angles to the portion d^2, and suitable means for connecting the latter to said bar, A, as and for the purposes specified.

519,556. SHOE. BENIAMINO SCARINCI, Philadelphia, Pa. Filed Nov. 17, 1893. Serial No. 491,261. (No model.)

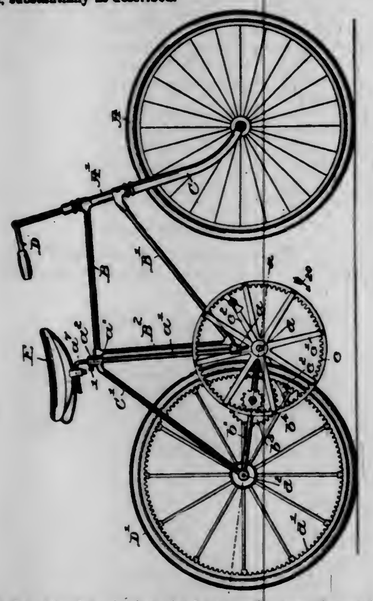


Claim.—The herein described integral shoe blank, consisting of the vamp, A, counters, B, B', of sufficient length to meet at the back of the heel, with the front strip, D, forming, in conjunction with the counters and the front gore pieces attached to the said strip and secured to the counters, the trapezoidal openings, K, substantially as described.

519,557. BICYCLE. HERBERT F. SHELDON, Melrose, Mass. Filed May 29, 1893. Serial No. 475,877. (No model.)

Claim.—1. In a bicycle, a vertically movable seat supporting standard, bearings therefor, and a rotatable shaft movable with said

standard, combined with a driving wheel, a support therefor, and transmitting mechanism movable with said standard, and a gear of said mechanism in direct engagement with the rim of said driving wheel, substantially as described.



2. In a bicycle, a driving wheel, an annular gear thereon independent of the shaft, and a vertically movable seat supporting standard, combined with power transmitting mechanism movable with said standard, and a gear of said mechanism in direct engagement with and to rotate the said annular gear, substantially as described.

3. In a bicycle, a driving wheel, a gear thereon, and a vertically movable seat supporting standard, combined with a crank shaft movable with said standard, an internal gear rotatable therewith, and gearing intermediate it and the gear on the driving wheel and movable with the standard, substantially as described.

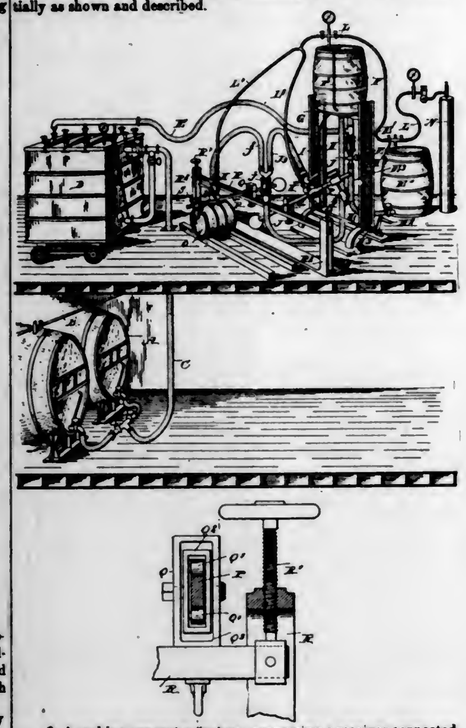
4. In a bicycle, a driving wheel, and its fixed support, a vertically movable seat standard, a crank shaft supported thereby, and a gear rotatable with said shaft, combined with pivotal connections between said shaft and driving wheel, and mechanism carried by said connections intermediate the rim of the driving wheel, and gear on the crank shaft, said mechanism including a gear directly engaging the rim of the wheel, and the crank shaft gear, substantially as described.

5. In a bicycle, the combination with the wheel rim, and its inwardly projecting teeth, of a vertically movable seat standard, side bars pivoted to said standard and to the wheel axle, a crank shaft, a gear fast thereon, and gearing intermediate the crank shaft gear and the rim teeth, said crank shaft and gearing being movable with the standard to operate substantially as described.

519,558. METHOD OF AND APPARATUS FOR RACKING BEER. AUGUST WERNER, Brooklyn, N. Y. Filed Oct. 28, 1893. Serial No. 489,411. (No model.)

Claim.—1. The herein-described method of racking beer, consisting in forcing the beer from the storage cask through a filter then discharging the filtered beer into an elevated receiver, subjecting the filtered beer in the receiver to gas pressure, passing gas into the vessel to be filled to expel the air therefrom, then filling the vessel with gas under the same pressure as that on the beer in the receiver, and finally passing the beer under its own hydrostatic pressure from the said elevated receiver into the vessel already charged with gas, which recedes back into the receiver on the gradual filling of the vessel with the liquid, substantially as described.

2. A racking apparatus for racking beer, comprising an elevated receiver, into which the beer is discharged, a movable platform supporting the said receiver and adapted to be raised and lowered, a liquid discharge pipe leading from the said receiver, a filling device held on the said discharge pipe and provided with a gas and air valve serving to regulate the discharge of the air from the vessel and to charge the latter with gas, and a gas supply pipe connected with the said receiver to charge the vessel with gas under the same pressure as that on the beer in the receiver and to permit the gas to recede back into the receiver on the gradual filling of the vessel, substantially as shown and described.



3. A racking apparatus for beer, comprising a receiver connected with the liquid supply, a platform adapted to be raised and lowered and supporting the said receiver, a gas supply pipe connected with the upper end of the said receiver, a liquid discharge pipe leading from the said receiver, and a filling device held on the said discharge pipe and provided with a nozzle, a spring pressed collar fitted to slide on the said nozzle and adapted to be seated on the bunghole of the vessel to be filled, a gas supply pipe, a valve in the said gas supply pipe and provided with a valve plug, a pipe extending through the nozzle of the said filling device and connected with the said valve plug, and a pipe leading from the valve plug to the outer air and adapted to be connected with the said gas pipe extending through the nozzle, substantially as shown and described.

519,559. SHOT-SPREADER. HENRY E. WINANS, Newark, N. J. Filed Nov. 13, 1893. Serial No. 490,724. (No model.)

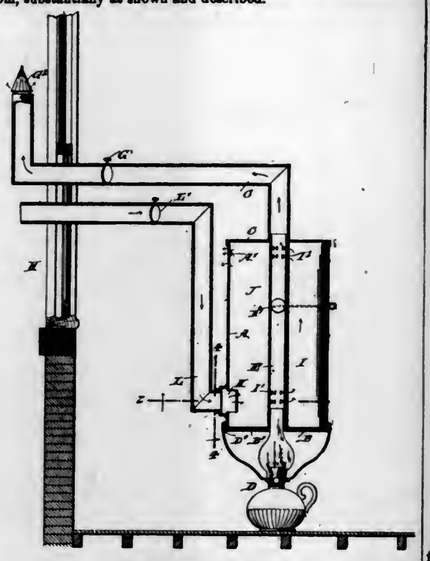


Claim.—In a cartridge, a shot spreader composed of a series of partitions intersecting with and crossing one another to divide the shot-space into a multiplicity of compartments, as described and for the purpose set forth.

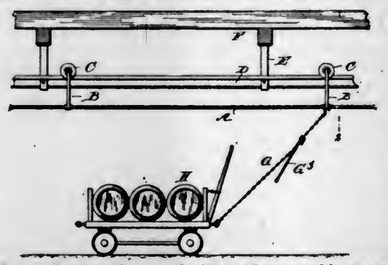
519,560. HEATER. JOSEPH H. ADAMS, New York, N. Y. Filed Dec. 22, 1893. Serial No. 494,377. (No model.)

Claim.—1. A heater comprising an exterior shell, having cold-air inlets at its lower end, and hot-air outlets at its upper end, a smoke-pipe arranged in the said shell and provided with a damper and apertures at each end, its lower end being adapted to be connected with a source of heat, and a series of smoke flues arranged radially around said smoke-pipe in the said shell, and connected at their lower and upper ends with the smoke-pipe, whereby products of combustion may be caused to circulate through the flues to heat air circulating in the shell around them, as shown and described.

2. A heater, comprising an exterior shell having air inlets at its lower end and air outlets at its upper end, a smoke pipe in the said shell and provided with a damper, the lower end of the said smoke pipe being connected with a source of heat, a series of smoke flues arranged in the said shell and connected at their lower and upper ends with the said smoke pipe, to cause the heat to circulate through the flues to heat the air circulating in the shell around the flues, a chamber arranged on the said shell and connected with compartments formed in the shell between the said flues, and an air inlet pipe connected with the said chamber and extending to the outside of the room, substantially as shown and described.



519,561. OVERHEAD-CABLE TRACTION. WALTER G. BERG, New York, N. Y. Filed Nov. 11, 1893. Serial No. 490,630. (No model.)



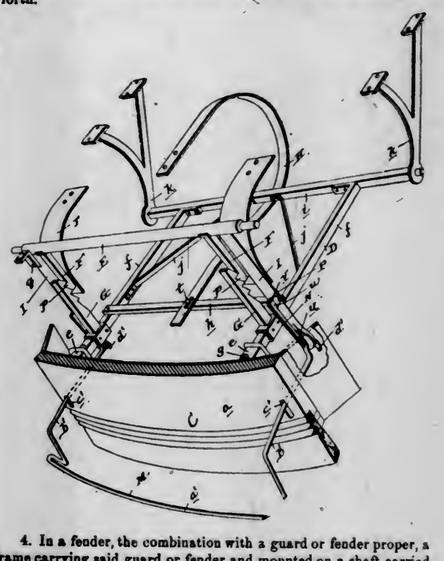
Claim.—A system of overhead cable traction, comprising an overhead fixed track, hangers provided with wheels adapted to travel on the said track, an endless traveling cable or chain rigidly connected to the hangers, and a flexible connection between the said cable or chain and a vehicle traveling on the ground or on a track, one part of the said connection being secured to the vehicle, and the other to the cable or chain, and the two parts being provided with means for detachably connecting them, substantially as described.

519,562. CAR-FENDER. CARL BERSCH, Baltimore, Md. Filed Sept. 25, 1893. Serial No. 486,413. (No model.)

Claim.—1. In a fender, the combination with a guard or fender proper and a pivoted frame carrying said guard or fender and having an upwardly extending toothed bar; of a swinging support adapted to engage the toothed bar of the guard frame so as to normally hold the guard above the ground or surface of the track, and a suitable means for moving the swinging support so as to release the guard frame, substantially as and for the purpose set forth.

2. In a fender, the combination with a guard or fender proper, a pivoted frame carrying said guard or fender, a swinging support for the guard frame adapted to normally hold the guard above the ground, and a suitable means for moving said swinging support to release the guard frame; of a spring adapted to force the guard frame downwardly when released so as to hold the guard to the ground, substantially as and for the purpose set forth.

3. In a fender, the combination with a guard or fender proper, a pivoted frame carrying said guard or fender and having an upwardly extending toothed bar, and a swinging supporting arm having a hook to engage the toothed bar of the guard frame; of a trigger frame extending in advance of the guard or fender proper and engaging the swinging supporting arm, all substantially as and for the purpose set forth.



4. In a fender, the combination with a guard or fender proper, a frame carrying said guard or fender and mounted on a shaft carried by hangers connected to a car body, and toothed bars connected to and extending upwardly from the guard frame; of the swinging supporting arms F, having hooks adapted to engage said toothed bars of the guard frame, arms as I, fixed with respect to the arms F, and a trigger frame engaging the arms I, and extending in advance of the guard or fender proper, substantially as specified.

5. In a fender, the combination with a guard or fender proper, and a pivoted frame carrying said guard or fender and having an upwardly extended toothed bar; of a swinging support engaging the said toothed bar so as to hold the frame and guard or fender above the ground, and a spring adapted to normally hold the swinging support in an approximately vertical position, substantially as specified.

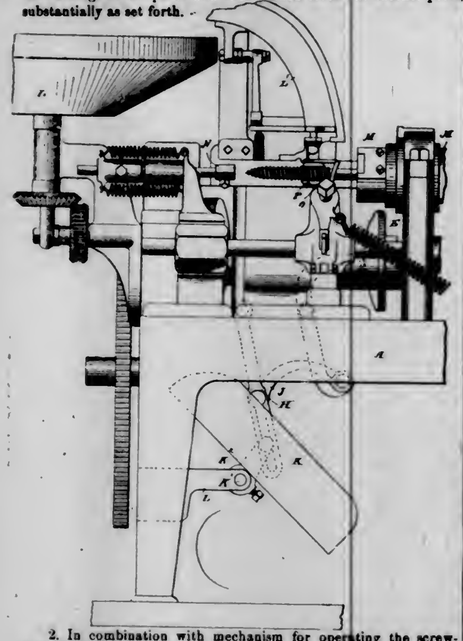
6. In a fender, the combination with a swinging supporting arm, having a slot *u*, and a trigger frame having a hook adapted to take into the slot *u*; of a finger having an enlargement or body at one end pivotally connected to the swinging arm, and a spring engaging the said enlargement or body of the finger and adapted to hold the finger against the swinging arm, so as to prevent a casual disengagement of the trigger frame, substantially as specified.

7. In a fender, the combination with a frame comprising side bars as *f*; of a guard or fender proper having sockets on its rear side adapted to receive the ends of the bars *f*, and pins taking through said sockets and bars *f*, and adapted to connect the same, substantially as specified.

8. In a fender, the combination with a guard or fender proper, a frame carrying said guard or fender and connected to a shaft carried by hangers, toothed bars connected to and extending upwardly from the guard frame, and a bowed spring connected to and adapted to exert a downward pressure upon said frame; of a rock-shaft E, journaled in bearings connected to a car body, the arms F, fixed with respect to said shaft and having hooks to engage the toothed bars of the frame, the arms I, also fixed with respect to the rock shaft, springs backing the said arms F, I, and a trigger frame engaging the arms I, and extending in advance of the guard or fender proper, substantially as and for the purpose set forth.

519,568. DEVICE FOR SEPARATING TURNINGS FROM FINISHED SCREWS IN SCREW-MAKING MACHINES. JASON A. BIDWELL, Cleveland, Ohio. Filed Dec. 29, 1893. Serial No. 495,066. (No model.)

Claim.—1. In combination with mechanism for operating the screwthreading and discharging of screws in a screw making machine, a chute arranged beneath the discharge of the machine and movable to deliver at two separate points, and mechanism connected to the operating mechanism and to said chute to move the same to deliver the turnings at one point and the finished screws at another point, substantially as set forth.



2. In combination with mechanism for operating the screwthreading and discharging of screws in a screw making machine, a chute pivoted beneath the discharge of the machine to oscillate toward two separate points, a cam receiving motion from the operating mechanism, and means connecting said cam and chute whereby the chute is alternately tilted to deliver the turnings at one point and the finished screws at another point, substantially as set forth.

3. In a screw making machine, the combination with a shaft having suitable connection to operate the screwthreading and discharging mechanism, of a chute pivoted beneath the discharge of the machine to swing to discharge at two separate points, a cam receiving intermittent motion from said shaft, and means connecting said cam and chute whereby said chute is tilted into its two positions by said cam, substantially as set forth.

4. In a screw making machine, the combination of a shaft having means for operating the screwthreading mechanism, a quill upon said shaft and carrying means for operating the gripping and discharging mechanism of the machine, a clutch sliding upon and revolving with the shaft and engaging a clutch upon said quill, means actuated by the shaft for intermittently throwing said clutches into engagement, a cam upon the quill, a chute pivoted beneath the discharge of the machine to swing and discharge at two separate points, and mechanism connecting said cam with said chute to alternately tilt the same into its two positions to discharge the turnings at one point and the finished screws at another point, substantially as set forth.

5. In a screw making machine, the combination of a revolving shaft having means for operating the screwthreading mechanism and provided with a radially projecting finger, a quill having means for operating the gripping and discharging mechanism and formed with a clutch at one end, a clutch sliding upon and revolving with the shaft and adapted to engage the clutch upon the quill, a shaft parallel with the operating shaft and provided with a star wheel engaged by the radiating finger and with a cam, a lever connected to shift the clutch and engaging said last mentioned cam, a cam upon the quill, a chute pivoted beneath the discharge of the machine to deliver at two separate points, and mechanism connecting said cam and chute to tilt the latter to alternately discharge the turnings at one point and the finished screws at another point, substantially as set forth.

6. In a screw making machine, the combination of a chute pivoted to rock at its middle and arranged beneath the discharge of the machine, a cam receiving intermittent motion from the operative mechanism of the machine, and a lever bearing against said cam and connected to said chute to rock it to alternately deliver at its opposite ends, substantially as set forth.

7. In a screw making machine, the combination of a chute arranged beneath the discharge of the machine and pivoted upon a transverse rock shaft at its middle, an arm upon said rock shaft and having a stud, an arm pivoted at one end and having a slotted end engaging said stud, a cam receiving intermittent motion from the operative mechanism of the machine, a lever pivoted to have one end bear against said cam, and a link connecting the other arm of said lever and the slotted arm, substantially as set forth.

8. In a screw making machine, the combination of a cam connected to receive intermittent motion from the operative mechanism of the machine, a lever pivoted to have one end bear against said cam, a chute pivoted at its middle to discharge at its opposite ends, an arm pivoted at one end and movably connected to rock said chute, and a curved link between said arm and the lever, substantially as set forth.

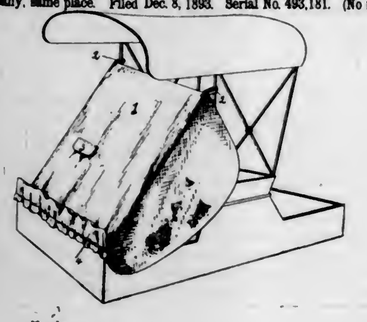
9. In a screw making machine, the combination of a cam connected to receive intermittent motion from the operative mechanism of the machine and formed with a plain annular face having a bulge at one point, a lever pivoted to have the end of its upper arm bearing against the face of the cam, a spring attached to said lever to force said end against the cam, an arm pivoted at its upper end and having a slotted lower end, a link connecting the lower end of the lever and said arm, a rock shaft having an arm provided with a stud engaging the slot of the arm, and a chute secured at its middle upon said shaft, substantially as set forth.

10. In a screw making machine, the combination of a cam connected to receive intermittent motion from the operative mechanism of the machine and provided with knobs upon its cam surface, a lever pivoted to have one end bear against said cam surface and having means for yieldingly holding it against said surface, a chute pivoted to discharge at two separate points, and mechanism connecting the lever and said chute to tilt said chute into its two positions and to vibrate the same, substantially as set forth.

11. In a screw making machine, the combination of a continually revolving shaft having means for operating the screwthreading mechanism and provided with a radiating finger, a quill upon said shaft having means for operating a part of the screwthreading mechanism and formed with a clutch, a quill upon the shaft having means for operating the gripping and discharging mechanism and formed with a clutch, a clutch sliding upon and revolving with the shaft and adapted to alternately engage the clutches upon the quills, a lever engaging said clutch with one end, a shaft journaled parallel with the operating shaft and having a star wheel engaged by the radiating finger upon the latter and having a cam engaging the clutch operating lever, a cam upon the quill operating the gripping and discharging mechanism, a lever having one end bearing against said cam, an arm pivoted at one end and having its other end slotted, a link between the lever and said arm, a rock shaft having an arm provided with a stud engaging the slot in the end of the slotted arm, and a chute secured at its middle upon said rock shaft, substantially as set forth.

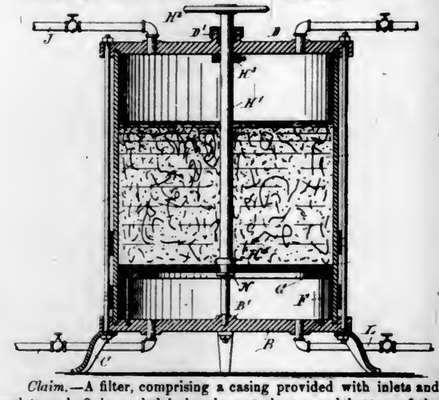
12. In a screw making machine, the combination of an arm pivoted at one end and formed with a longitudinal slot at its other end and receiving intermittent rocking motion, a rock shaft having a chute secured at its middle upon said shaft and formed with an arm, a bushing inserted through said arm, a screw bolt inserted through said bushing and through the slotted arm, a washer between the slotted arm and the rocking arm, and a nut bushing upon the end of the screw bolt and within the slot of the slotted arm, substantially as set forth.

519,564. ELASTIC STORM-APRON FOR VEHICLES. WILLIAM M. BLANCHARD, Quincy, Ill., assignor to the Quincy Storm Apron Company, same place. Filed Dec. 8, 1893. Serial No. 493,181. (No model.)



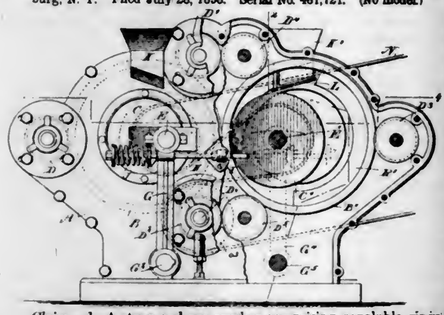
Claim.—A storm apron consisting of water proof material terminating in a hood, said hood being gathered on each side with a wide heading, and secured by elastic strips arranged within the hood to the sides thereof, being adapted to fit dash-boards of varying widths and heights, substantially as and for the purpose described.

519,565. FILTER. FREDERICK BONNARIUS, New Orleans, La. Filed Aug. 25, 1893. Serial No. 484,028. (No model.)



Claim.—A filter, comprising a casing provided with inlets and outlets, a shaft journaled in bearings at the top and bottom of the casing, and provided with a collar and a screw-threaded portion, a screen adapted to removably fit on the shaft, a jam nut adapted to engage the threaded portion of the shaft to press the screen against the collar so as to compel the screen to rotate with the shaft, and a stationary ring held in the casing a suitable distance above the bottom to form a seat on which the marginal portion of the screen is adapted to slide during its rotation, substantially as described.

519,566. STONE AND ORE CRUSHER. CALEB G. COLLINS, Woodsburg, N. Y. Filed July 28, 1893. Serial No. 481,721. (No model.)



Claim.—1. A stone and ore crusher comprising revoluble rings in peripheral contact with each other, crushing rolls in interior frictional contact with the said rings, and at points in alignment with the peripheral contact point of the said rings, rocker arms carrying the shafts for the said crushing rolls and guide rolls carrying the said rings, substantially as shown and described.

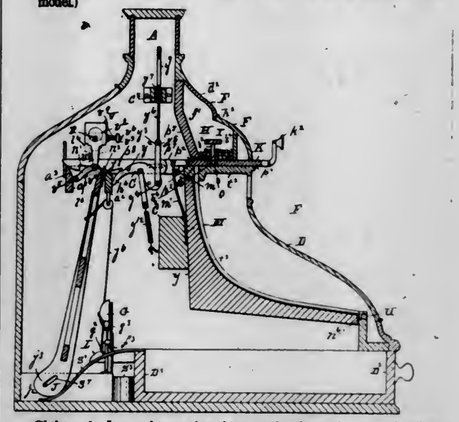
2. A stone and ore crusher comprising revoluble rings in peripheral contact with each other, crushing rolls in interior frictional contact with the said rings, and at points in alignment with the peripheral contact point of the said rings, rocker arms carrying the shafts for the said crushing rolls and springs pressing on the said rocker arms to regulate the frictional contact between the rolls and rings, substantially as shown and described.

3. A stone and ore crusher, comprising two rings in peripheral contact with each other, guide rolls for supporting the said rings, crushing rolls in interior peripheral contact with the said rings, rocker arms carrying the shafts of the said crusher rolls, and springs pressing on the free ends of the said rocker arms to move the said crushing rolls toward each other to regulate the frictional contact with the rings, substantially as shown and described.

4. A stone and ore crusher, comprising two rings in peripheral contact with each other, guide rolls for supporting the said rings, crushing rolls in interior peripheral contact with the said rings, rocker arms carrying the shafts of the said crushing rolls, springs pressing on the free ends of the said rocker arms to move the said crushing rolls toward each other to regulate their frictional contact with the rings, and fixed rods passing loosely through the said rocker arms and carrying the said springs, the said rods being also provided with means for regulating the tension of the said springs, substantially as shown and described

5. A stone and ore crusher, comprising rings in peripheral contact with each other, guide rolls for supporting the said rings, crushing rolls in interior peripheral contact with the said rings, pulleys on the shafts of the said crushing rolls and on the shaft of one of the said guide rollers, and a driving belt passing over the said pulleys in such a manner as to rotate the crushing rolls and move the same toward each other, substantially as shown and described.

519,567. CASH-REGISTER. GEORGE F. COOK, Lansingburg, assignor, by direct and mesne assignments, to the Capital Cash Register Company, Troy, N. Y. Filed June 8, 1893. Serial No. 476,904. (No model.)



Claim.—1. In a sales registering mechanism, the combination with a key-bar provided with slide-ways in which to move horizontally, of a stop-bar pivotally connected to said key-bar, and made with a horizontal slot therein, and having a connected spring against the force of which said stop bar is moved inwardly; a latch-bar having a latching inner end, and connected with said stop-bar by a slide pin arranged in the slot of the latter; a bridge on which said latch-bar may latch, and a tripping lever operated by the cash drawer to trip said latch-bar, substantially in the manner as and for the purposes set forth.

2. In a cash registering mechanism, the combination with a key-bar having slide-ways in which to move horizontally, of a stop-bar pivotally connected to said key-bar, and provided with a horizontal slot, and having a spring against the force of which it is moved inwardly; a latch-bar having a latching inner end, and connected to said stop-bar by means of a slide-pin arranged in the slot of the latter; a bridge on which said latch-bar can latch when moved inwardly; a turn-lever pivoted to said latch-bar and provided with an up-cast arm which is pivoted thereto; a vertically arranged slide-bar pivotally connected to said arm and arranged in a vertical slide-way and provided with a sales indicating card; and a bridge with which said turn-lever will engage when moved inwardly by the latch-bar, substantially in the manner as and for the purposes set forth

3. In a cash registering mechanism, the combination of a series of key-bars, each provided with slide-ways in which to move horizontally; of a stop-bar pivotally connected to each of said key-bars and each made with a horizontal slot and provided with a spring against the force of which they are moved inwardly; a latch-bar provided with a latching inner end, and connected to each of the stop-bars by means of a slide-pin arranged in the slot of the latter; a bridge into which said latch-bars may latch, and a tripping-lever operated by the cash drawer to trip said latch-bars, substantially in the manner as and for the purposes set forth

4. In a cash registering mechanism, the combination with the hopper H, made with the cross-bar i^3, having pendent pins i^3, arranged thereon, of the keys K, arranged in the hopper side by side to rest on the hopper bottom *f*, and each of said keys made with the vertical passage O, substantially in the manner as and for the purposes set forth.

5. In a cash registering mechanism, the combination with the hopper H, made with the cross-bar i^3, having the pendent pins i^3, ar-

ranged thereon; and the keys K arranged side by side on the hopper bottom *f*, each made with the ball passage O; and a pin k^2, upwardly projected from each of said keys, substantially in the manner as and for the purposes set forth.

6. In a cash registering mechanism, the combination with the cash drawer D^2, made with the latch L, and spring S^3, of the lever g^3, pivoted at one of its ends to the frame f^3, and having the pin g^2, at its other end; the lever g^3, pivoted to said lever g^2, and provided with a striker tripping pin g^5; the gong G, provided with the striker g^4; the tripping lever J, provided with the cord j^3, passing over the pulley j^7, and connecting with the pivoted lever g^3, constructed and arranged to be operated, substantially in the manner as and for the purposes set forth.

7. In a cash registering apparatus, the combination with a series of sale-amount-indicating-keys, each connecting pivotally with a stop-bar, that attaches to a latch-bar by means of a slot in the stop-bar, and a slide-pin in the latch-bar, and each stop-bar having a spring against the force of which it is moved inwardly to latch, substantially as described; of a bridge on which the latch-bars are adapted to catch; and a tripping lever having a tripping bar at its top, which when raised trips the latched bars; and a cash drawer provided with an ogee-form spring adapted when the drawer is moved inwardly to under-run said tripping lever, and raise the latter to trip the latch bars, substantially in the manner as and for the purposes set forth.

8. In a cash registering mechanism, the combination with a series of keys, each pivotally connected with a horizontal stop-bar made with a slot, and each of the latter connecting with a latch-bar by means of a slide-pin arranged in said slot, substantially as described; of a bridge on which said latch-bars are adapted to catch; a tripping lever having a rounded lower edge and mounted on slotted bearings on which to rise and oscillate; and a cash drawer made with an ogee-form spring adapted to under-run the rounded end of the tripping lever to raise the same, substantially in the manner as and for the purposes set forth.

9. The combination with the keys K, each made with a slide-way in which to be moved horizontally, and each connected pivotally with a stop-bar, the latter having a horizontal slot for attachment to a latch-bar by means of a slide-pin on the latter; and a bridge on which the latch-bars may catch, substantially as described; of the turn-levers C, of which there is one for each latch-bar that is pivoted to the latter; the arm y^3, at its lower end pivoted to each of said turn-levers; a slide-bar y^4, pivotally connected with the upper end of each of the said arms, and having a card y^5, on its upper end, and arranged to move in the guide-bar y^7; and a spiral spring y^{11}, connected to each of said turn-levers, against the force of which they are operated to turn upwardly, substantially in the manner as and for the purposes set forth.

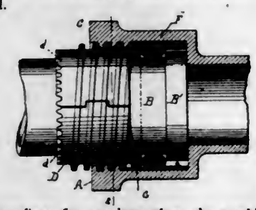
10. In a cash registering mechanism, the combination with a lever which is at one of its ends pivoted to a support, and at its other end is provided with a laterally projected stop-pin and a centrally pivoted bar having a tripping pin, and provided with a spring, and adapted to operate a gong striker when the free end of said lever is raised; a cash drawer having a latch on its inner end adapted to under-run, to latch on to said lever, and raise it when so latching; and a tripping-lever operated by said cash drawer to raise said pivoted lever on its free end when being closed, substantially in the manner as shown and described.

11. In a cash registering mechanism, the combination with a series of keys each connecting with a stop-bar, a latch-bar, and provided with a bridge on which the latter are adapted to latch, substantially as described; of a lock-bar which at its ends is journaled in the side-walls forming part of the apparatus inclosure; an eccentric arranged on, so as to turn with said lock-bar; a lock-block arranged to turn on said eccentric and having a depending leg which at its lower end connects with a link, and the latter with the bridge, whereby said lock-block may be moved down on its eccentric to prevent the tripping of the latch-bars, substantially as shown and described.

12. In a cash registering mechanism, the combination with the keys K, each connected with a lock-bar and latch-bar, with the latter adapted to be moved horizontally to latch on to a bridge; of the lock-bar R, made to journal in the sides of the apparatus inclosure, and provided with a detaining spring-pin v^3, and having an eccentric v^2, keyed thereto; the lock-block V, arranged to turn on said eccentric and made with a depending leg v^5, pivotally connecting at its lower end with the link v^4, and the latter connecting with the latching bridge, substantially in the manner as and for the purposes set forth.

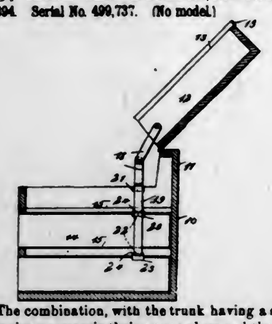
519,568. PIPE-FITTING APPARATUS. JOHN W. COOMEY, New York, N. Y. Filed Feb. 17, 1893. Serial No. 462,694. (No model.)

Claim.—1. In a pipe-coupling, the combination of a section having an interiorly-screw-threaded integral bowl and a section having a beaded spigot end with an elastic gasket fitted on the spigot end behind the bead, a split ring surrounding the spigot end adjacent to the gasket, and an exteriorly-screw-threaded split thimble or nut screwing into the bowl and abutting against the said split ring, substantially as described.



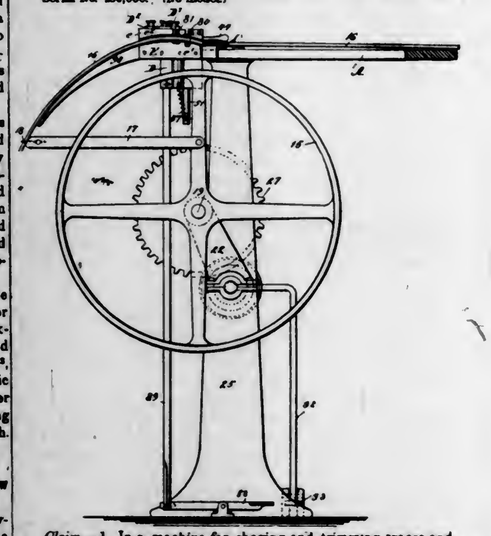
2. In couplings for cast-iron pipes, the combination, with the beaded spigot end B, gasket F, and threaded split thimble or hollow nut D, of the bowl end or section A, formed with mutilated or discontinuous threads on its inner surface for the engagement of the threaded thimble, substantially as described.

519,569. TRUNK. BENJAMIN DICKERSON, New York, N. Y. Filed Feb. 10, 1894. Serial No. 499,737. (No model.)



Claim.—The combination, with the trunk having a swinging lid, the drawers having recesses in their upper edges and the drawer supports having recesses opposite the recesses of the drawers, of the vertically movable locking bar having integral side lugs to enter the aforesaid recesses, and links connecting the locking bar with the trunk lid, substantially as described.

519,570. TRACE CUTTING AND TRIMMING MACHINE. HENRY A. DODGE, Boston, and WILLIAM T. RICHARDS, Newton, Mass., assignors to the Bosworth Machine Company, Milford, Conn. Filed Oct. 31, 1893. Serial No. 489,606. (No model.)



Claim.—1. In a machine for shaving and trimming traces and like articles, a revolving drum or wheel adapted to carry the trace and feed the same to the knives, and means, substantially as shown and described, for holding one end of the trace out of engagement with the periphery of the drum or wheel, as and for the purpose set forth.

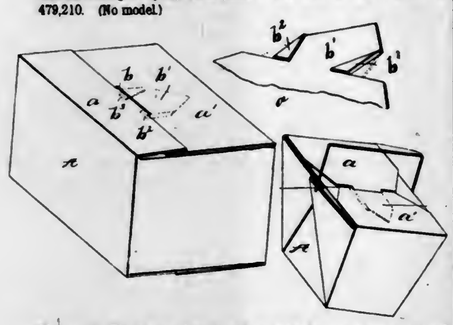
2. In a machine for shaving and trimming traces and like articles, the combination, with guides to receive a trace, and knives adapted to operate automatically upon the trace, of a drum or wheel held to rotate below the guides, said drum or wheel having an arm extending from or through the periphery of said drum, and provided with a suitable fastening device to receive the end of the trace, whereby as the drum is revolved the arm will direct the trace through the guide ways, substantially as and for the purpose specified.

3. The combination, with the rotating arm adapted to pull the trace forward, of longitudinally curved guides adapted to receive the trace, substantially as described.

4. The combination with the rotary arm adapted to pull the trace forward, of a longitudinally curved channel adapted to receive the trace, knives projecting into the channel, and curved segmental guides or horns located in the continuation of the said channel, substantially as described.

5. The combination, with the spring-pressed vertically movable guides, and the carriages having sliding movement on the guides so as to be vertically adjustable thereon, of knife blocks that are vertically adjustable relatively to the said carriages, said blocks being constructed to carry knives, substantially as described.

519,571. FASTENING DEVICE FOR PAPER VESSELS. WASHINGTON FOGLESONG, Dayton, Ohio, assignor to the Baker & Foglesong Manufacturing Company, same place. Filed June 30, 1893. Serial No. 479,210. (No model.)



Claim.—1. The herein described fastening for paper parts, one of said parts being provided with a tongue having between its sides or edges a projection or projections; the other part being provided with a slot of a width to permit the passage of the tongue and its projections there through without engaging the walls of the slot whereby the tongue and its projections can be easily passed through the slot and when the parts are brought into closed position the projections will engage one of the walls of the slot.

2. In a paper box or like article having one thickness of material folded upon another, the herein described securing means for said parts, one part being provided with a tongue having projection on its under side, and the other having a slot of a width to permit of the passage of the tongue and its projections there through without deflecting the walls of the slot, the said tongue in fastening passing over the portion of the material outside of the slot, whereby the projections are made to certainly engage the outer wall of the slot when the parts are brought to the closed position.

3. The herein described fastening for the parts of a paper box or for a like purpose, one of the parts being provided with a slot and the other with a tongue, the said tongue having portions at each side or edge permanently folded over and upon the tongue.

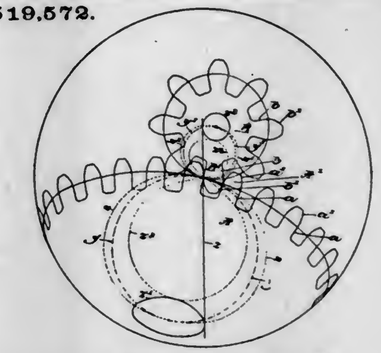
519,572. BEVEL-GEAR. GEORGE B. GRANT, Lexington, Mass. Filed Nov. 27, 1893. Serial No. 492,186. (No model.)

Claim.—1. The herein described bevel gear having teeth the flanks of which are planes and the faces of which are curved surfaces conjugate to the plane flanks of the teeth of a gear with which the said bevel gear is adapted to work, substantially as described.

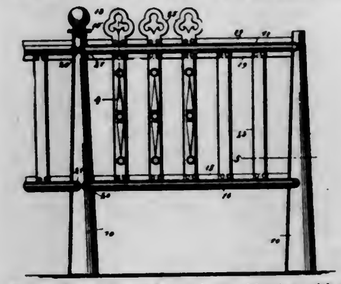
2. The herein described bevel gear, the same having teeth the flanks of which are radial planes and the faces of which are curved surfaces conjugate to the plane flanks of the teeth of a mating gear, substantially as described.

3. The herein described bevel gear, the same having teeth the flanks of which are radial planes and the faces of which are curved surfaces conjugate to the radial plane flanks of the teeth of a mating gear, substantially as described.

519,572.



519,573. METAL FENCE. GEORGE D. HAMILTON, Innisfail, Canada. Filed June 12, 1893. Serial No. 477,300. (No model.)



Claim.—1. In a metal fence, the combination, with the tapered, tubular, metallic posts having key-hole slots, the hollow, metallic rails, 16 and 17, having concave ends whose side portions, or ears, are provided with perforations, and the fastening bolts, 21, inserted through the posts in said slots, as shown and described.

2. In a metal fence, the combination, with the parallel rails, 16 17, having lengthwise flanges on their inner opposite sides, of the flanged pickets, 23, whose ends are bolted to the flanges of said rails, as shown and described.

3. In a metal fence, the combination, with the parallel rails, 16 and 17, having lengthwise flanges on their inner opposite sides, of a fence body secured to said flanges, as shown and described.

4. As an improved article of manufacture, the hollow fence-post, formed of a single metal plate, and tapered from the base upward, also having a projecting side seam formed by the out-turned, parallel and juxtaposed edges of the said plate, as shown and described.

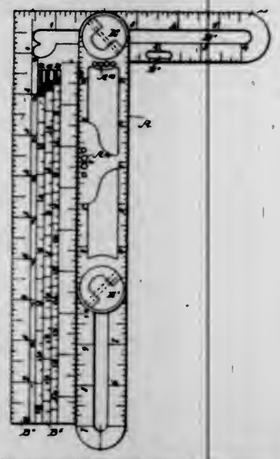
519,574. COMBINATION-TOOL. TOWNSEND HARRIS, Brainerd, Minn. Filed Apr. 24, 1893. Serial No. 471,693. (No model.)

Claim.—1. A combination tool, comprising a stock made of two parts connected with each other, a middle graduation blade arranged between the two parts, a square connected with one end of the said stock on one side of the said middle part, and a bevel blade connected with the other end of the said stock on the opposite side of the said middle blade, substantially as shown and described.

2. A combination tool provided with a stock comprising two casings having wooden linings and one formed with two threaded lugs near the ends, the other casing being formed with sockets engaged by the said lugs, a middle blade held between the two casings and engaging the said lugs and screws screwing in the said lugs and fitted with their heads in the said sockets each head being formed with a pivoted flange adapted to be turned to form a handle for the screw, substantially as shown and described.

3. A combination tool provided with a stock comprising two casings having wooden linings and one formed with two threaded lugs near the ends, the other casing being formed with sockets engaged by the said lugs, a middle blade held between the two casings and engaging the said lugs, screws screwing in the said lugs and fitted with their heads in the said sockets each head being formed with a pivoted flange adapted to be turned to form a handle for the screw, and a spring on the pivoted part of the head and engaging the inner wall of the socket to hold the said movable part in position, substantially as shown and described.

4. A combination tool, comprising a stock made of two parts adapted to be fastened together, a middle blade held between the said two parts and two levels arranged in one of the said parts, substantially as shown and described.



5. A combination tool provided with a stock having levels, each formed at the ends of its glass tube with rubber cushions embedded in cement, substantially as shown and described.

6. A combination tool, comprising a stock made of two parts and having lugs near their ends between the two parts, a square having one slotted member engaging one of the said lugs between the two parts, and a slotted bevel blade engaging the other lug between the parts, substantially as shown and described.

7. A combination tool, comprising a stock made of two parts and lugs between the two parts to form pivots, a square having a slotted member engaging one of the said lugs and provided with a protractor on one of the members, and a bevel blade held on the other lug of the stock and adapted to hold on the said protractor, substantially as shown and described.

8. A combination tool, comprising a middle blade forming part of the stock, a square having a slotted member, and a member formed with a protractor, a bevel blade adapted to indicate on the said protractor, and bolts for uniting the said middle blade to the said square and bevel blade, substantially as shown and described.

9. A combination tool, composed of a square having its shorter member slotted longitudinally and its longer member inscribed as a protractor, the bevel blade, C, having a lengthwise slot, and a stock which connects said square and blade and is pivoted to each by devices that engage and slide in their respective slots, as shown and described, to operate as specified.

10. A combination tool, comprising a stock, slotted bevel blades held adjustable on the ends thereof, a square having a slotted member, a clamp for fastening one member of the square to one of the bevel blades, and a bolt for fastening the other member of the square to the bevel blade, substantially as shown and described.

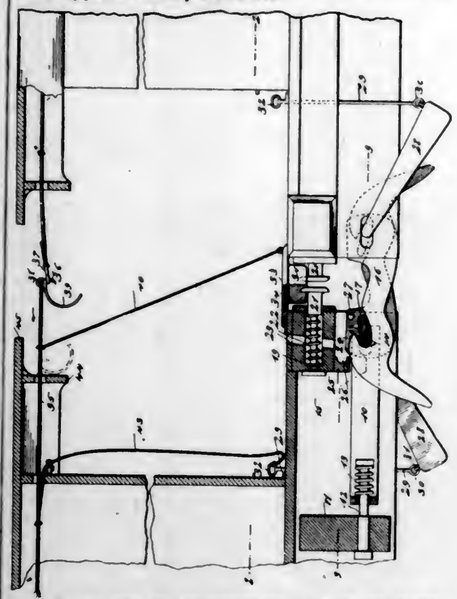
11. A combination tool, comprising a stock, two levels arranged in the said stock, a square held adjustable on one end of the said stock, and a bevel blade held adjustable on the other end of the said stock, substantially as shown and described.

519,575. CAR-COUPLING. ALFRED R. HEATH, Covington, Ind. Filed Jan. 3, 1894. Serial No. 496,097. (No model.)

Claim.—1. In a car coupling, the combination, with a car, of a draw-bar, a rock shaft passing transversely through the said draw-bar and through the draft timbers, the latter having transverse slots, a coupling hook on the shaft, and a cam or presser on the shaft adjacent to such hook, substantially as described.

2. In a car coupling, the combination with the car and its deadwood, of a draw-bar below the deadwood, and a rock shaft passing transversely through the draw-bar and spaced from the deadwood sufficiently to permit entrance therebetween of an ordinary link, the deadwood having a bore or passage extending from the link-receiving space to the top of the platform, for receiving a coupling pin, substantially as described.

3. In a car coupling, the combination with the car and its deadwood, of a drawbar below the deadwood, a rock shaft passing transversely through the draw-bar, a coupling hook on the shaft, the hook being spaced from the deadwood, forming a recess between itself and the deadwood, and a stop block on the deadwood at the rear of the recess, the deadwood having a bore or passage extending from the top of the platform through the deadwood to said recess, for receiving a coupling pin, substantially as described.



4. In a car coupling, the combination with a car and its deadwood, of a rock shaft below the latter, and a coupling hook on the rock shaft, spaced from the draft timbers and deadwood a sufficient distance to permit entrance of a coupling link, and provided with a transversely-disposed pin for supporting such link, substantially as described.

5. In a car coupling, the combination with the car and its deadwood, of a draw-bar below the deadwood, a rock shaft passing transversely through the draw-bar, a coupling hook on the rock shaft, the shaft having also a presser arm or cam adjacent to the coupling hook, for disengaging the coupling hook of an opposing car, the coupling hook and draft timbers forming a recess, and a stop block at the rear of the recess and having a concaved front face, the said hook having a laterally-projecting pin, and the deadwood having an inclined passage or bore for receiving a coupling pin, substantially as described.

6. In a car coupling, the combination with a car, of a rock shaft, a coupling hook thereon, arms on the shaft, an operating rod connected at one end to one of said arms, a guard plate hinged to the car platform, a rope or cord ranging longitudinally of the car, and branch cords connected with said plate and with the said operating rod, substantially as described.

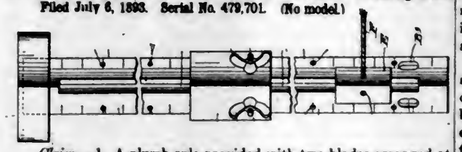
7. The combination with a car, of a rock shaft, a coupling hook thereon, arms also on the shaft for rocking the same, an operating rod connected with one arm, a guard plate hinged to the car platform, a cord or rope extending longitudinally of the car and having branch cords connected respectively to the guard plate and with the said operating rod, and a coupling on the cord for connecting with the cord of an adjacent car, the coupling being movable into contact with the car hook, for disconnecting the cord from that of the adjacent car, substantially as described.

8. In a car coupling, the combination with a pivoted coupling hook, a cord ranging longitudinally through the cars, and a branch cord for operating the coupling hook, of a coupling for the main cord consisting of a hook having a curved shank and an eye at the back of the shank, to which eye one part of the cord is attached, and a second eye to which the other part of the cord is attached, substantially as described.

9. The combination with a car, of a guard plate hinged to the platform of the car, and adapted to bridge the space between two coupled cars, a rope or cord ranging longitudinally of the car, and a branch rope leading from the main rope and connected with the guard, substantially as described.

10. The combination with a car, of a guard plate hinged to the car platform near the front edge thereof, and formed with depending lugs disposed in direction of the length of the car, substantially as described.

519,576. PLUMB-RULE. FRANK HOLT, South Pittsburg, Tenn. Filed July 6, 1893. Serial No. 479,701. (No model.)



Claim.—1. A plumb rule provided with two blades arranged at right angles to each other and with their edges parallel to one another, the said blades being connected at their ends and spaced intermediately thereof, so as to form a slot between the blades, substantially as described.

2. A plumb rule comprising two blades arranged at right angles to each other and with their edges parallel to one another, and an angular double spirit level adapted to be secured to the upper ends of the blades, substantially as described.

3. A plumb rule comprising a rule having two graduated blades arranged at right angles to each other, and a base plate formed with right angular flanges adapted to engage the blades of the said rule to support the same in proper position, substantially as shown and described.

4. A plumb rule comprising a rule having two graduated blades arranged at right angles to each other, and a slide fitted on the said blades at their outer faces and adapted to carry a rope or cord, substantially as shown and described.

5. A graduated rule made of two parts, each having two blades arranged at right angles to each other and with their edges parallel to one another, and means, substantially as described, for fastening the said two parts together, either in an extended or right angular position, as and for the purpose set forth.

6. A plumb rule provided with a rule made in two parts, each having two graduated blades arranged at right angles to each other, and means, substantially as described, for fastening the said two parts together, either in an extended or right angular position, substantially as shown and described.

519,577. RAILROAD-FROG. DAVID HORRIE, Kaukauna, Wis. Filed Sept 9, 1893. Serial No. 484,610. (No model.)



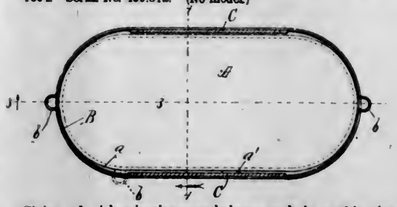
Claim.—1. The combination with converged track rails, of swinging rails bent near one end to approach each other, spring-pressed at said ends and fast at their other ends, and a frog point between the secured ends of the swinging rails, substantially as described.

2. The combination with rail supports, and converged track rails, of swinging rails secured at one end of each on a rail support and bent near one end to approach each other, and having a yielding connection at their free-ends, and a frog point intermediate of the swinging rails and having its apex near their bent portions, substantially as described.

3. The combination with cross ties, converged track rails thereon, and swinging rails secured by one end of each on a tie and having their other ends located near the converged ends of the track rails and bent near one end to approach each other intermediately of their ends, of a transverse bolt passing through the swinging rails near their free ends, springs secured on the ends of said bolt, a wedge-shaped filling block between the converged ends of the track rails, and a frog point intermediate of the swinging rails and having its apex near their bent portions, substantially as described.

4. The combination with supported converged track rails, and swinging rails bent near one end to approach each other near one end, and arranged to align their shorter portions with the track rails, of a wedge-shaped filling block secured between the track rails and the adjacent ends of the swinging rails, and having diverged limbs lying along the inner sides of the swinging rails, and an intermediate frog point the apex of which is introduced between the bent parts of the swinging rails, substantially as described.

519,578. BOX. SETH E. HURLBUT, Chicago, Ill. Filed Feb. 8, 1894. Serial No. 499,512. (No model.)



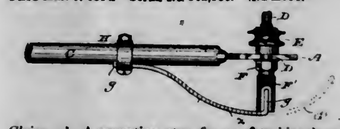
Claim.—1. A box having rounded open ends, in combination with a flexible, sliding cover piece, formed of spring material adapted to close each end, ways for the cover piece, and stop shoulders to receive the ends of the cover piece when in position to close the box opening, substantially as described.

2. In a box having flat sides and rounded open ends and whose edges are perpendicular to its sides, the combination with the side pieces, A, having grooves or ways, *a*, *a'*, in their inner faces near their edges, rigid edge walls, C, and flexible cover pieces formed of spring material adapted to run in the ways, *a*, *a'*, and close the open ends of the box, the ends of the cover pieces abutting against the ends of the edge walls when the box is closed, and tending to spring outwardly, substantially as described and for the purpose specified.

3. In a box having openings in its edges, the combination with side pieces, ways in said pieces extending across the openings and being prolonged beyond such openings, of rigid edge walls for uniting the side pieces, stop shoulders at each side of the openings, flexible slides of spring material tending to assume a straight position, adjusted to said ways for closing the openings, said slides being adapted to have their ends abut against the stop shoulders when the box is closed, substantially as described and for the purpose specified.

4. In a box having openings in its edges, the combination with side pieces, ways in said pieces extending across the openings and being prolonged beyond such openings, of rigid edge walls for uniting the side pieces, flexible slides of spring material tending to assume a straight position, adjusted to said ways for closing the openings, substantially as described and for the purpose specified.

519,579. STEP FOR BICYCLES. EDGAR A. JONES, Sturgis, Mich. Filed Mar. 9, 1894. Serial No. 502,986. (No model.)



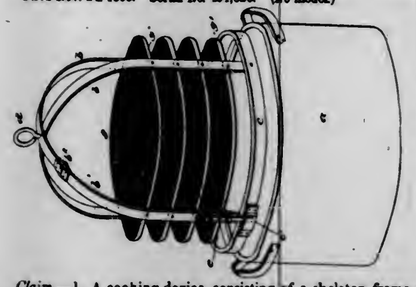
Claim.—1. A mounting step for a safety bicycle secured at its forward end to the frame bar of the machine and extending thence curving rearwardly and outwardly to the plane of the rear axle, its rear end being supported in said plane, substantially as hereinbefore set forth.

2. A mounting step for a safety bicycle clamped at one end to the frame bar of a machine and extending thence curving rearwardly and outwardly to the plane of the rear axle where its rear end is supported by a nut screwed upon the axle of the rear wheel, substantially as hereinbefore set forth.

3. The combination of the bicycle frame, the axle for the rear wheel secured therein, the hollow cylindrical mounting step mounted upon the end of said axle, the supplementary step and deflector guard with its sharply bent end *g*, fitting into said hollow step, the guard extending thence forward and inward to a point where it contacts with and is rigidly secured to a frame bar of the bicycle, substantially as hereinbefore set forth.

4. A mounting step for a bicycle consisting of a metal bar secured at its front end to the frame bar and extending thence outwardly and rearwardly, its rear end being re-bent toward the frame of the machine from which it is supported, substantially as hereinbefore set forth.

519,580. COOKING DEVICE. GEORGE KELSEY, Little Falls, N. Y. Filed Nov. 24, 1893. Serial No. 491,320. (No model.)



Claim.—1. A cooking device consisting of a skeleton frame or carrier provided with a number of foraminous or reticulated shelves or trays to receive the edibles and support them while being submerged in a hot cooking fluid, the shelves or trays and their contents being held against displacement while in the cooking vessel, and the frame having a movable member to permit the insertion and removal of the shelves or trays and to lock them in the frame, substantially as described.

2. A cooking device comprising a skeleton carrier or frame having a swinging upright to open and close it, removable shelves or trays adapted to be inclosed in said carrier or frame and supports in said carrier for said shelves or trays, substantially as described.

3. A cooking device comprising a skeleton carrier or frame having a swinging upright to open and close it, means to lock said upright in closed position, and removable shelves or trays adapted to be inclosed and supported in said carrier or frame, whereby a carrier full of cakes may be placed in a vessel of hot fat and the cakes cooked while wholly submerged, and held submerged, in such fat, substantially as described.

4. A cooking device consisting of a base, uprights secured to such base and to one another, a swinging upright, means to lock the latter in closed position, trays or shelves, and brackets on the uprights to support such trays or shelves within the frame, substantially as described.

5. A cooking device consisting of a base, uprights secured to such base and to one another, a swinging upright, means to lock the latter in closed position, trays or shelves each composed of an open-work material such as wire netting, and supports on the uprights to support such trays or shelves within the frame, substantially as described.

6. The herein described cooking device comprising an annular base, uprights secured thereto having inwardly extending brackets for holding the shelves, one of such uprights being hinged, and means for locking such hinged upright to the base, and the shelves, as set forth.

519,581. ALARM-BELL. ALBERT H. LANGDON, Elgin, Ill. Filed Dec. 1, 1892. Serial No. 453,750. (No model.)

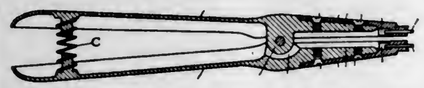


Claim.—1. In an alarm bell the combination with the gong and base plate to which it is attached, of a rock shaft provided on opposite sides with hammers arranged to strike alternately against the inner side of the gong, a crank connected with said rock shaft and arranged to vibrate said hammers, and a push rod passing through an aperture in said base plate and connected by speed multiplying mechanism with said crank, the hammers and their actuating mechanism being inclosed between the gong and base plate which constitutes a housing therefor, substantially as and for the purposes set forth.

2. In an alarm bell, the combination with the gong, of a hammer connected by an arm with a rock-shaft, a crank connected by an arm projecting from said rock shaft, a segment gear connected with and arranged to rotate said crank, a rock shaft transverse to the shaft of said segment gear and provided with two arms projecting therefrom at approximately right angles to each other, one of said arms being connected with an arm of said segment gear, and a push rod connected with the other arm of said rock shaft, substantially as and for the purposes set forth.

3. In an alarm bell, the combination with the gong, of hammers connected with opposite sides of a rock shaft, a crank connected with an arm projecting from said rock shaft, a segment gear connected by a multiplying train of gears with said crank, a rock shaft transverse to the shaft of the segment gear, provided with two arms projecting therefrom at an angle to each other, one arm being connected with an arm of said segment gear, a push rod connected with the other arm, and a spring acting upon and tending to restore said segment gear to its normal position, substantially as and for the purposes set forth.

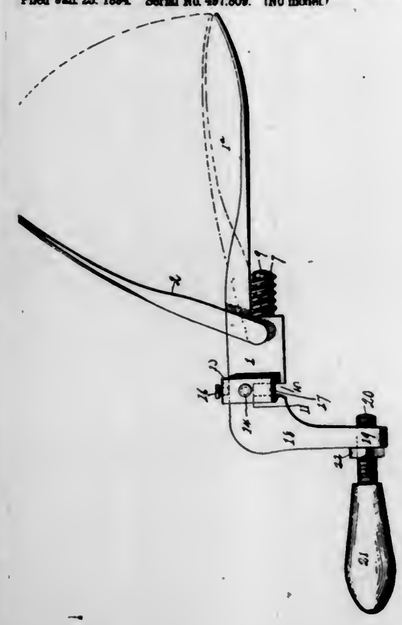
519,582. BUTTON-HOLDER. WILLIAM LERCH, Albany, N. Y. Filed Aug. 2, 1893. Serial No. 482,215. (No model.)



Claim.—1. A buttonholder consisting of two similar sections hinged together, and provided with clamping pins extending outward from the faces of the forward ends of the sections and in line with said sections, and a spring so arranged as to press the forward ends of the sections together, substantially as shown and described.

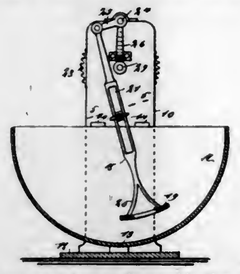
2. A button holder, consisting of two similar sections hinged together, and provided with concaved faces on the forward ends of said sections, and with clamping pins extending outward from said concaved faces, in line with said sections; and a spring so arranged as to press the forward ends of the sections together, substantially as shown and described.

519,583. SAW-SET. WILLIAM H. MILLER, Spring Creek, Va. Filed Jan. 23, 1894. Serial No. 497,809. (No model.)



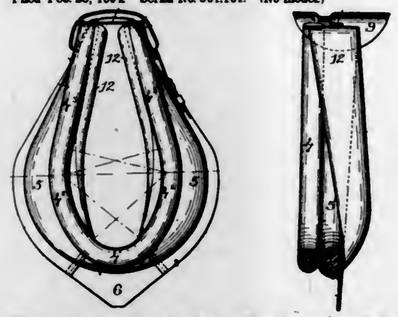
Claim.—In a saw set, the combination with the body portion provided with an extending arm and a slot to receive the saw teeth, of the yoke above said slot, the arm carrying a pivotal shaft with a V-shaped recess forming a shoulder, the spring pressed plunger actuated by said pivotal shaft, a right angular lug extending from the body portion and provided with a threaded aperture, and a screw threaded handle adapted to enter the aperture of the lug and extend outwardly at right angles thereto, substantially as and for the purpose specified.

519,584. MIXER OR BEATER. AROBINE C. MITCHELL, Ennis, Mont. Filed Aug. 4, 1893. Serial No. 482,390. (No model.)



Claim.—In a mixer or beater, the combination, with a frame comprising connected standards, a basin removably located within the frame, lugs projecting from the standards of the frame to an engagement with the basin, and a set screw carried by the standard and engaging with the basin, of a shaft capable of being shifted, journaled in the standards over the basin, said shaft being provided with a squared portion near its center, a beater located within the basin, a piston slotted to receive the squared portion of the shaft, said shaft serving as a pivot for the piston, the lower end of the piston being attached to the beater, a drive shaft, a removable connection between the piston and drive shaft, one end of the drive shaft being fitted to receive a crank, a pinion secured upon the drive shaft, a gear engaging with the pinion, and a removable crank by means of which the gear is operated, substantially as shown and described.

519,585. HORSE-COLLAR. JAMES MULLEN, Providence, R. I. Filed Feb. 23, 1894. Serial No. 501,101. (No model.)



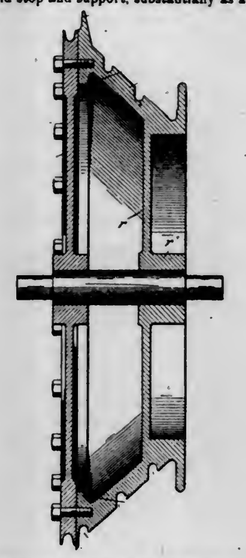
Claim.—A horse collar having the roll or fore-wale at the lower part of the collar curved on a section of a circle of small radius terminating in curves of larger radius and extending to the ends in straight tangential lines, in which the after-wale is widest on a line with the widest opening between the roll, the open top provided with a strap and buckle and covered by a hood, and a pad secured to the under sides of the after-wale and extending upward to the inner side of the collar, as described

---

519,586. CABLE-REPLACER. JOHN Z. MURPHY, Chicago, Ill., assignor of one-half to Frank W. Hudson, same place. Filed Dec. 23, 1893. Serial No. 494,522. (No model.)

Claim.—1. The combination with a traveling cable and rotary support therefor, of a rotary conical replacer at the side of said support, out of the normal path of the said cable and provided with a circumferential spirally extending engaging, raising and replacing guide for said cable, substantially as and for the purpose set forth.

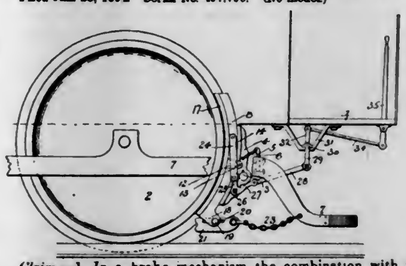
2. The combination with a rotary cable-support, of a rotary cable-replacer at the side thereof, comprising a lateral conical extension of the support, out of the normal path of the cable, provided with a circumferential stop, and a cable engaging, raising and replacing guide between the said stop and support, substantially as and for the purpose set forth.



3. The combination with a traveling cable and rotary supporting sheave therefor, of a rotary replacer for said cable at the side of said sheave, comprising a cone-frustum-shaped extension of the sheave provided with a circumferential cable-engaging worm, substantially as and for the purpose set forth.

4. The combination with a rotary cable-supporting sheave, of a rotary cable replacer at the side thereof, comprising a hollow cone-frustum provided with a circumferential stop, a spiral cable engaging groove between the stop and sheave, and a guide projection *g'* at the end of the groove adjacent to the sheave, substantially as and for the purpose set forth.

519,587. CAR-BRAKE. FRANK P. MUSSER, Beaver Falls, Pa. Filed Jan. 23, 1894. Serial No. 497,796. (No model.)



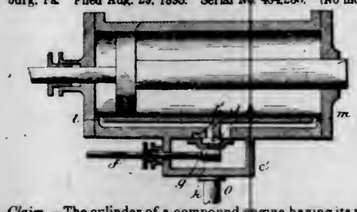
Claim.—1. In a brake mechanism, the combination with the brake bar, the clog or segment, of the vertically movable shoe having a pivoted block at the lower end, and means substantially as described for elevating and lowering said shoe.

2. In a brake mechanism, the combination with the brake bar the clog and the vertically movable shoe having a pivoted friction block at its lower end, of the levers pivoted to said shoe, the cranks to which said levers are also pivoted, secured to a short transverse shaft, the arm secured to said shaft and the operating lever and connections; substantially as described.

3. In a brake mechanism, the combination with the brake bar, the clog, having a pivoted bail connected with the side iron of a car, and formed with a recess on its concave side and with side flanges, of the vertically movable shoe having a recess and projections on its convex side, and the pivoted shoe or block at the lower end of said shoe and the lugs provided with set screws working over the side flanges of said clog, of the levers pivoted to said shoe, the cranks connected therewith and secured to a transverse shaft, the arms also secured to said shaft and the operating lever and connections; substantially as described.

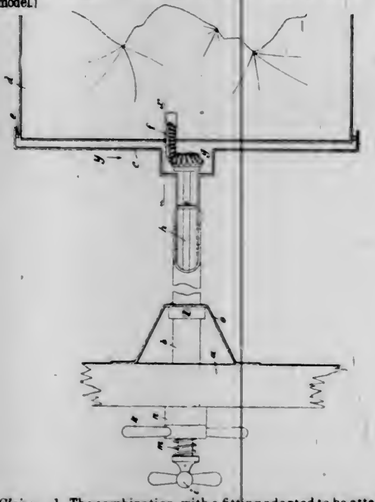
4. In a brake mechanism, the combination with the brake bar the clog secured thereto, the vertically movable shoe loosely connected therewith, and means substantially as described for operating the same, of the block having a slot therein, the pin passing through said slot for pivotally connecting the same with the shoe and the chain connecting said block with the car; substantially as and for the purpose specified

519,588. STEAM-ENGINE. HARRY M. MCCALL, Latrobe, assignor of eleven-twelfths to Richard G. Kennedy and Benjamin D. Reed, Pittsburg, Pa. Filed Aug. 29, 1893. Serial No. 484,280. (No model.)



Claim.—The cylinder of a compound engine having its valve seat provided at the live steam end with a high pressure port larger in area than the low pressure port, in combination with a slide valve arranged to partially extend over said large port when taking live steam and to close the port to live steam while the steam is passing through it from the high pressure to the low pressure end of the cylinder, substantially as described.

519,589. ADJUSTABLE REFLECTOR. PETER W. A. PAASCH, Hamburg, Germany. Filed Nov. 29, 1893. Serial No. 492,347. (No model.)



Claim.—1. The combination, with a fitting adapted to be attached to a window-frame, of a rotatable tube mounted therein a frame carried by the tube, a mirror pivoted in said frame and adapted to be turned in one direction by said tube, and means extending through said tube for turning the mirror in another direction on its pivot, substantially as set forth.

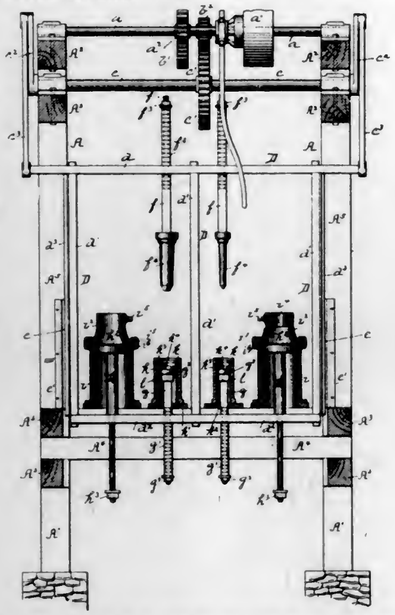
2. The combination, with a fitting adapted to be attached to a window-frame, of a rotatable tube mounted therein, a key for locking said tube against rotation, a frame carried by the tube, a mirror pivoted in said frame and adapted to be turned in one direction by said tube, a spindle located in said tube, and suitable gearing connecting the spindle and mirror for turning the latter in another direction on its pivot, substantially as set forth.

3. The combination, with a fitting adapted to be attached to a window-frame, of a rotatable tube mounted therein, a frame carried by the tube, a mirror pivoted in said frame and adapted to be turned in one direction by said tube a spindle located in said tube and provided with a bevel-gear wheel at one end, and a bevel-gear on the mirror intermeshing with said wheel, whereby the mirror may be turned on its pivot in another direction, substantially as set forth.

4. The combination, with a fitting provided with a series of holes and adapted to be attached to a window-frame, of a rotatable tube mounted therein, and having an irregular or square portion, a frame carried by the tube, a mirror pivoted in said frame and adapted to be turned in one direction by said tube, a movable key on said irregular portion of the tube, provided with a pin adapted to enter said holes and lock the tube against rotation, and means for turning the mirror in another direction on its pivot, substantially as set forth.

5. The combination, with a fitting provided with a series of holes and adapted to be attached to a window-frame, of a rotatable tube mounted therein, a frame carried by the tube, a mirror pivoted in said frame and adapted to be turned in one direction by said tube, a nonrotary sliding key on the tube provided with a pin adapted to enter said holes and lock the tube against rotation, a spindle located in the tube and provided with a handle at one end, and gearing connecting the other end of the spindle with said mirror, whereby the latter may be turned in another direction on its pivot, substantially as set forth.

519,590. BRICK-MACHINE. EDWIN G. RANKIN, Monongahela City, and JOHN TEMPEST, Courtney, Pa. Filed Sept. 15, 1893. Serial No. 485,541. (No model.)



Claim.—1. In a brick machine, the combination with a suitable frame, of a reservoir, a mold, and a reciprocating piston and plunger constructed to operate within said reservoir and mold, respectively, substantially as and for the purposes set forth.

2. In a brick machine, the combination of a reservoir, a mold, and a reciprocating frame carrying a piston and a plunger at opposite ends thereof constructed to operate within said reservoir and mold, respectively, substantially as and for the purposes set forth.

3. In a brick machine, the combination of a reservoir, and a piston therein, said piston having an indented face, substantially as and for the purposes set forth.

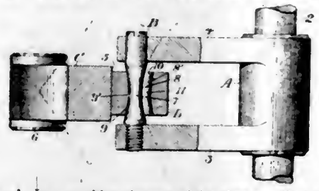
4. In a brick machine, the combination of a mold, a reciprocating frame carrying a plunger and a pushing block at its opposite ends, a plate supporting said mold, said plate having an opening formed therein, and a removable bottom ring in said mold constructed to be elevated by said pushing block, substantially as and for the purposes set forth.

5. In a brick machine, the combination of a reservoir, a mold, a reciprocating frame, a rod supported at the upper end of said frame, said rod carrying a plunger constructed to enter said mold, a piston in said reservoir, a piston rod attached thereto, said piston rod having a shoulder in the path of the lower end of said reciprocating frame substantially as and for the purposes set forth.

6. In a brick machine, the combination of a mold, a reciprocating frame, a plunger rod passing through an opening in said frame, said plunger rod having a shoulder formed thereon, a series of washers surrounding said rod above said shoulder and a nut engaging the upper end thereof, substantially as and for the purposes set forth.

7. In a brick machine, the combination with the frame A, of the reciprocating frame D, the vertical guide beams A^4, the metal plates e' and the guides e, substantially as and for the purposes set forth.

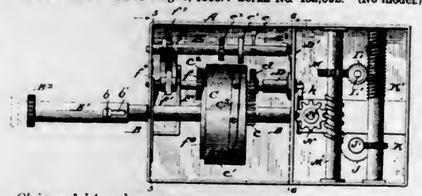
519,591. ANTIFRICTION-ROLLER. FRANCIS H. RICHARDS, Hartford, Conn. Filed Sept. 12, 1893. Serial No. 485,318. (No model.)



Claim.—1. In a machine-element of the class specified, the combination of a roller-bearing bounded by oppositely disposed curved lines, substantially as described, and of reduced diameter in the middle portion thereof, and a roller mounted on said bearing and having its bore shaped on corresponding curved lines and of reduced diameter in the middle portion of its length, but of greater diameter than the said bearing, whereby the roller is self-adjusting on the bearing to the driven-element of the device, substantially as described and for the purpose specified.

2. In a machine-element of the class specified, the combination of a roller-bearing of reduced diameter in the middle portion thereof and increasing in diameter from said middle portion toward the ends of the bearing on diverging lines, and a roller mounted on said bearing and having its bore shaped on corresponding diverging lines and of reduced diameter in the middle portion of its length, and having a free space, when the roller is in use, between one side of the bearing and the inner surface of the roller, the smallest diameter of said bore being equal to or larger than the diameter of one of the enlarged ends of said bearing, whereby the parts may be assembled, and whereby the roller is made self-clearing, substantially as described

519,592. ADJUSTABLE ODOMETER. THEODOR SCHROEDER, New Prague, Minn. Filed Aug. 1, 1893. Serial No. 482,092. (No model.)



Claim.—1. An odometer attachment to vehicles having an analytical transferring gear for taking off the revolutions of the vehicle wheels in its circumferential subdivisions of feet, inches, &c., and assembling and recording these variable units of measurement in a cumulative way into units of a single denomination substantially as shown and described.

2. The combination of an odometer attachment to vehicles having main shaft B, the slotted and adjustable sleeve B' with set screw and gear wheel B^3, and the segmental toothed plate B^5 adapted to be secured to the hub of the vehicle wheel substantially as shown and described.

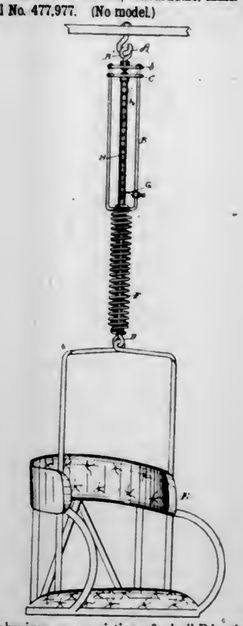
3. An odometer attachment for vehicles having a main shaft arranged to be geared to the hub of the vehicle wheel, a set of recording dials and index hands, and a transferring gear having one set of teeth to transfer the feet in the circumference of the wheel, another set to transfer the inches, and another set to transfer the fractions of inches, substantially as shown and described.

4. In an odometer attachment to vehicle wheels an analytical transferring gear having different sets of teeth for transferring the different units of measurements in the circumference of the wheel the said teeth being made adjustable to bring a greater or less number of them into operation according to the size of the wheel substantially as shown and described.

5. In an odometer attachment to vehicle wheels, an analytical transferring gear having different sets of teeth for transferring the different units of measurements in the circumference of the wheel, gears for receiving these different units of measurements and cams for throwing these gears out of position so that only one can be operated at a time substantially as shown and described.

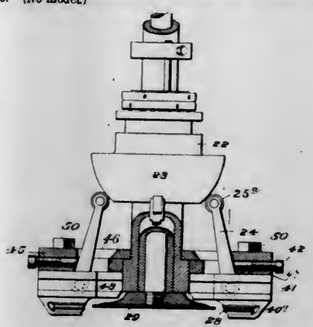
6. The shaft B with drum C having the three sets of adjustable teeth c c' c^2 and cams c^3 f^3, the shaft D with gear wheel d, the longitudinally adjustable counter shaft E having arm e, disk e' gear wheel e^2 and large gear f^3, longitudinally adjustable shaft F having gear f and tappet arm f'', and the registering devices all combined substantially as shown and described.

519,593. BABY-JUMPER. JOHN A. W. SEABERG, Malden, assignor of one-half to Charles W. Carter, Auburndale, Mass. Filed June 17, 1893. Serial No. 477,977. (No model.)



Claim.—A baby-jumper, consisting of a bail B having a cross-bar b at its upper end, a cross-bar C movable along the length of the bail, a rod D rigidly secured at its upper end to said movable cross-bar and extending downward through the lower end portion of the bail, a chair or crib E suspended from the lower extremity of the rod, and a spring F having its upper end secured to the lower end of the bail and its lower end secured to the lower end portion of said rod in juxtaposition to its point of attachment to the chair or crib, substantially as shown and described.

519,594. MECHANISM FOR SEAMING SHEET-METAL CANS. JOHN A. STEWARD, Clarendon, Vt. Filed Aug. 8, 1892. Serial No. 442,500. (No model.)



Claim.—1. The combination, with a rigid support for the can, of a vertically-movable but otherwise rigid seaming-head, interchangeable upon a supporting spindle, a series of seaming-dies journaled in radially adjustable supports, a series of die-levers, means for varying the throw of said levers to correspond to variations in the diameter of the interchangeable head, and a conical frustum revolving with and vertically adjustable between the free ends of said levers, substantially as specified.

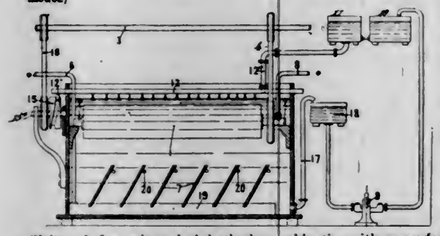
2. The combination, with a rigid seaming-head of a series of roller-dies mounted in supports which are radially movable toward and from the periphery of the seaming-head, a series of die-levers pivotally connected to said supports, a conical frustum vertically adjustable within the free ends of said levers, a fulcrum-disk having a series of concentric slots provided upon their outer margins with shoulders located at different radial distances from the center, through which slots the levers pass, and provided with slots limiting the rotary adjustment of the fulcrum-disk, and means for operating the conical frustum and revolving the support for the seaming-dies, substantially as specified.

3. The combination, with a rigid or non-revoluble support for the can, of a non-revoluble seaming-head, a series of seaming-dies, a revoluble support, a series of die-levers adjustably fulcrumed in said support, a conical frustum operating said levers, a cam-shaft driven from the power-shaft, and cams simultaneously operated by said cam-shaft to raise the can-support and depress the conical frustum, substantially as specified.

4. In a mechanism for seaming sheet metal cans, the combination of a seaming head arranged to be held stationary in use with a series of seaming dies borne on adjusting levers provided with adjustable fulcrums, and wedge mechanism to move them when in use.

5. The combination of the seaming head 29, arranged to be held stationary in use with a series of seaming dies 28, borne on adjusting levers 24, provided with alternative bearings, 49, adapted to act as fulcrums for adjustment to cans of different sizes, and wedge mechanism formed of the conical frustum 23 having vertical motion to move the levers and dies in use.

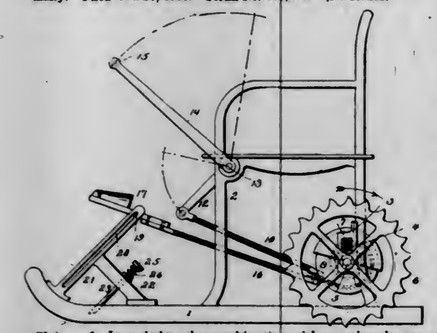
519,595. ELECTRODEPOSITION OF METALS. HERMANN THOFEHRN, Paris, France. Filed June 20, 1893. Serial No. 478,248. (No model.)



Claim.—1. In an electrolytic bath, the combination with an anode and cathode, of a reciprocating spraying-pipe whereby the electrolyte is showered upon said cathode, substantially as described.

2. In an electrolytic bath, the combination with an anode and cathode, of a reciprocating spraying-pipe whereby the electrolyte is showered upon said cathode, and means for preserving the level of the fluid in said bath above the point of submergence of the cathode, substantially as described.

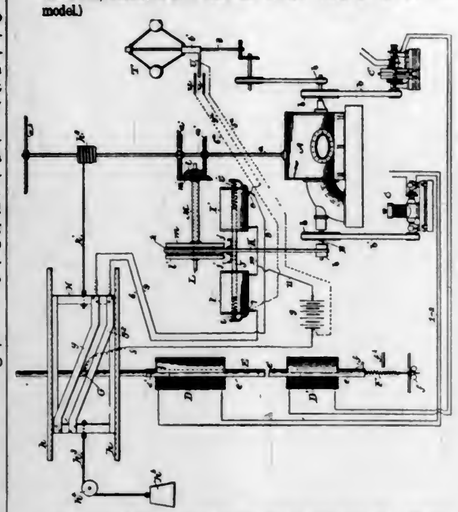
519,596. SLED-PROPELLER. OTTO H. C. VOIGT, Lubeck, Germany. Filed Oct. 26, 1893. Serial No. 489,243. (No model.)



Claim.—1. In a sledge, the combination with a spring-depressed axle, or shaft, having propelling wheels, of drums mounted on said axle, springs coiled on said drums and attached thereto at one end, and a rock-shaft having lever-arms to which the other ends of said springs are connected, said shaft being also provided with hand-levers, substantially as described.

2. In a sledge, the combination with a spring-depressed axle, or shaft, having propelling wheels on its ends, of drums mounted on said shaft, spiral springs coiled on said drums and made fast thereto at their inner ends, a rock-shaft provided with hand-levers and having lever-arms to which the outer ends of said springs are connected, and rigidly connected foot-brackets having studs lying in downwardly and forwardly inclined slots in brackets which are mounted on the forward ends of the runners, said springs having a connection to said foot-brackets, substantially as described.

519,597. ELECTRICAL WATER-WHEEL GOVERNOR. EARL P. WETMORE, Helena, Mont. Filed Jan. 16, 1894. Serial No. 497,083. (No model.)



Claim.—1. In an electrical water wheel governor, the combination with the water wheel, the water wheel valve rod or shaft, and the dynamo driven by the water wheel; of electrically controlled gear devices connected with the valve rod or shaft, an automatically moving contact frame controlled by the movements of the valve rod or shaft and carrying spaced contact plates in circuit with said gear devices, a solenoid included in the dynamo circuit, a core, plunger, or armature controlled by the solenoid and having a contact arranged to move between said contact plates, and an external source of electrical energy included in a circuit with said contact and said electrically controlled gear devices, substantially as set forth.

2. The combination with a prime mover, its valve or regulating mechanism and the dynamos driven by the prime mover; of electrically controlled gear devices connected with the valve or regulating mechanism and in circuit with an external source of electrical energy, an automatically moving contact frame carrying spaced contact plates in circuit with said gear devices, solenoids circuited with the dynamos, a core, plunger or armature controlled by said solenoids and provided with a contact point or roller playing between the contact plates and also connected with said external source of electrical energy, substantially as set forth.

3. In an electrical water wheel governor, the combination with the water wheel valve rod or shaft; of electric motor device geared to said shaft to turn the same in either direction and included in a circuit with an external source of electrical energy, an automatically turning frame or cylinder carrying spaced contact plates arranged at an angle and separately connected by wires with said motor devices, and an automatically controlled contact point or roller playing between said contact plates and electrically connected with a convenient external source of electrical energy, substantially as set forth.

4. In an apparatus of the class described, the combination with the electrically controlled gearing devices, a similarly controlled moving contact included in the circuit of said devices, and an external source of electrical energy; of a prime mover valve shaft or rod geared to said gear devices, a drum or cylinder mounted on said shaft or rod and turning therewith, and parallel contact plates secured spirally on said drum and adapted to have said moving contact play therebetween, substantially as set forth.

5. In an electrical water wheel governor, the combination with the water wheel, its valve mechanism and the dynamo driven by the water wheel; of electrically controlled gear devices connected with the valve mechanism, spaced contact plates suitably arranged and controlled by the movement of the valve mechanism shaft, a solenoid included in the dynamo circuit, a core, plunger, or armature, controlled by said solenoid and having a contact moving between said contact plates, and an external source of electrical energy included in a circuit with said contact and the valve controlling devices, substantially as set forth.

6. In an electrical water wheel governor, the combination with the water wheel, its valve or gate mechanism, electric motor devices geared with said valve or gate mechanism, automatic circuit devices having a moving contact, and controlled by the dynamos driven by the wheels; of suitably arranged solenoids circuited separately with a dynamo and energized and de-energized according to the fluctuations in current strength generated thereby, and a sectional core plunger, having magnetic metallic portions moving in each of the solenoids and connected to and controlling the moving contact of the circuit closing device, substantially as set forth.

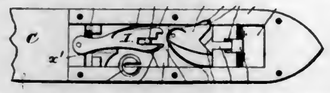
7. In an electrical water wheel governor, the combination with the water wheel, its valve or gate mechanism and the dynamos driven thereby; of electric motor devices geared with said valve or gate mechanism and included in the circuit of the external source of electrical energy, a drum or cylindrical frame mounted on the shaft of the valve mechanism, parallel contact plates mounted on said drum or frame and separately connected to reverse operating portions of said electric motor devices, electrically aligned solenoids circuited separately with the dynamos driven by the water wheel, and a core plunger moving in said aligned solenoids and having a contact playing between said contact plates and electrically connected with the external source of electrical energy, substantially as set forth.

8. In an electrical water wheel governor, the combination with the water wheel valve rod or shaft having reversely disposed gear wheels, separate shafts having gear-wheels meshing respectively with different ones of the gears on the valve rod or shaft, electro-magnetic clutches or clutch wheels mounted on said separate shafts, and electrically controlled circuit closing devices included in separate circuits with said clutches or wheels to energize the same separately, substantially as set forth.

9. In an electric water wheel governor, the water wheel valve rod or shaft having reversely disposed gear wheels, a suitably arranged shaft carrying at one end a gear wheel meshing with one of the wheels on the rod or shaft, a shaft sleeve mounted on one end of said suitably arranged shaft and carrying on one end a gear wheel meshing with the other one of the wheels on the valve rod or shaft, magnet wheels mounted on said suitably arranged shaft and on one end of the shaft sleeve, a drive sleeve mounted on said suitably arranged shaft and driven from the water wheel, metallic cup disks secured on the ends of said drive sleeve and surrounding the magnet wheels, electrically controlled circuit closing devices, and separate circuit connections from the circuit closing devices to each of the magnet wheels to energize the same separately, substantially as set forth.

10. In an apparatus of the class described, the combination with the separate shafts; of a metallic cup disk mounted on one of said shafts, a magnet wheel mounted on the other one of the shafts inside of the cup disk and having a circumferential series of projecting pole pieces and an energizing magnet coil clamped inside of the same and inside of the circle of the pole pieces, and suitable circuit connections with the magnet coil, substantially as set forth.

519,598. BAG-LOCK. FREDERICK E. WINDSOR, Warren, Pa. Filed May 20, 1893. Serial No. 474,954. (No model.)



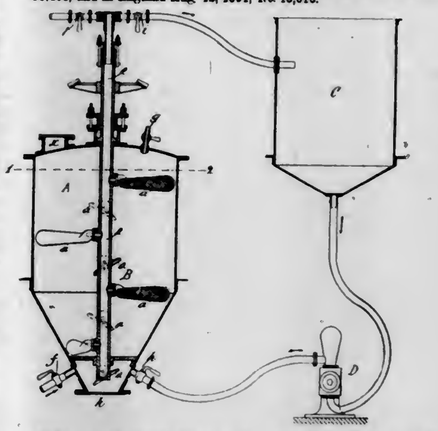
Claim.—1. In a lock the combination with a spring actuated bolt, of a detent for engaging the casing and holding the bolt in its retracted position, and a trip for said detent having a movement longitudinally of said bolt independently of said bolt and detent, said trip projecting beyond the end of the keeper engaging end of the bolt, substantially as described.

2. In a lock the combination with the spring actuated bolt, of a detent pivoted to said bolt for engaging the casing and holding the bolt in its retracted position, a trip carried by said bolt having a movement longitudinally of said bolt independently of the bolt and detent, said trip projecting beyond the keeper-engaging end of the bolt, substantially as described.

3. In a lock the combination with the spring bolt, of a detent pivotally secured thereto for holding the bolt in its retracted position, said detent having an inclined face and a trip secured to said bolt and movable longitudinally of said bolt having an inclined face to engage the inclined face of the detent to release the same, substantially as described.

4. The herein described card retaining device for a bag lock consisting of a plate of the lock casing, provided with sheet metal turned over upon the plate to form grooves to receive the edges of the card, said grooves being closed at one end of the holder, a projection of the sheet metal turned up between the open ends of said grooves to retain the card, substantially as described.

519,599. PROCESS OF PRODUCING HYDRAULIC MORTAR. CHARLES BLOEMENDAL, Berlin, Germany. Filed June 15, 1893. Serial No. 477,683. (No specimens.) Patented in Germany Nov. 9, 1890, No. 58,461, and in England Aug. 12, 1891, No. 13,616.

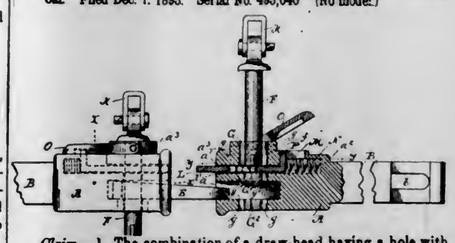


Claim.—1. The herein described process for producing hydraulic mortar, which consists in slowly saturating the material in a closed receptacle with water, maintaining a circulation of water, substantially free from air, through the material, whereby the air contained in said material is taken up, and conducting said air outside the receptacle, substantially as described.

2. The herein described process for producing hydraulic mortar, which consists in slowly saturating the material, in a closed receptacle, with water introduced from below, discharging the air thereby expelled, simultaneously stirring said material and maintaining a circulation of water, substantially free from air, therethrough, whereby the air contained in said material is taken up, and conducting said air outside the receptacle, substantially as described.

3. In apparatus for making hydraulic mortar, the combination of a cylinder A, a hollow shaft *e* therein, trough-shaped vanes *a*, provided with filter cloths *c*, and communicating with the hollow shaft *e*, and a pump D for forcing water into the cylinder A, substantially as described.

519,600. CAR-COUPLING. BENJAMIN BONNANS, North Temescal, Cal. Filed Dec. 7, 1893. Serial No. 493,040. (No model.)

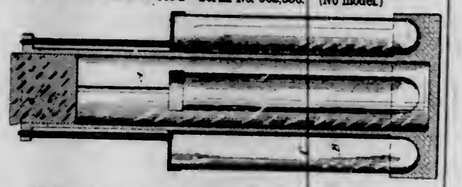


Claim.—1. The combination of a draw-head having a hole with side grooves, a coupling-pin provided with lugs sliding through said hole and grooves, and stops in some of said grooves whereby the said pin can be prevented from being withdrawn from said hole in certain positions, substantially as set forth.

2. The combination of a draw-head provided with an open chamber, a coupling-pin, a stop for said pin, a spring bearing upon said stop and resting within said chamber, and a hinged lid covering said stop and spring, substantially as set forth.

3. The combination of a draw-head, a coupling-pin, a clevis pivotally secured to the head of said pin, a substantially Z-shaped lever oscillating in a vertical plane and having a slotted end engaged by said clevis, a post affording a fulcrum for said lever oscillating in a horizontal plane, and a bracket on which said post is supported and free to turn, substantially as set forth.

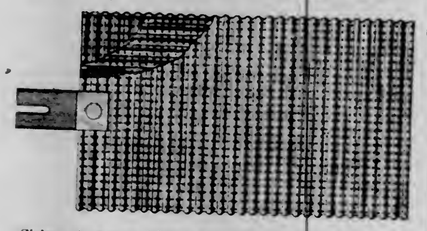
519,601. COMPOSITE BOTTLE. ALPHONS DRYFOOS, New York, N. Y. Filed Mar. 6, 1894. Serial No. 502,538. (No model.)



Claim.—1. A composite bottle, comprising a central bottle formed in its wall with vertically-disposed recesses or niches, and small vessels or bottles set in the said recesses, each vessel being provided with a cap having a pipe extending in the recesses along the neck of the bottle, substantially as shown and described.

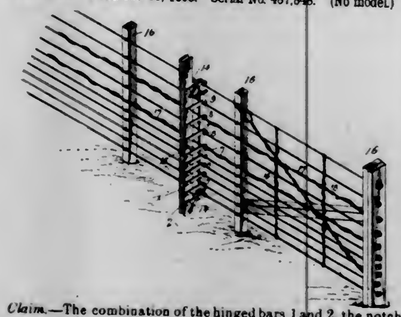
2. A composite bottle, comprising a central bottle formed in its wall with vertically-disposed recesses or niches, small vessels or bottles set in the said recesses, each vessel being provided with a cap having a pipe extending in the recesses along the neck of the bottle, and means, substantially as described, for closing the said central bottle and the pipes of the vessels, as set forth.

519,602. STORAGE-BATTERY PLATE. CHAIMSONOVITZ P. ELIESON, London, England, assignor to himself, and Francisco Alfredo Pellas, Nicaragua, Nicaragua. Filed Oct. 26, 1893. Serial No. 489,203. (No model.) Patented in Germany Feb. 9, 1892, No. 71,132; in Switzerland Nov. 5, 1892, No. 5,655, and in Belgium Nov. 7, 1892, No. 102,011.



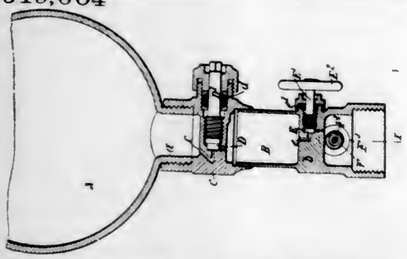
Claim.—A storage battery plate composed of sheets of corrugated metal arranged in parallel layers with the corrugations of the layers parallel to the plane of the plate and with the corrugations of one layer arranged at an angle to those of the next adjacent layers, said sheets being perforated throughout their entire surfaces with a multitude of holes to permit the passage of the electrolytic fluid through the same at right angles to the plane of the plate, and the said plates, so constructed, having separated vertical ends or edges *a* and *b* in contradistinction to a tubular form substantially as shown and described.

519,603. WIRE-FENCE MACHINE. ANDREW J. FORSYTHE, Kokomo, Ind. Filed Oct. 11, 1893. Serial No. 487,848. (No model.)



Claim.—The combination of the hinged bars 1 and 2, the notched arms secured to bar 1, the hooked holders secured to the bar 2, and the pivoted catches for engaging with the top and bottom arms and holders for holding the bars in a folded position, substantially as described.

519,604. APPARATUS FOR PRODUCING AND CONTAINING AERATED LIQUIDS. CHRISTOPHER HATTON, London, England. Filed June 20, 1893. Serial No. 478,250. (No model.)



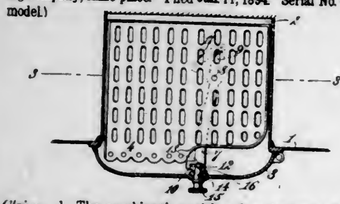
Claim.—The combination with a portable vessel for containing a store of gas and a vessel for containing the liquid to be aerated, of a stopper for the liquid containing vessel adapted to be connected with said vessel and having a measuring chamber, valves arranged at the opposite ends of said chamber and controlling the communication between said chamber and the gas and liquid containing vessels, means for independently operating said valves, and a discharge nozzle communicating with the liquid containing vessel, and provided with a valve, substantially as shown and described.

519,605. KEY ATTACHMENT FOR LOCKS. JULIUS F. VON HUNEFELD, Dresden, Germany. Filed Sept. 16, 1893. Serial No. 485,718. (No model.)



Claim.—A key attachment for turning a lock-key in either direction, consisting of a shank having at one end a jaw and at the opposite end means to connect with a cord, a movable jaw arranged in relation to the jaw on the shank to clamp the ring end of the key, and a thumb screw passing through the two jaws for clamping them together, said shank by its swinging movement serving to turn the key in either direction, substantially as described.

519,606. DEVICE FOR OPERATING OVEN-SHELVES. FOLBERT KAEMPEN, Jr., Quincy, Ill., assignor to the Gem City Stove Manufacturing Company, same place. Filed Jan. 11, 1894. Serial No. 496,528. (No model.)



Claim.—1. The combination with a door having a lever-engaging device, a shelf or pan support, and a lever pivoted to the shelf or pan support and detachably connected with the lever-engaging device on the door, of a curved abutment for automatically setting or moving the lever into correct position to connect with the lever-engaging device, substantially as and for the purpose described.

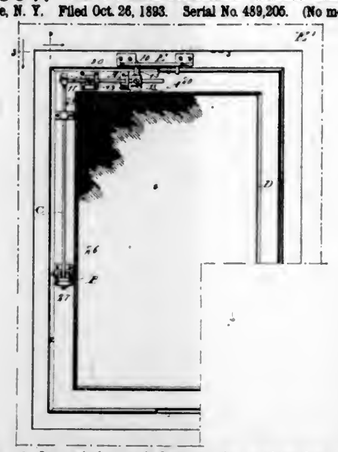
2. The combination of a door having a cavity or socket 16 on its inner side, a sliding shelf or pan support, a lever 7 mounted on a fixed pivot secured to the shelf or pan support and having its outer end rounded and provided with a slot 10 terminating at one end in a pin hole 12, and a spindle 14 journaled in the door and provided with the pin 13 adapted to enter the slot 10 and engage the pin-hole, substantially as described.

3. The combination with a door, and a sliding shelf or pan support, of a lever 7 pivoted to the shelf or pan support and having a tail piece 9 at its inner end, and a slot 10 terminating in a pin-hole 12 at its outer end, a spindle 14 journaled in the door and having a pin 13, and a curved abutment 17 adapted to strike the tail piece of the lever for automatically setting the outer end thereof in correct position to engage the pin of the spindle, substantially as described.

4. The combination with a door having a lever-engaging device, a shelf or pan support, and a lever pivoted to the shelf or pan support, detachably connected with the lever-engaging device on the door and having a tail piece at its inner end, of a stationary plate arranged in the path of the said tail piece of the lever for automatically setting

the outer end thereof in correct position to engage the lever engaging device on the door, substantially as described.

519,607. WINDOW-SASH FASTENER. RICHARD KIRSCH, Bay Ridge, N. Y. Filed Oct. 26, 1893. Serial No. 489,205. (No model.)



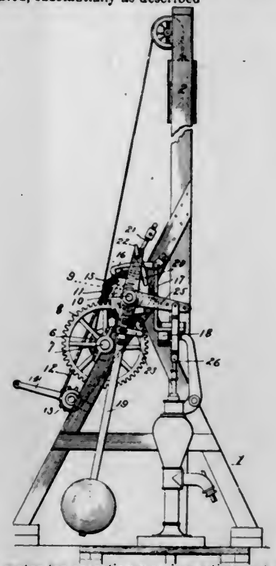
Claim.—1. In a window sash fastener, the combination, with a window frame, a window sash pivoted in the said frame, and a rack located upon the frame adjacent to the pivot of the window sash, of a lock lever located upon the sash, the said lever being adjustable upon its fulcrum, an adjustable locking pin carried by the lock lever and adapted for engagement with the rack, an operating lever also adapted for location upon the sash, said locking lever being of angular construction, a connecting rod projected from the lock lever and provided with a head adapted for engagement with the operating lever, and a link connection between the head and operating lever, the operating lever serving through the medium of the links to actuate the connecting rod in one direction, and by engagement with the head of the connecting rod to actuate said rod in an opposite direction, as and for the purpose specified.

2. In a window sash fastener, the combination, with a window frame, a sash having central pivots in said frame, and a rack horizontally located above the window sash adjacent to one of its pivots, said rack being secured to the window frame and provided with a series of apertures in one of its members, and a stop adapted to limit the movement of the window sash when opened, of a lock lever, a pivoted block in which the said lever is adjustably secured, the pivot block having pivotal connection with the window sash, a locking pin adjustably secured upon the lock lever and adapted to enter the apertures in the rack, an operating lever of angular construction fulcrumed upon the window sash, a connecting bar having an opening extending through it, the end portions whereof are made flaring, one end of the locking lever being adjustably passed through the said opening, a head adjustably located at the lower extremity of the connecting rod, adapted to be engaged by the operating lever, and a link connection between the head of the connecting rod and the operating lever, said connection being made near the junction of the members of the operating lever, substantially as and for the purpose set forth.

519,608. PUMP-MOTOR. LOUIS H. LLOYD, Lincoln, Ill. Filed Jan 3, 1894. Serial No. 495,550. (No model.)

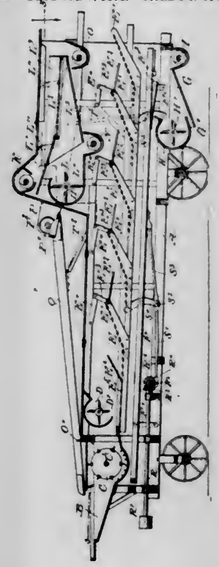
Claim.—1. In a device for imparting a reciprocating movement to a pump-rod or other device, the combination of a frame, a gravitating weight, a drum and cable connected to said weight, a ratchet wheel driven by said drum, a pendulum pivotally mounted adjacent to said ratchet wheel, an automatic pawl carried by said pendulum and movable thereon and engaging the ratchet wheel, whereby the force exerted by the ratchet wheel is communicated to the pendulum, an arm connected to the pendulum and adapted to be connected to the pump-rod or other device, and means carried by the frame for automatically engaging the ratchet wheel and stopping its rotation when the pendulum reaches the limit or nearly the limit of its swing in one direction, substantially as described.

2. In a motor for imparting a reciprocating movement to a pump-rod or other device, the combination of a frame, a drum journaled thereon and a cable and weight for operating said drum, a ratchet wheel driven by said devices, a pendulum swung concentrically with said ratchet wheel and extending above the ratchet wheel, a weighted pawl carried by the pendulum and adapted to be thrown in and out of engagement with said ratchet wheel as the pendulum passes the center, a pawl pivoted on the frame and normally held out of engagement, devices for forcing said pawl into engagement with the ratchet wheel to relieve the pressure against the other pawl, and an arm connected to the pendulum and adapted to be connected to the device to be operated, substantially as described



3. In a motor for operating a reciprocating part or device, the combination of a drum and devices for imparting rotation thereto, a ratchet wheel driven by the drum, a pawl 16 provided with a depending arm 17 to normally hold it out of engagement with the ratchet wheel, a pendulum swung concentrically to the ratchet wheel, an arm 23 carried by the pendulum and adapted to strike said arm 17, a weighted pawl 20 pivoted on the pendulum and normally engaging the ratchet wheel, and an arm connected to the pendulum and adapted to be connected to the device to be operated, substantially as described.

519,609. THRASHING-MACHINE. ALEXANDER M. LOCKHART, Mitchell, S. D. Filed Oct. 3, 1893. Serial No. 487,075. (No model.)



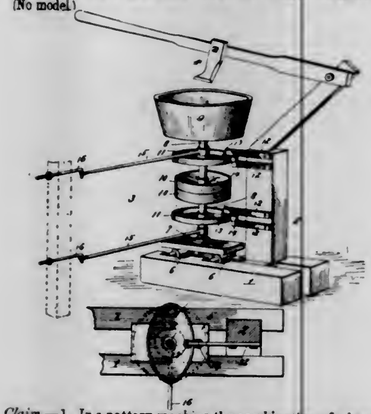
Claim.—1. In a thrashing machine, the oscillating straw-rack having a series of fixed, slatted extensions which project upward at an angle of about thirty degrees, and a series of oscillating rakes each of which is pivoted to the upper end of an extension, their teeth projecting rearward and vibrating vertically in the space between the extensions, links connected with the rakes, and means for oscillating the rack, as shown and described.

2. The combination with the rack having a series of slatted extensions, the rakes pivoted thereto and having links which connect them with the framing, of the fan arranged beneath said rack, pivoted levers connected with the rack, the transverse rod which connects the lower ends of said levers, and a link attached to the said rod and to the under side of the fan, as shown and described.

3. In a thrashing-machine, the combination, with the grain fan in rear end of the machine, the cylinder, the beater arranged contiguously, and the straw-rack and pan arranged longitudinally, one over the other, of the main driving shaft arranged longitudinally beneath the machine, two aligned crank shafts arranged at right angles to and geared with such main shaft, pulleys mounted on the outer ends of said crank-shafts, belts running on said pulleys and others on the shafts of the fan, thrashing cylinder and pan, and a lever and pitman connecting the crank shafts with the straw-rack and pan, respectively, as shown and described

519,610. POTTERY-MACHINE FOR FORMING OVAL WARE.

AUSTIN LOWRY, Roseville, Ohio, assignor of two-thirds to John H. Beem and George Lowry, same place. Filed Jan. 5, 1894. Serial No. 495,833. (No model.)



Claim.—1. In a pottery machine the combination of a base and a standard thereon, a bodily movable shaft supported adjacent to said standard, means for bodily moving said shaft during its rotation, horizontally swinging arms connected to said shaft and adapted to be connected to a stationary post, and a forming tool, substantially as described.

2. In a pottery machine, the combination of a base and a standard thereon, lateral arms on the standard carrying rollers, a vertical shaft and a movable plate supporting said shaft, a mold holder carried by the shaft, flanged non-circular cams carried by said shaft, said cams having their flanges working between said rollers, substantially as described.

3. In a pottery machine, a base supporting the standard, a plate and roller supporting the same on the base a vertical shaft stepped on said plate and carrying a mold head, means for driving the shaft, horizontally swinging arms supporting the shaft and adapted to be connected to an adjacent stationary part, oval shaped cams secured on the vertical shaft and flanged, rollers engaging the flanges on the cams and journaled on stationary arms carried by the standard, and a movable forming tool, substantially as described.

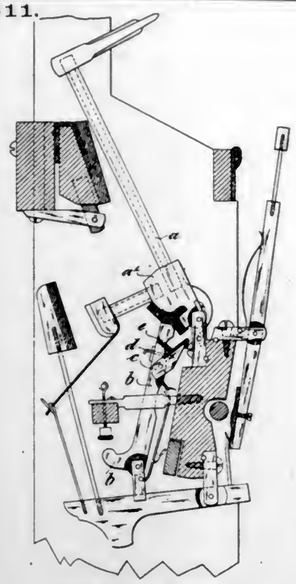
519,611. REPEATING MECHANISM FOR PIANOFORTES.

HEINRICH MAURER, Carlsruhe, Germany. Filed June 24, 1893. Serial No. 478,729. (No model.) Patented in Germany May 3, 1892, No. 66,171.

Claim.—1. The combination with a jack *b* of a fly jack *c* pivoted thereto at the upper end of said jack, a stop *e* on said jack above the fly jack and a spring *f* operating to normally hold said fly jack against said stop in the manner and for the purpose substantially as described.

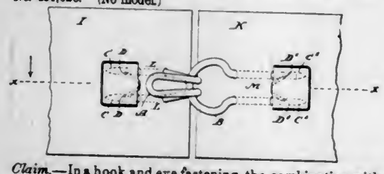
2. The combination of a jack *b*, a fly jack *c* pivoted thereto as specified, a stop *e* on said jack above the fly jack and a spring *f* mounted at the lower part of said jack and operating to normally retain the fly jack against the jack substantially as described and shown.

519,611.



519,612. HOOK AND EYE.

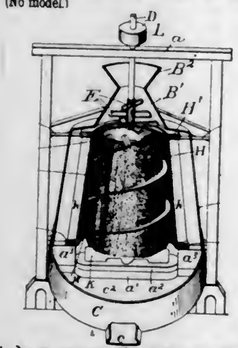
FREDERICK MEYERS, Brooklyn, N. Y., and MATTHIAS STOVEKEN, Hoboken, N. J. Filed July 27, 1893. Serial No. 481,628. (No model.)



Claim.—In a hook and eye fastening, the combination with a pair of penetrating prongs having shoulders near the extremities of their inner and adjacent sides, of a prong-locking device consisting of a plate bent into box shape and having the contracted throat G, two orifices arranged respectively at opposite sides of the throat for receiving the penetrating prongs, and diverging locking lips H extending from the opposite edges of said contracted throat inwardly into the box-shaped plate for engaging the shoulders of the two prongs, substantially as described.

519,613. MACHINE FOR DELINTING COTTON-SEED.

JAMES H. MCCORMICK, New Orleans, La. Filed Aug. 29, 1893. Serial No. 484,290. (No model.)



Claim.—1. In an apparatus for delinting cotton seed, the combination with a rotary brush, of a spiral strip secured thereon and projecting therefrom and an inclosing case consisting of a plurality of saws set at short distance from each other with open paces between the said saws, the teeth of the said saws projecting inwardly and being in close proximity to said brush, substantially as and for the purposes described.

2. In an apparatus for delinting cotton seed, the combination with a rotary brush, of a spiral strip secured thereon and projecting therefrom and an inclosing case consisting of a plurality of saws set at an angle to the radii of said brush and at a short distance from each other, with open spaces between the said saws, the teeth of the said saws projecting inwardly toward said brush, substantially as described.

3. In an apparatus for delinting cotton seed, the combination with a conical brush, of an inclosing case consisting of a plurality of saws set at short distance from each other with open spaces between the said saws, the teeth of the said saws projecting inwardly and being in close proximity to said brush, substantially as and for the purposes described.

4. In an apparatus for delinting cotton seed, the combination with a conical brush, of an inclosing case consisting of a plurality of saws set at an angle to the radii of said brush and at a short distance from each other, with open spaces between the said saws, the teeth of the said saws projecting inwardly toward said brush, substantially as described.

5. In an apparatus for delinting cotton seed, the combination with the revolving shaft, and stirrers, distributing plate, and rotary brush mounted on said shaft, of a spiral strip secured thereon and projecting therefrom and an inclosing case consisting of a plurality of saws set at short distance from each other with open spaces between the said saws, the teeth of the said saws projecting inwardly and being in close proximity to said brush, substantially as and for the purposes described.

6. In an apparatus for delinting cotton seed, the combination with the revolving shaft and stirrers, distributing plate, and rotary brush mounted on said shaft, of a spiral strip secured thereon and projecting therefrom and an inclosing case consisting of a plurality of saws set at an angle to the radii of said brush and at a short distance from each other, with open spaces between the said saws, the teeth of the said saws projecting inwardly toward said brush, substantially as described.

7. In an apparatus for delinting cotton seed, the combination with a conical brush, and means for feeding the seed uniformly around said brush, of an inclosing case consisting of a plurality of saws set at short distance from each other with open spaces between the said saws, the teeth of the said saws projecting inwardly and being in close proximity to said brush, substantially as and for the purposes described.

8. In an apparatus for delinting cotton seed, the combination with a rotary brush, and means for feeding the seed uniformly around the said brush, of a spiral strip secured thereon, and projecting therefrom, and an inclosing case consisting of a plurality of saws set at a short distance from each other with open spaces between the said saws, the teeth of the said saws projecting inwardly and being in close proximity to said brush, substantially as described.

9. In an apparatus for delinting cotton seed, the combination with a rotary brush and means for feeding the seed uniformly around the brush, of a spiral strip secured thereon and projecting therefrom and an inclosing case consisting of a plurality of saws set at short distance from each other with open spaces between the said saws, the teeth of the said saws projecting inwardly and being in close proximity to said brush, and means for blowing the lint clear of the cleaned seed, substantially as and for the purposes described.

10. In an apparatus for delinting cotton seed, the combination with a rotary brush and means for feeding the seed uniformly around the brush, of a spiral strip secured thereon and projecting therefrom, and an inclosing case consisting of a plurality of saws set at an angle to the radii of said brush and at a short distance from each other, with open spaces between the said saws, the teeth of the said saws projecting inwardly toward said brush and means for blowing the lint clear of the cleaned seed, substantially as described.

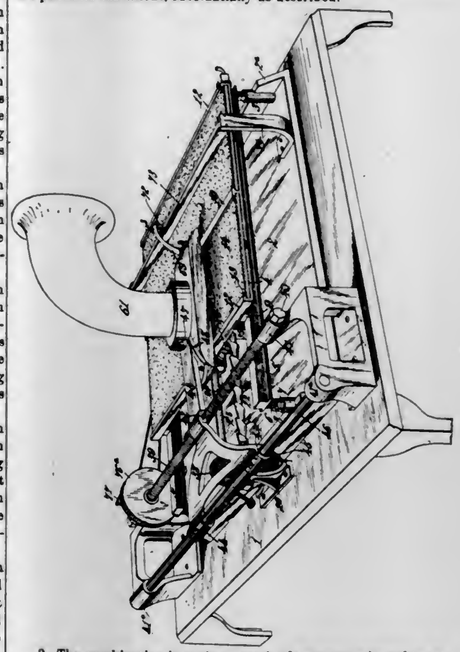
11. In an apparatus for delinting cotton seed, the combination with a conical brush and means for feeding the seed uniformly around the said brush, of an inclosing case consisting of a plurality of saws set at short distance from each other with open spaces between the said saws, the teeth of the said saws projecting inwardly and being in close proximity to said brush, and means for blowing the lint clear of the cleaned seed, substantially as and for the purposes described.

519,614. PHONOGRAPH.

STEWART D. MCKELVEY, Canton, Ohio, assignor of one-third to Joseph A. Linville, same place. Filed Nov. 5, 1891. Serial No. 411,001. (No model.)

Claim.—1. In a phonograph, the combination with a diaphragm and drop-stud, of filaments set in the upper ends of the said drop-stud and connected at their other ends to the diaphragm in different nodal circles, substantially as described.

2. The combination in a phonograph, of a movable support adapted to receive and retain a plurality of recording surfaces, an independent stylus for each of said surfaces, a single main or primary diaphragm receiving and responding to phonetic vibrations, secondary diaphragms intermediate the styles and primary diaphragm, and devices by which the styles and diaphragms are connected to transmit the phonetic vibrations, substantially as described.



3. The combination in a phonograph of a support adapted to receive and retain a plurality of recording surfaces, a plurality of styles for recording upon, or reproducing from, said surfaces, a single primary diaphragm, responding to the phonetic vibrations, secondary diaphragms intermediate of the styles and primary diaphragm, and intermediate connections by which the vibrations of the single main diaphragm are transmitted to both the secondary diaphragms, substantially as described.

4. The combination in a phonograph of a support adapted to receive and retain a plurality of recording or reproducing surfaces, a plurality of styles adapted to record or to reproduce in or from said surfaces in unison, a primary diaphragm receiving and responding to the phonetic vibrations, a series of secondary diaphragms one of which has its center substantially in the axial line of the primary diaphragm and a system of levers each supporting one of the styles at one end and at the other end connected to the central secondary diaphragm, substantially as described.

5. The combination, in a phonograph, of a carriage or support to receive and retain a plurality of recording or reproducing surfaces, a plurality of duplex styles pivoted between their ends and having separate recording and reproducing portions, a primary diaphragm, a series of secondary diaphragms, the middle one of which is arranged beneath the primary diaphragm, intermediate connections between said primary diaphragm and the secondary diaphragm, and a system of levers to the ends of which the styles are pivotally connected, their other ends being connected to the outer ends of levers the inner ends of which are connected with the central diaphragm, substantially as described.

6. The combination, in a phonograph of a primary diaphragm located in, or beneath, the sound conveyer, and forming part of the closed top of a diaphragm chamber, a series of diaphragms arranged beneath the primary diaphragm and connected thereto, said series forming part of the floor of the diaphragm-chamber a plurality of levers having their ends connected to one of said series, a second system of levers having pivotal connection with the power ends of the levers of the first system, and a plurality of styles pivotally connected to the other extremities of the levers of the second system, substantially as described.

7. The combination, in a phonograph, of a primary or main diaphragm arranged to receive the phonetic vibrations, a series of secondary diaphragms, a corresponding series of connections between the primary and the secondary diaphragms, having attachment at a

plurality of points located at unequal distances from the centers of said diaphragms a system of levers attached to one of the secondary diaphragms a second system of levers actuated by those of the first system, and a plurality of styles connected to and operated by the levers of the second system, substantially as described.

8. The combination, in a phonograph of a platform, or support, for a recording tablet, means for feeding the same, a closed diaphragm-chamber having a main diaphragm receiving the phonetic vibrations, and forming part of the top of said chamber, a series of secondary diaphragms arranged beneath and forming part of the floor of said chamber, and styles partly supported by two of said secondary diaphragms, substantially as described

9. In a phonograph, the combination with a main or primary diaphragm receiving the phonetic vibrations, of a series of secondary or auxiliary diaphragms forming part of the floor of a diaphragm-chamber which is closed, above, by the main diaphragm, needles connecting the latter diaphragm with each of the secondary diaphragms, two independent styles supported by two secondary diaphragms at substantially equal distances from the center of the main diaphragm, and levers having their ends connected to the styles and to a central secondary diaphragm. respectively, and having their fulcra intermediate, substantially as described.

10. In a phonograph the combination with a suitable support, adapted to retain one or more tablets, of a shaft having continuous revolution and provided with threads of opposite pitch, which alternately engage feed dogs pivoted on said support and tripping-bars mounted on the machine frame at the ends of each opposite thread on said shaft to trip the dogs out of mesh with said threads, alternately, substantially as described

11. The combination, in a phonograph, of a diaphragm, receiving the phonetic vibrations, and a stylus connected thereto by filaments radiating from a point on said stylus below the diaphragm and connected to the latter at points unequally distant from the center, substantially as described.

12. In a phonograph, the combination with a recording or reproducing stylus, of filaments connecting the same to the diaphragm by the vibration of which the device is rendered operative, said filaments being connected at one end at a little distance from the surface of the diaphragm and at their other ends attached to said diaphragm between different nodal circles, concentric with the stylus and diaphragm, but of unequal radii substantially as described.

13. In a phonograph the combination with a stylus of filaments attached at one end to the stylus a little distance from the surface of the diaphragm, and each of their other ends being connected to said diaphragm at a different distance from the center and by a plurality of connecting filaments, substantially as described.

14. The combination in a phonograph of a stylus, a main diaphragm receiving the phonetic vibrations, a secondary diaphragm beneath and connected to the main diaphragm, a second diaphragm adjacent to the first secondary diaphragm, a connection between the latter and the main diaphragm, and between the main diaphragm and the adjacent diaphragm, a stylus mounted on the latter and a lever connected at one end to said stylus, and at the other end to the end of a second lever, the power end of the latter being connected to the first secondary diaphragm, substantially as described.

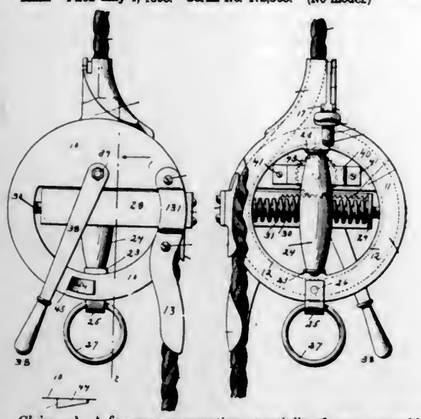
15. The combination in a phonograph of a main diaphragm, a series of secondary diaphragms, a pair of styles connected to two of the secondary diaphragms, arranged adjacent to a central secondary diaphragm beneath the main diaphragm and a carriage or support for a duplicate record, the four diaphragms being set in the wall of a closed chamber directly beneath the sound conveyer and the main diaphragm and containing a body of air sealed therein, substantially as described.

16. The combination in a phonograph of a carriage, means for imparting reciprocating linear movement thereto, a threaded shaft intermittently rotated to impart the line feed, at the end of each parallel line of the record, a pawl and ratchet mechanism, and arms connected at one end to a vibratory bar, which is connected to a similar parallel bar, to operate the pawl-carrying arms in opposite directions, the carriage being provided with a stud, or finger, moving between the vibratory bars and coming alternately into contact therewith, substantially as described.

17. In a phonograph, the combination with a stylus consisting of a recorder, a reproducer and an intermediate pivotally supported portion mounted on a shaft provided with a pinion, of a segmental gear meshing with said pinion, whereby the stylus may be reversed to bring either the recorder or the reproducer into action, substantially as described.

18. In a phonograph, the combination with two independent styles each of a duplex construction, of jointed shafts, on the ends of which said styles are mounted, diaphragms to which the frames supporting the ends of the jointed shafts are mounted, and means for imparting a semi-rotation to said shafts to reverse the styles, substantially as described.

519,615. FIRE-ESCAPE. DONALD N. MCLEOD, South Lancaster, Mass. Filed May 1, 1893. Serial No. 472,565. (No model.)



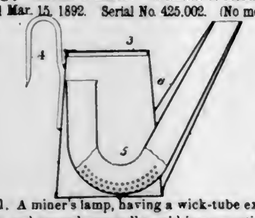
Claim.—1. A fire escape consisting essentially of a non-rotatable drum or cylinder, about which the rope may be wound, of an inlet and outlet guide for guiding the rope to and from the cylinder and keeping the same on the cylinder, means whereby the person can be supported from the device, and means for checking and regulating the slip of the rope around the cylinder, the whole so arranged that the device can be applied to the rope at an intermediate point between its ends without removing or changing any part of the structure, substantially as described.

2. A fire-escape consisting essentially of a non-rotatable drum or cylinder, around which the rope may be wound, means whereby the person may be carried by the device, means for checking and regulating the slip of the rope around the drum or cylinder, inlet and outlet guides for leading the rope to and from the drum or cylinder, and a latch or catch for holding the rope in the outlet guide, substantially as described.

3. A fire-escape consisting of a non-rotatable drum or cylinder having side flanges, about which drum or cylinder a rope may be wound, inlet and outlet guides for leading the rope to and from the drum or cylinder and for holding the rope upon the cylinder, and a spring-pressed brake as 36, normally exerting pressure upon the inlet end of the rope, substantially as described.

4. A fire-escape consisting of a drum or cylinder, around which the rope may be wound, a spring-pressed brake checking and regulating the slip of the rope around the drum, a lever for operating said brake, and a stop as 44 for limiting the movement of said brake, said stop being inclined so that by springing the lever, the brake can be lifted a considerable distance from the drum, so that the rope can be easily put in place, but so that, if the lever should be in use, moved beyond the stop, that the same will run up the incline, and return to its normal position, substantially as described.

519,616. MINER'S LAMP. WILLIAM P. MCMASTERS, Munhall, Pa. Filed Mar. 15, 1892. Serial No. 425,002. (No model.)

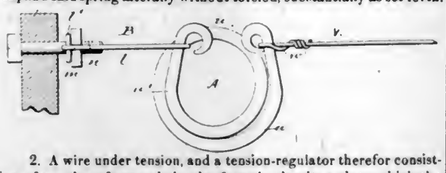


Claim.—1. A miner's lamp, having a wick-tube extending within the lamp body and curved upwardly, said inner portion having perforations in the lower side of its bent portion; substantially as and for the purposes described.

2. A miner's lamp, having a wick-tube extending within the oil reservoir and bent upwardly therein, said tube having perforations in the lower side of its bent portion, and an outer tube surrounding the outer portion of the wick-tube, substantially as and for the purposes described.

519,617. AUTOMATIC TENSION-REGULATOR. WILLIAM A. POWER, Charlotte, Mich., assignor of one-half to Parliamer M. Thomas, same place. Filed Nov. 7, 1893. Serial No. 490,276. (No model.)

Claim.—1. A tension regulator for a stretched wire, consisting of a laterally-expanding spring of general circular form having its ends adapted for the attachment of the wire thereto, the coils or turns of said spring being not in the same plane but its ends being located in direct line with each other in the direction of their lateral expansion, so that tension applied to the ends of the spring will tend to expand said spring laterally without torsion, substantially as set forth.



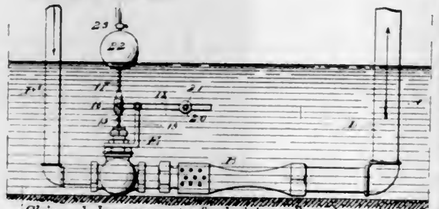
2. A wire under tension, and a tension-regulator therefor consisting of a spring of general circular form, having its ends to which the wire is attached approaching the same circumferential point and located so that tension upon the wire will tend to draw said ends apart and expand said spring laterally, substantially as set forth.

3. A tension regulating spring for a stretched wire or rod, comprising the two coils *a a'* crossing each other centrally and having their ends *c c'* in line with each other on one side of the spring and opposite the crossing of the coils, substantially as set forth.

4. The adjuster B, comprising a link *l* having an open loop at one end thereof, in combination with a threaded bolt adapted to enter said loop, and a nut into which said bolt screws, the width of link *l* adjacent to said loop being such as to prevent the rotation of said nut, substantially as set forth

5. The adjuster B, comprising the link *l* bent from a single piece of wire and having at one end the transverse loop *l'*, the threaded bolt *b* which passes through said loop *l'*, and the nut *n* fitting the threaded end of the bolt, substantially as set forth

519,618. FLUID-EJECTOR. NICHOLAS POWER, New York, N. Y., assignor to Philip Braender, same place. Filed Mar. 15, 1894. Serial No. 503,766. (No model.)



Claim.—1. In an apparatus for draining cellars, the combination, with a pressure pipe, a discharge pipe, and an intermediate ejector, of a balance valve located in the pressure pipe, the valve disks of which are mounted upon a stem, the said stem being connected with a float operating the valve disks, and a counterweight connected with the valve stem, whereby the stem, the parts connected therewith and the valve disks are counterbalanced, substantially as shown and described.

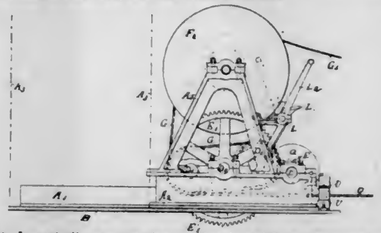
2. In an apparatus for draining cellars and for like purposes, the combination, with a pressure pipe, and an intermediate ejector between the two pipes and in communication with the locality to be drained, of a balance valve located in the pressure pipe, an arm fulcrumed upon a fixed support and connected with the valve stem outside of the valve casing, a weight adjustably mounted upon said arm, a float having free movement upon a continuation of the valve stem and provided with an adjustable collar, the said weight serving to accurately counterbalance the valve stem and parts directly connected therewith or carried thereby, whereby the float upon the rising or falling of the water to predetermined points will open or close the valve, the valve remaining in the position in which it is placed by the float owing to the mechanical balancing of the valve, until the float is called upon to act, substantially as shown and described

519,619. WINDING-ENGINE. HENRY L. REYNOLDS and HENRY W. KETCHUM, Seattle, Wash. Filed Jan. 12, 1894. Serial No. 496,636. (No model.)

Claim.—1. In a winding engine, the combination with the cable winding mechanism, of a separate drum adapted to receive and store the cable as it is wound up, and means for rotating it, substantially as shown and described.

2. In a winding engine, the combination with the cable winding mechanism, of a separate drum adapted to receive and store the cable as it is wound up, and means for rotating it at a variable speed so that it will promptly take up the slack whether winding at the center or outer edge of the drum, substantially as shown and described

3. In a winding engine, the combination with the two winding drums having grooves upon their circumferences adapted to receive several coils of cable, of a storing drum for receiving and storing the cable as it comes from the winding drums, and means for turning the said drums, substantially as shown and described



4. In a winding engine, the combination with two winding drums, having grooves upon their surfaces, the axes of said drums being tipped with relation to each other so that in passing around each drum the cable is carried lengthwise in relation to the other drum an amount equal to the distance between the grooves on said drum, of a storing drum to receive and store the cable as it comes from the winding drums, and means for rotating the said drums, substantially as shown and described.

5. In a winding engine, the combination with the cable winding mechanism, of a separate storing drum, a friction driving device upon said storing drum, and means for operating it from some member of the cable winding mechanism, substantially as shown and described

6. In a winding engine, the combination with two winding drums having grooves upon their surfaces adapted to receive several coils of cable, of a storing drum for receiving and storing the cable as it comes from the winding drums, and means for rotating said storing drum at a varinble speed so that it will just take up the slack whether winding at the center or outer edge of the drum, substantially as shown and described.

7. In a winding engine, the combination with two winding drums having grooves in their surfaces adapted to receive several coils of cable, of a separate storing drum to receive and store the cable as it leaves the winding drums, and means for rotating it from the winding drums, said means including a friction driving device, whereby the storing drum is rotated only sufficient to take up the slack whether winding at the center or edges of the drum, substantially as shown and described.

8. In a winding engine the combination with two winding drums having grooves in their surfaces adapted to receive several coils of cable, a separate storing drum and means for rotating the drums, with an overhauling drum for pulling out the main cable and means for operating it to wind up its cable when the main cable is running out, substantially as shown and described.

9. In a winding engine, the combination with the cable winding mechanism, a separate storing drum for receiving and storing the cable as it is wound in, and means for operating said mechanisms, of an overhauling drum and operating means so arranged as to wind its cable upon the overhauling drum when the winding drums are reversed, substantially as shown and described

10. In a winding engine, the combination with the cable winding and storing mechanisms, and means for operating them in reverse directions, of an overhauling drum, a friction driving device for operating the same, and a brake whereby the rotation of the overhauling drum may be checked or stopped at will, substantially as shown and described.

11. In a winding engine, the combination with the cable winding mechanism, a storing drum to receive and store the cable as it is wound in, of an overhauling drum, a friction device which may be engaged with either the storing or overhauling drums and brakes upon each of said drums, substantially as shown and described.

12. In a winding engine, the combination with the cable winding mechanism, a storing drum to receive and store the cable as it is wound in, of an overhauling drum, a friction device which may be engaged with either the storing or overhauling drums, and brakes connected together so that they may be made to engage with either the storing or the overhauling drum but with only one at a time, substantially as shown and described.

13. In a winding engine, the combination with the main cable winding and storing mechanisms, and means for operating them, of an overhauling drum, and means for operating it so arranged as to wind its cable opposite to the main cable, and a brake on the overhauling drum, substantially as shown and described.

14. In a winding engine, the combination with the separate winding and storing drums, and means for operating them, of a separate

overhauling drum, and means for operating it to wind its cable opposite to the main cable, and a brake on the overhauling drum, substantially as shown and described.

15. In a winding engine, the combination with the separate winding and storing drums, and means for operating them, with a separate overhauling drum, and means for operating it to wind its cable opposite to the main cable and brakes for the overhauling and storing drums connected together so that they may be applied to either drum, but to only one at a time, substantially as shown and described.

16. In a winding engine, the combination with the separate winding and storing drums, and means for operating them, an overhauling drum, and means for operating it so as to wind its cable opposite to the storing drum, a shaft extending across the face of both drums, a handle and brake shoes upon said shaft so placed that a movement of the handle in one direction will engage one drum and a movement in the other direction will engage the other drum, substantially as shown and described.

17. In a winding engine, the combination with the separate winding and storing drums, and means for operating them, of a movable cable guide between the winding and storing drums and operated from the storing drum, said guide receiving the cable from the winding drums and laying it regularly on the storing drum, substantially as shown and described.

18. In a winding engine, the combination with the separate winding and storing drums and means for operating them, of a cable laying mechanism receiving the cable as it passes from one of said drums to the other, means for transmitting motion from the storing drum to said cable laying mechanism, said cable laying mechanism consisting of a member traversing across the face of the drum, a pulley for holding the cable, and a swiveling connection between the pulley and said traversing member whereby the pulley may adjust itself to the cable at all points, substantially as shown and described.

19. In a winding engine, the combination with the separate winding and storing drums, and means for operating them, of a movable cable guide between the winding and storing drums and operated from the storing drum, said guide receiving the cable from the winding drums and laying it regularly on the storing drum, and a fixed cable guide to receive the cable as it comes from the storing drum and guide it upon the winding drums, substantially as shown and described.

20. In a winding engine, the combination with the winding drums, and means for operating them, a shaft, a friction device upon said shaft and means for operating it, separate storing and overhauling drums mounted loosely upon said shaft at opposite sides of said friction device, friction surfaces upon each of said drums adapted to be engaged by said friction device, and means for engaging the friction device with either drum at will, substantially as shown and described.

21. In a winding engine, the combination with the winding drums and means for operating them, a shaft, a friction device upon said shaft, and means for operating it, separate storing and overhauling drums mounted loosely upon said shaft at opposite sides of said friction device, friction surfaces upon each of said drums adapted to be engaged by said friction device, and means for engaging the friction device with either drum at will, and a brake mechanism adapted to engage either drum at will, substantially as shown and described.

22. In a winding engine, the combination of the winding drums, and means for operating them, a shaft, mounted in bearings so that it may be moved endwise, means for rotating it, a friction device fixed to said shaft, separate storing and overhauling drums mounted loosely upon said shaft upon opposite sides of said friction device, means for preventing endwise movements of said drums, and means for moving the shaft and friction device endwise to engage and rotate either drum at will, substantially as shown and described.

23. In a winding engine, the combination of the winding drums and means for operating them, a shaft mounted in bearings so that it may be moved endwise, means for rotating it, a friction device fixed to said shaft, separate storing and overhauling drums mounted loosely upon said shaft upon opposite sides of said friction device, means for preventing endwise movements of said drums and means for moving the shaft and friction device endwise to engage and rotate either drum at will, and a brake mechanism adapted to engage either drum at will, substantially as shown and described.

24. In a winding engine, the combination of the winding drums and means for operating them, a shaft mounted in bearings so that it may be moved endwise, means for rotating it, a friction device fixed to said shaft, separate storing and overhauling drums mounted loosely upon said shaft upon opposite sides of said friction device, means for preventing endwise movements of said drums, a collar having a flange at each end fixed to the shaft, a ring upon said collar between the flanges, a fixed nut and screw working therein and connected to said ring, whereby the shaft and its friction device may be moved and held into engagement with either of its drums, substantially as shown and described.

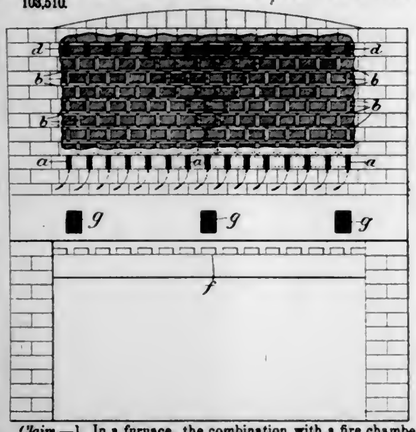
25. In a winding engine the combination of a power shaft and means for rotating it, a pinion upon said shaft which may be moved endwise thereon, a bull wheel, engaging with said power shaft pinion, a pinion connected to said bull wheel, winding drums, a gear connected to said winding drums and meshing with the bull wheel pinion and so placed that it will mesh with the power shaft pinion when it is moved upon the shaft, and means for shifting said power shaft pinion, substantially as shown and described.

26. In a winding engine the combination of a power shaft and means for rotating it, a pinion upon said shaft which may be moved endwise thereon, a bull wheel engaging with said power shaft pinion, a pinion connected to said bull wheel, winding drums, a gear connected to said winding drums and meshing with the bull wheel pinion and so placed that it will mesh with the power shaft pinion when it is moved upon its shaft, and means for shifting said power shaft pinion and a separate storing drum and means for rotating it, substantially as shown and described.

27. In a winding engine, the combination of a power shaft and means for rotating it, a pinion upon said shaft which may be moved endwise thereon, a bull wheel, engaging with said power shaft pinion, a pinion connected to said bull wheel, winding drums, a gear connected to said winding drums and meshing with the bull wheel pinion and so placed that it will mesh with the power shaft pinion when it is moved upon its shaft, and means for shifting said power shaft pinion, a drum shaft and means for rotating it a storing and overhauling drum mounted loosely thereon and means for rotating either from the shaft by a frictional connection, substantially as shown and described.

519,620. CONSTRUCTION OF PUDDLING OR OTHER FURNACES.

JOHN L. SMITH, West Hartlepool, England. Filed Mar. 16, 1893. Serial No. 466,303. (No model.) Patented in England Mar. 2, 1892, No. 4,106; in France Feb. 2, 1893, No. 227,609, and in Belgium Feb. 20, 1893, No. 103,510.

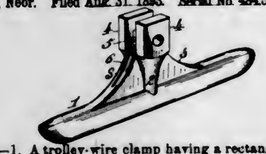


Claim.—1. In a furnace, the combination with a fire chamber; of walls having horizontal air passages therein and vertical openings connecting the said horizontal air passages in pairs, the said vertical openings in each course breaking joint with those of the next course, and openings connecting the lower horizontal air passages with the air outside of the furnace wall, and openings from the upper horizontal air passage into the fire chamber, substantially as and for the purposes described.

2. A furnace having the roof and walls thereof constructed of recessed bricks forming horizontal and vertical air passages therein, the said air passages breaking joints with each other, forming tortuous passages for the air, the lower courses of openings communicating with the external air, and the upper courses of openings communicating with the interior of the furnace, substantially as and for the purposes described.

519,621. TROLLEY-WIRE HANGER.

CHARLES F. STRASBURG, Lincoln, Nebr. Filed Aug. 31, 1893. Serial No. 484,517. (No model.)



Claim.—1. A trolley-wire clamp having a rectangular groove or seat for the trolley-wire, substantially co-extensive with the body portion of the clamp and continuous, substantially as described.

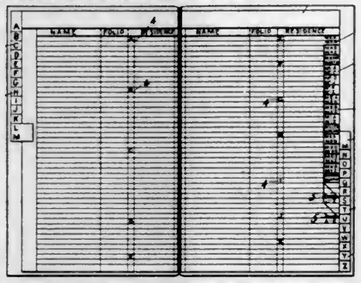
2. A trolley-wire clamp having a rectangular groove or seat, for the trolley-wire the two lateral walls inclosing said groove being rounded at their ends and dressed off to bring the metal to a thin edge, on each wall, substantially as described.

3. A trolley-wire hanger provided with a central lug having a forked end, said lug being centrally slotted longitudinally, the slot extending into the webs which brace and stiffen the lug, substantially as described.

4. A trolley-wire hanger having a body-portion which is provided with a rectangular groove or seat for the trolley wire and having a central lug rising from the upper side of said body portion, to which it is braced by integral webs, the forked upper end of the lug, being divided by a central longitudinal slot extending into the webs, substantially as described.

519,622. INDEX.

FRANK P. SWEITZER, Chicago, Ill. Filed Jan. 26, 1894. Serial No. 498,086. (No model.)



Claim.—In an index the combination of tab letters projecting from the edge of the pages, marginal combinations under each tab, the outer marginal edge of each sheet being cut away so as to make provision therefor, and at the same time to reveal all the underlying marginal combinations under the same tab, a supplementary or auxiliary alphabet under each marginal combination, a marginal or thumb index to said auxiliary alphabet formed near the bottom of the sheet on the outer edge thereof by continuing the said marginal cut away portion of the sheet below the last marginal combination of that tab to a point where it will expose each underlying auxiliary marginal index; substantially as and for the purpose set forth.

519,623. SPECULUM.

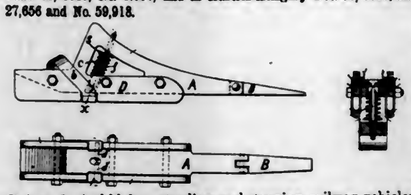
MAURITIUS WERTHEIMER, Berlin, Germany. Filed Nov. 27, 1893. Serial No. 492,176. (No model.)



Claim.—In a speculum, the combination of a telescopic arm pivotally attached to the same and having at its end a mirror attached thereto by means of a universal joint substantially as described.

519,624. SKID FOR RAILWAY-VEHICLES.

JOHANNES BARTHELMES, Nippes, near Cologne, assignor to Wwe. Joh. Schumacher, Cologne, Germany. Filed Jan. 21, 1893. Serial No. 459,279. (No model.) Patented in Germany July 14, 1888, No. 46,972; in France June 15, 1889, No. 198,960; in Belgium June 15, 1889, No. 86,566; in England June 18, 1889, No. 9,997, and in Austria-Hungary Dec. 31, 1890, No. 27,656 and No. 59,918.

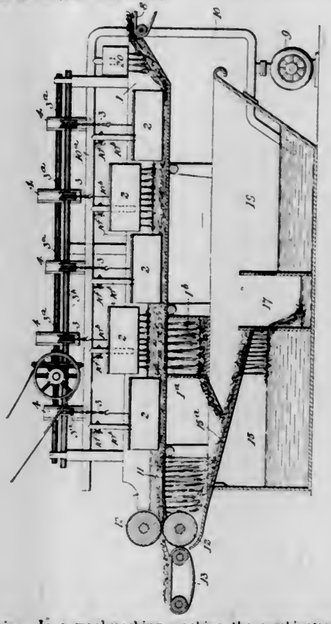


Claim.—1. A skid for retarding and stopping railway vehicles consisting of a skidding part A with a plane or curved surface, continuous or not, a movable point B and side-plates or cheeks D. D.

2. A skid for railway vehicles provided with a clip or clamping arrangement for preventing the skid from falling off a rail such clip or clamping arrangement consisting of or comprising clip or clamp springs *b b* a releasing pin *c* two other pins *d, d*, and a spiral spring *f*, the whole arranged substantially as described.

519,625. WOOL-WASHING MACHINE.

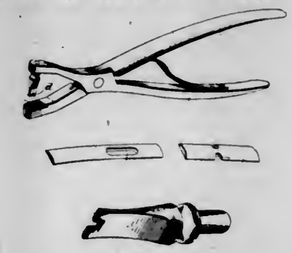
WILLIAM BLACKBURN and ARTHUR W. BLACKBURN, Cleckheaton, England. Filed July 31, 1893. Serial No. 481,965. (No model.)



Claim.—In a wool-washing machine, the combination with a tank, a series of rising and falling troughs, and a grate 11 situated at the delivery end of the tank, of a supplemental grate 1^a located beneath one of the troughs, and a box 1^b beneath the same having a discharge opening, the supplemental grate being adapted to remove a large part of the dirt and sediment from the wool by the scouring action of the water, and the squeezing action of the trough before the wool reaches the grate 11, substantially as described.

519,626. PUNCHING-TOOL.

FREDERICK P. BROOKS, Oxford, N. Y. Filed June 9, 1893. Serial No. 477,070. (No model.)



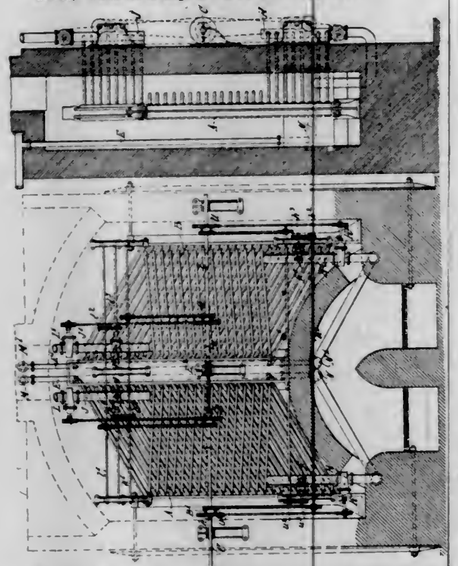
Claim.—1. As a means for preparing the ends of cane for splicing, a female die which is provided with an oblong opening and a male die that has its operative end adapted for entrance into such opening, and is provided thereon with cutting faces that are separated by a space substantially equal to the width of the opening in the female die, in combination with mechanism whereby said dies may be moved toward or from each other, substantially as and for the purpose specified.

2. As a means for preparing the ends of cane for splicing, a female die which is provided with an oblong opening and a male die adapted for entrance into such opening having its operative end bifurcated to

form two separated cutting faces with a space between them substantially equal to the width of the opening in the female die, in combination with two pivoted levers, that carry each a die, substantially as and for the purpose shown.

519,627. APPARATUS FOR MAKING OXYGEN.

FERDINAND FANTA, London, England, assignor to the Oxygen Producing Syndicate, Limited, same place. Filed May 12, 1892. Serial No. 432,813. (No model.) Patented in England June 23, 1891. No. 10,667.



Claim.—1. In an apparatus for an automatic and continuous production of oxygen gas: the combination of two sets of retorts A B placed at an incline within a furnace, of the collectors H H', J J', the pipes E E' M M' N N' and w^4, the valves K K', L L', f f', g g', the cocks O O', the fan X, the pipes w^5, w^6, the coils w^6 w^9 within the coolers R R', the pipes w^7 w^{10} the reservoirs S S', branch-pipes I I', floats v v', rods T T' with the sliding-sleeves x x', pulleys V V', said sleeves and pulleys being adapted to form a friction clutch, means for operating the sleeves from the rods T T' of the floats v v' with shaft C, supported in the threaded bearing E^2 and carrying the studs h i k l adapted to engage with the double-wheels O^2 P Q U, shafts k' l' u' h' and wheels k^2 k^3, l^2 l^3, u^2 u^3, h^2 h^3, substantially as and for the purpose described.

2. In an apparatus for an automatic and continuous production of oxygen gas: the combination, with the steam-pipes w^3 w^4, oxygen-pipe w^5 and branch-pipe I located on the lower part of an upward bend of the oxygen-pipe, of a pressure regulated valve V^2 consisting of the valve-casing a, having mouths f^3 f^3 e e' for the entrance and exit of steam and oxygen, the diaphragm b dividing the casing into two chambers, the bolt h^4 and valve g^4 connected to the diaphragm b, said valve being adapted to close the communication between the mouths f^3 and f^3 when the diaphragm is contracted, means for guiding the free end of bolt h^4, and a spring i^5 adapted to keep valve g^4 normally off its seat, substantially as and for the purpose described.

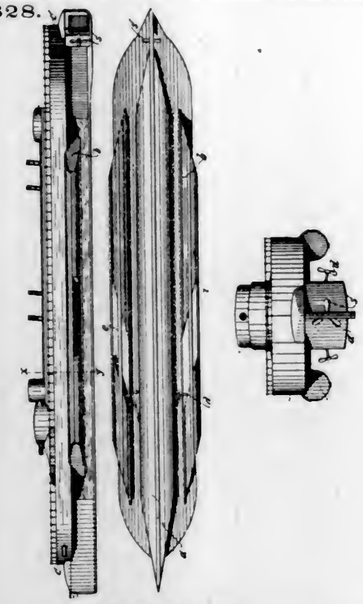
3. In an apparatus for an automatic and continuous production of oxygen gas the retorts A and B, each consisting of an outer recipient with inlet channel c' and outlet channel c^2 and of an inner recipient, the top and bottom whereof are perforated, the space between both recipients being divided longitudinally by means of wires, substantially as and for the purpose described.

519,628. FORM OF SHIPS.

ALBERT FORSTE, Berlin, Germany. Filed July 6, 1893. Serial No. 479,770. (No model.)

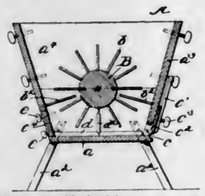
Claim.—In a ship with a central sub-hull extending throughout the length of the ship, and with two lateral sub-hulls connected by the main-hull and forming inverted channels with the latter, the combination with propellers arranged within said channels and having an oblique position with regard to the direction of the central sub-hull, of oblique cuts provided within the lateral sub-hulls, said cuts extending in the direction of the propeller-shafts, for the purpose as described.

519,628.



519,629. MANURE-PULVERIZER.

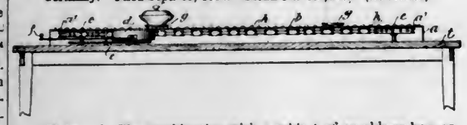
JOHN F. HAYGOOD and JOHN H. ROACH, near Watkinsville, Ga. Filed Oct. 9, 1893. Serial No. 487,647. (No model.)



Claim.—A bin A, provided with a stationary bottom a, and longitudinal slots at the bottom of each of its walls a^3, a^4; rabbet c', secured on each end of the wall a^3; door c^3, adapted to work up and down in the grooves of said rabbets; false wall c^4, provided with cleaners d, having the hooked ends d', and mounted with pins d^3; pins b^3, extending from the inner walls of the bin, and cylinder B, journaled in said bin and provided with pins b, substantially as shown and described and for the purposes set forth.

519,630. SELF-WAITING TABLE.

RAPHAEL HOGG, Neustadt, Germany. Filed Sept. 15, 1892. Serial No. 445,996. (No model.)

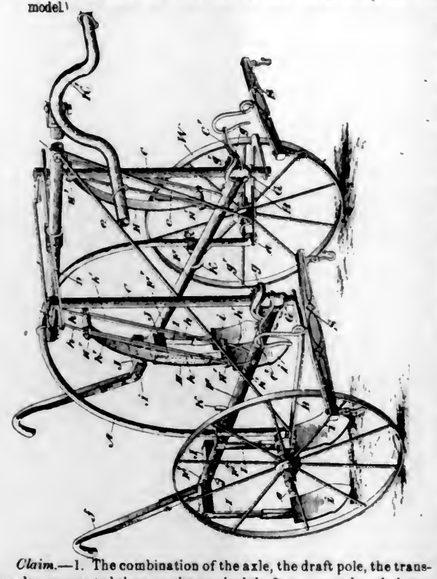


Claim.—1. The combination with a table t, of an oblong box or casing a surmounting and fixed to the table and provided with a slot a', an endless chain b traveling in juxtaposition to the slot and having vertical sleeves b^3 which connect the links of the chain, the pulley c supported by the box or casing and engaging the chain, and rotary trays g having pendent bolts g' journaled in the sleeves of the endless chain, substantially as described.

2. The combination with a table t, of an oblong box or casing a surmounting the table and having its top portion provided with two sets of rollers h and a slot a', an endless chain b traveling in juxtaposition to the slot and having vertical sleeves b^3, the pulleys c supported by the box or casing and engaging the endless chain, and rotary trays g resting on the said rollers and provided with vertical bolts g' extending through the slot in the box or casing and removably journaled in the sleeves of the chain, substantially as described.

519,631. STRADDLE-ROW WHEEL-CULTIVATOR.

JOHN I. HOKE, South Bend, Ind. Filed Sept. 28, 1893. Serial No. 486,662. (No model.)



Claim.—1. The combination of the axle, the draft pole, the transverse bar connected thereto, the vertical shafts connected at their upper ends to said bar, and the opposite bars connecting the lower ends of the respective shafts to the axle; whereby swing of said shafts is prevented with the cultivator beams having a direct double connection with the said shafts, whereby lateral and vertical movement of the beams is permitted but rotation thereof prevented, substantially as described.

2. The combination of the axle, the bars attached to the ends thereof, the draft pole, the transverse bar thereon, the vertical shafts connected to the former and latter bars, with the crank arms on the lower ends of said shafts to which single trees are to be connected, the crank arms on the upper ends of said shafts, and a connection between the uppermost crank arms, and the cultivators, each of which is attached directly to one of said shafts substantially as described and for the purpose specified.

3. The combination of the vertical shafts, their supports and the cultivators connected to said shafts; with the crank arms attached to said shafts for the attachment of the single trees, and means substantially as described whereby the rotation of one shaft causes a similar movement of the other shaft and consequently opposite movements of the crank-arms, substantially as specified.

4. The combination of the axle, the draft pole, the vertical shafts on opposite sides of the poles journaled in proper supports, the draft crank arms on the lower ends of said shafts, the crank arms on the upper ends thereof, and the rod connecting the upper crank arms; and the cultivator beams connected to said shafts, substantially as described.

5. The combination of the axle, the draft pole, its cross bar, the horizontal bars attached to the axle at each side of the pole, the vertical shafts journaled in said cross bar and horizontal bars, and the cultivator beams connected to said shafts, substantially as described.

6. The combination of the axle, the draft pole, its cross bar the horizontal bars attached to the axle at each side of the pole, the vertical shafts journaled in said cross bar and horizontal bars, the draft crank arms attached to said shafts and connections whereby they are caused to turn synchronously and the cultivator beams connected loosely to said shafts, substantially as specified.

7. The combination of the axle, the draft pole, the cross bar on said pole, the horizontally disposed bars connected to the axle, and the vertical shafts journaled in said cross bar and horizontally disposed bars; with the cultivator beams and the casting g and plate G connecting them to the shafts, substantially as set forth.

8. The combination of the wheeled axle, the L-shaped bars connected thereto, the vertical shafts connected to the front ends of said bars and the cultivators attached to said shafts substantially as specified.

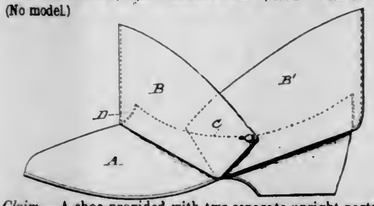
9. The combination of the wheeled axle, the L-shaped bars connected thereto, the draft pole, its cross bar, the shafts journaled in said cross bar and the L-shaped bars, the cultivators connected to said shafts, and the stay rods connected to the pole and said L-shaped bars, substantially as specified.

10. The combination of the wheeled axle, the draft pole attached thereto, the substantially vertical shafts connected to the axle at their lower ends and connected to the draft pole at their upper ends, and the cultivator beams loosely connected to said shafts, substantially as described; with the spring supports for the beam consisting of a flat spring and parallel sliding rods respectively connected at one end to the frame and beam, and at their opposite ends to opposite ends of the spring, whereby the latter is bowed as the rods are drawn apart longitudinally, substantially as set forth.

11. The combination of the wheeled axle, the L-shaped bars attached thereto, the draft pole, the cross bar thereof, the vertical shafts connected at top to the ends of the cross bar and at bottom to the L-shaped bars, the stay rods, and the cultivator beams, the connections between said beams and the shafts, and the springs for upholding said beams, all substantially as set forth.

519,632. PANTALOONS-PROTECTOR.

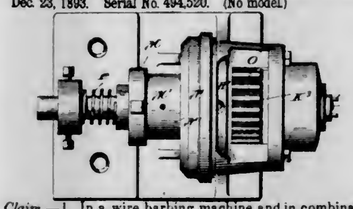
LEAH D. JONES, New Berne, N. C. Filed Dec. 9, 1892. Renewed Jan. 22, 1894. Serial No. 497,721. (No model.)



Claim.—A shoe provided with two separate upright parts B, B', forming a leggin constructed as a part of the shoe, the lower ends of said parts surrounding the mouth of the shoe turned outwardly, and then projecting upwardly from the quarters and vamp at some distance below said mouth, forming a pocket to hold and protect the lower end of the trousers leg in its normal position on the shoe, said parts adapted to be opened at the center and thrown back, and provided at that point with a fastening to unite them and hold them up and around the trousers leg substantially as described.

519,633. WIRE-BARBING MACHINE.

WILLIAM A. KILMER, Newburg, N. Y., administrator of Irving A. Kilmer, deceased. Filed Dec. 23, 1893. Serial No. 494,520. (No model.)



Claim.—1. In a wire barbing machine and in combination with the fixed barb wire cutters, movable cutters mounted upon a platform provided for vertical movement and connected for operation with a cam on the feed shaft, substantially as specified.

2. Cutting mechanism for a barb wire machine comprising a movable platform pivoted on a horizontal pivot and carrying cutters, cooperating with fixed cutters and connected with the cam adjustably mounted on the feed shaft whereby the timing of the cutting operation is fixed relative to that of the barb wire feeding mechanism, substantially as specified.

3. The combination with a barb wire feeding mechanism and with the shaft which operates the same, of barb wire cutting mechanism, a platform carrying cutters and mounted for vertical oscillatory movement and a cam adjustably mounted upon said shaft, substantially as specified.

4. A coiling head comprising a center guide, a sleeve mounted thereon with roller splines and carrying the coiling pins, and means for rotating and reciprocating the sleeve, substantially as specified.

5. A coiling head comprising a center guide, a sleeve mounted thereon, a pulley mounted on the sleeve and interposed rollers acting as splines, substantially as specified.

6. A coiling head comprising a center guide, a sleeve provided with a face plate carrying coiling pins and with spline seats and a gear the hub of which is provided with spline seats longer than those in the sleeve, a wheel or collar mounted on the sleeve and adapted to contact with a cam for reciprocating the sleeve independently of the gear and the center guide, substantially as specified.

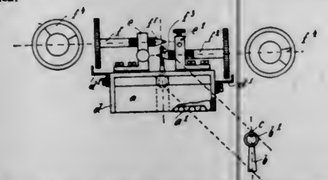
7. A coiling head comprising a center guide, a sleeve mounted thereon for rotation and reciprocation, a gear mounted on the sleeve for rotating the same, a collar mounted on the sleeve for reciprocating the same in one direction and a spring for reciprocating it in an opposite direction, substantially as specified.

8. A coiling head comprising a center guide, a sleeve mounted upon the guide and provided with a face plate embracing the guide and carrying coiling pins and with spline seats, a gear mounted on the sleeve and provided with spline seats, interposed splines, and bearings for rotatably supporting the gear, substantially as specified.

9. A coiling head comprising a center guide, a sleeve mounted for rotation and reciprocation thereon and carrying coiling pins, a gear connected to the sleeve by splines and rotatably mounted in bearings, and a collar mounted on the sleeve and abutting against the gear bearing, and a spring to normally maintain the collar against the gear-bearing, substantially as specified.

10. In a coiling head, a bearing for a gear and for an inclosed sleeve, center guide, and interposed splines, a series of oil holes in the bearing, the gear hub, and the sleeve for lubricating the interior bearing surfaces of the elements mentioned, substantially as specified.

519,634. ELECTRICAL TEMPERATURE-ANNUNCIATOR. ERNST KLOSS, Stettin, Germany. Filed Dec. 22, 1893. Serial No. 494,478. (No model.)

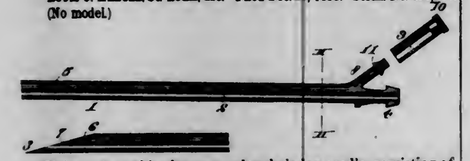


Claim.—1. In an electric temperature-annunciator with a casing closed by a diaphragm, and containing gas, the combination with a projection fixed to said diaphragm, and adapted to close an electric circuit, of an adjustable screw arranged parallel or nearly parallel to the diaphragm, said screw forming a cone at its end, adapted to limit the movements of said projection, for the purpose as described.

2. In an electric temperature-annunciator with a casing closed by a diaphragm, and containing gas, the combination with a projection fixed to the diaphragm in a normal position, and adapted to close an electric circuit when being moved in one direction and another electric circuit when being moved in the other direction of two adjustable screws forming cones at their ends, and being arranged parallel or nearly parallel to the diaphragm, one cone being adapted to limit the movements of said projection in one direction, the other cone being adapted to limit said movements in the other direction, for the purpose as described.

3. In an electric temperature-annunciator with a casing *a* closed by a diaphragm, and containing gas, the combination with a projection *b* fixed to the center of the diaphragm a^3, and having a head-ring *b'*, of two adjustable contact-screws *f* f^3 forming cones *f'* f^3 at their ends, and being arranged parallel to the diaphragm in different planes, cone f^3 catching into ring *b'*, and being adapted to limit the downward movement of the same, cone *f'* extending over ring *b'*, and being adapted to limit the upward movement of the same, the screws *f* f^3 being held by binding clamps *e e'* secured to, and insulated from, a strap *d* fixed to the casing, substantially as described.

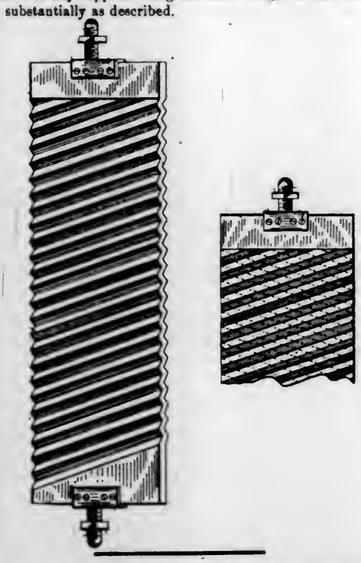
519,635. COMBINED TROCAR AND EMBALMING-NEEDLE. LOUIS G. KREGEL, St. Louis, Mo. Filed Dec. 28, 1893. Serial No. 494,637. (No model.)



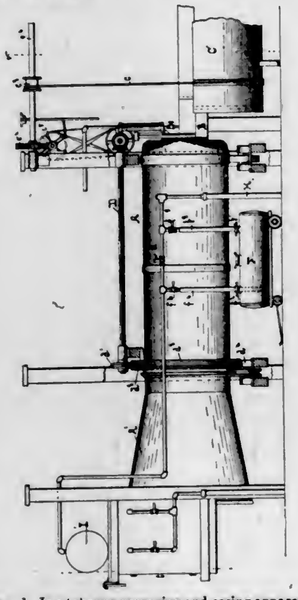
Claim.—A combined trocar and embalming needle, consisting of a tube provided with a horn 8 and a tapered end 3 and having a cavity 2, and an air cavity 5, the inner end 6 of the air cavity stopping short of the inner end 7 of the cavity 2, substantially as shown and described.

519,636. STONE-SAW. MILES LITCHFORD, Columbus, Ohio, assignor of three-eighths to Frederick A. Litchford, Neil Litchford, and Wilber Jones, same place. Filed Sept. 14, 1893. Serial No. 485,490. (No model.)

Claim.—A stone saw provided with corrugations on both of its sides; said corrugations forming valleys and angular ridges whereby the frictional area on the sides of the saw is reduced while water and sand can be freely supplied along the entire length of the saw at all points, substantially as described.



519,637. MACHINE FOR PREPARING AND CASING TOBACCO. CHARLES L. MARBURG, Baltimore, Md., assignor of one-half to the American Tobacco Company, of New Jersey. Filed Nov. 2, 1893. Serial No. 489,778. (No model.)



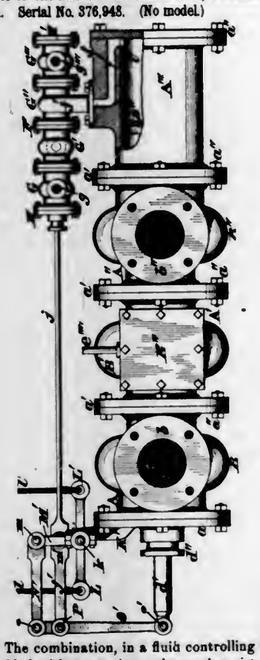
Claim.—1. In a tobacco preparing and casing apparatus the combination with a revolving cylinder provided with means for impelling the tobacco therethrough and means for applying steam to the tobacco during its passage, of a funnel-shaped end to said cylinder opposite to the entrance end for the tobacco, provided with separating and agitating devices, and means for applying the casing material thereto while it is so separated and agitated.

2. In a tobacco preparing apparatus the combination with a revolving cylinder having an open end for receiving the tobacco and means for impelling the tobacco therethrough of a table B, located in front of the open end of the cylinder, a hinged box wherein the tobacco is placed and arranged, means for hoisting said box and holding it in position to enable the operator to take the tobacco therefrom and prepare it to enter the cylinder.

3. In a tobacco preparing and casing apparatus, the combination with a portable tank for holding the casing material, of a stationary tank, and connections between them through which the casing is forced from the portable to the stationary tank means for supplying compressed air to the portable tank and thereby forcing the casing to the stationary tank, and means for applying compressed air to the stationary tank to thereby spray the casing therefrom upon the tobacco.

4. In a tobacco preparing and casing apparatus, the combination with a portable tank F provided with the pipe f^4 extending to near the bottom of said tank, of the compressed air pipe H, and the stationary tank I, means for connecting and disconnecting the pipe H with the tank F and with the pipe f^4, means for connecting and disconnecting the tank I with the pipe H and thereby force the casing material from tank F to tank I and forcing it out of tank I to be sprayed upon the tobacco, substantially as described.

519,638. HYDRAULIC VALVE. EDWIN S. MATTHEWS, Cincinnati, assignor of one-half to James L. Haven, Avondale, Ohio. Filed Jan. 7, 1891. Serial No. 376,948. (No model.)



Claim.—1. The combination, in a fluid controlling valve, of the cylinder, C, provided with ports, *c'*, a reciprocating piston, D', within said cylinder, and a safety stop, E E', adapted to close the ports, *c'*, of said cylinder, C, if the piston of the main motor exceeds a certain limit of stroke, substantially as described.

2. The combination, in a fluid controlling valve, of a cylinder provided with ports, a jacket around said cylinder and having an annular passage exterior to said ports, said passage having two outward openings, a pipe-connection at one of said openings, a cap at the other of said openings, and a sleeved stop encircling said cylinder within said passage.

3. The combination in a fluid controlling valve of a reciprocating piston within the same, a safety-stop, and a cylinder serving as the seat for said piston and safety-stop.

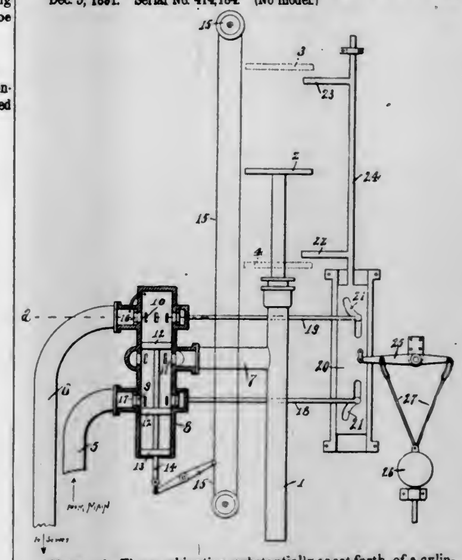
4. The combination, substantially as set forth, of a main valve, an actuating piston therefor, a pilot valve controlling said actuating piston and having a closing motion in the direction of the motion of the actuating piston as it opens the main valve, and a lever fulcrumed at one end and connected at its other end with said actuating piston, and connected intermediate of its length with the pilot valve.

5. In a fluid controlling valve the combination of an actuating cylinder, a pilot valve, a lever fulcrumed at its ends connecting at one end to the piston rod of the actuating cylinder and connected at the other end and intermediate point with two links equal in length or practically so, whose other ends are joined to another link equal in length to the distance separating their junction on the first mentioned lever, or practically so, and connections between the same and pilot valve and operating mechanism, for the purpose described.

6. In a fluid controlling valve the combination of an actuating cylinder, U, a pilot valve, F, a lever, O O', fulcrumed at its ends, *o*, *o'*, connecting at one end, *o'*, to the piston rod, *d d'*, of the actuating cylinder, U, and connected at the other end, *o*, and intermediate point, P, with two links, N', and, *j'*, equal in length or practically so, whose other ends, *m*, and, *m'*, are joined to another link, *p*, equal in length to the distance between the points, *o*, and, P, or practically so, and connections, *j*, between the same and pilot valve and operating mechanism, M', *k*, L, L', *l*, and *l'*, for the purpose described

---

519,639. HYDRAULIC VALVE. EDWIN S. MATTHEWS, Cincinnati, Ohio, assignor of one-half to James L. Haven, same place. Filed Dec. 5, 1891. Serial No. 414,184. (No model.)



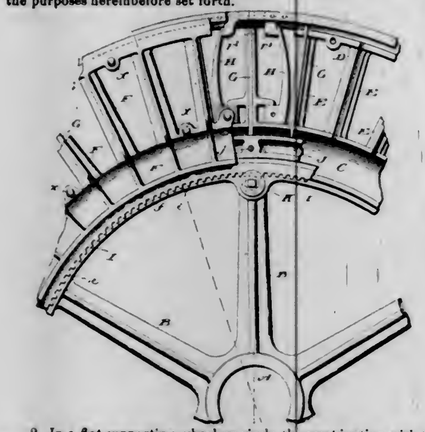
Claim.—1. The combination, substantially as set forth, of a cylindrical valve casing having suitable ports communicating respectively with the supply pipe, the discharge pipe, and the motor cylinder pipe, a movable valve piece adapted to place said motor passage alternately in communication with both of the other passages, or to cut it off from communication with either, a stop valve in the form of a ported ring arranged to close communication with the said supply passage, another stop valve in the form of a ported ring arranged to close communication with the discharge passage, and mechanism connecting with the said two stop valves and adapted to serve in closing either of them alternately regardless of the position of the said movable valve piece.

2. The combination, substantially as set forth, of a valve-casing provided with a supply passage and a discharge passage and a passage to communicate with the motor to be controlled, a movable valve-piece, as a double piston, adapted to place said motor passage in communication alternatively with said supply passage or said discharge passage or to cut it off from communication with either or both, a safety-stop adapted to cut off communication between said valve-casing and its supply and discharge, mechanism for moving said safety-stop to effect the cutting off from the supply and discharge alternatively, and a weight or equivalent resistance connected with said safety-stop and adapted to resist its movement to either closed position and to maintain it in normal open position.

519,640. CARDING-ENGINE. JAMES C. POTTER, Pawtucket, R. I. Filed Jan. 25, 1894. Serial No. 497,974. (No model.)

Claim.—1. In a flat supporting wheel or circle, the combination with a flat supporting ring capable of contracting and expanding in diameter, of a rotatable annular internal gear seated in the wheel, an annular adjusting block mounted on the internal gear but held against rotary movement therewith, and internally screw threaded to engage a corresponding external thread on the internal gear, and pushers

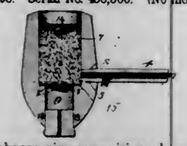
bearing at their outer ends against the ring, and at their inner ends against the exterior of the adjusting block, substantially as and for the purposes hereinbefore set forth.



2. In a flat supporting wheel or circle, the combination with the flat supporting ring capable of contracting and expanding in diameter, of a rotatable annular internal gear seated in the wheel, an annular adjusting block mounted on the internal gear but held against rotary movement therewith, and internally screw threaded to engage a corresponding external thread on the internal gear, and pushers bearing at their outer ends against the ring, and at their inner ends against the exterior of the adjusting block, and means for contracting the ring at the time the pushers are retracted, substantially as and for the purposes hereinbefore set forth.

3. The combination of the flat supporting ring capable of contracting and expanding in diameter, pushers bearing outwardly against the ring, mechanism whereby said pushers are operated to move simultaneously and together, the arms M, M, jointed at their outer ends to the respective sections of the ring, and at their opposite euds to the body of the wheel; and means connected to and operated by the pusher actuating mechanism for drawing together the arms at the time the pushers are retracted, substantially as and for the purposes hereinbefore set forth.

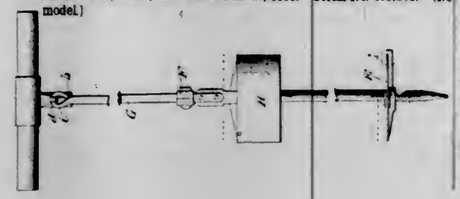
519,641. TOBACCO-PIPE. ANDREW J. FUGH, Bowling Green, Mo. Filed Jan. 16, 1893. Serial No. 458,506. (No model.)



Claim.—1. A tobacco-pipe comprising a bowl 1 formed with cavity 14, offset 15, nicotine chamber 9, open-bottom 13, and pipe-stem perforation 2 above the offset, the perforated plate 6 seated on the offset beneath the pipe-stem perforation, the perforated stopper 10 located in the open-bottom, and the pipe-stem 4 having its end 3, inserted in the pipe-stem perforation, flush with the interior of the bowl; substantially as described.

2. A tobacco pipe comprising a bowl having a tobacco compartment and a nicotine chamber beneath the tobacco compartment, the perforated division plate between the compartment and the chamber, the hollow pipe-stem inserted in the bowl above the plate, and the perforated stopper; substantially as described.

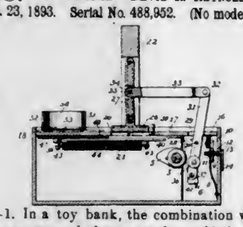
519,642. EARTH-AUGER. FRANK L. REAM and CHARLES F. HERBOLSHEIMER, Ladd, Ill. Filed Dec. 30, 1893. Serial No. 495,278. (No model.)



Claim.—1. In boring apparatus the combination of the central tube or rod provided with air inlet and outlet holes, the handle secured to the top of said central tube, provided with a sleeve having a hook formed thereon, the auger consisting of a circular cutting plate having an opening, and a hinged valve, and the adjustable clamp on said central tube, with the adjustable cylinder having an arm, and a hand lever, the lower end of which is secured to said arm and its upper end secured loosely in the adjustable clamp, substantially as described.

2. In a boring apparatus, the combination of the central tube or rod provided with inlet and outlet holes, the handle secured to the top of said central tube provided with a sleeve having a hook formed thereon, the auger consisting of a circular plate having an opening therein, one side of said opening extending beyond the circumference of the said plate and bent downward and upward to form a horizontal and a vertical cutting edge, the hinged valve for closing the opening in the circular plate, with the adjustable cylinder having an arm, and a hand lever, the lower end of which is secured to said arm and its upper end provided with a ring, and the adjustable clamp embracing the central tube and hand lever to afford means for holding said hand lever at any desired height, substantially as described.

519,643. TOY BANK. DAVID R. REYNOLDS, Philadelphia, Pa. Filed Oct. 23, 1893. Serial No. 488,952. (No model.)



Claim.—1. In a toy bank, the combination with a coin-box, a removable cover secured thereon and provided at one end with a depending perforated lug, of a locking-plate having a bolt or lug arranged thereon located at one end of the coin-box, and a screw passing freely through the wall of the coin-box and engaging the lock-plate, substantially as specified.

2. In a toy bank, the combination with a coin-box, a removable cover secured thereon and provided at one end with a depending perforated lug, of a lock-plate having a bolt or lug arranged thereon located at one end of the coin-box, a screw passing freely through the wall of the coin-box and engaging the lock-plate, and a key-guard secured to the outer end of the screw and arranged over an imitation key-hole, substantially as specified.

3. In a toy bank, the combination with a coin-box, a cover for the same, means for securing one end of the cover, and a perforated lug at the opposite end thereof, of a spring-arm secured to the end wall of the coin-box, a metal plate arranged upon the spring-arm, a bolt carried by the metal plate, a threaded perforation formed in the plate, a screw journaled in the end wall of the box and engaging the threaded perforation in the plate, and a key-guard secured to the outer end and arranged over an imitation key-hole, substantially as specified.

4. In a toy bank, the combination with the coin receptacle provided upon its upper side with an opening, of a vertical movable closure arranged above said opening, a coin-discharging device arranged adjacent to the opening, and means for raising the closure, and for subsequently operating the discharging device, substantially as specified.

5. In a toy bank, the combination with a coin-box, the top of which is provided with a coin-receiving opening, of a cut-off arranged upon the under side of the cover, a disk arranged over the opening, and means for raising the disk and simultaneously moving the cut-off under the opening and for retracting the cut off and lowering the disk, substantially as specified.

6. In a toy bank, the combination with a coin-box, the cover of which is provided with a coin-opening, a cut-off arranged under the cover, a disk arranged over the cover, a coin-throwing device arranged in front of the opening, and means for simultaneously raising the disk, operating the coin throwing disk, and moving the cut-off under the opening, substantially as specified

7. In a toy bank, the combination with a coin-box, the cover of which is provided with an opening, a disk arranged over the opening, a pivoted cut-off arranged under the cover, a feed-cup arranged in advance of the opening upon the cover and having a slot, a pivoted-arm arranged upon the cover and having its free end disposed in the slot of the cup, and means for raising the disk, operating the arm, and moving the cut-off under the opening in the cover, substantially as specified.

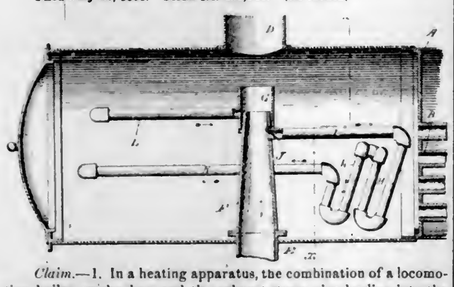
8. In a toy bank, the combination with a coin-box the cover of which is provided with an opening, a disk arranged over the opening,

a pivoted cut-off arranged under the cover, a feed-cup arranged in advance of the opening upon the cover and having a slot, a pivoted arm arranged upon the cover and having its free end disposed in the slot of the cup, a transverse shaft journaled in the walls of the coin-box and provided at one end with a hand wheel, and devices between the shaft, the disk, cut-off aud arm for operating the same at each rotation of the shaft, substantially as specified.

9. In a toy bank, the combination with the coin-box having a coin passage, a stop arranged in rear thereof, a yoke arranged over the passage and having guides, a disk arranged in the guides and adapted to cover the passage, a toggle-joint lever hinged at its upper end to the yoke and at its lower end to the disk, a cut-off pivoted under the cover, a coin-throwing arm carried by the pivot of the cut-off and arranged above the cover, a feed-cup having a slot in which said arm operates, a depending lug arranged on the cut-off, a slide-bar having a slot engaging the lug and arranged upon the under side of the cover, a spring for retracting the slide-bar, a vibratory lever pivoted in a slot in the cover and at its lower end to the slide-bar, a connecting-bar between the lower end of the vibratory-lever and the joint of the toggle-lever, and means for operating the vibratory lever, substantially as specified.

10. In a toy bank, the combination with the coin-box having a coin passage, a stop arranged in rear thereof, a yoke arranged over the passage and having guides, a disk arranged in the guides and adapted to cover the passage, a toggle-joint lever hinged at its upper end to the yoke and at its lower end to the disk, a cut-off pivoted under the cover, a coin-throwing arm carried by the pivot of the cut-off and arranged above the cover, a feed-cup having a slot in which said arm operates, a depending lug arranged on the cut-off, a slide-bar having a slot engaging the lug and arranged upon the under side of the cover, a spring for retracing the slide bar, a vibratory lever pivoted in a slot in the cover and at its lower end to the slide-bar, a connecting-bar between the lower end of the vibratory-lever and the joint of the toggle-lever, a transverse shaft journaled in the walls of the coin-box, a hand-wheel at one end of the shaft, a cam arranged upon the shaft, and a friction roller arranged upon a spindle upon the side of the vibratory lever in the path of the cam, substantially as specified.

519,644. CAR-HEATER. CATHARINE E. RODGERS, Bellefonte, Pa., administratrix of GEORGE W. RODGERS, deceased, assignor of two-thirds to ISAAC THOMAS, same place, and A. S. VALENTINE, Atlantic City, N. J. Filed July 26, 1893. Serial No. 481,540. (No model.)



Claim.—1. In a heating apparatus, the combination of a locomotive boiler smoke box and the exhaust steam pipe leading into the same; of a heater comprising parallel series of connected vertical coils arranged at an angle directly in front of the flue ends within said smoke box and having a feed or supply pipe connected to said exhaust pipe and a valve arranged in said feed pipe and adapted to be opened by the pressure of steam in the exhaust pipe, substantially as set forth.

2. In a steam car heater, the combination with a locomotive boiler smoke box and an exhaust steam cone leading into the box; of a grid-iron or baffle coil heater arranged at an angle within the smoke box directly in front of the flue ends and comprising a transverse series of vertical coils, said heater having a feed or supply pipe connected to the exhaust cone near its upper end, and a main circulating pipe, an inwardly and upwardly opening drop valve located in the feed or supply pipe of the heater and hinged or pivoted at its upper end to the top of the feed pipe, at the connection thereof with the exhaust cone and adapted to be exposed to the direct lifting action of the exhausting steam, an ejector nozzle fitted over the upper end of the exhaust cone, and the return circulating pipe connected to the ejector nozzle at the base thereof, substantially as set forth.

519,645. PHOTOGRAPHIC PLATE. THOMAS C. ROCHE, Brooklyn, assignor to the E. & H. T. Anthony & Company, New York, N. Y. Filed Jan. 31, 1893. Serial No. 460,470. (No specimens.)

Claim.—1. A transparent support for a sensitive surface, having a sub-coating of non-actinic coloring matter, which is not injurious during the entire photographic process, and is soluble in the developer employed during said process, and a coating of sensitive emulsion upon the sub-coating, substantially as and for the purpose set forth.

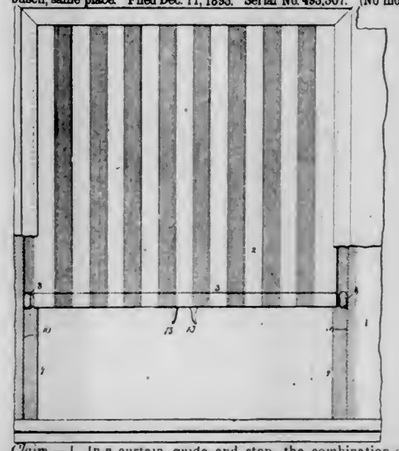
2. A transparent support for a sensitive surface having a layer of non-actinic coloring matter upon its front side, which is not injurious during the entire photographic process and is soluble in the developer employed during said process, substantially as and for the purpose set forth.

519,646. PHOTOGRAPHIC PLATE. THOMAS C. ROCHE, Brooklyn, assignor to the E. & H. T. Anthony & Company, New York, N. Y. Original application filed Jan. 31, 1893, Serial No. 460,470. Divided and this application filed Apr. 20, 1893. Serial No. 471,213. (No specimens.)

Claim.—1. A transparent support, such as glass, collodion films, mica, celluloid, paper, &c., coated with a homogeneous, uniformly colored film in substantially the proportions set forth, of sensitized gelatine emulsion and non-actinic inert coloring matter of mineral origin, which is soluble in water, weak acid, alcohol or alkali, substantially as and for the purpose set forth.

2. A transparent support for a sensitive coating, having upon one surface, a homogeneous, uniformly colored layer, composed in substantially the proportions set forth, of sensitive gelatino argentic material and non-actinic inert soluble coloring material of mineral origiu, substantially as and for the purpose set forth.

519,647. CURTAIN GUIDE AND STOP. GUSTAVE C. SAWADE, St. Louis, Mo., assignor of two-thirds to Peter M. Kling and George J. Kobusch, same place. Filed Dec. 11, 1893. Serial No. 493,307. (No model.)



Claim.—1. In a curtain guide and stop, the combination of a shade stick secured to the lower edge of the curtain, rods inclosed by the shade stick recessed at their adjacent ends, and provided with handles at their inner ends, and tips on their outer ends, and a crimped spring 11 fitting in reduced portions of the adjacent ends of the rods; substantially as and for the purpose set forth.

2. In a curtain guide and stop, the combination of a shade stick secured to the lower edge of the curtain, and consisting of two channel bars fitting one over the other, flat rods located within the shade sticks, tips on the outer ends of the rods, handles on the inner ends of the rods, and a spring for forcing the rods outwardly; substantially as and for the purpose set forth.

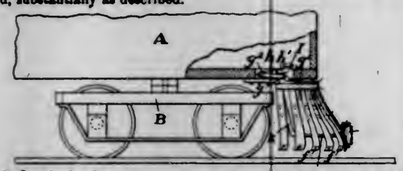
3. In a curtain guide and stop, the combination of a shade stick, consisting of two channel bars inclosed in a seam of the curtain, flat rods inclosed by the shade stick, and having reduced inner ends, handles on the inner ends of the rods, and which project through the shade stick, tips on the outer ends of the rods, and a flat, crimped spring 11, fitting in the reduced portions of the inner ends of the rods; substantially as and for the purpose set forth.

519,648. SAFETY CAR-FENDER. GEORGE C. SCHMIDT, Baltimore, Md., assignor of one-half to Abraham Harman, same place. Filed July 25, 1893. Serial No. 481,439. (No model.)

Claim.—1. The combination of a car-body; a frame movable up and down, that is to and from the car-body; a fender attached to the said frame and comprising a number of resilient spring-fingers each

rigidly secured at its upper end but having its lower end free; and means for operating the said frame and fender up and down.

2. The combination of a car-body; a number of resilient spring-fingers each rigidly secured at its upper end, and having its lower end free; and a rigid stay-bar having position in the rear of the spring-fingers and serving as a stop after the said fingers have bent backward, substantially as described.

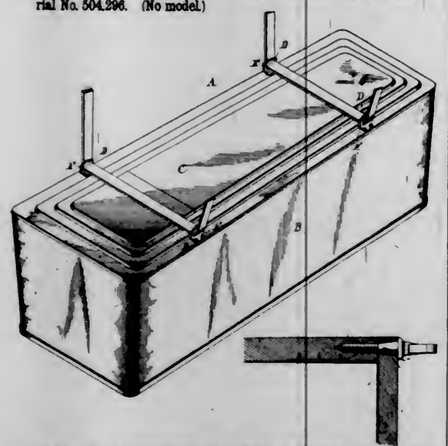


3. In a fender for street-cars the combination of a number of resilient spring-fingers each secured at its upper end, and having its lower end free; and a vertically disposed revoluble roller having position in advance of the spring-fingers and midway between the rails of the car-track.

4. In a fender for cars, the combination of a number of resilient spring-fingers each secured at its upper end and having its lower end free; a rigid stay-bar having position in the rear of the spring-fingers; and a vertically disposed revoluble roller in advance of the spring-fingers and midway between the rails of the car-track.

5. The combination of a car-body; hanger rods depending below the car-body; a frame vertically-movable to and from the car-body on the said rods; springs on the rods to sustain the frame; a fender attached to the frame and comprising a number of resilient spring-fingers each secured at its upper end and having its lower end free, and a foot lever to depress the frame and spring-fingers.

519,649. ATTACHMENT FOR COFFINS. CLARENCE D. SHRADER, New Albany, Ind. Filed Nov. 19, 1892. Renewed Mar. 19, 1894. Serial No. 504,296. (No model.)



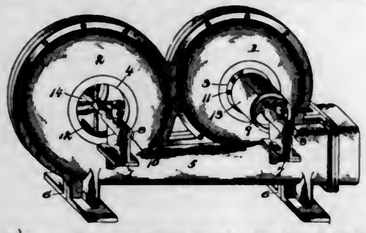
Claim.—1. An attachment for coffins comprising a socket-piece secured to the side of the coffin, and a screw eye, fitted in a perforation in the lid of the coffin and engaged in a socket in said socket piece, to hold the lid in place, said screw-eye being provided with a loop for the attachment of a lowering or exhuming strap or rope, substantially as specified.

2. An attachment for coffins comprising a fixed socket piece, adapted to be secured to the body of the coffin, and a screw-eye having a loop for the attachment of a strap or rope, a tapered and shouldered shank to pass through a perforation in the coffin lid, and a threaded stem to engage a threaded socket in the socket-piece, substantially as specified.

3. An attachment for coffins having a socket-piece comprising a plate to be secured to the side of the coffin and a boss adapted to fit in a counter-sink in the same and provided with an open-ended, threaded socket, and an adjustable screw eye, having a loop, a tapered shank, a shoulder at the upper end of the shank, and a threaded stem to engage the socket in the socket-piece, substantially as specified.

4. An attachment for coffins comprising a screw eye fitted in a perforation in the lid of the coffin to hold the lid in place, said screw eye being provided with a loop for the attachment of a lowering or exhuming strap or rope, substantially as specified.

519,650. PRESSURE-BLOWER. GEORGE A. SPANG, North Tonawanda, N. Y. Filed Nov. 7, 1893. Serial No. 490,295. (No model.)



Claim.—1. A pressure blower having a plurality of fans disposed in tandem, and a common discharge or outlet arranged tangentially to said fans, substantially as specified.

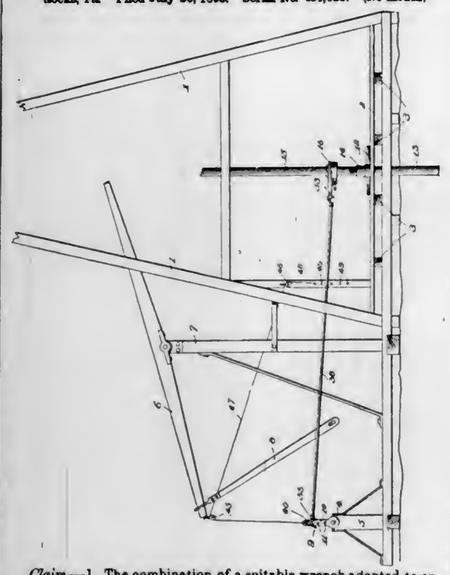
2. A pressure blower having a plurality of fans, and a common discharge or outlet arranged tangentially to and upon the same side of said fans, substantially as specified.

3. A pressure blower having a plurality of fans disposed in tandem and arranged in independent fan-casings provided respectively with air-inlets, and a common discharge or outlet arranged tangentially to the fans, substantially as specified.

4. A pressure blower having a plurality of fans, and a common discharge or outlet arranged at a tangent to said fans, the shaft of the rear fan being arranged in a plane below that of the shaft of the front fan, whereby the rear fan discharges in a plane lower than the front fan, substantially as specified.

5. A pressure blower having a plurality of fan-casings, and a common discharge or outlet connecting said casings and arranged at a tangent thereto, a separating wall arranged between the fan-casings and extending below the plane of the upper side of said discharge or outlet, and rotary fans located respectively in the said casings, each casing being provided with an air inlet, substantially as specified.

519,651. OIL-WELL-CASING RIG. COCHRAN C. STOVER, McKee's Rocks, Pa. Filed July 20, 1893. Serial No. 481,025. (No model.)



Claim.—1. The combination of a suitable wrench adapted to engage a casing section, a power shaft, a crank-arm keyed to said power shaft, and a pitman connected to said crank-arm and wrench for communicating motion from the former to the latter and effecting the unscrewing or screwing together of the casing sections, substantially as set forth.

2. The combination of suitable means for rigidly holding and supporting a casing section, with a ratchet wrench adapted to engage a casing section, a power shaft, a crank arm keyed to said power shaft, and a pitman connected to said crank-arm and wrench for communicating motion from the former to the latter and effecting the unscrewing or screwing together of the casing sections, substantially as set forth.

3. The combination of suitable means for rigidly holding and supporting a casing section, a sectional clamp adapted to be clamped to a casing section and formed with exterior ratchet teeth, a wrench provided with a suitable spring pawl or jaw adapted to encircle said sectional clamp and engage the ratchet teeth, a power shaft, a crank-arm keyed to said power shaft, and a pitman connected to said crank-arm and wrench for communicating a reciprocating motion to the latter from the rotary motion of the former and effecting the unscrewing or screwing together of the casing sections, substantially as set forth.

4. The combination of a suitable wrench adapted to engage a casing section, a power shaft, a crank-arm keyed to said power shaft, a pitman connected to said crank-arm and wrench for communicating motion from the former to the latter and effecting the unscrewing or screwing together of the casing sections and suitable means for varying the length of the strokes imparted to the wrench, substantially as set forth.

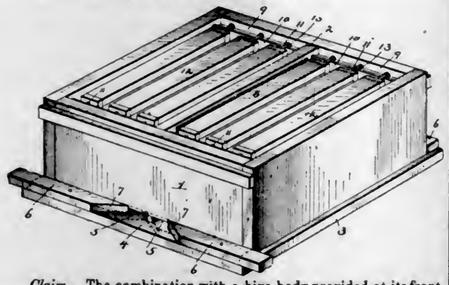
5. The combination of a suitable wrench adapted to engage a casing section, a series of perforations in the handle of the wrench, a power shaft, a crank-arm keyed to the power shaft, and a pitman attached at one end to the crank-arm and provided at the other end with a suitable hook which is adapted to engage the perforations in the wrench handle, substantially as and for the purpose herein set forth.

6. The combination of a suitable wrench adapted to engage a casing section, a power shaft, a crank-arm keyed to said power shaft and formed with a series of openings throughout its length, a crank pin adapted to be removably applied to any one of said openings, and a pitman engaging said crank pin at one end and the wrench at the other end, substantially as and for the purpose set forth.

7. The combination of a suitable wrench adapted to engage a casing section, a power shaft, a crank-arm keyed to said power shaft and provided with a crank pin, and a pitman adapted to engage said crank pin and wrench at its opposite ends for transmitting motion from the former to the latter; said pitman consisting of a suitable rod or bar, having a single pointed hook at one end for engagement with the wrench, and a double-pointed or U-shaped hook at the other end for engagement with the crank pin, sdbstantially as and for the purpose set forth.

8. The combination of a suitable wrench adapted to engage a casing section, a power shaft, a crank and crank pin, a pitman adapted to engage said crank pin and wrench, a series of pulleys journaled above the pitman, and a cord passing over said pulleys and attached to the pitman for raising it out of engagement with the crank pin, substantially as set forth.

519,652. BEEHIVE. BARNETT TAYLOR, Forestville, Minn. Filed July 1, 1893. Serial No. 479,411. (No model.)



Claim.—The combination with a hive body provided at its front and back with continuous bee entrances extending entirely across it, a stationary foraminous partition arranged vertically and located intermediate of the ends of the bee entrances and forming two hive compartments, a pair of strips arranged at each bee entrance, each strip controlling the entrance to one of the compartments, and fastening devices for adjustably securing the strips to the body of the hive for closing and regulating the bee entrances, substantially as described.

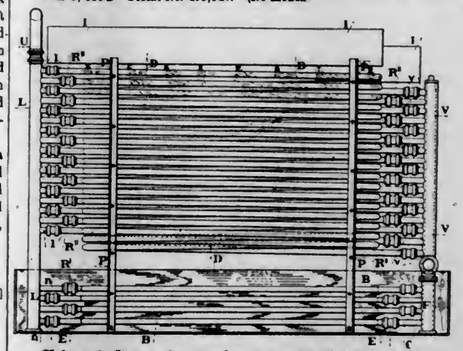
519,653. CURLING-IRON. GEORGE L. THOMPSON, Chicago, Ill. Filed Sept. 1, 1893. Serial No. 484,594. (No model.)

Claim.—1. A curling iron comprising a cylindric metal rod constituting a mandrel member bent to form a shank and having in the inner surface of its shank a longitudinal groove, a clasping member pivotally connected with the mandrel member and having an outwardly extending shank, a V-shaped wire spring interposed between the mandrel shank and clasp shank and adapted to rest at one end within the groove in the cylindric mandrel shank, said groove being made of the same width as, but of less depth than, the diameter of the wire, and wooden handles having sockets to receive the mandrel and clasp shanks, the handle which is attached to the mandrel shank being forced over the end of the same and the spring which rests in the said groove, substantially as described.



2. A curling iron comprising a cylindric metal rod constituting a mandrel member bent to form a shank and having in the inner surface of its shank a longitudinal groove and at the end of said groove a depression or recess, a clasping member pivotally connected with the mandrel member and having an outwardly extending shank, a V-shaped wire spring interposed between the mandrel shank and clasp shank and adapted to rest at one end within the groove in the cylindric mandrel shank and having its extreme end bent outwardly to enter the said depression or recess, said groove being made of the same width as, but of less depth than, the diameter of the wire, and wooden handles having sockets to receive the mandrel and clasp shanks, the handle which is attached to the mandrel shank being forced over the end of the same and the spring which rests in the said groove, substantially as described.

519,654. CONDENSER. JOHN M. WESTERLIN, Chicago, Ill. Filed Jan. 5, 1894. Serial No. 495,847. (No model.)



Claim.—1. In a surface condenser a series of pipe coils B, having manifolds or headers F, N, at ends of coils, and provided with union pipes or couplings R, R', by which said pipes are connected to said headers, in combination with an upper series of pipe coils D having manifolds or headers L, V, and provided with union pipes or couplings R", by which the pipe coils of the upper series are connected to the headers L, V, a union pipe U, joining the outlet header N, of the lower series of pipe coils B, with the inlet header L, of the upper series of pipe coils D, that the ammonia gas as it leaves the lower series of pipe coils is conveyed by the union pipe U to the inlet header L, of the upper series of pipe coils, substantially as shown and described.

2. In a surface condenser a water tank E, containing a series of pipe coils B, having manifolds or headers F, N, connected to the ends of said pipe coils by pipe couplings, in combination with a series of pipe coils D, having manifolds or headers L, V, connected to the ends of said pipe coils by pipe couplings, a union pipe U, joining the headers N, L, distributing troughs I, situated above the upper series of pipe coils, and tie posts P, clamping and supporting the pipe coils, substantially as shown and described.

519,655. ADJUSTABLE DESK. LOUIS ATTERT, Cassel, Germany Filed June 14, 1893. Serial No. 477,542. (No model.) Patented in England June 24, 1890, No. 9,789.

Claim.—1. In an improved desk which can be employed for a variety of purposes, the combination, with the plate, of a frame arranged under such plate and pivotally connected with same, supporting arms pivotally attached thereto, links adjustably connected with such arms and pivotally connected with the said frame, and of a bent rod for supporting the plate, which is provided on the under side with racks or notched ledges for receiving such supporting rod, substantially as described and shown.

2. The combination of the plate or panel *a*, a frame pivotally connected thereto, the supporting arms adjustably secured to the said frame, and a link pivoted at its upper end to the said frame and having its lower end adapted to slide upon one or both of the supporting arms for securing the plate *a* in different positions relative to the frame, substantially as described



3. In a desk, the combination of the plate *a*, the supporting frame to which it is pivoted, and the pivoted rod *i* for sustaining the plate at an angle to the frame, provided with a centrally arranged depressed portion *i'*, substantially as and for the purposes set forth.

4. In combination with a desk having a cross or transverse rod constituting a part of its support, a table upon which said desk rests a hooked clamp adapted to engage with the said transverse rod, and with the table substantially as and for the purposes set forth.

5. In combination with a desk having a transverse rod constituting a part of its support, a clamping device for securing the desk to a table, consisting of a hook *j'* adapted to engage with the said transverse rod, and a clamp *j* to which the said book is adjustably secured, substantially as described.

6. In a desk, the combination with the plate *a* having the notches or recesses along its edge, of an adjustable ledge provided with the spring catches adapted to engage with the said recesses, substantially as and for the purposes set forth.

7. In a desk, the combination of a plate, a supporting frame to which it is pivoted, the pivoted rod for sustaining the plate at an angle to the frame, the supporting arms adjustably secured to said frame at about its center, and a link pivoted at its upper end to the frame and having its lower end adapted to slide upon one or both of the supporting arms whereby the said plate is raised or lowered to any desired position, substantially as set forth.

519,656. OVERSHOE ATTACHMENT. ARTHUR J. BARBER, Sodus, N. Y., assignor of two-thirds to Ellera J. Whittleton and Martin V. Teetor, same place. Filed Sept. 4, 1893. Serial No. 484,736. (No model.)



Claim.—1. The device for retaining a shoe on the foot consisting of the spring wire having parts 6 and 7 the latter being secured to the top of the heel portion of the shoe and connected by a bend or coil with the part 6 normally standing at an angle of about forty-five degrees to the part 7 and adapted to embrace the foot or inner shoe near the upper part of the heel portion thereof, substantially as set forth.

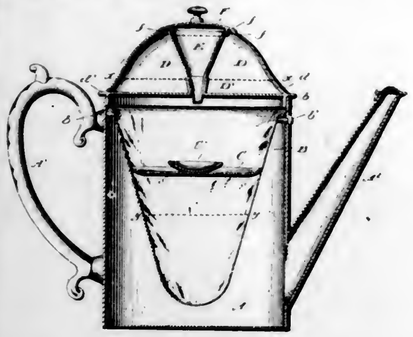
2. The device for retaining a shoe on the foot consisting of the spring wire having parts 6 and 7 the latter being secured to the top of the heel portion of the shoe and connected by a bend or coil with the part 6 normally standing at an angle of about forty-five degrees to the part 7 and adapted to embrace the foot or inner shoe near the upper part of the heel portion thereof said part 6 having a loop 8, substantially as set forth.

3. The device for retaining a shoe on the foot consisting of the spring wire having parts 6 and 7 the latter being secured to the top of the heel portion of the shoe and connected by a bend or coil with the part 6 normally standing at an angle of about forty-five degrees to the part 7 and adapted to embrace the foot or inner shoe near the upper part of the heel portion thereof, and eyelets 2 situated at the juncture of said parts near the top of the heel portion of the overshoe and secured therein, substantially as set forth.

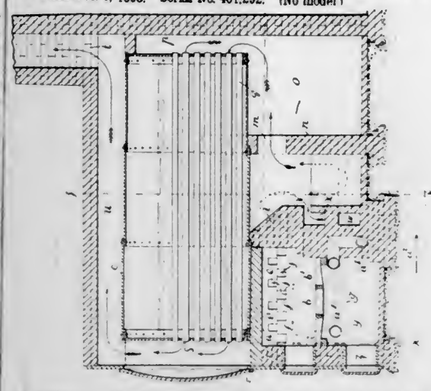
519,657. COFFEE-POT. WILLIAM A. BARRINGTON, Louisville, Ky. Filed June 8, 1893. Serial No. 476,909. (No model.)

Claim.—1. A perforated spreader for a coffee pot, substantially dish-shaped and provided upon its upper face with a receptacle serving also as a handle, as set forth.

2. A condenser for a coffee pot formed with a downwardly extending flange, a horizontal flange and having central openings in its bottom and top and a movable cover for the upper opening with a depending flange, substantially as specified.



519,658. SMOKELESS BOILER-SETTING. JOHN W. BATES, Hoboken, N. J., assignor of one-half to James T. Trory, Brooklyn, N. Y. Filed Feb. 6, 1893. Serial No. 461,292. (No model.)

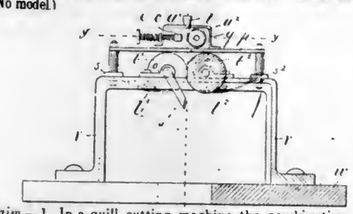


Claim.—1. In a boiler furnace, the combination of the primary furnace chamber, the arch intermediate of the said chamber and the part of the boiler over said chamber, the regenerative chamber above the arch, a line of passages thereto along each base of the arch, fresh air inlets in the side walls of the furnace under the arch and adapted to supply air directly to the streams of gases entering the regenerative chamber through said passages, the passages through the bridge wall, above the arch, from the regenerative chambers, and the secondary chamber having the longitudinal down draft divisions receiving the gases at the top, and the longitudinal middle division receiving the gases at the bottom substantially as described

2. In a boiler furnace, the combination of the primary furnace and the secondary furnace behind the bridge wall both having direct action on the boiler and said secondary furnace consisting of two longitudinal down draft divisions receiving the products of primary combustion atop, and the intermediate longitudinal up draft division receiving the said products from the other divisions below, and discharging them from the top, and the fresh air inlets in the back of the bridge wall to said secondary combustion chamber substantially as described.

3. In a boiler furnace the combination of the primary furnace chamber, the arch intermediate to said chamber and the part of the boiler over said chamber, the regenerative chamber above the arch, passages thereto through the arch, fresh air inlets supplying air to the gases entering the regenerative chamber through said passages in the arch, and the secondary combustion chamber behind the bridge wall, consisting of the two down draft divisions receiving the products of primary combustion atop, and the intermediate up draft division receiving the said products from the other division below and discharging them atop, and the fresh air inlets in the back of the bridge wall to said secondary combustion chamber substantially as described.

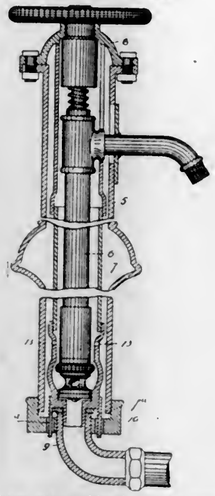
519,659. MACHINE FOR CUTTING QUILL-STRIPS. ERNST BLUTCHEN, Berlin, Germany. Filed June 14, 1893. Serial No. 477,582. (No model.)



Claim.—1. In a quill cutting machine the combination of the cutting rollers and the two feed rollers geared together so as to rotate in opposite directions, and fluted, whereby they prevent the quills from being fed obliquely, substantially as and for the purpose described.

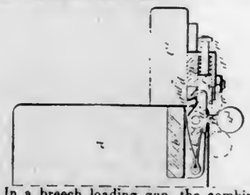
2. In a quill cutting machine, in combination with the cutting rollers, the removable support in which are mounted the feeding rollers and consisting of the plate *p* provided with a slot between the feeding and cutting rollers, and a casing *q*, surrounding the feeding rollers and provided with a feed slot, substantially as and for the purposes set forth.

519,660. HYDRANT. ROBERT A. BROOKS, Denver, Colo. Filed July 12, 1893. Serial No. 480,196. (No model.)



Claim.—In a hydrant, the combination of the outer casing having its base provided with waste ports, the inner valve pipe and the intermediate pipe carrying the valve seat, the last named pipe being provided with tubular projections protruding through the waste port in the casing, substantially as described.

519,661. SAFETY BREECH-LOCK FOR GUNS. JEAN B. G. A. CANET, Paris, France, assignor of one-half to the Sir Joseph Whitworth & Company, Limited, Manchester, England. Filed July 14, 1892. Serial No. 440,022. (No model.) Patented in France Dec. 29, 1886, No. 180,578, and in England July 13, 1891, No. 11,858.



Claim.—1. In a breech loading gun, the combination of the breech, a breech block, an operating lever, one of said members being provided with a slot, a catch adapted to engage said slot, a pendulous device operated by the recoil and connected with said catch for releasing it, and an automatic closer for said slot.

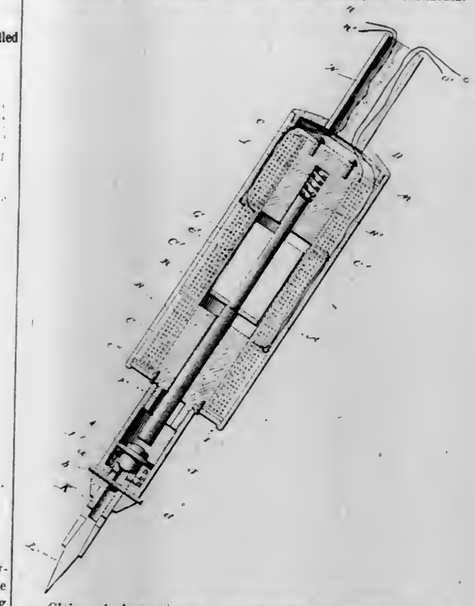
2. In a breech loading gun, the combination of the breech, a breech block, an operating lever therefor, a catch, means for actuating said catch, and an automatic closer for said slot.

3. In a breech loading gun, the combination of a breech block, an actuating lever therefor provided with a slot, a catch pivoted to the gun and adapted to engage said slot when the breech is closed, means for actuating said catch, means actuated by the recoil of the gun for releasing said catch, and an automatic closer for said slot.

4. In a breech loading gun, the combination of a breech block, an operating lever therefor provided with a slot, a spring catch pivoted to the gun and adapted to engage said slot when the breech is closed, a weight suspended from the catch, a slide on said lever for closing the slot, and a spring for pushing said slide in closed position, said catch engaging the slide to open it when the breech is closed.

5. In a breech loading gun, the combination of a breech block, an operating lever therefor provided with a slot and with a spring actuated slide for closing said slot, a spring catch adapted to engage said slot when the breech is closed, and a weight suspended from said catch for releasing it under the influence of the recoil, said catch having an inclined face engaged by said lever and by said slide when the breech is closed.

519,662. ELECTROMAGNETIC TOOL. CHARLES F. CARPENTER, Louisville, Ky. Filed June 20, 1891. Serial No. 396,973. (No model.)



Claim.—1. In an electro-magnetic tool, the combination with a pair of magnetic cores having their like poles separated from each other by an interval or space, and coils for energizing said cores, of an armature in said interval or space, a non-magnetic rod or plunger carried by said armature, and a coil surrounding said armature, said coil having means for its energization by an alternating current, substantially as specified.

2. In an electro-magnetic tool, the combination with a pair of magnet cores supported with their like poles separated from each other by an interval or space, and coils or helices surrounding said cores, of an armature placed between the said cores, and shorter than the distance separating their like poles, an axial non-magnetic rod or plunger carried by said armature, said rod passing loosely through a bore in one of said cores, and at its upper end working in a slot in the other of said cores, a spring in said slot against which the end of said rod or plunger seats, a bit-carrier operated by said rod or plunger, and a coil or helix of alternating polarity for energizing said armature, substantially as specified.

3. In an electro-magnetic tool, the combination with a pair of magnet-cores placed so that a pole of one is opposite to and faces a pole of the other, but separated therefrom by an interval, and coils or helices for energizing said cores, of an armature in said interval, and free to reciprocate therein, a rod or plunger carried by said armature, and a coil for energizing said armature, substantially as specified.

4. In an electro-magnetic tool, the cylinder or case in which are held the operating magnets, said shell at one extremity having the

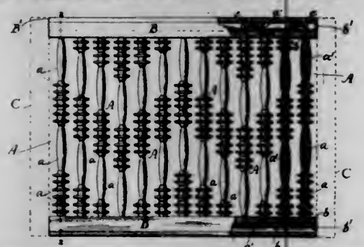
interior rim P, supporting a plate on which the core of the lower magnet is supported, said core having an axial threaded extension, through which the hammer rod passes, a tubular guide J connected to said extension, an axial pin or bit carrier *k* working in said guide, the bit carried thereby, and the retracting spring *l*, substantially as specified.

5. In an electro-magnetic tool, the combination with the cylinder or case A, of the longitudinally split spool therein divided into three sections and wound with three independent coils or helices, the stationary cores B, B' located within said spool at opposite extremities of the casing, and influenced by the end coils, so that their inner ends are of the same polarity, a loose armature core C capable of a reciprocating movement between the extremities of the end cores, and a non-magnetic hammer rod carried by and passing axially through said loose core, the coil of said core carrying an alternating current, substantially as specified

6. In an electro-magnetic tool, the combination with a pair of electro-magnets having their like poles facing each other, and whose coils are energized by constant currents, of an armature between the said poles, and a surrounding coil or helix carrying an alternating current, whereby as the polarity of said armature is successively reversed, the said armature is rapidly reciprocated by the alternating direct attraction and repulsion of the said magnets upon its respective poles, substantially as specified.

7. In an electro-magnetic tool, having end magnets separated from each other by an intervening space, and presenting their like poles to each other, and a central magnet, carrying an alternating current having a loose armature core reciprocating between the inner extremities of the cores of the end magnets, and a bit operating hammer rod carried by said armature core, substantially as specified.

519,663. ORNAMENTAL GRILLE-WORK. FLORENCE M. CARR, Chicago, Ill., assignor to the F. M. Carr Manufacturing Company, same place. Filed June 7, 1892. Serial No. 435,869. (No model.)



Claim.—1. A new article of manufacture, consisting of a number of strings of turnings, each of said strings being made up of a number of separate turnings of different sizes and shapes and rigid poles between which the said strings are stretched, substantially as set forth.

2. A new article of manufacture, consisting of a number of strings of turnings, each of said strings being made up of a number of separate turnings of different sizes and shapes, and a frame to which both ends of each string are attached whereby the strings are held in place, substantially as set forth

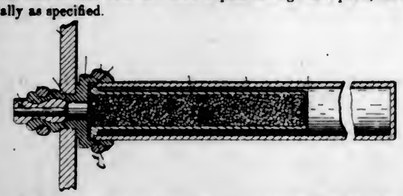
3. A new article of manufacture, consisting of a number of strings A, each made up of a number of perforated turnings *a* of different shapes and sizes, and a strand *a'* upon which they are strung, and a rigid pole B having perforations *b*, and a channel *b'*, the strands *a'* being passed through said perforations and secured in said channel substantially as set forth

4. A new article of manufacture, consisting of a number of strings A, each made up of a number of turnings *a* of different shapes and sizes, and a strand *a'* upon which they are strung, a rigid pole B having perforations *b* and a channel *b'*, the strands *a'* being passed through said perforations and secured in said channel, and the wedges *e* inserted beneath the strands in the channel for regulating their tension, substantially as set forth.

5. A new article of manufacture, consisting of a number of strings A, each made up of a number of turnings *a* of different shapes and sizes and a strand *a'*, upon which they are strung, a rigid pole B, having perforations *b* and a channel *b'*, the strands *a'* being passed through said perforations and secured in said channel, and a strip B' secured to the pole B, and covering its channel, substantially as set forth.

519,664. FILTER. CHARLES R. CHAMBERLAND, Paris, France. Filed Aug 29, 1892. Serial No. 444,472. (No model.) Patented in France Dec. 17, 1886, No. 180,324, and Apr. 7, 1892, No. 230,748.

Claim.—1. In a filter, a porous filtering tube, and an elastic cap for said tube, said cap being provided with an extended neck or nipple adapted to project into an opening in a perforated plate, and means, substantially as described, for securing said cap in said opening to cause the filtrate from said tube to pass through said plate, substantially as specified.



2. In a filter, the combination with a porous filtering tube, of a cap or cover to fit over and partially close the end of said tube, said cap being provided with an extended neck or nipple adapted to pass through an opening in a perforated plate, and a perforated plug for securing said neck or nipple in said opening, substantially as specified.

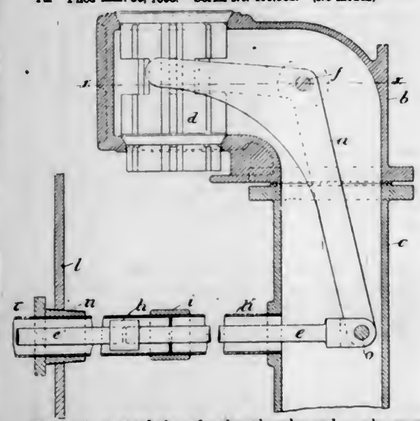
3. In a filter, the combination with a porous filtering tube, of an elastic cap or cover to fit over the end of said tube a perforated neck on said cap or cover adapted to fit into an opening in a perforated plate, a perforated plug adapted to be inserted into said neck or nipple, means, substantially as described, for securing said nipple to said plug and the said cap to the filtering tube, substantially as specified.

4. An elastic perforated cap or cover for a porous porcelain filtering tube having downwardly projecting flanges to engage with the end of said tube, an upwardly projecting nipple to extend into an opening in a perforated plate, and means for securing said nipple in said opening and said tube in said cap, substantially as specified.

5. In a filter, a porous, open-ended, earthenware tube, and a cap formed of rubber or other elastic material and provided with a downwardly projecting flange to fit over said tube and having a perforation to permit the escape of the filtrate from said tube, substantially as and for the purpose specified.

6. An elastic perforated cap or cover in combination with a porous filtering tube, said cap being provided with a downwardly extending flange to embrace said tube, and an upwardly extending neck or nipple by means of which it is connected to a perforated plate, a perforated plug for securing said neck or nipple in said perforated plate, and elastic retaining rings to hold said nipple to said plug and said cap to said porous tube, substantially as specified.

519,665. THROTTLE-VALVE. BERNARD CLARK, Susquehanna, Pa. Filed Mar. 30, 1893. Serial No. 468,382. (No model.)

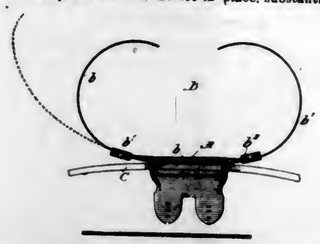


Claim.—1. A stand-pipe of a throttle-valve and a valve proper seated therein, combined with a bell-crank valve-operating device, inclosed by the stand-pipe, substantially as set forth

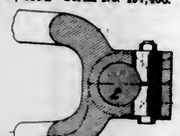
2. A throttle-valve stand-pipe, a valve proper seated therein, and a bell-crank valve-operating device confined within the stand-pipe, combined with a tubular connection reaching from the stand-pipe to the front plate of the boiler and connecting the said bell-crank valve-operating device to the throttle lever, substantially as set forth.

519,666. REIN-SUPPORT. EDWIN W. CRAINE, Missouri Valley, Iowa. Filed Mar. 6, 1893. Serial No. 464,754. (No model.)

Claim.—The combination with the back strap of a harness having a transverse opening or loop, of a detachable rein supporter consisting of two curved flat strips of resilient metal of substantially the same width and length from one end to the other and each provided at one end with a flat eye adapted to pass over the free end and greater portion of the other strip, one of said strips passing through the transverse opening in the back strap and the other passing outside of said strap, the free ends of the strips rising on either side to form an open loop to receive the reins, and the eyes lying adjacent to the back strap to hold the device in place, substantially as described.

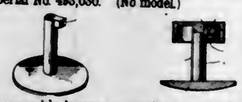


519,667. CLAMPING DEVICE FOR BICYCLES. LOUIS J. CRECELIUS, St. Louis, Mo., assignor of one-half to William Grayson, same place. Filed Jan. 20, 1894. Serial No. 497,468. (No model.)



Claim.—In combination with the frame of a bicycle having a socket to receive the part to be clamped and a socket extending transversely thereto, a pair of blocks adapted to fit in said last mentioned socket and being notched to bear against the object to be clamped, and a bolt for drawing said blocks together, substantially as and for the purpose set forth.

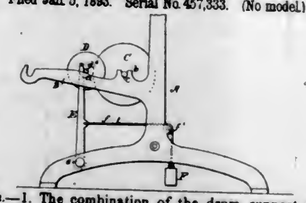
519,668. BUTTON. THOMAS W. CROZIER, Roanoke, Va. Filed Dec. 7, 1893. Serial No. 493,030. (No model.)



Claim.—1. A separable button comprising the hollow head having a depending stud, a base provided with a hollow post fitting on the stud and provided with a laterally extending web, a spring mounted in the hollow head and engaging the end of the web, and a cross-bar mounted in the hollow head for engaging the lower edge of the web, substantially as described

2. The herein described improved separable button, the same consisting of the hollow head having a depending stud, the cross-bar at one side of the head provided with a slot, and the spring interposed between the cross-bar and the exterior wall, of the disk-like base having the central hollow post, and the beveled web formed at one side and at the upper end of the post and adapted to be sprung through the slot and bear against the spring and to be engaged thereby, substantially as specified.

519,669. SPOOL-SUPPORT. THOMAS C. DILL, Philadelphia, Pa., assignor to the Dill Spool Support Company, same place, and Camden, N. J. Filed Jan. 5, 1893. Serial No. 457,333. (No model.)

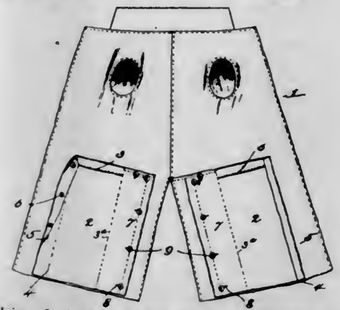


Claim.—1. The combination of the drum, support therefor, a spool adapted to rest against the drum and to be turned thereby, and an eccentrically curved bearing surface for the spool, the incline of said bearing surface being greater as it nears the drum, substantially as specified.

2. In a spool support the frame having substantially horizontally extending arms, a drum mounted in fixed bearings on said frame, with a spool having journals by which it is suspended between the arms, whereby the arms take the major portion of the weight of the spool, with means for pressing the spool against the drum so that the pressure will be uniform, substantially as described and for the purpose specified.

3. The combination of the frame, the driving drum adapted to bearings thereon, horizontal arms projecting from the side of said frame, a journaled spool supported by said arms at the side of the drum, pivoted levers bearing against the journals of the spool and weights secured to the levers, substantially as described.

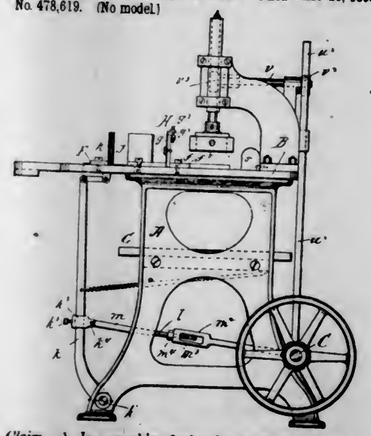
519,670. OVERCOAT. BENJAMIN F. GASKAWAY, Dublin, Tex. Filed May 22, 1893. Serial No. 475,051. (No model.)



Claim.—1. An overcoat provided on the inner side of each of its tail-portions with rectangular leggin-blanks secured between their edges thereto and depending therefrom, each leggin-blank being provided at its outer edge with a fly having fastenings and at its inner edge with a series of fastenings for engaging the fastenings on the fly or fastenings applied to the inner face of the coat-tail, substantially as specified.

2. An overcoat provided on the inner side of each of its tail-portions with a rectangular leggin-blank secured by vertical and transverse stitches between its opposite edges thereto forming an outer fly 5 and inner flap 7, the latter having button-holes and buttons located in rear of the flap upon the inner side of the tail-portion and upon the rear side of the fly, substantially as specified.

519,671. MACHINE FOR BENDING PAPER-BOX BLANKS. CHAUNCEY W. GAY, Springfield, Mass. Filed June 23, 1893. Serial No. 478,619. (No model.)



Claim.—1. In a machine for bending box blanks in combination, a table with an aperture through which the blanks are forced to be bent, and a plunger of a horizontal reciprocatory plate for forcing the blanks singly and successively to the position over the aperture, and a spring gage at the rear of the said aperture, substantially as described.

2. In a box blank bending machine, the combination with the table with the aperture, the blank feed slide and the plunger, and an actuating cam therefor with an abrupt depression, and a medium of connection between the cam and plunger, all combined and arranged

whereby the latter will have an accelerated movement at the conclusion of its stroke, substantially as and for the purpose set forth.

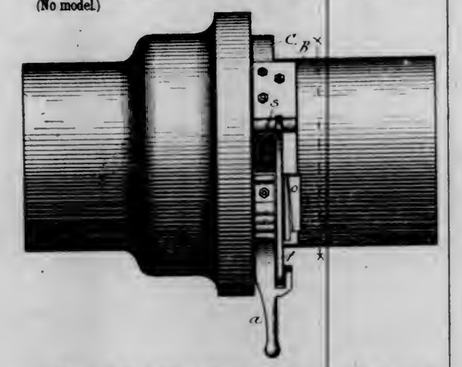
3. In a box blank bending machine, the combination with the table with the aperture, *d*, through which the blanks are forced to be bent, and the aperture, *n*, at the rear thereof, of the blank feed slide and the spring gage stop, *o*, in said recess, *n*, substantially as described.

4. In a box blank bending machine, the combination with the table having the rectangular aperture, *d*, and removable and interchangeable frame sections, of the plunger comprising the rectangular body and the rectangular jacket or frame with the internal planed ribs, and devices for confining the jacket on the body, substantially as described.

5. The combination with the plunger body, *f*, having the external shoulder, *f'*, of the jacket, *s*, having the internal planed ribs, s^3, and the one or more internally applied set screws, f^3, substantially as described.

6. The combination with the table having the apertures *d* and *n*, the plunger and the spring gage, *o*, at the rear, the parallel side guide-gages, J J, which are laterally adjustable, the gate-gage, H, comprising the plate, *h*, which is adjustable forward and rearward and having the vertically adjustable part, *g*, the lower edge of which is slightly above the top of the table, the lugs or gages, K K, at the front which are diagonally adjustable and the reciprocating plate, *j*, movable in a plane just below the lower edge of the said vertically adjustable part, *g*, substantially as described.

519,672. DEVICE FOR FILLING JOINTS OF METAL PIPE. JEDEDIAH F. GLEASON, Quincy, Mass. Filed Dec. 28, 1891. Serial No. 495,019. (No model.)



Claim.—1. In a filling or sealing device for pipe joints, in combination, a flexible band or gasket of less circumference than the pipe upon which it is to be used, a clamping mechanism substantially of the kind described adapted to draw together the ends of said gasket, and a pour-hole section adapted to overlap the ends of said gasket, all as set forth.

2. In a pipe filling or sealing device for pipe joints, in combination, a band or gasket of any suitable material of less circumference than the pipe upon which it is to be used and adapted to clasp said pipe, a shorter section of band or gasket of sufficient length and adapted to overlap or close the ends of said gasket to form a pour-hole and a clamping mechanism, substantially as described.

519,673. ENVELOPE AND STATIONERY CASE. NEWTON HEBARD, Amenia, assignor of one-half to Charles M. Dennison, Brooklyn, N. Y. Filed Feb. 20, 1894. Serial No. 500,838. (No model.)

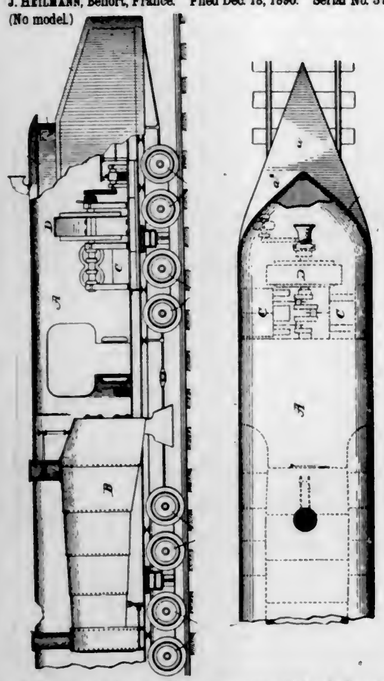


Claim.—1. An envelope and stationery case provided with series of overlapping pockets, upright partitions spaced from the back of the case and forming portions of the front walls of the pockets, and upright rods forming additional portions of the front walls of the pockets, substantially as set forth.

2. An envelope and stationery case provided with series of horizontally overlapping pockets, the rear walls of the pockets having a slant from the rear toward the front, the front walls of the pockets consisting of partitions and rods, the partitions being recessed at the ends of the pockets to admit of access to the ends of the articles held therein, substantially as set forth.

3. An envelope and stationery case provided with series of overlapping pockets and upright partitions spaced from the back of the case and forming walls for the pockets, along a portion of their front, substantially as set forth.

519,674. ELECTRICAL PROPULSION OF RAILWAY-CARS. JEAN J. HEILMANN, Belfort, France. Filed Dec. 18, 1890. Serial No. 375,161. (No model.)



Claim.—1. An electric railway car, comprising a body provided at one end with a sharp prow, and at the rear end with rearwardly extending wings, hinged to each side, a bogie truck at each end, electric motors mounted concentrically on the axles of said trucks, and a compound steam engine, one or more dynamos driven thereby, and a steam generator, all inclosed in said car body, said dynamo or dynamos being connected with said motors, substantially as described.

2. The combination with a railway vehicle, having a wedge-shaped prow, with its front edge standing vertically, of a lookout over the prow, protected by glass plates set at an angle of forty-five degrees to and upon each side of the vertical plane of the axis of the vehicle, substantially as described.

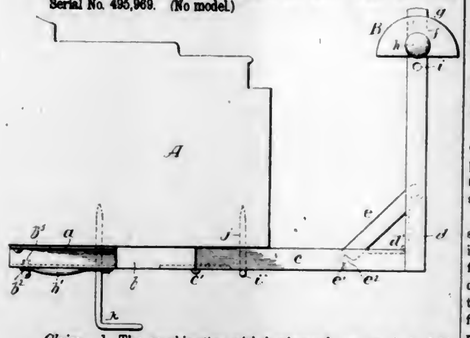
3. An electrically propelled train consisting of a plurality of vehecles, the ends of which are provided with wings adapted to open outwardly on vertical axes, and when shut to cover the space between the vehicles, and preserve the skin continuity of the train substantially as described.

4. The combination with an electric car carrying a boiler, a compound steam engine, one or more dynamos, and electric motors mounted concentrically on the axles of said car, of one or more trail cars, each having its own motor, hinged wings arranged to close the gap between two cars, and detachable couplings for completing one or more electric circuits from the dynamo to the several cars, substantially as described.

5. The combination with the axle of a motor truck, of a flanged disk fastened thereto, an armature concentrically mounted on the axle, radial springs connecting the armature and the disk, and lying within the flange, and a friction band brake applied to the periphery of the flange, substantially as described.

6. An electric railway train consisting of the combination with a vehicle carrying a compound steam engine, and a dynamo driven by the same, of vehicles provided with electric motors mechanically connected with their axles, electric lights, and electrically operated ventilating fans, separate circuits extending from the dynamo through the train for each kind of translating devices and detachable couplings between the vehicles arranged to simultaneously connect all the circuits, substantially as described.

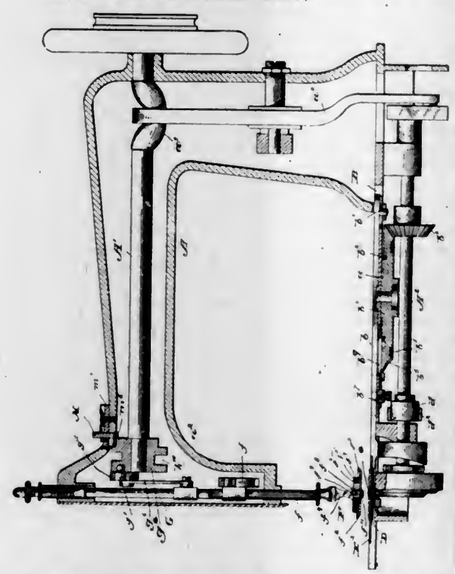
519,675. WRIST-SUPPORTING HAND-GUIDE FOR PIANOS OR ORGANS. CHARLES HEINRICH, New York, N. Y. Filed Jan. 6, 1894. Serial No. 495,969. (No model.)



Claim.—1. The combination with horizontal arms made in folding sections and means for attaching them to the piano, of vertical arms hinged to the horizontal arms, braces, and supporting bar adjustably connected with the vertical arms, substantially as set forth.

2. The combination with horizontal arms made in folding sections, vertical bars connected therewith, and supporting bar adjustably connected with the vertical bars, of boxes with which the horizontal arms are adjustably connected, and brackets for the sections of the horizontal arms when folded or straightened out, substantially as set forth.

519,676. SEWING-MACHINE. JOHN T. JONES, Utica, N. Y. Filed Nov. 20, 1890. Serial No. 372,053. (Model.)



Claim.—1. In a sewing machine, the combination with the stitch forming devices thereof, of the feed bar *b* provided with the feed dog D, operating mechanism for vibrating and reciprocating said feed bar, an arm or lever d^4 by which the said feed dog is lifted at proper intervals, a throat *e*, the lever e^3 by which the said throat is carried and which is pivoted between its ends at e^2 to a stationary part of the machine and connected by a pin e^5 at its end opposite to said throat to said arm or lever d^4; whereby the said throat will be lifted as the feed dog is lowered, and vice versa.

2. In a sewing machine, the combination with the feed lever *b* provided with the feed dog D, operating mechanism for reciprocating and vibrating said lever, the arm or lever d^4 by which said feed dog is lifted, operating mechanism for said arm or lever d^4, the plate E' carried by said arm or lever d^4 and provided with an opening, the needle throat *e* operating through said opening, the lever e^3 by which said needle throat is carried, and which is connected to the said arm or lever d^4 to be operated thereby so that the said throat will be lifted when the feed bar is lowered, and vice versa.

3. In a sewing machine, a presser foot comprising a flat plate f^2 of considerable area having entirely about it an upwardly rounded edge f^3, and a presser bar supported in fixed bearings and with which bar said foot has a jointed connection, combined with a feed dog and mechanism for imparting six-motioned movements to said feed dog to cause the latter to feed the work laterally as well as forward, or forward and backward, substantially as and for the purposes described.

4. In a sewing machine, the combination with a presser-foot bar, of the presser-foot, secured by pivots to a ring, said ring secured by pivots, at right angles to those attaching the said foot to the first named ring, to another ring carried at the end of the presser bar, substantially as described.

5. In a variable stitch sewing machine, the combination with the stitch forming devices thereof, of a feed dog, mechanism for imparting variable feed movements to the said feed dog, a take-up, means for operating said take-up to cause it to slacken the needle thread during the movement of the feed dog, and to take up said thread to tighten the stitch after the needle has entered the material and before the next stitch in order is formed, a thread nipping device arranged to grip the thread between the take-up and the spool during the time the stitch is being tightened, and a pull-off operated to draw thread from the spool during the time of the feeding movement and when the take-up has slackened the thread, to permit the work to be fed without any considerable drag upon the thread or threads running thereto.

6. In a sewing machine, the combination with the stitch-forming mechanism thereof, of a presser foot, a feed dog, mechanism for imparting variable feeding movements to said feed dog, and a rising and falling device arranged beneath the said presser foot and timed to nip the needle thread against said presser foot during the time when the shuttle is expanding a loop of needle thread, so that when a loop is expanded for the passage of the shuttle the thread will be drawn entirely from the take-up side of the needle and a puckering draft upon the thread at the stitch side of the needle be avoided, substantially as set forth.

7. In a sewing machine, the combination with the stitch forming mechanism thereof, of a presser foot, a feed dog, mechanism for imparting variable feed movements to said feed dog, a rising and falling throat plate arranged to nip the needle thread against the said presser foot during the times when the shuttle is expanding the loops of thread, whereby the thread for the said loops will be drawn entirely from the take-up side of the needle and puckering draft upon the thread running to the work be avoided.

8. In a sewing machine of the character specified, the combination with the stitch forming devices thereof comprising a needle and a shuttle and their operating mechanism, of a feed dog, mechanism for imparting variable feeding movements to said feed dog, a take-up, and means for operating said take-up to impart two releasing and two taking-up movements thereto during a complete reciprocation of the needle, the parts being timed to cause one of said releasing movements to occur to let off the thread during the feeding movement, and to take it up at the end of the operation of the feed and to cause the other releasing movement to occur to let off the thread during the time when the shuttle is expanding and passing through a loop and to then take up the thread to tighten the stitch, substantially as set forth.

9. In a machine of the character specified, the combination of the stitch forming mechanism, a feed dog, means for imparting variable feed movements to the said feed dog, a take up timed to slacken the thread while the shuttle is taking a loop, an automatic thread gripping device to nip and hold the thread between the take-up and the spool during the slackening movement of the take-up, and a pull-off also timed to draw thread from the spool during the slackening movements of the take-up and while the thread is nipped by the said gripping device.

10. The combination in a machine of the character specified, of the stitch forming devices, the feed dog, the presser-foot, the take-up and means to operate it to give off thread during the engagement of the shuttle with the loop, a nipping device, such as the throat and presser-foot, to nip the needle thread on the stitch side during such giving off movement of the take-up, and a thread nipping device or stop to operate upon the thread, and check it between the take-up and the spool, as and for the purposes described.

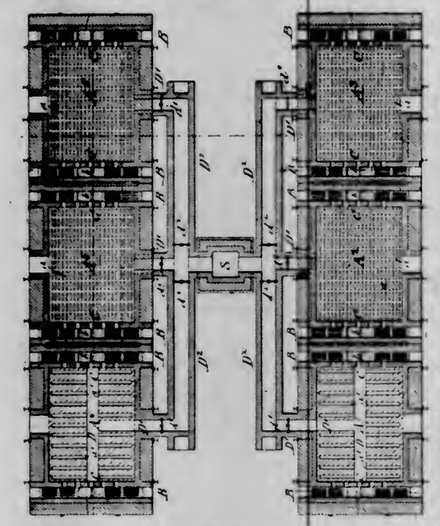
11. The combination with the driving shaft A' provided near its forward end with a cylinder having the cam groove h^{10}, of the bell-crank take-up lever H having the arm h^5 provided with the pin or

stud A^9, the bell-crank take-up lever H' having the arm A^8 operatively connected with the said arm A^8 to receive movement from the latter, the said take-up levers being both pivoted to the head or forward part of the arm of the machine, said cam groove being so constructed as to impart two releasing or slackening and two taking-up movements to said take-up levers during each complete revolution of said cylinder, to operate substantially as described.

12. The combination of the bed m^6, the bent lever m^{10} pivoted at m^{11}, having an arm m^{13} and a cam roll m^{14} thereon, with the lever M pivoted at m and having the cam m^{15} to co-act with the cam roll m^{14} on the lever m^{10}, and the cam m^5 upon the shaft A' which co-acts with the cam roll m^6, as and for the purposes described.

13. The combination of the bed m^6, the bent lever m^{10} pivoted at m^{11}, having an arm m^{13} and a cam roll m^{14} thereon, with the lever M pivoted at m, and having the cam roll m^6 and cam m^{15} to co-act with the cam roll m^{14} on the lever m^{10}, the cam m^5 upon the shaft A', which co-acts with the cam roll m^6 and a spring m^{16} for holding the cam roll m^6 in contact with its operative cam, as and for the purposes described.

519,677. BRICK-KILN. CARL KRAHE, Roseville, N. Y., assignor to the Ceramic Paving Stone Company, of New York. Filed June 12, 1893. Serial No. 477,272. (No model.)



Claim.—1. In a kiln for burning stoneware, the combination, of a combustion-chamber having a fireplace arranged at each corner of the same, a transverse partition-wall adjacent to said fireplaces, a closed water-receptacle on the top of the kiln, and steam-pipes connecting the steam space of said receptacle with the fireplaces, substantially as set forth.

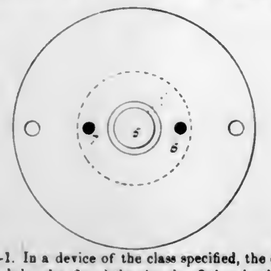
2. The combination, with a number of kilns arranged in one or more groups, each kiln being provided with fireplaces at the corners of the same and with transverse partition-walls adjacent to said fireplaces, of closed water-receptacles supported on top of the kilns, a pipe connecting the steam space of one receptacle with the other, and steam supply-pipes leading from the connecting steam-pipe to the different fireplaces so as to supply steam to the same, substantially as set forth.

519,678. COFFIN-HANDLE. LOUIS G. LERGEL, St. Louis, Mo. Filed Mar. 30, 1893. Serial No. 468,268. (No model.)



Claim.—In a coffin handle, the combination of the pivoted arms, collars on said arms, a handle rod fitting in said collar, a projection on the side of said collar, and a screw, or its equivalent inserted through said projection in such manner that its side bears against the surface of the handle rod; substantially as described.

519,679. TRIPLE VALVE FOR AIR-BRAKES. HERBERT M. LOFTON, Savannah, Ga. Filed July 28, 1892. Serial No. 441,523. (No model.)



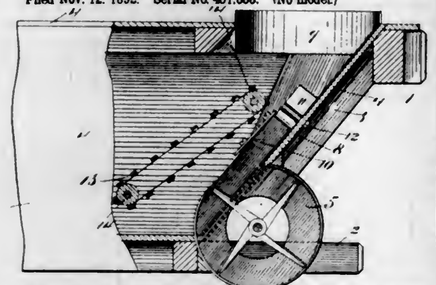
Claim.—1. In a device of the class specified, the casing having the cylindrical chamber 2 and the chamber 3 therein, the latter being diametrically smaller than the chamber 2, a passage connecting the lower end of the chamber 2 with the train-pipe, a passage connecting the upper end of the chamber 2 with the auxiliary reservoir, and a passage connecting the upper end of the chamber 3 with the braking cylinder, a piston moving in the chamber 2 and carrying a hollow stem projecting into the chamber 3, said stem being provided with a passage 29 opening out at the top and passing downwardly to a side opening in such a position that it will be closed by the metal forming the side of the chamber 3 when the piston is elevated, and a second passage 31 opening from the side of the stem above the opening of the first named passage closed by the side of the chamber 3 normally and adapted to be uncovered by the depression of the piston and subsequent withdrawal of the stem from the chamber 3 farther than will open the first named passage, whereby communication is opened through both passages 29 and 31 freely between the auxiliary reservoir and brake-cylinder and a spring-pressed plunger seated in the under side of the piston and adapted to resist slightly the downward movement of said piston after the uncovering of the first named passage, substantially as and for the purpose specified.

2 The casing, having a cylindrical chamber 2 and the chamber 3 therein, the latter being diametrically smaller than the former, a passage connecting the lower end of the chamber 2 with the train-pipe, a passage connecting the upper end of the chamber 2 with the auxiliary reservoir, and a passage connecting the upper end of the chamber 3 with the braking cylinder, a piston moving in the chamber 2 and carrying a stem projecting into the chamber 3, said stem being provided with a passage opening out at the top and passing downwardly to a side opening in such a position that it will be closed by the elevation into the chamber 3 of the stem, a chamber 4 in the casing above said chamber 3, and a hole between said chambers 3 and 4, opening into each, a passage from the said chamber 4 into the passage conecting the braking-cylinder with the upper end of the chamber 3, an exhaust port passing from the said chamber 4 to the open air, and a valve adapted to close over same and having its stem projecting through the aforesaid hole into the smaller cylinder and contacting with the stem of the main piston so that said piston in rising will open said valve over the exhaust port, substantially as and for the purpose specified.

3. The casing, having a cylindrical chamber 2, the chamber 3 therein, the latter being diametrically smaller than the former, a passage connecting the lower end of the chamber 2 with the train pipe, a passage connecting the upper end of the chamber 2 with the auxiliary reservoir, and a passage connecting the upper end of the chamber 3 with the braking-cylinder, a piston moving in the chamber 2 and having a stem projecting into the chamber 3, said stem being provided with a passage opening out at the top and passing downwardly to a side opening in such a position that it will be closed by the metal forming the side of the chamber 3 when the said piston is elevated, a cylindrical opening leading upwardly through the piston and the stem thereof, a valve seated over the top end thereof, a valve-seat in the middle portion of said cylindrical passage, a plunger seated in said cylindrical passage and projecting downwardly therefrom, and provided with a groove along its side, a valve seated over the seat in the passage and connected with the said plunger by a rod, the exhaust passage, and a valve adapted to close the same on the depression of the piston, substantially as and for the purpose specified.

4. The casing having the cylindrical chamber 2 and chamber 3 therein, the latter being diametrically smaller than the former, a passage connecting the lower end of the said chamber 2 with the train-pipe, a passage connecting the upper end of the said chamber 2 with the auxiliary reservoir, and a passage connecting the upper end of the chamber 3 with the braking-cylinder, a piston moving in the chamber 2 and having a stem projecting into the chamber 3, said stem being provided with a passage opening out at the top and passing downwardly to a side opening in such a position that it will be closed by the metal forming the side of the chamber 3 when the said piston is elevated, a cylindrical opening leading upwardly through the piston and the stem thereof, a valve seated over the top end thereof, a valve seat in the middle portion of the said cylindrical passage, a plunger seated in said cylindrical opening and projecting downwardly therefrom and provided with a groove along its side, a valve seated over the seat in the opening and connected with the said plunger by a rod, a spring surrounding said rod and seated between the bottom side of the valve-seat and the top end of the plunger and operating to close the said valve, the exhaust passage, and a valve adapted to close the same, substantially as and for the purpose specified.

519,680. STRAW-STACKER. JOSEPH W. NETHERY, Indianapolis, Ind., assignor to the Indiana Manufacturing Company, same place. Filed Nov. 12, 1892. Serial No. 451,833. (No model.)



Claim.—1. In a straw elevator, the combination with a thrashing machine having a conveyer chute attached to the end thereof and a fan having its mouth opening directly opposite the base opening of said chute of an upper air regulating plate adjustably secured on the top of said fan substantially as set forth.

2. In a straw elevating machine, the combination, with a thrashing machine having a rear air-tight chamber, and a conveyer chute attached to the said chamber, of a suitable blower or fan having its mouth or discharge end within said chamber and directly beneath the base opening of said chute, and suitable deflecting plates pivotally and adjustably secured with said chamber and opposite the discharge mouth of said blower, substantially as set forth.

3. In a straw elevating machine, the combination, with a thrashing machine having a rear air tight chamber and a conveyer chute attached to said chamber, of a suitable blower or fan having its mouth or discharge end within said chamber and directly beneath the base opening of said chute, of an air regulating plate adjustably secured on the top of the mouth of said fan and suitable air-deflecting plates pivotally and adjustably secured in said chamber and opposite the mouth of said fan, substantially as set forth.

4. The combination, in a pneumatic straw elevator and stacker, of a thrashing machine having its rear end closed to form an air-tight chamber, a trunk or chute having its base end connecting with said chamber, a blast fan the casing whereof has its eyes or air-receiving openings communicating with the outer atmosphere and its mouth or air-discharging opening within said air-tight chamber and arranged to discharge into the base of said trunk or chute, the walls of said air-tight chamber being farthest apart at points alongside said fan casing and converging therefrom to a point in front of the mouth or air-discharging opening in said casing, all substantially as shown and described.

5. The combination, in a pneumatic straw elevator and stacker, with the base portion and tube portion of the trunk or chute, of an intermediate union piece having a longitudinal bend or curve and a cylindrical transverse section, and means whereby said union piece may be rotated, whereby the outer end of the trunk or chute may be elevated or depressed, substantially as set forth.

6. The combination, in a pneumatic straw elevator and stacker, of a trunk or chute the outer end of which is adapted to be elevated and depressed, and a counterbalancing lever mounted at or near the lower end of said chute and the outer end of which is connected to said trunk or chute at a point toward its discharging end, whereby said trunk or chute is suspended, substantially as set forth.

7. The combination, in a pneumatic straw elevator and stacker, of a raising and lowering trunk or chute attached to the machine, and a suitable counterbalancing lever pivotally secured at or near the base of said trunk or chute, and to the free end of which said trunk or chute is suspended, said lever being provided with means of adjustment, substantially as set forth.

8. The combination, in a straw elevator and conveyer, of the base, a chute or trunk attached thereto, a spring mounted upon the base and attached to a lever, said lever also pivotally mounted on said base and secured to said spring at its lower end, with its other end extending out and secured to said chute or trunk at a point between its base and outer end.

9. The combination, in a straw elevator and conveyer, of a base, a chute or trunk connected thereto and adapted to be raised and lowered, a spring mounted on said base, a lever mounted on said spring at its lower end and attached to the raising and lowering chute at the other end, and means for adjusting the tension of said spring, whereby the weight of said chute will be counterbalanced at all angles of its inclination, substantially as set forth.

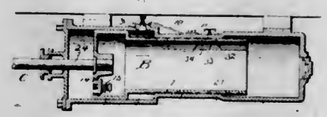
10. In a straw stacking machine, the combination, with a thrashing machine, of a pneumatic conveyer chute having opposite sides projecting beyond its end opening and a suitable flexible plate, adapted to slide in ways formed on the inner side of said side pieces, substantially as set forth.

11. In a straw stacking machine, the combination with a thrashing machine, of a pneumatic conveyer chute having opposite side pieces alongside the end opening of said chute, and having curvilinear ways formed on the inner sides of said side pieces, with the concavity of their curves directed downwardly and a flexible piece adapted to slide in said ways, substantially as set forth.

12. The combination, in a pneumatic straw elevator and stacker, with the trunk or chute thereof, of a slidable deflector, and guides secured to the mouth of the trunk or chute and constraining the deflector to slide in a curve.

13. The combination, in a pneumatic straw elevator and stacker, of the thrashing machine having its rear end closed to form an air-tight chamber, a trunk or chute secured upon the thrashing machine above and communicating with said chamber, a blast fan located below said trunk or chute and drawing its supply of air from the exterior of the machine, the mouth or discharging opening of the fan casing being positioned below and discharging into the rear side of said trunk or chute at its lower end, thus creating a draft-blast in said trunk or chute underneath and in advance of the straw, the whole being constructed, arranged and operating substantially as shown and described.

519,681. AIR-BRAKE APPARATUS. JOHN H. O'HARA, Chicago, Ill. Filed June 3, 1893. Serial No. 476,544. (No model.)



Claim.—1. In an air-brake apparatus, the combination of a brake cylinder having two bearing surfaces for the piston of different diameters and a closed rear end, a piston therein connected with the brake and having a head and an elongated hollow stem portion communicating freely with the rear end of the cylinder, and of smaller size than the head, connections for the brakes, and means whereby air under pressure can be forced into the cylinder, substantially as set forth.

2. In an air-brake apparatus, the combination of a brake cylinder, A, having the portions, 2 and 4, the former being the larger in diameter and the end of the cylinder adjacent to the portion 4 being closed, the piston, B, fitting in the cylinder, and having the head, 3, and the elongated stem, 5, the piston being hollow and communicating freely with one end of the cylinder, the connections between the piston and the brakes, the air passage-way between the opposite ends of cylinder and the valve therein, and means for supplying the cylinder with air under pressure, substantially as set forth

3. In an air-brake apparatus, the combination of the piston, B, having the head, 3, and the elongated open ended stem, 5, grooved externally, as at 7, the packing material placed in the said grooves, and the cylinder, A, having the two bearing surfaces, 2 and 4, with which the head and the stem respectively of the piston engage, the bearing surface for the stem being of considerable length, substantially as set forth.

4. In an air-brake apparatus, the combination of the cylinder A, having the two portions, 2 and 4, of different sizes separated by the shoulder, 16, the piston fitting in the said cylinder, and having the head, 3, and the stem portion, 5, and the valve, 9, covering an opening into the space between the head of the piston and the shoulder, 16, substantially as set forth.

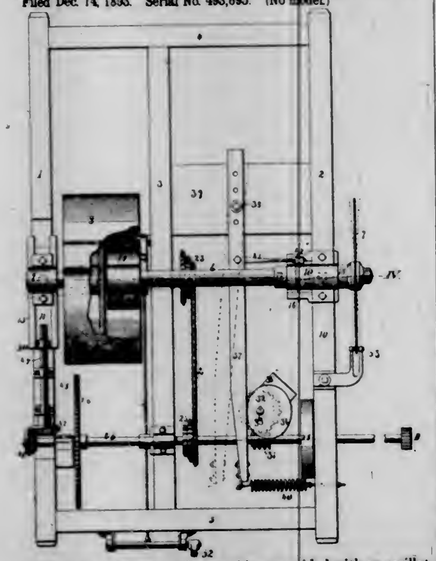
5. In an air-brake apparatus, the combination of the cylinder, A, having the two portions, 2 and 4, separated by the shoulder, 16, the piston in the cylinder, having the head, 3, and the stem portion, 5, the valve, 9, covering an opening into the space between the head of the piston and the shoulder, 16, the said valve being perforated, and the valve, 12, covering the perforation in the valve, 9, substantially as set forth.

6. In an air-brake-apparatus, the combination with the brake cylinder and the train pipe, of a valve device interposed between these two, and consisting of a casing, a piston mounted therein and free to slide to a limited extent, a spring actuated valve closing an opening in the piston against the passage of air toward the train pipe, and the valve stem, 28, adapted to engage with the valve casing when the valve moves toward the train pipe, to move its valve from its seat, substantially as set forth.

7. In an air-brake apparatus, the combination with the brake cylinder and the train pipe, of a valve device, E, interposed between these two, and consisting of a casing having a vent hole, 22, a piston, 18, therein having a vent hole, 21, adapted to be brought into register with the hole, 22, and a spring-actuated valve, 19, closing an opening in the piston against the passage of air from the cylinder to the train pipe, substantially as set forth.

8. In an automatic air-brake system, the combination with the train pipe, of the brake cylinder and piston therein, there being an air passage-way between the opposite ends of the cylinder, whereby the compressed air is admitted to the rear side of the piston and there stored, the piston having a vent hole, 32, adapted to be brought into communication with a hole in the wall of the cylinder, and the valve, 34, closing the last said hole against the inward passage of air, substantially as set forth.

519,682. JOIST-CROWNING MACHINE. FRANK J. RANDALL, St. Louis, Mo., assignor to the Knapp & Stout Co. Company, same place. Filed Dec. 14, 1893. Serial No. 493,695. (No model.)



Claim.—1. A joist crowning machine, provided with an oscillating and transversely sliding mandrel carrying the saw, and means for automatically oscillating and changing the lateral position of the mandrel and saw during the travel of the carriage.

2. A joist crowning machine, having a mandrel mounted in a longitudinally sliding bearing at the inner end, to which end is attached the saw, the mandrel having shoulders on either side of the inner bearing, and being free in the outer bearing, and means for automatically oscillating and sliding the mandrel laterally during the travel of the carriage, substantially as described.

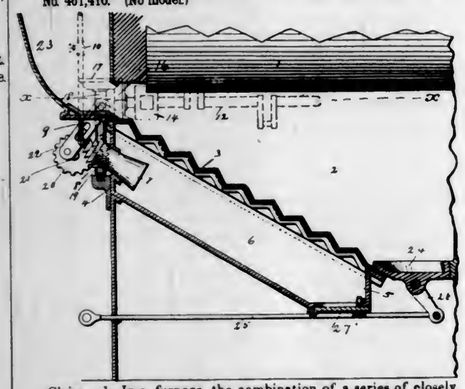
3. A joist crowning machine, having a mandrel 6, carrying a saw 7 at its inner end, and supported by the bearings 9 and 10, and having shoulders on either side of bearing 10; the bearing 9 to slide in a direction parallel to the movement of the carriage, and the bearing 10 to slide in a direction transversely to the movement of the carriage, and means for automatically changing the positions of both bearings 9 and 10, simultaneously, during the travel of the carriage, substantially as described

4. The combination in a joist crowning machine of the mandrel 6 supported in bearings 9 and 10, the bearing 9 sliding in a direction parallel to the movement of the carriage, and the bearing 10 sliding in a direction transversely to the movement of the carriage, the mandrel being provided with shoulders on each side of the bearing 10, a cam 36 operating the lever 37, which is connected to and moves the bearing 10, and with it the mandrel 6 and saw 7; a screw 49 operating to slide the bearing 9 in its guide plate 13, and means for automatically revolving the cam 36, and a screw 49; substantially as described and shown.

5. The combination in a joist crowning machine of the mandrel 6, supported in a longitudinally sliding bearing 9, and a transversely sliding bearing 10, the mandrel having shoulders on each side of the bearing 10, a cam 36 operated by a worm 31 and gear 32, which moves the lever 37 connected to the bearing 10, and slides said bearing in the guide plate 16, a screw 49 operated by gear wheels, and which is connected to the bearing 10 and slides the said bearing in the guide plate 13; all substantially as described and shown.

6. The combination in a joist crowning machine and saw mill of the oscillating and transversely sliding mandrel and saw, means for automatically operating this sliding and oscillating movement of the mandrel and saw, which means may be connected or disconnected to the carriage propelling mechanism, substantially as and for the purpose described.

519,683. SMOKELESS FURNACE AND STOKER. JOHN E. SCHLIEPER and JOHN H. HARRISON, Pittsburg, Pa.; said Harrison assignor to Wells Dickson Webb, same place. Filed Feb. 7, 1893. Serial No. 461,410. (No model.)

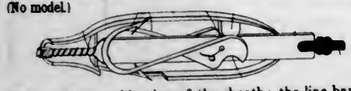


Claim.—1. In a furnace, the combination of a series of closely perforated and oppositely inclined grate bar plates, an air-steam chest extending under the same, and an air-steam funnel in the upper front end thereof, substantially as described and set forth.

2. In a combined stoker and smokeless furnace, the combination of a series of closely perforated and oppositely inclined grate bar plates adapted to reciprocate in a vertical longitudinal direction, an air-steam chest extending under the furnace, an air-steam funnel in the upper front end of the chest and a dumping grate at the lower end of the grate, as and for the purposes specified.

3. The combination in a stoker and smokeless furnace of an inclined grate formed of a series of closely perforated and oppositely inclined plates adapted to reciprocate in a vertical longitudinal direction, means to operate the same, an air-steam chest extending under the same and provided with a funnel in the upper front end thereof having a nozzle projecting in the same and connected with the boiler, a hopper adapted to receive fuel, a dumping grate at the lower end of the inclined grate, and a door at the bottom of the chest, substantially as described and set forth.

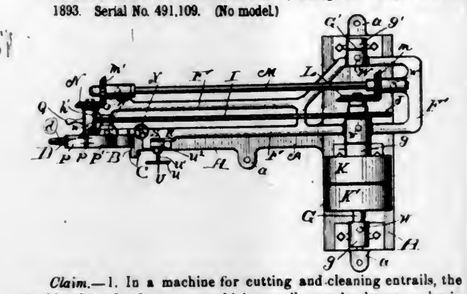
519,684. FISH-HOOK. HUBBARD S. GOFF, Lordsburg, and ALVIN B. JUDKINS, Los Angeles, Cal. Filed Dec. 19, 1892. Serial No. 455,569. (No model.)



Claim.—The combination of the sheath; the line bar arranged to reciprocate within the sheath; the spring arranged to retract the line bar toward the rear of the sheath; the hook arranged to swing outward at the rear end of the sheath and pivotally connected near the head of its shank with the bar, and provided at its shank end with

a suitable cam face adapted and arranged to engage a suitable cam projection arranged upon the sheath and such cam projection fixed to the sheath and arranged to engage the cam face of the shank of the hook.

519,685. MACHINE FOR CUTTING AND CLEANING ENTRAILS. HENRY REYELS and FREDERICK EBERT, Chicago, Ill. Filed Nov. 16, 1893. Serial No. 491,109. (No model.)



Claim.—1. In a machine for cutting and cleaning entrails, the combination of a finger over which entrails may be drawn, a slot in the finger in which the edge of a rotary cutter may extend, a passage way for liquid extending through and adapted to deliver liquid from the end of the finger into the contents of the entrails passing onto the finger, with a frame pivotally attached to the base to which the finger is attached, rotatable feed wheels and a rotatable cutter mounted in the frame and adapted to be brought in contact with the entrails on the finger, and means for rotating the feed wheels and cutter; substantially as described.

2. In a machine for cutting and cleaning entrails, the combination of a finger having a slot therein adapted to receive the edge of a rotary cutting wheel and a passage way for liquid extending longitudinally therethrough and discharging at the forward end thereof, with a frame pivotally secured to the base to which the finger is attached, cutting and feed wheels rotatably mounted in the frame, a beveled gear wheel secured on the shaft to which the feed wheels are secured, a shaft rotatably mounted and extending longitudinally in the pivotally mounted frame, a beveled gear wheel at one end of such shaft intermeshing with the beveled gear wheel on the shaft of the cutting wheel and a beveled gear wheel at the other end of the shaft intermeshing with a beveled gear wheel rigidly secured to one of the shafts on which the frame is pivotally mounted, and means for rotating the cutting wheel substantially as described.

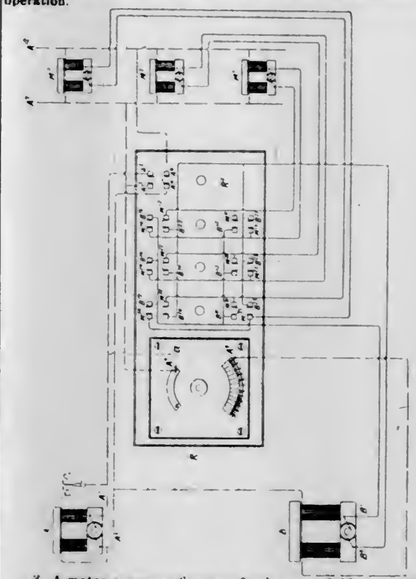
3. In a machine for cutting and cleaning entrails, a base, a finger grooved in the back portion thereof secured to the base, such finger having a passage way for liquid extending from a nipple on the side to and discharging from the forward end thereof, and journal bearings on the base, in combination with a counterbalanced frame having journal bearings therein, shafts extending through the journal bearings in the base and frame and pivotally securing the frame to the base, rotatable cutting and feed wheels mounted in the frame, beveled gear wheels on one of the shafts connecting the frame and base together and on the shaft of the feed wheels, a shaft extending longitudinally in the frame and having beveled gear wheels thereon intermeshing with the beveled wheels on the frame and feed wheel shafts, respectively, an additional wheel secured to the shaft connecting the frame and base together whereon the beveled gear is placed, a wheel secured to the shaft of the rotatable cutting wheel, a connection extending over such wheels, and means for clamping the frame and base in a given relative position; and means for adjusting them; substantially as described.

4. In a machine for cutting and cleaning entrails, a base having a finger thereon over which entrails may be drawn, and a frame pivotally secured to the base by shafts extending through journals on the base and frame, respectively, in combination with rotatable cutting and feed wheels mounted in the frame and connections extending from one of the shafts connecting the base and frame to the rotatable cutting and feed wheels, whereby rotation of such cutting and feed wheels will be produced by rotation of such shaft; substantially as described.

519,686. METHOD OF OPERATING ELECTRIC MOTORS. JOHN S. BANCROFT, Philadelphia, Pa., assignor to the William Sellers & Company, Incorporated, same place. Filed Dec. 15, 1892. Serial No. 455,325. (No model.)

Claim.—1. Two or more motors, a source of current for the motor fields, a reversing switch for the armature circuit of each motor, a rheostat that controls the potential of the armature current and means for interlocking the actuating parts of the reversing switches with the actuating part of the rheostat.

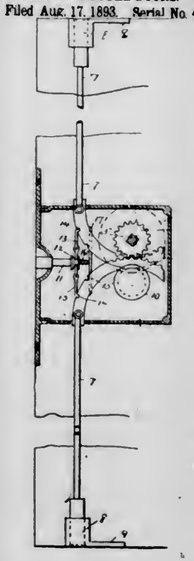
2. A motor, a switch to admit current to its field, a switch to admit current to its armature, a rheostat that modifies the voltage of the armature current and means for interlocking the operating parts of the switches and of the rheostat and determining the sequence of operation.



3. A motor, a source of current for the motor field, a switch that admits current to the motor field, a rheostat that controls the source of current to the motor armature, a reversing switch that connects, cuts off or reverses the current from the source of current to the motor armature and an interlocking bar coacting with the levers of the rheostat and the two switches.

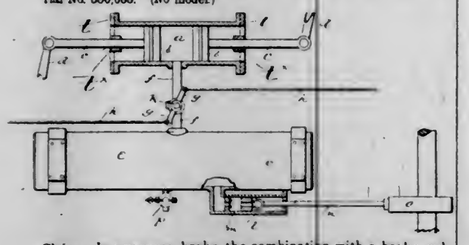
4. A generator supplying current of constant potential, a generator with its field excited by a current distinct from its armature current, a rheostat for varying the current supplied to this field, a motor the field of which is supplied by the first generator and the armature by the second generator, a switch that admits current to the motor field, and a locking bar coupled to the rheostat and locked by the field switch.

519,687. BOLT FOR DOUBLE DOORS. WILLIAM JOHNSTON, Allegheny, Pa. Filed Aug. 17, 1893. Serial No. 483,374. (No model.)



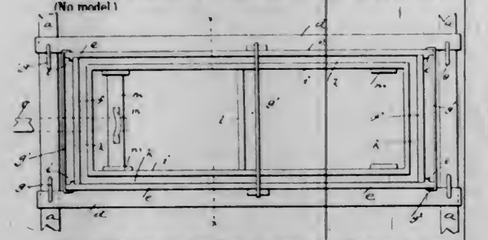
Claim.—The herein described double door lock, consisting of the shell 1 having a front plate 2 and the whole adapted to be mortised into one section of a double door, the curved bars 6 arranged within said shell the bars or rods 7 connecting said bars with the bolts 8, the ratchets formed on said bars, the cog wheel 3 in mesh with the said ratchets, the roller 10, and the locking device consisting of the bar 11 the pivoted lever 13 and spring 16, all arranged and combined for service as described.

519,688. APPARATUS FOR OPERATING RAILWAY-BRAKES. ROBERT A. KISKADDEN, Allegheny, Pa. Filed June 25, 1890. Serial No. 356,683. (No model.)



Claim.—In a vacuum brake, the combination with a brake cylinder having its opposite ends open to the atmosphere, of the annular heads secured to the opposite ends of said cylinder with their openings coinciding with the bore thereof, each of said heads having a diametrical web provided with a central perforated boss, the pistons arranged in said cylinder and having piston rods which pass in opposite directions through and are guided in the said central perforated lugs of the cylinder heads, a receiver having an air-inlet, a safety valve controlling said air inlet, a pipe connecting the said receiver with the central portion of the brake cylinder between the pistons therein, a three-way cock in said pipe, said cock having a passage extending diametrically through it and affording communication between the brake cylinder and the receiver and being further provided with a radial passage extending at right angles to said diametrical passage and affording communication with the atmosphere, means for operating said cock whereby said brake cylinder is alternately placed in communication with said receiver and with the atmosphere, an air pump connected to said receiver and adapted to exhaust the air therefrom, and an eccentric mounted on the car axle whereby said pump is operated while the car is in motion, substantially as set forth.

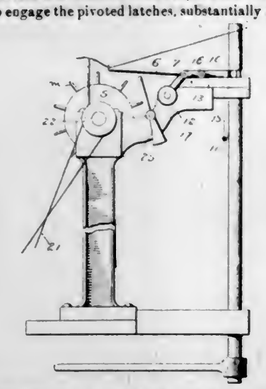
519,689. MOLD FOR CONCRETE BURIAL-TOMBS. WILLIAM W. REEVES, Braddock, Pa. Filed Sept. 8, 1890. Serial No. 364,319. (No model.)



Claim.—The herein described apparatus for forming concrete burial caskets, consisting of the horizontal transverse timbers *a* and longitudinal boards *d* the vertical side boards *e* engaged at their lower ends by said boards *d* and having inwardly projecting ribs near their ends, the vertical end boards *f* engaging said ribs, the transverse removable braces *g* having hook ends engaging the ends of said side boards, an inner removable box adapted to be inclosed by said side and end boards and of such size relative thereto as to leave an intervening space designed to be filled with concrete forming the sides and ends of the casket, horizontal strips *q* adapted to cover said intervening spaces at the top thereof, and means for holding said strips in place, said removable box having an open bottom and an open top and being provided in its interior with oppositely arranged cleats or projections, substantially as set forth.

519,690. STOP-OFF MOTION FOR KNITTING-MACHINES. FRANK CHAMBERS and THOMAS DOUD, Camden, N. J.; said Chambers assignor to Harry K. Thomas, New York County, N. Y. Filed June 8, 1893. Serial No. 477,002. (No model.)

Claim.—I. In combination, the shaft 19, the series of pin wheels thereon, the rock shaft 12—the series of pivoted latches carried thereby, the shipper rod, the slide for holding the same up, the connection between said slide and the rock shaft, and the releasing lever 25—arranged to engage the pivoted latches, substantially as described.



2. In combination, the pin wheels, the series of pivoted latches, the releasing slide connected therewith to be operated when the thread fails, and the two weighted levers pivotally supported and extending toward each other with their free ends together, said levers acting to guide the series of threads, substantially as described.

3. In combination, the shipper connections, the guide for the thread with means for controlling said connections and the weighted overlapping levers over which the thread passes to the guide, substantially as described.

DESIGNS.

23,249. PICTURE-FRAME. ROBERT GOLDE, Brooklyn, assignor to the Royal Metal Manufacturing Co., New York, N. Y. Filed Mar. 31, 1894. Serial No. 505,953. Term of patent 3½ years.



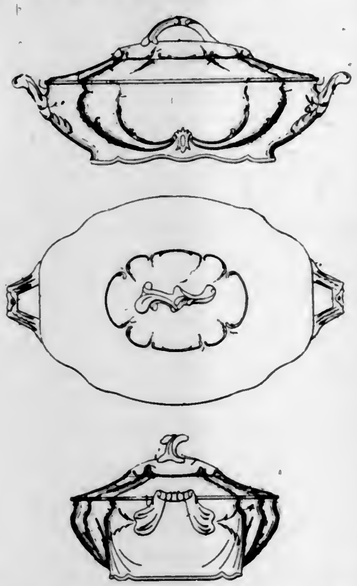
Claim.—The design for a picture frame and the like, substantially as herein shown and described.

23,250. SUPPORT FOR VASES, &c. ALBERT WARNER, Jr., Hoboken, N. J. Filed Mar. 27, 1894. Serial No. 505,340. Term of patent 7 years.



Claim.—The design for an ornamental support for vases and other receptacles, herein shown and described.

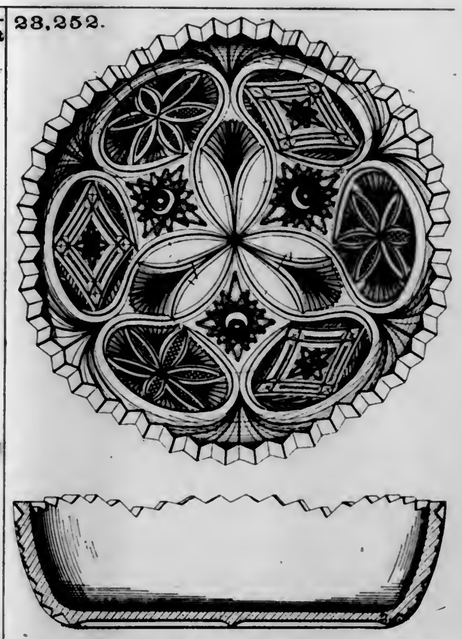
23,251. COVER-DISH. WILLIAM BLOORE, Burslem, England. Filed Feb. 21, 1894. Serial No. 501,049. Term of patent 3½ years. Registered in England Dec. 9, 1893. No. 223,706.



Claim.—The design for a cover-dish, substantially as described and illustrated.

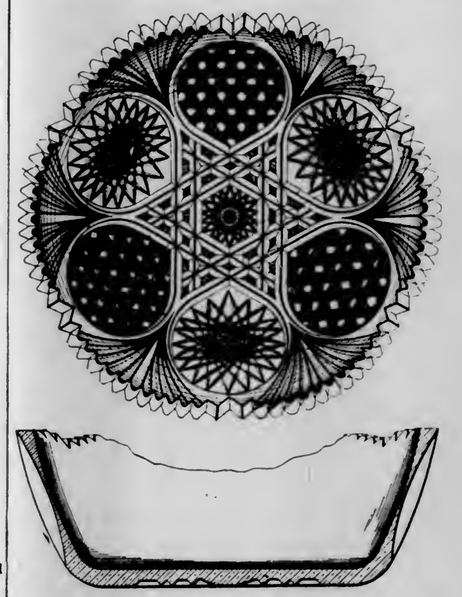
23,252. ORNAMENTATION OF GLASS VESSELS. BENJAMIN DAVIES, Brooklyn, assignor to L. Straus & Sons, New York, N. Y. Filed Apr. 5, 1894. Serial No. 506,505. Term of patent 7 years.

23,252.



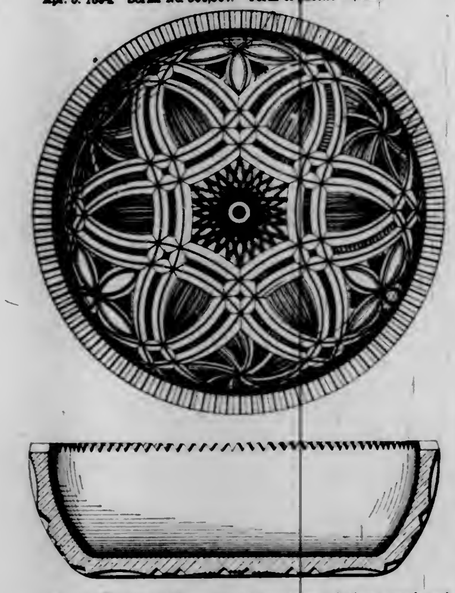
Claim.—The design for the ornamentation of glass vessels substantially as herein shown and described.

23,253. ORNAMENTATION OF GLASS VESSELS. BENJAMIN DAVIES, Brooklyn, assignor to L. Straus & Sons, New York, N. Y. Filed Apr. 5, 1894. Serial No. 506,506. Term of patent 7 years.



Claim.—The design for the ornamentation of glass vessels, substantially as herein shown and described.

23,254. ORNAMENTATION OF GLASS VESSELS. BENJAMIN DAVIES, Brooklyn, assignor to L. Straus & Sons, New York, N. Y. Filed Apr. 5, 1894. Serial No. 506,507. Term of patent 7 years.



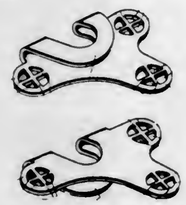
Claim.—The design for the ornamentation of glass vessels, substantially as herein shown and described.

23,255. HASP FOR GARMENT-FASTENERS. HERMAN KERNGOOD, Baltimore, Md., assignor to the Perfect Clasp Company of Baltimore City, of Maryland. Filed Apr. 11, 1894. Serial No. 507,179. Term of patent 7 years.



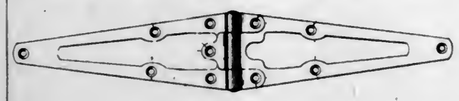
Claim.—The design for a hasp for a garment fastener, substantially as herein shown.

23,256. HOOK FOR GARMENT-FASTENERS. HERMAN KERNGOOD, Baltimore, Md., assignor to the Perfect Clasp Company of Baltimore City, of Maryland. Filed Mar. 23, 1894. Serial No. 504,869. Term of patent 7 years.



Claim.—The design for a hook for a garment fastener substantially as herein shown.

23,257. STRAP-HINGE. WILLIAM H. HART, New Britain, Conn. Filed Apr. 10, 1894. Serial No. 507,043. Term of patent 14 years.



Claim.—The design for a strap hinge, substantially as herein shown and described.

23,258. BANNER-HOLDER. THEODOR GÜNSEL, New York, N. Y. Filed Mar. 8, 1892. Serial No. 424,227. Term of patent 3½ years.



Claim.—The design for a banner holder, substantially as shown and described.

TRADE-MARKS

REGISTERED MAY 8, 1894.

24,653. PRINTED PERIODICALS. THE SPORTING LIFE PUBLISHING COMPANY, Philadelphia, Pa. Filed Apr. 2, 1894.

THE SPORTING LIFE

Essential feature.—The words "THE SPORTING LIFE." Used since April 15, 1883.

24,654. SILK PIECE GOODS. REVEL PERE ET FILS, Lyons, France. Filed Apr. 10, 1894.

SOLIDOR

Essential feature.—The word "SOLIDOR." Used since February 17, 1894.

24,655. BLUE DENIMS. MASSACHUSETTS COTTON MILLS, Lowell, Mass. Filed Feb. 2, 1894.



Essential feature.—The representation of a bison. Used since November 20, 1893.

24,656. IMITATION CHAMOIS-SKIN. AMERICAN FIBRE CHAMOIS COMPANY, New York, N. Y. Filed Apr. 7, 1894.

FIBRE CHAMOIS

Essential feature.—The words "FIBRE CHAMOIS." Used since March 1, 1894.

24,657. LEATHER GOODS. J. B. BROOKS & Co., Birmingham, England. Filed Aug. 3, 1893.

BROOKS

Essential feature.—The word "BROOKS." Used since January, 1868.

24,658. ALL ARTICLES OF HARD AND SOFT RUBBER. THE MECHANICAL RUBBER COMPANY, New York, N. Y. Filed Mar. 16, 1894.

2-X-L

Essential feature.—The figure and letters "2 X L." Used since July 1, 1883.

24,659. ALL ARTICLES OF HARD AND SOFT RUBBER. THE MECHANICAL RUBBER COMPANY, New York, N. Y. Filed Mar. 16, 1894.

BUCKEYE

Essential feature.—The word "BUCKEYE." Used since July 1, 1883.

24,660. LAGER-BEER. WILLIAM A. WEBER, Waukesha, Wis. Filed Dec. 14, 1893.

Bethesda

Essential feature.—The letter "X" crossed by the word "BETHESDA." Used since April 29, 1884.

24,661. WHISKY. CHARLES H. ARNOLD, New York, N. Y. Filed Apr. 5, 1894.

BRUCEWOOD

Essential feature.—The word "BRUCEWOOD." Used since April 1, 1890.

24,662. WHISKY. MAX KLEIN, Allegheny, Pa. Filed Mar. 1, 1894.



Essential feature.—The representation of a black bear and two cubs on the bank of a creek. Used since February 9, 1891.

24,663. WHISKY AND WHISKY COMPOUNDS. JOHN A. FAIRBANKS, Boston, Mass. Filed Apr. 9, 1894.

OUTING CLUB.

Essential feature.—The words "OUTING CLUB." Used since December 1, 1893.

24,664. CIGARS AND CIGARETTES. MAXIME GUIRAUD, New Orleans, La. Filed Dec. 4, 1893.

National Lottery

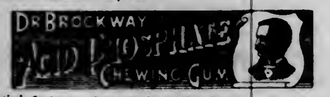
Essential feature.—The words "NATIONAL LOTTERY." Used since March 23, 1894.

24,665. LEAF-TOBACCO. LEOPOLD LOEB & Co., Philadelphia, Pa. Filed Apr. 14, 1894.

SANTA CLARITA

Essential feature.—The words "SANTA CLARITA." Used since February 15, 1894.

24,666. CHEWING-GUM. THE CLEVELAND GUM COMPANY, Cleveland, Ohio. Filed Mar. 26, 1894.



Essential feature.—A portrait of Dr Brockway and the words "DR BROCKWAY'S ACID PHOSPHATE CHEWING GUM." Used since January 1, 1894.

24,667. BEEF-JUICE. JOHN WYETH & BRO., Philadelphia, Pa. Filed Apr. 4, 1894.

Wyeth's

Essential feature.—The word "WYETH'S," when associated with the firm name of "JOHN WYETH & BRO." Used since November 2, 1892.

24,668. BACON. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Dec. 7, 1891.

DRY
MONOPOLE



Essential feature.—The words "DRY MONOPOLE" and the representation of a bunch of grapes. Used since December 2, 1888.

24,669. HAMS. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Dec. 7, 1891.

PELICAN



Essential feature.—The word "PELICAN" and the representation of a pelican. Used since December 2, 1888.

24,670. HAMS. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Dec. 7, 1891.

CHERRY



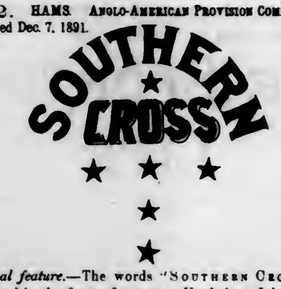
Essential feature.—The word "CHERRY" and the representation of cherries. Used since December 1, 1886.

24,671. HAMS. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Dec. 7, 1891.



Essential feature.—The words "WHITE SWAN" and the representation of a white swan. Used since May 1, 1888.

24,672. HAMS. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Dec. 7, 1891.



Essential feature.—The words "SOUTHERN CROSS" and six stars arranged in the form of a cross. Used since July 1, 1889.

24,673. HAMS AND SAUSAGES. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Dec. 7, 1891.

"The Delmonico"

Essential feature.—The words "THE DELMONICO." Used since December 1, 1890.

24,674. MILK, CREAM, BUTTER, AND CHEESE. ALVIN F. RIESER, Philadelphia, Pa. Filed Apr. 14, 1894.

ANTI-RANCIDINE.

Essential feature.—The word "ANTI-RANCIDINE." Used since March 20, 1894.

24,675. SPICES AND BAKING-POWDER. WOOLSON SPICE COMPANY, Toledo, Ohio. Filed Feb. 21, 1894.



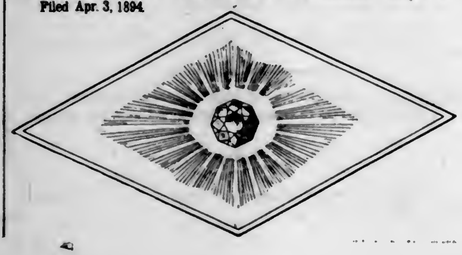
Essential feature.—The words "LION BRAND," and the representation of a lion's head. Used since July, 1874.

24,676. YEAST. DAVID M. FUHRMAN, Wooster, Ohio. Filed Mar. 13, 1894.



Essential feature.—A monogram composed of the letters "D M F." Used since October 1, 1893.

24,677. SAUER-KRAUT. C. S. & M. VANDEURSEN, Chicago, Ill. Filed Apr. 3, 1894.



Essential feature.—The representation of a cut gem surrounded by rays and inclosed by a lozenge shaped border. Used since October, 1891.

24,678. LUMP-STARCH FOR LAUNDRY USE. THE NATIONAL STARCH MANUFACTURING COMPANY, New York, N. Y. Filed Jan. 11, 1894.



ROYAL

Essential feature.—The representation of the head of a St. Bernard dog and the word "ROYAL." Used since 1877.

24,679. LAUNDRY STARCH. THE NATIONAL STARCH MANUFACTURING COMPANY, New York, N. Y. Filed Jan. 11, 1894.



Essential feature.—The representation of the interior of a laundry, showing a stove, wash tubs, ironing table, and several women using the same, with one hanging the clothes on a line. Used since 1858.

24,680. LAUNDRY SOAP. GLOBE CHEMICAL COMPANY, Cleveland, Ohio. Filed Apr. 2, 1894.

SEAL

Essential feature.—The word "SEAL." Used since February 3, 1893

24,681. POWDERED LYE. GEORGE T. LEWIS, Philadelphia, Pa. Filed Mar. 7, 1894.



Essential feature.—The half length representation of a man dressed in Quaker style and holding in his hand a pair of scales. Used since May, 1881.

24,682. POWDERED LYE. GEORGE T. LEWIS, Philadelphia, Pa. Filed Mar. 7, 1894.



Essential feature.—The silhouette representation of a man dressed in Continental fashion and holding in his hand a pair of scales. Used since May, 1881.

24,683. MATCHES. LEO ROSENSTEIN, New York, N. Y. Filed Apr. 16, 1894.

DAISY

Essential feature.—The word "DAISY." Used since April 12, 1894.

24,684. METAL AND GLASS CLEANING AND POLISHING PREPARATIONS. SAMUEL T. COBB, Jr., Boston, Mass. Filed Apr. 7, 1894.

SILVERARK.

Essential feature.—The word "SILVERARK." Used since January 1, 1893.

24,685. ILLUMINATING OILS AND LUBRICATING OILS AND GREASES. CLARKSON & DALLAS, Pittsburg, Pa. Filed Feb. 20, 1894.



Essential feature.—The representation of an acorn. Used since January 1, 1894.

24,686. CERTAIN NAMED REMEDIES. THE DR. CHASE CO., Philadelphia, Pa. Filed Nov. 29, 1893.



Essential feature.—The words "DR. CHASE'S BLOOD AND NERVE FOOD." Used since May 1, 1893.

24,687. ANESTHO-ANODYNES. GARY & CHRISTOPHER, Baltimore, Md. Filed Mar. 6, 1894.



Essential feature.—The abbreviation and words "DR. JAKES PAIN KILLER," with the letter, "K," of the word "Jakes" larger than the other letters and projecting below and serving as the initial letter of the word "Killer." Used since February 15, 1894.

24,688. COD-LIVER OIL AND PREPARATIONS THEREOF. THE T. A. SLOCUM COMPANY, New York, N. Y. Filed Mar. 27, 1894.



Essential feature.—The words "SLOCUM'S OZONIZED NORWEGIAN COD LIVER OIL" superimposed upon the representation of a fish. Used since February 1, 1894

24,689. CAPSULES, PILLS, AND MEDICATED JUJUBES. WARWICK BROTHERS, London, England. Filed Mar. 19, 1894.

JELLOIDS

Essential feature.—The word "JELLOIDS." Used since July, 1887

24,690. NERVE TONIC. ERVING L. EASTMAN, Peabody, Mass. Filed Mar. 1, 1894.



Essential feature.—The representation of an ornamental scroll supported by sprays of balmony blossoms and heads of celery seed. Used since January 13, 1894.

24,691. LINIMENT. ANNA W. WALLACE, Allegheny, Pa. Filed Apr. 7, 1894.



Essential feature.—The word "FOUR-FOLD," and the representation of a bee hive. Used since March, 1868.

24,692. SALVES, OINTMENTS, LINIMENTS, AND POWDERS. CLARENCE FOSTER, Baltimore, Md. Filed Apr. 5, 1894.

GERMAN ARMY & NAVY

Essential feature.—The words "GERMAN ARMY AND NAVY." Used since January 1, 1892.

24,693. OINTMENT. THOMAS GUINEAN, Seattle, Wash. Filed Jan. 29, 1894.



Essential feature.—The representation of a cherub with extended wings, seated upon a bank of clouds and holding a bottle in its hand. Used since October 1, 1893.

24,694. POCKET CUTLERY. SOUTHINGTON CUTLERY COMPANY, Southington, Conn. Filed Mar. 3, 1894.



Essential feature.—The representation of a blacksmith's anvil having the usual horn. Used since September, 1889.

24,695. MACHINISTS' TOOLS. THE COLLINS COMPANY, Canton, Conn. Filed Apr. 4, 1894.

R. KING

Essential feature.—The letter and word "R. KING." Used since 1826.

24,696. PISTOLS, RIFLES, AND SPORTING-GUNS. COLT'S PATENT FIRE ARMS MANUFACTURING COMPANY Hartford, Conn. Filed Apr. 10, 1894.

COLT



Essential feature.—The representation of a colt rampant and the word "COLT" above it. Used since May, 1893.

24,697. AGRICULTURAL MACHINES AND THEIR PARTS. THE RICHARDSON MANUFACTURING COMPANY, Worcester, Mass. Filed Mar. 19, 1894.



Essential feature.—The letter "W" inclosed by a diamond shaped figure. Used since October 1, 1883.

24,698. TIME, SALES, AND CASH REGISTERS, AND SERVING MACHINES FOR STATIONERY. THE GLOBE REGISTER COMPANY, Milwaukee, Wis. Filed Jan. 6, 1894.

Globe

Essential feature.—The word "GLOBE." Used since August 23, 1893.

24,699. RECLINING-CHAIRS. ALLEN & BRO., Philadelphia, Pa. Filed Jan. 18, 1894.

OXFORD

Essential feature.—The word "OXFORD." Used since January 1, 1891.

24,700. CYCLES. TELEGRAM CYCLE MANUFACTURING COMPANY, Milwaukee, Wis. Filed Apr. 16, 1894.

Sanger Racer

Essential feature.—The words "SANGER RACER." Used since December 20, 1891.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE SILVERS.

Decided April 27, 1894.

TRADE-MARK—APPLICATION FOR REGISTRATION—DIVISION—ONE REGISTRATION MAY EMBRACE SEVERAL DIFFERENT ARTICLES.

There is no authority for requiring division of an application for the registration of a Trade-Mark to accord with the subdivisions of the Office classification.

APPEAL from the Examiner of Trade-Marks.

TRADE-MARK FOR FLAVORING EXTRACTS, ETC.

Application of John S. Silvers and William S. Silvers for registration filed September 29, 1893.

Messrs. C. A. Snow & Co. for the applicants.

SEYMOUR, *Commissioner:*

This is an appeal from the decision of the Examiner refusing to register a Trade-Mark for the reason, as stated by him, that neither the class of merchandise nor the particular description of goods is properly defined by the following statement:

The class of merchandise to which this Trade-Mark is applied is grocers' drugs, flavoring extracts, and coffee, and the particular description of goods comprised in said class on which it is used by us is extracts and essences of vanilla, lemon, peppermint, and Jamaica ginger, Bateman's drops, paregoric, castor-oil, sweet-oil, sewing-machine oil, glycerin, sirup of ipecac, sirup of squills, spirits of niter, etc., and coffee.

It appears by the declaration on oath, or it should be made to appear to the satisfaction of the Examiner, that the applicants are domiciled and their business is located in New Jersey, and that they are dealing in all the articles named; that they have adopted the one Trade-Mark for them all, and that to these articles the Trade-Mark had been appropriated by them and actually and lawfully used by them on all the articles named before the filing of the application, and, in addition, that it had been used by them in commerce with Canada. If these things are so, then the sole question is whether a dealer in the articles named may have one registration for his Trade-Mark used on all these articles and alike on all or whether, on the other hand, he must apply separately for registration of the one Mark upon his various essences, his oils, his spirits, and the like.

The Congress has not attempted in the present law to define classes of merchandise or to establish classes. The Federal legislation upon the subject of Trade-Marks takes trade as it finds it, having its origin in some State, with Trade-Mark rights appertaining to it, and if such trade extends in any case to foreign nations or to the Indian tribes then the trader may have the benefit of the Federal Trade-Mark law on complying with its prerequisites. He must be the owner of a Trade-Mark used in such trade and have at the time a right to its use, and no other person have the right to such use. He must apply by specifying the class of merchandise and the particular description of goods comprised in such class to which the particular Trade-Mark has been appropriated. Whatever the range of goods to which the Trade-Mark may be applied by the law of the applicant's State, whether by the common law presumably in force or by the statute law, may be recited in the application for registration under the Federal law, provided only the Trade-Mark be lawfully used as such, to the extent recited, by the applicant in foreign commerce or commerce with the Indian tribes, and the owner of the Trade-Mark may have registration accordingly. There is no authority for requiring the subdivision of applications to accord with the Office classification of trades. Registration can be limited by nothing narrower than the actual and lawful use of the Mark in the place where the business is located.

It may be found that the applicant would be in conflict with another upon the use of this Trade-Mark as applied to one or some of the particular kinds of goods enumerated, but not on all. In such case it would be the duty of the Examiner to refuse registration as applied for and require the restriction of the application to the particular kinds of goods to which the same Mark had not been appropriated by another.

The abbreviation "Etc." in the statement should be canceled as indefinite. In other respects the specification of the class of merchandise and the particular description of goods to which the Trade-Mark has been appropriated is sufficient.

The decision of the Examiner of Trade-Marks is set aside and the case remanded for consideration on the merits in conformity herewith.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

MORGAN *v.* DANIELS.

Decided April 23, 1894.

MORGAN—MACHINE FOR COILING WIRE RODS—SUIT UNDER SECTION 4915—PRIORITY OF INVENTION—AWARD BY THE PATENT OFFICE PRIMA FACIE CONTROLLING.

Where the question decided in the Patent Office is one between contesting parties as to priority of invention, the decision there made must be accepted as controlling upon that question of fact in any subsequent suit between the parties, unless the contrary is established by testimony which in character and amount carries thorough conviction.

APPEAL from the Circuit Court of the United States for the District of Massachusetts.

STATEMENT OF THE CASE.

On October 30, 1889, the appellee, Fred. H. Daniels, commenced suit against the defendant in the Circuit Court of the United States for the District of Massachusetts. In his bill he alleged that he was the original, sole, and first inventor of an improvement in machines for coiling wire or wire rods; that on June 26, 1886, he filed in the United States Patent Office an application in due form for a patent; that on September 4, 1886, the Commissioner of Patents declared an interference between his application and one filed by the defendant on June 24, 1886; that thereafter testimony was taken on such interference, and a decision rendered on March 22, 1889, adversely to his claim of a priority in invention; that a rehearing was had, which rehearing resulted, on October 28, in affirming the original decision. The bill further averred that the defendant was not, as decided by the Commissioner of Patents, the first inventor or discoverer, and prayed for a decree that he, plaintiff, be entitled to receive a patent for his invention, as specified in his claims, and that defendant be enjoined from taking any steps to use or dispose of Letters Patent for said invention, or any part thereof.

This suit was brought under the authority of section 4915, Revised Statutes, which is as follows:

Whenever a patent on application is refused, either by the Commissioner of Patents or by the Supreme Court of the District of Columbia upon appeal from the Commissioner, the applicant may have remedy by bill in equity; and the court having cognizance thereof, on notice to adverse parties and other due proceedings had, may adjudge that such applicant is entitled, according to law, to receive a patent for his invention, as specified in his claim, or for any part thereof, as the facts in the case may appear. And such adjudication, if it be in favor of the right of the applicant, shall authorize the Commissioner to issue such patent on the applicant filing in the Patent Office a copy of the adjudication, and otherwise complying with the requirements of law. In all cases, where there is no opposing party, a copy of the bill shall be served on the Commissioner; and all the expenses of the proceedings shall be paid by the applicant, whether the final decision is in his favor or not.

To this bill, on January 10, 1890, the defendant filed an answer, denying that plaintiff was the inventor, as alleged. The case was submitted to the circuit court upon the testimony used in the interference proceedings, and upon such testimony a decree was entered, finding that plaintiff was the original inventor and entitled to receive a patent for the invention. From such decree the defendant brings this appeal.

Mr. George S. Boutwell, *Mr. Anthony Pollok*, and *Mr. Philip Mauro* for the appellant.

Mr. J. E. Maynadier for the appellee.

Mr. Justice BREWER delivered the opinion of the Court.

It is worthy of notice that hitherto in the progress of this litigation upon the same testimony different persons have reached different conclusions. Thus, in the opinion filed June 5, 1888, by the Examiner of Interferences and Assistant Examiner, it was found that the defendant was the original inventor. On an appeal from that decision the Examiners-in-Chief (two members being present) came to a different conclusion, and awarded priority to the plaintiff. On a further appeal the Commissioner of Patents on March 22, 1889, reversed the judgment of the Examiners-in-Chief, and sustained that of the original Examiners. A motion for rehearing was brought before a succeeding Commissioner and overruled. When this case was submitted, without any additional testimony, to the circuit court the conclusion finally reached in the Patent Office was dissented from, and it was found that the plaintiff was the original inventor. An examination of the opinions filed by these different officers indicates that by each of them the matter was carefully considered. Evidently, therefore, the question as to which was the prior inventor is not free from doubt. What, then, is the rule which should control the Court in the determination of this case? It is insisted by the appellant that the decision of the Patent Office should stand unless the testimony shows beyond any reasonable doubt that the plaintiff was the first inventor, and, in support of their contention, cite the cases of *Coffin* v. *Ogden*, (18 Wall., 120, 124,) and *Cantrell* v. *Wallick*, (35 O. G., 871; 117 U. S., 689, 695.) In the first of these cases, which was a suit for infringement, the defense was a prior invention, and in respect to this defense the Court observed:

The invention or discovery relied upon as a defense must have been complete, and capable of producing the result sought to be accomplished; and this must be shown by the defendant. The burden of proof rests upon him, and every reasonable doubt should be resolved against him.

In the other case the same defense in a suit for infringement was set up, and there the Court thus stated the rule:

The burden of proof is upon the defendants to establish this defense. For the grant of Letters Patent is *prima facie* evidence that the patentee is the first inventor of the device described in the Letters Patent and of its novelty. (*Smith* v. *Goodyear Dental Vulcanite Co.*, 11 O. G., 246; 93 U. S., 486; *Lehnbeuter* v. *Holthaus*, 21 O. G., 1783; 105 U. S., 94.) Not only is the burden of proof to make good this defense upon the party setting it up, but it has been held that "every reasonable doubt should be resolved against him."

These two cases are closely in point. The plaintiff in this case, like the defendant in those cases, is challenging the priority awarded by the Patent Office, and should, we think, be held to as strict proof. In the opinion of the court below the rule is stated in these words:

The complainant, on the issue here tendered, assumes the burden of proof, and must, I think, as the evidence stands, maintain by a clear and undoubted preponderance of proof that he is the sole author of that drawing. (42 Fed. Rep., 451.)

This language is not quite as strong as that just quoted. The case as presented to the circuit court was not that of a mere appeal from a decision of the Patent Office, nor subject to the rule which controls a chancellor in examining a report of a master, or an appellate court in reviewing findings of fact made by the trial court. There is always a presumption in favor of that which has once been decided, and that presumption is often relied upon to justify an appellate court in sustaining the decision below. Thus, in *Crawford* v. *Neal*, (144 U. S., 585, 596,) it was said:

The cause was referred to a master to take testimony therein, "and to report to this court his findings of fact and his conclusions of law thereon." This he did, and the court, after a review of the evidence, concurred in his findings and conclusions. Clearly, then, they are to be taken as presumptively correct, and unless some obvious error has intervened in the application of the law, or some serious or important mistake has been made in the consideration of the evidence, the decree should be permitted to stand.

(See also *Camden* v. *Stuart*, 144 U. S., 104, and *Furrer* v. *Ferris*, 145 U. S., 132.)

But this is something more than a mere appeal. It is an application to the Court to set aside the action of one of the Executive Departments of the Government. The one charged with the administration of the patent system had finished its investigations and made its determination with respect to the question of priority of invention. That determination gave to the defendant the exclusive rights of a patentee. A new proceeding is instituted in the courts—a proceeding to set aside the conclusions reached by the administrative department, and to give to the plaintiff the rights there awarded to the defendant. It is something in the nature of a suit to set aside a judgment, and as such is not to be sustained by a mere preponderance of evidence. (*Butler* v. *Shaw*, 21 Fed. Rep., 321, 327.) It is a controversy between two individuals over a question of fact which has once been settled by a special tribunal, intrusted with full power in the premises. As such it might be well argued, were it not for the terms of this statute, that the decision of the Patent Office was a finality upon every matter of fact.

In *Johnson* v. *Towsley*, (13 Wall., 72, 86,) a case involving a contest between two claimants for land patented by the United States to one of them, it was said:

It is fully conceded that when those officers (the local land officers) decide controverted questions of fact, in the absence of fraud, or impositions, or mistake, their decision on those questions is final, except as they may be reversed on appeal in that Department.

Upon principle and authority, therefore, it must be laid down as a rule that where the question decided in the Patent Office is one between contesting parties as to priority of invention, the decision there made must be accepted as controlling upon that question of fact in any subsequent suit between the same parties, unless the contrary is established by testimony which in character and amount carries thorough conviction. Tested by that rule the solution of this controversy is not difficult. Indeed, the variety of opinion expressed by the different officers who have examined this testimony is persuasive that the question of priority is doubtful, and if doubtful the decision of the Patent Office must control.

What was the invention which the parties each claim to have made and in respect to which an interference was ordered in the Patent Office? It was thus stated by the Examiner:

In a device for coiling wire or wire rods, the combination, with a rotating coiling receptacle or reel for receiving and laying in coils the rod as it is delivered from the rolls, of a spider or platform for supporting the coil mounted on a vertical shaft concentric with the reel-supporting shaft, and means for elevating the platform-shaft independently of the other.

Plaintiff claims to have conceived the idea of this combination in July, 1878, and to have made in that and the succeeding year sketches and drawings which fully disclosed it. It is conceded that a machine embodying the invention was first constructed and put into successful operation in the spring of 1886, and that this was done under the direction and superintendence of defendant.

During the years 1878 and 1879, the defendant, a man about forty-seven years of age, was, as he had been since 1864, the general superintendent of the Washburn & Moen Manufacturing Company, a corporation engaged in the manufacture of iron and steel wire, while the plaintiff, twenty-four years of age, was in the employ of the same company as a draftsman, working under the direction of the defendant. The business of the company had, during the years of defendant's superintendency, grown to be enormous. In the actual work of the mill, as the finished wire came from the rolls it was coiled on reels. At first this was done through the agency of an attendant seizing the wire by a pair of tongs and engaging it with the reel, but this operation was attended with both danger and delay. To obviate this, the parties interested in this manufacture sought the invention of machinery which should seize the finished wire and engage it with the reel, and thereafter dislodge the completed coil therefrom.

The defendant locates the time of his conception of the idea embodied in this combination in October, 1878, and that which enables him to locate it is a transaction with Daniel C. Stover. It appears that in October, 1878, Stover (who was a manufacturer and inventor) came to Worcester, Mass., and while engaged in examining the machinery in the mill had his attention directed to the way in which the wire was coiled on the reels, and thought that some device could be invented for picking up the wire immediately after its leaving the rolls. After some reflection he conceived the idea which he subsequently embodied in Patent No. 219,124. He suggested his idea to the defendant, who replied that it was not new, and that others were working at it. He prepared a model which showed not only a device for picking up the wire, but also one for discharging the completed coil, and showed it to defendant, who, on his part, showed Stover a model which he had prepared. It is not pretended that either the model of Stover or that of defendant disclosed the exact combination for which a patent was claimed in this case. Nor is it important to notice all the details of the transactions at the time between Stover and the Washburn & Moen Company. It appears that Stover sold and assigned a one-half interest in his invention to the Washburn & Moen Company. The time of Stover's visit is established by the date of that assignment and the application which he made for a patent, and by other writings. There is significance in the fact that although the plaintiff was present when Stover's model was shown, it does not appear that he made any suggestion that he had invented anything of a similar character; and yet, if his present claim is true, he had for months been considering the matter, and had at least three months before conceived the very idea of the combination now in dispute. But it is enough to say in respect to this branch of the case that the story of the invention by defendant at the time stated is reasonable, probable, and to a certain extent supported by the testimony of Stover.

As against this the plaintiff claims to have conceived the idea of this combination in July, 1878, and relies mainly on the testimony of two witnesses, Lambert and Fowler. Though he was a draftsman he presented no sketch or drawing made prior to November, 1878, which in any such manner pictures his invention. It is true he testifies to having made sketches prior thereto, but none have been preserved. One of them he claims to have shown to Lambert in July, 1878, and Lambert was called as a witness to support this statement; but Lambert's testimony does not, it seems to us, carry the weight which is claimed for it. He was a tinsmith by occupation, employed at times by the manufacturing company, and testifies that in July, 1878, or about that time, very soon after Daniels's return from Europe, he came to his shop and showed him a sketch, and asked him to make a model of it. He declined, saying that he was too busy. Nothing more took place at that time, but in the fall of 1886, at Daniels's request, he made a model of the machine which, as he says, was

disclosed by that sketch. This model was in evidence. Now, it is possible that one seeing for a few minutes a sketch of a complicated machine can eight years thereafter remember the details of that sketch so clearly as to make an accurate model. But, if it is possible, it surely is not probable. If the invention embraced in the sketch impressed either Daniels or Lambert as something of great value, and, therefore, fixed itself firmly in the mind, it is strange that neither seemed anxious to impress it upon the attention of others, carry it into actual use, or derive profit from it. On the other hand, if it was one which did not impress either as of any special value, it seems almost morally certain that the details of the sketch and the precise character of the invention would not have been accurately remembered through all those eight years. We must not be understood as imputing to Lambert intentional falsehood. He was familiar with the machinery actually in use in the wire mill. He saw in the course of his acquaintance with that machinery many models and many machines, and the machine embodying this invention, as perfected, had been in actual use in the mill several months before he made this model. He may well have gotten some of these matters confused in his mind, and introduced into this model elements and parts which were not seen by him in the sketch displayed in 1878, and which were in fact taken from other sketches and drawings, or from models, or machines. At any rate, when there was nothing to specially arrest the attention, it taxes credulity for one to claim that he bears in mind for over eight years the details of a sketch of a complicated machine which is casually shown to him and which he sees but for a short time, and is enabled to thereafter reproduce the details of that sketch in a model.

Equally unreasonable is the testimony of Fowler, which is to the effect that on July 20, 1878, (the date being fixed by a memorandum in his diary,) Daniels came to visit him. This diary notes the facts simply of the visit of Daniels, but contains nothing in respect to the matters involved in this case. His testimony as to this was in these words:

> He explained by rough sketches an arrangement he had for coiling the wire after it was delivered from the rolls, which was a round box mounted on an upright shaft, and in the bottom of the box was a plate, perhaps I should say a movable plate, which could be lifted for the purpose of raising the coil of wire That was his method of getting hold of the coil, to get it out of the box.

None of these rough sketches were preserved. There was apparently nothing to impress the matter upon the mind of Fowler, and his attention was not directed to it until some time in the early part of 1887, nearly nine years thereafter, when Daniels called on him for the purpose of securing his testimony in this case. Doubtless Fowler means to be truthful. There is no reason to impugn his integrity, but his testimony is subject to a criticism similar to that placed upon the testimony of Lambert. As one of the matters which was being considered and discussed by the manufacturing company was how to do the work which is now being done by the machine finally constructed by defendant, it is not at all unlikely that Daniels, one of the employés of that company, spoke of the matter to Fowler at the time named; very likely he may have drawn rough sketches to suggest the ideas which were in his mind; but it is not probable that in the absence of some special reason therefor the memory would carry for eight or nine years the details of the plan or idea suggested by Daniels and illustrated by these sketches. While, of course, it is possible, yet such testimony is not of a character to carry great weight.

There is other testimony on both sides of this controversy. It is unnecessary to notice it in detail. It is enough to say that the testimony as a whole is not of a character or sufficient to produce a clear conviction that the Patent Office made a mistake in awarding priority of invention to the defendant; and because of that fact, and because of the rule that controls suits of this kind in the courts, we reverse the judgment and remand the case, with instructions to dismiss the bill.

Mr. Justice JACKSON did not hear the argument or take part in the decision of this case.

U. S. Circuit Court—Eastern District of Pennsylvania.

L. DURAND, HUGUENIN & CO. *v.* GREEN, SCHULZE-BERGE & KOECHL.

Decided February 19, 1894.

KOECHLIN—COLORS OR DYE-STUFFS—PATENT CONSTRUED.

Letters Patent No. 253,721, issued to Horace Koechlin February 14, 1882, for the manufacture of colors or dye-stuffs, construed, and *Held* to claim and to cover a process only. The case distinguished from *Goodyear* v. *R. R. Co.*, (1 Fish. Pat. Cas., 626.)

Mr. Livingston Gifford for the complainants.
Mr. E. N. Dickerson for the defendants.

DALLAS, *J.:*

The complainants, claiming to be assignees and present owners of Letters Patent No. 253,721, issued to Horace Koechlin on February 14, 1882, for "manufacture of colors or dye-stuffs," filed their bill charging the defendants with infringement thereof. The latter, by their answer, have set up several defenses, including a denial of the infringement alleged. The case thus presented has been heard and considered upon the pleadings and proofs, and is now for decision.

He who conceives a new method, and by that method produces a new substance, invents, by one and the same exercise of the creative faculty, both a process and a product. The exploit is single, though the achievement is double. The manner of producing and the thing produced may, of course, be separately contemplated; but the inventive act from which both are derived is not divisible. The fruit is twofold; but the germ is one. This seems to me to be self-evident; but were demonstration required it would be found in the characteristically vigorous and lucid opinion of Judge Grier in the case of *Goodyear* v. *R. R. Co.*, (1 Fisher's Pat. Cas., 626.) But from this unquestioned premise a conclusion was reached in that case which does not result from its acceptance in this one. It is not necessary to challenge the correctness of that conclusion in order to support my own. If it were, I would greatly distrust the latter. It may well be conceded that at the time the Goodyear case was decided it was right to hold that a patent which claimed a process, but which also disclosed that, by the practice of that process, an entirely new

fabric was produced, covered and included the latter as well as the former. The doctrine of that decision is that under the act of 1836, to the peculiar language of which the opinions repeatedly refer, the exclusive privilege conferred by a patent is coextensive with the actual invention as discoverable from the entire instrument, and from that doctrine it necessarily resulted in that case that the product disclosed, as well as the product claimed, was protected.

The first general statute passed by Congress in pursuance of its power to secure to inventors, for limited times, the exclusive right to their respective discoveries is that of 1790. That statute was, however, repealed by the act of 1793, which was afterward supplemented by the enactments of 1794, 1800, 1819, and 1832, and these last-mentioned statutes comprised the whole of the positive law of the subject until, by the act of 1836, the present more complete and rational patent system was inaugurated. None of the earlier acts had contained any provision with respect to claims. The act of 1793 required that every petitioner for a patent should "deliver a written description of his invention," and that the Letters Patent should "be made out * * * reciting the allegations and suggestions of the said petition and giving a short description of the said invention and discovery;" but this is all that was made necessary, and it appears from the forms given in the appendix to Fessenden on Patents (published in 1822) that it was not the practice to deliver with the petition or to recite in the patent anything more than the law directed. The former was accompanied by a specification merely, and to the latter was annexed a schedule "containing a description in the words of" the petitioner, and which "recited the specification" and nothing else. It is important to bear in mind that during this era of unperfected patent law patents were granted without examination by any Governmental agency for ascertainment of either the novelty or the utility of the asserted invention. It was sufficient that the petitioner "alleged" and "made oath" that he "believed" it to be new and useful. Upon this alone the patent issued; but it was accepted in reliance solely upon the recipient's own unaided investigation and with the unmitigated hazard that by reason of subsequently appearing lack of novelty or utility it might turn out to be absolutely worthless. Subject to this risk, however, he was secured in his invention as described, and, as has been shown, was not required to, and did not, present any claim whatever. By the act of 1836 a radically-different and vastly-superior policy was adopted and its administration provided for. In the interest both of the public and of inventors investigation by the Patent Office was established for the determination of, at least, the probable validity of a patent in advance of its issuing. The increased and increasing demands of other duties upon the officers to whom the execution of the patent laws had theretofore been confided, and the almost marvelous extent of the inventive genius displayed by our countrymen, necessitated the erection of the separate department or bureau, the creation of which was the primary object of the statute of 1836; but the principal new feature introduced by it in mode of procedure was that to which I have referred—thorough and orderly preliminary examination to test the right of each applicant to receive the patent applied for. The work thus devolved upon the Patent Office was very considerable, and in its performance the exercise of great care and skill was requisite. That it might not be rendered unnecessarily difficult it was but reasonable to require that every applicant should not merely, as under the act of 1793, "deliver a written description of his invention," but should also, as part of that description, "particularly specify and point out the part, improvement, or combination which he claims as his invention or discovery," and such is the precise addition which, in this regard, is made by the act of 1836 (sec. 6) to that of 1793. Still, it was directed (1836, sec. 5) that the patent, although annexing the specification, as above stated, of what the applicant claimed as his invention should "contain a short description or title of the invention or discovery, correctly indicating its nature and design," and should "grant the full and exclusive right to the said invention." It was with express reference to and upon construction of these terms of the act of 1836 that it was decided in *Goodyear* v. *R. R. Co.* that the patentee's monopoly was not, in that case, limited by his claim, but extended to the invention which was described, and the nature and design whereof were correctly indicated in the specification. After the passage of the act of 1836 the profession recognized the convenience and utility of formally stating the claim for which it made provision at the end of the specification, and, from the practice which ensued, as well as for other manifest reasons, the courts were led, as in *Goodyear* v. *R. R. Co.*, to give to such claims much, but not controlling, weight in determining the scope of patent-rights.

I turn now to the act of 1870, under which the patent in suit was granted. It is, as to the subject under consideration, markedly different from the act of 1836. It mentions the specification and the claim as two distinct things, and requires an inventor, not merely to specify and point out, but to "particularly point out and distinctly claim" his invention. The change in words is very slight; but the difference in meaning is obvious and important. By the one act he was instructed to specify what he alleged to be his invention; by the other he is told that the invention for which he desires a patent he must distinctly claim. The fact that, except as to the change just indicated, the words used in the two acts, when dealing with this matter, are substantially identical is quite convincing that the draftsman of the act of 1870 actually as well as in presumption of law thus peculiarly varied the language of the act of 1836, not without reason, but with a definite purpose. Nor is the legislative design hard to discern. The practice of the profession and the opinions of the judges, to which I have adverted, had suggested that the embarrassments attendant upon the efforts of the courts to construe vague and indefinite patents might, without doing injustice to patentees, be much alleviated by denying protection for anything, though original, new, and useful, which was not also distinctly claimed. In

brief. it was prescribed that the claim must be taken as defining precisely what the invention covered by the patent is, and hence the true question is not what the patentee might have claimed, but what he has claimed, the latter, not the former, being made the measure of his right. The rules for determining what is claimed in any case are few and simple and are not peculiar to the patent law except as respects the doctrine of liberality in construction in favor of pioneer inventors. The benefit of that doctrine is claimed by these complainants, and without pausing to examine their title to invoke it, for it cannot avail them, I concede, for the present purpose, its applicability to the achievement of Koechlin. As to the rest, it is sufficient to say that if the language of a claim has a plain and distinct meaning that meaning must prevail. That which is to be ascertained is, of course, the intent of the claimant, not, however, that intent as elsewhere or in some other manner disclosed, but as expressed in the claim itself. If the meaning of the claim be uncertain—that is to say, if the claim be ambiguous—but still be reasonably capable of elucidation by reference to the specification, the latter may be resorted to for interpretation of the former, but never to change the plain meaning of its language nor to extend it beyond the limits imposed by its own terms, and, *a fortiori*, not so as to create a separate or additional claim. From these preliminary observations I now pass to the consideration of the only claim of the patent involved, which claim is as follows:

I claim—
The improvement in the manufacture of coloring-matters, consisting in the production of violet coloring-matters by the action of nitroso derivatives of the tertiary amines on tannin, or equivalent reaction, substantially as described.

Is this claim for a process, or for a product, or for both? It is true that the word "manufacture" may be used to denote either the act of manufacturing or a manufactured article, and that the word "production" may designate as well a thing produced as the operation or producing. Each of these words does possess the double sense which the complainants ascribe to it, and if any insurmountable difficulty in comprehending the claim resulted from this the consequence, perhaps, might be that the patent would fall for want of any distinct claim to support it; but these words, when properly related to their context, do not render the claim equivocal. The improvement is expressly stated to be "in the manufacture of coloring-matters"—that is to say, in making coloring-matters—for otherwise it would be necessary to suppose that (at this point) it was intended to claim the substance called "coloring-matters," which would be absurd. Then the claim, continuing, explains that the referred-to improvement in manufacture of coloring-matters consists in—what? In a substance; in a fabric; in an article of merchandise? No; but "in the production of violet coloring-matters." I do not think it possible that any person having the least degree of skill in the use of the English language would so have expressed himself if his intention had been to claim "coloring-matters" restricted to violet coloring-matters, either generally or when produced by a particular method. On the other hand, even if the claim ended here, its natural meaning (and that is the meaning which should be adopted) would clearly require its acceptance as a claim for a process only. But as we proceed in the reading of the claim the notion that it is, or was intended to be, for a product becomes even more surely inadmissible, for, from what follows, it appears that what is claimed is not something which exists or is to be created, but something to be done—to be accomplished by "action" or "reaction." On the whole, therefore, I am of opinion that this claim does not require, and consequently does not admit of, interpretation, but that, upon a fair and natural reading of it, unaided by construction, it appears to be, and therefore is, a claim for a process, and for nothing else. As, however, it has been very earnestly urged that it should be so extended as to include the product because of the asserted broader scope of the invention as described and designated in the specification, I will briefly refer to that part of the patent. In the first place, it is there said:

My invention consists in the production of violet coloring-matters by the action, &c.,

and, certainly, if this language be related to the closing words of the claim, "substantially as described," its only tendency is to sustain the view I have expressed. But the particular portion of the specification upon which the complainants rely is this:

Other coloring-matters can be made by similar reactions. The products, as well as the method of producing the same, constitute part of the invention, which comprises, therefore, the preparation and the coloring-matters above mentioned.

This statement, however, does not aid them, first, because an existing claim cannot be enlarged by, nor an additional one be imported from, the specification, and, second, because the assertion that "the products * * * constitute part of the invention" when taken in connection with their omission from the claim pregnantly indicates that the applicant had process and product distinctively in mind and yet, either in disregard of the statute or because he was satisfied to secure only process, limited his claim to process alone.

It remains only to notice the contention that, in this instance, the product inheres in the process, and that, therefore, the claim of the one necessarily includes the other. For reasons already stated this position is untenable. Product and process are quite distinct matters, even where both are created by the same inventive act. If the point here was the same as in *Goodyear* v. *R. R. Co.*, it might be decided favorably to the complainants; but as, in this case, the question is not as to the scope of the invention, but as to the subject-matter of the patent as defined by the claim, it must be determined against them. It was not held in *Goodyear* v. *R. R. Co.* that because the process was expressly claimed the product was constructively claimed. The theory upon which the judgment was founded is quite different. It is that, though not at all included in the claim, the product was patented, because it appeared, from other parts of the instrument, to have been invented. In other words, the scope of the patent was determined, not by construction of the claim, but by exploring the specification in search of invention, and invention disclosed, not claimed, was made the measure of right. The difference is a palpable one, and it clearly distinguishes that case from this one.

I have reached the conclusion that the only claim of the patent in suit is for a process, and is not for a product, and, waiving any question as to whether use or sale of the product by the defendants jointly has been shown, it has at least not been established that they have in any manner used the process. It results from this that the charge of infringement has not been sustained. Other defenses were interposed and the points which they involve have been very thoroughly and ably argued; but it is unnecessary, and therefore not desirable, that I should intimate any opinion upon them. I do not do so; but upon the ground and for the reasons which have been stated—

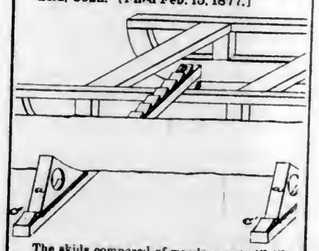
The bill is dismissed, with costs.

PATENTS

Expired, May 8 1894.

The term of these patents granted during the week ending May 8 1877, have expired. The reissues expired at an earlier date.

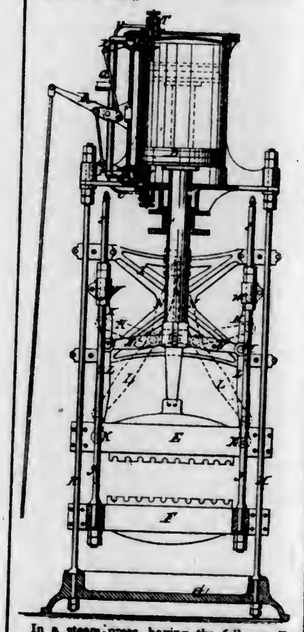
190,404. SKIDS. Wm. S. Babcock, Plainfield, Conn. [Filed Feb. 15, 1877.]



The skids composed of wooden parts C C, toothed racks D D, chocks *a a*, and lips *b b*, substantially as and for the purpose set forth.

190,405. COTTON-PRESSES. A. Baldwin, New York, N. Y., assignor to S. Sheldrake & Co., same place. [Filed Sept. 4, 1876.]

Brief.—The upper toggle-arms are connected to the movable lifters of the lower follower, instead of being attached to fixed supports. The two followers approach each other on pressing.

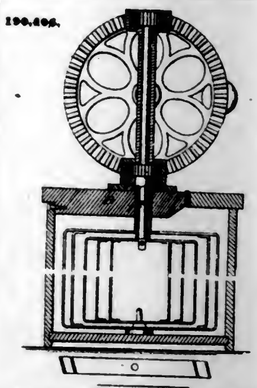


In a steam-press, having the follower E coupled to the piston rod by the toggle-jointed bars K L and the links N, the bars K, jointed to lifters J, in combination with a secondary follower, F, attached to said lifters, substantially as described.

190,406. CHURNS. S. Bair, Spencerville, Ind. [Filed Feb. 23, 1877.]

The combination, in a churn, of the concentric frames carrying thin blades driven edgewise, the outer ones being slightly inclined to induce circulation, in combination with mechanism, substantially such as described, for causing their rapid rotation.

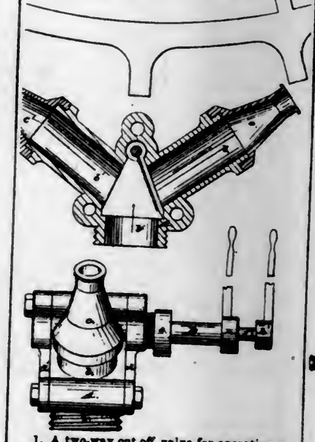
190,406.



190,407. COMPOUNDS FOR CLEANING AND POLISHING BRASS. William H. Bertram, Boston, Mass. [Filed Oct. 18, 1876.]

The hereinbefore-described compound for cleaning and polishing metals, consisting of white Tripoli, lard-oil, rotten-stone, bromide of potassium, and water, substantially in the proportions above set forth.

190,408. CUT-OFF VALVES. F. A. Bishop, Placerville, Cal. [Filed June 14, 1876.]

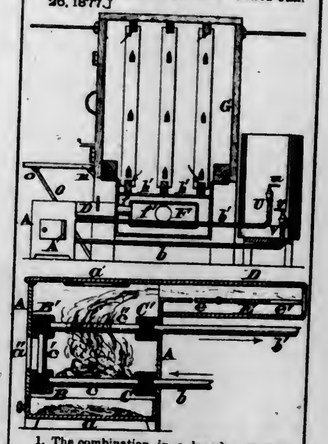


1. A two-way cut-off valve for operating a percussion water-wheel in either direction on its axis, consisting of the triangular case A, with an inlet-opening, *y*, in the bottom, and outlet-openings *b b'*, directed toward the buckets on the periphery of the wheel, causing the water through the nozzles to strike the same bucket on either face agreeably to the direction required, the said openings *y* and *b b'* being in the same plane of the wheel, all arranged substantially and for the purpose as above described.

2. The hollow stem B and wing *f*, in combination with the case A, the stem C, and wing *g*, one or both stems arranged and operated by the levers *h h'*, substantially as above described.

3. The two stems B and C and wings *g* and *f* as a solid, in combination with the case, A, to be used singly for reversing purposes, without cutting off the entire stream, substantially and for the purpose as above set forth.

190,409. LAUNDRY APPARATUS. George O. Bovey, Chillicothe, Ohio. [Filed Jan. 26, 1877.]



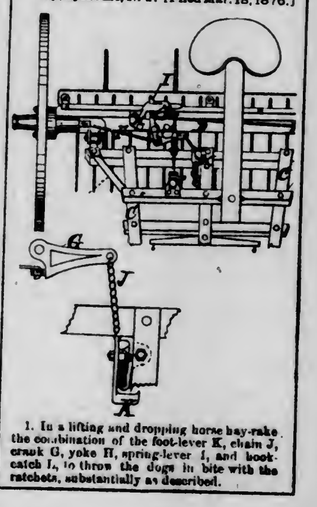
1. The combination, in a laundry apparatus, of stove A, coil B B' O O' *c c' c''*, circulating-pipes *b b'*, drying-apartment G, drum F H, and washing appliances S T, arranged and adapted to operate substantially as herein described, and for the purpose set forth.

2. In combination with stove A, washing appliances S T, and circulating-pipes *b b'*, the coil B B' U U' *c c' c''*, substantially as herein described, and for the purpose set forth.

3. The extension D, connecting stove A, with drum F *f*, said extension being provided with a partition, E *e'*, and a regulating-damper, *e*, substantially as herein described, and for the purpose set forth.

4. In combination with coil B B' U U' *c c' c''*, circulating-pipes *b b*, and washing appliances S T, the branches U *u u'* and V *v v'*, arranged substantially as herein described, and for the purpose set forth.

190,410. HORSE HAY-RAKES. O. C. Bradley, Syracuse, N. Y. [Filed Mar. 18, 1876.]



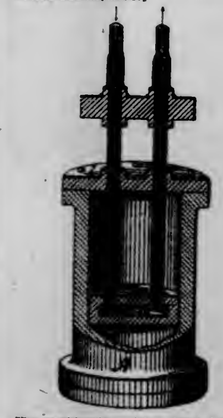
1. In a lifting and dropping horse hay-rake the combination of the foot-lever K, chain J, crank G, yoke H, spring-lever I, and hook-catch L, to throw the dogs in bite with the ratchets, substantially as described.

2. In a lifting and dropping horse hay-rake the combination of yoke H, hook-catch L, spring Q, and connecting-link N, to throw the dogs out of bite with the ratchet, substantially as described.

3. The combination of the ratchet hub-plates A, sliding dogs E, connecting-rods P, spring-lever I, yoke H, crank G, chain J, foot-lever K, hook-catch L, spring Q, and link N, the whole forming a foot-operating automatically-releasing mechanism for lifting and dropping the teeth of a horse hay-rake, substantially as described.

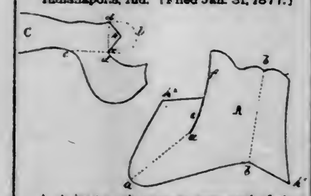
4. In a horse hay-rake braces B E extending from a point on the shaft between the oscillating axle and whiffletree to a point on the axle in close proximity to the wheel, and bearing in hinges which connect the draft-frame with the axle, to stay the axle and thill framework, substantially as shown and described.

190,411. PISTONS FOR AIR AND GAS ENGINES. George B. Brayton, Exeter, N. H. [Filed Oct. 19, 1876.]



The combination, with a piston having an interior chamber, of two separate hollow piston-rods, communicating directly with the chamber of the piston, one of which piston-rods is connected with a water-supply, whereby a continuous stream of water can flow through the piston for cooling the same, substantially as described.

190,412. BOOTS AND SHOES. H. Brossel, Indianapolis, Ind. [Filed Jan. 31, 1877.]



1. A boot or shoe upper, composed of the parts A and B, with the points A^1 and A^2, united at A, substantially as shown and specified.

2. The pattern for uppers, composed of the parts A and B, as herein shown and described.

3. A sole and heel for a boot or shoe, composed of the outer sole C, the lift E, the block of filling F, the metal plate D, and the inner sole G, as herein shown and described.

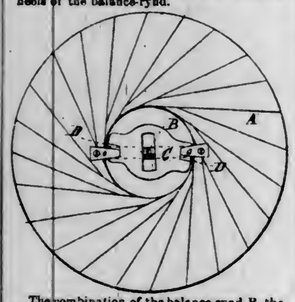
4. The pattern O for boot or shoe soles, having the point k, substantially as herein shown and specified, and all substantially as herein set forth.

190,413. LIFTING-JACKS. D. W. Brown, New Comerstown, Ohio. [Filed Mar. 30, 1877.]

A lifting-jack, consisting of a frame, A, having guides F, lever B, having head B^1, groove b, and teeth b', pawl C, having the extension or arm c^1, lifting-bar F, having lug E', and chain or rope D, all arranged and operating substantially as herein set forth.

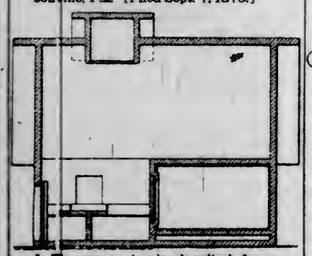
190,414. MILLSTONE-DRIVERS. Francis J. Burt and Joshua S. Whitney, Rochester, Minn. [Filed Dec. 27, 1876.]

Brief.—A bearing-block of rubber fixed between the lugs of the driving-block and the heels of the balance-rynd.



The combination of the balance-rynd B, the driving-block C, which sets on the square of the spindle, and the lugs of which bear against the balance-rynd, the rubber cushions D fitted in slots cut for their reception in the driving-block, and the runner A, as and for the purposes described.

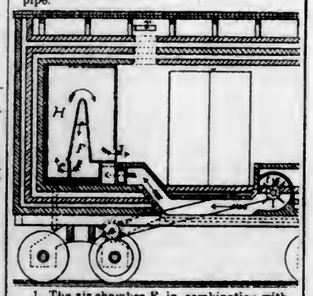
190,415. PROCESSES OF PRESERVING FRUIT. J. L. Burst, Jr., and C. M. D'Autrey, Jacksonville, Fla. [Filed Sept. 7, 1876.]



1. The process herein described for preserving fruit for shipping purposes, consisting of first preparing the fruit by sweating, by which the acid is extracted from the rind, and the pores of the same are opened; then sprinkling the same with a solution of water, Rochelle salts, saltpeter, lime, and carbolic acid, in about the proportions set forth, and finally drying and packing the same, substantially as herein set forth.

190,416. REFRIGERATOR-CARS. Robt. Burrows, Chicago, Ill. [Filed Dec. 11, 1876.]

Brief.—The air is forced by a fan-blower, which receives power from the car-axle by means of friction-pulleys, into a flat tapering air-chamber within the ice-chamber, where it is partially cooled, and then forced out through an opening in the bottom of the other side, and passes up over the air-chamber and through the ice, down on the other side, and out through an opening just above the inlet-pipe.

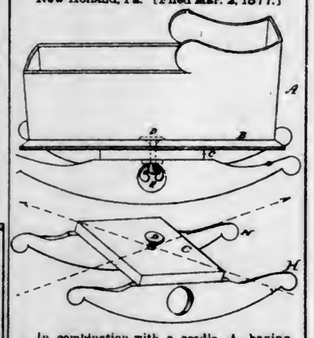


1. The air-chamber F, in combination with the ice chamber H, the air-chamber being within the ice-chamber, and serving to cool the air before it passes in contact with the ice, substantially as specified.

2. The combination of the air-chamber F within the ice-chamber and the front of the ice-chamber, provided with the opening J at or near its bottom, so that the air is forced to pass up over the air-chamber through the ice before reaching the preserving-chamber, substantially as specified.

3. The combination of the flexible wheels M and N, the hinged frame O, spring P, and fan E in a refrigerator car, as specified and shown.

190,417. ROCKING-CRADLES. I. Bushong, New Holland, Pa. [Filed Mar. 2, 1877.]



In combination with a cradle, A, having ventilating perforations and a long central slot in the bottom B, the rockers H, connected by a central platform, O, and the screw-bolt and binding-nut D, the whole substantially as and for the purpose specified.

190,418. CAR-COUPLINGS. C. M. Carnahan, Utica, Pa. [Filed Apr. 2, 1877.]

1. In a car-coupler, the bell-crank F, in combination with the jack D, substantially as set forth.

2. A car-coupler provided with the slot B, oscillating jack D, and bell-crank F, having arms G I, substantially as expressed.

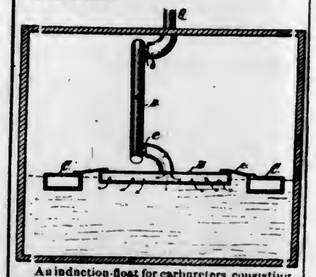
3. The combination of the jack D, bell-crank lever F, and connecting-link M, substantially as specified.

2. The curing-room, provided with a double floor, lined with felt or like material, made air-tight, and capable of being hermetically sealed, for the purposes set forth.

3. A solution for the preservation of fruit, composed of water, Rochelle salts, saltpeter, lime, and carbolic acid, in about the proportions set forth.

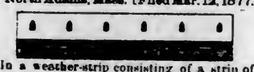
190,419. FLOATS FOR CARBURETERS. Jno. Clingman, Dayton, Ohio, assignor of one-half his right to D. N. Kelley and C. H. Ware, same place. [Filed Mar. 21, 1877.]

Brief.—The air-induction pipe leading to the float is not only jointed to permit of rise and fall of the float with the varying height of the oil, but is also provided with a swivel-joint, so that the float will be maintained in a horizontal position, though the containing-vessel be tilted.

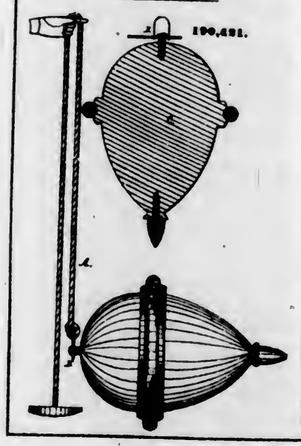


An induction-float for carbureters, consisting of the perforated disk B and float C, united to the induction-pipe A by the hinged connections b and c, and the swivel-jointed pipe D, whereby the float will always adjust itself to the surface of the liquid independent of the position of the containing-tank, substantially as and for the purpose specified.

190,420. WEATHER-STRIPS. Frank Davis, North Adams, Mass. [Filed Mar. 12, 1877.]



In a weather-strip consisting of a strip of sheet metal and a strip of elastic material, the strip of metal having the hem n, against the edge of which the edge of the elastic material comes, the prongs a, cut in and turned up from the sheet metal, passed through the elastic material, and clinched, substantially as shown and described.



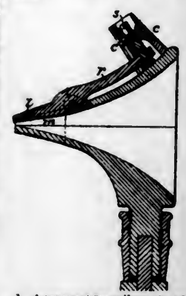
190,421. SPINNING-TOPS. A. J. Davis, Pittsburg, Pa., assignor of one-half his right to J. J. Johnston, Columbiana, Ohio. [Filed Oct. 26, 1876.]

Brief.—The spinning-cord is secured to the top by a swivel, to allow the top to be held up thereby without twisting the cord.

The top C, provided with a swivel, B, and cord A, attached permanently thereto, substantially as described, whereby, when the top is spun, it can be supported in a horizontal position with relation to the cord, and is at all times under control, so as to be moved about or made to assume various positions, as set forth.

190,422. TRUMPETS FOR RAILWAY-HEADS AND DRAWING-FRAMES. P. C. Dawson, Providence, R. I. [Filed Mar. 2, 1877.]

Brief.—The orifice of the nozzle is adjustable by means of a pivoted lip arranged to vibrate upon said pivot. The lip is provided with a lever, which extends back toward the top of the trumpet, where it is raised or lowered by a screw passing through its end, thus widening or contracting said mouth or orifice. The gateway of the nozzle is re-enforced at its sides with metallic plates for making close joints.



1. A trumpet for railway-heads and drawing-frames, provided with a hinged or pivoted lip, arranged and adapted to vibrate upon its hinge or pivot, for the purpose of varying the size of the orifice of the nozzle, as set forth.

2. The combination, substantially as set forth, with the main portion of the trumpet, of a hinged or pivoted vibratory lip, forming part of the nozzle, and means, substantially as described, for vibrating said lip on its hinge or pivot, and maintaining it in the desired position of adjustment.

3. The combination, substantially as set forth, with the main portion of the trumpet, of the hinged and vibratory lip, the lever or arm r, and the adjusting-screw s.

4. The combination, substantially as set forth, of the main portion of the trumpet, the hinged vibratory lip l, the lever or arm r, the adjusting-screw s, and the cap c.

5. A trumpet for railway-heads and drawing-frames, in which the sides of the gateway of the nozzle are provided with metallic plates m, set into an incision for the purpose of making a close joint, substantially as described, said plates working in connection with the lip l, substantially as set forth, and for the purpose specified.

190,423. LUBRICATION OF ICE-MACHINES. Francis V. De Coppet, New Orleans, La. [Filed Oct. 7, 1876.]

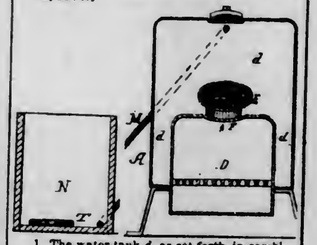
Brief.—The lubricant is, by exhaustion, drawn from out the reservoir into the pump at top, and simultaneously that which has by gravity reached the bottom is drawn again to the top. The lubricant which is deteriorated by use is drawn into the reservoir by the creation of a vacuum therein, and let out below.

1. The arrangement of a relief-pipe, d, and stop-cock 2, in combination with the pump A and lubricant-vessel E, as described, and for the purpose set forth.

2. The lubricant-vessel E, provided with dip-tube a, charging-cap F, and discharge-valve 4, in combination with the pump A, relief-pipe d, and feed-pipe c, as described, and for the purpose specified.

3. The combination, with the stuffing-box G, of a pipe, g, connecting it with the receiving side of the pump A, and of a pipe, d, arranged in connection with the vessel E, as described, and for the purpose specified.

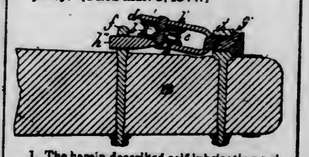
190,424. AGRICULTURAL BOILERS. Thos. S. Dobbs, Lexington, Ohio. [Filed Mar. 3, 1877.]



1. The water-tank d, as set forth, in combination with the pipe M and horizontal coiled pipe T, which is provided with apertures, and situated in the food-tank N, substantially as set forth.

2. The heater A, provided with furnace D, horizontal smoke-flue E, and water-tank d, in combination with the pipe M and food-tank N, furnished with the horizontal coiled pipe T, provided with suitable apertures for emitting steam, substantially as set forth.

190,425. SELF-ADJUSTING SHEAVES FOR BOOMS, &c. J. Edson, Boston, Mass., assignor of one-half his right to Jas. Baker, same place, trustee for Bakers & Humphrey. [Filed Mar. 9, 1877.]



1. The herein-described self-lubricating pulley b, with its annular hollow chamber f and inlet-tube e.

2. The herein-described self-adjusting sheave, having its bearings f g arranged in a line that is oblique to the center line of the pulley b, substantially as and for the purpose set forth and shown.

3. The herein-described oscillating sheave, having the side wings or stops h'' h'' on its shield or protector h, as set forth.

4. The combination, with the shield or protector h, of the pin or bolt h''' and its bearing f, and the conical or tapering head i', with its conical or tapering bearing g g', as set forth and described.

190,426. GRAIN GATHERERS AND BINDERS. R. Hickemeyer, Yonkers, N. Y. [Filed Mar. 1, 1877.]

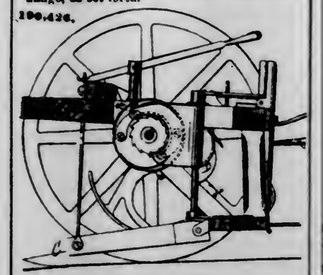
1. The combination, with a horse-rake, of a lifting-arm, a clamping-arm, and a separator, substantially as described, whereby, while the lifting and clamping arms are operating, the

separator prevents the grain, as it is accumulated on the rake, from moving to the rear thereof, as set forth.

2. The combination, with bundling apparatus, of the rake-teeth secured to a bar hinged to the frame of a horse-rake, and arranged at their front ends to float upon the surface of the ground, and a lifting-lever and hook, substantially as described, whereby the rake may be elevated for passing obstacles, and while the rake is being conveyed from place to place, as set forth.

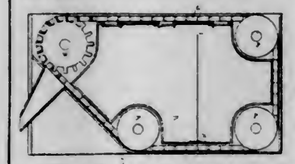
3. The combination, with the axle and its ratchet, of a shaft for operating a lifting-arm, having a flanged collar provided with two spring pawls, oppositely located thereon, and a spring-lever provided with a semicircular flange, which always maintains control of one or the other of the pawls, whereby said shaft may be driven but one-half of a revolution by the release of a pawl from the semicircular flange, as set forth.

190,426.



190,427. GRAIN-CONVEYERS. Andrew J. Emlaw, Grand Haven, Mich. [Filed Oct. 16, 1876.]

Brief.—The device may be used for distributing grain in loading a vessel, as well as for conveying the grain from distant parts in the vessel to the foot of the elevator-leg in unloading.

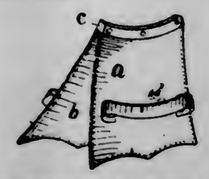


1. The endless chain C, in combination with the upper and lower casings, each provided with valves, as described, and operated by means of the cog-wheel W and friction-pulleys P P P, substantially as described, and for the purpose set forth.

2. The lower casing, provided with valves *x x*, in combination with the endless chain C, elevator and discharge-pipe S, for the purpose of discharging the grain at the foot of the elevator-leg, substantially as described.

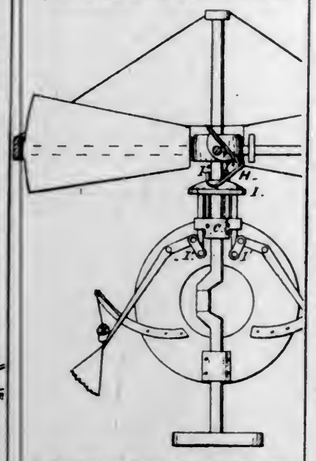
190,428. HORSE-COLLAR PADS. A. Foley, Atlantic, Iowa, assignor of two-thirds his right to J. J. Harding and J. A. McWald, same place. [Filed Feb. 3, 1877.]

Brief.—The two flexible pads are united at their top edges by a rigid concave metallic strip or binding.



As an improved article of manufacture, a horse-collar pad having two uniform flexible sides, *a b*, formed concave at their top edges, said edges being joined together by a rigid metallic clamping plate, *c*, substantially as and for the purposes set forth.

190,429. WINDMILLS. William D. Griffith, Vincennes, Iowa. [Filed Mar. 17, 1877.]

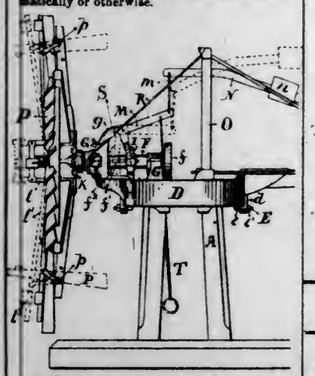


1. The wind-wheel, with pivoted vanes, combined with the arms H and a regulating-block, I, substantially as set forth.

2. The wind-wheel, having two lever-vanes to guide the wheel to the wind, combined with a regulating-block, I, substantially as set forth.

190,430. WINDMILLS. D. Halladay, Batavia, Ill. [Filed Mar. 6, 1877.]

Brief.—This wind-wheel has a sliding rod supported within the main shaft, which is made tubular for this purpose, and connected at its outer end to the mechanism for throwing the sails into and out of the wind, and provided with a cap fitting over the outer end of the shaft for protection; also, in constructing the central portion of the main shaft with a fluted surface, and combining therewith an external sliding collar, attached to the inner end of the sliding rod, and also connected to devices for reciprocating the latter either automatically or otherwise.



1. The bed piece B, constructed with an upright flange, *b*, in combination with the turn-table D, provided with outside and inside flanges *d d'*, substantially as and for the purpose set forth.

2. The turn-table D, provided with an outer flange, *d*, extending below the bed-piece, in combination with the bed-piece B and bolt E, having an elongated flattened head, *e*, substantially as described.

3. The tubular main shaft F, slotted as described, in combination with the sliding rod H, arranged within the shaft, and sliding collar I, arranged upon the main shaft between its bearings, and rigidly connected with the sliding rod, substantially as described.

4. The shaft F, constructed with ribs upon its surface, over which the collar I is to slide, substantially as and for the purpose set forth.

5. The shaft F, in combination with the hub J at its outer end, provided with a flange or sleeve, *f*, extending back over the end of the shaft, substantially as and for the purpose set forth.

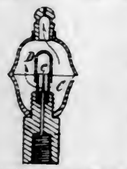
6. The tubular main shaft F, mounted on the turn-table, in combination with the wheel-hub K, sliding rod H, provided with hub J on its outer end, bell-crank levers L, connecting-rods *l P*, and pivoted sails P, all arranged and operating substantially as described.

7. The sails P, constructed with the pivot-pins *p'*, arranged on the rocking bars *p*, forward of the center of said bars, and nearly in line with the center of gravity of the sail, substantially as and for the purpose set forth.

8. The guard or cap S, arranged on the outer bearing G, for the protection of the shaft and collar between the bearings of the former, substantially as described.

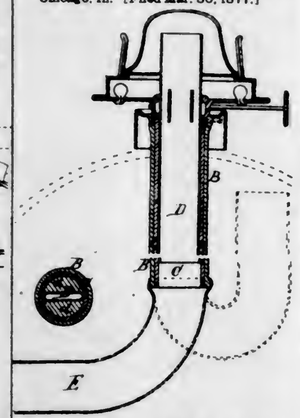
9. The sliding rod H, arranged within the tubular main shaft F, and provided with a link, J, upon its outer end, in combination with the bell-crank levers L, connecting-rods *l P*, pivoted sails P, collar I, bell-crank lever M, connecting rod *m*, and counterpoise-lever N, substantially as described.

190,431. GAS-BURNERS. J. Halstrick, Jr., Boston, Mass. [Filed Dec. 22, 1876.]



A combination of the gas-check C, provided with the slots *e e* and gage-lines *g*, and the sliding cap D, the whole constructed and operating substantially as and for the purpose described.

190,432. SAFETY-LAMPS. D. R. Harder, Chicago, Ill. [Filed Mar. 30, 1877.]



1. The combination, with the lamp-tube B, of the wick-tube C *d*, which has only a wick-passage, D, through it, and is made from the lamp-collar to its lower end of a diameter which fits snug to the interior surface of the lamp-tube all around, substantially in the manner shown and described.

2. In an oil-lamp, the combination of the lamp-tube B, wick-tube C, and flexible tube E, substantially as set forth.

190,433. SHOES. Asa H. Herring, Haverhill, Mass. [Filed Mar. 30, 1877.]

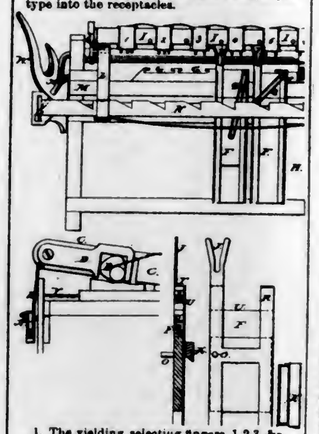
As an improved article of manufacture, a shoe having its quarters cut with curved branches *b b*, extending over and upon and secured to the instep-tongue, all substantially as shown, for the purpose set forth.

190,433.



190,434. TYPE-DISTRIBUTING MACHINES. J. M. Howe, San Francisco, Cal. [Filed Dec. 2, 1875.]

Brief.—The dead matter is held in the intermittently-moving reservoirs, while the four-motion selecting-fingers draw the proper type into the receptacles.



1. The yielding selecting-fingers 1 2 3, &c., in combination with mechanism, substantially as described, for producing their upward, advancing, downward, and receding movement, as set forth, each being provided with two or more fixed points or pins, to engage in corresponding perforations in the type, whereby the latter, when the pins and perforations register, are withdrawn from the reservoirs F at each receding reciprocation of the said selecting-fingers.

2. The plate or apron, Fig. 8, in combination with the selecting-fingers 1, 2, 3, &c., constructed and arranged as set forth, to assist in delivering the type from the reservoirs F into the receptacles G and V, substantially as shown and described.

3. In combination with the cams B, the bars C, arms D, and bar E, constructed and arranged to operate conjointly, substantially in the manner set forth, for the purpose of providing the bar E with an alternate, vertical, and horizontal reciprocation.

4. The detachable flange-edged receptacle G, constructed as shown and described, in combination with the selecting-fingers 1 2 3, &c., for the purpose set forth.

5. The guide pins I on the bar E, Figs. 1 and 2, in combination with guides J on the reservoirs F, for the purpose of securing the exact registration between the reservoirs F and receptacle G.

6. The traveling-reservoirs F, provided with ledges or stops T, and cut-away portions U, substantially as shown, for the purposes set forth.

7. The combination of the cam W, notched bar N, and traveling-reservoirs F, when operating conjointly, substantially in the manner and for the purpose set forth.

8. The vibrating type-setter *a*, in combination with the receptacle H, operating substantially as and for the purpose set forth.

190,435. NECK-YOKES. George W. Hurd, Ionia, Ill. [Filed Sept. 2, 1876.]

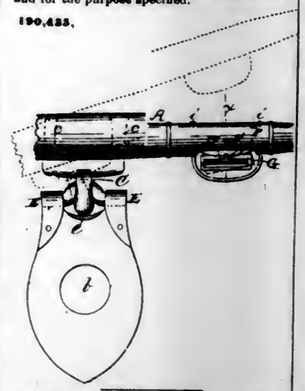
1. The neck-yoke ring or plate B, having loops E E and rubber pad *c*, in combination with the axial bolt D, eyebolt *c*, and neck-yoke A, substantially as and for the purpose specified.

2. The plates G, pivoted at *f'''* on the curved projecting surfaces *f'''* of the socket F, and combined with the neck-yoke A, substantially as described, and for the purpose specified.

3. The plates G, having slotted tongue *g*, combined with the pin *f'*, projections *f'''*, bearings *g''*, and neck-yoke A, substantially as described, and for the purpose specified.

4. The plate G, having guards A, combined with the projecting parts *f'''* of the socket F and neck-yoke A, substantially as described, and for the purpose specified.

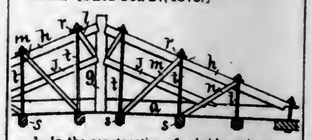
190,435.



190,436. ANTI-INCRUSTATION COMPOUNDS. L. Ell Hurd, Cincinnati, Ohio, assignor of one-half his right to J. G. Ellis, same place. [Filed Nov. 8, 1876.]

The compound for prevention and removal of scale in steam-boilers, composed of the ingredients hereinbefore designated in substantially the proportions named, viz: Best English soda-ash, one hundred and fifty pounds; sal-ammoniac, fifteen pounds; wood charcoal, gum-catechu and linseed-oil cake, each ten pounds; oak bark, five pounds—all ground fine and thoroughly mixed together.

190,437. BRIDGES. W. Irelan, Oak Springs, Iowa. [Filed Oct. 27, 1876.]

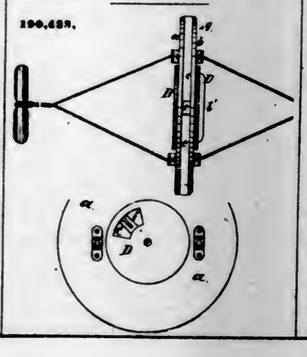


1. In the construction of a bridge, the vertical stay-blocks *b b*, the transverse bolts *c c*, and the crossing bolts *d d*, arranged and combined with the ends of the four pieces *a*, substantially as and for the purposes shown and described.

2. The beam or chord *a a*, the vertical post *g*, the series of parallel braces *h* and J, and the series of single minor braces *l m n*, arranged and combined substantially as and for the purposes shown and described.

3. The chord *a a*, the braces *h J l m n*, the binding-plates *r*, the binding-joists *s*, and the rods *t*, all arranged and combined substantially as and for the purposes shown and described.

190,438.

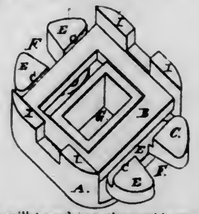


190,439. SPINNING TOYS. Jas. R. Jenkins, New York, N. Y. [Filed Jan. 13, 1877.]

Brief.—A loosely-pivoted plate upon the top or whirligig irregularly covers and uncovers a reed or whistle, which is sounded by the rush of air while spinning.

In an axially-rotating toy, the combination of one or more independently-rotated plates D, having an opening, *f*, and with one or more reeds or whistles provided in due relation with passages for the centrifugal movement of the air, substantially as and for the purpose herein set forth.

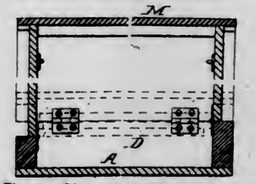
190,439. MILLSTONE-DRIVERS. W. Johnson, Milwaukee, Wis., assignor of one-half his right to J. Keiner, same place. [Filed Dec. 26, 1876.]



1. In a millstone-driver, the combination of the frame A, having the flanges on two of its edges to hold the other parts in position, the pivoted blocks C, link B, and cap D, for holding the parts together, substantially as shown.

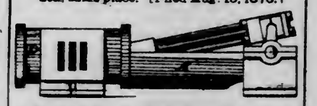
2. The pivoted blocks C, having the openings F, to catch over the bail, and shoulders, between which the link B lies, substantially as set forth.

190,440. EGG-CRATES. Wm. J. H. Kappe, Quincy, Ill. [Filed Nov. 17, 1876.]



The cover M, provided with the inlet-spring catch V, and the loop P, in combination with the bottom A, provided with the cleats D, having the notch X and pin T, substantially as specified.

190,441. STEAM-ENGINES. W. J. F. Liddell, Charlotte, N. C., assignor to F. Liddell, same place. [Filed Aug. 15, 1876.]



In an engine in which the cylinder and journal-block are cast on the engine-frame, the combination of the cylinder, having the partition E, the connected pistons G G', and the compensating connecting-rod J, removably secured between extended bearings formed on the piston G', substantially as and for the purpose set forth.

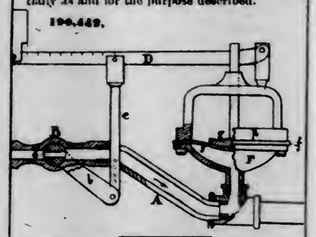
190,442. AUTOMATIC WATER-PIPE PRESSURE CUT-OFFS. F. McLoughlin, Peoria, Ill., assignor of one-half his right to P. Fraser, same place. [Filed Mar. 12, 1877.]

Brief.—The weighted diaphragm is so regulated that the water-pressure upon it partially or wholly closes the cut-off valve, according to the adjustment of the weights automatically.

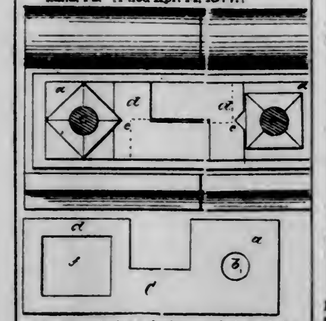
1. The combination, with the cut-off cock or valve B, of the adjustable link *e*, or adjustable connection with the weighted and graded lever D, the link or stem A of disk *g*, the disk *g*, the diaphragm *f*, and diaphragm chamber F, substantially as and for the purposes described.

2. The combination with the water-service pipe A, cock or valve B, arm or lever *b*, rod *g*, weighted lever D, disk *g*, diaphragm *f*, and chamber F, opening from said pipe, substantially as and for the purpose described.

190,442.



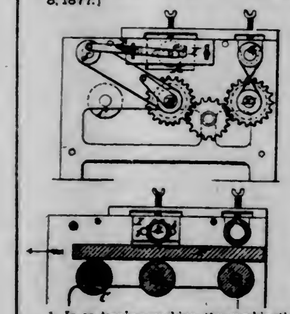
190,443. NUT-LOCKS AND WASHERS. E. A. Mercer and Jos. D. C. Pownall, Christiana, Pa. [Filed Apr. 14, 1877.]



1. A nut-locking device, consisting of the plates C, having washers *a* and opening *b*, and the short plate *d*, said plates sprung over each other, substantially as and for the purpose specified.

2. The plates C, having washers *a* and holes *b*, and the ends or plates *d*, with openings *f*, said plates *d* sprung over the nuts, substantially as and for the purpose set forth.

190,444. IRONING APPARATUS. Patrick O'Thayne, New York, N. Y. [Filed Feb. 8, 1877.]

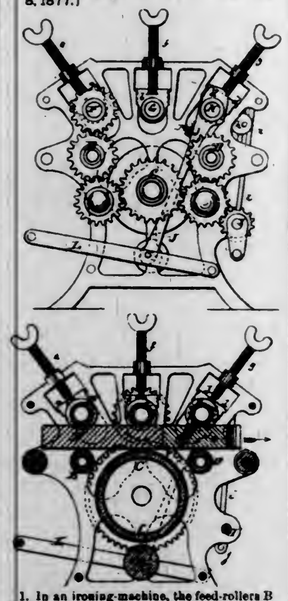


1. In an ironing-machine, the combination of the movable ironing-table F with the horizontally-reciprocating ironing roller or plate H, which moves partly in the same direction and partly in the reverse direction as the ironing-board, substantially as specified.

2. The combination of the reciprocating ironing roller or plate H with the vertically-adjustable bases I I, which have horizontal slots *b b*, in which the roller or plate H moves and is supported, substantially as and for the purpose herein shown and described.

3. The ironing-board F, made with one or more grooves, *f*, on its upper surface, and combined with one or more ironing-rollers, which extend laterally over such grooves without entering the same, substantially as and for the purpose set forth.

190,445. IRONING APPARATUS. Patrick O'Thayne, New York, N. Y. [Filed Feb. 8, 1877.]



1. In an ironing-machine, the feed-rollers B D, combined with the ironing-board or apron and with the larger feed-roller C, and with moving mechanism which will cause all three rollers to have equal circumferential motion, substantially as specified.

2. The combination of two or more feed-rollers, B C, with a movable ironing-board, N, and with the ironing-rollers F and G, the roller G revolving faster than the roller F, substantially as herein shown and described.

3. In an ironing-machine, the ironing-roller H, combined with mechanism *h i j*, and with an apron or board, all arranged so that during the operation of the machine the roller H will be rocked backward and forward over the surface of the garments, substantially as herein shown and described.

4. The combination of the rotary ironing-roller G with the oscillating ironing-roller H and with the lower feed or moving devices, substantially as specified.

5. The combination of one or more ironing-rollers, F G, &c., having concave surfaces, with a rectilinearly-moving ironing-board, N, having a convex surface, and with two or more supporting or feed rollers, B C, substantially as herein shown and described.

6. The oscillating ironing-roller H, hung in links that connect with the treadle L, and combined with the moving mechanism *h i j*, whereby it is oscillated independently of its treadle motion, substantially as specified.

7. The ironing-board N, made with sectional or removable bosom-piece *o*, which is on both sides flanked along its entire length by pieces projecting from the body of the board, substantially as shown.

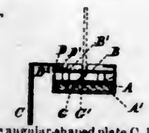
8. The feed-rollers B C, made with guide-grooves *l*, and combined with the reciprocating ironing-board having the guide-rib *m*, substantially as specified.

9. The ironing-rollers F G, made with grooves *n* for admitting hems and forming beads in the fabric, and combined with the smooth movable ironing-board or apron, substantially as and for the purpose set forth.

190,446. ATTACHING LABELS. C. L. Pond, Buffalo, N. Y. [Filed Mar. 19, 1877.]

Brief.—The bottom of box is hinged to the rear edge of the removable cover, and is turned up in a vertical position, to serve as a handle when applying stamps. The inner surface of the bottom, as also that of the spring presser-plate, is faced with india-rubber, to prevent moisture affecting the stamps.

190,446.

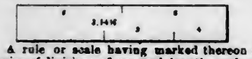


1. The angular-shaped plate C, hinged at D, as described, in combination with the box A, adapted to form either a cover or handle, as specified.

2. The cover B, provided with a spring, B', in combination with the cover C, hinged joint D, formed as shown at D^1 D^2, for the purpose of holding the cover in the position shown in Fig. 1, so that it can be withdrawn or held shut, as in Fig. 3.

3. The box A, to receive and hold the stamps, having a narrow flange, A', surrounding the bottom, a removable plate, F, provided with springs H, and rubber pad or plate G, in combination with a removable cover arranged above said spring-plate F, for the purposes specified.

190,447. SCALE-MEASURES. Jno. Putnam, Fitchburg, Mass. [Filed Jan. 29, 1877.]



A rule or scale having marked thereon a series of divisions of unequal length, each of which is the measure of the "pitch" of a gear-wheel having a given number of teeth to the inch of the diameter, and also having stamped or otherwise marked thereon a series of numbers, each of which represents the number of teeth to the inch of the diameter, of which the division opposite to or in which it is placed is the pitch.

190,448. BESSEMER-STEEL INGOTS. Jacob Reese, Pittsburg, Pa. [Filed Mar. 9, 1877.]

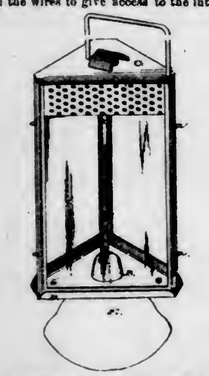
Brief.—Places wrought-iron or soft-steel center (heated or not) in mold. Pours such Bessemer steel, as is described, on each side of center. When centers are cold, should be pickled and cleaned. Rolls the ingot into plate, from which makes mold-boards for plows.

1. An ingot having a center of iron or soft steel and faces of Bessemer steel, practically free from manganese, and containing from 0.50 to 1.25 per cent. of carbon, as and for the purpose set forth.

2. The ingot having the faces of hard steel and the sectional center of iron or soft steel, substantially as and for the purpose set forth.

190,449. LANTERNS. C. J. Rogers, Norwich, Conn., assignor of one-half his right to J. M. Brewer, same place. [Filed Jan. 2, 1877.]

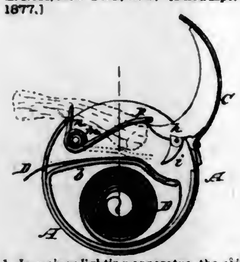
Brief.—The frame carrying the glass slides upon the wires to give access to the interior.



1. In combination with the lamp E, the triangular base D, having wire uprights and corner-posts, as described, and for the purpose specified.

2. In combination with the triangular base D and corner-posts, the sliding frame *a a a*, with removable cap C, as described, and for the purpose specified.

190,450. AUTOMATIC CIGAR-LIGHTERS. M. L. Ross, New York, N. Y. [Filed Apr. 19, 1877.]

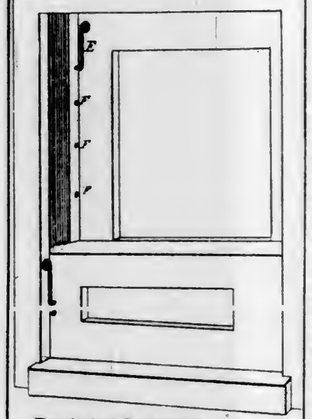


1. In a cigar-lighting apparatus, the coiled spring *m*, having one end forming the fuse-holding point *u*, and the other end the cap-exploding arm *p*, substantially as herein set forth.

2. The combination of the case A B with interior partition *b*, plate C with hook *h* and dog *i*, the spring *m* with point *n* and arm *p*, the percussion-tape D, and fuse G, all substantially as and for the purposes herein set forth.

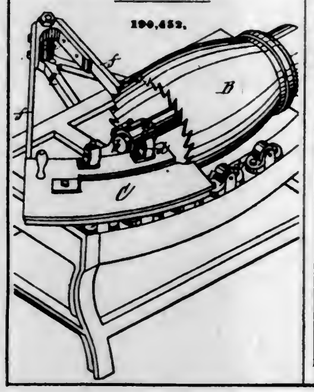
190,451. SASH-FASTENERS. J. H. Schlott, Freeport, Ill. [Filed Nov. 1, 1876.]

Brief.—Claim and part of Figure 1, which shows the hook, describe invention fully.



The wire hook E, constructed and arranged as specified, in combination with a sash or casing provided with the apertures F, substantially as shown and described.

190,452.

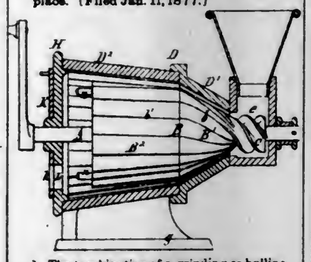


190,452. MACHINES FOR SAWING STAVES. G. C. Stevens, West Townsend, assignor to himself and Mary E. Stevens, Ayer Junction, Mass. [Filed Mar. 6, 1877.]

Brief.—The bolt of wood from which the staves are to be sawed is placed upon a swinging curved and slotted carriage, provided with adjustable gages and an end stop, and having one or more adjustable radial arms and an adjustable pivot, and moving on a curved support having friction-rolls, while fed to a cylinder-saw, which cuts the staves. The path of the carriage corresponds exactly with the curvature of the saw.

In a machine for sawing staves, the combination, with a barrel or cylinder saw, B, of a swinging curved and slotted table or carriage, C, having one or more adjustable radial arms, *f*, and an adjustable pivot, *m*, whereby the path of the carriage can be adjusted to the axial curvature of the saw, substantially as herein shown and described.

190,453. APPARATUS FOR HULLING AND POLISHING COFFEE. H. B. Stevens, Buffalo, N. Y., assignor to Geo. L. Squier, same place. [Filed Jan. 11, 1877.]



1. The combination of a grinding or hulling drum, having the taper or angle of its grooved surface decreasing from its feed end toward its discharge end, with a similarly-inclined concave, the drum being made axially adjustable, so that the space between the drum and concave can be increased or lessened near the feed end without materially changing the space near the discharge end, substantially as and for the purpose set forth.

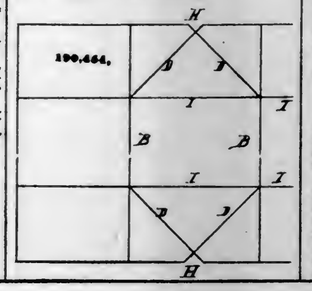
2. The combination, with a grinding or hulling drum, composed of two or more sections decreasing in angle or taper toward the discharge end, of a surrounding case or concave composed of a corresponding number of similarly-inclined sections, so constructed that the spaces between the corresponding sections of the drum and concave increase in width from the feed end toward the discharge end of the machine, substantially as and for the purpose hereinbefore set forth.

3. The combination, with the concave D, of the fixed tail-plate H, provided with curved slot L, and adjustable plate K, provided with opening *k*, substantially as and for the purpose hereinbefore set forth.

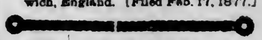
4. The combination, with the drum B and feed-screw C, of the concave D, tail-plate H, slot L, adjustable plate K, and opening *k*, substantially as and for the purpose hereinbefore set forth.

5. The grinding-drum B, composed of the conical grinding or hulling portion B^1, provided with spiral grooves *b*, and polishing or kneading portion B^2, made less tapering, and provided with straight grooves *b'*, substantially as hereinbefore set forth.

190,454.



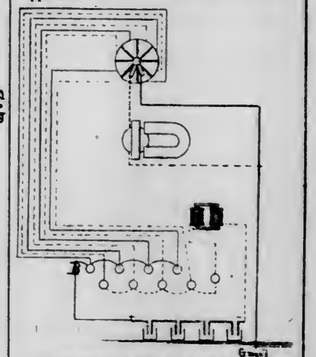
190,455. BANDS OR CORDS FOR DRIVING MACHINERY, &c. S. Townsend, East Dulwich, England. [Filed Feb. 17, 1877.]



The improved band or cord formed by means of endless skeins, twisted one part on the other, or two or more skeins on each other, leaving an eye or loop at the end or ends, and held by other binding cord or cords, in manner and for the purpose stated.

190,456. PRINTING-TELEGRAPHS. Ernest P. Warner, Chicago, Ill. [Filed Aug. 28, 1874.]

Brief.—In printers of general type of Gray's, makes connection through key-board and sun-flower, so, as latter automatically acts as the reverser, dispensing with special rheotrope apparatus.



1. The sunflower, having its segments alternately connected through the key-board to the + and − poles of battery, substantially as specified.

2. The key-board, with each alternate key connected to the positive and the others to the negative pole of battery, and all connected in regular succession to the segments of the sunflower, substantially as specified.

3. The sunflower, having its segments alternately connected through the key-board to the + and − poles of battery, in combination with the two spring-drags of the leader-instrument resting upon segments of opposite polarity, said drags being insulated from each other and connected, one to line through the verge-actuating magnet and the other to ground, substantially as specified.

4. The stationary permanent magnet or magnets, in combination with the pivoted electro-magnetic armature and a pole-changer operated by the vibration of the said pivoted electro-magnetic armature, substantially as specified.

5. The combination of the sunflower, having alternate positive and negative segments, the two spring-drags resting upon segments of opposite polarity and carried by the type-wheel shaft, the said type-wheel shaft, the verge-pinion and verge, the electro-magnetic armature, and permanent magnet all connected and operating substantially as specified.

190,457. SECTIONAL STEAM-BOILERS. T. Weston, Hingham, Mass. [Filed Mar. 6, 1877.]

Brief.—The parallel water-legs, the transverse upper chamber, with their intermediate suspended connections, and the steam-dome, are cast in one piece, the water legs being protected from the heat of the fire by side walls.

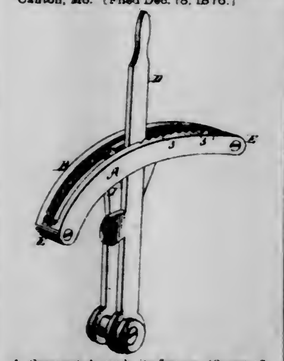
1. In combination with a combustion-chamber, the boiler described, consisting of two parallel sectional tubes, A, converging tubes C, either with or without the auxiliary tubes *c*, the transverse horizontal tubes D, and the sectional steam-drum F, having vertical tubes E, all arranged in relation to the furnace, substantially as set forth.

2. In combination with a combustion-chamber, one or more detachable tubular arches, each consisting of two horizontal tubes, A, partial wall B, for protecting tubes A from the flames, as described, two converging tubes, *b*, with or without the branching tubes *c*, the transverse tube D, and the sectional steam-drum F, having vertical tube E, and adapted to be united with a parallel section by the flanges on tubes A and steam-drum F, substantially as set forth.

190,457.



190,458. BRAKE-LEVERS. E. H. Wheeler, Canton, Mo. [Filed Dec. 18, 1876.]



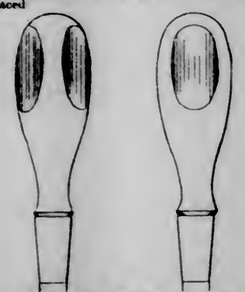
1. Segment A, with its flanges 12 and 13, and ratchet-teeth 3 3 upon the inner side surface of the flange 13 at its forward end, in combination with segment B with its flanges 11 11.

2. The shuttle F, in combination with segments A and B, and lever D.

3. The spring S, in combination with segments A and B, lever D, and shuttle F.

190,459. SCREW-DRIVER HANDLES. Henry Wilkinson, Collinsville, Conn. [Filed Mar. 24, 1877.]

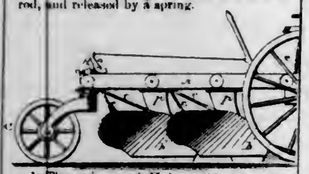
Brief.—The knob at the upper end of a screw-driver handle is somewhat larger in diameter than is common, and provided with three flattened sides equidistant and equi-spaced



A screw-driver handle having an enlarged and round-ended head, provided with three flattened sides equidistant and equal-spaced, as shown and described.

190,460. GANG-PLOWS. Geo. H. Wilson, Davenport, Iowa. [Filed Apr. 19, 1876.]

Brief.—Caster wheel locked by a lever and rod, and released by a spring.

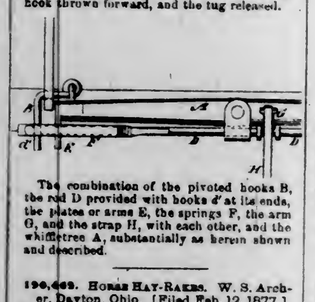


1. The spring-catch H, in combination with the caster-wheel C, substantially as specified.

2. In combination with the frame A, a caster-wheel that is allowed to swing freely around, and that can be locked rigidly in position for the purpose set forth, substantially as specified

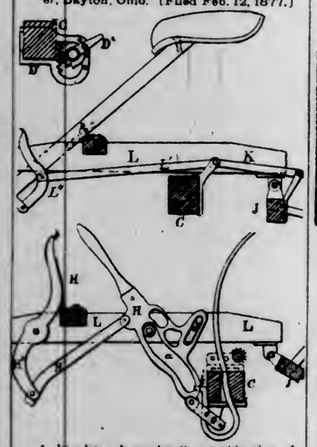
190,461. HORSE-DETACHERS. Moses Amidon and Edgar N. McKimm, Lathrop, Mo. [Filed Apr. 9, 1877.]

Brief.—The pivoted hook B is held in place by the hook *d'* and spring F. When the strap H is pulled, the rod D is turned, the pivoted hook thrown forward, and the tug released.



The combination of the pivoted hooks B, the rod D provided with hooks *d'* at its ends, the plates or arms E, the springs F, the arm G, and the strap H, with each other, and the whiffletree A, substantially as herein shown and described.

190,462. HORSE HAY-RAKES. W. S. Archer, Dayton, Ohio. [Filed Feb. 12, 1877.]



1. In a horse hay-rake, the combination of the oscillating rake-head or axle C, spindles B, located at each end of the head or axle, ratchet-plates D, and levers D^3, or their equivalents, the parts being constructed and arranged to operate substantially as and for the purpose specified.

2. The hand-lever H, having the slots *a* and *b*, when adjustably connected to an oscillating rake-head, substantially as and for the purpose set forth.

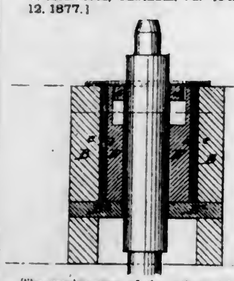
3. The combination of an oscillating rake-head or axle and an oscillating bar, carrying clearing-fingers, which have a simultaneous motion with the teeth of the rake, between which they pass, but which move at a less rate of speed than do said teeth, substantially as and for the purpose set forth.

4. The combination of the oscillating rake-head or axle C, the oscillating bar J, the rod or connections K and L', with the lever L'', the parts being arranged to operate substantially as and for the purpose set forth.

5. The combination of the oscillating rake-head or axle, the oscillating bar J, the lever L'', connections L' and K, and the lever H, rod H^3, and lever H^3, the parts being arranged to operate for the purpose of controlling the movements of the rake-head or axle and for retaining them in position, substantially as described.

6. The combination of the oscillating finger-bar J, the rod K, link L', and lever L'', they being arranged to operate as and for the purpose set forth.

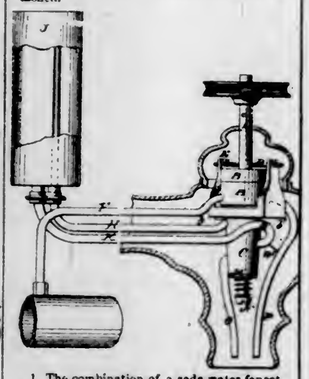
190,463. MILL-SPINDLE BUSHES. Harvey T. Ashworth, Chatham, Va. [Filed Mar. 12, 1877.]



The combination of the millstone-bush B, having radial supporting-blocks B^3, and the followers B^3, having rubber cushions *d*, with the spindle inclosed by the elastic dust-cap described, substantially as shown and set forth.

190,464. ARTIFICIAL PRODUCTION OF MINERAL WATERS. C. Boyschlag, Indianapolis, Ind. [Filed Jan. 20, 1877.]

Brief.—By a quarter-turn of the wheel, both the soda-water and a measured quantity of mineral water solution is discharged. The lower faucet carries a shoe, actuated by the pin on the stem, to which the wheel is attached.



1. The combination of a soda-water faucet, B, and the mineral-water-solution faucet C, pipes F, H, K, O, and P, forks E, bar D, and wheel A, with can J and pipe O therein, substantially as and for the purpose specified.

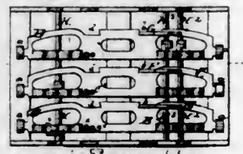
2. The combination of wheel A, forks E, and bar D, which enables a simultaneous operation on soda-faucet B and mineral-water-solution faucet C, all substantially as and for the purpose specified.

190,465. SWITCH-SIGNALING APPARATUS. Wm. Buchanan, Yonkers, N. Y. [Filed Mar. 7, 1877.]

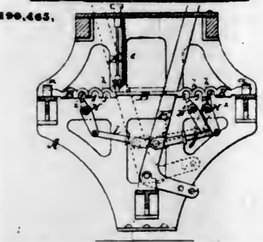
Brief.—The switch cannot be opened until the danger-signal is first set, and after the switch is opened the signal cannot be reversed until after the switch has been closed.

1. The combination of the switch or signal lever with the oscillating bar B, having two or more notches, *f g*, and intervening stop or stops *h*, and with the rock-shaft having the projecting toe or stop *i*, substantially as herein shown and described.

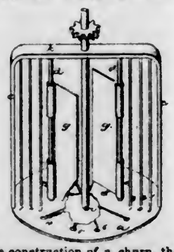
2. The stop *i*, applied to the rock-shaft H, for combination with the notched rocking-bar B, said stop being made L-shaped, so that its shank is not directly in line with the notched part of the bar B, substantially as specified.



190,465.

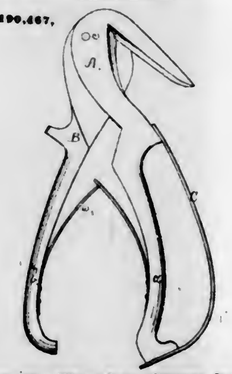


190,466. CHURNS. Wiley C. Burton, Des Moines, Iowa. [Filed Jan. 4, 1877.]



In the construction of a churn, the disk *a*, the shaft *b*, the beater-frame *c c k*, the two series of fixed vertical blades 1 2 3, and the hinged gathering devices *g*, arranged and combined to operate substantially as and for the purposes shown and described.

190,467.

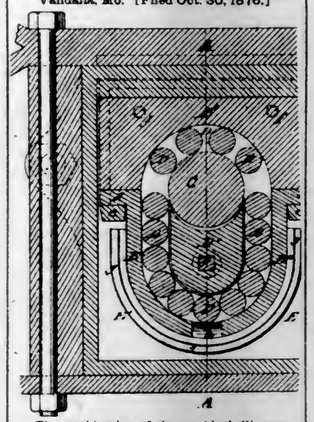


190,467. WIRE-BAND-CUTTING IMPLEMENTS. Chas. H. Chadbourn, Rochester, Minn., assignor, by mesne assignments, to himself and Jas. M. Williams, same place. [Filed May 29, 1876.]

Brief.—One of the blades is hook-shaped, projecting outwardly from near the pivot, and the other an ordinary elliptical cutting-blade, there being the usual spring plier-handles, and preferably a leather bow-guard, adapting the implement for use with one hand, the construction being such that the hook is available in catching and lifting a bundle of grain by the binding-wire thereof, and the wire drawn down against the elliptical blade is readily severed by closing the handles.

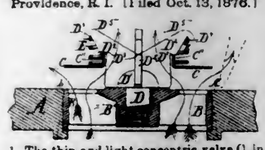
The wire-band-cutting implement, composed of the curved handles *a b* pivoted at *c*, the hooked blade A upon the handle *a*, and the elliptical blade B upon the handle *b*, the parts being constructed substantially as and for the purposes set forth.

190,468. CAR-AXLE BOXES. E. L. Colman, Vandalia, Mo. [Filed Oct. 30, 1876.]



The combination of the top block B^1, aperture bottom plate B^2, side plates E, partition or guide-block D', and series of loose friction-rollers D with the external casing or box A and journal, substantially as and for the purpose set forth.

190,469. PUMP-VALVES. Geo. H. Corliss, Providence, R. I. [Filed Oct. 13, 1876.]



1. The thin and light concentric valve C, in combination with the seat-rim B, seat hub B', and ribbed guide D D^3, as herein specified.

2. The overhanging arms D^3, provided with hooks or notches D^4, in combination with the ribbed guide D^3, with its stops D^5, and with the valve C C' and helical spring E, as herein specified.

190,470. GEAR-CUTTING MACHINES. Geo. H. Corliss, Providence, R. I. [Filed Mar. 27, 1877.]

Brief.—Improvements on patent to G. H. Corliss of March 10, 1849. The guide-bar for tool-slide is joined to the frame in line with the axis of the arbor by a universal joint, to give it lateral movement to a limited extent, as well as a vertical movement. To accommodate the lateral movement, the rack upon the driving-gear is provided with swivel teeth. The index-wheel is provided with clamps for fixing it firmly when set for work, and also with an adjustable stop and slotted hook, capable of being clamped upon the pin in the periphery of the wheel.

1. The guiding bar or trunk B, jointed to the framing in line with the axis of the arbor X, in combination with mechanism for taking hold of and guiding said bar at its opposite extremity, as herein specified.

2. The bar or trunk B and cross-shaft *a*, crossing each other at the center of the universal joint T^2 T^3, in combination with the quadrant A^1 A^2, as herein specified.

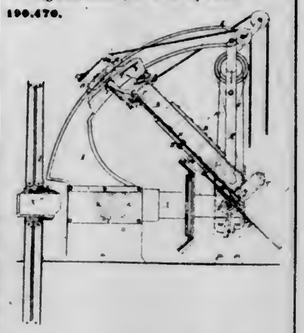
3. The rack D^1, having the swivel-teeth *d'*, in combination with the operating-shaft, tool-carrier D, and its guiding mechanism, with the arbor X, supporting the wheel to be cut, as herein specified.

4. The grooved arbor X, supporting the index-wheel Z, and adapted to hold the wheel to be cut, in combination with the operating pinion Y, and with the reciprocating tool *d* and its operating means, guided by the adjustable bar or trunk B, as herein specified.

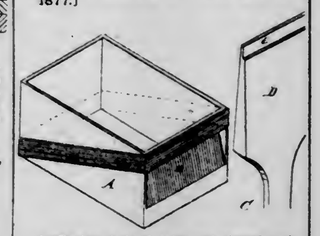
5. The adjustable stop R, in combination with the pin Q on the index-wheel Z, and with means for turning the latter, as herein specified.

6. The hooked piece U, in combination with the stop R, wheel Z, and with suitable gear-cutting mechanism, as herein specified.

190,470.



190,471. BOX AND BOX-HOLDERS. Jos. A. Cotten, Thomaston, Ga. [Filed Mar. 24, 1877.]



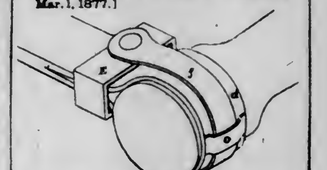
1. The box A, having its end slotted and bent inwardly and supported by the strengthening-band *d*, the whole being adapted to engage with the grapple or lifter D C, as and for the purpose set forth.

2. A goods-box lifter, consisting of the staff C, having a widened head adapted to engage with a box having one end so constructed as to lock with said lifter, as and for the purpose set forth

190,472. COMPOSITION FOOD. Jas. T. Cragin, Melrose, assignor of one-fourth his right to Henry O. Hayden, Newton, Mass. [Filed Feb. 8, 1877.]

As a new article of manufacture, prepared food consisting of freshly-drawn blood, common salt, pulverized sage, pepper, allspice, pluck, and oatmeal, substantially as described.

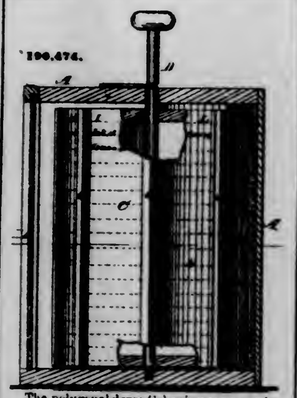
190,473. TRACE-FASTENERS. Charles S. Crittenden, San Francisco, Cal. [Filed Mar. 1, 1877.]



The trace A, with its loop *d*, in combination with the sliding loop E, provided with suitable fastening devices for the strap *f*, substantially as and for the purpose described.

190,474. INDICATORS. George W. Daniels, Lexington, Ohio. [Filed Mar. 24, 1877.]

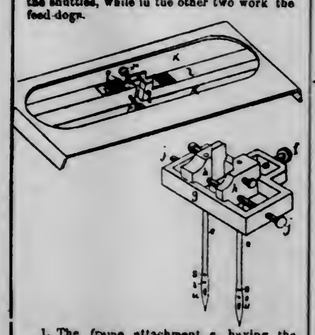
190,474.



The polygonal drum C, having corner strips *a*, the removable shaft D, and the case A, having a removable glass front, S, in combination, substantially as herein shown and described.

190,475. SEWING-MACHINES. W. A. Dawson, San Francisco, Cal., assignor of one-half his right to R. D. Burrows, same place. [Filed Dec. 19, 1876.]

Brief.—On the needle-bar of the sewing-machine is secured, by means of a set-screw, a rectangular frame, on which are mounted two followers, which are adjustable by means of a right-and-left-hand screw, and to which are secured the needles. The two shuttle-races are divided by a ridge, in each side of which are cut two slots, in two of which, on opposite sides, work adjustable plates, to throw the loops of the needle-threads in the paths of the shuttles, while in the other two work the feed-dogs.



1. The frame attachment *g*, having the slides or followers *h h*, operated by the right-and-left hand screw *j*, in combination with the needles *e e* and needle-bar D, substantially as and for the purpose described.

2. The ridge *l*, which separates the shuttle-races *k k*, provided with the opposite slots *o o*, in each of which an adjustable follower, *q*, is arranged to be moved by a screw, in combination with the shuttles *w w*, and adjustable needles *e e*, substantially as and for the purpose described.

3. The combination of the intervening ridge *l*, having the slots *b b*, feeding-dog, divided into two parts, *a a'*, devices *z* and *z'*, cams or eccentrics *d d'* upon the driving-shaft, and thumb-screw *x'*, the several parts constructed and arranged to operate in the manner herein shown and described.

190,476. MACHINES FOR TREATING FLAX, HEMP, AND OTHER SIMILAR PLANTS. N. De Landtsheer, Paris, France, assignor to C. Couture, same place. [Filed Sept. 2, 1876.]

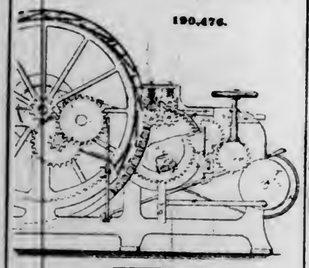
1. The combination of fluted rolls D D', having a double-reciprocating motion, with a scutching-drum, having beaters *d*, and an adjustable grating *h*, as and for the purpose described.

2. The grating *h*, constructed as described, and made adjustable with respect to the scutching-drum, as and for the purpose set forth.

3. The blades *d*, fixed at *d'*, made flexible, and placed at an inclination to the periphery of drum, as and for the purpose specified.

4. The combination of the disk T, rod H, lever G, eccentric sleeve V, wheels F' and F, wheel E, and fluted rolls D, substantially as specified.

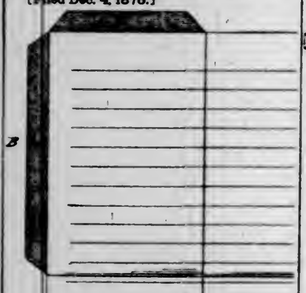
190,476.



190,477. PROCESSES OF FINISHING CARD-BOARD FOR PERFORATING. B. Dreyfuss and S. Sachs, New York, N. Y. [Filed Mar. 10, 1877.]

The process of finishing card-board by coating it with a mixture of finely-divided metallic zinc, glue, starch, and wax, and afterward calendering it, as herein set forth.

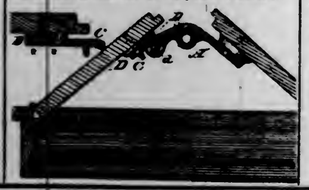
190,478. COMBINED LETTER-SHEET AND ENVELOPE. Leo Ehrlich, St. Louis, Mo. [Filed Dec. 4, 1876.]



A letter-sheet having the gum-flaps B B, forming an angle at one corner, and extending to half the length and breadth, thus enabling the sheet to be folded in the middle both longitudinally and transversely, and the open edges to be all brought under the gum-flaps, as shown and described.

190,479. SHUTTER BOWERS AND FASTENERS. W. H. Fitz Gerald, Brooklyn, N. Y. [Filed Oct. 31, 1876.]

Brief.—A swinging perforated arm, varying but little from the ordinary construction, engages with the upwardly-projecting pin of a suitable staple or bracket, and is held in place by a pivoted drop hung on a shoulder of the staple. There is also a projection formed on the body of the staple, which engages with a hook on the swinging arm, to prevent undue movement, the construction serving as a combined shutter-bower and positive fastener.

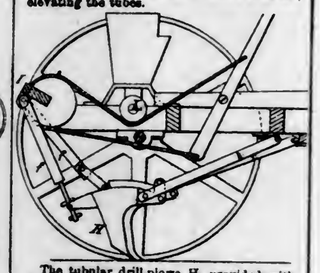


1. The drop C, hung upon the shoulder *c* on the staple D, in combination with the perforated arm A and pin *d*, substantially as and for the purposes herein set forth.

2. The shoulder or projection *c*, formed on the body of the staple D, in combination with the hook *i*, formed on the arm A, substantially as and for the purposes herein set forth.

190,480. GRAIN-DRILLS. M. M. Fitzgerrell, Bald Hill Township, Jefferson County, Ill. [Filed Nov. 29, 1876.]

Brief.—To the rear forked projections of the drill-tubes are pivoted rings, to which one end of the lifting-bars are attached, the opposite ends being secured to the rock-shaft for elevating the tubes.



The tubular drill-plows H, provided with forked projections *d*, in combination with pivoted rings *e*, lifting-bars *f*, rock-shaft I, and its operating devices, substantially as and for the purpose specified.

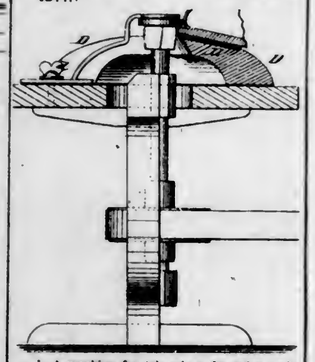
190,481. TOY CAP-EXPLODERS. Wm. G. Fischer, Brooklyn, N. Y. [Filed Apr. 16, 1877.]



1. The combination of the rod A with the sliding sleeve *b*, which is open at both ends, and serves to hold the cap by friction until explosion takes place, and then recoils to release and expose the cap to contact with the object against which the instrument is propelled, substantially as specified.

2. In a toy cap-exploder, the combination of the rod A, having the pin *d*, with the slotted sliding sleeve *b*, which embraces one end of said rod, substantially as specified.

190,482. BOOT AND SHOE SOLE TRIMMING MACHINES. Wm. E. Forster and W. C. Tolles, Nashua, N. H. [Filed Apr. 2, 1877.]

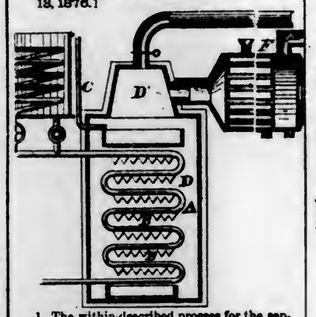


1. A machine for trimming the soles and heels of boots and shoes, consisting essentially of a convex table, horizontally-revolving cutter, and suitable gage device, substantially in the manner and for the purpose set forth.

2. The convex table D, having straight or concaved throat or rest plate D', substantially as specified.

3. The combination of a horizontally-revolving cutter with a detachable and adjustable convex rest-table, substantially in the manner and for the purpose set forth.

190,483. APPARATUS AND PROCESSES FOR THE SEPARATION AND TREATMENT OF OILS. H. Frasch, Philadelphia, Pa. [Filed Dec. 13, 1876.]



1. The within-described process for the separation and treatment of oils, consisting in causing them to pass in thin films over pipes or other heated surfaces, and at the same time exposing them to a confined draft of air, substantially as and for the purpose described.

2. The process for the separation and treatment of oils, consisting of causing them to pass in thin films over heated pipes or other surfaces in contact with an air-draft in an air-flue, and passing the said draft and separated light oils afterward through suitable condensers and receivers, substantially as and for the purpose described.

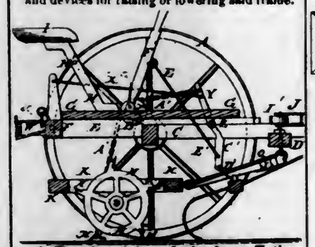
3. The apparatus for the treatment of oils, consisting of a series of horizontal heating-pipes, whose lower edges are respectively provided with serrated drip-plates and a feed-pipe, the same being relatively arranged within an air-flue having a draft-opening at either extremity, as described, whereby the liquid under treatment may be subjected to a confined draft of external air, substantially as and for the purpose described.

4. The apparatus for the treatment of oils, consisting in the combination, with a vertical series of horizontal heating-pipes, the latter constructed with drip-plates, as described, of an upper feed-pipe, constructed to distribute the liquid over the length of the said series of pipes, and an air-flue, having a draft-opening at either extremity, within which latter the former parts are exposed to a vertical draft of air, substantially as and for the purpose described.

5. The combination, with the serrated pipes A, the feed-pipe C, and the air-flue D, of one or more condensers and receivers, F, substantially as described.

190,484. COMBINED STALK-CUTTER AND HAY-RAKE. Wm. W. Fuller, Elmira, Ill. [Filed Feb. 3, 1877.]

Brief.—The cutter-frame is attached to the carriage by pivoted bars, and provided with a spring-rod to prevent tilting, (while allowing it the necessary freedom of movement,) and devices for raising or lowering said frame.

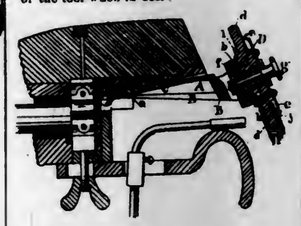


1. The pivoted bars J, the frame K, the cutters L M N, and the spring-rod O, in combination with the front cross-bar D of the carriage, substantially as herein shown and described.

2. The combination of the chains A', attached centrally to the cutter-frame, the pulleys B', the arms and shaft Y O' Z, the rod E', and the lever F', with the frame K of the cutters L M N, the spring-rod O, and the carriage, substantially as herein shown and described.

190,485. EDGE-BURNISHING MACHINES FOR BOOTS AND SHOES. G. A. Fullerton, Boston, Mass., assignor to Geo. H. P. Flagg, same place. [Filed Mar. 23, 1877.]

Brief.—The tool has a hollow shank, and is loosely held in position by a supporting-pin embraced by the shank of the tool, and by a spring having its detached end bent into a groove in the shank of the tool. The spring is adjusted so as to permit the free oscillation of the tool when in use.



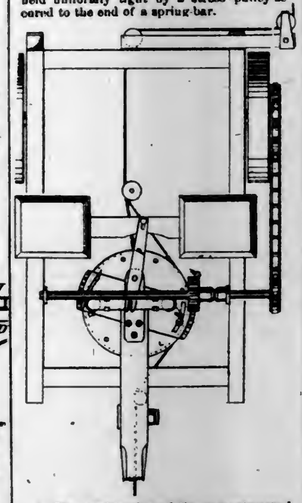
1. In a burnishing-machine, the device above described for sustaining the tool, consisting of the pin *d* and spring *e*, mounted substantially as described.

2. The tool-holder D, provided with one or more pins, *d d*, and mounted, as shown, upon the journal or boss *b*, in combination with catch *f* and plunger *g*, as and for the purpose specified.

3. The tool F, formed with a hollow shank, *h*, and with a notch, *j*, on the shank, adapted to operate in combination with the spring *e*, as and for the purpose specified.

190,486. SEED-PLANTING MACHINERY. W. Gilman, Chicago, Ill. [Filed Mar. 8, 1877.]

Brief.—On an extension of the tongue is journaled a grooved wheel, around which the operating-rope is placed, that has its ends secured at opposite sides of the field. On the wheel is secured a plate, at each end of which is a segment, that is caused, by the forward movement of the machine, to engage with a bevel-wheel on a transverse shaft, that receives motion from the ground-wheel through the medium of sprocket-wheels and chain. Motion is imparted to the seed-slide through the medium of a bar having friction-rollers, that are struck alternately by a cam on the bar secured on the rope-wheel and connecting-rod. The rope is guided off the wheel, and held uniformly tight by a stress-pulley secured to the end of a spring-bar.



1. The combination of the rope stretched across the field, to determine, by its action upon the machine, the points at which the seed is to be dropped, with the operating machinery, substantially as described, or its equivalent, for dropping the seed at said points by means of power derived from a traction-wheel running upon the ground, substantially as described.

2. The combination of the connected segments *c c*, pulley-wheel A, and bevel-wheel *g* with the cam *d*, to operate the dropping machinery, substantially as shown and described.

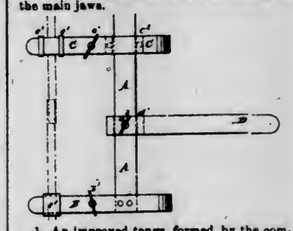
3. The combination of the wheel A, received by the passage of the rope B, with the segments and bar C, for the purpose of carrying said segments *c c* to and in contact with the bevel-wheel *g*, substantially as shown and described.

4. The combination of the sprocketed wheels G H, chain-belt I, and bevel-wheel *g* with pulley A and segmental gears *c c*, for operating the seed-dropping mechanism of the planter, substantially as shown and described.

5. The combination of the stress-pulley J and spring, or equivalent device, with the check-row cord, the pulley having segmental gears, and driving-pinion *g*, substantially as shown and described.

190,487. BLACKSMITHS' TONGS. James H. Gregory, Columbia, Tenn. [Filed Mar. 19, 1877.]

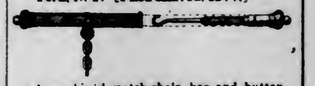
Brief.—Two or more sets of jaws—one of which is rigidly secured to, and the others adjustable on, a cross-bar having an adjustable handle. False jaws are secured adjustably to the main jaws.



1. An improved tongs, formed by the combination of the bar A, the stationary jaw B, provided with the set-screw *b'*, the detachable jaw C, provided with the set-screw *c'* and the keeper *c''*, and the handle D, provided with the keeper *d'* and the set-screw *d''* with each other, substantially as herein shown and described.

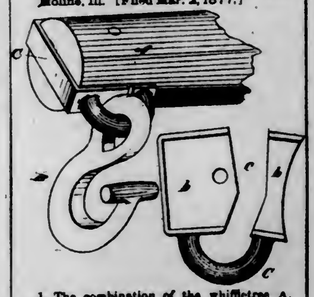
2. The combination of the false jaws E, provided with the keepers *e'*, with the jaws B C of the tongs A B C D, substantially as herein shown and described.

190,488. COMBINED WATCH-CHAIN BAR AND BUTTON-HOOK. Wm. S. Hicks, New York, N. Y. [Filed Mar. 16, 1877.]



A combined watch-chain bar and button-hook, constructed substantially as described.

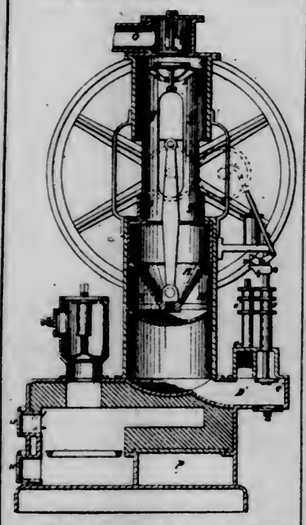
190,489. WHIFFLETREE-HOOKS. H. H. Hill, Moline, Ill. [Filed Mar. 2, 1877.]



1. The combination of the whiffletree A, the hook B, and the eye C, provided with the web *b* and slit *c*, substantially as shown.

2. The eye C, provided with a slotted or open web, *b*, through which the trace-hook may be slipped into place, substantially as shown and described.

190,490. HOT-AIR ENGINES. Julius Hock and Louis P. Martin, Vienna, Austria. [Filed Sept. 8, 1876.]



1. The combination of the governor Q and cold-air regulator O', having slide-valve i, with the openings i² and i³, grate and heating-chamber P', and regulating air-discharge valve i⁴, substantially as and for the purpose set forth.

2. The combination of the hot-air cylinder P, channels D D', and alternately-operated hot-air valves s s', arranged outside of furnace and cylinder, with the governor-shaft, substantially in the manner and for the purpose set forth.

3. The combination of the governor Q and cold-air regulator O', having valve i and air-discharge valve i⁴, with the heating-chamber P and furnace A, to regulate pressure of air in furnace, substantially as specified.

190,491. SPOOL-STANDS. W. S. Hotchkiss, Southington, Conn. [Filed Apr. 13, 1877.]



1. In a spool-rack, the cylindrical spindles *d*, formed on the upturned ends of the arms *c*, and provided with an oval-shaped enlargement at their upper ends, substantially as described, and for the purpose set forth.

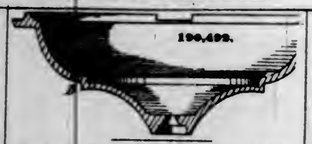
2. In a spool-rack, the hub B, provided with dovetailed recesses *h* at its edge, and the arms *c*, bearing a correspondingly-beveled base at their inner ends, and spool-bearing spindles at their outer ends, substantially as described, and for the purpose specified.

3. The combination of the hub B, recessed as described, the arms *c*, fitted therein, and the cap *h*, secured thereto, substantially as described, and for the purpose specified.

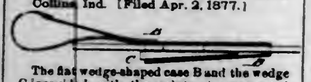
4. The base A, provided with shaft *a* and screw *b*, in combination with the revolving hub B, carrying spool-spindles, the cup-shaped rose C, block D, and cushion E, substantially as described, and for the purpose specified.

190,492. IRON MOLDING. Joseph Hursh, New York, N. Y. [Filed Apr. 10, 1877.]

The combination of the cap C with the main screw B, to protect the screw from the sand, substantially as herein shown and described.

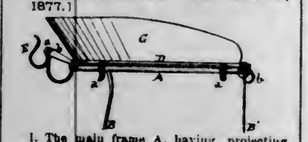


190,493. STRAP-FASTENERS. W. Hyre, Collins, Ind. [Filed Apr. 2, 1877.]



The flat wedge-shaped case B and the wedge C, provided with the points *c'*, constructed and combined with each other, to adapt them for use for fastening a strap, substantially as herein shown and described.

190,494. BAG-HOLDERS. Abel Johnson, Northumberland, Pa. [Filed Mar. 23, 1877.]



1. The main frame A, having projecting strap E, in combination with the clamping-frame D, provided with hinge-bolt *b*, constructed and arranged for the purpose described, and substantially as set forth.

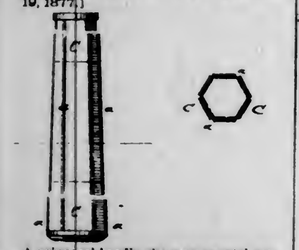
2. The main frame A, in combination with the directly superposed clamping-frame D, having the spring-arms *d d* and spring-loop *h*, for the purpose set forth, and substantially as described.

3. In a bag-holder, the combination of the clamping-frame D, having the hopper G, spring-arms *d d*, and spring-loop *h*, with the main frame A, having the two rigid rear legs B B and hinged front leg B', by means of the strap E and bolt *b*, constructed and arranged as and for the purpose set forth.

190,495. EDGE-BALL COMPOUNDS FOR BOOTS AND SHOES. C. L. Jones, Stoughton, Mass. [Filed Nov. 27, 1876.]

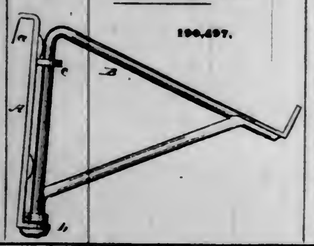
The above composition of bayberry-tallow, paraffine, white wax, and gum-arabic, substantially as described, and for the purpose set forth.

190,496. UMBRELLA-HANDLES. F. Julius Kaldenberg, New York, N. Y. [Filed Jan. 19, 1877.]



A polygonal handle whose ornamental panels C are held on tapering sections by tapering guide-strips *a*, together with a button at one and a collar at the other end, substantially as and for the purpose specified.

190,497.

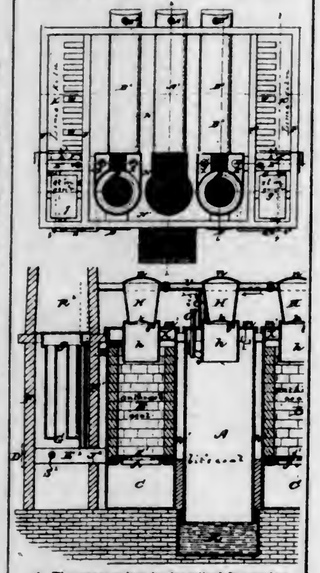


190,497. GALLEY-SUPPORTS. P. A. Kelly, Baltimore, Md. [Filed Apr. 23, 1877.]

The bracket B, having the lip *d* and stop *e*, and the frame A, having hooks *a* and ears *b c*, in combination, substantially as shown and described.

190,498. PROCESSES AND APPARATUS FOR GENERATING AND PURIFYING GAS. M. W. Kidder, Boston, assignor to himself and P. Noyes, Lowell, Mass. [Filed Nov. 27, 1876.]

Brief.—Central hydrocarbon and side water-gas generators, the former exteriorly heated by combustion of gas generated by inner combustion within the latter; also coal-fire under fixing retorts of both kinds of generators. After so heating hydrocarbon-gas generators, remainder of water gas is diverted downward through incandescent coal, and thence through fixing-retorts to a holder, or from generators through ash-pit, &c., to be mixed with and dilute vapors from hydrocarbon-vapor generators. Mixture thence passed downward through a heated passage alongside of vapor-generator and through fixing-retorts. Products of fire under fixing retorts burn lime in two side kilns. Steam-generators in the two chimneys.



1. The process herein described for producing illuminating-gas, first, by raising anthracite coal or coke to a lively state of combustion by the free admission of air, then excluding the air or the oxygen and nitrogen thereof, as explained, then passing steam into the burning coal, and then immediately and continuously passing the mingled products through incandescent charcoal, all substantially as set forth.

2. The process for producing illuminating-gas from bituminous coal and non-illuminating gas, which consists in distilling the vapors from such coal at a low temperature, as described, and mingling with such coal-oil vapors, purified water-gas, and immediately and continuously heating the mixture and finally subjecting the same to a fixing heat, as set forth.

3. The process for producing illuminating-gas from bituminous coal, hydrocarbon oils, and non-illuminating gas, which consists in distilling the vapors from such coal and hydrocarbon oil dropped upon such coal at a low temperature, as described, and mingling with such coal and oil vapors purified water-gas, or carbonic oxide and hydrogen when purified, and continuously heating the mixture, and finally subjecting the same to a fixing heat, as set forth.

4. The combination, in a gas-generating apparatus, of a vertical coal-distilling chamber, A, closed at both ends, an inclined retort, A', and a passage, E', and trunk A', as the connecting mechanism for the conveyance of mingled gases and vapors from the chamber A to the retort A', substantially as described.

5. The combination, in a gas generating apparatus, of a vertical coal-distilling chamber, A, closed at both ends, an inclined retort, A', and passage E', and trunk A', as the connecting mechanism for the conveyance of mingled gases and vapors from the chamber A to the retort A', the latter provided with gas-diverting plates L', substantially as described.

6. The sealing-trough R for water, in combination with, and receiving, retaining, and sealing, the lower ends of the chamber A and trunk A', substantially as described.

7. The combination of the oil-pipe O, sealed and externally-heated chamber A, aperture E', trunk A', and retort A', substantially as and for the purpose described.

8. The pipe O', in combination with the trunk A' and aperture E', substantially as and for the purpose described.

9. In a hydrogen-gas-generating apparatus the combination of grate *f*, steam-pipe S', coal-combustion chamber B, smoke-trunk X, valve X', and pipe X', with the gas trunk E and valve E', vertical trunk B', grate *f'*, ash-pit C', steam-pipe S', and retort B', all operating substantially as and for the purpose specified.

10. The trunk X with its valve X', and the pipe X' with its orifice X', in combination with, and as a conveyance for, combustible gases from the hydrogen-generating chamber B to the corridor or fire-chamber, substantially as and for the purpose described.

11. The combination of the trunk E with its valve E', the chamber B', and ash-pit C with and as a conveyance for gases from the hydrogen-generating chamber B to retort B', substantially as and for the purpose specified.

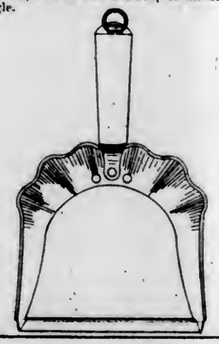
12. In a gas-generating apparatus the combination of the coal or oil distilling and gas-producing series, consisting of the chamber A, trunk A', retort A', passage E', pipe O', and trough R, with the hydrogen-generating apparatus, consisting of the combustion-chamber B, vertical trunk B', ash-pit C', trunk E, valve E', pipe V, steam-pipe S' S' S', the latter introducing steam in its passage to the hydrogen-generator, and the latter generator being additionally heated externally by the fire and heat in the corridor or fire-room, substantially as and for the purpose described.

13. In combination with a gas-generating apparatus, the lime-kiln K, constructed, as described, with double inclined-fenders in and an opening for heat beneath them, a covered inlet, B', for introducing lime, and an outlet, L, for removing the latter, all arranged in the manner and for the purpose described.

14. The combination of the combustion-chamber B and its connected vertical trunk B', both having ash-pits and grates for supporting coal in the first in a state of partial combustion, and in the latter incandescent with, and surrounded by, the fire-room N and corridor N', as shown and described, and so as to prevent the escape of heat from the coal in the chamber B, and to induce and support incandescence of the charcoal in the trunk B' by heat from the fire-chamber and the corridor, and from the chamber B, substantially as and for the purpose described.

190,499. DUST-PANS. Isaac S. Laubach, Chicago, Ill. [Filed Sept. 21, 1876.]

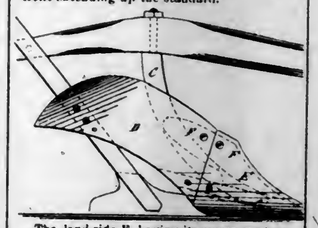
Brief.—The back and sides are wired or hemmed when the metal is flat, and then corrugated, so as to turn them up to the desired angle.



As a new article of manufacture, a dust-pan having the body thereof made circular at the back, and from a single piece of sheet metal hemmed or wired at its upper edge, said wired or hemmed edge portion being corrugated with the rest of the back, substantially as and for the purpose specified.

190,500. PLOWS. Anton Lauer and Julius Hartmann, Louisville, Ky. [Filed Mar. 3, 1877.]

Brief.—The point and mold-board concave, the edge of the former being a colter or cutting edge. A low land-side with a branch in front extending up the standard.



The land-side F, having its upper part extended upward upon the standard as high as the mold-board, and having an upward and outward curve, to cause its forward edge to coincide with the land-side edges of the mold-board D and concave point E, in combination with the said mold-board and point, and with the standard C, substantially as herein shown and described.

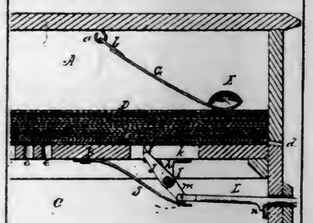
190,501. ORNAMENTING TEXTILE FABRICS. Remy Le Roux, New York, N. Y. [Filed Mar. 16, 1877.]

Brief.—A narrow band of material is threaded into a needle; lay the end of the band upon the fabric; take a stitch through and back, laying the portion of the band on the under side thirty degrees, or thereabout, out of parallel to that on the upper side; then lay the band across the loose end, and take another stitch through and back at a like angle; then pass the needle and band under the band that locks down the first end cut off.



The method of dotting textile fabrics, which consists in passing a narrow band of suitable material through the fabric, crossing it upon itself and locking down the ends, all in the manner hereinbefore set forth.

190,502. TICKET-CASES. S. W. Lloyd and W. L. Coakley, Washington, D. C. [Filed Apr. 10, 1877.]



1. A mechanism consisting of rod L, arm *m*, rock-shaft l, and arms J, provided with points *i*, for automatically withdrawing envelopes, bill-heads, &c., from pigeon-holes, boxes, or other receptacles for same, substantially as set forth.

2. The arm G, provided with the weights E, and loop *b*, and hung on a hook, *c*, in combination with a mechanism for automatically withdrawing the envelopes, &c., one by one, from the bottom of the pile, substantially as and for the purposes herein set forth.

3. In combination with a receptacle, A, having a slot, *d*, in its front and slots *k* in the bottom, the rocking shaft l, arms J, having points *i*, arm *m*, and rod L, substantially as and for the purposes herein set forth.

4. The combination with the rock-shaft l, having arms J *m*, and the rod L, the spring S, and the stop *s* on the rod, substantially as and for the purposes herein set forth.

190,503. EXERCISING-MACHINES. A. W. Lozier, New York, N. Y., assignor, by mesne assignments, to Mrs. J. de la M. Lozier, same place. [Filed Feb. 8, 1877.]



1. In an exercising-machine, the combination of the handles with the rope or chain E, and with the weighted lever D, which has the eccentric segment *d*, substantially as and for the purpose specified.

2. The combination of the weighted lever D with the sliding box J, which carries the weighted cross-bar H and fastening-screw *g*, substantially as and for the purpose specified.

3. The combination of the transverse roller or ball *i* with the box J, and with the weighted lever D, substantially as and for the purpose specified.

4. The weighted lever D, provided with the downwardly-projecting leg *b*, as set forth.

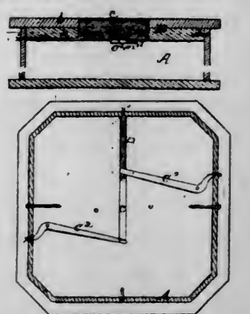
5. The combination of the weighted lever D with the string or chain *j*, and with the expansion-weight I, as and for the purpose set forth.

6. The handle G, provided with notched face, and combined with the sliding sleeve M and catch *n*, as and for the purpose set forth.

7. The platform A of the lifting apparatus, provided with loops *e e*, for receiving the handles in position of rest, as specified.

190,504. COMBINED COLLAR AND TOY MONEY BOX. E. E. Mack and F. Cook, Albany, N. Y.; said Cook assignor to said Mack. [Filed Feb. 12, 1877.]

Brief.—A paper collar-box adapted to serve also as a money-box.

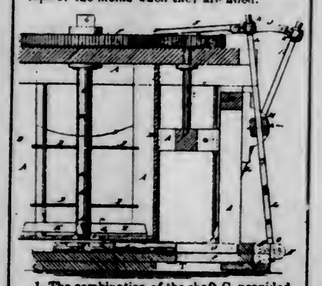


1. The combination, with the body A of a packing-box, of the cover B, provided with concealed fastenings adapted to secure said cover in place, and an opening, *e*, adapted to admit an instrument to said fastenings, in the manner and for the purpose set forth.

2. The combination, with the body A of a packing-box, and a cover secured to said body by concealed fastenings, of the slot *e*, adapted to admit the passage of coin, and all operating, when desired, to convert the box into a toy savings-bank, as and for the purpose set forth.

190,505. BRICK-MACHINES. T. McNiobolas, Memphis, Mo., assignor to himself and T. Walker, same place. [Filed Feb. 26, 1877.]

Brief.—The molds are fed in under the hopper by means of the sliding pushers, actuated by rods, pitmen, and gear-wheels. Sliding covers shut off the supply of clay from the tops of the molds when they are filled.

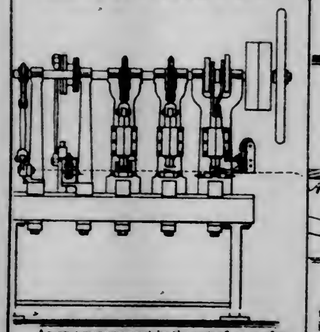


1. The combination of the shaft C, provided with the arms and scrapers D E, the gear-wheels F H, the connecting-rods and sockets J K, the levers and rock-shafts L M, and the pushers O, with the mud-box B, the frame A, and the way-bars P, substantially as herein shown and described.

2. The combination, with brick-machine mold-covers, of the stationary scraper R, arranged to keep the top of mold-covers clean, and prevent adhering clay from being pushed over into the molds.

3. The combination of the rollers N with the pushers O and the levers L, substantially as herein shown and described.

190,506. TAG-MACHINES. H. D. Montzel, Baltimore, Md. [Filed Apr. 6, 1877.]



As an improvement in the art of manufacturing shipping-tags, the method of re-enforcing the same during the process of manufacture, as follows, viz: by cutting a piece of sheet metal from a ribbon, and affixing the piece to the tag by perforating the said piece and the tag by one stroke of the perforating-instrument, and by clinching the introverted burr formed through the tag, the whole operation being continuous and completing the tag, substantially as herein described.

190,507. PIANO-FRAMES. W. Muth, Montreal, Canada. [Filed Jan. 31, 1877.]

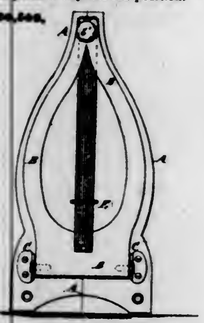


The metallic plate A and A', B and B', C and C', the flange *b*, and its supporting-brackets *b' b'*, constructed and arranged as and for the purpose set forth.

190,508. BOOT-JACKS. J. Niver, Sherman, N. Y. [Filed Oct. 7, 1876.]

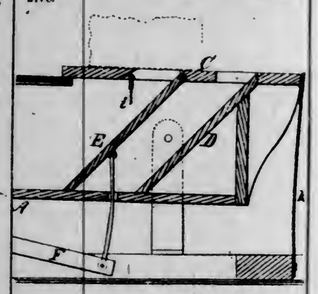
The combination of back A, hinged foot-piece B, elastic strap D, and strap E, the latter being fastened at one end to the upper part of back, then passed through staple as well as hole of foot-piece, and finally attached under said foot-piece, as shown and described, whereby the spring is enabled of itself to hold the foot-piece in any desired position.

190,509.



190,509. BEE-HIVING APPARATUS. Reuben B. Oldt, New Berlin, Pa. [Filed Feb. 26, 1877.]

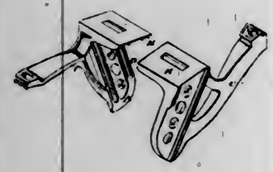
Brief.—The hive containing the bees about to swarm is placed over the forward, and the empty hive over the rear opening formed in the top of the pivoted casing. When the bees come down the hinged inclined step, their weight changes the center of gravity of the casing, so that the forward end thereof is tilted down, by which means the long end of the lever is thrown up and the hinged inclined step raised, which closes the opening above, and admits the bees between it and the bottom of the casing, so they can ascend the stationary inclined step into the empty hive.



1. The pivoted casing A, having the slotted top C and fixed inclined step D, the hinged inclined step E, lever F, and spring *k*, in combination substantially as herein shown and described.

2. The mica door *i*, in combination with the slotted top C and hinged step E, substantially as herein shown and described.

190,510. COLTER OR JOINTER SUPPORTERS FOR PLOWS. J. Oliver, South Bend, Ind. [Filed Apr. 18, 1877.]



1. In combination with a plow, a colter or jointer supporter adjustably secured to the plow-beam and rigidly connected to the plow-standard, substantially as and for the purpose described.

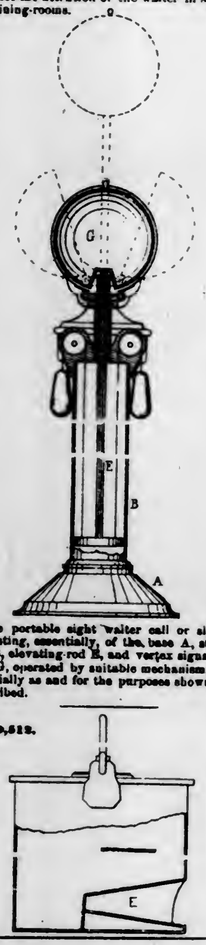
2. In combination with a plow, a colter or jointer supporter having an arm or brace rigidly secured to the plow-standard, and provided with a slotted plate by which, through the medium of a bolt which freely passes through the slot of said plate, the supporter is secured to the plow-beam, and which slot permits a lateral adjustment of the beam relative to the supporter, substantially as described.

3. A colter or jointer supporter consisting of a holder, D, provided with a slot or openings to permit a vertical adjustment of the colter or jointer, a slotted plate, E, and a brace, C, substantially as described.

4. A colter or jointer supporter, consisting of a holder, D, provided with a slot or openings to permit a vertical adjustment of the colter or jointer, a slotted plate, E, adjustably secured to the plow-beam, and a brace, C, rigidly connected to the plow-standard, substantially as described.

190,511. WAITER CALLS OR SIGNALS. G. R. Osborn, East Orange, N. J., and B. A. Drayton, New York, N. Y. [Filed Mar. 2, 1877.]

Brief.—The ball is elevated on its rod to attract the attention of the waiter in saloons or dining-rooms.



The portable sight waiter call or signal, consisting, essentially, of the base A, standard B, elevating-rod E, and vertex signal object G, operated by suitable mechanism, substantially as and for the purposes shown and described.

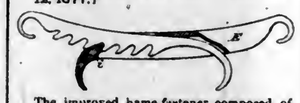
190,512.

190,512. PORTABLE PUMPS. W. H. Paulding, New York, N. Y. [Filed Apr. 5, 1877.]

Brief.—To the tank is attached a hand force-pump, which may, when in use, be held firmly in position by the pressure of the operator's foot within the recess formed in the tank.

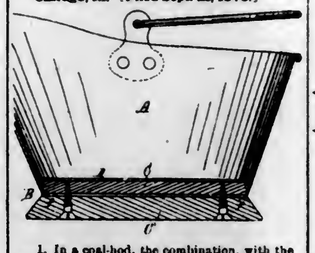
A tank or reservoir provided with a recess or receptacle, E, substantially as described, and for the purpose set forth.

190,513. HAME-FASTENERS. A. A. Phillips, Philadelphia, Pa., assignor to himself and Wm. N. Martin, same place. [Filed Feb. 12, 1877.]



The improved hame-fastener composed of the slotted link E, provided with the sharpened catch *i* within or at the end of the slot, and the ratchet-arm D, all arranged and operating substantially as and for the purpose set forth.

190,514. COAL-HODS. William S. Potwin, Chicago, Ill. [Filed Sept. 21, 1876.]



1. In a coal-hod, the combination, with the bottom B, consisting of the parts C and C', of the sheet-metal lining D, having its edge turned over the periphery of the part C, and compressed between the part C and the body of the hod by the screws or rivets uniting the parts C and C', substantially as and for the purpose specified.

2. In a coal-hod, the combination, with the bottom B, consisting of the parts C and C', of the body A, provided with the flange *f*, adjusted to fit between the parts C and C', substantially as and for the purpose specified.

190,515. GRAIN-BINDERS. F. W. Randall, Burlington, Mich. [Filed Jan. 3, 1877.]



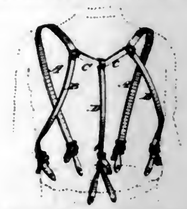
1. In a grain-binding machine, the main driving-shaft S, provided with a crank, H, crank-wheel G, and double cam 9 *m*, in combination with the pitmen I and J, swing-bar Q, weighted lever T, and gathering-arm F, spring U, pivoted elbow L, segmental swing-bar V, pivoted swing-bar 3, with pitman 2, crank 1, shaft O, bracket M, rod *n*, notch-bar *y*, grabber W, U-shaped arm X, compressing-cord Z, forked head K, and knot-tier P.

2. Crank H, slotted pitmen I and J, weighted lever T, in combination with the slotted swing-bar Q, studs *e* and *d*, U-shaped arm X, compressing-cord Z, gathering-arm F, rib *b*, and grain-table A.

3. The pivoted elbow L, rod 4, hook 5, arm 7, in combination with the bracket 8, notch-bar *y*, and grabber W.

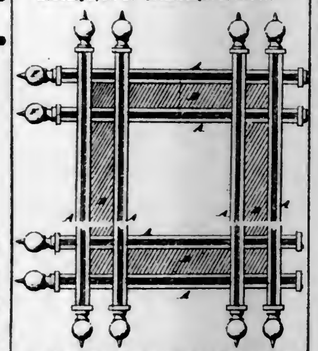
4. The knot-tier P, segmental swing-bar V, flanges *h* and *i*, and wheel-crank G, friction-roller K, stud *x*, in combination with swing-bar 3, pitman 2, crank 1, shaft O, lever *n*, and grabber W.

190,516. SUSPENDERS. L. V. Richmond, Sand Lake, N. Y. [Filed Mar. 3, 1877.]



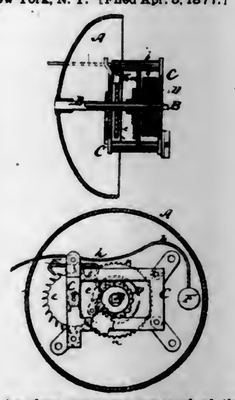
A suspender having front straps A, side straps B, connecting-straps C, and dorsal strap D, combined and arranged as shown and described, for the purpose specified.

190,517. PICTURE-FRAMES. S. Sargeant, Brooklyn, N. Y. [Filed Apr. 9, 1877.]



A frame formed of metal tubes A, halved to each other, and secured to a back frame or board, B, by screws C passing through said back frame or board B, through the inner sides of the said tubes A, and screwed into pieces of wood D, placed within said tubes A, substantially as herein shown and described.

190,518. CLOCK-ALARMS. Rudolf Sayer, New York, N. Y. [Filed Apr. 5, 1877.]

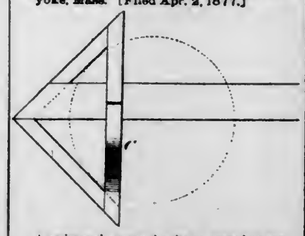


1. An alarm apparatus composed of the frame C, arbors B *d*, wheels *a b c*, anchor E, spring D, and clapper-wire *h*, all combined with the gong A, and embraced by said gong to be protected and covered by the same, substantially as herein shown and described.

2. The gong A, placed upon the arbor B of a clock-alarm, which arbor connects with the winding-spring, substantially as herein shown and described.

3. The rotary gong A firmly mounted upon the spring-arbor B of an alarm mechanism, so that the gong is revolved in winding and unwinding the spring, substantially as specified.

190,519. SQUARES. Chas. A. Schrier, Holyoke, Mass. [Filed Apr. 2, 1877.]



A universal square having a cross-bar provided with a raised or curved portion, C, in front of the central edge of the tongue, to admit the drawing of a continuous line along the tongue, substantially in the manner and for the purpose set forth.

190,520. HOES. A. Schwehr, Sandusky, Ohio. [Filed Mar. 29, 1877.]



A hoe having a malleable-iron or cast-steel eye, provided with a flange, C, and projections D, the flanges and projections welded to the blade, substantially as described.

190,521. SAW-SETS. William H. Smerdon and Bayliss F. Phillips, Taunton, Mass. [Filed Mar. 24, 1877.]

Brief.—The saw-supporting plate rests upon the front part of the hinged gage, and is adjusted simultaneously therewith to the desired inclination with respect to the anvil. A long rod passes freely through a guide-hole of the supporting plate, and is attached, at its U-shaped end, by a screw to the saw-blade. An arm or apron of the supporting-plate is turned outwardly (serving as an additional bearing) when the teeth of wide saws are to be set.



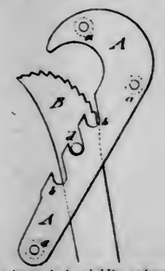
1. A saw-set consisting of an anvil with pivoted and spring-acted set piece, and of gage and bevel-plate, jointly adjustable, substantially in the manner and for the purpose set forth.

2. The combination of the forked gage,

pivoted to the front arm of the anvil-block, and of a bevel-plate, pivoted to supporting-block *A*, with fixed anvil to produce simultaneous adjustment of gage and bevel to saw-teeth, substantially as set forth.

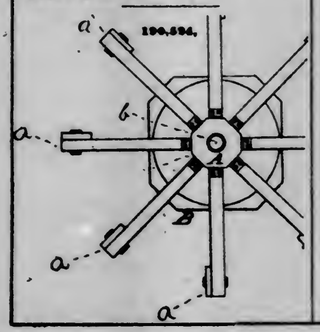
3. The bevel-plate having pivoted arm or apron, that may be folded inward or thrown outward, as required, substantially as specified.

190,522. PIPE-TONGS. C. States and H. L. Cook, Topeka, Kans. [Filed Mar. 24, 1877.]



The two jaws A A, rigidly connected by studs *a*, and provided with oblique notches *b*, in combination with an intermediate single jaw, B, having side pins *d d*, as and for the purpose specified.

190,524.



In combination, the ears C' C', shoulder *k'*, and K', all constructed and operating as and for the purpose specified and described.

190,525. PIPE-TONGS. C. States and H. L. Cook, Topeka, Kans. [Filed Mar. 24, 1877.]

The two jaws A A, rigidly connected by studs *a*, and provided with oblique notches *b*, in combination with an intermediate single jaw, B, having side pins *d d*, as and for the purpose specified.

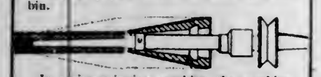
190,526. CLOTHES-DRIERS. G. B. Stephenson, Pittsburg, Pa. [Filed June 3, 1876.]

1. The stand B, having upright center shaft *b* and sliding feet *d*, substantially as and for the purpose shown and specified.

2. The stand B, having upright center shaft *b* and sliding feet *d*, in combination with the rotating folding frame A *c*, substantially as and for the purpose herein shown and specified.

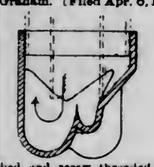
190,527. SPINNING-MACHINES. G. E. Taft, Whitinsville, Mass. [Filed Feb. 12, 1877.]

Brief.—The spindle is provided with a holder-carrier, for rotating the holder positively, and with a locking device for retaining said holder fixedly upon the spindle when doffing the paper, leather, or other light bobbin.



In a ring-spinning machine, the combination, with the spindle and bobbin-holder and bobbin, substantially as described, of a locking device to retain the holder on the spindle when doffing the bobbin, and a holder-carrier to rotate the holder positively with the spindle, all substantially as and for the purposes described.

190,528. CAPS FOR WATER-TUBES. R. P. Thompson, Philadelphia, Pa., assignor to E. H. Graham. [Filed Apr. 6, 1877.]



The lobed and screw-threaded cap, constructed with its bottom formed up into a hollow cone, whose axis shall coincide with the center of the inner tube, and whose inner surface shall curve outward and upward, and blend with the sides of the cap, said cap being rigidly attached to, and a continuation of, the outer tube, substantially as and for the purpose set forth.

190,527. DRAWER-PULLS. G. W. Tucker, Waterbury, Conn. [Filed Mar. 22, 1877.]



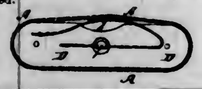
1. In a drawer-pull, the combination, with the attaching screws, of link-joints formed by the two eyes, substantially as set forth.

2. The combination, with the link-joint *c d* and attaching-screws *a b*, of the metallic cap *m* at the end of the handle, covering the link-joint, substantially as set forth.

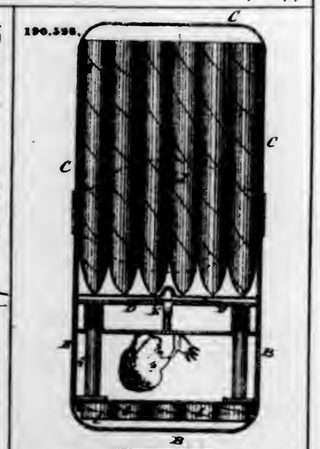
190,529. TOY CIGAR-CASES. Franz Waldschmitt, New York, N. Y. [Filed Mar. 24, 1877.]

Brief.—A jack-in-the-box is covered by a false cap, resembling ends of cigars, and may be set free by pressure of a concealed spring.

The cigar-case A, open at both ends, and combined with a false bottom or partition, D, with a figure or jack-in-the-box supported thereon, and with the two separate covers B and C, substantially as herein shown and described.



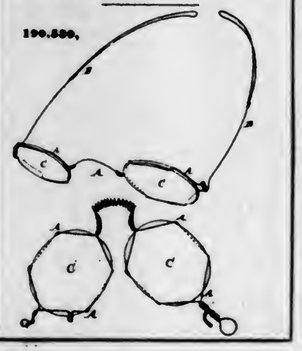
190,530.



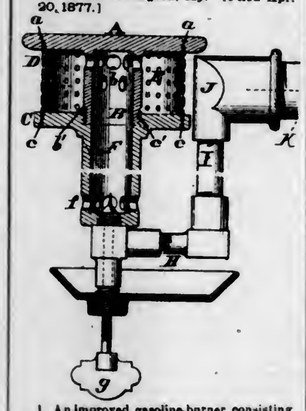
1. An improved gasoline-burner, consisting of a perforated disperser, D, clamped between two heads, A a C *c*, by means of perforated tube B *b* and couplings *b' c'*, which perforated tube communicates with the chimney F, substantially as herein described, and for the purpose set forth.

2. An improved gasoline-burner, consisting of heads A a C *c*, pierced tube B *b*, perforated disperser D, chimney F *f*, and connections H I J K, the elbow or bend J being located in close proximity to said perforated disperser D, substantially as herein described, and for the purpose set forth.

190,531.



190,532. VAPOR-BURNERS. H. W. Wilson, West Covington, Ky. [Filed Apr. 20, 1877.]



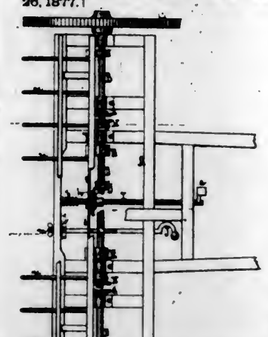
1. An improved gasoline-burner, consisting of a perforated disperser, D, clamped between two heads, A a C *c*, by means of perforated tube B *b* and couplings *b' c'*, which perforated tube communicates with the chimney F, substantially as herein described, and for the purpose set forth.

2. An improved gasoline-burner, consisting of heads A a C *c*, pierced tube B *b*, perforated disperser D, chimney F *f*, and connections H I J K, the elbow or bend J being located in close proximity to said perforated disperser D, substantially as herein described, and for the purpose set forth.

190,520. SPECTACLES. C. Yocco, San Jose, Cal. [Filed Mar. 12, 1877.]

Frames for spectacles and eyeglasses formed of a wire bent into hexagonal shape, with side bends at the angles to form seats A for the lenses, having their middle part bent or coiled to form the nose-bridge, and having legs or small loops formed upon the outer parts of the lens-seats to serve as catches or handles, or to receive the side bars or temples B, substantially as herein shown and described.

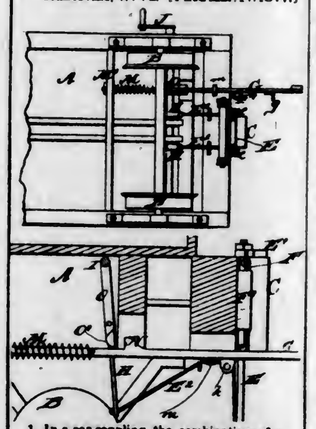
190,521. HORSE HAY-RAKES. W. Adriance, Poughkeepsie, N. Y. [Filed Apr. 26, 1877.]



1. The independent shaft D, arranged between, and in line with, the separate axles B B, and provided with the arms E, supporting the rake-head F, in combination with the clutches G H in the axles B and shaft D, respectively and rods *e*, disks *c*, having pin A, and the pin *g* on the shaft D, substantially as and for the purpose described.

2. The combination, with the rake-head F, independent shaft D, axles B B, clutches G H, and hand-lever J, of an adjustable stop, *s*, attached to the rear part of the frame A, substantially as and for the purpose shown and described.

190,522. CAR-COUPLINGS. A. S. Albright, Cranesville, W. Va. [Filed Mar. 17, 1877.]

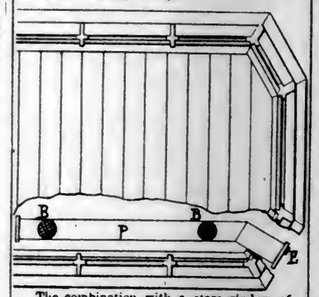


1. In a car-coupling, the combination of a sliding bar, G, having stop piece *g*, with locking-pin F, sash E, and devices for raising said sash, substantially as and for the purpose set forth.

2. In a car-coupling, the combination of a sliding bar, G, having lug N and spring M, with rock-shaft I, arms O H H, cord or chain F', and sash E, carrying coupling-pin D, substantially as set forth.

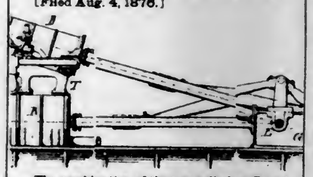
3. In a car-coupling, the combination of crank J with rock-shaft I, arms H H, chain or cord F', sash E', sliding bar G, and pins D F, substantially as and for the purpose set forth.

190,523. DEVICES FOR PREVENTING THE ACCUMULATION OF FROST AND STEAM UPON STORE-WINDOWS. Charles S. Anthony and J. Manheim, Taunton, Mass. [Filed Feb. 16, 1877.]



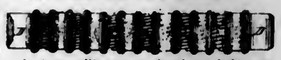
The combination, with a store-window, of the air-supply pipe P, having branches B, covered with wire-netting, and supply-regulating slide E, substantially as and for the purpose shown and specified.

190,524. COMPOUND ENGINES. S. Archbold and John Haug, Philadelphia, Pa. [Filed Aug. 4, 1876.]



The combination of the two cylinders B and D, arranged, in respect to each other, as set forth, with a connecting-frame, T, the bearings G G of the crank-shafts, and the cross-head guide bars, extending from the said cylinder to the said bearings, all substantially as set forth.

190,525. GARTERS. F. Armstrong, Bridgeport, Conn. [Filed Apr. 6, 1877.]

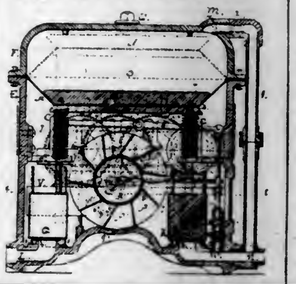


1. A metallic garter, band, or belt, composed of alternate tubes of sheet metal and non-compressible coiled wire, laced together and provided with suitable hooking or securing devices at either end, substantially as described.

2. In combination with a series of short tubes of sheet metal or wire strung together to form a garter, a flat metal hook, secured as shown, whereby the hook end may be secured at any point between the ends of the band, substantially as herein before set forth.

3. In combination with a series of tubes or coils arranged to form a garter or band, two flat metal hooks, one at either end, and arranged in reverse directions, substantially as and for the purposes set forth.

190,526. WATER-METERS. A. R. Arnold, Newark, N. J. [Filed Sept. 30, 1876.]



1. The combination, in a water-meter, of a series of superimposed chambers of water and air, producing an automatic equalising pressure, whereby the loss of pressure by the flow of water, under any head or draft, shall be fully compensated for by the atmospheric pressure, and a constant uniformity of action shall be produced, substantially as and for the purposes set forth.

2. The case E, having the removable cover F, the supply-opening L, service-opening *n*, air-opening K, and water-line gage *e*, substantially as and for the purposes specified.

3. The cover F, having the hole with its stopple G, and connection with the pipe I, and fitted to be screwed down on the top of the case, binding the rubber edges A of the diaphragm, thus forming above the diaphragm a close water-chamber, substantially as specified.

4. The diaphragm composed of rubber A and plates B, suspended by its edges between the cover and the top of the case, and steadied and graduated in its action by the rods *a* and spiral springs C, substantially as and for the purposes specified.

5. The chamber J, formed by the sides and bottom of the case, and by the diaphragm containing the operating mechanism, and provided with the water-supply pipe L and the air-supply pipe K, by which it is filled with an equalising pressure of water and air, in combination with the water-chamber above the diaphragm, substantially as and for the purposes set forth.

6. The pipe I, forming a connection, by the service-pipe *n*, with the lower part of the chamber J—that part containing water—and, through the cover F, with the chamber below it, thus establishing a free communication between the said chambers, to assist in equalising the pressures upon the meter, and having the cock H and vent-screw *m*, substantially as and for the purposes set forth.

7. The inlet float-valve Q, the outlet float-valve R, or its equivalent, and the balance-pressure float-valve R', in combination with the supply-pipe L and service-pipe *n*, substantially as and for the purposes specified.

8. In combination with the valve R, the vacuum-valve *w*, operated by the float *v* through the lever S, substantially as set forth, and for the purposes specified.

9. The wheel B', having the buckets A' with the air-grooves 5', and provided with the adjustable plates 6', and having, in connection with its shafts C', an operating mechanism for registering the amount of water drawn, substantially as specified.

190,527. MODES OF SECURING HANDLES TO CUPS. Chas. S. S. Baron, Bellaire, Ohio. [Filed Apr. 13, 1877.]

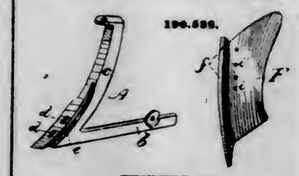


The handle secured to a tin cup or other vessel by means of a tongue, *a*, of the upper part of the handle, which is curled over the bead of the cup, and shoulders *b*, which bear against the cup underneath said bead, the whole being soldered as described, the lower part of the handle being fastened by rivets, or in any suitable manner.

190,528. PLOWS. M. M. Beard and G. W. Purcell, Black Hawk, Miss. [Filed Dec. 13, 1876.]

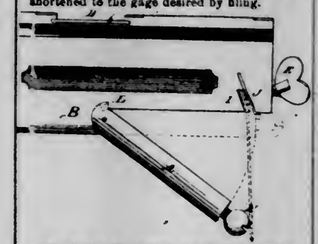
The frame-piece A, consisting of flat bottom-piece *b*, forming the land side, and curved upright *c*, the latter having slots *d d* and rabbet *e*, in combination with the plow attachment F, having perforations *i* and flange *f*, the latter projecting so as to form the point *t*, substantially as and for the purpose shown and specified.

190,539.



190,539. DEVICES FOR SETTING, JOINTING, AND GAGING THE TEETH OF SAWS. Levi H. Bigelow, Fremont Centre, Mich. [Filed Jan. 10, 1876.]

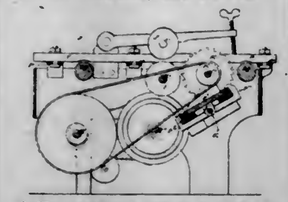
Brief.—The tooth is clamped in a slanting notch by a spring-plate and screw, and the angle to which it shall be set is determined by a gage-arm, that abuts against the saw-blade when the outer end of the device is depressed. When the device is used as a jointer, a flat file is placed in a longitudinal groove, and the device reciprocated back and forth on the saw-blade until the file has reduced all the teeth to a uniform length. The device is also provided with a central slot to receive a clearing-tooth, and with a recess on each side thereof, to receive the cutting-teeth. Should the clearing-tooth be of the same length as the adjacent cutting-teeth, its point will project through the slot, and can be shortened to the gage desired by filing.



The device for setting, jointing, and gaging saw-teeth, consisting of an L-shaped plate, B, having the hinged arm A, edge slot I, set-screw E, spring plate J, a file-groove, C, the recesses G, and open slot D, as shown and described.

190,540. SAWING-MACHINES. C. Bliven, Norfolk, Va., assignor of one-half his right to Wm. B. Rogers, same place. [Filed Feb. 24, 1877.]

Brief.—The saw-arbor is provided with saw-holding devices at each end. The stuff is fed to the saws by means of rollers numbered in the main frame, between a series of slotted bars upon which a suitable guide-bar is laterally adjustable; a feed-roller journaled in a swinging and pivoted frame, one end of which is screw-tapped; and a fluted roller mounted on an arbor immediately under said roller.



1. The combination, with the frame F, provided with the screw-tapped lug *f'*, and saw-arbor F^1, and the screw-threaded rod G, having the crank G', of the double collars F^2 F^3, nuts *e'*, and saws F^4, substantially as described, and for the purpose set forth.

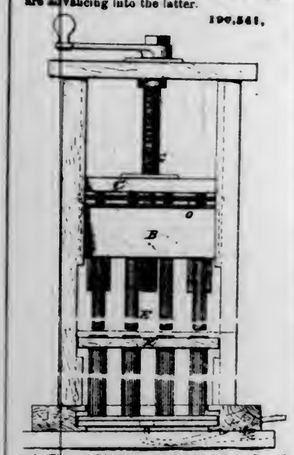
2. The combination of the feed-roller shaft J', with pivoted bearings M M', standard A^2, and adjusting-screw N, substantially as shown and described.

3. The adjustable guide-bar O, slotted cross-bars P, and fastening-bolts, in combination with rollers I and J, substantially as and for the purpose set forth.

190,541. CRESSETS-MACHINES. Henry H. Bromwell, Chicago, Ill. [Filed Apr. 16, 1877.]

Brief.—The plungers and upper tubes are operated to and from each other by a right-and-left-hand screw, so that as the upper tubes are drawing from the lower ones, the plungers are advancing into the latter.

190,541.

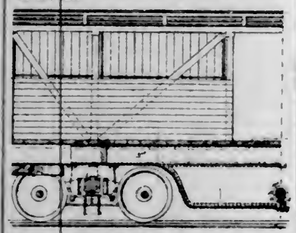


1. The combination, with the sections B and C, the tubes and plungers E and F, and mechanism for positively moving the sections toward each other, of the lower fixed tubes I, substantially as and for the purpose described.

2. The combination of the sections B and C, tubes and plungers E and F, right-and-left hand screw G, and fixed tubes I, substantially as described.

190,542. TANK AND FREIGHT CARS. Horatio G. Brooks, Dunkirk, N. Y. [Filed Nov. 14, 1876.]

Brief.—Adapted to carry either petroleum or ordinary freight. Tank forms the bottom of the car.



1. The tank A, forming the sills or bottom frame-work of a car, as herein set forth.

2. The tank A constituting the base-frame of a box car, constructed with a central portion dropped between the trucks, for the combined purpose of constituting a portion of the truss-frame, adding carrying capacity, and lowering the center of gravity of the load.

3. The intermediate sills S^2, employed to sustain the draft and thrust, in combination with a tank located in the base of the car or projecting down between the trucks, as set forth.

4. A tank constructed with an open space or spaces between the intermediate sills, to accommodate the draw-head fixtures.

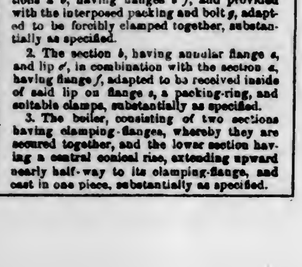
190,543.



190,543. REVOLVING FIRE-ARMS. John Brooks and Thos. W. Bearcock, Wyoming; said Bearcock assignor to F. Belcom, Pittston, Pa. [Filed Mar. 20, 1877.]

In a revolving fire-arm, having recess *b*, the removable slotted plate C, for holding spring *a*, substantially as and for the purpose hereinbefore set forth.

190,544. CURTAIN-FIXTURES. H. Broom, Cambridge, Ohio, assignor of one-half his right to H. B. Huffman, same place. [Filed Mar. 3, 1877.]



In combination with the curtain-roller, the brackets at its ends, the cords attached to said brackets, and the pulleys over which the cords pass, the drum E, mounted on the stud F, the crank-handle F', pivoted on the stud *f*, and connected with the drum by projection A and slot *i*, the flat spring *s* between the crank-handle and drum, and the cap-plate G, attached to the end of the stud, and having on its inner side the notches *m*, substantially as and for the purpose described.

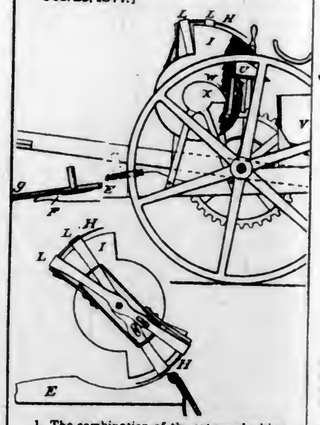
190,545. STEAMERS FOR COOKING FEED. Alvis K. Brown, Newton, Iowa. [Filed Mar. 24, 1877.]

1. In a steam-generator, the cast-metal sections *a b*, having flanges *e f*, and provided with the interposed packing and bolt *g*, adapted to be forcibly clamped together, substantially as specified.

2. The section *b*, having annular flange *e*, and lip *e'*, in combination with the section *a*, having flange *f*, adapted to be received inside of said lip on flange *e*, a packing-ring, and suitable clamps, substantially as specified.

3. The boiler, consisting of two sections having clamping-flanges, whereby they are secured together, and the lower section having a central conical rise, extending upward nearly half-way to its clamping-flange, and cast in one piece, substantially as specified.

190,546. CORN-GATHERERS. M. P. Brown, Lexington, assignor of one-half his right to W. M. Jordan, La Fayette, Mo. [Filed Feb. 28, 1877.]



1. The combination of the rotary plucking-teeth H and vibratory snappers L, for the purpose set forth.

2. The combination of the rotary plucking-teeth H and the concentric concave and channeled gatheriog-fingers E, as and for the purpose set forth.

3. The sliding sheaths or extensions *g*, as and for the objects stated, in combination with the guards of a corn-gatherer.

4. The automatically-vibrated hod U, in combination with the rotary pluckers H and the receiving-chutes V.

5. The hod U, pivoted to the plucking-cylinder, and automatically vibrated by means of the wrist W, stationary cam X, and retracting-spring Y.

6. The combination of double-ended snappers L with the double series of pluckers H on a single rotary cylinder, I, as set forth.

190,547. PORTABLE FENCES. S. G. Burke, La Fayette, Ala., assignor of one-half his right to Benj. L. Dyer, same place. [Filed Feb. 15, 1877.]



In combination with the panels of a portable fence, the panel-support consisting of the V-notched sill C and notched lock-braces I I, arranged substantially as shown, and for the purpose described.

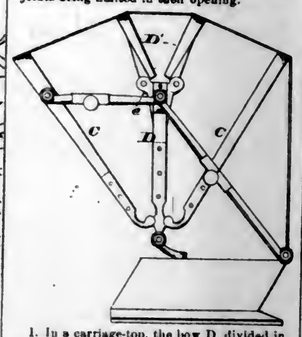
190,548. DRYING-CYLINDERS. C. C. Butterworth, Philadelphia, Pa., assignor to himself and J. Butterworth, same place. [Filed Apr. 7, 1877.]



The within-described drying cylinder, consisting of the body A of tinned sheet-iron, with internally-projecting double-lapped joint, the internal re-enforcing rings D, recessed at the edges to receive the said joint, and the heads B, all being combined as set forth.

190,549. CARRIAGE-TOPS. G. F. Canniff, Sr., Cleveland, Ohio. [Filed Apr. 17, 1877.]

Brief.—The invention consists in supplemental bows jointed to the center bows, the joints being limited in their opening.

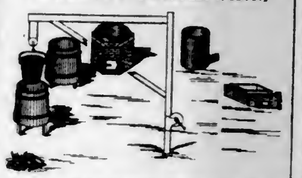


1. In a carriage-top, the bow D, divided in its vertical portions into two supplemental bows, D', said bows being suitably jointed or hinged to the bow D, substantially as and for the purposes described.

2. The combination of the bows C D D', substantially as and for the purposes described.

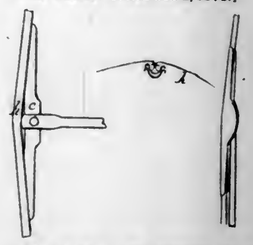
3. In combination with the bows D D', a connecting-joint limited in its opening movement, substantially as and for the purposes described.

190,550. PROCESSES OF UTILIZING TIN-SCRAP. C. A. Catlin and G. F. Wilson, Providence, R. I. [Filed June 7, 1876.]



The process of utilizing tinned scrap or of separating adherent tin from other metals, which consists in sprinkling the scrap with dry chloride of sodium or potassium and nitrate of sodium or potassium, and then immersing it in a caustic alkaline solution until the tin is entirely dissolved, whereby the two metals previously united are separated from each other, and can afterward be used in the arts, substantially as herein set forth.

190,551. UMBRELLAS. Emile Charagnat, Paris, France. [Filed Oct. 2, 1876.]



1. The umbrella-frame, consisting of the ribs jointed to the cammed or eccentric headed stretchers, in combination with the metal sheaths, arranged as described, for automatically retaining the umbrella in an open or closed position, substantially as set forth.

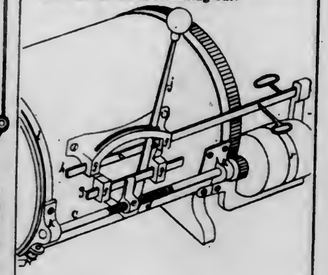
2. The concentric metal sheath and the opening and closing spring, combined and arranged to operate substantially as set forth.

3. In an umbrella-frame, composed of a series of ribs, A', of the form described, in transverse section, the arrangement of said ribs with the open side outward, and so as to receive the seams of the covering, substantially as described.

4. The combination of the fixed nut *s*, socket-sleeve *t*, socket *u*, constructed with the shoulder *u'*, spring *v*, cap *x*, and shoulder *y*, substantially as described.

190,552. WASHING-MACHINES. B. Chartrey, San Francisco, Cal. [Filed Jan. 27, 1877.]

Brief.—A bar, attached to a nut which travels on a screw-thread on the drum-shaft, operates, after a fixed number of revolutions of the latter, by means of pins upon it, to throw over its center a lever, the weight of which moves the belt-shifting bar.

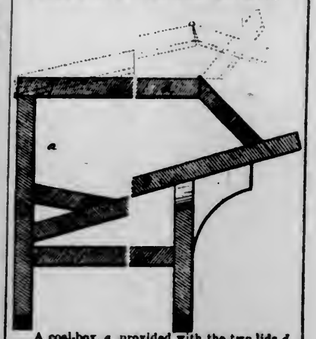


1. The boxes or bearings *f f f f*, all attached to a single frame-casting, I, which is secured to the side of the case, and to which the lower end of the weighted bar *j* is also pivoted, substantially as and for the purpose described.

2. The improvement in connecting the boxes K K with the bands or hoops I, consisting in attaching one end, N, of each hoop to one end of the casting by means of a lug, O, on said casting, and inserting their opposite ends underneath the opposite ends of the box-casting, and securing the whole by a screw, *s*, which passes into the wood underneath, substantially as and for the purpose described.

3. The shaft C, provided with the screw-section *d*, for operating the automatic belt-shifter, and having the fixed pulley *r* and loose pulleys *s s* mounted on its end, substantially as and for the purpose described.

190,553. COAL-BOXES. Geo. M. Church, Rogersville, Pa. [Filed Mar. 30, 1877.]

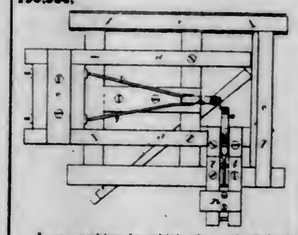


A coal-box, *a*, provided with the two lids *d e*, an inclined bottom, *g*, and a compartment under the bottom for holding the shovel and tongs, substantially as specified.

190,554. MACHINES FOR CLAMPING AND SQUARING SASHES. J. Collins, Reynoldsville, Pa. [Filed Nov. 4, 1876.]

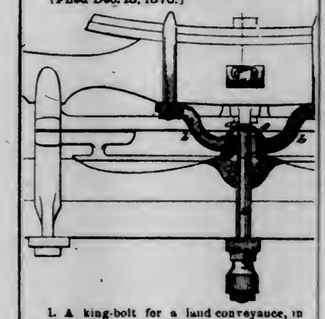
Brief.—Sashes of different sizes can be clamped and squared at the same time by means of two clamps sliding at right angles to each, in grooved ways upon a suitable frame, and attached by screw-rods to segmental wheels connected to a foot-treadle, by which the clamps are operated, in connection with two bars secured upon the top of the frame at right angles to each other.

190,554.



In a machine in which the sash is both squared and clamped at the same time, the construction and arrangement, with the beams *c d i*, of the clamping devices, consisting of slides *s s*, rods *r g*, and segmental wheels operated directly by the treadle rods, as and for the purpose set forth.

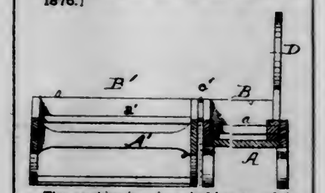
190,555. CARRIAGE KING-BOLTS. John H. Combs, Stamford, assignor of one-half his right to Bryan A. Treat, Naugatuck, Conn. [Filed Dec. 13, 1876.]



1. A king-bolt for a land conveyance, in which the clip upon the axle is interlocked with the clip upon the head-block and combined with a centering pin, substantially as described.

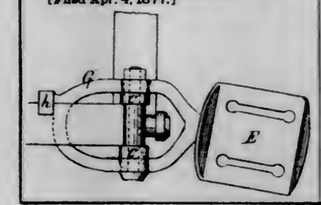
2. A king-bolt for a carriage, consisting of the parts *a*, *b*, and *c*, combined and arranged substantially as described.

190,556. SOFA-BEDSTEADS. H. Compes, San Francisco, Cal. [Filed Sept. 22, 1876.]



The combination, in a bed-lounge, of the frames A A′, hinged together, the head-frame divided into the hinged parts B B′, the upper part being adapted to turn over and rest upon the floor, the slats *a a′*, and the stationary side D, constructed and arranged substantially as described and shown.

190,557. STEPS FOR PLATFORM-WAGONS. Caleb Conderman, Hornellsville, N. Y. [Filed Apr. 4, 1877.]



The tread E, provided with the bifurcated shank F secured to the spring-coupling, and extension G and hook A, engaging, respectively against the under and upper side of the spring, substantially as and for the purpose hereinbefore set forth.

190,558. MOUTH-PIECE FOR MUSICAL INSTRUMENTS. Chas. G. Conn, Elkhart, Ind. [Filed Mar. 22, 1877.]

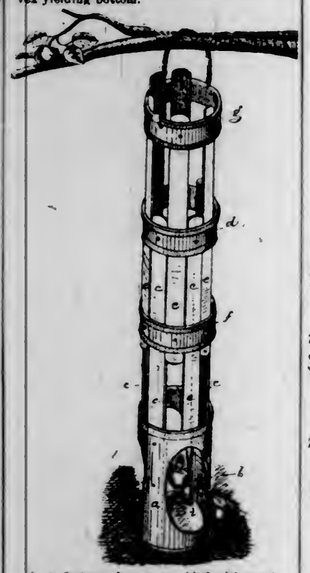


1. A mouth-piece for musical instruments, constructed with a rim of rubber or other vulcanizable gum secured within a recess or recesses in the face, substantially as shown.

2. The improved mouth-piece herein described, provided upon its face with a coating of hard rubber or other vulcanizable gum, substantially as set forth.

190,559. FRUIT-CONDUCTORS. I. W. Curtis, Wilton, N. H. [Filed Jan. 31, 1877.]

Brief.—An extensible fruit-conductor composed of slats lined with soft material, the slats of one section sliding between those of another. Said conductor is provided with an end piece having lateral openings and a convex yielding bottom.



1. A fruit-conductor provided with a telescopic tube, composed of sections constructed of slats arranged so that the slats of one section shall slide between those of another, substantially as described.

2. The combination of an end piece, *a*, a loop, *d*, and slats, *e*, with slats *s*, and hoops *f g*, forming sections of a telescopic tube for fruit-conductors, substantially as described.

3. The combination, with the slatted telescopic tube of the end piece *a*, having the openings *b b*, and convex yielding bottom *i*, substantially as described.

4. The tube of a fruit-conductor, constructed of slats faced with cloth, or other soft material, substantially as and for the purpose described.

190,560. CAN-OPENERS. L. Cutting, San Francisco, Cal. [Filed June 26, 1876.]

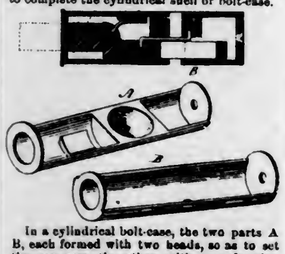
As a new article of manufacture, a can-opener composed of a cast-iron handle, with holsters and a steel sickle-shaped blade, all cast together, the sickle-shaped blade being beveled wholly on the right-hand side of its curved edge, as described and shown.

190,560.



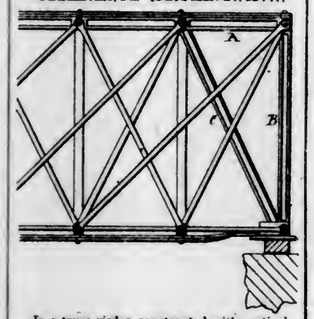
190,561. DOOR-BOLTS. F. Davis, North Adams, Mass., assignor of one-half his right to H. B. Ives, East Haven, Conn. [Filed Mar. 30, 1877.]

Brief.—Two half cylinders—one of which is constructed with a full end piece to form the face-plate, and the other with a corresponding head to fit within the same, each being ring-shaped at the outer end to guide the bolt—are fitted so as to set one over the other, and secured together by a single end screw, to complete the cylindrical shell or bolt-case.



In a cylindrical bolt-case, the two parts A B, each formed with two heads, so as to set the one over the other, with a perforation through the two outer heads to guide the bolt, and thereby secure that end of the case, and a connection of the two parts at the other end, substantially as described.

190,562. TRUSS-BRIDGES. R. H. Davies, Phœnixville, Pa. [Filed Mar. 27, 1877.]



In a truss-girder constructed with vertical intermediate posts and diagonal tie-rods, the combination of the extension A of the upper chord, the end posts B and C, and two sets of end tie-rods, when arranged as herein described.

190,563. RAILWAY-TRACK CLEARERS. A. Day, Detroit, Mich. [Filed Feb. 17, 1877.]

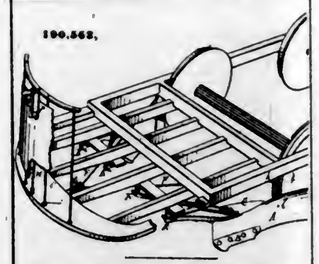
1. The adjustable brackets E, in combination with the leader C and brace D, and scraper, substantially as and for the purposes described.

2. The eye and clamp G, provided with slot *n* and key *p*, substantially as and for the purposes set forth.

3. The barrel M, made in two parts, and recessed, as described, in combination with the chain H, shaft N, crank R, and standard P, substantially as and for the purposes specified.

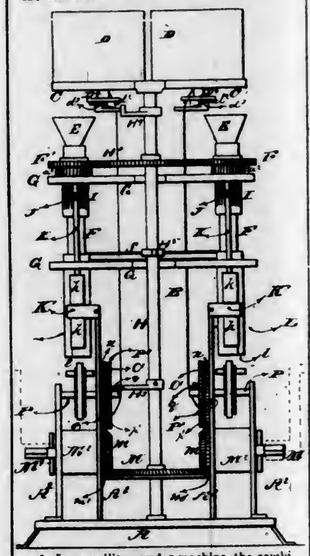
4. In combination, the eye and clamp G, chain H, rods F, chain *h*, block *k*, and scraper A, substantially as and for the purposes described.

190,562.



190,564. MACHINES FOR PUTTING UP SEDLITS POWDERS. Charles R. Doane, Brooklyn, N. Y. [Filed Apr. 14, 1877.]

Brief.—The two powders are fed from separate hoppers into rotating tubes. Into these tubes papers are rolled automatically, and when filled they are folded and passed out of the machine.



1. In a sedlits-powder machine, the combination of two distinct and separate mechanisms, operated alternately from or by devices attached to a central shaft having a reciprocating rotary motion, whereby the alkaline and acid powders are put up in papers and alternately deposited outside of the machine, substantially as herein set forth.

2. In a sedlits-powder machine, a stationary hopper, an interior intermittently-rotating feeding-disk, with a device for regulating the weight of the powder, and an intermittently-rotating powder-tube, for conducting the powder to the paper, all combined substantially as herein set forth.

3. An intermittently-rotating powder-tube arranged within a stationary slotted sleeve or casing, for winding the powder-paper around the tube, as herein set forth.

4. The combination, with a powder tube having the paper wound around it, of a pair of griping-jaws for carrying the paper down, a folder for folding the bottom, a pair of rolls for pressing the paper, and a folder for folding the top, substantially as herein set forth.

5. The combination of the perforated feeding-disk D^1, shaft D^2, disk D^3, with studs d^3, and the bifurcated arm D^4, with spring-catch d^5, substantially as and for the purposes herein set forth.

6. The arms H^4 H^5, provided with studs h^4, and attached to the reciprocating rotating shaft H, in combination with the bifurcated arms D^4 D^5, for alternately operating the feeding-disks in the hoppers D D, substantially as herein set forth.

7. The combination, with the intermittently-rotating feeding-disk D^1, of the post D^6, with radial arms d^6, and the rotary fan D^7, as and for the purposes herein set forth.

8. The adjustable spring *i*, attached to a block, *c*, and regulated by a set-screw, *g*, in combination with the perforated rotating feeding-disk D^1, substantially as and for the purposes herein set forth.

9. In combination with the perforated rotating feeding-disk D^1, the adjustable spring *i* and the stationary spring *x*, both arranged to operate substantially as and for the purposes herein set forth.

10. The combination of the shaft H, having a reciprocating rotating motion, and provided with the spur-wheel H^1, the sleeved pinions F^2 F^3, the tubes F F, and funnels E E, the pinions and tubes being connected by pawl-and-ratchet devices, substantially as and for the purposes herein set forth.

11. The combination of the tube F, with cogs I, the shafts K K, with pinions J J, and rollers *k k* and *k′*, and the stationary sleeve L, having slots or openings *c l′*, substantially as and for the purposes herein set forth.

12. The spring *k′*, in combination with the lower roller *k*, slotted casing L, and tube F, substantially as and for the purposes herein set forth.

13. The combination of the jaw P^3, having blade p^3, and the jaw Q^2, having rubber-filled box q^2, substantially as and for the purposes herein set forth.

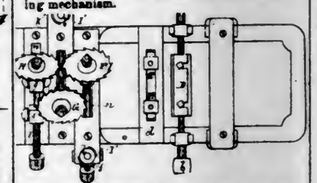
14. The combination of the jaws P^3 Q^2, shafts P Q, with gear-wheels P^1 Q^1, loose wheel O, spring-catch O^1, pins *p q*, and the arm H^3 on the shaft H, all substantially as and for the purposes herein set forth.

15. The combination of the cam R, pin *r*, shaft R^1, folder R^2, and spring R^3, all substantially as and for the purposes herein set forth.

16. The combination of the arms S, with hammers T and points *s*, the springs U, and the collar H^2, with horns h^3 on the shaft H, substantially as and for the purposes herein set forth.

190,565. MACHINES FOR MAKING WOODEN GUTTERS. J. Dole, Bangor, Me., assignor to himself and H. H. Fogg, same place. [Filed Aug. 25, 1876.]

Brief.—Wooden gutters for buildings are formed by means of one beveling and two grooving saws, each mounted on a shaft which is vertically, laterally, and angularly adjustable upon the main frame; a reducing-cutter attached to a vertically-adjustable head; two vertical feed-rollers laterally adjustable, and two horizontal feed-rollers, the upper of which is vertically adjustable; and suitable operating mechanism.



1. The feed-rollers B C, the adjustable gage-rollers E E, and the two grooving-saws F G, arranged as shown, in combination with the saw-shafts K L, mounted in pivoted and adjustable bearings, and extending downward and crossing each other, as represented, whereby a piece of timber, while being sawed by such saws, becomes grooved on its lower side, and the saws are relieved by gravity from the pressure of the strip while it may be in the process of removal from the stock by them, (the said saws.)

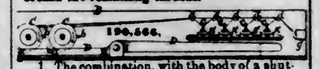
2. The feed-rollers B C, the reducing cutter-cylinder D, and the gage-rollers E E, arranged as shown, in combination with the beveling-saw H and the grooving-saws F G, and with their shafts K L, mounted in pivoted and adjustable bearings, and extended downward and crossing each other, as represented.

3. The combination for effecting the adjustment, as described, of each saw and its shaft, such consisting in the slotted plate I^1 or K^1, and the furcated screws *i k* and their clamping devices or nuts *l m*, and the boxes *f g*, pivoted to such screws, all being substantially as specified and represented.

190,566. SHUTTLES FOR LOOMS. L. Dumas, Paterson, N. J. [Filed Mar. 14, 1877.]

Brief.—The shuttle carries two or more bobbins. The object of the invention is to prevent imperfections in the fabric caused by the shuttle continuing to deliver weft after one of the threads has broken, or a bobbin has become empty. Each thread passes through an eye on a pivoted bar, and while it is unbroken lifts its bar from contact with the brake-lever. Should the thread fail the corresponding bar immediately falls, thereby depressing the brake-lever. The brake stops the further revolution of the bobbins, and breaks the remaining threads.

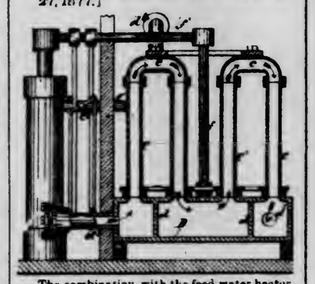
190,566.



1. The combination, with the body of a shuttle, having two or more bobbins, of a brake adapted to be operated by the action of the filling-threads, for arresting the motion of the several bobbins when one of the said threads breaks or winds off, substantially as and for the purpose described.

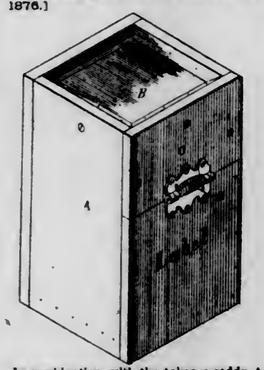
2. The combination, with the body of a shuttle having two or more bobbins, of the breaking-lever D, weighted at one end, and the swinging arms E, having eyes through which the threads of the different bobbins pass, the whole being adapted to operate substantially as described, and for the purpose set forth.

190,567. FEED-WATER HEATERS. James Eckersley, Philadelphia, Pa. [Filed Feb. 27, 1877.]



The combination, with the feed-water heater herein described, composed of the bases or cylinders D D^1, &c., and pipes C C^1, &c., said bases having transverse diaphragms *d d*, and connecting branches d^2 d^3, and the pipes C C^4, &c., being united in pairs, having their legs arranged with reference to the diaphragms *d d*, of the boiler feed-pipe d^4, communicating with the upper part of the heater, substantially as shown and described.

190,568. TOBACCO-CADDIES. L. M. Fitzhugh, Indianapolis, Ind. [Filed Nov. 16, 1876.]



In combination with the tobacco-caddy A, provided with the top follower B, as described, the front C, hinged to the body by the exterior spring-hinge D, for the purpose of keeping the door closed, as set forth.

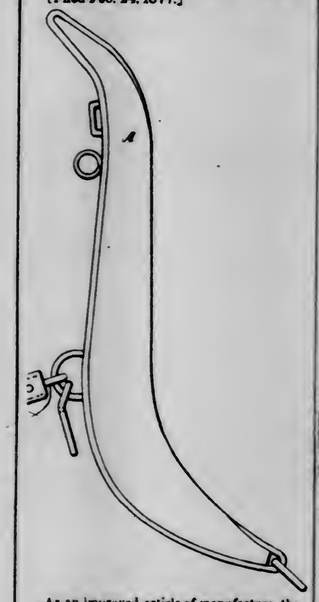
190,569. WATER-FILTERS. W. S. Fleming and A. Burns, San Francisco, Cal. [Filed Mar. 17, 1877.]

190,569.



The water-filter herein described, consisting of the case A B, having the inclined locking and uniting flanges D and E, with the annular grooved seat C, gauze or perforated bottom F, purifier H, and sponge I, as and for the purpose specified.

190,570. HAMES FOR HARNESS. Geo. E. Fletcher, Fillmore, N. Y., assignor of one-half his right to S. W. Lowell, same place. [Filed Feb. 24, 1877.]



As an improved article of manufacture, the hame A, wedge-shaped in cross-section, as shown, and adapted for use upon either side of a collar, as set forth.

190,571. TUMBLERS FOR PERMUTATION-LOCKS. T. Fox, Bay City, Mich., assignor of one-half his right to J. J. Fitzgerald. [Filed Sept. 26, 1876.]



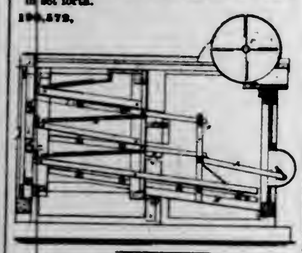
The tumbler-wheel a, provided with the cogged hub, in combination with the carrier-plate A, having internal cogs and a projecting finger, substantially as described.

190,572. MIDDLINGS-SEPARATORS. A. Fulton, Olney, Ill. [Filed Mar. 26, 1877.]

1. The combination, in a middlings-purifier, of a series of sieves and a series of reciprocating set of brushes or wipers, operated from a single shaft when such sets are adjustable up and down independently of each other, substantially as herein set forth.

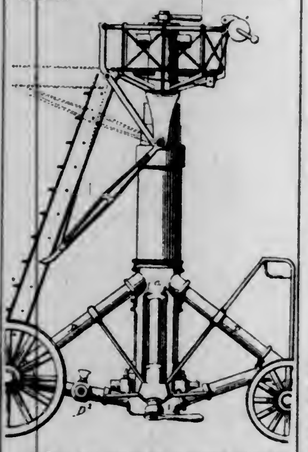
2. The combination of the sets of brushes or wipers a, cross bars G, slide-bars I, with pins x, frame J, having vertical slots y, and operated by the crank-shaft L and pitman K, the adjustable ways H, cams m, and shafts n, all substantially as and for the purposes herein set forth.

190,573.



190,573. FIRE-ESCAPES. (HYDRAULIC.) J. Gerard and A. Turnbull, New Britain, Conn. [Filed Mar. 17, 1877.]

Brief.—The trunnions are adjustable by means of a force-pump. A ladder is hung to the gallery, which can be raised to a horizontal position, to serve as a fire-escape. The steps of ladder turn so as to form a floor when raised. The ladder is elevated by means of a windlass attached to gallery. The gallery revolves.



1. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top, and mounted on a truck, the brace-tubes D, combined with the adjustable braces D^1, substantially as and for the purpose described.

2. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top, and mounted on a truck, the brace-tubes D, combined with the adjustable braces D^1, and a clamping device to secure the braces, substantially as described.

3. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top, and mounted on trunnions, so that the said column may be turned into a substantially horizontal position, the combination, with the said trunnions, of vertically-movable bearings, with a follower arranged in vertical cylinders beneath, and means, substantially such as described, for forcing water into the said cylinders substantially as and for the purpose specified.

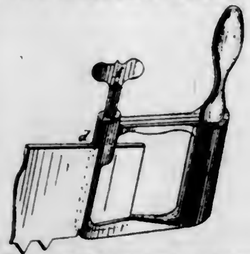
4. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top, and mounted on a truck, the combination, with the said column and truck, of the two disks C^2 C^3, eccentrically hung respectively to the base and to the bottom of the column, and concentrically connected for the vertical adjustment of the column, substantially as described.

5. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top, and mounted on a truck, the combination of the gallery and a ladder hinged thereto, and means, substantially such as described, for adjusting the elevation of the ladder relative to the plane of the gallery, substantially as described.

6. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top, and mounted on a truck, the combination of the gallery and a ladder hinged thereto, and means, substantially such as described, for adjusting the elevation of the ladder relative to the plane of the gallery, and the steps of the said ladder hinged between the sides of the ladder, substantially as and for the purpose described.

190,574. CROSSCUT-SAW HANDLES. Peter Gerlach, Cleveland, Ohio. [Filed Mar. 10, 1877.]

Brief.—The saw is attached to a suitable handle by means of an open metallic frame having an outer tubular part to receive a wooden handle; an inner slotted part, through which the saw-blade passes, and which is provided with an enlarged upper and interiorly-threaded part; a lower grooved bar having a projection on its inner end, fitting in a notch in the lower edge of the saw-blade; and a set-screw passing through the threaded part of the frame, and projecting into a notch formed in the upper edge of the blade.



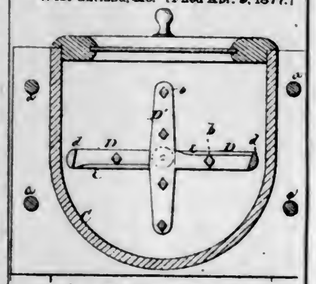
The combination, with a saw provided with notches s s', of a handle provided with groove g, projection g^2, slot d, and tightening-screw f, substantially as described.

190,575. SOLE-FASTENINGS FOR BOOTS AND SHOES. L. Goddu, Winchester, assignor to the American Cable Screw Wire Company, Boston, Mass. [Filed Apr. 11, 1877.]

1. A continuous length of distinct nails or tacks, each having a head formed of stock taken from the preceding nail and projecting beyond the diameter of the wire forming the continuous length of tacks or nails, as set forth.

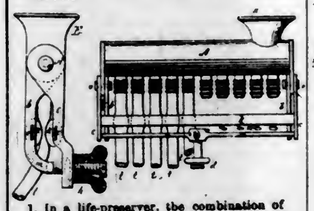
2. A continuous length of distinct nails or tacks, each having a tapering point narrower than the diameter of the wire, and a head formed of stock taken from the entering end of the preceding nail, projecting from and beyond the diameter of the wire of which they are formed, as set forth.

190,576. ROTARY CHURNS. H. L. Gordon, West Garland, Me. [Filed Apr. 9, 1877.]



The churn-dasher herein described, consisting of the long and short cross-arms D D^1, the long arms D, having their front edges e beveled, the diamond-shaped beaters b, set so as to alternate, and the slab-shaped strips d, set on an angle, all substantially as and for the purposes herein set forth.

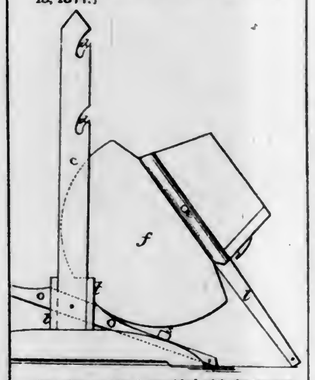
190,577. LIFE-PRESERVING DRESSES. Camille Grin, Paris, France. [Filed Feb. 5, 1877.]



1. In a life-preserver, the combination of the independent air-tubes a, the cylinder A, connected by an independent tube to each of said air-tubes and mechanism, substantially such as described, to simultaneously open or close said independent passages and isolate the said air-tubes, substantially as described.

2. In a life-preserver, the combination of the cylinder A, mouth-piece E, independent tubes t, tringles e e, inclosed in india-rubber tubes k k, and clamping-screw, substantially as described.

190,578. RECIPROCATING CHURNS. Royal B. Grimes, Rutland, Ohio. [Filed Mar. 13, 1877.]



The churn-body f, provided with the groove v, in combination with the board t and lever l, whereby the body can be taken from its journals and tilted forward, as shown.

190,579. STOPPER-LOCKS FOR DECANTERS, &c. Edgar H. Guild, New York, N. Y. [Filed Apr. 12, 1877.]



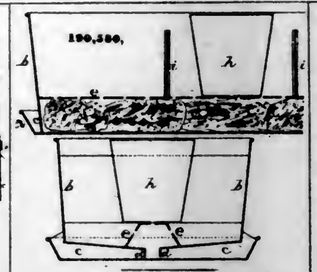
A stopper for bottles or other vessels, constructed of a series of disks, (one or more of which being composed of an elastic substance,) secured and adjusted upon a rod by means of an adjusting device connected to said rod, and arranged within a recess formed in the upper disk, whereby said adjusting device or lock is inaccessible except to an instrument especially fitted to engage therewith, substantially as described.

190,580. FLOWER-STANDS. Chas. F. Hall, West Troy, N. Y. [Filed Apr. 17, 1877.]

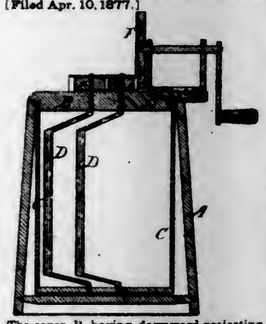
Brief.—A flower-pot vase having a perforated cone filled with sponge or other absorbent material extending across its base, upon which one or more pots, with small holes in the bottom, may be placed.

The combination of pan a, vase b, flanges d, cone e, partitions i, and pots h, substantially as shown and described, the cone and flanges being filled with sponge or other absorbent material, so as to supply each plant with the exact amount of water required, and no more.

190,580.



190,581. ROTARY CHURNS. C. I. Hale, Bethany, Ill., assignor of one-half his right to David N. Ashmore, same place. [Filed Apr. 10, 1877.]



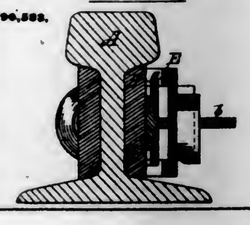
The cover B, having downward-projecting rectangular frame C, pivoted beaters D, provided with pinions e and operating cog-wheel F, in combination with the churn-body A, substantially as and for the purpose herein shown and specified.

190,582. CAR-SPRINGS. W. P. Hansell, Pittsburg, Pa., assignor of one-third of his right to B. R. Hansell, same place. [Filed Oct. 13, 1876.]



The combination of two helical springs, A and B, their division bearing-plate C, provided with a central opening, and an interior spring or springs, D, substantially as described.

190,583.



190,583. NUT-LOCKS. Wilson C. Harper, Pittsburg, Pa. [Filed Feb. 27, 1877.]

1. The within-described nut-lock, consisting of slotted anchor-plate a, perforated for the bolts, and made of sheet metal, T-headed post b, slotted as shown, and detachable from plate a, lock-plate E, and key c, in combination with a fish-plate of ordinary construction, all combined and operating substantially as shown and described.

2. The slotted lock-plate E, having its ends bent inwardly, as shown, in combination with the anchor-plate a, key-post b, and a fish-plate of ordinary construction, substantially as described and shown.

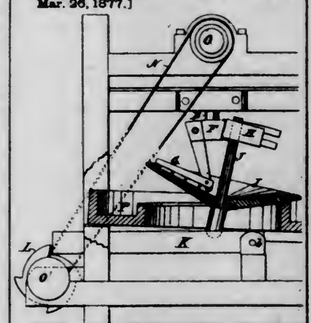
190,584. TEA-CADDIES. L. W. Hemp and S. Knight, St. Louis, Mo.; said Knight assignor to said Hemp. [Filed Dec. 8, 1876.]



1. As a new article of manufacture, the improved caddy constructed with inclined back G, glass F, inclined partition I, extension b, and door D, as and for the purpose set forth.

2. The combination, with the caddy, of the inclined show-case having a sliding bottom or back, G, to allow the discharge of the contents into the main cavity of the caddy.

190,585. ORE-WASHERS. D. D. Hendrick, Calumet, Mich., assignor of one-half his right to H. B. Rogers, same place. [Filed Mar. 26, 1877.]



1. The receiving-pan, arranged to operate with a continuously-tilting movement combined with an up and down movement, substantially as described.

2. The combination, with the continuously-tilting pan, of a rake or stirrer, arranged to be always upon the high side of said pan, as and for the purpose set forth.

3. The combination, with the pan I, its shaft J, and the cross-head F, attached to the driving-shaft, of the box H, made adjustable in guideways in the cross-head to increase or diminish the tilt of the pan, as described.

4. The combination, with the pan I, its shaft J, and the cross-head attached to and rotated by the driving-shaft, of the adjustable box H, and the adjustable rake G, as and for the purpose described.

5. The combination of the wiper-wheel L, jigger-lever K, the pan I, having its shaft stepped in said lever, and the rotating cross-head F, carrying the upper end of the pan-shaft upon one side of its axis, and a rake upon the other, substantially as described, and for the purpose set forth.

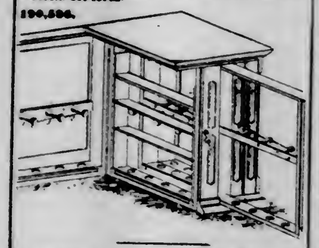
190,586. SHOW-CASES. Peter Henrichs, Erie, Pa. [Filed Mar. 29, 1877.]

1. In a sectional show-case, the combination of two or more stationary sections, B, united by top and bottom pieces at suitable distances

apart, one or more movable sections, A, sliding between the stationary sections, and two hinged side sections, C C, all constructed as described, whereby access may be had to any section separately, substantially as herein set forth.

2. The headed pins J, having grooves *x* in their heads, and the wires J playing in said grooves, substantially as and for the purposes herein set forth.

190,586.



190,587. LACTOMETERS. Louis Heusner, Barmen, Prussia. [Filed Feb. 17, 1877.]

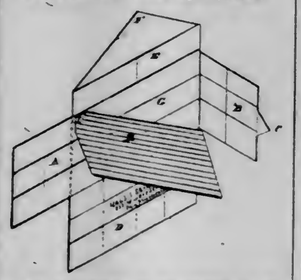


1. The combination of the transparent attached plates A A', the plate A' having in or on it lines or figures *c*, and a partition, B, dividing the space between said plates into chambers, the one for holding the liquid to be tested, and the other for holding the standard substance with which said liquid is to be compared, substantially as and for the purpose specified.

2. The combination of the attached transparent plates A A', the partition B, dividing the space between said plates into chambers *b b'*, and the permanent filling contained in the chamber *b'*, substantially as and for the purpose specified.

3. The combination, with the plates A A', separated by the partition B, of the ring-stopper E, for closing said chambers, substantially as and for the purpose set forth.

190,588. ENVELOPES. W. S. Holding, San Francisco, Cal. [Filed Aug. 24, 1876.]



The combination, in an envelope, of the body G, end flap A, end flap B, with perforated projection C, bottom flap D, top flap E, with perforated projection F, and the slip H, with perforated corner I, all constructed as shown and described.

190,589. MACHINES FOR PRINTING AND EMBELLISHING LEAD-PENCILS. H. B. Horton, Ithaca, N. Y. [Filed Mar. 22, 1877.]

1. In a machine for embossing and ornamenting lead-pencils, the combination of a pressing surface with a raised design or printing-surface, whereby the pencil is caused to move, or is rolled between the printing and pressing surfaces, by the action or movement of the parts, and the design imparted or printed thereon, substantially as described.

2. In a machine for embossing or ornamenting lead-pencils, the pressing cylinder or surface *n*, substantially as and for the purposes described.

3. In combination with the pressing cylinder or surface *n*, the bed-plate *k*, substantially as and for the purposes described.

4. In combination with the pressing-cylinder or surface *n*, the design-plate k^1, substantially as and for the purposes described.

5. The combination, in a machine for embossing and ornamenting lead-pencils, of pressing-surface *n*, bed-plate *k*, and design-plate k^1, as and for the purposes described.

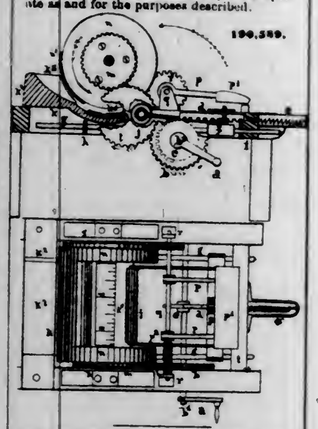
6. In combination with the presser *n* and design k^1, the leaf-applying pad p^1, substantially as and for the purposes described.

7. The combination, in a machine for embossing and ornamenting lead-pencils, of pressing-surface *n*, bed-plate *k*, design-plate k^1, and suitable leaf-applying mechanism p^1, substantially as and for the purposes described.

8. In combination with the leaf-applying mechanism or pad p^1, the roller *j*, rack *d*, and spring *s*, whereby the sizing or gum and leaf or embellishing materials are automatically applied to the design-plate, substantially as and for the purposes described.

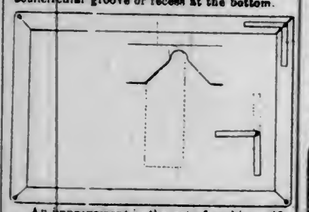
9. The combination, in a machine for embossing and ornamenting lead-pencils, of pressing-surface *n*, design-plate k^1, gum-applying mechanism *j d*, leaf-applying mechanism *p* p^1, and suitable driving mechanism *c b l r*, all constructed, arranged, and adapted to operate as and for the purposes described.

190,590.



190,590. MAKING WOODEN BOXES. Wm. Huey, Fredericksburg, Md. [Filed Apr. 16, 1877.]

Brief.—The joints in the strip of wood which is to form the sides and ends of the box are formed by cutting upon the strip transverse channels, having straight angular sides converging toward each other, and a semicircular groove or recess at the bottom.



An improvement in the art of making stiff wooden boxes, &c., which consists in forming in the wood a curved groove at the bottom of an angular channel, and then bending the board at such point to form a corner-joint, substantially as described, and for the purpose specified.

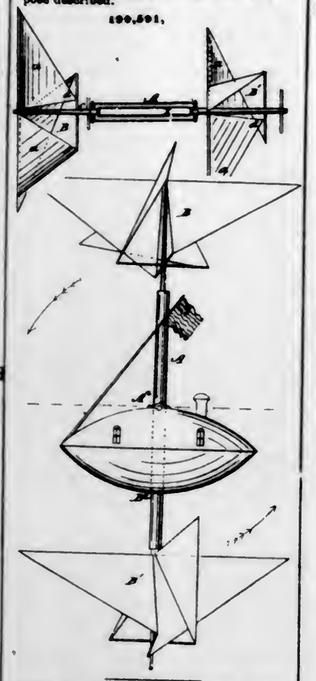
190,591. TOY AEROSTATS. Wm. S. Hull, Hinds County, Miss. [Filed Nov. 7, 1876.]

Brief.—A rubber spring within a light tube is secured to the axes of two oppositely-moving propeller-wheels—one at each end of the tube. Sufficient torsion of the spring causes the tube to ascend into the air.

1. The improved aerostat, consisting of the two propellers B B^1, constructed as described, and arranged upon independent shafts for revolution in different directions, in combination with the interposed tubular frame A, and a suitable driving-power connected with the propeller-shafts through the tubular frame, substantially as and for the purpose described.

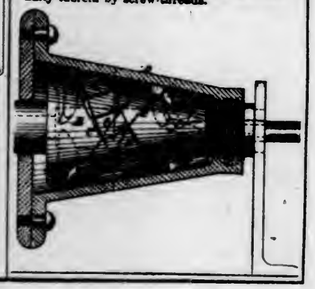
2. The combination, with the reversely-arranged propellers B B^1 and the tubular frame A, of the interposed elastic strips contained in said frame and connecting the two propeller-shafts, substantially as and for the purpose described.

190,591.



190,592. MACHINES FOR MAKING TWIST-DRILLS. C. F. Jacobson, New York, N. Y., assignor to himself, J. C. Jones, and G. B. Maltby, same place. [Filed Mar. 29, 1877.]

Brief.—A hollow conical idle-holder having longitudinal spiral slots, in which are fitted sectional dies of irregular lengths, (in conformity with the varying diameter of their conical holder,) in order that they may project equally within the holder, and properly act upon the drill-blank as it is forced longitudinally through the same. Heads on the dies prevent them from passing wholly through into the holder and form backs, against which pressure may be exerted, to keep the dies up to their work, by a hollow outer case surrounding the holder, and adjustable longitudinally therein by screw-threads.

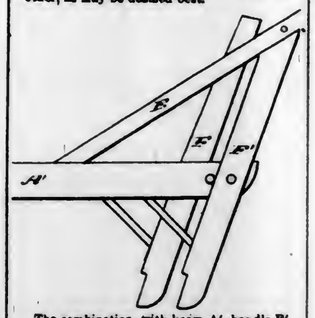


1. The spirally-slotted hollow die-holder, in combination with two or more sectional dies, fitted to enter within said slots, essentially as and for the purpose herein set forth.

2. The combination of an outer and longitudinally-adjustable hollow case or cone, D, the conical and spirally slotted hollow die-holder B, and the sectional dies C C, substantially as specified.

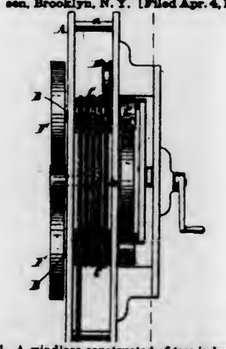
190,593. PLOWS. J. R. Jackson, Coldwater, Miss. [Filed Mar. 31, 1877.]

Brief.—A double-shovel plow constructed with devices to place both shovels parallel with each other, or to place one before the other, as may be deemed best.



The combination, with beam A', handle E', and fixed standard F', of beam A, having perforations *a* a^1 a^2 a^3, brace I, standard F, having perforations *f* f^1, and handle E, having perforations *e e'*, substantially as and for the purpose set forth.

190,594. PORTABLE WINDLASSES. D. Janssen, Brooklyn, N. Y. [Filed Apr. 4, 1877.]



1. A windlass constructed of two independent sheaves, C C, mounted on shafts B B, which are geared together, a pressure-roller, E, and a frame, A, the whole being combined and adapted to operate substantially as described.

2. The combination, with the two independent sheaves C C and their shafts B B, of a supplemental shaft, H, and friction-wheels J F F, substantially as and for the purpose described.

190,595. TURBINE WATER-WHEELS. Wm. R. Jenkins, Jr., Bellefonte, Pa. [Filed Apr. 9, 1877.]

Brief.—This wheel has a center extending the entire height of the same, whose exterior form is that of an inverted truncated cone. The upper edge of the center has a narrow horizontal flange, and from this flange the sides of the center slope inwardly to the bottom.

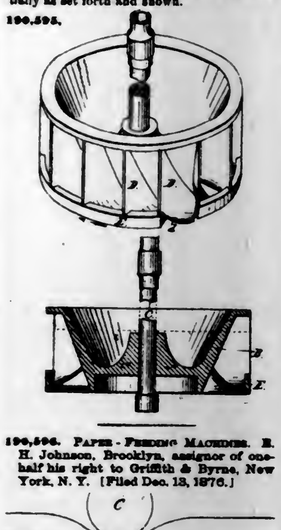
1. In a turbine water-wheel, the combination of the conical center B, extending the entire height of the wheel, with the buckets D placed at an angle to the said center, and reaching downwardly only to the lower periphery of the said center, substantially as described and shown.

2. In a turbine water-wheel, the combination, with the conical center, of the triangular buckets D, placed at an angle to the said center, inclining in the direction of motion, so that both the top and bottom edges of said buckets are tangential to the circle formed by the lower periphery of such center, substantially as described and shown.

3. In a turbine water-wheel, the buckets D, receiving the force of the water at right angles, having the cut-away portion *d*, the turned-up portion d^2, and oblique side d^3, constructed and arranged substantially as described and shown.

4. The combination, with the conical center B, extending the entire height of the wheel, of the triangular buckets D, inclined as described, and reaching downwardly only to the lower periphery of the said center, and the ring E, all constructed and arranged substantially as set forth and shown.

190,596.



190,596. PAPER-FEEDING MACHINES. E. H. Johnson, Brooklyn, assignor of one-half his right to Griffith & Byrne, New York, N. Y. [Filed Dec. 13, 1876.]



1. In a paper-feeding machine, the roller A, applied beneath the pile of sheets, substantially as described, and so operating thereon as to draw or push back the edge of the sheet against which it acts, and pass the edge around its periphery until, by the elasticity of the sheet, it springs forward on the side of the roller opposite the side on which it acts on the pile of sheets, substantially in the manner described and specified.

2. The combination, with the friction-roller A, of the pressure-bar C, for depressing the pile of sheets at a point behind the roller A, whereby the surface of contact between the roller and the sheet is increased, substantially in the manner described and specified.

3. In a paper-feeding machine, the combination of the rollers A and B, applied beneath the pile of sheets, substantially as described, and so operating as to draw the two extremities of the sheet against which they act together, without breaking the sheet, and pass its edges around their peripheries until, by the elasticity of the sheet, the ends spring apart, and the sheet thus freed on the side of the rollers opposite the side on which they act on the pile, substantially in the manner described and specified.

4. In combination with the friction-rollers A and B, the pressure-bar C, for depressing the sheets between said rollers, substantially in the manner described and specified.

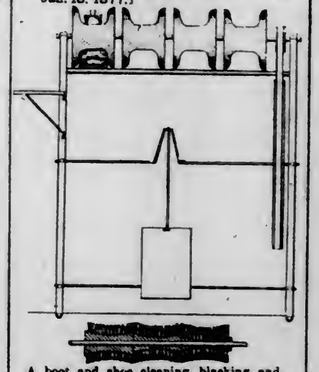
190,597. POCKET-LAMPS. J. Kutscher, New Haven, assignor of one-half his right to L. Kutscher, Bridgeport, Conn. [Filed Mar. 30, 1877.]

The combination of the two cylinders *a c*, wick-tube *e* in one cylinder, and covered aperture in the other cylinder, substantially as described.

190,597.

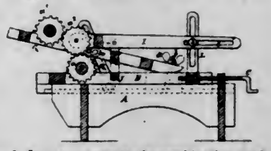


190,598. BOOT-CLEANERS. David H. Laurie, Montreal, Quebec, Canada. [Filed Jan. 18, 1877.]



A boot and shoe cleaning, blacking, and polishing apparatus, composed of a series of rotary brushes mounted on a single shaft, the brushes being all of like size exteriorly, but the stocks being of varying sizes, so that, by reason of the different lengths of bristles, the brushes will be of different stiffness, and better adapted to the several purposes of cleaning, blacking, and polishing.

190,599. SAW-GUMMERS. R. M. Leftwich and J. W. Crossley, Lithonia, Ga. [Filed Apr. 9, 1877.]



1. In a saw-gummer the combination, with the bed-frame A of the sliding frame B, carrying the shaft D with one burr, and operated by the crank-screw C, and the inclined frame G, carrying the shaft D' with the other burr, said frame G adjustable at different angles on the frame B, substantially as and for the purpose herein set forth.

2. The combination, with the frames B and G, of the bolts *b*, thumb-nuts *d*, the pivoted slotted standards H, and the bolts *b'*, with thumb-nuts *d'*, substantially as and for the purposes herein set forth.

3. The combination, with the shafts D D' and cog-wheels *a a'* thereon, of the intermediate cog-wheel a^4, lever I with slot *s*, rocking-shaft J with arm J', and the slotted standard L, bolt *h*, and thumb-nut *i*, all substantially as and for the purposes herein set forth.

190,600. CLOTH-SPREADERS, &c. Chas. A. Luther, Providence, R. I. [Filed Feb. 26, 1877.]

Brief.—End cams, adjustable at variable angles, carry a chambered band, from which the spreading-blocks are actuated. The cams are supported by swinging center blocks, and adjusted by a screw working in a pivoted nut.

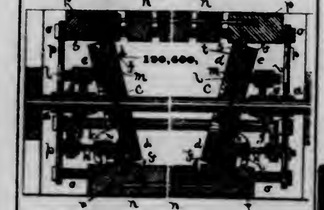
1. The combination of the adjustable cam, consisting of the jointed sides *d e*, with the chambered ring *f* arranged upon its periphery, substantially as shown and described.

2. The combination, with the cam *d e*, of the angular stationary arm *g*, bar *h*, and a connection, *i*, whereby the cam may be adjusted to any required angle, in the manner and for the purposes substantially as set forth.

3. The block *i*, arranged to operate in slotted projections upon the cam *d e*, as shown, in combination with the stationary arm *g* and connecting-bar *h*, for the purpose of affording an immovable fulcrum on which the cam may swing in assuming its various positions, substantially as described and shown.

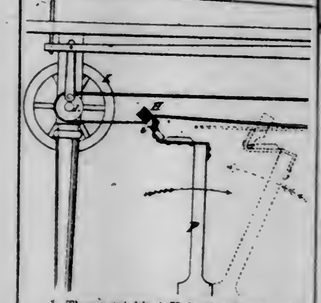
4. The block *m*, arranged to operate in a grooved chamber in the cam, in combination with the arm *g*, and screw *l*, substantially in the manner and for the purposes described.

5. In combination with cam *d e*, adjustable at different angles upon the shaft *a*, the sectional sliding strips *n*, provided with lugs *s*, substantially as described and shown.



190,601. DEVICES FOR CONVERTING MOTION. B. Long and L. E. Lyon, Iowa City, Iowa. [Filed Apr. 3, 1877.]

Brief.—The throat of the reciprocating snatch-block is made smaller at one side than the other, in order to bite and carry the belt.



1. The snatch-block H, having throat *e*, and connected with its driving bar or lever, through two pivots or bending-points outside the belt, so as to be reciprocated and turned, as described, in combination with the belt passing through said throat, as and for the purpose described.

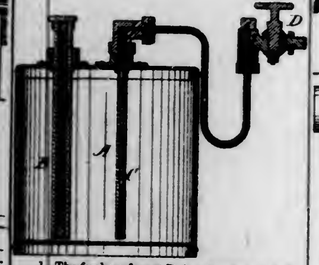
2. The combination, with the belt, of the snatch-block H, provided with a simple throat or perforation, and arranged to turn in its reciprocation so as to gripe the belt when moved in one direction, and to be free from the same when moved in the opposite direction, substantially as and for the purpose described.

190,602. CURLING-IRONS. C. Maggi, Allegheny, assignor of a part of his right to C. A. Murray and J. Fahey, Pittsburg, Pa. [Filed Nov. 27, 1876.]

A hair-curler composed of the heater A, having a comb, B, pivoted thereto, in combination with the sheath B' having an aperture, *f*, and inward-projecting flange *e*, substantially as herein described, and for the purpose set forth.

190,603. APPARATUS FOR SUPPLYING HYDROCARBON OIL TO WATER UNDER PRESSURE. W. Major, Copenhagen, Denmark. [Filed Apr. 7, 1877.]

Brief.—When the feed-pump or injector is operated, the suction will raise the valve, thus causing the oil to flow with the water into the boiler. The flow is regulated by raising or lowering the cap. The water is purified by the oil, and incrustation and priming are avoided.

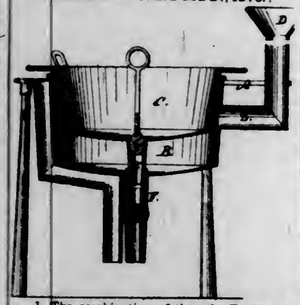


1. The feeding-faucet D, having stop-cock *d*, valve *a*, having stem *e*, and screw-threaded cap or cover G, having recess *s* and coiled spring *f*, substantially as and for the purpose shown and specified.

2. The combination of the tank A, having filling-pipe B and draw-off pipe C, with the feeding-faucet D, herein described, substantially as and for the purpose set forth.

3. The apparatus herein described for supplying petroleum or other hydrocarbon oil to water while under heat and pressure for purification purposes, consisting of the storing-tank A and feeding-faucet D, both constructed and arranged to operate substantially as herein described, for the purposes shown and specified.

190,604. MILK-COOLERS. John Maloney, Oneonta, N. Y. [Filed Oct. 27, 1876.]



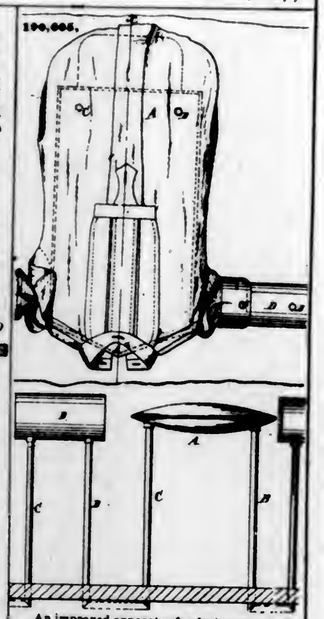
1. The combination of the tube F with its stop-cock *g* secured to the cooler B, and the tube *f* with its stopper A, the same fitting the pipe F, so that both the water and the milk may be discharged separately through the same tube, substantially as herein shown and described.

2. The vessel C seated in the vessel B, and adapted to revolve by means of rollers upon the frame A, as and for the purposes described.

190,605. SHIRT-DRYING APPARATUS. Jno. McCartan, New York, N. Y. [Filed Apr. 16, 1877.]

Brief.—Steam enters a cylinder, over which a cuff or sleeve is drawn and passes to the hollow metal plate, over which the body of the shirt is drawn, and out of the other cylinder.

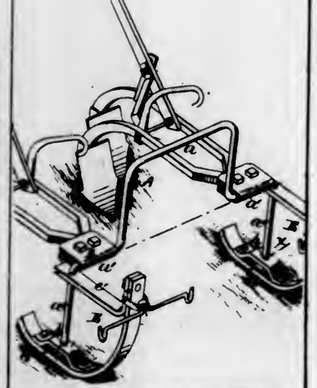
190,606.



An improved apparatus for drying starched shirts, formed of the hollow metal plate A, the hollow metal cylinders D, and the steam-pipes B C, substantially as herein shown and described.

190,606. CULTIVATORS. Thos. W. McDill, Batavia, Iowa. [Filed Apr. 7, 1877.]

Brief.—The construction of the arch, and pivoting its ends or journals in the runners.



The beam-yoke A of a tongueless cultivator, constructed substantially as described, with an elevated central portion, *a*, horizontal portions *a'* for the attachment of the plow-beams, and vertical portions *a''*, to which the runners E may be directly hinged or journaled, substantially as described, and for the purpose specified.

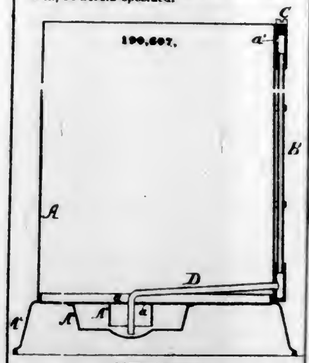
190,607. BEER-MEASURES. John McInnes, Jersey City, N. J. [Filed Dec. 20, 1876.]

1. The sub-case A^1, communicating, through one or more limited apertures, *a*, with the interior of the measure, and put in free communication, by the pipe D, with the gage-tube B, as and for the purposes herein specified.

2. The hanging lip A^1, in combination with the sub-chamber A^2, measure A, gage-tube B, and connecting-passage D, as herein specified.

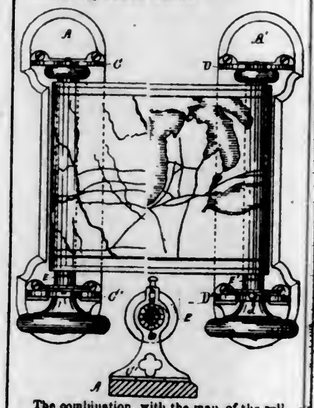
3. The screw-plug C, arranged in line with the gage-tube B, and adapted to serve therewith, as herein specified.

190,607.



190,608. MOUNTED MAPS. A. McNally, Chicago, Ill., assignor to Rand, McNally & Co., same place. [Filed Dec. 18, 1876.]

Brief.—The brackets and their cleats upon one side are not connected with those upon the other side, to accommodate their attachment to any desired location.



The combination, with the map, of the rollers E E', brackets C C' and D D', and cleats A A', substantially as and for the purpose specified.

190,609. YARN-DRYING MACHINES. M. P. Meissner and H. B. Romer, Chemnitz, Saxony, and F. R. Anke, Oelsnitz, assignors to O. H. Weisbach, Chemnitz, Saxony. [Filed Feb. 12, 1877.]

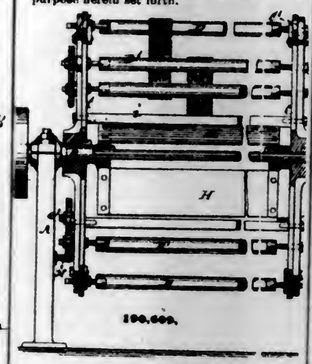
Brief.—The rotating reel is provided with an inner and outer series of bars, adjustable in relation to each other, for accommodating hanks of different lengths. One of said series of bars revolves, so as to expose the hanks throughout their length while being dried. A reversely-rotating fan or blower may be arranged within the reel to assist in drying the yarn.

1. In a machine for drying yarns in hanks, the combination, in a rotating reel, of an inner series of bars, D', and outer series of bars D, adjustable in relation with each other, and independently supported by center-pins or spindles in the heads of the reel, to facilitate the placing and removal of the hanks, substantially as specified.

2. The combination, with the radial arms C, carrying the inner series of reel-bars D', of the slotted, obliquely-arranged extensions C', and the adjustable blocks E, carrying the outer series of reel-bars D, essentially as described.

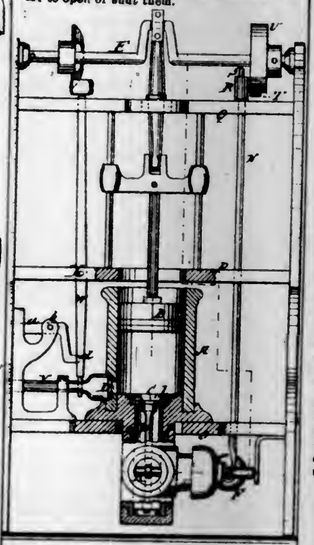
3. The combination of a rotating fan or blower, H, with the reversely-rotating reel, having inner and outer series of reel-bars, substantially as specified.

4. The combination, in a rotating drying-reel, of an inner series of reel-bars, with an outer series thereof, and means for intermittently rotating on their axes one of either series of said bars, essentially as and for the purpose herein set forth.



190,610. AIR-PUMPS. C. F. Moll and J. H. Altheide, Quincy, Ill. [Filed July 15, 1876.]

Brief.—The valves are positively acting, producing a practically perfect vacuum in the receiver. Valves of any desired weight can be used, without regard to the ability of the air to open or shut them.



1. The part *f* of the chamber *e*, extended up into the pump-cylinder A above the rim *g*, in combination with eduction-valve D, substantially as specified.

2. The stuffing-box L, arranged on the side of the pipe J, in combination with rock-shaft K, arm I, and valve-stem H, substantially as specified.

3. The valves made of a conical portion, *l*, and cylindrical face *m*, in combination with corresponding-shaped seats, substantially as specified.

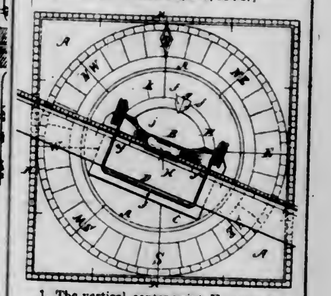
4. The piston B, formed of the washer *c*, provided with the flexible material b^4, forming chambers around its edge, the padded washer b^2 b^3, and the upper washer b^1, provided with the flexible material b^5, forming a cup, the said washers being of a diameter a little greater than that of the washer *c*, substantially as herein shown and described.

5. The valve-stem H, inclosed arm I, rock-shaft K, exterior weighted lever M, and lifting-rod N, combined and arranged substantially as specified.

6. The lifting-rod N, cross-head R, guide-rods S, roller T, and cam U, combined with weighted lever M, rock-shaft K, arm I, and valve-stem H, substantially as specified.

7. The cam Z on the driving-shaft, roller Y, lever W, weighted lever *a*, and valve-stem V, combined and arranged substantially as specified.

190,611. PROTRACTORS. Robt. T. Osgood, Orland, Me. [Filed Sept. 5, 1876.]



1. The vertical center-point H, secured to the gage B, and extending down through the semicircular central opening of the rotating disk E, substantially as described.

2. The horizontal gage-plate C, with spring D, in combination with the rotary disk E and base A, substantially as described.

190,612. FRUIT-JARS. Thos. G. Otterson, Philadelphia, Pa. [Filed Apr. 12, 1877.]



1. The combination, with a fruit-jar cap or cover which is screw-threaded, and provided with a lower flange for engagement with an elastic gasket on the shoulder of the jar, of a yielding disk or lining, secured within the upper portion of the cap or cover, substantially as and for the purpose set forth.

2. The combination, with a fruit-jar cap or cover, of a glass or porcelain disk or lining, secured to the cap in a yielding manner, substantially as and for the purpose set forth.

3. The combination, with a fruit-jar cap or cover, of a disk or lining, made of glass or equivalent material, and a spring interposed between the cap and disk or lining, substantially as and for the purpose set forth.

4. The combination, with a fruit-jar cap or cover, of a disk or lining of glass or equivalent material, and a spring interposed between the disk and cap, said cap being provided with a continuous rib, or two or more depressions, for holding the lining in place, substantially as and for the purpose set forth.

190,613. CIGARETTE-MACHINES. C. Palatini, New York, N. Y. [Filed Mar. 23, 1877.]

Brief.—The plunger that releases the gate when the tobacco is packed operates with a guide that depresses the apron, to receive the charge to be rolled into a cigarette.

1. A cigarette-machine provided with a reservoir, A, an outlet-tube, A', permanently closed at the end, packing-plunger *p*, sliding to and from said end, knife *r*, and gate *v* at the bottom of the tube, near the closed end, substantially as set forth.

2. The combination, with the apron *m*, rolls *j l*, bars *k k' x'*, of the plungers *u t*, the tube A', closed at the end, and its gate *v*, all as set forth.

3. The combination of the apron *m*, its rollers and bars, feed-rolls E E, knife G, paste-reservoir I, and reciprocating paste-carrier I', as specified, all arranged and operating as and for the purpose described.

4. The arrangement, in respect to the feed-rolls E E, apron *w*, the plungers *t u*, and

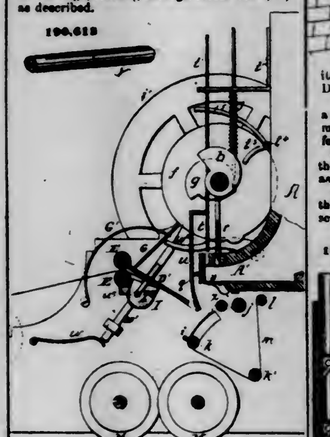
knives r G, of a single shaft, s, carrying cams operating directly on said plungers and knives, as set forth.

5. The combination of the shaft i, provided with disks, apron m, the rollers and bars, and paper feeding, cutting, and fastening devices, operating as specified.

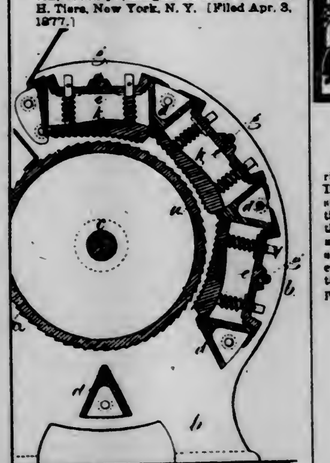
6. The combination of the rollers j l, apron m, stationary bar x, reciprocating bar h, the segments h, adapted to pinions on one of the rollers, and the coiled spring n, attached to the journal of the other rollers, all constructed, arranged, and operating as set forth.

7. As a new article of manufacture, a cigarette consisting of a filling of fine-cut tobacco and a wrapper made from an oblong section of tobacco, cut from the leaf between the veins, rolled round the filling, and gummed at the edge, forming a longitudinal seam, s', as described.

190,613



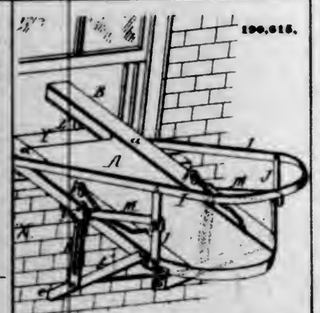
190,614. COFFEE-HULLERS. J. H. Pendleton, Brooklyn, assignor to himself and A. H. Tiers, New York, N. Y. [Filed Apr. 3, 1877.]



1. The combination, with the cylinder a and plates b, of the V-shaped cross-pieces d, blocks c, and elastic rubbers k, substantially as set forth.

2. In a coffee hulling machine, the combination, with the cylinder a, side plates b, and V-shaped cross-pieces d, of the blocks c and yielding rubbers, held in place by the cross-rods g, substantially as set forth.

190,615. WINDOW-JACKS. D. M. Pfautz, Philadelphia, Pa., assignor of one-half his right to Leopold Sternberger, same place. [Filed Apr. 16, 1877.]



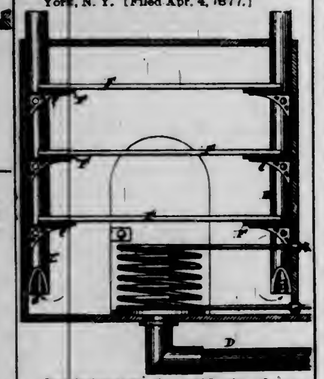
1. The combination of the platform A and its strips F, with the separate sliding plates D D' and their jaws E E', as set forth.

2. The combination of the platform A, with a back, I, formed of a single bent strip of metal, pivoted at its opposite ends to the platform, as set forth.

3. The combination of the pivoted strip I, the jointed strips J, and the hooked bar M, as described.

4. The combination of the pivoted strips F, the pivoted and slotted bar f, and the thumb-screw i, as specified.

190,616. DRIERS. Wm. Pickhardt, New York, N. Y. [Filed Apr. 4, 1877.]



In a drying-room, the combination of a series of horizontal trays, F, an air-supply pipe, D, leading into the room through the floor, a steam-coil arranged vertically directly over the mouth of the air-supply pipe for heating the fresh air as it is introduced, and one or more air-discharge pipes, E, having their lower ends formed obliquely and from near the floor, extending out through the drying-room into the external atmosphere, as and for the purpose herein set forth.

190,617. FARE-REGISTERS. A. E. Post, Syracuse, N. Y., assignor of one-third his right to A. E. Spencer, same place. [Filed Feb. 10, 1877.]

1. The combination and arrangement of the casing A, having the central diaphragm A', forming two separate and distinct compartments, respectively, for the registering mechanism and alarm mechanism, and the said mechanisms connected with each other and with the actuating-plunger g by the screw or pin i, substantially as described and shown, for the purpose set forth.

2. In a circular case, A, having diaphragm A', the combination of the wheel a, supported by stud c on A', the lever l, extending across the case, and pivoted at one end to the same, and provided at its free end with spring-pawl p, the toggle t, pivoted to the lever l and to the plunger g, and the spring s, the lever and spring being located between wheel a and diaphragm A', substantially as described and shown, for the purpose set forth.

3. The combination and arrangement of the ratchet-wheels a a^1 a^2, rotated in succession at the ratio of twenty revolutions of one wheel to one revolution of its contiguous wheel, and each provided with a hand or pointer, h, and the dial d, having three series of numbers, indicating either the number of fares collected or the amount of money received for same, all constructed, combined, and arranged with the case A, substantially in the manner described and shown, for the purpose specified.

4. The combination and arrangement, with the ratchet-wheels a a^1 a^2, of the pawls p^1 p^2, pivoted, respectively, to the wheels a a^1, and provided at their forward or free end with the pin i, and held disengaged by the spring-bars b^1 b^2, attached at one end to the rear of the pawls, and at the other end movably in the studs e e on the said wheels a a^1, and the bar f, extended centrally across the top of the ratchet-wheels, and secured at its ends to the case, and provided on its under side with the cam-shoulders 2 and 3, all constructed substantially in the manner specified and shown, for the purpose set forth.

5. The combination of the registering-wheels a^1 a^2, each having a series of twenty recesses, r, in its top surface, and the semicircular springs s^1 s^2, attached at their center to the under side of the bar f, and having spurs on their free ends, engaging with the recesses r, substantially in the manner and for the purpose described.

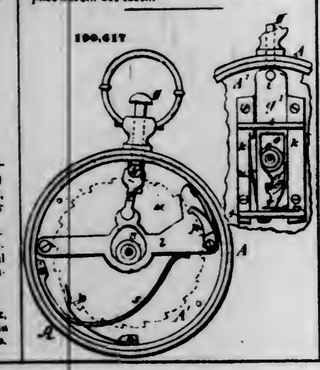
6. The combination and arrangement of the plunger g, pin or screw i, toggle t, lever l, extended across the case, pivoted at one end to the same, and at the center to the toggle t, and carrying on its free end the spring pawl p; spring s, attached at one end near the pivoted end of the lever l to the case, extended and bearing upon the free end of said lever; spring b; registering-wheels a a^1 a^2, each having twenty ratchet-teeth, n, and each of the last two having a series of twenty recesses, r; the pivoted pawls p^1 p^2, provided, respectively, with springs b^1 b^2, movably attached to posts s, and with pins i at their free ends; the bar f, having attached to its under side the cams 2 and 3 and springs s^1 and s^2; the dial d, having three series of numbers, indicating either the number of fares collected or amount of money received for same, respectively; and the hands or pointers h h^1 h^2, all constructed, combined, and arranged to operate substantially in the manner specified, for the purpose set forth.

7. The alarm-actuating mechanism, consisting of the push-bar g', having cam-hook e' formed in aperture o, and its free end beveled on the side opposite the cam-hook, and sliding between guides k k; the spring u, pressing upon the edge of the push-bar at the rear of the cam-hook e'; a wedging block or pin in front of the beveled end of the push-bar, for throwing the cam-hook off its connection with the bell-hammer; and the spring v, pressing against the pin Z on the under side of the bell dart or hammer, all constructed and operating substantially as described, for the purpose set forth.

8. The combination of the plunger g, pin or screw i, push-bar g', having cam e' in aperture o, and its free end beveled on the side opposite the cam, guides k k, having bridges 4 4, with guide-slots for the bell-dart, spring u, a wedging block in front of the beveled end of the push-bar, spring v, and the bell-dart r, having spring v on tongue 5, and provided with pin e^2 and check-pin Z, all constructed and combined to operate substantially as described, for the purpose set forth.

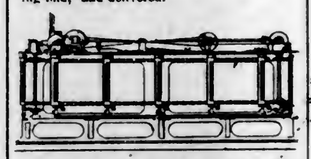
9. The combination and arrangement of the central stud c, having an axial orifice, with a screw in one end attaching the bell thereat, and communicating with the bearings of the registering-wheels at the opposite end, substantially as and for the purpose described.

190,617



190,618. PAPER-BAG MACHINES. James P. Raymond, Cincinnati, Ohio. [Filed Dec. 16, 1875.]

Brief.—The bag-tube, with its end spread into the "diamond fold," is placed in the slot in the table, and held by the clamp S until the gripers on the chain are brought into position to seize the tube. It is then carried under the presser-plate to the pasting devices, thence to the side folders, and, finally, to the guides and rolls which make the "pasting fold," and delivered.



1. In a machine for making paper bags, the combination, substantially as specified, of the griper-belt for feeding the blank, and the table, or its equivalent, for supporting the blank while operated upon.

2. The combination, in a machine for making satchel-bottom bags, of the griper belt or chain, and the pasting devices, operating substantially as and for the purpose specified.

3. The combination, in a machine for making satchel-bottom bags, of the griper-chain or griper-belt for carrying the blank tube, and the folding mechanism for folding the side laps for the bottom of the bag, substantially as and for the purpose specified.

4. The combination, in a machine for making satchel-bottom bags, of the griper-chain or griper-belt for grasping and feeding the blank, and the pressure-roller for pressing the bottom flaps of the bag after they have been fastened and folded.

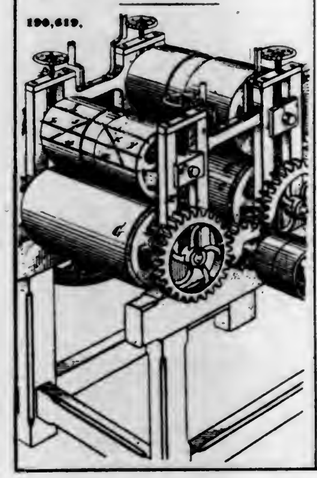
5. The combination, in a machine for making satchel-bottom bags, of the griper-chain or griper-belt for carrying the blank through the machine, and the folders, by which the bottom flaps, after pasting, folding, and pressing, are folded together for passage through the discharge-rollers.

6. The combination, substantially as specified, of the slotted table and the reciprocating plate, for confining and holding the blank until griped by a nipper on the endless feed-belt.

7. The combination, substantially as specified, of the paster, the table, and the yielding pressure-rollers, located in transverse slots in the table.

8. The combination, substantially as specified, of the drums for discharging the completed bag, the nipper, and the cam for opening the nipper.

190,619.

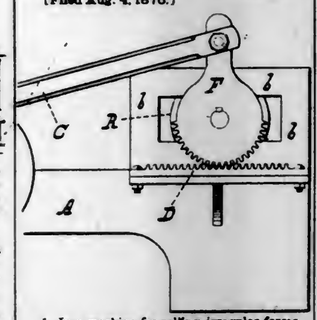


190,619. PAPER-BAG MACHINES. James P. Raymond, Cincinnati, Ohio. [Filed May 11, 1875.]

1. In combination with the rubber-faced roller G, the roller F, having a knife, I, whose cutting-edge is in a single plane, and made zigzag by the formation of V-shaped notches in the sides of the knife.

2. In combination with the roller F and rubber-faced roller G, the creasing-knives J K L M, operating substantially as and for the purpose specified.

190,620. MACHINES FOR ROLLING ARTICLES OF METAL. Abram Reese, Pittsburg, Pa. [Filed Aug. 4, 1876.]

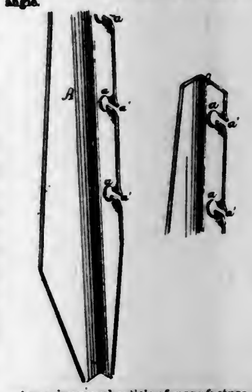


1. In a machine for rolling irregular forms in metal, the combination of the adjustable die-bed g, wedge w, reciprocating roll R, toothed segments F provided with crank-arms for the application of power, stationary racks D, and pitman or link connections O for communicating power to operate the roll, substantially as described.

2. A machine for rolling irregular forms in metal, embracing the following instrumentalities, to wit: the main frame A, adjustable bed g, wedge w, duplicate housings b b, reciprocating roll R supported in said housings at both ends of its shaft, toothed segments F, provided with crank-arms for the application of power, and means, substantially as described, for communicating power on both sides of the machine to the roll, as and for the purpose set forth.

190,621. POSTS FOR WIRE FENCES. Silas Reynolds, Sugar Grove, Ill. [Filed Oct. 27, 1876.]

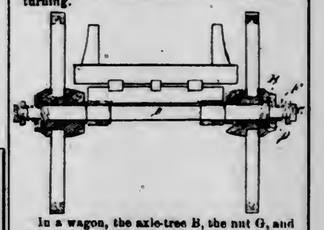
Brief.—The upper and lower edges of the metal that form the walls of the horizontal slot are turned in opposite directions, so that the wire to be inserted has to be turned to an angle.



As an improved article of manufacture, the fence-post A, constructed of or from metal plate, and provided within one of its edges with horizontal openings a, for the reception of wires and laterally-inclined connecting-slots a', that are formed by the lateral inclination in opposite directions of the metal immediately above and below said slots, substantially as and for the purpose specified.

190,622. WAGONS. J. W. Bittenberry, Cloverdale, Tenn., assignor of a part of his right to W. A. Bell and A. B. Colwell, same place. [Filed Jan. 25, 1877.]

Brief.—Wheels and axles are connected by clutches, so that both revolve in the forward movement of the vehicle. The clutch is arranged so that any of the wheels may revolve more slowly, or turn back upon the axle when turning.



In a wagon, the axle-tree B, the nut G, and the spring F, in combination with the front clutch E, gearing with the clutch D, the clutch D being provided with a chamber on its inner end for the reception of the nut H, and with a square hole in its center, to fit the squared part of the axle-tree between the nut H and the nut G, substantially as described, and for the purpose set forth.

190,623. CAPSTANS. Chas. Rogers, Allegheny, Pa. [Filed Mar. 24, 1877.]



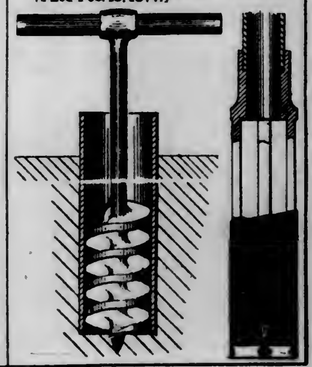
1. In a capstan, the combination of an upright drum and a single horizontal shaft passing through the base, and provided on each side of the capstan-center with devices, substantially as described, whereby every motion of the shaft effects the rotation of the drum in the same continuous direction.

2. The combination of base B and horizontal shaft D, provided with means, substantially as described, for converting the motion from reciprocating to rotary, with the drum A, having its bottom formed with an annular ratchet, all constructed and operating substantially as described.

3. The combination, specifically, of the horizontal shaft D, cranks c, pawls i, and drum A, substantially as set forth.

4. The combination, substantially as described, of the cranks c, inclined pins e, and curved pawls i, having the described bearings, whereby the pawls, throughout their path, will lie at right angles to a diameter and follow a circular path.

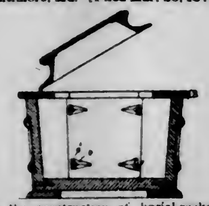
190,624. BORED WELLS. Robt. A. Eyrie, Camden, N. J., assignor of one-half his right to John W. Donges, same place. [Filed Feb. 15, 1877.]



1. The method of constructing wells by boring the earth from the inside of a larger-sized tube, sinking the tube upon the excavation thus made, inserting a smaller permanent pipe, furnished with a strainer, within the tube, and then removing the outer tube, substantially as herein described.

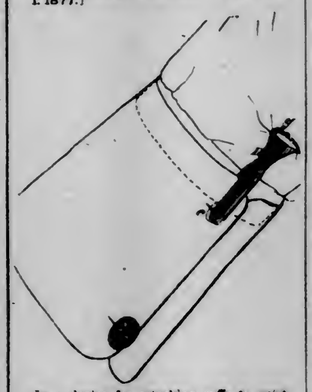
2. In combination with the permanent pipe of a bored well, the strainer consisting of the cage of rods covered with gauze, constructed substantially as and for the purpose described.

190,625. BURIAL-CASKETS. Henry Sander, Baltimore, Md. [Filed Mar. 26, 1877.]



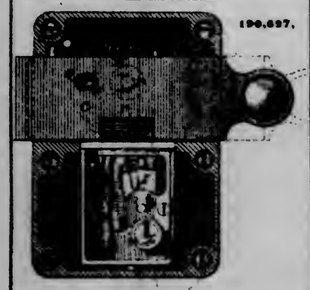
In the construction of burial-caskets, a joint at the angle of the same, one member or part to be joined being grooved, and the other having a tongue placed one-sided, as shown, to receive a fastening-screw from the inside of the casket, the said tongue and groove forming a flush connection at the inside and outside of the casket, and being united by screws sunk in cavities cut in the inside of the tongued member of the joint, as shown and described.

190,626. CLASPS FOR WRISTBANDS. A. V. Sanford, Binghamton, N. Y., assignor to Clara S. Sanford, same place. [Filed Mar. 1, 1877.]



In a device for attaching cuffs to wristbands, the combination of the plate A, having the stud *c*, with the plate D, having a rim, *g*, said plates A and D being pivoted together, substantially as described, and all constructed and arranged to operate as herein shown and described.

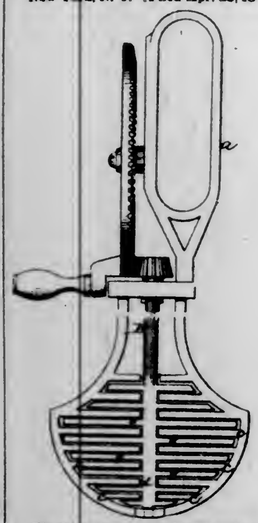
190,627.



190,627. LOCKS FOR CELL-DOORS. James Sargent, Rochester, N. Y. [Filed Feb. 5, 1877.]

The combination, with the main spring-bolt of a lock for cell and other doors, adapted to be held in a retracted position by means of a dog, pawl, or catch, and be released by the action of the door in riding past the end of said bolt, of a tumbler-lock having a spring-bolt which, when locked, connects with and holds the main bolt in a locked condition, and when unlocked admits of the main bolt being retracted, substantially as and for the purpose set forth.

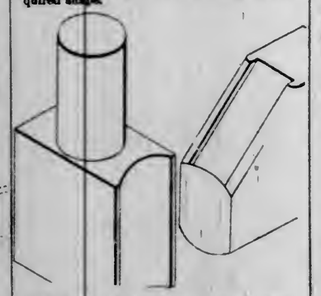
190,628. EGG-BEATERS. Jas. H. Scofield, New York, N. Y. [Filed Apr. 25, 1877.]



The frame constructed in one piece, with a handle, *a*, for supporting the crown-wheel and the vertical shaft, and with a series of parallel horizontal arms, substantially as herein set forth.

190,629. DEVICES FOR SHAPING CLIP-YOKES. M. Seward, New Haven, Conn. [Filed Apr. 12, 1877.]

Brief.—The blank, of the required size and length, is supported in the recess in the bed-die, against a rest whose outer surface corresponds to the shape to be given to the yoke, and the cutting-die forced down upon it, clipping off the angles and imparting the required shape.



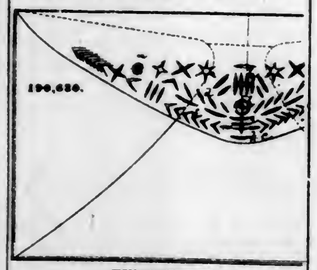
The device for shaping carriage-clip yokes, constructed substantially as shown and described.

190,630. ENVELOPES. J. A. S. Simonson, Brooklyn, N. Y. [Filed Apr. 3, 1877.]

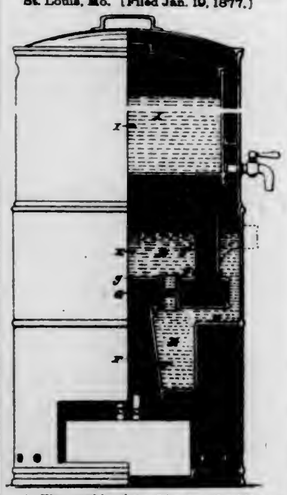
1. An envelope having its upper or outer flap constructed with perforated embossments, substantially as and for the purpose herein described.

2. The upper or outer flap of an envelope, constructed with embossments which are cut, as described, whereby certain edges of the cut portions present salient angles, substantially as and for the purpose set forth.

190,630.



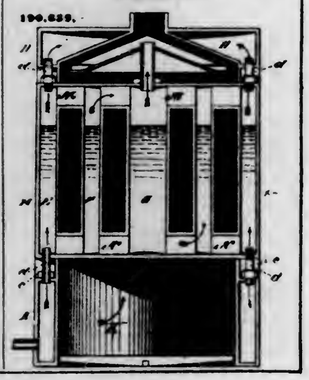
190,631. LIQUID-HEATERS. N. M. Simonds, St. Louis, Mo. [Filed Jan. 19, 1877.]



1. The combination of burner C, chimney F, drum G, surrounded by liquid, and chimney or chimneys *g'*, discharging into chamber E above the liquid or water line in said chamber.

2. The combination of burner C, chimneys F and *g'*, drum G in chamber E, and containing tube or tubes H, and the vessel I, sustained in chamber E, and surrounded upon every side by the vapor, &c., in the upper portion of said chamber.

190,632.

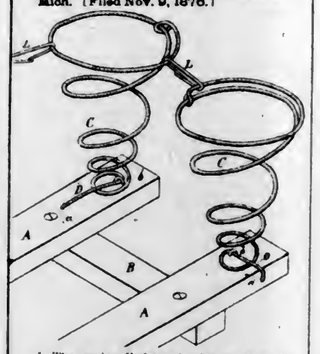


190,633. STEAM-GENERATORS. Charles S. Smith, Westfield, Mass., assignor to Henry J. Bush and Geo. L. Lafin, same place. [Filed Mar. 19, 1877.]

1. The combination of sections K H, having the concentric reservoirs E, F, G, and D, and heads M N, connected together, for the purpose specified.

2. The section H, cast in one piece, with the concentric reservoirs and connecting-heads M N, in combination with sections K D, when all arranged substantially as shown, and connected by lock-nipple nuts *d d*, recessed in pockets *e e* from the outer wall of the generator, substantially as described.

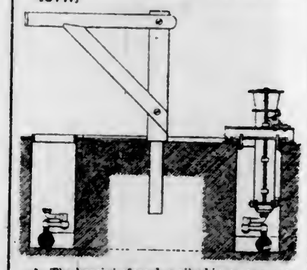
190,634. SPRING BED-BOTTOMS. Chas. E. Smith and Edwin J. Beverstock, Allegan, Mich. [Filed Nov. 9, 1876.]



1. The spring C, formed with an arm, D, having hook *a* at its lower end, which arm crosses the lower coil of the spring, and acts as a lever to bind down the spring to the slats, for the purposes herein set forth.

2. The combination of the arm D, having hooks *a* crossing the lower coils of the springs C, the slats A, cross-bars B, links L, and staples *b*, substantially as and for the purposes herein set forth.

190,634. PIPE-MOLDING MACHINES. H. R. Smith, Columbus, Ohio. [Filed Mar. 30, 1877.]



1. The hereinbefore-described improvement in the art of molding and casting pipe, &c., which consists in drying the mold by heat generated within it by burning gas-jets, the flames of which act directly upon the inside of the mold.

2. A molding and casting pit provided with a supply-pipe, and a series of perforated heating-pipes detachably and adjustably connected therewith, substantially as set forth.

3. The combination, substantially as hereinbefore set forth, with a pit or flask support, of a supply-pipe, a flask suspended above the supply-pipe, and a perforated heating-pipe extending from the supply-pipe up into and lengthwise of the flask to dry the mold.

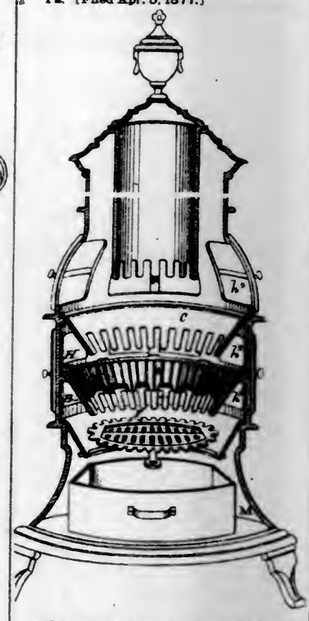
4. The combination, substantially as hereinbefore set forth, of a series of flasks suspended in a pit, a supply-pipe at or near the bottom of the pit, and a series of adjustable perforated heating-pipes, provided with regulating-valves, and passing into the flasks.

5. The combination, substantially as hereinbefore set forth, of the pit, the series of sectional hinged flasks, each detachably and adjustably suspended in the pit by one section, while leaving the remaining section free to be swung upon its hinged connection with said fixed section, the supply-pipe, and a series of adjustable heating-pipes.

6. The combination of the flask and its supporting-bracket, by which to suspend it in position, as set forth.

7. The combination, substantially as hereinbefore set forth, with the pit, of the flasks, their suspending-frames, and clamps by which to adjustably and removably secure the frames in position upon the pit-plates.

190,635. STOVES. J. Spear, Philadelphia, Pa. [Filed Apr. 5, 1877.]

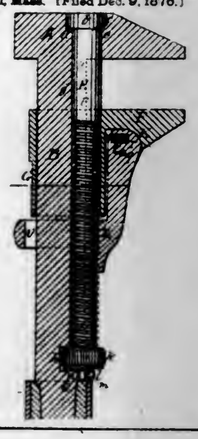


1. In a stove or heater, the agitating-ring A, in combination with a fire-pot projecting below the bottom of the ring.

2. The upper and lower fire-pots C and B and agitating ring A, placed within the fire-pot B, for the purpose herein described.

3. The agitating-ring A within the fire-pot B, in combination with the free space H between the upper and lower fire-pots.

190,636. WRENCHES. Laroy S. Starrett, Athol, Mass. [Filed Dec. 9, 1876.]

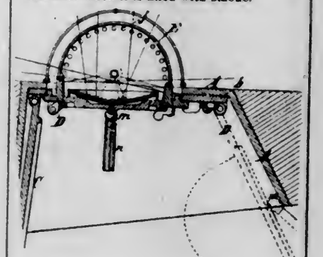


1. In a wrench, with a jaw-bar having a concave inner face in line with a shouldered aperture in the head of the same, and a bearing-lip at the handle end of said bar, of the working-screw, having a journal-head seated in said aperture flush with the surface of the wrench-head, a shank partly embedded in the concave inner face of the bar, a bearing in said lip, and a rose next the same, substantially as specified.

2. The combination, with a jaw-bar, recessed in its face, and a rigid perforated head, A, of a headed operating-screw, E, passing through the jaw-head A, and partly embedded in the face recess, a movable jaw, and pivoted thereto a swinging spring-brace, having a half-nut, *s*, engaging with the projecting portion of said screw, and a loop, *v*, surrounding the jaw-bar, substantially as specified.

190,637. ILLUMINATING APPARATUS FOR OVENS. H. A. Stadler, New York, N. Y. [Filed Apr. 17, 1877.]

Brief.—The gas-cock is arranged to automatically diminish the supply of gas when the illuminating-door is opened. A separate door, oppositely hinged, closes the entrance to the oven when it is filled with smoke.



1. The combination, with the oven door D, of the lantern E, closed toward the interior of the oven, but provided with draft holes or passages for the entrance of external atmospheric air and the exit of the gases of combustion, substantially as and for the purpose specified.

2. The combination, with the door D and the door C, opening in opposite directions, of the latch-bar D, arranged to act against the front edge of one door or the rear edge of the other door, to hold either of said doors closed, substantially as and for the purpose specified.

3. The combination, with the lantern carrying door D and the door-casing A, of the swing-joint gas-cock *m*, substantially as and for the purpose set forth.

190,638. SHOW-CASES. S. Stein, Rochester, N. Y. [Filed Jan. 29, 1877.]



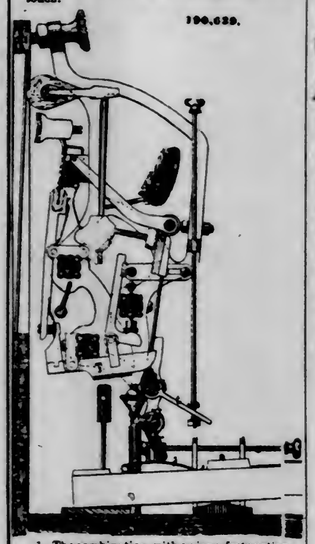
1. In a show-case, the combination, with the corner-piece C, provided with the screw-stem *g*, of the washer D, resting on said screw-stem and fitting said moldings, and pressed up to clamp the moldings by a nut, or equivalent, in the manner and for the purpose specified.

2. In a show-case, the washer D, constructed with angular sides *k k*, to fit the moldings, and the arm *p*, to fit the post, the angular sides and arm having the sharp-pointed lugs *l l*, to enter the wood, in the manner and for the purpose specified.

190,639. PIANO-FORTE ATTACHMENTS. A. Steinway, New York, N. Y. [Filed Apr. 25, 1877.]

Brief.—The attachment makes a dumb key-board, as far as musical sound goes, of the ordinary piano, at the will of the player, and the key-board is also made adjustable as to touch.

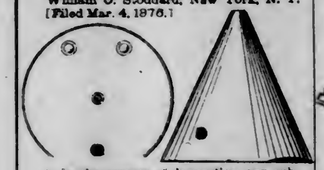
190,639.



1. The combination, with a piano-forte action and with its keys, of an attachment for throwing the action out of gear with the keys, constructed and arranged to operate substantially as herein shown and described.

2. The combination, with a piano-forte action and with its keys, having an attachment for throwing the action out of gear with the keys, of an attachment for regulating the weight or resistance of the keys, substantially as and for the purpose specified.

190,640. PROCESSES OF DESICCATING EGGS. William O. Stoddard, New York, N. Y. [Filed Mar. 4, 1876.]



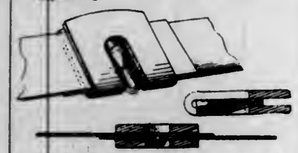
1. In the process of desiccating egg substance by means of forcible blasts or currents of air, the method of preventing deleterious chemical change in the material, consisting in the artificial production and preservation of a temperature in the desiccating apparatus below that which would set free the oil of egg not held in suspension or emulsion, substantially as described.

2. In the process of desiccating egg substance by means of forcible blasts or currents of air, the method of preventing deleterious chemical change in the material, consisting in the retention, during desiccation, of the oil of egg not held in suspension or emulsion, substantially as described.

3. In the process of desiccating egg substances in which the same is subjected to the influence of forcible currents or blasts of air without liberation of the oil of egg not held in suspension or emulsion, the method of eliminating the oil held in suspension or emulsion prior to desiccation, or set free during such process, consisting in the active agitation of the material during its aeration or ventilation, substantially as described.

4. In the process of desiccating egg substance, the method of eliminating the oil held in suspension or emulsion, or set free during the drying operation, consisting in subjecting the granular or mealy product of said drying operation to active agitation during its aeration or ventilation, substantially as described.

190,641. BALE-TIES. H. C. Stouffer, Canfield, assignor of a part of his right to C. H. Andrews, L. T. Foster, and U. A. Andrews, Youngstown, Ohio. [Filed Apr. 21, 1877.]



1. A buckle for bale-ties, having coincident openings in its lapped sides, for use as described.

2. A buckle for bale-ties, having coincident openings in its lapped sides, in combination with the bulge made in the lapped ends of the hoop, in the manner set forth.

3. An open-side enveloping buckle, having coincident openings, the end or ends of one of which forms a sidewise lock with the bulge, whereby said buckle is prevented from working or being drawn off sidewise.

190,642. CRIMPING-TOOLS FOR FASTENING BALE-TIES. H. C. Stouffer, Canfield, assignor of a part of his right to C. H. Andrews, L. T. Foster, and U. A. Andrews, Youngstown, Ohio. [Filed Apr. 26, 1877.]



A crimping-tool for fastening bale-ties, consisting of the hooked bearing-jaw for the buckle, and the cam-shaped narrow crimping-jaw for the hoop, operated by the lever-handles, as herein set forth.

190,643. FENCES. Samuel W. Sumpter and Hiley Brown, Bowling Green, Ky. [Filed Dec. 18, 1875.]



The combination of the panel-sections A, having stop-blocks D, with the locking-bars B and vertical rods C, as and for the purpose set forth.

190,644. SLATE-CLEANERS. E. M. Swift, Windham, Conn. [Filed Mar 3, 1877.]

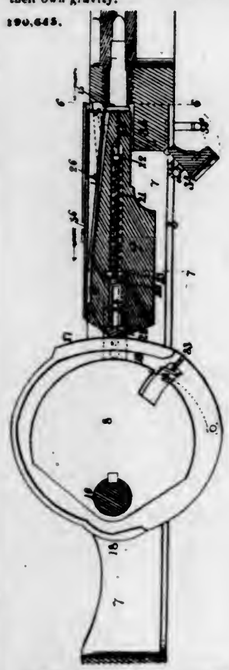


As a new article of manufacture, the herein-before-described slate cleaner and eraser, consisting of the reservoir A, provided with the neck a, the stopper B, having a central opening, *b*, the sponge C, secured upon the outer end of said stopper, the cap E, fitted upon the threaded and conical portions *a'* and *a''*, respectively, of said reservoir, and the pad F and flexible covering G, placed over the end of the latter, and secured in place by said cap, substantially as and for the purpose specified.

190,645. MACHINE-GUNS. Jas. P. Taylor, Elizabethtown, Tenn. [Filed Sept. 10, 1876.]

Brief.—A series of eccentrics, corresponding with the number of barrels, are mounted on a transverse shaft, by the rotation of which the reciprocating plungers or breech-closers are operated. A slide, with an opening for the cartridge to drop through, is arranged above the receiver of each barrel, and is connected with the plunger, so that by the operation of the latter the receiver is alternately opened and closed, to allow the cartridges to be fed in at proper intervals. Said eccentrics also retract spring firing-pins within the plungers, and are so arranged as to release them when the breech is fully closed. A flanged guide is arranged above the feed-opening of each barrel, by which the cartridges are held by their flanges in a horizontal position, and are allowed to feed down to the openings by their own gravity.

190,645.



1. The combination of the breech-block 2, the series of barrels 1, arranged in a horizontal plane, the sliding locks or plungers 9, and the cams or eccentrics 8, carried by a shaft, 10, transverse to the barrels, and actuating the locks or plungers in succession, substantially as set forth.

2. The cam 8, constructed with concentric front and rear portions, to cause a dwell of the plunger at each extremity of its stroke, for the purposes set forth.

3. The cocking-cam carried by the eccentric cam 8, and adjustable to regulate the stroke of the firing-pin, as described.

4. The breech-frame constructed with removable longitudinal bars 7, as and for the purposes set forth.

5. The bars 7, formed with recesses 11 and grooves 12, in combination with the switch-bars 13, plungers 9, and extractors 14, substantially as and for the purposes set forth.

6. The combination of the plunger 9, with the lug 30, the firing-pin 20, with the lug 25, and the operating-cam 8, revolved on an axis transverse to the stroke of the plunger, and carrying eccentric flanges 19 and 31, for operating the said plunger and firing-pin, in the manner explained.

7. The combination, with the sliding lock 9, of the extractor 14, provided with lugs 15, and the switch-bars 13, to elevate and release the said extractor, as described.

8. The top plate 26 of the plunger, constituting a guiding-flange, and formed with a slot, 36, to receive the retracting latch or arm of the hopper-valve, as described.

9. A feed-plate constructed with flanged grooves or guides, adapted to receive and draw the cartridges from the cases in which they are packed, and convey them to a feed opening or openings of suitable character, substantially as set forth.

10. A hopper or feeder constructed with flanges or grooves for the reception of the cartridges, and divergent throats to conduct them to the breech-chambers, substantially as set forth.

11. The hopper-floor 47, constructed with T-shaped apertures to support the cartridges and drop them when drawn back.

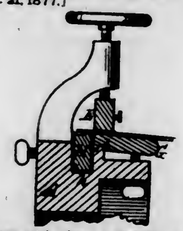
12. The combination, with the hopper-floor 47, perforated as stated, of the valves 38, deriving longitudinal motion from the plungers 9, and operating to transfer the cartridges from the hopper to the troughs in rear of the barrels, as explained.

190,646. BRIDLE-BITS. Arvin C. Tickner, Syracuse, N. Y. [Filed Apr. 7, 1877.]



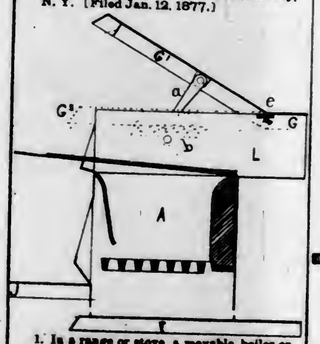
The combination, with the hollow perforated bit A, of the bars C and D, the latter having spurs registering with the perforations, and the loops B, all substantially as shown, for the purpose set forth.

190,647. SAW-SETS. C. H. Turver, Rochester, N. Y., assignor, by mesne assignments, to S. Turver, same place. [Filed Mar. 21, 1877.]



In a saw-set, having a die-bar, H, and clamper E, the tilting table G, provided with a groove, *d*, near its inner edge, resting upon a rounded bearing, *b*, all in combination, as shown and described, and for the purpose specified.

190,648. COOKING-STOVES. J. S. Van Buren, West Troy, and R. Z. Liddle, Albany, N. Y. [Filed Jan. 12, 1877.]



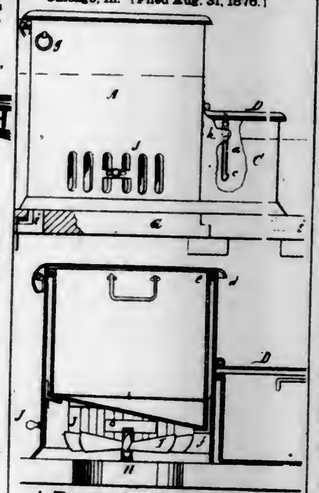
1. In a range or stove, a movable boiler or top plate, G^1, which may be adjusted to form the top casing of the fire-box A, or elevated to increase vertically the opening above said fire-box, combined with a stationary top plate, G, which forms the top casing of the gas and smoke flue L, leading from the said fire-box, substantially in the manner, and for the purpose herein described.

2. The combination of the adjustable boiler or top plate G^1, enlarged vertical opening *c*, fire-box A, and flue L, as and for the purpose herein described.

3. The combination of the adjustable boiler or top plate G^1, closing-plate *c'*, enlarged vertical opening *c*, fire-box A, and flue L, as and for the purpose herein described.

4. The combination, in a range or stove, of an adjustable boiler or top plate, G^1, hinged or otherwise attached, as at *c*, to a stationary flue top plate, G, with the pawl *a* and ratchet *b*, substantially as and for the purpose set forth.

190,649. GARBAGE-SINKS. T. K. Walsh Chicago, Ill. [Filed Aug. 31, 1876.]



1. The case A in combination with the tray F and ventilator J, substantially as specified.

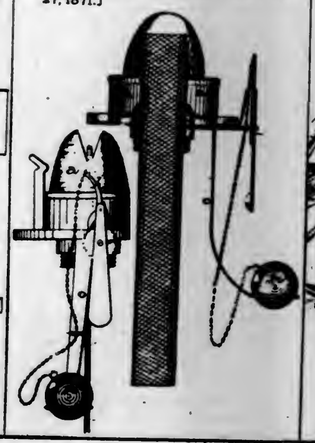
2. The case A, ventilator J, and fan-wheel I with the man-hole or opening H, substantially as described.

3. The cases A C, arranged at different heights, so as to form steps, substantially as set forth.

4. The hinged loop or slotted bar *e*, having the enlargement *e*, in combination with the fixed pin *b* and hinged cover or lid D, substantially as specified.

5. The hook *i* in combination with the pivoted hook *j*, handle *k*, and case A C, substantially as described.

190,650. LAMP-EXTINGUISHERS. M. Waterbury, Mason City, Iowa. [Filed Jan. 27, 1871.]



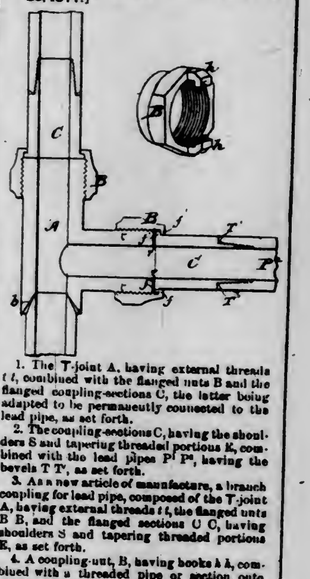
---

1. The coupling-sections C, having the shoulders S and tapering threaded portions E, combined with the lead pipes P^1 P^2, having the bevels T T, as set forth.

3. As a new article of manufacture, a branch coupling for lead pipe, composed of the T-joint A, having external threads *f f*, the flanged nuts B B, and the flanged sections C C, having shoulders S and tapering threaded portions E, as set forth.

4. A coupling-nut, B, having hooks *h h*, combined with a threaded pipe or section, onto which said nut is screwed, and a detachable pipe or section, C, having a flange on its end, (or a cap, K, having substantially the same diameter as said flange,) which flange (or cap) is adapted to be inserted between the hooks *h* by a lateral movement, and, when so inserted, is adapted to be clamped tightly against the end of the threaded pipe or section, or against an interposed packing-ring, by turning the nut B, as set forth.

190,651. COUPLINGS FOR LEAD PIPES. G. H. Webster, Boston, Mass. [Filed Feb. 28, 1877.]



1. The T-joint A, having external threads *f f*, combined with the flanged nuts B and the flanged coupling-sections C, the latter being adapted to be permanently connected to the lead pipe, as set forth.

2. The coupling-sections C, having the shoulders S and tapering threaded portions E, combined with the lead pipes P^1 P^2, having the bevels T T, as set forth.

3. As a new article of manufacture, a branch coupling for lead pipe, composed of the T-joint A, having external threads *f f*, the flanged nuts B B, and the flanged sections C C, having shoulders S and tapering threaded portions E, as set forth.

4. A coupling-nut, B, having hooks *h h*, combined with a threaded pipe or section, onto which said nut is screwed, and a detachable pipe or section, C, having a flange on its end, (or a cap, K, having substantially the same diameter as said flange,) which flange (or cap) is adapted to be inserted between the hooks *h* by a lateral movement, and, when so inserted, is adapted to be clamped tightly against the end of the threaded pipe or section, or against an interposed packing-ring, by turning the nut B, as set forth.

190,652. SULKY-PLOWS. Wm. S. Weir, Monmouth, Ill. [Filed Jan. 13, 1877.]

Brief.—The compound lifting-lever; the adjustable wheel-arm held by a bolt having a detent.

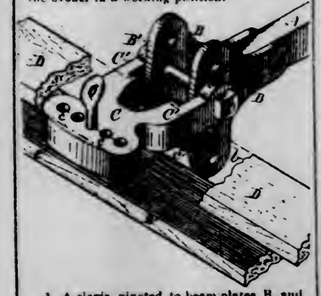


1. In combination with the axle A and yoke H, to which the plow is secured, the double-elbow lever L, link O, lever N, and link P, the lever N being pivoted to the axle, and the whole arranged in close proximity thereto, substantially as and for the purpose specified.

2. The bolt F, having a detent, f'', arranged to operate with the sliding plate D', constructed as described, and with the perforated plate a'', substantially as and for the purpose specified.

190,652. CLEVISES. Wm. S. Weir, Monmouth, Ill. [Filed Jan. 13, 1877.]

Brief.—Shoulders or lugs are formed upon the horisontal plate of the clevis, which prevent it from dropping below a level, and hold the evener in a working position.

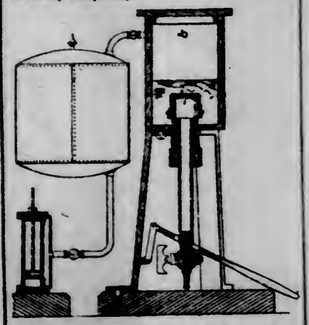


1. A clevis, pivoted to beam-plates B, and provided with lugs a', or their equivalents, which impinge against the forward faces of said plates B, and hold the clevis from dropping below a horisontal, or nearly horisontal, position, substantially as described, and for the purpose specified.

2. A clevis, C, having a broad flattened forward end and rear ends, having lugs a', arranged to operate with double-tree D D' and plates B, substantially as described, and for the purpose specified.

190,654. PROCESSES AND APPARATUS FOR MOLDING PAPER-PULP. Seth Wheeler, Albany, N. Y. [Filed Feb. 28, 1876.]

Brief.—A sufficient quantity of pulp is introduced to the pulp-chamber, through an opening in its top, to fill the chamber about half full, after which the opening is securely closed. The adjustable hollow form, to which is attached a tube having a cock and lever at its lower end, is then lowered into the pulp by means of said lever, and air under pressure is admitted through a pipe to the space above the pulp. The cock is then opened, thus allowing the water to escape as the pulp collects upon the form. After the form has collected a sufficient quantity of pulp it is elevated to the air-chamber, where the pulp is partially dried. The form is then removed from the chamber, and set away to allow the pulp upon it to dry completely.



1. The process herein described of making hollow articles of pulp, consisting in immersing forms or molds in pulp under pressure, and rapidly removing those forms from the pulp into an air-chamber above for removal of moisture, substantially as set forth.

2. The combination of the forming and pressure reservoir, the hollow form and its stem, and a drip and pressure-regulating cock, substantially as described.

3. The combination of the pressure and forming reservoir, the upper part being made to serve as a drying-chamber above the pulp taking position of the form, and the hollow perforated form, made adjustable within the reservoir, for the purpose of drying, or partially drying, the articles in the pressing-chamber, substantially as described.

190,655. BOOTS AND SHOES. H. White, Chicago, Ill., assignor of part of his right to C. H. Fargo, J. Benham, C. B. Fargo, and S. M. Fargo, same place. [Filed Aug. 5, 1876.]



A boot or shoe having a shortened vamp and upwardly-turned inner sole, in combination with the sole-leather tip E united thereto, as described, said tip E being made of a single piece of sole-leather and adapted to perform the function of both a protector and box-toe, substantially as set forth.

190,656. CURTAIN-FIXTURES. J. L. Williams and A. Kerr, Harrison, N. J. [Filed Apr. 3, 1877.]

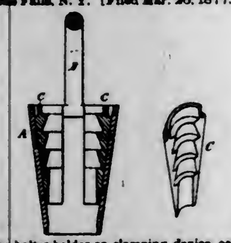


1. In a spring-fixture for curtains, the vertically-sliding pawl or catch m, secured to the stationary center-bar B by the headed pin n, or its equivalent, in combination with the bead-piece G, fastened on the end of the curtain-roller, and provided with the flange h, having slot i, substantially as and for the purposes herein set forth.

2. The combination, with the curtain-roller A, of the interior rod C, spring D, bar B, with sliding pawl or catch m, the headed pin or set-screw n, and the bead-piece G, with circular flange h, having slot i, substantially as and for the purposes herein set forth.

3. The sheet-metal caps or ferrules H, in combination with the curtain-roller A, and the fixtures in the ends thereof, substantially as herein set forth.

190,657. HALTER-CLAMPS. D. A. Wilson, Glens Falls, N. Y. [Filed Mar. 26, 1877.]



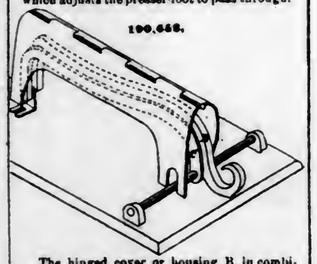
The halter-holder or clamping device, consisting of the sleeve A, provided with a ball, B, and adapted to receive the serrated wedges C C, all substantially as shown, and for the purposes described

---

190,658. SEWING-MACHINE HOUSINGS. T. A. Wilson, Grayson, Cal. [Filed Jan. 15, 1877.]

Brief.—The housing or cover is pivoted to the stationary arm of a sewing-machine, and is hinged at its top, so as to allow the front to be thrown back. A slot is cut for the lever which adjusts the presser-foot to pass through.

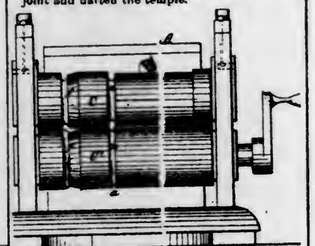
190,658.



The hinged cover or housing B, in combination with a sewing-machine arm, substantially as and for the purpose described.

190,659. MANUFACTURE OF SPECTACLE TEMPLES AND JOINTS. D. C. Winans, New Haven, Conn. [Filed Jan. 4, 1877.]

Brief.—An ingot, having in cross-section the shape approximately of the completed article, is rolled to perfect the shape of the joint and flatten the temple.

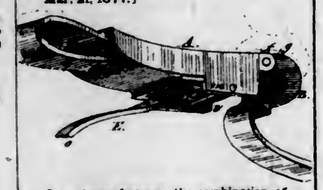


For the manufacture of the temples and joint-pieces of spectacles, the rolls having the circumferential grooves a a, and the plain separated surfaces d d', as shown and described.

190,660. LEATHER-STAINING COMPOUNDS. Geo. S. Wolff, Philadelphia, Pa., assignor to T. Franklin Cooper, same place. [Filed July 22, 1876.]

The black leather stain compounded of blue aniline, yellow aniline, red aniline, naphtha-line, and alcohol, combined in or about the proportions substantially as specified.

190,661. HAME-FASTENINGS. Samuel A. Woodard, Hornellsville, N. Y. [Filed Mar. 21, 1877.]



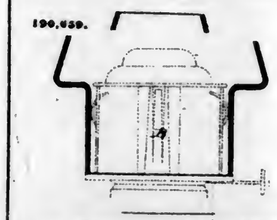
In a hame-fastener, the combination of a frame, A, a hook, B, pivoted to one end of said frame, and having toes i i projecting in rear of the pivot, the sliding plate C, the spring D, and the strap E, arranged, as described on the frame to form a loop, s, all substantially as and for the purposes described.

REISSUES.

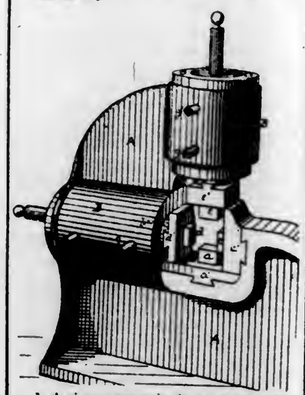
7,659. LAMP-CHIMNEYS. Robt. E. Crosby, Boston, Mass., assignor to F. S. Shirley. Patent No. 79,956, dated July 14, 1868. [Filed Apr. 6, 1877.]

A lamp-chimney having an abrupt or nearly right angled enlargement ou, or nearly ou, a level with the flame, in combination with the conical sides and contracted opening at the top, substantially as set forth.

190,659.



7,660. MANUFACTURE OF ELLIPTIC SPRINGS. A. French, Pittsburg, Pa., assignor to A. French & Co., same place. Patent No. 186,999, dated Feb. 6, 1877. [Filed Mar. 29, 1877.]

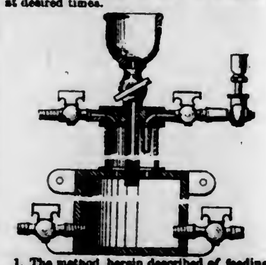


1. An improvement in the art of compressing bands onto leaf-springs by subjecting the heated bands, after being slipped loosely onto the springs, to the action of dies simultaneously operating on the four outer faces of the band, whereby the top and bottom sides of the band are by one pair of dies caused to hold the leaves tightly together, and the other two sides of the band are by the other pair of dies caused to engage or lock on the edges of the leaves of the spring, substantially as set forth.

2. Two fixed dies, a a, and two moving dies, d d, arranged to form the four sides of an open-ended die-box, in combination with pressure-cylinders B B', arranged to operate the movable dies simultaneously in compressing spring-bands, substantially as set forth.

7,661. LUBRICATORS. J. Gates, Portland, Oreg. Patent No. 107,478, dated Sept. 20, 1870. [Filed Aug. 26, 1876.]

Brief.—A water-column extending above the body of the oil, causing the same, by hydrostatic pressure, to expel the oil to parts to be lubricated, and controlling the movement of the column, so that feeding will occur only at desired times.



1. The method herein described of feeding oil for lubricating purposes, consisting, essentially, in employing a water-column, extending above the body of the oil, causing the same, by hydrostatic pressure, to expel the oil to the part to be lubricated, and controlling the movement of the column, substantially as and for the purposes set forth.

2. In a lubricator, the combination of the following elements: an elevated water-pipe, having a regulating-cock controlling its discharge-opening, an oil-reservoir, and a discharge-pipe leading to the part to be lubricated, substantially as and for the purpose set forth.

7,662. LUBRICATORS. J. Gates, Portland, Oreg. Patent No. 107,478, dated Sept. 20, 1870. [Filed Nov. 23, 1876.]

Brief.—Method of feeding in connection with a boiler or steam-space of a water-column extending above the body of the oil, formed from the condensation of steam, for expelling, by its hydrostatic pressure, oil into a cylinder or like steam-space, to be supplied with lubricating material.

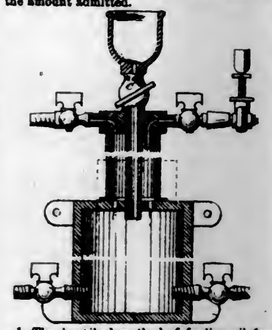


1. The described method of feeding oil for lubricating purposes, consisting, essentially, in the employment, in connection with a steam-space, of a water-column extending above the body of oil, and formed from the condensation of steam, for expelling, by its hydrostatic pressure, oil into a steam-space to be supplied with lubricating material, substantially as described.

2. In a lubricator, the combination, with a steam-space, of an elevated condensing-pipe, having a regulating-cock, an oil-reservoir, and an eduction-pipe discharging into the steam-space to be supplied with lubricating material, substantially as described.

7,663. LUBRICATORS. J. Gates, Portland, Oreg. Patent No. 107,478, dated Sept. 20, 1870. [Filed Nov. 23, 1876.]

Brief.—Method of feeding oil for lubricating purposes, by employing a column of water for expelling, by hydrostatic pressure, the oil, delivering the water to the top of the oil in a transparent vessel, causing the same to pass through the oil in drops, and controlling the amount admitted.



1. The described method of feeding oil for lubricating purposes, consisting essentially in employing a water-column higher than the oil, causing the same to expel, by hydrostatic pressure, the oil from a transparent vessel, and controlling the movement of the water-column in accordance with observations made of the movement of the oil within the vessel, substantially as described.

2. The described method of feeding oil for lubricating purposes, consisting essentially in employing a column of water for expelling, by hydrostatic pressure, the oil, delivering the water to the top of the oil in a transparent vessel, causing the same to pass through the oil in drops, and controlling the amount admitted, substantially as described.

3. A lubricator, consisting of the following elements: A transparent oil-reservoir, an eduction-pipe, and an elevated induction water-pipe, having a cock controlling its discharge opening, the construction being such that the movement of the oil within the reservoir may be observed, and the rate of feed consequently properly controlled, substantially as described.

4. A lubricator, consisting of the following elements: A transparent oil-reservoir, an eduction-pipe, and an elevated induction water-pipe, adapted, by means of a proper cock and discharge end, to deliver the water into the top of the reservoir in drops, substantially as described.

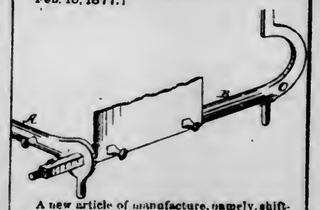
7,664. WINDOW-SCREENS. R. Hochkofer, (guardian of Geo. Reed, insane,) Wm. C. Hoagland, and J. J. Newsom, Brooklyn, Cal.; said Hoagland and Newson assignors to Ross Holland. Patent No. 102,154, dated Apr. 19, 1870. [Filed Feb. 13, 1877.]



1. The screen B, provided with an independent frame, and arranged to slide in a box or recess below the lower sash of the window, when said screen is provided with a catch, E, for attaching it to the lower rail of the lower sash, or detaching it therefrom at pleasure, substantially as and for the purpose described.

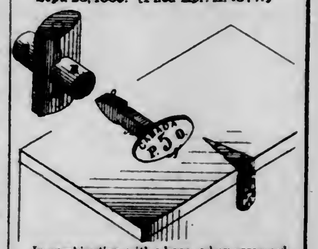
2. The combination, with a double sash window, of the top screen A, lower screen B, and guard-strip C, constructed and arranged as herein described.

7,665. SHIFTING-RAILS FOR CARRIAGES. A. M. Whipple, North Adams, Mass. Patent No. 176,764, dated May 2, 1876. [Filed Feb. 15, 1877.]



A new article of manufacture, namely, shifting-rails for carriage-tops, made in sections, the back rail adjustable upon the end rail, and both connected together at or near the corner of the seat by means of the prop-block support upon the back rail B passing through a mortise formed upon the extremity of the end rail A, substantially as described.

7,666. SEAL-LOCKS. J. Dewe, Ottawa, Ontario, Canada. Patent No. 90,204, dated Sept. 28, 1869. [Filed Apr. 11, 1877.]



In combination with a hasp, a key arranged to pass inward through the same, and have its inner end engaged by detents, and provided at its outer end with a seal, which is outside of and bears against the outer face of said hasp, whereby the latter is locked in place while said seal is unbroken, substantially as and for the purpose specified.

7,667. TREATING LEATHER FOR HEELS AND SOLES OF BOOTS AND SHOES. J. J. Sawin, Natick, Mass. Patent No. 168,948, dated June 1, 1875. [Filed Apr. 16, 1877.]

EXPIRED PATENTS.

7,667.



1. In the process of manufacturing hacks, suits, and fillings from carried and oiled leather, the immersion of the oiled leather to form said articles in naphtha or other volatile hydrocarbons, substantially as described.

2. The process of treating oiled leather with naphtha or other volatile hydrocarbons, for the purpose of extracting the oil from the same, substantially as specified.

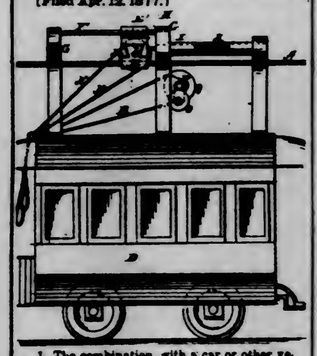
3. As a new article of manufacture, a hack-blank made from bits or layers of scrap upper leather with the oil extracted, substantially as described.

7,668. PROCESSES FOR PREPARING VEGETABLE FIBER FOR UPHOLSTERING. Jas. S. Cutter, Brooklyn, N. Y., assignor to Jos. M. Davis. Patent No. 171,267, dated Dec. 21, 1876. [Filed June 3, 1876.]



The method herein described of preparing palmetto or other vegetable fiber for upholstering by reducing the same into strips while in a sufficiently moist condition, and then crimping the fiber by machinery, and drying the same by heat sufficiently to set the crimp, substantially as set forth.

7,669. MACHINERY FOR PROPELLING CARS. G. T. Beauregard, New Orleans, La. Patent No. 97,343, dated Nov. 30, 1869. [Filed Apr. 12, 1877.]



1. The combination, with a car or other vehicle, and a constantly-moving rope, &c., A, suspended above or at the side of the car or vessel to be propelled, of the reciprocating block B', clamping-slides E E, right and left threaded screw L, piston H, and spring K, substantially as specified.

2. The combination, with the rope A and clamping-jaws, of the elevating-roller C, crank-shaft P, and operating-cord R, substantially as specified.

3. The combination, with the clamping-jaws E and operating-screw L, of the pulley M and operating-cord, arranged substantially as specified.

4. The arrangements of the suspending-brackets C and the bracket G, for carrying the clutch above the cord, substantially as specified.

5. In a gripping device for propelling cars and boats, the slides or jaws E E, constructed to move laterally in opposite directions, in combination with a moving cord or rope, A, substantially as and for the purposes herein set forth.

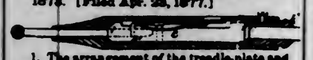
6. The laterally-moving jaws or slides E E, detachably connected to the reciprocating block B', substantially as and for the purposes herein set forth.

7. The combination of the shifting guide-roller D with the griping jaws or slides E E, substantially as and for the purposes herein set forth.

8. The cord N, operating wheel M, turning the right and left threaded screw L, in combination with the oppositely-moving slides E E, substantially as described.

9. The bracket G, so bent that it carries the clutching device clear of the pulley B, when the position of the latter is between the propelling-rope and the vehicle, substantially as specified.

7,670. DENTAL ENGINES. Chas. M. Curtis, Philadelphia, Pa., assignor, by mesne assignments, to M. M. Johnston, New York city. Patent No. 138,318, dated Apr. 29, 1873. [Filed Apr. 23, 1877.]



1. The arrangement of the treadle-plate and pitman on opposite sides of the standard, said pitman and plate being connected by an arm of the latter intersecting the standard, substantially as described.

2. The combination of the wheel H, bearing B, shaft K, and spring I, substantially as set forth.

3. The combination of the shaft K and slotted sleeve-coupling k and M, as shown and described.

4. The combination of the coupling M N with the staff L, or the extension thereof, the branches being attached to said staff L, or to a collar or sleeve, by suitable springs P P, as set forth.

5. In combination with the shaft K, the curved arm S, bent spring U, and short shaft T, as set forth.

6. The flat spring X, in combination with arm S and rod V.

7. In a hand-piece for dental engines, the combination, substantially as set forth, of a case provided with reversed conical bearings, and a tool-carrying spindle, held within the case, and provided with corresponding conical journals, which are received and supported in said bearings.

8. The combination, in a hand-piece for dental engines, of a tool-carrying spindle, provided with reversed conical journals, and a surrounding case provided with corresponding conical bearings, one of which is adjustable to take up wear, substantially as set forth.

9. In a hand-piece for dental engines, the combination of a tool-carrying spindle, provided with reversed conical journals, a surrounding case provided with a front conical bearing to receive the front conical journal of the spindle, and a rear bearing-sleeve, encircling the spindle, adjustably and detachably connected with the case, and provided at its inner end with a conical bearing to receive the rear conical journal of the spindle, substantially as set forth.

10. The combination, in a hand-piece for dental engines, of a rotary tool-carrying spindle, a positive tool-interlocking mechanism, carried by, and revolving with, the spindle, preventing longitudinal and rotary movement of the tool independently of the spindle, and a surrounding case, which contains and supports the spindle, and is formed with an aperture or opening, through which the interlocking mechanism can be manipulated to release the tool, substantially as set forth.

7,671. PULLEY-BLOCKS. G. A. Ford, Cleveland, Ohio. | Patent No. 142,066, dated Aug. 26, 1873; reissue No. 5,784, dated Mar. 10, 1874. [Filed Apr. 11, 1877.]



1. In a pulley-block, the concave-convex cheeks A B, of metal, substantially as and for the purpose described.

2. In a pulley-block, the concave-convex cheeks A B, with projections A' B' thereon, substantially as and for the purpose described.

3. In a pulley-block, the metallic cheeks A B, having ribs A' upon the inside of same, substantially as and for the purpose described.

4. The cheek-pieces A B, formed with lips or swells A', substantially and for the purpose set forth.

5. In a pulley-block, the sheave, provided with the long hub and the webs or spokes s', substantially as and for the purpose described.

6. The combination in a pulley-block of concave-convex metallic cheeks and a sheave, the cheeks and sheave constructed relatively to each other, so that the hub of the sheave shall embrace, substantially, the whole length of the spindle between the cheeks, substantially as and for the purposes described.

7. The pulley-block, composed of concave-convex cheeks A B, with projections A' B', a sheave, and supporting-strap with screws or bolts F, substantially as and for the purposes described.

7,672. COMPOSITIONS FOR PRESERVING ANIMAL AND VEGETABLE SUBSTANCES. Geo. Henry, Hamilton, Ontario, Canada. Patent No. 188,903, dated Mar. 27, 1877. [Filed Apr. 26, 1877.]

The composition for preserving animal, vegetable, and other articles, consisting of *Baptisia tinctoria* (wild-indigo shrub) root bark and sulphur, in about the proportions above described, and for the purposes set forth.

7,673. PIPE-COUPLINGS. J. Old, Pittsburg, Pa., assignor, by mesne assignments, to Martha J. Old. Patent No. 49,142, dated Aug. 1, 1865. [Filed Apr. 6, 1877.]

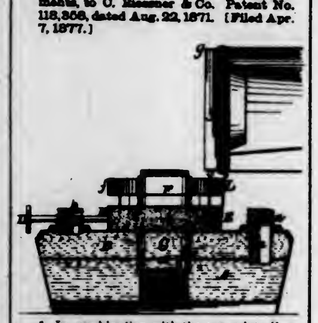


1. The metallic tube or pipe, having the section of a screw-coupling united thereto by means of a fine screw in the pipe or tube and coupling, and solder around the pipe or tube and coupling, substantially as specified.

2. The combination of the metallic tubes, having shoulders or flanges, and a sleeve or coupling, substantially as and for the purpose specified.

3. An externally longitudinally grooved or ribbed sleeve or coupling threaded internally, substantially as and for the purpose specified.

7,674. COAL-OIL STOVES. J. A. Frey, New York, N. Y., assignor, by mesne assignments, to C. Riessner & Co. Patent No. 118,368, dated Aug. 22, 1871. [Filed Apr. 7, 1877.]



1. In combination with the cone-plate G, a flange, g, which extends from the edge of said plate downward inside of the flange f, substantially as and for the purpose shown.

2. In combination with the cone-plate G, having a downward-projecting annular flange, g, and with the upward-projecting flange f, that receives and contains said flange g, the hinge L, which is secured to and connects together said parts, substantially as and for the purpose specified.

3. In a coal-oil stove, a chamber located between the cone-plate and oil-reservoir, arranged to inclose the wick-wheels and their shafts, and filled with a non-conductor of heat, substantially as and for the purpose set forth.

4. The combination of the cone-plate G g', cylinder H, chimney or cone I, and deflector i, substantially as and for the purpose shown and described.

5. The oil-reservoir A, water-chamber B, wick-tubes C, wick-wheels, and shaft D, cement-chamber E, perforated diaphragm F f, cone-plate G g f', cylinder H, chimney-cone I, and deflector i, constructed and combined in the manner and for the purpose substantially as specified.

6. In combination with the heat-producing mechanism described, the stove-top M, provided with the pot-holes m, covers m', exit-flue N, and legs O, substantially as and for the purpose shown.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 67.—No. 7. TUESDAY, MAY 15, 1894. PRICE—$5 per year.

CONTENTS.

	Page.
ORDER IN RELATION TO DRAWINGS	817
CHANGES IN CLASSIFICATION	817
ISSUE OF MAY 15, 1894	818
APPLICATIONS UNDER EXAMINATION	818
PATENTS GRANTED	819
REISSUES	918
DESIGNS	919
TRADE-MARKS	922
PRINTS	None.
LABELS	None.
COMMISSIONER'S DECISIONS—	
Peters *v.* Hisey	927
Plummer *v.* Penniston	928
DECISIONS OF THE U. S. COURTS—	
In re Drawbaugh	929
Kerry *et al. v.* Toupin	931

ORDER IN RELATION TO DRAWINGS.

NOTICE.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 25, 1894.

Order No. 980, respecting the alteration of drawings, was published in the OFFICIAL GAZETTE of December 19, 1893, (65 O. G., 1771,) by mistake, and was never in force. The following is the only order in force upon that subject:

(ORDER No. 986.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 25, 1894.

Erasures or other alterations of drawings will not be made or permitted, except in compliance with this order.

Applicants are requested to furnish, with their originals, a blue print or other photographic copy of all drawings forming part of an application, and where this is done, the original drawings may be taken to the Attorneys' room, but not otherwise.

Before making a requirement to alter an original drawing the Examiner will formally make the blue print or other copy a part of the files, and in case no such copy has been furnished by the applicant, the Office will make such copy without charge, and thereupon the required alteration may be made by the applicant, under the direction of the Examiner and subject to his approval, or, upon request, it will be made by the Office at the expense of the applicant.

The requirement to make alterations in original drawings will be made in writing, and the applicant's response must also be in writing, and in such case the copy of the drawing, the requirement to alter, and the applicant's response will form part of the record.

Action by the Office on the merits will not be suspended pending the change of a drawing, if the invention claimed may be understood by the Examiner.

For the purposes of this order the Office, upon the request of applicants, will make blue prints at the charge of five cents a sheet.

In appeal cases and upon the declaration of an interference a blue print or other copy will be sent forward with the files, the Examiner retaining the original drawings in his room until the hearing.

Except as herein required such blue print or other copy will not be made a part of the file, and may not be preserved after an application passes into a patent.

JOHN S. SEYMOUR,
Commissioner.

PHOTOGRAPHIC COPIES OF DRAWINGS.

A photographic outfit has been added to the equipment of the Patent Office, and positive photographic copies of any drawing, foreign or domestic, in the possession of the Office, will be furnished upon application at the following rates:

Size 10x15 inches. ..... 25 cents per sheet.
Size 7x11 inches. ..... 15 cents per sheet.
Size 5x8 inches. ..... 5 cents per sheet.

If an applicant desire a copy of the size 5x8 inches, two copies must be ordered, as one copy is always retained by the Office and placed in the file for the purposes specified in above Order No. 986, of January 25, 1894.

Changes in Classification.

(ORDER No. 998.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 2, 1894.

Class 128, Surgery, is hereby transferred from Division XX to Division VI.

Class 33, Drafting, is hereby transferred from Division XXX to Division XXIII.

The following sub-classes are established in Class 97, Plows, Division I:

Cultivators—	Colters—	Attachments—
41. Hand.	43. Rolling.	44. Harrow.
42. Wheel.		

The sub-class 16, Plows, hand, is abolished in the same class.

Sub-class 34, Wheel-fenders, under Track-cleaners, is abolished in Class 104, Railways, Division IV. In the same division sub-class 30, Shutters, fireproof, in Class 189, Iron Structures, is abolished, and sub-class 9, Shutters, fireproof, is established in Class 183, Fireproof Buildings.

The following sub-classes are established in Division XVI:

178. Telegraphy—
Lightning-arresters—
Magnetic,
Thermal.
176. Electric lighting—
Lights, arc—
Gravity-feed,
Double-dog clutch,
Electric lighting—
Lights, arc—
Gravity-feed,
Pivot-dog clutch,
Ring-clutch.
Positive-feed—
Electric-gear clutch,
Step-gear clutch.

The following sub-classes are established in Division XXV:

166. Artesian and oil wells.
11. Earth-augers—
12. Bits,
13. With carrier.

In Division XXII the sub-classes under Class 149, Hides, Skins, and Leather, are abolished and the following sub-classes established:

149. Hides, skins, and leather:
Proce-ses and compositions—
1. Preserving,
2. Depilating,
3. Bating.
4. Tanning,
5. Tawing,
6. Currying,
7. Coloring and polishing.
8. Apparatus—
9. Tanning,
10. Vats,
11. Tumbling-drums.
12. Tables and frames.

Apparatus—
13. Tanners' tools,
14. Rotary cylinders,
15. Rotating tools,
16. Helical tools,
17. Reciprocating tools—
18. Rocking frames,
19. Endless belts,
20. Putting out and stretching—
21. Stretching-frames,
22. Coloring and polishing,
23. Rolling and embossing.

JOHN S. SEYMOUR,
Commissioner.

Issue of May 15, 1894.

Patents	334	No. 519,691 to No. 520,024, inclusive.
Designs	20	No. 23,259 to No. 23,278, inclusive.
Trade-Marks	32	No. 24,701 to No. 24,732, inclusive.
Labels	None.	
Prints	None.	
Reissue	1	No. 11,419.
Total issue	387	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	3	....	Nevada	....	....
Arizona Territory	....	....	New Hampshire	....	....
Arkansas	....	....	New Jersey	26	1
California	15	....	New York	55	6
Colorado	2	....	North Carolina	....	....
Connecticut	8	2	North Dakota	....	....
Delaware	1	....	Ohio	21	3
District of Columbia	3	....	Oklahoma Ter	....	....
Florida	2	....	Oregon	....	....
Georgia	....	....	Pennsylvania	24	1
Idaho	....	....	Rhode Island	4	3
Illinois	31	1	South Carolina	....	....
Indiana	8	1	South Dakota	....	....
Indian Territory	....	....	Tennessee	1	....
Iowa	10	1	Texas	5	....
Kansas	9	....	Utah Territory	....	....
Kentucky	1	....	Vermont	1	1
Louisiana	1	....	Virginia	2	....
Maine	1	....	Washington	1	....
Maryland	9	....	West Virginia	....	2
Massachusetts	29	4	Wisconsin	6	....
Michigan	12	2	Wyoming	....	....
Minnesota	8	....	U. S. Army	....	....
Mississippi	2	....	U. S. Navy	....	....
Missouri	12	1	Total to citizens of the United States	317	29
Montana	1	....			
Nebraska	3	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	....	....	Italy	....	....
Austria-Hungary	1	....	Mexico	....	....
Belgium	....	....	Netherlands	....	....
Bermuda	....	....	New South Wales	....	....
Brazil	....	....	New Zealand	....	....
Canada	1	....	Norway	....	....
Chile, Republic of	....	....	Queensland	....	....
Colombia	....	....	Russia	....	....
Cuba	....	....	Scotland	1	....
Denmark	....	....	South Australia	....	....
Ecuador	....	....	Spain	....	....
England	8	2	Sweden	....	....
France	5	....	Switzerland	2	....
Germany	19	1	Victoria	....	....
Hawaii	....	....			
India	....	....	Total to citizens of foreign countries	37	3
Ireland	....	....			

APPLICATIONS UNDER EXAMINATION.

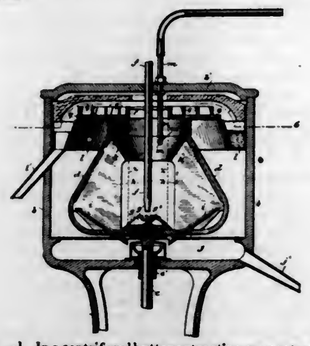
Condition at Close of Business May 8, 1894.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
32	Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc	Apr. 13	May 2	103
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Apr. 9	May 2	94
7	Harvesters, Games and Toys, and Velocipedes.	Apr. 9	May 1	198
31	Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Apr. 9	Apr. 25	84
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Apr. 9	Apr. 25	137
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Apr. 9	Apr. 24	107
	Between one and two months.			
11	Boot- and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting and Leather Working Machinery	Mar. 12	May 5	223
2	Farm Stock, Products, etc	Apr. 3	May 2	100
8	Furniture, Toilet, Umbrellas and Canes, etc.	Mar. 14	Apr. 30	302
21	Textiles, etc.	Mar. 10	Apr. 30	159
22	Fire-Arms Fishing and Trapping, Navigation, Signals, etc.	Mar. 9	Apr. 30	190
12	Mechanical Engineering, Stores-Service, etc	Mar. 19	Apr. 28	194
4	Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Mar. 16	Apr. 28	244
19	Stoves and Furnaces	Mar. 24	Apr. 26	223
3	Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Mar. 23	Apr. 26	146
6	Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc	Mar. 14	Apr. 26	136
17	Paper-Manufactures and Printing	Mar. 29	Apr. 25	161
18	Steam-Engineering etc	Mar. 9	Apr. 24	216
5	Fine Arts, Stationery, Book-Binding, Music, etc	Apr. 2	Apr. 21	195
13	Metal Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, etc	Mar. 26	Apr. 12	187
35	Electricity, Generation, Distribution, Electric Railways, etc.	Mar. 15	Apr. 10	206
	Between two and three months.			
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Feb. 14	May 2	223
1	Tillage and Fences	Mar. 3	Apr. 28	245
10	Carriages and Wagons	Mar. 3	Apr. 26	267
26	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers	Mar. 3	Apr. 23	305
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Mar. 1	Apr. 18	265
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Feb. 10	Mar. 27	293
34	Railway-Cars and Fluid-Pressure Railway-Brakes.	Feb. 20	Mar. 12	372
	Between three and four months.			
23	Instruments of Precision, Acoustics, Optics, etc.	Feb. 6	Apr. 27	330
24	Sewing-Machines, Crinoline and Corsets, and Apparel.	Jan. 22	Apr. 26	206
9	Hydraulics, Fire-Extinguishers, etc.	Jan. 18	Apr. 18	584
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Jan. 26	Apr. 17	375
30	Lamps, Gas-Fittings, Linotyping, Matrix-Making Machines, and Type-Writing Machines.	Jan. 31	Mar. 20	294
	Total number of applications awaiting action			7,354
	Under one month in arrears.			
	Designs	May 3	May 5	31
	Trade-Marks	May 3	May 7	12

PATENTS

GRANTED MAY 15, 1894.

519,691. CENTRIFUGAL BUTTER-EXTRACTOR. GUSTAF M. ANDERSON, Newark, N. J., assignor to the United States Butter Extractor Company, New York, N. Y. Filed Aug. 23, 1890. Serial No. 363,364. (No model.)



Claim.—1. In a centrifugal butter extracting apparatus, the combination with means for imparting rotation to the milk or cream, of a butter separator consisting of obstacles spirally arranged, substantially as set forth.

2. In a centrifugal butter extracting apparatus, a centrifugal butter separator fitted to rotate and consisting of obstacles spirally arranged, and means for revolving the butter separator, substantially as set forth

3. In a centrifugal butter extracting apparatus, the combination of a centrifugal cream separator and means for revolving it, with a butter separator connected to and arranged to revolve with the cream separator and consisting of obstacles spirally arranged about the axis of revolution, substantially as set forth.

4. A centrifugal butter separator consisting of a spirally shaped wall provided with ridges or steps on its inner face, in combination with means for imparting rotation to the milk or cream, substantially as set forth.

5. In a centrifugal butter extractor, the combination of a cream separating drum and means for revolving it, with a butter separator connected to the drum and arranged to revolve with the drum and to receive the cream from the inner cream wall of the drum, and consisting of a spirally shaped wall provided with ridges or steps on its inner face, substantially as set forth.

6. The centrifugal butter separator consisting of the disk *q* and the spirally shaped wall on such disk provided with steps *q'*, and means for revolving the same, substantially as set forth.

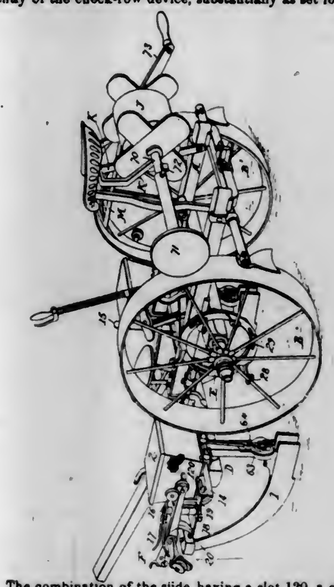
7. The centrifugal butter extractor, consisting of a cream separating drum and means for revolving it, in combination with the disk *q* mounted upon such drum, the passage *r* arranged to receive the separated cream from such drum, and the spirally shaped wall on the disk *q*, provided with steps *q'*, substantially as set forth.

8. A churning attachment for a centrifugal vessel having a passage-way to receive the continuously separated cream and means for agitating the cream located in said way, whereby the butter fat is developed in the cream during its centrifugal flow toward the outlet from said way, substantially as set forth.

9. In a centrifugal machine, a separator vessel provided with a churning receptacle having a passage way to receive the continuously separated cream and means for agitating the cream located in said way, whereby the butter-fat is developed in the cream during the centrifugal flow toward the outlet from said way, substantially as set forth.

519,692. SEED-PLANTER. LORENZO D. BENNER, Peoria, Ill. Filed Nov. 2, 1891. Serial No. 410,646. (No model.)

Claim.—1. The combination with the seed boxes of an operating slide 14, a spring for carrying the same in one direction, check-row devices provided with tappets and crank shafts, and a connection between each crank shaft and one end of the slide said connections embodying a slot to permit the slide to move in one direction independently of the check-row device, substantially as set forth.



2. The combination of the slide having a slot 120, a check-row device having a tappet, and crank shaft, and a connection between the crank and a part moving in said slot, substantially as set forth.

3. The combination with the check row device having a crank shaft, an arm connected by a link with said crank shaft, and a slide having a slot into which said arm extends and a spring for moving the slide in one direction, substantially as set forth.

4. The combination of the revolving carrier and its teeth, the slide, the pawl 50, carried thereby, and the stop finger 52, projecting laterally from the pawl having its lower face on the side toward the carrier beveled as at *d*, whereby the finger is raised and rides over the tooth of the carrier provided it be brought against the end thereof, substantially as and for the purpose set forth.

5. The combination with the chute H, and its ports *w* and *x*, of a valve having a plate 60, and guard 61, substantially as described.

6. The combination of the reel and its shaft, and disk 71, connected adjustably and removably with the reel shaft, substantially as described.

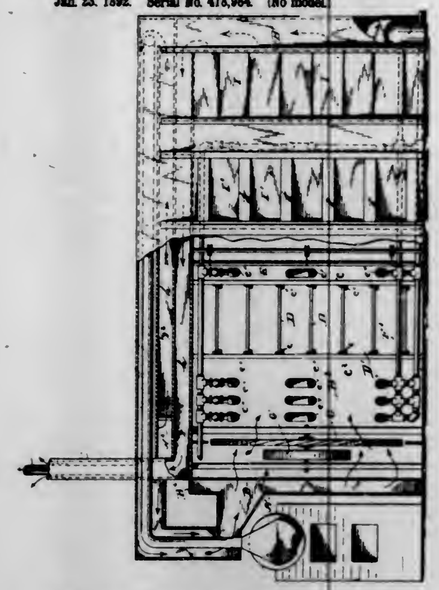
7. In a corn planter the combination of a reel mounted in rear of the driver's seat, the supports in which its shaft is mounted, the lever M, having a hooked end engaging with one of the supports of the reel and bearing upon the reel shaft and extending forward into position to be operated by the driver while upon his seat, substantially as described.

519,693. PROCESS OF MAKING VANILLIN. JULIUS BERTRAM, Leipsic, Germany. Filed Dec. 24, 1890. Serial No. 375,717. (No specimens.)

Claim.—The process of making vanillin and its isomers, which consists in treating the metallic compounds of protocatechuic alde-

hyde, such as sodium protocatechuic aldehyde, with haloid compounds of methyl or methyl-sulfates.

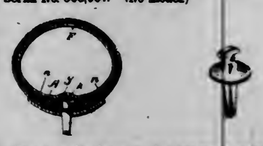
519,694. DRIER. AMBROSE BLATCHLY, San Francisco, Cal. Filed Jan. 23, 1892. Serial No. 418,984. (No model.)



Claim.—1. In a drying apparatus, the combination with the drying chamber, of the fruit sections located therein, the guideways formed in the walls of the fruit sections, said guide ways arranged cross-wise of the fruit sections, the fruit-holding trays, said trays adapted to fit within the guide-ways and to be moved cross-wise of the longitudinally traveling heat through the drier and be removed on the side opposite their entrance, and the doors for closing the ends of the fruit sections, said doors consisting of a series of independent slats arranged one above the other so as to be moved vertically, each slat being designed to cover one of the fruit passage-ways.

2. The combination with the drying chamber, of the transverse fruit-holding sections located therein with passage ways between them, a longitudinal heating pipe arranged within the drying chamber and having lateral branches coiled within said passage ways; means for forcing air longitudinally through the drying chamber, and heat deflecting shields disposed vertically in the ends of said passage ways

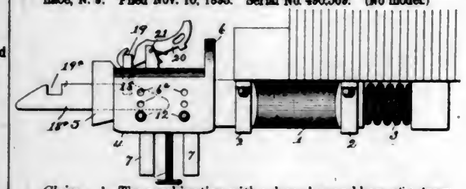
519,695. DEVICE FOR ATTACHING PNEUMATIC TIRES TO WHEEL-RIMS. LEONHARDT H. BRUNEMEYER, Aurora, Ill. Filed Feb. 20, 1894. Serial No. 500,907. (No model.)



Claim.—1. The described device for fastening together the tubular tire and the rim of a vehicle, consisting of a plate having two rows of pins, and having openings to receive studs, and of studs severally provided with a flange and with projections on opposite sides of such flange, one projection being adapted to lock with or be unlocked from the plate, and the other projection being adapted to enter holes in the rim of the wheel, all substantially as described.

2. In combination with a pneumatic tire, a longitudinal plate placed between the inner and outer rubber tubes, having rows of pins fitting in corresponding holes on each side of a slit in the outer tube, and having openings to receive locking studs,—and the flanged studs substantially as shown and described, each having at one side of the flange a projection adapted to be locked to such plate and at the other side of the flange a projection adapted to enter a hole in the rim of the vehicle.

519,696. CAR-COUPLING. THOMAS P. CARROLL, Franklin Furnace, N. J. Filed Nov. 10, 1893. Serial No. 490,569. (No model.)



Claim.—1. The combination with a draw-bar and box, of a draw-head carried in the box, and mechanism for fastening the draw-head in different elevations within the box, substantially as set forth.

2. The combination with a draw-bar, box and adjustable draw-head, of a concussion plate carried between the draw-bar and the draw-head and extending above the draw-bar, substantially as and for the purposes specified.

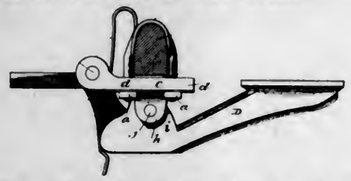
3. The combination with a draw-bar and box, of a draw-head, guide pins and notches, graduated apertures in the sides of the box, and pins adapted to enter into the apertures and the notches, substantially as and for the purposes specified.

4. The combination with a draw-bar and box, a vertically movable draw-head, mechanism for securely adjusting the elevations of the draw-head, and a screw in the bottom of the box adapted to raise and lower the draw-head, substantially as and for the purposes specified.

5. The combination with a draw-bar, box and graduated apertures in the sides thereof, of a draw-head and notched guide pin, a pin adapted to be inserted through the apertures in the sides of the box, and having a hinged end, substantially as set forth.

6. The combination with a draw-bar and box, of a draw-head, notched guide pins on the bottom thereof, graduated apertures in the sides of the box, guide ribs on the sides of the draw-head, recesses in the sides of the box, a pin adapted to fasten the draw-head in its adjustment, and a screw for controlling the elevation of the draw-head within the box, substantially as and for the purpose specified.

519,697. THILL-COUPLING. CALVIN A. CROSHAW, Chicago, Ill. Filed Aug. 12, 1893. Serial No. 482,953. (No model.)

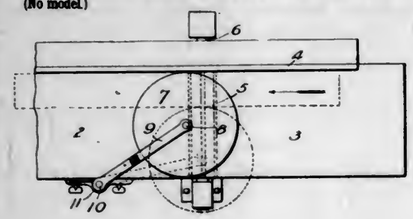


Claim.—1. In a thill coupling, the combination, with a coupling iron having a laterally projecting pin, of a step pivotally secured to the coupling iron and provided with a lug adapted to cover one end of said pin, substantially as described.

2. In a thill coupling, the combination, with a coupling iron having a laterally projecting pin, of a step having an arm pivotally secured to said iron, and a spring interposed between said pin and the axle and bearing at one end on the end of the arm of said step, substantially as described.

3. In a thill coupling, the combination, of a coupling iron having a laterally projecting pin and perforated ears, a step having its arm pivoted between said ears, a spring having a laterally extending horizontal plate, and a clip for securing said iron and spring to an axle, substantially as described.

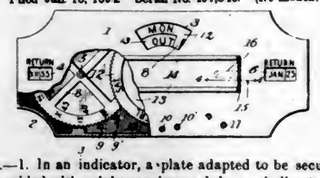
519,698. AUTOMATIC JOINTER-GUARD. CHARLES A. DALY, Minneapolis, Minn., assignor of two-thirds to Martin C. Williams and William C. Johnson, same place. Filed Aug. 11, 1893. Serial No. 482,916. (No model.)



Claim.—1. The combination, of the jointer, and the revolving cutters thereof, with the guide, a large disk arranged to fully cover said cutter, and a swinging arm carrying said disk and adapted to swing outwardly, substantially as described and for the purpose specified.

2. The combination, with the bed and the revolving cutters, of the large disk 7 adapted to fully cover said cutter and having the conical lower side, the swinging arm 9, whereon said disk is journaled an adjustable block whereon said arm is pivoted, and a light spring connected with the arm for normally holding said disk over said cutter, substantially as described.

519,699. INDICATOR FOR DOORS. HENRY B DIAMOND, Albany, N. Y. Filed Jan. 18, 1894. Serial No. 497,340. (No model.)



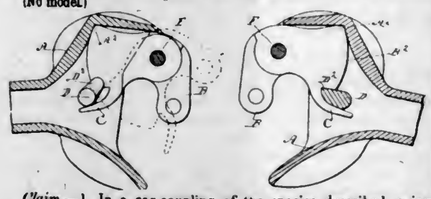
Claim.—1. In an indicator, a plate adapted to be secured to a door and provided with a sight opening, and the two indicating wheels arranged beneath or back of the said opening, one of the wheels being of annular form with indicating marks on its face, and the other being mounted below or behind the said annular wheel and showing through its center, the said wheels being independently rotatable, substantially as set forth.

2. In an indicator, the combination of the casing formed of the front plate provided with the openings, 3, 4, and 6, and the three sets of indicating wheels arranged back of the said openings, each set consisting of two wheels of the same size, the edges of the wheels being roughened or toothed whereby they may be independently turned, and the outermost wheel being of annular form and the innermost wheel showing through the central portion of the annular wheel, the said openings being arranged relative to each set so that a portion of each annular wheel is exposed through the same, and a portion of each inner wheel is exposed through the same, substantially as set forth.

3. In an indicator, the combination of the two indicating wheels mounted upon the same support, and independently rotatable thereon, one of the wheels being of annular form, and the other wheel being behind the annular wheel and showing through its center, the wheels being also toothed upon their edges, and the pinions by means of which the said wheels are turned, substantially as set forth.

4. In an indicator, the combination of the plate 1 having an opening therein, the two indicating wheels arranged back of the plate so that portions thereof show through the said opening, the separate pinions one for each indicating wheel by means of which the wheels may be independently turned, and the independent spindles on which the said pinions are mounted, their ends being shaped to receive a key, and arranged directly back of openings in the plate 1, substantially as set forth

519,700. CAR-COUPLING. GEORGE W. DICKEY and THOMAS A HARDING, Des Moines, Iowa, assignors to the Dickey Automatic Car-Coupler Company, same place. Filed Jan. 15, 1894. Serial No. 497,005. (No model.)



Claim.—1. In a car-coupling of the species described, a jaw adapted to be pivoted to a draw head and having a rearward extension adapted to enter an angular space in the cavity of a draw head to abut against the wall of said cavity and a shoulder on the under side of said extension adapted to abut against a corresponding shoulder in the bottom of the same cavity, in combination with a draw head having a cavity adapted to admit the rear extension of the jaw and to support it in the manner set forth, for the purposes stated.

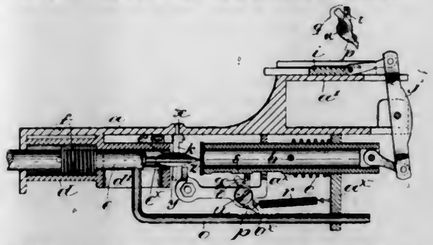
2. In a car-coupling the jaw B having a rear extension terminating in an angular end B^2 and provided with a shoulder B^3 on its under side in combination with a draw head A having an open cavity and angular space A^2 adapted to admit the end B^2 of the jaw and a shoulder A^3 adapted to engage the shoulder B^3 of the jaw, in the manner set forth for the purposes stated.

3. In a car coupling, the jaw locking pin D having a projection D^2 and the bottom face of the projection inclined to be engaged and lifted thereby by means of a jaw, and a projection D^3 inclined on its top face to engage and move a jaw, in combination with a draw head and a jaw pivoted thereto, as and for the purposes stated.

4. In a car-coupling, the combination of a pivotal jaw having an integral pin guard C and inclined face on its under side, and a jaw locking pin D having a projection D^2 at its upper portion and an inclined face at the bottom thereof and a projection D^4 at its lower portion provided with an inclined top face adapted to engage the inclined face on the under side of the jaw, to operate in the manner set forth, for the purposes stated.

5. An improved car coupling comprising a draw head having a cavity in its front face and an angular space A^2 and a shoulder A^3 in said cavity, a pin hole in the top and a pin hole in the bottom intersecting said cavity and said pin holes forming an acute angle as set forth, a jaw pivoted to the draw head and having a rear extension provided with an angular end B^2 and a shoulder B^3, an inclined under side and an integral pin-guard C and a jaw locking pin D having a projection D^2 at its top portion and a projection D^3 at its lower portion and an inclined top face on the said projection D^4, arranged and combined to operate in the manner set forth for the purposes stated.

519,701. COIN-CONTROLLED MACHINE. WILLIAM M. DUCKER, New York, assignor to Maria E. Ducker and Henry D. Dumont, Brooklyn, N. Y. Filed Aug. 5, 1893. Serial No. 482,444. (No model.)



Claim.—1. In a coin-controlled machine, the combination with a hollow operating slide *b*, of a laterally expansible coin-pocket arranged adjacent to the front end of said slide, a guide *d*, aligned with the slide *b*, and a plunger *e*, in said guide, said plunger having a reduced extremity e^x, furnished with flexible, yielding flaps capable of being forced through a washer or apertured plate, substantially as set forth

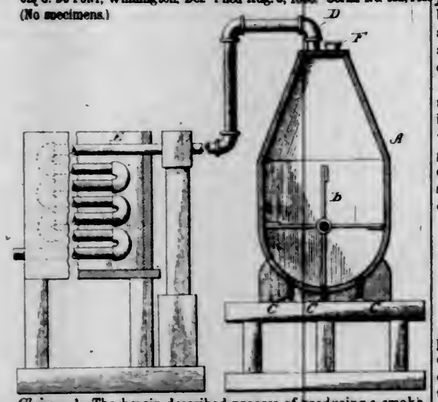
2. In a coin-controlled machine, the combination with a hollow operating slide *b*, of a laterally expansible coin-pocket comprising the two pivoted arms *k*, *k*, and springs which hold them in their normal positions, the tubular guide *d*, aligned with the slide *b*, the plunger *e*, mounted in said guide and having the piece *e'*, of yielding material fixed in its reduced extremity e^x, and the spring for retracting the said plunger, substantially as set forth.

3. In a coin-controlled machine, the combination with the frame, the operating slide *b*, provided with a cam-plate *s*, the retracting spring *c*, and the delivery slide coupled with the slide *b*, of the plunger-guide, the plunger mounted therein, of the bar *o*, connected to and moving with the plunger and provided with a ratchet o^x, the pawl *p*, the means substantially as described intermediate the cam-plate *s* and pawl whereby the latter is put into and thrown out of engagement with the ratchet o^x, as set forth.

4. In a coin-controlled machine, the combination with the frame, the operating slide *b*, provided with a cam-plate *s*, the retracting spring *c*, the plunger-guide, the plunger, and the bar *o*, fixed to the plunger and carrying a ratchet o^x, of the stud *u*, set in the frame, the pawl *p*, pivoted on said stud and adapted to engage the ratchet o^x, the rocking lever *q*, pivoted on said stud and having its upper end in the path of the cam-plate *s*, the spring *r*, connected at one end to the lower end of the lever *q*, and the spring *t*, coiled about the stud *u*, and having one of its ends secured to the upper end of the lever *q* and its other end secured to the upper end of the pawl *p*, substantially as set forth.

5. In a coin-controlled machine, the combination with an operating slide *b*, a plunger *e*, aligned therewith, and a coin-pocket arranged between their respective ends, whereby when a coin is in said pocket and the plunger pushed in the operating slide will be driven back, of a ratchet carried by the plunger, a spring-pawl pivoted on the frame and held normally out of engagement with said ratchet, and controlling means, intermediate the operating slide and plunger and actuated by the backward movement of the slide, for putting the pawl into engagement with the ratchet, as set forth.

519,702. MANUFACTURE OF SMOKELESS POWDER. FRANCIS G. DU PONT, Wilmington, Del. Filed Aug. 5, 1893. Serial No. 482,448. (No specimens.)



Claim.—1. The herein described process of producing a smokeless explosive, which consists in suspending nitro-cellulose in a liquid not a solvent of the same, granulating the nitro-cellulose by agitating therewith in proper proportions an emulsion of a mixture, in suitable proportions, of a suitable solvent not miscible to any great extent in the liquid used to suspend the nitro-cellulose and a volatile oil, with a liquid calculated to aid emulsion in proper proportions, and solidifying the grains thus formed, substantially as described.

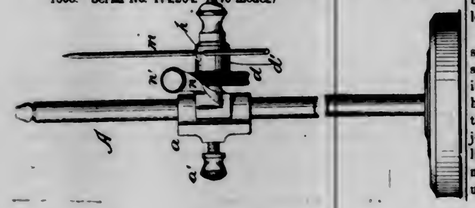
2. The herein described process of producing a smokeless explosive, which consists in suspending nitro-cellulose in a liquid not a solvent of the same, granulating the nitro-cellulose by agitating therewith in proper proportions an emulsion of a mixture, in suitable proportions, of a suitable solvent not miscible to any great extent in the liquid used to suspend the nitro-cellulose and a hydro-carbon oil, with a liquid calculated to aid emulsion in proper proportions, and solidifying the grains thus formed, substantially as described.

3. The herein described process of producing a smokeless explosive, which consists in suspending nitro-cellulose in a liquid not a solvent of the same, granulating the nitro-cellulose by agitating therewith, in proper proportions, an emulsion of a mixture, in suitable proportions, of a suitable solvent not miscible to any great extent in the liquid used to suspend the nitro-cellulose and a volatile oil, with a liquid calculated to aid emulsion in proper proportions, hardening and rounding the grains by agitation, and removing the excess of solvent and the oil by distillation, substantially as described.

4. The herein described process of producing a smokeless explosive, which consists in suspending nitro-cellulose in a liquid not a solvent of the same, granulating the nitro-cellulose by agitating therewith, in proper proportions, an emulsion of a mixture, in proper proportions, of a suitable solvent not miscible to any great extent in the liquid used to suspend the nitro-cellulose and a volatile oil, with a liquid calculated to aid emulsion in proper proportions, hardening and rounding the grains by rotation, and removing the excess of solvent and the oil by distillation, substantially as described.

5. The herein described process of producing a smokeless explosive, which consists in suspending nitro-cellulose in a liquid not a solvent of the same, granulating the nitro-cellulose by agitating therewith, in proper proportions, an emulsion of a mixture, in suitable proportions, of a suitable solvent not miscible to any great extent in the liquid used to suspend the nitro-cellulose and a volatile oil, with a liquid calculated to aid emulsion in proper proportions, hardening and rounding the grains by rotation in an atmosphere of steam, and removing the excess of solvent and the oil by distillation, substantially as described.

519,703. SURFACE-GAGE. OSCAR C. L. ERMAN, Syracuse, N. Y., assignor of one-half to Harvey S. Bartlett, same place. Filed May 15, 1893. Serial No. 474,204. (No model.)



Claim.—1. The combination with the standard and a sleeve adjustably mounted thereon, an arbor secured to said sleeve, and arms branching outward from said sleeve, of a worm journaled in said arms, a worm gear journaled upon said arbor and driven by said worm, and a needle gripped upon the hub of said gear and at one side of the center thereof, and adjustable longitudinally.

2. The combination with the standard and a sleeve adjustably mounted thereon, an arbor secured to said sleeve, and arms branching outward from said sleeve, of a worm journaled in said arms, a worm gear journaled upon said arbor and driven by said worm, a grip-disk loose upon said arbor, a tension spring engaging with said disk, a tension nut upon said arbor, and a needle gripped between said disk and the hub of said gear and at one side of the center thereof and adjustable longitudinally.

519,704. OBTAINING LEAD SALTS FROM NATIVE ORES. AMBROSE G. FELL, New York, N. Y. Filed Apr. 15, 1893. Serial No. 470,513. (No specimens.)

Claim.—1 The herein described method of treating native lead salts or ores direct for the production of merchantable lead compounds, which consists in first decomposing the ground lead ores and converting the lead therein into insoluble lead salts by subjecting said ore to the action of an acid solution containing free sulphuric acid, then separating the lead salts from the solution and subjecting them, under the influence of a moderate heat, to a compound containing an alkaline base for a time, and finally separating the insoluble lead salts from this solution.

2. The herein described method of treating native lead salts or ores direct for the production of merchantable lead compounds, which consists in first decomposing the ground lead ores and converting the lead therein into insoluble lead salts by subjecting said ore to the action of an acid solution containing free sulphuric acid, then separating the lead salts from the solution and subjecting them, under the influence of a moderate heat, to a compound containing an alkaline base for a time, then separating the insoluble lead salts from this solution, and finally roasting said salts.

3. The herein described method of treating lead ores direct for producing lead oxides, which consists in first subjecting the ground ore for a time to the action of an acid solution containing free sulphuric acid and separating the undissolved residue from the solution of soluble salts, then removing any silver that may be contained in the said residue, then subjecting the residue, with heat, to a solution of a compound containing an alkaline base, for a time, and removing the solution of soluble salts, and then roasting the undissolved residue.

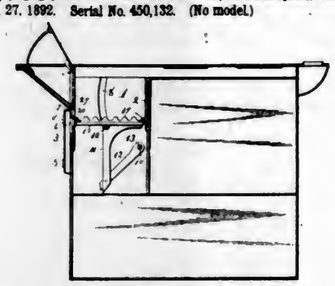
4. The herein described method of treating lead ores direct for the production of lead oxides, which consists in first subjecting the ground ore for a time to the action of an acid solution containing free sulphuric acid and separating the undissolved residue from the solution of soluble salts, then subjecting said residue for a time to the action of a solution of a compound containing an alkaline base, with heat, and separating the undissolved residue from the solution of salts, and then mixing with the residue nitric acid or nitrate, drying and roasting.

5. The herein described method of treating lead ores direct for the production of lead oxides, which consists in first subjecting the ground ore for a time to the action of an acid solution containing free sulphuric acid and separating the undissolved residue from the solution of soluble salts, then removing any silver that may be contained in the said residue, then subjecting said residue for a time to the action of a solution of a compound containing an alkaline base, with heat, and separating the undissolved residue from the solution of salts, and then mixing with the residue nitric acid or nitrate, drying and roasting.

6. The herein described method of treating lead ores direct, for the production of soluble salts, which consists in first subjecting the ground ore for a time to the action of an acid solution containing free sulphuric acid and separating from the undissolved residue the solution of salts, then subjecting said undissolved residue to the action of a compound containing an alkaline base for a time, with moderate heat, and separating the solution of salts from the undissolved residue; and finally subjecting the residue to the action of a solvent and by crystallization or evaporation, recovering from the solution the lead salt.

7. The herein described method of treating ores containing lead sulphide direct for the production of lead oxides or salts, which consists in first mixing together the ground ore, sulphuric acid, another inorganic acid, as muriatic or nitric acid, a sulphate, and water, then heating the mixture until the evolution of sulphureted hydrogen, practically ceases, and then drawing off the solution of salts; second, subjecting the undissolved residue to the action of a solution of an alkaline carbonate, with moderate heat, until the mixture shows a permanent alkaline reaction, and then separating the solution from the undissolved residue.

519,705. STOVE. CHARLES C. FREE, Colorado Springs, Colo. Filed Oct. 27, 1892. Serial No. 450,132. (No model.)

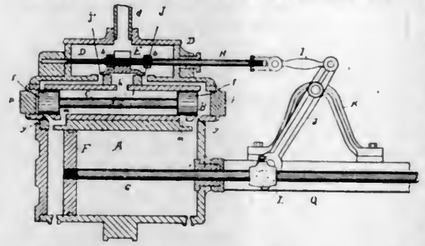


Claim.—1. In a stove, the combination with a fire pot, of an eccentrically pivoted vertically adjustable grate therein, and a counter-weighted dumping lever held normally out of contact with the grate and adapted to dump the grate by pressing upon the edge thereof when the counter-weighted end of the lever is lifted, substantially as specified.

2. In a stove, the combination with the fire pot, and movable grate provided with notched ribs on three sides and a smooth rib on the remaining side, of a dumping lever having one of its arms adapted to have a bearing upon the smooth rib when the grate is being dumped, substantially as specified.

3. In a stove, the combination with a fire pot provided with curved channels in its ends, of a grate bar, grate bar support and levers pivoted thereto, and fixedly secured to the rock bar, a crank, and pawl and ratchet mechanism adapted to adjust the grate bar support, a grate pivoted to one side of its center upon the grate bar, arms adapted to sustain the heavier side of the grate, and a counter-weighted dumping lever held normally out of contact with the grate, and adapted to dump the same when the counter-weighted end of the lever is lifted, substantially as specified.

519,706. STEAM-ACTUATED VALVE. JOHN B. GORRELL, La Otto, Ind. Filed Jan. 12, 1894. Serial No. 496,617. (No model.)



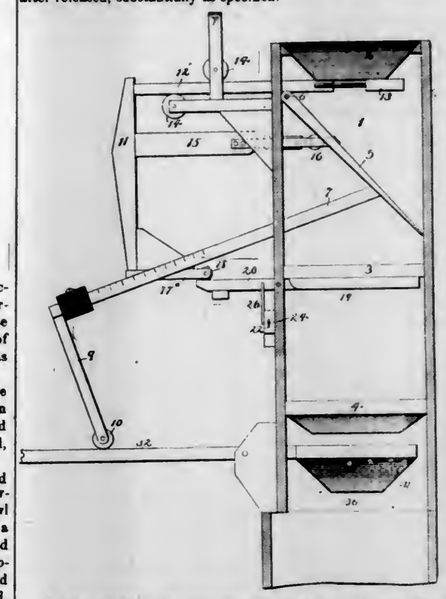
Claim.—1. In a steam actuated valve the combination with the steam cylinder A, of the piston F, the floating valve C, provided with two pistons, one at each end, the floating valve cylinder B, ports j, j', m, m', k', y, y', exhaust pipe i, the steam chest D, slide valve E, nuts b, b, rod H, connecting bar I, valve lever J, standard K, piston rod collar L, piston rod G, substantially as described

2. In a steam actuated valve the combination and arrangement of the opening k' and the ports j, j', with the chest D, slide valve E, actuating rod H, nuts b, b, with the floating valve cylinder B, its floating valve C, having pistons f, f', of the steam cylinder A, its piston F, steam ports y, y', exhaust ports m, m', with the mechanism for operating the slide valve rod by the main piston rod, the whole being substantially as specified.

3. The arrangement and combination of the openings or ports $d, k', j, j', m, m', i, y, y'$, with the steam chest D, the slide valve E, the floating valve cylinder B, its floating valve C, steam cylinder A, main piston F, together with the mechanism for operating the slide valve E by the main piston F, the whole being substantially as specified.

519,707. AUTOMATIC GRAIN-WEIGHING DEVICE. JOHN GRAHAM, Albany, Mo. Filed Feb. 9, 1893. Serial No. 461,589. (No model.)

Claim.—1. In a weigher, the combination with a case and balance plate and trap therein, of a horizontally movable gate frame upon the outside of the case carrying a cut-off within the case and controlling the operation of the trap and operatively connected to the balance plate, whereby the weight of the material upon the balance plate operates to cut-off through said gate frame the flow of material to be weighed at a point above the balance plate and the trap is thereafter released, substantially as specified.



2. In a weigher, the combination with a case, of a cut-off and trap, and an intermediate balance plate within the case, mechanism operatively connecting the balance plate and cut-off, and adapted to be actuated by said balance plate to release the trap under predetermined pressure and mechanism below the trap adapted to be actuated by the material to be weighed to keep the cut-off in the closed position until the case has been sufficiently relieved of said material substantially as specified.

3. In a weigher, the combination with a case and a cut-off and trap therein, of an intermediate balance plate, mechanism operatively connecting the balance plate with the cut-off and adapted to be actuated by said balance plate to release the trap, and a weight beam provided with an adjustable weight, operatively connected to said balance plate whereby the weight of the material required to actuate the balance plate may be varied, substantially as specified.

4. In a weigher, the combination with a case, a cut off and a movable hopper, of a trap and balance plate therebetween, mechanism operatively connecting the balance plate and cut-off and controlling the movement of the trap, and mechanism operatively connecting the balance plate and movable hopper whereby the movement of the balance plate under a predetermined pressure actuates the cut-off to stop the flow of material to be weighed, thereafter releases the trap and permits the material within the case to actuate the movable hopper to sustain the cut-off in the closed position until the case is sufficiently relieved of its contents, substantially as specified.

5. In a weigher, the combination with a case and a cut-off and trap therein, and an intermediate balance plate, of mechanism operately connecting said cut-off and balance plate and adapted to intermittently control the movement of said trap and registering mechanism operatively connected with said trap, substantially as specified.

6. In a weigher, the combination with a case and a cut-off, counter-weighted trap, and intermediate balance plate therein, of a reciprocatory gate frame upon the exterior of the case operatively connecting the balance plate and cut-off and adapted to control the movement of the trap and to be reciprocated by the downward movement of the balance plate to close the cut-off and release the trap, and a weight beam operatively connected with the balance plate whereby the material to be weighed having passed beyond the trap, said trap will automatically resume its horizontal position under the impulse of its counter-weight and the weight beam will return the balance plate to its normal position and actuate the gate frame to lock the trap and open the cut-off, substantially as specified.

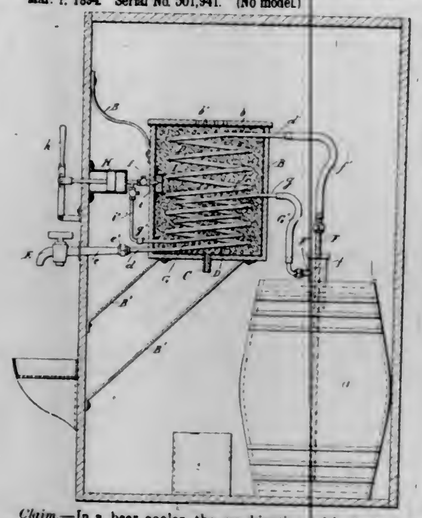
7. In a weigher, the combination with a case and a cut-off and counter-weighted trap therein, of an intermediate balance plate provided with a weight beam having a right angular extension and roller, a reciprocatory gate frame upon the exterior of the case operatively connected with the cut-off and balance plate and adapted to control the movement of the trap, a pivoted lever projecting beyond the side

of the case in the path of the roller, and a movable hopper adapted to be actuated by said lever, substantially as specified.

8. In a weigher, the combination with a case, cut-off, trap and intermediate balance plate therein, of mechanism operatively connecting said balance plate and cut-off and adapted to control the movement of the trap, a movable hopper below the trap and an intermediate fixed hopper having converging sides whereby the material to be weighed is prevented from escaping around the sides of the movable hopper, substantially as specified.

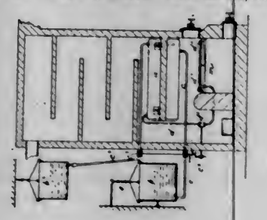
9. In a weigher, the combination with a case, a stationary hopper and movable hopper therein at its top and bottom respectively, of a reciprocatory cut-off beneath the stationary hopper, a trap and a reciprocatory gate frame adapted by its reciprocation to open and close the stationary hopper through the cut-off, and to release or secure the trap, a swinging balance plate within said casing above the trap operatively connected with the gate frame and provided with a weight beam having a right angular projection and roller, and a lever secured to said movable hopper and adapted when the hopper is actuated under pressure to sustain the weight beam, balance plate, reciprocatory frame and cut-off in the position they assume at the time of the initial operation, substantially as specified.

519,708. BEER-COOLER. HENRY HAHN, Terre Haute, Ind. Filed Mar. 1, 1894. Serial No. 501,941. (No model.)



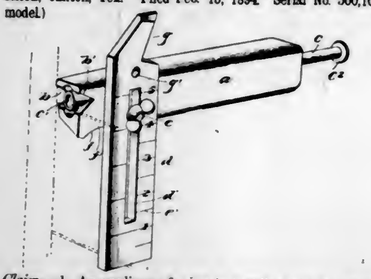
Claim.—In a beer cooler, the combination, with the inclosing case, of the ice box supported inside the case and provided with a removable lid having air holes in it, a beer worm and an air worm arranged inside the ice box, the beer barrel and the pipes connecting it with the upper ends of the beer worm and the air worm, the faucet connected to the lower end of the beer worm and projecting from the case, the air pump arranged inside the case and provided with an operating handle outside the case, the air suction pipe connected to the ice box and provided with a strainer to prevent the ice from entering it, and the air delivery pipe connected to the air worm, whereby the air is purified and freed from dust by being drawn through the cracked ice, and is forced through the air cooling worm into the barrel, and the beer is forced from the barrel into the beer worm, substantially as set forth.

519,709. BOILER-FEEDER. PAUL HELLRICH, Benthen-on-the-Oder, Germany. Filed May 6, 1893. Serial No. 473,206. (No model.)



Claim.—The combination of a steam boiler with two independent feed water chambers movably suspended at different elevations, pipes c, c^2, of different lengths for separately connecting said chambers to the boiler and cocks within said pipes, substantially as specified.

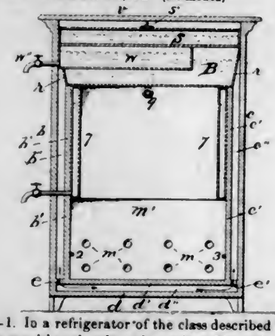
519,710. TOOL FOR BUILDING WIRE FENCES. LEWIS C. HIGHSMITH, Canton, Tex. Filed Feb. 13, 1894. Serial No. 500,101. (No model.)



Claim.—1. An appliance for use in building wire fences and consisting of a body portion having a staple receptacle at one end thereof, a rod passing through the body and having one end projecting into the staple receptacle, whereby the staple may be driven, an adjustable gage secured to the body, whereby the distance between the wires may be regulated, the gage having a wire-cutting blade thereon and adapted to co-operate with a knife-edge on the body, and means for pivoting the gage to the body when used for cutting wire, substantially as described.

2. An appliance for use in building wire fences and consisting of a body portion having a staple receptacle at one end thereof, a rod passing through the body and projecting into the staple receptacle, whereby the staple may be driven, a gage plate having a longitudinal slot therein, a removable set-screw operating in the slot, whereby the gage may be adjusted, a knife-edge on the body and adjacent to the gage-plate and a knife blade on the gage plate and adapted to co-operate with the knife-edge, the plate having an opening therein adapted to receive the set screw aforesaid, whereby it may be pivotally secured to the body when so desired, substantially as described.

519,711. REFRIGERATOR. RALPH HIRSH, Syracuse, N. Y. Filed Apr. 20, 1893. Serial No. 471,084. (No model.)



Claim.—1. In a refrigerator of the class described the combination with the provision chamber of a main refrigerating tank above said chamber, a primary mixing chamber above the main tank, and means to intermittently connect them, and a vertical auxiliary tank or tanks within and parallel and contiguous to the vertical wall of said chamber and connected to said main tank.

2. In a refrigerator, the combination with the cold-air storage chamber, around the sides and back thereof, of the main refrigerating tank having oblique walls closing the top of said chamber.

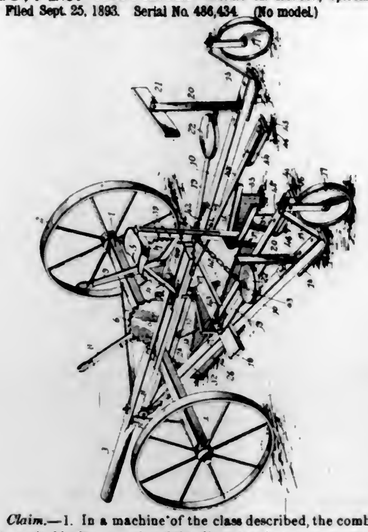
3. In a refrigerator, the combination with the cold-air storage reservoir around the back and sides thereof, of the main refrigerating tank upon and obliquely closing the top of said reservoir, and the primary mixing tank, above said main tank.

4. In a refrigerator, the combination with a stationary main refrigerating tank above the provision chamber, and an auxiliary refrigerating tank above the main tank, of a stationary water tank of lesser size and within the main tank and suspended from the top thereof, an induction pipe therefor inserted through the auxiliary tank and the top of the main tank, and an eduction pipe therefrom inserted through the outer wall of the refrigerator body.

5. In a refrigerator, the combination with the main refrigerating tank, and the primary tank thereupon, of a water tank inclosed within and suspended from the top of the main tank, which is the bottom of the primary tank, and adapted to be immersed in the refrigerating solution in the main tank.

6. In a refrigerator, a provision chamber, a cold-air-storage reservoir auxiliary thereto and in rear thereof, a vertical partition between them, valve apertures in said partition, a valve plate in rear of said partition adapted to close said apertures, rods extending through said partition and along the sides of the provision chamber, a door to said chamber adapted at its stiles to engage with said rods and simultaneously actuate them to open said apertures substantially at the instant the door is shut, and to release them to close them when the door starts to open, and springs behind said plate, in combination.

519,712. PLANT-SETTER. HENRY M. HODSON, Spiceland, Ind. Filed Sept. 25, 1893. Serial No. 486,434. (No model.)



Claim.—1. In a machine of the class described, the combination with a suitable framework, of the diverging beams, supports for the rear ends of the same, seats carried by each of the beams, a lever carried by the framework, means for locking the same, a runner having its front end loosely connected to the beams and provided at its rear end with furrow-forming blades, a connecting-rod between the lever and the runner for adjusting the latter, and covering-devices arranged in rear and at opposite sides of the path of the runner, substantially as specified.

2. In a machine of the class described, the combination with a framework, of a pair of pivoted beams, seats carried by the beams, supports for the rear ends of the beams, a runner having furrow-forming blades pivoted between the beams, furrow-closing devices at opposite sides of the runner in rear of the blades, a hand-lever carrying a locking-pawl, a locking-standard, a connecting-rod between the hand-lever and the furrow-opening runner, hooks at opposite sides of the connecting-rod, and short chains engaging the hooks and secured to the diverging beams, substantially as specified.

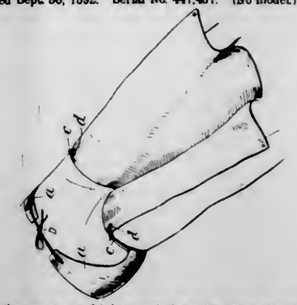
3. In a machine of the class described, the combination with a framework having front and rear locking standards, front and rear levers arranged thereon and provided with locking-pawls for engaging the standards, of a pair of diverging beams loosely pivoted at their front ends to the framework in advance of the levers, seats arranged upon the beams near their rear ends, supports for the beams, a V-shaped trash-clearing fender pivoted at its front end between the beams, and below the same connecting devices between the rear ends of the fender and the front lever, a furrow-forming runner pivotally connected to the beams in the rear of the fender, a connecting-rod between the same and the rear lever, and furrow-covering devices arranged in rear and at the sides of the furrow-forming runner, substantially as specified.

4. In a machine of the class described, the combination with a framework, of diverging beams pivoted at their front ends thereto, supports for the rear ends of the beams, a furrow-forming runner connected with the beams, a lever for raising and lowering the same, a pair of bars extending rearward from the beams at each side of the runner and provided upon their under sides with diagonally set blades, substantially as specified.

5. In a machine of the class described, the combination with a framework, of a pair of diverging beams pivoted thereto, a lever arranged upon the framework, connections between the same and the beams, a cross-bar arranged upon the beams, a furrow-forming runner supported by the beams and extending in rear of the cross-bar, a pair of spring-bars extending from the cross-bar at each side of the furrow-forming runner, blocks secured to the rear ends of the spring-bars, metal shoes having upturned ends arranged upon the under sides of the blocks and provided with diagonally disposed blades, substantially as specified.

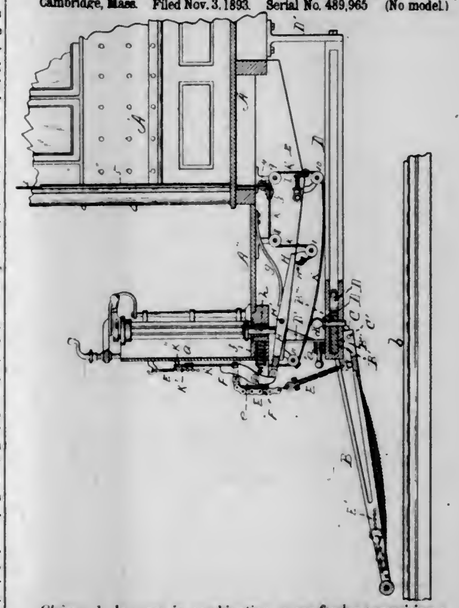
6. In a machine of the class described, the combination with the framework, of the pivoted diverging beams terminating at their rear ends in runners, vertical standards rising from the beams, horizontal seat-bars, backs secured to the standards, seats arranged upon the bars and having keepers upon their under sides for engaging the bars, and furrow-opening and covering devices arranged between the seats, substantially as specified.

519,713. OBSTETRICAL APRON. WILLIAM JACKSON, Plymouth, Ind. Filed Sept. 30, 1892. Serial No. 447,437. (No model.)



Claim.—An apron or shield consisting of a piece of suitable material cut or slit inward from opposite sides to form a pelvic part with flaps adapted to be secured across the body and a part to form a receptacle whose bottom is a continuation of the pelvic part, by having its edges passed up between the legs, substantially as specified.

519,714. CAR PROVIDED WITH FENDERS. ARTHUR H. JELLY, Cambridge, Mass. Filed Nov. 3, 1893. Serial No. 489,965. (No model.)



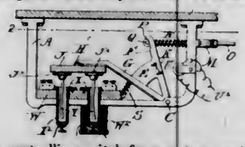
Claim.—1. In a car, in combination, a car fender comprising a unitary or rigid frame vertically hinged at its rear end to a car and with its front end held normally in a slightly raised position from the

road-bed or track, a mechanism within control of the motor-man for the release of the fender from said raised position, and a spring acting at all times as a constantly downwardly forcing spring upon the front end of the fender whereby said front end is held down to its slightly raised position and when tripped is held firmly and constantly on the road-bed, substantially as set forth.

2. In combination with a car, a fender adapted to be dropped from a normally raised position, the trip lever H, the electrical switching mechanism for cutting out the power, and the cord I extending from said lever over suitable pulleys to said switching mechanism, substantially as set forth.

3. In combination with a car, a fender adapted to be dropped from a normally raised position, the trip lever H, cord I extending from said lever over suitable pulleys to the switch J, an electrical switching mechanism for cutting out the power, cord K extending from said lever over suitable pulleys to the lever L, spindle L', and an air brake mechanism operated by said spindle, substantially as set forth.

519,715. HAND REGULATOR OR SWITCH FOR MOTORS. EMIL R. KELLER, Chicago, Ill. Filed July 12, 1893. Serial No. 480,226. (No model.)



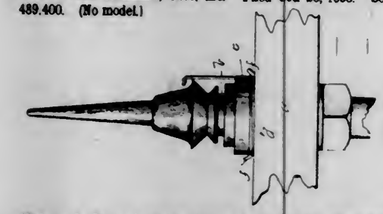
Claim.—1. A controlling switch for a motor, consisting of a series of two sets of terminals and opposed circuit closers therefor, adapted when one set of circuit closers is depressed to send the motor in one direction, and when the other is depressed to send the motor in the opposite direction each set of circuit closers before being fully depressed completing the circuit through resistances, said resistances being cut out of circuit when the said circuit closers have reached the limit of their motion.

2. A controlling switch for a motor, consisting of a series of two sets of terminals and opposed circuit closers therefor, adapted when one set of circuit closers is depressed to send the motor in one direction, and when the other is depressed to send the motor in the opposite direction, each set of circuit closers before being fully depressed completing the circuit through resistances, said resistances being cut out of circuit when the said circuit closers have reached the limit of their motion and electrically actuated means for controlling the application of said sets of circuit closers.

3. A controlling switch containing a series of terminals with a series of opposed movable circuit closers adapted to engage such terminals successively when the switch is operated, and suitable resistances and circuit connections so that when the first terminals are engaged the circuit is closed through the armature and field magnets of the motor including the resistance in each circuit, and when all of such terminals are engaged, the resistance is cut out.

4. A controlling switch for motors containing a series of terminals with a series of opposed movable circuit closers adapted to engage such terminals successively when the switch is operated, and suitable resistances and circuit connections so that when the first terminals are engaged the circuit is closed through the armature and field magnets of the motor including the resistance in each circuit, and when all of such terminals are engaged, the resistance is cut out, said terminals consisting of mercury cups with mercury of different levels therein.

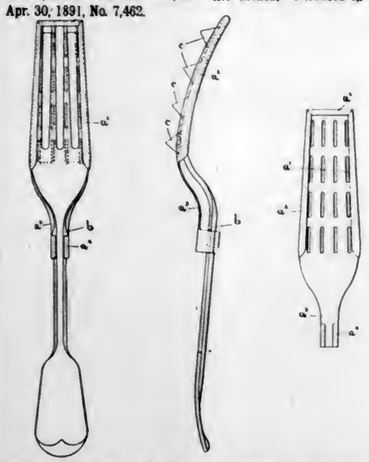
519,716. DEVICE FOR PLUMBING TOP-RAIL SPINNING-SPINDLES. JOHN P. KELLY, Saco, Me. Filed Oct. 28, 1893. Serial No. 489,400. (No model.)



Claim.—1. In a plumbing device for spindles, the combination with a spindle case having a projecting shoulder thereon and a supporting rail, of wedge shaped disks having central bores, said disks being superimposed and interposed between said rail and said shoulder and adapted to rotate around said case, substantially as and for the purposes set forth.

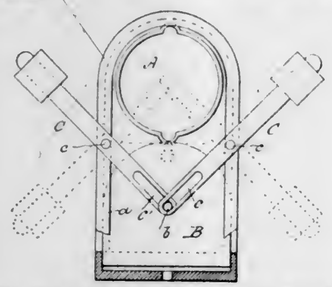
2. In a plumbing device for spindles, the combination with a spindle case having a projecting shoulder thereon and a supporting rail, of wedge shaped disks having central bores, said disks being superimposed and interposed between said rail and said shoulder and adapted to rotate around said case, and means for rotating said disks, substantially as and for the purposes set forth.

519,717. FORK ATTACHMENT. EDWARD S. LANE, Birmingham, assignor of two-thirds to Fordham & Smith, London, England. Filed Jan. 3, 1894. Serial No. 495,555. (No model.) Patented in England Apr. 30, 1891, No. 7,462.



Claim.—A device applicable to an ordinary table fork for cutting, dividing or reducing viands at table; consisting of one or more cutter plates carrying cutters or teeth c; and of a sheath or cutter holder having perforations d' to correspond with the openings between the prongs of the fork to receive the cutters or teeth of the cutter plate or plates, having turned over flanges a^2 to engage with the sides and ends of the prongs of the fork, and having a tail piece a^3 carrying a spring clip a^4 to engage with and grip the handle of the fork, as set forth.

519,718. GATE FOR PNEUMATIC DISPATCH-TUBES. SAMUEL F. LEAKE, Philadelphia, Pa., assignor to the Leake Pneumatic Transportation Company, same place. Filed Mar. 1, 1893. Serial No. 464,208. (No model.)

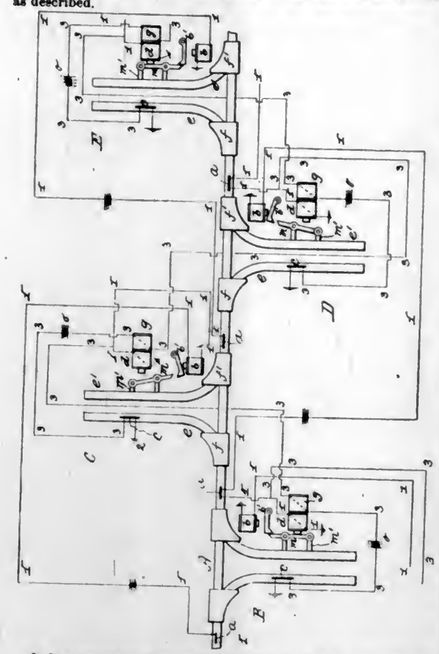


Claim.—1. In combination with a pneumatic dispatch tube, a counterbalanced gate which drops to open the tube and is elevated to close said tube and a locking mechanism for holding said gate in its elevated position under the control of a traveling carrier for releasing said locking mechanism, substantially as set forth.

2. In combination with tube A, the end or outside guide frame a, gate B having pivoted counterbalancing levers C, locking pawl d, lever d^2, link d' connecting said pawl and lever, and actuating mechanism for lever d^2 extending into the tube A and operated by a traveling carrier, substantially as set forth.

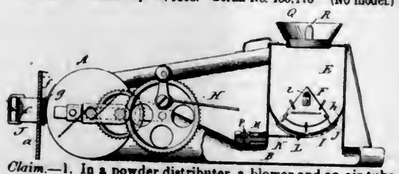
519,719. PNEUMATIC DISPATCH-TUBE SYSTEM. SAMUEL F. LEAKE, Philadelphia, Pa., assignor to the Leake Pneumatic Transportation Company, same place. Filed Mar. 1, 1893. Serial No. 464,217. (No model.)

Claim.—1. In a pneumatic dispatch tube system having sub-stations, with inlet and outlet receiver and transmitter tubes, a locking mechanism for the transmitter tubes, actuating mechanism for effecting such locking and for unlocking the same controlled by a traveling carrier for locking the transmitter tube two stations ahead of it and for unlocking said tube one station to the rear of it, substantially as described.



2. In a pneumatic dispatch tube system having sub-stations with locking mechanism for the outlet or transmitter tubes of the sub-station and actuating mechanism for effecting such locking and for unlocking the same controlled by a traveling carrier, which when diverted to its destined stations unlocks said tube at said station and at the station ahead of the destined station, substantially as set forth.

519,720. POWDER-DISTRIBUTER. CLINTON H. LEGGETT, New York, N. Y. Filed Sept. 9, 1893. Serial No. 485,173. (No model.)



Claim.—1. In a powder distributer, a blower and an air tube, in combination with a spout for said tube consisting of a shell carried at the end thereof, having an imperforate upper side, an entirely open under side, and flanged downwardly inclined edges around said open side, and a deflector carried by said shell between its flanged edges, substantially as and for the purpose set forth

2. In a spout for powder distributers, a nozzle for attachment to the air tube of the distributer, and a shell carried by said nozzle and consisting of a closed diverging wall w at the upper side, having at its edges downwardly inclined flanges x and z, and entirely open at its under side, substantially as and for the purpose set forth

3. A spout for powder distributers, consisting of a nozzle u, and a diverging shell v, entirely open at its under part, said shell having downwardly inclined flanges x at its side edges, and downwardly inclined flanges z at its end edge, and openings y between said flanges, and a V-shaped deflector S carried at the under side of said shell opposite said nozzle, substantially as and for the purpose set forth.

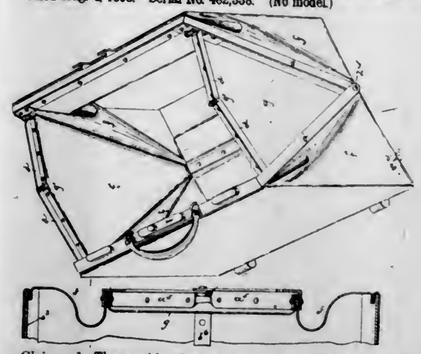
4. In a powder distributer the combination with the air tube and powder reservoir, of a valve in the latter, an externally projecting rod K for adjusting said valve, and an indicator O carried by said rod and showing the position of said valve.

5. In a powder distributer, the air tube, reservoir and valve therefor, in combination with a plate M having an aperture m, and an indicator O engaging said plate, a valve-rod K connected to the valve and carrying said indicator, and stops r carrying said plate and abutting against said indicator.

6. In a powder distributer, the air tube and reservoir, in combination with a valve plate I for controlling discharge from said reservoir, an adjusting rod K for said plate, and a flexible connection L between said rod and plate.

7. In a powder distributer, the air tube, reservoir, and fan casing in combination with a hook g on the latter, and a belt J, for the body of the user of the distributer, having a breast plate a, and a strap receiving said hook g, for supporting the distributer.

519,721. SATCHEL OR BAG. JACOB LINBACHER, Newark, N. J. Filed Aug. 4, 1893. Serial No. 482,338. (No model.)



Claim.—1. The combination, in a bag or satchel, of the jaw sections a, a', pivoted together at their lower parts, brace sections centrally jointed and hinged to said jaw sections, a bag body and a triangular gore, g, secured at its edges to said jaw and brace sections, substantially as set forth.

2. The combination, in a bag or satchel, with the jaws a, a', and jointed braces, of a bag body comprising a bottom with a series of longitudinal stiffeners, stiff sides, gussets inserted between the jaw-sections and the sides and at their ends secured to the bottom and a triangular gore inserted in the triangle formed by the jaws and braces, substantially as set forth.

3. The combination, in a bag or satchel, with the jaws a, a', and jointed braces hinged at their opposite ends to said jaws and a cross bar at the lower side of the bag and connecting the pivotal ends of the jaws, of a bag body comprising side pieces, gussets wider at the center parts than at the ends and inserted between the side pieces and the jaws, a bottom secured to said side-pieces and to the ends of the gussets and a triangular piece inserted at the ends of the frame between the jaw sections and braces, substantially as set forth.

4. In combination with the jaws and braces, of triangular gores or gussets secured to said braces at the upper edges and made full to admit the braces to turn to positions above a true horizontal line and to hold the same thereat, substantially as set forth.

5. In combination with the jaws a, a', angular at their upper parts at the ends and braces hinged thereat, a bbdy comprising side pieces, a bottom and gussets inserted between said jaws and the side pieces and joined at their ends to the bottom, substantially as set forth.

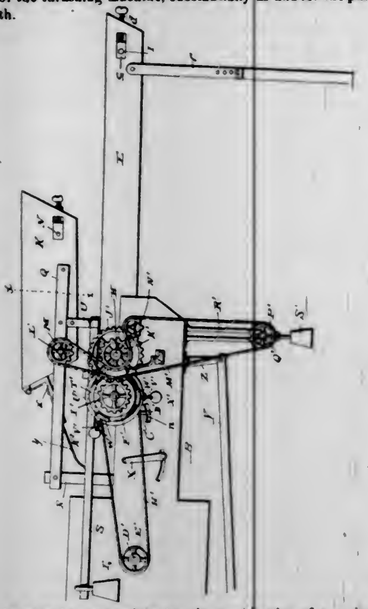
6. In combination with the jaws a, a', and braces, of body material including gores or gussets secured to said braces and jaws and folding inward, substantially as set forth.

519,722. BAND-CUTTER AND FEEDER. PETER LINSCHEID, Kemi, Minn. Filed Jan. 5, 1894. Serial No. 495,846. (No model.)

Claim.—1. In a band cutter and feeder, the combination of the frame or casing of a thrashing machine, a carrier, levers S, fulcrumed at an intermediate point of their length and carrying weights at one end, a frame K, bearing upon the opposite ends of the levers and carrying a band cutter and arms Q, connected to the frame K, and pivotally connected with the thrashing machine frame or casing, substantially as specified.

2. In a band cutter and feeder, the combination with the frame or casing of a thrashing machine; of a frame E, pivotally connected to said frame or casing and supporting an endless carrier, levers S, fulcrumed at an intermediate point of their length and carrying weights at one end, a frame K, bearing upon the opposite ends of the levers and carrying a band cutter, and arms Q, connected to the frame

K, and pivotally connected to standards rising from the casing or frame of the thrashing machine, substantially as and for the purpose set forth.

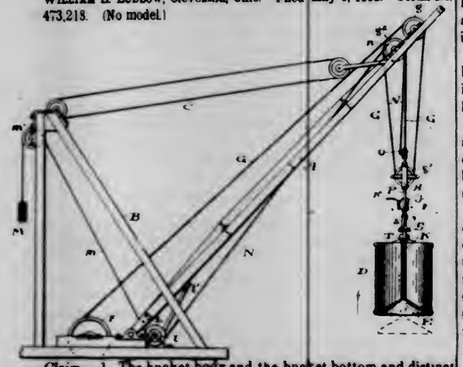


3. In a band cutter and feeder, the combination of a carrier, levers S, fulcrumed at an intermediate point of their length and carrying weights at one end, a movable frame bearing upon the opposite ends of the levers and carrying a band cutter having a shaft provided with a wheel L', a shaft H, carrying a wheel K', an idler wheel N' a vertically movable, weighted shaft carrying a wheel P', and a belt engaging the wheels L', K', N', and P', all substantially as and for the purpose set forth.

4. In a band cutter and feeder, the combination with the toothed cylinder and concave of a thrashing machine, of an endless carrier, a frame K arranged above the endless carrier and supporting a band cutter, the frame K^3, pivotally connected to the frame K, and comprising the body x, of approximate right angle form in cross section and the fingers extending forwardly from said body, and the feed table arranged beneath and in advance of the endless carrier, all substantially as and for the purpose set forth.

519,723. BUCKET HOISTING AND TRIPPING APPARATUS.

WILLIAM E. LUDLOW, Cleveland, Ohio. Filed May 6, 1893. Serial No. 473,218. (No model.)



Claim.—1. The bucket body and the bucket bottom and distinct lines of suspensory mechanism for each of said parts wholly above the bucket and having jointed connections, the mechanism supporting one of said parts of the bucket constructed to slide on the mechanism supporting the other part, separate cables for said mechanisms and bucket parts respectively, and separate drums and shafts for said cables, substantially as set forth.

2. The bucket body and mechanisms situated above and apart therefrom and a jointed connection between said mechanism and said body, said mechanism having guides and stops on the guides, in combination with the bucket bottom, a frame sliding on said guides from which said bottom is suspended, and separate cables for said body and bottom respectively, substantially as set forth.

3. A bucket body, and a supporting cable therefor and mechanism connecting the cable with said body, in combination with the bucket bottom, a frame from which the bottom is suspended and having a sheave journaled therein and a cable about said sheave serving to carry said bottom, substantially as set forth.

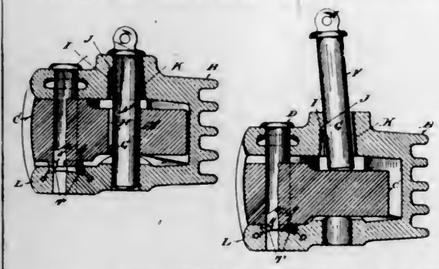
4. The bucket bottom and the cable and mechanism carrying the bottom, said mechanism having one end of the cable fixed thereto and a sheave in said mechanism over which the said cable passes, in combination with the bucket body and mechanism supporting said body constructed to guide and limit the movements of the mechanism carrying the bottom, substantially as set forth.

5. The two separate mechanisms for supporting the bucket, consisting of a pair of guides rigidly connected at their top and having the bucket body suspended from their ends and a supporting cable connected with the said guides, in combination with the bottom of the bucket and suspensory frame therefor having a sliding connection with the said guide and a separate cable connected with its top and a sheave journaled in said frame supporting said cable, substantially as set forth.

6. The bucket bottom and the suspensory mechanism therefor having a frame with a sheave therein and link connections between said bottom and said frame, in combination with the bucket body, mechanism from which said body is suspended having sliding connection with the said frame, and means to disconnect the bucket body and the bottom from their supports, substantially as set forth.

519,724. CAR-COUPLING.

RODNEY F. LUDLOW, Springfield, Ohio. Filed Feb. 3, 1894. Serial No. 498,992. (No model.)



Claim.—1. In a car coupling, the combination with a draw-head, of a knuckle pivoted therein, and a tumbler which acts on the knuckle to swing it outward by the gravitating force of the knuckle acting on the tumblers

2. In a car coupling, the combination with a draw-head, of a knuckle pivoted therein, and a tumbler between the head and knuckle and which acts on the knuckle to swing it outward by the gravitating force of the knuckle acting on the tumbler.

3. In a car coupling, the combination with a draw-head, and a knuckle pivoted therein, a pivot pin therefor, and a tumbler, located in immediate proximity to the pivot pin, which acts to swing the knuckle outward by the gravity of the knuckle acting on the tumbler.

4. In a car coupling, the combination with a draw-head having an opening for the pivot pin and one or more recesses around said opening, of a knuckle pivoted in the head, a pivot pin fitting the knuckle and said opening, and one or more tumblers fitted in said recesses and engaging with the knuckle, for the purpose described.

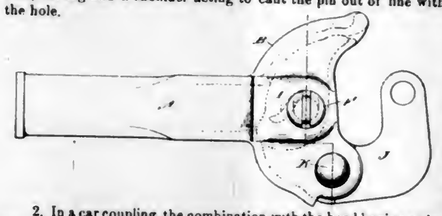
5. In a car coupling, the combination with a head having a pin-opening and one or more recesses formed back in the wall of said opening, of a pin in said opening, a knuckle pivotally mounted by means of the pin, and having one or more lugs adapted to enter said recesses, and one or more tumblers fitting in said recesses and against said shoulders, the tumbler or tumblers being moved from an inclined standing to a lying down position by the gravity of the knuckle, whereby the knuckle is swung outward.

519,725. CAR-COUPLING.

RODNEY F. LUDLOW, Springfield, Ohio. Filed Feb. 3, 1894. Serial No. 498,993. (No model.)

Claim.—1. In a car coupling, the combination with a draw-head having a pin-hole and a lug extending into the hole, of a pin adapted to fit the hole, and having a groove for the lug and a shoulder which strikes the lug, and a knuckle pivoted in the head and having a pin-hole and a pin adapted to fit the hole, obstructions to cant the pin from the vertical when lifted partly out, and a pivoted knuckle in the head having a raised track which acts to throw the pin from the incline to the vertical as the knuckle swings in, whereby the pin will enter the hole in the knuckle.

hole, the lug and a shoulder acting to cant the pin out of line with the hole.



2. In a car coupling, the combination with the head having a pin-hole and a pin adapted to fit the hole, obstructions to cant the pin from the vertical when lifted partly out, and a pivoted knuckle in the head having a raised track which acts to throw the pin from the incline to the vertical as the knuckle swings in, whereby the pin will enter the hole in the knuckle.

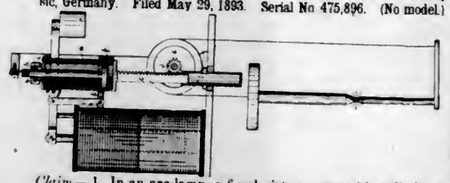
3. In a car coupling, the combination with the head, of a knuckle pivoted therein, an annulus separate from the knuckle and connected with it, and fitting and riding up and down in a recess round the pivot-pin hole of the head, the annulus having one or more inclined planes, and one or more lugs in the recess forming corresponding inclined planes, said planes being essentially below the surface of the head on which travel the planes of said annulus.

4. In a car coupling, the combination with the head, of a knuckle therein, a pivot-pin extending through a hole in the head and knuckle, the lower part of the said hole in the head having a recess round it, a traveling annulus round the pin and in said recess, inclined planes on the lower end of the annulus, and lugs in said recess forming inclined planes on their upper surface, the annulus and the knuckle being interlocked.

5. In a car coupling, the combination with the head having a pivot-pin hole, and inclined planes about the sides of said hole and essentially below the surface of the ear of the head, of a knuckle pivotally mounted within the head by means of a pin, and an annulus connected with the knuckle and fitting down within the ear, the annulus having inclined planes which ride upon those in the ear.

519,726. ELECTRIC-ARC LAMP.

WILHELM MATHIESEN, Leipsic, Germany. Filed May 29, 1893. Serial No. 475,896. (No model.)



Claim.—1. In an arc-lamp, a fixed piston, a movable cylinder, a rack-bar attached to one end of the cylinder, a pinion operated by the rack, and a carbon-holder actuated by the pinion, substantially as set forth.

2 In an arc-lamp, a fixed piston, a movable cylinder, a rack bar attached to one end of the cylinder, a pinion operated by the rack, a shaft on which the pinion is fixed, a drum larger in diameter than the pinion and fixed on the shaft, and a carbon-holder actuated by the drum, substantially as set forth.

3. In an arc-lamp, a fixed piston, a movable cylinder, a rack-bar attached to one end of the cylinder, a pinion operated by the rack-bar, a shaft on which the pinion is fixed, a drum on the shaft, a chain passing over the drum, and a carbon-holder attached to each side of the chain, substantially as set forth.

4. In an arc-lamp, a fixed piston, a movable cylinder filled with fluid, a rack-bar attached to one end of the cylinder, a pinion operated by the rack-bar, and a carbon-holder actuated by the pinion, substantially as set forth.

5. In an arc-lamp, a fixed piston, a movable cylinder, a rack-bar attached to one end of the cylinder, a pinion operated by the rack-bar, a shaft on which the pinion is fixed, a drum fixed on the shaft, a chain passing over the drum, a pair of carbon-holders actuated by the chain, and a clamping device engaging the cylinder, to control its movement, substantially as set forth.

6. In an arc-lamp, a fixed piston, a movable cylinder, a rack-bar attached to one end of the cylinder, a guide in which the end of the rack-bar moves, a pinion operated by the rack-bar, and a carbon-holder actuated by the pinion, substantially as set forth.

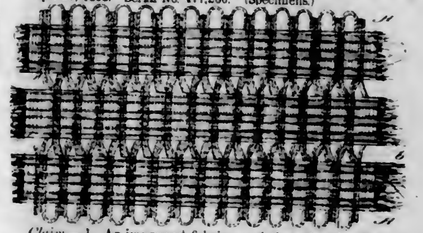
7. In an arc-lamp, a fixed piston, a movable cylinder, a rack-bar attached to one end of the cylinder, a pinion operated by the rack-bar, a carbon-holder actuated by the pinion, a clamping ring through which the cylinder passes, one end of the clamping ring resting on a stop, a lever pivotally attached to the other end of the ring, and an electro-magnet energized by the lamp circuit and actuating the lever, substantially as set forth.

8. In an arc-lamp, a fixed piston, a movable cylinder, a carbon-holder actuated by the cylinder, a clamping ring through which the cylinder passes, a stop on which one side of the ring rests, a link pivoted to the opposite side of the ring, a lever attached to the link, means for drawing the lever in one direction, and an electro-magnet energized by the lamp circuit and drawing the lever in the opposite direction, substantially as set forth.

9. In an arc-lamp, a fixed piston, a movable cylinder, a rack-bar attached to one end of the cylinder, a guide in which the rack-bar moves, a pinion operated by the rack-bar, a shaft on which the pinion is fixed, a drum mounted on the shaft, a chain passing over the drum, a pair of carbon holders secured to the chain, one on each side, the upper carbon-holder being heavier than the other, a clamping ring through which the cylinder passes, a stop on which one side of the ring rests, a link pivoted to the opposite side of the ring, a bell-crank lever having its short arm attached to the link, a spring secured to the long arm of the lever, an armature on the lever, an electro-magnet core arranged to contact with the armature, an electro-magnet coil energized by the lamp circuit, and a stop device secured to the core and limiting the motion of the lever in the direction of the magnet, substantially as set forth

519,727. ELASTIC FABRIC.

GEORGE C. MOORE, Easthampton, Mass., assignor of one-half to Joseph W. Green, Jr., same place. Filed Apr. 21, 1893. Serial No. 471,286. (Specimens.)

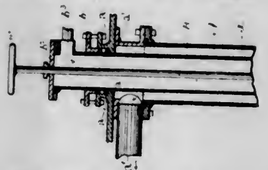


Claim.—1. An improved fabric consisting of a plurality of comparatively narrow flat strips of woven elastic fabric separated from each other, said strips having interwoven therewith by the fibrous warps thereof a cord or cords by which the said separated strips are joined together, said cord or cords being so disposed as to form an open work space or spaces between the said strips.

2. An improved fabric consisting of a plurality of comparatively narrow flat strips of woven elastic fabric separated from each other, said strips having interwoven therewith by the fibrous warps thereof a cord or cords by which the said separated strips are joined together, said cord or cords being so disposed as to form an open work space or spaces between the said strips, and the said cord or cords overrunning the outer edges of the said strips to form projecting loops

519,728. WATER-EJECTOR.

JOHN H. MCGOWAN, Cincinnati, Ohio. Filed Feb 23, 1894. Serial No. 501,169. (No model.)



Claim.—1. In a water ejector for wells, in combination with a water discharge tube and an air-delivery tube opening into the same, an adjustable air-deflector arranged concentrically in relation to the mouth of the air discharge tube and provided with means for adjusting the same from the surface of the ground at will, substantially as set forth.

2. In a water ejector for wells, in combination with a water discharge tube and an air-delivery tube opening into the same, an adjustable air-deflector arranged concentrically in relation to the mouth of the air discharge tube, adapted also to seat against the mouth of said tube as a stop valve, and means for operating the same from the surface of the ground at will; substantially as set forth.

3. In a water ejector for wells, in combination with a water-discharge tube and an air-delivery tube opening into the same at the lower end, a conical air-deflector adapted to seat upon and control

the mouth-opening of the air-discharge nozzle, and a rod connected to said deflector and extending to the surface of the ground and provided with means for manipulating the same to control or regulate the air-discharge opening, substantially as set forth.

4. In a water ejector for wells, the combination of the water-discharge tube, the air-delivery tube, the conical deflector, the operating rod extending to the surface of the ground, and a screw threaded support for the valve rod, whereby the air-discharge opening is regulated and controlled by rotating the valve rod, substantially as set forth.

5. In a water ejector, the combination of a water discharge tube, an air-delivery tube passing downward within the same to near its mouth, and a deflector-valve seated at the mouth of the air tube as a valve and adjustable to open positions to deflect the air into the space between the tubes in the direction of the discharge flow, substantially as set forth.

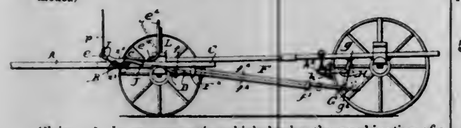
6. In a water ejector, the combination of a water discharge tube, an air-delivery tube passing downward concentrically within the same, a valve rod within the air tube, and a deflector-valve at the mouth of the air tube controlled by said rod, substantially as set forth.

7. In a water ejector the combination of a discharge tube provided at the top with an internal supporting ledge, and a stuffing box and an air delivery having an external ledge, adapted to hang suspended within the water discharge tube and emerge through the stuffing box, substantially as set forth.

8. In a water ejector the combination of a discharge tube an air delivery tube extending downward through the same and carrying an adjustable deflector valve below, a valve operating rod extending upward through the air tube and external means for operating the same, substantially as set forth

---

519,729. WAGON-BRAKE. GEORGE M. MCLAUGHLIN and CHARLES E. COOLEY, Westport, Mo. Filed July 31, 1893. Serial No. 482,038. (No model.)



Claim.—1. In an automatic vehicle-brake, the combination of a tongue A, a rod B which is secured to the rear portion of the tongue, a yoke D the ends of which are secured to the rod, an extension bar F, the forward end of which is secured to the yoke, its opposite end extending rearwardly is connected to a lever G, bracket *g*, to which the upper end of the lever is pivotally connected, and a connecting rod H, one end of which is pivotally connected to the lever, its opposite end being connected to the brake-beam, the whole being designed to operate simultaneously, substantially as described.

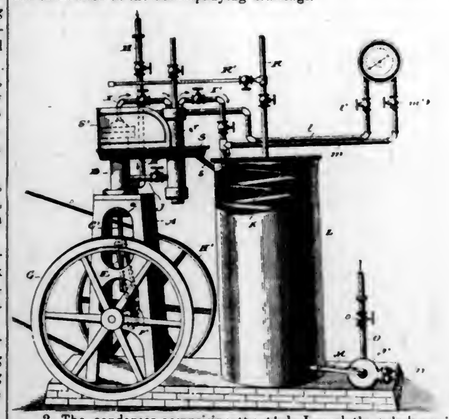
2. In an automatic vehicle-brake, the combination with the running gear of a vehicle, of a tongue A, a rod B which is secured to the rear portion of the tongue, a hound C having slots *c*, in which the ends of the rod are adapted to work, a U shaped locking attachment I, having notches i^2 which are adapted to engage the ends of the rod, a yoke D the front ends of which are also connected with the rod, an extension bar F, and a lever G, together, with the brake beam and shoes, substantially as described.

3. In an automatic vehicle brake, the combination of a tongue, a rod which is secured to the rear portion of the tongue, a hound having slots in which the ends of the rod operate, a U shaped locking attachment which is pivotally connected to the hound, having notches which are adapted to engage the ends of the rod, levers e^2 which are formed integral with cross bar E, the latter having a rod *e* projecting therefrom, which is adapted to raise the front portion of the locking attachment, a collar, having a flat upper surface, which is secured to the cross bar, a flat spring which is arranged to engage the flat surface of the collar, a yoke D the ends of which are secured to rod B, an extension bar F the forward end of which is connected to the yoke, a lever G the lower end of which is connected to the rear end of the extension bar, a bracket *g* to which the upper end of the lever is pivotally connected, and a connecting rod H, one end of which is pivotally connected to the lever, its opposite end being secured to the brake beam, substantially as set forth and described.

4. In an automatic vehicle brake, levers e^2 which are connected by means of cross bar E having rod *e* projecting therefrom, and a collar O the upper flat surface of which is engaged by flat spring N, substantially as set forth and described.

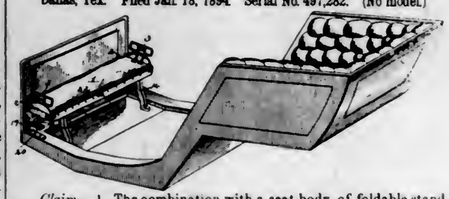
519,730. REFRIGERATING-MACHINE. JAMES E. MCLAUGHLIN, San Francisco, Cal. Filed Aug. 5, 1893. Serial No. 482,441. (No model.)

Claim.—1. The refrigerating apparatus comprising the pump, the pump supporting stand and pump actuating mechanism; the oil chamber; the condenser provided with a coil having interposed in its length drop sections *k* at right angles to the spiral portions of the coil; the receiver; and the valve controlled connections between the said pump, oil chamber, condenser and receiver—these parts being constructed and arranged together for joint operation as herein shown and illustrated in the accompanying drawings.



2. The condenser comprising the tank L, and the tubular coil composed of spiral sections, and short connecting pipes *k*, standing at about right angles to the spirals, and joining the lower end of one section to the upper end of the section next below, as and for the purpose shown and described.

519,731. CHILD'S SEAT FOR VEHICLES. THOMAS B. PADGITT, Dallas, Tex. Filed Jan. 18, 1894. Serial No. 497,282. (No model.)



Claim.—1. The combination with a seat-body, of foldable standards fixed thereto, and a safety device consisting of a strap secured at its extremities to the front and rear edges of the seat-body, one end of said strap being detachable, and a cleat secured to a stationary part of the vehicle for the engagement of said strap, substantially as specified.

2. The combination with a seat-body, of foldable front and rear standards, having horizontal arms fitting slidably and revolubly in suitable guides secured to the under side of the seat-body, and socket-pieces having parallel-sided recesses to receive flattened or parallel-sided portions of the standards when the latter are extended, substantially as specified.

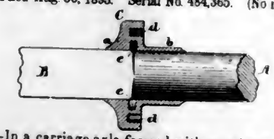
3. The combination with a seat body, of a box secured to the under side thereof and provided with ways, socket-pieces arranged in alignment with said ways at the opposite ends of the box, and front and rear standards having horizontal arms which are fitted slidably and revolubly in said ways and are provided with flattened portions to engage parallel-sided recesses in the socket-pieces, substantially as specified.

4. The combination with a seat-body, of a box having parallel ways, socket-pieces aligned with opposite ends of the ways in said box, standards provided with horizontal arms fitting slidably and revolubly in the ways and provided with flattened portions to engage said socket-pieces, and a locking device having a bar to engage notches in the horizontal arms of the standards and secure the standards in either their folded or extended positions, substantially as specified.

5. The combination with a seat-body, of a box secured thereto and having ways, standards provided with arms which are slidably and revolubly fitted in the ways, means to secure the standards in their extended or operative positions, and a locking bar arranged to engage notches in the slidable and revoluble arms of the standards and provided with adjusting devices whereby it may be disengaged therefrom, substantially as specified.

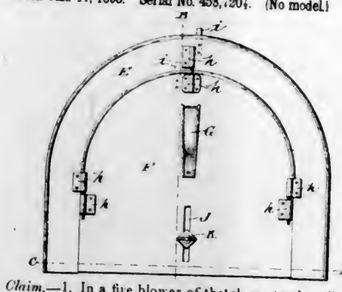
6. The combination with a seat-body, of a box secured to the under side thereof standards having horizontal arms fitting slidably and revolubly in said box and provided at intervals with notches which are disposed at an angle to each other, a locking bar fitting in a transverse opening in the box and adapted to be engaged with either of the notches in the horizontal arms of the standards when aligned therewith, and an adjusting-screw carrying said locking bar, substantially as specified.

519,732. CARRIAGE-AXLE. CHARLES H. PALMER, Amesbury Mass. Filed Aug. 30, 1893. Serial No. 484,365. (No model.)



Claim.—In a carriage axle formed with round arm A and square bed B, a collar C formed with portion *a* that fits upon part B of the axle, and part *b* fitting upon portion A of the axle, and having an interior chamber *c* arranged between said portions *a* and *b*, substantially as specified.

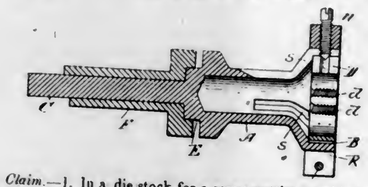
519,733. FIRE-BLOWER. THOMAS O. PAYNE, Vicksburg, Miss. Filed Jan. 17, 1893. Serial No. 458,720¼. (No model.)



Claim.—1. In a fire blower of the character described the combination of a body F, provided with means for adjusting the blower vertically, with a removable rim secured to the body, as set forth

2. In a fire blower of the character described the combination of a body F, a slot J and a thumb screw and bracket adjustably secured in said slot for adjusting the blower vertically, and a removable rim secured to the said blower by hinges or otherwise, as set forth.

519,734. DIE STOCK OR HOLDER. WALDO D. PUTNAM, Boston, Mass., assignor of one-half to William H. Wilkinson, same place. Filed Nov. 7, 1893. Serial No. 490,323. (No model.)

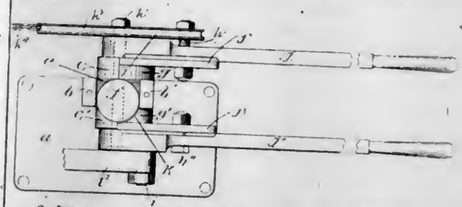


Claim.—1. In a die stock for a screw-cutting machine, a cylindrical head, containing a die socket in its outer end, at the opposite end, a supporting spindle which has sections of its length of different diameters, and a clutch-sleeve upon said spindle, having a bore which is the counterpart of the spindle, and in which the spindle is adapted to slide, whereby the die-stock is engaged and held while the screw is being cut and is released when the cut screw is being withdrawn, substantially as described.

2. A die-stock for a screw-cutting machine, consisting of a socket A surrounded by a slitted ring R and having a spindle provided with an enlarged portion E; a supporting sleeve F to be secured in the tail-stock of the machine, and projecting lugs upon the opposed faces of said sleeve and die-stock, substantially as described.

519,735. SWITCH AND SIGNAL OPERATING MECHANISM. NICHOLAS RATCHFORD, Covington, Ohio. Filed Aug. 11, 1893. Serial No. 482,917. (No model.)

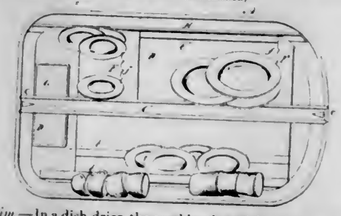
Claim.—1. In a railway switch and signal operating mechanism, the combination with a stand *d* and a transverse way or channel in the upper end thereof and a disk, loosely seated in said way, of levers *j j'* fulcrumed on opposite sides of said stand and cam lugs on the inner faces of said levers, said lugs being of such form as to prevent the movement of the lug of one of said levers past the periphery of the locking disk without first reversing the remaining lever when said levers are thrown to the same side of the stand substantially as and for the purpose specified.



2. In a combined switch and signal operating mechanism, the combination with a stand, and a transverse seat in the upper side thereof and a locking disk loosely supported in said way, of levers *j j'* fulcrumed on opposite sides of said stand, semi-circular cam projections on the inner sides of said lever arms, said cam projections being provided with alternately arranged beveled ends as described, a switch connection with the lever *j'* and a signal operating connection with the lever *j*, substantially as described.

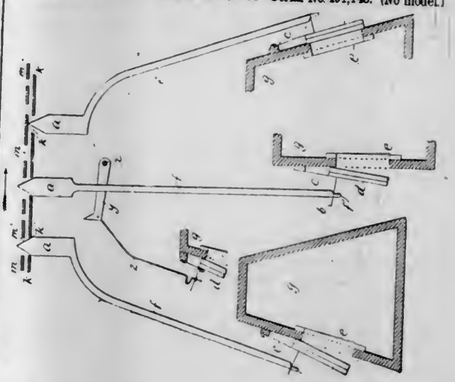
3. In a combined signal and switch operating mechanism, the combination with a stand having an upper end channel or way *e*, and a locking disk supported loosely in said way, of levers *j j'* fulcrumed on opposite sides of said stand, plates j^3 j^3 on the inner sides of said lever end portions, semi-circular cam lugs on the inner faces of said plates, each of said cam lugs having a beveled end portion, said beveled end portions being located, one at the upper end of one of said lugs and the other at the lower end of the other when said arms are on the same side of the stand, a signal operating connection with said lever *j*, and a switch operating connection with said lever *j'*, and inwardly extending and overlapping arms *p p'* on said levers, substantially as and for the purpose specified.

519,736. DISH-DRAINER. MARY REID, Fairfax, Iowa. Filed Oct. 2, 1893. Serial No. 486,960. (No model.)



Claim.—In a dish-drier, the combination of the pan A having supports A' A' inclining the bottom of the pan, the handle C having drainage holes *c c*, the longitudinal rib B, and the removable wooden platform B having ribs on the top thereof running parallel with the handle, substantially as and for the purpose set forth.

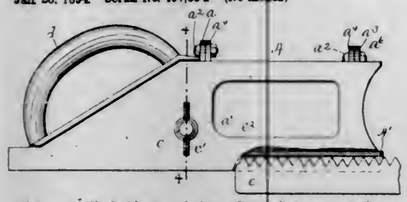
519,737. MUSICAL INSTRUMENT. FRIEDRICH A. RICHTER, Rudolstadt, Germany. Filed Nov. 16, 1893. Serial No. 491,143. (No model.)



Claim.—1. In an automatic musical instrument, the combination of a reed-valve *d*, a spring *c* for supporting the same under tension, a tongue *b* integral with the spring *c* and bent up at an angle to the reed valve, a lever *f* having one end bearing directly upon the tongue *b* and supported thereby and having its free end projecting into the path of a note plate and operated thereby substantially as described.

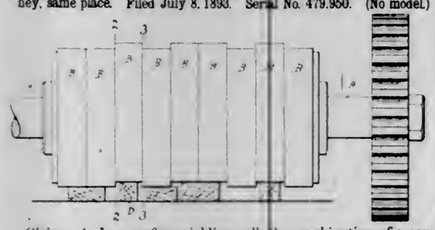
2. In an automatic musical instrument, a reed valve having a spring, and a spring tongue stamped out of the same piece of metal as the spring, and bent up to form a bearing for an operating lever, substantially as described.

519,738. **FILE-HOLDER.** JOSEPH ROUST, Quincy, Mass. Filed Jan. 23, 1894. Serial No. 497,834. (No model.)



Claim.—A file holder consisting of two jaws or members provided with longitudinal ways, grooves or channels of substantially the length of the file and into which the sides of the file project and are firmly supported against vertical movement, the said channels being made deeper at their rear portions to form shoulders 2, 3, and tapering at their front end, a front stop or projection on one of said jaws to co-operate with the end of the file unsupported by or projecting beyond the tapering end of the said ways or channels, and means to lock the said jaws or members, substantially as described.

519,739. **FEED-ROLLER FOR WOOD-PLANING MACHINES.** WILLARD N. SAWYER, Winchendon, Mass., assignor to Baxter D. Whitney, same place. Filed July 8, 1893. Serial No. 479,950. (No model.)



Claim.—1. In a surface yielding roll, the combination of a central driving shaft provided with a series of radial blades, an annular spring bearing against the end of said blades, whereby said spring is held concentrically with said shaft, and annular sections surrounding said central shaft, said sections being engaged by said annular spring, whereby they are held concentrically to said central shaft, substantially as described.

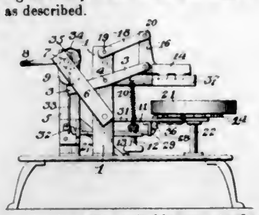
2. In a surface yielding roll, the combination of a central driving shaft, provided with a series of radial blades, an annular spring encircling and bearing against the ends of said blades, whereby said spring is held concentrically with said shaft, an annular section surrounding said shaft, said section having an internal flange and a series of wings projecting therefrom and bearing against the inside of said annular spring, whereby said annular section is held concentrically with said central shaft, yet being susceptible to eccentric movement, substantially as described.

3. In a surface yielding roll, the combination of central driving shaft A, radial projecting blades A', annular section B provided with an internal notched flange B' to receive said blades, wings B^3 projecting from said flange and arranged concentrically to said annular section, and an elastic split ring inclosing said wings, and bearing against the ends of said blades, whereby said annular section is held concentrically with said driving shaft, but is capable of an eccentric movement by the yielding of said elastic ring, substantially as described.

519,740. **DOUGH KNEADER AND MIXER.** RICHARD M. SHAFFER, Baltimore, Md. Filed May 25, 1893. Serial No. 475,462. (No model.)

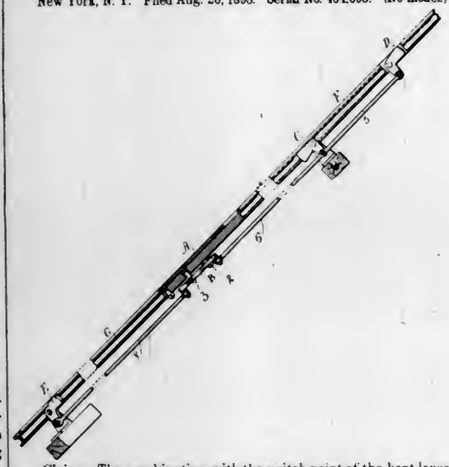
Claim.—1. The combination with a suitable support, of two levers pivoted thereto, a hammer head pivoted to the corresponding ends of the said levers, and a driven cam engaging the opposite end of one of the said levers, substantially as described.

2. The combination with a suitable support, of two levers pivoted thereto and projecting to one side thereof to approximately equal distance, one of the said levers projecting to the opposite side of the said support, a driven cam bearing on the said projecting end, and a hammer, having an arm pivoted to the free ends of the said levers, substantially as described.



3. The combination with a suitable support, of two levers pivoted thereto and projecting to one side thereof to approximately equal distance, one of the said levers projecting to the opposite sides of the said support, a shaft having a cam thereon tipping the projecting end of the said lever, a hammer having an arm pivoted to the free ends of the said levers, a rotary table below the said hammer, and a dog driven by the said shaft and engaging the said table to feed it forward step by step, substantially as described.

519,741. **SWITCH FOR CITY RAILWAYS.** JOSEPH SHUTT, East New York, N. Y. Filed Aug. 26, 1893. Serial No. 484,095. (No model.)



Claim.—The combination with the switch point of the bent lever B, the plate supporting the bent lever and the switch, and the connection 3 between the switch point and the lever, the levers C and D upon the main track standing in reverse positions and the rod 5 and 6, connecting the levers together and to one end of the lever B, the lever E upon the turn-out or branch and the rod 8, connecting the same to the other end of the lever B, substantially as set forth

---

519,742. **BRAKE FOR BICYCLES.** ELMER S. SILL, Massena, Iowa. Filed June 26, 1893. Serial No. 478,900. (No model.)

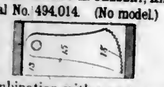


Claim.—1. An improved brake for bicycles, comprising a suitable brake rod, means for manually operating the same relative to the wheel tire, a roller mounted in the lower end of said rod and adapted to be brought into engagement with the wheel tire, a flexible band above the said roller and means whereby said band and roller may be brought into contact with each other when the roller is in engagement with the wheel tire, substantially as, and for the purposes, stated.

2. An improved bicycle brake, comprising the following elements, in combination, to wit, a suitable brake rod adapted to be manually operated relative to a wheel tire, a roller mounted in a support fixed to the lower end of said rod and capable of a limited vertical movement relative to the said support, a flexible band attached to the said support on opposite sides of the roller to be engaged by said roller, for the purposes stated.

3. An improved bicycle brake, comprising the following elements, in combination, to wit, a brake rod attached to a bicycle and adapted to be manually operated in the direction of the wheel, a spring arranged to normally hold it away from the wheel, a fork attached to the lower end of said brake rod, having the vertical slots therein, cross pieces at the ends of said fork, a roller having a concave surface mounted on an axle extended through said slots, a flexible band passed over the said cross pieces and having its ends brought together and adjustably connected at the top of the roller, substantially as, and for the purposes, stated.

519,743. **FENCE.** DANIEL H. TALBERT, Knightstown, Ind. Filed Dec. 19, 1893. Serial No. 494,014. (No model.)



Claim.—1. The combination with a post provided with a cam, of a wire stretcher provided with jaws, mechanism for adjusting the same, guard plates adapted to protect said mechanism, and a cam, strain upon the wire in opposite directions actuating the cams respectively, substantially as specified.

2. In a wire stretcher, the combination with jaws and handle pivoted thereto, of a bolt for adjusting the width of the jaws, and a gripper on the handle, substantially as set forth.

3. In a wire stretcher, the combination with jaws and guard plates, of a handle and gripper pivoted to the jaws, and a bolt for adjustably securing the ends of the jaws located behind the guard plates, substantially as set forth.

519,744. **CIRCULAR KNIFE FOR LEATHER-SKIVING MACHINES.** ANDREW J. TEWKSBURY, Haverhill, Mass. Filed Aug. 24 1893. Serial No. 483,964. (No model.)



Claim.—1. A circular knife mounted on a shaft and provided with an annular groove on its upper side, in combination with a supplementary support for said knife also located on said shaft and consisting of a disk having upon its under side an annular flange *c* adapted to be seated in said annular groove, substantially as described.

2. A circular knife mounted on a shaft and provided with an annular groove on its upper side, in combination with a supplementary support for said knife also located on said shaft and consisting of a disk having upon its under side a downwardly projecting annular flange adapted to be seated in said annular groove, and upon its upper side an upwardly projecting annular flange which in conjunction therewith forms an oil retaining cup, substantially as described.

519,745. **FLY-TRAP.** WILLIAM THOMAS, Schenectady, N. Y. Filed Dec. 7, 1893. Serial No. 493,014. (No model.)

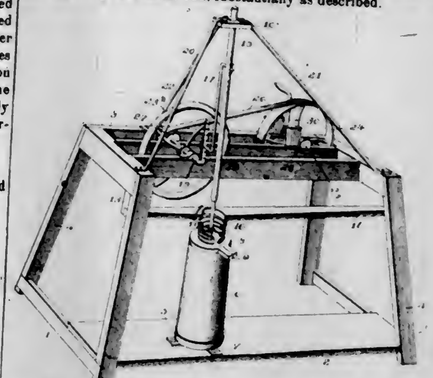


Claim.—1. In fly traps, the combination of a dish-shaped bottom-part, B, having a conical central opening, with a concavo-convex, or funnel-shaped cover, A, which acts as a deflector and forces the flies into the liquid below, while the absence of an opening in the funnel-portion of the cover, and the presence of the projecting portion at the base of its handle, serve to prevent their escape, substantially as heretofore described.

2. A fly trap consisting of a single vessel, having a dish shaped bottom with a conical central opening, and a concavo-convex, or funnel-shaped top, which, at that point where the tube of the funnel would join, projects over the center opening of the bottom, substantially as and for the purpose specified.

519,746. **CHURN.** WILLIAM H. THOMAS, Taylorsburg, Va. Filed Dec. 26, 1893. Serial No. 494,790. (No model.)

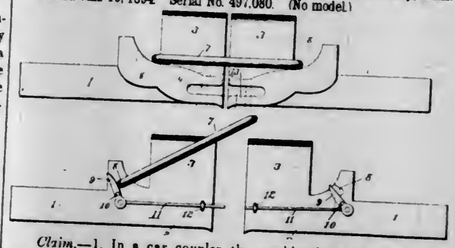
Claim.—1. In a churn, the combination of a frame, a churn body provided with a removable cover, a dasher rod passing through the cover, and a spring connected with the frame and bearing against the cover and securing the same in place, and provided at one side with a vertical opening forming an entrance to its interior and enabling it to be readily placed on and removed from the cover without removing the dasher rod, substantially as described.



2. In a churn, the combination of a frame, a churn body mounted thereon and provided with a removable cover, a dasher rod passing through the cover, and a spring bearing against the cover and connected with the frame, and provided at one side with a vertical opening forming an entrance to its interior, said spring being composed of a series of segmental loops, having their ends separated, and constructed of a single piece of resilient material and having their openings or the spaces between their ends arranged one above another, substantially as and for the purpose described.

3. In a churn, the combination of a frame provided with recessed blocks arranged at opposite ends thereof, a socket arranged at the bottom of the frame and consisting of a vertical flange, a churn body mounted in the socket and provided with a removable cover, a dasher rod passing through the cover, a removable bar having recessed ends engaging said blocks, and a spiral spring secured to the bar and bearing against the cover and provided with a vertical opening forming an entrance to its interior, substantially as described.

519,747. **CAR-COUPLING.** JAMES W. UNRUH, Roxbury, Kans. Filed Jan. 16, 1894. Serial No. 497,080. (No model.)



Claim.—1. In a car coupler, the combination with a coupling head, and studs thereon, of a link, a recess behind the coupling head adapted to retain the link in an elevated position, and means for forcing the link out of the recess, substantially as set forth

2. In a car coupling, the combination with a coupling head and studs thereon, of a recess behind the stud adapted to support the link in an elevated position, a pivoted lever carried on the coupling head adapted to force the link out of the recess and a bar connected with the lever and extending beyond the end of the coupling head, substantially as and for the purpose specified.

3. The combination with a coupling head and stud, of a recess adapted to carry a link, a lever adapted to throw the same out of the recess, a bar connected with the lever and projecting in front of the coupling head, a bent end upon the bar, and a recess in the face of the coupling head for the reception of the bent end, substantially as set forth.

519,748. **TIRE FOR WHEELS OF VEHICLES.** GEORGE S. WEBB, Aurora, Ill. Filed Dec. 16, 1893. Serial No. 493,883. (No model.)

Claim.—1. In a wheel, the combination with the rim and tire, of a band engaging the tire and binding it to the rim, said band having mechanism connecting its ends and adapted to draw and hold it

taut, said mechanism being removably seated upon the rim so that it can be lifted therefrom with the tire when the band is slack, said mechanism including a rack and pinion, means for turning the pinion, and a detent for holding the parts to their adjustment, substantially as set forth.



2. In a wheel, the combination with the rim and tire, of a band engaging the tire and binding it to the rim, said band having mechanism connecting its ends and adapted to draw and hold it taut, said mechanism being removably seated upon the rim so that it can be lifted therefrom with the tire when the band is slack, said mechanism including a rack and pinion, means for turning the pinion, a pawl and ratchet, and means for causing said pawl to automatically engage the ratchet for holding the mechanism to its adjustment, substantially as set forth.

3. In a wheel, the combination with the rim and tire, of a band engaging the tire and binding it to the rim, said band having mechanism connecting its ends and adapted to draw and hold it taut, said mechanisms being removably seated upon the rim so that it can be lifted therefrom with the tire when the band is slack, said mechanism including a housing to which one end of the band is attached, a rack bar mounted to slide in the housing and to which the other end of the band is attached, a pinion journaled in the housing and engaging the rack bar, means for turning the pinion, and a detent for holding the parts to their adjustment, substantially as set forth.

4. In a wheel, the combination with the rim and tire, of a band engaging the tire and biuding it to the rim, said band having mechanism connecting its ends and adapted to draw and hold it taut, said mechanism being removably seated upon the rim so that it can be lifted therefrom with the tire when the band is slack, said mechanism including a housing to which one end of the band is attached, a rack bar mounted to slide in the housing and to which the other end of the band is attached, a pinion journaled in the housing and engaging the rack bar, means for turning the pinion, a pawl engaging one of the operative parts, and a spring holding said pawl normally in engagement, substantially as set forth.

5. In a wheel, the combination with the rim and tire, of a band engaging the tire, a housing to which one end of the band is attached, a rack bar to which the other end of the band is attached, a series of ratchet teeth formed on the said rack bar, a pinion journaled in the housing and engaging said rack bar, means for turning the pinion, a pawl, means for causing said pawl to automatically engage said ratchet teeth, and a stem for moving said pawl and disengaging it from said ratchet teeth, substantially as set forth.

6. In a wheel, the combination with the rim and tire, of a band engaging the tire and holding it to the rim, said band having mechanism connecting its ends and adapted to draw and hold it taut, said mechanism including a sliding bar having a series of ratchet teeth, a pawl, and a spring engaging said pawl and holding it normally in engagement with said teeth, substantially as set forth.

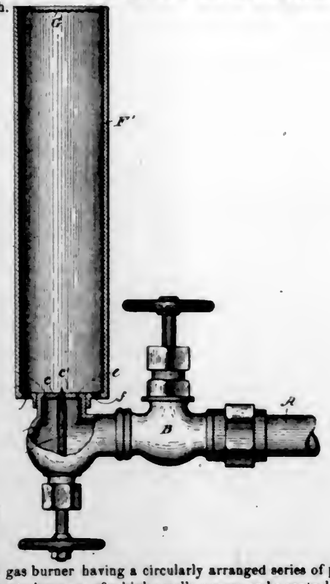
7. In a wheel, the combination with the rim and tire, of a band engaging the tire, mechanism for connecting the ends of the band and drawing and holding it taut, said mechanism including a rack and pinion, and a shaft to which the pinion is secured, said shaft having a longitudinal perforation, a detent for preventing retrograde movement of the rack bar, means for causing said detent to engage automatically, and a stem for lifting the detent, said stem occupying the perforation of the shaft, substantially as set forth.

8. In a wheel, the combination with the rim and tire, of a band engaging the tire, mechanism for connecting the ends of the band and drawing and holding it taut, said mechanism including a rack and pinion, a longitudinally perforated shaft to which the pinion is secured, a detent for preventing retrograde movement of the rack, a stem for lifting said detent occupying the perforation of the shaft, and a cap screwed onto the projecting end of the stem and serving as a lock for preventing the accidental inthrust of the stem, and serving also to facilitate its inthrust when the detent is to be raised, substantially as set forth.

519,749. GAS-BURNER FOR HEATERS. ABRAHAM T. WELCH, Washington, D. C. Filed Mar. 30, 1893. Serial No. 468,376. (No model.)

Claim.—1. A gas burner for heaters having a minimum sized primary gas orifice or orifices and a maximum sized, secondary orifice having means for regulating the flow of gas therethrough, said primary and secondary gas orifices being distantly and relatively arranged, to induce inward air drafts by their gas jets, substantially as set forth.

2. A gas burner having a minimum sized gas orifice, and a central gas orifice having a valve for regulating the flow of gas therethrough, said gas orifices being distantly and relatively arranged to induce inward drafts by their gas jets to feed the flame, substantially as set forth.



3 A gas burner having a circularly arranged series of primary gas orifices to burn gas of a high candle power, and a central gas orifice having a valve for regulating the flow of gas therethrough, substantially as specified.

4. A gas burner having one or more gas orifices to induce an air blast by the gas jets issuing there from to feed the flame, and a secondary gas orifice having an adjustable valve arranged to deliver gas to the flame at a reduced pressure, substantially as set forth

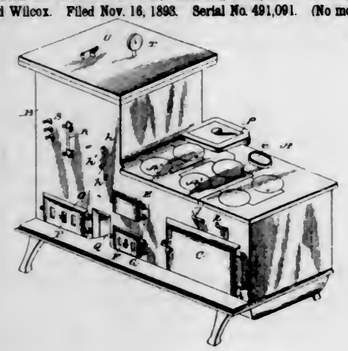
5. A gas burner having its supply pipe provided with an enlargement or head fitted with a top plate having a valved central gas orifice and a distantly arranged series of tapering gas orifices, substantially as and for the purpose set forth.

6. A gas burner having a valved central gas orifice and a series of distantly arranged gas orifices having a general inclination inward toward the center of the burner substantially as and for the purpose set forth.

7. A gas burner having a valved central gas orifice and a series of distantly arranged gas orifices tapered from within the burner outward and having a general inclination toward the center of the burner, substantially as and for the purpose set forth.

8. A gas burner having a valved central gas orifice and a series of distantly arranged gas orifices, in combination with a cylinder or pipe arranged thereon and having at its top a foraminous or gauze diaphragm, substantially as and for the purpose specified.

519,750. COMBINED STOVE AND HEATER. FREDERICK K. WILCOX and CHARLES E. VAIL, Plainfield, N. J.; said Vail assignor to said Wilcox. Filed Nov. 16, 1893. Serial No. 491,091. (No model.)

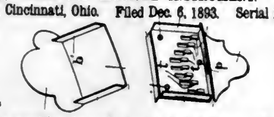


Claim.—1. In a combined stove and heater, the fire brick (cut off) *i*, L in combination with the grate *n*, and ports *r*, *s*.

2. In a combined stove and heater, the recess Q, one wall whereof has the damper M affording a side draft to the fire on grate H.

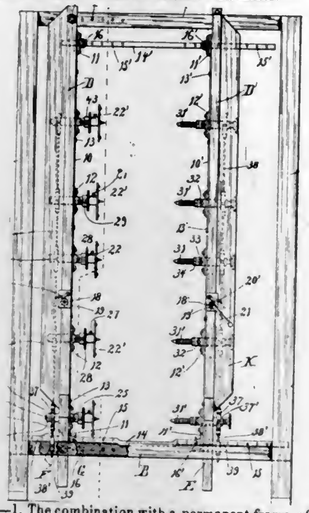
3. In a combined stove and heater, the damper shaft *h* having the central damper *g* set reversely to the terminal dampers *f f*, in combination with the fire-brick L and the ports *r*, *s*.

519,751. STRINGED MUSICAL INSTRUMENT. HOWARD E. WURLITZER, Cincinnati, Ohio. Filed Dec. 6, 1893. Serial No. 492,917. (No model.)



Claim.—The combination of a string holder provided with side flaps or gibs as described, with a covering plate provided with corresponding flaps or gibs and adapted to pass over and engage with the string plate in a sliding engagement and be held by an outward resilient pressure, as a bracket-support for the guard-extension of the covering plate substantially as set forth.

519,752. FRAME FOR SUPPORTING PATTERNS AND MATERIAL FOR CARVING-MACHINES. CHARLES S. YARNELL, Minneapolis, Minn., assignor to the Moore Carving Machine Company, same place. Filed July 15, 1893. Serial No. 480,588. (No model.)



Claim.—1. The combination with a permanent frame, of two vertical oppositely disposed posts supported adjustably toward and from each other on the frame, bars supported and independently adjustable vertically on the posts, and chucks arranged in sets fulcrumed normally at a right angle to, and so as to swing vertically on the bars, substantially as described.

2. The combination with a permanent frame, of two vertical oppositely disposed posts supported on the frame one of which is movable thereon toward and from the other post, a jointed parallelogram frame so secured to the posts that one side at least of the parallelogram is adjustable endwise on and parallel with its post, and a plurality of chucks mounted thereon pivotally, normally at a right angle thereto, substantially as described.

3. The combination in an apparatus of the character described, of two vertical oppositely disposed posts, one at least of which is movable toward and from the other post, chuck-carrying bars secured to and movable endwise on and parallel with the posts, and connecting rods provided with series of apertures adapted to receive connecting and pivotal pins whereby the bars and their supporting posts are adjustable toward and from each other and the bars are severally and independently adjustable endwise on the posts, substantially as described.

4. The combination in an apparatus of the character described, of two vertical oppositely disposed posts, one at least of which is movable toward and from the other post, chuck-carrying bars secured to and adjustable on the posts, racks fixed on the bars and shafts mounted in the posts provided with pinions meshing with the racks on the bars, whereby the bars can be raised and lowered, substantially as described.

5. The combination in an apparatus of the character described, of two vertical posts one of which at least is movable toward and from the other post, a jointed parallelogram frame mounted on the posts, chucks opposite each other in sets, sleeves mounted to swing vertically on the sides of the parallelogram frame, in which sleeves the chucks are mounted severally, substantially as described.

6. The combination in an apparatus of the character described, of two vertical posts one of which at least is movable toward and from the other post, a jointed parallelogram frame mounted on the posts, chucks opposite each other in sets, sleeves mounted to swing vertically on the sides of the parallelogram frame in which sleeves the chucks are mounted severally, and means connecting the sleeves to the parallelogram frame in such manner as to compel a corresponding movement therewith, substantially as described.

7. In an apparatus of the character described, vertically disposed posts, bars movable vertically on the posts, chuck-carrying sleeves fulcrumed on the bars, a rod or rods jointed to and connecting the bars, and other rods connecting the sleeves to the first mentioned rod or rods, substantially as described.

8. In an apparatus of the character described, a series of chuck-carrying sleeves fulcrumed on a support one above another, means whereby the sleeves and their chucks may be concurrently tilted independently of their support, consisting of links in which the sleeves are severally pivoted at a distance from their fulcrums, and rods connecting the links, substantially as described.

9. In a pattern and material-holding apparatus, a series of sleeve boxes mounted analogously so as independently of their support to tilt in the same plane coincidently toward and from each other, chucks revoluble in said sleeve boxes, annular racks secured to the chucks, latches mounted on said sleeve boxes adapted to lock the chucks releasably against revolution in the boxes, other sleeve boxes opposite and complementary to the sleeve boxes aforesaid, mounted and tiltable in the same plane therewith, pin pointed center-chucks adjustable endwise in said last mentioned sleeve boxes toward and from the first mentioned chucks, and means for locking the center-chucks in the sleeve boxes, substantially as described.

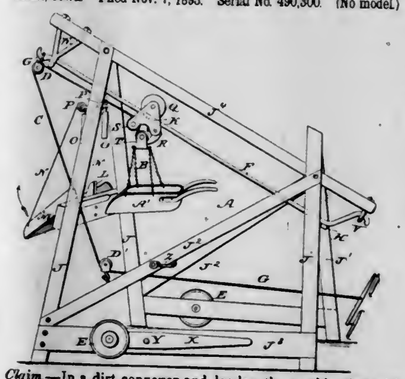
10. In a pattern and material-holding apparatus, a chuck, a revoluble stock on which the chuck is mounted, a sleeve-box in which the stock has its bearing revolubly, an annular rack secured to the chuck, a latch adapted to engage the rack and a collar on which the latch is mounted, which collar is adjustable revolubly on the sleeve-box, all combined, substantially as described.

11 The combination with a frame having apertures G, of movable posts D D', pins F, movable bars 10, 10' mounted on the posts, and connecting rods 14, 14' provided with a series of apertures 15 and pins by which the bars are connected adjustably to the connecting rods, substantially as described.

12. In an apparatus of the character described, the combination with posts D D' of bars 10, 10' supported and movable endwise thereon, connecting rods 14, 14', and chuck-carrying plates 12, 12' secured to the bars 10, 10' adjustably, substantially as described.

13. The combination with a post D, of chuck-carrying bars 10, supported and movable endwise thereon, tie plates 11 secured rigidly to the bars, and bearing and guiding bolts 41, 41' fixed in the plates and holding them movably to the posts, substantially as described.

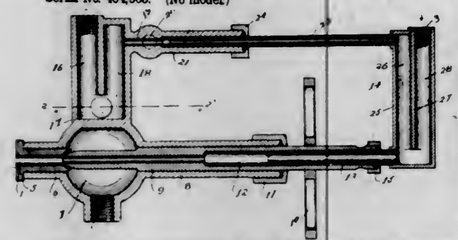
519,753. DIRT-LOADING MACHINE. JOSHUA M. YOUNGER, Sloan, Iowa. Filed Nov. 7, 1893. Serial No. 490,300. (No model.)



Claim.—In a dirt conveyer and loader, the combination with a portable supporting frame provided with an inclined single track jour-

naled at a fixed point at its upper end and at its lower end allowed to swing laterally, of a carrier adapted to run upon said track, a pivoted lever arm to which the actuating rope is attached, said arm having its pivoted end convex, a dog pivoted at one end within the carrier frame and having an angular recess in its upper edge adapted to engage a track-stop, and a concave recess in its free end adapted to engage the convex end of the lever arm, a stop H secured to and at the lower end of the track, substantially as and for the purpose described.

519,754. OIL-BURNER. CHARLES C. BALDWIN, Momence, Ill., assignor of one-half to Frank S. Hupp, same place. Filed Sept. 4, 1893. Serial No. 484,803. (No model.)



Claim.—1. The combination in an oil burner of a burner opening 1, a steam supply port communicating therewith, a nozzle for supplying oil to said opening 1, an oil supply port 2 communicating with an extension or pipe 21, and a coupling 14, for conveying the oil from said pipe or extension 21 to the said nozzle and having a separable sliding connection with said parts, substantially as described.

2. In an oil burner the combination with the oil supply port and with the nozzle for conveying the oil to the burner opening, of a coupling 14 having a separable sliding connection at its opposite ends with said oil supply port and with said nozzle and having a partition dividing a portion of the same into two passages 26 and 28, said passage 28 communicating at its opposite ends with the atmosphere and with said passage 26, and said passage 26 communicating at its opposite ends with the passages leading to the oil supply port and to the said nozzle, substantially as described.

3. The combination in an oil burner, of a burner opening 1, a steam supply port communicating therewith, a nozzle for supplying mixed oil and air to said opening 1, an oil supply port 2 communicating with an extension or pipe 21, a coupling 14 for conveying the oil from said extension or pipe 21 to said nozzle and having a separable sliding connection with said parts, and an air supply port communicating with said nozzle, substantially as described.

4. An oil burner having a steam chamber 7 communicating with a source supplying steam thereto, a burner opening at one side of said steam chamber, a nozzle 9 having its ends located opposite said burner opening and being longitudinally adjustable, an oil supply port communicating with a pipe or extension 21 and controlled by a valve 20, and a coupling 14 communicating with said pipe or extension 21 and with said nozzle 9 and having a separable sliding connection with said parts, substantially as described.

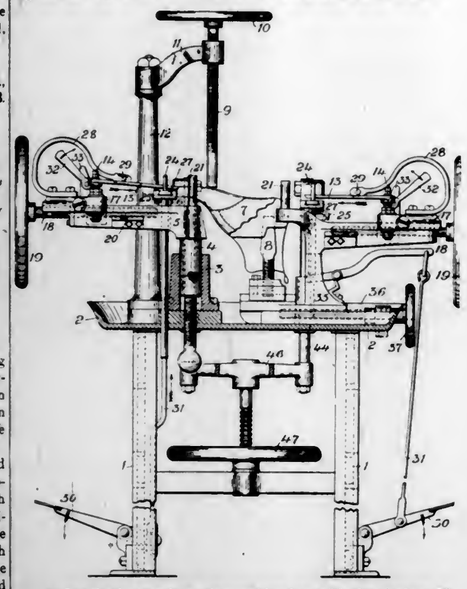
519,755. LASTING-MACHINE. JOHN BLAKEY, Leeds, England. Filed Dec. 11, 1893. Serial No. 493,355. (No model.)

Claim.—1. In a lasting machine, the combination, with the fringe-jaws 13, of the studs 14 pivotally engaging the rear ends of the said jaws and provided with rollers 15, the longitudinally adjustable plate 17 provided with curved slots 16 engaging the said rollers, a spring operating to press the jaws downward, and the stationary plate provided with cams 20 for the said rollers to bear against, whereby the inner ends of the jaws are closed up, substantially as set forth.

2. In a lasting machine, the combination, with the fringe-jaws 13, of the studs 14 pivotally engaging the rear ends of the said jaws and provided with rollers 15, the longitudinally adjustable plate 17 provided with curved slots 16 engaging the said rollers, a spring operating to press the jaws downward, the stationary plate 5 provided with cams 20 arranged in front of the said rollers, a nut secured to the plate 17, the screw 18 engaging with the said nut and operating to move the jaws back and forth, substantially as set forth.

3. In a lasting machine, the combination, with the fringe jaws 13, of the studs 14 pivotally engaging the rear ends of the said jaws and provided with the rollers 15, the longitudinally adjustable plate 17 provided with the curved slots 16 engaging the said rollers, the springs 23 for opening the jaws, the rod 31 provided with a bar 27, the slides 25 provided with studs 24 and engaging the said bar, the spring 26 connecting the two slides, the said studs 24 operating to press together the front ends of the jaws; and the stationary plate provided with cams 20 for the rollers 15 to bear against, substantially as set forth.

4. In a lasting machine, the combination, with the pinchers 38, and the pivoted links 39; of the yoke 40 operatively connected to the said links, the crossbar 41 passing through the yoke, a screw 48 for adjusting the position of the crossbar, the stationary pillars 44, and the lever arms 42 pivoted to the tops of the said pillars and having the said bar 41 connected to them, substantially as set forth.



5. In a lasting machine, the combination, with the pinchers 38, and the pivoted links 39; of the yoke 40 operatively connected to the said links, the crossbar 41 passing through the yoke, a screw 48 for adjusting the position of the crossbar, the stationary pillars 44, one of said pillars being provided with ratchet teeth at its top, the lever arms 42 pivoted to the tops of the said pillars and having the said bar 41 connected to them, and the pawl 45 pivoted to one of the lever arms and engaging with the said ratchet teeth, substantially as set forth.

519,756. DENTAL CHAIR. ARTHUR W. BROWNE, Prince's Bay, N. Y., assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Feb. 5, 1894. Serial No. 499,051. (No model.)

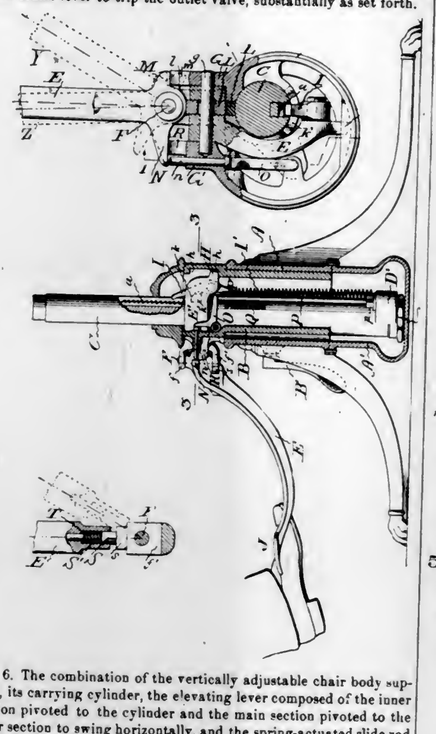
Claim.—1. The combination, in a dental chair, of the vertically adjustable support, the cylinder in which it is mounted, the elevating lever pivoted to the cylinder, composed of jointed sections and provided with the cam, and the clamping shoe for locking the support against lateral movement acted upon by said cam when the main section of the lever is swung sidewise in one direction, substantially as set forth.

2. The combination, in a dental chair, of the vertically adjustable support, the cylinder in which it is mounted, the elevating lever pivoted to lugs of the cylinder, composed of jointed sections and provided with the cam and lateral lug, and the clamping shoe for locking the support against lateral movement, acted upon by said cam when the main section of the lever is swung sidewise in one direction to bring its lateral lug above a projection of one of the lugs of the cylinder to which the lever is pivoted, substantially as set forth.

3. The combination, in a dental chair, of the cylinder, the vertically adjustable support mounted in the cylinder, the elevating lever pivoted to the cylinder and composed of jointed sections, mechanism serving to uphold the support, and tripping mechanism actuated by the main section of the lever when swung sidewise to throw the upholding mechanism out of action and allow the support to descend, substantially as set forth.

4. The combination, in a dental chair, of the cylinder, the liquid-carrying reservoir, the vertically adjustable support mounted in the cylinder, the inlet and outlet valves by which liquid is allowed to pass from the reservoir to the cylinder beneath the support and from the cylinder to the reservoir, the elevating lever pivoted to the cylinder and composed of jointed sections, and the tripping mechanism of the outlet valve actuated by swinging the main section of the lever sidewise, substantially as set forth.

5. The combination, in a dental chair, of the cylinder, the liquid carrying reservoir, the vertically adjustable support mounted in the cylinder, the outlet valve by which liquid is allowed to pass from the cylinder beneath the support to the reservoir, the elevating lever pivoted to the cylinder, composed of jointed sections and provided with the lateral arm, the push rod against which said arm is made to bear by swinging the main section of the lever sidewise, the bell-crank lever acted upon by the push rod, and the thrust rod acted upon by the bell-crank lever to trip the outlet valve, substantially as set forth.



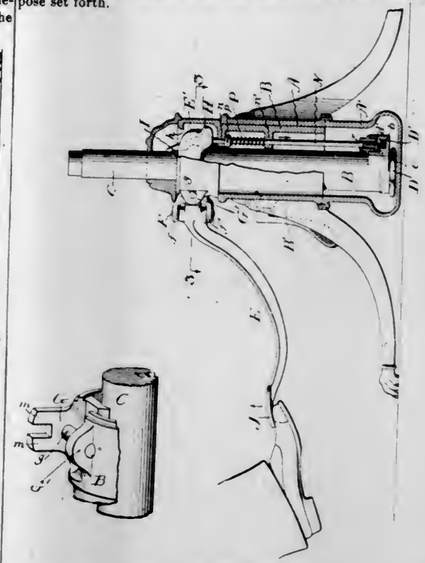
6. The combination of the vertically adjustable chair body support, its carrying cylinder, the elevating lever composed of the inner section pivoted to the cylinder and the main section pivoted to the inner section to swing horizontally, and the spring-actuated slide rod mounted in one section of the lever and acting against the other section thereof to yieldingly hold the main section of the lever in its normal position and restore it thereto from a position slightly to one side thereof, substantially as set forth.

7. The combination of the vertically adjustable chair body support, its carrying cylinder, the vertically rocking elevating lever pivoted to the cylinder and composed of two sections jointed together with the main section capable of swinging sidewise in opposite directions, the clamp for locking the support against lateral movement acted upon by the swinging section of the lever when moved sidewise in one direction, mechanism for upholding the support, and its tripping mechanism acted upon by the swinging section of the lever when moved sidewise in a direction opposite to that in which it is moved to actuate the clamp, substantially as set forth.

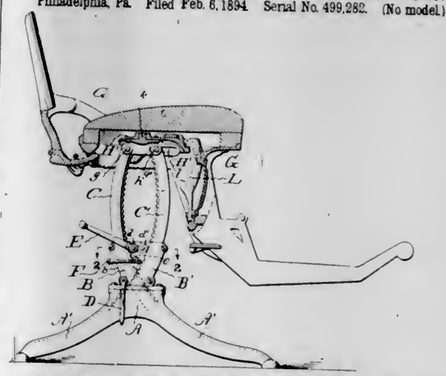
519,757. DENTAL CHAIR. ARTHUR W. BROWNE, Prince's Bay, N. Y., assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Feb. 6, 1894. Serial No. 499,281. (No model.)

Claim.—1. The combination, in a dental chair, of the vertically adjustable support, the cylinder having the lever pivoting lugs one of which is provided with two projections, the elevating lever pivoted to said lugs, composed of jointed sections and provided with the cam and lateral lug, and the clamping shoe for locking the support against lateral movement, acted upon by said cam when the main section of the lever is swung sidewise to bring its lateral lug between said projections of one of the lever pivoting lugs, substantially as set forth.

2. The combination, in a dental chair, of the horizontally rotating cylinder, the liquid-carrying reservoir, the vertically adjustable support mounted in the cylinder and provided with the rack teeth, the vertically rocking sectional elevating lever pivoted by its inner section to the cylinder, the pawl carried by said section and adapted to engage the rack teeth of the support upon downward movement of the outer section of the lever, the outlet valve by which liquid is allowed to pass from the cylinder beneath the support to the reservoir, the thrust rod actuated by the lever upon forcible upward movement of the outer section thereof to trip the outlet valve, and the spring acting upon the thrust rod to hold it up when not forcibly depressed by the action of the lever, substantially as and for the purpose set forth.



519,758. DENTAL CHAIR. ARTHUR W. BROWNE, Prince's Bay, N. Y., assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Feb. 6, 1894. Serial No. 499,282. (No model.)

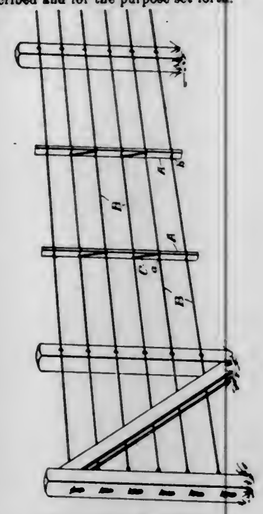


Claim.—The combination of the vertically adjustable curved rack bars crossing each other and projecting upwardly above the point of crossing the one in advance of the other, the base or pedestal in which the rack bars slide, gearing for actuating the rack bars to raise and lower them, and the chair body support to which the bars are pivoted at their upper ends, the one in advance of the other, with the pivot at the upper end of one of said bars having sliding connection with said support, substantially as set forth.

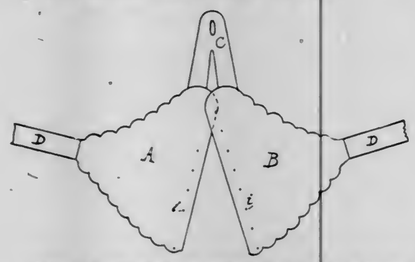
519,759. WIRE FENCE. JOHN W. BUCHANAN, Smithville, Ohio. Filed Sept. 27, 1893. Serial No. 486,577. (No model.)

Claim.—The combination with a wire fence of a spacing strip having at its side portions a series of kerfs to receive the fence wire B and a continuous binding wire C, adapted to secure a series of fence wires in said kerfs, in vertical order by binding the wire C, about the lower fence wire, at one side of the strip, then about the strip and the fence wire on the opposite side, thence up to the front or outside of the next fence wire above and over and back and about the strip to the front side of the fence wire, thence up to and repeating the operation to secure all the intermediate fence wires in the kerfs, then bend-

ing the wire C about the top fence wire at one side of the strip, then about the strip and finally about the feace wire on the other side, substantially as described and for the purpose set forth.

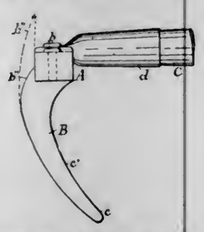


519,760. KNEE-PROTECTOR. ANNABELL C. BULL, Peoria, Ill. Filed July 28, 1893. Serial No. 481,686. (No model.)



Claim.—A knee protector composed of the two sections A, B, formed with their adjacent edges straight and each having a line of perforations as *i*, *i*, &c., the straight edges being overlapped and secured together by the lace *a*, the furcated strap C secured one part thereof to each of the respective sections, and the band D, its respective ends secured to the sections, and designed to pass around the limb to hold the protector firmly under under the knee, all substantially as described and shown.

519,761. RAKE. AUSTIN R. DICKINSON, Syracuse, N. Y., assignor to the Syracuse Specialty Manufacturing Company, same place. Filed June 10, 1893. Serial No. 477,211. (No model.)



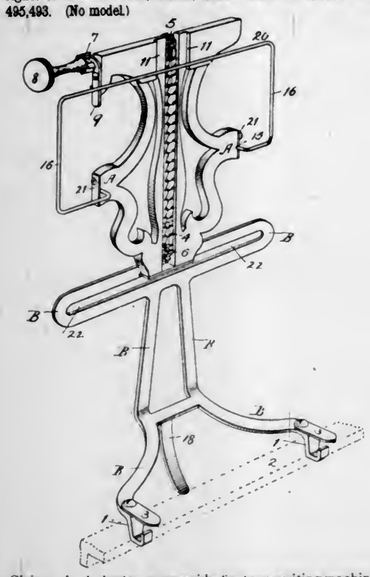
Claim.—1. The combination of a rake-head having a cross-section of rectangular shape and composed of metal and having a row of vertical apertures parallel with its edges, curved teeth having pins extending through said apertures and clinched on the top of the rake-head and projections on the teeth bearing against the back side of the rake head, substantially as described.

2. The combination of a rake-head having a cross-section of rectangular shape and composed of metal and having a row of vertical apertures parallel with its edges, curved teeth extending through said apertures and clinched on the top of the rake-head, and projections on the teeth bearing against the back side of the rake-head and extending above the top side of the rake-head, substantially as described.

3. The combination of a rake-head having a cross-section of rectangular shape, a socket for the handle, a plate integral with said socket and lying upon the top side of the rake-head, a row of vertical apertures through the rake-head and said plate, curved teeth having pins integral therewith extending through the apertures and clinched on the top side of said plate, and projections on said teeth bearing upon the back side of said rake-head as and for the purpose set forth.

4. The combination of a rake-head having a cross-section of rectangular shape and composed of metal and having a row of vertical apertures parallel with its edges, teeth formed of sheet metal, having curved edges and flat sides parallel with each other, pins on the teeth extending through said apertures and clinched on the top of the rake-head, and projections on the teeth bearing against the back side of the rake-head, substantially as described.

519,762. COPY-GUIDE. WILLIAM DUCHEMIN, Newburyport, assignor to John W. Drew, Boston, Mass. Filed Jan. 3, 1894. Serial No. 495,493. (No model.)

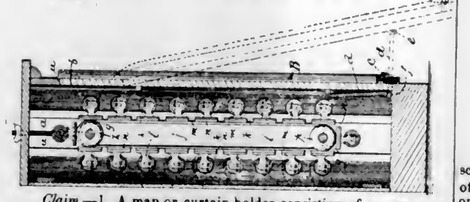


Claim.—1. A duplex copy-guide for type-writing machines, constructed as herein described, consisting of an endless lifting chain, embracing, and actuated by a chain wheel secured on a working hand shaft, fitted with suitable bearings in the said guide and provided with the means to prevent a retrogressive movement thereof, in combination, and working connection with detachable devices, whereby the different kinds of articles to be copied are lifted, in the manner described, for that purpose, a self adjusting pressure bar, whereby the said articles are retained in position while being copied, and, the means described for placing and holding the copy-guide in position on the lower cross-bar of the frame of the machine, arranged and adapted substantially as shown and described.

2. In a duplex copy-guide for type-writing machines, the combination of an endless lifting chain, moved by a working hand shaft, the chain wheels whereby the endless lifting chain is held in working position, the working hand-shaft, provided with the means described for moving, and presenting a retrogressive movement thereof, and a detachable copy holder of the form described, the detachable hook on the rear thereof engaged with a link on the endless lifting chain, the point on the front thereof, whereby, the article to be copied is pierced through and drawn up, around, and down under the copy-guide, the self adjusting pressure bar, the base frame, the slot therein for the passage of the article to be copied, and means substantially as described for securing the same to the lower rear bar of the frame of a type-writing machine, substantially as shown and described.

3. In a duplex copy-guide for type-writing machines, in combination, the endless lifting chain, embracing the actuating chain-wheel, secured on the working hand-shaft, the working hand-shaft, means substantially as described for moving the same forward, and preventing a retrogressive movement thereof, the detachable devices whereby the articles to be copied are held in the desired manner to be moved forward therefor, the self adjusting pressure bar, by the action of which the said articles are retained in position while being copied, the base frame, the slot therein, for the passage of the article to be copied, the transverse grooves in the ends of the arms thereof, fitted for, and clutching the lower maggin of the rear cross-bar of a type-writing machine, the latches pivoted thereto, fitted for, and passing over the upper surface of the said cross-bar whereby the copy-guide is secured rigidly thereto, and, the rear leg or standard, by means of which the copy-guide is secured in position vertically, constructed and adapted substantially as described for the purpose set forth.

519,763. REVOLVING HOLDER FOR MAPS, &c. ALVA R. FRETZ, Caldwell, N. J. Filed Apr. 23, 1891. Serial No. 390,211. (No model.)

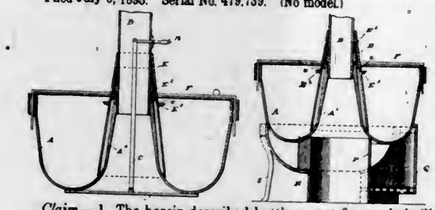


Claim.—1. A map or curtain holder consisting of a case or receptacle, rotatable rolls mounted therein, one at the upper and the other at the lower part thereof, a belt or belts carried by said rolls, a series of rollers carried by said belt or belts, and adjusted to receive maps, curtains or the like, a combined door and inclined rest for said maps, &c., and means for operating said rotatable rolls; substantially as described, and for the purposes set forth.

2. In a map or curtain holder the combination of a casing, rolls mounted in said casing, a belt on the rollers, a series of rollers on said belt, adapted to receive maps, curtains or the like, a slotted guide in said casing, a door having a dowel or pin fitting and adapted to move in said guide, and a brace hinged or pivoted respectively to the door and casing for the purpose described.

3. In a map or curtain holder the combination of a casing, adjustable bearings or boxes in said casing, removable standards carrying said boxes, rolls mounted in the boxes, a belt or belts mounted on the rolls and carrying a series of maps, curtains or the like, a support or rest for displaying said maps or curtains, hinged at its upper end to the casing, a brace hinged to the casing for supporting the rest at an incline, and a latch for securing the rest when not in use, for the purpose described.

519,764. POT OR KETTLE. EMANUEL GERBER, Chattanooga, Tenn. Filed July 6, 1893. Serial No. 479,739. (No model.)



Claim.—1. The herein-described kettle or pot for use in boiling clothes, cooking food, &c., consisting in the combination with the main body, of a central tubular part, a pipe or flue entering the upper end of said part and an inclosing outer tube surrounding the flue and the central tubular portion, said inclosing tube having an encircling outer flange and one or more rows of perforations, substantially as described.

2. In a pot or kettle, the combination of the annular convex body with a central tubular section, a pipe entering the upper end of said section, an inclosing tube surrounding said pipe and the upper end of the central tube, and a second longer inclosing tube surrounding the first mentioned inclosing tube, substantially as described.

3. The combination of the annular convex body A, with the central inclined tube A', the pipe B entering the upper end of the tube A' and the inverted conical inclosing tube E having flange E', substantially as described.

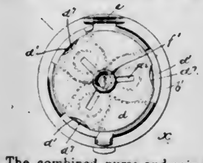
4. The combination with the annular convex body, having a central, tubular section of the fire box located beneath the same and provided with a horizontal annular flue which conveys the heat underneath the entire surface of the annular body, and a central vertical flue which admits the heat from the horizontal flue into the central tubular part of the kettle, substantially as described.

5. The combination with the main body of the kettle, of the fire box, having a grate Q located at one point, the central circular wall P having opening *p* and the concentric outer wall R, all arranged, substantially as described.

6. The combination with the annular convex body, with its central, tubular portion, of a damper operating in connection with the lower end of said portion, substantially as described.

7. The combination with the annular body and its central flue, of the horizontal damper at the bottom of said flue and a suitable leverage mechanism for operating the latter, substantially as described.

519,765. PURSE OR COIN-RECEPTACLE. AUGUST GOERTZ, Newark, N. J. Filed Dec. 15, 1892. Serial No. 455,220. (No model.)



Claim.—1. The combined purse and coin receptacle herein described comprising the body *a*, a frame, *b*, for distending the mouth of said body, a cover arranged on said frame to open and close the opening to the body therethrough and providing separate receptacles for coin and slots connected to each other, springs for presenting said coins to said openings and a single ejector adapted to pass from one slot to another to eject the coins, substantially as set forth.

2. The combination with a purse-body and frame, a hinged cover having a series of coin receptacles and slots opening thereto and connected one with another and an ejector, arranged in said connected slots for throwing said coin outward, substantially as set forth.

3. The combination with the body and slotted cover of a purse, the slots being connected, of a slotted ejector adapted to pass from one slot to another to eject the coins in said cover, substantially as set forth.

4. The combination with a purse frame, a cover consisting of outer and inner plates forming a chamber, partitions separatiug said chamber into receptaclea, and an ejector movable on one of said plates into either of said receptacles to eject the coin therefrom and springs for bringing the coins into position to be engaged by the said ejector, substantially as set forth.

5. The improved purse the cover of which is provided with a series of coin receptacles with openings to allow the coin to be ejected and slots d^2, d^3, d^4, in said cover and opening each into the others, and a coin ejector working in said slots, substantially as set forth.

6. The improved purse, the cover of which consists of two plates centrally raised and lowered to form a chamber, d^3, between, one of which is provided with connected slots partitions separating said chamber into coin receptacles, coin elevators to raise the coins into position for ejection and a coin ejector, movable from one slot to another substantially as set forth.

7. In a purse, the combination with the cover plate, *d*, of a purse having a series of radiating slots each opening into the other of an ejector having a shank working in said slots, a finger piece *f'* and a foot f^3 adapted to impinge upon the edge of the coins, substantially as set forth.

8. In a purse, a cover having at its peripheral edges coin openings and having coin receptacles therein access to which is gained through said openings, a series of connected slots on the face of said cover and a coin ejector to throw said coin toward said coin openings.

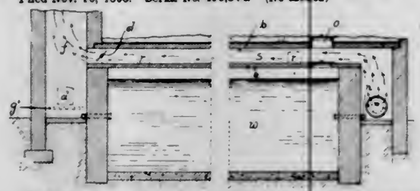
9. The purse cover herein described having radiating slots and a coin ejector working therein, and on the under side of the top plate thereof having bent partitions open to admit of the passage of the foot of said coin ejector from one receptacle formed by the said partitions to another, substantially as set forth.

10. The combination with the plates *c*, *d*, one of which is provided with connected slots, said plates having a chamber d^3 between, partition d^4, platforms d^5 and springs d^6 arranged in the receptacles formed by said partitions in a series substantially equl distant from a common center point, and an ejector movable in said connected slots to eject the coins, substantially as set forth.

11. In combination with plates *c*, *d*, one of which is slotted in its face to admit access of ejecting means to the coin, said plates being formed and united to form a chamber between and being provided at the edges with openings through which the coins are ejected, said chamber being divided by a series of curved partitions disposed around the center of the plates, each division of the chamber being provided

with means for elevating the coins to the edge openings, substantially as set forth.

519,766. GREENHOUSE. HENRY E. HALL, Youngstown, Ohio. Filed Nov. 10, 1893. Serial No. 490,574. (No model.)



Claim.—1. In green houses the rectangular bench B, at one end provided with flue *f* in which appears a grate, and having, in its upper and lesser portion and in the end opposite the flue *f*, the hot air chamber *s* connected with a means for introducing heat, and in its lower and larger portion the water cistern *w* connected with water pipes, the air chamber *s* exhibiting in its floor *b* and cover *b'* the openings *o* and *o'*, and in its sides a series of the apertures *r* having doors, and provided with the damper *d'* near the flue *f*, substantially as described and for the purpose expressed.

2. In green-houses, the green house equipment consisting, in combination, of the hot air pipe P extending from the furnace H to and entering the hot air chamber *s* of the bench B, the water pipe *p* connected with the eaves trough *t* and extending through the compartment wall to and entering the cistern *w* of the bench B; and the rectangular bench B, at one end provided with the flue *f* in which appears a grate, and having in its upper and lesser portion, and at the end opposite the flue *f*, the hot air chamber *s*, and in its lower and larger portion the water cistern *w*; the air chamber *s* exhibiting in its floor *b* and its cover *b'*, the openings *o* and *o'*, and in its sides a series of the apertures *r* having doors, and provided with the damper *d'* near the flue *f*, substantially as described and for the purpose expressed.

519,767. HARROW. JOHN C. JOHNSON, Dallas, Tex., assignor of one-half to J. W. Hampton, same place. Filed Dec. 9, 1892. Renewed Mar 8, 1894. Serial No. 502,920. (No model.)



Claim.—1. In a harrow, the combination with the yielding frame, of an extensible truss bar consisting of an angle iron and slotted braces adjustably connected thereto and to the opposite angles of the frame, substantially as specified.

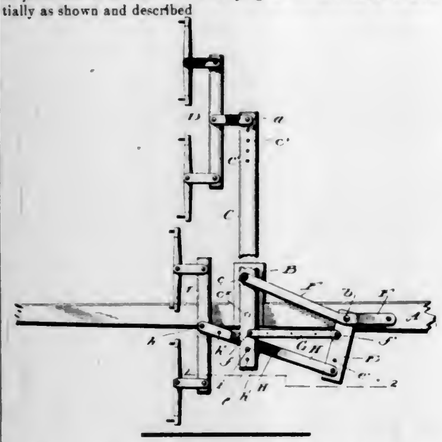
2. In a harrow, the combination with the yielding frame, of an extensible truss-bar consisting of an angle iron and slotted braces adjustably connected thereto, a lever connected at one end to the front angle of the frame and fulcrumed above said truss bar, substantially as and for the purpose specified.

3. In a harrow, the combination with the yielding frame of an extensible truss-bar consisting of an angle iron and slotted braces adjustably connected thereto, and to the opposite angles of the frame, a lever connected at one end to the front angle of the frame and fulcrumed upon a bail supported by the angle bar, and a hook adapted to receive the free end of the lever, substantially as and for the purpose specified.

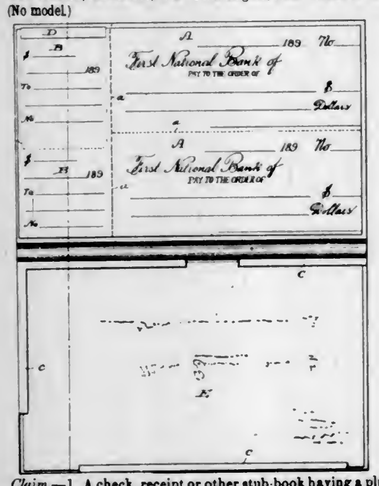
4. The combination with a yielding frame composed of tooth bars consisting of parallel bars and teeth clamped therebetween, of an extensible truss-bar consisting of an angle iron and slotted braces adjustably connected thereto and to the opposite angles of the frame, a lever connected at one end to the front angle of the frame and fulcrumed upon a bail supported by the angle iron, and a plate upon said lever and straddling said bail, and a hook upon said frame adapted to receive one end of the lever, substantially as and for the purpose specified.

519,768. DRAFT-EQUALIZER. BENJAMIN M. LE GRANDE, South Haven, Kans. Filed Dec. 4, 1893. Serial No. 492,660. (No model.)

Claim.—The herein-described draft-equalizer, consisting of the tongue, the plate secured thereto and extending therefrom laterally the long lever pivoted on said plate to one side of the center of its length, the double-tree adjustably held to the outer end of the longer arm of the said lever, the short lever pivotally secured at one end to the tongue to the rear of the long lever on a removable pivot, the metallic strap secured at one end to the tongue to the rear of the pivot of the short lever and passed over the long and short levers and held on the pivots thereof, the rigid push-bar arranged substantially parallel with the tongue and connected at one end with the push-bar near the pivot of the short lever and at the other end with the long lever near the outer end of its short arm, and the straps pivotally and adjustably connected with the end of the short lever farthest from its pivot and at their other ends carrying the double-tree, all substantially as shown and described



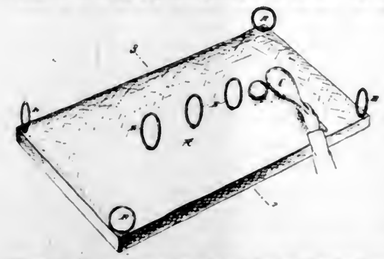
519,769. CHECK, RECEIPT, OR OTHER STUB BOOK. HUGO LOEWENBACH, Milwaukee, Wis. Filed Aug. 19, 1891. Serial No. 403,146. (No model.)



Claim.—1. A check, receipt or other stub-book having a plurality of leaves, the edges of the leaves being left free, each detachably secured at one end to a stub B, said stubs being bound together at their upper edges by a backing D, provided with a tongue D', engaging with a pocket C^2, on the inner surface of one side of the cover C, and arranged to hold up and disclose the stub immediately beneath, all substantially as described.

2. A check, receipt or other stub-book having a plurality of leaves, the edges of the leaves being left free, each leaf being detachably secured at one end to a stub B, said stubs being bound together at their upper edges by a backing D, provided with a tongue D', engaging with a pocket C^2, on the inner surface of one side of the cover C, and each arranged to turn up and disclose the stub immediately beneath and a blotter removably secured in a pocket in the other side of the cover C', by strips *c*, *c*, all combined and arranged substantially as described.

519,770. BUBBLE-GAME APPARATUS. ELIZA E. MCNAUGHTON, Phœnix, N. Y. Filed Aug. 18, 1893. Serial No. 483,487. (No model.)



Claim.—1. A device for playing with bubbles having a base or table provided with a covering of material having a nappy or velvety surface for contact with the bubbles and devices marking the progress of the game and with which the bubbles are liable to come into contact, also having a surface of material having a nappy or velvety surface for contact with the bubbles, substantially as described.

2. A device for playing with bubbles having a base or table provided with a suspended covering of material having a nappy or velvety surface for contact with the bubbles and devices marking the progress of the game and with which the bubbles are liable to come into contact, also having a surface of material having a nappy or velvety surface for contact with the bubbles, substantially as described.

3. A device for playing with bubbles, consisting of a supporting base or table in combination with a covering of material having a nappy or velvety surface, and a series of upright rings secured in said supporting base also provided with a covering of material having a nappy or velvety surface, substantially as described.

4. A device for playing with bubbles, consisting of a supporting base or table in combination with a suspended covering of material having a nappy or velvety surface, and a series of upright rings secured in said supporting base also provided with a covering of material having a nappy or velvety surface, substantially as described.

5. A device for playing with bubbles, consisting of a table of material having a nappy or velvety surface, a series of upright rings thereon having a similar surface, and a bat having a similar surface, substantially as described.

6. A device for playing with bubbles consisting of a collapsible supporting frame in combination with a suspended covering of material having a nappy or velvety surface and a series of upright rings provided with a similar surface, substantially as described.

7. A device for playing with bubbles consisting of a collapsible supporting frame in combination with a suspended covering of woven or felted material having a nappy or velvety surface and a series of upright rings provided with a similar surface and having legs securing the parts of the frame together at the corners, substantially as described.

8. A device for playing with bubbles consisting of a supporting collapsible frame in combination with a suspended covering of material having a nappy or velvety surface, a series of upright rings provided with a similar surface and having legs uniting the parts of the frame together at the corners, and a series of similar rings inside the edges of the table, substantially as described.

9. A device for playing with bubbles consisting of a supporting collapsible frame consisting of side and end bars each provided with an opening at the end whereby openings opposite each other are provided at the corners, detachable joints connecting said bars, a suspended cover of material having a nappy or velvety surface, permanently secured to two of the bars and detachably by hooks or equivalent catches on the other bars, and the rings B covered with material having a nappy or velvety surface and provided with the legs 6 entering the openings in the bars and securing the latter together, substantially as described.

10. The combination with side and end bars *a*, *b*, having openings 5 at the corners and hooks 4 on the end bars, of cover A stretched on said bars and attached to the end bars by said hooks, and rings B having legs 6 entering said openings 5, substantially as described.

11. The combination with side and end bars *a*, *b*, having openings 5 at the corners and hooks 4 on the end bars, of cross bar *c* having openings 5, cover A stretched on said bars and attached to the end bars by said hooks, and rings B having legs 6 entering said openings 5, substantially as described.

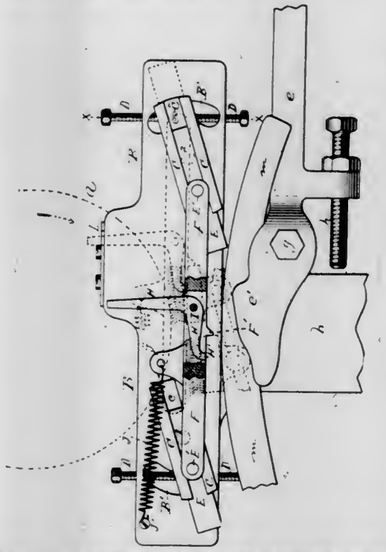
12. A bubble bat having a suspended covering of material having a nappy or velvety surface, substantially as described.

13. A bubble bat having a suspended covering of material having a nappy or velvety surface and formed with two plies for the opposite faces of the bat, substantially as described.

14. A bubble bat consisting of a piece of flexible material *e* bent to proper form and having a suspended covering 7 of material having a nappy or velvety surface, substantially as described.

15. A bubble bat consisting of a piece of flexible material *e* bent to proper form and having the suspended covering 7 of material having a nappy or velvety surface and inclosing the frame between two plies, whereby separate plies for the two faces of the bat are provided, substantially as described.

519,771. APPARATUS FOR CONTROLLING THE GRINDING OF FLATS OF CARDING-ENGINES. JOHN E. PREST, Whitinsville, Mass. Filed Feb. 1, 1894. Serial No. 498,759. (No model.)



Claim.—1. An apparatus for controlling the grinding of flats of carding engines, comprising a sliding grinding bar or block against which the flat bears as it is guided to the grinding roller, and independently adjustable sliding supports for the ends of said bar or block, whereby the direction of the movement thereof may be adjusted to produce and correspond with the line of direction of the grinding of the flat, substantially as set forth.

2. An apparatus for controlling the grinding of flats of carding engines, comprising a sliding grinding bar or block against which the flat bears as it is guided to the grinding roller, independently adjustable sliding supports for the ends of said bar or block, and rotative slideways for said supports pivotally secured to a frame and adapted to be set at different radii, whereby the direction of the movement of the bar or block may be adjusted to produce and correspond with the line of direction of the grinding of the flat, substantially as described.

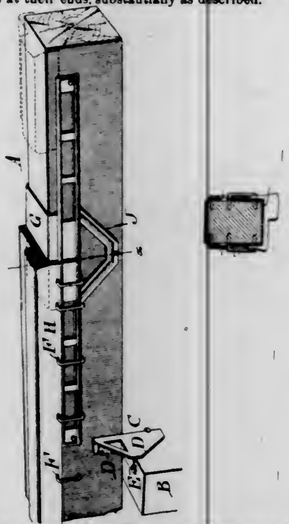
3. The apparatus herein described for controlling the grinding of flats of carding engines, comprising the frame B, the slideways C *c* pivoted thereto, the grinding bar or block F pivoted at its opposite ends to blocks E moving in said slideways, means for adjusting the angles of said slideways, and the flats adapted to be guided to and held against the under surface of the grinding bar, substantially as set forth.

4. The apparatus herein described for controlling the grinding of flats of carding engines, comprising the frame B provided with the trip-bar L, the slideways C *c* pivoted to the frame, the grinding bar or block F pivoted at its opposite ends to blocks E moving in said slideways and provided with the projection F on its under side, means for adjusting the angles of the slideways, and the lever H provided with the foot H' and pivoted to the grinding bar, all constructed to operate substantially as described.

519,772. SUBSTRUCTURE FOR RAILWAY-RAILS. JAMES M. PRICE, Philadelphia, Pa., assignor to the Price Railway Appliance Company, of Pennsylvania. Filed May 20, 1893. Serial No. 474,898. (No model.)

Claim.—1. A metallic support for a rail joint consisting of two parallel ribs attached to each other at the ends and intermediately by metal ribs crossing from one to the other to bind them together with a descending vertical center, usually V-shaped, beneath the lower

rib, and spiked to a wooden sleeper at the base, and between the ribs above, to carry at their meeting point upon the upper rib the flanges of two meeting rails, and staples crossing this support and driven above through apertures in the supported flange and below, under and grazing the lower rib, to bind all together, and forbid thrashing of the two rails at their ends, substantially as described.

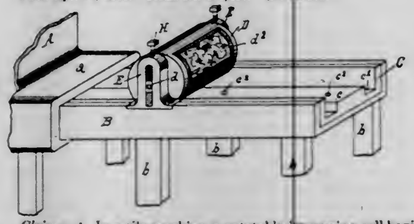


2. A metallic support for railway rails, resting upon a wooden sleeper, and spiked to it and provided with a horizontal rib at the top, and a central piece, V-shaped and supporting its middle by a spiked base, as a support to the ends of the two rails meeting upon that sleeper, the support attached to the rails, staples crossing it with their upper feet driven through apertures in the flanges of the rails, and the lower passing under and grazing the lower edge of the support, so as to bind the rails and support solidly together and maintain one level for them, substantially as described.

3. A metallic support for railway rails consisting of a frame formed of horizontal bars with connecting ribs, and provided with a depending center piece, said parts being combined substantially as described.

4. A rail having openings in a flange thereon, a wooden stringer, a metallic support underneath said flange, and staples securing said support and flange to said stringer said parts being combined substantially as described.

519,773. TILE-MACHINE. WILLIAM H. PRIDE, Springfield, Ill. Filed Apr. 22, 1893. Serial No. 471,487. (No model.)



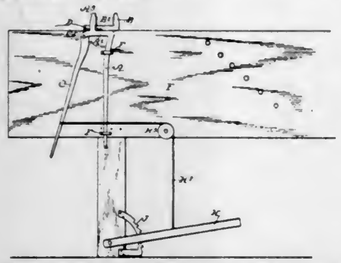
Claim.—1. In a tile machine, a rotatable impression roll having on its periphery the form or design which is to be given to or impressed upon the surface of a tile, in combination with means for supporting a slab of clay in contact with the periphery of said roll and means for propelling said slab of clay in such manner as to rotate said roller by the pressure of said moving slab of clay acting against the periphery of said roll, as set forth and for the purpose stated.

2. In a tile machine, the combination of the bed adapted to be connected with the mouth of the pug mill, the longitudinal mold detachably connected with the bed, the housings on the bed and the roll journaled and vertically movable in said housings, as set forth and for the purpose stated.

3. In a tile machine, the combination of the bed attachable to the mouth of the pug mill, the longitudinal molds detachably secured in said bed, the housings on the bed, the boxes sliding in said housings, the impression roll journaled in said boxes, the springs acting against said boxes, the followers in the housings above the springs and the screws operating said followers, as set forth and for the purpose stated.

4. In a tile machine, the bed attachable to the pug mill and adapted to impress on one side of the tile the counterpart of the conformation of the surface of the bed, in combination with the vertically adjustable and rotatable impression roll supported on said bed, adapted to be actuated by the moving slab of clay and adapted to impress on said slab the counterpart of the conformation of the periphery of said roll, as set forth.

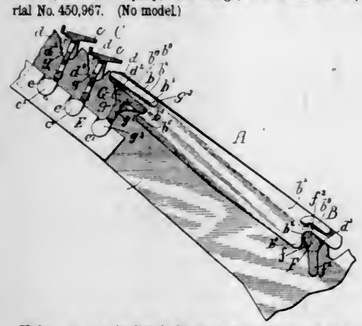
519,774. ADJUSTABLE TONGS, &c. ZOUAVE S. RANDLEMAN and MARTIN C. RANDLEMAN, Carlisle, Iowa. Filed Oct. 6, 1893. Serial No. 487,403. (No model.)



Claim.—1. An improved tongs, comprising a handle A, having a portion A^2 bent at right angles thereto and terminating in a bearing as shown, a jaw A^3 projecting outwardly from the part A^2, a jaw B in the same plane as the jaw A^3 and provided with a rack B^2 bent at right angles to the jaw and extended through a slot in the base of the jaw A^3, a lever C pivoted in the bearing on the part A^3 as set forth, and having its end C^2 adapted to engage the rack B^2, all arranged and combined, substantially as, and for the purposes, stated.

2. An adjustable tongs, for holding small and large objects, composed of three parts, to wit: a handle that has a right-angled bend terminating in a bearer for a mating handle, a fixed jaw extended forward from said right-angled bend and provided with an opening at its rear end, a mating jaw that has an arm extending at right angles from its rear end detachably and adjustably connected with the fixed jaw and the rear face and free end portion of said arm notched, and a mating handle pivoted to the bearer at the end of the right angled part of the handle having the fixed jaw to engage the notched part of the arm extending from the sliding jaw, to operate in the manner set forth.

519,775. FURNACE-GRATE. WILLIAM R. RONEY, Boston, Mass., and OLIN A. STRANAHAN, Chicago, Ill., assignors to the Westinghouse, Church, Kerr & Company, East Orange, N. J. Filed Nov. 4, 1892. Serial No. 450,967. (No model.)



Claim.—1. An inclined furnace grate comprising longitudinal grate bars and an oscillating cross-bar supporting the same, in which the cross-bar is provided with a lifting flange and some of the said grate-bars are sustained by resting on the cross-bar at points adjacent to its pivotal axis and others of the said grate-bars engage the lifting flange at points remote from said pivotal axis, whereby those of said bars which engage the cross-bar near its pivotal axis, remain stationary, and those which engage the lifting flange are raised and lowered when the cross-bar is oscillated, substantially as described.

2. An inclined furnace grate comprising longitudinal grate-bars and an oscillating cross-bar supporting the same, in which some of

said grate-bars engage the cross-bar at points adjacent to its pivotal axis and are provided with surfaces located in position for contact with the cross-bar when the throw of the latter is increased beyond a certain limit, and the other of said grate-bars being engaged with the cross-bar at points remote from the pivotal axis of the bar, substantially as described

3. An inclined furnace grate comprising longitudinal grate-bars and an oscillating cross-bar supporting the same, said cross-bar being provided with a lifting flange extending outward from its pivotal axis beneath said longitudinal bars, which latter are provided with bearing surfaces adapted to rest on said cross-bar adjacent to its pivotal axis when the latter is at the limit of its oscillation in one direction, part of said longitudinal bars being so recessed adjacent or opposite to said flange as to permit limited oscillation of the supporting cross-bar without lifting said bars, substantially as set forth.

4. An inclined furnace grate, comprising transverse rocking bars, forming the upper part of the grate and longitudinal bars forming the lower part of the grate, and an actuating bar for rocking said transverse bars and simultaneously imparting a lifting movement to the alternate longitudinal bars, substantially as described.

5. An inclined furnace grate, comprising transverse rocking bars forming the upper part of the grate, longitudinal grate-bars forming the lower part of the grate, an oscillating cross-bar supporting and actuating the longitudinal bars, and a notched reciprocating bar for actuating the said rocking bars and cross-bar, said rocking bars and cross-bar being provided with depending parts or lugs engaging the notches of the reciprocating bar, substantially as described.

6. An inclined furnace grate, comprising transverse rocking bars forming the upper part of the grate, longitudinal bars forming the lower part of the grate, an oscillating cross-bar for supporting and giving movement to the said longitudinal grate-bars, said cross-bar being adapted to engage a portion of the longitudinal bars at points remote from its pivotal axis and to engage the others of said longitudinal bars at points adjacent to its pivotal axis, and means connected with the several rocking grate-bars and cross-bars for giving oscillatory movement to the same, substantially as described.

7. An inclined furnace grate, comprising transverse rocking bars forming the upper part of the grate, longitudinal grate-bars forming the lower part of the grate, an oscillating cross-bar for supporting and giving movement to the said longitudinal grate-bars, said cross-bar being adapted to engage a portion of the longitudinal bars at points remote from its pivotal axis and to engage the others of said longitudinal bars at points adjacent to its pivotal axis, and a single longitudinally reciprocating bar engaged with the several transverse grate-bars and cross-bars for giving oscillatory motion to the same, substantially as described

8. An inclined furnace grate, comprising transverse rocking bars forming the upper part of the grate, longitudinal bars forming the lower part of the grate, oscillating cross-bars supporting both the upper and lower ends of the longitudinal bars, said cross-bars being adapted to engage the alternate longitudinal bars at points remote from the pivotal axis of the cross-bar and to engage the intermediate longitudinal bars at points adjacent to the pivotal axis of the cross-bars, and means for actuating the several grate-bars comprising a longitudinally reciprocating bar engaging downwardly projecting parts or lugs on the said transverse grate-bars and cross-bars, substantially as described.

519,776. WELDING APPARATUS. CHARLES L. ROWLAND, Brooklyn, N. Y. Filed Dec. 22, 1893. Serial No. 494,414. (No model.)

Claim.—1. The combination, substantially as set forth, of a non-traveling cradle having adjustable devices for supporting the cylinder to be welded with the seam in the proper plane, facing furnaces movable along the seam, and a horizontally movable anvil also movable along and beneath the seam.

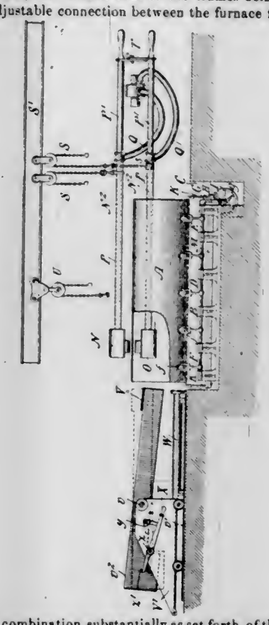
2. The combination with means for heating the lap or seam of a cylinder and welding the same, of a non-traveling cradle provided with means for raising and lowering the cylinder, to bring the seam into the plane of the heating and welding devices, substantially as set forth.

3. In a welding apparatus, a cradle provided with devices for supporting the cylinder, raising and lowering it, and holding it against endwise and circumferential movement, in combination with means for heating and welding the lap or seam of the cylinder, substantially as set forth

4. In a welding apparatus, the cylinder holding cradle having parallel bars or rock shafts, roller-carrying arms mounted thereon and means for rocking the shafts to cause the roller-carrying arms to be raised or lowered by being moved toward and from each other, to raise or lower the cylinder to be welded, substantially as set forth.

5. The combination, substantially as set forth, of the non-traveling cylinder supporting cradle, the longitudinally movable facing furnaces, and the longitudinally movable anvil carried by the carriage operated by a hydraulic cylinder.

6. The combination, substantially as set forth, of the non-traveling cradle for adjustably supporting the cylinder and holding it against endwise and circumferential movement, the horizontally movable anvil, the horizontally movable facing furnaces and their separately supported frames, the furnace ends of the frames being overbalanced, and the adjustable connection between the furnace frames.



7. The combination, substantially as set forth, of the cylinder supporting cradle located below the floor level and having means for supporting and vertically adjusting the cylinder to be welded, the horizontally movable adjustable furnaces, and the horizontally movable anvil.

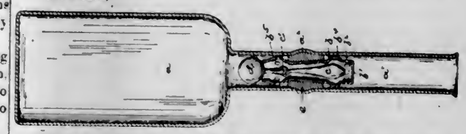
8. The combination with non-traveling means for supporting and horizontal movable furnaces for heating a cylinder seam or lap to be welded, of an anvil pivoted in a carriage and provided with means for holding it in its adjusted position, and means for moving the carriage back and forth.

9. In a cylinder welding apparatus, a cylinder-supporting cradle provided with means for simultaneously adjusting the cylinder throughout its length vertically whereby the lap or seam thereof may be readily adjusted to and supported in the proper plane, in combination with means for heating and welding the lap, substantially as set forth.

10. The combination, substantially as set forth, of the non-traveling cylinder-supporting cradle, the longitudinally movable facing furnaces, the longitudinally moving anvil, a way or track upon which it moves, and means for moving the anvil uniformly and gradually forward as the work proceeds.

11. In a cylinder welding apparatus, the combination, substantially as set forth, of a pair of horizontally movable overbalanced facing furnaces, their adjustable frame bars supported intermediate their ends, and adjustable connections between the frame bars independent of the frame bar supports and located at one side thereof, whereby the furnaces may be adjusted and locked in fixed relation to each other and to the seam of the cylinder lying between them.

519,777. BOTTLE-STOPPER. CONSTANT SCHRAMM and BERNHARD SCHRAMM, Harrison, N. J. Filed July 20, 1893. Serial No. 480,995. (No model.)

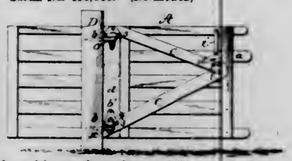


Claim.—1. The improved bottle stopper in which is combined, a valve seat consisting of a single piece closed at the top perforated at the sides near the top and interiorly provided with a bearing, b^3, for the valve below the perforated sides, a cork or equivalent collar, e, around said valve seat, and a weighted valve adapted to automati-

cally engage said bearing, b^3, and close communication through said valve seat from the exterior to the interior of the bottle when the bottle is in its upright position, substantially as set forth.

2. The combination with a bottle, a valve seat, *b*, having upper and lower openings for the fluid, upper and lower enlargements to receive the collar, *e*, and an intermediate interior valve bearing, b^3, of a collar arranged outside of said valve seat between said enlargements, and an automatic valve adapted to engage said bearing b^3 and close the fluid passage through said seat when the bottle is in its upright position, the said valve seat and collar being arranged below the upper end of the bottle to admit the insertion of a cork above said seat, substantially as set forth.

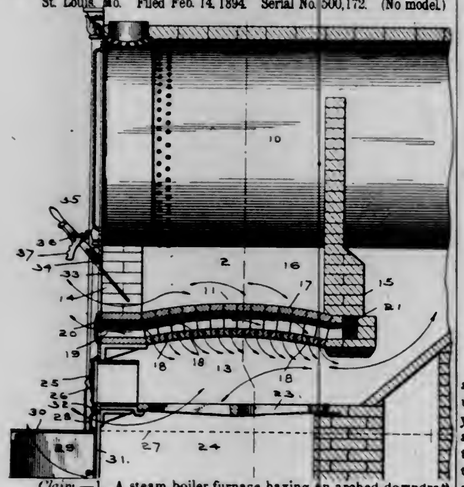
519,778. GATE. WILLIAM J. SLACK, La Grange, Ind. Filed Mar 18, 1893. Serial No. 466,613. (No model.)



Claim.—1. A hinge adapted to a sliding and swinging gate composed of a cross shaped base plate *b* having a front central bearing or swell, an olique arm *b'* extending rearward from the base plate, a perforated lug S, attached to said bearing, opposite projections *f*, a hinge bolt *k*, and a loop bolt *x*, substantially as shown and described.

2. In a sliding and swinging gate the combination with the hinge composed of a base plate *b*, an oblique arm *b'*, a perforated lug *s*, projections *f*, and the members *k* and *x*, of the triangular gate frame C. *d*. the rollers E. having a slight swell or hub and a flange upon one side, the vertical bar *c'*, the sliding panel A. with the hand hold *i*, the post B, having the rests *h*, and the post D. substantially as shown and described.

519,779. SMOKE-CONSUMING FURNACE. JOSEPH M. THOMAS, St. Louis, Mo. Filed Feb. 14, 1894. Serial No. 500,172. (No model.)



Claim.—1. A steam boiler furnace having an arched downdraft fuel grate of refractory material, supported by the walls of the furnace independently of intermediate support and composed of bars arched longitudinally of the furnace.

2. A steam boiler furnace having a hollow downdraft fuel grate of refractory material, perforations in the same at the lower side thereof, and air passages communicating with the hollow interior of said grate, whereby heated air is thereby supplied to the flame beneath the said grate and is evenly distributed in the combustion chamber to secure complete combustion

3. A steam boiler furnace having an arched hollow downdraft fuel grate of refractory material, supported by the walls of the furnace independently of intermediate support, perforations in said grate at the lower side thereof, and air passages communicating with the hollow interior of said grate for the purpose described.

4. A steam boiler furnace having a downdraft fuel grate composed of a series of independent arched bars of refractory material supported at their ends by the walls of the furnace independently of intermediate support and of each other.

5. A steam boiler furnace having a downdraft fuel grate composed of a series of hollow grate bars of refractory material, suitably perforated below, and air passages communicating with the hollow interior of the said bars and the exterior air, whereby heated air will be delivered to the flame below the said downdraft grate to secure complete combustion

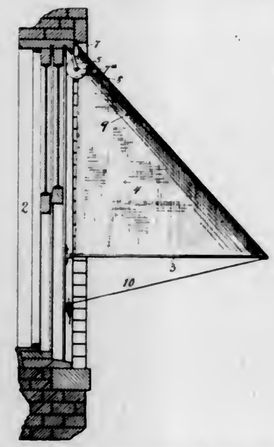
6. A downdraft furnace having a downdraft fuel grate, composed of a series of arched bars of refractory material, supported at their ends by the walls of the furnace independently of intermediate support, said bars constructed of separate blocks of refractory material and arched longitudinally of the boiler.

7. A downdraft furnace having a downdraft fuel grate composed of a series of hollow arched bars supported at their ends by the walls of the furnace, said bars constructed of separate hollow blocks of refractory material perforated below, forming a flue through the said bars, and air passages leading from the exterior air to the hollow interior of said bars.

8. A steam boiler furnace having a hollow downdraft fuel grate of refractory material, perforations in the same at the lower side thereof, air passages communicating with the hollow interior of said grate and with the exterior air, and dampers for regulating the amount of air passing through said hollow grate and delivered to the flame below said grate

9. The combination with a steam boiler, of a hollow downdraft fuel grate of refractory material perforated below and communicating with the exterior air and an ordinary updraft grate beneath the said downdraft grate for the purpose set forth.

519,780. AWNING-LIFTER. OSWALD H. THOMPSON, Philadelphia Pa. Filed Feb. 15, 1893. Serial No. 462,446. (No model.)



Claim.—In a lifter for window awnings the combination with the awning frame of a yoke suspended within the window beneath the upper transverse portion thereof, a shaft mounted and rotary in said yoke, a drum on said shaft having a rope or chain connected with the awning frame, a stationary casing mounted on said shaft and secured to said yoke, a spring within said stationary casing and connected therewith and with said shaft, a ratchet wheel on the shaft, and a pawl or dog mounted on said yoke and engaging the ratchet wheel, substantially as set forth.

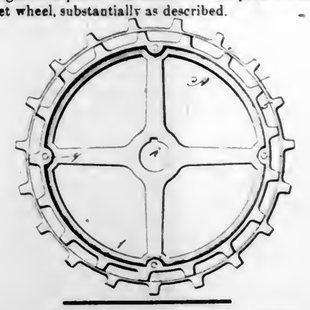
519,781. SPROCKET-WHEEL. CHARLES TINN, Morgan Park, assignor to the Union Manufacturing and Plating Company, Chicago, Ill. Filed Dec. 27, 1892. Serial No. 456,467. (No model.)

Claim.—1. The toothed gear wheel provided with seats or recesses and the removable toothed rim having a flanged portion and provided with lips or lugs adapted to engage in said seats, substantially as described.

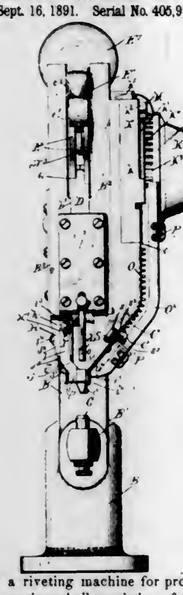
2. The toothed sprocket wheel provided with a removable toothed rim having a flanged portion 5 and removably fitted to the sprocket wheel, substantially as described.

3. The toothed sprocket wheel provided with an annular off-set 11 and the flanged rim adapted to fit upon the sprocket wheel and engage in said off-set, substantially as described.

4. The combination with a sprocket wheel of a toothed rim removably secured upon the side of the sprocket wheel and having its teeth arranged in a plane coincident with the plane of the teeth of the sprocket wheel, substantially as described.



519,782. RIVETING-MACHINE. JACOB J. UNBEHEND, Waltham, Mass. Filed Sept. 16, 1891. Serial No. 405,915. (No model.)



Claim.—1. In a riveting machine for pronged rivets, the combination of a rivet receiver shell consisting of opposite separable sections provided with a guideway in their adjacent faces formed with a contracted lower end and having shoulders as i^7 at its upper end, and a movable guide having a lateral offset projecting into said guideway beneath said shoulders, substantially as and for the purpose described.

2. In a riveting machine for pronged rivets, the combination of a rivet receiver shell consisting of opposite separable spring sections provided with a guideway in their adjacent faces formed with a contracted lower end and having shoulders i^7 at its upper end, and a pivoted guide having a lateral offset projecting into said guideway beneath said shoulders, substantially as and for the purpose specified.

3. In a riveting machine for pronged rivets, the combination of a rivet receiver shell consisting of opposite separable sections provided with a guideway in their adjacent faces formed with a contracted lower end and having shoulders as i^7 at its upper end, a movable guide pivoted at its upper end and having a lateral offset at its lower end, projecting into said guideway beneath said shoulders, and a spring having one end secured to the receiver and the other end bearing against the upper end of said movable guide, substantially as and for the purpose described.

4. In a riveting machine for pronged rivets, the combination of a receiver shell consisting of opposite separable sections provided with a guideway in their adjacent faces formed with a contracted lower end and having shoulders as i^7 at its upper end and a recess in one of its walls a movable guide removably mounted in said recesses and having a lateral offset projecting into said guideway beneath said shoulders and a spring for holding said lateral offset in its operative position, substantially as and for the purpose specified.

5. In a riveting machine for pronged rivets, the combination of a frame, a pair of springs secured at one extremity to said frame and formed with enlarged ends having the groove —i^9— and the shoulders —i^7— —i^8— and a yielding guide having one extremity inclined and mounted between said enlarged ends for registering with the space interposed between the rivet prongs, substantially as specified.

6. In a riveting machine for pronged rivets, the combination of a frame, a pair of springs secured at one extremity to said frame and formed with lateral projecting arms having the groove —i^9— and shoulders —i^7—i^8— one above the other, a guide pivoted at one extremity to said frame and formed at the other with a lateral offset disposed between the lateral ends of said springs and formed with an inclined upper extremity, and a spring bearing against said guide, substantially as set forth.

7. In a riveting machine, the combination with a die and a plunger movable toward the same for clinching the rivets; of a rivet receiver movable in the same direction as the plunger and formed at one extremity with a lateral arm having shoulders for supporting the rivet and a guide-way for permitting the passage of the rivet through said arm, a guide for the upper extremity of said receiver, and a movable stop adapted to engage the upper extremity of said rivet receiver and govern its movement, substantially as described.

8. In a riveting machine, the combination of a frame having a die, a plunger movable toward the die for clinching the rivets, a rivet receiver movable in the same direction as the plunger and formed with a recess at its upper extremity, a guide for said upper extremity formed with an opening, a rocking rod adapted to pass through the opening in said guide and register with the recess in the upper extremity of the rivet receiver, a spring on said rod, and a shoulder on said rod adapted to be engaged with the frame and prevent the operation of the rod, substantially as and for the purpose described.

9. In a riveting machine for pronged rivets, the combination of a guide provided with a shoulder for engaging the inner faces of the rivet heads and formed with a groove for receiving the rivet heads and with a groove of less width than the former one aligned therewith and extending lengthwise thereof for receiving the rivet shanks, and a guide having a projection or rib aligned with said grooves and extending lengthwise thereof for registering with the space between the rivet prongs, substantially as and for the purpose described.

10. In a riveting machine for pronged rivets, the combination of a guide provided with a shoulder for engaging the inner face of the rivet heads and formed with a groove for receiving the rivet head and with a groove of less width than the former one aligned therewith and extending lengthwise thereof for receiving the rivet shanks, a guide having a projection or rib aligned with said grooves and extending lengthwise thereof for registering with the space between the rivet prongs, and a cutoff movable transversely across said grooves and projection or rib, substantially as and for the purpose specified

11. In a riveting machine for pronged rivets, the combination of a guide provided with a shoulder for engaging the inner face of the rivet heads formed with a groove for receiving the rivet heads and with a groove of less width than the former one aligned therewith and extending lengthwise thereof for receiving the rivet shanks, a guide having a projection or rib aligned with said grooves and extending lengthwise thereof for registering with the space between the rivet prongs, a bar movable transversely across said guide, and provided with projecting posts arranged on opposite sides of said guide, and lugs adjustably mounted in said posts for engaging the rivets and feeding the same one by one, substantially as and for the purpose described.

12. In a riveting machine for pronged rivets, the combination of a guide provided with a shoulder for engaging the inner faces of the rivet heads and formed with a groove for receiving the rivet heads and with a groove of less width than the former one aligned therewith and extending lengthwise thereof for receiving the rivet shanks, a guide having a projection or rib aligned with said grooves and extending lengthwise thereof for registering with the space between the rivet prongs, a rivet receiver shell consisting of opposite separable sections provided with a guideway in their adjacent faces formed with a contracted lower end and having shoulders at its upper end, and a movable guide having a lateral offset projecting into said guideway beneath said shoulders, substantially as and for the purpose set forth.

13. In a riveting machine for pronged rivets, the combination of a guide provided with a shoulder for engaging the inner faces of the rivet heads and formed with a groove for receiving the rivet heads and with a groove of less width than the former one aligned therewith and extending lengthwise thereof for receiving the rivet shanks, a guide having a projection or rib aligned with said grooves and extending lengthwise thereof for registering with the space between the rivet prongs, a rivet receiver frame, a pair of springs secured at one extremity to said frame and formed with enlarged ends having a groove, as i^9, and shoulders, as i^7 i^8, and a yielding guide having one extremity inclined and mounted between said enlarged ends and

aligned with said projection or rib for registering with the space interposed between the rivet prongs, substantially as and for the purpose specified.

14. In a riveting machine for pronged rivets, the combination of a guide provided with a shoulder for engaging the inner faces of the rivet heads and formed with a groove for receiving the rivet heads and with a groove of less width than the former one aligned therewith and extending lengthwise thereof for receiving the rivet shanks, a yielding shoulder at the lower extremity of said guide for preventing undue escapement of the rivets, a second guide having a projection or rib aligned with said grooves and extending lengthwise thereof for registering with the space between the rivet prongs, substantially as and for the purpose described.

15. In a riveting machine for pronged rivets, the combination with a hopper and a rivet receiver arranged at one side of a perpendicular to the hopper and a guide interposed between said hopper and rivet receiver, and having the substantially vertical portion o^2 and the inclined lower portion o^3, said guide being provided with a shoulder for engaging the inner faces of the rivet heads and being formed with a groove for receiving the rivet heads and with a groove of less width than the former one aligned therewith and extending lengthwise thereof for receiving the rivet shanks, and a guide having a projection or rib aligned with said grooves and extending lengthwise thereof for registering with a space between the rivet prongs substantially as and for the purpose described.

16. In a riveting machine for pronged rivets, the combination of a hopper having a stationary wall or section provided with a guide or recess in its wall for receiving the rivets, and a revoluble agitating section having its outer face movable at one side of said guide or recess for engaging and rolling the rivets in the guide or recess; with a guide leading from the guide or recess of the stationary wall or section for conducting the rivets therefrom, and a projection or rib aligned with the latter guide and extending lengthwise thereof for registering with the space between the rivet prongs, one extremity of said projection or rib being extended to the guide or recess in the stationary wall or section of the hopper, for preventing the passage therefrom of the rivets having the spaces between their prongs out of alignment with said projection or rib, substantially as and for the purpose specified.

17. In a riveting machine for pronged rivets, the combination of a hopper having a stationary wall or section provided with a guide or recess in its inner wall for receiving the rivets, and a revoluble agitating section having its outer face movable at one side of said guide or recess for engaging and rolling the rivets in the guide or recess; with a guide leading from the guide or recess of the stationary wall or section for conducting the rivets therefrom, and a projection or rib aligned with the latter guide and extending lengthwise thereof for registering with the space between the rivet prongs, one extremity of said projection or rib being extended to the guide or recess in the stationary wall or section of the hopper for preventing the passage therefrom of the rivets having the spaces between their prongs out of alignment with said projection or rib, a rivet receiver at the lower end of the latter guide provided with a guideway for the rivets, and a movable guide aligned with said projection or rib and projecting into said guideway, substantially as and for the purpose described.

18. In a riveting machine for pronged rivets, the combination of a hopper having a stationary wall or section provided with a guide or recess in its inner wall for receiving the rivets and a revoluble agitating section formed with an internal chamber open at one side and with peripheral slots opening from said chamber and having its outer face movable at one side of said guide or recess for engaging and rolling the rivets in the guide or recess, a rivet receiver provided with a guideway for the rivets and a guide interposed between the hopper and a rivet receiver for conducting the rivets from the guide or recess of said stationary wall or section into the guideway of the rivet receiver, substantially as and for the purpose specified.

19. In a riveting machine for pronged rivets, the combination of a hopper having a stationary wall or section provided with a guide or recess in its inner wall for receiving the rivets, a revoluble agitating section formed with an internal chamber open at one side and with peripheral slots opening from said chamber, and having its outer face movable at one side of said guide or recess for engaging and rolling the rivets in the guide or recess, a discharge plate having one end fixedly secured and having its other end projecting transversely across the peripheral face of the revoluble agitating section in proximity to said peripheral face for discharging the rivets from the peripheral cutouts of said section, a rivet receiver provided with a guideway for the rivets and a guide interposed between the hopper and the rivet receiver for conducting the rivets from the guide or recess of said stationary wall or section into the guideway of the rivet receiver, substantially as and for the purpose described.

20. In a riveting machine, the combination of the shaft —L—, a hopper shell frictionally secured to said shaft and formed with outwardly extending slots at its peripheral edge, a rivet receiver, a conveyer between said receiver and hopper shell having a projection for registering with the space interposed between the rivet prongs, a cut off interposed between the hopper and receiver for feeding the rivets one by one, and a connection between the shaft —L— and said cut off for communicating motion from one to the other, substantially as and for the purpose described.

519,783. BICYCLE-FRAME. LUCIUS M. WAINWRIGHT, Indianapolis, Ind., assignor to Central Cycle Manufacturing Company, same place. Filed May 4, 1893. Serial No. 472,941. (No model.)



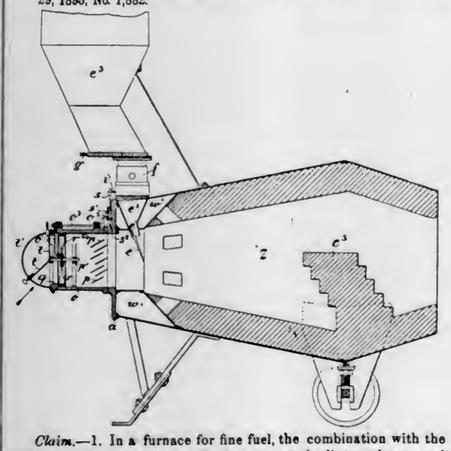
Claim.—1. The combination, in a bicycle frame, with the pedal-bearing, side-bars, standard, and frame-head, of a curved brace-bar extending from said standard or said pedal-bearing forward near to said side-bars and secured thereto at that point, and thence upwardly to the upper end of the frame-head, where it is also secured, substantially as shown and described.

2. The combination, in a bicycle frame, of the two side-bars, and a curved brace-bar extending from the pedal-bearing or lower end of the standard forward to the brace-bars and thence to the upper portion of the frame-head, and struts or wings interposed between said brace-bar and said side-bars at the point where they approach each other, and whereby they are firmly united together at said point, substantially as shown and described.

3. The combination, in a bicycle frame, of the side-bars, and a curved forward brace-bar, said brace-bar passing between and into the same plane with said side-bars and there firmly united thereto, substantially as and for the purpose set forth.

4. The combination, in a bicycle frame, of an axle bearing having integral eyes for the side bars, said side bars passing through said eyes and thus secured to said axle-bearing, a socket also formed integrally with said axle bearing on the upper side, the saddle-supporting standard entering the upper end of and thus secured to said socket, a central brace-bar secured to the front side of said socket and extending thence to the frame-head, and said frame-head.

519,784. COAL-DUST-FIRING APPARATUS. CARL WEGENER, Berlin, Germany. Filed Oct. 12, 1893. Serial No. 487,977. (No model.) Patented in France Apr. 26, 1893, No. 218,265; in Belgium May 5, 1893, No. 104,531; in Italy May 15, 1893, LXVI, 485, and in Luxemburg Aug. 29, 1893, No. 1,882.



Claim.—1. In a furnace for fine fuel, the combination with the combustion chamber, of a mouth-piece arranged adjacent thereto and provided with an opening for the admission of atmospheric air and with inclined ribs or bars for deflecting the air current in an upward direction, means for feeding the fine fuel into the deflected air current, and a discharge funnel essentially as described.

2. In a furnace for fine fuel, the combination with the combustion chamber, of a mouth-piece arranged adjacent thereto, and provided with an opening for the admission of atmospheric air, and with inclined ribs or bars to direct the air currents, and a feed hopper provided with an automatically agitated sieve, and a discharge funnel, substantially as described.

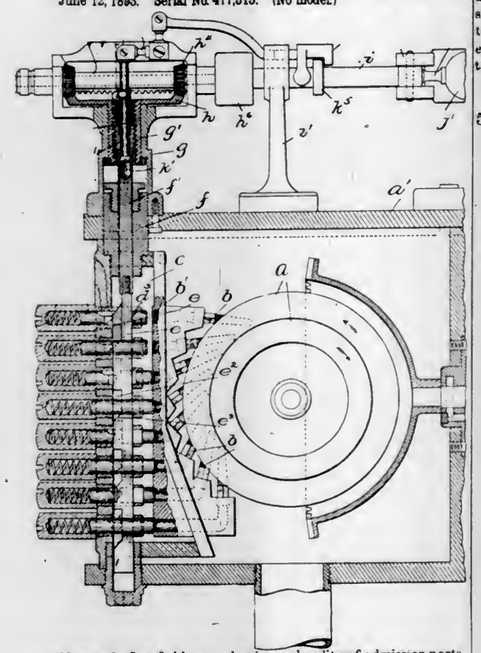
3. In a furnace for fine fuel, the combination with the combustion chamber, of a mouth-piece arranged adjacent thereto and provided with an air opening controlled by a damper, a fan wheel arranged within said mouth-piece and revolved by the natural draft of the chimney, and a feed hopper, a discharge funnel, and a sieve interposed between said funnel and hopper, and mechanism for automatically agitating said sieve by the motion of the fan wheel, substantially as described.

4. In a furnace for fine fuel the combination with the combustion chamber and its door, of fuel feeding mechanism supported upon said door and comprising a hopper and disintegrating device, and a fan wheel exposed to the atmosphere to be revolved by the natural draft of the furnace, and mechanism operated by the revolution of said wheel to automatically operate the disintegrating device, substantially as described.

5. The combination in a furnace for fine fuel, of the combustion chamber, and fuel feeding mechanism consisting of a hopper arranged to discharge its contents into said combustion chamber, and a fan wheel exposed to the atmosphere to be revolved by the natural draft of the furnace, substantially as described.

6. In a furnace for fine fuel, the combination with the combustion chamber, of a mouth-piece arranged adjacent thereto and provided with an opening for the admission of atmospheric air, and with depending gutters and means for automatically feeding the fuel to the gutters and for conveying same to the combustion chamber. substantially as described.

519,785. GOVERNOR. GEORGE J. ALTHAM, Swansea, Mass. Filed June 12, 1893. Serial No. 477,313. (No model.)



Claim.—1. In a fluid motor having a plurality of admission ports, a plurality of separate and independent valves, one for each port, and means controlled by the speed of the motor for separately actuating said valves.

2. In a fluid motor having a plurality of admission ports, a plurality of separate and independent valves, one for each port, a reciprocal bar adapted to separately actuate said valves, and means for governing the bar by the speed of the motor.

3. In a fluid motor having a plurality of admission ports, a spring-pressed valve for each port having an inclined shoulder, a reciprocal bar having inclines to engage said shoulders, and means for governing said bar by the speed of the motor.

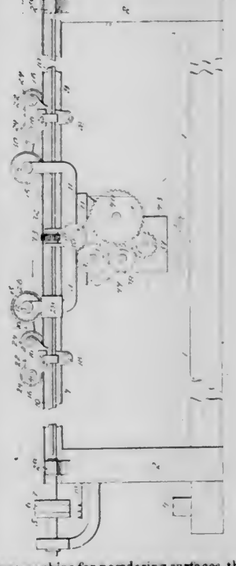
4. In a fluid motor having a plurality of admission ports, a spring-pressed valve for each port having an inclined shoulder, said valves being staggered, a double bar having inclines to engage said shoulders, each portion of the bar engaging alternate valves, and means for governing said bar by the speed of the motor.

5. A governor for fluid motors, comprising in its construction a reciprocal bar controlling the admission-valve or valves, a screw carried by said bar, a rotary screw-threaded sleeve engaging said screw, a crown-wheel fast with said sleeve, a shaft extending across the said crown-wheel and carrying a pinion at one end in mesh therewith and a clutch-member at the opposite end, a sleeve inclosing said shaft and rotatable thereon, said sleeve carrying a pinion in mesh with the crown-wheel and a cylindrical casing projecting beyond the shaft and having an internal clutch-part, a governor-shaft driven by the motor, a longitudinally-movable sleeve on said shaft aud carrying a clutch-member within the said cylindrical casing and adapted to make connection with the clutch-member on the first-named shaft or that on the sleeve surrounding the latter, and governor-balls on the governor-shaft and controlling the longitudinally-movable sleeve.

6. A governor for fluid motors, comprising in its construction a reciprocal bar controlling the admission valve or valves, a screw carried by said bar, a rotary screw-threaded sleeve engaging said screw, a crown-wheel fast with said sleeve, a shaft carrying a pinion in mesh with said wheel and a clutch-member, a sleeve rotatable on said shaft and carrying a pinion in mesh with the crown-wheel and a clutch-member, a governor-shaft driven by the motor, a longitudinally-movable sleeve on said shaft and carying a clutch-member between the two first-named clutch-members and adapted to interlock with either the sleeve being out of alignment with the first-named shaft and sleeve, and governor-balls on the governor-shaft and controlling the longitudinally-movable sleeve.

7. A governor for fluid motors, comprising in its construction a reciprocal bar controlling the admission valve or valves, a screw carried by said bar, a rotary screw-threaded sleeve engaging said screw, a governor-shaft driven by the motor, reversible means for connecting said shaft with the screw-threaded sleeve and governed by the speed of the motor, and auxiliary governing means comprising a tappet rod in engagement with the screw, and suitable connections between said tappet-rod and the governor-shaft, substantially as described.

519,786. MACHINE FOR POWDERING PLATES, &c. BENJAMIN BAUGH, Birmingham, England. Filed Mar. 8, 1893. Serial No. 465,092. (No model.)



Claim.—1. In a machine for powdering surfaces, the independent truck-frames 22, 22, each having a bearer-arm 25 projecting from one end, combined with the track-rails, the carriage having the hopper and the power transmitting shaft, the said truck bearing-arms supporting and moving along said shaft to support it on each side of and independent of the carriage for the purpose stated.

2. In a machine for powdering surfaces, the combination of a horizontal power transmitting shaft, track-rails, and a reciprocating carriage thereon, and a hopper having a feed-roll and sifting devices, of a plate or frame loosely mounted on the journal of said feed-roll

having a train of gear arranged for constant engagement with a pinion on said feed-roll and suitable gear connecting the shaft and carriage arranged relatively with the train gear for alternate engagement therewith by the swinging movement of said plate, substantially as described.

3. The combination, with a reciprocating carriage having a hopper, a shaft parallel with the movement of said carriage, suitable gearing connecting said shaft and carriage, and a feed-roll having a pinion, of a swing-frame loosely on the journal of said feed-roll having a train of gear arranged in such relation to said carriage and roll-gear, that two of the train pinions will be in constant engagement with said roll-gear and two of said train pinions will be in alternate engagement with the carriage connecting gear according as said frame is swung upon its journal at the end of the reciprocating movement of the carriage, for the purpose stated.

4. In a machine for powdering surfaces, the combination of the reciprocating carriage having a hopper and a feeding-roll, a power transmitting shaft parallel with the movement of said carriage, suitable gear for engaging said carriage and shaft, and a pinion on said feed roll, with a plate or frame 49 loosely mounted on the shaft of said feed-roll and having a train of gear arranged in constant engagement with said feed-roll pinion, the said plate arranged to be swung to alternately engage its train of gear with the said carriage gear and to maintain such engagement by gravity due to the position of the plate, substantially as described.

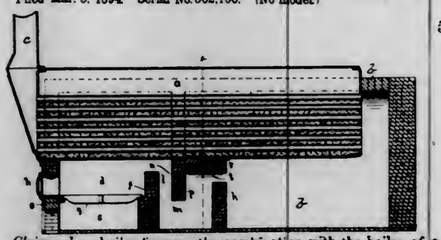
5. The combination in a machine for powdering surfaces, of a table for supporting the article to be powdered, with a horizontal traversing carriage supported above said table, a hopper depending from said carriage, a feed-roll 44 therein having the pinion 39 and pulley 50, a sifter 47 supported by the hopper, and means for operating said roll and sifter, consisting of a rotating shaft 10, a worm gear 33 adapted to have a sliding movement thereon with said carriage, a worm wheel 34 on the latter engaging said shaft worm, a pinion 36 operated by said worm pulley 34, a shifting plate 49 having the pinions 37, 38, 39 and 40, pulleys 60 on said hopper eccentrally connected to said sifter, and an endless cord connecting said sifter and roll pulleys, substantially as described.

6. In a machine for powdering surfaces, the combination of a horizontally reciprocating carriage, a hopper depending therefrom having a feed-roll and pulleys supported in fixed relation to said hopper, with an endless cord arranged to connect said pulleys with the feed-roll, a sifter mounted directly upon and operated by said pulleys and mechanism for operating said feed-roll, substantially as described.

7. In a machine for powdering surfaces, the combination of a horizontally reciprocating carriage, a hopper depending therefrom having eyed brackets 23 at each corner, inverted T-shaped brackets 60ª at each end, and a feed-roll for said hopper, with a sifter and means for supporting and operating the same consisting of the horizontal pulleys 60 mounted in the brackets 60ª and having eccentric pins 70 engaging the brackets 23, the vertical pulleys 17, 17, mounted in the bracket 60ª, the pulley 50 on the feed-roll, an endless cord connecting said pulleys, and suitable means for connecting said feed-roll and carriage for operating the endless cord, substantially as described.

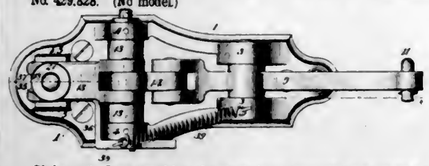
8. In a machine for powdering plates, the combination with the power transmitting shaft 10, a reciprocating carriage, having a hopper and a feed-device, and means for operating said carriage from said shaft, of a device for operating the feed-roll in the same direction during the reciprocating movement of said carriage, consisting of the worm-gear 33, sliding on said shaft, the pinion 36, on the carriage engaging said shaft worm, the pinion 39 on the feed-roll, and the plate 49 loosely mounted on the journal of said feed-roll and having the gear wheels 37, 38, and 40, the said gear wheels 38 and 40 being in constant engagement with the roll pinion and the said gear wheels 37 and 40, being arranged for alternate engagement with said carriage pinion by the shifting action of said plate, substantially as described.

519,787. BOILER-FURNACE. WILLIAM BRAND, Pittsburg, Pa. Filed Mar. 3, 1894. Serial No. 502,160. (No model.)



Claim.—In a boiler furnace, the combination with the boiler, of a fuel chamber at the forward end thereof having a bridge wall, a combustion chamber back of said bridge wall and having a rear bridge wall, a depending wall between said bridge walls within the combustion chamber, and an arch or roof extending rearwardly from the depending wall over the combustion chamber, substantially as set forth.

519,788. MACHINE FOR ATTACHING BUTTONS TO GARMENTS. DANIEL A. CARPENTER, New York, N. Y. Filed Apr. 20, 1892. Serial No. 429,828. (No model.)



Claim.—1. In a machine for attaching buttons to garments by means of tubular metallic fastenings, the combination of a stationary anvil fixed to the base of the machine and provided with a seat conforming to the base of the fastening and with a channel 28 extending through the center of the seat and having its diameter equal to the interior diameter of the stem of the fastening, a sliding needle 25 having the channel 28 as a guide and arranged with the piercing end of the needle projecting from the anvil a distance greater than the length of the fastening when the parts of the machine rest in their normal positions, a movable support on which the needle thus rests, a movable setting device supported above the anvil, and mechanism connecting said setting device and the support for the needle, substantially as described.

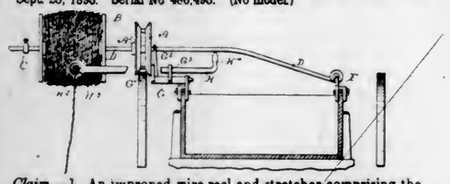
2. In a machine for attaching buttons to garments by means of tubular metallic fastenings, the combination of a stationary anvil fixed to the base of the machine and provided with a seat conforming to the base of the fastening and with a channel 28 extending through the center of the seat and having its diameter equal to the interior diameter of the stem of the fastening, a sliding needle 25 having the channel 28 as a guide and arranged with the piercing end of the needle projecting from the anvil a distance greater than the length of the fastening when the parts of the machine rest in their normal positions, a support consisting of a pivoted lever on which the needle thus rests, a movable setting device supported above the anvil, and mechanism connecting said setting device and pivoted lever, substantially as described.

3. In a machine for attaching buttons to garments by means of tubular metallic fastenings, the combination of a stationary anvil, provided with the plug 27 having a seat for the fastening, and with a channel 28, extending through the plug, and equal in diameter to the interior of the stem of the fastening, the needle 25 adapted to slide in this channel and to extend through the fastening on the anvil, the lever 23, a movable setting device, and operating mechanism connected with said lever and setting device, substantially as described.

4. In a machine for attaching buttons to garments, the combination with a movable setting device and stationary anvil, of the plug 27 forming the part of the anvil on which the fastening rests, the needle inserted in the plug and adapted to enter the fastening, the lever 23 which supports the needle, and mechanism whereby the support for the needle is advanced, and retracted when the fastening is upset, substantially as described.

5. In a machine for attaching buttons to garments, the combination of the stationary anvil 5, having a seat for the fastening, the needle 25 inserted loosely in the anvil and adapted to extend through the tubular stem of the fastening, the pivoted lever 23 whereby the needle is supported, the pivoted block 13 provided with a setting device arranged to be advanced to the fastening on the anvil when the block is turned, the link 29 connecting the lever 23 and block 13, and means whereby motion is imparted to the block, substantially as described.

519,789. WIRE-REELER. GEORGE E. DIXON, Beacon, Iowa. Filed Sept. 25, 1893. Serial No. 486,493. (No model.)

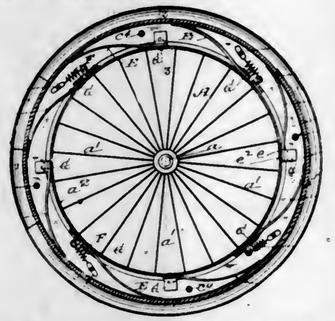


Claim.—1. An improved wire reel and stretcher comprising the following elements to wit: a device adapted to be secured to a wagon, and capable of supporting a spool of wire, and permitting the same to rotate, a friction wheel composed of two disks having their inner edges beveled and connected by cross pieces for the purposes stated, and means for connecting said friction wheel with the spool of wire substantially as set forth.

2. An improved wire reel and stretcher, comprising the following elements, to wit: a device adapted to be secured to a wagon, to support a spool of wire and permit the same to rotate thereon, a friction wheel mounted on the same shaft in proximity to the spool and composed of two disks, connected by cross pieces, each having its periphery beveled on its inner edge for the purposes stated, a block fixed eccentrically on the friction wheel to engage the spool of wire, substantially as, and for the purposes, stated.

3. An improved wire reel and stretcher, comprising the following elements, in combination, to wit: a clamp F adapted to be fixed to one side of a wagon, a bar D hinged to the part F, a friction wheel A, composed of two disks having their edges beveled on their inner sides and cross pieces connectiug them, for the purposes stated, a block A^2 eccentrically fixed to said wheel, an adjustable collar C on the bar D, and a bar G arranged to slide parallel to the spool shaft and having an opening in its outer end adapted to admit a wire, all arranged and combined, substantially in the manner set forth, for the purposes stated.

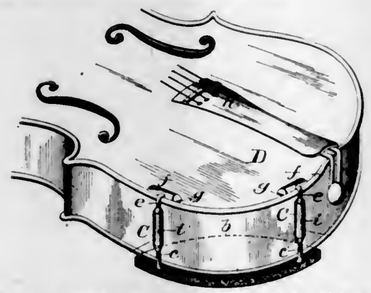
519,790. WHEEL. EDWARD FOX, St. Louis, Mo., assignor of two-thirds to John Harris and Justin J. McCarthy, same place. Filed Nov. 24, 1893. Serial No. 491,915. (No model.)



Claim.—The combination of the inner part A and outer part B having the hollow rim, the springs E, the ties F, and the guides G, substantially as described

---

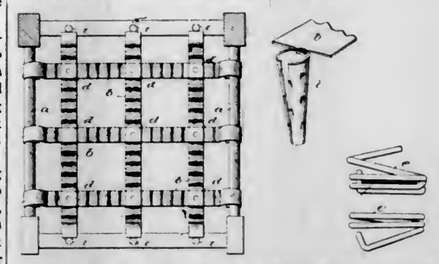
519,791. PAD FOR VIOLINS. EMMA HAGENOW, New York, N. Y. Filed Sept. 8, 1893. Serial No. 485,070. (No model.)



Claim.—1. As an article of manufacture, a pad for violins consisting of a cushioned portion constructed and adapted to rest upon the under side of a violin, extensible clamps connected with said cushioned portion, and clamp heads on the clamps and constructed and adapted to engage the upper side or face of the violin, substantially as set forth.

2. As an article of manufacture, a pad for violins consisting essentially of a plate approximately curved to conform to the shape of the violin and having a cushion formed upon it, said cushion adapted to rest against the bottom of the violin, threaded stems projecting from the plate, padded clamping heads, threaded stems connected with the heads, and nuts or buckles having right and left threaded bore adapted to receive and turn upon the threaded ends of the stems projecting from the plate and clamping-heads, substantially as set forth.

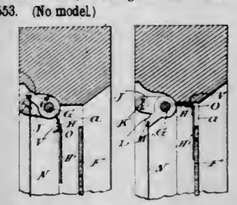
519,792. SPRING-SEAT. FRANK H. HOMAN, Patchogue, N. Y. Filed Dec. 21, 1893. Serial No. 494,337. (No model.)



Claim.—1. The combination of a seat-frame formed with rundles at two of its opposite sides, and coiled springs supporting the upholstering, with a support for said springs constructed of steel-bands corrugated transversely, connected together in crossing relation, the bands crossing the seat-frame from side to side terminating in integral spring lapping hooks adapted to be sprung over said rundles, and the bands of the seat from front to rear terminating in integral tubular barbed-pins adapted to be driven into the front and back bars, substantially as described.

2. The combination of a seat-frame, with steel-bands corrugated transversely, connected in crossing relation and hung upon fixed parts of said frame, and formed with flat seats between the corrugations, and coiled springs supporting the upholstering, clipped and locked upon said band-seats by interlocking the lower coil with said seat part and engaging the upset end of said coil with the edge of said seat band substantially as described.

519,793. APPARATUS FOR EXPELLING FLIES FROM HOUSES. RHOTEN F. LOTSPEICH, Los Angeles, Cal. Filed Aug. 7, 1893. Serial No. 482,553. (No model.)



Claim.—1. The herein described device for clearing a room of flies comprising a window sash, a pane so arranged in the sash that an opening is formed between its upper edge and the cross-bar of the sash, a rock shaft and a pendent plate connected with the rock shaft, substantially as and for the purpose set forth.

2. The herein described device for clearing a room of flies, comprising a window sash, a pane so arranged in the sash that an opening is formed between its upper edge and the cross bar of the sash, a rock shaft, the plate H, fixedly connected to the rock shaft and carrying the fixedly connected angle irons or pieces, and also carrying the rod O, and the pendent plate H', loosely connected to the rod O, substantially as and for the purpose set forth.

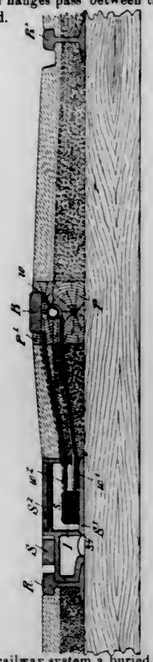
3. The herein described device for clearing a room of flies comprising a vertical surface as F, arranged in a frame so that an opening is formed between its upper edge and the frame, a rock shaft and a pendent plate connected with the rock shaft, substantially as specified.

519,794. ELECTRIC-RAILWAY SYSTEM. DAVID MASON, Schenectady, N. Y. Filed June 27, 1893. Serial No. 478,952. (No model.)

Claim.—1. In an electric railway system a current main or lead having branch conductors operatively connected with switching levers pivotally secured in alignment with the rails of the track and adapted to be actuated by the wheels of the vehicle, in combination with short sectional conductors or contacts provided with circuit connections for connecting them to the aforesaid branch conductors, substantially as described.

2. In an electric railway system a current main or lead, a series of sectional trolley conductors and a series of normally open branch conductors for connecting said trolley conductors directly with the current main or lead, in combination with mechanically actuated switching devices adjacent to one of the rails of the track and adapted to be actuated by the flanges of the wheels of the car or vehicle as it advances.

3. In an electric railway system a current main or lead insulated through its length; a series of short exposed trolley conductors or contacts provided with normally open branch circuits running to the current main, in combination with a pivoted switching lever for each trolley section, said switching levers being located in alignment with the rails of the track and adapted to be actuated by the wheel flanges of the vehicle as said flanges pass between them and the rails, substantially as described.



4. In an electric railway system a buried current main or lead, a series of exposed contacts or trolley sections each provided with normally open branches and switching apparatus for connecting them in sequence to the current main, said switching mechanism consisting of a series of pivoted levers located adjacent to one of the rails of the track and actuated by the flanges of the wheels of the car or vehicle as it moves over the route, substantially as described

5. In an electric railway system a series of water tight switch boxes fixedly secured to one line of rails, a pivoted operating lever secured to each box and provided with means for holding its free end against the face of the rail in combination with an insulated current main a series of short sectional conductors and circuit connections between the main the switching mechanism and the sectional conductors, substantially as described.

6. In an electric railway system a switch box having a water tight compartment inclosing circuit making and breaking devices, circuit connections running from a current main through the switch box to a normally disconnected sectional or trolley conductor in combination with an actuating lever operatively secured to said circuit making and breaking parts, said actuating lever being located in alignment with and closely adjacent to one of the lines of tram rails, substantially as described.

7. In an electric railway system a switch box provided with two compartments, one of which contains circuit making and breaking devices and the other mechanical means for operating said circuit making and breaking devices, in combination with an actuating lever adapted to be operated by the wheels of a moving vehicle and operatively connected to the mechanism in the second compartment, said circuit making and breaking devices being operatively connected with a current main or lead and a normally open sectional or trolley conductor substantially as described.

8. In an electric railway system a switch box having two compartments, one of which contains circuit making and breaking devices and the other mechanism for controlling the movements of the same, in combination with an operating lever pivotally secured to said switch box and operatively connected with the switch controlling mechanism in the second compartment of the switch box, said circuit making and breaking devices being operatively connected with a current main or lead and a normally open sectional or trolley conductor substantially as described.

9. In an electric railway system an insulated current main or lead, a sectional or trolley conductor and a switch box provided with circuit making and breaking devices inclosed in an operative compartment and an operating lever pivotally secured to an extension of the switch box, and provided with means for connecting it with the operative portions of the circuit making and breaking apparatus, said switch box being secured to one of the lines of tram rails with the operating lever in alignment therewith so that the flanges of the wheels of a passing car or vehicle will actuate it, substantially as described.

10. An electric railway system consisting of an insulated buried current main or lead located near the surface of the road-bed; a series of short exposed sectional contacts or trolley sections located in the road-bed; branch conductors running from the insulated main to switch boxes near the surface of the road-bed, additional branch conductors running from the switch boxes to the short sectional contacts or trolley conductors; contact making and breaking devices in the switch boxes for uniting the aforesaid branch conductors; mechanical connections between the contact making and breaking devices, and operating levers pivotally secured in alignment with one of the lines of rails with their free ends resting in mechanical contact with said rails under stress of strong spiral springs, substantially as described.

11. In an electric railway system a series of switch boxes inclosing circuit connections between a buried current main and a series of short sectional contacts or trolley conductors, in combination with operating levers pivoted to the switch boxes and operatively connected with circuit making and breaking devices within said switch boxes, said operating levers being located substantially flush with the surface of the road-bed, and pivotally secured in alignment with the rails of the track so that the flanges of the car wheels will actuate them substantially as described.

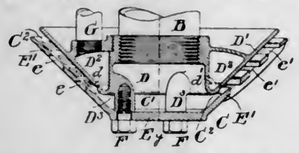
519,795. LAMP-WICK. JOSEPH T. MURRAY, New York, N. Y. Filed Sept. 9, 1891. Renewed Aug. 24, 1892. Again renewed Mar. 20, 1893, and again renewed Oct. 16, 1893. Serial No. 488,328. (No specimens.)



Claim.—1. A lamp wick made of burnt clay and rendered capillary by incorporating with the clay, while in a plastic state, filaments of unspun vegetable fiber which are burned out in the process of baking the clay.

2. The method of making indestructible lamp wicks which consists in incorporating with suitable clay, filaments of unspun vegetable fiber, molding the clay into the shape of a wick, and then baking the clay and burning out the filament, substantially as described.

519,796. STEAM-JET NOZZLE. LOUIS SCHUTTE, Philadelphia, Pa. Filed Mar. 5, 1894. Serial No. 502,323. (No model.)



Claim.—1. As a device for heating fluids in tanks, an outwardly flared annular steam jet nozzle having a series of openings in its walls for the admission of fluid to the jet.

2. As a device for heating fluids in tanks, an outwardly flared annular steam jet nozzle having a series of openings in its walls for the admission of fluid to the jet in combination with an annularly arranged air port or ports opening into the jet nozzle.

3. The steam jet nozzle C having a steam chamber C', an annular outwardly flaring jet delivery passage C^2, a wall as E' of which passage is provided with orifices for the admission of fluid, an annular air chamber as D^3, and an annular opening or series of openings leading from the air chamber to the passage C^2.

4. As a device for heating fluids in tanks an outwardly and backwardly flared annular steam jet nozzle having a series of openings in its walls for the admission of fluid to the jet.

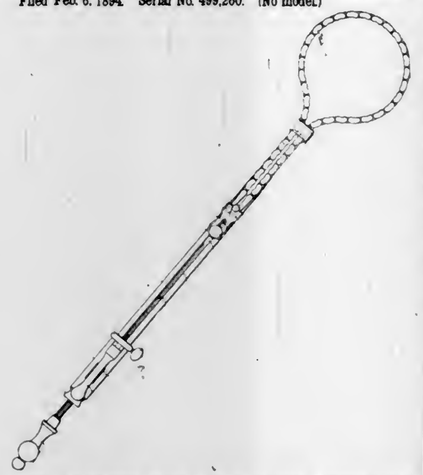
519,797. UPRIGHT PIANO OR ORGAN. WILLIAM T. SMITH, Baltimore, Md., assignor to the Wm. Knabe & Co. Manufacturing Company, same place. Filed June 6, 1893. Serial No. 476,732. (No model.)

Claim.—1. In an upright piano or organ, the combination, with a keyboard and a base, of a bracket having a nut therein and a cavity below said nut, and a scroll having a screw engaging the nut in the bracket, and a neck adapted to rest in the cavity in said bracket, substantially as set forth.



2. In an upright piano or organ the combination with a keyboard and base, of a bracket adapted to engage the under side of the keyboard, a nut located in the bracket, and a leg resting on the base and having a screw engaging the nut, substantially as set forth.

519,798. ECRASEUR. GEORGE W. TEUFEL, Philadelphia, Pa. Filed Feb. 6, 1894. Serial No. 499,260. (No model.)



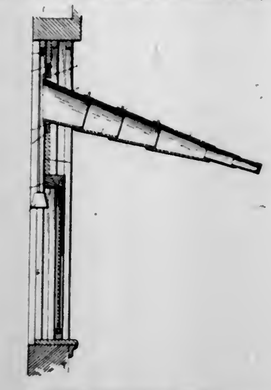
Claim.—An ecraseur having a noose or chain, a spring trigger device and a tapering screw threaded operating rod arranged so as to permit while said device is in engagement with said rod of a movement thereof in one direction to take up slack in said chain or noose, substantially as and for the purposes described.

519,799. LIGHT-CONCENTRATOR FOR DENTISTS, SURGEONS, OR OTHERS. WILLIAM H. THRIFT, Dubuque, Iowa. Filed Sept. 5 1893. Serial No. 484,839. (No model.)

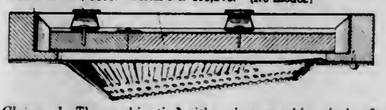
Claim.—1. A device for concentrating and reflecting diffused light, consisting of a cylinder composed of interlocking sections having a polished light reflecting interior and a lens at one extremity.

2. An improved device for concentrating and reflecting diffused light, consisting of a cylinder having a polished light reflecting interior, provided with a lens at one extremity and pivoted to a suitable support at the other extremity so as to have universal movement substantially as set forth.

3. An improved device for concentrating and reflecting diffused light, consisting of a cylinder having a polished light reflecting interior, provided with a lens at one extremity, mounted universally at the other extremity, and a counter-balancing weight, or weights, substantially as set forth, for retaining said cylinder in any desired position



519,800. PHOTOGRAPHIC VIGNETTER. JOHN R. WALKER, Kansas City, Kans., assignor of one-third to R. W. Walker, same place. Filed Mar. 16, 1893. Serial No. 466,278. (No model.)

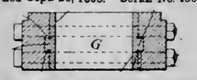


Claim.—1. The combination with a photographic printing frame, of a vignetting attachment secured to said frame, and comprising a sheet of suitable material provided with an opening having its margin irregular or serrated, and having one or more series of holes or apertures surrounding said opening, substantially as set forth.

2. The combination with the photographic-printing frame, of a vignetting attachment secured to said frame, and comprising a sheet of suitable material provided with an opening, and having one or more series of holes or apertures marginally surrounding said opening, and molded to form an outwardly converging or raised portion immediately around said opening, substantially as set forth.

3. A vignetting attachment for photographic-printing frames, comprising a sheet of suitable material provided with an opening having its margin irregular or serrated, and molded to form an outwardly converging or raised portion immediately around said opening, and corrugated or fluted, substantially as set forth.

519,801. DIE OR MOLD FOR CLAY-PRODUCT MACHINES. WILLIAM W. WALLACE, Willoughby, Ohio, assignor to J. W. Penfield & Son, same place. Filed Sept. 28, 1893. Serial No. 486,741. (No model.)

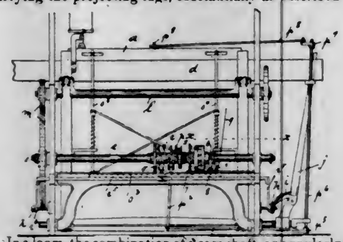


Claim.—A die or mold having a compartment or chamber that has one or more of its side or end-walls, as the case may be, formed by a metallic plate that, upon its back side, is provided with a tongue or tenon engaging a groove or recess in the body-portion of the die or mold, and cut away or grooved or recessed between the tongue or tenon and the adjacent portions of the plate, substantially as and for the purpose set forth.

519,802. SWIVEL-LOOM. HENRY WESTERHOFF and PETER D. WESTERHOFF, Paterson, N. J. Filed Aug. 12, 1893. Serial No. 483,000. (No model.)

Claim.—1. In a loom, the combination of a cam shaft, an annularly grooved sleeve splined thereto, a forked plate carried by said sleeve, a disk keyed upon the shaft and, recessed to form a guide for the forks of said plate, a sleeve rotating loosely on said cam shaft, a disk carried thereby and provided with projecting lugs adapted to engage the forks of the forked plate when said plate and its sleeve are slid on the cam shaft, with a second sleeve rotating loosely on said cam shaft, a two throw cam or worm carried by said sleeve, a system of gearing connecting the two loose sleeves together, so that they ro-

tate respectively at different speeds, and with the swivel shuttle rack, a vertically disposed rocking shaft, arms on said rocking shaft and a link connecting one of said arms with the swivel shuttle rack, and with a lever pivoted to the loom frame, a pin connecting said lever with the cam or worm, and a link connecting said lever with the other of said arms on the rocking shaft, and with a lever carrying a fork and pivoted in the loom frame, said fork being adapted when one arm of said lever is elevated to slide the annularly grooved sleeve on the cam shaft and to thereby bring the forked plate into engagement with the disk carrying the projecting lugs, substantially as described



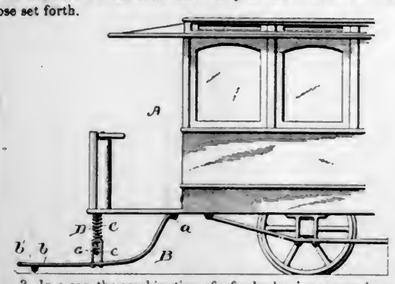
2. In a loom, the combination of a cam shaft, an annularly grooved sleeve splined thereto, a forked plate carried by said sleeve, a disk keyed upon the said shaft and, recessed to form a guide for the forks of said plate, a sleeve rotating loosely on said cam shaft, a disk carried thereby and provided with projecting lugs adapted to engage the forks of the forked plate when said plate and its sleeve are slid on the cam shaft, with a second sleeve rotating loosely on said cam shaft, a two throw cam or worm carried by said sleeve, a system of gearing connecting the two loose sleeves together, so that they rotate respectively at different speeds, and with the swivel shuttle rack, a vertically disposed rocking shaft, arms on said rocking shaft and a link connecting one of said arms with the swivel shuttle rack, and with a lever pivoted to the loom frame, a pin connecting said lever with the cam or worm, a link connecting said lever with the other of said arms on the rocking shaft, and with a lever carrying a fork and pivoted in the loom frame, said fork being adapted when one arm of said lever is elevated to slide annularly the grooved sleeve on the cam shaft and to thereby bring the forked plate into engagement with the disk carrying the projecting lugs, said disk being provided with a recess on its periphery into which the other arm of said lever carrying the fork is adapted to enter to stop the rotation of said disk, substantially as described.

3. In a loom, the combination of a cam shaft, an annularly grooved sleeve splined thereto, a forked plate carried by said sleeve, a disk keyed upon the shaft and, recessed to form a guide for the forks of said plate, a sleeve rotating loosely on said cam shaft, a disk carried thereby and provided with projecting lugs adapted to engage the forks of the forked plate when said plate and its sleeve are slid on the cam shaft, with a second sleeve rotating loosely on said cam shaft, a two throw cam or worm carried by said sleeve, a system of gearing connecting the two loose sleeves together, so that they rotate respectively at different speeds, and with a swivel shuttle rack, a vertically disposed rocking shaft, arms on said rocking shaft and a link connecting one of said arms with the swivel shuttle rack, and with a lever pivoted to the loom frame, a pin connecting said lever with the cam or worm, a link connecting said lever with the other of said arms on the rocking shaft, and with a lever carrying a fork and pivoted in the loom frame, said fork being adapted when one arm of said lever is elevated to slide the annularly grooved sleeve on the cam shaft and to thereby bring the forked plate into engagement with the disk carrying the projecting lugs, and with the picker balls carried thereby, the picker stick, picker stick levers and flexible connections between the same, and shafts on which the ends of the picker stick levers are adapted to slide, with means for communicating required reduced motion from the cam shaft to said loosely rotating sleeve, a four throw cam or worm carried by said sleeve, a lever pivoted to the loom frame, a pin connecting said lever to said worm so as to give said lever a reciprocating motion, a link connecting the ends of said picker stick levers with the reciprocating lever, all arranged so that when said worm is rotated the picker stick levers through the intermediate connection will be shifted on their shafts alternately into and out of alignment with the picker balls, substantially as described.

519,803. FENDER FOR STREET-RAILWAY CARS. JOHN B. BAILEY, Baltimore, Md. Filed July 3, 1893. Serial No. 479,464. (No model.)

Claim.—1. In a car, a fender comprising side bars which are connected with the car by shackles so as to move both vertically and laterally, springs between the fender and car for supporting the front portion of the said fender, and a lever under control of the grip or motor man to be operated at will to shift the said fender laterally, substantially as set forth.

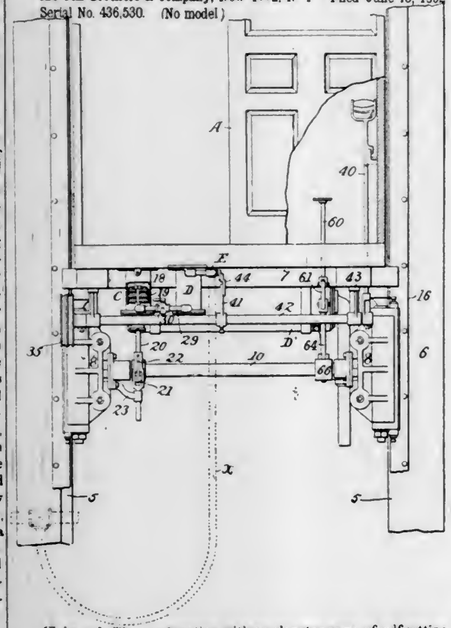
2. The combination with a car of an end fender having a cross bar which is pivotally connected midway of its ends to the car, and curved bars at the sides of the car to engage with and support the ends of the said cross bar, substantially as described and for the purpose set forth.



3. In a car, the combination of a fender having a cross bar which is pivotally connected midway of its ends to the car, curved bars at the sides of the car to support the ends of the said cross bar, yielding connections attached at their lower ends to the fender between the ends of the latter and curved rods attached to the car and supporting the upper ends of the said yielding connections, the said curved rods and bars having a common center which coincides with the vertical axis about which the fender turns, substantially as set forth.

4. In a car having fenders at each end adapted to turn about a vertical axis, a vertical lever under the control of the motor man or gripman, short levers near the ends of the car attached at their outer ends to the fender, and having their inner ends connected with the said vertical lever, substantially as set forth.

519,804. ELEVATOR. CYRUS W. BALDWIN, Yonkers, assignor to the Otis Brothers & Company, New York, N. Y. Filed June 13, 1892. Serial No. 436,530. (No model.)



Claim.—1. The combination with an elevator cage, of self-setting braking devices, a cylinder and piston carried by the cage, means for supplying the cylinder with motor fluid, connections between the piston and the braking devices arranged to loosen the brakes by the action of the motor fluid and means situated within the cage and under the control of the operator for controlling the flow of the motor fluid, substantially as set forth.

2. The combination with the elevator cage and the brakes therefor, of means which automatically and uniformly tend to force the brakes into operative position, an operating piston and cylinder connected with the brakes and arranged to release or move them out of operative position, and a tank containing a supply of liquid, communicating at one end with the cylinder and at the other end with a pipe for supplying motor fluid, substantially as set forth.

3. The combination with an elevator cage, of braking devices provided with springs constructed to apply the brakes with a power sufficient to arrest the movement of the cage, and a cylinder and piston carried by the cage, the piston connected to operate the brakes, and means whereby the operator within the cage can direct the motor fluid to the cylinder to move the piston and release the brakes, substantially as set forth.

4. The combination with an elevator cage and with vertical friction bars within the well, of friction brakes carried by the cage provided with springs arranged to apply the brakes to the friction bars, an engine carried by the cage and connected with the brakes, and means for supplying the engine with a motor fluid to release the brakes, substantially as set forth.

5. In an elevator apparatus the combination with the elevator cage, braking devices and a motor engine for operating the braking devices, of a valve connected with operating devices within the cage, and constructed to open the exhaust port of the motor engine when the valve is in mid-position and to open the inlet port when the valve is turned in either direction from a mid-position, substantially as set forth.

6. The combination with the elevator cage, the brake devices and a motor engine, connected with and arranged to operate the brake devices, of a valve device E having a casing provided with the inlet port 51 and the outlet port 50, a valve mounted within the casing and having the inlet ports *c*, *c'*, and the exhaust ports *b*, *b'*, fluid connections between the valve device and the motor engine and means for operating the valve device arranged to be under the control of the operator, substantially as set forth.

7. The combination with the braking devices carried by a cage, of a cylinder C, containing a piston connected with the braking devices, a tank D communicating with the cylinder C, through a pipe provided with a cock, a body of liquid in the cylinder C, and tank D, a pipe provided with a valve device, and communicating with the tank D and adapted to convey thereto a motor fluid which acts upon the said body of liquid, means for supplying the last said pipe with a motor fluid, and connections between the said valve device and an operating device within the cage, substantially as set forth.

8. The combination of the cage, its braking devices and motor engine and valve for the braking devices all arranged upon and carried by the cage, the elevator engine, its stopping and starting device, and an operating device within the cage connected with both the stopping and starting device of the elevator engine and with the valve for the engine which operates the braking devices, substantially as set forth.

9. The combination with the elevator cage, of the friction brakes arranged in pairs on the opposite sides of the cage, each pair consisting of a fixed jaw, and a swinging jaw pivoted thereto, the fixed jaws being provided with bearings, a rock shaft mounted in the said bearings, and connected with the swinging jaws, and means under the control of the operator within the cage for positively operating the said rock shaft substantially as set forth.

10. The combination with the braking devices carried by an elevator cage, of a motor engine carried by the cage and provided with a valve controlling the flow of motor fluid, a storage tank *D'*, also carried by the cage and means connected with the said controlling valve and extending within the cage, whereby the operator can control the flow of the motor fluid to the said motor engine, substantially as set forth.

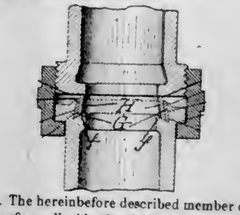
11. In an elevator apparatus the combination of a cage, braking devices, motor engine and storage tank provided with an inlet having a check valve and casing, and a pipe communicating with a motor fluid supply arranged in a fixed position in the well and provided with a casing having a check valve in position to make contact with the check valve casing carried by the tank of the cylinder, substantially as set forth.

12. In an elevator apparatus the combination with the elevator cage, its storage tank D' and brake devices connected to be operated by the pressure of the motor fluid in the said tank, of a supply pipe arranged in a fixed position in the well, and means for connecting the supply pipe and storage tank when the cage is in one position, and valves for closing the supply pipe and storage tank, substantially as described.

13. In an elevator apparatus the combination with the elevator cage, of a storage tank having an inlet pipe with a projecting nozzle and check valve, and a casing arranged in the well in position to receive the nozzle, communicating with a supply pipe, and provided with a check valve, substantially as set forth.

14. The combination with a cage, of a tank carried thereby provided with an inlet pipe and check valve, and a casing communicating with a supply pipe and provided with a check valve arranged to be struck by the inlet pipe, substantially as set forth.

519,805. COMPRESSION-JOINT. CHARLES S. BAVIER, New York, N. Y. Filed July 11, 1891. Serial No. 399,245. (Model.) Patented in England Aug. 1, 1891, No. 13,094.



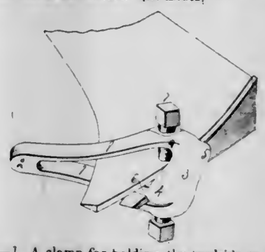
Claim.—1. The hereinbefore described member of a compression joint consisting of a malleable ring having one edge adapted to form the joint, and its opposite edge beveled downwardly and outwardly from the center of the ring, and said ring inserted freely in an annular recess in one of the compression members, which recess has its side walls undercut, and its base formed at an angle with the beveled edge of the ring, so that said beveled edge shall deflect the lower part of the ring laterally against said undercut side walls.

2. The hereinbefore described member of a compression joint consisting of several malleable rings, each ring having one edge adapted to form the joint and said edges forming a stepped series, and each ring also having its opposite edge beveled downwardly and outwardly from the center of the ring, said rings being nested one within the other, in an annular recess which has undercut side walls and a base formed at an angle with the beveled edges of the rings, so that the lower part of the outer ring shall be deflected laterally against the undercut side walls of the recess, and the lower part of the other rings shall be deflected laterally under the inclined side of the next outer ring.

3. The hereinbefore described member of a compression joint consisting of a malleable ring having one edge adapted to form the joint and its opposite edge beveled downwardly and outwardly from the center of the ring, and said ring freely inserted in an annular recess in one of the compression members which recess has undercut side walls and a base which inclines downwardly and outwardly from said ring so that the beveled edge of the ring shall deflect the same laterally against, and under the said undercut side walls.

4. A compression joint constructed as follows, one of the compression members having a hard indexical surface, and the other member containing a compressible ring, which ring is freely inserted in an annular recess in said other member, said ring having its under-side beveled downwardly and outwardly from the center of the ring, and being inserted in an annular recess which has undercut side walls, so that pressure on the upper face of the ring shall deflect its beveled face laterally toward the undercut side walls.

519,806. CLAMP FOR PLOW-IRONS. WM. A. CLARK, Rockford, Ill., assignor of one-half to Thomas L. O'Donnell, same place. Filed Feb. 28, 1894. Serial No. 501,888. (No model.)

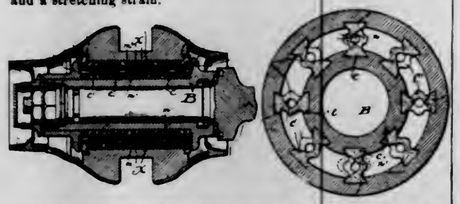


Claim.—1. A clamp for holding the landside to the share, consisting of the slotted bracket having a projection extending in the lengthwise direction thereof, and set screws passing through the bracket on one side of the projection.

2. A clamp for holding the landside to the share, consisting of a slotted bracket having a wedge projection extending in the lengthwise direction thereof and set screws passing through the bracket and located on the bevel side of the projection.

519,807. WHEEL-HUB. JOHN W. CLOUD, Chicago, Ill. Filed July 15, 1893. Serial No. 480,559. (No model.)

Claim.—1. The combination in a wheel hub of a box B and an outer shell B' with a number of normally curved independent sections, of elastic and extensible material arranged radially between the hub and wheel and held in contact with each of them whereby when a weight is borne by the hub the sections will be given both a bending and a stretching strain.

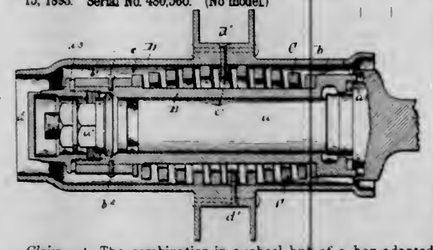


2. The combination in a wheel hub of a box B and an outer shell B' with a series of rubber stays arranged to normally hold the box and shell concentric to each other, a metal band or ring embedded in said stays near their outer ends to hold them in contact with the shell and a metal band or ring embedded in said stays near their inner ends to hold them in contact with the box.

3. The combination in a wheel hub of a box B and an outer shell B', collars *b b'* on the box and an elastic support for the outer shell B' arranged between the collars and consisting of cylinders c having metallic bands or rings embedded in said cylinders near the inner and outer peripheries to hold the cylinders in contact with the box and shell.

4. The combination in a wheel hub of a box B and an outer shell B' collars *b b'* on the box and an elastic support for the outer shell B' arranged between the collars and consisting of cylinders c cored to form a series of stays C and having metallic bands or rings embedded in said cylinders near the inner and outer peripheries to hold the cylinders in contact with the box and shell.

519,808. WHEEL-HUB. JOHN W. CLOUD, Chicago, Ill. Filed July 15, 1893. Serial No. 480,560. (No model.)



Claim.—1. The combination in a wheel hub of a box adapted to fit on an axle, an outer shell and a spring or springs coiled around the inner box and between it and the outer shell, said spring being connected both to the inner box and the outer shell and adapted to support said outer shell, substantially as and for the purpose specified.

2. The combination in a wheel hub of a box adapted to fit on an axle, abutments or collars on said axle box, one of which is removable, an outer shell and a spring or springs coiled around the inner box between the collars thereon and within the outer shell substantially as shown and described.

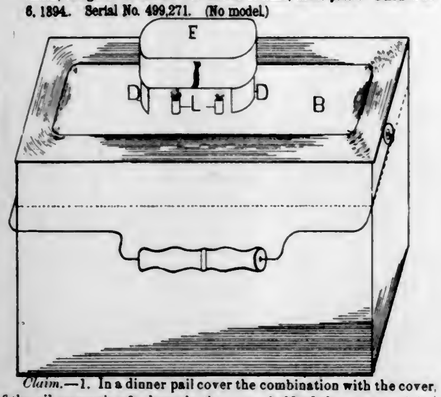
3. A wheel hub consisting of two parts, an inner box and outer shell and having a spring coiled in a substantially helical manner around the inner box and between it and the outer shell, said spring being shaped as described so as to support the shell upon the box without filling the cavity between them and so as to leave room for the motion of the spring.

4. A wheel hub consisting of two parts, an inner box and outer shell and having a spring coiled in a substantially helical manner around the inner box and between it and the outer shell said spring being secured at the ends to one of the two parts of the hub and at the middle to the other part substantially as and for the purpose specified.

5. The combination in a wheel hub of a box adapted to fit on an axle, an outer shell and a spring coiled substantially in a helical manner around the axle box and having its central coils of larger diameter than the end coil, said spring being coiled around and held to the box at the ends and to the outer shell at the enlarged central portion, substantially as and for the purpose specified.

6. The combination in a wheel hub of a box adapted to fit on an axle, collars on said box, an outer shell and a spring coiled substantially in a helical manner around the box and between the collars and having its central coils of larger diameter than the end coil, said spring being coiled around and held to the box at the ends and to the outer shell at the enlarged central portion, substantially as and for the purpose specified.

519,809. DINNER-PAIL COVER. HARRY E. DUNHAM, Saginaw, Mich., assignor of one-half to Aaron T. Bliss, same place. Filed Feb. 6, 1894. Serial No. 499,271. (No model.)

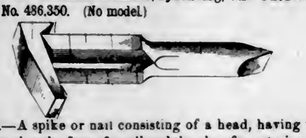


Claim.—1. In a dinner pail cover the combination with the cover, of the oil reservoir of a lamp in the upper half of the cover and integral therewith, tubes extending upward therefrom, lamp wicks in the said tubes extending into the oil reservoir, and means for supporting a vessel above the lamp thus formed, substantially as described.

2. In a dinner pail cover, the combination with the cover, and cup holders upon the top of the cover, of a lamp formed within the cover having the burner within the cup holders, and the cup adapted to be held in place upon the cover by the cup holders and protect the lamp burner, substantially as described

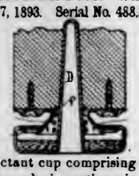
---

519,810. NAIL OR SPIKE. JOHN FLOYD, Baltimore, Md., assignor of two-fifths to Edmund Schaefer, Lynchburg, Va. Filed Sept. 23, 1893. Serial No. 486,350. (No model.)



Claim.—A spike or nail consisting of a head, having the extension for engaging the foot of a rail and the claw for entering the wood, the shank having the channels provided with inclined or tapered walls forming entering edges and the reduced portion having a pointed end.

519,811. DISINFECTANT-CUP. WILLIAM L. GERARD, Wichita, Kans. Filed Oct. 17, 1893. Serial No. 488,365. (No model.)



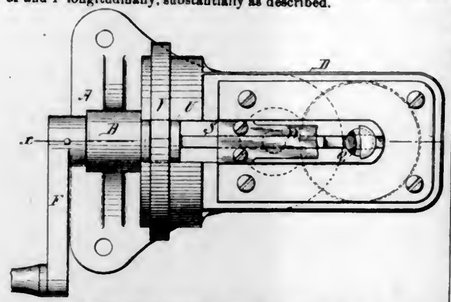
Claim.—A disinfectant cup comprising a conical cover, having a disk shaped base, and made in sections, in combination with a cup having a socket projection, and a shoulder thereon, embraced by the sectional cover, substantially as shown and described.

519,812. WIRE-BENDING MACHINE. FRANK B. GRISWOLD, Troy, N. Y. Filed Jan. 30, 1894. Serial No. 498,499. (No model.)

Claim.—1. In a wire bending machine, a rotary support and two pins projecting from the face thereof, a second rotary support facing in the opposite direction to said first support, and two pins projecting from the face thereof; the said supports not having their axial lines coincident and being disposed so that a wire may be introduced successively between the pins of one support and then between the pins of the other support.

2. In a wire-bending machine, the combination of the cylindrical body frame D and support A therefor, the rotary shaft E in said support and entering said body frame D, shafts M and P and intermediate gearing between said shaft E and shafts M and P, pins 1 and 2 on shaft M, and pins 3 and 4 on shaft P, substantially as described.

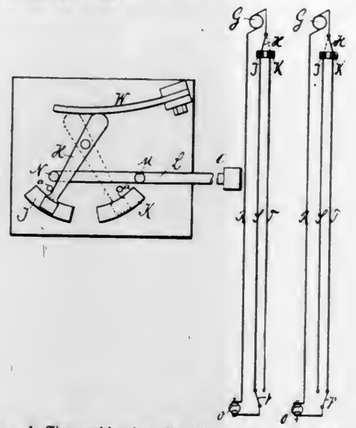
3. In a wire-bending machine, the combination of the cylindrical body frame D and support A therefor, the rotary shaft E in said support and entering said body frame D, shafts M and P and intermediate gearing between said shaft E and shafts M and P, pins 1 and 2 on shaft N, pins 3 and 4 on shaft P, and means for moving said shafts M and P longitudinally, substantially as described.



4. In a wire-bending machine, the combination of the cylindrical body frame D and support therefor, shaft M therein having slot Q and pins 1 and 2, means of rotating said shaft, and bar S supported and sliding on said cylindrical body frame D and having a wedge or bevel end adapted to enter said slot Q, and thereby to move said shaft M in a longitudinal direction, substantially as described.

5. In a wire-bending machine, the combination of the cylindrical body frame D and support therefor, shaft M therein having slot Q and pins 1 and 2, means of rotating said shaft, bar S supported and sliding on said cylindrical body frame D, and having a wedge or bevel end adapted to enter said slot Q and thereby to move said shaft M in a longitudinal direction, and spring W bearing upon the outer end of said shaft M, substantially as described.

519,813. ELECTRICALLY-GOVERNED SWITCH. EMIL H. E. KLATTE, Freiburg, Baden, Germany. Filed Feb. 29, 1892. Serial No. 423,323. (No model.) Patented in Germany Feb. 7, 1892, No. 65,039; in Switzerland Feb. 11, 1892, No. 4,747; in Austria-Hungary Feb. 12, 1892, No. 8,300; in England Feb. 13, 1892, No. 2,849; in France Feb. 18, 1892, No. 219,509; in Belgium Feb. 18, 1892, No. 98,419, and in Italy Mar. 5, 1892, No. 31,394.



Claim.—1. The combination of a railway track, a railway switch tongue, an electric motor connected with the switch tongue for operating it, a circuit breaker connected with the switch mechanism, and a pole changer connected with said motor and circuit breaker and adapted to reverse the motion of the electric motor for shifting the switch tongue.

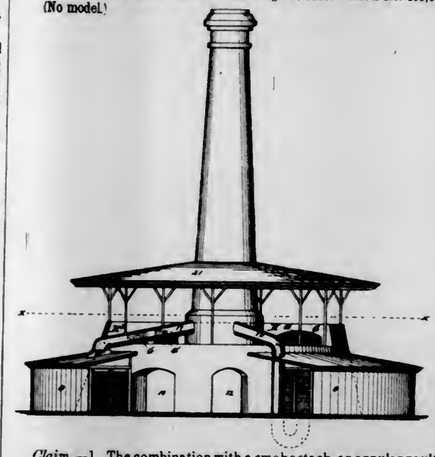
2. The combination of a railway track, a switch tongue, an electric motor connected with said switch tongue for actuating it, a pole changer for said motor, an electric switch disposed near the pole changer, a circuit breaker, mechanism connecting said breaker with the switch mechanism, and conducting wires leading from the pole changer and reversing switch to the motor and circuit breaker.

3. The combination of a railway track, a switch tongue therefor, an electric motor, a worm gear mechanism operated by the motor and connected to said tongue, a circuit breaker, and connecting rod between the worm gear and circuit breaker for actuating the latter, a pole changer, an electric switch disposed near the pole changer, and conducting wires disposed near the pole changer and motor and electric switch and circuit breaker.

4. The combination of a railway track, a switch tongue therefor, an electric motor, mechanism between the motor and switch tongue for moving the latter, a circuit breaker composed of two contact studs and a pivoted spring actuated lever, a rod engaging the lever of the circuit breaker and connected with the switch mechanism, a pole changer, an electric switch disposed near the pole changer, and conducting wires between the pole changer and motor and electric switch and circuit breaker.

5. The combination of a railway track, a switch tongue, an electric motor, connecting mechanism between said motor and tongue for operating the latter by the former, a circuit breaker connected with and controlled by the tongue switching mechanism, a wire connecting said motor and circuit breaker, a pole changer, a wire connecting said motor and said pole changer, an electric switch disposed adjacent to said pole changer, a wire connecting said pole changer with said electric switch, and two wires connecting the contact points of said electric switch and circuit breaker.

519,814. KILN FOR BURNING EARTHENWARE. WILLIAM H. R. KUNSTMAN, Chicago, Ill., assignor to the Columbian Pottery and Brick Kiln Company, same place. Filed Aug. 24, 1893. Serial No. 483,981. (No model.)



Claim.—1. The combination with a smoke stack, an annular vault surrounding said smoke stack and communicating with the same, and a combustion chamber which communicates with the annular vault, of a rotary floor fitted into the annular vault substantially as described.

2. The combination with a smoke stack of an annular vault surrounding the smoke stack, channels leading from the vault into the smoke stack, a rotary floor fitted into the annular vault, flues L formed in said rotary floor and a combustion chamber communicating with the annular vault substantially as described.

3. The combination with a smoke stack of an annular vault surrounding the smoke stack, channels *p'* leading from the annular vault into the smoke stack, a combustion chamber communicating with the annular vault, a tunnel which partially extends round the annular vault, means for closing the ends of the tunnel, a duct 16 leading from the channels *p'* into one end of the tunnel and a duct 17 leading from the other end of the tunnel into the smoke stack substantially as described.

4. The combination with a smoke stack, an annular vault surrounding said smoke stack and communicating with the same, a combustion chamber which communicates with the annular vault and a rotary floor fitted into the annular vault, of movable slides fitting the annular vault and serving to partition the same off into several divisions substantially as described.

5. The combination with a smoke stack, an annular vault surrounding said smoke stack and communicating with its interior and a rotary floor fitted into the annular vault, of an arched chamber H' formed on top of the annular vault and communicating with the same through openings Q, means substantially as described for introducing fuel into this arched chamber and openings or louvers for admitting fresh air into the chamber substantially as described.

6. The combination with a smoke stack, an annular vault surrounding said smoke stack and communicating with its interior and

a rotary floor fitted into the annular vault, of two arched chambers H', H^2 formed on top of the annular vault and communicating with each other, means substantially as described for introducing fuel into the arched chamber H', openings or louvers for admitting fresh air into the arched chamber H^2 and means for heating the air in its passage through the chamber H^2 substantially as described.

7. The combination with a smoke stack, an annular vault surrounding said smoke stack and communicating with its interior, a rotary floor fitted into the annular vault and movable slides fitting the annular vault and serving to partition the same off into several divisions, of a combustion chamber communicating with one of the divisions of the arched vault and an aperture communicating with a different division of the arched vault and serving to introduce the materials to be burned and an aperture communicating with another division of the arched vault and serving to remove the materials which have been burned substantially as described.

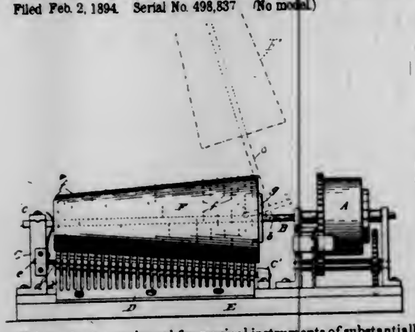
8. The combination with a smoke stack, an annular vault surrounding said smoke stack and communicating with the same, a combustion chamber which communicates with the annular vault and a rotary floor fitted into the annular vault, of circular tracks R secured on the bottom of the annular vault and rolling supports *b* secured to the rotary floor substantially as described.

519,815. RELEASING DEVICE. HENRY LAHANN, Traver, Cal. Filed Sept. 23, 1893. Serial No. 486,275. (No model.)



Claim.—In a device of the character set forth, the combination of a rotatable longitudinally movable shaft having a pin in connection therewith with one end left projecting therefrom, a sill having an opening in the under edge thereof to receive the projecting end of the pin and a plate on the under side of the sill which partially closes the opening therein and holds the pin in place until the shaft is moved longitudinally, substantially as described.

519,816. MUSICAL INSTRUMENT. HENRY LANGFELDER, New York, N. Y., assignor of one-half to F. G. Otto & Sons, Jersey City, N. J. Filed Feb. 2, 1894. Serial No. 498,837. (No model.)



Claim.—1. A note-barrel for musical instruments of substantially conical shape, as described.

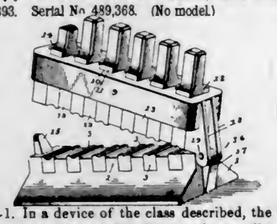
2. A note-barrel for musical instruments smaller at one end than at the other and gradually tapering from the larger to the smaller end, substantially as described.

3. In a musical instrument of the class described, the combination of motor mechanism, a two part jointed shaft, one of the shaft sections being connected to the motor mechanism, together with a note-barrel removably secured upon the other section of the shaft, substantially as described.

4. In a musical instrument of the class described, the combination of a hinged main shaft, with a frusto conical note-barrel mounted thereon, substantially as described.

5. In a musical instrument of the class described, the combination of a main shaft having a hinged section with a frusto conical note-barrel mounted upon said hinged section, substantially as described.

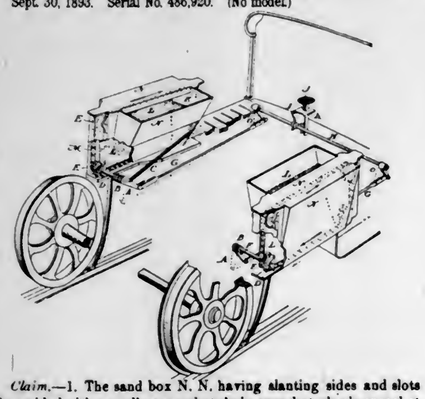
519,817. SWAGE. CHARLES A. METTE, Santa Cruz, Cal. Filed Oct. 28, 1893. Serial No. 489,368. (No model.)



Claim.—1. In a device of the class described, the combination of a base provided with spaced sockets, stationary dies fitted in said sockets, a guiding arm hinged to said base and provided with spaced guides, and movable dies slidably fitted in said guides, respectively in alignment with the stationary dies and having upwardly projecting impact posts, substantially as specified.

2. In a device of the class described, the combination of a base provided with spaced sockets, stationary dies provided with depending tangs engaging said sockets and lateral shoulders engaging the surface of the base, bracing blocks interposed between said dies, a guiding arm hinged to the base and provided with spaced guides and interposed depending bracing blocks, movable dies fitted in said guides and provided with stops, and a finger carried by the base to engage a pocket in the guiding arm, substantially as specified.

519,818. SANDING DEVICE FOR CARS. ISAAC MOWDER, Akron, assignor of one-half to Thomas H. Mowder, Youngstown, Ohio. Filed Sept. 30, 1893. Serial No. 486,920. (No model.)



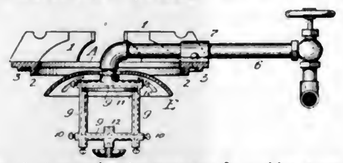
Claim.—1. The sand box N. N. having slanting sides and slots and provided with an endless sprocket chain, sprocket wheels, sprocket shaft, spring C, ratchet and means for revolving the sprocket shaft from the platform of the car by a reciprocating movement of the foot, substantially as described.

2. The combination with the sanding box having the slots for the passage of the sprocket chain and provided with the sprocket shafts, wheels and spring, of the rod G, arm O, shaft H, and means for reciprocating the shaft as described.

3. The combination in a sanding device of the following elements, to-wit: a slotted box having an endless sprocket chain, sprocket shafts and wheels, arm B, spring C, rod G, shaft H, sector I, rack J, and flexible conductor substantially as described.

4. The sand box provided with the endless sprocket chain, shafts, wheels, ratchet device on one of the shafts, and means for imparting direct rotary, motion to the said shaft by a reciprocating device on the platform of the car all as set forth.

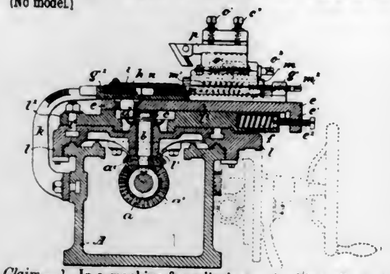
519,819. VAPOR-BURNER. EMORY I. NICHOLS, San Francisco, Cal., assignor of one-half to John Brower, same place. Filed May 31, 1893. Serial No. 476,027. (No model.)



Claim.—1. A vapor burning apparatus for cooking stoves, consisting of a reservoir, a main pipe leading therefrom and arranged along the stove, a branch pipe extending from said main pipe over the top of the stove, and turned down into the stove hole at its center, an annular plate adapted to support the vessel to be heated and connected to said branch pipe and a burner nozzle connected to the downwardly turned end of said branch pipe, and arranged under the said stove hole, the parts being combined and constructed substantially as described.

2. A vapor burning apparatus for cooking stoves consisting of a reservoir, a main pipe leading from said reservoir, and arranged horizontally along the cooking stove, branch pipes swiveled to said main pipe, and extending over the top of said stove and having downwardly turned ends, supporting burner nozzles at the center of the stove holes, and annular plates connected with said branch pipes, and fitted to the stove holes, all constructed and combined, substantially as described.

519,820. MACHINE FOR MANUFACTURING RELIEVED-FORMED REVOLVING TOOLS. JOHANNES G. REINECKER, Gablenz, near Chemnitz, Germany. Filed Aug. 24, 1893. Serial No. 483,929. (No model.)



Claim.—1. In a machine for relieving or backing off revolving cutters, the combination of the slide rest *l* carrying slide *e* and adjustable plate *m* having the follower *n* and turning tool *p* secured thereto, with blade *h* and former *i* guided by arms *k*, *k* fixed to the frame of the machine and means for imparting a reciprocating motion to the slide *e* and its accessory parts, substantially as and for the purpose described.

2. In a machine for relieving or backing off revolving cutters, the combination of the former *i* with a blade *h* embedded in plate *g*, g^3 secured to the reciprocatiog slide *e* and fixed arms *k*, *k* guiding the said blade in transverse direction substantially as and for the purpose specified.

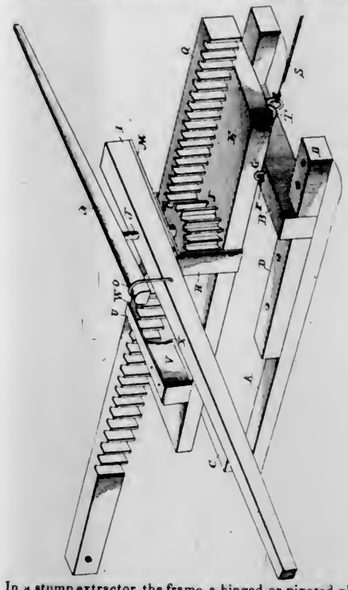
3. The combination of the bed A, slide rest *l* plate l^3 secured thereto, slide *e* adapted to move in guides on said plate l^3 pin *d* secured to slide *e* a cam *c* adapted to engage with pin *d* and maintained in contact therewith by springs *f* in operative connection with the slide *e* the tool holder *o* connected with slide *e* and means for limiting the travel of said holder, substantially as set forth.

4. The combination of the bed A slide rest *l* plate l^3 slide *e* provided with a pin *d* which engages with a cam *c* the plate *g* secured to slide *e* blade *h* provided with a former *i* guides *k k* for said blade fixed to the bed A and the adjustable plate *m* connected to plate *g* by springs *m'* and screws m^3 and provided with a follower *n* and tool holder *o* operating as and for the purpose specified.

519,821. STUMP-EXTRACTOR. JOHN H. ROUSE, Advance, Mo., assignor of one-half to J. H. Schonhoff and C. A. Schonhoff, same place. Filed June 14, 1893. Serial No. 477,596. (No model.)

Claim.—1. In a stump extractor, the combination of a sled frame, a platform loosely connected at one end to said sled frame leaving the other end free for self-adjustment, a sliding rack bar mounted on the platform, and a sweep-controlled cog wheel or pinion also mounted on said platform and adapted to engage the teeth of said rack bar, substantially as set forth.

2. In a stump extractor, the combination of the power shaft journaled vertically in suitable bearings and having a squared portion directly above its upper bearing and at a point intermediate of its ends, a sweep lever having a perforation therein near one end, which perforation is squared at its lower end to engage the squared portion of said shaft on which the lever is mounted for a slight vertical play, a weight attached to the perforated end of the sweep lever to normally hold the same in engagement with the squared portion of the power shaft, a U-shaped lifting loop loosely connected at its extremities to opposite sides of the sweep lever and extending above the same, and a removable gear lever adapted to be removably fulcrumed on the upper extremity of the power shaft and provided near one end with a socket loosely engaging over said upper extremity of the power shaft, the socketed end of the gear lever being adapted to be arranged inside of the U-shaped lifting loop, substantially as set forth.



3. In a stump extractor, the frame, a hinged or pivoted platform mounted on said frame, a rack pull bar, mounted to slide on top of said platform, and a sweep controlled cog wheel or pinion mounted on said platform and meshing with said rack bar, substantially as set forth.

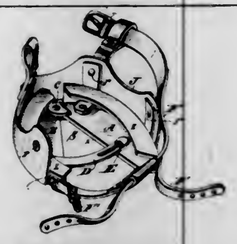
4. In a stump extractor, a sled frame, a platform hinged at one end on top of said frame, a rack pull bar mounted to slide on top of said platform, a bearing bracket attached to said platform, a retaining plate secured to the platform, a rack pull bar mounted to slide on the platform under said bearing bracket and said retaining plate, and a sweep controlled cog wheel or pinion working under said bearing bracket and engaging the teeth of said pull bar, substantially as set forth.

5. In a stump extractor, the sled frame having end bars one of which is higher than the other, a platform hinged at one end to the higher end bar, a U-shaped bearing bracket attached to said platform intermediate of its ends, an adjacent retaining plate arranged over the platform and carried thereby, said retaining plate having a flanged stop end, a rack pull bar mounted to slide on said platform under the bearing brackets and said retaining plate, and a sweep controlled cog wheel or pinion mounted under said bearing bracket and engaging the teeth of said rack bar, substantially as set forth.

519,822. HOOF BOOT AND PAD. WILLIAM SIDEBOTHAM, New York, N. Y. Filed Aug. 19, 1893. Renewed Apr. 19, 1894. Serial No. 508,230. (No model.)

Claim.—A horse boot consisting of an outside flexible jacket provided with suitable means for securing the same to the foot, and of an inside metallic sole made in two sections pivoted together and provided with means for radial adjustment, each section consisting of a broad bottom plate, a vertical plate, and a narrow curved top plate having a continuous top surface to support the hoof, the whole adapted to inclose a sponge under the pad of the hoof and to subject it to a limited pressure, substantially as described.

519,822.



519,823. SASH-BALANCE. JOHN J. TOTMAN, Amsterdam, N. Y., assignor of one-half to Earl G. Wheeler, same place. Filed June 6, 1893. Serial No. 476,730. (No model.)



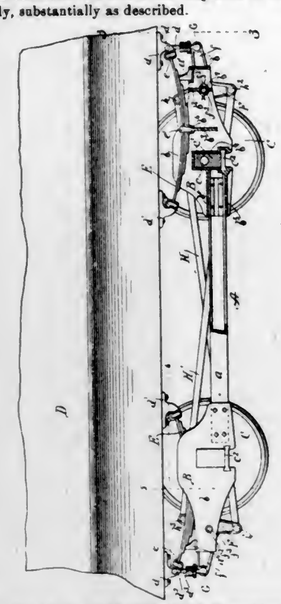
Claim.—1. In a sash balancing device, the combination of twin sets of juxtaposed rollers arranged in recesses formed in the casing on opposite sides of each sash, the axes of the rollers in each set being disposed in a common horizontal plane, an operating cord secured terminally to the top and bottom of each sash at each side thereof, arranged between the side edges of the sash and the contiguous surfaces of the casing, and looped at intermediate points, respectively, around said rollers, the sides of the loop being crossed, whereby the portion of the cord which extends from the top of the sash passes under the rollers, then over the rollers and subsequently passes to the bottom of the sash, and means for detachably securing the terminals of the cords to the sashes, substantially as specified.

2. In a sash-balancing device, the combination with twin sets of juxtaposed rollers arranged in recesses formed in the casing on opposite sides of each sash, of operating cords extending around said rollers and secured, respectively, at their upper and lower extremities to the sashes at their upper and lower edges, one extremity of each cord being connected to the sash by means of a hook engaging an eye upon the sash, and the other extremity of each cord being secured to the sash by means of a pin engaging one of the series of sockets in the sash, whereby the tension of the cord may be adjusted, substantially as specified.

519,824. CAR-TRUCK. LOUIS WARFIELD, Detroit, Mich. Filed Aug. 7, 1893. Serial No. 482,601. (No model.)

Claim.—1. In a railway car, a truck, in combination with a car body mounted thereon by supporting springs, two long rods extending from end to end of the car and crossing each other diagonally between the truck-wheels, and means for connecting the opposite ends of both rods directly to the respective ends of the car body, whereby a vertical movement of one end of the car body will produce a movement in the said direction of the opposite end thereof, substantially as described.

2. In a railway car, a rigid truck frame, in combination with a car body, D, mounted thereon by springs, the T-cranks, F, pivotally mounted in the truck frame, connecting rods, H—H', pivoted respectively to diagonally opposite ends of the crank heads on each side of the car, and connections between the long arms of the cranks and the car body, substantially as described.

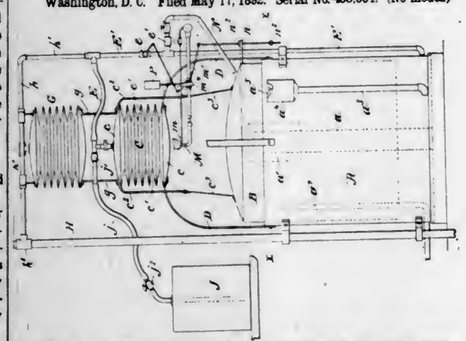


3. In a railway car, a rigid truck-frame, in combination with the T-cranks, F, pivotally mounted therein, the crossed connecting rods, H—H', uniting said cranks on the same side of the car, a body, D, mounted on the truck frame by supporting springs, and yielding links, G, connecting the long arms of the T-cranks to the body, substantially as described.

4. In a railway car, the bearing plates, B, consisting of side pieces or cheeks, *b*, suitably connected together and provided with a vertical web, b^3, in combination with the body, D, and supporting springs, E, arranged between the cheeks of the bearing plate and seated on the upper edge of the web, b^3, substantially as described.

5. In a railway car, the bearing plates, B, consisting of side pieces or cheeks, *b*, united by suitable cross-webs, in combination with the side and end bars of the truck frame rigidly connected to said bearing plates, the T-cranks, F, pivotally mounted in the bearing plates, the crossed connecting rods, H—H', uniting the crank heads at points diagonally opposite, the body, D, supporting springs, E, seated between the cheeks of the bearing plates on a web between the two, and the two-part links, G, connecting the long arms of the cranks to the body and composed of the two members, *g—g'*, with an elastic buffer arranged between them, substantially as described.

519,825. PUMP AND MOTOR THEREFOR. ABRAHAM T. WELCH, Washington, D. C. Filed May 17, 1892. Serial No. 433,381. (No model.)



Claim.—1. The combination of an expansible boiler and a heat supply generating steam, or pressure, directly in the expansible boiler; substantially as set forth.

2. The expansible steam boiler herein described formed of end heads with intermediate plates connected accordion fashion in combination with a heat supply generating steam, or pressure, directly in said expansible boiler, substantially as and for the purpose set forth.

3. The combination with an expansible steam cylinder of a source of heat supply generating the steam, or pressure, directly in the cylinder, a valve for the same and an apparatus operated by the expansible steam cylinder and connected with the said valve, whereby the movements of the apparatus automatically let on and shut off the heat supply, substantially as and for the purpose set forth.

4. An expansible steam cylinder having an exhaust pipe and valve in combination with a gas burner for heating the steam cylinder, said gas burner having a valve, a pump or other machine to be operated and connecting devices actuated by a moving part of the pump and operating the exhaust steam and gas valves, substantially as and for the purpose set forth.

5. An expansible steam cylinder provided with a heater adapted to generate steam within the said cylinder and having an exhaust steam pipe in combination with a water supply tank a pipe leading from said tank to the steam cylinder and having a check valve, substantially as and for the purpose set forth.

6. An expansible steam cylinder having an exhaust pipe and valve, and a heater therefor adapted to generate steam within the said cylinder, in combination with an expansible water pumping cylinder substantially as set forth

7. In a pumping apparatus, the combination of an expansible steam generator or boiler, an expansible pumping chamber or cylinder having pipe connection with a water supply and actuated from said generator or boiler, a heater generating steam in said generator or boiler and an automatic gas supply and cut-off device for said heater, substantially as specified.

8. In a pumping apparatus, the combination of an expansible steam generator, an expansible pumping cylinder or chamber actuated from said generator or boiler, a heater or gas burner, an automatic gas supply and cut-off device for said heater, and an ignition burner for said heater or gas burner, substantially as set forth.

9. In a pumping apparatus, the combination of an expansible steam generator, a heater adapted to generate steam within said steam generator, and an automatic supply and cut-off device for said heater, adapted to cut off and exhaust the steam from said generator, substantially as set forth.

10. In a pump, the combination of an expansible steam generator, an expansible pumping cylinder or chamber actuated from said generator, a gas burner or heater adapted to generate steam within the generator and automatic supply and cut-off device for said burner or heater, comprising a valve actuated by the moving part of the air apparatus, substantially as set forth.

11. In a pump, the combination of an expansible steam generator or boiler, an expansible pumping cylinder or chamber actuated from said generator, a heater or gas burner, a valve arranged in the steam exhaust pipe of said pumping cylinder or chamber and a second valve arranged in the gas supply pipe of said burner, and means for actuating said valves by a moving part of the air-apparatus, substantially as specified

12. In an air and water pump, the combination of an expansible steam generator or boiler, a pumping cylinder or chamber actuated from said generator, an expansible pumping cylinder or chamber, a heater or burner, a valve arranged in the supply pipe of the burner, and a valve arranged in the exhaust steam pipe of the pumping cylinder or chamber, and a rod carried by a moving part of the air apparatus and provided with spaced-apart stops acting upon the burner supply pipe valve, in turn actuating the exhaust-steam pipe valve, substantially as specified.

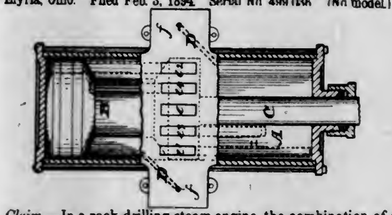
13. In an air and water pump, the combination of the expansible steam generator or boiler, the expansible pumping cylinder or chamber actuated from said generator, a heater or burner for said generator, a device for supplying gas to said burner and cutting the gas off therefrom and for exhausting the steam from said generator, and a water supply pipe connecting with said pumping chamber and with a tank or chamber, and means for actuating said valves from the air-pump, substantially as specified.

14. In a pump, the combination of an expansible steam generator or boiler, and its heater, the valve arranged in the supply pipe of said heater, the weighted arm or lever axially pivoted upon the stem of the said valve, and a rod carried by a moving part of the air apparatus and provided with spaced-apart stops engaging a rod connected to an arm carried by said valve-stem, said weighted arm or lever having a throw or limited independent movement at each side of the central vertical axis of said stem, substantially as specified.

15. In a pump, the combination of an expansible and contractible steam generator or boiler and its heater, the valve arranged in the supply pipe of said heater and having its axial stem provided with an arm, a rod carried by a moving part of the air apparatus and with spaced apart stops engaging a rod connected to said arm and a weighted lever or arm having its axially pivoted end provided with opposite, interspaced shoulders engaged by a cross-pin carried by said stem, substantially as specified.

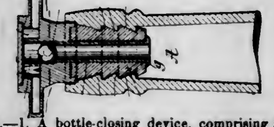
16. In an air and water pump, the combination of an expansible and contractible steam generator and pumping cylinder or chamber actuated from said generator, a heater for said generator, the valves, one arranged in a pipe connecting with said pumping cylinder or chamber, and the other arranged in the supply pipe of said heater, and having its axial stem provided, at one end, with a cross pin, and at the other end, with an arm having a rod connection with an arm of the axial pivot of the first named valve, and a rod carried by a moving part of the air-apparatus and provided with spaced apart stops to engage a rod connected to the arm at one end of the axial stem of the heater supply pipe valve, substantially as specified.

519,826. STEAM-ACTUATED VALVE. GEORGE L. WELLER, Elyria, Ohio. Filed Feb. 3, 1894. Serial No. 499,036. (No model.)



Claim.—In a rock-drilling steam engine, the combination of cylinder A having steam ports *e*, e' e^2 e^3 e^4, the two side ports e' and e^3 connected with long passages, and the exhaust ports e^2 e^4 connected with the shorter passages in the side of cylinder A; the ducts *f*, *f'*, double headed piston B, and the chambered valve G playing in the transverse chamber E all constructed to operate substantially as described.

519,827. BOTTLE-CLOSING DEVICE. RUDOLPH A. WITTEMANN, New York, N. Y. Filed Mar. 7, 1894. Serial No. 502,658. (No model.)

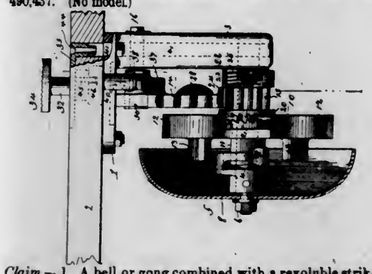


Claim.—1. A bottle-closing device, comprising a tube adapted for insertion in the neck of a bottle, an elastic bushing on said tube, a head on the tube, said head being provided with suitable passages and chambers, nozzles projecting from the head, and a valve in the inner chamber of the head, adapted to seat on the upper end of the tube, substantially as set forth.

2. A bottle-closing device, comprising a head, a valve in the head, said head being provided with suitable passages, closed nozzles integral with said head, and means for securing the device in the neck of the bottle, substantially as set forth.

3. A bottle-closing device, comprising a tube adapted for insertion in the neck of a bottle, a hollow head on the tube, said head being provided with suitable passages and chambers, nozzles projecting from the head, a valve in the head, adapted to seat on the upper end of the tube, and a cap-plate secured to the top of the head, substantially as set forth.

519,828. SIGNAL-BELL. WALTER S. ADAMS, Philadelphia, Pa., assignor to John A. Brill, same place. Filed Nov. 9, 1893. Serial No. 490,437. (No model.)



Claim.—1. A bell or gong combined with a revoluble striker and a movable clapper or hammer to be actuated thereby, a clutch, an element for actuating said clutch to turn the striker, and means car-

ried by said element for disengaging said clutch from the striker, substantially as described.

2. A bell or gong combined with a revoluble and peripherally weighted striker, a swinging clapper or hammer, suspended adjacent to the approximate outer end of the striker, means for engaging the end of the striker with the hammer, and further means for mechanically operating the striker, substantially as described.

3. A bell or gong combined with a revoluble weighted striker bar, a pivoted clapper or hammer carried independently of the striker, a clutch, an element for actuating said clutch, and means carried by said element for disengaging said clutch and striker, substantially as described.

4. A bell or gong combined with a peripherally weighted and revoluble striker having a lug at, or near its proximate end, and a swinging clapper or hammer to be actuated by said lug, substantially as described.

5. A bell or gong combined with a revoluble striker, a pivoted clapper or hammer carried independently of the striker, and means for actuating said striker, and for releasing it to permit free rotation of said striker, and enable it to continuously swing the clapper on its pivot, substantially as described.

6. A bell or gong combined with a revoluble striker, a hinged or pivoted clapper carried independently of said striker, and means for actuating said striker, and means for releasing said striker to enable it to continuously operate said clapper, substantially as described.

7. A bell or gong combined with a revoluble striker, a clapper or hammer, a rack, and a clutch operative by said rack and located between the striker and the rack, substantially as described.

8. A bell or gong combined with a striker, a clapper, a clutch, an element for actuating said clutch to turn the striker, and means carried by said element for disengaging said clutch from the striker, substantially as described.

9. A bell or gong combined with a revoluble striker, a clapper, a clutch, a rack for operating the latter, and a projection on said rack for disengaging said clutch to permit free rotation of said striker, substantially as described.

10. A bell or gong, in combination with a clapper, a revoluble striker bar to actuate the latter, clutch teeth carried by said striker bar, a pinion, clutch teeth connected therewith for engagement with the other teeth, a rack for turning said pinion, and a projection carried by said rack for disengaging said teeth, substantially as described.

11. A bell or gong, in combination with a clapper, a rotative striker, clutch teeth connected therewith, a pinion, teeth connected therewith for engagement with the other teeth, a flange or annulus connected with said pinion, a rack for operating said pinion, and a lug or projection connected with said rack for disengaging said teeth, substantially as described.

12. A bell or gong combined with a hinged or pivoted clapper or hammer, a rotative striker bar, separate from the clapper a clutch and pinion for turning the striker bar to cause it to strike the clapper, a pivoted segmental rack meshing with said pinion and a presser rod acting on said rack, substantially as described.

13. The combination of a horizontal shaft or rod and a bell or gong carried thereby and perpendicularly thereto, a pivoted clapper sustained by said shaft or rod, a striker rotative on said shaft or rod, and means for actuating said striker and means for releasing said striker to give it free rotary motion, substantially as described.

14. The combination of a bell or gong, a shaft or support therefor, a clapper pivotally sustained by said shaft, a rotative striker, and means for releasing said striker to give it free rotary motion and means for actuating said striker, substantially as described.

15. The combination of a bell or gong, a shaft or rod supporting the same, an arm carried by said shaft, a clapper hinged or pivoted on said arm, a rotative striker bar, and means for operating the latter, and means for releasing said striker to give it free rotary motion substantially as described.

16. The combination of a bell or gong, a striker bar, a clapper carried independently of the striker to be struck thereby a rack and devices intermediate said rack and striker bar for operating the latter by the former, a projection 37 on said rack, and a presser bar for engaging said projection to operate the rack, substantially as described.

17. The combination of a bell or gong, a striker bar, a clapper carried independently of the striker bar a rack and devices intermediate said rack and said striker bar for turning the latter by the former, said rack having lugs 27, 28 with stops or projections to engage said lugs, and means for operating said rack, substantially as described.

18. The combination of a bell or gong, a striker bar and a clapper pivotally carried independently of the striker bar with a pivoted segmental rack, devices intermediate said rack and said striker bar for operating the latter by the former, a spring connected with said rack, and a presser rod for operating said rack, substantially as described.

19. The combination of a bell or gong, a striker bar and a clapper carried independently of the striker bar with a clutch, a pinion, a sleeve carrying the latter, a spring for operating said clutch to hold its parts in engagement, and a rack to operate said pinion, substantially as described.

20. The combination of a bell or gong, a clapper and a striker bar having clutch teeth, with a sleeve having teeth to engage the other teeth, a pinion on said sleeve, a recess in said sleeve, a spring located in said recess, a rack for operating said pinion, and means for operating said rack, substantially as described.

21. In a bell mechanism, the combination with the platform 2, of the ferrule 35 having the bushing 36 and rib 45, the plate 1 having the depending standard supporting a bell and its operating mechanism, an annular bushing 46 and slot 47 into which the bushing 36 and rib 45 enter, and a presser rod 32 passing through both bushings to the bell operating mechanism, substantially as described.

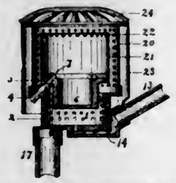
22. In a bell mechanism, the combination with the platform, of the plate 1 having the standard 3 provided with a bore 41, and a bell operating mechanism, a part to be lubricated entering said bore, a bushing 46 entering the platform and having a slot 47, and a ferrule 35 having a depending apertured nipple 44 projecting into said bore, and a bushing 36 and rib 45 entering the bushing 46 and slot 47, whereby the alignment of the nipple with the part to be lubricated is maintained, substantially as described.

519,829. **HOSE-COUPLING.** SAMUEL M. BEERY, Chicago, Ill. Filed Nov. 1, 1893. Serial No. 489,747. (No model.)



Claim.—A hose-coupling member, having the socket-projection q, a projection p presenting a shoulder, and a stop q^3, and a spring B bent to afford an attaching end n, at which it is secured to the projection q, curved resilient body-portion n', end n^3 bent to bear against the surface of the projection q and recessed to engage the stop q^3, and a shoulder n^3 on the body-portion of the spring between the lateral edges thereof, substantially as and for the purpose set forth.

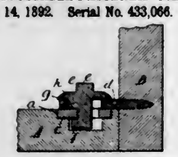
519,830. **VAPOR-BURNER.** GEORGE W. BILLINGS, Cleveland, Ohio, assignor of one-half to F. M. Potter, same place. Filed Dec. 2, 1892. Serial No. 453,819. (No model.)



Claim.—1. In a vapor burner, a combustion-chamber having perforated walls provided with a flange, a non-perforated shield forming an interior chamber, the air-tubes 4 extending from the exterior of said combustion-chamber through said flange to said interior chamber, and a cup depending into the combustion-chamber, said cup having a flange with air-tubes therein in open connection with said tubes 4, in combination with a perforated shield rising from the flange of the combustion-chamber and circumscribing said non-perforated shield, in the manner substantially as and for the purpose set forth

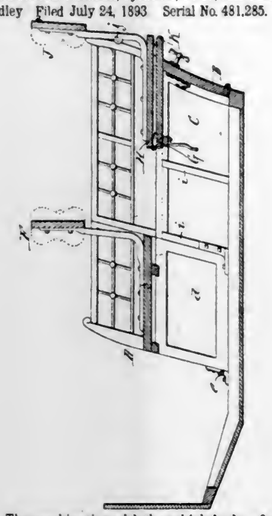
2. In a vapor burner, needle valves for supplying sub burners, arranged beneath and in contact with the combustion chamber of the main burner, said needle valves being supplied through a pipe independent of the pipe supplying the main burner, whereby the gas for the sub-burners is generated by the main burner without decreasing the pressure in said burner substantially as described.

519,831. **ADJUSTABLE FASTENER.** JOHN A. BOYER, San Diego, Cal. Filed May 14, 1892. Serial No. 433,066. (No model.)



Claim.—A fastener of the class described comprising in combination, a standard having a polygonal head, and a key as described, a cam and flange interposed between said head and key, a screw eye for engagement with said cam and flange, and an escutcheon for engagement with said key.

519,832. **SHIFTING SEAT FOR VEHICLES.** CHRISTOPHER C. BRADLEY and THOMAS FAULDER, Syracuse, N. Y.; said Faulder assignor to said Bradley. Filed July 24, 1893. Serial No. 481,285. (No model.)



Claim.—1. The combination with the vehicle body, of a front seat, a forwardly facing rear seat and a rearwardly facing rear seat, both rear seats being hinged to the upper portion of the body, one behind the other, and adapted to fold into a horizontal position, when not in use, and form a deck in rear of the front seat, substantially as set forth.

2. The combination with the vehicle body, of a front seat, a forwardly facing rear seat hinged at its front end to the body to fold forwardly into a horizontal position, and a rearwardly facing rear seat hinged at its rear end to the body to fold backwardly into a horizontal position, whereby either rear seat, when in use, is arranged horizontally over the rear seat which is not in use, while both rear seats, when not in use, are folded down into a horizontal position and form a deck in rear of the front seat, substantially as set forth.

3. The combination with the vehicle body, of a front seat hinged to the body to tilt forwardly, a cross bar secured to the body, a seat hinged to said cross bar to fold forwardly, and a seat hinged to said cross bar to fold backwardly, substantially as set forth.

4. The combination with the vehicle body, of a front seat hinged to the body to tilt forwardly, a tail board hinged to the rear end of the body, a cross bar secured to the body between the front seat and the tail board, a seat hinged to said cross bar to fold forwardly, and a seat hinged to said cross bar to fold backwardly, substantially as set forth.

519,833. **SPRING-HINGE.** ROBERT BRINDLE, Paterson, N. J., assignor of one-half to James Pohlman, same place. Filed May 2, 1893. Serial No. 472,743. (No model.)

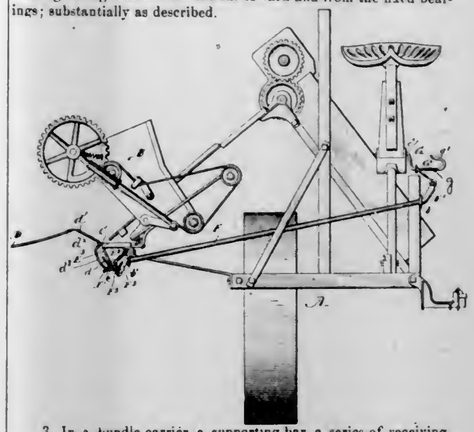


Claim.—In a spring-gate hinge, the combination with two leaves, each leaf provided with a semi-cylindrical extension having a top and bottom, one of said extensions being smaller than, and adapted to partially turn inside of, the other, of a connecting pin passing through the tops and bottoms of said extensions and a spring all constructed substantially as shown and described and for the purpose specified.

519,834. **BUNDLE-CARRIER.** WILLIAM W. BURSON, Chicago, Ill. Filed May 26, 1890. Serial No. 353,212. (No model.)

Claim.—1. In a bundle carrier, a supporting bar, a series of receiving, carrying and dumping fingers, pivoted in fixed bearings on said support so as to rise and fall, said fingers having heel extensions projecting beyond their pivots, in combination with supplemental bearings for said extensions, and mechanism for shifting the supplemental bearings along the heel extensions toward and from the fixed bearings; substantially as described.

2. In a bundle carrier, a supporting bar, a series of receiving, carrying and dumping fingers, pivoted in fixed bearings on said support so as to rise and fall, said fingers having heel extensions projecting beyond their pivots, in combination with a rocking operating rod or bar arranged transversely to the receiving and carrying position of the fingers, said bar having supplemental bearings for the heel extensions, and means for rocking the bar and shifting the supplemental bearings along said heel extensions toward and from the fixed bearings; substantially as described.



3. In a bundle carrier, a supporting bar, a series of receiving, carrying and dumping fingers, pivoted in fixed bearings on said support so as to rise and fall, said fingers having heel extensions projecting beyond their pivots, in combination with a rocking operating rod or bar arranged transversely to the receiving and carrying position of the fingers, said bar being provided with radial arms having a sliding connection with the heel extensions; substantially as described.

4. In a bundle carrier, a supporting bar, a series of receiving carrying and dumping fingers, individually pivoted to said support so as to rise and fall, and having heel extensions projecting beyond their pivots, in combination with a rocking operating bar or rod arranged transversely to the receiving and carrying position of the fingers, and engaging the heel extensions, and inclined guides for the fingers, said guides being adapted to engage the heel extensions and swing the fingers laterally toward their support as they fall; substantially as described.

5. In a bundle carrier, the combination of a supporting bar, a series of receiving, carrying and dumping fingers, said fingers being individually pivoted to said support so as to rise and fall, and having also an individual swivel connection with the support so as to swing laterally toward the same, a supplemental movable support adapted to be shifted to raise and lower the fingers and hold them in receiving and carrying position, and a fixed guide whereby as the fingers are lowered to dump the bundles they are folded laterally; substantially as described.

6. In a bundle carrier, the combination of a supporting bar C, the receiving, carrying and dumping fingers, D, individually pivoted to said support, and having heel extensions projecting beyond their pivots, the rock shaft or rod E having arms E' adapted to engage the heel extensions of the fingers, said arms and heel extensions being arranged to engage each other at about a right angle when the fingers are in receiving and carrying position, whereby the fingers are locked in said position; substantially as described.

7. In a bundle carrier, the combination of a supporting bar C, the receiving, carrying and dumping fingers D, individually pivoted to said support, and having heel extensions projecting beyond their pivots, the rock shaft or rod E having arms E' engaging the rear extensions, and the return bends d on the extensions of the fingers; substantially as described.

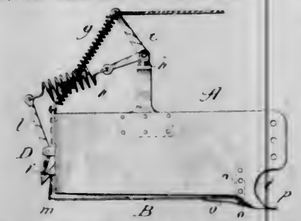
8. In a bundle carrier, the combination of a supporting bar C, the receiving, carrying and dumping fingers D, individually pivoted to said support, and having heel extensions beyond their pivots, the rock shaft or rod E having arms E', said arms being provided with bearings at their outer ends for the heel extensions of the fingers, and the rods E^3 acting as stops to the downward movement of the arms E'; substantially as described.

9. In a bundle carrier, a supporting bar, a series of receiving, carrying and dumping fingers, individually pivoted on said support so as to rise and fall, and having heel extensions projecting beyond their

pivots, in combination with an operating rod or bar connected with said heel extensions for operating the fingers, the connection being such that the fingers are permitted to swing laterally toward their support while in receiving position without affecting the position of the operating bar; substantially as described.

10. In a bundle carrier, the combination of a supporting bar C, the receiving, carrying and dumping fingers D, individually pivoted to said support, and having heel extensions projecting beyond their pivots, the rock shaft or rod E having arms E', said arms being provided with bearings at their outer ends for the heel extensions of the fingers, and the inclined guide rods E² engaging the heel extensions and swinging the fingers laterally toward their support as they fall; substantially as described.

519,835. SCRAPER. HENRY G. BUTLER, Kenosha, Wis. Filed Jan. 27, 1894. Serial No. 498,203. (No model.)



Claim.—1. A scraper formed with a body-portion open at its forward end, in combination with a plow at the open end comprising a straight metal bar extending horizontally throughout its length between the sides of the body-portion and having in its forward edge cutter-teeth and bent lengthwise along the rear of the teeth to incline downward and forward toward its cutter edge, and the teeth thence inclining upward, substantially as described.

2. A scraper formed with a body-portion open at its forward end, in combination with a bottom hinged to the body-portion near its open end, fastening means for the rear end of the bottom, and a plow on the forward end of and swinging with the hinged bottom said plow comprising a metal bar inclining downward from the forward end of said bottom and having in its forward edge relatively upward-inclining cutter-teeth, substantially as described

3. A scraper formed with a body-portion open at its forward end, in combination with a bottom having near its forward end a transverse corrugation *r* and thence inclining downward and forward, a hinge-shaft *n* supported in bearings *n'* on the sides of the body-portion and pivotally carrying the bottom at said corrugation, a plate *o'* fastened to the bottom and affording a lower bearing for the hinge-shaft, a plow C comprising a bar *o* fastened between said plate *o'* and the forward inclined portion of the bottom and having in its forward edge relatively upward inclining cutter-teeth, and fastening-means for the rear end of the bottom, substantially as described.

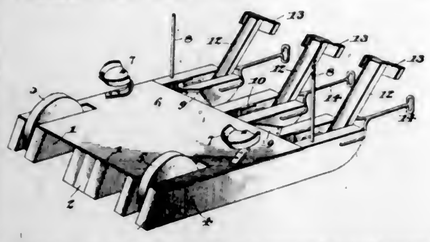
4. A scraper formed with a body-portion open at its forward end, in combination with a plow at the open end, a bottom hinged to the body portion near its forward end, and a spring-catch device for the rear end of the bottom, having one member on the said bottom and a companion-member on the body portion, said members having oppositely facing beveled co-operating cutting edges, substantially as and for the purpose set forth.

5. A scraper formed with a body-portion open at its forward end, in combination with a plow at the open end, a bottom hinged to the body-portion near its forward end, and a spring-catch device for the rear end of the bottom, comprising one member on the said bottom and a companion-member on the body-portion, said members being V-shaped in cross-section, substantially as and for the purpose set forth.

6. A scraper formed with a body-portion open at its forward end, in combination with a plow at the open end, a bottom hinged to the body-portion near its forward end, and a spring-catch device comprising a member *m*, rigidly fastened to the bottom and having a shoulder *m'*, and a spring-controlled bell-crank member *l* fulcrumed on the back of the body-portion and having a shoulder *l'*, the said members being V-shaped in cross-section, substantially as and for the purpose set forth.

7. A scraper formed with a body-portion open at its forward end, in combination with a plow at the open end, a bottom hinged to the body-portion near its forward end, and spring-catch mechanism comprising a member *m* rigidly fastened to the bottom and having a shoulder *m'*, a bell-crank member *l* fulcrumed on the back of the body-portion and having a shoulder *l'*, said members being V-shaped in cross-section, a bell-crank *i* fulcrumed on the carrying-bail *h* of the scraper, a spring *k* connecting the two bell-cranks, and a spring *g* connecting the bell-crank *i* with the rear of the body-portion, substantially as and for the purpose set forth.

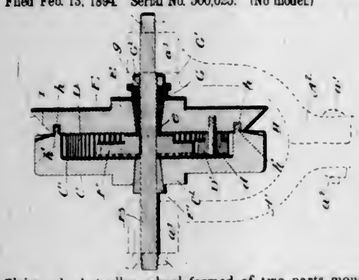
519,836. CORN-HARVESTER. HENRY CLAAR, Hawkeye, Kans. Filed Dec. 29, 1893. Serial No. 495,100. (No model.)



Claim.—1. In a corn-harvester, the combination with a series of pairs of beams bolted together, a superimposed platform, cutters located between the pairs of beams a rear axle, ground-wheels thereon, of caster-carrying frames arranged between the beams of each pair near the front ends thereof, draft hails secured to the beams of each pair, and the inclined guards terminating at their upper ends in transverse heads and located between the beams of each pair, substantially as specified.

2. In a corn-harvester, the series of pairs of beams 1 bolted together to form a sled-like structure, cutters located between the pairs of beams, the ground wheels journaled between the beams at the rear end, the series of U-shaped caster frames 10 secured between the beams at the front of the platform 6, and the series of rigid inclined guards 12 also secured between the beams, and provided at their tops with cross pieces, substantially as specified.

519,837. TROLLEY-WHEEL. VAN DYKE CRUSER, Flatbush, N.Y. Filed Feb. 13, 1894. Serial No. 500,025. (No model.)



Claim.—1. A trolley wheel formed of two parts mounted for movement in the same direction at different rates of speed, as set forth.

2. A trolley wheel comprising two parts mounted for movement in the same direction at different rates of speed and one part provided with notches to serve as a wire-cleaner, substantially as specified.

3. A trolley wheel comprising two parts mounted for independent movement in the same direction on the same shaft, combined with means for rotating one of said parts faster than the other, asset forth.

4. A trolley wheel embodying two parts mounted for rotation in the same direction at different rates of speed with their adjacent faces oppositely-beveled to form a wire-receiving groove, as set forth.

5. A trolley wheel comprising two parts mounted for rotation in the same direction at different rates of speed with their adjacent faces oppositely-beveled and provided with means bridging the space between the said parts, substantially as specified.

6. A trolley wheel formed of two parts with their adjacent faces oppositely-beveled to form a wire-receiving groove, and provided with means bridging the space between the same, substantially as and for the purpose specified.

7. The combination with a shaft and a pinion thereon, of the part of the wheel having internal gear, the complementary part of the wheel, and a pinion thereon meshing with the internal gear and the pinion on the shaft, substantially as specified.

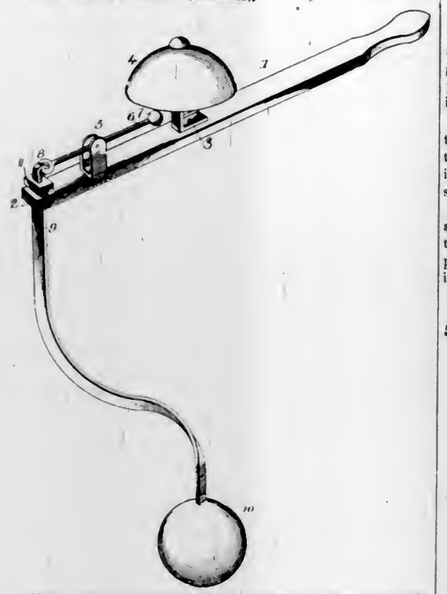
8. The combination with the shaft and the two parts of the wheel thereon for movement in the same direction at different rates of speed, of the conical bushings in the hubs of the said two parts, one of which is adjustably mounted on the shaft, substantially as specified.

9. A trolley wheel composed of two parts mounted on the same shaft for rotation at different rates of speed, formed with oppositely-beveled adjacent faces and the one part with an annular channel and the other with a projection working therein, and an adjustable conical bushing on the shaft for taking up the wear on said parts, substantially as specified.

10. A trolley wheel having one part movable with the other at a greater rate of speed and serving as a wire-cleaner, substantially as specified.

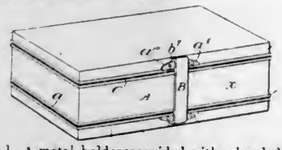
11. A trolley wheel comprising a shaft, a part thereon with chamber, internal gear, annular projection and notches upon its face, a part with beveled inner face and annular channel to receive said projection, a stub shaft with pinion on said part and meshing with the internal gear of the other part, a pinion fast on the shaft within said chamber, and conical bushings in the hubs of said parts, one of which is adjustably mounted on the shaft, substantially as specified.

519,838. TOY. EDWARD DENIS, Green Bay, Wis. Filed Dec. 8, 1893. Serial No. 493,123. (No model.)



Claim.—The herein described toy, consisting of a strip or handle, with an opening therethrough, near one end thereof, a bell mounted on said strip or handle, a fulcrumed arm, having a hammer to strike the bell and an elastic band or strap passing through the said opening and attached at its upper end to the said arm and having on its lower end a return ball, substantially as described.

519,839. HERMETICALLY-SEALED PACKAGE FOR CONTAINING ICES, &c. CHARLES I. DEXTER, Philadelphia, Pa. Filed Sept. 16, 1893. Serial No. 485,675. (No model.)

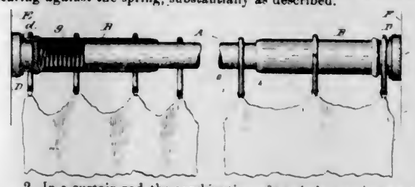


Claim.—1. A metal holder provided with a beaded rim having a gasket applied thereto, a cover having a beaded rim, a device connected with one member of said holder and adapted to serve as a means for permitting of the hermetical sealing of the other member provided with a clamp, when the said clamp is brought into engagement with said device the arrangement being such that said clamp does not extend beyond the top and bottom planes of said holder, substantially as and for the purposes set forth.

2. A metal holder provided with beaded top and bottom rims having flexible gaskets applied thereto, covers having rims conforming to the shape of the beaded rims of said holder and adapted to be sprung onto the gasketed surfaces thereof and held hermetically sealed thereto, substantially as shown and for the purposes set forth.

519,840. CURTAIN-ROD. WILLIAM H. EDSALL, Brooklyn, N. Y. Filed Mar. 5, 1894. Serial No. 502,312. (No model.)

Claim.—1. In a curtain-rod, the combination of a tubular section having therein a partition, secured positively from lateral movement in one direction a spring in the tubular section bearing against the partition, together with a rod entering the tubular section and bearing against the spring, substantially as described.

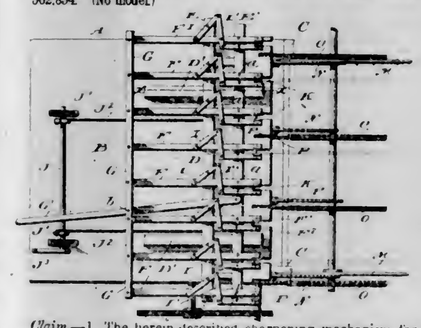


2. In a curtain-rod, the combination of a tubular section having an internal circumferential groove therein, a partition seated in said groove, a spring within the tubular section and bearing against the partition together with a rod entering the tubular section and bearing against the spring, substantially as described.

3. A tip for curtain-rods, the same consisting of a tube having therein a partition intermediate of its length, a spring seated in the tube and bearing against the partition, and an elastic button seated in the end of the tube on the side of the partition opposite to the spring, substantially as described.

4. In a curtain-rod, the combination, of a tubular section having a partition secured therein intermediate of the length of the said tubular section, a spring in the tubular section bearing against the partition, together with a rod entering the tubular section and bearing against the spring, substantially as described.

519,841. MACHINE FOR SHARPENING ROLLER-DISK HARROWS. THOMAS ELLISON, Vermont, Ill. Filed Mar. 8, 1894. Serial No. 502,854. (No model.)



Claim.—1. The herein described sharpening mechanism for simultaneously sharpening a series of harrow disks while the said disks are still held to the shaft, comprising in combination a shaft carrying a series of harrow disks, a sectional geared wheel adapted to hold the said shaft for revolution with a geared mechanism, a geared segment, lever and pawl to raise and lower said shaft, all substantially as shown and described.

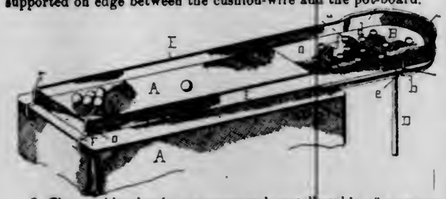
2. In combination with the platform B and its supports, the transverse bars or timbers movable thereon, the levers pivoted to said bars and carrying sharpening knives, lever mechanism for simultaneously changing the angles of the knives, the rock shaft, having an actuating lever, and connections between said shaft and the cross bars whereby the said bars may be moved, substantially as described and for the purpose specified.

3. In combination with the levers carrying the sharpening knives, the knives mounted thereon, said knives consisting of strips of metal bent at right angles at their longitudinal centers, one arm resting upon the lever and adjustable thereon, and its other end extending vertically and provided with a cutting edge, substantially as described.

4. In a machine of the character described, the combination with the machine, its levers, sharpening knives, and adjusting mechanism for, the knives, adjustable bearings for the disk shaft of a harrow, sectional gear wheels adapted to be secured to the disk shaft and to mesh with gear wheels upon the machine, and mechanism substantially as described for rotating the disk-shaft, substantially as described and for the purpose specified.

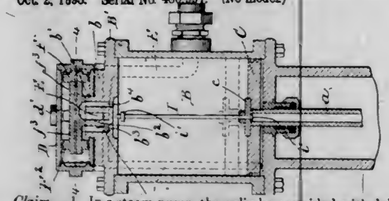
519,842. BAGATELLE-TABLE. WILLIAM R. FEARN, Camden N. J., assignor to John McLoughlin, New York, N. Y. Filed Jan. 25, 1893. Renewed Apr. 3, 1894. Serial No. 506,225. (No model.)

Claim.—1. The combination in a temporary bagatelle table of a removable pot board composed of hinged parts, an extension prop for supporting the pot-board horizontally at the end of a table to which it is temporarily fixed, a raised and adjustable cushion-wire which conforms with the contour of the pot-board, and a closing ball-cushion supported on edge between the cushion-wire and the pot-board.



2. The combination in a temporary bagatelle-table of a removable pot-board composed of hinged parts, an extension prop for supporting the pot-board horizontally at the end of a table to which it is temporarily fixed, a raised and adjustable cushion-wire which conforms with the contour of the pot-board, a closing ball-cushion supported on edge between the cushion-wire and the pot-board and carried around the temporary table, to which the pot-board is fixed, by means of a holder composed of a single piece of wire doubled on itself to form a loop for the ball-cushion and a clamp for engaging with the edge of the table.

519,843. STEAM-ACTUATED VALVE FOR PUMPS. JAMES T. HAYDEN, Chicago, Ill., assignor to the Crane Company, same place. Filed Oct. 2, 1893. Serial No. 486,997. (No model.)



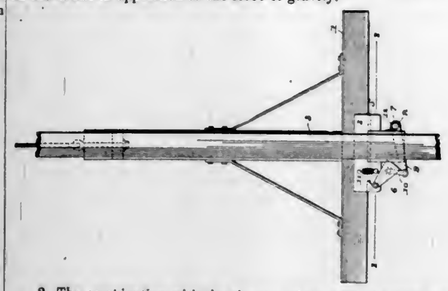
Claim.—1. In a steam pump, the cylinder provided with delivery and exhaust ports, in combination with a valve-chest mounted thereon and having a cylinder chamber at each end, a sliding valve within said chest adapted to control said ports and having a piston at each end, fitting the respective end cylinders of the chest, a port leading to the exhaust and two ports separate from the said exhaust port leading to and through the respective end pistons, a supplementary slide mounted on and movable with the valve over the said ports and provided with ports adapted to be brought into register therewith, and mechanism for reciprocating said slide transversely of the main valve, and adapted to be operated by the movements of the main valve, substantially as described.

2. The valve chest, D, constructed with cylinders at each end, in combination with a valve, F, provided with recess, f', in its under side, and a port f^2, leading to the exhaust and separate ports, f^4 and f^5, leading to the respective cylinders, and arranged at one side of the valve, pistons, F' and F², mounted on the respective ends of the valve and fitted to the end cylinders in the chest, sliding supplementary valve, G, mounted on and carried with the valve to cover and slide over the ports therein and provided with ports, g'—g^2, adapted to register with the ports leading to the respective cylinders and back recesses, g^3—g^4, adapted to register with the exhaust port, and mechanism for reciprocating this supplementary valve by the movement of the main valve, substantially as described.

3. The cylinder, B, provided with cap, B', having exhaust port, b^1, sunken port, b^2, and through port, b^4, all opening into the valve chamber, a delivery pipe, E', connecting the sunken port, b^2, with the lower or opposite end of the cylinder, exhaust pipe, E, connecting directly with the exhaust port, b^3, valve chest, D, mounted on said cylinder head and provided with a cylinder at each end, valve, F, provided with recess, f', and ports, f^2, f^4, and f^5, pistons, F' and F², fixed on the respective ends of the valve and fitted to the end cylinders of the valve chest, sliding supplementary valve, G, mounted on ways on the side of the main valve immediately over the ports therein and provided with ports, g'—g^2, and back recesses, g^3—g^4, sliding carrier, H, connected to said supplementary valve, rod, I, connected to said carrier, and piston, C, adapted to operate said rod at the end of its respective strokes, substantially as described.

519,844. SAFETY DEVICE FOR ELEVATORS. GEORGE C. HOWARD, Philadelphia, Pa. Filed Dec. 4, 1893. Serial No. 492,743. (No model.)

Claim.—1. The combination with an elevator of a brake carried thereby and arranged to be held out of action by gravity and an actuating mechanism also carried by the elevator and acting constantly on the brake in opposition to the force of gravity.



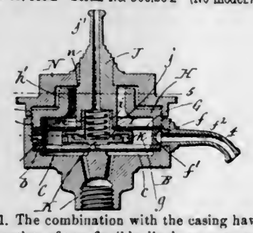
2. The combination with the elevator of the vertical guides, the vertically moving brake carried by the elevator and arranged to engage the guide and held out of action by the force of gravity, and an actuating mechanism also carried by the elevator and acting constantly on the brake with a lifting force in opposition to the force of gravity; whereby when the elevator descends at an undue speed the actuating mechanism will overcome the force of gravity and lift the brake into engagement with the guides.

3. The combination with the elevator and with the vertical guide therefor, of a friction brake normally held out of action by the force of gravity, and a spring acting in opposition to the force of gravity to throw the brake into action when the elevator exceeds a predetermined speed.

4. The combination with the elevator, the guide and guide shoe, of a friction brake mounted in said shoe to swing in a vertical plane into and out of engagement with the guide, and held normally out of action by the force of gravity, the transverse crank shaft journaled in bearings in the elevator and connected with the brake, and a spring applied to the shaft to throw the same against the weight of the brake.

5. The combination with the elevator, the vertical guides therefor and the guide shoes, of the friction brakes mounted in said guide shoes to swing in a vertical plane into and out of engagement with the guides, the transverse crank shaft mounted in bearings beneath the elevator and having its cranks coupled to the brake, an arm projecting from said shaft, and a spring bearing at its ends against the bottom of the elevator and the arm on the shaft.

519,845. GAS-REGULATOR. THEODORE G. LEWIS, Buffalo, N. Y., assignor to the Buffalo Dental Manufacturing Company, same place. Filed Feb. 15, 1894. Serial No. 500,204. (No model.)



Claim.—1. The combination with the casing having a steam inlet and a gas outlet, of two flexible diaphragms arranged in said casing, and between which the gas chamber is formed, a valve carried by one of said diaphragms, and an adjustable valve seat carried by the other diaphragm and provided with a gas inlet, substantially as set forth.

2. The combination with the casing having a steam inlet, and a gas outlet, of two flexible diaphragms arranged in said casing and between which the gas chamber is formed, a valve carried by one of said diaphragms, an adjustable valve seat carried by the other diaphragm and provided with a gas inlet, and a supporting ring interposed in the casing between said diaphragms and provided with a surrounding gas passage communicating with the gas outlet and with a gas passage communicating with the gas chamber, substantially as set forth.

3. The combination with the casing provided with a gas outlet and a steam inlet, of a flexible diaphragm forming with the bottom of the body a steam chamber, a supporting ring resting upon the margin of said diaphragm and provided with a gas passage communicating with the gas outlet, a flexible diaphragm resting with its margin on the supporting ring, a clamping ring secured to the body and bearing upon the margin of the last mentioned diaphragm, a valve carried by the first mentioned diaphragm, and an adjustable valve seat carried by the last mentioned diaphragm and having a gas inlet, substantially as set forth.

4. The combination with the casing provided with a gas outlet and a steam inlet, of two flexible diaphragms arranged in said casing and between which the gas chamber is formed, a valve carried by one of said diaphragms, a hollow regulator stem rigidly secured to the other diaphragm, and provided with a valve seat and a gas inlet and an adjusting device engaging with said regulator stem, substantially as set forth

5 The combination with the casing provided with a gas outlet and a steam inlet, of two flexible diaphragms arranged in said casing and between which the gas chamber is formed, a valve carried by one of said diaphragms, a valve seat arranged on the gas side of the other diaphragm and provided with a screw-threaded shank passing through said diaphragm, a hollow regulator stem provided with a gas inlet applied to the opposite side of said diaphragm and having a socket which receives said shank and a screw cap connected with said regulator stem, substantially as set forth.

6 The combination with the casing having a gas chamber and a steam chamber, of a flexible diaphragm separating said chambers, a valve controlled by said diaphragm, an adjustable regulator stem provided with a valve seat, means whereby said stem is held against rotation, a rotary adjusting cap engaging with said stem, a pointer arranged externally on said cap and a peripheral scale on the casing which is traversed by said pointer, substantially as set forth.

7 The combination with the casing provided with a gas chamber and a steam chamber, of a flexible diaphragm separating said chambers, a valve controlled by said diaphragm, an adjustable regulator stem provided with a valve seat, means whereby said stem is held against rotation a rotary adjusting cap engaging with said stem, a pointer arranged externally on said cap, a peripheral scale on the casing which is traversed by said pointer, and a stop secured to the casing and adapted to come in contact with the pointer and limit the receding movement of the valve seat, substantially as set forth

---

519,846. AUTOMATIC SPRINKLER-HEAD. OCTAVIUS PIERCE, Chicago, Ill., assignor to the Underwriters Fire Sprinkler Company, same place. Filed June 16, 1893. Serial No. 477,881. (No model.)

Claim.—1. In an automatic sprinkler the combination with the nozzle and the frame secured thereto, of the valve cap seated on the nozzle and the post bearing in the center of the cap provided with the outwardly extending arms, one of which is inclined and longer than the other so as to throw the greatest strain on the shorter arm, and a metal piece secured to said post by fusible solder on the inclined arm of the post and the two outwardly inclined braces of unequal length interposed between the top of the frame and the post, substantially as described

2. In an automatic sprinkler head the combination with the valve, cap, and frame, of the post bearing on said cap and provided with two outwardly extending arms, one longer than the other, two outwardly inclined braces of unequal length, one resting on the short arm of the post and the other on the copper cap "G," said copper cap being soldered to the long arm of the post arranged and constructed so as to throw the greatest strain on the shorter arm, and arranged so as to form a rigid strut from the valve cap to the top of the frame, substantially as described

---

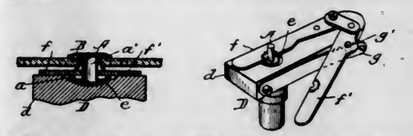
519,847. LACING-STUD FASTENER. PIERRE A. RAYMOND, Grenoble, France, assignor to the Consolidated Fastener Company, Portland, Me. Filed Sept. 9, 1893. Serial No. 485,182. (No model.)



Claim.—A lacing stud fastener A, having the cap a and the straight rivet a' in combination with the eyelet B having the flange b, and the flared shank b', the said rivet a' being upset between the walls of the eyelet B, all formed and arranged as and for the purposes substantially as described.

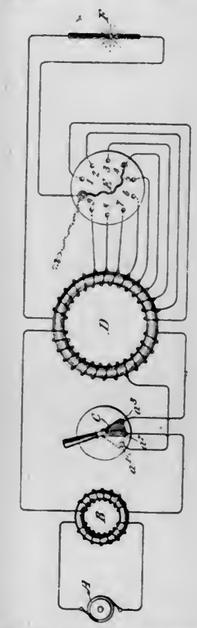
519,848. PROCESS OF AND DEVICE FOR ATTACHING LACING-STUDS. PIERRE A. RAYMOND, Grenoble, France, assignor to the Consolidated Fastener Company, Portland, Me. Filed Dec. 28, 1893. Serial No. 494,990. (No model.)

Claim.—1 A lacing stud attaching device consisting of the two parts C and D, the part D consisting of the anvil d and the anvil and gage f f' comprising two arms, one of which is rigidly secured to the anvil plate, and the other of which is pivoted thereto, substantially as described.



2. The herein described process of attaching lacing stud fasteners, consisting of combining a stud A with an encircling eyelet, and interposing a gage between the head of the stud and the material, and compressing the rivet between two unyielding surfaces, whereby the head is set at any desired distance from the material, and the rivet is compressed within the walls of the eyelet, substantially as described.

519,849. ALTERNATING-CURRENT ARC-LIGHTING SYSTEM. THOMAS SPENCER, Philadelphia, Pa. Filed Feb. 12, 1894. Serial No. 499,876. (No model.)



Claim.—1. The combination with an alternating current arc lamp of means for adjusting the voltage at the lamp terminals to different strengths to adapt the lamp for operation upon circuits of different voltages, and means for lowering the voltage after the lamp has been thrown into action

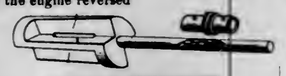
2. The combination with an alternating current arc lamp of a switch for coupling a variable number of turns of a transformer winding in the lamp circuit, and means for lowering the voltage after the lamp has been thrown into action.

3. The combination with an alternating current arc lamp of an auxiliary transformer supplied through an incandescent lamp transformer, a switch for coupling different lengths of the secondary winding of said auxiliary transformer into the lamp circuit, and means for lowering the voltage after the lamp has been thrown into action.

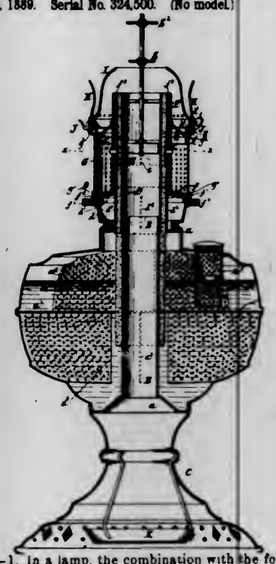
4. The combination with an alternating current arc lamp of an auxiliary transformer supplied by the secondary winding of an incandescent lamp transformer and switching apparatus provided with contacts for connecting the lamp with different parts of the secondary winding of the auxiliary transformer and lowering the voltage by varying the primary winding of said transformer after the lamp has been thrown into action.

519,850. STEAM-ENGINE. SILAS TORREY and CHARLES L. TORREY, Toledo, Ohio, assignors of one-fourth to George K. Detwiler, same place. Filed Apr. 17, 1893. Serial No. 470,595. (No model.)

Claim.—In a steam engine, a rotary valve receiving motion from the crank shaft, a feed and exhaust pipe, feed and exhaust ports in the valve for alternately communicating with ports leading to the steam cylinder, a stem upon the valve of two parts, inclined slots in the stem, and a collar having pins passing through said slot and a hand lever for moving the collar whereby the feed and exhaust are changed and the engine reversed



519,851. LAMP. EUGENE F TRENT, Jersey City, N. J. Filed Sept. 20, 1889. Serial No. 324,500. (No model.)



Claim.—1. In a lamp, the combination with the fount of a horizontal perforated partition and two sets of radial perforated partitions respectively above and below the horizontal partition, substantially as specified.

2. In a lamp, the combination with the fount of a horizontal perforated partition and two sets of radial perforated partitions respectively above and below the horizontal partition, one set of radial partitions being opposite the spaces between the other set of radial partitions, substantially as specified.

3. The combination with a wick tube having the upper edge of its outer shell turned outwardly, of a rotary tube having a bearing against the out-turned edge of the outer shell of the wick tube and forming a support for the wick at the upper end of the wick tube, substantially as specified.

4. The combination of a burner body having a shouldered top or cap, a wick tube having the upper edge of its outer shell turned outwardly and a rotary tube having a bearing upon the shouldered portion of the top or cap of the burner body and a bearing against the out turned edge of the outer shell of the wick tube and forming a support for a wick at the upper end of the wick tube, substantially as specified.

5. The combination with the outer shell of a wick tube having its upper edge turned outwardly, of a rotary tube having its upper edge turned inwardly so as to overlap the out turned upper edge of said outer shell of the wick tube and forming a support for the upper portion of a wick, substantially as specified.

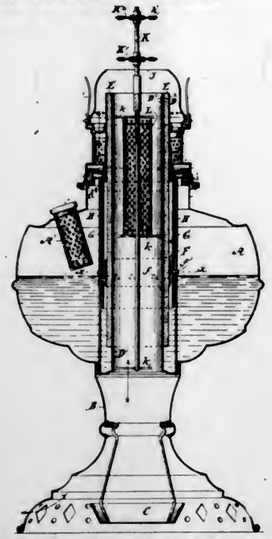
6. The combination of the rotary tube F, provided with two sets of projections f^4, f^5, the latter being lower than the former, and the air distributer D, centered by the projections f^4, and interlocked with the projections f^5, substantially as specified.

7. The combination with the air distributer, D, of the fingers H having upright portions h^4, horizontal portions h^5, downwardly extending portions h^6, tongues h^7 and prongs h^8 extending through the air distributer, substantially as specified.

8. The combination with the air distributer D, of the fingers H having upright portions h^4, horizontal portions h^5, downwardly extending portions h^6, and tongues h^7, substantially as specified.

9. The combination with a wick tube, of a wick carrier provided with inwardly turned prongs *e*, substantially as specified.

519,852. LAMP. EUGENE F. TRENT, Jersey City, N. J. Filed Aug. 4, 1890. Serial No. 360,938. (No model.)



Claim.—1. In a lamp, the combination of a reservoir, a central draft tube, a wick carrier surrounding the same and provided with outwardly extending arms or pins, a spirally grooved or slotted tube receiving said arms or pins and guides fastened in the reservoir and consisting of rods or wires, independent of and outside the wick tube substantially as specified.

2. In a lamp, the combination of a reservoir, a central draft tube, a wick carrier surrounding the same and provided with outwardly extending arms or pins, a spirally grooved or slotted tube receiving said arms or pins, guides consisting of rods or wires fastened at the lower ends to the bottom of the reservoir and an inwardly extending flange in the upper part of the reservoir having radial notches and having the upper ends of the rods or wires fastened to it adjacent to the notches, substantially as specified.

3. In a lamp, the combination of a reservoir, an annular wick tube shell, a wick carrier surrounding the same within the reservoir, a spirally grooved or slotted tube extending down into the reservoir and having at the upper end a flange which extends over the upper portion of the reservoir and an outer wick tube shell having a flange-like portion extending over the flange of the said tube, substantially as specified.

4. In a lamp, the combination of a reservoir, an annular wick tube shell, a wick carrier surrounding the same within the reservoir, a spirally grooved or slotted tube extending into the reservoir and having at the upper end a flange which extends over the upper portion of the reservoir, an outer wick tube shell having a flange-like portion extending over the flange of the said tube and a petticoat extending down within said tube, substantially as specified.

5. In a lamp, the combination of a reservoir, an inner wick tube shell in the reservoir, a wick carrier surrounding said inner shell, a spirally grooved or slotted tube for operating the wick carrier, a flange-like portion *g* on the latter, a rim-like portion *g'* extending from said flange-like portion, projections g^3 on the rim-like portion, and an outer wick tube shell having a downwardly extending rim-like portion provided with projections d^5 for centering and locking the said outer wick tube shell with respect to said tube, substantially as specified.

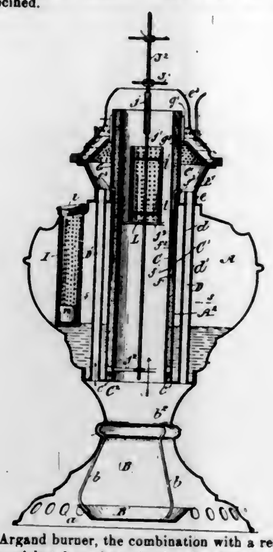
6. In a lamp, the combination of the outer wick tube shell D^2 having a portion provided with shouldered projections d^4 and the air distributer I having recesses for interlocking with said projections, substantially as specified.

7. A deflector for the burner of a lamp consisting of a sheet of mica having holes and fitted with clamping pieces passing through the holes, substantially as specified.

8. A deflector for the burner of a lamp, consisting of a sheet of mica having holes and consisting of disks provided with strips or tongues which may be passed through the holes and bent over at the extremities to fasten the disks in place, substantially as specified.

519,853. LAMP. EUGENE F. TRENT, Jersey City, N. J. Filed Dec. 10, 1887. Renewed Mar. 31, 1891. Serial No. 387,111. (No model.)

Claim.—1. In an Argand lamp, the combination with a reservoir and a cylindric wick tube, of a central draft flue, an air chamber below the reservoir opening to the atmosphere, segmental draft flues D D' outside the wick tube opening at one end at the base of the reservoir and at the other end into an air chamber above the reservoir, an air distributer of conical form forming the upper wall of the air chamber and a cone or deflector above the air distributer, substantially as specified.



2. In an Argand burner, the combination with a reservoir having a cylindric wick tube, of an air chamber below the reservoir opening to the atmosphere, a central draft flue, segmental draft flues D D' outside the wick tube opening at one end at the base of the reservoir and at the other end into an air chamber above the reservoir, an air distributer of conical form forming the upper wall of said last named air chamber, an imperforate conical shell outside said air distributer and a cone or deflector above the air distributer, substantially as specified.

3. In an Argand lamp, the combination with the reservoir and a cylindric wick tube, of a central draft flue extending through the reservoir, an air chamber below the reservoir into which said central draft flue opens, a draft flue outside the wick tube and central draft flue opening below the reservoir, an annular reservoir between the wick tube flue and the draft flue last named, the draft flue last named opening at one end into an air chamber above the reservoir, an air distributer constituting the upper wall of the air chamber and a cone or deflector above the air distributer, substantially as specified.

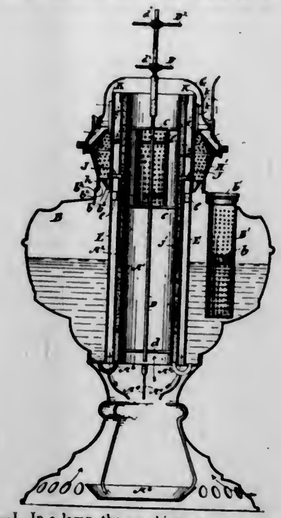
4. In a lamp burner, the combination with a chimney gallery comprising a downwardly extending shell, of lips or lugs extending inwardly from said chimney gallery and a cone or deflector supported upon said lips or lugs so as not to contact with the chimney gallery, substantially as specified.

5. In a lamp, the combination with a wick carrying ring having inwardly struck teeth, of resilient arms rigidly secured to said ring and provided with pins or projections near their upper ends, of a wick tube having an outer wall provided with longitudinal slots having open upper ends into which said pins or projections extend, and a wick raiser extending about the wick tube and comprising spirally extending slots into which said pins or projections also extend, substantially as specified.

6. The combination with a wick tube having its outer wall provided with longitudinally extending slots, of a wick carrier comprising pins or projections extending through said slots, a rotary wick raiser comprising spirally extending slots into which said pins or projections also extend, ribs on said wick raiser, and an air distributer provided with notches engaging said ribs, which air distributer when rotated will cause the rotation of the wick raiser, substantially as specified.

7. In an Argand lamp, the combination with a wick tube, of a central draft flue, an air distributer arranged in said draft flue wholly below the upper end of the wick tube and comprising a perforated cylindrical shell of less diameter than the inner wall of the wick tube, said shell having an open lower end and a perforated diaphragm within said shell below its upper end, substantially as specified.

519,854. LAMP. EUGENE F. TRENT, Jersey City, N. J. Filed Sept. 5, 1889. Renewed Mar. 31, 1891. Serial No. 387,112. (No model.)



Claim.—1. In a lamp the combination with a reservoir and a wick tube composed of two shells extending upwardly from the bottom of the reservoir, the inner tube constituting a central draft tube, of three or more pipes having up-turned ends and extending from the reservoir to the space between the shells of the wick tube, the curved portion of the pipes being below the bottom of the fount and the said pipes serving to support and center the wick tube, substantially as specified.

2. In a lamp the combination of a reservoir, a wick tube composed of two shells both extending upwardly from the bottom of the reservoir and the inner constituting a central draft tube, an outer draft tube surrounding the outer shell of the wick tube and also extending upwardly from the bottom of the reservoir and three or more U-shaped pipes providing a communication between the reservoir and wick space outside the outer air draft tube and serving to center and support the wick tubes, substantially as specified.

3. In a lamp, the combination of a reservoir, a wick tube composed of two continuous shells extending from the bottom of the reservoir, the inner constituting a central draft tube, an outer air draft tube surrounding the outer shell of the wick tube and extending to the tip thereof, a deflector surrounding the outer air draft tube and having provision for a circulation of air within it around said outer air draft tube and U-shaped pipes outside the outer air draft tube providing a passage for oil from the reservoir to the wick space, substantially as specified.

4. In a lamp, the combination with an annular wick tube, of a deflector or spreader consisting of a plate of transparent material having its edge protected by an annular binding, substantially as specified.

5. In a lamp, the combination of a reservoir, a wick tube composed of two shells both extending upwardly from the bottom of the reservoir and the inner constituting a central draft tube, an outer draft tube surrounding the outer shell of the wick tube and also extending upwardly from the bottom of the reservoir, pipes extending from the space within the wick tube to the reservoir outside the outer draft tube, oil conductors extending inwardly and downwardly from said pipes and a drip cup below the oil conductors, substantially as specified.

6. The combination with the deflector G, of the shell, I, provided with lugs, *i*, for supporting said deflector and with chimney supporting fingers *i'* secured to its inner surface and centering the deflector so as to leave a space within said shell surrounding said deflector, substantially as specified.

7. In a lamp, the combination with a reservoir, a wick tube composed of two continuous shells, the inner of which constitutes a central draft tube, and an outer air draft tube surrounding the outer shell of the wick tube, the outer shell of the wick tube and the outer air draft tube having diametrically opposite vertical slots in the upper portion, of a rotary shell or tube provided with spiral slots and surrounding the outer air draft tube and a wick carrier having horizontally projecting arms extending through the slots in the outer shell of the wick tube and outer air draft tube into the slots of the said rotary shell or tube, substantially as specified.

8. In a lamp, the combination with a reservoir and a wick tube composed of two shells, of an outer air draft tube surrounding the outer shell of the wick tube and composed of two sections, the upper of which is rotary, and a wick carrier operated by said rotary section substantially as specified.

9. In a lamp, the combination with a reservoir and a wick tube composed of two shells, the outer of which is vertically slotted at the upper portion and a wick carrier arranged between the two shells of the wick tube and having arms extending horizontally through the slots in the outer shell of the wick tube, of an outer air draft tube surrounding the outer shell of the wick tube and composed of two sections, the upper of which is rotary, and a shell or tube between the upper rotary section of the outer air draft tube and the outer shell of the wick tube provided with spiral slots engaging the arms of the wick carrier, the said spirally slotted shell or tube being secured to rotate through the movement of the upper rotary section of the outer air draft tube, substantially as specified.

10. The combination of the section E' of the outer air draft tube, a shell or tube K and lugs k' having horizontal extensions passing through the said section E' and secured to the shell or tube K, substantially as specified.

11. The combination of the section E' of the outer air draft tube, a shell or tube K and lugs k^3 into some of which the slots of the shell or tube K open, substantially as specified.

12. In a lamp, the combination of an annular wick tube and a deflector or spreader comprising an annular plate of transparent material having a metal binding, substantially as specified.

13. In a lamp, the combination of an annular wick tube and a deflector or spreader comprising an annular plate of mica and a central bushing, substantially as specified.

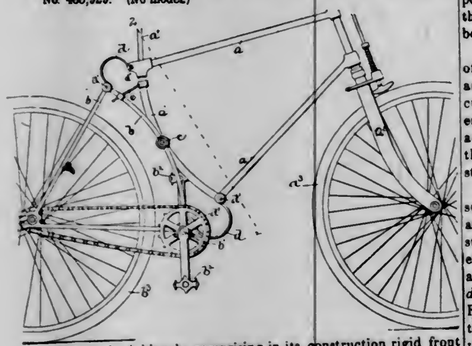
14. In a lamp, the combination of an annular wick tube and a deflector or spreader comprising an annular plate of mica and a central bushing turned at the edges outwardly over the mica, substantially as specified.

15. In a lamp, the combination of an annular wick tube and a deflector or spreader comprising an annular plate of mica, a central bushing and an outer binding, substantially as specified.

16. In a lamp, the combination of an annular wick tube and a deflector or spreader comprising an annular plate of mica, two annular plates lapping over the inner edge portion of said annular plate of mica, a central bushing turned over the two said annular plates and a binding fitted to the outer edge of the mica, substantially as specified.

17. In a lamp, the combination of an annular wick tube and a deflector or spreader comprising an annular plate of mica and a protecting binding of metal on the outer edge, substantially as specified.

519,855. BICYCLE. CLARENCE E. WHITAKER, Lynn, Mass., assignor to Josiah C. Bennett, same place. Filed Sept. 19, 1893. Serial No. 485,929. (No model.)



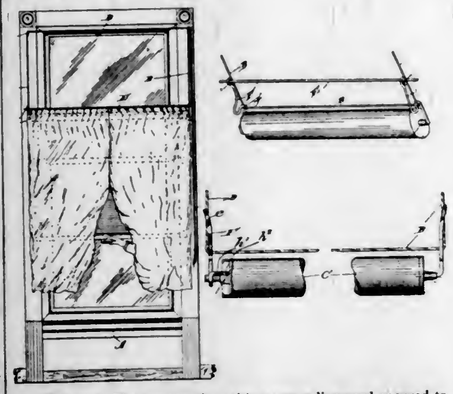
Claim.—1. A bicycle comprising in its construction rigid front and rear frame sections having a rocking connection with each other at a point substantially in a line between the seat support and the crank shaft, and semi-elliptic springs having their ends pivotally connecting the said sections above and below the connection, said springs being adapted to yieldingly oppose relative movement of the sections in either direction, for the purpose set forth.

2. A bicycle comprising in its construction rigid front and rear frame sections pivotally connected together at a point substantially in a line between the seat support and the crank shaft, and broad, flat, curved springs connecting the said sections above and below the pivotal connection, whereby torsional strain on the pivotal connection is relieved, substantially as described.

3. A bicycle comprising in its construction rigid front and rear sections pivotally connected together below the seat support, springs for yieldingly opposing movement on the said pivotal connection, a block pivotally supported by one of said sections and having a hole, a bolt pivotally connected with the other section and extending through said hole, and means for rigidly securing the bolt in said block hole, substantially as described.

4. A bicycle comprising in its construction rigid front and rear frame sections having a rocking connection with each other at a point substantially in a line between the seat support and the crank shaft, and springs connecting the said sections above and below the rocking connection, each spring being adapted to act alternately as an expansion and compression spring, whereby the springs will simultaneously oppose relative movement of the sections in either direction, for the purpose set forth.

519,856. ATTACHMENT FOR ADJUSTING WINDOW SHADES OR CURTAINS. LEE YANCEY, Chicago, Ill. Filed Jan. 15, 1894. Serial No. 496,917. (No model.)



Claim.—1. The combination with a suspending-cord secured to a support, of the bracket D, having the arm d, to engage one end of the roller, and the curve or bend d^3, for the cord, the bracket F, having the hook h, and projection h', to engage the other end of the roller, and the curve f, for the suspending-cord, substantially as described.

2. The combination with a suspending cord secured to a support, of the bracket D, having the arm d, to engage one end of the roller, and the curve or bend d^3, for the cord and bearing d', for the curtain-pole, the bracket F, having the hook h, and projection h', to engage the other end of the roller, the curve or bend f, for the cord and the bearing e, for the curtain-pole, substantially as described.

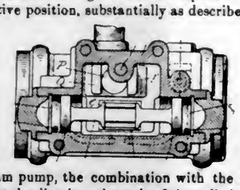
3. The combination with a suspending-cord secured to a support, of the bracket D, having the arm d, to engage one end of the roller, and the curve or bend d^3, for the cord and the bearing d', for the curtain-pole, the bracket F, having the hook h, and projection h', to engage the other end of the roller, the curve or bend f, for the cord and the bearing e, for the curtain-pole, both of said brackets having their upper part turned outward when in position on the roller, substantially as described.

4. The combination of a suspending-cord passing over pulleys or supports at the upper part of the window-casing, so as to form a loop, and having its free ends secured to the side of the casing, the lower strand of said loop engaging with and adjustably securing the brackets of the shade-roller and curtain-pole, of the bracket D, having the arm d, to be inserted in one end of the roller and the curve or bend d^3, for the cord and the bearing d', for the curtain-pole, the bracket F, having the hook h, and projection h', to engage the other end of the roller, the groove or bend f, for the cord, and the bearing e, for the curtain-pole, both of said brackets having their upper part turned outward, when in position on the roller to engage with the vertical portion of the loop of the suspending cord and to prevent the accidental unwinding of the shade, substantially as described.

519,857. DIRECT-ACTING STEAM-PUMP. FRANK A. BURNHAM, Battle Creek, Mich., assignor of one-half to Dorr B. Burnham, same place. Filed Feb. 11, 1893. Serial No. 461,886. (No model.)

Claim.—1. In a steam pump, the combination with the steam cylinder and valve chest containing the main steam valve, of an exhaust deflecting valve provided with an exhaust cavity and ports and passages adapted to be connected alternatively through said exhaust cavity to exhaust the steam from the cylinder into the exhaust pipe or into the suction chamber of the pump, said exhaust deflecting valve being inclosed in a valve chest and under live steam pressure, substantially as described.

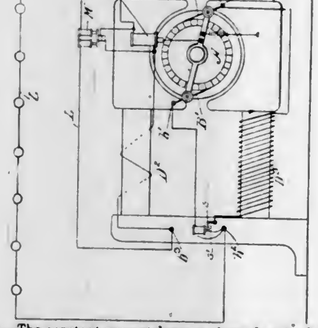
2. In a steam pump, the combination with the steam cylinder and valve chest containing a main slide valve, of an exhaust deflecting valve inclosed in a chamber contiguous to said main valve chest, exhaust ports and passages controlled by said deflecting valve, whereby the exhaust steam from the cylinder may be alternatively deflected into the suction of the pump, and a rock shaft journaled in the valve chest on top of said deflecting valve and adapted to move said valve into its alternative position, substantially as described.



3. In a steam pump, the combination with the steam cylinder having steam ports leading into the ends of the cylinder and a central main exhaust port, of a main slide valve controlling said port, the exhaust port h communicating with the main exhaust port of the cylinder, the exhaust ports g and i communicating respectively into the exhaust pipe and into the suction chamber of the pump, the exhaust deflecting valve provided with an exhaust cavity adapted to alternately connect the exhaust port h with the exhaust ports g and i and the rock shaft M journaled in the valve chest and provided with means for operating the exhaust deflecting valve, all combined and arranged to operate, substantially as described.

4. In a steam pump, the combination with the steam cylinder, a valve chest containing a valve moving piston provided with the heads engaging in steam chambers in the opposite ends of said valve chest and carrying the main slide valve centrally of said piston, an exhaust deflecting valve located alongside said main slide valve in the lateral enlargement formed in said valve chest, and exhaust ports and passages controlled by said deflecting valve, substantially as described.

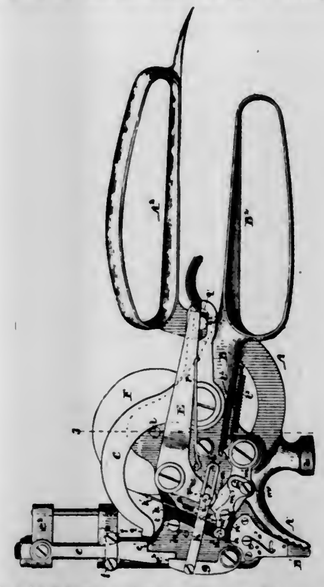
519,858. CONSTANT-CURRENT DYNAMO. WILLIAM H. ELKINS, Cambridge, Mass. Filed Feb. 3, 1894. Serial No. 498,949. (No model.)



Claim.—The constant current dynamo above described comprising a compound wound field with the positive and negative terminals of both portions of the field coils connected to the main brushes, and means for moving the brushes about the commutator, to keep the total current generated always greater than the constant current in the work circuit, and to vary the total current generated as required in order to maintain the current constant in the work circuit; all the parts being arranged and operating substantially as described.

519,859. HAND LASTING-TOOL. ISAIE FRECHETTE, Montreal, Canada. Filed Aug. 26, 1893. Serial No. 484,150. (No model.)

Claim.—1. In a hand lasting tool, the combination of a pair of pincher jaw levers pivoted together and crossing each other as set forth; a nail delivering orifice through the nose of one of said pincher jaws; a vertically movable driver mounted in a bearing in said jaw above, and in axial line with, said orifice, a spring applied to said driver to move it toward the nose end of said jaw; a vertically movable bar connected at one end to said driver and provided at its opposite end with shoulders c' and c^2; a lever pivoted to the jaw lever which carries said driver, and connected to, and vibrated by the other jaw lever and adapted to engage, at its free end, the shoulder c' to raise said driver without being attached thereto; the pawl g constructed and arranged to engage the shoulder c^2 and lock said driver, and maintain it in said raised position, while the pincher jaws may be operated an indefinite number of times; means having provision for automatically placing a nail in position in line with said orifice; and means having provision for tripping said pawl to release said driver.



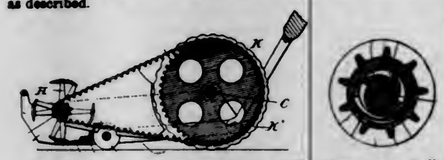
2. In a hand lasting tool, the combination of a pair of pincher jaw levers pivoted together; a spring for opening said jaws; a hammer head on one of said jaws; a nail delivering orifice through the nose of the other jaw; a nail driving plunger mounted in a bearing in said jaw above said orifice; a spring connected to, and acting upon said plunger, and adapted to be strained when said plunger is raised; the lever C; the pin q^3; the shouldered bar e connected to said driver; the oblique channels or grooves k and o formed in the jaw B'; the cam levers m' and m^2; the lever m^3 pivoted to and adjustable on the lever m'; the feed pawl carried by the levers m' m^3; the nail receiver and carrier o^3 pivoted in a cavity in the jaw B, and constructed and arranged to cooperate with the lower end of said feed pawl to sever a nail; the bar o' for operating said receiver; the pawl g; the slotted link h'; and the thumb operated lever E.

3. The combination of the pincher jaws A' and B' provided respectively with the operating arms A and B; the driver c, c', the lifter bar e provided with the shoulders c' and c^2; the lever C provided with the shoulder q at one end and the slot q' at its other end, and pivoted to the lever B; the stud q^3 set in the lever A and engaging the slot q'; the pawl g; the spring h; the bar h' provided with the slot i; the lever E provided with the pin i' projecting into said slot; and a nail delivering and guiding passage through the nose of the jaw B beneath the driver c c'.

4. The combination of the pincher jaws A' and B' provided respectively with the operating arms A and B; a nail guiding orifice through said jaw B the driver c c'; the channel k; for guiding the nail blank wire; the nail receiving and severing jaw o^3; the receiver operating bar o'; the spring o^2; the cam levers m' and m^2; the arm m^3 adjustably attached to the cam lever m'; the pawl n; the springs l^2 l^3 and p; and the lever E pivoted to the lever B and provided at the end of its short arm with a truck to act upon the cam levers m' and m^2 and at its other end with the pad E' all constructed arranged and operating substantially as and for the purposes described.

519,860. LAWN-MOWER. SIMON P. GRAHAM, Detroit, Mich. Filed Mar. 16, 1893. Serial No. 466,195. (No model.)

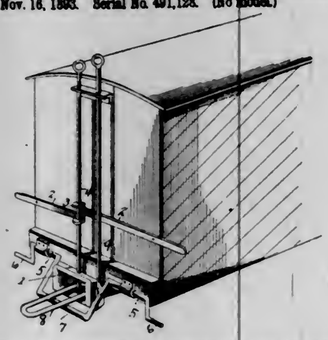
Claim.—1. In a lawn mower, the combination of the cutter shaft, the cutters thereon, a sleeve upon the shaft having a ratchet formed centrally thereon, a sprocket pinion journaled upon the sleeve, an interior recess in the pinion, a spring in said recess, a pawl secured to said spring and having one end abutting against the end of the recess in the pinion and its free end engaging the ratchet wheel, substantially as described.



2. In a lawn mower, the combination with a frame, of centrally divided cutters, a grooved wheel, a sprocket chain passing over the wheel and between the cutters, a rigid cross-bar at the lower forward end of the frame, upwardly extending lips centrally on the cross bar, and guard plates on opposite sides of the chain, having their forward ends secured to the lips, substantially as described.

3. In a lawn mower, the combination with a stationary cutter, of a rotary cutter divided centrally into two sections, the blades of each section being out of contact with those of the other section and arranged on a spiral opposite to the spiral of the blades of the opposite section, the blades on one section alternating with those of the opposite section and means extending between the sections for rotating the same, substantially as described.

519,861. CAR-COUPLING. THOMAS JOHNSTON, Tacoma, Wash. Filed Nov. 16, 1893. Serial No. 491,128. (No model.)



Claim.—In a car coupling, the combination with a pair of levers, pivotally attached to the end of the car adjacent to the draw-head, one of the same being slightly above the other, and an elongated coupling rod whose end extends through the draw-head, of a flanged head or bracket carried by the said elongated coupling rod and consisting of a vertical portion having outwardly extending perforated flanges at its upper and lower ends which are adapted to be engaged by the inner ends of the said levers, substantially as and for the purposes specified.

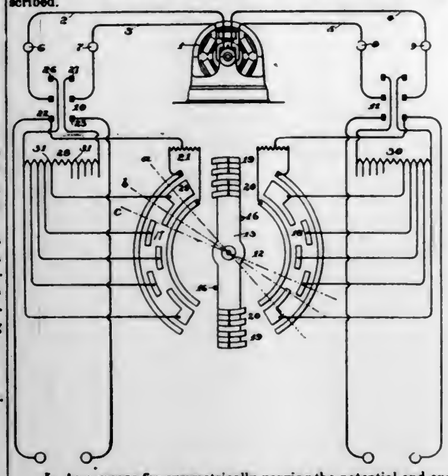
519,862. METHOD OF AND MEANS FOR STARTING SYNCHRONOUS MOTORS. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, same place. Filed Apr. 5, 1893. Serial No. 469,171. (No model.)

Claim.—1. The method of starting a self-exciting synchronous motor from a given supply circuit, which consists in applying to the armature thereof a starting current of low potential and large volume, causing said armature to excite the field magnets by induction, and then gradually increasing the potential of the starting current to that of said supply circuit, substantially as described.

2. The method of starting a multi-phase synchronous self-exciting motor from a given supply circuit, which consists in supplying to the armature thereof starting currents of different phases, but of the same low mean potential and large mean volume, causing the armature to excite the field magnets by induction, and then gradually and symmetrically increasing the potential on all the armature circuits until the starting currents are brought to the full potential of the line, substantially as described.

3. The combination of a constant potential alternating current system, and a multi-phase self-exciting synchronous motor; with a converter for each phase of said current having its primary in circuit with the main leads and its secondary in circuit with the motor armature, and means whereby the potential of the secondary circuits may all be symmetrically varied, substantially as described.

4. The combination of a constant potential alternating current system, and a multi-phase self-exciting synchronous motor with an auto-converter for each phase of said current, spanning the main leads, and means whereby successive coil sections at the two ends of each converter may be brought symmetrically into the electrical connection with the terminals of the motor armature, substantially as described.



5. As a means for symmetrically varying the potential and current supplied to a closed coil two phase synchronous motor; two converters for converting the two supplied currents of different phases, a controller having two pairs of similarly arranged stationary plates connected with different points on the secondaries of said converters, and with the terminals of the motor, movable contacts adapted to co-operate with said plates to throw more or less of said secondary coils in circuit with said armature, and means for moving said contacts over said plates, and for preserving at all times the same contact relation in all four series of plates, substantially as described.

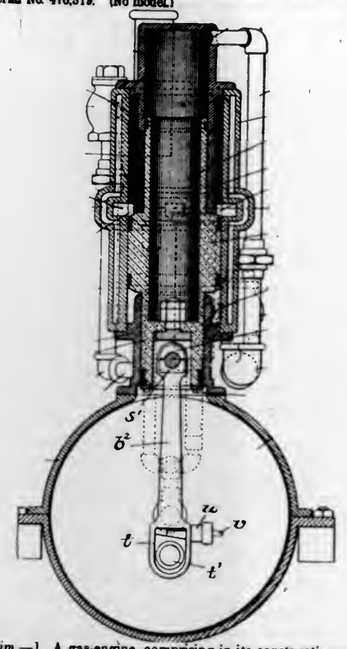
6. As a means for symmetrically varying the potential and current supplied to a closed coil two phase synchronous motor; two auto-converters spanning the leads of the two supplied currents, a controller having two pairs of similarly arranged stationary plates connected with different points on the coils of said auto-converters, and with the terminals of the motor, movable contacts adapted to co-operate with said plates to throw more or less of said secondary coils in circuit with said armature, and means for moving said contacts over said plates, and for preserving at all times the same contact relation in all four series of plates, substantially as described.

7. In a device for controlling current delivered from a converter to a translating device, means for preventing the short-circuiting of converter coils, which consist of outer plates connected each through a choking coil with the translating device, and isolated inner plates between said outer plates, each connected to different points of the converter coils; in combination with means for establishing successive electrical connection between each of said inner plates, and said outer plates, substantially as described.

8. In a device for controlling current delivered from a converter to a translating device, means for preventing the short-circuiting of converter coils, which consist of outer plates connected to each other through preventive means for cutting down the current through the translating device, and isolated inner plates between said outer plates, each connected to different points of the converter coils; in combination with means for establishing successive electrical connection between each of said inner plates and said outer plates, substantially as described.

9. As a means for controlling the currents for two phase closed coiled motors; two auto-converters spanning the pairs of leads for supplying the two phases of current, a pair of similar and oppositely placed series of contact plates, successively electrically connected to successive points on one side of each auto-converter, and movable contacts adapted to make simultaneous and symmetrical connection between said plates and one pair of motor terminals; in combination with a second pair of series of plates similar to the first pair and electrically connected to successive points on the other side of each auto-converter, such points on the two sides of each converter being symmetrically located, movable contacts adapted to make simultaneous and symmetrical connection between said second pair of series of plates and the second pair of motor terminals; and means whereby simultaneous and symmetrical movement of all of said movable contacts may be secured, substantially as described.

519,863. GAS-ENGINE. DON C. LUCE, Brockton, Mass., assignor of two-thirds to Harvey F. Crawford, same place. Filed Apr. 14, 1893. Serial No. 470,319. (No model.)



Claim.—1. A gas-engine, comprising in its construction a cylinder having an induction-port on one side of the piston and communicating with a fluid-supply, a check-valve between said port and the fluid-supply, and a check-valved passage adapted in the operation of the engine to afford communication between that part of the cylinder on one side of the piston toward which the piston is advancing and that part of the cylinder on the opposite side of the piston away from which the piston is moving.

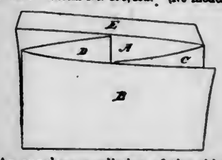
2. A gas-engine, comprising in its construction a cylinder having ports on opposite sides of the piston, means of communication between one of said ports and a fluid-supply whereby the piston-stroke in one direction inducts a supply of fluid through said port, and means of communication between the two ports whereby the piston-stroke in the opposite direction drives the said supply of fluid to the opposite side of the piston.

3. A gas engine comprising in its construction a cylinder having a combustion chamber in which the piston is reciprocated and charging chambers on opposite sides of the piston and receiving extensions thereof, means of communication between the charging chambers and a fluid supply and means of communication between each charging chamber and the combustion chamber on the side of the piston opposite said charging chamber.

4. A gas-engine, comprising in its construction a cylinder having a central combustion-chamber provided with an inlet-port at each end and a centrally-located exhaust-port, and charging-chambers at each end of the combustion-chamber and of less diameter than the latter, and each having a port; a piston having a central portion which fits the combustion-chamber and receives the impact of the explosions, and extensions which fit the charging-chambers; check-valved passages connecting the ports of the charging-chambers with a fluid-supply, and check-valved passages connecting said first-named passages respectively with the ports of the combustion-chamber.

5. A gas-engine, comprising in its construction a cylinder having a central combustion-chamber provided with an inlet-port at each end and a centrally-located exhaust-port, and charging-chambers at each end of the combustion-chamber and of less diameter than the latter, and each having a port; a piston having a central portion which fits the combustion-chamber and receives the impact of the explosions, and extensions which fit the charging-chambers; check-valved passages connecting the ports of the charging-chambers with a fluid-supply; check-valved passages connecting said first-named passages respectively with the ports of the combustion-chamber; and hot-tubes communicating by restricted passages with the second check-valved passages.

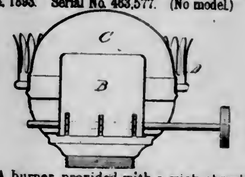
519,864. ENVELOPE. GEORGE H. MARTIN, San Francisco, Cal. Filed Jan. 30, 1894. Serial No. 498,492. (No model.)



Claim.—1. An envelope consisting of the sides each having an extension formed with it upon the opposite end from the extension upon the other side, said extensions being folded to form end flaps, and adapted to be pasted within the opposing sides when the envelope is closed, substantially as herein described.

2. An envelope consisting of a sheet folded longitudinally to form equal sides, extensions or flaps upon opposite ends of these two sides, folded at right angles with the longitudinal fold adapted to lie within the sides and form the ends of the envelope, said folded flaps being pasted to the opposite sides from those with which they are formed, substantially as herein described.

519,865. LAMP-BURNER. LUTHER A. MILBANK, New York, N. Y. Filed Feb. 24, 1893. Serial No. 463,577. (No model.)

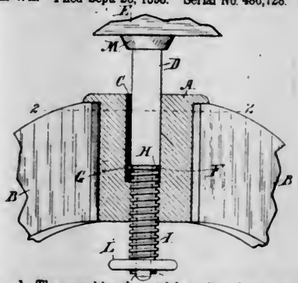


Claim.—1. A burner provided with a wick chamber or tube B having an inwardly projecting edge at each end of the mouth of the said wick tube or chamber, for bearing against and retarding the advance of the edges of the wick, and thereby preventing smoking from the sides of the flame, substantially as, and for the purposes, set forth.

2. A wick chamber or tube B provided with inwardly projecting edges in position to bear against and retard the advance of the edges of the wick, substantially as, and for the purposes, set forth.

3. A flat wick tube or chamber B having its edges turned in, as at *b*, substantially as and for the purposes described.

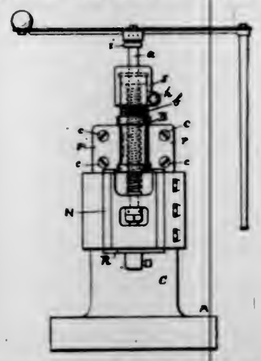
519,866. REVOLVING CHAIR. JAMES M. MORGAN, Port Washington, Wis. Filed Sept. 28, 1893. Serial No. 486,728. (No model.)



Claim.—1. The combination, with a chair hub provided with a vertical screw threaded aperture, and a hollow screw adjustable vertically in the hub, of a seat spindle supported on and revoluble in and independently of the hollow screw, and a non-revoluble bearing plate resting on the screw and adjustable vertically thereby and supporting the spindle and its seat thereon, substantially as described.

2. In a revolving chair, the combination with a hub having a vertical screw-threaded aperture and a vertical groove or grooves, of a hollow screw adjustable vertically in the hub, a spindle supported on and revoluble in and independently of the hollow screw, a non-revoluble bearing plate resting on the screw and supporting the spindle and its seat thereon, and means on the plate in connection with the groove or grooves in the hub for preventing the revolution of the plate, substantially as described.

519,867. SCREW-PRESS. FRANK MOSSBERG, Attleborough, Mass. Filed May 31, 1893. Serial No. 476,100. (No model.)

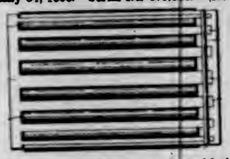


Claim.—1. In a screw press, the combination with the nut for the pressure screw, of a sleeve forming an extension of its upper end, said sleeve having a fine screw-thread made on its outside, and a check cap having a screw thread made on its inside, fitting onto the screw thread on said sleeve, and means for clamping the check cap fast on the sleeve, substantially as described.

2. In a screw press of the character herein described, the combination of a check cap fitted to screw down over an extension of the nut of the pressure screw, and having a slot made in one side, with an ear on each side of the slot fast on the cap, and provided with a screw for closing said cap, to clamp the cap on said nut extension with said nut, substantially as described.

3. In a screw press, a nut for the pressure screw, having a flange on each side to bolt it to the standard by, and a horizontal flange on its back, fitting into a recess in the face of the standard, in combination with said standard and screw, substantially as described.

519,868. ROLLER-BEARING. FRANK MOSSBERG, Attleborough, Mass. Filed May 31, 1893. Serial No. 476,101. (No model.)



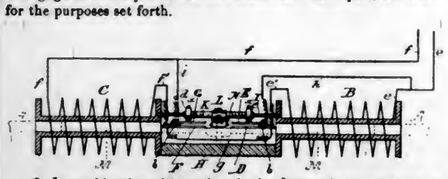
Claim.—1. In a roller bearing, a cage to hold the rollers, consisting of a series of parallel bars connected together at one end, and forming receptacles between them to receive the rollers, and closed at their other ends, by a cap having projections entering into the spaces between the ends of the bars, said projections and bars having a groove made in the periphery of the combined projections and bars, in combination with said cap and roller, and with clamping means fitted into said groove, substantially as described.

2. A roller bearing consisting of two like halves made of parallel bars connected together at one end, and end rollers between them, and closed at their other ends by semi-circular caps having projections on their inner faces, fitted to enter between the ends of said bars, being held therein by clamping wires lying in grooves made in the outer surface of the projections and bars, and having their ends bent in to enter holes in said projections, with screws passing through the bars into those projections, with said caps and rollers, all said parts combined substantially as described.

3. In a roller bearing, a cage to hold the rollers, consisting of a series of parallel bars connected together at one end, and forming receptacles between them to receive the rollers, and closed at their other ends by a cap having projections, entering into the spaces between the ends of the bars, with said caps and rollers, and means for holding said cap to the bars, all said parts combined substantially as described.

519,869. ELECTRIC MECHANISM FOR GIVING RECIPROCATING MOTION. HENRY S. MCKAY, Boston, Mass. Filed Mar. 12, 1892. Serial No. 424,628. (No model.)

Claim.—1. In combination with an electric circuit, two electro-magnets or solenoids arranged in the same axial line, and connected in series with each other and with said circuit, the plunger armature adapted to be reciprocated by the alternate energizing of said magnets, the commutator for alternately energizing the magnets, and consisting of two pairs of stationary contacts situated apart from and having one contact of each pair connected in series with each other and with the magnets, and having the other contacts of said pairs short circuited to the main circuit, and a movable contact adapted to engage alternately with the two contacts of each pair, all as and for the purposes set forth.

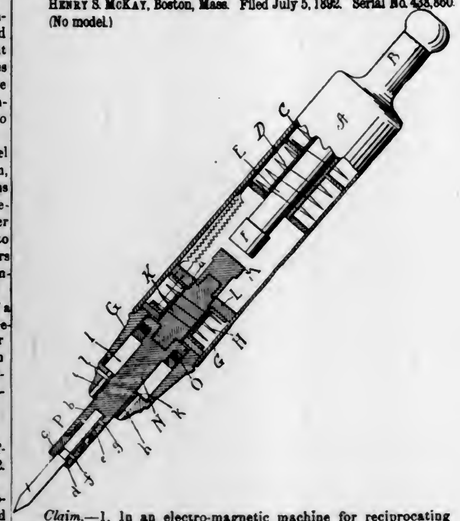


2. In combination with an electric circuit two electro-magnets or solenoids arranged in the same axial line, and connected in series with each other and with said circuit, the plunger armature adapted to be reciprocated by the alternate energizing of said magnets, the commutator for alternately energizing the magnets, and consisting of two pairs of stationary contacts situated apart from and having one contact of each pair connected in series with each other and with the magnets, and having the other contacts of said pairs short circuited to the main circuit, and a movable contact of a length less than the distance between the two pairs of contacts, and adapted to engage alternately with the same, all as and for the purposes set forth.

3. In combination with an electric circuit, two electro-magnets or solenoids arranged in the same axial line, and connected in series with each other and with said circuit, the commutator for alternately energizing the magnets and consisting of two pairs of stationary contacts situated apart from and having one contact of each pair connected in series with each other and with the magnets, and having the other contacts of said pairs short circuited to the main circuit, and a movable contact adapted to engage with each of said pairs of contacts, and the reciprocating plunger armature inclosed within the magnets and by its movements adapted to directly move the movable contact of the commutator into engagement with the two pairs of contacts alternately, all as and for the purposes set forth.

4. In combination with two electro-magnets or solenoids connected in series, an armature adapted to be reciprocated by said magnets or solenoids, a flange or projection extending laterally from said armature, or from a rod connected therewith, a commutator switch having adjustable mechanism to be operated by said flange or projection, contacts for making connection with said commutator switch, and connected respectively with the two magnets or solenoids, whereby the stroke of said armature or armature and rod may be shortened or lengthened, all as set forth.

519,870. MAGNETIC ENGINE FOR RECIPROCATING TOOLS. HENRY S. MCKAY, Boston, Mass. Filed July 5, 1892. Serial No. 438,860. (No model.)

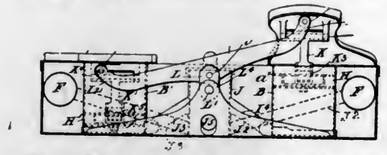


Claim.—1. In an electro-magnetic machine for reciprocating tools, the combination with two or more magnets or solenoids, a plunger armature adapted to be reciprocated by the same, an independent sliding tool holder adapted to be struck and driven outward by the end of the armature, means for automatically drawing back the tool holder on the return movement of the armature, a piston O secured to the tool holder, the piston cylinder I and a pneumatic regulating cushion or spring for said piston and tool holder, all as and for the purposes set forth.

2. In an electro-magnetic engine for reciprocating tools, the combination with two or more magnets or solenoids a plunger armature adapted to be reciprocated by the same, a magnet or solenoid H situated beyond the other magnets and connected in series with the same so as to be always energized, an armature K, which in its normal position is in the field of force of the magnet H, an inward extension of the armature K adapted to be struck by the end of the plunger armature, and the tool holder adapted to be secured to the outer end of the armature K, all as and for the purposes set forth.

3. In an electro-magnetic engine for reciprocating tools, the combination with two or more magnets or solenoids, a plunger armature adapted to be reciprocated by the same, a magnet or solenoid H situated beyond the other magnets and connected with said magnets in series and so as to be always energized, an armature K, which in its normal position is in the field of force of the magnet H, an inward extension of the armature K adapted to be struck by the end of the plunger armature, the tool holder adapted to be secured to the outer end of the armature K, a piston secured to said tool holder, the piston cylinder, and a pneumatic cushion or spring for said piston and holder, all as and for the purposes set forth.

519,871. PORTABLE PUMPING APPARATUS. DONALD NOBLE, Leeds, England. Filed Feb. 23, 1893. Serial No. 463,423. (No model.) Patented in England Nov. 24, 1891, No. 20,434; in France Sept. 14, 1892, No. 214,211; in Belgium Sept. 14, 1892, No. 101,370, and in Canada Dec. 12, 1892, No. 41,191.



Claim.—1. The combination of a platform or casing, a pair of pedals hinged thereto at their toe ends, cylinders within the casing, pistons reciprocating therein, link connections between the pedals and the pistons, inlet and outlet ports or passages from the cylinders, valve mechanism controlling the flow of water, and a lever pivoted at its center to the platform or casing and having rollers on its opposite ends adapted to engage with the under sides of the pedals.

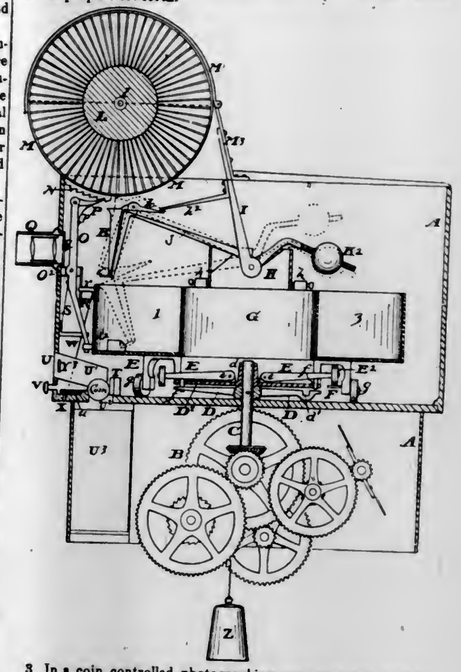
2. The combination of the platform or casing divided into two compartments, a pair of pedals hinged at their toe ends to the casing, cylinders mounted in one of the compartments, pistons reciprocating in the cylinders, link connections between the heel ends of the pedals and the pistons, ports or passages for fluid entering and leaving the cylinders, valve mechanism controlling these passages, and locking devices for holding the heel ends of the pedals depressed.

3. The combination of a platform or casing, pedals hinged thereto, cylinders within the casing, pistons reciprocating therein and operatively connected with the pedals, entrance and exit ports or passages having valve mechanism for controlling the flow of water therein, a pivoted lever with the ends of which the pedals are adapted to engage, crank arms on which the lever is pivoted, trunnions for said crank arms below the axis about which the lever moves on the crank arms, a lever or handle for turning the crank arms and means for locking the handle.

519,872. COIN-CONTROLLED PHOTOGRAPH APPARATUS. JOSEPH A. PARSONS, Rocky River, Ohio. Filed Feb. 5, 1894. Serial No. 499,197. (No model.)

Claim.—1. In a coin controlled photographing apparatus, a rotatable solution pan, a cam ring mounted on the center of said pan, a sensitized plate holding lever, journaled over the center of said cam ring and riding on the ring, a plate holder mounted on moving end of said lever and means for rotating the pan to depress the holder for immersing the plate in the several compartments of the pan, substantially as specified.

2. In a coin controlled photographing apparatus, a clock work motor B, vertical shaft C connected to and operated by said motor rotating double lever D, keyed to said shaft C and having one long arm provided with a notch d^3 and an opposite shorter arm, a disk D^2 having sleeve d fitting loosely over said shaft, levers E pivoted to central part of said disk their extremities extending over its edge and carrying pin f extending down through holes in said disk, a three-quarter circle raised track F surrounding said disk, and wheels E^2 on the extremities of said levers E adapted to ride on said track and to raise the pins at stated intervals, and free them from contact with the levers E for rotating the said disk intermittently, substantially as and for the purpose set forth.



3. In a coin controlled photographing apparatus, the shaft C, rotatable double lever D mounted on said shaft, disk D^2 having central sleeve d also loosely mounted on said shaft C levers E pivotally mounted on disk D^2 and provided with pins f and extending through holes in the disk and adapted to be rotated at intervals prescribed in combination with the compartment solution pan G, having the casters g and setting over said disk D^2 and lever E, and adapted to revolve with said disk D^2, substantially as specified.

4. In a coin controlled photographing apparatus the combination with the rotatable solution pan G having the inclined projection g^2 of the lever O fulcrumed to the casing A and provided on its top end with a spring pawl P engaging with the ratchet wheel N and adapted to be pushed at its lower end by said projection g^2 for turning the magazine drum, substantially as specified.

5. In a coin controlled photographing apparatus the combination with the rotatable solution pan G having the projection r of the weighted lever R fulcrumed to the casing A and provided with a lens tube covering disk q adapted to uncover said lens tube by the move ments of said pan for making the exposure substantially as specified.

6. In a coin-controlled photographing apparatus, the combination of the rotatable solution pan G provided with the arm t depending from its bottom, of the curved lever T, having curvature of shorter radius than the curvature of the pan, and fulcrumed at its middle part to the floor of the casing A; the coin tube U', push button V, provided with retractile spring u, adapted, when a coin is inserted in said tube U', to push one end of said lever T and release the stop t, to allow the coin to fall, and to start the pan rotating, and as said stop t travels with the pan along the inside curvature of said lever T, to push and reset said lever for stopping the pan at the completion of each revolution substantially as specified.

7. In a coin controlled photographing apparatus the combination with the clock weight drum shaft of the lever Y^2 fulcrumed to the side of the casing A, its lower end provided with a fork spanning an eccentric on said shaft, its upper end bent and connected to a sliding piece Y^2 covering the coin slot in the casing, and adapted to be actuated for uncovering the said slot by the turning of the crank Y substantially as specified.

519,873. PAVING-BLOCK. JOHN L. POPE, Cleveland, Ohio. Filed Sept. 8, 1892. Serial No. 445,304. (No model.)

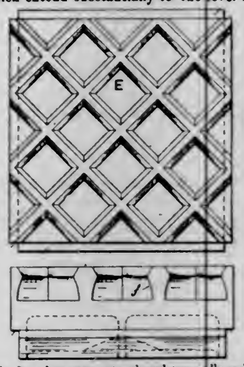
Claim.—1. A paving-block provided at its under side with sepa-

rating walls or ribs which extend substantially to the level of the bottom face of the block, forming separate closed-top cells, said block being adapted to be laid upon the ground and to be supported by aid of said cells; substantially as described.

2. A paving block having on its surface pockets closed at the bottom and beveled so as to decrease in width upwardly, substantially as described.

3. A paving-block, having on its surface a pocket closed at the bottom, which pocket decreases in width upwardly, and having a wearing material such as wood, softer than the body of the block, fitted in the pocket and projecting above the same; substantially as described.

4. A paving-block provided at its under side with separating walls or ribs which extend substantially to the level of the bottom



face of the block, forming separate closed-top cells, said block being adapted to be laid upon the ground and to be supported by aid of said cells, and having lateral ledges, two opposite ledges being directed upwardly and the others directed downwardly, and being substantially coextensive with the sides of the block; substantially as described.

519,874. EAR FOR BUCKETS, &c. MILLARD F. ROBESON, Elmira, N. Y. Filed Jan. 13, 1894. Serial No. 496,823. (No model.)



Claim.—1. The combination of a metallic bucket or similar vessel A having an outwardly pressed recess *a* in the side thereof, a bail ear D on the outer side of said recess *a*, a washer E of suitable form and size to fit in said recess inside the vessel, said bail ear, washer and bucket being fastened together by rivets F F passing through the several parts, substantially as described.

2 The combination of a metallic bucket or similar vessel having one or more outwardly pressed recesses in the sides thereof, an ear resting against the outer side of each recess a washer fitting each recess and pressed or soldered into the same opposite the said ear and fastenings, as rivets, passing through and fastening said washer, ear and bucket together, substantially as described.

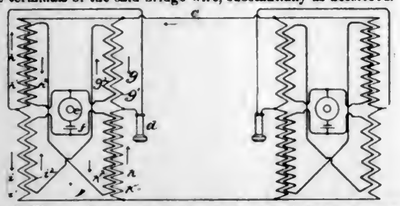
519,875. CYLINDER-PIN CATCH FOR REVOLVERS. JOHN ROURKE, Norwich, Conn. Filed Mar. 1, 1894. Serial No. 502,016. (No model.)



Claim.—In combination with the frame and cylinder of a revolving arm, a removable axial pin for said cylinder having seated therein substantially as set forth a spring-pressed latch provided with a projection d^3 that engages the inner wall of the frame to prevent the withdrawal of the pin, and also the circumferential wall of the journal bearing of the cylinder to serve as a frictional drag or stop.

519,876. TELEPHONE-CIRCUIT. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Sept. 28, 1893. Serial No. 486,729. (No model.)

Claim.—1. The combination in a Wheatstone parallelogram, of sources of electromotive force in the four sides thereof, a bridge wire containing an instrument responsive to electric currents connected between two opposite angles of the parallelogram, and an electric circuit containing other instruments responsive to electric currents connected with the remaining angles of the parallelogram, the said sources of electromotive force being adjustable with respect to each other to produce a condition of no difference of potential between the terminals of the said bridge wire, substantially as described.



2. The combination in an electric circuit including an instrument sensitive to electric current, said circuit being divided at one point into two parallel branches, of two sources of electromotive force in each branch, and a bridge wire connecting two branches from points between sources of electromotive force in each, the different sources of electromotive force being adjustable with respect to each other to produce a condition of no difference of potential between the terminals of the bridge wire, and one portion of each branch between the bridge wire and different sides of the circuit being constructed to have high resistance to incoming currents in the circuit, whereby the incoming currents are directed through the receiving instrument in the bridge wire, while outgoing currents generated by the said sources of electromotive force do not send any current through said bridge wire, substantially as described.

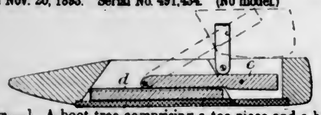
3. The combination in a telephone circuit divided into two parallel branches, of a bridge wire including a telephone receiver uniting the two parallel branches, and sources of telephonic current, two in each branch, upon opposite sides of the connection of the said bridge wire with that branch, the said sources of current having their electromotive forces adjusted to produce a condition of no difference of potential between the terminals of the bridge wire, whereby outgoing telephonic current is transmitted to the line without traversing the telephone receiver, as described.

4. The combination in a telephone circuit divided into two parallel branches, of a bridge wire containing a telephone receiver uniting the two branches, two sources of telephonic current in each branch, one upon each side of the point of connection of the bridge wire with the same branch, one portion of each branch, upon opposite sides of said bridge connection, being constructed to have high impedence, and the electromotive forces of the different sources of current being adjustable to produce a condition of no difference of potential between the terminals of the said bridge connection, whereby outgoing telephonic currents are generated without affecting the telephone receiver, while incoming currents may be directed through the said receiver, substantially as described.

5. The combination with a telephone line, of four induction coils having their secondary helices connected in two parallel branches of the telephone circuit, two in each branch, and their primary helices in circuit with a common microphone, a telephone receiver having one terminal connected to each branch between the two induction coils thereof, one secondary helix in each branch, upon opposite sides of the telephone terminals, being constructed to have high impedence, as described.

6. The combination in a telephone circuit, of four induction coils having their secondary helices connected in two parallel branches of the telephone circuit, two in each branch, a telephone receiver connected between the different branches from points intermediate of the two helices therein, the primary helices being connected in multiple series with a microphone, the primary helix of a coil in one branch being included in series with the primary helix of a coil in the other branch upon the opposite side of the telephone connection, whereby incoming telephonic currents are directed through the telephone receiver by the reaction of the currents induced in the primary helices thereby, substantially as described.

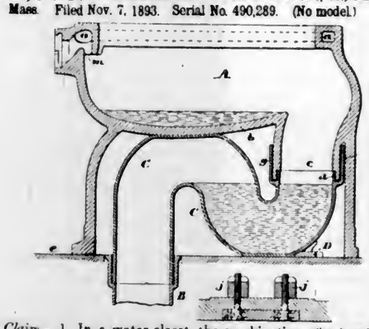
519,877. BOOT-TREE. GEORGE H. STEPHENS, London, England. Filed Nov. 20, 1893. Serial No. 491,434. (No model.)



Claim.—1. A boot tree comprising a toe piece and a heel piece pivotally connected with said toe piece, said toe piece being provided with a receptacle for a heating device, and a lining of absorbent material secured to both of said parts for absorbing moisture, substantially as described.

2. A boot tree comprising a toe piece, a heel piece pivotally connected therewith, said toe piece being provided with a receptacle adjacent to the bottom of the same, a removable heating iron for said recess and a lining of absorbent material extending along the bottom of both of said parts, substantially as described.

519,878. WATER-CLOSET. JOHN H. STEVENS, Jr., Cambridge, Mass. Filed Nov. 7, 1893. Serial No. 490,289. (No model.)

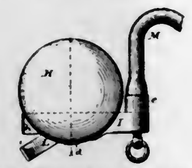


Claim.—1. In a water closet, the combination of a bowl or receiver; a pendent trunk or discharge passage and a bowl supporting pedestal formed integral with said bowl; a metal trap placed within said pedestal and having its upper end constructed to abut against and surround said pendent trunk a plate secured to the base of said pedestal and fitted to the under side of said trap to hold it in contact with said pendent trunk; and a water proof packing between said trap and pendent trunk

2. In a water closet, the combination of a bowl or receiver; a pendent trunk or discharge pipe having the lower portion of its inner periphery rabbeted or enlarged, and a trap inclosing pedestal formed in one piece with said bowl and trunk; a metal trap having its upper end provided with a double wall the inner one to fit in the rabbet in said trunk and the other to surround and inclose said pendent trunk; a metal plate fitted to recesses in the base of said pedestal and fitted to the under side of said trap to hold it in contact with said pendent trunk, suitable bolts to secure said plate to said pedestal; and a water proof packing between said trap and pendent trunk.

3. In combination with a closet bowl or receiver a pendent trunk or discharge pipe and a trap inclosing pedestal all formed in one piece of earthenware, the metal trap C provided at its upper end with the expanded sleeve *g* to receive and inclose said pendent trunk; the supporting plate D provided with the slots *k* made of two different widths said plate being rabbeted on opposite sides of the narrower portions of said slots, on both the upper and lower sides of said plate forming lips *l l*; the bolts *i i* having heads of a thickness not greater than the thickness of said plate and grooved upon opposite sides to engage the lips *l*, *l*, of said plate; and suitable nuts to bind said bolts.

519,879. DETACHABLE SPRINKLER FOR BATHS. JOHN H. STEVENS, Jr., Cambridge, Mass. Filed Jan. 2. 1894. Serial No. 495,330. (No model.)



Claim.—1. In a bathing apparatus the combination of a bell supply, through which water is admitted to the receptacle, provided with a rectangular slot cut through one side of said bell and having metallic walls or bearing surfaces on three sides, with a discharge opening through one of said sides; a chambered coupling bar provided with a port or inlet passage constructed and arranged to register with the discharge opening in the supply bell; a pipe communicating at one end with said coupling bar; a sprinkler or spraying device connected to the opposite end of said pipe, and means having provision for clamping said coupling bar to the supply bell.

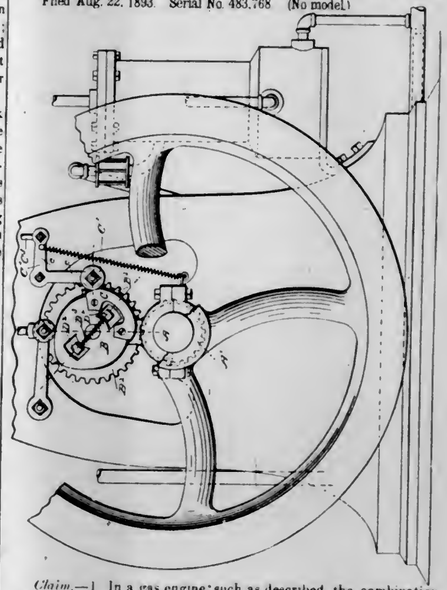
2. In a bathing apparatus, the combination with the water supply pipe, of the bell H, provided with the walled slot *b* and the discharge opening *c*; the hollow coupling bar I, provided with the port *g*; the packing *h*, secured to the port side of said bar; means having provision for forcing said bar and packing into firm contact with the wall of the slot *b* in which is formed the opening *c*; and a pipe connected at one end with the interior of said coupling bar and with a sprinkler or spray discharge at its other end.

3. The combination of the supply pipe B; the bell H provided with the walled slot *b* and the discharge opening *c*; the hollow coupling bar I provided with the port *g* and fitted to form a tight joint around the opening *c*; the clamping screw K fitted to a threaded bearing in the bar I; the lever L secured upon and adapted to operate said screw; and a pipe communicating at one end with the chamber in said coupling-bar and at its other end with a series of small discharge orifices.

4. In combination with the supply pipe of a bathing apparatus, a bell cap secured to the inner end of said pipe and provided with a walled slot formed in one edge thereof and having a discharge opening through one wall of said slot and an ear or lug projecting partly across said slot at the periphery of said bell; a coupling bar provided with a chamber and a port communicating with one end of said chamber and constructed and arranged to register with the discharge opening in said bell; means having provision for clamping said bar to said bell; a flexible pipe coupled to said coupling bar at one end and communicating with the chamber therein; and a rose sprinkler coupled to the other end of said flexible pipe.

5. The combination of the bell H provided with the walled slot *b* and discharge opening *c*; the chambered coupling bar I provided with the port *g* and tubular boss *e* having the upper portion of its inner periphery made flaring or frusto conical and its lower portion provided with a female thread; means having provision for clamping said bar and bell together; the flexible pipe M; a tubular bushing fitted within said pipe and having a tapered or frusto conical enlargement between its two ends; a circumferential groove formed in said conical enlargement; a cut ring surrounding said flexible pipe and pressing it into said groove; and a screw connection between said bushing and boss *e* whereby said tapered interior of the boss *e* will act upon said cut ring to clamp it more firmly upon the pipe as the bushing is screwed into said boss.

519,880. GAS-ENGINE. HADWEN SWAIN, San Francisco, Cal. Filed Aug. 22. 1893. Serial No. 483,768. (No model.)



Claim.—1 In a gas engine, such as described, the combination of a lever for opening the inlet valve to admit gas to the engine, a cam connected with the running gear of the engine to engage and operate the said lever, and a governor having spreading arms operated by centrifugal force, and provided with a cam operating at an angle to the spread of the said arms, adapted to remove the said lever from the path of the said cam of the running gear, substantially as set forth.

2. In a gas engine, such as described, the combination of a lever for operating the inlet valve to admit gas to the engine, and provided with a spring actuated extension at the free end, a cam connected with the running gear of the engine to engage the spring actuated

extension on the free end of the said lever, and a governor having spreading arms operated by centrifugal force and provided with a cam, operating at an angle to the spread of the said arms, adapted to remove the spring actuated extension of the said lever from the path of the said cam of the running gear, substantially as set forth.

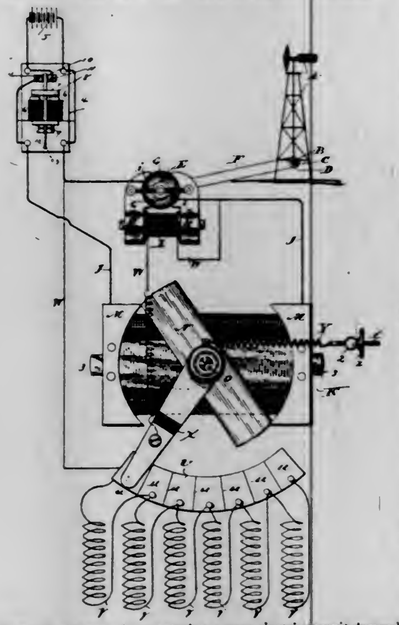
3. In a gas engine, such as described, the combination of the lever C^3 adapted to operate the inlet valve to admit gas to the engine and provided with extensions C' and D^6, a cam connected with the running gear of the engine to engage extension C' and operate the lever C^3 and a governor having spreading arms operated by centrifugal force and provided with a cam operating at an angle to the spread of the said arms and adapted to engage the extension D^6 and force the extension C' out of the path of the cam of the running gear, substantially as set forth.

4. In a gas engine, such as described, the combination of the lever C^3 adapted to operate the inlet valve to admit gas to the engine and provided with extensions C' and D^6, cam C connected with the running gear of the engine adapted to engage the extension C' to operate the lever C^3, governor arms D D' adapted to be spread by centrifugal force, and a cam connected to the arms of the governor and adapted to be placed thereby in the path of the extension D^6 to force the extension C' out of the path of the cam C, substantially as set forth.

5. In a gas engine, such as described, the combination of the lever C^3 adapted to operate the inlet valve to admit gas to the engine and provided with extensions C' and D^6, a disk B connected with the running gear of the engine, cam C attached to the disk B and adapted to engage extension C', governor arms D D' adapted to be spread by centrifugal force, and cam D^5 attached to arm D and adapted to be placed in the path of extension D^6 to force the extension C' out of the path of the cam C, substantially as set forth.

6. In a gas engine, such as described, the combination of the lever C^3 adapted to operate the inlet valve to admit gas to the engine, the extensions C' and D^6 attached to the free end of lever C^3, the eccentric B connected with the running gear of the engine, cam C attached to the eccentric and adapted to engage extension C', governor arms D D' pivotally connected to eccentric B and adapted to be spread by centrifugal force, link D^4 attached to arms D D' to compel them to act in unison, cam D^5 attached to arm D, adapted to be placed in the path of the extension D^6 to force the extension C' out of the path of cam C, and spring D^8 adapted to return the extensions C' and D^6 to their normal position, substantially as described.

519,881. DEVICE FOR REGULATING ELECTRICITY GENERATED BY MEANS OF WIND-POWER. THEODORE A. WILLARD, Norwalk, Ohio. Filed Apr. 6, 1893. Serial No. 469,354. (No model.)

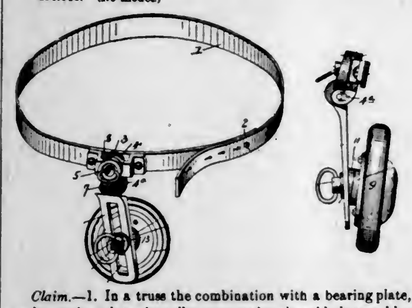


Claim.—1. A means for regulating a main electric circuit derived from irregular power, comprising an accumulator and an automatic switch in the main circuit, a field circuit, and a regulator, proper, consisting of a wound soft core, having pole pieces at its ends, in the main circuit, a cross bar, secured to said pole pieces, an armature, pivoted to said cross bar, a switch lever, pivoted to and movable with said armature, the outer end of said switch lever being in the field circuit, a spring, connected to said lever, segments, over which said lever moves and with which its free end contacts, and resistance coils connected with said segments, substantially as described.

2. A regulator, consisting of a wound soft core, having pole pieces at its ends, a cross bar secured to said pole pieces, an armature, pivoted at its center to said cross bar, a switch lever, pivoted to and movable with said armature, a spring engaging the pivoted end of said switch lever, segments over which said switch lever moves and with which its free end contacts, and resistance coils, connecting said segments, substantially as described.

3. In a means for regulating a main electric circuit derived from irregular power, a regulator, proper, having its poles in the main circuit and provided with a cross bar, an armature pivotally mounted thereon, a lever movable with said armature and having its outer free end connected with the field circuit wire, a spring engaging the pivoted end of said lever, segments over which said lever moves and with which its free end contacts, and resistance coils connecting said segments, all arranged, combined and operating substantially as described and for the purposes specified.

519,882. TRUSS. ELI E. BOOMHOWER, Morrisville, Vt., assignor to George J. Slayton, Royal H. Peck, Cortes J. Slayton, David Randall, William S. Cheney, James W. Spaulding, George W. Hendee, Lang & Campbell, Henry Waite, Ethan A. Leach, and William H. Slayton, same place, and Milo S. Burnell, Wolcott, Vt. Filed Nov. 4, 1893. Serial No. 490,019. (No model.)



Claim.—1. In a truss the combination with a bearing plate, and a pad carrying plate pivotally connected to the said plate and having a beak, of a cam-plate having connection with the bearing-plate and adapted to be rotated to bring the cam surface beneath the beak, substantially as described.

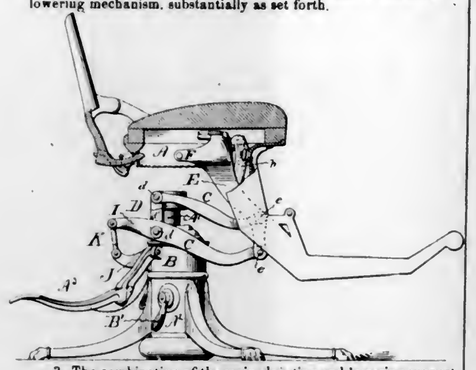
2. In a truss the combination of an arched bearing-plate, an adjusting plate, a binding screw securing the two plates together, a pad carrying plate pivotally attached to the arched plate and having a beak, and a cam plate mounted on the said binding screw and adapted to be turned thereon to bring the cam portion beneath the said beak, substantially as set forth.

3. A truss comprising a band, an arched plate attached to the band and having a circular series of teeth, an adjusting plate having a corresponding circular series of teeth, a binding screw securing the plates in the relative located position, a slotted pad carrying plate pivotally connected with the said adjusting plate and having a beak, a cam plate mounted on the binding screw and adapted to be turned thereon to bring the cam portion beneatu the said beak, a pad having a threaded stem to pass through the slot in its supporting arm, a cam-faced washer 11 having a rib to enter the slot in the plate, a second cam-faced washer 12, and a thumb nut to bind the parts and secure them in the located position, substantially as described.

519,883. DENTAL CHAIR. ARTHUR W. BROWNE, Prince's Bay, N. Y., assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Feb. 5, 1894. Serial No. 499,049. (No model.)

Claim.—1. The combination, in a dental chair, of the main elevating and lowering support, its supporting mechanism, the supplementary elevating and lowering mechanism comprising the chair body carrier and the parallel arms pivoted thereto and carried by the main elevating and lowering support with which they have jointed supporting connection, and the controlling connection between said arms and the supporting mechanism, whereby the arms partake of the vertical movements of the main support as well as rock about their jointed connection therewith, substantially as set forth.

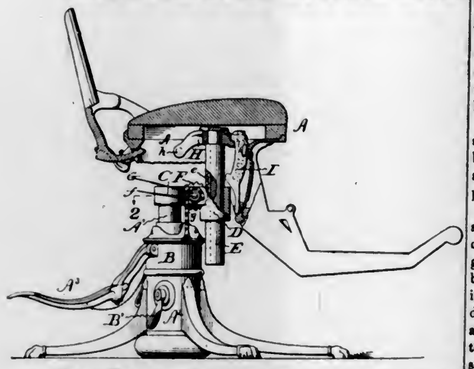
2. The combination of the main elevating and lowering support, its supporting mechanism, the supplementary elevating and lowering mechanism carried by the main elevating and lowering support and consisting of the chair body carrier and the parallel arms pivoted thereto and having jointed supporting connection with the main elevating and lowering support and controlling connection with the supporting mechanism, and means for elevating and lowering said support and simultaneously actuating the supplementary elevating and lowering mechanism, substantially as set forth.



3. The combination of the main elevating and lowering support, its supporting mechanism, the supplementary elevating and lowering mechanism comprising the parallel arms having jointed connection with the main elevating and lowering support and provided with the rearward extension having connection with said supporting mechanism, and the chair body carried by the supplementary elevating and lowering mechanism, substantially as set forth.

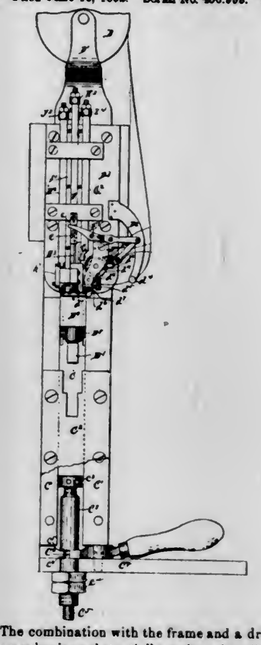
4. The combination of the main elevating and lowering support, its supporting mechanism, the bracket at the upper end of said support provided with the hangers, the supplementary elevating and lowering mechanism comprising the parallel arms having jointed connection with said bracket and provided with the rearward extension, the connection between said extension and said supporting mechanism, and the chair body carried by the supplementary elevating and lowering mechanism, substantially as set forth.

519,884. DENTAL CHAIR. ARTHUR W. BROWNE, Prince's Bay, N. Y., assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Feb. 5, 1894. Serial No. 499,050. (No model.)



Claim.—The combination of the pedestal or base, the cylinder supported thereby, the main elevating and lowering support, means for vertically adjusting the support in the cylinder, the bracket rigid with said main support and provided at its outer end with the supporter extending downwardly and parallel with the main support, the vertically adjustable rack rod sustained by said supporter, the pinion gearing with the rack rod and having its shaft mounted in bearings in the bracket of the main support between said support and the rack rod, the pulley on the pinion shaft, the chain secured at its opposite ends to the pulley and cylinder, the chair body carrier at the upper end of the rack rod, the chair body having jointed connection with said carrier, and means serving to tilt the chair body about said jointed connection and secure it in its tilted position, substantially as set forth.

519,885. MACHINE FOR ATTACHING SWEAT LEATHERS AND BANDS TO HATS BY MEANS OF WIRE STAPLES. FREDRICK W. COOPER, Danbury, Conn., assignor of one-half to Charles H. Merritt, same place. Filed June 16, 1892. Serial No. 436,999. (No model.)



Claim.—1. The combination with the frame and a driving shaft, of staple forming mechanism substantially such as described, a vertically adjustable bracket arm, a wiper arm pivoted to the base of the frame and serving to support the bracket arm in its upward position, an anvil movable vertically in said bracket arm, means for moving the said anvil, and a clinching head carried by the bracket arm, substantially as specified.

2. The combination with the staple forming mechanism, the anvil and the bracket arm of the clinching head, a clamping bolt passing loosely through a hole in the arm of the clinching head, screws for adjusting the head laterally and longitudinally, substantially as specified.

3. The combination with the staple forming mechanism, the movable anvil and the bracket arm of the clinching head, a resilient arm upon which said head is mounted, a clamping bolt passing loosely through a hole in said arm and screws for adjusting said arm and head laterally and longitudinally, substantially as specified.

4. In a machine of the character described, the combination with staple forming and inserting mechanism, of a vertically adjustable bracket arm, means comprising a screw threaded rod for causing said adjustment and a wiper arm for supporting the bracket in its upper position, substantially as specified.

5. The combination with the frame, the driving shaft and the staple forming mechanism, of the wire guides, the feed rollers, gears on said feed rollers, a gear wheel engaging with one of the feed roller gears, a ratchet wheel on said gear, a rocking lever, a dog carried by said lever and engaging with the ratchet wheel, means for adjusting the length of feed and mechanism between said lever and the driving shaft comprising a link, a fulcrumed lever pivoted to the link, and another lever engaging with said fulcrumed lever and with a vertically reciprocating bar whereby the feed rollers are operated from said driving shaft, substantially as specified.

6. The combination with a driving shaft, of a stationary cutter, a vertically reciprocating cutter co-acting therewith, a bar to which said cutter is rigidly attached, a cam on the driving shaft for operating said bar and cutter in both directions and a feeder operated by the upward movement of a bar operated by the said shaft independently of the cutter carrying bar, substantially as specified.

7. In a machine of the class described, the combination with the driving shaft, the feeder and the cutter of the longitudinally yielding bender, a rock lever carrying said bender, a spring for pressing the bender outward and connections between the rock lever and driving shaft, whereby the bender is operated, substantially as specified.

8. In a machine of the class described, the combination with the driving shaft, the feeder operated therefrom and the cutter, of the

rock-lever, a bender carried thereby and yielding longitudinally, a plunger rod, a link connection between the plunger rod and rock lever and mechanism comprising a cam on the driving shaft and connections with the plunger rod for operating the bender, substantially as specified.

9. In a machine of the class described, the combination with a driving shaft, the anvil and the clinching head, of a feeder, a cutter, a bender and a driver, each operated by the driving shaft, a clutch on the driving shaft, a fulcrumed lever engaging at one end in a cam groove in one section of the clutch and a piece movable into the path of the lower end of said lever, substantially as specified.

10. In a machine of the class described, the combination with a driving shaft and a wire feeder, of a vertically reciprocating cutter, a rod carrying said cutter, a bender, a vertically reciprocating plunger rod having a link connection with said bender, a driver for inserting a staple, in a hat material, a vertically reciprocating rod carrying said driver, cams rotated by the driving shaft, cam yokes co-acting therewith, and connections between the respective cam yokes and the respective vertically reciprocating rods, substantially as specified.

11. In a machine for forming and applying staples, the combination of feeding mechanism, a cam for operating the latter, cutting mechanism, a cam for operating the cutting mechanism, the said feeding and cutting mechanisms each including means for adjustment between their cams and the parts that operate upon the wire, substantially as specified.

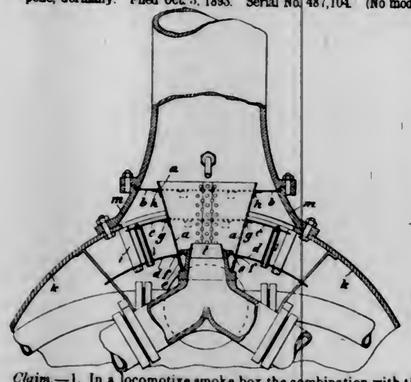
12. In a machine for forming and applying staples, the combination of cutting mechanism, a cam for operating the latter, bending mechanism, a cam for operating the bending mechanism, the said cutting and bending mechanisms each including means for adjustment between their cams and the parts that operate upon the wire, substantially as specified.

13. In a machine for forming and applying staples, the combination of driving mechanism, a cam for operating the latter, clinching mechanism, a cam for operating the clinching mechanism, the said driving and clinching mechanisms each including means for adjustment between their cams and the parts that operate upon the wire, substantially as specified.

14. In a machine for forming and applying staples, the combination with feeding mechanism, cutting mechanism, bending mechanism for forming staples; and mechanism for applying the staples, of a main shaft, cams upon the main shaft for operating said mechanisms, a driving shaft, a clutch for engaging the driving shaft and main shaft, a treadle or its equivalent, for shifting the movable part of the clutch, a stop and a part, shifted with the movable part of the clutch to a position opposite the said stop, so as to engage therewith, substantially as specified.

15. In a machine for forming and applying staples, the combination of staple applying mechanism and a clinching head, and screws for supporting and holding the said head, while providing for adjustments, both lateral and longitudinal, substantially as specified.

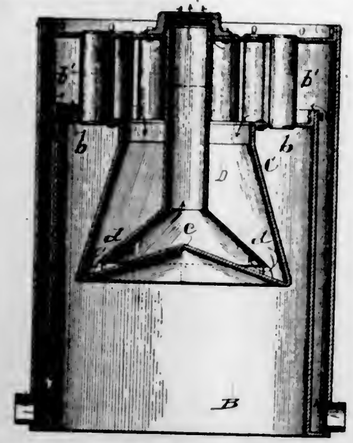
519,886. SPARK-CATCHER. JOHANN F. CRISTAND, Aix-la-Chapelle, Germany. Filed Oct. 3, 1893. Serial No. 487,104. (No model.)



Claim.—1. In a locomotive smoke box the combination with the exhaust nozzle, of a perforated funnel supported on said nozzle, a plurality of perforated plates secured centrally to said nozzle and projecting from the same on all sides, a connection from one of said plates to a portion of the fire box, and a connection from said plate to the next adjacent plate, said connections being at a distance from the funnel, substantially as described.

2. In a locomotive fire box, the combination with the exhaust nozzle, of a perforated funnel supported on said nozzle, a bottom perforated plate secured to said funnel below the plane of the discharge opening of said nozzle, said bottom plate being also connected to the smoke box, a middle perforated plate secured to the funnel and to said bottom plate and a top perforated plate secured to said funnel and having a bearing in a recess formed at the base of the smoke stack, substantially as described.

519,887. BOILER. OSSIAN C. DAVIS, Racine, Wis. Filed Sept. 28, 1893. Serial No. 486,700. (No model.)



Claim.—1. A water boiler having a bottom portion forming the top of the fire box and provided with an inverted funnel shaped deflector resting on and supported by the said bottom portion, substantially as described.

2. A water heater or boiler having a re-entrant bottom and provided with an inverted funnel shaped deflector resting on and supported by said bottom, substantially as described.

3. The combination with a water heater or boiler, of an inverted funnel shaped deflector and provision for the escape of steam between the top of said deflector and boiler, substantially as described.

4. The combination with a water heater or boiler provided with outlet and inlet, of an inverted funnel shaped deflector adjacent to the outlet, resting on and supported by the bottom of the boiler of tubular passages for the product of combustion passing through the boiler between the inlet and said deflector, substantially as described.

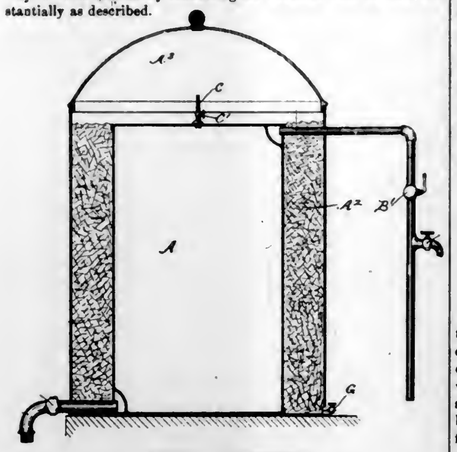
5. The combination with a water heater or boiler, provided with an outlet and inlet, of a depending portion extending to near the bottom of the boiler having an interior passage connected directly with the outlet, and tubular passages for the products of combustion passing through the boiler between the inlet and said depending portion, substantially as described.

519,888. BEER-CONDENSING AND BOTTLE-FILLING APPARATUS. GEORGE W. FARRELL, Ausable Forks, N. Y., assignor to Della Farrell, same place, and Albinus J. Merrill, Jay, N. Y. Filed Aug. 12, 1893. Serial No. 482,988. (No model.)

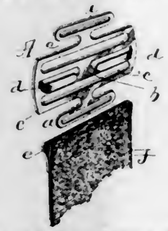
Claim.—1. In a beer-condensing and bottle-filling apparatus, the combination with a condensing reservoir and means for artificially cooling the same, of a valve-controlled supply-pipe having a cock B and draw-off cock F; a valve-controlled vent leading from the upper part of the reservoir; and a valve-controlled discharge pipe leading from the lower part of the reservoir, substantially as described.

2. In a beer-condensing and bottle-filling apparatus the combination with the discharge-pipe leading from the condensing reservoir, of a detachable receptacle having a plurality of chambers and an outlet from each chamber, said outlets communicating with nozzles consisting of pipes adapted for insertion in bottles standing on the same plane, the nozzles of each chamber having an aggregate capacity about equal to that of the inlet connecting them with the reservoir, an inlet situated intermediately of the chambers; and two-way valve-mechanism for successively connecting the chambers with the inlet, substantially as described.

3. A bottle-filling attachment for bottle-filling apparatus consisting of a pipe having end-chambers with a plurality of discharge nozzles projecting laterally from each chamber, the capacity of the nozzles of each chamber, about equaling that of the inlet leading to said chamber from a reservoir an inlet located intermediately of the chambers and adapted to be connected with a supply-reservoir; and a two-way valve for alternately connecting the chambers with the inlet, substantially as described.



519,889. BUCKLE. CHARLES R. HARRIS, Williamsport, Pa. Filed Dec. 8, 1893. Serial No. 493,131. (No model.)



Claim.—1 As an article of manufacture, a slide buckle composed of a metal plate having slots in the opposite sides thereof extending substantially the length of the buckle, with a cross bar also extending the length of the buckle and located between the slots, and a pair of tongues located back of the plate, in a plane approximately parallel with the plate and terminating a short distance from each other, substantially as set forth.

2. As an article of manufacture, a slide buckle consisting essentially of a metal plate having loops *a a* at the sides thereof, outside of the body portion, slots *c c* in the body portion, cross bar *b* between these slots, and a pair of tongues *d d* cut out of the cross bar and bent backward parallel therewith with their inner ends terminating a short distance from each other, substantially as set forth.

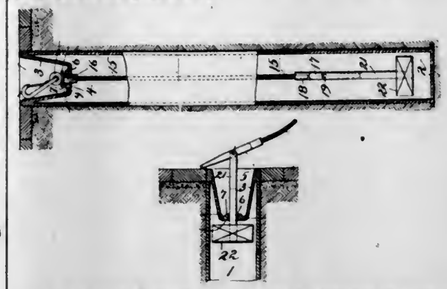
519,890. VEGETABLE-PARER. ADDISON M. MUNDELL, Paola, Kans. Filed Nov. 15, 1893. Serial No. 491,016. (No model.)



Claim.—The herein described fruit and vegetable parer, the same consisting of the wire blank bent at its center and having its terminals near their ends bent at an obtuse angle, an intermediate plate connecting the terminals and bent about the same, and a knife bent about the angularly disposed portions of the terminals and having a rear cutting edge located adjacent to but spaced from the plate and having its rear end diagonally disposed to form a point, substantially as specified.

519,891. HITCHING DEVICE. JOSEPH P. MUTH, St. Louis, Mo. Filed Nov. 13, 1893. Serial No. 490,903. (No model.)

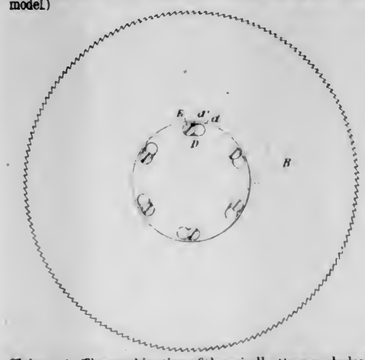
Claim.—1. In a hitching device, a tube having a partition in the upper portion of said tube transversely thereof, which partition is provided with a central aperture, in combination with a shank mounted in the aperture in said partition, a cable attached to the lower end portion of said shank, the upper end portion of which shank is provided with attaching means, a bar connected to the lower end of said cable, a bar hinged to the first said bar, and a weight fixed to the lower end of the latter said bar.



2. In a hitching device, a tube having a transverse partition in the upper portion of said tube provided with a central aperture, in combination with a shank having a flange mounted in the aperture of said partition, a rubber-facing on said flange adapted to contact with the said partition, attaching devices secured to the upper end of said shank, a cable secured to the lower end of said shank, a weighted bar within said tube, and a bar fulcrumed to said weighted bar and fixed at its upper end to the lower end of said cable.

3. In a hitching device, a tube having an apertured partition in the upper portion of said tube, in combination with a shank vertically positioned in said partition, and having a flange adapted for engagement with said partition, and an eye adapted for engagement with attaching devices, a cable fixed to the lower end of said shank, a bar fixed to the lower end of said cable, and a weighted bar pivotally connected at its upper end to the central portion of the said bar.

519,892. CLAMP FOR CIRCULAR SAWS. CHARLES C. NEWTON, Philadelphia, Pa. Filed Feb. 7, 1894. Serial No. 499,316. (No model.)



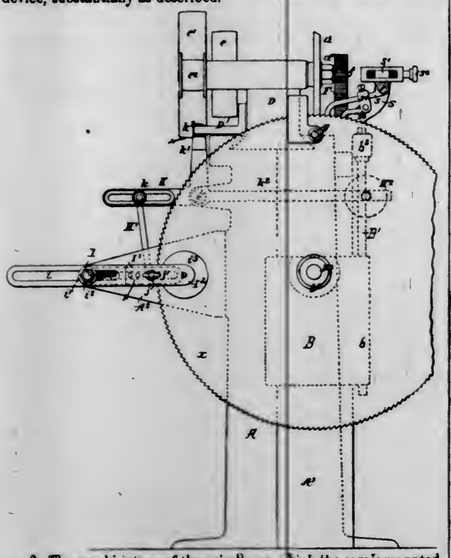
Claim.—1. The combination of the spindle, the saw, holes therein, a clamp plate, holes in said clamp plate aligning with the holes in the saw, with bolts passing through the clamp plate and saw blade into the spindle, the heads of said bolts being less in diameter than the holes in the saw blade and clamp plate, said bolt heads overlapping the edge of the hole in the clamp plate thus securing the saw to the spindle, substantially as set forth.

2. The combination of the spindle, the saw, elongated holes therein, a clamp plate, elongated slots in said clamp plate aligning with the holes in the saw, one portion of said slots being reduced in width and countersunk forming shoulders with headed screw bolts passing through the slots and holes, and into the spindle, the heads of said bolts resting upon the shouldered portions of the clamp plate, substantially as set forth.

3. The combination of the spindle, a central stud *d'* upon which the saw is mounted, a saw and clamp plate, holes in both the saw and clamp plate, with headed bolts passing through said holes and into the spindle, said holes being larger in diameter than the head of the bolts and the heads of the bolts overlapping one edge of the holes so that when the clamp plate is turned it can be readily freed from the bolts and removed with the saw, substantially as set forth.

519,893. SAW-GRINDING MACHINE. CHARLES C. NEWTON, Philadelphia, Pa. Filed Feb. 9, 1894. Serial No. 499,626. (No model.)

Claim.—1. The combination in a saw grinder, of the spindle for the saw, the grinder, a friction feeding device for feeding the saw forward and a pawl for stopping the return of the saw with the feeding device, substantially as described.



2. The combination of the spindle on which the saw is mounted, the friction feed consisting of an arm having two fingers clamping the saw, a pawl for limiting the return of the saw with the friction feed and a grinder adapted to traverse across the face of the saw, substantially as described.

3. The combination of the spindle for the saw, the vibrated arm, friction disks on said arm bearing against the saw, pawls engaging with the teeth of the saw preventing the return of the saw with the friction feed, a sliding carriage, a grinder on said carriage adapted to grind the teeth of the saw and a lug on the carriage acting upon the friction feed mechanism, substantially as described.

4. The combination of the spindle for the saw, the vibrated arm, carrying devices adapted to come into frictional contact with the saw and move the same, a vibrated shaft on which said arm is mounted, a bell crank lever connected to said shaft, a reciprocated carriage carrying the grinding tool, and a cam lug on said carriage adapted to strike one arm of the bell crank lever and thus operate the friction feed, substantially as described.

5. The combination in a saw grinding machine, of the support for the saw, the grinding tool adapted to pass across the face of a saw, a vibrated feed arm having two fingers one on each side of the saw, and friction disks mounted on said fingers, with means for adjusting the disks so as to increase or diminish the friction, substantially as described.

6. The combination in a saw grinding machine, of the support for the saw, the friction feed mechanism the grinding tool and a stop pawl adjustable toward and from the grinding tool, substantially as described.

7. The combination of the support for the saw, the friction feed mechanism, the grinding tool, the pawl *s* mounted on a block *s'*, said block being adjustable toward or from the grinding tool and a supplementary pawl s^2, substantially as described.

8. The combination of the spindle for the saw, a vertically adjustable slide carrying said spindle, a screw for adjusting and locking said slide, a friction feed device for feeding the saw, a stop pawl for the saw, a reciprocated carriage carrying the grinder and means on the carriage for operating the friction feed mechanism, substantially as described.

9. The combination of the support for the saw, the feeding mechanism for said saw, a reciprocated carriage, a grinder mounted thereon, a driving shaft mounted on the said carriage and a crank and connecting rod, said rod connecting the crank to a fixed portion of the machine so that the carriage will be reciprocated, substantially as described.

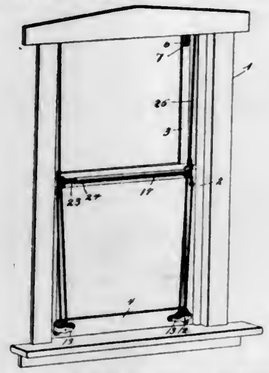
10. The combination in a saw grinding machine, of the support for the saw, feeding mechanism, the grinding disk, a carriage on which said disk is mounted, a driving shaft on said carriage adapted to drive the driving disk, a crank on the carriage geared to the driving shaft, and a rod connecting said crank to the fixed portion of the machine so that the driving shaft and grinder will reciprocate with the carriage, substantially as described.

519,894. BANDAGE FOR VARICOSE VEINS. ALWIN SCHÜTZ and ALBERT LANDERER, Leipsic, assignors to Wilhelm Julius Teufel, Stuttgart, Germany. Filed Jan. 2, 1894. Serial No. 495,302. (No model.) Patented in Germany Apr. 19, 1890. No. 56,336.



Claim.—A pad for varicose veins consisting of a parabolic spring and of a hollow cushion secured thereto and adapted to be held against the vein by the pressure of the spring, substantially as specified.

519,895. SASH-BALANCE. DAVID SIMES, Belleville, Ill., assignor of one-half to Christian Burghardt, same place. Filed Aug. 21, 1893. Serial No. 483,685. (No model.)



Claim.—1. A sash balance and operator consisting of a horizontal adjustable bar constructed of a tube, a bar located in said tube constructed to horizontally move therein, horizontal U-shaped bars connected to the ends thereof, vertical bars located in eyes formed on the ends of the U-shaped bars, said bars bent so as to form a ring intermediate of its ends and located between the ends of the U-shaped bars, a rope connected to the sash, and eyes formed on the ends of said vertical bars, and constructed to vertically slide on said rope, substantially as set forth.

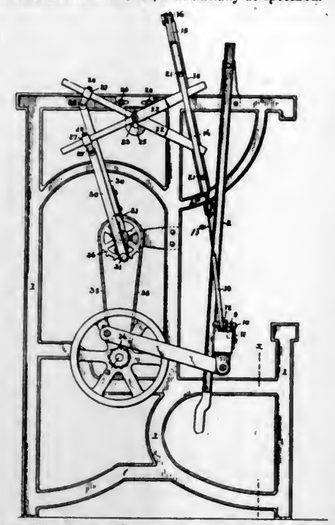
2. In combination with a window operating device, a horizontal tube, a bar adjustably mounted in said tube, means for holding said bar and said tube rigid with each other, horizontal U-shaped bars connected to the opposite ends thereof, vertical bars connected to the end of the U-shaped bars and means for adjustably connecting said bars with ropes substantially as set forth.

3. A device for operating window sashes consisting of ropes 23 the upper ends being detachably connected to the upper sash by a plate 6, said ropes passing over pulleys 14 connected to the head casing of the window frame, thence downward through eyes 23 over pulleys 12 located on the bottom sash, and thence upward and knotted to a ring 21 formed on the bar 20 carrying the eyes 22, U-shaped bars 18 connected to the bars 20, a horizontal tube 17 one end of which is connected to one of the U-shaped bars 18, a horizontal bar one end of which is connected to the other U-shaped bar 18 and adjustably mounted in the tube 17, substantially as set forth.

519,896. SHUTTLE-OPERATING MECHANISM FOR NARROW-WARE LOOMS. ANDREW WEINAR, Philadelphia, Pa. Filed Sept. 1, 1892. Serial No. 444,777. (No model.)

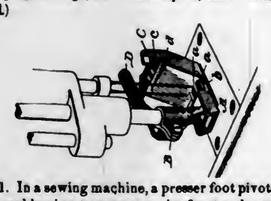
Claim.—1. The combination in shuttle operating mechanism for looms, of a double crank shaft, and means for rotating the same, pivoted shuttle operating levers each connected at one end to said double crank, connected bars upon which the opposite ends of said levers act by impact, one bar moving in one direction, as the other bar is moved in the opposite direction, a drum, connections between the bars and said drum, a shuttle drive bar, and means for transmitting the movement of the drum to said shuttle drive bar, substantially as specified.

2. The combination in shuttle operating mechanism for looms, of a double crank shaft and mechanism for rotating the same, pivoted shuttle operating levers, each connected at one end to the double crank, connected bars upon which the opposite ends of said levers act by impact, one bar being moved in one direction, as the other bar moves in the opposite direction, a frame carrying said bars and adjustable vertically so as to vary the position of the bars in respect to the levers, a drum, connections between said bars and the drum, the shuttle drive bar, and means for transmitting the movement of the drum to said shuttle drive bar, substantially as specified.



3. The combination of the double crank shaft, and means for rotating the same, the pivoted shuttle levers, an adjustable pivot pin carrying said levers, an adjustable bracket upon which said pivot pin is mounted, adjustable boxes carried by the levers, pivot ears on said boxes, rods connecting the double crank to said pivot ears, connected bars acted upon by said levers, a shuttle drive bar and means for transmitting the movement of said lever actuated bars to said shuttle drive bar, substantially as specified.

519,897. PRESSER-FOOT FOR SEWING-MACHINES. RUSSEL G. WOODWARD, Waukegan, assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Apr. 6, 1893. Serial No. 469,283. (No model.)



Claim.—1. In a sewing machine, a presser foot pivotally attached to its support and having two stops on its front end, and a lever pivoted to the presser foot support and adapted to engage one or the other of said stops as desired; substantially as described.

2. A compound presser foot pivoted on its shank so as to tilt, a lever pivoted to the shank, a hooked arm attached to the front portion of the foot, said front portion having also a recess, and a cross arm attached to the lever adapted to engage the hooked arm and the recess as desired; substantially as described.

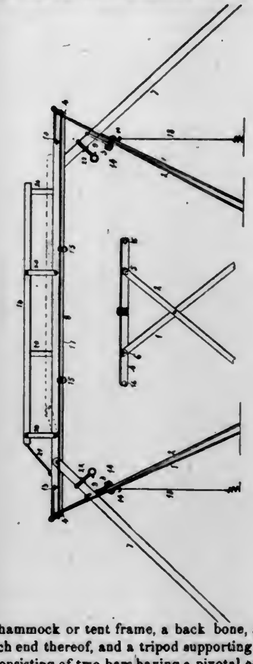
3. A compound presser foot pivoted on its shank so as to tilt, a lever pivoted to the shank a hook attached to the front portion of the foot, said front portion being also provided with a notch, and a spring projection attached to the lever and adapted to engage the hook and the notch as desired; substantially as described.

4. A sewing machine presser foot comprising the pivoted part A, the shank, the horizontal lever pivoted to said shank and having the transverse projection, said pivoted part A being provided with stops adapted to be engaged by the transverse projection; substantially as described

---

519,898. HAMMOCK-SUPPORT OR TENT-FRAME. WALTER S. YOUNG, Brodhead, Wis., assignor of one-half to Douglas Taylor, same place. Filed Aug. 28, 1893. Serial No. 484,235. (No model.)

Claim.—1. In a hammock or tent frame, a back bone, a cross bar connected to each end thereof, and a tripod supporting each end of the back bone consisting of two bars having a pivotal connection, and a connection with the cross bar, a third bar having a connection with the back bone, and a link connection with the other bars of the tripod.



2. In a hammock or tent frame, a back bone, a cross bar connected to each end thereof, and a tripod supporting each end of the back bone, consisting of two bars having a pivotal connection, and a connection with the cross bar, a third bar having a connection with the back bone, a link connection with the other bars of the tripod and an anchor for the tripods consisting of a spiral pin capable of being turned into the ground, and a connection between the pin and tripod.

3. In a hammock support or tent frame, a back bone a cross-bar connected to each end thereof, and a tripod for each end of the back bone two bars of which connect with the cross-bar the third bar having a connection with the back bone and intermediate cross-bars having a connection with the back bone.

4. In a hammock support or tent frame, a back bone, a cross-bar connected to each end thereof, and a tripod for each end of the back bone, two bars of which connect with the cross-bar, the third bar having a connection with the back bone and intermediate cross-bars having a connection with the back bone, the ends of the cross bars and intermediate cross-bars provided with means for holding the top in position.

5. In a hammock support or tent frame, a back bone, a cross-bar connected to each end thereof, and a tripod for each end of the back bone, two bars of which connect with the cross-bar, the third bar having a connection with the back bone, and intermediate cross-bars having a connection with the back bone, the end cross-bars and intermediate cross-bars provided with horizontal grooves, and buttons closing the ends of the grooves.

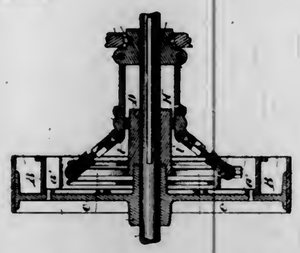
6. In a hammock support, and tent frame, a back bone, suitable supports therefor, and a riser located above the back bone, and extending lengthwise thereof, links connecting the riser to the back bone, and a hook connection with the back bone holding it in its elevated position.

519,899. CLUTCH. SYLVESTER P. BABCOCK, Adrian, Mich. Filed Sept. 15, 1892. Renewed Apr. 14, 1894. Serial No. 507,606. (No model.)

Claim.—1. In a friction clutch pulley, the combination of the revoluble shaft, the loose pulley on said shaft carrying a friction ring, the radial arm mounted on the shaft and adapted to turn therewith, the lever pivoted to the outer end of said arm, said lever lying within the friction ring and in the same plane therewith, the shoe pivotally mounted on said lever and lying adjacent to the inner face of said friction ring, the movable ring on said shaft, the coupling connecting said ring with the outer end of said lever.

2. In a friction clutch pulley, the combination of the revoluble shaft, the loose pulley thereon, the friction ring fast to said pulley

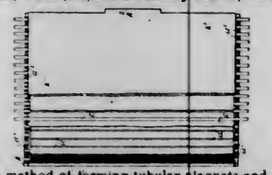
and concentric with the hub thereof, the auxiliary hub or spider mounted on the shaft and adapted to revolve therewith, said spider having radial arms, the levers pivoted to said arms, the friction shoes pivoted to said levers and standing adjacent to the inner face of said friction ring, the revoluble ring mounted on said shaft and capable of longitudinal movement thereon, the couplings connecting said ring with the levers, whereby by the adjustment of said ring said levers are actuated to throw said shoes outward against the inner face of the friction ring, or withdraw them from contact therewith, substantially as set forth.



3. In a friction clutch pulley, the combination of the shaft, the loose pulley, the friction ring fast to said pulley, the auxiliary hub or spider fast on said shaft and having the radial and tangent arms, the levers pivoted at one end to said radial arms, the other end of said levers engaging in grooves or ways in said tangential arms, the shoes pivoted to said levers, and lying adjacent to the inner face of said friction ring, the rotative and longitudinally movable ring on said shaft, the adjustable couplings connecting said ring with said levers, substantially as and for the purpose specified.

4. In a friction clutch pulley, the combination of the shaft, the loose pulley, the friction ring fast to said pulley within the rim thereof, the spider fast on said shaft and having radial arms that extend within said friction ring, the levers mounted on said radial arms, the friction shoes pivoted to said levers and adapted to bear against the inner face of the friction ring the revoluble and longitudinally movable ring, the adjustable couplings connecting said ring with the shoe actuating levers, the collar splined upon said shaft and coupled to said ring, the lever for adjusting said collar and ring to actuate said friction shoes, substantially as set forth.

519,900. METHOD OF FORMING TUBULAR PLAQUETS OF INDIA-RUBBER, &c. WILLIAM BARR, Jr., and DAVID MCKAY, Kirkcudbright, Scotland. Filed Oct. 31, 1893. Serial No. 489,601. (No specimens.) Patented in England May 31, 1892, No. 10,344; in France Mar. 27, 1893, No. 228,923, and in Germany Mar. 30, 1893.



Claim.—A method of forming tubular plaquets and other tubular articles of dental rubber, ebonite and the like, consisting in surrounding an annealed metal core with the dental rubber or the like, then vulcanizing the rubber, and stretching the said annealed core whereby the core is contracted in diameter, and then withdrawing the core, substantially as and for the purpose set forth.

519,901. PROCESS OF REFINING ORES. ALBERT E. BARTON, Ensley, and GEORGE B. MCCORMACK, Pratt Mines, Ala. Filed Apr. 22, 1893. Serial No. 471,453. (No specimens.)

Claim.—1. The herein described process of treating iron ores to free them from phosphorus which consists in subjecting the ores to the action of heat at a temperature of about 1,500° in the presence of suitable reducing gases containing carbon, without reducing said ores substantially as specified.

2. The herein described process of dephosphorizing iron ores which consists in subjecting them to the action of heat at a temperature of about 1,500° in the presence of gases, arising from the destructive distillation of coal, without reducing said ores substantially as specified.

3. The herein described process of dephosphorizing iron ores which consists in subjecting the same to the action of heat at a temperature of about 1,500° in a reducing chamber and at the same time passing gases resulting from the destructive distillation of coal through said chamber, without reducing said ores substantially as specified.

4. The herein described process of dephosphorizing iron ores which consists in subjecting a thin layer of ores in a reducing chamber, to the action of heat at a temperature of about 1,500° in the presence of gases resulting from the destructive distillation of coal, substantially as specified.

5. The herein described process of treating phosphoric ores which consists in spreading crushed or mined ore in a thin layer or layers in a heating chamber and subjecting the same to heat at a temperature of about 1,500°, in the presence of suitable reducing gases containing carbon whereby the amount of phosphorus therein is materially reduced, substantially as specified.

6. The herein described process of dephosphorizing iron ores which consists in mixing with the ores carbonate of lime, in suitable proportions, and then subjecting the mixture to the action of heat in the presence of reducing gases substantially as specified.

7. The herein described process of treating ores which consists in mixing with said ores carbonate of lime, in suitable proportion and subjecting the same to the action of heat while placed in a thin layer or layers, in a reducing chamber, and to the reducing action of gases resulting from the destructive distillation of coal, substantially as set forth.

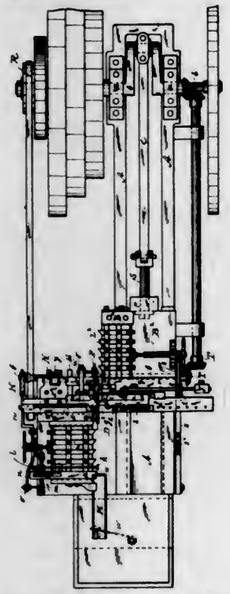
519,902. PROCESS OF REFINING IRON. ALBERT E. BARTON, Ensley, and GEORGE B. MCCORMACK, Pratt Mines, Ala. Filed Apr. 24, 1893. Serial No. 471,696. (No specimens.)

Claim.—1. The herein described process of clearing red hematite ores of impurities which consists in subjecting the ores to the action of a reducing gas at a temperature of about 800° Fahrenheit without reducing said ores to metallic iron and then concentrating the treated ore magnetically, substantially as described.

2. The process of refining red hematite ores which consists in subjecting the ores to the action of a reducing gas in a reducing furnace at a temperature of about 800° Fahrenheit without reducing the said ores to metallic iron, and then mechanically separating the impurities by magnetic concentration, substantially as described.

3. The process of refining red hematite ores which consists in subjecting the ores in a reducing chamber to the action of waste gases from coke ovens at a temperature of about 800° Fahrenheit, without metallic reduction and then subjecting the treated ore to magnetic concentration, substantially as described.

519,903. MACHINE FOR CUTTING AND FINISHING METAL STRIPS. THEODOR BRANDT, Quedlinburg, Germany. Filed Nov. 1, 1893. Serial No. 489,690. (No model.)



Claim.—1. In a machine for cutting and finishing metal blanks, the combination of a vertically movable saw with a pair of knife holders, one of which is movable, and with means for carrying the severed strip, substantially as specified.

2. The combination of a saw with a fixed knife holder, a horizontally movable knife holder, a vertically movable stamping knife, and with means for carrying the severed strip, substantially as specified.

3. The combination of crank rod *c*, with a slide S, guide *p*, movable knife holder B^3, clamp g^3, and knife k^3, substantially as specified.

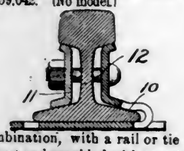
4. The combination of fixed knife holder B', with lever *k*, knife *k'*, slide K and clamp *g'*, substantially as specified.

5. The combination of a fixed knife holder with a movable knife holder, clamps *g'*, g^3, a circular saw D a vertically movable bearing F and a disk E, for operating the bearing, substantially as specified.

6. The combination of delivery channel M, with take off slide K movable knife holding slide B^3, and with means for carrying the severed strip, substantially as specified.

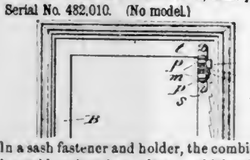
7. The combination of a vertically movable saw, with a pair of clamps, a pair of knife holders, one of which is movable, a pair of trimming knives and a discharge channel, substantially as specified.

519,904. RAIL-JOINT. EDWARD P. CALDWELL, Minneapolis, Minn., assignor to the Heath Rail Joint Company, same place. Filed Jan. 21, 1893. Serial No. 459,042. (No model.)



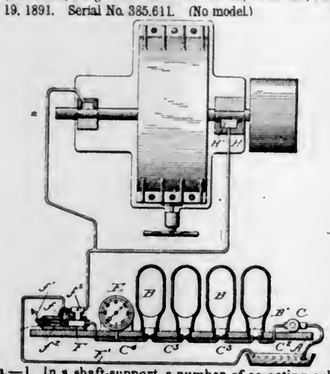
Claim.—The combination, with a rail or tie plate whereon the rails are adapted to rest and provided with ears 4 having spike-holes, of an integral angle bar formed from said plate and adapted to engage the side of the rail or rails, said integral angle-bar provided with a corner or depressed portion 10 to engage the rail-flange or flanges, and bolts for securing the angle-bar to the rails, substantially as described.

519,905. SASH-FASTENER. JOHN F. DAVIS, Sharon, Pa., assignor of one-half to Jonathan H. Townsend, same place. Filed July 31, 1893. Serial No. 482,010. (No model.)



Claim.—In a sash fastener and holder, the combination of a rack, a lever engaging said rack, a base-plate to which said lever is hinged to swing laterally and having slots at right angles to each other in the ends of the base-plate, and a spring in the hinge to automatically engage the lever with the rack.

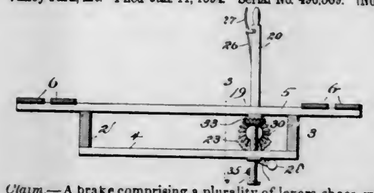
519,906. FLUID-PRESSURE SHAFT-SUPPORT. WALTON HARRISON, Meridian, assignor to John M. Harrison, Starkville, Miss. Filed Mar. 19, 1891. Serial No. 385,611. (No model.)



Claim.—1. In a shaft-support, a number of co-acting cylindrical bearings, a hydrostatic receptacle for each bearing, the said receptacles being located at relatively different radial angles for the purpose of cushioning working pressures of independent radial direction, substantially as described.

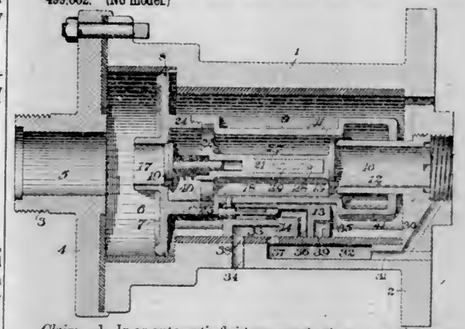
2. In a shaft-support, a number of co-acting cylindrical bearings, a hydrostatic receptacle for each bearing, the said receptacles opening laterally into the space provided for the shaft, and having areas unequal for the purpose of cushioning working pressures of differential intensity, substantially as described.

519,907. BRAKE FOR HAY-FRAMES. FREDERICK H. HOCH, Valley Park, Mo. Filed Jan. 11, 1894. Serial No. 496,509. (No model.)



Claim.—A brake comprising a plurality of levers, shoes, mounted on said levers and adapted for engagement with wheels, a connecting lever, means of connection between said lever and the first said levers, a rod fixed to the connecting lever leaning forward therefrom, a chain mounted on said rod and secured to a drum and adapted to be wound on said drum, a bevel gear connected with said drum, a bevel gear meshing with the first said gear, a toothed segment connected with the latter said gear, a vertically mounted lever and weighted pawl fulcrumed on said lever and adapted for engagement with the aforesaid toothed segment, and means for disengaging the said pawl from the said segment, as set forth.

519,908. QUICK-ACTION-VALVE MECHANISM FOR AIR-BRAKES. THOMAS J. HOGAN, Pittsburg, Pa., assignor to the Westinghouse Air Brake Company, same place. Filed Feb. 3, 1894. Serial No. 499,002. (No model.)



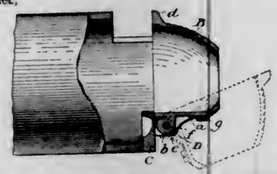
Claim.—1. In an automatic fluid pressure brake system, the combination with a movable abutment exposed on one side to train pipe pressure and on the other side to the pressure in a chamber which is separated from the train pipe by the movable abutment, of a passage through the movable abutment which is unconnected with the chamber, and a valve controlling the release of fluid from the train pipe through the passage, substantially as set forth.

2. In an automatic fluid pressure brake system, the combination with a movable abutment exposed on one side to train pipe pressure and on the other side to pressure in an auxiliary reservoir of a passage through the movable abutment which passage extends substantially unbroken thence to the brake cylinder connection a valve controlling the release of fluid from the train pipe through the passage and a check valve which prevents a return flow of fluid to the train pipe.

3. In an automatic fluid pressure brake system, the combination with a movable abutment exposed on one side to train pipe pressure and on the other side to auxiliary reservoir pressure of a passage through the movable abutment which passage extends substantially unbroken thence to the brake cylinder connection a valve controlling the release of fluid, through the passage, from the train pipe only and a valve for releasing fluid from the auxiliary reservoir to the brake cylinder, substantially as set forth.

4. In a triple valve device, the combination with a movable abutment of a tubular stem fitting around a tubular projection which is secured to the casing, a passage through the tubular stem and tubular projection through which fluid is released from the train pipe, a valve controlling said passage, a chamber surrounding the tubular stem and separated from the interior thereof, and a valve in the chamber controlling the supply of fluid from the auxiliary reservoir to the brake cylinder, substantially as set forth.

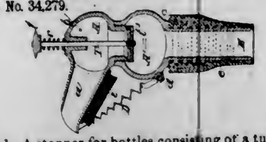
519,909. END-CAP FOR CYLINDER SEWING-MACHINES. ELIAS C. HOLLAND, Austin, assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed July 11, 1893. Serial No. 480,143. (No model.)



Claim.—1. In combination with a sewing machine having a cylindrical casing forming the bed plate, a device for closing the end of said casing comprising a tapering end cap having a rim fitting against the end of the bed plate of the machine, said cap having a flattened under side, a lug secured thereto, a rigid segment secured to the casing and to which the lug is pivoted, and a spring for holding the cap in its opened or closed position; substantially as described.

2. In combination with a sewing machine having a cylindrical casing forming the bed plate, a device for closing the end of said casing comprising a tapering end cap having a rim fitting against the end of the bed plate of the machine, said cap having a flattened under side and provided with a lug *b*, a segment C secured to the casing, and having lugs *c*, a pivot pin passing through the lugs *b* and *c*, and a spring D secured to the cap B and having a downwardly curved end bearing on the lugs *c*, said cap having an opening at its outer end; substantially as described.

519,910. BOTTLE-STOPPER. PAUL M. T. IMBAUD, Ambarès, France. Filed Dec. 30, 1893. Serial No. 495,177. (No model.) Patented in France Dec. 17, 1892, No. 226,457; in Belgium June 14, 1893, No. 105,090; in England June 17, 1893, No. 11,968, and in Italy June 30, 1893, No. 34,279.



Claim.—1. A stopper for bottles consisting of a tube to enter the neck of the bottle, a body above the tube, provided with a valve adapted to be opened from the outside, an outlet above the valve, the said body being also provided on the outside with a stud on one side and a hook on the other, the said stud and hook adapted to engage with the wires, which have served to fasten the cork for transportation, to bind the stopper to the bottle, all substantially as set forth.

2. A stopper for bottles consisting of a tube to enter the neck of the bottle, a body above the tube, an external shoulder being formed between the body and the tube, a hollow rubber plug provided with internal annular grooves on the tube and abutting against the said shoulder, the said body being provided with a spring-actuated stem-valve adapted to be opened from the outside, an outlet above the valve, and a stud and a hook on opposite sides of the body as and for the purposes set forth.

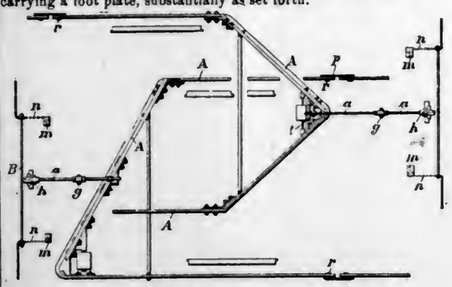
3. A stopper for bottles consisting of a tube to enter the neck of the bottle, a hollow rubber plug on the tube, and a body above the tube provided with a spring-actuated stem-valve, a beaked outlet above the valve and a stud and hook on opposite sides of the body, the said stem valve being provided with an operating button, substantially as and for the purposes set forth.

519,911. CONTRIVANCE FOR DIMINISHING THE DANGER TO FOOT-PASSENGERS FROM STREET-RAILWAYS. FRANZ JERNETZ and FERDINAND JENICZEK, Vienna, Austria-Hungary. Filed Oct. 14, 1893. Serial No. 488,199. (No model.)

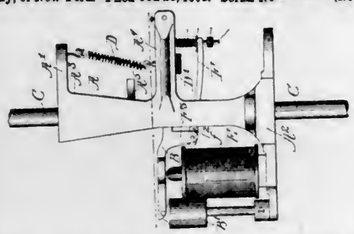
Claim.—1. An automatic guard for railway, tram cars and similar vehicles, consisting of the hinged vertically moving shield A suspended by the lever *a* which carries the pins or plates *c*, the catch bars *d* capable of engaging with the pins or plates *c* and furnished with the rail *f*, springs *e* engaging with the catch bars *d*, vertically moving rods *b* attached to the lever *a* and furnished with a foot plate, and a hinged plate or frame B substantially as set forth.

2. In an automatic guard for cars, the lever arranged to support the movable shield, spring-controlled catches arranged to press upon the lever and hold the shield in inoperative position, and means for disengaging the catches upon approaching an obstacle; substantially as described.

3. In an automatic guard for railway and tram cars and similar vehicles, a lever *a* from one end of which the shield A is suspended the other end being furnished with the projections *c* and the rods *b* carrying a foot plate, substantially as set forth.



519,912. ELECTRIC-ARC LAMP. JESSE F. KESTER, Buffalo, N. Y., assignor to the F. P. Little Electrical Construction and Supply Company, of New York. Filed Oct. 23, 1893. Serial No. 488,891. (No model.)



Claim.—1. In an electric arc-lamp, the combination with the frame and magnet, E, of a carbon rod suitably guided in said frame, an armature lever hinged to said frame, a spring arranged to elevate said lever, a stirrup and arm depending from said frame, a gripping plate slotted at its ends and applied to said stirrup and arm as described, and a spring applied to said gripping plate in such manner as to cause it to tend to depress said plate, substantially as described.

2. In an electric arc-lamp, the combination with the frame and maguet, E, of a carbon rod suitably guided in said frame, an armature lever hinged to said frame, a spring arranged to elevate said lever, a gripping plate slotted at its ends and suspended from said lever in such manner as to permit one end to rise and descend and having a vertical opening extending from one of its lateral edges of proper size to receive the carbon rod, the sides of said opening forming gripping jaws at opposite sides of said rod, substantially as described.

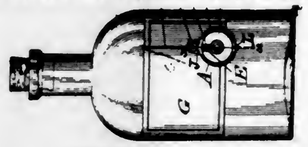
3. In an electric arc-lamp, the combination with the frame and maguet, E, of a carbon rod suitably guided in said frame, an armature lever hinged to said frame, a spring arranged to elevate said lever, a stirrup and arm depending from said lever, a gripping plate slotted at its ends and having an opening from its side and applied to said stirrup and arm as described, and a spring applied to said grippiug plate in such manner as to cause it to tend to depress said plate, substantially as described.

4. In an electric arc-lamp, the combination with the frame and magnet, E, of a carbon rod suitably guided in said frame, an armature lever hinged to said frame, a spring arranged to elevate said lever, a gripping plate suspended from said armature lever in such manner as to permit one end thereof to rise and descend, and a cam-stop, A^6, rotatably secured upon a post, a^6, for limiting the elevation of said armature lever, substantially as described.

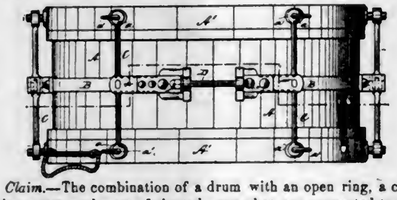
5. In an electric arc-lamp, the combination with the frame and magnet, E, of a carbon rod suitably guided in said frame, an armature lever hinged to said frame, a spring arranged to elevate said lever, an adjustable stop to limit the elevation of said lever, a stirrup and an arm depending from said lever, a gripping plate slotted at its ends and applied to said stirrup and arm as described, and a spring applied to said gripping plate in such manner as to cause it to tend to depress said plate, all substantially as described.

519,913. TIME-INDICATOR FOR TAKING MEDICINE. OTTO KETTMANN, Philadelphia, Pa. Filed Nov. 23, 1892. Serial No. 452,909. (No model.)

Claim.—A time indicator for the purpose named, consisting of a face plate with an opening therein, and provided with an upward extension or lip with an opening therein, and a depending tongue opposite said lip, and a dial pivoted to said face plate having a series of numbers, and a blank space thereon, said dial being wider than said face plate and said lip and tongue extending beyond the edge of the said dial, said parts being combined substantially as described.

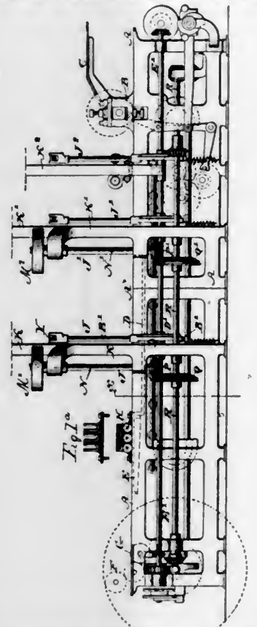


519,914. DRUM. CHRISTIAN KOHTH, Suhl, Germany. Filed Oct. 31, 1893. Serial No. 489,614. (No model.)



Claim.—The combination of a drum with an open ring, a connecting screw, and a set of pivoted arms that are connected to the ring and to the drum head, or drum head ring, substantially as specified.

519,915. PRINTING-MACHINE FOR COPPER OR STEEL PLATES. JEAN LARIVIERE, Paris, France. Filed July 30, 1891. Serial No. 401,169. (No model.) Patented in France Aug. 26, 1886, No. 178,211; in Germany Feb. 4, 1890, No. 57,908; in England May 24, 1890, No. 14,075; in Austria-Hungary Dec. 30, 1890, No. 40,584 and No. 64,577; in Italy Jan. 2, 1891, No. 28,740; in Russia Aug. 31, 1892, No. 10,049; in Belgium Dec. 14, 1892, No. 92,982, and in Switzerland Dec. 18, 1892, No. 3,283.



Claim.—1. In a printing press, a frame, a reciprocating carriage having a rotatable table for carrying the printing plate, a series of rising and falling wipers above said table, means for operating the bed and table, and mechanism for operating said wipers, said parts being combined substantially as described.

2. In a printing press, a frame, a reciprocating carriage having thereon a rotatable table for carrying the printing plate, and a series of wipers each having independent mechanism for operating the same, said parts being combined substantially as described.

3. A frame, a reciprocating carriage, a table mounted on said carriage for carrying the printing plate, mechanism for intermittingly rotating said table, a series of wipers adapted to contact with a printing plate on said table, and mechanism substantially as described for operating each of said wipers independently of each other, said parts being combined substantially as described.

4. A frame, a vertical shaft supported in said frame and having a frame on its lower end, rollers having pivoted supporting arms, a cushion, spring controlled tension rollers, and a wiping web connected to said first mentioned rollers and passing around said cushion and mechanism substantially as described for oscillating said pivoted roller arms and thereby operating said web, said parts being combined substantially as described.

5. A frame, rollers having pivoted supporting arms, a cushion, guiding rollers having slotted journal bearings, a wiping web connected to said first mentioned rollers and passing around said cushion, and mechanism substantially as described for oscillating said pivoted supporting arms, said parts being combined substantially as described.

6. A frame, rollers having pivoted supporting arms, a cushion, guiding rollers, a train of frictional gearing operating said tension rollers, a wiping web connected with said first mentioned rollers, and passing around said tension rollers and cushion, and mechanism substantially as described for operating said train of frictional gearing said parts being combined substantially as described.

7. In a printing press, a frame having slots therein, a shaft mounted in said slots, a tension roller freely mounted on said shaft, an arm connected with said shaft, a spring connected with said arm and frame, a wiping web passing around said roller, and means substantially as described for supporting the ends of said web, said parts being combined substantially as described.

8. A rising and falling shaft with a frame attached thereto, a rock shaft journaled in said frame, a lever or arm connected with said shaft and adapted to contact with a collar on said shaft, oscillating arms carrying rollers, tension rollers, a wiping web connected to said rollers and passing around said tension rollers, a train of frictional gearing in contact with said tension rollers, a shaft with a gear wheel therein, a depending lever on said rock shaft and a bell crank lever on said gear wheel shaft having a link connection with said depending lever, said parts being combined substantially as described.

9. Pivoted arms carrying rollers, tension rollers, a cushion, a web connected to said first mentioned rollers and passing around the tension rollers, mechanism substantially as described for rocking said arms and mechanism for limiting the play of said operating mechanism, said parts being combined substantially as described.

10. A frame, a carriage movable thereon, a table with shaft mounted on said carriage, a rack on said frame, a bevel gear wheel on said table shaft, a shaft mounted on the carriage and having a bevel wheel meshing with the bevel gear wheel on the table shaft and provided with a pinion meshing with the said rack, said parts being combined substantially as described.

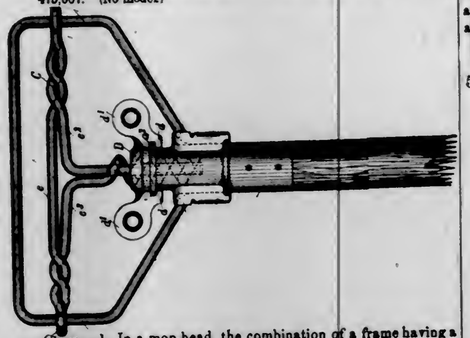
11. A carriage, a table with shaft mounted on said table, a disk on said shaft, a bevel wheel on said shaft a counter shaft journaled in a depending attachment on the carriage and having a bevel wheel loosely mounted thereon adapted to mesh with the bevel wheel on the table shaft, a clutch on said counter shaft, a lever pivoted to said depending attachment and operating said clutch, a rotary shaft with a cam operating said lever, and means connected with said lever for engaging said disk, said parts being combined substantially as described.

519,916. PROCESS OF MAKING PAPER BAGS. WILLIAM A. LORENZ and EDWARD E. CLAUSSEN, Hartford, Conn., assignors to Albert H. Walker, trustee, same place. Filed Aug. 18, 1892. Serial No. 443,360. (No model.)



Claim.—That process of making a paper bag from a tucked tube which consists in turning the upper plies of each of the tucked sides up substantially at right angles to the body of the tube and to each other upon lines corresponding to the angular edges 3 and 5, thus stretching open the inside triangular folds, then folding those upturned plies and folds down upon the body of the blank producing the diamond form, and then completing the bag by folding the end flaps, all substantially as described.

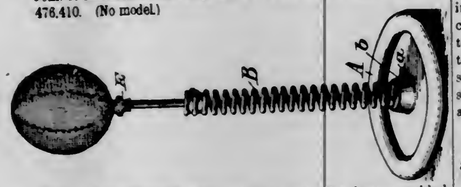
519,917. MOP-HEAD. HAMILTON F. LOW, Cleveland, Ohio, assignor to Louis Koehl, same place. Filed May 27, 1893. Serial No. 475,687. (No model.)



Claim.—1. In a mop-head, the combination of a frame having a transverse cross-bar, two parallel sides and converging ends, a base to which said ends are secured, and an annular flange a^3 on said base, with a follower having a rigidly connected threaded stem, and a nut which engages with said stem and two notched ears secured to said nut which embrace the flange a^3, substantially as set forth.

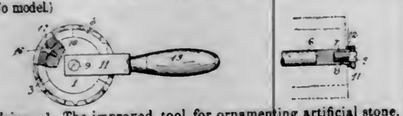
2. In a mop-head, the combination of a base having the annular flange a^3, and a frame consisting of a transverse cross-bar, two sides and two ends which are secured to said base, with a follower having loops at the ends of its cross-bar and a stem formed of one straight wire and one wire wound spirally about the straight wire, and a nut which engages with said stem and has two notched ears which engage with the flange a^3, substantially as set forth.

519,918. APPARATUS FOR SUSTAINING PUNCHING-BAGS. JOHN P. MACLEARN, Philadelphia, Pa. Filed June 2, 1893. Serial No. 476,410. (No model.)



Claim.—An exercising machine consisting of a base provided with a socket, an upright coiled spring with its lower end connected in said socket, a vertical extension piece secured in the upper end of said spring, a casing attached to the upper end of said extension piece, and a ball in said casing, said parts being combined, substantially as described.

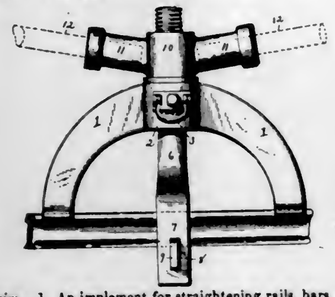
519,919. DEVICE FOR ORNAMENTING PAVEMENTS. MARTIN MAURER, St. Louis, Mo. Filed May 8, 1893. Serial No. 473,373. (No model.)



Claim.—1. The improved tool for ornamenting artificial stone, comprising a main body 1 in the form of a plain cylinder having squared ends, a smooth outer periphery and a longitudinal bore 2, a series of separate sections 3 curved transversely to conform to the outer periphery of said body, and having radial meeting edges in contact, each of said sections having a connecting series of projections 4 upon its outer surface forming a determinate portion of a definite design in relief, and each section having an integral flange 5 in the form of a segment at each terminal thereof, the same projecting beyond the outer surface of the section which carries it and uniting with the flange of adjacent sections to form complete annular terminal flanges, a spindle engaging the bore of said body, and a suitable handle applied to said spindle, substantially as herein specified.

2. The combination, in a tool for marking artificial stone, of a main body or roller carrying designs in relief upon its outer periphery, and having a longitudinal bore 2, a spindle 6 mounted in said bore and having its ends squared and provided with a threaded bore 7, screws 8 having threads upon their inner portions and the plain outer surface, and engaging said bores 7 of said spindle, a U-shaped yoke 10, the arms of which are provided with perforations or bearings 11 loosely engaged by the smooth surfaces 9 of said screws or bolts 8, a washer 12 loosely mounted upon said spindle between each of the arms of said yoke and the adjacent end of said body, and a handle applied to said yoke, substantially as herein specified.

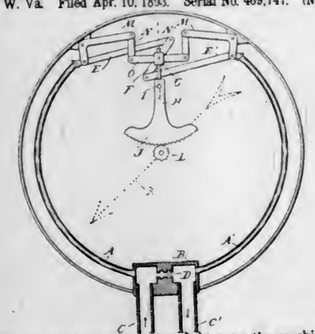
519,920. IMPLEMENT FOR STRAIGHTENING RAILS, BARS, &c. ALFONSO MEUSER, Longwood, Fla. Filed May 11, 1893. Serial No. 473,801. (No model.)



Claim.—1. An implement for straightening rails, bars, &c., consisting of a single piece of metal arched in shape and having a perforation in its middle, the two ends of the arch forming pushers adapted to bear against the object to be straightened; a pull, its upper end passing through the perforation in the arch, the lower end of said pull having an integral bifurcation, each branch of said bifurcation having a perforation; a cross piece adapted to rest in the perforations of said branches, said branches and cross piece adapted to surround the object to be straightened; a lever fulcrumed on top of the arch and operating the pull, as set forth.

2. An implement for straightening rails, bars, &c., consisting of two connected pushers having a perforation in the connection; an intermediate pull its upper end passing through the perforation in the connection of the pushers, the lower end of said pull having an integral bifurcation, each branch of said bifurcation having a perforation; a cross piece adapted to rest in the perforations of said branches; said branches and cross piece adapted to surround the object to be straightened; a lever fulcrumed on top of the connection and operating the pull, as set forth.

519,921. STEAM-PRESSURE GAGE. JAMES F. MCELROY, Albany, N. Y., assignor to the Consolidated Car-Heating Company, Wheeling, W. Va. Filed Apr. 10, 1893. Serial No. 469,747. (No model.)



Claim.—1. In a steam or other fluid gage, the combination with a fluid conductor, of a plurality of movable members connected with the conductor and actuated independently by the pressure of the fluid therein, an indicator actuated by the members, and means for causing a relative variation in the actuation of the members, substantially as described.

2. In a steam or other fluid gage, the combination with a fluid conductor, of a plurality of hollow springs, communicating with the interior of the conductor, an index hand, actuating mechanism between the springs and hand, and means at the conductor interposed between the springs, for causing a differential pressure in the springs, substantially as described.

3. In a steam or other fluid gage, the combination with a fluid conductor, of a plurality of differentially movable tubular springs, communicating with the conductor, indicating mechanism actuated by the springs and means for causing the differential movement of the springs, substantially as described.

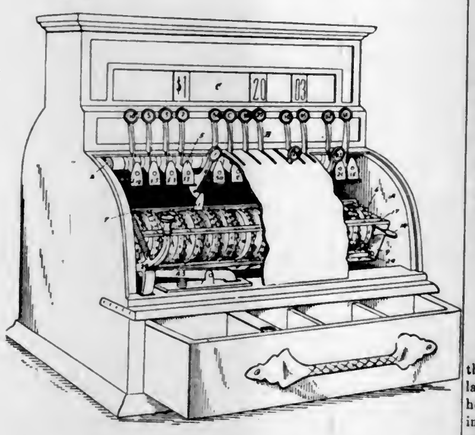
4. In a steam or other fluid gage, the combination of a hollow base provided with steam inlet and outlet connection, an orifice or series of orifices formed in said base and through which the steam passes, two tubular springs connected to said base and adapted to be actuated by the pressure of the steam on opposite sides of said orifice and indicating mechanism operated by the differential movement of said springs, substantially as described.

5. In a steam or other fluid gage, the combination of a hollow base provided with steam inlet and outlet connection, an orifice or series of orifices formed in said base, and through which the steam passes, two tubular springs connected to said base and adapted to be actuated by the pressures of the steam on opposite sides of said orifice and indicating mechanism operated by the differential movement of said springs, in proportion to the absolute and relative movement of the springs, substantially as described.

6. In a steam or other fluid gage, the combination with the tubular springs adapted to be differently actuated respectively by different pressures of steam acting upon them, of indicating mechanism comprising an oscillating lever, a sliding wrist upon one arm of said lever, intermediate connection between said sliding wrist and the tubular springs for oscillating the lever by the differential movement of the springs, intermediate connection between said sliding wrist and the springs for controlling the adjustment of said wrist by the absolute movement of the springs, and an index hand deriving its motion by suitable connection with the other arm of the said lever, substantially as described.

7. In a steam or other fluid gage, the combination with a single conduit, of a plurality of independent movable members connected with the conduit and actuated by the pressure of a fluid therein, a partition in the conduit intermediate the members, having an aperture therein of a diameter less than the diameter of the interior of the conduit, and an indicator actuated by the members, substantially as described.

519,922. CASH REGISTER AND INDICATOR. WILLIAM T. MCGRAW, Detroit, Mich. Filed Oct. 5, 1893. Serial No. 487,278. (No model.)



Claim.—1. In a cash register, in combination with a plurality of actuating key levers, a plurality of registering wheels of which the hubs are threaded internally, a screw engaging with said wheels and serving as an arbor therefor, the said wheels being adapted to traverse the screw and to progress a definite distance with each actuating movement of the key lever.

2. In a cash register, the combination with a plurality of actuating key levers, a plurality of wheels of which the hubs are threaded internally, a screw serving as a common arbor for all of said wheels, and a scale arranged to indicate the revolutions of the wheels on the screw, each of said wheels being adapted to traverse the screw and to progress a definite distance with each actuating movement of the key lever, substantially as and for the purpose specified.

3. In a cash register, the combination of actuating key-levers, a rocking frame and a screw mounted therein, and registering wheels adapted to traverse said screw and to be actuated by said key levers, substantially as described.

4. In a cash register, the combination of a key lever, a rocking frame and a screw mounted therein, a registering wheel adapted to traverse said screw and to be actuated by said key-lever, a stop forming a part of said frame-work and adapted to prevent the overthrow of said key, substantially as described.

5. In a cash register, the combination of a register wheel, a screw traversed thereby, a spring pawl held on a rocking support, and a pressure spring adapted to hold said support with a spring pawl in contact with the register wheel, substantially as described.

6. In a cash register, the combination of a key, an electric alarm bell, a contact piece adapted to be thrown out of contact by the depression of the key, a readjusting lever arranged to unbolt the cash drawer and to readjust said key, thereby making electric contact with the alarm bell, substantially as described.

7. In a cash register, the combination of a screw, a register wheel adapted to traverse said screw and be actuated by a key of said register, an index bar lying parallel with said screw and provided with teeth extending inward parallel with the radius of said register wheel, a pin projecting from the face of said register wheel, adapted to engage with the teeth from the index bar, substantially as described.

519,923. COMPOSITION FOR BLOWING SOAP-BUBBLES. ELIZA E. MCNAUGHTON, Phœnix, N. Y. Filed Jan. 20, 1894. Serial No. 497,486. (No specimens.)

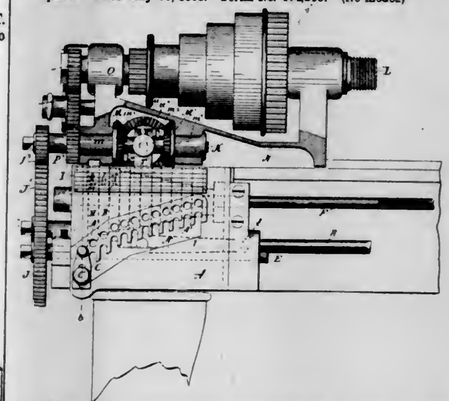
Claim.—1. A bubble composition containing soap and gum, in proportions substantially as described.

2. A bubble composition containing soap and gum tragacanth, in proportions substantially as described.

3. A bubble composition containing soap, gum and water, in proportions substantially as described.

4. A bubble composition containing soap, gum tragacanth, and water, in proportions substantially as described.

519,924. SCREW-CUTTING ENGINE-LATHE. WENDELL P. NORTON, Torrington, Conn., assignor to the Hendey Machine Company, same place. Filed May 15, 1893. Serial No. 474,265. (No model.)



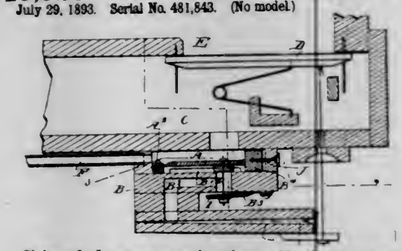
Claim.—1. In a screw-cutting engine-lathe, the combination with the live spindle which is extended through the back-bearing of the lathe, of the head of the lathe, reversing gears located within the said head, a train of gears including a sliding gear connecting the projecting end of the spindle with one of the reversing gears through the outer end of the said head, a sliding clutch located within the said head for co-operation with the reversing gears therein, a lever extending into the said head, and connected with the said clutch for operating the same, a lead screw and interchangeable gears between the reversing gears and the lead screw, substantially as described.

2. In a screw-cutting engine-lathe, the combination with the back bearing thereof, of a live spindle extended rearward through the same, a head, reversing gears located within the same, a stud extending into the said head, and carrying two of the reversing gears, a train of gears between the projecting end of the spindle and the said reversing gears, one member of the said train being secured to a sleeve encircling the said stud, and connected with one of the reversing gears, and interchangeable gears, one member of which is fixed to the said stud, substantially as described.

3. In a screw-cutting engine-lathe, the combination with the reversing rod and lead-screw thereof, of a lever rigidly secured to and extending inwardly from the said rod, a bell-crank lever having its lower member connected with the said lever attached to the rod, reversing gears, including two gears driven in opposite directions and an intermediate gear meshing with both of the said gears a sliding

clutch located between the oppositely driven reversing gears for alternate engagement therewith and connected with the upper member of the said bell-crank lever, a shaft or stud on which the said clutch is mounted, and a train between the said shaft and the lead-screw, substantially as described.

519,925. ORGAN. JERRY POLUKANIS, Bloomfield, N. J. Filed July 29, 1893. Serial No. 481,543. (No model.)



Claim.—1. In an organ action, the combination with the pallet, D, opening downward, and the casing, B, of the swinging leak piston, A, which is separated by a narrow space, at one side, from the adjacent side of the casing, so that air may leak past said piston to permit it to seat automatically and thus close the communicating air passage, as and for the purpose specified.

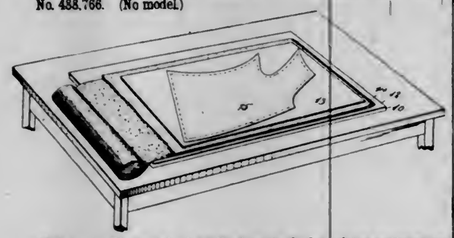
2. An organ, provided with a pneumatic valve, comprising a casing having an adjustable part, and a leak piston mounted to swing within the said casing and arranged to permit air to leak between the adjustable part and one end of the piston, substantially as shown and described.

519,926. WATCHCASE-SPRING. EDWARD A. REMICK, Newark, N. J., and PETER FLECK, Long Island City, N. Y. Filed Jan. 4, 1893 Serial No. 457,212. (No model.)



Claim.—The combination with the watch-case center, having interior, parallel, upper and lower shoulders, of the semi-circular spring sections, having the integral "fly" and "lock latch," and arranged between said shoulders with their upper edges projecting interiorly beyond the upper shoulder, and their squared ends abutting, as shown and described, for the purpose specified.

519,927. METHOD OF AND APPARATUS FOR MARKING PATTERNS. LOUISE SCHAEFER, Oneida, N. Y. Filed Oct. 21, 1893. Serial No. 488,766. (No model.)



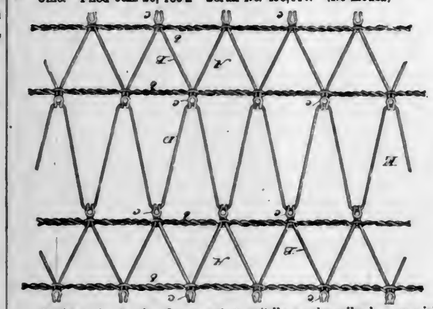
Claim.—1. The herein-described method of marking patterns on fabric, which consists in providing a marking board having a coloring pigment held on its surface, doubling the fabric and spreading it on the board, laying a flexible marker on the top layer of the fabric, the marker being also impregnated with a coloring pigment, placing the pattern on the marker, and then running a spur wheel around the edge of the pattern.

2. In an apparatus of the kind described, the marking board having an open fabric fastened to its surface, and a coloring pigment held between the meshes of the fabric, substantially as described.

3. The herein-described marker, comprising a flexible loosely woven fabric impregnated with a coloring pigment, the pigment being held in a free state in the fabric, substantially as described.

4. The herein-described marking board having on its surface a coloring pigment, the pigment being fastened to the board and being adapted to be freed from the board by the running of a spur wheel across it, substantially as described.

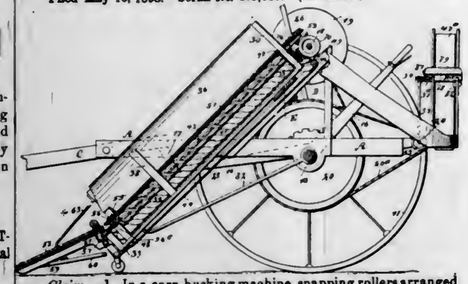
519,928. WIRE FENCE. EPHRAIM I. SCHANCK, Lewis Centre, Ohio. Filed Jan. 26, 1894. Serial No. 498,117. (No model.)



Claim.—1. A wire fence, substantially as described, comprising a series of stretchers or woven frames formed respectively of wire strands twisted one about the other, and wire stays connecting the adjacent runners of each frame, the said stays being provided at their opposite ends with open ended hooks or pockets adapted to connect with the runners of adjacent frames, essentially as and for the purpose herein set forth.

2. In a wire fence, the combination of a series of longitudinal woven wire stretchers or frames A, each composed of upper and lower runners formed respectively of wire strands twisted one about the other, a diagonal or zigzag wire stay B, intersecting said runners and formed with open ended hooks or pockets at its angles or bends, and a diagonal or zigzag wire tie D, held within said hooks or pockets between the adjacent wire stretchers or frames, substantially as shown and described.

519,929. CORN-HUSKER. JOHN P. SCHURRENS, Westphalia, Kans. Filed May 10, 1893. Serial No. 473,683. (No model.)



Claim.—1. In a corn-husking machine, snapping rollers arranged in parallel planes and provided with spiral wings or plates of a yielding substance, the rollers being adapted to revolve substantially in engagement, a deflecting roller located above one of the snapping rollers, and a stripping or husking roller located above the other snapping roller, the deflecting roller serving to guide the stalks of corn to the snapping and stripping rollers, the stripping rollers serving to remove the husk and the snapping rollers to break the ears from the stalk, substantially as shown and described.

2. In a machine of the character described, the combination, with a casing having a central longitudinal opening and a conveyer located therein, of snapping rollers adapted to remove the ears of corn from their stalks, said rollers having a yielding roughened face and revolving substantially in contact, a deflecting roller located above one of the snapping rollers, of substantially auger-like construction, and a stripping or husking roller located above the other snapping roller, the stripping or husking roller being provided with a series of curved teeth radiating therefrom, as and for the purpose specified.

3. In a machine of the character described, the combination, with a casing having an opening extending through from top to bottom, a conveyer located within the casing near one side, and an endless guide chain located within the casing near the opposite side, of snapping rollers adapted to break the ears of corn from their stalks, the said rollers being arranged one at each side of the opening and being provided with a yielding and spirally roughened exterior surface, a deflecting roller of essentially screw or auger-like construction located between one snapping roller and the guide belt, and a stripping or husking roller located opposite the deflecting roller and over the second snapping roller, the husking or stripping roller comprising a body and curved arms radiating from the body, said arms being

provided with hook-like extremities, as and for the purpose set forth.

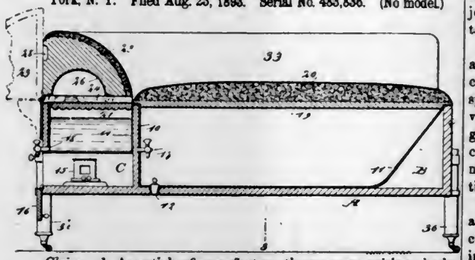
4. In a husking machine, the combination, with an elevator adapted to receive ears of corn, of an endless belt extending transversely over the elevator and provided with a series of teeth or spurs upon its outer face, adapted to engage the ears of corn and remove the covering therefrom, and a delivering device acting in conjunction with the belt to pass the material removed from the elevator, substantially as shown and described.

5. In a corn husking machine, the combination, with an elevator adapted to receive and deliver ears of corn, of an endless belt extending over the elevator and provided with exteriorly located spurs or teeth, a pressure roller revolving in contact with the belt, adapted to deliver material removed from the ears of corn out from the elevator, and a driving mechanism, substantially as shown and described, connected with the belt supports, as and for the purpose specified.

6. In a corn husking machine, a guide or feed belt, the same being constructed of a series of connected links, pins projected outwardly from the links, and rollers carried by the pins, as and for the purpose specified.

7. In a corn husking machine, the combination, with a casing having an opening extending through from top to bottom, a conveyer belt located within the casing near one side, and a guide belt located near the opposite side, of snapping rollers adapted to remove the ears of corn from their stalks, said rollers being arranged one at each side of the bottom opening in the casing, consisting each of a body and plates of a spring material spirally arranged upon the body, one plate overlapping the other, a deflecting roller of exterior screw or auger shape located between one of the snapping rollers and the guide belt, a stripping or husking roller located over the opposite snapping roller, and consisting of a body and curved spring fingers radiating therefrom, guide fingers pivotally connected with one end of the casing, one at each side of its bottom opening, feed belts carried by the guide fingers, rollers projected from the outer sides of the feed belts and guide belt, and a driving mechanism whereby the rollers and belts are simultaneously driven, as and for the purpose set forth.

519,930. COMBINATION FURNITURE. EDWARD L. STILL, New York, N. Y. Filed Aug. 23, 1893. Serial No. 483,836. (No model.)



Claim.—1. An article of manufacture, the same comprising a body containing a bath tub, a wash tub, a wash board, and a seat constituting a cover for the bath tub, an arm adapted to conceal the wash board and wash tub, and panels adjustably connected with the body, either of which may be elevated to constitute a back for the seat, as and for the purpose specified.

2. An article of manufacture, the same comprising a box body divided into compartments, one of which compartments is provided with a bath tub, the other being provided with a wash tub, a wash board constituting a cover for the wash tub, a removable seat section constituting the cover for the bath tub, an arm having hinged connection with the body and adapted to normally rest upon the cover of the wash tub, and panels having hinged connection with the body, one at each side, either of which panels may be lowered to lie upon the body, or raised to stand at an angle thereto, each panel being provided with folding legs, as and for the purpose specified.

3. An article of furniture, the same consisting of a box body having adjustable legs and provided with a wash tub, a wash board covering the same, a bath tub, a removable seat constituting a cover for the bath tub, an arm having a hinged connection with the body, provided with a wash basin, and leaves capable of folding over the basin or outwardly from the ends of the arm, and front and rear panels hinged to the body, provided with legs and capable of being carried to an upper or a lower position at right angles to the top of the body, as and for the purpose set forth.

4. As an improved article of manufacture, a lounge provided in its body portion with a concealed wash tub, and a wash board constituting a cover for the tub, substantially as described.

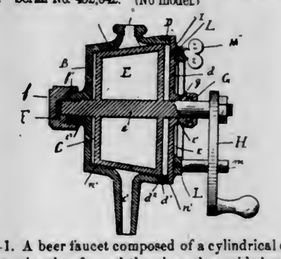
5. A lounge, an arm of which is provided with a concealed wash basin, and a cover concealing the wash basin when the latter is not required for use, substantially as shown and described.

6. A lounge, the same being provided with an arm having a hinged connection therewith, a wash basin concealed in the arm, and leaves folding over the basin and capable of folding out from the arm, substantially as and for the purpose specified.

7. A lounge, the same being provided with sunken panels in its sides, and panels hinged in the sunken panels, either of which outer panels may be carried to an upright position and locked in said position, substantially as shown and described.

8. A lounge provided with a removable seat, hinged panels at each side capable of being carried to a horizontal position, supporting legs connected with the panels, and an arm hinged at one end of the seat, which arm is provided with folding leaves capable of being carried outward from each end and constitute head portions for the panels when the latter are in their horizontal position, as and for the purpose specified.

519,931. BEER-FAUCET. GUSTAV A. F. STREUBER, Oakland, Cal., assignor of one-half to Friederick Rothmann, same place. Filed Nov. 22, 1892. Serial No. 452,842. (No model.)



Claim.—1. A beer faucet composed of a cylindrical case or shell, having an inner chamber formed therein and provided with an outlet and inlet, said inlet being adapted to connect to the lower end of the plug of an ordinary faucet, a conduit cut within said chamber upon the wall of said shell corresponding with the outlet, a plug placed within said chamber and provided with a shaft suitably held centrally and journaled at right angles with the outlet and inlet and a crank attached to said shaft, substantially as described and shown.

2. A beer faucet composed of a cylindrical case or shell, having an inner chamber formed therein and provided with inlet and outlet, a conduit cut within said chamber upon the wall of said shell corresponding with the outlet, a plug placed within said chamber and provided with a shaft suitably held centrally and journaled at right angles with the outlet and inlet, a crank attached to said shaft and a coupler provided with suitable means to connect the inlet to an ordinary faucet or other suitable tube attached to the beer keg, substantially as described and shown.

3. A beer faucet composed of a cylindrical case or shell, having an inner chamber formed therein provided with inlet and outlet, said chamber being bored partly straight and partly conical, a plug having a shaft held centrally by means of the nut F, the screw thread *f* and the bearings *e* and *g* within said chamber, a crank attached to said shaft substantially as set forth, and for the purpose described.

4. A beer faucet composed of a cylindrical case or shell, having an inner chamber formed therein and provided with inlet and outlet, a conduit cut within said chamber upon the wall of said shell corresponding with the outlet, a threaded cover provided with an adjustable regulator for the purpose described, a plug placed within said chamber and provided with a shaft suitably held centrally and journaled at right angles with the inlet and outlet, a crank attached to said shaft substantially as set forth, and for the purpose described and shown.

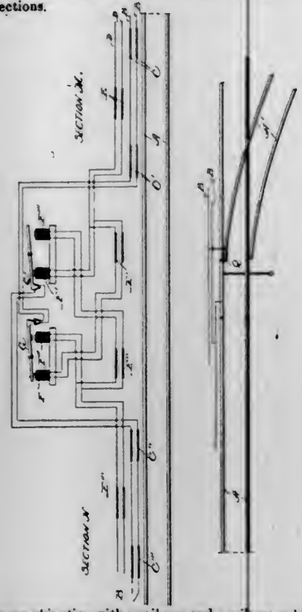
5. A beer faucet composed of a cylindrical case or shell, having an inner chamber formed therein provided with inlet and outlet, a plug having a shaft held centrally within said chamber, said shaft being provided with a crank at one end and a nut at the other end—said nut being held firmly to said cylindrical body, and having corresponding threads cut thereon, by which said shaft and plug can move back or forth substantially as set forth and for the purpose described.

6. A beer faucet composed of a cylindrical case or shell having an inner chamber formed therein provided with inlet and outlet, depression *n*, conduit *n'* projections *f'* and *g*, aperture *e'* and e^3, plug E, shaft *e*, nut F, crank H, all of which substantially as set forth and for the purpose described.

7. A beer faucet having an adjustable regulator provided with projection *m*, thumb-screw M, and proper guides to keep said regulator in position, substantially as set forth, and for the purpose described.

519,932. ELECTRIC RAILWAY-SIGNAL. ROLLIN M. STRONG and CHARLES F. REED, Omaha, Nebr. Filed Sept. 5, 1893. Serial No. 484,841. (No model.)

Claim.—1. The combination, with a railway, of two pairs of conductors independent of the rails but running alongside thereof, the first pair being arranged in a series of closed sections, and the second pair in a corresponding series of sections each having a circuit breaker at each end, and means whereby a current in any section of the first pair shall open both circuit breakers in the corresponding section of the second pair and close the circuit breakers in adjacent ends of the adjacent sections.



2. The combination with a railway and a railway vehicle thereon, of two pairs of conductors running alongside the track each pair forming a series of sections having at intervals contact pieces in both branches, circuit breakers interposed in the sections of one series and operated oppositely, in pairs, when a circuit is completed through a section of the other series, to break connection in one section of the first series and make connection in the next, a battery upon said vehicle, pairs of brushes borne by the vehicle in position to put each pair of contact pieces passed over in circuit with the battery, a signaling device upon the vehicle, and means whereby the passage of a current through the circuit containing one pair of the brushes actuates said signaling device.

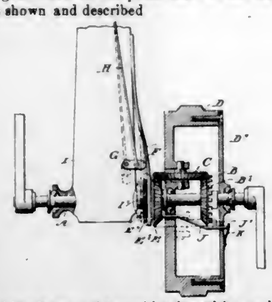
3. The combination with a railway and a vehicle thereon, of pairs of conductors lying upon one side of the track and each provided at intervals with contact pieces and divided into series of corresponding sections, a battery carried upon the vehicle, brushes carried by the vehicle and arranged to pass over said contact pieces and to thereby include the battery in the sections to which the pairs of contact pieces belong, circuit breakers in the sections of one series of conductors, and magnets, energized by the current from the battery through a section of the other set, to break contact in the corresponding section of the first set and to make contact in the adjacent circuits of that series, and a signal, upon the vehicle, arranged to be operated by a current through said corresponding series.

4. The combination with a railway and a vehicle thereon, of two pairs of conductors in general direction parallel to the rails and each pair having at intervals contact pieces in each branch, the first pair being divided into sections each having at each end a circuit breaker and the second pair being divided into sections each having at each end magnets arranged for oppositely actuating the circuit breakers in two consecutive sections of said first pair, a battery upon the vehicle, pairs of brushes borne by the vehicle in electrical connection with the battery and in position to sweep over the respective pairs of contact pieces, and a signal arranged, upon the vehicle, to be operated by a current passing through the sections of the first pair of conductors

---

519,933. BICYCLE-GEAR. ERICK J. SWEDLUND, Atwater, Minn. Filed June 3, 1893. Serial No. 476,513. (No model.)

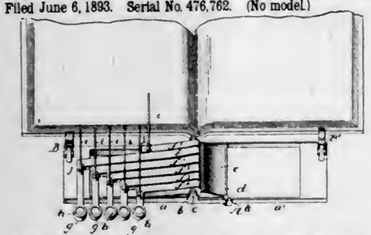
Claim.—1. In a bicycle gear, the combination with a pedal shaft, of a chain wheel mounted to rotate loosely thereon, a bevel gear wheel carried by the chain wheel, a bevel gear wheel secured on the pedal shaft and meshing with the gear whee' carried by the chain wheel, a sliding bevel gear wheel adapted to be thrown in and out of mesh with the bevel gear wheel carried by the chain wheel and means for locking the gear wheel on the pedal shaft to the chain wheel, substantially as shown and described



2. In a bicycle gear, the combination with a pedal shaft, and a bevel gear wheel secured thereon, of a hollow chain wheel mounted to rotate loosely on the said pedal shaft, a bevel gear wheel journaled in the said hollow chain wheel and in mesh with the said bevel gear wheel on the pedal shaft, a sliding bevel gear wheel adapted to be thrown in and out of mesh with the said bevel gear wheel in the chain wheel, and a mechanism carried by the said chain wheel and adapted to be actuated by the said sliding bevel gear wheel to lock or unlock the said chain wheel and the bevel gear wheel on the pedal shaft, substantially as shown and described.

3. In a bicycle gear, the combination with a pedal shaft, and a bevel gear wheel secured thereon, of a hollow chain wheel mounted to rotate loosely on the said pedal shaft, a bevel gear wheel journaled in the said hollow chain wheel and in mesh with the said bevel gear wheel on the pedal shaft, a sliding bevel gear wheel carried by the frame and adapted to be thrown in and out of mesh with the said bevel gear wheel in the chain wheel, means, substantially as described, for imparting a sliding motion to the said bevel gear wheel, and a spring-pressed rod mounted to slide transversely in the said chain wheel and having a projection adapted to engage teeth on the bevel gear wheel on the pedal shaft, substantially as shown and described.

519,934. LEAF-TURNER. LAFAYETTE SWINDLE, Franklin, Ill. Filed June 6, 1893. Serial No. 476,762. (No model.)



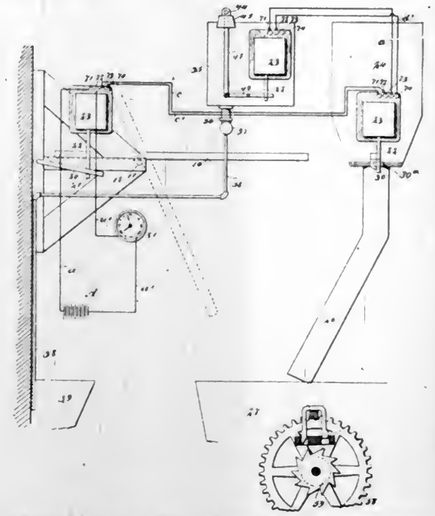
Claim.—1. In a music-leaf turner, the pivoted arms f, f^3, &c., the fingers, i, pivoted on the face of said arms and adapted to swing and fold parallel to the plane of the latter, and springs for holding the fingers in either the extended or folded position, as shown and described.

2. The improved music-leaf turner composed of the frame, formed of two parts hinged together and adapted to fold one upon the other, a series of angular arms, f f^3, &c., hinged to one of said parts and adapted to swing and fold, and folding fingers, pivoted to the arms, as shown, whereby, when the frame is closed, the arms and fingers lie parallel to and between its two parts, as specified.

519,935. DEVICE FOR FEEDING AND WATERING LIVE STOCK. ARTHUR C. WINCH, Saxonville, Mass. Filed Apr. 17, 1893. Serial No. 470,642. (No model.)

Claim.—1. In a mechanism of the kind described, a series of automatic feed-discharging mechanisms, a like series of tripping devices and a series of magneto-electric mechanisms for simultaneously releasing said tripping devices, an open electric circuit which extends successively from one to the other of such releasing mechanisms, and a circuit-closer, all combined as shown and described.

2. In an apparatus of the kind described, the locking and releasing mechanism, comprising a spring-pressed locking and releasing bar held to slide in suitable bearings, a gear mechanism connected with the bar and provided with a ratchet wheel, a pawl to engage the ratchet wheel, and electrically-operated means for releasing the pawl, an electrical circuit, and time mechanism included therein substantially as specified.



3. In an apparatus of the kind described, the locking and releasing mechanism, comprising a spring-pressed slide bar having a rack thereon, a gear mechanism connected with the rack and provided with a ratchet wheel, a sliding pawl held to engage the ratchet wheel, a tilting lever to lift the pawl, an electro-magnet to actuate the lever, and an electric circuit and circuit-closer substantially as specified.

4. In an apparatus of the kind described, the locking and releasing mechanism, comprising a spring pressed slide bar, a gear mechanism connected therewith, a pawl and ratchet to lock the gear mechanism and bar, electrically-operated means for raising the pawl, a switch actuated by the movement of the slide bar, substantially as specified.

5. In an apparatus of the kind described, the locking and releasing mechanism, comprising a spring-pressed slide bar, a gear mechanism connected therewith, a ratchet wheel and pawl to lock the gear mechanism and bar, electrically-operated means for raising the pawl, and a switch actuated by the movement of the bar, the switch comprising oppositely-arranged contacts a circuit connecting the latter, a spring to move between the contacts, and a switch bar carried by the slide bar and arranged to engage the spring, substantially as specified.

6. In an apparatus of the kind described, the combination, with a locking and releasing bar held to slide in suitable supports and means for operating said bar, of a switch, comprising oppositely-arranged contacts, a circuit connecting the latter, a spring held to move between the contacts, and a switch bar carried by the slide bar and adapted to engage and move the spring, substantially as specified.

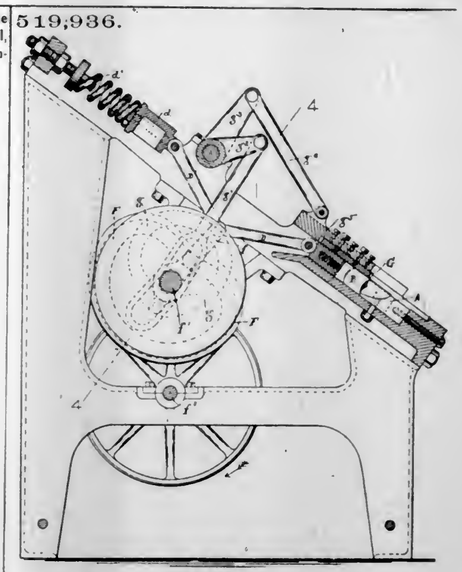
7. In an apparatus of the kind described, the combination of the tilting hay-rack having a spring bolt at one end, the oscillating shaft having a catch to engage the spring bolt, a crank on the shaft and an electrically-operated bar adapted to raise the crank and release the catch, substantially as specified.

8. The combination, with the water tank having a suitable discharge pipe and a vertically movable valve, of a tilting weighted lever connected with the valve to open the same, a second lever fulcrumed on the tank and connected with the tilting lever, and a vertically movable electrically-operated bar adapted to lock and release the second lever, substantially as specified.

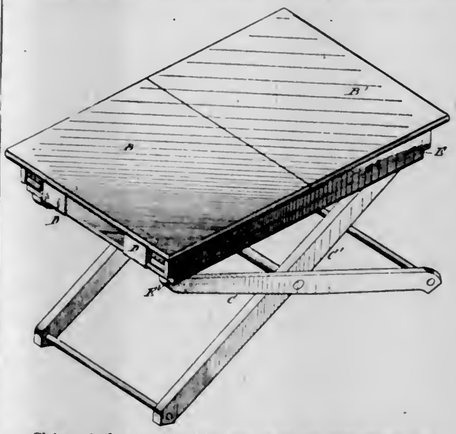
519,936. HEEL-STIFFENER MACHINE. WILLIAM J. YOUNG, Lynn, Mass. Filed Mar. 7, 1892. Serial No. 424,017. (No model.)

Claim.—The improved counter molding mechanism above described, consisting of a male mold, on a fixed abutment; a female mold carried by a sliding block; a toggle, an upper moving abutment for that toggle; a spring restraining the motion of that abutment; a revolving cam disk with two cam grooves; two cam rods; each slotted to receive the cam shaft; and a flange turner; one cam rod actuating the toggle, and setting it and holding it during a large portion of a revolution, and the other actuating the flange turner; all substantially as set forth.

519,936.



519,937. FOLDING FURNITURE. SAMUEL AUFRECHT, Berlin, Germany. Filed Oct. 1, 1892. Serial No. 447,527. (No model.) Patented in England Sept. 15, 1892, No. 16,537, and in Germany Oct. 27, 1892, No. 65,122.

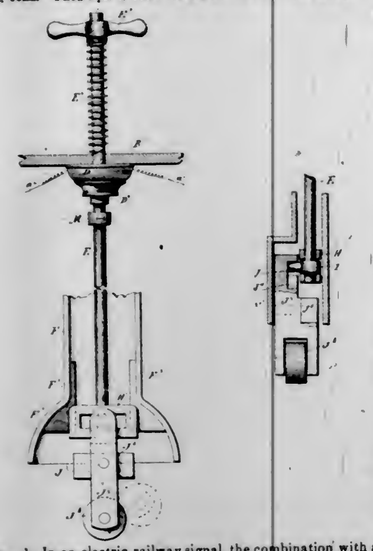


Claim.—1. In a combined bed and table, the combination of a frame with folding end pieces adapted to fold together upon the frame to form a table, and to open out to form a bed, and supporting legs consisting of two inclined frames pivoted together at the center, one pair of legs being attached to the said frame, and the other attached to one of the folding ends by means of flexible bands, substantially as described.

2. A combined bed and table, consisting of a frame provided with folding end pieces, in combination with pivoted supporting legs and a flexible connection, such as straps, or bands, between the top of one pair of legs and the under side of the opposite folding end pieces, whereby said legs are raised or lowered as the end piece is folded inwardly or opened outwardly, substantially as described for the purposes set forth.

3. A combined bed and table consisting of a frame provided with folding end pieces, in combination with inclined pivoted frames constituting supporting legs, one pair of said legs being hinged to the frame, and the other pair of said legs being attached to the under side of the opposite folding end piece, whereby the said legs are raised or lowered as the end piece is folded inwardly or opened outwardly, substantially as described for the purposes set forth.

519,938. ELECTRIC RAILWAY-SIGNAL. FRANK BEATTIE, Leete Island, Conn. Filed Apr. 2, 1894. Serial No. 506,019. (No model.)

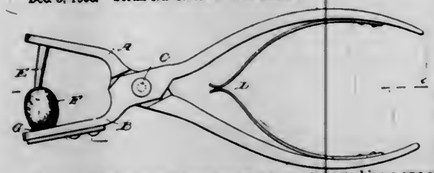


Claim.—1. In an electric railway signal, the combination with a bell located in an electric circuit, of a reciprocal and rotatable operating-rod controlling the making and breaking of the said circuit, a plunger, a button secured to the lower end of the rod, and connecting the plunger thereto, and a pivotal trip adapted at its lower end to be operated upon by a tripping device applied to the railway, and constructed at its upper end to be coupled with the rod through the medium of the said button, substantially as described.

2. In an electric railway signal, the combination with a bell located in an electric circuit, of a reciprocal and rotatable operating-rod adapted to make and break said circuit, a spring exerting its force to lift the rod and close the circuit, a chambered plunger, a button fixed to the lower end of the rod, connecting the plunger therewith and entering the chamber of the plunger when the rod is rotated, a pivotal trip adapted at its lower end to engage a tripping device permanently applied to the railway, and constructed at its upper end with a bearing face which co-operates with the lower edge of the plunger to restore it to its vertical position, and with a vertical locking-notch and a clearance groove for the reception of the said button, substantially as set forth.

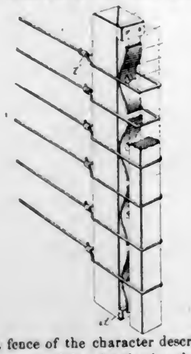
3. In an electric railway-signal, the combination with a bell located in an electric circuit, of a reciprocal and rotatable operating-rod adapted to make and break the said circuit, a spring exerting its force to lift the rod and close the circuit, a chambered plunger located at the lower end of the rod, an operating-button secured to the lower end of the rod, connecting the plunger therewith, and entering the chamber of the plunger when the rod is rotated, a housing containing the plunger and guiding the same in its vertical movement with the rod, and a trip pivoted in the said housing, adapted at its lower end to engage a tripping device permanently applied to the railway, and constructed at its upper end with a righting face which co-operates with the plunger and with a locking-notch and a clearance groove to receive the said button, substantially as described.

519,939. FRUIT-STONER. JOSEPH BOERI, New York, N. Y. Filed Dec. 5, 1893. Serial No. 492,867. (No model.)



Claim.—A fruit stoner, comprising a pair of pivoted jaws one of which has a transverse aperture, a female die secured to the apertured jaw and projecting into the opening thereof, yet spaced at its projecting end, from the walls of the said opening, so as to leave an annular recess or chamber between the female die and the jaw to which it is secured, and a male die secured to the other jaw and adapted to enter the female die, substantially as described.

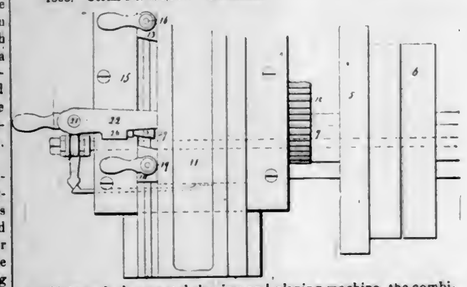
519,940. FENCE-WIRE-TIGHTENING DEVICE. HENRY BUCK, Mount Morris, Ill. Filed Feb. 26, 1894. Serial No. 501,542. (No model.)



Claim.—1. In a fence of the character described, the combination with the corner posts; of the wires having the loops at one end, the stops *d*, secured to the outer side of one post, the flat and curved springs secured at their middle portions to said outer side of the post between the stops, and the vertically-disposed bar C, the said post, springs, and bars being received in the loops of the wires, substantially as specified.

2. In a fence, substantially as described, the combination with the posts, of the wires having loops at one end, flat springs secured to the outer side of one post, and the bar placed against said springs, said post, springs and bar being embraced by the loops of the wires, substantially as specified.

519,941. REVERSING MECHANISM FOR METAL SHAPING AND PLANING MACHINES. AMOS F. CHAMPLIN, Waterbury, assignor to the Hendey Machine Company, Torrington, Conn. Filed July 24, 1893. Serial No. 481,327. (No model.)



Claim.—1. In a metal-shaping and planing machine, the combination with the reciprocating carriage thereof, of a dog mounted upon the said carriage, a reversing lever, a contact-piece carried by the said lever and extending into the path of the dog, and means for adjusting the said contact-piece at a right angle to the path in which the dog moves and at a point to one side of their engagement, substantially as described, and whereby the dog and contact-piece may be brought together, and the latter adjusted to the former.

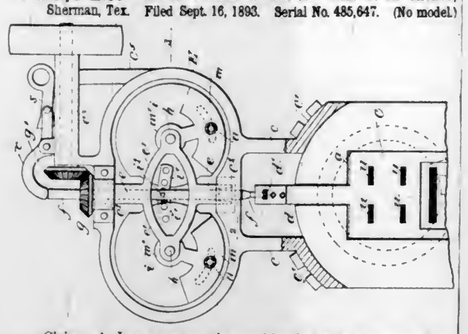
2. In a metal shaping and planing machine, the combination with the reciprocating carriage thereof, of a dog mounted on the said carriage, a reversing lever, a contact-piece having an oblique face carried by the said lever, and means for adjusting the said contact-piece at a right angle to the path of the dog, and at a point outside of their engagement, substantially as set forth, and whereby the contact-piece and dog may be brought together for the adjustment of the former.

3. In a metal shaping and planing machine, the combination with the reciprocating carriage thereof, of a dog, a reversing lever extending into the path of the dog, a contact-piece carried by the said lever, and provided with a stem or shank by means of which it is held in place, and means applied to the said stem or shank for adjusting the contact-piece at a right angle to the path of the dog, substantially as set forth.

4. In a metal shaping and planing machine, the combination with a reversing lever constructed with a housing, of a contact-piece provided with a stem adapted to be moved longitudinally in said housing, and means applied to the outer end of the said stem for moving it longitudinally and hence adjusting the contact-piece, substantially as described.

5. In a metal shaping and planing machine, the combination with a reversing lever constructed with a housing, of a contact-piece provided with a stem which is located in the said housing, means for limiting the longitudinal movement of the said stem in the housing, and an adjusting nut applied to the stem for moving the same longitudinally, substantially as described.

519,942. STEAM-ENGINE GOVERNOR. JOHN P. DEVOISSAUD, Sherman, Tex. Filed Sept. 16, 1893. Serial No. 485,647. (No model.)



Claim.—1. In a governor, the combination with a supported rotatable upright hollow shaft, and means to rotate the shaft, of a spindle, slidable in the shaft disks pivoted on radial arms of the hollow shaft and loosely connected to the spindle, and adjustable weights on the disks, substantially as described.

2. In a governor, the combination with a supported rotatable upright hollow shaft, radial slotted arms thereon, and a longitudinally slotted spindle therein, of two disks pivoted between limbs of the arms and loosely connected to the spindle in its slot, adjustable weight blocks on the disks, and a device to rotate the hollow shaft, substantially as described.

3. In a governor, the combination with a frame, a hollow shaft rotatable thereon, slotted opposite radial arms on said shaft, and a longitudinally slotted spindle in the shaft, of two disks pivoted between limbs of the radial arms, weight blocks hung from the pivots of the disks and adjustably secured in pairs thereon, means to loosely connect the disks to the spindle in its slot, and a device to rotate the hollow shaft, substantially as described.

4. In a governor, the combination with a frame, a hollow shaft rotatable on said frame, two slotted radial arms oppositely projected from the hollow shaft between its ends, and a longitudinally slotted loose spindle in the hollow shaft, of two circular disks centrally pivoted between the limbs of the slotted arms, finger plates fast to the disks and lapped in the slot of the spindle, two pairs of weight blocks hung from the pivots of the disks and adjustably secured oppositely in pairs thereon, and a device to revolve the hollow shaft, substantially as described.

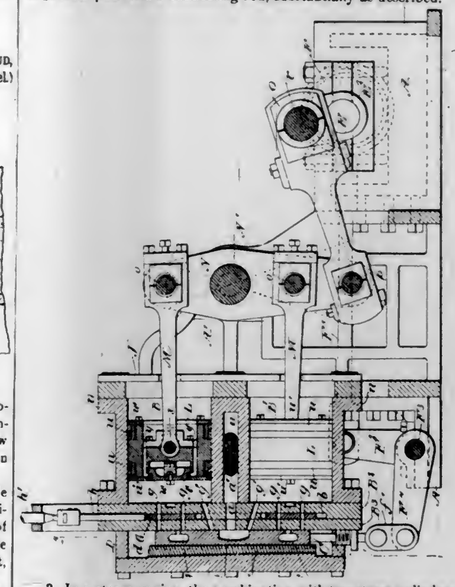
5. The combination with a governor valve arranged to slide in a vertical plane between an engine cylinder and a main valve seat, of a governor comprising a frame, a rotatable upright hollow shaft thereon, two slotted opposite radial arms on the hollow shaft, a cylindrical spindle longitudinally slotted near its center, two circular disks centrally pivoted between the limbs of the radial arms, weight blocks hung from the pivot centers of the disks and adjustably secured oppositely in pairs thereon, finger plates fast on the disks and lapped in the slot of the spindle, and a device to rotate the hollow shaft, substantially as described.

6. The combination with a frame, a hollow shaft, radial slotted arms thereon, and a longitudinally slotted spindle loose in the hollow shaft, of two disks centrally pivoted between limbs of the radial arms and loosely connected to the spindle in its slot, weight blocks hung on the pivots of the disks and adjustably secured to said disks, means to rotate the hollow shaft, and a device adapted to depress the spindle, substantially as described.

519,943. QUICK-SPEED STEAM-ENGINE. JOHN P. DEVOISSAUD, Sherman, Tex. Filed Sept. 16, 1893. Serial No. 485,648. (No model.)

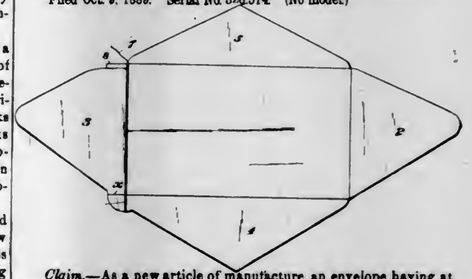
Claim.—1. In a steam engine, the combination with two cylinders supported one above the other, of a single head-plate for the cylinders, a main steam valve, means to move said valve, a throttle valve located in a channel between the head-plate and the seat of the main valve, and a governor device driven from the engine shaft and directly actuating the throttle valve, substantially as described.

2. In a steam engine, the combination with two steam cylinders secured one above the other on a bed plate, piston heads therein, and a connecting rod for each piston head, of an upright vibratory frame on the bed plate, pivoted to the rods at equal distances from its center of motion, the parallel beams of said frame extending below the lower cylinder, and connected to a double crank shaft of the engine by pins or journal pins, and a connecting rod, substantially as described.



3. In a steam engine, the combination with two steam cylinders secured one above the other on a bed plate, a piston head in each cylinder, and a connecting rod for each piston head, of an upright vibratory frame on the bed plate, pivoted to the rods at equal distances from its center of motion, the parallel beams of said frame extending below the lower cylinder, a double crank shaft the length of its cranks being less than the distances between the pivot center of the vibratory frame and centers of pins connecting the piston head rods to said frame, and a main connecting rod between the double cranks and a journal pin on the extending lower end of the vibratory frame, substantially as described.

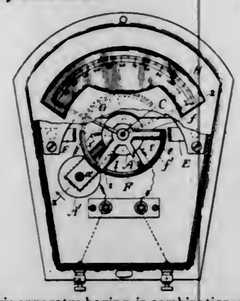
519,944. ENVELOPE. WILLIAM H. ELDRIDGE, Omaha, Nebr. Filed Oct. 9, 1889. Serial No. 326,514. (No model.)



Claim.—As a new article of manufacture, an envelope having at one of its angles or corners a reinforcing fold formed by bending a flap which is made integral with the envelope-blank and located between one side flap and an end flap of said blank, the reinforcing fold being arranged between the side and end flaps, and a thread or string arranged within the envelope, along one of the flap-creases thereof, and secured at one end between the folds of the reinforcing flap, substantially as described, for the purpose set forth.

519,945. ELECTRIC INDICATOR. WILBUR E. GAREY, Chicago Ill. Filed Oct. 13, 1893. Serial No. 488,034. (No model.)

Claim.—1. An electric apparatus having, in combination, an electro magnet, and an armature having a portion pivoted in the field of one pole of the magnet and a portion located in the field of the other pole of the magnet and extending laterally from the portion first aforesaid, substantially as set forth.



2. An electric apparatus having, in combination, an electro magnet, and an armature having a portion pivoted in the field of one pole of the magnet and a portion located in the field of the other pole of the magnet and extending laterally from the portion first aforesaid in a plane that is transverse to the axis of motion, substantially as set forth.

3. An electric apparatus having, in combination, an electro magnet having two wound poles, and an armature having a portion pivoted in the field of one pole of the magnet and a portion located in the field of the other pole of the magnet and extending laterally from the portion first aforesaid, substantially as set forth.

4. An electrical apparatus having, in combination, a U-shaped electro-magnet, a pivoted armature so located that its axis of motion passes through one pole of the magnet, and means for resisting the movement of said armature said armature having a curved portion located in the field of the other pole of the magnet, substantially as set forth.

5. An electrical apparatus having, in combination, a U-shaped electro magnet, a pivoted armature having a portion *f* and a curved portion *f'* continuing laterally from said portion *f*, the portion *f* being pivoted in the field of one pole of the magnet and the portion *f'* being located in the field of the other pole of the magnet and means for resisting the movement of said armature, substantially as set forth.

6. An electrical apparatus having, in combination, a U-shaped electro magnet, a pivoted armature so located that its axis of motion passes through one pole of the magnet, said armature having a portion *f* radiating from its center of motion and a curved portion *f'* continuing laterally from said portion *f* and located in the field of the other pole of the magnet, and means for resisting the movement of said armature, substantially as set forth.

7. An electrical apparatus having, in combination, a U-shaped electro magnet, and an armature pivoted in line with one pole thereof, said armature comprising an arm *f* radiating from its pivot and a curved portion *f'* continuing laterally from said arm, and located in the field of the other pole of the magnet and a weight for resisting the movement of the armature and holding it normally with its arm *f* at an angle to the axis of the magnet, substantially as set forth.

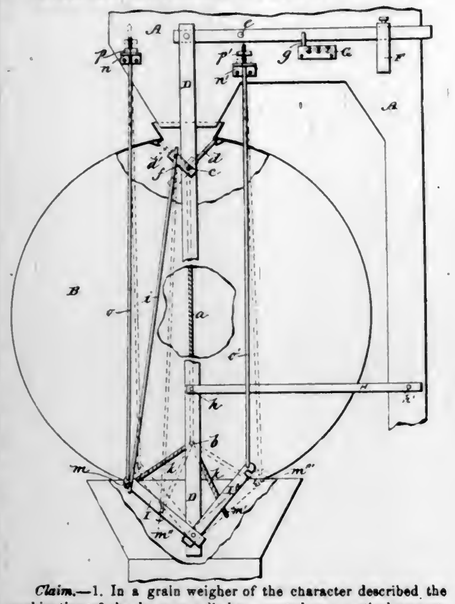
8. A meter having, in combination, a U-shaped electro magnet having an aperture in one of its poles, an adjustable bearing located in said aperture, the pivot C journaled at one end in said bearing, a bearing for the other end of said pivot, an armature carried by said pivot, means for resisting the movement of said armature, an index actuated by the movement of the armature, and a dial upon which the extent of movement of the index is read, substantially as set forth.

519,946. BUTTON. WILLIAM S. GODFREY, Providence, R. I. Filed July 5, 1892. Serial No. 439,001. (No model.)



Claim.—In a cuff-button, the combination with the back 9 having bearings 10—10 and 11—11, and containing a spring 25, of the levers 15 and 21 mounted on the shafts 14 and 19 journaled in said bearings, the longitudinal shoulders 16 and 20 curving inward from said shafts and having transverse pivots 18 and 23 and bearing against the spring 25, arms 17 and 22 extending from said shafts, and a link 24 journaled on these pivots, as and for the purpose described.

519,947. AUTOMATIC GRAIN-WEIGHER. LEWIS C. GUTTERY, Lebanon, Ohio. Filed July 3, 1893. Serial No. 479,532. (No model.)



Claim.—1. In a grain weigher of the character described the combination of the drum or cylinder mounted on a vertical support, compartments therein, openings in the top and bottom of each compartment, a valve mounted in the top of said drum or cylinder adapted to close alternately the openings in the top of said compartments, V-shaped valve pivoted in the bottom of said drum for opening and closing alternately the openings in the bottom of said compartments, and the rod *i* and the crank *f* connecting the valves in the top and bottom of the drum; with the latches I, I' pivoted on the lower end of the vertical support, vertical rods *o, o'* having their lower ends attached to the free ends of the latches I, I', and their upper ends passing through brackets secured to a suitable support, brackets through which said rods pass, and nuts on the upper ends of said rods adapted to be adjusted to cause the release of the latches when a sufficient weight of grain has been measured in a compartment, as set forth.

2. In a grain weigher of the character described the combination of the drum or cylinder mounted on a vertical support, compartments therein, openings in the top and bottom of each compartment, a valve mounted in the top of said drum or cylinder adapted to close alternately the openings in the top of said compartments, V-shaped valve pivoted in the bottom of said drum for opening and closing alternately the openings in the bottom of each compartment, and pins or lugs on the free ends of said valve, and the rods *i* and crank *f* connecting the valves in the top and bottom of said drum or cylinder, with the latches I, I', pivoted on the lower end of the vertical support, lugs or notches in the free ends of said latches adapted to engage the pins or lugs on the free ends of the valve to lock the said valve when closed, vertical rods *o, o'*, having their lower ends attached to the free ends of the latches I, I', and their upper ends passing through brackets secured to a suitable support, brackets through which said rods pass, and nuts on the upper ends of said rods adapted to press upon the said brackets and cause the release of the latches from engagement with the lugs or pins on the free ends of the valve in the bottom of the compartments, as and for the purpose set forth.

3. In a grain weigher the combination of a drum or cylinder mounted on a vertical support and having compartments therein, a V-shaped valve in the bottom of said drum, and pins or stops *m m'* in the outer ends of said valve with the latches I, I', pivoted on the lower end of the vertical support, notches in the free ends of said latches, vertical rods *o, o'*, having their lower ends attached to the free ends of the latches I, I', and their upper ends passing through brackets secured to a suitable support, and nuts on the upper ends of said rods adapted to be adjusted to cause a release of the latches when a sufficient weight of grain has been measured into a compartment, as set forth.

519,948. BRUSH. ARTHUR W. HAHN, New York, N. Y. Filed May 27, 1893. Serial No. 475,759. (Model.)

Claim.—A brush comprising a back section having a recess in one end, and an aperture adjacent to said recess, and a brush section provided with a wire core having projecting ends said brush section having one end of its core secured in the aperture of the back section with the core resting in the recess of said back section, and the other end of its core secured to the back section, substantially as herein shown and described.



519,949. MATCH-SAFE. ALFRED HANSEN, Sidney, Nebr. Filed Aug. 9, 1893. Serial No. 482,718. (No model.)



Claim.—1. A match safe, comprising a casing, a hollow cylinder for containing and supporting the matches, the said cylinder being open at its upper end and mounted to revolve in the said casing and having a series of longitudinal slots formed in its lower portion, and a slide fitted to move on the casing and having a lateral pin adapted to project through said slot to the inside of the cylinder to engage the matches, substantially as shown and described.

2. In a match safe, the combination with a fixed shaft, a revoluble cylinder having a ratchet on its lower end and longitudinal slots as specified, a spring coiled about the shaft and its free end projected laterally, of the slide having a lateral pin and a device attached to the slide and adapted to engage with the free end of the spring, and move it over the teeth of the ratchet wheel and to release said spring so that it can engage with the ratchet teeth and rotate the cylinder, substantially as shown and described.

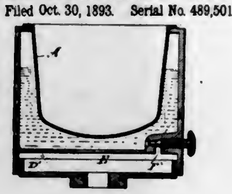
3. A match safe, comprising a casing, a hollow cylinder for containing the matches, the said cylinder being mounted to revolve within the said casing and provided with a series of slots in its lower portion, an elastic disk arranged within the cylinder and adapted to bear against the matches and hold them in contact with the inner surface of the cylinder, and a match ejecting device adapted to work in the slots of the cylinder, as and for the purpose specified.

4. The match holder proper composed of the hollow cylinder open at one end, the circular rubber plate or disk arranged in the said cylinder transversely to its axis, and adapted to bear against the matches and hold them in an upright position against the inner surface of the cylinder, and means for supporting the disk at its center, substantially as shown and described.

5. In a match-safe, the combination with a revoluble cylinder provided on its web with a ratchet wheel, a coil spring having one end fixed and its other end adapted to engage the said ratchet wheel, an arm projecting from the said end, a spring-pressed lever adapted to engage the said coil spring arm, so as to push the latter to one side on its downward movement to wind up the said coil spring, and to disengage the said arm to permit the spring to uncoil, substantially as shown and described.

6. In a match-safe, the combination with a revoluble cylinder provided on its web with a ratchet wheel, a coil spring having one end fixed and its other end adapted to engage the said ratchet wheel, an arm projecting from the said end, a spring-pressed lever adapted to engage the said coil spring arm, so as to push the latter to one side on its downward movement to wind up the said coil spring, and to disengage the said arm to permit the spring to uncoil, and a slide carrying the said lever and provided with a pin adapted to engage a slot in the said cylinder, to prevent the latter from turning during part of the downward movement of the said slide, substantially as shown and described.

519,950. STEAM-HEATED GLUE-POT. FRANK N. HASTINGS, Meriden, Conn. Filed Oct. 30, 1893. Serial No. 489,501. (No model.)

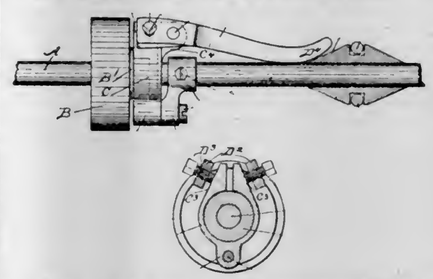


Claim.—1. The combination with a water-reservoir adapted to have a glue pot immersed in the water contained by it, of a steam-chamber located directly below the water-chamber from which it is separated only by a diaphragm, a valve-chamber leading into the water reservoir, a steam-passage leading upward from the steam-chamber into the valve-chamber, and a valve located in the valve-chamber adapted to be operated from the outside of the water-reservoir and normally closing the said passage, substantially as set forth, and whereby the water-reservoir may be kept supplied with water without disturbing the pot, by opening the said valve when the pressure of steam in the steam-chamber will force the water of condensation therein through the passage into the water-reservoir.

2. The combination with a cylindrical body having a false bottom and forming a water-reservoir in which a glue pot is immersed, a head applied to the lower end of the body and forming a steam-chamber directly below the false bottom thereof, a valve-chamber leading from the outside of the body into the water reservoir, a steam-passage leading from the steam-chamber into the said valve-chamber, and a valve located in the said valve-chamber, normally closing the said passage, and adapted to be operated from the outside of the said body, substantially as set forth, and whereby the water in the water-chamber may be renewed without disturbing the pot by opening the valve when the pressure of steam in the steam-chamber will force the water of condensation therein through the passage into the water reservoir.

3. The combination with a cylindrical body having a water-reservoir in which a glue-pot is suspended and immersed, and having a false bottom, a flanged screw-threaded head applied to the lower end of the body and forming a steam-chamber below the false bottom thereof, a valve-chamber extending from the outer face of the body into the water-reservoir, a passage leading from the steam-chamber into the said valve-chamber, and a valve located in the valve-chamber, adapted to be operated from the outside of the said body, and normally closing the said steam-passage, substantially as set forth, and whereby the water in the water chamber may be renewed without disturbing the pot by opening the valve when the pressure of steam in the steam-chamber will force the water of condensation therein through the passage into the water-reservoir.

519,951. FRICTION-CLUTCH. THOMAS A. HAYES, Waterford, N. Y. Filed Aug 21, 1893. Serial No. 483,619. (No model.)



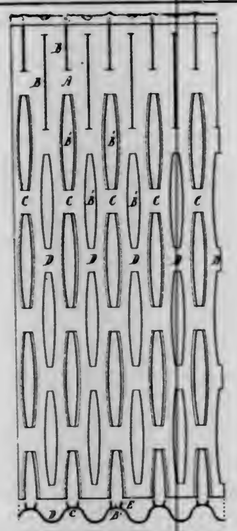
Claim.—1. In a friction clutch, the combination with two elements consisting of a rotary shaft and a pulley loose thereon, of a split collar fixed to rotate with one of such elements and inclosing a friction seat fixed on the other of such elements, a face on each of the collar arms having a practically continuous incline approximating the other inclined face at the extreme outer end of the arm, a bifurcated lever inclosing the collar arms between its own bifurcate arms and adapted to engage said inclines by a movement toward the shaft and by such movement only, and means for operating the bifurcated lever, substantially as set forth.

2. In a friction clutch, the combination of two elements consisting of a rotary shaft and a pulley loose thereon, of a split collar fixed to rotate with one of such elements, and inclosing a friction seat fixed on the other of such elements, an inclined face on each of the collar arms, having a substantially continuous incline approximating the inclined face at its outer end, a bifurcated lever inclosing the collar arms between its own bifurcate arms, pins or screws in said arms having each a bearing face at right angles to the axis of the screw and means for operating the bifurcated lever, substantially as set forth.

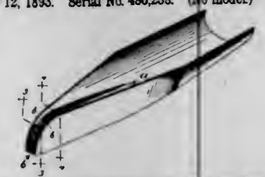
519,952. METALLIC LATHING. GEORGE HAYES, New York, N. Y. Filed Oct. 23, 1893. Serial No. 488,892. (Model.)

Claim.—A corrugated, slitted sheet of metal lathing, in which the corrugations are allowed for by the lateral expansion of the slits; substantially as and for the purposes described.

519,952.

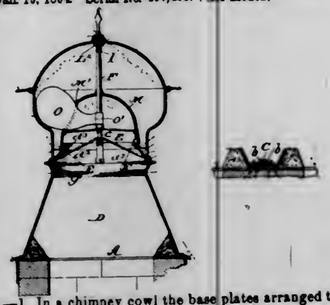


519,953. PEN. ADDIS M. HENRY, White Sulphur Springs, Mont. Filed July 12, 1893. Serial No. 480,238. (No model.)



Claim.—As a new article of manufacture a pen formed of a piece of sheet metal bent into W-shape in cross section to form longitudinal corrugations *b b'* and having the metal at the point cut away to form passages c, as set forth.

519,954. CHIMNEY-COWL. JOSEPH A. HODEL, Cumberland, Md. Filed Jan. 19, 1894. Serial No. 497,433. (No model.)



Claim.—1. In a chimney cowl the base plates arranged to meet between the flues, the tops having their adjacent edges above the joint of the base plate provided with beads or flanges, the ridge plate covering such joint and the fastenings substantially as set forth.

2. A chimney cowl, provided with a revolving regulator and having a vane, connected with said regulator and arranged and operating entirely within the cowl substantially as set forth.

3. In a cowl substantially as described the combination with the regulator having an outlet opening in one side and supports for said regulator of the vane secured within said regulator and extended through the outlet opening thereof all substantially as set forth.

4. In a cowl the combination of the lower portion having at its top the cylindrical externally shouldered rim, and the regulator above said rim and fitted at its lower edge upon the said shouldered rim and a scraper connected with said regulator and operating within the said rim substantially as set forth.

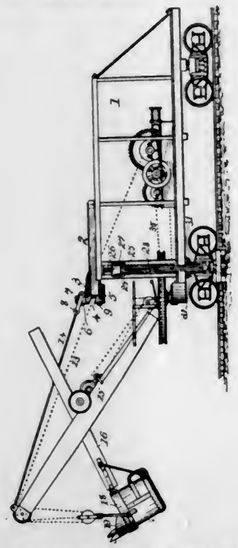
5. The combination with a cowl, of the vane arranged within said cowl, and the part operated by the said vane substantially as and for the purposes set forth.

6. The combination of the cowl, the shaft in said cowl, bearings for said shaft one of said bearings being adjustable and the regulator and vane secured to the said shaft, both the regulator and vane being arranged and operating within the cowl substantially as and for the purposes set forth.

7. A cowl having a lower section provided at its top with an inwardly tapered or conical portion, the upper section having at its lower edge legs provided with feet secured to said tapered or conical portion, the regulator operating in the cowl and the vane substantially as set forth.

8. The improved cowl herein described having the lower section provided with the inwardly tapered top the upper section having legs secured to the said top, the shaft arranged in the said cowl and the regulator and vane secured to the shaft and both arranged and operating within the cowl substantially as and for the purposes set forth.

519,955. STEAM-SHOVEL. GRANT HOLMES, Danville, Ill. Filed Jan. 29, 1894. Serial No. 498,421. (No model.)



Claim.—1. A crane mast head having a single sheave block approximately in line with the vertical pivot of the crane and swung at its lower end on an approximately horizontal pivot, substantially as set forth.

2. A crane mast head having an arc formed mouth, or slot, for the passage of the chain and provided with a single sheave block approximately in line with the vertical pivot of the crane and swung at its lower end on an approximately horizontal pivot substantially as set forth.

3. A crane mast head rounded vertically on its forward end and having an arc-formed mouth, or slot, for the passage of the chain, and a single sheave block in the mast head approximately in line with the vertical pivot of the crane and swung at its lower end on an approximately horizontal pivot, substantially as set forth.

4. A crane mast head having a single sheave block approximately in line with the vertical pivot of the crane and swung at its lower end on an approximately horizontal pivot, and also having a sliding sheave to the rear of the swinging sheave block substantially as set forth.

5. A crane mast head having a sheave block approximately in line with the vertical pivot of the crane and swung at its lower end on an approximately horizontal pivot, and a vertical pin projecting upward from the mast head and forming a bearing for the suspension rod of the crane boom, substantially as set forth.

6. A jack or brace for steam shovels, and similar machines, such brace comprising a jack screw having bearings in the car frame, a nut on the jack screw guided against turning, a brace bar hinged to the nut, and a tie brace hinged to the lower portion of a side of the car, the brace bar and the tie brace being hinged together at their swinging ends and connected with a bearing block, substantially as set forth.

7. A jack or brace for steam shovels, and similar machines, consisting in the combination of a jack screw having bearings in the car frame, a nut on the jack screw guided against turning, a brace bar hinged to the nut, a tie brace hinged to the lower portion of a side of the car and also hinged to the brace bar, a bearing block connected with the brace bar and tie brace at or near the conjunction thereof, and a loose sheave and sliding clutch on the jack screw enabling such screw to be turned by a chain of the machine, substantially as set forth.

8. A jack screw for adjusting the brace bars of steam shovels, and like machines, such screw having bearings in the car frame and provided with a clutch sheave and a capstan head, whereby it may be operated either by power or by hand, substantially as set forth.

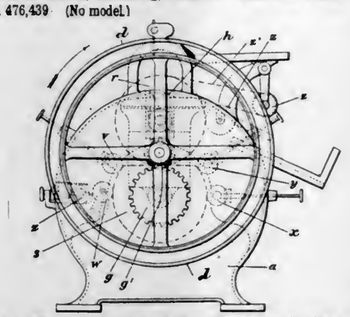
9. In jacks or braces for steam shovels, and similar machines, the combination of a guide frame composed of parallel bars extended from the floor at one side of the car upward, across and down to the floor on the opposite side, a jack screw between the vertical bars on each side, a nut on each jack screw guided between the parallel bars, a brace bar hinged to each nut, and a tie brace hinged to the lower edge of each side of the car, the brace bars and the tie braces being hinged together at their swinging ends and connected with a bearing block, substantially as set forth.

10. In a dipper for steam shovels, the combination of a dipper; a nose piece; a plate recessed to receive the nose piece, extended around the inner, upper, front portion of the dipper and secured firmly in place; and a bolt extending through a hole formed partly in the nose piece and partly in a coinciding vertical wall of the plate; whereby the nose piece is secured to the dipper in a readily detachable manner, substantially as set forth.

11. In a dipper for steam shovels, the combination of a dipper; a nose piece; a band extending around the upper edge of the dipper; a plate secured firmly to the inner, upper, front portion of the dipper, and recessed to receive the nose piece; and a bolt extending through a hole formed partly in the nose piece and partly in a coinciding wall of the plate, substantially as set forth.

12. A jack or brace for steam shovels, and like machines, consisting in the combination of a jack screw extended through the bottom of the car frame and provided with a head on its lower end bearing against the bottom of the car, a nut on the jack screw above the floor of the car, such nut being guided against turning, and a brace extending obliquely downward and outward from the nut, whereby all vertical strain of the brace is exerted on the head of the jack screw and against the bottom of the car, substantially as set forth.

519,956. ROTATING LETTER-PRESS PRINTING-MACHINE. FRANZ X. HÖLZLE, Heidelberg, Germany. Filed June 3, 1893. Serial No. 476,439. (No model.)

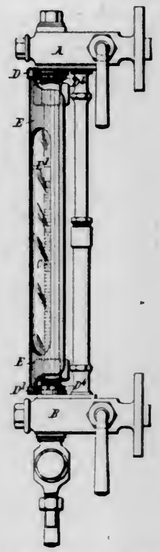


Claim.—The combination of the main frame having vertical guides, the rotating table having a flattened portion and radial arms, extending from the flattened portion, formed with channels parallel with the flattened portion, the impression cylinder having journals, bearings for the journals located and sliding in the guides, gearing whereby the table and cylinder are caused to rotate in unison, and means for rotating the table; the journals of the cylinder being extended so as to enter the channels of the arms, whereby the arms are adapted to hold the cylinder down on the flattened portion of the table; substantially as described.

519,957. GUARD FOR WATER-GAGES. JOHN A. HOPKINSON and JOSEPH HOPKINSON, Huddersfield, England. Filed Dec. 15, 1893. Serial No. 493,797. (No model.) Patented in England Feb. 3, 1893. No. 2,452.

Claim.—1. For a glass water gage, the combination of upper and lower brackets mounted respectively on the steam and water arms of the gage, a frame loosely resting in said brackets, and glass loosely resting in said frame, substantially as described.

2. For a glass water gage, the combination of upper and lower brackets mounted respectively on the steam and water arms of the gage, a frame made in one piece loosely resting in said brackets, and flat glass strips loosely resting in said frame, substantially as described.



3. For a glass water gage, a shield or guard comprising a frame in which readily removable flat glass strips are held by means of turn-buttons, said glass carrying frame being loosely supported in upper and lower brackets carried by the steam and water arms respectively so as to be readily attachable and detachable at any time without requiring the removal or adjustment of any part of the gage, substantially as described.

4. For a glass water gage, a shield or guard comprising a frame in which readily removable flat glass strips are held by means of turn-buttons, said glass carrying frame being loosely supported in upper and lower brackets carried by the steam and water arms respectively, independently of the gland nuts, substantially as, and for the purpose, specified.

5. For a glass water gage, a shield or guard comprising a frame in which readily removable flat glass strips are held by means of turn-buttons, and the ends of which are reduced in width, said glass carrying frame being loosely supported in upper and lower brackets carried by the steam and water arms respectively, independently of the gland nuts, substantially as, and for the purpose, specified.

6. For a glass water-gage a shield or guard comprising a curved glass carrying metal frame loosely supported in upper and lower brackets carried by the steam and water arms respectively independently of the gland nuts, said frame being fitted with flat glass strips or plates which are held safely therein by means of turn-buttons without rigid restriction or pressure, substantially as described.

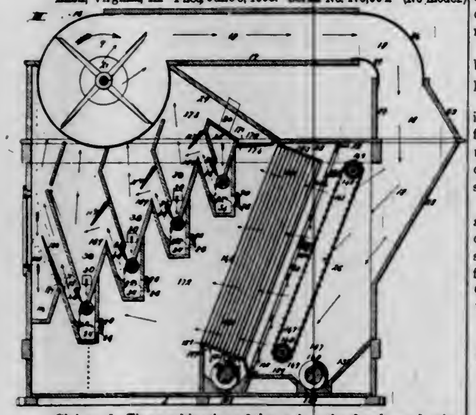
7. The combination, with a glass water gage, of upper and lower brackets mounted on the steam and water arms independently of the gland nuts, the upper arm being furnished with a through slot, and the lower arm with a recess, and a shield or guard, comprising a frame and readily removable glass strips held therein, loosely received in said slot and recess, substantially as described for the purpose specified.

8. The combination, with a glass water gage, of upper and lower brackets formed with eye pieces that pass over the screw threaded parts of the glands on the upper and lower arms respectively, and are secured thereon by nuts, the upper arm being furnished with a through slot, and the lower arm with a recess, and a shield or guard, comprising a frame and readily removable glass strips held therein, said shield or guard resting loosely in the recess in the lower bracket and being supported laterally by the slotted part of the upper bracket, substantially as described.

9. The combination, with a glass water gage, of upper and lower brackets formed with eye pieces that pass over the screw threaded parts of the glands on the upper and lower arms respectively, and are secured thereon by nuts, the upper arm being furnished with a through slot, and the lower arm with a recess, and a shield or guard, comprising a curved metal frame and readily removable flat glass strips held in said frame without rigid restriction or pressure by means of

turn-buttons, said shield or guard resting loosely in the recess in the lower bracket and being supported laterally by the slotted part of the upper bracket, substantially as described.

519,958. DUST-ARRESTER. HENRY A. HUFFNER and LEVI LASH, Virginia, Ill. Filed June 8, 1893. Serial No. 476,994. (No model.)



Claim.—1. The combination of the casing, the fan-drum, having air-inlets, the floor 17 the vertical wall 27, the ceiling 25, and the inclined wall 29, forming in connection with the casing the air channel 18, the chambers 26, 172, and 173 and side chambers 180, connected with the fan-drum, the inclined series of primary separating chambers 34, and an adjustable valve for controlling the current, in advance of the primary separating chambers, between the inclined wall and the first primary separating chamber; substantially as described.

2. The combination with the casing of the collecting and deflecting apparatus 146, comprising a base formed with discharge ports, a top plate, parallel longitudinal partitions formed with ports, imperforate cross partitions, and the I shaped frames, the air channel, and the rotary fan; substantially as described.

3. The combination of the casing, the air-channel, the vertically inclined endless chain carrying a brush, the vertically inclined screen against which the brush operates, the vertically inclined collecting and deflecting apparatus comprising a base formed with discharge ports, a top plate parallel longitudinal partitions formed with ports, the imperforate transverse partitions and the I shaped frames, and a rotary fan; substantially as described.

4. The combination, with the casing; of the air-channel, the vertically inclined endless chain, carrying a brush, the vertically inclined screen upon which the brush operates, the primary separating chamber, the vertically inclined collecting and deflecting apparatus located between the screen and chamber and a rotary fan; substantially as described.

5. The combination, with the casing; of the fan-drum, the floor, the vertical wall the ceiling having a port, the inclined wall, the valve controlling the port, the air-channel, the vertically inclined endless chain, carrying a brush, the vertically inclined screen, the primary separating chamber, the vertically inclined collecting and deflecting apparatus located between the screen and chamber, and a rotary-fan; substantially as described.

6. The combination, with the casing; of the fan-drum, the floor, the vertical wall, the ceiling having a port, the inclined wall, the valve controlling the port, the air channel, the main bin, the vertically inclined endless brush-chain, located over the main bin, the vertically inclined screen against which the brush operates, the flour bin, the vertically inclined collecting and deflecting apparatus located over the flour bin, the primary separating chambers located in front of the apparatus, and a rotary fan; substantially as described.

7. The combination, with the casing; of the floor, the vertical wall, the ceiling, the inclined wall, the main bin, the screen and the endless brush chain located over the main bin, the flour bin, the collecting and deflecting apparatus located over the flour bin, a primary separating chamber located in front of the apparatus, the side-chambers, the fan-drum located between the side chambers, and the rotary fan; substantially as described.

8. The combination of the rotary fan, the outer and inner casings, the main bin, the screen, the endless chain carrying a brush, the flour bin, and the collecting and deflecting apparatus comprising a base having discharge ports, the parallel longitudinal partitions formed with ports, the cross partitions, and the I shaped frames; substantially as described.

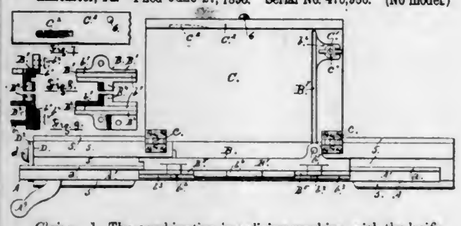
9. The combination, with the casing; of the primary separating chamber 34, having a port 86 in its rear side, a valve 90 controlling the port, an angular projection 82 located on the front side of the chamber opposite the port, the deflector 169 in front of the chamber, a feed roll 42, the hopper 38 located over the feed roll having a supply chute 30, a valve 46 controlling the outlet to the hopper, the hinged current deflector 117 controlling the passage between the front walls of the hopper and chamber, the inner casing, the air channel, and a rotary fan; substantially as described.

10. A collecting and deflecting apparatus comprising a perforated base, the parallel longitudinal partitions formed with ports, the cross partitions and the I shaped frames; substantially as described.

11. The combination of the rotary fan, the outer and inner casings, the main bin, the screen, the endless chain carrying a brush, the flour bin, the collecting and deflecting apparatus, the primary separating chambers arranged in steps in front of the apparatus, the final chamber 114, and the upwardly extending hinged deflector 120; substantially as described.

12. A dust arrester comprising the outer and inner casings, the air channel 18, the chambers 26, 172, 173, the dust bin 137, the screw conveyer 140 located in the dust bin, the endless brush chain 147, the screen 145, the flour bin 152, the screw conveyer 168, located in the flour bin, the collecting and deflecting apparatus 146, the primary separating chamber 34, the hopper 38, the deflector 117 and the rotary fan; substantially as described.

519,959. SLICING-MACHINE. ANTHONY ISKE and ALBERT ISKE, Lancaster, Pa. Filed June 27, 1893. Serial No. 478,986. (No model.)



Claim.—1. The combination in a slicing machine, with the knife-rack consisting of a top, and a bottom, rail; off-set plates, in parallel planes, joined to the adjacent sides of said rails, and guide-ribs, oppositely disposed, projected along the inner edges from the outer faces thereof; an oblique opening, between the inner ends of said plates; and a knife-blade, within said opening, secured to the oblique end of one of said plates, of a gage-plate, filling the rest of said opening, and having its rear edge hinged to the oblique end of the other one of said plates, and having means provided whereby the free edge of said gage-plate may be moved either way, by means of said hinges, and securely held in position, substantially as described and for the purpose set forth.

2. The combination in a slicing machine having a reciprocating knife-rack, comprising two parallel rails, having guide-ribs on their outer faces, and off-set plates to join their inner ones, an oblique opening between the inner ends of said plates, and a knife-blade within said opening and secured to the oblique end of one of said plates, with a gage-plate in front of said knife-blade and having its rear edge hinge-jointed to the oblique end of the other one of said plates, and a rearwardly projected arm having one end secured to the outer face near the rear edge of said gage-plate, of a thumb-screw having its shaft tapped through the free end of said arm and its forward end loosely pivoted into the adjacent off-set plate of the knife-rack, substantially as described and for the purpose set forth

3. The combination in a slicing machine, having grooved guide-ways in the vertical face of its supporting frame-work, as hereinbefore described, with a knife-rack, as described, movable back and forth in said guide-ways, of an actuating handle as described, having its base plate rotatably pivoted near to an end of the front face of said knife-rack as shown, substantially as described and for the purpose hereinbefore set forth.

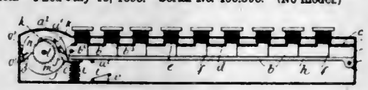
4. The combination in a slicing machine having a base piece 5, as shown, to support the frame-work thereof, and grooved guide-ways in the front vertical face of said frame-work, with a reciprocating knife-rack having guide ribs projected vertically outward from its upper and lower parallel faces, and movable back and forth in said guide-ways, and a locking notch placed in the lower rib near to the left-hand end of the rack, of a locking plate, such as hereinbefore described, rotatably pivoted to the adjacent end of said base, 5, substantially as described and for the purpose set forth.

5. The combination in a slicing machine, with the upper and lower guide rails B′ and B² of the frame-work, having the angular recesses *b′* and *b′* and the upwardly and downwardly projected lugs with

the screws b^3, as described, and the knife-rack A, as described, movable back and forth between said guide-rails as shown, of the flanged retaining plates having the oblong orifices as shown adjustably secured, by means of said screws b^3, to the front faces of said guide-rails, substantially as described and for the purpose set forth.

6. The combination in a slicing machine, having a frame-work, as described, supported by a base-piece 5, as shown, with a supporting platform having its front edge top-hinged to the rearward edge of said base-piece, of a supporting strip, centrally and reversibly pivoted to the rear edge of said supporting platform, and having an outwardly sloping and elongated recess in its inner face, near to the lower edge and left-hand end of said strip, substantially as described and for the purpose hereinbefore set forth.

519,960. ADDING-MACHINE. ALFRED B. LENNOX, Bay City, Mich. Filed July 13, 1893. Serial No. 480,398. (No model.)



Claim.—1. An adding and calculating machine comprising in combination, an outer casing, a plurality of sets of key bars of different lengths and commonly pivoted, a plurality of pivoted lever plates each having at its free end a pawl, a plurality of figure disks, ratchet wheels secured to said disks and adapted to be engaged by said pawls, openings in the casings above said disks, and means for simultaneously actuating two of the disks, substantially as and for the purposes set forth.

2. In an adding and calculating machine, and in combination with a figure disk, means for rotating same a predetermined distance consisting of a series of key bars of different lengths pivoted to a common center, a lever plate normally raised in contact with the heels of said bars and oppositely pivoted thereto, a pawl on the free end of said plate, and a ratchet wheel secured to the disk and engaging said pawl, substantially as and for the purposes set forth.

3. In an adding and calculating machine, the combination with a figure disk, of a series of key bars of different lengths commonly pivoted, a lever plate oppositely pivoted and normally contacting with the said bars, intermediate actuating mechanism between said plate and the disk, and a spring for restoring the normal position of the plate, substantially as and for the purposes set forth.

4 In an adding and calculating machine and in combination with two adjacent disks, of a lever plate adapted to be depressed, mechanism between the plate and one of the disks for actuating the latter, pins on the other disk, and a finger on the plate in the path of the pins, whereby the disks may be simultaneously rotated, substantially as described.

5. In an adding and calculating machine, a plurality of sets of keys of different lengths commonly pivoted, a plurality of lever plates oppositely pivoted, one for each set of keys, pawls and fingers on the free ends of the plates, a plurality of figure disks having pins for engaging the fingers, and ratchet wheels for engaging the pawls, and auxiliary spring retainer pawls for engaging said ratchet wheels, substantially as and for the purposes set forth.

6. In an adding and calculating machine, a locking bar in combination with the lever plates having the pivotal projections, the handle, and the locking projection, said plates having a longitudinal movement, and operating in the manner described.

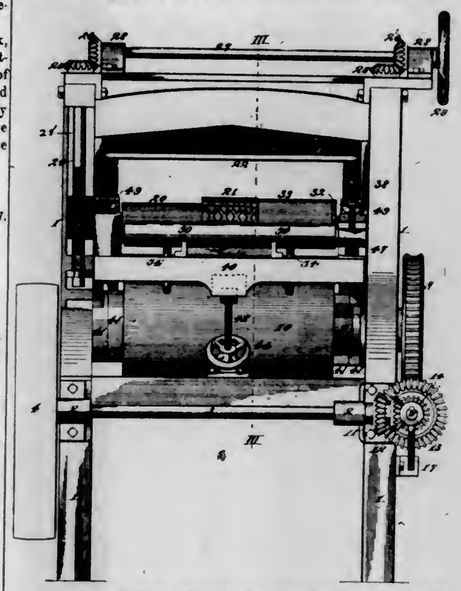
519,961. EMBOSSING-MACHINE. FREDRICK W. MALEY, St. Louis, Mo., assignor of one-half to Charles W. Hill and Daniel P. Alexander, same place. Filed Jan 21, 1893. Serial No. 459,222. (No model.)

Claim.—1. In an embossing machine, the combination of a drum, means for turning the drum, a spindle and an embossing die arranged on the spindle; said spindle having a curved groove to receive a projection on said die, whereby the die is allowed to expand and contract while being held from longitudinal movement on the shaft; substantially as set forth.

2. In an embossing machine, the combination of a drum, means for turning the drum, a spindle having a curved groove, a sleeve fitting on the groove against a collar secured to the spindle, and a die having a projection fitting in said groove, substantially as and for the purpose set forth.

3. In an embossing machine, the combination of a rotating drum, a vertically adjustable frame, a die spindle mounted in said frame and means for yieldingly pressing said spindle constantly in one direction against a suitable stop, whereby the correct longitudinal position of the spindle is maintained, while its expansion under changes in temperature is permitted.

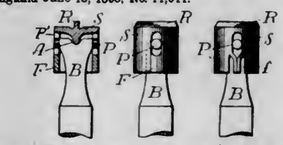
4. In an embossing machine, the combination of the drum, means for turning the drum, a spindle having a conical journal, and adapted to hold the embossing die, a wedge-shaped block 37, adapted to bear against the conical end of the spindle, and a spring 38; substantially as and for the purpose set forth.



5. In an embossing machine, the combination of a rotatable drum, a die spindle opposed to said drum, and a feed table provided with suitable rollers and capable of being adjusted to any desired angle, whereby the material can be passed through the machine with the top fibers stretched or under tension, so that the tendency of the burning die to warp the molding is counteracted, substantially as described.

6. In an embossing machine, the combination of a rotating drum a die spindle mounted in an adjustable frame and a removable sectional collar or ring secured to the drum having an irregular periphery to correspond with the back of the molding or other piece to be embossed, as explained.

519,962. SCREW-DRIVER. ARNULPH MALLOCK, London, England. Filed Dec. 1, 1893. Serial No. 492,498. (No model.) Patented in England June 13, 1893, No. 11,611.



Claim.—1. The combination with the shank of a screw-driver, having a curved extremity, of a hollow head or socket having a screw-engaging rib and provided internally with a curved bearing surface resting upon the extremity of the said shank for enabling the head or socket to freely rock in every direction, and means for retaining the head or socket in operative connection with the shank, substantially as described.

2. The combination with the shank of a screw-driver, of a slotted hollow head having a screw-engaging rib and universally jointed directly to the end of the shank to freely rock in all directions, and a pin arranged on said shank and playing in the slotted part of the hollow head, substantially as described.

3. The combination with the shank of a screw-driver, of a hollow head having a screw-engaging rib and side slots and jointed to and inclosing one end portion of the shank, and a pin fixed to the shank and playing in the side slots of the hollow head, substantially as described.

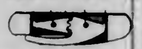
519,963. GAS-HOLDER TANK. FREDERICK MAYER, Baltimore, Md. Filed Dec. 30, 1893. Serial No. 496,185. (No model.)

Claim.—In combination with the lower end of the shell of a composite gas holder tank, and a fixed plate situated in the foundation wall or masonry portion of the same, and exteriorly of the shell, a

flexible connection between the said parts, whereby the shell may expand or contract in diameter without placing on the said plate, or the wall or masonry, any undue strain, substantially as specified.

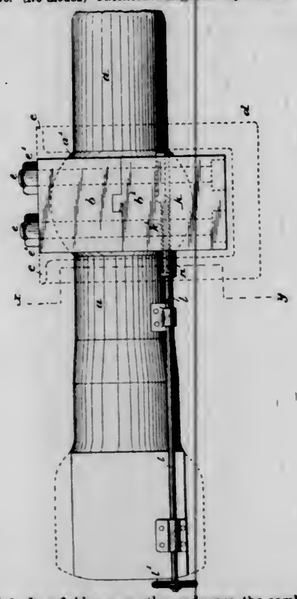


519,964. GARMENT-HANGER. NELS NEILEN, Sioux City, Iowa. Filed Oct. 26, 1893. Serial No. 489,230. (No model.)



Claim.—The combination in a garment hanger of a body; two claws pivoted therein on two separate pivots and geared to coact, one of the said claws being provided with a garment hook, substantially as described.

519,965. GUN-MOUNTING. JAMES L. NORRIS, Washington, D. C., administrator of Daniel Adamson, deceased, assignor to the Adamson Gun Syndicate, Limited, London, England. Filed July 27, 1893. Serial No. 481,630. (No model.) Patented in England July 11, 1888, No. 10,061.

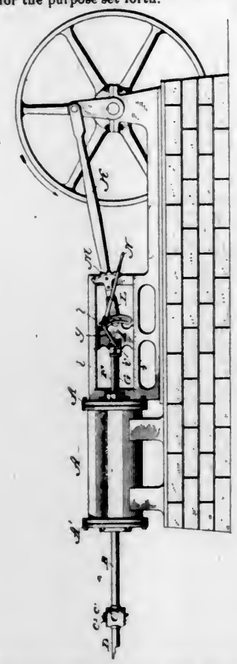


Claim.—1. In a field gun or other ordnance, the combination of a spherical portion *a'* formed on the gun in lieu of trunnions, and a clip of corresponding spherical form internally, and bearing upon and supporting said spherical portion of the gun and adapted to grip and lock the gun firmly in position when required, the said spherical portion and the clip constituting a form of ball and socket or modified universal joint, substantially as shown and for the purpose specified.

2. In a field gun or other ordnance the combination with a spherical portion formed on the gun in lieu of trunnions and a corresponding spherical clip, of wedge pieces *k k* and means for operating them to grip and lock the gun, substantially as described.

519,966. STEAM-ENGINE. ALFRED N. OGLE and CHARLES M. MAGUNSON, Two Harbors, Minn. Filed Feb. 15, 1894. Serial No. 500,288. (No model.)

Claim.—1. In an engine, the combination, of a cylinder having heads A' and A^2, the head A' having supply and exhaust pipes connected thereto the other head having a central aperture for the passage of the piston-rod and an aperture for the passage of the valve-operating-rod, together with a piston having a slide-valve to which the valve operating-rod is connected, and supply and exhaust pipes which enter the pipes connected to the cylinder-head A', substantially as shown and for the purpose set forth.



2. In an engine a piston having a slide valve and supply and exhaust pipes connected thereto, the supply and exhaust pipes extending through one of the heads of the steam-cylinder, the piston and valve rods passing through the opposite head of the cylinder, substantially as shown.

3. In an engine, a piston having a slide-valve located therein, supply and exhaust pipes connected with the slide-valve and extending into supply and exhaust pipes which extend beyond the steam-cylinder in combination with a cylinder having heads A' and A^2, the head A' having supply and exhaust pipes B B into which the pipes carried by the piston pass, the head A^2 having a central opening through which passes the piston-rod and an opening through which the rod operating the slide-valve passes, substantially as shown, the rods and pipes attached to the piston supporting the same in the cylinder, as set forth.

4. In a steam-engine, the combination, of a cylinder having heads A' and A^2 as shown, one of the cylinder-heads having steam supply and exhaust pipes which communicate with openings in said head, of a valved piston one of the heads of which carries pipes which pass through the cylinder-head A' and enter the pipes attached thereto, one of said pipes entering the steam supply pipe, substantially as shown and for the purpose set forth.

5. In a steam-engine, a steam-cylinder having heads A' and A^2, one of the cylinder-heads having connected thereto supply and exhaust pipes, a three-way cock connected with the supply and exhaust pipes and with a steam supply pipe, a valved piston having pipes *b b* which pass through the cylinder-head and enter the supply and exhaust pipes, and means for operating the valve in the piston, substantially as shown and for the purpose set forth.

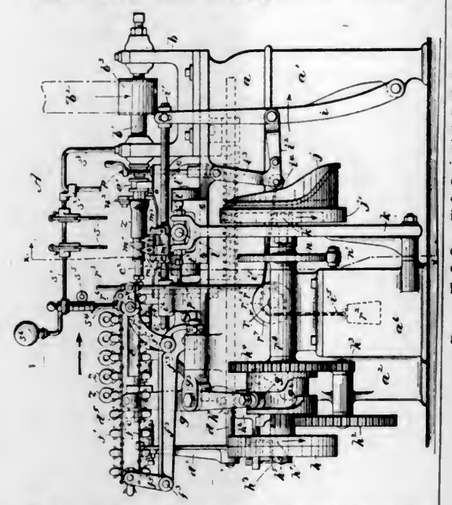
6. In combination with a steam-cylinder, a valved piston connected with steam supply and exhaust substantially as shown, a valve rod for operating the valve connected by a bar or link to a plate carried by the pitman of the engine substantially as shown.

7. In combination with a steam-cylinder, a valved piston connected with steam supply and exhaust substantially as shown, a rod for operating the valve connected by a link and pin to a slot in a plate carried by the pitman, substantially as shown.

8. In combination with a steam-cylinder, a valved piston connected with steam supply and exhaust substantially as shown, a rod for operating the valve connected by a link and pin to a slotted plate carried by the pitman, together with a lever pivoted to the pitman and engaging at one end with the pin to which the valve-rod is connected, substantially as shown, and for the purpose set forth.

9. In a steam-engine, the combination of a cylinder constructed substantially as shown and provided with pipes B B, a valved-piston E carrying pipes *b b* which enter the pipes B B, the piston having ports and steam ways which lead from the space in which the valve slides into the steam-cylinder and into a steam-way connected with one of the pipes *b*, the slide-valve having steam-ways as shown, together with a rod G for operating the reciprocating valve, substantially as shown, and for the purpose set forth.

519,967. MACHINE FOR AUTOMATICALLY TURNING BOBBINS, SPOOLS, &c. JOHN M. PARKER, Pawtucket, R. I. Filed May 8, 1893. Serial No. 473,418. (No model.)



Claim.—1. In an organized machine for turning bobbins automatically, blank-centering and holding mechanism, yieldingly mounted and guided roughing cutters, mechanism for propelling the cutters to and fro longitudinally of the centered bobbin-blank, finishing cutters arranged on the opposite side of the machine, mechanism for moving them transversely of and into engagement with the blank after the roughing cutters have completed their work, in combination with an endless carrier provided with seats to receive the blanks, means to propel the carrier intermittingly connected with and working in unison with the said mechanism for actuating the roughing cutters, a vertically mounted intermittingly movable shaft provided with fingers for taking a blank from the carrier and placing it in position to be operated upon by said centering, holding and turning mechanisms, other fingers for removing the turned bobbin from the spindle, and means for detaching the bobbin from the fingers, substantially as described.

2. In a bobbin-turning machine, automatically operating devices for feeding, centering and turning the blanks, a vertically mounted shaft s^4, a gear loosely splined to the shaft, a reciprocating rack in engagement with said gear for rotating the shaft back and forth axially, and a cam-actuated lever for moving the shaft vertically having the latter connected with and rotatable therein, in combination with blank-placing fingers and bobbin-removing fingers attached to and adapted to move in unison with said vertical shaft, substantially as described.

3. In a bobbin-turning machine, the combination of an adjustable endless carrier or double chain provided at regular intervals with seats for the bobbin-blanks and means for propelling the carrier intermittingly, said means consisting of a pawl-and-ratchet device adapted to be actuated and controlled by the cutter-feeding mechanism, substantially as described.

4. In a bobbin-turning machine, the combination with the shaft s^4 and mechanism for rotating it axially back and forth intermittingly, of blank-carrying fingers and bobbin-removing fingers, rods s' and s^5 having said fingers mounted thereon, said rods being arranged in different horizontal planes and secured to said shaft and moving in unison therewith, and means for moving the shaft endwise, whereby one set of fingers picks up a blank and places it in position while the other set of fingers is removing the last-turned bobbin from the spindle and passing it to the clearer, substantially as described.

5. In a bobbin-turning machine, the combination with the two series of mechanically and intermittingly operating conveying and removing fingers, of clearer-fingers adapted to hold the bobbin while it is being released from the removing fingers, substantially as described.

519,968. ENAMELING SHEET METAL AND COMPOUND THEREFOR. HARRY D. QUINBY, Denver, Colo., assignor to Rosalie M. Quinby, same place. Filed Jan. 8, 1894. Serial No. 496,163. (No specimens.)

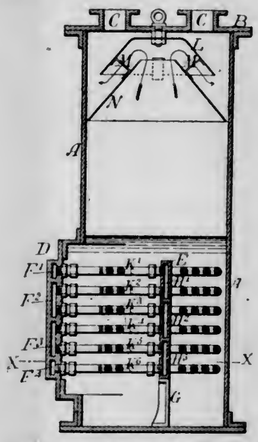
Claim.—1. That improvement in the art of enameling metal or metal ware, which consists in first cleaning and roughening the surface of the metal or ware by a strong acid solution, next allowing it to dry, then dipping or coating the same with a glaze composed of the ingredients and substantially in the proportions herein named; allowing it to dry at the usual temperature of the atmosphere and then burning or firing, substantially as set forth.

2. That improvement in the art of enameling metal or metal ware which consists in first cleaning and roughening the surface of the metal or ware by a strong acid solution, next allowing it to dry, then dipping or coating the same with a glaze composed of the ingredients and coloring matter substantially in the proportions named, allowing the metal to dry at the usual temperature of the atmosphere and then burning or firing substantially as set forth.

3. The compound for enameling metal or metal ware as herein described, consisting of silica, feldspar, borax, calcium fluoride, calcium phosphate and pipe clay in substantially the proportions as herein set forth.

4. The compound for enameling metal or metal ware as herein described, consisting of silica, feldspar, borax, calcium fluoride, calcium phosphate, pipe clay and mineral salts in substantially the proportions as herein set forth.

519,969. EVAPORATING APPARATUS. THOMAS J. RAYNER, London, England. Filed Nov. 27, 1893. Serial No. 492,159. (No model.) Patented in England May 31, 1893, No. 10,700.

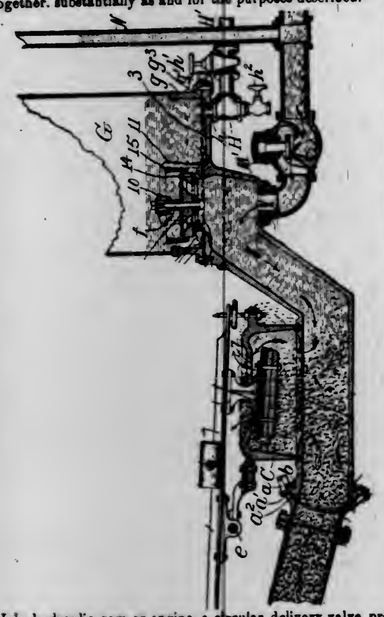


Claim.—An evaporating apparatus, consisting of a vessel A, a series of convolute coils of pipes communicating with one another for the passage of steam therethrough and located in the lower portion of the vessel, a shell N formed as a truncated cone and having its lower edge nearly touching the internal surface of the vessel, so that the condensed liquid can trickle down while the main portion of vapor is compelled to pass up through the center of the shell, and an inverted cup L suspended from the top portion of the vessel and arranged over the said shell, substantially as and for the purposes described.

519,970. HYDRAULIC RAM OR ENGINE. WILLIAM A. RIFE, Waynesborough, Va. Filed June 16, 1893. Serial No. 477,840. (No model.)

Claim.—1. In an escape valve for a hydraulic ram or engine, the combination with a circular rigid support of greater diameter than the interior of the valve seat; of a ring of rubber or other yielding elastic material mounted near the periphery of said support, and adapted to engage the valve seat; a metal ring mounted over the inner portion of said rubber ring; bolts and nuts for compressing said rubber ring between said metal ring and said support; a rubber disk

mounted on said support within said rubber ring and concentric therewith, a flanged valve stem mounted over said rubber disk, and bolts and nuts adjustably connecting said support said rubber disk and said flange together. substantially as and for the purposes described.

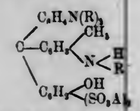


2. In a hydraulic ram or engine, a circular delivery valve provided with a metallic body perforated with curved grid-iron ports, a flap of leather or similar material mounted over said ports, a perforated rubber disk beneath said valve body, a perforated ring provided with curved ribs secured beneath said perforated rubber disk, and means for securing the said valve body, leather flap, rubber disk, and perforated ring together, substantially as described.

519,971. BLUE DYE. JAKOB SCHMID and JACQUES BACHELUT, Basle, Switzerland, assignors to the Society of Chemical Industry in Basle, same place. Filed Dec. 15, 1893. Serial No. 493,774. (Specimens.)

Claim.—1. The process for the production of a new blue acid coloring-matter which process consists in heating mixtures of equal molecular proportions of dialkylized anilin, alkylized ortho-toluidin and meta oxybenzaldehyde in presence of condensing agents, subsequently sulfonating and finally oxidizing the thus obtained new leucosulfo acid in the manner as hereinbefore described.

2. As a new article of manufacture the coloring-matter having the general formula

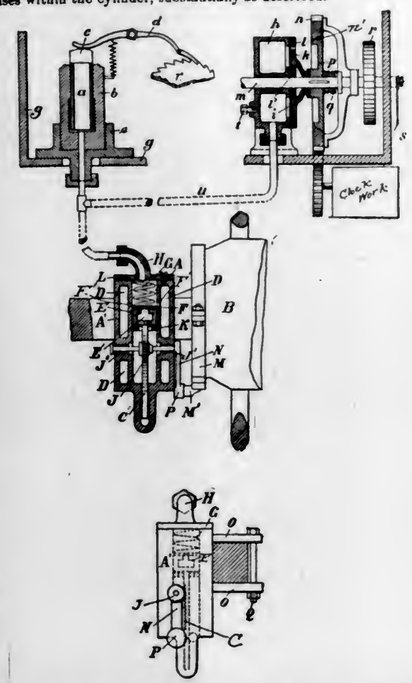


forming a dark powder with metallic luster, easily soluble in water with a magnificent blue coloration, which turns yellow-green on the addition of mineral acids, and bluish-green when caustic soda-lye is added, and in concentrated sulfuric acid it dissolves with a yellow coloration which changes into green on the addition of an excess of water; it is soluble in alcohol but insoluble in ether and benzene.

519,972. FARE-INDICATOR FOR CABS. OTTO SCHNEIDER, Berlin, Germany. Filed Aug. 8, 1893. Serial No. 482,684. (No model.)

Claim.—1. In combination with a vehicle an air cylinder carried by the axle thereof, a spring pressed piston reciprocating therein having a toothed piston rod, a shaft carrying a gear engaging said toothed rod, a crank arm carried by said shaft adapted to be engaged by a projection on the wheel hub to propel said piston against the pressure of the spring, a supplemental cylinder and piston having pipe connections with the first, and a shaft carrying suitable indicating mechanism and operatively connected to said supplemental piston, substantially as described.

2. In combination with a vehicle, a vertically arranged cylinder mounted upon the axle and having pipe connections to a supplemental indicator-operating cylinder, and a piston reciprocating in said main cylinder operated by the vehicle wheel, said piston having a recessed upper face to provide a receptacle for gathering moisture which condenses within the cylinder, substantially as described.



3. In combination with a vehicle, a vertically arranged cylinder mounted on the axle thereof and having pipe connections to a supplemental indicator-operating cylinder, a piston reciprocating in said cylinder and adapted to be intermittently raised by the vehicle wheel, said piston having a recessed upper face, a perforated elastic disk resting upon the upper face of the piston and forming a packing, and a helical spring extending between said disk and the upper end of the cylinder and serving to return the piston after it has been raised by the wheel, substantially as described.

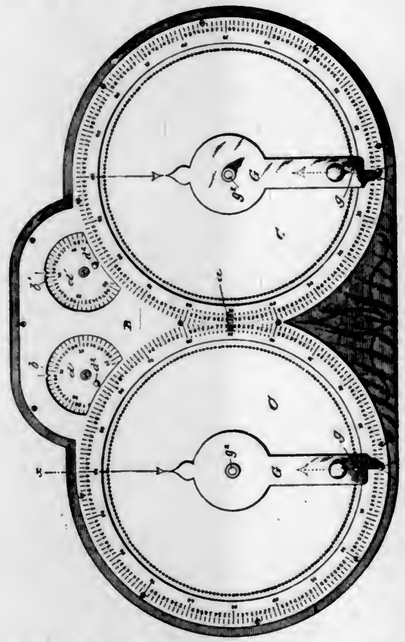
4. In combination with a vehicle an air cylinder connected to the axle thereof, and having a piston operated by the vehicle wheel, a supplemental cylinder having pipe connections with said first cylinder, a piston in said supplemental cylinder caused to reciprocate by the pulsations produced by the first piston, a shaft carrying a suitable indicator operated by said second piston and a continuously driven mechanism adapted to be automatically connected with said shaft when the movement of the vehicle is reduced below a predetermined speed, substantially as described.

5. In combination with the cylinders A and *b* having a pipe connection and the pistons reciprocating in unison therein, an indicator shaft operated by the piston in cylinder *b*, a third cylinder having a flexible side wall connected through a branch pipe with the cylinder A, said branch pipe being adapted to admit air to said third cylinder but preventing its return therefrom, a continuously driven wheel loose on the indicator shaft, a sliding clutch disk held normally in contact with said wheel, a connection between said flexible wall and clutch disk whereby pressure within the cylinder will expand said flexible wall and disengage the disk and wheel, and a relief valve for permitting the escape of excess of air, substantially as described.

519,973. CALCULATING-MACHINE. JAMES A. SEWELL, Campton, Ky. Filed Jan. 12, 1893. Serial No. 458,149. (No model.)

Claim.—1. In a calculating machine, the combination, of two disks pivoted upon a base side by side and having their outer edges divided into equal spaces which are provided with holes and numbered from 1 to 100 extending half way round each disk and continued around the other half from 1 to 100, and a cover plate B attached to the base and provided with openings the edges of which overlap the edges of the disks, the overlapping portions being divided into spaces corresponding with the spaces on the disks and numbered from 1 to 100 on each side of a point or pin, as *b*, the numbers commencing at said point or pin and extending therefrom in both directions, substantially as shown, and for the purpose set forth.

2. In a calculating machine, the combination, of two disks C C pivoted upon a base side by side and having their edges divided into equal spaces which are provided with holes and numbered from 1 to 100 extending half way around each disk and continued around the other half of each disk from 1 to 100, said disks also having nibs *f f* located diametrically opposite each other as shown, a cover plate B attached to the base and having openings the edges of which overlap the edges of the disks, the overlapping portions of the plate being divided into equal spaces corresponding with the spaces on the disks and numbered from 1 to 100 on each side of a point or pin, as *b*, the numbers commencing at said point or pin and extending therefrom in opposite directions, and disks or dials *d* and *d'* having numbered spaces and toothed peripheries which are engaged by the nibs *f f* on the disks C C, substantially as shown, and for the purpose set forth.

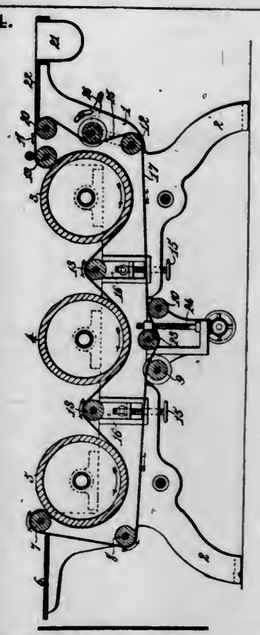


3. In a calculating machine, the combination, of two disks C C pivoted upon a base side by side and having their edges divided into equal spaces which are provided with holes and numbered from 1 to 100 extending half way around each disk and continued around the other half of each disk from 1 to 100, said disks also having nibs *f f* located diametrically opposite each other as shown, a cover plate B attached to the base and having openings the edges of which overlap the edges of the disks, the overlapping portions of the plate being divided into equal spaces corresponding with the spaces on the disks and numbered from 1 to 100 on each side of a pin or point, as *b*, the numbers commencing at said pin or point and extending therefrom in opposite directions, and disks or dials *d* and *d'* having numbered spaces and toothed peripheries which are engaged by the nibs *f f* on the disks C C, together with levers G G removably mounted on the pivot pins of the disks C C and having a pointer *g'* and a pin *g*, substantially as shown, and for the purpose set forth.

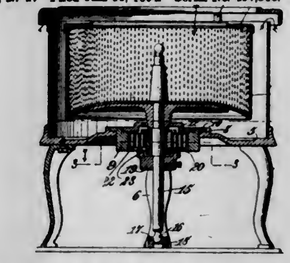
519,974. IRONING-MACHINE. HAMILTON E. SMITH, New York, N. Y. Filed Jan. 15, 1894. Serial No. 496,903. (No model.)

Claim.—In an ironing machine, the combination with a series of ironing or smoothing cylinders, and an endless apron passing partially round the cylinders, of vertically adjustable rollers supporting the apron in arches between the cylinders, and means for vertically adjusting said rollers to vary the elevation of the arched parts of the apron, substantially as and for the purpose described.

519,974.



519,975. CENTRIFUGAL MACHINE. HAMILTON E. SMITH, New York, N. Y. Filed Jan. 18, 1894. Serial No. 497,310. (No model.)



Claim.—1. In a centrifugal machine, the combination with a rotary drum, and a drive-shaft therefor, of a cylinder or case having its bottom wall provided with a housing or casing which is solely supported thereby, a sleeve arranged in the housing or casing, and a convolute spring located in the housing or casing, supported thereby, connected thereto and encircling and rigidly secured to the sleeve, substantially as described.

2. In a centrifugal machine, the combination with a rotary-drum, and a drive-shaft therefor, of a cylinder or case having a bottom wall provided with a central opening, a housing arranged in the said central opening and having a lateral flange engaged with the bottom wall of the cylinder or case, a sleeve arranged in the housing, a spring located in the latter, supported thereby and rigidly connected to the sleeve and to the housing, and a cover-plate mounted on the flanged housing, substantially as described.

3. In a centrifugal machine, the combination with a rotary-drum, and a drive-shaft therefor, of a cylinder or case having a bottom wall, a flanged housing or casing secured to said bottom wall, a sleeve arranged centrally in the housing or casing, a removable bushing fitted into the sleeve and constituting a bearing for the drive-shaft, and a convolute spring located in the housing or casing, supported thereby, connected thereto and encircling and rigidly secured directly to the sleeve, substantially as described.

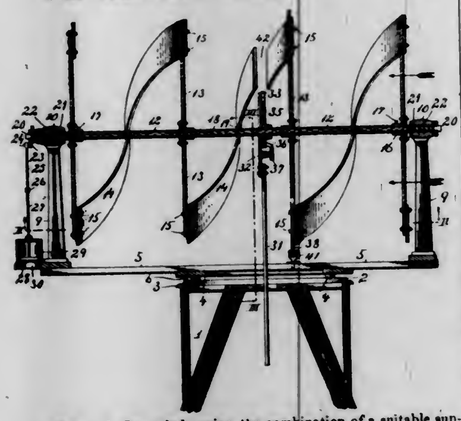
4. In a centrifugal machine, the combination with a rotary-drum, and a stationary cylinder or case, of a ring or annulus secured to the upper end of the drum, overhanging the same and arranged substantially horizontal, and a ring or annulus of greater diameter supported above the top edge of the cylinder or case, overhanging the same and providing a surrounding air exit, whereby the air currents descending through the drum, will not encounter the air currents ascending between the drum and the cylinder or case, substantially as described.

519,976. BICYCLE-TIRE. CARLTON J. SPOFFORD, Dolgeville, N. Y. Filed Feb. 19, 1894. Serial No. 500,787. (No model.)



Claim.—In a bicycle tire of the character described, in combination with a hollow flexible tube, of a series of spiral springs arranged in a continuous series, each spring being in contact with or in close proximity to the next adjacent spring in the series, straps connecting the springs at their upper and lower ends and adapted to be drawn within the hollow tube, substantially as described and for the purpose specified.

519,977. WIND-ENGINE. WILLIAM H. STEWART, Kansas City, Kans., assignor of one-half to Charles S. Smith, same place. Filed Sept. 7, 1892. Serial No. 445,237. (No model.)



Claim.—1. In a wind engine, the combination of a suitable support, a frame rotatably mounted on said support, a shaft carried by said frame, radial arms secured to and extending from said shaft, and a continuous spiral blade secured to said radial arms, substantially as shown and described.

2. In a wind engine, the combination of a support and a power device consisting of a continuous spiral blade, mounted on a horizontal axis which is journaled in a frame rotating about a vertical axis; said horizontal axis being made to intersect the line of the vertical axis, but to project unequally on opposite sides thereof, substantially as set forth.

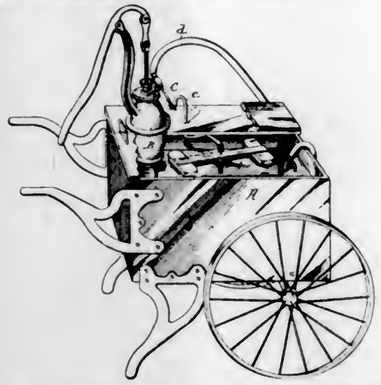
3. In a wind engine, the combination of a spiral blade; a frame for supporting the same, said frame being pivoted so that one of its ends is of greater length than its opposite end, and supporting a greater amount of the blade than the opposite end; substantially as and for the purpose set forth.

4. In a wind engine, the combination of a shaft; radial arms connected therewith, spiral blades connected with said arms, a pivoted lever 38, a blade 39, on one end of said lever, and a hook on its opposite end for engaging one of the radial arms; substantially as described and for the purpose set forth.

519,978. LIQUID-MIXER. JOHN B. THIES, Dayton, Ohio, assignor to the Gem City Manufacturing Company, same place. Filed June 3, 1893. Serial No. 476,469. (No model.)

Claim.—1. The combination with a portable tank, a force pump attached to said tank with T-shaped outlets for the attachment of hose through which a portion of the liquid contained in said tank is returned thereto to maintain an agitation of the liquid remaining in the tank, while a portion is sprayed on external objects, of a nozzle having a central opening attached to the hose leading to the tank, a mixer consisting of a tube having orifices in the median portion thereof, attached to said nozzle, and means for maintaining said tube sufficiently submerged in the liquid to exclude the entry of air therein, substantially as and for the purposes specified.

2. An apparatus for mixing ingredients of less specific gravity with water, consisting of a tank in which the liquid is contained, a force pump attached to said tank with a two-fold outlet for the attachment of hose, a mixer consisting of a tube with orifices in the sides thereof, a nozzle attached to said tube and to the hose leading from one of the outlets, means for maintaining said tube submerged in the liquid to a point above the orifices, so as to exclude the admittance of air while the liquid contents of the tank are being agitated by means of the pump returning a constant stream in said tank from whence it is taken, substantially as herein specified.

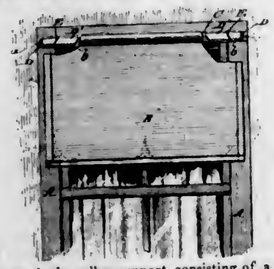


3. The combination with the portable tank, of a mixer consisting of a tube having orifices in the median portion thereof, a nozzle having a central opening to which said tube is attached, and the means herein described for maintaining a continuous agitation of the liquid contents of said tank by delivering a stream through said nozzle and mixer at a point below the surface of the liquid, substantially as herein described.

4. In an apparatus for mixing oils of a less specific gravity with water, the combination with the tank and pump, of a mixer consisting of a perforated tube, a nozzle to which said tube is attached, a buoy or float to maintain said tube in a proper position with reference to the liquid contents of the tank, consisting of a plurality of arms radiating from a central socket, a set screw entering said socket, substantially as herein specified.

5. In an apparatus of the character specified, the combination of a nozzle having a stem and a central opening, a perforated tube attached thereto, and means for adjusting said tube consisting of a triple arm buoy or float having a socket and set screw and blocks attached to the ends of said arms with hollow interiors by means of which a specific lightness is imparted to said float.

519,979. WINDOW-SHADE FIXTURE. FRANCIS M. WILKINSON, Birmingham, Ala. Filed Aug. 26, 1893. Serial No. 484,111. (No model.)



Claim.—A shade roller support consisting of a right angular bracket having a long shank portion D' with teeth or notches on one of its edges, the said shank portion being arranged parallel to the roller, and at the end of said shank portion a short section D at right angles to the shank portion provided with an opening or bearing for the roller journal, and a staple or keeper E made wider than the transverse dimensions of the shank portion and adapted to straddle the same in a diagonal position to hold it horizontal substantially as and for the purpose described.

519,980. COMPOUND EDIBLE FAT. ALEXANDER W. WINTER, Chicago, Ill., assignor to Josephine Amanda Winter, William H. Lee, and Fred Charles Laird, same place. Filed Feb. 13, 1894. Serial No. 500,048. (No specimens.)

Claim.—1. An edible compound fat, composed of refined mineral oil, and fatty substance in the proportions to form a stiff compound, substantially as described.

2. An edible compound fat, composed of refined mineral oil, animal fat, and vegetable fat, in the proportions to form a stiff compound, substantially as described.

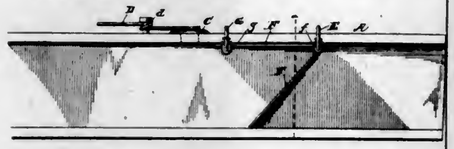
3. An edible compound fat, composed of refined mineral oil, oleo-stearine, tallow, and vegetable fat of the cotton seed, substantially as described.

4. An edible compound fat composed of substantially, sixty (60) per cent. of refined mineral oil, and forty (40) per cent. fatty substance, substantially as described.

5. An edible compound fat composed of substantially, sixty (60) per cent. of refined mineral oil, thirty (30) per cent. animal fat, and ten (10) per cent. vegetable fat, substantially as described.

6. An edible compound fat composed of substantially, sixty (60) per cent. refined mineral oil, fifteen (15) per cent. oleo-stearine, fifteen (15) per cent. tallow, and ten (10) per cent. of cotton seed oil, substantially as described.

519,981. FLUME-RIFFLE. SAMUEL A. BAGGS, Riverside, Cal., assignor of one-half to J. K. Woodward, same place. Filed Dec. 9, 1893. Serial No. 493,227. (No model.)



Claim.—1. The combination with a water flume; of a riffle plate hinged at one end to one side of the flume and adapted to have its other end moved transversely across the flume against its opposite side, said riffle plate being of a width less than the depth of the flume, substantially as set forth.

2. The combination with a flume; of a series of riffle plates hinged one above the other at one side of the flume, and means for temporarily holding the free ends of said plates at one side of the flume, substantially as set forth.

3. The combination with a flume having a side gate opening; of a hinged riffle plate mounted within the flume adjacent to the gate opening and adapted to be swung diagonally across the same, and a locking device for the free end of such riffle plate, substantially as set forth.

4. The combination with a water flume having a side gate opening; of a series of separate and independent riffle plates mounted within the flume and hinged to the same point of attachment, one or more of said plates being adapted to be swung transversely across the flume at one time, substantially as set forth.

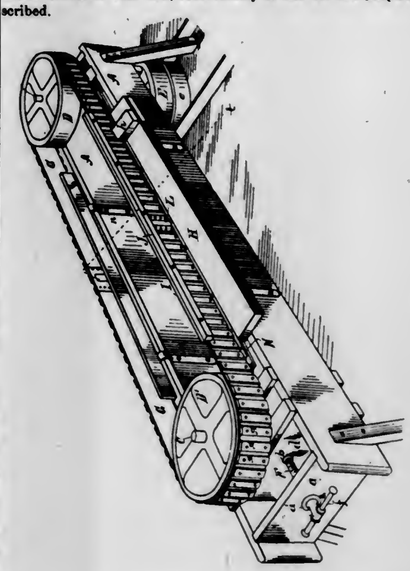
5. The combination with a water flume; of a hinge clip fitted to one side of said flume at a suitable point of attachment, a series of separate and independent riffle plates hinged at one end to the inner arm of said clip and adapted to be either separately or together swung transversely across the flume to interrupt the water passing therethrough, and a substantially U-shaped plate-holding clip guided to slide over one of the flume sides and adapted to have the inner arm thereof engage the free ends of the riffle plates, substantially as set forth.

519,982. SPLINT-CUTTER. FREDERICK S. BAUMEISTER, Rockwood, Mich., assignor of one-half to Frederick Baumeister, same place. Filed Aug. 4, 1892. Serial No. 442,110. (No model.)

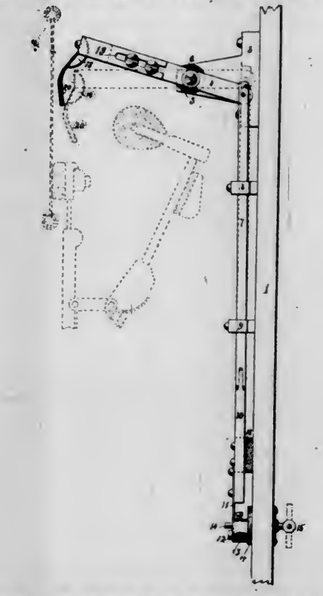
Claim.—1. In a splint-cutting machine, the combination of a frame-work, fixed and adjustable pulleys, a flexible belt running on said pulleys, armor plates *g* secured in close proximity to each other along the outside thereof, knife holding frames secured thereto at intervals and having their outer faces in line with the outer line of the armor plates and their inner faces flush with the inner surface of the belt, substantially as and for the purpose specified.

2. In a splint-cutting machine, the combination of a frame-work, a fixed pulley and an adjustable pulley, a flexible belt, armor plates *g* secured in close proximity to each other, knife-holding frames secured at intervals thereto, having their outer faces in line with the outer line of the armor plates, and their inner faces flush with the inner surface of the belt, and a back support along the straight line of travel of said belt, substantially as and for the purpose described.

3. In a splint-cutting machine, the combination of a frame work, fixed and adjustable pulleys, a flexible belt, armor plates secured in close proximity to each other, knife holding frames secured at intervals, having their outer faces in line with the outer line of the armor plates, and their inner faces flush with the inner surface of the belt, a back support, and upper and lower guide-ways along the straight line of travel of said belt, substantially as and for the purpose described.



519,983. MUFFLER FOR PIANOS. OSCAR H. BOLLMAN, St. Louis, Mo. Filed Feb. 23, 1894. Serial No. 501,073. (No model.)



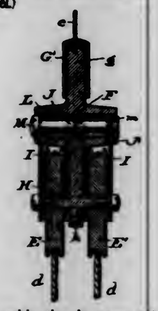
Claim.—1. The combination in an upright piano of a muffler apron mounted on brackets secured to the front-board, means attached to the front-board for raising and lowering the apron; and a handle on the front of the front-board for operating the muffler; substantially as described.

2. A muffler for upright pianos supported on brackets 3 and 3ª secured to the front-board, a vertical sliding rod 7 connected by an arm 10 to a crank 13, and a handle 15 on the front of the front-board for operating the muffler.

3. A muffler for upright pianos secured to the arms 4 by metal stripe 19, having slots cut lengthwise in them, so that the apron may be adjusted at different distances from the strings; substantially as described.

4. A muffler for upright pianos mounted on the front-board, and means attached to the front-board for raising and lowering the apron, and metal stripe 19 having slots cut lengthwise in them, for adjusting the apron at different distances from the strings; substantially as described.

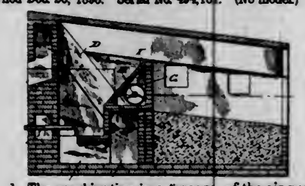
519,984. PULLEY-BLOCK. ARTHUR W. BROWNE, Prince's Bay, N. Y., assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Original application filed Apr. 17, 1893, Serial No. 470,774. Divided and this application filed Feb. 5, 1894. Serial No. 499,042. (No model.)



Claim.—1. The combination, in a suspension pulley block, of the frame, the pulleys, and the cord guards secured to the frame and provided with the depending yielding forks having the flanges adjacent to the flanges of the pulleys, substantially as and for the purpose set forth.

2. The suspension pulley block having the frame provided with the cross arms, the pulleys, the forked cord-guards secured between the cross arms of the frame, the spacing sleeves, the securing bolt, and its nut, substantially as and for the purpose set forth.

519,985. METALLURGIC FURNACE. JOSEPH BUTLER, Marion, Ind. Filed Dec. 20, 1893. Serial No. 494,181. (No model.)



Claim.—1. The combination in a furnace, of the air-passages D, commencing at the front of the furnace and running through the combustion-chamber, the air-distributing chamber E at the rear of said combustion-chamber, and the branch passages F running from the distributing chamber under the combustion-chamber toward the front of the latter, substantially as described.

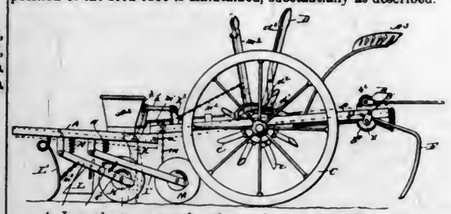
2. The furnace herein shown, comprising a combustion-chamber, air-passages D commencing at the front of the furnace and running through said combustion-chamber, the air-distributing chamber E, at the rear of said combustion chamber, the branch passages F running from the distributing chamber under the combustion-chamber toward the front of the latter, the air-tube G arranged near the top of the bridge and over the distributing chamber, and a spray-tube H arranged inside the air-tube, all constructed and arranged substantially as shown and described.

519,986. SEEDER AND PLANTER. JAMES W. CAMPBELL, Urbana, Ill. Filed Aug. 24, 1893. Serial No. 483,963. (No model.)

Claim.—1. In a corn planter, the combination with the front and rear frames and carrying wheels, of the pivoted seed tube carried by the forward frame, and the link connecting said seed tube and rear frame, whereby the discharge end of the tube is maintained in proper relative position, irrespective of the movement of the two frames with relation to each other, substantially as described.

2. In a corn planter, the combination with the main frame, with carrying wheels thereon, and the forward tongue or runner frame, hinged to the main frame, of the seed tube pivotally mounted on the runner or tongue frame, a projection rigidly connected with the main frame and a link connecting the seed tube and said projection; substantially as described.

3. In a corn planter, the combination with the main frame, the carrying wheels therefor and the runner or tongue frame hinged to the main frame, of the seed tube pivotally mounted on the tongue or runner frame, the upwardly extending projection on the seed tube, the projection on the main frame and the link connecting said projection on the main frame and seed tube respectively, whereby the relative position of the seed tube is maintained, substantially as described.



4. In a planter, or seeder, the combination with the seed feeding mechanism, of the furrow opening disks, the angular adjustable axle on which said disks are journaled with their edges at one side in proximity to each other; substantially as described.

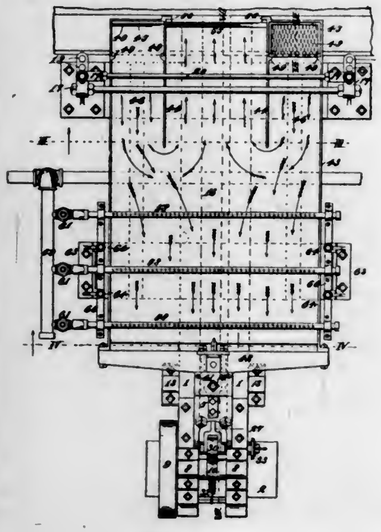
5. In a seeder or planter, the combination with the frame, seed tube and seed feeding mechanism, of the furrow opening disks, mounted on centers at an angle to each other whereby their edges at one side are brought into proximity the angle axle forming the center upon which said disks revolve and the hub flanges adjustably connecting said axle and frame for adjusting the axle on its longitudinal center, whereby the point of contact of the disk may be changed: substantially as described.

6. In a seeder or planter, the combination with the frame, the seed tube and seed feeding mechanism, of the furrow disks, the expansible frame and the extensible axle rigidly connected therewith and having the centers for the disks at an angle to each other; substantially as described.

7. In a seeder or planter, the combination with the furrow disks arranged at an angle to each other, the extensible axle on which said disks are adjustably mounted, the frame having the laterally adjustable side pieces, with which the axle is united and the draft bar connected with said frame; substantially as described.

8. In a seeder, or planter, the combination with the feed distributing mechanism, of the concave furrow disk having the straight flange at the outer edge, of the cooperating disk having its edge in proximity to the first mentioned disk at the inner side of the flange, whereby a single sharp cutting edge is presented; substantially as described.

519,987. APPARATUS FOR CONCENTRATING ORES. WILLIAM L. CARD and FRANK. S. CARD, St. Louis, Mo. Filed Apr. 29, 1893. Serial No. 472,379. (No model.)



Claim.—1. In an ore concentrator, the combination of a tray, mechanism for moving the tray, and means for depositing the ore onto the tray; said tray having one or more longitudinal partitions extending part way of its length to form feeding channels approximately in line with the longitudinal, reciprocating movements of the tray, substantially as and for the purpose set forth.

2. In an ore concentrator, the combination of a tray, mechanism for agitating the tray, and means for depositing the ore onto the tray; said tray having one or more partitions extending from its rear end forwardly, part way of the length of the tray approximately in line with its to and fro movement; substantially as and for the purpose set forth.

3. In an ore concentrator, a tray having parallel sides and provided with a partition extending part way of the length of the tray, approximately parallel with the sides of the tray, and forming a compartment through which the material is caused to pass: substantially as set forth.

4. In an ore concentrator, a tray having a partition extending part way of the length of the tray, forming a compartment, through which the material has to pass, and a perforated divider plate located at the inner end of said compartment, substantially as and for the purpose set forth.

5. In an ore concentrator, a tray having parallel sides and a pair of partitions extending part way of the length of the tray, around the ends of which the tailings have to pass, and forming stratifying compartments through which the pulp has to pass, and a channel between them through which the tailings flow in an opposite direction over the rear end of the tray; substantially as and for the purpose set forth.

6. In an ore concentrator, a tray having parallel sides and a pair of parallel partitions extending part way of the length of the tray, and forming compartments through which the material has to pass, and a central space through which the tailings pass, and divider plates located at the inner ends of said compartments; substantially as and for the purpose set forth.

7. In an ore concentrator, a tray provided with a pair of parallel partitions extending part way of the length of the tray, and forming side compartments through which the material has to pass, and a central passage for the tailings, and an adjustable tail-board located at the end of said central passage; substantially as and for the purpose set forth.

8. In an ore concentrator, the combination of a tray having side feed compartments extending part way of the length of the tray, and a distributer trough located over the tray, and adapted to deliver the material into said compartments; substantially as and for the purpose set forth.

9. In an ore concentrator, the combination of a tray having side feed compartments extending part way of the length of the tray, perforated divider plates located in said feed compartments, and a distributer trough located over said tray, for delivering the material onto said divider plates; substantially as and for the purpose set forth.

10. In an ore concentrator, the combination of a tray having side feed compartments, divider plates located in said feed compartments, a trough located over said tray for delivering the material onto said divider plates and means for imparting movement to said tray, and trough, to cause the material to pass from the trough onto said divider plates, and to cause it to pass through said divider plates and compartments; substantially as and for the purpose set forth.

11. In an ore concentrator, the combination of a tray, a trough having a discharge opening in each end and located over the tray, and stay ribs or strips located in said trough, a distance from the ends thereof; substantially as and for the purpose set forth.

12. In an ore concentrator, the combination of a tray, a trough having a discharge opening in each end thereof and arranged over the tray, saddles upon which the trough rests, and bolts passing through the tray, saddles and trough, substantially as and for the purpose set forth.

13. In an ore concentrator, the combination of a tray having an attached distributing trough, and longitudinal feed compartments, extending part way of the length of the tray, and a compound hanger adapted to facilitate the leveling of the distributing trough and the longitudinal inclination of the tray, substantially as and for the purpose set forth.

14. In an ore concentrator, the combination of a tray, and a tripod supporting the tray on adjustable points, all the pivotal points of said tripod support, being adjustable as to position, longitudinally of the tray, or machine, substantially as and for the purpose set forth.

15. In an ore concentrator, the combination of a tray, a support having a longitudinally adjustable pivot, sustaining one end of the tray, and through which variable stroke is imparted to the tray, a set screw fitting in a socket in the upper end of said support, and holding the tray thereon, and a hanger or hangers supporting the other end of the tray, having its pivotal points adjustable longitudinally of the machine, substantially as and for the purpose set forth.

16. In an ore concentrator, the combination of a tray, a support upon which one end of the tray is mounted, means for sustaining the other end of the tray, a means for imparting a variable stroke to the tray; said support being mounted on a movable shaft or pivot, carried in bearings adapted to be adjusted longitudinally of the machine; substantially as and for the purpose set forth.

17. In an ore concentrator, the combination of a tray, a single support and set screw sustaining one end of the tray, and a compound hanger and set screws forming a double support for the other end of the tray said hanger and support being pivoted upon longitudinally adjustable bearings; substantially as and for the purpose set forth.

18. In an ore concentrator, the combination of a tray, a support sustaining the tray at one end, and a compound hanger and standards supporting the other end of the tray; said hanger having set screws adapted to fit in openings in said standards, and having set screws at its lower corners adapted to bear in inverted sockets upon the bottom of the tray the pivotal points of said support and hanger being adjustable longitudinally of the machine; substantially as and for the purpose set forth.

19. In an ore concentrator, the combination of a tray, a support sustaining one end of the tray, a compound hanger sustaining the other end of the tray, a push-bar adapted to bear against said support, and provided with friction rollers, a cam for moving said push-bar, a rock-shaft, arms on the rock-shaft, and a link connecting said push-bar to one of said arms; substantially as and for the purpose set forth.

20. In an ore concentrator, the combination of a tray, and means for moving the tray, consisting essentially of a shaft, an arm on the shaft, a push-bar, a link connecting said arm to said push-bar, a cam for engaging the push bar, and an adjustable lever secured to said shaft; substantially as and for the purpose set forth.

21. In an ore concentrator, the combination of a percussion tray, a specially formed cam for imparting movement of a certain character to the tray, a vibrating arm supporting one end of the tray, a push bar located between said arm and said cam and having means for holding it normally against the cam, and mechanism for changing the point of contact between said bar and arm, whereby the character of the movement remains unchanged while the degree of movement is regulated at will, substantially as and for the purpose set forth.

22. In an ore concentrator, the combination of a percussion tray, a specially formed cam for moving the tray, a push bar located between the cam and tray, and held normally in contact with both at the commencement of movement, and means for adjusting the inner end of said push bar; substantially as and for the purpose set forth.

23. In an ore concentrator, the combination of a tray, a cam formed with a sudden initial pitch and gradually decreasing pitch toward the apex, a push bar having means for holding it constantly against the cam, and a vibrating arm in constant contact with said push bar, except during forward movement, said parts co-acting to produce a rearward movement to the tray from the entire face of the cam, a spring to produce forward movement and means for adjusting the free end of said push-bar; substantially as and for the purpose set forth.

24. In an ore concentrator, the combination of a percussion tray, a cam for moving the tray, and mechanism located between the cam and the tray, for the purpose of imparting a longer or shorter stroke to the tray, without using less than the full stroke of the cam; said mechanism consisting essentially of a vibrating arm, a push bar located between said arm and said cam, and kept in constant contact with the cam and arm, except when receding from the latter and mechanism for changing the point of contact between said bar and arm; substantially as set forth.

25. In an ore concentrator, the combination of a tray, a vibrating arm for actuating the tray, a bar for actuating the arm, a cam having its face formed to impart a special movement to the bar, and means for keeping the bar constantly against the cam, means for adjusting the point of bearing between the bar and arm without separating them so as thereby to vary the strokes of the tray without changing the time in which said longer or shorter strokes are made and to cause the tray to receive rearward movement from all parts of the cam; substantially as and for the purpose set forth.

26. In an ore concentrator, the combination of a tray, perforated water pipes located over the tray and valves fitting in the perforations of the pipes, and having stems extending beneath the pipes; said stems being smaller than the perforations in the bottoms of the pipes, to permit the water to pass through said perforations, and drip from the stems; substantially as and for the purpose set forth.

27. In an ore concentrator, the combination of a tray, water pipes located over the tray, and having perforations therethrough, and vertically movable valves fitting in said perforations, and adapted to deliver the water from the pipes into the tray; substantially as and for the purpose set forth.

28. In an ore concentrator, the combination of a tray, pipes located over the tray, a clamp holding the pipes and brackets provided with set-screws engaging said clamps; said pipes being formed with

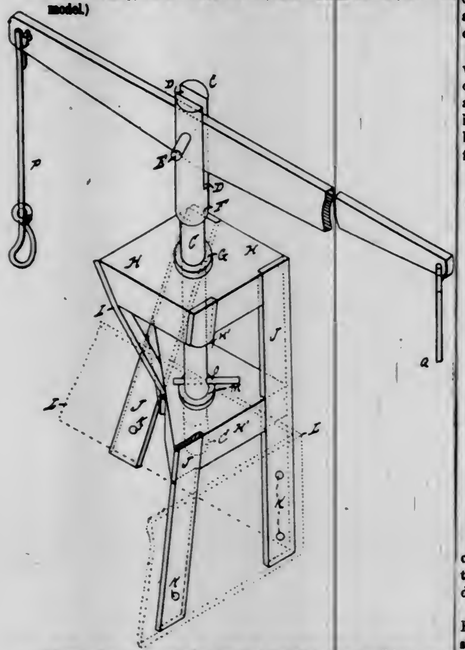
perforations and provided with valves, substantially as and for the purpose set forth.

29. In an ore concentrator, the combination of a tray, and a spring stretched along the bottom of the tray and connected at both ends to the tray; substantially as and for the purpose set forth.

30. In an ore concentrator, the combination of a tray, and a spring stretched along the bottom of the tray over bridge-pieces and attached at both ends to the tray, substantially as and for the purpose set forth.

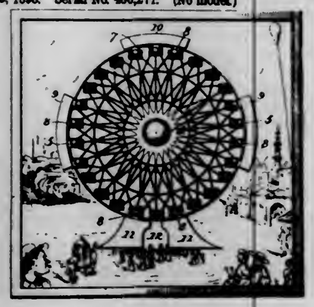
31. In an ore concentrator, the combination of a tray, and a spring adjustably stretched along the bottom of the tray, over bridge-pieces and connected at both ends to the tray; substantially as and for the purpose set forth.

519,988. LOADING APPARATUS. HORATIO H. CARPENTER, Riley, Clinton County, Mich. Filed Feb. 11, 1893. Serial No. 421,127. (No model.)



Claim.—An apparatus for loading weights into a vehicle, consisting of uprights J adapted to be secured to the corner of the vehicle box and having platforms H and H' arranged one above the other, an axially rotatable and vertically adjustable post C extending through the said platforms and provided with a shoulder F to rest on the upper platform, a pin O engaged with the post and resting on the lower platform, a lever A fulcrumed between its extremities in the upper end of the post, and cords P and Q attached to the opposite ends of the said lever, substantially as described.

519,989. PUZZLE. HARRY L. CASSARD, Baltimore, Md. Filed Sept. 23, 1893. Serial No. 486,271. (No model.)



Claim.—1. In a game apparatus, the combination of a movable disk provided with notches in its edge or periphery, and having means for positively operating the same a supporting frame, and a number of balls or movable objects contained within said frame and adapted to enter the notches, substantially as described.

2. In a game apparatus, the combination of the movable disk formed or provided at intervals on its edge or periphery, with suitable notches or receptacles, and having means for positively operating the same guards adjacent to the edge of the wheel or disk, a supporting frame, and a number of balls or movable objects contained within the frame and aggregating the number of notches or receptacles, substantially as described.

3. In a game apparatus, the combination of the movable disk formed or provided on its edge or periphery with notches or receptacles, and having means for positively operating the same guards conforming in shape to the edge of said disk and located adjacent to different parts of the latter, the supporting frame and suitable front, and a number of balls or movable objects designed to enter the notches or receptacles, substantially as described.

4. In a game apparatus, the combination of a movable disk provided with an operating handle, and formed or provided in its edge or periphery with a number of notches or receptacles, the side guards adjacent thereto, the upper guard, the lower guard provided with an intermediate guiding space, the supporting frame, and a number of balls or movable objects aggregating the number of notches or receptacles of the disk, substantially as described.

519,990. FIREPROOF CURTAIN FOR ELEVATOR-SHAFTS. EDWARD F. CLARKE, Duluth, Minn. Filed Oct. 27, 1893. Serial No. 489,328. (No model.)



Claim.—1. The combination with an elevator shaft, of a fire-proof curtain B, composed of slats B', B^2, B^3, engaged together and adapted to be lowered so as to surround said elevator shaft, substantially as described.

2. The combination with an elevator shaft, of a fire proof curtain B normally elevated above the same, said curtain being composed of slats B', B^2, B^3, sliding upon each other and adapted to be extended so as to surround said elevator shaft for the purpose mentioned.

3. The combination with an elevator shaft, of a fire proof curtain B composed of slats B', B^2, B^3, engaged together and guide ropes D for said slats, substantially as described.

4. The combination with an elevator shaft, of a fire proof curtain B, composed of slats B', B^2, B^3 engaged together, guide ropes D, for said slats, and a handling rope or line C attached to the lower one of said slats B', substantially as described.

5. The combination with an elevator shaft, of a fire proof curtain B on each side thereof, each curtain being composed of slats B', B^2, B^3 of unequal length so as to overlap the edges of the adjacent slats as described for the purpose mentioned.

6. An improved fire proof curtain for the purpose mentioned, composed of slats B', B^2, B^3, the stripe E, on each slat, the slot E', on each strip E; and the bolt E^3 in each slat, engaging with the slot directly behind it, substantially as described.

519,991. CHECKREIN-LOOP. MASON J. CLARK, Caroline Centre, N. Y. Filed Mar. 2, 1894. Serial No. 502,133. (No model.)



Claim.—The combination in a check-rein loop, of two body portions of leather or similar soft and strong material joined face to face and punctured to receive a check-rein and having a longitudinal slot and grooved at each side thereof; a leather slide fitting within the said slot; a pair of metallic cheek plates secured upon the sides of the slide and fitted to slide in the aforesaid grooves; a spring between the cheek plates, at the end of the slide and an aperture longitudinally between the body portions to receive the said spring, substantially as specified.

519,992. WATER-SPRINKLER. HIRAM R. EVERETT, Riverside, Cal. Filed Nov. 22, 1893. Serial No. 491,650. (No model.)



Claim.—1. A sprinkler of the class herein-described having a perforated top or cap, one or more removable diaphragms provided with slits of varying width, and a binding nut for holding said diaphragms in place, substantially as set forth.

2. A sprinkler of the class herein-described having a perforated top or cap, a removable slitted diaphragm designed to fit over the said top or cap, a removable beveled or dished washer designed to be held next to said diaphragm, and a nut for holding said washer and diaphragm in place, substantially as set forth.

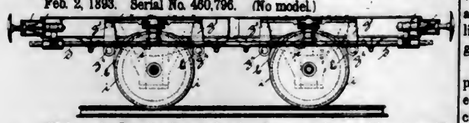
3. A sprinkler having a perforated top or cap and a central threaded rod having grooves or water-ways, one or more slitted diaphragms designed to fit down over said perforated top or cap, and a nut screwed on said rod and having a lower central recess or chamber, as and for the purpose set forth.

4. The herein-described improved sprinkler, comprising the body having a perforated top or cap and central threaded rod provided with grooves or water-ways, one or more slitted diaphragms having central holes, a beveled or dished washer, and a nut having a central threaded hole and a lower chamber, as set forth.

5. The combination with the body having a perforated top or cap and a central threaded rod provided with grooves, of the slitted diaphragm, the dished washer, and the nut having a lower beveled edge and a central recess or chamber, substantially as set forth.

6. The herein described improved sprinkler consisting of the cylindrical body having an inner thread, a perforated top or cap, and a central threaded rod having lower grooves or water-ways, a series of interchangeable diaphragms having central holes and radial slits of varying sizes, a beveled or dished washer, and a nut having a threaded central opening and a lower circular recess or chamber, substantially as set forth.

519,993. CAR-BRAKE. KARL G. FIEKE, Dresden, Germany. Filed Feb. 2, 1893. Serial No. 460,796. (No model.)



Claim.—1. In a brake mechanism for cars, the combination with the running gear, the buffers, the longitudinally movable brake rods connected with said buffers, of the projections mounted on said rods and co-operating with the brake to apply the same to the wheels; substantially as described.

2. In a brake mechanism for cars, the combination with the running gear, the buffers, the longitudinally movable and rotary brake rods connected with said buffers, of the projections mounted on said rods, co-operating with the brake, but capable of being thrown out of operative position when the rod is turned; and means for rotating said rods; substantially as described.

3. In a brake mechanism for cars, the combination with the truck frame, the buffers mounted at each end of the frame, one on each side thereof, of the two longitudinally movable and rotary brake rods carrying projections for co operating with the brake to apply the same, one connected with the buffers at one end of the car, and the other with the buffers at the opposite end, whereby the brakes are applied to the wheels on one side of the car only, substantially as described.

4. In a brake mechanism, the combination with the buffers; the longitudinally movable and rotary brake-rods provided with lugs or projections, co-operating with the brake to apply the same, the worm gears mounted on said rods, of the rods journaled in bearings on the truck frame and extending across the same, provided with pinions meshing with the worms on the rods, whereby when said transverse rod is turned, the longitudinal rods will be thrown out of operation; substantially as described.

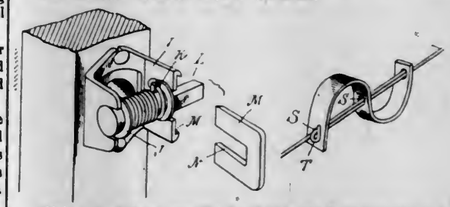
5. In a brake mechanism, the combination with the running gear, the buffers, the longitudinal rods provided with the inclined projections, of the brake shoes inclined in the opposite direction from said projections, whereby when the rods are moved the projections will be brought into co-operation with the brake shoes and the brakes applied; substantially as described.

519,994. ANIMAL-POKE. FERDINAND FISHER, Chesaning, Mich. Filed Jan. 11, 1893. Serial No. 458,040. (No model.)



Claim.—In an animal poke, the combination with an ordinary halter for animals, and hooks C, C, secured to the cheek straps of the halter, of the yoke B, its arms provided with a series of holes, I, I, for engaging the hooks C, C, and provided also with a screw threaded hole B' in the center of the yoke, and provided also with means for securing the chop strap D and the nose chain E to the arms of the yoke, the removable spring poke A, having one end screw threaded and adapted to screw into the screw threaded hole B' in the center of the yoke, the chop strap D secured to the arms of the yoke and passing underneath the lower jaw of the animal to prevent the yoke from swinging, and the nose chain E passing over the nose of the animal above the nostrils, and pressing on the nostrils when a strain is brought upon the yoke, substantially as and for the purpose set forth.

519,995. FENCE. DANIEL D. FRISBEE, Detroit, Mich. Filed Feb. 10, 1894. Serial No. 499,739. (No model.)



Claim.—1. A fence comprising end posts, the fence wires severed and having overlapping ends, the S-shaped springs connecting the severed ends, the winding drums on the posts to which the ends of the wires are connected, a squared end shaft for the drum, a bracket in which the shaft is journaled, inclined lips on the edges of the bracket, and the detachable key having the beveled edges which engage said lips and having a slot in which the squared portion of the shaft engages, substantially as described.

2. In a fence, the combination of a fence wire formed in two parts having overlapping ends, an S shaped spring apertured at its ends and center to permit the passage of both ends and means for securing the ends of the wires to opposite ends of the spring, substantially as described.

519,996. PAINT-BRUSH BINDER. THOMAS W. FROST, Wayland, Mass. Filed Aug. 18, 1893. Serial No. 483,495. (No model.)



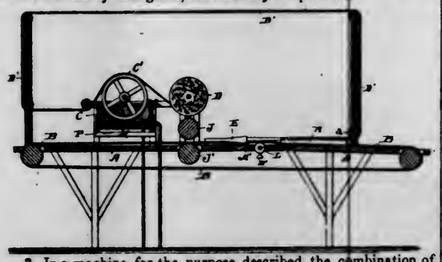
Claim.—A paint brush binder and holder consisting of a bent wire having the curved spring E, loop P, and extensions F, provided with prongs H, and adapted to receive and hold the binding cord L, in position therewith, substantially as shown and described, as and for the purposes set forth.

519,997. BOOK-BACKING MACHINE. ABRAHAM L. GARVER, Roaring Springs, Pa. Filed Dec. 6, 1893. Serial No. 492,928. (No model.)

Claim.—1. In a machine for the purpose herein described, the combination with an endless apron or carrier, and devices for carrying the tape or backing strip and for applying adhesive material thereto, of a tape forming device substantially □-shaped in cross section, and adjacent to said apron or carrier, and a guide for directing and forcing the edge of the article to be backed into said tape forming device and into the tape shaped thereby, substantially as specified.

2. In a machine for the purpose described, the combination with

an endless apron or carrier, and devices for carrying and guiding the tape or backing strip, and for applying adhesive material thereto, of an elongated tape forming device of substantially ⊏-shape in cross section, a guide parallel with said tape forming device, and a spring device carried by said guide, substantially as specified.



3. In a machine for the purpose described, the combination of the endless carrier, the tape guiding roll or pulley over the receiving end of said carrier, the tape former having a ⊏-shape in cross-section, the parallel guide, its spring device, and a pair of transverse rolls between which the said carrier passes, said rolls being situated just beyond the discharge end of said tape former, substantially as specified.

4. In a machine for the purpose described, a tape forming device ⊏-shape in cross section, and having a yielding and adjustable top portion, substantially as specified.

5. In a machine for the purpose described, a tape forming device, ⊏-shaped in cross-section, and having a yielding and adjustable top portion, and oblique corrugations on the opposite faces of the top and bottom portions thereof, substantially as specified.

6. In a machine for the purpose specified, a tape forming device, comprising an elongated ⊏-shape in cross-section, a yielding and adjustable top portion for said passage, a vertical roller journaled in said passage near its discharge end, and horizontal rollers adjacent to said vertical roller, one above, and one below, substantially as specified.

7. In a machine for the purpose specified, a tape forming device, comprising an elongated passage ⊏-shaped in cross-section, and larger at one end portion than at the other, a yielding and adjustable top portion for said passage, oblique corrugations or ribs on the bottom and top portions of said passage, a vertical roller journaled therein near its discharge end, and oblique horizontal rollers adjacent to said vertical roller, one at the top and one at the bottom.

8. In a machine for the purpose described, the combination of the endless carrier, the tape roll *a*, the tape former ⊏-shape in cross-section, the elevating roll L, forward of said tape former, the guide K, parallel with the former, and the rolls J, J' back of said tape former, substantially as specified.

9. In a machine for the purpose described, the combination of the frame or table, a series of tape-carrying rolls supported over said table, an endless apron or carrier, working around said table, a tape forming device into which the tape passes from its carrying rolls, an elevating roll underneath the apron forward of said tape forming device, the rolls J, J' back of said device, and a glue pot supported over the delivery part of the said carrier, whereby its heat is utilized to dry the work, substantially as specified.

10. A machine for applying backing strips to tablets &c., comprising a frame or table, an endless apron or carrier, a tape former ⊏-shaped in cross section and into which the tape is guided from its carrying and gluing devices, the elevating roll L, the guide K, and spring K', and the rolls J, J', substantially as specified.

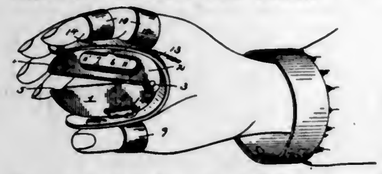
519,998. CLOTHES-PIN. SOLOMON GERMAN, Wetheredville, Md. Filed July 20, 1893. Serial No. 481,018. (No model.)



Claim.—1. A clothes pin made of a single piece of spring sheet metal, provided with legs for clasping the clothing and line and having an end at an angle to the main body of the pin having a hole therethrough, as and for the purpose set forth.

2. The improved clothes pin herein described formed from a single blank of spring sheet metal, having the main body bent in substantially semi-cylindrical form and provided at the sides with the ears or legs bent inward to (or nearly to) each other and thence outward, with an angularly located end having a hole therethrough, as and for the purposes set forth.

519,999. FRUIT-CLIPPER. THOMAS K. GODBEY, Waldo, Fla. Filed Jan. 31, 1894. Serial No. 498,647. (No model.)

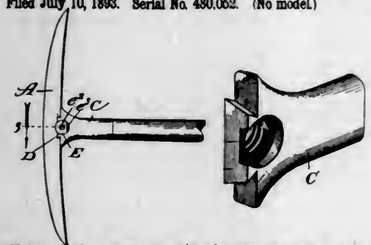


Claim.—1. In a fruit clipper, the combination of pivotally-connected jaws or cutters, one of which is composed of twin parallel spaced guard-plates, and the other of which constitutes a knife, the cutting edge of which is adapted to operate between the corresponding edges of the guard-plates, said guard-plates being cut away to form guard-bars 7 with the upper edges of which the cutting edge of the knife is flush when the clipper is closed, substantially as specified.

2. In a fruit clipper, the combination of pivotally-connected coacting jaws or cutters, one of which is composed of twin parallel spaced guard-plates, and the other of which constitutes a knife, the cutting edge of which is adapted to operate between the corresponding edges of the guard plates, said guard-plates being provided with an opening 6, a finger-strap engaging a slot in the knife, and twin finger-straps arranged at their inner ends between the outer edges of the guard plates and provided at their extremities with thickened edges which are arranged in said opening, substantially as specified.

3. In a fruit clipper, the combination with pivoted coacting jaws or cutters, and finger-straps secured to the outer edges thereof, of a flexible guard slotted to receive and be held in place by said finger-straps, substantially as specified.

520,000. MINING-TOOL. MARTIN HARDSOCG, Ottumwa, Iowa. Filed July 10, 1893. Serial No. 480,052. (No model.)

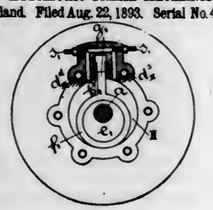


Claim.—1. In mining tools, the combination of a main portion forming the ax or hammer head, and a ferrule adapted to receive a handle, one portion provided with a wedge-shaped dovetailed recess and the other with a wedge-shaped dovetailed slide adapted to fit the same, and mechanism to securely hold both portions together, substantially as described.

2. In mining tools, the combination of a main portion forming the ax or hammer head, and a ferrule adapted to receive a handle, one portion provided with a wedge-shaped dovetailed recess and the other with a wedge shaped dovetailed slide adapted to fit the same, and a locking bolt to securely hold both portions together, substantially as described.

3. In mining tools, the combination of a main portion forming the ax or hammer head, and a ferrule adapted to receive a handle, one portion being provided with a wedge-shaped dovetailed recess and the other with a slide adapted to fit the same, and a locking bolt having a threaded portion, adapted to fit a threaded opening in the ferrule, and provided with a flanged head adapted to impinge against a shoulder on the ax and securely lock the ferrule and ax together, substantially as described.

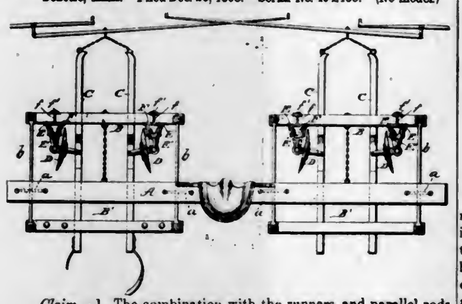
520,001. HYDRAULIC BRAKE MECHANISM. JACOB KELLER, Basle, Switzerland. Filed Aug. 22, 1893. Serial No. 483,773. (No model.)



Claim.—1. A brake mechanism consisting of a shaft, of a cylinder mounted loosely and axially on the shaft, of an eccentric fixed on the shaft within the cylinder and extending the full length of the cylinder, of an eccentric strap working on the eccentric and also extending the length of the cylinder and adapted to make contact with the inner wall of the cylinder, of an eccentric rod secured to the strap and working in a recess in the cylinder walls and also extending the full length of the cylinder of a trunnion mounted in the recess and in which the eccentric rod slides, and of a means for adjusting the area of a passage connecting the cylinder immediately on either side of the said recess, the whole substantially as set forth.

2. A brake mechanism consisting of a shaft, of two cylinders mounted loosely and axially on the shaft, of two eccentrics fixed on the shaft within the cylinder opposite to one another and extending the full length of the cylinders, of eccentric straps working on the eccentrics and also extending the lengths of the cylinders and adapted to make contact with the inner walls of the cylinders, of eccentric rods secured to the straps and working in recesses in the cylinder walls and also extending the full lengths of the cylinders of trunnions mounted in recesses in which the eccentric rods slide, and of means for adjusting the areas of passages connecting each cylinder immediately on either side of the said recesses, the whole substantially as set forth.

520,002. CULTIVATOR OR SEED-PLANTER. LINDEN KIRLIN, Beattie, Kans. Filed Dec. 20, 1893. Serial No. 494,155. (No model.)



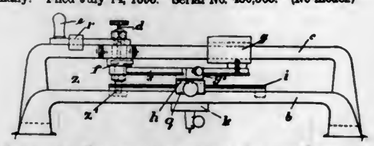
Claim.—1. The combination with the runners and parallel rods arranged parallel to said runners, of the seat-bar, A, having loops on its under side which are arranged lengthwise of the bar, and engage said rods as specified, whereby the bar is adapted to slide forward and backward and also endwise on the rods, as shown and described.

2. The combination with a head adapted to be clamped in vertical position to the frame of a cultivator or planter, of a socket bracket plate, screw bolts for securing it adjustably to said head, and a cultivating device which is connected with the bracket plate, substantially as shown and described, whereby said device may be adjusted and held at different angles as shown and described.

3. In a machine of the character described, the combination with the frame provided with runners, and a metal head clamped thereto in vertical position, of the bracket plate provided with arc-slots, clamping screw bolts which project from the head and through said arc-slots, and a rotary cultivating disk, journaled in an arm which is in turn journaled in wings forming an integral part of said bracket plate, as shown and described.

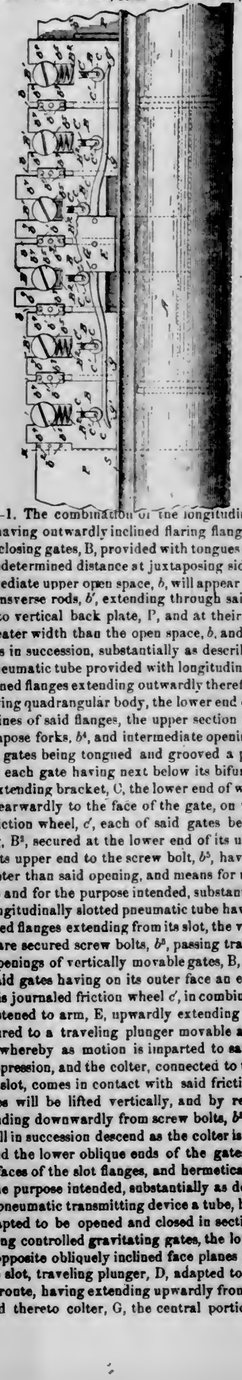
4. In a machine of the character specified, the combination with the cultivating disk, having a hub provided with a recess in one end and a circumferential projection on the other, and the axle of said disk having a head on one end adapted to fit in said recess, and a separate axle bearing having a socket to receive the enlarged end of the hub, as shown and described, for the purpose specified.

520,003. ELLIPSOGRAPH. WILHELM LEHNER, Munich, Germany. Filed July 14, 1893. Serial No. 480,503. (No model.)



Claim.—An ellipsograph comprising the main frame, a supplemental frame sliding thereon, a central bridge piece *e*, having vertical crank shaft journaled therein, a swinging arm on the lower end of said shaft having an adjustable pin engaging a slot in the supplemental frame, a bar *s* having one end secured to said adjustable pin and the other end sliding on the bridge piece, a slotted cross bar mounted on the supplemental frame, and a sliding piece mounted on the bar *s* and guided by said slotted cross bar and a pencil or marker connected to said sliding piece, substantially as described.

520,004. PNEUMATIC PROPELLER. LOUIS H. MAYER, Philadelphia, Pa. Filed Feb. 24, 1894. Serial No. 501,388. (No model.)



Claim.—1. The combination of the longitudinally slotted pneumatic tube, having outwardly inclined flaring flanges extending from its slot, with closing gates, B, provided with tongues and grooves $b^{\times}$ extending a predetermined distance at juxtaposing sides thereof, whereby an intermediate upper open space, *b*, will appear between each pair of gates, transverse rods, *b'*, extending through said opening secured at one end to vertical back plate, P, and at their opposite end to a clamp of greater width than the open space, *b*, and means for elevating the gates in succession, substantially as described.

2. A pneumatic tube provided with longitudinal slot, having oppositely inclined flanges extending outwardly therefrom, the weighted gates, B, having quadrangular body, the lower end of which conforms to inner inclines of said flanges, the upper section of the gates bifurcated to compose forks, b^4, and intermediate opening, B', the opposite edges of the gates being tongued and grooved a partial distance of their length, each gate having next below its bifurcated opening an outwardly extending bracket, C, the lower end of which carries shaft, *c*, fastened rearwardly to the face of the gate, on which is journaled revoluble friction wheel, *c'*, each of said gates being supplied with buffer spring, B^3, secured at the lower end of its upper opening, and fastened at its upper end to the screw bolt, b^5, having a disk head of larger diameter than said opening, and means for moving said gates, vertically, as and for the purpose intended, substantially as described.

3. A longitudinally slotted pneumatic tube having outwardly obliquely inclined flanges extending from its slot, the vertical back plate, P, to which are secured screw bolts, b^2, passing transversely through bifurcated openings of vertically movable gates, B, and aligning rods, *b'*, each of said gates having on its outer face an extending bracket, C, in which is journaled friction wheel *c'*, in combination with arched colter, G, fastened to arm, E, upwardly extending through the tube slot and secured to a traveling plunger movable along the air main of the tube, whereby as motion is imparted to said plunger, by exhaust or compression, and the colter, connected to the arm extending through the slot, comes in contact with said friction wheels, the respective gates will be lifted vertically, and by resiliency of buffer spring, extending downwardly from screw bolts, b^2, and gravitation, each gate will in succession descend as the colter is transmitted along the route, and the lower oblique ends of the gates will fall into the conforming faces of the slot flanges, and hermetically close said slot, as and for the purpose intended, substantially as described.

4. In a pneumatic transmitting device a tube, having a longitudinal slot, adapted to be opened and closed in sections by vertically movable spring controlled gravitating gates, the lower ends of which conform to opposite obliquely inclined face planes of flanges extending from the slot, traveling plunger, D, adapted to pass along the air main of the route, having extending upwardly from its center arm E, and attached thereto colter, G, the central portion of which is up-

wardly inclined, from which extend downwardly curved arms, *g*, with pointed ends, *g'*, in combination with friction rollers, journaled in brackets on the face of each closing gate, whereby as said colter is transmitted, by movement of the plunger along the route, it will be led under said friction rollers and lift each gate in succession, substantially as described.

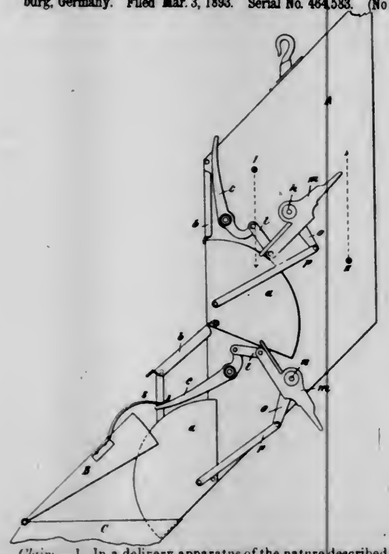
520,005. COMPOSITION FOR REMOVING HAIR FROM THE SKIN. JACOB MELLINGER, Baltimore, Md. Filed Feb. 17, 1894. Serial No. 500,559. (No specimens.)

Claim.—1. A composition for removing hair from the human skin having boroglyceride incorporated with a sulphide depilatory agent and a suitable vehicle, as and for the purposes described.

2. A composition for removing hair from the human skin having boroglyceride and a carbolic acid solution incorporated with a sulphide depilatory agent and a suitable vehicle, as and for the purposes described.

3. A composition for removing hair from the human skin consisting of a sulphide depilatory agent, boroglyceride, carbolic acid and an amylum solution as a vehicle, as and for the purposes described.

520,006. APPARATUS FOR CONVEYING AND AUTOMATICALLY DELIVERING SMALL ARTICLES. AUGUST MÜLLER, Magdeburg, Germany. Filed Mar. 3, 1893. Serial No. 464,583. (No model.)



Claim.—1. In a delivery apparatus of the nature described, a car having a discharge door, mechanism for automatically opening the same, an inlet door, and connections operated from the inlet side of the car for setting said automatic mechanism, substantially as described.

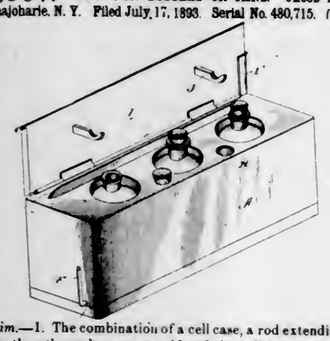
2. In combination, the car having a series of compartments, inlet doors opening to the same upon one side, latches holding said doors closed, delivery doors located upon another side, mechanism for automatically opening said delivery doors and connections from the latches to said mechanism whereby the movement of the latches to open the inlet doors sets the automatic delivery mechanism, substantially as described.

3. In combination with the car having a series of compartments, inlet doors opening to the same upon one side, exit doors located upon another side, mechanism for automatically opening said delivery doors and shafts journaled in the upper part of each compartment, carrying latches upon one side for controlling the inlet doors and having connections with the automatic mechanism upon the other side, substantially as described.

4. In combination, the car having a series of compartments, inlet doors located upon one side, delivery doors upon an adjacent side, mechanism upon the opposite side for automatically opening said delivery doors, a rocking shaft extending through the walls of each compartment carrying a latch upon one end for engaging the inlet door and an arm upon the other end, and connections from said arm for setting the automatic mechanism, substantially as described.

5. The car having a series of compartments, inlet and discharge doors located upon adjacent sides, and mechanism for automatically opening said discharge doors located upon the side opposite the inlet doors, comprising a two armed rocking lever *m*, a catch lever *c*, having link connections with said rocking lever, an arm *o* loosely mounted upon the pivot of lever *m* having link connections with the delivery door and unaffected by lever *m* during the first part of its movement but engaging therewith during the latter part, a lifting bar *h* having connections to the latch of the inlet door and adapted to set said delivery mechanism in combination with stops I and I I acting successively upon opposite ends of the two armed lever to successively open and close said delivery door, substantially as described.

520,007. CASE FOR BOTTLES OR CANS. JACOB H. NELLIS, Canajoharie, N. Y. Filed July 17, 1893. Serial No. 480,715. (No model.)



Claim.—1. The combination of a cell case, a rod extending longitudinally therethrough near one side of the cell bottoms, and arms extending from said rod nearly across the cells, whereby when the rod is turned the bottles or cans in the cells will be elevated by the arms and thus held after the latter have been turned past a vertical center sufficiently far to rest against the cell walls substantially as shown and described.

2. The combination of a case, a lid therefor, a vertical strip secured to the case, and a U-shaped brace on the lid end which is adapted to be moved downward over the strip when the lid is raised, substantially as shown and described.

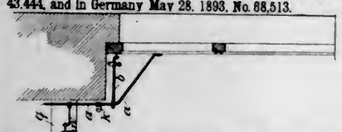
3. The combination of a case having one or more cells or cavities, the bottom of the cavities being formed with a depression, a revoluble rod extending longitudinally beneath the cavities and located within one of the depressions, laterally extending arms secured to the rod and located in the other depressions, and bottles or cans arranged within the cells which are adapted to be elevated by turning upward said arms, substantially as shown and described.

4. The combination of a casing provided with one more cells or cavities, bottles adapted to rest therein, a pen holding depression formed in the upper side of the case, a lid for the casing, and racks projecting laterally from the under side of the lid which extend into the said cells when the lid is closed, but which when the latter is opened project outward for supporting the pen holder, substantially as shown and described.

5. The combination of a case adapted to hold bottles or cans, a lid or cover therefor which is hinged thereto, and a longitudinally movable brace on one end of said cover which when the latter is raised is adapted to move downward and interlock with the casing, substantially as shown and described.

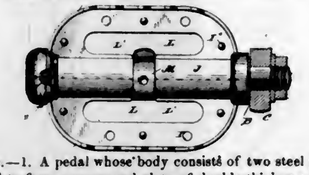
6. The combination of a casing, a strip secured to its rear side, a cover for the casing which is hinged to said strip, a longitudinally movable fastening device on one end of said cover which is adapted to move downward and engage the ends of said strip when the lid is in an elevated position, for the purpose, substantially as herein shown and described.

520,008. CURTAIN-ROLLER. FRANZ OTTO and CARL OTTO, Zerbst, Germany. Filed Mar. 3, 1893. Serial No. 464,574. (No model.) Patented in Austria-Hungary Feb. 2, 1893, No. 7,723 and No. 17,077; in England Feb. 8, 1893, No. 2,806; in Belgium Feb. 8, 1893, No. 103,366; in Switzerland Feb. 8, 1893, No. 6,388; in Canada Mar. 6, 1893, No. 43,444, and in Germany May 28, 1893, No. 68,513.



Claim.—An adjustable support for curtains and the like consisting of the rod *a*, having the vertical and inclined portions, fastening means located at the foot of the inclined portion, a horizontal rod having one end provided with fastening means, jam nuts mounted upon the other end of the horizontal rod for clamping the vertical portion of the rod *a*, and vertically adjustable supporting devices carried upon said vertical portion, substantially as described.

520,009. PEDAL. ALBERT PERKINS, Chicopee, Mass., assignor to the A. G. Spalding & Brothers, New York, N. Y., and the Lamb Knitting Machine Manufacturing Company, Chicopee, Mass. Filed May 26, 1893. Serial No. 475,614. (No model.)



Claim.—1. A pedal whose body consists of two steel plates rigidly united to form a compound plate of double thickness having its constituent plates bent oppositely outward to form a central hollow cylinder and its margins bent also outward to form marginal flanges upon both faces of the compound plate, substantially as set forth.

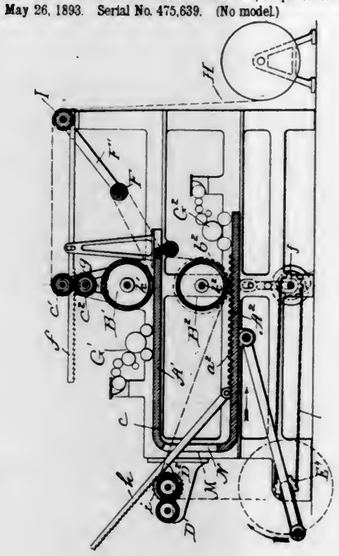
2. The combination with the pedal body consisting of two steel plates rigidly united to form a compound plate of double thickness having its component plates bent out oppositely to form an axial hollow cylinder, of short steel tubes brazed, respectively, in the ends of said cylinder, substantially as and for the purpose set forth.

3. The combination with the pedal body consisting of two metal plates rigidly united to form a compound plate of double thickness having its component plates bent oppositely outward to form an axial hollow cylinder, of short steel tubes brazed, respectively, in the ends of said cylinder and having their own outer ends enlarged, and the steel disk fitting and fixed to one of said enlarged ends and provided with the projecting fingers, substantially as set forth.

4. The combination with two plates rigidly united into a compound pedal plate having upon each side of the axial line teeth bent up oppositely at right angles to the plane of the plate, of pedal rubbers detachably secured to the plate and supported laterally by said teeth.

5. The combination with a pedal shaft of a pedal body consisting of a plate made up of two thin plates riveted together and bent oppositely to form a cylinder in the axis of the body and marginal flanges upon both its faces, short tubes brazed in the ends of the cylinder to form bearings or ball cases, balls lying in said bearings, cones upon the axle coacting with said bearings to hold the balls, and the screw-retained cap fitting over the outer of said tubes and covering the end of the axle.

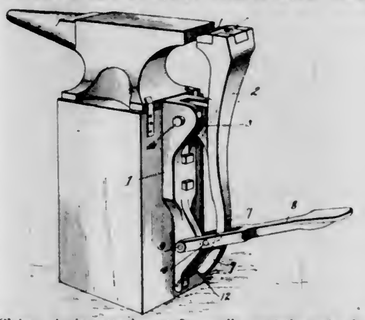
520,010. MACHINE FOR PRINTING AND DIVIDING ENDLESS LENGTHS OF PAPER. CARL E. PREUSSE, Leipsic, Germany. Filed May 26, 1893. Serial No. 475,639. (No model.)



Claim.—1. In a machine for printing endless lengths of paper first on one side and then on the other, a pair of horizontally reciprocating type beds located one above the other coupled together, a pair of impression rollers coacting with said type beds and alternately operated thereby and a brake connected to each impression roller for raising the same and holding it stationary while the other roller is printing, substantially as described.

2. In a machine for printing endless lengths of paper a pair of horizontally reciprocating type beds coupled together, a pair of alternately operating impression rollers coacting therewith, paper feeding and delivering rollers, ratchet wheels connected therewith, and rack bars operated by the reciprocating bed frame and having their free toothed ends contacting with the ratchet wheels, substantially as described.

520,011. VISE ATTACHMENT FOR ANVILS. ALBERT F. REED, Guthrie, Iowa. Filed Jan. 19, 1894. Serial No. 497,401. (No model.)



Claim.—A vise attachment for anvils consisting of a bracket adapted to be removably attached to the anvil base, a vertical jaw pivoted to the upper end of the bracket and projecting above the same to co-operate with the adjacent end of the anvil, the lower end of said jaw being curved inwardly toward the lower end of the bracket and being adapted to swing normally toward the same, the foot-lever bifurcated at its inner end, the two arms formed by the bifurcation embracing the curved lower end of the jaw and the adjacent part of the bracket, means for pivotally connecting the inner ends of the lever to the bracket, a roller journaled in the forked end of the lever in front of its pivotal point and adapted to bear upon the curved inner edge of the jaw when the lever is depressed, and a spring for normally holding the foot-lever up, substantially as described.

520,012. PROCESS OF AND COMPOUND FOR EXTINGUISHING FIRES. ALBERT C. SCHUMACHER, Ann Arbor, assignor to the Muskegon Chemical Fire Engine Company, Muskegon, Mich. Filed May 29, 1891. Serial No. 394,540. (No specimens.)

Claim.—1. The herein described process of extinguishing fires, which consists in throwing upon the fire a stream carrying in solution an oxalate and a suitable oxidizing agent therefor, producing a fire extinguishing gas by the combination of the said chemicals when exposed to the heat of the fire, and thereby extinguishing the fire, substantially as described.

2. The herein described process of extinguishing fires, which consists in producing an operative pressure in the generator by the oxidation of oxalic acid by an oxidizing agent, propelling upon the fire by the pressure thus formed a stream carrying in solution an oxalate and suitable oxidizing agent therefor, producing a fire extinguishing gas by the combination of the said chemicals when exposed to the heat of the fire, and thereby extinguishing the fire, substantially as described.

3. The herein described process of extinguishing fires, which consists in throwing upon the fire a stream containing in solution an oxalate and manganese dioxide, producing carbonic acid gas by the action of the said chemicals when exposed to the heat of the fire, and thereby extinguishing the fire, substantially as described.

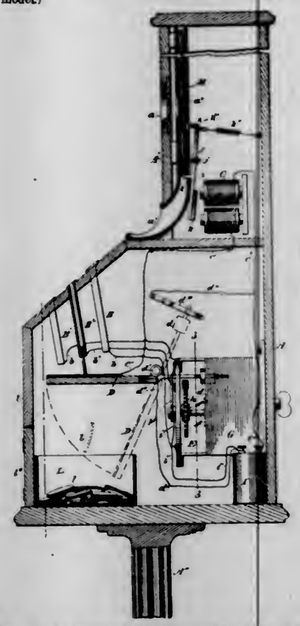
4. The herein described process of extinguishing fires, which consists in forming an operative pressure in the generator by the action of oxalic acid and potassium permanganate, throwing upon the fire by the pressure thus formed a stream carrying in solution an oxalate and manganese dioxide, producing carbonic acid gas by the action of the said chemicals when exposed to the heat of the fire, and thereby extinguishing the fire, substantially as described.

5. A fire extinguishing compound consisting of the mixture in suitable proportions of an oxalate and manganese dioxide, substantially as described.

6. A pressure producing and fire extinguishing compound con-

sisting of the mixture in suitable proportions of oxalic acid, an oxalate, potassium permanganate, and manganese dioxide, substantially as described.

520,013. AUTOMATIC BANK OR MONEY-CHANGER. HARRY F. SLOCUM, New York, N. Y. Filed May 20, 1893. Serial No. 474,916. (No model.)

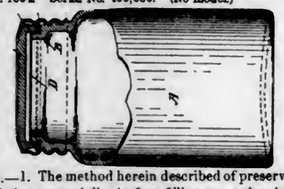


Claim.—1. An automatic bank, consisting of a reservoir for the coins to be delivered, a releasing device for said reservoir adapted to release a certain definite number of coins therefrom upon each actuation of said releasing device and a coin controlled device for actuating said releasing device, having a plurality of slots each adapted to receive a coin of a certain denomination and deposit it; means whereby one of said coins only as it is deposited actuates said releasing device; and means of rendering it uncertain, upon the deposit in the bank each time of one or more coins which is the proper slot for said actuating coin, substantially as described.

2. In an automatic bank, the combination of a reservoir for the coins to be delivered, a channel leading from such reservoir, a lever provided with stop-pins projecting into said channel and adapted to release a certain number of said coins therefrom upon each actuation of said lever, an electro-magnet, an armature for said magnet attached to one arm of said lever, a spring adapted to hold said lever with its armature arm normally away from said magnet and a battery for energizing said magnet and pulling said armature; with a plurality of slots for depositing coins in said bank, and electric contact surfaces and connections whereby upon the deposit in every one of said slots of a coin of the denomination for which it is adapted the circuit between said magnet and said source of electric energy is completed through one of said deposited coins, substantially as described.

3. In an automatic bank, having a reservoir for the coin to be delivered a releasing device for said reservoir, and means for actuating said releasing device upon the deposit in said bank of one or more coins of a certain denomination, the combination of a tipping platform adapted to receive said coin or coins and tip and deposit the same, an electro magnet, an armature for said magnet attached to a lever arm, said lever also bearing a pawl, a ratchet-wheel in operation with said pawl, means for holding said lever normally so that said pawl is in engagement with said ratchet wheel so as to keep it from turning a battery or other source of electric energy for energizing said magnet and pulling said armature and lever arm so as to disengage said pawl from said ratchet wheel, a flying arm operatively connected with said ratchet wheel, a disk in the path of said flying arm, means for rotating said ratchet wheel and causing said flying arm to traverse said disk upon the disengagement of said pawl from said ratchet wheel, and electric contact surfaces and connections whereby upon each tipping of said platform the circuit between said magnet and said source of electric energy is completed, substantially as described.

520,014. METHOD OF AND APPARATUS FOR PRESERVING CONDENSED MILK. FREDERICK D. SMITH, San Francisco, Cal. Filed Feb. 9, 1894. Serial No. 499,639. (No model.)

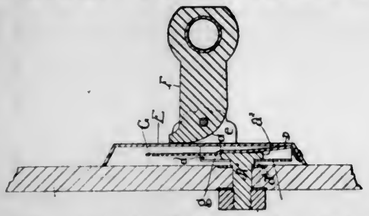


Claim.—1. The method herein described of preserving condensed milk, consisting, essentially, in first filling a vessel or jar to its utmost capacity with the material while the latter is in a cold condition; then placing a diaphragm across the mouth of the vessel or jar with one side in contact with the material so as to exclude air from between the diaphragm and contents; then securing the edges of the diaphragm to form an air tight joint, and finally providing an air cushion above the diaphragm to compensate for whatever expansion or contraction may occur in the contents.

2. In a vessel or jar, a flexible diaphragm, impervious to the air, placed over the mouth of the vessel or jar so that it will rest upon the material to the exclusion of air between the two, and a cover over said diaphragm having a chamber or air space to compensate for the movement of the diaphragm due to the expansion or contraction of the contents of the vessel or jar, and having a rim or flange adapted to force the rim of the diaphragm into contact with a shoulder on the vessel or jar to form an air tight joint.

3. In vessels for holding preserved foods, and in combination with the body and chambered cover of such vessels, a flexible diaphragm, impervious to the air, confined between the cover and body of the vessel with one side in contact with the contents of the vessel, said diaphragm having its edges extended outwardly and confined between the cover and body portion to form an air tight joint.

520,015. DETACHABLE CASKET-HANDLE. LOUIS H. BANNISTER, Pasadena, Cal. Filed Feb. 2, 1893. Serial No. 460,722. (No model.)



Claim.—1. A casket handling apparatus comprising a catch secured to the casket; a carrying handle provided with a catch adapted and arranged to grapple the catch upon the casket to be handled thereby, and arranged to be detached from such casket catch; and a lowering handle comprising a lowering line or strap provided with a catch adapted and arranged to grapple the catch upon the casket to be handled thereby, and arranged to be detached from such casket catch.

2. The combination of the casket catch consisting of a stud or staple, the detachable handling device set forth provided with the upwardly opening recess adapted and arranged to receive and seat the head of such stud or staple.

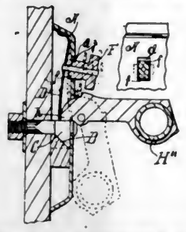
3. The detachable casket handling device set forth having its escutcheon plate provided with the upwardly opening recess adapted to receive the head of a catch such as the stud or staple and provided with a friction spring adapted to clutch such stud or staple when in place within the recess and arranged to prevent accidental downward movement of the escutcheon with relation to the catch.

4. The combination of the wall of the casket; the stud passing there-through and provided with a bearing shoulder arranged to engage a washer; the flanged head of greater diameter than the bearing shoulder arranged outside of such bearing shoulder at a distance therefrom and the washer arranged between the wall of the casket and such bearing shoulder.

520,016. DETACHABLE HANDLE FOR CASKETS. LOUIS H BANNISTER, Pasadena, Cal. Filed July 29, 1893. Serial No. 481,803. (No model.)

Claim.—1. The casket handling device comprising the casket stud; the escutcheon plate provided with the recess for such stud; the handle pivoted to such escutcheon plate and provided with the stud clamping arm arranged to clamp the stud when the same is in the recess and the handle is elevated.

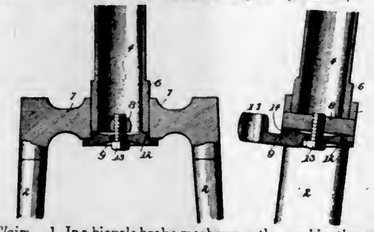
2. The combination of the escutcheon plate provided with the upwardly opening casket stud recess arranged to receive the casket stud; the stud retaining catch arranged with its end adapted to play across the mouth of the stud recess to intercept the stud when placed in such recess and suitable means for drawing the catch outward.



3. The casket handling device comprising the escutcheon plate provided with the upwardly opening casket stud recess; the stud retaining catch arranged with its end adapted to play across the mouth of the stud recess; means for withdrawing the stud catch from the mouth of the recess and a handle shank pivoted to the escutcheon plate and provided with the stud clamping arm arranged to engage the stud when the handle is elevated and the stud is in the recess.

4. A casket handling device provided with the escutcheon plate having the oblong shank opening, the stud retaining recess and the stud retaining catch, and provided with a revoluble button having its shank provided with the shoulders adapted to rest upon the escutcheon plate when the button is drawn outward and partially rotated.

520,017. BRAKE MECHANISM FOR BICYCLES. WILLIAM H. BINNS, Chicago, Ill., assignor to the Monarch Cycle Company, same place. Filed Jan. 10, 1894. Serial No. 496,408. (No model.)



Claim.—1. In a bicycle brake mechanism, the combination with a bicycle steering fork, the cross head of which is provided with a fixed piece within its cylindrical orifice, of the guide bracket 9, formed with a guide eye 11, and a raised circular rim 12, adapted to fit the lower end of the orifice in the cross head, and a headed screw 13, screwing into said fixed piece and securing the bracket in place, substantially as set forth.

2. In a bicycle brake mechanism, the combination with a bicycle fork, the cross head of which is formed with a cylindrical orifice and a cross pin 8, of the guide bracket 9, formed with a guide eye 11, and a raised circular rim 12, adapted to fit the lower end of the circular orifice in said cross head, and a headed screw 13, screwing into a screw threaded orifice in the cross pin 8, to secure the parts together in a readily detachable manner, substantially as set forth.

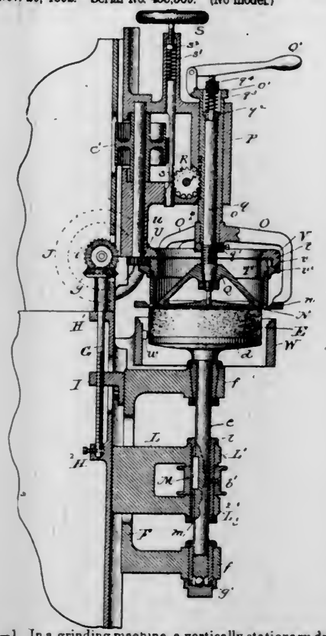
3. In a bicycle brake mechanism, the combination with a bicycle steering fork, the cross head of which is provided with a fixed piece within its cylindrical orifice, of the guide bracket 9, formed with a guide eye 11, and a raised circular rim 12, adapted to fit the lower end of the orifice, in the cross head, a headed screw 13, screwing into said fixed piece and securing the bracket in place, and a pin projection 14, on the one part entering a recess in the other part to insure proper relative position of the parts, substantially as set forth.

520,018. BUCKLE-FASTENER. WILLIAM R. H. DOWSE, Newton, Mass. Filed Nov. 9, 1893. Serial No. 490,462. (No model.)



Claim.—A fastener comprising two members; a curved draw plate with folded edges having a series of sockets in its base, and an attaching loop, and a flanged, arched cover plate engaging the folded edges, in combination with a ball member to engage the sockets of the draw plate, substantially as described.

520,019. GRINDING-MACHINE. ROBERT H. GRANT, Fitchburg, Mass., assignor to the Grant Anti Friction Ball Company, same place. Filed Nov. 29, 1892. Serial No. 453,509. (No model.)



Claim.—1. In a grinding machine, a vertically stationary driving ring, a vertically movable race, an emery wheel mounted on a vertically sliding bracket F, a screw G, a hand wheel J and dial K', whereby the position of the emery wheel, relative to the driving ring is indicated substantially as described.

2. In a grinding machine, the race N consisting of the ring n and the cone Q in combination with the sleeve o, the rack p, the pinion R and the lever r' whereby the race N is lowered substantially as described.

3. In a grinding machine, the race N consisting of the ring n and the cone Q, and the sleeve o in combination with the spindle q, the spring q^3, and the handle Q' whereby the cone is lowered independently of the ring n substantially as described.

4. In a grinding machine, the driving ring T provided with the geared flange t, in combination with the collar v', the rigid flanged supporting ring V, and the pinion U, the spindle u and the pulley c' whereby the driving ring is supported and driven substantially as described.

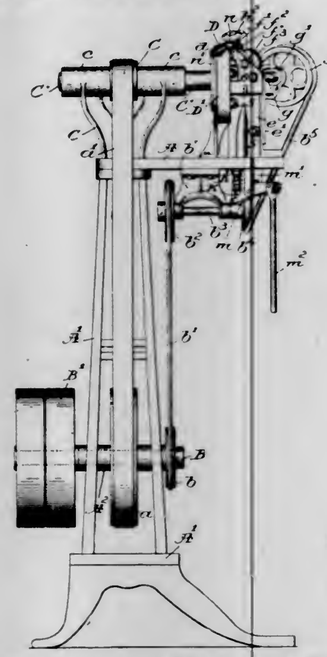
5. In a grinding machine, a vertically stationary driving ring in combination with a race N provided with a sleeve having a rack p, the pinion R, the vertical rack-s the spring s' and the hand-wheel S whereby the pressure of the product of the machine against the driving ring is adjusted substantially as described.

6. In a grinding machine, a centrally perforated pan Y mounted on a rack frame W provided with a perforated geared disk Z whereby the pan holds or discharges the product of the machine when under or away from the machine substantially as described.

7. A grinding machine consisting of a vertically stationary driving ring T, a race N, a vertically movable emery wheel E, said driving ring being operated by the pinion U, the shaft u, and the pulley c', and said emery wheel revolving in an opposite direction from that of the driving ring operated by the shaft and pulley, substantially as described.

8. A grinding machine consisting of the standard A provided with a vertically stationary driving ring T, a vertically movable race N, a vertically movable emery wheel E, a sliding shaft-e, a sliding pulley b', a sliding bracket F a screw G, a hand wheel J, a dial K', a hand wheel S, the racks p and s, the pinion R, the spindle q, the sleeve o two levers r' and Q', a frame W, a pan Y, a disk Z, and connecting mechanism substantially as described.

520,020. INSEAM-TRIMMING MACHINE. ADELBERT P. HANSCOM, West Medford, and ALVAH C. SPENCER, Roslindale, Mass. Filed Aug. 30, 1893. Serial No. 484,384. (No model.)



Claim.—1. The combination, with a positively rotated feed wheel, a yielding presser to hold the welt thereon, and a support for the shoe, combined with a hoop knife rotating in a plane at an angle to the feed wheel, substantially as described.

2. The combination, with a rotating shaft, a knife carrier thereon, and a hoop knife secured thereto having a continuous edge, of a feed wheel positively rotated toward the plane of said knife, a shoe support, and a yielding presser to hold the welt upon the feed wheel, substantially as described.

3. In an inseam tripping machine, a rotatable shaft, an annular externally shouldered knife carrier fast thereon, and a hoop knife secured to said shouldered carrier and having a continuous edge, combined with a feed wheel, a presser to co-operate therewith, and a support for the sole of the shoe, substantially as described.

520,021. SNOW-PLOW. HENRY H. KRYGER, Minneapolis, Minn. Filed Dec. 4, 1889. Serial No. 332,608. (No model.)

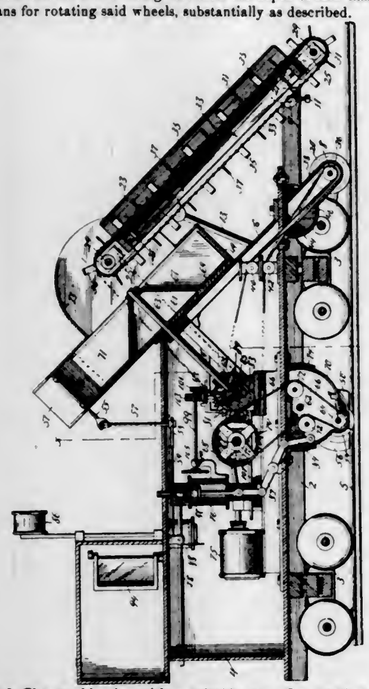
Claim.—1. The combination in a snow plow, of an inclined elevator arranged at the forward end of the plow, a fan casing arranged beneath the upper end of said elevator, and provided with an open top and with oppositely extending discharge spouts, a valve or cut-off arranged to close either of said spouts, a fan arranged in said casing and means for rotating said fan in either direction.

2. In a snow plow the combination with an inclined elevator, of an inclined fan casing arranged beneath the upper end of said elevator and provided with an open top, and with oppositely extending discharge spouts, a valve or cut-off arranged to close either of said spouts, and a fan arranged in said casing and adapted to be rotated in either direction.

3. In a snow plow the combination of the inclined adjustable elevator frame provided with sprocket wheels at its upper and lower ends, and provided with endless chains passing around said sprocket wheels, and having suitable cutters and carriers attached thereto, a fan casing arranged beneath the upper end of said elevator frame and provided with an open top, and with oppositely extending discharge spouts, a valve or cut-off arranged to close either of said spouts and a fan arranged within said casing and adapted to be rotated in either direction, substantially as described.

4. The combination with a suitable car, of means for cleaning the snow or ice from the tops of the rails of the track consisting of suitable wheels 20 provided upon their periphery with a series of knives arranged over the tops of the rails, and a laterally movable spring controlled shaft upon which said wheels are mounted, and means for rotating said wheels.

5. The combination with a suitable car, of means for clearing the snow or ice from the tops of the rails and cutting channels inside of the rails for receiving the flanges of the wheels consisting of suitable wheels 20 provided with the flanges 24 arranged to project inside of the rails and provided with a series of knives upon the periphery of said flanges, and with another series of knives upon the periphery of the main portion of the wheels over said rails, the length of said last named series of knives being less than the depth of said flange, and means for rotating said wheels, substantially as described.



6. The combination with a suitable car, of a rotating flanger adapted to cut channels inside of the rails of the track, and a shaft by which said flanger is carried suitable springs engaging said shaft and permitting a lateral movement thereof, substantially as described.

7. The combination with a suitable car, of the flanger consisting of the wheel 20 having a series of cutters and a series of brushes arranged upon its periphery, and provided with the flange 24 also having upon its periphery a series of cutters and a series of brushes, and a laterally movable spring controlled shaft upon which said wheels are mounted substantially as described.

8. The combination with the axle 8 mounted in the adjustable boxes 10 and provided with the driving wheel 36, of the pivoted casing 46 inclosing said driving wheel, and a belt or chain extending around said wheel and also inclosed by said casing.

9. The combination with the frame 2, of the axle 8 supported in adjustable bearings on said frame and provided with the flanger wheels 20, of the casing 44 secured to said frame, the casing 46 pivoted in said casing 44, the driving wheel 36 on said axle arranged within said casing 46, and a suitable driving belt or chain passing around said driving wheel and inclosed by said casing.

10. Means for removing the snow from the space between the rails of railway tracks comprising in combination a suitable frame a transverse shaft arranged below said frame and provided with spirally arranged knives or cutters adapted to project into the space between said rails, and means for rotating said shaft, substantially as described.

11. The combination with the frame 2, of the transverse shaft 62 arranged below said frame, the arms 60 and the casing 70 supported upon said shaft, shaft 58 mounted in said arms 60 and provided with the spiral knives 54, a pulley on said shaft within said casing, and a chain or belt passing through said casing and around said pulley, substantially as described.

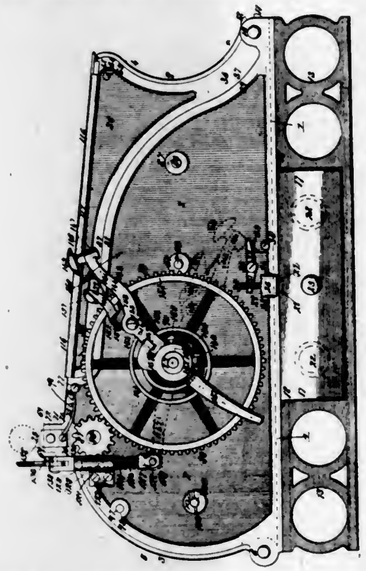
12. The combination with the frame 2, of the transverse shaft 58 mounted in swinging arms beneath said frame, and provided with the two series of oppositely arranged spiral blades or cutters, and means for rotating said shaft, substantially as described.

13. The combination with the plow having the super-structure 4 provided with openings in its side wall, and the quadrant shaped windows pivoted in said openings, substantially as described.

14. The combination in a device of the class described, of a transverse shaft provided with spirally arranged knives or cutters, a swinging support in which said shaft is mounted, an air cylinder and a piston arranged therein and connected with said swinging support for the purpose specified.

15. The combination in a device of the class described, of a transverse shaft provided with knives or cutters, a swinging support in which said shaft is mounted, an air cylinder and a piston arranged therein and connected with said swinging support, as and for the purpose specified.

520,022. AUTOGRAPHIC REGISTER. JOHN A. MARSH, St. Louis, Mo., assignor of one-half to Peter B. Begg, same place. Filed Dec. 10, 1892. Serial No. 454,794. (No model.)



Claim.—1. In an autographic register machine, the combination of the multiple spindles 54, the friction draw rollers, the gear wheels that drive said rollers, comprising a main wheel, turning on an axis in line with one of the spindles, having a circumferential flange and the compound lever that actuates said gear, substantially as described.

2. In an autographic register machine, the combination of the spindles 54, lower friction-roller 66 having gear wheel 87 upper friction roller 73, the tube journal 89, the main drive gear wheel 88, the circumferential flange 151, the compound lever 143, and the friction clamp lever 152; substantially as described.

3. In an autographic register machine, the combination of the multiple spindles 54, the friction rollers that draw the sheets from said paper rolls, the gear wheels that actuate said rollers, the circumferential friction flange 151, integral with the main drive gear wheel, the compound lever that actuates said gear, and the clamp lever 152 pivoted to said compound lever and that exerts a friction hold on said circumferential flange; substantially as described.

4. In an autographic register machine, the combination of the multiple spindle 54, the friction rollers that draw the sheets from said paper rolls, the gear wheels that actuate said rollers, the circumferential flange 151 integral with the main drive gear wheel 88, the compound lever 143 that actuates said gear, the clamp lever 152 pivoted to said compound lever, said clamp lever having the angle return clamp arm 158, and the actuating spring 159 that enforces the friction hold of said clamp lever on said circumferential flange, substantially as described.

5. In an autographic register machine, the combination of the multiple spindles 54, the friction draw rollers 66 and 73, the gear wheels that actuate said rollers, the circumferential flange 151 integral with the main drive gear wheel 88, the compound lever that actuates said gear, the clamp lever 152 pivoted to said compound lever, the exterior journal 89, on which said main gear wheel and said compound lever are mounted, the spring carrier collar 139 fast mounted on said journal, and the reactionary spiral spring 141, secured to said collar and to said compound lever; substantially as described.

6. In an autographic register machine, the combination of the body of the machine, the spindles 54, the friction draw rollers 66 and 73, the square spindle 101, and the core 108 provided with the square opening 9; substantially as described.

7. In an autographic register machine, the combination of the multiple spindles 54, the friction draw rollers 66 and 73, the spindle 101, the combination shear knife 133, the tube journal 89, the main drive gear wheel 88, mounted on said journal, the pinion gear wheel 87, mounted on the journal of said roller 66 and the compound lever 143, that actuates said gear, substantially as described.

8. In an autographic register machine, the combination of the main sections of the body of the machine, composed of the rigidly connected bottom 1 and sides 2, and the adjustable hinged sections of said body, arranged to open up for view and manipulation of the interior parts of the machine, the said adjustable hinged sections composed of the pivoted arc drum-head 5, the pivoted rear end-gate 9, and the rearwardly downwardly inclined writing desk and table bearer frame 36, the multiple spindles 54, and the spindle 101, and the friction draw rollers that draw the multiple sheets from said rolls 59: substantially as described.

9. In an autographic register machine, the combination of the fixed sections of the body of the machine, the hinged adjusting end sections pivoted to the bottom of said body, and the top hinged to the bottom of the body and arranged to open up for view and manipulation of the interior of the parts of the machine, the cross tie-bar 44 and projecting lugs, 43, of said top hinged section, the disk tablet 42 having the pendent lugs 46 that rest on and engage with said tie-bar and lugs, the holder lugs 47 secured to the rear end of said disk-tablet, said lugs provided with the retention slots 48 and 49, and the carbon holder clips 50 and 52 seated in said slots, substantially as described.

10. In an autographic register machine, the combination of the fixed sections of the body of the machine, the hinged adjusting end and top sections thereof, arranged to open up for access to the interior of the machine, the pivoted hooks 7 and 39, with their catches 8 and 41, within the interior of said body, the journal spindles 40 and 97 on which said hooks are mounted, the knobs 40^2 and 99 on external ends of said spindles, by which said internal hooks are manipulated from the outside, and the sliding table top 116, that is adjustable on said bearer hinged top section; substantially as described.

11. In an autographic register machine, the combination of the sectional machine body constituted of unadjustable and adjustable hinged sections, the externally attached journal 89 having the perforate integral flange plate 90, the screws by which said flange is secured to the side of the machine, the main drive wheel 88, mounted on said journal, the circumferential integral flange 151 of said drive wheel, the collar ring 139, mounted on said journal, the set screw 150 that adjustably secures said collar, the perforate integral lug 140 that projects from said collar, the reaction spring 141, the collar 142, the compound lever 143, integral with said collar, having the pressure knob 145, the friction clamp lever 152, the adjustable collar 162, the set screw 165, the butt stay elbow arm 163, and the projecting stay-lug 164; substantially as described.

12. In an autographic register machine, the combination of the pivoted sectional body of the machine, the multiple spindles 54, in said body, the major and minor friction draw rollers, the externally attached journal 89, the main drive gear wheel 88, mounted on said journal, the minor pinion gear wheel that drives said major friction roller, the compound lever 143, mounted on said journal 89, and having the operator end 144 and the driven end 167, the combination shear knife, tube bearer bracket 121, the piston rod 124, having the forked head 130, and the forked foot 127, the said head pivotally engaging with and operating said shears, the reactionary spring 126 on said piston rod, and the anti-friction roller 129, mounted in its forked foot; substantially as described.

13. In an autographic register machine, the combination of the unadjustable sections of the body of the machine, constituted of bottom and sides, the adjustable hinged sectional ends and top thereof, that allow access to the interior of the machine, the interior catch hooks 7 and 39, and their catches 8 and 41, the spindle journals on which said hooks are mounted, the external knobs of said spindles by which said internal hooks are operated from the outside, the desk tablet 42 the holder lugs 47, the duplex carbon sheet clips secured in said holder lugs, the spindles 54, the core tubes 60 on said spindles, the return roller 61, the major and minor friction rollers, the pinion gear wheel 87, the externally attached journal 89, the main drive gear wheel mounted on said journal, the compound lever 143, the stationary knife blade, the fulcrum pivoted shear blade, the bracket 121 provided with the tube bearing 123, the piston rod that works in said bearing to effect the cut of said shears, and the reactionary spiral spring 126, mounted on said piston rod, substantially as described.

14. In an autographic register machine, the combination of the body of the machine, the multiple spindles 54 and the spindle 101 in said machine, the base frame 13, the cash drawer 17 having the spring latch lock 24, and the propulsion springs 22 that eject said drawer; substantially as described.

15. In an autographic register machine, the combination of the sectional folding body of the machine having the hinged arc drum-head 5, the drop hook 7 and catch 8 that fastens said drum-head, the rear end-gate 9 and the rearward downwardly inclined desk tablet and table bearer frame 36, the combination hinges 10 on which said end gate and desk and table bearer frame are mutually pivoted, the catch hook 39, the stationary lugs 11 on the bottom of the frame, the lugs 12 on said end gate that abut against said lugs 11, when the end gate is thrown back, the tie rod 169 that reinforces the connection of the sides of said bearer frame, and the lugs 170 on the sides of the machine that embrace said bearer frame 36; substantially as described.

16. In an autographic register machine, the combination of the multiple spindles 54, the spindle 101, the friction draw rollers, the actuating gear 87, 88, 94, and 96, the clamp flange 151 the pulleys 100, and 114, the traction band mounted thereon, and the friction clamp lever 152; substantially as described.

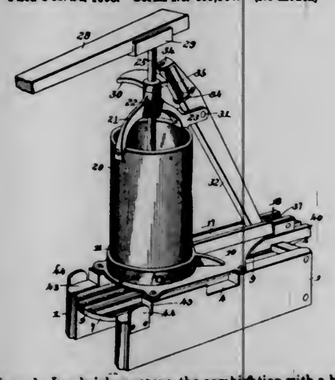
17. In an autographic register machine, the combination of the multiple spindles 54, the spindle 101 the major and minor draw rollers, the journals on which said rollers are mounted; the outwardly attached journal 89, the main drive gear wheel 88, the pinion gear 87, the gear wheel 94, the pinion gear wheel 96, the pulley wheels 100 and 104, the traction band 115, the flange of the main drive wheel, the compound lever 143, and the friction clamp lever 152, having the clamp arm 158; substantially as described.

18 In an autographic register machine, the combination of the body of the machine, the multiple spindles 54, the spindle 101, the cash drawer 17, the latch lock 24 having the slotted head bar 30, the rocker fulcrum lever 32, having the point 31 that engages in the slot 29 of said head bar 30, the screw journal 33, the reactionary spring 34 that returns said latch lock to its normal position when said drawer is closed, and the spiral push springs 22, that expel the drawer when the latch is elevated by said spring rocker fulcrum lever; substantially as described

19. In an autographic register machine, the combination of the body of the machine, the multiple spindles 54, the spindle 101, the friction draw rollers, the shear knife 133, the actuating cog and pulley gear, that operates said rollers, the cash drawer 17, the latch lock 24 having the slotted head bar 30, the spring rocker lever 32 the screw journal 33, the reactionary spring 34, that returns said latch lock to its normal position when said drawer is closed, the spiral push spring 22 that expels the drawer when the latch is lifted, and the compound actuating lever 143, that operates the gear, the shear knife and the latch lock of the cash drawer; substantially as described.

20. In an autographic register machine, the combination of the sectional folding body of the machine having the hinged arc drum-head 5 the drop-hook 7, and catch 8, the rear end gate 9, and the rearwardly, downwardly inclined desk tablet, and table-bearer frame 36, the hinges 10 on which said end-gate 9 and bearer-frame 36 mutually work, the return roller 61, and the draw rollers 66 and 73, the spindle 101: substantially as described.

520,023. BRICK-MACHINE. JEFFERSON D. PAGE, Shreveport, La. Filed Feb. 24, 1893. Serial No. 463,567. (No model.)



Claim.—1. In a brick-machine the combination with a base having an opening, the upper edges of which are beveled, a cylinder arranged over the opening, a feed-shaft mounted in the cylinder, means for operating the shaft, a knife arranged at the front edge of the opening and having its beveled side forming a continuation of the edge of the opening, and a spring plate carried by the base in rear of the knife and serving the double function of furnishing a slight resistance to the advance of the mold and smoothing off the contents of the same, of a reciprocating plunger arranged under the knife, and means for operating said plunger, substantially as specified.

2. In a brick-machine, the combination with a base having an opening, the edges of which are beveled, a knife arranged adjacent to the edge of the opening and having its edge forming a continuation thereof, a pug-mill or cylinder surmounting the base over the opening, a feed-shaft arranged in the cylinder, and means for operating the same, of a reciprocating plunger arranged under the base, a flat spring arranged under the base in rear of the knife, and a regulating-screw passing through the base and bearing upon the free-end of said spring substantially as specified.

3. In a brick-machine, the combination with the opposite sills, the base-plate arranged thereon, an opening formed in the sills, a discharge-opening formed in the base-plate in rear of said opening in the sills, and annular-wall surrounding the opening of the base-plate, an extension formed at the rear side of the base-plate and provided with a slot, a roller loosely mounted in the extension, a table arranged under the base-plate, a plunger mounted upon the table and having a slotted rear end, of a cylinder mounted in the annular wall and bolted thereto, a feed-shaft arranged in the cylinder, a yoke having a bearing arranged upon the cylinder and receiving the feed-shaft, means for rotating said shaft, a cam carried by the shaft, a lever pivoted at one side of the cylinder and operated upon by the cam, a pivot-pin connecting the lever at its lower end with the plunger, a rope, chain, or cord connected to the lever and depending over the pulley, and a weight secured to the lower end of the rope, substantially as specified.

4. In a machine of the class described, the base having its side sills provided with cleats or rests 5 and adjusting-screws 6, combined with the mold-receiving table 7 having the cross-cleats 8 which rest upon the adjusting-screws, the upper side of the table having a series of longitudinally-disposed anti-friction bars 9, substantially as described.

520,024. EYEGLASS-HOLDER. THOMAS KING, Providence, R. I., assignor to the Greene & Knox Manufacturing Company, same place. Filed May 10, 1893. Serial No. 473,743. (No model.)

Claim.—1. The combination with the hook-bar provided with the engaging spur, of the arm pivoted to the hook bar for sidewise engaging movement along the surface of the fabric and provided with the opposite engaging spur, and the clasp means for holding the parts in their engaged position, substantially as described.

2. The combination with the hook-bar provided with the engaging spur and the limiting stop, of the arm pivoted for movement laterally of the hook-bar, and provided with the opposite engaging spur, and the clasp means for holding the parts in their engaged position, substantially as described.

REISSUES.

11,419. REVERSIBLE ECCENTRIC FOR ENGINES. DAN W KELLOGG, Auburn, N. Y. Filed May 22, 1893. Serial No. 475,162. Original No. 472,542, dated Apr. 12, 1892.

Claim.—1. The disk D, provided with a sleeve upon its inner side, the sleeve being provided with an opening through one side and a bridge or arch at the outer end of the sleeve, the sliding rack, the toothed eccentric, and a mechanism for moving the rack, all combined and arranged to operate substantially as described.

2. The disk provided with an opening for the passage of the sliding rack, the sliding rack, and a tapering gib, the parts being combined to operate substantially as set forth.

3. The cranked lever —R—, provided with slots at its lower ends and boxes to fit into slots and on trunnions of sleeve-strap, together with screws which are passed through these slotted ends to take up all lost motion, the clamp to which the lever is applied, and the sliding sleeve placed upon the shaft, the parts being combined to operate substantially as specified.

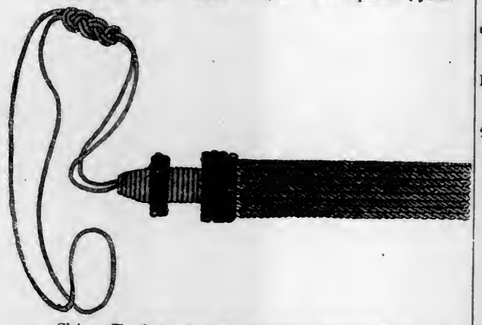
4. The combination with the disk provided with an opening through it, of the sliding rack bar and the guide sleeve, the eccentric and the shaft, substantially as described.

5. The combination with the cylindrical drive shaft, and the eccentric, of the rack-bar concaved to bear and traverse upon the face of the shaft, the guide sleeve and means to operate said rack-bar.

6. In a reversible eccentric, a cylindrical drive-shaft, a sliding rack-bar concaved to bear and traverse upon the face of said shaft, the guide shaft an eccentric and means to operatively connect said eccentric and rack-bar.

DESIGNS.

23,259. SHADE-TASSEL. JOHN O. REMINGTON, Hingham, Mass. Filed Mar. 17, 1894. Serial No. 504,097. Term of patent 3½ years.



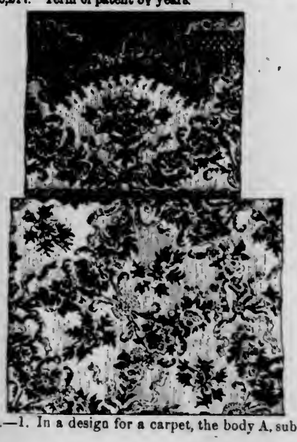
Claim.—The design for a shade tassel, substantially as specified and described.

23,260. LACE FABRIC. ARTHUR WATNEY, Calais, France. Filed Apr. 5, 1894. Serial No. 506,508. Term of patent 3½ years.



Claim.—The design for a lace fabric, substantially as shown and described.

23,261. CARPET. WILLIAM F. BROWN, Newark, N. J., assignor to the Bigelow Carpet Company, same place. Filed Apr. 19, 1894. Serial No. 508,217. Term of patent 3½ years.

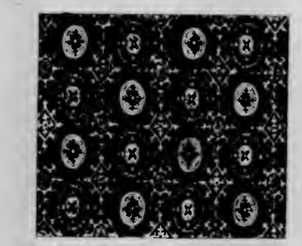


Claim.—1. In a design for a carpet, the body A, substantially as shown.

2. In a design for a carpet, the border B, substantially as shown.

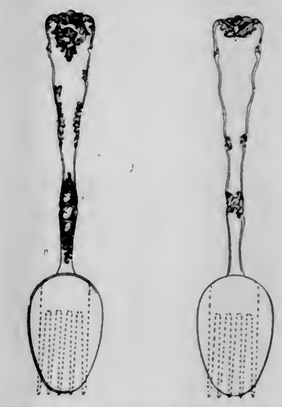
3. The design for carpets, consisting of the body A and border B, substantially as shown.

23,262. CARPET. ARTHUR MIDDLETON ROSE, Yonkers, N. Y., assignor to Matthew J. Whittall, Worcester, Mass. Filed Apr. 14, 1894. Serial No. 507,604. Term of patent 3½ years.



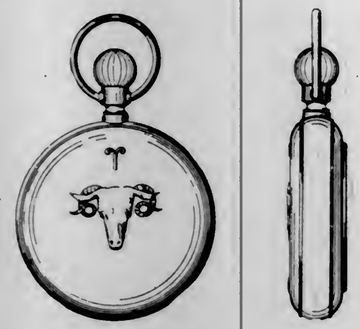
Claim.—The design for carpets, substantially as shown in the illustration accompanying this specification.

23,263. HANDLE FOR SPOONS, &c. ERNEST W. CAMPBELL, Providence, R. I., assignor to the Holmes & Edwards Silver Company, Bridgeport, Conn. Filed Mar. 17, 1894. Serial No. 504,099. Term of patent 7 years.



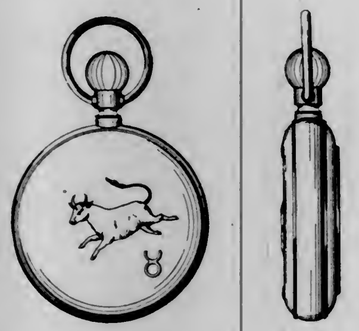
Claim.—The design for a handle for spoons, forks and similar articles, substantially as herein shown and described.

23,264. WATCHCASE. WALLACE DURAND, Newark, N. J. Filed Apr. 19, 1894. Serial No. 508,220. Term of patent 7 years.



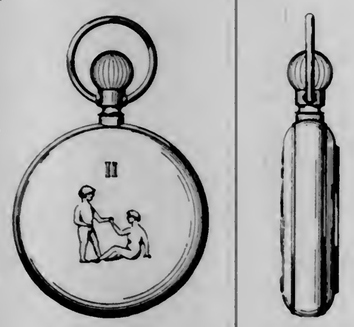
Claim.—The design for a watch case, herein shown and described.

23,265. WATCHCASE. WALLACE DURAND, Newark, N. J. Filed Apr. 19, 1894. Serial No. 508,221. Term of patent 7 years.



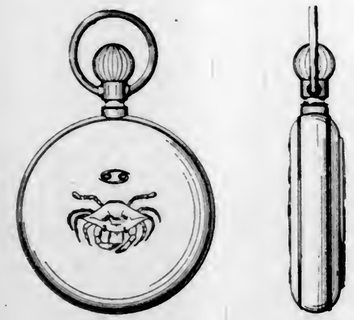
Claim.—The design for a watch case, substantially as shown and described.

23,266. WATCHCASE. WALLACE DURAND, Newark, N. J. Filed Apr. 19, 1894. Serial No. 508,222. Term of patent 7 years.



Claim.—The design for a watch case herein shown and described.

23,267. WATCHCASE. WALLACE DURAND, Newark, N. J. Filed Apr. 19, 1894. Serial No. 508,223. Term of patent 7 years.



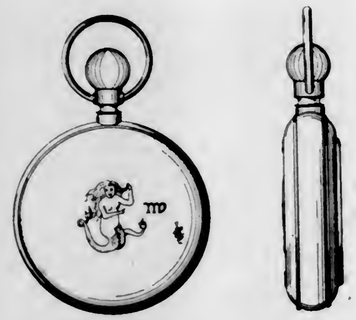
Claim.—The design for a watch case herein shown and described.

23,268. WATCHCASE. WALLACE DURAND, Newark, N. J. Filed Apr. 19, 1894. Serial No. 508,224. Term of patent 7 years.



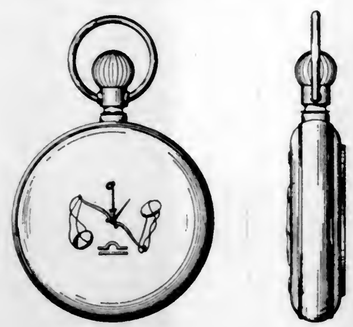
Claim.—The design for a watch case herein shown and described.

23,269. WATCHCASE. WALLACE DURAND, Newark, N. J. Filed Apr. 19, 1894. Serial No. 508,225. Term of patent 7 years.



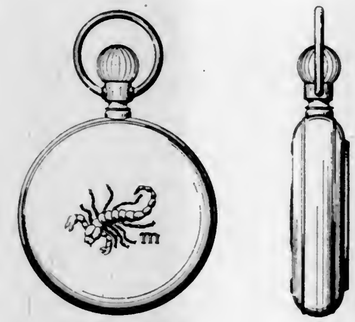
Claim.—The design for a watch case, herein shown and described.

23,270. WATCHCASE. WALLACE DURAND, Newark, N. J. Filed Apr. 19, 1894. Serial No. 506,226. Term of patent 7 years.



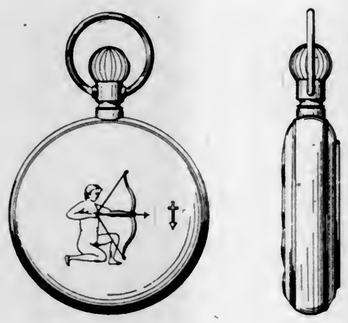
Claim.—The design for a watchcase, herein shown and described.

23,271. WATCHCASE. WALLACE DURAND, Newark, N. J. Filed Apr. 19, 1894. Serial No. 508,227. Term of patent 7 years.



Claim.—The design for a watch case, herein shown and described.

23,272. WATCHCASE. WALLACE DURAND, Newark, N. J. Filed Apr. 19, 1894. Serial No. 508,228. Term of patent 7 years.



Claim.—The design for a watch case, herein shown and described.

23,273. WATCHCASE. WALLACE DURAND, Newark, N. J. Filed Apr. 19, 1894. Serial No. 508,229. Term of patent 7 years.



Claim.—The design for a watch case, herein shown and described.

23,274. BOTTLE. DAVID F. DAVIDS, New York, N. Y. Filed Apr 13, 1894. Serial No. 507,463. Term of patent 7 years.



Claim.—The design for a bottle as herein shown and specified.

23,275. BOTTLE. BENJAMIN I. MOTT, Brooklyn, N. Y. Filed Mar. 30, 1894. Serial No. 505,774. Term of patent 14 years.



Claim.—The design for a bottle, substantially such as herein shown and described.

23,276. LAMP-FOUNT. FRANZ YOKEL, Meriden, Conn., assignor to the Meriden Bronze Company, same place. Filed Mar. 5, 1894. Serial No. 502,452. Term of patent 3½ years.



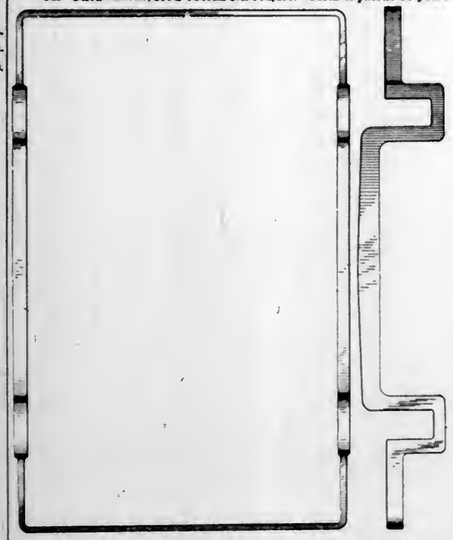
Claim.—The design for a holder for lamp-founts as herein shown and described.

23,277. AIR-HEATER, &c. CHARLES I. DANGLER and HENRY RUPPEL, Cleveland, Ohio, assignors to the Dangler Stove and Manufacturing Company, same place. Filed Mar. 19, 1894. Serial No. 504,325. Term of patent 7 years.



Claim.—The design for an air heater and radiator as shown and described.

23,278. AXLE-BOX-FRAME. WALTER S. ADAMS, Philadelphia, Pa. Filed Mar. 20, 1894. Serial No. 504,459. Term of patent 14 years.



Claim.—The design for an axle box frame, substantially as herein shown and described.

TRADE-MARKS

REGISTERED MAY 15, 1894.

24,701. CERTAIN TEXTILE FABRICS. ALBION COMPANY, Providence, R. I., and New York, N. Y. Filed Apr. 18, 1894.

WHITE CITY

Essential feature.—The words "WHITE CITY." Used since March 12, 1894.

24,702. COTTON GOODS. BERNHEIMER & WALTER, New York, N. Y. Filed Apr. 19, 1894.

FIGARO

Essential feature.—The word "FIGARO." Used since October 1, 1893.

24,703. SEAMLESS STOCKINET DRESS-SHIELDS. I. B. KLEINERT RUBBER COMPANY, New York, N. Y. Filed Apr. 24, 1894.

Invincible

Essential feature.—The word "INVINCIBLE." Used since January, 1894.

24,704. CORSETS, WAISTS, DRESS-STAYS, BUSTLES, AND BUST-FORMS. CORONET CORSET COMPANY, Jackson, Mich. Filed Apr. 23, 1894.

FLEXIBONE.

Essential feature.—The word "FLEXIBONE." Used since October 1, 1892.

24,705. LADIES' AND MISSES' FINE SHOES. STRIBLEY & Co., Cincinnati, Ohio. Filed Apr. 14, 1894.

HENRIETTA

Essential feature.—The word "HENRIETTA." Used since September 1889.

24,706. MEN'S BOOTS AND SHOES. THE REGAL SHOE CO., Boston, Mass. Filed Apr. 14, 1894.

REGAL

Essential feature.—The word "REGAL." Used since September 1, 1893.

24,707. LEATHER BELTING AND LACE-LEATHER. CHAS. A. SCHIEREN & Co., New York, N. Y. Filed Apr. 17, 1894.



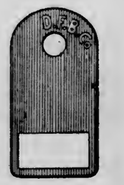
Essential feature.—The representation of a bull's head. Used since 1876.

24,708. HARNESS AND SADDLERY LEATHER. W. W. MOONEY & SONS, Columbus, Ind. Filed Oct. 11, 1892.

MOONEY

Essential feature.—The word "MOONEY." Used since 1837.

24,709. WATCH AND LOCKET CHAINS. THE D. F. BRIGGS CO., Attleborough, Mass. Filed Feb. 2, 1894.



Essential feature.—The letters and abbreviation "D. F. B. Co.," on a red tag. Used since April 1, 1893.

24,710. WATCHCASES. THEOPHILUS ZURBRUGG, Riverside, N. J. Filed Feb. 6, 1894.

24,710. **PRESIDENT**

Essential feature.—The word "PRESIDENT." Used since November 14, 1891.

24,711. WATCHES AND PORTABLE CLOCKS. WEBSTER C. BALL, Cleveland, Ohio. Filed Apr. 23, 1894.

A.R.U.

Essential feature.—The letters "A. R. U." Used since March 31 1894

24,712. FLAT AND TABLE SILVERWARE AND JEWELRY. WHITING MANUFACTURING COMPANY, New York, N. Y. Filed Feb. 23 1894.



Essential feature.—The representation of an animal having a body substantially like the conventional griffin, and two heads, one like a lion's and the other like an eagle's, and a shield bearing thereon the letter "W." Used since 1868.

24,713. TABLE AND ORNAMENTAL SILVERWARE. HOWARD STERLING COMPANY, Providence, R. I. Filed Mar. 21, 1894.

H

£

Essential feature.—The letter "H," and a crossed "L." Used since February 1, 1894

24,714. WHISKY. S. WOLF & SONS, Philadelphia, Pa. Filed Apr. 23, 1894.

CHESWICK MILLS

Essential feature.—The words "CHESWICK MILLS." Used since October 1, 1888.

24,715. CORN-STARCH. THOMSON KINGSFORD, Oswego, N. Y. Filed Apr. 4, 1894.



Essential feature.—The representation of a flying eagle above an escutcheon which is supported on one side by an Indian and on the other by a farmer, representations of leaves and Indian corn being arranged on both sides. Used since March 1, 1893.

24,716. BAKING-POWDER. BIO WHEEL COMPANY, Wheeling, W. Va. Filed Mar. 29, 1894.

BIO WHEEL

Essential feature.—The words "BIO WHEEL." Used since February 6, 1894.

24,717. FLAVORING EXTRACTS FOR CULINARY PURPOSES. BIO WHEEL COMPANY, Wheeling, W. Va. Filed Mar. 29, 1894.

BIO WHEEL

Essential feature.—The words "BIO WHEEL." Used since December 12, 1893.

24,718. CAUSTIC SODA. THE NORTHUMBRIAN CHEMICAL COMPANY, LIMITED, Newcastle-on-Tyne, England. Filed Mar. 14, 1894.



Essential feature.—The representation of a lion statant. Used since October, 1893.

24,719. LUBRICATING-OIL. ABRAM W. HARRIS, Providence, R. I. Filed Apr. 16, 1894.

JUMBO



CYLINDER OIL

Essential feature.—The words "JUMBO CYLINDER OIL" with the representation of an elephant. Used since March 1, 1894.

24,720. TOILET PREPARATION. DELBERT E. PRALL, Saginaw, East Side, Mich. Filed Mar. 26, 1894.

Dorothy

Essential feature.—The word "DOROTHY." Used since January 1, 1893.

24,721. COMPLEXION-POWDER. EMMA J. WORMLEY, Des Moines, Iowa. Filed Apr. 17, 1894.

PSYCHE



Essential feature.—The word "PSYCHE" and the figure of a woman representing the said goddess. Used since March, 1894.

24,722. PHARMACEUTICAL PRODUCTS. FARBENFABRIKEN, VORMALS FR. BAYER & CO., Elberfeld, Germany. Filed Apr. 20, 1894.

LYCETOL

Essential feature.—The word "LYCETOL." Used since March 22, 1894.

24,723. MEDICINAL TABLETS. THE ANTIKAMNIA CHEMICAL COMPANY, St. Louis, Mo. Filed Feb. 26, 1894.

AK

Essential feature.—The letters "A K." Used since February 1, 1894.

24,724. MEDICINAL TABLETS. J. MILLER CRAMPTON, New York, N. Y. Filed Mar. 24, 1894.

Home

Essential feature.—The word "HOME." Used since January 1, 1894.

24,725. MEDICINE FOR THE CURE OF THE TOBACCO HABIT. ROOT-TEA-NA HERB CO., Akron, Ohio. Filed Mar. 26, 1894.



Essential feature.—The words "DOUBLE SHOT" and the representation of two cannons placed breech to breech, from which flame and smoke are issuing. Used since March 1, 1894.

24,726. CERTAIN NAMED REMEDIES. JOSEPH F. O'HERR, Waltham, Mass. Filed Jan. 6, 1894.



Essential feature.—A representation of the heads of four persons in a horizontal row upon a black panel. Used since June 1, 1893.

24,727. MEDICINES FOR VENEREAL DISEASES. JOHN F. GILMAN, Boston, Mass. Filed Apr. 17, 1894.

SUB ROSA

Essential feature.—The words "SUB ROSA." Used since April 1, 1894.

24,728. ORGANS AND PIANOS. THE AEOLIAN ORGAN AND MUSIC COMPANY, Meriden, Conn., and New York, N. Y. Filed Apr. 13, 1894.

ÆOLIAN

Essential feature.—The word "ÆOLIAN." Used since July, 1887.

24,729. REED-ORGANS. ESTEY ORGAN COMPANY, Brattleborough, Vt. Filed Apr. 20, 1894.

PHONORIUM.

Essential feature.—The word "PHONORIUM." Used since October 1, 1892.

24,730. SEWING-MACHINES. SIEGEL, COOPER & COMPANY, Chicago, Ill. Filed Apr. 17, 1894.

MONARCH

Essential feature.—The word "MONARCH" and letters, character, and abbreviation, "S. C. & Co." Used since April, 1892.

24,731. EARTH-WORKING TOOLS. THE COLLINS COMPANY, Canton, Conn. Filed Apr. 21, 1894.

R. KING

Essential feature.—The letter and word "R. KING." Used since 1830.

24,732. BICYCLES, TRICYCLES, VELOCIPEDES, AND PARTS THEREOF. THE BIRMINGHAM SMALL ARMS AND METAL COMPANY, LIMITED, Birmingham, England. Filed Feb. 20, 1894.



B.S.A.

Essential feature.—The representation of three piled arms and the letters "B. S. A." Used since 1881.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

PETERS *v.* HISEY.

Decided April 20, 1894.

1. INTERFERENCE—PRIORITY OF INVENTION.

Where the testimony is full, explicit, and satisfactory that P. conceived the invention in September, 1888, reduced it to practice in November, 1888, and began to put it into extensive public use by March, 1889, and where the testimony of H., his opponent, to his own earlier conception is not corroborated save by the recollection of one witness as to a conversation four years and a half in the past, *Held* that P. is the prior inventor.

2. EVIDENCE.

A disclosure on board a foreign ship in mid-ocean may be received on the question of conception of an invention.

APPEAL from the Examiners-in-Chief.

CARTRIDGE-LOADING MACHINE.

Application of Gershom Moore Peters filed July 31, 1891, No. 401,292. Division of application filed September 28, 1889, No. 325,358. Application of Charles S. Hisey filed June 24, 1889, No. 315,308.

Mr. Frank T. Brown for Peters.
Mr. E. M. Marble for Hisey.

SEYMOUR, *Commissioner:*

This is an appeal taken by Hisey from the decision of the Examiners-in-Chief, affirming the decision of the Examiner of Interferences, awarding priority of invention to Peters upon the following issues:

1. In a cartridge-loading machine, the combination, with the shell-carrier, of the reciprocating tool holder and a constantly revolving crimper located in the path of the tool holder, whereby the tool-holder on its descent depresses the crimper.

2. In a cartridge-loading machine, the combination, with the shell-carrier, of the reciprocating tool-holder, a constantly-revolving crimper located in the path of the tool holder for depressing said crimper, and a spring for raising said crimper.

Peters conceived this invention in September, 1888, reduced it to practice in November, 1888, and put it to extensive public use, resulting in the regular sale of the product, beginning about the month of January, 1889, and not later than March, and continuing to the time of the taking of the testimony. His application was filed September 28, 1889, of which the application now in interference is a division. The evidence of these facts is full, explicit, and satisfactory, and the case does not require that it should be recited in detail.

Hisey reduced the same invention to practice in September, 1889, but alleges that he had a full conception of it in April, 1888, and therefore claims to be the prior inventor.

When it is considered that crimpers and cartridge-loading machines, both of the round-table type and of the endless-chain type, were in use before the two were combined to make the invention described in the issues in this interference, it will be apparent that a sketch of a crimper upon one piece of paper and a separate sketch of a cartridge-loading device upon another do not of themselves bear testimony to the conception of the combined crimper and cartridge-loading machine which is now under consideration. Nor does a sketch, like the Ligowsky sketch, of a cartridge-loading machine, with a blank space left upon it where a crimper might be put, but where an indenter might equally well be put, of itself bear testimony to the full conception of the combined cartridge-loading machine and crimper. Hisey has presented no exhibit which of itself shows the combination of a cartridge-loading machine and a crimper of an earlier date than the drawings in his German patent, or the photographs of drawings of his Canadian application, or the drawings of this application, and their history cannot be traced in this record. Hisey claims to have brought drawings and tracings with him from Germany on his return, about April 1, 1889, but they are not before me and it is not certain what they contain except as their contents may be inferred from secondary evidence. They were taken to Elliott S. Rice, of Chicago, and were attached by Hisey and Rice to a contract between them as exhibits. Mr. Hisey says that he had them traced from the Patent Office drawings which were prepared in Germany by Brydges & Co. before he left there. But supposing they were proved to be tracings of drawings made in Germany, it is not revealed in the record when or by whom such German drawings were made. Hisey himself is silent as to directions to any German draftsman to prepare drawings of his invention.

When the effort is made to construe the Ligowsky drawing into evidence of an early conception by Hisey, and this is the only original drawing in the Hisey record except the working drawing of a crimper made by Hisey in Cincinnati after his return from Germany, it is found, as before stated, that there is a blank space upon it where either an indenter or a crimper might be placed. In fact, an indenter and not a crimper was placed there in all the machines that were constructed in Germany. It was by means of this drawing that Hisey claims to have explained the invention to Spengel before his departure for Germany in April, 1888; but Spengel as a witness does not corroborate this. It is claimed by Hisey that he also explained the invention by means of this draw-

ing and by means of a sketch in his pass-book to Ligowsky and to his sisters-in-law, Mrs. Miller and Mrs. Mullane, and to his wife. Ligowsky died before the testimony was taken. The wife was thought not to be a competent witness, and was therefore not called. The pass-book has been lost; but Hisey's opponent called Mrs. Miller and Mrs. Mullane, and they failed to corroborate Hisey's alleged disclosure. At first Hisey did not produce the Ligowsky drawing and was of the opinion that it contained a crimper in combination with the cartridge-loading machine, and so testified, but afterward corrected his statement. The drawing was produced, however, with some reluctance, upon the cross-examination, when it appeared, as before stated, that there was a blank space but no crimper and no indenter upon it.

Drawings came over from Germany in a letter from Brydges & Co. to Richards & Co., under date of April 9, 1889; but I am unable to trace these drawings in this record, or to account for their absence, or to fix the date when they were made or to be certain of their contents. The drawings connected with the German patent disclose the invention; but the patent bears date June 23, 1889, and by inference from the practice of the German Patent Office, and there is no other guide, it appears to have been filed the day before. There is nothing in Mr. Hisey's testimony showing when he gave the directions from which they were made. The photographs of a close reproduction of the German patent drawings and likewise of those in the application in this interference appear to be taken from drawings prepared for an application for a Canadian patent, and contain a certificate signed by Hisey, by W. W. Canfield, his attorney; but the certificate bears date September 28, 1889, and there is nothing in the record that gives the drawings from which these photographs were made an earlier date than that of the German patent drawings.

It is claimed by Hisey's counsel that a contract made with Armin Tenner in Germany July 11, 1888, was made with reference to this invention. An inspection of that contract shows that an earlier contract of February 17, 1888, between the same parties was before them when this was drawn. The earlier contract recited that Mr. Hisey had invented a certain novel and useful shotgun cartridge-loading machine and was desirous of securing patents thereon in European countries, and that Tenner was desirous of securing the right to introduce the said invention in the European countries; but it was made before Mr. Hisey claims to have had the conception of the invention in these issues, and it is certain, therefore, that it has no reference to such invention. The second and later contract recites that Mr. Hisey has invented a certain novel and useful automatic cartridge-loading machine, the principal feature of which consists in an endless chain, and which is adapted alike for pasteboard or metallic shells, regardless of gage and size, and for which invention he is desirous of securing patents in the United States of America and the European countries. Although changed from the first contract in the specific recital of the invention, in it no reference is found to the combined cartridge-loading machine and crimper, although Mr. Hisey claims to have fully completed the invention thereof before it was executed. On the 8th of September, 1888, Mr. Hisey made application for a patent upon his endless-chain cartridge-loading machine in this Office; but the drawings disclose no crimper or crimper attachment or place where such attachment could be located. There was, however, an ambiguous clause in the specification which might by possibility have reference to this combination, but it also might not.

So that part of the testimony which is indisputable fails in itself to carry back the date of conception or to afford corroboration to Mr. Hisey's statement.

Mr. Hisey sailed from New York for a German port on the 13th of June, 1888, upon the German steamship *Aller*. Three days out he had a conversation with Allison M. Stickney, a machinist and an inventor, in which Hisey showed him the Ligowsky drawing and the separate sketch of a crimper in the pass-book. It is considered that the testimony of this conversation, in which Mr. Hisey claims to have disclosed the combined cartridge-loading machine and crimper to Mr. Stickney, ought to be received upon the question of Hisey's conception; but Mr. Stickney testified to the details of the conversation four years and a half after it occurred and but one day after inspecting the four sheets of drawings which contain the illustration of the crimper and cartridge-loading machine combined. His cross-examination revealed the circumstance that he paid no great attention to the tracing exhibited to him on board the ship; that his attention was particularly drawn to the peculiar chain and wheel, and that he was not a close observer. The whole matter between them rested in oral discourse. I am unable to find in the fallible recollection of this witness a reasonably sure foundation for a disclosure of this invention as against the plain and certain case made out by his opponent.

Counsel directs attention to references—patents to Burdick, February 8, 1887, No. 357,457; Brittin, March 20, 1888, No. 379,853, and English Patent No. 2,958, of 1867—which are claimed to anticipate this invention; but as these were before the Primary Examiner when the question of novelty was before him, and appear to have been fully considered, the motion to remand the case to him for reconsideration of that question is denied.

Upon a careful review of the record it is considered that Peters is the prior inventor, and in adjudging priority to him the decision of the Examiners-in-Chief is affirmed.

PLUMMER *v.* PENNISTON.

Decided April 23, 1894.

INTERFERENCE—PRINTING TESTIMONY.

Rule 162, requiring printed copies of the testimony to be furnished to the Office and opposing parties, *Held* to be of binding authority.

ON petition.

FOOD-WARMER.

Application of Annie M. Plummer filed November 28, 1892, No. 453,317. Application of Clara A. Penniston filed October 25, 1892, No. 449,967.

Mr. Charles H. Roberts for Plummer.
Messrs. Knight Bros. for Penniston.

SEYMOUR, *Commissioner:*

In this case the Examiner of Interferences has rendered his decision on the question of priority in favor of Plummer, who has failed to comply with the rule requiring that her testimony shall be printed. Petition is now taken to the Commissioner that the said Examiner be directed to set aside the decision and that no testimony shall be examined which has not been filed and printed in accordance with the rules.

My attention was first called to this case by a letter from counsel for Plummer complaining of the action of the Examiner of Interferences, dated December 7, 1893, wherein he ordered that the testimony be printed or that applicant show cause why judgment should not be rendered against her on the record in favor of Penniston. It was claimed by counsel that this action had no warrant in the rules. The Examiner of Interferences advised the Commissioner that he had inaugurated such practice about four years ago on the oral consent of the Commissioner. No decision or ruling by the Commissioner on this question is found of record. On December 13, 1893, I directed that the orders to show cause in such cases should be restricted to requiring applicants to satisfactorily show why the printing of testimony should be dispensed with. On December 19, 1893, by letter to Plummer's counsel, I advised him as follows:

> In justice to the opposing party the interference case as such cannot go on without the printing of this record, to the extent at least of furnishing two type-written copies, one for the use of your opponent, on motion duly made under Rule 162.

It was thus intended that in cases where parties refuse to print their testimony or to otherwise comply with the rule judgment in default should be rendered them. Subsequently, when this case was again informally presented to the Commissioner, it was thought best to direct the Examiner of Interferences to consider Plummer's record, although no attempt at compliance with the rule had been made by her. The case accordingly proceeded, as above indicated.

Rule 162, which requires that "six or more printed copies of the testimony must be furnished," must of necessity be enforced, unless good and sufficient reasons be shown why its provision in this respect may be waived. This rule is for the protection of parties as well as to facilitate the conduct of business here. To dispense with the printing of testimony would impose a burden beyond the capacity of the tribunals of this Office to discharge.

No attempt has been made on behalf of Plummer to comply with Rule 162, either as regards the Office or in furnishing the opposing contestant in this interference with a copy of her testimony.

The examination of the record, printed and unprinted, by the Examiner of Interferences having been made under the *ex parte* direction of January 3, 1894, cannot now be set aside, and the order having been executed and the decision rendered, no direct relief can be afforded the petitioner; but the direction is revoked and Rule 162 is held to be of binding authority upon parties, and Plummer is held to be in default for failing to print. There is no requirement upon the tribunals of the Office, in the further proceedings in this case, to examine unprinted records, except where compliance with the rule is excused as provided in its terms.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

IN RE DANIEL DRAWBAUGH.

Decided May 7, 1894.

1. APPLICATION FOR A PATENT—INVENTION IN PUBLIC USE OR ON SALE FOR MORE THAN TWO YEARS—SECTION 24, ACT OF JULY 8, 1870, (CH. 230, SEC. 4886, REV. STATS.)—INTERPRETATION.

The plain import of the words "not in public use or on sale for more than two years prior to his application" is the creation of a limitation of two years within which a patent for an invention must be applied for after it has gone into public use, either with or without the knowledge, consent, or allowance of the applicant for the patent.

2. CONSTRUCTION OF A STATUTE—RULE AS TO WHERE THE WORDS ARE PLAIN AND NOT INCONSISTENT WITH THE GENERAL OBJECT OF THE ACT AND LEAD TO NO ABSURD RESULT.

It is a sound rule of construction of a statute, where the words of an act or part of an act are plain and clear and not inconsistent with the general object of the statute and lead to no absurd result, that the courts have no right to refuse their operation or to limit their effect by a construction based upon conjecture.

Mr. Lysander Hill and *Messrs. Church & Church* for Drawbaugh.

Mr. Levin H. Campbell for the Commissioner of Patents.

SHEPARD, *J.:*

This is an appeal from the decision of the Commissioner of Patents finally rejecting the application of Daniel Drawbaugh for a patent for improvements in telephones, filed July 22, 1880. This application was supplemented by others filed from time to time, and the final rejection from which the appeal has been taken was made December 3, 1891, upon the ground that public use had been made of telephones invented by Thomas A. Edison more than two years before the application was filed.

The facts shown by the record and the proposition of law arising thereon are thus stated by the appellant:

1. That the Edison telephone, in its completed condition, exhibited a structure that is covered by the claims of the Drawbaugh application for patent.

2. That for the purpose of this inquiry Drawbaugh is to be regarded as the prior inventor over Edison.

3. That Edison's telephone was invented and put into public use and on sale in this country by Edison as a matter of his own independent invention and without any knowledge derived from Drawbaugh's prior invention.

4. That no telephones were put into public use and on sale in this country for more than two years prior to Drawbaugh's application through any knowledge or information derived directly or indirectly from Drawbaugh.

5. That Drawbaugh had no knowledge of Edison's said public use and sale and did not in any manner consent to, allow, or permit the same.

6. That Drawbaugh did not unreasonably delay his application after obtaining knowledge that the Edison telephones were in public use and on sale.

7. That Drawbaugh never voluntarily abandoned his invention or dedicated it to the public.

Assuming these propositions, the following question of law is presented for adjudication:

Does the two years' public use or sale, without Drawbaugh's knowledge, consent, allowance, or permission, of telephones similar to his, but constructed by another and later inventor, without any knowledge of Drawbaugh's earlier invention, bar Drawbaugh's application?

The answer to this question involves the construction of certain sections of the act of 1870—to revise, consolidate, and amend the statutes relating to patents and copyrights.

Section 24 provides for the grant of patents for inventions and discoveries of new and useful arts, machines, etc.—

not known or used by others in this country, and not patented or described in any printed publication in this or in any foreign country, before his invention or discovery thereof, and not in public use or on sale for more than two years prior to his application, unless the same is proved to have been abandoned.

Section 37 reads as follows:

That every person who may have purchased of the inventor, or with his knowledge and consent may have constructed, any newly invented or discovered machine or other patented article, prior to the application by the inventor or discoverer for a patent, or sold or used one so constructed, shall have the right to use and vend to others to be used, the specific thing so made or purchased, without liability therefor.

Section 61, which specifies the defenses that may be made to an action for infringement of a patent, contains five distinct clauses, the fifth of which reads as follows:

That it had been in public use, or on sale, in this country for more than two years before his application for a patent, or had been abandoned to the public.

Considered without regard to previous legislation upon the subject and the decisions thereunder, the words of section 24 seem to afford no room whatever for construction. Their plain import is the creation of a limitation of two years within which a patent for an invention must be applied for after it has gone into public use.

We are asked on behalf of the appellant to "read into" the statute the qualifying words, "with his knowledge or consent," and to give it effect as if these words had been added by Congress in the enactment thereof.

We hold it to be a sound rule that where the words of an act, or part of an act, are plain and clear, are not inconsistent with the general object, and lead to no absurd result, the courts have no right to refuse their operation or to limit their effect by a construction based upon conjecture.

The appellant seeks to evade this rule by an argument substantially to this effect:

The original act of 1793 was interpreted by the Supreme Court in *Pennock* v. *Dialogue* (2 Peters, 1) as if the words "with the applicant's consent or allowance" had been included therein; that the act of 1836 inserted the words "with the applicant's consent and allowance," not to change the law, but merely as declaratory of that already in existence through the decision in *Pennock* v. *Dialogue;* that the act of 1839 was merely an addition to the law in force, and its section 7, which omits the words "with the applicant's consent or allowance," must be taken as in the nature of a proviso to sections 6, 7, and 8 of the act of 1836, and be held merely to omit the declaration of the law in force, without changing its effect; that the act of 1870 was a mere consolidation of the laws in force, and must be given the same interpretation notwithstanding the rearrangement and separation into different sections of some of the provisions under consideration.

It is true that the act of 1793, under consideration in *Pennock* v. *Dialogue*, limited the grant of a patent to the discovery of new and useful arts, etc., "not known or used before the application," which words, the Court said, meant necessarily "not known or used by the public."

We cannot agree with counsel that the point decided in that case was that the statute must be construed in all cases as if it read thus: "not known or used before the application with the consent or allowance of the applicant." It was, however, said by Justice Story, who delivered the opinion of the Court:

It is admitted that the subject is not wholly free from difficulties; but, upon most deliberate consideration, we are all of opinion that the true construction of the act is that the first inventor cannot acquire a good title to a patent if he suffers the thing invented to go into public use, or to be publicly sold for use, before he makes application for a patent. His voluntary act or acquiescence in the public sale and use is an abandonment of his right, or rather creates a disability to comply with the terms and conditions on which alone the Secretary of State is authorized to grant him a patent.

Considered by itself this language may be broad enough to sustain the appellant's contention with respect to the effect of the decision, but considered with reference to the point actually before the court for decision it is plain that the case does not go to the length claimed for it. The question before the Court was the correctness of the following charge to the jury given by the court below:

If an inventor makes his discovery public, looks on and permits others freely to use it without objection or assertion of claim to the invention of which the public might take notice, he abandons the inchoate right to the exclusive use of the invention to which a patent would have entitled him had it been applied for before such use, and it makes no difference in the principle that the article so publicly used and afterward patented was made by a particular individual, who did so by the private permission of the inventor.

This charge was approved and the judgment for the defendant was affirmed.

Section 7 of the act of 1836 did insert the words "with the applicant's consent and allowance," and this may have been done to give sanction to the interpretation supposed to have been given without qualification to the older act in *Pennock* v. *Dialogue*. Whether this be correct or not it is not worth while now to consider because of the interpretation given to the act of 1839 in *Andrews* v. *Hovey*, (123 U. S., 267; 42 O. G., 1285; 124 U. S., 694.)

Section 7 of the amendatory act of 1839 reads as follows:

And be it further enacted, that every person or corporation who has, or shall have, purchased or constructed any newly-invented machine, manufacture, or composition of matter, prior to the application by the inventor or discoverer for a patent shall be held to possess the right to use, and vend to others to be used, the specific machine, manufacture, or composition of matter so made or purchased, without liability therefor to the inventor, or any other person interested in such invention; and no patent shall be held to be invalid by reason of such purchase, sale, or use, prior to the application for a patent as aforesaid, except on proof of abandonment of such invention to the public or that such purchase, sale, or prior use has been for more than two years prior to such application for a patent.

In *Andrews* v. *Hovey* the patent had issued under the act of 1839, and the defense to an action for infringement involved the interpretation of the foregoing section. After full consideration originally, as is shown by the opinion, and upon motion for rehearing, it was held, all the justices concurring, that two years' public use of an invention before the application was made, whether with or without the consent of the patentee, rendered the patent invalid.

Having reviewed the earlier patent legislation and many decisions bearing on its construction, Justice Blatchford, who delivered the opinion of the Court, said:

It is very plain that, under the act of 1836, if the thing patented had been in public use or on sale with the consent or allowance of the applicant for any time, however short, prior to his application, the patent issued to him was invalid. Then came section 7 of the act of 1839, which was intended as an amelioration in favor of the inventor, in this respect, of the strict provisions of the act of 1836. The first clause of that section provides for the protection of a person who, prior to the application for the patent, purchases or constructs a specific machine or article, and declares that he may use and sell such specific machine or article after the patent is issued, without liability to the patentee. The section does not require, in order to this protection, that the purchase or construction shall have been with the consent or allowance of the person who afterward obtains the patent and seeks to enforce it against such purchaser or constructor. The words "consent or allowance" are not found in the provision. The only requirement is, that the specific machine or article shall have been purchased or constructed at some time prior to the application for a patent. The second clause of the section then passes to consider the effect upon the validity of the patent "of such purchase, sale, or use prior to the application" for the patent, and declares that "no patent shall be held to be invalid by reason of such purchase, sale, or use prior to the application for a patent as aforesaid, except on proof of abandonment of such invention to the public, or that such purchase, sale, or prior use has been for more than two years prior to such application for a patent." The expression "such purchase" clearly means the purchase from any person, and not merely from the person who becomes the patentee of the machine or article. The expression "such sale or use" clearly refers to the use or sale by the person who has purchased or constructed the machine or article, the right to use and sell which is given to him by the first part of the section. That right is given to a person who has constructed the machine or article, as well as to one who has purchased it; and the plain declaration of the second part of the section is that, where the purchase or construction of the machine or article took place more than two years prior to the application for the patent, or where the use or sale by the person who so purchased or constructed the machine or article took place at a time more than two years prior to the application, the patent becomes invalid. It is not possible in any other way to give full effect to the word "constructed," in the first part of the section. The word "purchased" and the word "constructed" are used in the same connection, and in connection with the words "so made or purchased," which occur afterward; and the word "purchased" cannot be limited to a purchase from the applicant for the patent, nor can the word "constructed" be limited to a construction with the consent and allowance of such applicant, without interpolating into the statute the words "consent or allowance." We can find no warrant for doing this. The evident purpose of the section was to fix a period of limitation which should be certain, and require only a calculation of time, and should not depend upon the uncertain question of whether the applicant had consented to or allowed the sale or use. Its object was to require the inventor to see to it that he filed his application within two years from the completion of his invention, so as to cut off all question of the defeat of his patent by a use or sale of it by others more than two years prior to his application, and thus leave open only the question of priority of invention. The evident intention of Congress was to take away the right (which existed under the act of 1836) to obtain a patent after an invention had for a long period of time been in public use without the consent or allowance of the inventor. It limited that period to two years, whether the inventor had or had not consented to or allowed the public use. The right of an inventor to obtain a patent was in this respect narrowed, and the rights of the public as against him were enlarged, by the act of 1839. The language of section 24 of the act of 1870, now section 4886 of the Revised Statutes, is to the same effect, and carries out the policy inaugurated by the act of 1839. It allows a patent to be granted only for an invention which was not in public use or on sale for more than two years prior to the application for the patent, subject to the defense of abandonment within such two years, which is also the requirement of section 61 of the same act; while section 37 of the act requires that a person, in order to have the right to use and sell, without liability, a specific thing made or purchased prior to the application for the patent, shall have purchased it of the inventor or constructed it with his knowledge and consent. In view of the fact that section 37 of the act of 1870 re-enacts the first part of section 7 of the act of 1839, with the addition, *ex industria*, of the requirement, in order to confer the right to use the specific thing in question, that the purchase of it should have been from the inventor or the construction of it should have been with his knowledge and consent, and of the further fact that section 24 of the act of 1870 re-enacts the second part of section 7 of the act of 1839, and does not contain a requirement that the public use or sale for more than two years prior to the application shall have been with the consent or allowance of the patentee, in order to invalidate the patent, it may fairly be said, that it was the view of Congress, that section 7 of the act of 1839 did not require, as an element, the knowledge, consent, or allowance of the applicant

The opinion in *Andrews* v. *Hovey* has been assailed by counsel with much vigor and force as going entirely outside the point actually before the court. We cannot concur in that view. It was a suit in equity, and the entire record was before the Court upon the facts as well as the law. It is true that the Court might have decided the case upon the ground that there was circumstantial evidence sufficient to show that the public use of the invention had been made with the knowledge and consent of the patentee more than two years before his application was filed, and thus have evaded the point upon which the decision was based.

Both points were involved in the case, and the Court chose to rest its judgment upon the construction given the statute, and set a vexed question at rest, rather than upon a state of proof which may not have been clear and satisfactory.

The act of 1870, under which this case arose, was not indeed before the Court; but the interpretation of its meaning, expressed in the foregoing extract from the opinion, is the necessary consequence of the reasoning with respect to the effect of the act of 1839, and is all the more reasonable by virtue of the manner in which the provisions of former statutes have been changed and rearranged in said act. The separation (and re enactment with some additions thereto) of the two parts of section 7 of the act of 1839 into sections 24 and 37 of the act of 1870 (Revised Statutes, sections 4886 and 4889) serves to show it was the intention of Congress that the two years' limitation should apply to a public use, either with or without the consent or allowance of the applicant for the patent, with even more conclusive force than it does to show "that it was the view of Congress that section 7 of the act of 1839 did not require as an element the knowledge, consent, or allowance of the applicant."

Assuming it to be true, then, as claimed by the appellant, that the public use of the Edison telephone invention was not actually known to Daniel Drawbaugh until within two years next before his application was filed, and was therefore without his consent or allowance, the bar of the statute nevertheless applied, and the Commissioner of Patents did not err in rejecting the application.

The decision appealed from is therefore affirmed, with costs to the appellee, and this decision is ordered to be certified to the Commissioner of Patents for his observance.

U. S. Circuit Court—District of Massachusetts.

KERRY *et al. v.* TOUPIN.

Decided March 1, 1894.

1. TRADE-MARKS—RIGHT TO—ALIENS.

   Citizens of Canada who are engaged in the manufacture of trade-marked articles and who have a place of business in the State of New York, where they make and ship such articles for sale in the United States, are within the International Convention of March 20, 1883, for the protection of industrial property, and they may sue in the United States courts for the infringement of their Trade-Marks by its citizens.

2. SAME—WHAT CONSTITUTES—INFRINGEMENT.

   Complainants manufactured a medicinal compound under the name of "Syrup of Red Spruce Gum," and for some twenty years or more that name was placed conspicuously on the package in which the compound was sold, and in connection there-

with appeared a cut of an Indian against a background of spruce-trees and a waterfall. *Held* that the adoption and continuous use of this distinctive name and device entitle complainants to claim it as a Trade-Mark and to be protected against its infringement by persons making similar goods.

ON FINAL hearing. Bill by John Kerry and others against Hercule A. Toupin to restrain the infringement of complainants' Trade-Mark.

Mr. Edward S. Beach for the complainants.

Mr. John J. Hogan and *Mr. William A. Hogan* for the defendant.

ALDRICH, *J.*:

This cause came on for hearing upon bill, answer, and proofs. In 1860 Henry R. Gray originated a medicinal preparation, to which he gave the fanciful name of "Syrup of Red Spruce Gum." The compound comprised several ingredients, but the oleoresin of the spruce was the leading medicinal feature. It is not necessary to consider the character of the preparation further than to find that it was an original and artificial composition of several natural products and a useful remedy in throat and lung troubles. The originator proceeded at once to manufacture and place such preparation before the public. It was put up in four-sided oblong bottles wrapped in blue wrappers, on which appeared in conspicuous type the trade-name "Syrup of Red Spruce Gum," and in connection therewith the figure of an Indian, with a background of spruce-trees and a waterfall. There was proper registration of such name and mark at Ottawa in 1872 and at Washington in 1874. Between 1860 and 1875 the originator used this name and mark continuously and expended several thousand dollars in advertising and establishing the name and a trade. In 1875 he assigned all his rights to Kerry, Watson & Co., of Montreal, to which the complainants have succeeded. Since 1875 the complainants have used the name, mark, and wrapper continuously, and have expended, as the evidence shows, something like seven thousand dollars annually in advertising. They have a manufactory and place of business in Montreal, and for about fifteen years have had a place of business at Rouse's Point, N. Y., where they manufacture and ship to various points in the United States. The complainants' annual output is something like one thousand gross in Canada and five hundred gross in the United States, and the evidence shows that the preparation has merit and an established reputation in the markets.

The complainants in this proceeding do not now rely on the registration for relief, but urge the certificates as evidence of the adoption of the name, mark, and wrapper. Neither do they ask to be protected in a monopoly of their product, but against the use by the defendant of their trade name and mark under circumstances which shall induce the public to buy another preparation, supposing it to be the "Syrup of Red Spruce Gum" placed in the market by the complainants; and to this extent I think they are entitled to protection. The complainants, citizens of Canada, having an industrial or commercial establishment in the State of New York, would seem to be within the third and eighth articles of the International Convention of March 20, 1883, in which Great Britain joined, for the protection of industrial property. As translated, (*La Republique Francaise* v. *Schultz*, 57 Fed. Rep., 37, 40,) the treaty covers Trade-Marks, commercial marks, and commercial names as well. The complainants' name, "Syrup of Red Spruce Gum," adopted and continued in the manner shown, is a trade-name, and the device embodying the name and the cut, as printed on the blue wrapper, has become a distinctive mark in the trade, as applied to their cough mixture, and as such is entitled to protection. (*Improved Fig Syrup Co.* v. *California Fig Syrup Co.*, 64 O. G., 158; 4 C. C. A., 264; 54 Fed. Rep., 175; 7 U. S. App., 588.)

The defendant has adopted a bottle so similar in shape and a wrapper so similar in color, with a combination of words, including the name "Syrup of Red Spruce Gum," conspicuously displayed, with a border and cut so like the complainants' in general appearance, as to compel the conclusion that the purpose was to trade on the complainants' reputation and the notoriety created by a long and continuous use of their distinctive marks and name. That the defendant has changed the wrapper somewhat in detail does not relieve him. He has studiously preserved a catching general appearance, well calculated to deceive the trade and induce the public to buy his preparation, supposing it to be the preparation known as the "Syrup of Red Spruce Gum," which the complainants and their grantor have continued in the markets for thirty years or more.

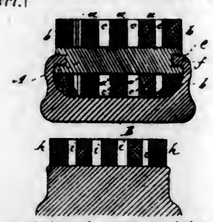
The complainants are entitled to an injunction in accordance with these views and to an accounting, and it is so ordered.

PATENTS

Expired, May 15 1894.

The term of these patents granted during the week ending May 15, 1877, have expired. The reissues expired at an earlier date.

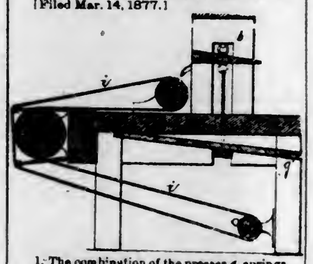
190,662. BLACKBOARD-ERASERS. Herbert L. Andrews, Chicago, Ill. [Filed Mar. 1, 1877.]



1. A blackboard-eraser, consisting of a block having strips of felt *a*, or other similar material, glued to the block, and a strip, *b*, of the same material extending across the ends of the strips, all so arranged as to have channels *c* between the several strips, the channels being closed at their ends, substantially as and for the purposes specified.

2. A reversible blackboard-eraser, consisting of the block A, having strips of felt *a a'*, or other similar material, and strips *b b'*, glued to opposite sides thereof, and so arranged as to leave channels *c c'* between the strips, in combination with the block B, all constructed and operating substantially as described.

190,663. BAG-MACHINES. Wm. P. Arnold and George Quigley, Fredericksburg, Va. [Filed Mar. 14, 1877.]



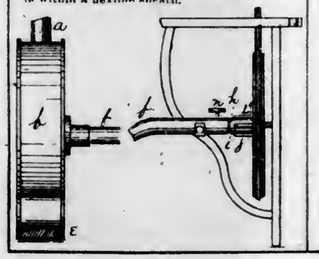
1. The combination of the presser *d*, springs, treadle *g*, and guides *h* with an endless band, *i*, or other equivalent mechanism, for carrying the bags away when finished, substantially as specified.

2. The combination of the presser *d*, springs *e*, treadle *g*, and guides *h*, substantially as set forth.

3. The presser *d*, beveled away at its front edge, so that the paper can be folded back over it while it is holding the bag, substantially as described.

190,664. MOTORS FOR SEWING-MACHINES. A. D. Black, Portland, Me. [Filed Dec. 11, 1876.]

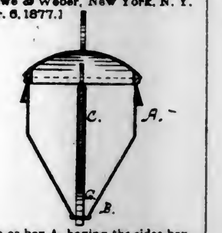
Brief.—To the axis of a small overshot wheel, set to any point where water-pressure is available, there is attached a flexible shaft formed of spirally-coiled wire, the other end being, by means of tines, affixed to the hub of a wheel on the sewing-machine. The shaft is within a flexible sheath.



1. The combination of the flexible tube *f*, having within it the coiled wire *g*, with the head *h*, having the parts *i j k*, and beat piece *l*, and brake *n*, as herein set forth, and for the purposes described.

2. The combination of the box *b*, the wheel, the pipe *a*, flexible tube *f*, coiled wire *g*, head *h*, with parts *i*, *j*, and *l*, to be attached to a sewing-machine, as herein set forth.

190,665. LUBRICATORS FOR JOURNALS. J. H. Burnett, Newark, N. J., assignor to Chard, Hawe & Weber, New York, N. Y. [Filed Apr. 6, 1877.]



1. The case or box A, having the sides beveled at the lower end B, and fitted with an opening, D, through which the grease is to be fed to the journal by one of feeder-plates C, substantially as and for the purpose specified.

2. The metal plate C, having the feeders G working vertically in and through the box A, to have a bearing on a journal to be lubricated, substantially as and for the purpose set forth.

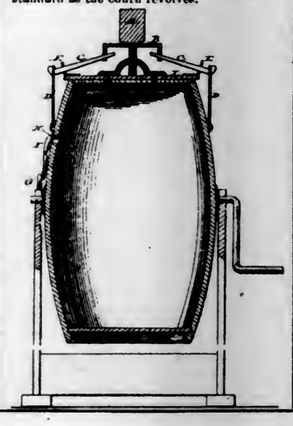
190,666. BAG-FASTENERS. Aaron B. Cate, Washington, D. C. [Filed Apr. 20, 1877.]



The combination of the casing A, rivets *c*, pivoted arms B B, having shoulders *d*, and wedge C, substantially as shown and described.

190,667. CHURNS. D. C. Chadwick, Meadville, Pa. [Filed Sept. 7, 1876.]

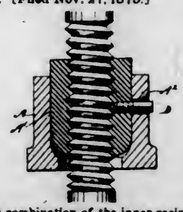
Brief.—The cover is held in place by means of levers, links, a cap, and screw. A vent-valve is operated by the handle striking the standard as the churn revolves.



1. The combination, on a revolving churn, of the links D, levers C, follower B, screw A, ball H, and fulcrums E, for the purpose of making the cover I water-tight on the top of the churn, when made as and for the purpose specified.

2. The valve F and trip G, on a revolving churn, when made and operated as described, and for the purpose set forth.

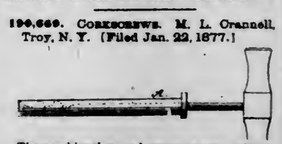
190,668. CONSTRUCTION OF DIES FOR SCREWED STAMPER-SHANKS. Jas. Cliff, Sandhurst, Colony of Victoria, assignor of one-fourth his right to A. Harkness, same place. [Filed Nov. 27, 1875.]



1. The combination, with the inner casing A', outer casing A, and retaining-pin D, substantially as described.

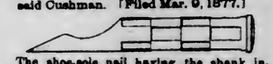
2. In combination with the pin D, fixed in the inner casing, the outer casing having the slotted opening A', whereby it is adapted to move in a vertical direction, as described.

190,669. CORKSCREWS. M. L. Crannell, Troy, N. Y. [Filed Jan. 22, 1877.]



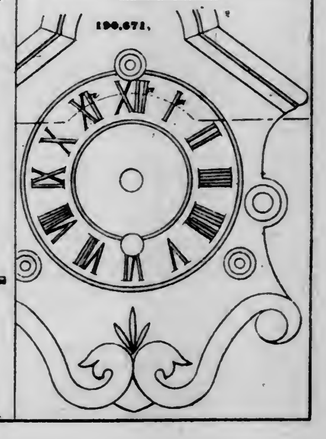
The combination and arrangement, with a corkscrew, of the sleeve or tubular cover A, having spurs or equivalents to grasp and hold the cork while being pierced by the screw-point.

190,670. SHOE-NAILS. H. S. Cushman and J. S. Brigham, Milford, Mass., assignors to said Cushman. [Filed Mar. 9, 1877.]



The shoe-sole nail having the shank indented or cellulated, in the manner as represented, and provided with a point and a ridge to the clinching slope thereof, all arranged as specified.

190,671.



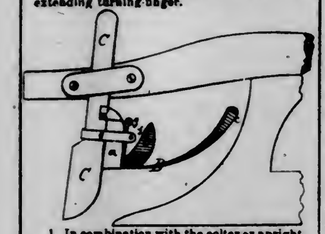
190,672. CLOCK-DIALS. Henry J. Davies, Brooklyn, N. Y. [Filed Feb. 27, 1877.]

1. A clock-dial made of pressed glass, substantially as herein described.

2. A pressed glass clock-dial having its numerals integral with it, substantially as herein described.

190,673. PLOW-JOINTERS. Jay Densmore, Tonawanda, N. Y. [Filed Mar. 7, 1877.]

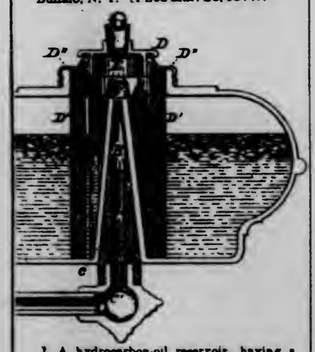
Brief.—A pointer clamped to the rear of a colter, having a cutting-share with its outward end curved upward, and a rearward-extending turning-finger.



1. In combination with the colter or upright piece C, the jointer D, constructed with the upright post *a*, the curved cutting-shear *b*, and the long elevating-bar *c*, substantially as herein before specified.

2. In combination with the colter C and jointer D *a b c*, the lips *d d*, the band *e*, bolt *f*, and key *g*, for the purpose of attaching and adjusting the jointer, substantially as specified.

190,674. HYDROCARBON-LIQUID ATTACHMENTS FOR GAS-BURNERS. H. W. Dodd, Buffalo, N. Y. [Filed Mar. 26, 1877.]



1. A hydrocarbon-oil reservoir, having a gas-burner in its cap, provided with a series of pendant metallic strips attached to said burner, and surrounded by a liquid absorbent, whereby the oil is rapidly vaporized within said reservoir, substantially as herein before set forth and described.

2. The combination, with a hydrocarbon-oil reservoir, of a common gas-burner and a liquid-evaporating device, arranged to effect the vaporization of the liquid within by means of conductors leading the heat from the flame to the said evaporating device, substantially in the manner and for the use and purpose specified.

3. The combination, with the cap D provided with a burner-tip, of the metallic heat-conductors D'', surrounded with a liquid absorbent, whereby the heat from the burner is conducted into the reservoir, to accelerate and increase the evaporization of the hydrocarbon liquid within, in a manner as and for the purpose heretofore stated.

4. The combination, with the tube B, of the cap B', as described, said tube or cap being corrugated, to prevent the liquid from entering said tube when the reservoir is filled, without interfering with the escape of the gas from said tube B, as stated.

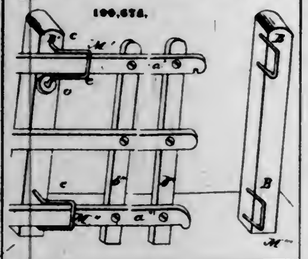
190,675. FARM-GATES. Henry N. Dunbar, Mentor, Ohio. [Filed Mar. 13, 1876.]

1. In combination with the post B', the gate-hanger M', formed of metal, with right-angled arms, the lower one of which is depressed, so that the elevated arm *e* forms a shoulder, which will correspond in height with the top of said roller, substantially as and for the purpose specified.

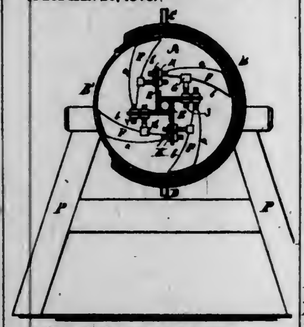
2. In combination with the post B', the gate-hanger M', formed of metal, with right-angled arms secured to the post and setting off therefrom, in the manner and for the purpose specified.

3. In combination with the notched end of the boards *a' a''*, the catch M''', formed of metal, with right-angled arms inserted in the inner face of the post B, substantially as specified.

190,676.



190,676. HOMINY-MILLS. Geo. B. Gaines, Indianapolis, Ind., assignor of one-half his right to John E. Sanders, same place. [Filed Mar. 20, 1876.]



1. The cylinder A containing the stirrers F, having an opening at one side, and a door, B', adapted thereto, and hinged at the upper edge, and provided at that part not occupied by the door with a steam-jacket, B, as set forth.

2. The beater-shaft composed of the square shaft I, and angle-iron wings E, arranged in the manner shown, for the purposes specified and described.

3. The beating-knife F, formed with a hollow-ground blade, sharp at the edge *c*, and broad at the back *b*, and with a shank, Y, which is provided with a screw-thread and nuts, H H, as shown, for the purposes set forth and described.

4. The stud G, formed with a groove, G', in the head, and a screw-threaded shank, J, and nuts K K, in combination with the beater-knives F, and angle-iron wings E, for the purposes set forth and described.

190,676. BONE-BLACK REVIVIFIERS. Jos. Gandolfi, Brooklyn, N. Y. [Filed Feb. 21, 1877.]

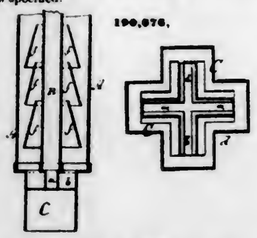
Brief.—Hollow frustums of cones are placed one above the other within the retorts, for carrying off the gases from the bone-black. The retort is cross-shaped in transverse section, thus having longitudinal grooves for providing a greater heating-surface.

1. The socket C, constructed with two hollow bridges, *a* and *b*, which cross each other in the socket, in combination with the retort A and inner pipe B, substantially as herein shown and described.

2. The revivifying-retort A, constructed with the external upright channels *d d*, substantially as and for the purpose herein shown and described.

3. The hollow funnels *f f*, placed in a row within the chamber *e* of a revivifying-retort, against the solid wall of said retort, all arranged so that the funnels discharge the ascending gases into one another, substantially as specified.

190,676.



190,677. BINDING BOOKS. Wm. Gilliland, New Brighton, Pa. [Filed Apr. 21, 1877.]



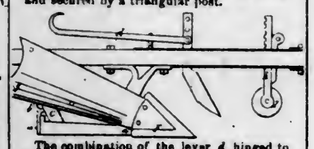
1. The combination, in a binder, of a retainer, A, having flanges *e* and an internal tongue, *c*, and a pocket, B, formed upon a packet, C, of the papers to be secured, all substantially as set forth.

2. The packet C with its pocket B, adapted for attachment to a tongue, *c*, of a retainer attached to the cover, substantially as specified.

3. The retainer, carrying a tongue, *c*, arranged to be parallel with the back of the book, and adapted to be inserted in a pocket on the packet of leaves, as specified.

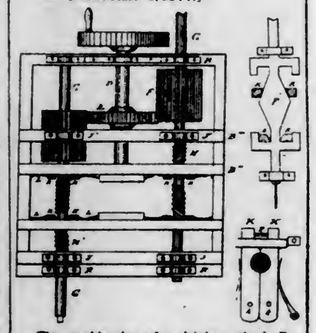
190,678. REVERSIBLE PLOWS. Jno. Gogel, Toledo, Ohio. [Filed Mar. 3, 1877.]

Brief.—Colter of a side-hill plow shifted laterally by a lever pivoted only to the colter, and secured by a triangular post.



The combination of the lever *d*, hinged to the colter, with the angular standard *s*, for adjusting the colter to the right or left of the beam, as described.

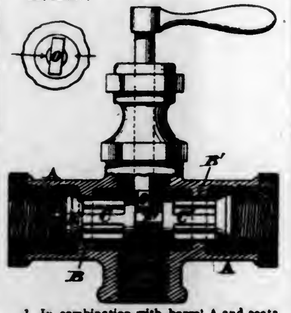
190,679. SCREW-GEARINGS. B. Hackman, Jr., Pequea Township, Lancaster County, Pa. [Filed Mar. 16, 1877.]



The combination of a driving-wheel, E, moved by the power applied in a continuous

direction, and imparting motion to the long or traversing cogged wheel F, supported on the right and left handed screw shaft G, the divided nuts K, opened and closed to reverse and give the alternate motion back and forth of the shaft, by means of a shifting device, P, substantially arranged and operating as and for the purpose specified.

190,680. AUTOMATIC CYLINDER-COCKS. G. F. Hammer, Cincinnati, Ohio. [Filed Apr 25, 1877.]



1. In combination with barrel A and seats B, B' of an automatic cylinder-cock, a pair of adjustable and loosely-coupled reciprocating valves, substantially as herein described, and for the purpose set forth.

2. An automatic cylinder-cock, consisting essentially of barrel A, seats B B', and reciprocating valves C C', one of said valves being furnished with an adjustable stop, E, and a longitudinal bore, D, which bore is traversed by the stem F of the other valve, substantially as herein described, and for the purpose set forth.

190,681. FORM OF SEALING-WAX OR ROSIN FOR USE, THE SAME BEING IN DROPS OR DISKS. Chas. F. Hermann, St. Louis, Mo. [Filed Mar. 22, 1877.]

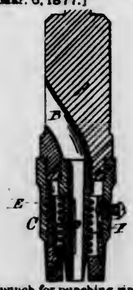
As an article of manufacture, sealing-wax or rosin in round, oblong, or flat drops, substantially as and for the purpose specified.

190,682. HOOF-PARERS. J. Hilger, Bellevue, Iowa. [Filed Jan. 19, 1877.]



The tool A, having slot S and set-screw B, batterie-blade C, held in lug D by the pin E, brace-head E', and pin F, in combination with the nipper-tongs, substantially as and for the purpose described.

190,683. PUNCHES FOR LEATHER, &c. C. Jenkins and A. B. Jenkins, Boston, Mass. [Filed Mar. 6, 1877.]



1. In a punch for punching rings and washers, the combination of a detachable outer punch, a hollow removable central punch, and an automatic diaphragm surrounding the central punch, all arranged and operating as described.

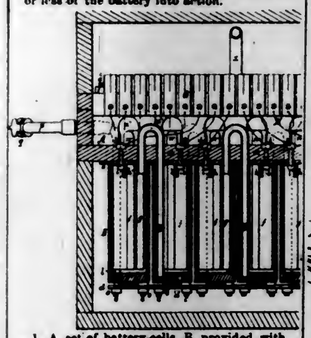
2. In combination with a stock, A, provided with the hole B and projection *a*, the removable punches C and D, cylinder E, provided with diaphragm E' and spring S, substantially as shown and described.

3. In combination with a hollow circular punch, D, opening into the outlet B in the stock, with a yielding diaphragm, B', surrounding the same, substantially as described

---

190,684. GALVANIC BATTERIES. C. R. Jennison, Boston, assignor to himself and E K. Hall, Needham, Mass. [Filed Mar. 13, 1877.]

Brief.—For filling and emptying the battery-cells, and for bringing at pleasure more or less of the battery into action.



1. A set of battery-cells, B, provided with induct and educts *l o n*, arranged with such cells, substantially as set forth.

2. A set of battery-cells, B, provided with wells *m* and inducts and educts *l o n*, arranged with such cells, substantially as set forth

3. Two or more sets of battery-cells, B, provided with wells *m* and inducts *l o n*, and one or more connection-hoses, *q*, arranged with such cells, substantially as set forth.

4. The combination of the liquid supply and extractive vessel C and its air and faucet pipes *s u v* with a set of battery-cells, B, provided with inducts and educts *l o n*, all being arranged substantially in manner to operate as set forth.

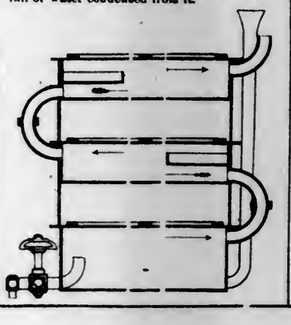
5. The combination of the support-board *a* and the india-rubber packing *b* with the series of open battery-cells B and mechanisms for clamping the cells to the packing and board, substantially as set forth, each being the said bolts *c*, cross-bars *d*, and nuts *e*, arranged as represented.

6. The slide O, provided with wires *f'*, or such and a metallic strip, *f''*, arranged substantially as set forth, in combination with the two ranges F G of springs, the auxiliary springs K L and the battery-cells, and the positive and negative elements electrically connected with such ranges of springs, all being arranged essentially in the manner, and to operate as specified and represented.

7. The combination of the air and gas escape conduits *w x* and their valves *y z* with the battery-cells, their positive and negative elements, and fluid-supply inducts and educts, arranged substantially as specified.

190,685. FRUIT-DRIERS. Hampton Kelly and David Cole, East Portland, Oreg. [Filed Mar. 27, 1877.]

Brief.—The pans are intended to deflect the incoming currents of steam, and to be kept full of water condensed from it.



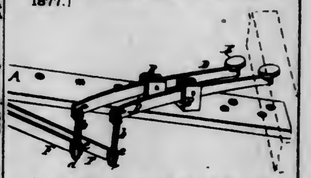
The combination, in a fruit and vegetable drying machine, substantially as described, of a succession of flat hollow boxes of thin metal, one above another, with a boiler, steam and feed pipes, and pans to prevent burning.

190,686. TAILORS' MEASURES. G. H. Lesar, St. Louis, Mo. [Filed Jan. 29, 1877.]



The combination of the fixed arm A, adjustable slide B, and guide C, one of the elements being provided with a spring holding-tongue, *a*, forming an integral part of the same, as and for the purpose set forth.

190,687. COUPLERS FOR ORGANS, &c. R. R. Letton, Quincy, Ill. [Filed Feb. 19, 1877.]

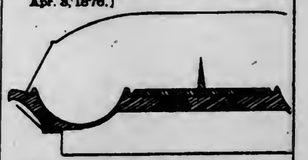


1. A coupler for keyed instruments which is sustained in single detachable pivot-stands B, placed on opposite sides of the pivot-board, substantially as shown and described.

2. A hinged coupler for keyed instruments, the two levers of which are connected by a thong, and are pivoted on opposite sides of the pivot-board, substantially as shown and set forth.

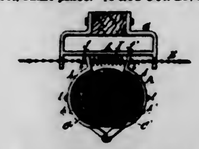
3. The lever D, thong *b*, and lever F, in combination with the stands B and pivot-board A, all arranged substantially as set forth.

190,688. CULINARY DISHES. S. W. Mathewson, Narragansett Pier, R. I. [Filed Apr. 3, 1876.]



In a culinary dish, the combination of the platter and gravy sink or sinks with the removable carving-board, substantially as and for the purposes described.

190,689. CAR-BRAKES. Isaac R. Oakford, Philadelphia, Pa., assignor to S. L. Garrett, same place. [Filed Oct. 26, 1876.]



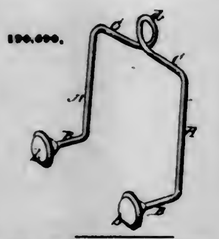
1. In combination with the chain E, and rod *f f* of the clamp A, the hangers G G', secured to the under side of the car-body over each axle, adapted to support the chain and receive and guide the free ends of the clamp, substantially as set forth.

2. The combination of the free ends *f f*, of the semicircular clamp A, chain E, pins or stops *i* and *i'*, and spring I, with the slot and cross-bar *h*, of the hanger G, substantially as set forth.

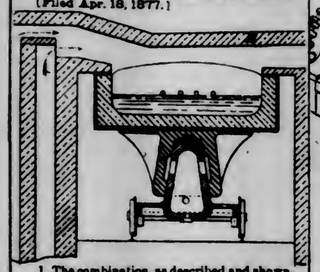
190,690. PICTURE-HANGERS. Isaac Files, Yankton, Dak. [Filed Jan. 26, 1877.]

A picture-hanger formed of a single piece of wire, having vertical arms A A, arms C C, loop *d*, and arms B B, provided with supplemental knobs *b b*, substantially as set forth.

190,690.



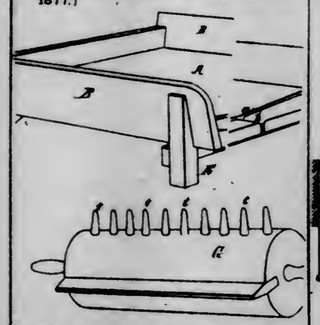
190,691. REMOVABLE-HEARTH METALLURGIC FURNACES. A. Ponsard, Paris, France. [Filed Apr. 18, 1877.]



1. The combination, as described and shown, with a stationary furnace, of a movable sole or hearth capable of revolution upon an inclined pivotal axis, and provided with tuyeres arranged as shown and described, whereby a blast of air, gas, or other matter is admitted either into or over the molten metal according to the position of the said hearth with reference to the axis, substantially as herein shown and set forth.

2. The combination, with a stationary furnace, of a movable hearth or sole, an inclined hollow pivotal axis upon which the hearth is mounted, and may revolve, and blast conveying device, as set forth, the arrangement of the parts being such that the blast of air or gas can be forced into the interior of the converting-chamber through the hollow axis, substantially as shown and set forth.

190,692. BUTTER-WORKERS. Geo. Ridler, Rickardsville, Iowa. [Filed Mar. 23, 1877.]



1. The carved slab A, having grooves or channels *a* and *b*, the inclined sides B B, rear plate F, and legs E E, braced as explained, the whole being constructed and united as set forth.

2. The herein-described butter-working apparatus, consisting of the table A B, elevated as shown, and provided with channels *a b*, and the roller G, having blade I and teeth *i*, as set forth.

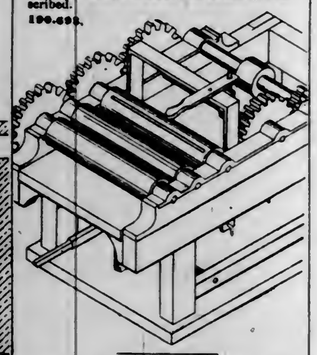
190,693. MACHINERY FOR STRETCHING LEATHER. Jos. Sharp, Cincinnati, Ohio. [Filed Feb. 14, 1877.]

1. The combination, in a leather-stretching machine, of the horizontal series of parallel rolls with a centrally-pivoted self-adjusting pressure-bar, arranged for operation substantially as described.

2. In a leather-stretching machine provided with a series of parallel rolls, substantially as described, the combination of a centrally-pivoted self-adjusting pressure-bar with a system of levers for operating the same, substantially as and for the purpose specified.

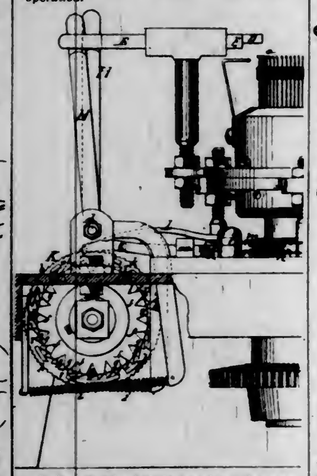
3. In a leather-stretching machine, the self-adjusting pressure-bar, centrally pivoted below a pair of rolls, in combination with its operating-levers and treadle, for straightening and equalizing the texture of the side or piece of leather being stretched, substantially as described.

190,694.



190,694. KNITTING-MACHINES. James M. Slack, Bristol, Pa., assignor to Julia M. Slack, same place. [Filed Dec. 21, 1876.]

Brief.—Lace-wheels, by intervening levers, actuate the thread-guides, and are governed by ratchet-wheel and pawl, whose action is permitted or suspended by another ratchet-wheel, having sectional side flanges overhanging the teeth of the first ratchet-wheel. The spaces between the flanges permit the first ratchet-wheel and pawl to operate. The flanges come between them, and suspend their operation.

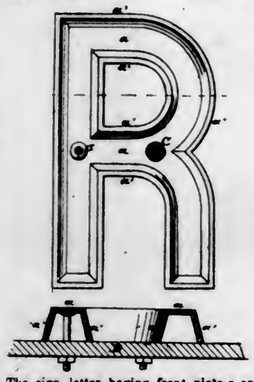


1. In a circular knitting machine, the combination of two or more shifting yarn-carriers, D E, actuating-levers H H, cam-wheels I I, flanged pattern-wheel K, ratchet-wheel P, and pawl Q, for automatically knitting goods in colors according to a predetermined pattern, substantially as and for the purpose herein specified.

2. In combination with the cam-wheels I I and a ratchet-wheel, P, and pawl Q, actuated by a cam on the revolving needle-cylinder, a flanged ratchet pattern-wheel, K, and pawl L, constructed and operating to actuate the shifting yarn-carriers, substantially as and for the purpose herein specified.

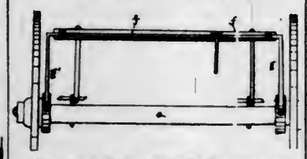
190,695. METALLIC SIGN-LETTERS. Christian Temme, St. Louis, Mo. [Filed Feb. 26, 1876.]

Brief.—The letters, being hollow or shell-like, are enabled to be more readily fitted to whatever object it is desired to attach them, and to make a tight joint to exclude water from their interior, thus avoiding "rust-drips." Being hollow, they are easily manipulated in attaching them. Their top, bottom, and side edges are inwardly inclined to shed water.



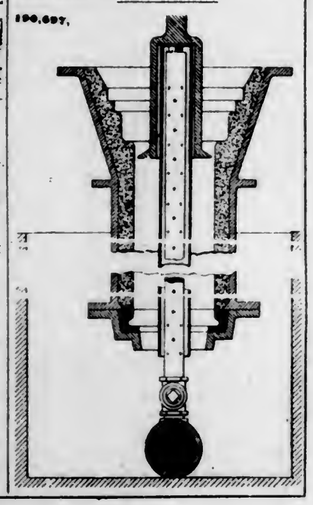
The sign-letter, having front plate *a* and inclined side, top, and bottom plates *a'*, in combination with the bolts C, arranged as described, and for the purpose set forth.

190,696. HORSE HAY-RAKES. D. W. Travis, Ithaca, N. Y. [Filed Jan. 15, 1877.]



The rod *f*, lying longitudinally upon and attached to the rider-bar, and having pawl-arms *g* rigidly attached to its ends, in combination with ratchets upon the wheel-hubs, and with an operating-lever, or suitable connections to independent damping apparatus, substantially as described.

190,697.



190,697. BLACKWASHING DEVICES. N. K. Wade, Columbus, Ohio, assignor to R. R. Smith, same place. [Filed Mar. 30, 1877.]

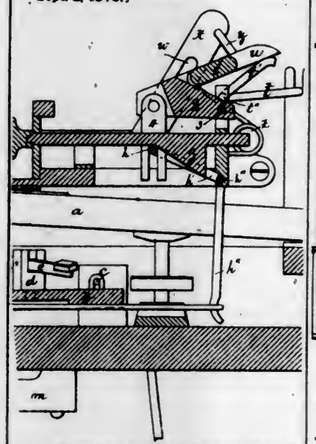
Brief.—A sleeve incases the perforated drying-tube as a guard when the mold is blackwashed.

1. The hereinbefore-described hollow dasher or blackwash-deflector, adapted to fit over and be supported by the pipe which passes through the flask and mold, as set forth.

2. The hereinbefore-described covering-pipe, in combination with the perforated pipe in the center of the flask and mold, as set forth.

3. The combination, substantially as hereinbefore set forth, of the flask, the jet-pipe therein, the covering-pipe, and the dasher.

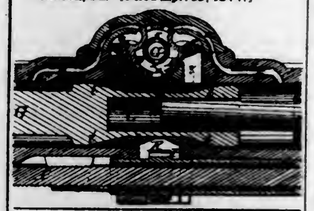
190,698. REED-ORGAN ACTIONS. George Woods, Cambridgeport, Mass. [Filed Sept. 2, 1876.]



1. In combination with the coupler-levers *s s'* and the keys *a a'*, the forked bearings *d d'*, provided with the circular projection *d''*, and secured to the coupler-board *b*, substantially as and for the purpose described.

2. The combination of the cross-bar 1, the toggle-joint *t x v w y*, and its connecting mechanism with the knee-pedal *m*, as and for the purpose herein shown and described.

190,699. ROCK-DRILLS. R. Allison, Port Carbon, Pa. [Filed Apr. 19, 1877.]



1. The oscillating or rocking valve D, provided with ports *n n*, exhaust-cavities *e e*, and lugs *d d*, as described, and turning on the hollow bolt G', having openings *x*, substantially as and for the purposes herein set forth.

2. The oscillating valve D, constructed as described, in combination with sliding blocks *m* and inclined piston-heads *i i*, substantially as and for the purpose set forth.

190,700. HYDRAULIC MOTORS. J. M. Bois, Salamanca, N. Y. [Filed Apr. 2, 1877.]

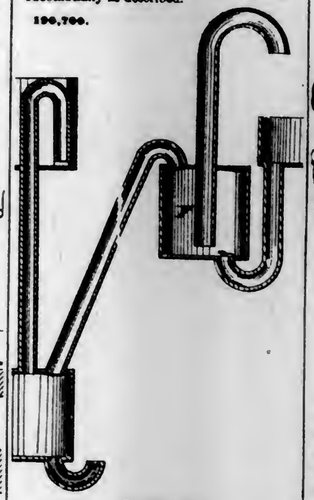
Brief.—As the water flows from the supply-tank into the lower chamber, the pressure in the latter forces air into the upper chamber, the pressure from which forces the contained water out of the delivery-pipe.

1. The hydraulic motor consisting, essentially, of an intermittently-flowing siphon, a final-discharge pipe, and an intermediate air-pressure chamber, with suitable connecting mechanism, substantially as described.

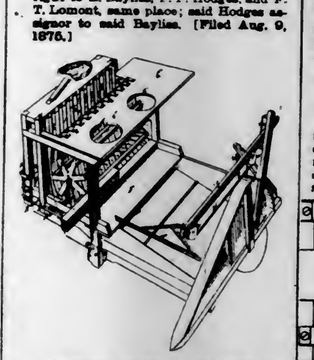
2. The combination of the intermittently-flowing siphon, water pressure chamber, and intermediate-connecting air-pressure chamber, the said chambers being provided with respective waste and feed water mechanism, substantially as described.

3. The combination, with the intermittently-flowing siphon and respective air and water pressure chambers, of a final-discharge pipe, the latter being adapted to operate a water-wheel or similar power-actuating mechanism, substantially as described.

190,700.



190,701. HAND-BINDERS. Jas. O. Brown, Massillon, Ohio, assignor of a part of his right to E. Bayliss, P. F. Hodges, and F. T. Lomont, same place; said Hodges assignor to said Bayliss. [Filed Aug. 9, 1875.]



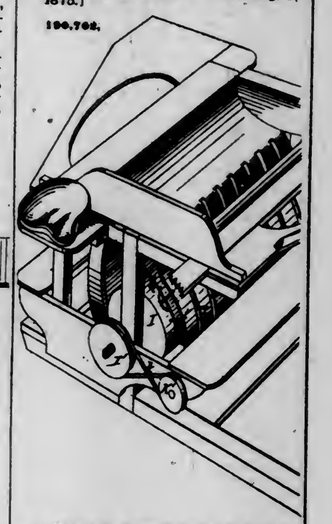
1. The binders' platform F, and binders' tables G arranged upon the grain side of the drive-wheel elevator and grain-receptacle, in combination with the driver's-seat support located inside the vertical face of the drive-wheel, substantially as and for the purpose described.

2. The platform apron or carrier, and the apron L arranged in the described relation to each other and to the binders' stand F, and operating to deliver the grain between the elevator slats, as set forth.

3. The overhung reel T, supported at the outer or grain side of the platform, in combination with the actuating-belts and pulleys arranged at the same side and operated from the grain-wheel, whereby said supports and driving mechanism are removed out of the way of the binders located at grain side of the elevator and drive-wheel, as described.

190,702. HAND-BINDERS. Jas. O. Brown, Massillon, Ohio, assignor of a part of his right to E. Bayliss, P. F. Hodges, and F. T. Lomont, same place; said Hodges assignor to said Bayliss. [Filed Aug. 9, 1875.]

190,702.



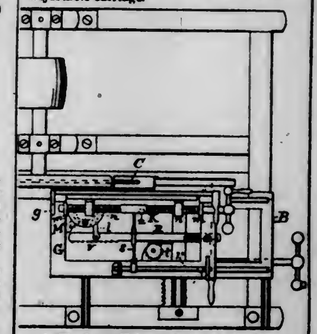
1. The series of curved strips *a*, fastened at their upper ends to the concave grain-receptacle, and at their lower ends to a sill or bar at the inner end of the platform apron or carrier, in combination with the toothed roller I, the teeth of which protrude between the strips, substantially as and for the purpose set forth.

2. The combination, with the concave grain-receptacle, of the slotted surfaces or two series of parallel strips, *a a'*, and the rollers I K, arranged and operating substantially as described.

3. The toothed elevating-drum I, in combination with the strips *a a'*, between which the grain is elevated, arranged at the platform or grain side of the elevating-drum, as described.

190,703. MACHINES FOR SAWING SHINGLES. Byron C. Brown, Clinton, Iowa. [Filed Feb. 10, 1877.]

Brief.—The shingle-bolt is held, while being fed to a circular saw, by means of pivoted dogs attached to a swinging frame, which is mounted on a horizontal frame, longitudinally adjustable upon suitable ways on a laterally-adjustable carriage.



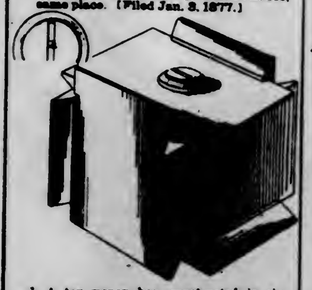
1. The frame H, hung to the standards *g*, on carriages G, in combination with slide-blocks A, carrying the dogs I, substantially as and for the purposes described.

2. The dogs I, pivoted in recesses to the slide-blocks A, in the swinging frame H, in combination with the adjusting-bar K, substantially as and for the purposes described.

3. In combination with the carriages B C, the swinging frame H, pivoted dogs I, and adjusting-bar K, all constructed and operating as shown and described.

4. The reading devices, consisting of the combination of the adjustable bar E, having teeth v, lever y, on plate u, connected with the bar by a rod, t, wheel i, pinion w, and rack x, substantially as shown and described.

190,704. TOY MONEY-BOXES. W. Bruce, Minneapolis, Minn., assignor to F. Bruce, same place. [Filed Jan. 3, 1877.]

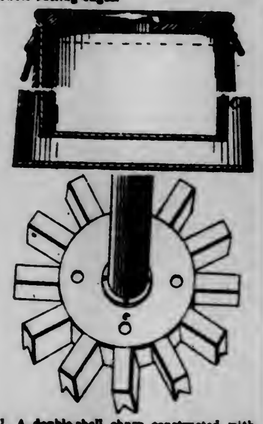


1. A toy money-box, constructed in six pieces, of wood or other suitable material, each piece provided with the grooves a a, and the whole adapted to be held firmly together without glue metallic or other fastening, substantially as described.

2. In combination with the subject-matter of the preceding clause, a movable batten fitting an opening in the box, and having a slot or other aperture for admitting the deposit, as set forth.

190,705. RECIPROCATING CHURNS. Jacob Ulinedinst, Gordonsville, Va. [Filed Mar. 24, 1877.]

Brief.—Two independent cans, in which is a dasher with radial arms, that may be adjustable to any angular inclination having double cutting-edges.



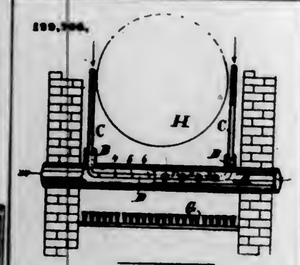
1. A double-shell churn constructed with two independent vessels or cans, the same being readily detachable, substantially as described.

2. The dasher, consisting of the perforated disk, provided with detachable radial arms, which latter may be adjusted at any desired angular inclination thereto, the said arms having double cutting-edges of unequal vertical length on their respective working faces, substantially as described.

190,706. BLOWERS AND SMOKE-CONSUMERS FOR FURNACES. L. C. Cook, Ottumwa, Iowa. [Filed Feb. 1, 1877.]

In a boiler-furnace, the open-ended tube A, having open-ended branches B B opening into the furnace, and a series of intermediate openings, 1 2 3, the steam conveying, superheating, and distributing tubes C, C, and D, constructed and arranged and combined relative to the furnace-walls E E, and grate G, and the boiler H, substantially as and for the purposes shown and described.

190,707. BUTTER-WORKERS. O. S. Cornish and D. W. Curtis, Fort Atkinson, Wis. [Filed Apr. 26, 1877.]

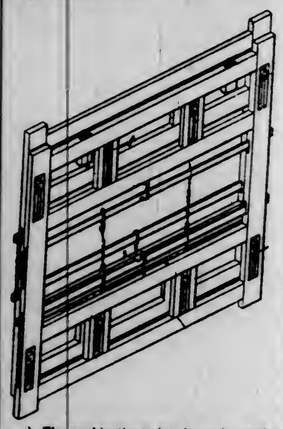


1. The roller G, constructed as described, and pivoted at *i*, in combination with the tapering inclined table or bed A, provided with the grooves *d d* and sides B, all constructed substantially as and for the purpose set forth.

2. The tapering roller G, constructed as described, to show in a cross-section the convexities *m* and *p* and the straight inclined sides *n n*, substantially as herein set forth.

190,708. HEDDLE-FRAMES. G. Crompton, Worcester, Mass. [Filed Mar. 7, 1877.]

Brief.—The heddle-frames are provided with extensions at the top and bottom, whereby the frames can be made much thinner and lighter than usual, and the same are guided and prevented from catching one upon the other. The heddle-frames are provided, also, with connections, whereby two adjacent frames are held together. The heddles are separately removable.



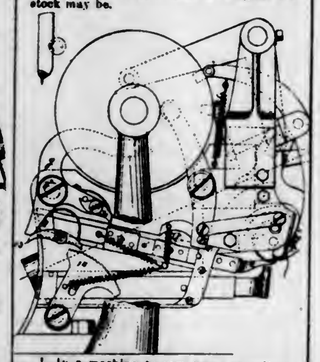
1. The combination, with the main portion of the heddle-frame, of extensions at the top and bottom thereof, whereby the said heddle-frame is adapted to remain in contact with an adjacent heddle-frame at both its highest and lowest position, to prevent the adjacent frames catching one against the other when raised or lowered to form the shed, substantially as described.

2. The combination, with the frame and heddle-holding bar made movable toward the other bar of the frame, of a heddle and hook, whereby the heddle may be removed from the frame or be secured therein, substantially as described.

3. The combination, with two heddle-frames provided with extensions, of heddle-retaining connections, to hold them together, substantially as described.

190,709. MACHINES FOR SEWING BOOTS AND SHOES. C. Dansel, New York, N. Y. [Filed Nov. 27, 1876.]

Brief.—A lip-holder very nearly resembling a short awl enters the lip or "between substance," and prevents the tearing out thereof by the needle or the thread while making the stitch. The awl is pivoted to its holder, and has a limited movement thereon, to give it a movement when entering the material somewhat similar to the awl in hand-sewing. The welt and back guides are moved a certain distance from the shoe, (while the feed takes place,) no matter how thick or irregular the stock may be.



1. In a machine to sew turns or welts to uppers and insoles, the combination, with stitch-forming mechanism, of a lip-holder, to penetrate the lip of the sole transversely to the path of the awl or needle, so as to hold the lip and sole in its place for the formation of the stitch, substantially as described.

2. The combination, with the welt-guide, of mechanism to impart to it an intermitting motion away from the shoe, substantially as and for the purpose described.

3. The combination, with the welt-guide, of mechanism to move it away from the shoe a uniform distance, irrespective of variations in the thickness of the upper, substantially as and for the purpose described.

4. In combination, the lever *g*, pawls 30 and 13, and a toothed block, and segmental lever 14, substantially as described, to lock and release the back or edge and welt guides, as set forth.

5. The awl-carrying lever, in combination with the awl, pivoted thereto, substantially as described, to permit the point of the awl to be elevated, substantially as shown and described.

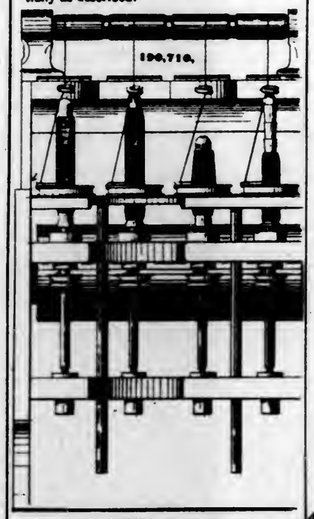
190,710. RING-SPINNING FRAMES. W. F. Draper, Hopedale, Mass. [Filed Sept. 22, 1876.]

Brief.—The top of the bobbin is notched and extended up to the guide-wire, whereby the spinning of the yarn takes place between the guide-wire and the rolls, instead of between the guide-wire and the traveler. This strengthens the yarn as soon as it leaves the rolls, and lessens the liability of its breaking. The notches serve to engage and retain the yarn at the upper end of the bobbin, and cause it to revolve therewith. These notches serve to make the twist more positive, the yarn slipping from one notch to the adjacent one as the yarn is wound upon the bobbin.

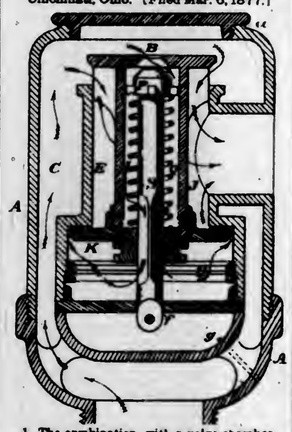
1. The combination, with the traveler, guide-wire, and front roller, of a bobbin extended up to or near the guide-wire, and adapted to bear against the yarn being spun or twisted, and to force the twist from the end or the bobbin to the front roll, substantially as described.

2. A bobbin notched or roughened at its upper end to engage the yarn, substantially as described.

3. The combination, with the bobbin, of a removable top piece or extension, substantially as described.



190,711. SAFETY-VALVES. N. Du Brul, Cincinnati, Ohio. [Filed Mar. 6, 1877.]



1. The combination, with a valve-chamber, E, of the concentric shell A, forming a steam-jacket, C, as and for the purpose set forth.

2. The combination of double-headed valve I J K, chamber E, and concentric shell A, forming steam-jacket C, as and for the purpose set forth.

190,712. RELIEF-VALVES. N. Du Brul, Cincinnati, Ohio. [Filed Feb. 16, 1877.]

Brief.—The spring is adjusted to the desired pressure, and when the pressure exceeds this limit, the puppet-valve opens and allows the water to escape.

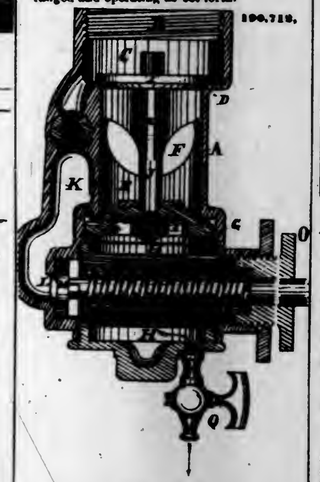
1. The combination of the double puppet-valve I I' J and the small auxiliary pressure-valve M, governing the passage K, connecting the chambers C and H above and below the said valve I I' J, respectively, said chambers having simultaneous communication with the return-passage E F between the heads I and I' of said puppet-valve, substantially as and for the purpose designated.

2. The combination of the following elements, to wit: first, a double puppet-valve, of two unequal disks, I I', united by a rigid stem, and of which the smaller disk is in permanent contact with the confined fluid; second, a side passage, K, closed by a spring-valve, M, of relatively small area, and which opens, with any excessive pressure, into a compartment beneath the larger disk, substantially as set forth.

3. The return-chamber E, separated from the discharge-chamber C by port D, guarded by the smaller member I of a double puppet-valve, I I' J, whose larger member I' opens and guards port G of chamber H beneath said puppet-valve, said chamber C having communication with said chamber H by side passage K, whose port L is guarded by valve M, of smaller area than member I, and which is held closed by a spring, N, capable of graduation by gland O to any desired maximum pressure, as and for the purpose set forth.

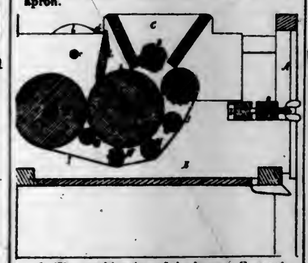
4. In combination with the double puppet-valve I I' J and conduits C, E, H, and K, the cock P, or its equivalent, for operation in the manner indicated.

5. In combination with the double puppet-valve I I' J and auxiliary passage K, with their described accessories, the stop S, arranged and operating as set forth.



190,713. OIL-PRESSES. S. M. Ellis, East Andover, N. H. [Filed Nov. 13, 1876.]

Brief.—The elastic bands on the large expressing-cylinder bear against the endless apron.



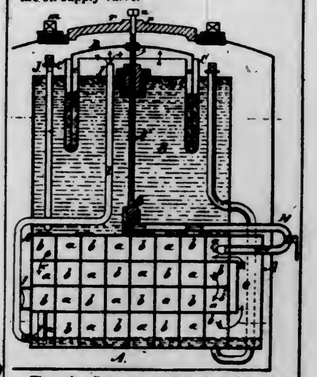
1. The combination of the hopper C, crushing-roller D, the expressing-cylinder K, its elastic bands A A, the endless apron I, and its end and intermediate carrying and expressing rolls E F G H N O, arranged substantially as represented.

2. The combination of the scraper L with the hopper C, crushing-roller D, the adjustable expressing-cylinder K, its elastic peripheral bands A A, and the endless apron and its end and intermediate rolls, arranged with the said roll K and the hopper C, as and to operate therewith, as set forth.

3. The combination of the scrapers I and L with the hopper C, crushing-roller D, the expressing-cylinder K, the elastic bands A A, and the endless apron I, and its end and intermediate rollers, arranged and to operate with the cylinder K, substantially as specified and represented.

190,714. GAS-CARBURETERS. Charles A. Raggren, Brooklyn, N. Y. [Filed Aug. 18, 1876.]

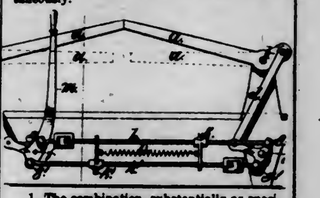
Brief.—A floating holder, resting in an annular seal within the oil-reservoir, is operated by the pressure of gas from the carbureter, to open a valve through which oil is fed to the carbureter. When the oil is reduced to a low level in the carbureter it permits gas to flow through a pipe into the float, for operating the oil-supply valve.



The valve G, automatically actuated by the pressure of the gas admitted through the pipe I, the body A of the carbureter underneath, the actuating device D, to which the stem A' of the valve G is attached, the whole arranged in relation with the liquid-inlet pipe H of the carbureter, substantially as described, whereby, when the liquid hydrocarbon in the body A is diminished below a certain point, the gas is transmitted under pressure to lift the valve G, for the purpose set forth.

190,715. AUTOMATIC GATES. J. R. Goldsworthy, Central Falls, R. I. [Filed Feb. 11, 1876.]

Brief.—Two vertically-swinging gate-bars are supported by standards, one on each side of the road, these bars being connected by mechanism, so as to open and close simultaneously.



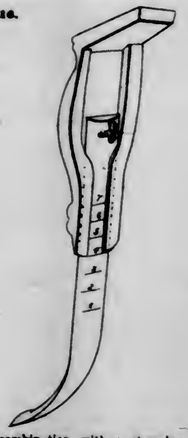
1. The combination, substantially as specified, of the two vertically-swinging bell-crank gate-bars *a a*, by means of the connecting-rods *d d*, bell-crank levers *e e*, one or more rods, h h, and the spring I, arranged to operate substantially as and for the purpose set forth.

2. In combination, substantially as specified, with the vertically-swinging bell-crank gate-bars *a a*, by means of the connecting-rods *d d*, bell-crank levers *e e*, the adjustable rods *h* and *h'*, and spring I, arranged to operate substantially as and for the purpose set forth.

3. In combination, substantially as specified, with the vertically-swinging gate-bars *a a*, the connecting-rods *d d*, bell-crank levers *e e*, and rods *h* and *h'*, the shaft or shafts connecting the bell-crank levers *e e*, so that, when power is applied to open or close either gate, uniformity of action will be observed in all the gates so connected.

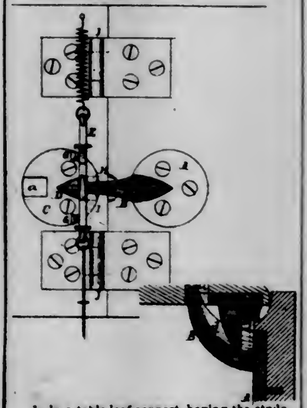
190,716. STOVE-LIDS. P. Manerspergor, Homer, Ill. [Filed Mar. 31, 1877.]

190,716.



The combination, with a stove-leg, of a sliding graduated extension, the latter adjustably secured to the stove-leg by a set-screw, substantially as and for the purpose specified.

190,717. TABLE-LEAF SUPPORTS. N. A. Hull, Peru, Ind., assignor to the Indiana Manufacturing Company, same place. [Filed Mar. 1, 1877.]



1. In a table-leaf support, having the studs B D, the bar E, having the wedge-shaped step I, all combined as and for the purposes set forth.

2. The table-leaf support, consisting of the circular plate A, having the projection B, provided with the slot *d*, the circular plate C, having the cavity *a*, provided with stud D and lugs G G H, the bar E, having the wedge-form step I, in connection with the butts J J, when constructed and combined as hereinbefore set forth.

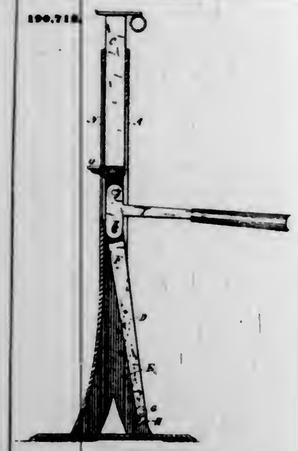
190,718. LIFTING-JACKS. I. D. Johnson, Kennett's Square, Pa. [Filed Mar. 7, 1877.]

1. The adjustable fulcrum F, provided with the round trunnion-pin G and hook H, in combination with the cross-bars B E and frame A, having the pinion D D, substantially as and for the purpose described.

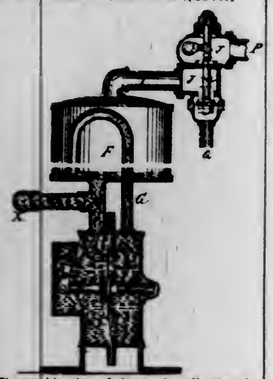
2. The frame A, having the pin-hole S near its top to allow the connection to be made between the lever end of the supporting-bar C and the short arm of the lever I by means of the pin T, substantially as described.

3. In combination with the frame A, having the slot N, the supporting-bar, and the bracket O, provided with the guide-faces X, which slide on the frame A and keep the supporting-bar C exactly in line with the frame A.

190,719.



190,719. STEAM-TRAPS. Timothy Kieley, New York, N. Y. [Filed Feb. 7, 1877.]



The combination of the receiver F, pipe G and pipe E, chamber A, interposed diaphragm S, valves K and L, and mechanism for connecting the diaphragm and valve, substantially as and for the purpose set forth.

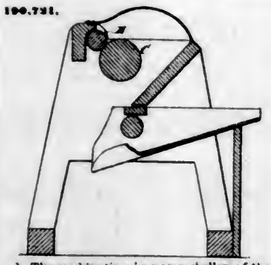
190,720. EAR-SLIPPERS. I. B. Kleinert, New York, N. Y. [Filed Apr. 7, 1877.]



An ear-slipper consisting of an outer piece of the desired size and form to cover the ear, and an inner or fastening piece, which latter is arc-shaped and secured to the outer piece above the middle portion of the same, substantially as and for the purpose set forth.

190,721. CORN-SHELLERS. E. S. McEwen, Lisbon, Ill. [Filed Jan. 27, 1877.]

190,721.

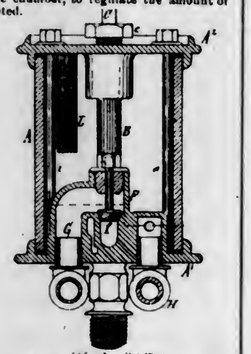


1. The combination, in a corn-sheller, of the cylinder E and the shelling-cylinder C, the two revolving in the same direction, and being so constructed and arranged that the shelling-cylinder C carries and shells the ears of corn against the revolving surface of E, substantially as and for the purposes set forth.

2. In a corn-sheller, the combination of one or more auxiliary cylinders on a shelling-cylinder, all the cylinders being parallel, or nearly so, and rotating in the same direction, the auxiliary cylinder or cylinders being so arranged as to form a channel in combination with said shelling-cylinder, and to rotate the ears of corn and prevent them from wedging as they pass along said channel while being shelled by the shelling-cylinder.

190,722. LUBRICATING DEVICES FOR STEAM-ENGINES. William Moese, Buffalo, N. Y. [Filed Oct. 3, 1876.]

Brief.—A cylindrical glass chamber, in which a plunger is worked by attachment to some moving part. A suction and ejection port, and valve in the bottom. The ejection-pipe has a branch and a valve leading back into the chamber, to regulate the amount of oil ejected.



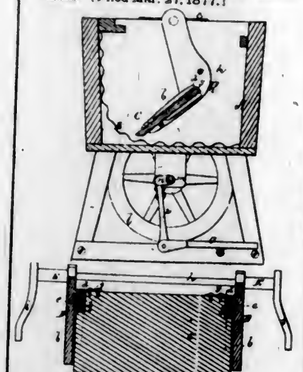
1. The combination, with the oil-receptacle and discharge-pipe of a lubricating-pump, of a return-pipe provided with a suitable cock or valve for regulating the amount of oil ejected from the discharge-pipe by the action of the pump, substantially as hereinbefore set forth.

2. The combination, with the oil-receptacle A and pump B C, arranged therein, of the discharge-pipe G and return-pipe H, provided with regulating-valve I, arranged as and for the purpose hereinbefore set forth.

3. The combination, with the glass vessel A, of the metallic top A^1 and metallic bottom A^2, cast with the pump-barrel B and chambers E F, the parts being secured together by bolts *e*, as and for the purpose hereinbefore set forth.

4. The combination, with the oil-vessel A A^1 A^2, of the force-pump B C, discharge-pipe G, return-pipe H, valve I, lever D, and actuating-rod D^1, substantially as and for the purpose hereinbefore set forth.

190,723. WASHING-MACHINES. M. W. Robinson, East Somerville, assignor to himself and O. P. Prescott, South Boston, Mass. [Filed Mar. 27, 1877.]



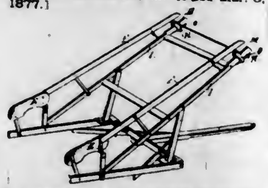
1. In combination with the tub A and its wash-board or corrugated lining B, the notched dasher C and its recessed supporting-arms D D, springs *e e*, and stops *g g*, arranged and applied essentially as set forth.

2. In combination with the tub A and its wash-board or corrugated lining B, and with the dasher C and its recessed supporting-arms D D, springs *e e*, and stops *g g*, arranged as set forth, the cranks *i i*, connecting-rods *k k* fly-wheels *l l*, cranked shaft *m*, and the pedal *o*, arranged as specified.

190,724. ARTIFICIAL FUEL. W. O. A. Rottgerr, Brussels, Belgium. [Filed Dec. 4, 1874.]

The artificial fuel described, consisting of pulverized and sifted coal or coke dust, or similar carbonaceous material, united by a cement composed of ferruginous lime prepared with soluble silica having an excess of alkali, the compound being formed into blocks, as and for the purpose described.

190,725. HAY-LOADERS. J. W. Small and Edw. Small, Aurora, Ill. [Filed Mar. 8, 1877.]



1. In combination with the fixed or stationary side boards E E, located as described, the movable side boards F F, affixed to the side beams I I of the carrier-frame, and extending from near the place or position assigned for the wheels to the end of the frame, the combination being and operating substantially as and for the purpose described.

2. In combination with the side beams I I of a hay-loader, the ratchets M M, ratchet-boxes N N, connected by a cross-rod and the plugs or wedges O, as and for the purpose described.

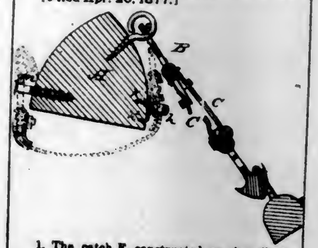
190,726.



190,726. BROOMS. A. Stephen, Clinton, Iowa. [Filed Apr. 19, 1877.]

The combination of the band B, having a lap-joint at the ends of the band, and the staple C, having prongs *c c'*, adjusted and fastened on the broom, substantially as and for the purposes described.

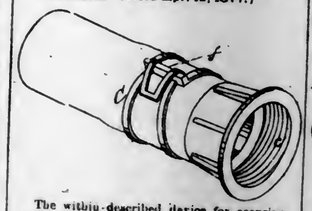
190,727. THILL-SUPPORTS. A. E. Teal, Greenfield, and C. E. Nelson, Cicero, Ind. [Filed Apr. 20, 1877.]



1. The catch E, constructed as described, with lip *h'* and inclined spring-flanges *h h*, substantially as and for the purposes herein set forth.

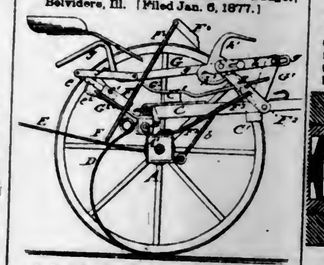
2. The catch E, with lip *h'* and spring-flanges *h*, in combination with the buckle B, and strap C, substantially as and for the purpose set forth.

190,728. STRAPS OR DEVICES FOR SECURING HOSE TO COUPLINGS. S. Adlam, Jr., Boston, Mass., assignor to J. A. Caldwell, same place. [Filed Apr. 19, 1877.]



The within-described device for securing hose to couplings, consisting of the metallic looped strap C, provided with a cross-bar, *f*, constructed as herein shown and described, whereby one end may be passed through and bent over the other end, substantially as set forth.

190,729. HORSE HAY-RAKES. J. Badger, Belvidere, Ill. [Filed Jan. 6, 1877.]



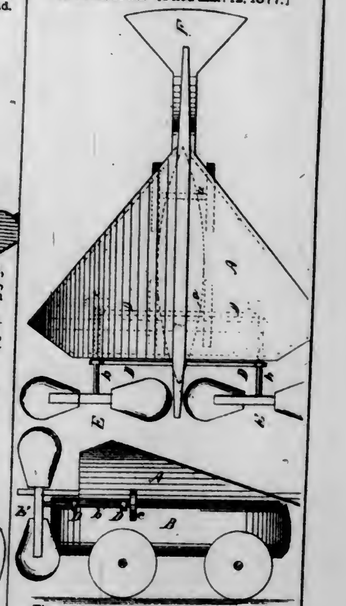
1. In a horse hay-rake, the combination, with the axle of the rake, of a rake-head pivoted above and back of the same, and of thills hinged to the rake-head and connected by braces to the axle, to produce flexible connection of axle, rake-head, and thills, substantially as and for the purpose set forth.

2. The combination, in a horse hay-rake, with the axle of the rake, of a rake-head swinging in brackets on the axle above and back of the same, and of thills hinged to the top of the rake-head, substantially as specified.

3. The combination of clearer-bar F, having rods F^1, with levers F^2, pivoted to thills C, and lever-arms F^3, secured to axle and fastened in adjustable manner to perforations of levers F^2, to control extent of motion of clearer-bar, substantially as set forth.

4. The combination, with axle, of rake head B, clearers D, traversing clearer-bar F, double-acting levers F^2 F^3, and compound lever G, to produce simultaneous operation of rake-teeth, clearers, and lateral clearer-bar, substantially as set forth.

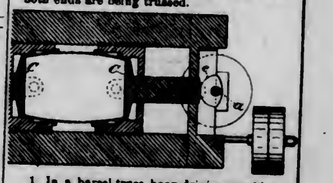
190,730. FLYING-MACHINES. F. Barnett, Keokuk, Iowa. [Filed Mar. 12, 1877.]



The combination, in a flying-machine, with the horizontal sustaining-sail A and guiding-tail F, of the body B, provided with front propellers E, whose shafts *b b* are journaled in lateral arms D, as and for the purpose specified.

190,731. BARREL-TRUSSING MACHINES. W. Bayley, Wilmington, Del., assignor to H. and B. Holmes, Buffalo, N. Y. [Filed Sept. 23, 1876.]

Brief.—Barrels are held, leveled, and trussed by means of one or more movable trussing-heads operated by a crank, and one or more leveling-heads provided with cams for moving and timing their movements, so that a barrel may be held in position while both ends are being trussed.

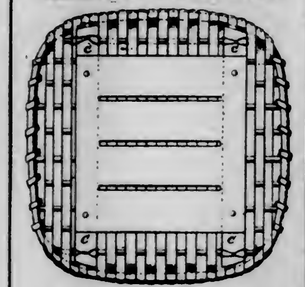


1. In a barrel-truss hoop-driving machine, the combination, substantially as specified, of two reciprocating drivers, which move toward and from each other over the opposite ends of the barrel, a driving-shaft, and intermediate mechanism for simultaneously and uniformly actuating said drivers.

2. In a barrel-truss hoop-driving machine, the combination, substantially as specified, of a reciprocating truss-hoop driver and a leveling-head, which is forced against the barrel before the driver begins to act on the hoop, and thus remains stationary until the hoop has been driven.

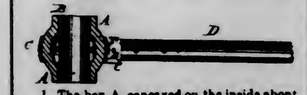
3. The screw-gearing a^1 a^2, trussing-heads A, leveling-heads C, cams *e*, and center-guides G G, all arranged and combined for joint operation, substantially as and for the purposes specified.

190,729. VERMIN-TRAPS. J. M. A. Berger, Charleston, S. C. [Filed Mar. 19, 1877.]



A vermin-trap formed of a willow-ware frame and face-boards, attached to cross-strips in close proximity to the frame, and having suitable interstices between each other, substantially as specified.

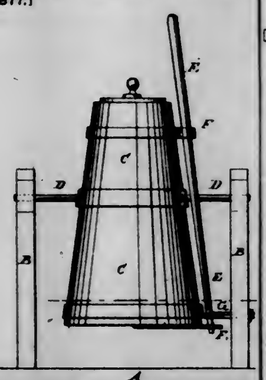
190,732. PITMAN-CONNECTIONS. Jos. W. Blood, Minneapolis, Minn. [Filed Oct. 14, 1876.]



1. The box A, concaved on the inside about its middle, and fitted tightly at each end about a straight laterally-perforated tube, B, as and for the purpose set forth.

2. The combination, with box A, of the strap C and pitman D, the former passing around the convex middle of box, and clamping the pitman with concave arms, as and for the purpose specified.

190,734. RECIPROCATING CHURNS. Miles Brough, Greenville, Mich. [Filed Apr. 2, 1877.]

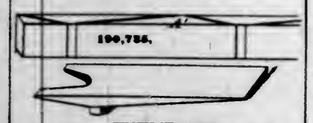


The churning apparatus, consisting of the pivots D, the bar E, the sockets F, and the spring G, with the churn-body C and the standards B, attached to a platform, A, substantially as herein shown and described.

190,735. METHODS OF FORMING BLANKS FOR BOOT-JACKS. H. A. BROWN, Toledo, Ohio. [Filed Feb. 17, 1877.]

Brief.—A continuous strip of wood of suitable length, and of the width and thickness of the main piece of the common boot-jack, is cut alternately at suitable oblique angles, so as to produce separate pieces with tapering ends, and a thick intermediate seat for the cleat.

The method of forming a boot-jack blank by sawing timber into pieces whose thickness is equal to the contemplated height of boot-jack blank, and the width to the desired breadth thereof, as shown and described.



190,736. NUT-LOCKS. A. Brown and A. G. Huey, Bloomington, Ill., assignors of one-third their right to B. N. Curtiss, same place. [Filed Mar. 24, 1877.]

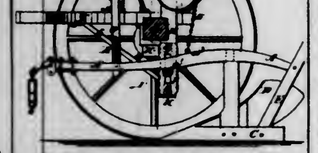


1. The combination, with the bolt F and nut G, of the lock-bar provided with a slot, *a*, having an offset, *a'*, in which the key rests while the nut is being tightened, and a key, *b*, which can be moved freely within said slot *a a'* when the lock-bar is secured in position, the several parts constructed and arranged in the manner substantially as and for the purpose herein shown and described.

2. The combination, with the rail, fish-plates, and bolts and nuts C D, of the bolt and nut F G, lock-bar E, having slot *a* and and offset *a'*, and key *b*, the several parts constructed and arranged in the manner herein shown and described, whereby the several nuts are secured in position, as specified.

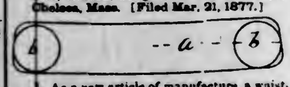
190,737. SULKY ATTACHMENTS FOR PLOWS. W. K. Bushnell, Burlington, Wis. [Filed Mar. 24, 1877.]

Brief.—The slotted hangers with inside slotted guide-plates for the plow beam laterally adjustable, and in which the plow and its connecting-bolt has free vertical play.



The combination of the parallel slotted uprights H, the three bolts K I K, the slotted plates J, and the keeper *a'*, with the wheels and axle F G, and the plow-beam A, substantially as herein shown and described.

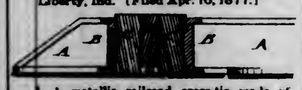
190,738. SUSPENDER-STAYS. Geo. Butterfield, Boston, assignor to Jas. T. Phelps, Chelsea, Mass. [Filed Mar. 21, 1877.]



1. As a new article of manufacture, a waistband-stay, formed with an elastic bar or ribbon, *c*, and the studs *b b* secured thereto, to serve as suspender-buttons, substantially as described and shown.

2. In combination with the waistbands of pantaloons, an elastic stay or spreader, *c*, arranged relatively to the suspender-buttons, substantially as described and shown.

190,739. RAILROAD-TIES. A. H. Campbell Liberty, Ind. [Filed Apr. 16, 1877.]



1. A metallic railroad cross-tie made of double T-shaped cross-section, whose bottom flange is cut away at both sides of the central part of the tie, substantially as and for the purpose described.

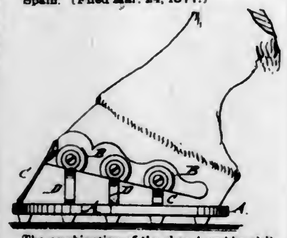
2. The combination of a metallic cross-tie, having end sockets and central bottom wedges, with wooden rail-bearing blocks driven therein, substantially as and for the purpose described.

3. The combination of a metallic cross-tie, having end sockets and central bottom wedge, with wooden filling-blocks and a central locking-key, substantially in the manner and for the purpose specified.

4. The combination of a metallic cross-tie, having end sockets, central bottom wedge, angular sides, and inclined ends, with wooden filling-blocks of corresponding shape and a central locking-key, substantially as and for the purpose specified.

5. The metallic cross-tie A, having sockets B, whose ends are recessed or cut away below the rails to prevent the rails from bearing thereon on settling of filling-blocks, substantially as specified.

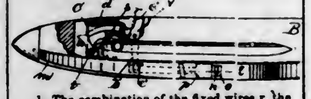
190,740. HORSESHOES. J. R. Cancio, Pol. Spain. [Filed Mar. 24, 1877.]



The combination of the shoe A and band B, connected with each other by front and lateral straps C D, which are riveted to the calks and secured by eyes and fastening-screws at their upper ends to the band, substantially as described.

190,741. STOP-MOTIONS FOR LOOMS. F. Christen, Homestead, Iowa. [Filed Feb. 26, 1877.]

Brief.—The weft-stop is independent of the ordinary swell-stop. The pivoted fingers in the shuttle are acted upon by the weft, to operate the cam mounted upon the common axis. The cam holds the three-armed lever in the proper position for withdrawing the slide, and thereby uncovering the recess in the side of the shuttle. Should the weft break, or otherwise fail, the cam would cease to act upon the lever, and a spring would force down its horizontal arm, thereby pushing the slide over the aforesaid recess. A plate-spring mounted upon the outside of the shuttle is provided with a lug on its inner side opposite to the recess, and adapted to enter the same when uncovered. This plate-spring, when rigid, operates the auxiliary swell and stops the loom.



1. The combination of the fixed wires *r*, the wires *s*, shaft *t*, cam *u*, lever *v*, spring *d'*, and slide *p* with the shuttle-body B, substantially as herein shown and described.

2. The combination of the spring *l*, having the lug *n*, the slide *p*, and mechanism for operating the same, with the shuttle-body B, having the rabbet *m* and recess *o*, substantially as herein shown and described.

3. The combination of the fixed wires *r*, movable wires *s*, cam *u*, lever *v*, spring *d'*, slide *p*, and shuttle-body B, having the rabbet *m* and recess *o*, with the spring *l*, substantially as shown and described.

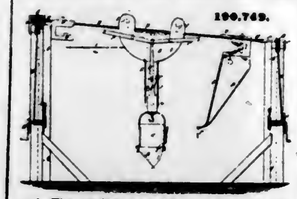
4. The combination of the auxiliary box-swell *d* and main box-swell *e* with the shuttle A, stop-rod *h*, swell-finger *g*, and dagger *j*, as and for the purpose set forth.

5. The combination of the shuttle B, having the spring *l*, provided with lug *n*, recess *o*, and slide *p*, and mechanism for operating the same, with the auxiliary binder *d*, substantially as herein shown and described.

190,742. HOISTING AND CONVEYING APPARATUS. F. A. Clarkson, Black Brook, N. Y. [Filed Feb. 26, 1877.]

Brief.—The carrier runs down the incline, and is drawn back by the hoisting-rope

190,743.



1. The combination of the two timber-bents A A of unequal height, and provided with pulleys B at the ends of their top bars, and with windlasses E upon their outer posts, the chair C, the chair F, provided with a pulley, G, the three shifting-ropes D and the wire-track rope H with each other, substantially as herein shown and described.

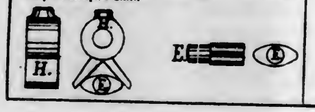
2. The combination of the carriage I, provided with the pulleys I J K, the pivoted loop-latches P P, and the suspended pivoted bail O, the hook N, provided with the pulley M, and the pivoted arm X, and the hoisting-rope L with each other, with the wire-track H, and with the catch-hooks W Y, substantially as herein shown and described.

3. The combination of the hinged arm Z and the damper A' B' C' with the hook-catch Y, the carriage I, and the bucket Q, substantially as herein shown and described.

4. The combination of the drop-catch D' and the pivoted catch E' with the upper and lower arms of the hook-catch Y, to enable the carriage and bucket to be manipulated by operating the hoisting-rope L, substantially as herein shown and described.

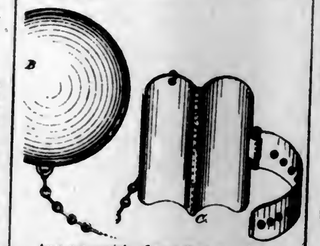
190,744. MECHANISMS FOR OPERATING DOFFER-COMBS. E. R. Coverdill, Darby, Pa. [Filed Feb. 2, 1877.]

Brief.—Vibratory motion is given to the comb-shaft by means of a yoke secured thereto, and provided with right-angled arms, said arms being operated upon by a revolving elliptic-shaped cam.



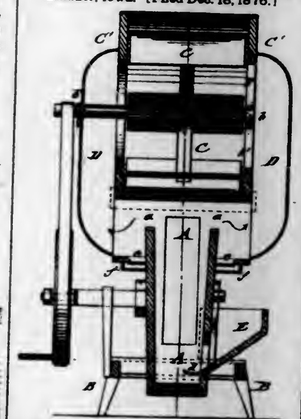
1. The combination of comb-shaft C, yoke H, and elliptical cam E, as described, and for the purpose specified.

190,745. DARNING-LASTS. Mary B. Crownshield, Washington, D. C. [Filed Mar. 17, 1877.]



As a new article of manufacture, a darning device consisting of the ball B and clasp C, substantially as and for the purpose set forth.

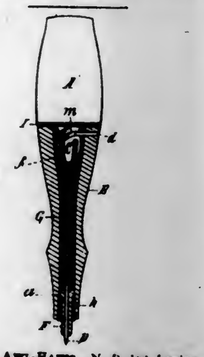
190,746. GRAIN-SEPARATORS. L. V. Davis, Mikader, Iowa. [Filed Dec. 18, 1876.]



1. The combination, with trunk A, of horizontal fan C, casing C', and air-passages D, said fan being arranged directly above said air-trunk, so that its casing may serve to deflect and divide the ascending current, as set forth.

2. The combination, with air-trunk A, horizontal fan C, and case C', and the air-passage D, of the settling-chambers at bottom of said air-passages, as set forth.

190,747.

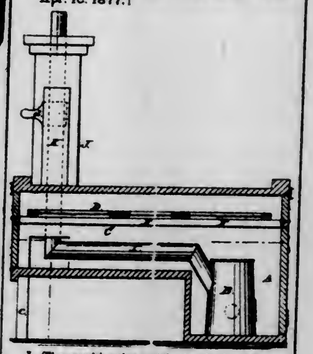


190,747. AWL-HAFTS. N. B. Dit Lapine, Wayland, Mass., assignor to Wm. Hammond, same place. [Filed Feb. 26, 1877.]

Brief.—The upper section of the haft is solid, and provided with downwardly-projecting spring-fingers, which embrace the shank of an elongated awl, and have a spiral groove, which receives a stud upon the interior of the lower section, which is hollow and provided with a circular stop in its lower end, through which works a spring-retractor, for assisting to withdraw the awl from the work.

The combination of the part A, provided with fingers C, having the spiral groove *m*, and part B, provided with the spring G, retractor F, stop *h*, and stud *d*, and the awl D, the several parts constructed and relatively arranged as herein shown and described.

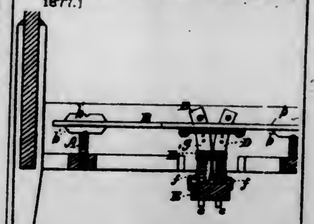
190,748. FRUIT-DRIERS. J. R. Dodge, Jr., Normal, Ill., assignor of one-half his right to Wm. T. Shurtleff, same place. [Filed Apr. 16, 1877.]



1. The combination, with the drying-chamber C, having the heating device B and the doors, as shown, of the independent exhaust-shaft J, arranged outside of the drier, and the inclined exhaust-pipe K, provided with slide or cut-off *d*, the several parts constructed and relatively arranged in the manner herein shown and described.

2. The combination, with the chamber A, heating device B, chamber C, exhaust-pipe K, and exhaust-shaft J, of the flue or pipe I, extending longitudinally through the chamber C, and vertically through exhaust-shaft J, substantially as herein shown and described

190,749. BED-BOTTOMS. C. Bade, Honesdale, Pa., assignor of one-half his right to H. J. Tarble, same place. [Filed Mar. 17, 1877.]

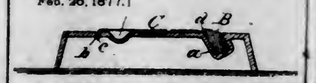


1. In a bed-bottom, the spring A, consisting of two tubular wire coils, *c c*, in combination with, and encircling, pins or studs *b b*, and having their uniting-wire *a'* supporting the slats B B, substantially as and for the purpose set forth.

2. In combination with the spring A, having the wire coils *c c*, encircling pins or studs *b b*, and connected together by a wire, *a'*, the slat B, having blocks *b' b'*, provided with grooves to receive said wire *a'*, substantially as and for the purpose set forth.

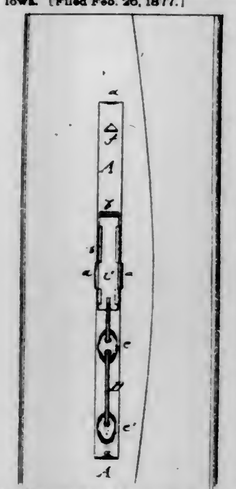
3. The truss or support, consisting of the parallel bars or boards E E', one provided with pins or studs *e e*, entering apertures in the other, and encircled by springs *f f*, and the whole suspended beneath the slats of the bed-bottom, substantially as and for the purpose set forth.

190,750. ENGRAVING-MACHINE TABLES. A. E. Ellenwood, Garrettsville, Ohio. [Filed Feb. 26, 1877.]



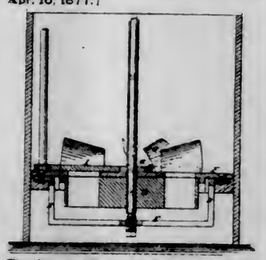
A table for an engraving-machine, having the slot *b*, groove *a*, and elastic strip B, for holding the patterns C, substantially as herein shown and described.

190,751. SAFETY ATTACHMENTS FOR POCKET-BOOKS. Thos. Ferguson, Parkersburg, Iowa. [Filed Feb. 26, 1877.]



A safety attachment for pocket-books, consisting of the base-plate A, provided with raised guard-sockets *c c'*, and a slide having straight pin D, that enters said sockets, substantially as and for the purpose specified.

190,752. TURBINE WATER-WHEELS. N. H. Gould, Oakfield Centre, Mich. [Filed Apr. 10, 1877.]



The flat smooth deck or thrust plate F, having the inclined guides G attached at one edge of the outlets, the gate I, having radial fan-shaped blades and resting on the deck, the wheel A, shaft, and step-bar, all combined as shown and described, to operate as and for the purpose specified.

190,753. BOOTS AND SHOES. T. J. Greenwood, Warren, Ill., assignor to himself and T. D. Thornton, same place. [Filed Mar. 24, 1877.]

1. A seamless-back shoe made of a quarter, A, having symmetrical front sections B, spread or sprung forward, and a back tongue, D, all of one piece, in connection with a correspondingly-shaped top quarter, C, stitched thereto substantially in the manner set forth.

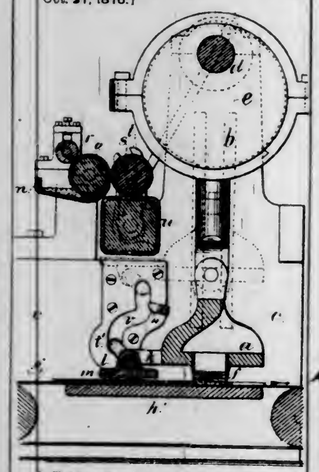
2. A quarter for seamless-back shoes, cut from a continuous blank on the lines *a b*, as shown and described, and with holes *d*, to form symmetrical front sections that may be spread or sprung out from points near the highest part of the instep, substantially as specified.

3. A quarter for seamless-back shoes, cut from one continuous blank along the lines *a b*, as shown and described, and with holes *d*, to form symmetrical front sections, and an upwardly-extending back tongue, substantially as described.

190,753.



190,754. LOZENGE-MACHINES. C. H. Hall, Brooklyn, E. D., assignor to himself and F. P. Tarbell, New York, N. Y. [Filed Oct. 27, 1876.]



1. The type-carrier *m*, set upon a horizontal axis, *l*, in combination with the crank *t*, slotted plate *v*, punch *f*, and reciprocating platen *s*, substantially as set forth.

2. The combination, with the reciprocating lozenge cutter, platen, type-holder, and reversing mechanism, of the prismatic inking-roller *x*, fountain *n*, and supply-rollers, substantially as set forth

190,755. FOUNTAIN-PENS. H. N. Hamilton, White Plains, N. Y. [Filed Apr. 9, 1877.]

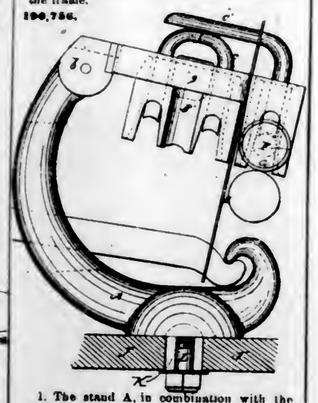


The adjustable perforated tongue D, having its front end pointed and curved inwardly and its stem bent outwardly, in combination with the sliding ring F and stationary pen R, as shown and described.

190,756. TOP-ROLL SUPPORTS FOR SPINNING-MACHINES. F. Hardenbergh and H. L. Holmes, Providence, R. I. [Filed May 11, 1876.]

Brief.—The stand or support and cap-bar serve to hold the top rolls, and the saddles press them down upon the lower rolls by means of a weight suspended from the outer saddle. A roll having but one bearing in the middle is used, being held down upon the lower roll by means of the cap-bar and saddles pressing upon this single bearing. The stand may be turned upon an axis, and moved forward or backward by means of a slot in the frame.

190,756.



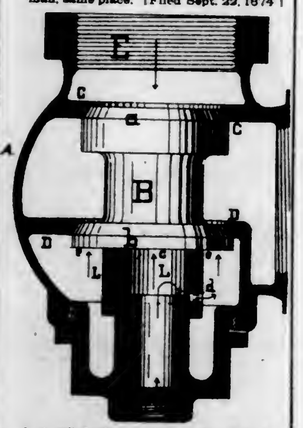
1. The stand A, in combination with the pivoted cap-bar B and the roll G F G, substantially as described.

2. The pivoted cap-bar B, with the adjustable sliding cap-piece B', for holding the middle and back rolls.

3. The combination of the top roll G F G, having a single intermediate bearing, with the pivoted cap-bar B and a weighted saddle, substantially as described.

4. The stand A, carrying the top roll G F G, and made adjustable around an axis, l, which may be moved horizontally in the slot K, substantially as described.

190,757. AUTOMATIC RELIEF-VALVES FOR STEAM-CYLINDERS. John M. Hartman, Philadelphia, Pa., assignor to Taws & Hartman, same place. [Filed Sept. 29, 1874.]



1. A relief-valve consisting of a shell, A, with seats C D and a sleeve, L, and a double-beat valve, B, which presents its lesser area to the pressure caused by the water of condensation in the steam-cylinder, and its greater area to the pressure of steam from the steam-chest, or other suitable place, substantially as described.

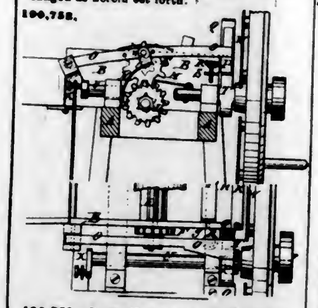
2. A relief-valve in which a steam-cushion is formed on the under side of the unbalanced double-beat valve B, to moderate the concussive force caused by the sudden opening of the valve, as herein shown and described.

190,758. STRAW-CUTTERS. E. M. Hesselbom, Riceford, Minn. [Filed Jan. 6, 1877.]

The combination of the longitudinal and pivoted lever O, having a front cross-head, P, and carrying a pawl, N, with the cutter-

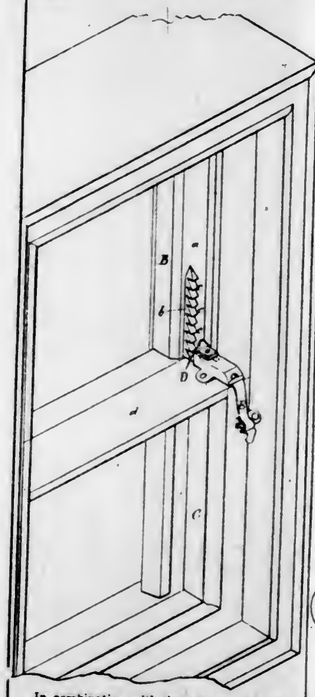
frame, having guides Q for the cross-head, the cutter-wheel shaft, provided with a cam, T, the geared feed-rollers E, and ratchet-wheel L, all constructed and relatively arranged as herein set forth.

190,758.



190,759. SASH-FASTENERS. C. E. Hicks, Chelsea, Mass. [Filed Apr. 9, 1877.]

Brief.—A spring-bolt, automatically engaging with a ratchet-bar attached to the lower sash, holds the upper sash in desired position, and combined with this is a downwardly-extending vibratory spring-catch, arranged to engage with a suitable stud on the window-frame, to prevent the raising of the two sashes together when the upper one is open.

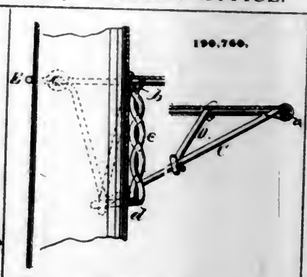


In combination with the two sashes B and C, the ratchet *b*, spring-bolt D, and latch or catch-bar E, the latter operating with the stud *e*, and the whole being essentially as and for the purposes stated.

190,760. STOVE-PIPE SHELVES. John W. Jackson, Sharpsville, Pa. [Filed Mar. 19, 1877.]

The combination, with the wires D E, of a single wire, forming the frame *a b*, twist *c*, arc *d*, and braces C, as shown and described, for the purpose specified.

190,760.



190,761. PAINTS. W. P. Jenney, Brooklyn, N. Y. [Filed Oct. 26, 1876.]

1. The new manufacture or paint herein described, and possessing, substantially, the properties or qualities herein described, composed of a vehicle consisting in whole or in part of oxidised sludge-oil and a suitable solid substance or base, as herein described and set forth.

2. The new manufacture or copper-paint herein described, and possessing, substantially, the qualities or properties herein described, composed of a vehicle consisting in whole or in part of oxidised sludge-oil, and a suitable body containing copper, as herein described and set forth.

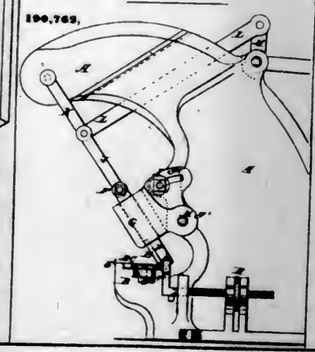
190,762. PROCESSES OF TREATING SLUDGE AND SLUDGE-OIL. W. P. Jenney, Brooklyn, N. Y. [Filed Oct. 26, 1876.]

Brief.—The sludge is washed with naphtha to remove objectionable oils, which rise to the surface and are drawn off. The sludge (acid residuum) is gently heated in a tank having a steam coil, (at temperature of 75° to 150° Fahrenheit.) The contained sulphuric acid is decomposed, forming sulphurous-acid gas, which escapes, and oxygen, which unites with the sludge-oil. Other oxidizing agents may be used to assist the action of the acid. After treatment with acid, the sludge is decomposed by water, reducing the gravity of the acid to 50° Baumé, upon the subsidence of which it is drawn off. If the oxidised oil is too viscid, it is thinned with naphtha, aided by heat, so that it may be purified as follows: In a lead-lined, closed tank, having a condensing-worm, it is showered with hot water, while steam is blown through to agitate it. The washing is continued till the acid is removed, and upon subsidence of the water it is drawn off. The oil is then agitated with 5% of a solution of caustic soda, to neutralize remaining traces of acid. The oil is then distilled at temperature of 400° to 500° Fahrenheit, to remove volatile oil, water, &c., and its drying properties increased by the addition of 1% to 5% of oxide of lead or manganese.

1. The process of manufacture herein described for producing from sludge or sludge-oil the manufacture or substance herein described, and possessing the properties or qualities, substantially as described, by oxidizing the sludge-oil by sulphuric acid, substantially as herein described and set forth.

2. The new substance or manufacture herein described, being partially oxidized fluid sludge-oil, possessing the properties or qualities herein described.

190,763.



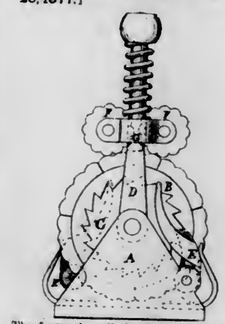
190,763. MACHINES FOR SHEARING BOILER-PLATES. J. W. Johnston and R. Johnston, Perrysburg, Mich. [Filed Mar. 12, 1877.]

Brief.—Holder of movable blade reciprocates in a hinged guide-socket, which may be adjusted to cause said blade to cut the plate at the desired angle. Lower blade is secured to bed-plate by screws, and held against outward pressure by a wedge.

1. The guide-socket G, hinged and secured adjustably to the standard A, in combination with the holder F, of the movable blade E, substantially as herein shown and described.

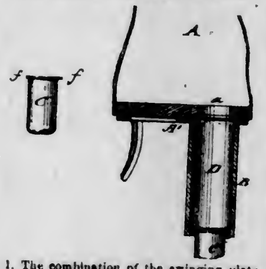
2. The combination of the adjustable guide-bar P and the adjusting hand-nut E with the blades E C and the standard A, substantially as herein shown and described.

190,764. WASHING-MACHINES. William Johnson, Lambertville, N. J. [Filed Feb. 26, 1877.]



The frame A, cylinder B, ratchet-wheels C C, and pawls E E, in combination with the movable arms or levers D D and corrugated rollers F F, combined in the manner and for the purpose substantially as shown and described.

190,765. SHOT-BAGS AND CHARGERS. T. J. Jolly, Etna, Mo. [Filed Apr. 9, 1877.]



1. The combination of the swinging plate A', fixed guide-tube B, and interior removable charger D, with the shot-bag A, having bottom exit-hole *a* and encircling cut off plate *g*, substantially as and for the purpose set forth.

2. The combination, with the shot-bag A, having exit-hole, the swinging plate A', and guide-tube B, having bottom seat or flange, of the flanged closing-plug C, and the removable charger D, resting thereon, for the purpose of lifting the charger when filled, and preventing the escape of shot through the tube when the charge is removed, substantially as herein set forth.

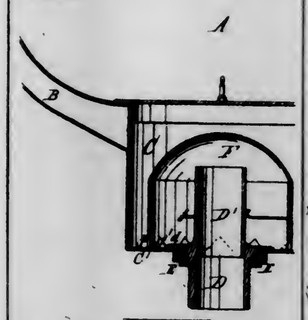
190,766. BASINS. John H. Kayser, New York, N. Y., assignor to Fred. A. Palmer, same place. [Filed Oct. 19, 1876.]

1. A wash-basin constructed with the bell-trap chamber C, and with a removable bottom section, *c*, substantially as and for the purpose described.

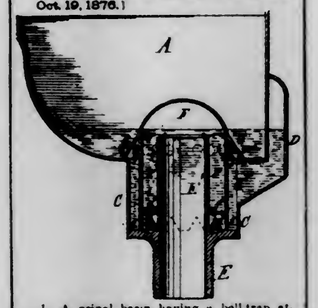
2. The combination of the wash-basin A, bell-trap chamber C, and overflow-passage B, substantially as and for the purpose described.

3. The combination of the coupling-collar D, waste-pipe D', removable bell-cover F, bell-trap chamber C, and basin A, substantially as and for the purpose described.

190,766.



190,767. URINALS OR WATER-CLOSET BASINS. J. H. Keyser, New York, N. Y., assignor to F. A. Palmer, same place. [Filed Oct. 19, 1876.]



1. A urinal-basin having a bell-trap attached to its bottom, so that the bell-cover thereof may be lifted out through the bottom of the urinal without disconnecting any of the fixtures of the urinal, substantially as set forth.

2. A urinal-basin, A, in combination with the joint-connection E, having a flange, *c*, and a tubular exit, E', a chamber, C, and bell F, having base-openings *f*, and a perforated rim, G, substantially as set forth.

3. A urinal-basin, A, in combination with a bell-trap, C F, and the overflow-pipe D, substantially as set forth.

190,768. WASTEWAY-PLUGS. J. H. Keyser and Wm. Turton, New York, N. Y. [Filed Dec. 7, 1876.]



1. A wasteway-plug made of a cork ring, A, and shouldered plates B and C, all clamped together, substantially as and for the purpose described.

2. The plates B and C, constructed with shoulders *a b* and *c d*, and united together upon a yielding ring by a central rivet or its equivalent, substantially as described and shown.

3. The shouldered plates B and C, hollowed out as described, and clamped upon a yielding ring, which keeps them slightly separated on the inside of the ring, substantially as shown and described.

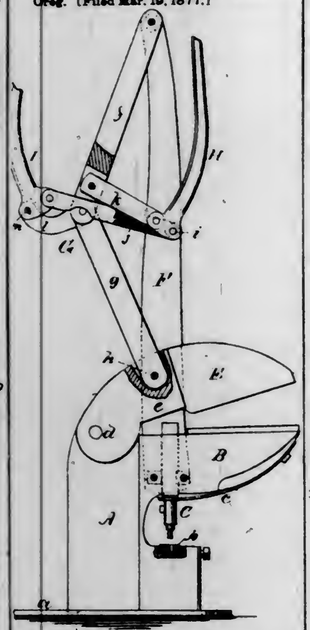
190,769. COMPOSITION FOR CASTING ORNAMENTAL FIGURES. A. Klessle, New York, N. Y. [Filed Mar. 3, 1877.]

A composition for casting, consisting of paraffine and stearine and pulverized sugar, in about the proportions substantially as and for the purpose described.

190,770. COMPOSITIONS FOR REMOVING INCRUSTATION. H. H. Kreamer, Reading, Pa. [Filed Feb. 22, 1877.]

The boiler-cleaning compound consisting of a solution of slippery-elm bark and water, extract of hemlock-bark, or equivalent astringent, and aqua-ammonia, and sugar, substantially as set forth.

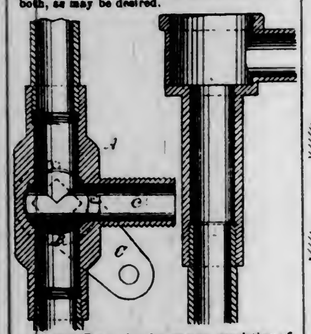
190,771. MACHINES FOR PUNCHING AND SHEARING METAL. A. Lee, Forest Grove, Oreg. [Filed Mar. 19, 1877.]



The combination of the jaws E and B, follower C, standards A and F, toggle G, levers H I, and the connecting-links *j k l*, substantially as herein shown and described.

190,772. CUT-OFFS OR VALVES FOR PUMPS. Job Mansir, Richmond, Me. [Filed Feb. 3, 1877.]

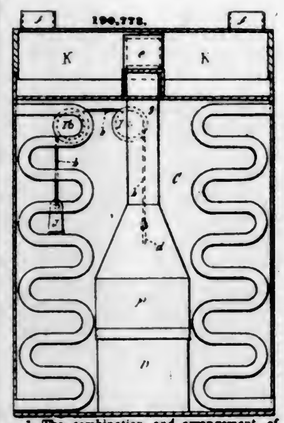
Brief.—By means of the cut-off, connection is made with either of two branch pipes, or both, as may be desired.



A cut-off or valve for pumps, consisting of a body, A, provided with a nipple, *c*, and stop-pin *f*, the plug *d*, having the segmental portion B and flange *e*, substantially as herein shown and described.

190,773. HOT-AIR FURNACES. W. McFarland, Trenton, N. J. [Filed Mar. 2, 1876.]

190,773.

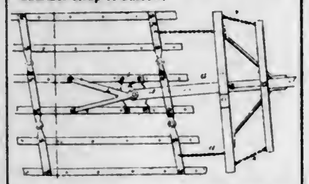


1. The combination and arrangement of air-chambers C and K and air-pipes M, substantially in the manner and for the purpose set forth.

2. In a hot-air furnace, the air-chamber K, having a central flue, *e*, for the passage of the products of combustion, in combination with the chimney L and the fire-place D, having a hood, F, substantially in the manner and for the purpose set forth.

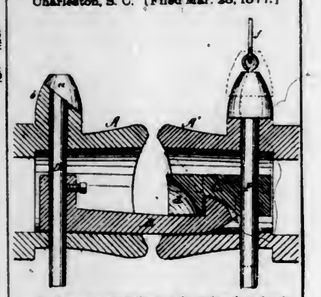
190,774. HARROWS. D. McIlravey, Riceville, Iowa. [Filed Apr. 2, 1877.]

Brief.—A harrow-frame with narrow sections, and tongue fastened with plate and hammer-strap to harrow.



The combination of the draw-bar H and its chains O, the tongue J and its plate K and hammer-strap L, and the double tree M and its chains N, with the sections of the harrow-frame, substantially as herein shown and described.

190,775. CAR-COUPLINGS. B. B. Middleton, Charleston, S. C. [Filed Mar. 28, 1877.]



1. In a car-coupling, a draw-head, a hook fixed on a rod adapted to slide vertically, and having an oblique shoulder or head, and a correspondingly-shaped projection on the draw-head, all combined substantially as shown and described, to operate as specified.

2. In a car-coupling, the rigid hook B and its vertically-sliding rod D, the two being rigidly connected, in combination with the catch having bevel *d*, and recess with shoul-

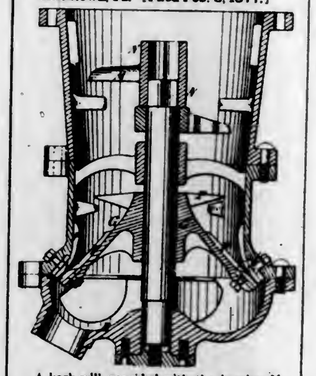
der *e*, the rod F, and the draw-heads A A', all as shown and described, whereby, when the draw-head A' is raised above the other, the said hook will maintain the same position relative to rod D and the catch, as specified.

190,776. DOOR-STOP SCREWS. O. Mongeau, Torrington, Conn. [Filed Mar. 9, 1877.]



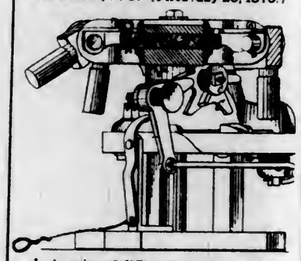
The screw *a*, having cast upon it a head, *b*, with wings *c*, and combined with a knob having a hole to receive said head, substantially as shown and described.

190,777. BARK-MILLS. Wm. F. Mosser, Allentown, Pa. [Filed Feb. 3, 1877.]



A bark-mill provided with the breaker M, arranged on a collar, N, of its shaft, as and for the purpose specified.

190,778. HARVESTER-RAKES. J. H. Myers, Rochester, N. Y. [Filed May 20, 1876.]



1. A series of differential interchangeable star-wheels, provided with tripping-spurs adapted to act directly on the switch-gate lever for controlling the cam-switch and the path of the rake and reel arms, as described.

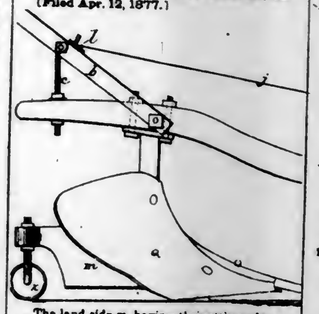
2. The combination, with the rake-cam switch or gate, of a star-wheel, having two or more tripping-spurs for giving a direct positive movement to said cam-switch or gate, and controlling the path of the rake and reel arms, as described.

3. The arrangement of the star tripping wheel or wheels, in combination with the rotating rake-head, whereby said tripping-wheels are adapted to be operated directly by the rake-head without the interposition of gearing.

4. The rake-head, provided with radial webs or flanges, in combination with the wheel or wheels for tripping the rake-cam switch or gate, as described.

5. The pin which unites the rake and reel arm with the rotating rake-head, in combination with the key for holding the pin stationary relatively to said rake-head, substantially as and for the purpose set forth.

190,779. PLOWS. H. Opp, Belleville, Ill. [Filed Apr. 12, 1877.]



The land-side *m*, having the cutting-edge *o*, flange *r*, shoulder *s*, slot *l*, and point *u*, and having its rear and supported upon the wheel *x*, substantially as set forth.

190,780. RAILROAD-CAR STOVES AND FIRE-EXTINGUISHERS. William D. Pegram and Wm. H. Hotchkiss, Moberly, Mo. [Filed Apr. 4, 1877.]

1. The combination of the reservoir B, pipes D D D D, valves E E E E, stems F F F F, and frame G, substantially as described.

2. The combination of the stems F F F F, frame G G', pendulum H, arms h h h' h', gimbal I, frame J, and supports K K K, substantially as described.

3. The combination of the stems F F F F, frame G G', pendulum H, and arms h h h' h', substantially as described.

4. The combination of the frame G G', pendulum H, and arms h h h' h', substantially as described.

5. The combination of the pendulum H, having the projection *t*, and the locking-lever L, substantially as shown.

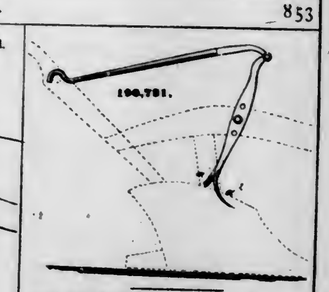
6. The combination of the pendulum H, projection *t*, lever L, cup M, weight N, and spring O, substantially as described.

7. The combination of the lever L, and the cup M, having the adjustable wall *m*, substantially as and for the purpose specified.

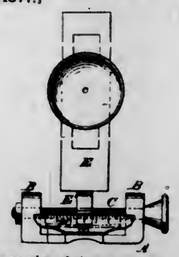
190,781. STUBBLE-GUARDS FOR PLOWS. B. F. Phillips, Lowden, Iowa, assignor to *N.* Henry, same place. [Filed Apr. 2, 1877.]

Brief.—The construction and shape of the hooks or cleaners at the lower end of the bar A.

A plow-cleaner constructed with arms *a' a²*, shaped, arranged with respect to each other, and applicable as shown and described.



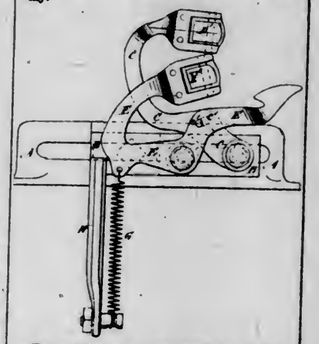
190,782. REAR SIGHTS FOR FIRE-ARMS. C. F. Robbins, Brooklyn, N. Y. [Filed Apr. 28, 1877.]



The cross-shaped piece A, having ears B, the spring D, micrometer-screw C, scale F, and slotted bar E, in combination, as substantially as shown and described.

190,783. LOOM-TEMPLES. C. H. Schlaf, Rockville, Conn. [Filed Apr. 2, 1877.]

Brief.—The improvement relates to the class of jaw and nipper temples. The lay strikes the inner arm of the upper temple, thereby advancing it upon the cloth to take a fresh hold. Simultaneously with this movement the lower temple is forced outwardly by means of the cam-slot and pin, thereby stretching the web at the fell. The spiral spring reverses the action upon the retraction of the lay.



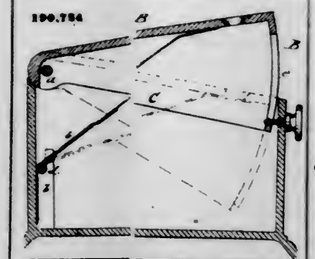
The combination of the slotted plate A, the adjustable block B, the pivoted stretchers C E, provided with the catches D' F', and the foot-l, and connected together by the pin and slot *e' e'*, the spiral spring G, and the arm H, substantially as herein shown and described.

190,784. CIGAR-CUTTERS. H. F. Schultze, Philadelphia, Pa. [Filed Apr. 2, 1877.]

Brief.—A spring in the box has a cutting forward edge, and is caused to slide over perforations in the hinged cover as it is depressed to cut off the tip of a cigar.

A cigar-cutting device composed of a receiving-box or storage-receptacle, swinging and guided lid B, with gage-holes in it for the points of the cigars, and an interior spring-knife, C, passing over the gage-holes on depressing the lid, substantially in the manner and for the purpose set forth.

190,784



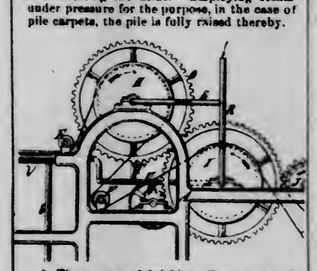
190,785. ROTARY STEAM-ENGINES. A. L. Scudder and J. L. Wager, Deposit, N. Y. [Filed Jan. 31, 1877.]



The combination, in a rotary steam engine, substantially as described, of double cylinders and pistons with a reciprocating slide, which acts alternately in either cylinder as an abutment for the steam, as and for the purpose set forth

190,786. FINISHING WOVEN FABRICS. Jas. Short, East New Brunswick, N. J. [Filed Oct. 17, 1876.]

Brief.—Sizes the cloth for market by moistening the size remaining in the warp-threads and resetting the same. Employing steam under pressure for the purpose, in the case of pile carpets, the pile is fully raised thereby.



1. The process of finishing pile carpets and other woven fabrics, wherein the dressing applied to the component threads is allowed to remain after weaving, by moistening said dressing and effecting the resetting thereof, preferably without the addition of other stiffening substance.

2. In the above process of finishing pile carpets and other woven fabrics, wherein the dressing applied to the component threads is allowed to remain after weaving, moistening the latter, preferably without the addition of other stiffening substance, by escaping steam or other vapor, and subsequently resetting the stiffening substance and calendering the fabrics, substantially as and for the purposes set forth.

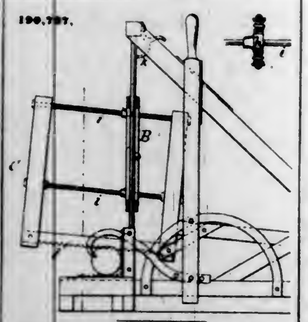
3. The combination of the pipes B, covering G, of canvas, drain V *b*, rotary drying-cylinder H, reversely-rotating calendering-cylinder I, pipes R S T U, feed and delivery roller J, gear-wheels, and guide-rollers, substantially as and for the purpose set forth.

190,787. SAWING-MACHINES. F. Simonson, Round Grove, Ill. [Filed Mar. 12, 1877.]

Brief.—The saw-frame is provided with two metal rods, which operate through a vertically-adjustable guide formed of two metallic side pieces, to which are attached semi-circular pieces embracing vertical rods, and having between them perforated boxes for receiving the saw-frame rods, and curved plates and rivets for holding the several parts of the guide firmly together.

The combination of the saw-frame C, having rods *i* and carrying the saw *l*, with the guide B, rods *a*, and catch *k*, substantially as herein shown and described.

190,787.



190,788. RECLINING-CHAIRS. H. S. Smith, Brooklyn, N. Y. [Filed Sept. 7, 1876.]

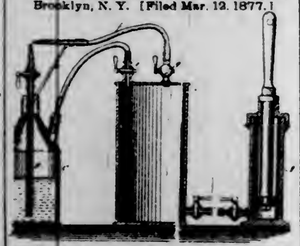
Brief.—The link-bars connecting the hinged back with the arms of the chair have a series of flaring notches in them, which engage with correspondingly-shaped pins on the arms. The links are connected, in the rear of the back, by a transverse rod, by which they can be lifted and the inclination of the back adjusted.



1. In a reclining-chair having a hinged back, the combination of the links provided with flaring notches, and the catch-pins, of a similar shape to the notches, substantially as and for the purposes set forth.

2. The combination, in a reclining-chair, of a swinging hinged back, notched links, catch-pins, and a bar, *f*, connecting the links, so that they move together, substantially as set forth.

190,789. LIQUID-DIFFUSERS. G. M. Smyth, Brooklyn, N. Y. [Filed Mar. 12, 1877.]

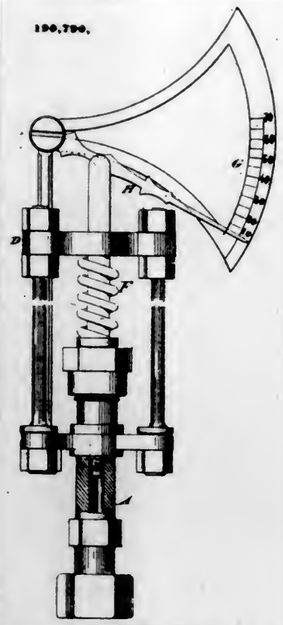


The combination of the receptacle C, pipe D, nozzles *c d*, pipes *f h*, stop-cocks *i g*, and the air-compressor A, substantially as herein shown and described.

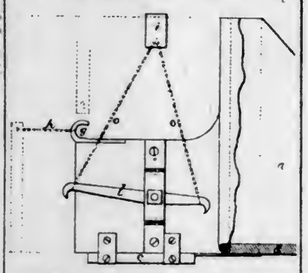
190,790. PRESSURE-GAGES. W. T. Snyder, Catasauqua, Pa. [Filed Mar. 12, 1877.]

The combination, in a pressure-gage, of the cylinder A, piston *d*, spring F, adjustable cross-bar D, index H, and the graduated arc G, substantially as herein shown and described.

190,790.



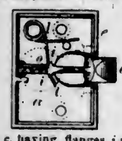
190,791. END-BOARDS FOR WAGONS. T. Stevens, Cameron, Mo. [Filed Apr. 16, 1877.]



1. The combination of the sides *a*, gate *d*, hooks *g*, and chains *h*, substantially as shown.

2. The combination of the sides *a*, gate *d*, hooks *i*, chains *o*, and lever *l*, substantially as described.

190,792. CLOSET-LATCHES. W. E. Sparks, New Britain, Conn., assignor to P. & F. Corbin, same place. [Filed Feb. 22, 1877.]

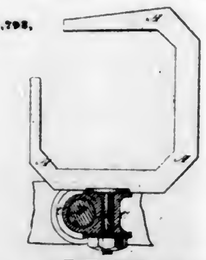


The bolt *c*, having flanges *i* upon its stud *o*, in combination with the plate *a*, having a mortise that is enlarged at one end for the passage of such flanges, and the spring *l*, substantially as specified.

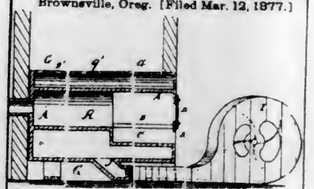
190,793. ROWLOCKS. W. Spelman, Portland, Me. [Filed Apr. 2, 1877.]

The combination, with pin D, attached to boat and oar-lock A, having the journal B, of the pin-block C, having the hole for journal B a little at the inside of the hole for the pin D, as and for the purpose specified.

190,795.

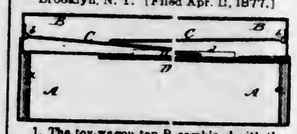


190,794. HOP-DRIERS. S. R. Templeton, J. C. Templeton, and Jos. H. Templeton, Brownsville, Oreg. [Filed Mar. 12, 1877.]



The improved hop-drying apparatus, consisting of the hollow cylinder G, having the apertures *g'* in its upper side, the smaller concentric furnace A, having grate B, ash-pit C, and door D at one end, and flue F at the other end, a fan-blower, I, and air-conducting tube J, all combined and arranged with the receiver for the hops, as shown and described.

190,795. TOY WAGONS. H. Thomas, Brooklyn, N. Y. [Filed Apr. 11, 1877.]

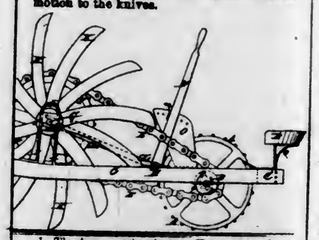


1. The toy-wagon top B, combined with the four wires C C, which are directly hinged to the top by loops or eyes *b b*, and arranged to be folded under the top, substantially as specified.

2. The combination of the toy wagon body A, having sockets *a* with the toy top B, hinged wires C, and hinged wings or flaps D, substantially as herein shown and described.

190,796. CULTIVATORS. John R. Tilley, Demerara, British Guiana, South America. [Filed Oct. 7, 1876.]

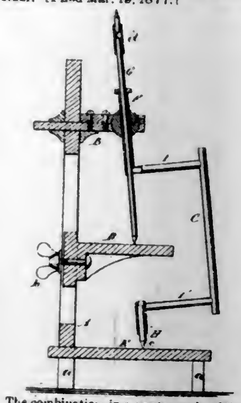
Brief.—Long cutting-knives on hubs, the shaft or axle of which is free to rise or fall in slotted bearings. Lever rigid on a rock-shaft, which has rigid arms that span the cultivator-axle and raise it from the ground, or secure it at the desired height. A chain with wheels on the shaft and main axle imparts a second motion to the knives.



1. The long cutting-knives K and hubs J on shaft G, having large chain-wheel F, and made free to rise and fall in slotted bearings, in combination with the small bearing-wheels A and axle B, having the small chain-wheel D and the endless chain E, whereby the knives are given a slow rearward motion beside that caused by the forward progress of the machine.

2. The combination of lever N, rock-shaft M, and slotted arms L L with the shaft G, that carries the plows, sliding bearings H, slotted brackets I, and the frame C, substantially as herein shown and described, for the purpose specified.

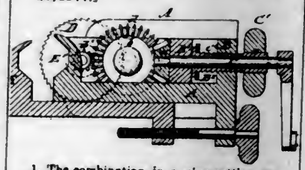
190,797. PANTOGRAPHS. E. Ware, Omaha, Nebr. [Filed Mar. 19, 1877.]



1. The combination, in a pantograph, of the bar C having horizontal arms I I' and vertical tubes or point-holders F H', with the frame A, supporting-bracket B, ball J, and tables E D, arranged one above the other, substantially as and for the purpose set forth.

2. The combination of the table E, slotted standard A, adjustable table D, bracket B, ball J, lever consisting of the tube F, bar C, arms I I', and holder H, and the pointed rod G, substantially as herein shown and described.

190,798. PIPE-CUTTING MACHINES. Nehemiah Watson, Arcadia, R. I. [Filed Apr. 28, 1877.]



1. The combination, in a pipe-cutting machine, of an adjustable clamping-frame, with a longitudinally-feeding and revolving circular cutting-saw, substantially in the manner set forth.

2. The combination of the main frame, attached by clamp-jaws and thumb-screws to the pipe to be cut, with a circular revolving saw applied to a longitudinally-sliding and guided section, A', of the main frame, and moved by a feeding thumb-screw, O', substantially in the manner specified.

3. The combination of the sliding and guided bar A' of frame A, carrying cutting-saw, operating gear, and crank-shaft, with a feeding-thumb-screw, O', around crank-shaft, cross-bar B', and collar-plate B', substantially as and for the purpose described.

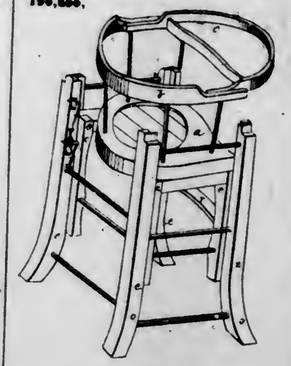
190,799. SAFETY-POCKETS. Fred. Wendt, Utica, N. Y. [Filed Mar. 24, 1877.]

A safety-pocket for garments, composed of a main pocket with a top flap, in connection with a supplementary pocket at the upper part of the open portion or lining of the pocket, substantially constructed and arranged to operate as described and shown.

190,800. NURSERY-CHAIRS. J. C. Wheeler, Baldwinsville, Mass., assignor to Thompson, Perley & Waite, same place. [Filed Jan. 31, 1877.]

The chair-holding frame provided with the grooved corner-posts *a* and a locking device, in combination with the child's chair *a b c*, having its legs fitted within such frame, and adapted to be adjusted therein to form a high or a low chair, substantially as described.

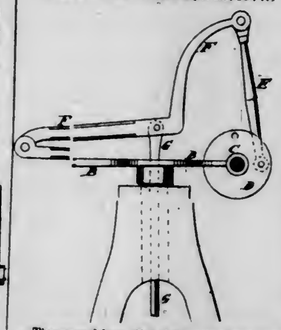
190,800.



190,801. COMPOSITION HOP-EXTRACT. J. R. Whiting, New York, N. Y. [Filed May 3, 1877.]

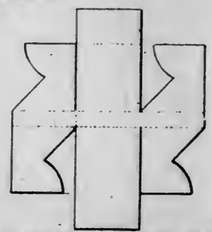
The composition hop-extract, consisting of extract of hops and pure sugar, substantially in the proportions specified, forming a solid substance, substantially as described.

190,802. WINDMILLS. Wm. Ap Williams, Cambria, Wis. [Filed Apr. 23, 1877.]



The curved lever F and the connecting-rod E, in combination with the turn-table B, the pump-rod G, and the crank D of the wheel-shaft C, substantially as herein shown and described.

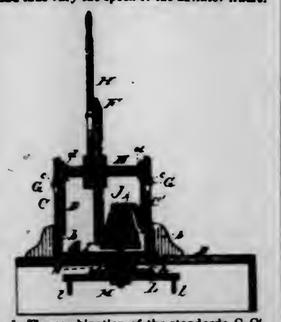
190,803. PAPER BOXES. C. M. Arthur, Ansonia, Conn., assignor of one-half his right to R. B. Colburn, same place. [Filed Apr. 12, 1877.]



The herein-described box-blank for paper boxes, consisting of the bottom and two sides, each side having a projection to interlock with the corresponding projection from the other side, and the bottom with ends and flaps to turn up against the said side projections, over and down into the box, substantially as shown and described.

190,804. WASHING-MACHINES. R. G Baldwin and A. J. Parkhurst, Oskaloosa, Iowa; said Baldwin assignor to said Parkhurst. [Filed Mar. 17, 1877.]

Brief.—The vertical shaft of the agitator-frame is provided with pinions of different diameters, and the driving gear-wheel is laterally adjustable on its shaft, and also vertically, whereby it may mesh with either pinion, and thus vary the speed of the agitator-frame.



1. The combination of the standards C C', having slots *c c*, slides D D, adjustable by thumb-screws G, shaft K, having its bearings in slides D D, drive-wheel F, adjustable upon shaft E, and vertical shaft J, having two or more conical pinions, *j k*, of different sizes, all combined and operating substantially in the manner and for the purpose herein shown and specified.

2. The improved washing-machine herein described, consisting, essentially, of the tub A, cover B, standards C C', vertically-adjustable shaft E, having laterally-adjustable cog-wheel F, casting I, having collar *h*, shaft J, having two or more pinions, *j k*, disk K, having collar N and legs *m m*, and cross-frame L, having pegs *l l*, all combined, arranged, and operating substantially in the manner and for the purpose herein shown and specified.

190,805. GRATE-BARS. A. E. Barthel, Detroit, Mich. [Filed Apr. 20, 1877.]

Brief.—The bars are made to interlap at their ends, and provided with spacing-studs, to prevent said ends from fusing under extreme heat

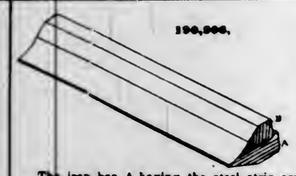


1. The grate-bars A A' A', provided with small studs *h* at their free and interlapping ends, for the purpose of preventing such ends from fusing together while such bars are expanding longitudinally, substantially as described.

2. In combination, the grate-bars A A' A', with interlapping ends, provided with studs *h*, and the supporting-bars C, arranged under such interlapping ends, substantially as described.

190,806. HORSESHOE-BARS. A. Barton, Nevada City, Cal. [Filed Apr. 3, 1877.]

190,806.



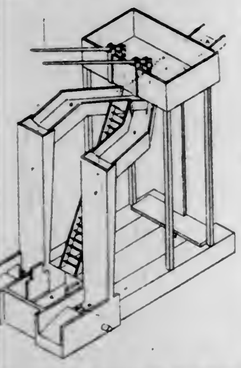
The iron bar A having the steel strip or portion B welded upon it, so as to leave the ledge or shoulder *c*, substantially as and for purpose described.

190,807. HANDLES FOR TEA AND COFFEE POTS. A. Bayley, Newark, N. J. [Filed Feb. 7, 1877.]



The within-described improvement in making sheet-metal handles, the same consisting in first cutting a blank with a recess, *y*, and curved edges *x x* at one end, and with a projection, *y'*, and curved edges *x' x'* at the other, and then forming said blank into a tube and bending until the ends are on the same plane, as set forth.

190,808. ORE-WASHER. D. Beaumont, Sacramento, Cal. [Filed Apr. 3, 1877.]

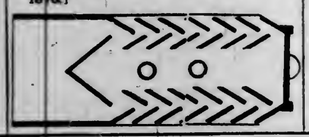


1. The flume or sluice A, with its branch sluices B B, each of which connects with the pen-stock C, the lower end of which terminates in a box or receptacle, D, in which a body of quicksilver is contained, in combination with the partition I, substantially as and for the purpose described.

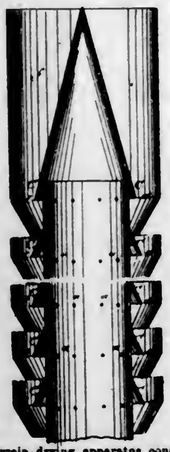
2. In combination with the alternately-operated sluices B B, pen-stocks C C, and quicksilver-boxes D, the intermediate box G, with its side openings or doors H, arranged to communicate with the boxes D, substantially as and for the purpose described.

3. In combination with the alternately-operated sluices B B, pen-stocks C C, and quicksilver-boxes D D, arranged as described, the elevated water tank or reservoir with its pipes or valves K K, substantially as and for the purpose described.

190,809. APPARATUS FOR CURING GRAIN. H. H. Beach, Rome, N. Y., assignor to W. H. Smith, Urbana, Ill. [Filed Nov. 7, 1876.]



190,810. APPARATUS FOR CURING GRAIN. H. H. Beach, Rome, N. Y., assignor to W. H. Smith, Urbana, Ill. [Filed Nov. 7, 1876.]

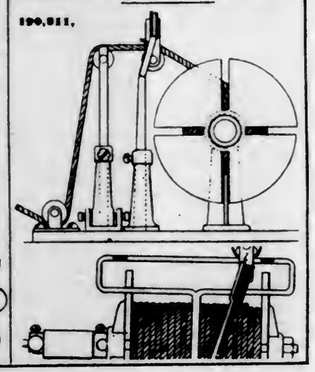


1. A grain-drying apparatus constructed with a fixed vertical perforated pipe, with a series of deflectors secured thereto, the deflectors so secured being surrounded by a second series of deflectors, the angles of one series of deflectors being reverse to the angles of the other series, substantially as and for the purpose described.

2. In a grain-drying apparatus, a fixed vertical perforated pipe, closed with a conical cap at its upper end, and constructed with a gate at its lower end, and provided with a series of deflectors, which are surrounded by a second series of deflectors, the angles of one series of deflectors being reverse to the angles of the other series, substantially as and for the purpose described.

3. In a grain-drying apparatus, a fixed vertical perforated hot-air pipe, combined with a series of deflectors, the angles of one series of deflectors being reverse to the angles of the other series, constructed and affixed in the manner described, so as to permit the grain to descend from one deflector to another in strata of varying thicknesses, which strata, together with the deflectors and vertical pipe, form spaces in which the heated air passes from the perforations into the vertical pipe, substantially as and for the purpose described.

190,811.



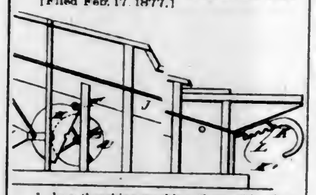
190,811. MECHANISMS FOR WINDING AND REELING ROPE OR CORDAGE. Benj. Bevelander, Boston, Mass. [Filed Nov. 27, 1876.]

Brief.—The rope is led under the sheave, near the pivotal point of the vibrating leader, over the sheave at top of said leader, and over the sheave of the traversing guide to the reel.

1. The combination, with the reel and traversing-guide, of the vibrating leader, adapted to move with and present the rope to the sheave of the guide, substantially as described.

2. The combination, with the reel, traversing guide and leader, of a pulley, located at or near the pivotal point of the leader, to operate substantially as described.

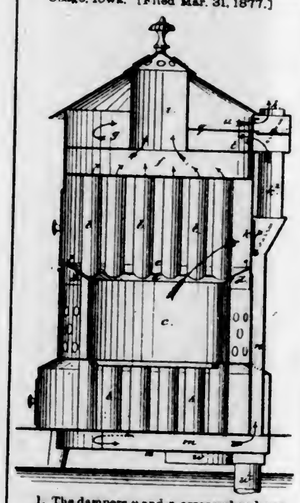
190,812. BLAST-REGULATORS FOR THRASHING-MACHINES. W. Boren, Ashland, Ohio. [Filed Feb. 17 1877.]



1. In a thrashing-machine, the combination of a fan with weighted or spring-pressed shutters and an operating cord extending to the feed-board, substantially as and for the purpose set forth.

2. The combination of weighted shutters H H with cord J, hook K having rack K', and locking staple or loop L, substantially as and for the purpose set forth.

190,813. HEATING-STOVES. H. H. Bowman, S. H. Franklin, and C. L. Colby, Osage, Iowa. [Filed Mar. 31, 1877.]



1. The dampers *p* and *r*, arranged and combined with the flues *n*, k^2, and *h*, and the top-chamber openings *r s*, to give perpetual communication of the indirect flues *j j* with the exit-pipe *h*, whether the direct-flue damper *p* is opened or closed, as described.

2. The combination, in a surface-burner and base-heater, of the direct and indirect flues *k* k^2 and *j j* and the base-chamber *s* of a top chamber, *g*, the smoke-pipe *h*, and the dampers *r* and *p*, constructed and arranged substantially as and for the purpose herein set forth.

3. The top chamber *g*, its angular horizontal and vertical division-plate *s' q r'*, forming the upper and lower openings *r s*, the direct and indirect flues *k j j*, the dampers *r p*, and the exit-pipe *h*, constructed, combined, and adapted for use, as set forth.

4. The air-chamber *f*, its central outlet-flue *i*, and the air-inlet tubes *b*, arranged and combined with the top chamber *g*, its inlet and outlet openings *s r*, the fire-chamber *c*, and the flues *n*, k^2, and *h*, all constructed and arranged as set forth.

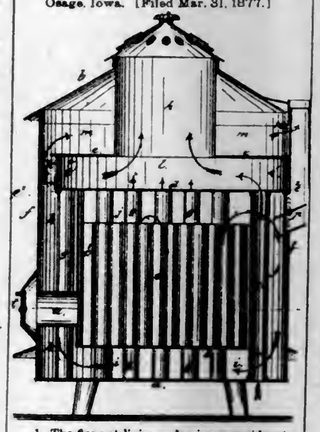
5. The sectional lining *c*, in combination with the flanged fire-pot and the air-conductors, said lining and flange being constructed and adapted to fit said conductors, and close the space at the junction therewith and with the flange, as described.

6. The cold-air duct *w*, arranged beneath the base-chamber *a* and at the junction thereof with the descending and ascending flues *j j*, and combined with said flues and the air-tubes *b*, whereby said cold-air duct is subjected to the direct heat of said flues, as set forth.

7. The direct and indirect draft openings *k j j*, arranged in an open space between the air-tubes *b*, and combined with the top chamber *g*, the bottom chamber *a*, and the exit-pipe *h*, as set forth.

8. The angular division-plate of vertical and horizontal sides *s' q r'* of the top chamber, arranged to divide said chamber vertically with its central pipe *i*, and horizontally with its inlet and outlets *s r*, forming upper and lower openings, and combined with the flues *n* k^2 *h*, as set forth.

190,814. HEATING-STOVES. H. H. Bowman, S. H. Franklin, and C. L. Colby, Osage, Iowa. [Filed Mar. 31, 1877.]



1. The fire-pot lining *c*, having one side, *c'*, extending from the bottom to the top of the fire-chamber, to form, with the outer case, the ascending flue *k*, and an open-top diving-flue, *j*, over the other portion of said fire-box lining, as and for the purpose herein set forth.

2. The rimmed plate *e*, forming the hot-air chamber *l*, flattened on one side to form a continuation of the indirect ascending flue *k*, in combination with the combustion and top chambers, substantially as herein set forth.

3. The fire-box side *c'*, closed, and the sides *c* open at top, the flues *k* and *j*, the air-tubes *g*, hot-air chamber *l*, base-chamber *i*, and the casing *f*, all constructed and combined for use as herein set forth.

4. The hot-air chamber *l*, formed by the rimmed plate *e*, with one side flattened, in combination with the grooved seat c^2 in the top plate of the fire-box, substantially as herein set forth.

5. The combination, with the direct and indirect flues *j* and *k*, of the valve *p* and the top chamber *m*, having the opening *n* into the smoke-pipe, in the manner and for the purpose herein set forth.

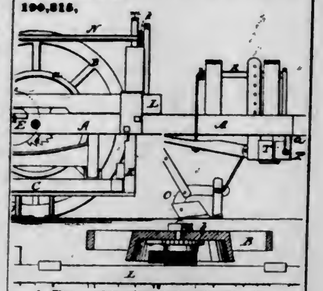
6. The removable closed oven *r*, the hot-air chamber *l*, the combustion-chamber, and the stove-case, combined for use substantially as herein set forth.

7. The rimmed plate $e e^1$, forming the hot-air chamber *l*, having the raised portion *s*, in combination with the closed oven *r*, adapted thereto like a drawer, substantially as herein set forth.

190,815. COMBINED COTTON CHOPPER AND SCRAPER. E. C. L. Bridges, Brick Church, Tenn., assignor to J. A. Lee, same place. [Filed Apr. 11, 1877.]

Brief.—A horizontal frame carries the choppers. It slides laterally in guides, and is oscillated by a crank-shaft, operated from the axle and bearing-wheels. The frame in which they are carried is raised and lowered by crank-pinion and ratchet. A lever moves the chopping mechanism forward or back upon the main frame. The scrapers are attached to a block, which slides laterally, and is moved by foot-treadles.

190,816.



1. The combination of the vibrating frame, carrying the hoes or choppers, and working in guides of frame K, the crank-shaft G, cross-shaft E, ratchets *b*, and transporting-wheels B, as shown and described.

2. The combination of vibrating chopper-frame C and vertically-adjustable frame K, as shown and described.

3. The combination of vibrating frame C, carrying the chopping-hoes, and horizontally-sliding frame L, as shown and described.

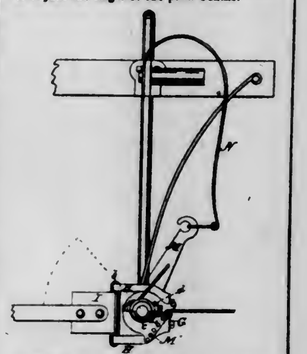
4. The combination of vibrating chopper-frame C, vertically-adjustable frame K, and horizontally-sliding frame L, as shown and described.

5. The combination of crank-shaft N, gears *k k*, rack-bars *l l*, frame K, and vibrating chopper-frame C, as shown and described.

6. The combination of scraper O, sliding block P, strap Q, rock-shaft R, and treadle-levers, as shown and described.

190,816. COUPLINGS FOR CULTIVATORS. W. P. Brown, Zanesville, Ohio. [Filed Apr. 6, 1877.]

Brief.—The cultivator-coupling has an attachment to a spring upon the frame, to balance and assist in raising the plow-beams. It also provides for attaching the draft to the coupling, so as to elevate or depress the plows. The coupling and axle-sleeve are corrugated, to adjust the angle of the plow-beams.

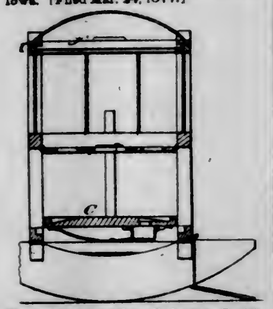


1. The pipe-box provided with a projection adapted to co-operate with a spring, weight, or the draft, to rock the said pipe-box against or with the weight of the rear cultivators or plows, substantially as and for the purpose described.

2. The combination, with the crank-axle and the gangs or plows, of the pipe-box, having arm M, the spring N, attached to the main frame, the head I, and the stirrup G, or its equivalent, having brackets H and pivot-bolt *b*, and fastened to the pipe-box, substantially as and for the purpose described.

3. The pipe-box E, having longitudinal ribs, combined with the stirrup G, having corresponding grooves and a clamping device, substantially as described.

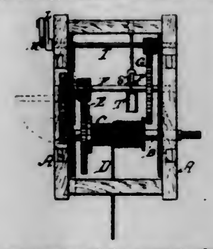
190,817. CRADLES. J. L. Butler, Osceola, Iowa. [Filed Mar. 24, 1877.]



The combination of cradle-bottom C with springs for supporting the same, and rods and screws for adjusting its height, substantially as and for the purpose set forth.

190,818. MOTORS. J. O. Butler, Greenton, assignor of one-half his right to J. B. Shotwell, Lexington, Mo. [Filed Mar. 18, 1877.]

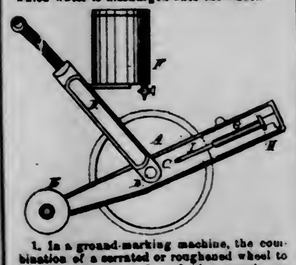
Brief.—The motor may be applied to any light machinery, though shown applied to fans.



The combination of the supporting-frame A, the shaft B, journaled in the same, the drum C, mounted on said shaft, and provided with a cord or chain, D, and weight D', the wheels E and G, and pinions with which they gear, the shafts I and F, and crank L, the pivoted lever P, its brake S, and weight T, the whole constructed and arranged to operate substantially as set forth.

190,819. MACHINES FOR MARKING GROUND. Frederick W. Byrne, Liverpool, England. [Filed Mar. 9, 1877.]

Brief.—The frame is mounted upon wheels revolving on the axle that extends beyond the frame. Journaled centrally in the frame is a wheel having a roughened periphery, for grinding off pigment held in a box, and pressed against the wheel by a sliding spring. Above the wheel is attached a fluid-reservoir, from which water is discharged onto the wheel.

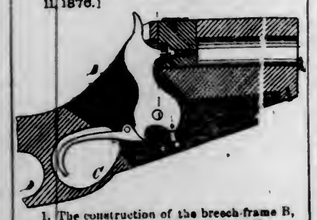


1. In a ground-marking machine, the combination of a serrated or roughened wheel to travel on the ground, a fluid-reservoir arranged to discharge its contents upon the periphery of the wheel, and a device, H, adapted to present a solid pigment against the periphery of the wheel, said elements being constructed and arranged substantially as shown and described.

2. In a ground-marker, the combination of a serrated or roughened wheel, A, a fluid-reservoir, F, and a sliding spring-presser, H, adapted to force a pigment, J, against the wheel, substantially as shown.

3. The combination of the frame C, wheels A B E, handle D, can F, presser H, and springs I.

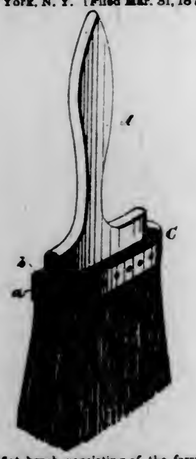
190,820. BREECH-LOADING FIRE-ARMS. H. W. Chapman, Newark, N. J. [Filed Oct. 11, 1876.]



1. The construction of the breech-frame B, guards C and D, gripe E, and stock H, cast in one piece, substantially as specified.

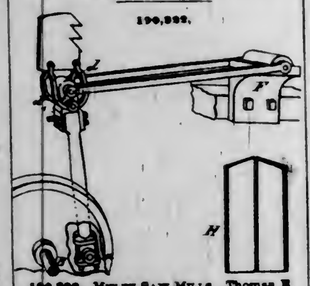
2. In a fire-arm, the breech-frame, stock, and guards, formed in a single piece, substantially as set forth.

190,821. BRUSHES. Remick W. Champion, New York, N. Y. [Filed Mar. 31, 1877.]



The flat brush consisting of the ferrule C having the continuous wall c, perpendicular to its upper slotted face b, and handle A, of uniform thickness and wedge-shaped at its lower end, substantially as described, and for the purpose set forth.

190,822.



190,823. MULEY-SAW MILLS. Thomas E. Chandler, Indianapolis, Ind. [Filed Apr. 14, 1877.]

Brief.—The mill is relieved from the difficulty caused by the heating and wear of the lower slides, arising from the shortness of the pitmen required, by means of two radius-bars, the outer ends of which are pivoted to a bracket on the inside track-timber, and the opposite ends secured to a pin oscillating in a journal box in the upper end of the pitman; two bifurcated saw-straps, which connect the saw to the pitman; two vertical guides, which embrace the lower part of the saw; and two upper inclined guides, which act as dust-shields.

1. The bifurcated saw-straps *d*, constructed and operating substantially as shown and described.

2. The bifurcated saw-straps *d*, in combination with pitman, radius-rods, and bracket F, as and for the purpose set forth.

3. The iron frame A and guide-frame H, constructed as described, in combination with the vertical guides *g* and inclined guides *i*, as and for the purpose specified.

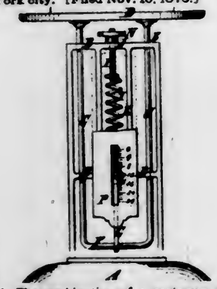
190,824. METHODS OF SPLICING WIRE-ROPE. H. Channon, Chicago, Ill. [Filed Feb. 10, 1877.]

Brief.—The strands of the broken rope are unlaid at opposite ends, interlocked or intertwined, and fastened by inserting the ends in the core of the rope.



The method of forming a splice in wire-ropes having a hempen heart or core, consisting in unlaying the strands of opposite ropes in interlocking them and fastening the ends by inserting them in the heart of the ropes, substantially as set forth.

190,825. SPRING-SCALES. G. H. Chinnock, Brooklyn, N. Y., assignor, by mesne assignments, to L. N. Mowry & Co., New York city. [Filed Nov. 15, 1876.]

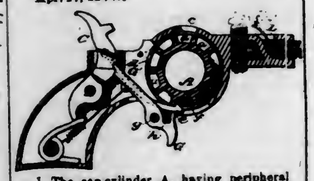


1. The combination of a scale-pan, means for guiding it vertically, a counter-balance for said scale-pan, connected therewith without the intervention of levers, and an index, substantially as and for the purpose herein set forth.

2. The combination of the pedestal A, scale-pan D, guides and rods B C for the latter, spring counter-balance H, connected to the latter and to the bridge J, and an index and index-plate, substantially as set forth.

3. The combination of the scale D, guides and rods B and C therefor, spring counter-balance H connected therewith, bridge J, adjustable support I N, and an index, substantially as set forth.

190,826. TOY PISTOLS. R. W. Churchill, Bridgeport, Conn., assignor of one-half his right to C. E. Alvord, same place. [Filed Apr. 17, 1877.]



1. The cap-cylinder A, having peripheral cells or cap-chambers *c*, in combination with the chamber B and shell *b*, substantially as described.

2. The combination of the revolving cylinder A, having peripheral cells *c*, with the hammer of a toy pistol, and the spring-pawl *e*, substantially as described.

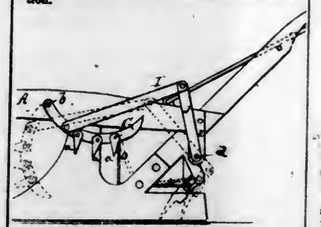
3. The combination of the cap-cylinder A, the hammer C, pawl *e*, spring tail-piece G' and trigger G, substantially as described.

4. In a toy pistol barrel from which fire-crackers are shot butt foremost, the opening L and a punk or lighter receptacle, K, substantially as described.

5. A toy-pistol constructed with a cap-exploding mechanism, a punk-receptacle, and a barrel adapted to shoot fire-crackers, substantially as described.

190,896. PLOWS. G. B. Clarke, Leonardsville, N. Y. [Filed Mar. 31, 1877.]

Brief.—Self-operating cleaner. When the rod is drawn backward, it thrusts a spur downward into the ground, and the forward movement of the team operates the cleaner. A spring returns the parts to their former position.



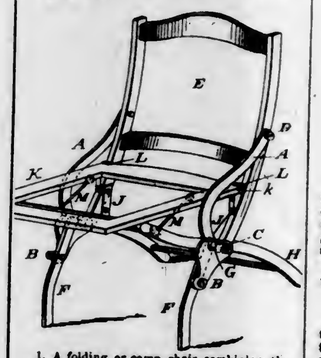
1. The pivoted lever G, provided with the pivoted clearing teeth or points *e*, in combination with a spur, arranged to be forced into the ground, whereby the draft of the team causes said lever to be thrown forward and upward, substantially as herein set forth.

2. The combination of the lever G with clearing-points *e*, connecting-bar I, shaft *d*, with arms J P, the spur S, and pin *p*, substantially as and for the purposes herein set forth.

3. The combination of the rod R, loose lever L, slotted spur S, and shaft *d* with arm P, having pin *p*, substantially as and for the purposes herein set forth.

4. The combination of the lever G with clearing-points *e*, connecting parts I J, shaft *d*, with arm P, having pin *p*, the spur S, connecting-wire *w*, and the spring O, all constructed and arranged to operate substantially as and for the purposes herein set forth.

190,827. FOLDING CHAIRS. Henry Closterman, Jr., Cincinnati, Ohio. [Filed Mar. 29, 1877.]



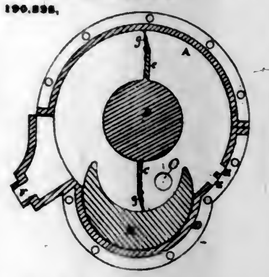
1. A folding or camp chair combining the following elements, to wit, the pair of scroll-formed members A, secured to the back E, front legs F, and cross-piece H, by bolts B C D and pivots G, and to each other by the seat-supporting stretcher I, in the manner and for the purpose set forth.

2. In combination with the members A B C D E F, having pivoted connection G with the member H, the rear hinged seat K L, connected by links M with said member H, and supported by stretcher I and lugs J, as and for the purpose set forth.

190,828. BLOWING-MACHINES. T. A. Cochrane and J. Hendy, San Francisco, Cal. [Filed Mar. 28, 1877.]

Brief.—The rotary vanes are constructed in two parts, and are so hinged as to allow for any irregularity of motion. An opening is made in the end of the small semi-cylindrical case, to prevent the rotary abutment from carrying any air around with it.

190,828.



1. The cylinder B of a rotary pressure-blower, provided with flexible or hinged vanes *c g*, in combination with the rotary recessed abutment H, the whole mounted in a single shell or case, A E, substantially as and for the purpose described.

2. The combination, with the rotary recessed abutment H, of the cylindrical shell A, provided with opening O, substantially as and for the purpose specified.

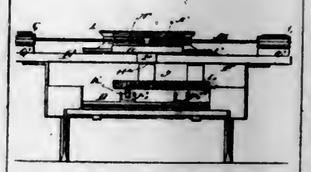
190,829. FIREMEN'S BELTS. F. Constantino, Philadelphia, Pa. [Filed Mar. 20, 1877.]



A fireman's belt escape attachment, consisting of a belt, A, provided with eye *b* and pockets *c d*, and a coil of rope having knots at intervals, and a snap-hook at one end for engagement with said eye *b*, and at the other a spike, as and for the purpose described.

190,830. ATTACHMENTS FOR CORN-PLANTING. W. R. Cunningham, La Fayette, Ind. [Filed Apr. 7, 1877.]

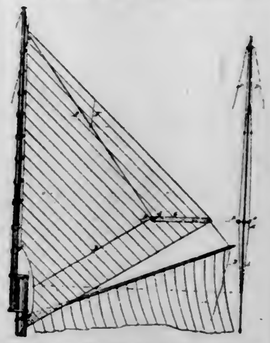
Brief.—Upon the seed-slide are secured trough-plates of different sizes, for the reception of a transferable wrist-pin attached to one of two gear-wheels of different sizes, for vibrating the seed-slide at varying rates of speed.



1. The combination, with the gear-wheels J L, of different diameters, and provided with the transferable wrist-pin K, of the seed-slide D, having the trough-plates E E', pulley I, and rope M, substantially as and for the purpose set forth.

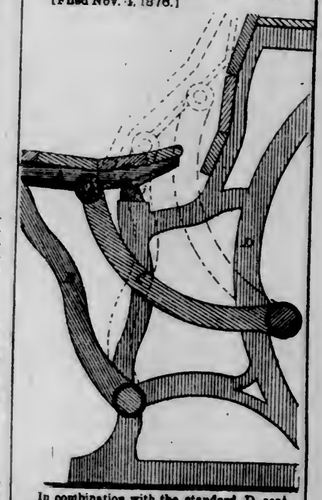
2. The combination, with the gear-wheels J L, of different diameters, and provided with the transferable wrist-pin K, and the seed-slide D, having the trough-plates E E', of the grooved pulley I, having an extended lower flange, I', pulleys Q Q N N, and rope M, substantially as described.

190,831. MEANS FOR OLEWING UP GAFF-TOPSAILS. W. H. Dare, Whitestone, N. Y. [Filed Nov. 24, 1876.]



As a means of clewing up gaff-topsails, the combination of the grommet-hole A, located as described, and provided with bull's-eyes B B, or their equivalents, connected by a strap, the preventer rope or band G, the double bunt-lines D D, and the additional block at the head of the sail, all constructed and arranged substantially as described.

190,832. FOLDING SEATS FOR SCHOOL-DESKS. O. Davis, Battle Creek, Mich. [Filed Nov. 4, 1876.]



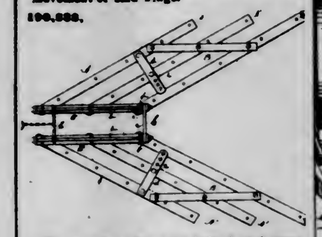
In combination with the standard D, seat-arm A, and front brace B, arranged substantially as described, the rear brace C, pivoted to the seat-arm A and to the standard D, the latter pivot-point being in a plane below the plane of the former, substantially as and for the purposes herein set forth.

190,833. HARROWS. F. M. Davison, Rose Hill, Iowa. [Filed May 7, 1877.]

Brief.—The front coupling-bar of the couplings which connect the wings of the harrow

has a draft-chain attached centrally thereto, and stops are arranged under the rear coupling-bar, to limit the upward and downward movement of said wings.

190,882.

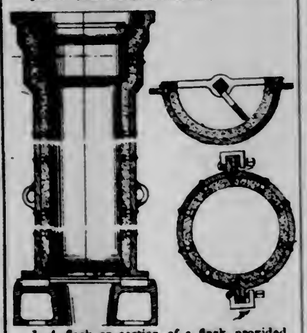


The couplings C and C', bolts *b*, and stops *f*, in combination with the wings A, having cross-bars B and B', the latter constructed with shoulders *a*, substantially in the manner and for the purpose set forth.

190,884. FIRE-PROOF METALLIC ROOFING. Alfred C. de la Martelliere, Paris, France. [Filed Apr. 21, 1877.]

The process of rendering metallic plates for roofing fire-proof, by first covering their surfaces with a coating of lead and tin, immersing these plates so covered in a bath of chloride of zinc and hydrochlorate of ammonia, and subsequently depositing thereon a covering of zinc, substantially as herein set forth.

190,885. MOLDING AND CASTING PIPE. J. K. Dimmick, Newport, Ky., assignor of one-fourth his right to F. A. Stine, same place. [Filed Sept. 20, 1876.]

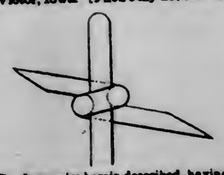


1. A flask or section of a flask, provided with inwardly-projecting lips or flanges at the parting, and also with inwardly-projecting tapering or headed studs at different points of the interior surface, substantially as and for the purposes specified.

2. In combination with a flask having two or more parts, the hinged screw-clamps F, connected and operating substantially as and for the purpose specified.

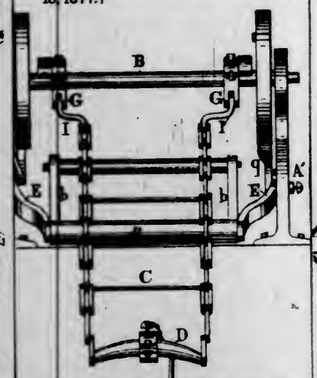
3. The combination, substantially as specified, of the flask, the sweep, and the sweep-frame, whose interior contour corresponds to the inner lines of the mold at the parting, so that the edges of the mold are protected thereby.

190,886. BARBED FENCE-WIRE. J. Dobbs, Victor, Iowa. [Filed July 29, 1876.]



The fence-wire herein described, having the interposed surface-grooves *a* running spirally around the wire, into which grooves the barb-wires are coiled or twined, substantially as specified.

190,887. FIRE-ESCAPES. Michel Durand, Montreal, Quebec, Canada. [Filed Jan. 16, 1877.]



1. In a fire-escape, the combination, substantially in the manner shown and described, of a drum, B, and a flexible ladder, C, connected thereto in such manner that the drum may turn forward, but not backward, without winding the ladder thereon.

2. The combination of the drum B and the flexible ladder C, connected thereto by means of the loose sleeves G and dogs N, substantially as shown.

3. In combination with the drum B and ladder C, the sleeves G and curved links I, as and for the purpose described.

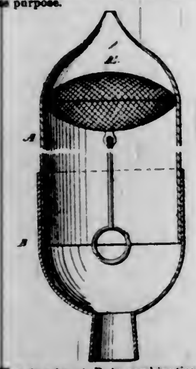
4. A pendent fire-escape ladder, provided at its lower end with a rotary curved or eccentric round, D, adapted to operate in connection with a fixed arm or bearing, to hold the foot of the ladder, as described and shown.

5. The combination of the frame A, drum B, brake-shoe *q*, arm E, and the hand-lever A', arranged to depress the arm and lock into a recess in the frame, as shown.

6. In combination with the drum B and flexible ladder C, the arm or lever E, provided at one end with the brake-shoe *q*, and sustaining at the other end the ladder-supporting roll *p*, whereby the ladder is caused to apply a variable pressure to the brake-shoe, as and for the purposes described.

190,888. INSECT-DESTROYERS. Charles H. Emerson, Waltham, Mass. [Filed Apr. 10, 1876.]

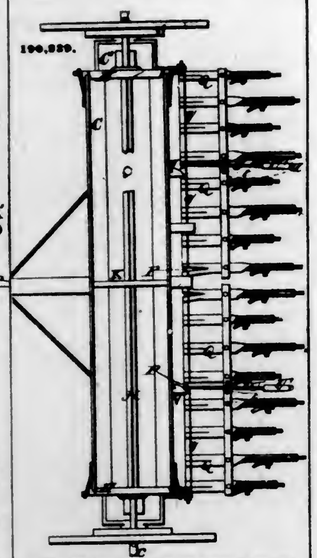
Brief.—The apparatus may be used for burning noxious substances, and applying the vapors thus produced to the destruction of insects, or as a poisonous powder-ejector for the same purpose.



The chamber A B, in combination with the spheroidal strainer E, constructed and operating in the manner and for the purpose substantially as herein described.

190,889. SEED-SOWERS AND CULTIVATORS. E. Emmert, Franklin Grove, Ill. [Filed Feb. 24, 1877.]

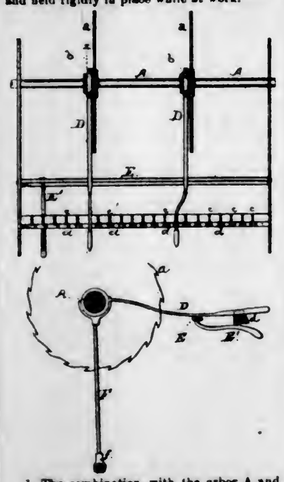
190,889.



The combination of bottom piece C', having front and rear rims C² and guide-strips C³, with perforated side pieces I, partition K, having lugs *j j*, and pieces H, having flanges H' H' H' and hooks H', substantially as shown and described.

190,890. GANG-EDGERS. David Evans and Wm. Snyder, Salmon Creek, Cal. [Filed Sept. 18, 1876.]

Brief.—A gang of circular saws for edging lumber can be adjusted to any desired width, and held rigidly in place while at work.

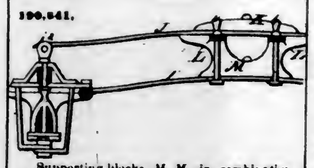


1. The combination, with the arbor A and gang of saws *a a*, of the index-bars D, the eccentric bar E, and the lever F, constructed and arranged substantially as described and shown.

2. The combination, with the arbor A and gang of saws *a a*, of the shaft G, the rods F, the index-bar D, the scale or index *d*, the eccentric bar E, and lever E', all constructed and arranged substantially as described and shown.

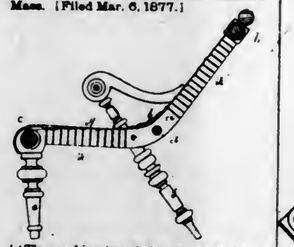
190,891. VEHICLE-SPRINGS. Wm. Foote, Fillmore, N. Y. [Filed Sept. 9, 1876.]

190,841.



Supporting-blocks M M, in combination with equalizing-bars L L, lower springs I I, and upper springs J J, pivotally attached to the rear axle and head-block, as described, the springs I I being arranged under the sides of the body and inside the springs J J, as and for the purpose set forth.

190,842. CHAIRS. F. H. Foster, Chelsea, Mass. [Filed Mar. 6, 1877.]



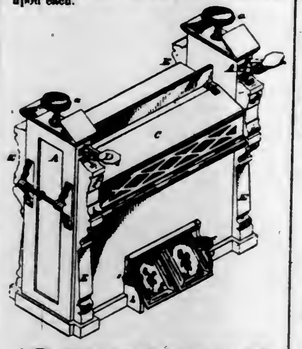
1. The combination of the curved frame A and its front legs *e e* with the back legs or levers *f f*, arranged obliquely to the seat and extended up and secured, as described, to the arms *g g*, arranged with and fastened to the frame A, all being substantially as set forth.

2. The frame A, provided with the longitudinal and transverse grooves *i k* arranged in it, substantially as represented.

3. The frame A, provided with the longitudinal and transverse grooves *i k* arranged in it, as described, in combination with the cord or cords *l* laid in such grooves and across the frame and interwoven, essentially in manner as shown and explained.

190,843. ORGAN-CASES. Levi K. Fuller, Brattleborough, Vt. [Filed Mar. 9, 1877.]

Brief.—The case is double-faced, the lamp-brackets especially well placed, and the pedal-opening has side brackets, with a foot rest upon each.



1. The combination of the elevated ends A A with the supporting-strip B and lid C, as and for the purposes substantially as set forth.

2. The combination of the elevated ends A A, constructed as shown, the stands *a a* fixed thereon, and the lower central portion of the case which contains the action, when arranged in the manner set forth.

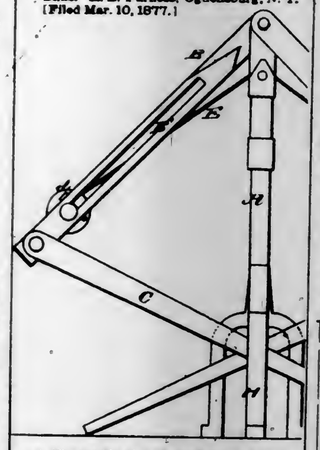
3. The elevated ends A A, raised above the central part containing the action, provided at their front edges, at a point above the action, with hinged lamp-stands, as shown, as and for the purposes specified.

4. The combination of the foot-rests *c c* with the pedal-brackets *b b*, when arranged substantially as and for the purpose set forth.

5. The combination, in an organ-case, of the two elevated ends A A, provided with handles F F, stands *a a*, and like corner-posts E E on opposite edges, with the lower central portion of the case containing the action, all arranged substantially as herein set forth.

6. An organ-case with elevated ends A A, provided at their rear edges with posts E E, in combination with a lower central portion containing the action, and provided with an open work strip, G, the same being for the purpose of permitting the sound to escape, and, at the same time, enhance the appearance of the rear of the organ, all as and for the purpose set forth.

190,844. QUILTING-FRAMES AND CLOTHES-RACKS. A. B. Furness, Ogdensburg, N. Y. [Filed Mar. 10, 1877.]

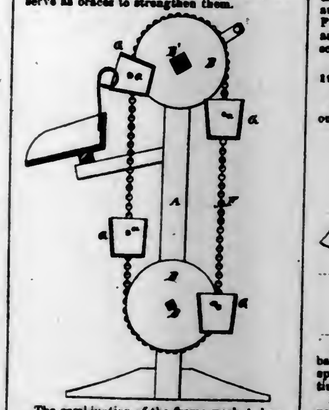


1. The combination of standards A A, having tripod-supports H H, with arms B B and props C C, adapted to be folded transversely to form a clothes-rack, substantially as and for the purpose set forth.

2. The combination of standards A A with slotted and perforated arms B B, props C C, rollers D D, crank-shaft F, and belt-gearing, substantially as and for the purpose set forth.

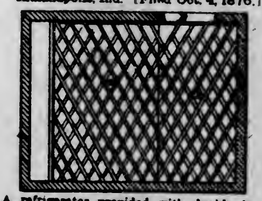
190,845. WATER-ELEVATORS. Thos. Gamble and Jere. Wagner, Martinsville, Ill. [Filed Mar. 7, 1877.]

Brief.—The ends of the rods project beyond the ends of the buckets, and have bearings in the links or loops made for them in the chains. On the ends of the rods are buttons, to prevent them drawing out of their bearings. These rods are secured to the buckets, and serve as braces to strengthen them.



The combination of the frame-work A, having an upper and lower shaft, B', each provided with grooved pulleys B, the two endless chains F, and tapering buckets G G, pivoted thereto by the headed rods at points above their horizontal centers, all substantially as set forth.

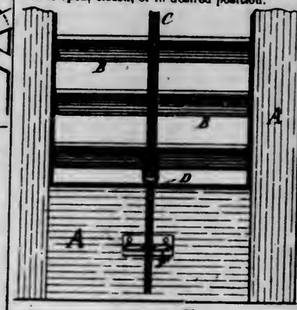
190,846. REFRIGERATORS. Simon Gasper, Indianapolis, Ind. [Filed Oct. 4, 1876.]



A refrigerator provided with double inclined shelves for holding the ice-supply, immediately beneath which is a cold air chamber into which the cold air and drip-water flow from the shelf, the inlet openings to the ice-chamber and outlets from the cold-air chamber being opened and closed from communication with the main chamber by means of suitable slides co-operating through, connecting-levers, with the entrance-doors, substantially as shown and described.

190,847. BLIND-SLAT ADJUSTERS. Homer Gaylord, Oskaloosa, Iowa. [Filed Apr. 9, 1877.]

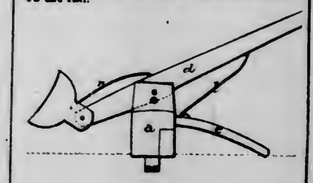
Brief.—A slotted wedge sliding laterally on the loop, connecting a forked and notched arm with the operating-rod, serves to tighten the loop in the notches, and thus hold the blind-slats open, closed, or in desired position.



In a blind-slat adjuster, the combination of the movable slats B, operating-rod C, forked and notched arm D, loop E, and slotted wedge F, all arranged and operating substantially as and for the purpose herein shown and described.

190,848. CAR-PUSHERS. Jos. B. Gearhart, West Decatur, Pa. [Filed Apr. 26, 1877.]

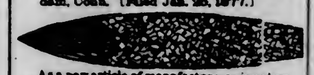
Brief.—The clamp *g* firmly holds the pusher on the rail.



1. The combination, in a car-starter, of the base *a*, brace *c*, lever *d*, two gripping-jaws, and spring *i* with the spring *i* and shoe, substantially as specified.

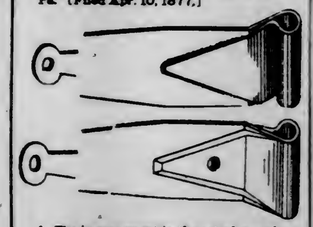
2. The base *a*, having a recess in its lower part, in combination with the two gripping-jaws and spring *i*, substantially as set forth.

190,849. CIGARS. M. Gelston, East Haddam, Conn. [Filed Jan. 26, 1877.]



As a new article of manufacture, a cigar having a tapering tip filled with straight cuttings of tobacco-leaf, as set forth.

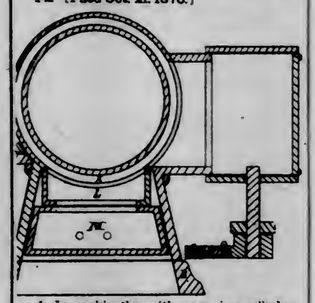
190,850. MANUFACTURE OF HINGES. L. B. Gunman, Upper Dublin, assignor of one-half his right to C. B. Burk, Philadelphia, Pa. [Filed Apr. 10, 1877.]



1. The improvement in the art of manufacturing hinges, consisting in stamping or pressing the lap or end bent to form the eye into the strap or leaf, substantially as shown and described.

2. As a new article of manufacture, a metal hinge having a cavity or recess formed in the strap or leaf, and the lap or end bent to form the eye pressed therein, substantially as shown and described.

190,851. STEAM-ENGINES. L. H. Hall, Erie, Pa. [Filed Oct. 21, 1876.]



1. In combination with an engine-cylinder from which the exhaust steam is discharged between the walls of the engine frame or bed, a heater located between, and supported by, the said walls of the bed or frame, as and for the purposes mentioned.

2. A steam-engine having the following arrangement of parts: a cylinder which has a surrounding shell, which terminates between the walls of the frame in an extension, L, which extension connects with the heater M, which is located between, and supported by, the walls of the said frame, said ports being connected with the piston-chamber of the cylinder by a steam-chest located in a depression of the side of the frame, at a point low enough to admit of the free flow of condensation from the piston-chamber into the exhaust-chamber of the valve, thence into the extension L, and thence into the heater M, said arrangement of ports being substantially as and for the purposes set forth.

190,852. BALING-PRESSES. J. B. Hanger, Richmond, Va. [Filed Apr. 11, 1877.]

1. The combination of the wheels I I, the flexible bands J J, surrounding the wheels and having their ends attached to pins *b b'*, the forked and slotted levers H H, the revolving double-crank shaft *d*, and the springs K K, all substantially as and for the purposes herein set forth.

2. In a baling-press, a reciprocating follower, arranged to advance the entire length of the stroke at an angle, causing one part of the material to be pressed first, then, at the completion of the stroke, tilting to an opposite angle to press the other part of the material, and then recede at said latter angle back to the rear end of the box, by the means substantially as and for the purposes herein set forth.

3. The combination, with the rotating double-crank shaft *d*, of the slotted and forked levers H H, flexible bands J J, wheels I I, pivot *a*, stem G', and follower G, having its lower edge beveled, all constructed substantially as and for the purposes herein set forth.

4. The head L, provided with the teeth *i*, and attached to the pivoted side bars L', in combination with the follower G and bent lever *m*, substantially as and for the purposes herein set forth.

5. The triangular lugs *h*, attached to the pivoted frame M, in combination with the follower G, stem G', and lever N, with pin *n*, substantially as and for the purposes herein set forth.

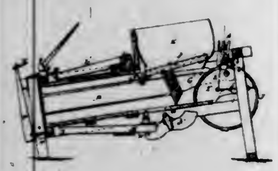
6. The hopper-bottom D D', constructed as described, and acting as a feeder, by making one-half a revolution at each backward stroke of the follower, substantially as herein set forth.

7. The combination of the hopper-bottom D D', having longitudinal grooves *x* in its side bars, the pins *p p*, and the reciprocating follower G, formed with the shoulders or offsets *e*, and provided with the friction-rollers *s*, substantially as and for the purposes herein set forth.

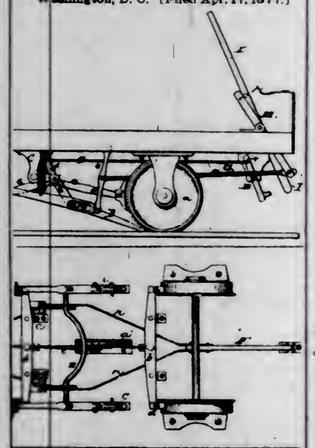
8. The combination of the hinged door or gate C, the hinged lever F, with loop *w*, and the scale-beam R, having hook *y*, with weight and the pin *z*, substantially as and for the purposes herein set forth.

9. The bottom D D', constructed and operating as described, to act as a bottom for the hopper, a feeder for feeding the material from the hopper to the bale-box, and also as part of the top of the bale-box, to hold the material down in front of the follower, substantially as herein set forth.

190,853.



190,853. CAR-STARTERS. C. A. Harvey, Washington, D. C. [Filed Apr. 17, 1877.]



1. The combination of the pinch-bars D D, being below the platform, their operating devices connected to the lever H, the brake-shoes *d*, their operating devices connected to the lever B, and the hand-lever I, arranged to lever both on the lever B and on the lever H, substantially as set forth.

2. The combination, with the toggles attached to the brake-bars of an arm, *f*, interposed between the toggles and the platform, pivoted at one end, and having a sliding bearing at the other, substantially as set forth.

3. The pinch-bars D, their links *h h*, in combination with the devices, substantially as described, for applying the power to elevate and depress the bars to the joints *f*, as set forth.

4. The combination of the bars D, their links *h h*, cross-rod E, lever F, and toggles *o'*, operated from a lever on the platform, as specified.

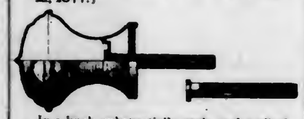
190,854. VENTILATING-PILLOWS. Jas. T. Hatfield, Hoboken, N. J. [Filed Mar. 13, 1877.]



1. A pillow constructed of the end pieces *a a*, connecting-rod *b*, and fabric *d*, substantially as herein shown and described.

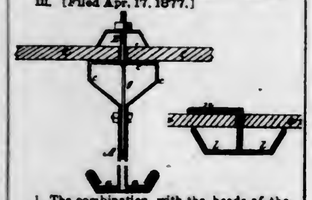
2. A folding pillow constructed of the end pieces *a a*, connecting-rod *b*, and fabric *d*, the end pieces being hinged to the connecting-rod, substantially as specified.

190,855. METAL KNOBS. A. B. Hendryx, Ansonia, Conn., assignor to Hendryx & Bartholomew, same place. [Filed Apr. 21, 1877.]



In a knob substantially such as described, the threaded shank attached to the outer or ball portion of the knob, to prevent them from turning one upon the other, combined with the base seated upon the ball portion, and the nut forming a part of said base, threaded to correspond with the thread of said shank, all substantially as described.

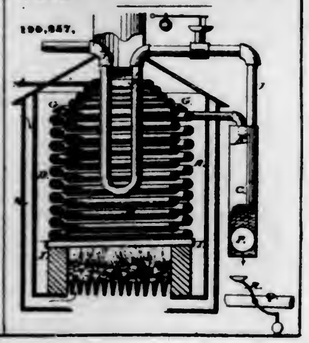
190,856. SKYLIGHTS. J. Henry, Chicago, Ill. [Filed Apr. 17, 1877.]



1. The combination, with the heads of the skylight bar or rafter A—said heads being formed in one piece—of the bolts E having the shoulders *h*, all arranged as shown and described, whereby the latter abut the under side of the flat top of the heads, and support the same in the manner described.

2. The double gutter-joint, formed of a single plate of sheet metal, having the two gutters *l l* and bent-top flange *n*, as shown and described.

190,857.



190,857. WATER-TUBE STEAM-GENERATORS. J. B. Herreshoff, Bristol, R. I., assignor to himself and Sarah L. Herreshoff, same place. [Filed May 3, 1877.]

1. In combination with a coil-boiler and separating-vessel, a steam-trap adapted to trap out the water from such separating-vessel, as herein specified.

2. The combination of the trap P, vessel C, and coil A' with a device, R, for regulating the quantity of water fed to the coil, as herein specified.

190,858. CAR-COUPLINGS. P. Hien, Rock Island, Ill., assignor to Sarah Hien and B. D. Buford, same place. [Filed Feb. 16, 1877.]

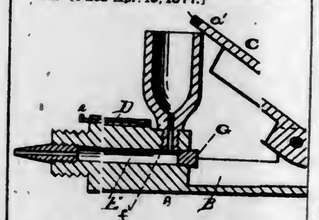


1. The combination, in a car-coupling, of the head A and the pivoted lever B, having the jaw *d* and the arm *b*, adapted to a recess in the said head, with the block *i*, adapted to the recess *e* between the lever B and the draw-head, substantially as shown and described.

2. The combination of the lever B with a coupling-head having a yoke, E, as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

190,859. COMBINED CANE AND PIPE. N. L. Hirsch and W. M. Ettinger, Philadelphia, Pa. [Filed Apr. 19, 1877.]



1. The pipe-cane with a bowl-receiving chamber, B, in combination with the covering-cap C, connected to the cane, and constituting an integral portion thereof, substantially as and for the purpose set forth.

2. In a pipe-cane, a bore formed in the cane, whereby the cane constitutes the stem of the pipe, substantially as set forth.

3. The bore E, formed with the passage *f*, and communicating with the chamber B of the cane, substantially as and for the purpose set forth.

4. The cane with chamber B, in combination with the cap C, having a tongue, *a*, substantially as and for the purpose set forth.

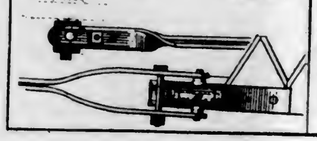
5. The cane with bore E and passage *f*, in combination with the cap C, having tongue *a'*, substantially as and for the purpose set forth.

6. The cane with chamber B and cap C, in combination with the fastening-rod D, substantially as and for the purpose set forth.

7. The plug G, in combination with the bore E and chamber B, substantially as and for the purpose set forth.

8. The removable cane-head F, inclosing the mouth-piece J, substantially as and for the purpose set forth.

190,860.

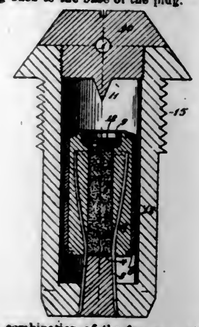


190,860. PITMEN. H. L. Hopkins, Manchester, Iowa. [Filed Apr. 24, 1877.]

A pitman, substantially such as described, composed of two separate bars, bent to form forks at the ends, where they are connected together, so that the bars can independently adjust themselves to compensate for deviations in the alignments of the journals and bearings.

190,861. PERCUSSION-FUSES. Benjamin B. Hotchkiss, New York, N. Y. [Filed Jan. 31, 1877.]

Brief.—The plunger is held from forward movement and from rotation by the wires extending back to the base of the plug.

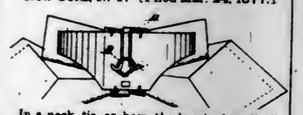


1. The combination of the fuse-case, plunger, and two detent wires or legs, 3 3, substantially as described.

2. The combination of the plunger, detent-wire 3, and fuse-case, provided with a socket, 21, substantially as described.

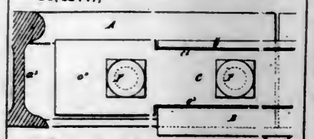
3. A percussion-fuse, consisting of a case and plunger, carrying powder, provided with devices, substantially as described, which prevent the rotative movement of the plunger within the case.

190,862. NECK-TIE RETAINERS. L. Hussey, New York, N. Y. [Filed Mar. 24, 1877.]



In a neck tie or bow, the herein-described combination of the curved-laterally elastic metallic guide D with the elastic loop B, all arranged substantially as and for the purpose herein set forth.

190,863. RAILROAD-RAIL JOINTS. A. B. Ibbotson, Florence, Italy, and Fred. J. Talbot, Sheffield, England. [Filed Mar. 30, 1877.]



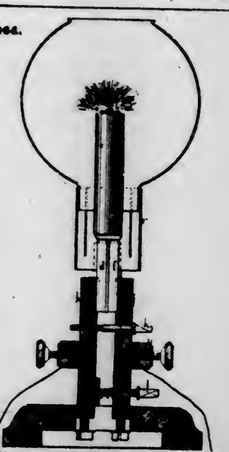
1. The combination, with the rails A and clip B, embracing said rails, of the elongated fish-plates C, having the projecting ends *c'*, constructed to be connected with the rails beyond the ends of the clip B, and, bearing against the rails at such places, support the same in position, substantially as and for the purpose described.

2. The clips B, constructed at their base portions with one or more openings, for discharging sand or dust collecting between the ends of the rails, substantially as and for the purpose described.

3. The fish-plates C C, constructed with the ends *c'* of a greater width than the central portion of such fish-plates, in combination with the rails A and clip B, substantially as and for the purpose specified.

190,864. CARBONS FOR ELECTRIC LIGHTS. Paul Jablochkoff, Paris, France. [Filed Dec. 30, 1876.]

190,864.



1. The herein-described electric candles, composed of two sticks of coal arranged in a suitable case, and separated from each other and from the case by an isolating fusible powder or material, substantially as described.

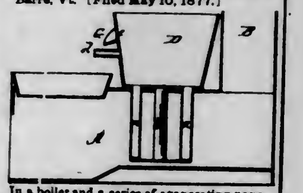
2. The support for such candles, consisting of the pair of adjustable jaws *h i*, arranged with non-conducting base, and substantially as specified.

190,865. COMPOSITION SEALS FOR BOTTLES AND JARS. C. M. Jacob, Paris, France. [Filed Oct. 24, 1876.]

Brief.—Immerse the corked bottle in the compound; may then coat with varnish and with an alkaline silicate.

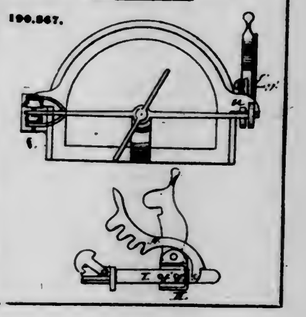
A seal for bottles, jars, &c., consisting of a composition of pyroxyline or gun-cotton, mixed with alcohol or a similar solvent, applied to the vessel after the same has been corked or closed, substantially as described, whereby the same is hermetically sealed, as set forth.

190,866. SOAP-BOILERS. J. M. Jackman, Barre, Vt. [Filed May 10, 1877.]



In a boiler and a series of evaporating-pans used in the manufacture of soap, the boiler D, provided with a series of vertically-depending tubes, the receiving-pipe *b*, and exit-pipe *d*, and also the opening *e* and ledge G, for conducting the overflow to the first exit-pan, in combination with the evaporating-pans, the furnace A, and chimney B, as heretofore described, and for the purposes set forth.

190,867.



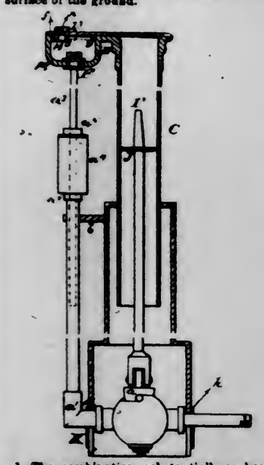
190,867. FASTENINGS FOR GAS-RETORT LIDS. Nicolaus Jamin, New York, N. Y. [Filed Apr. 12, 1875.]

1. In retort-lid fastenings, the adjustable latch-carrier I, provided with holes f', in combination with the slotted guide-box H and pin f', substantially as specified.

2. The supplementary multi-toothed latch N, in combination with the latch carrier I, substantially as described.

190,868. CUT-OFFS FOR GAS AND WATER PIPES. Fredk. Jarecki, Erie, Pa. [Filed Mar. 24, 1877.]

Brief.—The street-washer has an extensible water-pipe and an extensible cut-off casing. Both can be adjusted together, and can be adapted to the depth of water pipe below the surface of the ground.



1. The combination, substantially as hereinbefore described, of a street-washer, having extensible water-pipe and an extensible cut-off casing, whereby the street-washer pipe and casing can be adjusted together simultaneously.

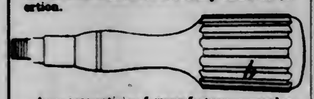
2. A street washer or hydrant, provided with a vertical extension water-pipe, which is adapted to be lengthened or shortened at will, and communicating with the main pipe, substantially as and for the purpose set forth.

3. Cut-off rod I, having collar J and flattened upper end I', in combination with cock a and cylinder C, substantially as and for the purpose set forth.

4. The combination of cover G, having button H, with cup R, having lip f, plate D, and tube C, substantially as set forth.

190,869. SCREW-DRIVER HANDLES. E. A. Johnson, East Haven, Conn., assignor to himself and J. J. Tower, Brooklyn, N. Y. [Filed Apr. 20, 1877.]

Brief.—The handle of the driver is grooved longitudinally, to enable the workman to grasp and turn it without unnecessary strain or exertion.

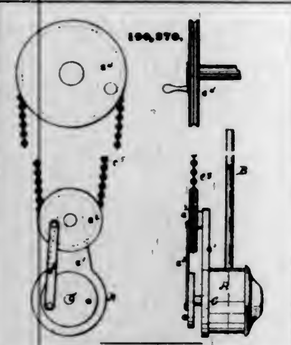


As a new article of manufacture, a wooden tool-handle with longitudinal grooves in the surface thereof, as set forth.

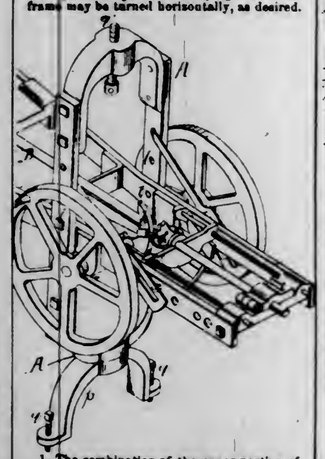
190,870. PUMPS. Henry M. Jones, West Meriden, Conn. [Filed Mar. 6, 1877.]

Brief.—The pump-barrel and its contained operative valves are immersed in the water at the bottom of the well, and are operated by suitable gear, extending upward to the surface of the ground.

In combination with the shaft C, carrying valve-arms e and e' in a submerged pump-box A, having valve-partition D, suspending pipe B, and opening d', the wheel e, chain-pulley e', rod e^3, hand chain-pulley e^4, and chain e^5, all arranged as described, to operate as and for the purpose specified.



190,870.



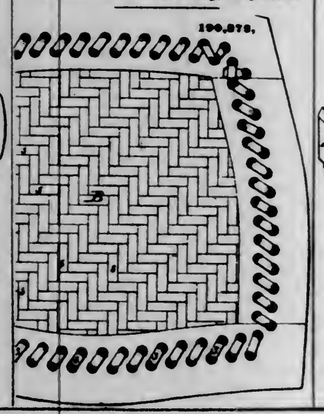
190,871. ROCK-DRILLING MACHINES. O. B. Keeley and J. Fleming, Spring City, assignors to themselves and E. S. Shantz, Philadelphia, Pa. [Filed Mar. 19, 1877.]

Brief.—The standard carrying the drill-frame may be turned horizontally, as desired.

1. The combination of the upper portion of the standard A, and the drill-carrying frame pivoted to said upper portion, with the lower portion p of the standard pivoted to the upper portion at w, as set forth.

2. The combination of the upper portion of the standard A, carrying the drill-frame, and provided with a central screw, g', at the top, with the lower pivoted portion p, as specified.

190,872.

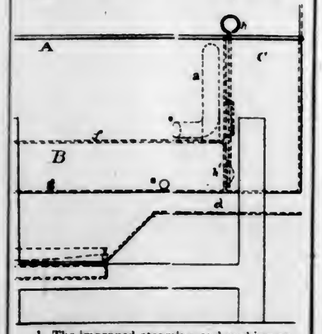


190,873. CHAIR BACKS AND SEATS. H. C. Knowlton, Gardner, Mass. [Filed Oct. 9, 1876.]

A marginal frame for chair seats or backs provided with a double series of strand-receiving holes, each bored vertically, or substantially parallel each with the other, the holes of one series alternating in position with those of the other series, as and for the purpose set forth.

190,873. STEAM FEED-COOKING APPARATUS. C. Kramer and W. Kramer, Upshur, Ohio. [Filed Apr. 24, 1877.]

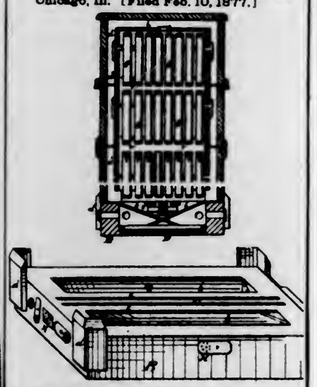
Brief.—By means of the valve the water-boiler is supplied with water from the reservoir.



1. The improved steaming and cooking apparatus, consisting of the water-boiler B, upon which rests the cooking-tank A, having steam-discharging pipes connecting directly with the boiler, and rising to a level with the top of tank, and with a U-shaped bend returning again to near the bottom and there discharging into the mass of food, substantially as shown and described.

2. In an apparatus for cooking feed by steam, the water-boiler B, directly over the furnace and flue, and the cooking-tank A, resting on the boiler, and having steam-discharging pipes, and the water-reservoir C, at the rear end of boiler and tank, and resting on the flue, which also passes up behind the reservoir, with the valve h' and the rod, all arranged as shown and described, and for the purpose specified.

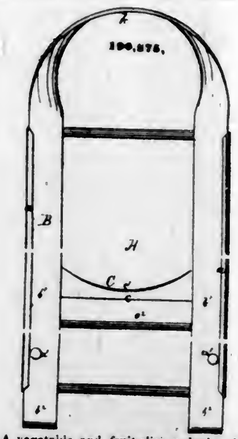
190,874. BEE-HIVES. G. Kraetzer, South Chicago, Ill. [Filed Feb. 10, 1877.]



The moth-trap for bee-hives, described, consisting of the frame B having the ventilating-holes H, the inclined glass plates b b with a space between their lower edges, the sliding bottom D extending the whole length of the said frame, and the stiles C c c, all constructed and arranged substantially as described and shown.

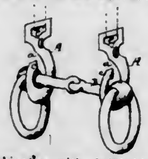
190,875. VEGETABLE-SLICERS. Jos. Kuchinka, Cleveland, Ohio. [Filed Dec. 29, 1876.]

190,875.



A vegetable and fruit slicing device, having the table A mounted on frame B, composed of arms b^1 and handle b, and provided with the cutter C, composed of knife-edge c, depressed lip c^1, and transverse inclined plate c^2, as described.

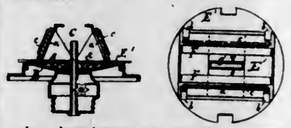
190,876. BRIDLE-BITS. F. B. Kuehnhold, Newark, N. J. [Filed Apr. 2, 1877.]



The combination, with a bridle-bit, B, jointed at the center, of the detachable hooks A contracted at c, substantially as and for the purposes set forth.

190,877. LAMP-BURNERS. E. C. Lawrence, Chicago, Ill. [Filed Feb. 8, 1877.]

Brief.—The plate prevents the rising of air at the edges, and permits it at the sides of the wick-tube.



In a lamp-burner, the plate E', arranged above the air-distributer C, and provided with the opening through which the wick-tube passes, the side walls thereof adjusted to fit against the edges of the wick-tube, and forming the openings e e on the sides of the wick-tube, substantially as and for the purpose described.

190,878. HOES. J. S. Lester, Atlanta, Ga. [Filed Mar. 26, 1877.]

Brief.—A reversible hoe, the blade being secured to a metallic head, with two projecting lugs, and a light strap fastened across with a screw.



The head A, provided with the lugs a, c, and d, and constructed substantially as represented, in combination with the blade D, the strap E, and screw e, as and for the purpose set forth.

190,879. SAFETY-COLLARS FOR LAMPS. J. H. Lewars, Philadelphia, Pa., assignor of two-thirds his right to D. McCarty and E. A. Collins, same place. [Filed Mar. 31, 1877.]



For combination with the fixed collar of the oil-chamber of a lamp, the independent collar c, provided with a vent-hole, e, and valve d, the latter made of an elastic piece of sheet metal, and operating as described, the whole constructed as specified, for the purpose set forth.

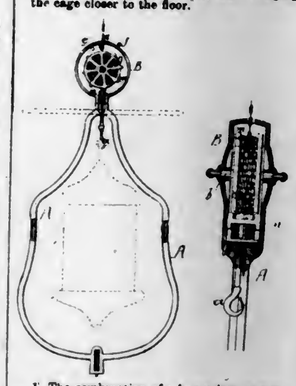
190,880. BOB-SLEDS. Johan Littfin, Oshkosh, Wis. [Filed Feb. 7, 1877.]



The hub A, saddle B, runner C, bolts D', and brace-rod E, combined substantially as shown and described, for the purpose specified.

190,881. BIRD-CAGE SUPPORTS. Francis W. Long, Philadelphia, Pa. [Filed Mar. 30, 1877.]

Brief.—A wheel revolved to the right by the action of a spring located near its axis is journaled in a frame, and has a chain extending around it, said chain passing through a slot in the frame up to and through a staple in the ceiling, and hence again to the frame, where it is fastened to a hook. The wheel has stops arranged upon its circumference, which engage with a spring-acted pawl, thereby preventing the revolution of the wheel. The pawl may be disengaged from the stop on the wheel by pressure upon the lower end of the sliding bar, which carries it, allowing the wheel to revolve and pay out the chain, thus bringing the cage closer to the floor.



1. The combination of a frame, bar, or case, from which the cage or other article is suspended, a cord or chain, d, a spring-drum, D, and devices for locking and releasing the said drum, all substantially as set forth.

2. The combination of the suspension-cord d, the spring-drum D, and its projections m, and the spring-bolt a, as specified.

3. The combination of the cord or chain d with the casing B, its drum D, openings e and e', and hook f, as set forth.

4. The combination of the spring-drum D and spring-locking bolt a with the frame A, made in two parts, one of which controls the movement of the bolt, as specified.

190,882. COMBINED LAMP CHIMNEY, SHADE, AND GLOBE. G. W. Martin, Chelsea, Mass. [Filed Feb. 10, 1877.]

1. The combined lamp chimney, shade, and globe, consisting of the bulb A, with its reflecting-surface, connected by shoulder e with conical portion d, also provided with reflecting-surface, and arranged substantially as specified.

2. The combined lamp chimney, shade, and globe, consisting of the base-bulb A, surmounted by a conical portion, d, the base of which has a horizontal re-entrant portion, e, at right angles, or nearly so, to the walls of the conical portion, which latter is of greater horizontal and vertical dimensions than the globe, and connected to the globe by a concave neck, b, substantially as specified.

3. The combined lamp chimney, shade, and globe, consisting of the base-bulb A, surmounted by the conical reflecting-wall d, the base of which is connected to the neck of the globe by a transparent shoulder, e, through which the light passes from the interior reflecting-surface of said wall, substantially as specified.

190,883.



190,883. FRUIT-CRATES. Joshua H. Marvil, Laurel, Del. [Filed Jan. 22, 1877.]



1. A barrel or crate for shipping fruit, consisting of staves A, attached to the bottoms, and connected at their upper ends to the interior and exterior hoops e and d, said staves being expanded at their central portion, and held in such position by an exterior hoop, e, connected with the staves by nails, substantially as and for the purpose described.

2. A crate composed of a series of staves, expanded at their center to create spaces m, perforated bottom and head, and bottoms e, provided with recesses f, attached to the same, substantially as described.

3. The combination, in a crate, of the staves, expanded at their center to create intervening air-spaces, and held in such position by a hoop or band, the perforated head and bottom, and a central floe or floes within the crate, constructed to ventilate the central portion of the latter, substantially as described.

190,884. SAFETY-VALVES. S. J. Maurel and Chas. L. Trual, Marseilles, France. [Filed Feb. 19, 1877.]



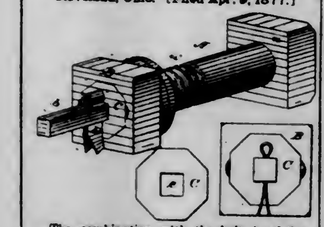
1. The valve *a*, provided with the tabular stem *k*, the two concentric annular projections *b* and *c* on its under side, and the annular projection *i* on its upper side or face, as shown and described.

2. The box *f*, provided with double seatings *d* and *e*, adapted to the annular projections *b* and *c* of the valve, and with an annular chamber, *g*, communicating with and having its outlet in the discharge-nozzle *h*, as shown and described.

3. In combination with the rod *m*, constructed with the cylindrical and triangular portions, as described, the cover *j*, with its chamber *s*, having the lateral discharge *s'*.

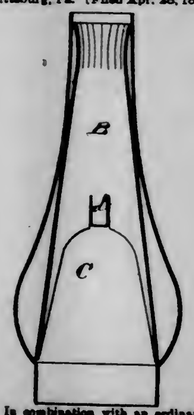
4. The central rod *m*, subdivided in cylindrical and triangular-shaped sections 1 to 2, 2 to 3, and 3 to 4, with its lower and upper knife-edged disks *n* and *o* and weight *r*, for the purposes stated.

190,885. NUT-LOCKS. Joseph A. McCray, Cleveland, Ohio. [Filed Apr. 9, 1877.]



The combination, with the bolt A, of the nut B, provided with an angular recess in its face, the angular plate C in said recess, and spring-key D, substantially as described and shown.

190,886. LAMP-CHIMNEYS. J. McMurtry, Pittsburg, Pa. [Filed Apr. 28, 1877.]



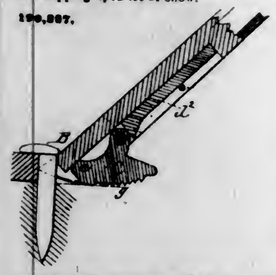
1. In combination with an ordinary glass chimney, the sheet-metal tube B, formed with slits *a* and tongues *b* at its upper end, and constructed substantially as and for the purposes described.

2. In combination with an ordinary glass chimney, the sheet-metal tube B having slits *a* and tongues *b* at its upper end, and one or more openings, C, at its lower end, with lips *d* above such openings, substantially as and for the purposes described.

190,887. CLAW-BARS. C. A. Miller, Marshalltown, Iowa. [Filed Mar. 26, 1877.]

Brief.—The claw-bar is provided with a longitudinal slot in its under side, near the claw, in which is secured an abutting-bar, the lower end of which bears against the tongue of a pivoted segmental fulcrum-piece, provided with corrugations in its lower surface, to prevent slipping upon ice or snow.

190,887.

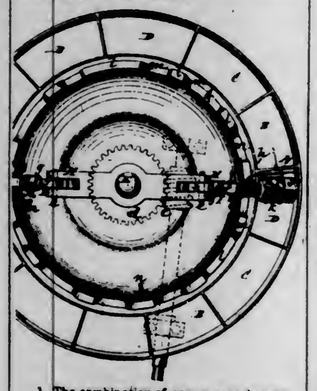


1. The abutting bar, adapted to be removed and cut off to assume a corresponding place in the shortened claw-slot, and for the changed position of the fulcrum-piece, for the purpose of dressing, as herein set forth.

2. The combination, in a claw-bar, of the lever A, having the claw B and longitudinal slot *a*, with the abutting bar *d*² and fulcrum-piece C, constructed to operate as shown and described, and for the purpose specified.

190,888. SOLDERING-MACHINES. H. Miller, New York, N. Y. [Filed Apr. 26, 1877.]

Brief.—Rotates horizontally a central hub and spokes, to which the can-holders are pivoted, to rise and fall vertically as they pass over a sinuous stationary track. Thus the cans are dipped successively into a flux, a solder, and a cooling-bath; then each holder is tripped, and revolved on its axis a quarter-turn, to present another side of the can to a second series of baths. The furnace and its overhead baths may be rotated about the central stand to bring any bath under any can, and to cause the cooling-bath to be skipped, if desired. A brush may be fitted to the acid-tank, to rub the flux onto the tin plate. The series of baths may be in a right line, and the cans reciprocated over them.



1. The combination of one or more traversing can-carriers, having also an intermittent rising and falling motion, with one or more series of troughs, into which the cans or vessels to be soldered are successively dipped, and from which they are successively removed, by said rising and falling motion during the traversing motion of the carriers, substantially as specified.

2. The combination, with one or more traversing can-carriers and one or more series of troughs, of a sinuous track or device, organized to project the can to be soldered into each trough in succession, and to remove it therefrom while passing from one trough to another, essentially as described.

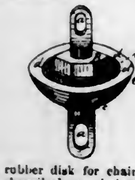
3. The combination, with means for communicating to the traversing can-carriers an intermittent rising and falling motion as they successively pass through or over and from a series of troughs, of means for turning or rotating the chucks which hold the cans, substantially as specified.

4. The combination of the circular sinuous track G, with the rising and falling can-carriers I, arranged to rotate on and around said track, the inclined shafts *g*, provided with clasps or chucks for holding the cans, and two or more series of troughs, B, C, D, substantially as and for the purposes herein set forth.

5. The skimmer N, in combination with the traversing and rising and falling can-carriers I, and the troughs through which the cans are successively traversed by said carriers, essentially as described.

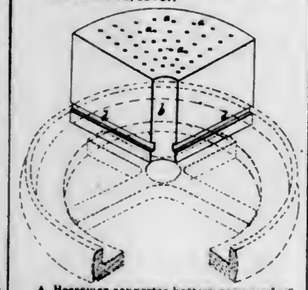
190,889. CHAIN-PUMP BUCKETS. H. Miller, Macon City, Mo. [Filed Apr. 17, 1877.]

Brief.—When it is desired to expand the rubber disk, the groove receives the bulk of the rubber as it expands from the center, thus causing the periphery of the disk to expand without getting hard.



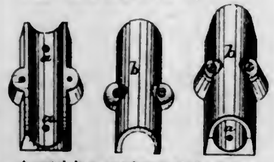
The rubber disk for chain-pump buckets herein described, consisting of cup-shaped body C, having flat surface *d* and circumferential groove *d'*, substantially as and for the purpose herein shown and specified.

190,890. BOTTOMS FOR BESSEMER CONVERTERS. E. J. Mildren, Black Lick, Pa. [Filed Dec. 28, 1876.]



A Bessemer converter bottom composed of a series of sector section pieces, the sections being perforated vertically for the equal distribution of the blast, and provided with radial face grooves or channels for securely interlocking them in place, substantially as herein set forth.

190,891. HARNESS-SADDLE LOOPS. E. P. Monteith and Geo. V. Mesick, Plainwell, Mich. [Filed Sept. 15, 1876.]



A metal loop consisting of the two parts A B, and adapted to be united and attached to a gig-saddle, substantially in the manner and for the purpose specified.

190,892. HORSE HAY-RAKES. Ben Morse and E. F. Morse, Ithaca, N. Y. [Filed Oct. 24, 1876.]

1. The combination of the grooved bar *a*, hinged in rear of the axle, the bar *b*, attached to the bar *a*, and the bent rake-teeth, said parts being arranged substantially as described.

2. The combination of lever *h*, stop or catch *v*, or its equivalent, and lever *j*, to which a power is applied for the purpose of automatically adjusting the teeth to the ground, and to assist in raising them, substantially as set forth.

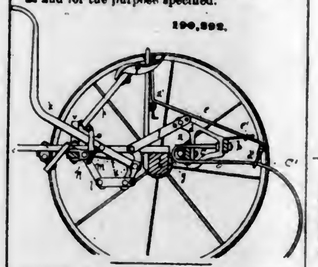
3. The combination of stop *t* on arm *m* with stop or hanger *s*, substantially as and for the purpose specified.

4. The combination of stop *n* on lever *j* with lever *k*, for the purpose specified.

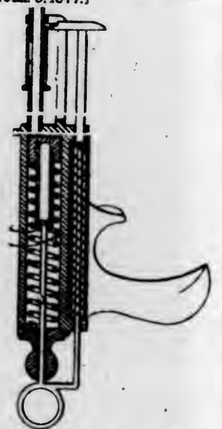
5. The combination of seat-lever *p*, lever *j*, lever *k*, and catch *s*, substantially as and for the purpose specified.

6. The bent rods *a' a'*, rigidly attached to cleaner-bar *w*, and hinged to standards *b' b'*, in combination with the movable arms *c' c'*, as and for the purpose specified.

190,892.



190,893. SPRING AIR-GUNS. P. O'Connor and Jno. J. Dinnan, New Haven, Conn. [Filed Jan. 6, 1877.]



1. Rods C and F, cross-bar *a*, ring B', and disk G rigidly attached, substantially as and for the purpose set forth.

2. Rods C and F, cross-bar *a*, and ring B', in combination with replacing-spring O and tube C', substantially as set forth.

3. The combination of barrel K, having opening *k*, with sleeve M, having annular flange *m*, stud or finger G' on disk G, rods C and F, piston D, and spring O, substantially as described.

4. The combination of spring-retracted rod F, carrying stud or finger G', with flanged sleeve M and slotted or perforated barrel K, substantially as described.

5. A pistol provided with an impelling-piston and piston-rod, in combination with devices, substantially as described, attached thereto, whereby the said pistol may be cocked either by pressure applied near the front of cylinder or by draft applied at the breech.

6. The combination of trigger I, having guard I', set-screw *i*, and recess *i'*, with sear H, having horn or catch *h*, and sear-spring *h'*, substantially as set forth.

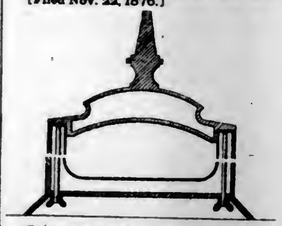
190,894. LAMPS. L. H. Olmsted, Brooklyn, N. Y. [Filed May 1, 1877.]

The chimney-holder composed of an elastic device, *g*, for clasping the wick-tube, the base plate *e*, and the upwardly-projecting fingers *f*, the whole combined and arranged for use substantially as described.

190,894.

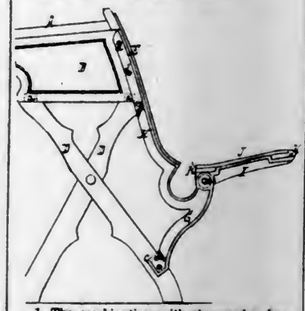


190,895. WATER-URNS. H. A. Parker, West Meriden, Conn., assignor of one-half of his right to Jno. H. Parker, same place. [Filed Nov. 22, 1876.]



The herein-described improvement in double-walled vessels, consisting of the base, the outer shell, and inner vessel, each constructed independent of the other, but seated one upon the other, and the three parts secured together by a connection between the inner vessel and the base, substantially as specified.

190,896. SCHOOL-DESKS. J. Peard, Brooklyn, N. Y. [Filed Apr. 18, 1877.]



1. The combination, with the wooden legs D, the end pieces B, the top A, and back E, of seat-supporting standards G, provided with flanges at their bottom ends, and with flanged arms H extending upward, substantially as and for the purpose set forth.

2. The combination, in a school-desk, of the veneer back E, top A, and rails F I, substantially as and for the purpose shown and described.

3. The combination, with the veneer seat J and seat-supporting arms I, of rails K, for connecting the seat and the arms, substantially as set forth.

190,897. SEWING-THIMBLES. Nathan T. Porter and Thos. Porter, New York, N. Y. [Filed Apr. 10, 1877.]



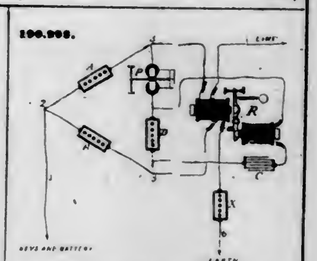
1. A sewing-thimble constructed with a top which is parallel with its base, and having one or more flat indented sides.

2. In a thimble with cylindrical sides, a top parallel with its base.

3. In a thimble, one or more flat indented sides extending from at or near the base of the thimble to the upper edge of the same, the flat sides being integral with the body of the thimble, substantially as and for the purpose described.

190,898. QUADRUPLEX TELEGRAPHS. Geo. B. Prescott, New York, N. Y. [Filed Apr. 22, 1876.]

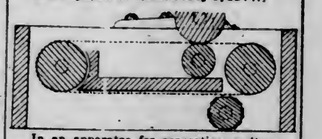
190,899.



1. A receiving-instrument composed of a differential magnet whose opposing coils are respectively included in the circuit of the main and of the artificial line, in combination with an auxiliary magnet, so arranged as to be operated by the charge or discharge of a condenser.

2. A receiving-instrument provided with two electro-magnets acting upon the same armature-lever, one a differential magnet, whose opposing coils are respectively included in the circuit of the main and of the artificial line, and the other so arranged as to be actuated by the charge or discharge of a condenser, in combination with a rheostat inserted in the bridge-wire, to effect the charging of said condenser, substantially as and for the purpose herein specified.

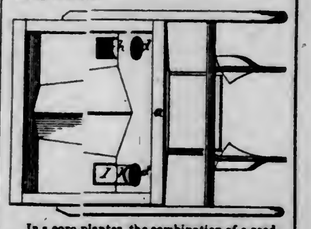
190,900. APPARATUS FOR SEPARATING MALT EXTRACT FROM THE HUSKS OR REFUSE OF BREWERS' MASH. H. R. Randall, Brooklyn, N. Y. [Filed May 9, 1877.]



In an apparatus for separating malt extract or solution of glucose or dextrine from husks or refuse of mash, the combination of an endless revolving foraminous apron, a pair of pressure-rollers and a brush for cleaning the meshes of the apron, and a suitable receptacle for collecting and securing, for a commercial purpose, the liquid portion which constitutes the malt extract, substantially as described.

190,901. CORN-PLANTERS. J. Rand, Red Banks, Miss. [Filed Feb. 20, 1876.]

Brief.—The hopper is centrally divided by a partition inclining each way. Feeders carry the seed up the inclined hopper-back to discharge-orifices.



In a corn-planter, the combination of a seed-box, E, constructed with two compartments, partially separated by a doubly-inclined partition, *f*, and with an inclined back, *e*, having seed-dropping cavities *d d* through the same, two inclined alternately-reciprocating plungers, I I, constructed with back-wardly-inclined seed-holding tops or concavities, *h h*, and a conveyer, H, all arranged and operating substantially as and for the purpose herein specified.

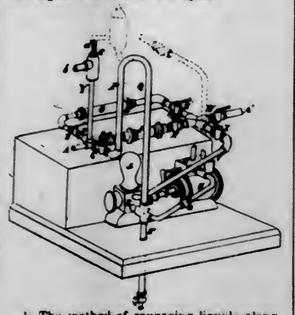
190,902. STOVE-MATS. C. A. Reimers and Jno. C. Branch, Davenport, Iowa. [Filed Apr. 14, 1877.]

The combination of the wire with the body A of the mat, and zinc cover B, having the bead *d*, substantially as shown and described, for the purpose specified.



190,901. CONVEYANCE OF LIQUIDS. G. W. Ramson, Brooklyn, N. Y. [Filed Mar. 7, 1877.]

Brief.—To the system of pipes, provided with spring-cushion and pulsometer, a motor or pump is connected, to keep up the velocity and regulate the flow of the liquid.



1. The method of conveying liquids along pipes or conduits by successively imparting to it at intervals additional impulse without tanking and retanking, or exposure to the atmosphere.

2. The method, in the conveyance of liquids through pipes or conduits, of causing it to fill the said pipes or conduits by establishing opposing currents therein at intervals in its transit.

3. The combination, with a pipe or conduit for the conveyance of liquids, of a series of motors, for successively imparting fresh impulse thereto at intervals, without exposing it to the atmosphere or introducing additional liquid into the said pipe or conduit.

4. The combination, with a pipe or conduit for the conveyance of liquids, of a series of pumps, communicating therewith at intervals, to successively take in the liquid, and force it out again under fresh impulse without exposure to the atmosphere, tanking or retanking it, substantially as set forth.

5. The combination, with a pipe or conduit for the conveyance of liquids, and a pump for imparting impulse to liquid therein, of a device forming spring-cushion for receiving the impact of the flowing liquid, yielding to obviate the undue straining of the pipe or conduit, and reacting on the liquid previous to its entrance into the pump, substantially as and for the purpose set forth.

6. The combination, with a pipe or conduit for the conveyance of liquids and a pump or motor for imparting impulse to liquid therein, of an adjustable spring-cushion, adapted to be adjusted and set to yield only at a certain pressure.

7. The combination, with a pipe or conduit for the conveyance of liquids, of a pump or motor for imparting impulse to liquid therein, and a spring-compensator receiving the impact of the liquid in its flow and correcting irregularities therein.

8. The combination, with a pipe or conduit for the conveyance of liquid, and a pump or motor for imparting impulse to liquid therein, of a spring-compensator, receiving the impact of the liquid in its flow, and capable of adjustment so as to correct irregularities however slight or great.

9. The combination, with a pipe or conduit for the conveyance of liquid, and a pump or motor for giving impulse to liquid therein, of a reversible compensator for correcting irregularities in the flow.

10. The combination, with a pipe or conduit for the conveyance of liquids, and a pump or motor for imparting impulse to liquid therein, of a double-acting pulsometer for correcting irregularities in the flow of the liquid.

11. The combination, with a pipe line or conduit for the conveyance of liquids, and a series of pumps or motors for successively imparting fresh impulse thereto, of switches or relays arranged to connect the sections of the pipe line or conduit intercepted by the pumps or motors, substantially as described, whereby any one pump or motor may be stopped at pleasure without necessarily stopping the transit of the liquid, and the greatest amount of work may be obtained from each pump or motor.

12. The combination, with a pipe line or conduit for the conveyance of liquids, and a switch and relay, of means, substantially as described, capable of being manipulated for establishing or severing communication between the same and the main line or conduit, to impart the action of the pump or motor to the liquid, or remove it therefrom.

13. The combination, with a pipe line or conduit for the conveyance of liquid, of a switch and relay and means, substantially as described, for enabling the same to serve as an elastic cushion for yielding, to relieve the main line, whereby it can contain a larger volume of liquid and accompanying air and gases, and the latter, through their elasticity, are enabled to form an elastic cushion and compensator.

14. The combination, with a pipe line or conduit for the conveyance of liquids, of a switch and relay embodying a section or portion of a larger diametrical capacity than the main line or conduit.

15. The combination, with a pipe line or conduit for the conveyance of liquid, of a switch and relay, and means, substantially as described, for providing for closing the latter at a considerable distance from the outlet, whereby air and gases may be made to serve as a compensator for correcting irregularities in the flow of the liquid through the main line.

16. The combination, with a pipe line or conduit for the conveyance of liquids, of an upright or elevated section leading from a regulating pulsometer to the motor employed, to give impulse to liquid in said pipe line or conduit.

17. The combination, with a pipe line or conduit for the conveyance of liquid, of a siphon leading from the main line to a pump or motor for giving impulse to liquid in said main line or conduit.

18. The combination, with a pipe line or conduit for the conveyance of liquid, of a well between the same and a pump or other motor for giving impulse to liquid therein, whereby greater continuity and uniformity in the transit of the liquid is insured.

19. The combination, with a pipe line or conduit for the conveyance of liquid, of a combined siphon and well between the pipe line or conduit, and the pump or motor for giving impulse to liquid therein, whereby great continuity and uniformity, with increased velocity in the transit of the liquid, is insured.

20. The combination, with a pump for effecting the transit of liquids, of a siphon leading to the inlet of said pump.

21. The combination, with a pump or motor for effecting the transit of liquids and an inlet thereto, of a well for equalizing and rendering uniform the supply to the pump or motor.

22. The combination, with a pump or motor for effecting the transit of liquids, of a combined siphon and well for equalizing and rendering uniform the supply to the pump or motor.

23. The combination, with a pipe line or conduit, and a pump or motor for giving impulse to liquid therein, of means, substantially as described, for yielding from, and reacting upon, the liquid in opposite directions, whereby all irregularities in the transit of the liquid are corrected and the same rendered uniform and continuous.

24. The combination, with a pipe line or conduit, of a compensator, a compensating switch and relay, and a siphon establishing communication between the main line or conduit and a pump or motor for giving impulse to liquid therein.

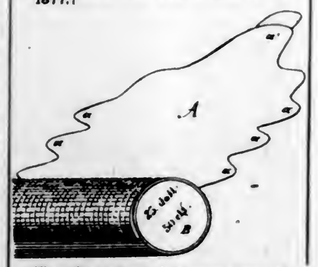
25. The combination, with a pipe line or conduit, and a pump or motor for giving impulse to liquid therein, of an elevated or upwardly-inclined outlet section, forming a well for assisting in maintaining a regular and uniform transit of the liquid.

26. The combination, with the valve-chest of a pumping cylinder, of a conduit for steam or other motive agent thereto, whereby provision is afforded for moving the valve in case the ordinary means for working the same shall prove ineffectual.

27. The combination, with the valve-chest of a pumping-cylinder and inlet thereto, of a conduit for the steam or other motive agent, whereby provision is afforded for moving the valve through the medium of the liquid when the ordinary means, substantially as described, for working it may be ineffectual.

28. The combination, with the inlet of a pump or other motor for oils, of means for transmitting from the steam supply-pipe of the motor to the inlet-pipe sufficient heat to liquefy the oils before their entrance into the pump, substantially as set forth.

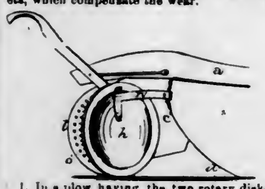
190,902. COIN-WRAPPER. G. Rettig, Chicago, Ill., assignor of one-half his right to F. Benzinger, same place. [Filed Apr. 16, 1877.]



The self-counting coin-wrapper described, consisting of the flap A, having the scalloped and gummed edge *a a'*, and the stiff end pieces B, constructed and arranged substantially as described and shown.

190,904. PLOWS. S. G. Reynolds, Bristol, R. I. [Filed Apr. 19, 1877.]

Brief.—Two revolving disks for the mold-board and land-side of the plow. Cogs on the inner side of the circumference of the disks engage with each other. Tapering journals project inwardly, and work in tapering sockets, which compensate the wear.



1. In a plow having the two rotary disks *h h*, the journals *o* made to cross each other, the bearings being cast in one piece, substantially as described.

2. The two rotary disks *h h*, having their journals *o* arranged to cross each other, one journal being horizontal and the other inclined downward so as to cause the land-side to act in opposition to the mold-board, substantially as set forth.

3. The concave-disk mold-board *h*, with conical journals *o*, and provided with cogs *o'*, in combination with convex land-side disk *l*, also provided with conical journal, and with cogs that engage with the cogged mold-board, substantially as set forth.

190,905. BUNG AND BUSH COMBINED. B. Rodier, Hunter's Point, N. Y. [Filed Apr. 18, 1877.]



1. A bung having an upwardly-projecting screw-nipple, B, a screw-cap or valve, C, and adjustable radial arms D D, for locking said bung within a bush, as described.

2. The combination of a bung having an upwardly projecting screw-nipple, B, a screw-cap or valve, C, and adjustable radial arms D D, with a bush having a seat for the bung, and inclined shoulders or grooves *e*, substantially as and for the purpose described.

190,906. BELT-BUCKLES. Wm. Roemer, Newark, N. J. [Filed Apr. 4, 1877.]



A belt-buckle consisting of the frame A, having the rear cross-bar B, with the tongue C pivoted thereto, said frame being provided on its under side with braces *b b*, which extend from the rear to the front cross-bar, substantially as and for the purpose specified.

190,907. LOCKS FOR SATCHELS, &c. Wm. Roemer, Newark, N. J. [Filed Apr. 4, 1877.]



1. The combination of the lock-case A, having the inner transverse braces *b b*, with the removable bottom plate B, which closes the case between the two braces, but not that between the braces and the ends A of the case, substantially as herein shown and described.

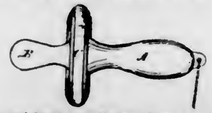
2. The lock-case A, constructed with upright ends *a a*, upright braces *b b*, and with the perforated parts *d d* between said ends and braces, substantially as herein shown and described.

3. The lock-case A, constructed with the perforated parts *d*, for receiving the fastening screws or rivets, said parts *d* being raised above the plane of the bottom plate of the lock, to leave a hollow beneath them, substantially as herein shown and described.

4. The lock-case A, made in one piece with the bars *g g*, which serve as staples for attaching a handle or strap, substantially as herein shown and described.

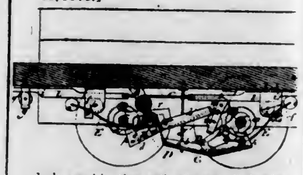
5. The combination of the lock-case A with the projecting bars or bridges *g g*, and perforated lugs *h h*, substantially as herein shown and described.

190,908. TESTING-NIPPLES. C. E. Rogers, La Crosse, Wis. [Filed Nov. 27, 1876.]



An article of manufacture formed of hard material, having the handle A and nipple B, smooth, round, and tapered toward the intermediate guard C, as and for the purpose specified.

190,909. CAR-STARTERS. L. Russell, Otsego, Mich., assignor of one-half his right to C. A. Russell, same place. [Filed Nov. 18, 1876.]



1. In combination with the axle C, having a ratchet-wheel keyed thereon, the vertically-vibrating arm D, having pawl *d*, with arm *r*, the vertically-vibrating rod E, having pulley *e* in its front end, the endwise-movable draft-rod, having inclined or beveled shoulder *i*, chain G, and inclined pulleys *m n*, substantially as specified.

2. The combination, with the lever D, vibrating vertically on a car-axle, and the ratchet-wheel *c*, of a pawl mounted in the said lever, and a vibrating lever, E, adapted to throw the said pawl into engagement with the ratchet-wheel, substantially as specified.

3. In a car-starting mechanism, the jointed vertically-vibrating lever D, having a pawl, *d*, mounted therein, adapted for use substantially as specified.

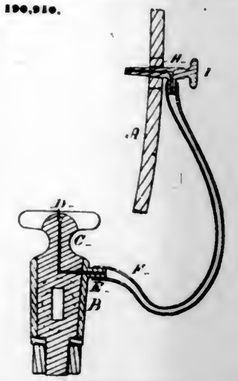
4. In a car-starting apparatus, the arm D, having a pawl, *d*, and composed of jointed sections *b' b* and a heel, *p*, on the former, at right angles to its length, combined with a chain secured to the lower end of the heel, passing over pulleys *m n*, and secured to the rear end of the endwise-movable draft-bar, substantially as specified.

190,910. VENT APPARATUS. Geo. Sobott and George P. Heberling, Warsaw, Ill. [Filed Mar. 17, 1877.]

Brief.—If desired, the liquid may be allowed to flow without admitting air through the vent.

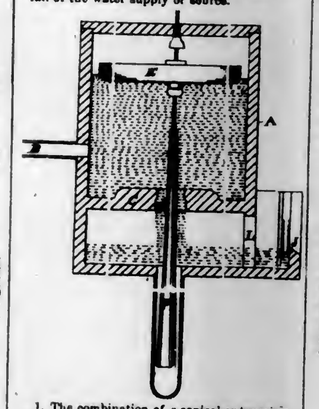
The faucet having air-vent to be closed by the thumb, constructed with the fluid-passage through the whole diameter of the turning, and the air-passage into the plug from the faucet on only one side, arranged so the plug may be turned two ways to permit the escape of the fluid, and only one way for admission of air, substantially as set forth.

190,910.



190,911. WATER-REGULATORS. Leo A. Scowden, San Francisco, Cal. [Filed Oct. 14, 1876.]

Brief.—The object of the invention is to maintain the flow of water constant and unvarying under the fluctuations or rise and fall of the water supply or source.



1. The combination of a conical or tapering rod, F, with a float, E, for automatically regulating the area of a water passage or opening, *d*, so as to preserve a fixed, permanent, and uniform discharge of water through said opening, independent of the fluctuation in the height of the water, substantially as and for the purpose above described.

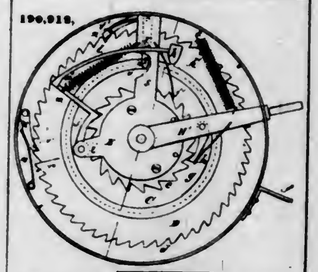
2. The box or tank A, provided with the ingress-passage B, and having the partition C with its opening or water-passage *d*, and also provided with an outlet-passage, *f*, below the partition, in combination with the tapering rod F, suspended from a float, E, so as to automatically regulate the area of the water in the tank, and thus preserve a uniform discharge of water from the upper into the lower compartments of the tank, substantially as above specified.

190,912. FARE-REGISTERS. P. Seyl, Chicago, Ill., assignor of one-half his right to J. C. Haines, same place. [Filed Jan. 17, 1877.]

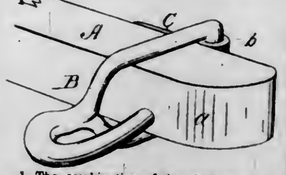
1. The stop *v*, provided with a notch, *v'*, in combination with the ratchet-disk D, and projection *c'* on one of the teeth *d*, substantially as and for the purpose described.

2. In a fare-register, the combination, with the case A, of the operating-lever E, the ratchet-disks C D, rotating in opposite directions, the hammer *k*, actuated by the ratchet-disk C, arm *q*, with pawl *s*, and the stop *v*, all constructed and arranged to operate substantially as and for the purposes herein set forth.

190,913.



190,913. WHIFFLETREE-HOOKS. Nathan Y. Shaw, Freehold, N. Y. [Filed Mar. 20, 1877.]

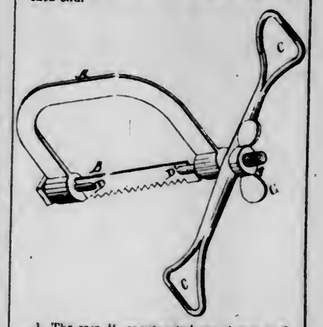


1. The combination of the single-tree A, having the rounded end *a*, the hook B encircling the whiffletree and having the straight vertical bearing *b*, and the plate C, attached to the rear side of the single-tree, and clasping closely around the bearing or pivot of the hook, as and for the purposes shown and described.

2. The hook B, provided with the laterally-curved nose and having its rear end adapted to encircle the single-tree, and provided with the straight vertical journal *b*, in combination with the plate C, closely embracing the latter, as shown and described, and for the purpose set forth.

190,914. HANDSAWS. L. Shave and S. Y. Reams, Austin County, Tex. [Filed Nov. 11, 1876.]

Brief.—The saw-blade is provided with teeth beveled upon their top surfaces, and provided upon either side with alternate deep and shallow semicircular grooves, which form the cutting-edges. The saw is attached to a frame, formed of a single piece of metal, by means of bolts passing through sockets in the ends of the frame, and strained by a nut upon one of said ends, and is operated by a beam, perforated in its middle, and having a handle at each end.



1. The saw B, constructed as shown and described.

2. The combination of the saw B, with the bolts D D', frame A, handle-beam, having the handles C C and orifice F, and thumb-nut G, constructed to operate as shown and described, and for the purpose specified.

190,915. REGENERATIVE GAS-FURNACES. C. W. Siemens, Westminster, England. [Filed Nov. 15, 1876.]

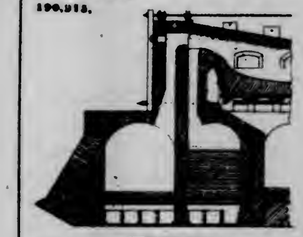
1. A regenerative furnace in which a series of air-flues are arranged behind a series of gas-flues, each air-flue overlapping the gas-

Sue in front thereof, as and for the purposes described.

2. A regenerative furnace in which a series of air-flues rise from their regenerator behind, and discharge into the furnace above, a corresponding series of gas-flues, the top of each air-flue being wider than the gas-flue in front thereof, as and for the purposes described.

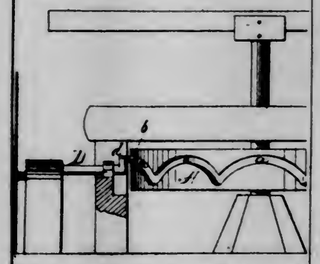
3. In a system of regenerative chambers arranged beneath the furnace-hearth, and having a central cave or tunnel communicating with the hearth-bottom, through which air-currents may circulate, as and for the purposes described.

190,915.



190,916. MACHINE-GEARING. M. T. Singleton and Jos. S. Wingfield, Atlanta, Ga. [Filed Apr. 27, 1877.]

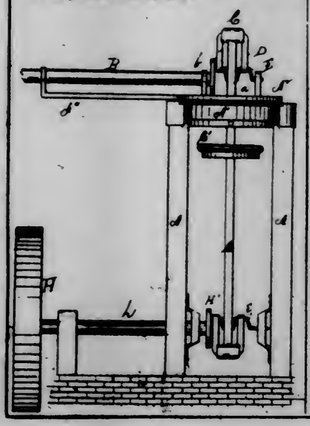
Brief.—As the wheel revolves, the roller on the crank shaft is forced around the cycloidal grooves, each groove causing the shaft to make a complete revolution.



The combination of the wheel A, provided with cycloidal grooves or flanges *a*, with the shaft D, provided with crank *d* on its end, having a friction roller, *b*, operating in the grooves or flanges of the wheel, whereby the shaft is given a rotary motion, as set forth.

190,917. CONVERTING MOTION. J. Smith, Horicon, Wis. [Filed Mar. 17, 1877.]

Brief.—No matter in what direction the revolving shaft B is turned, a rotary motion will be given to the wheel H.

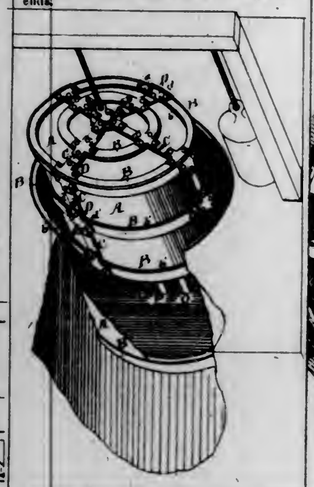


4. The compound cranks E E, pitman G having swivel *g*, and double pitman C having discs C' and C², and yoke D, as and for the purpose described and shown.

5. The turn-table A², shafts B and A, wheels *b* and H', yokes D, cranks E, pitmen C and G, when combined, arranged, and operated as shown and described, and for the purpose specified.

190,918. GAS-HOLDERS. Wm. Smith and Roland H. Smith, Pittsburg, Pa. [Filed Oct. 12, 1876.]

Brief.—The sheet-metal plates forming the holder are set into segmental and straight grooved jointing-strips, and packed with cement, for making tight joints without the use of rivets. Binding-pieces are placed at the angles of the jointing-strips for securing their ends.

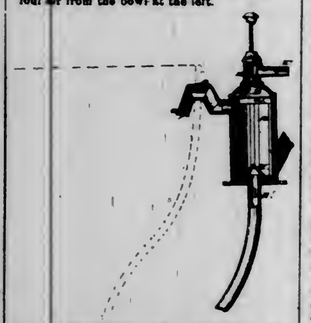


1. A gas holder or tank constructed of sheet-metal plates A A, united together by means of the segmental-grooved jointing-pieces B B, and the straight-grooved jointing-pieces C C, and the cement filling between the grooved jointing-pieces and the plates, substantially as set forth.

2. The binding-pieces D D, in combination with the jointing-pieces B C, and plates A, substantially as and for the purposes herein set forth.

190,919. EFFLUVIA-EJECTORS FOR WATER-CLOSETS. W. Smith, San Francisco, Cal. [Filed Oct. 20, 1876.]

Brief.—The water, in passing through the device shown, creates a vacuum, drawing the foul air from the bowl at the left.

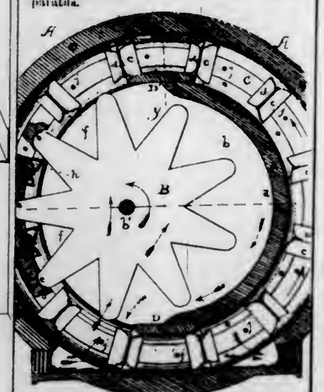


1. In combination with a water-closet, the receiver A, provided with a perforated diaphragm, D, so that water can be received through a cock or valve into the body of the receiver, and create a vacuum to draw the effluvia or foul air into, and eject or force it out of, the receiver, substantially in the manner as herein set forth and specified.

2. The receiver A, provided with a cock or valve, E, perforated diaphragm D, inlet and outlet air and water pipes H' F G H, when constructed and operating substantially in the manner and for the purpose herein set forth and specified.

190,920. WATER METERS OR ENGINES. W. Smith, San Francisco, Cal. [Filed May 22, 1876.]

Brief.—The flexible cup shaped pistons, (attached to a ring,) in their rotation, pass through cylinders of different diameters, that nearest to inlet being larger than the other. The water flowing through this cylinder gives motion to the ring, and as the pistons pass through the smaller cylinder they are compressed. The ring gives motion to the wheel in the interior of the case, which actuates the registering apparatus.



1. A fluid meter or engine constructed of a series of flexible and collapsing pistons, arranged in a circle within a partitioned inclosing-case having an exhaust and a pressure side, and having cylinders of different diameters within it, after the manner shown and described, so that the pressure of the fluid, in passing through the inlet and outlet passages provided in the case, will at the same time force the pistons through one cylinder and draw them through the other, and thus give motion to the ring and its motion-wheel, as and for the purpose set forth and specified.

2. In a fluid meter or engine, constructed as described, a series of expanding and collapsing pistons, *c c d d*, of different diameters, arranged in pairs, and united together by the segments C C, combined with cylinders D D', of different diameters, in the manner and for the purpose set forth and specified.

3. In a fluid meter or engine, constructed as described, the segmental cylinders D D', one of larger diameter than the other, arranged within the case, and combined with the piston-ring, in the manner and for the purpose substantially as set forth and specified.

4. In a fluid meter or engine, the combination, with the piston-ring C, of the motion-wheel B, constructed and arranged with it and with the inclosing-case A, in the manner and for the purpose described and shown.

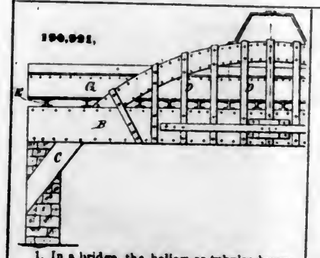
5. The circular case A, with its channel, and the partition *a*, dividing it into pressure and exhaust chambers, with inlet and outlet passages E F, and with a bearing, *a'*, for the axis of the motion-wheel B, all constructed and arranged as described and specified, for the purpose set forth.

6. The combination, with the case A, of the two cylinders D D', of different diameters, connecting the exhaust with the pressure side of the case, in the manner and for the purpose described and specified.

7. The segmental cylinders D D', constructed in two parts, in the manner shown and described, and having the same length as the distance between any two of the pistons *c c* or *d d*, for the purpose set forth.

190,921. TRUSS-BRIDGE. Jno. H. Snyder, Richmond, Va., assignor of one-fourth his right to D. N. Walker, same place. [Filed Apr. 9, 1877.]

190,921.

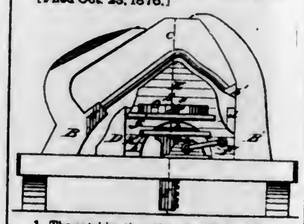


1. In a bridge, the hollow or tubular beam B, hollow arch C, and the bars D, passed over the arch and down on both sides, and riveted to the arch and beam, substantially as and for the purposes herein set forth.

2. The combination of the hollow longitudinal beams G G and the rails I with the bars E E, all substantially as and for the purposes herein set forth.

3. The combination of the hollow beams B B, hollow arches C C, bars D, flanged bars E, and the hollow flanged beams G G, with the rails I I, all said parts being riveted together, substantially as and for the purposes herein set forth.

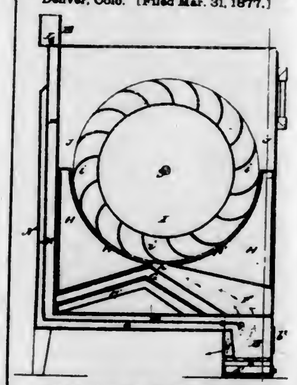
190,922. CRIMPING APPARATUS FOR THE UPPERS OF BOOTS AND SHOES. Isaiah H. Spake and Joseph D. Spake, Bluffton, Ind. [Filed Oct. 23, 1876.]



1. The combination of posts B B' and guide-piece D with crimping-jaws E E, plate K, ratchet I, and operating-pinion H, all arranged upon a suitable bed-plate, substantially as and for the purpose set forth.

2. The combination of the crimping-jaws E E, plate K, and operating-ratchet I, substantially as and for the purpose herein shown and described.

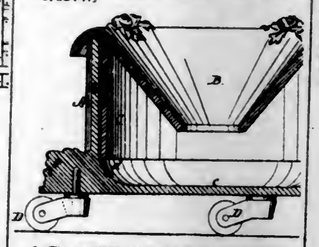
190,923. ROTARY ENGINES. T. F. Sparrow, Denver, Colo. [Filed Mar. 31, 1877.]



1. In a rotary engine, the wheel I, water-compartment J, and guide-casings H, slotted at A, combined with the furnace B, provided with double walls, and V-shaped flues G G', substantially as described, and for the purpose set forth.

2. In a rotary engine, the combination of furnace B, with connected flues M N, bottom passages O P, V-shaped or bent passages G G', and damper or cut-off Q, substantially as and for the purpose set forth.

190,924. SPITTOONS. Pierre C. Ste. Marie, Montreal, Quebec, Canada. [Filed Mar. 6, 1877.]



1. The combination, with the body or reservoir A, having the rounded shoulder *d*, of the funnel-shaped top B, having the rim or flange C pendent within the part A, and concentric with the inner side of the same, as and for the purpose specified.

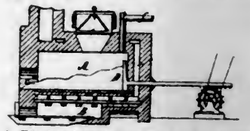
2. In combination with body A and base-rim *a*, having the bosses or projections *g*, the casters D, having pivots fixed in sockets formed in said projections, as shown and described.

190,925. SEWING-MACHINE SHUTTLES. R. H. St. John, Springfield, Ohio. [Filed Jan. 31, 1877.]



The combination, with a shuttle-case having an excavation, F, of the latch D, having a hinge-plate, E, adjustable by a set-screw, G, within said excavation.

190,926. MANUFACTURE OF IRON. Wm. H. St. John, New York, N. Y. [Filed Jan. 29, 1876.]



1. The herein-described method or process of manufacturing iron free from sulphur and phosphorus, by first separating from the coal its purer hydrocarbon gases, and then, by continued distillation, eliminating the impurities from the coke, the separate purification of the purer hydrocarbon gases aforesaid, and the storage of the same in a gasometer, and the subsequent combined and simultaneous use of the purified coke and the purified gases in the blast-furnace, the whole being conducted in the manner substantially as herein set forth.

2. In the manufacture of iron, the decarbonizing of the carbureted hydrogen by passing the same through a retort filled with incandescent mineral materials, and the subsequent passage of the purified hydrogen to the blast-furnace, in conjunction with a suitable inflow of air, substantially as and for the purpose herein set forth.

3. The herein-described combination of a retort or coking-oven, a gas-purifying apparatus, a fan-blower, or its equivalent, a gasometer, and a blast-furnace, the whole arranged for conjoint use and operation, substantially as and for the purpose herein set forth.

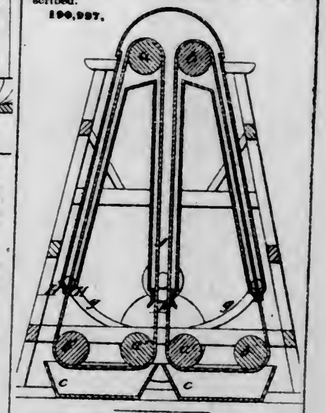
4. In the manufacture of iron, the retort A, constructed with a plunger or plungers, D, actuated from without by a rack and pinion, substantially as and for the purpose herein set forth.

190,927. APPARATUS FOR DESICCATING EGGS. Wm. O. Stoddard, New York, N. Y., and Henry Flint, St. Louis, Mo. [Filed Jan. 4, 1877.]

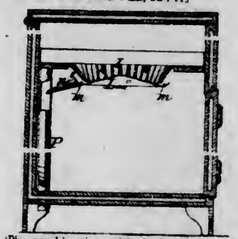
1. In an apparatus for desiccating egg or other substance, the combination, with the drying-chamber, of a suction-blast, said chamber and blast apparatus being constructed and arranged substantially as described, whereby the desiccated material is withdrawn and discharged through and by means of the suction-blast.

2. In an apparatus for desiccating egg or other substance, the combination, with the drying-case and endless belt or moving apron, of the jaws H H, constituting scrapers to remove the material from the apron, as described.

190,927.

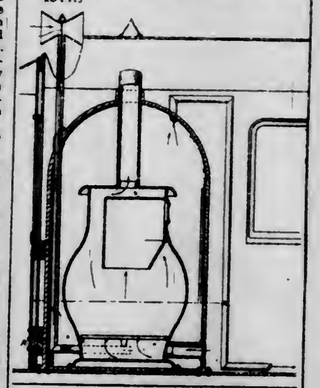


190,928. ICE-FLOORS FOR REFRIGERATORS. D. J. Stuart, Brooklyn, assignor of one-half his right to P. McGill, Williamsburg, N. Y. [Filed Feb. 22, 1877.]



The combination, with the ice-chamber bottom, having the opening I, surrounded by the conductors *k*, of the receiver L, having the gutter *n*, and the attached conductor *s*, discharging into the conductor P, substantially as and for the purpose specified.

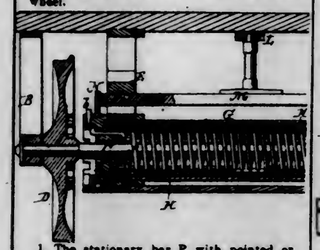
190,929. CASINGS FOR CAR-STOVES. H. Tanner, Buffalo, N. Y. [Filed Jan. 31, 1877.]



The combination of the isolating casing with the sides, end, and bottom of the car, in the manner substantially as described, to strengthen the same.

190,920. CAR-STARTERS. G. M. Thompson, Boston, Mass. [Filed May 1, 1877.]

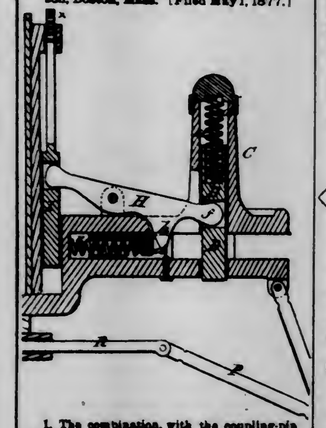
Brief.—The end of bar P prevents the clutch not engaged with wheel from turning, and thereby sliding into connection with the other wheel.



1. The stationary bar P, with pointed or tapering ends *d*, in combination with the radial pins *b* on the clutches I, for the purposes herein set forth.

2. The combination, with the axle C and wheels D, having pins *a*, as described, of the casing G, tubes H, clutches I, with pins *b*, spring J, bar P, and operating mechanism K L M N, all constructed and arranged to operate substantially as and for the purposes herein set forth.

190,921. CAR-COUPLINGS. G. M. Thompson, Boston, Mass. [Filed May 1, 1877.]



1. The combination, with the coupling-pin D placed in a tube, C, and actuated by a spring, *a*, of the pivoted lever H, with straight arm or prong *f*, the rack-slide I, and cogged lever L, substantially as and for the purposes set forth.

2. The slide G actuated by the spring *b*, and provided with the slot *d* in its front end, in combination with the prong *h* on the lever H, for the purposes herein set forth.

190,922.



190,923. PLOWS. Wm. M. Towers, Rome, Ga. [Filed Apr. 3, 1877.]

1. As a means for combining the mold-board I, land-side K, and plow-point L with each other, and with the plow-foot B, the block H, provided with the recess *h'*, and constructed in the manner substantially as specified.

2. In combination with the rear end of the beam A, provided with the vertically-elongated slot *a*, and with the handles M, the bolt *m*, arranged to pivot their lower forward ends upon said beam, the straps N, encircling said handles, and the bolt O, passing horizontally through the latter, said straps, and said slot *a*, substantially as and for the purpose set forth.

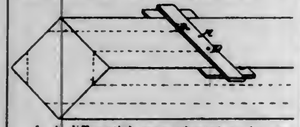
190,924. GAGES. J. K. Underwood, Geneva, N. Y., assignor of one-half his right to W. J. Morse, same place. [Filed Nov. 28, 1876.]



The combined rule and ring-gage, consisting of the strip A, made of spring metal, so as to preserve its circle when coiled and extend itself when released, and provided at one end with a longitudinal slot, *a*, with an enlargement, *r*, and at the other with a screw, *d*, so arranged that when the strip is coiled the screw passes through the slot, and is secured by the nut *g* and washer *f*, the whole combined to operate as and for the purpose specified.

190,925. CARPENTERS' GAGES. George W. Vaughan, Covington, Ky. [Filed Mar. 3, 1877.]

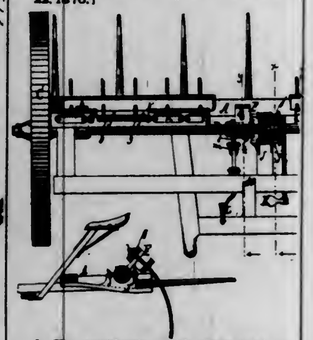
Brief.—The gage is adapted for readily marking a quadrangular beam or piece of timber for conversion into octagonal form.



1. A differential gage adapted to be applied to a surface having tapering or parallel sides, constructed substantially as herein shown and described.

2. A gage-bar provided with pivoted blocks and markers, substantially as described, and for the purpose set forth.

190,926. HORSE HAY-RAKES. Henry C. Vellie, Poughkeepsie, N. Y. [Filed Aug. 22, 1876.]



1. The combination, with clutch-head E, rake-head F, axle B, and clutch-sleeve I, of a dog, *f*, and cam *k*, for controlling automatically the position of the clutch-sleeve, and causing the rake to drop immediately after its contents have been dumped, substantially as set forth.

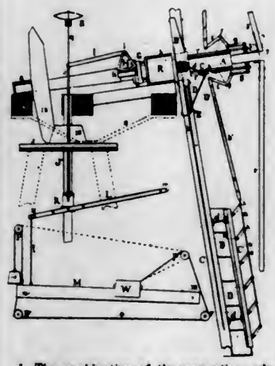
2. The combination, with mechanism for automatically raising the rake from the ground, and with a lever which serves to depress the rake, of a stirrup, which embraces said lever and enables the same to raise the rake, substantially as described.

3. The combination, with the clutch-head E and rake-head F, provided with a toe, *l*, of the lever I and stirrup *m*, for raising the rake or keeping it upon the ground, substantially as described.

4. The combination, with the rake-head F, clutch-head E, and clutch-sleeve I, of the guard-plate J, provided with standards supporting the spring-dogs *j*, for the purpose of preventing the grass from catching between the clutch-teeth, and from interfering with the operation of the dogs, substantially as set forth.

190,927. WINDMILLS. J. Warwick, Medo, Minn., and Wm. S. Marshall, Batavia, Ill. [Filed Apr. 2, 1877.]

Brief.—Improvement in the devices for controlling the tendency to backlashing, as also means for controlling and regulating automatically the sails of the windmill.

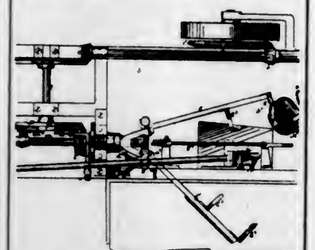


1. The combination of the connecting-rods *b'*, reversing-rods and cranks *a k*, with reversible sails D, as and for the purpose set forth.

2. The combination of the arms C, intermediate arms E, auxiliary arms C', and reversible sails D, as described and shown.

3. The combination of the sliding heads F G, connecting-rods *r r*, racks *h k*, segment-levers H I, elbow-levers E, connecting-rods *g b'* *a*, sail D, and enlarged journal E, as described and shown.

190,928. GRAIN-BINDERS. G. A. Walker, Dane's Hill, near Retford, England. [Filed Apr. 9, 1877.]



1. The combination of the arms G G^1 with their attached grippers G^2, and the jointed pin or hinged tooth *h'* of the rotating griping devices, the rotating disk or plate F, and mechanism actuated thereby for opening and closing the grippers, and the bevel-pinion *b* and segment *c'* for rotating the grippers, substantially as and for the purposes hereinbefore described.

2. The combination, with the rotating band-twister N and the grippers G^2, of the vibrating cranked fork M arranged for operation across the sheaf in the grippers and relatively to the rotating band-twister, essentially as and for the purposes herein set forth.

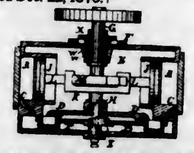
3. The combination of the intermittently-rotating grippers g^2 with the reversely-rotating band-twister N and the band-tucker E, substantially as shown and described.

4. The traveling controlling-weight W, in combination with the lever M, with its operative cord and pulleys, collar K, lever L, and shaft J', and segment-levers H I, as described.

5. The combination of the traveling weight W, lever M, and weight 16, for stopping the rotating of the wind-wheel, as set forth.

6. The auxiliary arm C', in combination with the intermediate arm E, for supporting sails in front of planes of radial arms C, as described and shown.

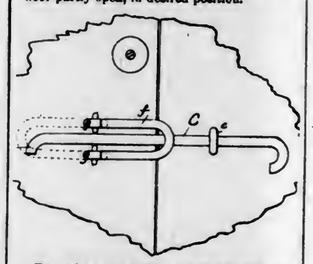
190,929. STEAM-ENGINES. S. Warwick and G. S. Brush, Montreal, Quebec, Canada. [Filed Dec. 22, 1876.]



The combination of the two single-acting cylinders A A, surrounded by the exhaust-receiver E, the double piston J J, open guides L L, eccentric N, and sliding box M, substantially as described.

190,930. DOOR-CHECKS. Ira J. Webber, Salem, Mass. [Filed Apr. 11, 1877.]

Brief.—A hinged loop is secured to the door, and a staple or hook driven into the door-jamb, and in these loosely plays a detachable rod or bar, hooked at either end, which serves, when in place, to hold the door partially open, or, when the door is closed, may act as a bolt thereto. As an alternate form, a link may be substituted for the hooked bar, in which case the hinged loop must be detachably secured to the door, so that the link can be readily engaged or disengaged, and serve to hold the door partly open, in desired position.



The rod, bar, or link C, in combination with the staple *e*, and hinged loop or staple *f*, substantially as and for the purpose described.

190,940. HERMETICALLY-CLOSING JAR-COVERS. T. A. Weber, New York, N. Y., assignor to Rachel Bunyan, Wm. S. Bunyan, and Fred. F. Bunyan. [Filed Mar. 31, 1877.]

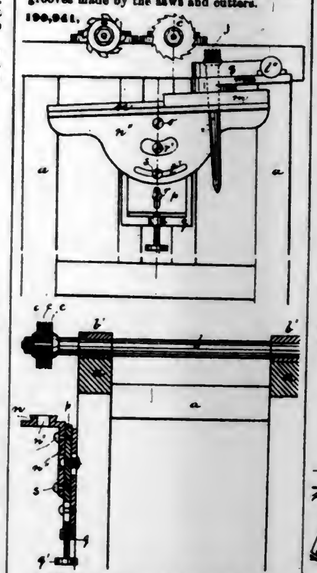


The combination of cap A with attached eccentric levers E E', acting against jar-rim B, to press the rubber ring C tightly against the top surface of the jar-mouth, as and for the purpose specified.

190,941. MACHINES FOR MAKING BRUSH-HANDLES. J. L. Whiting, Boston, Mass. [Filed Jan. 15, 1876.]

Brief.—Brush-handles are formed by means of a series of circular saws mounted upon an arbor, with a space between each successive saw; a series of milling-cutters mounted in advance of the saws; and a clamp attached to a head-stock, sliding forward and backward on an oscillating and vertically-adjustable bed, for regulating the depth of the grooves made by the saws and cutters.

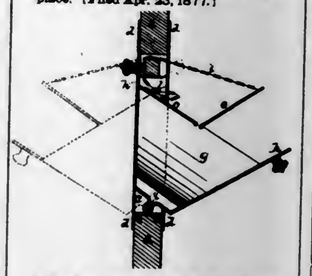
190,941.



1. The combination, in a machine for making brush-handles, of the series of saws *e*, the series of mills or cutters *c*, and their shafts *b d*, with the clamp *g g'* *m* and screw-shaft *l*, all constructed and arranged to operate substantially as described.

2. In combination with the series of saws *e* and the series of mills or cutters *c*, the clamp *g g'* *m* and its operative gear, the slotted bed *n*, head-stock *m'*, and frame *p*, all constructed and arranged to operate substantially as described.

190,942. ORANGE-BOXES. O. White, Detroit, Mich., assignor of one-half his right to A. Lovett and A. H. Fieldman, same place. [Filed Apr. 23, 1877.]



1. The box *g*, provided with the lids *o* and the chains *l*, substantially as specified.

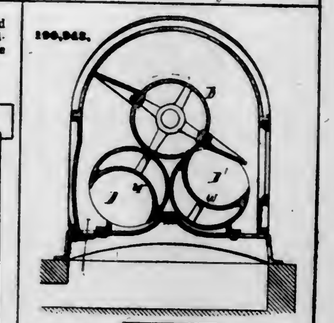
2. The combination of the door *a*, having an opening, *c*, through it, plate *d*, flange *e*, box *g*, lids *o*, and chains *l*, substantially as shown and described.

190,943. BLOWING-MACHINES. J. W. Wilbraham, Philadelphia, Pa., assignor to himself, T. Wilbraham, and J. Wilbraham, same place. [Filed Sept. 2, 1876.]

Brief.—The two slotted cylinders have their webs so constructed that the vanes extend beyond the centers. The webs prevent the waste of air.

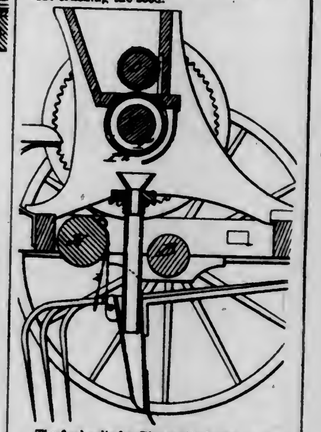
The cylinder B and its vanes, combined, as described, with segmental webs *w w* on the cylinders D D', so that the said webs will permit the vanes to extend to or beyond the centers of the cylinders, as set forth.

190,943.



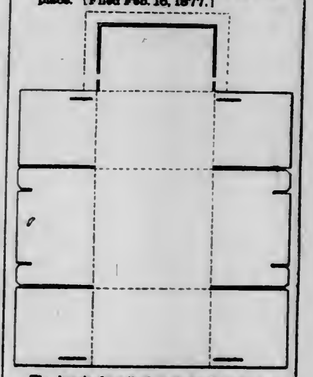
190,944. CORN-PLANTERS AND CULTIVATORS. Levi B. Williams, Manquin, Va. [Filed Feb. 10, 1877.]

Brief.—The seed-cylinder is provided with an elastic sheath having seed-pockets to prevent crushing the seed.



The feed-cylinder P^2, provided with an elastic sheath, P^3, having seed-pockets *p*, to prevent crushing the seed while delivering the same, substantially as described.

190,945. PAPER BOXES. H. L. R. Wolf and O. Wolf, Dayton, Ohio, assignors of one-third their right to J. W. A. Wolf, same place. [Filed Feb. 16, 1877.]

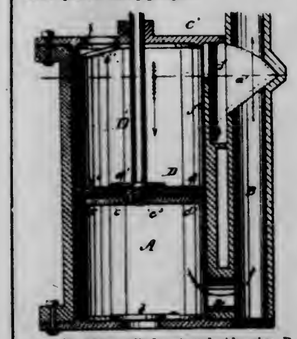


The herein-described rectangular paper or straw-board box, cut from a single piece, and whose body is composed of nine rectangular subdivisions, two of which contain tongues *m*, and four (4) slits, *b*, the tongues and slits being so located that when the box is made up

they occupy positions at the upper corners, and are covered by the lid *e*, which is a part of one of the sides, and is secured by tapes *p*, the whole constructed and arranged substantially as and for the purpose specified.

190,946. DOUBLE-ACTING ANTI-FREEZING FORCE-PUMPS. H. M. Wyeth, Richmond, Ind. [Filed Mar. 2, 1877.]

Brief.—The pump and side pipe are cast in a single piece, with the greatest portion of the pipe offset from the periphery of the cylinder, so as to leave a space between. The ends of both cylinder and pipe open.



1. The pump-cylinder A and side pipe B, offset as described, and both cast in one piece with their opposite ends open, as and for the purposes described.

2. The valve *f* and its seat *f'*, made together removable, and combined by means of guideways with cylinder A and pipe B, and held in place by the cylinder-head, substantially as and for the purpose described.

3. The disk *c* of the piston, having circumferential groove *c'* and central boss *c²*, with screw-threaded perforation, in combination with the packing-ring *c²*, the disk *d*, having perforation corresponding to the boss, and the piston-rod D, having screw-threaded end and a washer, *d'*, as and for the purpose set forth.

190,947. BEE-HIVES. N. Zimmerman, Granville, Pa. [Filed Apr. 11, 1877.]



The bee-hive consisting of apartments C C C C, with separate and oblique movable angular honey-frames G G G G on swivel wire hinges L L, and having moving flat covers N N over the honey-frames G, and the half-doors B B B B, dividing a whole colony of bees into four swarms, when constructed and arranged substantially as described.

REISSUES.

7,675. CASING-SPEARS. F. J. Fox, St. Petersburg, Pa., assignor to J. M. Robinson and W. E. Blakslee, same place. Patent No. 154,135, dated Aug. 18, 1874. [Filed Apr. 9, 1877.]

Brief.—Upon inserting the device into the well-tubing, when at the point desired for catching within the same, it is "jarred," whereby the serrated catches are released, and are caused to press outwardly against the inner surface of the tubing. The friction-disk secured to the lower end of the plunger assists in this disengagement, as also afterward in effecting a release of the device from the tubing in extricating the device when desired.

1. A casing-spear composed of parts arranged to be expanded by a movement upon each other, and having upon one of said parts a frictional device adapted to bind with the walls of the well-tube or casing, to permit the adjustment necessary to gripe and release the same, as described.

2. A casing-spear having expansible griping-slides, combined with a frictional device adapted to bind with the walls of the well-tube, substantially as described, and for the purpose set forth.

3. A casing-spear composed of parts arranged to be expanded by a movement upon each other, and having upon one of its parts an elastic friction-disk of greater diameter than the spear, for the purpose described.

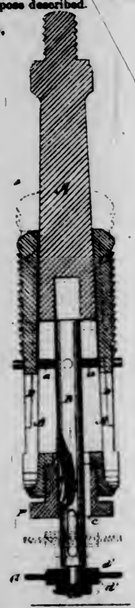
4. The stem or case A, having inclined grooves D and slots E, in combination with the sliding griping-plates G, and the plunger B, connected with said plates, and carrying upon its end a frictional disk, G, adapted to bind with the well-tube, as and for the purpose described.

5. The catch *f*, connected with the griping-plates through the plunger, and moving with the same, in combination with the case A, and the nut F having a notch, *d*, as and for the purpose described.

6. The hollow nut F having groove *c*, and exteriorly-threaded sleeve attached to and swiveling in the case A, in combination with the plunger B having catch *e*, for the purpose of permitting the device to be reset, substantially as described.

7. The plunger having catches *e* and *f*, in combination with the case A, and the swiveling-nut having notch *d* and groove *c*, as and for the purpose described.

7,675.



7,676. PUMP-VALVES. R. M. Lafferty, Toledo, Ohio, assignor to Smith & Lafferty. Patent No. 127,173, dated May 28, 1872. [Filed Feb. 8, 1873.]

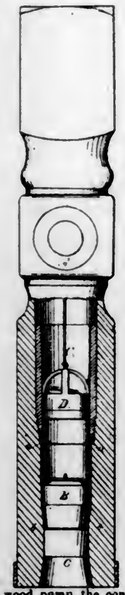


The construction and arrangement of valve D, provided with the hooks *b* at the lower ends of its wings, and an eyebolt, *c*, at its top, in combination with the valve-case C, substantially as and for the purpose set forth.

7,677. PUMPS. Robert M. Lafferty, Toledo, Ohio, assignor to Smith & Lafferty. Patent No. 127,173, dated May 28, 1872. [Filed Jan. 21, 1873.]

Brief.—A short metallic cylinder is introduced from the top, with an equal interior bore. The cylinder does not extend down to the check-valve or seat. The cylinder is secured to the stock by a screw-thread.

7,677.

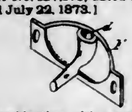


1. In a wood pump, the combination, with the stock A, of the short metallic cylinder C, whose interior diameter is the same throughout its length, inserted into the bore of the stock from the top, and not extending down to the check-valve seat, substantially as and for the purposes set forth.

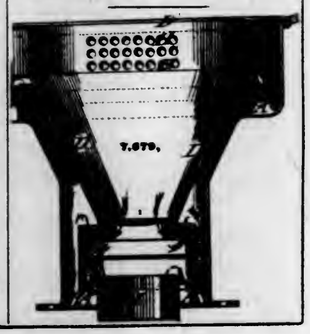
2. In a wood pump, the combination, with the stock A, having the upper part of its bore enlarged, of the short metallic cylinder C, inserted from the top of the stock, and held therein by a screw-thread, substantially as and for the purposes set forth.

3. The combination, with the stock A of a wood pump, of the short screw-threaded metallic cylinder C, inserted from the top of said stock, the contraction *b* in the bore of the pump below such cylinder, and the enlarged opening *c* to form a wood joint with the tubing, substantially as described.

7,678. PUMPS. Robert M. Lafferty, Toledo, Ohio, assignor to Smith & Lafferty. Patent No. 127,173, dated May 28, 1872. [Filed July 22, 1873.]



The combination, with a pump-head, of the cast-meta fulcrum-ears F, each provided with the horizontal socket *d* and stud *e*, substantially as described and shown.



7,679.

7,679. SLOP-HOPPERS. Jno. Marquis, San Francisco, Cal. Patent No. 57,742, dated Sept. 4, 1866. [Filed Oct. 16, 1876.]

1. The stationary hopper E E and movable hopper D D, constructed and arranged together in the manner described, substantially as and for the purposes herein set forth and specified.

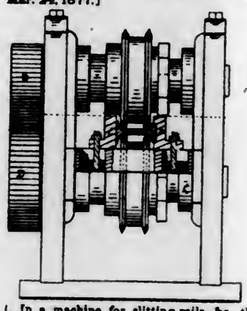
2. The combination, substantially as specified, of the pan G, the outer hopper, the exit-pipe thereof, and the inner hopper.

3. The trap formed by the rim J J, and the lower portion of the movable hopper D D, substantially as described, and for the purposes herein set forth and specified.

4. A slop-hopper having a perforated movable receptacle, substantially as described, and for the purposes herein set forth and specified.

5. A slop-hopper having a trap, A, near the top, substantially as and for the purpose specified.

7,680. MACHINES FOR SLITTING RAILROAD-RAILS. J. Reese, Pittsburg, Pa. Patent No. 180,373, dated July 26, 1876. [Filed Mar. 24, 1877.]



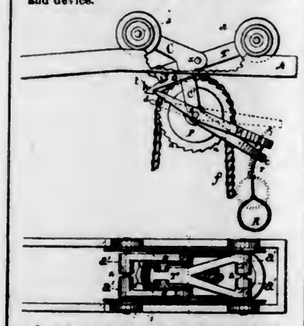
1. In a machine for slitting rails, &c., the combination of the bevel-edged adjustable and detachable cutters, one above the other, for cutting the metal simultaneously on the two opposite sides, substantially as specified.

2. In a machine for slitting railroad-rails, the combination of the rolls, provided with adjustable cutters, and the adjustable rail-guide, substantially as and for the purpose specified.

3. In a machine for slitting railroad-rails, the combination of the two slitting-rolls with the rail-guide, substantially as and for the purpose specified.

7,681. HAY-ELEVATORS. G. Van Sickle, Shortsville, N. Y. Patent No. 148,009, dated Feb. 24, 1874. [Filed Mar. 9, 1877.]

Brief.—The jointed coupling allows the weight carried, and the strain on the rope carrying it, to press the brake against the rope and hold the load. The sleeves forming bearings for the axles are tapered from each side to the middle, to afford the axles free oscillation, and thus enable the wheels to pass over obstructions on the track, or run on curved tracks without injury or strain to the wheels and device.



1. A hay or grain elevator having a brake constructed and adjusted to be moved into position to bear upon and hold the hoisting-rope from running back on the pulley by the forward movement of the car and the weight of the load, substantially as described.

2. The car-couplings C C T, having a joint forming a longitudinal flexure, substantially as and for the purposes described.

3. The car-axles *a*, adjusted to oscillate and allow play for the wheels, substantially as and for the purposes described.

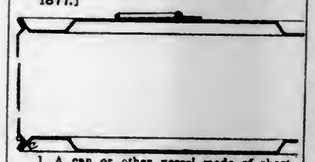
4. The detent-levers L, having ring E attached to their lower part, in combination with the detent-shoulders *d* on the plates O, fastened to the rails of the track, substantially as and for the purposes described.

5. The pulley P, provided with ratchet-teeth *s*, in combination with the pawls *b*, brake *t*, having corrugations *v*, and hoisting-rope *f*, substantially as and for the purposes described.

6. The cross-bar *i*, in combination with the inclined guides A, for releasing the hoisting-rope, substantially as described.

7. The extended arms *c c*, adjusted to form guides for the hoisting-rope, substantially as described.

7,682. SHEET-METAL CANS. H. Miller, New York, N. Y., assignor, by mesne assignments, to the Combined Patents Can Company of New York. Patent No. 38,974, dated June 23, 1863. [Filed Mar. 30, 1877.]

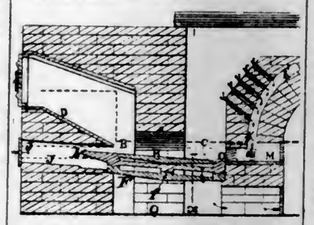


1. A can or other vessel made of sheet metal, in which the top or bottom is joined to the sides by a double-recessed clamping lap-joint, substantially as described.

2. A can or other vessel made of sheet metal, in which the top or bottom is joined to the sides by a clamping lap-joint, which is capable of being soldered by dipping, substantially as described.

7,683. SMOKE-CONSUMING FURNACES. J. C. Baum, Cincinnati, Ohio. Patent No. 128,526, dated July 2, 1872. [Filed June 23, 1876.]

Brief.—The gases from a coking-furnace pass with the flame under a boiler, where an additional supply of air is furnished, whereby complete combustion ensues.



1. The combination, substantially as specified, of the coking-chamber, the combustion-chamber, the grate-surface, the partition dividing the said chambers and descending to near the grate-surface, and the passages for supplying air to the gases ascending from the incandescent fuel.

2. In combination with fire-box B, combustion-chamber C, and arch A, the pivoted and rearwardly-inclined grate H, whose pivot *f* is located about under the center of said arch, as described.

3. The combination of arch A, inclined feed-channel D, and grate H, substantially as and for the purpose specified.

4. The recess J, in combination with channel D, grate H, and chambers B and C, substantially as and for the purpose specified.

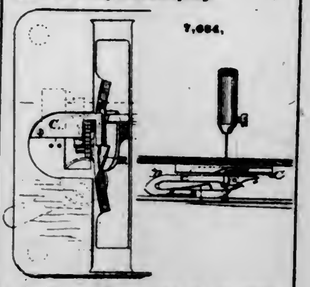
5. The combination of hot-air chamber M, channel K, and orifices L L L, &c., substantially as and for the purpose specified.

6. The combination of chambers B and C with hot-air chamber M, flues S S, channel K, and orifices L L L, &c., substantially as and for the purposes set forth.

7,684. SEWING-MACHINES. H. Bouscay, Jr., Norwalk, Ohio. Patent No. 127,145, dated May 28, 1872. [Filed Dec. 29, 1876.]

Brief.—Makes a peculiar knotted or twisted loop stitch by a needle and a looper carried loosely, as a shuttle is carried. The take-up is located in the head of the machine, and is operated, while taking up the thread, by a spring, which holds the lever against a peripheral cam on the forward end of the upper horizontal main or driving shaft, said contact with the cam giving the let-off motion in opposition to the pull of the spring.

7,684.



1. A looper, D, composed of two rigidly-connected parts, C and D, the former being provided with a hook, and constructed and operating substantially as described.

2. The combination of the latch *c*, with its heel projecting through the bar *c* of the looper, with a projection operating to open such latch, as described.

3. The movable latch-opener, combined with the looper, and operated by the feeding device, as and for the purpose set forth.

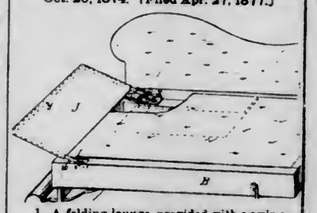
4. In a machine wherein the rotary driving-shaft exteods forward to the head of the machine, the combination, with a cam secured to the forward portion of said rotary driving-shaft, of a take-up mechanism held in direct contact with said cam by a spring, the cam operating to let off the thread, while the take-up is effected by the spring, substantially as set forth.

5. The combination, with a cam attached to the rotary driving-shaft and needle-bar, actuated by a pin or roller secured to the face of the cam, of a take-up mechanism held in direct contact with the periphery of the cam by a spring, the cam operating to let off the thread, while the take-up is effected by the spring, substantially as and for the purpose described.

6. The combination, with a cam secured to the rotary driving-shaft, of a take-up mechanism, which latter consists, essentially, in a lever pivoted below the cam, and a spring adapted to hold one end of the lever against the cam, whereby the cam operates to let off the thread, while the take-up is effected by the spring, substantially as and for the purpose described.

7. The combination, with a cam secured to a rotary driving-shaft, of a take-up mechanism held in direct contact with the cam by a spring, the vibrating arm of the take-up having its extreme upper end bent at right angles to its length, to project through the slotted face-plate, substantially as described.

7,685. FOLDING LOUNGES. H. S. Carter, Chicago, Ill. Patent No. 156,131, dated Oct. 20, 1874. [Filed Apr. 27, 1877.]



1. A folding lounge, provided with a swinging bolster, substantially as and for the purpose set forth.

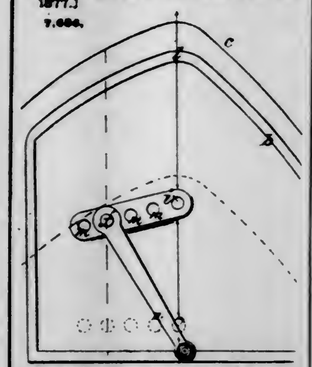
2. The combination of the pivot R, cam T, bolster J, and the folding part B, having the seat I, as and for the purpose set forth.

7,686. BOOT AND SHOE CRIMPING MACHINES. L. O. Makepeace, Worcester, Mass., assignor, by mesne assignments, to J. S.

EXPIRED PATENTS.

Perkins, same place. Patent No. 131,268, dated Sept. 10, 1872. [Filed Apr. 30, 1877.]

7,686.



1. A pair of jaws for crimping the uppers of boots and shoes, adapted to have the bolt or clamping device located or thrown more or less on the toe side of the instep angle of the follower or apex of the jaws, substantially as and for the purpose set forth.

2. The jaws *a* and *b*, provided with one or more holes, *m*, located on the toe side of a vertical line, *l*, dropped from the instep angle of the follower *e*, substantially as described, and for the purpose set forth.

3. A pair of crimping-jaws, having their clamping bolt or device made adjustable laterally, substantially as shown and described.

4. In combination with the pair of jaws, having their clamping-bolt made adjustable laterally, the laterally-adjustable set-screw *i*, substantially as described.

7,687. DENTAL CHAIRS. Jas. B. Morrison, Brooklyn, N. Y. Patent No. 82,642, dated Sept. 29, 1868. [Filed Nov. 23, 1876.]

1. In combination with the stand or support for a dental chair, uprights or guides, secured directly to said stand in such manner that they can be inclined or adjusted substantially as and for the purpose set forth.

2. The combination, in a dental chair, of a stand or support, the uprights or guides, and a locking or clamping device for securing said uprights or guides at any desired angle, substantially as described.

3. The combination, in a dental chair, of a stand or support, the uprights or guides, a locking or clamping device for securing said uprights or guides at any desired angle or inclination, and an elevating mechanism for raising and lowering the body of the chair, substantially as described.

4. A chair having its body arranged to be adjusted vertically, and having the operating mechanism, by which it is thus adjusted, arranged at the back or outside of the periphery of the seat instead of under the seat, substantially as described.

5. The combination, in a dental chair, of a back, vertically adjustable in reference to the seat, with a vertically-adjustable head-rest, substantially as set forth.

6. The combination, in a dental chair, of a back, vertically adjustable in reference to the seat, with a laterally-adjustable head-rest, substantially as described.

7. The combination, in a dental chair, of a back, vertically adjustable in reference to the seat, with a vertically and laterally adjustable head-rest, substantially as set forth.

8. A chair, having its arms attached to the body, substantially as described, whereby they can be adjusted vertically independent of the adjustment of the body, substantially as set forth.

9. The vertically-adjustable arms, provided with a clamping device, whereby they may be secured at any desired height.

10. A head-rest support, capable of a vertical and a lateral adjustment within the back of the chair, substantially as described.

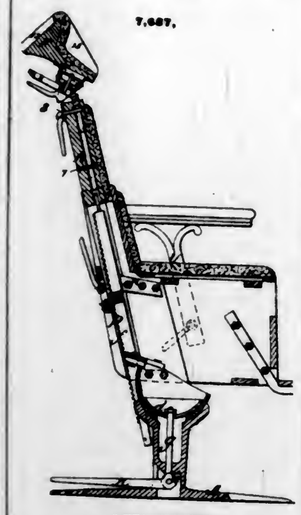
11. The slotted bar I, arranged to slide vertically and swing laterally on the pin 7, substantially as shown and described.

12. In combination with the adjustable back R, the cams *s*, or their equivalent, for securing said back in the desired positions, substantially as described.

13. The slotted bar *I*, arranged within the back of the chair, so that it can be moved vertically and swung laterally, in combination with the head-rest, provided with a universal joint, whereby the head-rest can be adjusted, substantially as described.

14. A head-rest, provided with two cushions or head supports, 12 and 13, substantially as described.

7,687.



7,688. PROCESSES OF MANUFACTURING MALT-EXTRACT. H. R. Randall, Brooklyn, N. Y. Patent No. 187,313, dated Feb. 13, 1877. [Filed May 9, 1877.]

The process of manufacturing malt-extract from raw or unmalted grain or starch-bearing material for brewers' use, the same combining the successive steps of first reducing the grain or other starch-bearing material by grinding to a comminuted condition, then eliminating the starch therefrom at a comparatively high temperature, substantially as described, and subsequently subjecting such eliminated starch to the action of malt at a lower temperature, for converting it into dextrine and glucose or a malt-extract.

NATIONAL LITHOGRAPHING CO. WASHINGTON D.C.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 67.—No. 8. TUESDAY, MAY 22, 1894. PRICE—$5 per year.

CONTENTS.

	Page.
ORDER IN RELATION TO DRAWINGS	933
NOTICE	933
PRIVILEGES OF THE SCIENTIFIC LIBRARY	933
OFFICIAL GAZETTE	934
ISSUE OF MAY 22, 1894	934
APPLICATIONS UNDER EXAMINATION	934
PATENTS GRANTED	935
REISSUES	1056
DESIGNS	1057
TRADE-MARKS	1061
PRINTS	None.
LABELS	None.
DECISIONS OF THE U. S. COURTS—	
Gates Iron Works *v.* Fraser *et al*	1065

ORDER IN RELATION TO DRAWINGS.

NOTICE.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 25, 1894.

Order No. 980, respecting the alteration of drawings, was published in the OFFICIAL GAZETTE of December 19, 1893, (65 O. G., 1771,) by mistake, and was never in force. The following is the only order in force upon that subject:

(ORDER No. 986.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 25, 1894.

Erasures or other alterations of drawings will not be made or permitted, except in compliance with this order.

Applicants are requested to furnish, with their originals, a blue print or other photographic copy of all drawings forming part of an application, and where this is done, the original drawings may be taken to the Attorneys' room, but not otherwise.

Before making a requirement to alter an original drawing the Examiner will formally make the blue print or other copy a part of the files, and in case no such copy has been furnished by the applicant, the Office will make such copy without charge, and thereupon the required alteration may be made by the applicant, under the direction of the Examiner and subject to his approval, or, upon request, it will be made by the Office at the expense of the applicant.

The requirement to make alterations in original drawings will be made in writing, and the applicant's response must also be in writing, and in such case the copy of the drawing, the requirement to alter, and the applicant's response will form part of the record.

Action by the Office on the merits will not be suspended pending the change of a drawing, if the invention claimed may be understood by the Examiner.

For the purposes of this order the Office, upon the request of applicants, will make blue prints at the charge of five cents a sheet.

In appeal cases and upon the declaration of an interference a blue print or other copy will be sent forward with the files, the Examiner retaining the original drawings in his room until the hearing.

Except as herein required such blue print or other copy will not be made a part of the file, and may not be preserved after an application passes into a patent.

JOHN S. SEYMOUR,
Commissioner.

PHOTOGRAPHIC COPIES OF DRAWINGS.

A photographic outfit has been added to the equipment of the Patent Office, and positive photographic copies of any drawing, foreign or domestic, in the possession of the Office, will be furnished upon application at the following rates:

Size 10x15 inches..... 25 cents per sheet.
Size 7x11 inches..... 15 cents per sheet.
Size 5x8 inches..... 5 cents per sheet.

If an applicant desire a copy of the size 5x8 inches, two copies must be ordered, as one copy is always retained by the Office and placed in the file for the purposes specified in above Order No. 986, of January 25, 1894.

Notice.

(ORDER No. 453.)

Hereafter, when there are two or more interferences pending in this Office relating to the same subject-matter, or in which substantially the same applicants or patentees are parties thereto, in order that the record of proceedings in each particular interference may be kept separate and distinct, all motions and papers sought to be filed therein must be titled in and relate only to the particular interference to which they belong, and no motion or paper can be filed in any interference which relates to or in which is joined another interference, or matter affecting another interference.

The Examiners are also directed to file in each interference a distinct and separate copy of their actions, so that it will not be necessary to examine the records of several interferences to ascertain the status of a particular case.

This order will not, however, apply to the testimony.

All papers filed in violation of this order will be returned to the party or parties filing the same, with a printed copy of this order, which will be considered a sufficient explanation.

Privileges of the Scientific Library.

Persons who are not employés of the Office may, under the supervision and direction of the Librarian, make extracts, in pencil, from descriptions and drawings contained in the Scientific Library, such extracts, when in the nature of copies, not to exceed one-third of the descriptions or drawings from which the copies are made. Violation of this order will subject all persons and parties concerned in the violation to exclusion from thereafter making any such extracts or copies whatever.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $10; single copies, 10 cents, if mailed to foreign countries 10 cents additional for postage; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of May 22, 1894.

Patents	378—No. 520,025 to No. 520,402, inclusive.
Designs	31—No. 23,279 to No. 23,309, inclusive.
Trade-Marks	40—No. 24,733 to No. 24,772, inclusive.
Labels	None.
Prints	None.
Reissue	1—No. 11,429.
Total issue	450

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama			Nevada		
Arizona Territory			New Hampshire	1	
Arkansas	1		New Jersey	27	1
California	17		New Mexico Territ'y		
Colorado	7		New York	63	7
Connecticut	24	5	North Carolina	1	
Delaware	3		North Dakota		
District of Columbia	2		Ohio	25	2
Florida	2	1	Oklahoma Territory		
Georgia	3		Oregon	2	
Idaho	1		Pennsylvania	38	3
Illinois	22	6	Rhode Island	3	
Indiana	6		South Carolina	1	
Indian Territory			South Dakota		
Iowa	5		Tennessee	3	
Kansas	7		Texas	5	
Kentucky	5	1	Utah Territory		
Louisiana	2	1	Vermont	2	
Maine	1	1	Virginia	1	
Maryland	12	2	Washington	1	
Massachusetts	37	8	West Virginia		
Michigan	18	1	Wisconsin	12	
Minnesota	5	1	U. S. Army		
Mississippi	2		U. S. Navy		
Missouri	9				
Montana			Total to citizens of the United States	377	39
Nebraska	1				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic			Netherlands		
Austria-Hungary			Newfoundland		
Belgium			New South Wales	1	
Bermuda			New Zealand		
Brazil			Norway		
Canada	4		Queensland		
Cape Colony			Russia		
Colombia			Scotland		
Cuba	1		Servia		
Denmark			South Australia		
Ecuador			Spain		
England	8	1	Sweden		
France	4		Switzerland	1	
Germany	11		Tasmania		
Hawaii			West Australia		
India	1				
Ireland	1		Total to citizens of foreign countries	32	1
Mexico					

APPLICATIONS UNDER EXAMINATION.

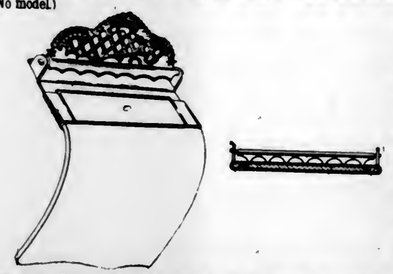
Condition at Close of Business May 15, 1894.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
32	Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	Apr. 16	May 11	107
7	Harvesters, Games and Toys, and Velocipedes.	Apr. 16	May 11	218
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Apr. 16	May 8	92
31	Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Apr. 17	May 5	105
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Apr. 16	May 4	141
2	Farm Stock, Products, etc	Apr. 16	May 3	113
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Apr. 16	Apr. 25	121
	Between one and two months.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Mar. 19	May 12	197
8	Furniture, Toilet, Umbrellas and Canes, etc.	Mar. 21	May 8	287
3	Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Mar. 26	May 7	170
4	Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Mar. 26	May 7	229
12	Mechanical Engineering, Stores-Service, etc.	Mar. 24	May 7	198
1	Tillage and Fences	Mar. 15	May 5	259
19	Stoves and Furnaces	Apr. 2	May 4	247
21	Textiles, etc	Mar. 17	May 4	152
17	Paper-Manufactures and Printing	Apr. 3	May 2	163
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Apr. 3	May 2	168
22	Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Mar. 17	May 2	181
18	Steam-Engineering, etc	Mar. 19	May 1	226
26	Electricity, Generation, Distribution, Electric Railways, etc.	Mar. 15	Apr. 24	197
13	Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, etc.	Mar. 26	Apr. 16	192
	Between two and three months.			
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Feb. 16	May 10	221
10	Carriages and Wagons	Mar. 3	May 3	255
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Mar. 12	Apr. 30	295
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Mar. 1	Apr. 20	252
34	Railway-Cars and Fluid-Pressure Railway-Brakes.	Mar. 2	Apr. 16	364
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Feb. 15	Apr. 7	278
	Between three and four months.			
23	Instruments of Precision, Acoustics, Optics, etc.	Feb. 13	May 5	331
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Feb. 1	May 1	358
24	Sewing-Machines, Crinoline and Corsets, and Apparel.	Feb. 2	Apr. 27	249
6	Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Jan. 24	Apr. 21	258
9	Hydraulics, Fire-Extinguishers, etc.	Jan. 20	Apr. 18	538
30	Lamps, Gas-Fittings, Linotyping, Matrix-Making Machines, and Type-Writing Machines.	Jan. 31	Mar. 20	313
	Total number of applications awaiting action			7,475
	Under one month in arrears.			
	Designs	May 7	May 7	25
	Trade-Marks	May 8	May 12	33

PATENTS

GRANTED MAY 22, 1894.

520,025. CLINCH-BACK FOR SUSPENDER-BUCKLES. GEORGE E. ADAMS, New Britain, Conn. Filed Jan. 22, 1894. Serial No. 497,653. (No model.)



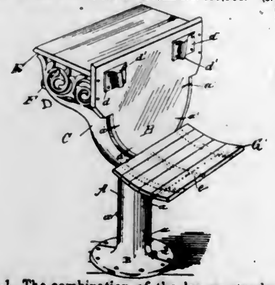
Claim.—1. In a device, such as described, the combination with the buckle body, of the clinch back having the central tongue folded back to embrace the end edge of the webbing said tongue not extending to the side edges of the webbing and the ears at each side of less length than the space between the sides of the central tongue and sides of the clinch back, said ears being toothed on their edges and folded over to embrace the selvage edges of the web outside of the central tongue, whereby the ears and tongue lie in the same plane; substantially as described

2. In a device, such as described, the combination with the buckle body, having the headed projections on one edge, of the clinch back having the tongue passed between said projections and folded back to embrace the end of the web; substantially as described.

3. In a device, such as described, the combination with the buckle body having the headed projections on one edge, of the clinch back having the tongue passed between the headed projections and folded back to embrace the end of the web, and the ears at each side folded over to embrace the side edges of the web and headed projections; substantially as described.

4. In a device, such as described, the combination with the buckle body having the headed projections on one edge, of the clinch back having the tongue passed between the headed projections and folded back to embrace the end of the fabric, the teeth on the opposite edge of the clinch back for cooperation with the tongue to hold the fabric, and the ears at each side folded in to embrace the side edges of the fabric and having the teeth thereon: substantially as described.

520,026. SCHOOL DESK AND SEAT. CHARLES T. AMMON, Worcester, Ohio. Filed Feb. 7, 1894. Serial No. 499,360. (No model.)

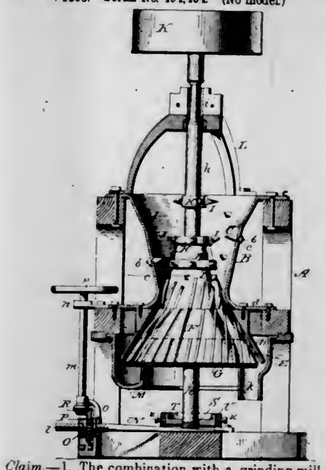


Claim.—1. The combination of the leg or standard A, formed in sections clamped together, the upward and outward curved arms C, formed integral with the standard sections and provided at their top or upper ends with the desk sides D, the grooves *b* formed in the arms C, the back B, the seat G, and the desk or table, substantially as and for the purpose specified.

2. The combination of the post or standard A, formed in sections provided with the arms C, the seat support *e*, secured to the top or upper end of one of the standard sections, the braces *f*, the back B, secured to the arms C and the desk sides E, and provided with the flanges *d* having the inclined ribs *d'*, substantially as and for the purpose specified.

3. The combination of the curved standard or leg A' formed in sections, each section provided with the upwardly and outwardly curved arm C, provided with the groove *b*, the back B, the desk sides D having secured thereto the desk E, and the book shelf F, and the seat G, substantially as and for the purpose specified.

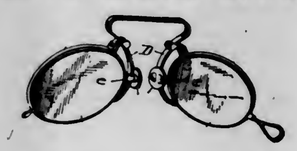
520,027. GRINDING-MILL. HIRAM S. ATKINS, Stowe, Vt. Filed Dec. 22, 1893. Serial No. 494,494. (No model.)



Claim.—1. The combination with a grinding-mill, of means for raising and lowering the shaft to which the grinding-cone is connected, consisting of a movable wedge, a grooved step for the end of the shaft to rest on, and a grooved centering block, substantially as and for the purpose described.

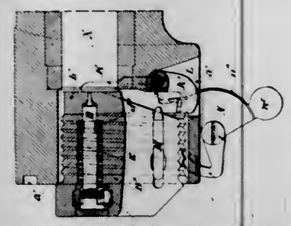
2. A grinding mill having its cone and shell provided with independently removable breaking-knives, means for raising and lowering the grinding-cone consisting of a movable wedge, a grooved step for the end of the cone-shaft to rest on, and a grooved centering-block, and means for operating the wedge consisting of a feed-nut having a gear-wheel, and a shaft and pinion for operating them, substantially as and for the purpose set forth.

520,028. EYEGLASSES. GEORGE W. BENNUM and JOHN L. MCKIM, Georgetown, Del. Filed Sept. 5, 1893. Serial No. 485,094. (No model.)



Claim.—In a pair of eye glasses, the combination with the nose pieces having reduced portions, of the self adjusting plates provided with tongues embracing said reduced portions, substantially as described

520,029. **BREECH MECHANISM FOR ORDNANCE.** OSKAR W BERGMAN and ERNST TERNSTRÖM, Paris, France. Filed Apr. 30, 1891. Serial No. 391,056. (No model.)



Claim.—1. In a breech loading gun, the combination with a barrel provided with a firing chamber, of a breech provided with a cylindrical threaded opening eccentric to the axis of the bore of said barrel, a threaded breech-block adapted to rotate in said breech opening, and means actuated by the rotation of the breech-block for extracting the cartridge shell after firing, substantially as described and set forth.

2. In a breech loading gun, the combination with a barrel provided with a firing chamber, of a breech provided with a cylindrical threaded opening eccentric to the axis of the bore of said barrel, a threaded breech-block adapted to rotate in said breech opening, and a freely swinging locking device on said breech, and engaging with the breech-block when the breech-block is in the firing position to lock the same from movement, and disengaged therefrom to the recoil of the gun when the same is fired, and a cam face on the breech-block engaging with the locking device to swing the same to lock the breech-block from movement when the breech-block has been moved into the firing position, substantially as described.

3. In a breech loading gun, the combination with a barrel provided with a firing chamber, of a breech provided with a cylindrical threaded opening eccentric to the axis of the bore of said barrel, a cam device on the breech, a threaded breech block adapted to rotate in said breech opening, and a reciprocating lever connected to said breech block for rotating the same and engaging with the cam device on the breech, whereby upon rotation of the breech-block the lever will be reciprocated, substantially as described.

4. In a breech loading gun, the combination with a barrel provided with a firing chamber, of a breech provided with a cylindrical threaded opening eccentric to the axis of the bore of said barrel, a threaded breech-block provided with a cartridge receiving opening therein and adapted to rotate in said breech opening, and a spring in said cartridge receiving opening adapted to prevent backward movement of the cartridge when it has passed said spring, substantially as described and for the purposes set forth.

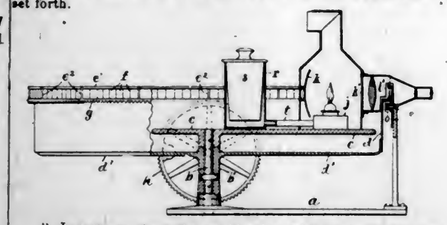
5. In a breech loading gun, the combination of a breech provided with a cylindrical threaded opening eccentric to the axis of the bore of the barrel, a cam groove in said breech eccentric to the axis of the opening therein, a threaded breech-block adapted to rotate in said breech opening, a lever on said breech-block having a pin operating in the groove in the breech, a firing-pin withdrawn automatically by said lever, and an extractor automatically operated by the rotation of the breech-block, substantially as described and for the purposes set forth.

6. In a breech loading gun, the combination with a breech and breech-block of a firing mechanism, said firing mechanism combining therein a firing-pin adapted to reciprocate in an opening in said block, and having cam-faces thereon, a spring arranged to control said firing-pin, a lever adapted to reciprocate transversely to the bore of the gun, and provided with cam faces co-operating with the cam faces on the firing-pin to force said pin backward, a sear and a trigger, all said parts being arranged and adapted to operate, substantially as described and in the manner and for the purposes set forth.

520,030. **MOTOR-OPTICON.** JAMES E. BLACKMORE, Newark, N. J. Filed June 19, 1893. Serial No. 478,116. (No model.)

Claim.—1. In a stereopticon, the combination, with a stationary lantern provided with a condenser and lens, of a cylindrical rotary carrier surrounding the lantern and carrying a series of photographs behind the lens and a rotary shutter with gearing connecting the shutter and carrier, and operated to expose the lens as each photograph is presented thereto, substantially as herein set forth.

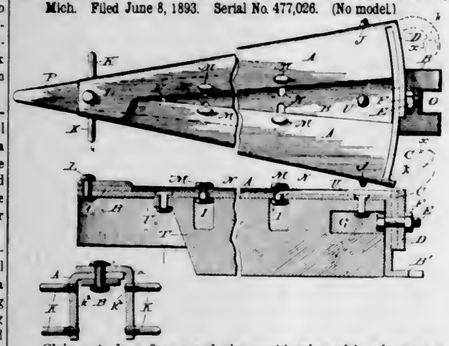
2. In a stereopticon, the combination, with a suitable base, of a post projected upward thereon, a carrier wheel mounted thereon, with a series of transparencies fitted to its periphery a platform upon the top of the post, a lantern and lens sustained upon such platform, and a shutter adapted to expose the pictures to the lens in succession, as set forth.



3. In a stereopticon, the combination, with a suitable base, of a carrier wheel rotated horizontally thereon, and provided with teeth upon its edge and holder for a series of transparent photographs, a lantern and condenser sustained within the wheel with a lens sustained in line with such condenser, a shutter rotated between the condenser and lens with pinion connected to the said teeth, and a gear with hand-crank for rotating the carrier wheel, substantially as herein set forth.

4. An attachment for stereopticons, consisting in a base, a post projected upward therefrom, a platform upon the top of the post to sustain the lantern, a carrier wheel pivoted upon the post beneath the platform with holder for a series of transparencies, and a shutter geared to the carrier wheel, as herein set forth.

520,031. **FOOT-GUARD.** JOHN H. BLOMSHIELD, West Bay City, Mich. Filed June 8, 1893. Serial No. 477,026. (No model.)



Claim.—1. In a foot-guard, the combination with a base-plate, of duplicate wings mounted thereon to swing in opposite directions and means for securing the wings at any angle of adjustment, as specified.

2. In a foot-guard, the combination with a base-plate, of duplicate wings mounted thereon to swing in opposite directions, a locking device adapted for securing the wings at any angle of adjustment, and the lateral adjustable projections of the wings adapted for engaging the rails, as specified.

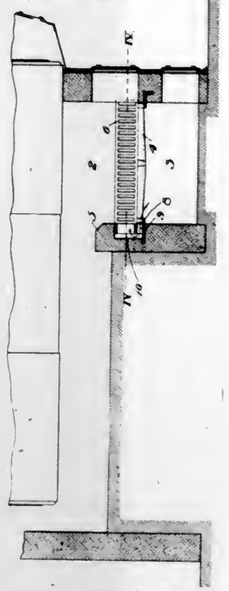
3. In a foot-guard the combination with a base-plate having a terminal L-shaped foot and provided with suitable strengthening ribs, of duplicate wings angular in cross section and mounted on the base-plate to swing in opposite directions, a locking device adapted for securing the wings at any angle of adjustment, the lateral adjustable studs of the wings, and the end flanges, as specified.

520,032. **FURNACE.** RICHARD BOW, McKeesport, Pa., assignor of two-thirds to Richard Hampson and James M. Brown, same place. Filed July 15, 1893. Serial No. 480,616. (No model.)

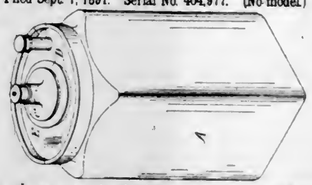
Claim.—1. A furnace having above the grate-bars an air chamber formed in the furnace wall, and a perforated removable plate interposed between the air-chamber and the combustion-chamber and adapted to permit passage of air into the bed of fuel in the latter, said plate being supported above the base of said air-chamber to afford an air passage leading transversely from beneath the grate-bars into said chamber back of the plate; substantially as described.

2. A furnace having above the grate bars an air chamber formed in the furnace wall, a perforated reversible plate interposed between the air-chamber and the combustion-chamber, and adapted to permit passage of air into the bed of fuel in the latter, and a supporting

plate 8, having lugs which uphold said plate above the base of the air-chamber; substantially as described.

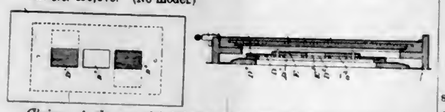


520,033. **ELECTRIC BATTERY.** WILLIAM W. BURNHAM, Newton, Mass., assignor to the Electric Gas Lighting Company, Portland, Me. Filed Sept. 7, 1891. Serial No. 404,977. (No model.)



Claim.—In an open circuit electric battery, the combination of devices to support the elements, to hold them properly separated from each other, and to act as a cover for the outer jar, namely, a cover properly perforated at the center and also for the rod of the circular zinc and supported by the outer jar, a carbon electrode having a diminished head or projection properly beveled, and a flexible band adapted to clasp said beveled projection and rest upon said cover, substantially as described.

520,034. **PHOTOGRAPHIC-CAMERA MULTIPLYING ATTACHMENT.** DAVID S. COLE, Washington, Iowa. Filed Nov. 25, 1892. Serial No. 453,078. (No model.)

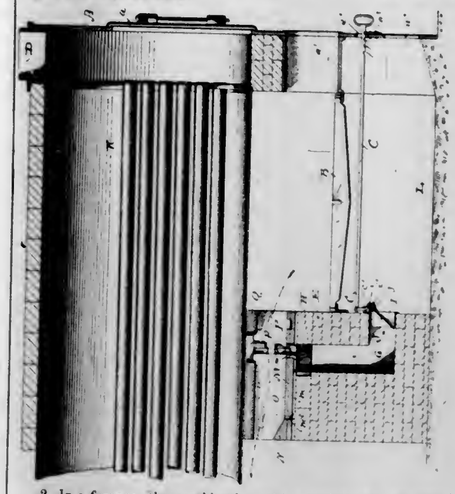


Claim.—1. In a multiplying attachment for photographic apparatus, two plates adjustable one upon the other, one being provided with a diagonal series of apertures and the other with a straight series.

2. The herein described photographic camera attachment consisting of plates D and E, said plate E being provided with the diagonally arranged openings E' E^2 E^3 and plate D being provided with the straight series of openings D' D^2 D^3, together with the guide pins *a a* on the plate D which enter the guide slots F F in plate E, substantially as described.

520,035. **FURNACE.** GEORGE M. CONWAY, Milwaukee, Wis. Filed June 10, 1893. Serial No. 477,209. (No model.)

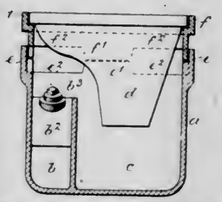
Claim.—1. In a furnace, the combination with a bridge wall, provided with damper-controlled air-flues and a transverse air-space communicating therewith, of a series of gas and air mingling and combustion chambers communicating with said air-space, and with each other, said chambers being open at each end, the inlet opening of each chamber being of full height, and the outlet opening converging to a contracted throat



2. In a furnace, the combination with a bridge-wall, provided with damper-controlled air-flues, and a transverse air-space communicating therewith, of a boiler, and a series of gas and air mingling and combustion chambers, radially disposed about said boiler, and interposed between it and said air-space, said chambers communicating with said air-space, and with each other, and being open at each end, the inlet opening of each chamber being of full height, and the outlet opening converging to a contracted throat.

3. In a furnace the combination with a boiler, of a series of gas and air mingling and combustion chambers, composed of sections of tiles, the bottom tiles being rounded and grooved on their under surfaces, and the top tiles rounded on their upper surfaces in conformity with the shape of said boiler, and radially disposed about the same, the upper and lower tiling being separated by a series of partition plates forming therewith the said chambers, and there being air passages through the bottom tiles and partitions for the admission of air within said chambers.

520,036. **DOUBLE-TRAP SURFACE-WATER GULLY.** LORENZO W. CROSTA, West Bridgford, assignor to the Patent Gully Company, Limited, Nottingham, England. Filed May 15, 1893. Serial No. 474,224. (No model.)



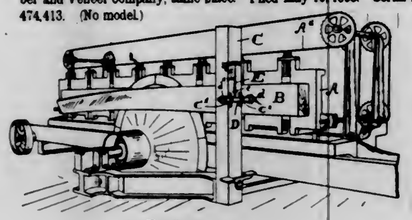
Claim.—1. The combination, in a water gully, of a receiving vessel, an integral partition *a'*, dividing said vessel into two chambers, an opening at top of said vessel, of approximately the same area as the vessel, giving access to both sides of said partition, a detachable tapering bell or bonnet *d*, provided with a grate *d'* extending over both chambers, and with its discharge mouth situated toward one side, an outlet from the smaller of said chambers below the level of the partition, and an internal bend b^2 extending down from the top of the partition, at right angles thereto and between the latter and the outer wall of the vessel, substantially as described.

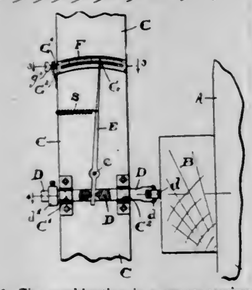
2. The combination, in a water gully, of a receiving vessel, an integral partition *a'*, dividing said vessel into two chambers, an opening at top of said vessel of approximately the same area as the vessel, giving access to both sides of said partition, a detachable tapering bell or bonnet *d*, provided with a grate *d'*, extending over both chambers, and with its discharge mouth situated toward one side, an outlet from the smaller of said chambers below the level of the partition,

and an internal bend b^3, extending down from the top of the partition at right angles thereto between the latter and the outer wall of the vessel, and a screw-threaded opening (closed by a plug when not in use), in said bend, into which may be screwed the end of a hydrant hose for flushing the drain, or into which a cane or other appliance may be inserted for removing obstruction, substantially as described.

3. In a surface water gully trap, a receiving vessel with an open flanged upper edge having staggered projections and having a partition separating the lower part of the vessel into two chambers, an outlet from one side and connected bend passing downwardly between the partition and one side of the vessel, and a tapering bell or bonnet and integral grating and surrounding flange at the top, and a frame having staggered projections adapted to set into the flanged upper edge of the body and with the staggered projections coinciding or interlocking to provide for different heights, said frame receiving the flanged edge of the tapering bell or bonnet, substantially as set forth.

520,037. INDICATOR FOR VENEER-SAWING MACHINES. WILLIAM M. DICKERSON, Indianapolis, Ind., assignor to the Indiana Lumber and Veneer Company, same place. Filed May 16, 1893. Serial No. 474,413. (No model.)





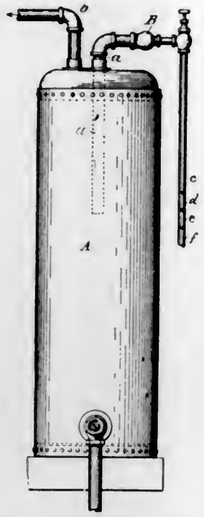
Claim.—1. The combination, in a veneer sawing machine, of the saw, the log carriage, the bed-plate or "stay-log" thereon, mechanism for moving said bed-plate and the timber secured thereto toward the saw, a suitable post or frame, a bar mounted to be readily movable in bearings upon said post or frame its end extending out and arranged and adapted to come in contact with that face of said timber being sawed from which the veneers are being cut, an indicator finger pivoted to a fixed point on said post or frame and connected to said bar, and an indicator mark or point arranged near where the point of said finger passes, whereby the adjustment of said bed-plate or log-carriage prior to each sawing may be determined through the medium of the timber itself which is being sawed, and uniformity of thickness of the veneers thus secured, substantially as set forth.

2. The combination, in a veneer sawing machine, of the saw mill mechanism, the timber secured to the stay-log thereof, mechanism for moving said stay-log and said timber toward the saw, a suitable post or frame, a bar mounted and readily movable in bearings upon said post or frame with its end extended out and arranged and adapted to come in contact with the front or work surface of the timber being sawed, an indicator finger pivoted to a fixed point on said post or frame and connected to said bar, and an adjustable indicator point arranged near where the point of said finger passes, substantially as and for the purposes set forth.

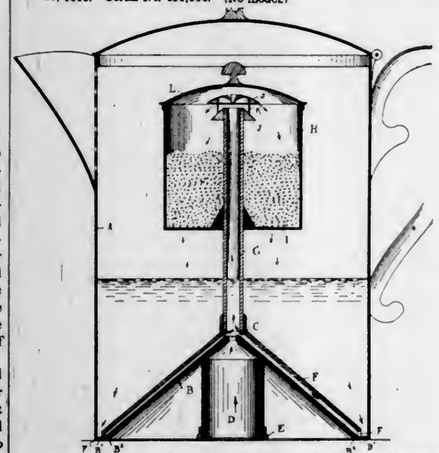
3. The combination, in an indicator for veneer sawing machines, of the bar D, the indicator finger E, the spring S, and the adjustable indicator point G, substantially as set forth.

520,038. APPARATUS FOR SEPARATING GAS FROM LIQUID BY-PRODUCTS. JOHN A. DIXON, East Orange, N. J., assignor, by mesne assignments, to the Safety Car Heating and Lighting Company, of New Jersey. Filed Nov. 22, 1893. Serial No. 491,610. (No model.)

Claim.—In an apparatus for separating gas from gas tar, the combination of a vertical closed vessel, a manifold fitting B, a pipe *a* connected to the manifold fitting by one end and to the top of the vessel, and extending for some distance into and toward the bottom of the vessel, a series of pipes *c d e f* communicating with the manifold fitting and serving to conduct gas tar into the same from collecting traps, a gas outlet pipe *b* leading from the top of the closed vessel, and a liquid outlet *g* at the bottom of the vessel having a curved pipe *g'* extending into the vessel and terminating below the draining level of the liquid outlet, substantially as described.



520,039. COFFEE-POT. JOHN S. DUNLAP, Peoria, Ill. Filed July 18, 1893. Serial No. 480,866. (No model.)

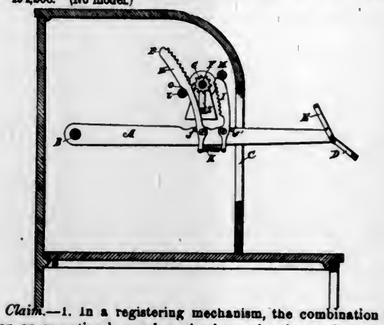


Claim.—1. In a coffee pot, a centrally located receptacle depending from the bottom of the pot and forming the only surface to be heated for the purposes set forth, a channel formed between two cones B and F situated directly above the said receptacle and with which channel said receptacle communicates through an opening or aperture C in the apex of the said receptacle D, and an upwardly extending passage or channel G communicating with the said receptacle D and the channel between said cones B and F substantially in the manner and for the purposes herein set forth and described.

2. A coffee pot provided with two companion cones located at the bottom of said coffee pot, resting point upward, one above another, and slightly separated to form a passage for liquid, the upper cone being provided with a vertical conductor or tube also forming a passage for liquid, the lower cone having an orifice formed in its apex, a centrally located receptacle beneath said lower cone for the generation of steam, said orifice forming an outlet from said receptacle substantially as and for the purposes set forth and described.

3. In a coffee pot, a body or containing vessel provided with an upwardly extending coned bottom B provided with an orifice C at its apex, a containing vessel or receptacle D centrally located on the under side of the said cone B, the apex of the cone B forming the top of the said receptacle and the orifice C therein forming the outlet for said receptacle, said receptacle being provided with a cap E forming the bottom thereof, in combination with a removable cone F supported above the cone B, substantially in the manner and for the purposes set forth, said cone F carrying at its apex a tube G opening through said cone, and carrying on its upper end a spraying device and a containing vessel or cup H substantially in the manner and for the purposes set forth and described.

520,040. MECHANICAL MOVEMENT FOR CALCULATING-MACHINES. LEO EHRLICH, St. Louis, Mo., assignor to the National Cash Register Company, Dayton, Ohio. Filed Dec. 20, 1893. Serial No. 494,208. (No model.)



Claim.—1. In a registering mechanism, the combination of a pinion, an operating key or lever having registering strokes in opposite directions, two racks actuated by the lever and provided with different numbers of teeth and co-operating with the pinion upon opposite sides of it, said racks being normally disengaged from the pinion and means for alternately engaging the racks with the pinion automatically when the lever is moved in opposite directions, substantially as and for the purpose described.

2. In a registering mechanism, the combination of a pinion, an operating key or lever, two racks actuated by the lever and co-operating with the pinion upon opposite sides of it, means for alternately engaging the racks with the pinion when the lever is moved in opposite directions, a registering wheel, and a clutch between the pinion and wheel for causing the former to transmit its movement in one direction to the latter, substantially as and for the purpose described.

3. In a registering mechanism, the combination of a pinion, an operating key or lever, two racks independently pivoted to said lever upon opposite sides of the pinion and normally disengaged from the latter, and means for alternately engaging the racks with the pinion automatically when the lever is moved in opposite directions, substantially as and for the purpose described.

4. In a registering machine, the combination of a pinion, an operating key or lever, two racks independently pivoted to the lever upon opposite sides of the pinion, a spring normally holding said racks out of engagement with the pinion, and means for automatically engaging the respective racks with the pinion when the lever is moved in opposite directions, substantially as and for the purpose described.

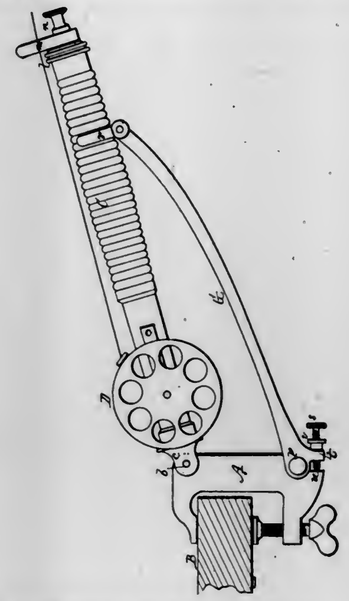
5. In a registering mechanism, the combination of a pinion, an operating key or lever, two racks having different numbers of teeth and independently pivoted to said lever upon opposite sides of the pinion, a spring yieldingly holding them in normal position, means for alternately engaging them with the pinion as the lever is moved in opposite directions, a registering wheel and a clutch between the same and the pinion, substantially as and for the purpose described.

6. In a registering machine, the combination of a register, an operating key or lever normally occupying an approximately horizontal middle position and having registering strokes upward and downward therefrom, and provided with two finger pieces, one bearing a number indicating the amount the lever will register when moved in one direction and the other the amount it will register when moved in the opposite direction, and means intermediate the lever and register for imparting different degrees of movement to the latter at opposite strokes of the lever, substantially as described.

7. The combination of the lever A, shaft F, pinion G loose thereon, the racks H I pivoted to the lever A, spring K, rods L M, clutch Q R, and registering wheel T, substantially as and for the purpose described.

520,041. FISHING-ROD SUPPORT. JOHN M. FISCH, Hornellsville, N. Y. Filed July 31, 1891. Serial No. 401,263. (No model.)

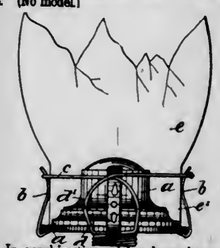
Claim.—1. The combination of the clamp, the socket at the top of the clamp for receiving the butt of the rod, and the arm pivotally attached to the clamp and extended forward to support the rod, as described.



2. The combination of the clamp, the socket at the top of the clamp for receiving the butt of the rod, and an arm pivoted to the clamp provided with means for adjusting it higher or lower, and a bearing at its outer end for receiving and holding the rod, as described.

3. The combination of the clamp, the socket for receiving the rod, consisting of the bearing *c* the pivoted head *d* and clamping screw *f*, and the arm G attached at one end to the clamp the other end forming a bearing for the rod, as herein shown and described.

520,042. CLAMP FOR LAMP-BURNERS. EDWARD C. FOWLER and GEORGE A. DOWNS, Forestville, Conn. Filed Nov. 29, 1893. Serial No. 453,464. (No model.)

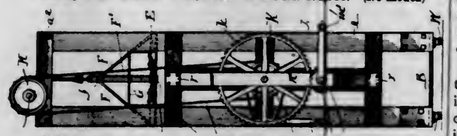


Claim.—1. In combination with a lamp burner having chimney holding arms, a removable and contractile clamp adapted to surround and embrace the arms, and having a downturned loop resting at its lower end at the bottom of and within one of the holding arms, all substantially as described.

2. In combination with a lamp burner having holding arms, a clamp made of wire bent to shape and adapted to embrace the holding arms, the downturned loops formed integral with the clamp the parts of which cross outside of a holding arm and extend within it having an inturned portion operating to hold the chimney at a point below the point of contact with the holding arms, all substantially as described.

3. In combination with a lamp burner having chimney holding arms, a clamp made of spring wire with integral loops bent downward and crossing a spring arm, the clamp being supported by the loop which is provided with inturned presser arms that hold the chimney with a yielding pressure, and a lamp chimney, all substantially as described.

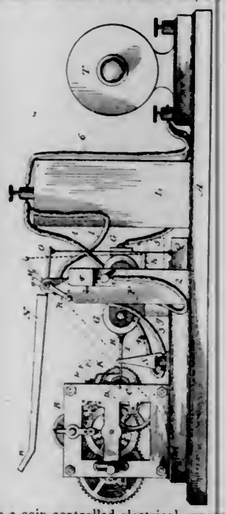
520,043. ELEVATOR. JOHN C. FOX, Chicago, Ill., assignor of two-thirds to Percy Thompson, Kansas City, Mo., and Frank A. Warner, Chicago, Ill. Filed Nov. 20, 1893. Serial No. 491,386. (No model.)



Claim.—1. An elevator comprising an upright frame having at each side two vertical bars constituting the corner posts of the frame, a platform arranged to travel within said upright frame, each end of said platform projecting between the vertical bars adjacent thereto, the vertical guide bars G attached to the ends of said platform and extending across the space between the adjacent side bars, and arranged to move between the inner edges of said side bars, the A-rods F having their lower ends rigidly attached to the front and rear of said platform adjacent its ends, the vertical rods F' centrally attached to the ends of said platform, and to said rods F, suitable ropes or cables leading from said rods F', a shaft C mounted in the top of the frame, the winding drums D, D', carried thereby to which the ropes or cables are connected, and gear mechanism for effecting the movement of said drums, substantially as described.

2. A portable elevator comprising a suitable framework, a platform movable therein, suitable winding drums for raising and lowering said platform, gear mechanism located adjacent the lower part of said frame and connected with said winding drums, and a supplemental frame for sustaining said gear mechanism, said supplemental frame consisting of the I-shaped back plate R and the arched front plate R' bolted to said back plate R, the ends of said back plate being attached to the framework, substantially as described.

520,044. COIN-CONTROLLED ELECTRICAL APPARATUS. JOHN O. FROST, Greensburg, assignor of one-half to Minnie Johnson, Uniontown, Pa. Filed Dec. 30, 1893. Serial No. 495,167. (No model.)



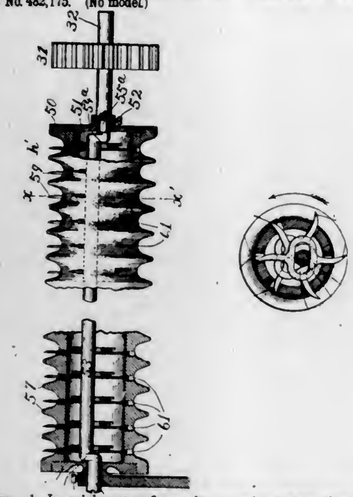
Claim.—1. In a coin controlled electrical apparatus, the combination of a time mechanism having a stop wheel, a magnet controlled spring-armature adapted to normally engage with said stop wheel and with the escapement lever of the mechanism, an adjacent projected contact spring arranged at one side of the spring armature in the path of its movement to form a contact therewith and to assist in throwing it into engagement with the time mechanism, an operating battery circuit for the armature magnet, a coin-controlled circuit closer included in said battery circuit, and an external working circuit partly completed by the battery circuit and having a circuit closer consisting of said armature and said contact spring, substantially as set forth.

2. In a coin controlled electrical apparatus, the time mechanism having an imperforate notched stop wheel, and the escapement lever of which is provided with a twisted end, F, suitably arranged electro-magnets included in the battery circuit, a spring armature having a right angularly disposed catch tongue adapted to normally project through the notch of said stop wheel, a projected bent step arm attached to said armature and having a laterally bent stop end K adapted to engage against the twisted end of said escapement lever, a coin operated circuit closer included in the battery circuit of said magnets, and an external working circuit energized by the movement of said armature in one direction, substantially as described.

3. In a coin controlled electrical apparatus, the combination with the time mechanism and the electrically controlled devices for releasing and stopping the same; of a suitably arranged stationary flanged contact bracket included in one of the electrical circuits, a normally inactive tilting pivotally mounted coin tray included in the same circuit with said contact bracket and having a swinging contact arm connected to its axle and adapted to work at one side of and to contact therewith to close such circuit, and separate means for normally holding the tray to a position with its contact arm out of contact with said bracket substantially as described

4. In a coin controlled electrical apparatus, the combination with the time mechanism and the electrically controlled devices for releasing and stopping the same; of a supporting post, a flanged off-standing stationary contact bracket attached to said post and included in one of the electrical circuits, an elongated side flanged tilting coin tray having an axle near one end pivotally mounted on top of said post and included in the same circuit with said contact bracket said tray also having an outer angled end *n*, a swinging contact arm attached fixedly to one end of the tray axle and adapted to be moved against said contact bracket, and a weight loosely connected to the short end of the tray for normally holding the same in an inactive position, substantially as described.

520,045. COTTON-HARVESTER. BENJAMIN GAUSE, Atlanta, Ga., assignor to John C. Calhoun, New York, N. Y. Filed Aug. 8, 1893. Serial No. 482,175. (No model.)



Claim.—1. In a picker stem for use in cotton harvesters, the combination with a hollow cylinder having corrugations on the exterior thereof, and apertures at the base of said corrugations of a shaft journaled in the ends of said cylinder, cranks within said cylinder connected to said shaft, a crank pin extending through said cylinder, connecting said cranks, and picker teeth passing through said apertures in the cylinder, and having an enlarged slotted central portion engaging said crank pin, substantially as and for the purposes described.

2. In a picker stem for use in cotton harvesters, the combination with a hollow cylinder having corrugations on the exterior thereof, and apertures at the base of said corrugations, of a shaft journaled in the ends of said cylinder, cranks on the ends of said shaft, and means of setting said cranks at any desired angle relative to the ground, means for revolving said picker stems on said shaft, a crank pin and cranks connected to said shaft within said hollow cylinder, and picker teeth passing through said apertures in the cylinder, and having an enlarged slotted central portion engaging said crank pin, substantially as and for the purposes described.

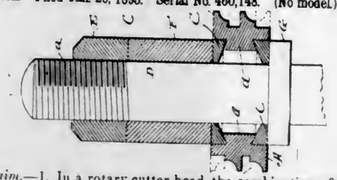
3. In a picker stem for use in cotton harvesters, the combination with a hollow cylinder having corrugations on the exterior thereof, and apertures at the base of said corrugations, of a shaft journaled in the end of said cylinder, a device for clamping said shaft independent of said picker stem, a crank and a crank pin mounted on said shaft within said cylinder, double picker teeth provided with an enlarged slotted central portion engaging said crank pin, and projecting in the corrugations of either side of the cylinder, and a separate driving shaft rigidly attached to said picker stem, substantially as and for the purposes described.

4. In a picker stem for use in cotton harvesters, the combination with a hollow cylinder having corrugations on the exterior thereof, and apertures at the base of said corrugations, of a shaft journaled in the ends of said cylinder, cranks within said cylinder connected to said shaft, a crank pin extending through said cylinder connecting said cranks; picker teeth passing through said apertures in the cylinder, and having an enlarged slotted central portion engaging said crank pin and a rod extending over the axis of said picker stem to guard the teeth thereof, substantially as and for the purposes described.

5. In a picker stem for use in cotton harvesters, the combination with a hollow cylinder having corrugations on the exterior thereof, and apertures at the base of said corrugations, of a shaft journaled in the ends of said cylinder, cranks attached to the ends of said shaft, means of setting said cranks at any desired angle relative to the ground, means for revolving said picker stems on said shaft; a crank pin and cranks connected to said shaft within said hollow cylinder; picker teeth passing through said apertures in the cylinder, and having an enlarged slotted central portion engaging said crank pin; and a rod extending over the axis of said picker stem to guard the teeth thereof, substantially as and for the purposes described.

6. In a picker stem for use in cotton harvesters, the combination with a hollow cylinder having corrugations on the exterior thereof, and apertures at the base of said corrugations, of a shaft journaled in the end of said cylinder, a device for clamping said shaft independent of said picker stem, a crank and a crank pin mounted on said shaft within said cylinder, double picker teeth provided with an enlarged slotted central portion engaging said crank pin, and projecting in the corrugations of either side of the cylinder; a separate driving shaft rigidly attached to said picker stem, and a rod extending over the axis of said picker stem to guard the teeth thereof, substantially as and for the purposes described.

520,046. ROTARY CUTTER-HEAD. GEORGE C. GOODYEAR, Flint, Mich. Filed Jan. 28, 1893. Serial No. 460,148. (No model.)

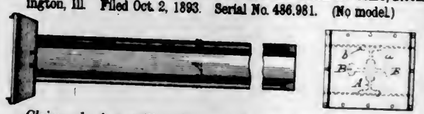


Claim.—1. In a rotary cutter head, the combination of the cutters A, B, having dovetail projections on their inner sides, and collars C, provided in their sides with recesses having their inner walls beveled or inclined to engage the dovetail projections of the cutters and also provided on their peripheries with shoulders L, and having the said peripheries tapered from the point of one shoulder to the heel of the other, substantially as and for the purpose specified.

2. In a rotary cutter, the combination of an arbor, the cutters A, B, and collars arranged upon the arbor and disposed on opposite sides of the cutters; the said collars having shoulders L, at diametrically opposite points and also having their peripheral edges tapered from the point of one shoulder to the heel of the other, substantially as and for the purpose set forth.

3. The herein described rotary cutter head comprising the arbor having a collar G, and also having threads as *a*, the segmental cutters A, B, having the longitudinally-extending dovetail projections *d*, on their inner sides adapted to bear upon the arbor, collars C, disposed on opposite sides of the cutters and provided in their inner sides with recesses having their inner walls beveled to engage the dovetail projections of the cutters and a nut adapted to serve in conjunction with the collar G, to hold the collars C, in engagement with the cutters, substantially as specified.

520,047. METALLIC COLUMN OR PILE. RICHARD GRAY, Bloomington, Ill. Filed Oct. 2, 1893. Serial No. 486,981. (No model.)



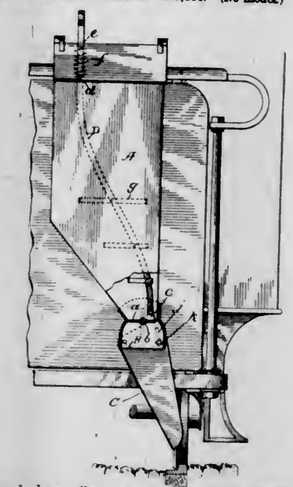
Claim.—1. A metallic column or pile comprising a flanged beam, and one or more T-rails secured to the body of the beam, all substantially as shown and described.

2. A metallic column or pile comprising a flanged beam, and two T-rails secured to opposite faces of the body or central web of the beam, substantially as shown and described.

3. A metallic column or pile comprising a flanged beam, and two T-rails applied to opposite faces of the body or central web of the beam; and rivets or bolts uniting the rails and beam.

4. A metallic column or pile comprising a flanged beam and one or more T-rails secured thereto; said beam-flanges and rail-heads being beveled or pointed.

520,048. RAILWAY SANDING DEVICE. WILLIAM GRUNOW, Jr., Mount Vernon, N. Y., assignor to Zalmon Goodsell, Bridgeport, Conn. Filed June 29, 1893. Serial No. 479,180. (No model.)



Claim.—1. In a railway sanding device the combination with a box or receptacle of a tapering chute pivoted to the box by bolts, the bolt-holes at one side being vertically elongated to admit of the chute being laterally adjusted substantially as shown and described.

2. In a railway sanding device, the combination with a main box having at its lower end a tapering chute pivoted thereto by bolts, the bolt-holes at one side being elongated whereby the chute may be adjusted, of an axially mounted trip valve intervening the box and the chute and an actuating rod provided with angular agitators, the said rod being pivotally secured to the said trip-valve, substantially as shown and described.

3. In a railway sanding device, the combination with a main box adapted to be secured to the car and having at its lower end a tapering chute pivoted thereto by bolts, the bolt-holes at one side being elongated whereby the chute may be adjusted, of an axially-mounted trip valve intervening the box and the chute, an actuating rod provided with angular agitators, the said rod being pivotally secured to the said trip-valve, a spring surrounding the rod at the top to hold the trip-valve normally closed, a strap connecting the actuating rod, to a foot-rest, substantially as shown and described.

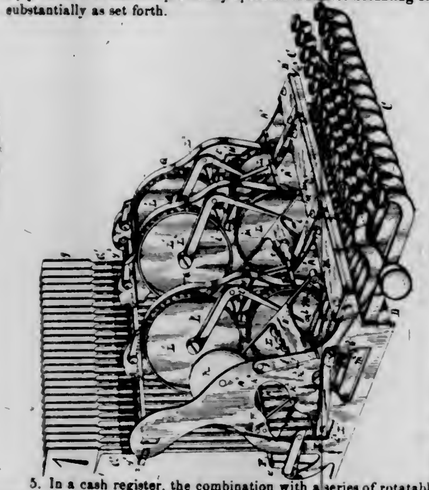
520,049. CASH REGISTER AND INDICATOR. MICHEL HEINTZ, Detroit, Mich. Filed Oct. 16, 1893. Serial No. 488,239. (No model.)

Claim.—1. In a cash register provided with a series of operating keys, a series of indicator actuating bars or rods provided with indicators at their upper ends, each of said bars bent beneath its corresponding indicator to carry the indicator forward when its face is presented to the front, said bars or rods each provided toward its lower end with a helical shaped flange whereby each bar or rod may be independently rotated, substantially as set forth.

2. In a cash register, a series of rotatable indicator actuating bars provided with indicators at their upper ends, each of said bars bent beneath its corresponding indicator to carry the indicator forward when its face is presented to the front, substantially as set forth.

3. In a cash register, the combination of a series of operating keys, a series of rotatable indicator actuating bars each provided with a helical faced flange engaged by the corresponding key when its rear end is lifted into contact therewith, thereby rotating said bar, and means to hold each of said bars in lifted positions, the flange being out of contact with the corresponding key both in its normal and in its lifted position, substantially as set forth.

4. In a cash register, the combination with a series of operating keys, of a series of rotatable indicator actuating bars each provided with a helical faced flange engaged by the corresponding key when the key is operated, a slotted tilting bar embracing said indicator actuating bars, and means to raise said tilting bar when a given key is operated to release the previously operated indicator actuating bar, substantially as set forth.



5. In a cash register, the combination with a series of rotatable indicator actuating bars each provided with a helical faced flange, and a tilting bar F slotted to receive the corresponding flanges, said flanges when rotated engaging in slots of said tilting bar and extending transversely therebeneath when in normal position, substantially as set forth.

6. In a cash register, the combination with a series of operating levers, of a series of rotatable indicator bars provided with indicators at their upper ends and helical faced flanges toward their lower ends, a slotted tilting bar F and a swinging rod E arranged to lift the tilting bar when the keys are operated, substantially as set forth.

7. In a cash register, the combination of a series of operating keys, a series of rotatable indicator actuating bars provided with helical faced flanges, rotated by said keys respectively, a slotted tilting bar F, a swinging rod E located adjacent to the lower end of the keys and means to force said swinging rod out of engagement with the keys, substantially as set forth.

8. In a cash register the combination with vertical supporting brackets, of a series of fulcrumed operating keys, a registering wheel and a swinging web pivotally supported on the adjacent vertical brackets and arranged to operate the registering wheels, said web constructed with shoulders at different distances from the fulcrums of the various keys, and said keys each provided with an independent finger to engage the corresponding shoulder upon said web, substantially as set forth.

9. In a cash register, the combination of a series of fulcrumed operating keys, a registering wheel and a swinging web arranged to operate said wheel, said web constructed with shoulders at its rear edge, and said shoulders projecting rearwardly the one beyond the other in order laterally of the web, said keys each provided with an independent finger engaging the correspondlng shoulder of the web, whereby the various fingers upon the operating keys will engage said web at different distances from the respective fulcrums of the said keys, substantially as set forth.

10. In a cash-register, the combination with a series of fulcrumed operating keys, of a registering wheel and a swinging web arranged to operate said wheel, said web constructed with shoulders at different distances from the fulcrum of the various keys and said keys, provided with fingers corresponding to the shoulders upon the web, the fingers constructed with a recess to engage the web and a hook to engage the upper face of the web, substantially as set forth.

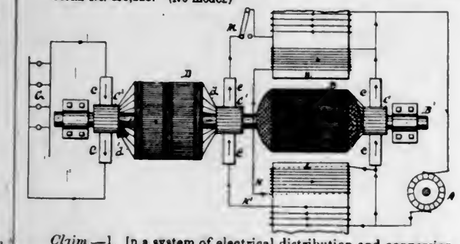
11. In a cash register the combination with a series of operating keys, of a bell sounding mechanism, drawer operating mechanism, cuckoo operating mechanism, end brackets, a transverse oscillatory bar I resting upon said keys and formed with arms I' pivotally engaged upon said brackets, the operation of the oscillatory bar I by the individual keys operating the bell sounding mechanism, the drawer opening mechanism, and the cuckoo sounding mechanism, substantially as set forth.

12. In a cash register, the combination of a series of operating keys, of an oscillatory bar I, oscillating vocal pipes J, J' each provided with a bellows, and a rocking bar J^2 connected with the bar I and connecting said pipes, substantially, as set forth:

13. In a cash register provided with a case and with a hinged door C^6, the combination with a series of operating keys, of an oscillatory bar I, a cuckoo figure located upon a tilting base behind said hinged door, a rod a^2 connecting said tilting base and said oscillatory bar, whereby said door will be thrown open and said cuckoo will be thrown forward upon the operation of an individual operating key, substantially as set forth.

14. In a cash register the combination with a series of operating keys, a rod a^2 surmounted by a cuckoo figure, a hinged door in front of said figure, vocal pipes, and an oscillatory bar I resting upon said keys, the operation of the bar I by the individual key simultaneously sounding said pipes and opening said door and throwing forward said cuckoo figure, substantially as set forth.

520,050. SYSTEM OF ELECTRICAL CONVERSION AND DISTRIBUTION. THOMAS H. HICKS, Detroit, Mich. Filed Dec. 15, 1892. Serial No. 455,225. (No model.)

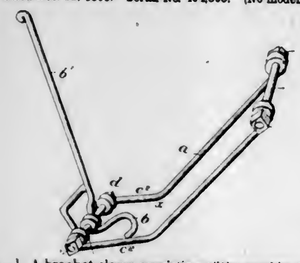


Claim.—1. In a system of electrical distribution and conversion, a converter and two work circuits, the converter being symmetrically wound with primary and secondary circuits, each terminating in separate commutators, the primary circuit being supplied with rectified currents from a main line generator, and the secondary circuit supplying two work circuits, one with alternating and the other with rectified currents, substantially as described.

2. In a system of electrical distribution and conversion, the combination of an electric motor and a converter, the converter having two conductors which terminate respectively in separate commutators, the motor field magnets being wound with supplemental coils connected in electrical circuit with one of the converter commutators, substantially as described.

3. In a system of electrical distribution and conversion, the combination of a motor, a converter, a main continuous current supply station, a sub-station and an external work-circuit; the motor armature and the converter mechanically joined and rotatable together; the work-circuit supplied with a converted current; the motor field-magnets wound with supplemental coils, a continuous current flowing through said coils in a direction suitable for decreasing the motor field magnetism, said current being governed by the work done in the work-circuit; the main station supplying the sub-station with continuous current and the sub-station supplying the work-circuit with a converted current of lower potential than the main supply current, substantially as described.

520,051. SCAFFOLD-CLAMP. JACOB HILLENGASS, Washington, D. C. Filed Dec. 22, 1893. Serial No. 494,395. (No model.)

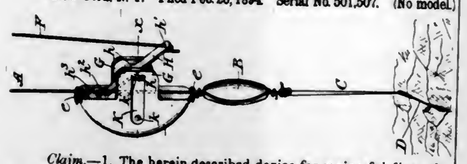


Claim.—1. A bracket-clamp consisting of the combination with a frame comprising end bars and bent sides, substantially as described, of a lever fulcrumed on the lower end bar, the short arm of said lever projecting inwardly between the sides of the frame, as set forth.

2. The combination with an upright provided with one or more openings, of a bracket-clamp embracing said upright, and consisting of an upper cross bar, parallel sides each having a horizontal seat, a lower cross bar, and a lever fulcrumed on the lower cross bar, substantially as described.

3. The combination with the parallel bolts, of a frame the ends of which are coiled around one of said bolts, while the loop portion is coiled around the other bolt and provided with a projecting stop, and a lever coiled around the lower bolt of the device between the arms of the frame, substantially as described.

520,052. FISHERMAN'S APPLIANCE. CHARLES HIRSCHMANN, New York, N. Y. Filed Feb. 26, 1894. Serial No. 501,507. (No model.)



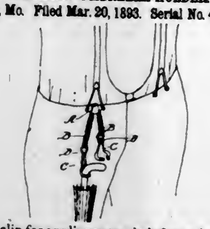
Claim.—1. The herein described device for saving fish-lines, the same comprising a weighted body having a straight side with open eyes to engage the fish-line at each end of the straight side and having ears upon said straight side between the ends, and a bar provided with a clamping foot at one end pivoted between said ears and adapted to have a second line attached to the other end, substantially as shown and described.

2. The herein described device for saving fish-lines, the same comprising a weighted body having eyes to engage the fish-line and having ears, one of which is slotted, a clamping bar having pintles to enter said ears, and means adapted to support one of said pintles in said slot and to be moved to permit said pintle to be moved in said slot, substantially as shown and described.

3. The herein described device for saving fish-lines, the same comprising a weighted body having eyes to engage the fish-line and having ears, one of which is slotted, a clamping bar having pintles to enter said ears, and a plate pivoted in line with said slot and adapted to support one of said pintles in said slot and to be moved aside to permit the pintle to be moved in the slot, substantially as shown and described.

4. The herein described device for saving fish-lines, the same comprising a weighted body having slotted ears, a bar having pintles to enter the slots in said ears and having one end bent to form a clamping foot with its end sharpened to form a knife and means adapted to support said pintles in said slots and to be moved to permit the bar to be removed and turned over, substantially as shown and described.

520,053. PORTABLE UMBRELLA-HOLDER. WILLIAM H. HOPKINS, St. Louis, Mo. Filed Mar. 20, 1893. Serial No. 466,821. (No model.)



Claim.—1. A clip for appliance to a belt formed of a plate hooked at its top to take over the waist-band or belt, and provided below the hook with a securing device on the same side as the hook, to engage with the belt and prevent accidental disengagement of the hook.

2. A clip for appliance to a belt formed of a plate hooked at its top to take over the waist-band or belt, and provided below the hook with a safety-pin within the confines of the plate on the same side as the hook and parallel with the lower edge of the plate.

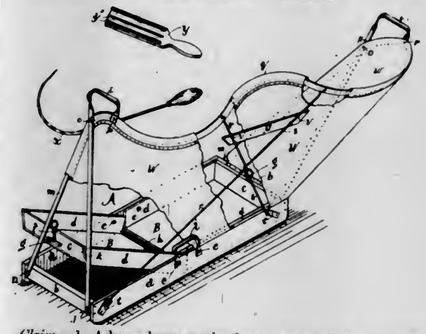
3. A clasp composed of a length of spring-wire bent to form an eye or loop, and extending therefrom in two spring-arms, and finally bent into outwardly setting recurved fingers adapted to embrace an umbrella stick.

4. The combination to form a clasp for an umbrella-stick, of a length of spring-wire bent to form a loop, continued therefrom in two corresponding arms, and finally bent outward in two conversely curved embracing fingers, and a ring sliding upon said arms to force the fingers toward each other.

5. The combination substantially as hereinbefore set forth, with a clip for appliance to the waist-band or belt, consisting of a plate formed with a hook and with a fastening device below the hook on the same side of the plate, of a clasp supported thereby, composed of two depending spring-arms or bars, having conversely curved outsetting fingers to embrace an umbrella-stick or handle.

6. A portable holder for umbrellas, consisting of a clip or plate to hook over the waist-band or belt and having a fastening device to engage with said band, a chain or chains depending therefrom, and a clasp or clasps at the end of said chain or chains composed of a length of spring-wire having a loop at its head, two arms depending therefrom and two outsetting conversely curved fingers at the feet of said arms.

520,054. BERRY-HARVESTER. EMMET HORTON, Dundee, N. Y. Filed Sept. 13, 1893. Serial No. 485,390. (No model.)



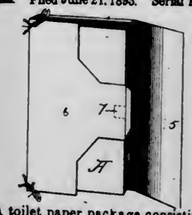
Claim.—1. A berry harvester having a receptacle for retaining the berries, and a chute for gathering and directing the berries to the receptacle, said receptacle consisting of a tray or trays arranged to swing, and to upset and dump their contents through the bottom of the harvester substantially as described.

2. The combination in a berry harvester of a receptacle consisting of a tray or trays, and a rod extending outwardly and connecting to the ends of the receptacle, and canvas secured to the receptacle and the rod, to form a chute to gather and direct the berries into the receptacle, substantially as described.

3. In a berry harvester, a chute having its side walls tapering upward and diverging into concaved chutes, said chutes being separated by a convex deflecting wall, or walls, to govern and direct the berries therein, substantially as described

4. In a berry harvester, in combination, a bat having one or more raised ribs of elastic material projecting on its face, substantially as described.

520,055. POCKET PACKAGE OF TOILET-PAPER. CHARLES L. HOUGHTON, Northampton, assignor of one-half to John L. Woodruff, Westfield, Mass. Filed June 21, 1893. Serial No. 478,403. (No model.)



Claim.—1. A toilet paper package consisting of the pack A, a cover folded over each side edge, the flap 6 of said cover being notched or recessed at its corners, and provided at its middle portion with the tuck flap 7 substantially as described and for the purpose specified.

2. A toilet paper package consisting of the pack A, a cover wrapped around the side edges of said pack and provided with the outer flap 5, the flap 6, and tuck flap 7, said outer flap and tuck flap being both folded over the same edge of said pack and when folded lying on opposite sides thereof, and end stays for confining the paper near the corners of the complete package, substantially as described and for the purpose specified.

520,056. PROCESS OF MANUFACTURING STEEL CASTINGS. SAMUEL P. HUTCHINSON, Philadelphia, Pa., assignor to the Hutchinson Steel Company, New York, N. Y. Filed Apr. 15, 1893. Serial No. 470,519. (No specimens.)

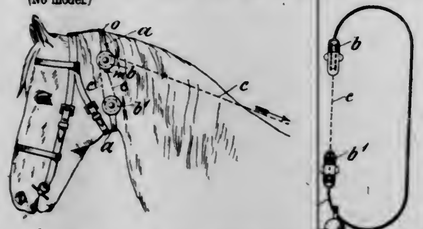
Claim.—1. The herein described method of converting malleable or refined iron castings into steel, which consists of packing the castings or metal in a mixture composed of silicious sand, powdered charcoal, chloride of sodium, wood ashes, carbonate of lime, alumina,

black oxide of manganese and tungstate of soda, and then exposing the same to a steadily controlled high heat, substantially as set forth.

2. The herein described method of converting malleable or refined iron castings into steel, which consists in first subjecting the metal to a sulphuric acid bath, then drying the metal, and exposing it to a steadily controlled high heat in the presence of a mixture composed of sand, charcoal, chloride of sodium, wood ashes, carbonate of lime, alumina, black oxide of manganese and tungstate of soda, substantially as set forth.

3. The herein described method of converting malleable or refined iron castings into steel, which consists in packing the castings or metal in a mixture composed of sand, charcoal, chloride of sodium, wood ashes, carbonate of lime, steatite, black oxide of manganese and tungstate of soda, and then exposing the same to a steadily controlled high degree of heat, substantially as set forth.

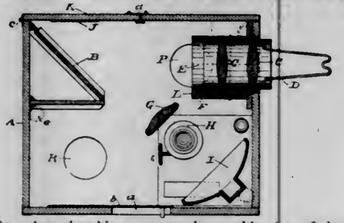
520,057. DEVICE FOR STOPPING RUNAWAY HORSES. CARL JAGELITZ, Husum, Germany. Filed June 27, 1893. Serial No. 478,940. (No model.)



Claim.—The combination of the band *a* having rolls *b* and *b'* the chain or cord *c* attached to the upper roll bearing, and passing under the lower roll and over the upper roll, and a weight *a'* arranged at the lower part of the band *a* for the purpose substantially as described and shown

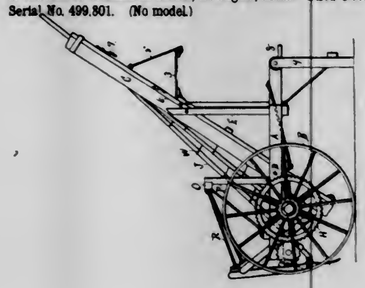
---

520,058. LAMP SKETCHING CAMERA. CHANCY R. JENNE, Fort Wayne, Ind. Filed Mar. 16, 1893. Serial No. 466,237. (No model.)



Claim.—In a sketching camera, the combination of the box A having a lid A', feet *e*, a hinged door K adapted to secure the picture J, an opening *a*, a slide *b* for closing the same, and suitable perforations in the bottom thereof for ventilation, a lens tube E rigidly secured in the end of said box and provided with a heat shield L, with a mirror B inclined to the door K, a tube adjustably mounted in the tube E and provided with the enlarging lens C, C, and the focusing bail D, and a lamp H provided with a concave reflector I and a condensing lens G mounted thereon, all substantially as set forth and described.

520,059. HAY-LOADER. ETHAN B. KEITH, Galesburg, assignor of one-half to William R. Ritter, Dowagiac, Mich. Filed Feb. 10, 1894. Serial No. 499,801. (No model.)



Claim.—1. In a hay loader, the combination, of the base frame, the transverse bar supported above said frame, the crank-shaft, toothed reciprocating elevator-bars, gathering-rakes provided with short handles, said handles being pivotally attached between their two ends to the cranks of the crank-shaft, the lower end of said rake-handles being pivoted to the lower end of the toothed elevator-bars, and rods pivotally attached at one end to said transverse bars, and at the other end to the upper end of the rake handles, substantially as set forth.

2. In a hay loader, the combination, of the base-frame, the transverse bar supported above said frame, the crank-shaft, toothed reciprocating elevator-bars, the gathering rake handles pivotally attached between their two ends to the cranks of the crank-shaft, the lower end of said rake handles being pivoted to the lower end of the toothed elevator-bars, rods pivotally attached at one end to said transverse bar, and at the other end to the upper end of the rake handles, and rake-teeth provided with the elastic coil, and with the eyed end above said coil, said coil and eyed-end being pivotally attached to the lower end of the rake handles at a point just above the pivotal attachment of said handles with the toothed elevator-bars, substantially as set forth.

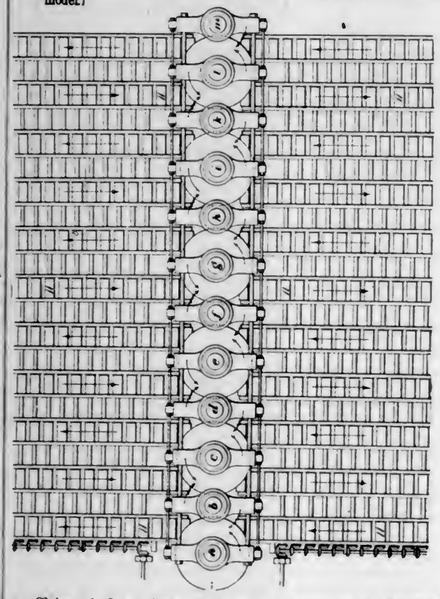
3. In a hay loader, the elevator-bars, provided with the inverted U-teeth astride of said bars, and the tie-wires passed over the bow of the teeth, down through the bars, thence bent laterally each way on the under side of the bars, and attached to the sides of the teeth, substantially as set forth.

4. In a hay loader, the gathering-rakes, comprising a handle, and the teeth provided with the elastic coil and the eyed end above said coil, said coil and eyed-end being pivotally and detachably attached to the handle, by rods which project laterally from the sides thereof, and loosely pass through said eyes and coils substantially as set forth.

5. In a hay loader and the like, an elevator rack in combination with the extensible part to the floor said part comprising the main portion having a sliding connection with the elevator-rack, and the adjustable platform hinged to said main portion, substantially as set forth.

6. In a hay loader and the like, an elevator-rack, in combination with the extensible part to the floor, said part comprising the main portion having a sliding connection with the elevator-rack, the adjustable platform hinged to said main portion, the pivoted notched dogs for holding up said extensible part, and the hooked rods for holding the platform in its down position, substantially as set forth.

520,060. APPARATUS FOR ROLLING BEAMS. FREDERICK H. KINDL, Pittsburg, Pa. Filed Apr. 24, 1893. Serial No. 471,570. (No model.)

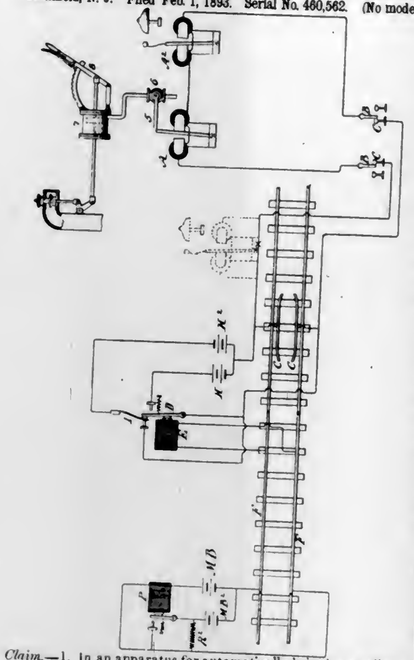


Claim.—1. In a rolling mill plant, the combination of a series of three or more vertical rolls, having grooves adapted to roll channel-beams, the groove of the intermediate rolls being adapted to coact with the grooves on the rolls on each side of it, the faces of the rolls being arranged at a successively less distance apart; substantially as described.

2. In a rolling-mill plant, the combination of a series of three or more vertical rolls, having grooves adapted to reduce channeled beams from their first shape to the finished beam, and a series of horizontal feeding tables having feed rollers arranged to feed the beams through the passes of the rolls; substantially as described.

3. The combination of a series of vertical rolls, and a series of feed-tables, all of which tables are situate in the same horizontal plane; substantially as described.

520,061. RAILWAY SIGNAL DEVICE. FRANK E. KINSMAN, Plainfield, N. J. Filed Feb. 1, 1893. Serial No. 460,562. (No model.)



Claim.—1. In an apparatus for automatically bringing a railway car or vehicle to rest, the combination, substantially as described, of an electric signal for notifying the engineer or driver that the apparatus is in normal position or condition, and a controlling magnet for the stopping devices, inefficient under the action of current used in operating said electric signal.

2. In an apparatus for automatically stopping railway cars or vehicles, the combination, substantially as described, of an electric signal magnet on the locomotive, a polarized controlling magnet for the stopping apparatus also on the locomotive in circuit with the former, means for sending a current of one polarity when the apparatus or circuits are in safety position, and means for sending a current of the opposite polarity proper for operating the magnet of the stopping devices when the controlling apparatus on the line is in danger position.

3. The combination, substantially as described, with apparatus for automatically bringing a train to rest, of a polar controlling magnet therefor on a vehicle of the train, circuit closing devices carried by the vehicle and connected with said magnet for completing the circuit thereof when passing a certain point on the road-bed, an electric signal in the circuit that is completed, and means controlled by the apparatus on the line when in safety position for sending a current over said completed circuit to operate the signal, said current being of proper character, as described, not to affect the polar magnet.

4. The combination, substantially as described, in an apparatus for controlling the movement of railway trains, of a polar electro-magnet A, controlling the stopping apparatus, a second magnet A^2, for giving a signal both in circuit with one another on the locomotive or other vehicle, a contact arm or arms B, B, carried by the vehicle, a contact rail or rails C, C, on the road bed, and means for connecting a generator with one polarity or the other as required to said rails, as and for the purpose described.

5. The combination with the main battery M, B, of an auxiliary or reserve battery M, B^2, means for throwing said reserve battery into connection on failure of the first named battery, and an artificial resistance through which a circuit of the reserve battery is normally completed, as and for the purpose described.

6. In an apparatus for automatically bringing a railway car or vehicle to rest, the combination of an electric signal for notifying the engineer or driver that the apparatus is in normal position or condition, a controlling magnet for the stopping device, inefficient under the action of the current used in operating said electric signal, and means for registering each operation of said controlling magnet, as and for the purpose described.

7. The combination in an apparatus for automatically bringing a railway car or vehicle to rest, of an electric signal for notifying the engineer or driver that the apparatus is in normal position or condition, a controlling magnet for the stopping device, inefficient under the action of the current used in operating said electric signal and means for registering each operation of the electric signal.

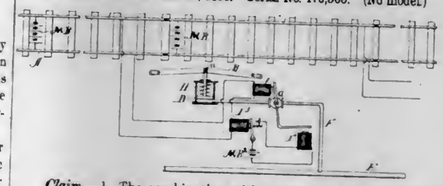
8. The combination in an apparatus for automatically stopping railway cars or vehicles, and without the intervention of the engineer, of an electric signal on the road bed for giving notice to the engineer that the apparatus is in normal position or condition when he passes a prescribed point, and a controlling magnet for said apparatus inefficient under the action of the current used in operating said electric signal.

9. In an apparatus for controlling the movement of vehicles by bringing the same to rest automatically without the intervention of the engineer, the combination with said apparatus, of a controller magnet, and an electric signal for indicating safety condition of the apparatus, said signal being responsive to the current to which the controller magnet is unresponsive, and means for registering the operation of the controlling magnet and the signal.

10. The combination, substantially as described, with a locomotive or other vehicle, of a magnet A, thereon, controlling the devices for bringing the vehicle to rest without the intervention of the engineer, a signal magnet A^2, responsive to a current to which the magnet A, is unresponsive, and means for registering the operations of either or both of said magnets.

11. In an apparatus for controlling the movement of railway trains, the combination, substantially as described, with means for stopping the vehicle without the intervention of the engineer, of the controller magnet A, on the locomotive, and a signal magnet A^2, also on the locomotive and both connected to suitable contact arms carried thereby, and means for sending a signal to operate the magnet A^2, without operating the magnet A.

520,062. APPARATUS FOR CONTROLLING THE MOVEMENT OF RAILWAY TRAINS OR VEHICLES. FRANK E. KINSMAN, Plainfield, N. J. Filed June 23, 1893. Serial No. 478,563. (No model.)



Claim.—1. The combination with a trip on the line of way and a controlling arm carried by a vehicle, of a source of fluid pressure, a piston or other fluid pressure device for actuating said trip, and a valve controlling the fluid pressure device so as to move said trip into and out of position for engagement by the arm.

2. The combination with an arm on the vehicle controlling the movement thereof and a trip on the line of way, of a fluid pressure device for operating said trip normally tending to hold the trip in inoperative position, and a spring or other retractor constantly tending to move the trip into position for engagement by the arm on the vehicle.

3. The combination, substantially as described, of the power and brake controlling arm carried by the vehicle, a trip on the line of way movable into and out of position for engagement by said arm, an insulated section of railway track, a generator of electricity connected to one end thereof, and a controlling electro-magnet governing the position of the trip and connected to the other end of said insulated section and on a normally closed circuit through the line of rails and generator, as and for the purpose described.

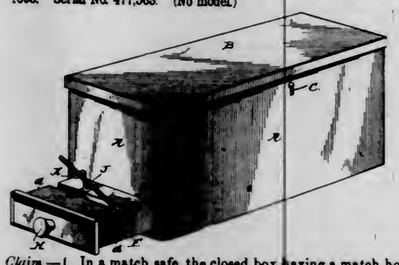
4. The combination with the trip device on the line of way and the controlling arm carried by the vehicle, of a source of fluid pressure, actuating devices operated by the fluid pressure for moving the trip, an electro-magnet controlling the valve of the pressure supply, and a supplemental retractor for the armature of said magnet consisting of a supplemental electro-magnet whose condition varies with the condition of the main magnet, as and for the purpose described.

5. The combination, substantially as described, of the trip on the

line of way, a power or brake controlling arm carried by the vehicle and adapted to engage with the trip, a source of fluid pressure, a piston operated by said fluid pressure and normally holding the trip in inoperative position, a valve controlling the pressure, and an electro-magnet normally holding the valve in position proper for keeping the trip in inoperative position.

6. The combination, substantially as described, of an insulated section of railway track, a source of electricity having opposite poles connected to opposite rails of the track at one end of the section, an electro-magnet connected into the circuit at the opposite end of the section, a source of fluid pressure, a trip device provided with means for moving it by fluid pressure into and out of position for engagement by a brake or power controlling arm on the vehicle, a semaphore arm provided with means for moving it by fluid pressure, and a valve governed by the electro-magnet controlling the pressure on the trip and semaphore.

520,063. ALARM MATCH-SAFE. THOMAS KISSINGER, Lititz, Pa., assignor of one-half to Julius F. Sturgis, same place. Filed June 14, 1893. Serial No. 477,563. (No model.)

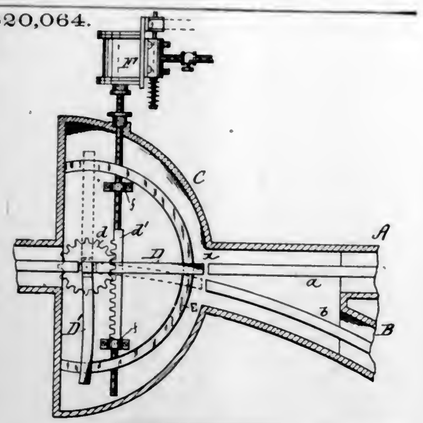


Claim.—1. In a match safe, the closed box having a match hopper at one end, a slide drawer moving horizontally within the box and having a transverse match pocket near one end, and a longitudinal slot intersecting the match pocket at one extremity, and an automatic lifting or ejecting rod working in said longitudinal slot and having an angled hook end adapted to work below and through said match pocket, said hook-end being adapted to engage under the match in said pocket substantially as set forth.

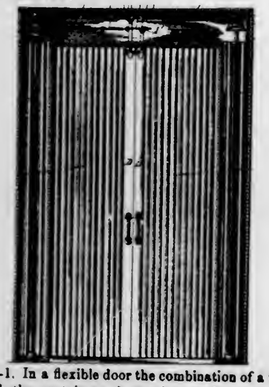
2. In a match safe, a closed box having a hopper at one end, a stationary transverse slide bar arranged within the box, a slide drawer moving horizontally within the box and having a transverse match pocket near one end and a longitudinally disposed slot intersecting said match pocket, a lifting or ejecting rod pivoted to the slide drawer and working in said slot, said rod having at one end a right angled hook lifting or ejecting portion adapted to engage under the match in said pocket and at its opposite end an inclined loop L, adapted to slide under the transverse slide bar, and elevate the hook-end and upwardly pressing spring attached to the loop end of said rod, and an automatic alarm device arranged within said box substantially as set forth.

3. In a match safe, the combination with the hopper, and the slide drawer moving under said hopper and having a contact arm or wire at its extreme inner end, of a suitably arranged alarm bell, a bell crank strike lever pivoted adjacent to the alarm bell and carrying at one end a hammer, and having at its other end a stop loop, and a trip arm pivoted to the said loop and having a stop extension at one side of its pivot, said trip arm being adapted to be engaged by said contact arm or wire, substantially as set forth.

520,064.



520,065. FLEXIBLE DOOR. HORATIO N. H. LUGRIN, Worcester, Mass., assignor, by direct and mesne assignments, to the Lugrin Flexible Door Company, Portland, Me. Filed Jan. 30, 1891. Serial No. 379,680. (Nomodel.)



Claim.—1. In a flexible door the combination of a winding shaft around which the curtain or shutter is wound a curtain or shutter arranged to be wound around said shaft, a helical drum attached to said shaft, a flexible connection connecting said helical drum with the free edges of said curtain or shutter and a take-up mechanism, substantially as described, connected with said flexible connection in order to compensate for the irregularity in winding said door or shutter, substantially as described.

2. The combination of a pair of flexible curtains, or shutters, arranged to be drawn from opposite sides of a door or other opening in order to close the same, vertical shafts around which said curtains are arranged to be wound, drums attached to said shafts, arms or brackets attached to the free edges of said curtains, screw threaded rods provided with adjusting nuts held in said arms and a flexible connection between said screw threaded rods and said winding drums, substantially as described.

3. In a flexible door the combination with a rotating shaft and a door arranged to be wound around said shaft, of a drum attached to said shaft and a flexible connection connecting the free edge of said curtain with said drum, said flexible connection comprising a spiral spring, by which the length of said connection is varied to compensate for the irregularity in winding and unwinding said curtain, substantially as described.

520,064. SWITCH-RAIL FOR PNEUMATIC DISPATCH SYSTEMS. SAMUEL F. LEAKE, Philadelphia, Pa., assignor to the Leake Pneumatic Transportation Company, same place. Filed Jan. 14, 1892. Serial No. 418,106. (No model.)

Claim.—1. In a pneumatic dispatch tube system, the combination of two differently leading lines of top and bottom track-ways in said tube cut away at their junction, top and bottom switches in the cut away parts of said track-ways, each switch composed of a differently directed straight and a curved member radially mounted, and actuating mechanism for said switches, substantially as set forth.

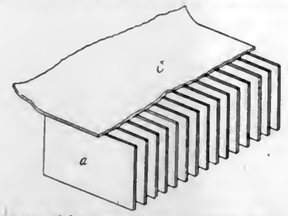
2. In a pneumatic dispatch tube system, the combination of separate upper and lower track-way switches, each composed of two differently directed members radially mounted in said tube, separate actuating mechanism for each said switch in engagement with a single controlling device for setting and unsetting said switches, substantially as set forth.

3. The combination of a shaft or pintle, radially arranged straight and curved switch rails on said shaft or pintle, actuating mechanism for said shaft, and a fixed support for the free ends of the switch rails to ride or move upon, substantially as set forth.

520,066. METHOD OF APPLYING BORDERS OR BINDERS TO EDGES OF PAPER-BOX BLANKS AND ARTICLES MADE THEREBY. FRED S. MACRONALD, Portland, Me. Filed Nov. 13, 1893. Serial No. 490,735. (No specimens.)

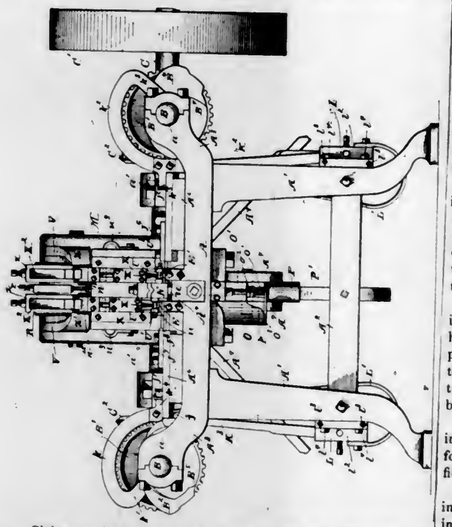
Claim.—1. The herein described method of applying borders to box blanks and similar articles, which consists in arranging a series of blanks adjacent to each other at some distance apart, covering the edges of said blanks and the spaces between them with a sheet of adhesive binding material, pressing the blanks together and forcing the binding material between them as they approach each other, substantially as and for the purposes set forth.

2. The herein described method of applying borders to box blanks and similar articles, which consists in arranging a series of blanks adjacent to each other at some distance apart, covering the edges of said blanks and the spaces between them with a sheet of adhesive binding material, pressing the blanks together and forcing the binding material between them as they approach each other, then separating the blanks by severing the binding material with suitable instruments, substantially as and for the purposes set forth.



3. As a new article of manufacture, a block of box blanks composed of a series of blanks having their edges covered with a continuous sheet of adhesive material, said material extending down on the sides a suitable distance and adhering closely to the edges and sides and adapted to be separated by inserting a sharp instrument between two adjacent blanks, substantially as and for the purposes set forth.

520,067. MACHINE FOR FORGING NUTS. SAMUEL H. MARKHAM, Cleveland, Ohio. Filed Mar. 9, 1892. Serial No. 424,266. (No model.)



Claim.—1. In a machine for forging nuts, the combination of flattening tools having flattening surfaces and registering perforations through them, a piercer passing through said registering perforations, side, back, and forward hammers for squaring the nut-blanks, and cams for the side-hammers provided with bulges to act upon the latter to push the nut blank from the flattening surfaces to beneath the piercer and thence again to the flattening surfaces of the tools, substantially as set forth.

2. In a machine for forging nuts, the combination of shears having a concave crowning tool, flattening tools having flattening surfaces and registering perforations through them, a piercer passing through said registering perforations, side, back, and forward hammers for squaring the nut-blank, cams for the side hammers provided with bulges to act upon the latter to push the blank from the flattening surfaces to beneath the piercer and thence again to the flattening surface, and cams having their bulges so arranged, one in relation to the other, so as to first operate the shear and crowner, then the squaring hammers and flattener, then the piercer, and finally again the flattener, substantially as set forth.

3. In a machine for forging nuts, the combination of flattener tools having registering perforations and flattening surfaces at the sides of said perforations, a piercer passing through said perforations, two side-hammers and hammer-slides, and bearing arms bearing against the ends of said hammer-slides, one of said bearing arms having an outwardly-curved hook formed with an inwardly-bent end, cams bearing against the bearing-arms and having bulges arranged to actuate the hammers to move the nut blank in relation to the flattener tool, and a cam upon the face of one of said cams and having the bent end of the hook bearing against it to positively check and withdraw the bearing arms, substantially as set forth.

4. In a machine for forging nuts, the combination of a lower shear-holder, a lever supporting and operating the same, a revolving cam bearing against one arm of said lever, a vertical rod bearing against said shear-holder, a lever having an adjustable screw-bolt bearing against the upper end of said rod, and a revolving cam bearing against one arm of said lever, substantially as set forth.

5. In a machine for forging nuts, the combination of a shear-block formed with a forward transverse recess, a rear, deep, transverse recess, and a deep longitudinal recess in its under side; a crowner-die in the longitudinal recess at its intersection with the forward transverse recess; shear-bits having outwardly flaring sides at both ends and secured in the longitudinal recess forward and to the rear of the crowner-die; a recessed gage block fitting into the rear deep, transverse recess, and a screw bearing against the forward bit and locking the bits, block and die in the recess, substantially as set forth.

6. In a machine for forging nuts, the combination with a stationary shear block formed with a transverse recess having shear-bits in its edges, of a movable shear-holder having a shear entering the transverse recess, a blank rest to the rear of said shear, and a gage to the rear of said blank rest, substantially as set forth.

7. In a machine for forging nuts, the combination of a stationary, upper shear-block having a transverse recess with shear-bits in the edges of said recess and a gage block to the rear of said recess formed with a recess in its middle, and a movable, lower shear-block having a shear and a blank rest and a gage to the rear of said blank rest registering with and entering into the recess in the gage block, substantially as set forth.

8. In a machine for forging nuts, the combination with a stationary shear block formed with a transverse recess having shear bits in its edges, of a movable shear-holder having a shear entering the transverse recess, a blank rest to the rear of said shear, and a gage in the rear of said blank rest and formed with an inclined forward side, substantially as set forth

9. In a machine for forging nuts, the following instrumentalities, in combination, viz.—a crowner, squaring hammers, a flattener, a piercer, and means for actuating the crowner, the flattener and the piercer, and for operating the squaring hammers subsequent to the crowner and while the flatteuer is operated, and again after said flattener has been operated and while the piercer is operated, substantially as set forth.

10. In a machine for forging nuts, the following instrumentalities, in combination, viz.—a crowner, a flattener, a piercer, and squaring hammers, and means for operating the crowner, the flattener and the piercer, and for operating the squaring hammers first subsequent to the crowner, then to confine the blank while the flattener is operating, then again to actuate said squaring hammers, and then to confine the blank while piercing the same, substantially as set forth.

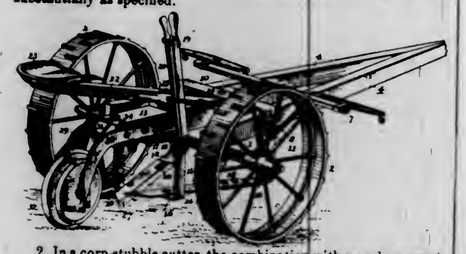
11. In a machine for forging nuts, the following instrumentalities, in combination, viz.—a crowner, a flattener, and a piercer, and means for operating the crowner, then the flattener, then the piercer, and finally again the flattener, substantially as set forth.

12. In a machine for forging nuts, the following instrumentalities in combination, viz.—a double cutter constructed to cut the end blank in a plane below the blank next to the same, crowners arranged to crown the end blank upon the under side and the blank next to it upon the upper side, flatteners for flattening both blanks upon both faces, piercers, and means for moving the blanks from the crowners to between the flatteners, then to the piercers, and then back to between the flatteners, substantially as set forth.

13. In a machine for forging nuts, the following instrumentalities in combination, viz.—cutters constructed to cut the end blank into a plane below the blank next to the same, crowners arranged to act upon the under side of the end blank and the upper side of the adjoining blank, piercers, flatteners, and squaring hammers; and means for actuating said squaring hammers so as to square the blank subsequent to the crowning while the flatteners are actuated and to confine the blank while the piercer is actuated, and to actuate the flattener subsequent to the crowner and subsequent to the piercer, substantially as set forth.

520,068. CORN-STUBBLE CUTTER. SOLOMON L. MASON, Medford, N. J. Filed Jan. 4, 1894. Serial No. 495,702. (No model.)

Claim.—1. In a corn-stubble cutter, the combination with an axle, ground-wheels therefor, a pair of beams clipped loosely upon the axle and converging at their front ends to form a draft beam provided with draft devices, of an inverted U-shaped frame embracing and pivoted to the said draft beam in front of the axle and having its lower ends rearwardly and inwardly bent forming feet, a rock-arm carried by the axle, a main beam secured to the inverted U-shaped frame arranged over and passing in rear of the axle and loosely connected to the rock-arm, a U-shaped frame depending from said main beam, and having its lower ends inwardly disposed to form feet, a pair of knives bolted to the feet of the two inverted U-shaped frames, a rocking-lever extending upward from the axle adjacent to the seat for the accommodation of the driver, and means for locking the lever, substantially as specified.



2. In a corn-stubble cutter, the combination with an axle, ground-wheels therefor, a pair of beams bearing loosely upon the axle and converging at their front ends to form a draft-beam provided with draft devices, of an inverted U-shaped frame embracing and pivoted to the said draft-beam in front of the axle and having its lower ends rearwardly and inwardly bent forming feet, a rock-arm carried by the axle, a main-beam secured to the inverted U-shaped frame arranged over and passing in rear of the axle and loosely connected to the rock-arm, a U-shaped frame depending from said main-beam, and having its lower ends inwardly disposed to form feet, a pair of knives bolted to the feet of the two inverted U-shaped frames, a rocking-lever extending upward from the axle adjacent to the seat for the accommodation of the driver, and means for locking the lever, a pair of curved arms bolted to the main-beam at its rear end, a transverse shaft journaled in the rear ends of said arms, a gang of rotary stalk-cutters arranged upon the axle, and the cleaning-fork secured to the rear end of the main beam and terminating between the rotary cutters of the gang, substantially as specified.

3. In a corn-stubble cutter, the combination with an axle, the framework arranged thereon, and supports depending from the frame, of the horizontally disposed blades or knives converging toward their rear ends, one of said knives terminating above the other, substantially as specified

4. In a corn stubble cutter, the framework having secured thereto the pair of horizontally disposed knives 26 and 27, having their inner opposing edges sharpened, one of the knives being slightly shorter than and arranged above the other, and both knives converging toward their rear ends, so as to form a V-shaped passage for the reception of the stubble, substantially as described.

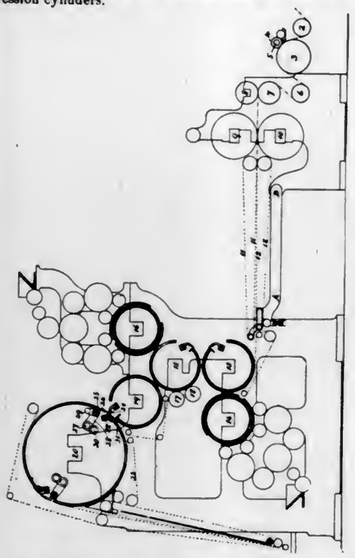
5. In a corn stubble cutter, the framework having the horizontally disposed knives secured thereto, and the vertically arranged rotary cutters disposed in rear of the knives and having the lower portions of their peripheries extending below the plane of the knives, substantially as described.

6. In a corn stubble cutter, the framework having secured thereto the pair of horizontally disposed knives 26 and 27, having their inner opposing edges sharpened, and both knives converging toward their rear ends, so as to form a V-shaped passage for the reception of the stubble, and the vertically disposed rotary cutters arranged in rear of the knives, and having the lower portions of their peripheries extending below the plane of the knives, substantially as specified.

520,069. ROTARY PRINTING-PRESS. JULES MICHAUD, Paris, France. Filed Mar. 1, 1890. Serial No. 342,311. (No model.) Patented in France Dec. 16, 1889, No. 202,626, and in England Jan. 30, 1890, No. 1,635.

Claim.—1. In a rotary printing machine, the combination of two impression cylinders disposed one above the other, cutting cylinders disposed apart from said impression cylinders, a sheet conveying mechanism for transferring the sheets from the cutting cylinders to the impression cylinders, and a pivoted lever on which said sheet conveying mechanism is mounted, said lever being adapted to swing away from both impression cylinders giving free access thereto.

2. In a rotary web printing machine, the combination of cutting cylinders, a frame in which said cylinders are mounted, a separate frame, impression cylinders mounted one above the other in said separate frame at the end thereof which is nearest the cutting cylinders, and a lever, carrying the tapes for conveying the sheets from the cutting cylinders to the impression cylinders whereby on swinging back said lever, said tapes will be displaced and give free access to both impression cylinders.



3. The combination of a rotary cylinder, an inner rock shaft journaled therein, arms fixed on said rock shaft, an outer rock shaft journaled in the outer end of said arms, a gripper on said rock shaft, means for rocking said inner rock shaft to move the gripper backward without opening it, and means for oscillating said outer rock shaft to cause the gripper to open and close.

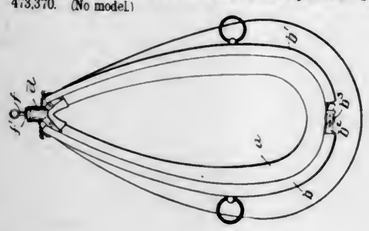
4. An accumulating cylinder fitted with two sets of grippers 22 and 24, the former mounted on a shaft capable of rocking in its bearings, and the latter on a shaft mounted in arms 28 in which it can rock, such arms being secured to shaft 27, which is also capable of rocking in its bearings, in combination with suitable cams for imparting the rocking movements to all three shafts at the required times, substantially as set forth.

520,070. TOY. CHARLES MILLER, New York, N. Y. Filed Nov. 23, 1893. Serial No. 491,713. (No model.)



Claim.—A toy, consisting of a base with a peripheral track, sides sloping toward the center, in combination with a central opening covered by the figure of an animal with movable members, a passage way through the animal to said central opening, a spring across said central opening and connected with said movable members, substantially as described.

520,071. HAME. JOHN J. MCCARTHY, Boston, assignor of one-half to Dennis McCarthy, Newton, Mass. Filed May 8, 1893. Serial No. 473,370. (No model.)

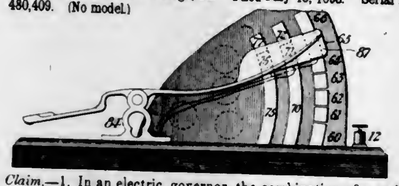


Claim.—1. The improved hame fastener consisting of a yoke to straddle the collar, a box on the yoke carrying a spindle, that spindle and flexible connections attached to the spindle to engage the hames, such connections being taken up and let out by turning the spindle and means for holding the spindle in adjusted position all substantially as set forth.

2. In combination a yoke provided with pivoted feet f^5 f^5 to straddle the collar, the spindle f flexible connections m n to connect the hames with the spindle, ratchet f' and pawl f^2 to hold spindle, all arranged to operate substantially as set forth.

3. In combination yoke d, extensions f^5 f^5 spindle f, extensions m n, rein holding devices f^3 f^4 f^2 and ratchet and pawls f' f^2 substantially as and for the purposes set forth.

520,072. PEDAL-GOVERNOR FOR ELECTRIC MOTORS. ARTHUR G. MCKEE, State College, Pa. Filed July 13, 1893. Serial No. 480,409. (No model.)



Claim.—1. In an electric governor, the combination of a pedal having a spring contact, a vertical series of contact studs for varying the current, a stop stud, and a reversing stud disposed adjacent to the stop stud.

2. In an electric governor, the combination of a stop stud, a vertical series of contact studs for varying the current, disposed on one side of said stop stud, a reversing stud disposed adjacent to the stop stud on the other side thereof, and a pedal having a spring contact.

3. In an electric governor, the combination of a contact stud, a reversing stud, a stop stud provided with an arresting rib, and a pivoted bar carrying a spring contact for engaging said studs.

4. In an electric governor, the combination of a series of contact studs, a reversing stud, a stop stud disposed between said contact studs and reversing stud, and provided with an arresting rib, and a pivoted bar carrying a spring contact for engaging said stud.

5. In an electric governor, the combination of a pedal having a spring contact, a vertical series of contact studs for varying the current, a stop stud, and a reversing stud disposed adjacent to said stop stud, the studs admitting least direct current to the armature being disposed nearest the reversing stud.

6. In an electric governor, the combination of a series of contact studs disposed in a vertical plane, and a pedal disposed adjacent to said studs, said pedal being provided with a contact spring for establishing an electric connection along said studs, said spring having a frictional contact with said studs which holds the pedal in adjusted position at any point in its path of motion.

7. In an electric governor, the combination of a vertical plate provided with two conductive strips and with a series of contact studs, said studs and strips being disposed side by side in a vertical plane, and a pedal provided with different yielding plates adapted to bear upon said strips and studs.

8. In a rheostatic pedal governor for an electric motor, the combination of a vertical plate provided with arc-shaped conductive strips and an arc-shaped set of conductive studs, resistauces connected with said studs, a pedal provided with spring contacts engaging said strips and studs, and circuit wires connected with said strips, studs and pedal.

9. In a rheostatic pedal governor for an electric motor, the combination of a vertical plate provided with arc-shaped conductive strips and an arc-shaped set of conductive studs, resistances connected with said studs, a pedal provided with spring contacts engaging said strips and studs, circuit wires connected with said strips, studs and pedal and reversing conductive studs in the path of said contact.

10. In a pedal governor for an electric motor, the combination of a vertical set of conductive studs, resistances connected therewith, a pedal, provided with contacts wires connected with said studs and pedal, and means operated by said pedal for reversing the current.

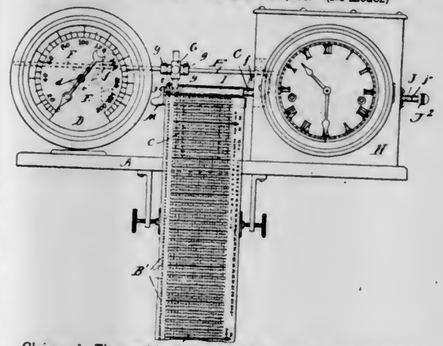
11. In a pedal governor for an electric motor the combination of two conductive strips, reversing studs above said strips, crossing wires connecting said reversing studs with said strips, a set of conductive studs, a set of resistances connected with said studs, a separate conductive stud in arc with said set, a wire connecting said separate stud with one of the set of studs, and a pedal provided with spring contacts for engaging said strips and studs.

12. The combination of electric conductors, a series of contact terminals disposed in a vertical plane and connected to said conductors, and an oscillating pedal for closing the circuit through any of said contact terminals, said pedal having a vertical flange disposed on one side, said flange carrying a spring contact for electric connection with said terminals.

13. The combination of electric conductors, two vertically disposed conductive strips, connected with said conductors, a vertical series of contact studs also connected with said conductors, and a pedal having a vertical flange disposed on one side, said flange carrying spring contacts adapted to bear upon said strips and studs.

14. The combination of electric conductors, a series of contact terminals disposed in a vertical plane and connected with said conductors, and an oscillating contact pedal for closing the circuit through any of said contact terminals, said pedal having a frictional contact which holds it in adjusted position in electric connection with either contact terminal.

520,073. PRESSURE-RECORDER. JAMES NAYLOR, Jr., Boston, Mass., assignor of three-fourths to George Thomas McLauthlin, same place. Filed Jan. 14, 1893. Serial No. 458,415. (No model.)



Claim.—1. The combination with a chronometer, of a perforated blank, mechanism from said chronometer to engage the perforations of said blank to move it forward over a stationary surface; and the stationary support as shown and described.

2. The combination with a gage and chronometer having exposed dials, a continuous paper blank provided with the perforations in a straight line, and a stationary table; of connecting mechanism from said chronometer to said blank to move it in a straight line, connecting mechanism from said gage to a pencil point to move the same transversely, and said pencil as herein set forth.

3. In a pressure recorder, the combination with a gage having a spur gear E secured to the pointer stem d, an engaging and supported rack bar, a pencil and holder adjustably secured to said rack bar; the supported and perforated blank; of mechanism from a chronometer to directly engage said blank; and said chronometer, as shown and described.

4. The combination with a supported rack bar operatively connected to a gage, a gravity marking pencil and holder secured to said bar, of a stationary support to sustain said pencil and holder as herein set forth.

5. The combination with a stationary support; of a pencil and holder mounted upon a rack bar and held from lateral movement upon said bar, yet allowed freedom in other directions, connecting mechanism to a gage, and said gage as herein set forth.

6. In a recording apparatus the combination with a chronometer, a friction driving mechanism, shaft J^3 and the toothed feed roll; of the stationary table having its upper surface extending in a plane in advance of, and in the rear of the said toothed feed roll: and the perforated paper blank as herein set forth.

7. In a recording apparatus the stationary support C having a level upper surface, a perforated blank supported thereby; of the marking pencil and toothed feed roll located directly over the said level surface of the support C; operative mechanism to connect said pencil to the gage and said roll to the chronometer, and said gage and chronometer as shown and described.

8. The combination with the stationary table C, having a depression for the teeth of the roll; of the perforated blank and the supported and driven toothed feed roll as herein shown and described.

9. The combination with the table C having a depression under the teeth of the roll, the lever M pivoted to said table, of shaft J^3 to act as a spring to bring the teeth of theroll into re-engagement, and the toothed feed roll mounted upon said shaft, as shown and described.

10. A record blank having a series of perforations B' along one side of its length, a supporting and stationary table C having a depression for the teeth of the roll; in combination with the toothed feed roll to engage said perforations, connecting mechanism therefrom to a chronometer, and said chronometer as herein set forth.

11. In a recording apparatus the gravity acting pencil and holder, supported rack bar F, collars *f f*, spur gear E, supported pointer stem *d*; in combination with a stationary table C located directly under said gravity acting pencil as herein set forth.

12. The combination with a gravity acting pencil and holder, adjusting weight N, supported and operated rack bar F and collars *f f*; of a stationary table C located directly under said pencil as herein set forth.

13. The combination with a gage and chronometer each separately incased and having exposed dials; connecting mechanism from said gage to a pencil point to move it in a transverse straight line; said pencil supported by a stationary table C, a supported toothed feed roll located over the table C, mechanism connecting said roll to said chronometer; of the perforated blank and its supporting table as herein set forth.

14. The combination with a blank having time divisions marked by transverse lines, a tooth and perforation opposite to or in line with every time division, said blank supported by the table C; of a chronometer and connecting mechanism therefrom to a toothed feed roll, and said roll having teeth coinciding to the perforations and teeth of the blank as herein set forth.

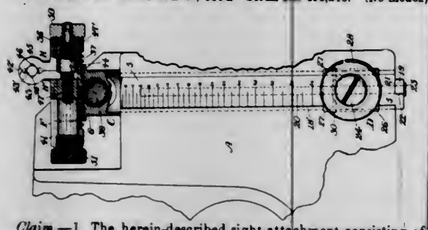
520,074. PAIL. LEANDER J. NOBLE, Menasha, Wis. Filed Mar. 20, 1894. Serial No. 504,439. (No model.)



Claim.—1. A pail having the hoops arranged in recesses formed with straight or perpendicular surfaces, forming with a horizontal ledge a seat for the hoop.

2. A pail, flaring from its lower end upwardly, having its hoops arranged in seats formed with perpendicular surfaces and horizontal ledges.

520,075. SIGHT FOR ORDNANCE. EDWARD G. PARKHURST, Hartford, Conn. Filed Jan. 27, 1894. Serial No. 498,215. (No model.)



Claim.—1. The herein-described sight-attachment consisting of a holder having a sight-bar-receiving slide-way, open at one side thereof, a sight-bar fitted to slide in said slide-way, a clamping-device secured to the sight-bar and having a shoe extending through and bearing upon the holder at each side the slide-way and having a clamping-nut to bring the parts into binding engagement, a sight-carrier secured for lateral adjustment to the upper end of the sight-bar, a sight in connection with said sight-carrier, and means for adjusting said sight-carrier and sight laterally of the sight-bar, substantially as described.

2. In a sight-attachment, in combination, a sight-bar-holder having a vertical sight-bar-receiving opening, or slide-way, and having a slot in communication therewith but of less width than the diameter of said slide-way, a sight-bar fitted to slide in said slide-way and having a sight at the upper end thereof, and a clamping-device extending through the slotted portion of the holder and engaging the sight-bar whereby said sight-bar may be clamped in its adjusted positions, and whereby said clamp-device is guided in its vertical movements by the side walls of the slide-way substantially as described.

3. In a sight-attachment, in combination, a sight-bar-holder having a sight-bar-receiving opening or slide-way open at one side thereof, substantially as described, a sight-bar fitted for longitudinal movement in said slide-way, a clamping-device in connection with one end of said sight-bar and having a bearing upon the holder at each side of said slide-way, a sight-carrier connected for lateral movement with the upper end of said sight-bar and carrying a sight, means for adjusting said sight carrier laterally of the sight-bar, and means for limiting the longitudinal movement of the sight-bar with relation to its holder, substantially as described.

4. In a sight-attachment, in combination, a sight-bar-holder having the longitudinal slide-way formed therein, which slide-way has a communicating opening at one side thereof of less width than the width of said slide-way, a sight bar fitted for longitudinal movement in said slide-way and carrying a sight at its upper end, and a clamping-device for said sight-bar consisting of a screw-bolt secured to the lower end of the sight-bar and having a screw-threaded portion projected through the side-slots of the slide-way, a shoe carried by said bolt intermediate to the walls of the slide-way and having flanges to bear upon the holder each side of said slide-way and a clamp-nut screwed upon said bolt and bearing against said screw, substantially as described and for the purpose set forth.

5. In a sight-attachment for ordnance, in combination, a sight-bar-holder having a longitudinal slide-way open at one side thereof, a sight-bar fitted for longitudinal movement in said slide-way, a clamping-device engaging the lower end of the sight-bar and having a bearing-screw intermediate to the walls of the slide-way, a sight-carrier fitted for lateral movement to the upper end of the sight-bar, and means for moving said sight-carrier laterally of the sight-bar, sight-slides carried by said sight-carrier, and means for moving said sight-slides toward and from each other, substantially as described and for the purpose set forth.

6. In a sight-attachment, the combination with the sight-bar-holder or sight-block, of a sight-bar fitted for longitudinal movement in said sight-holder, means for clamping said sight-bar in its adjusted position with relation to the holder, a sight-carrier connected to the upper end of said sight-bar and adapted to have a lateral movement with relation to said sight-bar, means for adjusting said sight-carrier laterally of said sight-bar, sight-slides adjustably connected with the sight-carrier and constructed to have an overlapping movement, and means, substantially as described, for moving said sight-slides toward and partially past each other, substantially as set forth.

7. The combination with the vertically grooved and laterally notched breech-piece, of a sight-bar-carrying holder having a flange movably fitting the groove in the breech, a locking-device consisting of a locking-shaft having a locking-portion adapted for engagement with the lock-notch to lock the holder against movement upon the breech, and an actuating-arm connected with said locking-shaft, substantially as described.

8. The combination with the breech-piece grooved vertically and having a lock-notch formed at one side of said groove, of a sight-block having a flange movably fitting the groove in the breech-piece, a locking-shaft revolubly supported in the breech-block and having a locking portion adapted for being thrown into and out from engagement with the lock-notch of the breech-piece, an actuator for said lock-shaft, and a stop for limiting the movement of said shaft, substantially as described.

9. In a sight-attachment, the combination with the breech-piece of the gun grooved substantially as described, at its rear face, and having a lock-notch in one face thereof, of a sight-block having a sight-bar-receiving slide-way and having a flange adapted to fit the groove of the breech-piece, a locking-device consisting of a locking-shaft extended through the sight-block and having a portion adapted for engaging in the lock-notch of the breech-piece and having an actuating-arm at the outer end thereof, a sight-bar fitted for longitudinal movement in the sight-block and carrying at its upper end a laterally-adjustable sight-carrier, and means for clamping the sight-bar in its adjusted positions with relation to the sight-block, substantially as described and for the purpose set forth.

10. In a sight-attachment, the combination with the sight-bar fitted for longitudinal movement in a holder, of a sight-carrier adjustably-secured to the upper end of said sight-bar and having oppositely and remotely-disposed sight-shades with sight-openings therein, sight-slides adjustably secured to said sight-carrier and having sight-blades extended between the sight-shades and adapted to have a movement toward and from each other, and an adjusting-device connected with said sight-carrier and sight-slides and adapted for moving said slides toward and from each other, substantially as described and for the purpose set forth.

11. In a sight-attachment for ordnance, the combination with the vertically-adjustable sight-bar supported in a holder, substantially as described, and having a sight-carrier-receiving head, of a tubular sight-carrier open at one end and one side and having a toothed rack at the opposite side thereof, a pinion supported in the sight-bar with its teeth in mesh with the teeth of the rack, means for rotating said pinion to move the sight-carrier laterally of the sight bar, sight-slides supported in the sight-carrier and having right and left handed screw-threaded openings therethrough and also having sight-blades extended through the carrier with partial sight-notches in horizontal alignment, and a right and left-handed screw in engagement with said sight-slides and adapted to be turned for moving said sight-slides toward and from each other, substantially as described and for the purpose set forth.

12. The combination with the sight-bar of a sight-attachment, of two sight-slides adjustably connected with a carrier at the upper end of said sight-bar, and means for moving said sight-slides toward and from each other, substantially as described.

13. In a sight-attachment, the combination with a vertically-adjustable sight-bar, of two sight-slides having oppositely-disposed sight-notches and adjustably carried in a carrier which is adjustably-secured to the upper end of the sight-bar, means for moving said carrier laterally of the sight-bar, and means for moving the sight-slides longitudinally of said carrier toward and from each other, substantially as described.

14. In a sight-attachment, the combination with the sight-bar supported for longitudinal movement in a holder, of a sight-carrier carried at the upper end of said sight-bar and having means whereby said sight-carrier may be adjusted laterally of the sight-bar, sight-slides adjustably supported by said carrier and having blades projected through said carrier, said blades having notches formed in their adjacent edges, and means, substantially as described, for moving said sight-slides toward and partially past each other, substantially as described and for the purpose set forth.

15. The combination with the sight-bar, of a sight-shade having a sight-opening therethrough, a sight-slide adjustable with relation to the sight-shade and adapted for covering the sight-opening more or less, and means for moving said sight-slide to and from said sight-shade, substantially as described.

16. The combination with the sight-bar, of a perforated sight-shade laterally adjustable with relation to said sight-bar, and two oppositely-disposed sight-slides adapted for movement with relation to the sight-shade, substantially as described and for the purpose set forth.

17. The combination with the sight-bar, of two sight-slides constructed for adjustment laterally of said bar and for movement toward and from each other and having sight-notches in adjacent edges thereof, and means for adjusting said sight-slides laterally with relation to the sight-bar and for moving said slides toward and from each other, substantially as described and for the purpose set forth.

18. The combination with the sight-bar of a sight-attachment, of two remotely-disposed sight-shades having sight-openings therethrough in axial alignment one with the other, sight-slides located intermediate to said sight-shades and having sight-notches in horizontal alignment with the sight-openings of said sight-shades, and means for adjusting said sight-slides with relation to the sight-shades and with relation to each other, substantially as described and for the purpose set forth.

19. The combination with the sight-bar, of two remotely-disposed sight-shades having conical sight-openings in axial alignment, with their apexes contiguous, and two sight-slides intermediate to said sight-shades, and having sight-notches in adjacent edges thereof adapted for being brought into axial alignment with the sight-openings of the sight-shades, and means for moving said sight-slides toward and past each other to decrease the effective sight-opening through the shades, substantially as described and for the purpose set forth.

20. The combination with the sight-bar and the recessed sight-carrier, of two oppositely-disposed sight-slides fitted for movement in the carrier and having relatively thin sight-blades in parallelism but located at one side of each other with sight-notches formed in adjacent edges thereof, and means for moving said sight-blades partially past each other, to complete the sight-opening and increase or decrease its diameter, substantially as described.

21. The combination of the sight-bar having a sight-carrier socket at its upper end, a longitudinally bored and laterally slotted carrier, two sight-slides fitted for longitudinal movement in the bore of the carrier and having sight-blades projected through the lateral slot of said carrier, said blades being located in parallelism but out of alignment one with the other, and each having a sight-notch in its inner edge, and means for moving said blades so as to partially overlap each other to bring their sight-notches contiguous, substantially as described and for the purpose set forth.

22. In a sight-attachment, in combination, the sight-bar having the sight-carrier receiving socket at the upper end thereof, the longitudinally bored slotted sight-carrier supported in said socket, and having oppositely-disposed perforated sight-shades, one at each side the longitudinal slot in said carrier, two sight-slides fitted for longitudinal movement in the bore of the carrier and having relatively thin sight-blades projected through the slotted carrier intermediate to the sight-shades, said blades being notched at adjacent edges and being adapted for movement past each other between the sight-shades to open and close the sight, and means for moving said sight-blades laterally of the sight-shades, substantially as described and for the purpose set forth.

23. In combination, the sight-bar having the two oppositely and remotely-disposed sight-shades at the upper end thereof with sight-openings therethrough in axial alignment, the two sight-slides having blades intermediate to said sight-shades and adapted for covering the sight-openings therein more or less, and means for simultaneously moving said blades in opposite directions, substantially as described and for the purpose set forth.

24. The combination with the sight-bar having a tubular head open at one side, of a substantially tubular sight-carrier supported for longitudinal movement in said tubular head and having a longitudinal slot contiguous to the open side of said head, a sight-shade located at either side of said slot each having a sight-opening, sight-slides supported for movement in the carrier and having notched sight-blades therethrough, and an adjusting screw connected with the sight-slides and carrier and adapted for simultaneously moving said blades in opposite directions so that the blades thereof will close and open the sight-openings of the sight-shades, substantially as described.

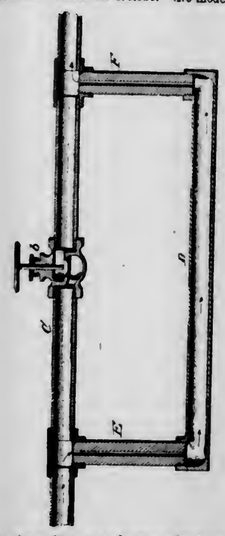
25. In a sight for ordnance, in combination, a sight-bar, a tubular sight-carrier open at one side thereof, two sight-slides having notched blades projected beyond the face of the carrier, and means for simultaneously moving the sight-blades toward and from each other, substantially as described and for the purpose set forth.

26. In a sight for ordnance, in combination, a sight bar, a tubular sight-carrier laterally adjustable with relation to said bar, said carrier being slotted at one side and provided with one or more perforated sight-shades, one or more sight-slides fitted for movement in the carrier and each having a sight-blade adapted for covering the perforation in the sight-shade or shades, and means for moving said slide or slides laterally of said shade or shades, substantially as described.

520,076. ART OF MOLDING METAL. WILLIAM H. PELKEY and ANTOINE ST. LOUIS, Fair Haven, Vt., assignors of one-third to George M. Fuller, same place. Filed Mar. 19, 1890. Serial No. 344,561. (No specimens.)

Claim.—In a mold for casting, a metal mold surface provided with a thin coat consisting of the dried residuum of an asphaltum compound whereby to produce a casting with a smooth surface, substantially as set forth.

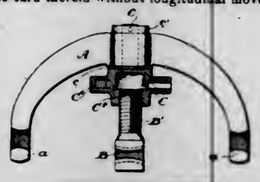
520,077. STEAM-TRAP. EDWARD L. PERRY, Paterson, N. J. Filed Feb. 8, 1894. Serial No. 499,523. (No model.)



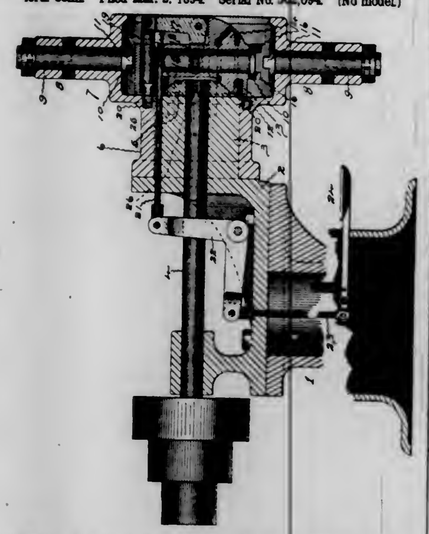
Claim.—In a steam-trap, an exhaust or discharge pipe and a suitable valve located therein, branch-tubes having contracted openings and communicating with the exhaust or discharge pipe at a point upon each side of the valve, and a pipe for the condensed steam which forms the trap proper, said pipe communicating with the branch tubes, substantially as and for the purpose set forth.

520,078. RAIL-BENDING TOOL. WILLIAM H. PHILLIPS, Jenkintown, assignor to the Brenil-Phillips Manufacturing Company, of Philadelphia, Pa. Filed Apr. 2, 1890. Serial No. 346,266. (No model.)

Claim.—In a rail bending tool the combination of a beam having arms for engaging the rail, a bending head adapted to engage the rail and having a screw threaded shank, and a turn-buckle engaging the threaded end of the head, said turn-buckle being secured to the beam so as to turn therein without longitudinal movement.



520,079. TURRET-HEAD MACHINE. ALANSON D. QUINT, Hartford, Conn. Filed Mar. 2, 1894. Serial No. 502,094. (No model.)



Claim.—1. A turret head machine having a support with a rotatable shaft bearing a gear, a gear in mesh with the former gear, a driving spindle rotatably connected with the latter gear and adapted to engage tool holding spindles, a turret head movably attached to the support, and rotatable tool holding spindles borne by the turret head and adapted to be engaged by the driving spindle when the turret head is turned to the correct position, substantially as specified.

2. A turret head machine having a support with a rotatable shaft bearing a gear, a gear in mesh with the former gear, a reciprocating driving spindle rotatably connected with the latter gear and adapted to engage tool holding spindles, a turret head movably attached to the support, and rotatable tool holding spindles borne by the turret head and adapted to be engaged by the driving spindle when the turret head is turned to the correct position, substantially as specified.

3. A turret head machine having a support with a rotatable shaft, a driving spindle driven from said shaft, a turret head movably attached to the support, tool holding spindles borne by the turret head, and mechanism for positively engaging the driving spindle with the tool holding spindles, substantially as specified.

4. A turret head machine having a support with a rotatable shaft, a driving spindle driven from said shaft, a turret head movably attached to the support, tool holding spindles borne by the turret head, and a locking mechanism adapted to lock and unlock the turret head, substantially as specified.

5. A turret head machine having a support with a rotatable shaft, a driving spindle driven from said shaft, a turret head movably attached to the support, tool holding spindles borne by the turret head, and a locking mechanism adapted to lock and unlock the turret head and also engage and disengage the driving and tool spindles, substantially as specified.

6. A turret head machine having a support with a rotatable shaft, a longitudinally reciprocating driving spindle driven from said shaft, a turret head movably attached to the support, tool holding spindles borne by the turret head, and a locking mechanism adapted to lock and unlock the turret head and also to reciprocate the driving spindle, substantially as specified.

7. A turret head machine having a support with a rotatable shaft, a driving spindle driven from said shaft, a turret head movably attached to the support, tool holding spindles borne by the turret head, and a locking mechanism that locks and unlocks the turret head and engages and disengages the driving and tool spindles, said locking mechanism being arranged to lock the turret head before engaging the driving and tool spindles, substantially as specified.

8. A turret head machine having a support with a rotatable shaft, a driving spindle driven from said shaft, a turret head movably attached to the support, tool holding spindles borne by the turret head, a bolt held by the support and adapted to pass into sockets in the turret head, and a lever connecting with the locking bolt and also with the driving spindle, the oscillation of which lever moves both the bolt and the spindle, substantially as specified.

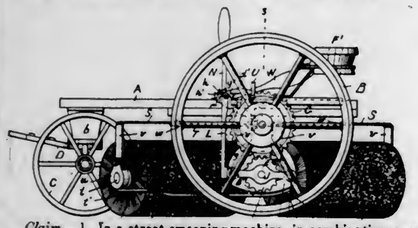
9. A turret head machine having a support with a rotatable shaft, a driving spindle driven from said shaft, a turret head movably attached to the support, tool holding spindles borne by the turret head, and a bell crank lever, the longer arm of which is connected with the locking bolt and the shorter arm with the driving spindle, substantially as specified.

10. A turret head machine having a support with a rotatable shaft, a rotary and reciprocating driving spindle driven from said shaft, a turret head movably attached to the support, tool holding spindles borne by the turret head, a reciprocating bolt held by the support, and a lever pivoted to the support and connected with the reciprocating locking bolt and also with the reciprocating driving spindle, substantially as specified.

11. A turret head machine having a support with a rotatable shaft, a bevel gear on the end of said shaft meshing with a bevel gear held by a part secured to the support, a reciprocating driving spindle splined to the latter bevel gear, a turret head movably attached to the support, tool holding spindles borne by the turret head, and a lever pivoted to a part secured to the support, said lever being connected at one end with a reciprocating locking bolt and at the other end with a reciprocating driving spindle, substantially as specified.

12. A turret head machine having a support with a rotatable shaft bearing a bevel gear in mesh with a bevel gear held by a part of the support, a driving shaft splined to the latter bevel gear and having a positive clutch upon its lower end, a turret head movably attached to the support, drill holding spindles borne by the turret head, said spindles having positive clutches on their inner ends, and a lever for reciprocating the driving spindle into and out of engagement with either of the tool holding spindles, substantially as specified.

520,080. STREET-SWEEPER. ANDREW J. ROBERTS, Boston, Mass. Filed Sept. 12, 1891. Serial No. 405,513. (No model.)



Claim.—1. In a street sweeping machine, in combination, a carriage frame, two wheels secured to and adapted to turn in suitable bearings of the frame, a gear secured to each wheel, two cylindrical brushes arranged horizontally and diagonally under the carriage frame and adapted to turn in suitable bearings of the frame and a gear connected with each brush shaft adapted to engage with and be disengaged from a gear of a carriage wheel

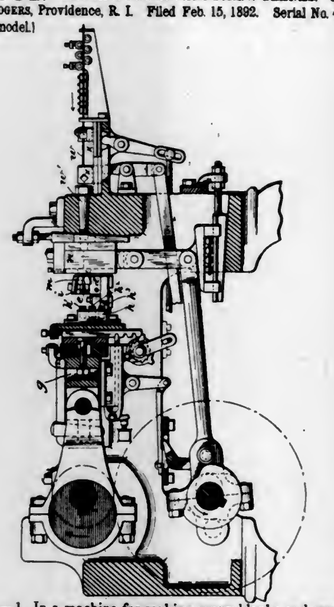
2. In a street sweeping machine, in combination, a carriage frame, two wheels secured to and adapted to turn in suitable bearings of the frame, a gear to each wheel, two cylindrical brushes arranged horizontally and diagonally under the carriage frame, a gear connected with each brush shaft and adapted to engage with and be disengaged from a gear of a carriage wheel by means of a swinging frame pivoted to the carriage frame and bearings in frames supported by the carriage frame for the journals of the brushes.

3. In a street sweeping machine, in combination, a carriage frame, two wheels secured to and adapted to turn in suitable bearings of the frame, a gear to each wheel, two cylindrical brushes arranged horizontally and diagonally under the carriage frame adapted to turn in suitable bearings of the frame, a gear connected with each brush shaft adapted to engage and disengage with a wheel gear, and connected to the brush by a universal joint.

4. In a street sweeping machine, in combination, a carriage frame, two wheels secured to and adapted to turn in suitable bearings of the frame, a gear to each wheel, two cylindrical brushes arranged horizontally and diagonally under the carriage frame, a vertical swinging frame pivoted at one end to the carriage frame, a gear journaled in said pivoted frame adapted to engage and disengage with said wheel gear and a universal joint connected to the gear journal and the journal of a brush.

5. In a street sweeping machine, in combination, a carriage frame, two wheels secured to and adapted to turn in suitable bearings of the frame, a gear to each wheel, two cylindrical brushes arranged horizontally and diagonally under the carriage frame, a vertical swinging frame pivoted at one end to the carriage frame, a gear journaled in said pivoted frame adapted to engage and disengage with said wheel gear and a universal joint having a sliding and yielding rod connection with the gear journal and the journal of the brush.

520,081. MACHINE FOR MAKING SCREW-BLANKS. CHARLES D. ROGERS, Providence, R. I. Filed Feb. 15, 1892. Serial No. 421,575. (No model.)



Claim.—1. In a machine for making screw-blanks and swaging driver-slots therein, the combination, with feeding, swaging and cutting-off mechanisms, of an intermittingly operating clearer arranged and adapted to remove projecting slot-fins or burrs from the screw-blank before the latter is dropped from the machine, substantially as described.

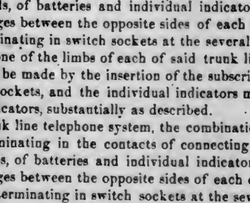
2. In a machine for making screw-blanks and swaging driver-slots therein, the combination, with feeding, swaging and cutting-off mechanisms, of a suitably mounted clearer, or fin-remover, having its working face arranged and adapted to engage and detach projecting slot-fins or burrs from said blanks by the movement of the clearer alone or by the joint action of both the blank and clearer and means for intermittingly operating the clearer, substantially as described.

3. In a machine for swaging screw-blanks, a heading die and hammers constructed to upset the metal to form a driver-slotted head, oppositely arranged cutting-off dies, intermittingly operating feeding mechanism, and a clearer moving in unison with the cutting-off dies arranged to remove slot-burrs from the blank while the latter is being severed from the wire or stock, substantially as described.

4. In a machine for swaging screw-blanks, the combination, with feeding, swaging and cutting-off mechanisms, of two intermittingly operating clearer pieces, one of which bears against and supports the projecting portion of the headed wire, and the other of which has its working face arranged to engage with and detach projecting burrs or fins formed on the said headed portion of the wire, substantially as described.

520,082. HAT SETTING OR FLANGING MACHINE. GEORGE ROTE, Newark, N. J. Filed Feb. 6, 1892. Serial No. 420,584. (No model.)

Claim.—The improved machine for setting the curl in the brims of hats herein described, in which is combined an oblong frame having a central aperture *b*, to receive the hat body and at the opposite sides having inclined bearings against which side pieces or sections are adapted to slide vertically to or from the vertical center of said frame, and said side pieces, arranged to slide on the said bearings and having flanges adapted to enter within the curl of the brim when said sections are lowered, and to be removed therefrom when said sections are raised with the hat, substantially as set forth.



520,083. TELEPHONE TRUNK-LINE SYSTEM. JOHN I. SABIN and WILLIAM HAMPTON, San Francisco, Cal. Filed Feb. 12, 1894. Serial No. 499,954. (No model.)

Claim.—1. The combination with two single cord telephone lines connected for conversation through the central station, of individual indicators and batteries located in closed bridges between the sides of each of said lines, and a condenser in one side of the circuit and between said bridges, whereby said individual indicators may serve as individual clearing out indicators, substantially as described.

2. In a trunk line telephone system, the combination with telephone lines terminating in the contacts of connecting plugs at the operators' boards, of batteries and individual indicators located in permanent bridges between the opposite sides of each of said lines, trunk lines terminating in switch sockets at the several boards, and a condenser in one of the limbs of each of said trunk lines whereby connection may be made by the insertion of the subscribers' plugs in the trunk line sockets, and the individual indicators may serve for clearing out indicators, substantially as described.

3. In a trunk line telephone system, the combination with telephone lines terminating in the contacts of connecting plugs at the operators' boards, of batteries and individual indicators located in permanent bridges between the opposite sides of each of said lines, and trunk lines terminating in switch sockets at the several boards, and a condenser in one limb of said trunk line, whereby the individual calling indicators may serve as individual clearing out indicators, substantially as described.

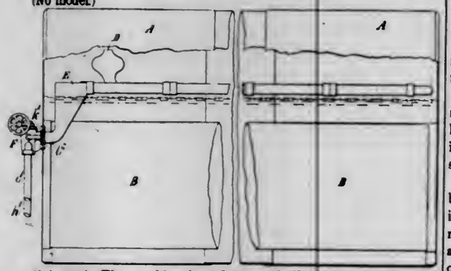
4. The combination with a single cord telephone line, of an operator's telephone apparatus terminating in a switch socket, whereby

the operator's telephone circuit may be brought into circuit by the insertion of the subscriber's plug, substantially as described.

5. The combination with a trunk line terminating in a switch socket at the operator's board, of single cord telephone lines terminating in connecting plugs thereat, and an operator's telephone set terminating in a switch socket, substantially as described.

6. The combination with a metallic circuit telephone line terminating in a cord and plug at the central station, of a calling device in a normally closed ground from one limb of the line, and a stationary plate at the central station connected through a source of calling currents to ground; whereby said calling device may be actuated by touching said plug to said stationary plate, substantially as described.

520,084. FEED-WATER HEATER AND PURIFIER. WILLIAM SHEDLOCK, London, England. Filed Mar. 7, 1893. Serial No. 465,050. (No model.)



Claim.—1. The combination of a steam boiler, a reservoir located in the water space thereof, a tubulous or closed depositing chamber in the steam space of the boiler, connected at one end to the reservoir, and opening at its other end into the steam space of the boiler, connections between the reservoir, a feed pipe, a blow off pipe and the water space of the boiler, and means for opening and closing said connections.

2. The combination of a steam boiler, a reservoir located in the water space thereof, a tubulous or closed depositing chamber having alternately enlarged and contracted areas throughout its length in the steam space of the boiler, connected at one end to the reservoir, and opening at its other end into the steam space of the boiler, connections between the reservoir, a feed pipe, a blow off pipe and the water space of the boiler, and means for opening and closing said connections.

3. The combination of a steam boiler, a reservoir located in the water space thereof, a tubulous or closed depositing chamber in the steam space of the boiler, connected at one end to the reservoir, and opening at its other end into the steam space of the boiler, connections between the reservoir, a feed pipe, a blow off pipe and the water space of the boiler, and a water controlling device connected between the reservoir, the water space of the boiler, the feed water supply and the blow off, which upon being operated consecutively opens the reservoir to the blow off, then the reservoir to the water space of the boiler, and then the reservoir of the feed water supply.

4. In a water purifying apparatus, a depositing chamber composed of a series of sections, each section consisting of two passages, having their largest areas at their central parts and their adjacent ends opening into the narrow neck which constitutes the coupling connection to the next section.

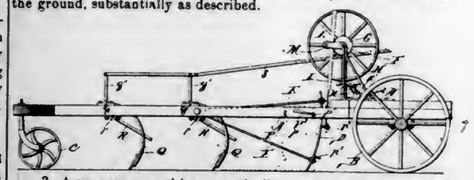
5. The combination, with a steam-boiler, a depositing chamber in the steam-space thereof, and a reservoir, connected with the inlet end of the said chamber, of a controlling valve or cock constructed with a rotary plug, and with ports or passages whereby in the rotation of the said plug water to be purified is first admitted to the said reservoir and chamber, then steam is allowed to blow through the said chamber, and then first hot water from the boiler and then more water to be purified are admitted to the said reservoir, substantially as, and for the purposes, above specified.

6. In a water-purifying apparatus, a controlling valve or cock constructed with a rotary plug having ways or passages *m*, *n*, and with ports *l*, *l'*, *l²*, *l³*, *l⁴*, which plug is provided with means whereby it may be rotated in one direction but is restrained from rotation in the reverse direction, substantially as, and for the purposes, above specified.

520,085. SCRAPER. BENJAMIN F. STUART, Kent, Ohio. Filed Sept. 16, 1893. Serial No. 485,663. (No model.)

Claim.—1. A wheeled scraper comprising a vertically movable blade, and vertically movable side fenders independent of the blade and pivotally hung in advance of the same so as to trail rearwardly, substantially as described.

2. A wheeled scraper comprising a pair of vertically movable side fenders and a blade arranged for vertical movement independent of the fenders, the latter being positioned to extend forwardly from points adjacent to the ends of the blade and being arranged so that when raised, their rear portions adjacent to the blade shall rise from the ground, substantially as described.



3. A scraper comprising a vertically movable blade, vertically movable side fenders independent of the blade, and suitable means for raising and lowering the fenders, substantially as described.

4. A scraper comprising a vertically movable blade, vertically movable side-fenders independent of the blade, and suitable means for raising and lowering the blade and the fenders.

5. A scraper comprising a vertically movable blade, vertically movable side fenders independent of the blade, and a raising and lowering mechanism for raising and lowering the blade and for raising the fenders after the blade has been lifted clear of the ground, substantially as described.

6. A scraper comprising a vertically swinging blade D arranged between side-fenders and provided at its ends with forwardly extending draft-arms E, a raising and lowering mechanism consisting of the rotary horizontal shaft F provided at its end portions with pinions G and journaled in bearings upon standards rising from opposite sides of the body-frame, the operating hand-wheel H arranged on said shaft at a point between said pinions, and a couple of vertically movable racks I having jointed connections with the blade and arranged to respectively engage one and the other of the pinions on the end-portions of the rotary shaft, and a suitable brake arranged for temporarily locking the hand-wheel and accessible to an attendant standing upon the main-frame of the machine in rear of the hand-wheel, said members being combined and organized substantially as described.

7. A scraper comprising a vertically movable blade attached to swinging draft arms or bails, vertically movable side fenders, a rack or racks attached to the blade, and a hand-wheel and pinions for operating the racks, substantially as described.

8. A scraper comprising a vertically movable blade, a rock-shaft *q* provided with an arm *q'* and supported upon the main-frame of the machine in advance of the blade, cultivator teeth arranged upon said rock-shaft and raised and lowered by the rocking action of the same, and an operating device connected with the arm on the rock-shaft and available to an attendant standing upon the main-frame of the machine in rear of the scraper-blade, substantially as described.

9. A scraper comprising a vertically movable blade, a set of vibratory cultivator teeth arranged in advance of the blade, an elevated pinion and hand-wheel, and a rack operated by the pinion and connected with the set of cultivator teeth, substantially as and for the purpose described.

10. A scraper comprising a vertically movable blade, a set of cultivator teeth arranged for vertical movement, a rotary shaft provided with an operating hand wheel and connected with the blade by suitable connection, and a hand-wheel loose upon the shaft and suitably connected with the set of cultivator teeth for the purpose of raising and lowering the same, substantially as described.

11. A scraper comprising a rotary shaft carrying a fast and a loose pinion a hand-wheel for operating the shaft and a hand-wheel for operating the loose pinion, a vertically movable blade, a set of vertically movable cultivator teeth, a rack engaging the fast pinion and connected with the blade, and a rack engaging the loose pinion and connected with the set of cultivator teeth, substantially as described.

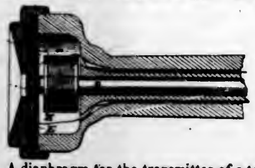
12. A scraper comprising a vertically movable blade, vertically adjustable side fenders supported and arranged for vertical adjustment independently of the blade which is arranged fer independent up and down movement between said fenders and supported transversely with relation to the fenders which are arranged longitudinally with relation to the length of the machine and means suitable for securing the fenders in adjustment, substantially as described.

13. A scraper comprising a vertically movable blade, vertically adjustable side fenders provided with slots, locking bolts extending through the slots in the fenders, and adjusting nuts on the bolts, substantially as described.

14. A scraper comprising a wheeled body-frame, a pair of vertically movable side fenders, and a blade arranged for up and down movement between and independently of the fenders and attached to swinging draft arms or bails pivotally hung in advance of the blade, substantially as described.

15. A scraper comprising a body-frame supported at the rear by wheels B, and at the front supported by a caster wheel, a pair of vertically movable side fenders, a vertically movable blade, and a set of cultivator teeth arranged forward of the blade, substantially as described.

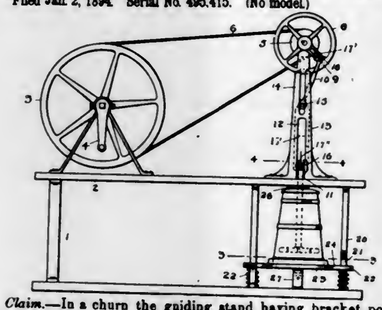
520,086. TELEPHONE. HARRY F. SLOCUM, New York, N. Y., assignor to the New York Electrical and Development Company, of New Jersey. Filed May 20, 1893. Serial No. 474,917. (No model.)



Claim.—1. A diaphragm for the transmitter of a telephone consisting of a metal piece to operate with the magnet of said telephone in the usual way, and a voltaic battery, the elements of which are connected with the circuit of said telephone, arranged in said diaphragm so as to be actuated to produce a stronger or weaker current as said diaphragm vibrates, substantially as described.

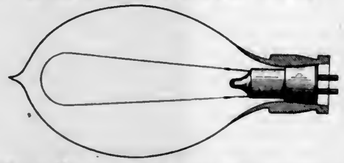
2. A diaphragm for the transmitter of a magneto telephone having a voltaic battery, electrically connected with the telephone circuit, arranged within said diaphragm so that the internal resistance of said battery will be varied by the changes of form assumed by said diaphragm as it vibrates, substantially as described.

520,087. CHURN. WINSTON T. SMALLWOOD, New Albany, Miss. Filed Jan. 2, 1894. Serial No. 495,415. (No model.)



Claim.—In a churn the guiding stand having bracket posts 7 and a centrally perforated base adapted to be bolted to a table, said stand being provided with ways 14 at its upper part to guide a transversely disposed pin 15 and with a longitudinal hole 17 angular in cross section and continuous at its lower part with a slot extending through one side of said stand, whereby guides 13 are formed for a split, perforated block 12 having clamping arms extending out through the slot, and said split block and arms, in combination with a perforated table, a churn body, a supporting disk having a churn body seat and guiding arms, a dasher rod, a screw to clamp said arms and block upon the rod accessible in front of the stand, a connecting rod 10, the wheel 8 supported to turn in said posts 7 near the axis of the stand and of the churn body, a fibrous cover 26 closely surrounding the dasher rod, a spring to support the churn body and press the fabric against the bottom of the table whereby the rod is wiped and the escape of cream is prevented and devices for depressing the churn body, substantially as set forth.

520,088. INCANDESCENT LAMP. FRANK S. SMITH, Pittsburg, Pa. Filed June 28, 1893. Serial No. 479,080. (No model.)



Claim.—1. The process of forming a tight seal between a body of glass and a body of metal, which consists in subjecting said metal to such a degree of heat as shall be sufficient to drive out all gases contained therein, letting said metal cool so slowly as to accomplish the annealing of the same, and introducing such metal into the body of the glass while the latter is in a molten condition, substantially as described.

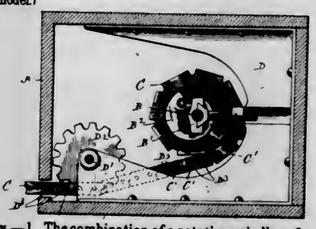
2. The process of forming a tight seal at the leading-in wires of an incandescent lamp, which consists in heating such wires until all occluded gases are driven off, permitting them to cool so slowly as to anneal them, and embedding the wires after such cooling in that portion of the lamp destined to surround them.

3. The process of forming a tight seal at the leading-in wires of incandescent lamps, which consists in heating such wires until all occluded gases are driven off, permitting them to cool so slowly as to anneal them, removing the scale from the surface of the wires and introducing said wires into that portion of the lamp destined to surround them while the glass of the lamp is softened by heat.

4. The process of forming a tight seal at the leading-in wires of an incandescent lamp, which consists of first heating said wires until all occluded gases are driven off, removing the scale in a pickle, dipping the wires into a bath of tin and molding said wires into that portion of the chamber destined to surround them.

5. The process of forming a tight seal at the leading-in wires of an incandescent lamp which consists in driving off the occluded gases in the wires by heat, letting the wires cool so slowly as to anneal them, coating a certain portion of the surface of the wires with a thin coat of tin and molding said wires into that portion of the chamber destined to surround them.

520,089. FLEXIBLE DOOR. ALGERNON S. SPAULDING, Worcester, Mass., assignor to the Flexible Door and Shutter Company, Portland, Me. Filed Oct. 25, 1892. Renewed Oct. 26, 1893. Serial No. 489,234. (No model.)



Claim.—1. The combination of a rotating spindle, a flexible door, with one edge connected with said spindle and provided with a series of projecting pins, or teeth, a helical drum carried by said spindle, a gear, with its axis parallel with said spindle, said gear being engaged by the pins in said door, a spool rotated by said gear and a flexible connection between said spool and said drum, whereby said spindle is rotated and the door wound up by the lateral movement of said door, substantially as described.

2. The combination of the spindle B, helical drum E, adjustably connected with said spindle, flexible door provided with projecting teeth, or pins, and connected with said spindle, a gear actuated by the teeth, or pins, on said door as it is moved laterally, a winding spool connected with said gear and a flexible connection between said spool and said drum, substantially as described.

3. The combination of a spindle, a flexible door connected with said spindle, a helical drum carried by said spindle, a gear actuated by the lateral movement of said door, as described, a spindle carrying said gear, a spool adjustably connected with said spindle and a flexible connection between said spool and said drum, substantially as described.

520,090. DRAW-BAR. MAXIMILIAN M. SUPPES, Johnstown, Pa. Filed July 12, 1893. Serial No. 480,220. (No model.)

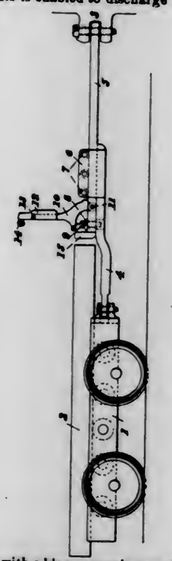
Claim.—1. A draw bar for railway vehicles composed of two members, one adapted to slide upon the other for the purpose of moving the load carried by one of the vehicles and means for locking them in position and automatically releasing them.

2. A draw bar for railway vehicles having one member with a bearing adapted to receive another member, the last mentioned member being adapted to slide on this bearing, for the purpose of moving the load carried by one of the vehicles, means for locking the two members together and a device whereby the last mentioned member is released and allowed to slide upon the first mentioned member.

3. A draw bar for railway vehicles comprised of the member 4 having the bearing 6, the member 5 adapted to slide in said bearing and move the load carried by one of the vehicles and an automatic locking and releasing device as and for the purpose set forth.

4. In combination with two railway vehicles a draw bar connecting said vehicles, said draw bar having a member adapted to engage and move the load carried by one of the vehicles.

5. In combination with a bloom carrying car for rolling mills an independent motive vehicle and connection between said vehicle and said car having two members adapted to slide, one on the other whereby said motive vehicle is enabled to discharge a bloom from the car.



6. In combination with a bloom carrying car for rolling mills, an independent motive vehicle and a draw bar between said vehicle and said car said draw bar having two members, one attached to the bloom car and the other attached to the motive vehicle and adapted to slide upon the first mentioned member in such manner that the motive vehicle is adapted to automatically discharge a bloom from said car as desired.

7. A draw bar for railway vehicles composed of two members, one adapted to slide on the other, a device adapted to lock the parts together, a projection adapted to be struck by the locking device in the movement of the vehicle and when struck to release the locking connection between the members.

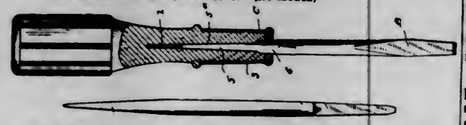
8. A draw bar for railway vehicles having two members at different heights, one adapted to slide upon the other, a device adapted to lock the parts together, a projection adapted to be struck by the locking device in the movement of the vehicle and when struck to release the locking connection between the members.

9. A draw bar for railway vehicles having two members, one of which is at or above the level of the vehicle body, one member being adapted to slide on the other, a device adapted to lock the parts together, a projection adapted to be struck by the locking device in the movement of the vehicle and when struck to release the locking connection between the members.

10. A draw bar for railway vehicles having two members one of which is adapted to slide on the other, one member being provided with a pusher in alignment with or above the vehicle body.

11. A draw bar for railway vehicles having two members one of which is adapted to slide on the other, one member being provided with a pusher in alignment with or above the vehicle body, a device adapted to lock the parts together, a projection adapted to be struck by the locking device in the movement of the vehicle and when struck to release the locking connection between the members.

520,091. SCREW-DRIVER. JAMES SWAN, Seymour, Conn. Filed Feb. 5, 1894. Serial No. 499,075. (No model.)



Claim.—1. The combination with a handle and a ferrule having longitudinal and circular grooves on its inner side and at its outer end a tapering opening 2, of a blade having a tang adapted to be driven through the opening in the ferrule and into the handle whereby the material of the handle is forced into the grooves thereby locking the ferrule to the handle said tang having also a tapering portion 6, corresponding to opening 2 in the ferrule whereby the tang is locked to the ferrule with a drive fit.

2. The combination with a handle and a ferrule having at its outer end a tapering opening 2, of a blade having a tang adapted to be driven through said opening and into the handle and provided with a tapering portion 6 corresponding to opening 2, whereby the tang is locked to the ferrule with a drive fit.

520,092. CIGAR-CASE. CHARLES N. SWIFT, New York, N. Y. Filed Mar. 1, 1892. Serial No. 423,371. (No model.)



Claim.—A cigar-case for containing a moisture-absorber, and composed of a jointed body, a lining in said body, said lining being formed of separately detachable wooden strips covering the bottom and sides of the body, and a metallic layer, constituting a water-proof medium, interposed between the lining and the inner sides of the body, and whereby the joints of the body are protected from the moisture in the box, the said wooden strips absorbing some of the moisture and preventing the same from attacking and rusting the metallic layer, substantially as set forth.

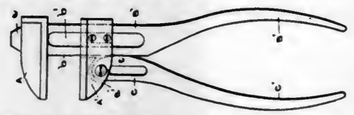
520,093. OIL-BURNER. CHARLES TRENCH, Boston, Mass. Filed Nov. 5, 1892. Serial No. 451,049. (No model.)



Claim.—1. In a circular oil burner the receiver A, comprising a vertical wall P and a horizontal floor Q, each of foraminous construction, and the annular rim C forming the central aperture D, all arranged, constructed and adapted to operate in conjunction with any flame-spreader to separate the flame from the wick tube to admit additional air to the zone of partial combustion adjacent to the base of the flame or top of the wick tube, substantially in the manner and for the purpose set forth.

2. In a central draft lamp and a flame-spreader therewith employed, the air receiver A, foraminously constructed and adapted to supply air to the exterior envelope of the wick flame, in combination therewith, the foraminous separator J, interposed between the base of the flame and the flame-spreader, to separate the flame from the top of the wick tube and also adapted to supply air to the inner envelope of the flame; said receiver and the separator co-acting to supply and direct air to the zone of partial combustion to increase the luminosity of the flame, substantially as specified.

520,094. ADJUSTABLE WRENCH. JOHN T. TRENCH, Dublin, Ireland. Filed Dec. 4, 1893. Serial No. 492,679. (No model.) Patented in England Sept. 8, 1893, No. 16,729.

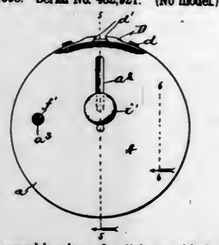


Claim.—1. In an adjustable spanner or wrench, the combination of a shank carrying a suitably shaped jaw at one end and a handle at the other end and having teeth or serrations formed on one of its edges, of an adjustable jaw adapted to slide on the said shank and provided with means for retaining its parallel motion thereon and prevent the front edge of its slot coming in contact with the teeth or serrations on the edge of the shank, of a gripping lever pivoted to the adjustable jaw and having a suitable handle, the gripping face of the said lever having teeth or serrations to engage with the teeth or serrations on the adjacent face of the shank carrying the fixed jaw, as and for the purpose set forth.

2. In an adjustable spanner or wrench, the combination of a shank carrying a suitably shaped jaw at one end and a handle at the other end and having teeth or serrations formed on one of its edges, of an adjustable jaw having a rear extension and adapted to slide on the said shank and provided with means for retaining its parallel motion thereon and prevent the front edge of its slot coming in contact with the teeth or serrations on the edge of the shank, of a gripping lever pivoted to the rear extension of the adjustable jaw and having a suitable handle, the gripping face of the said lever having teeth or serrations to engage with the teeth or serrations on the adjacent face of the shank carrying the fixed jaw, as and for the purpose set forth.

3. In an adjustable spanner or wrench, the combination of the shank B carrying the fixed jaw A at one end and a handle B' at the other end, and having teeth or serrations formed on one of its faces *b*; of the turn screw *a* formed on or fixed to the jaw A; of the adjustable jaw A' adapted to slide on the shank B and guided to retain its parallel motion thereon and prevent the front edge of its slot coming in contact with the teeth or serrations on the face *b* of the shank by means of the guide piece a^3 fixed to the adjustable jaw A' and adapted to engage with one side of the slot *b'* in the shank B; of the gripping lever C pivoted to the adjustable jaw A' and having a suitable handle C', the gripping face *c* of the said lever having teeth or serrations to engage with the teeth or serrations on the face *b* of the shank B; and of the holes D in the ends of the handles B' and C', all combined, arranged and operating as and for the purpose set forth.

520,095. CIGAR-LIGHTER. EUGENE T. TURNEY, Chicago, Ill., assignor to the Turney Electric Manufacturing Company, same place. Filed Aug. 11, 1893. Serial No. 482,921. (No model.)



Claim.—1 The combination of a disk provided with a series of radial grooves adapted to receive and hold matches, with a second disk applied directly to and covering the grooves in the former and connected thereto by a device which permits the turning of one upon the other, an igniting device just outside of the holder, and an attachment on one of the disks adapted to force a match out through the igniter, substantially as described.

2. The combination of a circular front, A, provided with rim, *a'*, having an aperture, a^4, with a circular back, E, annular boss, F, on the inside thereof provided with radial grooves, *f*, adapted to receive and hold matches, a sliding pin on the front, A, adapted to drive a match outward from its groove, and a connecting device for the two parts, constructed to permit one to be turned upon the other, substantially as described.

3. The combination of the circular front, A, provided with radial slot, a^3, with the rim, *a'*, having aperture, a^4, the pin, I, mounted in said slot and free to slide therein, the circular back, E, the annular boss, F, provided with radial grooves, *f*, an igniting device arranged at the aperture in the rim, and a connecting device adapted to unite the two parts and permit them to be turned upon each other, substantially as described.

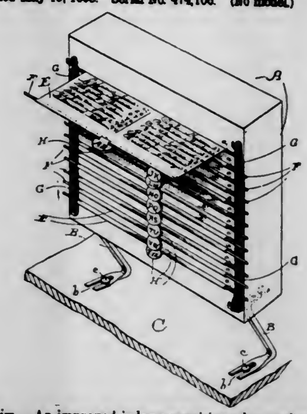
4. The combination of the front, A, with the rim, *a'*, having aperture, a^4, the circular back, E, annular boss, F, provided with radial grooves, *f*, the spring clasp, B, on one disk, and the button, G, on the other, substantially as described.

5. The combination of the circular front, A, with the rim, *a'*, provided with aperture, a^4, the circular back, E, connected to the former by a device which permits them to be readily disconnected from and connected to each other and to be turned one upon the other, the annular boss, F, provided with radial grooves, *f*, and the spring pawl, C, secured to the front, A, and adapted to engage with the grooves, *f*, substantially as described.

6. The combination of the circular front, A, provided with radial slot, a^3, with the rim, *a'*, provided with aperture, a^4, the circular back, E, the annular boss, F, thereon provided with radial grooves, *f*, the pin, I, mounted in the slot, a^3, and free to slide therein, the igniting knives, D, on the rim and projecting slightly over the aperture therein, and the spring pawl, C, mounted on the front, A, and adapted to engage with the grooves, *f*, substantially as described.

7 The combination of the circular front, A, provided with aperture, a^4, at one side thereof, with the circular back, E, annular boss, F, provided with radial grooves, *f*, and alternate partitions, *f'*, each bearing a number corresponding to one of the grooves, the spring pawl, C, mounted on the front, A, and adapted to engage with the said grooves, and a connecting device between the two parts adapted to permit one to be turned upon the other, substantially as described.

520,096. LEDGER-INDEX. THOMAS A. UREN, Prineville, Oreg. Filed May 13, 1893. Serial No. 474,106. (No model.)



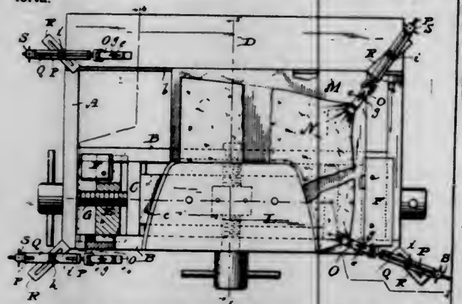
Claim.—An improved index comprising a box or frame having a plane surface and a vertical series of slots in its front, a series of spring-actuated rollers within said box or frame, strips or sheets of paper bearing the references wound upon the rollers, with their free ends projecting through the slots in the frame, cross bars secured to said free ends of the strips having indexed pull-tags secured at or near the center of said bars, said bars having their ends projecting beyond the end walls of the slots to form limiting stops, vertically disposed rubber cushions on each side of the plane surface of the frame adapted to serve as a buffer for the entire series of cross bars, said cushions extending from near the upper to near the lower end of the frame and Z-shaped irons secured to said box or frame and having their lower members slotted whereby the box or frame may be detachably fitted to a disk or support.

520,097. CRIMPING-MACHINE. CASPAR WAGNER, Milwaukee, Wis. Filed Feb. 21, 1894. Serial No. 500,978. (No model.)

Claim.—1. A crimping-machine comprising a suitable frame having parallel longitudinal guide-beams and transverse guide-braces connecting the same, carriers adjustable on said beams and braces, ledge-plates supported on the carriers, another ledge-plate in rear of the guide-beams, an upper-supporting pattern-plate for clamp-engagement with the ledge-plates, and pivotal longitudinally adjustable gripe connected to the machine-frame, substantially as set forth.

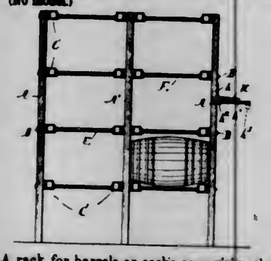
2. A crimping-machine comprising a suitable frame having a stationary rear support, other supports adjustable longitudinally of the frame at each end thereof, a carrier adjustable transversely of said frame, a creasing-plate detachably connected to the carrier, an upper engaging pattern-plate for clamp-engagement between the stationary

support, one of the adjustable supports and the creasing-plate; and upper-grips adjustably connected to said frame, substantially as set forth.



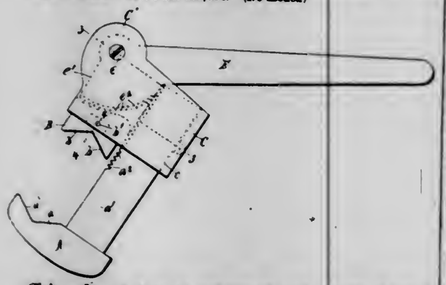
3. A crimping-machine comprising a suitable frame provided with diverging longitudinally slotted corner brackets, bearings having set-bolt and nut connection with slotted portions of the brackets, rods longitudinally adjustable in the bearings, upper-grips connected to the rods, stationary and adjustable supports on said frame, and an upper engaging pattern-plate for clamp engagement with said supports, and creasing-plate, substantially as set forth.

520,098. RACK FOR BARRELS OR CASKS. FRANK A. WARNER, Chicago, Ill., assignor of two-thirds to John C. Fox, same place, and Percy Thompson, Kansas City, Mo. Filed Feb. 2, 1894. Serial No. 498,841. (No model.)



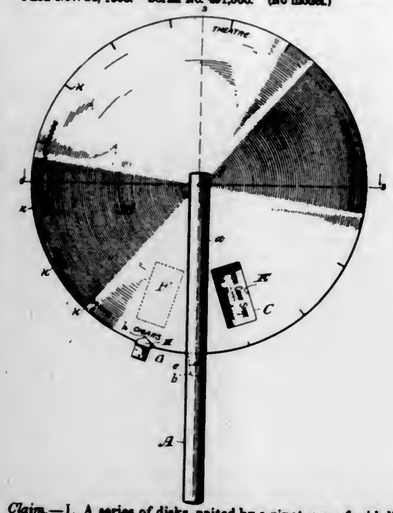
Claim.—A rack for barrels or casks comprising the vertical side and central posts A and A', the double rows of superposed stringers C between said side and central posts, the tie rods D passing through said side and central posts A and A' and through said stringers C, said tie rods being provided between each row of stringers C with the spacing sleeves E whereby rigidity is given to the rack and the stringers are held at proper distance apart.

520,099. WRENCH. THOMAS WHEATLEY, Syracuse, N. Y. Filed Apr. 17, 1893. Serial No. 470,581. (No model.)



Claim.—In a wrench, the combination with a frame having a transverse guide across one end, a jaw removably connected with one side of its other end, the opposite side of the frame at this end having a projecting ear, and a lever pivoted to said ear and having a toothed segment around its pivot; of a movable jaw provided with a shank adapted to slide longitudinally in said guide, a roller in the frame at that side of the guide which is remote from said pivot pin, against which roller one edge of said shank slides, and teeth on the opposite edge of the shank intermeshing with those on the segment whereby the shank is moved to separate the jaws when the lever is brought toward the frame and such movement ceases when the end of the shank is struck by the side of the lever at a point adjacent its segment, all as and for the purpose set forth.

520,100. INDEXED DISK. ARTHUR J. WILLS, Milwaukee, Wis. Filed Nov. 21, 1893. Serial No. 491,580. (No model.)

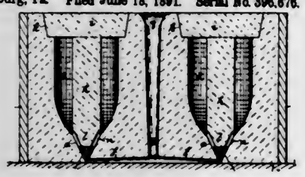


Claim.—1. A series of disks, united by a pivot, one of said disks being movable thereon and one or more of them stationary, the movable disks being provided with a projecting index or indicator, and with a series of inscriptions or designs arranged upon its face and the superimposed stationary disk being provided with an opening therethrough, and a series of graduations or index marks, relatively arranged, whereby when the index is brought in line with any particular graduation or index mark, the inscription or design on the movable disk thereby indicated will show through the opening in the said stationary disk in combination with a handle, the said disks being supported between the bifurcated ends of the handle, and the disk pivot passing through the said bifurcated ends, the stationary disk or disks being provided each with an elongation or projection extending also between said bifurcated ends of the handle, and rigidly secured thereto.

2. A series of disks, united by a pivot, one of said disks being movable thereon, and one or more of them stationary, the movable disk being provided with a projecting index or indicator and with a series of inscriptions or designs upon its face, and the superimposed stationary disk being provided with an opening therethrough and with a series of graduations or index marks, arranged relatively to said inscriptions or designs on the said movable disk, and a strip or strips secured to the said index projection and offsetted at the inner end to embrace the edge of the said stationary disk or disks.

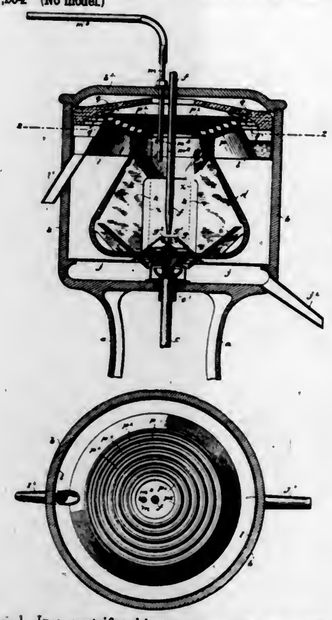
3. The herein described device, consisting of a suitable bifurcated handle, a series of disks superimposed one upon the other within the fork of the handle and there united by a pivot, one of said disks being movable thereon, and provided with a series of inscriptions or designs upon its face and the other disk or disks being stationary, and provided with an opening for displaying one of said inscriptions or designs, and having index marks or graduations, and an indicator support projecting from the movable disk and carrying an offsetted strip or strips secured thereto for embracing the stationary disk or disks and terminating in an inwardly projecting index point or points.

520,101. SAND MOLD AND RUNNER. STEPHEN J. ADAMS, Pittsburg, Pa. Filed June 18, 1891. Serial No. 396,676. (No model.)



Claim.—A sand mold having a mold cavity, a runner extending through the body of the mold beside the mold cavity and communicating with a core seat at the inner end of the mold cavity, a core entering the mold cavity and fitting in but not filling said core seat, thus forming a pocket in said core seat, and a series of passages leading from said pocket into the mold cavity, substantially as and for the purposes set forth.

520,102. CENTRIFUGAL BUTTER-EXTRACTOR. GUSTAF M. ANDERSSON, Newark, N. J., assignor to the United States Butter Extractor Company, New York, N. Y. Filed June 30, 1890. Serial No. 357,204. (No model.)



Claim.—1. In a centrifugal butter extracting apparatus, a centrifugal cream disturber consisting of a series of stationary circular ridges or steps arranged at successively increasing distances from the axis of revolution, and means for imparting rotation to the cream, substantially as set forth.

2. In a centrifugal butter extracting apparatus, a centrifugal cream disturber consisting of a series of ridges or steps arranged at successively increasing distances from the axis of revolution and composed of two parts, arranged one within the other, the outer part being stationary and the inner part fitted to rotate, and means for rotating the inner part, substantially as set forth.

3. In a centrifugal butter extracting apparatus, a centrifugal cream disturber consisting of a series of ridges or steps arranged at successively increasing distances from the axis of revolution and composed of two parts, arranged one within the other, the outer part being stationary and the inner part fitted to rotate, and means for rotating the inner part, in combination with a fluid supply duct provided with one or more nozzles and arranged adjacent to the cream disturber, substantially as set forth.

4. In a centrifugal butter extracting apparatus, the combination with the drum and means for revolving it, of a centrifugal cream disturber consisting of a series of ridges or steps arranged at successively increasing distances from the axis of revolution and composed of two parts, arranged one within the other, the outer part being stationary and the inner part fitted to rotate, and such inner part being mounted upon the drum, leading from the inner cream wall of the drum to the cream disturber, and one or more outlets for the blue milk, substantially as set forth.

5. In a centrifugal butter extracting apparatus, the combination with the drum and means for revolving it, of a centrifugal cream disturber consisting of a series of ridges or steps arranged at successively increasing distances from the axis of revolution, and composed of two parts, arranged one within the other, the outer part being stationary and the inner part fitted to rotate, and such inner part being mounted upon the drum, a fluid supply duct provided with one or more nozzles and arranged adjacent to the cream disturber, leading from the inner cream wall of the drum to the cream disturber, and one or more outlets for the blue milk, substantially as set forth

6. In a centrifugal butter extracting apparatus, a centrifugal cream disturber consisting of a series of ridges or steps arranged at successively increasing distances from the axis of revolution and composed of two parts, arranged one within the other, the inner part being fitted to rotate, and having its ridges or steps arranged with their upper edges in successively higher planes on lines sloping upward from the axis of revolution, and the outer part being stationary and having its ridges or steps arranged with their lower edges in successively lower planes on lines sloping downward from the axis of revolution, and means for rotating the inner part, substantially as set forth.

7. In a centrifugal butter extracting apparatus, the combination with the drum and means for revolving it, of a centrifugal cream disturber consisting of a series of ridges or steps arranged at successively increasing distances from the axis of revolution and composed of two parts, arranged one within the other, the inner part being fitted to rotate and having its ridges or steps arranged with their upper edges in successively higher planes on lines sloping upward from the axis of revolution, and the outer part being stationary and having its ridges or steps arranged with their lower edges in successively lower planes on lines sloping downward from the axis of revolution, and such inner part being mounted upon the drum, leading from the inner cream wall of the drum to the cream disturber, and one or more outlets for the blue milk, substantially as set forth.

8. In a centrifugal butter extracting apparatus, the combination with the drum and means for revolving it, of a centrifugal cream disturber consisting of a series of ridges or steps arranged at successively increasing distances from the axis of revolution and composed of two parts, arranged one within the other the inner part being fitted to rotate and having its ridges or steps arranged with their upper edges in successively higher planes on lines sloping upward from the axis of revolution, and the outer part being stationary and having its ridges or steps arranged with their lower edges in successively lower planes on lines sloping downward from the axis of revolution, and such inner part being mounted upon the drum, a fluid supply duct provided with one or more nozzles and arranged adjacent to the cream disturber, leading from the inner cream wall of the drum to the cream disturber, and one or more outlets for the blue milk substantially as set forth.

9. In a centrifugal butter extracting apparatus, the combination with the drum and means for revolving it, of the cream disturber, composed of two parts, one within the other, the inner part being attached to the drum and consisting of the plate p, the inner portion of which forms the top of the drum and the series of concentric circular ridges or steps p' projecting upward from the plate p, and the outer parts being stationary and consisting of the shield q and the series of ridges or steps q' projecting downward from the shield q, substantially as set forth.

10. In a centrifugal butter extracting apparatus, the combination with the drum and means for revolving it, of the cream disturber consisting of the plate p, attached to the drum and the inner portion of which forms the top of the drum, and the series of concentric circular ridges or steps p' projecting upward from the plate p, and the inwardly extending partition k within the drum, and the fluid supply duct m, having nozzles m' arranged above the partition k, substantially as set forth.

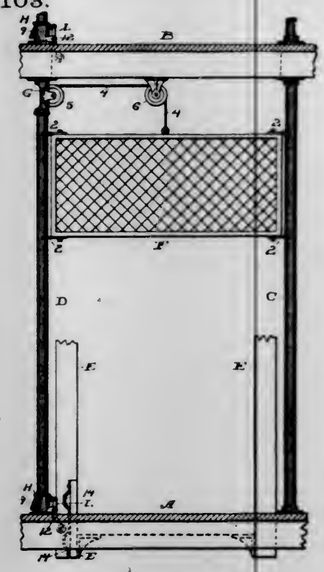
11. In a centrifugal butter extracting apparatus, the combination with the drum and means for revolving it, of the cream disturber, composed of two parts, one within the other, the inner part being attached to the drum and consisting of the plate p, the inner portion of which forms the top of the drum and the series of concentric circular ridges or steps p' projecting upward from the plate p, and the outer part being stationary and consisting of the shield q and the series of ridges or steps q' projecting downward from the shield q, and the inwardly extending partition k within the drum, and the fluid supply duct m, having nozzles m' arranged above the partition k, substantially as set forth.

520,103. SAFETY DEVICE FOR ELEVATOR-GATES. ALBERT C. BEARDSWORTH, Cleveland, Ohio. Filed Feb. 17, 1894. Serial No. 500,467. (No model.)

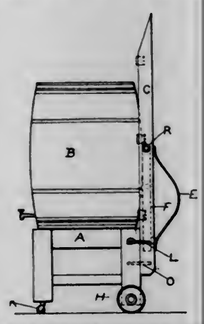
Claim.—1. In elevator mechanism, the base for the counter-weight tube having a valved air outlet passage and a locking bolt extending into the base through a close fitting hole therein, in combination with the counter-weight tube seated in said base, a counter-weight in said tube having a shouldered head on its bottom engaged by said bolt, a pivoted arm to operate said bolt, an elevator gate, and flexible connections therefrom to said counter-weight, said counter-weight having packing to render it air tight in said tube, substantially as set forth.

2. The construction described for carrying and operating the counterweight, consisting in the base hub provided with a valved air passage and an opening for a locking bolt, the upper hub constructed to be bolted into place and the tube formed separately from said hubs and removably connected therewith, substantially as set forth.

520,103.



520,104. COMBINED BARREL TRUCK AND STAND. ADRIAN BUTS, Grand Rapids, Mich. Filed Feb. 3, 1894. Serial No. 499,013. (No model.)



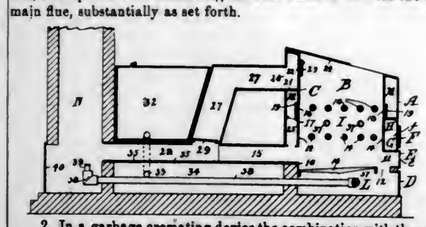
Claim.—1. In a combined barrel truck and stand the combination with the stand A. having four posts connected by braces, the front posts mounted upon casters and the rear posts journaled to an axle mounted upon wheels H. H. of the handles C. detachably secured to said rear posts, having braces D. connecting the same and provided with fulcrum rockers E. secured to the rear of each of said handles, substantially as described and for the purposes set forth.

2. The herein described barrel truck and stand consisting of the stand A. mounted upon casters K. and wheels H. as shown in combination with the detachable handles C. provided with fulcrum rockers E. and pivoted legs F. arranged substantially as and for the purposes set forth.

3. The combination with the stand A. having its front posts mounted upon the casters K. and its rear posts journaled upon the axle connecting the wheels H. with the handle C. detachably secured to the rear posts in a line in continuation of the line of said rear posts and provided with the fulcrum rockers E. and pivoted pendent legs F. substantially as described and for the purposes set forth.

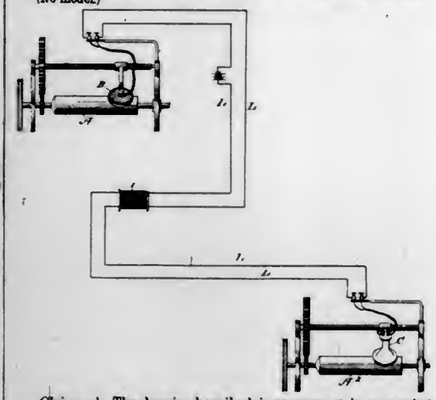
520,105. GARBAGE-CREMATING FURNACE. JEAN F. CHABOTTE, Montreal, Canada, assignor of two-thirds to Gustave des Trois Maisons and Antoine Roy, same place. Filed June 17, 1893. Serial No. 477,892. (No model.)

Claim.—1. In a garbage cremating furnace the combination with the main flue leading from the combustion chamber to the chimney of the closed vessel 32, the tubes 33 connecting the said closed vessel with the chamber 34, the chamber 34 formed under the said main flue, and apertures 35 connecting the said chamber 34 with the said main flue, substantially as set forth.



2. In a garbage cremating device the combination with the combustion chamber of the doors E having apertures *e*, the air chamber H, means for regulating the supply of air to the said air chamber, the flue M passing around the said combustion chamber, the slanting wall 21, apertures 18 and 22 communicating with the said flue M, means for closing the said apertures flues 25 connecting the flue M with the flue 15, and flue 27 and damper 29, substantially as set forth.

520,106. TRANSMITTING SOUND. HARRY R. COX, Hartford, Conn. Filed Aug. 6, 1890. Renewed Oct. 19, 1893. Serial No. 488,645. (No model.)



Claim.—1. The herein described improvement in transmitting vocal or other sounds consisting in recording the sound vibrations and telephonically transmitting such recorded vibrations in condensed form, as and for the purpose described.

2. The herein described improvement in transmitting vocal or other sounds consisting in making a phonogram record of the sound vibrations, transmitting the sound vibrations therefrom in condensed condition to the distant station, recording the sound vibrations, and reproducing the original sounds from the record by operating the same at a reduced speed, as and for the purpose described

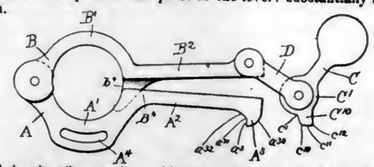
3. The herein described improvement in transmitting vocal or other sounds consisting in making a record of the sound vibrations, and running such record at an increased speed as the means for operating a telephone transmitter, receiving the transmitted vibrations on a telephone, recording the vibrations of the latter and from the said record reproducing the original sound.

4. The herein described improvement in transmitting vocal or other sounds consisting in making a record of the sound vibrations, producing by the same similar electrical vibrations of greater rate upon an electric circuit, transforming the electrical vibrations into mechanical vibrations, impressing or recording the same upon a suitable phonogram-blank, and reproducing the original sound from such phonogram directly or indirectly, as and for the purpose described.

520,107. BAG-FASTENER. HENRY ENGEL, New Ulm, Minn., assignor of one-fourth to Albert W. Engel, Chicago, Ill. Filed Apr. 14, 1893. Serial No. 470,333. (No model.)

Claim.—1. In a bag fastener, in combination with the jaw B^3, the link D, pivotally connected at one end to one end of the jaw; and a lever C, pivoted at the other end to the link; the jaw A, hinged to the jaw B at the end opposite that at which the link is connected, and having the cam surface a^{30} at the free end; the lever having the re-entrant angle C', adapted to seat said cam surface: substantially as set forth.

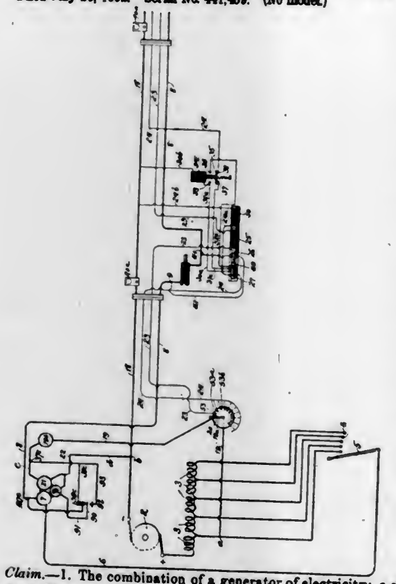
2. In a bag fastener, in combination with the jaws A and B, hinged together at one end; a link D, pivoted to the jaw B at its free end; a lever C, pivoted to the other end of the link; the jaw A, having the tooth A^3 at its free end, and the lever having the toe C^{10} adapted to engage the tooth at the inner side, said toe terminating eccentrically with respect to the pivot of the lever: substantially as set forth.



3. In a bag fastener, in combination with the jaws A and B, hinged together and adapted to clasp the bag between them near their hinge, the lever C, and the link D, connecting it to the free end of the jaw B, said lever being formed eccentrically about its pivot to the link; the jaw A having a stop tooth A^3 at the free end, and the lever being adapted to engage behind said stop tooth and operate against it in its clamping movement: substantially as set forth.

4. In a bag fastener, in combination with the jaws hinged together and having in their proximate edges recesses which together form an inclosed space in which the bag's mouth is clamped, one of the jaws being provided with a wing B^4 at the margin of the recess remote from the hinge, said wing projecting toward the other jaw and adapted to overlap the other jaw at the corresponding margin of its recess: substantially as and for the purpose set forth.

520,108. ELECTRICAL TRAIN-BRAKE. WENDELL C. FLETCHER, St. Louis, Mo., assignor to Norman P. Willard, trustee, Chicago, Ill. Filed July 28, 1892. Serial No. 441,439. (No model.)



Claim.—1. The combination of a generator of electricity; a circuit controlling the brakes; a switch on each car adapted to short-circuit the brake on said car, and a circuit which operates electro magnets connected to said switches to cut out said brakes successively, substantially as described.

2. The combination of a generator of electricity; a circuit controlling the brakes; a switch 27 on each car adapted to short-circuit the brakes on said car; an electro magnet 50 operating said switch; an electric conducting wire 24 extending from car to car, including said magnets and circuit through the wire 24^a, a return wire 24^b leading from said magnet coils to a common return wire 18; means adapted to break the connection of wires 24 and 24^a operated in conjunction with said short circuit and switch; a second electro magnet also operated in conjunction with said short circuiting switch and adapted to break connection between the several sections of the wire 24 when a current is passed through its coils; all combined substantially as described, whereby the brakes of the several cars are short circuited in succession by the alternate making and breaking the circuit to the said wire 24.

3. The combination of a generator of electricity, a circuit controlling the brakes; a switch on each car adapted to short-circuit the brake operating magnet on said car, a circuit operating the electro magnets connected to said switches to cut out said brakes successively and a third circuit operating other electro magnets connected to said switch to cut said brakes into the circuit simultaneously, substantially as described.

4. The combination of a generator of electricity, a brake operating circuit connected thereto, means for opening and closing said circuit, and a second circuit connected to said generator and brake circuit normally closed, means adapted to secure a weak current constantly through said second circuit and a volt-meter connected with said second circuit, substantially as described.

5. The combination of a generator of electricity, a brake operating circuit connected thereto, means for opening and closing said circuit, and a second circuit connected to said generator and brake circuit normally closed, and a current indicator and a volt meter connected with said second circuit, substantially as described.

6. The combination of a generator of electricity, a brake operating circuit connected thereto, means for opening and closing said circuit and for varying the strength of the current, a second circuit connected to said generator and brake circuit normally closed and a current regulator and volt meter connected with said second circuit, substantially as described.

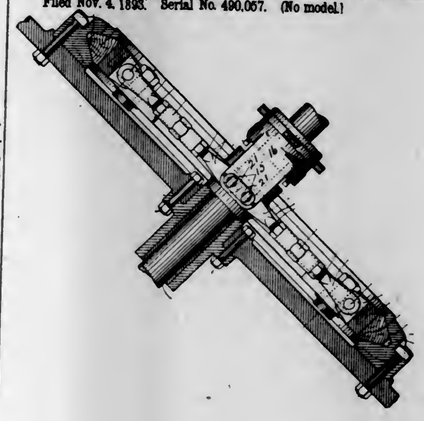
7. The combination of a series-wound dynamo, a brake operating circuit connected thereto, a switch adapted to open and close said circuit and to vary the strength of the current by varying the number of field coils in the circuit, and a second circuit from said generator to said brake circuit normally closed and provided with means adapted to secure a weak current constantly therein and a volt-meter connected with said second circuit, substantially as described.

8. The combination with electric circuit wires extending through a train of cars, of an electric coupling between the cars comprising coupling heads supported on universal joints and impelled by springs; cones guiding said heads into apposition, and corresponding pins and sockets on the opposed faces of the heads connected to the conducting wires, substantially as described.

9. The combination with electric circuit wires extending through a train of cars, of an electric coupling between the cars comprising spring impelled opposing heads, pins and sockets making the connection between the conducting wires, contact blocks in one head to which said wires are also connected, a conducting bar impelled by spring pressure to make contact with said blocks, and pins projecting from the head and impelled by said bar, whereby the latter is kept out of contact with said blocks when the coupling heads are together, substantially as and for the purpose described.

10. The combination of a generator of electricity on a locomotive, a circuit adapted to operate the brakes extending through the train and connected to said generator, a generator on the rear car, a switch controlling the circuit from the last named generator and operated by an electro magnet in circuit with the first named generator, said switch being adapted to close the circuit from the second generator on the breaking of the circuit from the first named generator, substantially as described.

520,109. FRICTION-CLUTCH. AMASA HARVEY, Minneapolis, Minn., assignor of one-half to the Twin City Iron Works, of Minnesota. Filed Nov. 4, 1893. Serial No. 490,057. (No model.)

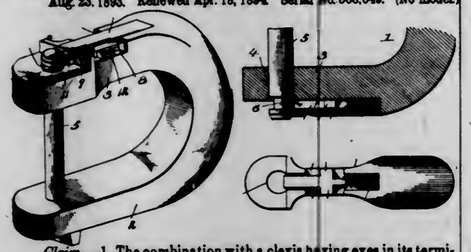


Claim.—1. In a friction clutch, the combination with a ring providing an internal frictional surface, and friction shoes arranged diametrically opposite; of pivoted levers for moving the shoes to and from engagement and arranged to have their inner ends abut without thrusting upon their pivots when in position to cause engagement of the shoes with the friction surfaces, substantially as set forth.

2. In a friction clutch, the combination with opposite radially movable shoes and a circular frictional surface; of radially arranged levers having loose pivotal connections with a shifting device, whereby their ends may be thrust to contact, substantially as and for the purpose set forth.

3. In a friction clutch, the combination with a ring having an internal annular groove; of friction-shoes; levers for operating them, the levers having their inner ends arranged to abut; a shifter having arms to which the inner ends of the levers are pivoted in slots permitting longitudinal movement of the levers; and arms extending from a hub on the shaft and attached to the shoe carriers for causing them to rotate with the ring, substantially as set forth.

520,110. CLEVIS. WILMOT R. HULL, Wellington, Kans. Filed Aug. 23, 1893. Renewed Apr. 18, 1894. Serial No. 508,049. (No model.)



Claim.—1. The combination with a clevis having eyes in its terminals and one of the latter recessed, and a pin having an annular groove beyond one of said eyes, of a spring-actuated bolt arranged on the terminal beyond which the groove is located and adapted to engage the groove, and a sliding cover let into the sides of the recess over the bolt substantially as specified.

2. The combination with the clevis, the terminals of which are provided with eyes and upon its under side with a longitudinal recess having dovetailed grooves and lateral openings in its side walls, a sliding cover arranged in the grooves, a bolt having lateral extensions arranged in the recess and projecting through the openings, a coiled spring in rear of the bolt between the lateral extensions thereof and the ends of the recess, of a pin having an annular recess for engaging with the end of the bolt, substantially as specified.

520,111. ELECTRIC LOCOMOTIVE. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Apr. 25, 1893. Serial No. 471,743. (No model.)

Claim.—1. In an electric locomotive, the combination of a driving axle, an electric motor journaled thereon and having its weight supported thereby, a pivoted truck in advance of the driving axle, and a central pivot support between the truck and the electric motor

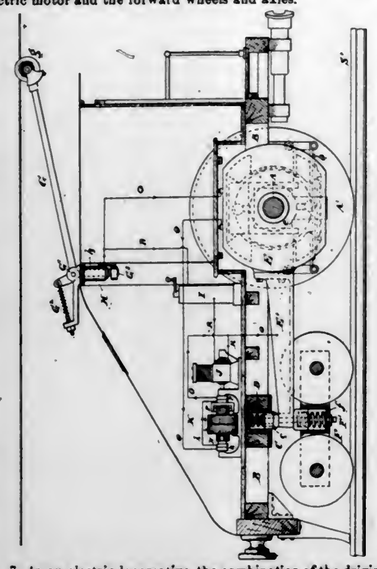
2. In an electric locomotive, the combination of a driving axle, an electric motor journaled thereon and having its weight supported thereby, a pivoted truck in advance of the driving axle, a central pivot support between the truck and the electric motor, and a spring connection between the electric motor and pivoted truck.

3. In an electric locomotive, the combination of a driving axle, an electric motor journaled thereon and having its weight supported thereby, a pivoted truck in advance of the driving axle, a central pivot support between the truck and the electric motor, and a main frame or car body journaled upon the driving axle and pivoted to the truck in line with the pivot connection of the motor.

4. In an electric locomotive, the combination of a driving axle, an electric motor journaled thereon and having its weight supported thereby, a pivoted truck in advance of the driving axle, a central pivot support between the truck and the electric motor, a main frame or car body journaled upon the driving axle and pivoted to the truck in line with the pivot connection of the motor, and springs interposed between the locomotive main frame the driving axle and the truck.

5. In an electric locomotive, the combination of a driving axle, an electric motor journaled thereon and having its weight supported thereby, a pivoted truck in advance of the driving axle, a central pivot support between the truck and the electric motor, a main frame or car body journaled upon the driving axle and pivoted to the truck in line with the pivot connection of the motor, and springs between the electric motor and truck arranged in line with the pivot connection and truck.

6. In an electric locomotive, the combination of the driving axle and wheels, an electric motor supported concentrically with the driving axle and having a revolving portion adapted to rotate the axle directly or without the intervention of gearing, forward wheels and axles, and a pivot connection between a rigid projection from the electric motor and the forward wheels and axles.



7. In an electric locomotive, the combination of the driving axle and wheels, an electric motor supported concentrically with the driving axle and having a revolving portion adapted to rotate the axle directly or without the intervention of gearing, forward wheels and axles, a pivot connection between the electric motor and the forward wheels and axles, and a main frame or car body supported upon the driving axle and also upon the electric motor or an extension thereof.

8. In an electric locomotive, the combination of the driving axle and wheels, an electric motor supported concentrically with the driving axle and having a revolving portion adapted to rotate the axle directly or without the intervention of gearing, forward wheels and axles, a pivot connection between the electric motor and the forward wheels and axles and a main frame or car body spring supported upon the driving axle and also upon the electric motor or an extension thereof.

9. In an electric locomotive, the combination of a driving axle, an electric motor journaled concentrically therein and adapted to directly rotate it and provided with a forward extension which under the operation of the electric motor is adapted to rise, a main frame or body supported upon the driving axle at the rear and at the forward end upon the extension of the electric motor whereby the tendency of the electric motor to revolve as an entirety is utilized in transmitting the weight of the car body upon its axle.

10. In an electric locomotive, the combination of a driving axle, an electric motor journaled concentrically therein and adapted to directly rotate it and provided with a forward extension which under under the operation of the electric motor is adapted to rise, a main frame or body supported upon the driving axle at the rear end and at the forward end upon the extension of the electric motor whereby the tendency of the electric motor to revolve as an entirety is utilized in transmitting the weight of the car body upon its axle, and supporting wheels under the forward part of the main frame of the locomotive.

11. In an electric locomotive, the combination of a driving axle, an electric motor journaled concentrically therein and adapted to directly rotate it and provided with a forward extension which under the operation of the electric motor is adapted to rise, a main frame or body supported upon the driving axle at the rear and at the forward end upon the extension of the electric motor whereby the tendency of the electric motor to revolve as an entirety is utilized in transmitting the weight of the car body upon its driving axle, and a spring connection interposed between the forward extension of the electric motor and the main frame.

12. In an electric locomotive, the combination of the driving axle and wheels, an armature secured concentrically with the axle and adapted to directly rotate it, field magnets journaled concentrically,

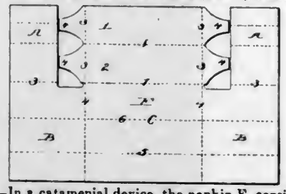
with the axle and provided with a longitudinal rigid extension, a truck support for the outer end of the longitudinal extension of the motor, and a main frame supported upon the driving axle and the truck.

520,112. WINDOW-SCREEN. SAMUEL W. HURLBURT, Creston, Iowa. Filed Jan. 23, 1894. Serial No. 497,832. (No model.)



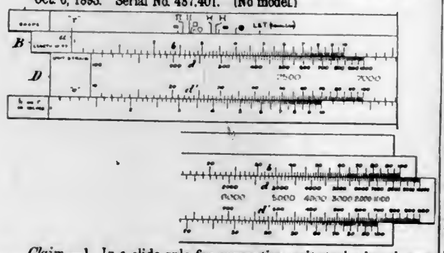
Claim.—The combination with a window frame, of the grooved track strips 2 and 3 secured to opposite sides of the window frame, the strip 3 being composed of upper and lower sections hinged together, the upper section being detachably secured to the window and adapted to swing downward, the metal tracks arranged on the bottoms of the grooves of the strips, a screen provided at opposite sides with recesses, and rollers mounted in the recesses and arranged to run on the tracks, substantially as described.

520,113. CATAMENIAL SACK. EDWARD C. HORNOR, Somerville, Tenn. Filed Jan. 24, 1894. Serial No. 497,846. (No model.)



Claim.—In a catamenial device, the napkin F, consisting of the parts 1, 2, 4, A, B, and C, all in one integral piece; said parts 1 and 2 sewed together at 3, forming a sack *f*; parts 4, turned over and stitched to form loops at 5; parts A, adapted to be turned down on parts B, then parts A and B, adapted to be turned over on the part C; then the parts A, B, and C, adapted to be thrust into the sack *f*, in combination with a suitable device for suspending the same substantially as shown and described and for the purposes set forth.

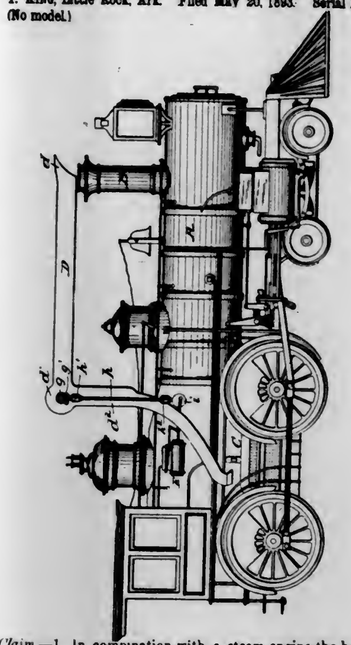
520,114. SLIDE-RULE. THOMAS H. JOHNSON, Pittsburg, Pa. Filed Oct. 6, 1893. Serial No. 487,401. (No model.)



Claim.—1. In a slide rule for computing unit strains in columns, the combination of two rigid side pieces A. and E., braced at the back, with two slides B. and D. provided with tongues, interfitting and arranged to slide in the side pieces; the side pieces and slides bearing logarithmic inscriptions and diagrams, and one of the slides, D, being provided with an unpolished surface for part of its width, adapted to receive pencil marks and to permit of their erasure, substantially as shown and described.

2. A slide rule for computing unit strains in columns, comprising a fixed scale A. with graduation marks at certain points corresponding to the constants for different forms of cross section, a sliding scale B. graduated on its lower edge to a scale of the logarithms of natural numbers, marked with numbers from 1 to 100 corresponding to the length of the column in feet, a sliding scale D. graduated to a scale of logarithms, on both edges and marked on the upper edge with numbers from 100 to 10,000, and on the lower edge from 10 to 1,000, a fixed scale E. graduated on its upper edge to a scale of logarithms and marked with numbers from 1 to 100, substantially as shown and described.

520,115. SPARK-CONDUCTOR FOR STEAM-ENGINES. JOHN T. KING, Little Rock, Ark. Filed May 20, 1893. Serial No. 474,912. (No model.)



Claim.—1. In combination with a steam engine the horizontal pipe D, its front end secured to and resting on the upper end of the smoke stack, enlarged globular part d', part d^3, extending downward and dividing into two parts d^3, said parts each running on one side of the boiler, their lower ends entering each side of the fire-box; rotary fan *e*, journaled in said enlarged part d', and operated by suitable mechanism, run by small steam engine E, secured to the main boiler, fed therefrom and controlled by the engineer, substantially as shown and described and for the purposes set forth.

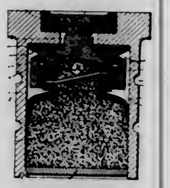
2. The horizontal pipe D, its front end secured to and resting on the rear part of the upper end of the stack B, its front part D', and bell-shaped projection d^5, extending forward and coming down over the top of the main stack, in the form of a hood; enlarged globular part d'; part d^3, extending downward and dividing into two parts d^3; said parts d^3, one running on each side of the boiler, their lower ends entering each side of the fire-box; rotary fan *e*, journaled in said enlarged part d', and operated by suitable mechanism run by a small steam engine E, secured to the main boiler, fed therefrom and controlled by the engineer, substantially as shown and described and for the purposes set forth.

3. In combination with a steam engine the horizontal pipe D, its front end secured to and resting on the rear part of the upper end of the stack B, its front part D', extending forward in the shape of a hood, and having attached to it a bell-shaped projection d^5; enlarged globular part d', part d^3, extending downward and dividing into two parts d^3, said parts each running on one side of the boiler, their lower ends entering each side of the fire-box; rotary fan *e*, journaled in said enlarged part d', and operated by suitable mechanism, substantially as shown and described and for the purposes set forth.

520,116. ELECTRICAL PRIMER. WILLIAM MASON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Jan. 15, 1894. Serial No. 496,943. (No model.)

Claim.—1. In an electric primer, the combination with a metal shell, of a chambered head located therein and insulated therefrom, an insulating ring located within the chamber of the said head, and having its opposite faces recessed, an igniting wire extending diagonally across the central opening of the ring, and metal connecting washers adapted to fit closely into the recesses in the opposite faces of the ring, and to bear upon the opposite ends of the wire which they firmly hold in place, substantially as described.

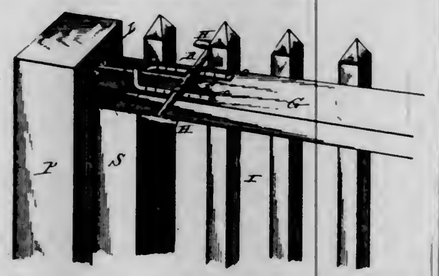
2. In an electric primer, the combination with the shell thereof, of a chambered head located therein and insulated therefrom, and constructed with an outwardly extending threaded stem, a washer of mica interposed between the inner face of the chambered head and the flanged head of the shell, a metal nut applied to the outer end of the threaded stem for holding the chambered head in the shell, an insulating washer located in the head of the shell and receiving the said nut which it insulates therefrom, and an igniting wire located within the chambered head and in electrical connection at one end therewith, and at the other end with the shell, substantially as set forth.



3. In an electric primer, the combination with the shell thereof, of a chambered head located therein and insulated therefrom, an igniting wire located within the chamber of the said head, means for holding the ends of the wire in place and a metal cup located within the shell and engaging with the said means to hold them in place within the head, substantially as set forth.

4. In an electric primer, the combination with the shell thereof, of a chambered head located therein in insulation therefrom, and constructed at its inner end with a deep groove forming a gas-check, and reducing the said end of the head enough to form a yielding edge, an igniting wire located within the head, and means for retaining it in place therein and for establishing electrical connection between it and the shell, substantially as described.

520,117. GATE-LATCH. JAMES M. MATHEWS, Seattle, Wash. Filed July 6, 1893. Serial No. 479,779. (No model.)



Claim.—In a gate latch, the combination with the reversible latch bar A, the handle bar B, having shoulders F, and handles H all made of a single piece, of the cap plate C having loop D which limits the upward movement of the latch bar A and bearings E formed therein, substantially as described.

520,118. PORTABLE DRILLING-MACHINE. WILLIAM J. MCGEHEE, Bushnell, Ill. Filed Jan. 29, 1894. Serial No. 498,322. (No model.)

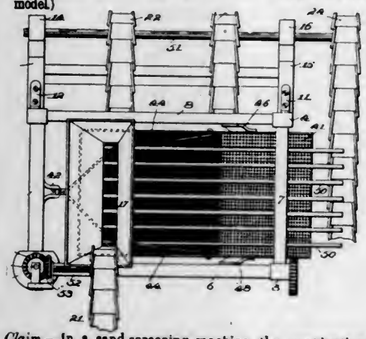
Claim.—1. In combination with a portable drilling machine, a driving shaft therefor comprising two hollow shaft sections connected together by an open universal joint, and inner sections of greater length located within the hollow sections and adjustable through the same whereby they may be adjusted to extend through the open joint and into the adjoining hollow section to provide a rigid shaft, substantially as described.

2. In a portable drilling machine a frame having a drill shaft carrying a bevel gear, a transverse shaft carrying an intermediate gear engaging therewith a yoke having its arms pivoted on the transverse shaft, a driving shaft supported by said yoke and engaging the intermediate gear, a hollow sleeve having a screw threaded interior and a toothed exterior portion a rigid feeding screw passing through said sleeve, a bell lever pivoted in the frame having a pawl engaging said toothed portion, an eccentric on the transverse shaft and connections therefrom to the bell lever for operating the same to rotate the sleeve and feed the frame and drill shaft forward, substantially as described.

520,118.

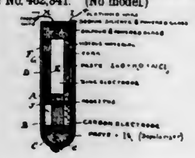


520,119. SCREENING-MACHINE. JAMES E. MCCRACKEN, near Bellefontaine, Ohio. Filed Jan. 23, 1892. Serial No. 419,090. (No model.)



Claim.—In a sand-screening machine, the combination of the frame, the sifting frame loosely suspended therein, a yoke secured to said frame, suitable means for imparting a reciprocating motion thereto consisting of a crank-shaft journaled in the frame and connected with the yoke, and suitable mechanism for rotating said crank-shaft, a suitable hopper mounted over said screen, and a conveyer emptying into said hopper, a series of hoppers placed beneath said screen and conveyers passing beneath said hoppers for conveying away the sifted material, a series of rods on and extending the whole length of the screen for tailing over the stones dropping on said rods, and a deflector board secured to the bottom of said hopper for leading the sifted material to its hopper, substantially as and for the purpose set forth.

520,120. GALVANIC BATTERY. EDWIN F. NORTHRUP, Ardmore, assignor to the Queen & Company, Philadelphia, Pa. Filed Feb. 18, 1893. Serial No. 462,841. (No model.)



Claim.—1. In a galvanic cell, the combination of the holding vessel, with a positive electrode and a negative electrode, and electrolyte paste containing a base, capable of producing hydrogen and an oxide base by reactions within the cell, a depolarizer in contact with the negative electrode consisting of sulphur iodide or equivalent substances which with the hydrogen and oxide base will form a compound incapable of further reaction within the cell, and a seal for sealing the entrance to the containing vessel.

2. In a galvanic cell, the combination of the holding vessel, with a positive electrode, a negative electrode consisting of carbon having one or more grooves or recesses formed in it adapted to be filled with a depolarizer, an electrolyte paste containing a base, capable of producing hydrogen and an oxide base by reactions within the cell a depolarizer in contact with the negative electrode consisting of sulphur iodide or equivalent substances which with the hydrogen and oxide base will form a compound incapable of further reaction within the cell, and a seal for sealing the entrance to the containing vessel.

3. In a galvanic cell, the combination of the holding vessel, with a positive electrode and a negative electrode, an electrolyte paste containing a base, capable of producing hydrogen and an oxide base by reactions within the cell, a depolarizer in contact with the negative electrode consisting of sulphur iodide or equivalent substances which with the hydrogen and oxide base will form a compound incapable of further reaction within the cell, a seal for sealing the entrance to the containing vessel, and a porous inert diaphragm interposed between the positive and negative electrodes and the electrolyte and depolarizer.

4. A sealed galvanic battery consisting of the combination of the inclosing vessel, a positive electrode of metal, a negative electrode of carbon, and an electrolyte consisting of a mixture of zinc oxide and aluminum chloride, a depolarizer surrounding the negative electrode consisting of iodine or a compound thereof substantially as set out, and a seal for hermetically sealing the vessel at its open end.

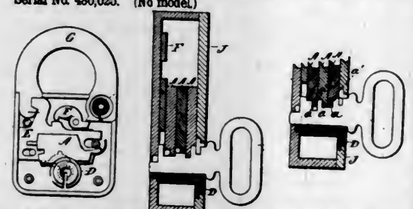
5. In a closed galvanic cell, the combination of the inclosing vessel, a positive electrode, a negative electrode, a single body of electrolyte for producing galvanic action between the electrodes, a depolarizer in contact with and for depolarizing the opposing surfaces of the negative electrode, an oxide base mixed with the electrolyte adapted to operate in conjunction with the depolarizer to form a salt and water and prevent the formation of gas, and a seal to hermetically seal the opening to the containing vessel.

6. In a galvanic battery, the combination of a containing vessel, a positive electrode of metal, a negative electrode of porous material having its face opposed to the positive electrode provided with recesses or grooves, an electrolyte in the form of paste in contact with the positive electrode, a depolarizer in a firm condition in contact with the porous negative electrode and within the recesses or grooves thereof, and a seal for the entrance of the containing vessel.

7. In a galvanic battery, the combination of a cylindrical containing vessel, a positive electrode of metal, a negative electrode of porous material arranged below the positive electrode, an electrolyte in the form of paste in contact with the positive electrode, a depolarizer in a firm condition in contact with the porous negative electrode, and a transverse interposed diaphragm of inert porous material between the electrolyte and the depolarizer extending to and in contact with the lateral walls of the containing vessel.

8. In a galvanic battery, the combination of the inclosing vessel, a positive electrode, a negative electrode, an electrolyte consisting of a mixture of zinc oxide and aluminum chloride in contact with the positive electrode, and a depolarizer consisting of iodine or a compound thereof in contact with the negative electrode.

520,121. MASTER-KEY LOCK. JAMES ROCHE, Terryville, Conn., assignor to the Eagle Lock Company, same place. Filed July 10, 1893. Serial No. 480,025. (No model.)



Claim.—1. A flat-tumbler master-key lock having one or more of its tumblers constructed with two distinct parallel operating faces formed upon its outer edge, substantially as described.

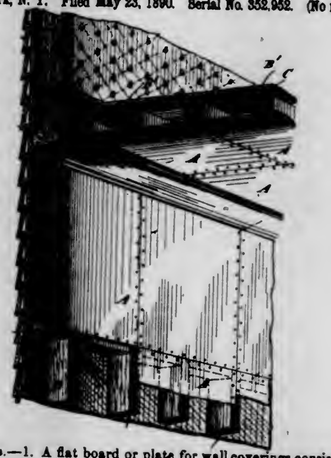
2. A flat-tumbler master-key padlock having a case, hasp, bolt, dog, key-cylinder and tumblers, one or more of the latter being constructed with two distinct parallel operating faces, respectively adapted to co-operate with two different keys, substantially as described.

520,122. SEPARABLE BUTTON. JOSEPH RODRIGUES, New York, N. Y. Filed Mar. 7, 1894. Serial No. 502,611. (No model.)



Claim.—A separable button, consisting of a base having a hollow shank provided at its end with side wings, in combination with a hollow head having an opening for the admission of the shank end and locking recesses transverse to said opening, a post projecting from the head and adapted to enter the shank, and a disk fitting over the post and having at its periphery a series of spring supports substantially concentric therewith so as to expand and contract parallel to the side wall of the head; substantially as described.

520,123. INSIDE-WALL COVERING. AUGUSTINE SACKETT, New York, N. Y. Filed May 23, 1890. Serial No. 352,952. (No model.)



Claim.—1. A flat board or plate for wall coverings consisting of webs of paper alternated with layers of hard adherent plastic substance in the nature of lime cement, substantially as and for the purpose set forth.

2. A flat board or plate for wall coverings consisting of webs of paper alternated with layers of plaster, substantially as and for the purpose set forth.

3. An inside wall covering as a substitute for lath and plaster, consisting of boards or plates of alternated paper and plaster or other equivalent plastic substance in the nature of a lime cement, the boards being stiff and firm, but sufficiently soft to admit the driving of nails through them to fasten them to the studding, substantially as set forth.

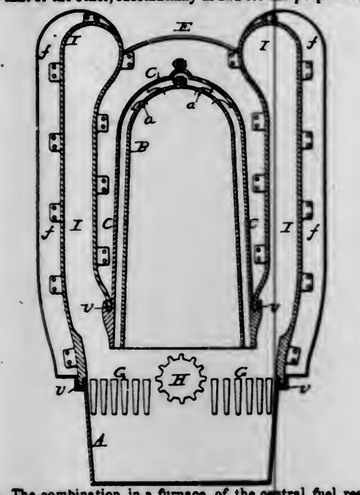
520,124. FURNACE. ISAAC D. SMEAD, Toledo, Ohio. Filed Dec. 27, 1893. Serial No. 494,879. (No model.)

Claim.—1. The herein described furnace consisting of the oblong fuel reservoir B inclosed by a shell or case C, with openings in the upper portion of the walls of the reservoir and a narrow opening at the bottom between the reservoir and its shell or casing, a grate below said reservoir, and two separate combustion and heating chambers I located at the opposite sides of said reservoir, said chambers extending rearwardly beyond the reservoir and being connected at their rear ends to a chamber J located in rear of the reservoir, with an opening F for the admission of air to be heated between the reservoir and the rear chamber J, all constructed and arranged to operate substantially as shown and described.

2. In combination with the fuel reservoir and its inclosing shell or case, with a space between said reservoir and case, the narrow elongated combustion and heating chambers I arranged at the sides of the reservoir, with a space between them and the shell of the reservoir for the passage or entrance of the air to be warmed, said chambers opening along their lower edge into the space between the bottom of the fuel reservoir and the grate, substantially as shown and described.

3. In combination with the central elongated fuel reservoir and its inclosing case, with a space between said reservoir and case, the separate combustion and heating chambers I at the sides thereof with an air space between them and the reservoir and its case, said chambers extending above the top of the reservoir and its case, and the

plate E above the reservoir and reaching from the wall of one chamber to that of the other, substantially as and for the purpose set forth.



4. The combination in a furnace, of the central fuel reservoir, the separate side combustion and heating chambers, with stationary grate bars at the sides and a rotary longitudinal bar or roller located centrally under the fuel reservoir and projecting above the grate bars at the sides for working or feeding the fuel laterally to the mouths of the combustion chambers at the sides, substantially as shown and described.

520,125. DECORATED GLASS AND METHOD OF DECORATING SAME. ALBERT STEFFIN, New Bedford, Mass., assignor to the Mount Washington Glass Company, same place. Filed Feb. 10, 1893. Serial No. 461,818. (No specimens.)

Claim.—1. The method of decorating transparent glass which consists in forming upon one side of the glass an outline of the figure or design to be produced, and forming upon the other side of the glass the main body of said figure or design, substantially as set forth.

2. An article of transparent glass provided with decorations, the outline of the figure or design being formed upon one side of the glass, while the main body of the figure or design is formed upon the opposite side, substantially as described.

520,126. VEHICLE-BODY. JACOB J. VOLLRATH, Sheboygan, Wis. Filed Jan. 31, 1891. Serial No. 379,777. (No model.)



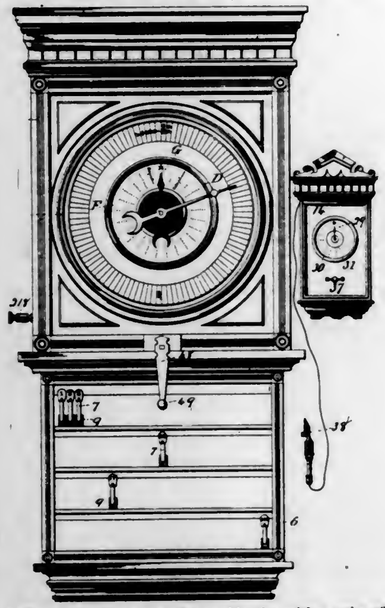
Claim.—1. A vehicle body comprising a frame formed with seats for the edges of the panels, enameled metallic panels, fastening plates secured to the frame over the edges of the panels, and strips of elastic material interposed between said plates and frame.

2. In a vehicle body, the combination of a suitable frame, enameled metallic panels, fastening plates formed or provided on the inside with threaded pins or bolts by which they are secured to the frame, and strips of elastic material interposed between said fastening plates and frame, substantially as and for the purposes set forth.

3. In a vehicle body, the combination of a suitable frame having its top and bottom rails rabbeted to receive the upper and lower edges of the panels, enameled metallic panels placed with their upper and lower edges in the grooves in the top and bottom rails of the frame, fastening plates overlapping the ends of the panels and formed or provided on the inside with screw threaded pins or bolts by which they are secured to the frame, and strips of elastic material interposed between said fastening plates and frame, substantially as and for the purposes set forth.

520,127. ELECTRIC ANNUNCIATING APPARATUS. HORACE B. WALTER, Richfield Springs, N. Y., assignor, by mesne assignments, to the National Electrical Manufacturing Company, Milford, Conn. Filed July 23, 1891. Serial No. 400,484. (No model.)

Claim.—1. The combination with a series of sub-stations each containing a variable signal-receiver, a variable signal-transmitter, and a visual signal; of substantially the construction described of a central-station containing a main-receiver adapted to co-operate with the transmitters at the sub-stations to locate the same and to reproduce the wants to which the said transmitters may be set, a variable signal-transmitter to co-operate with the signal-receivers located at the sub-stations and through said receivers operate the visual signals, from the said central station and a rheotome also located at the central-station for co-operation with the said variable signal-transmitter thereat, substantially as described.



2. In an electric receiver, the combination with a series of contact-buttons insulated from each other, of a gang-switch carrying a spring-finger for each button and normally held with its spring-fingers in engagement with the said buttons, and tripping mechanism for automatically releasing the switch to permit it to fall away from the buttons, and simultaneously disengage all of its fingers therefrom, substantially as described.

3. In an electric-receiver, the combination with a series of contact-buttons insulated from each other and forming terminals of sub-stations, of a gang-switch normally engaged with all of the said terminals, and having a rigid frame, means for mounting the switch to move in a curved path, tripping mechanism for holding the said switch in its normal position, and releasing it therefrom, and means for restoring the switch to its normal position after it has been tripped, substantially as described.

4. In an electric-receiver, the combination with a series of insulated terminals respectively connected with sub-stations, of a gang-switch normally engaged with the said terminals and having a rigid frame, links attached to the said frame and to the case of the receiver, whereby the frame is caused to move in a circular path, tripping mechanism for holding the switch in its normal position, and releasing it therefrom, a restoring lever, and connection between the switch and the said lever for re-engaging the switch with the tripping-mechanism, substantially as described.

5. An electric apparatus for inter-communication between a central-station and a series of sub-stations, having at its central station a series of circuit-closers connected together for simultaneous movement, and arranged in isolated groups, each group communicating with an independent relay located in the main-line of the apparatus.

6. In an electric receiver, the combination with a series of contact buttons, of a gang-switch consisting of a movable frame carrying a series of circuit-closers corresponding to the said terminals, and arranged in isolated groups, independent relays connected with the respective groups and located in the main line of the apparatus, tripping mechanism for holding the switch in its normal position in which its circuit closers are engaged with the said buttons, and manual restoring devices for returning the switch to its normal position after it has operated, substantially as described.

7. In an electric-receiver, the combination with a series of contact-buttons, of a gang-switch consisting of a movable frame carrying a series of circuit-closers corresponding to the said terminals and arranged in isolated groups, independent relays for the respective groups, relay-terminals arranged with the terminals mentioned, and relay circuit-closers carried by the switch and arranged thereon for engagement with the respective relay-terminals, terminals of the circuit of the tripping-magnet arranged with the terminals referred to, a special circuit-closer carried by the switch for the said terminals, tripping mechanism for holding the switch in its normal position in which all of the circuit-closers are engaged with their proper terminals, a circuit-closer in the starting-magnet circuit arranged to be closed by the switch when it drops away from the terminals, and manual restoring mechanism for returning the switch to its normal position, substantially as described.

8. In an electric apparatus for inter-communication between a central station and a series of sub-stations, the combination with a series of variable signal-receivers located at the respective sub-stations, having the circuit normally closed through them, and each containing a magnet of high resistance, of a series of variable signal-transmitters also located at the respective sub-stations and each containing a magnet of low resistance, a variable signal-transmitter also located at the central station and containing a magnet of high resistance, a series of terminals located at the central-station and respectively connected with the sub-stations, and a series of movable contact-fingers located at the central station, connected together for simultaneous movement and arranged in isolated groups, in position to engage with the said terminals to which they correspond, an independent relay located in the main line of the apparatus for each group of terminals, substantially as described and whereby the abnormal operation of either the central or sub-station apparatus by reason of a too great reduction of electric resistance is avoided.

9. The combination with a series of variable signal-transmitters respectively located at sub-stations, of a main-receiver located at the central-station and adapted to locate them and to reproduce signals to which they may be set, and containing a register switch which it brings into action when suitably operated by the transmitters; a relay and register connected with the said switch, which, when operated cuts in the relay whereby an electric connection is established between the sub station at which the transmitter calling is located, and the register, substantially as described.

10. The combination with a series of variable-signal transmitters respectively located at sub-stations, of a receiver located at a central-station, and adapted to locate the said transmitters which are independently connected with it, and to reproduce the signals to which they may be set, and containing a register switch which it brings into action when suitably operated by the transmitters; a relay and a register connected with the said switch, which, when operated cuts in the relay whereby the electric connection is established between the station at which the transmitter calling is located and the register; and means respectively located at the sub-stations for receiving portable transmitters by means of which numbers are transmitted to the register, substantially as described.

11. In a citizen's transmitter, the combination with a circuit-controller, of an operating-lever connected therewith and provided with a shoulder having its outer edge beveled, and its inner edge inclined, a handle-lever provided with a spring-arm carrying a beveled finger which jumps from the beveled outer edge of the said shoulder to the inclined inner edge thereof when the instrument is set, a spring for moving the said handle-lever, whereby the said beveled-finger and shoulder co-operate to shift the operating-lever and hence the circuit-controller, and a lock arranged to have its bolt engaged by the lower end of the handle-lever for holding the same in its normal position, and constructed to retain its key when its bolt is retracted, substantially as described.

12. In a citizen's transmitter, the combination with a circuit-controller, an operating-lever connected therewith and provided with a shoulder having its outer edge beveled and its inner edge inclined thereto, a handle lever provided with a spring-arm carrying a beveled-finger arranged to normally engage with the inclined inner edge of the said shoulder, a spring for moving the said operating-lever when the same is released, whereby the beveled finger and inclined edge of the shoulder co-operate to shift the operating-lever and hence the circuit-controller, a lock having its bolt arranged to hold the lever in its normal position, and means for cutting out the high-resistance magnet by the shifting of the operating-lever, substantially as described.

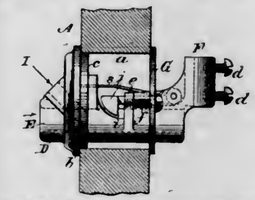
13. In an electric apparatus for police-service, the combination with a normally retired visual-signal located at a sub-station, of a variable signal-receiver having a magnet and restoring mechanism, a tripping device operated by the said magnet for releasing the signal, and means for retiring the signal and locking it, and operating as an incident of their use to act upon the restoring mechanism of the variable signal receiver to restore the indicator thereof to its normal position, substantially as described.

14. In an electric apparatus for police-service, the combination with a normally retired visual-signal having a colored glass globe, a long tube, and a beveled finger located at the lower end of the said tube, of a rocking shaft provided with a beveled finger and with a depending pin, a variable signal-receiver having the armature of its maguet normally engaged by the said depending pin, and a restoring-arm projecting outwardly from its case, and means attached to the lower end of the said tube for engaging with the restoring arm of the receiver to restore the same to its normal adjustment, substantially as described.

15. In an electric-apparatus for police-service, the combination with a series of variable-signal receivers respectively located at the sub-stations and each having a high resistance magnet, of a main-receiver located at the central station and having variable signal-receivers independently connected with it, a variable-signal transmitter located at the central-station and provided with a high resistance magnet corresponding to the magnets of the receivers located at the sub stations, a series of variable signal-transmitters respectively located at the sub-stations, and means for cutting out the said high-resistance magnets for the co-operation of the variable-signal transmitters at the sub-stations with the main-receiver at the central station, substantially as described.

16. In a variable signal-transmitter, the combination with a dial displaying a series of signals or wants, of an indicator to specify any one of them, an escapement mechanism through which the indicator is automatically operated, a magnet, and an armature for controlling the said escapement mechanism, and means for automatically actuating the escapement mechanism in its retrograde movement when released by the armature and magnet, substantially as described.

520,128. SWITCHBOARD FOR HIGH-TENSION CIRCUITS. JAMES J. WOOD, Fort Wayne, Ind. Filed Feb. 6, 1894. Serial No. 499,256. (No model.)



Claim.—1. In a switch-board, the combination with a slab having a hole through it, of a socket-piece entering said hole formed with a flange to seat against the front face of the slab, a fastening plate adapted to be placed against the rear face of the slab, and clamping screws engaging said plate and the socket-piece respectively to draw them together and clamp the socket-piece to the slab.

2. In a switch-board, the combination with a slab having a hole through it, of a socket-piece D entering said hole having a front flange *b* to seat against the front face of the slab, and a neck *c* for centering it in said hole, a fastening plate G adapted to be placed against the rear face of the slab, and clamping screws engaging said plate and the socket piece respectively to draw them together, and clamp the socket-piece to the slab.

3. In a switch-board, the combination with a slab having a hole through it, of a socket-piece D having a front flange *b* and opposite ears *e e*, a fastening plate G, and screws *f f* passing through said plate and screwing into said ears to clamp the socket-piece to the slab.

4. In a switch-board, the combination with a slab having a hole through it, of a socket-piece passing through said hole from the front, and means for clamping it to the slab, said socket-piece formed with an integral connection socket F at its rear end small enough to pass through said hole and adapted to receive a circuit wire into it either from above or below.

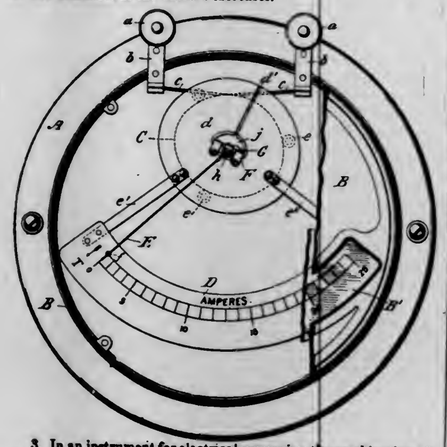
5. In a switch-board, the combination with a slab having a hole through it, of a socket-piece passing through said hole, and having a head at its front end filling said hole and means for fastening it to the slab, a latch *j* having its beveled head entering through a notch into the socket, and a separate spring *s* lying within said hole seated in the rear of the front portion or head of the socket-piece, and projecting thence rearwardly with its free end pressing upon the latch.

520,129. ELECTRIC-CURRENT INDICATOR. JAMES J. WOOD, Fort Wayne, Ind. Filed Feb. 6, 1894. Serial No. 499,257. (No model.)

Claim.—1. In an instrument for electrical measuring the combination of a coil, a magnetic armature movable within said coil, and tending to come to rest at a certain position, a main magnet fixed within the coil adjacent to that position to repel the armature therefrom when excited by a current in said coil, and a compensating magnet arranged to exert a counter-repulsion as the armature is remotely

repelled from the main magnet, whereby to resist a tendency to disproportional movement of the armature as the current increases.

2. In an instrument for electrical measuring the combination of a coil, a magnetic armature pivoted to move within said coil, having an index connected to it, and mounted to gravitate to a position of rest, a main magnet fixed within the coil adjacent to that position to repel the armature therefrom against gravitation when excited by a current in said coil, and a compensating magnet arranged to exert a counter-repulsion as the armature is remotely repelled from the main magnet, whereby to resist a tendency to disproportional movement of the armature as the current increases.



3. In an instrument for electrical measuring the combination of a coil, a magnetic armature movable within said coil, pivoted on an axis eccentric to the magnetic center thereof so that one side of the coil exerts an attraction for it preponderating over the other, and increasing with its movement from the zero position, a main magnet fixed within said coil adjacent to said position to repel the armature therefrom when excited by a current in said coil, and a compensating magnet arranged within said coil to exert a counter repulsion partially counteracting the increasing attraction of the coil as the armature recedes from the main magnet.

4. In an instrument for electrical measuring the combination of a coil with a large opening, said coil wound on one side of its diameter concentrically of a given axis and on the opposite side eccentrically thereto and drawn toward said diameter so that the opening is somewhat flattened on that side, an armature movable within said coil and pivoted coincidently with said axis and hence eccentrically to the coil, so that the flattened side of the coil exerts a preponderating attraction for the armature, and a main magnet fixed within said coil adjacent to said position, to repel the armature therefrom when excited by a current in said coil, and a compensating magnet fixed within said coil on the opposite side of the armature to exert a counter-repulsion against it partially counteracting the increasing attraction of the coil as the armature recedes from the main magnet.

5. In an instrument for electrical measuring the combination with a coil, a magnetic armature pivoted to move within it, and a stationary main magnet within it, of a detachable frame projecting within the coil forming pivotal bearings for said armature and fastened exteriorly to the coil, whereby said frame may be detached and removed carrying the armature with it, without disturbing the armature pivots or any of the electrical connections.

6. In an instrument for electrical measuring the combination with a coil, a magnetic armature pivoted to move within it, and a stationary main magnet within it, of a detachable frame projecting within the coil forming pivotal bearings for said armature and carrying said stationary magnet, and fastened exteriorly to the coil, whereby said frame may be detached and removed carrying with it the stationary magnet and armature, without disturbing their relative arrangement or the pivotal bearings of the armature.

7. In an instrument for electrical measuring the combination of a coil, a frame F entering the opening in said coil, having flanges *l* for fastening it exteriorly to the coil, and formed with ears *k k'* supporting pivotal bearings *h h*, a stationary magnet H fixed to one side of such frame, a movable armature G, a spindle *g* carrying said armature and pivoted in said pivotal bearings, and an index arm E attached to said spindle.

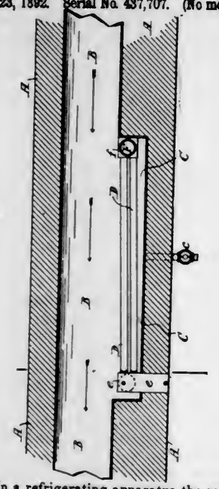
8. In an instrument for electrical measuring, the combination of a coil, a frame F entering the opening in said coil, having a central opening and formed with means for fastening it to said coil, and with ears *k k'* supporting pivotal bearings *h h*, a stationary magnet H fastened to one margin of said frame and projecting toward the middle thereof, a spindle *g* hung between said pivotal bearings, and an armature G mounted on said spindle and arranged to swing in said opening in the frame, so that the opposite sides of said opening may form stops to limit the movement of the armature.

9. In an instrument for electrical measuring, the combination of a coil, a magnetic armature pivoted to move within said coil, a spindle *g* for said armature made of non-magnetic material and having steel pivot pins inserted in its opposite ends, and pivotal bearings in which said pivots turn.

10. In a voltmeter or other instrument for electrical measuring, the combination with an exciting coil, a scale-plate, an index arm traversing said scale-plate, and a movable armature connected thereto for moving said index, of an adjustable stationary pointer L projecting inwardly across the face of said scale-plate from the outer side thereof, and a pivoted pointer arm L' carrying said pointer and extending behind the scale-plate.

11. In a voltmeter or other instrument for electrical measuring, the combination with an exciting coil, a scale-plate, an index arm traversing said scale-plate, and a movable armature connected thereto for moving said index, of an adjustable stationary pointer L, a pivoted arm L' carrying said pointer, a curved arm L^3 branching therefrom and formed with segmental teeth *r*, and a pinion *s* meshing therewith connected to an actuating knob M for adjusting said pointer.

520,130. APPARATUS FOR COOLING AND DRYING AIR. WILLIAM AISOP and WILLIAM BLACKALL, Newcastle, New South Wales. Filed June 23, 1892. Serial No. 437,707. (No model.)



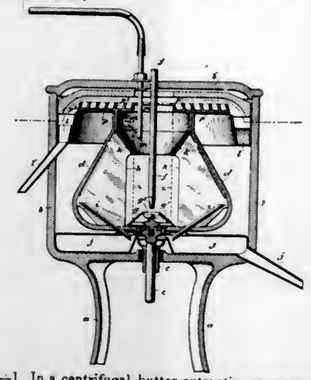
Claim.—1. In a refrigerating apparatus, the compressed air pipe leading from the compressor, a tube plate chamber to which said pipe is connected, a pipe or pipes running from said tube plate chamber to another tube plate chamber, one of said chambers being provided with a waste pipe or drain cock and a pipe connected to this latter tube plate chamber and conveying the air to the expansion cylinder, and an expanded air passage, substantially as described.

2. In a refrigerating apparatus, the combination with the expanded air passage formed with a well or recess therein a compressed air pipe or pipes located in said well and connected at each end with suitable tube plate chambers, said chambers being situated in different planes and one of them being provided with a waste pipe or drain cock, a compressed air pipe leading from the compressor to one of said chambers and another pipe leading from the other of said chambers to the expansion cylinder, substantially as described.

3. The combination of the expanded air passage B, formed with a well or recess therein, the tube plate chamber *e* located in one end of said well and the tube plate chamber *f* located in the other end of said well, one of said chambers being smaller than the other and in a lower plane, the compressed air pipe or pipes D running from one of said chambers to the other, together with the pipe E leading from the compressor to the lower tube plate chamber *e* and the pipe F leading from the upper tube plate chamber *f* to the expansion cylinder, substantially as described.

4. The combination of the expanded air passage B, the well C provided therein, the tube plate chamber *e* located in one end of said well and provided with a waste pipe or drain cock c^2 and gage c', the pipe E connected to said chamber *e*, the tube plate chamber *f* located in the other end of said well, the pipe F connected to said chamber, compressed air pipe or pipes D communicating with both chambers *e* and *f* and the drain cock *c*, substantially as described.

520,131. CENTRIFUGAL BUTTER-EXTRACTOR. GUSTAF M. ANDERSSON, Newark, N. J., assignor to the United States Butter Extractor Company, New York, N. Y. Filed Aug. 28, 1890. Serial No. 363,365. (No model.)



Claim.—1. In a centrifugal butter extracting apparatus, a centrifugal cream disturber fitted to rotate consisting of a series of walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the walls or ribs, and arranged in successively higher planes on lines sloping upward from the axis of revolution, and means for revolving the cream disturber, substantially as set forth.

2. In a centrifugal butter extracting apparatus, a centrifugal cream disturber fitted to rotate consisting of a series of walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution and having perforations therein connecting the adjacent spaces between the walls or ribs, and arranged in successively higher planes on lines sloping upward from the axis of revolution, and means for revolving the cream disturber, in combination with a fluid supply duct provided with one or more nozzles arranged adjacent to the cream disturber, substantially as set forth.

3. In a centrifugal butter extracting apparatus, a centrifugal cream disturber fitted to rotate consisting of a series of walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution and having perforations therein connecting the adjacent spaces between the walls or ribs, such perforations being radially opposite unperforated portions of adjacent walls or ribs, and means for revolving the cream disturber, substantially as set forth.

4. In a centrifugal butter extracting apparatus, a centrifugal cream disturber fitted to rotate consisting of a series of walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution and having perforations therein connecting the adjacent spaces between the walls or ribs, such perforations being radially opposite unperforated portions of adjacent walls or ribs, and means for revolving the cream disturber, in combination with a fluid supply duct provided with one or more nozzles arranged adjacent to the cream disturber, substantially as set forth.

5. In a centrifugal butter extracting apparatus, a centrifugal cream disturber fitted to rotate consisting of a series of walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the walls or ribs and arranged in successively higher planes on lines sloping upward from the axis of revolution, such perforations being radially opposite unperforated portions of adjacent walls or ribs, and means for revolving the cream disturber, substantially as set forth.

6. In a centrifugal butter extracting apparatus, a centrifugal cream disturber fitted to rotate consisting of a series of walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the walls or ribs and arranged in successively higher planes on lines sloping upward from the axis of revolution, such perforations being radially opposite unperforated portions of adjacent walls or ribs, and means for revolving the cream disturber, in combination with a fluid supply duct provided with one or more nozzles arranged adjacent to the cream disturber, substantially as set forth.

7. In a centrifugal butter extracting apparatus, the combination with the drum and means for revolving it, of a cream disturber arranged to revolve with the drum and consisting of a series of walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the walls or ribs, a fluid supply duct provided with one or more nozzles arranged adjacent to the cream disturber, one or more passages leading from the inner cream wall of the drum to the cream disturber, and one or more outlets for the blue milk, substantially as set forth.

8. In a centrifugal butter extracting apparatus, the combination with the drum and means for revolving it, of a cream disturber arranged to revolve with the drum and consisting of a series of walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the walls or ribs, and arranged in successively higher planes on lines sloping upward from the axis of revolution, one or more passages leading from the inner cream wall of the drum to the cream disturber, and one or more outlets for the blue milk, substantially as set forth.

9. In a centrifugal butter extracting apparatus, the combination with the drum and means for revolving it, of a cream disturber arranged to revolve with the drum and consisting of a series of walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the walls or ribs and arranged in successively higher planes on lines sloping upward from the axis of revolution, a fluid supply duct provided with one or more nozzles arranged adjacent to the cream disturber, one or more passages leading from the inner cream wall of the drum to the cream disturber, and one or more outlets for the blue milk, substantially as set forth.

10. In a centrifugal butter extracting apparatus, the combination with the drum and means for revolving it, of a cream disturber arranged to revolve with the drum and consisting of a series of walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the walls or ribs, such perforations being radially opposite unperforated portions of adjacent walls or ribs, one or more passages leading from the inner cream wall of the drum to the cream disturber, and one or more outlets for the blue milk, substantially as set forth.

11. In a centrifugal butter extracting apparatus, the combination with the drum and means for revolving it, of a cream disturber arranged to revolve with the drum and consisting of a series of walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the walls or ribs, such perforations being radially opposite unperforated portions of adjacent walls or ribs, a fluid supply duct provided with one or more nozzles arranged adjacent to the cream disturber, one or more passages leading from the inner cream wall of the drum to the cream disturber, and one or more outlets for the blue milk, substantially as set forth.

12. In a centrifugal butter extracting apparatus, the combination with the drum and means for revolving it, of a cream disturber arranged to revolve with the drum and consisting of a series of walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the walls or ribs and arranged in successively higher planes on lines sloping upward from the axis of revolution, such perforations being radially opposite unperforated portions of adjacent walls or ribs, one or more passages leading from the inner cream wall of the drum to the cream disturber, and one or more outlets for the blue milk, substantially as set forth.

13. In a centrifugal butter extracting apparatus, the combination with the drum and means for revolving it, of a cream disturber arranged to revolve with the drum and consisting of a series of walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the walls or ribs and arranged in successively higher planes on lines sloping upward from the axis of revolution, such perforations being radially opposite unperforated portions of adjacent walls or ribs, a fluid supply duct provided with one or more nozzles arranged adjacent to the cream disturber, one or more passages leading from the inner cream wall of the drum to the cream disturber, and one or more outlets for the blue milk, substantially as set forth.

14. In a centrifugal butter extracting apparatus, a centrifugal cream disturber fitted to rotate consisting of a series of concentric circular walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the circular walls or ribs, and means for revolving the cream disturber, substantially as set forth.

15. In a centrifugal butter extracting apparatus, a centrifugal

cream disturber fitted to rotate consisting of a series of concentric circular walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the circular walls or ribs, and means for revolving the cream disturber, in combination with a fluid supply duct provided with one or more nozzles arranged adjacent to the cream disturber, substantially as set forth.

16. In a centrifugal butter extracting apparatus, a centrifugal cream disturber fitted to rotate consisting of a series of concentric circular walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the circular walls or ribs, and arranged in successively higher planes on lines sloping upward from the axis of revolution, and means for revolving the cream disturber, substantially as set forth.

17. In a centrifugal butter extracting apparatus, a centrifugal cream disturber fitted to rotate consisting of a series of concentric circular walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the circular walls or ribs, such perforations being radially opposite unperforated portions of adjacent circular walls or ribs, and means for revolving the cream disturber, substantially as set forth.

18. In a centrifugal butter extracting apparatus, a centrifugal cream disturber fitted to rotate consisting of a series of concentric circular walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the circular walls or ribs and arranged in successively higher planes on lines sloping upward from the axis of revolution, such perforations being radially opposite unperforated portions of adjacent circular walls or ribs, and means for revolving the cream disturber, substantially as set forth.

19. In a centrifugal butter extracting apparatus, a centrifugal cream disturber fitted to rotate consisting of a series of concentric circular walls or ribs arranged with intervening spaces at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the circular walls or ribs and arranged in successively higher planes on lines sloping upward from the axis of revolution, such perforations being radially opposite unperforated portions of adjacent circular walls or ribs, and means for revolving the cream disturber, in combination with a fluid supply duct provided with one or more nozzles arranged adjacent to the cream disturber, substantially as set forth

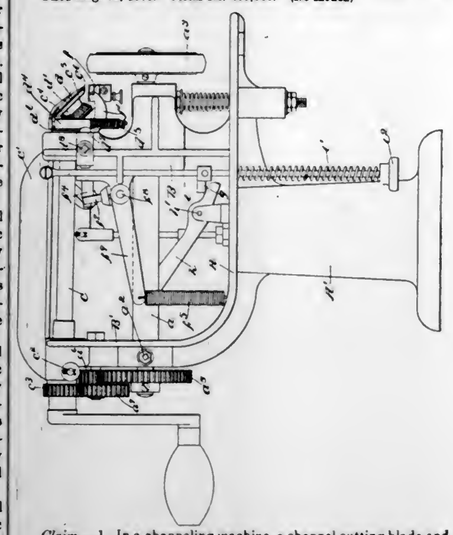
20. In a centrifugal butter extracting apparatus, the combination with the drum and means for revolving it, of a cream disturber arranged to rotate with the drum and consisting of a series of concentric circular walls or ribs arranged at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the circular walls or ribs and arranged in successively higher planes on lines sloping upward from the axis of revolution, such perforations being radially opposite unperforated portions of adjacent circular walls or ribs, one or more passages leading from the inner cream wall of the drum to the cream disturber, and one or more outlets for the blue milk, substantially as set forth.

21. In a centrifugal butter extractiug apparatus, the combination with the drum and means for revolving it, of a cream disturber arranged to rotate with the drum and consisting of a series of concentric circular walls or ribs arranged at successively increasing distances from the axis of revolution, and having perforations therein connecting the adjacent spaces between the circular walls or ribs and arranged in successively higher planes on lines sloping upward from the axis of revolution, such perforations being radially opposite unperforated portions of adjacent circular walls or ribs, a fluid supply duct provided with one or more nozzles arranged adjacent to the cream disturber, one or more passages leading from the inner cream wall of the drum to the cream disturber, and one or more outlets for the blue milk, substantially as set forth.

22. In a centrifugal butter extracting apparatus, the combination with the drum and means for revolving it, of the cream disturber consisting of the plate p, attached to the drum and the inner portion of which forms the top of the drum, and the series of inwardly inclined concentric circular ribs p', projecting upward from the plate p, and having perforations p^2 therein connecting the adjacent spaces between the walls or ribs, substantially as set forth.

23. In a centrifugal butter extracting apparatus, the combination with the drum and means for revolving it, of the cream disturber consisting of the plate p, attached to the drum and the inner portion of which forms the top of the drum, and the series of inwardly inclined concentric circular ribs p', projecting upward from the plate p, and having perforations p^2 therein connecting the adjacent spaces between the walls or ribs, the perforations of the inner rib p' being arranged in the line of the inner cream wall of the drum, the inwardly extending partition k, within the drum, and the fluid supply duct m, having nozzles m^2 arranged above the partition k, substantially as set forth.

520,132. CHANNELING-MACHINE. HENRY H. ARNOLD, Rockland, assignor to the Eppler Welt Machine Company, Boston, Mass. Filed Aug. 12, 1893. Serial No. 483,005. (No model.)



Claim.—1. In a channeling machine, a channel cutting blade and holder therefor, and a lower feed roll, combined with an upper feed roll having a diagonal axis, and an independent gage roll also having a diagonal axis, located adjacent the feed roll substantially as described.

2. In a channeling machine, a channel cutting blade and holder therefor, and a lower feed roll, combined with an upper feed roll having a diagonal axis and an independent gage roll, also having a diagonal axis, located adjacent the feed roll and a vertically yielding frame supporting said gage roll, substantially as described.

3. In a channeling machine, a channel cutting blade, and holder therefor, and a lower feed roll, combined with an upper feed roll having a diagonal axis, and an independent gage roll also having a diagonal axis, located adjacent the feed roll and a horizontally adjustable frame supporting said independent gage roll, substantially as described.

4. In a channeling machine, a channel cutting blade and holder therefor, and a lower feed roll, combined with an upper feed roll having a diagonal axis, and an independent gage roll also having a diagonal axis, located adjacent the feed roll and a detachable supporting frame for said gage roll, substantially as described.

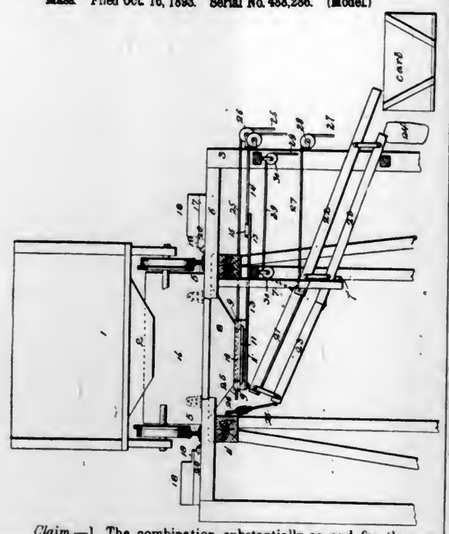
5. In a channeling machine, a channel cutting blade and blade holder and lower feed roll, combined with an upper feed roll having a diagonal axis, a shaft and gearing for positively rotating said feed roll, a pivoted bearing frame supporting said shaft, two vertical rods e, e, connected to said frame and passing down through the bed plate of the machine, spiral springs e', encircling said rods, the upper ends of which bear against fixed points, and the lower ends against adjusting nuts on the rods e, e, a cross piece g rigidly connecting said vertical rods e, e, together, and the pivoted hand lever h which engages said cross piece to raise the upper feed roll for the introduction of the work, substantially as described.

6. In a channeling machine, a channel cutting blade and blade holder, and lower feed roll, combined with an upper feed roll, having a diagonal axis, pivoted bearing frame supporting the operating shaft of said feed roll, an independent gage roll located adjacent the feed roll and supporting frame therefor, and the pin d^5, which limits the downward movement of the supporting frame of the gage roll, substantially as described.

7. In a channeling machine, the upper and under positively driven feed rolls, combined with a channel cutting blade, and longitudinally adjustable oscillating arm supporting it, a spring controlled rock shaft and yoke carried by it engaging said blade supporting arm, an arm projecting from said rock shaft, an adjusting screw passing through the outer end of said arm and a fixed projection against which said adjusting screw bears, substantially as described.

8. In a channeling machine, the upper and under positively driven feed rolls, combined with a channel cutting blade, and longitudinally adjustable oscillating arm supporting it, a spring controlled rock shaft and yoke carried by it engaging said blade supporting arm, a bell-crank lever secured to said rock shaft, and an adjusting screw passing through one arm of said bell crank lever, a fixed bearing point for it, and a pin projecting from the other arm of said bell crank lever, the arm f^{16} pivoted to the frame and having a diagonal slot 4 for said pin, and an adjustable rod f^{17} controlling the position of said arm, substantially as described.

520,133. COAL-CONVEYER. HANS L. CARSTEIN, Cambridge, Mass. Filed Oct. 16, 1893. Serial No. 488,286. (Model.)



Claim.—1. The combination, substantially as and for the purpose set forth, with the trestle supporting the tracks of a railroad; of a fixed chute placed between said tracks; a gate in said chute; means for opening and closing said gate; normally horizontal hinged wings around said chute, located respectively between the rails of said track and outside of said rails and capable of being turned into vertical positions and secured together to form a receptacle around the fixed chute; a movable chute supported under the fixed chute; and means for moving said chute.

2. The combination, substantially as and for the purpose set forth, of the trestle; the fixed chute in the same; a frame 7 pendent from the said trestle; an inclined chute supported by, and movable on said frame; a screen 21 hinged to the upper end of this chute and extending under the fixed chute; means operated from the ground for raising and supporting the upper end of this screen: and means operated from the ground for removing this screen.

3. The combination, substantially as and for the purpose set forth, of the rails —5, 5—; the rectangular chute —8— lying between these rails; the wings —16, 16— hinged respectively to the opposite sides of the chute between the rails; and the wings —17, 17— hinged respectively to opposite sides of the chute outside the rails and provided with side pieces —18, 18—each having thereon jogs —19, 20—.

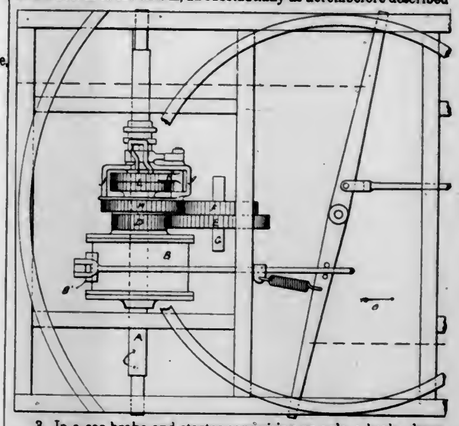
4. The combination, substantially as and for the purpose set forth, of the fixed chute —8— having a gate in the same; means for opening and closing said gate; an inclined screen supported beneath said gate; means for drawing said screen up or down; means for varying the angle of inclination of said screen; and a supported inclined chute hinged to the screen.

5. The combination, substantially as and for the purpose set forth, with the fixed chute 8, movable screen —21— and inclined chute —22— hinged thereto of a secondary chute 23 arranged under the screen 21 connected to and movable with the same.

520,134. CAR STARTER AND BRAKE. RALPH CLEGG, Longsight, England. Filed July 30, 1891. Serial No. 401,153. (No model.)

Claim.—1. In a car brake and starter, the combination of a brake drum and a brake applied thereto, a spring contained in said drum to be charged with power by the application of the brake to said drum, a toothed wheel secured to the said drum and gearing into suitable gearing by which when the drum aforesaid ceases to be retarded by the brake the rotation of such drum is transmitted to the axle upon which the said drum is mounted as hereinbefore described.

2. In a car brake and starter, the combination of an axle A, a brake drum B on said axle and a spring within said drum to be charged with power by the retardation or arrest of said drum, a toothed wheel D secured to the said brake drum, gear wheels E, F and H, a ratchet wheel and pawl, and means for transmitting motion from the said wheel H to the axle A, all substantially as hereinbefore described



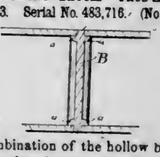
3. In a car brake and starter comprising an axle, a brake drum on said axle and a spring within said drum, the means of controlling the direction in which the apparatus is to work said means consisting in the grooved collar S operated by the driver of the car, incline R, frictional lever P, double winged click or pawl N, ratchet wheel L and arm I, all arranged combined and operating in conjunction with each other substantially as herein set forth.

520,135. DEVICE FOR ATTACHING UMBRELLAS. THOMAS B. COMINS, Boston, Mass. Filed Mar. 30, 1893. Serial No. 468,254. (No model.)



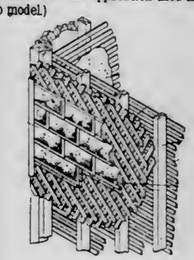
Claim.—In a device for attaching umbrellas, &c. to the person, a flexible connection and securing device in combination with a hinged holder C attached thereto and provided with a stop b and lock d, substantially as and for the purposes set forth.

520,136. BUILDING-BLOCK. PAUL A. CUENOT, Canton, Ohio. Filed Aug. 22, 1893. Serial No. 483,716. (No model.)



Claim.—The combination of the hollow building blocks A, and interposed blocks formed to fit the hollow blocks, and provided with projecting flanges, substantially as and for the purpose set forth.

520,137. FIREPROOF BUILDING-WALL. PHILIP A. DESLAURIERS, St. Paul, Minn. Original application filed July 13, 1892, Serial No. 439,473. Divided and this application filed Aug. 3, 1893. Serial No. 482,250. (No model.)



Claim.—1. A building wall, comprising in combination, the frame, the lath secured to the outer face thereof, sheet metal siding plates secured on the outside of said lath leaving an intermediate space, and a fire proof filling upon the inner face of the lath, and extended through the openings therein and filling the space between the lath and plates, substantially as described.

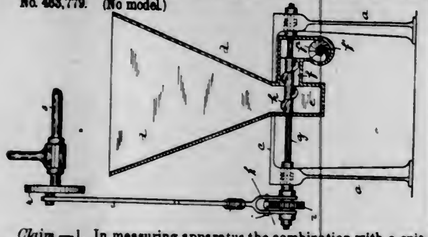
2. A building wall, comprising in combination, the frame, the lath secured upon the outer face thereof, to form practically a continuous open covering therefor, the interlocking sheet metal siding plates secured outside said lath, and the cement or similar material filled into the open space between the siding plates and lath, and the openings between the lath, substantially as described.

3. In a building wall, the combination with the frame, of the open work or perforate wall secured thereto, the ornamentally finished siding plates secured outside said wall, and the non combustible material upon the inner surface of said wall, and extending through the openings of the wall and filling the space between it and said siding plates, substantially as described.

4. The method of forming a building wall consisting in securing metal siding plates in front of a lathing to form a space between the plates and lathing, and then applying a plastic binding and stiffening material to the inside facing of the laths and forcing it through the spaces between the lathing into the space between the lathing and the metallic plate so as to bind the parts together and impart stiffness to the wall by the plastic material forced through the spaces between the lathing into the space between the metal plate and lathing, substantially as and for the purposes described.

5. The building wall, composed of the frame, the laths or open work covering applied to the outside and also to the inside of the frame, the sheet metal siding plate, secured outside of the frame with a space between the siding plate and the outer open work covering, the plastic material passing through the outer open work covering and lying on opposite sides thereof with a portion in the space between the covering and the siding plate, and the plastic material applied to the face of the inner open work covering, substantially as and for the purposes described.

520,188. APPARATUS FOR COMPOUNDING AND MIXING GLASS BATCH. ROBERT DRALLE, Berlin, Germany, assignor of one-half to Richard M. Atwater, Pittsburg, Pa. Filed Feb. 25, 1893. Serial No. 463,779. (No model.)



Claim.—1. In measuring apparatus the combination with a suitable frame, of a hopper having an outlet, a spiral screw or conveyer adapted to feed the material from said hopper, and mechanism for imparting an intermittent rotary movement to said spiral screw or conveyer, substantially as and for the purposes set forth.

2. In measuring apparatus the combination with a suitable frame, of a hopper, a spiral screw or conveyer adapted to feed the material from said hopper, mechanism for imparting an intermittent rotary movement to said spiral screw or conveyer and for regulating the amount of such movement, substantially as and for the purposes set forth.

3. In measuring apparatus the combination with a suitable frame, of a hopper, a cylinder communicating with said hopper, a spiral screw or conveyer fitting within said cylinder, and mechanism for imparting an intermittent rotary movement to said spiral screw or conveyer, substantially as and for the purposes set forth.

4. In measuring apparatus the combination with a suitable frame, of a hopper having a box or receptacle formed at the lower end thereof, a cylinder communicating with said box or receptacle, a spiral screw or conveyer arranged within said box and cylinder, and mechanism for imparting an intermittent rotary movement to said spiral screw or conveyer, substantially as and for the purposes set forth.

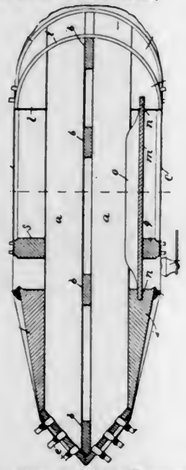
5. In measuring apparatus the combination with a suitable frame, of a hopper, a shaft carrying a spiral screw or conveyer, said spiral screw or conveyer being adapted to feed the material from said hopper, a ratchet wheel on said shaft, a lever on said shaft carrying a pawl adapted to engage with said ratchet wheel, and connections between said lever and a suitable power shaft for imparting a reciprocating movement to said lever, substantially as and for the purposes set forth.

6. In measuring apparatus the combination with a suitable frame, of a hopper, a shaft carrying a spiral screw or conveyer, said spiral screw or conveyer being adapted to feed the material from said hopper, a ratchet wheel on said shaft, a lever on said shaft carrying a pawl adapted to engage with said ratchet wheel, and a rod connecting said lever with an eccentric mounted on a suitable power driven shaft, substantially as and for the purposes set forth.

7. In measuring apparatus the combination with a suitable frame, of a hopper, a shaft carrying a spiral screw or conveyer, said spiral screw or conveyer being adapted to feed the material from said hopper, a ratchet wheel on said shaft, a bifurcated lever on said shaft carrying a pawl adapted to engage with said ratchet wheel, an adjustable sleeve on said lever and a rod connecting said sleeve with an eccentric on a suitable power-driven shaft, substantially as and for the purposes set forth.

8. In measuring apparatus the combination with a suitable frame, of a hopper having a box or receptacle formed at the lower end thereof, a cylinder communicating therewith, a spiral screw or conveyer arranged within said box and cylinder, mechanism for imparting an intermittent rotary movement to said spiral screw or conveyer, and a spiral conveyer adapted to carry off the material fed from said hopper by said first-mentioned conveyer, substantially as and for the purposes set forth.

520,189. PIANO. ABRAHAM FELLDIN, Auburn, N. Y. Filed Mar. 22, 1893. Serial No. 467,152. (No model.)



Claim.—1. In a piano the string frame placed above the hammer actions with the sounding board under the said frame and the strings applied under the sounding board substantially as described.

2. The string frame composed of the bars arranged in the lines of the strings and having lengthwise resistance to the pull of the strings, said bars arranged with spaces between them, and the sounding board ribs arranged in said spaces substantially as described.

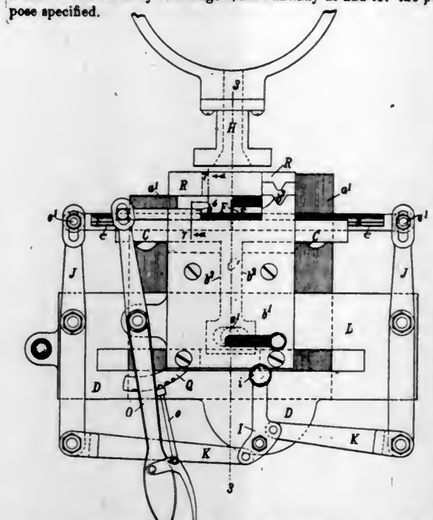
3. The string frame composed of two sets of parallel bars arranged in the lengthwise direction of the strings with intermediate cross bars and having metallic pin holding caps at the ends substantially as described.

4. In a piano a string frame composed of bars arranged in the lines of the strings and in sections of different lengths for the groups of strings of different lengths with pin holding caps at the ends, each section having a separate cap at the rear end of the frame substantially as described.

520,140. MECHANISM FOR JUSTIFYING MATRIX-LINES. CHARLES FORTH and HENRY GLENKER, Cleveland, Ohio, assignors, by direct and mesne assignments, to E. L. Thurston, trustee. Filed Dec 2, 1892. Serial No. 453,896. (No model.)

Claim.—1. As a means for justifying a line of independent matrices for presentation to the mold, a holder for said matrices having two shoulders against which the end matrices of a justified line impinge, two movable fingers adapted to lie between two matrices in the line, mechanism for forcibly separating said fingers thereby forcing the matrices from the point of insertion of said fingers in opposite directions toward and against said shoulders, and an expansible mold plug which is secured to said fingers and is adapted to enter the mold and close it in front of the space created by said fingers, substantially as and for the purpose specified.

2. As a means for justifying a line of independent matrices for presentation to the mold, a holder for said matrices having two shoulders against which the end matrices of a justified line impinge, two movable fingers adapted to lie between any two matrices in the line, mechanism for forcibly separating said fingers and thereby moving the matrices in opposite directions from said fingers toward and against said shoulders, and two narrow flexible plates secured to and projecting forward from said fingers secured together at their forward ends and adapted to enter and close the mold in front of the space in the matrix line created by said fingers, substantially as and for the purpose specified.



3. In a machine for casting linotypes, in combination, a mold, a head adapted to hold a line of independent matrices for presentation to the mold, and having two shoulders against which the end matrices of the justified line impinge, two transversely movable justifying bars adapted to enter and engage with alignment notches in the rear edge of the matrices, two fingers secured to and projecting forward from said bars, an expansible mold plug adapted to close the mold in front of the space created by said fingers, and mechanism for moving the justifying bars apart, substantially as and for the purpose specified.

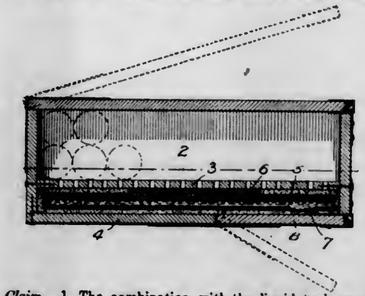
4. In a machine for casting linotypes, in combination, a mold, a head adapted to hold a line of independent matrices for presentation to said mold and having two shoulders against which the end matrices of a justified line impinge, a longitudinally movable slide C having a groove in its front face, two justifying bars mounted in said groove, two spacing fingers secured to and projecting forward from the ends of said bars, two flexible plates secured to and projecting forward from said fingers, and secured together at their forward ends, a transversely movable slide D mounted in said head and a system of levers mounted on said slide for operating the justifying bars, substantially as and for the purpose specified.

5. In a machine for casting linotypes, in combination, a mold, a head adapted to hold a line of independent matrices for presentation to the mold, and having two shoulders against which the end matrices of the justified line impinge, a slide mounted in said head having a groove in its front face, two justifying bars mounted in said groove, two fingers secured respectively to and projecting forward from the proximate ends of said bars, two flexible plates secured to and projecting forward from said fingers and secured to each other at their forward ends, which plates are adapted to enter and close the mold in front of the space in the matrix line created by said fingers, and mechanism for moving said bars apart, substantially as and for the purpose specified.

6. In a machine for casting linotypes, in combination, a mold, a head adapted to hold a line of independent matrices for presentation to the mold, and having two shoulders against which the end matrices of a justified line impinge, and having also a groove in its face, two movable justifying bars which are guided in said groove, two fingers attached respectively to the proximate ends of said bars and extending forward therefrom, two flexible plates, secured to and extending forward from said fingers and secured together at their front ends, adapted to enter and close the mold in front of the space created by said fingers, and means for actuating said bars, substantially as and for the purpose specified.

7. In a machine for making linotypes, in combination, a mold, a head adapted to hold independent matrices for presentation to the mold, a slide mounted on said head having its front face in the plane of the front face of the matrices, a lever mounted on said head and engaging with said slide, and a latch for said lever, substantially as set forth.

520,141. CIGAR-MOISTENING DEVICE. CHARLES M. GARFIELD, Minneapolis, Minn. Filed Aug. 26, 1893. Serial No. 484,160. (No model.)

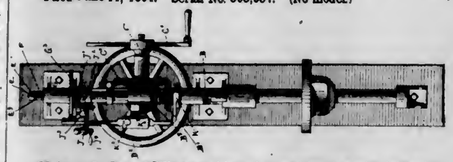


Claim.—1. The combination, with the liquid tank or reservoir provided with an opening, of an air or storage chamber adjacent to said reservoir, a pad of blotting paper or like material, means for pressing the same over said opening, said pad extending therefrom into said air or storage chamber, substantially as described.

2. The combination, with the case or box, of a tank or reservoir for liquid and provided with an outlet opening, a pad of blotting paper or like material pressed over said opening and extending into said case or box, and means for ready access to said tank to fill the same, substantially as and for the purpose set forth.

3. The combination, with the box or case provided with the perforated partition, of a pad of blotting paper or like material arranged beneath said partition, and a tank or reservoir provided with an opening closed by contact with said pad, substantially as described and for the purpose set forth.

520,142. DRILLING-MACHINE. ASA GODDARD, Worcester, Mass. Filed June 11, 1891. Serial No. 395,957. (No model.)



Claim.—1. In a drilling machine, the combination of a drill spindle, a crank shaft, driving gears of different diameters attached to said crank shaft, a pinion B' engaging the larger of said driving gears and turning loosely upon said drill spindle, said pinion being provided with clutch teeth B^3, a pinion B^4 having a spline connection with said drill spindle and adapted to engage the smaller of said driving gears, said pinion being capable of sliding on said drill spindle and having clutch teeth B^3 adapted to engage the clutch teeth B^3, whereby said drill spindle is rotated at different velocities by the engagement of said pinion B^4 with the smaller of said driving gears and by the engagement of said clutch teeth B^3 and B^3, substantially as described.

2. In a drilling machine, the combination with a rotating drill spindle, of a hollow feeding screw carried concentrically on said drill spindle and held from longitudinal movement thereon, a rotating nut on said feeding screw and held from longitudinal movement thereon and means, substantially as described, whereby said feeding screw is held from rotation and a feeding motion thereby imparted to said drill spindle by the rotation of said nut, substantially as described.

3. In a drilling machine, the combination with a drill spindle, of a hollow screw held concentrically on said drill spindle and prevented from longitudinal movement thereon, said feeding screw having a frictional connection with said drill spindle, whereby it is made to rotate by the rotation of the drill spindle and a nut inclosing said feeding screw and capable of being held in a fixed position, whereby the rotation of said drill spindle and connected feeding screw will cause a longitudinal movement of said drill spindle, substantially as described.

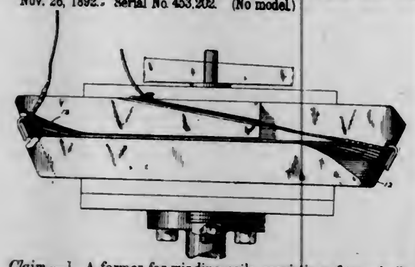
4. In a drilling machine, the combination with a drill spindle provided with a section E having a reduced diameter forming a shoulder F' of a hollow feeding screw F carried on said reduced section E, a collar E' attached to the section E, a spiral spring E^2 placed between

said collar and the end of said hollow feeding screw, with its tension applied to carry said feeding screw toward said shoulder F' and cause said feeding screw to be rotated by said spindle, substantially as described.

5. In a drilling machine, the combination with a rotating drill spindle, of a hollow feeding screw carried concentrically on said drill spindle and held from longitudinal movement thereon, a clamping ring held on said feeding screw, said clamping ring engaging the fixed frame work of the machine, whereby said feeding screw is held from rotation, but is allowed a longitudinal feeding movement and a rotating actuating nut engaging said feeding screw, whereby a longitudinal feeding movement is imparted to said screw and connected drill spindle, substantially as described.

6. In a drilling machine, the combination of a drill spindle, a feeding screw carried concentrically on said drill spindle and held from longitudinal movement thereon, a rotating nut engaging said screw, a beveled pinion formed on said nut, a crank shaft journaled in a split box, a pinion on said crank shaft engaging the pinion on said nut and a tightening screw by which friction is applied to said crank shaft, substantially as described.

520,143. FORMER FOR WINDING ARMATURE-COILS. HARRY L. KIRKER and WILLIAM CHAMBERS, Pittsburg, Pa., assignors to the Westinghouse Electric and Manufacturing Company, same place. Filed Nov. 26, 1892. Serial No. 453,202. (No model.)



Claim.—1. A former for winding coils, consisting of two similar parts each having wire ways around its edges intersected by one or more grooves; and means for holding said parts together, substantially as described.

2. The combination in coil forming means of the two similar parts, having wire ways around their edges intersected by one or more grooves, fasteners adapted to fit said grooves, and means for fastening together said parts, substantially as described.

3. The combination in coil forming means of the two similar parts each having wire ways around its edges intersected by one or more grooves, clamps adapted to enter said grooves, a bolt passing through said two parts, and a key passing through said bolt, substantially as described.

4. The combination in a coil former of two portions adapted to be fastened together, having broad and shallower wire ways at their sides and communicating deep and narrow ways at their ends, substantially as described.

5. The combination in a coil former of two portions adapted to be fastened together, having broad and shallower wire ways at their sides and lying in converging planes, and communicating deep and narrow ways at their ends, substantially as described.

6. A coil former having broad and shallow wire ways at its sides and deep and narrow ways communicating therewith at its ends, substantially as described.

7. A coil former having broad and shallow wire ways at its sides merging by curved surfaces into deep and narrow ways at its ends, and means as a spindle shaft, for rotating the same substantially as described.

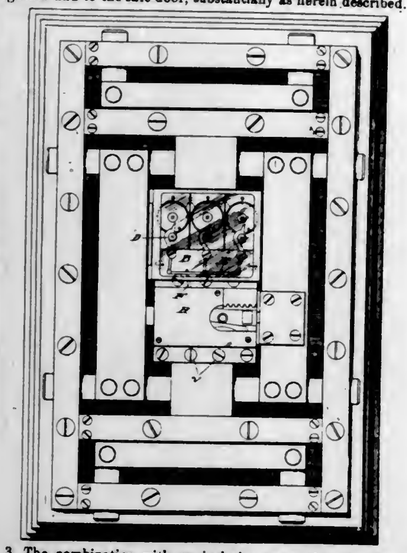
8. The combination in a coil former of two parts, each having a broad and shallow wire-way in one edge, and a deep and narrow way in one end, substantially as described.

9. The combination in coil forming means of a reel provided with wire ways around its edges, said wire ways being intersected by one or more grooves; one or more stiffening strips fitting the wire ways, and one or more clamps adapted to slide in said grooves, substantially as described.

520,144. TIME-LOCK. ALBERT KIRKS, Canton, Ohio, assignor to the Diebold Safe and Lock Company, same place. Filed Feb. 6, 1893. Serial No. 461,209. (No model.)

Claim.—1. The combination with an inclosing case for a plurality of time mechanism, of a back secured in said case, a support secured to said back and having one of its edges projecting beyond one of the edges of the back and a lock case bolted to the projected edge, substantially as herein described.

2. The combination with a safe-door of an inclosing case for a time mechanism having a support projecting beyond the edges of the said case, a lock case secured to the projected portion of the support and a plate secured to the time lock case and covering the joint of connection of the support and the lock case to prevent the removal of the fastening means by which the support and lock case are secured together and to the safe-door, substantially as herein described.



3. The combination with an inclosing case, of a plurality of mechanisms, a removable plate B, a plurality of levers D, fulcrumed thereto, a bar E, engaging the detent of a locking mechanism, and adapted to be engaged by a pin, forming part of the time mechanism, substantially as specified.

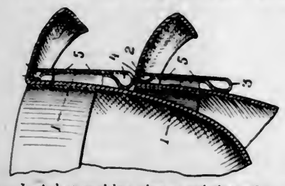
4. The combination with an inclosing case having a projection on one side of a series of time movements, a removable plate having a series of levers pivotally secured to said plate, one end of said levers pivoted to a detent actuating bar, the free ends to directly engage the time movements, a door to inclose the case and a downward extension, and a locking mechanism, substantially as described and for the purpose set forth.

5. The combination with a time movement case, and a lock case, fastening means for securing the cases together and a plate secured to one of the cases and overlapping said fastening means, thus covering the fastening means and preventing their removal, substantially as herein described.

6. In a timelock, the combination with a case and the movements supported therein, of the plate B having a portion overlapping the time mechanism and a portion forming one side of the case, substantially as herein described.

7. The combination in a time lock, of a plurality of time mechanisms an inclosing case therefor having downward extension, of the removable plate B, levers D pivotally secured to said plate and an actuating bar E that engages the detent F of the locking mechanism, substantially as herein described.

520,145. HAT-PACKING RING. SAMUEL T. NEWMAN, Danbury, Conn. Filed Feb. 21, 1894. Serial No. 500,950. (No model.)

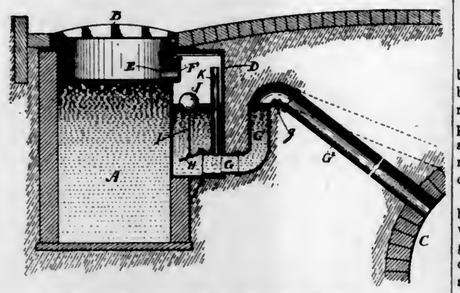


Claim.—1. A hat-packing ring, consisting of a single strip of pasteboard, having its upper and lower edges rolled in and downwardly, forming hollow, annular, flexible ribs upon the inner side of the ring at the top and bottom edges thereof, means for uniting the connecting ends together, thus forming a closed ring of an inside diameter equal to that of the crown of a hat.

2. A hat-packing ring consisting of a single strip of pasteboard having its upper and lower edges rolled in and downwardly, forming hollow, annular, flexible ribs upon the inner side of the ring at the top and bottom edges thereof, said ribs being cut away, as shown upon the opposite sides of the ring to allow its free attachment and adjustment to varying styles of hats, means for uniting the connecting ends together, thus forming a closed ring of an inside diameter equal to that of the crown of a hat.

3. A hat-packing ring, substantially as shown, and consisting of a single piece of pasteboard having its top and bottom edges turned in and downwardly, forming hollow flexible ribs upon the inner sides of the ring, one of said ribs being larger than the other, both being cut away as shown upon the opposite sides of the ring to allow it to more readily adjust itself to the shape of a hat-brim, means as shown for connecting the over lapping ends together.

520,146. DRAINAGE SYSTEM. PATRICK SCANLON, Chicago, Ill. Filed Mar. 27, 1893. Serial No. 467,810. (No model.)



Claim.—1. The combination with a tank, of a siphonic discharge pipe communicating therewith and having its bend or highest point at a level below the level of the top of the tank, so that the water may rise up in the tank and discharge-pipe to such a height that it flows from the short to the long leg of said pipe, whereby, when the flow is sufficient, siphoning is automatically started, and a valve for closing the inlet end of said pipe when the water reaches a given level, the pipe being provided with a vent for permitting the water within it to regain its equilibrium after the inlet end of the pipe is closed, substantially as set forth.

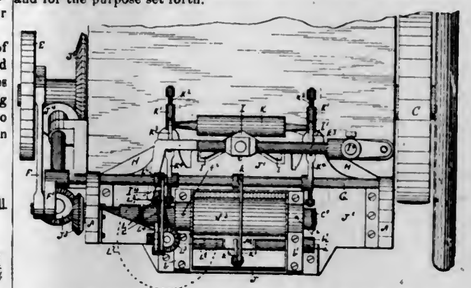
2. The combination with a tank and a siphonic discharge pipe communicating therewith and having its bend or highest point at a level below the level of the top of the tank, so that the water may rise up in the tank and discharge-pipe to such a height that it flows from the short to the long leg of said pipe, whereby, when the flow is sufficient, siphoning is automatically started, of a valve adapted to close the inlet end of said pipe, a float located within the tank and suitably connected with the valve, and an air vent for permitting air to enter the discharge pipe after the valve is seated, substantially as set forth.

3. The combination with a tank, and a siphonic discharge pipe communicating therewith and having its bend or highest point at a level below the level of the top of the tank, so that the water may rise up in the tank and discharge-pipe to such a height that it flows from the short to the long leg of said pipe, whereby, when the flow is sufficient, siphoning is automatically started, of a valve for closing the inlet end of the pipe when the water reaches a given level, and a vent pipe communicating with the discharge pipe and extending upward within the tank, terminating above the level of the water, substantially as set forth.

4. The combination with the catch basin J and the auxiliary tank D, in communication with each other, of the valve F seating outward from the tank D and adapted to close the opening through which the catch basin and tank communicate, a siphonic discharge pipe communicating with the tank, the valve H adapted to close the inlet end of said pipe, the float J located within the tank and suitably connected with the valve, and a vent in the discharge pipe for permitting the water to regain its equilibrium after the valve is seated, substantially as set forth.

520,147. ENVELOPE-MACHINE. HENRY D. SWIFT and DANIEL W. SWIFT, Worcester, Mass., assignors, by mesne assignments, to the Logan, Swift & Brigham Envelope Company, same place. Filed Dec. 2, 1885. Serial No. 184,455. (No model.)

Claim.—1. In the gumming mechanism of an envelope machine, the combination with "pick-ups" arranged to gum separate portions of the envelope blank, a gum box containing a solution of gum, and a roll partially immersed in said solution of a series of separate and independent gumming rolls, each gumming roll receiving gum in common from said gum box roll and gumming a separate "pick-up" together with connected mechanism for actuating said gumming rolls in correspondence with the movements of the "pick-ups, as described and for the purpose set forth.



2. In the gumming mechanism of an envelope machine, the combination with a pick-up for gumming the side flap of an envelope blank, of a vertical spindle, a radial arm attached to said spindle, a roll running loosely on the end of said radial arm, a gumming roll partially immersed in a gum solution, and connected operating mechanism, whereby said spindle is rocked back and forth carrying said roll, in an arc of a circle against said gumming roll, and over the face of said side flap pick up, substantially as described.

3. In the gumming mechanism of an envelope machine the combination of a gum box containing a solution of gum and having a revolving gum box roll immersed in the gum solution; a "pick-up" for gumming the "side-flap" of the envelope blank, a gumming roll for carrying gum to the "pick-up," said gumming roll being vibrated by an arm on a vertical spindle having a bevel gear and an oscillating sector meshing with said bevel gear, together with mechanism for actuating said oscillating sector, as described and for the purpose set forth.

4. The combination with the gum box J having a roll J^3 and the "pick-up" I^4 for gumming the "side-flap" of the envelope blank, of the gumming roll L sleeve L' attached to a vertical spindle with means for oscillating said spindle and vibrating the sleeve L', as described and for the purpose set forth.

5. The combination with the gum-box of an envelope machine, of a gum-box roll provided with annular recesses in its ends and sleeves held by said gum-box and inclosing the journals of said gum-box roll, the ends of said sleeves entering said annular recesses, substantially as described.

6. The combination with the gum-box of an envelope machine, of a gum-box roll provided with annular recesses in its ends, annular semi-elastic washers held in said recesses and sleeves held by said gum-box and inclosing the journals of said gum-box roll, said sleeves having their inner ends held against said washers, substantially as described.

7. The combination with the gum box of an envelope machine, and with a gum box roll contained therein and partially immersed in the gum solution, and gumming rolls for taking gum from the gum box roll and carrying it to the "pick-ups," of a "doctor" consisting of a bar, or blade, held stationary a determinate distance from said gum box roll while the gumming rolls are in contact therewith, and moved so as to allow an increased flow of gum when the gumming rolls are moved away from the gum box roll, together with connected mechanism for actuating the same, as described and for the purpose set forth.

8. The combination with the gum box roll of an envelope machine, of a "doctor" consisting of an oscillating blade pivoted at its ends to the sides of the gum box, one edge of said blade vibrating past the side of the gum box roll and having an alternating period of rest or "dwell" while the gum box roll is delivering gum to the gumming rolls, as described and for the purpose set forth.

9. The combination with the gum box roll of an envelope machine, of a "doctor" consisting of an oscillating blade rocking on pins firmly held in the sides of the gum box and entering the ends of said blade and actuating mechanism, substantially as described, attached to the oscillating blade between its ends, as described and for the purpose set forth.

10. The combination with the gum box roll of an envelope machine, of an oscillating blade or "doctor" rocking on pins held in the sides of the gum box said pins forming the bearings of said blade and held eccentrically in the sides of the gum box, whereby the distance between the gum box roll and the oscillating blade, or "doctor," may

be varied to regulate the flow of gum to the gumming rolls, as described and for the purpose set forth.

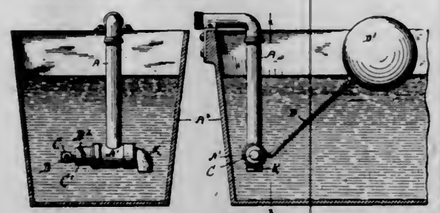
11. The combination with the gum box roll of an envelope machine, and a gumming roll having a reciprocating motion to and from the gum box roll and a rocking shaft connected with and reciprocating said gumming roll, of an oscillating blade or "doctor" for regulating the flow of gum to the gumming roll, said oscillating blade being connected with, and actuated by, said rocking shaft, whereby a synchronous movement of the gumming roll and oscillating blade is secured, as described and for the purpose set forth.

12. The combination with the gum box roll J^3, of an oscillating blade or "doctor" M, eccentric pins *j j'*, arm k^3, connecting rod *k*, and rock shaft G, all arranged and operating, as described and for the purpose set forth.

13. The combination with the gum box of an envelope machine having a revolving roll partially immersed in the gum solution contained in the gum box, of a plate, or partition, submerged in said gum and parallel with the bottom of the gum box with a space at each side of said plate allowing the gum to pass, and an oscillating blade placed over said plate or partition whereby the surplus gum is thrown back upon the upper side of said plate or partition all arranged, as described, whereby a current is maintained in the gum by the rotation of the gum box roll, as and for the purpose set forth.

14. The combination with the gum box of an envelope machine having a revolving roll partially immersed in the gum solution contained in the gum box, of a plate, or partition, submerged in said gum and parallel with the bottom of the gum box with a space at each side of said plate to allow the gum to pass; the edge of said plate next the gum box roll being turned up, and an oscillating blade placed over said turned up edge of the plate or partition as described and for the purpose set set forth.

520,148. BALL-COCK VALVE. WILLIAM A. TURNER, Worcester, Mass., assignor to Edmund Converse, same place. Filed Aug. 31, 1889. Serial No. 322,566. (No model.)



Claim.—1. In a ball cock valve provided with a water chamber, said chamber having openings upon opposite sides, whereby the exit water is divided into currents as it enters the tank, the combination of a valve stem capable of an endwise movement, two valves carried upon said valve stem by which the exit openings from said water chamber are closed, two valve seats to receive said valve, one of said seats being rigid and the other of said seats being yielding, substantially as described.

2. In a ball cock valve, the combination with a water chamber provided with an opening in which the valve stem is journaled, said opening being provided with an annular valve seat, a valve stem journaled concentrically in said opening, and capable of an endwise and a rotary motion, valve disks carried on said stem and arranged to close said opening, said valve stem having a concentric water way or passage communicating with said water chamber, by an opening arranged to be drawn into the valve stem bearing as the valve is closed, thereby cutting off the water way, substantially as described.

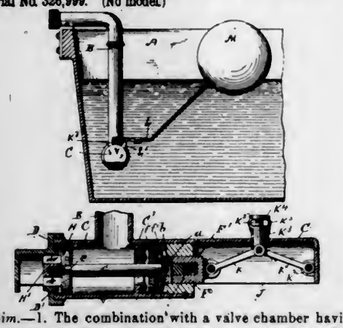
3. In a ball cock valve, the combination with a water chamber provided with an opening forming a water way, of a valve stem journaled in a sleeve concentrically with said water way and having a central concentric passage for the water communicating with the water chamber and an elongated hole communicating with the water way, a sleeve in which the valve stem is journaled and having a hole coincident with the elongated hole in said valve stem, substantially as described.

4. In a ball cock valve, the combination with a water chamber provided with a water passage forming a water way through which water is admitted to said chamber and an opening or openings through which water is allowed to escape from said water chamber into the tank, of a valve stem capable of an endwise and a rotary motion, as described, a plate attached to said stem, and arranged to close over the passage by which water is admitted to the chamber, and disks carried by said valve stem and arranged to close the openings through which the water is allowed to escape to the tank, substantially as described.

5. In a ball cock valve, the combination with a valve stem capable of an endwise movement, whereby the valve disk is brought upon, or carried away from its seat, of a collar attached to said valve stem and provided with a convex surface against which the valve disk rests, a tightening nut screwed upon the valve stem and having a convex face, or surface resting against the valve disk and a valve disk held between said convex collar and said nut, whereby said valve disk is allowed to rock upon the opposing convex surfaces and adjust its position to its valve seat, substantially as described.

6. In a ball cock valve, the combination with a water chamber provided with openings on opposite sides forming water ways for the escape of the water from said chamber, a valve stem capable of an endwise movement, two valve disks carried by said valve stem to close said water ways, one of said disks being fixed upon said valve stem and the other of said disks being a yielding disk arranged to close its water way in advance of said fixed disk and to yield to allow the continued movement of the valve stem, said valve stem having a concentric water way, or passage, communicating with said water chamber by an opening arranged to be drawn into the valve stem bearing, as the valve is closed, thereby cutting off the water way, substantially as described.

520,149. BALL-COCK VALVE. WILLIAM A. TURNER, Worcester, Mass., assignor to Edmund Converse, same place. Filed Oct. 14, 1889. Serial No. 326,999. (No model.)



Claim.—1. The combination with a valve chamber having two water ways as described, of a valve stem capable of a longitudinal movement, a valve disk attached to said valve stem, a movable valve disk carried by said valve stem, and a hollow spindle sliding over the end of said valve stem and provided with a valve seat, acting against said movable valve disk to carry it against its seat, substantially as described.

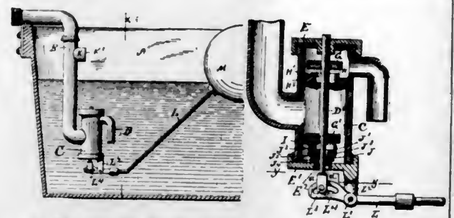
2. The combination with a shell inclosing the valve chamber, and provided with the valve seats C^2 and D', of a valve stem G, a fixed valve disk attached to said stem, a movable disk carried on said stem and provided with the opposite faces *f*, *f'*, a hollow spindle inclosing the valve stem and provided with a valve seat *e*, and connected actuating mechanism, substantially as described, whereby said spindle is moved on said valve stem and its valve seat brought against said movable disk, thereby carrying said movable disk against one of the valve seats in the shell, substantially as described.

3. The combination with a shell inclosing the valve chamber and having valve seats on opposite sides, of the valve stem provided with a slot *b*, a hollow spindle inclosing the end of the valve stem and carrying a pin *a* passing through said slot in the valve stem, a valve disk attached to said valve stem and arranged to close one of said water ways and a valve disk capable of sliding on said valve and arranged to close the other water way by the action of said hollow spindle, substantially as described.

4. The combination with a shell inclosing the valve chamber, and having two valve seats, of the valve stem capable of an endwise movement, a valve disk attached to said valve stem, a hollow spindle inclosing the end of said valve stem, and being operatively connected as described with said valve stem, and a spring with its tension applied to said valve stem to force it out of said hollow spindle and a loose valve disk carried on said valve stem and interposed between one of said valve seats and said sliding hollow spindle, substantially as described.

520,150. BALL-COCK VALVE. WILLIAM A. TURNER, Worcester Mass., assignor to Edmund Converse, same place. Filed Oct. 17, 1889. Serial No. 327,325. (No model.)

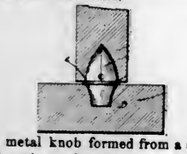
Claim.—1. The combination with a valve chamber having openings on opposite sides forming water ways, of a valve stem, capable of an endwise movement, two valve disks attached to said valve stem, and arranged to close said openings or water ways, a yielding valve seat surrounding one of said openings, and comprising a sleeve held in the shell inclosing the valve chamber, an annular ring inclosing said sleeve, said sleeve and ring having opposing flanges, and a spiral spring with its tension applied to said annular ring, as described, and a fixed valve seat, surrounding the other water way, substantially as described.



2. The combination with a valve having openings on opposite sides, forming water ways, of a valve stem capable of an endwise movement, two valve disks attached to said valve stem and arranged to close said openings, or water ways, a yielding valve seat surrounding one of said openings and comprising a sleeve held in the shell inclosing the valve chamber, an annular ring inclosing said sleeve, said sleeve and ring having opposing flanges, a spiral spring with its tension applied to said annular ring as described, a fixed valve seat surrounding the other water way, a pivoted lever provided with a hollow ball arranged to be raised and lowered by the variation of the water line in the tank, said lever being provided with a cam slot, operatively connected with said valve stem, said cam slot being so shaped that the valve stem is moved endwise to close the valve disks with an accelerated movement, substantially as described.

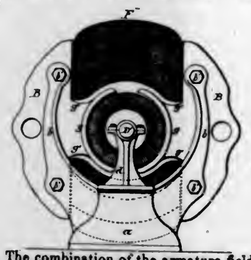
3. The combination with the supply pipe of a ball cock valve, of an air vent or opening above the water line in the tank, whereby air is admitted to prevent the siphonage of the tank. substantially as described.

520,151. SHEET-METAL KNOB. WILLIAM A. TURNER, Worcester, Mass., assignor to Edmund Converse, same place. Filed Oct. 21, 1890. Serial No. 368,867. (No model.)



Claim.—A sheet metal knob formed from a sheet metal blank having a solid central section and radial wings gradually decreasing in width, the base section of said knob being formed from the solid central section of the blank and the crown section formed from said radial wings, said wings being pressed inward to bring their points together and also downward forming a rib, or bead G at the base of said radial wings, substantially as described.

520,152. DYNAMO-ELECTRIC MACHINE OR ELECTRIC MOTOR. ROBERT K. WELCH, Philadelphia, Pa., assignor of one-half to George E. Schlegelmilch, same place. Filed June 24, 1891. Serial No. 397,278. (No model.)



Claim.—1. The combination of the armature, field magnets and pole pieces, with the end frames having supporting bases upon which are mounted pedestals for the support of the shaft bearings, and opposite arms projecting upward and outward from the bases and carrying the pole pieces, substantially as specified.

2. The combination of the commutator with the current collector consisting of an anti-friction roller, a bearing sleeve for the same, a forked rod and clamp screw carrying said sleeve, and a spring for projecting said rod, the sleeve being slightly longer than the width of the roller whereby the forks of the rod are prevented from confining said roller substantially as specified.

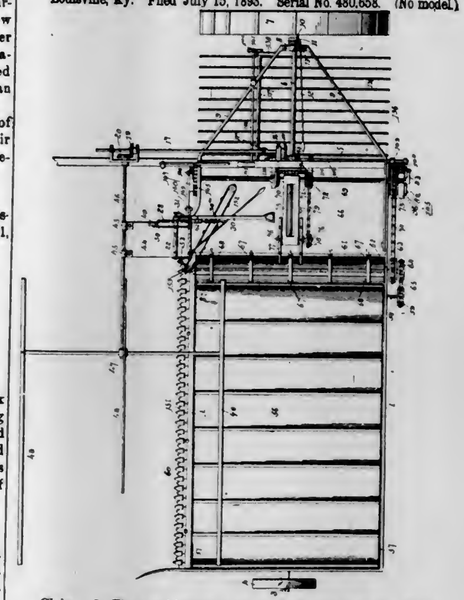
3. The combination of the commutator with the current collector, consisting of an anti-friction roller, a forked rod carrying the same, a spring for projecting the rod, and a cap applied to the end of the rod and serving to confine the conductor to the end of the rod, in direct line with the rod substantially as specified.

4. The commutator consisting of a central disk-like carrier constructed for application to the armature shaft, and a series of segments secured to and projecting radially beyond said carrier, so as to provide a narrow bearing for the current collector substantially as specified.

5. The commutator consisting of a central disk-like carrier constructed for application to the armature shaft, and a series of segments secured to and projecting radially beyond said carrier and each having a stud and binding screw for the reception of wires of the armature wind, substantially as specified.

6. The commutator consisting of a central disk constructed for application to the armature shaft, and having a projecting flange, and segments each having a stem passing through an opening in said flange, and having a confining nut and means for insulating the said stem from the flange, substantially as specified.

520,153. GRAIN-BINDING HARVESTER. ELISHA F. WELLS, Louisville, Ky. Filed July 15, 1893. Serial No. 480,658. (No model.)



Claim.—1. The combination with the extended axle of a grain-binding harvester and its ground-wheel, of diagonal braces for the axle, and an intermediate collar, a depending bearing-arm formed upon one of the braces, a transverse shaft arranged in the bearing-arm and in the end of the framework, a bundle-carrier carried by the shaft, a crank-arm at the outer end of the shaft, an operating rocking shaft arranged above the crank-shaft and provided with a foot-treadle at one end, and a crank at the opposite end, and an intermediate connecting-rod between the two cranks, substantially as specified.

2. The combination with the frame of a grain-binding harvester, of an inverted U-shaped frame at one end thereof, an axle projecting from the U-shaped frame, a ground-wheel for the axle, a bearing-collar arranged at the outer end of the axle, and diagonal braces, of a bundle-carrier pivoted below the axle and supported by the braces, and means for dumping the carrier, substantially as specified.

3. In a grain-binding harvester, the combination with the framework, a transverse shaft journaled therein, an arm loosely mounted on the shaft and provided at its outer end with a transverse shaft, packing-wheels arranged on the ends of the shaft, a sprocket-wheel arranged beyond one of the packing-wheels, a sprocket-wheel arranged on the transverse shaft, and means for giving motion to said shaft, of a needle-carrying shaft arranged below the transverse shaft,

a needle carried thereby, a cam on the needle carrying shaft, a link embracing the cam and pivoted to the packing-wheel carrying shaft, and means for operating said needle-carrying shaft, substantially as specified.

4. In a grain-binding harvester, the combination with the platform, the cutting-mechanism arranged in front thereof, the transverse shaft 69 having the loose gear and sprocket-wheels 71 and 72, and the tight gear 70, the spur-gear 145 at one end of the same, the axle 6, the gear 14 thereon between the gears 70 and 71 the disk 147 and gear 146 below the spur-gear and engaging with the latter, a pitman-rod 149 between the knives of the cutter and disk, of the arm 75 loosely hung on the shaft 69, the transverse shaft 76 arranged in the free end of the arm, the packing-wheels 77 arranged on the ends of the shaft 76, the sprocket-wheel 78 arranged upon the packing-wheels, the sprocket-chain 79 connecting the wheels 78 and 72, the carrier-mechanism, and the needle, and knotter-mechanism, and means for conveying motion thereto from the shaft 69, substantially as specified.

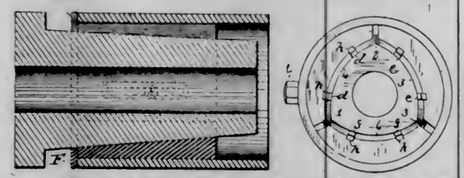
5. In a grain-binding harvester, the combination with the vertical knotter-shaft carrying the knotter 125, the same consisting of a concaved disk-like head 126 provided at one side with a tangential slot 127 and from the same to a point substantially opposite provided with a declining flange 129 having the abrupt shoulder 132 about midway the same, and at one side of the slot 127 having the V-shaped slot 130, the slots 127 and 130 forming the two bills 128 and 131, the same being arranged at an angle to each other, and the bill 128 being slightly elevated, and means for rotating said shaft in one direction, substantially as specified.

6. In a grain-binding harvester, the combination with the pivoted needle, the box arranged below the same and having the depending knife, the transverse shaft 116 journaled in the box in rear of the knife and provided with the fingers 117 and 119, the latter being in rear of the knife and adapted to operate thereagainst, the spring 118 for depressing the finger 117, the transverse shaft 111, the cam 114 carried thereby, and means for operating the shaft 111, of the knotter-shaft 123 arranged at the inner end of the shaft 111, the gear 124 on the knotter-shaft, the gear 113 on the end of the shaft 111 for engaging the gear 124, and the herein described knotter carried by the shaft 123, substantially as specified.

7. In a grain-binding harvester, the combination with the stub-shaft 94, the sprocket-wheel 95, the gear-wheel 96, each being recessed and arranged face to face, the sprocket-wheel having its inner periphery provided with ratchet-teeth, a pin on the inner side of the gear-wheel, a bell-crank lever arranged therein, a spring for elevating the inner branch thereof into engagement with the teeth of the sprocket wheel, said lever having one end extended laterally through a slot in the wheel 96, the transverse rocking-lever 103 having the arms 110, and stop-arm 109 arranged in the path of the bell-crank lever, the vertical knotter-shaft having the beveled gear thereon and carrying a knotter, the transverse shaft 111 having the gear 113 meshing therewith, and the outer mutilated gear 112 engaging with the gear 96, the transverse shaft 108 having the mutilated gear 107 arranged thereon in rear of the gear 112, the crank-arm 104 on the end of the shaft 103, and the intermediate connecting-arm 105 between the crank-arm and the gear 107, substantially as specified.

8. In a grain-binding harvester, the knotter 125, consisting of a concaved disk-like head 126 provided at one side with a tangential slot 127 and from the same to a point substantially opposite provided with a declining flange 129 having the abrupt shoulder 132 about midway the same, and at one side of the slot 127 having the V-shaped slot 130, the slots 127 and 130 forming the two bills 128 and 131, the same being arranged at an angle to each other, substantially as specified.

520,154. HOLDER FOR CORES OF PAPER-ROLLS. ALBERT S. BOWNE, Brooklyn, N. Y. Filed Feb. 24, 1894. Serial No. 501,439. (No model.)



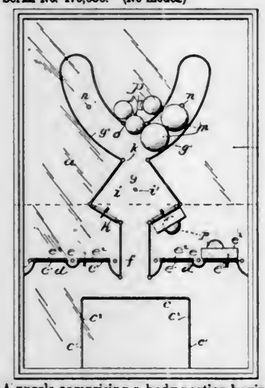
Claim.—1. A holder for the cores of paper rolls having a sleeve which is provided with bearing surfaces each of which retains the same radius of curvature throughout its length, while the diameter varies from end to end, substantially as described.

2. A holder for the cores of paper rolls having a sleeve which is shaped at one end as a circle and at the other end as a plurality of eccentric arcs of the same circle, substantially as described.

3. In a holder for the cores of paper rolls, the combination of a sleeve provided with a plurality of bearing surfaces each of which retains the same radius of curvature while varying in diameter from end to end, and sleeves for each of said surfaces adapted to slide thereon, substantially as described.

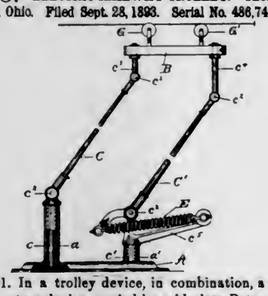
4. In a holder for the cores of paper rolls the combination of a sleeve provided with a plurality of tapering bearing surfaces which retain the same radius of curvature throughout their length, segments having a sliding fit on said surfaces and provided with a tapering inner surface and a cylindrical outer surface, and devices for movably securing the said segments on said bearing surfaces, substantially as described.

520,155. PUZZLE. THOMAS P. BRIODY, South Bethlehem, Pa., assignor of one-fourth to William D. Spillan, same place. Filed June 5, 1893. Serial No. 476,630. (No model.)



Claim.—A puzzle comprising a body portion having a plane surface capable of being tilted at various angles, a partition or fence extending across said plane surface and having an opening therein, an inclosure on one side of the partition and having two openings therein, one of which is common to the opening in the partition and the other communicating with that part of the plane surface which is on the same side of the partition as the inclosure, a ball in the inclosure and capable of movement only within the inclosure and a second ball smaller than the first and capable of passing the openings in the inclosure and the opening in the partition, whereby upon tilting the body the second ball may be worked through the said openings and from one side of the partition to the other, substantially as described.

520,156. ELECTRIC-RAILWAY TROLLEY. THOMAS M. BROWN, Cleveland, Ohio. Filed Sept. 23, 1893. Serial No. 486,744. (No model.)

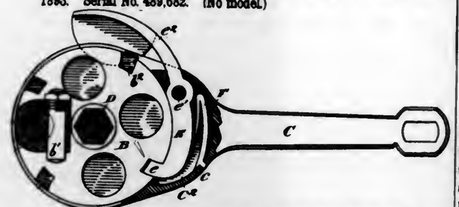


Claim.—1. In a trolley device, in combination, a base plate A, a plate B, a contact device carried by said plate B, two parallel trolley poles, and universal joint connections between said poles and the two plates, substantially as and for the purpose specified.

2. In a trolley device, in combination, a base plate A, two vertical posts c c' pivoted thereto, a plate B, a contact device carried by said plate, two vertical posts c^3 c^4 pivoted to the under side of plate B, two parallel trolley poles C C', and horizontal pivots c^5 which connect the lower ends of said pole with the posts c c' respectively, and the upper ends of said poles with the posts c^3 c^4 respectively, substantially as and for the purpose specified.

3. In a trolley device, a base plate A, two vertical posts c c' of unequal length pivoted thereto, a plate B, a contact device carried thereby, two vertical posts c^3 c^4 of unequal length pivoted thereto, two parallel trolley poles having their upper ends connected by horizontal pivots to the two posts c^3 c^4 respectively, and their lower ends similarly connected with the posts c c' respectively, substantially as and for the purpose specified.

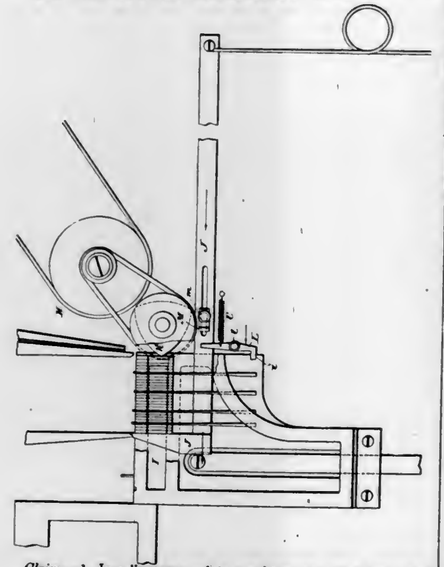
520,157. VARIABLE CRANK. CHARLES H. DAVIDS, Brooklyn, assignor of one-half to John Stewart, New York, N. Y. Filed Nov. 1, 1893. Serial No. 489,682. (No model.)



Claim.—1. The combination with a velocipede crank, of a circular bearing on the axial line of which the crank is pivoted, the said bearing being provided with a plurality of notches along its periphery, a spring actuated locking dog pivoted to the crank with its operating arm accessible to the foot of the rider, the locking dog having an engagement with the notches on the said bearing to lock the crank positively to the bearing, and means for securing the bearing eccentrically to the drive shaft of a velocipede, substantially as set forth.

2. The combination with a crank provided with a recess, of a circular bearing adapted to seat within said recess, means for pivoting the crank to the bearing on the axial line of the latter, a spring actuated dog pivoted to the crank in position to engage the bearing, the said dog having an operating arm extended to the exterior of the crank and means for securing the bearing to a shaft, substantially as set forth.

520,158. LINOTYPE-MACHINE. PHILIP T. DODGE, Washington, D. C., assignor to the Mergenthaler Linotype Company, New York, N. Y. Filed Jan. 6, 1894. Serial No. 495,968. (No model.)



Claim.—1. In a linotype and in combination with a composing mechanism, a stop device to prevent the premature transference of the line, said device being controlled in its action by the elongation of the line.

2. In a linotype machine the combination of an assembler block for transferring the line, a resistant actuated by the composed line and a locking device actuated by the resistant and acting in turn to hold the transfer device.

3. In a linotype machine a composing mechanism, means for sustaining and transferring the composed line, and a locking mechanism therefor, normally in engagement, and means actuated by the elongation of the line to disengage said locking device.

520,159. AUTOMATIC ALARM-REGISTER. CHARLES C. FIELDS, Bristol, Tenn., assignor of one-half to Abram D. Reynolds, same place. Filed Feb. 10, 1893. Serial No. 461,813. (No model.)

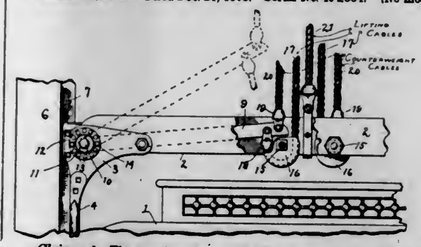


Claim.—1. In a register, the combination with the casing having its front face divided into degrees, a perforation in the center of the face, a hollow stud located fixedly therein and extending rearwardly therefrom, a toothed disk mounted for rotation upon the stud, a pawl spring-pressed and adapted to be depressed into engagement with the teeth of the disk, a plunger for depressing the pawl, and a holding pawl, of a bell at the inner side of the toothed disk, a fixed shaft passing therethrough, and loosely through the hollow stud, a register-hand located fixedly upon the outer end of the shaft and adapted for travel over the face of the casing, a tripping mechanism carried by the inner end of the shaft, a hammer operated by the tripping mechanism, and a post extending from the toothed disk and adapted to operate the tripping mechanism, substantially as specified.

2. In a register, the combination with the casing whose face is divided into degrees and which is provided with a central opening, a hollow-stud extending inwardly and fixedly therefrom, a rotatable toothed disk carried loosely by the stud, and having an inwardly disposed tripping-post, a bell, a shaft secured thereto and passed through and beyond the hollow stud, a register hand carried by the outer end of the shaft the same adapted to move therewith and over the face of the casing, of a pawl for operating the toothed disk, a plunger for operating the pawl, an arm projecting from the inner end of the shaft and having an extension extending into the path of the tripping-post, a beveled trip-pawl or lever pivoted to the arm, said pawl having one face recessed and provided with a shoulder, and extending at its outer end into the path of the tripping-post, a spring-hammer having a tail-piece at one end located in the recess and mounted upon the pivot of the pawl and in the path of its shoulder, and a flat spring secured to the arm and bearing against the edges of the tail-piece and trip-pawl opposite the point of pivot, substantially as specified.

3. In a register, the combination with the circular register-case the face of which is divided into degrees and is provided with a central opening, and the sight-opening, a hollow stud extending from the central opening, a toothed disk mounted for rotation upon the inner end of the stud and having its inner face provided with indicating-numerals agreeing with the degrees upon the casing and in line with the sight-opening in the casing, an alarm-mechanism carried by the inner end of the shaft, a tripping-post for operating the same carried by the toothed disk, of the spring-holding pawl secured to the casing and having a rounded end engaging with the teeth of the toothed disk, the curved spring-arm also secured to the casing, a pawl loosely connected therewith a spring for elevating the pawl out of engagement with the teeth of the disk, and a plunger passing through the casing and resting upon the spring-arm, substantially as specified.

520,160. ELEVATOR SAFETY DEVICE. LORENZO S. GRAVES, Rochester, N. Y. Filed Dec. 21, 1893. Serial No. 494,331. (No model.)



Claim.—1. The combination with the elevator-car and the stationary guides, of the clamp on the car, the lever having the threaded ends for operating the clamp, and the lifting and counterweight cables connected to the opposite sides of said lever, substantially as described.

2. The combination with the elevator-car, the clamp thereon, and the stationary guide with which said clamp cooperates, of the lever having the right and left threads engaging the clamp, and the lifting and counterweight cables connected to the opposite sides of said lever, substantially as described.

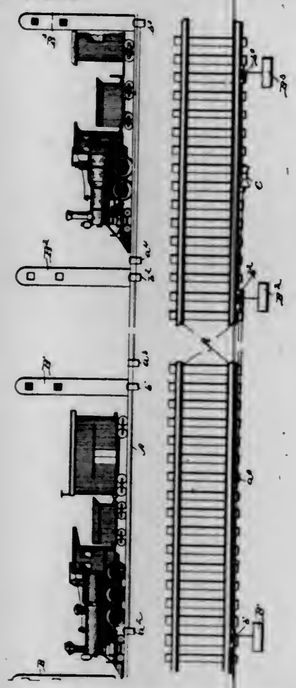
3. The combination with the elevator-car, the clamp thereon, and the stationary guides with which it cooperates, of the lever having the right and left threads engaging the clamp, the lifting and counterweight cables connected to opposite sides of said lever, and the stop against which the lever is held by the lifting cable, substantially as described.

4. The combination with the elevator-car, the cross beams having the relatively movable ends and the stationary guides with which they cooperate, of the levers arranged between the beams having the right and left threads thereon cooperating with their ends, and the lifting and counterweight cables connected to opposite sides of said levers, and stops against which the levers are held by the lifting cables, substantially as described.

5. The combination with the elevator-car, the cross-beams having the relatively movable ends, the nuts and their adjustable securing plates, of the levers having the right and left threads engaging the nuts, stops for the levers, and the lifting and counterweight cables connected to opposite sides of said levers, substantially as described.

6. The combination with the elevator-car, the cross-beams having the relatively movable ends, of the levers arranged between the beams, having the right and left threads cooperating with the ends of the latter, the bolts connecting the beams, and the stationary cable guides thereon, and the lifting counterweight cables connected to opposite sides of the levers, substantially as described.

520,161. RAILWAY SIGNAL AND SYSTEM. WILLIAM B. GRAY and HARRY SHEPLEY, Halifax, Pa. Filed June 7, 1893. Serial No. 476,856. (No model.)



Claim.—1. In an automatic mechanically operated block system of signals for railways, the combination with the towers, of an operating mechanism for the signals consisting of the vertically sliding bolt, the vertical bearings for holding the bolt in juxtaposition to the track, the rotary drum, the crank pin connecting the drum and bolt, the shaft on which the drum is mounted, the crank arm on said shaft and a connection extending from said arm to the signal; substantially as described.

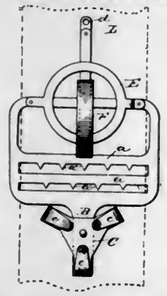
2. In an automatic mechanical system of block signals for railways, the combination with the signals of the pairs of drums, for operating said signals, the wire or equivalent connecting said drums, the vertically sliding bolts in proximity to the drums and track whereby they are adapted to be struck by the wheels of the train, and crank pins connecting the bolts and drums; substantially as described.

3. In an automatic mechanical system of block signals for railways, the combination with the signals, the pairs of drums connected with the signals for operating the same and the bolts lying in juxtaposition to the track for operating the drums, of the wires connecting the drums whereby they are moved in unison and the ratchet pulley to which the end of the wire is secured carried by one of the drums whereby the tension of the wire may be increased; substantially as described.

4. In an automatic mechanical signaling system the combination with the bolts and operating drums located at different points, of the intermediate tensor consisting of the different sized drums or pulleys adjustably connected together and the wires connected to the peripheries of the different sized drums or pulleys; substantially as described.

5. In an automatic signaling apparatus, the combination with the signal towers having the openings on each side of the same, of the oppositely arranged signals in said towers, connections between said signals whereby they operate simultaneously in opposite directions and an operating mechanism for the signals; substantially as described.

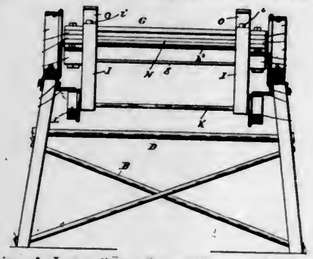
520,162. BACK-BAND HOOK. WILLIAM M. HAWKINS, Trenton, N. C. Filed Oct. 17, 1893. Serial No. 488,369 (No model.)



Claim.—1. As an improved article of manufacture, the herein described back band hook consisting of the body having a depending hook for the trace, the elevated portion forming an annulus and the line or rein hook secured to or forming part of the lower side of said annulus and having its end within the annulus and below the plane of the same; substantially as described.

2. As an improved article of manufacture and herein described back band hook consisting of the body having a depending hook support, the elevated portion forming an annulus, the line or rein hook having its end bent down within the annulus below the plane of the same and the rotatable hook head having a series of hooks carried by the depending hook support; substantially as described.

520,163. ELEVATED RAILWAY. FRANCIS J. KORFF, St. John's, Mich. Filed Mar. 3, 1893. Serial No. 464,519. (No model.)

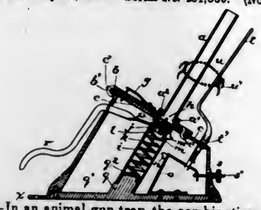


Claim.—1. In a railway, the combination of an opposite series of upright supporting pillars, longitudinal and transverse pairs of diagonal bracing rods bolted to and connecting each successive pillar and the transverse pairs thereof, horizontal braces connecting each transverse pair, and the track rails bolted to the upper ends of the opposite series of supporting pillars, substantially as set forth.

2. In an elevated railway, the combination of the opposite supporting pillars, U-shaped track rails embracing and fitting over the upper ends of said pillars, said U-shaped rails having integral inwardly extended supplemental rail portions projected from one side thereof, and the wheeled car truck frames having the main wheels thereof sliding over the main U-shaped portions of the rails directly on top of the pillars, and safety wheels supported below the truck between the opposite pillars and adapted to travel under the inwardly extended rail portions, substantially as set forth.

3. In an elevated railway, the combination of the elevated rails having inclined portions, ground rails meeting said inclined portions of the elevated rails, and the car truck adapted to travel over said elevated rails and having safety wheels adapted to move under the elevated rails and to ride onto the ground rails at the end of the inclined portions of said elevated rails, substantially as set forth.

520,164. ANIMAL GUN-TRAP. GEORGE E. LANDIS, La Grande, Oreg. Filed July 29, 1893. Serial No. 481,889. (No model.)



Claim.—In an animal gun-trap, the combination of a removable gun-barrel adapted to receive a ball-cartridge in its lower end, a suitable lock or mechanism for exploding the cartridge that may be inserted in said gun-barrel, means for setting said lock or discharge mechanism, an adjustable trigger arranged as specified and a baiting loop with prongs eccircling the barrel and trigger and adapted to release the said lock or discharging mechanism when such loop is drawn toward the mouth of the barrel by compressing the trigger against the gun-barrel to discharge the trap-gun, substantially as set forth.

520,165. PIN. ERNEST LE GRESLEY-COX, Covington, assignor of one-half to Walter C. Flower, New Orleans, La. Filed Aug. 4, 1892. Serial No. 442,177. (Model.)



Claim.—An article of manufacture, a pin having its shank formed with depressions that extend inwardly into the body of the pin equally from opposite sides thereof and form lateral projections in regular curved lines that converge toward the opposite ends of the depressions, certain of the said projections being arranged in planes at angles to each other to prevent the pin-shank from becoming accidentally disengaged from a position of securement, substantially as specified.

520,166. HYDRAULIC ELEVATOR. EDWIN S. MATTHEWS, Cincinnati, Ohio, assignor of one-half to James L. Haven, same place. Filed Feb. 12, 1892. Serial No. 421,247. (No model.)

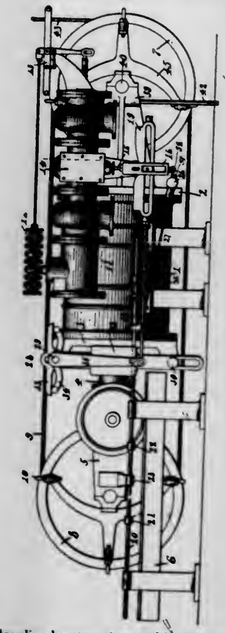
Claim.—1. In a hydraulic elevator, the combination, substantially as set forth, of a safety-stop valve-stem, a fulcrum pin thereunder, a bar arranged to slide upon said fulcrum pin and engage upwardly upon said valve-stem, a swinging arm normally at right angles to said bar, a prolongation from said bar to a pivot carried by said swinging arm, and means for swinging said arm.

2. In a hydraulic elevator, the combination, substantially as set forth, of a safety stop valve-stem, a roller or pin carried thereby, a cam-plate having two dissimilarly-inclined gradually curved cams joining at a central depression and dissimilarly inclined immediately from said depression and engaged by said roller or pin, and connections between the cam-plate and piston-moved parts of the machine to move said cam-plate when those parts reach the limit of stroke the steeper incline of the cam-plate operating upon the stop valve at that end of the piston-stroke corresponding with the lower end of car-travel.

3. In a hydraulic elevator, the combination, substantially as set forth, of a safety-stop valve, connections from the piston-moved parts of the machine to properly close said valve when those parts reach a limit of stroke, a bleed-valve, connections from said piston-moved parts to open said bleed-valve, and devices for adjusting the time of bleed-valve opening with reference to the time of safety-stop valve-closure.

4. In a hydraulic elevator, the combination, substantially as set forth, of a safety-stop valve-stem, a slotted yoke thereon, a rigidly-supported guide-pin engaging said slot, a pin or roller carried by the yoke, a cam-plate engaging said pin or roller, and connections between the cam-plate and piston-moved parts of the machine to move said cam-plate when those parts reach the limits of stroke.

5. In a hydraulic elevator, the combination, substantially as set forth, of a safety-stop valve-stem, a slotted guide-yoke thereon, a rigidly supported guide-pin engaging the guide slot of the yoke, a longitudinally slotted cam-plate engaging said guide-pin, a pin or roller carried by the yoke and engaging the cam, and connections between the cam-plate and piston-moved parts of the machine to move said cam-plate when those parts reach the limits of stroke.



6. In a hydraulic elevator, the combination, substantially as set forth, of a safety-stop valve-stem, a slotted yoke thereon, a rigidly-supported guide pin engaging said slot, a pin or roller carried by the yoke, a cam-plate engaging said pin or roller, wedges in the yoke for adjusting the position of the pin or roller, and connections between the cam-plate and piston-moved parts of the machine to move said cam-plate when those parts reach the limits of stroke.

7. In a hydraulic elevator, the combination, substantially as set forth, of a safety-stop valve-structure, a bracket and stem projecting therefrom, a guide-pin supported by said bracket, a yoke and operating cam mounted on said guide-pin, and connections between the cam-plate and piston-moved parts of the machine to move said cam-plate when those parts reach the limits of stroke.

8. In a hydraulic elevator, the combination, substantially as set forth, of a cylinder-head having projections disposed at its front and rear upper edge and fitted to receive the tail of the hoisting-rope, a group of head-sheaves for the hoisting-rope, two brackets arranged to support the shaft of said sheaves and disposed a distance apart a sheave-width is excess of the width of the group of sheaves, and a collar on the sheave-shaft at one side of the group of sheaves.

9. In a hydraulic elevator, the combination, substantially as set forth, with a cylinder having a valve communicating with its lower front part to provide for cleaning the cylinder, of connections between said valve and the piston-moved parts of the machine to automatically open said cleaning valve when the piston reaches one of the limits of its stroke.

10. In a hydraulic elevator, the combination, substantially as set forth, of a main piston, a buffer within the cylinder on the front cylinder-head to be engaged thereby, and sheave-supporting brackets on said cylinder-head on the side opposite said buffer

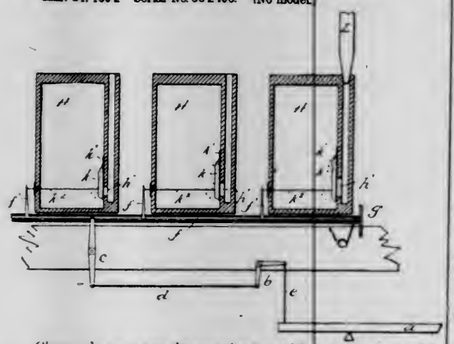
11. In a hydraulic elevator, the combination, substantially as set forth, of a main piston having a central striking-point, a front cylinder-head having a central pocket open to the cylinder, spring-plates in said pocket, and one or more keeper-plates secured to the cylinder-head behind said spring-plates.

12. In a hydraulic elevator, the combination, substantially as set forth, of a main piston having a central striking-point, a front cylinder-head having a central pocket-body and side-brackets and ribs connecting the pocket-body and brackets, and a buffer-spring arranged in the pocket to be engaged by said striking-point.

13. In a hydraulic elevator, the combination, substantially as set forth, of a safety-stop valve, an upper and lower shaft, a weight guided by said shafts and having arms, levers on one of said shafts and held in normal central position by said arms and weight, connections between said levers and safety-stop valve, and connections between said levers and the piston-moved parts of the machine to move said levers when said parts reach the limits of stroke.

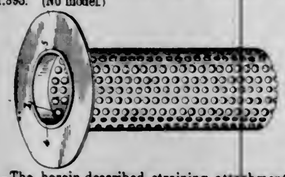
14. In a hydraulic elevator, the combination, substantially as set forth, with a hydraulic cylinder, a safety-stop, and a safety-stop closing device, of a pair of shaft-boxes carried by said cylinder at its top, a pair of shaft-boxes carried by the cylinder at its bottom, the axes of said boxes being at right angles to the axis of the cylinder, and shafts carried in said boxes and having their ends projecting for the support of said closing-device.

520,167. PIPE-ORGAN. ELMER E. PALM, Reading, Pa. Filed Mar. 21, 1894. Serial No. 504,490. (No model.)



Claim.—In an organ the combination with a series of air chambers arranged transversely with intervening spaces between them, and a series of pipes communicating with each of said chambers through suitable ports, of separate valves *k* for each of said ports arranged to hang substantially vertically when closed, operating wires attached to said valves and extended through the walls of the chambers, a series of rods *f* having fingers connected to the outer ends of said wires in said intervening spaces, and connecting mechanism between each of said rods and one of the operating keys, substantially as set forth.

520,168. STRAINER ATTACHMENT FOR BARRELS. FREDERIC B. POSTLETHWAITE, Natchez, Miss. Filed July 29, 1893. Serial No. 481,893. (No model.)



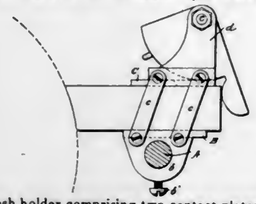
Claim.—The herein described straining attachment for barrels consisting of a cylindrical strainer tube adapted to be supported entirely inside of a barrel from the bung or vent hole thereof, said cylindrical tube being constructed of stout sheet metal and having a perforate bottom and sides and open at the upper end that is adapted to be fitted in the bung or vent-hole, an imperforate annular supporting flange separately attached to the upper end of said tube and adapted to rest on the barrel around the bung or vent hole thereof, and a smooth metallic bush band 4, fitted within the upper open end of said cylindrical strainer tube and provided at its outer edge with an annular flange engaging over the upper edge of the tube and resting on the annular supporting flange thereof, said metallic bush band being adapted to receive the contact of an ordinary funnel the spout of which is designed to be inclosed within the said strainer tube, and also to interchangeably receive with said funnel a bung or other closure, substantially as set forth

---

520,169. BRUSH-HOLDER FOR DYNAMO-ELECTRIC MACHINES OR MOTORS. ANDREW L. RIKER, New York, N. Y. Filed Mar. 31, 1894. Serial No. 505,800. (No model.)

Claim.—1. A brush-holder comprising two contact plates hinged one to the other so that their contact faces are parallel in all positions of the plates with reference to each other, substantially as described.

2. A brush-holder comprising two contact plates connected at each end by two parallel links, substantially as described.



3. A brush holder comprising two contact plates connected and movable with reference to each other so that their contact faces retain parallelism in all positions of the plates, and means for clamping the brush between the plates with yielding pressure, substantially as described.

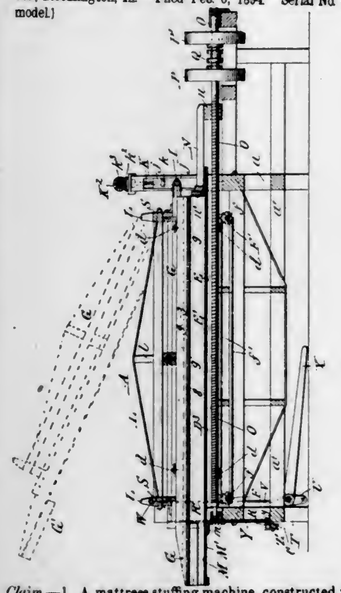
4. A brush-holder comprising two contact plates movable with reference to each other so that their contact faces retain parallelism in all positions of the plates, and a spring for holding the plates in firm contact with the brush and for feeding the latter to the commutator, substantially as described

5. A brush-holder comprising two contact plates movable with reference to each other so that their contact faces retain parallelism in all positions of the plates, a spring for holding the plates in firm contact with the brush and for feeding the latter to the commutator and means for adjusting the tension of the spring, substantially as described.

6. A brush-holder comprising a relatively stationary contact plate and a movable plate connected therewith by two parallel links at each end thereof, and a spring actuated, swinging follower or feed-arm on the movable plate, projecting below the contact face thereof, and engaging against the end of the brush, substantially as described.

7. A brush holder comprising a stationary contact plate and a movable plate connected therewith by two parallel links at each end thereof, an adjustment segment journaled on the movable plate having a series of notches therein, a depending follower or feeding-arm on the adjustable segment projecting below the contact face of the movable plate, and a spring for actuating the follower or feeding-arm one end of which is adapted to engage the notches in the segment for adjusting the tension of the spring, substantially as described.

520,170. MATTRESS-STUFFING MACHINE. ROBERT R. THOMPSON, Bloomington, Ill. Filed Feb. 6, 1894. Serial No. 499,286. (No model.)



Claim.—1. A mattress stuffing machine, constructed with a floor and vertically adjustable top, said floor and top being constructed with a number of laterally adjustable beams provided with laterally adjustable overlapping plates, in combination with mechanism for adjusting said beams and plates in the top and floor of said machine synchronously.

2. A mattress stuffing machine constructed with a bottom, having laterally adjustable overlapping plates, a hinged top having laterally adjustable overlapping plates and a vertically adjustable hinge, in combination with mechanism for synchronously adjusting the plates of the top and floor of the machine, as herein set forth.

3. A mattress stuffing machine, constructed with laterally adjustable side-rails, a floor composed of laterally adjustable overlapping plates, a top provided with laterally adjustable overlapping plates, and mechanism for synchronously adjusting said plates in the top and floor of the machine.

4. In a mattress stuffing machine, the combination with a laterally adjustable floor, a laterally adjustable top, and mechanism for synchronously adjusting said top and floor, and a reciprocating plunger, as herein set forth.

5. A mattress stuffing machine, constructed with a floor, composed of a series of laterally adjustable plates, a top composed of a series of laterally adjustable plates, laterally adjustable sides, a spout composed of laterally adjustable plates, and mechanism for synchronously operating the said several plates of the top and floor and spout.

6. A mattress stuffing machine constructed with a floor and top, each provided with overlapping laterally adjustable plates, means for synchronously adjusting said plates, and a mechanism for equalizing the adjusted distance of the plates relative to one another.

7. A mattress stuffing machine constructed with a floor and top, each provided with laterally adjustable overlapping plates, means for synchronously adjusting said plates, and a lazy-tongs mechanism connecting said plates, whereby the relative movement of the plates to each other is equalized.

8. In a mattress stuffing machine, a spout composed of a fixed lower horizontal central plate, and lower side laterally adjustable plates, in combination with a hinged cover extended forwardly to constitute the upper section of the spout, and having laterally adjustable plates, the outer side plates thereof having depending flanges.

9. In a mattress stuffing machine, the combination with a bottom and a hinged cover, each formed with overlapping plates and adjustable sides, of mechanism for synchronously operating said plates, an adjustable spout, and an adjustable gate, substantially as described.

10. A mattress stuffing machine constructed with a bottom, sides, gate, spout and cover, each of said parts being laterally adjustable and connected together so as to be adjusted, in combination with a mechanism for effecting said adjustment.

11. The combination with the frame and the swinging cover mounted thereon, of slotted wear-plates secured to the sides of the cover, a rock-shaft mounted on the frame near the base thereof and provided with levers, rods pivoted to said levers and adapted to engage slots in the wear-plates, and nuts mounted on the upper ends of of the said rods.

12. In a mattress stuffing machine, the combination with the gate, consisting of a fixed central plate, a U shaped bar secured thereto, and side plates moving laterally in said bar over the central plate, of a hand-lever connected to the gate, an angle lever connected to the hand lever, and a spring bearing on the hand lever to hold the gate normally closed.

520,171. BOOK-COVER. WILLIAM THOMPSON, Chicago, Ill. Filed Mar. 13, 1894. Serial No. 503,500. (No model.)

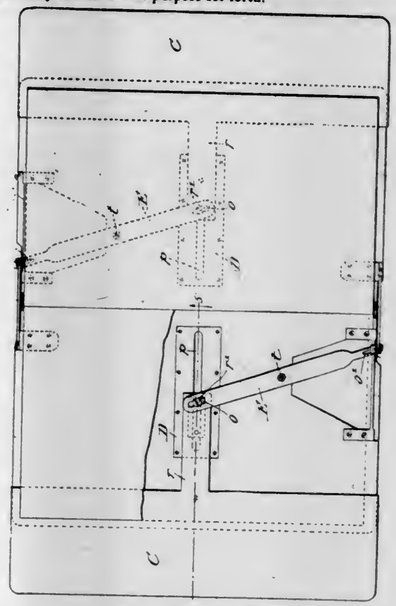
Claim.—1. A book-cover provided on its lateral-edge portion with an extensible slide-plate actuated by opening the cover to protrude beyond the same, substantially as and for the purpose set forth.

2. A book-cover provided on its lateral edge-portions with extensible slide-plates and means actuated by opening and closing the cover, respectively, to protrude the slide-plates beyond the lateral cover-edges and withdraw them, substantially as and for the purpose set forth.

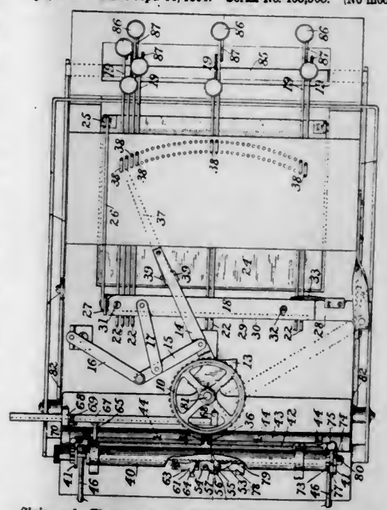
3. A book-cover provided on its lateral edge-portions with extensible slide-plates and lever-mechanism on the inner sides of the cover connecting the slide-plates therewith respectively at opposite sides of the back, whereby opening the cover protrudes the slide-plates and closing it withdraws them, substantially as and for the purpose set forth.

4. In combination with a book-cover, an extensible slide-plate C on its lateral-edge portion, a lever E fulcrumed between its extremities to extend on the inner side of the cover and engaging at one end the slide-plate, a guide *m* on the cover reciprocably engaged by the opposite end of the lever, and a link F connecting said lever with the cover at the opposite side of the back thereof, substantially as and for the purpose set forth.

5. In combination with a book-cover, extensible slide-plates C on its lateral-edge portions, and having tongues *r* reciprocably engaging guide-slots *p* in the inner sides of the cover, levers E fulcrumed between their extremities to engage, at one end, said tongues and extending at their opposite ends, respectively, to the upper and lower edge-portions of the cover and there provided with sleeves *n*, guide-bars *m* reciprocably engaged by said sleeves, and links F connecting the sleeve-ends of the levers with the cover across the back G, substantially as and for the purpose set forth.



520,172. TYPE-WRITING MACHINE. DANIEL L. TOWER, Brooklyn, N. Y. Filed Sept. 11, 1891. Serial No. 405,363. (No model.)



Claim.—1. The combination of a type-wheel, a lever and intermediate connections for moving said wheel, a key-lever having an arm adapted to move said first named lever in one direction when the key-lever is depressed, a second lever also adapted to be moved by the key-lever when the latter is depressed, and connections between the first named lever and the last named lever through which the first named lever may be moved in the opposite direction when said key-lever is depressed, substantially as shown and described.

2. The combination of a type-wheel, a lever and intermediate connections for moving said wheel, a series of key-levers having arms

adapted to move said lever differentially in one direction, a second lever upon which the key-levers are also adapted to act differentially, and connections between the first named lever and the last named lever through which the first named lever may be moved in the opposite direction, substantially as shown and described.

3. The combination of a type-wheel, a lever and intermediate connections for moving said wheel, said lever being pivoted near one side of the machine, a series of key-levers having arms adapted to contact with said lever at different distances from its pivot, a broad lever pivoted beneath said key-levers, pins carried by said key-levers and adapted to act differentially upon said broad lever and connections between said broad lever and the first lever, through which the first named lever may be moved in the opposite direction, substantially as shown and described.

4. The combination of a type-wheel, a pinion carried therewith, a gear-segment engaging said pinion, a lever and intermediate connections for moving said segment, a series of key-levers having arms adapted to move said lever differentially in one direction, a second lever upon which said key-levers are also adapted to act differentially and connections between the first named lever and the last named lever through which the first named lever may be moved in the opposite direction, substantially as shown and described.

5. The combination of an oscillating shaft, means to oscillate said shaft, a paper carriage movable longitudinally in ways on said shaft, a spring connected to said carriage to move it, when free, in one direction, a ratchet carried by said carriage, a holding-pawl pivoted on a standard secured to said shaft, and a spring-pressed actuating pawl pivoted upon a fixed support, whereby through the oscillation of said shaft a step by step movement of the carriage is effected in opposition to the spring, substantially as shown and described.

6. The combination of a carriage movable longitudinally and transversely, means to move said carriage transversely, a ratchet carried by said carriage, a holding-pawl for engagement with said ratchet, an actuating-pawl pivoted on a fixed support, a projection carried with said ratchet and adapted to strike said holding-pawl and disengage it from the ratchet at the end of the forward movement of the carriage, a plate supported parallel with the line of movement of said carriage, an arm projecting from the carriage and bearing against said plate, and means to return the carriage to the end of its forward movement, substantially as shown and described.

7. The combination with an axially adjustable type-wheel, of a lever for adjusting said wheel, a series of key-levers, and a movable projection carried by each of said key levers and adapted to actuate said first named lever, substantially as shown and described.

8. The combination with a type-carrier, a lever for shifting said carrier and having a transverse bar, and a key-lever, of a finger-key pivotally secured on said key-lever, and a projection carried by said finger-key and adapted to be moved thereby to strike said bar or to clear the same when the key-lever is operated, substantially as shown and described.

9. The combination with an axially adjustable type-wheel, of a lever for adjusting said wheel, a series of key levers, a finger-key pivotally secured on said key-lever, and an arm or projection carried by said finger-key and adapted to actuate said first named lever, substantially as shown and described.

520,173. MEAT-TENDERER. ALBERT C. WAGNER, Chicago, Ill. Filed Aug. 31, 1893. Serial No. 484,433. (No model.)

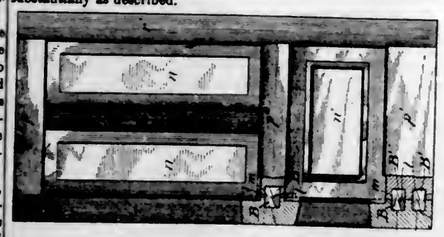


Claim.—The combination with a bifurcated and notched handle, of a series of cutting disks spaced by rollers, an axle for said disks and rollers with arm and a spur on the end of said arm inserted into said notch, substantially as specified.

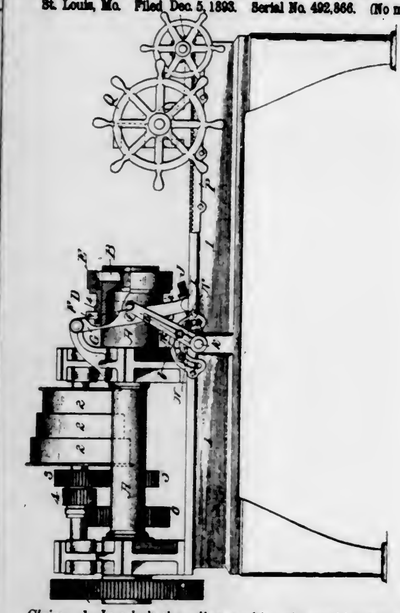
520,174. DOOR. RUDOLPH WEIDAUER, Merrill, Wis., assignor of one-half to Charles J. Albrecht, same place. Filed Jan. 27, 1894. Serial No. 498,217. (No model.)

Claim.—1. In a door, a joint between a rail and stile thereof, comprising mortises in the stile and adjacent end of the rail, and a tenon-substitute formed of wedges fastened in said mortises to protrude beyond the same with their oblique faces opposing each other and crowded at their protruding portions against one another in the respectively opposite mortises, substantially as described.

2. In a door, a joint between a rail and stile thereof, comprising mortises in the stile and adjacent end of the rail, and a tenon-substitute formed of wedges having shoulders and fastened in said mortises to protrude beyond the same with their oblique faces opposing each other and crowded at their protruding portions against one another in their respectively opposite mortises with their shoulders interlocked, substantially as described.



520,175. BOLT-THREADING MACHINE. CHARLES F. WIELAND, St. Louis, Mo. Filed Dec. 5, 1893. Serial No. 492,866. (No model.)



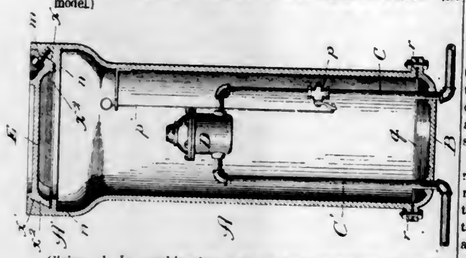
Claim.—1. In a bolt threading machine, the combination with a revoluble head carrying the cutting dies, of a pivoted yoke for moving the cutting dies in and out, a link to which the free end of the yoke is connected, rock arms upon which the free end of the link is mounted and from which the same is actuated, and means for adjusting the point of connection between the yoke and link relative to the point of connection between the link and rock arms, substantially as described.

2. In a bolt threading machine, the combination with a revoluble head carrying cutting dies, of a yoke pivoted above the head, a sleeve which is adapted to be operated by the yoke for moving the cutting dies in and out, a link to which the lower end of the yoke is pivotally connected, rock arms upon which the link is mounted and from which the link is actuated, means for moving said rock arms and for limiting their movement, and means for adjusting the distance between the pivotal point of connection between the yoke and link, and the point of connection between the link and rock arms, whereby the sleeve which operates the cutting dies may be adjusted longitudinally on the head, relative to the cutting dies, by the adjustment of the pivotal point of connection between the yoke and link, longitudinally the link, and to or from the point of connection between the link and rock arms, substantially as described.

3. In a bolt-threading machine, the combination with a revoluble arbor and the yoke for operating the cutting dies in said arbor, of a block upon which the lower end of the yoke is pivotally mounted, a sleeve upon which said block is revolubly mounted, a threaded link with which the sleeve engages, rock-arms to which the link is connected, the handle for operating said arms, and means for limiting the movement of the handle, substantially as described.

4. In a bolt-threading machine, the combination with the mechanism for operating the cutting dies, and a handle for controlling said mechanism, of the means for limiting the movement of said handle, comprising a gage-plate formed with a curved slot having squared shoulders on one side, square-headed bolts seated on said shoulders and protruding through the slot, and clamping nuts on said bolts, through the medium of which the same may be adjusted along the length of the slot, substantially as described.

520,176. STREET-BOX FOR WATER, GAS, &c. ALEXANDER H. AUSTIN, Chicago, Ill. Filed May 12, 1893. Serial No. 473,981. (No model.)

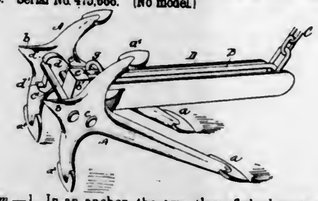


Claim.—1. In combination, a street-box comprising a tubular housing tightly closed at its lower end, and having a cover tightly closing it at its upper end but removable and affording, by its removal, free access to the interior of the box through said end, a meter supported in the box near its upper end, an inlet-pipe leading upward into the box through its base-portion to one side of the meter and an outlet-pipe leading downward in the box through its base portion from the discharge-side of the meter, substantially as and for the purpose set forth.

2. In combination, a street-box A having a head A′ provided with an internal flange *n* and inclining thence correspondingly upward at two diametrically opposite parts *x* and *x′*, and a cover E having a flange x^3 conforming to the inner circumference of the said head to seat on the flange *n* and adapted to be fastened in place by a screw *m*, substantially as and for the purpose set forth.

3. A water-and-air-tight meter-box A comprising, in combination, a housing provided with a separable bottom B having a water-tight junction with the base of the housing and with a head A′ formed with an internal flange *n* and inclining thence correspondingly upward at two diametrically opposite parts *x* and *x′*, a cover E having a flange x^3 conforming to the inner circumference of the said head to seat on a gasket on the flange *n* and fastened in place by a screw *m*, pipes C and C′ leading through the said bottom upward into the housing, and a meter D connected with the pipes and supported in the housing, substantially as and for the purpose set forth.

520,177. ANCHOR. DAVID CLARK, Easton, Pa. Filed May 27, 1893. Serial No. 475,666. (No model.)



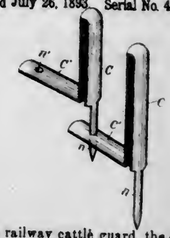
Claim.—1. In an anchor, the two three-fluked parts united by two rods or shafts and a shank pivoted on one of said rods and limited in its pivotal movement by the other rod combined with an anchor-chain guide which spans the said shank, substantially as described.

2. In an anchor the two three-fluked parts and a shank pivoted on the front rod or shaft and limited in its pivotal movement by the other rod, combined with a pivoted chain guide which spans the said shank, substantially as described.

3. In an anchor the two three-fluked parts pivoted on and united by two rods or shafts and a shank pivoted on one of said rods, and limited in its pivotal movement by the other in combination with an anchor-chain guide which spans the shank, substantially as described.

4. The anchor flukes A A formed with points *a a′* a^3 and united by front and rear rods or shafts, and a shank D pivoted on the front rod and limited in its pivotal movement by the rear rod, in combination with an anchor-chain guide B, which spans the shank and which is attached to a block *b′* pivoted to the front rod or shaft, substantially as described.

520,178. RAILWAY CATTLE-GUARD. EUGENE COOK, Kalamazoo, Mich. Filed July 26, 1893. Serial No. 481,538. (No model.)



Claim.—1. In a railway cattle guard, the combination with the thin guard rails B of the fasteners C which engage the upper edges of the guard rails like staples, one end of the fasteners being sharp to drive into the tie and the other end being bent at right angles and adapted to rest on the tie to brace and support the guard rail, substantially as described.

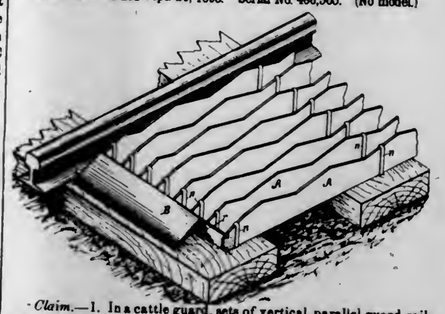
2. In a railway cattle guard, the combination with thin guard rails B of the fasteners C which engage the upper edges of the guard rails like staples, one end of each fastener being sharp to drive into the tie, and the other end C′ being bent off at right angles, and containing hole *n′* to receive the point *n* of the next fastener substantially as described for the purpose specified.

3. In a railway cattle guard the combination with guard rails, of fasteners for each rail looped over the upper edge of the guard rail, one end of said fastener being driven into the tie and the other end being bent to pass under the lower edge of an adjacent rail for the purpose specified.

4. In a railway cattle guard the combination with parallel guard rails, fasteners for each rail looped over the upper edge of the guard rail, one end being secured by suitable means to a transverse support, and the other end being bent to pass between an adjacent guard rail and transverse support, for the purpose specified.

5. In a cattle guard, thin vertical guard rails in combination with fasteners adapted to engage them, each fastener having a vertical portion to drive into the tie and a horizontal portion projecting out from the bottom of the guard rail to rest on the tie to brace the rail for the purpose specified.

520,179. RAILWAY CATTLE-GUARD. EUGENE COOK, Kalamazoo, Mich. Filed Sept. 26, 1893. Serial No. 486,505. (No model.)



Claim.—1. In a cattle guard, sets of vertical, parallel guard rails, A, having broad, angular depressions and projections alternating on their upper edges, the depressions and projections alternating laterally as well as longitudinally, in combination with the fasteners, *n*, and the sloping fenders, B, at the ends of the guard rails, substantially as described for the purpose specified.

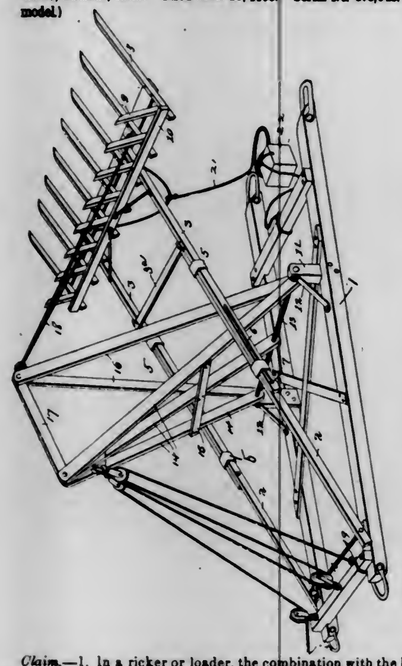
2. In a railway cattle guard, thin, vertical, parallel guard rails, all having angular depressions and projections broad in proportion to their height on their upper edges, the projections of each guard rail being opposite the depressions of the adjacent rails so that the footing shall be thoroughly uneven, and so that it will not injure an animal, in combination with suitable means of supporting the guard rails, substantially as described.

3. In a cattle guard, thin, vertical guard rails in series, each having broad, angular depressions and projections the depressions of one rail being opposite the projections of its adjacent rails and so adapted to make the footing thoroughly uneven and so that it will not injure an animal, for the purpose specified.

4. A railway cattle guard composed of thin, vertical guard rails placed side by side the tops of the rails being formed into broad, angular depressions and projections alternating with each other in both the longitudinal and lateral direction of the railway track to make

the footing uneven for the purpose of turning stock without injuring them.

520,180. HAY RICKER OR LOADER. ARCHIBALD L. COURTRIGHT, Keokuk, Iowa. Filed June 23, 1893. Serial No. 478,648. (No model.)



Claim.—1. In a ricker or loader, the combination with the base, of a fork pivotally connected to said base near one end thereof, standards rising from said base intermediate its ends, a derrick frame pivotally supported upon said standards and consisting of members diverging or spread apart longitudinally of the base toward their upper ends and their lower ends spreading laterally with reference to the base, a beam or bar connecting the upper ends of the derrick members, a flexible connection between the upper end of the derrick and the fork frame, and an operating tackle for swinging the derrick frame and thereby elevating the fork frame, substantially as described.

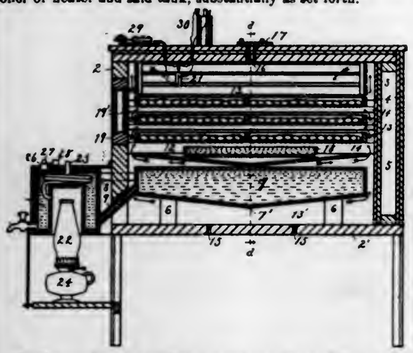
2. In a hay ricker or loader, the combination with the base, of a fork frame pivotally mounted upon the base near one end thereof, standards rising from said base intermediate its ends, braces for said standards, a shaft supported by said standards, a derrick frame pivotally mounted on said shaft and composed of two sets of uprights separated at their upper ends, a beam or bar connecting said separated ends, a flexible connecting medium between the upper end of said derrick frame and the fork frame, and an operating tackle also connected to the derrick frame, substantially as described.

3. In a hay ricker or loader, the combination with the base, of a fork frame pivotally connected to said base near one end thereof, standards rising from said base intermediate its ends, a derrick frame pivotally supported upon said standards and comprising members diverging or spread apart longitudinally of the frame at their upper ends, said members also spreading laterally from each other at their lower ends, a beam or bar connecting the upper ends of the derrick frame members, a flexible connection between the fork frame and the derrick frame, and an operating tackle for swinging the derrick frame and thereby elevating the fork frame, the fork frame having its side arms slidably connected together whereby it may be extended, substantially as described.

520,181. INCUBATOR. SAMUEL O. DUNCAN, Greenfield, Ohio, assignor to the Columbian Manufacturing Company, same place. Filed Feb. 9, 1893. Serial No. 461,590. (No model.)

Claim.—1. The combination, with the casing or cabinet of the incubator, and the egg tray or trays placed therein, of a hot water tank having the central portion of its bottom or under side lower than other portions of said bottom or under side, whereby the heated air, in rising, flows equally to opposite sides of the egg chamber, and a boiler or heater connected with said tank, substantially as set forth.

2. The combination, with the incubating-chamber containing the egg tray or trays, of a hot water tank having the central portion of its bottom or under side lower than other portions of said bottom or under side, whereby the heated air which is radiated from the bottom or under side of said tank flows equally to opposite sides of the egg-chamber, a boiler or heater, and pipes extending between said boiler or heater and said tank, substantially as set forth.



3. The combination with the casing or cabinet of the incubator, and the egg tray or trays placed therein, of a hot water tank, a boiler or heater connected with said tank, and a heat distributer interposed between the hot water tank and the egg trays, said heat distributer having its central portion extended lower than its other portions, whereby the heated air is directed equally to opposite sides of the egg chamber, substantially as described.

4. The combination with the casing or cabinet of the incubator, and the egg tray or trays placed therein, of a hot water tank having the central portion of its bottom or under side lower than other portions of said bottom or under side, a heat distributer interposed between the hot water tank and the egg trays, said heat distributer having its central portion depressed or lower than its other portions, whereby the heated air is directed equally to opposite sides of the egg chamber, and a boiler or heater connected with said tank, substantially as described.

5. The combination, with the casing or cabinet of the incubator, and the egg tray or trays placed therein, of a hot water tank placed beneath said trays and small enough to leave a passage-way between said tank and casing, and the bottom of said casing having an opening or air-port beneath said tank, whereby the incoming air is heated before it reaches the egg-trays, substantially as set forth.

6. The combination, with the casing or cabinet of the incubator, of a hot water tank contained therein, the egg tray or trays above said tank, said trays and tank being small enough, respectively, to leave a passage-way between them and the casing, and a brooder-chamber beneath said tank, whereby the chicks may jump down from said trays to said brooder-chamber, substantially as set forth.

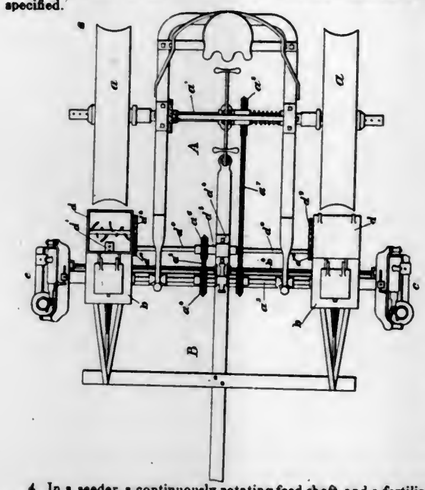
7. The combination, with the casing or cabinet of the incubator, the egg tray or trays contained therein, and the hot water tank beneath said trays, said trays and tank being, respectively, small enough to leave a passage-way between them and the casing, of a brooder-chamber beneath said tank, and a door in said casing or cabinet adjacent to said brooder-chamber, whereby the chicks may be removed from the brooder-chamber without throwing a cold draft of air upon the unhatched eggs, substantially as set forth.

520,182. SEEDER. LOUIS C. EVANS, Springfield, Ohio. Filed Nov. 27, 1893. Serial No. 492,180. (No model.)

Claim.—1. In a seeding machine, a fertilizer hopper, a chamber under said hopper, an opening in the bottom of said hopper leading to said chamber, a distributing wheel located wholly within said chamber so that the periphery thereof shall constitute a portion of the bottom of the fertilizer hopper, means for rotating said distributer so as to carry the fertilizer into said chamber, and a valve at the lower end of said chamber at an angle as described, and means for operating said valve to cause it to produce an angular movement upwardly and outwardly in said chamber, substantially as specified.

2. In a seeding machine having seed boxes and seed tubes, valves in the tubes, and a rock shaft connected to said valves, a fertilizer hopper, a chamber under said hopper, and a continuously-moving distributing wheel located in said chamber so that the periphery thereof forms a portion of the bottom of said hopper, an angularly-arranged valve in said chamber, a connection from said valve to said rock shaft, and means, as described, for intermittently rotating said rock shaft so as to simultaneously operate the said valves, substantially as specified.

3. In a seeding machine, a hopper, a chamber below said hopper, an opening connecting said hopper to said chamber, a distributing wheel located wholly within said chamber with the periphery adapted to stand in said opening so as to constitute a portion of the bottom of said hopper, means, as described, for rotating said distributer to carry the material on its periphery from said hopper into said chamber, and a valve at the bottom of said chamber, substantially as specified.



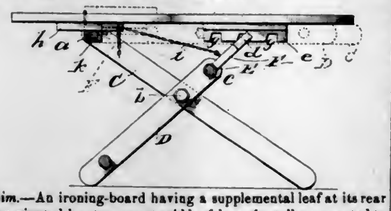
4. In a seeder, a continuously rotating feed shaft, and a fertilizer shaft connected thereto, fertilizer distributers on said fertilizer shaft, said distributers being adapted to discharge into a chamber under the same, valves in the seed tubes of said seeder and valves in the chambers under said distributing wheels, said valves being each connected to a projecting arm on a rock shaft, and being formed with intermeshing parts, substantially as specified.

5. In a seeder, a fertilizer hopper, an agitator in said hopper, a distributing wheel having teeth adapted to project therein, an adjustable slide above said distributing wheel, a chamber below said distributing wheel and a valve at the bottom of said chamber, a rock shaft connected to said valve, and check-heads connected to said rock shaft, substantially as and for the purpose specified.

6. In a seeder having valves in the seed tubes, and a rock shaft for operating said valves, a fertilizer hopper having distributing wheels adapted to discharge in a chamber under said hopper, a valve at the bottom of said chamber adapted to be operated simultaneously with the valves in the seed tubes, and a swinging spout at the bottom of said chamber, substantially as specified.

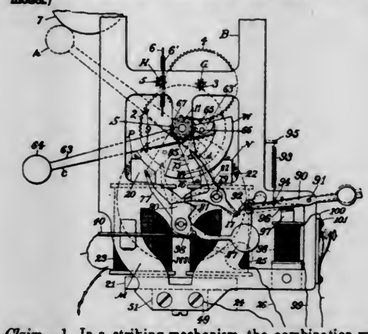
7. In a seeder, a distributer consisting essentially of a hopper, a chamber under said hopper, a distributing wheel in said chamber having a plain periphery and centrally arranged teeth to distribute the material from said hopper into said chamber, a valve at the lower end of said chamber at an angle, as described, and a rock shaft having a projecting arm connected to said valve for raising and lowering the same to produce an angular movement thereof upwardly and outwardly in said chamber, substantially as specified.

520,183. IRONING-TABLE. JOHN GREEN, Renovo, Pa. Filed Dec. 16, 1893. Serial No. 493,824. (No model.)



Claim.—An ironing-board having a supplemental leaf at its rear end and a pivoted bar to support said leaf, legs pivotally connected to the rear end of said board and extending forward to or near the end thereof, legs pivotally attached to the foregoing legs and projecting above the same and provided with a transverse bar and an arm extending from said bar to the bottom of the board and connected to the support of the supplemental leaf.

520,184. ELECTRIC CLOCK STRIKING MECHANISM. FRED L. GREGORY, Chicago, Ill. Filed Apr. 27, 1893. Serial No. 472,052. (No model.)



Claim.—1. In a striking-mechanism, the combination with the magnet, and with the reciprocatory striker carrying a stop, of the stop-wheel, and a switch in circuit with the magnet and in position to be operated by the striker, substantially as described.

2. In a striking-mechanism, the combination with the magnet and its armature, of the reciprocatory striker and its stop, a stop-wheel, substantially as described, having stop-faces at points corresponding to the stopping-times of the mechanism, means for advancing the stop-wheel, and a switch in circuit with the magnet and in position for operation by the striker.

3. In a striking-mechanism, the combination with the magnet, of the oscillating armature carrying a striker-arm and a stop, a stop-wheel, substantially as described, having stop-faces at points corresponding to the required stopping-times of the mechanism, means for advancing the stop-wheel on the successive movement of the armature, a switch in circuit with the magnet and in position for operation by the striker, and means for setting the switch in its operative position independently of the striker.

4. In a striking-mechanism, the combination with the magnet, of the oscillating armature carrying a striker-arm and its stop, a stop-wheel, substantially as described, having stop-faces at points corresponding to the stopping-times of the mechanism, means for advancing the stop-wheel on the successive movements of the armature, a switch-lever in circuit with the magnet and in position for operation by the striker on its forward stroke, and a switch-lock in position for operation by the striker on its full return stroke, said stop-faces being located on the stop-wheel in position for so limiting said return-stroke as to prevent operating said switch-lock.

5. In a striking-mechanism, the combination with the magnet and with the bell, of the reciprocatory striker and its stop, a switch in circuit with the magnet and in position for operation by the striker, a stop-wheel operatively connected with the striker and having stop-faces for limiting the return-stroke thereof at points corresponding to the required stopping-times of the mechanism, and a fan-train connected with the striker for limiting the velocity of its return-stroke.

6. In a striking-mechanism, the combination with a stop-wheel having successive stop-faces, a reciprocatory striker carrying a stop adapted to engage said faces and thereby limit the return-movement of the striker so as not to actuate the switch, a time-piece shaft, and a switch actuator connecting said shaft and the switch-mechanism, whereby the switch is actuated by said shaft for starting the striking mechanism, substantially as described.

7. In a striking-mechanism, the combination with a strike-wheel having peripheral teeth and having the spaces between said teeth of different depths and the bottom surface of the shallower spaces constituting stop-faces as set forth, of a shaft having a pinion meshing with the said teeth for driving the strike-wheel, a reciprocatory striker carrying a stop in position for entering the said striker-wheel spaces, and means operatively connecting said striker and pinion for turning the striker-wheel on one movement of the striker, substantially as described.

8. In a striking-mechanism, the combination with a stop-wheel having successive sets of deep notches with intermediate shallow notches, of a reciprocatory striker having a stop adapted to engage in said notches on the movement of the striker in one direction, and a ratchet-device and pinion intermediate to the striker and stop-wheel for advancing the wheel on the movement of the striker in the opposite direction, substantially as described.

9. The combined gear and stop-wheel herein described, for striking mechanisms, consisting in a wheel having successive sets of notches, peripherically, of relative uniform depths corresponding to the successive numbers to be struck by the mechanism, and having between each two successive sets of said notches a stop-notch of lesser depth

than the depth of the adjacent notches, substantially as described and for the purpose set forth.

10. In a striking-mechanism, in combination, a bell or gong, a reciprocatory striker and switch-actuator, an electrical striker-actuator, and a locking switch in circuit with the striker-actuator substantially as set forth.

11. In a striking-mechanism, in combination, a bell or gong, a reciprocatory striker and switch-actuator, an electrical striker-actuator, a locking switch in circuit with the striker-actuator, and a stop-wheel substantially as described.

12. In a striking-mechanism, in combination, a bell or gong, a reciprocatory striker and switch-actuator, an electrical striker-actuator, a stop wheel, a locking switch in circuit with the striker-actuator and a fan-train in connection with the stop-wheel substantially as described.

13. In a striking-mechanism, in combination, a reciprocatory striker, switch-actuator and stop-wheel actuator, a stop-wheel, an electrical striker-actuator, a switch in circuit with said actuator, a fan-train in operative connection with the stop-wheel, and means for actuating the fan-train from the striker on the return-stroke of the striker, substantially as described.

14. In a striking-mechanism, in combination, a bell or gong, a reciprocatory striker, a stop-wheel, a fan-train in operative connection with the stop-wheel, and means for connecting the striker with the fan-train on the return-stroke of the striker, whereby the velocity of said return-stroke is regulated, substantially as described.

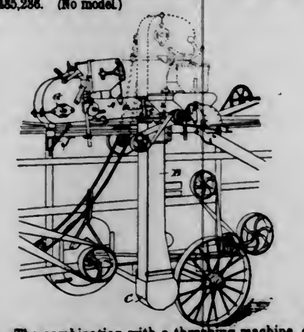
15. In a striking-mechanism of the class specified, in combination, a reciprocatory striker, means for actuating the striker, a fan-train normally at rest on the forward stroke of the striker, and means for actuating the fan-train from the striker on the return-stroke thereof, whereby the forward or working stroke of the striker is free of the fan-train and the return-stroke thereof is controlled by the fan-train, substantially as described.

16. In a striking mechanism, in combination, a bell or gong, a reciprocatory striker, an electrical striker-actuator, a locking switch in circuit with said striker-actuator, a stop-wheel, a switch-actuator and stop-wheel actuator, and means for limiting the velocity of the striker during its return stroke, substantially as described.

17. In a striking-mechanism, in combination, a bell or gong, a reciprocatory striker, an electrical striker-actuator, a reciprocatory locking-switch in circuit with said striker-actuator, a stop-wheel, a stop-wheel-actuator, and means, substantially as described, for actuating and for locking and releasing the switch in and from its circuit-breaking position, substantially as set forth.

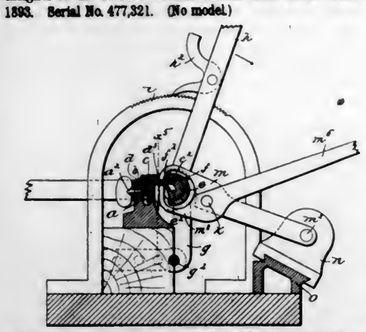
18. In a striking-mechanism, in combination, a bell or gong, a reciprocatory striker, an electrical striker-actuator, a reciprocatory locking-switch in circuit with said striker-actuator, a switch-locking-actuator intermediate to said switch and striker, a stop-wheel and stop-wheel-actuator, and a fan-train in operative connection with the stop-wheel and striker, substantially as and for the purpose set forth.

520,185. GRAIN-ELEVATOR FOR THRASHING-MACHINES. JAMES R. HARRISON, Peoria, Ill., assignor to William Harrison, same place, and Valintin Weber, Princeville, Ill. Filed Sept. 11, 1893. Serial No. 485,286. (No model.)



Claim.—The combination with a thrashing machine, of a grain elevator therefor constructed in two sections hinged together in or about the plane of the top of the thrasher, a sprocket wheel for each of the hinged sections located at their ends respectively opposite the hinge, perforated hangers for the lower sprocket and forming a slide way therefor, a removable axle adapted to be inserted through the perforations of the hangers and the bore of the hub, an elevator belt carried around both of the sprockets, and a bracket secured to the side of the thrasher and adapted to support the hinged end of the elevator when the latter is lowered, substantially as described.

520,186. MACHINE FOR APPLYING CARD-CLOTHING TO FLATS OF CARDING-ENGINES. ROBERT W. HUSTON, Newton, Mass., assignor to the Pettee Machine Works, same place. Filed June 12, 1893. Serial No. 477,321. (No model.)



Claim.—1. The combination of the flat holder with a relatively movable clothing straining device, having relatively movable outer and inner jaw members, each provided with a jaw for engaging the clothing, the said outer jaw member extending around and having a portion adapted to bear upon a portion of the inner jaw member to support the same against the reaction of the material gripped between the jaws, substantially as and for the purpose described.

2. The combination with the flat holder, of the relatively movable straining device comprising a longitudinally recessed tube and a longitudinally grooved rod having a working fit and relatively rotatable therein, one edge of the recess in the tube and one edge of the groove in the rod constituting jaws for gripping the clothing interposed between them, means for producing relative rotation of said jaws to grip one edge of the clothing and means for separating the flat holder and the straining device, substantially as and for the purpose described.

3. The combination of the flat holder with a straining device comprising a longitudinally recessed tube and a longitudinally grooved rod having its bearings therein, and a pivoted support for said straining device and one member of said straining device being provided with an operating lever whereby it is rotated relative to the other member to grip the cloth and whereby both members are moved on said pivoted support with relation to the flat holder, substantially as and for the purpose described.

4. The combination of the flat holder and clothing straining device adapted to engage the edge of the clothing from end to end thereof, with a clinching device longitudinally movable with relation to the flat holder and flat, while the clothing is held by the straining device substantially as and for the purpose described.

5. The combination of the flat holder with the clothing straining device comprising concentric jaws and a clinching device composed of jaws arranged to encompass the straining device and bear one at the upper and the other at the under surface of the flat in the flat holder, and means to move the said clinching jaws, longitudinally along the flat, substantially as described.

6. The combination of the flat holder with the clothing straining device comprising concentric jaws and a clinching device composed of jaws arranged to encompass the straining device and bear one at the upper and the other at the under surface of the flat in the flat holder, a carriage for said clinching jaws and the guide way for said carriage parallel with the flat holder, substantially as described.

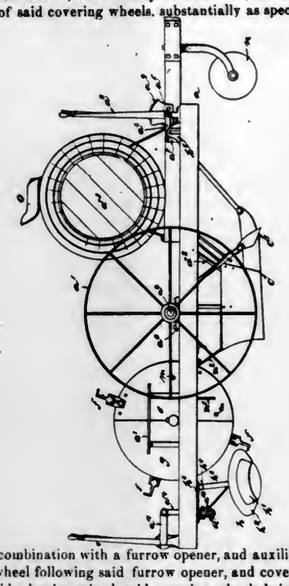
7. The combination of the flat holder with the straining device comprising a longitudinally recessed tube and a longitudinally grooved rod having its bearings therein, a pivoted support for said straining device one member of said straining device being provided with an operating lever whereby it is rotated relative to the other member to grip the cloth and whereby both members are moved on said pivoted support with relation to the flat holder, and a holding device for preventing backward movement of the operating lever, substantially as described.

520,187. TOBACCO-PLANTER. WILLIAM M. KUHNS, New Carlisle, Ohio. Filed Oct. 12, 1893. Serial No. 487,955. (No model.)

Claim.—1. In a transplanter, a main frame supported on carrying wheels, and an auxiliary frame arranged within said main frame and carrying the planting devices, adjustably hinged connections between the main frame and one end of said auxiliary frame, and yielding raising and lowering devices at the opposite end of said auxiliary frame, substantially as specified.

2. In a transplanter, the combination with a furrow opener and planting devices, as described, of covering or pressing wheels adapted to follow said planting devices, said wheels being constructed with a conical body having a laterally projecting flange adapted to gather and press the earth inwardly and downwardly from opposite sides of the furrow, substantially as specified

3. The combination with a planting wheel having clamping devices on its periphery, as described, of covering wheels having conical-shaped bodies and projecting flanges adapted to follow said planting wheel, and means, substantially as described, for changing the angularity of said covering wheels, substantially as specified.



4. The combination with a furrow opener, and auxiliary shovels, a planting wheel following said furrow opener, and covering wheels following said planting wheel, said covering wheels being provided with conical-shaped bodies and laterally projecting flanges and journaled on angular standards at the rear of said planting wheel, and means, substantially as described, for adjusting said covering wheels, for the purpose specified.

5. The combination with a supporting frame and planting devices thereon, of covering wheels adapted to follow said planting devices, said covering wheels being each formed with a conical body and a laterally projecting flange, downwardly projecting standards on said frame on which said covering wheels are journaled, and means, as described, for changing the angularity of said standards to produce an adjustment of said wheels, substantially as specified.

6. The combination with a planting wheel having clamping devices, as described, conical flanged covering wheels arranged at the rear and on opposite sides of said planting wheel, angularly arranged standards for supporting said covering wheels, pivoted supports on said standards, a hand lever for operating said supports, and a connection from said hand lever to each of said supports, substantially as specified.

7. The combination with a supporting frame and planting devices, as described, conical flanged covering wheels arranged at the rear and on opposite sides of said planting devices, angularly arranged standards for supporting said covering wheels, pivoted supports on said frame for said standards, and means, as described, for moving said supports to change the angularity of said wheels, substantially as specified.

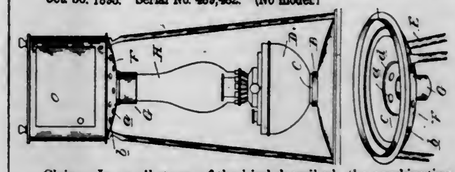
8. The combination with a bifurcated furrow opener having auxiliary shovels on opposite sides thereof, a water pipe ending in the bifurcated portion of said furrow opener, and a valve in said water pipe, a revolving planting wheel having peripheral clamping devices, projections on said planting wheel to operate said water valve, and covering wheels adapted to follow said furrow opener and planting wheel, said covering wheels being provided with conical-shaped bodies and laterally projecting flanges, substantially as and for the purpose specified.

9. The combination with a main frame supported on carrying wheels, as described, an auxiliary frame arranged within said main frame and provided at one end with yielding raising and lowering devices, slotted plates at the other end of said auxiliary frame adapted to engage with projections on said main frame to form adjustably hinged connections between said main and auxiliary frames, and means, substantially as described, for raising and lowering said projections in said slotted plates and holding the same in different positions of adjustment, substantially as specified.

10. The combination with the main frame supported on carrying wheels, as described, an auxiliary frame arranged within said main frame and provided with yielding raising and lowering devices at the rear, slotted plates at the front of said auxiliary frame adapted to engage a stationary rod on said main frame, a rock-shaft on said main frame having projecting arms connected by links to said auxiliary frame, and means for operating said rock-shaft and holding the same in different positions of adjustment, substantially as specified.

11. The combination with a supporting frame, of angularly arranged supporting standards each provided at the top with a projecting arm at an angle to said standard, a pivoted plate on said frame to which the standard is journaled, covering wheels journaled on said standard, and a pivoted hand-lever connected to each of said pivoted plates, and adapted, by a movement thereof, to revolve said standards and thus change the angularity of said wheels, substantially as specified.

520,188. OIL HEATER OR COOKER. SIMEON NEWSOME, Detroit, Mich., assignor of one-half to William Wright, same place. Filed Oct. 30, 1893. Serial No. 489,482. (No model.)

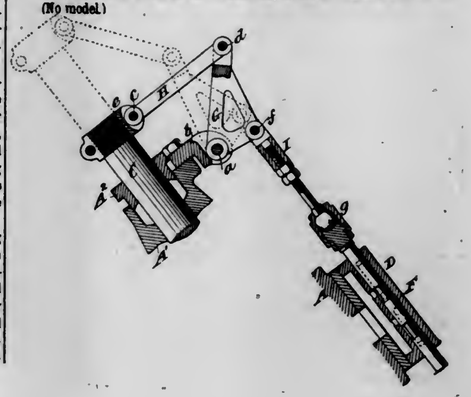


Claim.—In an oil stove, of the kind described, the combination of the base, the standards thereon, of a top plate having a central aperture and the series of apertures *a b*, a marginal supporting flange on the plate, and the diaphragm *c* centrally apertured and arranged between the two series of apertures, substantially as described.

520,189. TWINE-REEL. WILLIAM H. ROEHM, Portage, assignor of two-thirds to Frank August Roehm, Durand, and A. H. Tongen, Rio, Wis. Filed Feb. 14, 1893. Serial No. 462,300. (No model.)

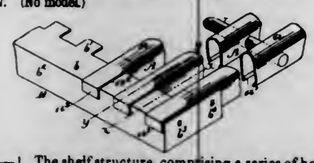
Claim.—As an improved article of manufacture, the herein described reel comprising the wooden body or spool 6, recessed at its middle part to form enlarged ends or hubs 7, said hubs being reduced to form the integral wooden journals or trunnions 8, and the metallic disk shaped heads or ends 9, spun or struck up to form the beveled circular reinforcing flanges 9^a, as and for the purpose specified.

520,190. VALVE-GEAR FOR DIRECT-ACTION ENGINES. HENRY C. SERGEANT, Westfield, N. J., assignor to the Ingersoll-Sergeant Drill Company, New York, N. Y. Filed July 8, 1893. Serial No. 479,935. (No model.)



Claim.—The combination with the piston-rod and the auxiliary valve of a direct-action engine, of a bell-crank and a pivotal support for the same affixed to the engine, a pivotal connection between the bell-crank and the auxiliary valve, and a rod pivotally connected at one end with the bell crank and at the other end with the piston-rod, the said support and pivotal connections being so arranged that the said rod is substantially at right angles to the piston-rod while the piston is at the end of its stroke in one direction, as herein set forth.

520,191. SHELF STRUCTURE. UDOLPHO SNEAD, WILLIAM R. SNEAD, and WILLIAM M. BURNS, Louisville, Ky., assignors to the Snead & Company Iron Works, same place. Filed Nov. 7, 1893. Serial No. 490,247. (No model.)



Claim.—1. The shelf structure, comprising a series of hollow bars having their ends slit, and flanged end girders, arranged to enter the slits in the hollow bars, substantially as set forth.

2. The shelf structure, comprising a series of hollow bars having their ends slit, and flanged end girders, one of the flanges of the end girder being provided with projecting tongues, the flanges being arranged to enter the slits in the bars and the tongues to enter the interiors of the bars beyond the flange, substantially as set forth.

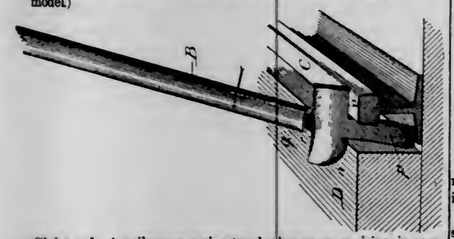
3. The shelf structure, comprising a series of hollow bars having their ends slit and their top sides projected beyond the sides, and flanged girders adapted to enter the slits in the ends of the bars to a point where the projecting top sides may be turned down over the edge of the girder, substantially as set forth.

4. The shelf structure, comprising a series of hollow bars having their ends slit, L-shaped end girders having their upright flanges extended and their horizontal flanges adapted to enter the slit ends of the bars, the projected flanges of the end girders being adapted to fold over against the side of the edge bar at the end of the horizontal flange, substantially as set forth.

5. The shelf structure, comprising a series of hollow bars connected at their ends, and a bridge bar extending transversely through the sides of the hollow bars, the sides of the bars and the bridge bar being provided the one with a recess and the other with a lip or lug for locking the hollow bars to the bridge bar against lateral displacement, substantially as set forth.

6. The shelf structure, comprising a series of hollow bars connected at their ends, and a bridge bar extending transversely through the sides of the hollow bars, the openings for the bridge bar being enlarged to afford the bar a limited lateral movement therein, the shelf bars being provided with lips or lugs at the margin of the bridge bar openings for locking the bridge bar in engagement with the hollow bars, substantially as set forth.

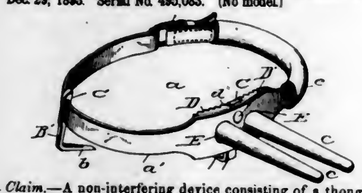
520,192. RAILWAY-CROSSING TRACK-CLEANER. FERDINAND C. STENDEL, Chicago, Ill. Filed Jan. 6, 1894. Serial No. 495,905. (No model.)



Claim.—1. A railway-crossing track-cleaner comprising, in combination, a handle B, and a head A fastened to the handle and formed with a shoulder o at one side, a deflector n at the opposite side having the curved outer edge and generally convex front surface, and an intermediate scraper-tongue *p*, concave along its front surface, substantially as described.

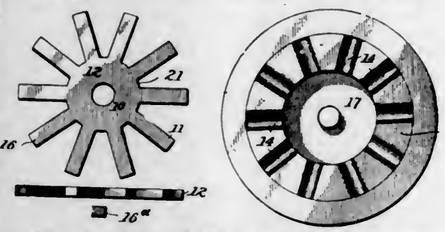
2. A railway-crossing track cleaner comprising, in combination, a handle B, and a head A having a tang r extending at an angle from it and connecting it with the handle, and formed with a shoulder o at one side, a deflector n at the opposite side having the curved outer edge and generally convex front surface, and an intermediate scraper-tongue *p*, concave along its front surface, substantially as described.

520,193. HORSE-BOOT. WILLIAM TEMPLE, Windsor, N. Y. Filed Dec. 29, 1893. Serial No. 495,083. (No model.)



Claim.—A non-interfering device consisting of a thong or strap adapted to embrace the hoof, in combination with a cushioning device consisting of a rubber base secured to the inside of the strap, and having formed thereon an integral finger which projects through the strap and outwardly therefrom so as to receive the blow of the striking hoof, and a securing device countersunk in the inner side of the base so as to lie flush with said side, and provided with a stud adapted to pass under the hoof and thereby assist in securing the cushioning device in place, substantially as described.

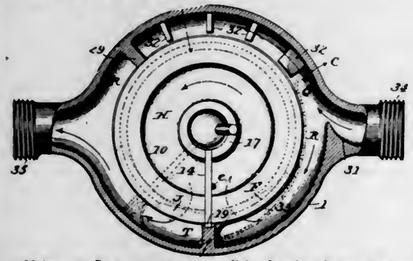
520,194. DIE FOR THE MANUFACTURE OF CROWN GEAR-WHEELS. JOHN THOMSON, Brooklyn, N. Y., assignor to the Neptune Meter Company, Newark, N. J. Filed Aug. 4, 1893. Serial No. 482,395. (No model.)



Claim.—1. As a means for forming crown gears, a die comprising a cylindrical plug having radial recesses with curved faces, an external ring surrounding the plug, and a sprung-actuated plunger, substantially as described.

2. As a means for forming crown gears, a die comprising a cylindrical plug having radial recesses with curved bottoms and rounded edges, an external ring, and a spring-actuated plunger, substantially as described.

520,195. DISK WATER-METER. JOHN THOMSON, Brooklyn, N. Y., assignor to the Neptune Meter Company, Newark, N. J. Filed Aug. 9, 1893. Serial No. 482,769. (No model.)



Claim.—1. In a water meter, a disk chamber having an open, radial or transverse slot so formed as to permit of a diaphragm being inserted therein from the outside, substantially as described.

2 The combination with a disk casing having an open transverse slot extending from the periphery of the disk casing inwardly to its socket, of a diaphragm inserted therein thereby forming the inlet and outlet ports of the disk chamber, substantially as described.

3. The combination with a disk casing composed of two sections and having an open transverse slot formed therein, of a diaphragm inserted in the slot and adapted to clamp the sections of the casing together, substantially as described.

4. The combination with a disk casing composed of two sections and provided with an open transverse slot, of a diaphragm inserted in said slot the diaphragm being provided with lips adapted to engage the outer surfaces of the disk casing, substantially as described.

5. The combination with the main casing having a slot, of the disk casing, and the diaphragm the diaphragm having a projection extending outwardly from the disk casing and adapted to engage said slot in the main casing, substantially as described.

6. The combination with the disk casing made in sections and having circular grooves in their inner contact faces, of a strip or stripe of metal inserted in said grooves substantially as described.

7. The combination with the main casing, of the disk casing centrally mounted therein, the annular channel surrounding the disk casing, a diaphragm in said disk casing, ribs separating the channel into receiving and discharging spaces, one of the ribs being opposite the diaphragm, and the diaphragm engaging the said rib substantially as described.

8. The combination with the main casing, of the disk casing, and the annular receiving channel provided with open pockets, substantially as described.

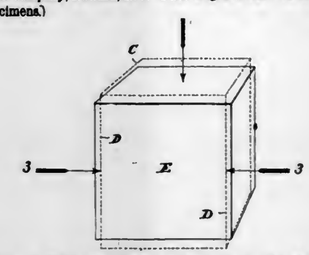
9. The combination with the main casing having an inlet and a receiving channel extending at each side of said inlet, of a disk casing having an inlet port arranged at or near the end of one side of the receiving channel, and the other side of the receiving channel being provided with open pockets, substantially as described.

10. The combination with the main casing, of the disk casing having the inlet port, the annular receiving channel, the inlet, and a deflector the deflector being arranged so that the inlet current is deflected into that portion of the receiving space farthest from the inlet port of the disk casing, substantially as described.

11. The combination with the main casing having an inlet and outlet and an annular channel between the inlet and outlet, and transverse ribs separating said channel into inlet and outlet channels, of a disk casing inserted in the main casing, and having an inlet and outlet port adjacent to one of the ribs, open pockets in one portion of the inlet channel, and a deflector arranged to deflect the inlet current toward the open pockets, and away from the inlet port of the disk casing, substantially as described.

12. The combination with the main casing, of the disk casing, the annular receiving channel, and inlets centrally arranged with regard to said channel, a deflector, one portion of the channel being provided with open pockets and the other with a screen, substantially as described.

520,196. METHOD OF MANUFACTURING HARD-RUBBER ARTICLES. JOHN THOMSON, Brooklyn, N. Y., assignor to the Neptune Meter Company, Newark, N. J. Filed Aug. 16, 1893. Serial No. 483,282. (Specimens.)



Claim.—1. The method of manufacturing hard rubber articles, substantially as hereinbefore set forth, which consists in first subjecting the crude compound to the combined effects of heat and pressure in a proper mold until the plastic compound assumes the form of the mold-cavity, and then wholly or partially removing the pressure while still subjected to the action of heat, and allowing it to cool under these conditions.

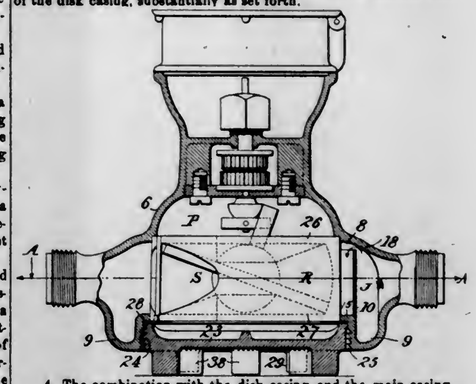
2. In the manufacture of hard rubber articles, the method, substantially as hereinbefore described, which consists in subjecting the compound to the combined effect of heat and pressure in a proper mold until the compound becomes plastic and assumes the form of said mold, then wholly or partially removing the pressure, allowing the plastic materal to expand while subjected to heat but not pressure, and then cooling the material under these conditions, whereby it assumes a permanent "set," and is capable of withstanding variations of temperature without distortion.

520,197. DISK WATER-METER. JOHN THOMSON, Brooklyn, N. Y., assignor to the Neptune Meter Company, Newark, N. J. Filed Nov. 3, 1893. Serial No. 489,963. (No model.)

Claim.—1. A main casing, an internal disk casing provided with ports, an inlet to the main casing communicating with the closed circumferential chamber surrounding the periphery of the disk casing, the said chamber provided with transverse ribs forming pockets situated below the level of the said port, all arranged in the meter substantially as and for the purpose set forth.

2. The combination with a disk casing, of the main casing having a plurality of circumscribed pockets open at the top, arranged exterior to the periphery of the disk casing and disposed below the level of the ports in said casing, substantially as set forth.

3. A meter, comprising an external main casing having inlet and discharge passages, an interal disk casing having inlet and discharge ports, the space between the main casing and disk casing being subdivided into two circular channels, one of which communicates with the inlet passage of the main casing and the other with the inlet port of the disk casing, substantially as set forth.



4. The combination with the disk casing and the main casing, having an inclosed annular receiving space around the periphery of the disk casing, of an intervening septum dividing the said receiving space into circumferential passages communicating with each other, substantially as set forth.

5. The combination with the disk casing and main casing of a septum between the two, a narrow passage above the top of the septum, and a space or chamber outside of the septum extending below ports in the disk casing, substantially as set forth.

6. The combination with the disk casing and main casing, of an intervening septum having one end in movable contact with a bearing within the main casing and constituting a valve closing direct the inlet passage against normal pressure, substantially as set forth.

7. The combination with the main and disk casings, a septum dividing the space between the two into two chambers, the outer chamber communicating with the main inlet port, and an abutment against which one end of the septum bears, said septum arranged to move to and from said abutment, substantially as set forth.

8. The combination with the main casing and the disk casing of the closing cap having its engaging threads mutilated, as 25, and also cut away to form grooves, as 24, substantially as and for the purpose set forth.

9. The combination in a casing, of two sections having engaging threads, the engaging threads of one section being ratchet form and cut-away to form grooves 24, substantially as and for the purpose set forth.

10. The combination in a meter of an outer casing consisting of two sections 6, 23, with engaging weakened threads and an inner disk casing in two sections resting upon the section 23 of the outer casing, substantially as set forth.

11. The combination with the main outer casing and the cap, of the detachable disk casing comprising a plurality of free sections adapted to fit a bearing within the main casing, the construction and arrangement being such that the attachment of the cap to the main casing secures the sections of the disk casing together and holds the disk casing to its bearing, substantially as and for the purpose set forth.

12. The combination with the main and cap sections of a casing one threaded to fit the other, of projections upon each section as 38, 29, arranged substantially as and for the purpose set forth.

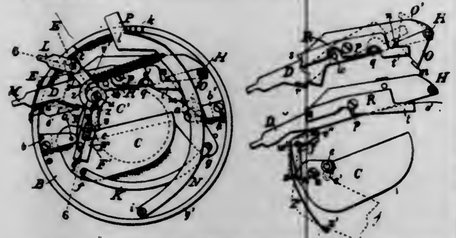
520,198. PHOTOGRAPHIC SHUTTER. HENRY H. TURNER, Rochester, N. Y., assignor to the Gundlach Optical Company, same place. Filed Feb. 15, 1894. Serial No. 500,233. (No model.)

Claim.—1. In a photographic shutter, the combination with a suitable support, of a vibrating exposing wing provided with a projecting stud, a pair of jointed toggle-levers, one of which is pivoted to the support, the other being engaged with the stud and provided with a movable latch adapted to bear on the stud during its movement in one direction only, and an operating spring applied to one of the toggle levers, substantially as described.

2. In a photographic shutter, the combination with a suitable support, of a vibrating exposing wing provided with a projecting stud,

a pair of jointed toggle levers, one of which is pivoted to the support, the other being engaged with the stud and provided with a movable latch adapted to bear on the stud during its movement in one direction only, an operating spring applied to one of the toggle-levers, and a movable trip for releasing the levers, substantially as described.

3. In a photographic shutter, the combination with a suitable support, of a vibrating exposing wing provided with a projecting stud, a pair of jointed toggle-levers, one of which is pivoted to the support, the other being engaged with the stud and provided with a movable latch adapted to bear on the stud during its movement in one direction only, an operating spring applied to one of the toggle levers, and means for varying the tension of the operating spring, substantially as described.



4. In a photographic shutter, the combination with a suitable support, of a vibrating exposing wing provided with a projecting stud, a pair of jointed toggle-levers, one of which is pivoted to the support, the other being engaged with the stud and provided with a movable latch adapted to bear on the stud during its movement in one direction only, an operating spring applied to one of the toggle levers, and the pivoted lever, adapted to engage in a series of notches in the support, substantially as described.

5. In a photographic shutter, the combination with a suitable support, of a vibrating wing provided with a projecting stud, a pair of jointed toggle-levers, one of which is pivoted to the support, the other being engaged with the stud and provided with a movable latch adapted to bear on the stud during its movement in one direction only, an operating spring applied to one of the toggle-levers, and a pivoted release-lever adapted to engage with the pivot of the toggle-levers, substantially as described.

6. In a photographic shutter, the combination with a suitable support, of a vibrating wing provided with a projecting stud, a pair of jointed toggle-levers, one of which is pivoted to the support, the other being engaged with the stud and provided with a movable latch adapted to bear on the stud during its movement in one direction only, an operating spring applied to one of the toggle-levers, and a pivoted release-lever adapted to engage with the pivot of the toggle-levers, and carrying the pivoted secondary release lever, arranged for time exposures, substantially as described.

7. In a photographic shutter, the combination with a suitable support of a vibrating wing provided with a projecting stud, a pair of jointed toggle-levers, one of which is pivoted to the support, the other being engaged with the stud and provided with a movable latch adapted to bear on the stud during its movement in one direction only, an operating spring applied to one of the toggle-levers, and a pivoted release-lever adapted to engage with the pivot of the toggle-levers, and carrying the pivoted secondary release lever, arranged for time-exposures, and the movable arm pivoted to the support and adapted to operate the secondary release lever, substantially as described.

8. In a photographic shutter the combination with a suitable support, of a vibrating exposing wing provided with a projecting stud, a pair of jointed toggle-levers, one of which is pivoted to the support, the other being engaged with the stud and provided with a movable latch adapted to bear on the stud during its movement in one direction only, an operating spring applied to one of the toggle-levers and the movable catch engaging with the wing, substantially as described.

9. In a photographic shutter, the combination with a suitable support, of a vibrating exposing wing provided with a projecting stud, a pair of jointed toggle-levers, one of which is pivoted to the support, the other being engaged with the stud and provided with a movable latch adapted to bear on the stud during its movement in one direction only, the pivoted release lever carrying the secondary time exposure lever adapted to engage with the pivot of the toggle-levers, and the movable catch engaging with the wing, substantially as described.

10. In a photographic shutter, the combination with the support B, of the pivoted exposing wing C, provided with stud *e*, the toggle-lever E pivoted to the support, the slotted toggle-lever F, having latch *v*, the pivot *u* of the toggle-levers, the operating spring *d* and a suitable release lever, substantially as described.

11. In a photographic shutter, the combination with the support B, of the pivoted exposing wing C, provided with stud *e*, the toggle-lever E pivoted to the support, the slotted toggle lever F, having latch *v*, the pivot *u* of the toggle-levers, the operating spring *d*, a suitable release lever, and the pivoted catch *f''* engaging with the wing, substantially as described.

12. In a photographic shutter, the combination with a suitable support, of the pivoted wing C having stud *e*, the toggle-lever E having arm *v'*, the slotted toggle-lever F, having latch *v* provided with arm *z* pivoted thereon, the spring *y*, the operating spring and the release-lever, substantially as described.

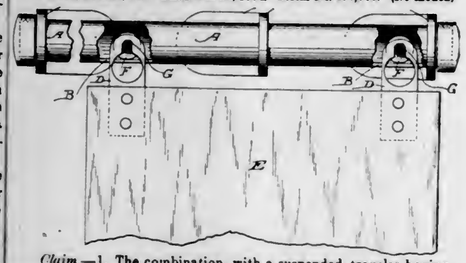
13. In a photographic shutter, the combination with a suitable support, of the pivoted wing C, having stud *e*, the toggle-levers E and F, the latter being slotted and provided with the latch *v* and spring *y*, the operating spring and the release lever, substantially as described.

14. In a photographic shutter, the combination of the support, the pivoted wing C, having stud *e*, the toggle levers E and F, the latter being slotted and provided with the latch *v* and spring *y*, the lug *u'*, the pivoted release-lever D having inclined lug *r*, and the operating spring, substantially as described.

15. In a photographic-shutter, the combination of the support, the pivoted wing C, having stud *e*, the toggle-levers E and F, the latter being slotted and provided with the latch *v* and spring *y*, the lug *u'*, the pivoted release-lever D, having inclined lug *r*, and carrying the movable time-exposure lever R, substantially as described.

16. In a photographic-shutter, the combination of the support, the pivoted wing C, having stud *e*, the toggle-levers E and F, the latter being slotted and provided with the latch *v* and spring *y*, the lug *u'*, the pivoted release-lever D, having inclined lug *r*, and carrying the pivoted time-exposure R, and the movable arm O, substantially as described.

520,199. TRACK OR CARRIER FOR DOORS, &c. GEORGE E. WITT, Fresno, Cal. Filed Jan. 24, 1894. Serial No. 497,909. (No model.)



Claim.—1. The combination, with a suspended traveler having hangers provided with rollers, of a tube adapted to be turned axially and having its lower surface slotted to receive said hangers, whereby said traveler may be caused to travel in the direction of the length of the tube and may be turned in planes transverse to such movement.

2. A track or carrier consisting of a slotted tube loosely mounted so that it may be turned axially, hangers extending through the slot of the tube and adapted to support the weight to be carried, said hangers having a slot for the reception of the axis of the rollers, and an enlarged opening below and communicating with said slot and having a diameter sufficient to permit the removal of the rollers through them.

3. A track or carrier consisting of a slotted tube with hanger plates extending through the slot and rollers traveling within the tube from which the hanger plates are suspended, supporting brackets through which the tubular support passes and within which it turns loosely, whereby the tube and its support may be turned from side to side as described.

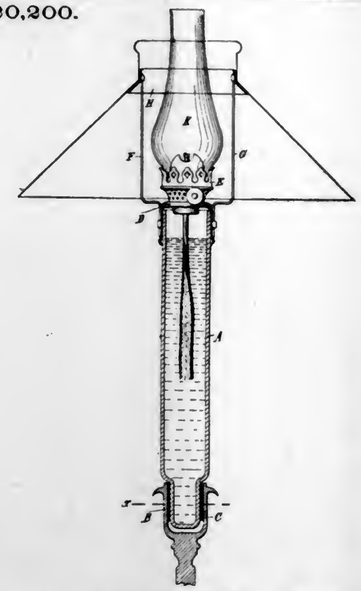
520,200. CANDLE-LAMP. FREDERIC E. BALDWIN, New Brighton, N. Y. Filed Nov. 15, 1893. Serial No. 490,973. (No model.)

Claim.—1. The combination with a lamp reservoir of a loose helical spring surrounding the lower end of said reservoir, said spring being of such length that the inner portion holds the reservoir while the outer portion is free to start the expansion of the spring to fit sockets of varying sizes.

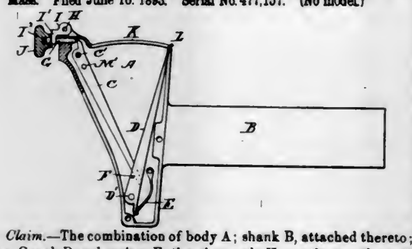
2. The combination of a lamp reservoir having its lower end reduced in size to form a shoulder, and a loose helical spring strip surrounding said reduced portion, said spring being of such length that the inner portion holds the reservoir while the outer portion is free to start the expansion of the spring to fit sockets of varying sizes.

3. The combination with the cylindrical reservoir A made in imitation of a candle, the metal cap D fitting over the open end of the cylinder and adapted to be held thereon by friction, the burner E secured to the cap, the side supports F G attached to the cap and the shade ring H carried by the said supports.

520,200.



520,201. MICROMETER-INDICATOR. JOHN BATH, Hyde Park, Mass. Filed June 10, 1893. Serial No. 477,157. (No model.)



Claim.—The combination of body A; shank B, attached thereto; levers C and D and spring E, therein; scale K, on the top thereof; plunger G, projecting therefrom; and holder I, pivoted thereto and arranged to act on the plunger and through the same to operate the indicating levers; all substantially as specified.

520,202. STEP-LADDER. GILES E. CHITTENDEN, Niles, Cal. Filed Jan. 15, 1894. Serial No. 496,979. (No model.)

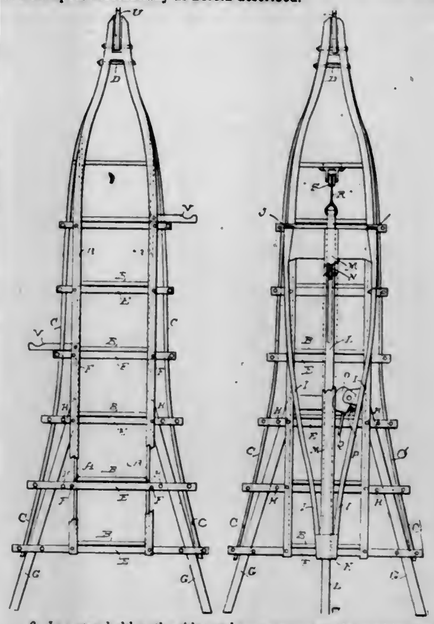
Claim.—1. In a step ladder, the combination, with the main portion composed of sides and steps, of a supplemental exterior frame composed of sides converging from points opposite the lower end of the main portion of the ladder and extending at a distance above the upper portion of said main portion.

2. The combination, with the sides and steps of the main portion of a ladder, of a supplemental frame the upper end of which is made converging and extends to a point at a distance above said main portion.

3. In a step-ladder, the main portion consisting of side bars, transverse steps and supplemental side bars converging from points opposite the lower end of the main portion of the ladder which is supported between these sides, intersecting the upper ends of the sides of the ladder and converging thence to a point at a distance above the upper portion of the ladder, substantially as herein described.

4. In a step-ladder, the main portion consisting of the sides, transverse steps, the supplemental sides exterior to the main side bars, transverse strips secured across the two sets of side bars and clamped thereto at the front and rear, said strips forming supports upon which the front and rear edges of the steps rest, and also serving as braces to unite the main ladder and supplemental sides together, substantially as herein described.

5. In a step-ladder, the main portion consisting of the sides, the steps, the supplemental converging sides exterior to the main portion of the ladder, transverse bars uniting the main ladder with these sides and forming supports for the steps extension feet or legs, and sockets secured to the side bars of the ladder within which the upper ends of these extension legs are fitted, while the lower portion diverges therefrom below and outwardly from the outer side bars to which they are clamped, substantially as herein described.

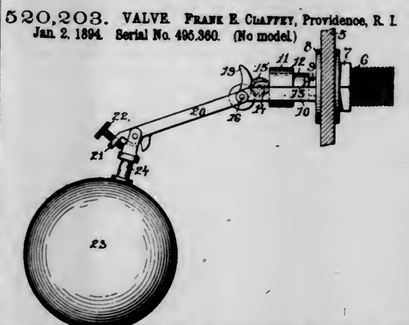


6. In a step-ladder, the sides and transverse steps in combination with supplemental exterior converging sides within and between which the main portion of the ladder is supported, and supplemental adjustable legs whereby the height of the ladder and the width of the base is varied as described.

7. In a step ladder, the main portion consisting of the side bars, and the transverse steps, a hinged brace connected with the upper end of the ladder, and composed of side pieces converging from their hinged ends downwardly, and provided with an open guide at the point where the side pieces meet, and a single extension leg slidable in said guide, and a clamp or clutch whereby said leg is retained in any position as described.

8. In a step ladder, the main portion consisting of the sides, transverse steps and extension brace hinged to the upper end having a bar slidable therein, and a clamp whereby it is held at any point, and an anti-friction roller traveling between guides, substantially as herein described.

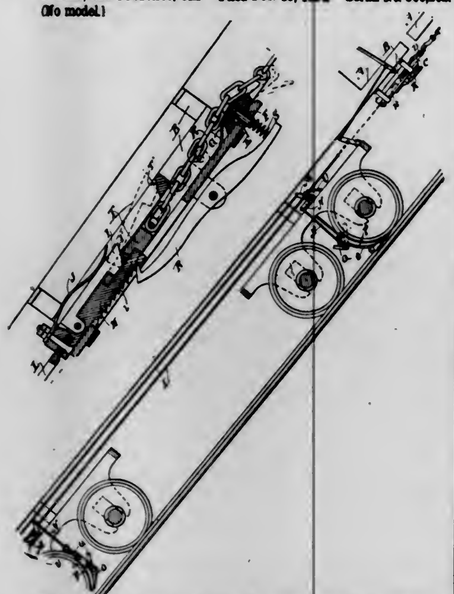
520,203. VALVE. FRANK E. CHAFFEY, Providence, R. I. Filed Jan. 2, 1894. Serial No. 495,360. (No model.)



Claim.—1. In a valve, of the nature described, the combination with the lever 20 having at the outer end the perforated lug 21 and a depending stop, and the adjusting-screw 22 secured through said lug, of the ball 23, and the arm 24 extending therefrom having ears pivoted to the sides of the lever and adapted to bear against the end of the adjusting screw when elevated, as described.

2. The combination with the hollow-shank 6 having the plate 8, the contracted inlet 9, the arms 10—10 the guide 11 connecting said arms, the valve 12 movable in said guide and having the ears 14—14, and the grooved-wheel 15 journaled between the ears, of the shaft 16 having the thumb-nut 17 removably mounted in the ends of the arms 10—10, the sleeve 18 having the lever 20 furnished with the perforated lug 21 and the cam 19 bearing in the groove of the wheel 15, the ball 23 mounted on the arm 24 which is pivoted to the lever 20, and the adjusting-screw 22 carried by the lug 21, as and for the purpose described

520,204. AUTOMATIC UNCOUPLER AND CAR-BRAKE. JOSEPH P. DIAS, San Francisco, Cal. Filed Feb. 15, 1894. Serial No. 500,282. (No model.)



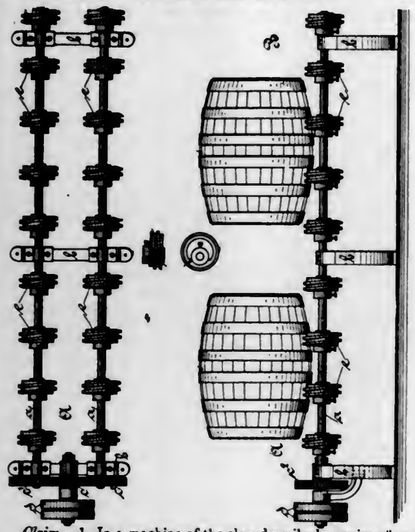
Claim.—1. In a coupling device for cars adapted to be separated by a downward pull of the forward car, a longitudinally moving slide connected with the coupling link so as to be drawn forward with it when the cars are separated, a brake shoe suspended in front of the car wheels and having a supplemental curved shoe slidable in it and adapted to move down to a point between the wheel and the track, a bell-crank lever and a connection between it and the movable shoe, and a rod connecting the bell-crank lever with the movable part of the coupling whereby the brake is applied automatically when the coupling is disengaged, substantially as herein described.

2. In a car coupling, a link or bar adapted to engage a stationary pin upon the car held in contact therewith by a spring, a bar slidable longitudinally upon the frame of the coupling having a spring-actuated hook fulcrumed thereto, a chain and link connecting the coupling at the forward end with the hook, a rod extending rearwardly from the sliding bar connecting with a bell crank lever fulcrumed to the car truck whereby the movement of the slide and its rod will oscillate the bell-crank lever, and a brake shoe connected and movable with the bell-crank lever whereby the shoe is forced beneath and in contact with the car wheel by the oscillation of the lever as described.

3. The combination of a stationary coupling pin attached to the frame and guides, a link adapted to engage said pin and a spring by which it is retained in engagement, said link having an inclined posterior side of the opening whereby the tilting downward of the front end of the link will raise the spring and disengage the link from the pin, a chain extending rearwardly from the link and connected with the hook which is movably fulcrumed upon a longitudinally sliding bar traveling in guides upon the frame, a rod connecting said bar with the bell-crank lever which acts to apply the brake, a toothed rack formed upon said bar and a pawl mechanism engaging said rack and retaining the parts in position to which they are advanced when the brake has been applied as described.

4. The combination of a coupling link engaging a stationary pin upon the car and retained in place by a spring, said link having an opening fitting over the pin and adapted to be disengaged therefrom when the link is tilted downward, a chain connected with the link and with a spring-actuated hook fulcrumed upon a longitudinally sliding bar which travels in guides upon the frame-work of the device, a rod connecting the sliding bar with the brake, an actuating bell-crank lever whereby the brake is applied when the bar is drawn forward, a pawl and ratchet mechanism by which the bar is retained in the advanced position after it has been drawn forward and an inclined disengaging piece over which the fulcrumed hook passes when the bar is drawn forward whereby the hook is lifted to disengage the coupling chain and allow it and the coupling link to be dragged away by the car in front without disturbing the car to which this device is attached, substantially as described.

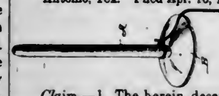
520,205. MACHINE FOR ROLLING CASKS. LOUIS P. K. HEYLIGENSTAEDT, Giessen, Germany. Filed Nov. 28, 1893. Serial No. 492,223, (No model.) Patented in Germany Jan. 7, 1892, No. 64,121, and in Austria-Hungary Mar. 6, 1893, No. 43,715 and No. 83,581.



Claim.—1. In a machine of the class described, a series of rotatable shafts each provided with a series of eccentric worms adapted to support an object and to revolve and advance the same longitudinally of the shafts and simultaneously impart a shaking or rocking motion to the object when the shafts are rotated in the manner described.

2. In a machine of the class described, the combination of a series of parallel shafts, a series of worms eccentrically mounted thereon and provided with circumferential helicoidal ribs, adapted to support an object and to revolve and advance the same longitudinally of the shafts and simultaneously impart a shaking motion to the object when the shafts are rotated, gear wheels mounted on one end of the shafts an intermediate gear wheel meshing with the gear wheels on the shafts, and means for rotating the said intermediate gear wheel as described.

520,206. UTERUS-BATTERY. CHARLES S. W. HINKLEY, San Antonio, Tex. Filed Apr. 10, 1894. Serial No. 507,036. (No model.)

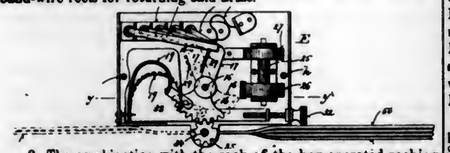


Claim.—1. The herein described electrical device for the treatment of diseases of the womb, comprising a rigid stem composed of two concentric tubes open at both ends and formed of substances which are conductors of electricity, and a button or body connected to the stem, substantially as specified.

2. An electrical device for the treatment of diseases of the womb having a rigid stem comprising an outer tube *a*, and an inner tube *b*, the said tubes being formed from substances which are conductors of electricity, substantially as and for the purpose set forth.

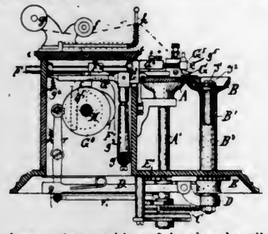
520,207. MUSIC-TURNER. CHARLES P. HOLLIS, Boston, Mass. Filed Jan. 8, 1894. Serial No. 496,140. (No model.)

Claim.—1. The segment gears respectively provided with upwardly projecting lugs engaging succeeding gears; and the turner-arms actuated by said gears in combination with the key operated band-wire reels for returning said arms.



2. The combination with the rack of the key-operated rocking lock-bars, *v*; the notched spring-pushed segment-gears engaged by said bars and the turner arms having geared hubs meshing with said segments all being arranged to operate substantially as described.

520,208. MACHINE FOR SEWING LOOPED FABRICS. JULIUS KÖHLER, Limbach, Germany. Filed Sept. 9, 1890. Serial No. 364,405. (No model.) Patented in England Dec. 29, 1888, No. 18,975, Mar. 16, 1889, No. 4,576, July 27, 1889, No. 11,947, and Aug. 14, 1889, No. 12,814; in France Jan. 28, 1889, No. 195,664, Apr. 11, 1889, No. 197,382, and Aug. 17, 1889, No. 200,238; in Germany July 27, 1889, No. 51,145, and in Spain Feb. 16, 1891, No. 11,637.



Claim.—1. In a sewing machine of the class described, the combination with a horizontally-reciprocating needle, of a looper adapted to cooperate with said needle to form a stitch, the holder G^6 having a vertical opening in which the looper is vertically adjustable, the bar G^4 provided with a horizontal opening in which the holder G^5 is horizontally adjustable, a lever G' provided with a horizontal slot in which slot the bar G^4 is laterally adjustable, a roller on said lever, a revolving shaft, a disk thereon having a cam groove in which rides the said roller, a second disk mounted on said revolving shaft and provided in its face with a cam-groove, a rock shaft provided with arms one of which supports the lever G' and the other being provided with a pin or stud adapted to ride in the cam-groove of said second disk, as and for the purpose specified.

2. In a sewing machine of the class described, the combination with stitch-forming mechanism, of rotatable feed rollers A, B, having sockets or recesses in their upper ends shafts upon which said rollers are mounted, a squared projection y^3 on the shaft B', a needle-block *y*, arranged in the recess of roller B and fitted upon said projection, and having an angular portion the upper face whereof lies slightly above the upper edge of said roller, a screw *y'* securing the needle block to the projection y^3, and a groove in the upper face of said angular portion of the needle block, as and for the purpose specified.

3. In a sewing machine of the class described, the combination with stitch-forming mechanism of rotatable feed rollers A, B, having sockets or recesses in their upper portions, shafts upon which said rollers are mounted, a squared projection y^3 on the shaft B', a needle-block *y*, arranged in the recess of roller B and fitted upon said projection and having an angular portion, the upper face whereof lies slightly above the upper edge of said roller, a screw *y'* securing the needle block to the projection y^3, a groove in the upper face of said angular portion of the needle block, an arm K extending along the inner wall of the feed roller A and projecting above the upper edge of the same, all as and for the purposes specified.

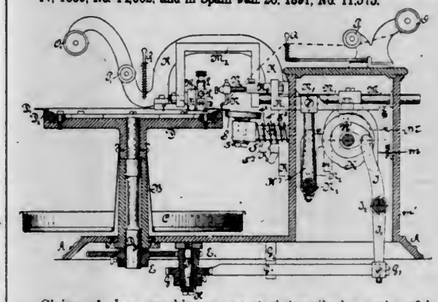
4. In a sewing machine of the class described, the combination with stitch-forming mechanism, of rotatable feed rollers A, B, having sockets or recesses in their upper portions, shafts upon which said rollers are mounted, a squared projection y^3 on the shaft B', a needle-block *y*, arranged in the recess of roller B and fitted upon said projection and having an angular portion, the upper face whereof lies slightly above the upper edge of said roller, a screw *y'* securing the needle block to the projection y^3, a groove in the upper face of said angular portion of the needle block, and a rail L arranged above the upper edges of the feed rollers and having a downward extension, a slot in said extension, and a set-screw passing through the said slot and into the needle-block, all as and for the purposes specified.

5. In a sewing machine of the character described, the combination with stitch-forming mechanism, of a feeding mechanism, comprising the feed rollers, rotatable shafts upon which said rollers are mounted, a disk *k*, mounted on one of said shafts and provided with circular recesses or grooves in its upper and lower surfaces, the arms M and N secured upon the disk, the blocks P and Q respectively carried by said arms and engaging with the grooves or recesses, the arms M^3 and N' pivotally connected at one end to the arms M and N respectively, springs connecting the opposite ends of the arms M^3 N' with the arms M, N, respectively, and means for operating the arm M in the manner and for the purpose specified.

6. In a machine of the character described a fabric guide comprising the piece R provided with a slot and a tongue R', guide pieces S, S' pivoted together in said slot, an adjusting screw adapted to effect a lateral adjustment of the pieces S, S', for the purpose specified.

7. In a machine of the character described, the fabric guide comprising the piece R provided with a slot and a tongue R', guide pieces S, S', pivoted together in said slot, an adjusting screw adapted to effect the lateral adjustment of the pieces S, S', and a coiled spring passing through the piece R and bearing upon the pieces S, S', for the purpose specified.

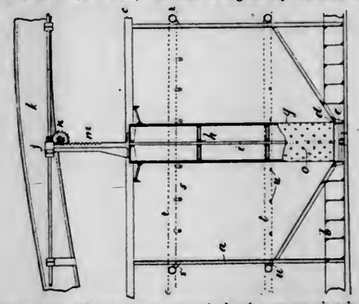
520,209. MACHINE FOR SEWING LOOPED FABRICS. JULIUS KÖHLER, Limbach, Germany. Filed Sept. 9, 1890. Serial No. 364,406. (No model.) Patented in Germany Nov. 9, 1888, No. 48,294; in France Dec. 11, 1888, No. 194,692; in England Jan. 12, 1889, No. 592, and Sept. 17, 1889, No. 14,602, and in Spain Jan. 20, 1891, No. 11,575.



Claim.—1. In a machine of the class described, a series of impaling pins, a revolving table or disk D, tray C, and disk S in combination with a stitch-forming mechanism to sew together the edges of the fabrics, as described.

2. In a machine of the class described, the combination with a revolving series of impaling pins, a reciprocating needle, a looper cooperating with said needle, as described, a rocking lever a cam for actuating it, a reciprocating pawl connected with the rocking lever and actuated by the latter, a ratchet-wheel with which said pawl engages a shaft upon which said ratchet wheel is mounted, a gear wheel mounted on the ratchet wheel shaft, a second gear wheel with which the other gear wheel meshes, and a vertical shaft upon which said second gear wheel is mounted, and a disk also mounted upon said vertical shaft and carrying the impaling pins, all arranged for cooperation, as and for the purpose specified.

520,210. HOPPER AND VALVE FOR HOPPER-DREDGERS. ANTHONY G. LYSTER, Liverpool, England. Filed Dec. 30, 1893. Serial No. 495,231. (No model.) Patented in England Apr. 23, 1892, No. 7,676.



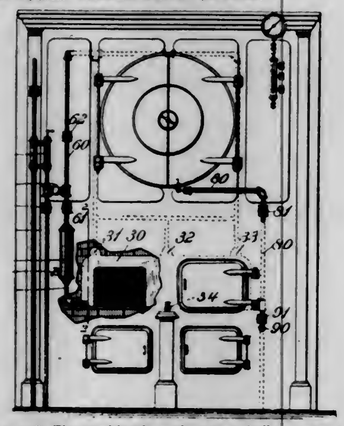
Claim.—1. A hopper or receptacle, having an opening in its bottom, a hollow perforated valve arranged to close said opening, and means for forcing a fluid outwardly through the perforations in order to interpose a fluid film between the valve and the material contained in the hopper; substantially as described.

2. A hopper or receptacle, having a valved bottom outlet, a series of jet openings in the perimeter of the valve thereof, and means for forcing water through said openings in order to interpose a film of water between the hopper and the contained material; substantially as described.

3. A hopper or receptacle, having a valved bottom outlet, a series of jet openings in the lower portion of the valve thereof, and means for forcing water through said openings to force out the contained material; substantially as described.

4. A hopper or receptacle, having an opening in its bottom, a hollow perforated valve arranged to close said opening, means for forcing a fluid outwardly through the perforations, a series of jet openings around the perimeter of the hopper, and means for forcing a fluid therethrough; substantially as described.

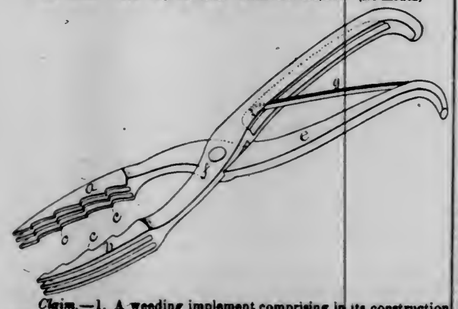
520,211. FEED-WATER HEATER AND PURIFIER. CHARLES W. MCDANIEL, Lakeport, N. H., assignor to the Economy Feed Water Heater Company, of New Hampshire. Filed Jan. 28, 1893. Renewed Nov. 14, 1893. Serial No. 490,966. (No model.)



Claim.—1. The combination of a steam boiler, a steam boiler furnace, a furnace mouth casing provided with interior water channels disposed in the mouth of said furnace, a pipe connecting said casing with said boiler, a water receptacle disposed at the front of said furnace in position to receive radiant heat therefrom, said receptacle being connected with said casing, and a feed pipe connected with said receptacle.

2. The combination of a steam boiler, a furnace for heating said boiler, a furnace mouth casing set in the mouth of said furnace and provided with interior water channels, a pipe connecting said casing with said boiler, a water receptacle disposed at the front of said furnace in position to receive radiant heat therefrom, a pipe directly connecting said receptacle with said casing, said pipe opening near the top of said receptacle, and a feed pipe connected with said receptacle and discharging near the bottom thereof, substantially as set forth.

520,212. WEEDING IMPLEMENT. GEORGE W. MCKENZIE, Boston, Mass. Filed Aug. 18, 1893. Serial No. 483,469. (No model.)

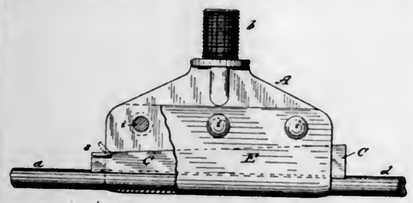


Claim.—1. A weeding implement comprising in its construction two sharp pointed prongs, and handles for operating the same as tongs, the prongs extending in substantially straight line from the handles, and each prong being composed of a plurality of broad flat tines with teeth on their inner edges, as set forth.

2. A weeding implement comprising in its construction two sharp pointed prongs consisting of a plurality of broad flat tines and handles for operating the same, the end of one handle being curved inwardly and the other outwardly, as set forth.

3. A weeding implement comprising in its construction two sharp pointed prongs and handles for operating the same as tongs, each prong being composed of a plurality of broad flat tines with teeth on their inner edges, the end of one handle being curved inwardly and the other outwardly, and a spring between the handles to keep them normally separated, as set forth.

520,213. TROLLEY-WIRE HANGER. THOMAS J. MCTIGHE and SUMNER W. CHILDS, New York, N. Y. Filed Jan. 23, 1893. Renewed Jan. 22, 1894. Serial No. 497,725. (No model.)



Claim.—1. In a trolley-wire hanger, the combination of an ear having an inclined bottom edge, a clip adapted to embrace the trolley-wire and ear, means for holding the clip in engagement with the ear, and a wedge adapted for insertion within the clip between the ear and the trolley-wire.

2. In a trolley-wire hanger, the combination of an ear having an inclined bottom edge, a sheet metal U-shaped clip adapted to embrace the trolley-wire and ear, means for holding the clip in engagement with the ear, and a wedge adapted for insertion within the clip between the ear and the trolley-wire.

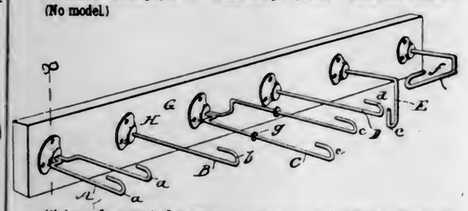
3. In a trolley-wire hanger, the combination of a U-shaped metal clip with two or more perforations near its upper edge, an ear having its bottom edge inclined and its sides provided with means for engagement with the clip perforations, and a wedge adapted for insertion within the clip between the ear and the trolley-wire.

4. In a trolley-wire hanger the combination of a U-shaped metal clip perforated near its upper edges, an ear having its bottom edge inclined and its sides provided with means for engagement with the clip perforations, and a wedge adapted for insertion within the clip between the ear and the trolley-wire, and having its bottom surface concave.

5. In a trolley-wire hanger, the combination of the U-shaped metal clip, the ear having inclined bottom edge, the wedge and two or more rivets uniting the clip to the ear, substantially as described

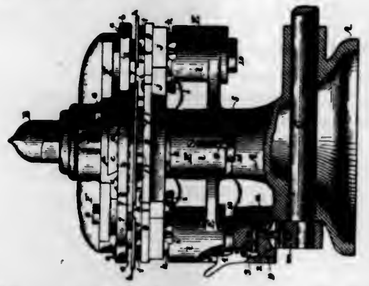
6. In a trolley-wire hanger, the combination of the U-shaped clip E perforated as described, the ear A having inclined bottom, clip and ear together, and the wedge C having means of locking against withdrawal, substantially as described.

520,214. RACK FOR MUSICAL INSTRUMENTS. WILLIAM A. NAUMANN, Brooklyn, N. Y. Filed July 18, 1893. Serial No. 480,869. (No model.)



Claim.—In a rack for musical instruments of the character described, the combination, with an elongated plank or board having one or more single shanked hooks and one or more parallel shanked hooks attached thereto, of a hook comprising two shanks, one of which is bent upward near its junction with the plank to raise the said shank somewhat above the plane of the other, each shank being provided at its extreme end with an upwardly bent parallel arm, whereby a violin or similar instrument whose tuning pegs are irregularly opposite one to the other may be suspended therefrom, substantially as shown and described.

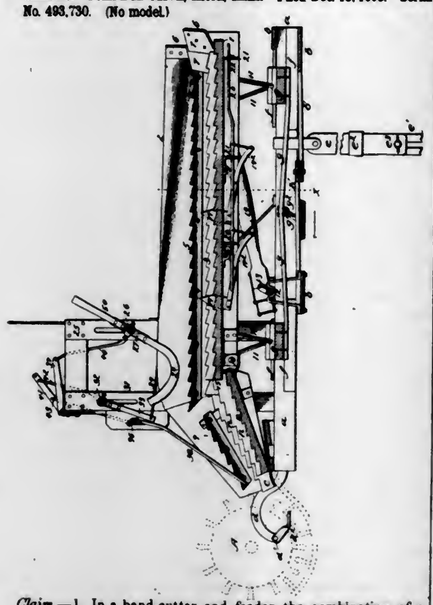
520,215. PUNCHING-MACHINE. THOMAS A. NORRIS, Brockton, Mass. Filed Jan. 16, 1894. Serial No. 497,045. (No model.)



Claim.—1. In a machine for eyelet punching, a base formed with a central standard, a sleeve arranged to rotate on said standard, a series of platens arranged on said sleeve and provided with soft metal studs *e* arranged in proper curved lines; a series of strippers *h* arranged in proper relation to said studs; a series of hollow punches *f* secured in a carrying plate *g* and arranged to correspond to studs *e*; a series of platens *j* arranged on plungers *k* moving in sleeves *l* and provided with means of contact with plunger *y*; the pulley shaft C, crank *m*, link *n*, controlled by spring *q* and cord *w*, and a latch 4, by which the respective parts are interlocked, whereby the machine can be at once adjusted to shoes of varying curves and sizes: substantially as specified.

2. The combination of shaft C, provided with pulley D, a crank *m* arranged upon an eccentric of said shaft, link *n* connected with crank *m* and plunger *y*, the spring *q* acting on link *n*, cord *w* secured to the outer end of link *n* to depress the same when actuated, the latch 4 of plunger *y*, adjustable stud 10, to regulate the contact of plungers *y* and *k*, the plate *j* of said plunger *k*, the punches *f*, the strippers *h* to clear the work from said punches and the platens *b*, all substantially as specified.

520,216. BAND-CUTTER AND FEEDER FOR THRASHING-MACHINES. FRANK A. OLIVA, Alton, Kans. Filed Dec. 15, 1893. Serial No. 493,730. (No model.)



Claim.—1. In a band-cutter and feeder, the combination of a feed-table composed of oppositely reciprocating sections, each section having toothed plates at their adjoining edges, with band-cutting blades fixed upon crank-arms secured on the under sides of said table sections, and rods connecting said arms, for operation in the way stated.

2. The combination in a band-cutter and feeder of a feed-table composed of oppositely reciprocating toothed-sections, with cutting-blades connected in pairs at the joining edges of said table-sections, and means for adjusting said blades in pairs, substantially as described.

3. The combination in a band-cutter and feeder, of a feed-table composed of oppositely reciprocating toothed-sections, with cutting-blades connected to levers pivoted to the under side of each table-section and rods connected to operate said levers simultaneously and to lock said blades when adjusted, substantially as described.

4. In a band-cutter and feeder, the combination of a feed-table composed of oppositely reciprocating toothed-sections, with yoke-levers having band-cutting blades secured thereto in pairs and arranged at the under side of said table sections, and suitable means for operating said yokes, in a way and for the purpose stated.

5. The combination in a band-cutter and feeder of a feed-table having a reciprocating movement, with band-cutting blades arranged above said table, arms 29 connected to vibrate said cutting-blades and rods 28 having adjustable connection with said arms to vary the extent of the cutting-stroke, and adjustable connection with the feed-table to vary the extent of the rearward movement of said blades in relation to a vertical line drawn through the axis of vibration of said blades, substantially as described.

6. The combination, in a band-cutter and feeder with a feed-table composed of oppositely reciprocating toothed sections, of band-cutting blades fixed in pairs upon separate pipe-parts, a rod 26 loosely supporting said pipe-parts above the table, an arm 29 on the outer end of each pipe-part having a series of holes, a bracket 30 on the outer side sections of said table, and the rods 28, 28, adjustably connecting said pipe-arms and brackets, whereby said cutting blades are adjusted and alternately vibrated, substantially as described.

7. The combination in a band-cutter and feeder with a reciprocating feed-table, of the cross-rod 26, in fixed frame parts, pipe-parts loose upon said rod, and having both cutter and beater-blades standing radially on opposite sides of said pipe-parts whereby they may be reversed to bring into action the cutting-blades or the beater-blades, and means connecting said pipe-parts for imparting thereto a rocking motion upon said rod in the way and for the purpose described.

8. The combination, in a band-cutter and feeder, with a reciprocating feed-table, of the cross-rod 26 in fixed frame parts, pipe-parts loosely mounted upon said rod, and having both cutter and beater blades standing radially on opposite sides of said pipe-parts, means for independently rocking said pipe-parts, means for vibrating and adjusting the extent of the movement of said blade-parts, and means for vertically adjusting said rod, the said blades being adapted to be reversed with respect to the table for use as band-cutters or grain spreaders to adapt the machine as a feeder for "headed-grain" or for grain in the sheaf, substantially as described.

9. In a grain feeder and band-cutter, the combination with a feed-table, of band-cutting blades in said table and means for depressing them below the feeding surface, band-cutting blades above said feed-table and means for turning them up out of the way of the grain whereby to adapt the machine for feeding "headed grain" substantially as described.

10. In a band-cutter and feeder, the combination, with a feed-table composed of oppositely reciprocating toothed-sections, of a cross-rod 26 above said table, independent pipe-parts loose upon said cross-rod, and having curved cutting-blades, and oppositely standing beater-blades, radial-arms 29 on the outer ends of each pipe-part extending on opposite sides of said pipe, and the rods 28 arranged to connect either of said pipe-arms with the outer side table-sections, whereby the said cutting or the said beater-blades may be reversed in position in relation to said feed-table and operated in the way and for the purpose stated.

11. In a band-cutter and feeder, the combination, with a feed table having a reciprocating movement, the cross-rods 26, 32, in fixed frame parts above said table, each rod having radial-blades and radial-arms, the rods 34 connecting the arms of each cross-rod, and the rods 28 connecting the said arms with the table, whereby both sets of blades are vibrated together in the same direction as the feed-table, substantially as described, for the purpose specified.

12. The combination, in a band-cutter and feeder of a feed-table composed of oppositely reciprocating toothed-sections, each section connecting and terminating in a downwardly inclined hinged toothed-part, a fixed supporting shoe upon which said hinged parts ride, fingers arranged in fixed position over said hinged parts, spreader-blades arranged in rear of said fingers, cutting-blades arranged in the rear of the spreader-blades, and means for operating said table-sections and the spreading and cutting-blades in the way and for the purpose stated.

13. The combination, in a grain-feeder of a feed-table composed of oppositely reciprocating toothed-sections, each section connecting and terminating in a downwardly inclined hinged-part, a fixed supporting shoe upon which said hinged-parts ride, fingers arranged in fixed position over said hinged-parts, spreader-blades arranged in rear of said fingers, means for raising and lowering said fingers and spreader-

blades simultaneously and means for operating said table-sections, and spreader-blades, substantially as described.

14. In a grain band-cutter and feeder, the combination of a feed-table composed of oppositely reciprocating toothed-sections, each section terminating in a downwardly inclined hinged-toothed part, a fixed supporting shoe upon which said hinged parts ride, fingers arranged in fixed position over said hinged-parts, spreader-blades arranged in rear of the fingers, cutting-blades arranged in rear of the spreader-blades, means for raising and lowering said fingers and spreader-blades simultaneously, means for raising and lowering the cutting-blades, and means for operating said spreader- and cutting-blades and the said table-sections, in the way and for the purpose described.

15. The combination, in a band-cutter and feeder of a feed-table composed of oppositely reciprocating toothed-sections, fingers arranged over the delivering end of said feed-table, spreader-blades arranged in rear of the fingers, cutting-blades arranged in rear of the spreader-blades, means for raising and lowering said fingers and spreader-blades simultaneously, means for raising and lowering the cutting-blades, means for operating the spreader and the cutting-blades simultaneously, means for adjusting the vibrating movements of said spreader and cutting-blades, and means for increasing or diminishing the vertical movements of said feed-table-sections, substantially as described.

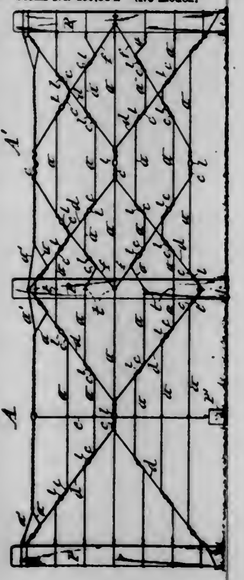
16. In a grain-feeder, the combination, with a main frame, a supplemental frame adjustably supported therein, a reciprocating feed-table supported by links upon said supplemental frame and means for operating said feed-table, whereby the supporting links of the latter can be adjusted with said supplemental frame in the way and for the purpose stated.

17. In a grain-feeder, the combination, with a main frame, a supplemental frame within the main frame, a reciprocating feed-table, links supporting the latter upon said supplemental frame, a cranked-rod connecting the said frames, means for turning said cranked rod and means for operating said feed-table, whereby the links can be adjusted in the way and for the purpose stated.

18. In a grain feeder, the combination with the main frame, the frame *g* arranged to slide in guides *f* in the main frame and having a series of links at each end, a feed-table composed of oppositely reciprocating sections mounted upon said links, a multiple crank-shaft on the main frame and rods connecting each table-section, and crank, and means for adjusting the said frame *g* and its connected links, toward or from the front of the main frame, for the purpose stated.

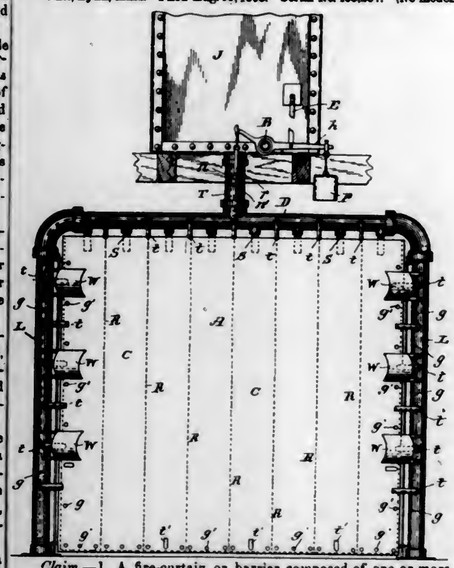
19. In a grain feeder, the combination with the main frame and a feed-table composed of oppositely reciprocating sections mounted upon links, of an intermediate frame connecting said links, means for horizontally adjusting said intermediate frame, and means for operating the feed-table sections upon said links, substantially as described.

520,217. FENCE. GARDNER H. PERKINS, Cazenovia, N. Y. Filed Oct. 28, 1893. Serial No. 489,354. (No model.)



Claim.—The combination with the posts —P—P—, of the longitudinal wires —*a*—*a*—*a*— stretched from post to post, and the diagonal wires —*d*—*d*— extending from the top of one post to the foot of the companion post and secured thereto and formed with intermediate coils —*c*—*c*— intertwined with similar coils formed in the longitudinal wires substantially as described and shown.

520,218. FIRE-CURTAIN OR FIRE-BARRIER. GEORGE W. PUTNAM, Lynn, Mass. Filed Aug. 15, 1893. Serial No. 483,237. (No model.)



Claim.—1. A fire-curtain or barrier composed of one or more thicknesses of cloth or other suitable absorbent material, in combination with a liquid supply pipe connected with a suitable source of supply and provided with a valve, liquid-distributing pipes connected with said supply pipe and provided with orifices or nozzles through which the liquid is discharged upon the said curtain, and a device for holding up said curtain and holding the supply pipe valve closed, said device being adapted to be released by the action of heat, whereby the curtain is released and the valve simultaneously opened to admit the liquid to the distributing pipes, substantially as set forth.

2. The combination of the fire-curtain or barrier A, composed of cloth or other suitable absorbent material, a liquid-distributing pipe connected with a suitable source of supply and provided with orifices or nozzles through which the liquid is discharged upon the curtain, means for automatically releasing said curtain on the occurrence of a fire and simultaneously admitting the liquid to the distributing pipes, and the deflectors W interposed between the said discharge orifices or nozzles and the curtain, substantially as and for the purpose described.

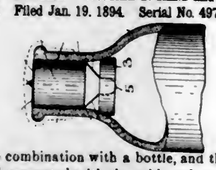
3. A fire-curtain or barrier A, composed of one or more thicknesses of cloth or other suitable absorbent material and provided with water channels or pockets between said thicknesses of cloth or material, a liquid-distributing pipe connected with a suitable source of supply and provided with pipes S for conducting the liquid to the water channels or pockets of the curtain, and means consisting of the valve B, weighted lever *h*, fastenings *e*, bolt *r* connected with said lever *h*, and the fusible tie-piece E for automatically releasing the curtain on the occurrence of a fire and simultaneously admitting the liquid to the said distributing pipe, whereby it is caused to flow into the water channels or pockets of the curtain, substantially as and for the purpose set forth.

4. The combination, with a fire-curtain or barrier A, composed of cloth or other suitable absorbent material and provided with water channels or pockets adapted to be automatically supplied with liquid from a suitable source of supply on the occurrence of a fire, of a series of flexible pipes K secured to the outside of the curtain and communicating with the water channels or pockets, said pipes extending upward and being provided with perforated sprinkling-heads G substantially as and for the purpose set forth.

5. The combination, with the fire-curtain or barrier A composed of cloth or other suitable absorbent material, of the liquid supply pipe T connected with a suitable source of supply, distributing pipes D, L,

provided with orifices or nozzles through which the liquid is discharged upon the said curtain, a valve B for controlling the admission of liquid to the supply pipe, said valve being provided with a weighted lever *h*, fastenings *e* for holding up the curtain A, the bolt *r* connected with the lever *h* for retaining the fastenings *e* in place, and a fusible tie-piece E secured to the lever *h* and adapted to hold the valve closed and the curtain rolled up until the occurrence of a fire, the whole constructed and arranged substantially in the manner and for the purpose herein shown and described.

520,219. BOTTLE. WILLIAM B. RAND and WALDRON H. RAND, Boston, Mass. Filed Jan. 19, 1894. Serial No. 497,396. (No model.)



Claim.—The combination with a bottle, and the cork or closure thereof, of a seal connected with the said cork or closure by an attachment which suspends the said seal in the neck or upper portion of the bottle and which is broken or disconnected by the removal of the said cork or closure so as thereby to allow the said seal to descend in the bottle, substantially as described.

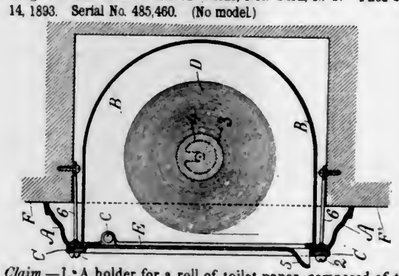
520,220. CURB AND PAVEMENT. PATRICK W. REARDON, Oakland, Cal. Filed Feb. 12, 1892. Serial No. 421,297. (No specimens.)



Claim.—1. A block of the character described, consisting in a core formed of superposed flat strips *a'* coated with liquid asphalt and petroleum and the outer asphalt body *a* inclosing said core, substantially as herein described.

2. A block of the character described comprising the core *a'* the upper surface of which is provided with transverse grooves or corrugations a^3 and the outer body *a* of asphalt inclosing said core, and having portions entering the said grooves.

520,221. HOLDER FOR TOILET-PAPER. JOHN REID, Yonkers, assignor to The J. L. Mott Iron Works, New York, N. Y. Filed Sept. 14, 1893. Serial No. 485,460. (No model.)



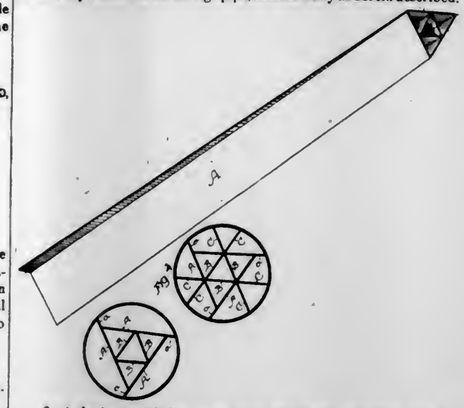
Claim.—1. A holder for a roll of toilet paper, composed of the frame A, permanently fastened to the wall at a recess in the wall; the case B, and frame C, screwed to the frame A by the screws 2, and having bearings 4, for the axis of the roll of toilet paper, substantially as set forth.

2. A holder for a roll of toilet paper, composed of the frame A, permanently fastened to the wall at a recess in the wall; the case B, and frame C, screwed to the frame A, by the screws 2, and having bearings 4, for the axis of the roll of toilet paper, a cover E, hinged at its upper edge within the frame C, and having a lip 5, at the lower edge, substantially as set forth

3. A holder for toilet paper composed of an open frame and a closed case permanently connected at its edges with the frame and extending backwardly therefrom, and having inwardly projecting bearings for the reception of a roll of paper inserted through the open frame, means for securing the frame and case in position and a pivoted swinging cover acting to close the frame and case, substantially as specified.

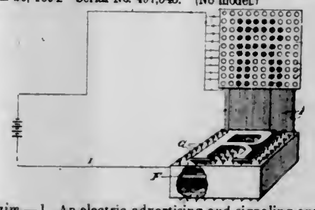
520,222. GUIDING DEVICE FOR DISCHARGE-NOZZLES. CHARLES F. RODIN, San Francisco, Cal., assignor of one-half to Adrian Merle and Andrew Rudgear, same place. Filed Dec. 27, 1893. Serial No. 494,896. (No model.)

Claim.—1. A device for correcting the tendency of water to spray when discharged from the pipe or nozzle under pressure, consisting of plates whose edges are united to form a tube having a triangular cross section, and having one edge *a* of each plate projecting beyond the corresponding edge of the next adjacent plate said tube being removably seated in a discharge pipe, substantially as herein described.



2. A device consisting of an inner and outer tube each having a prismatic form in cross section forming channels for the water, one edge of the plates of the outer tube projecting beyond the corresponding edge of the next adjacent plate of the same tube, whereby the device may be fitted to conform to the interior of a tapering discharge pipe.

520,223. ELECTRIC ADVERTISING OR SIGNALING APPARATUS. GEORGE L. SCHNEIDER, San Francisco, Cal., assignor of seven-eighths to Wm. J. Pattosien, Fred L. Walbel, Chas. Fisher, George Brandt, Chas. A. Paul, Fred Brandt, and A. R. Paul, same place. Filed Jan. 20, 1894. Serial No. 497,545. (No model.)



Claim.—1. An electric advertising and signaling apparatus consisting of a mat or frame of electric lights, a plate remote from the mat and provided with a series of contacts electrically connected with said lights and corresponding in number and relative position thereto, a metal plate fitted over the contacts, a series of spring-actuated push-buttons in said plate and normally out of electric connection with said contacts, and adapted to make and break connection therewith, and a single circuit wire to said plate and including the plate, button contacts and lights in its circuit.

2. An electric advertising and signaling apparatus consisting of a mat or frame of electric lights, a board with a series of contacts electrically connected with and corresponding in number and relative position to said lights, a metallic plate over said contact board, push buttons carried by said plate in numbers and position corresponding to the contacts, said buttons being provided with springs for holding them normally out of electrical connection with said contacts and adapted to make and break connection with the latter, and suitable electric circuits including said lights, contacts and plate, substantially as herein described.

520,224. BEER-PRESSURE APPARATUS. RICHARD D. SCHROE[illegible] San Francisco, assignor to W. Frank Pierce, Oakland, Cal. Filed 25, 1893. Serial No. 484,065. (No model.)

Claim.—1. A means for producing pressure within t[illegible] keg, consisting of an intermediate air or gas chamber, necting the top of said chamber with the keg, a secon[illegible] ing the bottom of the chamber with a water suppl[illegible] whereby the air or gas in the intermediate chamb[illegible] keg by displacement, and a means actuated by [illegible] into the intermediate chamber for cutting off c[illegible] the latter and the keg substantially as here[illegible]

blades simultaneously and means for operating said table-sections, and spreader-blades, substantially as described.

14. In a grain band-cutter and feeder, the combination of a feed-table composed of oppositely reciprocating toothed sections, each section terminating in a downwardly inclined hinged-toothed part, a fixed supporting shoe upon which said hinged parts ride, fingers arranged in fixed position over said hinged-parts, spreader-blades arranged in rear of the fingers, cutting-blades arranged in rear of the spreader-blades, means for raising and lowering said fingers and spreader-blades simultaneously, means for raising and lowering the cutting-blades, and means for operating said spreader- and cutting-blades and the said table-sections, in the way and for the purpose described.

15. The combination, in a band-cutter and feeder of a feed-table composed of oppositely reciprocating toothed-sections, fingers arranged over the delivering end of said feed-table, spreader-blades arranged in rear of the fingers, cutting-blades arranged in rear of the spreader-blades, means for raising and lowering said fingers and spreader-blades simultaneously, means for raising and lowering the cutting-blades, means for operating the spreader and the cutting-blades simultaneously, means for adjusting the vibrating movements of said spreader and cutting-blades, and means for increasing or diminishing the vertical movements of said feed-table-sections, substantially as described.

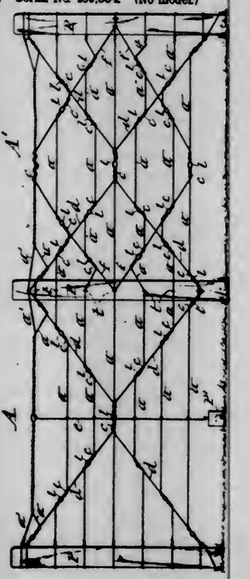
16. In a grain-feeder, the combination, with a main frame, a supplemental frame adjustably supported therein, a reciprocating feed-table supported by links upon said supplemental frame and means for operating said feed-table, whereby the supporting links of the latter can be adjusted with said supplemental frame in the way and for the purpose stated.

17. In a grain-feeder, the combination, with a main frame, a supplemental frame within the main frame, a reciprocating feed-table, links supporting the latter upon said supplemental frame, a cranked-rod connecting the said frames, means for turning said cranked rod and means for operating said feed-table, whereby the links can be adjusted in the way and for the purpose stated.

18. In a grain feeder, the combination with the main frame, the frame *g* arranged to slide in guides *f* in the main frame and having a series of links at each end, a feed-table composed of oppositely reciprocating sections mounted upon said links, a multiple crank-shaft on the main frame and rods connecting each table-section, and crank, and means for adjusting the said frame *g* and its connected links, toward or from the front of the main frame, for the purpose stated.

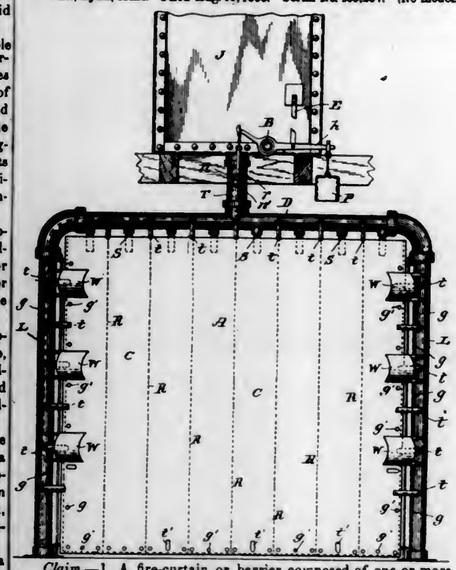
19. In a grain feeder, the combination with the main frame and a feed-table composed of oppositely reciprocating sections mounted upon links, of an intermediate frame connecting said links, means for horizontally adjusting said intermediate frame, and means for operating the feed-table sections upon said links, substantially as described.

520,217. FENCE. GARDNER H. PERKINS, Cazenovia, N. Y. Filed Oct. 28, 1893. Serial No. 489,354. (No model.)



Claim.—The combination with the posts —P—P—, of the longitudinal wires —*a*—*a*—*a*— stretched from post to post, and the diagonal wires —*d*—*d*— extending from the top of one post to the foot of the companion post and secured thereto and formed with intermediate coils —*c*—*c*— intertwined with similar coils formed in the longitudinal wires substantially as described and shown.

520,218. FIRE-CURTAIN OR FIRE-BARRIER. GEORGE W. PUTNAM, Lynn, Mass. Filed Aug. 15, 1893. Serial No. 483,237. (No model.)



Claim.—1. A fire-curtain or barrier composed of one or more thicknesses of cloth or other suitable absorbent material, in combination with a liquid supply pipe connected with a suitable source of supply and provided with a valve, liquid-distributing pipes connected with said supply pipe and provided with orifices or nozzles through which the liquid is discharged upon the said curtain, and a device for holding up said curtain and holding the supply pipe valve closed, said device being adapted to be released by the action of heat, whereby the curtain is released and the valve simultaneously opened to admit the liquid to the distributing pipes, substantially as set forth.

2. The combination of the fire-curtain or barrier A, composed of cloth or other suitable absorbent material, a liquid-distributing pipe connected with a suitable source of supply and provided with orifices or nozzles through which the liquid is discharged upon the curtain, means for automatically releasing said curtain on the occurrence of a fire and simultaneously admitting the liquid to the distributing pipes, and the deflectors W interposed between the said discharge orifices or nozzles and the curtain, substantially as and for the purpose described.

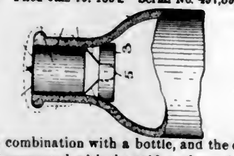
3. A fire-curtain or barrier A, composed of one or more thicknesses of cloth or other suitable absorbent material and provided with water channels or pockets between said thicknesses of cloth or material, a liquid-distributing pipe connected with a suitable source of supply and provided with pipes S for conducting the liquid to the water channels or pockets of the curtain, and means consisting of the valve B, weighted lever *h*, fastenings *e*, bolt *r* connected with said lever *h*, and the fusible tie-piece E for automatically releasing the curtain on the occurrence of a fire and simultaneously admitting the liquid to the said distributing pipe, whereby it is caused to flow into the water channels or pockets of the curtain, substantially as and for the purpose set forth.

4. The combination, with a fire-curtain or barrier A, composed of cloth or other suitable absorbent material and provided with water channels or pockets adapted to be automatically supplied with liquid from a suitable source of supply on the occurrence of a fire, of a series of flexible pipes K secured to the outside of the curtain and communicating with the water channels or pockets, said pipes extending upward and being provided with perforated sprinkling-heads G substantially as and for the purpose set forth.

5. The combination, with the fire-curtain or barrier A composed of cloth or other suitable absorbent material, of the liquid supply pipe T connected with a suitable source of supply, distributing pipes D, L,

provided with orifices or nozzles through which the liquid is discharged upon the said curtain, a valve B for controlling the admission of liquid to the supply pipe, said valve being provided with a weighted lever *h*, fastenings *e* for holding up the curtain A, the bolt *r* connected with the lever *h* for retaining the fastenings *e* in place, and a fusible tie-piece E secured to the lever *h* and adapted to hold the valve closed and the curtain rolled up until the occurrence of a fire, the whole constructed and arranged substantially in the manner and for the purpose herein shown and described.

520,219. BOTTLE. WILLIAM B. RAND and WALDRON H. RAND, Boston, Mass. Filed Jan. 19, 1894. Serial No. 497,396. (No model.)



Claim.—The combination with a bottle, and the cork or closure thereof, of a seal connected with the said cork or closure by an attachment which suspends the said seal in the neck or upper portion of the bottle and which is broken or disconnected by the removal of the said cork or closure so as thereby to allow the said seal to descend in the bottle, substantially as described.

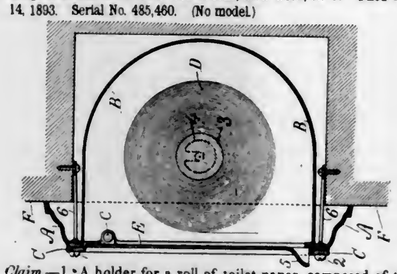
520,220. CURB AND PAVEMENT. PATRICK W. REARDON, Oakland, Cal. Filed Feb. 12, 1892. Serial No. 421,297. (No specimens.)



Claim.—1. A block of the character described, consisting in a core formed of superposed flat strips *a'* coated with liquid asphalt and petroleum and the outer asphalt body *a* inclosing said core, substantially as herein described.

2. A block of the character described comprising the core *a'* the upper surface of which is provided with transverse grooves or corrugations a^3 and the outer body *a* of asphalt inclosing said core, and having portions entering the said grooves.

520,221. HOLDER FOR TOILET-PAPER. JOHN REID, Yonkers, assignor to The J. L. Mott Iron Works, New York, N. Y. Filed Sept. 14, 1893. Serial No. 485,460. (No model.)



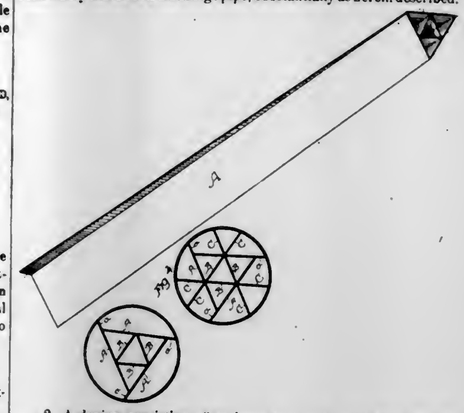
Claim.—1. A holder for a roll of toilet paper, composed of the frame A, permanently fastened to the wall at a recess in the wall; the case B, and frame C, screwed to the frame A by the screws 2, and having bearings 4, for the axis of the roll of toilet paper, substantially as set forth.

2. A holder for a roll of toilet paper, composed of the frame A, permanently fastened to the wall at a recess in the wall; the case B, and frame C, screwed to the frame A, by the screws 2, and having bearings 4, for the axis of the roll of toilet paper, a cover E, hinged at its upper edge within the frame C, and having a lip 5, at the lower edge, substantially as set forth

3. A holder for toilet paper composed of an open frame and a closed case permanently connected at its edges with the frame and extending backwardly therefrom, and having inwardly projecting bearings for the reception of a roll of paper inserted through the open frame, means for securing the frame and case in position and a pivoted swinging cover acting to close the frame and case, substantially as specified.

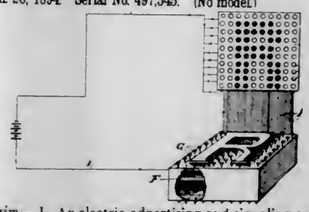
520,222. GUIDING DEVICE FOR DISCHARGE-NOZZLES. CHARLES F. RODIN, San Francisco, Cal., assignor of one-half to Adrian Merle and Andrew Rudgear, same place. Filed Dec. 27, 1893. Serial No. 494,896. (No model.)

Claim.—1. A device for correcting the tendency of water to spray when discharged from the pipe or nozzle under pressure, consisting of plates whose edges are united to form a tube having a triangular cross section, and having one edge *a* of each plate projecting beyond the corresponding edge of the next adjacent plate said tube being removably seated in a discharge pipe, substantially as herein described.



2. A device consisting of an inner and outer tube each having a prismatic form in cross section forming channels for the water, one edge of the plates of the outer tube projecting beyond the corresponding edge of the next adjacent plate of the same tube, whereby the device may be fitted to conform to the interior of a tapering discharge pipe.

520,223. ELECTRIC ADVERTISING OR SIGNALING APPARATUS. GEORGE L. SCHNEIDER, San Francisco, Cal., assignor of seven-eighths to Wm. J. Pattosien, Fred L. Waibel, Chas. Fisher, George Brandt, Gus. A. Paul, Fred Brandt, and A. R. Paul, same place. Filed Jan. 20, 1894. Serial No. 497,545. (No model.)



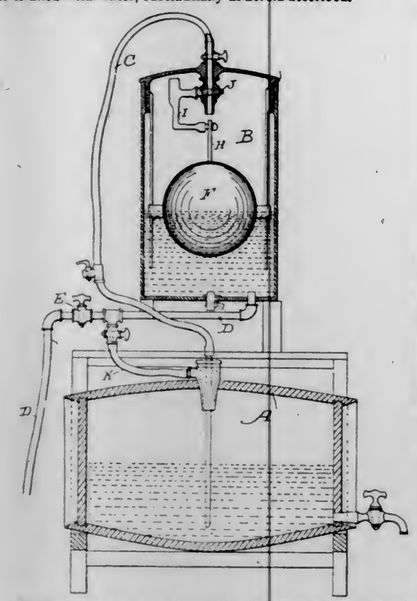
Claim.—1. An electric advertising and signaling apparatus consisting of a mat or frame of electric lights, a plate remote from the mat and provided with a series of contacts electrically connected with said lights and corresponding in number and relative position thereto, a metal plate fitted over the contacts, a series of spring-actuated push-buttons in said plate and normally out of electric connection with said contacts, and adapted to make and break connection therewith, and a single circuit wire to said plate and including the plate, button contacts and lights in its circuit.

2. An electric advertising and signaling apparatus consisting of a mat or frame of electric lights, a board with a series of contacts electrically connected with and corresponding in number and relative position to said lights, a metallic plate over said contact board, push buttons carried by said plate in numbers and position corresponding to the contacts, said buttons being provided with springs for holding them normally out of electrical connection with said contacts and adapted to make and break connection with the latter, and suitable electric circuits including said lights, contacts and plate, substantially as herein described.

520,224. BEER-PRESSURE APPARATUS. RICHARD D. SCHROEDER, San Francisco, assignor to W. Frank Pierce, Oakland, Cal. Filed Aug. 25, 1893. Serial No. 484,065. (No model.)

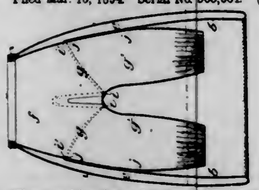
Claim.—1. A means for producing pressure within the cask or keg, consisting of an intermediate air or gas chamber, a pipe connecting the top of said chamber with the keg, a second pipe connecting the bottom of the chamber with a water supply under pressure whereby the air or gas in the intermediate chamber is forced into the keg by displacement, and a means actuated by the ingress of water into the intermediate chamber for cutting off communication between the latter and the keg substantially as herein described.

2. A means for producing a continuous pressure within a cask or keg, consisting of an intermediate chamber, the top of which is connected with the top of the keg, and the bottom with a water supply under pressure, a rising and falling float movable within the intermediate chamber, a cock connected with said float and adapted to close communication between the chamber and the cask when the chamber is filled with water, substantially as herein described.



3. A pressure apparatus for casks or kegs consisting of an intermediate chamber having a pipe connecting its top with the top of the keg, a water supply pipe connecting the bottom of the chamber with a source of water supply under pressure, a cock by which the water supply may be cut off, a second cock between the water supply cock and the chamber, and a passage connecting it with the top of the keg whereby the surplus gas in the latter is allowed to pass into the chamber and be retained there and afterward returned into the cask when the pressure therein has become reduced, by opening the water supply cock, and allowing water to pass into the chamber and displace the gas therein, substantially as herein described.

520,225. SKIRT-PROTECTING GARMENT. LENA SITTIG, Brooklyn, N. Y. Filed Mar. 15, 1894. Serial No. 503,681. (No model.)

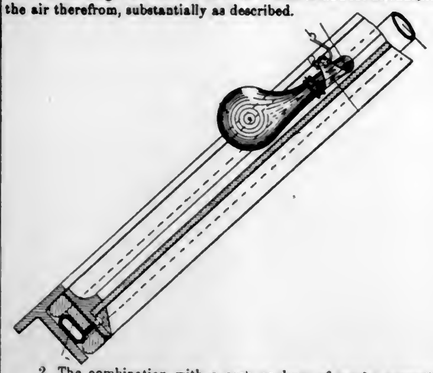


Claim.—1. The combination of a trunk having separate openings for the legs of the wearer, an inner skirt the upper edge of which is united with said trunk around each of the said openings on lines sloping upward and outward from points between said openings, and an outer skirt united at the bottom with the said inner skirt, substantially as herein set forth.

2. The combination of a trunk having attached leg extensions, an inner skirt the upper edge of which is connected separately with said leg extensions both in lines surrounding them and in lines extending lengthwise down the outer sides thereof, and an outer skirt united at the bottom with said inner skirt, substantially as herein described.

520,226. PACKING OR SOUND-DEADENING DEVICE FOR WINDOWS OR DOORS. HERMANN C. W. WEYER, Bremen, Germany, assignor to Ernst Abraham Pilgram, same place. Filed Aug. 29, 1893. Serial No. 484,323. (No model.)

Claim.—1. A sash or door provided with a flexible tube fitted around the same, and means affixed to said tube for inflating said tube and for retaining the tube in an inflated condition and for discharging the air therefrom, substantially as described.

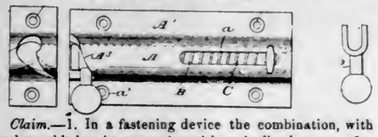


2. The combination with a sash or door, of a tube extending around the same, a bulb affixed to said tube, and a valve for opening and closing communication between the tube and bulb, substantially as described.

3. The combination with a sash or door having double panes, of a flexible tube extending around the same, and a bulb, for inflating said tube and connected with the space between the panes for producing a partial vacuum, substantially as described.

4. The combination with a sash or door having double panes, of a flexible tube extending around the same, and a bulb, for inflating said tube and connected with the space between the panes for producing a partial vacuum, and a safety device, substantially as described.

520,227. BOLT. AUSTIN ADAMS, New York, N. Y. Filed Aug. 29, 1893. Serial No. 484,326. (No model.)



Claim.—1. In a fastening device the combination, with a bolt barrel provided at its extremity with an inclined recess, of a spring, and a spring reacted bolt bar working therein, and provided at its extremity with a weighted lever constructed and arranged to travel along the edge to the extremity of said incline when retracted by the spring, thereby automatically flushing itself with the said bolt barrel.

2. In a fastening device the combination, with a bolt barrel and with a spring reacted bolt bar working therein, and provided at its extremity with a weighted lever, of a keeper consisting of a plate provided with a hollow interior portion provided with an inclined edge formed by cutting a spiral groove in the face of the same.

3. In a fastening device the combination, with a bolt barrel and with a spring reacted bolt bar working therein, and provided at its extremity with a weighted lever, of a keeper consisting of a plate provided with a hollow interior portion and with an inclined edge formed by cutting a spiral groove in the face of the same, and with a holding recess located adjacent to the said groove.

4. In a fastening device, the combination with a spring bolt bar consisting of one integral piece and provided with an annular groove formed therein near the end of the same, of a weighted lever movably mounted thereon and provided with a bifurcated extremity constructed and arranged to be closed to a meeting point within the said groove, whereby the solid head thus formed receives the force or blow of the spring reacted bolt.

520,228. ELECTRIC LOCOMOTIVE. RUDOLF EICKEMEYER, Yonkers, N. Y. Filed June 1, 1891. Serial No. 394,742. (No model.)

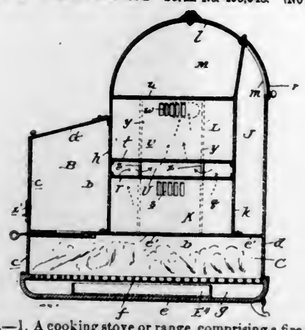


Claim.—1. In an electric locomotive, a motor casing or shell, of magnetic metal for the reception of an armature, and field coils, having its sides and bottom integral and seamless, and provided with a detachable top, affording access to the field coils and armature, said bottom and sides constituting a cup like structure, and excluding water, moisture and dust from entering upwardly into the motor, substantially as described.

2. In an electric locomotive, a motor casing or shell of magnetic metal, for the reception of an armature and field coils, having its sides integrally extended and connected, and affording box seats for the armature shaft, and a bottom which is integral with said sides, and is extended into integral connection with said ends, the said sides, bottom, and ends, constituting not only a seamless cup like structure, but also an armature frame, which is strengthened and braced by its union with the bottom of the shell or casing, substantially as described.

3. In an electric locomotive, a motor casing or shell of magnetic metal for the reception of an armature and field coils, having its sides, bottom and armature frame integral and seamless, and also having integral rectangular extensions or arms, containing jaws for the reception of car axle boxes, substantially as described.

520,229. COOKING STOVE OR RANGE. THOMAS GASKINS, Arcadia, Fla. Filed Feb. 3, 1894. Serial No. 498,948. (No model.)

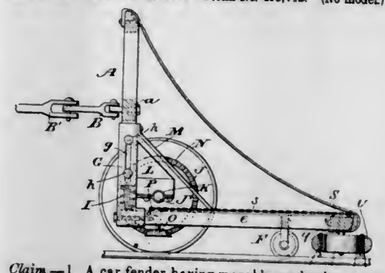


Claim.—1. A cooking stove or range, comprising a fire box, ovens or cooking apartments K, and L, arranged one above the other above the fire box and having openings *s*, *w*, in their rear walls and also having a space between them, vertical flues S, communicating at their lower ends with the fire box, horizontal flues T, communicating with the flues S, at an intermediate point of the length thereof, a horizontal flue U, arranged between the flues T, and communicating with the said flues at their ends remote from the flues S, and a vertical flue V, arranged between the flues S, and communicating with the flue U and the openings *s*, *w*., and leading to the smoke pipe or other outlet, substantially as and for the purpose set forth.

2. The herein described cooking stove or range comprising the fire box, the oven K, arranged above the fire box, the oven L, arranged a slight distance above the oven K, so as to form a flue space between the two, the oven or apartment M, arranged above the oven L, the water receptacle J, arranged at the side of the ovens K, L, and M, and extending from the fire box to the top of the stove, the lateral apartment B, arranged on the opposite side of the ovens K, and L, with respect to the receptacle J, the sub-compartment H, arranged in front of the apartment B, vertical flues S, communicating at their lower ends with the fire box, horizontal flues T, formed between the ovens K, and L, and communicating with the flues S, at an intermediate point of the length thereof, a horizontal flue U, arranged between the flues T, and communicating with the said flues at their ends remote from the flues S, and a vertical flue V, arranged between the flues S, and communicating with the flue U, and leading to a smoke pipe or other outlet, substantially as and for the purpose set forth.

3. The herein described cooking stove or range comprising the fire box, the oven K, arranged above the fire box and having an air inlet and also having an opening *s*, in its rear wall, the oven L, arranged a slight distance above the oven K, so as to form a flue space between the two and having an air inlet opening and also having an opening *w*, in its rear wall, the oven or apartment M, arranged above the oven L, the water receptacle J, arranged at the side of the ovens K, L, and M, and extending from the firebox to the top of the stove, the lateral apartment B, arranged on the opposite side of the ovens K, and L, with respect to the receptacle J, and having an opening *c'*, in its inner side wall, the sub compartment H, arranged in front of the apartment B, and having an air iolet opening and also having the opening *b'*, in its rear wall, the vertical flues S, arranged in rear of the ovens K, and L, and communicating at their lower ends with the fire box, horizontal flues T, formed between the ovens K, and L, and communicating with the flues S, at an intermediate point of the length thereof, a horizontal flue V, arranged between the flues T, and communicating with the said flues at their ends remote from the flues S, and a vertical flue V, arranged between the flues S, and communicating with the flue U, and the openings *s*, *w*, and leading to a smoke pipe or other outlet, all substantially as and for the purpose set forth.

520,230. RAILWAY-CAR FENDER. JOHN W. T. GILLIAM, Baltimore, Md. Filed Jan. 4, 1894. Serial No. 495,712. (No model.)



Claim.—1. A car fender having movable mechanism, a continuous line of cushions crossing in a single hypotenuse line the track of travel and operated by said mechanism, substantially as set forth.

2 An individual and detachable car fender, wheels supporting and guiding said fender, mechanism operated by said wheels, and a continuous line of cushions movably supported by said fender and movable across the track and said fender, and having motion imparted by said mechanism with the movement of said fender, substantially as set forth.

3. An individual and detachable car fender, mechanism supporting and operated by said fender, a continuous belt or chain movable in a single hypotenuse line across the track and the front of said fender, and a series of projecting buffers secured to said belt or chain, substantially as set forth.

4. A car fender supported by wheels, a gear wheel meshing with and operated by teeth upon one side of said supporting wheels, a chain or belt operated by said gear wheel, rollers supporting a belt or chain and operated by the aforesaid mechanism, and cushions secured to and carried by said chain or belt, and movable across the line of said track and fender, substantially as set forth.

5. A car fender having a line of cushions movable across the track and said fender, and mechanism operated by the traveling of said fender and imparting a movement to said cushions, a net secured to the frame and forming a part of said fender for the reception of an object colliding therewith, substantially as and for the purpose set forth.

6 In a car fender, the combination of horizontal side bars, a rear frame work, and vertically slotted guide ways connecting said side bars and rear frame work, together with coiled springs between said side bars and the rear frame work, substantially as described.

7. The combination with a car fender having a horizontally rotating belt, of removable track cleaning brushes situate along the line of said belt, substantially as set forth.

520,231. DRIVE-CHAIN. HOWARD S. HART, New Britain, Conn. Filed Jan. 19, 1892. Renewed Apr. 23, 1894. Serial No. 508,716. (No model.)

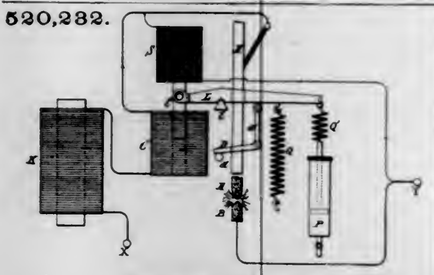


Claim.—In a drive chain the links A A having the extensions *a*, *b*, rolled up to form the enlarged cylindrical end pintles C C in combination with the intermediate coupling B having C-shaped ends carrying the link pintles, which are held within said C-shaped ends by an intermediate bend D in the coupling, the spaces between the bend D and the C-shaped ends being sufficiently great to permit the side of the link to be passed through and thereby permitting the disengagement of the links, substantially as described.

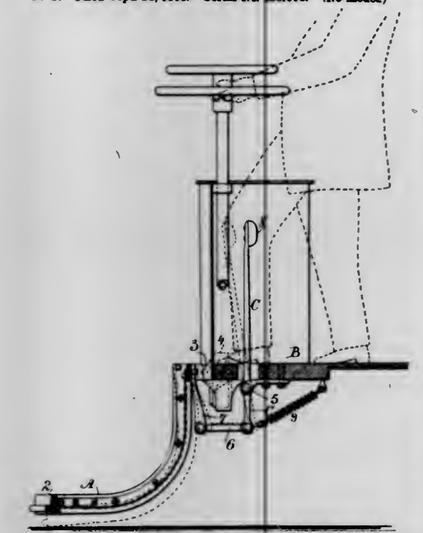
520,232. ELECTRIC-ARC-LIGHTING SYSTEM. DANIEL HIGHAM, Boston, Mass., assignor to the Higham Electric Company, Portland, Me. Filed Jan. 2, 1894. Serial No. 495,363. (No model.)

Claim.—The combination of an arc-lamp or lamps having suitable carbon feeding or regulating mechanism, with an inductive coil in the main circuit in series with the arc and series windings of said lamp or lamps and an elastic and slow yielding connection arranged serially together between the said mechanism and frame of said lamp or lamps, substantially as described and for the purpose set forth.

520,232.



520,233. SAFETY ATTACHMENT FOR STREET-CARS. HENRY A. HOWE, Albion, assignor to himself, and Joseph Norwood, Brooklyn, N. Y. Filed Sept. 21, 1893. Serial No. 486,098. (No model.)



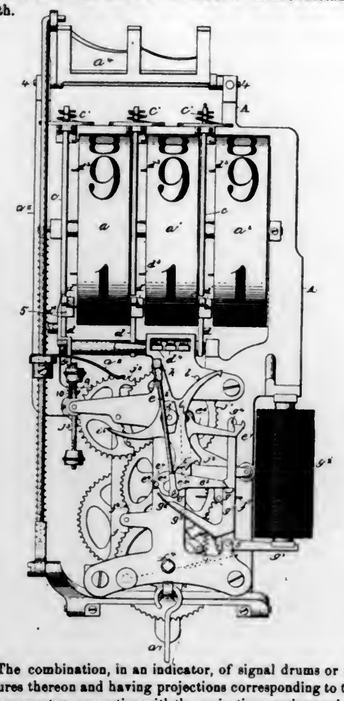
Claim.—1. The combination with the car platform, of a guard extending forward of the car, pivotal connections on which the guard is free to be swung up or down, springs for holding the guard against rising or falling from a normal position, a connection to the guard and a lever extending above the platform and adapted to being acted upon by the leg of the driver in opposite directions from either raising the guard or for depressing the front edge against the action of the springs, substantially as specified.

2. The combination with the car platform, of a guard, a pivotal connection between the guard and the platform, a rubber spring acting to hold the guard in its normal position, a lever pivoted upon the platform and extending upwardly and provided with a shield that is adapted to being acted upon by a lateral movement of the driver or motorman, and a connection from the lever to the guard, substantially as set forth.

520,234. INDICATOR FOR FIRE-ALARM OR OTHER PURPOSES. WILLIAM H. KIERAN, Bayonne, N. J., assignor to The Gamewell Fire-Alarm Telegraph Company, New York, N. Y. Filed Jan. 18, 1892. Serial No. 418,372. (No model.)

Claim.—1. The combination, in an indicator, of signal-wheels, means for moving the same individually the desired distance, a time movement or regulated motor connected to the operating device and controlling its position, means for re-setting the indicator, comprising a bar having a reciprocating movement coincident with the rotation of the signal-wheels and co-acting with a detent to move the same into the path of a stop connected with said time mechanism or regulated motor, substantially as set forth.

2. The combination, in an indicator, of signal-wheels and means for moving the same, escapements therefor, a trip device for operating the escapements, means for operating the trip device, a time mechanism or regulated motor connected to the trip and moving it into position to operate on the escapements successively, a signal-wheel re-setting mechanism, comprising a bar having a reciprocating movement coincident with the rotation of the signal-wheels, and a pivoted detent having a spring by means of which it is withdrawn from the path of a stop connected with the time mechanism or motor, said bar being adapted to move the detent against the tension of said spring so as to arrest said time movement or motor, substantially as set forth.

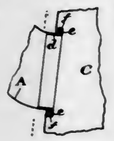


3. The combination, in an indicator, of signal drums or wheels with figures thereon and having projections corresponding to the figures, escapements co-operating with the projections, reciprocating bars operatively connected to the signal drums or wheels for moving them, a trip device for the escapements with motor driving mechanism, a time mechanism connected to the trip and adapted to move it into position to operate on the escapements successively, re-setting mechanism for the signal drums or wheels, and a detent or stop for the time mechanism, one part of which is in position to be struck by one of said reciprocating bars, substantially as described.

4. The combination, in an indicator, of signal-wheels, a rod by means of which the signal-wheels are successively advanced, mechanism for reciprocating said rod, a motor connected to the rod and moving it into position to operate the wheels successively, means for re-setting the wheels, a bar having a reciprocating movement coincident with the rotation of the signal-wheels, and a pivoted detent mechanically unconnected with said bar but capable of being struck by the same and moved into the path of a stop controlling the movement of said motor, substantially as set forth.

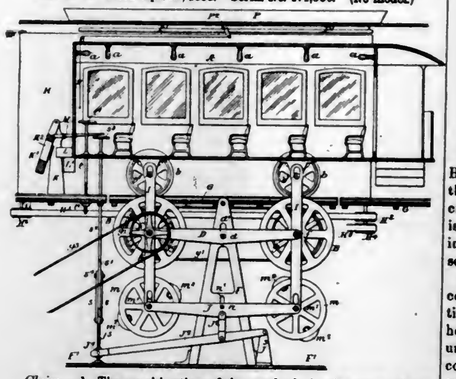
5. The combination, in an indicator, of signal-wheels, a rod by means of which the signal-wheels are successively advanced, mechanism for reciprocating said rod, a motor connected to the rod and moving it into position to operate the wheels successively, re-setting mechanism, comprising reciprocating bars having racks co-acting with pinions rotating with said signal-wheels, and a pivoted spring-pressed detent thrown into engagement with a stop controlling said motor by means of one of said reciprocating bars, substantially as set forth.

520,235. ATTACHING SPOUTS TO SHEET-METAL VESSELS. GEORGE W. KNAPP, Baltimore, Md. Filed Feb. 26, 1894. Serial No. 501,527. (No model.)



Claim.—In a spouted vessel, the combination of a body provided with an opening having a continuous inward flared flange, *c*; a spout constructed of halves united by seams, *g*, and having a base-flange, *a*, inside of the vessel and in contact with said flared flange; and a clamping-ring provided with an annular locking flange, *f*, which continuously encircles the said flanges of the body-opening and spout and having a tubular neck, *d*, which projects into the base of the spout beyond the line of the vessel-body and fits therein closely.

520,236. THEATER APPLIANCE. ARARIAH LAKE, Pleasantville, N. J. Filed Apr. 22, 1893. Serial No. 471,506. (No model.)



Claim.—1. The combination of the car body having rows of window openings and interior furnishings, with the endless curtains or aprons mounted upon vertical drums so as to occupy a position adjacent to said window openings on each side of the car body, and means for horizontally traversing said curtains past said rows of window openings, substantially as specified.

2. The combination of the car body having rows of window openings therein, the endless curtains or aprons disposed upon vertical drums so as to occupy a position adjacent to said window openings, mechanism for rotating said drums, and means for vertically supporting the aprons upon the drums independently of their frictional hold upon the same, substantially as specified.

3. The combination of the car body having wheels, the endless curtains, means for traversing the same, supporting wheels upon which the car wheels rest, means for rotating said supporting wheels, cam wheels, adapted by contact with the driving wheels to cause a jolting of the same, and means for moving said cam wheels into and out of engagement with the driving wheels, substantially as specified.

4. The combination of the car body, the endless curtains and means for traversing the same, with means for tipping the car body and retaining the same in the tipped position, substantially as specified.

5. The combination of the car body, the endless curtains and means for traversing the same, a weight mounted in front of the car body, and means for holding said weight away from the car body and for releasing the same so as to permit it to strike a blow upon the car, substantially as specified.

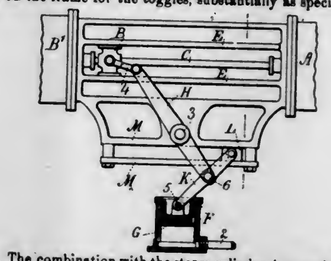
6. The combination of the car body, the endless curtains and means for traversing the same, the weight mounted in front of the car, means for supporting a strip of thin board on said weight, a device for retaining and releasing the weight, and a projection on the car body whereby said board is broken on the release of the weight, substantially as specified.

7. The combination of the car body, the endless curtains, and means for traversing the same, with a water distributer located above the roof of the car, and a valve controlling the flow of water from said distributer upon the roof of the car, substantially as specified.

520,237. DIRECT-ACTING PUMPING-ENGINE. GEORGE DE LAVAL, Warren, Mass. Filed Jan. 29, 1894. Serial No. 498,279. (No model.)

Claim.—1. The combination with the steam cylinder and direct acting pump and piston rods and cross head, of slides and a connecting frame between the cylinders, a piston or plunger and cylinder in which a fluid under pressure acts on the piston or plunger, a compensating lever at one side of the frame and a link forming a toggle to compress the fluid at the middle of the stroke of the engine and a fixed pivot for the toggle on the connecting frame substantially as specified.

2. The combination with the steam cylinder and direct acting pump and piston rods and cross-head, of slides and a connecting frame between the cylinders, a piston or plunger and a cylinder in which a fluid under pressure acts on the piston or plunger, two separate compensating levers, one at each side of the frame and jointed at their upper ends to the cross-head, links forming with the levers toggles to compress the fluid at the middle of the engine stroke, and fixed pivots on the frame for the toggles, substantially as specified.

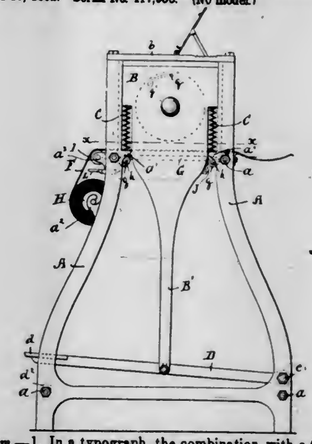


3. The combination with the steam cylinder A, pumping cylinder B', connecting rod C and cross-head B, of the compensating lever H, the link 4 connecting the upper end of the compensating lever to the cross-head, the pivot 3, the cylinder F in which a fluid under pressure is provided, the piston G, toggle lever K pivoted to the compensating lever, and the slide-block L in the slideways M, substantially as set forth.

4. The combination with the steam cylinder, pumping cylinder, connecting-rod and cross-head, of the compensating lever, a connection between the upper end of the compensating lever and the cross-head, the pivot for the lever, a cylinder in which a fluid under pressure is provided, a piston therein and a toggle lever pivoted to the compensating lever, and a slide-block in the slideways, substantially as set forth.

5. The combination with the steam cylinder A, pumping cylinder B' and the connecting frame, of the piston rod C, cross-head B, the compensating levers H, one at each side of the connecting frame, the rock shaft forming a pivot and connecting the two levers, the compensating cylinders F and pistons G, the toggle levers K connecting the pistons G and compensating levers H, the slide-block L and slideways M for the same, substantially as set forth.

520,238. TYPOGRAPH. HOSEA W. LIBBEY, Boston, Mass. Filed Jan. 13, 1892. Serial No. 417,938. (No model.)



Claim.—1. In a typograph, the combination, with a frame, of a pair of vertically movable plates therein, the lower ends of the plates being extended and provided with a treadle and one of the plates being provided with a curved slot terminating in a hole at one end, a series of type wheels journaled between the plates, provided with registering notches, and a locking bar for engaging with the notches, said bar having one end adapted to move in the slot and enter the hole, substantially as set forth.

2. In a typograph, the combination, with a frame provided with lugs, two movable plates within the frame, each plate being provided with extensions to register with the lugs of the frame, a spring between each extension and its lug, a series of type wheels journaled between the plates, means for locking said wheels against rotation, a plate below the wheels for the reception of a sheet of impressible ma-

terial, and means for moving the wheels toward the plate, substantially as set forth.

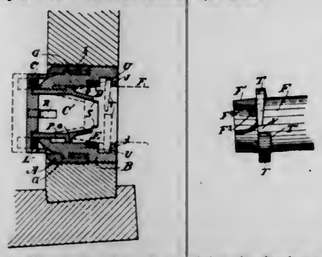
3. In a typograph, the combination of a frame, movable plates therein provided with type wheels, a table below the wheels, shafts journaled below the table, each of which is provided with feed wheels and a ratchet wheel for rotating it, a pawl on the frame for engaging with one of the ratchet wheels, and a lever for engaging with the other ratchet wheel, and means for causing said shafts to turn in unison, substantially as set forth.

4. In a typograph, a series of wheels or disks having letters or characters upon their peripheries and integral therewith said wheels or disks being mounted upon a shaft carried by sliding plates that are brought down when an imprint is to be made in combination with a strip of impressible paper, feed wheels arranged on shafts at each end of the bed plate, ratchet wheels on the ends of one of said shafts and pawls on the sliding plates for imparting a rotary motion to the feed wheels whereby the paper is automatically fed forward as the disks are being raised after the type wheels have been brought into contact with the paper substantially as set forth.

5. In a typograph, wheels or disks each having a series of letters and characters upon one half of its periphery and a corresponding series of letters and characters upon the other half the two corresponding letters being diametrically opposite each other said wheels or disks having openings between each pair of characters but in the rear of said letters or characters id combination with a locking bar adapted to fit into said openings and hold the wheels as they are adjusted, substantially as set forth.

6. In a typograph a series of wheels each having on its periphery a full alphabet of small letters, figures and sigor and half sections of a capital alphabet so arranged that when two adjacent disks are properly adjusted they will form a complete alphabet of capital letters substantially as set forth.

520,239. BUSHING AND FAUCET FOR BARRELS. GEORGE H. MERRICK, San Francisco, assignor to W. Frank Pierce, Oakland, Cal. Filed July 20, 1893. Serial No. 481,049. (No model.)



Claim.—1. The combination, of a retaining ring having external threads by which it is secured within the barrel opening at a point inside of its outer surface and provided with internal spirally arranged channels with other channels opening outwardly therefrom, a bushing adapted to be fitted in said ring having an enlarged head at its outer end forming a shoulder adapted to abut against the end of said ring and having lugs upon its exterior for engaging the channels of the ring, said enlarged head having the oppositely located lugs at its outer end; a valve having a hollow sleeve adapted to project into the bushing and provided with lugs for engaging the inner spirals of the bushing, and a faucet having a barrel adapted to slip over the inner end of the sleeve and provided with lugs engaging openings in the latter and inclined lugs adapted to engage the lugs of the bushing, substantially as herein described.

2. The combination, with the retaining ring having the internal spiral channels with outlets, of a bushing having lugs engaging said channels, and having other lugs at its entrance end, and an interior threaded portion and engaging ring for securing a packing in place, a valve having a stem projecting into the bushing with a passage through it for the liquid and provided with lugs engaging inclines on the interior of the bushing whereby it may be advanced and retracted, and a faucet having a barrel to be fitted over said sleeve and to engage and turn it, said faucet barrel having inclined lugs engaging the lugs at the entrance of the bushing and adapted to engage with the packing ring to form a tight joint.

3. The combination, of a retaining ring fixed within the barrel opening and having internal spiral channels with outlets therefrom, a bushing having internal spiral guides or channels and lugs on its outer circumference and entrance end, a hollow sleeve within and fitting the inner end of the bushing and having lugs engaging its inner spiral guides or channels, a valve carried by the sleeve, and a faucet having spirally disposed lugs engaging the lugs at the entrance of the bushing and other lugs engaging the sleeve whereby the faucet is locked to the bushing and advanced as the valve opens and retracts simultaneously with the closing of the valve.

4. The combination, of a retaining ring, a bushing and a hollow sleeve each concentric with the other, said sleeve having a conical inner end provided with recesses, carrying a valve, and having lugs engaging inclined surfaces on the bushing; and a faucet having the inner end of its barrel adapted to receive the conical end of the sleeve and provided with lugs engaging the recesses of the sleeve and having other lugs engaging the bushing.

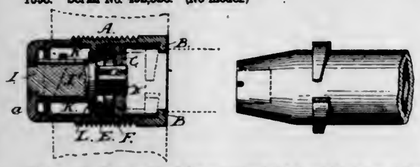
5. The combination, of a bushing, a valve having an inwardly projecting sleeve the end of which is made conical and provided with lugs engaging spiral channels on the bushing, a faucet having its interior made conical to receive the like end of the sleeve, and lugs on one of the cones engaging recesses in the other to cause the faucet and sleeve to engage, said faucet having means for locking it to the bushing.

6. The bushing removably fixed in the barrel opening and permanent retaining ring, a valve having an annular channel around its periphery, and an elastic washer adapted to be seated against the inner end of the bushing to form a tight joint, an inwardly projecting sleeve with exterior lugs, spiral ledges within the bushing upon which said lugs travel to open or close the valve, openings through the side of the sleeve which are exposed to allow the contents of the cask to enter the interior of the sleeve when the valve is opened, a frustum of a cone formed upon the inner end of the sleeve having slots made in the end, a faucet barrel having the interior made conical to fit the exterior of the frustum upon the sleeve, and interior lugs which engage the slots in the sleeve, flanges formed upon the faucet barrel with spirally inclined exterior faces, inwardly projecting lugs within the outer end of the bushing beneath which the spirally disposed flanges of the faucet barrel pass when the latter is turned to open the valve, whereby a corresponding and simultaneous movement of the valve and the faucet takes place when the faucet is turned in either direction, substantially as herein described.

7. The bushing removably fixed within the barrel opening, and having spirally disposed ledges upon the interior a valve adapted to close against the inner end of the bushing having a sleeve extending into the interior of the bushing with exterior lugs which travel upon the spiral ledges to open or close the valve, a faucet having lugs upon the inner end of its barrel, a coned inner end to the sleeve with slots made at the end to receive the said lugs on the correspondingly coned inner end of the faucet barrel which fits over the inner end of the sleeve, spiral flanges surrounding the faucet barrel, inwardly projecting lugs in the outer end of the bushing beneath which the spiral flanges of the faucet barrel pass when the latter is rotated, flattened portions T' of said flanges which pass beneath the lugs when the valve is fully opened and lock the faucet in position, substantially as herein described.

8. The bushing removably fixed in the barrel opening, the valve adapted to seat against the inner end of the bushing a sleeve extending from the valve into the interior of the bushing having lugs upon its outer surface, spiral ledges upon the interior surface of the bushing upon which said lugs travel to open or close the valve, a conical inner end to the sleeve having slots a faucet having a barrel correspondingly cone-shaped to fit over the end of the sleeve, and having lugs adapted to engage said slots spirally disposed flanges around the faucet barrel adapted to engage inwardly projecting lugs upon the outer end of the bushing whereby the valve is opened and the faucet locked in position, and a flexible annular washer E secured within the bushing adapted to fit and form a joint around the exterior conical surface of the faucet, substantially as herein described.

520,240. BUSHING FOR BARRELS. GEORGE H. MERRICK, San Francisco, assignor to W. Frank Pierce, Oakland, Cal. Filed Dec. 1, 1893. Serial No. 492,523. (No model.)



Claim.—1. In a tap and faucet, a bushing fixed in the cask having an annular inwardly projecting interior ring or flange, a valve movable through this ring, with a stem having lugs engaging spirals in the interior of the bushing, and an extension from the valve face adapted to be engaged by and turned with the faucet to advance or retract the valve, and an elastic ring seated upon the interior flange or ring of the bushing and having a smaller interior diameter, whereby its projecting side forms the single seat for the valve when closed, and the interior periphery clasps and forms a joint with the faucet barrel.

2. A bushing formed of a single piece and comprising an externally threaded portion by which it is secured to the barrel opening, a rounded or bevel faced inner end provided with interior oppositely disposed spiral lugs, and opposite disposed lugs at the outer end of the bushing, in combination with a cap having a face tapered or beveled to fit the corresponding seat on the inner end of the bushing, a valve stem by which the cap is carried, having lugs engaging the spiral grooves on the interior of the inner end of the bushing, and a valve on the stem adapted to close against a seat in the bushing.

3. The bushing adapted to be secured within the barrel opening having oppositely disposed inclined lugs on the interior of its inner end, and having the exterior of said inner end rounded or beveled, said bushing being internally threaded at a point intermediate of its inner and outer ends with a shoulder at the base of this threaded portion, a screw ring engaging said threads, and an elastic annular seat confined between said ring and shoulder, in combination with a cap having an inner face tapered or beveled to fit the inner end of the bushing, a stem extending into said bushing from the cap and having ways or channels in its exterior, and lugs on said exterior adapted to engage the spiral grooves in the inner end of the bushing, said stem having a valve at its inner end adapted to be seated against the confined elastic valve seat, and said bushing having lugs at its entrance end; and a faucet barrel having oppositely inclined lugs adapted to engage the lugs at the entrance of the bushing, and having its inner end adapted to engage the valve stem to rotate the same, and the exterior of the barrel forming a joint with the inner periphery of the elastic valve seat, substantially as herein described.

4. The bushing adapted to be fitted within the barrel opening and provided with an internal screw-threaded portion with a shoulder at the base of the same, a washer adapted to be seated against said shoulder, a ring to secure the washer in place, a cap having its face beveled and adapted to close against a similar face on the bushing, a stem extending into the bushing from the cap having ways or channels in its exterior and a valve fixed to its inner end opposite to the cap adapted to engage the side face and form a tight joint with the washer of the bushing when the valve is closed, said stem having lugs engaging spiral lugs on the bushing and having a projecting portion from the valve face, a faucet having a barrel whose inner end is conical or tapered and adapted to engage and compress the washer edgewise, and to engage the valve stem, and having spirally disposed lugs to engage lugs at the entrance of the bushing whereby the faucet is locked and operates the valves, substantially as herein described.

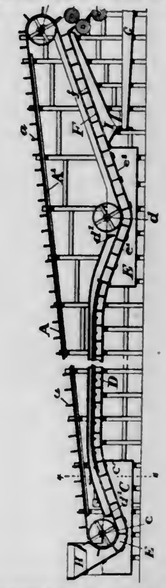
520,241. FOUNTAIN-BRUSH. HENRY OTT, Ottawa, Kans. Filed Dec. 21, 1893. Serial No. 494,297. (No model.)



Claim.—1. A fountain brush, consisting of a stem or channel-piece, a hollow and compressible bulb, communicating with one end of said stem, and an ink-receiving and brush-carrying chamber communicating with the opposite end of the stem or channel piece, and provided with ink-passages leading from the interior of said chamber to said brush, and a wire distributer extending from the ink-receiving chamber through said passages, and into the body of the brush, substantially as set forth.

2. A fountain brush, consisting of a stem or channel-piece, a hollow and compressible bulb, communicating with one end of said stem, and an ink-receiving and brush-carrying chamber communicating with the opposite end of the stem or channel piece, and provided with ink-passages leading from the interior of said chamber to said brush, and a wire distributer of U-shape, having its bent or bridge-portion depending into the body of the brush, and having its legs passing up through the bottom of and into the ink-receiving chamber, substantially as set forth.

520,242. APPARATUS FOR EXTRACTING OIL FROM FISH. DANIEL F. OVERTON and WILLIS E. OVERTON, Solomon's, Md. Filed Mar. 24, 1893. Serial No. 467,417. (No model.)



Claim.—1. In an apparatus for treating fish, the combination of a straight cooking-tunnel having down-turned ends; means for supplying heat to the cooking-tunnel; an endless carrier mounted on suitable drums and having its upper stretch outside said cooking-tunnel and its lower stretch passing through the tunnel and provided with tines or fingers which depend below and rake along the bottom of the tunnel; and a water-tank at each end of the cooking-tunnel and in which the said down-turned ends are submerged.

2. In an apparatus for treating fish, the combination of the straight cooking-tunnel having two down-turned ends each provided with perforations, *e*; means for supplying heat to the cooking-tunnel; a hopper at one end of the tunnel through which the fish are fed to said cooking-tunnel; compression rollers adjacent the exit-end of the tunnel; a water tank in which each down-turned end of the cooking-tunnel is submerged—the water in the tanks being admitted to the tunnel through the said perforations, *e*; and an endless carrier mounted on suitable drums and having its upper stretch outside the tunnel and its lower stretch passing through the tunnel, and provided with depending fingers which rake along the bottom of the tunnel.

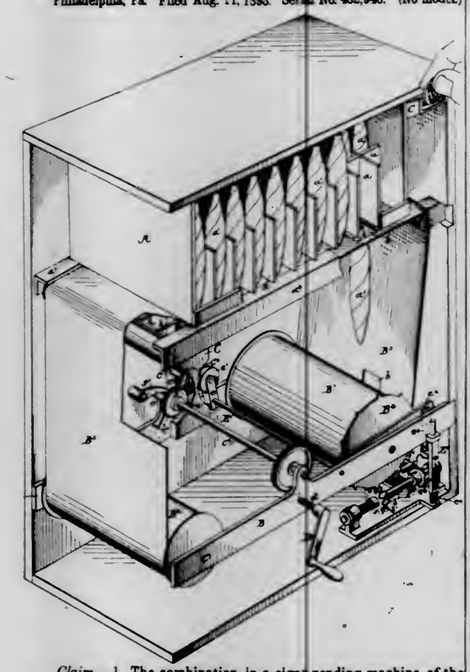
3. In a device of the class described, the combination of the cooking-tunnel having down-turned ends; means for supplying heat to the cooking-tunnel; two water-tanks in which the down-turned ends of the cooking-tunnel are submerged; an endless carrier passing through the cooking-tunnel and water-tanks; a drip incline at the exit end of the cooking-tunnel; and compression rollers at the end of the drip incline and adapted to receive the fish as they pass from said drip-incline.

4. In an apparatus for treating fish, the combination of a tubular cooking-tunnel; a supply hopper connected with one end of the said tunnel; a drip-incline adjacent the other end of the tunnel and having perforations, *f*; an incline trough below the drip-incline; compression rollers at the upper end of the drip-incline; and an endless carrier passing through the tubular tunnel from the hopper and up the drip-incline to the compression rollers, as set forth.

5. In a device of the class described the combination of the steam-cooking-tunnel having down-turned ends; an endless carrier passing therethrough; a water-tank sealing each end of the cooking

tunnel; a drip-incline adjacent to one end of the cooking-tunnel; compression rollers adjacent to one end of the drip incline; a drip-trough below the drip-incline and an oil-collecting pan below the compression-rollers and drip-trough, as described.

520,243. CIGAR-VENDING MACHINE. ALFRED H. RANDALL, Jr., Philadelphia, Pa. Filed Aug. 11, 1893. Serial No. 482,940. (No model.)



Claim.—1. The combination, in a cigar vending machine, of the coin chute having a curved path cut in the lower end of the same, a cut out portion in said chute opposite said path, a lever projecting within the cut out portion, a detent mechanism operated solely by the movements of said lever, a series of arms adapted to move on said path and force the coins forward against said lever, with mechanism for moving said arms, substantially as described.

2. The combination, in a cigar vending machine, of the coin chute having a curved path in the lower end of the same, said coin chute having also a cut out portion opposite said path, a rock shaft, a lever on the end of said rock shaft, a roller carried thereby and projecting into the cut out portion of the coin chute, detent mechanism controlled solely by the movements of the lever and rock shaft, and a series of arms moving in said curved path to force the coins through the chute against the roller, thereby forcing said roller out of the way and operating the detent mechanism, substantially as and for the purposes described.

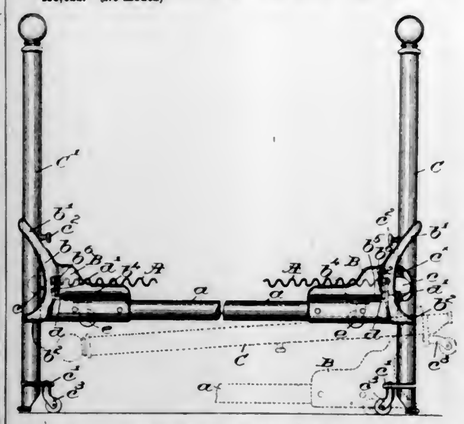
3. The combination in a cigar vending machine, of the coin chute, bearing bars extending across the lower part of the machine, a rock shaft supported in said bearing bars, a lever on one end of said rock shaft connected to a sliding bolt, a detent shaft secured in bearings on the bottom of the machine, a ratchet wheel mounted on the same, with which said sliding bolt engages, and a pawl to prevent back movement of the ratchet wheel, substantially as described.

4. The combination in a cigar vending machine, of the belt, rollers on which said belt is wound, a detent shaft at the bottom of the machine, notched wheels mounted thereon, one of said rollers being provided with a toothed disk with which the notched wheels alternately engage, and mechanism for moving said notched wheels whereby the rolls can be moved a certain distance, substantially as described.

5. The combination in a cigar vending machine, of the belt, rollers on which said belt is wound, one of said rollers being provided with a spring, and the other roller having a toothed disk, a detent shaft, a ratchet wheel and a pair of notched wheels on said shaft, a ratchet wheel and a pair of notched wheels on said shaft, a slide, a pawl thereon adapted to engage with said ratchet wheel, and mechanism, for operating the slide, substantially as described.

6. The combination in a cigar vending machine, of the coin chute having a cut out portion at its base, a rock shaft, bearing therefor, levers secured to the ends of said rock shaft one lever extending into the cut out portion of the chute, a slide connected to the other lever, a detent shaft, a ratchet wheel mounted on said detent shaft, a pawl on the slide engaging with the ratchet wheel, substantially as specified.

520,244. FOLDING BED. ANDREW F. ROBINSON, Cambridge, and ARTHUR B. DODGE, Allston, Mass. Filed Aug. 21, 1893. Serial No. 483,622. (No model.)



Claim.—1. In a folding bed, a rigid bed frame, concaved bearings thereon to receive the corners of and to normally retain the head and foot boards upright, and locking devices for and between said bearings and the corners of said boards, combined with detachable head and foot boards adapted when unlocked to be folded over upon the upper side of the frame, the bearings and boards being relatively movable at such time, substantially as described.

2. In a folding bed, a rigid bed frame, and concaved corner bearings thereon for the head and foot boards, and ears at the top and bottom of said bearings to partially embrace the corners of said boards combined with detachable head and foot boards longitudinally movable in said bearings, and locking devices intermediate said bearings and the boards to normally maintain said boards upright in the bearings, substantially as described.

3. In a folding bed, a rigid bed frame, bearings located at the corners thereof, and having yoke like tops to receive and support the head and foot boards when folded, and ears at the tops of said bearings to partially embrace the corners combined with head and foot boards, and locking devices to connect them when upright with the bearings, substantially as described.

4. A bed frame, corner bearings secured thereto having concave faces, and ears at top and bottom thereof to embrace the corner posts, and a latch for each bearing, combined with corner posts adapted to rest in said ears and concave face when in upright position, an engaging device carried by each post to co-operate with the adjacent latch, and a limiting stop, substantially as described.

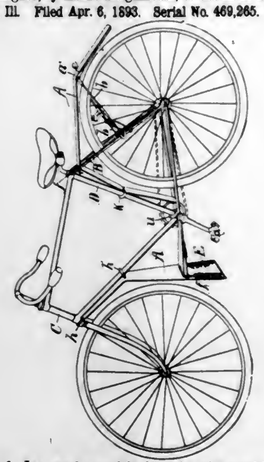
5. A bed frame having tubular side rails, corner bearings secured to the ends thereof and provided with horizontal interior webs having each an upturned laterally extended portion, combined with L-shaped connections between the side rails, the horizontal side of said connections extending between said webs and side rails, and the vertical side of said connections being secured to the upturned laterally extended portion of the web, substantially as described.

6. A bed frame having head and foot boards adapted to be folded inward thereupon, combined with a stand, links pivotally connecting said frame thereto, and means carried by the bed frame to turn said links into vertical position, whereby the bed frame may be turned up to form a mantel bed, substantially as described.

7. A bed frame having folding head and foot boards, combined with a stand having fixed and swinging feet, and links connecting said frame and stand pivotally, legs pivoted to the frame and adapted when extended to bear on the swinging feet and sustain one end of the frame, and connecting rods between the legs and stand to lower them when the links are turned upward to raise the bed, substantially as described.

8. In a folding bed, a bed frame, bearings having concave faces and yoke-like tops, to receive and support the head and foot boards when folded, combined with head and foot boards provided with corner posts, and casters at their lower ends secured to inturned supports, the casters being protected by the concave faces of the bearings and the ends of the corner posts when folded, substantially as described

520,245. BICYCLE MUD-GUARD. ROBERT C. RUDY, Detroit, Mich., assignor, by mesne assignments, to the M. E. Griswold Company, Chicago, Ill. Filed Apr. 6, 1893. Serial No. 469,265. (No model.)



Claim.—1. In a mud-guard for bicycles, the combination with the frame of a bicycle, of a continuous strip of flexible material attached to said frame and adapted to extend over the rear wheel, and in the rear of the front wheel, so as to form a mud-guard for said wheels and the spring arms mounted on the frame and supporting the rear end of said guards.

2. In a mud-guard for bicycles, the combination with the frame of the machine, of a flexible guard attached at one end to said frame, and extending over the rear wheel the sectional spring arms mounted on the frame and supporting the rear end of said guard, said arms being bent at an abrupt angle near their longitudinal center so as to cause said guard to conform to the shape of the wheel, and, being adapted to apply tension to said guard to keep it taut.

3. In a mud-guard for bicycles, the combination with the frame, of the continuous flexible strip attached to said frame and passing therethrough in such manner as to form a guard for both wheels, the spring arms attached to the center of the frame and adapted to extend horizontally onto that portion of said strip between the wheels and place sufficient tension thereon to keep it taut.

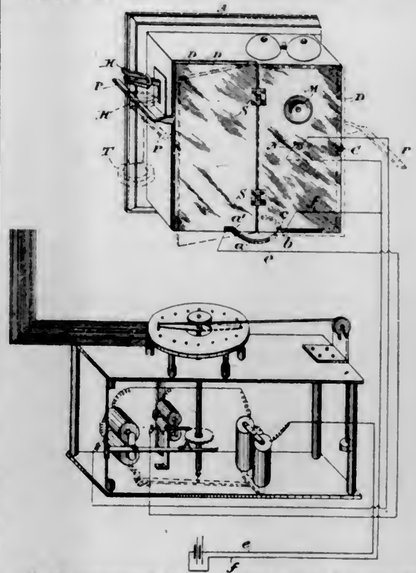
4. In a mud-guard for bicycles, the combination with the frame of the machine, of the continuous flexible strip attached to said frame so as to guard both wheels, the curved spring arms attached to the frame and supporting the rear end of said strip over the rear wheel, the horizontal arms attached to the frame and extending onto a portion of said strip in the rear of the front wheel so as to apply sufficient tension to said strip to keep it taut.

5. In a bicycle mud-guard, the combination with the frame of the machine, of the continuous flexible guard attached thereto and extending through said frame so as to guard both wheels thereof, the arms supporting said guard over the rear wheel the integral wing depending from said guard in the rear of the front wheel, the spring arms attached to the frame and adapted to place tension on said guard.

520,246. AUTOMATIC TELEPHONE SYSTEM. LOUIS E. SIMONEAU, Montreal, Canada, assignor to the Automatic Telephone and Electric Company of Canada, same place. Filed July 11, 1893. Serial No. 480,195. (No model.)

Claim.—1. As a part of a sub-station telephone circuit, or set; a single box or casing, adapted to contain the several instrumentalities thereof, excepting the telephone and a portion of the telephone hook; a door, hinged to such box, normally closed to prevent the use of the instruments, and, when opened, allowing of their use, and a pair of electrical contact parts, one part being carried by said box and the other part carried by said door so as to be movable therewith and the part carried by the door being adapted upon a continuous movement of said door in one direction to have a sliding connection with the stationary part and so effect a prolonged electrical connection between the two and subsequently in the same movement effect the breaking of such connection, the whole operating in connection with and controlling an electrical circuit with terminals at said contact parts.

2. The combination of box A with the several instrumentalities of a telephone set arranged therein, door D and spring actuating parts for automatically throwing same open, a locking device for holding same closed, contact *a* bearing insulation *a'*, spring contact *b*, and a battery circuit, for the purpose specified, with terminals at said contacts as set forth.

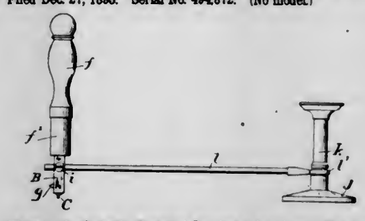


3. The combination of a box or casing A with the several instrumentalities of a telephone set arranged therein and the end of the telephone hook projecting therethrough, door D carrying an arm or projection adapted, when the telephone is removed from its hook and the door fully opened, to become located across said hook for the purpose specified, a make-and-break electrical connection parts of which are carried respectively by said box and door, and the whole adapted to control an electrical circuit with terminals at said make and break connection.

4. The combination of box A, with the several instrumentalities of a telephone set arranged therein and the end of the telephone hook projecting therethrough, door D and spring actuating parts for automatically throwing same open, and a locking device for holding same closed, a projecting arm P carried by said door, for the purpose specified, the contact *a* bearing insulation *a'*, the spring contact *b* and a battery circuit with terminals at said contact as set forth.

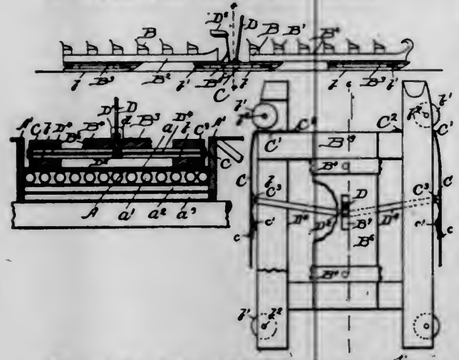
5. In an automatic telephone system, the combination with an automatically movable part of the sub-station outfit and the "release" circuit acting when closed to return the operating parts of the "central" to their normal position after establishing a connection,—of a make-and-break connection for closing said release circuit, the same consisting of a pair of electrical contacts one of which traverses the other for a protracted period to secure a prolonged electrical connection or closing of the circuit and finally breaks or opens said circuit by disconnection the one from the other.

520,247. GLAZIER'S DIAMOND. PHILIP SIDEL, Baltimore, Md. Filed Dec. 27, 1893. Serial No. 494,872. (No model.)



Claim.—A glazier's diamond having a head provided with flat sides; a diamond in its face at one end; a roller in its face at the other end; and a pin or lug, *g*, projecting laterally only from one of said flat sides of the head.

520,248. TOBOGGAN-SLIDE. LA MARCUS A. THOMPSON, Chicago, Ill. Filed Sept. 1, 1893. Serial No. 484,543. (No model.)



Claim.—1. In a toboggan slide, the combination of a chute or way having side walls or guides, with a car furnished with a lateral brake adapted to bear against the side wall or guide of said chute or way, substantially as specified.

2. In a toboggan slide, the combination with a chute or way having side walls or guides, of a car furnished with a pair of lateral brakes adapted to press horizontally outward against said side walls of the chute or way, substantially as specified.

3. In a toboggan slide, the combination with a chute or way having side walls or guides, of a compound car comprising three trucks or bobs and two car bodies pivotally connected at their ends to said trucks or bobs, and a lateral brake adapted to press against said side wall or guide of said track, substantially as specified.

4. In a toboggan slide, the combination with a chute or way having side walls or guides, of a compound car comprising three trucks or bobs and two car bodies pivotally connected at their ends to said trucks or bobs, and a pair of lateral brakes adapted to bear against said side walls of said chute or way, substantially as specified.

5. In a toboggan slide, the combination with a chute or way having side walls or guides, of a car having a lateral brake, an operating lever for said brake and a toggle arm pivotally connected at one end to said brake and at the other end to the short arm of said lever, substantially as specified.

6. In a toboggan slide the combination with a chute or way having side walls or guides, of a car adapted to travel on said way between said guides and furnished with a pair of lateral brakes adapted to bear against said side walls or guides, an operating lever and a pair of toggle arms pivotally connected at their inner ends to the short arm of said lever and at their outer ends to said brakes, substantially as specified.

7. In a toboggan slide, the combination with a chute or way A, having side walls or guides A' A', of a car B, having a pair of hinged lateral brakes C C adapted to bear against said side walls or guides, an operating lever D, coupling D^3 and toggle arms D^4 D^4, substantially as specified.

8. In a toboggan slide, the combination with a chute or way A, having side walls or guides A' A', of a compound car B, comprising two car bodies B^3 B^3, and three trucks or bobs B^2 B^2 B^2 upon which said car bodies are pivoted, a pair of lateral brakes C C mounted upon the middle truck or bob B^2 and adapted to bear against said side walls or guides, substantially as specified.

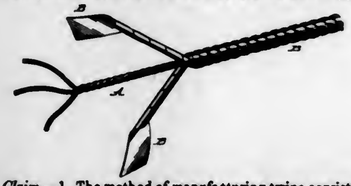
9. In a toboggan slide, the combination with a chute or way A, having side walls or guides A' A', of a compound car B, comprising two car bodies B^3 B^3, and three trucks or bobs B^2 B^2 B^2 upon which said car bodies are pivoted, a pair of lateral brakes C C mounted upon the middle truck or bob B^2 and adapted to bear against said side walls or guides, an operating lever E and toggle arms B^4 pivotally connecting said lever and brakes, substantially as specified.

10. In a toboggan slide, the combination with a chute or way having side walls or guides, of a compound toboggan B comprising three bobs B^2 furnished with runners and two bodies B^3 mounted upon and pivoted at their ends to said bobs, substantially as specified.

11. In a toboggan slide, the combination with a chute or way having side walls or guides, of a car furnished with a lateral brake adapted to bear against the side wall or guide, said brake being provided with a dog or device adapted to engage said side wall or guide and arrest backward motion of the car, substantially as specified.

12. In a toboggan slide, the combination with a chute or way having side walls, of a car adapted to travel upon said chute or way between said side walls, a pair of lateral brakes mounted upon said car and adapted to engage said side walls, each of said brakes being furnished with a dog or device adapted to engage said side walls and prevent backward movement of the car, substantially as specified.

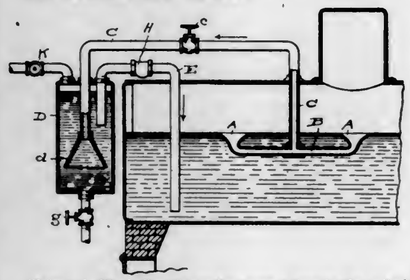
520,249. TWINE AND METHOD OF MAKING SAME. FARMER R. WILLIAMS, Beloit, Wis., assignor to the William Deering & Company, Chicago, Ill. Filed Sept. 14, 1889. Serial No. 323,915. (Specimens.)



Claim.—1. The method of manufacturing twine consisting in first folding or coiling a strip of paper on itself and thereafter winding such coiled or folded strip upon a core of fibrous material, whereby a pliable twine is produced in which longitudinal strains will be safely distributed throughout the paper.

2. The improved twine consisting of a fibrous core and a previously coiled or folded strand of paper wound thereon.

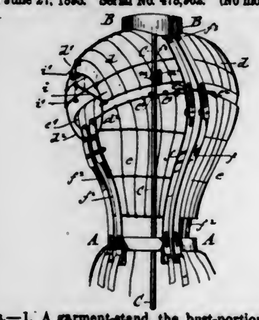
520,250. BOILER-CLEANER. JOHN N. BARNUM, Cleveland, Ohio, assignor of one-third to John H. Barnum, same place. Filed Oct. 7, 1893. Serial No. 487,408. (No model.)



Claim.—1. The boiler, the surface pans A therein, the cylindrical trap D at the end of the boiler, the elbow pipe C leading from the surface pans into the trap D and having the funnel shaped attachment —*d*— on its end, the elbow pipe E having one end extending part way into the said trap D and having a valve therein, and the discharge pipe in the top of cylinder D having a valve, whereby the lighter deposits may be discharged, substantially as set forth.

2. The combination described, consisting in the boiler, the surface pans —A— therein, the trap —D—, the pipe —C— extending from the surface pans into the said trap, the discharge pipe in the bottom of the trap having a valve, the return elbow pipe —E— dipping into the said trap and into the boiler, respectively, and provided with a joint having a swinging valve therein, whereby when the discharge pipe and valve leading from the trap are open the said pivoted valve will automatically close the passage through the pipe —E—, substantially as set forth.

520,251. GARMENT-STAND. OSCAR BORCHERT, Jersey City, N. J. Filed June 27, 1893. Serial No. 478,962. (No model.)



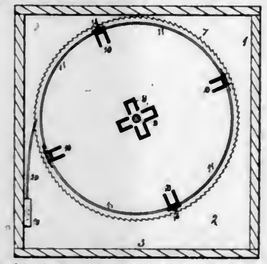
Claim.—1. A garment-stand, the bust-portion of which is composed of upper and lower front and back-sections, independently adjustable stays located at the contiguous edges of the sections, and means for connecting said sections, substantially as set forth.

2. A garment-stand, the bust portion of which is composed of neck and waist-sections, upper and lower bust-sections, adjustable front and back and side-stays for said bust-sections and a combined hinge and pivot connection between the neck sections and the upper ends of the front and back stays, substantially as set forth.

3. The combination, in a garment-stand, of neck and waist sections, upper and lower front and back bust sections, independently adjustable stays located at the contiguous edges of and for connecting the bust sections and means for connecting the lower front and back bust sections transversely across the stays, substantially as set forth.

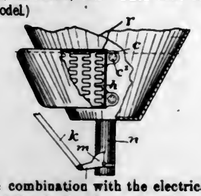
4. In a garment-stand, the combination, of the waist and neck-sections of the bust-portion with a central supporting rod or pillar provided with a pivoted upper section connected with the neck-sections and with means for clamping the same to the main-rod or pillar, substantially as set forth.

520,252. PRESERVING-CASE FOR EGGS. JOSEPH H. BOWLEY, Marengo, Ill., assignor of one-half to John W. Stockwell, same place. Filed Oct. 26, 1893. Serial No. 489,223. (No model.)



Claim.—A shipping case consisting of an outer casing and an inner receptacle supported upon yielding bearings having a shaft extending centrally beyond its ends and supported by the bearings, springs surrounding the shaft and located between the receptacle and bearings, a saw-toothed ring connected with the receptacle, dogs having a pivotal connection with the outer casing and an engagement with the saw teeth, and means for holding the dogs in engagement with the saw teeth during the endwise movement of the inner receptacle.

520,253. ELECTRIC HEATER FOR CAR SAND-BOXES. JOHN M. CHRISTOPHER, Baltimore, Md. Filed June 13, 1893. Serial No. 477,434. (No model.)



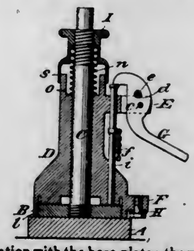
Claim.—1. The combination with the electrically-propelled car provided with a sand-distributing box, of an electric heater applied to the exterior of and inclosing or partly inclosing the sand-box; and wires connecting the heater with the motor-circuit of the car, as described.

2. The combination with the electrically-propelled car provided with a sand-distributing box, of an electric heater applied to the exterior of the said sand-box, and comprising a casing inclosing or partly inclosing the sand-box; resistance wires within the said casing; and conductor-wires connecting the resistance wires with the motor circuit of the car, as described.

3. The combination with the electrically-propelled car provided with a sand-distributing box, of a heater-casing which surrounds or partly surrounds the said sand-box; means for attaching said heater-casing to the sand-box and readily removing the same; resistance wires within the said heater-casing; and an electrical connection between the resistance wires and the car-motor circuit, as set forth.

520,254. RAILWAY-SWITCH. DWIGHT M. CHURCH, Willimantic, Conn., assignor of two-thirds to Edgar B. Foss, Bay City, Mich. Filed Feb. 21, 1894. Serial No. 500,961. (No model.)

Claim.—1. In a switch-stand, or mechanism, the combination with a circular base plate, adapted to be secured to the road-bed; and a shaft, or spindle, projecting upwardly therefrom and made fast thereto, of a revoluble device adapted to turn on said shaft, and having an enlarged portion encircling said base plate; and the male and female members of an impositive lock, arranged intermediate of said base plate, and said revoluble device and, respectively, fast to said base plate and said device; all substantially as and for the purposes set forth.



2. The combination with the base plate; the vertical spindle; the revoluble part; the spiral spring and means for retaining said spring in place against any lifting tendency of said revoluble part, of means for lifting and turning said revoluble part by hand; and male and female members of an impositive lock, against the turning of said revoluble part; all substantially as and for the purposes set forth.

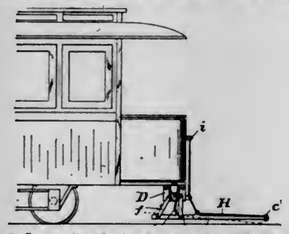
3. The combination with the base-plate; vertical spindle; the part D, adapted to rise and fall, and also to turn on said spindle; and a spring which exerts a constant depressing effect on the part D, of a hand lever pivoted in a lateral projection of the part D; and a push-bar i, the upper end of which serves as a fulcrum of said lever when the latter is used to lift the part D against the power of said spring; all substantially in the manner and for the purposes set forth.

4. In combination with the stationary and revoluble parts of the switch stand; an impositive lock arranged intermediately of said parts; and means for overcoming the lock and turning the revoluble parts by hand, of a lateral projection of said revoluble part; and a pitman, or link-bar, directly connecting said lug to the slide bar of the switch points of a rail-road; all in the manner and for the purposes set forth.

5. The combination, with the base plate; and its upwardly projecting spindle, of a sliding and revoluble part D, formed, or provided with a rim *l* that encircles the base plate; and an impositive locking mechanism, arranged within the part D; all in the manner and for the purpose set forth.

6. The combination with the tubular and movable part D; the base plate provided with a vertical spindle; a screw cap I; and a spiral spring inclosed within said parts D and I, of a rim *s* on the cap, encircling the upper end of D; the whole arranged and operating in the manner and for the purpose set forth.

520,255. SAFETY CAR-FENDER. FRANK I. CLARK, Baltimore, Md. Filed Jan. 29, 1894. Serial No. 498,300. (No model.)

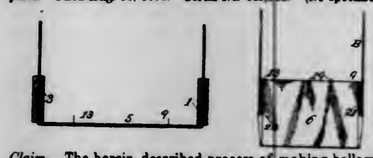


Claim.—1. In a safety fender for street cars, the combination of suitable hangers attached to the car; a fender frame or platform which is normally raised above the street surface; two links pivotally connected by one end to each hanger and by the other end to the fender frame or platform, the pivotal points of attachment to one of said parts being of a greater distance apart than the pivotal points of attachment to the other part,—the said links serving to swing the fender backward and incline the front edge thereof downward when an object is encountered; and a spring to automatically raise said fender from the lowered inclined position and maintain it so that its front edge will be elevated.

2. In a safety fender for street cars, the combination of suitable hangers, D, attached to the car; a fender frame or platform having the two side arms, A; and two links, *f*, *f'*, pivotally connected by one end to each hanger and by the other end to the fender frame or platform,—the pivotal points of attachment of said two links to one of

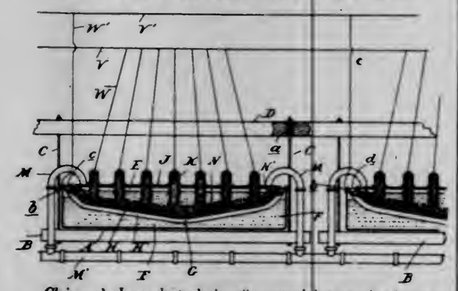
said parts being of a greater distance apart than the pivotal points of attachment to the other part, substantially as described.

520,256. PROCESS OF MAKING PAPER BAGS. EDWARD E. CLAUSEN, Hartford, Conn., assignor to Albert H. Walker, trustee, same place. Filed Aug. 18, 1892. Serial No. 443,383. (No specimens.)



Claim.—The herein described process of making bellows sided square paper bags from tucked tubing, which consists in gripping that tubing at or near the lines 17 and 18, leaving between them a reach sufficient to form two bag bottoms, then moving the gripped portions toward each other and expanding the intervening reach of tubing into a box like form, then pushing inwardly the side walls and forcing outwardly the upper and lower walls of the box like portion at the centers thereof, until the blank is collapsed into the form of two connected similar diamond folded bag blanks, then cutting those blanks apart and completing their rectangular bottoms by cross folding and pasting the flaps formed by the ends of the diamonds, all substantially as described.

520,257. ELECTROLYTIC CELL. THOMAS CRANEY, Bay City, Mich. Filed Sept. 2, 1893. Serial No. 484,613. (No model.)



Claim.—1. In an electrolytic cell, a containing vessel and a porous vessel therein consisting of an outer supporting frame or screen, the walls of which are inclined and of a lining of incompact material forming the inner walls of the vessel and constituting a diaphragm, and the electrodes substantially as described.

2. In an electrolytic cell, a containing vessel and a porous vessel therein consisting of a vessel shaped supporting frame or screen provided with outwardly inclined sides, and of an inner lining of incompact material co-extensive with the supporting frame and constituting a diaphragm, and the electrodes substantially as described.

3. In an electrolytic cell, a containing vessel and a porous vessel therein consisting of the wire screen G having the form of a vessel with outwardly inclined sides and a bottom sloping toward the center, an asbestus sheet applied as an inner lining to the screen, and the electrodes substantially as described.

4. In an electrolytic cell, the combination with an outer containing vessel forming the cathode compartment of an inner porous vessel forming the anode compartment and consisting of a vessel-shaped frame or screen secured in the outer vessel and having inclined walls, and a lining of incompact material co-extensive with the frame, and the electrodes substantially as described.

5. In an electrolytic cell, the combination with an outer vessel forming the cathode compartment of a porous inner vessel forming the anode compartment and consisting of a vessel-shaped screen, cross bars upon which said screen is suspended in the outer vessel and forming a marginal opening between the walls of the outer vessel and the screen, and an inner lining of incompact material, substantially as and for the purpose described.

6. In an electrolytic cell, the combination with an outer vessel or cathode compartment, of a vessel-shaped metallic screen supported in the outer vessel above the base thereof, a diaphragm of incompact material supported by said screen and forming an inner porous vessel, a layer of broken carbon supported upon said diaphragm and constituting the anode, and electrodes projecting into the anode compartment substantially as described.

7. In an electrolytic cell, the combination with an outer vessel, of a vessel shaped metallic screen cross bars supporting the same in the outer vessel and provided with flattened ends, bolts securing the edges of the screen and the ends of the cross bars to the edges of the outer vessel, washers interposed between the cross bars and screen and through which said bolts pass, and an inner lining of incompact material supported by the screen and dividing the outer vessel into anode and cathode compartments, substantially as described.

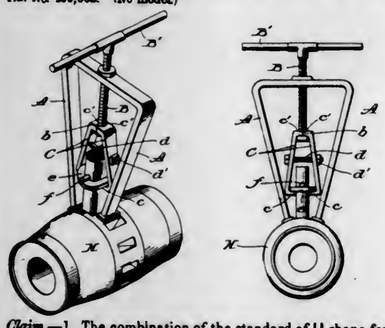
8. In an electrolytic cell, the combination with a containing vessel forming a cathode compartment, of a suspended diaphragm in the vessel having a lining of disintegrated material, a coating of carbon on the lining, and electrodes entering the vessel above the diaphragm, substantially as described.

9. In an electrolytic cell, the combination of an outer vessel forming the cathode compartment, a vessel shaped metallic screen supported in said vessel, a lining of incompact material supported by the screen and forming a porous inner vessel, a layer of broken carbon upon the incompact material forming a vessel shaped compartment for the liquid to be electrolyzed and constituting the anode and carbon contained in tubular supports electrically connecting said anode with the source of electricity, substantially as described.

10. In an electrolytic cell, the combination of the outer vessel A, the cross-bars H' secured in said vessel and forming a vessel shaped support with inclined curved sides and a bottom sloping toward the longitudinal center of the tank, the metallic screen H supported upon said cross bars, and the diaphragm G supported by the screen and dividing the outer vessel into an anode and cathode compartment, substantially as described.

11. In an electrolytic apparatus, the combination with a plurality of cells divided into anode and cathode compartments by an electrolytic diaphragm, of the communicating pipes R R', having valve controlled connections with the opposite ends of the cathode compartments respectively, the valves T in said communicating pipes between the connections and valve controlled feed and overflow connecting into and from said cathode compartments, substantially as described.

520,258. MACHINE FOR EXTRACTING SPOKES FROM HUBS OF WHEELS. JAMES H. DAVIS, Secane, Pa. Filed Apr. 4, 1893. Serial No. 469,002. (No model.)



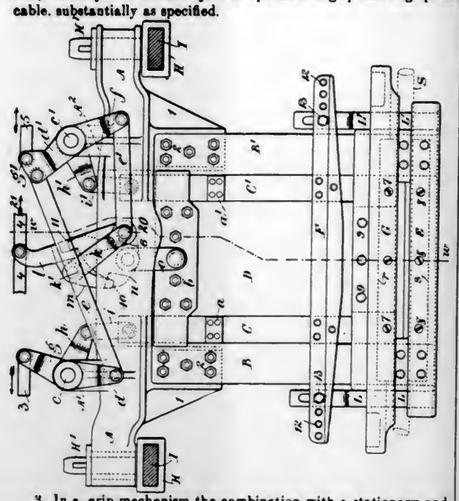
Claim.—1. The combination of the standard of U shape form, a threaded rod adapted to an opening in said standard, opposite detachable clutching jaws having their upper ends recessed and adapted to said rod and their lower ends being adapted to engage the spoke to be extracted, and means for forcing said jaws toward each other to effect their engagement with the rod and with the spoke to be extracted, substantially as specified.

2. The combination of the standard, A, having a screw threaded orifice in its upper portion, a vertically disposed screw threaded rod, B, adapted to said screw threaded orifice, there being an annular groove, *b*, at or near the lower end of said rod, detachable clamping jaws, C, having at their upper ends inwardly projecting recessed lugs, *c'*, adapted to engage in the annular groove, *b*, inwardly projecting spurs or lugs, *c*, on the lower ends of said clamping jaws, a transverse screw threaded bolt, *d*, extending through openings formed in said clamping jaws and a nut, *d'*, provided upon said bolt, *d*, for positively securing the jaws in position, substantially as specified.

520,259. GRIP MECHANISM FOR CABLE RAILWAYS. CHARLES I. EARLL, New York, N. Y. Filed June 12, 1893. Serial No. 477,293. (No model.)

Claim.—1. In a grip mechanism the combination with a stationary and a movable jaw; of a tumbler and a pivot therefor and connections from said tumbler to said movable jaw and to the car for operating said tumbler, a pawl engaging the tumbler and devices for disengaging said pawl from said tumbler to permit the jaws to open and release the cable, substantially as set forth.

2. In a grip mechanism the combination with a stationary and movable jaw; of a shank carrying the movable jaw, a tumbler and links connecting the said tumbler with the shank a lever operated from the car and a pawl carried by said lever and engaging the said tumbler, whereby the movable jaw is operated to grip and ungrip the cable, substantially as specified.



3. In a grip mechanism the combination with a stationary and movable jaw; of a shank carrying the movable jaw, a tumbler and links connecting the said tumbler with the shank, a lever operated from the car and a pawl carried by said lever and engaging the said tumbler, and devices acting upon the said pawl for disengaging it from the tumbler, substantially as set forth.

4. In a grip mechanism the combination with a stationary and a movable jaw; of the central shank D connected to the movable jaw, the tumbler *n* and its connection to the shank D, the lever *l* and the rod 4 for moving said lever from the car, and a pawl *m* pivoted to the lever *l* and adapted to engage the tumbler for operating the movable jaw, substantially as set forth.

5. In a grip mechanism the combination with a stationary and a movable jaw; of the central shank D connected to the movable jaw, the tumbler *n* and its connection to the shank D, the lever *l*, the pivot pin 6 upon which both the tumbler *n* and lever *l* are mounted, and the rod 4 for moving said lever from the car, and a pawl *m* pivoted to the lever *l* and adapted to engage the tumbler for operating the movable jaw, substantially as set forth.

6. In a grip mechanism, the combination with a stationary and a movable jaw; of the central shank D connected to the movable jaw, the crosshead and guide plates *b b'* upon the upper end of said shank, the tumbler *n* having a notch 10 and projection 11, the links pivoted to and connecting the tumbler and shank D, the rocking lever *l* and a connection therefrom to the car, a pawl pivoted to said lever and engaging the tumbler in the notch 10, whereby the lever and pawl move the tumbler and parts operated thereby in one direction and the lever and projection 11 move the tumbler and parts in the other direction, substantially as set forth.

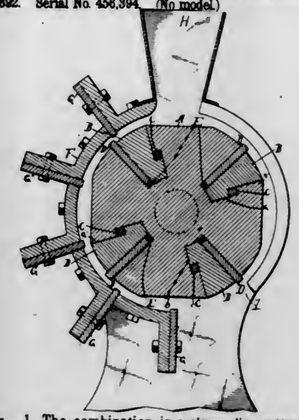
7. In a grip mechanism the combination with a stationary jaw, a movable jaw and their shanks and the mechanism for operating said jaw; of the intermediate shanks C C', the lifter bar F secured thereto, the ejector bars O O' in the cable trench for acting upon and automatically lifting the bar F and the ejectors L L' connected to and operated by the bar F whereby the movable jaw and cable are released or ungripped and the cable thrown out, substantially as set forth.

8. In a grip mechanism, the combination with the stationary and the movable jaws and their shanks; of the intermediate shanks Q Q', the lifter bar F and blocks *a a'* secured to said shanks C C', the ejectors L L' extending through the lifter bar and having slotted connections at their upper ends and inclines at their lower ends received in recesses in the lower jaw, and means for raising the lifter bar F to release or ungrip and throw out the cable, substantially as set forth.

9. In a grip mechanism, the combination with the movable jaw, its shank D, the pawl and mechanism engaged by said pawl and connected to the shank, and devices for operating the same in gripping the cable; of the rock shafts *c c'*, the rocker arms *d d' f* and *k*, the connecting links *e e'* and the rock shaft *k'* to which said pawl is pivoted, and mechanism substantially as specified for operating the aforesaid rock shafts, arms and links for moving the said pawl to release the movable jaw, substantially as set forth.

10. The combination with the gripping jaws, the means for actuating and holding the same, and a cable ejector; of a lifter bar movable independently of the gripping jaws and their shanks, stationary inclines within the cable trench and with which the lifter bar comes into contact and is raised, connections from the lifter bar by which the grip holding mechanism is first disconnected and then the gripping jaws are opened and the ejector raised for throwing out the cable, substantially as specified

520,260. CLAMP FOR CUTTER-BLADES. WILLIAM R. FEE, Cincinnati, Ohio, assignor to Andrew J. White, same place. Filed Dec. 27, 1892. Serial No. 456,394. (No model.)



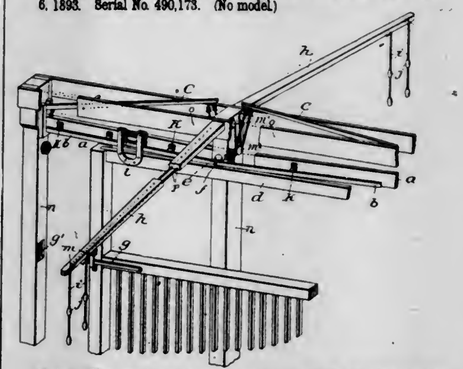
Claim.—1. The combination in a clamp for cutter-blades of a frame, a groove therein having a ledge on one wall thereof, a wedge-shaped clamping-block having a tenon adapted to take under the ledge, and a key taking between the ledge and the tenon, substantially as and for the purpose specified.

2. The combination of a frame, a groove therein provided with a ledge, a cutter-blade, a wedge-shaped clamping-block provided with a tapering tenon, and a key, substantially as and for the purpose specified.

3. The combination of a cylinder, a groove therein; a cutter blade taking against the wall of the groove; a clamping block taking into the groove and against the cutter blade, and a key taking against the wall of the groove adapted to force the clamping block against the cutter blade, substantially as and for the purpose set forth.

4. The combination of the frame A, the groove *a* having ledge *a'*, the clamping-block B provided with tenon *b*, the cutter-blade D, the supporting strips E, and the key C, substantially as and for the purpose specified.

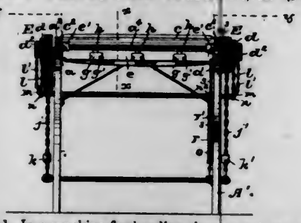
520,261. GATE OR DOOR. GEORGE L. FLORENCE, Poughkeepsie, N. Y., assignor of one-half to Arnout Cannon, same place. Filed Nov. 6, 1893. Serial No. 490,173. (No model.)



Claim.—The combination with posts *n*, *n*, *n*, cross beams *o*, *o*, and arms *k*, *k*, of the jointed beam *a*, pivoted by bolt *e* upon the center post; jointed track *b*, set off from beam *a*, levers *c*, *c*, pivoted between beams *o*, *o*, and linked at their outer ends to the ends of beam *a*, a gate suspended by suitable hangers from track *b*; and opening and

closing ropes, attached to the inner ends of levers *c*, carried around guide pulleys m' m^3 beneath arms A and over pulleys *m* at their extremities, substantially as shown and described.

520,262. METAL-BENDING MACHINE. EDWARD J. GEISINGER, Philadelphia, Pa., assignor of one-half to the George A. Ohl & Company, Newark, N. J. Filed July 7, 1893. Serial No. 479,785. (No model.)



Claim.—1. In a machine for bending sheet metal, the combination, of a clamping leaf or bar, pivotally arranged in the frame of the machine to clamp a piece of sheet metal, a turning leaf or bar provided with journal pins arranged in bearings on the frame of the machine, adapted to be turned against said piece of sheet metal, and means on said journal pins to work said clamping leaf or bar and also said turning leaf or bar, to cause said operations of the clamping leaf or bar and said turning leaf or bar, to follow consecutively without removing the metal sheet from the machine, for the purposes set forth.

2. In a machine for bending sheet metal, the combination, of a clamping leaf or bar, pivotally arranged in the frame of the machine to clamp a piece of sheet metal, a turning leaf or bar provided with journal pins arranged in bearings on the frame of the machine, adapted to be turned against said piece of sheet metal, and means, consisting essentially of a clutch wheel or wheels E arranged on the ends of said journal pins on the turning leaf or bar, and means operated by said clutch wheels E for causing the clamping action of said clamping leaf or bar and that of the turning leaf or bar, whereby the action of said clamping leaf or bar and that of the turning leaf or bar follow consecutively without removing the metal sheet from the machine, for the purposes set forth.

3. In a machine for bending sheet metal, the combination of a clamping leaf or bar pivotally arranged in the frame of the machine, to clamp a piece of sheet metal, a turning leaf or bar provided with journal pins arranged in bearings on the frame of the machine, adapted to be turned against said piece of sheet metal, and means, consisting essentially of a clutch-wheel or wheels E arranged on the ends of said journal pins on the turning leaf or bar, said clutch-wheel having an arc-shaped recess in its periphery, a wheel *i* in normal engagement with said recess, a lever i' pivotally arranged on the frame of the machine, and an upright or rod i^3 connecting said lever i' with the pivotally arranged clamping leaf or bar, whereby, the said operations of the clamping leaf or bar and of the turning leaf or bar follow consecutively without removing the metal sheet from the machine, for the purposes set forth.

4. In a sheet metal bending machine, the combination, with a pivoted clamping leaf or bar, and a turning leaf or bar provided with journal pins arranged in bearings in the machine, of a clutch-wheel E on one or both of said journal pins, consisting essentially, of half sections e^4 and e^5, forming, when secured together, a chamber e^6 having edges e^7 and e^8, and a clutch device *f* in said chamber firmly secured on the journal pin and having portions f'' and f^2 and edges f^3 adapted to engage with said edges e^7, means connecting said clutch wheel with said clamping leaf or bar, and mechanism for operating said clutch-wheel, whereby the operations of said clamping leaf or bar and that of the turning leaf or bar follow consecutively without removing the metal sheet from the machine, substantially as and for the purposes set forth.

5. In a sheet metal bending machine, the combination, with a pivoted clamping leaf or bar, and a turning leaf or bar provided with journal pins arranged in bearings in the machine, of a clutch-wheel E on one or both of said journal pins, consisting essentially of half-sections e^4 and e^5, forming, when secured together, a chamber e^6 having edges e^7 and e^8, and a clutch device *f* in said chamber firmly secured on the journal pin and having portions f'' and f^2 and edges f^3 adapted to engage with said edges e^7, an arc-shaped recess in the periphery of the wheel E, a wheel *i* in normal engagement with said recess, a lever i' pivotally arranged on the frame of the machine, and an upright or rod i^3 connecting said lever i' with the pivotally arranged clamping bar or leaf, and mechanism for operating said clutch-wheel, whereby, said operations of the clamping leaf or bar and that of the turning leaf or bar follow consecutively without removing the metal sheet from the machine, substantially as and for the purposes set forth.

6. In a machine for bending sheet metal, in combination, the herein described clutch-wheel E and the wheels *d* and d^3, of a treadle and a chain, connecting said treadle with the clutch-wheel to operate the same, a pivoted lever *n*, and chains, connecting said lever with said wheels *d* and d^3, an arm n^3 connected with said lever *n*, and a spring *o*, all arranged, substantially as and for the purposes set forth.

7. In a machine for bending sheet metal, in combination, the herein described clutch-wheel E and the wheels *d* and d^3, of a treadle and a chain, connecting said treadle with the clutch-wheel to operate the same, a pivoted lever *n*, a rocker bar *m* on said lever, and chains, connecting the ends of said rocker bar with said wheels *d* and d^3, an arm n^3 connected with said lever *n*, and a spring *o*, all arranged, substantially as and for the purposes set forth.

8. In a sheet metal bending machine, in combination, a clamping leaf or bar, and a turning leaf or bar, a clutch-wheel E connected with said turning leaf or bar, consisting of hollow sections secured together and forming a chamber e^6 having edges e^7 and e^8, and a clutch device *f* corresponding in outline to the outline of said chamber, but being smaller, and having edges f^3 adapted to be brought into engagement with said edges e^7, substantially as and for the purposes set forth.

9. In a sheet metal bending machine, in combination, with a clutch wheel E and means for operating the same, of a clamping leaf or bar *c* having arms c' and bearings in which said arms are pivoted, arms i' and rods i^3 connecting said arms i' with said arms c', whereby, when said arms i' are operated, said clamping leaf or bar is brought down upon the metal sheet, substantially as and for the purposes set forth.

10. In a sheet metal machine, the combination, of the bed a^4 of the machine, a clamping leaf or bar and a turning leaf or bar, both arranged to turn in bearings in said bed, a treadle, means connected with said treadle for operating said clamping leaf or bar and said turning leaf or bar, rods *b* secured on said bed a^4 and extending rearwardly therefrom, and gages arranged to slide on said rods *b*, substantially as and for the purposes set forth.

11. In a sheet metal bending machine, the turning leaf or bar *c*, sockets *g* arranged on said turning leaf or bar, and a spring beneath each socket, substantially as and for the purposes set forth.

12. In a sheet metal bending machine, in combination, a turning leaf or bar, and the frame of the machine, an adjustable plate *r*, and a rod *s* connected with said plate and said turning leaf or bar to limit the turning movement of said leaf or bar, substantially as and for the purposes set forth.

13. In a sheet metal bending machine, in combination, with the bed of the machine, and a clamping leaf or bar arranged on said bed, a locking device connected with said bed and clamping leaf or bar, to hold the latter in its clamping position, said locking device consisting essentially, of a notched arm on said clamping leaf or bar, and a lever pivoted to said bed of the machine and the latter provided with a dog or pawl adapted to engage with said notched arm, and mechanism for operating the same, substantially as and for the purposes set forth.

520,263. CARBON SWITCH. FRIEDRICH VON HEFNER-ALTENECK, Berlin, Germany, assignor to Siemens & Halske, same place. Filed Nov. 15, 1893. Serial No. 490,990. (No model.)

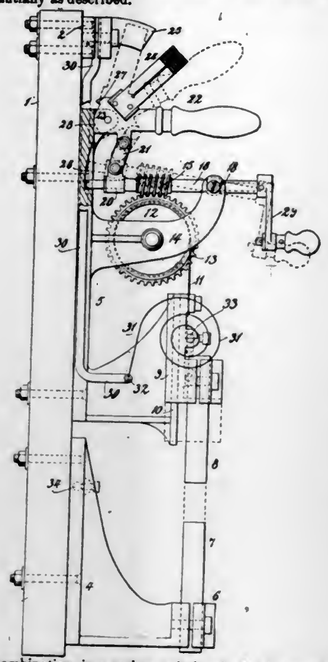
Claim.—1. A switch comprising metallic contacts for closing an electric circuit; fusible contacts also for closing said circuit, a controlling device for said metallic contacts; a controlling means for gradually forming and springing an arc between said fusible contacts; and means controlled by the metallic contact controlling device for disengaging the controlling means from the fusible contacts and bringing said contacts into apposition upon the making of the circuit through the metallic contacts.

2. A switch comprising metallic contacts for closing an electric circuit; fusible contacts also for closing said circuit, a controlling device for said metallic contacts; a controlling means for gradually forming and springing an arc between said fusible contacts; and means controlled by the metallic contact controlling device for disengaging the controlling means from the fusible contacts and bringing said contacts into apposition upon the making of the circuit through the metallic contacts, and for restoring the connection between the controlling means and the fusible contacts upon the breaking of the circuit at the metallic contacts.

3. A carbon switch, comprising opposing approachable carbons, a lever having contacts adapted to line wire contacts, one terminal of the line wire being in electric connection with each carbon, and worm wheel and drum and band gearing for relatively adjusting the carbons interposed between the movable carbon and the switch lever, substantially as described.

4. A carbon switch, comprising opposing carbons, one fixed and the other held to a traveler, a lever having contacts adapted to line wire contacts, one terminal of the line wire being connected to the fixed carbon and its other terminal being connected through the traveler with the movable carbon, and worm wheel and drum and hand gearing for relatively adjusting the carbons interposed between the traveler and the switch lever, substantially as described.

5. A carbon switch, comprising opposing carbons, one fixed and the other held to a traveler, a lever carrying contacts adapted to line wire contacts, one terminal of the line wire being connected to the fixed carbon, and its other terminal being connected to the movable carbon through the traveler and by an interposed conductive coil accommodating movement of the traveler; and gearing for relatively adjusting the carbons interposed between the traveler and switch lever, substantially as described.



6. The combination, in a carbon switch, of a fixed carbon 7, an adjustable carbon 8, in a traveler 9, a drum 12, having a worm wheel 13, bands 11, connecting the traveler and drum, a pivotally journaled worm shaft 15, 16, adapted to engage the wheel 13, and to be disengaged therefrom, a switch lever having contacts 24, and coupled to the worm shaft, stationary contacts 25, to which those 24, are adapted, and a line wire in electric connection with the contacts 25, and having terminals connected one with each carbon, substantially as described.

7. The combination, in a carbon switch, of a fixed carbon 7, an adjustable carbon 8, in a traveler 9, a drum 12, having a worm wheel 13; bands 11, connecting the traveler and drum, a pivotally journaled worm shaft 15, 16, adapted to engage the wheel 13, and to be disengaged therefrom, a switch lever having contacts 24, and coupled to the worm shaft, stationary contacts 25, to which those 24, are adapted, and a line wire in electric connection with the contacts 25, and having terminals one connected with the fixed carbon 7, and the other connected by a conductive coil 31, with the traveler 9, and carbon 8, substantially as described.

8. The combination, in a carbon switch and with the drum worm wheel 12, 13, and worm shaft 15, 16, pivotally journaled at 17, 18, of an inner journal bearing 20, for said shaft, a switch lever 22, carrying contacts adapted to contacts connected with the line wire, and a link 21, between the parts 20, 22, substantially as described.

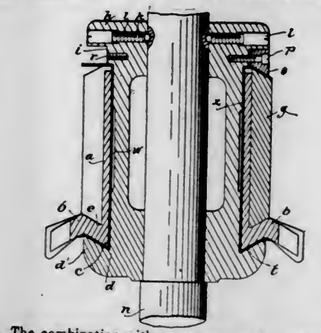
9. The combination, in a carbon switch and with the drum worm wheel 12, 13, and worm shaft 15, 16, pivotally journaled at 17, 18, of an inner journal bearing 20, and a lateral slot guide bearing 26, for said shaft, a switch lever 22, carrying contacts adapted to line wire contacts, and a link 21, between the parts 20, 22, substantially as described.

520,264. COMMUTATOR. CARL HOFFMANN, Berlin, Germany, assignor to Siemens & Halske, same place. Filed Sept. 28, 1893. Serial No. 486,667. (No model.)

Claim.—1. The combination with a commutator bar comprising separable elements, of an individual retaining key common to the bar and the separate elements thereof.

2. The combination with a commutator bar comprising a base bar and a contact bar, of a common retaining key therefor.

3. The combination with a commutator bar comprising a base bar and a removable contact bar, of a common retaining key therefor.



4. The combination with a commutator bar comprising a base bar having means for the attachment of its armature winding, and a contact bar; of a common retaining key therefor.

5. The combination with a commutator bar composed of separable elements, of an adjusting and retaining key therefor.

6. The combination with a compound commutator bar, of a device for retaining the elements in their respective positions, said device being insulated from the elements of the bar.

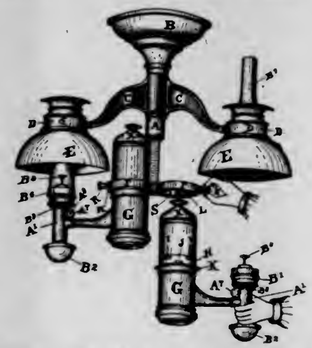
7. The combination with a commutator bar of a hub therefor, having a narrowed portion provided with an annular depression for the reception of means for the removal of said bar, as set forth.

8. A commutator, consisting of a shell; removable base bars secured thereto and insulated therefrom; removable contact bars; and an insulated retaining key for each pair of said bars, seated in said shell.

9. A commutator bar consisting of a metallic base bar and a contact bar of greater refractoriness.

10. A commutator bar consisting of a metallic base bar and a carbon contact bar.

520,265. LAMP. JOHN KIRBY, Jr., Dayton, Ohio, assignor to the Dayton Manufacturing Company, same place. Filed June 22, 1892. Renewed Apr. 4, 1894. Serial No. 506,354. (No model.)



Claim.—1. In a chandelier lamp, the combination, with a single central supporting-hanger having arms provided at their outer ends with shade-holders, and shades carried by said holders, of a plurality of coupling-rings each attached directly to the lower end of said hanger, and a plurality of reservoirs each provided with a branching arm and a burner attached to the outer end of said arm, the reservoirs being adapted to couple with said rings from below, whereby they are detachable downwardly, substantially as described.

2. In a lamp, the combination, with a single central supporting-hanger having arms provided at their outer ends with shade-holders, and shades carried by said holders, of a plurality of exterior coupling-rings each attached directly to the lower end of said hanger, each of said rings being provided at its upper edge with inward-projecting studs and at its lower edge with an inward-turned flange having two series of notches, a plurality of interior coupling-rings, each rotatable between the studs and flange on its respective exterior ring, means for rotating and locking the interior rings, and a plurality of reser-

voirs, each having two series of radial lugs and a circumferential flange below the lugs, the upper series of lugs being adapted to pass upward through one series of notches in the flange on the exterior ring and to be engaged by the inner projections on the interior ring, the lower series of lugs entering the other series of notches in the flange to prevent rotation of the reservoir, each of said reservoirs being also provided with a branching arm and a burner attached to the outer end of said arm, substantially as described.

520,266. PROCESS OF MANUFACTURING POROUS BRICKS.

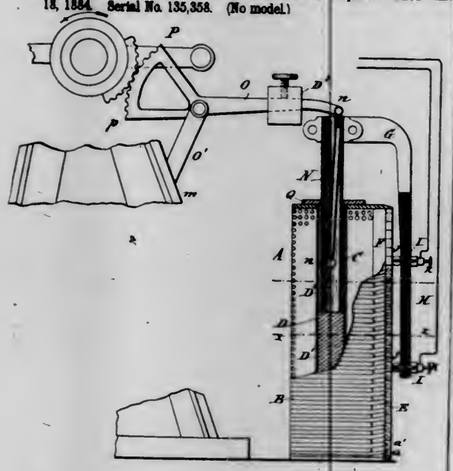
HENRY MAURER, New York, N. Y. Filed Aug. 23, 1890. Serial No. 362,892. (Specimens.)

Claim.—1. An improved process of manufacturing porous bricks, which consists in mixing clay with a substantial quantity of dung and then molding and burning the mixture, substantially as described.

2. An improved process of manufacturing porous bricks, which consists in mixing clay with a substantial quantity of the dung of animals that eat hay, straw, grain or similar vegetable fibrous substances, and then molding and burning the mixture, substantially as described.

520,267. ELECTRICAL GOVERNOR.

WILLIAM H. MILLER, New York, N. Y., assignor to George H. Benjamin, same place. Filed June 18, 1884. Serial No. 135,358. (No model.)



Claim.—1. In combination with a dynamo electric machine provided with brushes adjustable around the commutator of said machine, of a regulator therefor comprising a magnet, an armature, means for connecting said armature with said adjustable brushes, and mechanism for maintaining the pull of the armature constant, irrespective of its operative relation to said magnet, substantially as described.

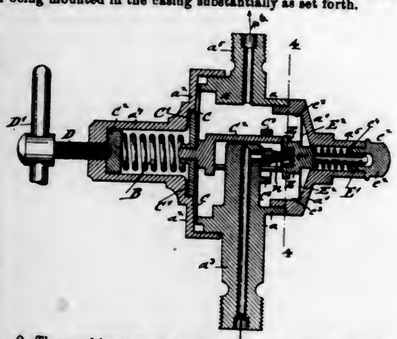
2. As an attachment for dynamo machines, a current regulator comprising an electro-responsive device, including an armature energized by changes in the main or generated current, mechanism actuated by and which controls the action of said responsive device, to shift the magnetic field of the same, correspondent with the movement of the armature, and mechanism controlled by said responsive device and adapted to operate upon the brush-holding mechanism of the dynamo-electric machine, to shift the brushes of said machine to those positions where the current taken up by said brushes shall be constant.

3. A current regulator for a dynamo electric machine, comprising a sectional solenoidal magnet, a commutator for said magnet, an armature supporting an arm which overlies the commutator, adjustable brushes located upon said arm and mechanism connected to said armature and interposed between it and the brush holding mechanism of a dynamo electric machine, substantially as and for the purpose set forth.

520,268. PRESSURE-REGULATING VALVE.

JOHN NAGELDINGER, New York, N. Y. Filed Oct. 16, 1893. Serial No. 488,312. (No model.)

Claim.—1. The combination of a valve-casing, provided with a supply-pipe having a discharge nozzle, a spring-actuated diaphragm in said casing, a spindle attached to said diaphragm and an independently operating spring-actuated valve adapted to open and close the nozzle said valve being detached from the spindle, and the spring thereof being mounted in the casing substantially as set forth.



2. The combination, of a valve-casing, provided with a supply-pipe having a discharge-nozzle, a spring-actuated diaphragm in said valve-casing, a tubular and side-recessed spindle, attached to said diaphragm, an independently operating spring-actuated valve located in line with the spindle and nozzle and adapted to open or close the nozzle in connection with the vibrations of the spindle, substantially as set forth.

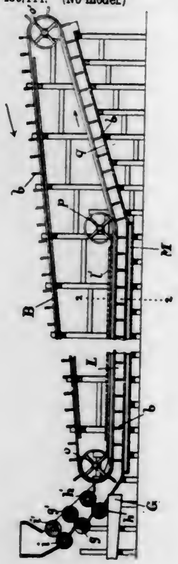
3. The combination, of a valve-casing, provided with a supply-pipe and a discharge-pipe, a discharge-nozzle arranged at right angles to the supply-pipe, a spring-actuated diaphragm in said casing, a tubular spindle attached to said diaphragm in line with said nozzle so as to inclose it and having a side-recess for the supply-pipe, and an independently operating spring-actuated valve located in line with the spindle and nozzle, substantially as set forth.

4. The combination of a valve-casing, provided with a supply-pipe, having a discharge-nozzle, a guide-ring on said supply-pipe, a spring-actuated diaphragm in said valve-casing, a tubular spindle attached to said diaphragm, and guided within said ring said spindle inclosing said nozzle and having a side-recess for the supply-pipe, and an independently operated spring-actuated valve and means for guiding said valve in the valve-casing, substantially as set forth.

5. The combination of a valve-casing provided with a supply-pipe having a discharge-nozzle, a spring-actuated diaphragm on said casing, a spindle attached to said diaphragm, a spring-actuated valve adapted to open or close the nozzle and a perforated diaphragm applied to the shouldered body of the valve, substantially as set forth.

520,269. APPARATUS FOR DRYING FISH-REFUSE.

DANIEL F. OVERTON and WILLIS E. OVERTON, Solomon's, Md. Filed Sept. 21, 1893. Serial No. 486,111. (No model.)

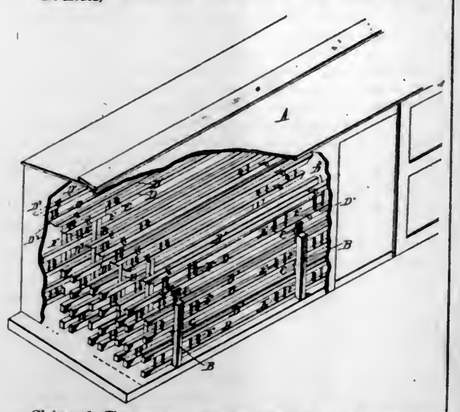


Claim.—1. In an apparatus for drying fish-refuse, the combination of the straight drying-tunnel having top, bottom and sides and open at each end; a steam jacket for heating said tunnel; and an endless carrier mounted on suitable drums and having its upper stretch outside said drying-tunnel and its lower stretch passing through the tunnel along the top thereof and provided with tines or fingers which depend below and rake along the bottom of the tunnel.

2. The combination of the straight drying tunnel having top, bottom and sides and open at each end and provided at its top with a longitudinal slot extending along its entire length and having a movable cover; a steam jacket exteriorly surrounding the bottom and two sides of the said drying-tunnel for heating the same; and an endless chain carrier passing through said tunnel.

520,270. SHIPPING RACK AND FRAME FOR CARS.

WILLIAM R. PHILLIPS, Milford, Del. Filed Oct. 20, 1893. Serial No. 488,731. (No model.)



Claim.—1. The combination with a railway car of the removable stanchions B having brackets C, removable stringers or bearing strips D, top rails D', vertical spring-supports E, and vertical tie-rods F, substantially as and for the purpose shown and set forth.

2. The combination with the stationary rack comprising the horizontal stringers D, parallel yielding rails D' and intermediate spring-supports E and tie-rods F, of the hinged track extensions D^3 D^3; substantially as and for the purpose shown and set forth.

3. The basket carriage consisting of the frame H having roller-bearings H' and rollers *h*, and provided with the circular basket holders I having diametrically opposite recesses or offsets *i i*; substantially as and for the purpose shown and set forth.

4. The combination of the rectangular frame H having roller bearings H' provided with rollers *h* and depending guards K, and basket-holders I united to each other and to the inner sides of the frame, and provided with diametrical offsets or recesses *i i*; substantially as and for the purpose shown and set forth.

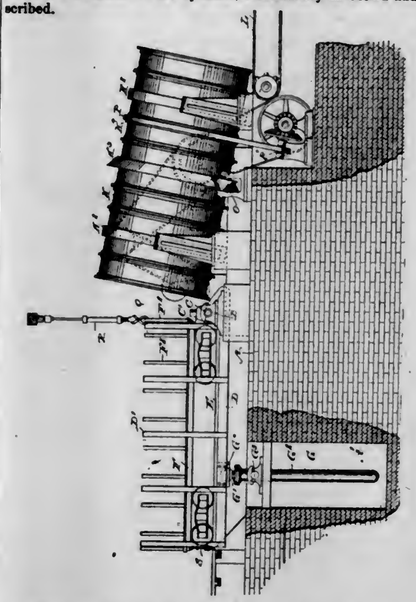
520,271. SUGAR-CANE-TRANSFERRING DEVICE.

ALBERTO SANCHEZ, Gibara, Cuba. Filed Dec. 19, 1893. Serial No. 494,073. (No model.)

Claim.—1. A sugar cane transferring device, comprising a pivoted platform on which the car to be unloaded is run, a lifting mechanism connected with the free end of the said platform, to swing the latter upward to dump the cane off the car held on the said platform, a revoluble cylinder arranged in an inclined position and having its upper open end in close proximity to the pivoted end of the said platform, so that the cane discharged from the said car passes into the said cylinder, and longitudinal ribs arranged within the said cylinder to straighten the cane discharged therein, substantially as shown and described.

2. A sugar cane transferring device, comprising a pivoted platform on which the car to be unloaded is run, a lifting mechanism connected with the free end of the said platform, to swing the latter upward to dump the cane off the car held on the said platform, a revoluble cylinder arranged in an inclined position and having its upper open end in close proximity to the pivoted end of the said platform, so that the cane discharged from the said car passes into the said cylinder, longitudinal ribs arranged within the said cylinder to straighten the cane discharged therein, and a carrier belt upon which discharges the lower end of the said cylinder to carry the cane in an assorted condition to the crushing mills, substantially as shown and described.

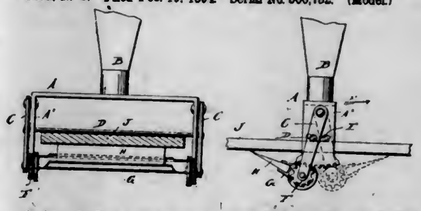
3. A sugar cane transferring device, provided with a revoluble cylinder arranged in an inclined position, and supported upon friction rollers, a conical band held externally on the said cylinder, and conical pulleys engaging the said conical band the bases of the pulleys being in opposite direction to the bases of the bands to prevent endwise movement of the cylinder, substantially as shown and described.



4. A sugar cane transferring device, provided with a revoluble cylinder arranged in an inclined position, friction rollers held in segmental arms and adapted to engage annular bands on the said cylinder, a conical band held externally on the said cylinder, conical pulleys engaging the said conical band the bases of the pulleys being in opposite direction to the bases of the bands to prevent endwise movement of the said cylinder, and means, substantially as described, for imparting a rotary motion to the cylinder, as set forth.

520,272. RAZOR-STROPPING DEVICE.

EGON L. SCHMITZ, New York, N. Y. Filed Feb. 19, 1894. Serial No. 500,732. (Model.)



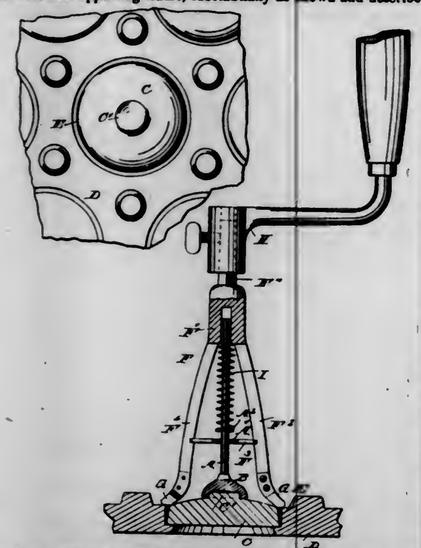
Claim.—1. In a razor stropping device, the combination with a frame having its ends bent at right-angles to the body of the frame, of rocking arms pivoted on said ends of the frame, a swinging blade-holder pivoted to the free ends of said arms, a rod connecting the swinging-arms at a point between the pivots of said arms and the free ends of the arms and means for swinging the blade-holder by the action of the ends of the frame on said blade-holder when said arms are rocked, substantially as set forth.

2. In a razor stropping device, the combination with a U-shaped frame having segmental slots in its end shanks and projections on the ends of the shanks, of a rocking-arm pivoted to each end shank and connecting said arms below the pivots of the arm and passing through the slots in the shanks of the frame, and a blade-holder pivoted on the free ends of the rocking-arms, and having end projections engaging the end projections of the shaft to swing the blade-holder, substantially as set forth.

520,273. TRIMMER FOR VAULT-LIGHTS.

PHILIP SCHWICKART, Brooklyn, N. Y. Filed Dec. 16, 1893. Serial No. 493,805. (No model.)

Claim.—1. A trimmer for vault lights, comprising a central post adapted to be supported on the bull's-eye, and a cutter frame mounted to turn on the said post and provided with cutters adapted to circularly trim the surplus material in the joint of the said bull's-eye and its metallic supporting frame, substantially as shown and described.

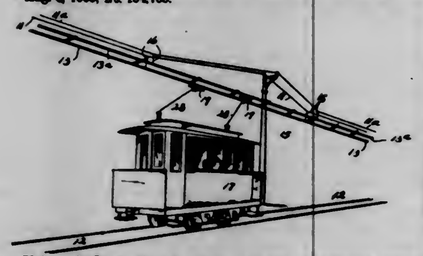


2. A trimmer for vault lights, comprising a central post provided with a foot adapted to engage the bull's-eye, a cutter frame mounted yieldingly on the said post and adapted to be turned thereon, and cutters held on the said frame and adapted to circularly trim the surplus material at the joint of the bull's-eye and its supporting frame, substantially as shown and described.

3. The combination with a bull's-eye having a central projection, of a post provided with a recessed foot adapted to engage the said projection, a frame fitted to slide and mounted to turn on the said post, and cutters secured on the said frame and adapted to trim the surplus material at the joint of the bull's-eye and its supporting frame, substantially as shown and described.

4. The combination with a bull's-eye having a central projection, of a post provided with a recessed foot adapted to engage the said projection, a frame fitted to slide and mounted to turn on the said post, cutters secured on the said frame and adapted to trim the surplus material at the joint of the bull's-eye and its supporting frame, and a spring coiled on the said post and pressing on the said frame, substantially as shown and described.

520,274. ELECTRIC RAILWAY. ERNST W. VON SIEMENS, Berlin, Germany, assignor to Siemens & Halske, same place. Filed Sept. 30, 1892. Serial No. 447,448. (No model.) Patented in Germany July 28, 1883, No. 25,766; in England Oct. 17, 1883, No. 4,945, and in France Aug. 4, 1885, No. 134,765.



Claim.—1. In an electric railway system, an overhead tubular conductor extending along the line of railway and having a longitudinal slot, a traveling contact within said tubular conductor, said contact having a yielding or flexible connection extending through the longitudinal slot to an electrically propelled car.

2. In an electric railway system, an overhead tubular conductor extending along a railway and having a longitudinal slot on its under side, a traveling spring pressed contact within said tubular conductor, and having a yielding or flexible connection extending through said slot to an electrically propelled car.

3. In an electric railway system, an overhead traveling contact consisting of spring contact cheeks connected by a flexible conductor, the end contact cheeks having stems attached to them, a frame connected to said stems, a sliding piece on said frame, and end springs on said frame to protect said sliding piece, and a yielding or flexible connection extending between said sliding contact and an electrically propelled car.

4. In an electric railway system, an insulated overhead slotted tubular conductor extending along a line of railway, and an electrically propelled car having a traveling contact within said tubular conductor.

5. In an electric railway system, a main overhead slotted tubular conductor extending along a line of railway, branch conductors extending from said main conductors, and crossing of insulating material between the branch and the main conductors.

6. In an electric railway system, a main overhead slotted tubular conductor extending along a line of railway, branch conductors extending from said main conductors and crossings of insulating material between the branch and the main conductors, the two parts of each conductor on each side of the crossing being electrically connected by a bridge piece of conducting material.

7. In an electric railway system, a main overhead slotted tubular conductor extending along a line of railway, branch conductors extending from said main conductors and crossing, insulating material between the branch and the main conductors, the two parts of each conductor on each side of the crossing being electrically connected by an insulated bridge piece of conducting material.

8. In an electric railway system, a main overhead slotted tubular conductor extending along a line of railway, branch conductors extending from said main conductors, and switches at the junction of said main and branch conductors.

9. In an electric railway system, a main overhead slotted tubular conductor extending along a line of railway, branch conductors extending from said main conductors, and automatically operating pivoted switches at the junction of said main and branch conductors.

10. In an electric railway system, a main overhead slotted tubular conductor extending along a line of railway, branch conductors extending from said main conductors, and automatically pivoted switches operating at the junction of said main and branch conductors, and a stop or stops limiting the movement of said switches

11. In an electric railway system, two overhead tubular conductors, each having a slot and a vehicle having traveling contacts extending from within the tubular conductors through the slots to the vehicle.

12. In an electric railway system, the combination with an overhead tubular conductor extending along the line of railway and having a longitudinal slot, of a movable spring pressed contact within said tubular conductor, said contact having an electrical connection extending through the slot to an electrically propelled car.

13. In an electric railway system, the combination with a supply conductor extending along the line of railway, of a contact in movable and electrical relation thereto, and an electrically propelled vehicle provided with an electrical connection with said contact, said connection having a limited cushioned movement relative to said contact at the point of attachment with the latter.

14. In an electric railway system, the combination with an overhead tubular conductor extending along the line of railway and having a longitudinal slot, of a movable contact within said conductor and comprising two longitudinally arranged parts flexibly connected, said contact having an electrical connection extending through the slot to an electrically propelled car.

15. In an electric railway system, the combination with an overhead slotted tubular conductor extending along the line of railway and having a branch, a laterally variable contact within said conductor and having an electrical connection extending through the slot to an electrically propelled car.

16. In an electric railway system, the combination with an overhead slotted tubular conductor extending along the line of railway and having a branch, a contact within said conductor comprising two flexibly connected and longitudinally arranged portions, said contact having an electrical connection extending through the slot to an electrically propelled car

17. In an electric railway system, the combination with an overhead slotted tubular conductor extending along the line of railway and having a branch, a laterally variable contact within said conductor, an electrically propelled car and connection therefor attached to the contact and admitting of a limited cushioned movement relative to the contact.

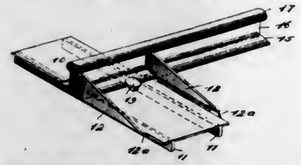
18. In an electric railway system, the combination with an overhead slotted tubular conductor and branches extending therefrom, of automatically operating pivoted switches at the junction of said main and branch conductors, a contact movable in said conductors, an electrically propelled car having a connection with the contact capable of a limited cushioned movement at its attachment therewith.

520,275. SIGMOID-IRRIGATOR. GEORGE R. SWEGER, Chicago, Ill. Filed Sept. 21, 1893. Serial No. 486,129. (No model.)



Claim.—In sigmoid medicators and irrigators the combination of a tube having the desired shape, same being made to conform to the natural position of the rectum and sigmoid flexure, a bulb at the forward end of such tube and provided with openings so arranged as to throw the fluid forward and to the sides, and a deflector cap detachably secured to such bulb to prevent the further forward flow of the liquid, and provided with longitudinal openings for its outflow, substantially as described.

520,276. RAIL-TIE PLATE AND BRACE. AUGUST L. STARKE, New York, N. Y. Filed Jan. 31, 1894. Serial No. 498,608. (No model.)



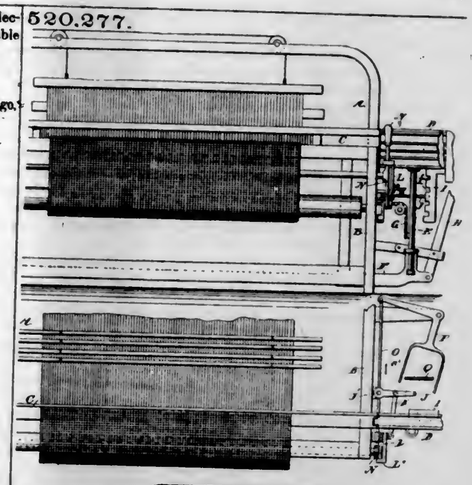
Claim.—As an improved article of manufacture a rail tie plate and brace consisting in the plate 10, formed on its upper side with internal inclined rail braces shaped at their inner ends to fit the side of the rail, and parallel longitudinal ribs 11 integral with the under side of the plate and beyond the planes of the ribs; spike apertures 18 being formed in the plate, substantially as set forth.

520,277. STOP-MOTION FOR LOOMS. BENJAMIN S. TAYLOR and CHARLES HERITAGE, Hampden, Mass. Filed May 29, 1893. Serial No. 475,888. (No model.)

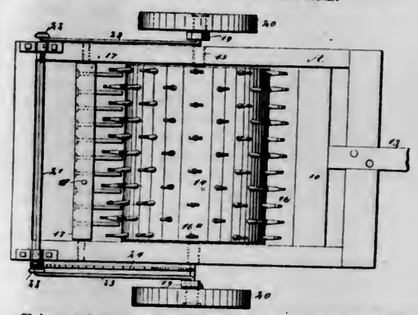
Claim.—1. In a loom, the combination with the rising and falling shuttle box, and a belt shifter, of a notched arm carried by the shuttle box, a pivoted lever, and a connection between the said lever and the belt shifter, whereby the belt shifter will be operated to stop the loom whenever the shuttle box is not in proper position relative to the shuttle race, as set forth.

2. In a loom, the combination with the rising and falling shuttle box, and a belt shifter, of a downwardly projecting and notched arm secured to the shuttle box, a pivoted lever, a second pivoted lever having an extension engaging the belt shifting lever, and a link connecting the said pivoted levers, substantially as herein shown and described.

520,277.



520,278. HARROW. CHARLES WEHRENBERG, Mound City, Ill. Filed June 14, 1893. Serial No. 477,576. (No model.)



Claim.—A harrow, comprising a frame, a toothed drum mounted therein, angled axles the vertical members of which are pivoted to the frame, wheels on the axle, a crank shaft in the rear part of the frame, links connecting the crank shaft with the vertical members of the angled axles, a lever for operating the crank shaft, a bar provided with cleaning teeth journaled in the frame in rear of the drum, and a lever for operating the said bar, substantially as described.

520,279. ELECTRIC SWITCH. HENRY E. WERLINE, Lancaster, Pa., assignor of three-fourths to Frank S. Barr, same place, and Edwin L. Reinhold and Henry Burd Cassel, Marietta, Pa. Filed Feb. 15, 1893. Serial No. 462,442. (Model.)



Claim.—1. The combination, with oppositely located curved contact-plates having their contiguous ends lapping but separated from each other, the corresponding end of each contact-plate taking inside of the adjacent end of the other plate, of a switch-spindle, a conducting brush-bar secured thereto, and spring-actuated brushes attached to the brush-bar and adapted to engage the contact-plates, substantially as and for the purpose specified.

2. The combination, with oppositely located curved contact-plates having their contiguous ends lapping but separated from each other, one of the contact-plates being of greater length than the other and the corresponding end of each of said plates taking inside of the adjacent end of the other plate, of a switch-spindle, a conducting brush-bar secured thereto, and spring-actuated brushes attached to the brush-bar and adapted to engage the contact-plates, substantially as and for the purpose specified.

3. The combination, with oppositely located curved contact-plates having their corresponding ends deflected from the arcs thereof and lapping but separated from the adjacent ends of said arcs, of a switch-spindle, a conducting brush-bar secured thereto, and spring-actuated brushes attached to the brush-bar and adapted to engage the contact-plates, substantially as and for the purpose specified.

4. The combination, with a switch-spindle, a conducting brush-bar secured thereto, and spring-actuated brushes attached to the brush-bar, of oppositely located curved contact-plates having their contiguous ends lapping but separated from each other, the said contact plates being in position to be engaged by said brushes and having shoulders formed on the ends thereof which receive said brushes as they pass from one contact-plate to the other, substantially as and for the purpose specified.

5. The combination, with a switch-spindle, a conducting brush-bar secured thereto, and spring-actuated brushes attached to the brush-bar, of oppositely located curved contact-plates in position to be engaged by the brushes and having the ends thereof lapping, the alternate ends of said plates being deflected from the adjacent ends of each other, and shoulders formed on said deflected ends, substantially as and for the purpose specified.

6. The combination, with a base, of a contact-plate, as B, curved concentrically therewith and having an inwardly extending plate, a similar curved contact-plate, as E, located opposite contact-plate B and having one end lapping the inside of one end of said plate B and the other the outside of the opposite end thereof, the ends of plate E being separated from the ends of plate B, a switch-spindle journaled in said inwardly extending plate, a conducting brush-bar secured to the switch-spindle, and spring-actuated brushes attached to the brush-bar and adapted to engage the contact-plates, substantially as and for the purpose specified.

7. The combination, with oppositely located curved contact-plates having their contiguous ends lapping but separated from each other, of a switch spindle, a conducting brush-bar secured thereto, brushes having bosses engaging hinge-pins on the ends of the brush-bar, springs coiled around the hinge-pins between said bosses and having an end of each engaging one of the brushes and the other end a stud on the brush-bar, substantially as and for the purpose specified.

8. The combination, with a base, of a contact-plate, as B, curved concentrically therewith and having an inwardly extending plate, a similarly curved contact-plate, as E, located opposite contact-plate B and having one end lapping the inside of one end of said plate B and the other the outside of the opposite end thereof, the inner end of each contact plate being deflected from the adjacent end of the other contact-plate and having a shoulder formed on the outside of the extremity thereof, a switch-spindle journaled in said outwardly extending plate, a conducting brush-bar secured to the switch-spindle, brushes having bosses engaging hinge-pins on the ends of the brush-bar, springs coiled around the hinge-pins between said bosses and having one end of each engaging one of the brushes and the other end a stud on the brush bar substantially as and for the purpose specified.

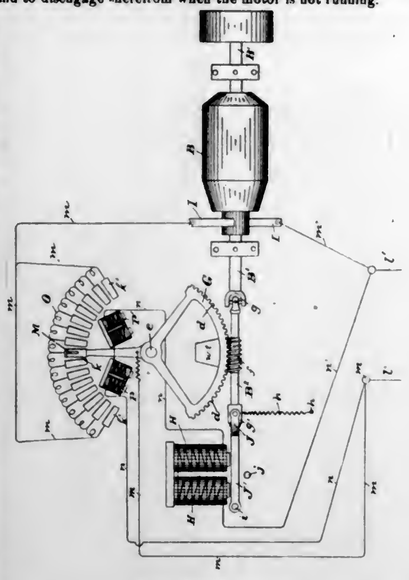
520,280. AUTOMATIC DEVICE FOR REMOVING RESISTANCES IN STARTING ELECTRIC MOTORS AND REPLACING SAME. GEORGE H. WHITTINGHAM, Baltimore, Md., assignor to the Automatic Switch Company of Baltimore City, of Maryland. Filed June 13, 1893. Serial No. 477,465. (No model.)

Claim.—1. In an automatic starting device for electric motors, the combination of a motor; a resistance for starting said motor; a series of contacts connected with the resistance; a toothed arm carrying a contact shoe in engagement with said contacts; a worm adapted to engage said toothed arm when starting the motor but disengaged therefrom when the motor is not running; mechanism to engage the worm with said toothed arm at the time of starting the motor, whereby the worm imparts to the arm sufficient movement to cut out the resistance from the motor-circuit; and means whereby the contact shoe is returned to the point of greatest resistance when the worm is disengaged from the toothed arm, for the purpose set forth.

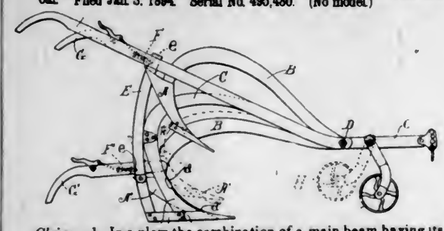
2. In an automatic starting device for electric motors, the combination of a motor, a resistance for starting said motor; a series of contacts connected with the resistance; a toothed arm carrying a contact shoe in engagement with said contacts; means co-acting with the toothed arm to automatically impart to the contact shoe a continuous movement over said plates at the time of starting the motor, whereby the resistance from the motor circuit is cut out; and means for returning the contact shoe to the point of greatest resistance when stopping the motor.

3. In an automatic starting device for electric motors, the combination of a motor armature; a resistance coil; a series of contact plates each connected with said coil; a movable toothed bar carrying a contact shoe which is adapted to move over said contact plates successively said shoe being in circuit with the resistance coil; a worm-shaft engaging said bar and connected with the armature-shaft by a universal joint.

4. In an automatic starting device for electric motors, the combination of a motor; a resistance for starting said motor; a series of contacts connected with the resistance; a toothed arm carrying a contact shoe in engagement with said contacts; a revoluble gearing device to mesh with the teeth of the said arm; and means to cause said gearing device to engage said toothed arm when starting the motor and to disengage therefrom when the motor is not running.



520,281. SIDE-HILL PLOW. GEORGE WILLARD, Los Angeles, Cal. Filed Jan. 3, 1894. Serial No. 495,480. (No model.)

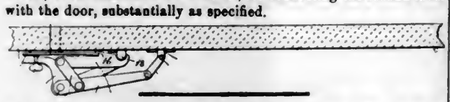


Claim.—1. In a plow the combination of a main beam having its rear and lower end arranged to extend into the furrow cut by the plow: the right hand plow and the left hand plow each provided with a forwardly extending beam pivotally secured to the main beam, and also provided with a socket adapted to embrace and seat upon the lower end of the main beam when its respective plow is in its lowered position: the handle and plow guiding and sustaining frame arranged at the rear of the main beam and provided with the ratchet teeth: and the plow operating handles, one being fixed to the right hand plow and the other to the left hand plow, and each being arranged in the guide frame and provided with the ratchet arranged to engage such frame to lock each of such plows in its elevated and in its lowered position.

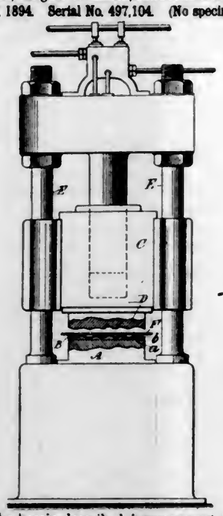
2. In a plow, the combination of the main beam having its rear and lower end arranged to extend into the furrow cut by the plow: the right hand plow and the left hand plow, each having its beam pivoted to the main beam, and each arranged to describe the arc of a circle while being elevated and lowered, such main beam having its lower end arranged to intercept the plows when they are respectively forced into the soil, and having its body above such lower end curved to the rear cut of the path of the plows while being elevated and lowered, and suitable means for sustaining the plows in their various positions.

520,282. DOOR-SPRING. JAMES L. WILSON, Mountain Peak, Tex. Filed Sept. 20, 1893. Serial No. 485,958. (No model.)

Claim.—A door-holder, comprising a bracket adapted to be fastened to a door frame, the bracket having a notch on its inner side and near one end, a notched lever pivoted on the bracket, a spring having one end held in the bracket notch and the other in the notch of the lever, a second lever pivoted on the outer portion of the bracket, a connecting rod extending from the first to the second lever, and means, as the link and door bracket, for connecting the second lever with the door, substantially as specified.



520,283. MANUFACTURE OF PLASTIC ARTICLES. KONRAD WITZ, Hoboken, assignor to himself and Frank Graus, Jersey City, N. J. Filed Jan. 16, 1894. Serial No. 497,104. (No specimens.)



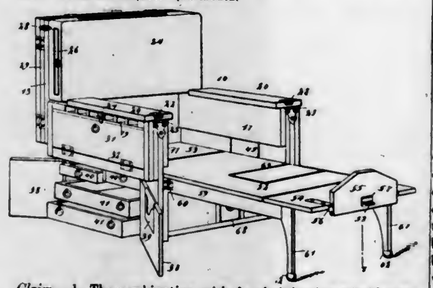
Claim.—1. The herein described improvement in the manufacture of pressed plastic articles, which consists in impregnating the material with hellebore juice to increase its elasticity and tenacity, and then pressing the said material between a patrix and a matrix, the latter being more elastic than the patrix, substantially as described

2. The process of preparing paper board or other material prior to subjecting it to pressure, which consists in impregnating it with hellebore juice, substantially as described.

3. An elastic matrix for the purpose described, comprising a suitable plastic bottom layer, and a surface layer made of bark, substantially as set forth.

4. An elastic matrix for the purpose described, comprising a bottom layer of rye flour and paper bound by siccative, and a surface layer of birch bark, substantially as set forth.

520,284. CONVERTIBLE CHAIR. CLARA N. WONSON, Gloucester, Mass., and DENNIS W. PALMER, Hermon Centre, Me. Filed May 15, 1893. Serial No. 474,280. (No model.)



Claim.—1. The combination, with the chair having suitable arms, of an outwardly swinging shelf having end trunnions adapted to move vertically in slideways in the arms, and outwardly swinging brackets arranged behind the shelf and adapted to swing beneath and support the same, substantially as described.

2. The combination, with the chair having suitable arms, of an outwardly swinging jointed shelf having end trunnions adapted to move vertically in slideways in one of the arms, and swinging brackets arranged behind the shelf and adapted to support the shelf one of the brackets having an inclined top, substantially as described.

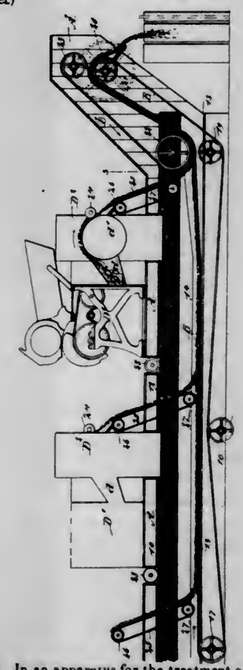
3. The combination, with the chair, of a drawer arranged beneath the chair seat, an outwardly moving slide in the seat above the drawer, and a door in one of the chair arms to register with the slide, substantially as described.

4. The combination, with the chair, of an extensible sliding bed piece forming the chair seat and adapted to be extended horizontally, leaves having a hinged connection with the front and rear edges respectively of the bed piece and rigid swinging supports hinged to the front of the chair and adapted to be turned outward beneath the bed piece, substantially as described.

5. The combination, with the chair, of an extensible bed piece forming the seat of the chair and provided with leaves which have normally a vertical position in front of and at the rear of the chair, and outwardly swinging supports hinged to the chair front and adapted to sustain the extended bed piece and leaves in a horizontal position, substantially as described.

6. The combination, with the chair and the leaf hanging in front thereof, of a foot-piece hinged to the lower edge of the leaf and having a hole near its hinged edge, and a spring secured to the leaf and adapted to project into the said hole to hold the foot-piece perpendicular to the leaf, the spring being also adapted for frictional engagement with the face of the foot-piece to hold the latter parallel with the leaf substantially as described.

520,285. APPARATUS FOR THE TREATMENT OF COTTON. FRIEDRICH ZEDLER, Cuero, Tex. Filed July 25, 1893. Serial No. 481,404. (No model.)



Claim.—1. In an apparatus for the treatment of cotton, a series of gins placed in order one at the rear of the other, a condenser located at the rear of each gin, an endless conveyer common to all the condensers, endless carrier belts leading from the condensers to the endless conveyer and a flue in which said endless conveyer is located, the said flue consisting of the upper and lower side boards, a ventilator located below the top board at each side of the flue, the bottom board located between the center and bottom of the flue, and the inwardly and downwardly inclined side boards, substantially as shown and described.

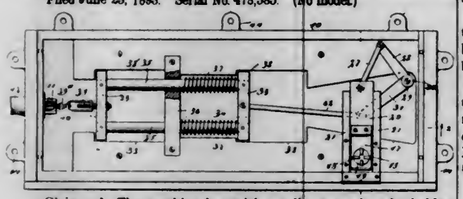
2. In an apparatus for the treatment of cotton, a flue provided with ventilators, an endless conveyer located within the flue, two or more gins located over the flue, a condenser connected with each gin, and endless carrier belts leading from the condensers to the con-

veyer, the said carrier belts being adjustable at their lower ends, as and for the purpose set forth.

3. In an apparatus for the treatment of cotton, a flue, an endless conveyer located within the flue, two or more gins located over the flue and conveyer, a condenser connected with each gin, carriers leading from the condensers to the main conveyer, and an auxiliary conveyer or pressure belt located above and parallel with the delivery section of the main conveyer, substantially as and for the purpose set forth.

4. In an apparatus for the treatment of cotton, the combination, with a flue provided with ventilators and an extension at one end located at an angle to the body of the flue, and an endless conveyer located both in the body and extension of the flue, of two or more gins located upon the body portion of the flue over the conveyer, a condenser connected with each gin, carriers extending from each condenser to the conveyer, and a pressure belt located above and parallel with the delivery stretch of the conveyer, as and for the purpose set forth.

520,286. BRIDGE-SIGNAL. JOHN E. ZIMMERMAN, Trinidad, Colo. Filed June 23, 1893. Serial No. 478,585. (No model.)



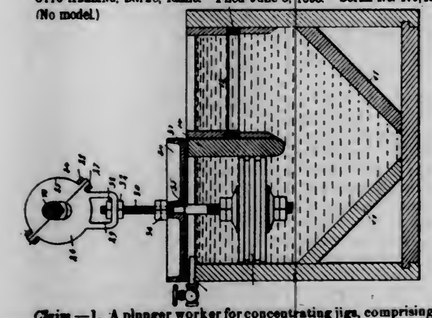
Claim.—1. The combination, with a railway track and a bridge or other structure connected therewith, of a case arranged alongside of the track, an outwardly movable slide block contained within the case, a torpedo holder carried by the slide block and adapted to move outward over a rail, a tilting bell crank fulcrumed in the case and having one arm pivotally connected with the slide block, a spring-pressed cross head pivotally connected with the second arm of the bell crank, and a restraining wire secured to the cross head and to the bridge or similar structure, substantially as described.

2. The combination with a railway track and a bridge connected therewith of a case arranged alongside of the track, a sliding block arranged in the case, a torpedo holder carried by the block and adapted to move out through the case over a rail, a bell crank lever having one arm connected by a link with the sliding block, a spring pressed cross head, a pitman connecting the cross head with the other arm of the bell crank, and a wire connecting the cross head with the bridge, said wire holding the cross head against the action of the springs and adapted to be broken by the destruction of the bridge, substantially as described.

3. In a device of the kind described, the combination of the case having a swinging door therein, the catch on the inner side of the door, the spring-pressed latch to engage the catch, and the outwardly moving torpedo holder arranged to engage and release the latch, substantially as described.

4. The combination with a case provided with a swinging door having a catch thereon, and an outwardly moving torpedo holder, of a latch pivoted below the torpedo holder and provided with a thickened and notched outer end, and a spring for pressing the latch upward, substantially as herein shown and described.

520,287. PLUNGER-WORKER FOR CONCENTRATING-JIGS. OTTO ABELING, Burke, Idaho. Filed June 3, 1893. Serial No. 476,495. (No model.)



Claim.—1. A plunger worker for concentrating jigs, comprising a revoluble cam having abrupt shoulders, the height of which is adjustable, a cam housing supported on the cam and reciprocated thereby, and a plunger connected to the housing by a rod and arranged to reciprocate in the jig, substantially as described.

2. A plunger worker for concentrating jigs, comprising a revoluble cam having abrupt shoulders thereon, the height of which is adjustable, a housing arranged to ride on the cam and reciprocated thereby, a plunger arranged to move in the jig, a piston rod connected to the plunger and cam housing, and a tray secured to the piston rod, substantially as described.

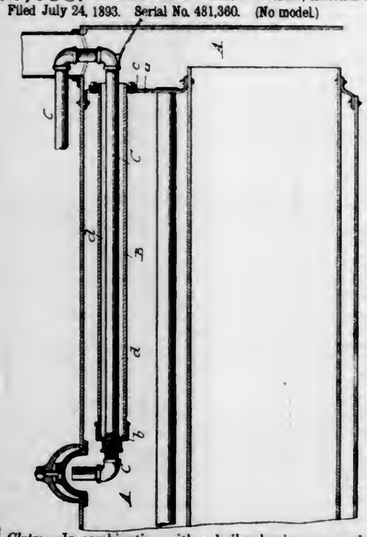
3. In a concentrating jig, the combination with a revoluble cam carried above the jig and provided with abrupt shoulders and oval faces, of a cam housing supported on the cam and reciprocated thereby, a plunger arranged to move in the jig, a piston rod connected to the plunger, a weighted tray secured to the piston rod and arranged above the jig frame, and a cushion secured to the top of the jig frame in the path of the weighted tray, as and for the purpose set forth.

4. A plunger worker for concentrating jigs, comprising a revoluble two-part cam having abrupt shoulders, the height of which is adjustable, a cam housing held to ride on the cam, a weighted piston rod depending from the cam housing, and a plunger secured to the rod, substantially as described.

5. The combination of the driving shaft, the two part cam secured to the shaft, and provided with connecting levers, the cam housing held to run on the cam, the weighted tray, and the plunger carried by the housing, substantially as described.

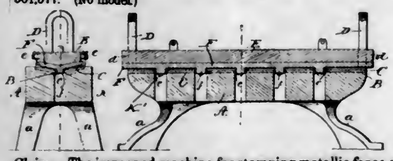
6. The combination, of the revoluble two-part cam having abrupt shoulders, the separable cam housing incasing the cam, the roller journaled in the cam housing and riding on the cam, a yoke on the lower end of the cam housing, a weighted piston rod suspended from the yoke, and a plunger secured to the piston rod, substantially as described.

520,288. SUPERHEATER. GUSTAV ABRAMS, Hutchinson, Minn. Filed July 24, 1893. Serial No. 481,360. (No model.)



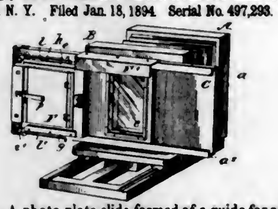
Claim.—In combination with a boiler having an opening in its head; pipe B closed at its inner end by a reducing cap *b*; a collar *c* secured to the outer end of pipe and bolted or riveted to the boiler head; and a steam pipe C passing lengthwise through the pipe B

520,289. MACHINE FOR MAKING METALLIC FENCE-POSTS. MARTIN H. BAER, Hagerstown, Md. Filed Feb. 24, 1894. Serial No. 501,377. (No model.)



Claim.—The improved machine for stamping metallic fence-posts herein shown and described, comprising the bed, A, depressed in the center and provided with slotted end-guides, D D; follower, E, shaped on the under side to fit the top of the depressed bed and provided with turn-buttons, *e e*, and the described mechanism for reciprocating it vertically; in combination with the slotted and transversely grooved bottom-die, C, and registering top-die F provided with punches, *f f*, and intersecting ribs, K', coinciding with the transverse grooves, K, in the bottom-die; substantially as and for the purpose shown and set forth.

520,290. PHOTOGRAPHIC-PLATE HOLDER. ERASTUS B. BARKER, New York, N. Y. Filed Jan. 18, 1894. Serial No. 497,293. (No model.)



Claim.—1. A photo plate slide formed of a guide for attachment to a camera box, a slide fitted to the guide, a plate holder furnished with a dark slide locking device and fitted to the slide, and dark slide operating mechanism for drawing the dark slide from the plate holder as the plate holder is carried into position for exposing the plate, and pushing the dark slide into the plate holder as the plate holder is moved in the opposite direction, substantially as specified.

2. In a photo plate slide, the combination of the guide C, the slide D constructed to receive the plate holder F, the plate holder F provided with a dark slide G having the apertured bar *i*, the sliding bar *k*, provided with the stud *o* and means for connecting the bar *k* and the slide G, substantially as specified.

3. The combination of the guide C, having stops *k K'*, the slide D, the plate holder F fitted to the slide and provided with a dark slide G having apertures in its outer end, and the bar *k* held by the guide C and provided with studs *j j'* which enter the apertures of the dark slide, substantially as specified.

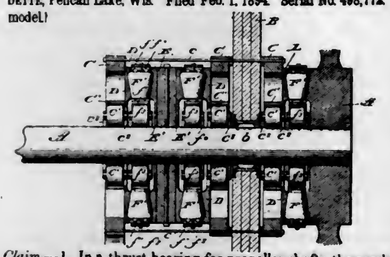
4. In a photo plate slide, the combination of the plate holder F, the dark slide G having the apertured bar *i*, the spring catch *n* carried by the body of the plate holder and adapted to enter an aperture in the bar *i*, and a stud *o* carried by the bar *k* and adapted to enter the aperture of the bar *i*, for releasing the spring catch *n*, substantially as specified.

5. The combination, with the plate holder F, provided with eyes *m m'*, and the dark slide operating bar *k*, of rods *l l'* attached to the bar *k* and passing loosely through the eyes *m m'*, substantially as specified.

6. In a photo plate slide, the combination, with the guide C and plate-holder-receiving slide D, of the metallic strip *s* pivoted to the guide C, for preventing the accidental removal of the slide D from the guide C, as specified.

7. In a photo plate slide, the combination, with the guide C and plate holder F, of a plate holder retainer F', for preventing the removal of the plate holder from the photo plate slide while the dark slide is withdrawn, substantially as specified.

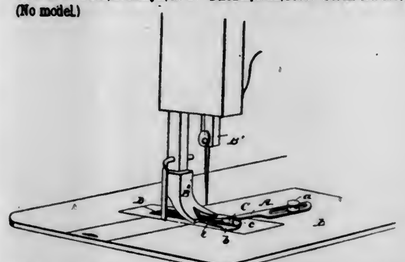
520,291. BEARING FOR PROPELLER-SHAFTS. AGIDE J. BEAUDETTE, Pelican Lake, Wis. Filed Feb. 1, 1894. Serial No. 498,772. (No model.)



Claim.—1. In a thrust-bearing for propeller-shafts, the combination, of a shaft having collars E fixedly attached thereto, disks or plates E' rigidly secured to said collars and provided with bearing surfaces, frames C mounted on the shaft and connected to each other by tie-rods as described, plates D rigidly secured to the frames C and provided with bearing surfaces, conical anti-friction rollers F' journaled between the bearing plates D and E' upon shafts which extend through rings *f* and *f'*, and rollers *f²* adapted to bear upon the main shaft and against the inner rings to which the conical rollers are connected, substantially as shown and for the purpose set forth.

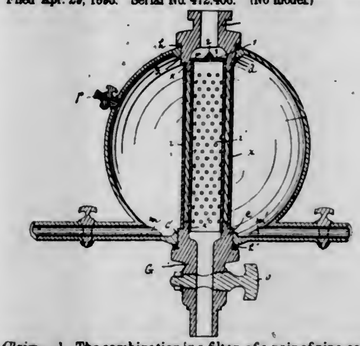
2. In a thrust-bearing for propeller-shafts, the combination, of a shaft having collars E fixedly attached thereto, disks or plates E' rigidly secured to said collars and provided with bearing surfaces, frames C mounted on the main shaft and connected to each other by tie-rods, plates D rigidly secured to the frames C and provided with bearing surfaces which correspond with the bearing surfaces of the disks or plates E', and conical rollers F' journaled between the plates D and E' upon shafts which extend through rings *f* and *f'*, the bearing surfaces of the plates D and E' being grooved to receive the conical rollers F' and lie over the outer ends of the same, substantially as shown, and for the purpose set forth.

520,292. FELLING ATTACHMENT FOR SEWING-MACHINES. JOSEPH W. BETZ, Brooklyn, N. Y. Filed Apr. 22, 1893. Serial No. 471,377. (No model.)



Claim.—A felling attachment for sewing machines, provided with a scroll head whose lower edge has an essentially horizontal, outwardly projecting lip spaced from the inner end of the scroll to form a passage way for a piece of fabric to enter the head between the lip and the scroll proper, the said head being provided, in its curved portion and above the said passage way, with a longitudinal slot, arranged on the same side on which the said lip projects to permit another piece of fabric to enter the scroll head above the said passage way, substantially as and for the purpose set forth.

520,293. FILTER. HENRY S. BLACKMORE, Mount Vernon, N. Y. Filed Apr. 29, 1893. Serial No. 472,406. (No model.)



Claim.—1. The combination in a filter, of a pair of pipe-couplings, and perforated straining-pipes of different diameters, connecting said pipe-couplings, a filtering tube arranged between the straining-pipes, and a stop-cock fitted in the lower pipe-coupling, so that the interior of the device may be thoroughly cleaned, by allowing the water to flow directly through the same, as described.

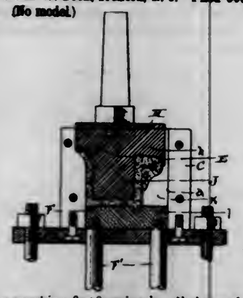
2. In a filter, a liquid-reservoir having screw-threaded openings in the upper and lower extremities thereof, and pipe-couplings fitted in said openings, with perforated-pipes, of different diameters, connected with the inner-ends of the pipe-couplings, and a tube of asbestus and fibrous material arranged between the perforated pipes, substantially as and for the purpose specified.

3. In a filtering-apparatus, the combination of a spherical liquid-reservoir having pipe-couplings fitted in the upper and lower extremities thereof, and straining-pipes connected with the inner ends of the pipe-couplings, as described, a tube of filtering material arranged between the straining-pipes, the lower pipe-coupling provided with a stop-cock, the liquid-reservoir provided near its top with a pet-cock, and at its bottom with outlet-pipes, substantially as and for the purpose set forth.

4. The combination in a filtering-device, of a liquid-reservoir provided with inlet and outlet pipe-couplings, straining-pipes con-

nected with the pipe-couplings, a filtering-tube located between the straining-pipes and a conical-deflector arranged within the inlet pipe-coupling, as described, so as to direct the inflowing liquid against the inner surface of the inner straining-pipe, substantially as and for the purpose specified.

520,294. DIE FOR THE MANUFACTURE OF EARTHENWARE VESSELS. NOAH W. BOSH, Trenton, N. J. Filed Oct. 7, 1893. Serial No. 487,460. (No model.)



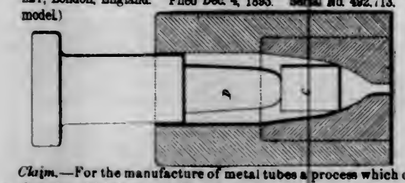
Claim.—In a machine for forming handled vessels from earthenware, the combination of a mold chamber conforming to the external configuration of the article to be formed, and having an offset handle-forming chamber, the upper movable die having an extension adapted to enter said offset chamber, and a projection for forming the interior of the vessel, the vertically movable bottom die forming the bottom of said mold chamber and having an extension forming the bottom of said offset chamber, and the auxiliary handle forming pieces K, K, placed one at each side of the said offset chamber, and having their meeting faces shaped to give the proper configuration to the handle, said pieces being supported upon the extension of the bottom die, and having means for guiding them to a true vertical movement, substantially as specified.

520,295. JOURNAL-BEARING. WILLIAM J. CARTER and JOHN J. CARTER, Dublin, Ga. Filed May 4, 1893. Renewed Mar. 22, 1894. Serial No. 504,723. (No model.)



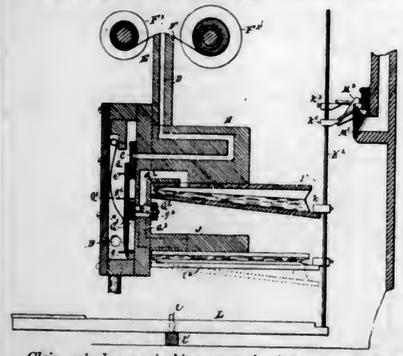
Claim.—In a journal bearing, the combination of the boxing, the chamber B therein, the enlarged chambers E at the end portions of said boxing, the longitudinal rollers C in said chamber B, the rings *a*, *a* seated in the end portions of said chamber B, and in which said rollers have end bearings, and the bearing plates F, F' seated in the respective chambers E, and having each an opening for the shaft, the opening in the plate F having a surrounding outwardly extending boss *f*, having a bushing f^3 therein, and the plate F' having a boss *g* chambered to receive an enlarged portion of the shaft, substantially as specified.

520,296. MANUFACTURE OF METAL TUBES. CLAUD T. CAYLEY, London, England. Filed Dec. 4, 1893. Serial No. 492,713. (No model.)



Claim.—For the manufacture of metal tubes a process which consists, first, in subjecting a solid hot blank or block to the action of a punch and hollow die, the cavity of the latter being reduced in dimensions at one end and adapted to act, simultaneously with the hollowing of the blank or block by the punch, to form a tang at the end of the blank or block; second, in drawing down the hollow blank or block thus formed, by thrusting the same, while hot, through annular reducing-dies by means of mandrels placed in the punched cavity of the blank; third, in heating the blank or block and tang and extending the tang by forging; fourth, in cooling the tang; fifth, in pulling the hot blank or block by means of the tang through external finishing-dies without the presence of a mandrel in its interior, substantially as set forth, for the purposes specified.

520,297. MUSICAL INSTRUMENT. JOSEPH H. CHASE and JAMES B. TRACY, Meriden, Conn., assignors to the Aeolian Organ and Music Company, New York, N. Y. Filed May 10, 1892. Renewed Apr. 12, 1894. Serial No. 507,318. (No model.)



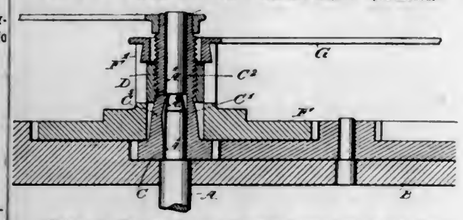
Claim.—1. In a musical instrument having pneumatic motors for causing the operation of sound producing devices, a removable wind chest provided with valves for controlling said pneumatic motors and other pneumatic motors for operating said valves, substantially as specified.

2. In a musical instrument, the combination with manual keys, and sound producing devices,—of push pins or rods operated by said keys and extending from direct connection therewith to operative connection with said sound-producing devices,—pneumatic motors—moving parts of which form independent operative connection with said push pins or rods,—a wind chest in communication with said motors, and mechanism whereby the pneumatic motors are caused to act when the instrument is played mechanically,—substantially as set forth.

3. In a musical instrument, the combination of a wind chest,—pneumatic motors arranged within the wind chest,—ducts communicating with the wind chest and with air outside of same,—valves controlling said ducts at the points of communication named and operated directly from said internal pneumatic motors,—other pneumatic motors communicating also with said ducts but at their opposite outer extremities, and arranged outside of the wind chest,—and connections whereby the last named pneumatic motors may cause the sound producing devices to speak,—substantially as set forth.

4. In a musical instrument, the combination of a wind chest, pneumatic motors arranged within the wind chest, ducts communicating with the wind chest and with air outside of the wind chest, pneumatic motors communicating with these ducts and arranged outside of the wind chest for causing the playing of the sound producing devices of the musical instrument, valves within the wind chest co-acting with said ducts, and valves outside the wind chest also co-acting with said ducts and connected by devices accessible from the outside of the wind chest with supports located within the wind chest, substantially as specified.

520,298. CANNON-PINION FOR WATCHES. JOHN V. COATS, Delhi, N. Y. Filed Nov. 16, 1893. Serial No. 491,107. (No model.)

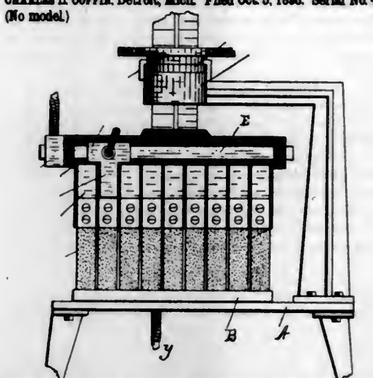


Claim.—1. The combination with the center post, having a circumferential shoulder, of the cannon pinion whose upper portion is screw-threaded, a spring tongue formed integrally with the pinion and engaging said shoulder, and a nut screwing on such threaded portion, and projecting below the latter, as shown and described.

2. As a new article of manufacture, the cannon pinion having the upper portion of its hub screw-threaded and provided with a spring tongue which is located between such threaded portion and a pinion proper, as shown and described.

3. The combination, with a center post, having a shoulder as specified, of a cannon pinion having a spring tongue arranged between the pinion proper and the hub, and adapted to engage said shoulder, and a cylindrical nut which screws on said hub and engages the upper end of said tongue at a point below the screw-thread, as shown and described.

520,299. APPARATUS FOR HEATING METAL ELECTRICALLY. CHARLES L. COFFIN, Detroit, Mich. Filed Oct. 5, 1893. Serial No. 487,242. (No model.)



Claim.—1. In an apparatus for heating metal electrically, the combination of a plurality of high resistance electrodes, metallic conducting clamps sustaining said electrodes, and means for insulating said electrodes and clamps from each other, a movable contact device connected to one terminal of a source of electric energy, and adapted to make contact with said conducting clamps, severally and successively bringing said high resistance electrodes into circuit with the metal, and means for connecting the same to the other terminal of the source of electric energy.

2. In an apparatus for heating metal electrically, the combination with a plurality of high resistance electrodes insulated from the metal, means for connecting said metal to the terminal of a source of electric energy, support for the electrodes, means for raising and lowering said electrodes, a movable contact device, and means for connecting said contact device to the other terminal of the source of energy.

3. In an apparatus for electrically heating metal, the combination with the metal and means for connecting said metal to one terminal of a source of electric energy, of a plurality of high resistance electrodes insulated from each other, a movable adjustable support for said electrodes, a movable contact device connected to the other terminal of the source of energy, and means for bringing said electrodes severally and successively into the electric circuit.

4. In an apparatus for heating metal electrically, the combination with a support for the metal to be heated and means for connecting said metal with one terminal of a generator, of a series of high resistance electrodes insulated from each other, means for bringing said electrodes in contact with the metal, and means for connecting said electrodes severally and successively with the other terminal of the generator, substantially as shown and described.

5. In an apparatus for electrically heating metal by means of an electric arc, the combination of a plurality of electrodes, a contact device by means of which said electrodes may be successively thrown in circuit, means for moving said contact device, and means for maintaining an electric arc between the metal and the electrodes successively thrown in circuit.

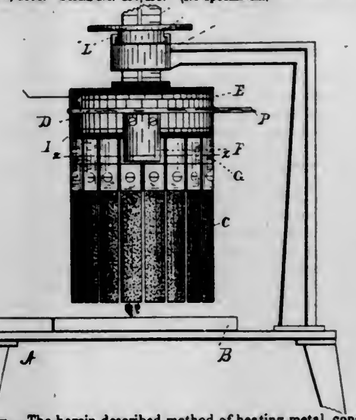
6. In an apparatus for electrically heating by means of the electric arc, the combination of a plurality of electrodes insulated from each other, a contact device by means of which said electrodes may be successively thrown in circuit, means for moving said contact device with means for maintaining an electric arc between said electrodes successively thrown in circuit.

7. In an apparatus for electrically heating by means of the electric arc, the combination of a plurality of electrodes insulated from each other, a contact device by means of which said electrodes may be successively thrown in circuit, means for moving said contact device, and means for maintaining an electric arc between another electrode and the first named electrodes as successively thrown in circuit.

8. In an apparatus for electrically heating by means of the electric arc, the combination of an electrode connected to one terminal of a source of electric energy, with a plurality of electrodes insulated from each other, a contact device connected to the other terminal of the source of electric energy, by means of which said electrodes may be successively thrown in circuit, means for moving said contact device, and means for maintaining an electric arc between said first named electrode and the said insulated electrodes as successively thrown in circuit.

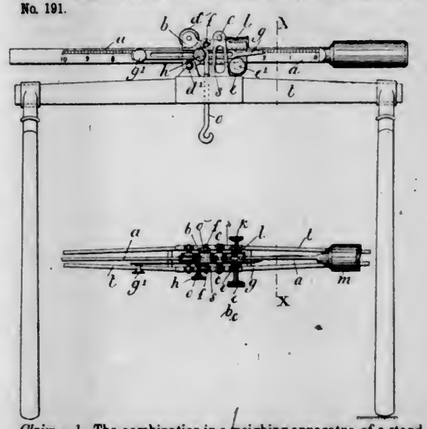
9. In an apparatus for electrically heating by means of the electric arc, the combination of an electrode connected to one terminal of a source of electric energy, a movable conductor connected to the other terminal of said source of electric energy, a series of insulated conductors adapted to be successively placed in circuit by said movable conductor, and means for maintaining an electric arc between said first named electrode and the insulated electrodes, as successively thrown in circuit.

520,300. METHOD OF HEATING, WELDING, OR WORKING METALS ELECTRICALLY. CHARLES L. COFFIN, Detroit, Mich. Filed Oct. 7, 1893. Serial No. 487,453. (No specimens.)



Claim.—The herein described method of heating metal, consisting in subjecting the metal to the influence of a moving voltaic arc while simultaneously heated by radiation from incandescent electrodes in proximity to, but not in contact with the metal.

520,301. WEIGHING APPARATUS. ROBERT N. COGHLAN, Karachi, India. Filed Dec. 11, 1893. Serial No. 493,328. (No model.) Patented in England Aug. 22, 1892, No. 15,092, and in India Sept. 16, 1892, No. 191.



Claim.—1. The combination in a weighing apparatus, of a standard or support, a rocking holder *b* provided with beam-supporting rollers *d* and d' and having knife-edges *c* mounted on the standard or support, a graduated beam *a* weighted at one end and slidable lengthwise between the said rollers, a rotatable-shaft or spindle e' having engagement with the scale beam and provided with a head by which to turn it for the purpose of moving the beam lengthwise in the holder, and a device hung from the holder for suspending the article to be weighed, substantially as described.

2. The combination in a weighing apparatus, of a standard or support, a rocking-holder having knife edges mounted on the standard or support, a graduated beam movable lengthwise through the rocking-holder, a rotatable-shaft or spindle e' having engagement with the beam and provided with a head by which to turn it for moving the beam lengthwise, a device hung from the rocking-holder for

suspending the article to be weighed, a gage *g* slidable horizontally on the rocking holder, and a device for holding the gage in a fixed position on the holder, substantially as described.

520,302. RAILROAD-SWITCH. EDWARD W. COUGHLIN, Baltimore, Md. Filed Feb. 2, 1893. Renewed Dec. 30, 1893. Serial No. 495,263. (No model.)



Claim.—1. The improvement in switches substantially as described consisting of the section having a base plate *d* and seat d^1 and the swing section pivoted at one end to the base plate and having at its other end a tongue movable onto and off the seat d^1 substantially as set forth.

2. The improvement in switches comprising the base section having a laterally projecting rib d^3, to fit the hollow of a rail and provided with a seat d^1 and the swing section substantially as set forth.

3. The improved switch comprising the base section having a base plate *d* and upright *d'* having a seat d^3 and the swing section having a tongue at one end and pivoted substantially as set forth.

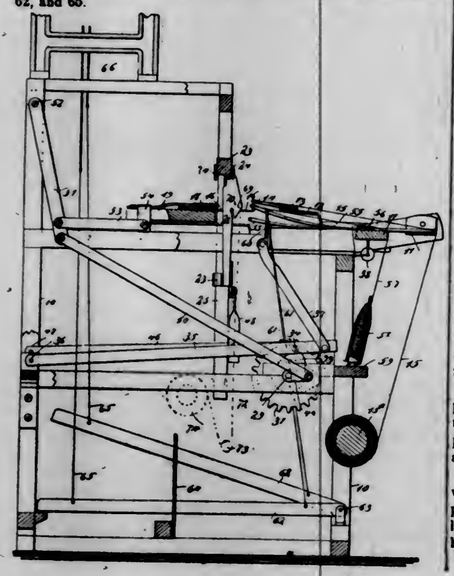
4. The combination of the main line rail, the base section D having a base plate *d* extended below and beyond the main line rail, and also provided with an upright *d'* having a seat d^3 and the swing section substantially as set forth.

5. The improvement in switches substantially as described consisting of the section D having base plate *d* upright *d'* provided at its side with the rib d^3 and at its top with the seat d^1 and the swing section pivoted at or near one end to the plate *d* and having at its other end a tongue movable onto and off the seat d^3 all substantially as and for the purposes set forth.

6. In a switch substantially as described the combination of the main line rail, the base section having a base plate extended under and beyond the main line rail and provided with a seat for the tongue of the swing section, the swing section pivoted at one end on the base plate of the base section and provided with a tongue and with a rib to fit the hollow of the main line rail, substantially as set forth.

520,303. WARP-FRAME ATTACHMENT FOR KNITTING-MACHINES. WILLIAM CUTTS, Tabernacle, N. J. Filed Oct. 20, 1893. Serial No. 488,671. (No model.)

Brief.—A series of spring-guides carrying pattern-threads are mounted below the usual guides for the knitting-threads, each spring-guide being controlled from a Jacquard machine through the parts 61, 62, and 65.



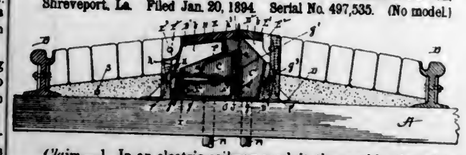
Claim.—1. In a machine of the kind described, the combination with the needles and the stationary guides on the warp frame, of spring guides supported below the stationary guides and adapted to rise upward, and a series of levers connected with the spring guides to depress them, substantially as described.

2. The combination, with the reciprocating needles and the warp frame having the usual warp guides, of the spring guides arranged below the warp guides and adapted to spring upward, and a series of levers arranged below the spring guides and connected therewith, so that the weight of the levers depresses the guides, substantially as described.

3. The combination, with the reciprocating needles, the warp frame and the warp guides thereof, of a slotted plate arranged at the inner end of the warp frame, spring guides held in the slots of the frame and adapted to move upward, and a series of levers beneath the spring guides, the levers being suspended from the guides so as to depress the latter, substantially as described.

4. The combination, with the reciprocating needles, the warp frame and the guides carried by the warp frame, of the spring guides held below the warp guides and adapted to spring upward, and means for holding the spring guides depressed, substantially as described.

520,304. CONDUIT ELECTRIC RAILWAY. WILLIAM R. DE VOE, Shreveport, La. Filed Jan. 20, 1894. Serial No. 497,535. (No model.)



Claim.—1. In an electric railway conduit, the combination with the cross ties, of the metallic plates secured to said ties, and carrying post projections near each end, the metallic lining having upward flanges fitted to said posts, and an integral upward flange near one side substantially dividing said conduit into two parts, and cover plates rigidly secured to said posts and supported thereby, substantially as specified.

2. In an underground conduit for electric railways, the combination with the cross ties or sleepers, of the metallic plates supported on said ties and secured thereto, said plates having vertical post projections near each end, the metallic lining having the lateral upward flanges fitted against said posts, and the integral vertical grooved flange or projection dividing the conduit into two parts, the cover plates having the depending lugs abutting said posts and bolted thereto, and the metallic lining cap underneath the cover plate, and covering one part of said conduit, said lining cap having a depending flange overlying one of the upward flanges of the lining, substantially as specified.

3. An underground conduit, comprising the metallic plates supported on and secured to the cross ties, and carrying an integral vertical post near each end, said posts having overhanging upper portions, a metallic lining on the bottom of said conduit and having upward lateral flanges fitted to the lower portions of said posts, and an integral, vertical flange substantially dividing the conduit into two parts, the angle blocks to which the lining is secured, the outer protection planks abutting said posts, the lining cap over one part of said conduit, and having a lateral, depending flange, and the cover plates supported upon and secured to said posts, substantially as specified.

4. In a conduit for electric railways, a metallic lining plate for the conduit, said plate having an integral upward flange substantially dividing the conduit into two parts, the upper end portion of said flange having a broad, inclined deflecting surface situated directly underneath the slot in the cover plate, substantially as specified.

5. In an electric conduit for electric railways, a metallic lining having upward lateral flanges, and an intermediate vertical flange substantially dividing said conduit into two parts, said flange having a deflecting surface located underneath the slot in the cover plate, substantially as specified.

6. A lining section for underground electric railways comprising a metallic plate, having integral lateral upward flanges, and an intermediate upward, hollow integral flange, substantially as specified.

7. In an underground conduit for electric railways, the metallic plates D, comprising each a base portion forming the tie plates, and the posts, one near each end, and formed with overhanging cover supporting upper portions, and with inclined base portions, substantially as specified.

8. In an underground electric railway conduit, the combination with the metallic plates secured to the cross ties, and their vertical post projections, of the cover plates having the depending and lateral lugs abutting said posts, and bolted thereto, said plates at their joints having overlapping rabbeted portions, substantially as specified.

9. In an electric railway, the combination with the two-part conduit, a grooved conductor having an insulated support upon one side of one division of said conduit; and a "dead" guide rail supported upon the opposite side of said division, of a trolley having a series of horizontal conducting wheels having beaded tires adapted to run in the groove of said conductor, a series of non conducting guide wheels running in said dead track, a flexible tension frame connecting said wheels, and a curved trolley arm attached to said frame and connecting with the motor on the car, said series of wheels constituting a bearing sufficiently extended to bridge over breaks in the conductor at intersecting lines, substantially as specified.

10. In an electric railway, the combination with the conduit having the grooved conductor, and the opposite non-conducting guide rail, of a trolley having a series of conducting wheels, having removable beaded tires engaging with the groove of said conductor, and a series of non-conducting guide wheels engaging said guide rail, a flexible two-part frame connecting said wheels, tension springs connecting the parts of said frame, a tension screw also connecting said parts, and a curved conductor arm attached to said frame and connecting with the motor on the car, substantially as specified.

11. In an electric railway, the combination with the conduit having the conductor, and the opposite non-conducting guide-rail, of the trolley having a series of horizontal wheels traveling on said conductor, and a series of non-conducting wheels traveling on said guide rail, a flexible conducting frame connecting said wheels, a ribbon conductor attached to said frame, metallic plates carrying said conductor and forming a curved trolley arm, an insulated block to which the draft chains are attached, and a guard sleeve around said conductor in the slot, substantially as specified.

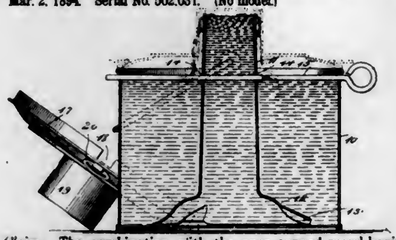
12. In an electric conduit, the metallic plates supported on the cross-ties, and having the vertical, cover supporting post projections, of bond plates, one at each rail joint, said bond plates at one end being connected with the said metallic plates, and at the opposite end to the rails, and having intermediate connection with a return conductor, substantially as specified.

13. In an electric railway conduit, the combination with the cross-ties, and with the metallic, post-bearing plates supported thereon, of the outer protection planks, the metallic lining, the angle blocks to which said lining is attached, the back strip secured to said angle blocks, the insulators secured to said back strip, and the conductor secured to said insulators, substantially as specified.

14. In an underground conduit for electric railways, the combination of the cross-ties, the plates resting on said ties, and carrying posts, the cover plates supported by and secured to said posts, the lining cap, and a partition wall substantially dividing said conduit into two parts.

15. In an underground electric railway system, the herein described trolley comprising a two-part, flexible frame, a series of horizontal conducting wheels journaled in said frame and having removable tires, a series of non-conducting wheels also journaled in said frame, hollow axles forming the bearings for said wheels, and adjustable springs connecting the parts of said frame, substantially as specified.

520,305. COOKER. MORIS FINKLESTEIN, New York, N. Y. Filed Mar. 2, 1894. Serial No. 502,031. (No model.)

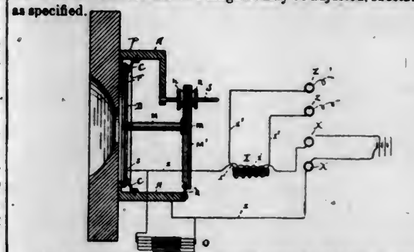


Claim.—The combination, with the open topped vessel having holes near the top, of the circulation tube within the vessel, provided with ports at the bottom and with holes to register with those in the vessel, and a fastening pin adapted to extend through the holes in the vessel and tube, substantially as described

520,306. TELEPHONE-TRANSMITTER. HENRY M. GOODMAN and JOHN GOODMAN, Louisville, Ky. Filed Jan. 25, 1894. Serial No. 498,019. (No model.)

Claim.—1. In a telephone transmitter, two magnets at or nearly at right angles to each other, their opposite poles being approximated, a mass of magnetic material in a state of comminution between said magnets, and a diaphragm mechanically connected with one of said magnets, substantially as specified.

2. In a telephone transmitter, two magnets at or nearly at right angles to each other, their opposite poles being approximated, a mass of magnetic material in a state of comminution between said magnets, a vibratory diaphragm mechanically connected with one of said magnets, and an adjusting device in connection with the other whereby the distance between the two magnets may be adjusted, substantially as specified.



3. A telephone transmitter having a pair of magnets at, or nearly at, right angles to each other, a mass of magnetic material in a comminuted state between the adjacent poles of said magnets, and an induction coil in circuit with said magnets, substantially as specified.

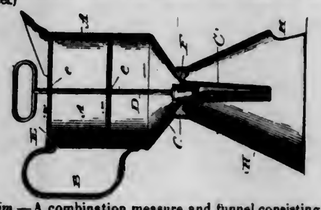
4. In a telephone transmitter, the combination of two magnets at or nearly at right angles to each other, and having their opposite poles approximated, a diaphragm attached to one of said magnets, a mass of comminuted magnetic material between the said poles, and an electric condenser forming a shunt of the local circuit, substantially as specified.

5. In a telephone transmitter, the combination of two magnets, at or nearly at right angles to each other, and having their opposite poles approximated to each other, a diaphragm mechanically connected with one of said magnets, a mass of comminuted magnetic material interposed between said magnets, an induction coil whose primary is in the local circuit, and an electric condenser forming a shunt of the local circuit, substantially as specified.

6. In a telephone transmitter having two magnets at, or nearly at right angles to each other, and made to approximate each other at their opposite poles, with magnetic material in a state of comminution between said poles, and a diaphragm mechanically connected with one of said magnets, the combination with the said magnets of an accessory helix or helices, in the primary or local circuit, and surrounding one or both of said magnets, substantially as specified.

7. In a telephone transmitter, the combination with a pair of magnets at, or nearly at right angles to each other, and having their opposite poles approximated, a diaphragm mechanically connected with one of said magnets, and a mass of comminuted magnetic material between the said poles, of an induction coil surrounding one or both of said magnets, said coil having its primary in the local circuit, and its secondary in the line circuit, substantially as specified

520,307. COMBINED MEASURE AND FUNNEL. ROBERT J. GILLEAM, Orlando, Fla. Filed Dec. 22, 1893. Serial No. 494,372. (No model.)



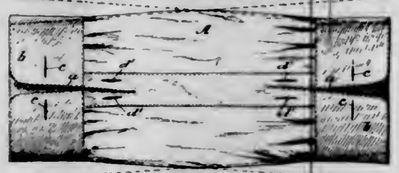
Claim.—A combination measure and funnel consisting of the receptacle having the bars E, E, as described, which serve as guides for a plunger valve rod, as well as for graduating the said receptacle, and an inverted conical shaped base portion having a notch H' adapted to fit over the handle of a jug, substantially as shown and described.

520,308. COMBINED SLEEVE-SECTION AND CUFF. GEORGE S. GRIER, Milford, Del. Filed Feb. 7, 1894. Serial No. 499,317. (No model.)

Claim.—1. A combined reversible sleeve section and cuff, consisting of a closed tubular section whose middle portion is made largest and of single ply, while its symmetrical cuff ends are of multiple ply, and having slits running through the cuff ends into the middle portion, substantially as and for the purpose described.

2. A combined reversible sleeve section and cuff, consisting of a closed tubular section whose middle portion is made largest and of single ply, while its symmetrical cuff ends are of multiple ply with

slits running down into the middle portion, and a circular skirt or flap stitched exteriorly to the largest part of the middle portion, and adapted to fold over and conceal the edge and cover the slit of the cuff end that is not in use substantially as shown and described.



520,309. GAS-BURNER. GUSTAVUS HEIDEL, St. Louis, Mo. Filed May 13, 1893. Serial No. 474,060. (No model.)

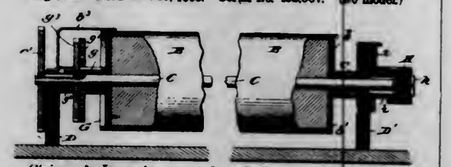


Claim.—1. The combination of a tube 1 formed with a series of semi-circular slots 2, and a straight neck 3, having a shoulder 8, a spherical mixing chamber 4 having a shoulder 7, radial openings 13 and screw thread connection with the neck, a supply pipe 9 having a jet 12, and the cap 15, extending more than half way around the tube and sliding lengthwise thereof, having a series of semi-circular slots 16, adapted to register with the semi-circular slots of the tube; substantially as described.

2. The combination of a tube 1 formed with a series of semi-circular slots 2, and a straight neck 3, having a shoulder 8, a spherical mixing chamber 4, having a shoulder 7, radial openings 13, and screw thread connection with the neck, a supply-pipe 9, having a jet 12, the cap 15, extending more than half way around the tube and sliding lengthwise thereof, having a series of semi-circular slots 16, adapted to register with the semi-circular slots of the tube, and the lugs or projections 21 located on the tube for preventing the turning of the cap thereon; substantially as described.

3. The combination of a circular tube 1, formed with a series of semi circular radial slots 2, a straight neck 3, having a shoulder 8, and a bridge 17 having a perforation 18, a spherical mixing chamber 4 having a shoulder 7, radial openings 13, and screw thread connection with the neck, a supply pipe 9 having a jet 12, the circular cap 15, extending more than half way around the tube and sliding lengthwise thereof, having a series of semi-circular radial slots 16, adapted to register with the semi-circular radial slots of the tube, and a perforated bridge 19, and the fastening 20, whereby the cap is pivoted, to the tube; substantially as described.

520,310. WORKMAN'S TIME-RECORDER. DANIEL HEPP, Chicago, Ill. Filed Nov. 29, 1893. Serial No. 492,367. (No model.)



Claim.—1. In a time recorder, the combination of a clock, a roller or cylinder adapted to be placed in gear therewith, said roller or cylinder having hour and minute disks, and means for adjusting the roller so that it will move synchronously with the clock movement, said roller carrying a record-sheet which is divided longitudinally into spaces, an apertured plate located outside of the case near the roller, and a recording key for impressing a character on the record sheet, substantially as shown, and for the purpose set forth.

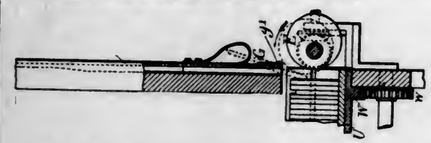
2. In a time recording mechanism, the combination of a roller or cylinder which is movable longitudinally upon its supporting-shaft, of a gear wheel adapted to engage with a pinion on a shaft driven from the clock mechanism, gearwheels g' and g^2 meshing with pinions g and g^3, the pinion g carrying a minute-disk, as G, the roller carrying adjacent to the minute-disk an hour-disk, and means for disengaging the gearing from the clock movement and the roller from its shaft, substantially as shown and for the purpose set forth.

3. In a time recording mechanism, the combination of a roller or cylinder which is adapted to be moved synchronously with the clock movement, gearing having broad pinions over the surfaces of which the intermeshing gearwheels are adapted to slide, and a rotatable cap held in engagement with the shaft, substantially as shown, whereby when said cap is turned the shaft carrying the roller will be moved longitudinally, for the purpose set forth.

4. A time recorder constructed substantially as shown and provided with a number plate having a series of apertures and perforations, of a self-inking recording key having a base-plate with a portion which is adapted to enter the apertures in the number-plate and a projection which enters the perforations, substantially as shown.

5. In a time recorder, the combination, with the shaft supports, of a shaft E' geared to the clock mechanism, said shaft having a disk with a clutch face, a shaft E carrying a pinion e and a clutch member by means of which the recording mechanism can be disconnected from the clock mechanism, a shaft carrying a roller or cylinder and pinion e which meshes with the pinion e, the heads of the drum being divided circumferentially as set forth, means for engaging the roller or cylinder with its shaft, and a rotatable cap which is carried by one end of the shaft and engages a threaded projection extending from a support, substantially as shown and for the purpose set forth.

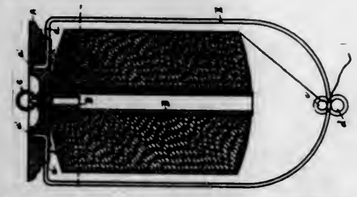
520,311. TYPE-SETTING MACHINE. CHARLES F. HILDER, London, England. Filed July 24, 1893. Serial No. 481,302. (No model.) Patented in England July 25, 1892, No. 13,524; in France July 21, 1893, No. 231,674, and in Belgium July 21, 1893, No. 105,664.



Claim.—1. In a type-composing machine, the combination with a type-assembling receptacle, and a type magazine or holder having a series of descending channels, of a single delivery channel or aperture communicating with the descending channels and provided at the front side of its lower end with a spring-pressed door pivoted at its lower extremity and yielding to allow the type to assume an inclined position as it passes out of the said delivery channel or aperture, and a continuously rotating eccentric located below the spring-pressed door and acting to move the type downward from said door and push it into the assembling receptacle, substantially as described.

2. In a type composing machine, in combination with each type compartment, a finger key, and a spring slotter having its nose shaped with a narrow edge at one side and having the pivot on which it turns situated below the point which the nose reaches at the extreme of its down stroke, substantially as and for the purpose set forth.

520,312. TWINE-HOLDER. JAMES J. HOOKER and BENJAMIN W. PUTNAM, Cincinnati, Ohio. Filed Mar. 3, 1894. Serial No. 502,222. (No model.)

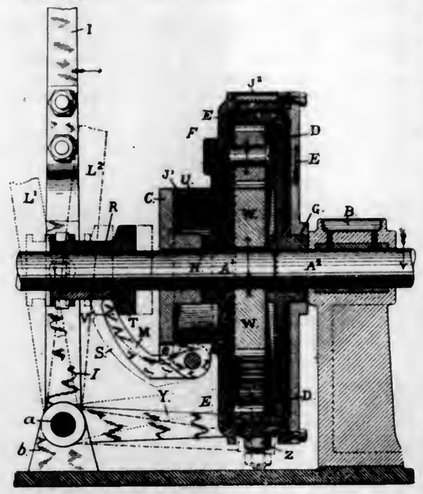


Claim.—1. A twine holder composed substantially of a base, a spool supporting stud, a detachable tube upon which the twine is wound, adapted to engage with said stud, a yoke frame extending from opposite sides of the base, spanning the spool of twine and provided with a delivery eye centrally over the axis of the spool, and means for suspending the twine holder either end uppermost substantially as described.

2. A twine holder composed of a base, a yoke frame springing from said base, and spanning a spool, and twine, and provided with a delivery eye c, and a suspending eye d, formed by bending of the wire forming the yoke frame, substantially as described.

3. A twine holder composed of the cylindrical tube D, in combination with the frame, provided with the supporting stud attached to the base thereof, a yoke frame extending from the base and spanning the spool and twine, provided with a delivery eye centrally over the axis of the spool, and the suspending ring attached to the base of the holder, substantially as described.

520,313. REVERSING AND CONTROLLING GEARING. GEORGE E. HOTT, San Francisco, Cal. Filed Mar. 9, 1893. Serial No. 465,311. (No model.)



Claim.—1. In a starting, stopping and reversing mechanism, the combination of two shafts, a driving-disk secured on one shaft, an internal gear wheel fastened on the other shaft, a housing supported on the hub of the said gear wheel and also on the other shaft, a gear wheel fixed on the first mentioned shaft, a pinion or pinions on the housing engaging the said gear and also the internal gear wheel, a brake-strap applied to the housing, a clutch-strap likewise applied to the housing near the driving-disk and serving to couple the housing to the driving-disk and the leverage mechanism for operating said straps, substantially as described.

2. In a stopping, starting and reversing mechanism, the combination of two shafts, a driving-disk secured on one shaft, an internal gear wheel fastened on the other shaft, a housing supported on said gear wheel and also on the other shaft, a gear wheel fixed on the first mentioned shaft, a pinion or pinions on the housing engaging the said gear and also the internal gear wheel, a brake-strap applied to the rim of the housing, a clutch strap applied to the flange on the housing near the driving disk, which flange is of less diameter than the rim, said clutch-strap serving to couple the housing to the driving-disk and the leverage mechanism for operating said straps, substantially as described.

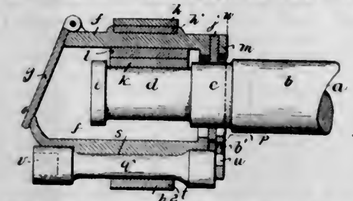
3. In a gearing, the combination of the two shafts, a train of gear wheels connecting them, a housing supported on both shafts, said housing consisting of parallel side-plates and a surrounding rim and arranged to completely inclose said train of gears and also to support the intermediate gear wheels of the train, a brake-strap applied to the outside of the rim of the housing, a clutch-strap which may be positively revolved by the driven shaft, said clutch-strap being applied to a different part of the housing and serving to couple the housing to the driving-shaft, all arranged so that when the rotation of the housing is stopped the second shaft may be driven in an opposite direction, substantially as described.

4. In a mechanism for stopping, starting and reversing two shafts, the combination of the two shafts, a clutch-strap adapted to revolve with the driving shaft, a screw mechanism for closing and releasing the clutch-strap, a lever operating with the screw mechanism, a slidable collar on said shaft, a pawl or lever engaging the collar and likewise the clutch-strap, a gear wheel and a disk both fast on the driving shaft, a gear wheel fast on the driven shaft, a revolving casing which surrounds said gears, intermediate gear wheels supported by said casing together with the brake-strap applied to the casing, substantially as described.

5. In a stopping, starting and reversing mechanism, the combination of two shafts, a driving-disk on one shaft, an internal gear wheel on the other shaft, a housing supported on the hub of the said gear wheel and also on the other shaft, a gear wheel fixed on the first mentioned shaft, a pinion or pinions on the housing engaging the said gear and also the internal gear, the clutch-strap and the brake-strap applied to different parts of the housing and a reversing lever for operating both of said straps, substantially as described.

6. In a mechanism, for stopping, starting and reversing two shafts, the combination of the shafts, a clutch-strap adapted to revolve with the driving-shaft, a slidable collar on said shaft, a gear wheel and a disk both fast on the driving-shaft, the gear wheel fast on the driven shaft, a revolving casing which surrounds said gears, intermediate gear wheels supported by said casing, the brake strap applied to the casing, said brake-strap being fastened to a stationary support and attached to a lever, an operating lever to which said lever is connected, and another lever which engages the slidable collar and also the clutch-strap, substantially as described.

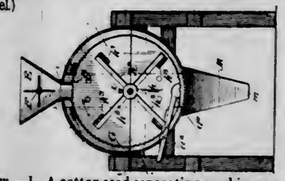
520,314. AXLE-BOX. ROBERT HYDE, Sheffield, England, assignor to William Hyde, Philadelphia, Pa. Filed Feb. 14, 1894. Serial No. 500,167. (No model.) Patented in England Oct. 13, 1891, No. 17,411.



Claim.—1. An axle box provided with a plate or link located at the rear end of the box and capable of a downward and an upward movement, viz: down to a bearing on the axle, or up clear of the axle, as required; a spindle carrying an eccentric or cam which engages said link causing it to move as aforesaid, said spindle being adapted to be rotated by the application thereto of one or more levers; and a spiral spring, the ends whereof are attached to said link while its middle portion bears directly on said eccentric or cam, said spring being adapted to support said link, and to hold it, when not in use, clear of the axle, substantially as set forth.

2. In combination with the axle of a railroad car or vehicle, an axle-box provided with the movable plate or link m which is capable of downward and upward movement, the spindle q adapted to be rotated by the application thereto of one or more levers and provided with the eccentric or cam u said cam u being arranged in engagement with said link causing it to move down to bear on the axle or up to be clear of the axle as required, and a spring b' bearing directly on said eccentric or cam, the ends of said spring being attached to said plate or link, which it supports, and which when the link is not in use it holds clear of the axle, substantially as set forth.

520,315. COTTON-SEED-SEPARATING MACHINE. THOMAS A JACKSON, Easton, Ga. Filed Nov. 18, 1893. Serial No. 491,324. (No model.)



Claim.—1. A cotton seed separating machine comprising a cylindrical screen body, a surrounding annular chamber decreasing in area from the feed to the discharge sides of such body, a rotary beater held to operate in such screen body, a feed hopper opening into the cylinder at the upper end and a discharge formed in the annular chamber, at the bottom all arranged substantially as shown and described.

2. As an improvement in cotton seed separating machines the combination with a main frame, a main fixed cylinder secured thereto closed at the ends, provided with a main discharge and a supplemental discharge, of a fixed screening cylinder held eccentrically within the main cylinder, with its bottom portion nearest the bottom of the main cylinder, whereby an annular chamber having its largest area at the top is provided said screen cylinder having a supplemental chamber at one end disposed over the supplemental discharge in the main cylinder, revolving beaters held to operate in the screening chambers, and a feed hopper discharging in the said screening cylinder all arranged substantially as shown and described.

3. An improved cotton seed separating machine comprising a supporting frame, a main cylinder having closed ends, and a longitudinal discharge at its lower edge, a shaft journaled in the frame and extended through the cylinder longitudinally, eccentrically nearer the bottom than the top, a fixed screen arranged eccentrically on the shaft, and with its lower edge nearest the bottom of the main cylinder whereby a blast chamber having its largest area at the top and gradually decreasing toward the bottom is formed, air inlets opening into

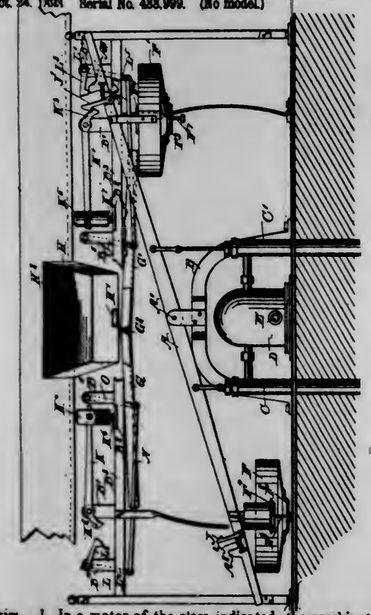
the upper part of such blast chamber, a hopper held to discharge into the top of the screen cylinder, and beater arms arranged concentrically on the shaft, whereby they will approach the sides of the screen on the down stroke and move away from the same on the up movement as set forth.

4. In a cotton seed separating machine, the combination with the main frame and casing, said casing having a discharge in its bottom and air inlets at its ends in its upper part a longitudinal screening cylinder fixedly held eccentric within such casing, with its lower edge nearest said casing, a hopper opening into the said cylinder at one end, a discharge spout connected with the other end, a rotary beater eccentrically held within the cylinder, with its lower arms nearest the bottom thereof, all arranged substantially as shown and described.

5. In a cotton seed separating machine, in combination, a fixed screening cylinder closed at its ends, a casing forming an air space extended circumferentially about such cylinder, tapering from the top downward at each side, a feed hopper connected with the cylinder at one end at the top and a discharge connected with the other end at the bottom, a discharge connected with the bottom of the air space, air inlets opening through the ends of the cylinder into the air space at the top, and a rotary beater held within such cylinder all arranged substantially as shown and for the purposes described.

6. An improved cotton seed separator comprising a non-rotatable cylindrical screening body, having an inlet or feed hopper at the top at one end, a rotary beater, having radial arms spirally arranged thereon and connected by longitudinal blades, such beater being arranged eccentrically in the said screen, a stirrer held on the hopper belted with the beater shaft, and an outer casing surrounding the screen, and arranged eccentrically thereto with its lower edge nearest the screen whereby a blast chamber, having its largest area at the top and gradually decreasing toward the bottom is formed, said casing having an outlet or discharge throat at the bottom all arranged substantially in the manner hereinbefore shown and described.

520,316. MOTOR. CHARLES W. JOHNSTON, Philadelphia, Pa. Filed Oct. 24, 1893. Serial No. 488,999. (No model.)

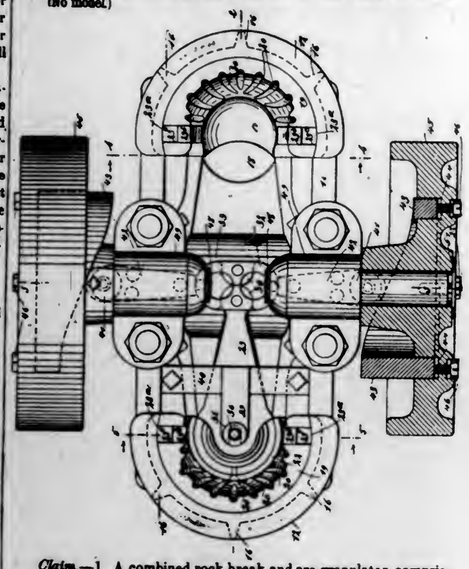


Claim.—1. In a motor of the class indicated, the combination, with a water supply, a horizontal water-trough or conductor suspended beneath it, and having a central, transverse division, swinging hangers supporting said trough, a centrally-pivoted oscillating lever, and buckets mounted on the latter and having self-operating discharge valves, of elbow-levers pivoted in the frame of the motor and arranged above the highest point of oscillation of the bucket lever, and also adapted to come in contact with the latter, and links which connect the trough with said elbow-levers, as shown and described, to operate as specified.

2. A motor, comprising a beam mounted to swing and provided with projections or lugs, valved buckets supported on the ends of the said beam, hooks held near the ends of the said beam, weighted levers adapted to be engaged by the said hooks, bell crank levers adapted to be engaged by the lugs on the said beam, and a trough connected by links with the said bell crank levers, substantially as shown and described.

3. A motor, comprising a beam mounted to swing and provided with projections or lugs, valved buckets supported on the ends of the said beam, hooks held near the ends of the said beam, weighted levers adapted to be engaged by the said hooks, bell crank levers adapted to be engaged by the lugs on the said beam, a trough connected by links with the said bell crank levers, so as to be shifted alternately from one side to the other, and a water supply having an outlet adapted to be connected alternately with the ends of the said trough, substantially as shown and described.

520,317. COMBINED ROCK-BREAK AND ORE-GRANULATOR. HARVEY P. JONES, Denver, Colo. Filed July 31, 1893. Serial No. 481,966. (No model.)



Claim.—1. A combined rock break and ore granulator, comprising an elongated bed having openings therein and recesses in the upper side, grinding bowls fastened in the said recesses and provided with openings delivering through the openings in the bed, fluted linings for the grinding bowls, and oscillating and reciprocating grinding levers or pestles shaped to fit snugly in the bowls and having fluted surfaces, substantially as described.

2. A combined rock break and ore granulator, comprising an elongated bed having recesses on its upper side and near the ends and openings for the passage of ore, grinding bowls fastened in the recesses on the bed and delivering through the openings therein, and oscillating and reciprocating grinding levers or pestles held to move in the bowls, substantially as described.

3. A combined rock break and ore granulator, comprising a supporting bed, grinding bowls fastened to the bed and provided with fluted grinding surfaces, and oscillating and reciprocating grinding levers or pestles having enlarged fluted ends to move in the bowls, substantially as described.

4. A combined rock break and ore granulator, comprising oppositely arranged grinding bowls having removable fluted linings, and oscillating and reciprocating grinding levers or pestles having enlarged ends to fit the bowls, these ends having removable fluted face plates substantially as described.

5. The combination, with the grinding bowls having recesses near their open ends, and the removable grinding levers or pestles having enlarged ends to enter the bowls, of inwardly-pressed tongues held in the recesses of the bowls and fitting against the faces of the grinding levers or pestles, substantially as described.

6. The combination, with the fluted grinding bowls, of the oscillating and reciprocating grinding levers or pestles having enlarged ends to enter the bowls, and a screw mechanism for adjusting the pestles or grinding levers vertically, substantially as described.

7. The combination, with the grinding bowls, and the movable pestles or grinding levers having enlarged ends to enter the bowls, of cross bars secured to the bowls, arms secured to the cross bars and

projecting above the grinding rollers, and bolts fitting sockets in the grinding levers and provided with fixed collars to clasp the ends of the arms, substantially as described.

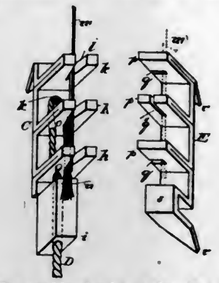
8. The combination, with the grinding bowls, and the movable grinding levers having enlarged ends to enter the bowls, of a transversely reciprocating slide arranged between the bowls, and a pivotal connection between the slide and the inner ends of the grinding levers, substantially as described.

9. The combination, with the grinding bowls, the grinding levers having enlarged ends to fit the bowls and the reciprocating slide to which the levers are connected, of rollers journaled in the ends of the slide, the revoluble fly wheels on opposite sides of the machine, and the cams secured to the fly wheels and arranged to strike the rollers of the slide, substantially as described.

10. The combination, with the reciprocating slide, of the main shaft arranged parallel with the slide, the rollers in the end of the slide, the fly wheels on the main shaft, and cams adjustable in and out on the inner faces of the fly wheels, the cams being arranged to strike the rollers of the slide, substantially as described.

11. The combination, with the reciprocating slide having rollers in its ends and the driving shaft arranged parallel with the travel of the slide, of the fly wheels on the shaft having annular recesses therein, the cams held in the recesses and adapted to strike the rollers of the slide, and a screw mechanism for adjusting the cams in and out, substantially as described.

520,318. COMBINED CUT-OUT AND CORD-ADJUSTER. EDGAR D. KNAP, Schenectady, N. Y. Filed Nov. 23, 1893. Serial No. 491,733. (No model.)



Claim.—1. The combination in a safety fuse cut-out, of a comparted casing containing contact plates to which the conductor ends are attached, a cover carrying fuse-wire holders for bringing the fuse wires into actual contact with the conductor ends when the cover is on, and keyhole shaped slots in the ontside of the casing, designed to hold the cord by frictional contact with the round parts of the slots, substantially as specified.

2. In a safety fuse cut-out, the combination of a contact plate provided with arms having V-shaped slots, and a contact plate having arms slotted at the edge and end thereof, for receiving the fuse wire to be pressed into the V-shaped slots of the arms of the opposite plate, substantially as specified.

3. In a safety fuse cut-out, the combination of a plate provided with arms having V-shaped slots and furnished with a perforated block for receiving a cord, a plate furnished with slotted arms for receiving the fuse wire, and provided with a bearing surface for clamping the fuse wire and the conducting cord, substantially as specified.

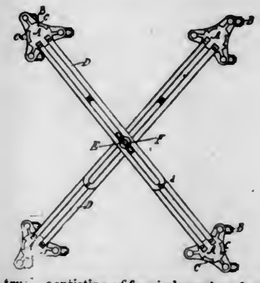
4. In a safety fuse cut-out, the combination of a comparted casing A, provided with two pairs of contact plates C having V-shaped slots, a cover B furnished with contact plates E having slotted arms and adapted to carry the fuse wire, and means, substantially as described, for fastening the contact plates C, E, in the casing A and cover B, as specified.

5. In a combined cut-out and cord adjuster, a casing provided with a cover, the said casing and cover being furnished with holes for receiving the ends of contact plates, and contact plates furnished with projecting end pieces for inserting in the said holes in the cover and body of the casing, whereby the contact pieces may at any time be inserted in the casing or removed therefrom without the use of screws or other fastenings requiring tools for manipulating them, substantially as specified.

6. A contact plate for an electric cut-out, having projecting arms for holding the conductor ends and fuse wires, the said arms being formed of folds of the plate, substantially as specified.

7. In a combined cut-out and cord adjuster, the combination, of the casing A provided with the chambers *a*, *a'*, and key-slots *b*, the cover B fitted to the casing, the double cord D having its branches inserted in holes in the ends of the casing, the contact plates C, E, the fuse wires *m*, and the fastening screw *g*, substantially as specified.

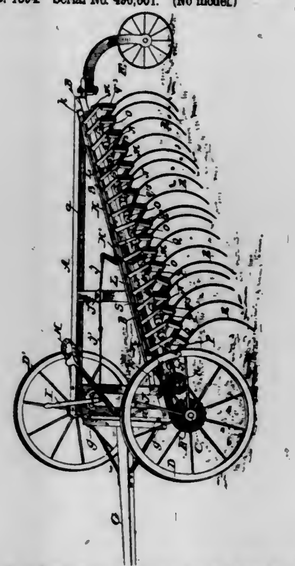
520,319. TRUCK FOR MOVING HEAVY BODIES. CHARLES KYBOOM, St. Ignace, Mich. Filed Sept. 9, 1893. Serial No. 485,171. (No model.)



Claim.—A truck, consisting of four independent feet, each mounted on a roller, U-shaped bars each having its outer open end rigidly attached to one of the feet, and a single clamping bolt passing through all the U-shaped bars, substantially as and for the purposes described

---

520,320. HAY-RAKE. GEORGE D. LAMB, Ackley, Iowa. Filed Jan. 12, 1894. Serial No. 496,601. (No model.)



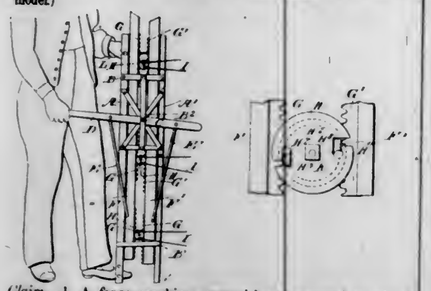
Claim.—1. A hay rake comprising a main frame, having a rake beam, and a shaft mounted longitudinally on such beam having a series of rearwardly projecting crank arms, joined by a longitudinal rod, a series of independent pendent frames pivotally supported at their rear on such rod, a rotary shaft journaled on the rake beam, connected with and operated by one of the drive wheels, having a series of eccentrics, adapted to engage the front end of the pendent frames, and impart an oscillatory movement thereto, and rake teeth secured on such pendent frames, all arranged substantially as shown and for the purposes described.

2. As an improvement in hay rakes the combination with the main frame, and the rake head, having a longitudinally disposed supporting rod provided with a series of pendent pivoted arms, supporting boxes or members, having each a rake tooth connected therewith pivotally connected at their upper end on the pendent arms, a rotary shaft having a series of eccentrics, for each tooth holding member, operated from the drive wheels, and a loop connection between the front end of the tooth holding member and the eccentric, arranged substantially as shown, whereby such member will be oscillated vertically as the eccentrics rotate as set forth.

3. An improved side delivery hay rake, comprising the main frame, including a diagonally disposed rear beam, drive wheels at the front and a caster wheel support at the rear of such frame, a rotary shaft having a series of eccentrics journaled on the rear of the rear beam, having gear connections with one of the drive wheels, a rock

shaft journaled on such rear beam, having upwardly and rearwardly projected crank arms, a lever mechanism connected with one of such arms, a supporting rod held on the others, a series of pendent link arms secured to such rod, each having a tooth bearing plate secured thereto, carrying the rake teeth, and bands passed about the eccentrics and secured at their ends to the front ends of such plates, all arranged substantially as shown and for the purposes set forth.

520,321. **WIRE-AND-SLAT-FENCE MACHINE.** ANDREW W. LANE, Fredonia, Kans. Filed Nov. 23, 1893. Serial No. 491,772. (No model.)



Claim.—1. A fence machine, comprising connected standards held parallel to each other, bars fitted to slide in the said connected standards, and adapted to travel simultaneously in opposite directions, racks secured on opposite faces of the said bars and adjustable thereon, for the purpose specified, and gear wheels carrying the wires and arranged between the opposite racks, substantially as shown and described.

2. A fence machine, comprising vertical standards held parallel to each other, bars mounted to slide in opposite directions in the said standards, racks secured on opposite faces of the said bars, and adjustable thereon, gear wheels engaged on opposite sides by the oppositely arranged racks, each gear wheel being formed with transverse recesses for the reception of the wires to be twisted, pitmen connected with the said bars, and a handle mounted to swing and pivotally connected with the said pitmen on opposite sides of its fulcrum, substantially as shown and described.

3. A fence machine comprising connected standards, frames attached to the said standards on opposite sides and carrying a pivot, a handle mounted to swing on the said pivot, pitmen pivotally connected with the said handle at opposite sides of the said pivot, bars fitted to slide in the said connected standards and pivotally connected with the said pitmen, sets of racks held adjustably on opposite faces of the said bars, and gear wheels arranged between the sets of racks and formed with transverse recesses for the wires to be twisted, substantially as shown and described.

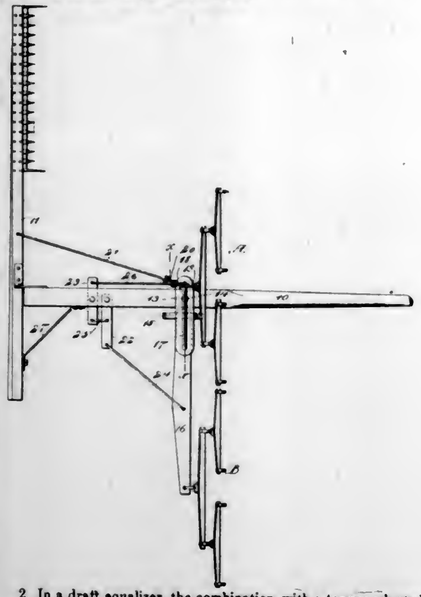
4. A fence machine provided with a revoluble gear wheel having diametrically arranged slots and provided with a recess formed in its face, and a detachable flange formed with slots adapted to register at their inner ends with the slots in the gear wheel and provided with a lug shaped to fit the recess in the face of the gear wheel, substantially as shown and described.

5. A fence machine provided with a revoluble gear wheel having diametrically arranged slots, a detachable flange formed with slots adapted to register at their inner ends with the slots in the gear wheel, and lugs projecting from the face of the gear wheel, to close the outer ends of the slots in the said detachable flange, substantially as shown and described.

6. A fence machine provided with sliding bars, each having a longitudinally-extending groove and transverse recesses, and racks each adapted to engage with its back the said longitudinal groove, each rack being also formed with cross bars adapted to fit into the transverse recesses of the bar, substantially as shown and described.

520,322. **DRAFT-EQUALIZER.** SAMUEL L. LARKINS, Murray, Iowa. Filed Feb. 23, 1894. Serial No. 501,830. (No model.)

Claim.—1. In a draft equalizer, the combination, with a tongue adapted to be attached to the vehicle or machine to be drawn, a stirrup located upon the tongue and extending mainly beyond one side and slightly beyond the other, a draw bar located at the right-hand side of the stirrup and extending within the same at the said side, and a swing bar pivotally connecting the draft bar with the stirrup, extending over the latter in direction of its left-hand end, a double-tree connected with the free end of the swing bar, and a second double-tree connected with the free end of the draw-bar, of equalizing bars pivoted upon the tongue and extending beyond opposite sides, the two bars being in link connection, a connecting rod uniting the right-hand equalizing bar with the draw bar, and a similar rod uniting the left-hand equalizing bar with the free end of the swing bar, and a side draft bar connected with the left-hand end of the stirrup and likewise connected with the machine to be drawn, at the left-hand side of the tongue, as and for the purpose set forth.



2. In a draft equalizer, the combination, with a tongue adapted to be attached to a sickle bar, vehicle, or a machine to be drawn, a stirrup pivoted upon the tongue and extending beyond opposite sides thereof, guide loops located at opposite sides of the right-hand portion of the stirrup, a draw bar extending into the right-hand end of the stirrup, the inner end of the drawbar being located between the said loops, a swing bar pivoting the draw bar in the stirrup at the right-hand end of the latter and extending over the stirrup in direction of its left-hand end, a double-tree connected with the free end of the swing bar, and a second double-tree connected with the free end of the draw bar, of a forward equalizing bar pivoted to the tongue and extending beyond the right-hand side thereof, a second rear equalizing bar pivoted to the tongue and extending beyond both sides thereof, mainly beyond its left-hand side, the right-hand end of the inner or second equalizing bar being in link connection with the forward equalizing bar, connecting rods uniting the right-hand end of the right-hand equalizing bar with the draw bar, and the left-hand end of the left-hand equalizing bar with the free end of the swing bar, and a side draft rod connected with the machine to be drawn, at the left-hand side of the tongue, said draft rod being in clevis connection with the left-hand end of the stirrup, as and for the purpose set forth.

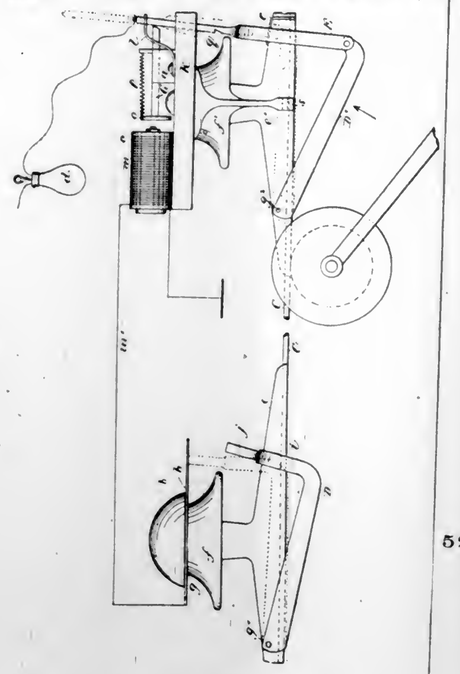
520,323. **BLOCK SYSTEM FOR TROLLEY-RAILWAYS.** WILLARD F. LEWIS, Swampscott, Mass. Filed July 20, 1893. Serial No. 481,023. (No model.)

Claim.—1. In a block system for trolley railways, the combination with the trolley wire, and a contact maker arranged at one end of a track section and comprising a pivoted angled arm D, suspended normally below the line of the trolley wire and arranged to be operated by the trolley wheel and an electrical contact piece against which the arm is swung when operated, of an electro magnetic releasing device arranged at the other end of the section and controlled by the contact maker, and a circuit closing device arranged to close a signal circuit when released by the electro magnetic device, substantially as set forth.

2. In a block system for trolley railways, the combination with the single track A, and the turnouts B, B', of the electric switch *b*, arranged above one of the tracks of the turnout, the releasing device *c* arranged above the corresponding track of the succeeding turnout, an electric signal, and a circuit closer operated by the releasing device, for closing the signal circuit, substantially as set forth.

3. In a block system for trolley railways the combination with the hanger *e*, of the angled arm D pivoted at one end to the hanger and its free end held normally below the line of the trolley wire, the

said angled arm provided with the loop *i* extending upward from its free end to embrace the hanger and trolley wire and to rest upon said hanger when the angled arm is in its normal position, and having a contact arm *j* extending upward from the loop, and the electrical contact piece *h* arranged in the path of the said arm, substantially as set forth.



4. The combination with the hanger *e* and trolley wire *c* of the lever D' pivoted at one end to the hanger, the rod E, pivoted to the free end of the lever and provided with an engaging notch, a sliding catch bolt G, carrying an armature at one end, and arranged to hold the rod E when raised, the releasing magnet *m*, and a contact piece with which the rod E makes contact when released, substantially as set forth.

5. The combination with the hanger *e* and the trolley wire *c* of the lever D', the rod E pivoted to the free end of the lever, and provided with an engaging notch *q*, the spring pressed sliding catch bolt G, the releasing magnet *m*, the contact piece *r* and the electrical signal lamp *d*, substantially as specified.

6. The combination with the hanger *e* and trolley wire *c*, of the lever D', the rod E forked to embrace the hanger and having an upwardly extending arm connected electrically with one terminal of an electric lamp and provided with an engaging notch, a sliding catch bolt adapted to engage the rod, a releasing magnet, a contact piece *r*, an electric signal lamp *d*, and a circuit closer for operating the releasing magnet, substantially as set forth.

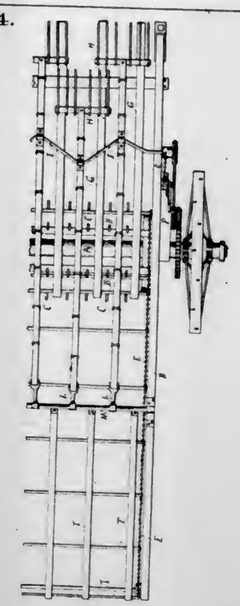
520,324. **HAY-LOADER.** ALBERT M. LIVELSBERGER, Kalamazoo, Mich. Filed Sept. 28, 1893. Serial No. 486,702. (No model.)

Claim.—1. In a hay-loader, the combination of a suitable frame, an endless carrier in the upper portion of said frame, alternately reciprocating rakes in the lower portion, and a revoluble toothed cylinder at the lower end of said endless carrier; substantially as set forth.

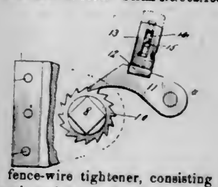
2. The combination of a suitable frame, an inclined bridge in the lower part of said frame, alternately reciprocating rakes above said bridge, an endless carrier in the upper portion of said frame, and a revoluble toothed cylinder at the junction of said bridge and carrier; substantially as set forth.

3. The combination of a wheeled frame, a revoluble toothed cylinder mounted upon the axle of the wheels of said frame and revolved thereby, an endless carrier in the upper portion of said frame, mounted upon and driven by said cylinder, a slatted inclined bridge in the lower portion of said frame, and alternately reciprocating rakes above said bridge; substantially as set forth.

520,324.



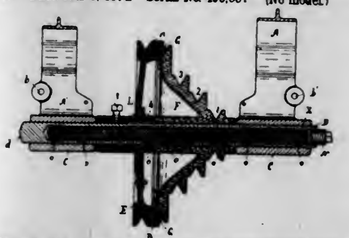
520,325. **PENCE-WIRE TIGHTENER.** LEROY J. MICHAELS, Tiffin, Ohio. Filed Mar. 2, 1894. Serial No. 502,108. (No model.)



Claim.—1. A fence-wire tightener, consisting of a bracket, a spool journaled therein and carrying a ratchet-wheel, a pawl pivoted adjacent to the ratchet wheel and adapted to engage the same, and a locking-plate adjustably secured adjacent to the pawl and adapted to bear upon the same and hold it in engagement with the ratchet wheel, and means for positively locking said plate, substantially as described.

2. In a fence-wire tightener, the combination of a support, a reversible bracket bolted thereon, a spool journaled in the bracket and the adjacent support and provided with an angular portion for the reception of a wrench, a removable and reversible ratchet-wheel mounted on the spool-shaft adjacent to the support, a pivoted reversible pawl carried by the support, and adjustable locking plate positively engaging the pawl, and means for positively but removably locking said plate, substantially as described.

520,326. **POWER-TRANSMITTER.** LOUIS L. MILLER, Newport, Ky., assignor to the Ross Moyer Manufacturing Company, Cincinnati, Ohio. Filed Jan. 8, 1894. Serial No. 496,087. (No model.)

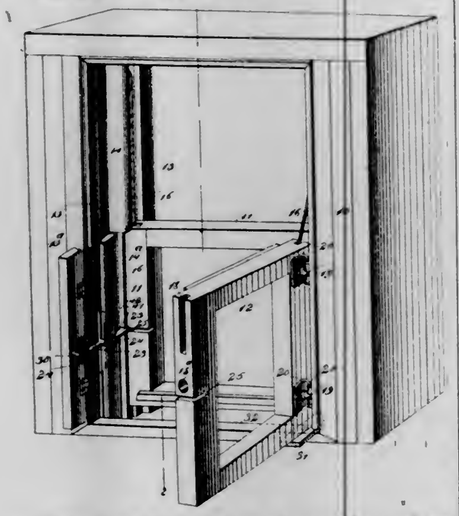


Claim.—1. In a power-transmitter, the combination with a supporting frame, of a lengthwise movable sleeve shaft D constructed to receive the lubricating candle Z which is insertible lengthwise there-

into through an opening in one end thereof, said shaft having orifices o through which the lubricant descends by gravity, the sheaves E and F, one journaled loosely on the sleeve-shaft, and the other rigidly secured thereto, a lever H for moving the sleeve-shaft lengthwise in bearings on the supporting frame to throw one sheave into contact with the other, and a plug N closing the end of the sleeve-shaft through which the candle is inserted, substantially as described.

2. A power-transmitter comprising the U-shaped frame, the sleeve-shaft D, the sheaves E, F, one journaled loosely on the sleeve-shaft, and the other fastened thereon, the spring L interposed between the hubs of said sheaves, the lever H and the journal centers b, b' upon said frame, the parts being so constructed that said lever and sheaves may be reversed in position on said frame, substantially as described and for the purpose specified

520,327. WINDOW. RUDOLPH J. MITCHELL, Jenkintown, Pa. Filed Jan. 5, 1894. Serial No. 495,824. (No model.)



Claim.—1. The combination with the window frame and sash cords, of the vertically-movable and inwardly-swinging sash having its hinged edge directly secured to a sash cord, and a latch secured to the opposite sash cord and adapted to be swung into engagement with the free edge of the sash or out of engagement with the same, substantially as described.

2. The combination, with the window frame, of swinging sections forming the lower ends of the inner bead and parting strip, the sliding sashes hinged at one edge and adapted to slide vertically, the hinged edges of the sashes being connected directly to the sash cords, secured to the opposite sash cords and adapted to be swung into and out of engagement with the free edge of the sash, and means for retaining the latches in a fixed position when freed from the sashes, substantially as described.

3 The combination, with the window frame having a transverse groove therein and the usual sash cords, of the swinging sash having one edge secured directly to a sash cord, and a groove or mortise in its free edge, a latch secured to the other cord and adapted to lie in the mortise of the sash and swing into the groove of the frame, and a stop or button on the frame opposite the sash, substantially as described

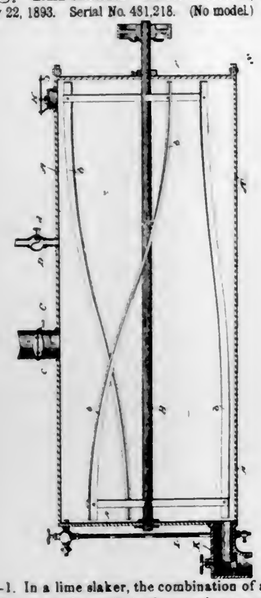
4. The combination, with the window frame and the vertically-sliding and inwardly-swinging sash, of eyes on the frame having openings on their inner sides, and plates on the sash, the plates being slotted and curved outward and terminating in rods adapted to slide through and swing on the eyes, the said rods being of greater diameter than the openings in the eyes and the said openings of greater diameter than the thickness of the plates, substantially as described

5. In a window, the combination with the frame and the inwardly-swinging and vertically-sliding upper sash, of a latch on the free edge of the sash adapted to be detached and held in the frame, a slotted rest in the frame in the path of the sash, an eye on the parting strip, and pintles on the sash adapted to engage the slot in the rest and the eye on the parting strip, substantially as described.

6. The combination, with the window frame and the sliding and swinging sash having a groove or mortise in its free edge, of the latch having a tube to engage a sash cord, and a laterally-extending arm to lie in the mortise of the sash, substantially as described.

7. The combination of the grooved or mortised sash, the latch having a tube to engage the sash cord and an arm to lie in the groove or mortise, and a spring catch on the arm to engage the sash, substantially as described.

520,328. LIME-SLAKER. FENTON L. MOORES, Cincinnati, Ohio. Filed July 22, 1893. Serial No. 481,218. (No model.)



Claim.—1. In a lime slaker, the combination of a tightly closed vessel, an agitator or mixer within the vessel, a separate valved conduit for the introduction of lime, a separate valved conduit for the introduction of water, and means to vent and relieve the vessel, substantially as described.

2. In a lime slaker, the combination of a closed vessel, an agitator or mixer within the vessel, means for the introduction of water and lime to said vessel, a gage and a safety valve, substantially as described.

520,329. OVERHEAD TROLLEY-CONDUCTOR. ROBERT MUIR, Brooklyn, N. Y. Filed Mar. 3, 1894. Serial No. 502,218. (No model.)



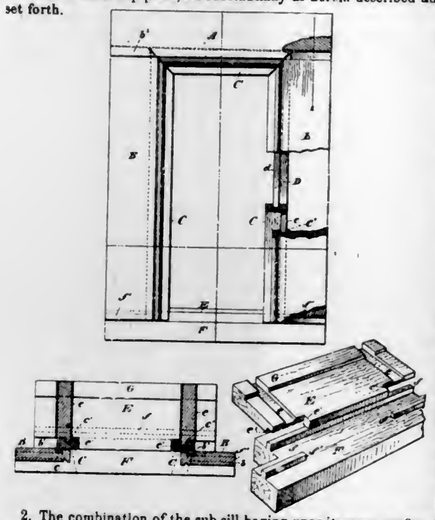
Claim.—1. A trolley conductor comprising a casing having a concaved recess upon its inner face, and diverging flanges extending from the ends of the said recess, an insulating material held in the said recess, and a hollow conductor proper arranged within the recess and in contact with the insulating material, the inner face of the conductor being essentially parallel to the concave face of the recess, substantially as described.

2. The combination, with two sections of the conductor casing the insulating material therein, and the conductor sections held in the insulating material, of a conducting plate placed over the ends of the adjacent sections of the conductor and interposed between them and the insulating material, substantially as described.

3. The combination, with two sections of the conductor casing provided with projecting flanges, of a clamp extending over both sections and provided with angular ends to engage the flanges of the casing sections, substantially as described.

520,330. WEATHER-PROOF WINDOW-FRAME. HERMANN NEUMANN, Jersey City, N. J. Filed Sept. 21, 1893. Serial No. 486,097. (No model.)

Claim.—1. The combination of the subsill having upon its upper surface the continuous longitudinal tongue, the counter-sill having upon its upper side the transverse grooves, upon its under side the longitudinal rabbet and groove engaging with the continuous longitudinal tongue of the subsill and having the rectangular projection overlapping the subsill, the stiles engaging at their lower ends with the transverse grooves of the counter-sill and having upon their front edges the longitudinal rabbets, the horizontal top-piece having upon its under side the transverse grooves engaging with the stiles and upon its front edge the longitudinal rabbet, the vertical blind-stops having upon their rears the longitudinal grooves engaging with the longitudinal rabbets of the stiles, and the horizontal blind-stop having upon its rear the longitudinal groove engaging with the longitudinal rabbet of the horizontal top-piece, all substantially as herein described and set forth.



2. The combination of the sub-sill having upon its upper surface the continuous longitudinal tongue and the two shorter longitudinal tongues, said shorter tongues being parallel with the continuous longitudinal tongue and in line with each other, the counter-sill having upon its upper side the transverse grooves, upon its under side the longitudinal rabbet and groove engaging with the continuous longitudinal tongue of the subsill and having the rectangular projection overlapping the subsill, the stiles engaging at their lower ends with the transverse grooves of the counter-sill and having upon their front edges the longitudinal rabbets, the horizontal top piece having upon its under side the transverse grooves engaging with the stiles and upon its front edge the longitudinal rabbet, the vertical blind-stops, mitered at their upper ends, having upon their rears the longitudinal grooves engaging with the longitudinal rabbets of the stiles, the horizontal blind-stop, miter at both its ends, having upon its front the longitudinal rabbet and upon its rear the longitudinal groove engaging with the longitudinal rabbet of the horizontal top-piece, the vertical outer-casings having at their lower ends the grooves engaging with the shorter longitudinal tongues of the sub-sill, upon their rear edges the longitudinal grooves engaging with the longitudinal rabbets of the vertical blind-stops and having upon their upper ends the rabbets, and the horizontal top-casing having upon its lower rear side the longitudinal rabbet and groove engaging with the rabbets of the vertical outer casings and with the longitudinal rabbet of the horizontal blind-stop, all substantially as herein described and set forth.

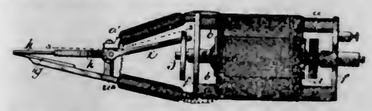
3. In a weather proof window frame the combination, with the subsill, stiles, the horizontal top-piece, vertical blind-stops, the horizontal blind-stops, vertical outer casings and the horizontal top-casing, of the counter-sill having the transverse grooves upon its upper side engaging with the stiles, the longitudinal rabbet and groove upon its under side engaging with the continuous longitudinal tongue of the subsill and having the rectangular projection over-lapping the subsill, substantially as herein described and as and for the purposes set forth.

4. In a weather proof window frame, the combination, with the counter sill, stiles, the horizontal top-piece, vertical blind-stops, the horizontal blind-stop, vertical outer casings and the horizontal top-casing, of the sub-sill having the continuous longitudinal tongue engaging with the longitudinal rabbet and groove of the counter-sill and having the shorter longitudinal tongues engaging with the grooves of the vertical outer-casings, substantially as herein described and as and for the purposes set forth.

5. The combination, with the sub-sill, the counter-sill, stiles, the horizontal top-piece, vertical outer casings and the horizontal top-casing, of the vertical blind-stops, mitered at their upper ends, having upon their rears the longitudinal grooves engaging with the longitudinal rabbets of the stiles and the horizontal blind-stop, mitered at both its ends, having upon its front the longitudinal rabbet engaging with the longitudinal rabbet and groove of the horizontal top-casing and upon its rear the longitudinal groove engaging with the longitudinal rabbet of the horizontal top-piece, all substantially as herein described and set forth.

6. In a weather proof window frame, the combination, with the stiles, the horizontal top-piece, vertical blind-stops, the horizontal blind-stop, vertical outer casings and the horizontal top casing, of the sub-sill having the longitudinal tongues and the counter-sill having the transverse grooves upon its upper side engaging with the stiles, the longitudinal rabbet and groove upon its under side engaging with one of the tongues of the subsill and having the rectangular projection overlapping the sub-sill and having the raised weather stop, all substantially as herein described and set forth.

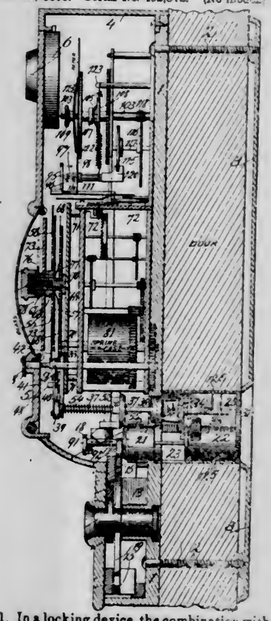
520,331. ANIMAL-SHEARS. CHESTER M. PALMER, Lemartine, Wis., assignor of one-third to John M. Palmer, same place. Filed May 6, 1893. Serial No. 473,257. (No model.)



Claim.—1. A hair clipper or animal shears, one of whose cutters is adapted to vibrate across the toothed edge of the other, and both being magnetically and oppositely polarized to cause them to maintain close working contact as specified.

2. In a hair clipper or animal shears, the combination with a magnet forming part of the frame or handle, of cutters which are attached to the separated poles of the magnet and thus oppositely polarized inductively, one of said cutters being adapted to vibrate across the toothed edge of the other and means for producing such vibration, as shown and described

520,332. TIME-LOCK. EDWIN S. PHELPS, Leavenworth, Kans. Filed Nov. 29, 1893. Serial No. 492,372. (No model.)



Claim.—1. In a locking device, the combination with a key mechanism, and a movable dial having extensible arms, of means intermediate of said key mechanism and extensible arms adapted to be actuated by one or more of said extensible arms to adjust the key mech-

anism to permit it to be operated by a key, said adjusting means being in operative connection with the key when in the lock to adapt it to be moved by the key to place it in position to be acted on by one or more of said extensible arms, substantially as and for the purposes described.

2. In a locking device, the combination with a key mechanism, and a movable dial having extensible arms, of means intermediate of said key mechanism and extensible arms adapted to be actuated by one or more of said extensible arms to adjust the key mechanism to permit it to be operated by a key, and means for moving said adjusting means at will to bring it into position to be actuated by one or more of said extensible arms, substantially as and for the purposes described.

3. In a locking device, the combination with a key mechanism, and a movable dial having extensible arms, of a lever arranged to be actuated from one or more of said extensible arms, a friction wheel or disk having connection with said lever and with a portion of the key mechanism, the connection between said lever and key mechanism being such as to permit adjustment of the lever that it may be operated from one or more of said extensible arms, and a beveled member intermediate of said beveled wheel or disk and another portion of the key mechanism and adapted to be actuated by a key to impart movement to said disk or wheel by frictional engagement of the beveled member therewith to move said lever into position to be actuated from one or more of said extensible arms, substantially as and for the purposes described.

4. In a locking device, the combination with a key mechanism, and a movable dial having extensible arms, of a lever arranged to be actuated from one or more of said extensible arms, a friction wheel or disk having connection with said lever and with a portion of the key mechanism, and a beveled member intermediate of said wheel or disk and another portion of the key mechanism and adapted to be actuated by a key to impart movement to said disk or wheel by engagement of the beveled member therewith to move said lever into position to be actuated from one or more of said extensible arms, the construction of said beveled wheel or disk and said beveled member being such that there may be a partial movement of one of said parts before moving said lever into position to be actuated from said extensible arms, substantially as and for the purposes described.

5. In a locking device, the combination with a key mechanism and the movable dial having extensible arms, of a lever intermediate of said key mechanism and extensible arms and adapted to be actuated by one or more of said arms to adjust the key mechanism to permit it to be operated by a key, and an adjustable fulcrum for said lever, substantially as and for the purposes described.

6. In a locking device, the combination with a key mechanism, and means adapted to be actuated from one or more extensible arms to adjust the key mechanism to permit it to be operated by a key, of a movable dial provided with a series of arms adapted to be brought into position to actuate said means to adjust the key mechanism, the arms of said dial being adjustable and provided with a spring engaging depressions in the dial in the different adjustments of the arms, and a ridge or projection on the plate over which said springs will pass in the adjustment of the arms, substantially as and for the purposes described.

7. In a locking device, the combination with a key mechanism, and means adapted to be actuated from one or more extensible arms to adjust the key mechanism to permit it to be operated by a key, of a movable dial provided with a series of arms adapted to be brought into position to actuate said means to adjust the key mechanism, the arms of said dial being adjustable and provided with a spring engaging the dial to hold the arms in their different adjustments, and means for regulating the tension of said springs, substantially as and for the purposes described.

8. In a locking device, the combination with a key mechanism, means adapted to be actuated from one or more extensible arms to adjust the key mechanism to permit it to be operated by a key, and suitable clock mechanism for moving said arms, of a dial carrying said arms and deriving motion from the clock mechanism, said dial having a frictional adjustment on its bearing to permit circular adjustment of the dial independent of the movement of the clock mechanism and without the necessity of disconnecting any part of the device, substantially as and for the purposes described.

9. In a locking device, the combination with a key mechanism, means adapted to be actuated from one or more extensible arms to adjust the key mechanism to permit it to be operated by a key, and suitable clock mechanism for moving said arms, of a dial carrying said arms and deriving motion from the clock mechanism, a spring connecting said dial with a portion of one of the wheels of the clock mechanism for the purpose of transmitting motion from said wheel to the dial through the instrumentality of said spring, said dial having a circular adjustment independent of said wheel, substantially as and for the purposes described.

10. In a locking device, the combination with a key mechanism, means adapted to be actuated from one or more extensible arms to adjust the key mechanism to permit it to be operated by a key, and suitable clock mechanism for moving said arms, of the wheel deriving motion from the clock mechanism and formed with a sleeve, a dial carrying said extensible arms and mounted on said sleeve to be circularly adjustable thereon, a spring connecting said dial and said wheel whereby the dial and wheel are caused to rotate together, and the screw connecting the sleeve of said wheel with a part of said dial, substantially as and for the purposes described.

11. In a locking device, the combination with a key mechanism, means adapted to be actuated from one or more extensible arms to adjust the key mechanism to permit it to be operated by a key, and suitable clock mechanism for moving said arms, of a dial carrying said arms, the wheel 68 transmitting motion to said dial, and means for transmitting motion from the spring barrel of the clock mechanism direct to said wheel through which motion is transmitted to the dial carrying the extensible arms, substantially as and for the purposes described.

12. In a locking device, the combination with a key mechanism, means adapted to be actuated from one or more extensible arms to adjust the key mechanism to permit it to be operated by a key, and suitable clock mechanism for moving said arms, of a dial carrying said arms, the wheel 68 transmitting motion to said dial, recording mechanism for making a record when the lock is operated to unlock the door, and the wheel 85 taking its motion direct from the wheel that drives the dial carrying the extensible fingers and transmitting it through a system of gears to the recording mechanism, substantially as and for the purposes described.

13. In a locking device, the combination with a key mechanism controlled in its operation by a time mechanism, of a recording dial moved in unison with the time mechanism, and marked with divisions of the day, means for imparting a rotatable movement to the dial about its axis and a marking device connected with the key mechanism and registering upon the recording dial the time when the key mechanism is actuated by the manipulation of means to operate the same, substantially as and for the purposes described.

14. In a locking device, the combination of a recorder, time mechanism for actuating the same, and means for registering on the recorder the movements of the lock in the operation of both locking and unlocking, substantially as and for the purposes described.

15. In a locking device, the combination with a key mechanism controlled in its operation by a time mechanism, of a recording dial moved in unison with the time mechanism, and formed with divisions corresponding to the days of the week, and a marking device operated from the key mechanism and registering upon the recording dial the time when the key mechanism is actuated by the manipulation of means to operate the same, said marking device and recording dial having their positions changed in relation to each other as the days of the week pass that the record of the succeeding days may be divisionally separated upon the dial, substantially as and for the purposes described.

16. In a locking device, the combination with a key mechanism controlled in its operation by a time mechanism, of a recording dial moved in unison with the time mechanism, a movable marking device to make a record on said dial, and a device actuated from the time mechanism and moving said marking device relatively to the dial to adapt it to make a record on the dial at different points corresponding to the different time periods at which the record is made, substantially as and for the purposes described.

17. In a locking device, the combination with a key mechanism controlled in its operation by a time mechanism, of a recording dial moved in unison with the time mechanism and divided into a series of divisions corresponding to involute curves, a marking device operated from the key mechanism and registering upon the recording dial the time when the key mechanism is manipulated, and a device having substantially the form of an involute of a circle and operated from the time mechanism to cause the marking device to record upon the involute divisions of the recording dial, substantially as and for the purposes described.

18. In a locking device, the combination with a key mechanism controlled in its operation by a time mechanism, of a recording dial moved in unison with the time mechanism, a marking device operated from the key mechanism and registering upon the recording dial the time when the key mechanism is manipulated, a device having substantially the form of an involute of a circle and operated from the time mechanism to act on said marking device to cause it to record upon the recording dial, and means for restoring said marking device to its initial position, substantially as and for the purposes described.

19. In a locking device, the combination with a key mechanism controlled in its operation by a time mechanism, of means to receive the record denoting the movement of the key mechanism to move the lock bolt, and a marking device connected with the key mechanism and adapted to make a record of the movement of the key mechanism in both locking and unlocking the bolt, substantially as and for the purposes described.

20. In a locking device, the combination with a key mechanism controlled in its operation by a time mechanism, of means to receive the record denoting the movement of the key mechanism to move the lock bolt, a marker to register the movement of the key mechanism, a shaft having an arm to move said marker and a power receiving arm or extension provided with beveled faces, an arm connected with a part of the key mechanism and adapted in the movement of the key mechanism to be brought against either beveled face of said arm or extension to move the marker in either the locking or unlocking of the lock bolt, and means for restoring said arm or extension to its normal position, substantially as and for the purposes described.

21. In a locking device, the combination of the key mechanism controlled in its operation by a time mechanism, a movable dial operated from the time mechanism and provided with a series of extensible arms adapted to be set to actuate a lever to permit the key mechanism to be manipulated, said extensible arms corresponding to time divisions of the day, a lever adapted to be actuated by said extensible arms to adjust the key mechanism for manipulation, a stationary dial inscribed with divisions of the day, an indicating hand for said stationary dial and movable with the dial carrying the extensible arms, a recording dial operated by the time mechanism and provided with inscriptions corresponding to the time divisions of the stationary dial and the extensible arms, and a marking device operated from the key mechanism for recording upon the recording dial the time when the key mechanism is manipulated to move the lock bolt, the arrangement being such that the adjustable arms can be set to permit the key mechanism to be manipulated at a predetermined time and the recording dial will show the time of manipulation of the key mechanism to move the lock bolt whether it be at the predetermined time or at some period of time thereafter, substantially as and for the purposes described.

22. In a locking device, the combination with a time mechanism, of a recording mechanism comprising a power receiving and transmitting wheel operated from the time mechanism, and a recording dial operated from said wheel, and connected therewith by a frictional device permitting the adjustment of the recording dial without moving said wheel, substantially as and for the purposes described.

23. In a locking device, the combination with a time mechanism, of a recording mechanism comprising a power receiving and transmitting wheel operated from the time mechanism, a recording dial operated from said wheel, and a spring connection between said wheel and dial whereby movement may be transmitted from the wheel to the dial through said spring, substantially as and for the purposes described.

24. In a locking device, the combination with a time mechanism, of a recording dial operated from said time mechanism and a spring for holding said dial in position, said spring permitting the removal of the dial that it may be replaced by another dial, substantially as and for the purposes described.

25. In a locking device, the combination with a time mechanism, of a recording dial of flexible material operated from said time mechanism, a marking device for making a record upon said dial, and a movable stripper for assisting in separating said dial and marking device, substantially as and for the purposes described.

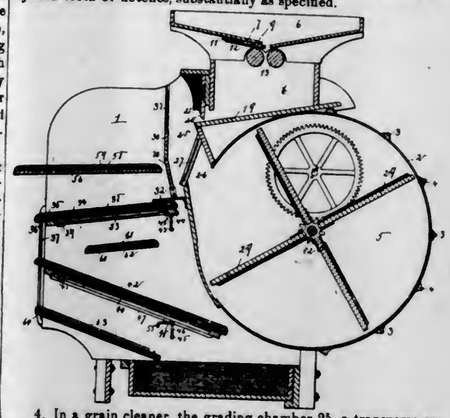
26. In a locking device, the combination with a time mechanism, and the recording dial, of a marker to record upon said dial, a device to move said marker, and a wheel for transmitting motion derived from the time mechanism to said dial, said wheel having connection with the device that moves the marker for the purpose of actuating the same, substantially as and for the purposes described.

520,333. GRAIN-CLEANER. JOSEPH G. PLOWMAN and HENRY E. KITTELL, White Pigeon, Mich. Filed Oct. 30, 1893. Serial No. 489,490. (No model.)

Claim.—1. In a grain cleaner, the combination of a permanent hopper 19 having an inclined bottom, and a vertically sliding gate at its lower rear portion, a removable hopper 6 having its bottom and discharge considerably above the inclined bottom of the said stationary hopper, an extension on said removable hopper fitting said permanent hopper, and the rollers underneath the discharge of said removable hopper, substantially as specified.

2. In a grain cleaner, the hopper 19 having the gate 20 at its lower rear portion, the vertical grading chute into which the grain falls from said gate, the upwardly directed blast opening 26 into said chute, the screen guarding said opening, the series of superposed removable slats forming the front wall of said chute, the grain board 32 at the bottom of said chute the guard 56, the sieve 33, the screen 40 and means for imparting opposite vibratory movements to said sieve and screen, substantially as specified.

3. In a grain cleaner, the hopper 19 having a vertically sliding gate 20, a pair of parallel, oblique links 21 connected each at one end to the hopper and at the other end to said gate, a lever handle 22 connected directly to said gate and projecting out through the side of the machine, a series of teeth or notches 23 on the under side of said lever handle, and a plate 24 on the frame designed to be engaged by said teeth or notches, substantially as specified.

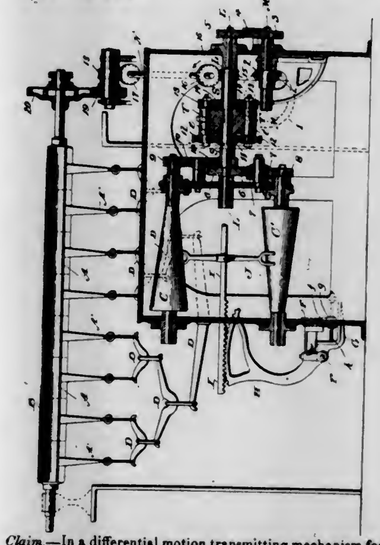


4. In a grain cleaner, the grading chamber 25, a transverse upward opening 26 from the blast chamber into the lower portion of the grading chamber, the wire screen 27 protecting said opening 26, and a series of edgewise disposed, superposed, removable slats, forming the rear wall of said chamber 25, substantially as specified.

5. In a grain cleaner, the combination of the sieve 33, its pivotal and vertically adjustable cheek pieces 34 having horizontal flanges 38, and sieve supporting lugs 39, the oppositely inclined screen 40 below said sieve, its cheek pieces 42 similar to the pieces 34, the shake rod 43, its bail, a clasp 44 hinged to the said bail and arranged to engage with the sieve 33, the shake rod 45, its bail 46, adapted to engage with the screen 40, the rocker arms 55 on said bail, and means connected to the said rods 43 and 45 for imparting an opposite vibratory movement to said sieve and screen, substantially as specified.

6. In a grain cleaner, the combination of the screen 40, its notched bars 47, the shake rod 45, its bail 46, engaged by the notches in said bars, the rocker arms 55 on said bail, and means for operating said shake rod, substantially as specified.

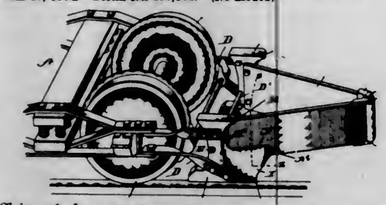
520,334. EVENING MECHANISM FOR COTTON-OPENERS, &c. JAMES C. POTTER, Pawtucket, R. I. Filed Jan. 25, 1894. Serial No. 497,975. (No model.)



Claim.—In a differential motion transmitting mechanism for cotton openers and other machinery for working and preparing fibrous materials, the combination with the driving and driven cones and cone

belt of the power shaft L driven at constant speed, the sleeves *s*, *s'*, loose on said shaft and provided with external gears 10', 11 and 14, 15 respectively the head T fixed to said shaft and carrying the external gears 12, 13, meshing directly the one with external gear 11, the other with external gear 14, and gearing between the driven cone and sleeve *s* whereby the latter is rotated in the same direction with the shaft L on which it is mounted, under the arrangement and for operation as hereinbefore set forth.

520,335. CAR-FENDER. WILLIAM J. RAU, Galveston, Tex. Filed Jan. 17, 1894. Serial No. 497,172. (No model.)



Claim.—1. In a car fender, the combination of opposite connected guard shoes adapted to be arranged directly in front of the truck wheels, a front recessed roller support, a vertical point roller journaled in said support, and the convergent fender boards attached at their inner ends to the guard shoes and at their outer ends to said roller support, substantially as set forth.

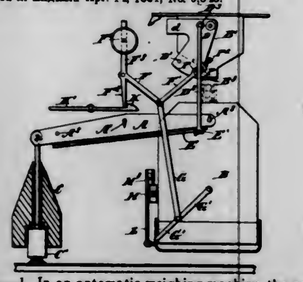
2. In a car fender, the combination with a car truck; of opposite connected guard shoes attached to the truck directly in front of the car wheels, and a V-shaped fender frame extended beyond said shoes, substantially as set forth.

3. In a car fender, the combination of opposite connected guard shoes adapted to be arranged directly in front of the truck wheels and provided with inwardly extending mold-board shaped guard flanges, and the V-shaped frame projected beyond said shoes and having the opposite inner ends thereof fitted to said guard flanges, substantially as set forth.

4. In a car fender, the combination with the truck; of the fender attached to said truck and consisting of opposite guard shoes disposed directly in front of the truck wheel and provided with curved front edges extended into lower rounded feet, and inwardly extending curved guard flanges having inner vertical sides disposed at an angle, and the convergent fender boards connected at their front ends and having inner recessed ends fitting the inner vertical sides of said guard flanges, substantially as set forth.

5. In a car fender, the combination with a truck; of the fender attached to said truck and consisting of opposite mold-board shaped guard shoes arranged in front of the truck wheels and having inner vertical side portions disposed at an angle, the convergent fender boards having inner recessed ends fitting the side portions of said shoes, a V-shaped roller support having opposite angularly disposed pockets receiving the front meeting ends of said fender boards, and a front roller recess, and a point roller removably journaled in the front roller recess of said roller support, substantially as set forth.

520,336. GRAIN-WEIGHING MACHINE. HENRY RICHARDSON, Lichfield, England. Filed Oct. 26, 1893. Serial No. 489,179. (No model.) Patented in England Apr. 14, 1891, No. 6,345.



Claim.—1. In an automatic weighing machine, the combination of the beam A having one end provided with knife edges A^3 A^4, the weighing hopper B suspended from said knife edges and provided at the bottom with a swinging discharge door B^2 having its pivotal axis at a right angle to the knife edges, the lever M M^2 attached to one side edge of the door and extended beyond its pivotal axis, the weight M^3 pivotally suspended from the extended end of said lever and adapted to occupy a position nearly over the perpendicular line of the opened door, the weighted bell crank lever H H^3, the link L connecting said bell crank to the weighted lever M M^3, a tripping device for the bell crank lever, an automatic grain slide for controlling the feed of grain to the weighing hopper, and toggle linkage connecting the grain slide and tripping device, substantially as described.

2. In an automatic weighing machine, the combination with the beam A and the weighing hopper B suspended from the beam and provided with a swinging discharge door B^3, of the grain slide D, the lever M M^3 attached to the door B^2 and provided with weight M^4, the weighted bell crank lever H H^3 attached to the weighing hopper, the link L connecting said bell crank to the lever M M^3, a lever G' for tripping the bell crank H H^3, toggle linkage F F' G connecting said lever G' with the grain slide, and a catch for said toggle linkage, substantially as described.

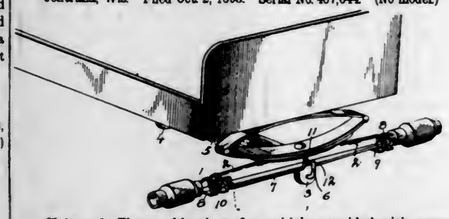
3. In an automatic weighing machine, the combination of the beam A, the weighing hopper B suspended from the beam and provided with door B^3, the hopper B' provided with grain slide D, the spring E attached to the beam, the link D^1 attached to the grain slide and adapted to bear on said spring, toggle links and levers connected with the grain slide, a catch controlled from the beam and adapted to engage said toggle links to hold the grain slide partly open, and weighted locking levers connected with the discharge door of the hopper and adapted to be tripped by the released toggle linkage of the grain slide, whereby the grain slide is closed and the discharge door of the hopper opened simultaneously with the balancing of the beam, substantially as described.

4. In an automatic weighing machine, the combination of the beam A, the weighing hopper B suspended from the beam and provided with a swinging door B^3, the feed hopper B' provided with the swinging grain slide D, the toggle links F F' one of which is provided with a slot P engaging a pin P' on the grain slide, the link G and lever G', and locking mechanism connected with the discharge door of the hopper and adapted to be tripped by said lever, substantially as described.

5. In a weighing machine, the combination of the beam A having weights at one end and at its other end provided with the weighing hopper B having a door B^3, the hopper B', the swinging grain slide or shutter D, the link D^3 connecting the shutter and beam, the toggle links F F' the levers G G' and F^2 F^3, the weight F^4 and the catch K, substantially as shown and described.

6. In a weighing machine, the combination with a beam carrying weights at one end, a weighing hopper connected to the other end of said beam and provided with a pivoted door, a weighted bell crank lever connected to and closing said door, a tripping device for said bell crank lever, a feed hopper, a swinging shutter controlling the feed from said hopper and connected to the beam, and toggle mechanism connecting said shutter and tripping device, substantially as described.

520,337. HORSE-DETACHER. JOHN J. RICK and LEWIS LARSON, Centralia, Wis. Filed Oct. 2, 1893. Serial No. 487,044. (No model.)



Claim.—1. The combination of a vehicle provided with couplings, a rod arranged longitudinally of the front axle and having its ends arranged in the coupling and capable of a limited longitudinal movement and provided intermediate of its ends with a loop, a rock-shaft journaled in suitable bearings and arranged longitudinally of the vehicle and provided at its front end with an arm engaging the loop of said rod, a spring for holding the rod normally in engagement with the couplings, and an arm extending from the rock shaft and connected with the body of the vehicle, substantially as described.

2. The combination with a vehicle provided with couplings, a rod having its ends arranged in the couplings and capable of a limited longitudinal movement and provided intermediate of its ends with a loop, a plate disposed longitudinally of the vehicle and provided with bearings, a rock-shaft journaled in the bearings of the plate and provided at its front end with an arm engaging the loop of said rod, an arm extending from the rear end of the shaft and connected with the body of the vehicle, and a spring for holding the rod normally in engagement with the couplings in position for coupling, substantially as described

3. The combination with a vehicle provided with couplings, of a rod extending along the front axle and having its ends 9 and 10 arranged in the couplings and provided adjacent to the end 10 with an angular bend arranged to engage the adjacent coupling, a plate disposed longitudinally of the vehicle and provided with bearings, a rock-shaft journaled in the bearings of the plate and provided at its front end with an upward extending arm connected with the rod, a spring disposed on the rock-shaft and connected with the same and with the plate, and a horizontally disposed arm extending from the rear end of the rock-shaft and connected with the body of the vehicle, substantially as described.

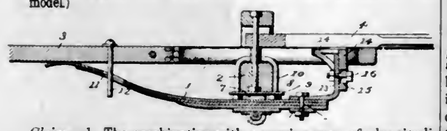
520,338. PRESERVING-JAR. HELEN A. ROBINSON, Clymer, N. Y. Filed Dec. 29, 1891. Renewed Apr. 11, 1894. Serial No. 507,183. (No model.)



Claim.—1. The combination, with a jar or can, and a cover therefor, of a fastener comprising an approximately U-shaped bail having out-turned ends adapted to be removably connected with the can or jar, said bail extending over the cap or cover, and an inverted V-shaped spring provided at its apex with one or more coils encircling the bail, the members of said spring bearing upon the cap or cover; substantially as set forth.

2. The combination, with a jar or can having its receptacle formed of a corresponding diameter throughout its length, and provided with a circumferential flange near its mouth, and a cap or cover inclosing the latter, of a fastener comprising a wire or band encircling the jar or can below the flange and provided at opposite sides, respectively, with an eye and hook, an approximately U-shaped bail having its ends turned outwardly and adapted to engage said eye and hook, said bail extending over and above the cap or cover, and an inverted V-shaped spring provided at its apex with one or more coils encircling the bail and having its downwardly-divergent members bearing against the cap or cover: substantially as and for the purpose set forth.

520,339. TONGUE-SUPPORT. ADDISON B. ROSE and JAMES H. KELLEY, Palmyra, Mo. Filed Dec. 30, 1893. Serial No. 495,189. (No model.)



Claim.—1. The combination with a running gear, of a longitudinally disposed spring arranged beneath and hingedly connected with the axle, at a point intermediate of its ends, and extending in front and in rear of the axle and having its front end supporting the tongue, and its rear end engaging the reach, substantially as described.

2. The combination with a running gear, of a longitudinally disposed spring arranged beneath the front axle, and extending in front and in rear of the same and having its front end supporting the tongue and provided at its rear end with a curved bearing engaging the reach, substantially as and for the purpose described.

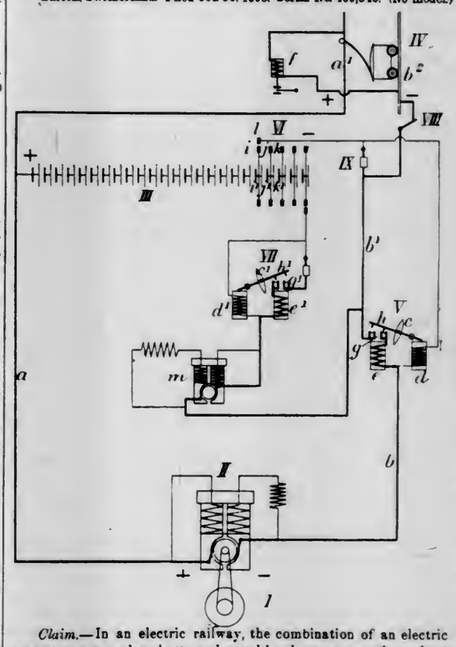
3. The combination with a running gear, of a longitudinally disposed spring hingedly connected with the front axle, and extending in front and in rear of the same and having its front end supporting the tongue, and provided at its rear end with a curved bracket, engaging the reach and adjustably connected with the spring, substantially as and for the purpose described.

4. The combination with a running gear, of a longitudinally disposed spring hingedly connected with the front axle and extending in front and in rear of the same and having its front end supporting the tongue, an angle plate secured to the rear end of the spring and extending upward, a curved bearing bracket engaging the reach and provided with a vertical slot, and a clamping bolt arranged in the slot and securing the bearing bracket to the plate, substantially as described.

5. The combination with a running gear, of a longitudinally disposed spring hingedly connected with the front axle, and extending in front and in rear of the same and having its front end supporting the tongue and provided with a longitudinal slot, a pin depending from the tongue and arranged in the slot, and a curved bearing plate engaging the reach and adjustably connected with the spring, substantially as described.

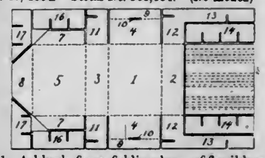
6. A tongue support comprising a clip designed to be secured to the front axle and provided with depending ears, a longitudinally disposed spring hinged between the ears and extending in front and in rear of the axle and adapted to support a tongue at its front end, an angle plate secured to the rear end of the spring and having an upward extending arm, and a curved bearing bracket for engaging a reach, adjustably secured to the upward extending arm of the angle plate, substantially as described.

520,340. ELECTRIC TRACTION APPARATUS. PAUL SCHOOP, Zurich, Switzerland. Filed Oct. 30, 1893. Serial No. 489,546. (No model.)



Claim.—In an electric railway, the combination of an electric generator, a secondary battery charged by the generator through an automatic switch, an auxiliary electric generator connected to regulating cells on the secondary battery by an automatic switch connecting them when the tension of such generator exceeds that of the said cells, and a regulating switch with sliding contacts working between the two poles of the railway, so as to include or cut out regulating cells of the battery for the purpose of maintaining the tension of the electric railway practically constant with a varying load, substantially as described.

520,341. FOLDING BOX. STEPHEN F. SHERMAN, Newark, N. Y. Filed Mar. 16, 1894. Serial No. 503,831. (No model.)



Claim.—1. A blank for a folding-box, of flexible material, made up of a bottom section, sections which fold up to form the sides, corner sections, which are lateral projections from the side sections, handle sections which are longitudinal projections from the corner sections, and sections which fold up to form the ends, the end sections being provided with slits suitably located for the insertion of the handle sections, thus locking the box, the blank being suitably cut and creased between the sections to effect the folds, substantially as described.

2. A blank for a folding-box, of flexible material, made up of a bottom section, sections which fold up to form the sides, interlocking corner sections, which are lateral projections from the side sections, handle sections which are longitudinal projections from the corner sections, and sections which fold up to form the ends, the end sections being provided with slits suitably located for the insertion of the handle sections, thus locking the box, the blank being suitably cut and creased between the sections to effect the folds, substantially as described.

3. A blank for a folding-box, of flexible material, made up of a bottom section, sections which fold up to form the sides, corner sections which are lateral projections from the side sections, handle sections which are longitudinal projections from the corner sections, sections which fold up to form the ends, the end sections being provided with slits suitably located for the insertion of the handle sections, thus locking the box, and folding over sections which are lateral projections from the end sections, and intended to fold inward, the slits lying on the lines between the folding over sections and the end sections, the blank being suitably cut and creased between the sections to effect the folds, substantially as described.

4. A blank for a folding-box, of flexible material, made up of a bottom section, sections which fold up to form the sides, corner sections, which are lateral projections from the side sections, a top section, handle sections which are longitudinal projections from the corner sections, and sections which fold up to form the ends, the end sections being provided with slits suitably located for the insertion of the handle sections, thus locking the box, the blank being suitably cut and creased between the sections to effect the folds, substantially as described.

5. A blank for a folding box, of flexible material, made up of a bottom section, sections which fold up to form the sides, corner sections, which are lateral projections from the side sections, a top section, handle sections which are longitudinal projections from the corner sections, sections which fold up to form the ends, the end sections being provided with slits suitably located for the insertion of the handle sections, thus locking the box, and folding over sections, which are lateral projections from the end sections, and intended to fold inward, the slits lying on the lines between the folding over sections and the end sections, the blank being suitably cut and creased between the sections to effect the folds, substantially as described.

6. A folding-box made up from a blank, of flexible material, consisting of a bottom section, sections which fold up to form the sides, corner sections, which are lateral projections from the side sections, handle sections which are longitudinal projections from the corner sections, and sections which fold up to form the ends, the end sections being provided with slits suitably located for the insertion of the handle sections, thus locking the box, the blank being suitably cut and creased between the sections to effect the folds, substantially as described.

7. A folding-box made up from a blank, of flexible material, consisting of a bottom section, sections which fold up to form the sides, interlocking corner sections, which are lateral projections from the side sections, handle sections which are longitudinal projections from the corner sections, and sections which fold up to form the ends, the end sections being provided with slits suitably located for the insertion of the handle sections, thus locking the box, the blank being suitably cut and creased between the sections to effect the folds, substantially as described.

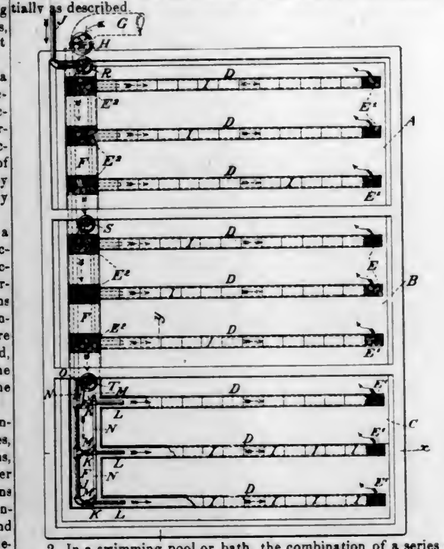
8. A folding-box made up from a blank, of flexible material, consisting of a bottom section, sections which fold up to form the sides, corner sections which are lateral projections from the side sections, handle sections which are longitudinal projections from the corner sections, sections which fold up to form the ends, the end sections being provided with slits suitably located for the insertion of the handle sections, thus locking the box, and folding over sections which are lateral projections from the end sections, and intended to fold inward, the slit lying on the lines between the folding over sections and the end sections, the blank being suitably cut and creased between the sections to effect the folds, substantially as described.

9. A folding-box made up from a blank, of flexible material, consisting of a bottom section, sections which fold up to form the sides, corner sections, which are lateral projections from the side sections, a top section, handle sections which are longitudinal projections from the corner sections, and sections which fold up to form the ends, the end sections being provided with slits suitably located for the insertion of the handle sections, thus locking the box, the blank being suitably cut and creased between the sections to effect the folds, substantially as described.

10. A folding-box made up from a blank, of flexible material, consisting of a bottom section, sections which fold up to form the sides, corner sections, which are lateral projections from the side sections, a top section, handle sections which are longitudinal projections from the corner sections, sections which fold up to form the ends, the end sections being provided with slits suitably located for the insertion of the handle sections, thus locking the box, and folding over sections which are lateral projections from the end sections, and intended to fold inward, the slits lying on the lines between the folding over sections and the end sections, the blank being suitably cut and creased between the sections to effect the folds, substantially as described.

520,342. SWIMMING-POOL OR BATH. ADOLPH SUTRO, San Francisco, Cal. Filed Aug. 31, 1893. Serial No. 484,478. (No model.)

Claim.—1. In a swimming pool or bath, the combination of a series of parallel channels in the bottom thereof provided with coverings and having outlets into the bath, a water supply conduit communicating at right angles with the several channels, a steam supply pipe located in the water conduit, nozzles on the steam supply pipe entering and discharging steam into the ends of the several parallel channels, and the cocks with which the nozzles are provided, substantially as described.



2. In a swimming pool or bath, the combination of a series of parallel channels in the bottom thereof provided with sectional removable covers flush with the floor of the bath, grated outlets in the bath floor at each end of the channels for the delivery of their contents into the bath, a water supply conduit at right angles to and intersecting the several channels and communicating with each one, said conduit receiving its water from a suitable supply, and a steam supply pipe located in the water conduit and having nozzles which enter and discharge steam into the ends of the several parallel channels, said nozzles being provided with cocks to control the flow of steam, which cocks are connected together so as to be simultaneously operated, substantially as described.

3. In a swimming pool or bath, the combination of a series of parallel channels D in the bottom thereof, provided with sectional covering plates I, the grates E' at one end of channels D and the grates E² at their other end, the main supply conduit F at right angles to and intersecting the channels D, the steam pipe J running longitudinally through the conduit F, said pipe J having nozzles L, entering and discharging steam into the several channels D, thereby causing a continuous circulation of the water and the cocks K for nozzles L; which cocks are connected together so as to be simultaneously operated, substantially as described.

520,343. POWDER-BOX. CLOTILDE P. THOMAS, Evansville, Ind. Filed Mar. 30, 1893. Serial No. 468,350. (No model.)



Claim.—1. In a powder box, the combination of the box, a perforated dished screen frictionally and removably located in the powder box so as to extend down into the same, a removable cover for said box, and a powder applying means carried by said cover and extending down into said screen, so as to be surrounded by the screen, substantially as described.

2. A powder box having the hollow cover and powder applying means carried by said cover, and an eternal ring fitted in the cover for removably securing the powder applying means, substantially as described.

3. The powder box having the hollow cover, powder applying means removably located in the hollow cover so as to extend down into the box and so that the cover will form the handle for said means and a clamp for said means removably and frictionally located in the hollow cover, substantially as described.

4. The powder box consisting of a box proper, the hollow cover therefor, the powder pad having lateral edges at its upper end and a clamping ring frictionally and removably located in said cover and having the inwardly extending flange or projection to retain said pad removably in the cover.

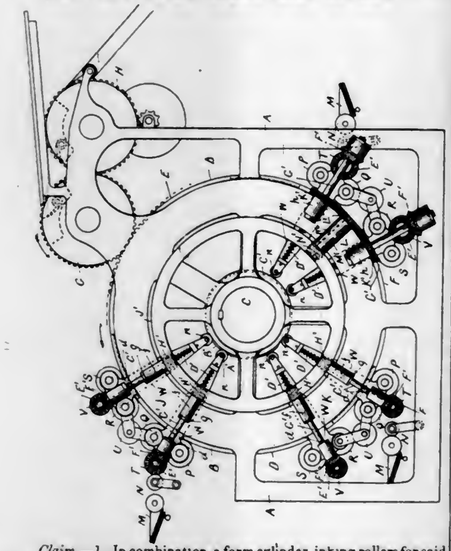
520,344. ORGAN-PIPE. WILHELM T. F. WEIGLE, Stuttgart, Germany. Filed Mar. 8, 1894. Serial No. 502,849. (No model.) Patented in Germany July 30, 1893, No. 74,674, and in England Sept. 20, 1893, No. 17,718.



Claim.—1. A labial organ pipe provided with a segmental opening *b* and correspondingly segmental lips, a tongue *c* with a segmental front edge and a segmental throat *d* substantially as described.

2. A labial organ pipe provided with a segmental opening *b* and correspondingly segmental lips, a tongue *c* with a segmental front edge concentric with the lower lip of the opening *b* and a segmental throat *d* substantially as described.

520,345. INKING APPARATUS FOR PRINTING-PRESSES. WILLIAM C. WENDTÉ, Boston, Mass., assignor to William H. Forbes, same place. Filed Feb. 9, 1893. Serial No. 461,648. (No model.)



Claim.—1. In combination, a form cylinder, inking rollers for said cylinder, mechanism for raising the inking rollers from contact with a cylinder form, a radial shaft, bearing for the shaft, a sliding gear on the radial shaft, a distributing roller and a bevel gear on the end of the distributing roller for engagement with said radial shaft gear.

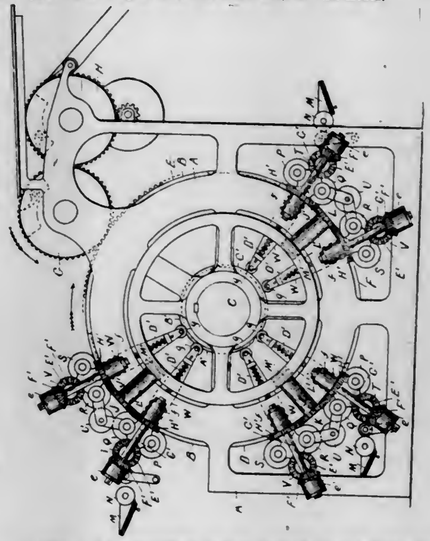
2. In combination, a form cylinder, inking rollers for said cylinder, a radial shaft, a bearing for the shaft, a sliding gear on said radial shaft, a distributing roller, a bevel gear on the end of the distributing roller for engagement with said radial shaft gear, a frame or bar to which the inking and distributing rollers and sliding gear are attached arranged to slide back and forth in a suitable guideway and a cam on the form cylinder shaft for operation on said frame or bar.

3. In combination, a form cylinder, a gear on the shaft of said cylinder, a frame or bar adapted to move back and forth radially in a suitable guideway, inking rollers pivoted thereto, a radial shaft, a sliding gear on said radial shaft, a distributing roller pivoted to said frame or bar, a gear on the end of the distributing roller engaging with said radial shaft gear, and a gear on said radial shaft engaging with said cylinder shaft gear.

4. In combination, a form cylinder, a concentric cam on the shaft of said cylinder, a bevel gear on said shaft, a frame or bar adapted to move back and forth radially in suitable guideways, and bearing on said cam, inking rollers pivoted thereto, a radial shaft, a bevel gear on said shaft, a distributing roller pivoted to said frame, a gear on the end of the distributing roller engaging with said radial shaft gear, and a gear on said radial shaft engaging with said cylinder shaft gear and means for maintaining the gears E' and F' constantly in gear with each other.

5. In combination, a form cylinder, inking rollers for said cylinder, a distributing roller, a frame or bar to which the inking rollers and distributing roller are attached arranged to slide back and forth in a suitable guideway, a gear on said distributing roller, a cam on the form cylinder shaft for operation on said frame or bar, a radial shaft, a bearing for said shaft, and a gear on said radial shaft adapted to engage and be engaged with said distributing roller gear at all times

520,346. INKING APPARATUS FOR PRINTING-PRESSES. WILLIAM C. WENDTÉ, Boston, Mass., assignor to William H. Forbes, same place. Filed July 24, 1893. Serial No. 481,315. (No model.)



Claim.—1. In combination, a form cylinder, inking rollers for said cylinder, mechanism for raising the inking rollers from contact with a cylinder form, a radial shaft, bearing for said shaft, a sliding gear on said radial shaft, a distributing roller, a bevel gear on the end of the distributing roller for engagement with said radial shaft gear, another gear on said radial shaft, another radial shaft, and a gear on said latter radial shaft engaging with gear on the former radial shaft.

2. In combination, a form cylinder, inking rollers for said cylinder, a radial shaft, bearing for said shaft, a sliding gear on said radial shaft, a distributing roller, a bevel gear on the end of the distributing roller for engagement with said radial shaft gear, another gear on said radial shaft, another radial shaft, and a gear on said latter radial shaft engaging with gear on the former radial shaft.

3. In combination, a form cylinder, inking rollers for said cylinder, a radial shaft, bearing for said shaft, a sliding gear on said radial shaft, a distributing roller, a bevel gear on the end of the distributing roller for engagement with said radial shaft gear, another gear on said radial shaft, another radial shaft, and a gear on said latter radial shaft engaging with gear on the former radial shaft, a frame or bar to which the inking and distributing rollers and sliding gear are attached arranged to slide back and forth in a suitable guideway and a cam on the form cylinder shaft for operation on said frame or bar.

520,347. SPECTACLE-FRAME. HENRY W. WILDT, Alexandria, Va. Filed Dec. 18, 1893. Serial No. 493,905. (No model.)

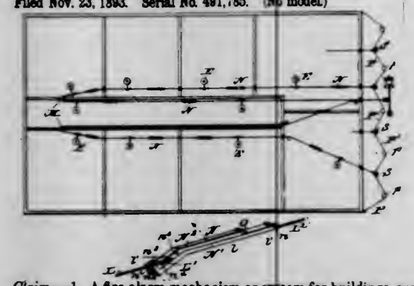


Claim.—1. In combination with a spectacle frame having a bridge or nose piece formed with the overlapping portions 4 and 6, the herein-described bond or tie projecting from the part 4 to the part 6 and attached to each for the purpose of maintaining them in relative position as explained.

2. In a spectacle frame the combination of the saddle-bridge or nose piece 3 having the rearwardly extending portions 4, the sharp angle turns 5 and the forwardly extending nose rest overlapping the portions 4, and the herein-described bond or tie inserted between the portions 4 and 6 substantially in the manner and for the purpose set forth.

3. In a spectacle frame the combination with the bridge or nose piece, of the herein-described strengthening bond or tie consisting of a ball or sphere inserted between the overlapped portions of said bridge or nose piece and secured to each for the purpose of spacing them relatively, substantially as explained.

520,348. FIRE-ALARM. ELMER A. WRIGHT, Monrovia, Cal. Filed Nov. 23, 1893. Serial No. 491,785. (No model.)



Claim.—1. A fire alarm mechanism or system for buildings, comprising a single house wire passed through a number of rooms in one direction, then looped and extended in a reverse direction, a fixed guide for such looped end, said wire passed through one or more rooms as it passes in a reverse direction, a single tension device connected with the ends of such looped wire, to normally keep it taut, fusible joints in the wire, and alarm devices connected with and adapted to be operated by the separation of the wire, located in the several rooms, all arranged substantially as shown, whereby as any one of the fusible joints is separated, the tension device will serve to draw on both of the separated wire sections and thereby operate all the alarms connected therewith as set forth.

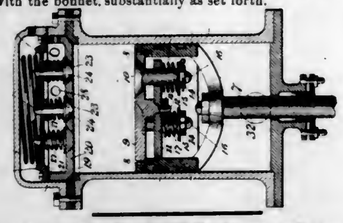
2. A fire alarm mechanism or system for dwellings comprising a plurality of house wires, each of which consists of a loop member passed through one or more rooms, a fixed or loop guide for same at one end of the building, a tension device having a single pull member, connected to one end of each of the house wire sections, a supplemental wire having fixed connections at its ends and intermediate guides to form loop portions, each of such loop sections being connected with the free end of one of the house wire sections, said house wire sections having each a series of fusible joints, and alarm mechanism connected with and adapted to be all operated by the separation of any one of the house wires, as set forth.

3. In an automatic fire alarm mechanism substantially as described, the combination with the main wire G having an adjustable tension H, connected therewith, the house wire L having cut outs and formed in a loop, the support or guide M therefor, the bells having pivoted trigger members and the tappets on the house wire, of the connecting members N, formed each of a base member N′ and a shorter member N², said member N′ having an aperture *n* at one end, and a loop or guide at the other, the member N² having a finger and shoulder at one end adapted to engage such loop, and apertures *n*⁴ at such end, and the fusible plug or stop O secured to the lower plate all arranged substantially as shown and for the purposes described.

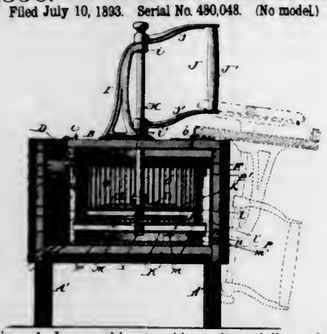
4. In an automatic fire alarm mechanism for buildings, a series of looped house wires having one end connected with a main wire, the guide pulleys forming supports for the looped ends of such wires, a supplemental wire having intermediate supports or guides whereby it is formed into loop like sections, the free ends of the house wires having connections with such looped sections of the supplemental wire, a tension device connected to the main wire, said wire having a series of fusible joints, and tappets, and alarm bells, having oscillating trigger arms projected between such tappets to be operated thereby all substantially as shown and for the purposes described.

520,349. PUMP-VALVE. CHARLES ZIEG, Baltimore, Md. Filed Apr. 25, 1892. Serial No. 430,588. (No model.)

Claim.—In a pump, the combination, with the cylinder, the outer end of which is provided with an auxiliary valve seat, of a cap or bonnet, a substantially cup shaped auxiliary valve upon the seat, the walls of which are perforated, and the bottom is provided with a series of valve seats, a plate secured to the top of said valve provided with openings registering with the valve seats and having a pocket in its upper surface, a valve in each valve seat of the auxiliary valve, the stem of which projects through the opening in the plate, and a spring in the pocket of the upper surface of the plate, the upper end of which engages with the bonnet, substantially as set forth.



520,350. WASHING-MACHINE. THEOPHILUS B. ARNDT, Florin, Pa. Filed July 10, 1893. Serial No. 480,048. (No model.)



Claim.—1. In a washing machine substantially as described, a clothes holder consisting of the bed having a series of radiating ribs, the upright slats alternating with and fitting near their lower ends snugly between the ribs of the bed and means for fastening said slats in such position substantially as and for the purposes described.

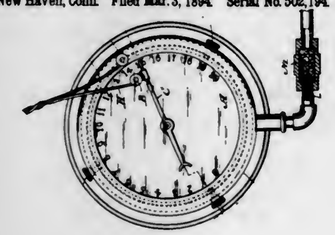
2. In a washing machine, the combination with the bed of the clothes receiver having an outwardly projecting annular flange provided at intervals with notches of the side slats having notches coinciding with and fitted into those of the annular flange and means for holding said slats in contact with the flange, substantially as set forth.

3. In a washing machine, a clothes holder having its bottom formed with a back plate provided with ribs, an annular frame ring having a seat for said plate, a depending flange and an outwardly projected flange provided with notches the slats having notches fitted to those in the flange and a hoop binding said slats in contact with the flange, substantially as set forth.

4. In a washing machine, a clothes holder provided with upright slats having kerfs or notches in their upper ends between their inner and outer edges and a connecting rod or strip seated in said kerfs or notches and having offsets between the adjacent slats whereby to hold the same apart, substantially as set forth.

5. In a washing machine, substantially as described, a clothes holder consisting of the bed plate provided with the ribbed rubbing surface, the annular ring frame provided with inwardly projected lugs to which the back plate is secured and with an outwardly projected notched flange, the upright slats provided in their upper ends with kerfs or notches and having notches near their lower ends fitted to the notches in the annular flange, a hoop binding such slats in contact with the frame ring and a connecting bar or strip seated in the end kerfs of the slats and provided with offset portions between the slats whereby to secure the slats apart all substantially as and for the purposes set forth.

520,351. ELECTRICAL-CONTACT MECHANISM. JOHN F. BLAKE, New Haven, Conn. Filed Mar. 3, 1894. Serial No. 502,194. (No model.)



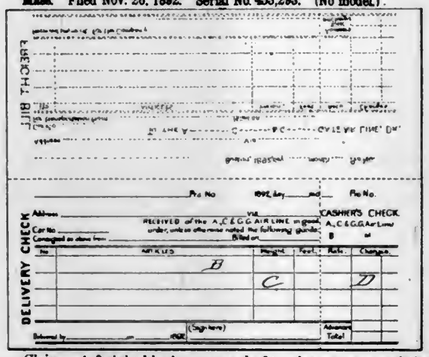
Claim.—A pressure gage consisting of a gage body provided with an annular groove or shoulder E, a cover composed of a ring or bezel rotatable on the gage body and having a glass plate or crystal, a set screw carried by the cover and engaging the groove or shoulder to rigidly clamp the cover in any required position on the gage body, and a contact carried by the cover and adapted to engage and set the index of the gage, substantially as described.

520,352. TOE-WEIGHT. LUTE E. CAMPBELL, Arkansas City, Kans. Filed Mar. 9, 1894. Serial No. 503,025. (No model.)



Claim.—A horseshoe having a groove formed in its upper front face, the groove being gradually reduced in width from the inner to the outer edge of the shoe, a correspondingly shaped plate arranged in the groove and having a stud formed on its forward end, the stud projecting beyond the front edge of the shoe, and a toe-weight secured to the stud and having its lower edge in engagement with the front of the shoe, whereby the plate is prevented from forward movement by its tapering shape and from rearward movement by the engagement of the shoe and weight, and whereby the weight is held in place, substantially as described.

520,353. FREIGHT-BLANK. CHARLES P. CLARK, Jr., Newton, Mass. Filed Nov. 26, 1892. Serial No. 453,293. (No model.)



Claim.—A freight blank, composed of two leaves, one consisting of a main freight bill and the other a compound leaf to form a delivery check and cashier's check, said second leaf being arranged relatively to the main bill so that the delivery check receives the description of the article and the cashier's check the financial data, said cashier's check being at the end of the delivery check and separable therefrom, substantially as described.

520,354. CAR-FENDER. BERNHARD CRON and WERNER VON MÜNCHHAUSEN, New York, N. Y. Filed Dec. 8, 1893. Serial No. 493,144. (No model.)

Claim.—1. The combination of a car with a catch, a movable yielding buffer engaged by the catch, propelling springs and a spring actuated rod put in action by the rearward movement of the buffer and adapted to open the catch and liberate the buffer when pressed backward, substantially as specified.

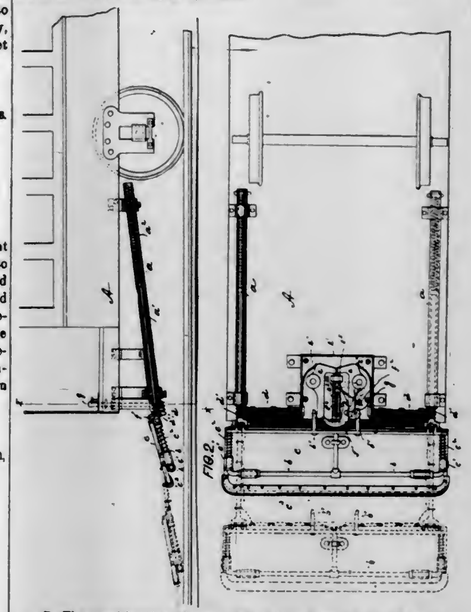
2. The combination of a car with a pair of tubes, a buffer having rods that are telescoped by said tubes, springs for throwing the buffer outward and an automatic catch for locking the buffer to the car, and a spring bolt to release the same upon impact of an object on the track with the buffer substantially as specified.

3. The combination of a car with an independently movable buffer, spring jaws secured to the car and engaging the buffer, and a lever adapted to be operated by concussion with the buffer and to oscillate the jaws, substantially as specified.

4. The combination of a car with an independently movable buffer, spring jaws, a spring plunger operating the same, a lever operated by concussion with the buffer and engaging the plunger, and with a foot bar, for setting the plunger, substantially as specified.

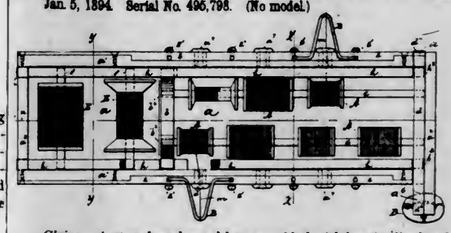
5. The combination of a car with an independently movable buffer, spring jaws, a spring plunger, an operating lever, a foot bar and a catch for locking the foot bar, substantially as specified.

6. The combination of a car with a pair of tubes, a spring buffer having rods telescoped by the tubes, a catch on the car body and a lever operating the catch and adapted to be vibrated by contact with the buffer, substantially as specified.



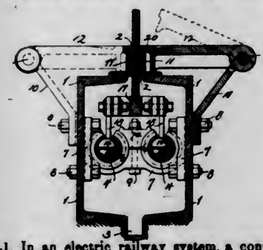
7. The combination of a car with a pair of spring propelled rods, a frame hinged to the rods, a spring buffer secured to the frame and a catch for locking the buffer to the car, substantially as specified.

520,355. SPOOL-BOX. PHILIP GELB, New York, N. Y. Filed Jan. 5, 1894. Serial No. 496,798. (No model.)



Claim.—A chambered spool box provided with longitudinal and transverse spindles, longitudinal locking bars extending along the sides of the box, a transverse locking bar that projects over the ends of the longitudinal bars, and thread guides at the sides and end of the box, substantially as specified.

520,356. CONDUIT ELECTRIC RAILWAY. GUARANTEE TRUST AND SAFE DEPOSIT COMPANY, administrator of Charles Wm. Siemens, deceased, Philadelphia, Pa. Filed Oct. 19, 1893. Serial No. 488,655. (No model.) Patented in England Oct. 17, 1883, No. 4,945.



Claim.—1. In an electric railway system, a continuous underground chamber having a slot at its upper side, channel irons located

at intervals within said chamber, chairs carried by said channel irons, a continuous slotted tubular conductor extending through the chamber and insulated from and supported by said chairs, and an electrically propelled vehicle having traveling connection with said conductor.

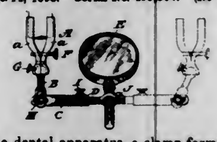
2. In an electric railway system, a continuous underground chamber having a slot at its upper side, channel irons located at intervals within said chamber, chairs carried by said channel irons, a continuous slotted tubular conductor extending through the chamber and insulated from and supported by said chairs, and an electrically propelled vehicle having a yielding traveling connection with said conductor.

3. In an electric railway system, a continuous underground chamber having hinged or removable covers giving access to said chamber, channel irons located at intervals within said chamber, and a conductor supported by said channel irons.

4. In an electric railway system, a continuous underground chamber having hinged or removable covers, channel irons located at intervals within said chamber, chairs carried by said channel irons, tubular slotted insulators and slotted conducting tubes within said insulators and sustained by the chairs, and a sliding contact within said conducting tubes, connected to an electrically propelled vehicle which runs along near to or over the continuous underground chamber.

5. In an electric railway system, a continuous underground chamber having hinged or removable covers, channel irons located at intervals within said chamber, chairs carried by said channel irons, tubular slotted insulators and slotted conducting tubes within said insulators and sustained by the chairs, a sliding contact making device having two insulated contact arms, each having a moving contact within said conducting tubes, and an electrically propelled vehicle moving along the line of the underground chamber and flexibly connected to the sliding contact making device within said tubular conductors.

520,357. DENTAL APPLIANCE. ZELOPHEHARD HAND, Millville, N. J. Filed Dec. 11, 1893. Serial No. 493,397. (No model.)

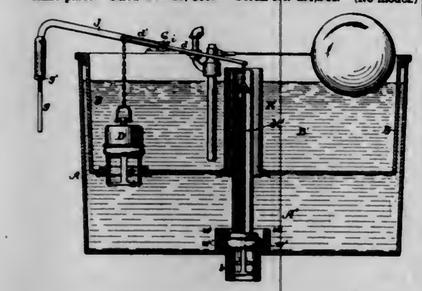


Claim.—1. In a dental apparatus, a clamp forming part of said apparatus, adapted to grasp any tooth, having at one end a ball and socket joint, a jointed arm, having one end adapted to fit said socket, and a set-screw adapted to lock said arm, a dental mirror at the outer end of said jointed arm, a clamp adapted to receive and hold the handle of said mirror in the desired position, substantially as described.

2. In a dental apparatus, a clamp forming part of said apparatus having gripping jaws adapted to grasp any tooth, a jointed arm composed of extensible sections, united to said clamp by a ball and socket joint in such a manner as to permit of universal movement, set screws for securing the several sections in the desired position in respect to each other, and a mirror or reflector carried by said jointed arm, substantially as described.

3. In a dental apparatus, a clamp forming part of said apparatus, adapted to grasp any tooth, having at one end a ball and socket joint, a jointed arm comprising both a telescopic and also a second extensible section, set screws adapted to lock said sections in the desired position in respect to each other, a clamp upon the outer end of said arm, and a mirror or reflector secured by clamp, substantially as described.

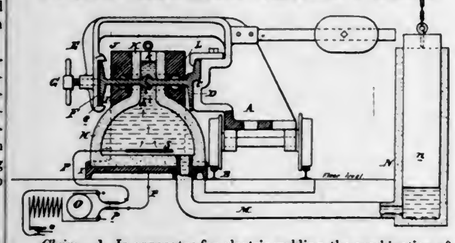
520,358. WATER-CLOSET RESERVOIR. GEORGE B. HOWELL, Philadelphia, Pa., assignor to the McCambridge & Company, Limited, same place. Filed Feb. 12, 1892. Serial No. 421,241. (No model.)



Claim.—1. A water closet reservoir having an outer casing, with centrally located discharge valve adapted to a horizontal seat on the casing, a supply box mounted in said casing so as to be reversible end for end therein, a valve for closing an opening in the bottom of said box, a lever having opposite arms one connected to one valve and the other to the other valve, and a projecting operating arm for said lever, substantially as specified.

2. The combination of the outer casing having a central discharge valve adapted to a horizontal seat on the casing, the receiving box mounted in said casing so as to be reversible end for end therein, a valve for closing an opening in the bottom of said box, a rock shaft mounted on the box so as to be reversible end for end, oppositely projecting lever arms centrally located on said rock shaft and connected one to one valve and the other to the other valve, and a projecting operating arm for said rock shaft, substantially as specified.

520,359. APPARATUS FOR ELECTRIC WELDING. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to the Johnson Company, of Pennsylvania. Filed Oct. 12, 1893. Serial No. 487,949. (No model.)



Claim.—1. In apparatus for electric welding, the combination of clamping devices for holding two pieces of metal to be united, a divided hollow frame to contain a solid body of a conducting fluid in which the parts to be united are submerged, adapted to permit the parts to be united to project into the interior, an electrode within the hollow frame in electrical connection with the liquid, and a source of electrical energy having one of its poles connected with the electrode and its other pole electrically connected with the clamping devices so as to be in circuit with both of the pieces of metal to be united.

2. In apparatus for electric welding, the combination of clamping devices for holding two pieces of metal to be united, a divided hollow frame to contain a solid body of a conducting fluid in which the parts to be united are submerged, adapted to permit the parts to be united to project into the interior, an electrode within the hollow frame, in electrical connection with the liquid a source of electrical energy having one of its poles connected with the electrode and its other pole electrically connected with the clamping devices so as to be in circuit with both of the pieces of metal to be united, and means to vary the height of the liquid within the hollow frame.

3. In apparatus for electric welding, the combination of clamping devices for holding two pieces of metal to be united, a divided hollow frame to contain a solid body of a conducting fluid in which the parts to be united are submerged, adapted to permit the parts to be united to project into the interior, an electrode within the hollow frame, in electrical connection with the liquid and a continuous current generator having one of its poles connected with the electrode and its other pole electrically connected with the clamping devices so as to be in circuit with both of the pieces of metal to be united.

4. In an apparatus for electric welding, the combination of clamping devices for holding two pieces of metal to be united, a divided hollow frame to contain a solid body of a conducting fluid in which the parts to be united are submerged, adapted to permit the parts to be united to project into the interior, an electrode within the hollow frame, in electrical connection with the liquor and a continuous current generator having its positive pole electrically connected with the electrode and its negative pole electrically connected with the clamping devices so as to be in circuit with both of the pieces of metal to be united.

5. In an apparatus for electrical welding, the combination of clamping devices for holding two pieces of metal to be united, a hollow frame to contain a conducting fluid in which the parts to be united are submerged, an electrode within the hollow frame, in electrical connection with the liquid a source of electrical energy having one of its poles electrically connected with the electrode and its other pole electrically connected with the clamping devices so as to be in circuit with both of the pieces of metal to be united, conveying devices adapted to move the metallic parts transversely to the hollow frame, and compression devices arranged near the hollow frame and in the path of the conveying devices whereby the metal parts after being heated may be immediately subjected to the compression devices.

6. In apparatus for electric welding, the combination of clamping devices for holding two pieces of metal to be united, a hollow frame to contain a conducting fluid in which the parts to be united are submerged, an electrode within the hollow frame, in electrical connection with the liquid a source of electrical energy having one of its poles electrically connected with the electrode and its other pole electrically connected with the clamping devices so as to be in circuit with both of the pieces of metal to be united, means to vary the height of the liquid within the hollow frame, conveying devices adapted to move the metallic parts transversely to the hollow frame, and compression devices arranged near the hollow frame and in the path of the conveying devices whereby the metal parts after being heated may be immediately subjected to the compression devices.

7. In apparatus for electric welding, the combination of clamping devices for holding two pieces of metal to be united, a hollow frame to contain a conducting fluid in which the parts to be united are submerged, an electrode within the hollow frame in electrical connection with the liquid a continuous current generator having one of its poles connected with the electrode and its other pole electrically connected with the clamping devices so as to be in circuit with both of the pieces of metal to be united, conveying devices adapted to move the metallic parts transversely to the hollow frame, and compression devices arranged near the hollow frame and in the path of the conveying devices whereby the metal parts after being heated may be immediately subjected to the compression devices.

8. In apparatus for electric welding, the combination of clamping devices for holding two pieces of metal to be united, a divided hollow frame to contain a conducting fluid in which the parts to be united are submerged, an electrode within the hollow frame, in electrical connection with the liquid a continuous current generator having one of its poles connected with the electrode and its other pole electrically connected with the clamping devices so as to be in circuit with both of the pieces of metal to be united, and means to vary the height of the liquid within the hollow frame.

9. In apparatus for electric welding, the combination of a hollow frame made in parts adapted to fit together and clamp between them two parts of metal to be united, a conducting fluid contained within the hollow frame, an electrode in contact with the fluid at a distance from the line of separation of the two parts of the hollow frame, and a source of electrical energy having one of its poles connected with the electrode and its other pole connected with the two parts of the metal to be united.

10. In apparatus for electric welding, the combination of a hollow frame made in parts adapted to fit together and clamp between them two parts of metal to be united, a conducting fluid contained within the hollow frame, an electrode in contact with the fluid at a distance from the line of separation of the two parts of the hollow frame, and a continuous current generator having its positive pole electrically connected with the electrode and its negative pole electrically connected with the two parts of the metal to be united.

11. In apparatus for electric welding, the combination of a hollow frame made in parts adapted to fit together and clamp between them two parts of metal to be united, a conducting fluid contained within the hollow frame, an electrode in contact with the fluid at a distance from the line of separation of the two parts of the hollow frame, a source of electrical energy having one of its poles connected with the electrode and its other pole connected with the two parts of the metal to be united, and a liquid tight packing between the parts of the hollow frame and the metal parts to be united.

12. In apparatus for electric welding, the combination of a hollow frame made in parts adapted to fit together and clamp between them two parts of metal to be united, conducting fluid contained within the hollow frame, an electrode in contact with the fluid at a distance from the line of separation of the two parts of the hollow frame, a source of electrical energy having one of its poles connected with the electrode and its other pole connected with the two parts of the metal to be united, a continuous current generator having its positive pole connected with the electrode and its negative pole electrically connected with the two parts of the metal to be united, and a liquid tight packing between the parts of the hollow frame and the metal parts to be united.

13. In apparatus for electric welding, the combination of a hollow frame made in parts adapted to fit together and clamp between them two parts of metal to be united, a conducting fluid contained within the hollow frame, an electrode in contact with the fluid at a distance from the line of separation of the two parts of the hollow frame, a source of electrical energy having one of its poles connected with the electrode and its other pole connected with the two parts of the metal to be united, and means to vary the height of the liquid within the hollow frame.

14. In apparatus for electric welding, the combination of a hollow frame made in parts adapted to fit together and clamp between them two parts of metal to be united, a conducting fluid contained within the hollow frame, an electrode in contact with the fluid at a distance from the line of separation of the two parts of the hollow frame, a source of electrical energy having one of its poles connected with the electrode and its other pole connected with the two parts of the metal to be united, a continuous current generator having its positive pole connected with the electrode and its negative pole electrically connected with the two parts of the metal to be united, and means to vary the height of the liquid within the hollow frame.

15. In apparatus for electric welding, the combination of a hollow frame made in parts adapted to fit together and clamp between them two parts of the metal to be united, a conducting fluid contained within the hollow frame, an electrode in contact with the fluid at a distance from the line of separation of the two parts of the hollow frame, a source of electrical energy having one of its poles connected with the electrode and its other pole connected with the two parts of the metal to be united, a continuous current generator having its positive pole connected with the electrode and its negative pole electrically connected with the two parts of the metal to be united, a liquid tight packing between the parts of the hollow frame and the metal parts to be united, and means to vary the height of the liquid within the hollow frame.

16. In apparatus for electric welding, the combination of a frame adapted to hold two parts of metal to be united in contact with each other, a hollow frame made in sections and adapted to inclose the joint between the two parts to be united, an electrode arranged within the hollow frame a conducting fluid also contained within the hollow frame, and a source of electrical energy having one pole connected with the electrode and the other pole electrically connected with the two parts of metal to be united.

17. In apparatus for electric welding, the combination of a support adapted to hold two parts of metal to be united in contact with each other, a hollow frame made in sections and adapted to inclose the joint between the two parts to be united, an electrode arranged within the hollow frame, a conducting fluid also contained within the hollow frame, a source of electrical energy having one pole connected with the electrode and the other pole electrically connected with the two parts of metal to be united, a railway, and a carriage upon the railway adapted to sustain the support for the metal parts whereby the metal parts may be moved relatively to the hollow frame.

18. In apparatus for electric welding, the combination of devices adapted to hold two parts of metal to be united in contact with each other, a hollow frame made in sections and adapted to inclose the joint between the two parts to be united, an electrode arranged within the hollow frame, a conducting fluid also contained within the hollow frame, a source of electrical energy having one pole connected with the electrode and the other pole electrically connected with the two parts of metal to be united, a railway, a carriage upon the railway adapted to sustain the devices for holding the metal parts whereby the metal parts may be moved relatively to the hollow frame, and means for varying the level of the liquid within the hollow frame

19. In apparatus for electric welding, the combination of a frame adapted to hold two parts of metal to be united in contact with each other, a hollow frame made in sections and adapted to inclose the joint between the two parts to be united, an electrode arranged within the hollow frame, a conducting fluid also contained within the hollow frame, a source of electrical energy having one pole connected with the electrode and the other pole electrically connected with the two parts of metal to be united, and means for varying the level of the liquid within the hollow frame.

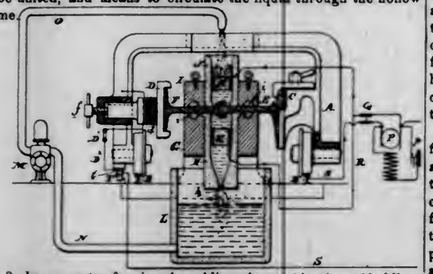
20. In apparatus for electric welding, the combination of a carriage having devices adapted to hold two parts of the metal to be united in contact with each other, a hollow frame made in sections and adapted to inclose the joint between the two parts to be united, an electrode arranged within the hollow frame, a conducting fluid also contained within the hollow frame, a source of electrical energy having one pole connected with the electrode and the other pole electrically connected with the two parts of metal to be united, a railway upon which the carriage travels, and a compression device for compressing the welded joint arranged adjacent to the hollow frame and in the line of travel of the carriage.

520,360. APPARATUS FOR ELECTRIC WELDING. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to the Johnson Company, of Pennsylvania. Filed Oct. 12, 1893. Serial No. 487,950. (No model.)

Claim.—1. In apparatus for electric welding, the combination of holding devices for holding two pieces of metal to be united, a divided hollow frame open at top and bottom to contain a conducting fluid in which the parts to be united are submerged, and adapted to permit the parts to be welded to project into the interior, one or more electrodes within the hollow frame in electrical connection with the fluid, and a source of electrical energy having one of its poles connected with the electrode or electrodes and its other pole electrically connected with both of the pieces of metal to be united.

2. In apparatus for electric welding, the combination of holding devices for holding two pieces of metal to be united, a divided hollow frame to contain a conducting fluid in which the parts to be united

are submerged, and adapted to permit the parts to be welded to project into the interior, one or more electrodes within the hollow frame in electrical connection with the fluid, a source of electrical energy having one of its poles connected with the electrode or electrodes and its other pole electrically connected with both of the pieces of metal to be united, and means to circulate the liquid through the hollow frame.



3. In apparatus for electric welding, the combination of holding devices for holding two pieces of metal to be united, a hollow frame open at top and bottom to contain a conducting fluid in which the parts to be united are submerged, one or more electrodes within the hollow frame in electrical connection with the fluid, and a continuous current generator having one of its poles connected with the electrode or electrodes and its other pole electrically connected with both of the pieces of metal to be united, and a pump to circulate the fluid through the hollow frame.

4. In an apparatus for electric welding, the combination of holding devices for holding two pieces of metal to be united, a divided hollow frame open at top and bottom to sustain a circulating conducting fluid in which the parts to be united are submerged, and adapted to permit the parts to be welded to project into the interior, one or more electrodes within the hollow frame in electrical connection with the fluid, a continous current generator having its positive pole electrically connected with the electrode or electrodes and its negative pole electrically connected with both of the pieces of metal to be united, and means to maintain a supply of fluid in the hollow frame.

5. In an apparatus for electric welding, the combination of holding devices for holding two pieces of metal to be united, a hollow frame to sustain a conducting fluid in which the parts to be united are submerged, one or more electrodes within the hollow frame in electrical connection with the fluid, a source of electrical energy having one of its poles electrically connected with the electrode or electrodes and its other pole electrically connected with the two pieces of metal to be united, means to maintain a supply of fluid in the hollow frame, conveying devices adapted to move the metallic parts transversely to the hollow frame, and compression devices arranged near the hollow frame and in the path of the conveying devices whereby the metal parts after being heated may be immediately subjected to the compression devices.

6. In apparatus for electric welding, the combination of holding devices for holding two pieces of metal to be united, a hollow frame open above and below the parts to be united to sustain a conducting fluid in which the parts to be united are submerged, one or more electrodes within the hollow frame in electrical connection with the fluid, a source of electrical energy having one of its poles electrically connected with the electrode or electrodes and its other pole electrically connected with both of the pieces of metal to be united, means to circulate the fluid through the hollow frame, conveying devices adapted to move the metallic parts transversely to the hollow frame, and compression devices arranged near the hollow frame and in the path of the conveying devices whereby the metal parts after being heated may be immediately subjected to the compression devices.

7. In apparatus for electric welding, the combination of holding devices for holding two pieces of metal to be united, a hollow frame to sustain a conducting fluid in which the parts to be united are submerged, one or more electrodes within the hollow frame in electrical connection with the fluid, a continuous current generator having one of its poles connected with the electrode or electrodes and its other pole electrically connected with both of the pieces of metal to be united, means to circulate the fluid through the hollow frame, conveying devices adapted to move the metallic parts transversely to the hollow frame, and compression devices arranged near the hollow frame and in the path of the conveying devices whereby the metal parts after being heated may be immediately subjected to the compression devices.

8. In apparatus for electric welding, the combination of holding devices for holding two pieces of metal to be united, a hollow frame to sustain a solid column of conducting fluid in which the parts to be united are wholly submerged, one or more electrodes within the hollow frame in electrical connection with the liquid, a continuous current generator having one of its poles connected with the electrode and its other pole electrically connected with both of the pieces of metal to be united, and means to circulate the liquid through the hollow frame in a solid column in one direction.

9. In apparatus for electric welding, the combination of a hollow frame made in parts both of which are open at top and bottom and adapted to fit together and clamp between them two parts of metal to be united, a conducting fluid sustained within the hollow frame, one or more electrodes within the hollow frame in contact with the fluid at a distance from the line of separation of the two parts of the hollow frame, and a source of electrical energy having one of its poles connected with the electrode or electrodes and its other pole in electrical connection with the two parts of the metal to be united.

10. In apparatus for electric welding, the combination of a hollow frame made in parts both of which are open at top and bottom and adapted to fit together and clamp between them two parts of metal to be united, a conducting fluid sustained within the hollow frame, one or more electrodes within the hollow frame in contact with the fluid at a distance from the line of separation of the two parts of the hollow frame, and a continuous current generator having its positive pole electrically connected with the electrode or electrodes and its negative pole electrically connected with the two parts of the metal to be united.

11. In apparatus for electric welding, the combination of a hollow frame open at top and bottom and made in parts adapted to fit together and clamp between them two parts of metal to be united, a conducting fluid sustained within the hollow frame, one or more electrodes in contact with the fluid at a distance from the line of separation of the two parts of the hollow frame, a source of electrical energy having one of its poles connected with the electrode or electrodes and its other pole connected with the two parts of the metal to be united, and a liquid tight packing between the parts of the hollow frame and the metal parts to be united.

12. In apparatus for electric welding, the combination of a hollow frame open at top and bottom and made in parts adapted to fit together and clamp between them two parts of metal to be united, a conducting fluid sustained within the hollow frame, one or more electrodes in contact with the fluid at a distance from the line of separation of the two parts of the hollow frame, a source of electrical energy having one of its poles connected with the electrode or electrodes and its other pole connected with the two parts of the metal to be united, means to circulate the fluid during the welding operation, a continuous current generator having its positive pole connected with the electrode or electrodes and its negative pole electrically connected with the two parts of the metal to be united, and a liquid tight packing between the parts of the hollow frame and the metal parts to be united.

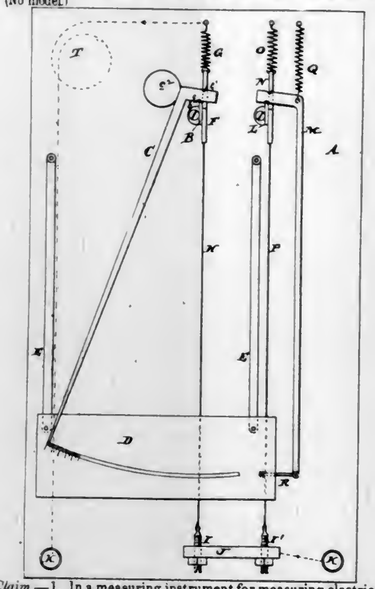
13. In apparatus for electric welding, the combination of a hollow frame open at top and bottom and made in parts adapted to fit together and clamp between them two parts of metal to be united, a conducting fluid sustained within the hollow frame, one or more electrodes in contact with the fluid at a distance from the line of separation of the two parts of the hollow frame, a source of electrical energy having one of its poles connected with the electrode or electrodes and its other pole connected with the two parts of the metal to be united, and means to circulate the fluid through the hollow frame.

14. In apparatus for electric welding, the combination of a support adapted to hold two parts of metal to be united in contact with each other, a hollow frame made in sections and adapted to inclose the joint between the two parts to be united, an electrode arranged within the hollow frame, a conducting fluid, means to circulate the conducting fluid in one direction through the hollow frame, a source of electrical energy having one pole connected with the electrode and the other pole electrically connected with the two parts of metal to be united, a railway, and a carriage upon the railway adapted to sustain the support for the metal parts whereby the metal parts may be moved relatively to the hollow frame.

15. In apparatus for electric welding, the combination of devices adapted to hold two parts of metal to be united in contact with each other, a hollow frame made in sections and adapted to inclose the joint between the two parts to be united, an electrode arranged within the hollow frame, a conducting fluid, a source of electrical energy having one pole connected with the electrode and the other pole electrically connected with the two parts of metal to be united, a railway, a carriage upon the railway adapted to sustain the devices for holding the metal parts whereby the metal parts may be moved relatively to the hollow frame, and means for circulating the liquid through the hollow frame in one direction.

16. In apparatus for electric welding, the combination of a carriage having devices adapted to hold two parts of metal to be united in contact with each other, a hollow frame open at top and bottom and made in sections and adapted to inclose the joint between the two parts to be united, an electrode arranged within the hollow frame, a conducting fluid also contained within the hollow frame, means to circulate the fluid through the hollow frame during the welding operation, a source of electrical energy having one pole connected with the electrode and the other pole electrically connected with the two parts of metal to be united, a railway, a carriage upon the railway adapted to sustain the devices for holding the metal parts whereby the metal parts may be moved relatively to the hollow frame, and a compression device for compressing the welded joint arranged adjacent to the hollow frame and in the line of travel of the carriage.

520,361. ELECTRICAL MEASURING-INSTRUMENT. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Apr. 13, 1894. Serial No. 507,348. (No model.)



Claim.—1. In a measuring instrument for measuring electric current, the combination of an expansion wire over which the current is caused to flow, a movable pointer or indicator moved thereby, a dial plate over which the pointer is moved, and an adjustable support for the dial plate having a coefficient of expansion relative to that of the expansion wire whereby normal changes of temperature surrounding the meter will cause the zero point to be shifted automatically to compensate for the shifting of the pointer due to the same changes.

2. In a measuring instrument for measuring electric current, the combination of a stationary fulcrum, an indicator or pointer pivoted upon the fulcrum, an expansion wire connected at one end to an abutment and at the other end to a tension device and having a part acting upon the indicator or pointer, terminals and circuits for causing the current to traverse the expansion wire, and adjustable dial plate over which the pointer or indicator moves, and means to adjust the tension of the expansion wire.

3. In a meter for measuring electric current, the combination of a stationary fulcrum, an indicator or pointer pivoted upon the fulcrum, an expansion wire connected at one end to an abutment and at the other end to a tension device and having a part acting upon the indicator or pointer, terminals and circuits for causing the current to traverse the expansion wire, a movable dial plate over which the pointer or indicator moves, a lever to move the dial plate, and a tension wire to move the lever, whereby the dial plate moves for variations in atmospheric temperature.

4. In a meter for measuring electrical currents, the combination of a stationary fulcrum, an indicator or pointer pivoted upon the fulcrum, an expansion wire connected at one end to an abutment and at the other end to a tension device and having a part acting upon the indicator or pointer, terminals and circuits for causing the current to traverse the expansion wire, a dial plate over which the pointer or indicator moves, a lever to move the dial plate, a tension wire to move the lever whereby the dial plate moves for variations in atmospheric temperature, and means to adjust the tension of the expansion and tension wires.

5. In a measuring instrument for measuring electric current, the combination of a stationary fulcrum, an indicator or pointer pivoted upon the fulcrum, an expansion wire connected at one end to an abutment and at the other end to a tension device and having a part acting upon the indicator or pointer, terminals and circuits for causing the current to traverse the expansion wire, a dial plate over which the pointer or indicator moves, and a compensating adjustable support for the dial plate whereby it is moved laterally with respect to the pointer or indicator to compensate for the shifting of the pointer or indicator due to variations in temperature of the surrounding atmosphere.

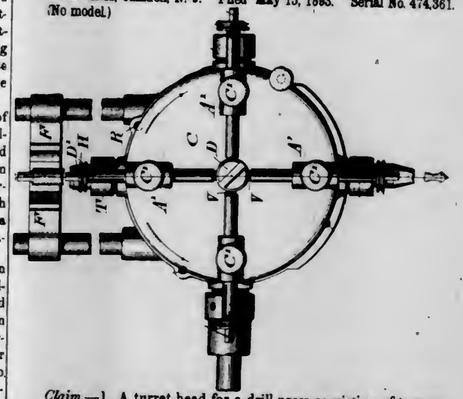
6. In a measuring instrument for measuring electric current, the combination of a stationary fulcrum, an indicator or pointer pivoted upon the fulcrum, an expansion wire connected at one end to an abutment and at the other end to a tension device and having a part acting upon the indicator or pointer, terminals and circuits for causing the current to traverse the expansion wire, a dial plate over which the pointer or indicator moves, and a compensating adjustable support for the dial plate consisting of an expansible part connected at one end with a lever acting upon the dial plate and at the other with a part secured to the main frame, whereby the dial plate is moved laterally with respect to the pointer or indicator to compensate for the shifting of the pointer or indicator due to variations in temperature of the surrounding atmosphere.

7. In a meter for measuring electric current, the combination of a stationary fulcrum, an indicator or pointer pivoted upon the fulcrum, an expansion wire connected at one end to an abutment and at the other end to a tension device and having a part acting upon the indicator or pointer, terminals and circuits for causing the current to traverse the expansion wire, a dial plate over which the pointer or indicator moves, a compensating adjustable support for the dial plate consisting of an expansible part or wire connected at one end with a lever acting upon dial plate and at the other with a part secured to the main frame whereby the dial plate is moved laterally with respect to the pointer or indicator to compensate for the shifting of the pointer or indicator due to variations in temperature of the surrounding atmosphere, and means to adjust the length of the expansion part or wire.

8. In a meter for measuring electric current, the combination of a movable pointer, an expansion wire over which the current to be measured passes adapted to actuate the said pointer, a dial plate over which the pointer travels hung upon movable parts, and a compensating device acting upon the dial to move it so as to cause the zero point to move transversely to the length of the pointer to compensate for any variations in the position of the pointer due to variations in the temperature of the surrounding atmosphere.

9. In a meter for measuring electric current, the combination of a fixed fulcrum, a pointer having a fulcrum block pivoted upon said fulcrum but having greater weight upon one side of the fulcrum than on the other so as to move the pointer by the action of gravity, an expansion wire over which the current to be measured passes acting upon the fulcrum block to oppose the action of gravity and permit it to move in accordance with the expansion of said expansion wire due to the current, a movable dial, and a compensating device for moving the dial corresponding to any movement of the pointer due to changes of temperature of the surrounding atmosphere.

520,362. TURRET-HEAD FOR DRILL-MACHINES. WILLIAM C. JENNINGS, Camden, N. J. Filed May 15, 1893. Serial No. 474,361. (No model.)



Claim.—1. A turret head for a drill press consisting of two separable parts, one stationary having means connected therewith for securing it to the press, the other part being rotatably mounted on said stationary part, means substantially as described for locking said parts together, said rotatable part carrying tool-spindles with gears thereon, and a swivel carried by the stationary part and provided with gearing substantially as described, said parts being combined substantially as described.

2. A turret head for a drill press having a stationary part, a separable rotatable part mounted on said stationary part, a spindle

mounted in said stationary part having a gear thereon, a swivel pivoted on said spindle and having gearing mounted therein, means for locking said swivel to said stationary part, and tool-spindles mounted in said rotatable part and having gearing meshing with said swivel gearing, said parts being combined substantially as described.

3. A turret head for a drill press having a stationary part with a rotary spindle therein, a gear wheel on said spindle, a swivel pivoted on said spindle and having gearing mounted thereon, means for locking said swivel on said stationary part, a rotatable part mounted on said statjonary part and a screw tap socket secured to a turret head spindle, and provided with a shoulder head with clutches for engaging pins on the interior of said socket, said parts being combined substantially as described.

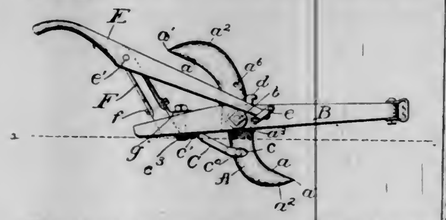
4. A turret head for drill presses formed of two parts, a spindle with a gear, a swivel carrying gears, means for locking said swivel, and drill spindles with sockets having slots for drifting out tools, and gears which are adapted to contact with the gears in the swivel, substantially as described.

5. A turret head for drill presses formed of two parts, a spindle with gearing, a swivel carrying gears, means for locking said swivel, drill spindles with sockets with slots for drifting tools out of spindles, and gears, and gages secured at any suitable place, substantially as described.

6. A turret head for a drill machine having a stationary part adapted to be secured to the machine, a rotatable part mounted on said stationary part, a rotary spindle journaled in said stationary part, a swivel mounted on said spindle and carrying gearing adapted to mesh with a gear wheel on said spindle, and a locking device for said swivel, said parts being combined substantially as described.

7. A turret head for a drill machine having a stationary part adapted to be secured to the drill machine, a rotary part mounted on the former part, a rotary spindle journaled in said stationary part and having a gear wheel therein, a swivel mounted on said spindle and carrying gear wheels substantially as described, a locking device for said swivel, and a locking device for said rotatable part, said parts being combined substantially as set forth.

520,363. ROOT-CUTTER AND STUMP-EXTRACTOR. ERASMUS E. KIRVEN, Darlington, S. C. Filed Jan. 30, 1894. Serial No. 498,431. (No model.)



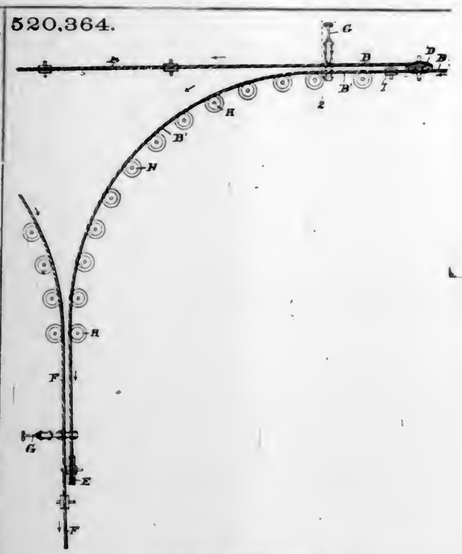
Claim.—1. In an implement of the character described, the combination with a beam and plow handles for directing the same, of a curved blade rigidly secured in said beam and having a point a' between cutting edges curved upward as at a and downward as at a^3, substantially as and for the purposes described.

2. In an implement of the character described, a double reversible blade A having two curved arms of unequal length, each arm pointed as at a', and provided with cutting edges curved upward as at a and downward as at a^3, on either side of said point, substantially as and for the purposes described.

520,364. TRANSFERRING CABLE-CARS AT INTERSECTING POINTS. JOHN KRATZ, Baltimore, Md., assignor of one-half to Joseph H. Pfister, same place. Filed Apr. 6, 1893. Renewed Nov. 18, 1893. Serial No. 491,356. (No model.)

Claim.—1. In a cable transfer system, the combination of the main cable having a laterally extending loop; a transverse cable; a canted pulley at one end of the loop and an upright pulley at the other end of the loop; a device at one end of the loop for shifting the main cable, and a similar device at the other end of the loop, for shifting the transverse cable, as described.

2. In a cable transfer system, the combination of the main cable having a laterally extending loop; a transverse cable; a canted pulley in the main line cable and bearing one end of the loop; an upright pulley bearing the other end of the loop; a shift device at each end of the loop and each comprising a lever, G, pivoted to the bottom of the conduit; a link, L, also pivoted to the bottom of the conduit; and a bar, K, pivoted at its ends to the lever and link respectively, and bearing a pulley J, as and for the purpose described.



520,365. VISIBLE SIGNAL DEVICE. WILLIAM H. LANE, Brooklyn, and FREDERIC S. PERRIN, New York, N. Y., assignors to the American Telephone and Telegraph Company, of New York. Filed Mar. 12, 1894. Serial No. 503,328. (No model.)



Claim.—1. An annunciator or visible signal indicator consisting of an electro-magnet having armatures provided with signal shutters or targets, as described upon their free ends; and an apertured face plate, provided with bars across its aperture, as set forth; whereby when the armatures are retracted, a normal color is displayed at the aperture, and when the armatures are attracted to the electro magnet a surface of different color is displayed at the said aperture, as and for the purpose set forth.

2. An annunciator or visible signal indicator, consisting of an electro-magnet having armatures secured to one pole of the electro-magnet and in inductive relation with the other pole thereof, and provided with signal shutters or targets as described, upon their free ends; and an apertured face plate provided with bars across its aperture, as set forth; whereby when the armatures are retracted a normal color is displayed at the aperture, and when the armatures are attracted to the electro-magnet a surface of different color or colors is displayed thereat, as and for the purpose set forth.

3. An annunciator or visible signal indicator, consisting of an electro-magnet with a polar extension, having two armatures of thin elastic iron secured to one pole of the electro-magnet and extending forward in inductive relation with the said polar extension, their ends being provided with signal shutters or targets as described; and an apertured face plate provided with rigid or immovable bars across its aperture as set forth; the said shutters and bars being colored as described; whereby when the armatures are retracted a normal color is displayed at the said aperture, and when the armatures are attracted to the polar extension a different color is displayed thereat.

4. A visible signal device comprising an actuating electro magnet, spring armatures carrying signal targets, and an apertured face plate, and means as indicated, for the display at said face plate of two distinctive signals, said means comprising for one signal rigid bars of given color crossing the aperture of said face plate, and a correspondingly colored section of one of the armature targets normally placed to show itself between the said bars; and for the second signal two other diversely colored targets carried by the two armatures respectively, and arranged to move in front of the said colored bars, and a correspondingly colored separate section of the first named target arranged to replace the first named section thereof, substantially as specified.

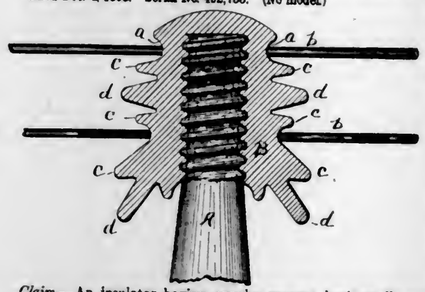
5. An annunciator or visual signal indicator, comprising an electro-magnet, an apertured face plate in front of said magnet, a display surface of uniform color normally visible through said aperture, and armatures for said magnet carrying targets or shutters movable toward each other by the attraction of said armatures, and thereby displaying a surface colored in contrast with that of the normal color signal, substantially as described.

520,366. CORRUGATED PACKING. JAMES M. LEAVER, Bay City, Mich., assignor of one-half to Emery J. Vance, same place. Filed Mar. 17, 1893. Renewed Apr. 7, 1894. Serial No. 506,776. (No model.)



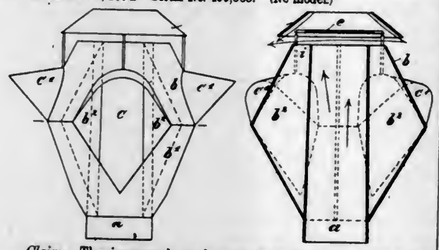
Claim.—A packing material comprising two or more superposed pieces of corrugated paper or like substance united, the corrugations of each piece of paper being arranged diagonally and extending at reverse angles on opposite sides of the packing material to secure the greatest possible number of contact points for the superposed pieces, and to provide for distributing any shock imparted to the article, placed on the packing, in a glancing direction on either side, substantially as set forth.

520,367. INSULATOR. FRED M. LOCKE, Victor, assignor of one-half to George A. Paddock, Auburn, and Willard C. Page, Palmyra, N. Y. Filed Dec. 4, 1893. Serial No. 492,733. (No model.)



Claim.—An insulator having annular grooves, horizontally extending petticoats adjacent thereto, and auxiliary petticoats having a greater circumference adjacent thereto for the purpose of preventing the current from escaping from one line to another, as set forth.

520,368. COWL. CARL W. J. MARTENS, Hamburg, Germany. Filed Feb. 7, 1894. Serial No. 499,385. (No model.)

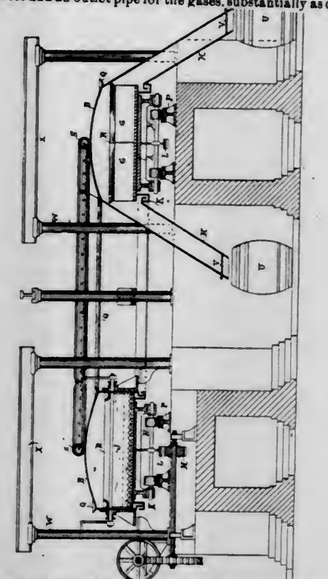


Claim.—The improved cowl comprising the outlet pipe a, the double cone $b.b'$ which at its lower end fits tightly around the said pipe and at its upper end leaves a gap i between itself and the said pipe, and which is formed with openings c, having caps c', a cover-plate e arranged above the month of the said outlet-pipe, and a conical cap d arranged to cover the opening between the upper portion of the said double-cone and the cover-plate substantially as described and shown, for the purpose specified.

520,369. APPARATUS FOR TREATING SUBSTANCES WITH GASES. JAMES J. MELVILLE, Northwich, England. Filed Sept. 28, 1893. Serial No. 486,718. (No model.)

Claim.—1. In an apparatus for treating solids, semi-solids or liquids with gases, an annular rotatable table for carrying the substances to be treated, an annular hood covering said table, a depression in the hood forming a hopper, a plow, an outlet pipe for the substances and an inlet pipe for the gases on one side of the hopper and an outlet pipe for the gases and a feeding device for the substances in the hopper, said inlet and outlet pipes being so arranged that the gases travel in direction opposite to the direction in which the substances travel, substantially as described.

2. In an apparatus for treating substances with gases the combination of a rotatable annular table, an annular hood covering the same, a depression in the hood forming a hopper a feeding device in said hopper for feeding the substances to be treated to said table, an inlet pipe for the gases and an outlet pipe for the substance treated by the gases and an outlet pipe for the gases, substantially as described.



3. In an apparatus for treating substances with gases the combination of an annular rotatable table, an annular stationary hood covering the same, lute troughs formed about the periphery of the bed of table and its inner annular edge and a flange formed on each vertical annular wall of the hood; said flanges adapted to enter respectively the said troughs, substantially as described.

4. In an apparatus for treating substances with gases the combination of an annular bed and an annular hood provided with pipes for the exit of the gases and the substances being treated, the one rotatable independent of the other, a plow attached to the hood and a hopper and inlet pipe for gases immediately behind the plow, substantially as described.

5. In an apparatus for treating substances with gases, the combination of an annular rotatable table, an annular stationary hood having a sloping interior and troughs passed around at the bottom of the slope whereby any liquid of condensation on the under surface of the said hood is caught by the troughs and not allowed to fall onto the table, substantially as described.

6. In combination with a rotatable table and a hood above the same, a water sprinkling device mounted on said hood and troughs for carrying off the water discharged therefrom, substantially as described.

7. In combination with a rotatable table, a thin metal sloping hood above the same, water sprinkling devices delivering onto said hood and catch water channels at the bottom of said slope inside of said hood whereby the moisture within said hood is condensed and caught, substantially as described.

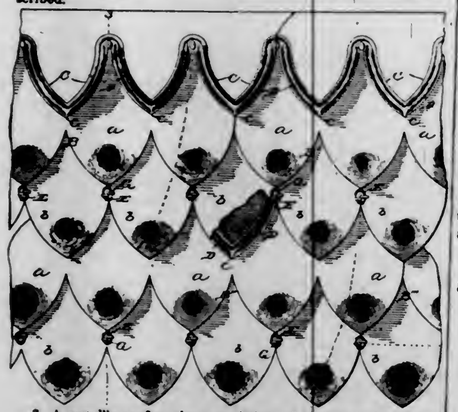
8. An apparatus for treating substances with gases having an annular chamber provided with inlet and outlet pipes for the gases and substances to be treated by said gases respectively, and with a series of baffle plates whereby the gases are forced at intervals to descend onto the substances treated in order to pass below the baffle plates, substantially as described.

9. In an apparatus for treating substances with gases, the combination of a rotatable annular table provided with a circular rack, an annular hood covering the said table, a lagging of suitable material applied on the said table, operating gearing meshing with the said rack, and inlet and outlet pipes for the gases and the substances being treated, so placed that said substances move in an opposite direction to that in which the gases move, substantially as described.

520,370. METALLIC ROOFING. WILLIAM H. MULLINS, Salem, Ohio. Filed Oct. 30, 1893. Serial No. 489,479. (No model.)

Claim.—1. A metallic roofing tile bounded on its upper edges by an offset provided with a groove or gutter therein, and on its lower edges by a suitable lip for inclosing a portion of the next tile below, substantially as described.

2. A metallic roofing plate consisting of a series of tiles, a longitudinal offset bounding the upper edges thereof and converging water-drains formed in said offset between the tiles, substantially as described.

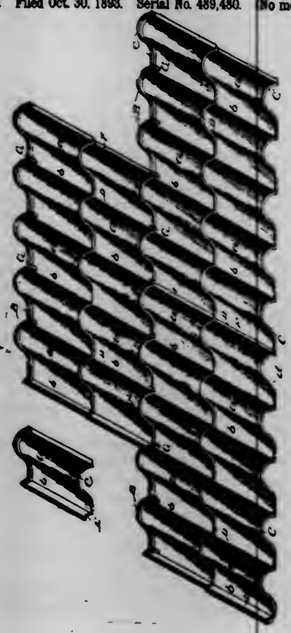


3. A metallic roofing-plate consisting of a connected series of tiles, a longitudinal offset bounding the upper edges thereof, converging water-drains between the tiles, and a spout leading from the drains, substantially as described.

4. A metallic roofing-plate consisting of a duplicate series of tiles, a longitudinal offset bounding the upper edge of the plate, water-drains formed in said offset, and a cleat or cleats secured to the roof and penetrating the plate for retaining it in position, substantially as described.

5. A metallic roofing-plate consisting of a series of tiles, a longitudinal offset bounding the upper edge of the plate, water drains in said offset, slotted embossments formed in the plates, and suitable roof cleats passing through said slots and folding upon the embossments, substantially as described.

520,371. METALLIC ROOFING. WILLIAM H. MULLINS, Salem, Ohio. Filed Oct. 30, 1893. Serial No. 489,480. (No model.)



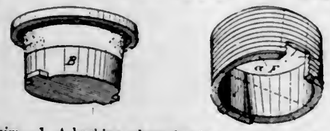
Claim.—1. A metallic tile for roofing purposes, consisting of a cyma-reversa body portion, a corrugated offset crossing the upper end thereof, a lower over-hanging lip, and an upwardly turned flange forming a weather strip provided with an angular backward bend at its edge forming a drip flange, substantially as described

2. In a metallic roofing-plate a contiguous series of cyma-reversa tiles, a continuous corrugated offset crossing the plate longitudinally, an overhanging lip extending from end to end of the plate, and a weather strip at one end thereof, substantially as described.

3. In a metallic roofing-plate a contiguous series of cyma-reversa tiles, a continuous corrugated offset crossing the plate longitudinally, an over-hanging lip extending from end to end of the plate, a weather strip at one end thereof provided with an angular drip flange, and a transverse web at the opposite end of the plate, substantially as described.

4. In a metallic roofing-plate a connected double series of cyma-reversa tiles, a continuous corrugated offset crossing the plate longitudinally, an over-hanging lip extending from end to end of the plate, a drip flange at one end and a transverse web at the opposite end of the plate, and suitable cleats for retaining said plate in position upon a roof, substantially as described.

520,372. BUNG AND BUSHING. GEORGE H. MERRICK, San Francisco, Cal. Filed Sept. 8, 1893. Serial No. 485,082. (No model.)



Claim.—1. A bushing adapted to be secured within the cask and having a smooth tapering interior surface, a bung adapted to be seated within the bushing and form a tight joint, said bung having oppositely projecting lugs at its inner end of greater exterior diameter than the interior diameter of the inner end of the bushing, longitudinal channels made in the interior end of the bushing with one of said channels opening through the lower side wall thereof above its lower end to allow the lugs to pass through the bushing and inclined surfaces formed upon the inner end of the bushing extending from the channels in opposite directions whereby the lugs are compelled to travel upon the inclines when the bung is turned, and serve to lock the bung in place, substantially as herein described.

2. A bung having outwardly and oppositely projecting lugs upon its inner end, and an elastic tapering washer surrounding its outer end, a bushing adapted to be permanently fitted in the cask having a smooth tapering interior within which the washer of the bung forms a tight joint immediately upon the introduction of the bung into the bushing, channels made longitudinally in opposite sides of the bushing to allow the lugs of the bung to pass through the bushing, an open slot cut through one side of the inner end of the bushing corresponding with one of the lugs to allow the bung to be moved to that side before reaching its seat, and an inwardly projecting lip at the inner end of the opposite channel over which the opposite lug must pass before the bung is seated, inclined surfaces upon the inner end of the bushing of smaller diameter than the exterior diameter of the lugs whereby the latter move over the inclines when the bung is turned and lock it in place, substantially as herein described.

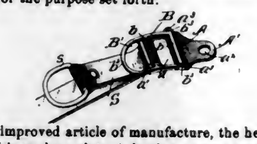
3. The bushing having a tapering interior, a bung adapted to be seated therein, opposite longitudinal channels made in the interior of the bushing to allow the lugs of the bung of larger diameter than the interior of the bushing to pass, inclined surfaces upon the inner end of the bushing over which the lugs pass when the bung is turned, a shoulder formed at the foot of one of the inclines against which the corresponding lug abuts when the bung has been turned back sufficiently to loosen it, said shoulder preventing the bung from turning far enough to be removed, substantially as herein described.

4. A bushing having a tapering interior, a bung adapted to seat therein and form a tight joint and having lugs at the inner end of greater exterior diameter than the interior end of the bushing, longitudinal channels through which the lugs pass when the bung is inserted, inclined faces upon the inner end of the bushing over which the lugs pass when the bung is turned in one direction, and stops I and J by which the lugs are arrested when the bung is turned back, substantially as herein described.

520,373. BUCKLE. ALBERT E. MCCLURE, Sedalia, Mo., assignor to the McClure Manufacturing Company, same place. Filed Aug. 13 1892. Renewed Apr. 16, 1894. Serial No. 507,777. (No model.)

Claim.—1. As an improved article of manufacture, a buckle comprising a base plate having an open portion, as at *a*, forming a cross bar, as at *a'*; and an upper link or member, as B, pivotally mounted

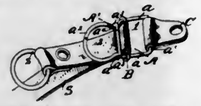
at its rear end upon the base plate at a point in rear of the open portion *a* and provided with a cross bar, as at *b*, operating in conjunction with the cross bar *a'* of the base plate, the outer portion, as B', of the pivoted link member B projecting beyond the point of juncture of the cross bar *b* and cross bar *a* and forming a free lifting end, substantially as and for the purpose set forth.



2. As an improved article of manufacture, the herein described buckle comprising a base plate, A, having an open portion, *a*, forming a cross bar, *a'*, and provided with an eye or opening, as at a^3, at the end opposite the opening *a*; and an upper link or member, B, having its rear end pivotally mounted upon the base plate at a point in rear of the opening *a* and provided with a dividing cross bar, *b*, adapted to operate in conjunction with the cross bar *a'* and dividing the link into a main portion and an outer portion, B', the latter projecting beyond the point of juncture of the cross bar *b* and the cross bar *a'* and forming a free lifting end, substantially as and for the purpose set forth.

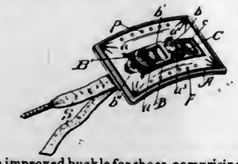
3. The herein described improved buckle, consisting of the base plate A having the open portion *a* forming the cross bar *a'* and provided with projecting ears or lugs at its sides and about the center of the base plate between the front open portion *a* and the rear portion; and the upper link or member B having the projections b^3, by which it is pivotally mounted at its rear end in said ears or projections, and provided with a cross bar *b* operating in conjunction with the cross bar *a* and dividing the link B into a main portion and an outer portion which projects beyond the point of juncture of the cross bar B and the cross bar *a'* and forms a free lifting end, substantially as and for the purpose set forth.

520,374. BUCKLE. ALBERT E. MCCLURE, Sedalia, Mo., assignor to the McClure Manufacturing Company, same place. Filed Aug. 13, 1892. Renewed Apr. 16, 1894. Serial No. 507,778. (No model.)



Claim.—A buckle comprising the main frame A having the main portion 1, the side bars *a a*, the rear cross-bar *a'*, the outer projecting portion 2, and the fixed cross-bar A' dividing the portions 1 and 2; the single sliding cross-bar or member mounted upon the main portion 1 of the frame and having its ends engaging and sliding upon the said side bars *a a* of the main portion 1; and a securing sleeve or band C projecting from the rear cross bar *a'* whereby the single sliding cross-bar B is adapted to move toward the fixed cross-bar A' and lifting of the outer projecting portion causes a pivotal movement of the buckle and a rearward movement of the sliding cross-bar B, all substantially as and for the purpose set forth.

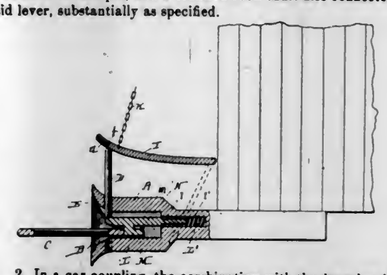
520,375. BUCKLE. ALBERT E. MCCLURE, Sedalia, Mo., assignor to the McClure Manufacturing Company, same place. Filed Aug. 13, 1892. Renewed Apr. 16, 1894. Serial No. 507,779. (No model.)



Claim.—An improved buckle for shoes, comprising the body-plate A having the extended face *a* forming the outer face or surface of the buckle and provided with opening *a'* having the cross-bar a^3, and the smaller outer plate B pivotally mounted upon the body plate and occupying the central portion of the face of the same, the pivoted plate being divided by the cross-bar b^3 into a main portion and an outer projecting portion B' forming a free lifting end; substantially as and for the purpose set forth.

520,376. CAR-COUPLING. SWEN P. NELSON, Omaha, Nebr., assignor to the Nelson Car Coupling Company, same place. Filed Oct. 7, 1893. Serial No. 487,443. (No model.)

Claim.—1. In a car coupling, the combination with the draw-head, the spring plate E having the pin opening therein, the reciprocating pin-support and buffer block L having its forward end portion adapted to engage the opening in the plate E when the parts are in uncoupled positions, the spring L', the pin, the slotted lever loosely connected to said pin, and a cranked rock shaft also connected with said lever, substantially as specified.

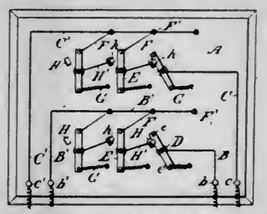


2. In a car coupling, the combination with the draw-head A, its chamber B, the spring plate E having the pin opening therein, and the buffer and pin support, of the lever having a slot engaging the head of the pin, a crank shaft connected to said lever, and extending to the side of the car and means connected with said lever whereby it may be operated from the roof of the car to raise said pin, substantially as specified.

520,377. PROCESS OF WINNING METALS FROM MAGNETIC IRON SAND, METALLIC ORE-DUST, AND METALLIC RESIDUES. ERNEST NIENSTAEDT, New York, N. Y., assignor of one-half to Leo Goldmark, same place. Filed June 23, 1893. Serial No. 478,627. (No specimens.)

Claim.—The process of winning metals from magnetic iron-sand, or from the magnetic particles separated therefrom, or from metallic ore dust or any metallic residues, which consists in mixing the said materials with calcined magnesite, water, chloride of magnesium, and a glutinous binding material, forming from the mass thus obtained bricks and treating the latter in blast furnaces like metallic ores in the common manner with flux and reducing materials, as sand, lime coal-dust, coke, substantially as set forth.

520,378. MULTIPLE-ELECTRIC-FUSE BOX. EDWARD A. PARSON, Ottawa, Canada, assignor of one-half to Haldane Millar, same place. Filed Jan. 16, 1894. Serial No. 497,113. (No model.)



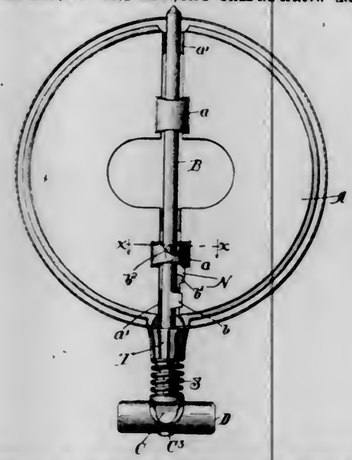
Claim.—1. The combination of a disrupted conductor B B' provided with suitable terminals *b* and *b'*, a series of posts F' electrically secured upon the disrupted part B', a series of levers E each pivoted upon a base D electrically connected with a part of a conductor and having pins or posts *e* and *e'* at the ends, a fuse wire F connecting each pin *e* to a post F', and a spring G drawing the lever by the post *e'* in a direction to strain said fuse wire, and the series of stops H serving as abutments for the lever E when operated by the springs and having electric conductors H' connecting the base D of the next lever, the disrupted part B of said conductor secured to the first lever in the series and the insulating base A upon which said parts are secured, substantially as set forth.

2. In a multiple fuse box, the combination of a lever in electric connection with a disrupted circuit and tended to be swung upon a pivot in one direction and held by a fuse wire in electric connection with the other part of the disrupted circuit in the opposite direction, of an electric bell circuit disrupted by terminals placed adjacent to said lever and adapted to be brought into electric connection by a conducting portion of an insulated part of said lever when operated by the spring after the fuse wire has become inoperative substantially as set forth.

3. In a multiple fuse box, the combination of a disrupted conductor having one terminal of one part electrically secured to a base carrying a lever, a lever pivoted at a point between its ends upon said base and making electric connection therewith and adapted to transmit the current to one end thereof, a spring having one end secured

to the non-conducting end of said lever adapted to swing it in one direction, a fuse wire secured to the opposite and conducting end of said lever and to the other part of the disrupted conductor in such a position as to hold the lever against the pressure of the spring and prevent it being swung by the spring, a stop placed in the path in which the lever is swung by the spring adapted to make electric connection when in contact with said lever, and an electric connection of said stop with the pivot base of another similar lever similarly held connected and operated, substantially as set forth.

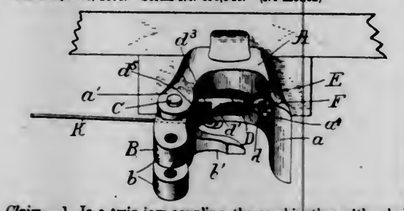
520,379. STOVEPIPE-DAMPER. MICHAEL REDLINGER and CHARLES MORGAN, Freeport, Ill., assignors to the Arcade Manufacturing Company, same place. Filed Jan. 26, 1894. Serial No. 498,077. (No model.)



Claim.—1. In a damper, the combination with a handle formed with a suitable opening, of a shank terminating in a tang having one of its faces beveled and its opposite face serrated, and a wedge having similar beveled and serrated faces, said tang and wedge being adapted to enter the opening in the handle from opposite directions, and when wholly within the opening to embed their serrations in the handle.

2. The combination with the shank, B, having the yoke, C, and tang, C', of the wedge, C^3, and handle, D, the tang and wedge having their contiguous faces beveled and their external faces serrated, the handle, D, being formed with an opening adapted to receive the tang and wedge and the yoke, C, being adapted to clasp the handle when in operative position; substantially as shown and described.

520,380. CAR-COUPLING. JAMES A. ROOSEVELT, Austin, Tex. Filed Sept. 26, 1893. Serial No. 486,546. (No model.)



Claim.—1. In a twin jaw coupling, the combination with a hollow drawhead, of a knuckle pivoted in said drawhead and provided with a locking arm adapted to enter into the hollow portion of said drawhead, a lock pivoted across said drawhead and provided with an inclined face, and a catch on one side thereof, a spring normally pressing on the opposite side of said lock, a lever pivoted in said drawhead and having one arm adapted to trip said lock and release said arm; and a hand rod connected to the other arm of said lever and leading to the side of the car, substantially as described.

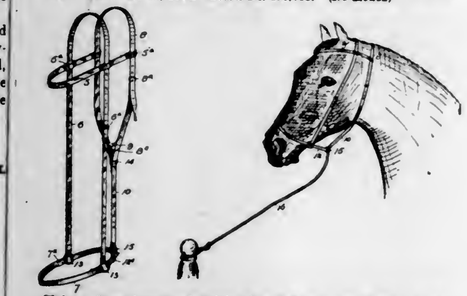
2. In a twin jaw coupling, the combination with a hollow drawhead, of a knuckle pivoted in said drawhead and provided with a locking arm adapted to enter into the hollow portion of said drawhead, a lock D pivoted across said drawhead and provided with an inclined face d'; a catch d^5 and a lug d^3 on the lower side thereof, the said lock being adapted to fall by gravity and engage said locking arm of said knuckle, a bell crank lever H pivoted in said drawhead and having one arm adapted to trip said lock and release said locking arm of the knuckle and to support said lock when open; and a hand rod connected to the other arm of said lever and leading to the side of the car, substantially as described.

3. In a twin jaw coupling, the combination with a hollow drawhead, of a knuckle pivoted in said drawhead and provided with a locking arm b' adapted to enter into the hollow portion of said drawhead, a lock D pivoted across said drawhead and provided with an inclined face d'; a catch d^5, a lug d^3, and a projecting arm d^6 on the lower side thereof, and a lug on the upper side thereof, a spiral spring engaging said lug and interposed between said lock and the inner wall of the drawhead, a lever pivoted in said drawhead and having one arm adapted to trip said lock and release said arm; and a hand rod connected to the other arm of said lever and leading to the side of the car, substantially as described

4. In a twin jaw coupling, the combination with a hollow drawhead provided with horns a, a' and a^2 and a plurality of inclined faces a^3 about the pivot pin through the lower horn a^2, of a knuckle pivoted in said drawhead and provided with a locking arm adapted to enter into the hollow portion of said drawhead, and a plurality of inclined faces b^3 about the pivot hole on the lower side of said knuckle and adapted to engage said faces a^3; a lock pivoted across said drawhead and provided with an inclined face, and a catch on one side thereof, a spring normally pressing on the opposite side of said lock, a bell crank lever pivoted in said drawhead; and a hand rod connected thereto for tripping said lock and releasing said arm, substantially as described.

5. In a twin jaw coupliug, the combination with a hollow drawhead provided with the horns a, a' and a^2, and a plurality of inclined faces a^3 on the upper side of said horn a^2 about the pivot hole, of a knuckle pivoted in said drawhead and provided with a locking arm adapted to enter into the hollow portion of said drawhead, and a plurality of inclined faces b^3 about the pivot hole, adapted to engage said faces a^3, a lock pivoted across said drawhead and provided with an inclined face d'; a catch d^5 and a lug d^3 on the lower side thereof, the said lock being adapted to fall by gravity and engage said locking arm of said knuckle, a bell crank lever H pivoted in said drawhead and having one arm adapted to trip said lock and release said locking arm of the knuckle and to support said lock when open; and a hand rod connected to the other arm of said lever and leading to the side of the car, substantially as described.

520,381. HALTER. CHARLES G. SHERIFF, Hot Sulphur Springs, Colo. Filed Jan. 13, 1894. Serial No. 496,715. (No model.)

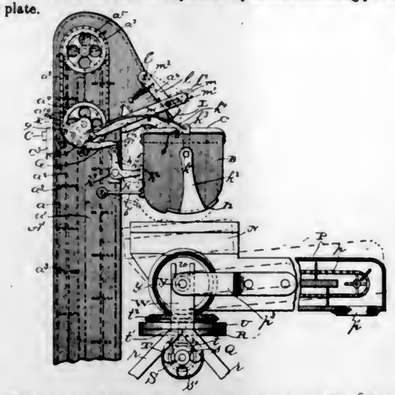


Claim.—As an improved article of manufacture, the halter herein described, consisting of the head piece, the forked neck piece provided with the anti-cribbing attachment 9 consisting of a strap having its extremities made fast to the arms of the fork, the brow band connecting the head and neck pieces, the nose piece supported by the head piece, the jaw piece connected with the nose piece, and the stem connecting the fork of the neck piece with the jaw piece, substantially as described.

520,382. GRAIN WEIGHER AND CONVEYER SPOUT. VALENTIN WEBER, Princeville, and JAMES R. HARRISON, Peoria, assignors of one-third to William Harrison, Peoria, Ill. Filed Jan. 6, 1893. Serial No. 457,492. (No model.)

Claim.—1. In a grain weigher, the combination substantially as hereinbefore described, with an elevator, a hopper suspended on a poised scale beam, a valve for the discharge spout of the elevator, and a valve for the bottom of the hopper, of a plate, means for intermittingly revolving said plate by intergear with a rotary shaft operated by the elevator, connecting rods both pivotally connected at one end to a crank pin on said plate, one of said rods slotted at its other end where it receives a pivot pin on the carrying arm of the spout

valve between said valve and its axis of oscillation, and the other rod pivotally connected at its other end to the outer end of an arm which extends from the hopper valve to and beyond its axis of oscillation, whereby said valves are both operated by said intermittingly revolving plate.



2. In a grain weigher, the combination substantially as hereinbefore described, with an elevator, a hopper suspended on a poised scale beam, a valve for the discharge spout of the elevator, a retracting spring, and a valve for the bottom of the hopper, of a plate, means for intermittingly revolving said plate, by intergear with a rotary shaft operated by the elevator, connecting rods both pivotally connected at one end to a crank pin on said plate, one of said rods slotted at its other end where it receives a pivot pin on the carrying arm of the spout valve between said valve and its axis of oscillation, and the other rod pivotally connected at its other end to the outer end of an arm which extends from the hopper valve to and beyond its axis of oscillation, whereby said valves are both operated by said intermittingly revolving plate.

3. In a grain weigher, and in combination substantially as hereinbefore described, with an elevator, and a hopper suspended on a poised scale beam, a valve for the discharge spout of the elevator, and a valve for the bottom of the hopper, a plate E carrying a crank pin E^2, rods pivotally connecting said crank pin with said valves, the valve retracting spring m^3, the spring actuated tripping pawl lever, and ratchet wheel D, and the bell crank detent H arranged with its arm h' in a vertical position.

4. In a grain weigher, and in combination substantially as hereinbefore described, with an elevator, and a hopper suspended on a poised scale beam, a valve for the discharge spout of the elevator, and a valve for the bottom of the hopper, a plate E carrying a crank pin e^2, rods pivotally connecting said crank pin with said valves, the valve retracting spring m^3, the spring actuated tripping pawl lever and ratchet wheel D, and the bell crank detent H, arranged with its arm h' in a vertical position and provided with an anti-friction roller for the purpose specified.

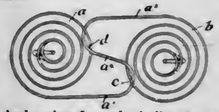
5. In a grain weigher, in combination with an elevator and a hopper suspended on a poised scale beam, valve K, arm k^3, rock-shaft k, valve L, arm l, spring m^3, connecting rod l^3, having a slot m' pivoted on pin m, bell crank detent H, spring actuated tripping pawl G, plate E with crank pin e^2, ratchet wheel D, and pinion a^2 all arranged to operate substantially as described.

6. In a grain weigher, and in combination substantially as hereinbefore described, with an elevator and a hopper suspended on a poised scale beam, a swinging valve K, arm k^3, connecting rod k^4 pivotally connected with arm k^3, swinging valve L, spring m^3, connecting rod l^3 having a slot m', pivotally connected through said slot and pin m with the valve arm l, and an intermittingly revolving plate E with a crank pin with which the connecting rods l^3, and k^4 are pivotally connected, substantially as described.

7. A grain conveyer, comprising in its structure a fixed base part comprising a base R, shaft S, pendants s, pulley s', bevel pinions T, t, shaft t', pinion t^3, plate U having vertical and diametrically opposite standards W mounted thereon; and a removable and adjustable part comprising a spout P, hopper N, conveyer belt p, shaft Y, and pinion y, in combination with an elevator and a weighing hopper on the elevator in proximity to and directly above the hopper N substantially as described and for the purpose specified.

520,383. BED-SPRING. LA FAYETTE WILDERMUTH, Columbus, Ohio. Filed Feb. 23, 1894. Serial No. 501,079. (No model.)

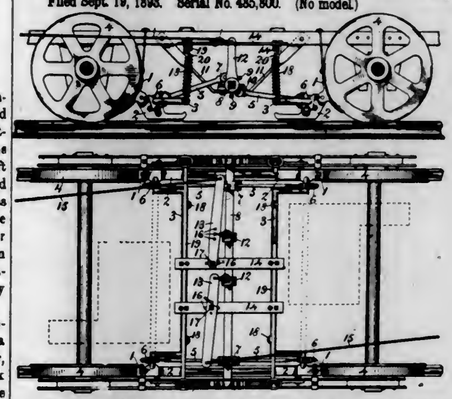
Claim.—1. A double bed spring formed of a single piece of wire and consisting of two coiled springs a and b, the upper coil of the spring a being extended to and looped around and into engagement with the upper coil of the spring b, thence returned and looped around and into engagement with the upper coil of the spring a, from which point said extension is continued as described to form the coil b, substantially as specified.



2. A double bed spring formed wholly of one piece of wire and consisting of the two springs a and b and an intermediate bridge portion consisting as described of extensions of the top coils of said springs which pass back and forth between said top coils and are looped around as described at points c and d to the top coils at which points said bridge portions are bent downward substantially as and for the purpose specified

---

520,384. CAR-BRAKE. THOMAS H. ALLEN, Toronto, Canada. Filed Sept. 19, 1893. Serial No. 485,800. (No model.)



Claim.—1. The combination of the wheel brake having means on its rear side whereby a rail brake is jointed thereto, the rail brake jointed to the wheel brake, the coupling bar secured by each end to a rail brake to couple the same in pairs and provide a means by which said rail brakes are secured a constant distance apart and parallel and the strut bars connected as specified to the coupling bar near its ends and providing means whereby the said wheel and rail brakes are operated and coupled.

2. The combination of the wheel brake having means whereby a rail brake is jointed thereto, the rail brake jointed to said wheel brake, the coupling bar secured by its ends to the opposite rail brakes of each pair of wheels, the strut bars connected as specified to the coupling bar near its ends, and the rocker shaft having the opposite ends of the strut bars connected thereto so as to operate the said strut bars reciprocally.

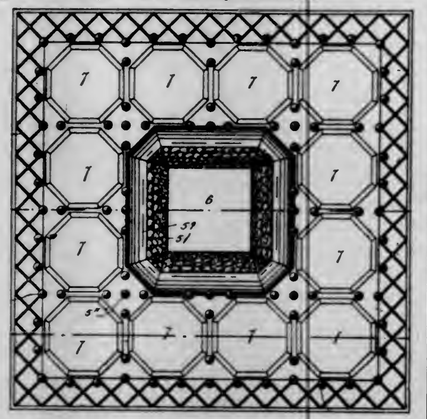
3. In combination, the wheel brakes having means to secure a rail brake to each, the rail brakes jointed to the wheel brakes as specified, coupling bars to secure the rail brakes in pairs transverse of the truck, strut bars having an adjustable bearing carried by each and secured on the coupling bars, adjustable spiral springs to support said coupling bars normally, a rocker shaft having the opposite ends of the strut bars jointed diametrically on opposite sides thereof, and arms secured on said rocker-shaft whereby it is operated.

4. In combination, the wheel brakes and the rail brakes jointed together as specified, coupling bars securing the rail brakes on opposite ends thereof and in pairs transverse of the truck, strut bars divided at one end and having bearings carried adjustably therein and secured on said coupling bars, and at their opposite ends jointed to a rocker-shaft, the rocker-shaft to reciprocate said strut bars, arms on the rocker shaft by which it is operated and levers connected to said arms on the rocker-shaft and having additional adjustment of their power, as provided.

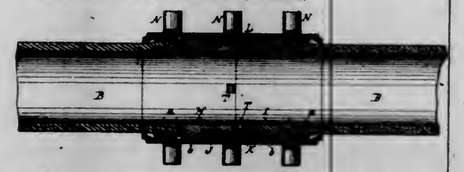
520,385. PICTURE-FRAME. JOHN J. ALLEN, Denver, Colo. Filed Aug. 21, 1893. Renewed Apr. 6, 1894. Serial No. 506,639. (No model.)

Claim.—As an improved article of manufacture, a picture frame composed of a metal plate having a central aperture and other surrounding apertures lying in a different plane, said apertures being provided with ways formed on the reverse side of the frame for the

reception of the pictures, the parts of the frame surrounding the apertures being provided with recesses containing suitable settings, the front of the frame being provided with a transparent plate suitably held in place, while the back of the frame has a covering surrounding the central aperture, substantially as described.

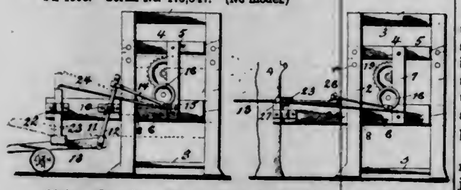


520,386. HOSE-CLAMP. JOHN C. BARRETT, Oakdale, Pa. Filed May 6, 1893. Serial No. 473,297. (No model.)



Claim.—In a hose clamp or coupling, the coupling members C, having a right and left hand thread upon their inner ends and a broad recess tapering from said screw threads to their outer ends, and the coupling member L, also having a right and left thread, but of larger caliber, and located between the said members C, in combination with the inside tube provided with screw threads to mesh with the threads of the said coupling members and having ends tapering from its screw thread in a direction parallel to the taper of the recesses and provided with a series of circumferential shallow grooves upon the outside, and the rings D, having a series of similar grooves upon the inside and located in the said recesses so as to clamp the end of a hose or pipe between the two sets of grooves, as set forth.

520,387. DRAG-SAW. JAMES H. BLACKMAN, Jr., Hartsville, Ill., assignor of one-half to Charles H. Blackman, same place. Filed May 24, 1893. Serial No. 475,347. (No model.)



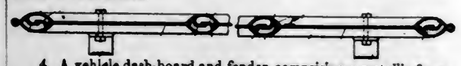
Claim.—In a drag-saw machine, the combination, with the main frame, of the vertically adjustable frame having an end extension provided with vertical and horizontal guide-holders, the detachable guide or shoe adapted to operate in either of said holders, the detachable saw-operating lever, the fulcrum-pins, whereby said lever may be fulcrumed vertically or horizontally to said extension, and the gearing for actuating the lever and saw, substantially as specified.

520,388. VEHICLE DASHBOARD AND FENDER. ALMA F. BLEASE, Hammond, Ind. Filed Aug. 26, 1893. Serial No. 484,063. (No model.)

Claim.—1. A dash board frame, comprising two sections provided with interlocking hooks, substantially as described.

2. A dash board frame, comprising two sections formed of concave bars, and provided on their inner faces with interlocking hooks, substantially as described.

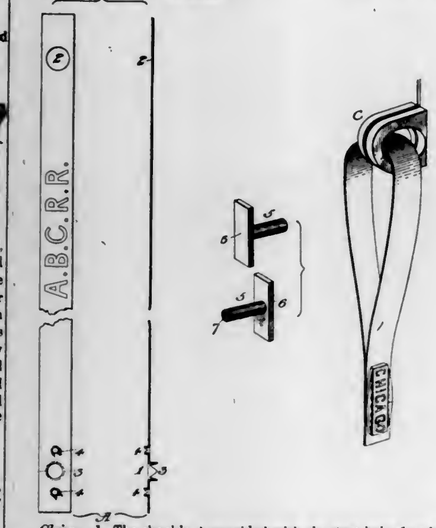
3. A vehicle dash-board and fender, comprising a metallic frame made in two sections and formed with hooks on their opposite faces, the hooks being adapted to engage one another, and a sheet of leather, fabric or other material interposed between the frame sections and formed with slots for the passage of the said hooks, substantially as shown and described.



4. A vehicle dash-board and fender, comprising a metallic frame made in two sections and formed with hooks on their opposite faces, the hooks being adapted to engage one another, a sheet of leather, fabric or other material interposed between the frame sections and formed with slots for the passage of the said hooks, and bolts for uniting the frame sections and attaching a bracket to fasten the article to the vehicle, substantially as shown and described.

5. A vehicle dash-board and fender, provided with a metallic open frame made in two sections, and having bars made concave in cross section, each section being provided in its vertical bars with hooks adapted to engage the hooks of the other section, substantially as shown and described.

520,389. SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to the E. J. Brooks & Company, New York, N. Y. Filed Jan. 5, 1894. Serial No. 496,855. (No model.)



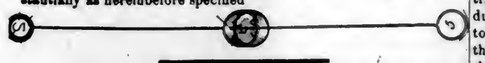
Claim.—1. The shackle A provided with the rivet-holes 1 and 2, the former surrounded by an eyelet-collar 3 at the back of the shackle, and with holes 4, and collars or burrs at these holes projecting from the face of the shackle, in combination with a long-headed rivet which is adapted to be inserted through said eyelet-collar with the back of its head opposed to said burrs, whereby such rivet is adapted to be preliminarily attached to the shackle by endwise compression, substantially as hereinbefore specified.

2. An improved rivet-seal composed of a flexible shackle having rivet-holes in its respective ends and provided with collared holes adjacent to one of said rivet-holes, a collar on the back of the shackle, surrounding the rivet-hole last named, and a compressible rivet having a stem which tightly fills said rivet-hole last named and a long flat head attached to the face of the shackle by means of said collared holes and their burrs, substantially as hereinbefore specified.

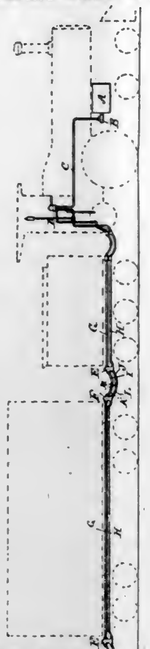
520,390. SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to the E. J. Brooks & Company, New York, N. Y. Filed Mar. 20, 1894. Serial No. 504,418. (No model.)

Claim.—1. A seal composed of a flexible shackle-wire having loops of different sizes at its respective ends and a pair of disk-forming cups of sheet-metal wired with the respective loops, the larger cup having an inwardly folding rim for fastening the seal, substantially as hereinbefore specified.

2. An improved seal composed of a shackle of flexible wire having loops at its respective ends and a pair of disk-forming cups of sheet-metal wired with said loops and having interlocking rims, substantially as hereinbefore specified



520,391. AUTOMATIC AIR-BRAKE. JOSEPH P. BROWN, Somerset, Ky. Filed Jan. 22, 1894. Serial No. 497,659. (No model.)



Claim.—1. The combination with a primary brake pipe, of a safety-pipe connected with a signal mechanism, an angle-cock to which both the brake and safety pipes are connected, and a plug in said angle cock having means for admitting the air from the brake pipe to pass into the safety pipe should said plug be turned to shut off the passage of air through said primary-brake pipe, substantially as and for the purposes described.

2. The combination with a primary brake-pipe, a high-pressure air reservoir, and a safety-pipe connected with said reservoir, of an angle cock to which said brake pipe and said safety pipe are connected and provided with a plug constructed to permit air to pass from the brake pipe into the safety pipe, and mechanism operated by pressure from the high-pressure reservoir to cut off the passage of air from the brake pipe to the safety pipe and cause said air to continue around the plug, through by-pass ducts, into and through the primary brake pipe, for the purposes described, substantially as set forth.

3. The combination with a primary-brake-pipe, a safety-pipe, a high-pressure reservoir having a valved connection with said safety-pipe, an angle cock to which the brake and safety-pipes are connected, a plug within said angle cock having by-pass passages through which the air from the brake pipe can pass into the safety pipe when said plug is turned to shut off the passage of air through the brake pipe, and valve mechanism within said angle cock arranged to be operated by high pressure current from the reservoir to close the passage of air from the brake-pipe into the safety pipe and cause the air in the brake pipe to pass around the plug and continue through said brake-pipe, for the purposes described, substantially as set forth.

4. The combination with a brake-pipe, a safety-pipe, a reservoir connected with said safety-pipe, an angle cock connected with said brake and safety-pipes and having the by-pass ducts around the plug-seat therein, a plug within said angle-cock and provided with the transverse port and with the ducts arranged to align with the by-pass ducts, and a supplemental valve operating against the by-pass ducts to prevent the same from discharging into the safety-pipe, for the purposes described, substantially as set forth.

5. The combination with a brake pipe, of a safety pipe connected with a signaling mechanism, a high-pressure reservoir, a three way valve between said reservoir and the safety-pipe, an angle cock connected with the brake and safety pipes and provided with the by pass ducts around its plug-seat and with the valve seat, a plug having the transverse port and the ducts arranged to coincide with the by-pass ducts, and the valve normally resting on said valve seat and exposed to action of the high-pressure current from the reservoir to cut off the passage of air from the brake-pipe into the safety pipe and cause the air to continue around the plug and through the brake-pipe, for the purposes described, substantially as set forth.

520,392. WRENCH. CHARLES CARLSON, Deer Trail, Colo. Filed Mar. 2, 1894. Serial No. 502,033. (No model.)

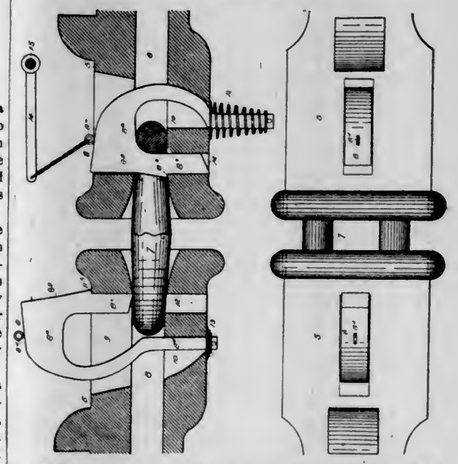


Claim.—1. In a monkey wrench, the combination of the shank carrying the stationary jaw and threaded on two opposite sides, the other sides having no threads, the movable jaw, the nut segmentally threaded to correspond with the shank, and having an enlarged portion with continuous threads to engage the movable jaw which is correspondingly threaded, substantially as described.

2. In a monkey wrench, the combination of a shank carrying the stationary jaw and threaded part way around, the other part being plain, a movable jaw having an exteriorly threaded portion, a nut threaded to correspond with the shank, and provided with an enlarged interiorly threaded portion to engage the threaded part of the movable jaw, substantially as described.

3. In a monkey wrench, the combination of the shank threaded part way around, the other part being plain, a movable jaw having an exteriorly threaded portion, a nut threaded to correspond with the shank and jaw, and carrying lugs suitably separated, and a stop attached to the movable jaw and projecting into the path of the lugs on the nut, substantially as described

520,393. CAR-COUPLING. FREDERICK M. COOMBS, Aspen, Colo. Filed Jan. 3, 1894. Serial No. 495,563. (No model.)



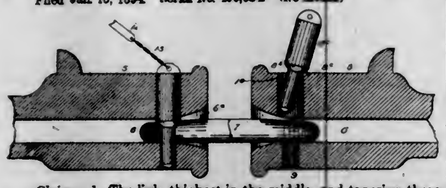
Claim.—1. In a car-coupler, the combination with the draw-head and link, of the vertically movable spring-actuated hooked coupling device provided with the off-set in front, the draw head being suitably apertured to receive said device, substantially as described.

2. In a car-coupler, the combination with the draw-head longitudinally recessed and vertically apertured, the link centrally enlarged and tapering toward its extremities, and the vertically movable, spring-actuated coupling device provided with the off-set adapted to engage the draw-head which forms the support for the device when in the upraised position, substantially as described.

3. The bevel-faced hook-shaped coupling device provided with the supporting off-set in front, substantially as described.

4. In a car coupling, the combination with the draw-head of the vertically movable coupling device provided with the supporting off-set in front, and the coupling link centrally enlarged, and tapering toward its extremities, substantially as described.

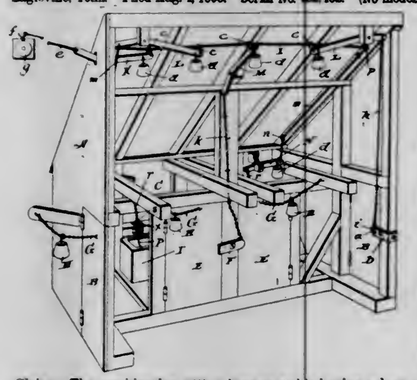
520,394. CAR-COUPLING. FREDERICK M. COOMBS, Aspen, Colo. Filed Jan. 13, 1894. Serial No. 496,824. (No model.)



Claim.—1. The link, thickest in the middle, and tapering therefrom to its extremities on one side, while the opposite side lies in the same plane from end to end, whereby the portions of the link which enter the draw-heads, and through which the coupling pins pass, shall be inclined to the plane of the link-supporting parts of the draw-heads, substantially as described.

2. In a car coupler, the combination with the draw-head of a link having a thick central portion and beveled or tapering extremities on one side, while the opposite side lies in the same plane from end to end, and the pin having the upper enlarged portion, the lower reduced portion, and the intermediate shoulder adapted to engage the link, substantially as described.

520,395. ANIMAL-RELEASING DEVICE. JOSEPH S. EDMONDS, Eagleville, Tenn. Filed Aug. 4, 1893. Serial No. 482,402. (No model.)

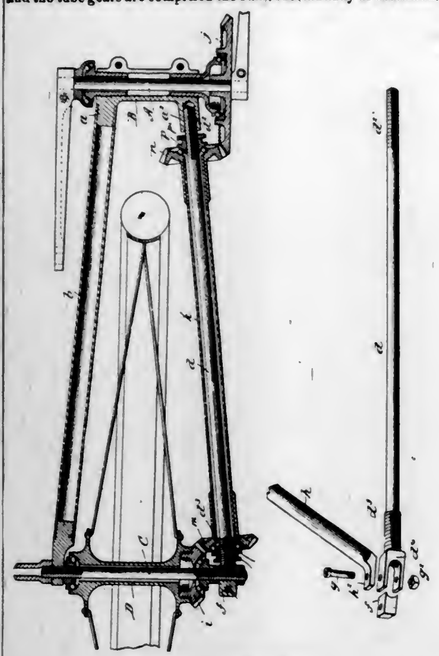


Claim.—The combination with a barn or stable having a door as B, and also having a stall and a stall door E, fastening devices for holding the doors B, E, in a closed position, means for opening the said doors when the fastening devices are disengaged therefrom and a device for fastening the halter of the animal in the stall; of a releasing apparatus consisting essentially of the combustible cord stretched within the barn or stable, the levers L, M, fulcrumed adjacent to the combustible cord and having a weight at one end and a hook at the same end engaging the combustible cord; wires or chains connecting the opposite ends of the levers L, M, and the fastening devices of the doors B, and E, respectively, the lever N, having a weight at one end and having said end connected with the combustible cord, and a chain or wire connecting the unweighted end of the lever N, and the halter fastening device, all substantially as and for the purpose set forth.

520,396. BICYCLE. SIDNEY A. GRANT, Springfield, assignor to the National Cycle Company, Fitchburg, Mass. Filed Nov. 22, 1893. Serial No. 491,689. (No model.)

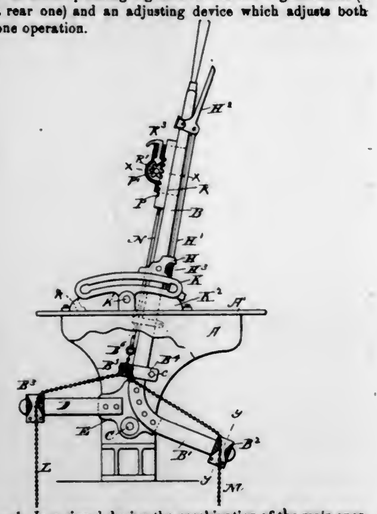
Claim.—1. In a bicycle, the combination with a bracket, A, of a stay-rod having at its forward end a supporting connection with the bracket, and having at its rear end the bifurcated part, d^4, for constituting a one-end support for the rear wheel axle, and the rear oblique frame member, A, having the angular extremity, A^3, the block f, and the bolt passed through perforations in said parts, A^3, f, and d^4, substantially as described.

2. In a bicycle, the combination with the rear wheel axle, and the bracket having the threaded socket-lug, a^3, and the rear wheel with the gear, i, and the crank-shaft with the gear, j, of the stay-rod having the screw-threaded portion, d^3, at its forward end,—partially entered in said socket-lug,—and having the enlarged screw-threaded portion, d^3, near its rear end and also having its rear end constructed for a one-end support of the rear wheel axle, the tube, k, surrounding the stay-rod and having the gears, m and n, and meshing with the aforesaid gears, i, and j, the cone, o, screwing on the enlarged screw-threaded part of the stay-rod, d^3, and the cone, p, screwing on the threaded part, d^3, to the rear of the socket-lug, between which cones and the tube gears are comprised the balls, substantially as described.



520,397. TENSION-ADJUSTING DEVICE FOR RAILWAY-SIGNALS. JAMES T. HAMBAY, Boston, Mass. Filed May 12, 1893. Serial No. 473,996. (No model.)

Brief.—A main operating signal-lever has two signal-chains (a front and a rear one) and an adjusting device which adjusts both chains by one operation.

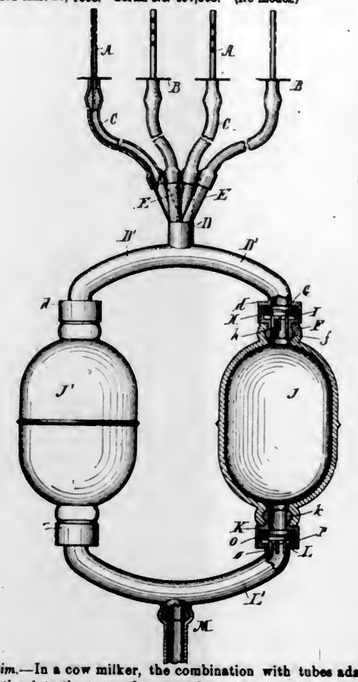


Claim.—1. In a signal device the combination of the main operating lever and the front and back chains, wires, or rods: with mechanism adapted to adjust, by one operation, both of the said front and back chains, wires, or rods, substantially as and for the purpose set forth.

2. In a signal device, the combination of the main lever B having a branch B′ and block B^3: with chain M, block B^4, rod N and a tension adjusting mechanism, substantially as and for the purpose set forth.

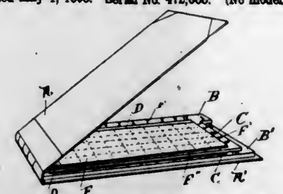
3. In a signal device, the combination of the main lever B, having branches B′ D, blocks B^4 and B^3 and chains M and L: with block B^4, rod N and an adjusting mechanism, substantially as and for the purpose set forth.

520,398. COW-MILKER. GEORGE W. PELTON, Appleton, Wis. Filed Mar. 27, 1893. Serial No. 467,865. (No model.)



Claim.—In a cow milker, the combination with tubes adapted for insertion into the teats of a cow, of a main tube with which said teat tubes are connected, said main tube provided with two oppositely projecting branches, the ends of said branching portions formed into interiorly-threaded annular enlargements, couplings having exteriorly-threaded annular enlargements registering with the annular enlargements of the branching portions of the main tube, radial fingers within the enlargements, induction valves normally resting upon said fingers, pressure bulbs connected, respectively, with the lower end of each branch of the couplings, lower couplings connected, respectively, to the lower end of each bulb, and forming interiorly-threaded annular enlargements, a pipe having its opposite ends formed into interiorly-threaded annular enlargements connected to the annular enlargements at the lower ends of the bulbs, said pipe having a central outlet, radial fingers in the annular enlargements of the pipe, and eduction valves normally resting upon the radial fingers, substantially as set forth.

520,399. BOOK FOR STAMPS. ARTHUR F. PURDY, Lawrence, Cal. Filed May 1, 1893. Serial No. 472,605. (No model.)



Claim.—1. In a book for the preservation of postage stamps, the combination of the indexed sheets B B′ with the oiled sheets C, said indexed sheets being made of a material heavier than said oiled sheets, said oiled sheets being secured to said indexed sheets substantially as and for the purpose described.

2. In a book for the preservation of postage stamps, the combination of the indexed sheets B B′ with the oiled sheets C, said indexed sheets being made of a material heavier than said oiled sheets and having a margin extending beyond two or more edges of said oiled sheets, said margins being adapted to bear numerals or other characters substantially as and for the purpose set forth.

3. In a book for the preservation of postage stamps, the combination of the indexed-sheets B B′ with the oiled-sheets C, said indexed sheets having a margin projecting beyond one or more edges of said oiled-sheets, said oiled-sheets being secured to said indexed-sheets, substantially as and for the purpose set forth.

4. In a book for the preservation of postage stamps, the combination of the indexed sheets B B′ with the oiled sheets C, said index sheets having the series of numerals F F′ F″ printed on their margins substantially as and for the purpose set forth.

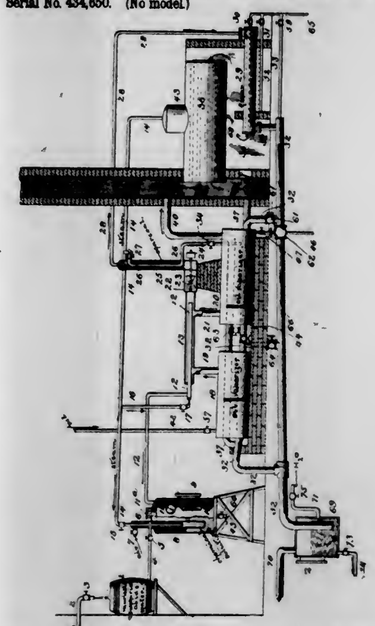
5. In a book for the preservation of postage stamps, the combination of the indexed sheets B B′ with the oiled sheets C, said indexed sheets bearing the series of numerals F F′ and F″, said oiled sheets being smaller than said indexed sheets, and secured to said indexed sheets substantially as and for the purpose set forth.

520,400. ART OF MANUFACTURING CHENILLE. EDWARD CATTLOW, Philadelphia, Pa. Filed Feb. 16, 1891. Serial No. 381,730. (No specimens.)



Claim.—The hereinbefore described process of manufacturing chenille-weft for weaving, which consists in carding into a lap a mass of unspun fibers so as to lay the fibers thereof parallel, sewing rows of stitches into the same at right angles to the length of said fibers, cutting between the said rows of stitches the said lap into strips to cause the projecting fibers thereof to stand out radially from the stitches forming the core thereof.

520,401. PROCESS OF AND APPARATUS FOR THE MANUFACTURE OF GAS. FRANK B. JOHNSON, WILLARD P. HALL, WALTER OAKLEY, and CHARLES F. CURREY, Topeka, Kans., assignors to the Johnson Syndicate Construction Company, same place. Filed May 27, 1892. Serial No. 434,650. (No model.)



Claim.—1. The process of manufacturing fuel and illuminating gas, which consists, in passing steam and air into a receiver containing a chemical solution and iron filings, obtaining thereby water vapor, hot air and hydrogen gas, passing the water vapor, hot air and hydrogen from the receiver into a chamber called a conveyer, adding

in their passage an increment of steam sufficient to prevent condensation, evaporating carbon oil in such manner that simultaneously the more volatile carbon products are vaporized at a certain degree of heat and the less volatile carbon products are vaporized at a higher degree of heat, collecting the several carbon oil vapors and uniting and intimately mixing them with each other and with the water vapor, air and gas passing from the receiver to form a gas uniform in composition, purifying the mixture and by heat disintegrating and decomposing the individual vapors and recombining them into a single, uniform fixed gas, substantially as shown and described.

2. In an apparatus for the manufacture of fuel, and illuminating gas the combination of the receiver 8 containing chemical solution and iron filings and having steam, air and liquid inlets, the residuum outlet and the indicating instruments, the pipe 13 having within it the pipe 12 from the receiver 8, the steam pipe 16 entering the pipe 12, the carbon vapor generators connected with the pipe 13, a mixing chamber into which said pipe 13 empties, a mixer in the mixing chamber, a purifier containing a steam coil and purifying material into which the vapors and gases pass from the mixing chamber, a furnace, a steam boiler and fixing chamber in the furnace, pipes provided with burners for heating the outer and inner walls of the fixing chamber, a pipe between the purifier and the fixing chamber, a pipe between the steam boiler and the receiver 8, a pipe between the fixing chamber and a collector, a pipe from the furnace flue passing through the carbon vapor generators and connecting with a return pipe outside the generators entering the flue of the furnace, a cut off between the carbon vapor generators connecting said heating pipe with the return pipe, a pipe from the fixing chamber passing through the carbon vapor generators, a cut off between the carbon vapor generators connecting the pipe from the fixing chamber through the generators with the pipe from fixing chamber to the collector, and dampers in the furnace and in the furnace flue all substantially as shown and described and for the purposes specified.

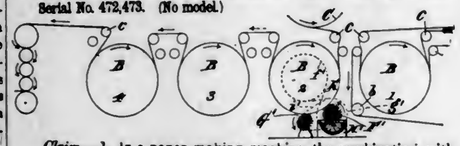
3. In an apparatus for the manufacture of fuel and illuminating gas, a furnace constructed with a front, a rear and an intermediate wall, a furnace flue connected with the furnace contiguous to the rear wall thereof, a steam boiler set in the furnace, under the boiler a gas fixing chamber consisting of an inner and outer concentric pipe or hollow cylinder forming an annular chamber alternately disposed upon the outer perimeter of the inner cylinder and impinging upon the inner surface of the outer cylinder, heads to the cylinders closing said annular chambers, ingress and egress pipes connected therewith, pipes provided with burners disposed about the outer cylinder for heating the same, a pipe provided with burners passing through the cylinders longitudinally for heating the inner cylinder, a pipe entering the flue near its base, carbon vapor generators through which said pipe passes, a damper in the rear wall of the furnace for directing the heat through the boiler, a damper in the intermediate wall of the furnace to cut off the heat from the boiler and direct it into the flue, and a damper in the flue to direct the heat into the pipe entering the flue near its base, substantially as shown and described and for the purposes specified.

4. In an apparatus for the manufacture of fuel, and illuminating gas, carbon oil chambers or evaporators successively arranged in an ascending order, each connected by pipe with the one next lower, the highest in the series being provided with an inlet pipe for filling the same and the lowest in the series being provided with a discharge pipe for drawing off the residuum of evaporation, a furnace, a furnace flue contiguous to the furnace, a fixing chamber within the furnace, a pipe passing from the furnace flue through the evaporators and connecting with a return pipe passing outside the evaporators back into the flue of the furnace, a cut-off between the evaporators connecting said heating pipe with the return pipe, a pipe passing from the fixing chamber in the furnace through the evaporators and provided with a cut-off between the evaporators connecting said pipe with the pipe passing directly from the fixing chamber to the gas collector, providing means by which the carbon oil in the successive evaporators are subjected simultaneously to different degrees of heat and the lighter products and the heavier products simultaneously evaporated, a receiver containing a chemical solution and iron filings, and having steam, air and liquid inlets, residuum outlet, and indicating instruments, a pipe 13 having within it the pipe 12 from the receiver, steam pipe 16 entering the pipe 12, said pipe 13 being connected with each of the evaporators and wherein the several carbon oil vapors are collected and united with each other and with the water-vapor air and gases forming a continually uniform gas before entering the fixing chamber, substantially as shown and described and for the purposes specified.

5. In an apparatus for the manufacture of fuel and illuminating gas, a fixing chamber consisting of an inner and outer concentric pipe or hollow cylinder forming an annular chamber, heads to the cylinders closing the chamber and provided with air openings into the inner cylinder, lugs alternately disposed upon the outer perimeter of the inner cylinder impinging upon the inner surface of the outer cylinder in such order that the lugs of any series shall stand opposite the openings between the lugs of the preceding series, an inlet opening into the chamber and an outlet opening from the chamber through the outer cylinder at the opposite ends thereof, pipes provided with burners disposed about the outer cylinder for heating the same, and a pipe provided with burners passing centrally through the inner cylinder for heating the same, substantially as shown and described and for the purposes specified.

6. The combination of a pressure chamber containing chemical solution, an air pipe extending down through the chamber into the solution, a steam pipe extending into the air pipe above the solution, a conveyer, a conveyer-pipe, a vapor-pipe connecting the pressure chamber with the conveyer-pipe, a steam pipe connected with the vapor-pipe, hydro-carbon oil-chambers, pipes connecting the hydro-carbon oil-chambers with the conveyer, a mixing chamber with which the conveyer is connected, the purifier connected with the mixing chamber, the fixing chamber, the pipe connecting the purifier with the fixing chamber, a discharge pipe, means for heating the hydro-carbon chamber, means for heating the purifier, and means for heating the fixing-chamber, substantially as described.

520,402. APPARATUS FOR COATING PAPER. FRANK P. BUFFINGTON and JOHN T. SUTPHEN, Middletown, Ohio. Filed May 1, 1893. Serial No. 472,473. (No model.)



Claim.—1. In a paper making machine, the combination, with a drier provided with the customary heated cylinders or drums, of a coating apparatus adjacent the surface of one of the drums, and adapted to apply the coating to one surface of the paper while the opposite surface is in contact with the heated surface of said drum, substantially as set forth.

2. In a paper making machine, the combination, with a drier provided with the customary heated cylinders or drums, of a trough or vat adjacent to one of the drums, a rotary cylindrical brush mounted adjacent to the vat, and to one of the cylinders and adapted to apply the coating to one surface of the paper while the opposite surface is in contact with the heated surface of said drum, substantially as set forth.

3. In a paper making machine, the combination with a drier provided with the customary heated cylinders or drums, of a glaze or coating trough or vat adjacent to one of the drums, a rotary carrier-brush operating in said vat and in contact with the surface of the passing paper, a distributing and smoothing rotary brush, and suitable mechanism for driving said brushes and distributing the coating over said surface of the paper during its onward passage through said drier, substantially as herein set forth.

4. In a paper making machine, the combination, with the drier, provided with the customary heated cylinders or drums, of a trough adjacent to one of the drums, a pair of arms at each side of the frame, a coating roller journaled in two of the arms upon opposite sides of the frame, and a spreading roller journaled in the other arms, substantially as set forth.

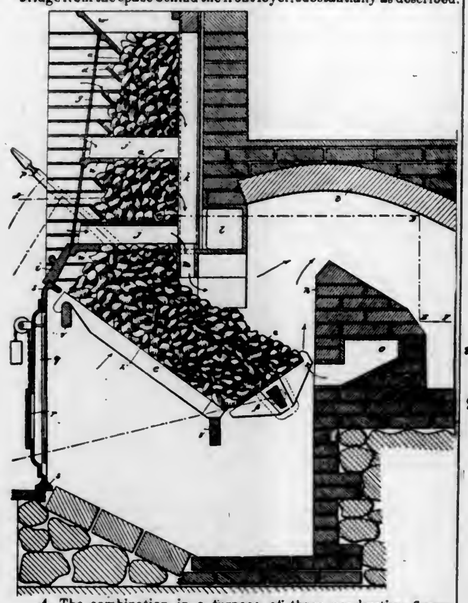
REISSUES.

11,420. FURNACE. JOSEPH HINSTIN, Paris, France. Filed Mar. 22, 1894. Serial No. 505,362. Original No. 468,875, dated Feb. 16, 1892. Patented in France Dec. 29, 1890, No. 210,497.

Claim.—1. The combination in a furnace of the first foyer in which distillation of the fuel occurs and the products of distillation are mixed with air, the middle foyer in which the distillation is continued and carbonic oxide produced, and the third foyer in which the fuel is supported upon a movable grate in a mass triangular in section and being provided with a bridge surmounted by an arch or dome, said third foyer being further provided with an inlet for the air and gases from the first foyer above the thickest part of the fuel, air inlets under the grate beneath such thickest part of the fuel, and another air inlet between the bridge and the adjacent end of the grate, these air inlets being controlled by regulating the angle of inclination of the movable grate, substantially as described.

2. The combination with the three combustion foyers through which the fuel progressively passes and burns, of an air and gas collector or passage at the rear of the first foyer, said collector or passage having its outlet or discharge above the incandescent coke of the second and third foyers, substantially as described.

3. The combination with the front and middle foyers, of the back foyer, a movable grate therefor provided with hot air inlets, a bridge bounding the space of the back foyer, and hot air pipes leading to said bridge from the space behind the front foyer, substantially as described.



4. The combination, in a furnace, of three combustion foyers through which the fuel progressively passes and burns, the first foyer being provided with a passage for collecting the products of distillation and mixing them with a current of air, said passage being unobstructed so that the mixture of air and gases progresses with increasing velocity; the third foyer being provided with a bridge surmounted by a dome which deflects the stream of gas and air from the first foyer, and with air inlets admitting a stream of air along the heated face of the bridge in a plane intersecting that of the stream first mentioned; so that the two streams inclose between them the entire volatile products and free carbon liberated by the incomplete combustion of the furnace, and meet at a point exposed to the direct radiation of the incandescent fuel and to the reflected heat of the dome, substantially as described.

DESIGNS.

23,279. BADGE. JOSEPH K. DAVISON, Philadelphia, Pa. Filed Apr. 4, 1894. Serial No. 506,350. Term of patent 14 years.



Claim.—The design for a badge, substantially as shown and described.

23,280. CUP. MARTIAL REDON, Limoges, France. Filed Sept. 20, 1893. Serial No. 486,034. Term of patent 7 years.



Claim.—The design for a cup substantially as herein shown and described.

23,281. CUP. MARTIAL REDON, Limoges, France. Filed Sept. 20, 1893. Serial No. 486,036. Term of patent 7 years.



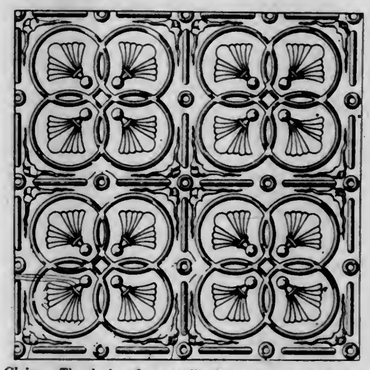
Claim.—The design for a cup as herein shown and described.

23,282. ATOMIZER-TOP. CHARLES F. SCHRADER, Philadelphia, Pa., assignor to the Hero Fruit Jar Company, same place. Filed Jan. 26, 1894. Serial No. 498,148. Term of patent 7 years.



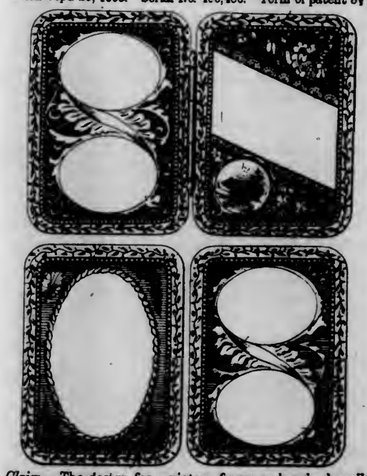
Claim.—The design for an atomizer top, substantially as described and as shown in the accompanying drawings.

23,283. METAL FINISHING-PLATE. EDWARD A. LANGENBACH, Canton, Ohio. Filed Apr. 23, 1894. Serial No. 508,740. Term of patent 7 years.



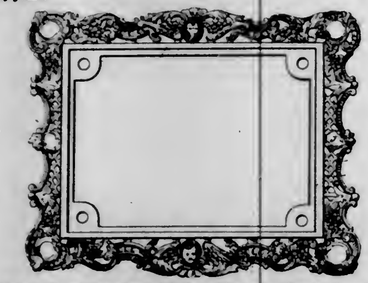
Claim.—The design for metallic finishing plates herein shown and described.

23,284. PICTURE-FRAME. WILLIAM F. LAMBERT, Millbrae, Cal. Filed Sept. 25, 1893. Serial No. 486,488. Term of patent 3½ years.



Claim.—The design for a picture-frame as herein described and shown.

23,285. SLAB FOR TABLE-TOPS. JOHN C. MILLER, Waterbury, Conn., assignor to the Matthews & Willard Manufacturing Company, same place. Filed Apr. 23, 1894. Serial No. 508,719. Term of patent 3½ years.



Claim.—The design for a slab for table-tops as herein shown and described

23,286. SLAB FOR TABLE-TOPS. JOHN C. MILLER, Waterbury, Conn., assignor to the Matthews & Willard Manufacturing Company, same place. Filed Apr. 23, 1894. Serial No. 508,720. Term of patent 3½ years.



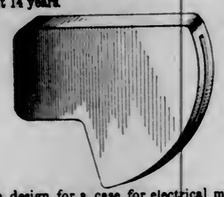
Claim.—The design for a slab for table-tops as herein shown and described.

23,287. CASE FOR ELECTRICAL MEASURING-INSTRUMENTS. EDWARD WESTON, Newark, N. J. Filed Apr. 13, 1894. Serial No. 507,464. Term of patent 14 years.



Claim.—The design for a case for electrical measuring instruments substantially as hereinbefore shown and described.

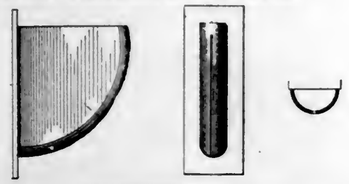
23,288. CASE FOR ELECTRICAL MEASURING-INSTRUMENTS. EDWARD WESTON, Newark, N. J. Filed Apr. 13, 1894. Serial No. 507,465. Term of patent 14 years.



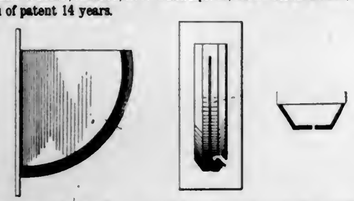
Claim.—The design for a case for electrical measuring instruments substantially as hereinbefore shown and described.

23,289. CASE FOR ELECTRICAL MEASURING-INSTRUMENTS. EDWARD WESTON, Newark, N. J. Filed Apr. 13, 1894. Serial No. 507,466. Term of patent 14 years.

Claim.—The design for a case for electrical measuring instruments substantially as hereinbefore shown and described.

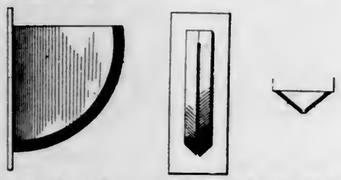


23,290. CASE FOR ELECTRICAL MEASURING-INSTRUMENTS. EDWARD WESTON, Newark, N. J. Filed Apr. 13, 1894. Serial No. 507,467. Term of patent 14 years.



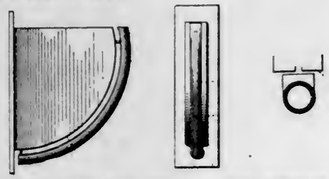
Claim.—The design for a case for electrical measuring instruments substantially as hereinbefore shown and described.

23,291. CASE FOR ELECTRICAL MEASURING-INSTRUMENTS. EDWARD WESTON, Newark, N. J. Filed Apr. 13, 1894. Serial No. 507,468. Term of patent 14 years.



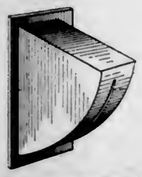
Claim.—The design for a case for electrical measuring instruments substantially as hereinbefore shown and described.

23,292. CASE FOR ELECTRICAL MEASURING-INSTRUMENTS. EDWARD WESTON, Newark, N. J. Filed Apr. 13, 1894. Serial No. 507,469. Term of patent 14 years.



Claim.—The design for a case for electrical measuring instruments substantially as hereinbefore shown and described.

23,293. CASE FOR ELECTRICAL MEASURING-INSTRUMENTS. JOHN VAN VLECK, New York, N. Y. Filed Apr. 13, 1894. Serial No. 507,471. Term of patent 14 years.



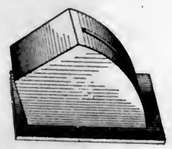
Claim.—The design for a case for electrical measuring instruments substantially as hereinbefore shown and described.

23,294. CASE FOR ELECTRICAL MEASURING-INSTRUMENTS. JOHN VAN VLECK, New York, N. Y. Filed Apr. 13, 1894. Serial No. 507,472. Term of patent 14 years.



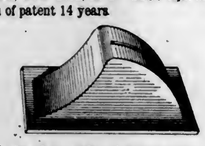
Claim.—The design for an electrical measuring instrument case substantially as herein shown and described.

23,295. CASE FOR ELECTRICAL MEASURING-INSTRUMENTS. JOHN VAN VLECK, New York, N. Y. Filed Apr. 13, 1894. Serial No. 507,473. Term of patent 14 years.



Claim.—The design for an electrical measuring instrument case substantially as herein shown and described.

23,296. CASE FOR ELECTRICAL MEASURING-INSTRUMENTS. JOHN VAN VLECK, New York, N. Y. Filed Apr. 13, 1894. Serial No. 507,474. Term of patent 14 years.



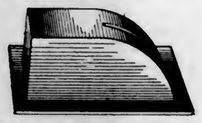
Claim.—The design for an electrical measuring instrument case substantially as herein shown and described.

23,297. CASE FOR ELECTRICAL MEASURING-INSTRUMENTS. JOHN VAN VLECK, New York, N. Y. Filed Apr. 13, 1894. Serial No. 507,475. Term of patent 14 years.



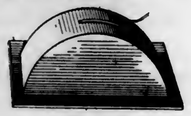
Claim.—The design for an electrical measuring instrument case substantially as herein shown and described.

23,298. CASE FOR ELECTRICAL MEASURING-INSTRUMENTS. JOHN VAN VLECK, New York, N. Y. Filed Apr. 13, 1894. Serial No. 507,476. Term of patent 14 years.



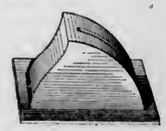
Claim.—The design for an electrical measuring instrument case substantially as herein shown and described

23,299. CASE FOR ELECTRICAL MEASURING-INSTRUMENTS. JOHN VAN VLECK, New York, N. Y. Filed Apr. 13, 1894. Serial No. 507,477. Term of patent 14 years



Claim.—The design for an electrical measuring instrument case substantially as herein shown and described.

23,300. CASE FOR ELECTRICAL MEASURING-INSTRUMENTS. JOHN VAN VLECK, New York, N. Y. Filed Apr. 13, 1894. Serial No. 507,478. Term of patent 14 years.



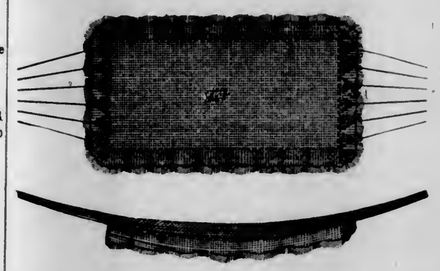
Claim.—The design for an electrical measuring instrument case substantially as herein shown and described.

23,301. CASE FOR ELECTRICAL MEASURING-INSTRUMENTS. JOHN VAN VLECK, New York, N. Y. Filed Apr. 13, 1894. Serial No. 507,479. Term of patent 14 years.



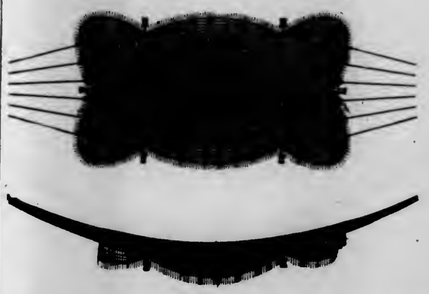
Claim.—The design for an electrical measuring instrument case substantially as herein shown and described.

23,302. HAMMOCK. ISAAC E. PALMER, Middletown, Conn. Filed Apr. 13, 1894. Serial No. 507,481. Term of patent 14 years.



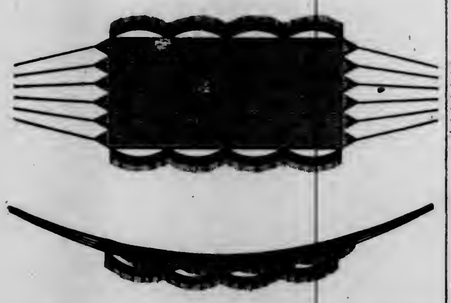
Claim.—The design for a hammock, substantially as herein shown and described.

23,303. HAMMOCK. ISAAC E. PALMER, Middletown, Conn. Filed Apr. 13, 1894. Serial No. 507,482. Term of patent 14 years.



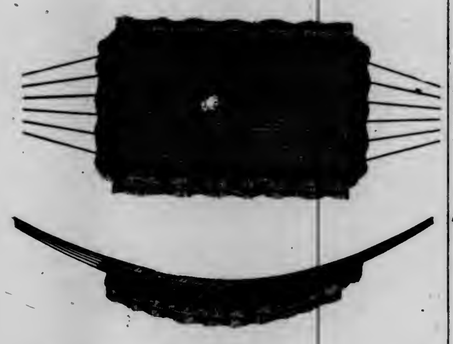
Claim.—The design for a hammock, substantially as herein shown and described.

28,304. HAMMOCK. ISAAC E. PALMER, Middletown, Conn. Filed Apr. 13, 1894. Serial No. 507,483. Term of patent 14 years.



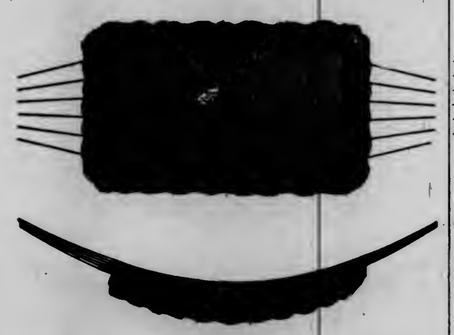
Claim.—The design for a hammock, substantially as herein shown and described.

28,305. HAMMOCK. ISAAC E. PALMER, Middletown, Conn. Filed Apr. 13, 1894. Serial No. 507,484. Term of patent 14 years.



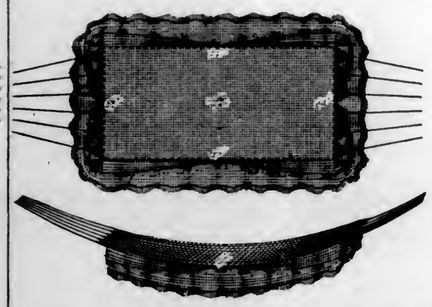
Claim.—The design for a hammock, substantially as herein shown and described.

28,306. HAMMOCK. ISAAC E. PALMER, Middletown, Conn. Filed Apr. 13, 1894. Serial No. 507,485. Term of patent 14 years.



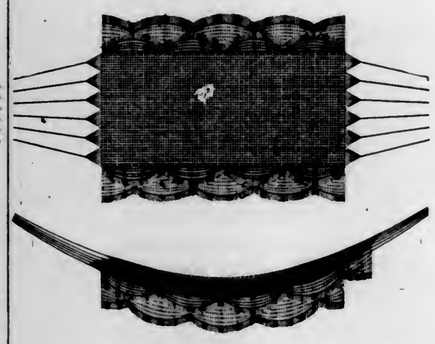
Claim.—The design for a hammock, substantially as herein shown and described.

28,307. HAMMOCK. ISAAC E. PALMER, Middletown, Conn. Filed Apr. 13, 1894. Serial No. 507,486. Term of patent 14 years.



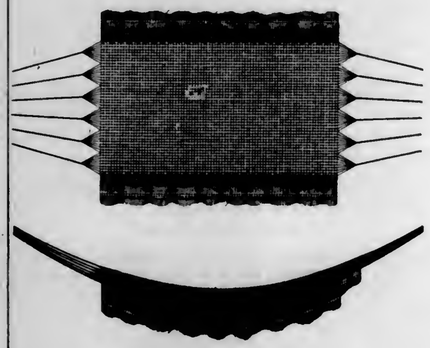
Claim.—The design for a hammock, substantially as herein shown and described.

28,308. HAMMOCK. ISAAC E. PALMER, Middletown, Conn. Filed Apr. 13, 1894. Serial No. 507,487. Term of patent 14 years.



Claim.—The design for a hammock, substantially as herein shown and described.

28,309. HAMMOCK. ISAAC E. PALMER, Middletown, Conn. Filed Apr. 13, 1894. Serial No. 507,488. Term of patent 14 years.



Claim.—The design for a hammock, substantially as herein shown and described.

TRADE-MARKS

REGISTERED MAY 22, 1894.

24,733. WATCHCASES. BAY STATE WATCH CASE COMPANY, Boston, Mass. Filed Apr. 19, 1894.

IMPERIAL

Essential feature.—The word "IMPERIAL." Used since January, 1888.

24,734. LEATHER SHOES. HATHAWAY, SOULE & HARRINGTON, INCORPORATED, Boston, New Bedford, and Middleborough, Mass. Filed Apr. 18, 1894.

H S & H

Essential feature.—The letters and characters "H S & H." Used since January 1, 1880.

24,735. WATERPROOFED SILK PILE FABRIC. LISTER & COMPANY, LIMITED, Bradford, England, and New York, N. Y. Filed Apr. 25, 1894.

LISREINE

Essential feature.—The word "LISREINE." Used since January 1, 1894.

24,736. BINDING-TWINE. WALTER A. WOOD HARVESTER COMPANY, St. Paul, Minn. Filed Apr. 25, 1894.

PM

Essential feature.—The letters "P M." Used since January 1, 1888.

24,737. LEAF-TOBACCO. LEOPOLD LOEB & Co., Philadelphia, Pa. Filed Apr. 14, 1894.

SANTA LUCIA

Essential feature.—The words "SANTA LUCIA." Used since February 15, 1894.

24,738. WHISKIES, CORDIALS, WINES, AND LIQUEURS. RHEINSTROM, BETTMAN, JOHNSON & Co., Cincinnati, Ohio. Filed Mar. 5, 1894.



Essential feature.—The representation of a padlock. Used since February 14, 1894.

24,739. BON TON

Essential feature.—The words "BON TON." Used since November 12, 1887.

24,740. MANUFACTURED POP-CORN AND CANDY OF ALL KINDS. EATON & HOBBS, Lynn, Mass. Filed Apr. 25, 1894.

National Pop Corn Works

Essential feature.—The words "NATIONAL POP CORN WORKS." Used since June 1, 1886.

24,741. CHEWING-GUM. FAULTLESS CHEMICAL COMPANY, Baltimore, Md. Filed Apr. 26, 1894.

CHIPS

Essential feature.—The word "CHIPS." Used since January 2, 1894.

24,742. WASHING COMPOUND FOR LAUNDRY AND OTHER PURPOSES. RICHARD JARRAIT, Detroit, Mich. Filed Apr. 25, 1894.

EXPEDITE

Essential feature.—The word "EXPEDITE." Used since June, 1891.

24,743. LAUNDRY STARCH. JAMES, ROYAL & Co., Boston, Mass. Filed Apr. 24, 1894.

DRAGOON

Essential feature.—The word "DRAGOON." Used since February 10, 1894.

24,744. LAUNDRY STARCH. JAMES, ROYAL & Co., Boston, Mass. Filed Apr. 24, 1894.



Essential feature.—The representation of a mounted soldier. Used since February 10, 1894.

24,745. STARCH FOR FOOD AND LAUNDRY PURPOSES. THE NATIONAL STARCH MANUFACTURING COMPANY, Covington, Ky., and New York, N. Y. Filed Apr. 18, 1894.

LILY



STARCH

Essential feature.—The words "LILY STARCH" and the representation of a calla. Used since May, 1890.

24,746. WHEAT-FLOUR. SHIPTON GREEN, New York, N. Y. Filed Mar. 2, 1894.

SAO VICENTE

Essential feature.—The words "SAO VICENTE." Used since July 26, 1893.

24,747. WHEAT-FLOUR. SHIPTON GREEN, New York, N. Y. Filed Mar. 2, 1894.

SANTO ANTONIO

Essential feature.—The words "SANTO ANTONIO." Used since July 26, 1893.

24,748. WHEAT-FLOUR. SHIPTON GREEN, New York, N. Y. Filed Mar. 3, 1894.

SÃO JOÃO

Essential feature.—The words "SAO JOAO." Used since July 26, 1893.

24,749. WHEAT-FLOUR. SHIPTON GREEN, New York, N. Y. Filed Mar. 3, 1894.

PALMEIRA

Essential feature.—The word "PALMEIRA." Used since July 26, 1893.

24,750. BUTTER. N. C. SKILTON & Co., Boston, Mass. Filed Apr. 17, 1894.

ACME

Essential feature.—The word "ACME." Used since January 1, 1889.

24,751. LARD. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Apr. 11, 1894.

APRICOT



Essential feature.—The representation of an apricot and the word "APRICOT." Used since September 20, 1893.

24,752. HAMS AND SIDE MEATS. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Apr. 11, 1894.

WALNUT



Essential feature.—The word "WALNUT" and the representation of a walnut. Used since March 10, 1893.

24,753. BEEF, MUTTON, VEAL, PORK, HAM, SAUSAGE, AND CURED MEATS. EMIL WINTER COMPANY, Allegheny and Pittsburg, Pa. Filed Feb. 3, 1894.



Essential feature.—The representation of an ox head partly encircled by a crescent. Used since February, 1892.

24,754. HAIR-GROWER. LYMAN C. OLDS, Baltimore, Md. Filed Mar. 30, 1894.



Essential feature.—A portrait of the registrant. Used since May 1, 1893.

24,755. PREPARATION TO PREVENT SEA-SICKNESS. RICHARD HUDNUT, New York, N. Y. Filed Apr. 26, 1894.

MARINI

Essential feature.—The word "MARINI." Used since March 18, 1894.

24,756. CONDITION-POWDERS. WILLIAM G. TILGHMAN, Palatka, Fla. Filed Apr. 17, 1894.

SALT SICK

Essential feature.—The words "SALT SICK." Used since January 1, 1890.

24,757. BALSAMS AND OINTMENT. THE CLOVER MEDICINE COMPANY, Augusta, Me. Filed Mar. 31, 1894.

CLOVER



Essential feature.—The representation of a four-leaf clover and the word "CLOVER." Used since January 1, 1894.

24,758. COUGH SIRUPS. BRUNO H. GOLL, Chicago, Ill. Filed Apr. 16, 1894.

ARTICLE 47.

Essential feature.—The word and figures "ARTICLE 47." Used since March 31, 1894.

24,759. REMEDY FOR THE BLOOD. BRUNO H. GOLL, Chicago, Ill. Filed Apr. 16, 1894.



Essential feature.—A portrait of the registrant. Used since March 31, 1894.

24,760. REMEDIES FOR PURIFYING AND TREATING THE BLOOD. MCKESSON & ROBBINS, New York, N. Y. Filed Apr. 7, 1894.

ROCHELLELITHINE

Essential feature.—The word "ROCHELLELITHINE." Used since March 14, 1894.

24,761. REMEDIES FOR DISEASES OF THE BLOOD. MCKESSON & ROBBINS, New York, N. Y. Filed Apr. 7, 1894.

TARTARLITHINE

Essential feature.—The word "TARTARLITHINE." Used since March 14, 1894.

24,762. FERTILIZERS. EMIL WINTER COMPANY, Allegheny and Pittsburg, Pa. Filed Feb. 3, 1894.



Essential feature.—The representation of an ox head partly encircled by a crescent. Used since February, 1892.

24,763. CERTAIN NAMED SPECIALTIES. DITTMAN & KRUG, Chicago, Ill. Filed Mar. 17, 1894.



Essential feature.—The words and character "THE DITTMAN & KRUG SPECIALTY COMPANY" occupying one half of an oval and the representation of an eagle perched upon an American shield occupying the other half. Used since January 9, 1894.

24,764. PAPER-SHELL CARTRIDGES. WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn. Filed Apr. 30, 1894.

LEADER

Essential feature.—The word "LEADER." Used since April 19, 1894.

24,765. PAPER-SHELL CARTRIDGES. WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn. Filed Apr. 30, 1894.

BLUE RIVAL

Essential feature.—The words "BLUE RIVAL." Used since March 22, 1894.

24,766. PNEUMATIC WHEEL-TIRES. FRANCIS L. COOK, Springfield, Mass. Filed Apr. 21, 1894.



Essential feature.—The representation of an eel the skin of which is partly separated from the body thereof. Used since April 16, 1894.

24,767. HAND-TOOLS FOR THE CARE OF CYCLES. AMES & FROST COMPANY, Chicago, Ill. Filed May 12, 1893.

IMPERIAL

Essential feature.—The word "IMPERIAL." Used since December 1, 1892.

24,768. WRENCHES. THE WHITMAN & BARNES MANUFACTURING COMPANY, Akron, Ohio. Filed Apr. 23, 1894.

BULL-DOG

Essential feature.—The word "BULL-DOG" Used since February 1, 1894.

24,769. MACHINISTS' TOOLS. THE COLLINS COMPANY, Canton, Conn. Filed Apr. 19, 1894.

Sam'l W. Collins.

Essential feature.—The words and letter "SAM. W. COLLINS." Used since 1855.

24,770. EARTH-WORKING TOOLS. THE COLLINS COMPANY, Canton, Conn. Filed Apr. 19, 1894.

Sam'l W. Collins

Essential feature.—The words and letter "SAM. W. COLLINS." Used since 1852.

24,771. MACHINES, TOOLS, AND IMPLEMENTS AND PARTS THEREOF, CONSISTING WHOLLY OR IN PART OF FORGINGS. BILLINGS & SPENCER COMPANY, Hartford, Conn. Filed Nov. 18, 1893.



Essential feature.—The representation of a triangle inclosing the letter "B." Used since September 1, 1870

24,772. COIN CONTROLLED AND OPERATED MACHINES AND APPARATUS. CLEMENT C. CLAWSON, Newark, N. J. Filed Apr. 24, 1894.



Essential feature.—The representation of a claw of a bird grasping the sun. Used since April 6, 1894.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

GATES IRON WORKS *v.* FRASER *et al.*

Decided May 14, 1894.

1. RUSK—ORE-CRUSHERS—LACK OF INVENTION—VOID.

Letters Patent to John H. Rusk, No. 110,397, dated December 20, 1870, for improvements in stone-crushers, *Held* to be void, on the ground that, the use of safety-pins for saving machinery from the strain of a sudden jar being old, their use for such a purpose, in connection with the driving-gear of a stone-crushing machine, is not patentable.

2. SAME—SAFETY-PINS—INFRINGEMENT.

Rusk having expressly limited himself to a soft-metal safety-pin, and thus limited, the use of wooden safety-pins being old, there is no infringement by the use of a hard cast-iron pin.

3. VERBAL LICENSE OR INTEREST FROM INVENTOR—OF NO EFFECT UPON A SUBSEQUENT ASSIGNEE OF A PATENT FOR THE INVENTION WITHOUT NOTICE.

Where an inventor, in consideration of assistance given him, verbally agreed to give an interest in the manufacture of his invention, but did not make an assignment of such interest in legal form, and where he subsequently made an assignment of the patent to another party without notice of the previous verbal interest, *Held* that no effect, as against the assignee, could be given to such verbal license or interest.

4. GATES—STONE-CRUSHERS—PUBLIC USE FOR MORE THAN TWO YEARS—VOID.

Letters Patent Nos. 243,343, dated June 21, 1881, 243,545, dated June 28, 1881, and 250,656, dated December 13, 1881, for improvements in stone-crushers, issued to P. W. Gates, *Held* to be void as covering features substantially embodied in a machine built by one Brown and which had been in public use for more than two years prior to Gates's applications for his patents.

5. SAME—LACK OF INVENTION—VOID.

Claim 1 in the patent, No. 246,608, dated September 5, 1881, to P. W. Gates, for a depression or groove in the outer bearing-surface of the bearing-box for a shaft in a stone-crusher, with a removable portion of carbon-bronze metal therein to correct the wear, *Held* to be void for the reason that such device is not an invention, as the use of soft metals for that function is old.

APPEAL from the Circuit Court of the United States for the Northern District of Illinois.

STATEMENT OF THE CASE.

At the March term, 1890, of the Circuit Court of the United States for the Northern District of Illinois the Gates Iron Works, a corporation organized under the laws of the State of Illinois, filed its bill of complaint against David R. Fraser, Thomas Chalmers, and Hiram H. Scoville, alleging that the said complainant was the sole owner of several Letters Patent of the United States—namely, No. 56,793, issued to Henry Pearce, July 31, 1866; No. 201,646, issued to Charles M. Brown, March 26, 1878; No. 237,320, issued to George and Albert Raymond, February 1, 1881; No. 110,397, issued to John H. Rusk, December 20, 1870; No. 243,343, issued to P. W. Gates, June 21, 1881; No. 243,545, issued to P. W. Gates, June 28, 1881; No. 246,608, issued to P. W. Gates, September 5, 1881, and No. 250,656, issued to P. W. Gates, December 13, 1881; and which said Letters Patent, and the inventions and improvements therein described, had, by assignments in writing, prior to the commencement of the suit, become vested in the complainant. The bill further alleged that the defendants were making, using, and vending machines embodying the said inventions, in disregard of the rights of complainant, and prayed for the usual relief.

The defendants filed a joint and several answer, admitting that the Letters Patent mentioned in the bill had been issued, but denying that the persons to whom they had been granted were the original and first inventors of the several inventions described and claimed therein, or that the defendants had infringed, or were infringing, the rights of the complainant in the said inventions.

The answer further averred that the defendant Hiram H. Scoville had, prior to the filing of the application by Charles M. Brown for a patent for the improvements described and claimed in said Patent No. 201,646, dated March 26, 1878, by and with the consent of the said Brown, made and put into use two machines containing the inventions secured by said Patent No. 201,646, and that the defendants had a right to make and sell machines containing said inventions by virtue of an oral license given by Brown to Scoville before the application for said patent was filed.

The answer further alleged that P. W. Gates was not the original and first inventor of the improvements described in the several patents Nos. 243,343, 243,545, 246,608, and 250,656, but that substantially those improvements were invented by said Charles M. Brown before the supposed invention thereof by Gates, and were embodied and exemplified in certain full-sized working machines built by the said Hiram H. Scoville, which were publicly used more than two years before Gates made application for any one of the said four patents.

The answer further stated that Henry Pearce was not the original and first inventor of the improvement patented by said Patent No. 56,793, dated July 31, 1866, and that substantially the same thing was shown and described in Letters Patent No. 28,031, issued to one G. H. Wood, dated April 24, 1860.

Subsequently the defendants, with leave of court, filed the following amendment to the answer, to wit:

Letters Patent to J. F. Ostrander, granted and dated April 25, 1846, No. 4,478, grain mill.

And as to the patent mentioned in said bill of complaint as having been granted and issued to J. H. Rusk, Charles M. Brown, G and A. Raymond, and the four patents to P. W. Gates, numbered respectively 243,343, 243,545, 246,608, and 250,656, they further aver, upon information and belief, that the said Brown, Raymond, Rusk, and Gates were not the original and first inventors of the things patented by or to them respectively, and that substantially the same things were patented by or shown and described in the following Letters Patent, to wit:

As to patent to H. Pearce, No. 56,793.

Letters Patent to J. F. Ostrander, granted and dated April 25, 1846, No. 4,478, for improvement in grain-mill.

Letters Patent to G. H. Wood, granted and dated April 24, 1860, No. 28,031.

As to patent to J. H. Rusk, No. 110,397.

Letters Patent to A. C. Ellithorpe and I. Scoville, granted and

dated November 23, 1858, for improvements in machine for breaking stones, etc., No. 22,113.

Letters Patent to Hiram H. Scoville, granted and dated May 26, 1868, No. 78,332, for improvement in stone-breaker.

As to patent to C. M. Brown, No. 201,646.

Letters Patent to Charles Tripp, granted and dated November 10, 1857, No. 18,610, for improvement in grinding-mill.

Letters Patent to Conrad P. Wagner, granted and dated January 30, 1866, No. 52,347, for improvement in quartz-mill.

Reissue Letters Patent to James W. Rutter, granted and dated September 7, 1869, No. 3,633, for improvement in ore-crusher.

As to chilled iron, V I. Knight's American Mechanical Dictionary, published in New York, 1874, page 537. Title "Chill."

As to patent to P. W. Gates, No. 243,343.

Letters Patent to L. Fagin, granted and dated October 30, 1866, No. 59,201, for improvement in hanging millstones.

Letters Patent to S. N. Taylor, granted and dated February 27, 1866, No. 52,908, for improvements in knuckle-joint.

As to patent to P. W. Gates, No. 243,545.

Letters Patent to Charles Tripp, granted and dated November 10, 1857, No. 18,610, for improvement in grinding-mill.

Letters Patent to Conrad P. Wagner, granted and dated January 30, 1866, for improvement in quartz-mill, No. 52,347.

Letters Patent to Thomas Varney, granted and dated April 9, 1867, No. 63,675, for improvement in quartz-mill.

As to patent to P. W. Gates, No. 246,608.

Letters Patent to H. Pearce, granted and dated July 31, 1866, No. 56,795, for improvement in quartz-mill.

As to patent to P. W. Gates, No. 250,656.

Letters Patent to P. W. Gates, granted and dated June 28, 1881, No. 243,545, for improvement in rock or stone-breaker.

Letters Patent to Daniel Hughes, granted and dated February 20, 1866, No. 52,716, for improvement in quartz-crusher, etc.

Letters Patent to L. Fagin, granted and dated October 30, 1866, No. 59,201, for improvement in hanging millstones.

English Letters Patent to Claude Marie Savoye, No. 6,195 of 1831, for improvement in machinery for grinding grain and other substances.

The defendants, further answering, say upon information and belief that some of the older ones of complainant's said patents show and describe improvements which are claimed in other and later of the complainant's said patents, and they further say that as to the said several patents by them herein and hereintofore mentioned are shown and described devices, parts, or combination of parts that are substantially the same as the devices and combinations set forth in other patents than those to which they are specifically named as relating, and that any and all of said patents will be referred to as containing the substance of any or either of the complainant's said patents as may be deemed appropriate

The cause was put at issue, a large amount of evidence taken, and after argument on March 31, 1890, the court below dismissed the bill at complainant's costs. From this decree an appeal was taken to this Court.

Mr. L. L. Coburn for the appellant.

Mr. L. L. Bond and *Mr. C. E. Pickard* for the appellee.

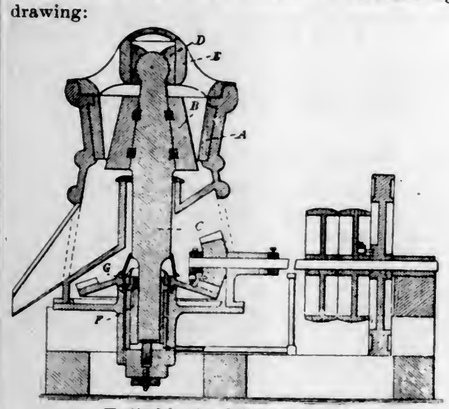
Mr. Justice SHIRAS delivered the opinion of the Court.

The patents that are before us for consideration are for improvements in stone-crushing machines. We shall preface our discussion of the questions that arise by adopting from the brief of the plaintiff in error the following description of the final and perfected form of the machine, and which is claimed to embody the various inventions and improvements covered by the several patents:

The inventions of these various patents can be more readily understood by first understanding the construction of this type of stone-crushing machines which has come to be known as the "gyratory" type of stone crushers. This name comes from the fact that the crushing-cone is carried on a vertical shaft which has its bearing at one end in the axis of the conical inclosing case which surrounds the crushing-cone, while the bearing of the other end of the cone-shaft is eccentric to the axis of the inclosing or surrounding conical cylinder which surrounds the crushing-cone. This vertical shaft which carries the crushing-cone of the machine is loose in its bearings, but the end of this shaft which is eccentric to the axis of the inclosing conical case or cylinder of the machine is carried around in a circle by being placed in an eccentric box in a gear-wheel that is revolved on its center, which center is in the axis of the inclosing case or cylinder of the machine. The shaft which carries the crushing cone describes in its movement, when the machine is in operation, a conical orbit around the vertical axis of the inclosing conical cylinder of the machine. The stone to be crushed is dumped into the top of the machine between the crushing-cone and the cylindrical conical case or shell which surrounds it, the cone shaft is carried around in its conical orbit, and as the crushing-cone impinges the ore or rock between it and the surrounding case or cylinder, crushes it. The shaft or arbor of this crushing-cone being loose in its bearings, it does not rub or grind the stone, but simply cracks it into finer pieces, and then impinges the next pieces of ore or rock, and so on around the entire conical orbit, the space between the crushing-cone and the inclosing conical case or cylinder opposite of where the ore or rock is being cracked or broken becomes greater by reason of the crushing-cone being carried to the opposite side of the inclosing case or cylinder, and the broken rock falls down into a narrower space, and when the crushing-cone comes around again, it is again broken, until it is sufficiently fine to pass out at the bottom of the space between the crushing-cone and its inclosing case or cylinder.

This construction of ore-crushers, or "stone-breakers," as they are frequently called, is a continuous-feed machine, the stone being constantly fed in at the top of the machine in a coarse state, and continuously passes out at the bottom of the crushing space, broken to a certain definite size, which is fixed by an adjustment of the crushing-cone in the inclosing case or cylinder.

This form of machine is illustrated in the following drawing:



Vertical Sectional View of Machine.

In this cut, A represents the conical inclosing case or cylinder which surrounds the crushing-cone B, which is rigidly attached to and is carried on the vertical shaft or arbor C. The top or upper end of the arbor C has a bearing in the chilled section-box D that is held in an open spider-frame E, this bearing being exactly in line of the axis of the inclosing conical case or cylinder A. The bottom or lower end of the shaft C has its bearing in what is termed an "eccentric" box, F, which is placed in the gear-wheel G. This eccentric box is placed at one side of or eccentric to the vertical axis of the inclosing case or cylinder A. The gear-wheel G is supported on the base of the machine, so that the center of its hub is exactly in line with the vertical axis of the inclosing conical case or cylinder A, and when it is revolved it carries the lower end of the shaft or arbor C, around in a circle, and consequently continually brings the conical crushing-cone B in closer proximity to one side of the inclosing case or cylinder to impinge the stone contained in the inclosing case or cylinder, and that impingement is continually changing from one place to another throughout the entire circle, and the space opposite of the place of impingement between the crushing-cone and its inclosing case or cylinder is wider than where the impingement of the ore or stone is taking place. This particular motion of the crushing-cone and its shaft or arbor has been termed a "gyratory" motion. The shaft or arbor is never vertical, and one of its bearings is in an eccentric box placed eccentric to the bearing of the other end of the shaft or arbor, and eccentric to the axis of the inclosing case or cylinder. The crushing-cone and its shaft or arbor describes at each revolution of the geared wheel in which the eccentric box of the shaft or arbor is placed, a conical orbit.

It is claimed by the plaintiff in error that this form of machine is the composite result of the application of the improvements described in the patents set up in the bill. To test the soundness of this claim it will be necessary for us to look into the condition of the art prior to the issue of the earliest patent owned by the complainant, that is, prior to July 31, 1866, the date of Letters Patent No. 56,793, granted to Henry Pearce.

The first patent to which our attention has been particularly directed is that issued April 25, 1846, to Jonathan F. Ostrander, and numbered 4,478. It is a claim for an improvement in grinding-mills, and the nature of the invention is said to consist in—

making the surfaces of the stones, or metallic plates, between which the material is ground, the one convex, the other concave, * * * and also in giving the movable plate or stone a compound motion, consisting of, firstly, an oblique gyrating motion of its axis around the axis of the fixed plate; and, secondly, a rotating motion around its own axis.

The material to be ground is fed to the mill by being placed in a cup-shaped opening in the top of the shell that incloses the machine, and the ground material is received in a gutter surrounding the base. We here perceive the double motion, that is, "the revolving and rolling motion," which is a feature of the Pearce patent, and the operation of the two machines is similar in that, in both, the pestle alternately closes upon and recedes from the sides of the outer shell, so that any substance or material to be ground is thereby crushed, and passes downward to the lower part of the machine, where the space gradually lessens, and is crushed finer.

The Patent No. 28,031, granted April 24, 1860, to George H. Wood, was for a machine for crushing stone, quartz, ores, or any other substance capable of being reduced or pulverized by pressure. The specification describes a machine having an outer shell or case and an interior cone or pestle, which has an eccentric motion. We shall hereafter show that the machine made by the defendants does not contain the distinguishing features of the Pearce patent. But we have briefly described the inventions of Ostrander and of Wood to make it appear that machines composed of an outer shell or case inclosing an outer cone or pestle, and operating on the material to be crushed by an eccentric motion, were known to the art.

Letters Patent No. 88,216, dated March 23, 1869, Reissue No. 3,633, dated September 7, 1869, were granted to James W. Rutter for an improvement in ore-crushers, and in which it is stated that the invention related to that class of crushing and grinding machines in which a conical grinder or crusher, with concentric and eccentric bearings, is operated within a stationary upright cylinder or chamber, or in which the crushing-chamber is made conical and the crusher straight. There are other special features contained in this patent not relevant to our present inquiry, but this patent does provide for grinding ore or other material introduced at the upper or top end of the machine, and subjecting it to a continuous crushing and grinding force till it reaches the bottom, where it is discharged into a gutter or annular space.

With this brief view of the state of the art we shall now examine the Letters Patent upon which the complainant directly relies. The first is that which was granted to Charles M. Brown, No. 201,646, dated March 26, 1878.

The object of this invention is described as being—

to furnish a strong compact machine in which large pieces of ore may be broken into smaller fragments by the regular continuous movement of the mechanism, and also in which the power used for crushing the ore shall be applied in a more advantageous manner than has been done heretofore in machines designed for this purpose.

The specification describes a machine composed of an outer shell or case, with an opening on one side for the egress of the crushed ore. Within this outer shell is an upright shaft or spindle, whose upper end is pivoted within a circular cap or cover, which is accurately fitted within the top of the outer shell. The lower end of the shaft is pivoted in a bearing in the hub of a bevel-gear, and this bearing is placed in an eccentric position with reference to the center of the hub. The end of the shaft rests on a loose plate or button, which is raised or lowered by an adjusting-screw, which passes through the lower part of the hub in a line with the axis of the shaft. The upper part of the shaft, below the place where it is pivoted in the cap, is contracted into a neck, and below this neck it is enlarged in the form of a pyramidal section, so as to receive a conical breaking-head, which is accurately fitted on the shaft. The outer shell or case is lined with a hard or durable material, made in sections so that they may be readily replaced by similar pieces when they are worn out by use, and their wearing-surfaces may be either smooth or corrugated. The ore is fed into the machine through openings in the head, and falls into the space between the outer shell, lined as before mentioned, and the breaking-head. When the driving mechanism, which is not claimed as a part of the invention, is set in operation the breaking-head receives an eccentric gyratory motion from the eccentrically-placed bearing in the hub of the gear below, and advances successively toward every portion of the outer shell, crushing the ore that is contained between these two surfaces. As the breaking-head advances on one side it recedes on the opposite, thus allowing the partially-broken ore to fall still lower in the space between the shell and the breaking-head, to be again and again acted upon until it is reduced to fragments sufficiently small to pass through an opening at the bottom of the chamber. Here it falls upon an inclined plate and passes out of the machine through the opening in the side of the shell. The claims of the inventor were substantially for the combination of the gyrating spindle; the conical breaking-head with the breaking interior surface of the shell; the sliding socket-bearing in which the upper end of the shaft operates; the eccentric bearing at the lower end of the shaft, and the adjusting-screw which raises or lowers the shaft. His fourth claim was as follows:

In an ore-breaking machine, a shell or case frame A A', inclosing at its upper part a concave breaker L, and provided with the oblique trough n, integral with the frame, the inner edge of which extends upward and within the concave base of the breaker C all around, and having a low-down discharge at one side, as shown.

It will be seen that, in its general features, this machine is a reproduction of that of Rutter. In both we find the outer shell; the shaft to which a gyrating motion is given by the eccentric bearing at the lower end, and which shaft works at the upper end in a

ball-and-socket joint, and the crusher or breaking-head of a conical form. The operation of the machines is similar in that the material to be crushed is fed into the machine at the top, and passes down between the inner surface of the shell and the breaker, and the gyrating motion of the shaft causes the breaking-head to so operate that as it approaches the shell on the one side it departs from the other side, thus permitting the partially-broken ore to fall farther down in the chamber, and thus to be exposed over and over again to the crushing operation of the breaking-head. It is true, however, that the Rutter machine operates differently from that of Brown's, because its crusher or breaking-head does not revolve on its own axis. There are also some minor features in which the machines differ, but such minor features of the Brown machine are not found in the defendant's machine.

The next patent, in chronological order, set up in the bill, is that numbered 237,320, granted February 1, 1881, to George Raymond and Albert Raymond. It claims to cover certain improvements in that class of mills in which vertical metallic grinding-disks are employed, and the invention is said to consist in—

the combination of the driving-shaft, grinding or reducing devices having an exposed hub or bearing, and a safety-pin connecting said parts, and in minor details.

As the claims in this patent are for a combination which includes several features not found in the machine as made by the defendants, we need not dwell upon it further than to observe that among the devices described is that of a "safety-pin," made of wood, which connects the rotary disk with the shaft, and the object of which is to relieve the strain or wrench which is sometimes given to the machine by some stone or metal of a hardness too great to yield to the crushing operation. The pin, which is strong enough to hold the rotary disk in its connection with its shaft when the material is capable of being crushed, breaks when a refractory substance is suddenly encountered, and thus permits the disk to stop, while the shaft is permitted to continue its motion. The offending substance is then removed, and the broken pin is removed and replaced by a new one. We shall have occasion to revert to this safety-pin when we reach the question of infringement. But in this connection we may briefly refer to the Patent No. 110,397, issued to John H. Rusk, December 20, 1870, and which is also set up in the bill. The feature of this patent which concerns our inquiry is the use of safety-pins, whose function is the same with that of the Raymond patent, with the difference that the Rusk pins are made of soft metal, strong enough to hold the driving-shaft and the spindle together in all ordinary grinding operations, but weak enough to yield when any extraordinary strain is put on the machine by the accidental introduction of a substance too hard to be crushed. Another difference is that, in the Rusk machine, the pins are placed between the two driving gear-wheels, and which it is necessary to remove to get at the safety-pins to remove them or replace them, while, in the Raymond machine, the safety-pins are placed in an accessible position, so that they can be removed without disturbing other parts of the machine.

Continuing our history of the complainant's machines, we come now to No. 243,334, issued to P. W. Gates, June 21, 1881. It is for an alleged improvement for ball-joints of stone-breakers and other machines, and consists mainly in constructing bearings in which the ball works so hardened or chilled on the internal surface of the bearing as to offer but slight friction to the ball which fits and works within it. Further reference will be had to this patent when we treat the question of infringement.

We next come to No. 234,545, issued to P. W. Gates, June 28, 1881. The specification, in terms, refers to Letters Patent No. 201,646, issued March 26, 1878, to Charles M. Brown, and claims for certain improvements to the Brown machine. The machine as a whole is a reproduction of the main features contained in the Brown and Rutter machines, but exhibits some changes and improvements in details, to which we shall hereafter refer.

On September 6, 1881, Letters Patent No. 246,608 were granted to P. W. Gates, and are now the property of the complainant company. This is a claim for an improvement in eccentric revolving bearing-boxes for ore-crushers and stone-breakers. The inventor, in his specification, says:

My invention relates especially to the revolving eccentric bearing-box employed at the lower end of the gyrating shaft of stone-breakers and ore-crushers; and the nature of my invention consists in providing the thicker or eccentric portion of said bearing-box with a depression or groove in its outer bearing-surface and applying within this depression a removable portion of carbon-bronze metal or other suitable durable wearing metal, said removable portion of metal being of a segmental form and extending partly around the circumference of the eccentric bearing-box proper, and also extending vertically from, or nearly from, the upper to the lower ends of said box proper, and being adapted for being secured in position by bevel flanges at the edges of the depression or groove, or by other suitable means provided on the bearing-box proper and on the removable portion of metal, or by said flanges together with screws or dowels, or both with screws and dowels.

It also consists in the combination of the box proper, having a peculiarly-formed depression or groove in its periphery, and a peculiarly-formed removable carbon-bronze metal or other suitable bearing-metal portion, whereby greater strength in the parts is secured.

The practical necessity for this improvement is said to arise out of the fact that there is a destructive wear on the periphery of the bearing-box, especially at the place where the box is made with an increased thickness opposite one side its eccentric bore. In practice, it is said, that this wear operates to change the throw or motion of the eccentric, thus impairing the effective capacity of the machine, and it is claimed that this defect is remedied by the use of the removable bronze metal. When the wear becomes so great as to injure the operation of the machine the bronze can be removed and another portion of bronze metal put in its place, and thus dispense with procuring a new eccentric box.

Still another improvement was patented by P. W. Gates by Letters Patent issued December 13, 1881, and numbered 250,656. This invention relates to alleged improvements in the shaft of ore-crushing machines, and in the method of applying oil to the machinery while in place and in motion, and calls for no special attention at this stage of our inquiry.

The defendants' machine, as described by W. S. Bates, an expert called on behalf of the defendants, has an outer shell or case; a crushing-cone within the shell, mounted on a shaft; a fixed bearing for the upper part of the shaft; an eccentric bearing for the

lower part of the shaft, by which it is made to travel in a circular path; a step-bearing for the lower end of the shaft to take the thrust due to the weight and the crushing effort, and suitable gearing operating on the eccentric bearing to revolve the same.

The stress of the case is in the effort of the complainant's witnesses to establish an infringement in the defendants' machine of the Pearce patent and of the Rusk patent.

Undoubtedly, the leading features of the Pearce machine are found in that of the defendants. There are the conical shell or case; a conical crusher within the shell; a shaft on which the crusher is secured; a pivotal point at the lower end of the shaft, and an eccentric bearing at the upper end of the shaft, whereby the shaft and the crushing-cone are caused to revolve in a conical orbit. But, as we have heretofore seen, these are present in the Wood machine, a prior invention. The Wood patent shows a stone-crushing mill consisting of a conical shell, a conical crusher within the shell, a shaft on which the crusher is mounted, a fixed pivotal point at the lower end of the shaft, and the crusher revolves in a conical orbit. The mode of operation is the same in the two patents—that is, the material to be crushed is fed into the top of the machine, the sides of the crushing-cone are caused to approach and recede from the sides of the shell, so as to crush the material, the motion being greatest at the top, where the large lumps are, and least at the bottom, so that the material is finely reduced, and passes out at the bottom. The modes of supporting and adjusting the crushing-head and shaft are mechanically different. Some of these principal features are likewise to be seen in the Ostrander machine under a still older patent.

The infringement of the Rusk patent is said to be in the use in the defendants' machine of the safety break-pins; and it must be conceded that the defendants do use such a device. Rusk does not claim the invention of the pin. What he does claim is—

the combination of soft-metal pins or plugs with the driving-gear of a grinding-mill.

Hiram H. Scoville, one of defendants' witnesses, testified that the use of breaking pins was common in large machines; in a brick-machine as far back as 1860; in the Blake ore-crusher in the form of a breaking-link; and in machines used in the shop of the witness in 1875.

Bates, defendants' expert, testified that—

there is nothing new in the use of such safety devices for such a purpose. Their use is common in all classes of machines which are liable to sudden or unexpected strains. I have here two examples of safety-pins applied to cultivators—to wit, Patent No. 11,379, to G. Lichtenthaler, July 25, 1854, and Patent No. 75,669, to J. D. De Turk, March 17, 1868. Both of these patents show cultivator-teeth arranged with wooden pins for the purpose of having the pins break should the teeth strike a root or stone, the object being to prevent the breaking of the machine.

We do not perceive that this testimony was controverted by the complainant's witnesses. The complainant's expert does indeed claim that the patents referred to as showing the prior use of safety-pins do not show such use in combination with driving-gear. But, assuming that the use of safety-pins for saving machinery from the strain of a sudden jar was old, we cannot regard their use, for such a purpose, in connection with the driving-gear of a stone-crushing machine, as patentable. It is also to be observed that Rusk expressly limited himself to a soft-metal pin, and thus limited, the use of wooden pins being old, no infringement would be shown by defendants' use of a hard cast-iron pin.

Coming now to the Brown patent, and not regarding, at this stage of the discussion, the defendants' claim of a license, we have to consider the claim of infringement. The claims asserted are the second, third, and fourth. There is no pretense of infringement of the first claim, for the reason that the defendants' machine does not have the adjusting-screw, the main feature of that claim.

A comparison of the Brown patent, in the particulars relied on, with the prior Rutter and Tripp patents, satisfies us that, even if some of his additional devices were deemed novel, it is plain, from the history of such machines, that his claims, to be saved, must receive a very narrow construction. Thus limited, they are not infringed in defendants' machines. We dismiss this part of the case by adopting the views of the court below:

Claims 2, 3, and 4 of the Brown patent are involved in this suit. The fourth claim is limited to a shell inclosing at its upper end a concave breaker, and provided with an oblique trough "integral with the frame, the inner edge of which extends upward and within the concave base of the breaker 6 all around." This claim was allowed on the ground that this feature of the combination was an improvement on anything contained in the prior art. One element in the combination covered by the second claim is the "breaking-head 6, constructed with a concave base as shown." Both the drawing and the specification show a concave breaking-head, into which the shell or trough extends. The trough or shell is cast integral with the case shell. These claims cannot be broadened by eliminating or disregarding any of their language. The breaking-head of the defendants' machine is not concave, and it follows that their machine has no trough extending upward and within the concave breaking-head. The defendants' machine, therefore, infringes neither the second nor the fourth claim of the Brown patent. The defendants' machine does not contain the spindles with the sliding bearing mentioned in Brown's third claim, or any other sliding bearings, and the adjusting screw or step embraced in the third claim is not found in the defendants' machine.

The defendants, in the fifth paragraph of their answer, aver that, prior to Brown's application for patent No. 201,646, H. H. Scoville, one of the defendants, by and with Brown's consent, made and put into use two machines containing the invention described in that patent, and that by virtue of an oral license thus given by Brown to Scoville the defendants have a right to make and sell machines containing inventions covered by said patent. Scoville testifies that, in consideration of assistance given by him to Brown in bringing out his invention, the latter had verbally agreed that he, Scoville, was to have a half interest in the exclusive manufacture of the ore-breakers, but that Brown had never made an assignment of such interest in a legal form. Brown himself testifies to the same effect. But as it appears that subsequently Brown assigned these Letters Patent to the complainant company, and as there is nothing to show that the latter had any notice or knowledge of Scoville's interest, we think that no effect can be given to this alleged verbal license or interest.

In the sixth paragraph of their answer the defendants allege that, before P. W. Gates made application for either one of the four patents issued to him, the same improvements that were described in the Gates patent were known to and used by Brown and Scoville; that said improvements were invented by Brown, and were embodied by Scoville in full-sized

working machines, and which machines were publicly used more than two years before Gates's application for his patents.

The history of these two machines is given by Scoville and Brown. The former testifies that in the early part of 1868 he made two machines under the Brown patent. He says that he and Brown loaned them to other parties to test their value as stone-breakers. The first was loaned to the Kirby & Howe Stone Company of Iowa, who operated the machine for nine months, when they broke the cast-iron shaft, and then returned the machine. This machine was repaired in the works of the Gates & Scoville Iron Works Company, of which Scoville was then vice-president and superintendent. This machine was then sold to the Chicago City Railway Company, and has since been used by them. He further testifies that the second machine was loaned to General McDowell, in charge of the custom-house, then in course of erection at Chicago, and several thousand tons of concrete and slag for the foundation were broken by this machine. It was then returned to Scoville, who says he made some repairs on it, and also some changes which have since been adopted and claimed by the complainant company. This machine was afterward sold to Smith Bros., of Marion, Ohio. Brown testifies that one of these two machines was made in 1877, and sold on trial to Mr. Kirby, of Iowa, during the fall of that year; that the second one was in the shop of Scoville during the summer of 1878, and loaned the following winter to be used in breaking stone for the construction of the United States custom-house.

Scoville further testified that these two machines were at first made in the manner described in the Brown patent, but that on their return by the parties to whom they had been loaned they were somewhat changed. Those changes he thus describes:

> They were changed by my own order, and under my superintendence, with Mr. Brown's advice, the old breaking heads being worn, and requiring new ones. We made a change in the new heads from the old by cutting off the lips that form the concave for the head, making the head level on the bottom, and also cutting off the top of the annular ring that projects up from the trough, so as to make room for a washer or riding-ring, which ring we put on to keep the dust out from the gear. We also took out at that time the wedges in the top of the machine for adjusting a section of bearings around the ball, and put in sections that just fitted. That was all the change that was made. My recollection is that it was in November, 1878, in respect to the breaker sold the Chicago City Railway Company. The second was somewhat later.

He further testified as to a provision that was made by grooves to receive zinc or other metal that might be filled in to form a collar for the purpose of keeping the head from working off.

Brown's testimony is to the same effect, but he goes more into detail. Among other important changes that he alleges were made was that made at the top of the machine by leaving out the adjustable wedges around the socket-bearing, and making this bearing to fill the space around the shaft inside of the head at the top of the machine, and that the segments that supported the ball at the upper end of the shaft were introduced in place of the wedges and were made or cast on a round drill, with pieces of sheet-iron placed in the mold where the junction of the segments was designed to be, so that after the casting was made it could readily be spread apart into four pieces. He also states that he put a breaking pin between the driving shaft and the gear, but this was modified by placing the breaking pin between the driving-pulley and a hub which was fastened on the counter-shaft. All these changes were made in 1878, and none of them, according to Brown, were made by the design or suggestion of P. W. Gates.

P. W. Gates, on behalf of the complainant company, testified that two machines were made by Brown, one of which was used by the Kirby & Howe Company of Iowa, and which was returned about September 1, 1878. The other, built by Brown or Scoville, was loaned to the United States government to use at the custom-house, and was returned. He admits that, in repairing these two machines, considerable changes were made, exhibiting features not shown in the original Brown patent, but he claims that these changes were devised by himself.

But whether these improvements were attributable to Brown, as testified by Scoville and Brown, or to Gates, as he testifies, is not specially important. What is important is the fact, that it thus appears that several of the features claimed in the Gates patents were illustrated in these two re-formed Brown machines, actually in public use more than two years before Gates applied for his patents.

The claim of Gates No. 1, for the segmental cast bearing for the ball of the socket-joint, having a form which gives it a bearing contact upon the ball, is found in the Brown re-formed machine. The claim in Gates No. 2, of a novel application of a loose collar around the eccentrically-gyrating shaft, to prevent dirt getting into the bearing, was anticipated in the Brown machine as changed in 1878, by a circular washer or collar upon the top of the sleeve that surrounded the breaking head, which fitted around the shaft, the object being to keep the dust from the machinery below.

We agree with the court below in thinking that the first claim in Gates's Patent No. 3, for the device of a depression or groove in the outer bearing-surface of the bearing-box, and applying within this depression a removable portion of carbon bronze metal, so as to correct the wear of the machine at that place, can scarcely be deemed an invention, as the use of soft metals for that function is shown to be old. At all events, the defendants' machine uses Babbitt metal over the entire surface; that is, going entirely around, instead of only a portion of the distance. In this respect defendants' machine follows the Brown amended machine. Nor can any force be given to Gates's claim that the use of the Babbitt or carbon bronze metal in the depression or groove is a new article of manufacture. Whether or not such a device, as a merely incidental feature of a compound machine, can be deemed a new article of manufacture, there is no proof of infringement, as it is not pretended that the defendants have ever made any such new article of manufacture. The alleged invention in Gates's Patent No. 4 is for a combination of old features, to wit, a shaft, a bearing for the shaft, a hard-metal plate in the lower end of the shaft, an adjustable sliding step-block, and an oil step-box.

All of the elements of this combination were shown to be present in the Brown machine as made and sold more than two years before Gates applied for this patent, except the hard-metal plate at the end of the shaft. But the use of hard or steel wearing-plates was shown to be old, and several Letters Patent, viz., C. M. Savage, an English patent, 1831; T. Varney, No. 63,675, issued April 9, 1867; Palen & Avery, No. 111,239, issued January 24, 1871, and several others were put in evidence by the defendants, and exhibited the feature of a hard-metal wearing-plate at the end of the working-shaft.

Our conclusion is that reached by the court below and its decree dismissing the bill is affirmed.

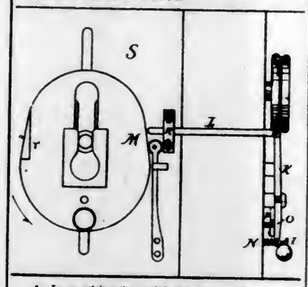
PATENTS

Expired, May 22 1894.

The term of these patents granted during the week ending May 22 1877, have expired. The reissues expired at an earlier date.

190,948. STOP MECHANISMS FOR SEWING-MACHINES. H. D. Baker, Lynn, Mass., assignor to W. D. Pool, same place, trustee of the Machine Tender Association. [Filed Aug. 11, 1876.]

Brief.—The clamp is notched on one side, so that the notch will, at the finish of the button-hole, be in position to receive a spring-acted stop-lever, connected by mechanism (as specified in the claims) to the driver of the machine, which action stops the machine. The stop-lever is adjustable, to stop the machine sooner or later, as desired.

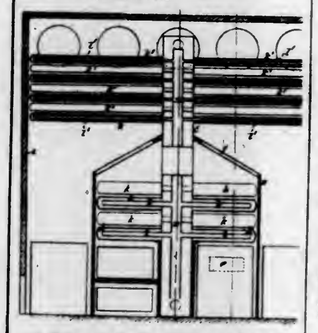


1. In combination with the notched clamp-base M, and the treadle lever mechanism operated in one direction by a spring, H, the arm L, lever K, spring N, catch I, and rod G, constructed and arranged to operate together and relatively to each other, substantially as and for the purposes specified.

2. In combination with wheel E, brake P, rods G and O, and spring H, arranged to operate together, substantially as and for the purposes specified.

3. The combination of bed S, notched clamp-base M, hinged reciprocating arm L, and adjustable guide R, substantially as and for the purposes specified.

190,949. COMBINED BOILER AND STEAM-HEATER. G. W. Blake, New York, N. Y. [Filed Sept. 7, 1876.]

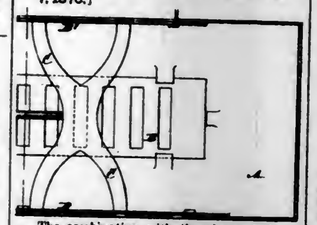


1. The combination, with the furnace B and its fire-place *d*, of the upright trunk C and inner duct D, one or more intersecting draft-passages, *s*, the outlet *e*, the tubes *k* closed at their outer ends and connecting at their inner ends with the trunk C on opposite sides of the latter, and the tubes *l* open at both ends, arranged within the tubes *k*, and connecting at their inner ends with the duct D, essentially as described.

2. The combination, with the outer case or hot-air chamber A, of the furnace B, its boiler E, and the steam heater or radiator G composed in part of an upright trunk, C, and inner duct D, forming an extension of the boiler above the furnace, and the inner and outer branch tubes *k l*, constructed and connecting, respectively, with the trunk C and duct D, substantially as specified.

3. The combination of the furnace B and its fire-place *d*, the upright trunk C, and inner duct D, the tubes *k k'*, closed at their outer ends and connecting with the side of the trunk C, and the open-ended tubes *l l'* within the tubes *k k'*, and connecting at their inner ends with the duct D, substantially as specified.

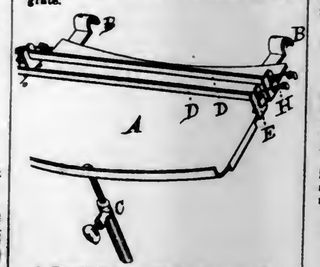
190,950. AIR-BOXES FOR RADIATORS. G. W. Blake, New York, N. Y. [Filed Sept. 7, 1876.]



The combination, with the air-supply box A, the valve D, and duplicate valves B B', connected by the yoke C and elbow *e*, said valve and duplicate valves being arranged to operate simultaneously and control respectively, and in inverse relation with each other, as regards their opening and closing actions, communication with the external air and air of the compartment, substantially as described.

190,951. GRATE-SHELVES. J. Boorom, Mason, Ohio. [Filed Jan. 22, 1877.]

Brief.—To be applied at the front of an open grate.

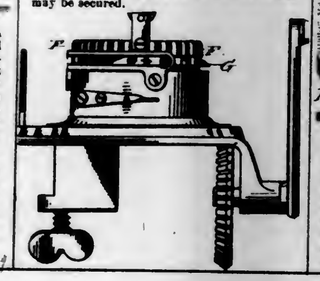


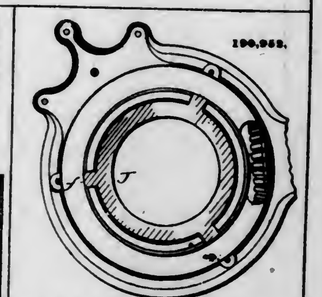
1. The shelf A, provided with hooks B, in combination with the adjustable leg C, as and for the purpose specified.

2. The removable slats or bars D, supported by slotted studs E, and hooks H, or their equivalents, in combination with the vertically-adjustable shelf A, in the manner and for the purposes specified.

190,952. KNITTING-MACHINES. J. L. Branson, Chicago, Ill. [Filed Dec. 14, 1876.]

Brief.—The lands project above and upon the sliding bar, and hold it down in place. Upon the bed-plate is arranged a removable annulus, to which cylinders of various sizes may be secured.





1. The sliding bar G, in combination with the needle-cylinder, having projections F overhanging said bar, the cam-cylinder, and thread-carrier, substantially as and for the purpose set forth.

2. The combination, with the bed-plate, of the annulus J, formed with one or more projections upon its periphery, whereby it is supported upon the upper face of the bed-plate, and adapted to receive and hold needle-cylinders of different diameters, to the full diameter of the annulus and its projections, substantially as and for the purpose set forth.

190,953. PAINT COMPOSITIONS. C. Brown, Meadville, Pa. [Filed Oct. 2, 1876.]

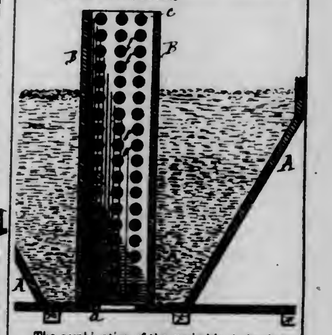
A water-proof paint consisting of pine-pitch, pine-tar, iron ore, and gutta-percha, in the proportions substantially as set forth, and for the purpose specified.

190,954. EXPLOSIVE COMPOUNDS. Otto Bursteinbinder, Humboldt, Mich. [Filed June 30, 1876.]

1. The process herein described of preparing an explosive compound, which consists in inspissating vegetable substances with glycocole or chondrin and saltpeter, then soaking them in nitro-glycerine, and granulating and drying them, all in the manner described.

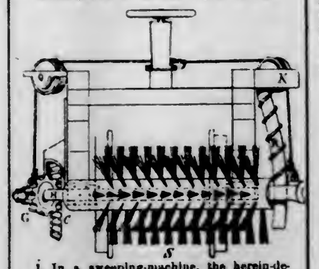
2. The explosive compound or powder herein described, consisting of vegetable substances, glycocole or chondrin and saltpeter, as specified.

190,955. VENTILATORS FOR GRAIN. H. Y. Cahill, Dayton, Ohio, assignor of one-half his right to W. A. Weinreich, same place. [Filed Nov. 24, 1876.]



The combination of the grain-bin A, having an aperture, *a*, in the bottom thereof, and a vertical perforated flue, B, extending above the top of the bin, covered with wire-gauze *c*, open at its top and bottom, and arranged over the aperture in the bottom of the bin, said flue acting as a conduit to carry off the warm vapor from the mass of grain, and introduce dry and pure air therein, substantially as and for the purpose specified.

190,936. STREET-SWEEPERS. N. Campbell, Brooklyn, N. Y. [Filed July 5, 1876.]



1. In a sweeping-machine, the herein-described method of attaching the reeds or brushes to the brush-head, by inserting them in the manner of a staple in holes in the brush-head, and retaining them in position by a shaft running through the brush-head, substantially as described.

2. In a sweeping-machine, the combination of the sweeper S and yoke Y with a support, F, independent of the axle X, substantially as and for the purpose described.

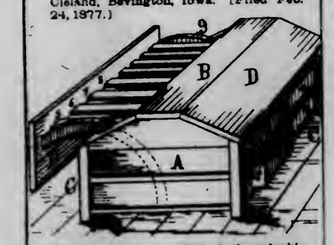
3. In a sweeping-machine, the combination of the axle X, constructed with the projecting end and the cog-wheels C and G, substantially as and for the purpose described.

4. In combination with the frame-work A of a sweeping-machine and the cog-wheel G, the shield-plate M, substantially as and for the purpose described.

5. In a sweeping-machine, the combination of the block K with the hanger R, projecting therefrom, substantially as and for the purpose described.

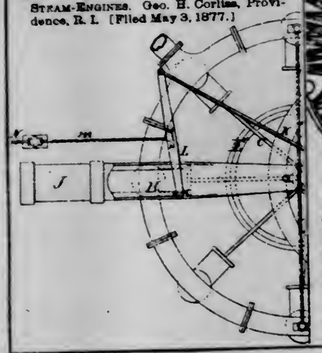
6. The combination of the arm V and spring Q with the sweeper S, substantially as and for the purposes described.

190,937. WARDROBE-BEDSTEADS. Robert Cleland, Bevington, Iowa. [Filed Feb. 24, 1877.]



The frame and case A B C, single or double, having a series of drawers, 1 2 3 4, and curved grooves or bearings h in its ends, and a movable cover and side-board, D, carrying the runners g, and bed-bottom 5 6 7 8, arranged and combined to operate substantially as and for the purposes shown and described.

190,938. AIR-PUMP CONNECTIONS FOR STEAM-ENGINES. Geo. H. Corliss, Providence, R. I. [Filed May 3, 1877.]



In combination with the steam-cylinder J and connecting-rod I, the horizontally-vibrating lever L, its link K, and crank for communicating motion through the connection m to the air-pump lever N, substantially as specified.

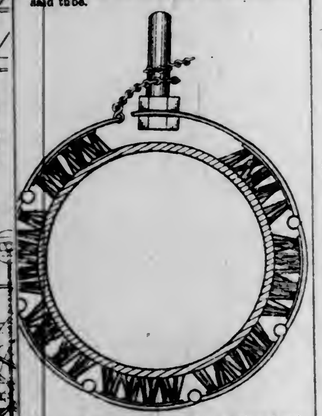
190,939. WRENCHES. H. Davis, Berlin, Wis., assignor of one-half his right to H. Morman, same place. [Filed Apr. 12, 1877.]



The shank having the jaw C, pivoted at its outer end at a, and the curved links G, pivoted at d between the end of the shank and the handle, and the jaw C being provided with the bar D, arranged to stand at an angle to the handle, in combination with the pivoted slotted jaw O, constructed and arranged as and for the purpose set forth.

190,940. BRUSHES FOR CLEANING BOILER-FLUES. Joseph H. Davis, Sewickly, Pa. [Filed Nov. 23, 1876.]

Brief.—A brush for cleaning the flues of boilers is made in curved section, the sections being joined by hinged joints. These, being placed around the flue, are drawn together, and at the same time, a reciprocating motion being given, the brush is made to pass slowly along the flue, thus removing the deposit upon said tube.

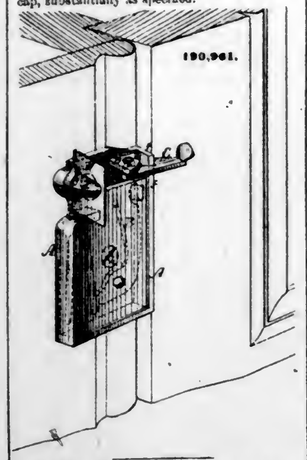


A brush consisting of a series of hinged and curved sections, the end sections furnished with a lever and coupling-chain, substantially as hereinbefore described, and for the purpose set forth.

190,941. BURGLAR-ALARMS. W. J. Decker, New York, N. Y. [Filed Apr. 20, 1877.]

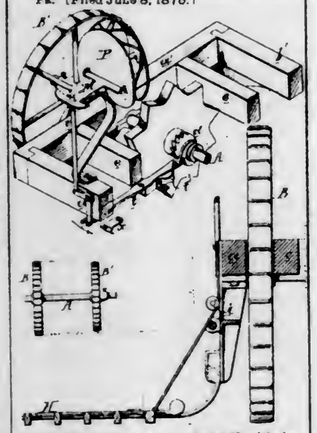
1. In a burglar-alarm, the combination of the shell A, having nipple d and ledge f, with the lever B which carries the hammer a and pivoted catch C, and with the spring b, all arranged to operate substantially as herein shown and described.

2. The conical nipple d, made with a flat face, to be used in connection with a paper cap, substantially as specified.



190,961.

190,962. MOWERS. Rudolph Dirks, Marlborough Township, Montgomery County, Pa. [Filed June 8, 1876.]



1. The combination of the frame H with the hangers k, their boxes n, and rubber blocks s.

2. The combination of the shaft A and its wheel B with the smaller wheel B', laterally adjustable on the shaft, as set forth.

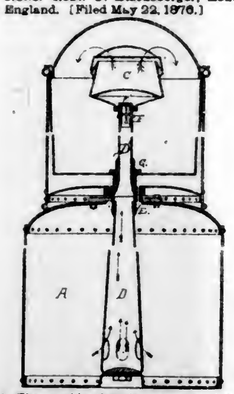
3. The combination of the spring-seat P, rod r, bell-crank lever w, spring-lever t, and sliding-clutch d, as set forth.

190,963. THILL LOOPS OR SUPPORTERS. T. Eaton, Jr., Brunswick, Me. [Filed June 10, 1876.]



The thill-loop A, made of cast metal, and provided with the legs a^1 a^2 and the pins a^3, to adapt it to be attached to a saddle-strap, substantially as herein shown and described.

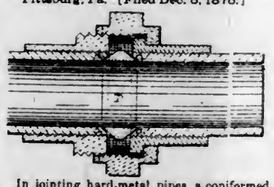
190,964. APPARATUS FOR MAKING INFUSIONS. Robt. U. Etzensberger, London, England. [Filed May 22, 1876.]



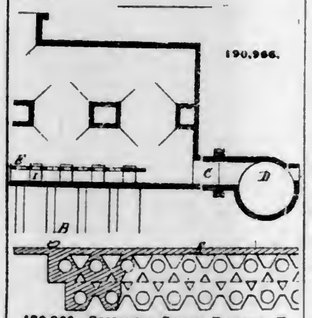
1. The combination, in an apparatus for making infusions, of the adjustable receptacle C, with its impervious sides and false bottom and top, with the upper flow-pipe D', its non-return valve F', adjustable joints F and G, in connection with the lower flow-pipe D, by means of the perforated cone-joint E, substantially as set forth, and for the purpose specified.

2. In an apparatus for making infusions, the combination of the steam-jacket, its exhaust-valve M, and perforated cone-joint E, with the steam-space of the lower vessel A, for the better regulating of the action of the apparatus and the equalization of temperature, as set forth in the foregoing specification.

190,965. PIPE-JOINTS. A. W. Foster, Jr., Pittsburg, Pa. [Filed Dec. 6, 1876.]



In jointing hard-metal pipes, a conformed reamed-out mouth at the end of each pipe, an intermediate metallic conically-ended packing-ring, and coupling devices, rigidly attached to, or made on, the pipe, substantially as set forth.



190,966.

190,966. SECTIONAL STEAM-BOILERS. E. H. Graham, Philadelphia, Pa. [Filed Apr. 6, 1877.]

Brief.—The circulating-plate is cast to the tank, and provided with holes for the circulation of water. The tank is also provided with a nozzle, to which is attached a sediment-collecting chamber, and through which the feed-water is fed to the boiler. The body of said chamber is located on a plane below the horizontal line of the bottom of the tank.

The improved sectional boiler-tank, having the baffle-plate cast thereto and in one piece, said plate being provided with openings E, in combination with tube B and the bottom plate, and the extension or nozzle C and pipe D, constructed and arranged substantially in the manner and for the purpose set forth.

190,967. CHAIRS. J. Hess, Buffalo, N. Y., assignor of one-half his right to L. White, same place. [Filed Mar. 12, 1877.]

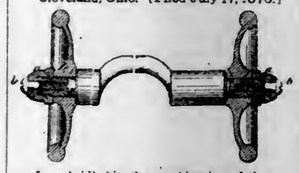


As an article of manufacture, a chair having a spring-seat, and a back formed of a series of single bent strips, C, having their ends fastened to the cross-bars D and F, substantially as specified, and secured to the cross-bar H by screws G, as described.

190,968. STOVE-POLISH. J. W. Hill, Lynn, Mass., assignor of one-half his right to W. N. Munroe, Providence, R. I. [Filed Apr. 10, 1877.]

As a new article of manufacture, the improved polish described, consisting of plumbago, lamp-black, soap, alum, molasses, and water, in the proportions and compounded and prepared substantially in the manner set forth and specified.

190,969. BRIDLE-BITS. Walter M. Hutton, Cleveland, Ohio. [Filed July 17, 1876.]



In a bridle-bit, the combination of the recessed or curved bar, the revolving slotted cheek pieces, the nuts a, and the screws b, all arranged substantially as shown and described, and for the purpose set forth.

190,970. WATER-WHEELS. W. T. Reaser, Waupun, Wis. [Filed May 7, 1877.]

Brief.—The combination, with a horizontal wheel having arms or buckets upon its periphery, of an inclosing-case having two or more side feed-openings in the bottom of the case, near the outer skirt or periphery thereof. It further consists of an annular gate surrounding the case; and it finally consists in the combination, with the case, of an outer removable ring, whereby the wheel can be adapted to flumes or as a portable wheel.

1. The combination, with a wheel having arms or buckets upon its periphery, of an inclosing-case having two or more side feed-openings, and two or more discharge-openings arranged in the outer or skirt portion of the bottom of the case, substantially as and for the purpose described.

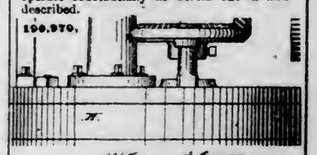
2. An inclosing-case, having the discharge-openings arranged in the outer or skirt portion of the bottom of the case, and flaring outwardly, substantially as and for the purpose herein shown and described.

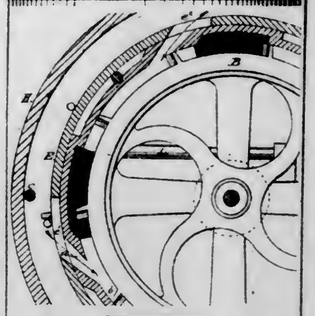
3. An annular gate, provided with the opposite openings e and e^2 of the same size, and the opposite openings e^1 and e^3 differing in size from each other, and from the openings e and e^2, substantially as and for the purpose described.

4. The combination, with a water-wheel and inclosing case, of a removable ring, H, whereby the wheel can be adapted to flumes, or as a portable wheel, substantially as specified.

5. A portable water-wheel, consisting of the wheel B, having arms or buckets b, inclosing-case, provided with two or more feed and discharge openings, c d, annular gate E, and outer ring H, all combined and arranged to operate substantially as herein shown and described.

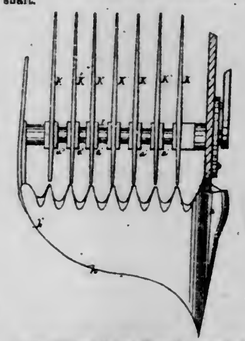
190,970.





190,971. POTATO-DIGGERS. D. M. King, Mantua Station, Ohio. [Filed Feb. 26, 1877.]

Brief.—The fingers are arranged alternately in respect to height, and fastened with gain-blocks, grooved and riveted through rock-shaft. The side standard has its dividing-edge directly in line with the inner side of the share. Suitable machinery operates the rock-shaft.



1. The fingers K and K' and pin m, in combination with the shaft I and gain-blocks a', substantially as described, and for the purpose set forth.

2. The standard E, arranged in relation to the dividing-edge n of the share G, so that the inner side of said standard shall be in a right line with the dividing-edge n, as described, and for the purpose specified.

3. The sifting-fingers K and K', arranged in an alternating relation to each other in respect to height, and projecting from each side of the shaft I, as herein set forth, and for the purpose specified.

190,972. WHEEL-CULTIVATORS. E. M. Kissell and M. L. Kissell, Springfield, Ohio. [Filed Nov. 11, 1876.]

Brief.—The safety break-joint in the standards. The construction of the frame.

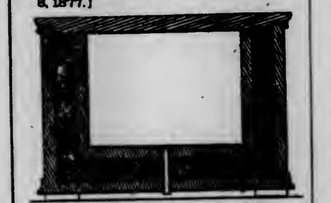
1. The safety break-joint B, pin e, slot d, gutta-percha blocks e e, or their equivalents, shields f f, screw-bolts g g, substantially as described and shown.

2. Hitch-bars E, arched axle C, and brace-rods D, in combination with the beams and tongue of a cultivator, constructed and arranged substantially as shown and described.

190,973.



190,973. LININGS FOR REFRIGERATORS. G. H. Levis, Philadelphia, Pa. [Filed May 8, 1877.]



A packing or lining for refrigerators, coffee-urns, and other hot or cold air receptacles where an even temperature is required, composed of laminæ of paper, center filling of plaster-of-paris, and a coating of soluble glass or similar substance, substantially as and for the purpose set forth.

190,974. FOLDING CHAIRS. H. H. Mahoney, Boston, Mass. [Filed Dec. 11, 1876.]



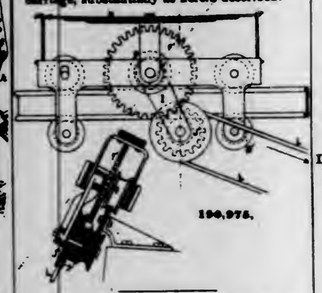
The combination, with the cross-legs *l*, of the back-frame A, the side posts *p* of the back-frame being rigidly secured to the back-rail *s* of the seat at the upper ends of the front legs, and connected to the cross-legs at their points of intersection by a pin, *a*, which forms a pivot for the legs, as set forth and described.

190,975. MEANS FOR PROPELLING CANAL-BOATS. Bernard H. Mushlin, Buffalo, N. Y. [Filed Sept. 26, 1876.]

1. The tow-line L, consisting of an endless rope or chain, by means of which power is communicated from a steam-engine or other motor on the canal-boat to be propelled to a truck or carriage on a rail or rails, through the medium of a train of multiplying-gearing upon said carriage, substantially as and for the purpose herein described.

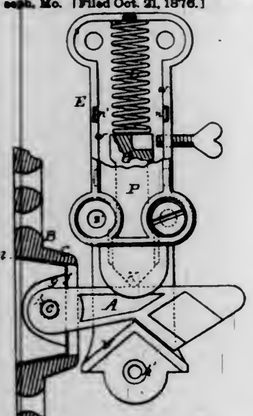
2. A truck or carriage, moving upon a rail or rails, and having a traction-wheel, F, and spur-wheel F' on a main shaft, and the pinion J and pulley J' on a counter-shaft, power being applied to said pulley J' by means of the endless rope or chain L, which forms the only connection between the carriage and a steam-engine or other motor on the canal-boat to be propelled.

3. In a propelling carriage, which is set in motion by means of an endless rope or chain, forming the only connection between said carriage and a motor on board the canal-boat, the arm I, in combination with the friction-wheel F, spur-wheel F', pinion J, and pulley J', as a means of reversing the motion of the carriage, substantially as herein described.



190,975.

190,976. GATE-LATCHES. J. Neill, St. Joseph, Mo. [Filed Oct. 21, 1876.]



1. The combination, with the recessed catch-plate E, having the A-shaped foot-flange and the ribbed face-plate P, of the slide G and spring L, substantially as specified.

2. The latch-plate B, having the central recess *d*, in combination with the latch A and the journal-seat blocks, adapted to be inserted in said recess, substantially as specified.

190,977. MACHINES FOR MOLDING CLAY TOBACCO-PIPES. Jos. G. Oliver, Philadelphia, Pa. [Filed Nov. 3, 1876.]

Brief.—A rotary cylinder or table is provided with molds, hinged thereto, to open and close automatically. A clamp holds the molds during the operation of filling and molding. An injecting filling-plunger operates through the hopper and its spout adjacent to the bowl portion of the mold. The molding-plunger and the stem-borer are adjustable.

1. The combination, with a rotary cylinder or table, of one or more automatically opening and closing molds, which are hinged thereto and operated by sliding arms, which embrace and engage with the sides of the molds, substantially as and for the purpose set forth.

2. The hopper provided with a spiral conveyer and plunger, substantially as and for the purpose set forth.

3. An injecting-filling plunger, in combination with molds, substantially as and for the purpose set forth.

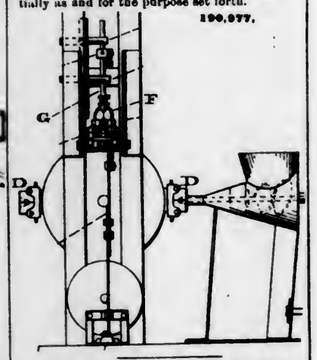
4. The combination, with the sectional molds D, of the clamp F, substantially as and for the purpose set forth.

5. The plunger G, made adjustable angularly, horizontally, and vertically, substantially as and for the purpose set forth.

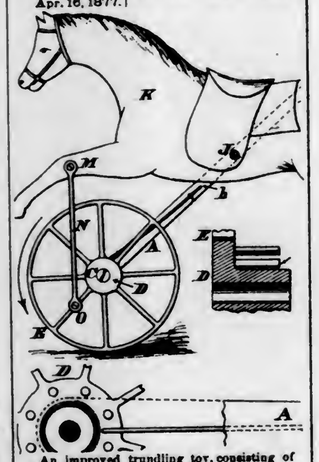
6. The plunger G, made adjustable angularly, horizontally, and vertically, substantially as and for the purpose set forth.

7. The boring-wire M, made adjustable angularly, horizontally, and vertically, substantially as and for the purpose set forth.

190,977.



190,978. TRUNDLE TOYS. H. P. Pflum, Cincinnati, Ohio, assignor of one-half his right to H. Doane, same place. [Filed Apr. 16, 1877.]



An improved trundling toy, consisting of shaft A, driving-wheel C D E, connecting-rod N O, and imitation animal K, the latter being pivoted to said shaft at J, and having two apertures, L L', for optional eogagement of coupling device M, substantially as herein described, and for the purpose set forth.

190,979. FLOATING SIGNAL-LIGHTS. Richard Platsch, Berlin, Prussia. [Filed Jan. 23, 1877.]

1. The combination of a buoy or floating recipient for compressed illuminating-gas with a lamp and a regulating apparatus, for reducing the pressure of the gas as it passes from the recipient to the burner, substantially as herein described.

2. An illuminating apparatus for floating lights, consisting of a recipient for compressed illuminating-gas, with charging-inlet closed by a valve, combined with a regulator and gas-burner, arranged and operating substantially as herein described.

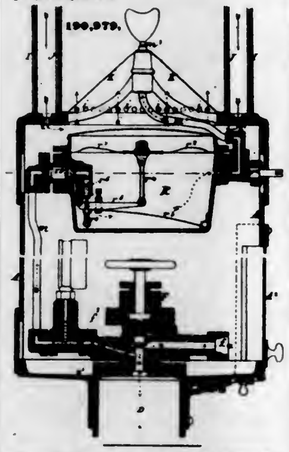
3. In a lantern for floating lights, the combination of the two concentric cylinders which surround the burner with the wind-guard *i* and perforated reflector K, substantially as and for the purpose specified.

4. In lanterns for floating lights, the concentric glass cylinders I J, secured with caoutchouc packing *k* in metal rings G H, having holes Z for the inlet of air, in combination with the hinged cover T and chimney S, arranged and operating substantially as herein described.

5. In illuminating apparatus for floating lights, the lantern H G I J, with burner m^3, in combination with the closed casing A, containing the regulator R and charging-inlet F, communicating with the tube D, substantially as herein described.

6. In a lantern for floating lights, the combination of chimney S, and its conical piece and cap, with the wind-guard and the burner and its chimney, substantially as and for the purpose specified.

190,979.



190,980. PAPER-BOXES. L. B. Plimpton, Hartford, Conn. [Filed Mar. 26, 1877.]



As a new article of manufacture, a box or package to contain paper and envelopes, consisting of a box, *a b*, for the envelopes, and a lid, *c*, provided with an interior pocket, *e*, made to contain sheets of paper, the sides or edges forming the pocket being adapted to enter within the sides of the box, and the outer portions of the lid beyond the edges 5 of the pocket to rest upon the walls of the box when closed, all being adapted to operate with relation to each other substantially as described.

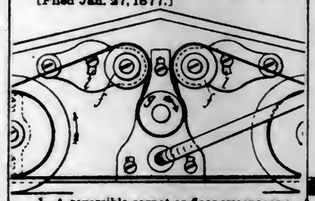
190,981. PAPER-BOXES. L. B. Plimpton, Hartford, Conn. [Filed Dec. 23, 1876.]



1. As a new article of manufacture, a portfolio-box for paper and envelopes, consisting of portions *a b*, centrally hinged together at *c*, and provided with lids *d e*, having pockets *f g* for the reception of sheets of paper, the lids and portions *a b* being arranged to operate together, and to fold at three places, substantially as described.

2. The combination, with the hinged boxes *a b*, of a hinged lid provided with an internal pocket, to operate substantially as described.

190,982. CARPET-SWEEPERS. R. T. Prindle, Aurora, Ill., assignor of one-half his right to S. W. Thatcher, same place. [Filed Jan. 27, 1877.]



1. A reversible carpet or floor sweeper supported and carried upon four similar noiseless end wheels, each pair of which, by means of an endless belt passing over both wheels of such pair, and around a pulley at each end of the brush-shaft, operates to drive the brush, as shown and described.

2. The combination, in a reversible sweeper, having a dust-pan both at front and rear, of two pairs of rubber-tired wheels, which severally serve to support the box, and also as drivers to a brush located midway of such wheels, the tires avoiding noise, the brush and pans being adapted to perform their duties in either direction of the propulsion of the sweeper or revolution of the brush, and each pair of wheels transmitting power to the brush by means of a belt passing over both wheels of such pair, and around a pulley at the adjacent end of the brush-shaft.

3. The combination, with a carpet-sweeper running on four wheels, of two endless belts, each passing over two similar wheels, over intermediate guide-pulleys, and around a pulley on the brush-shaft.

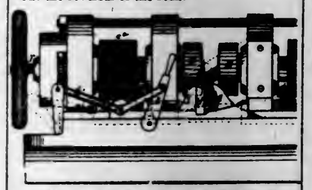
4. In combination with a carpet-sweeper, the belt-tightening and guide-pulleys *f*, each hung upon a slotted and pivoted adjustable plate, *l*, as shown and described.

5. The combination, with the vertically-adjustable roller-brush, of the four vertically-adjustable supporting-wheels.

6. The combination, with the vertically-adjustable roller-brush, of the vertically-adjustable supporting and driving wheels, and the adjustable belt-tightening pulleys, substantially as and for the purpose described.

190,983. MACHINES FOR ROLLING AND STRAIGHTENING CYLINDRICAL BARS OR TUBES. J. Reese, Pittsburg, Pa. [Filed Apr. 6, 1877.]

Brief.—By means of the hand-lever, and through the inclined slide under the rest, the operator is enabled to reverse the feed without the reversal of the rolls.



1. The combination of the conical disk-rolls, the movable rest, provided with guides, and the coupled movable inclines, substantially as described.

2. The combination of the conical disks E E', provided with shafts journaled so as to be capable of end motion, with the screws F, bearing upon the ends of the shaft, and with the movable rest H, substantially as and for the purpose described.

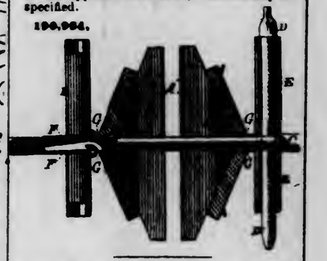
190,984. CAR-COUPLINGS. John D. Ross, Macon, Ga. [Filed Feb. 12, 1877.]

1. In a car-coupling, the draw-heads A', consisting of the vertical sides and inclined central parts B B having curved edges G G, and provided with the rods I I, and rear frame provided with openings E E and coupling-pin D, in combination with the flat link A having an opening, C, at one end, and springs F at the opposite end, the several parts being constructed, arranged, and combined to operate, substantially as and for the purpose specified.

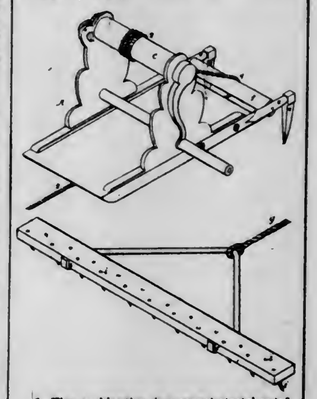
2. The flat link A, provided with the opening C at one end and the springs F F F at the opposite end, substantially as and for the purpose described.

3. The combination of the link A, provided with the springs F at one end and the openings C at the opposite end, with the jaws B B of one draw-head and the coupling-pin D of the opposite draw-head, substantially as specified.

190,984.



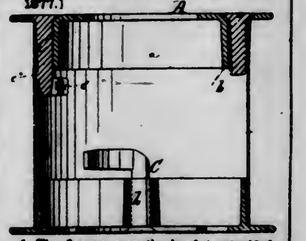
190,985. CARPET-STRETCHERS. Alonzo T. Safford, Pompey Centre, N. Y. [Filed Dec. 5, 1876.]



1. The combination, in a carpet-stretcher, of the frame A, arms *s s*, teeth *e e*, roller *f*, drum C, pawl and ratchet, and cord *g*, passing from the drum around the roller and beneath the frame to the griping-bar, as set forth.

2. The arms *s s*, carrying studs *e e*, and projecting rearward beyond the edge of the frame, to permit access to the edge of the carpet, as specified.

190,986. STOVE-PIPE THIMBLES. S. Selden, M. Griswold, Jr., and O. P. Hanchett, Erie, Pa.; said Hanchett assignor to said Selden and Griswold. [Filed Mar. 24, 1877.]



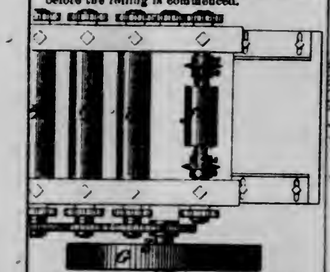
1. The flanges *a* on the head A, provided with the notches or semicircular indentations *b*, for the reception of the holding devices, for connecting the sleeve or cylinder with the head, substantially as and for the purpose described.

2. The flanges *a*, provided with the notches *b*, and sleeve or cylinder B, in combination with the pin C, or equivalent device, for holding said parts in position, substantially as described.

3. The pin C, provided with the spur or cam *c'*, in combination with the annular flange *c* on the head A, for the reception of the sleeve or pipe B, substantially as described.

190,987. SHEET-METAL-SEAMING MACHINES. John F. Starr, Jr., Camden, N. J. [Filed Mar. 21, 1877.]

Brief.—Series of press-rolls, arranged in pairs closer together from first to last pair. Adjustable feed-table and adjustable trimming-cutters, which may be arranged to trim before the rolling is commenced.



1. The combination, in a machine for seaming sheet metal, of a receiving-table and two or more pairs of press-rolls, whereby the sheets to be seamed are passed directly from one pair of rolls to the next, the rolls of each pair being placed relatively closer together in the direction of the feed of the sheets, substantially as set forth.

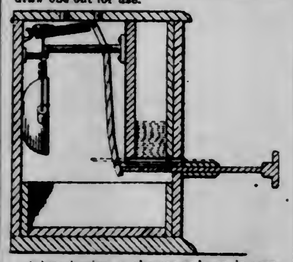
2. The combination, in a machine for seaming sheet metal, of a receiving-table, side guides adjustable transversely thereon, and a series of press-rolls, through which the sheets to be seamed are directly passed, substantially as set forth.

3. The combination, in a machine for seaming sheet metal, of a series of press-rolls, through which the sheets to be seamed are directly passed, and cutters adjustable transversely upon rotating shafts, substantially as set forth.

4. The combination, in a machine for seaming sheet metal, of rotating cutters, adjustable transversely upon their shafts, and a receiving or discharge table provided with adjustable side guides, substantially as set forth.

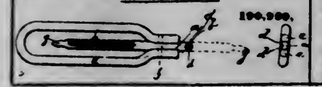
190,988. CHECK-REGISTERS. A. Stewart and Louis Von Hoven, Philadelphia, Pa. [Filed Aug. 22, 1876.]

Brief.—Check-boxes in a closed case have at their bottoms sliding rods, which push one check into the case as a record before they draw one out for use.

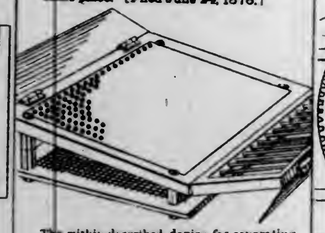


A box, having a plunger or lever, in combination with a check or ticket receptacle having outlets on opposite sides, and a passage for an engaging portion of the plunger or lever, whereby each check or ticket released will be registered by a counterpart check or ticket, substantially as and for the purpose set forth.

190,989.

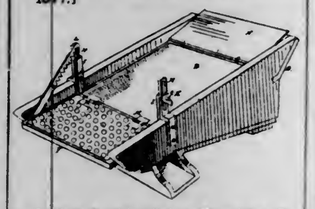


190,990. GRAIN-SEPARATORS. C. A. Weed, Racine, Wis., assignor to J. I. Case & Co., same place. [Filed June 24, 1876.]



The within-described device for separating grain, seed, &c., consisting of the feed-board, the sieve, the tailings-grate, and the tailings-chute, all hinged together in the order named, substantially as set forth.

190,991. GRAIN AND SEED SEPARATORS. C. A. Weed, Racine, Wis., assignor to J. I. Case & Co., same place. [Filed Mar. 12, 1877.]



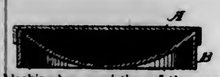
1. Sieve B, with tail-sieve F, rack-bar G, standards H and I, and pin L, all in combination, substantially as and for the purpose described.

2. Shoe A, sieve B, standards H and I, and nut K, all in combination, substantially as described.

3. The combination of sieves B and C, tail-sieve F, ratchet G, shoe A, standards H H and I I, and side-board N, substantially as and for the purpose described.

190,992. BLACKING-BOXES. J. H. Weeks, Lowell, Mich. [Filed Oct. 14, 1876.]

Brief.—The cavity that holds the blacking is concave, and is supported by the outer flange, which extends downward for the purpose.



A blacking-box consisting of the concave or rounded receptacle A, the rim or flange B secured to the edge of receptacle A, whereby the box has its sole support on the lower edge of the flange, substantially as and for the purpose set forth.

190,993. GRAIN-BINDERS. N. Werts and J. D. Gilmer, Concordia; said N. Werts assignor of one-fourth interest to G. W. Werts, Beloit, Kans. [Filed June 8, 1876.]

1. The twister F, consisting of a grooved cone, having the orifices of its grooves provided with cams A A and springs *i i*, substantially as shown and described, and for the purpose set forth.

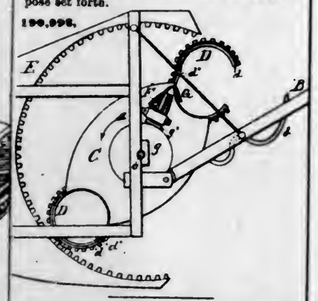
2. The twister F, composed of the double grooved cone and bow G, attached to a casing, *f*, encircling the cone, substantially as and for the purpose set forth.

3. The disk C, having the cogged clamps D D, rotated by and in combination with the toothed or cogged segment E, substantially as and for the purpose set forth.

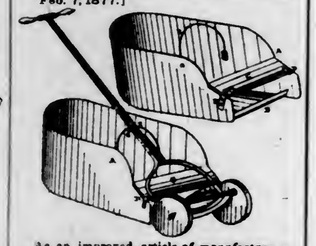
4. The disk C, having the cogged clamps D D and cogged or toothed segment E, in combination with the table B, having the curved lever or hook *b*, operating in conjunction with the disk C, substantially as and for the purpose set forth.

5. The twister F, having its axis provided with a gear-wheel, *g'*, cog-wheel *g*, and axis or shaft *c*, in combination with the disk C, having the cogged clamps D D and toothed segment E, substantially as and for the purpose set forth.

190,994.



190,994. LAWN-MOWER ATTACHMENTS. Alonzo H. Wood, Toledo, Ohio. [Filed Feb. 7, 1877.]



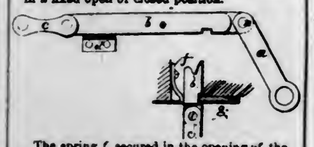
As an improved article of manufacture, a receptacle for cut grass, consisting of the sides A, bail E, bulk-head B, and dash-board C, provided with hooks D D, the several parts being constructed, arranged, and adapted for use in connection with a lawn-mower, substantially as specified.

190,995. PROCESSES FOR BLEACHING BEES-WAX. Homer T. Yaryan, Richmond, Ind. [Filed Apr. 3, 1877.]

The process of bleaching bees-wax, which consists in dissolving it by any of the volatile products of petroleum, or other known solvents, and exposing the same to sunlight in glass vessels, or in shallow vessels covered with glass, until the color is discharged, and then volatilizing by heat the solvent used.

190,996. SHUTTER-WORKERS. M. M. Zellers, Kent, Ohio. [Filed May 26, 1876.]

Brief.—The pointed or pivoted sliding bars attached to the shutters, and extending through the window-frame, are suitably notched, and provided with a spring, which is secured within the opening in the frame, and serves to automatically lock the shutter in a fixed open or closed position.



The spring *f*, secured in the opening of the window-frame, in combination with the shutter and links *a e*, notched link *b*, and catch *g*, whereby the spring serves to automatically lock the notched link *b* to the catch *g*, and thereby secure the shutter in a fixed open or closed position, substantially as and for the purpose specified.

190,997. PROCESSES OF ORNAMENTING CARD-BOARD. A. Adams and A. Bott, Albany, N. Y. [Filed Apr. 9, 1877.]

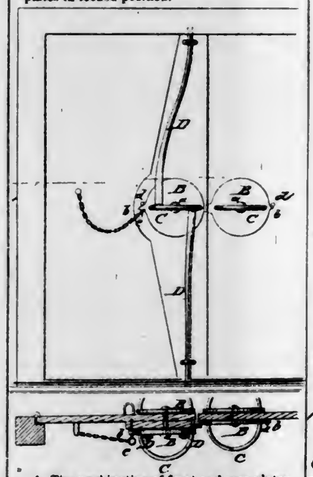
1. The process herein described of ornamenting card-board in imitation of the embossed card-board of commerce, consisting in printing thereon any desired design with a transparent or semi-transparent varnish in lieu of the colors or inks usually employed, substantially as and for the purpose specified.

2. The process of producing ornamental designs on card-board, consisting in first providing the surface or surfaces with a coating composed, essentially, of blanc fixe, Creamnits white, and glue, or their equivalents, then printing the desired design in a transparent or semi-transparent varnish, and, finally, subjecting the surface so printed to the action of polishing-brushes, substantially as described.

3. As a new article of manufacture, ornamental card-board of any desired tint or ground color, having a design on its surface printed with a transparent or semi-transparent varnish in representation and imitation of embossing, substantially as described and shown.

190,998. DOOR-FASTENINGS. C. R. Arnold, Bloomingdale, N. Y. [Filed Oct. 23, 1876.]

Brief.—As an improvement on Patent No. 175,899, April 11, 1876, the barn-door fastening-disks are provided with eccentrically-pivoted sliding bolts, suitably guided, and projecting upward and downward to lock the inner of a pair of doors firmly in position. There are also suitable stop-pins and fastening devices to hold the lip or tongue of the disk-plates in locked position.



1. The combination of front and rear plates B, having handles or buttons C, and turning on a connecting center-bolt, *a*, passing through the door, with eccentrically pivoted and sliding lock-bolts D D, operated by the plates from either side of the door, substantially as and for the purpose set forth.

2. The combination of the turning front and rear plates B of a door, having handles or buttons C and lip or tongue extension *b*, with fixed stop-pins *c d* and suitable fastening devices, substantially as set forth.

190,999. BRUSH-MACHINES. J. D. Baker, Burlington, Vt. [Filed Feb. 23, 1877.]

Brief.—Bristles, tampico, and analogous materials are carried forward upon a feeding-belt to a drum and wheel, and held and dressed by rotating combs and movable butters.

1. The feeding-wheels F and F', with corrugated peripheries, one of them revolving in stationary bearings, while the other is vertically adjustable, substantially as and for the purpose specified.

2. The combination of the vertically-adjustable feed-wheel F' with a bifurcated adjusting-lever, in the manner and for the purpose described.

3. In a machine for dressing tampico or other similar material, the combination of the feed-wheels, having corrugated peripheries, with a longitudinally-ribbed endless feed-belt, substantially as set forth.

4. The peripherally-corrugated feed-wheels and the longitudinally-ribbed feed-belt, in combination with the delivery-belt E and table S, as and for the purpose specified.

5. The combination, with a peripherally-grooved and vertically-swinging tension-pulley, of a centrally-ribbed feeding-belt, H, as and for the purpose set forth.

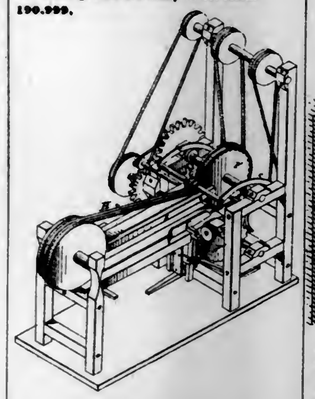
6. The feed-wheel F, in combination with the grooved and swinging tension-pulley K and feed-belt H, as and for the purpose described.

7. The horizontally-vibrating butters, provided with the pivoted pendants *m*, in combination with the cam A and its operating mechanism, as specified.

8. The horizontal lever *w*, in combination with the butters and their operating devices, as and for the purpose set forth.

9. In a machine for dressing tampico or other fibrous material, the combination of the following instrumentalities, viz: a feeding-table, a centrally-ribbed feed-belt, the vibrating and movable butters, rotating scutchers, the peripherally-corrugated feed-wheels, the swinging tension-pulley, and a delivery-belt and table for taking away the dressed product of the machine, all the parts being constructed and arranged substantially as set forth.

190,999.



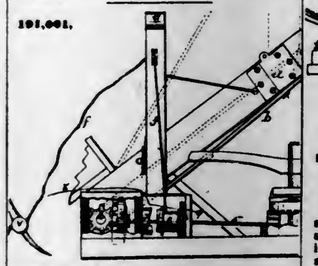
191,000. OIL-CAN SPOUTS. H. C. Campbell, Allegheny, Pa. [Filed Aug. 31, 1876.]

Brief.—Employs felting in a groove in flange of spout to insure a tight joint.



In combination with the head of a can, the spout C, having flange *c*, with the fastening device D, extending partly about the pouring-orifice, and having a recess adapted to receive the flange of the spout, and the covering-plate B, as and for the purpose shown and described.

191,001.

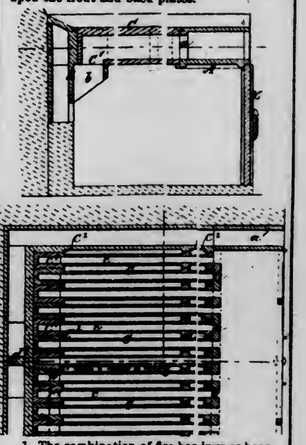


191,001. HAY-STACKERS. J. Chase, Langworthy, Iowa. [Filed Apr. 3, 1877.]

The combination of the driving-shaft 5, clutch 7, sliding drum 6, hay-fork 9, ropes *f* 8, and the endless belt *b* and its driving-pinions 2 3, whereby the fork can be operated at the same time and by the same power as the belt *b*, or thrown out of gear at will, substantially as described.

191,002. FURNACE-GRATES. Casimir Deguine, Boulogne-sur-Mer, France. [Filed Apr. 11, 1877.]

Brief.—Air passes through a front hollow lead-plate into hollow grate-bars registering therewith; thence through said bars, the rear ends of which are closed, but open downward into the ash-pit through a rear divided chamber, also communicating with side flues, through which an additional supply of air is admitted. The ends of the grate-bars rest upon the front and back plates.

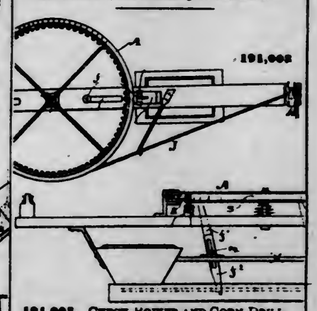


1. The combination of fire-bar lugs or bearers A B, having openings *a b*, and the hollow fire-bars C, receiving air at their front ends by the openings *a*, and terminating in downward openings C' at their rear ends, communicating by the openings *b* with the ash-pit, substantially as set forth.

2. The combination, substantially as hereinbefore set forth, of the ash-pit, the hollow fire-bars delivering the air downward into said pit at their rear ends, the side flues and the back flue by way of which the heated air passes to the ash-pit beneath the fire-bars.

3. The combination of the ash-pit, the side flues, and the rear flue, having a central partition and apertures at the sides of partition, to direct the heated air to the ash-pit in divided currents, substantially as set forth.

191,002.



191,002. CHECK-ROWER AND CORN-DRILL. S. De Vaux and J. Rosser, La Fayette, Ind.; said De Vaux assignor to said Rosser. [Filed Jan. 20, 1877.]

Brief.—The operating-rope is passed around and held against the horizontal sheave by small grooved sheaves turning in spring-bearings. The levers are each made in two parts, and each provided with slots for adjustment

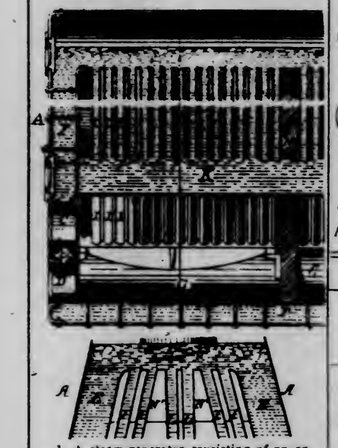
is length, the bolt that fastens them together forming the fulcrum. The upper end of each lever is provided with a roller, that is struck by cams on the horizontal sheave as it is revolved for actuating the cord-slide.

1. The combination of the horizontal sheave A of a check-rower, the rope J passing completely round the same, and the grooved sheaves P turning in spring-bearings and revolving in contact with the rope at opposite sides of the sheave A, as set forth.

2. The combination of the sheave A, fulcrum-bolts m, and levers, consisting of bars f^1 f^2, having coinciding slots receiving the bolts m and clamped thereto, as and for the purpose set forth.

191,004. STEAM-GENERATORS. J. Firmenich and G. Firmenich, Buffalo, N. Y., assignors of one-third their right to F. Firmenich, same place. [Filed Apr. 4, 1877.]

Brief.—An auxiliary heating-chamber connects with the two water ends of the boiler, and connected to the crown-sheet by a series of tubes. The water-legs are provided with inner projecting protuberances, also connected with the crown-sheet, through which connections a free circulation of the water is provided for



1. A steam-generator consisting of an exterior shell, A, having inwardly-protuberating parts, G, and a double series of straight heating-tubes, I, arranged obliquely, and connecting the parts G with the crown-sheet of the interior shell E, as set forth and described.

2. A generator in which the interior shell E is provided with an auxiliary heating-tube, K, attached to the front and back heads of the interior shell, and connected with the crown-sheet thereof by a series of heating-tubes, L, as described, for the object stated.

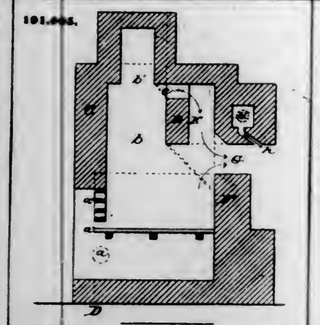
3. A steam-generator consisting of an exterior shell, A, an interior shell, E, having longitudinal inwardly-protruding parts G, connected with the crown sheet by a double series of heating-tubes, I, and a heating-tube, K, also provided with heating-tubes L, the whole arranged as described, for the use and purpose stated.

4. A steam-generator consisting of an exterior shell, A, an interior shell, E, having longitudinal inwardly-projecting parts G, connected with the crown-sheet by a double series of heating-tubes, I, a heating-tube, K, provided with heating-tubes L, as described, said interior shell being divided by the wall or walls N N^1 into combustion-chambers, the rear one of which is in communication with the exterior through the flue P, the whole constructed and arranged as described, for the use and purpose set forth.

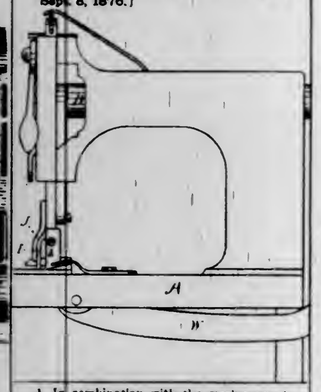
191,005. FURNACES. J. Jenkins, Buffalo, N. Y. [Filed Oct. 16, 1876.]

The combination of the gas-generating chamber *b* b^1, division D, provided with conduits *c* and passages E and G, with air-chamber H leading into said passage G, where the gases meet and intermingle with gases and flame from the main combustion-chamber, in the manner and for the purpose substantially as herein described.

191,006.



191,006. MACHINES FOR CUTTING AND FOLDING LEATHER. John W. Lufkin and Richard H. Lufkin, Chelsea, Mass. [Filed Sept. 8, 1876.]



1. In combination with the work-supporting bed A and vertically-reciprocating cutter *b*, arranged with the line of its edge at right angles to the line of feed, the shearing block T, arranged relatively to the cutter, as described, whereby the path of the cutter is coincident with the vertical face of the block, and the material is cut by the shearing action of the block and cutter, all substantially as described and shown.

2. In combination with a work-supporting bed, A, and a vertically-reciprocating cutter, *b*, of the reciprocating feed-bar J and presser-bar I, arranged to operate above the work, and to alternately act upon and recede therefrom, whereby it is alternately fed forward by bar J, and held in position by bar I for the action of the cutter, substantially as described and shown.

3. In combination with a cutting-blade, *b*, and a feeding and retaining mechanism, as described, of the folding-block U, and reciprocating fold-presser W, when arranged to operate relatively to and conjointly with each other, substantially as described and shown.

4. In combination with a vamp cutting and folding mechanism, an elastic or yielding reciprocating fold-presser, substantially as described and shown.

5. In a vamp cutting and folding machine, and in combination with mechanism for cutting, feeding, and folding the work, a device for automatically applying an adhesive material to the edge to be folded, substantially as and for the purposes specified.



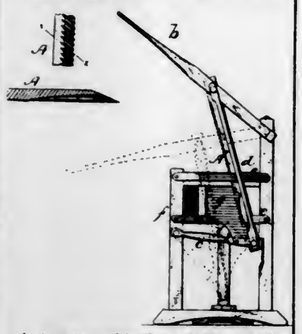
191,007.

191,007. ADJUSTABLE GUARDS FOR SCREW-PROPELLERS. A. Marschall, New York, N. Y. [Filed Mar. 10, 1877.]

1. The combination of a propeller, B, with the perforated encircling shield C, which is entirely smooth on its inner side, substantially as and for the purpose herein shown and described.

2. The adjustable shield C, herein described, fastened to the body of a vessel, A, by means of rods *a* and eyes *b*, substantially as specified.

191,008. STRAW-CUTTERS. T. H. Marable, Petersburg, Va., assignor of one-half his right to J. C. Blake, same place. [Filed Mar. 30, 1877.]



1. As a new article of manufacture, a knife adapted for hay and straw cutting machines, having a wide thin blade, with one side flat and serrated and the other side beveled and smooth, and provided with means for attaching it at both ends to operating arms or levers, substantially as described.

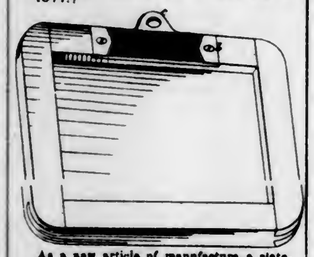
2. The combination of the knife and operating-arm *b* with the stiff rod or bar *d*, arranged outside of the knife-blade, substantially as described.

3. The combination of the knife A and the levers *b* and *c*, articulated to their supports on opposite sides of the knife, substantially as described.

4. The combination of the knife, levers *b* and *c*, and stiff bar *d*, substantially as described.

5. The combination of the levers *b* and *c*, the knife, the bar *d*, and the gage *g*, arranged between the bar *d* and the knife, substantially as described.

191,009. SLATE-FRAME ATTACHMENTS. K. F. Meyer, Auburn, N. Y. [Filed Apr. 2, 1877.]

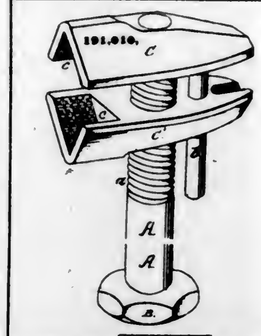


As a new article of manufacture, a slate-frame attachment consisting of a flat serrated base-plate, C, provided with a loop, *c*, the said plate and loop being made in one piece, and otherwise constructed substantially as described.

191,010. WRENCHES. J. P. Mitchell, New Bedford, Mass. [Filed June 15, 1876.]

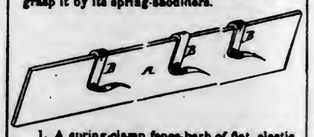
As an improved article of manufacture, an adjustable wrench, consisting of the handle A, with disk B and screw-thread *a*, jaws O O^1, the latter being threaded and both having grasping-surfaces at each end, and provided severally with recesses *c d*, and the rod *b*, connected to the jaw O and passing through the jaw O^1, substantially as and for the purpose set forth.

191,010.



191,011. FENCE-BARBS. Aaron J. Nellis, Pittsburg, Pa. [Filed Mar. 15, 1877.]

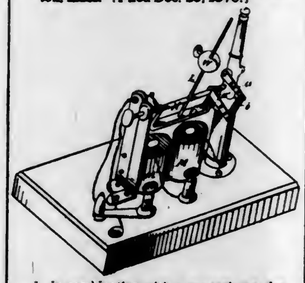
Brief.—The barb has a central opening, from which two lateral points extend, and can be placed upon a flat fence-rail, and made to grasp it by its spring-shoulders.



1. A spring-clamp fence-barb of flat, elastic metal, substantially as and for the purpose specified.

2. In combination with a fence rail or strip A, a detachable elastic metal spring-clamp barb B, substantially as and for the purpose specified.

191,012. OPENING AND CLOSING GAS-COCKS BY ELECTRO-MAGNETISM. D. M. Smyth, East Northwood, N. H., assignor of one-half his right to G. L. Ward, Boston, Mass. [Filed Dec. 29, 1876.]



1. In combination with a gas-cock, an electro-magnet, and a weight moved by said magnet, and operating to effect the opening and closing of the gas-cock by the force of the momentum which the weight acquires by its movement, substantially as and for the purpose set forth.

2. The combination, with the gas-cock, of the electro-magnet, the swinging armature, having the weighted arm, or its equivalent, attached thereto, and operating to move the cock, as described, and a device for breaking the circuit when the armature is fully attracted, and establishing the connections for giving reverse movement to the mechanism, substantially as and for the purpose set forth.

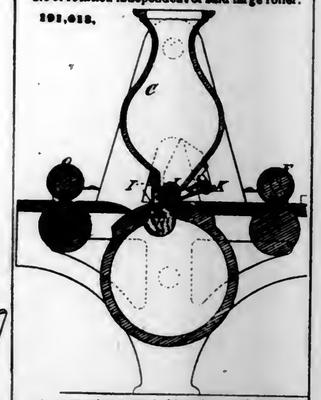
3. The combination, with the gas-cock, of the weighted arm and a lever attached to the gas-cock, substantially as and for the purpose set forth.

4. The combination, with the gas-cock, of the arm *a*, link *b*, arm *a'*, shaft H, arm I, adjustable weight W, armature O, electro-magnet M M, contact-arm *f*, circuit breaking and changing device, and the electric connections, substantially as and for the purpose set forth.

191,013. BAG-MACHINES. Edwd. Stanley, Brooklyn, N. Y. [Filed Dec. 30, 1876.]

Brief.—The bottom flap of a bag is pasted and creased by means of a creasing-blade, paste-roller, and detaching-plate, all of which are secured to, and move with, the paste-reservoir, said creasing-blade acting against the periphery of a rubber roller located within a large revolving drum or roller, and being capable of rotation independent of said large roller.

191,013.



1. A moving paste holder, C, provided with the paste-roller J, and the roller H, coupled to move coincidently, combined with a creasing-blade, I, attached to said holder C, and an elastic surface, L, attached to said roller H, but capable of motion corresponding with said blade, and independent of the motion of roller H, substantially as described.

2. A moving paste holder, C, with the paste-roller J, combined with the detaching-plate K, pivoted to the outer side of said holder, and actuated in one direction by a spring, and in the opposite direction by contact with the roller H, substantially as set forth.

3. An automatic detaching-plate, K, pivoted to the paste-holder, and provided with an opening through which the paste-roller can protrude without touching.

4. The oscillating paste-holder, in combination with the detaching-plate K, pivoted to blocks on the outer side of the paste-holder, and the actuating-spring *s*, substantially as and for the purpose set forth.

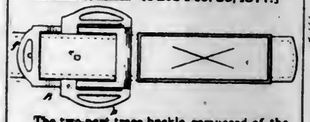
5. The oscillating paste-holder, in combination with the creasing-knife I, and elastic roller L, mounted within the periphery of roller H, substantially as and for the purpose set forth.

6. The creasing-blade I, in combination with the elastic roller L, substantially as and for the purpose set forth.

7. The creasing-blade I, in combination with the detaching-plate K, elastic roller L, and main roller H, substantially as and for the purpose set forth.

8. The oscillating paste-holder C, in combination with the creasing-blade I, detaching-plate K, elastic roller L, and main roller H, substantially as and for the purpose set forth.

191,014. TRACE-BUCKLES. W. B. Walker, Mankato, Minn. [Filed Feb. 26, 1877.]

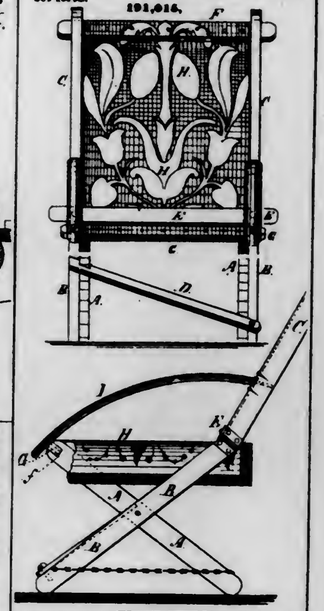


The two-part trace-buckle composed of the hame-tag frame part A, having the cross-bars *a* and *c* and the side loops *b b*, with the interlocking part B shaped as shown, having at one end a cross-bar with the downwardly-projecting lug *d*, and at the other end a cross-bar and loop, *f*, the two parts co-operating and connected with the trace, as shown and described.

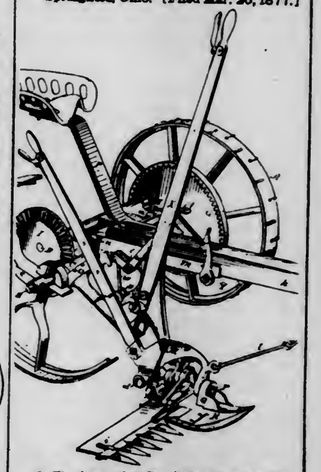
191,015. FOLDING ARM-CHAIRS. Wm. A. Webb, Brooklyn, N. Y. [Filed Sept. 20, 1876.]

The folded chair, comprising the pivoted crossed legs A B, the hinged back-bars C, the oblique leg-brace D, the cross-bar or top brace F, the brace E, the flexible fabric H, and front cross-bar G, and spring-arms I, arranged to spring into the socket H in the hinged side bar O of the back, the whole constructed and combined for use and operation substantially as and for the purpose herein set forth.

191,016.



191,016. MOWERS. William N. Whiteley, Springfield, Ohio. [Filed Mar. 26, 1877.]



1. The inner shoe R and inverted shoe M, united by a longitudinal joint coincident with the axis of the crank-shaft, combined with said crank-shaft, when crank is in line with the cutting apparatus, and united with the cutters by a pitman, substantially for the purpose set forth.

2. The inverted frame or shoe M, connected with the shoe R by a longitudinal joint coincident with the axis of the crank-shaft, and to the frame of the machine by a transverse joint in the same plane as the longitudinal joint, but in rear thereof, combined with the vibrating frame of the machine, substantially for the purpose set forth.

3. The cutting apparatus and inner shoe R, jointed to and connected with the frame of the machine by means of the inverted frame or shoe M, having the transverse and longitudinal joints, as described, combined with the short crank-shaft L, provided at its rear end with the universal or gimbal joint, as described, and for the purpose set forth.

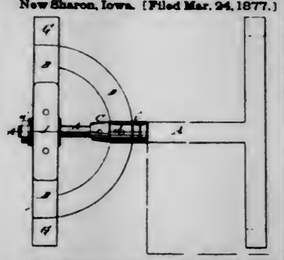
4. The vibrating frame, as set forth, and bifurcated at its free end to form the transverse joint with the inverted shoe M, and permit the universal or gimbal joint W to be placed and to operate in the line of the axis of said transverse joint, as set forth.

5. In combination, a crank-shaft in two parts, united by a universal joint W, and with the crank upon the shoe, in line with the cutter-bar, and inverted shoe or frame M, secured to the cutting apparatus by a joint concentric with the axis of crank, and to the vibrating frame *f* by a joint coincident with the transverse axis of the joint W, and a stripping-lever, N, and pivoted bolding-rack O, whereby the points of the cutters will rise or fall in an arc whose center is in rear of the finger-bar, and without a backward or forward movement during said rise or fall.

6. The cutting apparatus and vibrating frame, severally connected with the inverted shoe M by transverse and longitudinal joints, which coincidently intersect the intersection of the cross-axes of the universal joint W, combined with the tilting lever N and folding lever X, whereby said cutting apparatus is tilted upon an axis coincident with the intersection of the cross-axes of the universal joint W, and folded upon the axis of the crank, and either of said movements effected without stopping the cutters.

7. The vibrating frame and foot-plate *m*, jointed together as shown and described, combined with the foot-lever *u*, and automatic latch *r* directly in front of said foot-lever, as and for the purpose set forth.

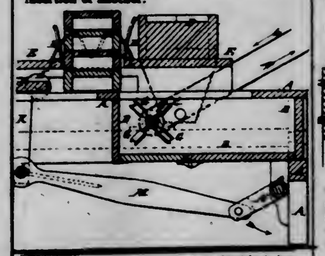
191,017. RUNNING-GEARS. M. Atwood, New Sharon, Iowa. [Filed Mar. 24, 1877.]



The combination of the rounded forward part of the reach A, the head-block B, the fifth-wheel D F, the forward axle G, the king-bolt H, the brace I, the collar C, and the saddle J with each other, in substantially the manner herein shown and described.

191,018. MACHINES FOR SANDING BRICK-MOLDS. S. W. Babcock, Haverstraw, N. Y. [Filed Sept. 2, 1876.]

Brief.—The bottom one of a pile of inverted molds is struck by the push-block into a chamber, where it is sanded by a revolving fan, and afterward struck out simultaneously with the insertion of another.

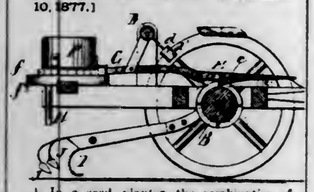


1. The combination, with slotted table A, box B, spouts C, bottom-inclined hopper D, and platform E, of the push-block I, provided with mechanism K L M N O, as shown and described.

2. The combination of the slotted mold-table A and a sand-box shaft, F, having paddles that pass during their rotations into said slots, as and for the purpose set forth.

3. The hopper D having its bottom inclined from the middle to a hole on each side, and connected by spouts C with the apertured sand-box B, to enable the sand to flow automatically from the former into the latter, as specified.

191,019. CORN AND SEED PLANTERS. H. F. Baker, Centreville, Ind. [Filed Mar. 10, 1877.]

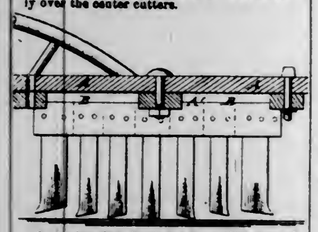


1. In a seed-planter, the combination of the axle B, carrying the ratchet wheel *b* and the notched lever E, with the pawl G and rock shaft D, carrying the weighted lever *d*, as and for the purpose set forth.

2. The seeding mechanism, consisting of the hoppers F, revolving perforated bottom *f*, fixed perforated bottom *f'*, and spout H, in combination with the operating mechanism *b* E and D G, and opening and covering mechanism I J J, as set forth.

191,020. ICE-PLOWS. J. F. Behm, Omaha, Nebr. [Filed Mar. 19, 1877.]

Brief.—Two parallel rows of cutters symmetrically arranged with relation to the center cutter, and having handles pivoted directly over the center cutters.



1. An ice-plow, having two parallel rows of cutters, arranged symmetrically with relation to the center cutters, so as to cut two furrows in either direction the plow may be moving, without turning, substantially as specified.

2. An ice-plow, having two or more parallel rows of cutters, which are arranged symmetrically with relation to the center cutters, and are of decreasing length toward the end cutters, said cutters being provided with outwardly-inclined cutting-edges for gradually cutting the required depth of furrows, substantially as specified.

3. The combination, with the lateral cross-pieces of an ice-plow, of a centrally-pivoted beam, and the fastening end bolts, whereby the handles may be swung and secured to either end without reversing the plow, substantially as and for the purpose specified.

191,021. MILK-COOLERS. E. D. Bennett Allegany, N. Y. [Filed Apr. 9, 1877.]

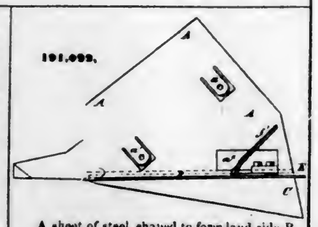


As an improvement in milk-coolers, a water-vat supporting a number of milk-pans on cross-strips, and being provided with one or more detachable partition-strips, substantially in the manner and for the purpose set forth.

191,022. PLOWS. J. D. Bowen, Roseburg, Oreg. [Filed Sept. 16, 1876.]

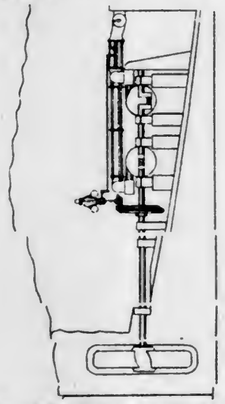
Brief.—A sheet of steel shaped to form a share, land-side, and land-side share.

191,022.



A sheet of steel, shaped to form land-side B and shares A C, the whole adapted to be connected with parts D E F G, substantially as shown and described.

191,023. MARINE-ENGINE GOVERNORS. W. A. Brice, London, England. [Filed Dec. 12, 1876.]

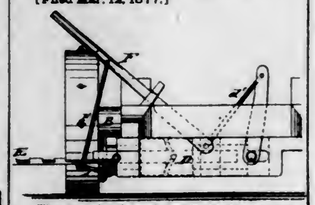


In a marine-engine, the combination of a two-part steam-pipe, or its equivalent, with a steam-valve, governor, and screw-shaft, with intermediate connecting and driving mechanism, substantially as described.

191,024. PROCESSES OF PREPARING AND PRESERVING CLAMS. H. W. Buttles, New York, N. Y. [Filed Mar. 2, 1877.]

The process of preparing and preserving clams by reducing them when fresh to a pulp in their own liquor, and desiccating the product, substantially as and for the purpose herein set forth.

191,025. MOWERS. J. H. Cain, Cana, N. C. [Filed Mar. 12, 1877.]

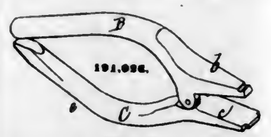


The combination of bar D, blades E, and hand-lever F, one of said blades being hinged to pin of bar D, and one connected by bail *d* with the hinged brace F', as and for the purpose specified.

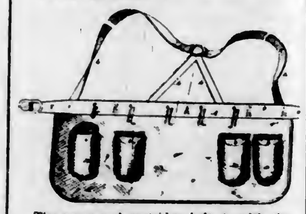
191,026. TOOLS FOR TIGHTENING AND FASTENING STRAPS FOR SECURING HOSE TO COUPLINGS. J. A. Caldwell, Boston, Mass. [Filed Apr. 19, 1877.]

The within-described tool for tightening and fastening metallic straps used in securing hose to couplings, consisting of the levers B C, pivoted together, and having jaws *b c*, one being provided with a groove or projection and the other provided or not with a projection, constructed to operate substantially as described.

191,027.

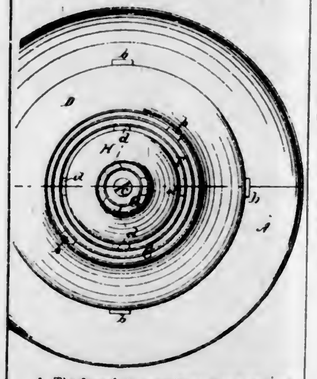


191,027. GAME AND CARTRIDGE BELTS. A. A. Case and E. W. Bedell, Chetopah, Kans. [Filed Apr. 2, 1877.]



The game and cartridge belt A, with the suspending-straps *b* and the hooks *c c* attached, and having the detachable flap A' suspended therefrom, provided with the ammunition pockets B, substantially as herein shown and described.

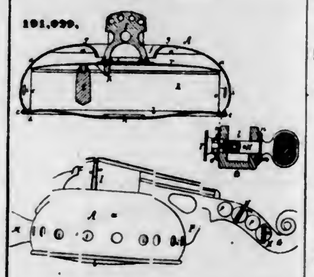
191,028. CLOTHES-WASHERS. J. W. Cheek, Asheville, N. C. [Filed Apr. 2, 1877.]



1. The funnel A, containing the perforated flaring part D, and the part E, the cylinder C, and piston F, having the perforated flaring-piece H and flange *f*, in combination, substantially as herein shown and described.

2. The removable handle I, having the flanged ferrule J, the spring K, piston F, cylinder C, and funnel A, having the tube B, in combination, substantially as herein shown and described.

191,029.



191,029. MUSICAL INSTRUMENTS. Michael H. Collins, East Medway, Mass. [Filed Apr. 30, 1877.]

Brief.—The instrument is of the violin class, and the changes are radical throughout. The screws have set-clamps. The body is circular. The sound-board has the grain of its wood running radially, and is free from the outer case, touching only the bridge and the back.

1. The sounding-board B, composed of the dome or top *r* and its annular supporter *e*, arranged as represented and described.

2. The circular case A, dome-shaped, and provided with the mouth or bridge hole, and elevated around the same, all substantially as set forth.

3. The sounding-board top, composed of sectors or sections *z*, in whole or in part, as shown arranged, and having the grain of the wood of each disposed lengthwise, as described.

4. The sounding-board top, composed of a series of sectors or sections, *z*, arranged as shown, and provided with the disk or bridge-rest *t*, as explained.

5. The combination of the circular and dome-shaped case A with the sounding-board B, composed of the top *r* and the annular supporter *e* thereof, all arranged as set forth.

6. The disk-bottom *b* of the case, provided with the flange *c* and groove *d*, in combination with the dome-shaped top, and with the sounding-board, arranged with and applied to such bottom, substantially as represented.

7. The spicer L, arranged and combined with the sounding-board, as set forth.

8. The bridge composed of three layers, *w x w*, of wood, having their grain arranged substantially as explained.

9. The neck D, provided with the auxiliary hand-rest E, arranged between the head G and the main hand-rest F of such neck, as set forth.

10. The neck D, open at its lower end, and arranged to project over and rest upon the case-dome, and chambered, as represented.

11. The elongated chin-rest M, having its upper and lower edges substantially parallel, as set forth.

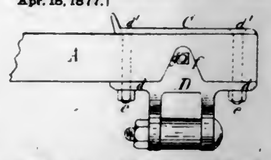
12. The head G, provided with the cross-braces *z*, arranged in its chamber *l*, and with reference to the straining-pins, all substantially as explained.

13. The straining-pin H, provided with the shoulder *m*, disk *o*, washers *n n'*, and clamp-screw *p*, and the head G, arranged as specified.

14. In combination with the dome-shaped top of the sounding-board, the curved brace K, arranged in the direction of, and under, the bass-string, as set forth.

15. The dome-shaped case, provided with the transverse braces *a' a'*, arranged in the crown and on opposite sides of the mouth of the dome, as described and shown.

191,030. PLATFORM-WAGON STEPS. C. Conderman, Hornellsville, N. Y. [Filed Apr. 18, 1877.]



1. The spring-coupling D, provided with horizontal flanges *d* and vertical flanges *f*, and secured to the bar A by bolts *e* and *g*, arranged at right angles to each other, substantially as and for the purpose hereinbefore set forth.

2. The combination, with the bar A, of the tread C and spring-coupling D, arranged respectively on the upper and lower sides of the bar A and connected thereto by the same bolts *e*, having their heads countersunk in the tread, substantially as and for the purpose hereinbefore set forth.

191,031. WATER-METERS. John H. Connell, Kanawha C. H., W. Va. [Filed Sept. 9, 1876.]

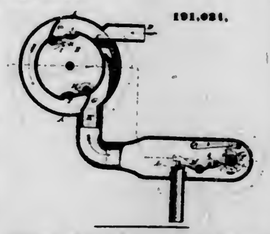
Brief.—The valve is opened wide by a sudden impulse, giving a full supply of water to the piston and buckets. The piston, with its hinged valves or buckets, is regulated by stationary and cushioned abutments.

1. The combination of the piston B, hinged valves G, cushions J, and stationary abutment C, as and for the purpose set forth.

2. The combination of the recess *a* with the pivoted valves G, arms H, and stop I, as set forth.

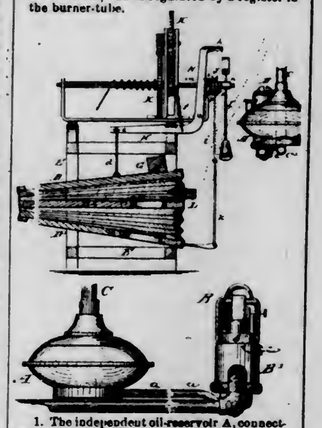
3. The combination, with the meter A B D E G, of a discharge-valve, L, opened by a sudden impulse, as explained, so as to prevent the retention of the valve in a slightly-open position.

191,031.



191,032. PNEUMATIC LAMPS. G. W. Cook, Chicago, Ill. [Filed Apr. 3, 1877.]

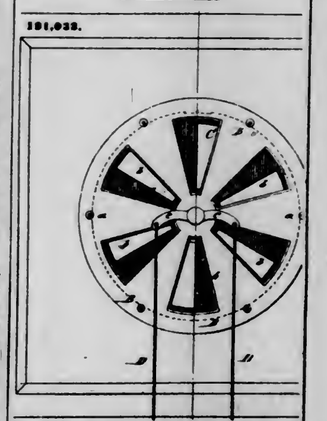
Brief.—Air is forced to the burner by means of a bellows, and is regulated by a register in the burner-tube.



1. The independent oil-reservoir A, connected to the burner B by means of pipe *a*, in combination with the air-pipe, C C', chamber B', and cut-off *k*, all constructed substantially as and for the purpose set forth.

2. The combination of the bellows D D', rod *d*, elbow-lever H, with stop *h*, pulley J, chain *i*, pendulum-lever I, clutch *p*, and gearing K, all constructed and arranged to operate substantially as and for the purposes herein set forth.

191,033.



191,033. VENTILATORS. Chas. B. Darling, Lewiston, Me., assignor of two-thirds his right to H. Free and J. B. Lydston, same place. [Filed Apr. 30, 1877.]

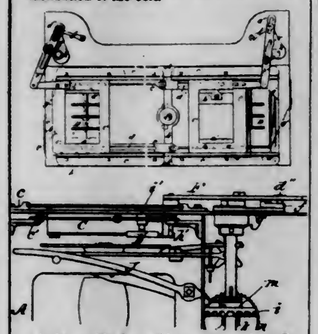
Brief.—This ventilator has radially-recessed face-disks clamped to the glass-frame, and having an intermediate pivoted disk, with corresponding recesses, that are set by a crank-lever and cords into a closed position.

1. The combination of radially-recessed face-disks, clamped to the glass pane with a correspondingly-recessed inner disk that is centrally pivoted and adjusted between the same, to open or close the ventilator, substantially as described.

2. The combination of the recessed face-disks B, clamped to the pane, and inner disk C, having central pivot and crank-arms, and operating-cords D, substantially as specified.

191,024. MACHINES FOR SAWING SHINGLES. Thos. H. Delaney, Angelica, Wis. [Filed Dec. 2, 1875.]

Brief.—The shingle-bolts are held by suitable dogs (one of which is automatic) in two carriages, (either of which may be thrown out of action independent of each other,) alternately reciprocating in shouldered guides supported in the top of the main frame. While being fed to a circular saw attached to a vertical arbor, the upper part of which is mounted in a rocking bridge-tree, the carriages have a rapid movement forward and a slow movement backward, and cease motion for an instant when at the outer ends of the frame, to allow the blocks which are then released to drop upon a tilting table, for changing the inclination of the bolt.



1. In a shingle-machine, a saw-arbor, B, having its lower end mounted in an adjustable bar, *a*, and its upper end mounted in a rocking bar, *b*, as shown.

2. In combination with the main frame, having its top cast in a single continuous piece, the shouldered carriage-guides *c*, applied to the top of the frame, with their shoulders *d* bearing against the inside of the same, as shown, whereby a solid unyielding support is provided for the carriages.

3. In combination with the sliding carriage C, the slotted vibrating arm F, crank *e*, eccentric *h*, eccentric yoke *g*, and swinging arm *f*, provided with the pivot pin or stud *f'*

4. The combination, substantially as shown and described, of a sliding carriage, a crank and slotted arm for moving said carriage, and an eccentric arranged to move the fulcrum of the arm to and from the axis of the crank, for the purpose of advancing the carriage rapidly and retracting it rapidly.

5. The combination of the driving-shaft I, provided with the pinions *k*, the carriage-operating shafts G, provided with the loose wheels *i* and clutches *m*, and the two hand-levers J, arranged as shown, so that either carriage may be thrown out of action at will by the operator, standing at his post, without stopping the machine.

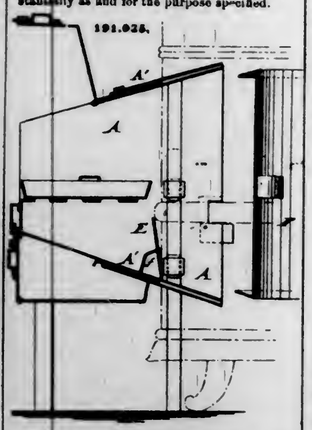
6. In combination with the cam *t*, the tipping table D, provided with the rigid arm *t'* and hinged arm *u*, connected by the screw *w*, as shown.

7. In combination with the sliding carriage D, provided with the studs *t'*, and the sliding dogs *b'*, provided with the studs *h'*, the pivoted bars *o'*, provided with the spring ends, slots *s'*, and inclines *o'*, and connected with each other by links *g'*.

191,025. BAKERS. L. Drew, Irving, Wis. [Filed Mar. 3, 1877.]

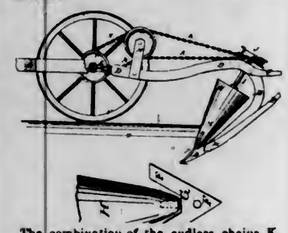
1. A baker whose inclined bottom A' is provided with a deflecting-plate, B, connected therewith by side arms *f*, as and for the purpose set forth.

2. The detachable cover F, fitted by top, side, and bottom flanges to the baker, substantially as and for the purpose specified.



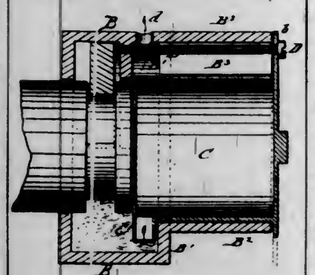
191,026. REVOLVING CONICAL MOLD-BOARDS. Chas. V. Dyer, Hallsville, Tex. [Filed Dec. 26, 1874.]

Brief.—Shovel-plow points, above which are fitted revolving conical mold-boards, set nearly vertical. They are geared from the axle, and revolved by the forward movement of the machine.



The combination of the endless chains K and N and the chain-wheels J L O with the spindles I of the cones H, with the plow-beams D, and with the axle B and wheels C, substantially as herein shown and described.

191,027. CAR-AXLE BOXES. R. B. Eason, New York, N. Y., assignor to himself and S. A. Allen, same place. [Filed Apr. 2, 1877.]



1. The combination, with a car-axle box, having cylindrical guide-extensions, of a revolving oil-receptacle, having exit-spout at its lower end in contact with the packing of the box, substantially in the manner and for the purpose specified.

2. The combination of the car-axle box B, having cylindrical extensions B^1 B^2 and top channel B^3 with a flanged revolving oil-receptacle D, having exit-spout O', passing in through the top channel, substantially in the manner and for the purpose specified.

3. The combination of the car-axle box B, having extensions B^1 B^2 and top channel B^3, with the extension-flange *b* of the oil-receptacle and fastening bolt D, to lock the oil-receptacle securely in position, substantially as specified.

4. The combination of the car-axle box, having extension B^1 B^2 and top channel B^3, with entrance-hole *d* of a revolving oil-receptacle, C, having exit-spout O', to admit filling of the same on withdrawing of fastening-bolt, substantially as specified.

191,028. CIGAR-BOXES. A. B. Ebert, Knoxville, Tenn. [Filed Apr. 2, 1877.]



1. The combination of a cigar-box, having a perforation in one of its sides for the insertion of the ends of the cigars, with a cutting-knife, B, operated by the cover, substantially as specified.

2. The combination of a cigar-box, having perforation and knife-guiding recess, and operated by the hand or cover, with a pivoted and spring-acted cigar-cutting knife, retained by a stop-pin in the recess, substantially in the manner set forth

3. The pivoted and spring acted cutting-knife B, arranged in a cigar-box, and having extension, with bent top or shoulder for depressing knife by finger or lid, substantially as described.

191,029. CLAMPS OR DEVICES FOR ATTACHING HOSE TO COUPLINGS. David T. Ellis, Ware, Mass., assignor to the Belknap Manufacturing Company, Bridgeport, Conn. [Filed Apr. 7, 1877.]



1. A hose-clamp consisting of a main strip with apertures in its ends, in combination with an auxiliary strip adapted to pass through the apertures of the main strip, with its ends projecting therefrom, to afford bearings for an instrument by which the clamp is applied, the ends of the auxiliary strip being bent over to lock the clamp in place, substantially as described.

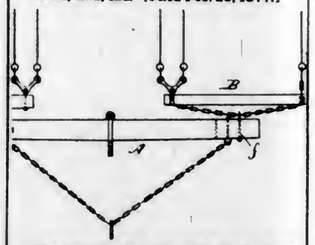
2. The combination, substantially as hereinbefore set forth, of the hose or pipe, a coupling or splice inserted therein, and a clamp to securely connect the hose and coupling together, consisting of a main strip with apertures in its ends, and an auxiliary forcing-strip passing through the apertures in the main strip, and having its ends bent over to lock the clamp in place.

191,030. VEHICLE-SPRINGS. F. W. Faber, Columbus, Tex. [Filed Mar. 12, 1877.]



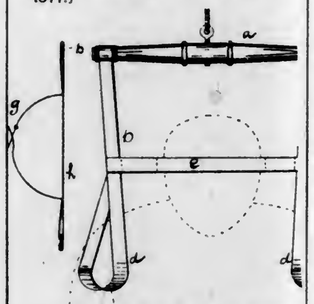
The combination of the spring *D*, yokes E, and the ordinary suspended spring A, substantially as herein shown and described.

191,041. DRAFT-EQUALIZERS. L. W. Frederick, Hall, Ind. [Filed Feb. 26, 1877.]



The combination of the whiffletree B, chain *e*, hook-bolt *f*, and main bar A, substantially as herein shown and described.

191,042. RESPIRATORY BRACES. George F. French, Portland, Me. [Filed Apr. 5, 1877.]



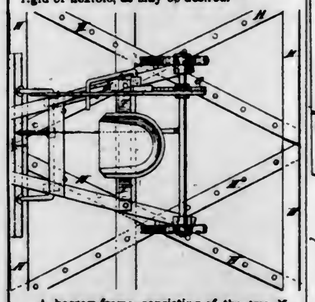
1. A respiratory brace or rest for invalids or others, as herein described, in which the body is supported in an upright posture by bands passing under the arms or armpits and around the head, the same being attached to a bar suspended over the user, as herein described.

2. The combination of the bar *a*, braces *b*, having loops *d* and cross-piece or head-band *c*, with an opening formed by the parts *g h*, the said cross-piece or head-band being adjustable on the braces *b*, as set forth.

3. The combination, with the bar *a*, of the elastic braces *b*, elastic or non-elastic cross-piece or head-band *c*, made adjustable to the wearer's head, and also to the braces *b*, as herein set forth.

191,043. SULKY-HARROWS. G. M. Furman, Laclede, Mo. [Filed Mar. 19, 1877.]

Brief.—A wheel-harrow having a frame divided into two parts, X-shaped, and united together with bolts and hinges, to be either rigid or flexible, as may be desired.



A harrow-frame, consisting of the two X-frames H H, rear-hinged at *h'* and bolted at the front through plate *h²*, as shown and described.

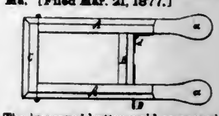
191,044. PUMPS. J. F. Furnas and W. W. Furnas, Dysart, Iowa. [Filed Sept. 16, 1876.]

Brief.—The piston is worked from the bottom of the pump by external rods, connecting with a hand-lever fulcrumed at the top of the pump.



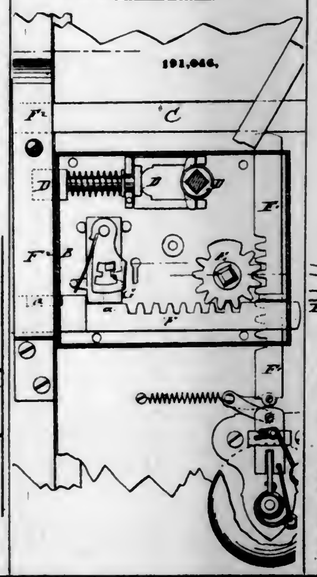
A pumping apparatus consisting of the cylinder A, having barrel B and chamber B^1, valved piston, the rods *c*, the outer rod C', and the lever D, all constructed and arranged as shown and described.

191,045. BUTTER-MOLDS. S. Giles, Patten, Me. [Filed Mar. 21, 1877.]



The improved butter-mold composed of the four end and side boards or plates A A B C, arranged and hinged together, and having handles *a a*, and a locking-tongue, D, and a hole, *c*, for its reception, all being substantially as set forth.

191,046.

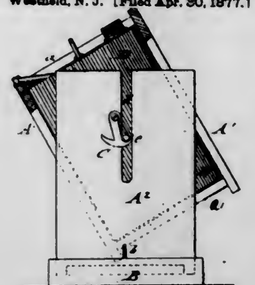


191,046. ALARM-LOCKS. G. W. Graham, Grand Junction, Tenn. [Filed Apr. 16, 1877.]

1. The combination of toothed bolts F F^1, arranged at right angles to each other, with an operating cog-wheel, E, and cross-bar C, for simultaneously withdrawing or locking bolt F and raising or lowering cross-bar C, substantially as and for the purpose set forth.

2. The combination of the toothed bolt F, having recess *a*, and toothed upright bolt F^1, with a key-bolt, G, intermeshing cog-wheel E, and cross-bar C, to retain lock and cross-bar in open or closed position, substantially as specified.

191,047. OIL-CANS. J. Graves, New York, N. Y., assignor to himself and J. L. Miller, Westfield, N. J. [Filed Apr. 20, 1877.]



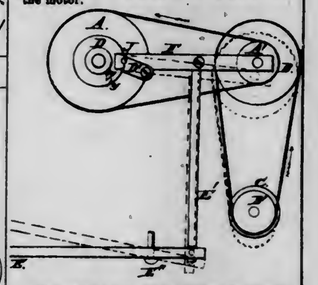
1. A case for packing oil-cans for transportation, consisting of an inner section, A^1, attached by top cross-strips to can, of a detachable outer section, A^2, and of a lid, B, substantially in the manner described, and for the purpose specified.

2. The combination of the case A, having guide slots and pivot-hooks C, with side trunnions of the can to support the same in raised position for tilting, substantially as specified.

3. The combination of the can D, having side trunnions, outer section A^2, having side slots, and pivot-hooks C, inner section A^1 attached to can, and lid B having staples for entrance of locking-hooks to secure case firmly to can, substantially as specified.

191,048. BROOM-WINDING MACHINES. J. Gray, Schenectady, assignor of one-half his right to Chas. H. Toll, Scotia, N. Y. [Filed Oct. 27, 1876.]

Brief.—A tilting frame carrying a shaft and the intermediate pulleys on its outer end can be raised at will to connect the mandrel with the motor.



The combination of the barrel H, having thereon pulley A, with pulley A' and belt X, pulleys B and B', and belt X', oscillating frame F, treadle E, and stem E', substantially as and for the purposes shown and set forth.

191,049. APPARATUS FOR ELEVATING LIQUIDS. Thomas Hanson, New York, N. Y. [Filed Oct. 9, 1876.]

Brief.—The admission of the liquid or motive agent is regulated by the float in the main cylinder acting upon the valve.

1. The combination of a main cylinder or vessel provided with induction and eduction passages, a float-piston or float and piston, and a valve controlled by said float-piston or float and piston, and regulating the admission of the motive agent, substantially as set forth.

2. The combination, with a main cylinder provided with induction and eduction passages, and a float-piston or float and piston, and valve controlled by the latter to regulate the admission of the motive agent, of a push-piece for completing the throw or stroke of said valve, substantially as set forth.

3. The combination, with a main cylinder provided with induction and eduction passages, and a float piston or float and piston, and valve controlled by the latter to regulate the admission of the motive agent, or a stop for such valve, substantially as set forth.

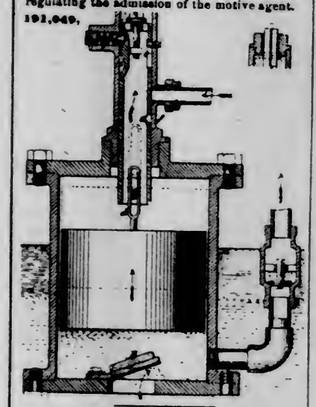
4. The combination, with a main cylinder provided with induction and eduction passages, and a float-piston or float and piston, and valve controlled by the same for regulating the admission of the motive agent, of a vent and a valve therefor, substantially as set forth.

5. The combination, with a main valve for regulating the admission of the motive agent to the main cylinder, of a guide for retaining its port in proper position, substantially as set forth.

6. The combination, with a push-piece and stop for the main valve regulating the admission of the motive agent, of an adjustable and removable bearing-piece, substantially as set forth.

7. The combination, in an apparatus, substantially as described, for elevating liquids, of the slotted rod on the float-piston, and the pin with which it engages on the main valve regulating the admission of the motive agent.

191,049.



191,050. FRUIT-JARS. Catherine Hastings, Oswego, N. Y. [Filed Apr. 30, 1877.]

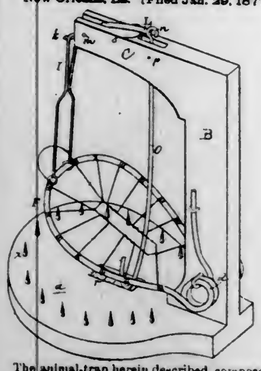


The combination of the lugs A and the wire bail B with the metallic screw-band E, that secures the glass cover D to the glass jar C, substantially as herein shown and described.

191,051. HARNESS-TUGS. O. Hauff, Ashland, Ohio. [Filed Apr. 9, 1877.]

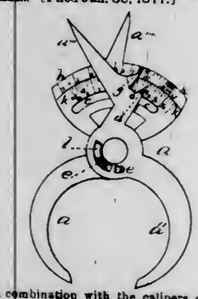
The combination, in a thill-carrier, of the ring A, strap B, and the wedges C, as shown and described, for the purpose specified.

191,052. ANIMAL-TRAPS. P. A. Herbert, New Orleans, La. [Filed Jan. 29, 1877.]



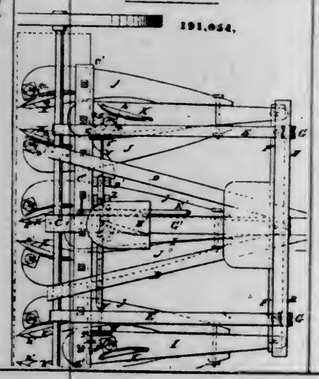
The animal-trap herein described, composed of a spiked platform, a, provided with a recess, r, and with an upright stem, B, on each side of which is secured the spring ends d e of a wire frame, F, which is furnished with a hook, I, for engaging one end of a lever, L, that is pivoted in the beam C, so as to be operated by a trigger, O, as described, and for the purpose set forth.

191,053. GAGES. Frank K. Hesse, Boston, Mass. [Filed Jan. 30, 1877.]



In combination with the calipers a' a'' a''' a'''', provided with the index-finger d and graduated scale k, the wire-gage e e', attached to the legs a' a'', the former projecting through the slot l, the index-finger y, and graduated scale k, all combined and arranged substantially as and for the purpose herein described.

191,054.

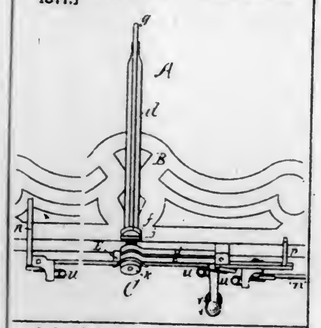


191,054. CORN-PLANTER AND GRAIN-DRILL. John L. Hill, Climax, Kans. [Filed Feb. 26, 1877.]

1. The combination of the recessed cylinders S, the gear-wheels T U, the rod V, the ratchet-wheel W, the push and the pull pawls X Y, the bar Z, and the lever A', as herein shown and described.

2. The combination of the seed-boxes M, the slides Q R, the brushes O, and the springs P, with the recessed hubs of the concaved rotary cutters K, and with the beams I J, substantially as herein shown and described.

191,055. LEAF-TURNERS. D. W. G. Humphrey, Chelsea, Mass. [Filed Mar. 31, 1877.]



1. In a leaf-turner, the holder or binder A, constructed with the binding-bar g, the pivoted back d, and the yielding pivoted support e, substantially as described and shown.

2. The leaf-turning device consisting of the pivoted arms o o', the hinged leaf guards P, and the weighted finger-bars r, all constructed and arranged to operate substantially in manner as described and shown.

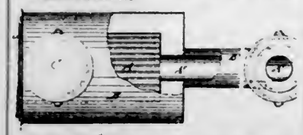
3. The combination of binder A, rack B, pivoted guards s s', for securing the idle leaves, and the turning device, all substantially as described and shown.

4. In combination with the binder, as described and shown, the idle-leaf guards s s' and the leaf-turning device, as described and shown.

5. In a music or leaf turner, a series of weighted arms, o o', when arranged to operate substantially as described and shown.

6. In a leaf or music turner, the combination of the series of weighted arms o o' and leaf-forks p p', constructed and combined to operate substantially in manner as described and shown.

191,056. CAR-HEATERS. H. O. Huntington, Saginaw City, Mich., assignor to himself and S. S. Perkins, same place. [Filed Mar. 24, 1877.]



The case B, with apertures a, and the pipe B', with apertures b, each provided with a drum, C, in combination with a car-furnace, A, having pipe A', as and for the purpose specified.

191,057. STONE-DRILLING MACHINES. F. Johnson, Toledo, Ohio. [Filed Mar. 3, 1877.]

Brief.—The cylinder carrying the drill-shaft is raised, turned, and dropped by means of the crank-shaft and the connecting mechanism. A pawl is used to hold the drill in an elevated position when desired. The upper end of the drill-shaft carries a weight, to increase the force of the stroke.

1. The combination of the bed-frame A, supported on adjustable feet a, and having perforated lugs b, with an adjustable truck-frame, B C, and locking cross-pin b', substantially as and for the purpose specified.

2. The combination of the guide-latch D D' of the bed-frame, formed of a fixed and an opening bracket, having guide-rollers d d', with the drill-shaft L, to guide the same and admit of its being taken out, substantially as shown and described.

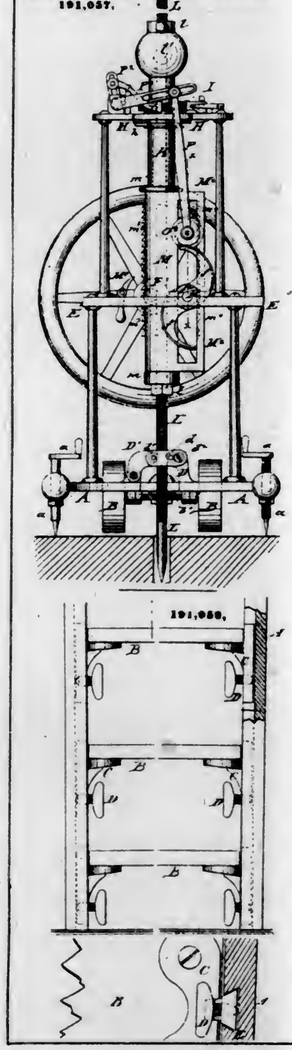
3. The combination of the drill-shaft L, inclosing cylinder K, and sleeve M, with adjustable lifting and axially-revolving mechanism, substantially as and for the purpose set forth.

4. The sleeve M, having slotted guide-frame M², with inner rack m', in combination with the trap-block O, lateral shaft O', having rollers O², swinging ratchet N, and with revolving cams f, to lock sleeve M for lifting the drill-shaft, substantially as specified.

5. The combination of revolving cams f, guide-frame M², having interior rack m', trap-block O, lateral roller-shaft O', swinging pawl N, pitman P, and slotted rock-shaft P' P², with fixed ratchet I of cylinder K, and pawls I' I², to revolve drill-shaft simultaneously with lifting of the same, and adjust number of strokes for each revolution, substantially in the manner and for the purpose set forth.

6. The trap-block having cushioning bottom block, to prevent concussion in dropping on main shaft F, substantially as described.

191,057.



191,058.

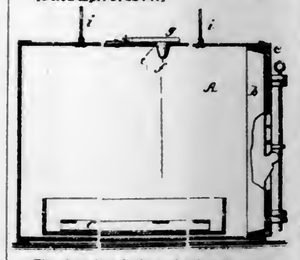
191,058. DEVICES FOR SUPPORTING SHELVES. F. G. Johnson, New York, N. Y. [Filed Nov. 24, 1876.]

Brief.—Each end of each shelf is provided with a metallic plate having a projecting vertical dovetail bar, adapted to slide up and down in a correspondingly vertical dovetail groove in the upright supports of the shelves. Thumb-screws hold the shelves in position.

1. The dovetail bar E, arranged to slide in the corresponding vertical and continuous groove in the upright A A, and provided with suitable projection C, to which the shelf B can be fastened, substantially as set forth.

2. The combination of the thumb set-screw D with the dovetail bar E, for securing the bar E at any desired point in the corresponding groove of the upright, substantially as described.

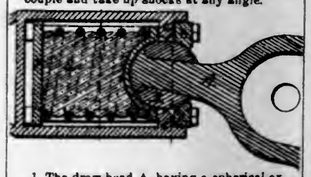
191,059. BAKING-PANS. Charles I. Kagey and Fred W. Stoneburner, Arcola, Ill. [Filed Apr. 9, 1877.]



The sheet-iron body A, having the rings i and ventilating-aperture e, the cast-iron frame b and door c, and the hinged cap g, having the projection f, in combination, substantially as shown and described.

191,060. CAR-COUPLINGS. S. N. Keith, Providence, R. I. [Filed Mar. 7, 1877.]

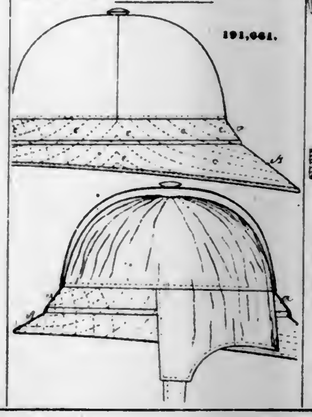
Brief.—The head has a universal joint, to couple and take up shocks at any angle.



1. The draw-head A, having a spherical extension, B, forming a ball-and-socket joint, seated within the casing of, and bearing against, the spring S, substantially as and for the purpose described.

2. A draw-head having a ball-and-socket connection with a car-frame, to admit of coupling at any angle whatever.

191,061.



191,061. HATS. H. Kuhlman, Boston, Mass. [Filed Mar. 21, 1877.]

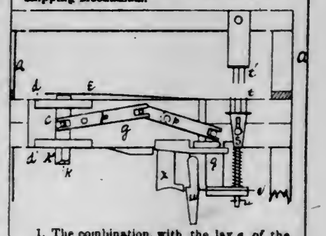
Brief.—The brim is strengthened and caused to maintain its normal position by running the rows of stitching crosswise instead of lengthwise and parallel with its edge. By reason of the short vertical rise or offset a of the brim A the latter may be readily turned up in front, rear, or entirely around, and retain itself in either position.

1. As an improved manufacture, a waterproof hat, as described, having the offset or rise a arranged or formed in its brim, such being substantially as and for the purpose specified.

2. A hat formed with an offset or rise, a, in its brim A, and with rows c of stitching arranged in such brim to cross the said offset, all substantially as explained.

191,062. FILLING STOP-MOTIONS FOR LOOMS. J. M. Linscott, West Buxton, Me. [Filed Feb. 6, 1877.]

Brief.—The fingers feel for the weft at each pick, and if it is present the carrier and its arm or pin are prevented from rising far enough to unlock the dagger. Should the weft be absent, the spring carries the fingers up between the upper series, and the carrier rises, and by its arm or pin releases the latch of the dagger. The latter then falls, and on the forward stroke of the lay operates the shipping mechanism.

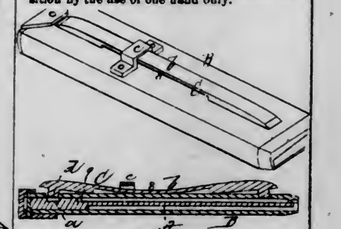


1. The combination, with the lay a, of the vertical spring rod or bar c, having faces k and k', vibrating spring-arm j, toggle p, frame q, carrier s, pin u, arm v, hook w, catch or button x, and bent spring-arm s, as and for the purposes herein described.

2. The combination of the frame q, and mechanism for operating the same, with slotted carrier s and fingers t and t', substantially as herein described.

191,063. COMBINED HANDLE AND SHEATH FOR POCKET-KNIFE BLADES, &c. D. Manuel, Readville, and Wm. T. Whitehouse, Boston, Mass. [Filed Sept. 26, 1876.]

Brief.—The claim very fairly points out the degree of invention—the tilting double spring-catch, held at or near its middle, allowing the blade to be slid in or out of the handle, serving as a sheath, and to be locked in either position by the use of one hand only.



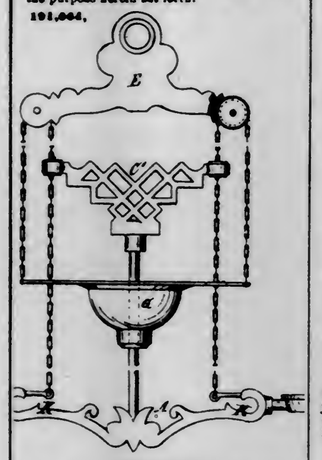
The combined handle and sheath B, with its double spring-catch C, held by a bridge, c, at or near the middle, so as to tilt each way, and provided at or near each end with a projection, d, engaging with the hole a, or its equivalent, in the blade A, constructed and operated substantially in the manner and for the purpose set forth.

191,064. ADJUSTABLE CHANDELIERS. R. Marsh, Flushing, N. Y. [Filed Mar. 14, 1877.]

1. The weight G, in combination with an adjustable chandelier having the guide-rod C and cross-bar C', substantially as and for the purpose herein set forth.

2. The adjustable chandelier having a guide-rod, C, rising up from the body A, its cross-bar C', and weight G, and cross-head E, when arranged and operated substantially as and for the purpose herein set forth.

191,064.



191,065. TOY MONEY-BOXES. Edward J. McLoughlin, New York, N. Y. [Filed Apr. 2, 1877.]



The flexible index *c*, secured to the shaft *a*, in combination with the dial E, having the pins *d*, substantially as shown and described.

191,066. BUNG-CUTTING MACHINES. P. Medart, St. Louis, Mo., assignor of one-half his right to F. Medart, same place. [Filed Jan. 17, 1877.]

Brief.—The squared blanks are held in a hopper formed of metal rods, having a light metallic casing at the top and bottom, and are fed by means of a double feed-slide formed in two parts, and connected together to a die having removable sleeves while being cut by a cylindrical cutter, the edge of which is provided with two projecting lips, which give a shearing cut with the grain of the wood.

1. The die D, having removable sleeves D^3, in combination with the cutter C, substantially as and for the purpose set forth.

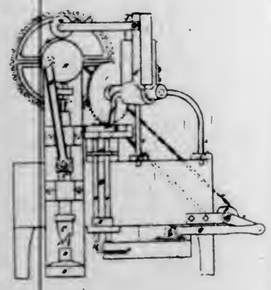
2. The feeding-slides F H, having a motion independent of each other, substantially as set forth.

3. The driving-shaft A, pulley *e*, chain G^2, and pulley *g*, in combination with the crank-shaft G^1, pitman G, and feed-slide F H, substantially as and for the purpose set forth.

4. The hopper E, formed of bars *e*, substantially as and for the purpose set forth.

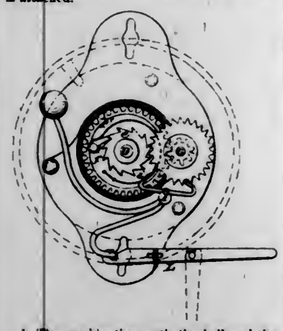
5. The vertical blank-hopper E, having a cut-off saw, I, arranged at its upper end, and a feed-slide, F, at its lower end, in combination with the cutter C and die D, substantially as set forth.

191,067.



191,067. BURGLAR-ALARMS. Hiram J. D. Miner and Danl. T. Seeley, Dunkirk, N. Y. [Filed Apr. 23, 1877.]

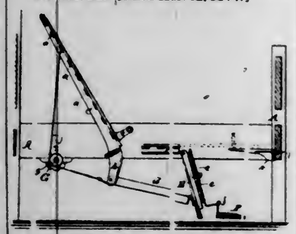
Brief.—The operating lever is jointed, so that when the alarm is not to be used the jointed end may be turned back out of the way of the door or window to which the alarm is attached.



1. The combination, with the bell and the main frame, of the shaft D, having detachable screw-threaded thumb-piece *d*, the threaded tubular sleeve *b*, and the nuts *c c*, substantially as and for the purpose described.

2. The combination, with the bell, the hammer-rod, and the pallet, in an alarm mechanism, of the hooked lever L, provided with a jointed section, arranged to be bent in one direction out of the way and to be rigid in the other, so as to permit the releasing of the alarm devices, substantially as described.

191,068. INVALID-BEDSTEADS. C. T. Moore, Renovo, Pa. [Filed Mar. 12, 1877.]

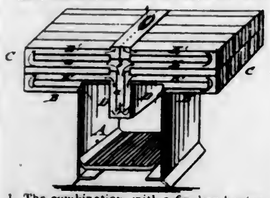


1. The combination, in an invalid-bedstead, of the pivoted frame C, having slats *a*, shaft G, drums *g*, notched wheels, and retaining-bolt *j*, substantially as herein shown and described.

2. The combination of the bedstead-frame A, fixed section B, pivoted frame D, step F, frame E, rods *d*, and frame C, substantially as herein shown and described.

3. The combination of the brackets *k*, cords *l m*, frame D, and bedstead-frame A, substantially as herein shown and described.

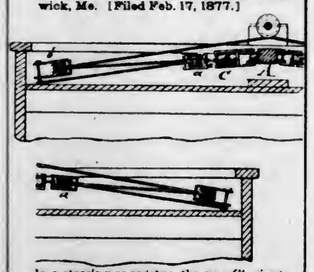
191,069. HEATING-FURNACES. S. W. Morgan, Winona, Minn. [Filed Apr. 16, 1877.]



1. The combination, with a fire-box having a number of primary radiating-pipes extending at both sides thereftom, of a smoke-reheating box at the interior of the fire-box, and of a supplementary series of heating-pipes back of or above the primary pipes, substantially in the manner and for the purpose set forth.

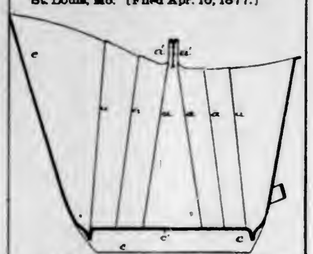
2. The combination of fire-box A, primary pipes B B', connected by pipes C', central reheating-box D, having conducting or deflecting partitions, and supplementary exit-pipes E E', substantially in the manner and for the purpose set forth.

191,070. SURGE-RELIEVERS FOR STEERING APPARATUS. Robt. M. Mountfort, Brunswick, Me. [Filed Feb. 17, 1877.]



In a steering apparatus, the case C', pivoted between head A and blocks *e*, and connected by a central rod, *c*, with the tackling-block, in combination with a spring, *g*, arranged substantially as and for the purpose specified.

191,071. COAL-HODS. Edwd. F. O'Toole, St. Louis, Mo. [Filed Apr. 16, 1877.]



1. A coal-hod formed of a single piece of sheet metal, having the crimps *a a a*, substantially as described.

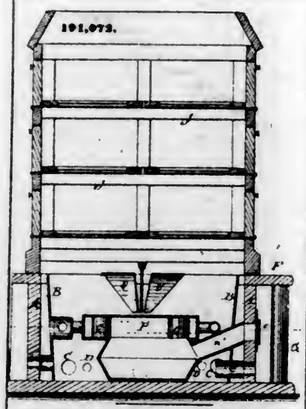
2. A coal-hod formed of a single piece of sheet metal, having the crimps *a a a* and *c*, substantially as described.

3. A coal-hod formed of a single piece of sheet metal, having the crimps *a a a* and rectangular bottom *c'*, substantially as described.

191,072. FRUIT-DRIERS. W. S. Plummer, Portland, Oreg. [Filed Feb. 17, 1877.]

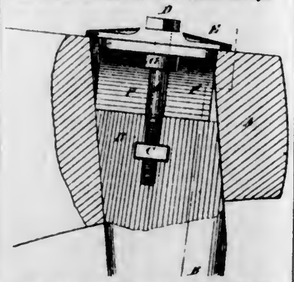
The combination of the fire-box N, drum P, pipes Q, and coil S with the lower case A, provided with the lining B, pipes C, and holes D, the continuous platform F, the upper case H, provided with the posts I, the slides J, and the doors L, and the cover M, substantially as herein shown and described.

191,072.



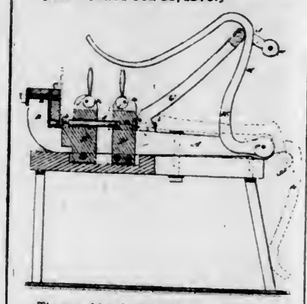
191,073. TOOL-HANDLES. L. H. Roberts, Morley, Mich. [Filed Mar. 19, 1877.]

Brief.—The tool is attached to the handle by means of a slotted wedge having a rabbeted cap-plate, through which passes a screw-bolt provided with a rigid collar, which works in an enlargement of the slot in the wedge, and a nut loosely fitted in a transverse mortise in the part of the handle which enters the eye.



The screw-bolt D, having collar G, and and nut C, in combination with the handle B and wedging device E F, constructed as shown and described, for the purpose specified.

191,074. MACHINES FOR PUNCHING METAL. A. Robertson, Blanchardsville, Wis., assignor to himself and H. B. Mason, same place. [Filed Oct. 30, 1876.]

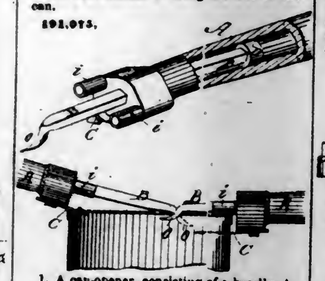


The combination of the curved lever H, cam-lever G, friction-roller *g*, movable block F, follower D, guide E, and bed A, substantially as shown and described.

191,075. CAN-OPENERS. R. H. Rose, Liverpool, England. [Filed May 2, 1877.]

Brief.—A cutting-blade is arranged parallel with the axis of the handle, and there is a sliding rod with curved point, which serves as the pivot, the rod being telescoped within the handle. There are also upon either side of the cutting-blade friction-rollers, serving as guides to bear upon the top of the can, the construction permitting the cutter to approach or recede from the pivot, and thus cut circles or openings of various sizes with a true and smooth cut around or along the side of the can.

191,075.

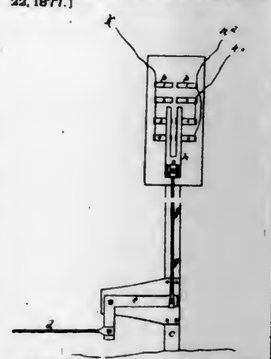


1. A can-opener, consisting of a handle, A, provided with the loose rod B, having a curved point, *e*, and a cutting-blade, C, all combined to operate substantially as described.

2. In combination with the handle A, provided with the curved point *e*, the blade C, arranged in a plane parallel with the handle, whereby said blade may be made to operate on the side of the can, while the point *e* rests in the top thereof, substantially as shown and described.

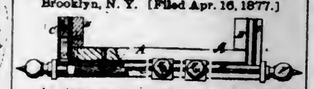
3. A can-opener provided with the rollers *d*, or their equivalents, arranged to operate as guides to the blade in the act of cutting, substantially as set forth.

191,076. CIRCUIT-CLOSERS FOR ELECTRO-MAGNETIC RAILWAY-SWITCH SIGNALS. H. N. Rowell, Concord, N. H. [Filed Mar. 22, 1877.]



The combination of the switch *a*, switch-rod *b*, connecting-rod *d*, post *c*, crank *e*, rod *f*, circuit-closer *h*, plates p^1 p^2 p^3 p^4, battery-wire *k*, and signal-wires w^4 and w^5, adjusted and operating as and for the purposes above set forth.

191,077. WINDOW-CORNICES. S. Sargeant, Brooklyn, N. Y. [Filed Apr. 16, 1877.]



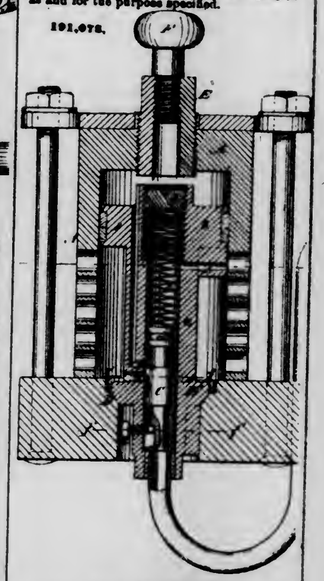
An improved window-cornice formed of horizontal metal tubes C and vertical metal tubes E, halved to each other and secured to the foundation-boards A B by screws passing through the said boards, through the inner sides of said tubes, and into blocks or strips of wood driven into the tubes, said tubes being provided with knobs F on some or all of their ends, substantially as herein shown and described.

191,078. SAFETY-VALVES. Frank B. Scovell, Waterford, Ontario, Canada. [Filed Apr. 23, 1877.]

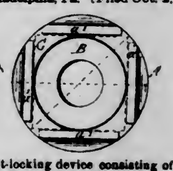
1. The combination of sliding valve C and tube, having piston-head *d*, with the tubular stem *e*, having vertical and lateral passages *g h*, opening interiorly at contiguous points, to admit of communication with the valve, the piston B, valve B', spring *s*, and laterally-perforated cylinder A, all as shown and described, to operate as specified.

2. The combination of the adjustable tubular screw E and its removable plug F with the cylinder and the piston B, as shown and described, for the purpose of facilitating access to, and adjustment of, the screw-plug *f*, as and for the purpose specified.

191,078.

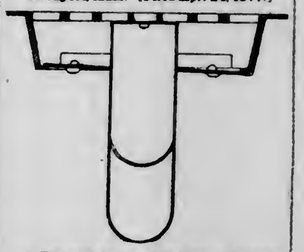


191,079. NUT-LOCKS. Edwin R. Shepard, Philadelphia, Pa. [Filed Oct. 2, 1876.]



A nut-locking device consisting of a metal washer, A, provided with a socket to receive the nut C, and having seats to receive and support the corners of the nut, and with a central recess for the elastic washer, in combination with an elastic washer, B, arranged in said recess, and of such thickness that it may be compressed by the screwing up of the nut, substantially as set forth.

191,080. HOT-AIR REGISTERS. L. B. Smith, Rockport, Mass. [Filed Apr. 24, 1877.]



1. The combination of the hot-air register with an evaporator fixed to it, and extended up within it and between its valves, all substantially as set forth.

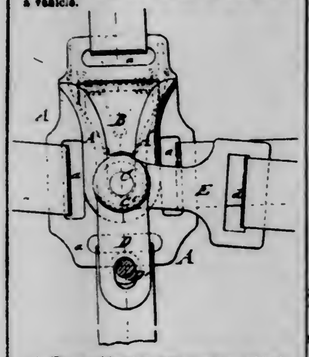
2. The combination of a hot-air register with an evaporator fixed to it, and extended

up between its valves and aside of their operative slide, all being essentially as shown and described.

3. A hot-air register provided with valves and intermediate bearings for another valve, and with an evaporator extended up within the said register and between its valves, all substantially as explained and represented.

191,081. APPARATUS FOR ATTACHING HARNESS TO THE SHAFTS. W. J. Smith, New Haven, Conn. [Filed Mar. 24, 1877.]

Brief.—The socket, in connection with the spring-acted locking-dog, is adapted to readily receive and securely hold a button that is connected, by a metal trace-piece, to the trace, and by a loosely swinging link to the shaft of a vehicle.

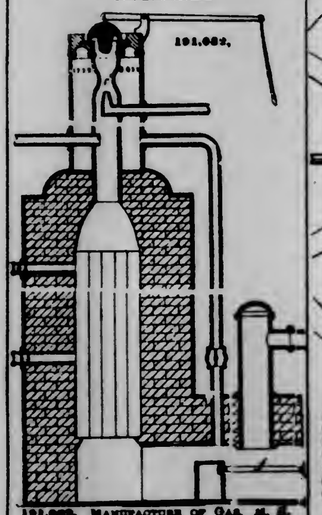


1. The combination, with a socket and locking spring dog attached to the harness, of a button connecting with a trace and the shaft of a vehicle, as shown, for the purpose and in the manner set forth.

2. The combination of a socket, having open and spreading top part, and a hinged and spring-acted dog, fitting into the open part, with a hitching-button, of a trace-jointing piece, and with a loose pivot-link of the shaft, substantially in the manner specified.

3. The combination of trace-jointing piece E, having button C, stud *b*, and head C', with loosely turning and swinging link D, and bolt D', of shaft, to form connection of shaft and trace ready for hitching, substantially as set forth.

191,082.

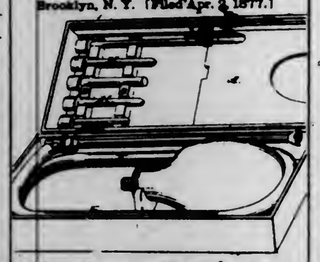


191,082. MANUFACTURE OF GAS. M. E. Strong, Brooklyn, N. Y., assignor to L. W. Serrell, trustee for said Strong, S. Cornell, H. M. Pierson, and W. B. Lawton. [Filed July 26, 1876.]

Brief.—The oil to be decomposed is fed upon the fire-clay tubes placed vertically in the retort, and heated to a decomposing temperature. The gas produced here (nearly pure hydrogen) is passed over the fire-grate and through the hopper above, both containing bituminous coal, where it is carbureted and fitted for illuminating purposes. When the retort becomes cooled below a decomposing temperature, the oil is shut off, the drafts opened, and air admitted, producing combustion of the deposited carbon, thus consuming it, and reheating the retort to a decomposing temperature, when the process is repeated.

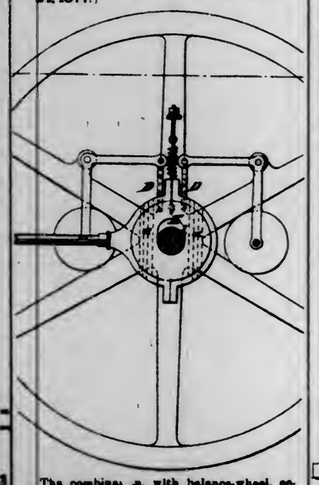
The herein-described process of manufacturing illuminating-gas, which consists in subjecting the hydrocarbon to a high degree of heat, whereby the carbon will be deposited within the retort, and carbureting the resulting gas by passing it through incandescent carbon, and, subsequently, to make the process continuous, reheating the retort by the combustion of the carbon deposited from the liquid and the incandescent coke, substantially as set forth.

191,083. SYRINGE-CASES. B. F. Sutton, Brooklyn, N. Y. [Filed Apr. 2, 1877.]



A syringe-case having the sliding cover A moving in grooves within the box, and, when closed, holding the tubes H H in place, substantially as described.

191,084. GOVERNORS FOR STEAM-ENGINES. H. Tabor, Corning, N. Y., assignor to B. W. Payne & Son, same place. [Filed Mar. 24, 1877.]

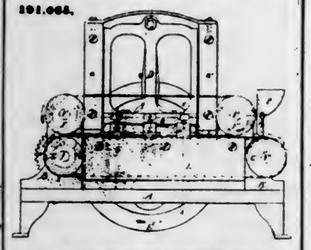


The combination, with balance-wheel, eccentric, and links D, of the spiral spring, arranged between links, and attached directly to the eccentric at one end, and to balance-wheel at the other, as shown and described, in order that lost motion may be avoided by dispensing with a yoke or other intermediate connection.

191,085. MACHINES FOR STRAIGHTENING SEWING-MACHINE NEEDLES. R. Thompson and P. M. Beers, Bridgeport, Conn. [Filed Apr. 30, 1877.]

Brief.—The surface of the long anvil-block is slightly convex transversely, straight or level along the edge next to the carrying-belt, but curved convexedly along the opposite edge. It thus presents a twist, greatest at the end upon which the needle first enters, but diminishing toward the other end, and terminating there in a flat level surface; and of this anvil-surface the surface of the reciprocating hammer-block is but the counterpart. The needles, extending across and between these two blocks, are slowly carried by the chain, and at the same time rotated by the belt.

191,085.



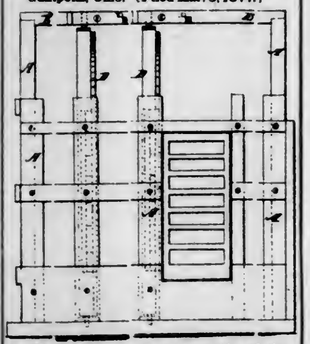
1. The combination of the convex block M, mechanism for transferring the needle-blades over and along the working-surface of said block from end to end, and a reciprocating hammer-drop, substantially as described, for the object set forth.

2. In combination with the reciprocating frame D and straightening-block M, the block O, secured to the lower edge of said frame, and having the working-surface concave in form, and gradually diminishing in concavity from one end to the other, so as to conform to the convex working-surface of said straightening-block, and operating substantially as described, for the object set forth.

3. In combination with the feed-belt *g*, belt *h*, rest *i*, shafts *f f'*, and gear-wheels K K', the ratchet-wheel I, lever H, and cam J, all arranged substantially as shown, for the purpose of feeding and intermittently revolving the needle-blades over the working-surface of the straightening-block, for the object set forth.

4. The combination of the straightening-block M, block O, reciprocating frame D, feed-belt *g*, belt *h*, rest *i*, shafts *f f'*, gear-wheels K K', ratchet-wheel I, lever H, cam J, and driving-shaft *b*, all constructed and arranged substantially as shown, and for the object set forth.

191,086. CATTLE-STALLS. B. H. Waddell, Gallipolis, Ohio. [Filed Mar. 3, 1877.]



The combination, in a cow-stable, of the frame A, pivoted side gates D, cross-beam E, and floor-steps, the gates being pivoted in cross-beam and steps, and between the front and rear ends of the stalls, substantially as and for the purpose specified.

191,087. LIFTING-LEVERS FOR HARVESTERS, &c. H. Wells and H. L. Wells, Manchester, Iowa, assignors to H. L. Hopkins, same place. [Filed Apr. 24, 1877.]

Brief.—Two levers act on each other by means of a connecting link permanently pivoted to one of the levers at a point some distance from the fulcrum, and adapted to engage the other when the sweep of the one to which the power is applied is about being completed, so that the return stroke of the latter will continue the lifting action of the lever carrying the weight.

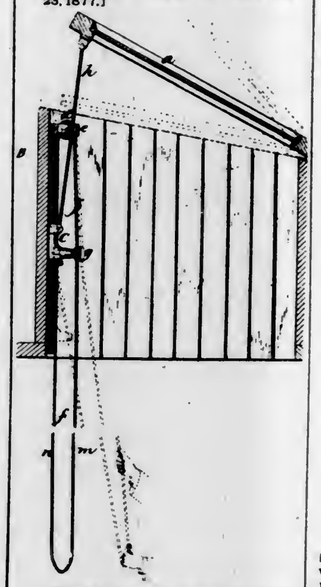
191,087.



1. The combination, substantially as specified, of two levers acting on each other, and a link permanently and eccentrically pivoted to one of the levers and adapted to engage the other eccentrically also.

2. The combination, substantially as specified, of lever A, provided with stud *f*, lever B carrying stud *d*, and the slotted link C *e d'*, pivoted to lever A.

191,088. SKYLIGHT LIFTER AND LOCK. J. F. Wollensak, Chicago, Ill. [Filed Apr. 23, 1877.]



1. The sliding block C, carrying the spring locking-bolt *g*, in combination with the fixed guide-bar B, connecting rod or rods A, and the operating cord or cords *f*, substantially as described, for the purpose specified.

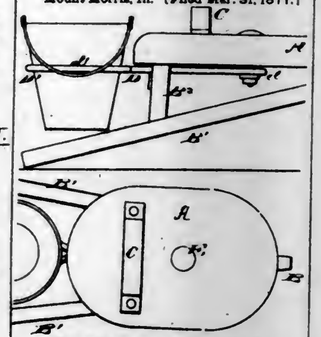
2. The combination of the operating cord *f* with the spring locking-bolt *g* and the sliding block C, to which the sash is connected, arranged as described, so that the act of pulling the cord backward shall disengage the locking-bolt from the bar B, and a continued downward pull upon the same cord shall raise the sash, substantially as described.

3. The combination of the pulley *d* with the fixed guide-bar B, and the operating-cord *f*, connected to the sliding block C, and passing downward through the locking-bolt *g*, substantially as described, for the purpose specified.

191,089. CASE-HARDENING MALLEABLE-IRON CASTINGS. A. F. Andrews, New Haven, Conn. [Filed Nov. 8, 1876.]

The within-described process of preparing steel-surfaced malleable-iron castings, which consists in treating iron castings, at high temperatures, first with hydrogen, and then with bones saturated with cyanide of potassium, or with sal-ammoniac, as herein specified.

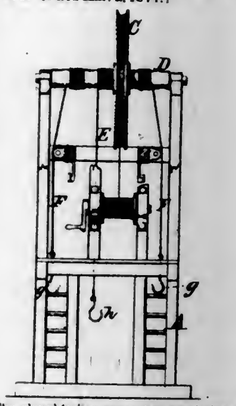
191,090. MILKING-STOOLS. Elijah Avey, Mount Morris, Ill. [Filed Mar. 31, 1877.]



1. The milking-stool herein described, consisting of the seat A, provided with the handle C, leg B, having attached thereto the inclined diverging legs B', transverse slotted block B', and pivoted pail holder D, substantially as and for the purpose set forth.

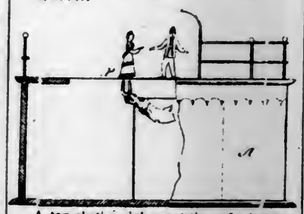
2. The combination, with a milking-stool, of holder D, having grooved ends *d'*, and bar F, having several adjusting-holes, *f*, substantially as and for the purpose set forth.

191,091. HOISTING-GEARS FOR SLAUGHTERING CATTLE. W. H. Axford, Jersey City, N. J. [Filed Mar. 2, 1877.]



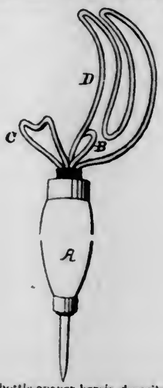
The slaughtering apparatus consisting of the hoisting and spreading ropes F F, provided with hooks *g*, the spreading-rollers *i*, the wheel and axle C and D, and the suspending-rope E, having the hook A, said wheel and suspending-rope being arranged on the one axle between the said spreading-ropes, substantially as and for the purpose specified.

191,092. TOY SKATING-RINKS. Sophie E. Baobmann, New York, N. Y. [Filed Jan. 2, 1877.]



A toy skating-rink consisting of a box or frame, A, having a paper top or cover, P, and provided with a side opening or hand-hole, for insertion and application of the magnet to cause the gliding movements of the figures, as shown and described.

191,093. BOTTLE-OPENERS. E. Bacher, Findlay, Ohio. [Filed Apr. 12, 1877.]

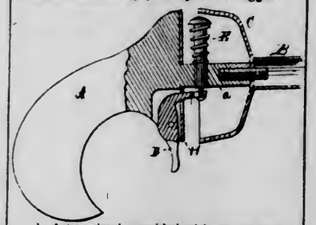


1. The bottle-opener herein described, composed of the handle A, hook B, brace C, and guard D, substantially as and for the purposes set forth.

2. In a bottle-opener, the guard D, substantially as and for the purpose set forth.

191,094. TOY PISTOLS. Chas. A. Bailey, Cobalt, Conn. [Filed Jan. 20, 1877.]

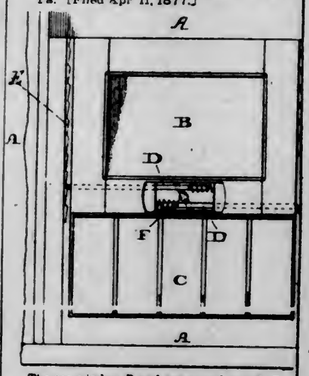
Brief.—Instead of a revolving cylinder, the pistol is provided with a gong-bell, which is rung at pleasure by pulls upon the trigger.



1. A toy pistol provided with one or more bells that are caused to ring by the trigger, substantially as and for the purposes herein set forth.

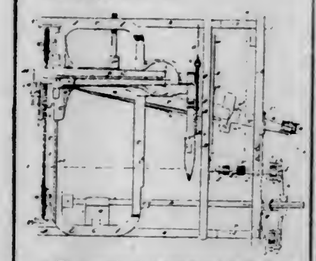
2. The combination of the butt A, having arm *a* and screw-tenon, the barrel B, with gong or bell C, the spring-clapper E, and trigger D, all constructed substantially as and for the purposes herein set forth.

191,095. CAR-WINDOWS. Albert S. Barker and Harry J. Shill, Jr., Philadelphia, Pa. [Filed Apr. 11, 1877.]



The car-window B and connected guard C, in combination with the sliding rods D, button F, and toothed bars E, of the frame A, substantially as and for the purpose set forth.

191,096. GRAIN-BINDERS. Wm. R. Baker, Chicago, Ill., assignor to C. H. McCormick and L. J. McCormick, same place. [Filed Jan. 31, 1877.]



1. The combination, substantially as hereinbefore set forth, of the fixed frame, the adjustable binder-frame, the hinged poke pivoted thereto, the laterally-adjustable screw shaft working therein, its spur-gear, and the concentric driving-gears between which it works, and with which it alternately engages, when desired to reverse the direction of adjustment of the binding mechanism.

2. The combination of the single overhung sprocket-wheel mounted directly on a driving-shaft, a corresponding overhung adjustable sprocket-wheel, a single driving-chain, its pin, the slotted intermittently-rotating crank, its pitman, the rock-shaft, and the wire-carrying arm mounted thereon, these members being constructed to operate in combination, substantially as hereinbefore set forth.

3. The combination, substantially as hereinbefore set forth, of a vibrating binding-arm, a traversing slotted intermittently-rotating crank, a spring-latch pivoted thereon, a pin on the traversing-chain which locks the crank, and releasing stops or wipers at each end of the frame, for the purposes specified.

4. The combination, substantially as hereinbefore set forth, of the vibrating binding-arm, a vibrating compressor pivoted eccentrically thereto, and an intermediate spring-rod connecting the compressor directly with an extension or heel of the binding-arm, whereby the compressor is actuated directly from the binding-arm.

5. The combination, substantially as hereinbefore set forth, of the frame C, the binding-carriage traversing thereon, and an adjustable elastic stop, to limit the backward movement of the binding carriage.

6. The combination, substantially as hereinbefore set forth, of the traversing-carriage, a radius-bar pivoted thereto at its inner end, and sustained at its outer end by a support on the fixed frame of the machine, the lower or connecting-wire spool mounted on the outer end of said bar, a supplementary shorter radius-bar to which the wire passes, pivoted to the carriage, extending parallel with the long radius-bar and automatically vibrated at intervals independently of said bar, to draw the wire from the spool and supply slack, for the purpose specified.

7. The combination, substantially as hereinbefore set forth, of a traversing binding-carriage, a radius-bar pivoted thereto, a supplementary radius-bar supported on said carriage, pulleys on the respective bars, around which pulleys the wire passes, a latch acting on the supplementary radius-bar, and a stop carried by one of the bars and acting on the latch.

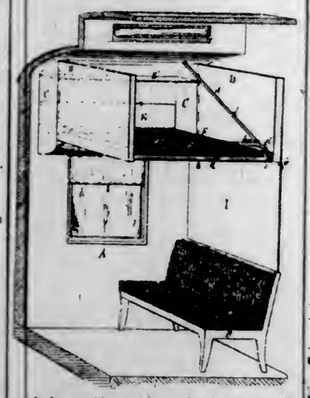
191,097. GRASSHOPPER-DESTROYERS. J. V. Barger, Rockport, Mo. [Filed Mar. 26, 1877.]

Brief.—The horse is hitched to the front ends of the wings, which have their rear ends attached to the front end of the main frame, and as the machine is moved forward by means of said wings, a hinged apron, and the hood, the insects are "scooped" upon the carrying-apron, in the rear of which is a crushing-roller and receptacle.



The hood L, hinged apron S, and wings R, in combination with the carrying apron G, crushing-roller A, and receiving-box I, all substantially as and for the purposes herein set forth.

191,098. CAR SLEEPING-BERTHS. A. E. Barthel, Detroit, Mich. [Filed May 18, 1876.]

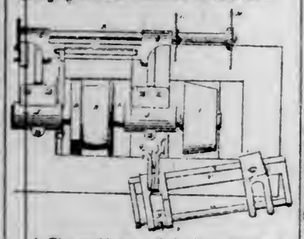


1. In combination in a sleeping-car, and constituting the upper berth thereof, a flexible woven-wire bottom and folding brackets, which, when extended, support the bottom in use as a bed, and form the head and foot of the bed, substantially as described.

2. In a sleeping-car, substantially as described, the locker O C C', provided with the shelves E E' and doors D D, in combination with the rolling berth-bottom and folding brackets, substantially as and for the purpose set forth.

191,099. MACHINES FOR MAKING KITS AND BUCKETS. J. P. Blood and S. N. Blood, Athens, Pa. [Filed Sept. 23, 1876.]

Brief.—The staves forming the kit are firmly held on an overhanging bunk rotated by frictional gearing, while being cut to the proper length by two adjustable circular saws of different diameters, secured upon an arbor mounted in swinging bearings. The kit or pail is simultaneously chamfered, beveled, and grooved by means of right and left hand side cutters secured to a turning cutter head, longitudinally adjustable by an eccentric sleeve actuated by a lever, and mounted on a shaft in the rear of a laterally adjustable table, provided with a rest or guideway for the cutters to travel on. The outside of the pail is finished by an adjustable turning chisel, secured in a swinging tool-stock mounted on said shaft.



1. The combination of the laterally adjustable table T, the shaft W, the guide-rest X, and the tool-stock P S, all constructed substantially as and for the purposes herein set forth.

2. The swinging saw-mandrel K, with saws L M, in combination with the overhanging bunk C, for the purposes herein set forth.

3. The combination of the main shaft A, bunk C, friction-pulleys D and E, and the swinging saw-mandrel, with saws, substantially as and for the purpose herein set forth.

191,100. MACHINES FOR DRAWING AND STRAIGHTENING METAL RODS OR BARS. A. Brankman and L. Brightman, Cleveland, Ohio. [Filed Apr. 16, 1877.]

1. The combination, in one machine, of appliances for drawing and straightening bars or rods of metal, substantially as described.

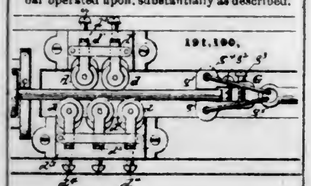
2. The combination, with suitable drawing mechanism, of a series of straightening-rolls, the latter arranged in alternately-opposite succession along the line of the drawing action, substantially as described.

3. In a metal drawing and straightening machine, the combination, with a suitable die, of a series of grooved rollers, a part of said series arranged opposite the remaining part in the same plane, the grooved peripheries thereof operating on the metal drawn between the same, substantially as and for the purpose described.

4. The combination of the grooved rollers d, arms d^3, grooved frame d^2, and adjusting-screws d^4, substantially as described.

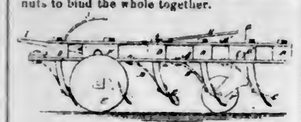
5. In a metal drawing and straightening machine, the grappling device G, consisting of the jaws g and g^1, screws g^2 and g^3, openings g^4, and links g^5, substantially as and for the purpose described.

6. The combination, with the drawing mechanism, of straightening-rolls whose opposite series are supported on independent frames, the latter adapted to be, respectively, swung from the line of drawing action, so as to release the rolls from contact with the shaft or bar operated upon, substantially as described.



191,101. CULTIVATORS. Nathan T. Brewster and A. D. Naher, Roseville, Cal. [Filed Apr. 11, 1877.]

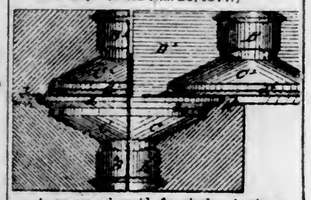
Brief.—A double frame of bars having blocks between, the teeth having shanks with nuts to bind the whole together.



1. The double separable frame A A', combined with the detachable blocks B and the cultivator-teeth C, having reduced shanks passing through the said blocks and bars, to be secured above the same, and provided with braces D, substantially as and for the purpose set forth.

2. The combination, with the double frame A A', of the detachable blocks B^1, held by the shank of the cultivator-tooth, and the axle of the transporting-wheel, arranged in bearings in said blocks, as and for the purpose described.

191,102. GLASS-MOLDS FOR SHADE-HOLDERS AND SHADES. H. Brooke, Brooklyn, N. Y., assignor to B. B. Schneider, New York city. [Filed Jan. 20, 1877.]

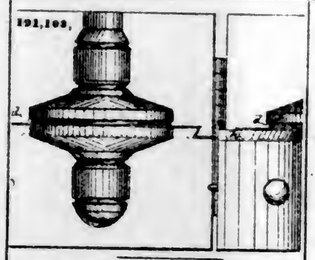


A compound mold for shades, having a blow-over in the center and at the top and bottom, whereby two shades may be blown at the same time and afterward easily separated, substantially as herein set forth.

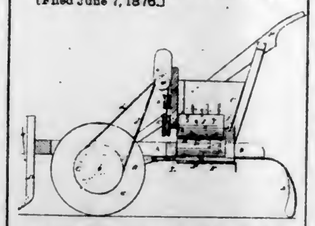
191,103. MOLDS FOR GLASS SHADES, &c. H. Brooke, New York, N. Y., assignor to B. B. Schneider, same place. [Filed May 14, 1877.]

A compound mold for shades, having an inward projection or surface, d, in the center, and blow-overs at the top and bottom, whereby the two shades may be blown at the same time and afterward easily separated, substantially as herein set forth.

191,103.



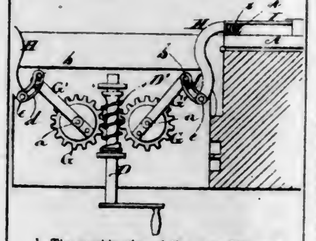
191,104. SEED-PLANTERS. W. A. Bryant and G. W. D. Partridge, Good Water, Ala. [Filed June 7, 1876.]



In combination with the frame A and hopper C, provided with longitudinal slot in its bottom, and the laterally-adjustable plates J J, the longitudinally-placed spiked cylinder I, having pulley H, pulleys $f f$, endless cord d, and the driving-wheel E, provided with pulley G, all constructed substantially as and for the purposes herein set forth.

191,105. SHUTTER-WORKERS. Wm. L. Boettler and J. C. Zweidinger, Pittsburg, Pa. [Filed Apr. 26, 1877.]

Brief.—A shaft provided with a worm is chambered in the window-sill, and there are two cog-wheels horizontally placed, one on either side, there being on the upper surface of each wheel a short arm having an upwardly-projecting pin, which enters a slot in a curved arm above the window-sill, connecting with the shutter. A crank-handle inside the room operates the worm and wheels, and the two arms being arranged at slightly different angles from the shaft, one shutter will be opened or closed a little before the other.



1. The combination of the worm D', worm-wheels G G, and arms G' G', set at different angles with the axes of the worm for operating window-shutters, whereby one shutter will be opened or closed before the other, substantially as herein set forth.

2. The combination, with the shutters A A, of the worm D, worm-wheels G, with arms G', having pins b, sleeves b', with slotted arms d, and S-shaped arms H, having friction-rollers h, and the frames I, all constructed substantially as and for the purpose described.

191,106. COFFEE-MAKING APPARATUS. A. G. Buzby, Philadelphia, Pa. [Filed Jan. 3, 1876.]

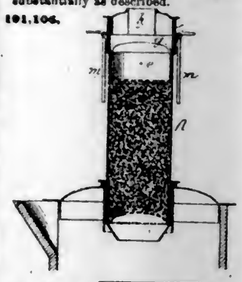
1. In a coffee reservoir, the coffee-holding section A, open at both ends when detached, and supported solely by the lower section B, having a detachable strainer or strainers, as described.

2. The combination of the section B and the concavo-convex plate d, having large openings, with the disk b having smaller openings, as and for the purpose set forth.

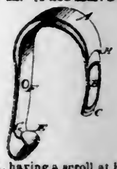
3. The combination of the coffee-reservoir with the ring i and its arms m, as and for the purpose specified.

4. The combination of the reservoir A and vessel H, with the boiler G, on which the vessel rests, and with the steam-section q, arranged substantially as described.

191,106.



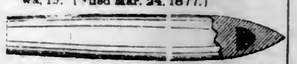
191,107. NAPKIN-HOLDERS. M. Campbell, Chicago Ill. [Filed Mar. 27, 1877.]



1. Part A, having a scroll at E, and the part B, having the end at G turned up to form, in connection with the scroll, a clamp for the napkin, substantially as set forth.

2. In combination with the part B, having a projecting lip at C to support the end of part A when a ring is formed of the two parts, the projection L on the part A, and the recess or concavity on the elastic end of part B for holding the two parts in conjunction, substantially as set forth.

191,108. CIGARS. Jas. H. Campfield, Ottawa, Ill. [Filed Mar. 24, 1877.]



A cigar provided near its mouth end with a porous substance saturated with tannic acid, as and for the purpose specified.

191,109. MORTISING-MACHINES. H. Carter, Aylmer, Ontario, Canada, assignor of one-half his right to D. Stewart, same place. [Filed Mar. 24, 1877.]

Brief.—The bit is caused to bore vertically to a limited extent, and cut horizontally a mortise from end to end, by means of a gate vertically adjustable upon suitable ways in the main frame; a frame carrying a hollow shaft, which incloses the bit-holder and supports a belt-drum; a rock-shaft provided with calipers, which vibrate a pawl pivoted to a vertical plate, in which said shaft is mounted, and which supports a double ratchet bar, vertically adjustable upon said plate by means of the pawl and calipers referred to; and suitable operating mechanism.

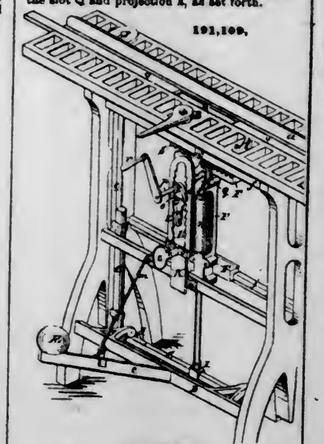
1. In a mortising-machine, a gate, C, having vertical movement, and a frame, F, having horizontal movement, each alternately operating a rotary bit-holder, J, whereby the bit is caused to bore vertically and cut horizontally, intermittently with its penetration, as set forth, for cutting a mortise.

2. In combination with a bit-holder, in a frame, F, moving horizontally, a gate, C, connected to a tilting frame, D, operated by rod-connection m, with a ratchet-bar, L, pawl n, and a rock-shaft, p, provided with adjustable calipers o, whereby the gate is dropped step by step intermittently with the horizontal movement of the frame F, as set forth.

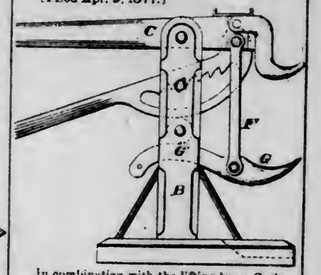
3. In combination with a gate, C, having an intermittent motion vertically, a frame, F, carrying a rotary bit-holder, J, having reciprocal motion horizontally, operated by a rock-shaft, p, pinion q, and rack-bar S, as set forth, whereby the frame is moved horizontally at each intermittent motion of the gate, as described.

4. In combination with the frame F, having horizontal motion, and the gate C, having vertical motion, the hollow shaft G, provided with belt-drum H, and inclosing a bit-holder, J, having sliding motion therein, by means of the slot Q and projection k, as set forth.

191,109.



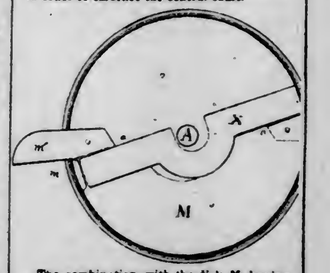
191,110. LIFTING-JACKS. Thos. J. Case, Granger, and C. C. Case, Cleveland, Ohio. [Filed Apr. 9, 1877.]



In combination with the lifting-lever C, the swing F, hook G, and slotted standard B, substantially as and for the purposes described.

191,111. MACHINES FOR COMPRESSING THE ENDS OF BLIND SLATS. E. Cather, Baltimore, Md., assignor of one-half his right to J. R. Trimble, same place. [Filed Dec. 23, 1876.]

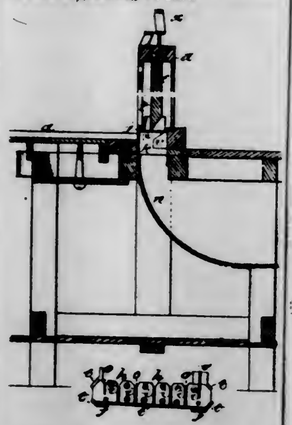
Brief.—In compressing the ends of blind-slats, in order to facilitate their insertion into the mortises in the stiles, the splinters broken from the slats, as each slat enters a beveled recess in one of two recessed disks, are thrown out by a metallic bar having about the same cross-section as the bottom of one of the recesses, and provided with a slot in the middle, in order to embrace the central shaft.



The combination, with the disk M, having the spurs m' m', of the clearer X, as and for the purpose set forth.

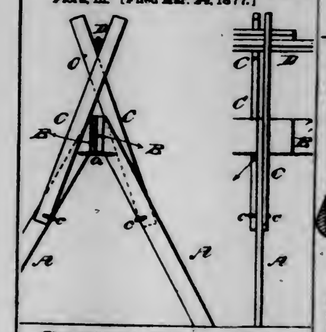
191,112. MACHINES FOR CUTTING OUT PASTEBOARD BOG-CARRIER BLANKS. A. Chase, Weare, N. H. [Filed Nov. 11, 1876.]

Brief.—As the sheet of paper-board is fed in, the blanks are struck out the required shape and size by a reciprocating die-head, which conforms to a stationary die located on a line with the table *a*. Slots are formed in the blanks, from one side toward the center thereof, by knives which enter the openings O of the reciprocating die-head.



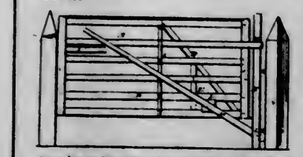
The reciprocating die *e*, provided with plates or knives *i* and *f*, in combination with the stationary knives *o*, *j*, and *t*, and the table *a*, substantially in the manner and for the purposes set forth.

191,113. PORTABLE FENCE. A. S. Chaney, Flora, Ill. [Filed Mar. 24, 1877.]



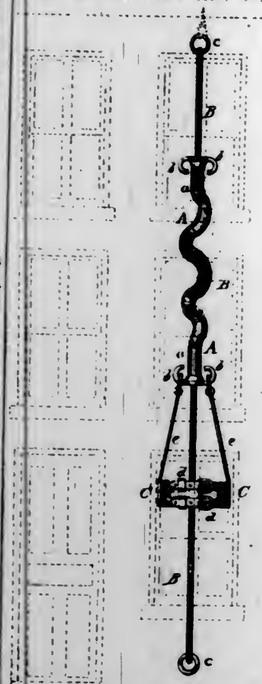
The combination of the inverted V-shaped lower supports A with X-shaped upper supports C, linked thereto, rails B, and riders D, substantially as and for the purpose set forth.

191,114. GATES. A. G. Cherry and A. T. Elliott, Georgia, Mich. [Filed Mar. 10, 1877.]



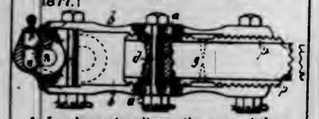
An adjustable gate constructed as described, and operated by the lever provided with the sliding block, whereby the gate has vertical movement upon the swinging supporting-post, the two latter being secured together by lower tenon-and-mortise engagement, and the upper metallic sliding clasps, substantially as described.

191,115. FIRE-ESCAPES. Alfred L. Clark, Dubuque, Iowa. [Filed May 10, 1877.]



The spiral tube A, having straight end portions *a*, and hooks *b*, in combination with the rope or cord B, and body-band C, constructed and arranged substantially as and for the purpose set forth.

191,116. PITMEN. O. Cooley, Brockport, N. Y., assignor to the Johnston Harvester Company, same place. [Filed Jan. 16, 1877.]

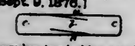


1. In a harvester-pitman, the corrugated or furrowed straps *b* and plates *p*, substantially as shown and described, and for the purpose set forth.

2. In an adjustable harvester pitman, the furrowed straps *b*, provided with the slots *c*, substantially as shown and described, and for the purpose set forth.

3. A pitman provided with an oil-chamber closed at its bottom, and communicating at or near its top with the crank or wrist bearing, substantially as shown, whereby the oil is prevented from escaping when the pitman is at rest, but caused to feed from the chamber to the bearing when the pitman is in action.

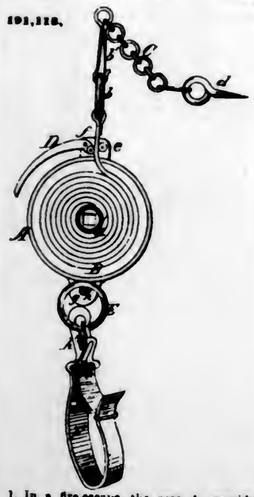
191,117. TAGS. H. Culver, Mason, Mich. [Filed Sept. 9, 1876.]



A rectangular tag-holder, having the holding-points *a* cut from the edge of the rectangle, with base-connections toward opposite ends of the same, and the transversely-folding portion *c*, extending along the body of the holder from spur to spur, substantially as specified.

191,118. FIRE-ESCAPES. J. F. Dartt and J. W. Post, New York, N. Y. [Filed May 10, 1877.]

191,118.

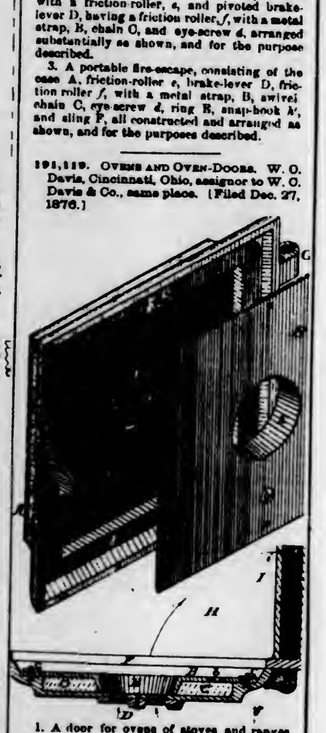


1. In a fire-escape, the case A, provided with a friction-roller, *e*, and a pivoted brake-lever, D, having a friction-roller, *f*, arranged substantially as shown and herein specified.

2. The combination of the case A, provided with a friction-roller, *e*, and pivoted brake-lever D, having a friction-roller, *f*, with a metal strap, B, chain C, and eye-screw *d*, arranged substantially as shown, and for the purpose described.

3. A portable fire-escape, consisting of the case A, friction-roller *e*, brake-lever D, friction roller *f*, with a metal strap, B, swivel-chain C, eye-screw *d*, ring E, snap-hook *h'*, and sling F, all constructed and arranged as shown, and for the purposes described.

191,119. OVENS AND OVEN-DOORS. W. O. Davis, Cincinnati, Ohio, assignor to W. O. Davis & Co., same place. [Filed Dec. 27, 1876.]

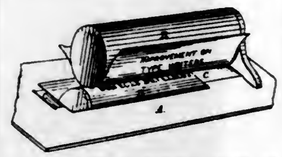


1. A door for ovens of stoves and ranges composed of two thicknesses of metal, A, inclosing a cavity or chamber, *a*, which is filled with plaster-of-paris C, or equivalent non-conductor.

2. An oven-door composed of the registered and perforated plates A *a a'* D and B *b* E, inclosing a filling of plaster-of-paris or equivalent non-conductor.

3. The described combination of composite and registered oven-door A *a a'* D B *b* E, oven H, and perforated rear oven-plate I *i*, for the purpose designated.

191,120. TYPE-WRITERS. P. Deming, Albany, N. Y. [Filed Apr. 18, 1877.]

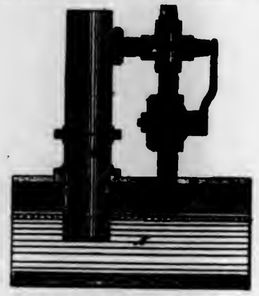


1. In type-writing machines wherein the letter-impressions are made at or near the bottom of the paper-holding cylinder B, and are thereby hidden from the eye of the operator, a reflector, D, arranged between the type and the paper, as herein described, for the purpose of reflectively showing the line of letters, as herein specified.

2. In type-writing machines, a reflector, D, having its reflecting surface turned upward, interposed between the paper-holding cylinder B and ink-ribbon C, as and for the purpose herein specified.

191,121. DIP-PIPES FOR GAS APPARATUS. Justus Dittmar, Williamsport, Pa. [Filed Apr. 9, 1877.]

Brief.—The horizontal and vertical parts of the by-pass pips are each provided with a screw-plug, which may be readily removed for cleaning out the tar from its interior.



The by-pass described, with a horizontal and a vertical portion, each portion provided with screw-plugs, substantially as and for the purpose set forth.

191,122. CAR-COUPLINGS. Charles Dobbs and Samuel L. Robinson, Millwood, Tex. [Filed Mar. 17, 1877.]



In a car-coupling, the combination of the projection *c* on top of the front end of the head *d*, flanges *g*, hooks *e*, and bolts *i*, the head being cut away between the projection *c* and flanges *g*, so that the links or hooks can slip off sidewise, substantially as shown.

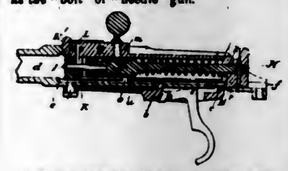
191,123. KEY-HOLE GUARDS. C. Biesle, Philadelphia, Pa. [Filed Mar. 6, 1877.]



The guard F connected to the case A by a dovetail-joint, and lips *f* turned up on both sides of opposite ends of the guard over adjacent shoulders of the case, substantially as and for the purpose set forth.

191,124. BREECH-LOADING FIRE-ARMS. E. Engel, St. Petersburg, Russia. [Filed Sept. 22, 1876.]

Brief.—The improvements relate to the breech and lock mechanism of the arm known as the "bolt" or "needle" gun.

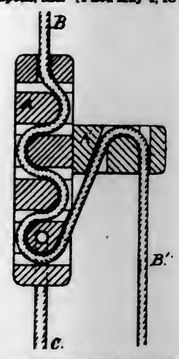


1. The combination, in a breech-loading fire-arm, of a trigger and the spring B, having the two projections *b* and *a*, with the spring needle bar or rod H, its projection *a*, and the catch *r*, as set forth.

2. The within-described needle-bar H, provided with the projection *a* and the two slots H' H', as and for the purpose set forth.

3. The combination of the breech-piece E with the detachable head K and the spring-pin *q'*.

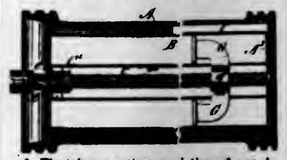
191,125. FIRE-ESCAPES. D. B. Ewing, Indianapolis, Ind. [Filed May 4, 1877.]



The fire-escape composed of the brake A, strap or rope C, and rope B, constructed, arranged, and operated substantially as set forth.

191,126. TOBACCO-CUTTERS. Jno. Farrar, Montreal, Quebec, Canada, assignor of one-half his right to H. Earle, Jr., same place. [Filed Jan. 31, 1877.]

Brief.—The plug is laid in one of the openings in the case, and is fed forward gradually by a plate in the rear, operated by a screw upon the shaft that carries the cutter.



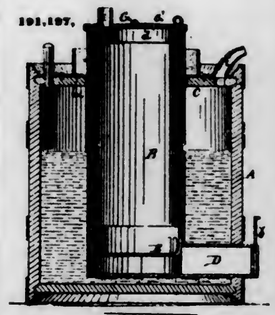
1. The tobacco-cutter, consisting of case A, having one or more chambers, B, and a central rotating screw, C, carrying a feed-plate, G, and at its outer end a rotating cutter, substantially as and for the purpose specified.

2. The tobacco-cutter, consisting of the case A, having chambers B B and H I, and a central screw-shaft carrying a feed-plate, G, and a cutter, substantially as and for the purpose specified.

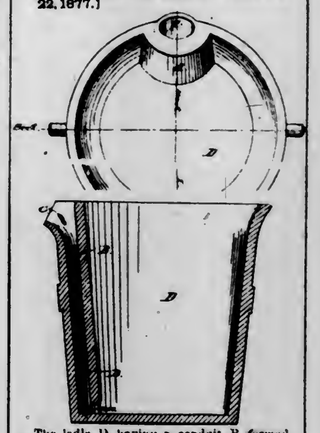
191,127. AGRICULTURAL STEAM-COOKERS. F. Farley and Jos. B. Blackwood, Keota, Iowa. [Filed Mar. 20, 1877.]

The combination of the barrel A, cylinder B, draft-flue D with damper *b*, the removable basket-grate E, having high sides *c*, and the removable cover G, provided with hinged door G', collar *a*, and rim *d*, all substantially as and for the purposes herein set forth.

191,127.

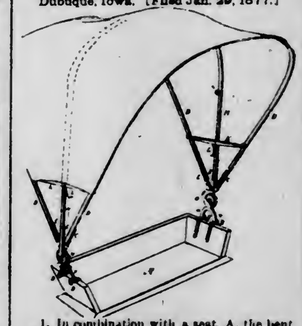


191,128. LADLES FOR METAL-FOUNDING. Wm. Fawcett, Omaha, Nebr. [Filed Feb. 22, 1877.]



The ladle D, having a conduit, B, formed in the side thereof, and opening into the bottom of the ladle, substantially as and for the purpose described.

191,129. CARRIAGE-TOPS. Chas. Fockler, Dubuque, Iowa. [Filed Jan. 29, 1877.]

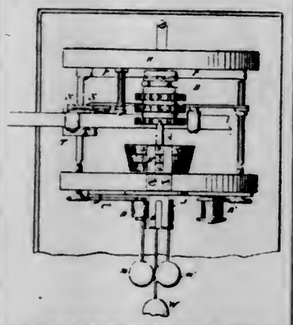


1. In combination with a seat, A, the bent arms B B projecting beyond the sides of the seat, the toothed disk G, with legs *s s* firmly secured to said arms, and the adjustable toothed disk F carrying the entire top, and fastened by means of the screw O and thumb-nut P, substantially as and for the purposes herein set forth.

2. The combination, with the adjustable disk F, of the arm B projecting therefrom, the knee-jointed bow-irons O C, the bows H and D D, and the jointed brace K with hook L, and the eye N, all constructed as described, with the joints and adjustments all on the inside, substantially as herein set forth.

191,120. METRICAL TELEGRAPH SYSTEM. Theo. M. Foote, Brooklyn, N. Y. [Filed Nov. 28, 1876.]

Brief.—Paper perforated at distances corresponding with the distances between the characters upon the type-wheel of a "translating-instrument" used at the receiving-station. Transmitter and receiver run synchronously. Message received on chemically prepared paper, which, after receiving the message, is passed over the driving-drum of the translating-instrument, the drum being keyed to the axis of the type-wheels, and of such a size that the occurrence of a mark on the paper in line with a fixed pointer will correctly indicate the presence of the character or letter required in position to be printed by hand-operated printing-pads.



1. The method of transmitting telegraphic messages by means of a perforated slip or fillet of paper, having perforations relatively to the letters on the type-wheel of a translating-instrument, in such manner that the dots or dashes recorded on the chemically-prepared slip will be found in proper relation to the characters on said type-wheel to indicate the proper letters to be printed upon the slip of paper which finally receives the message, as herein described.

2. The combination, in a telegraphic instrument, of two or more type-disks mounted upon a common shaft, and a corresponding number of indicating-wheels, each type-wheel being engraved with a portion of the letters of the alphabet, and the indicating-wheels marked, respectively, to correspond with the same, with the driving-drum of the instrument, the whole arranged to operate in connection with the chemically-prepared paper or other medium which receives the signals from the transmitting-instrument, substantially as described.

3. In combination with one or more type-wheels marked with the characters of the alphabet, one or more type-wheels marked with numerals, and a corresponding number of indicating-wheels, marked, respectively with characters and numerals to correspond, and a driving-drum, the whole arranged to operate in connection with the slip of paper or other medium which receives the signals from the transmitting-instrument, substantially as described.

4. The combination, with the type-wheels, of the translating-instrument and a corresponding number of indicating-wheels of different diameters, marked to correspond with the characters of the type-wheels, and a corresponding number of interchangeable driving drums of different diameters, the whole arranged to be operated in connection with the prepared strip or other medium which receives the signals from the transmitting instrument, substantially as described.

5. In combination with the chemically-prepared slip or other medium upon which the signals are recorded, a driving-drum of a determinate size, and the type-wheel of a translating-instrument, a printing-lever and a key-lever for operating the same, for printing from said type-wheel the characters indicated by the recording-signals on the prepared slip, substantially as described.

6. In combination with the recorded slip, a driving-drum of a determinate size, and the type-wheels of the translating-instrument, one or more key-levers for shifting the type-wheels, substantially as described.

7. In combination with the interchangeable driving-drums, a self-adjusting lever, carrying the drum for guiding the chemically-prepared paper, and a friction-roller for pressing the paper to the drum, for the purpose of adapting driving-drums of different sizes to be used with the same apparatus, substantially as described.

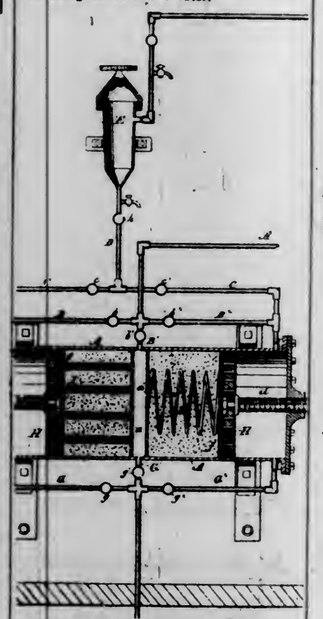
8. The combination, with the indicating wheel or wheels and the driving-drum of the apparatus, of suitable guides for indicating the positions which the indicating and type wheels assume when the chemically-prepared paper is arrested, with the record thereon appearing at the guides and the type-wheel in position to be printed upon, substantially as described.

9. The combination, with a driving-drum of a determinate size, the type-wheels of the translating-instrument, the printing-pad, and the key levers, of a lever and pawl for operating the drum which carries the strip of paper to be printed, substantially as described.

10. In an apparatus for translating or copying telegraphic messages, the combination of the driving-roller, the indicating-wheel, and a type-wheel or wheels, to be operated in connection with a recorded slip and the key-levers for shifting the type-wheel and printing the letters of the message, substantially as described.

191,121. FILTERING APPARATUS. J. Gainey, Augusta, Ga. [Filed May 3, 1877.]

Brief.—The filter is provided with an adjustable plunger for compressing the filtering material, to adapt the device to filter under varying pressures. The filter is cleaned by reversing the current of water.



1. The combination, with a filter, of an expansible spring arranged in the filtering material, for the purpose of loosening the same, as described.

2. A filter provided with an adjustable plunger, and having an inlet supply-pipe arranged upon the side thereof, communicating, as desired, with either end of the filter through valves, and having also a muddy-water discharge-pipe and a clear-water discharge-pipe, with controlling-valves, substantially as and for the purpose described.

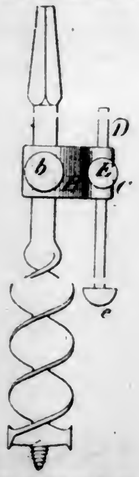
3. The combination of the filter A, the spring I, the perforated head *f*, and the adjustable plunger H, substantially as and for the purpose described.

4. The filter A, provided with two adjustable plungers, H, and perforated partitions *a*′, in combination with the pipes C C′, the pipes B B′ B² and G G′ G², having valve-connections and communicating with the filter, substantially as described.

191,122. PROCESSES OF MANUFACTURING GLUE. C. O. Garrison, New York, N. Y. [Filed Mar. 30, 1877.]

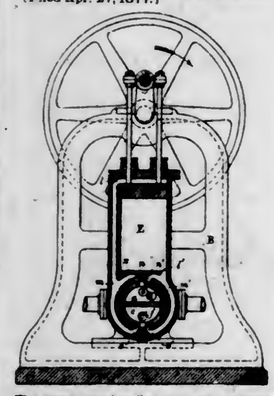
The process of manufacturing glue, consisting in treating bone, horn-pith, or other gelatinous substance, with phosphoric acid, and then subjecting the same to the action of lime-water, substantially as described.

191,123. GAGES FOR BITS. R. Gardiner, Olneyville, R. I. [Filed Apr. 4, 1877.]



The gaging attachment for bits herein described, consisting of the removable and adjustable jaws B B′, guide C, the removable and adjustable rod D having convex head *e*, and the set screws E and *b*, constructed and adapted for use as specified.

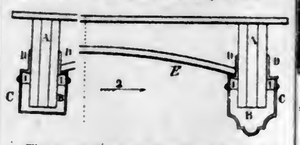
191,124. OSCILLATING STEAM-ENGINES. S. Gibson and D. C. Eberhart, Shrewsbury, Pa., assignors to said Eberhart. [Filed Apr. 27, 1877.]



The steam cylinder E, having the opening for the insertion of the fixed trunnion D, and provided with the passages *n*, *n*′, *o*, and *o*′, connecting the said opening indirectly with the interior of the said cylinder, in combination with the said fixed trunnion D, having the partitions *a* and *g*, dividing the same into the steam-chest F and the compartments *b* and *c*, the said compartments having the ports *b*′ *c*′ placed in an angular or inclined position with reference to the center line of the said cylinder, and the reversing-valve L, adapted to be partially revolved within the said steam-chest, for the purpose of changing the direction of the steam to and from the said compartments, substantially as herein shown and described.

191,125. FIRE-PROOF CEILINGS. J. Gilbert, Chicago, Ill. [Filed Nov. 7, 1876.]

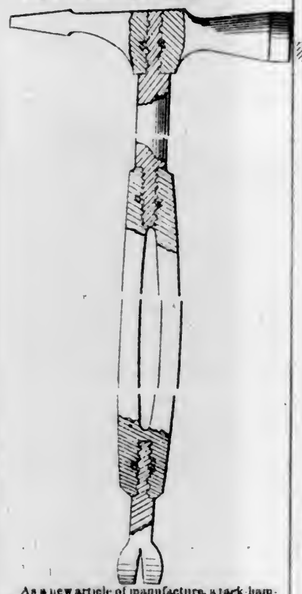
Brief.—The wooden floor-beams are protected beneath by sheet-iron casings filled with fire-proof material. Angle-irons are attached, resting on strips within the casings, from which corrugated iron arches are sprung from beam to beam, in the usual manner, and filled in above with fire-proof material, the whole forming a fire-proof ceiling with wooden beams, above which a fire-proof floor may be laid.



The joists A A, angle-irons D, strips 1 1, plaster or concrete B, corrugated arch E, and casing C, as and for the purpose set forth.

191,126. TACK-HAMMERS. F. R. Glascock, Hillsborough, Ohio. [Filed July 12, 1876.]

Brief.—An open cast-iron hammer handle is provided at one end with a steel claw for drawing tacks, and at its other end with a wrought-iron neck, upon the outer end of which is secured a tack-hammer.



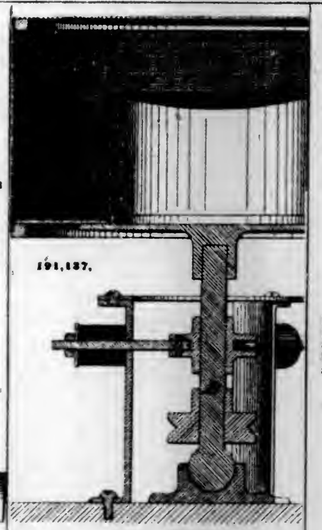
As a new article of manufacture, a tack-hammer consisting of the cast head A, wrought-iron neck B, cast handle C, and steel claw D, substantially as herein set forth.

191,127. CENTRIFUGAL MACHINES. A. A. Goubert, New York, N. Y. [Filed Apr. 12, 1877.]

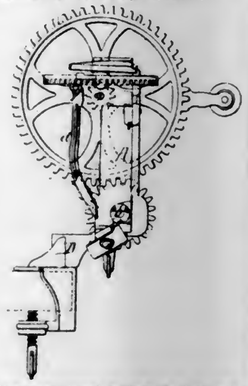
1. In combination with the basket of a centrifugal machine, mounted upon a vertical shaft having yielding bearings, a chamber concentric with the basket, and a liquid or granular substance contained in such chamber, substantially as and for the purpose set forth.

2. The method of effecting the counterbalancing of centrifugal machines herein described, to wit, by means of a suitable quantity of liquid or granulated material contained in a chamber concentric with the basket, and of such dimensions that the quantity of liquid required to counterbalance an overweight in the basket will have room to arrange itself against the side of the chamber radially opposite the overweight in the basket, under the influence of the centrifugal forces generated by the rotation of a centrifugal machine upon a vertical axis mounted in yielding bearings.

191,137.



191,138. APPLE-PARERS. W. M. Griscom, Reading, Pa. [Filed Apr. 4, 1877.]



The combination of the frame A of an apple paring machine with the clamping-frame D, secured to that end of the frame A which is adjacent to the fork-shaft, all substantially as specified.

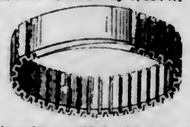
191,139.



191,139. NUT-LOCKS. Michael Hahn and George Mayers, St. Louis, Mo. [Filed May 2, 1877.]

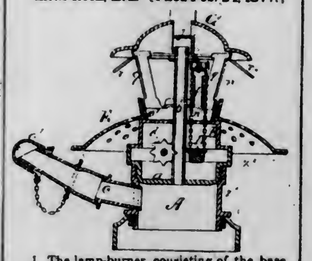
In combination with a bolt and nut, the wire or rod C, passing through the bolt and occupying grooves *a*′ and *b* in the bolt and nut, respectively.

191,140. BRACELETS. W. A. Hammond, G. P. Hammond, and W. Krymer, Brooklyn, N. Y. [Filed May 7, 1877.]



A bracelet provided with transverse depressions to give it sufficient elasticity to be placed over the wrist or arm of the wearer, and yet enable it to have an apparently thick, heavy, or massive appearance, substantially as described.

191,141. LAMP-BURNERS. B. Hempstead, Little Rock, Ark. [Filed Feb. 24, 1877.]

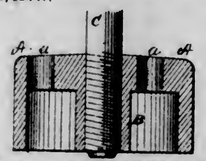


1. The lamp-burner consisting of the base A, having wick-tube *b*, the detachable cap B, carrying the extinguisher C, the detachable chimney-supporter E, and detachable tip or flame-former G, combined, arranged, and operating substantially as specified.

2. In a lamp-burner, the combination of the base A, having wick-tube *b*, with spurs *j*, the detached cap B, and chimney-supporter E, with the tip-plate G, having L-shaped slots *p*, engaging with the said spurs, substantially as specified.

3. The lamp-burner consisting of the base A, having tube *b*, the cap B, chimney-supporter E, and tip G, detachably secured together, substantially as specified.

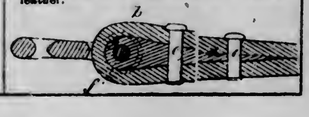
191,142. RECIPROCATING CHURNS. Abram Heartsill, Louisville, Texas. [Filed Mar. 26, 1877.]



The inverted cup A, constructed with vertical sides, and convex on its top, and provided with the perforations *a*, and with the hollow downwardly-projecting hub B, having interior screw-threads, in combination with the dasher-rod C, screwed into said hub, substantially as herein shown and described.

191,143. COCKEYE AND TRACE CLIPS. J. W. Hoffman, Newton Falls, Ohio. [Filed Mar. 3, 1877.]

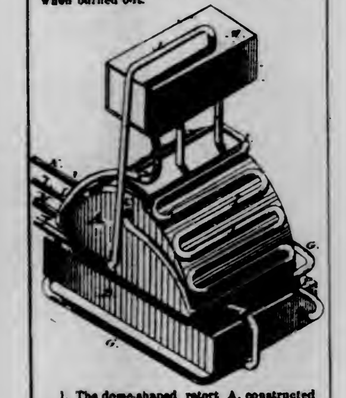
Brief.—A metallic clip made in one piece, with tubular sleeve embracing a loop of a cockeye or buckle, provided with a tapering tongue projecting centrally therefrom, the whole, when in use, enveloped by a loop of leather.



The combination, with a cockeye or buckle, of a metallic harness-clip made in one piece, with tubular end sleeve *g*, embracing a crossbar, *f*, and provided with a solid tapering tongue, *d*, extending from said sleeve, said clip being surrounded and enveloped by a loop of leather, *b*, and provided with spaced perforations and rivets *c*, substantially as specified.

191,144. HYDROCARBON-BURNERS AND GAS-GENERATORS. C. Holland, Chicago, Ill. [Filed Apr. 3, 1877.]

Brief.—Oil-vapor and steam are generated in separate chambers of the retort, and are burned under the retort, issuing from separate pipes. Oil-vapor generated in a separate chamber of the retort is converted into a fixed gas in a coil of pipe upon the outside of the retort. The perforated steam-pipe projecting below the retort is united to a pipe above the retort by a union-coupling, so that it may be readily removed and replaced by another one when burned out.



1. The dome-shaped retort A, constructed as described, and provided with the coiled pipe I, arranged on the top and ends of the retort, and communicating with the gas-receiver M, substantially as and for the purpose specified.

2. The dome-shaped retort A, in combination with the induct-pipes K L N, steam-pipe G, coiled pipe I, gas-receiver M, having outlet-pipe J, pipe H, having burner *o*, and the upper burner O, the several parts being constructed, arranged, and operating, substantially as and for the purpose specified.

3. The steam-pipe G, arranged as shown, and perforated on its upper surface, and provided with the union joints or couplings P, substantially as and for the purpose described.

191,145. VELOCIPEDES. J. L. Hornig, Jersey City, N. J. [Filed Apr. 3, 1877.]

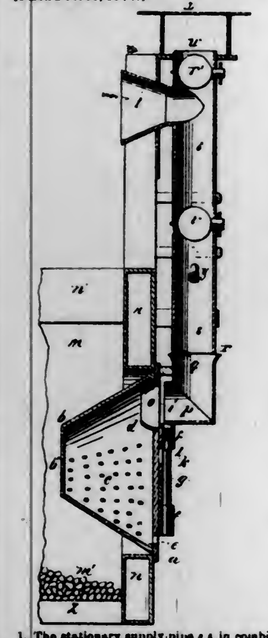


The balance-beam B, carrying the seat I and pivoted near the front end of the reach O, and the rod F pivoted to the rear end of the beam and connected to the crank *g* of the driving-wheel, the rod H pivoted to the front end of the beam, and the treadle D pivoted to the lower end of the rod H and to the reach O, the whole being combined for operation substantially as shown and described.

191,146. METAL ALLOY FOR COMMERCIAL COIN. W. W. Hubbell, Philadelphia, Pa. [Filed Apr. 4, 1876.]

The alloy coin metal of gold, silver, and copper, substantially in the proportions and for the purpose described.

191,147. FURNACE-DOORS OF LOCOMOTIVES. W. W. Hubbell, Philadelphia, Pa. [Filed Feb. 16, 1877.]



1. The stationary supply-pipe *s s*, in combination with the elbow-pipe *p*, having an expanded mouth, *r*, and attached to the door, conical perforated chamber *d*, bell-mouth *t*, valve *r'*, and valve *v*, to force and regulate the supply of air, substantially as described.

2. In combination with a furnace-door provided with a conical perforated chamber, *d*, and bevel-collar *o*, the elbow-pipe *p*, secured to the door, and stationary pipe *s s*, the collar *o*, forming with the end of elbow-pipe *p* an annular space, as and for the purposes described.

3. In combination with a furnace-door, provided with an elbow-pipe, *p*, having a flaring end, *q*, the pipe *s s*, having mouth *w* and bell-mouth *t*, as and for the purposes set forth.

4. In combination with a furnace-door provided with chamber *d* and elbow-pipe *p*, the pipe *s s*, having bell-mouth *t*, mouth *w*, and valves *v r'*, as and for the purpose set forth.

5. The pipe *s s*, cover *n*, mouth *w*, and furnace-door, provided with elbow-pipe *p*, and chamber *d*, all combined as and for the purpose set forth.

6. In combination with a furnace-door provided with elbow-pipe *p* and chamber *d*, the stationary pipe *s s* and steam-jet pipe *y*, all arranged to operate together as and for the purpose set forth.

191,148. NAPKIN-HOLDERS. R. W. Huston, Brooklyn, N. Y., assignor of one-half his right to J. G. Auld, Washington, D. C. [Filed May 5, 1877.]



1. A napkin-holder made of wire or of sheet metal, and provided with the spring-steel hook A and the slots C and D, substantially as described, and for the purposes set forth.

2. A napkin-holder made of wire or of sheet metal, and provided with the spring-steel book or holder A, the slots C and D, and the shield E, substantially as described, and for the purposes set forth.

191,149. BUTTONHOLES. F. P. Iannarone, Washington, D. C. [Filed Dec. 6, 1876.]



1. The clamps C, adapted to be secured to the edges of the glasses A, substantially as and for the purposes herein before set forth.

2. In combination with the securing-clamps C, the glasses A, provided with two recesses in the edges thereof, on opposite sides of the horizontal diameter, and adapted to receive the ends of the clamps, substantially as and for the purpose herein before set forth.

3. The glasses A, formed with a recess on either side of the horizontal diameter, substantially as and for the purposes described.

191,150. VEHICLE-SPRINGS. H. L. Isham, Plattsburg, N. Y. [Filed Mar. 10, 1877.]



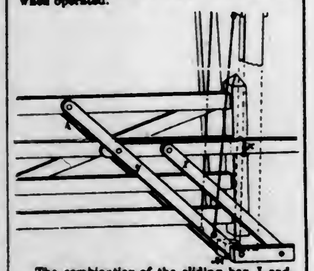
1. The spring *a*, secured to the vehicle-body and resting upon the strap or thorough-brace *b*, connected to the axle or bolster and the said spring, substantially as and for the purpose set forth.

2. In combination with the spring *a*, resting upon the strap or thorough-brace *b*, the threaded bolt *d d'*, as and for the purpose set forth.

3. The spring *a*, in combination with, and connected to, the thorough-brace or strap *b*, by the loops or eyes *a a'* and threaded bolt and nut *d d'*, substantially as and for the purpose set forth.

191,151. GATES. I. D. Jewett, St. Omer, Ind. [Filed Nov. 22, 1876.]

Brief.—The levers to which the gate is attached are pivoted, one to the gate and the other to a horizontal bar in a loop, in order to steady the gate and keep it from tipping when operated.

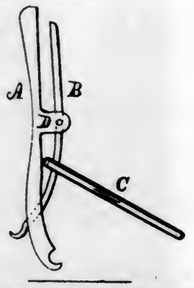


The combination of the sliding bar J and guide K with the gate and its supporting-bars *g* I, the latter being pivoted in the manner shown and described.

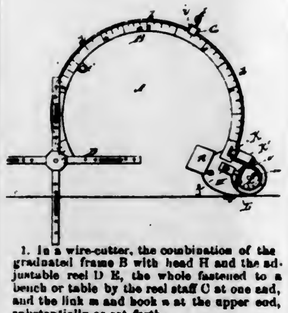
191,152. GARMENT-HOLDING DEVICES. C. B. Johnson, Indianapolis, Ind. [Filed Apr. 26, 1877.]

In a clasping device for holding garments, the jaws A and B, pivoted at D, in combination with the ring or link C, adapted to operate the jaws so as to clasp or unclasp the fabric, as herein shown and described, and substantially as herein set forth.

191,153.



191,154. WIRE-CUTTERS. J. Johnson, Marshalltown, Iowa. [Filed Apr. 21, 1877.]



1. In a wire-cutter, the combination of the graduated frame B with head H and the adjustable reel D E, the whole fastened to a bench or table by the reel staff C at one end, and the link m and hook n at the upper end, substantially as set forth.

2. The headed spring-bolt K, arranged to operate in combination with the cutting-chisel I J, substantially as and for the purpose described.

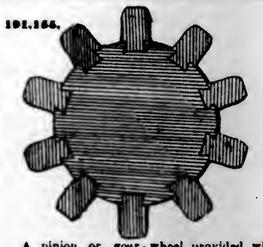
3. The combination, with the wire-cutter herein described, of the registering-disks L L', arranged as shown, and operated by the spring-pawl l attached to and actuated by the spring-bolt K, substantially as and for the purpose described.

4. The open box or case E arranged in combination with the head H, chisels I J, and spring-bolt K, as and for the purpose described.

191,155. GEAR-WHEELS. David Jones, Youngstown, Ohio. [Filed Mar. 27, 1877.]

Brief.—Pinion wrought-iron or steel teeth (heated or not) in the mold, and pours molten iron around their shanks.

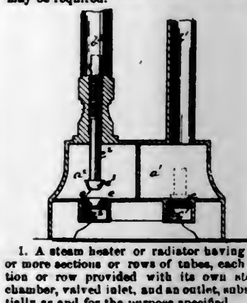
191,156.



A pinion or gear-wheel provided with wrought-iron or steel teeth, said teeth secured to the body of the pinion in the process of casting the latter, substantially as described.

191,156. STEAM-RADIATORS. R. L. Kershoban, Titusville, Pa. [Filed Apr. 6, 1877.]

Brief.—Either one or more of the sections may be used, according as more or less heat may be required.



1. A steam heater or radiator having two or more sections or rows of tubes, each section or row provided with its own steam-chamber, valved inlet, and an outlet, substantially as and for the purpose specified.

2. In a steam heater or radiator having two or more independent sections, the hollow base divided by a partition or partitions to form corresponding independent steam-chambers, substantially as specified.

3. The combination, in a steam heater or radiator, of the independent sections, and the base composed of a series of independent steam-chambers, each of said chambers provided with an inlet-valve, substantially as and for the purpose specified.

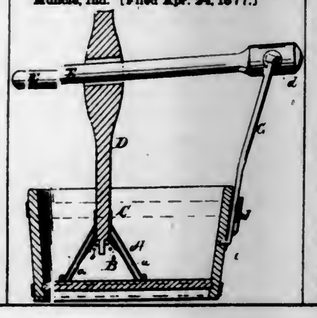
4. In a steam-heater having an inlet and valve for closing the same, the independent valve-seat tapped into the steam-chamber or hollow base at the mouth of the steam-inlet, substantially as specified.

5. In a steam-radiator, the combination, with a series of independent steam-chambers and corresponding sections, of the trap and exit or dip pipes, substantially as specified.

6. In a steam heater or radiator, the combination, with a series of independent steam-chambers, of the steam-inlet and branches leading to said chambers, substantially as and for the purpose specified.

7. In a steam heater or radiator having a steam-chamber or hollow base, and radiating tubes or sections, the steam-inlet valve located within the base or steam-chamber, substantially as specified.

191,157. CLOTHES-WASHERS. A. Kimber, Muncie, Ind. [Filed Apr. 24, 1877.]



191,158. PENS. H. S. Johnson, Jersey City, N. J. [Filed Apr. 10, 1877.]



A gold pen constructed with corrugations in its nib, substantially as shown and described, for the purpose of definitely graduating said pen as to stiffness.

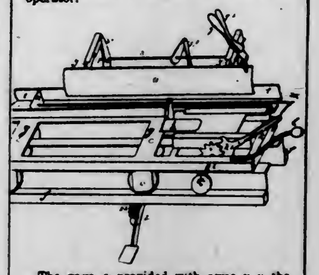
1. The combination of the outer solid shell A, the inner perforated shell B, arranged to form a narrow space between the two shells, the tube or socket C, and guards *b*, substantially as and for the purposes herein set forth.

2. The combination, with a tub, H, of the standard or arm G, having lugs *i*, the latch J, and catch I, substantially as and for the purposes herein set forth.

3. The combination of the tub H, the detachable standard G, the lever E, with swivel *d*, the handle D, provided with a slot through which the lever passes, and the double-shell washer A B C *b*, all constructed substantially as and for the purposes herein set forth.

191,160. MACHINES FOR SAWING STAVES. Andw. Knipper, Cleveland, Ohio. [Filed Apr. 21, 1876.]

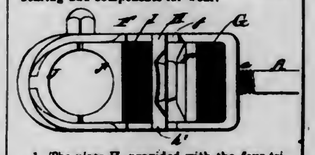
Brief.—The gage which determines the thickness of the stave is adjusted by the foot of the operator.



The gage *e*, provided with arms *y y*, the rock-shaft *c*, having arms *x'*, the handle *g*, provided with the catch-lever *g'*, the foot-lever *x*, arms and link *x'*, and spring *x''*, all combined, arranged, and operating substantially as and for the purpose specified.

191,159. PITMAN-BOXES. Edw. M. Krum, Chatham, N. Y. [Filed Apr. 7, 1877.]

Brief.—To give the pitman-rod an elastic bearing and compensate for wear.



1. The plate H, provided with the four triangular corner-pieces *h'* and central socket *h*, substantially as described, and for the purpose set forth.

2. The plate H, having the corner-pieces *h'* and socket *h*, in combination with the pitman-box F, provided with recesses *f* and pitman A, substantially as described, and for the purpose set forth.

3. The combination of pitman-box F, having recesses *f* and rubber packing, with nut F' and plate H, having corner-pieces and central socket, substantially as and for the purpose set forth.

4. The combination of recessed pitman-box F, plate H, with triangular corner-pieces, and socket-nut F', pitman A, springs G I, and sectional bearings J J', provided with lug *j* and recess *f*, substantially as described, and for the purpose set forth.

191,160. PROCESSES OF MANUFACTURING ALUMINIS SULPHATE AND ALUM. Charles Lennig, Philadelphia, Pa. [Filed Aug. 7, 1876.]

The process of dissolving the alumina contained in clay or kaolin by subjecting the clay or kaolin to the action of sulphuric acid under pressure in a closed vessel, substantially as described.

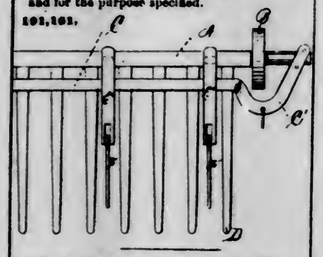
191,161. HORSE HAY-RAKES. D. Martin, Brookston, Ind. [Filed Apr. 4, 1877.]

1. The wheel-guard, formed by the bend C in the bar C, as and for the purpose shown and described.

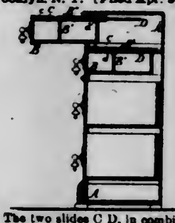
2. The rake-head A, supported by wheels B, uprights E, having arms E' and strippers F, as and for the purpose described and shown.

3. The rake-head A, supported by wheels B and teeth D, strengthened by the bar C, having the bend C', upright E having the rigid arms E' and strippers F, arranged and combined and operated as shown and described, and for the purpose specified.

191,161.



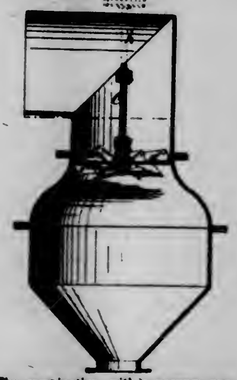
191,162. BUREAU-DRAWERS. I. Mason, Brooklyn, N. Y. [Filed Apr. 9, 1877.]



1. The two slides C D, in combination with the draw B, adapted to be closed by contact with the back A' of the body of the bureau, as herein specified.

2. The partitioned drawer B B', lined with yielding material b, in combination with a sliding cover in two parts, D C, grooved guides B', and arranged to be closed by contact with a stop, A', to insure the closing of the covers during the shutting of the drawer, as herein specified.

191,163. APPARATUS FOR COLLECTING AND SAVING PARTICLES OF SUGAR-LIQUOR RISING WITH THE STEAM FROM VACUUM-PANS. Evans O. Matthiessen, Irvington, N. Y. [Filed Mar. 3, 1877.]



The combination, with a vacuum-pan, of a wheel composed of a system or systems of inclined or curved blades, vanes, or fans affixed to a central shaft, mounted in vertical bearings within the neck of the pan, and made to rotate by the force of the current of steam generated in the pan, whereby fine particles and drops of sugar-liquor carried upward with the steam are caught upon the rotating blades and thrown therefrom by centrifugal force against the wall of the neck in favorable position to make their way back under the influence of their own gravity into the body of sugar-liquor in the bottom of the pan.

191,164. TAMPING-TOOLS. Ira W. Mead, Falls Village, Conn. [Filed Mar. 24, 1877.

191,164.



1. A tamping-tool consisting of a blade and tubular handle removably secured together, substantially as specified.

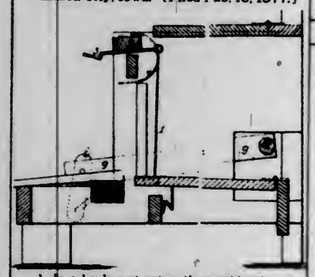
2. In a tamping-tool, the blade a, having a screw-threaded rabbet, c, and the tubular screw-threaded handle b, having prismatic enlargement a, combined substantially as specified.

191,165. SNAP FISH-HOOKS. Geo. C. Millet, Albemarle County, Va. [Filed Mar. 17, 1877.]



The combination, with the main hook A, provided with the shank B, having latch h pivoted to its end, of the auxiliary hook C with projecting pin i, the pivot-pin a with stud b, and the coiled spring D, all constructed and arranged as described, whereby the spring D may be wound up more or less by turning the auxiliary hook one or more times on its pivot, for the purposes set forth.

191,166. HEN'S NESTS. H. B. Morrison, Mason City, Iowa. [Filed Feb. 10, 1877.]



1. In a hen's nest entry, the combination of the bar e, lever g, crank j, and a door for closing the end of the entry, substantially as shown.

2. The combination of a hinged floor, spring connecting-rod, pivoted rocking-bar, and the catch, whereby the door is held shut and released, substantially as described.

3. The rocking bar, connected to the floor, and provided with a catch for holding the door and a device for pushing the door open, substantially as set forth.

191,167. BLOCKS FOR DESIGNING INLAID WORK. Johann U. Mueller, Detroit, Mich. [Filed Apr. 5, 1877.]

Brief.—Useful as toy blocks for kindergarten use, or, in sober earnest, for forming various ornamental patterns.

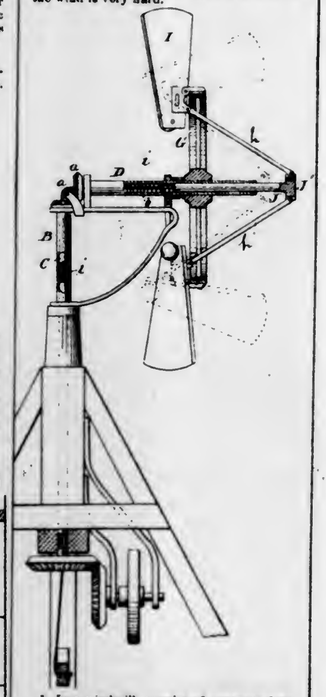
191,167.



The apparatus for designing mosaic or inlaid work, consisting of square blocks or tablets having marked on one or more of their sides or surfaces, in varying shades, tints, or colors, divided isosceles triangles, so as to form two triangles of unequal sides, substantially as described and shown, for the purpose set forth.

191,168. WINDMILLS. J. Nesbitt, Prairie Ronde, Mich. [Filed Apr. 28, 1877.]

Brief.—This wind-wheel has no vane, and the wheel hangs behind the center-post, the wind holding the mill facing the wind at all times. It is self-regulating. When the wind blows hard, it increases the motion, and the motion opens the fans, so that they catch less wind, and hence the wheel will have the same motion all the time, and does not stop when the wind is very hard.



1. In a windmill, a series of separate fans, hung to a rotating wheel, and having their position or angle regulated by the centrifugal force, substantially as herein set forth.

2. The combination of the hollow shaft D, with interior spring b, the wheel G, fans I I, braces h h, and rod J, with head J', all substantially as and for the purposes herein set forth.

3. The combination of the hollow wind-wheel shaft D, bevel-gears n n, hollow upright shaft U, and the hollow center-post B, of the derrick, as and for the purposes herein set forth.

191,169. GAME APPARATUS. F. E. Nutting, Florence, Mass. [Filed Feb. 20, 1877.]

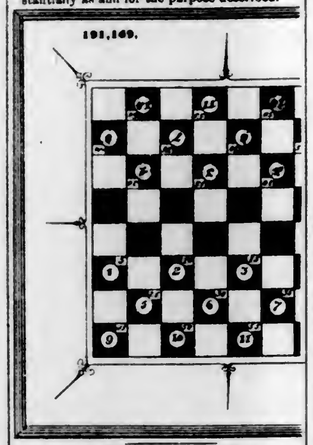
1. A game apparatus consisting of a checker-board having one or more rows of its playing-squares numbered, and of checker-men also numbered, substantially as described.

2. A game apparatus consisting of a checker board and men, a portion of the playing-squares of the board being, respectively

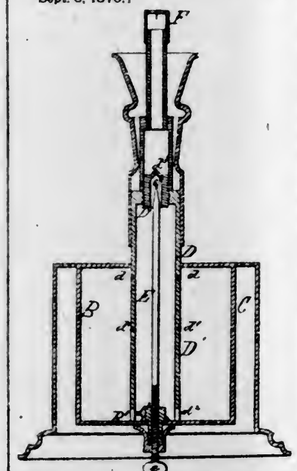
marked with numbers having a common divisor, and the checker-men being marked, respectively, with numerals such that each number on the board-squares is divisible under the common divisor by one of the numbers on the checker-men, substantially as described.

3. The combination, with a check-board equal portions of whose squares on either opposing side are numbered in a constantly-increasing series, having a common factor, of checker-men corresponding to each of said opposing sides, and numbered so that each one of the checker-men may, under multiplication of said common factor, equal the number stamped upon the respective squares, substantially as and for the purpose described.

191,169.



191,170. HYDROCARBON-VAPOR BURNERS. Robt. W. Park, Philadelphia, Pa. [Filed Sept. 6, 1876.]

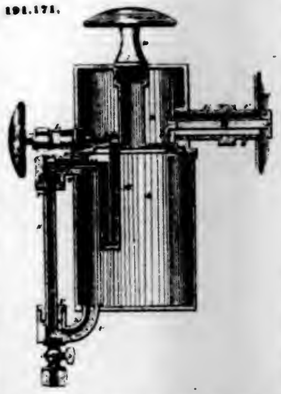


1. In a hydrocarbon-vapor burner, the retort D, formed or provided with an extension, D', in combination with the reservoir B, said retort and reservoir being relatively arranged, substantially as described, so that the liquid contents of the latter may come in contact with the walls of the former, so as to secure ready vaporization of the oil, substantially as shown and set forth.

2. In combination with the reservoir B, the retort-extension D' projected downwardly into said reservoir, and provided with openings d for the passage of the vaporized oil or gas, substantially as shown and described.

191,171. LUBRICATORS. C. H. Pareball, Detroit, Mich. [Filed Mar. 29, 1877.]

191,171.



1. The side-supporting stem, having its steam and oil ducts communicating with their respective chambers by independent passages, the passage from the oil-chamber into its corresponding duct being provided with a check-valve, substantially as described.

2. A lubricator divided into steam and oil chambers, which are secured directly to each other, the steam or condensing chamber formed with a T division-plate, with which is connected the supporting-stem, the latter being provided with independent steam and oil passages or ducts, substantially as set forth.

3. A lubricator divided into steam and oil chambers, directly secured to each other, the steam or condensing chamber formed with an inwardly-projecting screw-threaded socket, which latter has steam and oil passages leading from its sides, in combination with a supporting-stem, the same being provided with independent steam and oil passages, substantially as set forth.

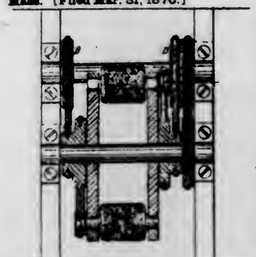
4. The side-supporting stem, having independent steam and oil ducts, whose partition piece is provided with the right-angular cross-guard, made in the same piece therewith, substantially as described.

5. A lubricator provided with independent steam and oil chambers, the bottom of the steam-chamber provided with two openings at right angles to each other, one opening serving as a valve-seat, while the other is screw-threaded, for the attachment of a water-seal pipe, substantially as set forth.

6. The combination, with the oil and condensing chambers, directly secured to each other, of a water-seal pipe, the upper end of which connects with the condensing-chamber, while the lower portion of the pipe depends into the oil-chamber, and the lower end connects directly with a glass indicator, the ends of which have free communication with the oil-chamber, substantially as and for the purpose set forth.

7. The condensing-chamber, constructed with independent openings in its bottom for the separate passage of water and oil, the openings provided, respectively, with a water-seal and a check-valve, substantially as described.

191,172. MACHINES FOR WHITENING AND BUFFING LEATHER. W. A. Perkins, Salem, Mass. [Filed Mar. 31, 1876.]



In a machine for whitening or dressing leather, one or more cylindrical tools attached to the periphery of a wheel, each of the cylindrical tools having a positive rotative movement on its own axis imparted to it, and is brought into contact with the leather to be dressed by the revolution of the wheel to which it is attached, substantially as herein described.

191,173. MANUFACTURE OF TABLETS, SIGNS, &c. H. Pfeil, Philadelphia, Pa. [Filed Nov. 3, 1876.]

1. The mode herein described of preparing paper for receiving designs to be imparted by printing, painting, or otherwise—that is to say, first impregnating the paper with drying-oil, and then varnishing the back, all substantially as set forth.

2. The mode described of preparing paper for printing or painting, or both—that is to say, impregnating the paper with drying-oil, varnishing the back of the paper, and painting the front, as set forth.

3. The mode described of making an imitation of prepared canvas—that is to say, by impregnating paper with drying-oil, varnishing the back, and subjecting the paper to pressure while in contact with wire-gauze, as specified.

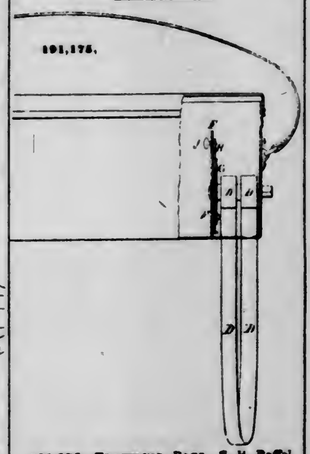
4. The mode described of manufacturing signs, tablets, pictures, &c.—that is to say, first impregnating paper with drying-oil; then varnishing the back; then imparting the design to the face or to a coating of oil-color on the face; and, finally, uniting the varnished side of the sheet to a varnished backing, as set forth.

191,174. MANUFACTURE OF TABLETS, SIGNS, &c. H. Pfeil, Philadelphia, Pa. [Filed Nov. 3, 1876.]

2. The plate F, provided with flanges a, whereby it forms a guide for directing the bottom of the can onto the bed A, as set forth.

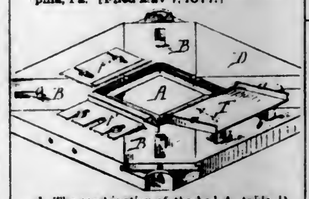
3. The plate F, connected to the table by an elastic support, so that it can yield vertically at the front end, as specified.

191,175.



191,175. TRAVELING-BAGS. S. H. Raffel, Hartford, Conn. [Filed Mar. 14, 1877.]

191,179. SHEET-METAL-CAN MACHINES. G. H. Perkins, Philadelphia, Pa., assignor to himself, J. Le Comte, New York city, and Atlantic Refining Company, Philadelphia, Pa. [Filed May 7, 1877.]



1. The combination of the bed A, table D, and dies B of a can-jointing machine with a plate or plates, F, arranged adjacent to the edge of the opening in the table, substantially as set forth.

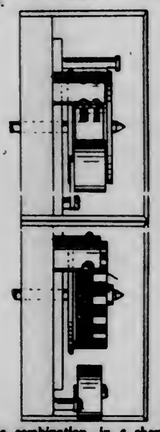
Brief.—Straps pass through holes in the bottom of the bag, and are wound upon drums on the inside. Suitable mechanism is provided to tighten the straps, and these hold a roll or bundle without the aid of buckles.

1. A traveling-bag having the ratchet and pawl G H, and the releasing-knob J, arranged between a partition, F, and the end of said bag, for the purpose of holding and operating a strap for securing a roll or bundle to the bottom of the bag, substantially as herein described.

2. The straps D, or their equivalents, and a winding and retaining mechanism, in combination with a traveling-bag, substantially as and for the purpose herein described.

191,176. CHEMICAL TELEGRAPH. Charles A. Randall, Brooklyn, N. Y. [Filed Oct. 16, 1876.]

Brief.—Records in Roman characters, using single line-wire. Transmitter and receiver revolve synchronously. Receiver consists of revolving wheel, bearing Roman characters in metal, through which current passes to ground. Transmitter of ordinary form, paper being perforated with perforations, the distances between which correspond to the distances between the successive letters to be recorded.



1. The combination, in a chemical telegraph, of a suitable transmitting apparatus with a single line-wire, and a receiving-drum composed of a circuit-wheel, the metallic sections of which represent the letters of the alphabet, so that by a single impulse of electricity any desired letter can be recorded upon chemical paper passing over the type-circuit wheel, substantially as set forth.

2. The combination, in a chemical telegraph, of a circuit-wheel, the metallic sections of which represent the letters of the alphabet, with a transmitting-strip provided with perforations, the distances of which from each other correspond to the distances between the successive letters to be recorded, substantially as described.

3. The method herein described of splitting up the electric current in the receiving-station by combining a series of receiving-pens connected to one and the same line-wire with the type-circuit wheel, substantially as set forth.

4. The combination, with a transmitting apparatus and with its line-wire, of a recording apparatus, which, after having received an electrical impulse of one polarity from the transmitting-station, produces automatically an electrical impulse of the opposite polarity, substantially as described, and shown in *Fig.* 5.

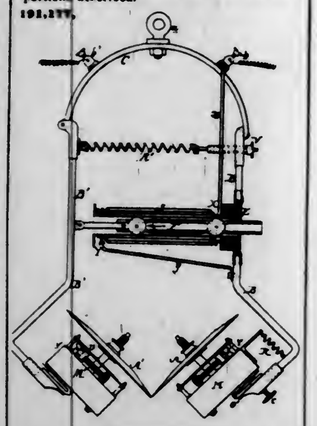
5. The combination, with a type-circuit wheel, of an induction-coil and a battery in the receiving-station, the induction-coil being connected to the line-wire, the battery, the stylus, and the circuit-wheel, substantially as described, and shown in Fig. 11.

191,177. ELECTRIC LIGHTS. N. B. Reynier, Paris, assignor to C. B. M. Du Breil, Quimercch en Bavnalec, France. [Filed Mar. 29, 1877.]

1. The combination, in an electric lamp, of the arms B and B', carrying the carbons, with the spring E', and with the solenoid S connected to one arm, and the soft-metal bar to the other, as set forth.

2. A carbon disk for an electric lamp, the said disk being formed of a compound of carbon, sugar, and iron-filings, in about the proportions described.

191,177.



191,178. REVOLVING FIRE-ARMS. C. H. Richardson, Philadelphia, Pa. [Filed Dec. 29, 1876.]

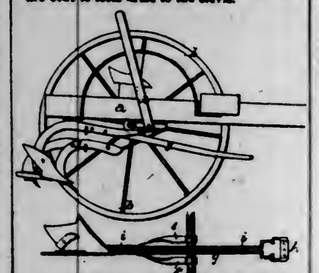


1. The combination, in a revolving fire-arm, of the following elements, namely: a barrel, B, with two bores, a revolving chambered cylinder, D, a revolving chambered ring, B, and two independently-operating hammers, F and G, as set forth.

2. The combination of the cylinder D, provided with ratchet and recesses, with the bell crank lever *f*, and the hammer F, having a finger, *e*, and the cam *n* on one side, constructed and operating substantially as set forth.

191,179. CULTIVATORS. Wm. J. Robertson and Philip Knight, Jasper County, Mo. [Filed Apr. 13, 1877.]

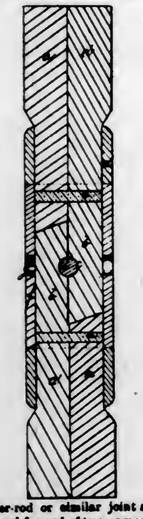
Brief.—A wheel-cultivator, the beam consisting of two plates or bars that run parallel, separated at suitable distances with small interposed plates, and at the rear parting to form the braces to the land-side and the mold-board of the plow. The front ends of the bars are bent to form arms to the clevis.



1. A plow-beam, *g*, consisting of two parallel plates, the end of one being fastened to the inside of the mold-board, and the other to the inside of the land-side, in combination with the interposed plates *i* and the plates *e*, for connecting the beam to the axle, substantially as shown.

2. The plow-beam *g*, consisting of two parallel plates that are separated by the interposed plates *i*, and which have their front ends turned outward at right angles, so as to receive the clevis A, substantially as set forth.

191,180. SUCKER-RODS. Luman Rogers, Pittsburg, Pa. [Filed Nov. 8, 1876.]



1. The socker-rod or similar joint section, having a lap, and formed of two or more pieces secured by a pin or key and collar, substantially as and for the purpose specified.

2. The pump-rod or similar connection, consisting of the lap-joint, the key or pin and sleeve or keeper, the motion of the keeper being restricted by the fixed collars, substantially as and for the purpose specified.

3. In a joint or connection for sucker-rods and similar shafting, the combination of the lap-joint, the pin or key, the sliding sleeve or keeper, and the annular spring-washer, substantially as and for the purpose specified.

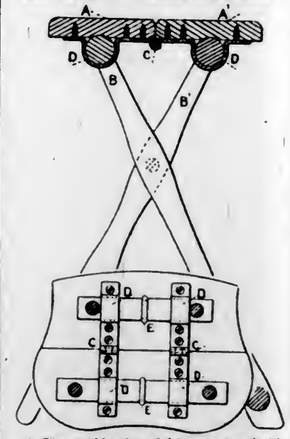
191,181. FIRE-ESCAPES. Edwd. Row, Indiana, Pa. [Filed May 7, 1877.]



1. A fire-escape composed of a series of alternate links and rings, A, provided with a suitable device for attaching the same to the place desired, as set forth.

2. A fire-escape composed of a series of alternate links and rings, and provided with a suitable device for attaching the same to the place desired, in combination with an auxiliary point and arm, substantially as and for the purpose set forth.

191,182. CAMP-STOOLS. Edw. M. Sammis, New York, N. Y. [Filed Oct. 26, 1876.]



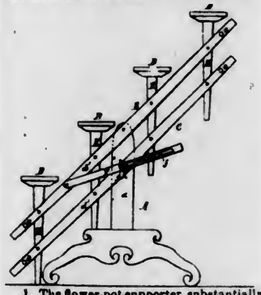
1. The combination of the two parts A A', hinged together as described, of the loops attached to said parts, and the legs B B', connected with the loops, the whole arranged as and for the objects hereinbefore set forth.

2. The hinges C, with loop D, in combination with the seat and legs of a camp-stool, substantially as described, and for the purposes set forth.

3. The grooves on the under side of the seat A and A', in combination with the loop D or staple E, substantially as described, and for the purposes set forth.

191,183. FLOWER-POT SUPPORTERS. W. F. Sampson, Norway, Me., assignor to himself and N. C. Sampson; said N. C. Sampson assignor to A. L. F. Pike, same place. [Filed Dec. 11, 1876.]

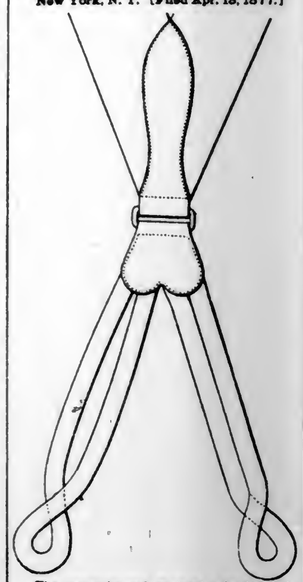
Brief.—Shelves are attached to the upper ends of legs pivoted vertically to two parallel frames, which are pivoted to a stand. The legs retain their vertical positions at any adjustment of the frames.



1. The flower-pot supporter, substantially as described, composed of the stand A, the two pivoted frames B C, the series of shelves D, and legs E attached thereto, arranged and combined essentially in manner and to operate as shown and explained.

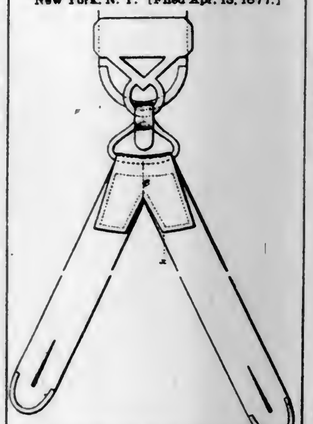
2. The combination of one or more slotted bars, F, and a clamp screw, *g*, and nut h thereto, as described, with the flower-pot supporter, composed of the stand A, the pivoted frames B C, the series of shelves D, and legs E, all being arranged and combined, substantially as and to operate as set forth.

191,184. SUSPENDERS. Abraham Shenfield, New York, N. Y. [Filed Apr. 13, 1877.]



The suspender-end made of a flat braided cord, bent double and crossed to form a button-hole at the end, and the cord secured together at the crossing by stitches, substantially as set forth.

191,185. SUSPENDERS. Abraham Shenfield, New York, N. Y. [Filed Apr. 13, 1877.]



The suspender-end formed of two separate and independent woven webs, each having a button-hole near one end, and connected at the other end by a folded piece of leather to the loop or ring of the buckle, substantially as set forth.

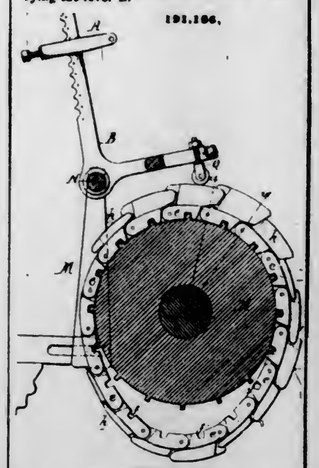
191,186. KNITTING-MACHINES. J. Gibson, Philadelphia, Pa. [Filed Sept. 18, 1876.]

Brief.—The standards supporting the guide-bar actuating lever are adjustable to and from the chain. The yoke is also adjustable on the lever. The above adjustments co-operate with that of the roller on the chain, to make the action of the guide on the chain steady and accurate.

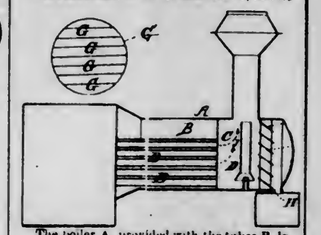
1. The combination of the pattern-chain with a lever, B, and adjustable yoke A, attached to the guide-bar of a knitting-frame.

2. The combination of the drum H, the pattern-chain, and adjustable standards M, carrying the lever B.

191,186.

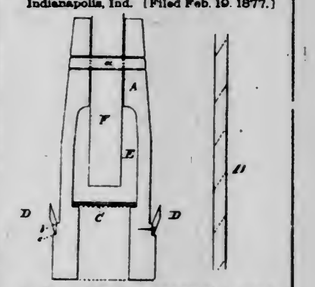


191,187. SPARK-ARRESTERS. L. B. Smith, Hornellsville, N. Y. [Filed Mar. 6, 1877.]



The boiler A, provided with the tubes B, in combination with a series of deflecting plates connected to a removable rim, G', arranged within the chamber C, beyond the course of the natural draft and the opening leading to the smoke-stack, for the purposes described.

191,188. PUMP-PISTONS. J. M. Springer, Indianapolis, Ind. [Filed Feb. 19, 1877.]



1. The packing D, consisting of a strip of suitable material cut with beveled edges, as shown and for the purpose specified.

2. The combination of the cylinder A, having recesses *b* and *c*, packing D, independent valve C, and rod F, all as herein shown and described, and as and for the purpose specified.

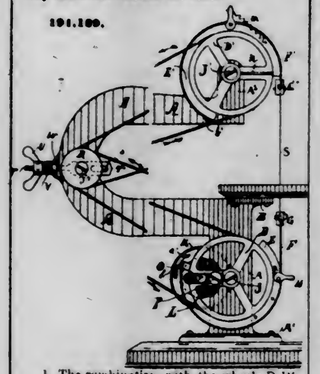
3. The rod F, in combination with a pump-sucker, as shown, used as a stop for the valve C, as herein shown and described.

191,189. JIG-SAWS. L. T. Stanley, Indianapolis, Ind. [Filed Mar. 16, 1877.]

Brief.—The saw is attached to two segmentally-flanged wheels, provided with eccentric binders to retain the belts on the wheels,

mounted on the upper and lower arms of a C-shaped frame, and having a uniform motion given to each in the same direction by means of an equalizing-belt passing over the wheels, and a double-grooved and adjustable sheave mounted in the rear of the frame. The upper band-wheel is provided with a fan-wing, attached to one of the spokes, for blowing the sawdust from the work. The lower wheel receives power from a crank-wheel, provided with a wrist-pin operating in a slotted spoke of the same, by means of which it is partially rotated on its axle with a quick motion one way and a slow motion the other.

191,189.



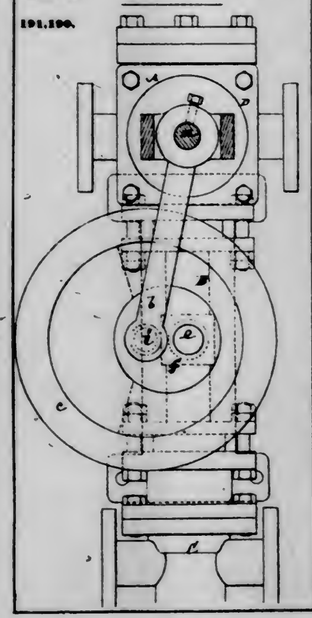
1. The combination, with the wheels D D', provided with segmental flanges E E, of a jig-saw device, of the eccentric clamps H H, for adjusting the bands F F' on the wheels, as specified.

2. The wheels D D' of a jig-saw device, carrying the bands and saw, in combination with the crank-wheel L and its pin P, adapted to a radial slot in the wheel D, as set forth.

3. A jig-saw device consisting of the frame A, wheels D D', crank wheel L, wrist-pin P, clamps H, sheaves R, and endless ropes or belts x and F, constructed and arranged to operate as shown and described.

4. The spring-slide T, screw T, and nut U, combined with the double sheave R, belts x and F, wheels D D', carrying the belt and saw, as specified.

191,190.

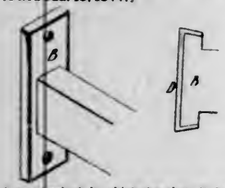


191,190. DONKEY ENGINE AND PUMP. Jos. Stannah, Southwark, England. [Filed Mar. 21, 1877.]

Brief.—A disk is loosely pivoted to the valve-arm and to the piston-rod. As said piston-rod reciprocates, it causes the disk to rotate on both pivots, which throws the valve-arm pivot from side to side to oscillate the valve.

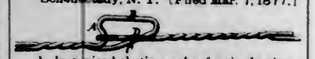
The combination of the rotating disk or pendulum-weight *c*, the concentric pin *f* on or with which said disk or weight rotates, the valve-spindle *a*, the pendulous rod *b* connecting said valve-spindle and pin *f*, and the eccentric pin *e*, attached to the reciprocating piston-rod F, and connected with the rotating and swinging disk or weight *c*, substantially as specified.

191,191. FACE-PLATES FOR LOCKS. A. Stewart, Philadelphia, Pa., assignor to himself and W. H. Mattson, same place. [Filed Jan. 16, 1877.]



A mortise-lock in which the plate B, having all four edges beveled, is combined with a brass strap, D, having four flanges adapted and compressed to the said beveled edges of the plate, all as set forth.

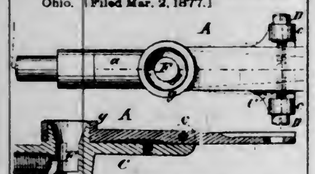
191,192. WIRE BALE-TIES. L. Stewart, Schenectady, N. Y. [Filed Mar. 7, 1877.]



1. In a wire bale-tie, made of a single wire, the rigid hook having an endless brace, B, and a sustaining-bar, C, substantially as and for the purpose described.

2. The wire bale-tie, having a loop, H, formed at one end of the tie, with a hook, A, made of a single wire and provided with a brace, B, and a sustaining-bar, C, all constructed and operating substantially as herein set forth.

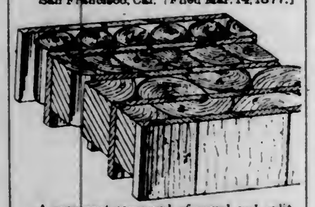
191,193. SHUTTLE-LEVERS FOR SEWING-MACHINES. R. H. St. John, Springfield, Ohio. [Filed Mar. 2, 1877.]



1. The shuttle-lever consisting of the two members *a b*, relatively adjustable on their common axis, as and for the purpose set forth.

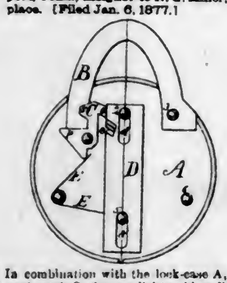
2. The compound lever A, constructed with an arm, C, having ears or lugs *c*, between which the free end *b* of said lever is held by set-screws D, as and for the purpose set forth.

191,194. WOOD PAVEMENTS. H. M. Stow, San Francisco, Cal. [Filed Mar. 14, 1877.]



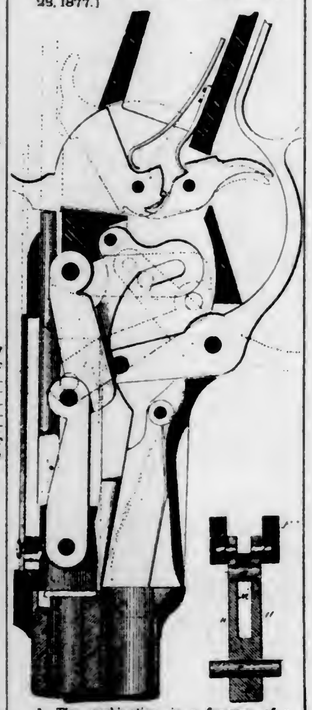
A pavement composed of round and split blocks of wood, placed in separate rows or together, and held to their places by an intermediate row of thinner and longer blocks, as and for the purpose described.

191,196. PADLOCKS. R. Thompson, Bridgeport, Conn., assignor to N. G. Miller, same place. [Filed Jan. 6, 1877.]



In combination with the lock-case A, hasp B, and catch C, the parallel tumblers D, constructed with the slots *d* and *d'*, so as to pass over and be retained in position by the rivets 2 and 5 of said case, and with the notches *e* in one of the sides of the same, to receive the projection *o* of said catch when the hasp is unlocked, and arranged to operate in locking and unlocking said hasp, substantially as shown and specified.

191,195. MAGAZINE FIRE-ARMS. Frank W. Tiesing, New Haven, Conn. [Filed Feb. 28, 1877.]



1. The combination, in a fire-arm, of a breech-piece moving longitudinally in the frame to open and close the barrel, mechanism for imparting a reciprocating motion to the said breech-piece, a spindle in connection with said breech-piece, so as to have longitudinal play between the breech-piece and said spindle, a firing-pin arranged relatively to the said spindle, so as to receive the blow of the hammer through the spindle, and a cartridge-extracting hook attached to said spindle and independent of the breech-piece, substantially as described.

2. The combination, in a fire-arm, of a breech-piece moving longitudinally in the frame to open and close the barrel, mechanism for imparting a reciprocating motion to the said breech-piece, a spindle in connection with said breech-piece, so as to have longitudinal play between the breech-piece and said spindle, a firing-pin arranged relatively to the said spindle, so as to receive the blow of the hammer through the spindle, a cartridge-extracting hook attached to said spindle and independent of the breech-piece, and a covering-plate attached to said breech-piece to open and close the passage to the barrel, substantially as described.

3. The combination, in a magazine fire-arm, of a breech-piece moving longitudinally in the frame to open and close the barrel, mechanism for imparting a reciprocating motion to the said breech-piece, a carrier hinged in rear of said breech-piece, and in connection with the mechanism which imparts the said reciprocating movement to the breech-piece, substantially as described, and so that the said carrier, when the breech-piece is closed, is in its elevated position, and made to fall and rise again while the breech-piece is near its extreme rearward position, substantially as described.

4. The combination, in a magazine fire-arm, of a breech-piece moving longitudinally in the frame to open and close the barrel, and mechanism for imparting a reciprocating motion to the said breech-piece, with the carrier M, an arm from which extends through a vertical slot in the lever-arm H, and hung in the rear of said lever-arm, the lever-arm provided with a pin, *a*, to impart to the said carrier a vertical reciprocating movement, substantially as described.

5. The combination, in a fire-arm, of a breech-piece moving longitudinally in the frame to open and close the barrel, duplicate links F^1 F^1, one pair hinged to the breech-piece, the other pair to the frame in the rear, and the two pairs intermediately hinged together, the three joints being in a horizontal plane with the axis of the barrel, the frame of the arm constructed with a bearing, F^2, for the links, substantially as described.

191,197. BREECH-LOADING FIRE-ARMS. F. W. Tiesing, New Haven, Conn., assignor to E. Whitney, same place. [Filed Jan. 16, 1876.]

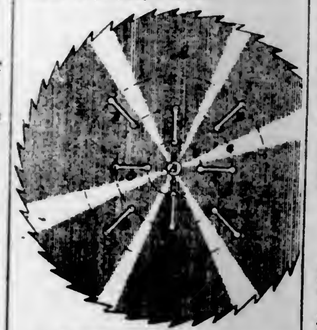


1. In a breech-loading fire-arm, the combination of the following elements: a breech-piece arranged to swing backward and downward in the arc of a circle in opening the breech; a locking-shoulder hung in rear of said breech-piece, and swinging forward and downward to release the breech-piece; a lever in connection with said breech-piece, and operating first to release the locking-shoulder, then to open the breech-piece, substantially as described.

2. In a breech-loading fire-arm, the combination of the following elements: a breech-piece arranged to swing backward and downward in the arc of a circle in opening the breech; a locking-shoulder hung in rear of said breech-piece, and swinging forward and downward to release the breech-piece; a lever in connection with said breech-piece, and operating first to release the locking-shoulder, then to open the breech-piece; a hammer for the discharge of the arm, and the trigger extending into a recess in the locking-shoulder, and the locking-shoulder constructed with a notch opening into said recess, and so as to prevent the pulling of the trigger to release the hammer until the locking-shoulder is turned into the locking position, substantially as described.

191,198. CIRCULAR SAWS. E. W. Tilton, Oshkosh, Wis., assignor of one-half his right to Jos. W. Branch, St. Louis, Mo. [Filed Apr. 26, 1876.]

Brief.—For taking up the expansion of a circular saw, and preventing it from injuriously influencing the running of the same, the saw is provided with two series of radial slots, of peculiar form, one series being arranged equidistant from each other, near the eye of the saw, the other series being similarly arranged, but farther removed from the eye and nearer the periphery of the saw.



1. A circular saw provided with openings between the eye and periphery to prevent the warping or buckling of the saw when expanded by heat, substantially as described.

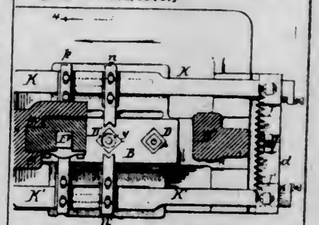
2. A circular saw having two sets of radial slots or holes cut through it, one set being farther removed from the eye than the other set, substantially as described, for the purposes specified.

191,199. HOSE AND PIPE NOZZLES. E. R. Tomlinson, Bridgeport, Conn., assignor to himself and the Eaton, Cole & Burnham Company, same place. [Filed Apr. 26, 1877.]



The combination, with the pipe portion A, having a flaring outer closed end and the aperture *a'*, of the flexible flanged disk B, having the eccentric aperture *c*, lateral projection *b*, for preventing the disk turning, and the inturning flanged disk D, secured to the flaring end of the pipe by set-screw *g*, and provided with jet-tube E and spraying device F, substantially as and for the purposes set forth.

191,200. MACHINES FOR MAKING NUTS. Samuel S. Townsend, Philadelphia, Pa. [Filed Nov. 24, 1876.]



1. The combination, in a nut-machine, of the following elements, namely, first, a reciprocating plunger and stationary die for severing a crude nut-blank from a punched bar simultaneously with the shaving of the said blank; second, a chamfering plunger and die; third, a reciprocating plunger and stationary die for final shaving; and, fourth, transferring mechanism, substantially as described, whereby the above elements are made to co-operate, all substantially as set forth.

2. The combination of the bars K K', having jaws *a a'* and *p p'*, with mechanism for imparting to them the two movements herein described, so as to operate in conjunction with the three plungers and three dies in the manner described.

3. The combination of the intermittently-reciprocating slides I I and J' J' with the intermittently-reciprocating bars K K' adapted to the slides and having adjustable jaws *a a'* and *p p'*.

191,201. MACHINES FOR BENDING, UPSETTING, AND CUTTING TIRES. L. W. Tyler, Theresa, N. Y. [Filed Apr. 7, 1877.]

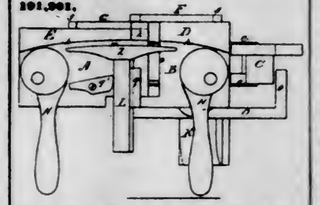
Brief.—The movable bending-jaw is pivoted upon the stationary bed, and operated by the same lever that draws the movable to the stationary bed for upsetting or cutting.

1. In a tire-upset, the combination, with the jaws A B, having the respective upsetting-buttresses D E, of the convex guard Z, bevel-guide-strip *g*, and adjusting-cam *g'*, substantially as specified.

2. The combination, with the sliding upset-jaws A B, their operating-lever C, and pivoted connecting-rods *e*, of the fixed bending-jaw I, the vibrating lever O, carrying the convex bending-jaw K, the transverse arm *o* engaging lever C, and a separating-spring, P, substantially as specified.

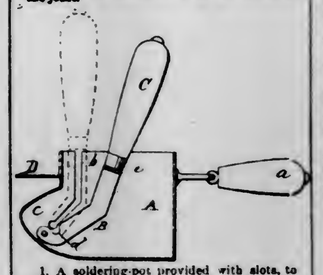
3. The combination, with the beds A and B, each carrying an upsetting and shearing jaw, of the removable guard Z and the chock *k*, substantially as specified.

191,202.



191,203. SOLDERING APPARATUS. Saml. Uhlich, Mansfield, Ohio. [Filed Apr. 16, 1877.]

Brief.—The wire is inserted in the holes through the slot, and the clamp pushed forward to cover the latter when the handle is raised, so that the solder in the pot will cover the joint.



1. A soldering-pot provided with slots, to allow the wire to be inserted in the pot in a position for soldering the joint without bending the wire, substantially as and for the purposes set forth.

2. A soldering-pot having a slot on each side, made to terminate in a round hole to receive the wire, substantially as set forth.

3. A soldering-pot provided with a clamp for soldering the wire in place, in combination with slots *b*, substantially as and for the purposes set forth.

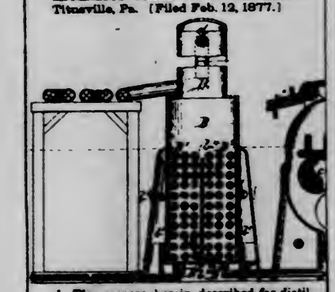
4. A soldering pot provided with a clamp having arms B, with notch *d*, pivoted to the sides of the pot, and made to cover the slots, substantially as set forth.

5. The soldering-pot provided with a projection, *c*, to be inserted in the opening of a furnace, substantially as and for the purposes set forth.

6. The soldering-pot provided with an apron, D, in combination with the projection *c*, substantially as and for the purpose set forth.

7. The soldering-pot provided with projection *c*, in combination with slots *b*, substantially as described.

191,204. CONTINUOUS DISTILLATION AND APPARATUS THEREFOR. S. Van Syckel, Titusville, Pa. [Filed Feb. 12, 1877.]



1. The process herein described for distilling hydrocarbon oils, which consists in heating the contents of the still uniformly throughout, and delivering the oil to be distilled into the chamber near the surface of the contained oil, after the incoming oil has acquired the temperature of the body of oil in the still, whereby the body of the oil in the still remains undisturbed, and the distillation may be conducted at low temperatures, substantially as specified.

2. In the continuous distillation of hydrocarbon oils, the process for removing light products and uncondensable gases herein described, which consists in vaporizing from one-third to one half of the contents of the crude-oil still, and condensing and returning to said still all of the distillate below 30° Baumé, substantially as specified.

3. The combination, with the primary or crude-oil still having the vertical partition, of a series of stills, the whole arranged for continuous distillation, the governor or regulator interposed between the still and the storage or supply tank, whereby only the heavier products pass to the succeeding stills, substantially as and for the purpose specified.

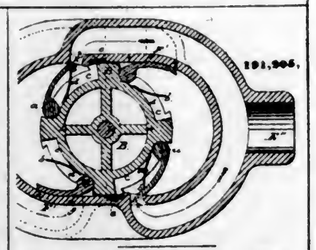
4. In a system of stills arranged for continuous distillation, the combination of two or more stills having heating-flues which surround and traverse the stills, the stills being connected by oil-supply pipes which pass through their lower parts and deliver the vapor into the vapor-spaces and the oil below the surface of the oil of the respective stills, substantially as and for the purpose specified.

5. The combination, with the crude-oil still, of the condenser, the return-pipe, and the water-trap arranged on the return-pipe, substantially as and for the purpose specified.

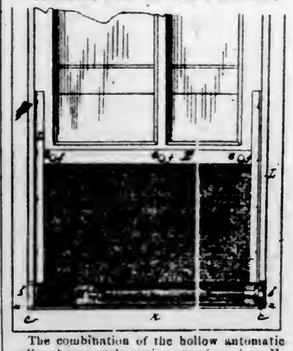
6. The combination of the condenser, the gasoline-tank and vertical condenser arranged thereon, and the steam-jet, with the primary still, substantially as and for the purpose specified.

7. The still B, provided with induction and delivery pipes, and divided by a vertical partition or diaphragm into receiving and discharging chambers, substantially as and for the purpose specified.

191,205.

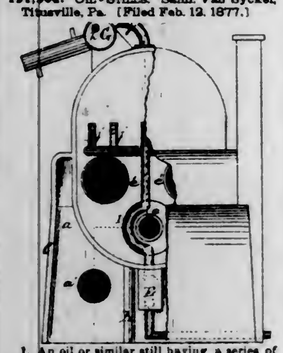


191,206. WINDOW-SCREENS. J. C. Walker, Detroit, Mich. [Filed Mar. 19, 1877.]



The combination of the hollow automatic roller, having telescopic extension-pieces N, sockets *b b*, with dovetailed grooves *a a*, side plates *c c*, rod G, screen I, metallic strip E, having openings *f*, sash H, having hooks *s*, and metallic strips L, the several parts constructed and arranged to be applied to a window frame, substantially as herein shown and described.

191,204. OIL-STILLS. Saml. Van Syckel, Titusville, Pa. [Filed Feb. 12, 1877.]



1. An oil or similar still having a series of traversing flues, *s s'*, and surrounding flues *a b V*, which extend to the height of the oil within the still, substantially as and for the purpose specified.

2. In combination with the still and its goose-neck, the preliminary condenser, arranged upon the still, substantially as and for the purpose specified.

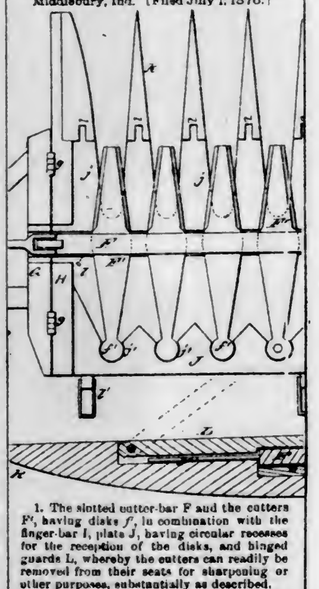
3. In combination with an oil or similar still, having surrounding and traversing flues which extend to the height of the oil within the still, a supply-pipe which rises within the still from a point at or near the bottom of the still and delivers just below the liquid-level, and having branch pipes for the escape of the vapor, substantially as and for the purpose specified.

191,205. FLUID-METERS. C. M. Van Tine, Matteawan, N. Y., assignor to A. Van Tine, same place. [Filed Feb. 27, 1877.]

1. A liquid-meter the casing of which is oval in cross-section, and having the piston located in the center, forming measuring-sections on each side thereof, into both of which the fluid is admitted through induction-ports arranged on opposite sides of the piston, and educted through ports correspondingly arranged, substantially as set forth.

2. The piston B, provided with rings *e* and wings *b*, and having water-spaces *d*, with springs therein, for both equalizing the pressure and forcing open the wings, substantially as set forth.

191,207. HARVESTER-CUTTERS. A. Walter, Middlebury, Ind. [Filed July 1, 1876.]



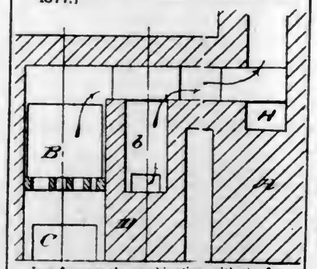
1. The slotted cutter-bar F and the cutters F', having disks *f'*, in combination with the finger-bar I, plate J, having circular recesses for the reception of the disks, and hinged guards L, whereby the cutters can readily be removed from their seats for sharpening or other purposes, substantially as described.

2. The combination of fingers K K and hinged guards L L, adapted to be raised at will, or to be locked down, substantially as set forth.

191,208. ROOFING MATERIALS. Cyrus M. Warren, Brookline, Mass. [Filed Mar. 22, 1876.]

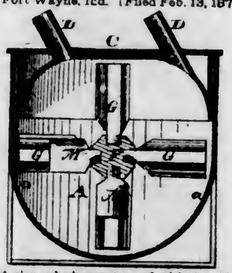
In the construction of roofs, a protecting layer of native bitumen, or mixture of native bitumens, or a compound of which this is an ingredient, in combination with a bottom layer of paper or felt and a top layer of gravel, sand, broken stone, or other fire-proof substance, substantially as set forth.

191,209. METALLURGIC FURNACES. Wm. M. Watson, Tonica, Ill. [Filed Feb. 17, 1877.]



In a furnace, the combination, with the fire and hearth chambers, of a series of intermediate flues or passages and a hollow fire-bridge, situated below and in direct communication therewith, the arrangement of parts being such that air admitted through the hollow bridge is commingled with the divided currents of gas and flame prior to their entry into the hearth-chamber, substantially as shown and described.

191,210. ROTARY CHURNS. D. L. Westcott, Fort Wayne, Ind. [Filed Feb. 13, 1877.]



A churn-dash, constructed with the oblong radial arms, whose two sides are wide plane surfaces, and whose edges are narrow double-grooved surfaces, substantially as described.

191,211. LINKS FOR ENDLESS-CHAIN HORSE-POWERS. J. Westinghouse, Schenectady, N. Y. [Filed Mar. 22, 1877.]



1. The combination of linings of steel, or other suitable hard substance, with the eyes *a* of a link, A, said eyes being provided with segmental recesses for the reception of the linings, substantially as and for the purpose shown and described.

2. The combination, with the segmental linings *c* and with the eyes *a*, of spurs *d*, for retaining the linings in position, substantially as set forth.

191,212. SAW SHARPENING AND SETTING MACHINES. S. Whitesides, West Depere, Wis. [Filed Mar. 10, 1877.]

Brief.—The rotary sharpener is adjustable lengthwise of its shaft, and can be swung out of the way of the reciprocating sharpener. A saw-set is attached, to be used by hand.

1. The carriage D, of a U shape, having flanges to enter grooves in the frame C, and a handle or gage-post, *e*, and provided with a rock-shaft, I, having a set-screw, F, substantially as and for the purpose set forth.

2. The file holder E *g g'*, having the handle *s* and rod A, in combination with the carriage D *d*, having the handle *s* and rock shaft I, with set-screw F, substantially as and for the purpose set forth.

3. The bifurcated rotary bar or rod I, having the lever K, in combination with and bearing in the support *i*, having a segment, *t*, provided with gages *s s*, substantially as and for the purpose set forth.

4. The support *i*, having the plate *i'*, provided with the hollow block or head *i²*, having a movable jaw, *i³*, and set-screw *i⁴*, substantially as and for the purpose set forth.

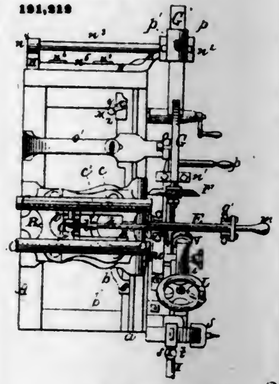
5. The support *i*, having the set-screw *k*, and clamping device *u v w*, in combination with the rails *j* of the frame A, substantially as and for the purpose set forth.

6. The gummer-shaft *n*, in combination with and bearing in the box n^3, pivoted to the upright H, substantially as and for the purpose set forth.

7. The gummer shaft *n*, having its bearings or boxes n^3 n^4, attached to and in combination with the bar or plate G, supported upon the standard *e e'*, and in the eye l^1, having a set-screw, P^1, upright H, having slots and set-screws n^6 n^5, and pivot or axis n^7, substantially as and for the purpose set forth.

8. The elevator 2 3, in combination with the screw M *y* and rod N, substantially as and for the purpose set forth.

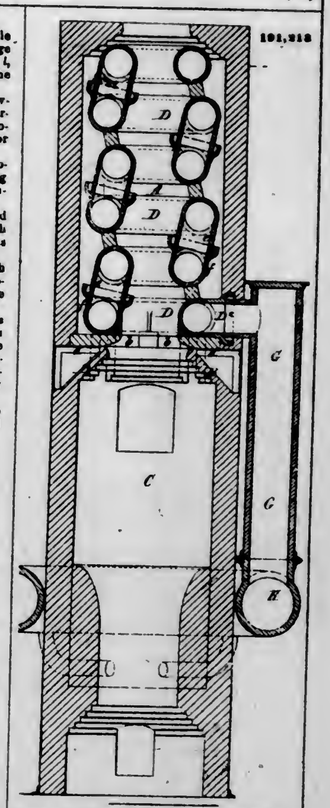
191,213.



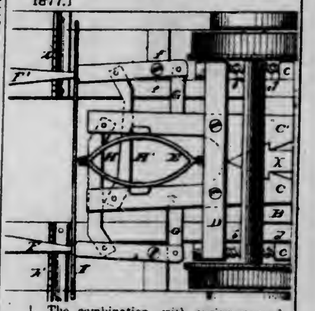
191,213. COMBINED CUPOLA-FURNACE AND HOT-BLAST OVEN. A. Wilson, Sheffield, England. [Filed Dec. 27, 1876.]

The combination, with a cupola-furnace having an air-heating chamber situated above its mouth, of a series of horizontal detachable pipe-sections or annuli, arranged one above another within said chamber, of alternately-varying diameter, and secured together by suitable cup-flange joint, the arrangement of parts being such that the air-blast of the furnace circulates through the pipe-sections, and is preheated by the escaping combustion-products prior to discharge into the furnace at the tuyeres, substantially as herein shown and described.

191,218



191,214. CAR-COUPLINGS. G. W. Wilson, Chicago, Ill., assignor of one-half his right to F. Emery, same place. [Filed Apr. 4, 1877.]



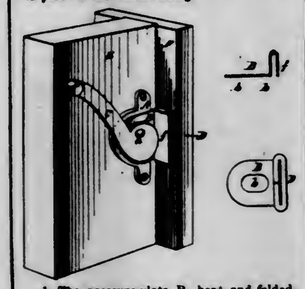
1. The combination, with spring-pressed jaws C C' and yielding cross-bar D, of the horizontally-arranged levers F, (one or more,) pivoted below the car-frame, and connected to said jaws by links, substantially as and for the purpose set forth.

2. The combination, with spring-pressed jaws C C' and yielding cross-bar D, of the horizontally-arranged levers F, (one or more,) said levers connected to the long arms of jaws C C', and ratchet-bars *h h'*, arranged above said levers, substantially as and for the purpose set forth.

3. The combination, with jaws C C', and yielding cross-bar D, of the horizontally-arranged levers F connected to the long arms of said jaws *c c'*, ratchet-bars above said levers, and a supporting-rod located below the same, substantially as and for the purpose described.

191,915. SASH-HOLDERS. L. B. Witherell, Davenport, Iowa, assignor of one-half his right to W. Downs, same place. [Filed Mar. 20, 1877.]

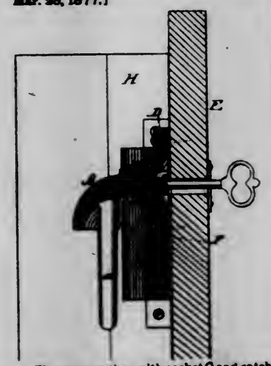
Brief.—A strip of rubber or other elastic facing is notched and folded so as to permit of its ends being forced into a recess formed by a right-angle bend and fold of the pressure-plate, the general construction being that of the ordinary eccentric lever and slotted pressure-plate, and the novelty mainly confined to the peculiar method of attaching and securing in place of the elastic facing.



1. The pressure-plate B, bent and folded, as shown at *f*, to form a recess for the ends of the notched and folded elastic facing D, substantially as shown and described, for the purpose specified.

2. The improved sash-holder herein described, consisting of the sliding, bent, and folded pressure-plate B, provided with the notched and folded elastic facing D and elongated slot *b*, the body-piece A, and the eccentric lever C, all constructed, arranged, and operating substantially as and for the purpose set forth.

191,916. LATCHES FOR DOORS, &c. A. O. Woolman, Bellefontaine, Ohio. [Filed Mar. 26, 1877.]



1. The combination, with socket C and catch G, of the latch or locking device A, having the rounded smooth exterior surface, and provided with the arm or handle *a* and journal *b*, projecting from diagonally-opposite sides thereof, as shown and described.

2. The combination of locking-plate F with the socket C, the device A, and the journal *b*, having a circumferential groove, as shown and described.

REISSUES.

7,696. HOLLOW AUGERS. C. S. Bonney, Philadelphia, Pa., assignor to Lloyd, Supplee & Walton, same place. Patent No. 106,896, dated Aug. 2, 1870. [Filed Mar. 12, 1877.]

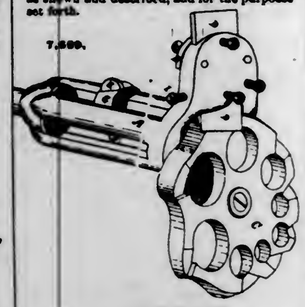
1. The combination of the revolving disk C with the hollow-auger body A, substantially as and for the purposes specified.

2. The disk C, revolving upon a screw as its axis, and constructed with a series of dies for forming different-sized tenons, substantially as, and as herein specified.

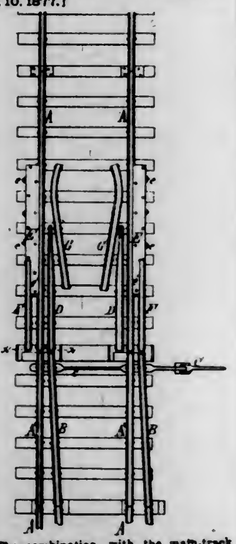
3. An adjustable stop, consisting of the combination of the stop-piece F, the strap or clamp-piece G with each other, and the operating screw H, substantially as herein shown and described, and for the purpose set forth.

4. The combination of the recessed cutter-seat of the body A of a hollow auger with the cutter D, and the supporting bar or strap E, as shown and described, and for the purposes set forth.

7,699.



7,698. RAILWAY-SWITCHES. C. L. Cooke, Buffalo, N. Y., assignor of one-half interest to Wm. V. Kleh, same place. Patent No. 121,198, dated Nov. 21, 1871. [Filed Apr. 10, 1877.]



1. The combination, with the main-track rails A A and switch-rails B B, of the flange-supporting blocks E E, secured to the outer side of the main rails, and rail-sections F F, connecting the flange-supporting blocks with one or the other of the outer switch-rails, substantially as and for the purpose herein before set forth.

2. The combination, with the main-track rails A A and switch-rails B B, of the flange-supporting blocks E, secured to the outer side of the main rails, and provided with inclined lips *e'* and rail-sections F, points D, and guide-rails G, arranged as shown and described, substantially as and for the purpose herein-before set forth.

3. The combination, with the main-track rails A, pointed rails D, guide-rails G, and rail-sections F, all constructed of rails, of the flange-supporters E, constructed of wood, and provided with a covering of plate-iron, substantially as and for the purpose herein before set forth.

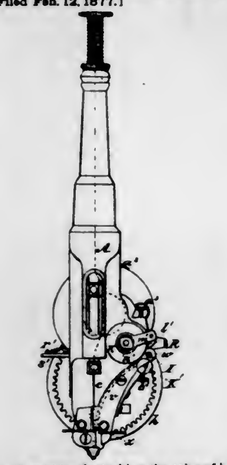
7,691. HATS. F. P. Flanagan, Springfield, Mass. Patent No. 36,866, dated June 16, 1863. [Filed May 1, 1877.]

1. A hat-body made of strips of palm-leaf or other similar material having the cut or trimmed edge of its brim covered with a binding-strip of muslin or other woven fabric, cemented thereto for the purpose of confining the ends of the strips of palm-leaf or other similar material of which the body is composed, thereby insuring a smooth edge, and giving greater firmness to the brim, substantially as described.

2. The combination, with a coating of hatter's varnish to secure a covering of felt, cloth, plush, or other woven fabric, to a hat-body made of palm-leaf or other material of similar character, of a coating of india-rubber solution applied to the body preparatory to the application of the hatter's varnish, substantially as and for the purpose herein specified.

3. The binding-strip *a* cemented over the edge of the brim preparatory to the application of, and in combination with, the covering *b*, substantially as and for the purpose herein specified.

7,699. MACHINES FOR NAILING BOOT AND SHOE SOLES. L. Goddu, Boston, Mass., assignor, by mesne assignments, to the American Cable Screw Wire Company. Patent No. 122,377, dated Jan. 2, 1872; reissue No. 7,358, dated Oct. 24, 1876. [Filed Feb. 12, 1877.]

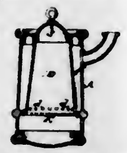


1. A machine for tacking the soles of boots and shoes to their uppers, constructed and organized with a fixed upright frame, tack feeding and driving mechanism under the control of the operator, without removing the work from the guide-nose, and an unobstructed downwardly-projecting guide-nose tube, adapted to enter the channel in the sole of a boot or shoe when presented by the hands of an operator, and allow of the free manipulation of the work in all directions to receive the tack or tacks, substantially as herein set forth.

2. In a machine for driving tacks or nails in the soles of boots and shoes, the combination, with the tack or nail feeding, cutting, and driving mechanisms, of treadle-power mechanism for operating these elements, and an unobstructed guide-nose tube adapted to receive a boot or shoe at the hands of an operator, all substantially as and for the purpose described.

7,692. TOBACCO-PIPES. B. Lorillard, Rhinebeck, N. Y. Patent No. 172,462, dated Jan. 18, 1876. [Filed May 1, 1877.]

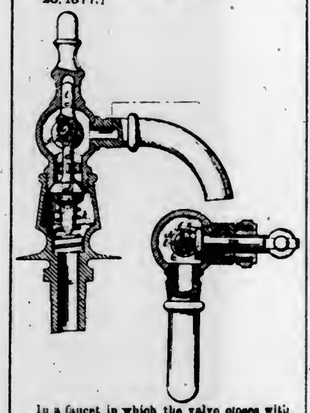
Brief.—The removable bowl that holds the tobacco is constructed to permit the same to feed freely. The smoke is not drawn through the tobacco, but away from the same at the burning end.



1. The combination, with the bowl or chamber in which the tobacco is burned and the smoke-outlet or draft-tube, with which the stem or mouth piece of the pipe connects, of a smoke duct or chamber arranged to connect said smoke outlet or draft tube and said bowl at the firing end of the latter, and in closer proximity to the burning surface of the tobacco than to the remaining portion or body of it in the bowl, whereby the smoke is drawn through and from the fire of the burning tobacco without passing through the unburnt body or portion of the tobacco, substantially as specified.

2. A smoking-pipe in which are combined an outer shell, A, constructed to form a smoke-duct or chamber, and provided with a smoke-outlet or draft-tube, an inner chamber or bowl, D, and a grate, E, essentially as herein described.

7,694. SELF-CLOSING FAUCETS. Henry C. Meyer, New York, N. Y. Patent No. 179,717, dated July 11, 1876. [Filed Feb. 28, 1877.]



In a faucet in which the valve closes with the pressure, the combination, with the valve-stem, of means, substantially as described, for guiding or holding the stem near each end, to insure a perfectly central movement of the valve in the water-way, as set forth.

7,695. CORN-PLANTERS. S. J. Miller and L. Wright, Economy, assignors to F. B. Hunt, Richmond, Ind. Patent No. 164,507, dated Aug. 26, 1874. [Filed Oct. 12, 1875.]

1. A corn-planter having a seed-dropper with cells in its periphery placed in rear of a single front wheel, and revolving upon a horizontal axis, and driven from said wheel by means of a longitudinal shaft, substantially as set forth.

2. A revolving seed-dropper having cells in its periphery, in combination with a seed-hopper having a curved inclined bottom, whereby the grain is directed into the cells, substantially as set forth.

3. In combination with frame A, and a seed-hopper having a curved inclined bottom, a revolving seed-dropper and tube, B, substantially as set forth.

4. In combination with a seed-hopper having a curved inclined bottom, the revolving dropper and tube E, arranged in rear of tooth F, substantially as set forth.

5. In combination with a seed-dropper having a groove and cells in its periphery, a seed-hopper having a curved inclined bottom, whereby the grain is directed into the cells, substantially as set forth.

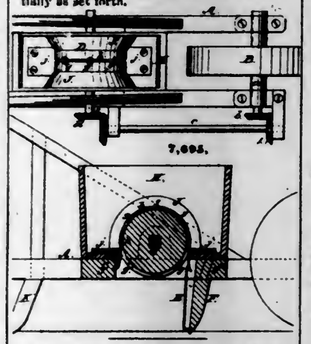
6. In combination with the frame and revolving seed-dropper, a hopper with a curved inclined bottom tooth, F, and tube B, substantially as set forth.

7. The seed-hopper attached to the frame A, in combination with a revolving seed-dropper having a groove and cells in its periphery, grain tube E, and covering-blades K, substantially as set forth.

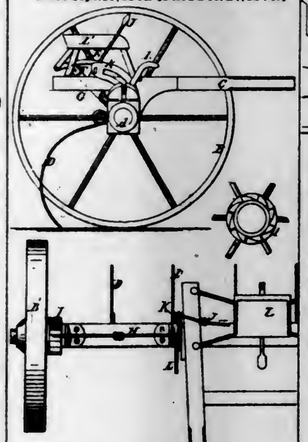
8. In combination with the frame A, tooth F, tube E, revolving dropper, and a seed-hopper having a curved inclined bottom, covering-blades K, substantially as set forth.

9. A seed-dropper revolving upon a horizontal axis, and having cells in its periphery, in combination with frame A, ground-wheel B, hopper with curved inclined bottom tooth F, tube E, and covering-blades K, substantially as set forth.

7,695.



7,696. HORSE HAY-RAKES. Edwd. Smith, Northford, and Jennette L. Cowles, Orange, Conn., administratrix of S. Cowles, deceased, assignors to JAS. E. Wimer, Friendship, N. Y. Patent No. 33,207, dated Sept. 10, 1861. [Filed Dec. 27, 1876.]

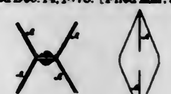


1. The combination of the curved lever B, roller F, and arm G with the axle-tree A, for the purpose of depressing and holding the rake-teeth D in contact with the surface of the ground.

2. The combination of the bell-crank lever J with the levers K and H, pawl L, and ratchet-wheel I, for the purpose of elevating the rake-teeth from the ground, and for holding them when so elevated, as herein described.

3. In a wheeled horse hay-rake, the combination of a tilting main axle, rake-teeth attached directly to said axle, so as to be raised and lowered by the tilting thereof, a ratchet fixed to the draft-wheel hub, and a pawl or dog attached to the tilting-axle, and adapted to lock with the ratchet, whereby the forward movement of said wheel, when the ratchet and pawl or dog are engaged, tilts the axle and discharges the hay, substantially as and for the purposes set forth.

7,697. WIRE-FENCE BARBS. H. N. Frentress, Dunleith, Ill. Patent No. 171,008, dated Dec. 14, 1875. [Filed Mar. 30, 1877.]



The barbs A, formed by cutting thin sheet metal into diamond form, slitting them from the acute angles nearly to the centers, and bending the prongs at each end at an angle with each other, to adapt them to be twisted into a two-strand wire cord, substantially as specified.

7,698. WIRE-FENCE BARBS. H. N. Frentress, Dunleith, Ill. Patent No. 171,008, dated Dec. 14, 1875. [Filed Mar. 30, 1877.]



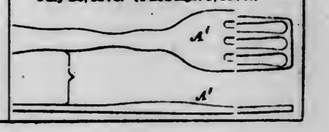
The sheet-metal barb having several points, which are bent in several directions, in combination with a wire-fence cord, into which the barb is fastened by the twist of the cord, substantially as set forth.

7,699. SPOONS AND FORKS. L. R. S. White, Waterbury, Conn., assignor to Brown & Brothers, same place. Patent No. 180,403, dated July 26, 1876. [Filed Apr. 3, 1877.]

1. The improvement in the art of manufacturing forks, spoons, and other like articles of table use, by condensing the metal in the shank by pressure in a direction perpendicular to the face of the fork, spoon, or blank after the latter has been bent, substantially as specified.

2. The method herein described of condensing or hardening the metal in the shank of a fork, spoon, or other like article of table use, by first applying pressure to the shank in a direction transverse to the plane or face of the blank before bending, and subsequently condensing the metal in the shank after bending, by pressure applied in a direction perpendicular to the face of the blank, essentially as and for the purpose or purposes herein set forth.

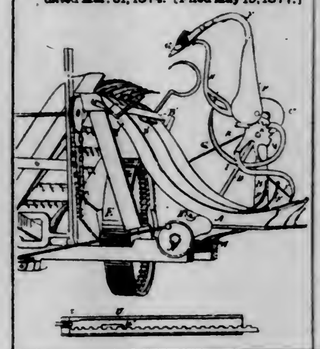
7,700. TABLE-FORKS. L. R. S. White, Waterbury, Conn., assignor to Brown & Brothers, same place. Patent No. 180,403, dated July 26, 1876. [Filed Apr. 3, 1877.]



EXPIRED PATENTS.

A fork-blank the profile of the face of which presents a series of alternately-reversed tapers, substantially as herein described.

7,701. GRAIN-BINDERS. S. D. Locke, Hoosick Falls, N. Y. Patent No. 149,233, dated Mar. 31, 1874. [Filed May 15, 1877.]



1. In combination with the binding-arm F and vibrating compressor I, and the segment-gears by which the latter is actuated, the compressor H and the extra gears O N, whereby said compressor H is advanced faster than the binding-arm, substantially for the purpose set forth.

2. In combination with the binding-arm F and the vibrating compressor I, the stops Q K, to limit the vibrations of said compressor, as set forth.

3. The pointed hollow shell *g*, formed to receive the base-plate of the shield A, which supports the twisting and cutting devices, and partially incloses said twisting and cutting devices, as set forth.

4. In combination with the main shaft D, for giving motion to the operative mechanism of an automatic binder, the ratchet and pawl *g' s*, to hold said binding mechanism from retrograde motion when the same may be uncoupled from the driving mechanism.

5. In combination with the gathering-arm F, the ledge D upon the cradle A, to hold the grain in position while said arm passes through and separates the gavel.

6. In combination with the vibrating compressor I, the tension-spring E, stretched across the curve of said arm, substantially as set forth.

7. The cradle A, provided with the retaining-springs F', substantially as and for the purpose set forth.

8. In combination with the laterally-adjustable binding attachment, the stationary wind-board K', attached to the frame of the harvester, but unattached to said binder.

9. In combination with the revolving compressor and binding arms and cradle of an automatic binder, the stationary feeder-rod G', as set forth.

10. The holding-plate V, combined with the cutting nipper T, which is provided with studs *e* and *f*, to be operated by cam-surfaces *n'' l''* in the rack box.

11. In combination with the twisting-pinion S and operative mechanism of the binding-head, the vibrating nipper and cutter T and holding-plate V *n*, as set forth.

12. The cutting-nipper T, constructed with a shoulder, *g*, for the purpose set forth.

13. In an automatic binding-harvester, a grain-delivery apparatus, combined with a receptacle to receive the grain therefrom and support it in a free state, adjustable transversely and bodily along the end of said delivery apparatus, for the purpose set forth.

14. In an automatic binding-harvester, a grain-delivery apparatus, combined with a receptacle to receive and support said grain in a free state, and a binding mechanism attached thereto, adjustable along the end of the delivery apparatus, for the purpose set forth.

NATIONAL LITHOGRAPHING CO. WASHINGTON, D.C.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 67.—No. 9. TUESDAY, MAY 29, 1894. PRICE—$5 per year.

CONTENTS.

	Page.
ORDER IN RELATION TO DRAWINGS	1071
INDEXES TO PERIODICALS	1071
FILE-WRAPPERS—ENTRIES ON	1071
COPIES OF DECISIONS FURNISHED	1072
PUBLISHERS' CATALOGUES	1072
ISSUE OF MAY 29, 1894	1072
APPLICATIONS UNDER EXAMINATION	1072
PATENTS GRANTED	1073
REISSUES	None.
DESIGNS	1182
TRADE-MARKS	1186
PRINTS	None.
LABELS	None.
COMMISSIONER'S DECISIONS—	
Greenfield *v.* Prentice	1189
DECISIONS OF THE U. S. COURTS—	
The United States ex relatione the State of South Carolina *v.* John S. Seymour, Commissioner of Patents	1191
Humphreys Homeopathic Medicine Company *v.* Hilton	1193

ORDER IN RELATION TO DRAWINGS.

NOTICE.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 25, 1894.

Order No. 980, respecting the alteration of drawings, was published in the OFFICIAL GAZETTE of December 19, 1893, (65 O. G., 1771,) by mistake, and was never in force. The following is the only order in force upon that subject:

(ORDER NO. 986.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 25, 1894.

Erasures or other alterations of drawings will not be made or permitted, except in compliance with this order.

Applicants are requested to furnish, with their originals, a blue print or other photographic copy of all drawings forming part of an application, and where this is done, the original drawings may be taken to the Attorneys' room, but not otherwise.

Before making a requirement to alter an original drawing the Examiner will formally make the blue print or other copy a part of the files, and in case no such copy has been furnished by the applicant, the Office will make such copy without charge, and thereupon the required alteration may be made by the applicant, under the direction of the Examiner and subject to his approval, or, upon request, it will be made by the Office at the expense of the applicant.

The requirement to make alterations in original drawings will be made in writing, and the applicant's response must also be in writing, and in such case the copy of the drawing, the requirement to alter, and the applicant's response will form part of the record.

Action by the Office on the merits will not be suspended pending the change of a drawing, if the invention claimed may be understood by the Examiner.

For the purposes of this order the Office, upon the request of applicants, will make blue prints at the charge of five cents a sheet.

In appeal cases and upon the declaration of an interference a blue print or other copy will be sent forward with the files, the Examiner retaining the original drawings in his room until the hearing.

Except as herein required such blue print or other copy will not be made a part of the file, and may not be preserved after an application passes into a patent.

JOHN S. SEYMOUR,
Commissioner.

PHOTOGRAPHIC COPIES OF DRAWINGS.

A photographic outfit has been added to the equipment of the Patent Office, and positive photographic copies of any drawing, foreign or domestic, in the possession of the Office, will be furnished upon application to parties entitled thereto, at the following rates:

Size 10x15 inches	25 cents per sheet.
Size 7x11 inches	15 cents per sheet.
Size 5x8 inches	5 cents per sheet.

If a copy of the drawings in a pending application of the size 5x8 inches be ordered sent to any address, two copies must be ordered, as one copy is always retained by the Office and placed in the file for the purposes specified in the above Order No. 986, of January 25, 1894.

Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading room of the scientific library:

Engineering Review, London, a monthly synoptical index of periodical literature in the English, French, and German languages, including hydraulic, railway, mechanical, electrical, mining, metallurgical, marine, military, and gas engineering.

Electrical Engineering, Chicago, a monthly synoptical index of electrical literature.

Electrical World, New York, a weekly digest of electrical articles.

Journal of the Association of Engineering Societies, Chicago, a monthly synoptical index of civil-engineering literature, mostly American.

Engineering Magazine, New York, a monthly title-index of engineering articles in the English language only.

File-Wrappers—Entries On.

It is directed that entries shall not be made on the back of a file-wrapper, containing the application-papers for a patent, of papers or actions which do not become a permanent part of the contents of the file.

A card (Form 2-384 Office Series of blanks, sample hereto attached) will be placed in the file showing all appellate actions.

Copies of Decisions Furnished.

Hereafter an uncertified copy of every decision or action by any tribunal in this Office will be furnished by such tribunal to the interested party or parties without charge.

Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

Issue of May 29, 1894.

Patents..... 358—No. 520,403 to No. 520,760, inclusive.
Designs..... 14—No. 23,310 to No. 23,323, inclusive.
Trade-Marks..... 33—No. 24,773 to No. 24,805, inclusive.
Labels..... None.
Prints..... None.
Reissue..... None.

Total issue..... 405

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1		Nevada		
Arizona Territory	1		New Hampshire		
Arkansas	1		New Jersey	14	
California	12	5	New York	84	8
Colorado	7		North Carolina	2	
Connecticut	23	2	North Dakota		
Delaware	1		Ohio	22	2
District of Columbia	2		Oklahoma Ter		
Florida	1		Oregon		
Georgia			Pennsylvania	28	1
Idaho			Rhode Island	6	1
Illinois	31	2	South Carolina	1	
Indiana	9		South Dakota		
Indian Territory			Tennessee	1	
Iowa	8		Texas	2	
Kansas	1		Utah Territory		1
Kentucky	4		Vermont		
Louisiana	1		Virginia	3	
Maine	2		Washington	3	
Maryland	8		West Virginia	1	
Massachusetts	29	5	Wisconsin	4	1
Michigan	20		Wyoming	1	
Minnesota	7		U. S. Army		
Mississippi			U. S. Navy		
Missouri	8				
Montana	1		Total to citizens of the United States	350	28
Nebraska					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic			Italy	1	
Austria-Hungary	2		Mexico		
Belgium			Netherlands		
Bermuda			New South Wales		
Brazil			New Zealand		
Canada	2	1	Norway		
Chile, Republic of			Queensland		
Colombia			Russia		
Cuba			Scotland		
Denmark			South Australia		
Ecuador			Spain		
England	9	3	Sweden		
France	3	1	Switzerland		
Germany	5		Victoria		
Hawaii					
India			Total to citizens of foreign countries	22	5
Ireland					

APPLICATIONS UNDER EXAMINATION.

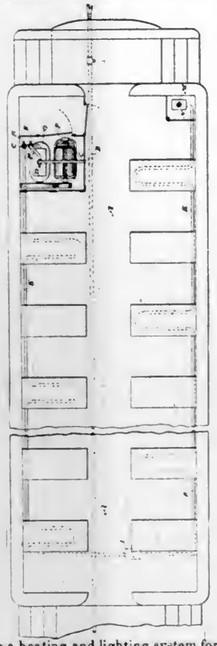
Condition at Close of Business May 22, 1894.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Apr. 23	May 16	102
7	Harvesters, Games and Toys, and Velocipedes.	Apr. 25	May 14	194
32	Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	Apr. 26	May 11	125
31	Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Apr. 23	May 7	99
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Apr. 23	May 4	123
	Between one and two months.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather Working Machinery.	Mar. 22	May 18	248
13	Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, etc.	Apr. 5	May 17	178
3	Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Mar. 28	May 17	148
8	Furniture, Toilet, Umbrellas and Canes, etc.	Mar. 28	May 14	271
4	Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Mar. 27	May 14	224
2	Farm Stock, Products, etc	Apr. 16	May 12	117
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Apr. 5	May 12	186
12	Mechanical Engineering, Stores-Service, etc.	Mar. 27	May 11	192
19	Stoves and Furnaces	Apr. 12	May 10	262
17	Paper-Manufactures and Printing	Apr. 9	May 9	178
1	Tillage and Fences	Mar. 22	May 8	256
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Apr. 16	May 7	173
18	Steam-Engineering, etc	Mar. 24	May 7	195
22	Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Mar. 23	May 7	183
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Mar. 23	May 7	302
21	Textiles, etc	Mar. 22	May 7	162
26	Electricity, Generation, Distribution, Electric Railways, etc.	Mar. 26	May 2	173
	Between two and three months.			
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Feb. 23	May 19	221
10	Carriages and Wagons	Mar. 5	May 14	248
23	Instruments of Precision, Acoustics, Optics, etc.	Feb. 23	May 5	318
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Mar. 5	May 1	259
34	Railway-Cars and Fluid-Pressure Railway-Brakes.	Mar. 6	Apr. 18	345
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Feb. 22	Apr. 17	292
	Between three and four months.			
24	Sewing-Machines, Crinoline and Corsets, and Apparel.	Feb. 15	May 10	201
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Feb. 5	May 8	332
6	Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Feb. 19	May 7	264
9	Hydraulics, Fire-Extinguishers, etc.	Feb. 13	Apr. 23	556
30	Lamps, Gas-Fittings, Linotyping, Matrix-Making Machines, and Type-Writing Machines.	Feb. 13	Apr. 9	366
	Total number of applications awaiting action			7,493
	Under one month in arrears.			
	Designs	May 16	May 18	59
	Trade-Marks	May 18	May 19	34

PATENTS

GRANTED MAY 29, 1894.

520,403. SYSTEM OF CAR LIGHTING OR HEATING. CRAIG R. ARNOLD, Sharon Hill, Pa. Filed July 13, 1889. Serial No. 317,423. (No model.)



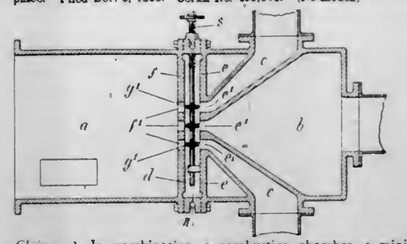
Claim.—1. In a heating and lighting system for railway cars the combination with a dynamo and its operating engine of pipes for supplying steam to said engine and to the heating-coils, valves or cocks therein to direct the passage of live steam to the engine or to the coils, at will, and a pipe connected with the exhaust of the engine and with the pipe leading to the heating-coils and having therein a valve or cock, whereby exhaust steam may be directed to said coils at will, substantially as described.

2. In a heating and lighting system for railway-cars, the combination with a dynamo and its operating engine, and heating coils, of pipes for carrying live steam to the engine and to the heating coils, cocks or valves to direct the live steam to the coils or engine, at will, an exhaust pipe from the engine, an escape-pipe, a pipe leading to the heating-coils and communicating with the exhaust-pipe from the engine, and valves or cocks to control the communication between said exhaust-pipe, the escape-pipe and the pipe leading to the heating coils, whereby either live or exhaust steam, or both may be directed to the heating coils, or cut off either from the engine or the coils, substantially as described.

3. In a heating and lighting system for railway cars, the combination with a dynamo and its operating engine, of a main pipe supplied with live steam from the locomotive, a branch or riser therefrom leading to the engine and containing a cock or valve, a pipe connected with the exhaust of the engine for leading the exhaust steam thereof to a heater, a valve for directing the exhaust at pleasure to an escape, and a by-pass connecting said main or live steam pipe with said heater and containing a cock or valve, as and for the purpose described.

4. In a heating and lighting system for railway cars, the combination with a dynamo and its operating engine, of a main steam supply pipe having a branch to the engine and a valve in said branch, an exhaust pipe leading from the engine to the atmosphere and having a valve therein, and a second exhaust pipe connected with the first and to the heater pipe, and having a valve therein and a valve in a connection between the main steam pipe and second exhaust pipe connection, substantially as described.

520,404. GAS-FURNACE. GOTTFRIED AXDORFER, Hamburg, Germany, assignor of one-half to Christian Heinrich Friedrich Sass, same place. Filed Dec. 8, 1893. Serial No. 493,078. (No model.)



Claim.—1 In combination, a combustion chamber a mixing chamber provided with outlet ports in its wall proximate to the combustion chamber and with separate gas and air inlet ports in its opposite wall, said inlet ports arranged diametrically opposite the outlet ports, and intercepters as bars, interposed between the respective ports, for the purpose set forth.

2. In combination, a combustion chamber, a mixing chamber provided with outlet ports in its wall proximate to the combustion chamber and with separate gas and air inlet ports in its opposite wall, said inlet ports arranged diametrically opposite said outlet ports, and intercepters, as bars interposed between and of less width than that of said inlet and outlet ports, for the purpose set forth.

3. In combination, a combustion chamber, a mixing chamber provided with outlet ports in its wall proximate to the combustion chamber and with separate gas and air inlet ports in its opposite wall, said inlet ports arranged diametrically opposite said outlet ports, and intercepter bars interposed between and adjustable relatively to said inlet and outlet ports, for the purpose set forth.

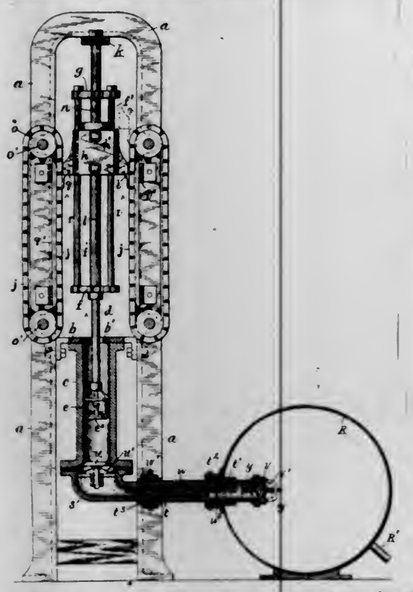
4. In combination, a combustion chamber, a mixing chamber provided with outlet ports in its wall proximate to said combustion chamber and with separate gas and air inlet ports in its opposite wall, said inlet ports arranged diametrically opposite said outlet ports, an intercepter consisting of a grate having bars of less width than that of the inlet and outlet ports, interposed between said ports, for the purpose set forth.

5. In combination, a combustion chamber, a mixing chamber provided with outlet ports in its wall proximate to said combustion chamber and with separate gas and air inlet ports in its opposite wall said inlet ports arranged diametrically opposite said outlet ports, an intercepter consisting of an adjustable grate having bars of less width than that of the inlet and outlet ports, interposed between said ports, for the purpose set forth.

6. In combination, a combustion chamber, a narrow mixing chamber provided with outlet ports in its wall proximate to said combustion chamber, and with separate gas and air inlet ports in its opposite wall, said ports arranged diametrically opposite each other and having the form of long slots or slits, and an adjustable grate having bars of less width than that of the inlet and outlet ports interposed between said ports, for the purpose set forth.

520,405. AIR-COMPRESSOR. JOSEPH BIRNER and HENRY MESSING, Elizabeth, N. J. Filed Sept. 6, 1893. Serial No. 484,885. (No model.)

Claim.—1. In an air compressor, the combination, with a pump plunger, of a piston rod having a crosshead, and a lifter plate secured thereto by tie-rods, of a hammer movable between the crosshead and lifter plate, and means for raising the hammer to engage the lifter plate and dropping it, substantially as set forth.



2. In an air compressor, the combination, with a pump plunger, of a piston rod provided with a movable hammer, guide rolls *l* at opposite sides of the piston rod, spring pressed rolls projected from the hammer against the guide rods, and means for raising and dropping the hammer, as set forth.

3. In an air compressor, the combination, with a pump plunger, of a piston rod provided with a movable hammer, guide rolls *l* at opposite sides of the piston rod, spring pressed rolls projected from the hammer against the guide rods, chains driven upwardly at opposite sides of the hammer, the teeth *q* upon the opposite sides of the hammer, and dogs *i* upon the chains to engage the teeth, substantially as set forth.

4. In an air compressor, the combination, with a pump plunger and its piston rod, of guides *l* at opposite sides of the piston rod, a hammer fitted to move between the guides, means (as the crosshead *f*) upon the piston rod to intercept the hammer, and lifter chains adapted for raising and dropping the hammer, as set forth.

5. In an air compressor, the combination, with the cylinder *c*, plunger *e*, and piston rod *d* having means to engage a movable hammer at opposite ends of its stroke, of the hammer *h*, the chains *j* at opposite sides of the same, the backing plates *q'* upon opposite sides of the chains, and the dogs *i* for engaging the hammer, as set forth.

6. In an air compressor, the combination, with an air cylinder having a plunger and foot valve, of the chamber *s* provided with nozzle *t*, the reservoir R, and the sleeve *w* fitted movably to the nozzle and to the reservoir and provided upon its outer end with a check valve, substantially as herein set forth.

7. In an air compressor, the combination, with an air cylinder having a plunger and foot-valve, of the chamber *s* provided with nozzle *t*, the reservoir R, and the sleeve *w* fitted movably to the nozzle and to the reservoir and provided with the valves *v* and *v'*, arranged and operated substantially as set forth.

8. In an air compressor, the combination, with a cylinder of a pump plunger, a piston rod provided with a movable hammer, means for raising and dropping the hammer, the chamber *s* provided with nozzle *t*, the reservoir R, the sleeve *w* fitted movably to the nozzle and to the reservoir, the spring w^2 connecting the sleeve and nozzle, the valve *v* seated inside the sleeve and held normally open, and the check valve *v'* pressed normally upon the outer end of the sleeve, the whole arranged and operated substantially as herein set forth.

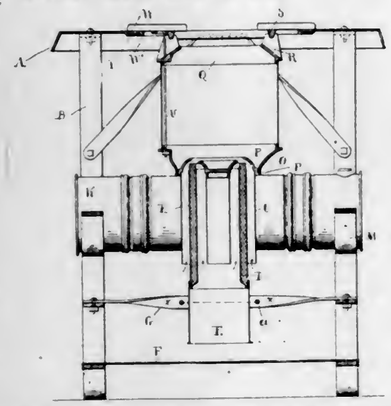
520,406. MAGNETO-TELEPHONE. ARTHUR F. BOARDMAN, Somerville, assignor of one-half to James D. Leatherbee, Braintree, Mass. Filed Mar. 24, 1894. Serial No. 505,026. (No model.)

Claim.—1 In a telephone a casing whose lower part is shaped to receive a ring magnet; a permanent ring magnet; and a clamping bar of non magnetic material, secured at its middle to the casing, and with its ends engaging the ring magnet; all arranged substantially as set forth.



2. The improved telephone above described consisting of the casing A A'; diaphragm B; permanent ring magnet D; clamping bar *d*; its screw d^2; the pole pieces d^3 each underlying the ring magnet and projecting up through it; and the bobbins d^4; all combined and arranged substantially as set forth.

520,407. OIL COOK-STOVE. CHARLES H. BOECK, Jackson, Mich., assignor to the Novelty Manufacturing Company, same place. Filed Mar. 6, 1894. Serial No. 502,543. (No model.)



Claim.—1. In an oil stove, the combination with the table and supporting standards, of a burner and tank supported in position below the table, a chimney provided at its upper end with an open frame work forming a support for the culinary vessel, and an aperture in the table adapted to receive and hold said support and thereby form the means of removably holding the chimney in position upon the burner, substantially as described.

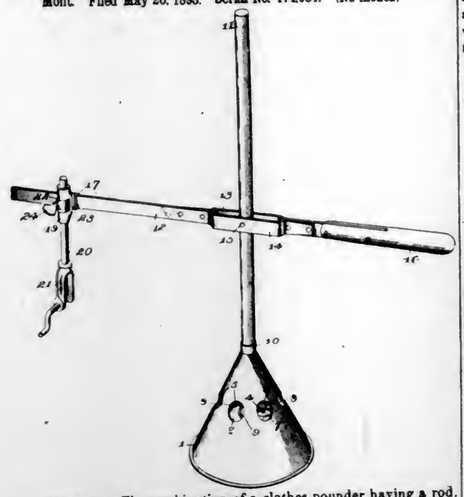
2. In an oil stove, the combination with the table and its supporting standards, of a burner and its tank removably supported in position by the standards below the table, independently of the chimney, a chimney provided at its lower end with a collar adapted to fit over the cap of the burner and its upper end with a support for the culinary vessel, and a table having an aperture adapted to removably hold said support and thereby form the means of removably supporting the chimney in position upon the burner, substantially as described.

3. In an oil stove, the combination with the table and its supporting standards, of a chimney provided at its upper end with an open work frame forming a support for the culinary vessel, and by means of which the chimney is removably suspended from the table, of a burner provided with a depending skirt, a supporting bar provided with means for clamping the skirt in position, a tank located in rear of and united with the burner, and bearings formed in the supporting standards to removably hold the tank in position, substantially as described.

4. In an oil stove, the combination with the table and supporting standards, of a burner removably supported in position below the table independent of said chimney, a chamber N provided with the collars O and Q, the lugs R on the collar Q provided with notches R', the support T of the culinary vessel provided with a depending flange S and supporting rim W and a table provided with the aperture V, and supporting rim V', all arranged and combined to operate substantially as described.

5. In an oil burner, the combination with a table and its supporting standards, of a chimney provided at its upper end with a support for the culinary vessel by means of which the chimney is removably suspended from the table, of a burner and its tank removably supported from the standards below the table the depending skirt E from the burner, and a shelf F supported in proximity to the skirt by the standards of the table, substantially as described

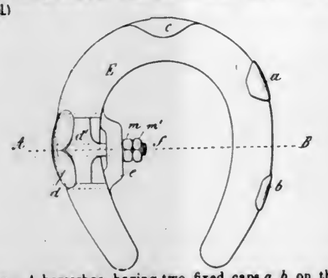
520,408. WASHING-MACHINE. EDWARD C. BREWER, Butte, Mont. Filed May 20, 1893. Serial No. 474,931. (No model.)



Claim.—1. The combination of a clothes pounder having a rod, an operating lever pivotally connected to the rod, a vertical stem provided at its lower end with jaws adapted to receive the upper edge of a boiler, tub or the like, and a block swiveled to the stem and vertically adjustable thereon and provided with an opening adjustably receiving the operating lever and permitting a sliding movement of the same, substantially as described.

2. The combination of a vertical supporting stem provided at the lower end with a clamp, a sleeve mounted on the stem and capable of vertical adjustment and provided with an opening, a collar arranged in the opening and provided with a clamping screw for securing the sleeve in its adjustment, a block swiveled to the sleeve and provided with an opening, an operating lever slidingly mounted in the opening, and a clothes pounder having a rod pivoted to the operating lever, substantially as described.

520,409. NAILLESS HORSESHOE. GEORG BURGSTALLER, Pressburg, Austria-Hungary. Filed Nov. 24, 1893. Serial No. 491,918. (No model.)



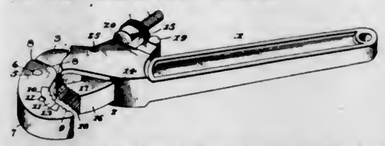
Claim.—A horseshoe, having two fixed caps *a*, *b*, on the inner arm of the same and an adjustable clamp *d* on the outer arm opposite and between said two fixed caps, said clamp being movable along a dovetailed recess and fixed by means of screw *f* and nuts *m*, *m'*, for the purpose specified and substantially as described and shown.

520,410. HAND-WHEEL GUARD. JAMES W. CAMERON, New York, N. Y. Filed June 29, 1893. Serial No. 479,107. (No model.)



Claim.—The herein described circular cap-shaped hand wheel guard, of a non heat conducting nature for use on steam hand wheels, having a hollow portion C to conform to the general contour of the hand wheel completely covering the top and circumference thereof, and provided with counter-sunk wires to secure the guard to the wheel in such a manner as to prevent injury to the hand substantially as shown and described.

520,411. WRENCH. THOMAS E. CHATTEN, Bethlehem, Pa. Filed Mar. 7, 1894. Serial No. 502,681. (No model.)



Claim.—In a pipe wrench, the combination of a body portion having a passage therein, a stationary jaw connected to the body and located opposite the passage therein, a sliding jaw arranged in the passage and movable toward and from the stationary jaw, a wedge located in the passage and alongside the movable jaw and operating to hold the same in place, a threaded bolt hinged to the body and capable of swinging toward and from the wedge and connected thereto, and a nut operating on the bolt, whereby the sliding jaw is held in place, substantially as described.

520,412. INSULATOR. CHAUNCY E. CONOVER, Cincinnati, Ohio. Filed May 20, 1893. Serial No. 474,968. (No model.)



Claim.—1. In an insulator, a line wire groove transversely thereof and so arranged as to require the wire in passing through the insulator to enter and leave the same in different parallel planes and thereby to form upon said wire intermediate the ends of said groove, two bends, and a groove arranged diagonally with said line wire groove and leading outward from it to the end of the insulator and forming thereby ears, one at each end of said line wire groove for retaining said line wire therein, substantially as described.

2. In an insulator, a line wire groove transversely thereof and so arranged as to require the wire in passing through the insulator to enter and leave the same in different parallel planes, and thereby to form upon said wire two bends intermediate the ends of said groove, and a groove arranged diagonally with said line wire groove and leading outward from it to the end of the insulator and forming ears, one at each end of said line wire groove for retaining the wire therein, the sides of said line wire groove between each ear and the main part of the insulator forming a seat for the wire of approximately a V form, whereby the insulator is adapted for wires of different sizes, which at their entrance and exit therefrom will bear only upon two points of their circumference, and the tightening of said wire will cause it to be gripped between the sides of said V form seats, substantially as set forth.

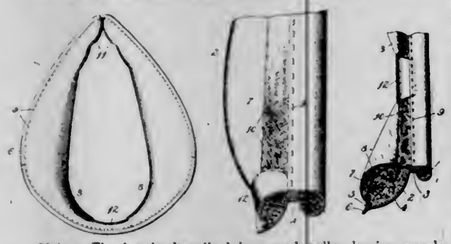
3. An insulator, consisting of a cylindrical body having greater length than diameter, and a base piece integral therewith of less length than said cylindrical part, said parts being provided with one or more holes transversely thereof for receiving a screw or nail for securing the insulator in position, said cylindrical part having, intermediate its ends, two annular grooves, in combination with a line wire groove in each projecting end, transversely of said cylindrical part, and a groove arranged diagonally with each of said line wire grooves and leading outward from it to the end of the insulator and forming ears, one at each end of the line wire groove for retaining a line wire therein, substantially as described.

4. An insulator, consisting of a cylindrical body having greater length than diameter and a base piece integral therewith of less length than said cylindrical part, said parts being provided with one or more holes transversely thereof for receiving a screw or nail for securing the insulator in position, said cylindrical part having intermediate its ends, two annular grooves, in combination with a line wire groove, outside of each annular groove transversely of said cylindrical part, said line wire grooves being so arranged as to require the wire in passing through the insulator to enter and leave the same in different parallel planes, and thereby form upon said wire two bends intermediate the ends of said groove, and a groove arranged diagonally with each line wire groove and leading outward from it to the end of the insulator, and forming ears, one at each end of each line wire groove for retaining a line wire therein, substantially as set forth.

5. An insulator, consisting of a cylindrical body having greater length than diameter and a base piece integral therewith of less length

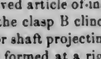
than said cylindrical part, said parts being provided with one or more holes for receiving a screw or nail for securing the insulator in position, said cylindrical part having intermediate its ends two annular grooves, in combination with a line wire groove outside of each annular groove, transversely of said cylindrical part, said line wire groove being so arranged as to require the wire in passing through the insulator to enter and leave the same in different parallel planes, and thereby form upon said wire two bends intermediate the ends of said groove, and a groove arranged diagonally with each line wire groove and leading outward from it to the end of the insulator, and forming ears, one at each end of each line wire groove for retaining a line wire therein, the sides of the latter groove between each of said ears and the main cylindrical part forming a seat for the wire of approximately a V form, whereby the insulator is adapted for wires of different sizes, which at their entrance and exit therefrom will bear only at two points of their circumference, and the tightening of said wire will cause it to be gripped between the sides of said V form seats, substantially as described.

520,413. HORSE-COLLAR. PERCY K. COOVER, Mechanicsburg, Pa. Filed Nov. 2, 1893. Serial No. 489,870. (No model.)



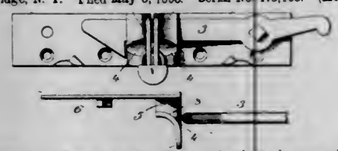
Claim.—The herein described improved collar having supplemental pads on its opposite sides, said pads at their lower portions terminating in rear of the intermediate seam 9 of the collar and being secured or stitched to the rear roll, and at their upper portions extending inwardly and crossing said seam and secured to the under side of the front or small roll and terminating at the upper end of the collar to form pads 11, substantially as specified.

520,414. MARKING-TAG. SIMON DANCYGER, Dayton, Ohio. Filed July 2, 1892. Serial No. 438,746. (No model.)



Claim.—As an improved article of manufacture the marking-tag comprising the paper A, the clasp B clinched within the end of said paper, and the outer end or shaft projecting approximately the length of said paper and a point formed at a right angle to said shaft, substantially as shown and described.

520,415. SLIDING-DOOR LOCK. ALONZO DILLENBACK, Palatine Bridge, N. Y. Filed May 5, 1893. Serial No. 473,165. (Model.)



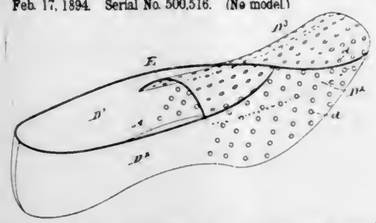
Claim.—1. A door latch or fastener having a keeper with a foot arranged to receive and retain a latch, and an ear rising above the foot and forming a notch into which and out of which the latch may be downwardly and upwardly swung and also longitudinally entered, the face of the ear on the keeper presented to the nose of the latch as it is longitudinally entered in the keeper sloping toward the opening or notch therein, in order that the latch may be guided into said keeper when out of truth with the notch therein, substantially as described.

2. A door latch or fastening having a keeper with a foot arranged to receive and retain a latch and an ear, which together with the foot forms a notch or opening into which and out of which the latch may be longitudinally entered, the face of the ear presented to the nose of the latch as it is longitudinally entered in the notch or opening, sloping toward the opening or notch in order that the latch may be guided into said keeper when out of truth with the notch or opening therein, substantially as described.

520,416. PROCESS OF MAKING POROUS SULFATE OF ALUMINA. JOHN ENEQUIST, Brooklyn, N. Y. Filed Feb. 20, 1894. Serial No. 500,924. (No specimens.)

Claim.—The process of making porous or spongy sulfate of alumina, which consists in pouring a hot concentrated solution of sulfate of alumina onto a surface of a metal, which will thereby evolve hydrogen, such as zinc or aluminum, allowing the sulfate of alumina to cool and solidify while in contact with such metallic surface, whereby the hydrogen given off will pass through the material and make it porous as described.

520,417. INSIDE SHOE. JOHN H. FOSS, Passaic, N. J. Filed Feb. 17, 1894. Serial No. 500,516. (No model.)

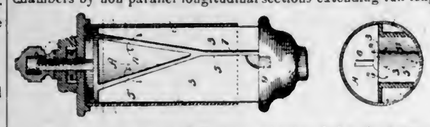


Claim.—1. In a shoe of thin material adapted for use inside of an ordinary shoe or boot, the two parts of the upper held separate and distinct at the front and attached each independently to the sole, with a portion at the toe overlapped, as herein specified.

2. An inside shoe of gut, flexed and perforated and formed with the two sides of the upper extended independently to the front and overlapping each other, as herein specified.

520,418. STEAM CHIME WHISTLE. HENRY R. FRISBIE, Bridgeport, Conn., assignor to Frank Kinsley, same place. Filed Mar. 30, 1893. Serial No. 468,260. (No model.)

Brief.—The interior of the whistle is divided into differently-sized chambers by non parallel longitudinal sections extending full length.



Claim.—1. In a single-bell chime whistle of the character described, the combination with a steam-bowl or other like device having an outlet or blowing orifice therein; of a bell, whose interior is divided into longitudinally arranged webs which form longitudinal compartments of equal lengths some of which are enlarged, and others contracted in area at the top, proportionate to the tone required for each and the harmonious effect of the whole.

2. In a single bell chime whistle, the combination with the webs, a support therefor, a threaded stud projecting from the upper end thereof, a tube to form the bell arranged to be mounted on such webs, as shown; a cap firmly mounted upon the upper end of said bell having a central hole therethrough to freely admit the web stud, of a housing on the upper surface of the bell-cap carrying a nut arranged to engage the threaded web stud, so that, by means of the arrangement of said nut, as set forth, the bell is vertically adjusted upon the webs, combined with a locking-nut, all arranged to operate as shown.

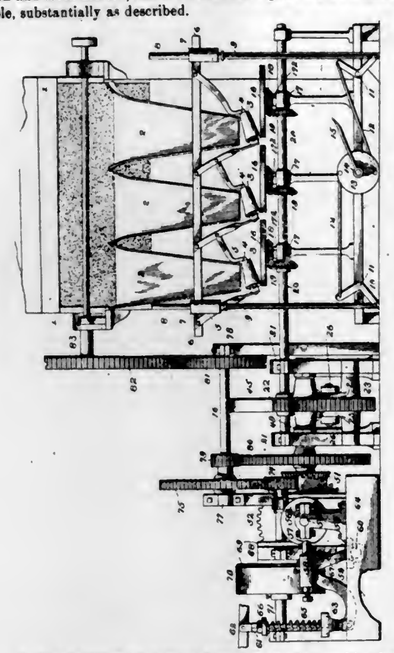
520,419. MACHINE FOR SHAPING FLEECY MASSES. EDWARD GOLDMAN, Baltimore, Md., assignor to the Eureka Coat Pad Company of Baltimore City, of Maryland. Filed Apr. 15, 1893. Serial No. 470,508. (No model.)

Claim.—1. In a machine for shaping fleecy masses, the combination of a revoluble table upon which a web of carded cotton is received, with means for imparting to said table a back and forth motion and means for varying the extent and succession of such motions according to a predetermined arrangement, and a cone mounted above the revoluble table in close proximity thereto and by which the pad of cotton formed upon the table is given shape.

2. In a machine for shaping fleecy masses, the combination of a revoluble table and means for imparting to it a back and forth motion and means for varying the extent and succession of such motions according to a predetermined arrangement, substantially as described.

3. In a machine for shaping fleecy masses, the combination of a revoluble table upon which a web of carded cotton is received, with means for imparting to said table a back and forth motion and means for varying the extent and succession of such motions according to a predetermined arrangement, a cone mounted above the revoluble table in close proximity thereto and by which the pad of cotton formed upon the table is given shape, and means for raising and lowering the cones.

4. In a machine for shaping fleecy masses the combination of a revoluble table, a cam or cams for imparting to said table a variable back and forth motion, and means connecting said cam or cams and table, substantially as described.



5. In a machine for shaping fleecy masses the combination of a revoluble table, a cam or cams for imparting a variable motion to the table, a train of gearing for imparting motion to the cams, and means for stopping said train of gearing when the cams imparting varying motion to the table have made one complete revolution and completed the predetermined series of motions of the table.

520,420. MACHINE FOR WINDING COTTON WEB OR SIMILAR MATERIAL. EDWARD GOLDMAN, Baltimore, Md. Filed Aug. 17, 1893. Serial No. 483,419. (No model.)

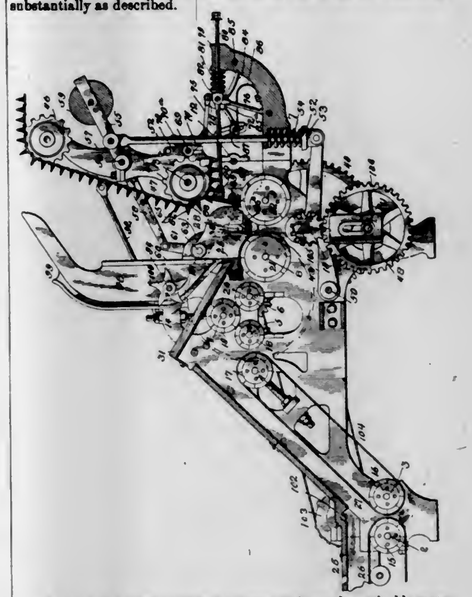
Claim.—1. In a machine for winding cotton web or other suitable material the combination of mechanism for forming and feeding a sliver to a winding drum, mechanism for turning the drum to wind the sliver upon it, means for lifting the drum from its turning devices when full, a knife and operating mechanism for the same for severing the sliver from the wound drum, and a conveyer upon which the wound drum is received and conveyed away from the winding devices.

2. In a machine for winding cotton web or other suitable material the combination of mechanism for forming and feeding a sliver to a winding drum, mechanism for turning the drum to wind the sliver upon it, means for lifting the drum from its turning devices when full, a knife and operating mechanism for the same for severing the sliver from the wound drum, a conveyer upon which the wound drum is received and conveyed away from the winding devices, and means for releasing the wound drum from its lifting devices and delivering it upon the conveyer, substantially as described.

3. In a machine for winding cotton web or other similar material the combination of mechanism for forming and feeding a sliver to a winding drum, mechanism for turning the drum to wind the sliver upon it, a cam, and a cam lever co-operating with said cam, mechanism for removing the drum when a desired quantity of sliver is wound upon it, and mechanism for severing the sliver connected thereto both operated by the same cam and cam lever.

4. In a machine for winding cotton web or other similar material the combination of mechanism for forming and feeding a sliver to a winding drum, mechanism for turning the drum to wind the sliver upon it, a cam and a cam lever co-operating with said cam, mechanism for lifting the drum from its winding devices when a desired quantity of the sliver is wound upon it, and mechanism for severing the sliver connected thereto, both operated by the same cam and cam lever, and means for resetting the cutter operated by the drum lifting mechanism as it returns to its normal position.

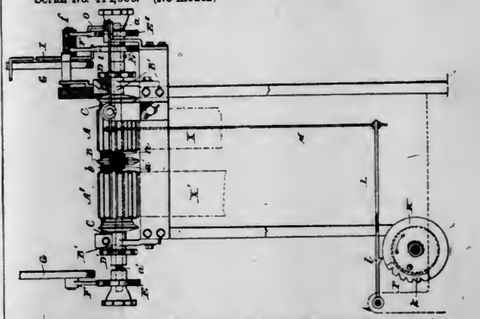
5. In a machine for winding cotton web or other suitable material the combination of a winding drum upon which a continuous web of carded cotton is wound, an elevating device for the same consisting of a pair of hooks standing below the axis of the drum, with means for elevating the same when the drum is wound, and means for withdrawing said hooks and delivering the drum to a conveyer, substantially as described.



6. In a machine for winding a cotton web or other suitable material the combination of a winding drum upon which a continuous web of carded cotton is wound, a pair of hooks for lifting the same, a reciprocating guide with which said hooks are connected and a pair of inclined fingers with which the lifting hooks contact in their upward motion and by which they are caused to release the drum and permit the same to roll on to and down the upper surface of said fingers by gravity and a conveyer by which said drum is carried away from the machine.

7. In a machine for winding a cotton web or other suitable material the combination of a reciprocating carrier for a winding drum provided with a pair of hooks hinged thereto and two arms having inclined ends which stand in the path of said hooks and by which they are pressed backward so as to escape and pass below the spindle of the winding drum while descending.

520,421. LOOM FOR WEAVING BORDERED FABRICS. JOSEPH GOSS and WILLIAM VARLEY, Fall River, Mass. Filed Dec. 10, 1891. Serial No. 414,608. (No model.)

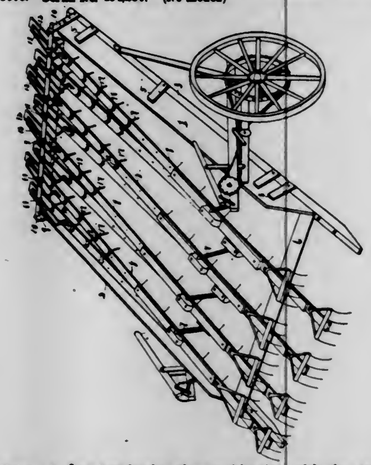


Claim.—1. In a loom for weaving bordered fabrics, the combination with the dobby mechanism, of two pattern chain barrels, one of which rotates continuously and the other intermittingly, each controlling a separate portion of the warp, a separate driving mechanism

for each barrel, a device for disengaging the driving mechanism of the intermittingly rotating barrel, operating connections between said device and the dobby mechanism, a second driving mechanism for said intermittingly rotating barrel, and connected therefrom to the constantly running parts of the loom, whereby at a predetermined time said second driving mechanism is temporarily operated to start the intermittingly rotating barrel, substantially as described.

2. In a loom for weaving bordered fabrics, the combination with the dobby mechanism, of two separate pattern chain barrels, mounted on independent shafts, and each controlling its own separate portion of the warp, a ratchet wheel and pawl for driving one of said barrels continuously, a ratchet wheel and pawl for driving the other barrel intermittingly, a second ratchet wheel and pawl for starting said second barrel, means connected with the dobby mechanism for automatically throwing out of engagement the driving pawl of the second barrel, and means connected with the constantly running parts of the loom for automatically and temporarily allowing said starting pawl to operate, substantially as described.

520,422. HAY RAKE AND LOADER. HENRY C. GRAVES, executor of John T. Bell, deceased, and ALEXANDER T. STEWART, Dayton, Ohio, assignors to the Ohio Rake Company, same place. Filed Aug. 28, 1893. Serial No. 484,259. (No model.)



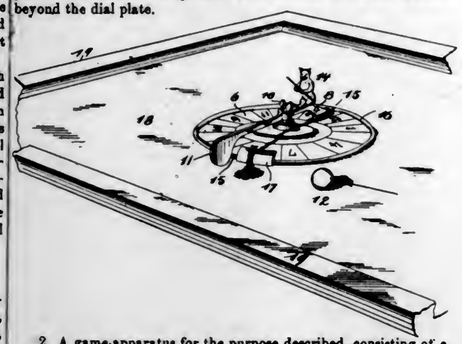
Claim.—1. In a hay loader, the combination with the ground wheels, the carrying frame and the notched bar 22 for elevating said frame; of the vibrating forks having their prongs surrounding and bearing on the rake arms; the brackets 18 attached to the upper side of the rake arms and inclosing the horizontal portion of the forks, said bracket provided with shoulders 21—21, and recess 20, said recess permitting the fork to yield upon the downward movement of the rake arms, and said shoulders maintaining the forks against similar movement in the opposite direction, upon the upward movement of the rake arms, substantially as described.

2. In a hay loader, the combination with the crank shaft and the rake arms mounted thereon; of inclined guides consisting of the angle pieces 12 and 13 attached to the upper ends of the rake arms on an incline thereto; the anti-friction rollers 11 mounted on the stationary shaft 9, said rollers having bearing on the angle pieces 12 and 13, whereby the rake arms are enabled to decrease the area of the discharging throat upon the upward movement of the rake arms, substantially as described.

3. In a hay loader, the combination with the crank shaft, and the rake arms; of the inclined guides consisting of the angle pieces 12 and 13 attached to the upper end of said rake arms on an incline thereto; the shaft 9, mounted in the front end of the frame; the anti-friction rollers 11 mounted on said shaft, said rollers having bearing on the angle pieces 12 and 13, substantially as herein described.

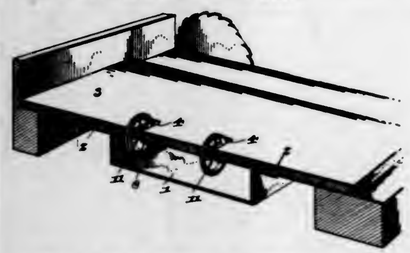
520,423. APPARATUS FOR ONE-BALL BILLIARD GAMES. GEORG GESCHWENDTNER, Cincinnati, Ohio. Filed Dec. 26, 1893. Serial No. 494,663. (No model.)

Claim.—1. A game-apparatus for the purpose described, consisting of a dial-plate adapted to be removably set upon a billiard table while the particular game is being played, an indicator pivotally secured above it and extending laterally beyond the same and over the billiard-table top so as to come within possible reach of a ball manipulated suitably upon the table and a flange to divide the dial-plate from the surrounding table-top to prevent the ball from striking any other part of the indicator except that which extends above and laterally beyond the dial plate.



2. A game-apparatus for the purpose described, consisting of a dial-plate provided with numbers, an indicator pivotally secured thereto and capable of rotating with its pointed end above the numbers and having its other end broadened and projecting beyond the dial-plate so as to be adapted to be struck by a ball, and the guard 17, raised above the surface of the dial-plate and so located thereon as to be adjacent to the projecting, broadened end of the indicator when the latter is in its normal position.

520,424. SHINGLE-MARKER. CALEB GUYER, Tyrone, Pa. Filed Oct. 23, 1893. Serial No. 488,921. (No model.)



Claim.—1. In a shingle marker, the combination of a liquid-tight pigment box secured to the under side of a slotted edging machine plate or table below the slot therein, an inverted L-shaped spring metal forked plate having its vertical shank portion removably supported against one side of said liquid-tight box, and a revolving marking wheel journaled directly on the outer horizontal extremity of said forked plate and normally and yieldingly projected through said slot, substantially as set forth.

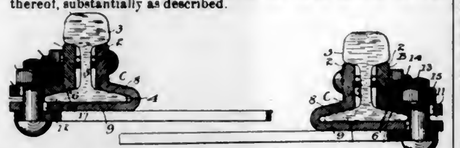
2. The combination with the marking-table of an edging-machine, the same being provided with a slot, of a box secured under the plate or table, a plate having a sunken recess applied to the side of the box, an inverted L-shaped spring-fork movably arranged in the recess, a shaft supported by the fork, and a marking-wheel arranged upon the shaft and yieldingly pressed through the slot in the plate or table, substantially as specified.

3. The combination with the plate or table of an edging-machine having a series of slots, of a box arranged thereunder, a plate secured to one wall of the box and having a series of depressed recesses, and a plurality of inverted L-shaped spring-forks, and wheels carried by the forks and projecting through the slots in the plate or table, substantially as specified.

520,425. RAILWAY-RAIL JOINT. MAJOR HALL and WILLIAM H. BAKER, St. Paul, Minn., assignors of one-half to Jacob W. Thompson and Martha Vis, same place. Filed June 29, 1893. Serial No. 479,191. (No model.)

Claim.—1. In a device of the class described, the combination with the rails, of the angle bars, a lateral horizontal extension upon the lower member of one bar, an extension upon the lower member of the other bar extending beneath and beyond the rail, substantially parallel with the extension of the other bar, but not in contact therewith, registering bolt holes in said extensions, and the securing bolt arranged in said holes outside said rails, said holes being enlarged or slotted transversely of the rails, substantially as described.

2. The combination with the rails, of the angle bars adapted to bear against the rail ball and base only, the securing bolts therefor, a lateral extension upon the lower member of one bar projecting beyond the rail, an extension upon the lower member of the other bar arranged underneath and projecting beyond the opposite edge of the base of the rail, substantially parallel, but not in contact with the extension upon the other bar, and relatively lateral adjustable means for clamping said extensions upon the base of the rail to take up the wear thereof, substantially as described.



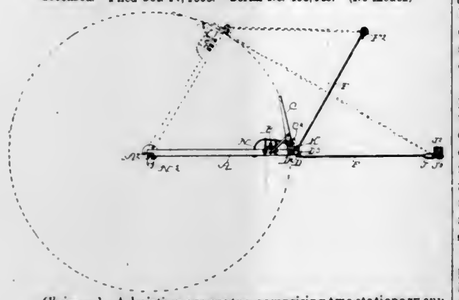
3. In a railway rail joint, the combination with the rails, of the angle bars adapted to be clamped on opposite sides of the meeting ends thereof and having extensions, one bent underneath and serving as a support for the rails, and both projecting parallel with, but separated from each other, beyond the rails, and means permitting relative lateral movement of said extensions for clamping the same together, substantially as described.

4. In a railway rail joint, the combination with the rails, of the angle bars, the extensions upon the lower edges of said angle bars, one projecting beneath the base of the rails and both projecting substantially parallel beyond the edge of the base, the registering openings through said extensions elongated or enlarged in a direction transverse of the rails, the securing bolt arranged in said registering openings, and the tie bar connected at one end to the opposite joint or rail, and having an opening to receive said bolt and be secured thereby to said joint, substantially as described.

5. The combination with the railway rail joints having angle bars with extensions upon their lower edges, one passing underneath the rail base and serving as a support therefor, and both projecting parallel with each other beyond the edge of the rail base, having registering openings therethrough elongated transversely thereof, the clamping bolts arranged in said openings, and the tie bar having an opening at each end adapted to receive one of said bolts whereby it may be secured to and bind together the opposite joints of the track, substantially as described.

6. In a railway rail joint, the combination with the rails, of the angle bars having extensions on their lower edges, one bent underneath the rails and both projecting substantially parallel beyond the edge of the rails, and provided with registering, transversely elongated bolt holes, the vertical bolt secured in said registering holes, horizontal bolts passing through the angle bars and the webs of the rails, and the locking bar inserted between and bearing against the adjacent faces of the nuts of said vertical and horizontal bolts and the corner of the angle bar, substantially as described.

520,426. HOISTING-MACHINE. LEONARD HAMERLY, Jamaica, Iowa; Nancy M. Hamerly administratrix of said Leonard Hamerly, deceased. Filed Oct. 17, 1893. Serial No. 488,443. (No model.)



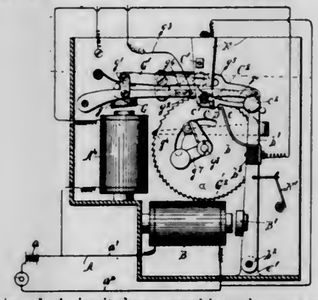
Claim.—1. A hoisting apparatus, comprising two stationary supports, a lever pivotally mounted on one of said supports and capable of describing a complete circle, and a rope fixed to the second and slidingly connected with the outer end of said lever to operate in the manner set forth.

2. A hoisting apparatus, comprising three stationary supports, a lever pivotally mounted on one of said supports and capable of describing a complete circle, and a rope fixed to the second support slidingly connected with the outer end of said lever and passed over the third support to operate in the manner set forth.

3. A hoisting apparatus, comprising three stationary supports, a lever pivoted to one of said supports and capable of describing a complete circle, means for attaching a draft animal to the outer end of said lever, a pulley in said end, a rope fixed to one of said supports, passed around said pulley, and a pulley in the third stationary support having said rope passed thereover, substantially as, and for the purposes, stated.

4. A hoisting apparatus, comprising three stationary supports, a lever pivotally connected with one of said supports and capable of describing a complete circle, a wheel under the outer end of said lever, a guard covering said wheel, a guide fixed to the inner end of said lever, a tongue attached to the outer end of the lever and a pulley mounted in said end, a rope fixed to the second support, passed around said pulley on the lever, and a pulley in top of the third support having said rope passed thereover, for the purposes stated.

520,427. CIRCUIT-CLOSER. GEORGE W. HEY, Syracuse, N. Y. Filed Mar. 11, 1893. Serial No. 465,486. (No model.)



Claim.—1. A circuit-closer comprising a lever or support provided with one of the terminals of an electric circuit, a second lever or support provided with the other terminal of the electric circuit, and a connection between said levers or supports connected to one of the levers with a lost motion, substantially as described.

2. A circuit-closer comprising a lever or support provided with one of the terminals of an electric circuit and provided with an engaging projection, a second lever or support provided with the other terminal of an electric circuit, and a connection having one end connected to one of the levers or supports and the other end engaged with said projection, substantially as and for the purpose set forth.

3. A circuit-closer comprising a lever or support having one extremity hinged and the other weighted and provided with one of the terminals of an electric circuit and with an engaging projection, a second lever or support provided with the other terminal of an electric circuit, and a connection between said levers or supports, having one end secured to one support and the other end detachably engaged with said projection substantially as and for the purpose described.

4. A circuit-closer comprising a lever or support having one extremity hinged and the other weighted and provided between its extremities with one of the terminals of an electric circuit, a second lever or support provided with the other terminal of the electric circuit, and a connection having one end hinged to one of the levers or supports and the other end detachably connected to the other lever or support, substantially as and for the purpose specified.

5. In an electric circuit-closer, the combination of a lever or support having one extremity hinged and the other weighted and provided between its extremities with one of the terminals of an electric circuit, a second lever or support provided with the other terminal of the electric circuit, said latter terminal being normally separated from the former terminal and movable beneath the same, and a connection between the latter lever or support and the former lever for rocking the former lever or support upwardly as the latter terminal moves forward into position to contact with the former terminal, substantially as and for the purpose described.

6. In an electric circuit closer, the combination of a lever or support provided with one of the terminals of an electric circuit and having one extremity hinged and provided with a laterally extending engaging projection and having the other extremity weighted, a second lever or support provided with the other terminal of the electric circuit, said latter terminal being normally separated from the former terminal and movable into contact therewith, and a connection between said levers or supports having one end hinged to the latter support and the other end formed with a shoulder for engaging said projection, said shoulder being automatically disengaged from said projection, substantially as set forth.

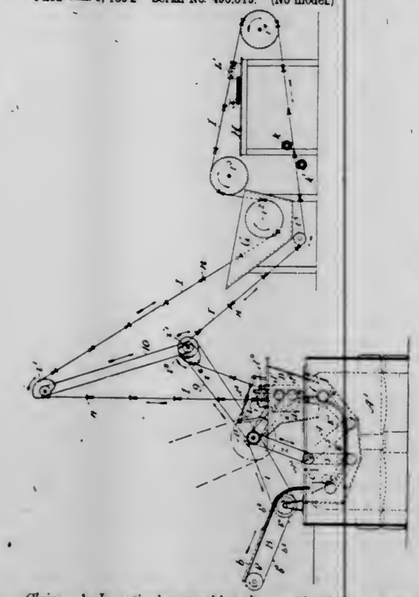
7. In a circuit closer, the combination of movable terminals, supports for the terminals connected to simultaneously move the terminals to and from their contacting position at each movement of the

supports, and means actuated by an electro-magnet for operating the supports to make or prevent contact of the terminals by the variation in the duration of the current pulsations passed through the magnet, substantially as and for the purpose described.

8. A circuit closer comprising in its organization movable terminals, supports connected to move the terminals from their inoperative positions to their operative position for making contact at each movement of the supports, means, substantially as described, connected to one support for momentarily forcing the terminal carried by said support from its operative position as the terminal carried by the other support is moved from its normal position to its operative position, and means, substantially as described, for operating the other support, substantially as and for the purpose set forth.

9. In a circuit closer, the combination of movable terminals, supports for the terminals, means for bringing the terminals carried by said supports to their normal positions, an electro-magnet connected to one of the supports for moving the same by a single movement from its normal to its advanced position and thereby bringing the terminal carried by said support into its operative position, an electric circuit connected to said magnet for passing current pulsations of unequal duration through the magnet, whereby the support operated by the magnet is held in its advanced position for unequal durations of time, a connection between said supports for moving the other support simultaneously with the former support and for releasing said other support and permitting the same to assume its normal position whereby the terminal carried thereby makes contact with the other terminal when in its operative position, substantially as and for the purpose specified.

520,428. TINNING-MACHINE. JOSEF HIRSCHMANN, Linfield, Pa. Filed Jan. 9, 1894. Serial No. 496,319. (No model.)



Claim.—1. In a tinning machine the combination of a melting pot, a detachable frame comprising a cross plate and two side plates, the latter suspended in the said pot and having two continuous guides extending from each side plate toward the center of the pot, feed-rolls between the said guides, said rolls driven by suitable gearing and chain motion from a main shaft of the machine, a plate feed comprising a table a hinged cover and a feed chain, the latter adapted to feed the plates into the continuous guides and between the centrally located rolls, substantially as and for the purposes set forth.

2. In a tinning machine the combination of a melting pot, a detachable frame comprising a cross plate and two side plates, the latter suspended in the said pot and having two continuous plate guides extending from the side plates toward the center, rolls between the said continuous guides and adapted to engage the plates to be tinned at their center to insure a straight motion of the plate while the continuous guides prevent the said plates from curling, substantially as and for the purposes set forth.

3. In a tinning machine the combination of a feed table, a hinged cover applied thereto, a feed chain or traveler in said table for feeding the plates to be tinned, a melting pot, a detachable frame suspended in the said pot, continuous guides extending from said frame toward the center of the said pot and leaving a central slot, feed rolls located between them and supported by the said guides, means for operating the said feed rolls from a main shaft to forward the plates fed into the machine by the said chain carrier, substantially as and for the purposes set forth.

4. In a tinning machine the combination of a melting pot, a removable frame therein, continuous guides extending the full length of the melting pot and projecting from the said frame toward the center so as to leave a slot, feed rolls located in said central slot and journaled in the frame, said rolls receiving motion from a main shaft by suitable chain gearing, a plate feed partially supported by the melting pot and comprising a slotted feed table, a feed chain traveling in said slotted table, a hinged cover applied to said table, a spring between said cover and table to regulate the feed of the plate, and means for driving the said feed chain, all as described and for the purposes set forth.

5. In a tinning machine the combination of a melting pot, a removable frame suspended therein, continuous guides extending the full length of the said pot and communicating with a plate feed at one end and a removable oil reservoir at the other, the plate feed comprising a table proper, a traveling chain supported thereby and a hinged cover, the latter adapted to guide the plates to be tinned into the said continuous guides, the removable oil reservoir supported by the said melting pot, a frame in said oil reservoir, a set or sets of finishing rolls journaled in said frame and a swinging funnel attached to the said frame and below the finishing rolls, substantially as and for the purposes set forth.

6. In a tinning machine the combination of a melting pot, a removable frame suspended therein, continuous guides extending the full length of said pot, a plate feed communicating at one end with the said guides and an oil receptacle communicating with the other end of the same continuous guides, the plate feed comprising a table partly supported by the melting pot, a traveling chain, a hinged cover and means for regulating the feed of the plates into the continuous guides, a frame detachably connected with the oil receptacle, finishing rolls journaled in said frame, a movable funnel on said frame, said funnel adapted to guide the tinned plates from the said continuous guides between the said finishing rolls substantially as and for the purposes set forth.

7. In a tinning machine, in combination with a melting pot supported by a furnace, a feed table, comprising a slotted table, a chain feed, a hinged cover over the table and chain, said cover provided with a spring for adjusting the movements of the plates as they are fed into the melting pot, substantially as and for the purposes set forth.

8. In a tinning machine, the combination of a melting pot, a removable frame suspended therein, continuous guides extending the full length of the melting pot and projecting from the said frame toward the center of the pot leaving a space at the center of the said guides, sets of forwarding rolls, whose lower rolls are journaled in slide bearings adapted to be adjusted from the exterior of the said frame, an oil reservoir detachably connected with said pot, a frame within said reservoir and carrying sets of finishing rolls, substantially as and for the purposes set forth.

9. In a tinning machine in combination with a melting pot having suspended therein continuous guides and plate feeding mechanism between them, an oil reservoir detachably secured to said pot, a frame provided with finishing rolls removably connected to said reservoir, and a rotatable funnel to direct the plates from the said guides between the said finishing rolls, substantially as and for the purposes set forth.

10. In a tinning machine, in combination with a melting pot having suspended therein continuous guides and plate feeding mechanism a detachable oil reservoir and a detachable frame within said reservoir, sets of two finishing rolls, whereof one roll is journaled in said frame and the other in slide bearings, levers hinged to said frame and bearing against the said slide bearings, clevises on the free ends of the levers, turnbuckles on two of said clevises, to adjust the said finishing rolls, a rotatable funnel located between the said guide and finishing rolls and mechanism for operating the same from the outside, substantially as and for the purposes set forth.

11. In a tinning machine comprising a feed table, chain feed and a melting pot having guides and plate-forwarding mechanism within the same, the combination of an oil reservoir detachably connected to said melting pot, a removable frame within said reservoir, said frame carrying sets of finishing rolls and a rotatable funnel, whose trunnions are journaled in said frame and disposed between the said guides and finishing rolls, a crank on one of said trunnions, a bracket on said reservoir and an operating bar hinged to said crank and adapted to lock the said bar and funnel in place, substantially as and for the purposes set forth.

12. In a tinning machine an oil reservoir detachably fastened to the melting pot of the machine, a detachable frame within said reservoir, sets of two finishing rolls, whereof one is journaled in the frame and the other in slide bearings operated by levers hinged to opposite sides of the frame, clevises on the free ends of the levers and turnbuckles, one for each set of two levers, substantially as and for the purposes set forth.

13. In a tinning plant the combination of a feed table, a melting pot having plate forwarding mechanism therein, a flux box, an oil reservoir, a detachable frame in said oil reservoir, finishing rolls in said frames, a funnel between said finishing rolls and the forwarding mechanism in the melting pot, a bran box, a table and a chain carrier to carry the tinned plates from the finishing rolls through the bran box and to the table, substantially as and for the purposes set forth.

14. In a tinning plant comprising a tinning machine having an oil reservoir and finishing rolls, in combination with a bran box a depositing table and a plate chain carrier, the latter composed of two link chains and spring clutches on certain of the links of the said chains, to carry the plates as they leave the finishing rolls through the bran box and deposit them onto said table, substantially as and for the purposes set forth.

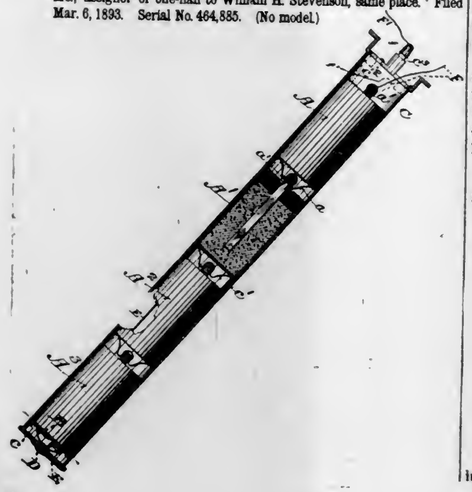
15. In a tinning plant comprising a tinning machine, a bran box, a depositing table and a plate carrier, the latter composed of a traveling belt or chain moving over a series of pulleys and a set or sets of eccentric wheels, the plate carrier leading from the tinning machine upward and around one or one set of said eccentric wheels, thence through the bran box, over the depositing table and back over the other eccentric wheel or set of eccentric wheels and to the tinning machine, and means for operating said tinning machine and carrier, substantially as and for the purposes set forth.

16. In a tinning plant comprising a tinning machine, operating mechanism therefor, a bran box, a depositing table, a plate carrier leading from the tinning machine to and through the bran box and over the depositing table, said plate carrier provided with automatic spring clutches to grip a tinned plate, said table provided with releasing devices for said clutches, and cleaning brushes disposed along the return way of the said plate carrier, substantially as and for the purposes set forth.

17. In a tinning plant, a chain carrier comprising two link-chains, certain links of each chain provided with a spring clutch comprising a fixed jaw attached to said chain links, an open funnel on said fixed jaw, a sliding jaw guided in the fixed jaw, said sliding jaw tending to close upon the fixed jaw, a shouldered stem on the sliding jaw, a spring around the same and between the shoulder of said stem and fixed jaw and a roller on said sliding jaw, substantially as and for the purposes set forth.

18. In a tinning plant, a chain carrier comprising two link chains, a set of eccentric forwarding wheels, a set of eccentric idle wheels and sets of guide wheels, certain of said links of each chain provided with clutches composed of two jaws whereof one is formed integral with said chain link and the other is provided with a stock adapted to slide in the fixed jaw, a collar on the said stock, a spring between said collar and fixed jaw, a roller on the opposite end of the stock, and means such as described for opening said jaws, substantially as and for the purposes set forth.

520,429. ELECTRIC BATTERY. SAMUEL H. HOGGSON, St. Louis, Mo., assignor of one-half to William H. Stevenson, same place. Filed Mar. 6, 1893. Serial No. 464,885. (No model.)



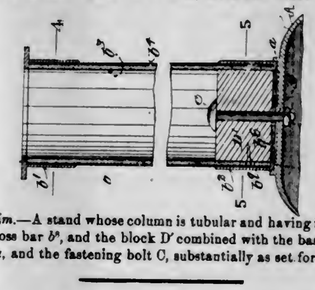
Claim.—1. The herein described electric battery the same consisting of the vertical series of cells, the containing-tube of non conductor material, the plates at the ends respectively of said tube, and the wires on the opposite sides of said tube electrically connected to the upper case-plate, said cells being electrically connected with each other in series, the lowermost cell being electrically connected with said wires, and the uppermost cell and the upper case-plate being respectively provided with terminals, substantially as described.

2. The combination of the cells arranged in a vertical series and electrically-connected as described, the case C having the tubular part c' and the end plates c and c^3, the spring plate B, secured to plate c by the bolt, D, and the wires E, E, on the opposite side of the tube substantially as described.

3. A battery tube of non conductor material, the plates at the end of said tube, the upper of conducting material, and the wires uniting said tube and plates, said wire made of conductor material and electrically connected to the upper plate and provided with means for engaging the terminal of the lowermost cell.

4. In an electric battery having cells arranged in series and connected by adjacent terminals the combination of the spring-clamp a the cell above or beyond said clamp, and the terminal a', of the adjoining cell, substantially as described.

520,430. STAND, TABLE, OR ANALOGOUS ARTICLE. SAMUEL H. HOGGSON, St. Louis, Mo., assignor of one-half to William H. Stevenson, same place. Filed Mar. 6, 1893. Serial No. 464,886. (No model.)



Claim.—A stand whose column is tubular and having in its lower end a cross bar b^5, and the block D' combined with the base A, socketed at a, and the fastening bolt C, substantially as set forth.

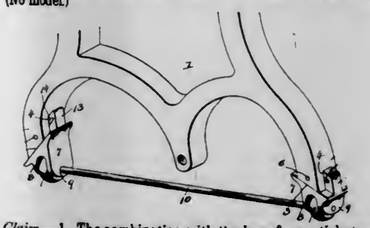
520,431. POCKET-BOOK HOLDER. FREDERICK HOLSHAUER, Detroit, Mich. Filed Mar. 19, 1894. Serial No. 504,165. (No model.)



Claim.—1. The combination with a pocketbook, of an endless chain or cord slidingly secured to the pocketbook, a double sleeve through which the chain passes, being rigidly attached to one sleeve and slidingly engaging the other sleeve, and means for locking the sliding portion of the chain to the double sleeve, substantially as described.

2. The combination of the pocketbook having the eyes B and D at the top and bottom thereof, the endless looped chain passing therethrough, the sleeves a b secured together, the chain passing through the sleeves and fixedly secured in the sleeve b and the locking hook c at the lower end of the sleeve b, over which the chain is passed the parts arranged as and for the purpose described.

520,432. CONSTRUCTION OF LEGGED ARTICLES. WILLIAM J. HUMPHREYS, Crozet, Va. Filed July 8, 1893. Serial No. 479,930. (No model.)



Claim.—1. The combination with the leg of an article terminating in opposite feet, said feet having inclined faces, of castings for

said feet, having similarly disposed inclined faces, and means for securing them movably upon the feet, substantially as specified.

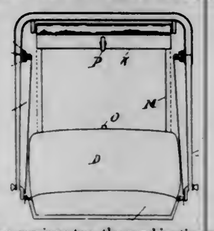
2. The combination with the leg of an article having opposite feet provided with oppositely-disposed inclined faces, of castings provided with wheels secured to the feet and having opposing faces, connecting rods between the castings and means for securing the castings loosely upon the feet, substantially as specified.

3. The combination with the leg of an article having opposite feet provided with oppositely inclined bearing faces, of opposite castings having upward similarly disposed faces bearing against those of the feet bifurcated at their lower ends, a transverse connecting-rod passing through the bifurcations, rollers mounted on the rod between the bifurcations, and means for loosely securing the feet and castings together, substantially as specified.

4. The combination with the leg of an article terminating in opposite feet having oppositely disposed inclined ends provided with bifurcations, of castings having opposing faces or shoulders, and an intermediate web having an inclined slot and pins passing through the bifurcations and slot, and connecting rods between the castings substantially as specified.

5. The combination with the leg of an article terminating in opposite feet whose ends are provided with oppositely disposed inclined faces and bifurcated, of opposite castings having opposite inclined shoulders opposing those of the feet and between the same provided with vertical webs having inclined slots fitting between the bifurcations of the feet, guide-pins passing loosely through the slots and secured to the bifurcations of the feet, forks at the lower ends of the castings, a transverse connecting-rod passing through the forks and connecting the castings, and caster-wheels mounted on the rod within the forks, substantially as specified.

520,433. CARRIAGE-TOP. JEREMIAH P. JOHNSON, Detroit, Mich. Filed Aug. 26, 1893. Serial No. 484,132. (No model.)

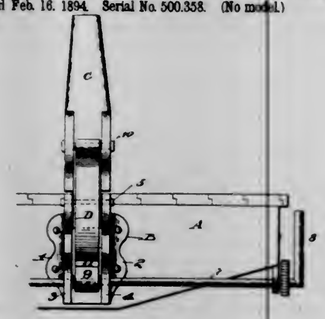


Claim.—1. In a carriage top, the combination with the bows and top covering, of brackets on the bows, frames detachably secured in the brackets, rollers journaled in the frames, curtains on the rollers, and means for locking the frames in the brackets substantially as described.

2. In a carriage top, the combination with the bows and top covering, of side curtains, rollers to which said curtains are secured, frames, formed of a strip of metal with bent ends in which said rollers are journaled, hooks on the inside of the bows at the top in which said frames are adapted to be supported and latches P above the hooks, the parts combined as and for the purpose described.

3. In a carriage top, the combination of the bows, seat back, top covering and side strips at the back, an upper back curtain for the space between such strips, a roller supporting said curtain journaled on the top and a complementary curtain secured to the back between the strips and below the upper curtain substantially as described.

520,434. CAR-STANDARD. ANDREW JOHNSON, Manistee, Mich. Filed Feb. 16, 1894. Serial No. 500,358. (No model.)



Claim.—1. The combination with the car of the brackets fixed to the side of the car, standards hinged to the upper ends of the brackets, supporting arms hung to the standards, a turning bar operated from the end of the car, and seat pieces on the turning bar to hold the lower ends of the supporting arms, substantially as described.

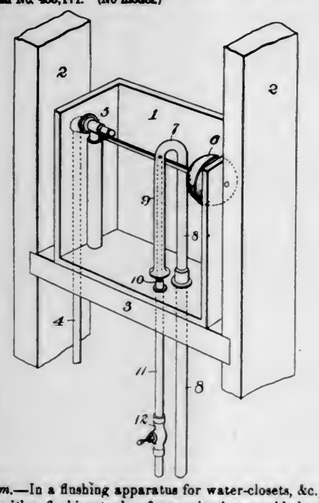
2. The combination with the car of brackets fixed to the side of the car, standards hinged to the upper ends of the brackets, supporting arms hung to the standards, a turning bar operated from the end of the car, seat-pieces on the turning bar to hold the lower ends of the supporting arms, and a pawl and ratchet to hold the turning bar locked against turning, substantially as described.

520,435. SCALPEL. JOSHUA W. JONES, New York, N. Y. Filed May 26, 1893. Serial No. 475,567. (No model.)



Claim.—As an improved article of manufacture, a scalpel formed with a heel, and provided with a cutting edge extending from the juncture of the heel of the blade with the shank to and around the point and over a portion of the back to a stop formed thereon, substantially as set forth.

520,436. FLUSHING-TANK FOR WATER-CLOSETS. HENRY W. KIRCHNER and WILLIAM A. SPEARS, Denver, Colo. Filed Aug. 15, 1893. Serial No. 483,171. (No model.)



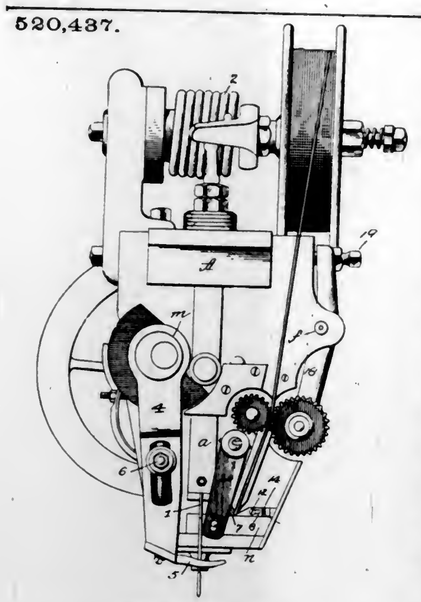
Claim.—In a flushing apparatus for water-closets, &c., the combination with a flushing tank, of a supply pipe provided with a float for controlling the discharge pipe in the form of a siphon in the flushing tank, the neck of which is above the level of the water when the tank is full, a pipe extending up into the short arm of the siphon to a point in the neck above the level of the water, and a valve in said pipe for controlling the flow of water therethrough, whereby when the water is admitted through said pipe it discharges into the bend of the siphon, and, creating a partial vacuum therein, draws up the water from the tank through the short arm and starts the flow through the discharge pipe, substantially as described.

520,437. NAILING-MACHINE FOR BOOTS OR SHOES. FRANK D. LOCKE, Hudson, assignor of one-half to Arthur H. Rice, Marlborough, Mass. Filed Aug. 1, 1893. Serial No. 482,095. (No model.)

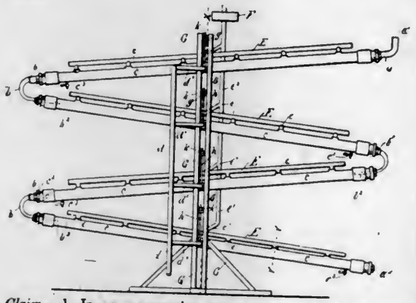
Claim.—1. In a nailing machine, the combination with the cutter levers having rabbeted and grooved ends, the slotted cutters carried by said rabbeted ends, adjusting screws located in the rear ends of the cutters and binding screws passing through the slots for securing the cutters in place, substantially as described.

2. In combination with the reciprocating carrier, the rock shaft e having an arm pivotally connected to said carrier, an arm *b* also carried by said rock shaft, an adjustable lever *p* having a link connection with said arm *b*, and a cam for operating said lever, substantially as described.

520,437.



520,438. EVAPORATING APPARATUS. ABRAHAM P. LEIST, Liberty Centre, Ohio. Filed Sept. 4, 1891. Serial No. 404,693. (No model.)



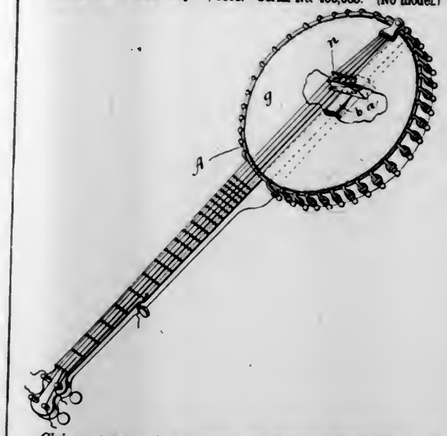
Claim.—1. In an evaporating apparatus, pipe *a* having vapor outlets *c c*, all leading to vacuum apparatus F, in combination with pipes *c* and means for adjusting the inclination or pitch of said pipes *a* and *c*, substantially as shown and described, for the purpose specified.

2. In an apparatus for evaporating liquids, inner pipe *a*, outer pipe *c* forming the annular space between said pipes in combination with vapor-pipe E connected with a series of openings in pipe *a* by means of pipes or taps *e* passing through outer pipe *c*, each of said pipes, *a c* and E, having adjustable pitch or inclination, said vapor-pipes E and *e* being suitably connected with means for producing a partial vacuum, substantially as shown and described, for the purpose specified.

3. In an evaporating apparatus the evaporating tube *a* having adjustable pitch or inclination and provided, in its interior, with a series of scrapers or agitators *q* operatively connected with a suitable driving mechanism, substantially as shown and described, for the purpose specified.

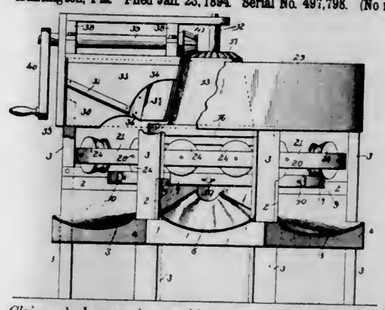
4. An evaporating apparatus comprising in its construction an evaporating pipe *a* disposed in zig-zag or sinuous lines, an outer pipe *c* inclosing pipe *a* providing an annular space between the two, a means for introducing steam or other heating medium into said annular space, a series of vapor outlets leading from pipe *a* to a common vacuum apparatus, a source of supply of liquid to the upper end of pipe *a*, means of adjusting the angle of inclination pipes *a* and *c* and their appendages, and pivotal supports for said pipes *a* and *c* and their appendages, all substantially as shown and described, for the purpose specified.

520,439. MUTE FOR BANJOS. HENRY E. LE VALLEY, Providence, R. I. Filed July 17, 1893. Serial No. 480,685. (No model.)



Claim.—A "mute" for banjos and musical instruments of like construction, consisting of two wedge-shaped pieces of wood, arranged to fit between the head or bridge, and that part of the handle under the head, and to slide on one another, to increase the pressure on the head, substantially as described.

520,440. ORANGE-SORTING MACHINE. EDWARD N. MAULL, Huntington, Fla. Filed Jan. 23, 1894. Serial No. 497,798. (No model.)



Claim.—1. In a sorting machine, the combination with a framework having a pair of tracks located eccentrically with relation to each other, of a centrally located drum, means for rotating the drum, a series of shafts extending from the drum above the tracks, rollers arranged loosely on the shafts and engaging the tracks, and concaved sleeves arranged between the rollers, substantially as specified.

2. In a sorting machine, the combination with a framework, a pair of tracks arranged eccentrically with relation to each other, of a central drum, shafts radiating therefrom above the tracks, a pair of concaved sleeves arranged loosely upon each shaft between the tracks, and devices arranged upon the shafts at the outer sides of the sleeves and engaging the tracks, substantially as specified.

3. In a sorting machine, the combination with the framework, the pair of tracks arranged thereon eccentrically with relation to each other, of a central hub, shafts radiating from the hub, means for rotating the hub, grooved rollers arranged on the shafts, pairs of concaved sleeves loosely arranged between the rollers upon the shafts, and means for adjusting one of the tracks with relation to the other, substantially as specified.

4. In a sorting machine, the combination with a framework, a pair of tracks eccentrically located with relation to each other, the outer track consisting of a series of independent segments or sections, and screws passing through the outer track into the inner track and adapted to adjust said segments, of an inner drum, shafts radiating from the drum over the tracks, means for rotating the drum, grooved rollers arranged loosely on the shafts, and independent concaved sleeves arranged loosely on the shafts between the grooved rollers, substantially as specified.

5. In a sorting machine, the combination with a central disk, a series of radial arms extending from the disk, posts at the outer ends of the arms, notches in the upper edges of the arms, an outer track

consisting of segmental sections arranged loosely in the notches, an inner track supported by the arms, a series of screws passing through the sections of the outer track into the inner track, of a superimposed rotatable drum, radial shafts extending therefrom above the tracks, a band connecting the outer ends of the shafts, grooved rollers loosely mounted on the shafts, concaved sleeves loosely mounted on the shafts between the rollers, and means for rotating the drum, substantially as specified.

6. In a sorting machine, the combination with a central disk, a series of radial arms extending from the disk, posts at the outer ends of the arms, notches in the upper edges of the arms, an outer track consisting of segmental sections arranged loosely in the notches, an inner track supported by the arms, and a series of screws passing through the sections of the outer track into the inner track, of a superimposed rotatable drum, radial shafts extending therefrom above the tracks, a band connecting the outer ends of the shafts, grooved rollers loosely mounted on the shafts, concaved sleeves loosely mounted on the shafts between the rollers, means for rotating the drum, and chutes arranged between the arms and posts, substantially as specified.

7. In a sorting machine, the combination with a series of posts arranged annularly, radial arms connecting the posts, chutes arranged between the arms, inner and outer tracks arranged upon the arms and eccentric with relation to each other, of a rotatable drum arranged above the arms and having a rotatable feed-table, a series of shafts radiating from the drum below the feed-table and above the tracks, loose grooved rollers arranged upon the shafts, concaved independent sleeves arranged loosely upon the shafts between the rollers, a superimposed cylinder supported by the posts and having an inclined hopper bottom provided with a central opening above the feed-table and at one side with a feed-opening, and means for rotating the drum, substantially as specified.

8. In an orange sorting machine, the combination with the stationary posts, notched at their upper ends, the radial arms connecting the posts, the disk at the center of the arms, the shaft rising from the disk, the inner and outer eccentrically arranged tracks supported by the arms, the chutes between the arms below the tracks, of the hollow drum arranged upon the shaft and comprising a lower base and upper gear, and an intermediate feed-table, shafts radiating from the base, a band connected with the shafts, grooved rollers, and sleeves loosely arranged upon the shafts and engaging the tracks, a superimposed cylinder, and an inclined bottom arranged therein and having a feed-opening at one side and a central opening above the feed-table, arms on the under side of the bottom for engaging the notches in the standards, vertical walls at the opposite sides of the feed-opening, one of said walls having a corresponding opening, bearings arranged upon the walls, a crank-shaft in the bearings, and a beveled gear at the inner end of the crank-shaft engaging with the gear of the drum, substantially as specified

9. In a sorting machine, the combination with the framework having a series of discharge-openings, and inner and outer non-continuous tracks arranged above the openings and eccentric with relation to each other, of a central drum, radial shafts, pairs of grooved rollers, and concaved sleeves arranged upon the shafts, and a deflecting cam arranged between the ends of the tracks and adapted to deflect the rollers into line therewith, substantially as specified.

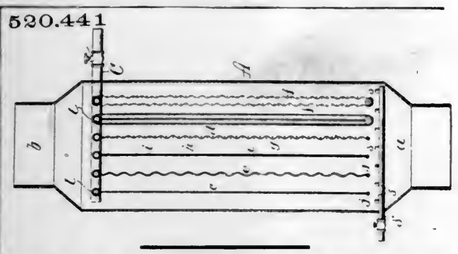
10. In a sorting machine, the combination with the framework, the eccentrically located tracks, and the openings below the tracks, of the rotatable drum, means for operating the same, the radial grooved shafts extending from the drum, the inner and outer grooved rollers 25 and 28 respectively arranged loosely upon the shafts, and the inner and outer concaved sleeve-sections arranged between the rollers, the outer sleeve-section being splined upon the shaft and loosely connected with the outer roller, substantially as specified.

11. In a sorting machine, the combination with the framework, the eccentrically located tracks, and the openings below the tracks, of the rotatable drum, means for operating the same, the radial grooved shafts extending from the drum, the inner and outer grooved rollers 25 and 28 respectively arranged loosely upon the shafts, and the inner and outer concaved sleeve-sections arranged between the rollers, the outer sleeve-section being splined upon the shaft, substantially as specified.

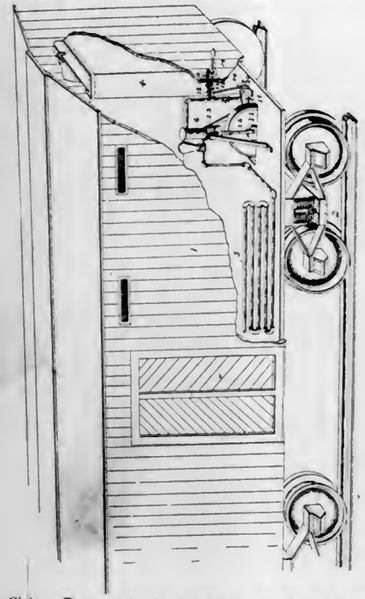
520,441. COOLING-CHANNEL FOR ORDERING TOBACCO. SAMUEL P. MAYO, Richmond, Va. Filed Mar. 31, 1893. Serial No. 468,464. (No model.)

Claim.—The combination with a conduit or channel, of a water main leading into the upper end of the conduit or channel, perforated pipes leading from the main, thin sheets of material extending downward from the perforated pipes whereby passages are left between them, and steam pipe entering the lower end of the channel or conduit and provided with discharge jets at points opposite or at the lower end of the spaces between the sheets of material, substantially as set forth.

520,441



520,442. REFRIGERATOR-CAR. CLINTON S. MILLER and JOHN E. DU BOIS, Tiffin, Ohio. Filed Mar. 25, 1893. Serial No. 467,557. (No model.)



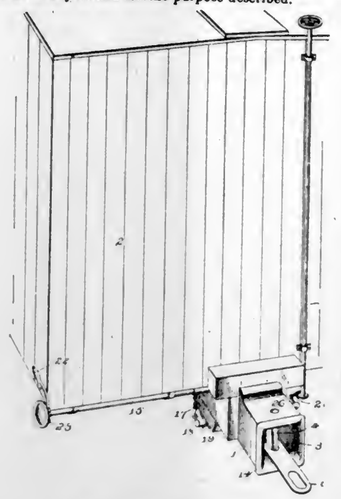
Claim.—The combination with a box-car having a friction roll on one of its axles, and a refrigerating apparatus mounted within the car and having an upright distributing pump, with its piston rod moving there-below; of a suitably mounted bell-crank lever provided at one end with a bearing block, a movable friction pulley disposed directly under the pump and having a spindle journaled in the lever bearing block, a pitman pivoted to one side of the movable friction pulley and to the pump piston rod, an operating stem or link connected to the free end of the bell-crank lever, a cam lever pivoted to the outer end of said stem outside of the car-body, and a spring coiled on said stem and normally pressing against one end of said bell-crank lever, substantially as and for the purpose described.

520,443. CAR-COUPLING. WILE S. MILLER, Spokane, Wash., assignor of two-thirds to O. E. Lawton and E. A. Hammond, same place. Filed Feb. 24, 1894. Serial No. 501,413. (No model.)

Claim.—1. In a car coupling, the combination of a draw-head provided at its bottom with a longitudinal opening, and having a transverse portion 14 arranged in advance of said opening, a pivotally mounted hook arranged in the draw-head to engage a link and adapted to be depressed through the opening to uncouple a link, and provided with an opening 10, a spring mounted in the draw-head and engaging the lower face of the hook and holding the latter normally elevated, and a swinging catch arranged in the draw-head and having its lower portion extending through the opening 10 of the hook and provided near its lower end with a shoulder for engaging the hook, substantially as described.

2. In a car coupling, the combination with a car, of a draw-head provided at its bottom in rear of its outer end with a longitudinal opening, a coupling hook pivotally mounted in the draw-head and arranged to engage the hook, a plate extending across the opening

of the draw-head, a spiral spring mounted upon the plate and engaging the lower face of the hook, a rock-shaft mounted on the car and extending beneath the draw-head and provided with a forwardly projecting arm loosely connected with the hook, said rock-shaft being provided with rearwardly extending arms, and shafts mounted on the car and connected with the rearwardly extending arms of the rock-shaft, substantially as and for the purpose described.

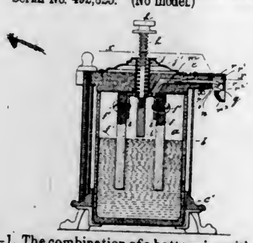


520,444. LEASE-RODS FOR LOOMS. ALMON MINNEY, Millbury, Mass. Filed July 12, 1893. Serial No. 480,225. (No model.)



Claim.—A yarn-checking device for looms, consisting of the two, loosely suspended lease rods D D′ over and under which the yarn or warp strands alternately pass; two weighted straps E E,—one at each end of said lease rods,—adapted to hang down over the loom, and to the inner ends of which are attached the ends of the lease rods, said inner ends of the weighted straps E E also being provided with means whereby they may be suspended and fitted to slide upon short rods F F mounted in brackets G G, said rods F F and brackets G G—the latter secured to the loom frame, substantially as and for the purpose set forth.

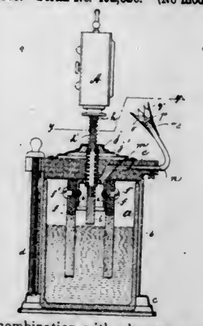
520,445. ELECTRIC CIGAR-LIGHTER. DAVID MISELL, New York, N. Y., assignor to Nathaniel S. Rosenau, same place. Filed Dec. 5, 1893. Serial No. 492,825. (No model.)



Claim.—1. The combination of a battery jar with a spring plunger, a zinc element secured thereto, a pair of battery wires, an incandescent coil and a guard r that is provided with an opening r^3 and with a socket r^3, back of such opening, substantially as specified.

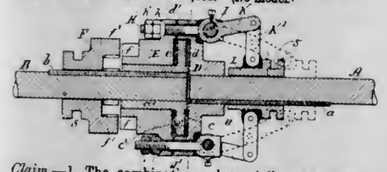
2. The combination of a battery jar with a spring plunger, a zinc element secured thereto, battery wires, tips removably connected thereto, a plate o, that receives the tips, an incandescent coil, and a guard surrounding the coil, substantially as specified.

520,446. ELECTRICALLY-ILLUMINATED CLOCK. DAVID MISELL, New York, N. Y., assignor to Nathaniel S. Rosenau, same place. Filed Dec. 5, 1893. Serial No. 492,826. (No model.)



Claim.—The combination, with a battery, an electric lamp in the circuit of said battery, said circuit being normally broken, a circuit closer at said break in said circuit, of a clock or time-piece movably supported in proximity to said lamp, said clock being connected to said circuit closer so as, by its movement, by the hand or similar agency, from its normal position, to actuate the circuit closer to close the circuit and light the lamp, said movement likewise bringing the clock into position near the lamp to be illuminated by the lamp when thus lighted, and means for restoring the clock to its normal position and breaking the circuit, when the pressure of the hand or similar agency is removed, substantially as described.

520,447. CLUTCH. MICHAEL F. MCMAHON and THOMAS F. CARVER, Worcester, Mass.; said Carver assignor to said McMahon. Filed Sept. 11, 1893. Serial No. 485,232. (No model.)



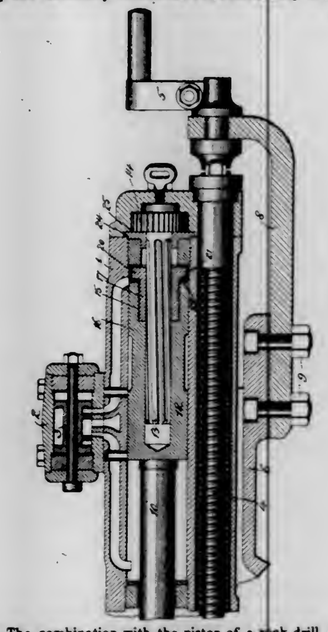
Claim.—1. The combination substantially as described, of the frictional-clutch-head fixed on the prime shaft, the friction disk fixed on the second shaft, the intermediate clutch-sleeve, mounted loose upon the friction-disk-hub, and having the positive engaging teeth and a frictional engaging face at its respective ends, the endwise movable toothed clutch-slide arranged on and keyed to said second shaft, for positively engaging with the toothed end of said sleeve, the draft-rods connecting said sleeve and head, and means substantially as described for moving the clutching parts into and out of engagement, as set forth.

2. The frictional clutch-head D and clutch-sleeve E comprising a positive and a frictionally engaging face, said head and sleeve having their rims fitted together with opposite laterally projecting intermatching lugs or detents d' and e', respectively formed integral with said head and said sleeve, the adjacent portions alternately interlocking outside the periphery of the friction-disk and beyond the circle of the frictional contact-faces; in combination with the positively engaging clutch-slide, the friction-disk embraced between said head and sleeve, the draft-rods connecting their rims, and means, substantially as described, for tightening and releasing said draft-rods, as set forth.

3. In a clutch mechanism for the purpose specified, the combination of the frictional clutch-head carried by the shaft or pulley, and having a frictional contact face and a surrounding rim with transverse bearings thereon, the shifter collar mounted upon the shaft or hub adjacent thereto, the friction disk matching said head, rigidly keyed upon the second shaft, the loose clutch sleeve provided at one end with a friction face adjacent to said disk and at its other end with positive clutching teeth, a toothed sliding clutch rotatively confined on said second shaft and engaging with said sleeve, the adjustable draft-rods disposed through the rims of said sleeve and head, the rock-shafts having eccentrics for operating said rods, and the arms and links connecting said rock-shafts with the shifter-collar, as set forth.

520,448. PACKING FOR PISTONS OF ROCK-DRILLS. HERMAN M. OSBORN, Calumet, Mich. Filed July 15, 1893. Serial No. 480,608. (No model.)

Claim.—1. The combination with the piston of a rock-drill, a rotating packing-nut having screw-threaded connection with said piston, and a rifle-bar working through said packing-nut, of a flexible and absorbent non-metallic packing surrounding the nut and interposed between said nut and the piston, and also protruding outwardly and rearwardly around the nut, substantially as set forth.



2. The combination with the piston of a rock-drill, a packing-nut screwed into said piston and having an enlarged rear end, and a rifle-bar working through said packing-nut, of a flexible and absorbent non-metallic packing surrounding the nut and interposed between said nut and the piston, and also protruding outwardly and rearwardly around the enlargement of the nut, substantially as set forth.

520,449. CLEANSING-BRUSH. GEORGE W. PARK, Quincy, Mass. Filed Aug. 7, 1893. Serial No. 482,502. (No model.)

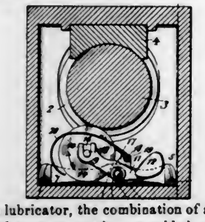


Claim.—A cleansing brush comprising in its construction a head having a sheet metal cap *c*, perforations centrally arranged in said cap, means for delivering water to said perforations, and tufts of bristles secured in said cap around said perforations, said tufts being first secured in tubes sealed at their inner ends, which tubes are soldered to the said cap, as set forth.

520,450. AXLE-LUBRICATOR. GEORGE W. PERO, West New Brighton, assignor of one-half to Charles Kipper, Tompkinsville, N. Y. Filed Nov. 22, 1893. Serial No. 492,363. (No model.)

Claim.—1. In an axle lubricator, the combination of a journal, a pivotally-mounted frame weighted on one side of its pivot and carrying on the opposite side an oiling disk, and a self-adjusting scraper or wiper for removing surplus oil from said disk.

2. In an axle lubricator, the combination of a journal, a pivotally-mounted frame weighted on one side of its pivot and carrying an oiling disk on the other side thereof, and a scraper or wiper for said disk hinged to or upon said frame and adapted to maintain always its proper relative position to said disk when wear occurs, as well as when the disk is moved bodily in any direction.



3. In an axle lubricator, the combination of a journal, an oiling disk, and a hinged scraper or wiper provided with a slot through which the upper portion of the disk protrudes and upon the periphery of which disk the ends of the slot always bear.

4. In an axle lubricator, the combination of a journal, an oiling disk carried by a pivotally-mounted frame, and a scraper or wiper hinged to said frame and provided with a slot for the passage therethrough of the upper portion of said disk, the said scraper or wiper being adapted by gravity to bear on the periphery of said disk at the ends of its slot.

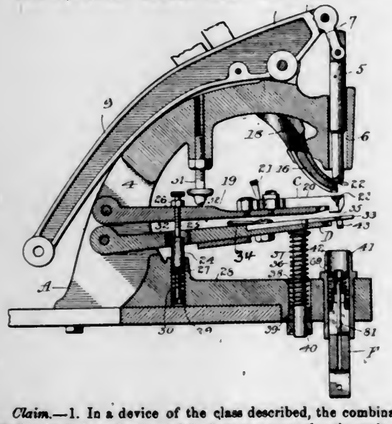
5. In an axle lubricator, the combination of a journal, an oiling disk arranged to contact with said journal, and also to run through the lubricant employed, and a scraper or wiper hinged and slotted so as to always bear on the periphery of said disk at both sides of the center thereof, whereby the surplus oil may be removed from the disk whatever may be its direction of rotation.

6. In an axle lubricator, the combination of a journal, a support having an elongated pivot pin, a lever or frame mounted thereon and carrying a weight and an oiling disk, and a hinged and slotted scraper or wiper.

7. In an axle lubricator, the combination of a journal, an oiling disk, and a hinged and slotted scraper or wiper provided with an integral hood or deflector.

8. In a lubricating contrivance adapted for insertion in a car axle box, the combination of a suitable support, a pivoted and weighted lever or frame, a sheet-metal oiling disk, and a hinged and slotted scraper or wiper bearing at all times at two points of the periphery of said disk and on opposite sides of the center thereof.

520,451. BUTTON-RIVETING MACHINE. FREDERICK A. RYNO, St. Paul, Minn., assignor of one-half to Alvah H. Warren, same place. Filed May 25, 1892. Serial No. 434,256. (No model.)



Claim.—1. In a device of the class described, the combination with the riveting mechanism, of the button receptacles, the main conduit leading to said riveting mechanism, the branch conduits connecting the main conduit with said receptacles, the switch for interposing a stop for the buttons in either branch conduit, the gate for passing the buttons singly from either branch conduit along the main conduit, and means for actuating said gate with each operation of the riveting mechanism, substantially as described.

2. In a device of the class described, the combination with the conduit, of a button gate therefor, consisting of a rocking bar arranged transversely thereof and provided with a pair of downturned points arranged one on each side of the bar and entering the conduit, substantially as described.

3. In a device of the class described, the combination with the conduit, of a button gate arranged therein, consisting of a pair of rigidly connected downturned points, and a support therefor rocking on an axis transversely of the conduit, substantially as described.

4. In a device of the class described, the combination with the inclined base, the main button conduit extending down the same, the branch conduits communicating with said main conduit, and the button receptacles communicating with said branch conduits, of the switch intermediate of said branch conduits adapted to be set to interpose a button stop in either of them, substantially as described.

5. In a device of the class described, the combination with the inclined base, of the main button conduit in the same, the branch conduits diverging from said main conduit and leading to the button receptacles, and the pivoted arm or switch arranged between said branch conduits near their junction, adapted to be turned to carry its free end over either of them, and having a downturned point adapted to engage and stop the buttons therein, substantially as described.

6. The combination with the inclined support and the conduit of inverted T shape extending down the same, of the receptacle of inverted cup shape having a central pivot standard supporting it upon said base, with its edges raised above said base, and having its edges provided with transverse notches, step by step mechanism for rotating said receptacle, and an elastic friction device for holding said receptacle in adjusted positions, substantially as described.

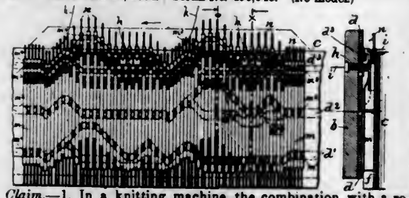
7. In a device of the class described, the combination of the fixed vertical guide, the plunger working therein having a seat to receive a button upon its top, said guide having an opening in the side above the top of said plunger in its normal position, the conduit leading to said opening, and the mechanism for discharging the buttons successively through said conduits, substantially as described.

8. In a device of the class described, the combination of the holder adapted to support the garment, having spring controlled jaws, the rivet holder, the plunger above the same, the fixed hollow cylinder beneath the garment support in alignment with said plunger and having a beveled edge and a lateral button opening, the lugs upon the jaws of said garment support adapted to strike upon said beveled edge and spread said jaws, the plunger working in said cylinder having a seat to receive and hold a button, automatic means for delivering buttons to the opening in said cylinder, and means for simultaneously operating both said plungers, substantially as described.

9. In a device of the class described, the combination of the fixed hollow cylinder, the button carrying plunger working therein, said cylinder having a slot in its side wall above said plunger in its normal or lowered position, the button conduit leading to said opening, and the gate connected with and actuated from the operating parts of the machine adapted to deliver the buttons one by one along said conduit with each operation of the machine, substantially as described.

10. In a device of the class described, the combination with the inclined bed and the button receptacles mounted thereon, of the branch conduits leading from said receptacles to a common or main conduit, the pivoted arm arranged between said branch conduits and adapted to be turned over either and to stop the buttons therein, the rocking arm extending across said conduits and provided with fingers or downturned points entering said conduits and adapted to hold between them a single button, and means for automatically rocking said arm to release a button with each operation of the machine, substantially as described.

520,452. KNITTING-MACHINE. LEVI E. SALISBURY, Providence, R. I. Filed Jan. 15, 1894. Serial No. 496,948. (No model.)



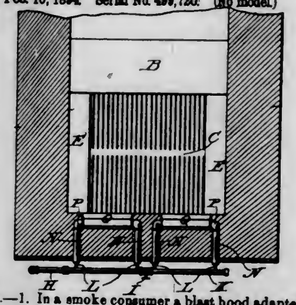
Claim.—1. In a knitting machine, the combination with a rotatable cylinder having vertical grooves in its peripheral surface, and a fixed thread guide, of lower or main jacks mounted in said grooves, upper jacks also mounted in the grooves and interlocking with the lower jacks, needles secured to the upper jacks, and a series of combined fixed cams and guides in engagement with the jacks, arranged whereby the upper jacks are separated from the lower jacks and reunited therewith contiguous to said thread-guide and having the needles projected entirely out of the cylinder and returned thereto, substantially as described.

2. In a knitting machine, the combination with a rotatable cylinder having vertical grooves formed in its peripheral surface, of a series of separable interlocking jacks or needle-carriers mounted in said grooves, a stationary thread-guide mounted in the path of the carriers, and means for separating and reuniting the jacks automatically during the rotation of the cylinder, substantially as described.

3. In a knitting machine, the combination with a rotatable cylinder having parallel grooves formed in its periphery longitudinally and a stationary filling-thread guide having its inner or delivery end located contiguous to the grooved portion of said cylinder, of separable needle-carrying jacks or carriers movable in said grooves and stationary cams and guides in engagement with the jacks for both moving the latter endwise in the grooves of the revolving cylinder and for separating them so as to pass said filling-thread guide and reuniting them after passing the same, substantially as described.

4. In a knitting machine, the combination with a rotatable cylinder provided with vertical grooves, and a fixed thread-guide, of combined interlocking main and upper jacks mounted in said grooves, needles secured to the upper jacks, means for separating and reuniting the main and upper jacks so as to pass said thread-guide and means for projecting the needles completely out of the cylinder and retracting them into the cylinder again automatically, substantially as described and for the purpose set forth.

520,453. SMOKE-CONSUMER. FRANK S. SEJNOHA, Chicago, Ill. Filed Feb. 10, 1894. Serial No. 499,720. (No model.)



Claim.—1. In a smoke consumer a blast hood adapted to receive a blast of air and steam and to deliver the same into a combustion chamber, said blast hood being beveled upon the lower side thereof whereby a solid bearing support is secured therefor, as and for the purpose set forth.

2. In a smoke consumer a blast hood having swivel supports and beveled upon the lower face thereof whereby it may be angularly adjusted, and solidly supported in its angular adjustments, as and for the purpose set forth.

3. In a smoke consumer an inclined or tilted blast hood communicating with a furnace chamber, so as to deliver an inclined blast therein, and having an inclined or beveled lower face, in combination with air and steam pipes upon which said blast hood is mounted to be angularly adjusted; substantially as and for the purpose described.

4. In a smoke consumer elbow pipes communicating at one end with the open air, a blast hood swiveled upon the other end of said open ended elbow, air pipes, a system of steam pipes communicating with a source of steam, nozzles projecting from said steam pipes into the open ends of the elbow pipes and suitable openings between the blast hood and combustion chamber of a furnace, as and for the purpose described.

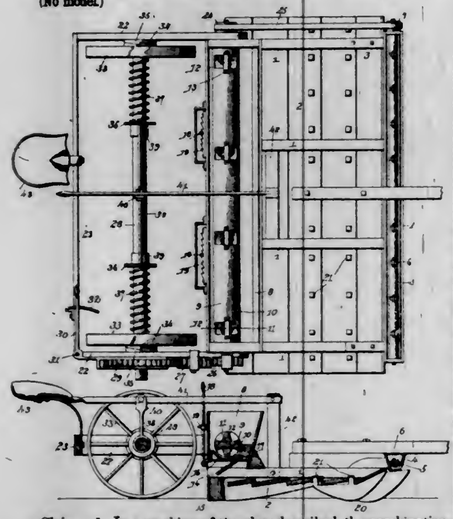
5. In a smoke consumer elbow pipes communicating at one end with the open air, a blast hood swiveled upon the other end thereof, said hood having a beveled face and capable of angular adjustment upon its swivel supports, and communicating with the interior of a furnace chamber steam jets projected into the open ends of the elbow pipes and a system of steam pipes for supplying steam to said jets from any suitable source; substantially as described and for the purpose set forth.

6. In a smoke consumer a steam supply pipe, a delivery pipe, a T-connection between said supply and delivery pipes centrally of the length of the latter, a pair of steam jets connecting with the delivery pipe on each side of the T-connection, elbow pipes or tubes communicating with the air, said jets projecting into the open ends of said elbow pipes or tubes, a blast hood adjustably swiveled on the other ends of said elbow tubes or pipes and communicating with the same and also with the interior of a furnace chamber, all combined, arranged and operating substantially as and for the purpose set forth.

7. In a smoke consumer, an oblong casing forming a blast hood, two faces of said hood beveled to form a nose piece, a flaring mouth in said nose piece communicating with the interior of said hood and opening into a furnace chamber and suitable air and steam inlets in the ends of said casing or blast hood; as and for the purpose set forth.

8. In a smoke consumer, a blast hood located in a boiler setting or frame work above and in proximity to the furnace door, said hood being tilted or inclined and communicating with the interior of said furnace chamber so as to deliver an inclined blast therein to impinge on the bridge wall a short distance above the rear ends of the grate bars open ended tubes or elbow pipes also located in the boiler setting and communicating with the interior of the blast hood and also the open air, and upon which the blast hood is adjustably swiveled, steam jets projected into the open ends of said elbow pipes or tubes and a system of pipes delivering steam from any suitable source to said jets; all combined, arranged and operating as and for the purpose set forth.

520,454. COMBINED PULVERIZER AND PLANTER. EDWARD SHOWELL, Atchison, Kans. Filed July 7, 1893. Serial No. 479,844. (No model.)



Claim.—1. In a machine of the class described, the combination with the front frame, the platform arranged thereunder, the series of longitudinally disposed and transversely arranged pulverizing-blades arranged at the front end of the platform, the drill shoes arranged at the rear end of the same, a hopper arranged at the front and rear end of the platform, the latter being above the drill-shoes, feed-devices mounted in the hopper, means for driving the feed-devices of the rear hopper, and intermediate mechanism between said feed devices of the main hopper and those of the front hopper, substantially as specified.

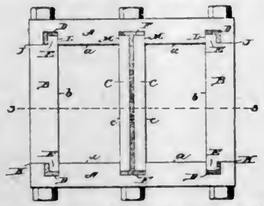
2. In a machine of the class described, the combination with the front framework, the platform, and pulverizers carried thereby, and the hopper arranged thereover of a rear pivoted frame, a transverse axle journaled in the pivoted frame, a bail rising from the front frame, a yoke arranged upon the axle and having eyes engaging the same, and a lever fulcrumed on the yoke and having its front end extended and loosely connected with the bail, substantially as specified.

3. In a machine of the class described, the combination with the front frame carrying the pulverizer, the superimposed hopper, the feed-shaft arranged therein and extending beyond the end walls of the hopper, of the frame bars 22 loosely mounted upon the ends of the shafts the rear frame-bar 23, the transverse axle journaled in the bars 22, the ratchet-disks 35 mounted on the axle, the ground-wheels having their outer faces provided with oppositely disposed teeth for engaging the ratchets and loosely mounted on the axle, coiled springs arranged at the inner sides of the ground-wheels, collars between the wheels against which the springs abut, a gear-wheel carried by the outer end of the axle, a gear-wheel mounted on the feed-shaft of the hopper, and an intermediate gear-wheel for communicating motion from the gear wheel of the axle to that of the feed-shaft, substantially as specified.

4. In a machine of the class described, the combination with the front platform, the framework carrying the pulverizing devices, and the hopper arranged thereover and provided with a feed-shaft extending beyond its ends, of a rear rectangular frame loosely connected at its terminals to said feed shaft, an axle journaled in the rectangular frame, ground wheels carried by the axle and adapted to rotate therewith, a gear loosely mounted on the outer end of the axle, an angular lever engaging the gear and adapted to reciprocate the same, a locking-bar for said angular lever, a gear wheel carried by the feed-shaft of the hopper, and an intermediate gear mounted upon the frame and adapted to communicate motion from the shifting gear to the gear of the feed-shaft, substantially as specified.

5. In a pulverizer, the combination of the beams 1, with the cross planks 2 arranged in lap-joint fashion, and the pulverizing knives 20 arranged at the front of the cross-planks and provided with rounded lower sides, and two or more tangs 21 formed on the upper edges of the knives and passing through openings of the planks to secure the knives thereto, substantially as described.

520,455. SECTIONAL MOLD FOR BRICK-PRESSES. PETER L. SIMPSON, Chicago, Ill., assignor to the Simpson Brick Press Company, same place. Filed Sept. 24, 1892. Serial No. 446,847. (No model.)



Claim.—1. In a sectional mold for brick-presses, the combination with the side-plates whose inner faces are in the same plane throughout the length of said plates, and have transverse grooves therein near the ends thereof, of the end-plates abutting directly against the inner faces of the side-plates, and tongues on said end-plates entering the grooves in the side-plates, substantially as described.

2. In a sectional mold for brick-presses, the combination with the side-plates whose inner faces are in the same plane throughout the length of said plates and have transverse grooves therein near each end thereof, and also at one or more points intermediate of said end-grooves, of end-plates abutting directly against the inner faces of the side-plates and provided with tongues entering the end-grooves in the side-plates, and a pair of division-plates each of whose ends project into the intermediate grooves in the side-plates, substantially as set forth.

3. In a sectional mold for brick-presses, the combination of side and end plates, the inner faces of said side-plates being in the same plane throughout the length of said plates and having transverse grooves therein near the ends thereof, to receive tongues on the ends of the end-plates, and the end-plates being provided with shoulders against which the side plates abut, perforations extending longitudinally through said end-plates and the side-plates, bolts passing through said perforations and of less diameter than the perforations in the end-plates and also binding said plates together, and a filling of sulphur or equivalent material for said perforations, substantially as set forth.

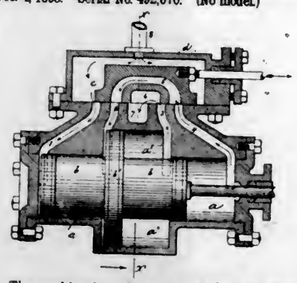
4. In a sectional mold for brick-presses, the combination with the side-plates whose inner faces are in the same plane throughout the length of said plates, and have transverse grooves therein near the ends thereof and also at one or more points intermediate of said end-grooves, end-plates abutting directly against the inner faces of the side-plates and provided with tongues entering the end-grooves in the side-plates, a pair of division-plates whose ends project into and loosely fit within each of the intermediate grooves in the side-plates, perforations extending through the side-plates and longitudinally through the end and division plates, bolts of less diameter than said longitudinal perforations and grooves and passing through the same and also binding the plates together, and a filling of sulphur or equivalent material for said perforations and grooves and also for the transverse grooves in the side-plates, substantially as set forth.

5. A sectional brick-mold, comprising a plurality of separable external walls engageably tongued and grooved at their contiguous end-portions, the grooves being wider than the tongues, openings formed longitudinally through certain of the walls and also communicating with the grooves when the walls are in proper relative position, retaining-bolts of less diameter than the longitudinal openings and extending removably through the same, and continuous masses of expansible filling within the grooves and extending from the latter into the longitudinal openings, substantially as set forth.

6. A sectional brick-mold, comprising a plurality of separable external walls engageably tongued and grooved at their contiguous end-portions, the grooves being wider than the tongues, and also having

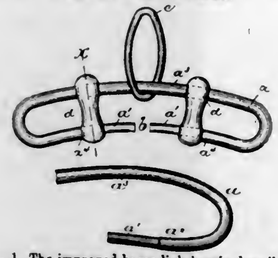
grooves at one or more points intermediate of their ends, a pair of intermediate partition-walls having an intervening space communicating with the intermediate grooves, openings formed longitudinally through the partition-walls and also through certain of the external walls and communicating respectively with the intermediate and end grooves, retaining-bolts of less diameter than said openings and extending through the same, and continuous masses of expansible filling within the grooves and space and longitudinal openings, substantially as set forth.

520,456. STEAM-ENGINE. BENJAMIN F. SPARR, Brooklyn, N. Y. Filed Dec. 4, 1893. Serial No. 492,670. (No model.)



Claim.—The combination of a steam cylinder, having an enlarged section between contracted ends, cylinder heads secured upon said ends, a cylindrical piston, having closed ends, working in such contracted portion from end to end of the steam cylinder, and having an outwardly extending collar intermediately secured thereon working in the enlarged section, a valve chamber secured upon the steam cylinder, ports leading therefrom to the ends of the cylinder and the ends of the enlarged section and an exhaust passage, and a valve in said valve chamber which simultaneously connects the valve chamber or steam chest with the contracted portion of the cylinder at one end, and the enlarged section at that end with the contracted portion at the other end and the enlarged section at the other end with the exhaust passage, substantially as described.

520,457. HAME-LINK. JAMES STANLEY, Newark, N. J. Filed Aug. 17, 1893. Serial No. 483,342. (No model.)



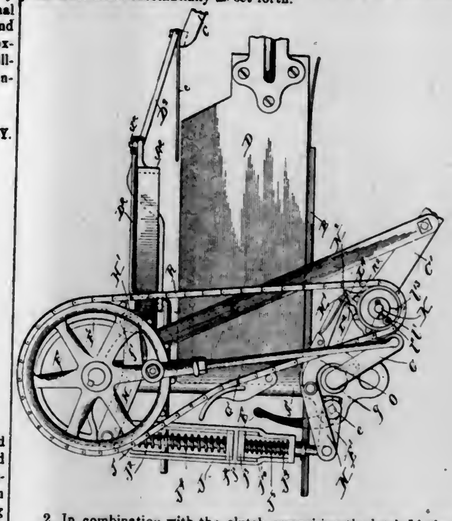
Claim.—1. The improved hame link herein described curved to conform to the collar and comprising the body *a*, having arms *a'*, *a'*, centrally open between, as at *b* and sliding stay pieces, *d*, substantially as set forth.

2. The improved hame link herein described comprising the body *a*, having the opening, *b*, between and shoulders a^4, a^4, and sliding stay pieces *d*, *d*, held away from the ends of said link by said shoulders substantially as set forth.

3. The combination with the wire or rod-like body, *a*, having the ends turned toward one another and of reduced diameter and having an opening, *b*, between, of stay pieces perforated near their opposite ends and adapted to slide across the opening, *b*, from one arm to the other to admit the insertion of the hames to the opposite ends of the link, substantially as and for the purposes set forth.

520,458. GRAIN-BINDER. ANDREW STARK, Chicago, Ill., assignor of one-half to the Warder, Bushnell & Glessner Company, Springfield, Ohio. Filed Oct. 27, 1892. Serial No. 450,110. (No model.)

Claim.—1. In a grain binder, in combination with the trip and compress lever, the rock shaft lever arm and extensible link connections therefrom to the cam lever H; the clutch comprising the pivoted latch L', the link O having one pivot fixed with respect to the needle rock shaft and accompanying the latter in its rocking movement; the lever N fulcrumed on said link at a point remote from the said pivot of the latter, having one end adapted to engage the clutch latch and pivotally connected at the other end to the trip-and-compress lever arm: substantially as set forth.



2. In combination with the clutch comprising the latch L', the lever N adapted to engage said latch to disengage it from the clutch dog; the link O pivoted to the needle-rock-shaft crank arm and extending part way around the bearing of said rock shaft, and affording a fulcrum for the lever N at the opposite side of said bearing from the link's pivot; the trip rock shaft and its lever arm E' which actuates the lever N: substantially as set forth.

3. In combination with the revolving clutch dog and the clutch disk, having the nose L^4 and the spring-actuated clutch latch pivoted to said disk and having the shoulder or seat l^{30} for the clutch dog; the lever N, adapted to engage the nose of the latch as the clutch revolves and disengages it from the dog, and having the spring finger N^3 adapted to spring down behind said nose L^4, and follow the face of the latter as the latch is withdrawn from the clutch dog; whereby the nose is held at the farthest point from the nose L^4 to which it is removed in the process of disengaging the latch from the dog: substantially as set forth.

4. In combination with the binder driving cam wheel F, the clutch comprising the revolving dog and the disk, and the clutch latch by which they are engaged; the sprocket pinion M, and the chain by which it drives the wheel F, said sprocket pinion being adjustably secured to the clutch disk concentric therewith: substantially as and for the purpose set forth.

5. In combination, substantially as set forth, the clutch comprising the disk, and the latch by which it is engaged with the clutch dog; the pinion M on the same shaft with the clutch disk; a bolt on which the pinion is secured to the disk, the pinion having a segmental slot for said bolt and a segmental washer to cover the slot.

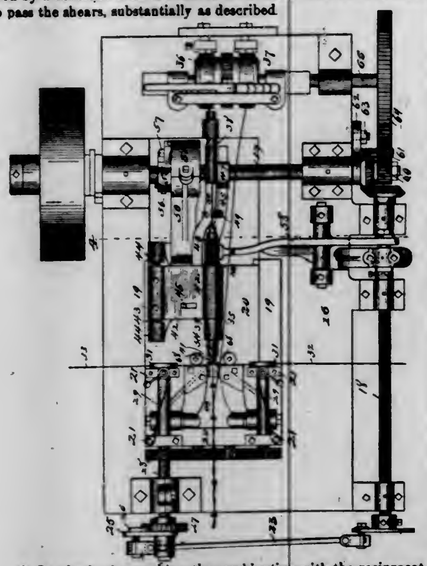
6. In combination, substantially as set forth, the clutch comprising the clutch disk L: the clutch latch L'; a shouldered bolt by which the latch is pivoted to the disk; the sprocket wheel M on the same shaft with the disk having a segmental slot in its web, said bolt being extended through said slot and provided with a segmental washer at the outer side: substantially as set forth.

7. In combination with the clutch disk, the sprocket pinion M on the same shaft having a segmental slot in its web; a bolt extending through said slot and securing the pinion to the disk, the face of one of the two parts which are thus secured together being serrated, and the other having a tooth to engage such serrations at the margin of the segmental slot: substantially as set forth.

520,459. BARB-WIRE MACHINE. SANFORD SWANBURN, De Kalb, Ill., assignor to the I. L. Ellwood Manufacturing Company, same place. Filed June 13, 1893. Serial No. 477,436. (No model.)

Claim.—1. In a barbed wire machine, the combination, with means for continuously feeding a strand wire and means for intermittently feeding barb wires across its path, of a reciprocating carriage having a twister spindle rotatably mounted thereon and capable of endwise movement independent of its carriage, means for reciprocating the carriage, and means for rotating the twister spindle and retracting it during its rotation, substantially as described.

2. In a machine for making barbed wire, the combination, with means for continuously feeding a strand wire and for intermittently feeding barb wires across the path thereof, of a reciprocating carriage, a twister spindle carrying the strand wire and twister pins rotatably mounted upon said carriage, the said spindle being capable of being raised, and shearing mechanism whereby the barb wire may be severed by a beveled cut on the outside of its barbs and said barbs raised to pass the shears, substantially as described.



3. In a barb wire machine, the combination with the reciprocating carriage, of a revoluble and vibratory twister spindle, and means for retracting said spindle during the act of coiling the barbs, substantially as described.

4. In a barbed wire machine, the combination with the reciprocating carriage, of a revoluble and vibratory twister spindle, and means for retracting said spindle, and a shearing mechanism mounted upon the carriage and adapted to sever the barb wire by a beveled cut upon the outside of said barbs, whereby the barbs have their points disposed at substantially right angles to the strand wires, substantially as described.

5. In a barbed wire machine, the combination, with the reciprocating carriage having a twister spindle and a shearing mechanism mounted upon such carriage, of means for reciprocating said carriage, consisting of a pitman and a variable eccentric, substantially as described.

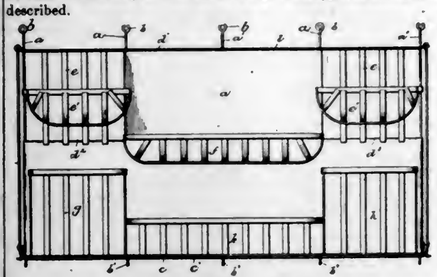
6. In a barbed wire machine, the combination, with the reciprocating carriage and a twister spindle and shearing mechanism mounted upon such carriage, of means for reciprocating the carriage, comprising a variable eccentric, and means for feeding the strand wire, said latter means being also capable of adjustment whereby the distance between adjacent barbs may be varied, substantially as described.

7. In a barbed wire machine, the combination with the means for feeding the strand wires and barb wires, of means for forming and severing the barbs, a reciprocating carriage carrying the barb forming and severing mechanism, the feed mechanism for the barb wire being also mounted upon and reciprocating with said carriage, a ratchet mechanism for operating said feed mechanism intermittently, and a pitman for driving said ratchet mechanism, said pitman being pivotally connected at each of its ends, whereby it is adapted to follow the movement of the carriage, substantially as described.

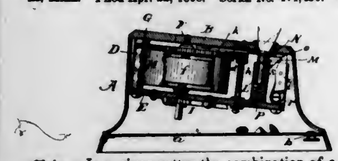
520,460. KITCHEN-CABINET. MINNIE S. THOMAS, Waterville, Wash. Filed Feb. 15, 1894. Serial No. 500,379. (No model.)

Claim.—1. A kitchen cabinet comprising a body portion, provided with means for hanging it to the wall, a series of baskets secured to the body and adapted for the reception of cooking utensils, a shelf hinged to the lower end of the body and stay rods pivoted to the body and having a detachable connection with the shelf, whereby the shelf may be held horizontally or allowed to hang vertically, substantially as described.

2. A kitchen cabinet comprising a body portion, a series of rods secured thereto and extending its entire depth, the upper end of the rods being formed into eyes for supporting the cabinet and the lower ends formed into hooks for holding cooking utensils, baskets secured to the body and adapted for the reception of kitchen utensils, a shelf hinged to the body, and stay rods pivoted to the cabinet and provided with a detachable connection with the shelf whereby the shelf may be held horizontally or allowed to hang vertically, substantially as described.



520,461. CIGAR-TIP CUTTER. ALLAN P. THOMPSON, Minneapolis, Minn. Filed Apr. 22, 1893. Serial No. 471,459. (No model.)



Claim.—In a cigar cutter the combination of a shaft having a gear and a spring mounted thereon, with a shaft provided with a pinion adapted to mesh with said gear, plates E and B by which the operating parts are supported, the former having an opening for the cigar tip, a hollow post secured to the latter, a spring follower supported thereon and having a cam surface, a cutting knife on the second shaft having stops, and a pawl pivoted to the frame E and having a beveled forward end engaging the stops on the knife and adapted to be engaged by the cam surface on the plunger; substantially as described.

520,462. COMBINED DESK SUPPORT AND HINGE. FRED W. TOBEY, Grand Rapids, Mich. Filed Nov. 13, 1893. Serial No. 490,857. (No model.)



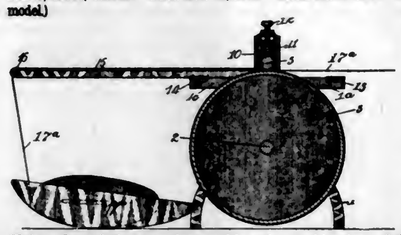
Claim.—1. The combination with the bottom, end and front of a desk, of a plate, secured to said front, a rod, pivoted at its rear end to the end of the desk and having at its front end a sliding engagement with said plate, and a stationary plate secured to the bottom of the desk, said stationary plate having the inner end of the first mentioned plate pivotally connected with it and serving as a fulcrum for said rod when the desk-front is open, substantially as shown and described.

2. The combination with the bottom, end and front of a desk, of a slotted plate, secured to said front, a rod, pivoted at its rear end to the end of the desk and having at its front end a stud engaging and adapted to traverse said slot in the plate, and a plate secured to the bottom of the desk and having hinged to it the rear end of said slotted plate and serving as a support for the intermediate part of said rod when the front of the desk is open, substantially as shown and described.

3. In combination with a desk, a slotted plate attached to the front, a circular plate hinged to the end of said slotted plate and attached to the desk bottom, a bar pivoted at its inner end to the desk end, and resting upon said circular plate when the desk is open, and having a downward bend opposite said hinge, and a stud in the outer end of said bar engaging and traversing said slot, substantially as described.

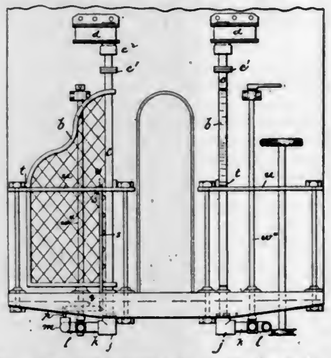
4. A combined desk support and hinge, consisting of a slotted plate, designed to be secured to the front of the desk, a rod, designed to be pivoted at its rear end to the end of the desk and having at its front end a stud engaging and traversing the slot in said plate, and a plate, designed to be secured to the bottom of the desk, to which the rear end of said slotted plate is hinged and which is engaged by said rod when the same is in horizontal position, substantially as shown and described.

520,463. CLOTH-MEASURING MACHINE. J. HARVEY VANDERBURGH, Orono, Canada. Filed Nov. 18, 1892. Serial No. 452,456. (No model.)



Claim.—In a cloth measuring machine, the combination, of the frames, 1, a measuring roll, 3, journaled in said frames, said measuring roll being provided upon its surface with a line, 8, for indicating the beginning of its rotation, a ratchet tooth, 6, mounted on one end of the spindle of the measuring roll, a dog, 7, mounted on the inner face of one of the frames and adjacent the tooth 6, said tooth adapted to engage with said dog and prevent a reverse rotation of the measuring roll, a pointer connected to and rotating with the measuring roll for indicating the rotation or partial rotation thereof, a pressure roll, 5, mounted above and contiguous to the measuring roll, said pressure roll journaled in boxes, 9, said boxes working in guides, 10, a coil spring, 11, mounted upon the boxes 9, a set screw, 12, mounted in the top of the frames 1 and adapted to regulate the tension of the spring 11, a covering of adhesive fabric material for the pressure and measuring rolls, arms secured to the frames on either side and above the measuring roll and extending to the front and rear thereof, tension bars, 13 and 14, connecting the ends of said arms, a supplemental frame comprising bars, 15, said bars being connected at their rear ends by a cross bar, 16, said supplemental frame extending to the rear of the machine and being detachably secured thereto, and a pan for holding the material to be measured; substantially as and for the purpose set forth.

520,464. RAILWAY-TRAIN GATE. JAMES WAYLAND, Newark, N. J. Filed May 24, 1893. Serial No. 475,374. (No model.)



Claim.—1. The combination with a series of cars of a railway train, a series of gates arranged at one side of said train at the exit passages thereof, pneumatic means for operating said gates, and a main supply pipe arranged longitudinally with relation to said train and connecting with said means and adapted to convey the compressed fluid from one car to another, said main supply pipe being provided with a valve at or near each platform of the car and a handle for closing the same convenient to the brakeman of said car, enabling him to control said main pipe independent of the engineer on the locomotive, substantially as set forth.

2. In combination with the gate of a railway car, a pivotal piston carrying said gate, a cylinder and a duct for conveying air to said cylinder and operating said piston and said gate, substantially as set forth.

3. In combination with a platform gate of a railway car, a pivotal rod having a flange like piston, a cylinder or chamber containing said piston and means for conveying compressed air to said cylinder, substantially as and for the purposes set forth.

4. In combination with a car platform, a gate and its cylinder and piston and means for conveying compressed fluid thereto, a catch and its cylinder and piston operable by the same body of compressed fluid, and valves stationed at the platform at which said gate is situated, and adapted to close communication to said cylinders, substantially as set forth.

5. In combination with an automatically closing gate, a catch for holding said gate in its closed position, a cylinder and piston and a lever *q* connected with said catch and piston, a spring *o* and means for conveying compressed air to said cylinder, substantially as set forth.

6. In combination with the platform gate, and platform rail *w*, a piston and cylinder, a catch and its piston, cylinder and connections, and means for conveying compressed fluid to said cylinders, said catch being supported in a vertical position by the said hand rail and being adapted to hold the gate at or toward its upper part, substantially as set forth.

7. In a railway gate, the combination with the pivotal and tubular rod *c*, of the connection, c^3, having a fluid passage leading to said rod and a stuffing box into which said rod extends and a gland c^4, all arranged and combined substantially as and for the purposes set forth.

8. The combination with the railway car and its platform gate, working on a hollow pivot adapted to convey compressed fluid, a piston operating said pivot and a cylinder or chamber adapted to receive compressed fluid through said pivot, substantially as set forth.

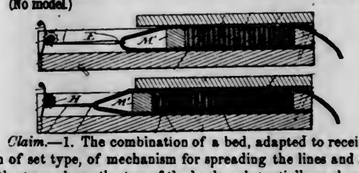
9. The combination with the car and platform gates, the hollow pivotal tube, *c*, carrying said gate, a piston *e* movable pivotally with said tube, said piston having the duct or port *g*, and a cylinder and means for supplying the same with compressed air, substantially as set forth.

10. In combination with the car, gate, cylinder and piston contained in said cylinder and controlling said gate, a three-way cock and supply passage carrying the same and connecting with said cylinder, one of the ways in said cock being materially smaller than the others to produce a slow, "bleeding," escape of the fluid, substantially as set forth.

11. In combination with the car and a pivotal gate and its vibrating or oscillating piston, a cylinder stationed on said car and means for supplying the same with compressed fluid to vibrate or oscillate the piston.

12. In combination with the gate, its pivot and flange-like piston, a quadrantal cylinder and spring interposed between said flange like piston and a bearing in the cylinder, substantially as set forth.

520,465. DEVICE FOR REMOVING LEADS FROM TYPE. WILBERT WEATHERBY, Detroit, Mich. Filed Nov. 4, 1893. Serial No. 490,017. (No model.)



Claim.—1. The combination of a bed, adapted to receive a column of set type, of mechanism for spreading the lines and a holder for the type above the top of the leads, substantially as described.

2. The combination of a bed adapted to receive a column of leaded linotype and open on one end, an elastic stretcher for lengthening the column by separating the lines, and a holder for the type above the top of the leads on the open side, substantially as described.

3. The combination of the bed adapted to receive a column of leaded, set type, an elastic stretcher adapted to rest on top and bottom of the type, means for elongating the "stretcher" and means for holding the type above the leads, substantially as described.

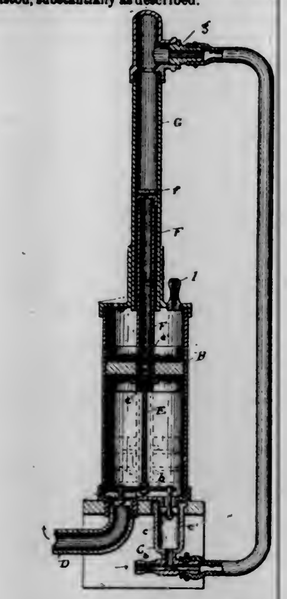
4. The combination of the bed, having an end and a side bar, of a plate hinged to the side and having a flange at its free end, of an elastic loop, adapted to be secured above and below a column of type on the bed, and means for stretching the loop, substantially as described.

520,466. HYDRAULIC AIR-PUMP. EDWARD H. WEATHERHEAD, Cleveland, Ohio, assignor to the Cleveland Faucet Company, same place. Filed June 17, 1892. Serial No. 437,056. (No model.)

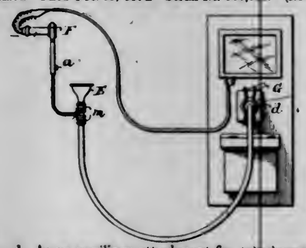
Claim.—1. A hydraulic air pump provided with air and water chambers and a piston separating said chambers, a hydraulic returning piston and chamber above said air and water chambers, and a valve chamber beneath the same, and an external water passage connecting said valve chamber and said returning piston chamber, substantially as described.

2. In a hydraulic air pump, the main casing having water passages at one end and air passages at the other end, and a main piston in said casing separating the air and water therein, a water inlet valve chamber at the bottom of said casing, a piston chamber and a hydraulic returning piston at the top of said casing, and a water passage external to the main casing communicating with the said valve chamber and the said hydraulic returning piston chamber, substantially as described.

3. The main casing having water inlets and outlets at its bottom and air inlets and outlets at its top, and a main piston in said casing, in combination with a piston chamber opening into said main casing and a returning piston in said chamber having a tubular stem connected with the main piston and open to the fluid beneath the said main piston, substantially as described.



520,467. SPEAKING ATTACHMENT FOR TELEPHONES. WILLIAM WEBER, Philadelphia, Pa., assignor of one-half to George Weber, same place. Filed Feb. 15, 1894. Serial No. 500,143. (No model.)

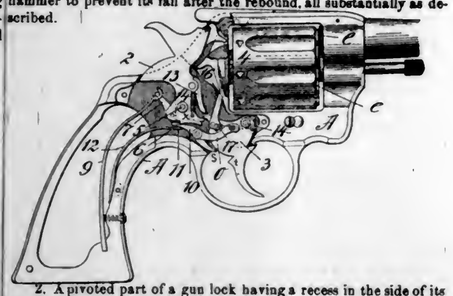


Claim.—1. As an auxiliary attachment for telephones, adapted to connect the receiving and transmitting diaphragms thereof, a flexible speaking tube, a rigid arm connected at one end to the mouth piece thereof and terminating at its other end in a clamping ring adapted to hold the receiving telephone, and means to maintain the delivery end of the flexible tube contiguous to the transmitting diaphragm, consisting of a hollow cone shaped clamp and an end block conforming in shape thereto and adapted to be rotated therein; substantially as described.

2. As an auxiliary attachment for telephones, operating to connect the receiving and transmitting diaphragms thereof, a flexible tube with means to maintain its delivery end contiguous to the transmitting diaphragm, and its other end secured around the shank of a mouth-piece, a sleeve M surrounding the tube and provided with a series of annular recesses *m, m;* an arm H provided at one end with a spring clamp K adapted to enter said recesses *m*, and at the other end provided with means to maintain the receiving telephone; substantially as described.

520,468. REVOLVER-LOCK MECHANISM. DANIEL B. WESSON, Springfield, Mass. Filed Jan. 26, 1894. Serial No. 498,132. (No model.)

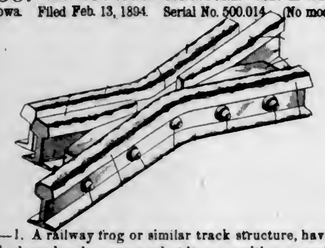
Claim.—1. The combination, in a fire-arm, of the hammer, the stirrup pivoted thereto and having a side bearing against the hammer to limit its movement around the pivot, and the main spring having an inclined surface engaging said stirrup, and acting to rebound the hammer by the movement of the engaging part of the stirrup along said incline, and the hooked lever pivoted in the frame and engaging the hammer to prevent its fall after the rebound, all substantially as described.



2. A pivoted part of a gun lock having a recess in the side of its body, surrounding the bearing opening, and a perforated frustro-conical disk secured in said recess by the metal of the body upset about the disk, substantially as described.

3. In a revolving fire-arm, the frame, the barrel projecting slightly inside the cylinder recess in said frame, and the cylinder in said recess, having a rigid support against forward movement, and having projecting rings surrounding the cartridge chambers, extending forward from the body of the cylinder, all combined substantially as described.

520,469. RAILWAY-TRACK STRUCTURE. JOHN H. WHITE, De Witt, Iowa. Filed Feb. 13, 1894. Serial No. 500,014. (No model.)



Claim.—1. A railway frog or similar track structure, having an angular rail adapted to be connected at its extremities to continuous track rails, rail points arranged respectively in alignment with the arms of said angular rail, an angular guard having its arms disposed parallel with said rail points, wedge-blocks disposed respectively between the rail points and the contiguous arms of the angular rail, an angular filling block having its arms arranged respectively between the arms of the guard and the contiguous rail points and provided with a central enlargement constructed to fit the angle of the angular rail and terminating abruptly to form shoulders against which the terminals of the rail points and wedge blocks abut, and retaining bolts extending through perforations in said members to hold them in operative relation, substantially as specified.

2. In a railway track structure, the combination with double tracks adapted for travel in opposite directions, and a sliding track intersecting one of the tracks at an acute angle and connected to the other or remote track to convey trains from the sliding to the said remote track, of a frog having one of its members consisting of an angular rail connected at its extremities respectively to a rail of the intersected main track and a rail of the siding track, rail-points arranged respectively in alignment with the arms of said angular rail and forming respectively a part of the main track and a part of the siding track, an angular guard having its arms disposed parallel with said rail points, wedge and filling blocks interposed between the angular rail points and guard to hold the latter at the required intervals, and means for securing the parts together, substantially as specified.

520,470. STEAM COOKING DEVICE. GEORGE YINGER, Harrisburg, Pa. Filed Feb. 21, 1894. Serial No. 501,028. (No model.)



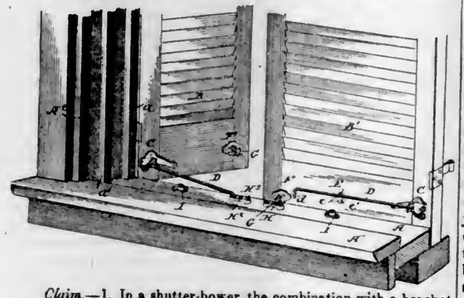
Claim.—1. A steam cooking apparatus comprising a water chamber, a food chamber above the same, a series of perforated tubes arising from the water chamber and adapted to distribute the steam throughout the food chamber, and a detachable perforated tube adapted to extend from one of the first named perforated tubes to another, and having its ends bent to fit over the said first named tubes, substantially as and for the purpose described.

2. A steam cooking apparatus comprising a water chamber, a food chamber above the same, a series of perforated tubes arising from the water chamber and having thereon a stud, and a revoluble sleeve fitting over each of the perforated tubes and having perforations therein capable of registering with those in the tubes, and a slot in the sleeves in which the studs of the tubes are respectively arranged, whereby the steam flowing through the perforations of the tubes may be cut off and whereby the rotary movement of the sleeves is limited, substantially as described.

3. A steam cooking apparatus comprising a water chamber, a food chamber arranged above the same, and a perforated tube communicating with the water chamber and projecting into the food chamber, said tube being bent to form a support for the dishes contained in the food chamber, substantially as described.

4. A steam cooking apparatus comprising a water chamber, a food chamber arranged above the same, two short sections of tubing communicating with the water chamber and arising vertically into the food chamber, and a perforated detachable tube extending horizontally from one of the short sections of tubing to another and having its ends bent downwardly so as to fit over the short sections of tubing, whereby dishes may be supported upon the horizontal portion of the detachable tube, substantially as described.

520,471. SHUTTER-BOWER. HARRY ZIMMERMAN, Frederick, Md. Filed July 21, 1893. Serial No. 481,124. (No model.)



Claim.—1. In a shutter-bower, the combination with a bracket and operating rod connected thereto, of a rod lifter and holder secured to the bracket and forming part thereof and having an inclined edge and shoulder, substantially as described.

2. In a shutter bower the sill plate having three openings in line with each other, and an inclined face extending downward and outwardly from the central opening, substantially as described.

3. In a shutter bower, a sill plate having a recessed under portion, a central opening, an inclined face extending downward and outwardly from said central opening, and openings to each side of said central opening which communicate with or lead to the recessed under portion, substantially as shown and for the purposes set forth.

4. In a shutter-bower, the combination with the sill-plate having a central opening and openings at each side thereof, the said openings projecting above the plane of the central opening and a locking bar for engaging the side openings, of a locking catch having a projecting tongue, and a pivoted locking latch, substantially as described.

5. In a shutter-bower, the combination with a bracket and an operating rod connected thereto, of a bowing and locking sill-plate provided with a central opening, an inclined face opposite said opening, and openings on each side of the central opening, and a locking catch provided with a tongue and locking latch, substantially as described.

520,472. WEATHER-BOARD GAGE AND ADJUSTER. SMITH H. ARSHER and GEORGE F. LACKE, Newburg, Ind. Filed Feb. 16, 1894. Serial No. 500,429. (No model.)

Claim.—1. In a weather board gage and adjuster, the combination of the tool stock or body, an adjusting head mounted for vertical adjustment on said stock or body, and a separable supporting plate having a projection at one side and adapted to be detachably mounted at one side of the tool stock or body, substantially as set forth.

2. In a weather board gage and adjuster, the combination of the tool stock, a vertically movable adjusting head mounted on the tool stock or body, means for vertically moving said head, scale devices for the tool stock and said adjusting head, a supporting plate or strip having a supporting projection at one side and a lock device adapted to detachably connect the supporting plate or strip with the tool stock or body, substantially as set forth.

3. In a weather board gage and adjuster, the combination with the tool stock and vertically adjustable adjusting head, of a separable elongated supporting plate detachably mounted at one side of the stock and said head and provided with an off-standing supporting hook having a toothed lower edge adapted to engage the upper edge of a weather board, substantially as set forth.



4. In a weather board gage and adjuster, the combination with the tool stock and vertically adjustable head, both of which are provided with aligned pockets at one side, of a separable elongated supporting plate or strip having a grasp handle at its upper end and adapted to be detachably locked in said pockets, and an off-standing spring hook attached at one side of said plate or strip and provided with a shouldered lower end having a series of projecting engaging teeth, substantially as set forth.

5. In a weather board gage and adjuster, the combination of the tool stock or body provided with a vertically adjustable adjusting head, and an inclosed pocket or recess at one side, a spring handle attached to said tool stock or body and provided with a movable portion, a sliding lock bolt attached at one end to the movable portion of said spring handle and mounted to have its other end normally projected into said pocket or recess, and the separable supporting plate or strip having a supporting projection at one side and a locking perforation adapted to be detachably engaged with one end of said lock bolt by the insertion of the plate or strip in the said pocket, substantially as set forth.

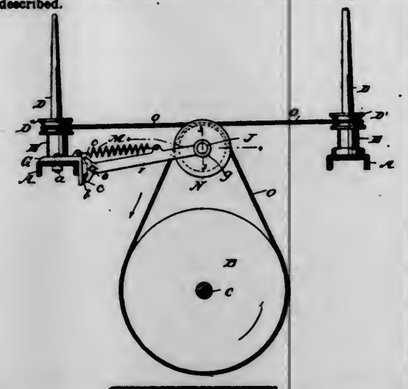
6. In a weather board gage and adjuster, the combination of the tool stock or body provided with a longitudinal recess or groove at one side, a face plate attached to that side of the stock and inclosing said recess or groove, and adjusting head mounted for vertical adjustment on the tool stock and also provided at one side with a plate-inclosed recess or groove aligned with that in the stock or body and wider than the same, a looped spring handle attached to the tool stock and having a movable grasp portion, a sliding lock bolt mounted in said tool stock and attached fast at one end to the movable portion of the handle and provided with an opposite beveled end projected into said recess or groove of the stock, and a separable supporting plate or strip having a toothed projection at one side and a locking perforation adapted to be detachably engaged with the beveled end of the lock bolt by the insertion of the plate or strip into the aligned plate-inclosed recesses or grooves, substantially as set forth.

7. In a weather board gage and adjuster, the combination with the tool stock or body provided in its opposite side edges with longitudinally extending side grooves B, and a threaded socket in its upper end, a vertically adjustable head provided with parallel slide arms or stems J, projected from the lower side thereof and adapted to slide in the opposite side grooves B, and a threaded socket in its lower side, an adjusting screw engaging respectively the socket in the stock or body and in the head, set screws working through the stock or body against said slide arms or stems, and a separable supporting plate or strip detachably mounted at one side of the tool stock or body and said head, substantially as set forth.

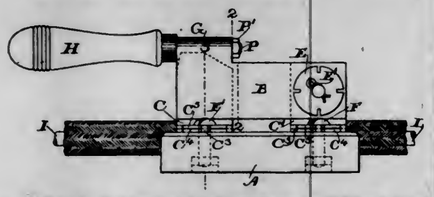
8. In a weather board gage and adjuster, the combination of the tool stock or body, the vertically adjustable adjusting head mounted on said stock or body and having a top rest face, rounded spacing lugs at one side edge of said rest face and a single stop lug at the opposite side edge of said face, and a separable supporting plate or strip detachably mounted at one side of the tool stock and said head, substantially as set forth.

520,473. TENSION DEVICE FOR SPINNING-FRAMES. ROBERT ATHERTON, Paterson, N. J. Filed June 13, 1893. Serial No. 477,409. (No model.)

Claim.—The combination, with a spinning frame, spindles thereon, and driving drum, of a tension attachment consisting of an angle bracket secured to the spindle rail, and having an ear *b* projecting from its vertical member, an arm I pivoted at its inner end to said ear and having stop lugs *c* above and below its pivot, adapted to contact with the vertical member of the bracket, an idler at the outer, free end of the arm I, having two annular grooves and an intervening rib, a spiral spring connected at one end with the arm I between the free end and the pivot of the latter, and connected at the opposite end with the angle bracket, and a driving belt for the spindles, the belt passing partly around the driving drum, thence from each side of the drum, over the idler, in the respective annular grooves, and thence to and around the spindles, the crossing portions of the band being separated and held out of frictional contact by the annular rib of the idler, the spring tending to move the idler away from the drum, substantially as described.



520,474. SWITCH. HENRY P. BALL, Bridgeport, Conn. Filed Mar. 12, 1894. Serial No. 503,377. (No model.)



Claim.—1. As a new article of manufacture, a jackknife switch composed of sheet metal, as herein illustrated, consisting of a movable portion B and blades C, C' formed of single strips of conducting material mounted upon a base; the blades being distorted to afford a contact for the circuit wires, and the end of the blade being returned over the wire and secured in place by a screw adapted to compress the parts together.

2. As a new article of manufacture, a switch in which the conducting portions are formed entirely of sheet metal, comprising an insulating base, contact blades formed of sheet metal distorted to form a contact for the circuit wires, returned upon themselves, and provided with screws adapted to press the folds together to engage with the wire, such strips being cut away at their bent portions, as herein described, and a movable member composed of a single piece of metal adapted to connect the contact strips.

3. As a new article of manufacture, a contacting member for a switch composed of a single piece of sheet metal bent upon itself to form the switch blade B, the two sides of the blade being connected by a loop or fold, as G, and a handle secured to the switch member by a single pin passing through the loop or fold, substantially as herein described.

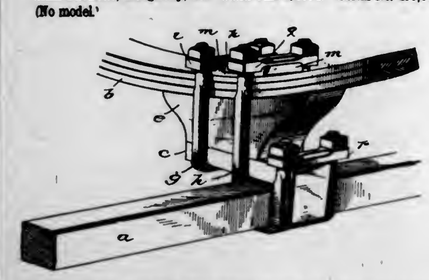
520,475. MACHINE FOR STRETCHING OR REMOVING FENCE-WIRE. WILLIAM M. BARGER, Webster City, Iowa. Filed July 13, 1893. Serial No. 480,358. (No model.)

Claim.—1. A machine for stretching and rewinding fence wire having in combination with a shaft supporting a spool of wire, a hand wheel secured to the shaft having flanged arms projecting from the hub of the wheel to receive the cross bars of the wire spool, said arms having braces between them, and their outer ends connected with the rim of the wheel by rods extending from the sides of their outer ends, and a movable hub with flanged arms to engage the opposite end of of the spool, as and for the purpose set forth.



2. A machine for stretching and rewinding fence wire having in combination with a shaft supporting a spool of wire, a hand wheel secured on the shaft having flanged arms projecting from its hub to receive the cross bars of the wire spool, and braces between said arms near the hub, the outer ends of the flanged arms being connected with the rim of the wheel by brace rods extending from the inner adjacent edges of the arms and united at the rim of the wheel, and a movable hub having flanged arms to engage the opposite end of the spool, as and for the purpose set forth.

520,476. VEHICLE SPRING AND AXLE ATTACHMENT. WILLIAM BECKERT, Allegheny, Pa. Filed Jan. 2, 1894. Serial No. 495,395. (No model.)



Claim.—1. In a vehicle, the combination of an axle, of a bar resting upon the axle at its front end and extending down on the front and beneath the nether side of the said axle, the rear portion extending horizontally from the axle a short distance, clips securing the bar to the axle, and a spring arranged at right angles to the axle and attached to and supported on the rear extension of the said bar to transmit the weight of the load to the axle in the rear of the wheel spindles, substantially as set forth.

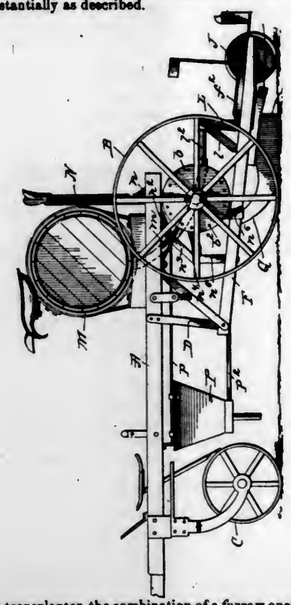
2. In a vehicle, the combination of an axle, a bar resting upon the axle at its front end and extending down on the front and beneath the nether side of the said axle, the rear portion extending horizontally from the axle a short distance, a cross bar placed on the front end of the axle bar, J-clips arranged in parallel and coincident relation, one on each side of the axle bar to secure it to the axle, a block mounted on the rear end of the axle bar, a spring arranged at right angles to the axle and mounted on the said block, the longer members of the J-clips securing the spring and block to the axle bar, and a U-shaped clip to supplement the action of the vertical portions of the J-clips in securing the spring and block to the axle bar.

520,477. TRANSPLANTER. DANIEL D. BEMIS, Eastonville, Colo., and FRED H. BEMIS, Footville, Wis.; said Daniel D. Bemis assignor to said Fred H. Bemis. Filed Mar. 5, 1892. Serial No. 423,952. (No model.)

Claim.—1. In a transplanter, the combination of a furrow opener, a water tank, a movable conduit and hand guide extending from said tank to the furrow in rear of the furrow opener, automatic means for carrying said conduit back and then forward, and one or more plant-setter's seats in rear of said furrow opener, whereby the discharge end of said conduit forms a guide and support for the hand in setting the plants, substantially as described.

2. In a transplanter, the combination of a furrow opener, a water tank, a movable conduit and hand guide extending from said tank to the furrow in rear of the furrow opener, a valve in the conduit, means for opening said valve and carrying back said conduit so that its discharging end delivers the water on one spot as the machine advances and then closes said valve and resets the discharging end of the conduit, and one or more plant-setter's seats in rear of said furrow opener, whereby the discharge end of said conduit forms a guide and support for the hand in setting the plants, substantially as described.

3. In a transplanter, the combination of a furrow opener, a water tank, a movable conduit and hand guide extending from said tank to the furrow in rear of the furrow opener, a valve in the conduit, means for opening said valve and carrying back said conduit so that its discharging end delivers the water on one spot as the machine advances and then closes said valve and resets the discharging end of the conduit, one or more plant-setter's seats in rear of said furrow opener, and scrapers for filling in the earth on the roots of the plants in the furrow, substantially as described.



4. In a transplanter, the combination of a furrow opener, a water tank, a movable conduit and hand guide extending from said tank to the furrow in rear of the furrow opener, a valve in the conduit, means for opening said valve and carrying back said conduit so that its discharging end delivers the water on one spot as the machine advances and then closes said valve and resets the discharging end of the conduit, one or more plant-setter's seats in rear of said furrow opener, scrapers for filling in the earth on the roots of the plants in the furrow, and presser wheels following said scrapers to firm the ground, substantially as described.

5. In a transplanter, the combination of a furrow opener, a water tank, a movable conduit and hand guide extending from said tank to the furrow in rear of the furrow opener, a valve in the conduit, mechanism operated by the revolution of one of the wheels of the machine as it advances for opening said valve and carrying back said conduit so that its discharging end delivers the water on one spot as the machine advances and then closes said valve and resets the discharging end of the conduit, and one or more plant-setter's seats in rear of said furrow opener, substantially as described.

6. In a transplanter, the combination of a furrow opener, a water tank, a movable conduit extending from said valve to the furrow in rear of the furrow opener, a valve in said conduit, means for opening said valve and carrying back said conduit, and a fertilizer hopper in advance of the furrow opener and provided with a valve controlled by the aforesaid means for swinging the water conduit, substantially as described.

7. In a transplanter, having a combined vibrating water conduit and hand guide with a valve therein, the combination with said valve of means for first opening the valve, then swinging back the conduit, then closing the valve and finally swinging forward said conduit, substantially as described

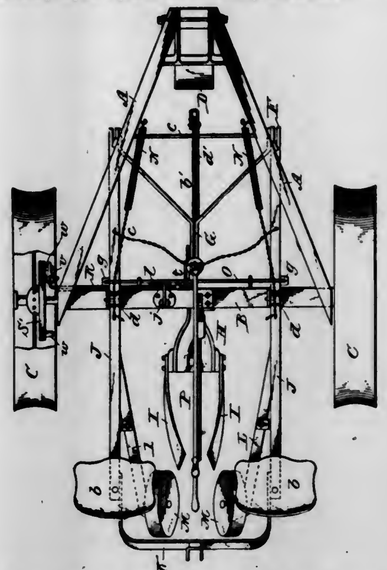
520,478. TRANSPLANTER. FRED H. BEMIS, Footville, Wis. Filed Oct. 16, 1893. Serial No. 488,250. (No model.)

Claim.—1. In a transplanter, the combination of a furrow opener, a water tank, a water conduit therefrom discharging in rear of the furrow opener and a separate movable hand guide automatically operated to retain the hand of the operator at a fixed point in the furrow.

2. In a transplanter, the combination of a furrow opener, a water tank, a conduit therefrom discharging in rear of the furrow opener, a valve in said conduit, means for opening and closing the same, and a separate movable hand guide automatically operated to retain the hand of the operator at a fixed point in the furrow.

3. In a transplanter, the combination of a furrow opener, a water tank having a discharging valve in rear of the furrow opener, a separate movable hand guide for the plant-setter and means operated by the traction of the machine for opening said valve and carrying said hand guide first backward and then forward.

4. In a transplanter, the combination of a furrow opener, a seat bar for the plant-setters on each side thereof and having both vertical and horizontal play, earth pressing devices carried by said bars, a yoke connecting said bars, and a lock for holding said bars in their horizontally adjusted positions, substantially as described.



5. In a transplanter, the combination of a furrow opener, a seat bar for the plant-setters on each side thereof and having both vertical and horizontal play, a press wheel carried by each bar, a yoke connecting said bars and a lock for holding said bars in their horizontally adjusted positions, substantially as described.

6. In a transplanter, the combination of a furrow opener, a pivoted seat bar for the plant-setters on each side of the furrow opener, an earth pressing device carried by each bar, a supporting spring for each seat bar and adjustable connections between said springs and seat bars, for the purpose specified.

7. In a transplanter, the combination of a furrow opener, a pivoted seat bar for the plant-setters on each side of the furrow opener, a press wheel carried by each bar, a supporting spring for each seat bar and adjustable flexible connections between said springs and seat bars, substantially as described.

8. In a transplanter, the combination of the main frame, the springs N connected thereto at one end, the pivoted seat bars J with press wheels M, and the chains *c* passed over guide rollers *d* and connected at one end to the seat bars and at the other to the springs N, substantially as described.

9. In a transplanter, the combination of the main frame the pivoted seat bars J carrying press wheels M, the yoke O having lateral adjustment on the main frame and connecting the seat bars and a rack and latch connection between said yoke and main frame, substantially as described.

10. In a transplanter, the combination of the rock shaft R with crank arms *s t u*, an adjustable rod S carrying a hand guide T in rear of the furrow opener and pivoted to the arm *t* the rod *b'* pivoted to the arm *u*, the rod *d'* adjustably pivoted to the rod *b'* and connected at its rear end to a valve controlling device in a water discharge conduit, a trip dog pivoted to the arm *s*, a spring, as *g'*, for resetting the parts, and tripping projections *w* on a disk carried by one of the wheels of the machine, substantially as described.

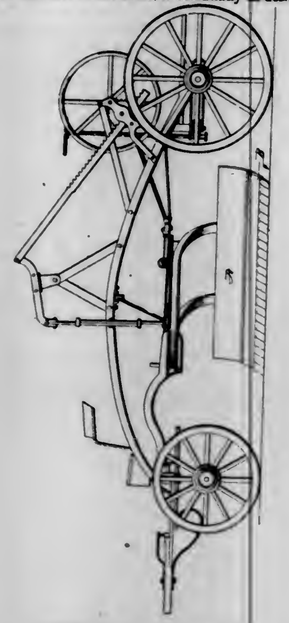
520,479. ROAD-SCRAPER. MORTON G. BUNNELL, Chicago, Ill., assignor to Frederick C. Austin, same place. Filed Sept. 16, 1893. Serial No. 485,642. (No model.)

Claim.—1. A scraper blade comprising a series of blade sections and a flexible strip arranged along the same, substantially as described.

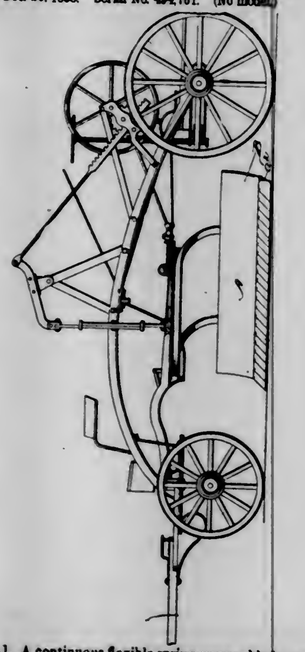
2. A scraper blade comprising a series of blade sections and a

flexible and elastic strip arranged along the same, substantially as described.

3. A scraper blade comprising an elastic strip and a series of blade sections secured to the same, substantially as described



520,480. ROAD-SCRAPER. MORTON G. BUNNELL, Chicago, Ill., assignor to Frederick C. Austin, same place. Filed Jan. 21, 1893. Renewed Dec. 26, 1893. Serial No. 494,761. (No model.)



Claim.—1. A continuous flexible spring scraper blade comprising a series of blade sections formed by spring metal plates rigidly held along their upper portions, substantially as described.

2. A continuous flexible spring scraper blade comprising a series of lapping blade sections formed by spring metal plates rigidly held along their upper portions, substantially as described.

3. A continuous flexible spring scraper blade comprising a series of blade-sections formed by spring metal plates rigidly secured to the lower edge portion of a long mold-board, substantially as described.

4. A continuous flexible spring scraper blade comprising a series of lapping blade sections formed by spring metal plates rigidly secured to the lower edge portion of a mold-board, substantially as described.

520,481. ORE-ROASTER. OWEN W. DAVIS, Jr., Middlesborough, Ky. Filed June 21, 1893. Serial No. 478,319. (No model.)

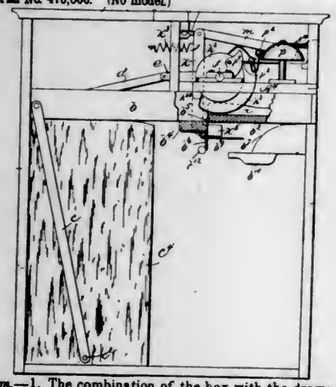


Claim.—1. In an ore-roasting kiln having inner and outer walls forming a combustion chamber, vertical buttressing walls connecting said inner and outer walls, and forming sub-divisions of said chamber, said buttressing walls being formed in open work or with passages, substantially as described.

2. In an ore-roasting kiln, having inner and outer walls forming a combustion chamber, vertical buttressing walls connecting said inner and outer walls and forming sub-divisions of said chambers, and horizontal dividing walls, substantially as described.

3. In an ore roasting kiln having inner and outer walls forming a combustion chamber, a series of horizontal walls, sub-dividing said chamber, with suitable fuel supply ports in connection with said combustion chamber, substantially as described.

520,482. REGISTERING BALLOT-BOX. LUCIAN M. FOSTER, Boston, assignor to Benjamin Poole, Topsfield, Mass. Filed May 31, 1893. Serial No. 476,066. (No model.)



Claim.—1. The combination of the box with the drawer working in an opening in the box, the arms c pivotally connected with the drawer at each side of the box, and the rock shaft rigidly connected with the said arms, and means for advancing and retracting the drawer under the guidance or control of the said arms, substantially as described.

2. The combination of the counting mechanism and actuator therefor with the drawer and means for advancing and retracting the same, said drawer having its bottom portion movable with relation to the remainder of the drawer, and being operated in said movement by the contents of the drawer as set forth, into position to engage and cooperate with the said actuator, for the counting mechanism, substantially as and for the purpose described.

3. The combination of the box and drawer having a movable bottom provided with recesses: with the main shaft and connections between the same and drawer, said main shaft carrying projections cooperating with the recessed drawer bottom as set forth, whereby the latter is depressed when a ballot is interposed between it and the projection carried by the main shaft, substantially as described.

4. The combination with the box of the drawer and means for advancing and retracting the same, said drawer having a movable rear portion b^4 and actuating mechanism cooperating therewith, whereby

the said rear portion is turned to the position substantially at right angles to the bottom when the drawer is advanced or opened, and is turned into line with the bottom when the drawer is retracted, substantially as and for the purpose described.

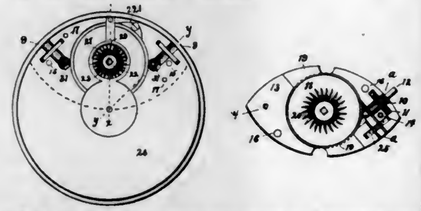
5. The combination of the alarm mechanism and actuator therefor with the drawer having a movable bottom and means for advancing and retracting said drawer and the main shaft cooperating with the movable drawer bottom as set forth, whereby the latter causes the alarm to be actuated only when a ballot is present for cancellation, substantially as described.

6. The combination of the set of counting wheels, the unit wheel of which is provided with a ratchet, with a retaining pawl to prevent backward rotation of said ratchet, and an actuating pawl provided with a finger engaged with said retaining pawl as described, whereby the retaining pawl is withdrawn from engagement with the ratchet when the actuating pawl is withdrawn from engagement therewith, substantially as described.

7. The combination of the counting and alarm mechanism and actuating lever *k* therefor, with the drawer having a movable bottom provided with ribs or projections, a canceling roll having ribs or projections corresponding to the recesses between those in the drawer bottom, and connections between the said roll and drawer whereby a rotary movement of the former is accompanied by an in and out movement of the latter, and the movable bottom portion of said drawer cooperating with the actuator for the counting and alarm mechanism only when the drawer bottom is depressed by a ballot interposed between it and the roll, substantially as described.

8. The main actuating shaft and cam p^3 actuated thereby combined with the alarm bell and hammer therefor, having a pivotal movement and longitudinal movement on said pivot and normally held out of position for engagement with said cam, and means controlled by the introduction of the ballot to the box for throwing said bell hammer into engagement with said cam, substantially as described.

520,483. PLATE FOR STEM-WINDING WATCHES. WALTER W. HASTINGS, Jersey City, N. J. Filed Mar. 28, 1892. Renewed Jan. 29, 1894. Serial No. 498,400. (No model.)



Claim.—1. A watch movement plate having half bearings for the stem and wheel 11, and a reversible bridge having two half bearings for said stem both radiating from a common center near one end of said bridge, the main winding wheel and the wheel 25 mounted in that end of said bridge in which said two half bearings are located, substantially as described and for the purpose specified.

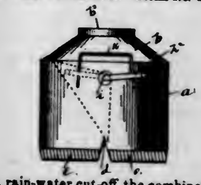
2. The combination of the spring barrel having side teeth, the shaft 21 squared for a portion of its length, the ratchet disk on said squared portion and having side teeth for engaging the side teeth of the spring barrel, mechanism for turning said shaft and disk, the spring fork in which said disk is mounted, the spring plate connected with said spring fork and devices for moving said plate for shipping the ratchet disk out of engagement with said spring barrel, substantially as described and for the purpose specified.

3. The combination of the spring barrel having side teeth, the shaft 21, the ratchet disk 23, the sliding stem having a grooved or neck portion, connecting mechanism for turning said shaft and disk through said stem, the spring fork in which said disk is mounted, the spring plate having cam 31 for being engaged by the grooved or neck portion of said stem when it is pulled out, substantially as described and for the purpose specified.

4. The combination of the spring barrel, the shaft 21, the ratchet disk mounted to rotate with said shaft and also to slide thereon, the hand setting pinion 32 mounted concentrically with said disk, mechanism for turning said disk and mechanism for shipping said disk on said shaft to disconnect it from the spring barrel and connect it with said hand setting pinion, substantially as described and for the purpose specified.

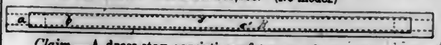
5. A watch movement plate having half bearings for the stem and wheel 11, and a two position or reversible bridge having similar half bearings for said stem and wheel, said bridge and plate being fitted together with screws, screw holes, dowel pins and holes arranged to properly register no matter in which of its two positions said bridge is placed, substantially as described and for the purpose specified.

520,484. RAIN-WATER CUT-OFF. WILLIAM C. HILLIKER, Columbus, Ohio. Filed Oct. 17, 1892. Serial No. 449,157. (No model.)



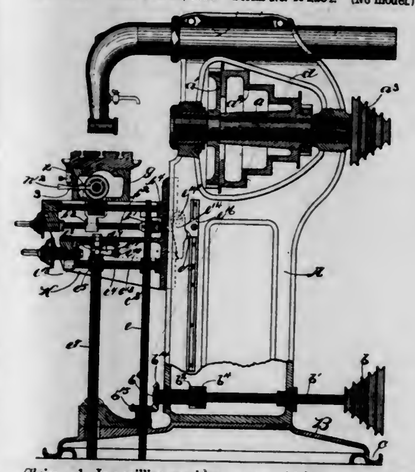
Claim.—In a rain-water cut-off, the combination with the casing *a*, an inlet opening b^2 and diverging outlets *e* in the bottom thereof, of an inwardly extending inlet pipe *c*, a substantially scoop shaped cut-off valve *g* having its sides hinged to said inlet pipe *c*, and a yoke *h* pivoted in the outer casing *a* as described, and adapted to move the cut-off valve *g* by contact with either end thereof, substantially as and for the purpose specified.

520,485. DRESS-STAY. FREDERICK W. LYON, Brooklyn, N. Y. Filed Aug. 3, 1893. Serial No. 482,268. (No model.)



Claim.—A dress-stay consisting of two steels, one shorter than the other, secured together by suitable means, and a casing covering both steels composed of two superposed strips one wider and longer than the other, the longer one forming an edge of a single thickness on the sides and ends of the stay, the shorter strip having its ends turned under the ends of the longer steel forming thereby pockets and tips for the said steel, the two strips being fastened together and the turned under end fastened down by the same stitching in lines parallel to the steels, substantially as specified.

520,486. MILLING-MACHINE. VOLNEY W. MASON, Jr., Hyde Park, Mass. Filed Dec. 21, 1893. Serial No. 494,251. (No model.)



Claim.—1. In a milling machine, an arm which supports the outer end of the tool-carrying arbor, provided interiorly with an oil reservoir, and an outlet for the oil near the lower end of said arm adjacent the work being done, substantially as described.

2. In a milling machine, an arm which supports the outer end of the tool-carrying arbor, provided interiorly with an oil reservoir, an outlet therefor, and a delivering device controlling the delivery of oil, substantially as described.

3. In a milling machine, a bent arm which supports the outer end of the tool-carrying arbor, made hollow to receive a quantity of oil, an inlet for the oil at the horizontal portion of said arm, and an outlet for the oil near the lower end of its downwardly turned portion, and a delivering device at said outlet, substantially as described.

4. In a milling machine, the combination of a prime mover, and means for rotating it, spiral gear c' thereon, a rising and falling knee, shaft c^4 having its bearings in said knee, and bearing a spiral gear c^5, which is engaged and driven by the aforesaid spiral gear c', a worm on said shaft c^4, a worm wheel, engaged and driven by it, a feeding screw upon which said worm wheel is loosely mounted bearing upon its face a series of clutch-teeth, a sliding collar splined on said feed-

ing screw bearing upon its face a series of clutch teeth, and means for operating said collar both automatically and manually, substantially as described.

5. In a milling machine, the combination of a prime mover, and means for rotating it, a rising and falling knee, a vertical feeding screw therefor, gearing connecting said feeding screw with said prime mover, and clutch mechanism therefor, having as a cooperative part of it a yoke c^9, rock shaft c^{10}, rearwardly extended arm c^{13}, with beveled end, dog c^{14}, with projection c^{15}, and the adjustable stop c^{16}, substantially as described.

6. In a milling machine, the combination of a prime mover, and means for rotating it, a rising and falling knee, a vertical feeding screw therefor, gearing connecting said feeding screw with said prime mover, a clutch mechanism for said gearing, a releasing lever for said clutch mechanism, and a stop on the frame work with which said lever cooperates, adjustable vertically for a distance corresponding to the full travel of the knee, whereby the clutch mechanism may be automatically disengaged at any point in the travel of the knee corresponding to the position of said stop, substantially as described.

7. In a milling machine, the combination of a prime mover, and means for rotating it, a rising and falling knee, a vertical feeding screw, therefor, gearing connecting said feeding screw with said prime mover, a clutch mechanism for said gearing, a yoke c^9 engaging one member of said clutch mechanism, rock shaft c^{10} supporting it, and a hand lever secured to said rock shaft by means of which it may be rocked, substantially as described.

8. In a milling machine, the combination of a prime mover, and means for rotating it, a rising and falling knee, a vertical feeding screw, therefor, gearing connecting said feeding screw with said prime mover, a clutch mechanism for said gearing, an operating lever for said clutch mechanism and a hand operated cam lever for moving it, substantially as described.

9. In a milling machine, the combination of a vertical prime mover, and means for rotating it by power, a knee and carriage thereon, a horizontal feeding screw for said carriage, and nut thereon connected with said carriage, and a pair of gears directly connecting said feeding screw with said vertical power driven prime mover, substantially as described.

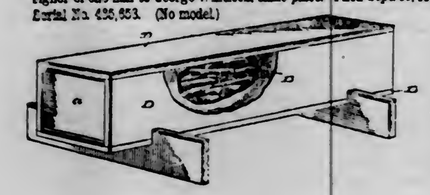
10. In a milling machine, the combination of a vertical prime mover, and means for rotating it by power, a knee and carriage thereon, a horizontal feeding screw for said carriage and nut thereon connected with said carriage, and a pair of gears connecting said feeding screw with said vertical power driven prime mover and clutch mechanism cooperating with one of said gears to connect it with its shaft, and an adjustable tripping dog therefor for limiting the travel of the bed in either direction, substantially as described.

11. In a milling machine, the combination of a prime mover, and means for rotating it, a table and horizontal feeding screw therefor, two worm wheels loosely mounted upon a nut on said feeding screw, an intermediate clutch splined on said nut, and means for operating it, two worms engaging said worm wheels, shafts therefor, and gears on said shafts connecting them with a gear on the prime mover, substantially as described.

12. In a milling machine, the combination of a prime mover, and means for rotating it, a table and horizontal feeding screw therefor, a nut on said feeding screw, and two loose worm wheels, and clutch mechanism for engaging said nut with either worm wheel, two oppositely rotating shafts connected with said prime mover by gearing and bearing worms in continuous engagement with said worm wheels, an operating lever for said clutch mechanism, and a tripping dog for said operating lever, substantially as described.

13. In a milling machine, the combination of a vertical prime mover, movable in a spline-way, and driven by power, and bearing three gears one above the other, reversing mechanism therefor, a vertically moving knee, and feeding screw therefor connected with the lowermost gear on the prime mover, and an intermediate clutch mechanism, a horizontally movable carriage on said knee, a horizontal feeding screw therefor connected with the uppermost gear on said prime mover, and an intermediate clutch therefor, and adjustable tripping dogs for said knee and carriage and table, all substantially as described.

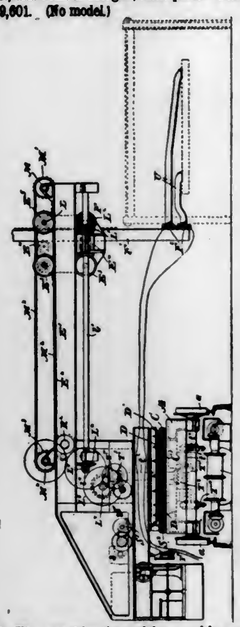
520,487. BOX-PILE. ALFRED H. MOORE, Brooklyn, N. Y., assignor of one-half to George Whitlock, same place. Filed Sept. 16, 1893. Serial No. 485,953. (No model.)



Claim.—1. The herein described box-pile consisting of a sheet metal case, scrap steel inclosed within said case, and an outer case of metal bars, substantially as shown and described.

2. The herein described box-pile consisting of a sheet metal case composed of bottom with end flaps sides with flaps, and a top of two parts with end flaps, scrap steel inclosed in said case and an outer case of metal bars.

520,488. CHARGING-CRANE. THOMAS R. MORGAN, Sr., and WILLIAM H. MORGAN, Alliance, Ohio, assignors of one-half to Thomas R. Morgan, Jr., and John R. Morgan, same place. Filed Apr. 8, 1893. Serial No. 469,601. (No model.)



Claim.—1. The combination with movable support, of an electro magnet carried thereby said magnet having projecting poles or cores of unequal lengths and included in an electric circuit, substantially as set forth.

2. The combination with a support movable vertically and horizontally, of an electro magnet carried by said support, said magnet having projecting cores of unequal lengths and a switch included in the electric circuit, substantially as set forth.

3. The combination with a movable boom, a traveling trolley thereon, and a movable support carried by said trolley, of a magnet carried by said support, the said magnet being located in an electric circuit and having projecting cores of unequal lengths, and a switch included in said circuit, substantially as set forth.

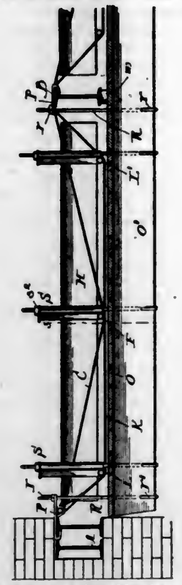
4. The combination with a movable boom and a trolley carried thereby, of rack bar carried by the trolley, electro-magnet carried by the rack bar and included in an electric circuit, pole pieces or cores projecting from the magnet and a switch included in the electric circuit, substantially as set forth.

5. The combination with a truck, a rotary platform thereon, a boom a traveling trolley on the boom and a rack bar carried by the trolley, of electro-magnet carried by the rack bar and included in an electric circuit, each helix having a projecting pole or core, and a switch included in the electric circuit.

6. The combination with a truck a rotary platform carrying a trackway, a trolley mounted on said trackway, rack bar carried by said trolley and electric motors and gearing for moving the truck rotating the platform, moving the trolley and elevating and lowering the rack bar, of electro magnet carried by said rack bar, each helix having a projecting pole piece or core and a switch included in the electric circuit, substantially as set forth.

520,489. FIREPROOF BUILDING. MITCHELL F. MCCARTHY, Chicago, Ill., assignor to the Suspension Arch Fire Proofing Company, of Illinois. Filed May 23, 1893. Serial No. 475,271. (No model.)

Claim.—1. In fire proof structures, the combination with the beams, of a series of strands sustained by said beams, said strands being depressed between the beams, and a supplemental series of strands sustained by the beams, said supplemental strands being abruptly depressed between and near the beams and a plastic filling sustained by said strands, substantially as described.



2. In fire proof structures, the combination with the beams, of a series of strands sustained by said beams, said strands being depressed at substantially central points between said beams, a supplemental set of strands sustained by said beams, said supplemental strands being depressed abruptly between and near said beams and a second set of supplemental strands sustained by said beams, said second set of strands being depressed at points intermediate the beams and at each side of the center of the space between the beams, substantially as described.

3. In fire proof structures, the combination with the beams, and with a series of strands sustained by said beams of anchor plates attached to said beams and with which plates the strands are connected, substantially as described.

4. In fire proof structures, the combination with the beams, of a series of strands sustained by said beams and an end support for said strands comprising a rod around which said strands pass, said rod being suitably connected to the flanges of the end beams, substantially as described.

5. In fire proof structures, the combination with the beams, and with the wire strands of the supplemental rod E and anchor plates D connected to the beams, and to the rod E, substantially as described.

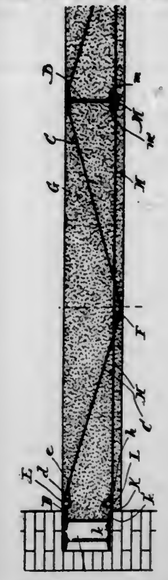
6. In fire proof structures, the combination with the beams of the flexible strands sustained by said beams, said strands being abruptly depressed under tension between said beams, the lower parts of said strands being removed from the base of said beams, a series of rods extending cross-wise of said strands and resting thereon and a series of tile resting upon and extending transversely to said cross-rod, substantially as described.

520,490. FIREPROOF STRUCTURE. MITCHELL F. MCCARTHY, Chicago, Ill., assignor to the Suspension Arch Fire Proofing Company, of Illinois. Filed May 23, 1893. Serial No. 475,272. (No model.)

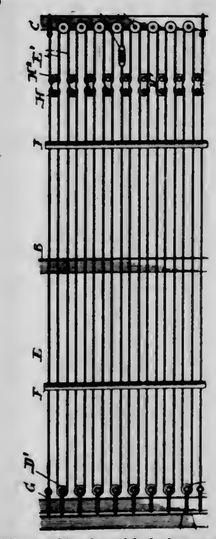
Claim.—1. In fire proof structures, the combination with the beams of a series of depressed strands extending over the tops of said beams, cross rods upon said strands and a series of strands or supports extending over said cross rods and supported by the base flanges of said beams, substantially as described.

2. In fire proof structures, the combination with the beams of a series of strands extending between and beneath the bottoms of said beams and hook plates extending beneath and across said strands and having hooks m and m' for engaging the bottoms of the beams, said hook plates serving to connect the strands with the beams, substantially as described.

3. In fire proof structures, the combination with the beams of strands extending between the beams, a cross rod to which the ends of said strands are connected, and anchor bars or plates K having hooks to engage the beams and the cross bar, substantially as described.



520,491. CONSTRUCTION OF FIREPROOF FLOORS, &c. MITCHELL F. MCCARTHY, Chicago, Ill., assignor to the Suspension Arch Fire Proofing Company, of Illinois. Filed May 23, 1893. Serial No. 475,273. (No model.)



Claim.—1. The combination with the beams of a series of strands, extending between the beams and a supplemental strand connected to said main strands whereby tension may be given thereto, substantially as described.

2. The combination with the beams of a series of strands extending between the beams, a series of pulleys engaging said strands and a supplemental strand whereby tension may be given to the main strands, substantially as described.

3. The combination with the beams of a series of strands extending between the beams and pulleys around which said main strands pass, a tension strand and pulleys therefor connected to the pulleys for the main strands whereby tension may be given to said strands, substantially as described.

4. The combination with the beams, of a series of strands and suitable supports around which said strands pass in sinuous course back and forth between the beams whereby uniformity of tension may be given to said strands, substantially as described.

5. The combination with the beams of strands sustained by the beams and pulleys around which said strands pass, substantially as described.

6. The combination with the beams, of a series of strands E, suitable supports over which said strands freely pass, a second set of short strands E', suitable supports over which said strands E' freely pass, said strands E and E' being connected together whereby when said strands E' are stretched, tension will be imparted to said strands E, substantially as described.

7. The combination with the beams, of a series of strands E, pulleys D' and H around which said strands E pass, a second set of strands E' and pulleys H' and K around which said strands E' pass, said pulleys H and H' being connected together whereby the strain upon the strand E' can be imparted to the strand E, substantially as described.

8. The combination of the beams, the strands E, the pulleys D' and suitable supports wherein said pulleys are held, each of said supports having a movable portion to permit the strands to be slipped over the pulleys, substantially as described.

9. The combination of the beams, the strands E, the pulleys D' and the supports D formed of the separate bars d and d', substantially as described.

10. The improved mechanism for imparting tension to the wires, comprising an adjustable rod P, and a sleeve P' through which said rod passes, said rod having its lower ends adapted to engage the temporary flooring (and said sleeve having lateral extension), substantially as described.

11. In fire proof structures, the combination with the beams of brackets P' having hooks to engage the beams, and adjustable rods P engaging the brackets P' and serving to sustain the temporary flooring, substantially as described.

520,492. FIREPROOF FLOOR, CEILING, &c. MITCHELL F. MCCARTHY, Chicago, Ill., assignor to the Suspension Arch Fire Proofing Company, of Illinois. Filed May 23, 1893. Serial No. 475,275. (No model.)



Claim.—1. In fire proof structures the combination with the beams of wire strands supported thereby, the same strands extending beneath the bottoms of some of said beams and above the tops of others of said beams, substantially as described.

2. In fire proof structures, the combination with the beams of wire strands extending beneath and above the beams, and suitable pulley blocks for the strands, substantially as described.

3. In fire proof structures, the combination with the beams of the wire strands E extending above and beneath the beams, and pulley blocks and plates attached to the top and bottom of the beams, said pulley blocks and plates being provided with pulleys for the wire strands, substantially as described.

4. In fire proof structures, the combination with the beams of two sets of wire strands supported by said beams, each set of strands extending beneath the bottoms of some of said beams and above the tops of others of said beams, said sets of strands crossing each other intermediate the beams, substantially as described.

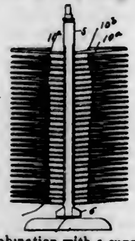
5. In fire proof structures, the combination with the beams of strands extending across said beams, pulleys over which said strands pass, and pulley blocks for connecting said pulleys to the beams, said blocks being united to the pulleys in manner permitting the pulleys to be removed from the strands under tension, substantially as described.

520,493. METHOD OF MECHANICALLY COMPOUNDING AN OIL OR OILS WITH ANOTHER MATERIAL, &c. JOHN F. NEWELL, Gardiner, Me. Filed Nov. 10, 1892. Serial No. 451,560. (No specimens.)

Claim.—1. The process or method herein described, of compounding oil or varnish and fibrous and non-fibrous substances, which consists in mixing the oil or varnish and the fibrous and non-fibrous substances in a quantity of water which acts as a vehicle for coating the individual solid particles with the oil or varnish, then expressing the water from the compound and condensing the latter in a hard homogeneous body and drying the latter to convert the oil or varnish into a cement, substantially as described.

2. The process or method herein described of manufacturing a composition to be molded or compressed into various shapes, which consists in mixing oil or varnish, fibrous material, and an oxide, carbonate, or basic carbonate of lead in a quantity of water which acts as a vehicle for coating the individual solid particles with the oil or varnish, then expressing the water from the compound and consolidating the latter into a hard homogeneous body, and then drying the latter to convert the oil or varnish and lead into cement, substantially as described.

520,494. DRESS-GOODS RACK. ROMEYN C. PARSONS, Grand Ledge, Mich. Filed Jan. 13, 1892. Serial No. 417,940. (No model.)



Claim.—1. The combination with a supporting frame or standard provided with a series of apertures, of a series of wire frames bent to the form of a W, said frames having straight outer side pieces or ends inserted in the apertures in the supporting frame and having their central V-shaped portions bent inwardly and upwardly above the plane of the straight side pieces, substantially as and for the purposes specified.

2. The combination with a supporting frame or standard provided on opposite sides with series of downwardly inclined apertures, of two series of wire frames each of said frames being bent to the form of a W, said frames having straight outer side pieces or ends inserted in the apertures in the supporting frame, whereby the said frames are caused to be inclined upwardly toward their outer ends, the central V-shaped portions of said wire frames being bent inwardly and upwardly above the plane of said straight side pieces, substantially as and for the purposes set forth.

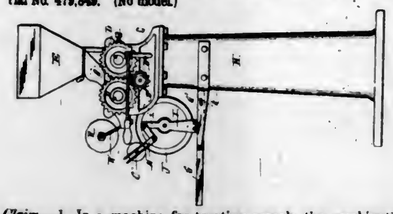
520,495. DAMPER. WILLIAM R. PATCHIN, Rochester, N. Y. Filed Dec. 20, 1893. Serial No. 494,214. (No model.)



Claim.—1. The combination with the damper having the abutment adapted to engage the inside of a pipe, the stem section and the lug thereon, said parts being formed integral, and a slight space being left between the abutment and lug, of the cooperating stem section formed with the lug corresponding to the one on the other section and the handle, and the screw for holding the stem sections together and the damper in place, substantially as described.

2. The combination with the damper having the abutment adapted to engage the inside of a pipe, the stem section and the lug thereon, said parts being formed integral and a slight space being left between the abutment and lug, of the cooperating stem section formed with the lug corresponding to the one on the other section, and the handle thereon, the screw for holding the stem sections together, and the washer on the stem held in position by the lugs on the stem sections, substantially as described.

520,496. MACHINE FOR THE MANUFACTURE OF FOOD PRODUCTS FROM CEREALS. HENRY D. PERKY, Denver, Colo., assignor to the Cereal Machine Company, of Colorado. Filed July 7, 1893. Serial No. 479,849. (No model.)



Claim.—1. In a machine for treating cereals, the combination with the hopper and the compression rolls, of the removable rotary feed cylinder in the throat of said hopper, and above said rolls, a screw forming a bearing for one end of said cylinder, the shaft detachably engaging an angular socket in the opposite end portion of the cylinder, the bearing for said shaft, the spring, and means for driving said shaft and thereby said cylinder, substantially as specified.

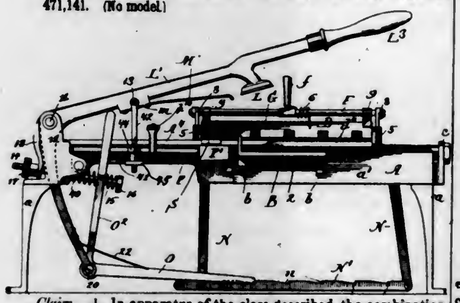
2. In a machine for treating cereals, the combination with the compression rolls, and the comb or scraper, of the reversible table, the bracket secured thereto, the roll journaled in said bracket, the former roll or spindle also carried by said bracket, and means for rotating said roll, substantially as specified.

3. In a machine for treating cereals, the combination of the compression rolls, the comb or scraper, the reversible table, the bracket carried thereby and having the forked or slotted arms, the receiving roll journaled in said bracket, the former roll or spindle removably journaled in said forked or slotted arms, and designed to be rotated by frictional contact with said receiving roll, and means for rotating said feeding roll, substantially as specified.

4. In a machine for treating cereals, the combination of the compression rolls, the comb, the receiving roll, the former roll or spindle, and means for dividing the product taken by said former roll into two parts, substantially as specified

---

520,497. APPARATUS FOR AFFIXING STAMPS, LABELS, &c. ELWOOD C. PHILLIPS, Chicago, Ill. Filed Apr. 20, 1893. Serial No. 471,141. (No model.)



Claim.—1. In apparatus of the class described, the combination with the main frame and with the plunger, of a reciprocating carriage arranged to travel in proximity to the path of the plunger and having its front provided with a cutting edge to co-operate with the plunger in severing the stamps or like articles, substantially as described.

2. In apparatus of the class described, the combination with the main frame and with the plunger of a reciprocating carriage arranged to travel in proximity to the path of the plunger and having its front provided with a cutting edge and a fixed cutter extending at right angles to the front edge of the carriage and in proximity to the path of the plunger to co-operate with the plunger in severing the stamps or like articles, substantially as described.

3. In apparatus of the class described, the combination with the main frame of a reciprocating carriage, a feed bar for advancing the perforated sheets across the carriage, said carriage having its front edge provided with serrations and pressure devices to aid in retaining the sheet against backward movement, substantially as described.

4. In apparatus of the class described, the combination with the main frame of a reciprocating carriage provided with an upper face whereon the sheet will be placed, a series of presser arms to bear upon the sheet and extending in proximity to the front edge of the carriage, a reciprocating feed bar and means for shifting said bar across the upper surface of the carriage for advancing the sheet, substantially as described.

5. In apparatus of the class described, the combination with the main frame of a reciprocating carriage mounted in manner free to slide upon the main frame and a spring actuated friction plate or check to guard the carriage against excess movement and a set-screw for adjusting the pressure of said plate or check, substantially as described.

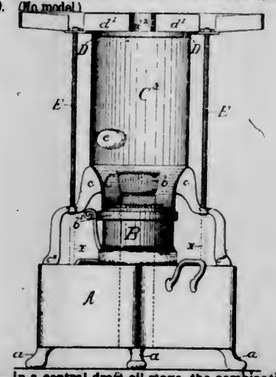
6. In apparatus of the class described the combination with the main frame and with a movable carriage sustained by said main frame of a pivoted plunger arm and means connected to the plunger arm for actuating the movable carriage, a shaft whereon said plunger arm is carried, a downward extension suitably connected with said plunger arm, a spring in engagement with said extension for retracting said plunger arm and an adjusting rod passing through said extension and through said spring, substantially as described.

7. In apparatus of the class described, the combination with the main frame having a cut-away space and a plate above said space and with a plunger arm of a pad holder, an arm for operating said pad holder, and a spring connected to said plunger arm and to the arm that operates said pad holder, substantially as described.

8. In apparatus of the class described, the combination with the main frame having a cut-away space and a plate above said cut-away space outside of the path of the plunger and suitable means for feeding the stamps beneath said plate of a plunger and plunger arm, a pad holder and an arm for operating said pad holder adjustably connected to said plunger arm, substantially as described.

9. In apparatus of the class described, the combination with the main frame having a cut-away space and with suitable means for feeding the stamps above said space of a plunger and a plunger arm, a pad-holder and a hollow arm for operating said pad-holder suitably connected with said plunger arm, said hollow arm communicating with said pad-holder and serving as a water reservoir, substantially as described.

520,498. OIL-STOVE. JAMES F. PLACE, Montclair, N. J., assignor to Charles S. Upton, New York, N. Y. Filed Mar. 9, 1893. Serial No. 465,299. (No model.)

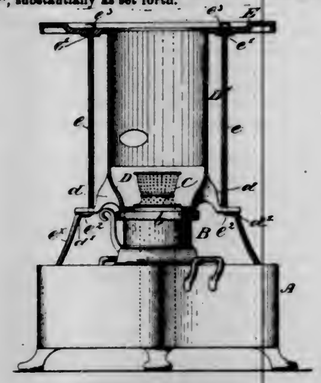


Claim.—In a central draft oil stove, the combination with a reservoir and a central draft burner, of a chimney having branches secured thereto near its base, said branches projecting outward and curving downward to form legs which rest upon the reservoir of the lamp, a platform upon the upper end of the chimney, and tie rods connecting the said platform and projecting branches, substantially as described.

520,499. OIL STOVE AND LAMP. JAMES F. PLACE, Montclair, N. J., assignor to Charles S. Upton, New York, N. Y. Filed Aug. 17, 1893. Serial No. 483,361. (No model.)

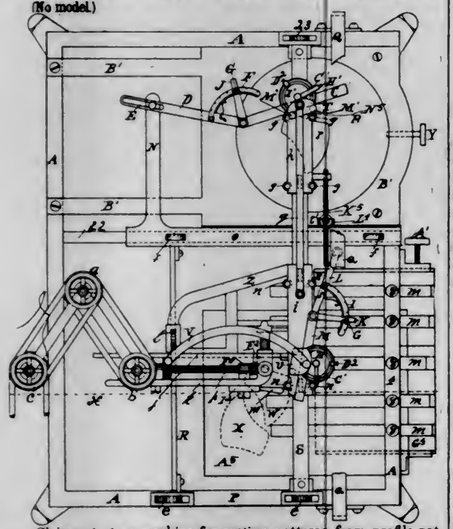
Claim.—In an oil-stove, the combination with the platform E, the upper section of the chimney and the lower section, D, of the

chimney provided with laterally projecting, apertured branches *a*, each having a groove *d'* in its lower face, of the screw-threaded rods *e*, secured to the platform at their upper ends by screws and extending through the apertures in the respective arms *a*, and each having a bent portion e^3 which engages the groove in the branch and a leg portion e^x, substantially as set forth.



520,500. PATTERN TRACING AND CUTTING MACHINE.

CHARLES E. REED, Chicago, Ill. Filed Nov. 6, 1893. Serial No. 490,192. (No model.)



Claim.—1. In a machine for cutting patterns from profile patterns, the toothed directing wheel I' carrying the pinion K'; its surrounding frame L'; the pivoted radial portion C' carrying a pivoted dog, engaging said toothed wheel; the reciprocating carriage A joined to the said frame; the elbow lever J, C; quadrant F, in combination with an arm N on the main carriage; a table for the support of the profile pattern and a traversing point; as and for the purpose specified.

2. A revoluble table supporting the profile pattern in combination with a suitable frame seat; a set screw extending through the frame and engaging the revoluble table, and a traversing point engaging the edge of the profile pattern in combination with a directing wheel having a surrounding frame and adjustable on a post therein, a guide in the frame and the lever C operating therein the levers J, D, and quadrant F, the carriage A mounted on the bar S, and a rod K^3 affixed to the carriage and adjustable on the main carriage, as and for the purpose specified.

3. The directing wheel H, rack-lever M, the elbow K, lever L, quadrant I, the carriage *i* and the rod *q* connecting it with the carriage A, and the bar V pivoted to the portion U, of the frame of wheel H and with the frame of the yoke head *k*, of the machine, and the head carrying the punching mechanism and having a reciprocating movement on the bar *j*; substantially as specified and shown.

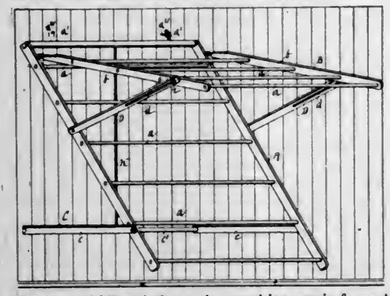
4. The reciprocating yoke head *k*, carrying the drive shaft *p*, and an eccentric on the shaft operating the post of the punch, a die on the lower bar of the yoke head, and the punch operating in the die in combination with a reciprocating feed table provided at its top portion with two-pronged arms and cam levers for shutting the prongs together, as specified and shown.

5. The reciprocating yoke head carrying a main drive-shaft, the reciprocating post and punch therein, an eccentric on the shaft operating the post, and a lever and guide attachment by which the punch while in motion is held above the die in combination with the main reciprocating carriage, the connecting bar V, the wheel H, its frame and cap portions U, levers L, M, K, quadrant I, carriages i, *h*, and connecting rod *q*, as specified and shown.

6. The table G^4, provided with dovetail grooves, and the lower prongs of two-prong clamps adjustable longitudinally therein, means for adjusting the table on the machine, and cam levers operating on the upper prongs of the clamps, substantially as specified.

520,501. CLOTHES-DRIER.

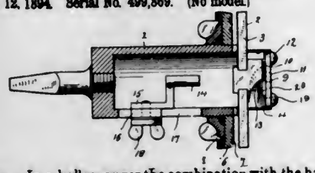
EUGENE S. SUTTON, Snohomish, Wash. Filed Oct. 7, 1893. Serial No. 487,459. (No model.)



Claim.—A folding clothes rack comprising a main frame A having means for its suspension, a secondary frame B hinged or pivoted at its upper portion to the upper portion of said main frame, braces D, D, pivoted at one end to the side portions of said main frame and having elongated slots engaging pins on the side portions of the secondary frame, offsets in said slots for locking engagement with said pins, and a wall brace C pivoted to the main frame and extending backwardly therefrom, all of said parts being arranged to fold into close and substantially parallel relation to each other, substantially as specified.

520,502. HOLLOW AUGER.

JAMES SWAN, Seymour, Conn. Filed Feb. 12, 1894. Serial No. 499,869. (No model.)



Claim.—In a hollow auger the combination with the hollow spindle and face plate, of cutter slides each of which is provided with a downwardly and rearwardly inclined slot 13 and over said slot with an inwardly extending arm 20 made integral with the slide and provided with a shoulder 19, cutters the forward ends of which rest upon said arms and bear against the shoulders so that strain is entirely removed from the cutters in use, and plates 11 secured to the cutter slides by which the cutters are held in place.

520,503. BRANDING-IRON.

JAY L. TORREY, Ember, Wyo. Filed July 7, 1893. Serial No. 479,827. (No model.)

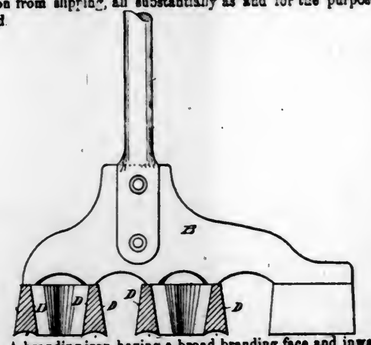
Claim.—1. A branding iron having a broad branding face, the said face being provided with means to prevent the iron from slipping, substantially as and for the purpose described.

2. A branding iron having a broad branding face the said face being provided with a ridge or projection to prevent the iron from slipping substantially as and for the purpose described.

3. A branding iron having a recessed branding face said face being provided with a ridge or projection to prevent the iron from slipping substantially as and for the purpose described.

4. A branding iron having a concaved branding face the edges of said face forming ridges or projections to prevent the iron from slipping substantially as and for the purpose described.

5. A branding iron having a broad branding face and inwardly converging sides the said face being provided with means to prevent the iron from slipping, all substantially as and for the purpose described.



6. A branding iron having a broad branding face and inwardly converging sides, the said face being concave and the edges thereof forming ridges to prevent the iron from slipping, all substantially as and for the purpose described.

520,504. PNEUMATIC-TIRED WHEEL.

WALTER TURNER, London, England. Filed July 28, 1893. Serial No. 481,780. (No model.) Patented in England Dec. 22, 1892, No. 23,641.



Claim.—1. A wheel rim for a pneumatic tire consisting of a flat bottom and of two side flanges, the bottom of the rim being at a slight angle with the axis of the rim so that it slopes from one side to the other and has therefore a greater diameter at one side than the other, as and for the purpose set forth.

2. A wheel rim for a pneumatic tire consisting of a flat bottom and of two sides or flanges, the bottom of the rim being at a slight angle with the axis of the rim so that it slopes from one side to the other, the two flanges or sides being of the same external diameter, as and for the purpose set forth.

3. In a pneumatic tired wheel, the combination of a grooved rim having a flat bottom deeper at one side than at the other, of a cover or jacket having one edge of a larger circumference than the other, each edge having a pocket in which are located fixing bands or wires, the band or wire in the edge of the cover of the larger circumference being an endless hoop, and that in the edge of the cover of the smaller diameter being expansible and contractible, and of an air tube adapted to inflate the tire, as set forth.

4. In a pneumatic tired wheel, the combination of a rim having a flat bottomed groove having a channel at one side thereof of a smaller circumference than the flat bottom of the groove, of a cover or jacket having one edge of a larger circumference than the other, each edge having a pocket in which are located the binding bands or wires, the band or wire in the edge of the cover of the larger circumference being an endless hoop and that in the edge of the cover of the smaller diameter being expansible and contractible, and of an air tube adapted to inflate the tire, as set forth.

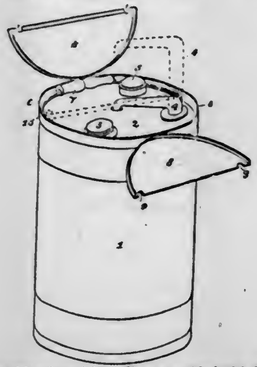
5. In a pneumatic tired wheel, the combination of a grooved rim having a flat bottom deeper at one side than at the other, of a cover or jacket the one edge of which is of a larger circumference than the other and has a pocket formed in it in which is located an endless fixing band or wire and the other edge of which has a bead or enlargement with which an expansible and contractible fixing band or wire engages, and of an air tube adapted to inflate the tire, as set forth.

520,505. OIL-CAN.

CHARLES S. UPTON, New York, N. Y. Filed Mar. 25, 1892. Serial No. 426,351. (No model.)

Claim.—1. The combination with an oil can or other vessel provided with an annular flange or rim as 6, of a bail hinged thereto and adapted to fold therein, and hinged covers as 8, provided with openings through which the bail passes when the covers are closed and the bail elevated for use, substantially as shown and described.

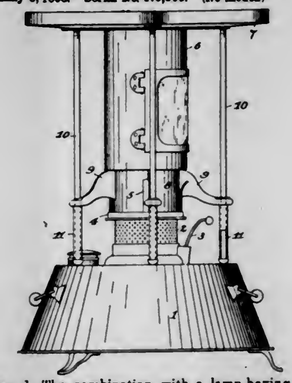
2. The combination with an oil can provided with filling and pumping devices and an annular flange or rim as 6, of a bail or handle hinged to said flange, or rim and adapted to fold therein, and covers as 8, hinged to said flange and adapted to cover or inclose the filling and pumping devices and bail or handle, substantially as shown and described.



3. The combination with an oil can provided with filling and pumping devices and an annular flange as 6, of a bail or handle hinged to said flange and adapted to fold therein, and covers as 8, hinged to said flange and adapted to cover or inclose the filling and pumping devices and handle when the latter is folded within the flange, said covers being also provided with openings through which the bail or handle passes when it is elevated for use, substantially as shown and described.

520,506. LAMP-STOVE.

CHARLES S. UPTON, New York, N. Y. Filed May 8, 1893. Serial No. 473,368. (No model.)



Claim.—1. The combination, with a lamp having an ordinary burner 2 and chimney support 4, of a heating attachment consisting of a chimney 6, having a collar 8 at the lower end thereof, adapted to enter the said chimney support and to be held in place by the springs 5, a grid 7 at the top of said chimney, rods or pillars 10 attached to said grid and resting upon the body of the lamp, and braces 9 for said rods or pillars, attached to and projecting radially from said collar 8, substantially as described.

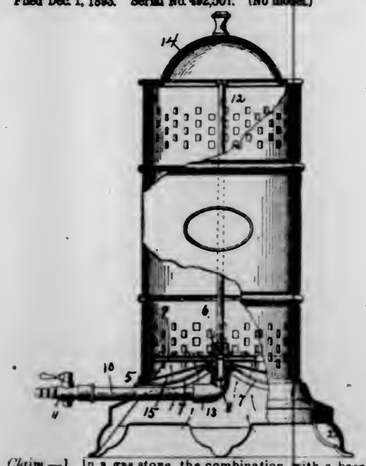
2. The combination, with a lamp having an ordinary burner 2 and chimney support 4, of a heating attachment consisting of a chimney 6, having a collar 8 at its lower end adapted to enter the said chimney support and to be held in place by the springs 5, thereof, a spider or grid 7 at the top of said chimney, rods or pillars 10 attached to said spider and resting upon the body of the lamp, and braces 9 attached to and projecting radially from said collar, and resting upon shoulders 11 of said rods, substantially as described.

3. The combination, with a lamp having an ordinary burner provided with a suitable chimney support, of a chimney adapted to fit such support and provided at its upper end with a heating spider or grid, radial braces 9 attached to the lower portion of the chimney, and rods or pillars 10, passing through the ends of the braces 9, and supporting the spider or grid by resting upon the top of the lamp body, substantially as described.

4. The combination, with a lamp having an ordinary burner provided with a suitable chimney support, of a chimney adapted to fit such support, radial braces 9 attached to the lower portion of the chimney, rods or pillars 10 supported by the top of the lamp body, passing through and supporting the braces, and a heating spider or

grid supported at the top of the chimney by the said rods, substantially as described.

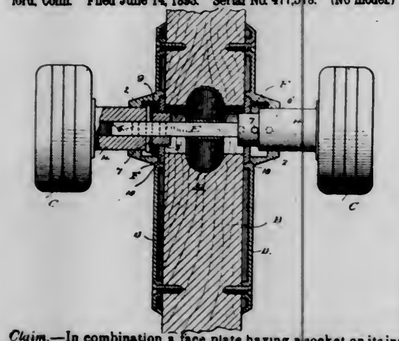
520,507. GAS-STOVE. CHARLES S. UPTON, New York, N. Y. Filed Dec. 1, 1893. Serial No. 492,501. (No model.)



Claim.—1. In a gas stove, the combination, with a base, a heating drum mounted thereon, a gas manifold secured to the base at the center thereof, a gas supply pipe communicating therewith, of gas burners likewise communicating with said manifold, and a tie rod bearing against the end of the drum, passing through the center thereof, and screwing into the said manifold, thereby holding the drum and base together, substantially as described.

2. In a gas stove, the combination, with a base 1, a heating drum 3 mounted thereon, a gas manifold 6 secured to the base at the center thereof, and a gas supply pipe 10 communicating therewith, of gas burners 9 likewise communicating with said manifold, and a tie rod 12 bearing against the end of said drum, passing through the center thereof, and screwing into said manifold 6, thereby holding the drum and base together, substantially as described.

520,508. KNOB ATTACHMENT. THEODORE B. WARDWELL, Stamford, Conn. Filed June 14, 1893. Serial No. 477,578. (No model.)

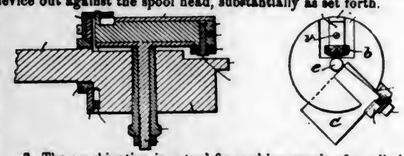


Claim.—In combination a face plate having a socket on its inner side, an angular washer adapted to lie in said socket, a knob spindle a knob shank adapted to receive the spindle and a concealed pin, lying in contact with the washer, which passes through holes in the knob shank and spindle to lock said parts together and turns freely in the face plate with the knob shank.

520,509. SPOOL-MAKING MACHINE. JOHN F. WARDLE, Pawtucket, R. I. Filed Mar. 8, 1894. Serial No. 502,798. (No model.)

Claim.—1. In a tool for shaving the ends of spools, the combination with the knife and its holder, of a marking device held in said knife holder, and means for moving the marking device against the head of the spool, substantially as described.

2. In a tool for making spools, a cylindrical body carrying a knife to shave the heads of the spools, a movable bar located in a groove in said body and having a marking wheel held on a pivot at its end, with means substantially as described for adjusting the marking device to and from the center line of the tool, and means for sliding the marking device out against the spool head, substantially as set forth.



3. The combination in a tool for making spools of a cylindrical body carrying a knife to shave the head of the spool, a bar carrying a marking device sliding in a slot in said tool body and having a pin in its back end, a plate having a diagonal slot to receive said pin, a washer placed at the rear end of the body of the tool to hold said plate, and an arm attached to said plate to move it by, substantially as described.

4. The combination in a tool for making spools, of a cylindrical body carrying a knife to shave the heads of the spools, a case held in a groove in said body, having a bar sliding in it with a mark wheel pivoted to it, said case having a shank extending through the body of the tool and surrounded by a socket having a screw thread on it fitting into a screw thread in the body, said shank having a screw nut fitted on its outer end, substantially as described.

520,510. ELECTRIC CATTLE-GUARD. DAVID H. WILSON, Chicago, Ill. Filed May 18, 1893. Renewed Mar. 12, 1894. Serial No. 503,372. (No model.)

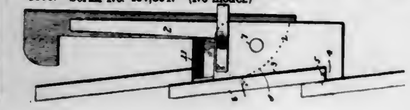


Claim.—1. An electric cattle guard consisting of a yieldingly mounted frame having a conducting surface not in electric contact with the ground and with which an animal attempting to cross the guard will come in contact, a primary electric circuit, an induction coil and an automatic circuit closer forming elements in such primary circuit, a connection extending from the automatic circuit closer to the yieldingly mounted frame so that an animal attempting to cross the cattle guard and depressing such yieldingly mounted frame will actuate such automatic circuit closer and close the primary circuit of which it forms an element, and a secondary electric circuit, of which the animal depressing the yieldingly mounted frame forms an element, extending from the induction coil of the primary circuit to the conducting surface of the yieldingly mounted frame and back to and through the induction coil; substantially as described.

2. An electric cattle guard consisting of more than one yieldingly mounted frames, each having a conducting surface not in electric contact with the ground and with which an animal attempting to cross such frame will come in electrical contact, an electric circuit, more than one automatic circuit closer interposed in such circuit and connected, with the yieldingly mounted frames, so that an animal attempting to cross the guard and depressing any one of such yieldingly mounted frames will actuate such automatic circuit closer and close the circuit of which it forms an element, an induction coil and an electric generator in the circuit, and a second electric circuit, of which the animal depressing the yieldingly mounted frame forms an element, extending from the induction coil of the first named circuit to the electric conducting surface of the yieldingly mounted frame and back to and through the induction coil, substantially as described.

3. An electric cattle guard consisting of a series of convex metal plates, series of vertically extending metal plates to which, respectively, the metal plates of the first named series are, secured, a series of bars extending underneath the series of metal plates and into which, the respective vertical plates extend, a packing of non-conducting material securing the said plates in the said bars, bars securing the non-conducting bars together and forming in connection therewith a frame, springs on which such frame is yieldingly mounted, and conductors electrically connected with the convex metallic plates and extending, to an electric circuit whereby such convex plates are made elements of such electric circuit; substantially as described

520,511. WEATHER-BOARD GAGE. THOMAS L. WINT, Kalb, assignor of one-half to S. J. T. Young, Camden S. C. Filed Oct. 11, 1893. Serial No. 487,891. (No model.)



Claim.—In a weather-board or siding gage, the combination of a body-portion provided at its lower end with a spurred shoulder to engage the lower edge of a fixed board, an adjustable rest having its upper end arranged above said spurred shoulder and adapted to support the board which is being applied, a pivoted retaining arm having its pivotal lower end arranged between the planes of the spurred shoulder and the upper end of said rest and provided adjacent to said pivotal end with a spurred head to engage the surface of the fixed board, said arm extending above the upper end of the rest when in its normal or operative position to prevent displacement of the lower edge of the board which is supported on the rest, and a shouldered spring catch to engage and hold said arm in its upright or operative position, substantially as specified.

520,512. NUT-LOCK. JOSEPH J. BENTLEY, Sadorus, Ill. Filed Nov. 9, 1893. Serial No. 490,435. (No model.)



Claim.—A combined nut lock and securing device for railroad rails, comprising an angular fish-plate having a vertically disposed side, and provided with a series of perforations along its median line; the said vertical side having its upper edge slightly turned inwardly to form a yielding surface or spring, protuberances located on opposite sides of the perforations between the same and adjacent thereto and formed integrally with the fish-plate, the said protuberances having inclined surfaces extending in both directions in the plane of rotation of the nut, a bolt or bolts passing through such perforations and provided with nuts thereon adapted after securing the bolt to be confined by contact with said protuberances, substantially as described.

520,513. PROCESS OF PRESERVING OR RENOVATING BUTTER. WILLIAM N. BLAKEMAN, Jr., New York, N. Y. Filed Mar. 28, 1889. Serial No. 305,184. (No specimens.)

Claim.—1. The process of preserving or renovating butter, consisting in first purifying the butter by washing in a menstruum capable of removing rancidity and then adding to the washed butter artificial hydrocarbons, substantially as and for the purposes set forth.

2. The process of preserving or renovating butter, consisting in first washing the butter in an alkaline solution and then adding to the washed butter artificial hydrocarbons, substantially as and for the purposes set forth.

3 The process of preserving or renovating butter, consisting in purifying the same by washing in a menstruum capable of removing rancidity, then adding artificial hydrocarbons and disintegrating the mass by mechanical means, substantially as and for the purposes set forth.

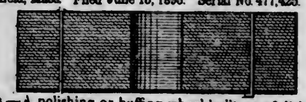
4. The process of preserving or renovating butter, consisting in first purifying the butter by washing in a menstruum capable of removing rancidity and then adding to the washed butter glyceryl butyrates or butyrins, such as monobutyrin, dibutyrin, and tributyrin, one or more of them, substantially as and for the purposes set forth.

520,514. PIPE-COUPLING. ALEXANDER BRYANT, New York, N. Y. Filed Nov. 20, 1891. Serial No. 412,463. (No model.)



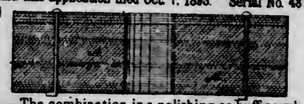
Claim.—A pipe coupling comprising a separable pipe section composed of two members having upon their adjoining ends an external tapering screw thread extending continuously from member to member; the line of separation of said parts being taken in a plane extending in the plane of the external thread thereon substantially perpendicular to the axis of the pipe, partly across the same, thence at an angle to said axis sufficient to bisect the thread and continuing in the plane of the thread, so as to effect a separation upon different planes, but approximately the same plane, thereby providing co incident interlocking bearing faces and an external thread on each member complete in itself to its junction with the thread upon its fellow forming a continuation thereof; together with an internally tapered screw threaded nut adapted to be screwed upon said parts so as to bind them together, whereby a tight joint is formed, without packing, and the two parts are united and secured against rotation, while the coupling is adapted to be connected or disconnected by a lateral or sidewise movement of said parts, without longitudinal movement thereof, substantially as described.

520,515. POLISHING OR BUFFING WHEEL. THOMAS J. CLEARY, Westfield, Mass. Filed June 13, 1893. Serial No. 477,425. (No model.)



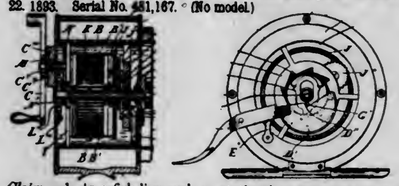
Claim.—A polishing or buffing wheel built up of disks of paper securely held together, the fibers of which all run in substantially the same direction, substantially as and for the purpose described

520,516. BUFFING-WHEEL. THOMAS J. CLEARY, Westfield, Mass. Original application filed June 13, 1893, Serial No. 477,425. Divided and this application filed Oct. 7, 1893. Serial No. 487,480. (No model.)



Claim.—The combination in a polishing or buffing wheel of disks of paper, the fibers of which run in substantially the same direction throughout the wheel, with occasionally interposed between the disks of paper the disks of fabric, all secured together, substantially as and for the purpose specified

520,517. FISH-LINE REEL. CHARLES B. CORBIN, Grand Rapids, Mich., assignor of one-half to William J. Corbin, same place. Filed July 22, 1893. Serial No. 481,167. (No model.)



Claim.—1. In a fish line reel, a rotative drum, a spring to rotate the same, a pawl connecting said spring to said drum, a brake engaging said drum and in position to operatively engage said pawl and disconnect said spring from said drum and hold said spring, and a lever to actuate said brake, substantially as described.

2. In a fish line reel, a rotative drum, a spring to rotate the same a train of gearing connected to said spring, a pawl connecting said gearing to said drum, a pin in said pawl, a brake shoe engaging said drum and pin at its respective sides, a spring pressing said shoe against said drum, and a notch in said shoe engaging said pin, substantially as described.

3. In a fish line reel, a rotative drum, a spring connected to said drum by a pawl and ratchet, a pin in said pawl, a brake shoe having an operating lever and engaging said drum and pin at its respective sides, a spring pressing said shoe against said drum, a notch in said shoe engaging and holding said pin, and a dog engaging and holding said brake lever in engagement with said pin, substantially as described.

4. In a fish line reel, a rotative drum journaled on a rotative shaft, a fixed pawl engaging a ratchet wheel on said shaft, a lever pivoted on said shaft, a pawl on said lever engaging a ratchet wheel on said shaft, a spring connected at one end to said shaft, a rotative spring case connected to the other end of said spring, a fixed sleeve around said shaft, an arm on said sleeve, a gear on said spring case, a gear journaled on said sleeve and connected to said drum two gears fixed to each other and journaled on said arm and respectively engaging the gear on the spring case and the gear on the sleeve, substantially as described.

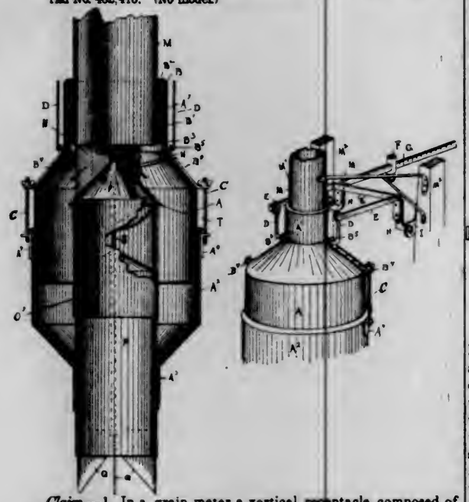
5. In a fish line reel, a rotative shaft, and means for rotating and holding the same, a pawl case rotative about said shaft, a winding drum journaled on said shaft at one end and on said pawl case at the other end, a spring attached to said shaft at one end, gearing connecting said spring and pawl case and transmitting motion from the former to the latter, a ratchet on said drum and a pawl in said case engaging said ratchet, a pin in said pawl and a spring actuated brake adapted to alternately engage said drum and said pin, substantially as described.

6. In a fish line reel, in combination with a winding drum, and spring actuated gearing to actuate said drum, a detachable connection between said gearing and drum, and means for detaching the same, a pinion on said drum, an adjustable sleeve, a shaft rotative in said

sleeve, a crank on the outer end of said shaft, and a gear on the inner end of the same, said gear adapted to engage said pinion, substantially as described.

7. In a fish line reel, a case having a rotative drum, a central shaft, a pawl and ratchet to hold said shaft, a spring connected to said shaft and to said drum, a brake lever having a shoe engaging said reel, a winding lever journaled on said central shaft, a pawl on said lever engaging a ratchet on said shaft, a cap covering the inner ends of said levers and having a slot in its edge through which said levers project, and a joint in said winding lever whereby it may be folded into said slot, substantially as described.

520,518. GRAIN-METER. HENRY P. DENNIS, Peoria, Ill., assignor of one-half to Albertus D. Potter, same place. Filed Aug. 4, 1893. Serial No. 482,413. (No model.)



Claim.—1. In a grain meter a vertical receptacle composed of the telescoping halves A and A^3 adjusted by the thread bars C C, and the straps B^4 and A^4 secured to the said portions A and A^3 respectively, the upper extremity of said portion A being contracted to form the neck A', having an annular flange B, a sliding collar B' located within the said neck and provided at either end with an outer annular flange adapted to engage with said flange B, the lower extremity of said receptacle being contracted to form the neck A^3, in combination with a vertical centrally located supply pipe M adapted to deliver grain at the upper extremity of the receptacle, the part O' being surmounted by a cone O and hung from the said pipe M by suitable means, the upper extremity of said portion O' being provided also with a stop T for the sliding collar B', the tubular portion P telescoping the said portion O' and capable of adjustment for length by suitable means and all working together substantially in the manner and for the purposes herein set forth and described.

2. In a grain meter, a grain receptacle comprising the telescoping halves A and A^3 in combination with a weighing device consisting of the parallel arms E E connected at their rear ends with the rod E', the forward ends of the said rods E pivotally supporting the said receptacle by means of the pivoted hangers D, the depending arms H adjustably secured to the said rod E' having their lower ends pivotally hung in the eyes I secured to the frame of the machine and the scale beam G attached to the said rod E' substantially in the manner and for the purposes set forth and described.

3. In a grain meter, a vertical movable grain receptacle capable of being lengthened, in combination with a vertical inlet pipe and parts O' and P centrally located within said receptacle, said parts O' and P being adjustable for length substantially as and for the purposes specified.

4. In a grain meter, a vertical movable grain receptacle, capable of being lengthened by means of the thread bars C C engaging with the straps B^4 and A^4 secured to said receptacle in combination with a vertical fixed inlet pipe, located within said receptacle, the parts O' and P passing entirely through said receptacle, said parts O' and P being attached to the said pipe M and forming the guide for said receptacle in its movement in the manner and for the purposes herein set forth and described.

5. In a grain meter, a vertical grain receptacle adjustable for length and adapted to have a vertical movement substantially in the manner and for the purposes set forth, in combination with a vertical centrally located fixed supply or inlet pipe, the parts O' and P passing entirely through said receptacle and attached to the said inlet pipe, the pipe composed of the part O' and the telescoping part P being adjustable for length by the threaded rod S, the feathers N securing the top of said part O' to the pipe M, and the feathers Q located in the lower end of the part P substantially in the manner and for the purposes herein set forth and described.

6. In a grain receptacle provided at its upper and lower extremities with necks A' and A^3 respectively, said upper neck inclosing a sliding sleeve B', the travel of said sleeve being limited by the flange B on said upper neck A' said lower neck closely surrounding a part P, the body of the receptacle enlarging at the middle of its length for the purposes set forth and described.

7. In a grain meter, a supply pipe M, the part O' having the vertical feathers or walls N mounted thereon, said part being surmounted by the pipe M, a spring stop T secured near the top of the part O substantially in the manner and for the purposes set forth, in combination with a pipe P entering said portion O' from below and having a series of vertical feathers or walls Q secured in the lower end thereof, and a threaded bar S all constructed substantially in the manner and for the purposes set forth.

520,519. SCREW-DRIVER. JOHN J. EDWARDS, Grand Rapids, Mich., assignor to Sylvanus F. Bowser and Allen A. Bowser, Fort Wayne, Ind. Filed July 19, 1893. Serial No. 480,909. (No model.)



Claim.—1. The combination with the stock having right and left hand spiral grooves, of the shell or casing loosely fitted on said stock, a pair of thimbles each provided with ratchet-teeth and with a lug or lugs engaging the respective spiral grooves of the stock; the teeth upon one thimble being inclined in an opposite direction to those upon the other, a pair of loose collars each having ratchet-teeth adapted to interlock with one of said thimbles, and means for simultaneously shifting said thimbles so as to either engage both and lock the stock against rotation or engage one thimble and simultaneously disengage the other, for the purpose of causing the stock to rotate in either a forward or backward direction, substantially as described.

2. The combination with the stock having right and left hand spiral grooves, and the shell or casing fitted thereon, of a pair of clutch devices each comprising a loose collar having ratchet-teeth, a thimble also having ratchet-teeth adapted to interlock with said collar; the teeth upon one set of clutch devices being inclined in an opposite direction to those upon the other, so as to cause the stock to rotate in opposite directions by engaging and disengaging one or the other of said clutches, a lug or lugs on each of said thimbles engaging the respective spiral grooves of the stock, and means for simultaneously shifting the thimbles so as to either engage both clutches and lock the stock against rotation or engage one and simultaneously disengage the other so as to cause the stock to rotate in either a forward or backward direction as may be desired, substantially as described.

3. The combination with the stock having right and left hand spiral grooves, and the shell fitted thereon having interior cam projections, of the clutch devices comprising the loose collars having ratchet teeth, similarly toothed thimbles for engaging said collars, each having a lug engaging one of said grooves in the stock, and the clips having the prongs with inclined or cam faces adapted to engage said cam projections so as to shift said thimbles and simultaneously engage both clutch devices or engage one and disengage the other, and means for partially rotating said clips, substantially as described.

4. The combination with the stock having right and left hand spiral grooves, of the shell or casing loosely fitted thereon, a pair of loose collars capable of a slight longitudinal movement and having ratchet-teeth inclined in opposite directions, a pair of thimbles each having ratchet-teeth adapted to interlock with one of said collars; each thimble being provided with a lug or lugs engaging one of said grooves, springs tending to force said collars into engagement with said thimbles, and means for simultaneously shifting the thimbles so as to either engage one with one of said collars and disengage the other or simultaneously engage both, substantially as described.

5. The combination with the stock having right and left hand spiral grooves, of a shell or casing loosely fitted thereon, a pair of collars also loosely fitted on said stock and provided with ratchet-teeth inclined in opposite directions; said collars having lugs or flanges which enter elongated slots or notches in said casing, so as to permit slight longitudinal movement or play thereof, a pair of thimbles loosely mounted on said stock within said casing having ratchet-teeth adapted to engage the teeth of said collars and provided with internal lugs fitting the respective spiral grooves of the stock; a partially rotatable sleeve surrounding said shell, and clips keyed to said sleeve and engaging said thimbles, so as to simultaneously shift the same when the sleeve is rotated, substantially as described.

6. The combination with the stock having right and left hand spiral grooves, of the shell or casing loosely fitted thereon, a pair of collars also loosely fitted upon said stock and capable of a slight longitudinal movement; said collars having ratchet-teeth inclined in opposite directions and provided with lugs or flanges adapted to enter suitable slots or notches in said casing, a pair of thimbles loosely mounted on said stock within said casing having ratchet-teeth adapted to interlock with the teeth on said collars, and provided with internal lugs fitting the respective spiral grooves of the stock, clips on said thimbles having exterior lugs or key-ways and provided with prongs having cam faces adapted to engage cams or projections on the interior of said casing, and a sleeve capable of a partial rotation having a spline or key engaging said ways, whereby one or both thimbles may be thrown into engagement with said collar or collars so as to either lock the stock against rotation to cause it to rotate in either a forward or backward direction, as may be desired, substantially as described.

7. The combination with the stock having right and left hand spiral grooves, and a shell or casing fitted thereon having a centrally disposed partition or wall, of a pair of ratchet-toothed thimbles fitted on said stock, one above and the other below said partition; the teeth of one of said thimbles being inclined in an opposite direction to the teeth upon the other thimble, and each having a lug engaging one of said grooves, a pair of collars capable of a slight longitudinal movement, each having ratchet teeth adapted to engage one of said thimbles; one of said collars being located centrally and the other at one end of said shell, springs placed one between said centrally disposed collar and said partition and another between the end wall or head of the shell and the collar at said end and tending to force said collars into engagement with said thimbles, and means for engaging said thimbles with the respective collars so as to lock the stock, and for disengaging one thimble and simultaneously engaging the other so as to reverse the rotary movement of the stock at will, substantially as described.

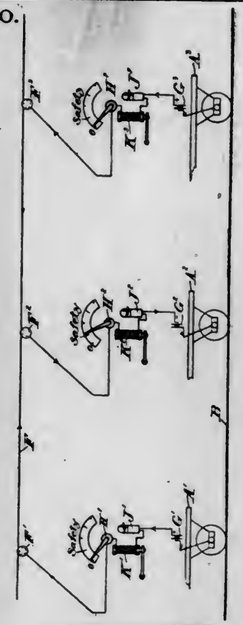
8. The combination with the stock having right and left hand spiral grooves, and a shell or casing fitted thereon having a centrally disposed partition or wall, of a pair of ratchet-toothed thimbles fitted on said stock, one above and the other below said partition; the teeth of one of said thimbles being inclined in an opposite direction to the teeth upon the other thimble, and each having a lug engaging one of said grooves, a pair of collars capable of a slight longitudinal movement, each having ratchet-teeth adapted to engage one of said thimbles; one of said collars being located centrally and the other at one end of said shell, springs placed one between said centrally disposed collar and said partition and another between the end wall or head of the shell and the collar at said end, and tending to force said collars into engagement with said thimbles, and means for engaging said thimbles with the respective collars so as to lock the stock, and for disengaging one thimble and simultaneously engaging the other so as to reverse the rotary movement of the stock at will, comprising a sleeve inclosing said shell, a clip for each thimble keyed to said sleeve and having a prong with an inclined or cam face, and cam projections on the interior of said shell adapted to engage said prongs and move the clips when the sleeve is rotated, substantially as described.

520,520. SAFETY SYSTEM FOR RAILROADS. WILLIAM H. ELKINS, Cambridge, Mass. Filed Oct. 22, 1892. Serial No. 449,629. (No model.)

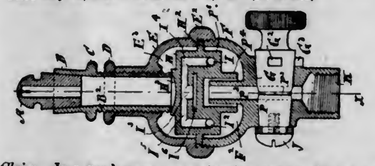
Claim.—1. The safety system for railway trains above described comprising two main conductors disconnected electrically and one insulated and of high resistance; a plurality of cross conductors each carried by a train, and alternately of opposite sign and two of them requisite to complete a circuit of which the main conductors form part; a plurality of generators each carried by a train; and a plurality of translating devices each carried by a train; all organized to form circuits whose length and resistance vary with the distance apart of the trains, substantially as set forth.

2. The safety system for railway trains above described comprising two main conductors disconnected electrically and one insulated and of high resistance; a plurality of cross conductors each carried by a train and alternately of opposite sign and two of them requisite to complete a circuit of which the main conductors form part; a plurality of generators each carried by a train; and a plurality of sets of alarm devices those of each set responding to different strengths of current, and each set carried by a train; all organized to form circuits whose length and resistance vary with the distance apart of the trains, substantially as set forth.

520,520.

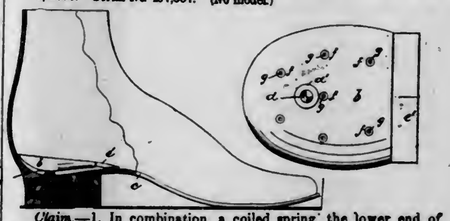


520,521. GAS-BURNER. HERMAN EPPRECHT, New York, N. Y. Filed May 22, 1893. Serial No. 475,141. (No model.)



Claim.—In a gas burner, a gas chamber composed of two parts in combination with a deflector having the downwardly projecting hood F^4, and the chamber F^3, said deflector having the passages I, I^2, I^3, I^4, I^5 and I^6, substantially as set forth.

520,522. HEEL. AMISA P. GOTHAM, Newark, N. J. Filed Jan. 5, 1893. Serial No. 457,337. (No model.)



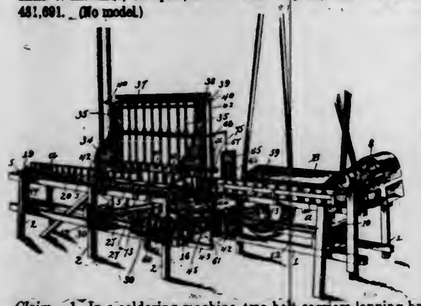
Claim.—1. In combination, a coiled spring, the lower end of which is adapted to rest in a recess in the heel of a boot or shoe, a plate to fit in the heel of the boot or shoe, and a screw rigidly secured thereto, the top of which is provided with a shoulder to bear against the under side of the plate and the lower end is screw-threaded to fit in the upper end of the spring, substantially as set forth.

2. The combination in a spring heel of a spring composed of a flat wire of spring metal formed into a succession of coils telescoping into or overlapping one another, the lower or largest coil adapted to be seated in a recess in the heel of said boot or shoe; a screw-threaded socket secured in the top or smaller coil, a heel plate and a screw secured thereto and adapted to screw into said socket, as described and for the purposes set forth.

3. The combination in a spring heel, of a spring composed of a flat wire of spring metal formed into a succession of coils telescoping into or overlapping one another and adapted to be seated in a recess

in the heel or sole of said boot or shoe, and a perforated heel-plate firmly secured to the top of said spring, as and for the purposes set forth.

520,528. MACHINE FOR SOLDERING CAPS ON CANS. MILLARD J. HAWKINS, Newport, N. Y. Filed July 28, 1893. Serial No. 481,691. (No model.)



Claim.—1. In a soldering machine, two belt carriers lapping by each other, and a stationary soldering table introduced between the overlapping ends, combined substantially as set forth.

2. The combination in a soldering machine for soldering cans, of two belt carriers having ends lapping by a stationary soldering table between the carriers, and a shipping device for transferring cans from one of the carriers on to the soldering table, substantially as set forth,

3. The combination in a soldering machine for soldering cans, of two overlapping belt carriers adapted to move the cans, a soldering table between the carriers, mechanism for moving the cans out of one carrier on to the table, and mechanism for moving the cans from the soldering table into the other carrier, substantially as set forth.

4. The combination in a soldering machine for soldering cans, of a carrier, a table along which the carrier moves the cans, a soldering table located adjacent to the carrier table, a can shipping device adapted to engage and ship several cans simultaneously out of the carrier onto the soldering table, and a series of vertically movable soldering irons over the soldering table, substantially as set forth.

5. In a soldering machine, a soldering table, a feeding carrier operating along one side of the table, a discharging carrier operating along the other side of the table, a shipping-bar adapted to move several cans out of the feeding carrier onto the soldering table, a series of hooks operating through slots in the soldering table to transfer the cans from the soldering table into the discharging carrier, a set of rotary soldering-irons over the soldering table and means for heating and operating them, substantially as set forth.

6. The combination in a soldering machine for soldering cans, of a soldering table, a feeding carrier operating along one side of the table, a discharge carrier operating along the other side of the table, shipping devices for transferring a series of cans out of the feeding carrier onto the soldering table, and off the soldering table into the discharge carrier, an acid supplying pump discharging over the feeding carrier in advance of the soldering table, can engaging finger for operating the pump, a series of soldering irons vertically movable over the soldering table, and means for heating and operating the soldering irons, substantially as set forth.

7. In a can soldering machine a carrier table, a carrier operating to move cans along the table, a soldering table adapted to hold a single row of cans located adjacent to the carrier table, a set of soldering irons, a shipping mechanism for transferring a plurality of cans from the carrier table to the soldering table, combined substantially as set forth.

8. In a can soldering machine, a plain flat faced carrier table, a carrier operating to slide cans along the table, a stationary soldering table located at the side of the carrier table in the same plane, a set of soldering irons, and a can shipping device for transferring a plurality of cans from the carrier table to the soldering table, combined substantially as set forth.

9. In a soldering machine, the combination of two parallel carrier tables, a carrier for each table, a soldering table adapted to receive a single row of cans located between the carrier tables, a set of soldering irons, and mechanism operating to move the cans onto and off from the soldering table, substantially as set forth.

10. The combination in a can soldering machine of a stationary soldering table having can-holding divisions, of a continuously moving carrier moving alongside of the table, and a can shipper adapted to move a plurality of cans out of the carrier on to the soldering table, soldering irons and mechanism for operating the same, substantially as set forth.

11. The combination of a carrier table, a carrier having fingers projecting laterally over the table, a soldering table by the side of and in the plane of the carrier table a can shipper constructed to ship a plurality of cans out from the carrier fingers onto the soldering table, and mechanism for operating the can shipper, substantially as set forth.

12. The combination in a soldering machine, of a soldering table adapted to hold a single row of cans, carrier tables at each side of the soldering table, a carrier for each carrier table, one feeding and the other discharging, means for shipping a can from the feeding carrier onto the soldering table and means operating through the soldering table to transfer the cans from the soldering table into the discharging carrier.

13. The combination in a soldering machine of a soldering table, a carrier table and carrier at side of soldering table, automatic catch adapted to engage the bottom of the can through transverse slots in the soldering table, and mechanism for operating the catches to transfer the cans, substantially as set forth.

520,524. COAL-SEPARATOR. WILLIAM H. HERRING, Wilkes-Barré, Pa. Filed Oct. 6, 1893. Serial No. 487,316. (No model.)



Claim.—1. In a coal separator the combination with the inclined separating plane, of a feeding and starting wheel arranged across the upper end of the plane and having blades or paddles for throwing the coal upon said plane, and means for delivering coal to the feed wheel, substantially as described.

2. In a coal separator the combination with the inclined frictional separating plane of a feeding and starting wheel arranged across the upper end of the plane and having blades or paddles for throwing the coal thereon, of a second chute having its lower end adjacent to the wheel and curved apron or plate below said lower end and partially surrounding the feed wheel, substantially as described.

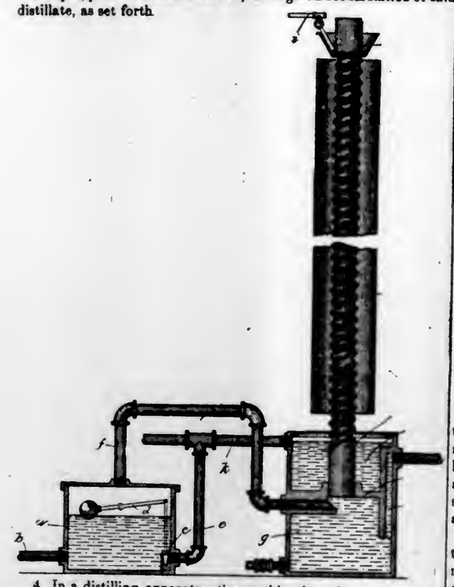
3. In a coal separator the combination with the inclined frictional separating plane having its upper section perforated, of a feeding and starting wheel arranged across the upper end of said plane, and having blades or paddles for throwing the coal upon the perforated portion thereof, and means for delivering the coal to the feeding and starting wheel, substantially as described.

520,525. METHOD OF AND APPARATUS FOR DISTILLING WATER. HORACE F. HODGES and DAVID J. HAVENSTRITE, Boston, Mass., assignors to C. B. Southard, trustee, same place. Filed Nov. 26, 1892. Serial No. 453,195. (No model.)

Claim.—1. The improved method of distilling water, which consists in first passing steam through a body of water, and thereby depriving said steam of a portion of its heat, and utilizing said heat to produce an increase of vapor which is carried forward with the original steam, and then passing said steam and vapor into a condenser open to the atmosphere, as set forth.

2. The improved method of distilling water, which consists in first passing steam through a body of water, and thereby depriving said steam of a portion of its heat and adding vapor to it, passing said steam and vapor into a condenser open to the atmosphere and accumulating the products of the condensation at and in the lower end of said condenser where it will be subjected to agitation by the passage of the said steam and vapor through it prior to condensation, as set forth.

3. The improved method of distilling water which consists in continuously distilling steam and vapor passing it into a condenser open to the atmosphere, and agitating the distillate by passing said steam and vapor, prior to its condensation, through an accumulation of said distillate, as set forth.



4. In a distilling apparatus, the combination of a substantially vertical condensing pipe or chamber open to the atmosphere, means for cooling said pipe, a distillate receptacle communicating with and receiving the lower portion of said pipe, and a steam or vapor conduit entering said receptacle and having its discharging end located below the outlet of said receptacle and below the condensing pipe, whereby the steam or vapor admitted to the condensing pipe is compelled to pass through water in the receptacle, and purge it from any air and absorbed gases, as set forth.

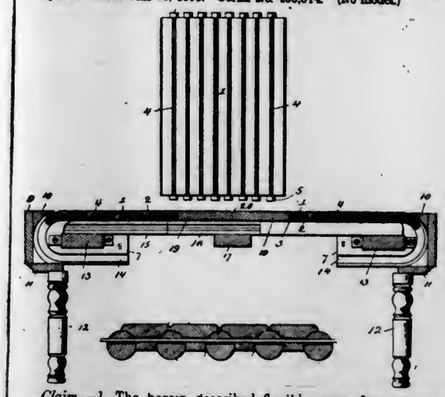
5. In a distilling apparatus, the combination of a water chamber, a steam inlet entering the lower portion of said chamber, an outlet pipe for steam and vapor from the upper portion of said chamber, a substantially vertical condensing pipe or chamber open to the atmosphere at its upper end arranged to receive steam and vapor from said outlet pipe, and means for cooling said condensing pipe, as set forth.

6. In a distilling apparatus, the combination of a water chamber, a steam inlet entering the lower portion of said chamber, a water inlet entering said chamber and provided with a float valve which is controlled by the water in the chamber, a steam or vapor outlet pipe extending from the upper portion of said chamber, and an open condensing pipe or chamber arranged to receive steam or vapor from the said outlet pipe, as set forth.

7. In a distilling apparatus, the combination of a water chamber, a steam inlet entering the lower portion of said chamber, a water inlet entering said chamber and provided with a float valve which is controlled by the water in the chamber, a steam or vapor outlet pipe extending from the upper portion of said chamber, an open condensing pipe or chamber arranged to receive steam or vapor from the said outlet pipe, a distillate receptacle at the lower portion of said condensing pipe, a water supply pipe arranged to direct condensing water against the exterior of the condensing pipe, a receptacle for the condensing water, and an outlet pipe extending from the last-mentioned receptacle, as set forth.

8. In a distilling apparatus, the combination of a water chamber, a steam inlet entering the lower portion of said chamber, a water inlet entering said chamber and provided with a valve which is controlled by the water in the chamber, a steam or vapor outlet pipe extending from the upper portion of said chamber, a condensing pipe or chamber arranged to receive steam or vapor from the said outlet pipe, a distillate receptacle at the lower portion of said condensing pipe, a water supply pipe arranged to direct condensing water against the exterior of the condensing pipe, a receptacle for the condensing water, an outlet pipe extending from the last-mentioned receptacle, and a connection between said outlet pipe and the first mentioned water chamber, whereby said chamber is supplied with water which has been previously utilized in condensing steam and vapor in the condensing pipe, as set forth.

520,526. FLEXIBLE COVER FOR TABLES, BLINDS, DESKS, &c. CHAUNCEY S. HOMER, Warren, Pa., assignor to Mary T. Homer, same place. Filed Jan. 31, 1893. Serial No. 460,314. (No model.)



Claim.—1. The herein described flexible cover for extension-tables, inside-blinds and desks, the same consisting of a series of alternately arranged flat strips and cylindrical rods, the strips having their lower corners provided with grooves for loosely receiving the rods, and the under sides of the latter extending below the plane of the strips, and flexible connections passed through perforations in the rods and strips, substantially as specified.

2. The herein described improved flexible cover for extension-tables, inside-blinds and desks, the same consisting of a series of alternately arranged rods and strips, the adjacent edges of the strips being grooved to receive the rods, said rods being longer than the strips and extending beyond the same to form bearing-ends, substantially as specified.

3. The herein described improved flexible cover for extension-tables, inside-blinds and desks, the same consisting of an alternate arrangement of flat strips and cylindrical rods, such strips having their upper corners slightly rounded and their lower corners grooved and receiving the rods, said rods and strips being provided with perforations, and the rods having their lower sides extending below those of the strips and flexible connecting devices passing through the perforations, substantially as specified.

4. The herein described flexible cover for extension tables, inside blinds, and desks, the same consisting of a series of sections loosely connected, a plurality of said sections having their lower sides rounded and extending below the remaining sections to form bearing surfaces, substantially as specified.

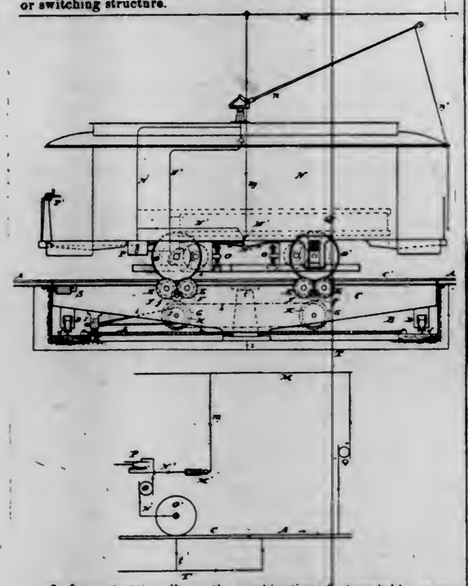
5. The herein described flexible cover for extension-tables, inside blinds, desks, &c., the same consisting of a series of sections loosely jointed together, a plurality of said sections having their lower sides extending below the remaining sections and their ends projecting beyond those of said remaining sections forming bearing-surfaces substantially as specified.

520,527. ELECTRIC-RAILWAY TURN-TABLE. RUDOLPH M. HUNTER, Philadelphia, Pa. Filed Feb. 2, 1893. Serial No. 460,708. (No model.)

Claim.—1. The combination of a turn-table or movable switching structure, power devices to move the turn table or switching structure about its pivot connection, an electric car adapted to be supported and moved by the turn-table or switching structure and provided with an electric motor to propel it, power transmitting connections between the electric motor and power devices to move the turn-table or switching structure whereby the electric motor may be employed to operate the turn-table or switching structure, supporting wheels carried by the turn-table or switching structure upon which the wheels of the car rest during the operation of the said turn-table or switching structure, and means to raise and lower the said wheels for the purpose of supporting the car wheels independently of the rails.

2. In an electric railway, the combination of a turn-table or movable switching structure, power devices to move the said turn-table or switching structure about its pivot connection, an electrically propelled car provided with an electric motor mechanically connected

to rotate the axle, connecting devices between the car axle and wheels and the power devices upon the turn-table or switching structure whereby the operation of the motor of the car may be employed to move the turn-table or switching structure with the car, a stationary source of electric supply, conductors extending along the railway to the turn-table or switching structure, and a flexible conductor connecting with one of the conductors leading to the turn-table or switching structure from the source of supply and adapted to make connection with the electric circuits on the car for the purpose of delivering current to the motor while the car is being moved by the turn-table or switching structure.



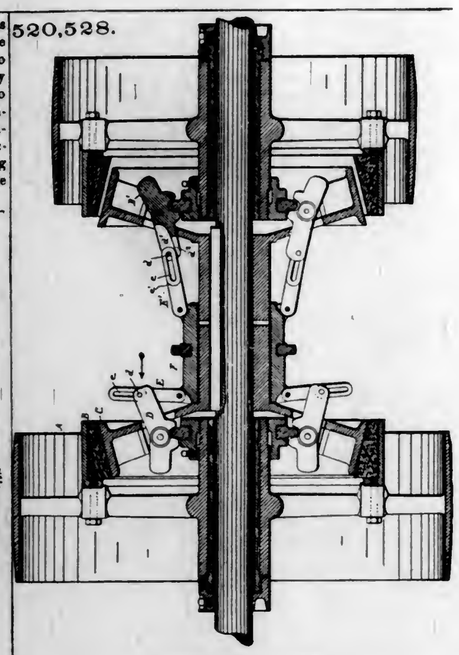
3. In an electric railway, the combination of a turn-table or movable switching structure, power devices to move the said turn-table or switching structure about its pivot connection, an electrically propelled car provided with an electric motor mechanically connected to rotate the axle, connecting devices between the car axle and wheels and the power devices upon the turn-table or switching structure whereby the operation of the motor of the car may be employed to move the turn-table or switching structure with the car, a stationary source of electric supply, conductors extending along the railways to the turn-table or switching structure, a flexible conductor connecting with one of the conductors leading to the turn-table or switching structure from the source of supply and adapted to make connection with the electric circuits on the car for the purpose of delivering current to the motor while the car is being moved by the turn-table, and a disconnectible coupling for making a temporary connection between said flexible conductor and car.

4. In an electric railway, the combination of the main track, a turn-table arranged in said track, power devices to turn or move the said turn table or movable structure upon its pivot, a supply conductor for delivering current to cars while traveling over the railway, stationary source of electric energy for supplying current to the supply conductors, an electrically propelled car having an electric motor to rotate its axle, current collecting device carried with the car and making a traveling connection with the supply conductor, regulator on the car adapted to control the operation of the motor, power transmitting devices carried by the turn-table or switching structure for temporarily connecting the electric motor with the power devices of the said turn-table or switching structure whereby the latter may be operated by the electric motor on the car, and a temporary flexible electric circuit between the supply conductor and the motor on the car.

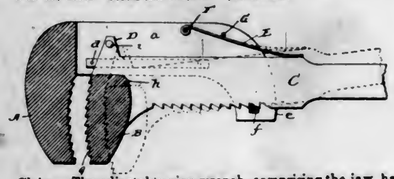
520,528. CLUTCH. EDWARD L. JONES, Westfield, N. Y., assignor to the Crowell Clutch and Pulley Company, same place. Filed Aug. 31, 1893. Serial No. 484,435. (No model.)

Claim.—In mechanism for coupling friction clutches, the combination with the shifting sleeve between the clutches and the operating levers of the clutches, of slotted links connecting said shifting sleeve with said operating levers, and engaging shoulders on said levers and links, substantially as and for the purposes set forth.

520,528.

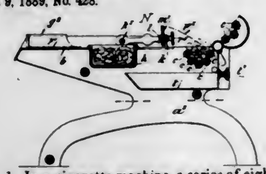


520,529. WRENCH. KARL A. KLOSE, Richfield, Minn. Filed Feb. 26, 1894. Serial No. 501,547. (No model.)



Claim.—The adjustable pipe wrench, comprising the jaw, having the two parallel and curved branches provided on their inner sides with parallel slide bearings, and also having the cross bar arranged in the curved portion of said branches, in combination with the slidable jaw, having the head constructed to slide below the under sides of said parallel branches, and also having the handle provided with teeth on its under side, and the ear or projection above the jaw carrying the studs or cross pin, and the spring secured to the parallel branches and adapted to bear on the handle at a point in rear of the cross bar in the parallel branches, all adapted to operate, substantially as specified.

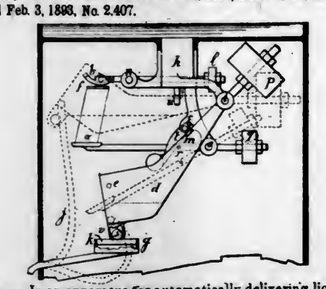
520,530. CIGARETTE-MAKING MACHINE. HENRI F. M. LEMAIRE, Paris, France. Filed Nov. 27, 1893. Serial No. 492,089. (No model.) Patented in France Feb 19, 1883, No. 153,811, and in England Jan. 9, 1889, No. 428.



Claim.—1. In a cigarette machine, a series of eight rollers forming a nearly cylindrical section, a part of them being secured to a fixed support and the remainder to a support hinged above them, in combination with a table arranged in proximity to the said rollers, a wrapper carrier and glue holder consisting of two parts clamped together so as to hold a stick of glue between them and supports for the said wrapper carrier and glue holder which permits the latter to be turned over in one direction so as to come into contact with the pile of wrappers on the said table and turned over in the other direction to present a glued wrapper to the said rollers substantially as set forth.

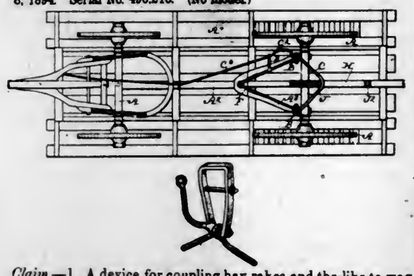
2. In a cigarette machine, the combination of a table and a series of rollers arranged at the end thereof to form a nearly cylindrical section, with a pair of shafts mounted in the said table, a movable plate *k* supported on the said shafts, and a bar *l* clamped to the said piece to hold a stick of glue between them, the said shafts allowing the said piece and bar, constituting the wrapper carrier *N*, to be turned over in one direction to the pile of wrappers on the table and turned over in the other direction to present a wrapper to the rollers substantially as set forth.

520,531. AUTOMATIC DISTRIBUTER FOR LIQUIDS. PHILIPPE LEONI, Paris, France. Filed Mar. 27, 1893. Serial No. 467,807. (No model.) Patented in France June 16, 1892, No. 222,394, and in England Feb. 3, 1893, No. 2,407.



Claim.—In an apparatus for automatically delivering liquids the combination with a pivoted delivery bucket, of a reservoir mounted above said bucket, a valve in said reservoir operated by the ascent of said bucket so that the latter receives a fixed quantity of liquid, a pivoted weighted lever a tumbler *b* mounted thereon to engage a projection of said bucket, a pivoted catch *l* for supporting said bucket, means for actuating said catch to release said bucket, and a valve *s* and its support *k* for causing the delivery of the contents of said bucket.

520,532. DEVICE FOR CONNECTING HAY RAKES AND LOADERS WITH WAGONS. MARCELLUS MANN, Clearfield, Iowa. Filed Jan. 8, 1894. Serial No. 496,210. (No model.)

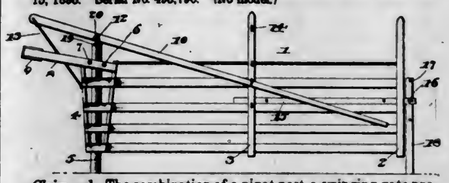


Claim.—1. A device for coupling hay rakes and the like to wagons, comprising a bar pivoted beneath the wagon and bowed downwardly at its central portion, a rope connected therewith and extended upwardly to the top of the wagon, by which said bar may be operated, a hay rake tongue having means for supporting it in an approximately horizontal position and a hook on its forward end adapted to be engaged by said bar, and when the bar is elevated support the tongue for the purposes stated.

2. A device for coupling hay rakes and the like to wagons, comprising a bar pivoted beneath the wagon and bowed downwardly at its central portion, a rope connected therewith to operate the bar, a hay rake tongue having an upright secured thereto for the purposes stated, and a hook formed on or fixed to its forward end, for the purposes stated.

3. A device for coupling hay rakes and the like to wagons, comprising suitable hangers adapted to be detachably secured to the hounds of a wagon, a bar pivotally mounted in said hanger bowed downwardly at its central portion and having one of its ends projecting upwardly, braces to secure said hanger in place, a rope fastened to said end portion, a hay rake tongue and support projecting downwardly therefrom, and a hook formed at its forward end, all arranged and combined substantially in the manner set forth, for the purposes stated.

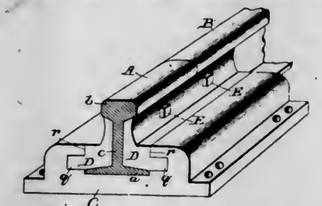
520,533. GATE. JOHN H. MORRIS, Maquoketa, Iowa. Filed Dec. 15, 1893. Serial No. 493,790. (No model.)



Claim.—1. The combination of a pivot post, a swinging gate provided at its rear end with a tapering frame receiving the pivot post, pins mounted on the frame and located at opposite sides of the pivot post, one of the pins being removable for the purpose shown, an arm extending from the top of the gate and provided with a counterbalancing weight, a lever fulcrumed on the pivot post and arranged above the gate and having its rear end connected with the latter, and means for detachably securing the front portion of the lever to the gate, substantially as described.

2. The combination of a pivot post, a gate provided at its rear end with a tapering frame receiving the pivot post, an arm extending rearward from the gate and provided with a counterbalancing weight, a vertical pivot mounted at the top of the pivot post, a lever hingedly connected with the pivot and adapted to swing vertically on the same, and to swing horizontally on the pivot post, and having its rear end connected with the gate, and a series of catches mounted on the gate for detachably engaging the lever, substantially as and for the purpose described.

520,534. RAILROAD-CHAIR. AMOS F. NAYLOR, Brandywine Hundred, Del. Filed Nov. 6, 1893. Serial No. 490,068. (No model.)

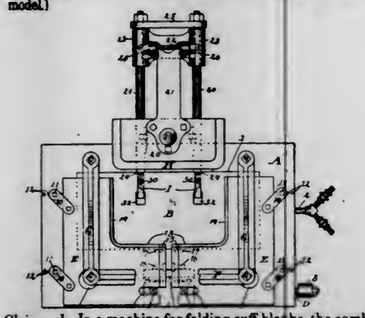


Claim.—1. A railroad rail having base, web, tread, and recess in the bottom of its base, a rail chair having a central depressed channel *d* of the same width as the rail base, vertical ribs *e e* on either side of said channel, horizontal ledges *f f* between said channel and said ribs *e e* respectively, the surfaces of said ledges being flush with the upper surface of the rail base, overhanging flanges *g g* extending inwardly from said ribs *e e* whereby rectangular longitudinal grooves *h h* are formed between said flanges and said ledges, said flanges *g g* having vertical inner walls and the distance between said inner walls being as great at least as the width of said channel *d*, and a stud *i* projecting upwardly from the face of said channel and engaging the recess in the bottom of the rail, in combination with fastening keys D, D, which occupy the space between the rail on each side thereof and said chair, each key seating directly upon the rail base, and each key having a longitudinal flange *p* which fits under the rail tread, a longitudinal rectangular tongue *q* which fits in one of said grooves *h*, and a longitudinal vertical shoulder *r* which fits against the inner vertical wall of one of said flanges *g*, substantially as set forth.

2. Two abutting rails, each having base, web, tread, and a bolt-hole, and one at least having a recess in the bottom of its base, a rail chair having a central depressed channel *d* of the same width as the rail base, vertical ribs *e e* on either side of said channel, horizontal ledges *f f* between said channel and said ribs respectively, the surfaces of said ledges being flush with the upper surfaces of the rail bases, overhanging flanges *g g* extending inwardly from said ribs *e e* whereby rectangular longitudinal grooves *h h* are formed between said flanges and said ledges, said grooves however being of a length less than the length of the chair so that a registering stop *m* is formed at one end of each groove, said flanges *g g* also having vertical walls which are separated by a space as wide at least as said channel *d*, and a stud *i* projecting upwardly from the face of said channel and engaging the recess in the bottom of the rail provided with a recess, in combination with fastening keys D, D, which occupy the space between the rails on each side thereof and the chair, each key seating directly upon the bases of the two rails, each key having a longitudinal flange *p* which fits under the treads of the rails, said flange having bolt-holes which register with the bolt-holes in the rails, each key having a longitudinal rectangular tongue *q* of a length less than the length of

the key, so that a recessed shoulder *s* is formed at one end thereof, said tongue fitting in one of said grooves *h* with its shoulder abutting against one of said registering stops *m*, and each of said keys having a longitudinal vertical shoulder *r* which fits against the inner vertical wall of one of said flanges *g*, and bolts which extend through the bolt-holes in said keys and rails, substantially as set forth.

520,535. MACHINE FOR TURNING CUFF-BLANKS. GEORGE E. NORRIS, Troy, N. Y. Filed Oct. 27, 1893. Serial No. 489,245. (No model.)



Claim.—1. In a machine for folding cuff-blanks, the combination of a bed-piece, a movable head fitted to slide vertically in an opening in said bed-piece, a pair of folding-plates arranged to move diagonally toward each other, swinging-links pivoted to said folding-plates and bed-piece; said folding plates having an opening which conforms to the shape of the folded cuff-blank, a templet having the form of a folded cuff-blank and arranged to be moved over and depressed into the opening of said folding-plates, and levers fitted to press the movable-bed upwardly against the lower face of said folding-plates, substantially as specified.

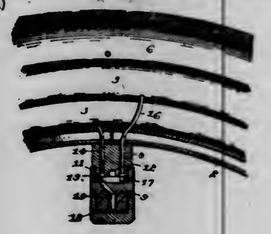
2. In a machine for folding cuff-blanks, the combination of a bed-piece, a pair of folding-plates fitted to move diagonally toward each other; each of said folding-plates being pivotally connected to one end of a pair of swinging-links which have their opposite ends adjustably pivoted to said bed-piece, and a sliding-plate fitted to move transversely on said said bed-piece and to impart corresponding movements to said folding-plates, as and for the purpose specified.

3. In a machine for folding cuff-blanks, the combination of a bed having grooves in its upper face, adjustable spring-guides which are depressible in said grooves, a pair of diagonally-sliding folding-plates provided with an opening which conforms to the form of a folded cuff-blank, and a templet that conforms to the shape of a folded cuff-blank and is depressible into the opening of said folding-plates; whereby an initial fold will be formed on the edge of a cuff-blank, as and for the purpose specified.

4. In a machine for folding cuff-blanks, a pair of folding-plates arranged to move toward each other and each having a detachable piece attached to their contacting ends; whereby said folding-plates can be adapted to folding cuff-blanks of different lengths, substantially as specified.

5. In a machine for folding cuff-blanks, the combination of a pair of folding-plates connected to the bed-piece of the machine by means of swinging-links and fitted to move diagonally toward each other; the abutting end of each of said folding-plates having a slotted-opening formed therein, a sliding-plate fitted to move in the bed-piece of the machine and provided with studs fitted to take in said slotted-openings, and a rocker-shaft provided with an arm adapted to engage with said sliding-plate in such manner that a reciprocating movement can thereby be imparted to the latter, as and for the purpose specified.

520,536. PNEUMATIC TIRE. JOSEPH H. PIERCE and AMOS J. DICKSON, Glenwood Springs, Colo. Filed Oct. 6, 1893. Serial No. 487,377. (No model.)



Claim.—1. A pneumatic tire, comprising a flexible external covering or tube, a plurality of separate integrally formed expansible tubes arranged within the external covering or tube, and a common valve plug provided with separate channels and communicating with each of the expansible tubes and having an automatic check valve arranged to close any one of the channels, substantially as described.

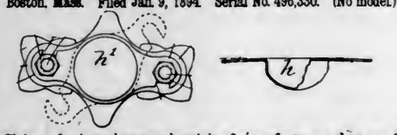
2. In a pneumatic tire, the combination with the external tube, the plurality of independently expansible tubes, a less number than all of which is capable of expanding to fill the external tube, of a rim, a valve-plug seated in the rim having perforations, feed-tubes leading from the perforations to each of the expanding tubes, said perforations terminating at a common point or chamber, and a loose ball located in the chamber and adapted to close any one of said perforations, substantially as specified.

3. In a pneumatic tire, the combination with the external tube, the plurality of independent non-communicating expanding tubes, a less number than all of which is capable of expanding to completely fill the external tube, of a rim, a valve-plug seated in the rim and provided with perforations, feed-tubes leading from the perforations to each of the expanding tubes, means for closing any one or more of the perforations and for connecting a pump with said valve-plug, substantially as specified.

4. In a pneumatic tire, the combination with an external tube, a series of internal expanding tubes, a less number than the whole of which is capable of being expanded to fill the external tube, and a rim, of a plug let into the rim and having an outer threaded end, an annular channel, and a series of perforations in said channel, tubes leading from the perforations to the expanding tubes, a ball loosely mounted in the channel, a cylindrical member threaded on the plug and having a valved bore leading to the channel and at its outer end adapted to engage with the pump, and a cap arranged removably on said threaded end, substantially as specified.

5. In a pneumatic tire, the combination with an external tube, a series of internal expanding tubes, a less number than the whole of which is capable of being expanded to fill the external tube, and a rim, of a plug let into the rim and having an outer threaded end, an annular channel, a concentric cavity, and a series of perforations in said channel, tubes leading from the perforations to the expanding tubes, a ball loosely mounted in the channel, a cylindrical member threaded on the plug and having a valved bore leading to the channel and at its outer end adapted to engage with the pump, and a cap arranged removably on said threaded end, substantially as specified.

520,537. DUST-GUARD FOR PEDAL-BEARINGS. HARRY M. POPE, Hartford, Conn., assignor to the Pope Manufacturing Company, Boston, Mass. Filed Jan. 9, 1894. Serial No. 496,330. (No model.)



Claim.—1. As an improved article of manufacture, a dust cap for a pedal bearing made of sheet metal and comprising a recessed central portion adapted to cover the spindle end, and arms extending on opposite sides of the center, each arm having a lateral slot on the edge toward which the outer edge of the nut turns in tightening to attach said dust cap to the pedal end, the said recessed central portion of the cover and the slots registering with the spindle end and the ends of the pedal rubber bolts respectively, all substantially as described.

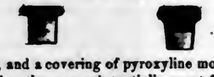
2. In combination in a pedal for velocipedes, the pedal pin bearings in the end piece, the bolt ends extending therethrough, nuts screwed on the bolt ends, and a dust cap with a recessed bearing cover and with arms having each on opposite edges a lateral slot adapted to engage the bolt ends and underlie the nuts, the arms being normally turned away from the end piece, substantially as set forth.

3. In combination in a pedal for velocipedes, a pedal pin and end piece, the pedal bearings in the end piece and on the spindle end respectively, the anti-friction balls located in the ball-race between such bearings, the pedal rubber bolts extending through the pedal end, nuts screwed on the bolt ends, and a dust cap with a recessed bearing cover adapted to overlie and cover the end of the pedal spindle and its bearing, arms projecting beyond the pedal rubber bolts and having sockets adapted to engage the bolt ends, the said arms being normally turned outward from the end piece, all subtantially as described.

520,538. EYELET. EBERHARD L. PUPKE, New York, N. Y. Filed Feb. 8, 1892. Serial No. 420,758. (No model.)

Clvim.—1. As an improved article of manufacture, a lacing eyelet having a ledge extending inwardly from the setting flange, and a plastic covering anchored to said ledge, as set forth.

2. A lacing eyelet comprising a tubular metal body having at the top an outwardly extending setting flange, an anchorage integral



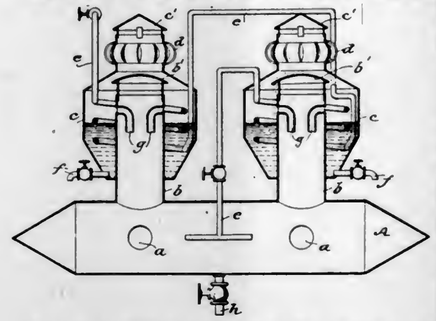
with said flange, and a covering of pyroxyline molded to said flange and beneath said anchorage, substantially as set forth.

520,539. HOOK. JOHN M. REID, Jacksonville, Ill. Filed Jan. 11, 1894. Serial No. 496,532. (No model.)



Claim.—The combination with the U-shaped hook, of a U-shaped guard pivoted on one end of the hook and arranged concentrically therewith and having a transverse shoulder near its pivot, the end of the guard being adapted to extend across the opening of the hook.

520,540. DISINFECTING APPARATUS. RUDOLPH A. ROSENBLATT, New York, N. Y. Filed Dec. 7, 1893. Serial No. 493,028. (No model.)



Claim.—1. A disinfecting and odor-dispelling apparatus, comprising one or more blowers located immediately within the building containing the odor-impregnated air, one or more vessels of tar secured to the outside of the building and opening into the outer air, flues connecting the said vessels to the interior of the building, and steam connections from the said building to the said tar vessels, substantially as shown and described.

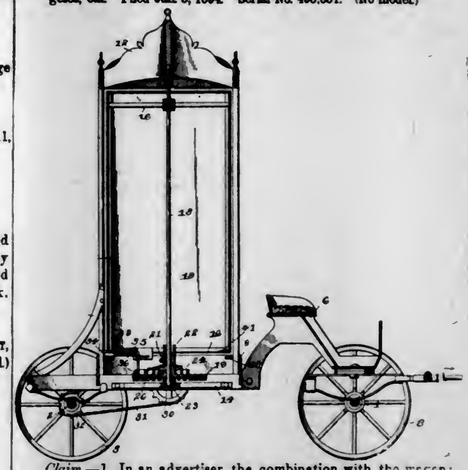
2. A disinfecting and odor-dispelling apparatus, comprising a chamber having a steam-jet opening thereinto, flues connecting the steam chamber to one or more vessels of tar opening into the outer air, steam-pipes surrounding the said vessels to heat the same, pipes connecting the steam-chamber with the odor-impregnated air, and one or more blowers located immediately within the building containing the odor-impregnated air, substantially as shown and described.

3. A disinfecting and odor-dispelling apparatus, consisting of a cylindrical chamber connecting with the odor-impregnated air; one or more flues extending upward from the said chamber and surrounded by receptacles adapted to receive tar, a steam pipe entering the receptacles and coiled around the flues and opening into the steam chamber, and one or more blowers adapted to force the impure air and the steam through the receptacles substantially as shown and described.

4. A disinfecting and odor-dispelling apparatus, consisting of a cylindrical chamber connecting with the odor impregnated air, one or more flues extending upward from the said chamber and surrounded by receptacles adapted to receive tar, the said flues and receptacles being each provided with a raised dome, a steam-pipe entering the said receptacles and coiled around the flues, afterward opening into the steam chamber, and one or more blowers adapted to force the impure air through pipes into the steam chamber and through the receptacles, substantially as shown and described

5. A disinfecting and odor-dispelling apparatus consisting of a cylindrical chamber adapted to be suspended from the outer wall of a building, pipes connecting it with the odor-impregnated air, one or more flues extending upward from the said chamber and provided with raised domes and with overflow pipes, tar-receptacles surrounding the said flues and provided with raised domes and ventilators at the top, a steam-pipe entering the said receptacles and coiled around the flues, the said steam pipe also extending and opening into the steam chamber, and one or more blowers adapted to force the impure air through pipes into the steam chamber and through the receptacles, substantially as shown and described.

520,541. ADVERTISING-WAGON. JOHN N. RUSSELL, Los Angeles, Cal. Filed Jan. 5, 1894. Serial No. 495,851. (No model.)



Claim.—1. In an advertiser, the combination with the wagon; of a stationary frame mounted on the body of the wagon, a revoluble spring-rotated advertising frame mounted to rotate within the stationary frame, gearing connected with one of the wagon wheels and the actuating spring of the advertising frame to provide for maintaining the tension of the spring to rotate the advertising frame, a lock device mounted on the advertising frame and adapted to normally engage with parts of the stationary frame, and a trip device carried by said gearing and brought into engagement with the lock device at intervals to disengage the same from said stationary frame, substantially as set forth.

2. In a machine of the class described, the combination with the wagon; of a stationary frame mounted on the body of the wagon and provided with a series of spaced posts, a revoluble advertising frame mounted to rotate within the stationary frame, a suitably arranged coiled actuating spring connected to said advertising frame to revolve the same, gearing connected with one of the wagon wheels and with the actuating spring of the advertising frame, a spring projected lock bolt mounted on the advertising frame and adapted to engage normally at one side of the posts of the stationary frame, and a trip cam carried by one of the wheels of the gearing and adapted to engage with said bolt at intervals to disengage the same from the posts of the stationary frame, substantially as set forth.

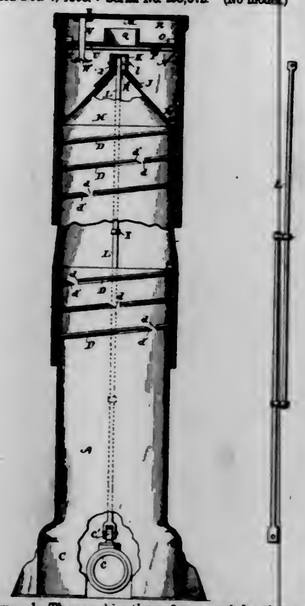
3. The combination with the opposite beams, the front and rear axles and their supporting-wheels, the upper and lower rectangular frames, the intermediate posts, the lower frame between the beams having a central bearing, a rotatable shaft arranged in the bearing, a master-gear arranged loosely on the shaft, a short transverse shaft arranged in one of the side beams, a gear at the inner end thereof engaging the master-gear, a sprocket wheel at the outer end, a sprocket-wheel on the axle and a sprocket-chain connecting the same with the sprocket wheel of the short shaft, of the rigid frame arranged on the beams, comprising the upper and lower rectangular base and crown-frames, intermediate posts, the upper and lower X-shaped frames, the former arranged loosely on the shaft, and the latter of which has its hub secured rigidly on the shaft, the corner frame bars engaging the extremities of the arms of these upper and lower X-shaped frames, the advertising panels removably secured to the frame-bars, the convolute actuating spring secured at one end to the hub of the lower X-shaped frame and at its opposite end to the master-gear, the opposite keepers arranged on an arm of the lower X-shaped frame, the L-shaped bolt arranged in the keepers, the coiled spring for actuating the same so as to engage at one side of the posts of the stationary frame, and the curved cam-flange arranged on the upper side of the master-gear and adapted to engage with one end of said bolt to retract the same at intervals, substantially as specified.

4. In a machine of the class described, the combination with the outer wheeled frame, of the inner automatically revolved advertising frame having shouldered check-notches at the bottom lower corners thereof, means for automatically checking the forward rotation of the advertising-frame, at intervals and a stationary upwardly pressing check-spring arranged below the advertising frame and adapted to engage any of the notches of the advertising-frame to prevent the backward rotation thereof, substantially as set forth.

5. In a machine of the class described, the combination with the wagon; of a stationary frame mounted on the body of the wagon and

provided with a series of spaced posts, a revoluble advertising frame mounted to rotate within the stationary frame, a suitably arranged master wheel geared with one of the wagon wheels, an actuating-spring connected to said master wheel and to the advertising frame to revolve the latter, a spring-actuated L-shaped lock-bolt mounted on the advertising frame and adapted to engage at one side of the posts of the stationary frame, and a curved cam flange projected from the upper side of the master wheel and adapted to engage the inner end of said bolt at intervals, substantially as set forth.

520,542. STOP-COCK BOX. THOMAS J. RYAN, Buffalo, N. Y. Filed Dec. 7, 1893. Serial No. 493,072. (No model.)



Claim.—1. The combination of two upright pipe sections, one of which is provided with a set of exterior threads interrupted at intervals with dirt escape openings, and the other of which is provided with diametrically opposite vertical rows of pointed or conical screw lugs or projections engaging said exterior threads and adapted to ride over said dirt escape openings, said dirt escape openings being arranged out of alignment so as not to substantially interrupt the continuity of the threads, and to prevent the lugs or projections from passing therethrough, substantially as set forth.

2. In a box or receiver of the class described, the combination of the upper and lower pipe sections adjustably connected together, the lower of said pipe sections having a section of screw threads or ribs provided at intervals with dirt escape openings and upper beveled edges at the lower sides of said openings, the latter being arranged out of alignment with each other so as not to substantially interrupt the continuity of the screw threads or ribs, and the upper of said pipe sections being provided on its inner side with diametrically opposite vertical rows of pointed screw lugs or projections, and at its extreme lower end with an additional set of such lugs or projections, substantially as set forth.

3. In a box or receiver of the class described, the combination of the separate pipe sections adjustably connected together, the lower of said sections having a set of exterior threads provided at intervals with openings, and the other of which sections is provided with diametrically opposite vertical rows of pointed screw lugs engaging said exterior threads, and a removable U-shaped locking key or staple adapted to embrace the upper edge of said lower section and having the outer prong thereof disposed in one of the openings of the uppermost thread and in the path of the screw lugs on the upper section, substantially as set forth.

4. In a stop-cock box, the combination with the upper and lower box sections adjustably fitted together; of a pipe cover removably fitted on the upper end of the lower pipe section, the turning rod or key adapted to be connected to a stop cock and projecting above said pipe cover, and a turning cap arranged over the pipe cover and fitted to the upper end of said turning rod or key, substantially as set forth.

5. The combination with the upper and lower pipe sections of a stop cock box, adjustably fitted together, and a removable locking key or staple arranged between the threads of the pipe sections; of a flanged conical pipe cover removably supported on the upper end of the lower pipe section and having a key opening near one edge adapted to receive one side of said locking key or staple, a rod opening at its apex, and a projecting stop-stud below said rod opening, the turning rod or key adapted to be connected to a stop cock and projecting above said pipe cover, a conical turning rod cap working above the apex of the pipe cover and having a polygonal rod neck fitted on the upper end of said turning rod or key and a limiting slot working over said stop stud, substantially as set forth.

6. In a stop-cock box, the combination with the upper and lower box sections having interior screw lugs and exterior thread ribs, respectively, an intermediate adjustable extension section having exterior threads engaging the lugs of the upper section and interior screw lugs engaging the threads of the lower section, an extensible turning rod or key adapted to be arranged within the box and connected to a stop cock and a locking device to secure the adjustable sections from turning after their adjustment, substantially as set forth.

7. In a stop-cock box, the pipe section having an interior shoulder at its upper end, a combined dirt and lock plate adapted to be removably locked on said interior shoulder and having a brass nut, the flanged box cover, and a locking screw adapted to pass through a perforation in the cover and engage said brass nut, said screw having a lower split end adapted to be clinched out to prevent entire removal, substantially as set forth.

8. In a stop-cock box, the pipe section having an interior shoulder at its upper end and inwardly projecting lock lugs immediately above said shoulder, a plate having a squared key neck, and guide notches in its edges adapted to be turned in and out of alignment with said lock lugs, a brass nut having double beveled edges adapted to be cast into the body of said plate, the flanged box cover fitting over the upper end of said pipe section out of contact with the neck of said plate and having a gas escape opening, and a locking screw adapted to pass through a perforation in said cover and engage the threads of said brass nut, said screw having a lower split end adapted to be clinched out, substantially as set forth.

9. In a stop-cock box, the combination with the pipe or box section; of a nut arranged within the pipe or box section below its upper end, the flanged box cover, and a squared or polygonal combined pivot and locking screw adapted to pass through a perforation in the cover and engage said nut, said locking screw being slightly tapered toward its lower end and provided with blank unthreaded faces, and a line of threads at the angles or corners thereof to adapt the same for tapping its own hole in said nut, substantially as set forth.

10. The combination with a pipe or receiver section; of a brass nut held in position within the pipe or receiver section below its upper end, the flanged box cover, and a squared or polygonal locking screw adapted to pass through a perforation in the cover and to tap its own hole in said nut, said locking screw having a slightly tapered split lower end, blank unthreaded faces, and threads at the angles or corners thereof, substantially as set forth.

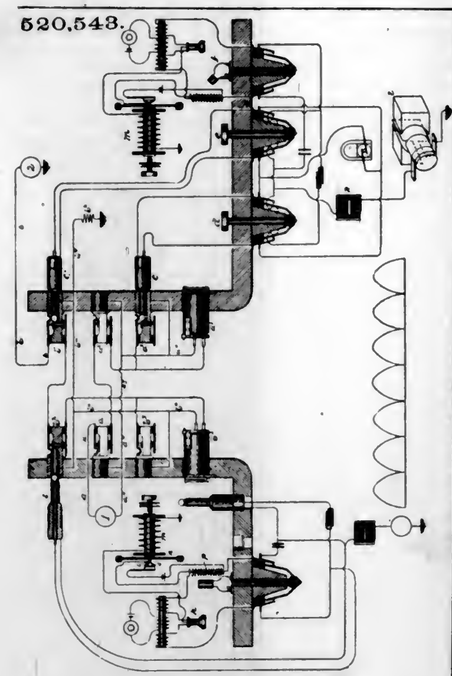
520,543. TESTING SYSTEM FOR MULTIPLE SWITCHBOARDS. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Aug. 24, 1891. Serial No. 403,585. (No model.)

Claim.—1. In combination, an electrically connected series of test rings of spring jacks, a branch connection from one test ring to earth including a source of pulsating electro motive force, a branch connection from another of the test rings to earth including a coil of an electro magnet, a transmitter provided with a diaphragm adapted to be attracted to and to strike against the pole of the magnet and with contacts included with a battery and a coil adapted to act inductively upon the circuit of the operator's telephone, substantially as and for the purpose specified.

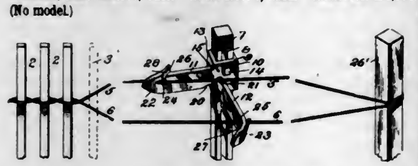
2. A test circuit for multiple switch boards including a source of pulsating electro motive force of such character as not to be audible in a telephone included in its circuit, in combination with an electro magnet included in the test circuit adapted to cause the diaphragm of a telephone transmitter to vibrate against said magnet when energized, said transmitter being included in a local circuit with a battery and a coil adapted to act inductively upon the circuit of the operator's telephone, and conductors completing the test circuit, substantially as and for the purpose specified.

3. As a responsive device for test circuits of multiple switch boards, an electro magnet having a coil included in the test circuit, in combination with a transmitter having a diaphragm of magnetic material adapted to vibrate against the pole of said magnet, the contacts of said transmitter being included in a local circuit with a battery and a coil adapted to act inductively upon the circuit of a telephone, substantially as and for the purpose described.

520,543.



520,544. WIRE-AND-PICKET-FENCE MACHINE. GEORGE E. SIMMONS, East Monroe, Ohio. Filed Nov. 7, 1892. Serial No. 451,191. (No model.)



Claim.—1. A wire weaving device consisting of the body portion 10, and the arms 11 and 12, said arms forming an angle, and each formed with an eye near its outer end and a slot communicating with said eye, substantially as described.

2. A wire-weaving device with arms 11 and 12, each of said arms having respectively a curved or inclined surface 22 or 23 near its outer end, and a notch or depression 20 or 21 near its inner end, as and for the purposes set forth.

3. A wire-weaving device with arms 11 and 12, said arms having respectively eyes or openings near their outer ends, curved or inclined surfaces 22 and 23, and notches or depressions 20 and 21, as and for the purposes set forth.

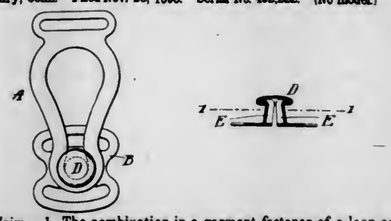
4. A wire-weaving device consisting of the portion 10 with the arms 11 and 12, said arms forming an angle and having eyes or openings near their outer ends, the surfaces 22 and 23 at their outer ends curved or inclined with reference to the plane of the arms, and the notches or depressions 20 and 21 near their inner ends, and the upright staff 7 with handle 17, as and for the purposes set forth.

5. A wire-weaving device with arms 11 and 12, said arms having eyes or openings near their outer ends, slots 26 and 27 communicating with said eyes or openings, and ears or projections 28 and 29 designed to prevent the wires from slipping out from said eyes or openings, as and for the purposes set forth.

6. A wire-weaving device with arms 11 and 12, said arms having eyes or openings 24 and 25, tapering or wedge-shaped outer ends, enlarged central portions, and notches or depressions 20 and 21 at their inner ends, as and for the purposes set forth.

7. A wire-weaving device with arms 11 and 12, said arm 11 having an eye or opening 24 near its outer end, and a notch or depression 20 on its under side and near its inner end, and said arm 12 having an eye or opening 25 near its outer end and a notch or depression 21 on its upper side and near its inner end, said eye or opening 24 being in the same horizontal plane with the notch or depression 21, and said eye or opening 25 being in the same horizontal plane with the notch or depression 20, as and for the purposes set forth.

520,545. GARMENT-FASTENER. EDWARD F. SMITH, Waterbury, Conn. Filed Nov. 28, 1893. Serial No. 492,222. (No model.)



Claim.—1. The combination in a garment fastener of a loop as described secured to a supporting tape, with a stud consisting of a base and head portion connected together by a laterally flexible shank, the base portion of the stud being adapted to be secured to the supporting tape, substantially as and for the purpose specified

2. The combination in a garment fastener of a loop A, the space within which is contracted at an intermediate point between the ends of the loop, with the stud consisting of a base B, two or more uprights E E separated at a slight interval from each other, the upper extremities being turned outwardly over which a head is secured, substantially as described.

520,546. CORN BROOM. JOHN L. STEVENSON, Chicago, Ill. Filed Dec. 14, 1893. Serial No. 493,641. (No model.)

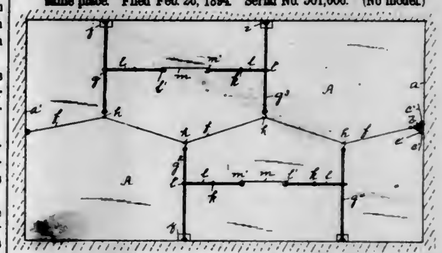


Claim.—1. The combination, with a broom, of a former applied to the broom-fiber and bent substantially as shown and described, whereby the broom-head is bent at an angle to the handle and maintained in its bent position.

2. A bender or former for brooms, consisting of a metal back provided on one side at each end with cross-loops adapted to receive the broom-head, substantially as described.

3. As an improved article of manufacture, a corn-broom, the fiber-head of which is permanently bent and beveled at its sweeping edge to form a push-broom.

520,547. FIRE-ALARM APPARATUS. FREDERICK J. THUNHORST, Allegheny, Pa., assignor of one-half to Charles J. Weltershausen, same place. Filed Feb. 26, 1894. Serial No. 501,606. (No model.)

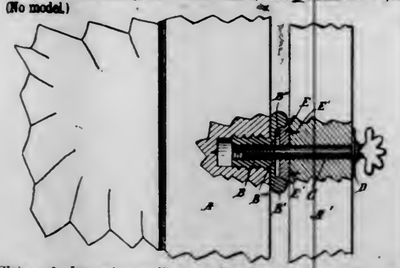


Claim.—1. In fire alarm apparatus, the combination with an electric signal, of a spring arm adapted to close the electric circuit, a wire secured to said arm and to a fixed support, a series of tension cords of inflammable material engaging said wire and drawing said wire sufficiently taut to cause said arm to break said circuit, inflammable cords connecting said tension cords, and non-combustible links between the ends of said connecting cords, substantially as and for the purposes set forth.

2. In fire alarm apparatus, the combination with an electric signal, of a spring arm adapted to close the electric circuit, a wire secured to said arm and to a fixed support, a series of tension cords of inflammable material engaging said wire and drawing said wire sufficiently taut to cause said arm to break said circuit, non-combustible links having hooked ends, and inflammable cords engaging the ends of said links and connected to said tension cords, substantially, as and for the purposes set forth.

3. In fire alarm apparatus, the combination with an electric signal, of a spring arm adapted to close the electric circuit, a wire secured to said arm and to a fixed support, a series of tension cords of inflammable material engaging said wire and drawing said wire sufficiently taut to cause said arm to break said circuit, non-combustible links having hooked ends adapted to be suspended from a suitable support, and inflammable cords engaging the ends of said links and connected to said tension cords, substantially as and for the purposes set forth.

520,548. MIRROR-ADJUSTING DEVICE. FRED W. TOREY and DANIEL W. TOWER, Grand Rapids, Mich., assignors to the Grand Rapids Brass Company, same place. Filed June 8, 1893. Serial No. 477,010. (No model.)

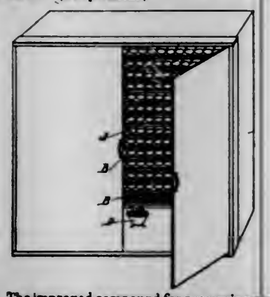


Claim.—1. In a mirror adjuster, a head having a conical recess and adapted to be secured to the mirror frame, a conical washer engaging said recess and adapted to be secured to the post and support the mirror, and a binding screw to pass through said post, and force said head and washer into frictional contact, substantially as described.

2. In a mirror adjuster, the combination of a nut, or bushing, screw threaded on its outer surface, provided with a screw driver slot at its outer end, and having a threaded axial opening; a head on the outer end of said nut, a conical depression in said head, a washer in frictional contact with the surfaces of said depression, means of securing said washer, a pivot screw and a collar on the outer end of said screw, substantially as described.

3. In combination with a mirror frame and a post supporting the same; a nut inserted in the frame, having outer screw threads, and a screw threaded axial opening, an enlarged outer head on said nut and between said frame and post, a conical recess in said head, a conical washer engaging the sides of said recess, spurs on said washer inserted in said post, a pivot screw loosely journaled in said post, having screw threads engaging said threaded opening in said nut, and a collar near the outer end of said pivot screw engaging the side of said post, substantially as described.

520,549. COMPOUND FOR AND METHOD OF PRESERVING EGGS. FRANCIS M. UNDERWOOD, Pasadena, Cal. Filed Mar. 5, 1894. Serial No. 502,327. (No specimens.)

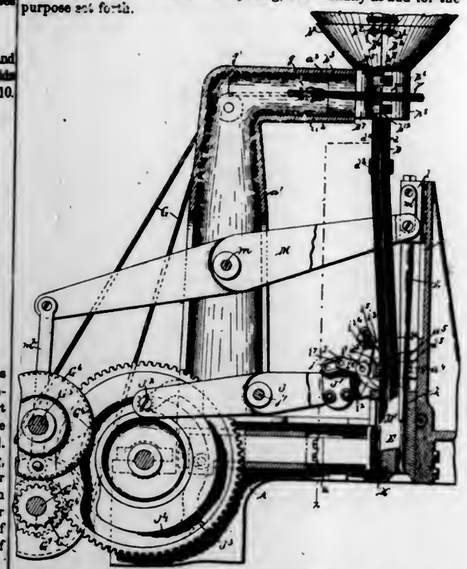


Claim.—1. The improved compound for preserving eggs set forth, consisting of nitrate of strontium, oil of eucalyptus and pulverized cassia bark.

2. The improvement in the art of fumigating eggs which consists in subjecting the eggs to fumes or vapors arising from the combustion of nitrate of strontium, oil of eucalyptus and cassia bark.

520,550. CORK-FEEDER. SOL. WILE and HENRY LA CASSE, Rochester, N. Y. Filed June 20, 1893. Serial No. 437,247. (No model.)

Claim.—1. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, and consisting of a lower fixed section and a detachable upper section a feeding tube formed with a series of lengthwisely extending slots for reducing the internal bearing face thereof, and a revoluble feeder within said casing for feeding the articles, said feeder consisting of an outer spirally bent body having a central feeding passage and an opening from the outside of said body to the central opening, whereby, when the feeder is operated, the articles feed through the latter opening or openings into the central opening, substantially as and for the purpose set forth.



2. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, and consisting of a lower conical section and an upper section having a conical lower extremity detachably secured to the lower section and provided with an exit opening, a movable feeder for feeding the articles through the exit, and a feeding tube opening from said exit and formed with a series of upwardly extending slots for reducing the internal bearing face thereof, and facilitating the passage of articles fed through the exit of the casing, substantially as and for the purpose specified.

3. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, and consisting of a lower conical section provided with an exit opening, and an upper section having a conical lower extremity, clamps for securing said sections together and a movable feeder for feeding the articles through the exit, a feeding tube opening from said exit and formed with a series of separated inwardly projecting bearing faces of rounding cross section for reducing the internal bearing surface thereof and facilitating the passage of articles fed through the exit of the casing, substantially as and for the purpose specified.

4. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, and consisting of separable upper and lower sections, one of which is provided with an exit opening, clamps for removably securing the sections together and a movable feeder for feeding the articles through the exit, a feeding tube opening from said exit composed of a series of upright bars, and suitable supports for holding said upright bars in position, substantially as and for the purpose set forth.

5. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, and consisting of a conical lower section and provided with an exit opening, and an upper section having a lower conical extremity detachably secured to the lower section a movable feeder for feeding the articles through the exit, and a feeding tube leading from said exit and formed with a downwardly extending arm at one side of its discharge extremity, substantially as and for the purpose set forth.

6. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, provided with an exit opening, a movable feeder for feeding the articles through the exit opening, a feeding tube opening from said exit composed of a series of upright bars and provided with an arm at one extremity of its discharge end formed by projecting ends on the bars at said side of the discharge end, and a support or collar having grooves in its inner periphery for receiving and holding said upright bars in position, substantially as and for the purpose specified.

7. In a feeding device, the combination of an inclosing casing or shell, within which the articles to be fed are placed, consisting of lower and upper sections detachably secured at their adjacent extremities, one of the sections being provided with an exit opening, a feeder for feeding the articles through the exit of the casing, a feeding tube leading from said exit and formed with a downwardly extending arm at one side of its discharge extremity, and a movable plunger arranged opposite to said arm, substantially as and for the purpose set forth.

8. In a feeding device, the combination of an inclosing casing or shell, within which the articles to be fed are placed, provided with an exit opening, a feeder revolving within said casing for feeding the articles having an opening at one extremity through which the articles pass and an actuating wheel provided with a hollow hub secured to the lower extremity of the feeder, and registered with said opening in the extremity of the feeder, whereby the articles feed from said opening through the hollow hub of the actuating wheel, substantially as and for the purpose specified.

9. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, a feeder revolving within said casing for feeding the articles, said feeder consisting of an outer spirally bent body having a central feeding passage and an opening from the outside of said body to the central passage, whereby, when the feeder is operated, the articles feed through the latter opening or openings into the central opening, and an actuating wheel having a hollow hub secured to the lower end of the feeder, whereby the articles pass from the feeder through said wheel, substantially as and for the purpose set forth.

10. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, a feeder revolving within said casing for feeding the articles, said feeder consisting of an outer spirally bent body having a central feeding passage and an opening from the outside of said body to the central opening, whereby, when the feeder is operated, the articles feed through the latter opening or openings into the central opening, an actuating wheel having a hollow hub secured to the lower end of the feeder whereby the articles pass from the feeder through said wheel, and a feeding tube projecting outwardly from said hollow hub, substantially as and for the purpose specified.

11. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, a feeder revolving within said casing for feeding the articles, said feeder consisting of an outer spirally bent body having a central feeding passage and an opening from the outside of said body to the central opening, whereby, when the feeder is operated, the articles feed through the latter opening or openings into the central opening, an actuating wheel having a hollow hub secured to the lower end of the feeder whereby the articles pass from the feeder through said wheel, a feeding tube projecting outwardly from said hollow hub, and a depending extremity on the feeder extending beneath the hollow hub of the actuating wheel and within the upper extremity of the feeding tube, substantially as and for the purpose set forth.

12. In a feeding device, the combination of an inclosing frame or shell, a feeder of greater area at its top than bottom revolving in said frame or shell and provided with a central opening of greater area at its top than at its bottom, and with a subetantially cylindrical opening at its lower extremity for allowing the registration of the articles with said opening and for feeding them in the desired direction, and an actuating wheel secured to the lower extremity of the feeder and formed with an opening at its central portion aligned with the opening in the feeder, substantially as and for the purpose specified.

13. In a feeder, the combination of a suitable inclosing casing or shell, a feeder consisting of a frame surrounding a conical shaped opening, openings provided in said feeder through which the articles feed interiorly into said central opening by the rotation of the feeder frame, and an actuating wheel secured to the lower extremity of said frame and formed with a central opening registered with the lower extremity of the conical shaped central opening, whereby the articles feed from said central opening of the feeder through said actuating wheel, substantially as and for the purpose described.

14. In a feeder, the combination of a suitable inclosing casing or shell, a feeder consisting of a frame surrounding a conical shaped opening, openings provided in said feeder through which the articles feed interiorly into said central opening by the rotation of the feeder frame, an actuating wheel secured to the lower extremity of said frame and formed with a central opening registered with the lower extremity of the conical shaped opening, whereby the articles feed from said central opening of the feeder through said actuating wheel, and a feeding tube extending outwardly from the central opening of the actuating wheel for conducting the articles therefrom, substantially as and for the purpose set forth.

15. In a feeder, the combination of a suitable inclosing casing or shell, a feeder consisting of a frame surrounding a conical shaped opening, openings provided in said feeder through which the articles feed interiorly into said central opening by the rotation of the feeder frame, an actuating wheel secured to the lower extremity of said frame and formed with a central opening registered with the lower extremity of the conical shaped opening, whereby the articles feed from said central opening of the feeder through said actuating wheel, a feeding tube extending outwardly from the central opening of the actuating wheel for conducting the articles therefrom, and a cut-off for discharging one by one the articles fed into said tube, substantially as and for the purpose specified.

16. In a feeding device, the combination of an inclosing casing or shell, a feeder consisting of a frame surrounding a conical shaped opening, openings provided in said feeder through which the articles feed interiorly into said central opening by the rotation of the feeder frame, an actuating wheel secured to the lower extremity of said feeder and formed with a central opening registered with the lower extremity of the conical shaped central opening, whereby the articles feed from said central opening of the feeder through said actuating wheel, and a series of anti-friction rollers engaging the under face of said wheel for supporting the same, substantially as and for the purpose set forth.

17. In a feeding device, the combination of an inclosing casing or shell, within which the articles to be fed are placed, provided with a slot at one extremity, and with an exit opening, an actuating wheel mounted in said slot and journaled in the casing, and a movable feeder connected to said actuating wheel for feeding the articles through the exit opening of the casing, substantially as and for the purpose specified.

18. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, provided with an exit opening, and a slot opening from said exit opening and provided with a shoulder; of an actuating wheel having a hub journaled in said slot and bearing against said shoulder and provided with a central opening aligned with the exit opening of the casing, and a movable feeder having one extremity movable within the casing and the other secured to said wheel, substantially as and for the purpose set forth.

19. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, provided with an exit opening and a slot opening from said exit opening and provided with a shoulder; of an actuating wheel having a hub journaled in said slot and bearing against said shoulder and provided with a central opening aligned with the exit opening of the casing, a movable feeder having one extremity movable within the casing and the other secured to said wheel, and a feeding tube having its upper extremity supported within the lower extremity of the exit opening of the casing, substantially as and for the purpose specified.

20. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, a movable wall for said casing for permitting access to its interior, and a movable feeder within the casing for feeding the articles, substantially as and for the purpose set forth.

21. In a feeding device, the combination of a hopper provided with an exit opening and consisting of a stationary portion, and a portion having one end hinged to the stationary portion and the other end removably secured thereto, and a clamp for securing said portions together; of a feeder revolving within said casing for feeding the articles therefrom, substantially as and for the purpose specified.

22. In a feeding device, the combination of a hopper provided with an exit opening and consisting of a stationary portion, and a portion having one end hinged to the stationary portion and the other end removably secured thereto, and a clamp for securing said portions together; of a feeder revoluble within said casing for feeding the articles from said exit opening, and an actuating wheel secured to said feeder, journaled within said casing and formed with an opening at its central portion aligned with the exit opening of the casing, substantially as and for the purpose set forth.

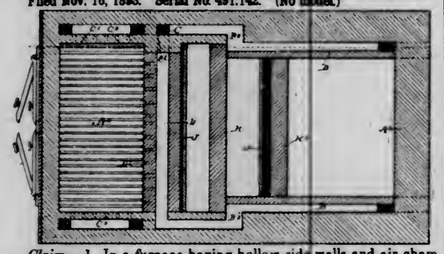
23. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, consisting of a stationary portion and a movable portion hinged to said stationary portion and a feeder within said shell and a feeding tube extending outwardly from said shell and formed with a slot at its lower extremity; of a support in proximity to said extremity of the feeding tube, and a movable lever hinged to said support and provided with a movable arm adapted to enter said slot, substantially as specified.

24. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, a feeder within said shell and a feeding tube extending outwardly from said shell and formed with a slot at its lower extremity; of a support in proximity to said extremity of the feeding tube, a movable lever hinged to said support and provided with an upright arm and with a movable arm adapted to enter said slot, a second movable arm hinged to the upright arm and adapted to enter said aperture, and a spring for forcing said arm to its normal position, substantially as and for the purpose set forth.

25. In a feeding device, the combination of an ioclosing casing or shell within which the articles to be fed are placed, a feeder within said shell, and a tube extending outwardly from said shell and formed with a slot at its lower extremity; of a support in proximity to said

extremity of the feeding tube, a movable lever hinged to said support and provided with a movable arm having its extremity adapted to enter said slot, a second movable arm formed with a downwardly extending end adapted to enter said aperture, a spring for forcing said arm to its normal position, a stud on said lever, and an actuating lever formed with a slot for engaging said stud, substantially as and for the purpose specified.

520,551. FURNACE. JOSEPH W. WILKINSON, Des Moines, Iowa, assignor to the Des Moines Fuel Saving Furnace Company, same place. Filed Nov. 16, 1893. Serial No. 491,142. (No model.)



Claim.—1. In a furnace having hollow side walls and air chambers adapted to discharge air inwardly over fuel on the grate and a bridge wall in rear of the grate having an air chamber adapted to discharge air forward, but not in communication with the chambers in the side walls, and a roof over the combustion chamber above the grate, the combination of an air-conducting and superheating device in rear of the bridge wall and communicating with the said air discharging chamber in the side walls, and an air-conducting and superheating device in rear of the bridge wall and in communication with the said air discharging chamber in the bridge wall and said air-conveying and superheating devices located in the line of the draft passage leading rearwardly from the grate and combustion chamber over the grate to be subjected to the heat generated in front of the bridge wall, for the purposes stated.

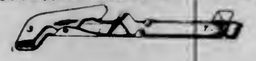
2. An improved furnace, having hollow side walls adapted to discharge air inwardly over the grate and a hollow bridge wall adapted to discharge air forwardly over the grate and separated from the hollow interior of the side walls, means for compelling all of the products of combustion to pass rearwardly through a chamber in the rear of the bridge wall, a sinuous superheating conduit in said chamber adapted to admit atmospheric air and discharge the same into both side walls, a like conduit in the same chamber adapted to discharge into the bridge wall and draft doors beneath the grate adapted to feed air upwardly through the grate, for the purposes stated.

3. An improved furnace, having hollow side walls adapted to discharge air inwardly over the grate and a hollow bridge wall adapted to discharge air forwardly over the grate and separated from the hollow interior of the side walls, means for compelling all of the products of combustion to pass rearwardly through a chamber in the rear of the bridge wall, a sinuous superheating conduit in said chamber adapted to admit atmospheric air and discharge the same into both side walls, a like conduit in the same chamber adapted to discharge air into the bridge wall, draft doors adapted to feed air beneath the grate, an arched bridge wall and a wall inclined downwardly from the front bridge wall, beneath the arched wall and upwardly in the rear of the arch bridge wall, for the purposes stated.

4. In a furnace, the combination of a side wall having an air chamber adapted to discharge air inwardly over the grate, an air superheating device in rear of the bridge wall communicating with said chamber in the side wall, a bridge wall having an air chamber adapted to discharge air forward over the grate and an air superheating device in rear of the bridge wall communicating with the said chamber in the bridge wall, for the purposes stated.

5. In a furnace, the combination of the following elements, to wit; hollow side walls adapted to discharge air inwardly over the grate, means located in the chamber in the rear of the grate for feeding superheated atmospheric air to the hollow side walls, a hollow bridge wall in the rear of the grate adapted to discharge air forwardly over the grate, a superheating conduit located in the chamber in the rear of the bridge wall adapted to feed superheated air to the hollow bridge wall and means for compelling the products of combustion to pass rearwardly through the chamber in the rear of the bridge wall.

520,552. CUFF-HOLDER. WILLIAM W. ANDERSON, New York, N. Y. Filed Nov. 23, 1893. Serial No. 491,757. (No model.)



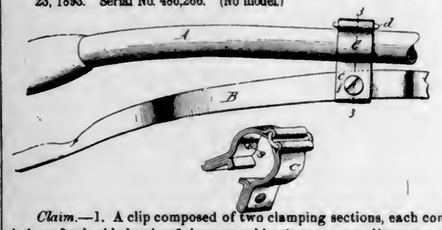
Claim.—1. In a cuff holder the combination with the main strip or bar having the jaw 2 and lever 3, 4, for attachment to the shirt sleeve and side flanges 5, of a supplemental stiffening strip 6 fitting between said flanges, carrying the stud, and having the guarding bend 15, substantially as set forth.

2. In a cuff-holder the combination with the main strip or bar having the attaching means, and side flanges 5, of the supplemental stiffening strip 6 fitting between said flanges and secured thereto at both ends, and having its intermediate portion bent up to form the stud with a double shank and double button portion or head, substantially as set forth.

3. In a cuff holder the combination with the main strip 1 having means for attachment to the sleeve, of a supplemental stiffening strip secured to said main strip and having a portion intermediate between its ends bent up to form a double shank and a double flat head, substantially as set forth.

4. In a cuff holder the combination with the strip 1 having the jaws 2 and 3, the finger piece 4, the upturned edge flanges 5, the extensions 12 of the said edges, of the supplemental strip having its intermediate portion resting between the said flanges 5 and engaged by the said extensions, having its end bent to form the guard, and provided with the double shanked stud, substantially as set forth.

520,553. CLIP. FISHER C. ATHERTON, Buffalo, N. Y. Filed Sept. 23, 1893. Serial No. 486,266. (No model.)

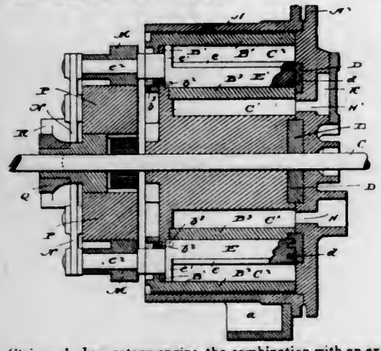


Claim.—1. A clip composed of two clamping sections, each consisting of a doubled strip of sheet metal having an eye at its rear portion and a perforated lug at its front portion, a loop connecting the eyes of the clip sections, and a clamping bolt passing through the perforated lugs of the sections, substantially as set forth.

2. A clip, composed of two concave clamping sections each having an eye at one end and a lug at the other end, each section consisting of a strip of sheet metal doubled at its middle, forming the eye of the clip section and having the portion thereof which forms the lug redoubled, forming four thicknesses of metal, a loop connecting the eyes of the clip sections, and a clamping bolt passing through the lugs thereof, substantially as set forth.

3. A clip, composed of two concave clamping sections, each having an eye at one end and a lug at the other end, each section consisting of a strip of sheet metal doubled at its middle, forming the eye of the clip section and having the portion thereof which forms the lug redoubled, forming four thicknesses of metal, the inner ends of such redoubled portions being bent inward at an angle to the lugs, forming lips, adapted to bear against the handle bar or other support, substantially as set forth.

520,554. ROTARY ENGINE. ALFRED R. BENN, Brooklyn, N. Y., assignor of one-half to Edwin Reynolds, same place. Filed Mar. 16, 1893. Serial No. 466,326. (No model.)



Claim.—1. In a rotary engine, the combination with an external shell or casing, of a revoluble cylinder arranged within said shell or casing and having two concentric steam ways formed therein and communicating with a steam chest, carried by the external shell, and, respectively, with the inlet and exhaust ports, an abutment fixed in each of the steam ways, two rotary pistons arranged in the inner steam way, two rotary pistons arranged in the outer steam way, between the pistons in the inner way, and mechanism for positively rotating the pistons, as the cylinder is revolved, to enable them to clear the abutments in the steam ways, substantially as described.

2. In a rotary engine, the combination with an external cylindrical shell or casing, of a revoluble cylinder arranged within the shell and consisting of a hub provided with an annular outwardly extending flange at its rear end, and concentric shells B^3, B^3, attached to the flange of the hub and arranged to provide concentric steam ways, pistons arranged in said steam ways, a head attached to the external casing and provided with inlet and exhaust ports, each of which communicates with one of the steam ways in the cylinder, and with fixed abutments which extend into said steam ways, and a steam chest connecting the concentric steam ways in the cylinder, substantially as described.

3. In a rotary engine, the combination with an external casing having inlet and exhaust ports formed in its head, of a revoluble cylinder arranged within the casing and provided with concentric steam ways which communicate with the inlet and exhaust ports, supporting plates attached to the said cylinder and fitting loosely in grooves in the head of the external shell, said plates being provided on their inner faces with annular ribs or flanges, abutments carried by said head and extending into the steam ways in the cylinder, a series of rotary pistons fitted in seats in the cylinder and having one end grooved to receive the flanges on the supporting plates, said pistons having a portion of their exterior surfaces made undulatory to allow them to clear the abutment in the steam ways, and a steam chest connecting the steam ways of the cylinder, substantially as described.

4. In a rotary engine, the combination with an external cylindrical shell, of a revoluble cylinder arranged within the shell and consisting of a hub having an outwardly extending annular flange at its rear end, an outer shell provided at its rear end with an inwardly extending flange which extends partially across the flange on the hub, and an intermediate shell having its rear end fitted in a groove in the inner face of the flange and forming two concentric steam ways in said cylinder, a head plate attached to one end of the external shell and provided with inlet and exhaust ports which communicate with the steam ways in the cylinder, abutments attached to the inner face of the head of the external shell and extending into the steam ways in the cylinder, a series of rotary pistons fitted in seats formed in the cylinder and adapted to extend across the steam ways therein, said pistons having a portion of their surfaces made undulatory to enable them to clear the abutments, and a steam chest connecting the steam ways in the cylinder, substantially as described.

5. In a rotary engine, the combination with an external shell or casing, of a revoluble cylinder having concentric steam ways formed therein and communicating with exhaust ports and inlet ports in the external shell, a steam chest attached to the external shell and connecting the steam ways of the cylinder, abutments attached to the external shell and extending into the steam ways in the revoluble cylinder, the inner faces of said abutments being of undulatory form, a series of pistons fitted in seats formed in the cylinder and adapted to extend across the steam ways therein, the stems of the pistons extending beyond the rear side of the cylinder and a portion of the body of said pistons being of undulatory form, pinions secured on the stems of the pistons in rear of the intermediate gears, P, mounted on studs, carried by said cylinder, and meshing with the pinions on the piston stems, and a central gear secured on an arm or bracket attached to the external shell and meshing with the intermediate gears, P, substantially as and for the purpose described.

520,555. SHOESTRING-FASTENER. SOLOMON E. BLAKE, Indianapolis, Ind. Filed July 5, 1893. Serial No. 479,679. (No model.)

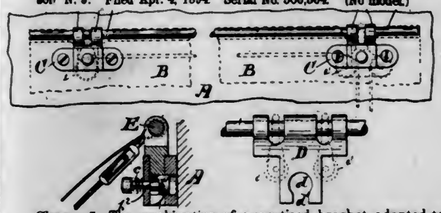


Claim.—1. As an improved article of manufacture, a shoe-string fastener composed of a single piece of metal A, having three prongs *a*, on the under side of the plate, said prongs having grooves *c*, arranged in the same horizontal plane and a short prong or hook *b*, on the upper side of the plate projecting upwardly, substantially as shown and described.

2. A shoe-string fastener composed of a single piece of sheet metal A, with the three prongs *a*, on the under side and a hook *b* on the upper side, each of the said prongs having continuous similarly curved planes with a groove *c*, on the upper side of the prongs, substantially as and for the purpose specified.

3. A shoe-string fastener composed of a single piece of plate metal, A, having three long prongs *a*, and one short prong *b*, the prongs *a*, having the grooves *c*, under the plate and the prong *b* being formed into an upwardly projecting hook, as shown and described.

520,556. AWNING ATTACHMENT. RICHARD BOWLES, Harrison N. J. Filed Apr. 4, 1894. Serial No. 506,364. (No model.)

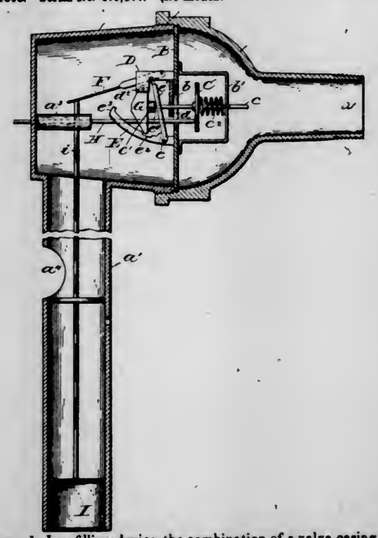


Claim.—1. The combination of a mortised bracket adapted to be secured to a window-frame or other structure, a support adapted to engage with said mortised bracket, a spring actuated push rod for holding and releasing the same, and a rod adapted to engage with said supports, and to support the awning, substantially as and for the purposes set forth.

2. The combination of a mortised bracket, a support having a double eye to receive a rod and adapted to engage with said mortised bracket and having an aperture near the lower, end thereof and a passage way leading thereto; and a push rod carried by said bracket and adapted to register with said aperture and to hold and release said support, as described, and for the purposes set forth.

3. The combination of a bracket and a support separably connected with one another, the former adapted to be secured to a window-frame or other structure and the latter to receive an awning-supporting rod, a rod adapted to engage with said supports and with said awning, and sheaves, adapted to engage with said rod to carry the cords for raising and lowering said awning, as set forth.

520,557. AUTOMATIC FILLING DEVICE. ARTHUR E. BRIGGS, Bond Hill, Ohio, assignor to Olivia M. Briggs, same place. Filed June 29, 1893. Serial No. 479,177. (No model.)



Claim.—1. In a filling device, the combination of a valve casing; a valve seated therein; means for opening the valve; a pawl adapted to hold the valve in its open position; an escapement adapted to engage and lock the pawl; a lever adapted to lock the escapement in position for holding the pawl, and mechanism driven by the liquid for releasing the lever, substantially as and for the purpose specified.

2. In a filling device, the combination of a valve casing; a valve therein yieldingly held to its seat; a push-pin projecting through the casing and adapted to bear against the face of the valve whereby the valve may be operated; mechanism in the valve casing for locking the valve in its open position, and means for releasing the locking mechanism, substantially as and for the purpose specified.

3. In a filling device, the combination of a valve casing; a valve therein yieldingly held to its seat; a valve stem; a push-pin for actuating the valve; a pawl for locking the valve stem normally held out of engagement thereby: an escapement adapted to be thrown into engagement with the pawl by the movement of the valve stem; a lever adapted to lock the escapement in position for holding the pawl against the pressure of the valve stem, and means for releasing the locking mechanism, substantially as and for the purpose specified.

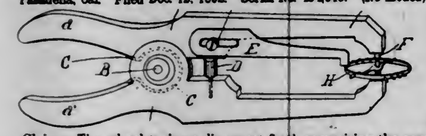
4. In a filling device, the combination of a valve casing; a valve yieldingly held to its seat; a discharge spout extending from the valve casing; a push-pin projecting through the casing and adapted to bear against the face of the valve whereby the valve may be opened; mechanism consisting of a pawl, escapement and lever for locking the valve in its open position; a float in the discharge spout and mechanism actuated thereby for releasing the locking mechanism, substantially as and for the purpose specified.

5. In a filling device, the combination of a valve casing; a valve therein yieldingly held to its seat; a valve stem; a push-pin for actuating the valve; a pawl for locking the valve stem normally held out of engagement thereby; an escapement adapted to be thrown into engagement with the pawl by the movement of the valve stem as the valve opens; a lever adapted to lock the escapement in position for holding the pawl against the pressure of the valve stem; a discharge spout; a float adapted to reciprocate therein, and a rod extending from the float adapted to actuate the lever and disengage the escapement, substantially as and for the purpose specified.

6. In a filling device, the combination of a valve casing; a valve therein yieldingly held to its seat; a valve stem; a push-pin for actuating the valve; a pawl for locking the valve stem normally held out of engagement thereby: an escapement adapted to be thrown into engagement with the pawl by the movement of the valve stem as the valve opens; a lever adapted to lock the escapement in position for holding the pawl against the pressure of the valve stem; a discharge spout; a lateral opening therein; a float adapted to reciprocate in the spout, and a rod extending from the float adapted to actuate the lever and disengage the escapement, substantially as and for the purpose specified.

7. In a filling device; the combination of a valve casing composed of sections A, A'; a partition B therein provided with an aperture b; a valve C for closing the aperture provided with a valve stem c having a collar c'; a spring c^3 for normally holding the valve to its seat; a push-pin H for actuating the valve; a pawl G for locking the valve stem; an escapement provided with an arm d' for locking the pawl; a lever F for locking the escapement; a discharge spout a'; a float I adapted to reciprocate therein; a rod i connected to the float and adapted to actuate lever F, substantially as and for the purpose specified.

520,558. WATCHMAKER'S CALIPERS. ADNA F. BROCKWAY, Pasadena, Cal. Filed Dec. 12, 1892. Serial No. 454,813. (No model.)



Claim.—The wheel truing calipers set forth comprising the combination of the two arms pivoted to each other intermediate their ends by a suitable pivot and having respectively, at one end a handle and at the other end a jaw provided with a caliper center; the pivot; the spring arranged to force the handles apart and the jaws together, and the adjusting screw stop provided with the thumb piece rigid with such stop, arranged between the jaws and having its stem screwed into the shank of one of the jaws between the pivot and the caliper center of the jaw, and having its head arranged to intercept the shank of the other jaw between the caliper center and the pivot; whereby the screw stop is brought entirely between the two shanks and out of the way of the operator.

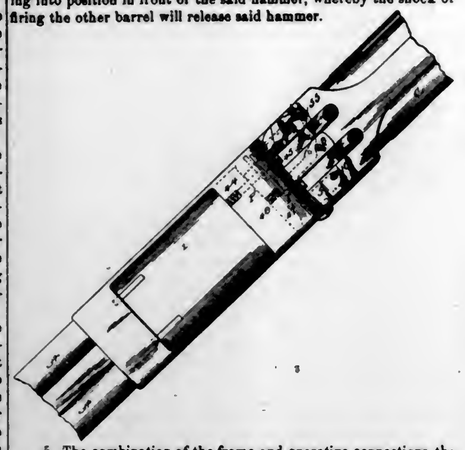
520,559. INERTIA-PIECE, RELEASING SECOND BARREL BY RECOIL OF FIRST. ANDREW BURGESS, Buffalo, N. Y. Filed May 19, 1892. Serial No. 433,601. (No model.)

Claim.—1. In a double gun, the frame, barrels, and operative connections, a double breech piece and a supplementary sear projecting in front of one of the cocked hammers, and removable from said position by the shock of firing, so that the second barrel may be fired by the shock of firing the first, substantially as described.

2. In a double gun, the frame, barrels, and operative connections, a hammer and trigger mechanism for each barrel, means for locking one of the triggers, and a supplementary sear projecting into position to prevent the falling of the hammer to which said trigger is connected, and movable by the shock of firing the other barrel.

3. The combination with one of the hammers of a double gun, of an inertia piece holding said hammer in cocked position, said inertia piece being actuated by the recoil (when the first barrel is fired in usual manner) to release the second hammer and fire the second barrel, substantially as described.

4. The combination with one of the hammers of a double gun, of a pivoted sear having one weighted end, and the other end projecting into position in front of the said hammer, whereby the shock of firing the other barrel will release said hammer.



5. The combination of the frame and operative connections, the two hammers in the frame, the bolt and means for reciprocating it, and a supplementary sear pivoted in the bolt and havig one end projecting in front of one of the hammers, and the other end weighted to cause the sear to swing under the shock of firing.

6. In a magazine gun, the combination of the frame, barrel, and adjunctive connections, a reciprocating bolt, and a carrier having a pivoted dog therein, and a spring bearing on the dog to hold it in either of two adjusted positions, so that the dog may be engaged by the bolt in its movement, or not, as desired.

7. In a magazine gun, the combination of the frame, barrel, and adjunctive connections, the reciprocating bolt having suitable abutments, and the pivoted cartridge carrier having a movable dog pivoted therein, and a finger piece connected to the dog and extending through a hole in the frame, substantially as described.

8. The combination with the carrier of a spring attached thereto, having inclines, an abutment against which said spring bears on either side to hold the carrier either up or down as described, and operative adjunctive connections, substantially as set forth.

9. In a gun, the combination of the frame and operative connections, the reciprocating bolt, the locking brace engaging said bolt and an abutment in the frame, and an inertia piece hung in the bolt and engaging said brace to fasten the same, until moved by the shock of firing, substantially as described.

10. The combination, in a gun, of the frame and adjunctive connections, the breech piece, and an inertia piece carried by the gun and acting on the breech piece to fasten the same, and to be released by the shock of firing, substantially as described.

11. The frame and breech piece housed therein, an abutment in the frame against which said breech piece is locked, means for locking said breech piece against the abutment, and an inertia piece connected to the breech piece, propelled by a spring to hold the locking parts in locked position and by the shock of firing to release the same, all in combination.

12. The frame and connections, the reciprocating bolt and locking brace pivoted thereto, and the inertia piece pivoted in the bolt near the free end of the locking brace and in position to engage the same, substantially as described.

13. The frame and connections, the bolt and means for locking the same, the inertia piece pivotally connected to the bolt, and a spring operating on the inertia piece to hold it as against ordinary shocks, all combined substantially as described.

14. The combination with the bolt and its operative connections, of an inertia piece hung in the bolt, a spring piece engaging said inertia piece and having a projection in the path of movement of the hammer, all substantially as described.

15. The bolt and operative connections, the inertia piece hung in the bolt and acting as a fastening to the locking mechanism thereof, the spring piece bearing on the inertia piece and having a projection in the path of movement of the hammer, and a foil in position to hold the inertia piece inoperative.

16. The bolt and its operative connections, the inertia piece connected to the bolt and engaging the locking mechanism substantially as described, and a foil engaging the inertia piece to hold it out of operation, all combined substantially as described.

17. The bolt and its operative connections, the inertia piece hung to the bolt, the foil in position to engage the inertia piece and hold it out of operative position, said foil having a projection in the path of movement of the hammer, all in combination.

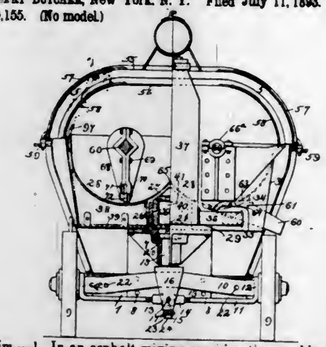
18. The bolt and its operative connections, the inertia piece hung in the bolt, the spring bearing on the inertia piece and having a projection in the path of movement of the hammer, and the foil in position to hold the inertia piece out of operative position and having a projection in the path of movement of the hammer, all combined substantially as described.

19. In a double gun the bolt and its operative connections, the inertia piece carried by the bolt, and a spring piece in the path of movement of each hammer, both engaging the inertia piece, whereby both bearing springs must be compressed by the hammers before the inertia piece can be operated by the shock of firing.

20. The combination with the double gun having separate hammers, of a supplementary sear as a detent to the second hammer and having one end heavy to operate by the shock of firing to release the hammer, and a detent in position to engage said supplementary sear and hold it inoperative, substantially as described.

21. The frame and operative connections, the reciprocating breech piece and a sliding handle connected thereto, means for locking the breech piece in closed position, and an inertia piece mounted in the gun and engaging the locking means to hold the same, but actuated to release the locking mechanism by the shock of firing, all combined substantially as described.

520,560. MACHINE FOR HEATING AND MIXING ASPHALT. ROBERT BUTCHER, New York, N. Y. Filed July 11, 1893. Serial No. 480,155. (No model.)



Claim.—1. In an asphalt mixing machine the combination with the asphalt pan, of a flame space beneath the same and having a continuation beyond said pan, the sand drying pan 28 situated contiguous to the asphalt pan and above said continuation of the flame space, means for stirring the contents of said pans, and a blast producing device for causing the flame to pass through said space and its continuation, substantially as set forth.

2. In an asphalt mixing machine the combination with the furnace or heating device, of the asphalt pan above the same, and the sand pan in front of and contiguous to the asphalt pan and over said furnace or continuation thereof, substantially as set forth.

3. In an asphalt mixing machine the combination of the asphalt pan having a flame space below it, means for stirring the asphalt, a steam boiler and furnace adapted to supply steam for the actuation of said stirring means, an injector burner for liquid fuel adapted to deliver a blast into said flame space, and a steam pipe leading from said boiler to the injector burner for operating the latter, substantially as set forth.

4. In an asphalt mixing machine the combination of the asphalt pan having a flame space 6 beneath it, the rearward extension or box 46 communicating with the said space, and the injector burner 45 situated in said box and adapted to deliver a blast forward into said space beneath the pan, substantially as set forth.

5. In an asphalt mixing machine the combination of the frame 1 having the platform 2, the boiler and power mechanism mounted on the same, the asphalt pan and combustion chamber therefor mounted on the forward part of said frame, the frame 7 secured to said frame 1, extending upward and forward therefrom, and provided with a bearing for the king pin, and the sand drying pan and combustion chamber therefor mounted on the latter frame and contiguous to the asphalt pan, substantially as set forth.

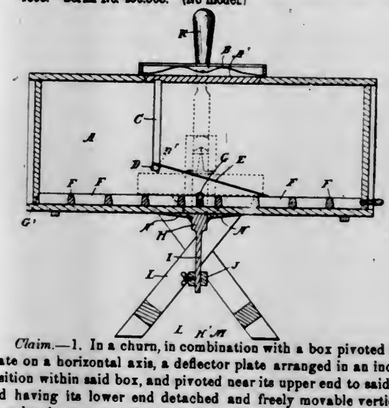
6. In an asphalt mixing machine the combination with the asphalt pan, and combustion chamber beneath the same, of the sand drying pan situated in front of the asphalt pan, and having a combustion chamber communicating with that of the asphalt pan, and an independent flue 40 beneath the sand pan and adapted to receive the products of combustion to avoid heating the sand pan, substantially as set forth.

7. The combination with the sand and asphalt pan having combustion chambers beneath them, of the frame 7 having flanges 26 and a fire brick or equivalent lining forming an independent flue for the products of combustion, substantially as set forth.

8. In an asphalt mixing machine the combination with the asphalt pan, and the smoke stack having a communication therewith, of a combustion chamber beneath the pan and communicating with said stack, and an injector burner for liquid fuel adapted to produce a blast beneath the pan and through said stack for forcibly exhausting the vapor from the asphalt pan, substantially as set forth.

9. In an asphalt mixing machine the combination with a pan, and smoke stack having a communication therewith, of a combustion chamber beneath the pan, an injector burner for producing a blast through said chamber and stack, and one or more pipes or openings affording communication between said combustion chamber and pan for supplying dry air to the surface of the contents of the latter to promote the absorption and removal of water from said contents, substantially as set forth.

520,561. CHURN. GEORGE W. CRABB, Sand Lake, Mich., assignor to Fred S. Crabb and Jacob S. Lockerby, same place. Filed Sept. 25, 1893. Serial No. 486,363. (No model.)



Claim.—1. In a churn, in combination with a box pivoted to vibrate on a horizontal axis, a deflector plate arranged in an inclined position within said box, and pivoted near its upper end to said box, and having its lower end detached and freely movable vertically, whereby the cream or products thereof pass alternately below and above said plate, substantially as described.

2. In a churn, in combination with a box, substantially as described, and having an opening at the top, and having vertical grooves in the sides of the same, a removable bar pivotally mounted in said grooves, and a deflector plate attached at the upper end to said bar, and freely movable in a vertical plane at the lower end, substantially as described.

3. In a churn, in combination with a box substantially as described, to contain the cream and pivoted to vibrate on a horizontal axis, a rack divided near the middle, spurs in the ends of said rack engaging the ends of said box, and a button engaging the middle of said rack, whereby said rack is detachably secured in the bottom of said box, substantially as described.

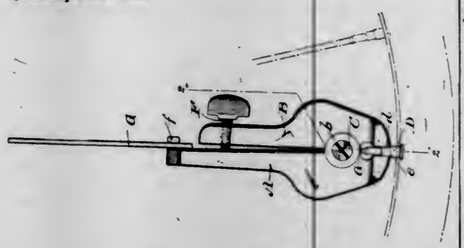
520,562. NIPPLE-WRENCH. ALBERT DUDLY, Menominee, Mich. Filed Mar. 21, 1894. Serial No. 504,557. (No model.)

Claim.—1. A nipple-grip comprising a pair of pivotally united shanks having out-turned jaws at one side of the pivot, a hook on one of the shanks at that side of the pivot farthest from the jaws, and a thumb screw that engages a tapped opening in one shank to bear against the other, substantially as set forth.

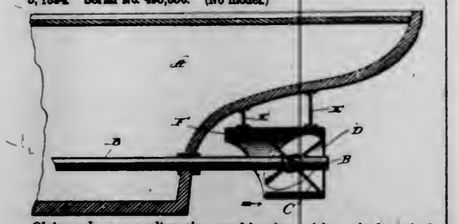
2. A nipple-grip comprising a pair of pivotally united shanks having out-turned jaws at one side of the pivot, a hook on one of the shanks at that side of the pivot farthest from the jaws, a thumb screw that engages a tapped opening in one jaw to bear against the other, and a spring arranged between said shanks adjacent to their jaws, substantially as set forth.

3. A nipple-grip comprising a pair of pivotally united shanks different as to length and provided at one end with out-turned jaws, a

hook like projection at that end of the longest shank farthest from the pivot but parallel to the jaw thereof, and a thumb screw engaging a tapped opening in the shorter shank to bear against the other, substantially as set forth.

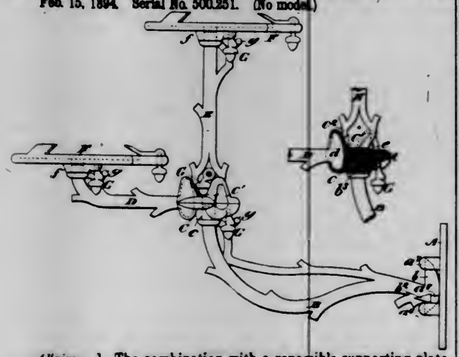


520,563. PROPELLER. OWEN R. GRIFFY, Vallejo, Cal. Filed Jan. 5, 1894. Serial No. 496,856. (No model.)



Claim.—In a propeller, the combination with a shaft and the blades C, of general semi circular form connected to and so arranged or disposed on the shaft that each blade will extend approximately at right angles to the other two and their forward and rear ends will rest in the same vertical planes; of the fixed casing or hood D, inclosing the blades and having its forward upper portion extended in advance of its lower portion, substantially as and for the purpose set forth.

520,564. BRACKET. WILMER D. GRIDLEY, Brooklyn, N. Y. Filed Feb. 15, 1894. Serial No. 500,251. (No model.)

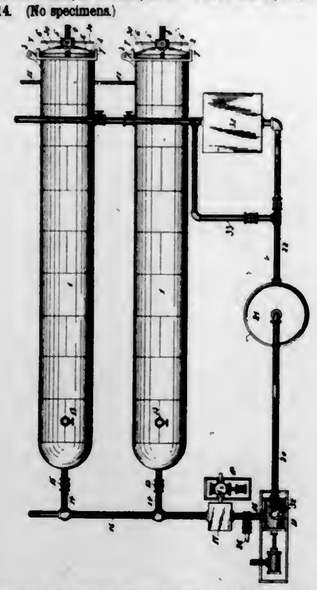


Claim.—1. The combination with a reversible supporting plate, provided with sockets for the reception of the ends of a cross head, of a bracket arm provided with a cross head adapted to enter the said sockets, the reversible supporting plate and the cross head being provided with interlocking lugs, in position to hold the arm stationary when the plate is in one position and to permit it to swing when the plate is in a reversed position, substantially as set forth.

2. The combination with a bracket arm having a screw-threaded tip, of a supporting piece having a screw-threaded socket to receive the tip, a swinging gravity latch depending from the supporting piece and a catch to engage the latch to prevent the unscrewing of the supporting piece beyond a predetermined limit, substantially as set forth.

3. The combination with a bracket arm, of a socket piece adapted to be secured to the end of the bracket arm, the said socket piece being provided with one or more sockets opening outwardly and inwardly, one or more branch arms provided with heads capable of being inserted within and removed from the sockets only by extending a portion of the head through the inward opening in the socket and means for obstructing the inward opening in the socket or sockets to lock the arm or arms in the sockets, substantially as set forth.

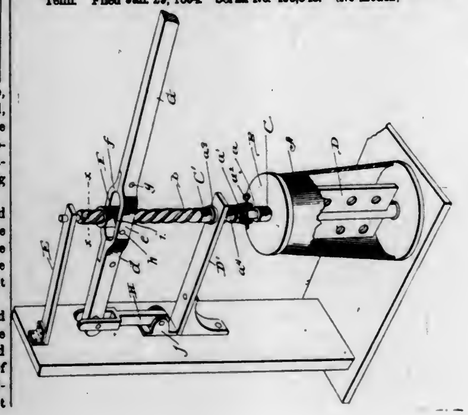
520,565. METHOD OF VULCANIZING AND DRYING WOOD. CHARLES HOWARD, New York, N. Y. Filed June 14, 1893. Serial No. 477,514. (No specimens.)



Claim.—1. The herein described method of vulcanizing and drying wood, that is to say; first inclosing the wood in a cold condition in an air-tight cylinder, exhausting the air from said cylinder; applying heat to the cylinder until the vacuum is broken; then creating an air pressure within the cylinder, maintaining the same until the wood is sufficiently vulcanized, and then circulating the air and reducing the temperature, substantially as set forth.

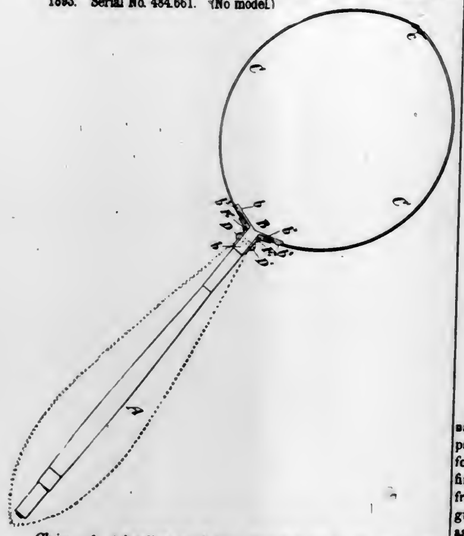
2. The herein described method of vulcanizing and drying wood, which consists in inclosing the wood to be treated, while in a cold condition in an air tight cylinder; exhausting the air from the cylinder and forming a vacuum therein; applying heat to the cylinder, causing the moisture contained in the wood to vaporize and break the vacuum; then creating air pressure within the cylinder while the heat is maintained, and finally circulating the air through the cylinder and through a condenser whereby the moisture is removed from the circulating air and the pressure and temperature are gradually reduced, substantially as set forth and described.

520,566. CHURN ATTACHMENT. JOHN M. HUGHES, Knoxville, Tenn. Filed Jan. 29, 1894. Serial No. 498,348. (No model.)



Claim.—The herein described churn consisting essentially of the following elements in combination, viz: the upright body A, the dasher shaft C, arranged in said body and having its upper end squared, a base supporting the body, the upright support connected to and rising from said base, the horizontal arm E, connected to the upright support and arranged above the body, the arm D', also connected to the support below the arm E, and having the vertically-disposed sleeve a^3, the rotary shaft section C', journaled in the arm E, and having the plain portion a^4, arranged in the sleeve of the arm D', whereby it may be moved vertically in the arm D', and E, and also having the spiral threads *b*, and a socket *a*, at its lower end to receive the squared end of the dasher shaft, the removable pin taking through said socket and the dasher shaft, the arm H, pivotally connected at one end to the upright support, the operating lever pivotally connected to the free end of said arm H, and the burr or nut having trunnions journaled in the operating lever and also having a threaded bore receiving the shaft section C', all as and for the purpose set forth.

520,567. LANDING-NET FRAME. GEORGE KAMP, Trenton, assignor of one-half to Thomas B. Mills, New York, N. Y. Filed Sept. 2, 1893. Serial No. 484,661. (No model.)



Claim.—1. A landing net frame, comprising a handle and a collapsible hoop or ring pivoted to the handle, the handle being shorter than the hoop when the latter is partially collapsed and adapted to fold within the partially collapsed hoop or ring, substantially as set forth.

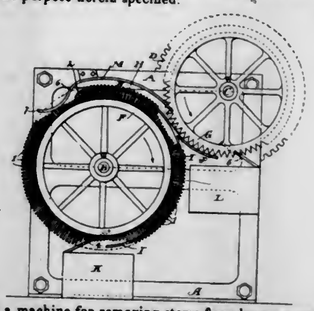
2. A landing-net frame, comprising a handle and a hoop or ring consisting of members hinged together at one end and each at the other end being hinged to the handle and having a pivotal connection with the handle so as to swing in a plane transverse to the plane in which it swings upon the hinges, substantially as set forth.

3. A landing-net frame, comprising a handle, a yoke secured thereto, and a hoop or ring consisting of two members hinged together at one end and each hinged to and having a pivotal connection with the yoke at the other end, the pivotal connection being such as to permit the hoop to swing transversely to its movement on the hinges and a catch for holding the hoop extended when in its unfolded position, substantially as set forth.

520,568. MACHINE FOR REMOVING STEMS FROM BROOM-CORN. PHILIP LANBOY, Fonda, N. Y. Filed Oct. 27, 1893. Serial No. 489,247. (No model.)

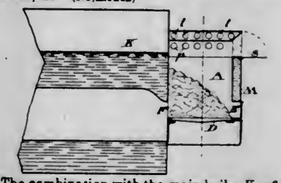
Claim.—1. A machine for removing stems from broom corn as herein described, and consisting of a feeding mechanism adapted to raise the stems above the level of the outer fibers of the broom-corn, a stationary knife fixed in the path of said stem and adapted to pass under the latter, and a presser-bar arranged to guide the stem to said knife, as and for the purpose specified.

2. In a machine for removing stems from broom corn, the combination of a pair of wheels for feeding the broom corn to the stem-removing mechanism; one of said wheels being provided with a series of spurs around its periphery—said spurs being spaced to exclude the stems but to admit the finer fibers of the broom-corn, a presser-bar arranged to press the stems against the end of said spurs, and a stationary knife fitted to remove the stems from the broom-corn, as and for the purpose herein specified.



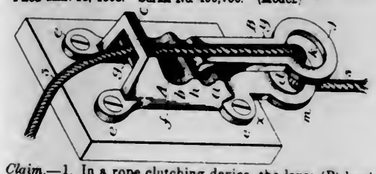
3. In a machine for removing stems from broom-corn, the combination of a feeding-mechanism whereby the broom-corn will be carried to the stem-removing mechanism, a stationary knife arranged to effect the removal of the stems from the broom-corn, a stem-carrier arranged in relation to the feeding-mechanism as herein described, and a passage arranged to conduct the removed stems to the stem-carrier, substantially as and for the purpose specified

520,569. BOILER AND FURNACE. RUDOLF MÜLLER, Hamburg, Germany, assignor to Maximilian Berendt, Max Du Roi Droege, Ernst Hadenfeldt, and Johannes Semler, same place. Filed June 30, 1893. Serial No. 479,212. (No model.)



Claim.—The combination with the main boiler K, of a boiler furnace constituted by a fire chamber A having air inlets in its upper part and having its sides and front inclosed by a double jacket which forms a water space communicating with the main boiler, the said fire chamber having a grate D at its bottom, and the flame outlet F from the said fire chamber being arranged immediately above the grate that it may be kept covered by the fuel thereon, substantially as herein set forth

520,570. ROPE-CLUTCH. DAVID W. ORCUTT, Binghamton, N. Y. Filed Mar. 18, 1893. Serial No. 466,706. (Model.)



Claim.—1. In a rope clutching device, the lever (B) having the straight handle (*g*) with the ring (*j*), the short curve (*i*) on the under side, and the long curve (*h*) on the upper side, and the notch (*g*) in the tip (*f*); substantially as described, and for the purpose specified.

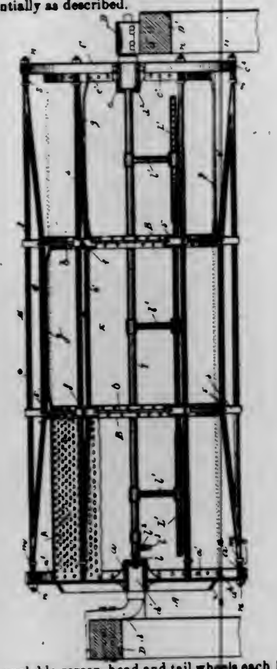
2. In a rope clutching device, the clutch box (A), with the stop bars (*c*) and (*b*), the fulcrum (*a*), and the ring (*m*), substantially as described, and for the purpose specified.

3. In a rope clutching device, the combination of the clutch box (A) with its cross bars (*c*) and (*b*) and ring (*m*), with the lever tongue (B) having curves (*i*) and (*h*) fulcrumed upon the clutch box, the ring (*j*), and the tongue tip (*f*) said tip (*f*) closing against the bar (*c*) upon a downward pressure of the ring (*j*) when a rope is pulled through between them and downward through the said rings, substantially as described. and for the purpose specified.

520,571. REVOLUBLE SCREEN. DAVID E. PHILLIPS, Mahanoy City, Pa. Filed Aug. 30, 1893. Serial No. 484,367. (No model.)

Claim.—1. In a revoluble screen, head and tail wheels, fixed independent journals for the hubs thereof, and intermediate screen

rings, combined with perforated metallic screen segments secured to said rings and wheels, and a series of external longitudinal trusses connecting the head and tail wheels and secured to the exterior of the annular supports, to leave an uninterrupted passage through the screen, substantially as described.

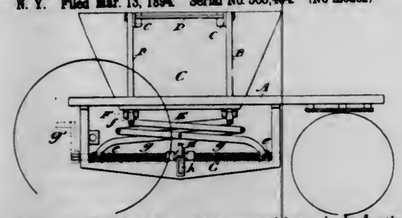


2. In a revoluble screen, head and tail wheels each having a hollow hub or bearing, fixed supporting journals therefor upon which the hubs rotate, and a water supply pipe extended through one and secured to the other journal, within the screen, combined with a series of trusses connecting the head and tail wheels, screen segments within said trusses and secured to the head and tail wheels, and intermediate connections between said segments and trusses substantially as described.

3. In a revoluble screen, head and tail wheels, intermediate screen rings having external projecting ribs, and screen segments secured to said rings and to the said wheels, combined with external trusses connecting the head and tail wheels, and connections between said trusses and the ribs of the rings, substantially as described.

4. The combination, in a revoluble screen, of head and tail wheels each having a hollow hub or bearing and a segment supporting flange, and perforated screen segments, with a series of external trusses connecting the head and tail wheels and supporting the segments between said wheels, and separate externally supported journals, and extended into the hubs or bearings, substantially as described.

520,572. DUMPING-WAGON. WALTER S. PHILLIPS, Brooklyn, N. Y. Filed Mar. 13, 1894. Serial No. 503,404. (No model.)



Claim.—1. The dumping wagon, comprising a body for the reception of the load, a support for the body, means for pivoting the body at its edge for the support, lazy tongs connected with the body and with the body support and means for operating the lazy tongs, substantially as set forth.

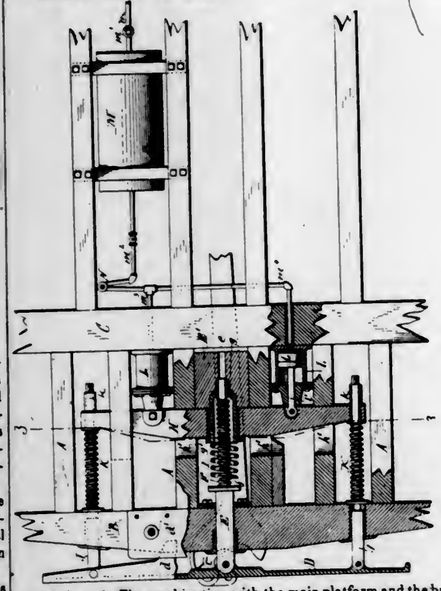
2. The combination with the bed frame and standards uprising therefrom, of a body for the reception of the load, means for suspending the said body at either of its opposite sides, at pleasure, from said supports, lazy tongs connected with the body and with the body support and means for operating the lazy tongs, substantially as set forth.

3. The combination with the body support and the body pivoted to the support, of lazy tongs connected at one end with the body, a rotary shaft provided with a right and left screw engaged with the opposite end of the lazy tongs and journaled in the body support and means for operating the said screw shaft, substantially as set forth.

4. The combination with the body support, the body and the removable pintle for pivoting the upper edge of the body to the body support, of lazy tongs engaged at one end with the body, a rotary shaft engaged with the opposite end of the lazy tongs and means for operating the said shaft, substantially as set forth.

5. The combination with the body support, the body pivoted to the support and means for swinging the body on its pivot, of a removable cover or shield for temporarily covering a portion of the top of the body during the operation of dumping, substantially as set forth.

520,573. CAR-BUFFER. WILLARD F. RICHARDS, Buffalo, assignor to the Gould Coupler Company, New York, N. Y. Filed July 10, 1893. Serial No. 480,003. (No model.)



Claim.—1. The combination with the main platform and the buffer or movable platform extension, of a follower guided on the main platform and movable toward and from said buffer, side stems attached at their front ends to the buffer and sliding with their rear portions in said follower, buffer springs mounted on said stems between said follower and shoulders arranged on the side stems, and a pressure cylinder and piston arranged in rear of said follower, whereby the latter is moved forward for increasing the tension of said buffer springs, substantially as set forth.

2. The combination with the main platform and the buffer or movable platform extension, of a follower arranged in rear of said buffer or platform extension, extension springs interposed between the buffer and said follower, and a pressure cylinder and piston acting upon said follower, whereby the same is moved forward for applying an additional tension to said springs substantially as set forth.

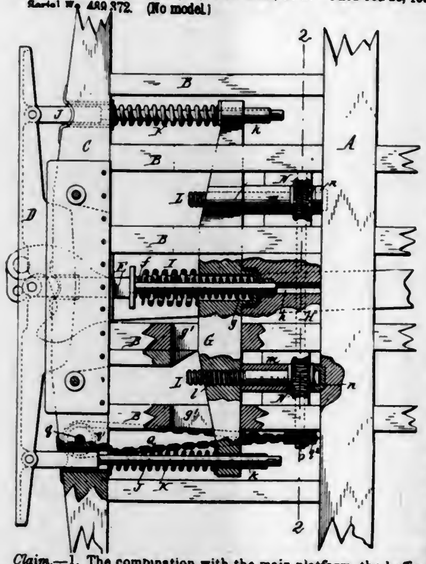
3. The combination with the main platform, the buffer or platform extension and its extension springs, of a follower forming the rear abutment of such springs, a pressure cylinder, a piston arranged in said cylinder and having its rod connected with said follower and a pipe for supplying fluid under pressure to said cylinder, substantially as set forth.

4. The combination with the main platform, the buffer or platform extension and its extension springs, of a follower forming the rear abutment of such springs, a pressure cylinder and piston for operating said follower, a pipe for supplying fluid under pressure to said cylinder, and a three-way valve arranged in said pipe, substantially as set forth.

5. The combination with the main platform, the buffer or platform extension and its extension springs, of a follower forming the rear abutment of such springs, pressure cylinders and pistons arranged on opposite sides of the middle of said follower, for operating the same, a compressed air reservoir, a main supply pipe connected with said reservoir and having a valve, and branch pipes leading from said main pipe to the rear portions of the pressure cylinders, substantially as set forth.

6. The combination with the main platform, the buffer or platform extension, and its central extension spring, of a follower guided on the main platform, a socket arranged in an opening in said follower forming the rear abutment of said extension spring, and having a flange or stop which compels it to move forward with the follower, and a supplemental pressure device operating upon said follower, substantially as set forth.

520,574. CAR-BUFFER. WILLARD F. RICHARDS, Buffalo, assignor to the Gould Coupler Company, New York, N. Y. Filed Oct. 28, 1893. Serial No. 489,372. (No model.)



Claim.—1. The combination with the main platform, the buffer or platform extension and its spring or springs, of a follower bearing against the rear ends of said spring or springs and having a screw nut or opening, an operating screw held against longitudinal movement and engaging with said nut or opening, and an actuating wheel mounted on said screw, substantially as set forth.

2. The combination with the main platform, the buffer or platform extension and its spring or springs, of a follower bearing against the rear ends of said spring or springs, an actuating screw, held against longitudinal movement and engaging with a screw nut or opening in said follower, a worm wheel mounted on said screw, and a transverse shaft having a worm engaging with said worm wheel, substantially as set forth.

3. The combination with the main platform, the buffer and its spring mechanism, of a follower forming the rear abutment of said spring mechanism, a rotary pressure screw engaging with said follower, and having a worm wheel, a transverse actuating shaft having a sprocket wheel and a worm meshing with said worm wheel, an upright shaft arranged on the main platform and having a sprocket wheel, and a chain running around the wheels of said shafts, substantially as set forth

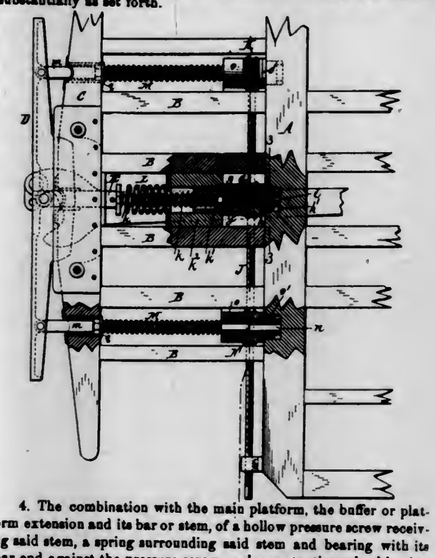
---

520,575. CAR-BUFFER. WILLARD F. RICHARDS, Buffalo, assignor to the Gould Coupler Company, New York, N. Y. Filed Nov. 1, 1893. Serial No. 489,723. (No model.)

Claim.—1. The combination with the main platform and the buffer or platform extension, of a pressure screw, a buffer extension spring bearing at its rear end against said pressure screw, and an actuating wheel having an internal screw thread engaging with said pressure screw, substantially as set forth.

2. The combination with the main platform and the buffer or platform extension, of a pressure screw held against rotation but capable of longitudinal movement, a buffer extension spring bearing at its rear end against said pressure screw a worm wheel held against endwise movement and having an internally screw-threaded bore engaging with said pressure screw and an actuating shaft having a worm meshing with said screw, substantially as set forth.

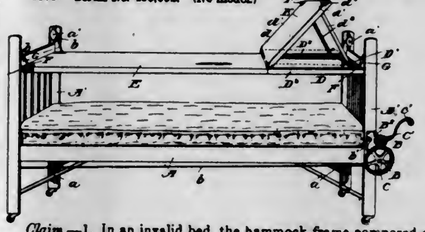
3. The combination with the main platform, the buffer or platform extension and its spring mechanism, of a stationary thimble or bushing having a longitudinal groove, a pressure screw having a longitudinal rib engaging with said groove, and an actuating wheel having an internal screw thread engaging with the pressure screw, substantially as set forth.



4. The combination with the main platform, the buffer or platform extension and its bar or stem, of a hollow pressure screw receiving said stem, a spring surrounding said stem and bearing with its rear end against the pressure screw, and an actuating wheel having an internal screw thread engaging with the pressure screw, substantially as set forth.

5. The combination with the main platform, the buffer or platform extension, its main and side stems and the springs mounted thereon, of pressure screws forming the rear abutments of said springs, worm wheels held against endwise movement and having internal screw threads engaging with said pressure screws, and a transverse shaft having worms which engage with said worm wheels, substantially as set forth.

520,576. INVALID-BED. JEFFERSON R. SCHARCK, Chillicothe, Ohio, assignor to Benjamin D. Miner, Indianapolis, Ind. Filed Mar. 18, 1893. Serial No. 466,692. (No model.)



Claim.—1. In an invalid bed, the hammock-frame composed of detachable side and end bars arranged in rectangular form and provided with a removable covering hemmed along its edges; said hems being adapted to receive the side and end bars of the frame, and detachable bolts for securing the overlapped ends of the frame-bars together, substantially as described.

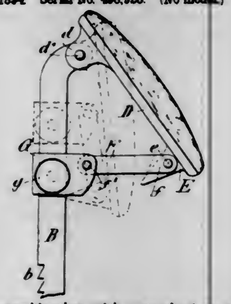
2. In an invalid bed, the combination with the bedstead and the hoisting devices, of the hammock-frame composed of side and end bars detachably secured together by eye-bolts passing through their overlapped ends, and the canvas removably attached thereto; said eye-bolts serving the double purpose of securing said bars together and providing detachable connections to the hoisting ropes, substantially as described.

3. In combination with the bedstead and the hoisting devices, the hammock frame composed of side and end bars having their overlapped ends secured together by detachable eye-bolts, a supplemental head frame constructed in like manner and hinged to said hammock-frame; and a covering of suitable material adapted to receive the side

and end bars of the frames; said detachable eye-bolts serving the double purpose of securing the frame bars together and receiving detachable connections on the ends of the hoisting ropes, substantially as described.

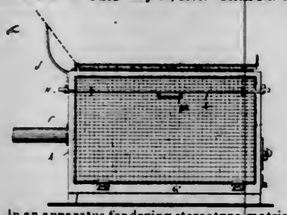
4. The combination of the folding or "knock-down" bedstead having posts at the head and foot thereof, each provided with a friction roll or sheave at or near its upper end, the shaft journaled in bearings secured to one pair of posts below the plane of the sheaves thereon and provided at one side of the bed with a gear-wheel, a locking pawl engaging therewith, and a pinion meshing with said gear-wheel and provided with a crank-handle; a pair of sheaves journaled upon the opposite pair of posts below the plane of the upper sheaves thereon, the hammock-frame suspended by hoisting ropes which are secured to said shaft near its ends and pass over said sheaves, substantially as described, together with snap hooks on the free ends of the ropes engaging the eye-bolts on the hammock-frame, all constructed and arranged substantially as described, so as to adapt both bed and frame to be readily folded into compact form for storage or transportation, and to enable a single attendant to readily and quickly adjust and secure the hammock-frame in various positions in use, substantially as described.

520,577. HEAD-REST. ADAM SCHWAAB, Jr., New York, N. Y. Filed Feb. 2, 1894. Serial No. 498,923. (No model.)



Claim.—The combination, with a standard or post, and a rest hinged at one end thereto and provided with an elongated stop-lug at the under side of its opposite end, of an adjustable slide located on said standard, a link having a fork which receives said lug, a pivot passing through the fork and the base of the lug, so that the outer end of the lug projects beyond the fork, and a pivot passing through the other end of the link and said slide, substantially as set forth.

520,578. STOVE FOR DRYING MATRICES. FRIEDRICH SCHREINER, Plainfield, N. J. Filed May 19, 1893. Serial No. 474,802. (No model.)



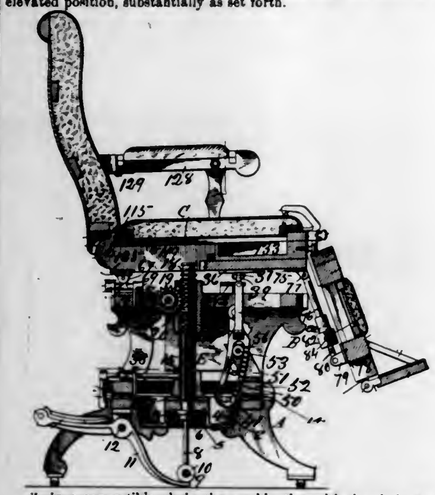
Claim.—In an apparatus for drying stereotype matrices the combination with a stove, of a netting hinged to the top of the same, and netting hinged to the sides of the stove at the bottom thereof, to permit swinging the upper edges of the side nettings against the sides of the stove at the top thereof, linings of fibrous material permanently secured to the inner faces of the netting, and means for locking the upper edges of said netting against the sides of the stove, substantially as set forth

---

520,579. ADJUSTABLE SURGICAL CHAIR. TIFFIN J. SHACKELFORD and JOHN F. MILTONBERGER, Warsaw, Ind. Filed Nov. 24, 1893. Serial No. 491,386. (No model.)

Claim.—1. In a convertible chair, a base-structure, a hub-part, a pivot-post, provided in its upper part with a number of annular grooves and having its lower end inserted down through said hub or base and rigidly fixed therein, a lifting-plate, loosely mounted on the pivot-post, the companion lift-rods, having their upper ends fixed in the lift-plate, a cross-bar, connecting the lower ends of said rods, a foot-lever, fulcrumed in the base-structure, the chair part, resting on and elevated by the lift-plate and operating-mechanism, and the means described, sustaining the chair in an elevated position, substantially as set forth.

2. In a convertible chair, the combination with the chair part proper, of a base structure, a lifting foot-lever, fulcrumed therein, a cross-bar, a friction-roller, loosely mounted thereon, the lift-rods, having their lower ends fixed in the respective ends of said cross-bar, a lift-plate, in which the upper ends of said rods are fixed, a pivot or guide-post, and the means described for sustaining the chair in an elevated position, substantially as set forth.



3. In a convertible chair, the combination with the chair part proper, of a base-structure, a pivot or guide-post, fixed therein, a lift-plate loosely embracing said post, the companion lift-rods, having their upper ends fixed in the lift-plate, a cross-bar, connecting the lower ends of the lift-rods, a friction-roller, loosely mounted on said bar, a foot lever, provided with a suitable fulcrum-bearing, the inner end presenting a curved surface to said roller and the outer end having a pivotal joint and folding over upon itself, and the means described for sustaining the chair in an elevated position, substantially as set forth.

4. In a convertible chair, a supporting-base, a pivot-post, having its lower end fixed in said base, the chair frame, a cross-bar, secured to the chair-frame and provided centrally with a collar loosely embracing the pivot-post, a lift-plate, the lift-rods, the cross-bar, connecting the lower ends of said rods, a lifting foot-lever, and the means described for sustaining the chair in an elevated position, substantially as set forth.

5. In a convertible chair, a pivot-post, having a fixed position and provided with a number of annular grooves, the chair-frame, a cross-bar, having its respective ends secured to the chair frame and provided centrally with a guide-sleeve, loosely inclosing the grooved part of the pivot-post, a shaft, journaled in the chair-frame, a pinion-wheel, mounted on said shaft and adapted to engage with the grooves in the pivot-post through an opening in said sleeve, ratchet-wheels, mounted on the respective ends of the pinion-shaft, a rod, running parallel to said shaft, the pawls, mounted on said rod and engaging with said ratchet-wheels, and means for rotating said rod for the purpose of throwing the pawl out of engagement, whereby the chair-structure may be locked at any elevation above the base, substantially as set forth.

6. In a convertible chair, the combination of a supporting base, a pivot-post, provided with annular grooves for a part of its length and rigidly secured in the hub-part of said base, a lift-plate, embracing the pivot-post, the rods, extended up through the base and having their upper ends fixed in the lift plate, a cross-bar, connecting the lower ends of said rods, a lifting or foot-lever, the chair-frame, a cross-bar, secured to the lower part of the chair-frame and provided centrally with a collar loosely inclosing said pivot-post, a cross-bar, secured to the upper part of said frame and provided centrally with a guide-sleeve, loosely inclosing the grooved part of the pivot-post, a shaft, journaled in the chair-frame, a pinion-wheel, mounted on said shaft and adapted to engage with the grooved part of the pivot-post, ratchet-wheels, mounted on the respective ends of the pinion-shaft, a rotatable rod, running parallel to said shaft, the pawls, mounted on said rod and engaging with said ratchet-wheels, whereby the chair may be raised and locked at any elevation, lowered, and revolved at any point between the lowest and highest position, substantially as set forth.

7. In a convertible-chair, the combination of the chair-frame, the seat-frame, the rear pivotal connection, joining the chair and seat frames, a guide-bar, pivoted at its upper end to the under side of the seat-frame, a curved rod, having one end secured to said guide-bar, a sleeve, fixed in the seat-frame and provided on one end with a guide-lug through which the undetached end of said curved rod is inserted, a clamping screw, having a threaded engagement in said sleeve and bearing against said rod, whereby the seat frame may be tilted laterally and locked at any angle, substantially as set forth.

8. In a convertible chair, the combination of the chair-frame, the seat-frame, the pivotal connection, joining the chair and seat-frame at the rear, a brace rod, pivoted at its inner end to the front of the seat-frame, a guide-bar, pivoted at its upper end to a lug formed on said brace-rod, a curved radius-rod, to which the outer end of said brace-rod is secured, and means, substantially as described, for locking the seat-frame with reference to said curved rod, substantially as set forth.

9. In a convertible chair, the combination of the chair-frame, the seat-frame, the rear pivotal connection, joining the chair and seat-frames, a guide-bar, having a pivotal connection with the front part of the seat-frame, a cross-bar, having its respective ends secured to the chair frame and provided with guide-lugs which loosely embrace the edges of the guide-bar, a guide-bracket, rigidly secured to the chair-frame, a curved radius-rod, secured at its lower end to the guide-bar, the upper end extending up through one side of the seat-frame, a clamping-screw, engaging with the radius-rod, a brace-rod, and means, substantially as described, for locking said guide-bar in any position to which it is capable of being adjusted, substantially as set forth.

10. In a convertible-chair, the combination of the chair-frame, the seat-frame, the rear pivotal connection joining the chair and seat frame, a guide-bar, pivoted at its upper end to the under side and front part of the seat-frame and provided in its lower end with a curved slot, a guide-bracket secured to the chair-frame, a friction-roller, journaled in said bracket and working in the slotted end of said guide-bar, and the locking-rod, adapted to engage with the guide-bar, whereby the chair part may be rocked longitudinally, substantially as set forth.

11. In an convertible-chair, the combination of the tilting seat-frame, a guide bar, pivoted at its upper end to said seat-frame, the lower end being slotted and provided with a series of apertures, the chair-frame, a bifurcated bracket, rigidly secured to the lower part of the chair frame and guiding the movement of said guide-bar, a friction-roller, journaled in said bracket and engaging with the slotted part of the guide-bar, a sleeve, secured in said bracket, a locking rod, extending in through said sleeve and adapted to engage with the apertures in the guide-bar, a lever, provided with a fulcrum-bearing in the chair-frame and connected at one end to the outer end of the locking-rod, and a stem, connected to one end of the fulcrumed lever, whereby said locking-rod may be thrown into and out of engagement with reference to the guide-bar in adjusting the chair, substantially as set forth.

12. In a convertible-chair, the combination of the chair-frame, the seat-frame, the pivotal connection, joining the chair and seat frame at the rear, a guide-bar, having apertures in the lower part thereof and pivoted at its upper end to the seat-frame, a bifurcated bracket, rigidly secured to the chair-frame and loosely embracing the lower end of said guide-bar, a friction-roller, journaled in said bracket and engaging with the slotted end of said guide-bar, a sleeve, secured in said bracket, a locking-rod, inserted through said sleeve and engaging with the apertures in the guide-bar, and a spring inclosed by said sleeve and coiled on the rod passing therethrough, whereby the latter is held normally in a locked position, substantially as set forth.

13. In a convertible-chair, the combination of the chair-frame, the seat-frame, the pivotal connection, joining the chair and seat frame, a plate, secured to the chair-frame and provided with an aperture, and a notch opening into said aperture, a hand-stem, inserted through the chair-frame and plate and provided with a lug adapted to engage with the notch in said plate in one position, a fulcrumed lever, to one end of which said hand-stem is connected, a locking rod, connected at one end to the opposite end of said lever, a bifurcated bracket, rigidly secured to the chair-frame, a sleeve, inserted in said bracket, a spring, coiled on said locking-rod inside of said sleeve, a guide-bar, pivoted at its upper end to the seat-frame and provided in the lower part, loosely embraced by said bracket, with a number of apertures with which the inner end of the locking-rod is adapted to engage in locking said guide-bar in the different positions to which it is capable of being adjusted, and a friction-roller, journaled in said bracket and engaging with the slotted end of the guide bar, substantially as set forth.

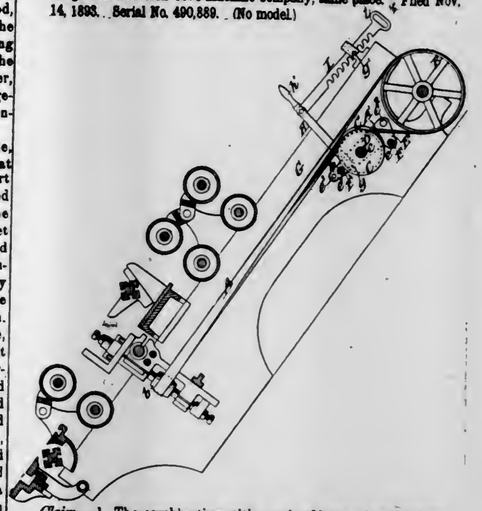
14. In a convertible-chair, the combination of the seat-frame, a cross-bar, provided with projecting lugs and secured to said frame, the chair-frame, the journal or pivot-bearings, secured thereto, a rocking pivot-pin, journaled in said bearings and provided with a lug pivotally connecting with the lugs on the cross-bar secured to the seat-frame, a guide-bar, pivoted at its upper end to the under side and front part of the seat-frame, a curved rod, having one end secured to said guide-bar, a sleeve, fixed in the seat-frame and provided on one end with a guide-lug through which the undetached end of said curved rod is inserted, a clamping-screw, having a threaded engagement in said sleeve and bearing against said curved rod, a bifurcated bracket, rigidly secured to the chair-frame and loosely embracing the lower part of the guide-bar, and means, substantially as described, for locking said bar in place with reference to said bracket whereby the seat-frame may be tilted laterally and longitudinally, and locked at any angle, substantially as set forth.

15. In a convertible chair, the combination of the seat-frame, the leg-rest, hinged thereto, a tube, pivoted at one end to said frame, a rack-bar, pivoted at one end to the leg-rest and extending into the tubular connection of the seat-frame, an angle-sleeve, embracing one end of said tube, a hand locking-rod, inserted through the angle-part of said sleeve and engaging with said rack-bar, and a spring, coiled on said rod and normally holding the same in a locked position, substantially as and for the purpose set forth.

16. In a convertible-chair, the combination of the seat-frame, the leg-rest, having a hinged connection therewith, a transverse bar, secured to the under side of the seat-frame, a tube, pivoted at one end to said bar, a rack-bar, pivoted at one end to the leg-rest and loosely inserted in said tube, an angle-sleeve, embracing one end of said tube, a locking-rod, inserted through said sleeve and bearing against the rack-bar, the hinged-plates, provided with slots ending in angular recesses and secured to the leg-rest, the foot-rest extension, the hinged connection, joining the leg and foot rest, and the connecting links, pivoted at one end to the respective ends of the foot-rest, the opposite ends of said links adjustably engaging with the slotted plates of the leg-rest, substantially as set forth.

17. In a convertible chair, the combination with the side rails of the seat-frame, of the companion box-plates, the back-standards, the pivot-plates, secured to said standards and having rounded toothed ends projecting into said box-plates, the pivot-shaft, the pawls, engaging with the toothed surface of said pivot-plates, the tripping-fingers, for disengaging said pawls, the rock-shaft, on which said fingers are mounted, and the spring, retaining said pawls in their engaged position, substantially as set forth.

520,580. BELT-TIGHTENER. CHARLES C. STUART, Brooklyn, N. Y., assignor to the Glen Cove Machine Company, same place. Filed Nov. 14, 1893. Serial No. 490,889. (No model.)



Claim.—1. The combination with a pair of belts, of belt tightening pulleys eccentrically mounted upon a common shaft to be moved simultaneously toward and away from the belt and means for setting the pulleys independently of each other toward and away from their respective belts, substantially as set forth.

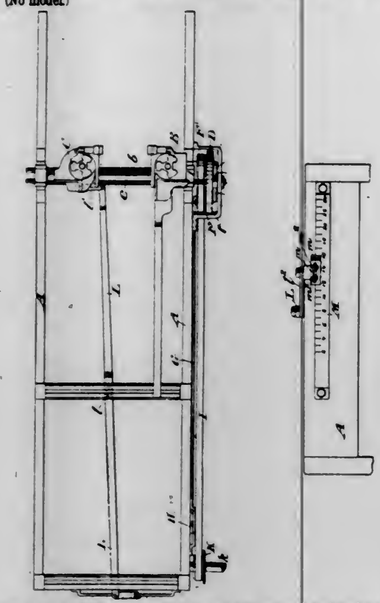
2. The combination with the pair of belts, of a swinging frame, means for swinging the frame, belt tightening pulleys, independent bushings eccentrically mounted upon a common spindle or shaft in the swinging frame and belt tightening pulleys one for each belt, one of the pulleys being loosely mounted upon one of the bushings and another upon another of the bushings, substantially as set forth.

3. The combination with a pair of belts, a swinging frame, a lever

for rocking the frame and means for holding the lever in its various adjustments, of bushings eccentrically mounted upon a common support, locking devices for holding the eccentrically mounted bushings in different rocking adjustments, and belt tightening pulleys mounted upon the bushings, substantially as set forth.

520,581. POWER ATTACHMENT FOR SIDE CUTTER-HEADS.

CHARLES C. STUART, Brooklyn, N. Y., assignor to the Glen Cove Machine Company, Limited, same place. Filed Nov. 14, 1893. Serial No. 490,890. (No model.)



Claim.—1. The combination with a side cutter head and a rotary spindle for adjusting the head, of oppositely driven pulleys, and means for transmitting the motion of the one or another of the oppositely driven pulleys to the head adjusting spindle, substantially as set forth.

2. The combination with a side cutter head and a rotary spindle for adjusting the head, of a friction wheel carried by said spindle, a swinging lever, oppositely driven friction pulleys carried by said lever and means for swinging said lever into position to bring either one of said friction pulleys into engagement with the friction wheel on the head adjusting spindle at pleasure, substantially as set forth.

3. The combination with a side cutter head mounted to move across the machine, a rotary screw engaged with the cutter head support for adjusting the cutter head and means for applying power to the rotary screw to rotate it in opposite directions at pleasure, of a scale, a pointer in position to move along the scale and a lever connected with the pointer and with the cutter head support to indicate the extent of movement of the cutter head, substantially as set forth.

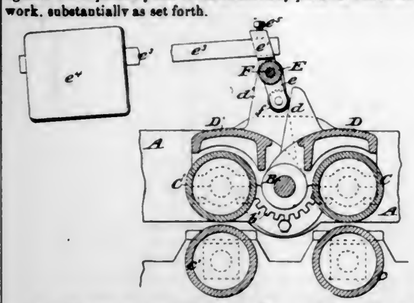
4. The combination with the movable cutter head, the rotary screw for adjustiug it and the friction wheel engaged with the screw spindle, of a swinging lever, belt and friction pulleys carried by the lever, means for continuously driving the said belt and friction pulleys in opposite directions, an operating lever within convenient reach of the operator at the end of the machine, a connection between the said pulley carrying lever and the operating lever for throwing either of the friction pulleys into engagement with the friction wheel at pleasure, a scale, a pointer arranged to move along the scale and a connection between the pointer and the cutter head support for determining the movement of the latter, substantially as set forth.

5. The combination with the movable cutter head, its operating screw and means for applying power to the screw in opposite directions at pleasure, of a scale, a pointer arranged to move along the scale, a pointer support and a lever connected with the pointer and with the cutter head support, the pointer having an adjustable connection with its support, substantially as set forth.

520,582. DEVICE FOR WEIGHTING FEED-ROLLS.

CHARLES C. STUART, Brooklyn, N. Y., assignor to the Glen Cove Machine Company, same place. Filed Nov. 14, 1893. Serial No. 490,891. (No model.)

Claim.—1. The combination with feed rolls and their supporting yokes mounted to swing toward and away from the material to be fed, of a weighted lever fulcrumed upon one of the yokes and bearing against a companion yoke to simultaneously press the rollers to their work, substantially as set forth.



2. The combination with a feed roller and its movable supporting yoke, of a weighted lever independent of the yoke, a pivotal support for the lever extending transversely of the machine above the feed roller supporting yoke, and an elongated bearing fixed to the weighted lever and mounted on the pivotal support, the said lever having an engagement with the yoke to press the roller to its work, substantially as set forth.

3. In combination, a feed roller, its movable supporting yoke, a supporting spindle extending transversely across the path of the material to be fed, an elongated sleeve mounted on said spindle and provided with arms, one weighted and another adapted to engage the movable yoke, substantially as set forth.

4. In combination, a feed roller, its movable supporting yoke, a transverse spindle, an elongated sleeve mounted on the spindle and provided with socket arms for receiving the weighted bars and with arms for engaging the movable yoke and the weighted bars, substantially as set forth.

520,583. SAD-IRON.

MARGARET V. TRUBE, Brooklyn, N. Y. Filed May 28, 1892. Serial No. 434,760. (No model.)



Claim.—1. A sad-iron comprising a detachable handle and a body portion having two ironing surfaces, one of which consists of a raised seam-pressing rib formed integrally with the body portion and curved longitudinally, said body portion being provided with suitable catches for engagement with the handle, substantially as set forth.

2. A sad-iron having a raised seam-pressing rib formed integrally with its body portion, curved longitudinally, substantially as set forth.

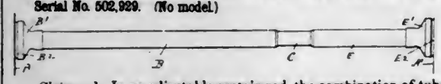
3. A sad-iron comprising a detachable handle and a body portion provided with catches adapted to receive the handle, and having a plurality of integral smoothing surfaces, one of which consists of a raised seam-pressing rib curved longitudinally, substantially as set forth.

4. A sad-iron provided with a plain ironing surface *c*, polishing point or surface *d*, seam ironing surface *b*, duplicate fastening devices 1, 2, and a detachable handle, substantially as set forth.

5. The sad-iron herein described, consisting of a body having ironing or pressing surfaces *b*, *c*, *d* and *e*, handle fastening devices 1, 1, and 2, 2, and a detachable handle, combined and arranged substantially as set forth.

520,584. ADJUSTABLE CURTAIN-ROD.

WILLIAM A. TURNER, Worcester, Mass., assignor to Henry A. Fowler and John H. Lingley, same place, and Samuel Fowler, Northbridge, Mass. Filed Mar. 8, 1894. Serial No. 502,929. (No model.)



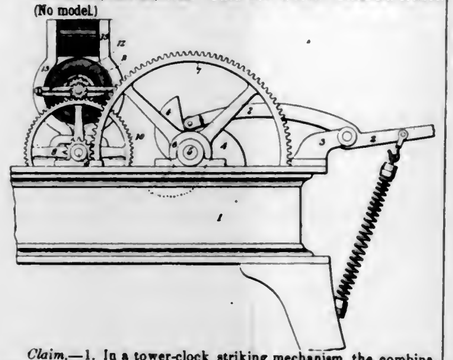
Claim.—1. In an adjustable curtain rod, the combination of tube B, interior rod C, provided with a screw threaded section C' and a tapering section C^3, nut D held on said screw threaded section C^3, and having wings D^2 arranged to be brought over said tapering section by the longitudinal movement of said nut on said screw threaded section, whereby said wings are crowded against the inner surface of said tube and the rod C held from longitudinal movement on said tube, substantially as described.

2. The combination in an adjustable curtain rod, of the tube B, rod C held in said tube and having a screw threaded portion C' and a tapering section C^3, and an expansible nut carried on said screw threaded section and arranged to be expanded by the tapering section of said rod C', substantially as described.

3. In an adjustable curtain rod, the combination of the tube B, tip B' attached thereto, rod C adjustably held in said tube, and having a screw threaded section C' and a tapering section C^3, a nut D held on said screw threaded section, elastic wings D^2, D^2, extending from said nut and arranged to press by their elasticity against the inner side of said tube to hold the nut from rotating with said rod C, whereby said wings are carried over said tapering section C^3, a sliding tip carried on the end of said rod C, and a spring held in said tip and acting against the side of the rod C, substantially as described.

520,585. ELECTRIC CLOCK STRIKING MECHANISM.

CHARLES D. WARNER, Ansonia, Conn. Filed Apr. 6, 1893. Serial No. 469,261. (No model.)



Claim.—1. In a tower-clock striking mechanism, the combination of a bell-hammer actuating device, an electric motor and its circuit for operating said device, a time circuit armature acting to close the motor circuit, and a locking device acting to hold the said armature in closed circuit position during the time of striking.

2. In a tower-clock striking mechanism, the combination of hammer actuating device, an electric-motor and its circuit for operating said device, a time circuit armature for closing the motor circuit, a locking device acting to hold the armature in closed circuit position during the time of striking, and mechanism operated by the motor and acting to open the motor circuit.

3. In combination, the bell hammer operating train and the driving motor thereof, the hour wheel 16 driven by the train and having the pins 17, the time circuit magnet and its armature, the motor circuit and means substantially as described whereby the depression of the time circuit armature will close the motor circuit and hold the same closed and whereby by the operation of the hour wheel said circuit will be opened.

4. In combination with the striking train of a tower clock including an electric motor for operating the same, a time circuit armature operating by one movement to close a circuit through the motor and by its opposite movement to open said circuit, and means substantially as described for holding the motor circuit closed during the requisite time of striking.

520,586. TYPE-WRITING MACHINE.

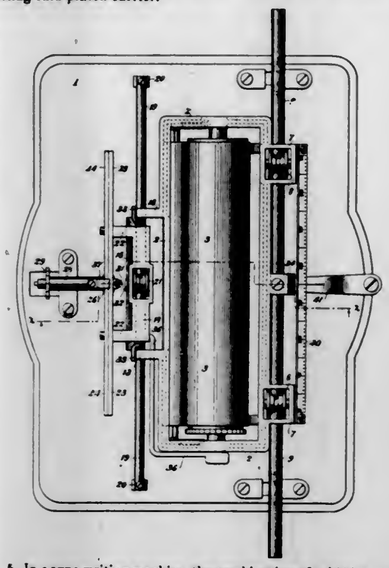
GEORGE B. WEBB, New York, N. Y., assignor to the Wyckoff, Seamans & Benedict, same place. Filed Sept. 26, 1892. Renewed Mar. 8, 1894. Serial No. 502,919. (No model.) Patented in England Mar. 18, 1893, No. 1,570.

Claim.—1. In a type writing machine, the combination of a platen-carrier, a guide-rail, a yoke adapted to travel thereon, a link or coupler pivoted to said yoke in rear of said guide-rail at one end, and also pivoted to the rear end of the platen-carrier, and means for shifting said platen-carrier.

2. In a type writing machine, the combination of a platen-carrier, a guide-rail, a yoke adapted to travel thereon and provided with downwardly and rearwardly-extending arms, a link or coupler, in rear of said guide-rail, pivoted to the rear portion of the platen-carrier and to said downwardly and rearwardly-extending arms, and a vibratory shift-rod.

3. In a type writing machine, the combination of a platen-carrier, a guide-rail, a yoke adapted to travel and also to oscillate thereon and provided with the feed-rack of an escapement mechanism, a link or coupler in rear of said guide-rail and pivotally-connected to the said yoke and to the rear portion of the platen-carrier, and means for shifting the platen-carrier.

4. In a type writing machine, the combination of a platen-carrier, a guide-rail, a yoke adapted to travel and also to oscillate thereon and provided with a feed rack, a pinion, a ratchet-wheel, a spacing-dog, a coupler in rear of said guide-rail connected to said yoke and to the rear side of the platen-carrier, a release-key, and means for shifting said platen-carrier.



5. In a type writing machine, the combination of a shifting platen-carrier, a guide-rail, a yoke adapted to travel and also to oscillate thereon, and provided with the feed-rack of an escapement mechanism, a link or coupler, in rear of said guide-rail, pivotally-connected to said yoke and to the rear portion of the platen-carrier, and a stop for limiting the movement of the link or coupler when the platen-carrier is turned up for inspection of the work.

6. In a type writing machine, the combination of a platen-carrier, a guide-rail, a yoke adapted to travel and also to oscillate thereon and provided with a feed-rack, a pinion, a ratchet wheel, a dog, a link or coupler, in rear of said guide-rail, pivotally-connected to said yoke and to the rear portion of said platen-carrier, a release-key attached to the said oscillating yoke for raising said feed-rack, a stop to limit the rearward movement of the link or coupler when the platen-carrier is turned up, a stop to limit the hinge-movement of the platen-carrier when turned up, and a vibratory shift-rod.

7. In a type writing machine, the combination of a vibratory feed-rack, a step-by-step rotatory pinion arranged beneath the same, a bearing-bar arranged adjacent to and parallel with said feed-rack, and an anti-friction roll for and beneath said bar arranged adjacent to and parallel with said pinion.

8. In a type writing machine, the combination of a vibratory feed-rack, a bearing-bar, a step-by-step rotatory shaft, a pinion on said shaft to engage the said feed-rack, and an anti-friction roll on said shaft to co-operate with said bearing-bar the feed rack and the bearing-bar being arranged in parallel planes, and the pinion and anti-friction roll being also arranged in parallel planes and beneath respectively the said feed-rack and the said bearing-bar.

9. In a type writing machine, the combination of a shifting platen-carrier, a guide-rail, a yoke adapted to travel and also to oscillate thereon, a link or coupler in rear of said guide-rail and pivotally-connected to the rear side of the platen-carrier and to said yoke, a feed-rack and a bearing-bar connected to said yoke, and a step-by-step rotatory shaft provided with a pinion and an anti-friction roll.

520,587. PROCESS OF MAKING PAPER BAGS.

EDWARD E. CLAUSSEN, Hartford, Conn., assignor to Albert H. Walker, trustee, same place. Filed Aug. 18, 1892. Serial No. 443,361. (No specimens.)

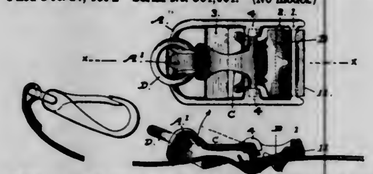
Claim.—1. The process of making a paper bag having bellows sides and a flat bottom, which consists in making an I shaped tube, cutting in the upper and lower walls the slits 3, 4, and 5, 6 respectively, then turning inwardly the portions 17 and 18 of the side walls

together with those portions of the upper and lower walls which lie outside of the slits, and flattening the blank by collapsing the remaining portions of the side walls, then opening the folded end of the blank into the diamond form and cross folding the end flaps of the diamond, all substantially as described.



2. The process of making a paper bag having tucked sides and a flat bottom, from a continuous tube, which process consists in forming that tube with an I shaped cross section and defining the length of a blank by the cuts 45 and 46, and the slits 3, 4, 5 and 6, then turning in the leading ends of the side walls of that blank and flattening it by collapsing the remaining portions of those side walls, then severing the central portion of the upper wall and folding the forward upper half of the blank on the line *a*—*b* then completing the bag by cross folding the flaps 53 and 56; all substantially as described.

520,588. BUCKLE. CHARLES A. CONGER, San Francisco, Cal. Filed Feb. 27, 1894. Serial No. 501,661. (No model.)

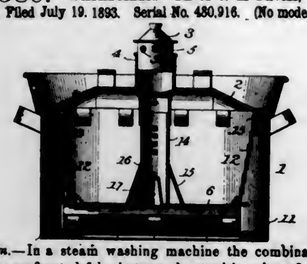


Claim.—1. The herein described buckle consisting of the frame —A— having the cross-bars —1—2— at one end, between which the end of the strap is inserted, the bottom cross-bar —3— between the bar —2— and the opposite end of the frame and the inwardly turned hook or beak —A'— on the top of the frame, in combination with the plate —B— having the cradle-piece and the upwardly turned end fitted between the cross-bars of the frame and the lever —C— pivoted in the frame and having an eccentric portion extending below the pivots and resting in the cradle piece and adapted by the pivotal movement of the lever to press the cradle-piece down between the cross-bars of the frame, substantially as hereinbefore set forth.

2. The combination substantially as hereinbefore set forth, of the frame having cross-bars and openings as described, of the loose pressure-plate having a curved cradle-piece adapted to fit into the opening between two parallel cross-bars on the frame and provided with a groove or depression in its concave upper-face and the pivotal lever having an eccentric portion below the line of its pivot adapted to sit in the depression of the cradle and by the pivotal movement of its lever to press the cradle outward through the opening between the cross bars of the frame.

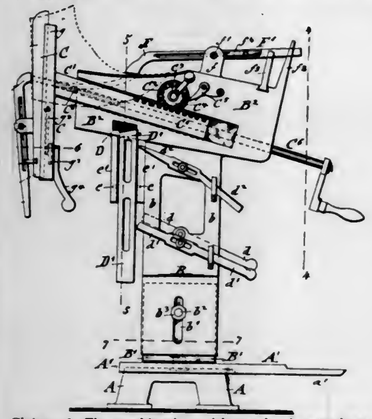
3. The combination substantially as hereinbefore set forth, of a suitable frame, a pivoted lever having an eccentric projection on its under side below the line of the pivot, and a curved cradle-piece fitted loosely into an opening in the frame between cross-bars thereof on either side of and below the pivotal points of the lever having a groove or depression in its concave upper face into which the eccentric portion of the lever rests; the pivotal movements of the lever acting to press and hold the said cradle-piece outward in the said opening of the frame.

520,589. WASHBOILER. DAVID J. H. DAVIES, Wilkes-Barre, Pa. Filed July 19, 1893. Serial No. 480,916. (No model.)



Claim.—In a steam washing machine the combination of the boiler, the perforated false bottom, the partition plates 8 dividing the space beneath the false bottom into chambers 9 and 10, the central fountain tube resting on the false bottom and communicating with the chamber 10, the side inclined and converging fountain tubes communicating with the chambers 9, and the central perforated stand-pipe, said fountain tubes having their upper ends located close together within the stand-pipe, substantially as described.

520,590. MACHINE FOR PASTING VAMPS TO UPPERS. HERMAN FISCHER, Brooklyn, N. Y. Filed May 25, 1893. Serial No. 475,425. (No model.)



Claim.—1. The combination, with a main-piece having a rest for the upper and vamp, of a stretcher-piece guided in ways of the main-piece, means for adjusting the stretcher-piece, a longitudinally-adjustable instep-retaining jaw at the top of the main-piece, means for adjusting the latter along the top of the rest, and a transverse wedge-key for locking the instep-jaw in clamping position, substantially as set forth.

2. The combination of a main-piece having a rest for the upper and vamp, an instep-jaw at the top of the main-piece, a stretcher-piece guided in said main-piece, means for adjusting the stretcher-piece, a heel-jaw on said stretcher-piece, longitudinally-adjustable upper-retaining jaws arranged at opposite sides of the rest, means for clamping said jaws to the upper, longitudinally-adjustable vamp-retaining jaws, also arranged at opposite sides of the main-piece, means for clamping said jaws to the vamp, and means for simultaneously adjusting the upper and vamp-retaining jaws, whereby the side portions of the upper and vamp are stretched, substantially as set forth.

3. The combination, with a main-piece having a rest for the upper and vamp, of an instep-jaw having a grooved shank, fulcrum-pins engaging said grooved shank, a recessed keeper for the rear-end of the shank and a transverse wedge-key for locking the instep-jaw, substantially as set forth.

4. The combination, with a main-piece having a rest for the upper and vamp, of an instep-jaw having a grooved shank, fulcrum-pins for engaging said grooved shank, a recessed keeper for the rear-end of the shank of the instep-jaw, a transverse wedge-key for locking

the instep-jaw and a stop-lug pivoted to the shank of the instep-jaw so as to permit the setting of the instep-jaw to the proper position on the instep of the upper, substantially as set forth.

5. The combination, with a main-piece, having a rest for the upper and vamp, of an instep-jaw having a grooved shank, fulcrum-pins for said shank, a recessed keeper for the rear-end of the shank, a transverse wedge-key for locking the instep-jaw and means for adjusting the instep-jaw at the front-end of the grooved shank, substantially as set forth.

6. The combination, with a main-piece having a rest for the upper and vamp, of a stretcher-piece the shanks of which are guided in ways of the main-piece, means for adjusting the shanks of said stretcher piece, mechanism for locking said shanks, and a screw-spindle supported in the main-piece and adapted to adjust the stretcher-piece for auxiliary adjustment, substantially as set forth.

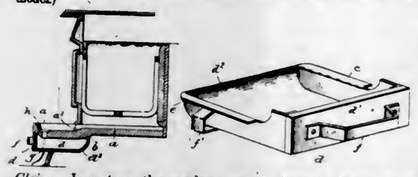
7. The combination, with a main-piece having a rest for the upper and vamp, of an instep-jaw at the top-part of said main-piece, upper-retaining jaws at opposite sides of the main-piece, vamp-retaining jaws also at the opposite sides of the main-piece, levers for clamping respectively the upper and vamp-retaining jaws, and levers for engaging both sets of jaws so as to produce the proper stretching of the vamp, substantially as set forth.

8. The combination, with a main-piece having a rest for the upper and vamp, of fulcrumed side-jaws for clamping respectively the upper and vamp, grooved keepers for the fulcrum-pins of said jaws, and levers for clamping the side-jaws to the upper and vamp, substantially as set forth.

9. The combination, with a main-piece, having a rest for the upper and vamp, of fulcrumed side-jaws for clamping respectively the upper and vamp, grooved keepers for guiding the fulcrum-pins of said jaws, levers for clamping the jaws to the upper and vamp respectively and levers for engaging the projecting shoulders on the shanks of the jaws for stretching the vamp, substantially as set forth.

10. The combination, with a main-piece, having a rest for the upper and vamp, of a stretcher piece guided in the same, a movable piece guided in the stretcher piece, means for adjusting said movable piece, a heel retaining jaw fulcrumed to the movable piece, and a transverse wedge-key for locking the heel-retaining jaw, substantially as set forth.

520,591. COMBINED STOVE-HEARTH AND ASH-BOX. EDWARD L. FLOOD, Savoy, Ark. Filed Feb. 28, 1894. Serial No. 501,828. (No model.)



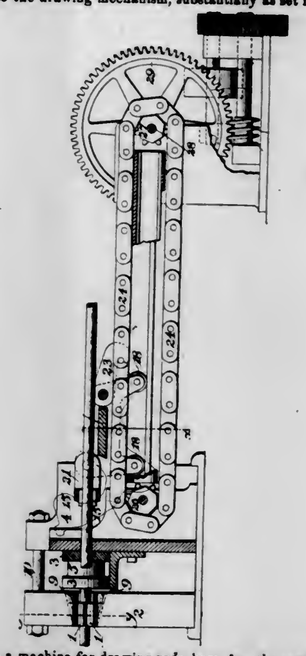
Claim.—In a stove, the combination of a hearth adapted to primarily receive the ashes from the fire, said hearth being formed with a slot extending transversely across the same and through which the ashes are adapted to pass, an ash-pan removably secured to the under side of the hearth and adapted to receive the ashes through the slot, and a removable lid capable of fitting in and closing said slot in the hearth, whereby as the ash-pan is removed the lid may be placed on the slot so as to close the same and prevent the escape of ashes therefrom, substantially as described.

520,592. MACHINE FOR DRAWING BARS OR RODS. PHILIP M. HAAS and CHARLES S. DUTTON, Youngstown, Ohio. Filed July 19, 1893. Serial No. 480,873. (No model.)

Claim.—1. A machine for drawing bars, rods, &c., comprising mechanism for forcing a die over the end of a bar or rod sufficiently to permit of the application of a gripping mechanism to the protruding end of the bar or rod, and mechanism for pulling the bar or rod through the die, the forcing and pulling mechanism being arranged in suitable relation to each other with reference to the simultaneous operation of both mechanisms simultaneously on different rods and also for the convenient and ready transfer of a bar or rod with a die forced over its end from the forcing to the pulling mechanism, substantially as set forth.

2. In a machine for drawing bars and rods, the combination of a laterally slotted standard, grippers arranged in said standard for rigidly clamping and holding the bar or rod, a support for holding the die in line with the rod or bar when held by the grippers and mechanism for forcing the die onto the bar or rod, substantially as set forth.

3. A machine for drawing rods, bars, &c., comprising a laterally slotted standard, grippers arranged in said standard, mechanism for forcing a die onto a rod or bar while held by the grippers, drawing mechanism, and a support for the die and bar extending from the forcing to the drawing mechanism, substantially as set forth.



4. In a machine for drawing rods, bars, &c., the combination of grippers for rigidly clamping and holding the bar or rod and a fluid pressure cylinder and piston arranged to force the drawing die over the end of the bar to be drawn, substantially as set forth.

5. In a machine for drawing bars, rods, &c., the combination of stationary grippers and a fluid pressure cylinder and piston arranged to force the drawing die over the end of the bar to be drawn, the piston being provided with an opening for the reception of the end of the bar, substantially as set forth.

6. A machine for drawing bars, rods, &c., comprising a laterally slotted standard, grippers arranged in said standard, a fluid pressure cylinder and piston, drawing mechanism, and a support for the die and bar, extending from the pressing mechanism to the drawing mechanism, substantially as set forth.

520,593. TOOTH-BRUSH. OTTO F. HAGER, Buffalo, N. Y. Filed Feb. 10, 1894. Serial No. 499,705. (No model.)



Claim.—As an improved article of manufacture, the herein described tooth brush whose handle is hollow and has at its inner end a reduced exteriorly-screw-threaded nipple with a flat face at its extremity and at its other end the bristles, one end of the passage through the handle opening among the bristles and the other end opening in the axial line of the nipple through the center of said flat face; a cup-shaped collar screwed onto said nipple and having a number of longitudinal perforations through its bottom arranged out of the axial line of the cup and opening through the flat face of said bottom opposite the closed portion of the end of the nipple, the center of said bottom opposite the passage of the handle being flat and closed; and a rubber bulb connected with the inner end of the collar, as and for the purpose set forth.

520,594. TROLLING-SPOON. JOHN R. HARLOW, Auburn, N. Y. Filed Oct. 23, 1893. Serial No. 488,894. (No model.)



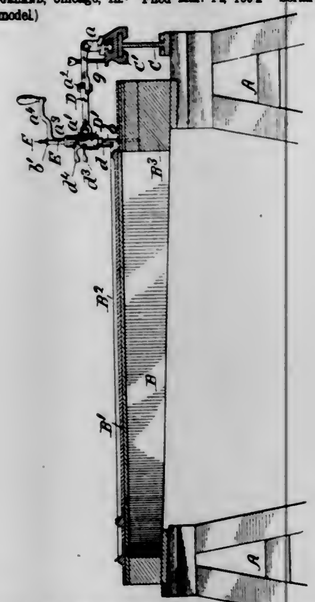
Claim.—1. The herein described concavo-convex trolling spoon having its concave side transformable into its convex side at will.

2. The herein described concavo-convex trolling spoon having its two sides provided with different surfaces and having its convex side transformable into its concave side at will.

3. The herein described combination of the stem, the coiled spring clip and the concavo convex spoon having its convex side transformable into its concave side at will, substantially as described.

4. The herein described spring clip or snap consisting of the spiral coil forming a spring and the hooked ends pressing against each other.

520,595. MACHINE FOR STRINGING PIANOS. FREDERICK W. HEDGELAND, Chicago, Ill. Filed Mar. 14, 1894. Serial No. 503,577. (No model.)



Claim.—1. In a device of the kind described, the combination with a jointed lever-arm, pivotally supported at its outer end, a sleeve, having a pivotal connection with the opposite or inner end of said arm, a stock, loosely inclosed by said sleeve and provided in its lower end with a socket or recess to engage with the head-end of a tuning-pin in the operation of attaching the strings, substantially as set forth.

2. In a device of the kind described, the combination with a jointed lever-arm, having a pivotal connection and swiveling support at its upper end, a sleeve, pivoted to the inner or opposite end of said arm, a stock, inclosed and supported by said sleeve and adapted to engage with the head-end of the tuning-pins, and a handle, for rotating said stock, substantially as set forth.

3. In a device of the kind described, the combination with the stock, adapted to engage with and rotate the tuning-pins, of a driving-rod, inserted longitudinally therethrough and having contact with the tuning-pin, whereby the pin or pins may be forced in and seated in the operation of stringing a piano, substantially as set forth.

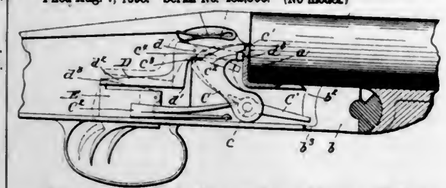
4. In a device of the kind described, the combination with a jointed lever-arm, pivotally connected at its outer end, a sleeve, pivotally connected to the inner end of said arm, a stock, loosely inclosed by said sleeve, a rotating handle, attached to the stock, and a driving-rod, inserted in said stock, substantially as set forth.

5. In a device of the kind described, the combination with a suitable stationary support, of a sliding-block, adjustably mounted on said support, a post, swiveled in said block, a jointed lever-arm, pivoted at one end to said post, a sleeve, pivoted to and supported on the opposite end of said arm, a stock, supported in said sleeve, a rotating handle attached to said stock, and a driving-rod, inserted longitudinally in said stock, substantially as set forth.

6. In a device of the kind described, the combination with a sleeve, provided with chamber, of a string-lifting rod, extending through said chamber, a spring, located in said chamber and coiled on said rod, and a cam-lever, pivoted to said sleeve and adapted to shift said rod against the tension of the spring in disengaging the lifter, substantially as set forth.

7. In a device of the kind described, the combination with an adjustable support, of a jointed lever-arm, pivoted at one end thereto, a sleeve, pivoted to the opposite end of said arm, a stock, loosely supported in the sleeve, a rotating handle, a driving-rod, inserted in said stock, a string-lifting rod, attached to said sleeve, a spring, coiled on said rod, and a cam-lever, pivoted to said rod and having contact with said lifting-rod, substantially as set forth.

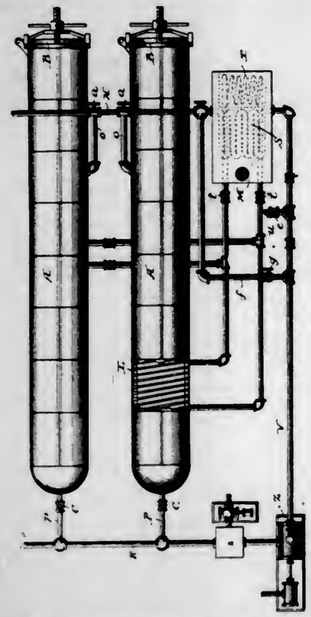
520,596. SAFETY-SEAR. GEORGE A. HORNE, Syracuse, N. Y. Filed Aug. 7, 1893. Serial No. 482,568. (No model.)



Claim.—1. In a lock for fire arms the combination with the hammer, of the sear having a hammer retaining projection and provided with an arm having a projection lying normally in the path of the striking part of the hammer, substantially as described.

2. In a lock for fire arms, the combination with a hammer, of a sear having a portion for engaging said hammer and holding it in cocked position and a forwardly extending part provided with a safety stop normally in the path of the striking part of the hammer and means for operating the sear to release the hammer and withdraw said stop, substantially as described.

520,597. METHOD OF VULCANIZING WOOD. CHARLES HOWARD, New York, N. Y. Filed Jan. 9, 1893. Serial No. 457,835. (No specimens.)

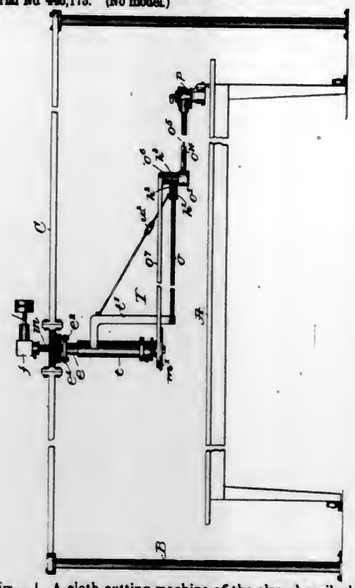


Claim.—1. The method of curing or vulcanizing lumber and other materials, which consists in subjecting the material to heat while under a vacuum, and then circulating cold air over the material and gradually reducing the vacuum, until the pressure is that of the atmosphere substantially as set forth.

2. The method of curing or vulcanizing lumber and other materials, consisting in heating the same while under a vacuum and then gradually reducing the temperature and reducing the vacuum, until the pressure is that of the atmosphere substantially as set forth.

3. The method of curing lumber and other materials, consisting in first exhausting the air to secure a vacuum of any desired degree, then heating the material while maintaining the vacuum, and then introducing cold air to cool the material while still maintaining a vacuum, and finally reducing the vacuum gradually until the pressure is that of the atmosphere, substantially as set forth.

520,598. CLOTH-CUTTING MACHINE. PATRICK HOWE, Boston, Mass., assignor of five-sixths to Isaac Fenno, Richard D. Goodwin, and Charles M. Blake, same place, and Martha A. Tolman, administratrix, Newton, and Henry G. Hartshorne, Wakefield, Mass. Filed Sept. 17, 1892. Serial No. 446,173. (No model.)



Claim.—1. A cloth cutting machine of the class described, containing the following instrumentalities, viz;—a stationary support an actuating shaft, a removable cutter head driven from and by said shaft, a jointed connection between the said support and cutter head whereby the latter is sustained by yet rotatable about the said support, and a detachable coupling interposed in said jointed connection and located between the cutter head and support whereby the cutter head may be readily removed from one support and coupled to another similar support, substantially as described.

2. In a cloth cutting machine of the class described, a support, and a main arm carried thereby and revoluble about said support; combined with an auxiliary arm carrying a cutter head, and a detachable coupling connecting the said auxiliary arm with said main arm, substantially as described.

3. In a cloth cutting machine of the class described, a support, and a main arm carried thereby and revoluble about said support, combined with an auxiliary arm carrying the cutter head, a detachable coupliug connecting the said auxiliary arm with said main arm, and a locking device to prevent rotatable movement of one arm with relation to the other, as described.

520,599. TOBACCO-PIPE. OLOF M. JONASSON, Uniontown, Pa. Filed June 21, 1893. Serial No. 478,349. (No model.)



Claim.—1. In a pipe, the combination with the bowl stem, and mouthpiece, of a swiveled-joint comprising a pair of sections swiveled one upon the other, one of such sections having a stud at one side, and a spring-arm secured at one end to the pipe and standing normally off or away from the stud and having an eye adapted to be sprung over the stud, substantially as specified.

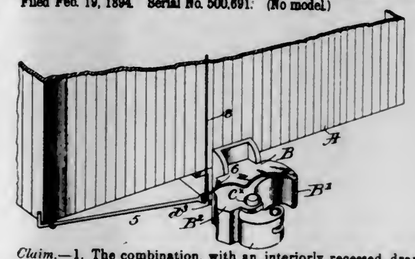
2. In a pipe, the combination with the bowl, the stem, and the mouthpiece, of the intermediate horizontally swiveling joint consisting of the upper and lower-members having semi-globular inner ends, the lower-member being provided within its upper edge with a beveled annular flange fitting loosely in the flared lower end of the upper-member, an externally threaded stem at the front side of said lower-member and disposed at an angle to the semi-globular inner end and inserted in the stem of the bowl, and the internally threaded stem at the outer end of the upper member and receiving the mouthpiece, the stud upon the upper side of the upper member, the bail secured to and embracing the bowl, and the spring-arm coiled about the bail, having one end entering a perforation in the bowl, and its opposite end bent to form an eye for engaging the stud upon the upper side of the swiveled-member, substantially as specified.

520,600. ACID-PROOF COMPOSITION. JOHN A. JUST, Syracuse, N. Y. Filed Nov. 24, 1890. Serial No. 372,477. (No specimens.)

Claim.—1. The herein described acid proof composition, the same being composed of linseed oil, guttapercha, sulphur, rosin, shellac, and asphaltum or pitch, the combined weight of the first three elements being less than that of the last three, substantially as set forth.

2. The herein described acid proof composition, the same being composed of linseed oil, guttapercha, sulphur, rosin, shellac, and asphaltum or pitch, the same being compounded in substantially the proportions specified, substantially as set forth.

520,601. CAR-COUPLING. EDWARD W. KELLEY, Lowell, Mass. Filed Feb. 19, 1894. Serial No. 500,691. (No model.)



Claim.—1. The combination, with an interiorly recessed draw-head, of a coupling knuckle pivoted in and closing the entrance to said recess and provided with a tail projecting thereinto, a pivotally supported lock-block in the recess adapted to automatically move into position against the tail of and to lock the knuckle, and independent means to move said block out of the path of the knuckle tail to permit movement of the knuckle, substantially as described.

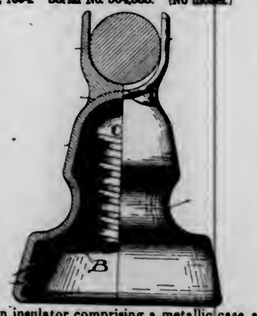
2. The combination with an interiorly recessed draw-head, of a coupling knuckle pivoted thereto and provided with a tail projecting into the recess, a pivotally supported lock-block adapted to automatically move into position to lock the knuckle, and a dog to engage and hold the said block in inoperative position, movement of the knuckle into open position tripping said dog and releasing the lock block, substantially as described.

3. An interiorly recessed draw-head, a coupling knuckle pivoted thereto and provided with a tail projecting into the recess, combined with a lock-block pivoted in the recess and adapted to automatically engage the tail of and hold the knuckle locked, a dog to maintain the block in inoperative position, and independent means to move the said block into such position, movement of the knuckle into open position tripping the dog to release the block, substantially as described.

4. A draw-head having an inclosed recess, a coupling knuckle pivoted to the draw-head and provided with a tail having a cam thereon, and a dog in the path of movement of and to be tripped by said cam, combined with a lock-block within the recess adapted to automatically move into position against the tail of and to lock the knuckle, and an externally operated actuator upon which said block is supported and by which it is turned to be held by the dog in inoperative position, substantially as described.

5. The combination with an interiorly recessed draw-head, of a coupling knuckle pivoted in and closing the entrance to the recess and provided with a tail projecting into and concealed within the recess, a pivoted dog supported in the draw-head, a lock-block movable into position to be engaged by the dog and held in inoperative position, an externally operated actuator upon which the block is supported, and means to maintain the rod in the draw-head, substantially as described.

520,602. INSULATOR. HENRY H. LOCKWOOD, Hartford, Conn. Filed Mar. 19, 1894. Serial No. 504,335. (No model.)

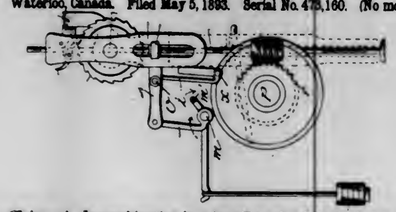


Claim.—1. An insulator comprising a metallic case, and insulating material within said case, and said case having an inturned lip at the lower edge thereof in contact with and forming a protection for the lower edge of the insulating material, substantially as set forth.

2. An insulator comprising a continuous metallic case, a mass of insulating material within said case and in contact with the interior surface thereof, said case being provided with an inturned lip at the lower edge thereof to cover and protect the lower edge of the insulation, substantially as set forth.

3. An insulator comprising a metallic case and insulating material within said case, said case having at the top thereof and secured thereto a cable-support, consisting of a base portion and arms projecting upwardly therefrom and adapted to be bent inwardly over the cable to secure it in place, substantially as set forth.

520,603. LET-OFF MECHANISM FOR LOOMS. JOHN H. MAYER, Waterloo, Canada. Filed May 5, 1893. Serial No. 473,160. (No model.)



Claim.—1. In combination in a let off mechanism, the beam, the worm shaft for driving the same, the mechanism for turning the worm shaft including a pawl lever and ratchet, said mechanism being arranged to slide along the worm shaft, the whip roll, the connections from said whip roll to the pawl lever, said connections having a shifting connection with said pawl lever and the support for said sliding operating mechanism said support arranged to press on the warp of the warp beam to be controlled as the same unwinds, substantially as described.

2. In combination, the warp beam, the shaft connected therewith for operating the same, the sliding pinion on said shaft, the pawl and ratchet for operating said pinion also arranged to slide the pawl lever for operating the pawls, the whip roll, the connection therefrom to the pawl lever, said connections having a shifting joint connection with the pawl lever and the support for controlling the position of the shifting parts, said support bearing on the warp beam, substantially as described.

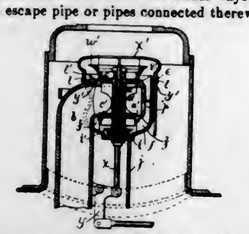
3. In combination, the warp beam, the whip roll, the shaft connected with the warp beam, the operating mechanism for said shaft arranged to slide thereon, the support therefor bearing on the warp beam, the whip roll and the connection therefrom to the operating mechanism having a sliding connection therewith whereby the feed stroke of said mechanism will be varied as the warp unwinds, substantially as described.

520,604. STEAM-SEPARATOR. CARL J. MELLIN, Richmond, Va. Filed Aug. 10, 1892. Serial No. 442,734. (No model.)

Claim.—1. The combination with a vertical valve having upper and lower openings, of a duplex steam separator inclosing both upper and lower openings, with independent separating devices to each opening substantially as described.

2. The combination with a vertical valve having upper and lower openings, of a steam separator consisting essentially of the upper and lower cups clamped on the steam pipe, and inclosing the valve openings, one or more receptacles therein of the water deflected out of the course of the steam ways to the valve openings, and the escape pipe or pipes connected therewith substantially as described.

3. The combination with a vertical valve having upper and lower openings, of a steam separator consisting essentially of the upper and lower cups clamped on the steam pipes and inclosing the valve openings, a passage conducting the steam from the upper cup into the lower one for the lower valve opening, and one or more receptacles therein, of the water deflected out of the steam ways to the valve openings and the escape pipe or pipes connected therewith.



4. The combination with a vertical valve having upper and lower openings, of a steam separator consisting essentially of the upper and lower cups clamped on the steam pipe and inclosing the valve openings, a passage through the valve conducting the steam from the upper cup into the lower one for the lower valve opening, and one or more receptacles therein of the water deflected out of the steam ways to the valve openings, and the escape pipe or pipes connected therewith substantially as described.

5. The combination with a vertical valve having upper and lower openings, of the cup inclosing the upper opening and admitting the steam through the hole in the top to the upper end of the valve, and the deflecting plate above the steam ways to the valve opening, said plate and the valve adapted for the rise of the valve without hinderance by the said plate substantially as described.

6. The combination with a vertical valve having upper and lower openings, of a steam separator consisting essentially of the upper and lower cups clamped on the steam pipe and inclosing the valve openings, a passage through the valve for the escape of the separated water, the cup shaped deflector flared over the top of the separator cup, and the water receptacle at the base of the same and discharging through the valve substantially as described.

7. The combination with the vertical valve having upper and lower openings, of the steam separator consisting essentially of the upper and lower cups clamped on the steam pipe and inclosing the valve openings, the valve having an opening through it for the steam to the lower opening, the water receptacle mounted on and fastened to the top of the valve, and having the water passage through the steam passage of the valve, and the cup deflector mounted on the water receptacle said valve attached to the valve stem by the cup deflector and water receptacle substantially as described.

8. The combination of the conic water collecting shed with the inlet passage for the steam to the valve, and the cup deflector flared over the top of the said inlet substantially as described.

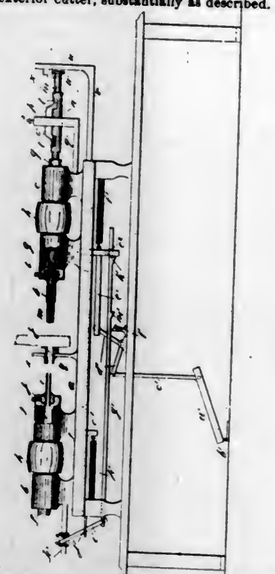
520,605. CORK-SHELL-CUTTING MACHINE. ADOLPH L. MITCHELL, Rockville Centre, N. Y. Filed May 11, 1893. Serial No. 473,875. (No model.)

Claim.—1. In a cork shell cutting machine, the combination of the stationary disk, the cutter of the exterior of the shell, the cork presser located in and movable lengthwise relatively to said cutter, and means to actuate the presser, the core cutter located on the other side of the stationary disk relatively to the exterior cutter and the cork presser, and acting against said presser, and means to actuate the presser, core cutter, and the cutter of the exterior of the shell, substantially as described.

2. In a cork-shell-cutting machine, the combination of the stationary disk, supported on the bed-frame in an intermediate position, the hollow rotating cylindrical core cutter mounted on a sliding stock at one side of said disk, the hollow rotating cylindrical cutter of the exterior of the cork mounted on a sliding stock at the other side of said disk, the presser located and adapted to slide in the bore of said exterior cutter, and means to actuate the presser, core cutter and the exterior cutter, substantially as described.

3. In a cork-shell-cutting machine, the combination of the stationary disk, supported on the bed-frame in an intermediate position, the hollow cylindrical core cutter mounted on a sliding stock at one side of said disk, the hollow cylindrical cutter of the exterior of the cork mounted on a sliding stock at the other side of said disk, the pusher located and adapted to slide in the bore of the said exterior cutter, the friction clamp, and the stop controlling the presser, and means to actuate the sliding stocks of the core cutter and the exterior cutter, substantially as described.

4. In a cork-shell-cutting machine, the combination of the stationary disk, the core cutter mounted on a sliding stock at one side of said disk, the exterior cutter mounted on a sliding stock at the other side of said disk, the foot treadle and mechanism connecting said treadle and sliding stocks in the relation whereby both cutters are actuated by the treadle and the core cutter takes effect prior to the action of the exterior cutter, and means for tripping the connection of the core cutter and the treadle and reversing the core cutter in advance of the action of the exterior cutter, substantially as described.



5. In a cork-shell-cutting machine, the combination of the stationary disk, the core cutter mounted on a sliding stock at one side of said disk, the exterior cutter mounted on a sliding stock at the other side of said disk, the treadle connected with the stock of the exterior cutter, the slotted arm pendent from said stock, the push-bar connected with the stock of the core cutter and arranged in the slot of the said pendent arm of the stock of the exterior cutter, and having the stop shoulder co-acting therewith, also the trip studs for releasing the push bar from the arm, substantially as described.

520,606. INSULATOR. LOUIS MCCARTHY, Boston, Mass. Filed Sept. 23, 1892. Renewed Dec. 22, 1893. Serial No. 494,475. (No model.)

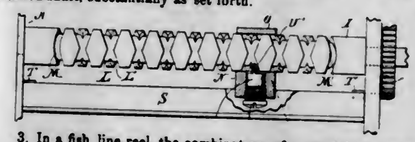


Claim.—An insulator comprising a case, a connecting-piece within said case and insulating material to insulate it therefrom, a cap for said case, secured in place therein by bending the edges of the case over said cap, said connecting-piece being provided on that portion thereof which is outside said case with a shoulder and having a series of sheets of mica interposed between said shoulder and the proximate portions of said case, whereby all portions of the connecting piece are insulated from said case, substantially as set forth.

520,607. FISH-LINE REEL. NELSON H. MCGREGOR, Milwaukee, Wis., assignor of one-half to Cornelius Wheeler, same place. Filed Oct. 27, 1893. Serial No. 489,327. (No model.)

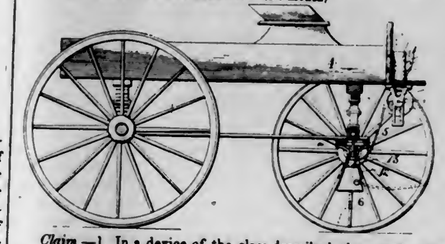
Claim.—1. In a fish line reel, the combination, of a revoluble reversely grooved shaft, a guiding ring loose on the grooved shaft, said ring provided with a projecting boss having a threaded aperture therethrough, a pin loose in and projecting from the aperture of the boss to engage and travel in the grooves of the shaft, means for holding the pin to the grooves, said means engaging the threaded aperture of the boss, and adapted to permit of the entire removal of the pin, and means for holding the guiding ring against revolution, substantially as set forth.

2. In a fish line reel, the combination, of a revoluble reversely grooved shaft, a guiding ring loose on the grooved shaft, said ring provided with a projecting boss having an interiorly threaded aperture, a pin loose in and projecting from the aperture of the boss, and engaging and traveling in the grooves of the shaft, a screw plug engaging the threads of the aperture of the boss, and adapted, when screwed inward, to bear against the end of the pin, and hold said pin to its work, and when unscrewed, to permit of the removal of the pin, and means for holding the guiding ring against revolution with the grooved shaft, substantially as set forth.



3. In a fish line reel, the combination, of a revoluble reversely grooved shaft, a guiding ring loose on the grooved shaft, said ring provided with a projecting boss having a threaded aperture therethrough, a pin loose in and projecting from the aperture of the boss, and engaging and traveling in the grooves of the shaft, a screw plug engaging the threads of the aperture of the boss, and adapted, when screwed inward, to bear against the end of the pin, to hold said pin to its work, and a hinged cap forming a channel in which the projecting boss fits and travels, and is prevented thereby from rotating, said cap, when thrown back upon its hinges, adapted to permit of the unscrewing of the plug, and the removal of the pin, substantially as set forth.

520,608. HORSE-HITCHING DEVICE. JAMES W. MCHENRY, Aspen, Colo., assignor of one-half to Walter S. Ritchie, same place. Filed July 31, 1893. Serial No. 482,008. (No model.)



Claim.—1. In a device of the class described, the combination, with a weight, of a sheave connected thereto, a pinion carried by the sheave, a reciprocating rack meshing with said pinion, and a spring-pressed rein-operating locking device for engaging the rack, substantially as described.

2. In a device of the class described, the combination, with a weight; of a sheave connected thereto; a reciprocating rack; connections between the rack and the sheave; and a spring-tongue provided with a detent to engage a socket in the rack, and carrying a rein-holder, substantially as described.

3. In a device of the class described, the combination, with a weight; of a sheave connected thereto; a reciprocating rack; connections between the rack and the sheave; a guide or sheath for the rack; and a spring locking device carried by the guide or sheath, and engaging the rack, substantially as described.

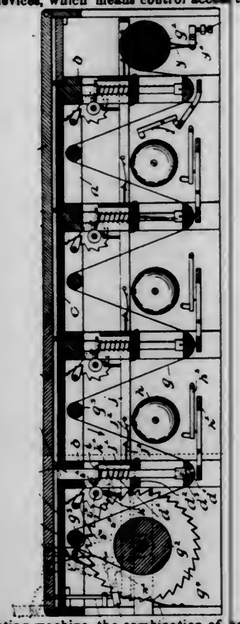
520,609. VOTING-MACHINE. JOHN MCTAMMANY, Spencer, Mass. Filed Dec. 2, 1893. Serial No. 492,607. (No model.)

Claim.—1. In a voting machine, the combination of an inclosing casing, transversely-extending supports therein holding the voting-lists, push-pieces in the supports alongside the voting-lists and carrying punches positioned variously with respect to the centers of the push-pieces, a tally-sheet extending across said punches, and means for feeding said tally-sheet.

2. In a voting machine, the combination of supports for a voting-list, a series of push-pieces alongside the voting-list and independently movable and having lateral projections, and a rock-shaft carrying projections to co-act with those on the push-pieces, and whose rotation simultaneously actuates the said push pieces.

3. In a voting machine, the combination of supports for a plurality of different voting-lists, a plurality of series of push-pieces, one series extending along each voting-list and each push-piece being independently movable, a handle for each series of push-pieces, means controlled by said handle for simultaneously operating all the push-pieces of a series, and locking-devices controlled by each handle for rendering the push pieces inoperative for repeating.

4. In a voting machine, the combination of supports for a plurality of different voting-lists, a plurality of series of push-pieces, one series extending along each voting-list and each push-piece being independently movable, a handle for each series of push-pieces, means controlled by said handle for simultaneously operating all the push-pieces of a series, locking-devices controlled by each handle for rendering the push-pieces inoperative for repeating, and means for releasing said locking-devices, which means control access to the voting-lists.



5. In a voting machine, the combination of an inclosing casing having a hinged door, supports for a plurality of different voting-lists, a plurality of series of push-pieces, one series extending along each voting-list and each push-piece being independently movable, a handle for each series of push-pieces, means controlled by said handle for simultaneously operating all the push-pieces of a series, locking-devices controlled by each handle for rendering the push-pieces inoperative for repeating, and means controlled by the hinged door of the casing for releasing the said locking-devices.

6. In a voting machine, the combination of an inclosing box or casing having a hinged door; supports in the casing for different voting-lists; a plurality of series of push-pieces, one series extending along each voting-list and each push-piece being independently movable and having a lateral projection; rock-shafts extending along the series of push-pieces and having projections for co-action with the projections on the push-pieces, and also provided with other projections; a carriage provided with pivotal locking-pieces, one for each series of push-pieces, adapted to engage and lock the push-pieces, and projections to co-act with projections on the rock-shafts; a latch adapted to hold the carriage in its locked adjustment; and a tappet-rod operated by the hinged lid and adapted to release the said latch.

7. In a voting machine, the combination of an inclosing box or casing, a tally-sheet in said casing, push-pieces located at one side of said sheet and adapted to puncture the same, a bell-striker located at the opposite side of the sheet in the path of the push-pieces and adapted to be moved thereby, and a bell arranged to be struck when a push-piece punctures the talley-sheet

---

520,610. SCARF-PIN. CHARLES C. PARTRIDGE, Hyde Park, Mass. Filed Aug. 29, 1893. Serial No. 484,271. (No model.)



Claim.—1. In a pin for scarfs and the like, the combination with the jewel plate having a vertical collar secured to its rear face, and prongs rigidly secured to said collar and projecting upwardly above the plate; of the pin sliding in said collar and projecting downwardly below the plate, and means for causing the normal sliding of the pin in a direction away from the prongs, as and for the purpose set forth.

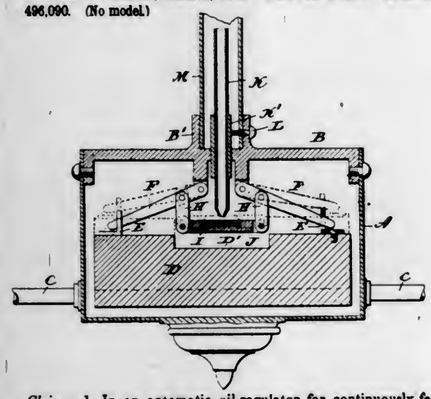
2. In a pin for scarfs and the like, the combination with the jewel plate, prongs rigidly connected with and projecting above the plate, and a vertical collar secured rigidly to the rear face of said plate and having in its rear wall an upright slot closed at both ends; of the pin sliding in said collar and projecting downwardly below the plate, a lug on the pin sliding in said slot, and a spring bearing the pin normally downward, as and for the purpose set forth.

3. In a pin for scarfs and the like, the combination with the jewel plate, prongs rigidly connected with and projecting above the plate, and on the rear face of the plate a collar near its upper end and an eye near its lower end, the collar and eye standing in vertical alignment; of the pin sliding in said collar and eye and having an enlargement below the latter, said pin projecting below the plate in a direction opposite to the prongs, means for preventing the displacement of the pin, and an expansive spring coiled on the pin between the eye and enlargement, as and for the purpose set forth.

4. In a pin for scarfs and the like, the combination with the jewel plate, upwardly projecting prongs carried thereby, and on the rear face of the plate a collar provided with a vertical slot, and below the collar an eye in vertical alignment therewith; of the pin sliding in said collar and eye and having an enlargement below the latter, an expansive spring coiled on the pin between the eye and enlargement, and a lug projecting from said pin and moving in said slot, all as and for the purpose set forth

---

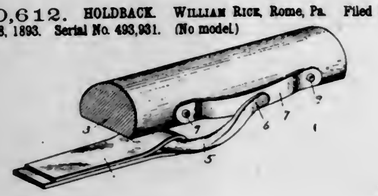
520,611. OIL-REGULATOR FOR CONTINUOUSLY-FED LAMPS. HERBERT S. PULLMAN, Meriden, Conn. Filed Jan. 8, 1894. Serial No. 496,090. (No model.)



Claim.—1. In an automatic oil-regulator for continuously fed lamps, the combination with a lamp-fount, of a float located therein, a feed-pipe entering the fount and arranged to discharge vertically downward at a point directly over the float, a valve interposed between the discharge-end of the pipe and the float, a plurality of operating-levers connected at their upper ends with the fount, and having their lower ends connected with the float so as to permit the same to rise and fall, and links depending from the said operating levers and connected at their lower ends with the valve, substantially as set forth.

2. In an automatic oil-regulator for continuously fed lamps, the combination with a lamp-fount, of a float located therein, a vertically adjustable feed-pipe extending downward into the fount and discharging downward at a point directly over the float, a valve consisting of an elastic pad interposed between the float and the discharge-end of the pipe, and of a horizontally arranged bar in which the said pad is mounted, a plurality of operating levers pivotally connected at their upper ends with the fount, and connected at their lower ends with the float, so as to permit the same to rise and fall, and links depending from the said operating-levers and connected at their lower ends with the said ends of the bar, substantially as set forth.

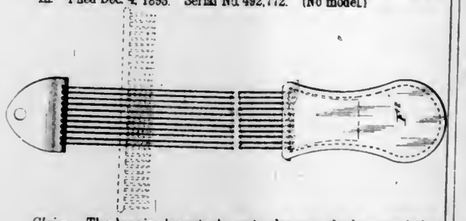
520,612. HOLDBACK. WILLIAM RICE, Rome, Pa. Filed Dec. 18, 1893. Serial No. 493,931. (No model.)



Claim.—1. The combination with a thill, and a flat bowed spring applied to the inner side face thereof and arranged longitudinally thereon and having perforated ends, one of the perforations being elongated, and fastening devices passed through the perforations into the inner side of the thill and securing both ends of the springs thereto, of the integral hold-back hook consisting of the perforated securing-plate 1 applied to the under side of the thill below the spring and at its rear end reduced and outwardly deflected as at 4, then transversely deflected to form the hook 5, and finally terminating in the terminal 6 extending inwardly beyond the inner face of the thill and inclined upwardly to a point opposite and in contact with the curved spring, and the fastening devices passed through the perforations in the plate and upwardly into the under side of the thill, substantially as specified.

2. In a hold-back, the combination with the spring 7 applied longitudinally to the inner side of the thill, having both its ends secured thereto, one end having a limited longitudinal movement, and its main portion between the ends bowed outwardly, of the integral hook separate from the spring and having its plate or shank secured to the under side of the thill below the plane of the spring, then bent continuously downward, inward and upward so that its point is in close contact with the central portion of the spring, substantially as described.

520,613. COMB-CLEANER. GEORGE W. RICHARDSON, Chicago, Ill. Filed Dec. 4, 1893. Serial No. 492,772. (No model.)



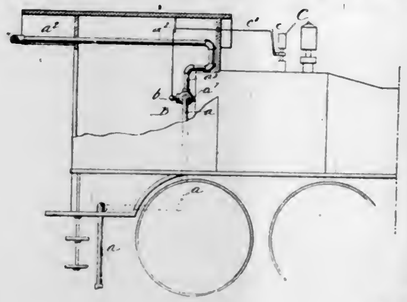
Claim.—The herein described comb cleaning device, consisting of the upper doubled plate having an attaching opening and a series of openings on one side, the two strand twisted cleaning wires having loops fitting in the openings in the side of the doubled plate, the securing pin passing through the aligning loops of the cleaning wires, the plate having a series of openings to receive the other ends of the cleaning wires, and the covering for said plate, all substantially as described.

520,614. ELEMENT FOR SECONDARY BATTERIES. SIGMUND A. ROSENTHAL and VILLEROY C. DOUBLEDAY, London, England. Filed Dec. 5, 1892. Serial No. 454,110. (No model.)



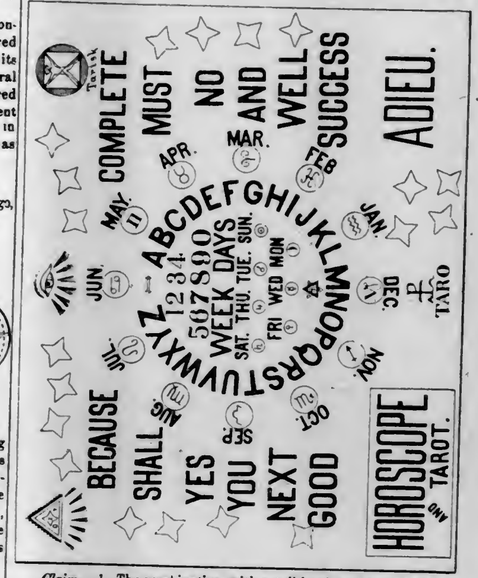
Claim.—A secondary battery element comprising a perforated and corrugated plate or sheet of lead provided with a connecting tang the diameter of which differs at different points of its length, an active material in which said plate is embedded, and an inclosing casing or box in which said embedded plate is firmly held, said box constructed of a perforated non-conductive rigid material and provided with an opening of the same size as the portion of least diameter of the tank, for the purpose set forth.

520,615. ATTACHMENT FOR LOCOMOTIVES. JAMES R. RUTHERFORD, Paris, Tex. Filed Dec. 26, 1893. Serial No. 494,699. (No model.)



Claim.—In a locomotive steam engine, the combination with the cab or housing for the engineer, of steam pipes connecting with the boiler and extending to the entrances of the cab or housing and there provided with open jets, a valve in said pipes whereby when the occasion arises, the engineer may cause steam or hot water to be projected across said entrances to prevent the entrance of intruders, and an alarm whistle whose operating lever is connected with said valve, substantially as and for the purpose set forth.

520,616. TALKING-BOARD. MORITZ SCHIRMAN, Baltimore, Md. Filed June 25, 1892. Renewed Jan. 8, 1894. Serial No. 496,186. (No model.)

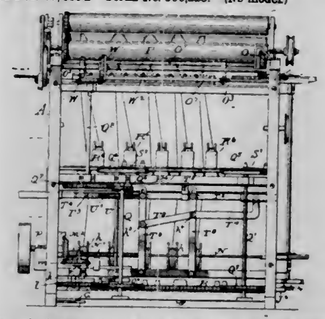


Claim.—1. The combination, with a talking-board having signs, letters, figures and symbols disposed thereon, of a pointer designed to be moved over the said board, said pointer consisting of a longitudinally slotted base-piece, and two side pieces pivoted together at one end and having each a projection on the opposite end to engage the slot in the base-piece, the said base and sides forming a triangle, substantially as described.

2. As a new article of manufacture, a collapsible pointer for game apparatus, consisting of a base-piece having a longitudinal slot therein, two side-pieces pivoted together at one end and having each a projection on the opposite end to engage the said slot, and cushions or legs located near the ends of the sides, substantially as described

---

520,617. WIRE-TWISTING MACHINE. RICHARD SEDGWICK, Richmond, Ind., assignor to the Sedgwick Bros. Company, same place. Filed Feb. 15, 1894. Serial No. 500,223. (No model.)



Claim.—1. In a machine for twisting wire, the combination with a twisting mechanism; of a supply-spool h; a roller h' on the rear face of the spool; and a fixed rest h^2 at the front face.

2. In a machine for twisting wire, the combination with a twisting mechanism; of two series of wire-supply-spools,—the spools of both series and the twisters being placed at different distances apart as described;—a shifter-bar provided with guide-blocks for the wires; and means for giving the blocks different movements.

3. In a machine for twisting wire, the combination with a twisting mechanism, and the two series of wire-supplying spools,—the twisters and spools being arranged at different distances apart as described;—of stripping fingers P of different widths; a shifter bar provided with guide-blocks; and means for giving the blocks different movements.

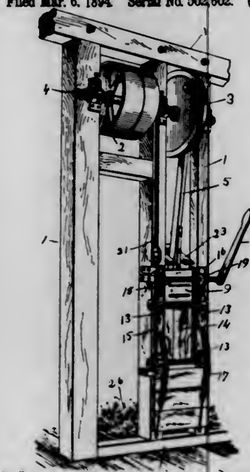
4. In a wire twisting machine, a reciprocating shifting bar provided with a series of separate wire-blocks, in combination with means whereby the blocks are given different movements.

5. In a wire twisting machine, a reciprocating shifting bar provided with blocks R^7, R^8, and R^9; in combination with means whereby the blocks R^7 and R^8 shall have a greater movement than block R^9, while the block R^7 has a greater movement than the block R^8.

6. In a wire twisting machine, a reciprocating shifting bar having the block R^9 secured thereto; in combination with the blocks R^7 and R^8; and means for actuating the latter from the bar but with a different throw.

7. In combination with a slotted bar T^2, the block R^9 fixed thereto; the blocks R^7 and R^8 provided with bolts to pass through the slots; the upright levers connected with the respective bolts; a link T^9 connecting the levers; and a link T^{10} connecting one of said levers with the bar.

520,618. EXCELSIOR-MACHINE. THOMAS M. SHANK, Kenova, W. Va. Filed Mar. 6, 1894. Serial No. 502,602. (No model.)



Claim.—1. In an excelsior machine, a guard plate mounted on a reciprocating part of the machine and adapted to prevent flying excelsior from falling where it will be wasted.

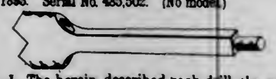
2. In an excelsior machine, a guard plate mounted on the pitman and set at such an angle that it will throw flying excelsior into the proper place.

3. In a vertical excelsior machine, a guard plate so mounted on a reciprocating part of the machine and at such an angle that it will prevent flying excelsior from escaping over the knife plate to the front and throw the same into its proper place.

4. In an excelsior machine, a recessed guard plate adapted to fit on and about the pitman and means of adjustably connecting such guard plate to the pitman.

5. In an excelsior machine, the combination with the pitman and knife plate, of the guard plate recessed so as to fit about the pitman, and a bracket secured to such guard plate and provided with a slot whereby such guard plate can be so attached to the pitman that it will be vertically and angularly adjustable.

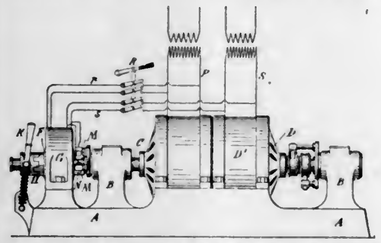
520,619. ROCK-DRILL. JOSEPH H. SMITH, Plymouth, Ohio. Filed Sept. 14, 1893. Serial No. 485,502. (No model.)



Claim.—1. The herein described rock-drill, the same having at its lower end a head having external continuously curved sides approximating in cross-section an ellipse, clearance-openings located within the head at each side of the center thereof and producing an intermediate partition having a lower cutting-edge, and a cutting-edge located at the lower end of the surrounding wall, substantially as specified.

2. The herein described rock-drill, the same having a head substantially elliptical in cross-section, the wall of which is beveled to form a lower cutting-edge, clearance-openings formed in the head at each side of the center thereof, and pairs of drill-points formed at each side of each clearance opening, substantially as specified.

520,620. ALTERNATING-CURRENT MOTOR. WILLIAM STANLEY, Jr., Pittsfield, Mass., assignor to the Stanley Laboratory Company, same place. Filed Feb. 1, 1894. Serial No. 498,738. (No model.)



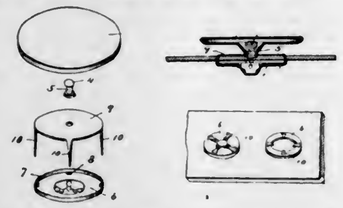
Claim.—1. The combination with an alternating current motor, of a synchronous motor having its primary coils connected with the main circuit, and adapted by the degree of excitation of its secondary element, to produce in the coils of its primary element an electro-motive force in advance of that in said main circuit, and a clutch intermediate to the two motors as set forth.

2. The combination with an alternating current working motor of a compensating synchronous motor of the kind described, means for mechanically connecting and disconnecting the two motors, and electrical connections between both motors and the supply circuits, as set forth.

3. The combination with an alternating current motor of a compensating synchronous motor having its rotary secondary element loosely mounted on the shaft of the working motor, a clutch for connecting and disconnecting said element and shaft, and circuit connections between both motors and the supply circuit, as set forth.

4. The combination with an alternating current motor having a plurality of energizing circuits, of a compensating synchronous motor having a plurality of circuits corresponding to and connected with those of the working motor, and clutch mechanism between the motors, as set forth.

520,621. BUTTON. CHARLES E. STOWE, McAdensville, N. C. Filed Feb. 27, 1893. Serial No. 463,837. (No model.)



Claim.—1. In a non-separable button, the combination of a head, a fastening plate with prongs thereon, either said head or said plate being provided with a ball socket, a short fastening post permanently connecting the head with the fastening plate and provided with a ball at one end loosely received in said ball socket to admit of a universal self-adjustment of the head, and a shoe or shoe plate provided with openings therein to receive the prongs of the fastening plate and with a rigid serrated or toothed edge to engage the fabric to which the button is applied, substantially as set forth.

2. In a non-separable button, the combination of a head, a fastening plate with prongs thereon, a permanent ball bearing connection between the head and plate to admit of a universal adjustment for the head, and a shoe plate provided with a rigid serrated or toothed edge, an outer series of openings to receive the prongs of the fastening plate, and an off-standing cap portion having an inner series of openings adapted to receive the point extremities of the prongs that are passed through the outer openings, substantially as set forth.

520,622. BABY-CARRIAGE. OSCAR THIELMANN, Freiberg, Germany. Filed Aug. 5, 1893. Serial No. 482,427. (No model.) Patented in Germany Apr. 7, 1892, No. 65,200.



Claim.—1. In combination with a baby carriage, springs *c* constructed as cradle rockers, supporting rods *b* therefor having flanges *f* with means for limiting the movement of the rockers, substantially as described.

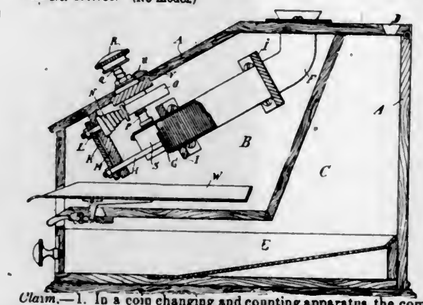
2. In combination with the body A, the springs *c* rocking on rods *b*, the flanges *f*, the bolts working in the guiding slits *h*, substantially as described.

3. In combination with a spring frame having a rocking support on the wheel frame, a carriage body adjustable horizontally on said spring frame, substantially as described.

4. In combination with the carriage, the spring frame, the spring tongs *m* connected with the bars *q* and the depending flanges *f* substantially as described.

5. In combination with the baby carriage, a wooden frame D provided with openings through which pass the vertical wicker staves of the carriage cradle, substantially as described.

520,623. COIN DISCHARGING AND DELIVERING DEVICE. PHILIPP G. WAGNER, Darmstadt, Germany. Filed Feb. 10, 1893. Serial No. 461,786. (No model.)



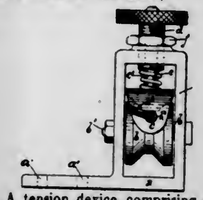
Claim.—1. In a coin changing and counting apparatus, the combination with a casing of a tube in which the coins are placed, a coin-supporting-plate, jaws or valves at the end of the tube, a scale, and a pointer in connection therewith, and means for operating said parts so that a predetermined number of coins is released by setting the pointer on the corresponding number of the scale and then opening the jaws or valves at the end of a tube, substantially as shown and described.

2. In a coin counting and changing apparatus, the combination with a tube for holding the coins, of movable jaws or valves forming a continuation of the coin tube, at the discharge end thereof, a stop normally closing the end of the coin tube but adapted to be moved back in the jaws so as to allow the entrance into the same of any required number of coins, means for actuating the stop, an indicating device connected therewith, and means for actuating the jaws or valves so as to release the coins, therein, substantially as shown and described.

3. In a coin counting and changing apparatus, the combination with a suitable support, of a tube for holding the coins down which the same move by gravity, movable jaws or valves located at the lower end of the tube and forming a continuation thereof, a stop normally closing the end of the coin tube, but adapted to be moved back into the jaws or valves so as to allow any desired number of coins to enter the same, a knob connected with the stop, in such manner as to move the same back into the jaws when rotated, and a reciprocating rod or plunger connected with the knob, and adapted to open the jaws so as to release the coins therein, when the knob is depressed, substantially as shown and described

4. In a coin counting and changing apparatus, the combination with a suitable support, of a slanting tube for holding the coins, movable jaws or valves S located at the lower end of the tube and forming a continuation thereof, a stop G normally closing the end of the coin tube and adapted to pass back into the jaws S, a spring N for normally keeping the stop in a forward position, a knob R, a reciprocating rod or plunger P, secured to the knob, mechanism connected with the knob R, and actuated by the rotation thereof by which the stop G is actuated, and an indicating device, substantially as shown and described.

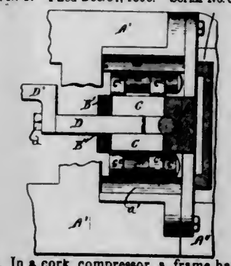
520,624. TENSION DEVICE FOR GRAIN-BINDERS. JAMES WHITCOMB and AMOS WOTRING, Ogden Centre, Mich. Filed Sept. 14, 1893. Serial No. 485,468. (No model.)



Claim.—1. A tension device, comprising in its construction a housing, a tension-wheel journaled therein, a shoe riding upon said tension-wheel and provided with a suitable guide, and having at one extremity an eye and at the other end a slotted opening in the direction of its length, a spring pressing upon said shoe, and means for controlling the pressure of said spring, substantially as shown and described, for the purpose specified.

2. In a tension device, a curved friction-shoe, having at one end an eye and at the other end a slotted opening in the direction of the length of the shoe, substantially as shown and described, for the purpose specified.

520,625. CORK-COMPRESSOR. SOL WILE and HENRY LA CASSE, Rochester, N. Y. Filed Dec. 31, 1890. Serial No. 376,428. (No model.)



Claim.—1. In a cork compressor, a frame having a rigid cork cavity at the front, and a horizontally reciprocating rear compressor jaw opposite said cavity; in combination with side compressor jaws pivoted at their lower ends to the frame and standing in alignment with the length thereof and of the cork, means for swinging these side jaws into the frame, devices for feeding one cork at a time into the upper end of the frame, and a cork inserter standing vertically above the frame, substantially as set forth.

2. In a cork compressor, a frame having a rigid cork cavity at the front, and a horizontally reciprocating rear compressor jaw opposite said cavity; in combination with side compressor jaws pivoted at one end to the frame and standing in alignment with the length of the cork, means for swinging the free ends of these jaws into the frame and against the sides of said reciprocating jaw, devices for feeding one cork at a time into the space between said jaws and cavity, and a cork inserter adapted for movement through the cork-opening, as and for the purpose set forth.

3. In a cork compressor, a vertically sliding frame having a rigid cork cavity at one side, and a horizontally reciprocating compressor jaw opposite said cavity; in combination with swinging compressor jaws pivoted at their lower ends to the frame and standing in upright positions opposite each other and quartering to said cavity and reciprocating jaw, means for swinging these jaws into the frame as the latter descends, and devices for feeding one cork at a time into the upper end of the frame, as and for the purpose set forth.

4. In a cork compressor, the combination with supports for the cork arranged at right angles with each other; of a movable jaw standing in alignment with the cork and hinged to one of said supports for compressing the cork in one plane from one extremity thereof toward the other, a second jaw arranged at right angles to the former jaw for compressing the cork in a plane at right angles to its former plane of compression, and means for reciprocating the latter jaw toward and away from the former, as and for the purpose set forth.

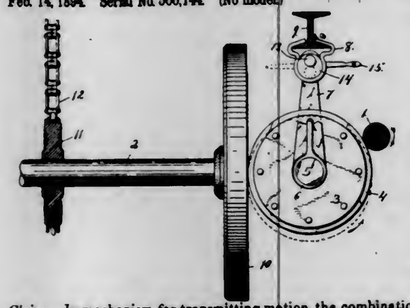
5. The combination with a supporting bracket formed with an internal cavity and anti friction rollers mounted in said cavity, of a support movable in the cavity and adapted to bear against the rollers, a

cork compressor jaw pivoted to said support and disposed normally in an inclined plane, a guide on the bracket, a projection on the jaw for riding in the guide and varying the plane of the jaw, and a support oppositely arranged to said jaw for supporting the cork during compression, substantially as and for the purpose set forth.

6. The combination with a supporting bracket having an internal cavity and anti-friction rollers located in said cavity; of a support movable in the cavity and adapted to rest against the rollers, a pair of jaws pivoted to the support with their faces inclined from a perpendicular, a pair of diverging guides on the bracket and projections on the jaws for varying the position of the jaws, substantially as and for the purpose specified.

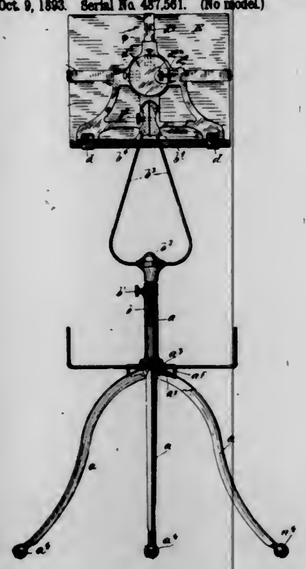
7. In a cork compressor, the combination of a bracket having an internal cavity, a support having a central cavity for receiving the cork, a pair of jaws hinged to said support with their extremities diverging, means, substantially as described, for turning said jaws on their pivots, and another jaw having a vertical face and moving in a plane at substantially right angles to the former jaws, substantially as and for the purpose set forth.

520,626. MECHANICAL MOVEMENT. SAMUEL F. ALBERGER, Orchard Park, assignor, by direct and mesne assignments, to James T. McCready, Buffalo, and Hattie L. Alberger, Orchard Park, N. Y. Filed Feb. 14, 1894. Serial No. 500,144. (No model.)



Claim.—In mechanism for transmitting motion, the combination of a driving-shaft, a driven shaft at right angles to said driving-shaft, a friction-disk at the end of said driven shaft, a way, and an intermediate friction-wheel adjustable along said way and adapted to bear in any of the positions to which it may be adjusted on the way, circumferentially against the cylindrical face of the driving-shaft and the flat face of the friction-disk, substantially as described.

520,627. BOOK-HOLDER. ARTHUR A. AMBLER, St. Paul, Minn. Filed Oct. 9, 1893. Serial No. 487,561. (No model.)



Claim.—1. A book-holder, comprising a suitable support, a saddle provided with pivoted clasps securable to the covers of the book, and bearings uniting the saddle to said support with freedom for the rotation of the saddle in the vertical plane, whereby, the saddle and the book held thereby may be turned upside down edgewise, when closed.

2. In a book-holder, the combination with a pair of supporting spring-arms, of a book-saddle provided with pivoted clasps securable to the covers of the book, and bearings uniting the saddle clasps to said arms with freedom for the pivotal movement of the clasps, with respect to the saddle, and for rotation of the saddle and the book held thereby, in the vertical plane, substantially as and for the purposes set forth.

3. A book holder, comprising a suitable support, a book saddle having pivoted clasps securable to the covers of the book and bearings uniting the saddle to said support rotatable in the vertical plane and having a pivotal motion in planes cutting the plane of their vertical rotation, substantially as described.

4. In a book-holder, the combination with a suitable support of a book saddle having pivoted clasps securable to the covers of the book, bearings uniting the saddle to said support rotatable in the vertical plane and having a pivotal motion in planes cutting the plane of their vertical rotation, and means for securing the saddle and book in any desired adjustment on said bearings, substantially as described.

5. In a book-holder, the combination with a pair of spring supporting arms, of a book saddle having pivoted clasps securable to the book cover and ball and socket bearings connecting said saddle with said supporting arms, substantially as described.

6. In a book support, the combination with a pair of supporting spring arms, of a book saddle having pivoted clasps securable to the book cover, and ball and socket bearings connecting said saddle with said arms, the socket members of which bearings are divided and provided with clamping screws, substantially as and for the purpose set forth.

7. In a book holder, the combination with the supporting spring arms each composed of a pair of spring sections terminating in half sockets connected by clamping screws, of the book saddle with pivoted clasps securable to the book cover lids and provided with ball bearings engaged by the sockets on said spring arms, whereby the arms will yield laterally and the sections in respect to each other, substantially as described.

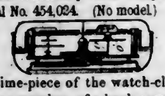
8. A pedestal, for a book holder, or other article, comprising a standard terminating below in spider prongs, independent legs engaging said spider prongs and a clamping block having screw threaded engagement with said standard and serving to clamp the legs to said spider prongs, substantially as described.

9. A pedestal, for a book holder or other article, comprising a standard terminating below in spider prongs of angular form in cross section, independent legs of trough-like form at their upper ends overlying and embracing said spider prongs, and a clamping block having screw-threaded engagement with said standard and clamping the legs to the spider prongs, substantially as described.

10. In a pedestal, for a book holder or other article, the combination with the standard a' having the spider a^3, the prongs of which are angular in cross section, and provided with the conical projections a^4, of the legs a, having trough-like upper portions engageable with said spider prongs and the projections a', and the combined book shelf and clamp block a^2 having screw threaded engagement with the standard a' and provided with the flange a^5, for clamping said legs to said spider prongs, substantially as described.

11. In a book-holder, the combination with the pedestal standard a', of the vertically adjustable standard section b, the swiveled head b^3, the spring supporting arms b^3, fixed to said swiveled head, the book saddle and bearings, uniting said saddle to said arms, rotatable in the vertical plane and having a pivotal movement in planes cutting the plane of their vertical rotation, substantially as described.

520,628. CLOCK-CASE. ARCHIBALD BANNATYNE, Waterbury, Conn., assignor to the Waterbury Clock Company, same place. Filed Dec. 5, 1892. Serial No. 454,024. (No model.)



Claim.—1. In a time-piece of the watch-clock type, the combination with a front case-member, of a back case-member constructed with a flange adapted to shut within the edge of the front case-member, a pendant having its inner end made hollow, secured to the said front case-member, and a locking-spring secured to the back case-member and constructed and arranged to snap into the hollow inner end of the pendant with which it is thus detachably connected for holding the two members of the case together, substantially as described.

2. In a time-piece of the watch-clock type, the combination with the front case-member, of a back case-member constructed with a flange adapted to fit within the edge of the front case-member, a pendant having its inner end made hollow, secured to the front case-member, a locking-spring secured to the said back case-member and constructed and arranged to snap into the hollow inner end of the pendant with which it is thus detachably connected for holding the two members of the case together, and a loose push-pin located in the pendant, and arranged to engage with the said spring to eject the same therefrom, substantially as described.

3. In a time-piece of the watch-clock type, the combination with the front case-member constructed with a perforation, of a back case-member constructed with a flange adapted to fit within the edge of the front case-member, and notched in line with the perforation thereof, a pendant having its inner end made hollow and secured to the said front case-member through the perforation therein, a sheet-metal locking spring secured to the inner face of the flange of the back case-member, and constructed with a beveled outwardly turned finger which plays through the said notch through which it projects into the hollow inner end of the pendant for detachable connection therewith, and a push-pin located in the pendant and arranged to engage with the said finger for ejecting it from the pendant, substantially as set forth.

4. In a time-piece of the watch-clock type, the combination with the front and back members of the case thereof, of a circular sheet-metal movement cap, means for the attachment of the said cap to the front member of the case with its closed side facing the back member of the case, and a time-movement located within and inclosed by the said cap, and attached directly to the inside of the face thereof, substantially as described.

5. In a time-piece of the watch-clock type, the combination with the front and back members of the case thereof, of a ring secured within the said front member in the plane thereof, a circular sheet-metal movement-cap attached to the said ring with its closed side facing the back member of the case, and a time-movement located within and inclosed by the said cap, and directly attached to the inside of the face thereof, substantially as described.

6. In a time-piece of the watch-clock type, the combination with the front and back members of the case thereof, of a ring fixed in the said front member in the plane thereof, a circular sheet-metal movement-cap attached to the said ring with its closed side facing the back member of the case, and a time-movement located within and inclosed by the said cap, and attached directly to the inside of the face thereof, the said face of the cap being struck from its inside outward to give clearance to those portions of the movement which project from the back movement-plate, substantially as described, and whereby an economy of space is effected.

7. In a time-piece of the watch-clock type, the combination with the case thereof, of a ring fixed therein, a circular sheet-metal movement-cap having a flange extending at a right angle to its side walls, means for attaching the said cap to the said ring by the flange of the former which bears directly upon the latter, and a time-movement located within and inclosed by the cap, and attached directly to the face thereof, substantially as described.

8. In a time-piece of the watch-clock type, the combination with the front and back members of the case thereof, of a sheet-metal movement-cap, a time-movement located within and inclosed by the said cap and attached directly to the face thereof, a dial attached to the outer face of the front plate of the movement, a glass interposed between the said dial and the front member of the case, and screws passing through the cap at a right angle to the plane thereof to connect it with the front member of the case, the said parts being constructed so that the screws first clamp the glass between the dial and the front member of the case, substantially as set forth, and whereby variations in the thickness of the glass are thus compensated for.

9. In a time-piece, a combined dial-plate, mat and bezel, struck out from a single piece of metal, the mat flaring outwardly and rising from the edge of the dial-plate, and the bezel offsetting from the outer edge of the mat, and consisting of a flange which presents a right angle in cross section, substantially as described.

10. In a time-piece of the watch-clock type, the combination with a main-spring-barrel, of a main arbor having its inner end threaded, a main-spring having its respective ends attached to the said barrel, and arbor, both of which are free to rotate independently of the other, a ratchet-wheel having a sleeve which is interiorly threaded for its application to the said threaded end of the arbor, and also exteriorly threaded, a spring-actuated pawl to engage with the said ratchet, and a winding-key having a perforated, threaded hub which screws over the said sleeve, and a swinging finger-piece pivoted in the said hub, substantially as described.

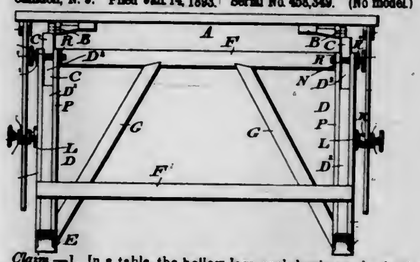
520,629. HINGE. JOHN J. BERRY, Indianapolis, Ind. Filed Dec. 26, 1893. Serial No. 494,668. (No model.)

Claim.—1. The combination of the two ordinary hinge parts A' and A², one boss whereon has its perforation screw threaded, a third part A², and a screw-threaded pintle A adapted to unite either the two parts or the three parts at will, substantially as set forth.



2. The combination of the two main hinge parts A' and A², the pintle A thereto, screw threaded at one end and provided with a head at the other, and the third part A² adapted to be mounted on the same pintle A, or to be removed therefrom, substantially as and for the purpose set forth.

520,630. TABLE FOR DRAFTSMEN, &c. JOSEPH W. BRANWELL, Camden, N. J. Filed Jan. 14, 1893. Serial No. 458,349. (No model.)

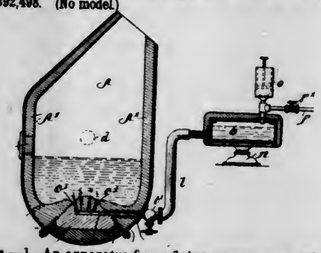


Claim.—1. In a table, the hollow legs, each having a slot in the upper part of one side thereof, the uprights C in said legs, the top B pivotally connected with said uprights, and the screw N passing from one side of the leg to the opposite one through said slot, in combination with the struts pivoted to said top, and swiveled to said hollow legs, said parts being combined substantially as described.

2. A table top, an upright and a strut each pivotally connected therewith, a hollow leg adjustably supporting said upright, an eye swiveled in a boss on said leg and receiving said strut, a washer in said eye bearing against said strut, a clamping screw bearing against said washer, and a pin in said eye engaging said washer, said parts being combined substantially as described.

3. A frame having a pivotally connected top with strut secured thereto, hollow legs secured to said frame and adapted to receive uprights, said legs having vertical slots in their sides extending from the upper portion to the top of the same, eyes swiveled in the sides of said legs, and adapted to receive said struts, washers in said eyes bearing against said struts, and a clamping screw bearing against said washer, said eyes having pins in their outer walls adapted to engage said washers said parts being combined substantially as described.

520,631. APPARATUS FOR SMELTING AND REFINING COPPER. JOHANNES C. BULL, Erith, England. Filed May 12, 1891. Serial No. 392,498. (No model.)



Claim.—1. An apparatus for refining copper comprising a converter and in combination therewith of a vessel or holder seated centrally in the bottom lining thereof and having a conical top projecting into the converter above said bottom, the top of said vessel being provided with diverging passages, substantially as and for the purpose set forth.

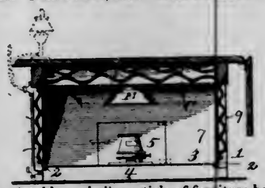
2. An apparatus for refining copper comprising a converter having the central portion of its bottom constructed in the form of an inwardly projecting cone, said cone being chambered and provided in and about its apex with diverging passages, and a tap hole arranged below the said apex of the cone, substantially as and for the purpose set forth.

3. An apparatus for refining copper comprising a converter having a conical seat or bearing formed centrally in its bottom lining in combination with a chambered cone seated in said bearing and projecting beyond the same into the converter, said cone having diverging passages formed in and about its apex, and retaining devices connected with the converter shell having bearing on the sides of the chambered cone, substantially as and for the purpose set forth.

4. An apparatus for refining copper comprising a converter, a chambered cone projecting centrally from the converter bottom into the same, said cone provided in and about its apex with diverging passages, a tap hole in the converter wall below the apex of said cone, a receiver for containing an oxidizing agent, a connection between the receiver and the chambered conical bottom of the converter, and a forcing device for forcing the oxidizing agent into and through said chambered bottom, for the purpose set forth.

5. An apparatus for refining copper comprising a converter having the central portion of its bottom constructed in the form of an inwardly projecting cone, said cone being chambered and provided in and about its apex with diverging passages, a receiver for holding a dry pulverulent oxidizing agent, a pipe connection between the receiver and the chambered bottom of the converter, a feeding device constructed to feed the oxidizing agent in measured quantities to said pipe connections and a blast pipe in communication with the pipe connections, substantially as and for the purpose set forth.

520,632. HEATER AND TABLE. EDWARDS M. BURCHARD, Hyattsville, Md. Filed Feb. 20, 1894. Serial No. 500,852. (No model.)



Claim.—1. A table or similar article of furniture having a closed heat non conducting top, closed heat non-conducting sides extending nearly to the floor, and a heater supported within the closed sides, all substantially as described.

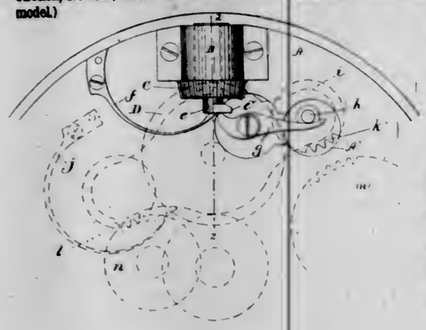
2. A table or like article of furniture having a closed wood top, an inclosed air space below said top, an asbestus layer below said air space, closed sides extending nearly to the floor, and a support for a heater within said sides, all substantially as described.

3. The combination with the table having its top of heat non-conducting material, and a heater supported beneath said top, of removable screens forming sides which extend from the table top nearly to the floor, and means for attaching the same, substantially as described.

4. The table having legs and a non-conducting top, the closed sides extending from said top nearly to the floor, the heater support connecting the legs of the table about on the plane of the lower edge of the closed sides, and the heater resting on said support, all combined and relatively arranged substantially as described.

5. The table having a closed wood top, the air chamber under the top and the sheets of corrugated paper therein, the asbestus sheet under said air chamber, and the reflector, of refractory substance, arranged as described, the heater, and the inclosing sides, all constructed and arranged substantially as described.

520,633. STEM WINDING AND SETTING WATCH. DUANE H. CHURCH, Newton, Mass. Filed Nov. 5, 1892. Serial No. 451,119. (No model.)

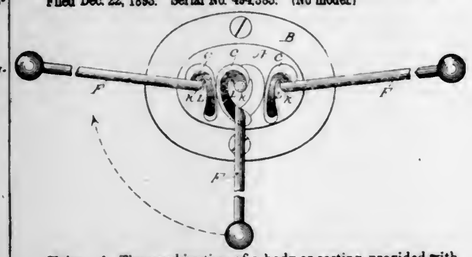


Claim.—1. As an improvement in stem winding and setting watches, a watch in which the winding and setting mechanism is adapted to have its engagements changed by a longitudinal movement of the winding-bar in one direction, and to then be rendered operative only under a partial rotation of the said bar and a longitudinal movement thereof in the opposite direction.

2. A stem winding and setting watch, having winding and hands setting mechanism, a shiftable pin yieldingly pressed against the winding bar and movable endwise therewith, and a device rotatably connected with the winding bar and adapted to rotatively connect with said pin, as set forth.

3. In a stem winding and setting watch having winding and hands setting mechanism, said hands setting mechanism including a longitudinally movable and rotary pin having a toe or projection at one end and yieldingly pressed against the inner end of the winding bar, and a device such as a sleeve with which the winding bar is rotatively engaged and in which it is longitudinally movable, said device having a slot or recess formed to receive said toe and thus enable the winding bar to rotate the pin, as set forth.

520,634. HAT-RACK. CHARLES E. COCHRANE, New York, N. Y. Filed Dec. 22, 1893. Serial No. 494,383. (No model.)

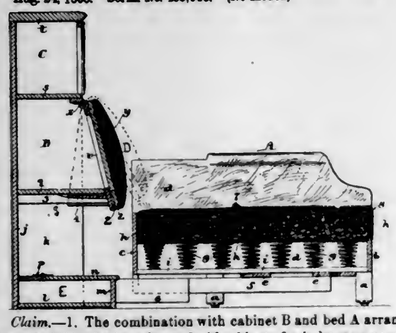


Claim.—1. The combination of a body or casting, provided with a socket therein and a hook or projection thereupon, of an arm attached to said body by an enlarged portion at or near its end resting within said socket, and adapted to be held detachably in an extended position by the said hook or projection.

2. The combination of a body or casting in two parts provided with a socket in its interior portion, a hook or projection upon its exterior portion, an arm provided with an enlarged end resting within said socket and adapted to be held detachably in an extended position by said hook substantially as described

3. The combination, with the body portion provided with slots C, hook-shaped supports, and internal recesses D; of the rods provided with heads E resting in the said recesses, a detachable back plate confining the said heads in the said recesses, and means for securing the said back plate to the body portion, substantially as set forth.

520,635. SOFA-BED. ALBERT F. CONANT, Boston, Mass. Filed Aug. 24, 1893. Serial No. 483,918. (No model.)

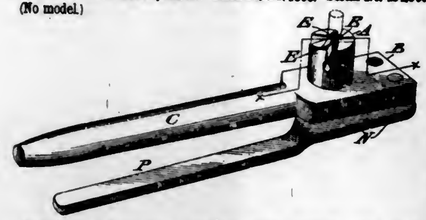


Claim.—1. The combination with cabinet B and bed A arranged to be moved sidewise in and out of said cabinet of upholstery *y* mounted on board *z* hinged to frame *v* which is pivoted at *x* to said cabinet substantially as specified.

2. The combination of cabinet B, and bed A arranged to be moved sidewise in and out of said cabinet, the cushion D, hinged to said cabinet and arranged to rest on the bed when it is in the cabinet, the covering 8, and cord 7 secured to the edge thereof to be held by the frame of said cushion, substantially as specified.

3. The combination with cabinet B and bed A arranged to be moved sidewise in and out of said cabinet, of cushion D composed of parts *v*, *z*, and *y*, with frame V hinged to shelf *s*, and the short arm 4, secured to frame *v* and groove 9 formed in ledge 3, for reception of said arm substantially as specified.

520,636. TOOL FOR MAKING PINS, BOLTS, AND RIVETS. PATRICK J. CONROY, Philadelphia, Pa. Filed Sept. 1, 1893. Serial No. 484,563. (No model.)

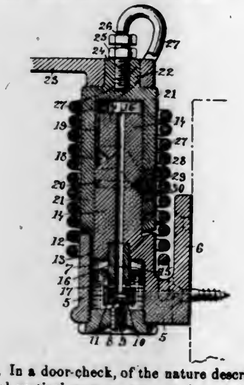


Claim.—1. A head with a tubular cutter thereon, and a plate pivoted to said head and carrying a blade adjacent to the opening in said cutter, said plate being held in position on said head by a screw and an abutting stop, substantially as described.

2. A head with a tubular cutter thereon, and a plate pivoted to said head and carrying a blade adjacent to the opening in said cutter, said head having a stop for abutment thereagainst of said head, substantially as described.

3. A tool for making pins, bolts or rivets, having a head with a tubular cutter provided with a tubular neck entering an opening in said head, a plate pivoted to said head, and a cutter carried by said plate, said parts being combined substantially as described.

520,637. DOOR-CHECK. THOMAS CURLEY, Waltham, Mass. Filed July 23, 1891. Serial No. 400,467. (No model.)



Claim.—1. In a door-check, of the nature described, a plunger, having a central vertical passage, supported on a base, a chamber containing liquid within said base, a vertically-perforated valve-stem having transverse outlets extending downward from said plunger and valves for closing said outlets, as described.

2. In a door-check, a spring-operated cylinder, a fixed plunger, on which the cylinder is movable, a seat-piece secured in the wall of said cylinder and having a seat, and a bearing-ball movable in said seat and engaging with a cam-groove formed in said plunger, as described.

3. A spring-operated cylinder, a fixed plunger, on which the cylinder is movable, a bearing-ball held in a seat in the wall of said cylinder and engaging with a V-shaped cam-groove provided in the periphery of said plunger, a passage connecting the upper end of said groove with the top of the plunger, and a packing-groove surrounding said plunger and connected with the cam-groove, as described.

4. In a door-check having a movable cylinder, the combination therewith, of a centrally vertically perforated plunger, supported on a base, having a concaved step surrounding said plunger, a passage connecting said step with a chamber formed in said base, a vertically-perforated valve-stem extending from the center of the plunger into said chamber and having transverse outlets at the lower end thereof, a perforated cap-valve fitting over the end of said valve-stem, and a set-screw working through the bottom of the chamber and adapted to raise the cap-valve to wholly, or partially, close the outlets in the valve-stem, as described

5. A cylinder, a fixed plunger on which the cylinder is vertically movable, a coiled-spring, surrounding said cylinder, one end journaled in the top thereof the other end rigidly secured to the base of the plunger, adapted to return the cylinder to place by the contraction of the elongated spring, and means carried by the cylinder adapted to engage the plunger to vertically move the cylinder, as described.

6. In a door-check and spring, the combination with the cylinder 21 operated by the arm 23 against the contraction of the spring 27 and provided with the seat-piece 28 having the conical seat 29, and the bearing-ball 30, of the plunger 14, having the cam-groove 18 in which said ball engages, supported on the base 5, a chamber 7 within said base, and one or more passages connecting the upper end of the plunger with said chamber, as described.

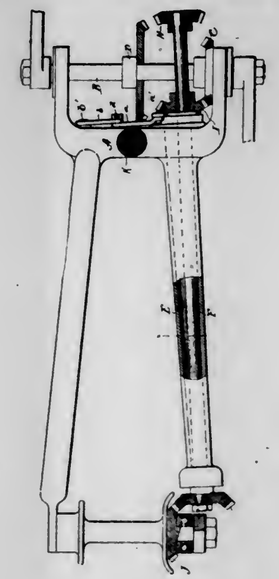
7. In a door-check and spring, the combination with the plunger 14 supported on the hollow base 5 and having the cam-groove 18, passage 19 and circumferential packing-groove 20, a central passage 15 extending vertically through said plunger and the valve-stem 16 secured thereto and provided with outlets, the centrally-perforated cap 11 movable over the end of said valve-stem, the set-screw 9 by which the cap 11 is adjusted, and the screw-cap 8, in a perforation in which the set-screw works, of the cylinder 21 vertically movable on said plunger against the contraction of the spring 27 journaled in the top thereof and provided with the seat-piece 28 having the seat 29 and the bearing-ball 30 in said seat, adapted to engage the cam-groove 18, as described.

8. In a door spring or check, the combination with a cylinder, a plunger on which the cylinder is movable, an arm secured to the cylinder for operating the same, of a coiled-spring, surrounding said cylinder, one end being rigidly secured to the plunger or base thereof, the other end being conical in shape and journaled in an adjustable bearing formed in part with or secured to said cylinder.

9. The combination with the cylinder 21, the plunger 14, having the hollow base 5, the step 12 and a passage connecting said step with the hollow portion of the base, of the arm 23, the spring 27, surrounding the cylinder 21, rigidly secured at the lower end and having the upper conical end bent over to engage a bearing in the upper end of the adjustable-bolt 24 having the lock-nut 25, as and for the purpose described.

10. In a door-check, in combination, a plunger furnished with a chamber and having a passage located adjacent to the wall of the chamber and a second passage centrally located with reference to the chamber, both connecting the chamber with onter portions of the plunger, a screw-cap for closing the end chamber, an adjustable device carried by the cap for regulating the flow of fluid through the central passage, and a cylinder surrounding the plunger.

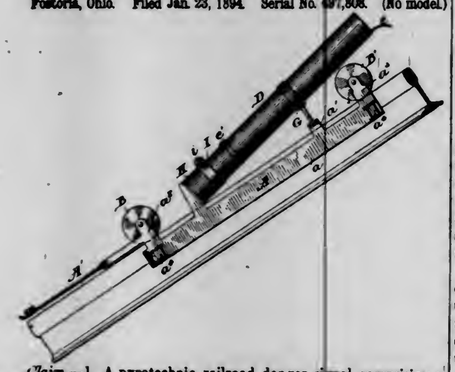
520,638. DRIVING MECHANISM FOR CYCLES. FRANK J. RAGER, Meriden, Conn. Filed Oct. 2, 1893. Serial No. 486,996. (No model.)



Claim.—1. Driving mechanism for cycles, consisting of a shaft mounted in the frame so as to permit rotary and lateral movement, a gear at the rear end in mesh with the gear on the rear wheel, two gears at the forward end adapted to mesh with differential gears on the crank shaft, substantially as described.

2. Driving mechanism for cycles, consisting of a shaft mounted in the frame for rotary and lateral movement, and provided with a gear at its rear end in mesh with a gear on its rear wheel, and with two gears at its forward end, combined with two differential gears on the crank shaft, and means substantially such as described to shift said shaft at the forward end, whereby the gears on said shaft may be thrown out of mesh with one of the gears on the crank-shaft and into mesh with the other, substantially as described.

520,639. PYROTECHNIC RAILWAY DANGER-SIGNAL. FRANK A. FOX, New York, and ARTHUR P. YATES, Syracuse, N. Y., assignors of one-half to David H. Roberts, New York, N. Y., and Albert M. Fox, Fostoria, Ohio. Filed Jan. 23, 1894. Serial No. 497,508. (No model.)



Claim.—1. A pyrotechnic railroad danger signal comprising a suitable carriage adapted to travel along the railroad rail or rails and carrying an inflammable substance serving the double purpose of impelling the device along the track and emitting a continuous signal light, substantially as described.

2. A pyrotechnic railroad danger signal comprising a suitable carriage adapted to travel along the railroad rail or rails and provided with a receptacle charged with an inflammable substance adapted to serve as a propelling means and at the same time emit a continuous light as the device moves over the track, substantially as described.

3. A pyrotechnic railroad danger signal comprising the carriage composed of a pair of longitudinally disposed bars suspended on opposite sides of a single rail from light rollers resting upon and extending across the top of the rail, so as to afford a broad bearing surface thereon, a tubular case mounted on said carriage and containing a suitable charge of inflammable material adapted when ignited to impel the carriage and also emit a signal light and a further charge of similar material adapted to emit a colored light, substantially as described.

4. In a pyrotechnic railroad danger signal, the combination of a pair of longitudinally disposed frame-bars adapted to straddle a railroad rail and provided with lugs or friction devices to impinge against the sides of the rail, a pair of rollers mounted upon said frame bars, transversely thereof, and adapted to rest upon the top of the rail and hold said bars suspended therefrom so as to balance and steady the device as it moves along the rail, and means for impelling the device along the track, substantially as described.

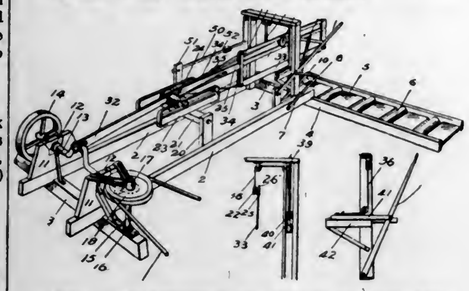
5. In a pyrotechnic railroad danger signal, the combination with the longitudinal frame bars having the rocket or case mounted thereon charged with an inflammable impelling and light-giving substance, of the rollers arranged transversely of said bars and above the same so as to travel along the top of the rail with the bars suspended and balanced one on either side of the rail, substantially as described.

6. A rocking signal comprising a suitable carriage adapted to be impelled along the track rail or rails, a cylinder or case charged with an inflammable substance adapted to emit light and also impel the device along the track, and a torpedo-supporting tongue extending in front of said carriage, substantially as described.

7. A rocket signal comprising a carriage adapted to be mounted upon the track rail or rails and balanced thereon, a cylinder or case charged with an inflammable impelling and light-giving substance mounted on said carriage and inclined rearwardly and upwardly from front to rear thereof, and a torpedo-supporting projection or tongue extending in front of the carriage, substantially as described.

8. A railroad danger signal consisting of a pair of bars arranged to straddle a single track rail, a pair of light rollers arranged transversely of and above said bars, a tubular casing detachably supported upon the carriage in a rearwardly and upwardly inclined position, and a forwardly projecting torpedo-supporting tongue, substantially as described.

520,640. DRAG-SAW. JOHN A. GESELIUS, Spring Vale, Minn. Filed Sept. 11, 1893. Serial No. 485,222. (No model.)



Claim.—1. The combination, in a drag saw, of a frame, with a pivoted arm, carrying guides arranged in connection with said arm to move therewith, a saw frame provided with a rearwardly extending bar having a rolling trunnion confined in said guides and arranged to reciprocate therein, the parallel bars of said saw frame, a roller and a projection on said arm extending between said parallel bars of said frame, means for raising said arm and therewith the frame, and means for reciprocating the saw frame, substantially as described.

2. The combination, with the frame or base, of the shaft 21 pivoted thereon, the arm and the part 23 carried thereon to oscillate therewith, guides on said arm and said part, the trunnion 24 having rollers to move on said guides, the saw frame having the bar 25 secured on said trunnion, said saw frame being movably supported upon the outer end of said arm, and means for reciprocating said saw frame, substantially as described.

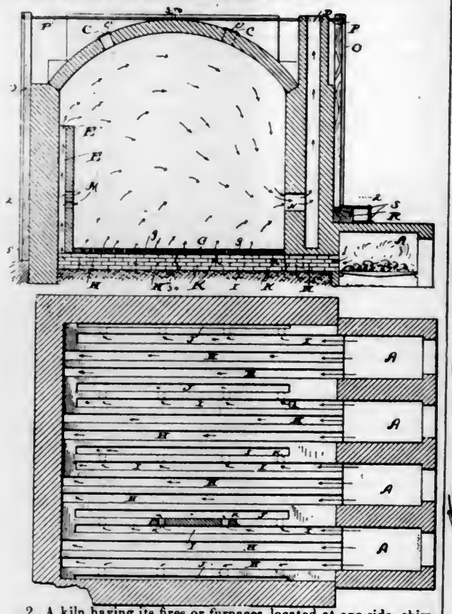
3. The combination, with the base, of the shaft 21 with the long supporting arm, and the bar 23 secured on said shaft, said parts provided with guide surfaces and strips, the trunnion 24, the saw frame having parallel bars, and the extended bar secured on said trunnion, a projection extending from the end of said arm between the parallel bars of the saw frame to support the latter, the crank shaft having bearings on the rear end of said base, a pitman connecting the crank thereof with the saw frame, means for raising and lowering said arm and said saw frame, a log carriage beneath the saw and means for securing the log thereon, substantially as described.

4. The combination, with the base, of the standard arranged thereon, the saw frame arranged beneath said standard the pivoted supporting arm having a forward end serving as a guide and support for said saw frame, guides provided on said supporting arm, an arm or rod projecting from the rear end of said saw frame and having a transverse part held in said guides, a pitman connected with said saw frame arm, means for operating said pitman, and means for raising and lowering the outer end of said supporting arm to raise and lower the saw frame, substantially as described.

5. The combination, with the base, of the standard arranged thereon, the saw frame arranged beneath said standard the pivoted supporting arm having a forward end serving as a guide and support for said saw frame, guides provided on said supporting arm, an arm or rod projecting from the rear end of said saw frame and having a transverse part held in said guides, a pitman connected with said saw frame arm, means for operating said pitman, means for raising and lowering the outer end of said supporting arm to raise and lower the saw frame, and means for partly counterbalancing the weight of said arm and saw frame, said means consisting of a pivoted lever 50, an adjustable weight thereon, and means connecting the free end of said lever with said supporting arm, substantially as described.

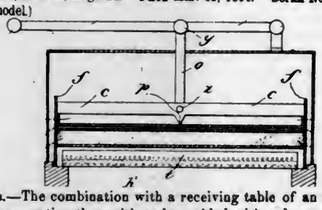
520,641. KILN. FRANK HALBAKSEN, Erlin, Ohio. Filed Oct. 3, 1893. Serial No. 487,094. (No model.)

Claim.—1. A kiln having its fires or furnaces located at one side, chimneys provided in the wall adjacent to the furnaces, ducts or openings leading from the lower half of the interior of the kiln to said chimneys, upright flues located at the side of the kiln opposite to the side having the chimneys, said upright flues discharging into the upper half of the kiln, ducts or flues H leading, from the furnaces, to and discharging into the lower end of said upright flue or flues, other flues I arranged parallel or approximately parallel with flues H, said flues I leading from the furnaces and extending almost the entire length of flues H, and passage-ways at suitable intervals along flues I for establishing open communication between said flues and the interior of the kiln, substantially as and for the purpose set forth.



2. A kiln having its fires or furnaces located at one side, chimneys D adjacent the furnaces, ducts or openings N establishing open-relation between the lower half of the interior of the kiln and said chimneys, upright flues N located at the side of the kiln opposite to the side having the chimneys, said upright flues discharging into the upper half of the kiln, ducts or passage-ways M establishing open relation between said upright flues and the lower half of the interior of the kiln, flues H, I and J arranged parallel with each other below the floor of the kiln, or approximately so, flues H and I leading from the furnaces, and flues H discharging into the aforesaid upright flues, ducts or passage-ways establishing open relation, at suitable intervals, between flues I and J and passage-ways establishing open communication, at suitable intervals, between flues J and the interior of the kiln, substantially as and for the purpose set forth.

520,642. APPARATUS FOR DRYING MATRICES. REUBEN H. HEALEY, London, England. Filed Mar. 13, 1891. Serial No. 384,884. (No model.)

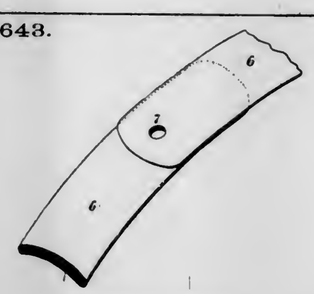


Claim.—The combination with a receiving table of an oven arranged in connection therewith and provided with a door, a carrier adapted to fit within the oven and to rest upon the table, pressure bars arranged within the oven, levers fulcrumed outside of the oven, and links by which the pressure bars and the levers are connected substantially as described.

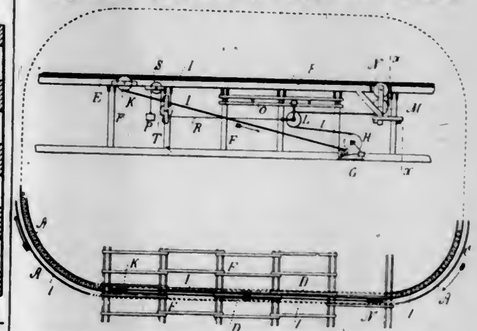
520,643. PNEUMATIC TIRE. ROBERT HOFFMAN, Pittsburg, Pa. Filed Oct. 20, 1893. Serial No. 488,709. (No model.)

Claim.—As a new article of manufacture a protecting strip adapted to be interposed between the inner and outer tubes of a pneumatic tire with its ends overlapping, said strip consisting of a strip of woven wire fabric and a covering of canvas, the canvas on opposite sides of the strip being united together and to the wire fabric by cement, said cement filling the interstices of the wire fabric, whereby is formed a solid compound strip, substantially as described and for the purpose set forth.

520,643.



520,644. CABLE RAILWAY. CHARLES W. HUNT, West New Brighton, N. Y. Filed Feb. 20, 1894. Serial No. 500,833. (No model.)



Claim.—1. The combination with the cable, the track for the cars and the driving mechanism for the cable, of sheaves or wheels around which the cable passes and which are located so that portions of the cable are parallel to each other along a straight or nearly straight portion of the track from the respective ends of which straight portion of the track, the cable descends and is acted upon by the driving drum whereby the cars can be disconnected from the cable at any part of the straight portion of the track, and then reconnected to the adjacent parallel portion of such cable to be carried around the circuit of the track, substantially as set forth.

2. The combination with the elevated platform, of a straight track upon such platform, and curved approaches thereto, a cable passing along one of the curved approaches to the distant end of the straight portion of the track, a drum around which the cable passes downwardly, a motor below the platform with a drum for the cable, a wheel at the opposite end of the straight portion of the track over which the cable passes upwardly and thence along the straight portion of the track and adjacent to the other straight part of the cable, and thence passes off around the curved approach and along the circuit of the track, substantially as set forth.

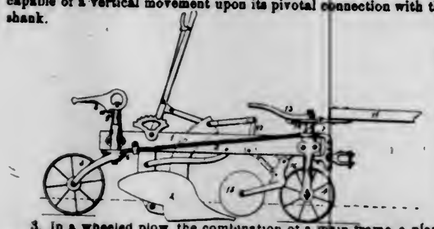
3. The combination with the elevated platform, of a straight track upon such platform, and curved approaches thereto, a cable passing along one of the curved approaches to the end of the straight portion of the track, where the cable descends a drum around which the cable passes, a motor below the platform with a drum for the cable, a wheel at the opposite end of the straight portion of the track over which the cable passes and thence along the straight portion of the track and adjacent to the other straight part of the cable, and thence passes off around the curved approach and along the circuit of the track, a weight and tightener wheel around which the cable passes between the drum of the motor and the guide wheel at the end of the straight part of the track, substantially as set forth.

520,645. WHEELED PLOW. JAMES H. JONES, Rockford, Ill., assignor to the Rockford Manufacturing Company, same place. Filed Nov. 20, 1893. Serial No. 491,381. (No model.)

Claim.—1. In a wheeled plow, the combination of a main frame, a caster wheel supporting the rear end thereof, a vertical shank extending from the caster wheel support having a projection near its upper end, a cam lever having a pivotal connection with the main frame resting against the upper end of the shank and provided with a hook engaging the projection holding the shank locked against lengthwise movement.

2. In a wheeled plow, the combination with a main frame, a fur-

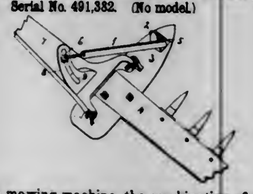
row wheel having a vertical shank supported by the main frame, a notched quadrant loosely mounted upon the shank, a tongue having a pivotal connection with the forward end of the quadrant, a lever having a pivotal connection with the shank, and provided, with a depending projection entering the notches of the quadrant, said lever capable of a vertical movement upon its pivotal connection with the shank.



3. In a wheeled plow, the combination of a main frame, a plow supported thereby, a colter, and means forming a connection between the colter and plow so that as the point of the plow is depressed below a normal working position the distance between it and the colter will be increased.

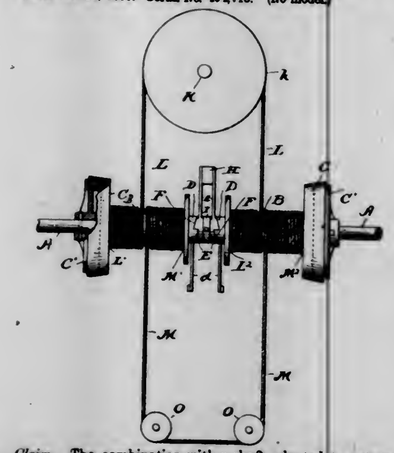
4. In a wheeled plow, the combination of a main frame, a plow supported thereby, a colter having a pivotal connection with the main frame, a bell crank lever having a pivotal connection with the main frame, a link connection between the colter and bell crank lever and a link connection between the bell crank lever and plow, whereby as the point of the plow is depressed below a normal working position the distance between it and the colter will be increased.

520,646. MOWING-MACHINE. JAMES H. JONES, Rockford, Ill., assignor to the Rockford Manufacturing Company, same place. Filed Nov. 20, 1893. Serial No. 491,332. (No model.)



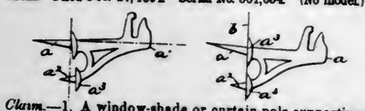
Claim.—In a mowing machine, the combination of a finger bar, a shoe connected to its inner end, a coupling bar having a hinge joint connection with the shoe, a bar spring having a journal connection with the shoe near its point and extending rearwardly transversely to the length of the finger bar, a support rising from the coupling bar provided with an elongated curved slot and a flexible connection between the support and the free end of the bar spring.

520,647. REVERSING-GEAR. GEORGE W. KING, Marion, Ohio. Filed Dec. 26, 1893. Serial No. 494,713. (No model.)



Claim.—The combination with a shaft adapted to rotate continuously in one direction, a reversible shaft, two drums loosely mounted upon one of said shafts, a clutch for each of said drums, one member of each clutch being rigid or operatively connected with the drum and the companion clutch-member being rigid or operatively connected with the shaft, suitable means for establishing operative connection between the two clutch-members, of a rope or cable engaging the drums on the one shaft and operatively connecting with the other shaft, the arrangement of parts being such that the reversible shaft shall be actuated in the one direction or the other according as the one or the other of the aforesaid drums is operatively connected with the supporting-shaft, and another rope or cable M having its two ends fastened to the different drums, respectively, and arranged substantially as and for the purpose set forth.

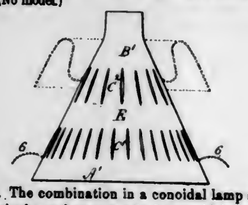
520,648. WINDOW-SHADE BRACKET. THEODORE H. KLEIN and HARRY C. FRENCH, Cleveland, Ohio; said French assignor to said Klein. Filed Feb. 27, 1894. Serial No. 501,634. (No model.)



Claim.—1. A window-shade or curtain-pole supporting-bracket having two embedding-points of different lengths, respectively, and shoulders or flanges at the inner ends of the points, the shoulder or flange at the inner end of the longer point being located somewhat in advance of the shoulder or flange at the inner end of the shorter point, substantially as set forth.

2. A window-shade or curtain-pole supporting-bracket having an upper embedding-point a and a lower and shorter embedding point a^1, and shoulders or flanges a^2 at the inner ends of the points, the lower point and shoulder or flange at the inner end of said point being arranged at right angles or approximately at right angles to each other, and the shoulder or flange at the inner end of the upper point inclining toward the free end of said point and being located somewhat in advance of the shoulder or flange at the inner end of the lower point, substantially as set forth.

520,649. SHADE FOR LAMPS. FRANK E. KNIGHT, New York, and HERBERT S. SMITH, Brooklyn, N. Y. Filed June 3, 1893. Serial No. 476,434. (No model.)



Claim.—1. The combination in a conoidal lamp shade of an inner stationary shade, and an outer shade attached to the inner shade at the top portion only and made flexible in the middle portion to allow said outer shade to be pushed up or itself to elevate the lower edge or the reverse substantially as specified.

2. A shade for a lamp having the smaller upper section B connected to the lower and larger section A by flexible strips that support the lower section and hold the same when either in an elevated or a depressed position, and a second range of strips covering the space between the first range of strips, substantially as set forth.

3. A shade for a lamp having the smaller upper section B connected to the lower and larger section A by flexible strips that support the lower section and hold the same when either in an elevated or a depressed position, in combination with a secondary shade within the outer shade and having tongues or strips, substantially as set forth.

4. A shade for a lamp having the smaller upper section B connected to the lower and larger section A by flexible strips that support the lower section and hold the same when either in an elevated or a depressed position, in combination with a secondary shade within the outer shade and having tongues or strips and one side closed, substantially as set forth.

5. A conoidal shade having upper and lower portions connected together by intermediate strips that are flexible, and the incisions or openings between the strips to allow such strips to bend independently of each other as the bottom section of the shade is raised or lowered, substantially as set forth.

520,650. BOUQUET-HOLDER. ALBERT METTE, New York, N. Y. Filed Feb. 14, 1894. Serial No. 500,131. (No model.)

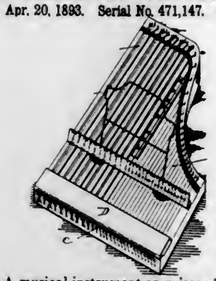
Claim.—1. The combination in a bouquet holder, of a concave plate, an attaching pin at the back, two or more projecting pins in the concave of the plate, and a chain connected at one end and extending across from one side to the other of the concave plate, and an engaging hook, substantially as specified.

2. The combination in a bouquet holder, of a concave plate, an attaching pin at the back, two or more projecting pins in the concave of the plate, and an eye on one edge and a hook on the other edge of the concave plate, and a chain through said eye and adapted to engage said hook, substantially as specified.



3. The combination in a bouquet holder, of a concave plate, an attaching pin at the back, two or more projecting pins in the concave of the plate, and an eye on one edge and a hook on the other edge of the concave plate, and a chain through said eye and adapted to engage said hook, there being enlargements on the respective ends of the chain, substantially as specified.

520,651. GUITAR-ZITHER. FRED MENKENHAUER, Jersey City, N. J. Filed Apr. 20, 1893. Serial No. 471,147. (No model.)



Claim.—1. A musical instrument or guitar-zither, provided with an open scale of leading-strings at one side of the sounding-board, and a number of groups of strings arranged at the other side of the sounding-board, the strings of each group being tuned to the intervals of separate harmonic chords for the leading strings, and each group being composed of a bass-string and additional strings tuned in a harmonic chord with the bass-string, substantially as set forth.

2. The combination, with the sounding-board of a musical instrument or guitar-zither, of an open scale of strings, and groups of strings for playing chords in harmony with the string of the open scale, each group being formed of a leading string and three chord-strings, all the leading strings being arranged in one plane while the chord-strings of each group are arranged successively below the preceding string, substantially as set forth.

3. The combination, with the sounding-board of a musical instrument or guitar-zither, having a bridge with straight portions and inclined recesses, and groups of strings for playing chords, the leading strings being stretched over the straight portions, and the chord-strings on the inclined portions of the recesses, substantially as set forth.

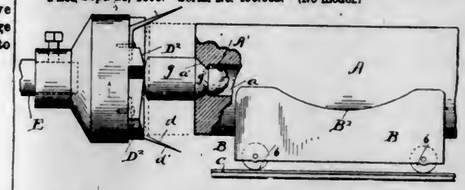
4. The combination, with the sounding-board of a musical instrument or guitar-zither, and a rest-board above the front end of the same, an open scale of strings arranged at one side of the sounding board and a number of groups of strings for playing chords corresponding to the several strings of the open scale, substantially as set forth.

5. The combination, with a musical instrument or guitar-zither having an open scale of strings and a number of groups of strings for playing chords corresponding to the strings of the open scale, of a bracket extending across the strings and provided with characters indicating the numbers of the strings and chords so as to indicate the chords to be played with the strings of the open scale, substantially as set forth.

6. The combination, with a musical instrument having an open scale of strings at one side and a number of groups of strings for playing chords corresponding to the strings of the open scale, a transverse bracket extending bridge-like across all the strings, and a music-rack attached to said bracket, substantially as set forth.

7. The combination of a musical instrument having an open scale of strings and a number of corresponding groups of strings for playing chords, a tuning-string interposed between the strings of the open scale, and groups of chord strings, and a fret-board below said tuning-string, so as to produce different tones corresponding to the leading strings of the open scale and permit thereby the easy tuning of the latter, substantially as set forth.

520,652. MACHINE FOR MAKING GRAVE OR LOT MARKERS. MILTON B. MISHLER, Ravenna, and FRANK J. MISHLER, Mogadore, Ohio. Filed Sept. 21, 1893. Serial No. 486,082. (No model.)

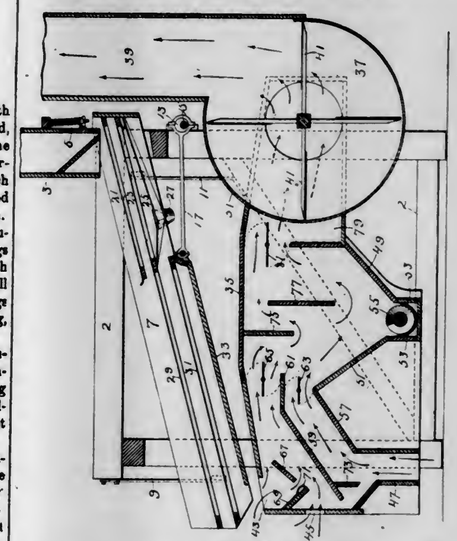


Claim.—1. A rotary tool comprising a stock having a face provided with a suitable number of radially-arranged blades at suitable intervals and one or more projecting cutters or blades between adjacent spreading-blades, the working side or face of the spreading-blades receding in the direction of rotation of the tool, substantially as set forth.

2. A rotary tool, comprising a stock having a face provided with radially-arranged spreading-blades at suitable intervals with the working side or face of said blades receding in the direction in which the tool rotates, and one or more projecting trimming-blades or cutters between adjacent spreading-blades and adjustable toward and from the center of the tool, substantially as and for the purpose set forth.

3. A rotary tool comprising a stock having a face provided with radially-arranged spreading-blades and one or more projecting trimming-blades or cutters, substantially as and for the purpose set forth.

520,653. GRAIN-CLEANER. CHARLES J. MOBER, Minneapolis, Minn. Filed June 15, 1893. Serial No. 477,636. (No model.)

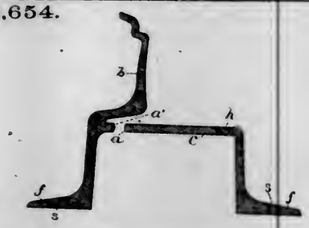


Claim.—The combination, with the casing 35, of the fan arranged at one end of said casing and connected therewith by a suitable air trunk 79, the valve 81 arranged in said air-trunk, a settlings chamber in said casing provided with a suitable conveyer, the openings 43 and 45 in the end of the casing farthest from said fan, the inclined plates 67 and 69 arranged below the opening 43, the vertical air trunk 47, and the inclined transverse partition 59 arranged above the air-trunk 47, the horizontal transverse partition 61 arranged at the upper edge of the partition 59, and the valves 63, 65 arranged in the air-trunks above and below the partitions 61, for the purpose specified.

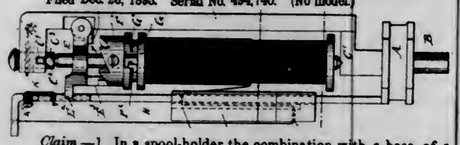
520,654. METHOD OF MAKING CHAIRS FOR RAILROAD-RAILS. ARTHUR J. MOXHAM, Johnstown, Pa. Filed Dec. 5, 1890. Renewed Apr. 16, 1892. Serial No. 429,485. (No specimens.)

Claim.—The method of making a rail-chair having a side rail-clamp, consisting in rolling two shapes of metal to form the two sides of the chair substantially as illustrated in Fig. 1, and welding the two parts together to form a rail-seat.

520,654.



520,655. SPOOL-HOLDER FOR BRAIDING-MACHINES. WILHELM MUNDT, New York, N. Y., assignor to Laura Mundt, same place. Filed Dec. 26, 1893. Serial No. 494,740. (No model.)



Claim.—1. In a spool-holder the combination with a base, of a standard on the same, which standard has a step, a tension-weight guide projecting upward from the base at the side of the standard, a tension weight mounted to slide on said guide, a spool-holding spindle mounted to turn on the step of the standard, and a spring-plug in the top of the standard and forming a bearing for the upper end of the spindle, substantially as set forth.

2. In a spool-holder, the combination with a base, of a standard having a step and a laterally-projecting arm at the upper end, a tension weight guide projecting upward from the base at the side of the standard, a tension weight mounted to slide on said guide, a spring-plug in the laterally-projecting arm at the upper end of the standard, which spring-plug forms the bearing for the upper end of the spindle, the lower end of the spindle resting on the steps of the bearing, substantially as set forth.

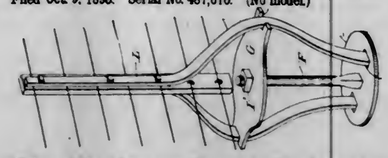
3. In a spool-holder, the combination with a base, of a standard projecting upward from the same and forming a step for one end of a rotating spool-holding spindle, a vertically sliding plug in the top of the standard, a spring for pressing said plug upward, and a latch for locking the plug in the lower position, substantially as set forth.

4. In a spool-holder, the combination with a base, of a standard projecting upward from the same and forming a step-bearing for the lower end of a rotating spool-holding spindle, a sliding plug in the top of the standard, a spring for pressing said plug upward, a spring-latch held on the side of the upper part of the standard for locking the plug in the lower position, two lugs on the side of the standard between which lugs the spring-latch is guided and its stop-pin passed through the outer ends of said lugs, substantially as set forth.

5. In a spool-holder, the combination with a base, of a standard on the same, a spool-holding spindle mounted to turn on said standard, a pawl-lever pivoted on the standard, a ratchet-wheel on the spindle which ratchet-wheel can be engaged by the pawl-lever, a cross-rod on the spindle below the ratchet-wheel, which cross-rod can pass into a groove in the end of a spool that is placed on the spindle, a weight guide projecting upward from the base, and a weight sliding on said guide, which weight can raise the pawl-lever, substantially as set forth.

6. In a spool-holder, the combination with a base, of a standard on the same, bearings for a rotating spool-holding spindle on said standard, a weight-guide projecting upward from the base, a detachable thread-guide on the upper end of the weight-guide, and a spring catch on said thread-guide for locking the same on the upper end of the weight-guide, and a weight sliding on said guide, substantially as set forth.

520,656. FENCE-POST. ELMER J. MCCULLOUGH, Milford, Mich. Filed Oct. 9, 1893. Serial No. 487,610. (No model.)



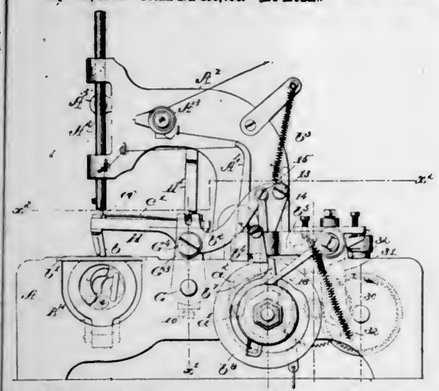
Claim.—1. In a fence post, the combination of an anchor plate, of two separated vertical bars of metal extending therefrom, means for clamping the upper portions of the bars together upon the fence, and a ground plate having seats at its edges in which the bars rest, substantially as described.

2. In a fence post, the combination of the apertured anchor plate, the separated standards extending therefrom, a second plate having notched bearings at its edges with which the standards engage, means for clamping the upper portions of the standards upon the fence and a tie bolt for connecting the two plates together, substantially as described.

3. In a fence post, the combination of the anchor plate, the separated vertical standards, the notched plate at or near the surface, with which the standards engage, the clamping bolts J for connecting the upper portion of the standards together upon the fence, the braced portions K connecting the clamping portions with the surface plate and the bolt F for connecting the two plates together, substantially as described.

4. In a fence post, the combination of the anchoring means of separated vertical standards adapted to be clamped upon the fence, a slat to which the wires of the fence are secured adapted to be clamped between the standards and a connection from the slat to the anchor, substantially as described.

520,657. SEWING-MACHINE. JOHN REECK, Boston, Mass. Filed Sept. 25, 1891. Serial No. 406,790. (No model.)



Claim.—1. A sewing machine containing the following instrumentalities, viz;—a stitch-forming mechanism comprehending an eye-pointed needle and complemental under thread carrier; feeding-mechanism to feed the material; devices to actuate said feeding-mechanism automatically to produce a series of stitches differing in length; a tension device; independent thread-controlling devices to act on the needle-thread between the said tension device and the needle; and devices to actuate the said thread-controlling devices in a variable manner to supply the proper amount of thread to suit the different lengths of feed stroke and stitch, substantially as described.

2. A sewing machine containing the following instrumentalities, viz;—a stitch-forming mechanism comprehending an eye-pointed needle and complemental under-thread carrier; feeding mechanism to feed the material; devices to actuate said feeding mechanism automatically to produce a series of stitches differing in length; a tension device; independent thread-controlling devices to act on the needle-thread between the said tension device and the needle; and devices to actuate the said thread-controlling devices in a variable manner to supply the proper amount of thread to suit the different lengths of feed stroke and stitch; and devices to automatically stop the feeding and stitch-forming mechanism after a predetermined number of stitches have been made, substantially as described.

3. A sewing machine containing the following instrumentalities, viz;—a stitch-forming mechanism comprehending an eye-pointed needle and complemental under thread carrier; feeding mechanism to feed the material; devices to actuate said feeding mechanism automatically to produce a series of stitches varying in length; thread-controlling devices; devices to actuate the same in a variable manner to supply the proper amount of thread to suit the different lengths of feed stroke and stitch; devices to automatically stop the feeding and stitch-forming mechanism after a predetermined number of stitches have been made; and a thread-cutting mechanism to cut off the thread as the stitching is stopped, substantially as described.

4. The combination with stitch-forming mechanism, and a take-up, of means for automatically vibrating the take-up and for changing the fulcrum of the take-up to thereby supply an extra amount of slack thread to the needle of the stitch-forming mechanism preparatory to stitching, a presser-foot, a lever-like cutting blade pivoted thereto, and a device to first actuate the lever-like cutting blade and then elevate the presser-foot, substantially as described.

5. In a sewing machine, the combination with stitch-forming mechanism; needle-thread controlling devices; and thread-cutting mechanism; of devices for operating said thread-controlling devices to automatically give up an extra amount of thread preparatory to cutting off the needle thread between the eye of the needle and the material being stitched, substantially as described.

6. The combination with a needle-bar and its actuating means, and a take-up lever and its actuating cams, of a slide containing the fulcrum for said take-up lever, and a cam to actuate said slide quickly in one direction and gradually in the opposite direction, substantially as described.

7. In a sewing machine, a throat-plate; a presser-foot, its carrying arm; the lever δ^3 connected to said arm and adapted to lift it; and a latch pivoted to said lever; combined with devices to lift the said presser-foot; and a stop motion rock-shaft having a wing, the said latch being made to engage the wing of said shaft when the presser-foot is lifted from the material, to operate, substantially as described.

8. In a sewing machine, the following instrumentalities, viz;—a needle-bar containing an eye-pointed needle, a complemental stitch-forming under thread carrier; feeding mechanism adapted to automatically feed the material for a series of stitches of different length; a tension device; a take-up, and devices to automatically and gradually increase the distance between the acting end of the said take-up and the said tension device after the commencement of stitching and during the variation in length of stitch due to variations in feed stroke, substantially as described.

9. The combination with stitch-forming mechanism, including a needle-bar, and an eye-pointed needle fixed thereto and adapted to sew with a continuous thread, a work support, feeding mechanism to clamp the material, and devices to move said feeding mechanism automatically for varying distances; of thread-controlling mechanism, and devices to impart to the same automatically a variable movement in accordance with the variations in the length of feed stroke of the feeding mechanism and the length of the stitch, substantially as described.

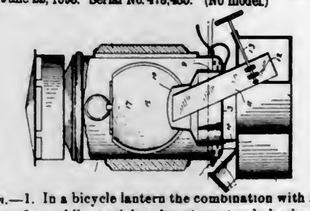
10. In a sewing machine, a throat plate to support the material, the arm H, its attached presser-foot bearing on the material on said throat-plate, and means to actuate said arm independently of the throat-plate to cause said presser-foot to feed the material over said throat plate; and a cutter lever mounted on said arm, combined with a lever to move said cutter lever and then said arm, for the purposes set forth.

11. The combination with a needle-bar having an eye-pointed needle, and a tension device, of an intermediate variably moving thread-controlling eye or device and devices to actuate it, whereby the distance between the tension device and the eye of the needle around and through the said controlling device is less at the commencement of stitching than after the formation of one or several stitches, substantially as described.

12. A sewing machine containing the following instrumentalities, viz:—stitch-forming mechanism; a throat-plate to support the material to be stitched; a foot to bear upon the material lying on said throat-plate; a thread cutter; and devices to operate said foot intermittingly to feed the material over said throat-plate and to lift the said foot therefrom, and to actuate the said thread cutting mechanism, whereby the thread is cut off and the material is unclamped during one and the same operation, substantially as described.

13. In a sewing machine, the following instrumentalities, viz:—a needle-bar having an eye-pointed needle; a tension device for the needle-thread; a thread controlling eye or device to engage the needle-thread between the said tension device and needle, and devices to vary the relative positions of said thread controlling eye and tension device preparatory to commencing the first of a series of stitches, substantially as described.

520,658. SIGNAL-LANTERN FOR BICYCLES. FRANK RHIND, Meriden, assignor to The Bridgeport Brass Company, Bridgeport, Conn. Filed June 22, 1893. Serial No. 478,435. (No model.)

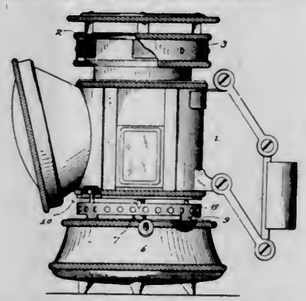


Claim.—1. In a bicycle lantern the combination with a reservoir and a case, of an oblique wick tube whose top is horizontal and a wick raiser whose contact with the wick is within the reservoir and whose shaft extends upward and outward at a right angle to the wick tube.

2. The combination with the reservoir having an opening through it and a burner detached therefrom, of an exposed wick tube which is secured to the reservoir extends upward obliquely from one side thereof and terminates centrally in the burner.

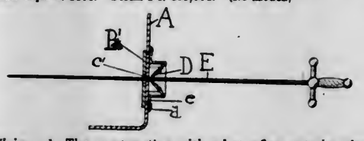
3. The combination with the reservoir having standards extending upward therefrom of a burner whose base in secured to the standards and is provided with perforations 8, and an exposed wick tube extending obliquely from one side of the reservoir and terminating centrally in the burner.

520,659. SIGNAL-LANTERN FOR BICYCLES. FRANK RHIND, Meriden, assignor to The Bridgeport Brass Company, Bridgeport, Conn. Filed Oct. 26, 1893. Serial No. 489,185. (No model.)



Claim.—In a lantern of the class described the combination with a body and a reservoir having an air space between them, of a metallic connection 8 by which said body and reservoir are joined together, said connection being made from a single piece of sheet metal so shaped as not to come in contact with either the body or the reservoir and provided on its under side with lugs 9 for attachment to the reservoir and on its upper side with lugs 10 for attachment to the body, said points of attachment to the body being placed intermediate the points of attachment to the reservoir, as and for the purpose set forth.

520,660. HAT-FASTENER. JOHN J. RIORDAN, Jr., Baltimore, Md. Filed Sept. 8, 1893. Serial No. 485,061. (No model.)



Claim.—1. The combination with a hat, of an exterior plate, B', having a hole through which a fastening-pin may be passed and provided with prongs, d; and an interior funnel-shaped guide having a central hole in its contracted end and its sides provided with radial slits extending to said hole thereby forming spring-tangs, h, whose points converge at said hole and are adapted to bind against a fastening-pin and prevent it from working backward, and provided with laterally projecting ends, e, having holes which receive the said prongs on the exterior plate.

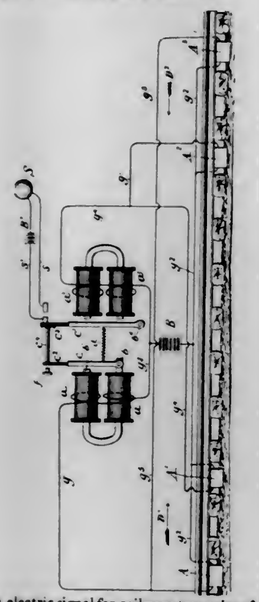
2. The combination of a plate, B', having a pin-hole through it; a funnel-shaped guide having a central hole in its contracted end and its sides provided with radial slits extending to said hole thereby forming spring-tangs; and means connecting the plate and guide which insures the coincidence of position of the pin-hole in the plate and the central hole in the funnel-shaped guide leaving both holes open for the admission of a pin.

520,661. ELECTRIC RAILWAY-SIGNAL. CHARLES SELDEN and HENRY V. RILEY, Baltimore, Md. Original application filed Feb. 16, 1894, Serial No. 500,863. Divided and this application filed Apr. 12, 1894. Serial No. 507,329. (No model.)

Claim.—1. An instrument for controlling electric signals for railways, consisting of two pairs of electro-magnets oppositely arranged and in the same circuit, the armatures thereof connected together and adapted to be moved in unison and locked together, the armature of one pair adapted to be polarized during the energization of the magnets controlling the same, whereby upon the simultaneous energization

of both pairs of magnets a bias is created in favor of the magnet operating the polarized armature, substantially as described.

2. In an electric signal for railways, a signal circuit controlling instrument consisting of two pairs of electro-magnets oppositely arranged, two armatures suitably connected and arranged therebetween, the armature of one pair adapted to be polarized upon the flow of current therethrough, suitable track circuit adapted to be operated upon the passage of a train in either direction upon a section of railway to be protected, said circuits containing therein the two pairs of electro-magnets, and a battery common to both of said pairs, whereby upon the closing of the track circuits and the energization of each pair of magnets a bias is created in favor of the polarized armature magnets substantially as described.



3. In an electric signal for railways two pairs of electro-magnets oppositely arranged, one pair containing an armature adapted to be polarized during the flow of current through said magnets, the other pair operating a neutral armature, means for causing said armatures to move in unison and for locking the same in rigid contact, a signal circuit controlled by the movement of said armatures and suitable circuits and railway track instruments, whereby upon the passage of a train or car in either direction upon said railway the signal circuit is opened or closed and the signal operated substantially as described.

4. In an electric signal for railways two electro-magnets the armature of one of said magnets adapted to become polarized during the flow of a current through said magnet the armature of the other remaining neutral, a spiral spring or other yielding device connecting said armatures and suitable locking mechanism therefor in combination with battery wires and circuit closers whereby when both circuits are closed during the same interval of time and owing to the polarization of one armature during the flow of current a bias is created in favor of the polarized armature magnet as and for the purpose set forth.

5. In an electric signal for railways two pairs of electro magnets oppositely arranged, the pole piece of one of the magnets of one pair being extended and containing therein an orifice or recess, an armature pivoted in said orifice and adapted to face the pole piece of the other magnet of the same pair and thereby become polarized during the energization of said magnets, a neutral armature suitably placed before the pole pieces of the opposite pair of electro-magnets, means for securing said armatures in yielding contact near the base thereof and means consisting of a bar projecting at right angles from the upper end of one armature, and a corrugated surface on the upper end of the other armature and adapted to engage the end of said bar whereby said armatures are locked in rigid contact substantially as described.

6. In an electric signal for railways, two electro-magnets oppositely arranged, the armature of one adapted to be polarized during the energization of its magnet, the armature of the opposite magnet being neutral, means for causing the said armatures to move in unison and mechanically locking in rigid contact a signal circuit controlled by the vibration of said armatures, suitable track instruments and circuits whereby the passage of a train in either direction will cause the energization of one or both of said magnets and by action of the polarized armature and mechanical locking device a bias is given in favor of one magnet until the other magnet is solely energized thereby displaying and discontinuing a signal substantially as described.

7. In an electric signal for railways an instrument consisting of a polarized and a non-polarized relay, common to a single battery, the armatures thereof being oppositely arranged and adapted to be mechanically locked together in either position assumed by the attraction of said relays, a signal circuit controlled by the vibration of said armatures, suitable track circuit closing instruments located at each end of a section of railroad to be protected, and circuits connecting said relays and track instruments, whereby upon the entrance of a train in either direction into the protected section the polarized relay is first energized and the armatures locked toward that relay until said polarized relay is wholly de-energized and the non-polarized relay energized, thereby closing the signal circuit and operating the signal until said train has passed out of said protected section when the polarized relay is again actuated and the signal restored to normal substantially as described

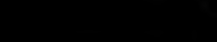
---

520,662. ARTIFICIAL STONE OR CEMENT COMPOSITION. CHARLES A. SHANK, Philadelphia, Pa., assignor of seven-eighths to Adam A. Catanach, Peter Boyd, Walter Burge, Benjamin P. Wilson, and Robert S. Greenfield, same place. Filed Feb. 6, 1890. Serial No. 339,456. (No specimens.)

Claim.—1. An artificial stone or cement composition consisting of sulphuric and nitric acids, lye and fallen lime, substantially as specified.

2. An artificial stone composition consisting of sulphuric and nitric acids, lye, fallen lime and a suitable base, substantially as specified.

520,663. PEN-FENDER. BRAINARD F. SMITH, Represa, Cal. Filed Jan. 30, 1894. Serial No. 498,491. (No model.)



Claim.—1. The combination with a pen and pen holder, of a fender the upper end of which is pivotally secured to said holder so that the fender may be turned about said pivotal connection and be aligned alongside of the holder above the pivotal connection, when not in use.

2. An attachment for pen holders consisting of a fender hinged at one end and adapted to be turned in vertical planes to reverse its position on the holder, and means for adjusting the fender in lateral planes to increase and decrease the distance between its lower end and the point of the pen.

3. A pen holder and pen, a fender pivotally connected at its upper end to the holder and adapted to swing in vertical planes so that it may be reversed, whereby said fender may occupy a position below the pivotal connection and approximately parallel with the pen, and also a position above the connection and approximately parallel with the holder when said fender is not in use, and an adjusting screw carried by the fender for regulating the distance between the latter and the pen.

4. A sleeve longitudinally-removably attached to a pen holder, a fender carried by said sleeve having its upper end hinged to the sleeve so that it may turn about said hinge to occupy a space above it when the pen is introduced into the ink, and then be turned down alongside of the pen to serve as a fender for its inner side when the pen is in use, said fender also provided with an adjusting screw for regulating the distance of its lower end from the point of the pen.

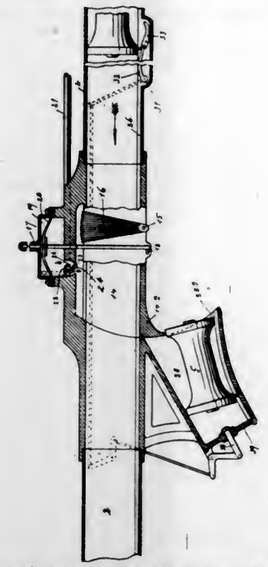
520,664. PNEUMATIC TRANSMITTER OR STORE-SERVICE. CHARLES O. YALE, New York, N. Y., and JOHN H. AMES, St. Paul, Minn. Filed Mar. 28, 1892. Serial No. 426,652. (No model.)

Claim.—1. The combination in a pneumatic transmitter of a conductor having a continuous groove, a discharger consisting of a movable section hinged at one end on the side of the groove and swinging at the other out of the line of the conductor, a tripper for operating the discharger, and a carrier having a projection extending into the groove for operating the tripper and through it the discharger, substantially as set forth.

2. The combination in a pneumatic transmitter of a conductor ube having a longitudinal groove, a discharger, a discharge-tripper located in the groove, and connecting mechanism between the tripper and discharger, a carrier and a projection on the carrier running in the groove, substantially as set forth.

3. The combination in a pneumatic transmitter of a conductor having a longitudinal groove, a dispatcher consisting of a cover forming a movable half of a section of the conductor divided through the groove, and a carrier having a projection extending into the groove substantially as set forth.

4. In a pneumatic transmitter, in combination a conductor, a discharger, a tripper and a connection between the tripper and discharger, and a carrier having a movable tripper actuator, substantially as set forth.



5. In a pneumatic transmitter, in combination a conductor, a discharger, a tripper and connecting mechanism between the discharger and tripper, and a carrier having a movable tripper actuator and mechanism for locking the actuator, combined substantially as set forth.

6. The combination in a pneumatic transmitter of a carrier having a movable projection and a variable locking mechanism for securing the movable projection, a carrier conductor and fixtures in the conductor engaged by the movable projection from the carrier, and means permitting the removal of the carrier from the conductor, substantially as set forth.

7. The combination of a conductor having a continuous groove, a fixture or series of fixtures in the conductor, a carrier having a movable projection extending into the groove, and locking mechanism on the carrier for securing the movable projection, substantially as set forth.

8. The combination of a conductor having an inwardly extending fixture, a carrier having a movable projection operated by the inwardly extending fixture, and a locking mechanism for securing the movable projection, substantially as set forth.

9. The combination of a longitudinally grooved conductor having a series of inwardly extending fixtures in the groove, and a carrier having a movable projection, and an alterable locking mechanism for securing the projection on the carrier, substantially as set forth.

10. The combination of a carrier conductor, a carrier, a movable tripper actuator on the carrier, a discharger tripper operating to move the actuator or be moved by the actuator, a discharger and a connection between the tripper and discharger, and mechanism for arresting the movement of the actuator after a given number of movements, substantially as set forth.

11. The combination in a pneumatic conductor of a series of dischargers located therein, a tripper for each discharger, a connecting mechanism between the tripper and discharger, a carrier, a movable tripper actuator mounted on the carrier, and a mechanism for arresting the movement of the actuator after a given number of movements caused by engagement with the trippers in passing, substantially as set forth.

12. In a pneumatic transmitter, a conductor having a series of fixtures or projections therein, in combination with a carrier having a movable projection adapted to engage the fixtures or projections in the conductor, and a ratchet wheel, a stop for the ratchet wheel, a pawl on the movable projection engaging the wheel, all on the carrier, substantially as set forth.

13. The combination in a pneumatic conductor of a series of dischargers located therein, a tripper for each discharger, a carrier, a movable tripper actuator, a pawl thereon, a ratchet wheel engaged by the pawl, a stop for limiting the movement of the ratchet, a detent for engaging the ratchet wheel, and a spring for returning the ratchet wheel to its normal position, substantially as set forth.

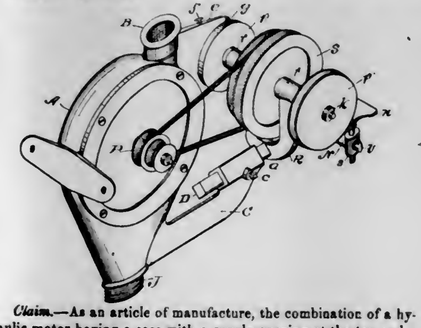
14. In a carrier transmitter, in combination a conductor having a longitudinal groove, a discharger consisting of a movable section of the conductor pivoted at one end on the side of the groove, a rod for operating the discharger, a chamber containing a movable diaphragm connected with the rod, a valve for regulating and directing the pressure to either side of the diaphragm, and a tripper located in the groove of the conductor and connected with the valve, substantially as set forth.

15. The combination in a pneumatic transmitter of a conductor, a discharger consisting of a movable section of the conductor pivoted at one end and swinging at the other, a tripping device located in the conductor for operating the discharger, a receiver into line with which the discharger swings to deliver the carrier, and a projection or bumper in the receiver adapted to be actuated by the carrier and re-set the tripper, substantially as set forth.

16. The combination in a pneumatic transmitter of a conductor, a discharger, a tripper for operating the discharger located in the conductor, and a carrier stopper operated by the tripper, substantially as set forth.

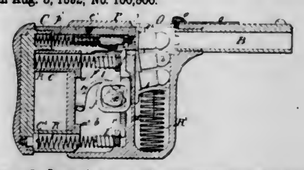
17. The combination in a pneumatic transmitter, of a conductor having a longitudinal groove, a dispatcher consisting of a cover forming a movable half of a section of the conductor through the groove, and a carrier having a movable projection adapted to extend into the groove, substantially as set forth.

520,665. GRINDING-MACHINE. ELIJAH B. BENHAM and HOWARD E. BARLOW, Providence, R. I. Filed Mar. 16, 1894. Serial No. 503,955. (No model.)



Claim.—As an article of manufacture, the combination of a hydraulic motor having a case with a supply opening at the top and a discharging aperture at the bottom, a horizontal arm projecting out in front with a socket, an extension arm fitted to slide in said socket, a horizontal cross bar held in bearings supported by said extension bar, a pulley and grinding wheels secured on said shaft, a cross bar also held on said extension bar and having sockets at its ends to hold rests before the grinding wheels, and a feed pipe for one of the grinding wheels inserted in the supply pipe of the motor.

520,666. MAGAZINE-PISTOL. PÉTRUS BLACHON and ETIENNE MIMARD, St. Etienne, France. Filed June 23, 1893. Serial No. 478,551. (No model.) Patented in France Aug. 3, 1892, No. 223,444, and in Belgium Aug. 3, 1892, No. 100,800.



Claim.—1. In a fire arm, the combination of a breech, with a movable breech-block provided with a striker, an extractor and an ejector, and a sear for retaining the striker, and guided in the breech, a cam pivoted in the breech and adapted to control the movements of the sear by the position of the said cam, and a lever actuated from the outside of the firearm to control the position of the cam, substantially as and for the purposes set forth.

2. In a fire-arm, the combination of a receiver provided with a goove, with a movable breech-block having an extractor, and an

ejector pivoted to the movable breech block and provided with a projection working in the said groove to raise and lower the said ejector, substantially as and for the purposes set forth.

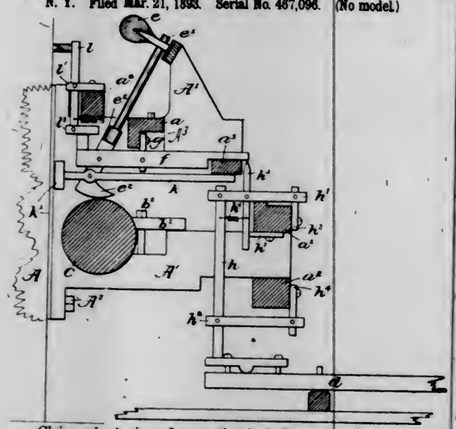
3. In a fire-arm, the combination of a receiver, with a movable breech-block provided with an extractor, an ejector pivoted to the breech-block and adapted to be raised and lowered by the movements of the breech-block, and a striker and a movable stock-plate attached to the movable breech-block to impart to the fire-arm the several movements necessary for working it.

4. In a fire-arm, the combination of a breech forming the handle of the weapon and provided with three compartments, one for the movable breech-block and having an opening in its upper part, the second for the trigger mechanism, and the third forming a cartridge magazine, with a movable breech-block provided with a striker, an extractor, and an ejector, a sliding cover D and a sliding plate o. all substantially as and for the purposes set forth.

5. In a fire-arm, the combination of a breech provided with a pivoted cam and a lever to actuate the cam, with a movable breech block provided with a notch c^4 and an incline c^5, a striker in the movable breech block, and provided with a projection, a sear having two projections, one to engage the projection on the striker, and the other adapted to be acted upon by the incline c^5 and in the safety position adapted to enter the notch c^4, the said sear being provided with a collar placed on the cam and adapted to be actuated thereby, all substantially as set forth.

6. In a fire-arm, the combination of a breech forming the grip or handle, with a movable breech-block provided with an incline c^5, a striker in the movable breech block, a sear having two projections, one to engage the striker, and the other adapted to be acted upon by the incline c^5, and a spring-actuated stock-plate secured to the movable breech block, whereby the necessary movements are imparted to the fire-arm by simply pressing the weapon when grasped in the hand, all substantially as set forth.

520,667. PIANOFORTE-ACTION. THADDEUS CAHILL, New York, N. Y. Filed Mar. 21, 1893. Serial No. 467,096. (No model.)



Claim.—1. A piano-forte action including a key; a hammer; a friction-driver; a pivoted contact-piece connected with the hammer and an escapement intermediate the key and the contact-piece, through which the contact-piece is pressed against the friction-driver, on the depressing of the key, more or less forcibly according to the pressure upon the key, and whereby facility is afforded for breaking the pressure connection between the key and the contact-piece.

2. A piano-forte action including a key; a hammer; a friction-driver; a pivoted contact-piece connected with the hammer, an escapement intermediate the key and the contact-piece; and a check; the parts being constructed, arranged and connected in such a manner that the key when pressed upon, presses the contact-piece against the friction-driver through the intervention of the escapement; the contact-piece being arranged in such a manner that when moved by the friction-driver, it acts upon the escapement and frees itself from the traction of the friction-driver, the pressure theretofore employed in pressing the contact-piece against the friction-driver being transferred at or about the instant the hammer strikes the string to the before mentioned check, whereby the hammer is arrested upon its retreat from the string, and prevented from rebounding thereon.

3. In a piano-forte action and in combination, a key; a hammer; a friction-driver; a pivoted contact-piece and an escapement intermediate the key and the contact-piece, whereby a key-controlled pressure is transmitted to the contact-piece, and the contact-piece pressed against the friction-driver, upon the depressing of the key, more or less forcibly according to the pressure upon the key, and whereby facility is afforded for freeing the contact-piece from the traction of the friction-driver, the pivoted contact-piece and the hammer being connected together in such a manner that they move upon the same axis or center

4. In a piano-forte action and in combination, a key; a hammer; a friction-driver; a pivoted contact-piece an escapement intermediate the key and the contact-piece; and a key-controlled check; the parts being constructed and arranged in such a manner that the key, when pressed upon, presses the contact-piece against the friction-driver through the intervention of the escapement; the hammer and contact-piece being so arranged that, as they move under the influence of the friction-driver, they act upon the escapement, freeing the contact-piece from the traction of the friction-driver, and leaving the hammer free to retreat from the string, the pressure theretofore employed in pressing the contact-piece against the friction-driver being transferred, at or about the instant the hammer strikes the string, to the check before mentioned, so that a frictional resistance is opposed to the movement of the hammer upon its rebound from the string, the pivoted contact-piece and the hammer being connected together in such a manner that they move upon the same axis or center.

5. In a piano-forte action, and in combination, a key; a hammer, a friction-driver; a contact-piece connected with the hammer; and an escapement pressure-transmitter intermediate the key and the contact-piece, arranged in such a manner that the key, when pressed upon, moves said pressure-transmitter for an instant, so that a pressure connection is established between the key and the contact-piece, said pressure-transmitter being arranged in such a manner, also, that when moved in another direction different from that in which it was moved by the depressing of the key, it breaks the pressure connection between the key and the contact-piece; the contact-piece being arranged in such a manner that it (the contact-piece), gives to the pressure-transmitter the movement last above mentioned as it (said contact-piece), moves under the influence of the friction-driver, thereby breaking the pressure connection between the key and the contact-piece, and freeing the contact-piece from the traction of the friction-driver.

6. In a piano-forte action, and in combination, a key; a hammer; a friction-driver; a contact-piece connected with the hammer; a check for the hammer; and an escapement pressure-transmitter intermediate the key and the contact-piece, arranged in such a manner that the key, when pressed upon, moves said pressure-transmitter for an instant, so that a pressure connection is established between the key and the contact-piece, said pressure-transmitter being arranged in such a manner, also, that when moved in another direction different from that in which it was moved by the depressing of the key, it breaks the pressure connection between the key and the contact-piece; the contact-piece being arranged in such a manner that it gives to the pressure-transmitter the movement last above mentioned, as it (the contact-piece), moves under the influence of the friction-driver, thereby breaking the pressure connection between the key and the contact-piece and freeing the contact-piece from the traction of the friction-driver, the pressure theretofore employed in pressing the contact-piece against the friction-driver being transferred, at or about the instant the hammer strikes the string, to the check before mentioned, so that a frictional resistance is opposed to the movement of the hammer upon its rebound from the string.

7. In a piano-forte action, and in combination, a key; a hammer; a friction-driver; a contact-piece connected with the hammer; an escapement intermediate the key and the contact-piece, whereby, on the depressing of the key, a pressure connection is established between the key and the contact-piece, so that the contact-piece is pressed against the friction-driver; and a part intermediate the contact-piece and the escapement, whereby the contact-piece as it moves under the influence of the friction-driver acts upon the escapement, breaking the pressure connection between the key and the contact-piece, and freeing the contact-piece from the traction of the friction-driver.

8. In a piano-forte action and in combination, a key; a hammer; a friction-driver; a contact-piece connected with the hammer; an escapement intermediate the key and the contact-piece, whereby, on the depressing of the key, a pressure connection is established between the key and the contact-piece, so that the contact-piece is pressed against the friction-driver; and a part intermediate the contact-piece and the escapement, whereby the contact-piece, as it moves under the influence of the friction-driver, acts upon the escapement, breaking the pressure connection between the key and the contact-piece, and freeing the contact-piece from the traction of the friction-driver; the parts being arranged in such a manner that the pressure theretofore transmitted to the contact-piece is transferred, at or about the instant the hammer strikes the string, to the part before mentioned as being intermediate the contact-piece and the escapement, so that a frictional resistance is opposed to the movement of the hammer upon its rebound from the string.

9. In a piano-forte action, and in combination, a key; a hammer; a friction-driver; a contact-piece connected with the hammer; an escapement intermediate the key and the contact-piece; a check-piece connected with the key; a check-piece connected with the hammer; and a fixed check-piece or check-bar; the parts being constructed and arranged in such a manner that upon the freeing of the escapement, the check-piece connected with the key presses the check-piece connected with the hammer against the fixed check-piece, so that the check-piece connected with the hammer is subjected to a double friction, to-wit, a friction with the check-piece connected with the key, and a friction with the fixed check-piece, whereby the hammer is arrested upon its rebound from the string

10. In a piano-forte action and in combination, a hammer; a friction driver; a pivoted contact-piece connected with the hammer; a lever whereby the contact-piece is mounted for movement against and away from the friction-driver; and an escapement pressure-transmitter, whereby the contact-piece is pressed against the friction-driver, and whereby facility is afforded for freeing the contact-piece from the traction of the friction-driver.

11. In a piano-forte action, and in combination, a hammer; a friction-driver; a pivoted contact-piece connected with the hammer; a lever whereby the contact-piece is mounted for movement against and away from the friction-driver an escapement pressure-transmitter; and a part intermediate the contact-piece and the escapement, whereby the contact-piece, as it moves under the influence of the friction-driver, acts upon the escapement, freeing the contact-piece from the traction of the friction-driver.

12. In a piano-forte action, and in combination, a hammer; a friction-driver; a pivoted contact-piece connected with the hammer; a lever whereby the contact-piece is mounted for movement against and away from the friction-driver; an escapement pressure transmitter whereby the contact-piece is pressed against the friction-driver; a part intermediate the contact-piece and the escapement, whereby the contact-piece, as it moves under the influence of the friction-driver, acts upon the escapement, freeing the contact-piece from the traction of the friction-driver; and a check-piece connected with the hammer against the fixed check-piece, so that the check-piece connected with the hammer is subjected to a double friction, to-wit, a friction with the check-piece connected with the key, and a friction with the fixed check-piece, whereby the contact-piece is arrested upon its rebound from the string.

13. In combination, a key; a friction-driver; a pivoted contact-piece; and an escapement for the contact-piece, the key being connected with the contact-piece in such a manner that it (the key), when pressed upon, presses the contact-piece against the friction-driver, the friction-driver serving to move the contact-piece, and the escapement serving to afford facility for breaking the pressure connection between the key and the contact-piece while the pressure upon the key is maintained.

14. In combination, a key; a friction-driver; a pivoted contact-piece; an escapement intermediate the key and the contact-piece; and a check; the parts being constructed and arranged in such a manner that the key, when pressed upon, presses the contact-piece against the friction-driver through the intervention of the escapement; the contact-piece being so arranged that, as it moves under the influence of the friction-driver, it acts upon the escapement, freeing the contact-piece from the traction of the friction-driver; the pressure theretofore employed in pressing the contact-piece against the friction-driver being transferred to the before mentioned check, whereby a frictional resistance is opposed to the movement of the contact-piece.

15. In combination, a key; a friction-driver; a contact-piece; and an escapement pressure-transmitter intermediate the key and the contact-piece, arranged in such a manner that the key, when pressed upon, moves said pressure-transmitter for an instant, so that a pressure connection is established between the key and the contact-piece, said pressure transmitter being arranged in such a manner, also, that when moved in another direction different from that in which it was moved by the depression of the key, it breaks the pressure connection between the key and the contact-piece; the contact-piece being arranged in such a manner that it (the contact-piece), gives to the pressure transmitter the movement last above mentioned, as it (the contact-piece), moves under the influence of the friction-driver, thereby breaking the pressure connection between the key and the contact-piece, and freeing the contact-piece from the traction of the friction-driver.

16. In combination, a key; a friction-driver; a contact-piece; a check; and an escapement pressure transmitter intermediate the key and the contact-piece arranged in such a manner that the key, when pressed upon, moves said pressure transmitter for an instant, so that a pressure connection is established between the key and the contact-piece, said pressure transmitter being arranged in such a manner, also, that when moved in another direction, different from that in which it was moved by the depressing of the key, it breaks the pressure connection between the key and the contact-piece; the contact-piece being arranged in such a manner that it (the contact-piece), gives to the pressure-transmitter the movement last above mentioned, as it (the contact-piece), moves under the influence of the friction-driver, thereby breaking the pressure connection between the key and the contact-piece and freeing the contact-piece from the traction of the friction-driver, the pressure theretofore employed in pressing the contact-piece against the friction-driver being transferred to the check before mentioned, so that a frictional resistance is opposed to the movement of the contact-piece.

17. In combination, a key; a friction-driver; a contact-piece; an escapement intermediate the key and the contact-piece whereby, on the depressing of the key, a pressure connection is established between the key and the contact-piece, so that the contact-piece is pressed against the friction-driver; and a part intermediate the contact-piece and the escapement, whereby the contact-piece, as it moves under the influence of the friction-driver, acts upon the escapement, breaking the pressure connection between the key and the contact-piece, and freeing the contact-piece from the traction of the friction-driver.

18. In combination, a key; a friction-driver; a contact-piece; an escapement intermediate the key and the contact-piece whereby on the depressing of the key, a pressure connection is established between the key and the contact-piece, so that the contact-piece is pressed against the friction-driver; and a part intermediate the contact-piece and the escapement, whereby the contact-piece as it moves under the influence of the friction-driver acts upon the escapement, breaking the pressure connection between the key and the contact-piece, and freeing the contact-piece from the traction of the friction-driver; the pressure theretofore transmitted to the contact-piece being thereupon transferred to the part before mentioned as being intermediate the contact-piece and the escapement, so that a frictional resistance is opposed to the movement of the contact piece.

19. In combination, a key; a friction-driver, a contact-piece; an escapement intermediate the key and the contact-piece; a check-piece connected with the key; a check-piece connected with the contact-piece: and a fixed check-piece or check-bar; the parts being constructed and arranged in such a manner that upon the freeing of the escapement the check-piece connected with the key presses the check-piece connected with the contact-piece against the fixed check-piece, so that the check-piece connected with the contact-piece is subjected to a double friction, to-wit, a friction with the check-piece connected with the key, and a friction with the fixed check-piece, whereby the contact-piece is arrested after it has been freed from the traction of the friction-driver.

20. In a key-board musical instrument and in combination, a key; a friction-driver; a pivoted contact-piece: a lever whereby the contact-piece is mounted for movement against and away from the friction-driver; and an escapement pressure-transmitter intermediate the key and the lever, whereby the contact-piece is pressed against the friction-driver, and whereby facility is afforded for breaking the pressure connection between the key and the contact-piece, and freeing the contact-piece from the traction of the friction-driver.

21. In a key-board musical instrument, and in combination, a key; a friction-driver; a pivoted contact-piece; a lever whereby the contact-piece is mounted for movement against and away from the friction-driver; an escapement pressure-transmitter, intermediate the key and the lever: and a part intermediate the contact-piece and the escapement, whereby the contact-piece, as it moves under the influence of the friction-driver, acts upon the escapement, freeing the contact-piece from the traction of the friction-driver.

22. In a key-board musical instrument and in combination, a key; a friction-driver; a pivoted contact-piece; a lever whereby the contact-piece is mounted for movement against and away from the friction-driver; an escapement pressure-transmitter intermediate the key and the lever; and a part intermediate the contact-piece and the escapement, whereby the contact-piece, as it moves under the influence of the friction-driver, acts upon the escapement, freeing the contact-piece from the traction of the friction-driver; and a check-piece connected with the key and arranged in such a manner that upon the freeing of the escapement it (said check-piece), presses upon the part before mentioned as being intermediate the contact-piece and the escapement, so that a frictional resistance is opposed to the movement of the contact-piece upon its being freed from the traction of the friction-driver.

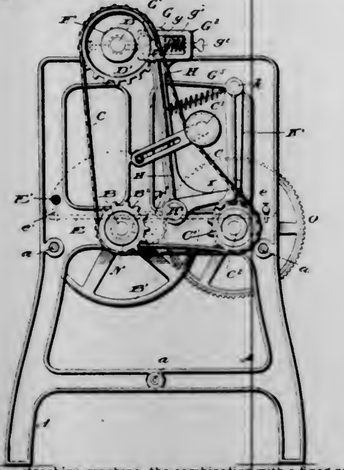
520,668. STARCHING-MACHINE. ALLEN CONKLING, Chicago, Ill. Filed Oct. 19, 1893. Serial No. 488,561. (No model.)

Claim.—1. In a starching machine, the combination with the rolls, one fixed and the other movable, of means for automatically actuating the movable roll as set forth.

2. In a starching machine, a movable starch-extracting roll, and an agitator operatively arranged for automatic, simultaneous and conjoint action, as set forth.

3. In a starching machine, the combination with a movable roll, of movable bearings in which the shaft thereof is mounted to move, arms carrying said bearings and provided with lateral portions, cams acting upon the under side of said portions, and means for actuating the cams, substantially as specified.

4. In a starching machine, the combination with a movable roll, of elongated bearings for the shaft thereof each having a yielding seat, arms mounted for oscillatory movement and carrying said bearings, and means acting upon lateral portions extending from said arms for oscillating the arms, as set forth.



5. In a starching machine, the combination with a fixed roll and a movable roll, of oscillating arms carrying supports for the shaft of said movable roll, cams for actuating the arms, and means for the automatic actuation of said cams, substantially as specified.

6. The combination with a starch box and the fixed and movable roll, of an agitator within the starch box independent of said rolls and mounted for reciprocatory movement, an oscillating arm connected therewith and an eccentric for operating said arm, as set forth.

7. The combination with the starch box and an agitator therein independent of the starch-applying devices, of an oscillating arm connected with the agitator and having its lower end bifurcated, and an eccentric mounted to work between the arms of the bifurcation, as set forth.

8. In a starching machine, the combination with a movable roll and an agitator mounted for reciprocatory movement, of automatic co-operating devices for simultaneously actuating said roll and agitator, as set forth.

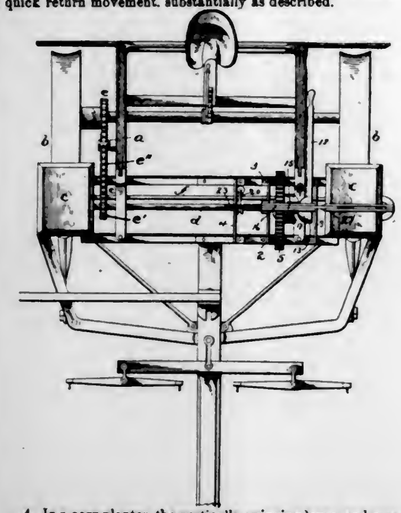
9. In a starching machine, the combination with a movable roll and a reciprocatory agitator, of an oscillatory arm connected with the agitator, oscillating arms supporting the shaft of the roll, and automatic mechanism for actuating said arms, substantially as specified.

520,669. CORN-PLANTER. BENJAMIN F. DARBY, Clay's Prairie, Ill. Filed Sept. 2, 1893. Serial No. 484,677. (No model.)

Claim.—1. In a corn planter, the combination of a support extending up from the frame of the planter, a vertically swinging lever mounted thereon and controlling the seed dropping mechanism of the planter, a marker controlled by said lever, a cam wheel, gearing arranged to drive said cam wheel, said cam wheel being connected to the gearing so as to move independently thereof, a hand lever connected with said cam wheel so as to move the cam wheel independently of said gearing, said lever having a nose arranged to be engaged by the cam wheel, so as to rock the lever, substantially as described.

2. In a corn planter, the combination of an upwardly extending support from the frame of the planter, a shaft mounted in said support, a gear wheel mounted on said shaft, a sleeve loosely mounted on said shaft and having a laterally extended cam wheel, said tube being connected to said shaft by a pawl and ratchet mechanism, a hand lever connected with said tube by a pawl and ratchet mechanism so as to move the tube independently of said gear wheel, a vertically swinging lever controlled by said cam wheel and controlling the seed dropping mechanism, a marker controlled by said lever, and actuating mechanism for driving the gear wheel, substantially as set forth.

3. In a corn planter, the vertically swinging lever, actuating mechanism therefor, a marker, and the loose link or lever connections between the marker and said vertically swinging lever so as to permit the marker to move independently of the lever and to give the marker a quick return movement, substantially as described.



4. In a corn planter, the vertically swinging lever, and means for actuating the same, a marker movable vertically, and a lifting link or lever at the outer end pivoted to the marker and between its ends pivoted to said lever and having the inner end arranged to engage a stationary stop as and for the purposes set forth.

5. In a corn planter, in combination the weighted arm extended laterally from the rocking valve rod, and a vertically movable lever connected with said arm and arranged to operate the same, and mechanism substantially as described for intermittingly rocking said lever, substantially as described.

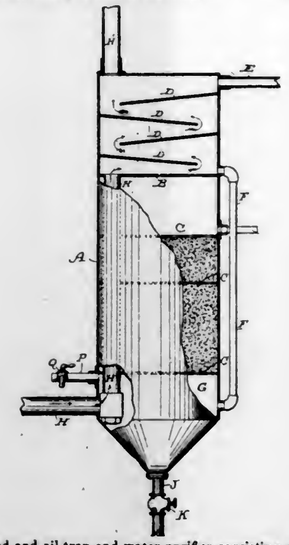
6. In a corn planter, the combination of a vertically rocking lever, a reciprocating marker connected with one end of the lever, and controlled by the same, the rocking valve rod having a lateral arm connected with said lever and controlled by the same, a cam controlling the movement of said lever, and actuating mechanism for said cam, substantially as set forth.

7. In a corn planter, the combination of the supporting frame comprising the uprights, a shaft mounted in the uprights, a gear wheel on said shaft arranged vertically, actuating mechanism for said gear wheel, a tube loosely arranged on the shaft and connected with said gear wheel by a pawl and ratchet mechanism to prevent independent movement of the tube, said tube having a disk provided with a lateral cam wheel, means for moving said tube independently of the gear wheel, an upwardly extending frame above said gear wheel, a vertically rocking lever in said frame having the downwardly extending nose in engagement with said cam, a spring holding said nose in engagement with the cam, a reciprocating marker loosely connected to one end of said lever, a lateral arm from the valve rod of the planter loosely connected with the opposite end of said lever, substantially as described.

520,670. MUD AND OIL TRAP AND WATER-PURIFIER. GEORGE F. DAY and WILLIAM HUNTER, San Francisco, Cal. Filed May 27, 1893. Serial No. 475,782. (No model.)

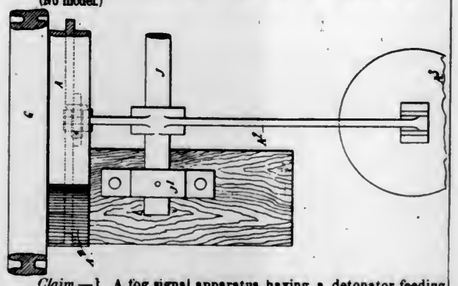
Claim.—1. In a filter and purifier for boiler feed water, a means for separating both light and heavy impurities from the feed water, consisting of a funnel shaped chamber into which the previously heated water is delivered before passing through superposed filters which occupy the chamber from side wall to side wall, said funnel having a discharge opening and controlling cock at the apex, whereby the heavy impurities are discharged directly, and a central draft is produced from the surface to withdraw the oil and lighter impurities simultaneously.

2. A mud and oil trap and water purifier and heater consisting of a chamber having a water inlet pipe at the top, a series of oppositely inclined diaphragms fixed within said chamber, so that water is received upon the upper and delivered so as to flow alternately across it and the succeeding diaphragms, a pipe through which exhaust steam from the engine is delivered into said chamber below the lowermost inclined diaphragm and a steam discharge pipe above the uppermost diaphragm, a water pipe leading from the bottom of said chamber, a funnel-shaped receiving chamber at the bottom of the apparatus into which the water is delivered by said pipe from the upper chamber, perforated diaphragms above the receiving chamber and traversing the same from side wall to side wall and filtering material contained within the chambers between said diaphragms, a clear water chamber above the uppermost of the perforated diaphragms, and a pipe leading therefrom by which the boiler is supplied, a discharge pipe at the bottom of the funnel shaped receiving chamber with a controlling cock whereby the oil and heavy deposits are simultaneously discharged from said chamber whenever the cock is opened, substantially as herein described.



3. A mud and oil trap and water purifier consisting of a chamber having its lower end made funnel-shaped and having diaphragms near its upper and lower ends to form independent chambers, perforated diaphragms C in the main chamber between the upper and lower diaphragms forming chambers to contain a filtering medium, a water pipe entering the upper chamber, a series of alternately disposed inclined plates below the level of the water pipe for directing the water alternately across the chamber, a steam pipe passing through the filtering chamber and entering the uppermost chamber at a point below the lower inclined diaphragm whereby steam is caused to pass upwardly over said plates and the thin sheet of water passing downwardly over them, a pipe F at or near the lower level of the upper chamber leading to the lowermost chamber, a steam escape pipe at the upper end of the main chamber, a pipe leading from the filtered water chamber, and a sediment discharge pipe and cock at the bottom or funnel-shaped end of the main chamber, substantially as herein described.

520,671. FOG-SIGNAL APPARATUS FOR RAILWAYS. JOHN G. DIXON, Huddersfield, England. Filed Jan. 8, 1894. Serial No. 496,063. (No model.)



Claim.—1. A fog signal apparatus having a detonator feeding arm which can oscillate between the rail and a magazine, said arm being controlled by balance weights and by an inclined bar adapted to be depressed by the wheels of a passing engine or train, for the purposes specified.

2. A fog-signal apparatus comprising an oscillatory detonator feeding arm controlled by balance weights and by an inclined bar that is not positively connected to the feeding arm, the said bar being adapted to be depressed by the wheels of a passing engine or train, substantially as described.

3. The combination with the oscillatory feeding arm and the inclined bar through which said arm is controlled from the wheels of a passing engine or train, of a weighted lever geared with the said feeding arm and through which it is actuated in one direction, a shaft having an arm adapted to control said weighted lever, a lever through which said shaft is actuated from the inclined bar, and a dash-pot or air cylinder connected to said lever to prevent a too rapid return of the inclined bar after each depression thereof, substantially as described.

4. The combination with the oscillatory feeding arm, an inclined bar adapted to be depressed by the wheels of a passing engine or train, and a lever through which said feeding arm is controlled from said bar, of a dash-pot or air cylinder having a vertical internal groove, and a weighted and valved piston suspended from said lever and adapted to have a vertical movement in the said air cylinder, substantially as described.

5. The spring-controlled jaw on the feed arm in combination with the means for opening said jaw during the return movement of the arm to the magazine, substantially as, and for the purposes, specified.

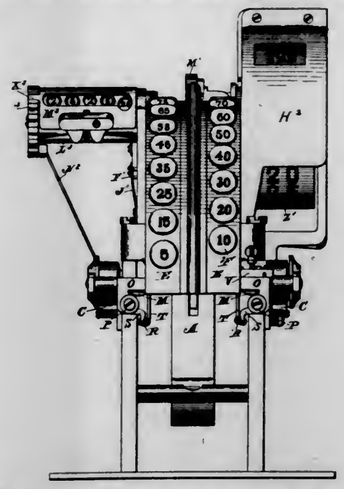
6. The combination with the detonator magazine, the oscillatory feeding arm, and an inclined bar adapted to be depressed by the wheels of a passing engine or train, of counterbalanced levers intermediate said feeding arm and inclined bar, for automatically controlling the movements of the feeding arm, substantially as described.

7. The combination, with the feeding-arm, and the inclined bar arranged and operating as described, of the pulling-off lever connected with the ordinary semaphore signal and so arranged that it will when operated engage the feeding apparatus when the latter is at the danger position, but not at any other time, substantially as, and for the purposes, specified.

8. The combination, with the feeding arm, the inclined bar, and their connected parts, of the locking rod R for locking the feeding arm when the latter has been pulled off, substantially as, and for the purposes, specified.

9. The combination of a detonator magazine, an oscillatory feeding arm, an inclined bar adapted to be depressed by the wheels of a passing engine or train and through which the feeding arm is automatically controlled, a pulling off lever connected with a semaphore signal and adapted to engage the feeding mechanism only when the latter is at the danger position, and means for locking the feeding arm after it has been pulled off, substantially as described.

520,672. CASH REGISTER AND INDICATOR. LEO EHRLICH, St. Louis, Mo., assignor to the National Cash Register Company, Dayton, Ohio. Filed Dec. 29, 1893. Serial No. 495,102. (No model.)



Claim.—1. In a registering or analogous machine, the combination of a reciprocating key-frame, a series of keys or stops mounted therein, a lock controlled by said keys for preventing movement of the frame until a key has been operated or set, a stop co-operating with the keys to arrest the frame at different points and means for

compelling full movement of the frame from normal position to contact of the operated key with said stop, substantially as described.

2. The combination of a reciprocating key-frame provided with a ratchet, a series of keys mounted in said frame, a movable stop co-operating with the keys to arrest the frame at different points, and a pawl co-operating with the ratchet to prevent retrograde movement of the frame and arranged to be disengaged therefrom by the contact of the operated key with the movable stop, to release the frame when its full movement has been completed, substantially as described.

3. The combination of a reciprocating key-frame provided with a ratchet, a series of keys mounted in said frame, a movable stop co-operating with the keys to arrest the frame at different points, and a pawl arranged to be thrown into engagement with the ratchet by the contact of the operated key with such movable stop, to compel a return of the frame to initial position before being moved forward again, substantially as described.

4. The combination of a reciprocating key-frame provided with two ratchets having oppositely facing teeth, a series of keys mounted in said frame, a movable stop co-operating with the keys to arrest the frame at different points, and two pawls co-operating with the respective ratchets, one being disengaged from its ratchet and the other engaged with its ratchet by the contact of the operated key with the movable stop, substantially as and for the purpose described.

5. The combination of a reciprocating key-frame, a series of keys mounted therein, a spring-pressed detent-plate reciprocating with the frame and co-operating with the keys to hold the operated ones in set position, and a stop co-operating with the set keys to arrest the frame at different points, substantially as described.

6. The combination of a reciprocating key-frame, a series of keys mounted therein, a detent plate or frame moving with the key-frame and co-operating with the keys to hold them in set position, and a stop co-operating with the operated key to arrest the key-frame and with the detent plate to release such key, whereby the frame is arrested and the key released by contact of the key with the stop, substantially as described.

7. The combination of a segmental key-frame oscillating upon an axis, a series of keys mounted therein, a detent-plate oscillating with the key-frame upon the same axis and movable toward and from the key-frame, said detent-plate co-operating with the operated keys to hold them in set position, and a stop co-operating with the keys to arrest the frame at different points, substantially as described.

8. The combination of a segmental key-frame oscillating upon an axis, a series of keys mounted therein, a detent-plate oscillating with the key-frame and pivoted upon an axis transverse to the axis of said frame so as to be capable of moving toward and from the frame, and a stop co-operating with the keys to arrest the frame at different points, substantially as described.

9. The combination of a reciprocating key-frame provided with a ratchet, a series of keys mounted in said frame, a detent-plate reciprocating with the frame and co-operating with the keys to hold the operated one in set position, a stop co-operating with the operated key to arrest the frame and with the detent-plate to release such key, and a pawl co-operating with the ratchet to prevent retrograde movement off the frame, and with the detent-plate to be engaged with its ratchet by the movement of the plate at the setting of a key and disengaged therefrom by the movement of the plate at the release of a key, substantially as described.

10. The combination of a reciprocating key-frame provided with a ratchet, a series of keys mounted in said frame, a detent-plate reciprocating with the frame and co-operating with the keys to hold the operated one in set position, a stop co-operating with the operated key to arrest the frame and with the detent-plate to release the key, and a pawl co-operating with the ratchet and with the detent-plate and arranged to be disengaged from the ratchet by the movement of the plate at the setting of a key and engaged therewith by the movement of the plate at the release of the key, substantially as described.

11. In an indicating machine, the combination of a reciprocating key-frame, a series of keys mounted therein, a single stop common to and co operating with the series of keys to arrest the frame at different points, an indicator moving with the frame in one direction, means for temporarily holding it in such moved position after the key-frame has returned to initial position, and releasing means operated by the setting of a key to release the indicator and permit it to return to initial position, substantially as described.

12. In an indicating machine, the combination of a reciprocating key-frame, a series of keys mounted therein, a stop co-operating with the keys to arrest the frame at different points, an indicator wheel, a spring for resetting it after it has been moved, a rack and gear and a clutch between the key-frame and indicator for causing the latter to be turned by the frame in one direction, a ratchet turning with the indicator, a pawl co-operating with the ratchet to hold the indicator in the position to which it is moved by the key-frame, and a trip for the pawl actuated by the setting of a key to release the indicator, substantially as described.

13. In an indicating machine, the combination of a reciprocating key-frame, a series of keys mounted thereon, a stop co-operating with the keys to arrest the frame at different points, a rotary shaft, a gear-wheel thereon meshing with a rack upon the key-frame, a ratchet and pawl connection between the gear and shaft, an indicator wheel mounted on the shaft, a clutch between the wheel and shaft, a shifter for the clutch operating to separate its members when the key-frame is returned to normal position, and a spring operating to engage its members as soon as the key-frame is moved away from such position, a ratchet turning with the indicator, a pawl co-operating with the indicator to temporarily hold it in the positions to which it is moved by the key-frame, a trip for the pawl actuated by the setting of a key, to release the indicator, and a spring for resetting it when so released, substantially as described.

14. In an indicating machine, the combination of a reciprocating key-frame, a series of keys mounted therein, a stop co-operating with the keys to arrest the frame at different points, an indicator actuated by said key-frame, and an automatic screen moving in front of the indicator when the key-frame is displaced from normal position, to hide the indicator, and moved away from such position by the key-frame when the latter is returned to normal position, to expose the indicator, substantially as described.

15. In an indicating machine, the combination of a reciprocating key-frame, a series of keys mounted therein, a movable stop co-operating with the keys to arrest the frame at different points, an indicator operated by said key-frame, and a brake for the indicator actuated by the movable stop and engaged with the indicator by the contact of the operated key with such stop, to arrest the indicator and prevent excess of movement of it under its own momentum, substantially as described.

16. The combination of the series of notched registering wheels I^2 each provided with a flange Q^2, the spring-pressed sliding plates R^2 within the recesses formed by the flanges, each having the diametrically opposite arms S^2 T^2 fitting in guide notches in the flange Q^2 and the arm T^2 of each plate being bent to overlap the next higher wheel in the series, and the cross-bar L^2 co-operating with the arms T^2, substantially as and for the purpose described.

17. The combination of the longitudinally grooved shaft E^2, the series of notched registering wheels I^2 mounted thereon, each provided with a flange Q^2, and the spring-pressed sliding plates R^2 within the recesses formed by the flanges Q^2, each plate having a projection V^2 adapted to engage the groove in the shaft, substantially as and for the purpose described.

18. The combination of the shaft E^2, the series of registering wheels mounted thereon, means intermediate each wheel and the shaft for causing the shaft to pick up the wheels and carry them with it when turned in one direction, the disk O^2 fast on the end of the shaft, and the casing provided with the hinged lid M^2 having the lateral projection X^2 co-operating with the notch W^2 in the disk O^2, substantially as described.

19. In a cash register, the combination of a reciprocating key-frame, a series of keys carried by and movable in said frame, a stop co-operating with the keys to arrest the frame at different points determined by the operated keys, a rack moving with said frame, a pinion meshing with the rack, an indicator turned by the pinion, a register, and means intermediate the pinion and register for causing the pinion to turn the register in one direction but not in the other, substantially as described.

20. In a cash register and indicator, the combination of a reciprocating key-frame, a series of keys carried by and movable in said frame, a stop co-operating with the keys to arrest the frame at different points determined by the operated keys, a rack moving with said frame, a pinion meshing with the rack, an oscillatory indicator on one side of the pinion and actuated thereby, a register on the opposite side of the pinion, and means intermediate the pinion and register for causing the pinion to turn the register in one direction but not in the other, substantially as described.

21. In a cash register and indicator, the combination of a reciprocating key-frame, a series of keys carried by and movable in said frame, a stop co-operating with the keys to arrest the frame at different points determined by the operated keys, a rack moving with said frame, a shaft, a pinion loose thereon, an oscillatory indicator also loose upon the shaft and actuated by the pinion, a register mounted upon the same shaft, and means intermediate the pinion and register for causing the pinion to turn the register with it in one direction and not in the other, substantially as described.

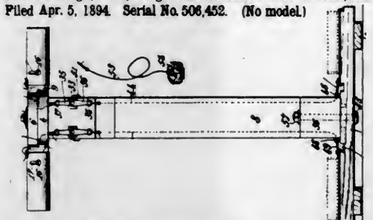
22. In a cash register and indicator, the combination of a reciprocating key-frame, a series of keys carried by and movable in said frame, a stop co-operating with the keys to arrest the frame at different points determined by the operated keys, a rack moving with said frame, a pinion meshing with the rack, an oscillatory indicator turned by the pinion, a vibrating screen plate moved in one direction by a spring and in the other by the key-frame, to alternately hide and expose the indicator, a register, and means intermediate the pinion and register for causing the pinion to turn the register with it in one direction and not in the other, substantially as described.

23. In a cash register and indicator, the combination of a reciprocating key-frame, a series of keys carried by and movable in said frame, a stop co-operating with the keys to arrest the frame at different points determined by the operated keys, a rack moving with said frame, a pinion meshing with the rack, an oscillatory indicator turned by the pinion, a vibrating screen plate moved in one direction by a spring, to hide the indicator, and in the other by the key-frame, to expose it, a register, and means intermediate the pinion and register for causing the pinion to turn the register with it in one direction and not in the other, substantially as described.

24. In a cash register and indicator, the combination of a reciprocating key-frame, a series of keys carried by and movable in said frame, a stop co-operating with the keys to arrest the frame at different points determined by the operated keys, a rack moving with the frame, a pinion meshing with the rack, a register and indicator actuated by the pinion, and an automatic screen plate for the indicator operated by the key-frame, substantially as described.

25. In a cash register and indicator, the combination of a reciprocating key-frame, a series of keys carried by and movable in said frame, a stop co-operating with the keys to arrest the frame at different points determined by the operated keys, a rack moving with the frame, a pinion meshing with the rack, a register and indicator actuated by the pinion, an automatic screen plate for the indicator and an alarm mechanism, both operated by the reciprocating frame, substantially as described.

520,673. THERAPEUTIC ELECTRODE. WILLIAM B. FARRAR, Greensborough, N. C., assignor of one-half to Obed W. Carr, same place. Filed Apr. 5, 1894. Serial No. 506,452. (No model.)



Claim.—1. An electric-apparatus comprising a base-plate having plate electrodes, a stand having upon its upper end a centrally pivoted, movable disk, super-posed on a rigid disk, hand-electrodes projecting from said disks, and a reversing lever pivoted between blocks carrying switch-plates, the upper end of said lever lying between pins projecting from the edge of the movable disk, substantially as described.

2. In an electrical-apparatus the combination with laterally projecting arms of hand-electrodes consisting of hollow cylinders mounted loosely on said arms and having raised contacts at or near one end, and contacts mounted on the arms and having heads which project over the ends of said electrodes, substantially as described.

3. In an electrical apparatus the combination with laterally projecting arms of hand electrodes consisting of hollow metallic cylinders loosely mounted on said arms and provided with raised contacts, contacts mounted on the arms and having heads which project over and are adapted to engage with the raised contacts, and means for limiting the rotary movement of the electrodes, substantially as described.

4. In an electrical-apparatus the combination with laterally extending arms one of which is supported by a centrally pivoted disk, of hand-electrodes mounted on said arms, a reversing-lever pivoted between blocks, switch-plates centrally attached to said blocks, battery-wires electrically connected to contacts above and below the pivotal support of the lever and projecting on both sides thereof, and a centrally pivoted disk supporting one of the lateral arms and having pins projecting from its edge on each side of the extended end of the lever, substantially as described.

5. In an electrical-apparatus the combination with a base-plate having channels cut therein across the grain, of plate-electrodes having their edges bent at an acute angle with the body portion and inserted in said channels, substantially as described.

6. In an electrical-apparatus the combination with a base of plate electrodes for the feet, oppositely projecting arms mounted on separate disks one of which is centrally pivoted on the other, hand electrodes consisting of metallic cylinders loosely mounted on said arms and having raised contacts, contacts rigid on the arms and having heads projecting into the line of adjustment of the raised contacts, a reversing-lever pivoted between centrally mounted switch-plates and having its extended end between pins on the edge of the movable disk, switches pivoted on each of two posts and adapted to engage with or discharge from either, or both of two separate contacts above and below the post, and a circuit including the plate-electrodes, hand-electrodes, reversing-lever and switches, substantially as described.

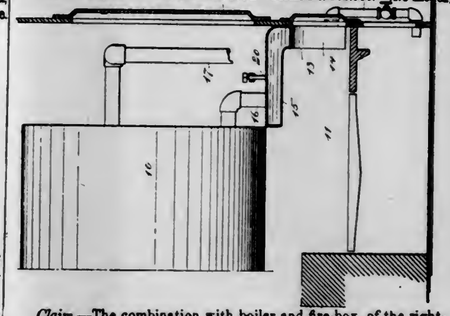
7. In an electrical-apparatus a supporting base having plate electrodes mounted thereon for the lower extremities of the body and adapted to receive pans containing water, said base being provided with channels adapted to receive the bent edges of the plate-electrodes and carry off water spilled upon said base, substantially as described.

8. In an electrical-apparatus, a supporting-base having plate electrodes the edges of which are bent and placed in channels in said base cut transversely to the grain of the wood, the channels receiving the adjacent edges of the electrodes being cut of a depth and width to carry off accumulations of water upon the said base, substantially as described.

9. An electrical-apparatus comprising a supporting base having plate-electrodes and a stand supporting the hand-electrodes, said stand being detachably mounted on the base, substantially as described.

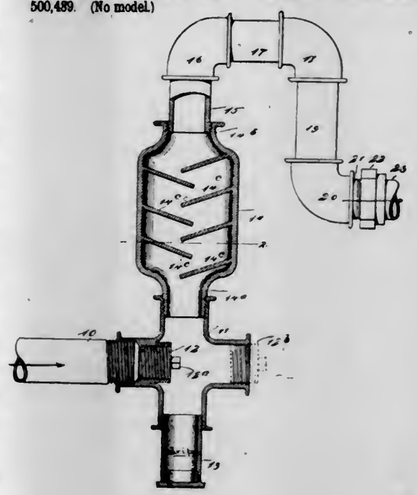
10. An electrical-apparatus comprising a supporting base having plate-electrodes, a stand rising from between the latter and having supports extending laterally for the hand electrodes, said stand being detachably connected to the base, and wires connecting the hand and plate-electrodes with switches mounted on said stand, electrical connection being made with the plate electrodes by means of hooks pivoted upon the base in electrical contact with the plate-electrodes and adapted to engage with and be disengaged from eye-bolts on the stand, to enable the latter to be detached, substantially as described.

520,674. ANGLE-PLATE FOR BOILER-FRONTS. GEORGE FOX, New York, N. Y. Filed Mar. 9, 1894. Serial No. 502,999. (No model.)



Claim.—The combination with boiler and fire-box, of the right-angular, hollow, water front, covering the top and that portion of the end of the fire-box, save the door space, which is above the grate, whereby it performs the functions stated.

520,675. CONDENSER AND DRIP FOR GAS-SERVICE PIPES. ALBERT H. GINDELE, Jersey City, N. J. Filed Feb. 17, 1894. Serial No. 500,459. (No model.)



Claim.—1. The combination with a gas service pipe, and a gas meter pipe, of a condenser having its upper end connected with the meter pipe, and a fitting secured to the lower end of the condenser and provided with a drip chamber, the service pipe being connected with the said fitting, substantially as described.

2. The combination with a gas service pipe and a gas meter pipe, of a condenser having its upper end connected with the meter pipe, a four way fitting secured to the lower end of the condenser, and to which the service pipe is connected, and a drip chamber in the lower vertical branch of the said fitting, substantially as described.

3. The combination with a gas service pipe, and a gas meter pipe, of a condenser provided with spaced baffle plates projecting from opposite sides and having its upper end connected with the meter pipe, and a fitting secured to the service pipe and to the lower end of the condenser and provided with a drip chamber in its lower portion, substantially as described.

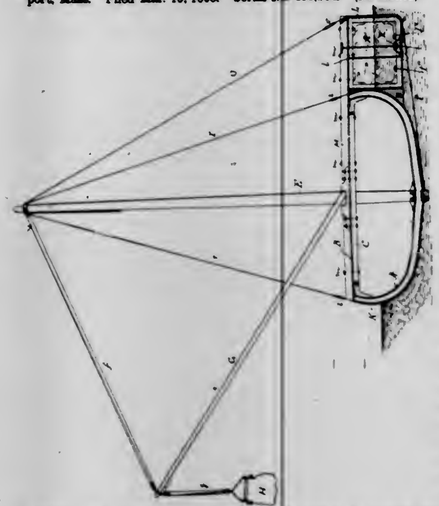
4. The combination with a gas service pipe, and a gas meter pipe, of a condenser provided with inclined baffle plates projecting alternately from opposite sides, and having its upper end connected with the condenser, a four way fitting secured to the service pipe and to the lower end of the condenser, and a drip chamber secured to the lower vertical branch of the said fitting, substantially as described.

5. The combination with a gas service pipe, a four-way fitting and a sealing plug for said fitting, of a drip on the lower end of said fitting, a condenser on the upper end of said fitting, a meter pipe, and connections between the meter pipe and condenser, substantially as described.

6. In a gas service condenser and drip, a four-way fitting, one branch of which is threaded in two diameters, the larger diameter receiving the service pipe, and the smaller diameter being engaged by a sealing plug, substantially as described.

7. In a gas service condenser and drip, a four way fitting having its branch, which receives the service pipe threaded in two diameters, a sealing plug fitting in the smaller bore of said branch, and a plug for closing the branch opposite the service pipe, substantially as described.

520,676. FLOATING DERRICK. THOMAS T. H. HARWOOD, Rockport, Mass. Filed Mar. 16, 1893. Serial No. 466,284. (No model.)

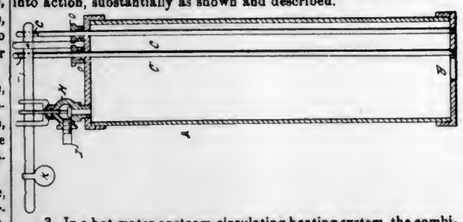


Claim.—The combination with a floating vessel, of ponton-supporting beams rigidly secured to the deck of the vessel and extending laterally from one side thereof, a hollow air-tight ponton attached to said beams and supported thereby, anti-chafing blocks arranged between the side of the vessel and the ponton, and means for supplying water to the interior of the ponton, substantially as described.

520,677. HOT-WATER HEATING APPARATUS. ALEXANDER T. HENDERSON, Detroit, Mich. Filed July 28, 1892. Serial No. 441,516. (No model.)

Claim.—1. In a heating apparatus the combination of an expansion tank, a safety valve, and an expansion rod connected with the safety valve to hold the safety valve open when the water in the tank is below the temperature at which it is desired to bring said valve into action, substantially as and for the purposes set forth.

2. In a hot water heating apparatus the combination of an expansion tank, a safety valve, and an expansion rod having one end rigidly fastened and having its free end connected with the safety valve lever to hold the safety valve open when the water in the tank is below the temperature at which it is desired to bring said valve into action, substantially as shown and described.

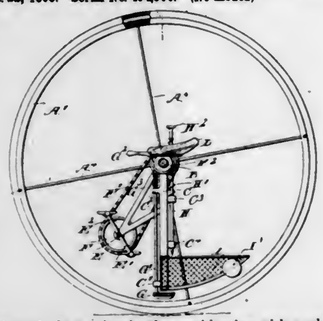


3. In a hot-water or steam-circulating heating system, the combination of a safety-valve, and means whereby the valve is automatically unseated and held open at a low temperature and seated by a rising temperature, substantially as described.

4. The combination with the expansion tank A, safety valve H, and pivoted lever L, of the expansion rods C and C' connected with the lever at opposite sides of its pivot, substantially as and for the purpose described.

5. In combination with the expansion tank of a closed hot water system a safety valve connected with said expansion tank, and an expansion rod carried on said tank and adapted when expanded by undue heat to connect with and open said safety valve, substantially as and for the purposes set forth.

520,678. UNICYCLE. ROBERT HENDRICH, Chicago, Ill. Filed Dec. 22, 1893. Serial No. 494,396. (No model.)



Claim.—1. In a unicycle, the combination with a wheel having a transverse shaft secured in the hubs thereof, of a counterbalanced frame loosely hung from the shaft and carrying a seat above the said shaft, a crank shaft mounted in the said frame, sprocket wheels on the ends of the crank shaft, sprocket wheels on the transverse shaft, and chains passing around said sprocket wheels, substantially as described.

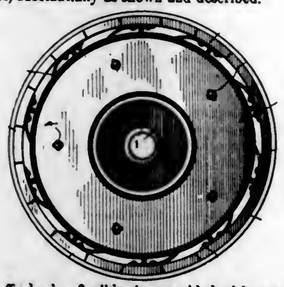
2. In a unicycle, the combination with a wheel having a transverse shaft secured in the hubs thereof, of a frame loosely hung from the shaft, and having a forwardly projecting portion, a seat carried by the frame above the said shaft a weight carried by a support projecting rearwardly from the frame, a crank shaft mounted in the forwardly projecting portion of the said frame, sprocket wheels on the ends of the crank shafts, sprocket wheels on the transverse shaft, and chains passing around the said sprocket wheels, substantially as herein shown and described.

520,679. BUFF-WHEEL. WILLIAM T. HEYLMAN, Muncie, Ind. Filed Nov. 15, 1893. Serial No. 491,069. (No model.)

Claim.—1. The combination in a buff wheel, of a hub, a flexible rim, a number of springs secured to the hub and adapted to support the rim, a side frame mounted on the hub, and weights radially adjustable secured to such side frame, substantially as shown and described.

2. In a buff wheel, a rim formed of sections, and springs mounted upon the hub and adapted to support the rim, every alternate section of the rim being secured to a spring and provided with under lips, and the other sections of the rim provided with over lips adapted to engage the under lips of the secured sections, substantially as shown and described.

3. In a buff wheel, a rim formed of sections, and springs mounted on the hub and adapted to support the rim, every alternate section of the rim being provided with under lips and radial side flanges longitudinally extending to the outer edge of the lips, and the other sections of the rim provided with over lips adapted to engage the under lips of the secured sections and having side flanges longitudinally extending to the lips, substantially as shown and described.



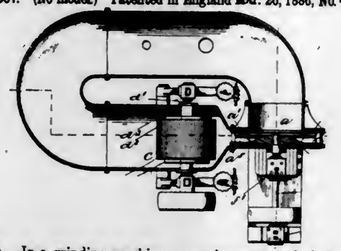
4. In a buff wheel, a flexible rim provided with apertures, lugs extending inwardly from the side of the wheel, and bolts adjustably mounted in such lugs, the heads of the bolts adapted to fit loosely within the apertures in the rim, substantially as and for the purpose shown and described.

5. In a buff wheel, a rim formed of perforated sections so connected with each other as to make the rim continuous and flexible, springs upon which such rim is mounted, a cushion mounted upon such rim, and a tire mounted upon such cushion, substantially as shown and described.

6. In a buff wheel, a flexible rim provided with apertures, lugs extending inwardly from the side of the wheel, bolts adjustably mounted in such lugs, the heads of the bolts adapted to fit loosely within the apertures in the rim, and weights adjustably mounted on such bolts, substantially as shown and described.

7. A buff wheel consisting of a hub, a rim formed of perforated sections, the engaging sections being provided with overlapping lips, flat elliptic springs each secured to the hub at more than one point, and at their outward ends secured to every alternate section of the wheel rim, a cushion mounted on such rim, and a tire on such cushion, a side frame secured to the hub, and a weight radially adjustable secured to such side frame, all combined substantially as shown and described.

520,680. PULPING AND GRINDING MACHINE. GEORGE HIBBERT, Gateshead-on-Tyne, England. Filed Aug. 30, 1893. Serial No. 484,387. (No model.) Patented in England Mar. 26, 1886, No. 4,237.



Claim.—In a grinding machine, a continuous trough shaped vessel, a vertical rotary grinding disk journaled at one end of the same, a stationary disk arranged opposite the revolving disk, a horizontal revoluble cutter roll arranged a short distance in advance of the grinding disk, a stationary cutter plate arranged in the bottom of trough beneath the revolving cutter, the centrifugal arms arranged adjacent to the grinding roll, and a scraping plate partially surrounding the grinding roll, the grinding roll and revolving disks being so arranged that a continuous circulation of the mass is maintained within the trough, substantially as set forth.

520,681. MECHANISM FOR LOADING WATCH-JEWELS. GEORGE E. HUNTER, Elgin, assignor to the Elgin National Watch Company, Chicago, Ill. Filed Aug. 22, 1892. Serial No. 443,767. (No model.)

Claim.—1. In a mechadism for loading jewels into a holder, the combination of a reciprocable plunger or spindle, a holder to which jewels are to be moved directly by the latter and supported in line therewith, and a hopper or receptacle from which the jewels are to be moved, located in the path of the plunger or spindle in moving to the holder, substantially as and for the purpose specified.

2. In a machine for loading jewels into a holder, the combination of a jewel hopper or receptacle, and a vertically reciprocable plunger movable through the same adapted to support a jewel upon its upper end and convey it to the holder said upper end being formed to fit a certain side of the jewel, substantially as and for the purpose described.



3. In a machine for loading jewels into a holder, the combination of a jewel hopper to contain a quantity or mass of jewels, a vertically reciprocable plunger adapted to support a jewel upon its upper end and convey it in a predetermined position to the holder, substantially as and for the purpose set forth.

4. In a machine for loading jewels into a holder, the combination of a hopper, a vertically reciprocable, rotary, spindle movable through the same and adapted to engage and support a jewel in a particular position at its upper end, substantially as and for the purpose specified.

520,682. PROCESS OF PREPARING FOOD FOR HORSES. HELFRIED B. KAISERSTEIN, Vienna, Austria-Hungary. Filed Aug. 11, 1893. Serial No. 482,930. (No specimens.) Patented in Austria-Hungary Mar. 20, 1893, No. 705 and No. 18,357.

Claim.—A process of manufacturing a new food product for horses consisting in preparing blood by freeing it from fibrin, mixing this with pepsin and hydrochloric acid and maintaining this mixture at a gentle heat for several hours, preparing an extract of meat by steeping, boiling and filtering meat, preparing a material such as Iceland moss, by freeing it from unsuitable constituents by boiling with a solution of potash, and making a mixture of the blood, extract of meat and the material such as Iceland moss, thus prepared, substantially as set forth.

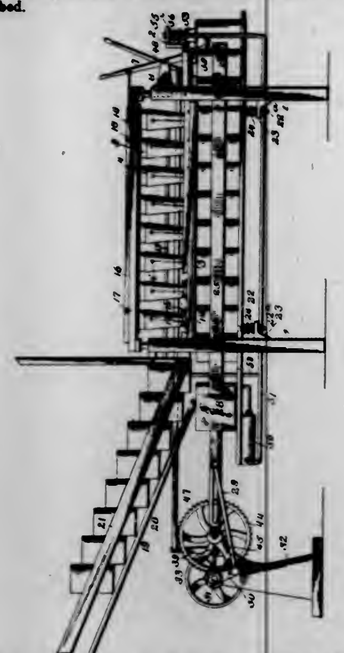
520,683. CAN-FILLING MACHINE. JOHN W. KALES, Franklinville, N. Y. Filed Jan. 30, 1894. Serial No. 498,509. (No model.)

Claim.—1. In a canning machine, the combination with the inclined conveyer and the reciprocating plunger, of the measuring tubes made in two sections telescoping into each other, and the lower section of each made of elastic material slitted lengthwise at its lower end, substantially as described.

2. In a canning machine, the combination with the inclined conveyer and the reciprocating plunger, of the spring actuated platform, the adjustable tray, the measuring tubes made in two sections, the upper section of each being secured to the adjustable tray and the lower section slitted lengthwise, so that its edges will overlap, the slide resting on said tray, the lever with which said slide is connected and the sliding valve also connected with said lever, substantially as described.

3. In a canning machine, the combination with the frame, of the measuring tubes made of elastic material, the lower end of each lower tube being slitted lengthwise, the sectional collars surrounding the lower ends of said tubes, the rings resting on said collars and having

one end secured to said frame, the horizontally slidable valve located underneath said collars, and the studs secured to said valve and adapted to engage with the free ends of said rings, substantially as described.



4. In a canning machine, the combination with the frame, the inclined conveyer, the spring actuated platform, the measuring tubes and sliding valve, of the reciprocating plunger, the pitman connected therewith, the crank with which said pitman is connected, the crank shaft and pulley, the pinion and cog wheel, the clutch engaging with said pulley, the bell crank lever connected therewith, the hand lever connected with said bell crank lever the annular rim on said cog wheel, having a notch therein, and the spring for pressing said bell crank lever into contact with the rim, substantially as described.

5. In a canning machine the combination with the frame, the inclined conveyer, the reciprocating plunger, and spring actuated platform, of the spring actuated guide bars, the measuring tubes made in two sections telescoping into each other, the tray to which the upper section is secured, the slide resting on said tray, the sliding valve and the hand lever with which said valve and slide are connected, substantially as described.

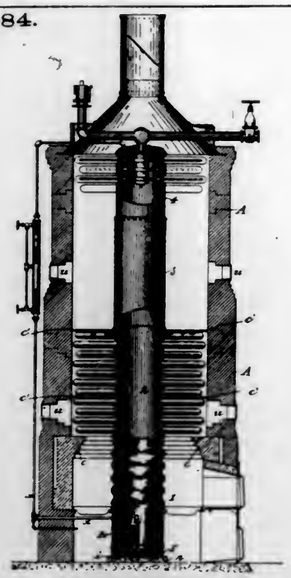
6. In a canning machine, the combination with the frame, the inclined conveyer, the reciprocating plunger, the pump connected therewith, the spring actuated platform and guide bars, of the measuring tubes made in two sections telescoping into each other and slitted lengthwise at the lower ends, the tray to which said upper section is connected, the slide resting on said tray, the sectional collar embracing the lower end of the measuring tubes, the sliding valve having studs, the rings resting on said collars having one end secured to the tray and the other end bearing against the studs, the lever with which said slide and valve are connected and the pipe connecting the pump and tubes, substantially as described.

7. In a machine of the character described, the combination with the measuring tubes, the reciprocating plunger, and the platform, of the pump connected with said plunger, the horizontal pipe connected with said pump having its free end bent upwardly and formed into a goose neck, the spring actuated cap, and the vertical pipes connected with said tubes and with the horizontal pipe, substantially as described.

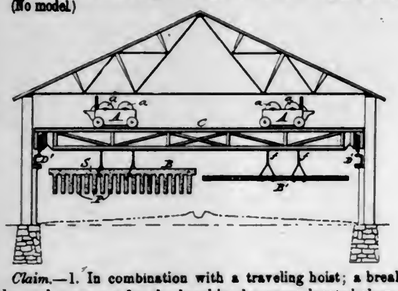
520,684. RADIAL-TUBE STEAM-BOILER. EDWARD S. T. KENNEDY, New York, N. Y. Filed Aug. 27, 1889. Serial No. 322,108. (No model.)

Claim.—In a radial tube boiler the stand pipe formed of one or more sections having vertical lap welded seams, the portion above the fire box or deflector, *c*, having radial tubes set in close regular order around its entire circumference, and the fire box section or portion having circumferential corrugations, substantially as described.

520,684.



520,685. APPARATUS FOR BREAKING PIG-IRON. JOHN S. KENNEDY, Chambersburg, Pa. Filed Feb. 12, 1894. Serial No. 499,911. (No model.)



Claim.—1. In combination with a traveling hoist; a breaking table; and a support for the breaking hammers, located above the table, and recessed inward from its edge to allow the hoisting chains to enter.

2. In a breaking-table, the combination with the longitudinal support or supports to receive the necks of the pigs; of supports for the ends of the pigs; and clamps for holding the ends of the pigs upon their supports.

3. In combination with a table having supports for the pigs; a secondary table to receive the sow when detached from the pigs; and suitable breaking hammers for detaching the sow and for breaking the sow and pigs, said hammers being located respectively over the main and secondary tables.

4. In combination with the table provided with supports and clamps for the pigs; a secondary table below the plane of the main table; and suitable breaking hammers, said hammers being located respectively over the main and secondary tables.

5. In a breaking table, the combination with the supports *m*, and *p*, for the pigs; of the anvils or secondary table located outside the support *p*; a series of hammers above the anvils; and a second series of hammers above but between the supports *m*, *p*.

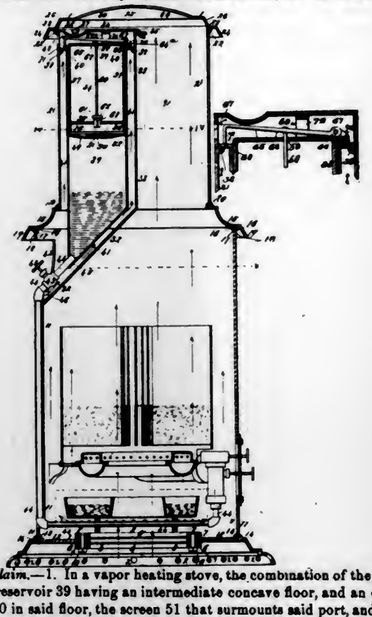
6. In an apparatus for breaking pig iron, the combination of a table or support upon which to place the bed; and means for detaching the sow bodily from the pigs while the bed is upon the table.

7. In an apparatus for breaking pig-iron, the combination of a table or support upon which to place the bed; and means for detaching the sow bodily from the pigs, and for breaking the pigs and the detached sow.

8. In an apparatus for breaking pig-iron, the combination of a table or support upon which to place the bed; clamping devices for holding the pigs; and means for detaching the sow bodily from the pigs.

9. In an apparatus for breaking pig-iron, the combination of a table or support upon which to place the bed; suitable breaking hammers to detach the sow bodily from the pigs; and hammers for breaking the pigs.

520,686. VAPOR HEATING-STOVE. BENJAMIN S. KOLL, St. Louis, Mo. Filed Sept. 1, 1892. Serial No. 444,764. (No model.)



Claim.—1. In a vapor heating stove, the combination of the gasoline reservoir 39 having an intermediate concave floor, and an open port 50 in said floor, the screen 51 that surmounts said port, and the re-filler tank having the plunger valve 61, and located in the upper compartment of said reservoir; substantially as described.

2. In a vapor heating stove, the combination of the gasoline reservoir 39, the intermediate screen floor attached in said reservoir, the re-filler tank in the upper compartment of said reservoir, provided with the valve port 63 in its bottom, the plunger valve 61 that works in said port, the automatic fulcrum lever 65, from which said plunger valve hangs pendent, the said lever being hinged at 67 and having the governor extension arm 70 and the pendent operative trip arm 71; substantially as described.

3. The combination of the cylinder 21, the partition plates 32 and 33, that respectively separate the combustion chamber and the hot air chamber 31 from the cold air chamber 41, the respective draft and exit ports 46, and 47, and the gasoline reservoir and re-filler tank; substantially as described.

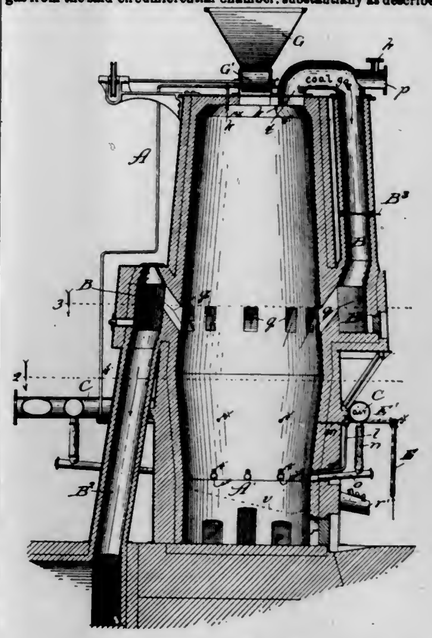
4. The combination of the gasoline reservoir having lower and upper compartments, and intermediate floor formed with a port, and the refiller tank supported within the upper compartment; substantially as described.

520,687. GAS-MAKING APPARATUS. WILLIAM A. KONEMAN, Chicago, Ill. Filed June 24, 1893. Serial No. 478,685. (No model.)

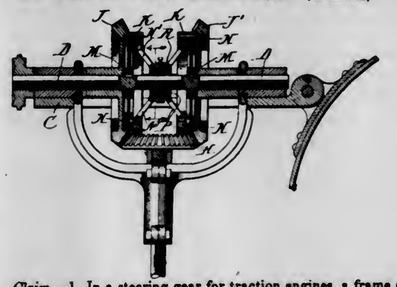
Claim.—1. In a gas-manufacturing apparatus, the combination of the shell containing a lower generating chamber and an upper retorting chamber, a circumferential chamber B surrounding the shell externally thereof and containing the walls B^4, ports *q* affording communication between the said generating chamber and circumferential chamber, a passage B′ connecting the chamber B, from between said walls therein, with the upper end of the retorting chamber, blasting means for the lower generating chamber and an outlet for the gas from the said circumferential chamber, substantially as described.

2. In a gas-manufacturing apparatus the combination of the shell containing a chamber A having its walls tapering in opposite directions from near the transverse center of the said chamber and forming an upper retorting chamber and a lower generating chamber, a circumferential chamber B surrounding the shell externally thereof and containing walls B^4, ports *q* affording communication between the said generating chamber and circumferential chamber, a passage B′ connecting the chamber B from between said walls therein, with the upper end of the retorting chamber, blasting means for the lower generating chamber and an outlet for the gas from the said circumferential chamber, substantially as described.

3. In a gas-manufacturing apparatus, the combination of the shell containing an ash-pit in its base provided with cleaning-doors *r*, a lower generating chamber above the ash-pit and having unobstructed communication therewith for the free passage of ashes, and an upper retorting chamber, a circumferential chamber B surrounding the shell externally thereof and containing walls B^4, ports *q* affording communication between said generating chamber and circumferential chamber, a passage B′ connecting the chamber B from between the said walls therein with the upper end of the retorting chamber, blasting means for the lower generating chamber, and an outlet for the gas from the said circumferential chamber, substantially as described.



520,688. STEERING-GEAR FOR TRACTION-ENGINES. GEORGE W. KRAMER, Peoria, Ill., assignor to the Hart Weigher Company, same place. Filed July 24, 1893. Serial No. 481,329. (No model.)

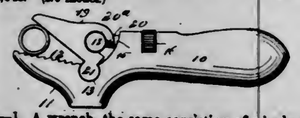


Claim.—1. In a steering gear for traction engines, a frame supported by the boiler; a shaft journaled on the frame and driven by the power of the engine; two oppositely disposed beveled gears loosely mounted on the shaft, and having rims adapted to engage a clutch; an intermediate gear meshing with both the other gears, and adapted to be driven by either of the same; and means for communicating the rotary motion of the intermediate gear to the take-up drum; in combination with two clutches mounted upon and revolving with the shaft, and so arranged that each of said clutches shall engage with the rim of a gear to operate the same, and each being so connected to the shifting lever that only one of said gears will be operated at a time, whereby upon moving the shifting lever one way one of the gears is operated and the engine is directed on one course, and upon moving the shifting lever the other way, the other gear is operated and the engine is directed on an opposite course; substantially as and for the purposes set forth.

2. In a device of the kind described, the frame C; the shaft D carried thereby; the gears J J' loosely mounted on the shaft, and having rims K formed thereon; the intermediate gear H meshing with both the other gears and adapted to be driven by either; and means for communicating the rotary motion of the gear H to the take-up drum; in combination with the pulleys M M mounted upon the shaft near the gears J J' and adapted to rotate with said shaft; and shoes N pivotally connected to said pulleys and adapted to be brought into frictional contact with the rims K to operate one or the other of the gears J J', whereby the engine is directed upon a desired course.

3. In a device of the kind described, the frame C; the shaft D carried thereby; the gears J J' loosely mounted on the shaft and having rims K formed thereon; the intermediate gear H meshing with both the other gears and adapted to be driven by either; and means for communicating the rotary motion of the gear H to the take-up drum; in combination with the pulleys M M mounted upon the shaft near the gears J J' and adapted to rotate with the shaft; shoes N pivotally connected with said pulleys; the collar P mounted upon the shaft between the gears J J' and adapted to be longitudinally moved upon the same; the collar R encircling the collar P and connected to the shifting lever; and arms N'' extending from the collar P to the shoes N, whereby upon longitudinally moving the part P one way or the other the shoes N are caused to engage with the rim K upon one end or the other, and the engine thereby directed as desired; substantially as and for the purposes set forth.

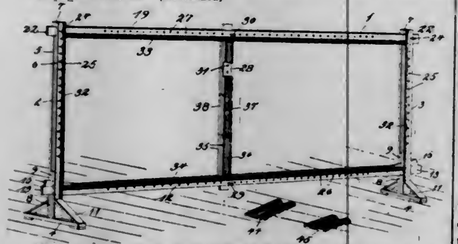
520,689. WRENCH. HERRMANN KRENZ, San Pedro, Cal., assignor to himself and Nicholas Rose, same place. Filed Mar. 8, 1894. Serial No. 502,848. (No model.)



Claim.—1. A wrench, the same consisting of a body shaped as a handle and a fixed jaw forming a portion of the handle, the handle being provided with a longitudinal channel and a transverse opening leading therein, a second jaw provided with an extension fitted to turn in a recess in the fixed jaw, whereby the second jaw is fulcrumed, the second jaw being likewise provided with a recess in its bottom meeting an opening in its body, an adjusting screw held to revolve in the channel of the body, said adjusting screw being provided with a head entering the opening in the body of the pivoted jaw, and an adjusting nut whereby the screw is manipulated, as and for the purpose set forth.

2. In a wrench, the combination, with the body, having an alligator jaw formed at one end, said jaw being provided with a circular recess in its inner surface near its base, the body being provided with a channel longitudinally therein, and an opening leading into the channel, of a pivoted jaw likewise of the alligator pattern, having a cylindrical offset at its base entering the circular cavity in the fixed jaw, the pivoted jaw being further provided with a recess in its bottom surface and a circular opening meeting the same, and an adjusting screw provided with a circular head located in the circular opening of the pivoted jaw, a portion of the said screw being located in the body channel, and a nut located in the opening leading into the channel, whereby the screw is manipulated, as and for the purpose specified.

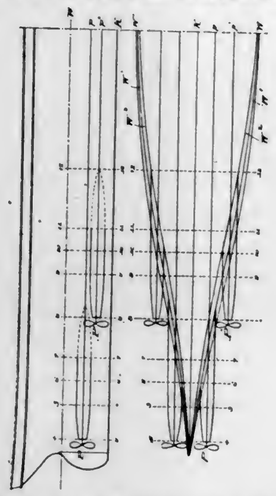
520,690. ADJUSTABLE RACK FOR STRETCHING LACE CURTAINS, &c. CHARLES L. KUEHN, St. Louis, Mo. Filed Sept. 4, 1893. Serial No. 484,716. (No model.)



Claim.—1. An adjustable rack for drying curtains, constructed of two vertical posts, two horizontal parallel bars mounted in said posts, a vertical bar mounted in said horizontal parallel bars, and pads of the class described in combination with said posts and bars, said pads constructed with stripes parallel with their sides, substantially as set forth.

2. An adjustable rack constructed with two vertical posts, a horizontal bar 12 detachably located in the lower ends of said posts, a horizontal bar 19 vertically adjustably located in the upper end of said posts, a vertical bar 28 horizontally adjustably located in the bars 12 and 19, detachable bars 37 and 38 carrying pads 42, said bars being hinged together and detachably connected to the bar 28 by a hook 40 connected to the bar 37 and engaging an eye 41 connected to the adjacent edge of the bar 38, substantially as set forth.

520,691. SCREW-PROPELLED VESSEL. CHARLES G. LUNDBORG, Philadelphia, Pa. Filed Jan. 6, 1893. Serial No. 457,566. (No model.)



Claim.—1. A vessel hull having its frames or ribs bent to form on each side a plurality of tunnels for propeller shafts, one or more of said frames on each side bent to give form to all the tunnels and all the frames conforming below said tunnels to the lines of lateral contraction toward the stern.

2. A hull for a steam vessel in which frames of the after part of the hull, on each side, are bent between the keel and the water line to form the outline of two or more tubes or tunnels for the reception of propeller shafts.

3. A hull for a steam vessel provided on each side between the keel and the water line with a plurality of propeller shafts, and a corresponding number of tubes or tunnels built integral with the hull and having their inner sides open and communicating with the interior of the hull.

4. A vessel's hull having at the sides of the tapering stern portion tunnels for the propeller shafts formed by bending the ribs outward, the ribs above and below said bent portions conforming to the lines of lateral contraction toward the stern.

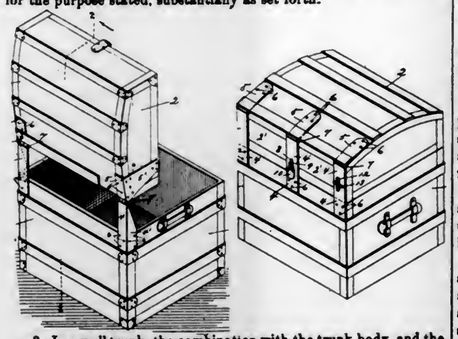
5. A vessel's hull having at each side of the tapering stern portion a plurality of tunnels for the propeller shafts, said tunnels formed by bending the ribs outward, the front end of one tunnel overlapping the rear end of the other, and the ribs conforming above and below said tunnels to the lines of lateral contraction.

6. A vessel's hull having at each side of the tapered stern portion a plurality of tunnels for the propeller shafts, said tunnels formed by bending the ribs outward and being in different longitudinal vertical planes, the rear end of one tunnel overlapping the front end of the other, and the rib or ribs at the overlapping points being bent to conform to both tunnels.

520,692. TRUNK. FRANCIS LYFORD, Augusta, Me. Filed June 15, 1893. Serial No. 477,673. (No model.)

Claim.—1. In a wall trunk, the combination with the body and the lid, each having a front and a rear wall and end pieces, of a series of flat strap hinges arranged in the same vertical plane and the lower member of each of which is secured to the rear wall of the body and project above the same to the height of the rear wall of the lid, and the upper member is secured to the top of the lid, whereby when the trunk is closed the rear wall of the lid will rest against the lower members of the hinges, and when the trunk is open the top of the lid will lie in substantially the same vertical plane as the rear wall of the box, substantially as set forth.

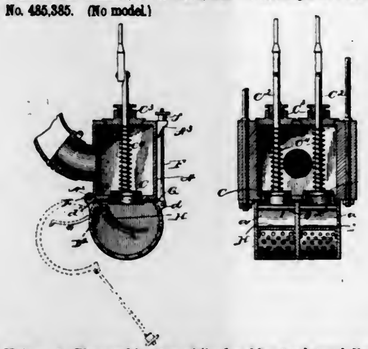
2. In a wall trunk, the combination with the trunk body, and the trunk lid, of means for hinging the lid to the trunk body, consisting of strap hinges, the lower members thereof secured to the upper part of the rear wall of the trunk body, and provided with a lip or side extension secured to the end of the trunk body, and the upper members secured upon the top side of the lid at the rear part thereof, and provided with a lip or side extension secured upon the end of the lid, with the hinge joint between the members at the rear upper edge of the lid, and in the same vertical plane as the rear wall of the trunk, for the purpose stated, substantially as set forth.



3. In a wall trunk, the combination with the trunk body, and the trunk lid, of means for hinging the lid to the trunk body, consisting of strap hinges, the lower members of said hinges secured to the upper part of the rear wall of the trunk body, and the upper members of said hinges secured upon the top side of the lid at the rear part thereof, with the hinge joint between the members at the rear upper edge of the lid, and means for securing the rear side of the lid to the lower member of one or more of the hinges, for the purpose stated, substantially as shown and described.

4. In a wall trunk, the combination with the body and the lid, each of which has a front and a rear wall and end pieces, of a series of hinges, the lower member of each of which is secured to and projects above the rear wall of the body, and a portion of said lower members is perforated, and the upper members are secured to the top of the lid, and a latch on the rear wall of the lid for each perforation in the hinges, and adapted to project therethrough, substantially as set forth.

520,693. SPRINKLING-HEAD FOR STREET-SPRINKLERS. WILLIAM H. MILLER, South Bend, Ind. Filed Sept. 13, 1893. Serial No. 485,385. (No model.)



Claim.—1. The combination of the head having lateral discharge perforations, with a curved diaphragm pivoted in said head, substantially as described.

2. The combination of the hinged sprinkler head, with the curved diaphragm pivoted in said head, substantially as specified.

3. The combination of the valve box, communicating with a water supply, with a sprinkler head detachably hinged to and below said box, and a water deflecting diaphragm in said head, substantially as set forth.

4. The combination of the valve box communicating with a water supply and the valve therein; the perforated sprinkler head detachably hinged to and below said box, and the deflecting partition pivoted in said head, substantially as and for the purpose described.

5. The combination of the valve box and the valve therein, with the chambered sprinkler head detachably hinged to and beneath said box, having a series of perforations in its sides for discharging water and deflecting diaphragms in each chamber, substantially as and for the purpose specified.

6. The combination of a sprinkler head perforated to discharge the water and hinged to a water supply, with a deflecting diaphragm pivoted in said head, substantially as and for the purpose set forth.

7. The combination of the valve box and the independent valves therein, with the single sprinkler head detachably hinged to said box having separate chambers communicating with the respective valve openings in the box, and provided with discharge openings of different size, respectively, substantially as described.

8. The combination of the valve box, the sprinkler head detachably hinged thereto and thereunder, and provided with openings for the discharge of water, with a curved deflecting plate pivoted in said head, substantially as specified.

9. The combination of the sprinkler head having two chambers, provided with lateral discharge openings of different relative size respectively, with a deflecting diaphragm pivoted in each chamber, and an independent water inlet to each chamber, substantially as set forth.

10. The combination of the valve box, the sprinkler head detachably hinged thereto and thereunder, and provided with openings for the discharge of water, with a partition in said head, and a deflecting diaphragm in each chamber, substantially as described.

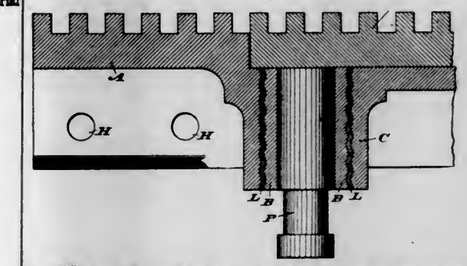
11. The combination of the valve box communicating with a water supply, the sprinkler head suspended beneath said box, and detachably secured thereto by a detachable or loose hinge joint at one side, and a pivoted rod and locking nut at the other side, substantially as specified.

12. The combination of the valve box communicating with a water supply, the sprinkler head detachably suspended beneath said box, and secured thereto by a detachable or loose hinge joint at one side, and a pivoted rod and locking nut at the other side, and a deflecting diaphragm pivoted in said head, substantially as set forth.

13. The combination of the sprinkler head D, having a flange D^4, with the pivoted diaphragm H, substantially as described.

14. The combination of the box A, and the independent spring controlled valves therein; with the sprinkler head D having independent chambers 1 and 2, the loose hinge joint between one side of said head and the box, and the pivoted rod F and its locking thumb nut for securing the opposite side of the head to the box, the packing G interposed between the head and box, and the pivoted diaphragm in said chambers all constructed and arranged to operate substantially as and for the purpose set forth.

520,694. TONGUE-SWITCH. ARTHUR J. MOXHAM, Johnstown, Pa. Filed May 13, 1893. Serial No. 474,158. (No model.)



Claim.—1. In a railway tongue switch a bearing for the tongue pin separate from the body of the switch and adapted to be rigidly secured to said body

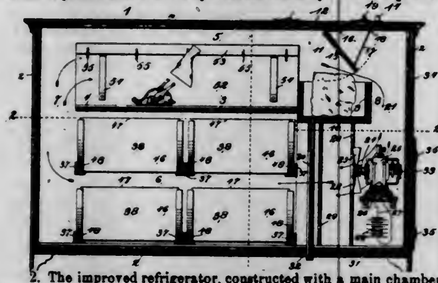
2. A railway tongue switch having a bearing for the tongue pin formed by a sleeve or bushing adapted to receive the pin being secured in said switch by means of a retaining material interposed between said sleeve and switch after the sleeve has been placed in position in switch.

3. In a railway tongue switch in combination with the frame of the switch, a movable tongue having a pin near one end, a sleeve or bushing on said pin and means for rigidly securing the sleeve to the frame of the switch.

4. In a railroad tongue switch having a tongue with pivotal pin a sleeve or bushing adapted to receive and afford a bearing for the pin, an orifice in the switch adapted to receive the bushing and means to secure said bushing to the switch body.

520,695. REFRIGERATOR. LOREN B. MCCLANATHAN, St. Louis, Mo. Filed June 26, 1893. Serial No. 478,811. (No model.)

Claim.—1. An improved refrigerator, constructed with a main chamber, a horizontal partition 3 located in said main chamber and dividing the same into an upper chamber and a lower chamber and providing a vertical passage 7 at one end of said partition so that the adjacent ends of said upper and lower chambers are thereby connected, an ice receptacle 8 located in the upper portion of the refrigerator adjacent the end of the partition 3 which is opposite the vertical passage 7, and a fan 23 mounted within the walls of the refrigerator to circulate air in said upper and lower chambers and cause a current of air to pass over said ice receptacle, substantially as herein specified.



2. The improved refrigerator, constructed with a main chamber divided by a horizontal partition into upper and lower connecting chambers, a vertical passage 7 formed at one end of the horizontal partition which divides said main chamber, the sides of said partition extending into contact with the sides of the refrigerator, an ice receptacle 8 having closed sides and bottom and an open top, and located within the refrigerator adjacent the upper portion thereof so that a passage is formed above and around the same, a vertical partition 20 extending transversely across the interior of the refrigerator with its ends in contact with the vertical sides thereof, with its lower edge in contact with the bottom thereof, and with its upper edge in close contact with the bottom of said ice receptacle, so that a vertical passage 21 is formed in the refrigerator, said vertical partition 20 having an opening 22 at about the center of its height, a revoluble fan 23 arranged in the refrigerator to force air through said opening, a motor for said fan, and a deflector mounted adjacent said opening to divide said current of air, substantially as herein specified.

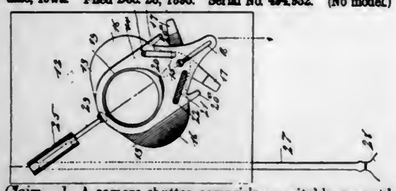
3. The improved refrigerator, constructed with a main chamber, an ice receptacle 8 mounted in said chamber, adjacent one end thereof and having an open top, located a distance below the top of the refrigerator, a door 12 provided with hinges and hinged to the top of the refrigerator so as to open directly above the open top of said ice receptacle, a horizontal partition 3 fixed within the refrigerator and dividing its interior into upper and lower chambers so that an air passage is formed above and below said partition and said ice receptacle with a vertical passage at each end of the refrigerator connecting with said upper and lower chambers, a hinged deflector 16 having its upper edge connected to said door 12 so that its lower edge depends adjacent said ice receptacle, so that said deflector more or less closes the passage above said receptacle, and a flexible connection 17 secured to said deflector and passing loosely through a hole or passage 18 formed in said door and adjustably secured upon the outer surface of the refrigerator, substantially as herein specified.

4. In a refrigerator, an ice receptacle mounted therein with a passage above and below and on one side thereof, said receptacle having a length corresponding to the width of the interior of the refrigerator, a vertical partition 20 extending across the interior of the refrigerator with its ends in contact with the vertical sides thereof, and with its upper edge in contact with the bottom of said ice-receptacle, said partition having an opening 22 formed therein, a fan for forcing air through said opening, a deflector 29 that is V-shaped in cross section and fixed vertically beneath the ice-receptacle adjacent said opening in said vertical partition, and a drain pipe 30 for said ice-receptacle located within the space between the walls of said V-shaped deflector, substantially as herein specified.

5. In a refrigerator, parallel guide-bars 37 arranged within the refrigerating-chamber, and having a detachable receptacle 38 mounted to slide thereon in an opening in the wall of the refrigerator, said receptacle having a front 41, a handle 43 mounted upon said front, the side bars 44 provided with opposite cut away portions 45 in their upper edges, the upper edge of the inner end of said receptacle projecting upward a distance above the upper edges of said side bars so as to form a stop 47 which contacts with the inner surface of the refrigerator wall and limits the outward movement of said receptacle except when the same is to be detached, and the inner ends of said side bars projecting a distance inward around the ends 46 of the receptacle, and having their lower inner corners 48 rounded off, substantially as herein specified.

6. In a refrigerator, the combination of a main chamber, a horizontal partition which divides said chamber into upper and lower chambers, an ice receptacle mounted with its bottom adjacent said partition so that a space 11 is formed above the same, a vertical partition 52 which is mounted upon the upper side of said horizontal partition, a detachable receptacle 38 mounted to slide laterally above said horizontal partition and on one side of said vertical partition, a meat-rack 53 projecting from the opposite side of said vertical partition above said horizontal partition, and a fan for causing a circulation of air above said horizontal partition and said ice receptacle, substantially as herein specified.

520,696. CAMERA-SHUTTER. WILLIAM J. MCCOLLOM, Swaledale, Iowa. Filed Dec. 28, 1893. Serial No. 494,932. (No model.)



Claim.—1. A camera shutter, comprising a suitable support having an opening; oppositely arranged curved leaves to swing over the opening, counter-balances for the leaves, and a sliding leaf adapted to move over the opening, at right angles to the general direction of movement of the leaves, and having an aperture to register with the opening, and an operative connection between the sliding and the swinging leaves, whereby they work in unison, substantially as described.

2. The combination, of the oppositely arranged swinging leaves having counterbalancing weights, the sliding leaf oppositely connected with the swinging leaves to move in unison therewith, and abutments on the sliding leaf to strike the weights, substantially as described.

3. In a camera shutter, the combination with a support having an opening, of a slide forming a partial closure of such opening, and two pivoted leaves co-acting with such slide in forming a closure of the opening, the pivoted leaves having a rocking movement toward and from the axis of the slide, and the slide having connection with said leaves and serving to actuate the same, substantially as described.

4. In a camera shutter, the combination with a support having an opening, of a slide forming a partial closure of such opening, and two pivoted leaves co-acting with such slide in forming a closure of the opening, the pivoted leaves having a rocking movement toward and from the axis of the slide and having weighted counterbalanced arms beyond their pivots, and the slide having engagement with the leaves and serving to actuate the same, substantially as described.

5. In a camera shutter, the combination with a support having an opening, of two leaves pivoted to a stud at one side of the opening to rock toward and from each other, the leaves overlapping at the center of the opening, of a slide having guided movement in a straight direction, on said stud, and having straight diverging slots above its point of engagement with the stud, and pins on the leaves projecting into such diverging slots, the slide forming a partial closure of the opening, substantially as described.

6. In a camera shutter, the combination, with a support having an opening, of two pivoted leaves having a rocking movement toward and from each other, the leaves having curved inner edges and overlapping at one end, the opposite ends beyond the pivots being weighted to counterbalance the portions at the opening, substantially as described.

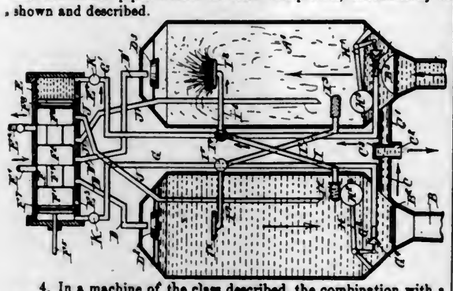
7. The combination, with a support having an opening, of the oppositely arranged swinging leaves and the sliding leaf oppositely connected with the swinging leaves to move in unison therewith, the three closing over the opening from three sides toward a common center, substantially as described.

520,697. ELEVATOR. WILLIAM H. MCCOY, Los Angeles, Cal. Filed Oct. 18, 1893. Serial No. 488,458. (No model.)

Claim.—1. In an elevator of the class described, the combination with water receptacles connected with a water supply, a steam cylinder connected with the receptacles, and a piston in the cylinder for alternately admitting steam to the said receptacles, of pipes connecting the receptacles with the ends of the steam cylinder, and valves for controlling the admission of water to said pipes, said valves being controlled by the rise and fall of the water in said receptacles substantially as described.

2. In an elevator of the class described, the combination with water receptacles connected with a water supply, a steam cylinder connected with the receptacles, and a piston in the cylinder for alternately admitting steam to the receptacles, of pipes connecting the receptacles with the ends of the steam cylinder, valves for closing the ends of the said pipes, and floats connected with and operating said valves, substantially as described.

3. A machine of the class described, comprising water receiving receptacles having suction pipes connected with a water supply, valved pipe connections between the said receptacles for conducting water from one receptacle into the other to condense steam therein to produce a vacuum, a steam cylinder having a piston valve for alternately connecting the said cylinder with the said water receptacles to force the water out of the said receptacles after they are filled, water pipes connecting the lower ends of the said water receptacles with the ends of the said cylinder, and float valves for opening and closing the said water pipes within the said receptacles, substantially as shown and described.



4. In a machine of the class described, the combination with a steam cylinder connected with a steam supply and provided with drain openings, of a piston valve fitted to slide in the said cylinder and provided with three pistons connected with each other, steam supply pipes leading from the said cylinder, water receptacles into which discharge the said steam supply pipes, and water pipes connected with the ends of the said cylinder and opening into the lower ends of the said water receptacles, to permit the water under pressure to pass alternately into the ends of the cylinder to shift the piston valve therein, substantially as shown and described.

5. In a machine of the class described, the combination with a steam cylinder connected with a steam supply and provided with drain openings, of a piston valve fitted to slide in the said cylinder and provided with three pistons connected with each other, steam supply pipes leading from the said cylinder, water receptacles into which discharge the said steam supply pipes, water pipes connected with the ends of the said cylinder and opening into the lower ends of the said water receptacles, to permit the water under pressure to pass alternately into the ends of the cylinder to shift the piston valve therein, valves arranged in the lower ends of the said water pipes, and floats held in the said receptacles and controlling the said valves, substantially as shown and described.

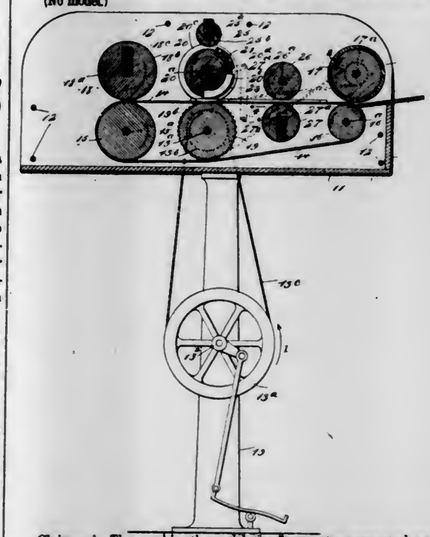
6. In a machine of the class described, the combination with a steam cylinder connected with a steam supply and provided with drain openings, of a piston valve fitted to slide in the said cylinder and provided with three pistons connected with each other, steam supply pipes leading from the said cylinder, water receptacles into which discharge the said steam supply pipes, water pipes connected with the ends of the said cylinder and opening into the lower ends of the said water receptacles, to permit the water under pressure to pass alternately into the ends of the cylinder to shift the piston valve therein, and pipes for connecting the lower end of one water receptacle with the upper end of the other water receptacle, the upper ends of the said pipes being provided with water sprayers, substantially as shown and described.

7. In a machine of the class described, the combination with a steam cylinder connected with a steam supply and provided with drain openings, of a piston valve fitted to slide in the said cylinder and provided with three pistons connected with each other, steam supply pipes leading from the said cylinder, water receptacles into which discharge the said steam supply pipes, water pipes connected with the ends of the said cylinder and opening into the lower ends of the said water receptacles, to permit the water under pressure to pass alternately into the ends of the cylinder to shift the piston valve therein, pipes for connecting the lower end of one water receptacle with the upper end of the other water receptacle, the upper ends of the said pipes being provided with water sprayers, and each pipe being provided with a check valve, substantially as shown and described.

8. In a machine of the class described, the combination with a steam cylinder connected with a steam supply and provided with drain openings, of a piston valve fitted to slide in the said cylinder and provided with three pistons connected with each other, steam supply pipes leading from the said cylinder, water receptacles into which discharge the said steam supply pipes, water pipes connected with the ends of the said cylinder and opening into the lower ends of the said water receptacles, to permit the water under pressure to pass alternately into the ends of the cylinder to shift the piston valve therein, an exhaust pipe leading from the said cylinder between two of the pistons, and pipes leading from the receptacles into the said cylinder between the same pistons, substantially as shown and described.

9. In an elevator of the class described, the combination with water receptacles having discharge pipes connected with a common outlet provided with a valve, of a steam cylinder, steam pipes leading from the cylinder to the receptacles, a piston in the cylinder for controlling the admission of steam to the receptacles, pipes leading from the lower portions of the receptacles to the ends of the cylinder and provided with valves controlled by the rise and fall of the water in the receptacles, and valved pipe connections between the receptacles for conducting water from one receptacle to the other to produce a vacuum, substantially as herein shown and described.

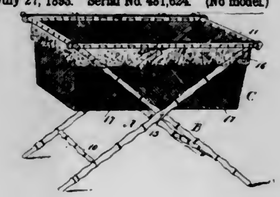
520,698. DATING AND STAMP-CANCELING MACHINE. JAMES J. B. MCELRATH, Centre, Ala. Filed Feb. 10, 1894. Serial No. 499,767. (No model.)



Claim.—1. The combination, with the frame, the supported movable endless apron, the feeding roller at one end of the apron, two transfer rollers spaced from the feeding roller and embracing the top ply of the apron, the lower transfer roller being upwardly actuated, and a rotatable slidingly-supported printing roller above an apron supporting roller, both spaced from the transfer rollers, of a motion transmitting device connecting the lower transfer roller with the printing roller, which will depress said printing roller when the lower transfer roller is depressed, substantially as described.

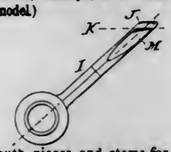
2. The combination with the frame, the supported and movable endless apron, the feeding roller at one end of the apron, two transfer rollers spaced from the feeding roller and embracing the top ply of the apron, the lower transfer roller being spring-supported, and a spring-supported printing roller above an apron-supporting roller, both spaced from the transfer rollers, of a set of arms, links and levers arranged between the lower transfer roller and the printing roller and adapted to correspondingly depress the printing roller when the lower transfer roller is depressed, substantially as described.

520,699. FOLDING CRIB. SARAH C. NEAL, New York, N. Y. Filed July 27, 1893. Serial No. 481,624. (No model.)



Claim.—The improved folding crib, composed of the frame formed of two pairs of legs pivoted together, rungs, 11, which rigidly connect said legs at their upper ends, side bars, 12, which are hinged at the middle, adapted to fold downwardly, and pivoted to the legs, exteriorly, by means of the rungs, sliding bolts arranged beneath the hinge-joints of the side bars, and the rectangular netting, attached to said rungs and side bars, and its bottom, 17, consisting of two rigid sections hinged together and adapted to fold upward, between the side-bars, as shown and described.

520,700. MOUTHPIECE AND STEM FOR SMOKING APPARATUS. WALTER O'BRIEN, Brooklyn, N. Y. Filed Jan. 30, 1894. Serial No. 498,439. (No model.)



Claim.—1. In mouth pieces and stems for smoking apparatus, the combination with the stem of a lip at the mouth end thereof, extending laterally in a vertical plane obliquely angular to a vertical plane traversing the longitudinal axis of the stem.

2. In mouth pieces and stems for smoking apparatus, the combination with the stem, of a lip at the mouth end thereof, and a groove laterally traversing said stem adjacent to said lip, said groove being of greater width at its one end than at its other end.

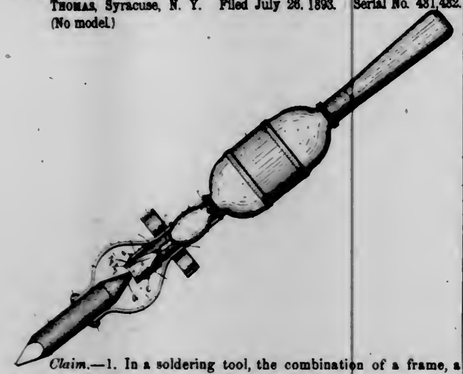
3. In mouth pieces and stems for smoking apparatus, the combination with a stem having a socket at its outer end, of a lip at the mouth end of said stem, said lip extending laterally relatively to said stem in a vertical plane oblique to a vertical plane corresponding with the mouth of said socket.

4. In mouth pieces and stems for smoking apparatus, the combination with a stem A', of a lip C' at the mouth end thereof, and a groove H of varying width throughout its length traversing said stem adjacent to said lip.

5. In mouth-pieces and stems for smoking apparatus, the combination with the mouth-piece, of a stem carried thereby and extended laterally relatively thereto, substantially as and for the purposes set forth.

6. In a cigar holder, the mouth-piece and stem, one of said parts extended laterally to bring the socket end of the holder away from the front of the face, substantially as and for the purpose set forth.

520,701. SOLDERING-TOOL. DAVID G. ORR and CLIFFORD E. THOMAS, Syracuse, N. Y. Filed July 26, 1893. Serial No. 481,482. (No model.)



Claim.—1. In a soldering tool, the combination of a frame, a soldering bolt pivoted to said frame, and a fuel reservoir provided with a projecting burner rigidly secured thereto and extending toward the soldering bolt and having its outer end separated from the inner end of said bolt, substantially as and for the purpose described.

2. In a soldering tool, the combination of a frame, a soldering bolt pivoted to said frame, a fuel reservoir provided with a burner, and a burner tube of less diameter than the reservoir interposed between the reservoir and the soldering bolt, substantially as specified.

3. In a soldering tool, the combination of a frame, a soldering bolt pivoted to said frame, a fuel reservoir provided with a projecting burner secured thereto and extending toward the soldering bolt and having its outer end separated from the inner end of said bolt, and a burner tube projecting beyond the burner and provided with an air inlet in its side wall, substantially as set forth.

4. In a soldering tool, the combination of a soldering bolt, a fuel reservoir provided with a projecting burner secured thereto and extending toward the soldering bolt and having its outer end separated from the inner end of said bolt, and a burner cup arranged at one side of the burner for heating the same, substantially as and for the purpose set forth.

5. In a soldering tool, the combination of a soldering bolt, a fuel reservoir provided with a projecting burner secured thereto and extending toward the soldering bolt and having its outer end separated from the inner end of said bolt, a burner tube projecting beyond the burner, and a pivoted regulator supported on the burner tube in proximity to the soldering bolt, substantially as and for the purpose set forth.

6. In a soldering tool, the combination of a frame, a soldering bolt pivoted to said frame, a fuel reservoir provided with a burner, a burner tube having one end registered with the burner and the other end projecting beyond the same with its outer face separated from the inner end of the soldering bolt, substantially as and for the purpose specified.

7. In a soldering bolt, the combination of a soldering bolt, a fuel reservoir provided at one end with a handle and at its opposite end with a burner, a burner tube having one end registered with the burner and the other end projecting beyond the same with its outer face separated from the inner end of the soldering bolt, and a movable regulator mounted on the burner tube and movable between said soldering bolt and burner tube, substantially as and for the purpose described.

8. In a soldering tool, the combination of a soldering bolt, a fuel reservoir having an inlet opening in one end and provided at its opposite end with a projecting hollow burner secured thereto and extending toward the soldering bolt and having its outer end separated from the inner end of said bolt, a wick having one end supported within the burner and the other end projecting within the fuel reservoir and a handle projecting beyond said reservoir and having one end inserted in said inlet opening for closing the same and holding the handle in position, substantially as and for the purpose specified.

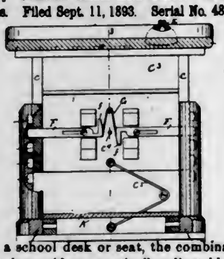
9. In a soldering tool, the combination of a soldering bolt, a fuel reservoir having a projecting hollow nipple provided with an outlet opening, a wick having one end arranged within the nipple and the other projecting within the reservoir, and a frame connecting the said soldering bolt and reservoir, substantially as and for the purpose described.

10. In a soldering tool, the combination of a fuel reservoir provided with a projecting burner, a frame secured to the reservoir and provided with separate arms, and a soldering bolt supported by the said arms, and provided with a pointed inner extremity normally aligned with said burner substantially as and for the purpose specified.

11. In a soldering tool, the combination of a fuel reservoir provided with a projecting burner, a frame secured to the reservoir and provided with separate arms, a soldering bolt supported by the said arms, and downwardly extending legs secured to the said frame, substantially as and for the purpose set forth.

12. In a soldering tool, the combination of a fuel reservoir provided with a burner, a soldering bolt, and a frame secured to said reservoir and having projecting arms hinged to the said soldering bolt and provided with outwardly extending portions adjacent to the inner end of the soldering bolt, substantially as and for the purpose described.

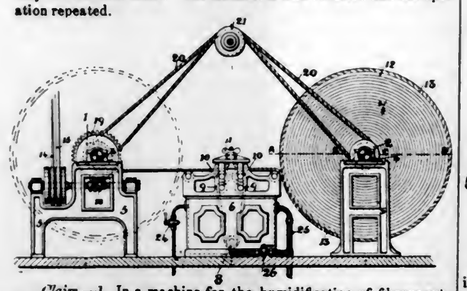
520,702. SCHOOL DESK AND SEAT. ANDREAS J. PALMBERG, Boston, Mass. Filed Sept. 11, 1893. Serial No. 485,236. (No model.)



Claim.—In a school desk or seat, the combination of standards notched on their inner sides, a vertically adjustable desk or seat provided with uprights guided in said standards and having oppositely arranged sliding bolts provided upon their adjacent ends with hook-shaped projections extending in opposite directions and adapted to be engaged by a forked key to retract said bolts, a spring arranged between the bolts and operating to force said bolts outward into engagement with said notched standards, and a spring for raising said desk or seat, substantially as described.

520,703. MEANS AND APPARATUS FOR HUMIDIFYING FIBROUS SUBSTANCES. JAMES T. PEARSON, Burnley, England. Filed June 1, 1891. Renewed Feb. 12, 1894. Serial No. 499,973. (No model.) Patented in England May 2, 1889. No. 7,315.

Brief.—A canvas provided with flexible ribs is wound alternately from one to the other of the two rollers. The canvas passes down into a water-tank and then through squeezing-rolls. The cops or hanks are then placed on the canvas and wound up with it, where they are left until moist. The machine is then reversed and the operation repeated.



Claim.—1. In a machine for the humidification of fibrous substances the combination with the rollers 1 and 2, the tank 6, between said rollers squeezing rollers 9 and 10, supported at the top of said tank, and a guide roller 8 in said tank, of canvas 7, having flexible ribs 13, and the worm and worm wheel 18 and 19, of the reversible gear for winding and rewinding the canvas from rollers 1 and 2, respectively, substantially as described.

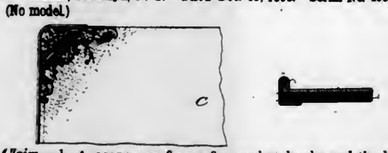
2. In a machine for the humidification of fibrous substances, the combination with a water tank, of squeezing rollers supported at the top of said tank, a cloth or canvas provided with flexible ribs, and means for passing said cloth into the water tank and through the squeezing rollers, substantially as described.

520,704. CLASP FOR SMOCKING CLOTH. FREDERICK S. PINKHAM, Everett, assignor, by mesne assignments, to Andrew J. Robinson, Boston, Mass. Filed July 21, 1892. Serial No. 440,786. (No model.)



Claim.—The clasp for smocking cloth herein described consisting of a pliable metallic strip having the V-shaped portion *a*, adapted to enter between two folded edges of the cloth, and having overturned ends *b*, *b*, which co-operate with the upper ends of said V-shaped portion to nip said folded edges, and thereby permanently hold the material folded, substantially as described.

520,705. CORNER OR FRAME FOR POCKET-BOOKS, &c. LOUIS B. FRANAR, Brooklyn, N. Y. Filed Dec. 15, 1893. Serial No. 493,788. (No model.)

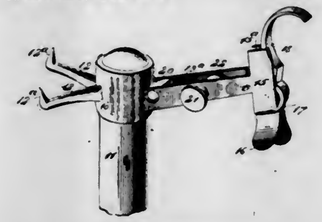


Claim.—1. A corner or frame for pocket books and the like, composed of a flat body or plate, and a clamping section adapted to be applied to the edge of the book so as to overlap or embrace it, the said body and section having engaging or locking portions, substantially as shown and described.

2. A corner or frame for pocket-book covers and the like, consisting of a body or plate adapted to lie flat on a cover and having an upwardly-projecting portion, and the clamping section, having a downwardly-bent flange which covers and engages the projection of the body, its opposite side edge being bent under and thereby adapted to embrace and clamp the edge of the cover, as shown and described.

520,706. PICTURE-HANGING DEVICE. HENRY REDMOND, New York, N. Y. Filed Nov. 27, 1893. Serial No. 492,139. (No model.)

Claim.—A picture-hanging device, comprising a body attached to a pole, arms projected from one side of the body, the free ends of the arms terminating in spurs or prongs forming stops, spring arm projected from the opposite side of the body, a tension device connecting the said arms, and jaws formed at the extremities of the said spring arms having outwardly-flared lower ends, offsets upon their inner faces adjacent to their flared portions, and stops located at their opposite ends, as set forth.



520,707. ART OF REPRODUCING OBJECTS IN RELIEF OR INTAGLIO BY THE AID OF PHOTOGRAPHY. MARIO RUSSO, Rome, Italy, assignor of one-half to Giovanni B. Zanardo, same place. Filed Mar. 12, 1894. Serial No. 503,329. (No specimens.) Patented in Italy May 1, 1894, No. 36,024.

Claim.—1. The process herein described of reproducing objects in relief or in intaglio, whereby there is obtained the proper relative relief of the various parts of any subject irrespective of its color or colors, the same consisting in first superposing upon an ordinary negative a positive, or part of a positive, as described, so as to be slightly out of register, and in contact with a suitably prepared sensitive plate, then exposing the plate thus arranged to light, then subjecting said sensitive plate to a bath of water, substantially described.

2. The process herein described of reproducing objects in relief or in intaglio, whereby there is obtained the proper relative relief to the various parts of any subject irrespective of its color or colors, the same consisting in the first superposing upon an ordinary negative a positive, or part of a positive, as described, so as to be slightly out of register, and in contact with a suitably prepared sensitive plate, then exposing the plate thus arranged to light, and then subjecting said sensitive plate to a bath of water and then to a hardening bath, substantially as set forth.

3. The process herein described of reproducing objects in relief or in intaglio, whereby there is obtained the proper relative relief to the various parts of any subject irrespective of its color or colors, the same consisting in first superposing upon an ordinary negative a positive, or part of a positive, as described, so as to be slightly out of register, and in contact with a suitably prepared sensitive plate, then exposing the plate thus arranged to light then subjecting said sensitive plate to a bath of water, then to a hardening bath, and then making from the said plate a mold of plastic material, substantially as set forth.

4. The process herein described of reproducing objects in relief or in intaglio, whereby there is obtained the proper relative relief of the various parts of any subject irrespective of its color or colors, the same consisting in first superposing upon an ordinary negative a positive, or part of a positive, as described, so as to be slightly out of register, and in contact with a suitably prepared sensitive plate, then exposing the plate thus arranged to light, then subjecting said sensitive plate to a bath of water, then to a hardening bath, then making from the said plate a mold of plastic material, and finally making a relief from said mold, substantially as set forth.

5. The process herein described of preparing sensitive plates for use in the production of objects in relief or in intaglio, the same consisting in first applying to the ground surface of a glass plate a coating of bichromated gelatin prepared as explained, then applying to the surface thus coated a layer or sheet of dry gelatin prepared as explained, and finally spreading over the surface of the dry gelatin layer a coating of the bichromated gelatin, substantially as set forth.

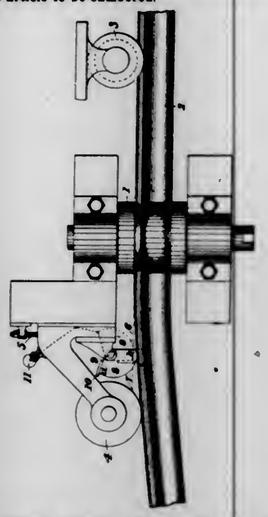
6. In a process of reproducing objects in relief or intaglio, the sub-process which consists in super-imposing a negative upon a positive in such a manner that the details are slightly out of register, and then submitting a sensitive plate to the action of light through the so arranged positive and negative, substantially as described.

520,708. CAMBERING-MACHINE. HERBERT C. RYDING, Johnstown, Pa. Filed Sept. 5, 1893. Serial No. 484,869. (No model.)

Claim.—1. In a cambering machine a cam normally out of the path of a straight bar or other article to be cambered passing through the machine and adapted, by rolling contact with the article, to force said article from its straight position.

2. In a cambering machine a cam normally out of the line of a straight bar or other article to be cambered passing through the machine and adapted to be automatically, by the passage of the article, brought into action against said article.

3. In a cambering machine in combination with a pair of rolls, a cambering roll and a cam interposed between the first mentioned rolls and the cambering roll for the purpose of deflecting to the cambering roll the article to be cambered.



4. In a cambering machine, in combination with a pair of rolls, a cambering roll and a guiding device interposed between the first mentioned rolls and the cambering roll for the purpose of deflecting to the cambering roll the article to be cambered.

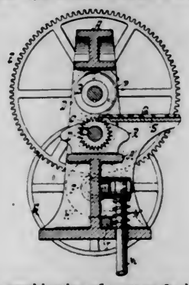
5. In a cambering machine in combination with a pair of rolls and a cambering roll a cam adapted to gradually deflect the article to be cambered and deliver it to the cambering roll tangent thereto.

6. In a cambering machine, in combination with a pair of rolls and a cambering roll, a guiding device adapted to gradually deflect the article to be cambered and deliver it to the cambering roll tangent thereto.

7. In a cambering machine a pair of rolls, a cambering roll and an interposed counter-weighted cam for the purpose set forth.

8. In a cambering machine, a pair of rolls, a cambering roll, and an interposed guiding device for the purpose set forth.

520,709. LEATHER-SCORING MACHINE. JACOB R. SCOTT, New York, N. Y. Filed Sept. 21, 1893. Serial No. 486,112. (No model.)

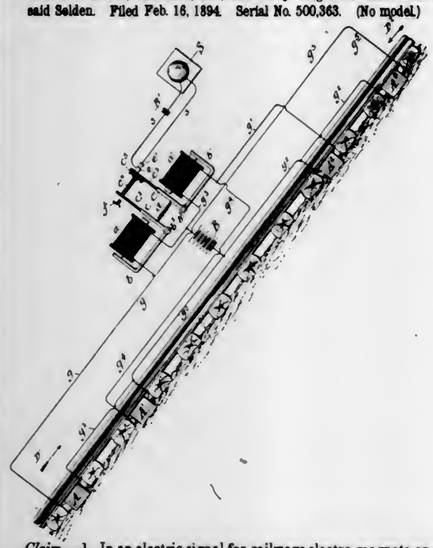


Claim.—1. The combination of a rotary feed-roller composed of disks provided with teeth having longitudinal cutting edges extending parallel with the axis of the roller, a presser roller having a projecting form for pressing part of the material acted on upon the said longitudinal cutting edges of the teeth of the feed-roller, strippers strung upon the feed-roller and bodily arranged between the disks thereof for removing the material acted on from the teeth of the said disks, means whereby the strippers are held stationary between the disks, and gearing for rotating the feed-roller and presser-roller, substantially as described.

2. The combination with a rotary feed-roller composed of disks having teeth or cutters, of a presser-roller having a projecting form for pressing part of the material acted on upon the teeth or cutters of the disks, and stationary strippers interposed between the disks of the feed-roller and having curved upper edges extending between the disks and operating to remove the material acted on from the teeth or cutters of the disks, substantially as described.

3. The combination with a rotary feed-roller composed of disks having teeth or cutters, of a presser-roller having a projecting form for pressing part of the material acted on upon the teeth or cutters of the disks, a stripper-rest arranged below the feed-roller, and stationary strippers interposed between the disks of the feed-roller and bearing against the stripper-rest to hold the strippers stationary, said strippers having their upper edges extending between the disks and operating to remove the material acted on from the teeth or cutters of the disks, substantially as described.

520,710. ELECTRIC RAILWAY-SIGNAL. CHARLES SELDEN and HENRY V. RILEY, Baltimore, Md.; said Riley assignor of one-fourth to said Selden. Filed Feb. 16, 1894. Serial No. 500,363. (No model.)



Claim.—1. In an electric signal for railways electro magnets oppositely arranged and connected in circuits common to a single battery, the cores thereof being extended and returned parallel with said magnets, the end thereof projecting slightly beyond the pole piece, armatures hinged to said projections, a spiral spring or other yielding connection connecting said armatures near their base, a horizontal bar with a beveled or tapering end projecting from the upper end of one armature, teeth or a corrugated surface arranged at the upper end of the other armature and opposite said bar and adapted to engage with said beveled end, whereby upon the energization of either of the magnets said armatures are polarized and locked in rigid position, substantially as described.

2. In an electric signal for railways, two electro magnets oppositely arranged, the winding of one magnet being a continuation of the winding of the other, two armatures arranged between the pole pieces of said magnets, said armatures being connected to move in unison, a device for mechanically locking and rigidly holding the armatures in the position assumed when attracted by either of said magnets, substantially as described.

3. In an electric signal for railways, two electro magnets oppositely arranged, two armatures therebetween, a spring connecting said armatures near the base thereof, a bar projecting at right angles from the upper end of one of said armatures, a series of lugs or teeth near the upper end of the other armature and adapted to be engaged by the end of said bar whereby the armatures are locked in engagement substantially as described.

4. In an electric signal for railways, two electro magnets oppositely arranged and in the same circuit, the armatures of which are polarized during the flow of a current two mechanically connected armatures adapted to simultaneously vibrate therebetween and means for locking said armatures in either position assumed by the attraction of said magnets and a signal circuit adapted to be opened or closed by the vibration of said armatures, substantially as described.

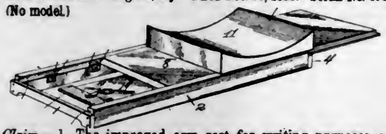
5. In an electric signal for railways, two electro magnets oppositely arranged, said magnets in two independent circuits common to a single battery, the rear of the core of said magnets being extended forward and adapted to conform to each other, armatures hinged to said forward extensions and adapted to vibrate between the pole pieces of said oppositely arranged magnets whereby during the flow of a current said armatures are polarized, means for simultaneously moving and locking said armatures in either position assumed by the energization of said magnets as set forth.

6. In an electric signal for railways, an electric circuit, track circuit closers arranged at each end of a section of railway to be protected, said circuit closers consisting of a box or casing, spring contacts arranged therein, a lever pivoted in said casing, a head on said lever projecting from said casing and adapted to be depressed by the passage of a moving weight or train, a metallic contact on the opposite end of said lever whereby upon the depression of said head the metallic contact is caused to engage the spring contacts and thereby close said electric circuit, electro magnets oppositely arranged and included in said circuits, two armatures adapted to vibrate between said magnets and become polarized during the energization of the same, a spring connecting said armatures near the base thereof and means consisting of a tapering bar on one and a corrugated surface on the other of said armatures whereby they are locked in rigid position substantially as described.

7. In an electric railway signal, electro magnets oppositely arranged and included in two circuits common to a single battery, armatures that are polarized during the flow of a current, and the said armatures adapted to vibrate in unison therebetween and be rigidly locked, track circuit closers arranged at each end of a section of railway to be protected and electric circuits connecting said circuit closers and magnets, a signal circuit adapted to be opened and closed by the vibrations of said armatures, whereby upon the passage of a train or moving weight over the track circuit closers a distant signal is displayed substantially as described.

8. In an electric railway signal, electro-magnets oppositely arranged and included in two circuits common to a single battery, armatures arranged between the pole pieces of said magnets and adapted to be polarized during the flow of current through said magnets, said armatures also adapted to move in unison and be rigidly locked together in either position assumed by the attraction thereof of said magnets, a signal circuit controlled by the vibrations thereof, two electrically connected track circuit closing instruments arranged at each end of a section of railway to be protected and suitable electric circuits connecting said circuit closing instruments and electro-magnets, whereby, upon the passage of a train or moving weight in either direction over the protected section of railway the magnets are energized, the armatures are polarized and the signal circuit opened or closed thereby operating a signal substantially as described.

520,711. MOVABLE ARM-REST FOR WRITING PURPOSES. JOHN W. SHEA, Covington, Ky. Filed Dec. 26, 1893. Serial No. 494,764. (No model.)



Claim.—1. The improved arm rest for writing purposes, comprising a base having side-bars, grooves formed in said side-bars, a slide having a tongue on each edge located in said grooves, and a block having a concaved upper face connected to said slide to be engaged by the arm, substantially as set forth.

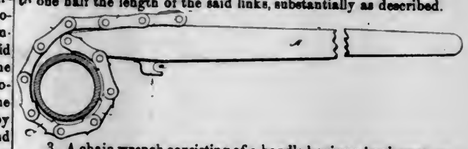
2. In a movable arm rest for writing purposes, side-bars having grooves formed therein, a series of cut-out portions formed in said sides and opening into said grooves, an anti-friction roller located in each of said cut-out portions, and a slide having a tongue on each edge located in said grooves and resting on said anti-friction rollers, and a block having a concaved upper face connected to said slide, substantially as set forth.

3. The improved arm rest for writing purposes, comprising a suitable base, blotting paper connected to said base, a slide mounted in said base in such a manner that it can slide longitudinally thereon, and a block connected to said slide and provided with a concaved upper face adapted to be engaged by the arm, all arranged and combined to operate in the manner herein set forth.

520,712. CHAIN PIPE-WRENCH. NELSON R. STREETER and CHARLES P. MOSHER, Groton, N. Y. Filed Feb. 23, 1893. Serial No. 463,465. (No model.)

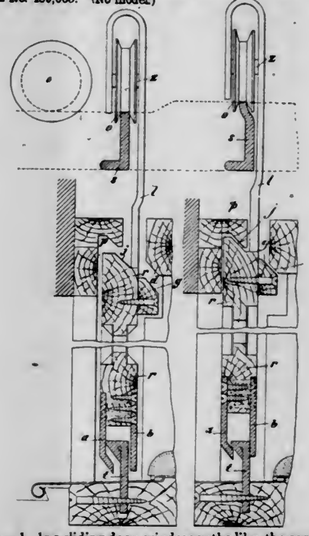
Claim.—1. A wrench consisting of a handle having a holding stud or hook, a chain consisting of a series of links, having teeth or projections, the said links connected by pivotal pins having reduced ends which pass through perforations in opposite ends of the said links which hold them in a separated parallel position to produce a wide bearing surface upon the pipe, and to form a holding point to be placed over the hook upon the handle, substantially as specified.

2. A chain wrench consisting of a handle having a chain pivoted at one end thereof capable of being reversed, the links of the chain having teeth upon opposite edges thereof, a hook upon each edge of the said handle, one hook being in advance of the other about equal to one half the length of the said links, substantially as described.



3. A chain wrench consisting of a handle having a hook upon one edge thereof, and a chain consisting of links, pivotal pins separating the said links, each of the said links having an enlarged end and reduced portions between their ends, and the enlarged ends provided with teeth or projections near their pivotal points, substantially as set forth.

520,713. HORIZONTALLY-SLIDING WINDOW, DOOR, OR THE LIKE. CARL SÜMMERMANN, Münster, Germany. Filed Oct. 31, 1893. Serial No. 489,605. (No model.)



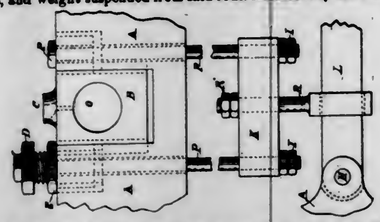
Claim.—1. In a sliding door, window or the like, the combination, with the frame and the sliding sash, of an essentially horizontal guideway on which the sash is adapted to travel, said guideway having portions that deviate both vertically and laterally from the main portion of the guideway, whereby the sash is moved both vertically and transversely to the guideway when the door or window is nearly closed to bring the sash tightly against the frame, substantially as described.

2. An arrangement for producing tight joints in horizontally sliding sashes, doors and the like for windows, doors and the like, consisting of means whereby the sliding sash, casement or door, when nearly in its closed position is varied in elevation through the difference in the level of the guide rail or rails on which the suspending rollers run, while at the same time a horizontal deviation of the rail in conjunction with inclined wedge shaped surfaces at the top, bottom and sides of the sash, door and the like, causes the sash, door or the like to be forced tightly against the frame substantially as described.

3. In a sliding door, window or the like, the combination, with the frame and the sliding sash, of an essentially horizontal guideway on which the sash is adapted to travel, said guideway having vertical deviations for moving the sash vertically, inclines at the top, bottom and sides of the sash, and projections on the frame for engaging each of the said inclines to move the sash transversely to the guideway, as and for the purpose set forth.

520,714. ADJUSTABLE BEARING FOR UPPER FEED-ROLLS OF PLANING-MACHINES. JOHN R. THOMAS, Beloit, Wis., assignor to the Berlin Machine Works, same place. Filed Feb. 1, 1894. Serial No. 498,745. (No model.)

Claim.—1. In a bearing for feed rolls, the combination with the adjustable bearing-block B having lugs F F, of the hollow adjusting bolt D inserted in one of said lugs and provided with check-nut E, headed bolts P P passed through said bolt and through one of said lugs, and weight suspended from said rods, substantially as described.



2. In a wood planing machine, in combination with the sliding bearing of an upper feed roll, a hollow bolt entering the same and adjustable therein, and a weight suspended by a headed rod which passes through said bolt, substantially as set forth.

3. In a combination with the adjustable bearing B of the feed roll, lugs F F, hollow adjusting bolt D, rods P, equalizer K, link R and weighted lever L, substantially as set forth.

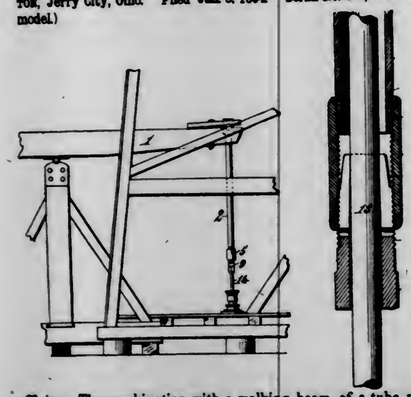
4. In combination with adjustable bearing B of the feed rolls, lug F, a hollow bolt D tapped into said lug, rods P P, having a weight attached thereto, substantially as set forth.

520,715. STICKY FLY-PAPER. OTTO THUM and WILLIAM THUM, Grand Rapids, Mich. Filed Oct. 22, 1892. Serial No. 449,563. (No specimens.)



Claim.—A pack of sticky fly paper formed of a web folded upon itself, with the sticky material interposed between the contiguous faces, and with the outer exposed surfaces uncoated, substantially as described.

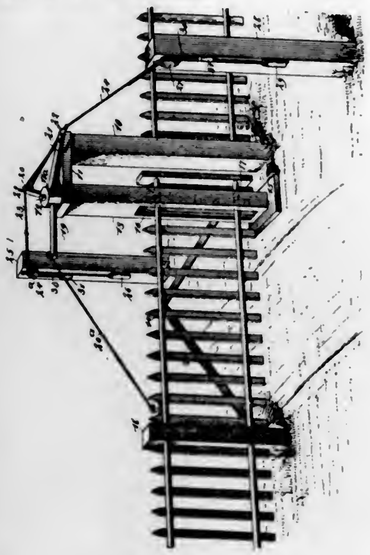
520,716. GRIP FOR POLISHED PUMP-RODS. MORDECAI TURTON, Jerry City, Ohio. Filed Jan. 8, 1894. Serial No. 496,078. (No model.)



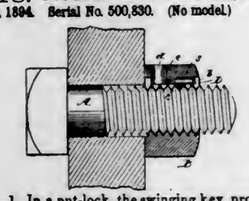
Claim.—The combination with a walking beam, of a tube pivotally mounted at its upper end on the beam and having a screw-threaded lower end, a sleeve having its upper end screwed to the threaded part of said tube and provided in its lower end with a tapering screw-threaded socket, a polished rod running through the sleeve and tube, and a plug having a head at its lower end and formed integral at its upper end with a series of upwardly-projecting, elastic, tapering jaws provided with screw-threads on their tapering surfaces which engage the tapering screw-threaded socket in the lower end of the sleeve, for clamping the polished rod, substantially as described.

520,717. GATE. JOHN B. VAN NADA, Petersburg, Ind. Filed Nov. 3, 1893. Serial No. 489,925. (No model.)

Claim.—In a swing gate, the combination, with a pivoted and slotted post, a gate secured in the slot of the said post, guide posts located at opposite sides of the pivotal posts, a hub secured to the upper trunnion of the pivoted post, said hub being provided with two rearwardly extending arms, and a third arm extending over the gate, the rearwardly projecting arms extending also beyond opposite sides of the swing post and being provided with guide devices at their outer ends, and a link connecting the arm extending over the gate with the free ends thereof of cables having weights at their lower ends, secured one to each rearwardly extending arm, which cables cross one another and engage with the guide devices on the arms opposed to those to which they are secured, double pulleys located upon the guide posts over which the ropes pass, and hand ropes secured to the draft ropes or cables of the arms above their connection with the pulleys, which hand ropes extend also over the pulleys, as and for the purpose specified.



520,718. NUT-LOCK. HENRY J. VAN NEST, Florence, Colo. Filed Feb. 20, 1894. Serial No. 500,830. (No model.)



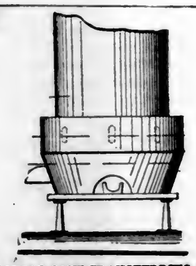
Claim.—1. In a nut-lock, the swinging key, provided with a projecting screw thread section on its face and with an attached branch spring on one side, and also with a lug adapted to enter a hole in the nut to which it is applied, substantially as and for the purposes herein set forth.

2. The combination, with a screw bolt, of the nut B, having an eccentric recess or key seat *b*, projecting farther on its one side or end than on its other side or end from the screw bolt hole in the body of the nut, and the swinging key D, having a screw thread section *c* projecting from its inner face, an attached side spring *s*, and a lug *d* passing out through the nut from the opposite face or back of the key, essentially as shown and described.

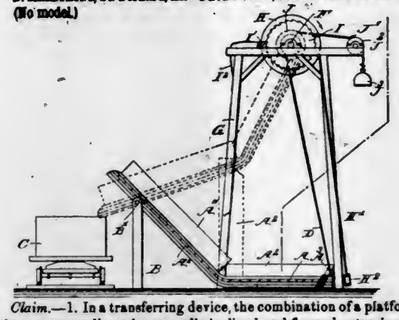
520,719. WIND-JACKET FOR BLAST-FURNACES. LOUIS B. WALKER and JOHN MURPHY, Globe, Ariz. Filed Nov. 6, 1893. Serial No. 490,190. (No model.)

Claim.—A furnace, provided with a crucible, a wind jacket surrounding the same, a wind box above the jacket, tuyeres leading from the wind box, a connection between the wind box and the jacket, an essentially vertical transverse partition located in the jacket adjacent to its connection with the wind box, and a blast supply pipe connected with the wind jacket on the opposite side of the partition from the connection leading to the wind box, whereby the air will be caused to travel around the crucible in the wind jacket, and then pass upward to the wind box and the tuyeres, substantially as described.

520,719.



520,720. SUGAR-CANE-TRANSFERRING DEVICE. CHRISTIAN D. ARMSTRONG, St. Bernard, La. Filed Dec. 20, 1893. Serial No. 494,141. (No model.)



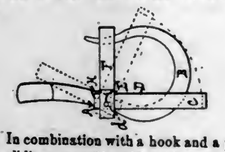
Claim.—1. In a transferring device, the combination of a platform having an upwardly and outwardly inclined and flanged extension on one side, said extension being pivoted to a fixed support, and a hoisting device connected with the side of the platform opposite the inclined extension, substantially as described.

2. In a transferring device, the combination of a platform having an upwardly and outwardly inclined and flanged extension on one side, said extension being hinged to a fixed support near its outer end, gates hinged to the ends of the platform, and a hoisting device connected with the side of the platform opposite the inclined extension, substantially as described.

3. In a transferring device, the combination of a platform having an upwardly and outwardly inclined and flanged extension, said extension being hinged to a fixed support, gates hinged to the ends of the platform, a hoisting apparatus connected with the side of the platform opposite the inclined extension, and a counterbalance for said platform, substantially as described.

4. In a transferring device, the combination with a platform having an upwardly and outwardly inclined and flanged extension, said extension being pivoted to a post, of a shaft mounted above the platform, drums on the shaft between its ends, ropes secured to the drums and to the side of the platform opposite the inclined extension, a hoisting drum on one end of the said shaft, and a rope wound on the hoisting drum, and adapted to have one end connected with a draft beam, substantially as herein shown and described.

520,721. SELF-MOUSING HOOK. CHARLES H. BIGGS, Detroit, Mich. Filed Mar. 25, 1893. Renewed Mar. 26, 1894. Serial No. 505,198. (No model.)

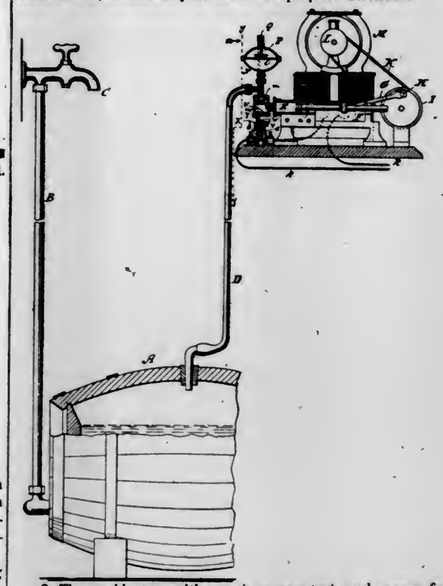


Claim.—1. In combination with a hook and a pivot in said hook a loop having a sliding connection with said pivot and adapted to extend over the end of the hook, and a mousing loop pivoted on said pivot and adapted when moved to engage with and move said sliding loop, substantially as shown and described.

2. The combination with a hook A B having a pin E, of a loop D having upturned shoulders H and slots *d* which engage said pin, and a mousing F pivoted on the pin and adapted to engage with said shoulders, substantially as shown and described.

520,722. ELECTRIC PUMP-MOTOR. JOHN F. BLAKE, New Haven, Conn. Filed Sept. 7, 1893. Serial No. 484,998. (No model.)

Claim.—1. The combination with a cask or receptacle, and a pump for supplying air pressure to the cask, of a pressure chamber containing a flexible diaphragm which is moved by an increase or a reduction of pressure in the cask or receptacle, a movable stem acted upon by the diaphragm, a contact lever *b c*, a transmission lever V W, and connecting devices between the said movable stem and the transmission lever, substantially as and for the purposes described.



2. The combination with a cask or receptacle and a pump for supplying air pressure to the cask of a pressure chamber, a contact lever as *b c*, a transmission lever as V W actuated by the pressure in the chamber and made to actuate the contact lever, springs or detents for said levers, and an electric motor actuated through said contact lever and made to actuate the pump substantially as described.

3. The combination with a cask or receptacle and a pump for supplying air pressure to the cask, of a pressure chamber, an actuating lever as Q, actuated by the pressure in the chamber, a regulating spring as R for the actuating lever, a transmission lever connected to the actuating lever a contact lever actuated by the transmission lever, and an electric motor actuated through said contact lever and made to actuate the pump substantially as described.

520,723. SUSPENDER CAST-OFF. CASPER BLOOMBERG, New York, N. Y. Filed Feb. 17, 1894. Serial No. 500,555. (No model.)



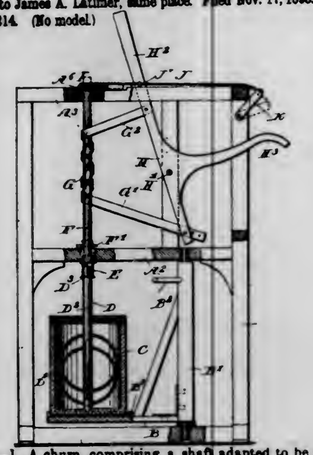
Claim.—1. A suspender cast off buckle comprising a gripping member provided with a raised, headed eyelet hollow stud, whereby a recess is secured in the said stud below its top surface and a ready means of securing the stud to the said gripping member afforded, and a cast off member provided with a tab holding loop, a key hole slot and a spring tongue, said tongue being attached by one of its ends to the said cast off member and having its other end free, and provided on the under side of its free end with a downwardly extending projection, substantially as described.

2. A suspender cast off buckle comprising a gripping member provided with a raised headed stud having a recess in it extending below its top, and a cast off member provided with a protection cap, a tab holding loop, a key hole slot and a spring tongue, said tongue attached by one of its ends to said cast off member and having its other end free, and provided with a downwardly extending projection, said protection cap covering the tongue and guarding it against injury, substantially as described.

3. A suspender cast off buckle comprising a gripping member provided with a raised headed stud having a recess in it extending below its top, and a cast off member made of a single piece of metal and formed with a protection cap, a tab holding loop, a key hole slot

and a spring tongue, said tongue being connected by one of its ends to said cast off member and having its other end free, and formed with a downwardly extending projection, said protection cap covering the tongue and guarding it against injury and giving a finished appearance to the cast off buckle, substantially as described.

520,724. CHURN. JAMES P. BOLDING, Forney, Tex., assignor of one-half to James A. Latimer, same place. Filed Nov. 17, 1893. Serial No. 491,314. (No model.)

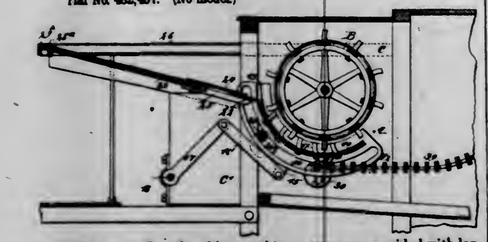


Claim.—1. A churn, comprising a shaft adapted to be coupled with the dasher, a hand lever under the control of the operator, a band winding on the said shaft and having its inclined ends connected with the said lever on opposite sides of its fulcrum to impart a sliding and turning motion to the said shaft, and a slide for locking the upper end of the shaft in place to prevent the shaft from sliding in its bearings, the said slide being adapted to be closed by the said lever, as set forth.

2. A churn, comprising a platform a post mounted to be turned and carrying the platform, a vessel on the platform, a dasher in said vessel, a shaft mounted to turn and adapted to be coupled with the said dasher, a band winding on the said shaft and having its ends extending in inclined directions from the said shaft, a lever connected at the opposite sides of its fulcrum with the inclined ends of the said band, a slide adapted to engage the upper end of the said shaft and adapted to be closed by the said lever, and a rope connected with the said slide for opening the same, substantially as shown and described.

3. In a churn, the combination with a frame, a shaft mounted on the frame, to slide endwise, a device for locking the shaft from endwise movement and means for imparting alternate turning motion to the shaft and endwise movement to the said shaft when unlocked, of a platform mounted to swing in the frame below the shaft, a vessel on the platform, and a dasher in the vessel and adapted to be engaged by the said shaft, substantially as described

520,725. CONCAVE AND FEED-BOARD FOR THRASHING-MACHINES. DAVID W. BROATCH, Pepin, Wis. Filed Aug. 5, 1893. Serial No. 482,437. (No model.)



Claim.—1. In a thrashing machine, a concave provided with longitudinal slots that are essentially concentric with the cylinder, supports carried by the machine and projecting into the slots of the concave to form guides along which the concave may be adjusted around the cylinder, and means for moving either of the said supports of the concave to adjust the latter in relation to the feed end of the machine or to the shaft of the cylinder, as and for the purpose set forth.

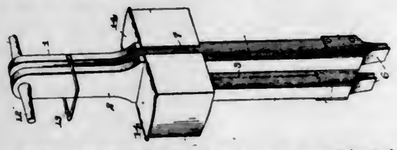
2. In a thrashing machine, a concave provided with longitudinal slots that are essentially concentric with the cylinder, shafts journaled eccentrically in the frame of the machine and extending into the slots of the concave to form guides along which the concave may be adjusted around the cylinder, and means for turning said shafts to adjust the concave in relation to the feed end of the machine and to the shaft of the cylinder, substantially as described.

3. In a thrashing machine, the combination, with the cylinder and the adjustable concave, of a feed board section hinged to the edge of the concave adjacent to the feed end of the machine, another feed board section the upper end whereof has pivotal connection with the frame of the machine, and a plate secured to the lower end of one of the feed board sections and adapted for sliding engagement with the other feed board section, substantially as described.

4. In a thrashing machine, the combination, with the cylinder and the adjustable concave, of a feed board section hinged to the edge of the concave adjacent to the feed end of the machine, another feed board section the upper end whereof has pivotal connection with the frame of the machine, a plate and a series of fingers secured to one end of one of the feed board sections and adapted to receive the other feed board section between them, as and for the purpose set forth.

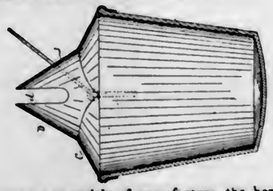
5. In a thrashing machine, a concave provided with longitudinal slots that are essentially concentric with the cylinder, adjustable supports carried by the machine and projecting through the slots of the concave to form guides along which the concave may be adjusted around the cylinder, and a grate connected with the inner supports of the concave, whereby the inner end of the concave and the said grate are caused to move in unison, substantially as described.

520,726. HAND-PLANTER. JAMES CHADWELL, Delce, Ky. Filed Apr. 22, 1893. Serial No. 471,452. (No model.)



Claim.—The herein described hand planter, comprising twin opposite pivotally connected members or sections, which are bifurcated at their lower ends to form parallel spaced legs provided with terminal opening spades, said legs of the two members or sections being pivotally connected in pairs adjacent to their lower extremities, whereby when the upper ends of the members or sections are separated, the lower extremities of the spades carried by the members of each pair of connected legs, are brought together, seed-boxes or hoppers carried respectively by the members or sections upon their outer sides, seed-tubes or ways arranged upon the inner sides of one of the legs of each pair, seed-slides connected respectively to the members or sections and operating slidably in openings in the sides of the seed-boxes or hoppers of the opposite members or sections, said slides being provided with openings which are adapted to register with the seed-tubes or ways when the upper ends of the members or sections are separated, and means for regulating the size of the seed-openings in the seed-slides, substantially as specified.

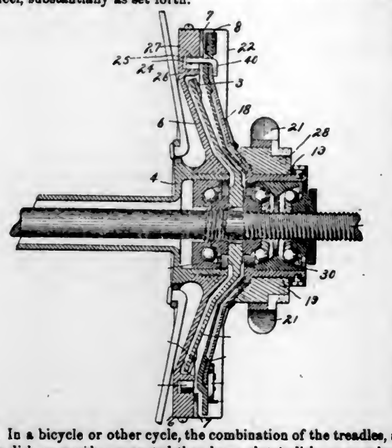
520,727. FIRE-PAIL. FRANK R. COMINS, Providence, R. I. Filed Sept. 19, 1893. Serial No. 485,785. (No model.)



Claim.—As a new article of manufacture, the herein described cover and nozzle for fire pails, consisting of a rigid truncated-cone-shaped base C provided with an open annular bottom having a depending flange for engaging the top of the pail, and an elongated, flattened and gradually tapering nozzle D having parallel edges and an elongated slotted delivery mouth for ejecting the contents of the pail in a broad flat sheet, substantially as shown and for the purpose specified.

520,728. BICYCLE. WILLIAM A. COURTLAND, New York, N. Y. Filed Mar. 12, 1894. Serial No. 503,230. (No model.)

Claim.—1. In a bicycle or other cycle, the combination of the treadles, the driving wheel, a braking wheel or disk, and a clutch operated by the treadle and adapted to be placed by pressure on said treadle in connection with either the driving wheel or said brake-disk or wheel, substantially as set forth.



2. In a bicycle or other cycle, the combination of the treadles, a driving disk or member operated thereby, a clutch disk or member connected to the driving wheel, a braking disk or member and a band brake operated by said driving disk or member and having means for connecting it with said clutch disk or said brake disk and applying thereby driving or braking pressure, substantially as and for the purposes set forth.

3. In a bicycle or other cycle, the combination of the driving sprocket wheel or member 21, the driving disk 18 connected thereto, the dogs the dog-carrying-disk 8, the clutch-disk 6, the braking disk 2 connected to the wheel axle and the band brake 24 and having its opposite ends connected to its disks 18 and 8 and arranged and adapted to operate substantially as and for the purposes set forth.

4. In a bicycle or other cycle, the combination of the driving wheel or member 21, the driving disk 18, the dogs the dog-carrying-disk 8, clutch-disk 6, the braking disk 2, the band brake 24 connected to said disks 18 and 8 as set forth and the dog-operating plate 17 carried by disk 18.

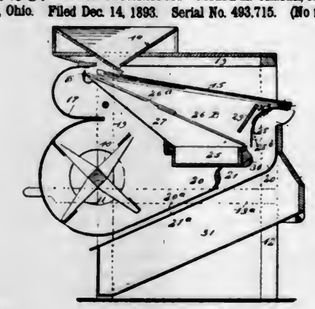
5. In a bicycle or other cycle, the combination of the driving wheel or member 21, the driving disk 18 connected thereto, the dog-carrying-disk 8, the clutch-disk 6, the brake disk 2, the band brake 24, the dogs 9, 10 having springs 13, 14 and the dog-operating plates 16, 17 mounted on said disk 18 and arranged and adapted to operate substantially as set forth.

6. In a bicycle or other cycle, the combination of the disks 8 and 18 and 6, the band brake 24 having its ends connected to said disks 8 and 18 and the spring-returning lever 29 arranged and adapted to operate, substantially as set forth.

7. In a bicycle or other cycle, the combination of the disks 8 and 18, a clutch and brake mechanism operated thereby, the spring 33 and stud 36, arranged and adapted to operate, substantially as set forth.

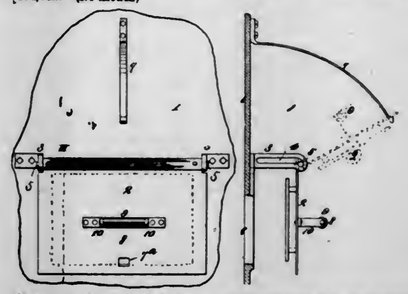
8. In a bicycle or other cycle, the combination of the disks 8 and 18, a clutch and brake mechanism operated thereby, the spring 34 and stud 37 arranged and adapted to operate, substantially as set forth.

520,729. GRAIN-SEPARATOR. JOSEPH H. CRETER, Newcomerstown, Ohio. Filed Dec. 14, 1893. Serial No. 493,715. (No model.)



Claim.—The combination, with a screen, a chute below the screen, and a block having an ogee form in cross section, and located at the delivery end of the chute, of a deflector having its lower end extending below the plane of the said chute, said deflector being constructed in pivotally connected sections, the upper section being secured to the screen to reciprocate therewith and the lower section being free to yield when it strikes a stationary part of the machine, substantially as shown and described.

520,730. FURNACE-DOOR. LUCAS DUFFNER, St. Louis, Mo., assignor to John O'Brien, same place. Filed May 18, 1893. Serial No. 474,712. (No model.)



Claim.—1. In a boiler furnace, the combination of a door, slotted arms adapted to support the door and to hold it in close proximity to the fire-box opening, or a distance therefrom, and means for holding the free edge of the door in a raised position; substantially as and for the purpose set forth.

2. In a boiler furnace, the combination of a door, slotted arms for supporting the door, and means for holding the free edge of the door in a raised position; the slots of said arms being curved in a downwardly direction at their outer ends; substantially as and for the purpose set forth.

3. In a boiler furnace, the combination of a door, slotted arms adapted to support the door, and a spring hook 7 adapted to engage in an opening in the free edge of the door, and hold the door while the furnace is being supplied with coal; substantially as and for the purpose set forth.

4. In a boiler furnace, the combination of a door, and arms having slots adapted to receive journals on the door, whereby the door can be moved to or from the front plate of the furnace; substantially as and for the purpose set forth.

5. In a boiler furnace, the combination of a door, and arms adapted to support the door; said arms having slots downwardly curved at their outer ends, and which are adapted to receive journals on the door; substantially as and for the purpose set forth.

6. In a boiler furnace, the combination of a door and arms adapted to receive journals on the door, whereby the door can be moved to or from the front plate of the furnace along the arms, as and for the purpose set forth.

520,731. COMB-CLEANER. HENRY FISHER, Sacramento, Cal. Filed Sept. 22, 1893. Serial No. 486,191. (No model.)



Claim.—1. As a new article of manufacture, a comb cleaner, comprising a hollow holder open only at its side edges for the reception of brushes and rubber, and having cleaning points projecting from its forward end, and retaining lips at the end of the said open edges nearest the cleaning points, substantially as and for the purpose set forth.

2. As a new article of manufacture, a comb cleaner comprising therein a hollow holder open at two of its edges to receive brushes and like devices, and having parallel cleaning points projecting from its forward end, and a depression at the juncture of the holder and cleaning points, as set forth.

3. As a new article of manufacture, a comb cleaner, comprising therein a hollow holder open at two of its edges to receive brushes and similar devices, and having parallel cleaning points projecting from its forward end, a depression at the juncture of the holder and cleaning points, and retaining lips at the said open edges, as set forth.

520,732. COMBINED PENCIL-SHARPENER AND ERASER. HENRY FISHER, Sacramento, Cal. Filed Jan. 24, 1894. Serial No. 497,883. (No model.)



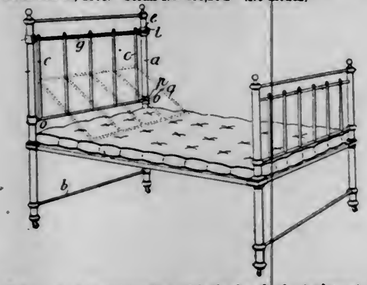
Claim.—1. In a pencil-sharpener, the shank having at its top an inclined groove lined with abrasive material, combined with the holder or guide having a central circular bend covering the top of the shank, and edges turned at right angles toward each other to engage the corners of the said shank, substantially as set forth.

2. In a pencil sharpener, the shank having at its top an inclined groove lined with abrasive material, its base being coated with similar material, combined with the holder or guide having a circular bend covering the top of the shank, its sides and bent edges enveloping the said shank, substantially as set forth.

3. In an article of the character described, the holder or guide having a central circular bend and ends, the side edges of which are bent toward each other, combined with the shank and base formed in one piece the former having a roughened upper surface, the latter having a rounding flange and a beveled flange, substantially as and for the purpose set forth.

4. In an implement or article of the character described, the guide or holder, the shank to which the guide or holder is secured, said shank having a roughened upper surface, the base provided with a cavity and having square sides, a rounding and a beveled flange combined with the cutting blade having a shouldered slot, the bolt passing through the said blade and the said beveled flange, and the nut for securing the bolt in place, substantially as shown and described.

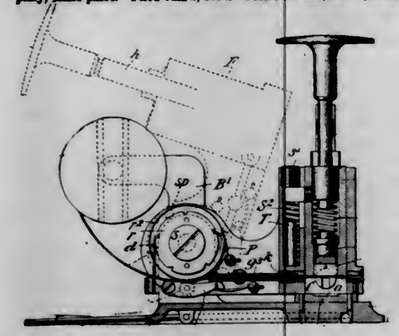
520,733. BEDSTEAD. WALTER GOODLIFFE, Cambridge, England. Filed Oct. 16, 1893. Serial No. 488,254. (No model.)



Claim.—1. In combination with the head of a bedstead, sliding rings on the post thereof, a movable frame pivoted at its upper end to said sliding rings and clamping means for locking said rings in place simultaneously, substantially as described.

2. In combination with the head of a bedstead, sliding rings on the posts thereof, and a movable inner frame pivoted to said rings at the upper end by threaded projections adapted to act to clamp the rings in place in one position of the frame, substantially as described.

520,734. BOOK-STAPLING MACHINE. EDWIN T. GREENFIELD, New York, N. Y., assignor to the Greenfield Automatic Fastener Company, same place. Filed Jan. 2, 1894. Serial No. 495,474. (No model.)



Claim.—1. A paper binding machine comprising staple forming and staple driving plungers yieldingly connected together and pivotally secured to a base, in combination with wire feeding mechanism secured to the same base and having mechanical connections with the pivoted parts whereby the binding mechanism may be removed from over the material being bound and the staple forming wire afterward fed forward for forming a new staple.

2. A paper binding machine comprising two plungers yieldingly connected together over a stationary anvil, said parts being arranged for forming, driving and clinching wire staples through the material to be bound in combination with wire feeding mechanism; the binding mechanism being pivotally supported over the material to be bound and provided with pawl mechanism operatively connected to ratchet wire feeding mechanism fixedly secured to the same base with the binding mechanism.

3. In a paper binding machine staple forming and staple driving plungers yieldingly connected together, a staple forming mandrel located in the path of said plungers, said mandrel being provided with an inclined face and one of the plungers with a pin adapted to come into contact with said inclined face as the plungers are driven downward, in combination with wire feeding mechanism secured to the same base and operatively connected through ratchet and pawl mechanism with the pivoted parts of the apparatus.

4. In a paper binding machine a staple forming plunger and a staple forming mandrel the latter having an inclined face, in combination with a staple driving plunger and a pin carried by the staple forming plunger for forcing the mandrel aside after the staple is formed the staple forming and staple driving plungers being located the one within the other and yieldingly connected together.

5. A paper binding machine having staple forming and staple driving plungers yieldingly connected together and provided with a continuous groove or channel in their lower faces said groove or channel being located in alignment with tubular guide-ways on opposite sides in combination with means for feeding wire under the plungers.

6. A paper binding machine having staple forming and staple driving plungers yieldingly connected together and a staple forming mandrel located in the downward path of said plungers, in combination with tubular wire guide-ways on opposite sides of the plungers, the staple forming plunger being provided with means for cutting the wire into staple blanks.

7. In a paper binding machine staple forming and staple driving plungers yieldingly connected together, a staple forming mandrel located in the path of the plungers, all of said parts being pivotally supported on a base over the material to be bound, a spool of staple forming wire and feeding mechanism secured to the same base, in combination with intermediate mechanical connections between the pivoted and fixed parts for feeding the wire forward and tubular guiding ways for conveying it under the plungers and over the mandrel.

8. A paper binding machine having wire feeding mechanism and a wire holding spool provided with a retaining groove in one head, in combination with a frictional support and means for regulating the tension put upon the wire in feeding it forward.

9. In a paper binding machine a wire holding spool having a groove or opening through one of its heads, a frictional support resting in the groove and attached to a fixed arm, in combination with means for regulating the frictional bearing between the spool and its supporting arm.

10. A wire holding spool having a groove or opening through one head and a rod or pin fitted therein, in combination with a sustaining bolt, a set nut and regulating spring, substantially as described.

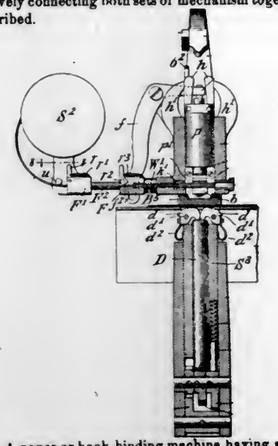
11. A paper binding machine consisting of a staple forming plunger surrounding a staple driving plunger, said plungers being yieldingly connected together and yieldingly supported in turn by an arm hinged to a base, in combination with an anvil secured to the base, substantially as described.

12. A paper binding machine having staple forming and staple driving plungers located, one within the other and yieldingly connected together, both of said plungers being in turn yieldingly sustained by an arm pivotally secured to a base, in combination with a clinching anvil attached to the base, and wire feeding mechanism operatively connected with the base and the pivoted portion, substantially as described.

520,735. STAPLING-MACHINE. EDWIN T. GREENFIELD, New York, N. Y., assignor to the Greenfield Automatic Fastener Company, same place. Filed Jan. 2, 1894. Serial No. 495,475. (No model.)

Claim.—1. A paper or book binding machine provided with means for cutting, forming and driving binding staples, in combination with a spring supported rest for sustaining and firmly holding the material in position while it is being bound, said rest being provided with means for lifting it into a gripping or holding position against the pressure of its supporting spring, and mechanical connections between the two sets of mechanism whereby the entire machine automatically adapts itself to the binding of material of different thicknesses.

2. A paper or book binding machine composed of a staple forming plunger, a staple driving plunger and a movable staple forming mandrel, means for giving to said parts positive motion, a spring sustained support or rest for the material to be bound, means for giving to said support or rest movement toward the staple forming and staple driving mechanism and placing the material to be bound under yielding pressure of the spring support in combination with a source of power operatively connecting both sets of mechanism together, substantially as described.



3. A paper or book binding machine having a supply of binding wire, staple forming and staple driving plungers, a movable mandrel, wire feeding mechanism for feeding the wire between the mandrel and the plungers, a spring sustained support or rest for automatically adapting itself to the thickness of the material to be bound, in combination with means for giving to said support positive motion toward the staple forming and staple driving mechanism, and intermediate mechanical connections between both sets of mechanism and a source of driven power whereby the material to be bound is first firmly gripped, the binding staples cut, driven and clinched and the bound article subsequently released, substantially as described.

4. A paper or book binding machine consisting of staple driving mechanism, in combination with a spring sustained support or rest for automatically adapting itself to the thickness of the material to be bound, mechanism for lifting the support and gripping the material, and independent connections between the staple forming staple driving and material supporting mechanism and a source of driven power whereby the material to be bound is first gripped, the staple formed, driven and clinched and the material then released, substantially as described.

5. A paper or pamphlet binding machine provided with a supply of binding wire, staple forming and staple driving plungers, a staple driving mandrel, means for feeding the wire forward in proper lengths for the staples, and additional movable means actuated by the feeding mechanism for carrying the wire in front of the staple forming and staple driving plungers and protecting it during the time that it is being thus carried forward, and leaving it in position to be cut, formed and driven, substantially as described.

6. A paper or pamphlet binding machine having means for feeding binding wire in successive lengths, in combination with a protecting tube or guide which directs the wire into position and is subsequently removed so as to leave the exposed length of wire in position to be cut, formed into a staple and driven through the material to be bound, substantially as described.

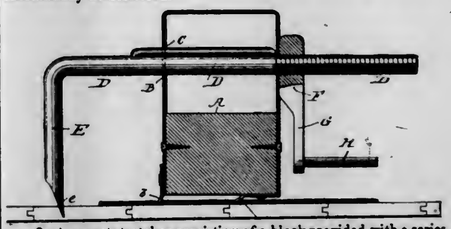
7. In a paper or pamphlet binding machine staple forming and staple driving plungers, a moving mandrel and mechanism for feeding forward binding wire, in combination with a protecting tube or shuttle which is carried forward with the feeding mechanism and protects and guides the wire to its ultimate destination and means for causing the protecting tube to be removed before the plungers are driven forward, substantially as described.

8. In a paper or pamphlet binding machine wire feeding mechanism provided with a guide tube or shuttle adapted to convey the staple forming wire past the staple forming plunger, in combination with a hollow sleeve adapted to receive the free end of the staple forming wire and a pair of cutting knives carried on opposite sides of the staple forming plunger and adapted to cut off both ends of the staple blank, substantially as described.

520,736. CARPET-STRETCHER. WILLIAM HOVER, Freeport, Ill., assignor to Elizabeth Hover, same place. Filed Aug. 10, 1893. Serial No. 482,832. (No model.)

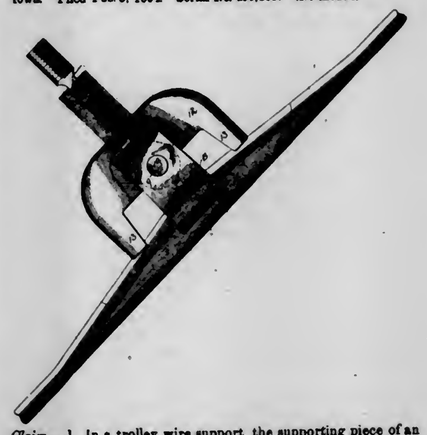
Claim.—1. A carpet stretcher consisting of a block provided with a series of projecting teeth and a perforated saddle which embraces the block from opposite sides and extends above the block, in combination with a hook or claw, and a rod formed integral with said hook or claw, said rod provided with means for drawing it through the saddle and extending through the openings in the saddle above the block, substantially as and for the purpose specified.

2. A carpet stretcher consisting of a block provided with a series of vertical teeth in front and a second series of inclined teeth at the rear along its base; in combination with a saddle extending over the top and down to the sides of the block and provided with openings through which extends a rod having a hook or claw and having screw threads and provided with a nut on the rod for operating the same, substantially as described.



3. A carpet stretcher consisting of a block provided with a series of vertical teeth in front and a second series of inclined teeth at the rear along its base; in combination with a saddle extending over the top and down to the sides of the block and provided with openings one of which is provided with a recess through which extends a rod having a hook or claw and having screw threads and provided with a nut for operating the same and also provided with an eccentric key or projecting strip adapted to fit within the recess in one of the openings in the saddle, substantially as and for the purpose specified.

520,737. TROLLEY-WIRE SUPPORT. BUDD J. JONES, Sioux City, Iowa. Filed Feb. 5, 1894. Serial No. 499,185. (No model.)



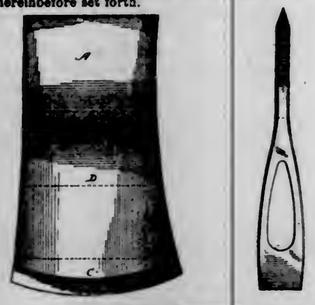
Claim.—1. In a trolley wire support, the supporting piece of an approximately triangular form, adapted to fit a bend in the trolley wire, with its outer surface on a plane with the surface of the trolley wire, in combination with a bridge piece, a stirrup strap, and means for adjusting the stirrup strap, substantially as set forth.

2. In a trolley wire support, the supporting piece 3, of an approximately triangular form, adapted to fit a bend in the trolley wire, with its outer surface on a plane with the surface of the trolley wire, in combination with a bridge piece, a stirrup strap, a straining bolt and nut, substantially as set forth.

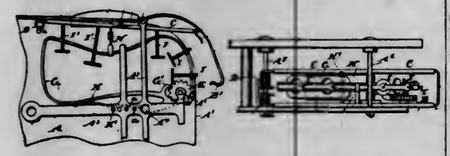
3. In a trolley wire support, the supporting piece 3, of an approximately triangular form, adapted to fit a bend in the trolley wire, with its outer surface on a plane with the surface of the trolley wire, in combination with a bridge piece, a stirrup strap, a straining bolt having lateral projections for engaging eyes formed in the free ends of the stirrup strap, and a clamping nut, substantially as set forth.

520,738. AX. JAMES P. KELLY, Louisville, Ky. Filed Feb. 12, 1894. Serial No. 499,886. (No model.)

Claim.—An ax having on each side a convex form extending from edge to edge, and having its opposite faces in substantial parallelism from the ridge of the cutting edge to the eye, as and for the purpose hereinbefore set forth.



520,739. RAILROAD-CAR FENDER. JAMES W. MADDEN, Brooklyn, N. Y. Filed Feb. 3, 1894. Serial No. 498,954. (No model.)



Claim.—1. The combination with a car of one or more wings arranged to turn horizontally at the end or ends adapted to sweep aside any person or other object which may be struck, and one or more actuating springs having a force previously accumulated ready to effect such motion when required, and means as the wheels E and turning frames G G', the latter actuated by the forcing inward of the wing for releasing the spring and operating the wings automatically on striking any person or object, all substantially as herein specified.

2. In a car having a fender wing as B adapted to sweep aside any person or object struck, and means as the wheel E and turning frames G G' for holding and liberating such wings, the actuating spring lever constructed as shown with the coil D, ends D', straight portions D^2, operating end portion D^3, in combination with the tubes C inclosing the said straight portions and adapted to stiffen and strengthen them, as herein specified.

3. The combination with a car of one or more wings arranged to turn horizontally at the end or ends, adapted to sweep aside any person or object which may be struck, and one or more actuating springs having a force previously accumulated ready to effect such motion when required and means as the wheels E and turning frames G G' the latter actuated by the forcing inward of the wing for releasing the spring and operating the wings automatically on striking any person or object, and the adjusting screws I adapted to allow for imperfection in the workmanship or the bending or other change of form of the parts and to allow the wings to be liberated by the striking against an object at any point so as to deflect inward any portion of a wing, all substantially as herein specified.

4. In a car, two wings as B B pivoted at the sides respectively, and adapted to sweep to the right and left, two sets of operating means as C D, two holding wheels as E E, and two turning devices as G G', all combined and arranged for joint operation substantially as herein specified.

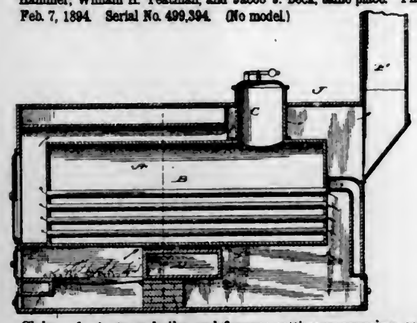
520,740. BRUSH. ANTHONY E. MAGORIS, Binghamton, N. Y. Filed Sept. 20, 1893. Serial No. 486,041. (No model.)



Claim.—A brush or rubbing device, composed of a series of fibers arranged parallel with each other and secured together, the fastening extending across the longitudinal disposition of the fibers, a portion of the fibers being cut between each fastening and in a line parallel therewith, and the ends of the cut fibers bent up to form bristles, and a series of independent sections of cut fibers secured to the uncut fibers of the main series and between the contiguous ends of the cut fibers whereby the number of bristles in the brush are increased and each bristle supported in a vertical position by those adjoining, substantially as described.

520,741. WITHDRAWN.

520,742. STEAM-BOILER. WILLIAM SAUR, Washington, D. C., assignor, by direct and mesne assignments, of two-thirds to George H. Hammer, William H. Yeatman, and Jacob J. Beck, same place. Filed Feb. 7, 1894. Serial No. 499,394. (No model.)

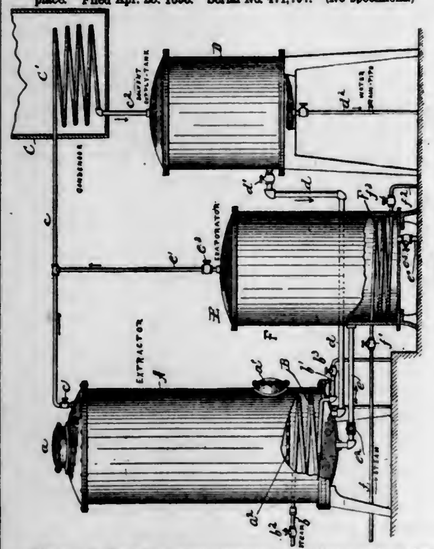


Claim.—1. A steam boiler and furnace setting or covering, consisting of a hollow metal casing independent of said boiler and fire box and non-communicating therewith adapted to surround the boiler and fire box and to be filled with water, substantially as described.

2. A casing or setting for steam boilers and furnaces, consisting of hollow metal covering or top, and rear and front walls all communicating with each other and independent of the boiler, adapted to be filled with water, substantially as described.

3. A casing or setting for steam boilers, consisting of a hollow metal casing independent of and surrounding the boiler and fire box, a hollow dead plate, a hollow bridge and a hollow return plate all communicating with said casing, substantially as described.

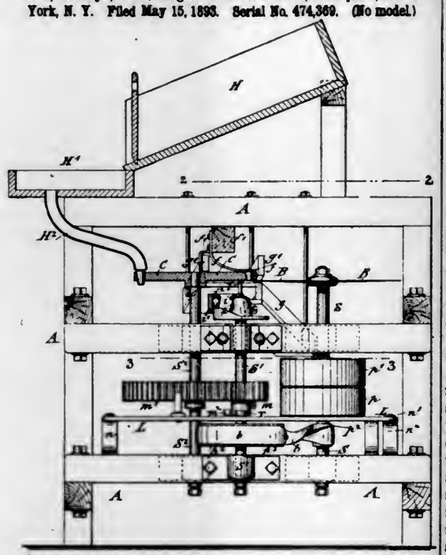
520,743. PROCESS OF EXTRACTING FATS FROM ANIMAL OR VEGETABLE SUBSTANCES. ADOLPH SCHWEIZER, Chicago, Ill., assignor of two-thirds to Morris M. Hirsh and William F. Jobbins, same place. Filed Apr. 25, 1893. Serial No. 471,797. (No specimens.)



Claim.—1. In the art of recovering oily and fatty products from moist material containing the same, such as bones, the improvement which consists in placing the material to be treated in a still; submerging it in a solvent having a boiling point above that of water, distilling off the water carried by the material by heating the mixture above the boiling point of water but below that of the solvent; transferring the solution to an evaporator; distilling off the solvent from the fatty solution; condensing and collecting such solvent in a separate solvent tank; subjecting the residue in the still to further heating to complete the removal of any remaining solvent and condensing and collecting such solvent, substantially as set forth.

2. In the art of recovering oily and fatty products from moist material containing the same, such as bones, the improvement which consists in placing the material to be treated in a still; submerging it in a solvent having a boiling point above that of water; distilling off the water carried by the material by heating the mixture above the boiling point of water but below that of the solvent; transferring the solution to an evaporator; distilling off the solvent from the fatty solution; condensing and collecting such solvent in a separate solvent tank; subjecting the residue in the still to further heating to complete the removal of any remaining solvent; and condensing and collecting such solvent in the said separate solvent tank, whereby the free solvent, free fats and oils, and the solid desiccated residue will be retained in separate receptacles, substantially as set forth.

520,744. MACHINE FOR CUTTING CORKS. FREDERICK C. TRUSLOW, Brooklyn, N. Y., assignor to Truslow & Co., same place, and New York, N. Y. Filed May 15, 1893. Serial No. 474,369. (No model.)



Claim.—1. The combination, of an intermittently-rotating feed-wheel provided with tapering holes to which the corks are supplied, a spring-arm adapted to bear on the upper ends of the corks, a rotating cutter-disk that laps over the under surface of the feed-wheel, so as to trim or cut off the lower projecting ends of the corks, and an intermittently-operated ejecting device, by which the cut-off corks are ejected from the holes of the feed-wheel, substantially as set forth.

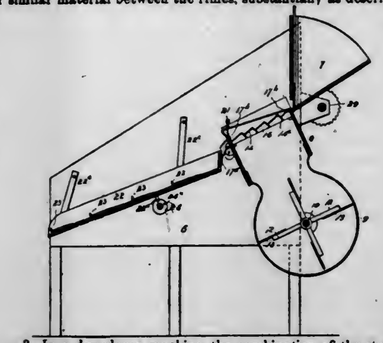
2. The combination, of an intermittently-rotating feed-wheel having a number of tapering holes for the corks, a spring-arm adapted to bear on the upper ends of the corks as they pass below the same, a rotary cutter-disk that is adapted to lap over the under surface of the feed-wheel, an intermittently-actuated ejecting device for removing the cut-off or trimmed corks, and chutes arranged respectively below and on a level or nearly so with the feed-wheel, so as to conduct off the trimmed-off ends and the taper-corks themselves, substantially as set forth

3. The combination, of an intermittently rotating feed-wheel having tapering holes for receiving corks, a spring-arm pressing on the upper ends of the corks as they pass below the same, a rotary cutter-disk adapted to trim off the lower projecting ends of said corks, and a pivoted ejecting lever provided with an ejecting pin at its end that passes successively through the openings in the feed-wheel, and means for intermittently actuating the ejecting lever, substantially as set forth.

520,745. DRY PLACER MACHINE. THOMAS L. WALMSLEY and HENRY H. WRIGHT, Denver, Colo. Filed Jan. 3, 1894. Serial No. 495,561. (No model.)

Claim.—1. In a dry placer machine, or concentrator, the combination with a suitable stationary frame, of the movable casing forming the hopper and blast chamber and adjustably supported within the stationary casing, the fine corrugated or riffled screen hinged to the movable casing at the hopper outlet and covering the mouth of the blast chamber, and suitable means for imparting to the screen, an oscillating movement, substantially as described.

2. In a dry concentrator, the combination of the stationary casing, the movable casing forming the hopper and blast chamber, the fine riffled screen supported upon a suitable frame hinged to the movable casing in suitable proximity to the hopper discharge and covering the mouth of the blast chamber, means for imparting to the screen, an oscillating movement, and an inclined shaking table supported upon the stationary framework and located below the screen, the bottom of said table being provided with riffles, and having carpeting or similar material between the riffles, substantially as described.



3. In a dry placer machine, the combination of the stationary framework, the movable casing forming the hopper and blast chamber, suitable air forcing mechanism located within said chamber, the fine corrugated screen having its frame hinged to the movable casing, said screen being located above the mouth of the blast and provided with depending transverse plates forming air pockets beneath the screen, means for imparting to the screen, an oscillating movement, and an inclined, carpeted table provided with riffles, said table being movably supported in the frame-work, and means for imparting to the table, a transverse shaking movement, substantially as described.

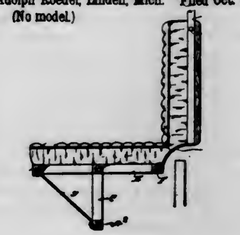
4. In a dry placer machine, the combination with the stationary frame-work, the movable trunnioned casing mounted in the frame, and carrying the hopper and blast mechanism, said casing being further provided with projections engaging curved slots formed in the casing, one of the projections being provided with a tightening nut, whereby the casing may be adjusted, the hinged frame carrying the fine screen and having depending transverse riffles forming air pockets underneath, the screen being located above the mouth of the blast chamber, means connected with the movable casing for imparting an oscillating movement to the screen, springs engaging the frame of the screen and normally pressing the same down upon the movable casing, and a coarse screen attached to the frame of the fine screen and supported above the latter, substantially as described.

5. In a dry placer machine, the combination with a suitable stationary frame, of the casing adjustably supported within the frame, and comprising the hopper and blast chamber, and a fine screen covering the mouth of the blast chamber and located at the hopper outlet, substantially as described.

6. In a dry placer machine, the combination with a stationary frame, of a casing adjustably supported within the frame and comprising the hopper and blast chamber, a fine screen having underneath air pockets, said screen being attached to a suitable frame hinged at one extremity, and supported in the path of the blast, and means connected with the opposite extremity for imparting an oscillating movement, substantially as described.

7. The combination with the stationary frame, of the casing adjustably supported in said frame and comprising a blast chamber, a fine screen attached to the casing and covering the mouth of the blast chamber, and means for feeding the material to said screen, substantially as described.

520,746. CARRIAGE. WILLIAM M. WARD, Corunna, assignor of one-half to Adolph Roedel, Linden, Mich. Filed Oct. 14, 1893. Serial No. 488,135. (No model.)



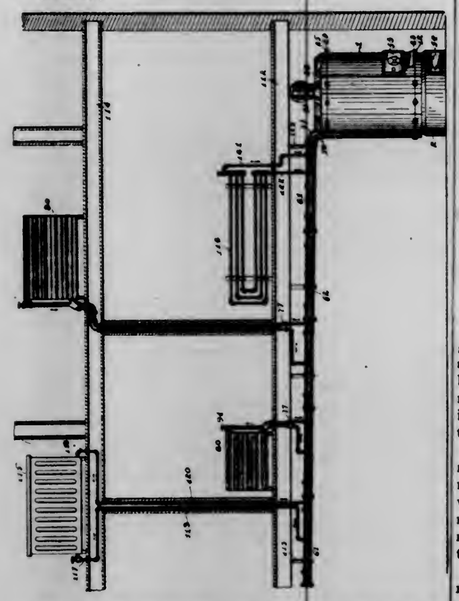
Claim.—1. A vehicle body consisting of a lower semicircular body of the usual width and supporting a wider semicircular body superimposed concentrically upon the lower body, a continuous seat arranged around the back and two sides thereof within the upper body, and a seat closing in front, which seat is capable of being wholly or partially removed, substantially as described.

2. In a vehicle body, the combination of a basic frame, a concentric superimposed frame carrying a substantially circular seat, capable of being opened on the side toward the front of the vehicle, substantially as described.

3. In a vehicle body, the combination of a substantially semicircular seat supporting frame, consisting of cross bars E E, and connected by outer and inner longitudinal strips F K, the cross pieces E being substantially centrally supported from frame A^3 and interiorly braced by braces *g g*, substantially as and for the purposes set forth.

4. In a vehicle body, the combination of a substantially semicircular seat supporting frame, consisting of cross bars E E, and connected by outer and inner longitudinal strips F K, the cross pieces E being substantially centrally supported from frame A^3 and interiorly braced by braces *g g*, and a semicircular back N, and the connecting brackets L L, substantially as described.

520,747. CAST-IRON CONDUIT FOR STEAM OR HOT-WATER HEATERS. CURT J. BALTHASAR, St. Louis, Mo., assignor of two-fifths to John W. Fryer, same place. Filed Feb. 13, 1893. Serial No. 462,184. (No model.)

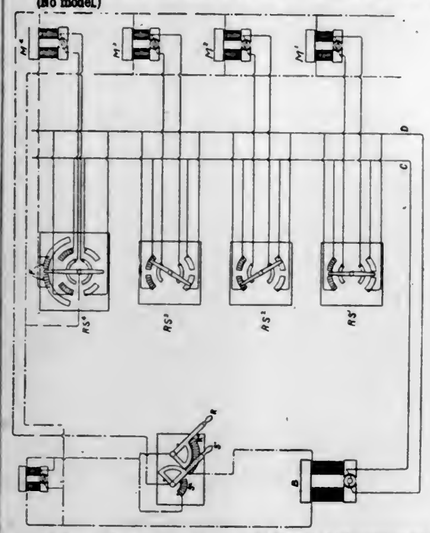


Claim.—1. The combination, with a boiler having thereon discharge and return connections, of an elbow 57 having two separate passages and attached to said boiler with one of said passages in communication with the discharge-connection of said boiler, and the other one of said passages in communication with the return-connection of said boiler, a steam or hot water main divided into separate upper and lower passages and fixed in an inclined position, with its upper passage in communication with one of said passages of said elbow and with its lower passage in communication with the other one of said passages of said elbow, the ends of said upper and lower passages of said main being closed at a point remote from said boiler radiators, and a series of separate small pipes connected to the upper and lower spaces of said main and to said radiators.

2. As a new article of manufacture, a short cast section of a main for conducting steam or hot water under pressure, the same being an integral body of cast iron having its opposite terminals constructed to make a tight-joint with a similar contiguous section, and having its interior divided by an integral longitudinal partition, and a series of integral pipe-connections formed on said body and communicating with the interior of the same, a number on one side of said partition and a number on the opposite side thereof, substantially as and for the purpose herein specified.

3. In a steam or hot water system, the improved main, comprising a series of separate cast iron sections, each having end flanges 64 and horizontal abutting partitions, gaskets 63 placed between the abutting portions of said sections so as to form a tight-joint, and bolts for clamping together the adjacent flanges of said sections, said gaskets having a horizontal center-strip 65 which fits between the adjacent ends of said partitions of the connected sections, in combination with a boiler having discharge and return connections to which the passages of said main are connected, substantially as herein specified.

520,748. METHOD OF OPERATING ELECTRIC MOTORS. JOHN S. BANCROFT, Philadelphia, Pa., assignor to the William Sellers & Company, Incorporated, same place. Filed Dec. 10, 1892. Serial No. 454,761. (No model.)



Claim.—1. Two or more motors, the fields of which are excited by a current of constant potential and their armatures operated from a separate generator producing a current the potential of which may be varied, a reversing rheostat switch for the armature circuit of each motor and means whereby the motor fields are supplied with current in advance of the field of the generator that produces the current for the motor armatures.

2. Two or more motors, the fields of which are excited by a current of constant potential, and their armatures operated from a separate generator producing a current the potential of which may be varied, a reversing rheostat switch for the armature circuit of each motor, a switch to admit current to the motor fields, a switch to admit current to the generator field, and means for interlocking these two switches.

3. Two or more motors the fields of which are excited by a current of constant potential and their armatures operated from a separate generator producing a current the potential of which may be varied, a rheostat switch for the field circuit of each motor, a rheostat switch for the armature circuit of each motor, and mechanism connecting these two switches through which they are operated in proper sequence.

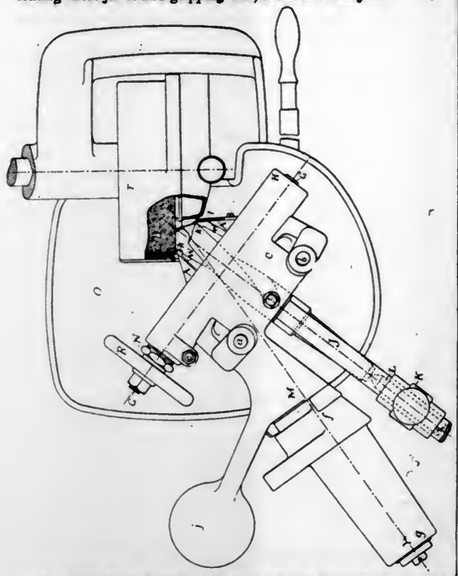
4. A rheostat switch that regulates the admission of current to the field of a generator, a rheostat switch that admits current of a constant potential to the field of a motor, in combination with an interlocking device between the two switch levers.

5. A rheostat switch that regulates the admission of current to the field of a generator, a rheostat switch that admits current of a constant potential to the field of a motor in combination with an interlocking device provided with an interval which unlocks the first lever before the second has completed its full motion.

520,749. CHUCK FOR DRILL-GRINDING MACHINES. JOHN S. BANCROFT, Philadelphia, Pa., assignor to the William Sellers & Company, Incorporated, same place. Filed July 21, 1893. Serial No. 481,122. (No model.)

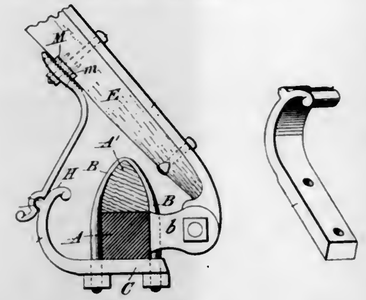
Claim.—1. A drill holding chuck body, and two opposed gripping jaws pivoted upon axes which are inclined to each other, in combination with mechanism for opening and closing these jaws.

2. A drill holding chuck body, two opposed gripping jaws pivoted upon axes which are inclined to each other, mechanism for operating these jaws, and gripping dies, secured to the jaws.



3. A drill holding chuck body, two opposed gripping jaws, mechanism for operating these jaws, and gripping dies provided with side stops that limit the rotation of the drill, in combination with a yielding end stop.

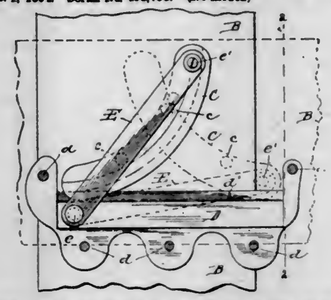
520,750. VEHICLE-SHAFT SUPPORT. JEREMIAH J. BARKER, New York, N. Y., assignor to Rufus M. Stivers, same place. Filed Jan. 23, 1894. Serial No. 497,839. (No model.)



Claim.—1. In a thill support, the combination of the axle, the standard secured thereto, the thill pivoted to the axle, the spring plate adjustably connected to the said thill and adapted to engage with the said standard, and the mechanism forming the adjustable connection between the said plate and thill consisting of the plate interposed between the spring plate and the thill, the contacting faces of the said plates being corrugated, and the bolt passing through the said thill and plates to hold the spring plate in position, the said spring plate being slotted for the reception of the bolt, substantially as described.

2. In a thill support, the combination of the axle, the standard secured thereto having a transverse lug projecting from the same near its upper end, the thill pivoted to the axle, the spring plate adjustably connected to the said thill having a transverse groove formed in the same near its end adapted to engage with the lug of the standard, and the mechanism forming the adjustable connection between the said plate and thill consisting of the plate interposed between the spring plate and the thill, the contacting faces of the said plates being corrugated, and the bolt passing through the said thill and plates to hold the spring plate in position, the said spring plate being slotted for the reception of the bolt, substantially as described.

520,751. FOLDING-BED JOINT. CHRISTIAN BOSTAD, Chicago, Ill., assignor to the Automatic Folding Bed Company, same place. Filed Feb. 1, 1894. Serial No. 498,730. (No model.)



Claim.—The combination with a folding bed and its standard of a level track, D, secured to the inner side of the standard and offset from it; a curved rocker secured to the side of the bed so as to ride upon the track and having a radial flange at its outer edge adapted to depend below the top of the track, and a link, E, pivotally attached to the standard and to the bed-rail and adapted to swing through the same angle as the rocker, substantially as described and for the purpose specified.

520,752. RECOIL-OPERATED FIREARM. ANDREW BURGESS, Owego, N. Y., assignor to the Burgess Gun Company. Filed Apr. 24, 1890. Serial No. 349,211. (No model.)



Claim.—1. In a fire-arm, the support or non-recoil portion, the barrel and connections constituting the recoil portion, the breech piece and a lever connected to the breech piece actuated by the recoil portion to open the breech by the direct recoil movement, all combined substantially as described.

2. In a firearm, the support or non recoil portion, the barrel and connections constituting the recoil portion, the lever hung to the non recoil portion and in the path of recoil of the recoil portion, the breech block, and its locking piece, and connections from said lever to said locking piece, whereby the lever is moved by the movement of the recoil portion on firing, and said lever movement opens the breech, all in combination substantially as described.

3. In a firearm, the support or non-recoil portion the barrel and connections constituting the recoil portion, the breech block and its locking mechanism, and a lever connected to the gun and actuated by the relative movement of the parts during recoil, said lever connected to the locking mechanism to open the same by the recoil movement, the parts being combined substantially as described.

4. In a gun the supporting non-recoil portion, the barrel and breech piece connected substantially as described to move with differential movement under the force of recoil, the spring acting on the barrel against the force of recoil and tending to restore the same to normal position, and a catch engaging the recoil parts to retain said spring compressed and the barrel open, all combined substantially as described.

5. In a firearm, the support (carriage or stock) the barrel having a recoil movement on said stock, a lever pivoted to the support and engaged by a connection from the barrel between its pivot and operating arm as the barrel recoils, the breech block and its locking piece, and a link connecting the long arm of the lever to the breech locking piece, all combined and operating substantially as described.

6. In a firearm, the recoil and non-recoil portions, a lever connected to one of these portions and actuated by the recoil movement, the breech piece and its locking mechanism actuated by said lever to open the breech as the barrel recoils, and a cartridge carrier in posi-

tion to be actuated by the recoil portion before completion of the recoil, all combined substantially as described.

7. In a firearm, the recoil and non-recoil portions, the breech piece, and a lever connected to the breech piece and acting thereon to open the breech during the recoil, and a spring acting on the recoil portions to return the same to normal position and thus close the breech, all combined substantially as described.

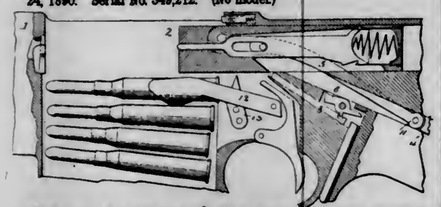
8. In a fire arm, a tubular magazine having a spring follower therein, and a vibrating cartridge feeder near the mouth of said magazine, said feeder having stops on opposite sides of the center of the magazine and one in advance of the other, whereby the movement of the feeder may permit the passage of a cartridge by alternately engaging the stops with the flange, but will act as a stop to the follower, all in combination.

9. In a magazine gun, the tubular magazine having its mouth the full diameter of the magazine proper, a cylindrical follower in the magazine, a vibrating feeder near the mouth of the magazine, having a stop at each side of the magazine and one in advance of the other and means connected to the breech mechanism for vibrating said feeder, all combined substantially as described.

10. In a magazine gun, the tubular magazine adjacent to the barrel opening at its rear end into the receiver, and having its mouth of the full diameter of the magazine proper, a cylindrical follower in the magazine, a vibrating feeder in the mouth of the magazine having stops one in advance of the other, and means connected to the breech mechanism for actuating said feeder, all in combination substantially as described.

11. In a firearm, the recoil and non recoil portions, and means for restoring the recoil portion to normal position, the breech piece, and a lever connected to said breech piece to open and close the same, and abutments connected to the recoil portion and actuating said lever in both directions, whereby the breech is opened by the recoil and closed by a contrary movement of the recoil portions, all in combination substantially as described.

520,753. RECOIL-OPERATED MAGAZINE-GUN. ANDREW BURGESS, Owego, N. Y., assignor to the Burgess Gun Company. Filed Apr. 24, 1890. Serial No. 349,212. (No model.)



Claim.—1. In a gun, a recoil piece having a bearing against the cartridge, a locking piece controlled by said recoil piece, and the breech operating mechanism engaged by said locking piece so as to be unlocked by the recoil of the cartridge on firing, the parts in combination substantially as described.

2. In a gun, a primary unlocking piece actuated by the firing of the cartridge, a non recoil portion normally locked to the recoil portion of the gun by said locking piece, and the recoil portion having a movement relatively to said non-recoil portion on firing when the parts are unlocked, said recoil and non-recoil portions connected to and serving to actuate the breech-mechanism, all combined substantially as described.

3. A gun having parts adapted to recoil under the impulse of firing, and having other parts relatively secured against recoil, means for locking the recoil and non-recoil parts together, and means actuated by the initial pressure of the explosion, operating to unlock said parts prior to the recoil of the body of the gun, all combined substantially as described.

4. A gun having parts adapted to recoil under the shock of firing and other parts relatively held against recoil, a breech piece initially movable relatively to the barrel, and a catch holding the recoil and non-recoil portions together, said breech piece unlocking the catch by its initial recoil, all combined substantially as described.

5. In a gun, the recoil and non-recoil portions, substantially as described, a catch locking said parts together, a piece acting by the initial pressure of the charge to unlock said catch prior to the recoil of the body of the gun, and means for opening the breech by the relative movement of the recoil and non-recoil portions, all combined substantially as described.

6. In a gun, the recoil and non recoil portions, substantially as described, the breech piece and a catch for locking the same, an operating rod connected thereto, and a recoil portion actuated by the firing of the gun to unlock said catch, and to open the breech of the gun, substantially as described.

7. In a gun, the recoil and non recoil portions substantially as described, the breech piece and an operating link connected thereto, means for locking the breech, and an actuating rod connected to the recoil portion of the gun and releasing the catch under the impulse of firing, all substantially as described.

8. The magazine arranged to deliver cartridges upward toward the breech closing piece, a two pronged spring pivoted in the frame so that normally one prong is at each side of the top cartridge in the magazine, and the spreader hung in the frame and actuated from the breech piece to operate said spring to grasp or release a cartridge, all combined substantially as described.

9. A magazine which feeds the cartridges sidewise upward to the frame of a gun, a bifurcated spring separator pivoted rearward of the magazine, and having prongs extending forward in position to grasp the top cartridge in the magazine, and connection from the reciprocating bolt by which the separator is opened by the closing bolt, all in combination, substantially as specified.

10. A magazine which feeds the cartridges sidewise upward to the frame of a gun, a bifurcated spring separator pivoted rearward of the magazine, and having prongs extending forward in position to grasp the top cartridge in the magazine, and connection from the reciprocating bolt by which the separator is opened by the closing bolt, said separator being provided with extensions on its prongs to wedge the two top cartridges apart, all in combination, substantially as specified.

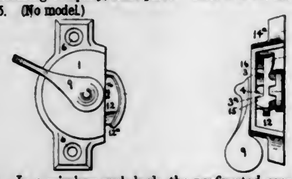
11. In a gun a magazine opening upward through the frame, a feeder pivoted to the gun near the magazine, and having grooves to receive the heads of the cartridges, and a spring to turn the mouth portion of the feeder away from the opening in the top of the frame, all in combination, substantially as specified.

12. In a gun a magazine opening upward through the frame, a cartridge feeder connected to the gun near the magazine opening by a pivotal connection so as to hold a plurality of cartridges longitudinal with the barrel, and in position to be thrust laterally into the magazine, in combination with a spring to turn the feeder out of said operative position, substantially as and for the purpose described.

13. In a gun a magazine opening upward through the frame a feeder pivotally connected to the gun near said magazine opening and having spring jaws arranged to guide a plurality of cartridges into the magazine, in combination with a receptacle alongside the frame to hold cartridges vertically, in position to be grasped by the jaws of the feeder when vibrated, substantially as described.

14. In a gun a magazine opening upward through the top of the frame, a feeder pivoted to the frame to hold the cartridges when thrust sidewise therein, a spring catch to hold said cartridges from rising laterally from the feeder and a projection on the frame which said catch engages when the feeder is turned to position for filling the magazine; all in combination, substantially as and for the purpose set forth.

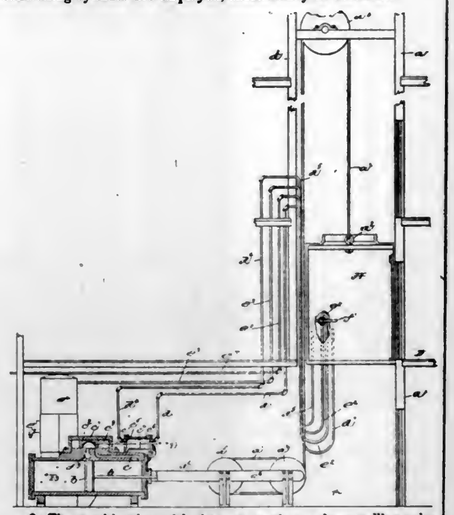
520,754. FASTENER FOR THE MEETING-RAILS OF SASHES. FREDERICK BURMEISTER, Cleveland, Ohio, assignor to the Kean & Doty Manufacturing Company, same place. Filed Oct. 31, 1893. Serial No. 489,635. (No model.)



Claim.—In a window sash lock, the perforated case 1, the lug 5 and notched flange 3 on the under side of said case, a lever-arm having at one end a round post terminating in a square pin projected into said case, the perforated cam 12 deflected at 12^a, the shouldered and peripheral flange 14 and the lugs 15 and 16 on the top, and the shouldered flange 17 having the opening 17^a, on the bottom of said cam, and the perforated locking-piece 18 adapted to be secured to the pin of said post and having the lug 20 on the top of said piece, in combination with the case 7 and the depending lip 8 on said case, substantially as and for the purpose set forth.

520,755. ELEVATOR. JOHN H. CLARK, Boston, Mass., assignor to the Whittier Machine Company, same place. Filed Nov. 15, 1886. Serial No. 218,884. (No model.)

Claim.—1. An elevator car, a motor mechanism to move the same, a cylinder, its piston and means actuated thereby to control the operation of the said motor mechanism, and a pressure tank combined with a controlling valve on and movable with the elevator car, a single pressure inlet pipe leading from the pressure tank to said valve, independent flexible pipes connecting the valve directly with the opposite ends of said cylinder, and a single discharge pipe leading from the said valve, movement of the valve placing the single inlet pipe in communication with one or the other of the two pipes leading to opposite ends of said cylinder to admit pressure thereto for moving the piston therein in one or another direction, the other of said pipes being by the same movement of the valve placed in communication with the single exhaust pipe, whereby a single inlet pipe, a single discharge pipe and two pipes connecting the valve with the controlling cylinder are employed, substantially as described.



2. The combination with the cage, engine, and controlling valve of an elevating apparatus, of a valve operating engine, and a valve device in the cage communicating through flexible pipes with a source of motor fluid supply and also with the valve operating engine, substantially as and for the purpose set forth.

3. The combination with the actuating engine and valve of an elevator apparatus, of an engine connected to operate said valve, a valve device upon the cage, and flexible pipes leading from a source of motor fluid supply to said valve device, and from the latter to the engine whereby the supply and discharge of fluid to and from said engine is through said valve device, substantially as described.

520,756. SEMAPHORE. JOHN W. DAVIS, Washington, D. C. Filed Mar. 2, 1894. Serial No. 502,023. (No model.)

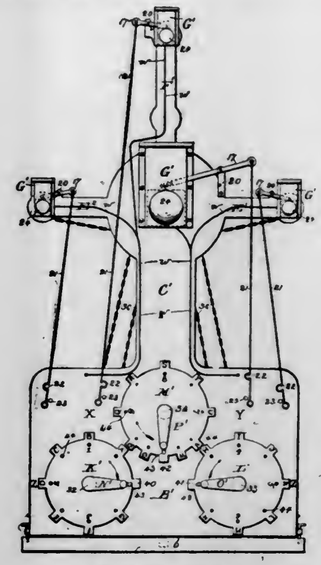
Claim.—1. In a semaphore signaling apparatus, the combination, with a frame having a series of wings, of a series of arms journaled in said wings, a series of dials bearing characters and operatively connected with said arms, and mechanism for turning the arms and indicating their angles in accordance with the characters on the dials.

2. In a semaphore signaling apparatus, the combination, with a frame having a series of wings, each provided with a light, of a series of arms journaled in said wings, each of said arms bearing a light at its free end, a series of dials bearing characters and operatively connected with said arms, and mechanism for turning said arms and indicating the angles described by their lights with respect to the wing lights in accordance with the characters on the dials.

3. In a semaphore signaling apparatus, the combination, with a frame having a series of wings, each provided on one side with a changeable light, of a series of arms journaled in said wings, each arm provided with a light on one side at its free end, a series of dials bearing characters and operatively connected with said arms, and mechanism for turning the arms and indicating the angles described by their lights with respect to the wing lights in accordance with the characters on the dials.

4. In a signaling apparatus of the class described, the combination, with a frame having a disk, wings radiating from the disk, and lights on one side of the disk and wings, of a series of glasses of different colors arranged to slide in front of each of said lights, means for operating said glasses, a series of arms journaled in the wings and provided with lights on one side at their free ends, and mechanism for turning the arms to and holding them at any desired angle to the wings.

5. In a signaling apparatus of the class described, a hollow frame comprising a base, a stem, a disk on the stem, and wings radiating from the disk, in combination with shafts journaled in the wings and each carrying a fixed sprocket-wheel, arms fixed on the wing shafts, a series of shafts journaled in the base, each carrying a fixed sprocket-wheel, crank-handles on the outer ends of each base shaft, and endless-chain connections between the sprocket-wheels on the base shafts and those on the wing shafts.



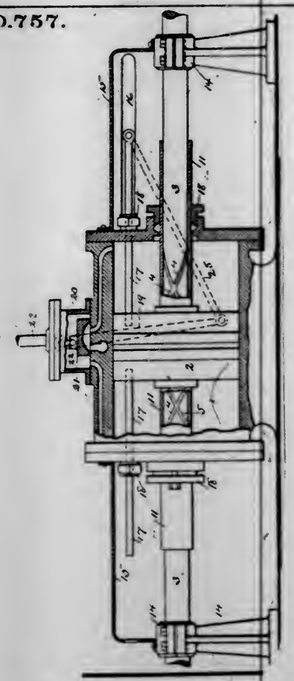
6. A reversible signaling apparatus, comprising a hollow frame having a base, a disk, and wings radiating from the disk, changeable field and wing lights on one side of the disk and wings respectively, shafts journaled in the wings and provided with fixed sprocket-wheels, arms fixed on said shafts and bearing lights on one side, a series of dials marked with characters on each side of the base, a series of shafts passed through the base and dials and each having a fixed sprocket-wheel within the base, crank-handles on the outer ends of the base shafts, and endless-chain connections between the wheels on the base shafts and those on the wing shafts.

7. In a signaling apparatus such as described, a frame comprising a base, a stem rising from the base, a disk on the stem, and one vertical and two horizontal wings radiating from the disk, all of said wings carrying arms journaled therein, the horizontal wings being hinged to the disk in a manner to permit them to be folded down parallel with the stem, and means for holding the hinged wings elevated.

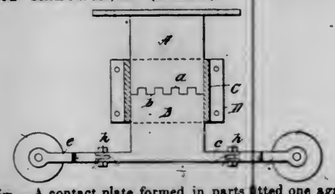
520,757. STEAM-ENGINE. JOHN L. GOURLEY, Tarentum, Pa. Filed Mar. 28, 1893. Serial No. 468,044. (No model.)

Claim.—A steam engine consisting of the cylinder fitted with a steam-chest and valve, and means for operating the same the piston 2 provided with right and left clutches, the right and left spirally grooved rod 3 operated by said clutches, a casing or covering 11 arranged over said rod and projecting through the stuffing boxes 18, the rods to prevent the piston from turning, and to operate the steam valve, and the bearings arranged at either side of the cylinder to support the rod 3 all arranged and combined for service, substantially as and for the purpose described.

520,757.



520,758. CONDUIT-RAILWAY TROLLEY. WILLIAM LAWRENCE, New York, N. Y. Original application filed Aug. 17, 1892, Serial No. 443,323. Divided and application filed June 27, 1893, Serial No. 478,942. Again divided and this application filed Aug. 2, 1893. Renewed May 4, 1894. Serial No. 510,115. (No model.)



Claim.—A contact plate formed in parts fitted one against the other, insulating material around said parts, a casing binding said parts together, and arms pivoted to one of said parts, said arms having contact wheels journaled therein, substantially as set forth.

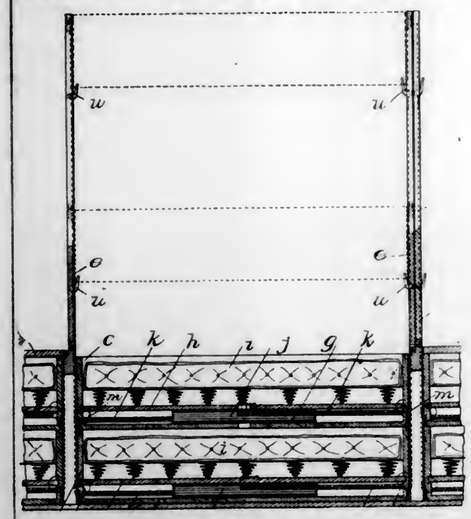
520,759. ACTUATING MECHANISM FOR SEWING-MACHINE SHUTTLES. HARREY MOORE, Wellingborough, England. Filed Mar. 30, 1891. Serial No. 387,065. (No model.) Patented in England Feb. 12, 1891, No. 2,514; in Germany Mar. 6, 1891, No. 58,713; in France May 11, 1891, No. 213,367, and in Belgium May 11, 1891, No. 94,860.



Claim.—The combination in a sewing machine of a rotary shuttle working in a race and provided with two driving abutments, of a shuttle race, of a main shaft, of two coaxial driving shafts eccentric to the main shaft, of two crank arms and links connecting the main shaft with the two driving shafts and arranged one set in advance of the other, and of two drivers mounted on the driving shafts and adapted to engage alternately with the two driving abutments substantially as set forth for the purpose specified.

520,760. MECHANISM FOR RAISING OR LOWERING BERTHS. GEORGE H. POOR, Boston, Mass. Filed Sept. 15, 1893. Renewed May 1, 1894. Serial No. 509,730. (No model.)

Claim.—1. A berth raising and lowering means comprising in its construction a berth having a bottom and a false bottom a wheel horizontally arranged between the bottom and false bottom, cables connected at one end to the said wheel and at the other end to the berth support, and means for actuating the said wheel, as set forth



2. A berth raising and lowering means comprising in its construction a horizontally arranged wheel, provided with gear teeth, below the bed or mattress, cables connected at one end to the said wheel and at the other end to the berth support, and gearing engaging the gear teeth of the wheel for actuating the latter, as set forth.

3. A berth raising and lowering means comprising in its construction a horizontally arranged wheel below the bed or mattress, cables connected at one end to the said wheel and at the other end to the berth support, a spring connected with the latter and operating with a tendency to wind the cables thereon, and means for actuating the said wheel, as set forth.

4. A berth raising and lowering means comprising in its construction a horizontally arranged wheel below the bed or mattress, cables connected at one end to the said wheel and at the other end to the berth support, a spring connected with the latter and operating with a tendency to wind the cables thereon, means substantially as described for adjusting the tension of the said spring, and means for actuating the said wheel, as set forth.

5. A berth supporting means comprising in its construction, wedge-shaped dogs pivoted to the section partitions adapted to engage similar recesses formed in the bottom of the berths at the ends thereof, as set forth.

6. A berth adapted to be raised and lowered, provided with a bottom and false bottom, means for raising and lowering the berth arranged between the bottom and false bottom, and cables connected at one end to said means, and at the other end to the berth support, as set forth.

7. A berth adapted to be raised and lowered, cables connected to the partitions for raising and lowering the berth, means connected to the berth to which the cables are also attached, pulleys at the ends of the berth under or around which the cables pass, part of said pulleys extending beyond the plane of the berth, and grooves in the berth partitions into which the extended parts of the said pulley project, as set forth.

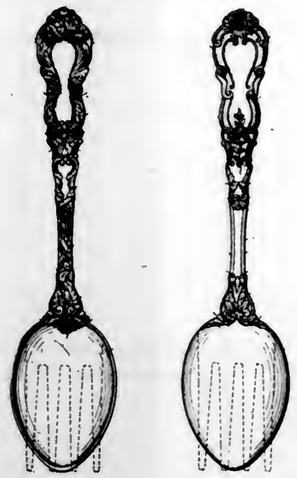
DESIGNS.

23,310. SPOON. CHARLES C. THOMPSON, San Diego, Cal. Filed Apr. 21, 1894. Serial No. 508,526. Term of patent 3½ years.



Claim.—The design for a spoon substantially such as herein shown and described.

23,311. HANDLE FOR SPOONS, &c. WILLIAM C. CODMAN, Providence, R. I., assignor to the Gorham Manufacturing Company, same place. Filed Apr. 19, 1894. Serial No. 508,219. Term of patent 7 years.



Claim.—1. In the design for the handle of a spoon or similar article, the obverse as herein shown and described.

2. In the design for the handle of a spoon or similar article, the reverse as herein shown and described.

3. The design for handles of spoons and similar articles as herein shown and described.

23,312. BOX. SETH WILLIAM BABBITT, Meriden, Conn. Filed Mar. 7, 1894. Serial No. 502,778. Term of patent 3½ years.



Claim.—The design for a box substantially as shown and described.

23,313. BOWL OR SIMILAR ARTICLE. HENRY BERRY, Shelton, assignor to the Derby Silver Company, Birmingham, Conn. Filed Mar. 30, 1894. Serial No. 505,776. Term of patent 7 years.



Claim.—The design for a bowl and other articles, substantially as shown and described.

23,314. BOWL OR SIMILAR ARTICLE. HENRY BERRY, Shelton, assignor to the Derby Silver Company, Birmingham, Conn. Filed Mar. 30, 1894. Serial No. 505,777. Term of patent 7 years.



Claim.—The design for a bowl and other articles, substantially as shown and described.

23,315. BOWL OR SIMILAR ARTICLE. HENRY BERRY, Shelton, assignor to the Derby Silver Company, Birmingham, Conn. Filed Mar. 30, 1894. Serial No. 505,778. Term of patent 7 years.



Claim.—The design for a bowl and other articles, substantially as shown and described.

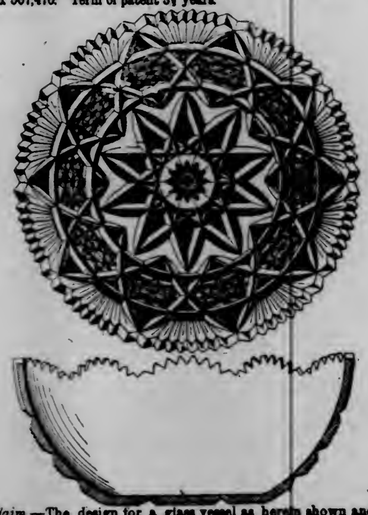
23,316. GLASS VESSEL. JAMES D. BERGEN, Hartford, assignor to the J. D. Bergen Company, Meriden, Conn. Filed Jan. 15, 1894. Serial No. 496,965. Term of patent 7 years.

23,316.



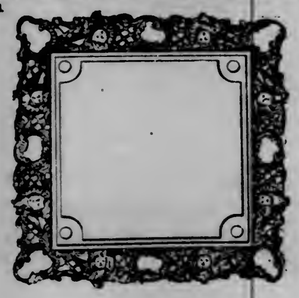
Claim.—The design for the ornamentation of glass vessels as herein shown and described.

23,317. GLASS VESSEL. JAMES D. BERGEN, Hartford, assignor to the J. D. Bergen Company, Meriden, Conn. Filed Apr. 13, 1894. Serial No. 507,470. Term of patent 3½ years.



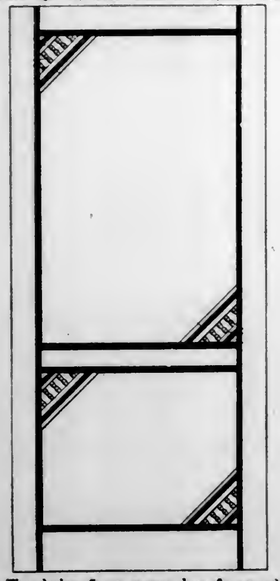
Claim.—The design for a glass vessel as herein shown and described.

23,318. SLAB FOR TABLE-TOPS. JOHN C. MILLER, Waterbury, Conn., assignor to the Matthews & Willard Manufacturing Company, same place. Filed May 4, 1894. Serial No. 510,111. Term of patent 3½ years.



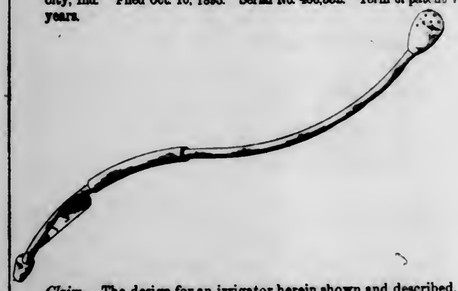
Claim.—The design for a slab for table-tops, as described and shown in the accompanying illustration.

23,319. SCREEN-DOOR FRAME. WINFIELD B. PHILLIPS, Fenton, Mich. Filed Apr. 19, 1894. Serial No. 508,218. Term of patent 7 years.



Claim.—The design for a screen door frame, substantially as shown and described.

23,320. SPRAYER OR IRRIGATOR. EDWARD Z. COLE, Michigan City, Ind. Filed Oct. 16, 1893. Serial No. 488,332. Term of patent 7 years.



Claim.—The design for an irrigator herein shown and described, the same comprising a sigmoidal tube provided intermediate of its ends with an enlarged cylindrical portion 4, a frusto-conical bulb arranged at the front end of the tube and having its base turned outward and rounded, a reversely arranged bulb located at the inner end of the tube and being of frusto-conical shape, and a tapering thumb piece 3 arranged on the exterior of the tube adjacent to the rear end of the enlarged portion 4 and having its inner end rounded and terminating at its rear end in a point, as set forth.

23,321. CLOTHES-LINE HOLDER. JACOB HOFFMANN and EDWARD C. HOFFMAN, Cleveland, Ohio. Filed Apr. 30, 1894. Serial No. 509,588. Term of patent 14 years.



Claim.—The design for a clothes-line holder, substantially as shown and described.

23,322. ELECTRIC-WIRE FASTENING. HARVEY HUBBELL, Bridgeport, Conn. Filed Apr. 3, 1894. Serial No. 506,224. Term of patent 7 years.



Claim.—The design for a fastener, substantially as herein shown and described.

23,323. EMERY-WHEEL DRESSER. ADAM BENDER, Philadelphia, Pa. Filed Apr. 18, 1893. Serial No. 470,889. Term of patent 14 years.



Claim.—The design for an emery wheel dresser, as shown and described.

TRADE-MARKS

REGISTERED MAY 29, 1894.

24,773. FRENCH CHINA. THEODORE HAVILAND, Limoges, France, and New York, N. Y. Filed May 3, 1894.

MOUSSELINE

Essential feature.—The word "MOUSSELINE." Used since April 1, 1894.

24,774. PASS-BOOKS. W. J. DARROW PUBLISHING CO., Cleveland, Ohio. Filed Mar. 19, 1894.

HOME LIBRARY

Essential feature.—The words "HOME LIBRARY." Used since November 1, 1893.

24,775. WOVEN COTTON GOODS. MASSACHUSETTS COTTON MILLS, Lowell, Mass. Filed Apr. 30, 1894.



Essential feature.—The representation of a parrot. Used since March 1, 1894.

24,776. MOHAIR PILE FABRICS. LISTER & COMPANY, LIMITED, Bradford, England, and New York, N. Y. Filed May 25, 1894.

LISANGO

Essential feature.—The word "LISANGO" Used since January 1, 1894.

24,777. WATERPROOFED CLOTHS AND GARMENTS MADE THEREOF. H. SHOREY & CO., Montreal, Canada. Filed Mar. 31, 1894.

RIGBY

Essential feature.—The word "RIGBY" Used since December, 1891.

24,778. ELECTRIC BELTS AND WEARING APPLIANCES. THE OWEN ELECTRIC BELT AND APPLIANCE COMPANY, Chicago, Ill. Filed Apr. 17, 1894.



Essential feature.—A portrait of Dr A. Owen. Used since February, 1887

24,779. WHISKY. EUGENE LYNCH, Boston, Mass. Filed Apr. 16, 1894.

COMMERCIAL CLUB

Essential feature.—The words "COMMERCIAL CLUB." Used since April, 1892.

24,780. WHISKY, BRANDY, GIN, RUM, AND WINES. MARTIN MANNING, Poughkeepsie, N. Y. Filed Apr. 30, 1894.

OLD BLUE LABEL

Essential feature.—The words "OLD BLUE LABEL." Used since March 16, 1894.

24,781. WHISKY, BRANDY, GIN, RUM, AND WINES. MARTIN MANNING, Poughkeepsie, N. Y. Filed Apr. 30, 1894.

OLD DUTCHESS CLUB

Essential feature.—The words "OLD DUTCHESS CLUB." Used since March 16, 1894.

24,782. WHISKY, BRANDY, GIN, RUM, AND WINES. MARTIN MANNING, Poughkeepsie, N. Y. Filed Apr. 30, 1894.



Essential feature.—The representation of a star, a shield produced upon the star, and a monogram composed of the letters "M M" produced upon the shield. Used since March 16, 1894.

24,783. BLOOD-PURIFYING HERB TEAS. WEBER'S MEDICAL TEA CO., Brooklyn, N. Y. Filed May 5, 1894.



Essential feature.—A portrait of the late Dr. E. A. Weber. Used since April 1, 1865.

24,784. BLOOD-PURIFIERS. JOHN T. FARRELL, Providence, R. I. Filed Apr. 19, 1894.

Father Quinn's



Essential feature.—The representation of a human head with a smaller human face located in the hair, together with the words "FATHER QUINN'S" Used since March 1, 1894.

24,785. REMEDY FOR NERVOUS DISEASES. A. H. PARKER & CO., Waltham, Mass. Filed Mar. 28, 1894.

OAT-TONIC

Essential feature.—The word "OAT-TONIC" Used since February 1, 1894.

24,786. REMEDIES FOR CERTAIN NAMED DISEASES. THE ROBERT-MILTON MANUFACTURING CO., New York, N. Y. Filed Mar. 5, 1894.

GRIPOLENE

Essential feature.—The word "GRIPOLENE." Used since January 15, 1894.

24,787. REMEDY FOR THE ASTHMA. FRANCIS E. DRUMHELLER, Sunbury, Pa. Filed Apr. 23, 1894.



Essential feature.—The representation of a woman sleeping and the words "PEACEFUL SLEEP" Used since February, 1894.

24,788. REMEDY FOR CORNS. JOHN C. PROCTOR, Rochester, N. Y. Filed Apr. 24, 1894.

COME OFF.

Essential feature.—The words "COME OFF." Used since January 6, 1881.

24,789. MEDICINAL LOZENGES OR TABLETS. CALIFORNIA EUCALYPTUS CO., Riverside, Cal. Filed Apr. 12, 1894.



CALIFORNIA MISSION

EUCALYPTUS

Essential feature.—The representation of a building having a tower at one corner, vines covering parts of the building and a wall or fence around one side of the same, together with the words "CALIFORNIA MISSION EUCALYPTUS." Used since January 15, 1894.

24,790. LINIMENT FOR INTERNAL AND EXTERNAL USE. EDWIN FRANKLIN KESSLER, Milwaukee, Wis. Filed Apr. 3, 1894.

PAIN SUPPRESSOR

Edwin F. Kessler

Essential feature.—The words "PAIN SUPPRESSOR" and a fac-simile of the signature of the registrant, "EDWIN F. KESSLER." Used since October 7, 1887.

24,791. HAIR-RESTORATIVES. FRANK E. BOSTWICK, American Fork, Utah. Filed May 7, 1894.

UTAHAIREON

Essential feature.—The word "UTAHAIREON." Used since January 1, 1894.

24,792. COLORING AND FINISHING PAINTS, KEROSENE, ROSIN, TURPENTINE, AND LUBRICANTS. SHAW BROTHERS, Birmingham, England. Filed Mar. 12, 1894.

LORO

Essential feature.—The word "LORO" Used since October, 1881.

24,793. WHEAT-FLOUR. ALFRED M. SELIGMAN, New York, N. Y. Filed Feb. 5, 1894.

LA FORTUNA

Essential feature.—The words "LA FORTUNA." Used since October 9, 1893.

24,794. WHEAT-FLOUR. ALFRED M. SELIGMAN, New York, N. Y. Filed Feb. 5, 1894.

EL VENCEDOR

Essential feature.—The words "EL VENCEDOR." Used since October 14, 1893.

24,795. DAIRY-SALT. THE UNION PACIFIC SALT COMPANY, San Francisco, Cal. Filed Apr. 30, 1894.



EAGLE BRAND

Essential feature.—The words "EAGLE BRAND" and the representation of an eagle. Used since August, 1874.

24,796. DAIRY-SALT. THE UNION PACIFIC SALT COMPANY, San Francisco, Cal. Filed Apr. 30, 1894.



Essential feature.—The words "SUN BRAND" and the representation of a sun-face. Used since August, 1874.

24,797. DAIRY-SALT. THE UNION PACIFIC SALT COMPANY, San Francisco, Cal. Filed Apr. 30, 1894.



BANNER BRAND

Essential feature.—The words "BANNER BRAND" and the representation of a shield. Used since August, 1874.

24,798. DAIRY-SALT. THE UNION PACIFIC SALT COMPANY, San Francisco, Cal. Filed Apr. 30, 1894.



Essential feature.—The words "ANCHOR BRAND" and the representation of an anchor. Used since August, 1874.

24,799. SHINGLES, STAVES, CASKS, AND BARRELS. SHAW BROTHERS, Birmingham, England. Filed Mar. 23, 1894.

LORO

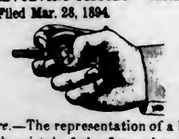
Essential feature.—The word "LORO." Used since October, 1881.

24,800. AIR-PUMPS. CLEVELAND FAUCET COMPANY, Cleveland, Ohio. Filed Apr. 20, 1894.

CHAMPION

Essential feature.—The word "CHAMPION." Used since March 1, 1885.

24,801. REVOLVING PISTOLS. CHICAGO FIRE ARMS COMPANY, Chicago, Ill. Filed Mar. 26, 1894.



Essential feature.—The representation of a hand grasping and as in the act of firing the pistol of the form wherein the body, or stock of the arm is circular and in which the barrel projects forwardly from such body. Used since December, 1892.

24,802. AXES AND OTHER TOOLS. THE COLLINS COMPANY, Canton, Conn. Filed Dec. 22, 1892.



Essential feature.—The picture of an oak tree representing the historic "Charter Oak." Used since January, 1873.

24,803. PLOWS, SHOVELS, SPADES, HOES, PICKS, AND MATTOCKS. THE COLLINS COMPANY, Canton, Conn. Filed Apr. 4, 1894.

CAST CAST-STEEL

Essential feature.—The words "CAST CAST-STEEL." Used since 1862.

24,804. FAUCETS. E. STEBBINS MANUFACTURING COMPANY, Springfield, Mass. Filed Feb. 28, 1894.



Essential feature.—The words "STEBBINS SPECIAL" both arranged to occupy a rectangular space, the one word diminishing in height from a comparatively high initial, while the other increases in height from a comparatively small initial. Used since February 12, 1894.

24,805. STEEL, IRON, AND COPPER WIRE. WASHBURN & MOEN MANUFACTURING COMPANY, Worcester, Mass. Filed Apr. 23, 1894.

ATLAS

Essential feature.—The word "ATLAS." Used since March 15, 1893.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

GREENFIELD *v.* PRENTICE.

Decided April 28, 1894.

INTERFERENCE—ORIGINALITY—EMPLOYÉS—INVENTOR.

Where A, an electrician and inventor, had been attempting to construct a machine and had failed, and thereafter sought B, an expert machinist and inventor, whom he had been informed had invented such a machine, and A confirmed his information by examining a model of B's invention, at the same time showing B a wooden model made by himself that illustrated the invention, but was impracticable, and where subsequently A agreed to furnish the labor and material if B would build a machine, with the understanding that if it worked well A should pay a royalty on the product, to which B consented, provided he be paid mechanic's wages during its construction, and where A then caused B to be engaged under his direction to make the machine in question, *Held* that judgment of originality must be awarded to B.

APPEAL from the Examiners-in-Chief.

APPARATUS FOR MAKING SEAMED METAL TUBES.

Application of Edwin T. Greenfield filed September 3, 1891, No. 404,595. Division of application filed July 14, 1891, No. 399,471. Patent granted Albert D. Prentice July 14, 1891, No. 456,059. Application filed April 8, 1891, No. 388,128.

Mr. Charles J. Kintner for Greenfield.

Mr. John Dane, Jr., for Prentice.

SEYMOUR, *Commissioner:*

Greenfield appeals from the decision of the Examiners-in-Chief, awarding priority of invention to Prentice, upon the following issues:

1. A composite die adapted to form tubes of sheet metal and double-fold seam them, consisting of a base-piece, a converging-channel die thereon which commences the bending, a contracting-die that shapes the tube and flanges it, a tongue or guiding-finger in this die, two flange-bending dies, a finishing-die, all arranged to receive the blank consecutively, and a mandrel longitudinally extended through the several dies, substantially as described.

2. In a composite die for tube formation, the combination, with a base-piece, of a converging channel-die thereon having a cylindrical mandrel longitudinally affixed therein, which is concentric within succeeding dies, a contracting-die which forms the tube and produces a high and a low flange on meeting-edge portions of a sheet-metal blank that is entered at the outer end of the converging die, a tongue or guiding-finger affixed in the contracting-die above the mandrel, two flange-bending dies succeeding the contracting-die that turns the flanged edges into hooked connection with each other, and a finishing-die which double-folds the flanges and compresses the seam thus produced on the finished tube, substantially as described.

This is a question of originality. Its decision depends much upon what took place at the first interview between the parties and upon the date of that interview.

Greenfield was the electrician and inventor of an electrical company in New York, which was engaged in the business of wiring buildings for electrical purposes. In the summer of 1889 this company had a contract to wire the Shoreham Hotel in the city of Washington, and had been using elsewhere and there used electrical wires insulated with paper, with which difficulties were experienced for want of a metallic cover.

Prentice was an expert machinist and inventor, and lived for several years in Lowville, N. Y., but by successive removes he went to Brooklyn about November, 1888, and took up his residence at No. 1008 Fulton street. At first he had no fixed employment, and occupied himself by going from one sheet-metal establishment to another in New York to get some one to take up his invention of a machine for seaming metal tubes, but without success. Shortly thereafter Greenfield called at his house in Brooklyn. They had never met before. Greenfield told Prentice that he had heard that Prentice had an insulating-tube with a metal cover and a machine for manufacturing it, and that he would like to see it. Prentice showed him samples of waterproof-paper tube covered with sheet metal, samples of paper-tube without any covering of metal, and samples of metal tube without any interior insulating material. At Greenfield's request Prentice explained the way in which the metal tube was made, and Prentice was asked to show the machine by which it was made. Prentice says that he told Greenfield on that occasion that he did not have a complete working machine, but that he had a wooden model, the Prentice exhibit model, that fully illustrated the construction of the invention, which he showed Greenfield. They exchanged ideas upon the possibilities of putting the product upon the market, and Greenfield, stating that he would probably be able to come to some understanding with Prentice with regard to buying the machine or the right to use it, and that he would see Prentice later, and asking where he was employed, took his leave. Subsequently Mr. Prentice was employed with Everett's Manufacturing Company, at No. 14 Reade street, New York, where Mr. Greenfield called upon him and asked him if he could not raise money to build a machine or have it built in that shop, telling him that if he could do so he would pay a royalty on the product. Prentice did not have money for this purpose and told Greenfield so, whereupon Greenfield said he would endeavor to raise the money himself and to have one of the machines built and promised to see him soon. Some time afterward they met upon the street, when Prentice asked Greenfield if he was ready to have him build one of the machines, to which Greenfield replied he

was not quite ready, but soon would be, and asking his present address promised to send for him when ready.

About the last of December, 1889, or the first of January, 1890, a messenger came to the shop where Prentice was employed and asked him to call upon Mr. Greenfield at the office of the Interior Conduit and Insulation Company. Prentice went, found there the messenger who had come for him, who was the superintendent of the mechanical department, and after some waiting Mr. Greenfield came in, whereupon Prentice went through an explanation of the invention and the manner in which the work was accomplished by the dies, after which Greenfield asked Prentice if he would build a machine, he paying for the labor and material, with the understanding that he should have a chance to try the machine, and should he be satisfied with the way in which it worked he would adopt it and pay Prentice a royalty upon the product, and in case it should prove a failure and he should decline to adopt it the machine should be Prentice's. An eighth of a cent a foot was spoken of as the royalty. Prentice told Greenfield that he would be willing to build a machine on those terms, provided he could do mechanical work and be paid mechanic's wages during its construction, saying that as he had no patent and had not applied for any during the construction of the machine he would make such application. Greenfield told Prentice that he could commence immediately. The next day Prentice brought his tools to the shop and began work.

This is, in substance, the narration of Prentice in such form as in itself to invite belief in its truth. Mr. Greenfield had testified earlier than this that he had had an interview with Prentice at the house of Prentice, but stated that it was in the summer of 1890, and also states that he first met Prentice in the early part of 1890, and came to do so in this wise: A man of the name of Hardie, who was in his employ, (the superintendent of the mechanical department above referred to,) introduced him there and he was engaged as a machinist. Greenfield had been asked upon his cross-examination whether he ever went to Mr. Prentice's home, and, if so, when and for what purpose, and was asked to state the earliest time. He thought it in the latter part of the summer of 1890, and that it was in reference to a tube-rolling machine made up in model form, a distinct invention, for a patent on which Prentice and Greenfield became joint applicants at this Office; but he was not asked at that time what took place at the interview, whenever it occurred. When testimony in rebuttal came to be taken in behalf of Greenfield, and after this explicit recital by Prentice of the conversations and transactions at the interviews between them at Prentice's house and elsewhere, Greenfield was not recalled. When the opportunity was thus presented to Greenfield it must be observed that he did not deny that an interview took place between Prentice and himself at the time stated by Prentice, nor that Prentice's version of the interview was substantially correct, nor did he give his own version of it. Prentice's plain words and Greenfield's unexplained silence are alike expressive, and seem to establish the fact, under all the circumstances set forth in the record, that the interview took place, that the occurrences were as stated, and that the time of the first interview was as early as December, 1888.

Looking further and recalling the difficulties which Greenfield experienced in wiring the Shoreham Hotel in the summer of 1889, and recalling the fact that he had a device made by Kennedy & Diss in Brooklyn thereafter, which is lost, but which bore some resemblance, not fully determinable from the record, to the Prentice device, it would appear that its resemblances might best be accounted for by Greenfield's recollection of Prentice's explanation to him at Prentice's house in Brooklyn, in December, 1888. Prentice says that this Brooklyn die was put on his bench one day when at work at the shop of the Interior Conduit and Insulation Company. Greenfield told Prentice that it was of no use and asked him if he could not make it over so that it would draw a tube and lock the seam like Prentice's model. Prentice examined the die and pronounced it of no use. While it resembled the Prentice exhibit model and the machine described in these issues, it also materially differed from them. It had no mandrel, no guiding-finger, no contracting-die to flange the edge of the metal in the tubes, no flange-bending die, no twisted channel, no finishing-die, and the converging channel was too short. Hardie said of it, in an affidavit made August 7, 1891, that Greenfield had dies made secretly outside of the company's shops, after the plan of Prentice, but that Greenfield had failed properly to understand the description so as to make a successful working machine, and the machine as finished and delivered at the factory was of no use for the purpose of making a seamed metal cover for paper tube, and that it was never used by the company. Hardie examined this affidavit before signing and said of it as first prepared that it had many things in it that he could not testify to, and required Prentice to make several alterations, which he did. He appears to have taken a copy of it as revised and changed under his directions away with him, and I find that he was aware of its contents before signing in its final form and as received in evidence, notwithstanding his contrary statement.

The series of material facts is: first, the conversation at Prentice's house, where Prentice disclosed to Greenfield much of this invention, about December, 1888, and showed his model and samples; second, the making of the Brooklyn die according to Greenfield's directions in the fall of 1889, under the stimulus of the need for such a machine growing out of the Shoreham Hotel experience, which machine resembled Prentice's invention, and differed from it, but which was impractical; third, that thereupon Greenfield sought Prentice anew and caused him to be engaged in the factory, under his direction, to make the machine in question, and after more than a year's delay, during which Prentice was ready and competent to build the machine, the machine was built by Prentice.

The narration of Greenfield respecting the sketch upon the pad at Prentice's bench in Prentice's presence, in the absence of the sketch and with Greenfield unable to reproduce it, and the denial of Prentice, create a situation under all the circumstances in which there is no preponderance of testimony in favor of

Greenfield. Every machine built is traceable back to Prentice; even the Kennedy & Diss die, as described, bears the outward resemblance to Prentice's exhibit model, and its internal deficiencies, on account of which it failed, were departures or omissions from that model, a circumstance which corroborates Prentice in his statement that Greenfield had seen the Prentice exhibit model, but had not examined its interior construction.

On the other hand, there is no fact in the record proved by a fair preponderance of testimony which is consistent with Greenfield's claim that the origin of this invention was in his own conception. But at many points the record suggests that what is argued to be original conception of Greenfield is mere recollection of the model and partial disclosures of Prentice six months before.

The careful analysis of the record by the Examiners-in-Chief upon other points renders their further examination unnecessary. It is considered that the machine was the embodiment of Prentice's original ideas and not of Greenfield's.

Judgment of originality is awarded to Prentice and the decision of the Examiners-in-Chief is affirmed.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

THE UNITED STATES *ex rel.* THE STATE OF SOUTH CAROLINA *v.* JOHN S. SEYMOUR, COMMISSIONER OF PATENTS.

Decided May 14, 1894.

1. JURISDICTION OF THE SUPREME COURT OF THE UNITED STATES—UNDER SECTION 8 OF THE ACT OF FEBRUARY 9, 1893, CHAPTER 74, ESTABLISHING A COURT OF APPEALS FOR THE DISTRICT OF COLUMBIA—MATTER IN DISPUTE, EXCLUSIVE OF COSTS, MUST EXCEED THE SUM OF $5,000.

In order to bring a case by appeal or writ of error from the Court of Appeals of the District of Columbia within the jurisdiction of the Supreme Court of the United States under this alternative, the matter in dispute must be money or some right the value of which can be estimated and ascertained in money and which appears by the record to be of the requisite pecuniary value.

2. SAME—SAME—WHEREIN IS INVOLVED THE VALIDITY OF AN AUTHORITY EXERCISED UNDER THE UNITED STATES.

In order that a case may come within this clause, the validity and not the construction only of an authority exercised under the United States must be directly drawn in question.

3. IN AN APPLICATION FOR THE REGISTRATION OF A TRADE-MARK THE VALUE OF THE REGISTRATION DETERMINES THE AMOUNT OF MONEY INVOLVED.

The refusal of the Commissioner of Patents to register a Trade-Mark does not involve the right to the Trade-Mark, but the registration of the Mark, and it is the value of the registration and not the value of the Trade-Mark that determines the sum of money involved.

4. SAME—CONTROVERSY AS TO THE EXTENT OF THE AUTHORITY OF THE COMMISSIONER OF PATENTS UNDER THE TRADE-MARK LAW—DOES NOT INVOLVE THE VALIDITY OF AN AUTHORITY EXERCISED THEREUNDER.

Where upon the refusal of the Commissioner to register a Trade-Mark a writ of mandamus was unsuccessfully sought against him, upon the ground that upon the facts submitted his duty was ministerial and not discretionary, no objection to the validity of the Trade-Mark law under which the Commissioner acted being made, nor the existence or lawfulness of his authority thereunder being drawn in question, and the only controversy upon the proceedings being as to the construction of the law as to the extent of the Commissioner's authority. *Held* that such controversy did not draw into question the validity of an authority exercised under the United States.

5. SAME—SAME—PRESUMPTIVE LAWFULNESS OF CLAIM—MANDAMUS—DO NOT INVOLVE THE VALIDITY OF THIS AUTHORITY.

Neither the question whether the Commissioner rightly decided upon the presumptive lawfulness of the right of the State of South Carolina to the Trade-Mark sought to be registered nor the question whether his duty was of such a character that a writ of mandamus would lie to compel its performance involved a question of the validity of the authority exercised by him under the United States.

IN ERROR to the Court of Appeals of the District of Columbia.

STATEMENT OF THE CASE.

This was a motion to dismiss for want of jurisdiction a writ of error to review a judgment of the Court of Appeals of the District of Columbia, denying a writ of mandamus to the Commissioner of Patents to register a Trade-Mark under the act of March 3, 1881, chapter 138, (21 Stat., 502.) The case is stated in the opinion.

Mr. J. Altheus Johnson for the appellant.

Mr. Levin H. Campbell for the appellee.

Mr. Justice GRAY delivered the opinion of the Court.

The earliest legislation of Congress for the registration and protection of Trade-Marks was contained in the patent act of 1870, and substantially re-enacted in the Revised Statutes. (Act of July 8, 1870, ch. 230, secs. 77–84; 16 Stat., 210-212; Rev. Stat., secs. 4937–4947.) That legislation, as well as the act of August 14, 1876, chapter 274, (19 Stat., 141,) for punishing the counterfeiting of Trade-Marks, was held by this Court at October term, 1879, to be unconstitutional and void, because not limited to Trade-Marks used in commerce with foreign nations, or among the several States, or with the Indian tribes. (*Trade-Mark Cases*, 16 O. G., 999; 100 U. S., 82.)

Congress afterward passed an act limited to the registration and protection of Trade-Marks—

used in commerce with foreign nations or with the Indian tribes, and whose owners were—

domiciled in the United States, or located in any foreign country or tribes which by treaty, convention or law affords similar privileges to citizens of the United States.

(Act of March 3, 1881, ch. 138; 21 Stat., 502.)

Sections 1 and 2 of that act provide that such owners may obtain registration of such Trade-Marks by—

causing to be recorded in the Patent Office a statement specifying name, domicile, location and citizenship of the party applying; the class of merchandise and the particular description of goods comprised in such class to which the particular Trade-Mark has been appropriated; a description of the Trade-Mark itself, with fac similes thereof, and a statement of the mode in which the same is applied and affixed to goods, and the length of time during which the Trade-Mark has been used; * * * paying into the Treasury of the United States the sum of twenty-five dollars, and complying with such regulations as may be prescribed by the Commissioner of Patents; * * * [and] accompanied by a written declaration verified by the person, or by a member of a firm, or by an officer of a corporation applying, to the effect that such party has at the time a right to the use of the Trade-Mark sought to be registered, and that no other person, firm or corporation has the right to such use, either in the identical form or in any such near resemblance thereto as might be calculated to deceive; that such Trade-Mark is used in commerce with foreign nations or Indian tribes, as above indicated; and that the description and fac-similes presented for registry truly represent the Trade-Mark sought to be registered.

By section 3—

no alleged Trade-Mark shall be registered, unless the same appear to be lawfully used as such by the applicant in foreign commerce or commerce with Indian tribes, as above mentioned, or is within the provision of a treaty, convention or declaration with a foreign power; nor which is merely the name of the applicant; nor which is identical with a registered or known Trade-Mark of another and appropriate to the same class of merchandise, or

which so nearly resembles some other person's lawful Trade-Mark as to be likely to cause confusion or mistake in the public or to deceive purchasers.

This section further provides that—

in an application for registration the Commissioner of Patents shall decide the presumptive lawfulness of claim to the alleged Trade-Mark; and in any dispute between an applicant and a previous registrant, or between applicants, he shall follow, so far as the same may be applicable, the practice of courts of equity of the United States in analogous cases.

The act provides for no direct judicial review, by appeal or otherwise, of the decision of the Commissioner of Patents upon the question of registration. But section 7 provides that—

registration of a Trade-Mark shall be *prima facie* evidence of ownership;

that any person reproducing, counterfeiting, copying or colorably imitating and affixing to similar goods a registered Trade-Mark shall be liable to an action at law for damages, or a suit in equity for an injunction; and that the courts of the United States shall have original and appellate jurisdiction in such cases, without regard to the amount in controversy.

On December 24, 1892, the General Assembly of South Carolina passed an act prohibiting the manufacture or sale of intoxicating liquors within the State, except as therein provided; directing the appointment of a commissioner who should, under the rules and regulations of a State Board of Control, consisting of the governor, the comptroller-general and the attorney-general—

purchase all intoxicating liquors for lawful sale in this State,

and sell to county dispensers no liquors unless—

tested by the chemist of the South Carolina College and declared to be pure and unadulterated;

that county dispensers should—

alone be authorized to sell and dispense intoxicating liquors;

that manufacturers of intoxicating liquors doing business in the State should—

be allowed to sell to no person in this State, except to the State commissioners and to parties outside of the State;

and that every package of intoxicating liquors, sold in the State, or shipped beyond the limits of the State, should have thereon a certificate of the commissioner. (South Carolina acts of 1892, ch. 28, pp. 62, 63, 65.)

On July 15, 1893, the State of South Carolina, by its governor, paid into the Treasury of the United States the sum of twenty-five dollars, and filed with the Commissioner of Patents, in conformity with the provisions of the act of Congress of 1881, and with the regulations prescribed by the Commissioner of Patents, a statement and declaration, which began by stating that—

the State of South Carolina, one of the Commonwealths composing the United States of America, possessed in this regard of the full rights of a corporation, and doing business at its capital city of Columbia, in the county of Richland, State aforesaid, has adopted for its use a Trade-Mark for chemically-pure distilled liquors,

consisting of the word "Palmetto," and particularly described; was accompanied by fac-similes of the Trade-Mark; and was supported by a declaration on oath of the governor that he verily believed—

that the foregoing statement is true; that the said State at this time has a right to the use of the Trade-Mark therein described; that no other person or firm or corporation has the right to such use, either in the identical form, or in any such near resemblance thereto as might be calculated to deceive; that the said Trade-Mark is used by the said State in commerce with foreign nations or Indian tribes, and particularly with Canada; and that the description and fac similes presented for record truly represent the Trade-Mark sought to be registered.

At the hearing before the Commissioner of Patents, it appeared that the Trade-Mark had been adopted by the State Board of Control, and that the State had sold in Canada a case of liquors with this Trade-Mark.

The Commissioner of Patents refused registration of the Trade-Mark, upon the ground that the State of South Carolina, by its own laws, had no authorized trade in distilled liquors outside of its own limits, was not the owner of any Trade-Mark, and had not the right to the use of the Trade-Mark sought to be registered.

The State of South Carolina, by its attorney-general, thereupon presented to the Supreme Court of the District of Columbia a petition for a writ of mandamus to the Commissioner of Patents to register the Trade-Mark. That court held that upon the facts proved the duties of the Commissioner of Patents in regard to registration of Trade-Marks were merely ministerial, and that the writ of mandamus should issue. The Commissioner of Patents appealed to the Court of Appeals of the District of Columbia, which held that those duties were not ministerial, but required the exercise of judgment and discretion by the Commissioner, and therefore reversed the judgment and dismissed the petition.

The petitioner sued out this writ of error, and the defendant in error now moves to dismiss it for want of jurisdiction.

By section 8 of the act of February 9, 1893, chapter 74, establishing a Court of Appeals for the District of Columbia, as in the previous act of March 3, 1885, chapter 355, regulating appeals from the Supreme Court of the District and the supreme courts of the Territories, no case can be brought to this Court by appeal or writ of error, unless either—

the matter in dispute, exclusive of costs, shall exceed the sum of $5,000,

or else, without regard to the sum or value in dispute, it is a case—

wherein is involved the validity of any patent or copyright, or in which is drawn in question the validity of a treaty or statute of or an authority exercised under the United States. (27 Stat., 434; 23 Stat., 443.)

In order to bring a case within the first alternative, the matter in dispute, according to the settled construction, must be money, or some right the value of which can be estimated and ascertained in money, and which appears by the record to be of the requisite pecuniary value. (*Columbian Ins. Co.* v. *Wheelright*, 7 Wheat., 534; *Kurtz* v. *Moffitt*, 115 U. S., 487; *Street* v. *Ferry*, 119 U. S., 385; *Smith* v. *Adams*, 130 U. S., 167, 176; *Cross* v. *Burke*, 146 U. S., 82, 88; *Washington & Georgetown Railroad* v. *District of Columbia*, 146 U. S., 227; *Cameron* v. *United States*, 146 U. S., 533, 535, and 148 U. S., 301, 303.) In *Sparrow* v. *Strong*, (3 Wall., 97,) cited by the plaintiff in error, there was an affidavit, uncontradicted by anything in the record, that the mining claim in dispute was of the requisite pecuniary value. In *Columbian Ins. Co.* v. *Wheelright*, above cited, this Court quashed a writ of error to review a judgment upon a writ of mandamus to admit to an office, the salary of which was not shown to be of the pecuniary value required to support the jurisdiction of this Court. (See also *United States* v. *Addison*, 22 How., 174; *Smith* v. *Whitney*, 116 U. S., 167, 173; *United States* v. *Wanamaker*, 147 U. S., 149.)

The matter in dispute in this case is not the right to the Trade-Mark, but the right to have it registered; the registration is only *prima facie* evidence of ownership; and if the value of the registration is susceptible of an estimate in money, there is no evidence whatever in the record tending to show this value.

It is not, and could not be, pretended that in this case there was—

involved the validity of any patent or copyright;

and, in the light of previous decisions of this Court, it is quite clear that there was not—

drawn in question the validity of a treaty or statute of or an authority exercised under the United States.

In order to come within this clause, the validity, and not the construction only, of a treaty or statute of the United States, or of an authority exercised under the United States, must be directly drawn in question.

In *Snow* v. *United States*, (118 U. S., 346, 353,) in which it was contended that a court established by act of Congress, and admitted to have a lawful existence, and jurisdiction of the case, misconstrued the act and went beyond the authority which it conferred, it was held that all that was drawn in question was whether there was or was not error in the administration of the statute, and not—

the validity of an authority exercised under the United States,

within the meaning of the act of March 3, 1885, chapter 355.

In *Baltimore & Potomac Railroad* v. *Hopkins*, (130 U. S., 210,) which also arose under that act, the question in controversy was whether a railroad corporation authorized by acts of Congress to establish freight-stations, and to lay as many tracks—

as its president and board of directors might deem necessary,

in the District of Columbia, had the right to occupy a public street for the purposes of a freight-yard. It was argued that the validity of an authority, exercised under the United States, to so occupy the public streets was drawn in question. But this Court held that only the construction of the acts of Congress, and the extent of the authority claimed under them, and not the validity, either of the statutes, or of the authority, was drawn in question; or, in other words, it was—

a case which depends only on a judicial construction of an act of Congress, there being no denial of the power of Congress to pass the act, or of the right to enjoy whatever privileges are granted by it. (*Clough* v. *Curtis*, 134 U. S., 361, 370.)

In *District of Columbia* v. *Gannon*, (130 U. S., 227,) it was held that the validity of the authority of the Commissioners of the District was not drawn in question by contesting the liability of the District in damages for the negligence of the Commissioners in failing to keep the streets in repair.

In *United States* v. *Lynch*, (137 U. S., 280,) in which the court below had denied a writ of mandamus to compel accounting officers of the Treasury to allow a claim for mileage, it was contended that under the acts of Congress, and the construction given them by a previous decision of this Court, the duty of the accounting officers—

was merely ministerial, and that by the disallowance of the relator's claim for mileage these officers exercised a discretion which they did not possess; that this was an invalid exercise of an authority under the United States; and that hence the validity of the authority was drawn in question;

to which this Court, speaking by the Chief Justice, answered:

In order to justify this position, however, the validity of the authority must have been drawn in question directly and not incidentally. The validity of a statute is not drawn in question every time rights claimed under such statute are contraverted; nor is the validity of an authority, every time an act done by such authority is disputed. The validity of a statute or the validity of an authority is drawn in question when the existence, or constitutionality, or legality of such statute or authority is denied, and the denial forms the subject of direct inquiry.

The Court accordingly held that the authority of the accounting officers of the Treasury was not thus denied, nor the validity of that authority questioned; but that it was only contended that in the exercise of a valid authority those officers erred in respect to the allowance, in view of the decision of this Court in another case; that if the judgment should be reversed upon the ground urged, it would not be for want of power in these officers to audit and pass upon the account, but because they had disallowed what they ought to have allowed, and erroneously construed what needed no construction; and that this would not in any degree involve the validity of their authority. (137 U. S., 285, 286.)

In the present case, no objection to the validity of the act of Congress under which the Commissioner of Patents acted was made, either at the hearings in the Patent Office and in the courts of the District of Columbia, or in the briefs filed by counsel in this Court. Nor was the existence or the lawfulness of the authority conferred by that act upon the Commissioner of Patents drawn in question. But from the beginning to the end of the proceedings the only controversy was as to the construction of the act of Congress, and consequently as to the nature and extent of the Commissioner's authority. Neither the question whether the Commissioner rightly decided upon the presumptive lawfulness of the right of the State of South Carolina to the Trade-Mark sought to be registered, nor the question whether the Commissioner's duty was of such a character that a writ of mandamus would lie to compel its performance, involved a question of the validity of the authority exercised by him under the United States.

Writ of error dismissed for want of jurisdiction.

U. S. Circuit Court—Southern District of New York.

HUMPHREYS HOMEOPATHIC MEDICINE CO. *v.* HILTON.

Decided March 14, 1894.

TRADE-MARKS—NUMERALS APPLIED TO SPECIFIC REMEDIES.

Numerals used by a medicine company to identify specific remedies for various ailments are in effect descriptive terms, and their use will not be protected as a Trade-Mark.

BILL by the Humphreys Homeopathic Medicine Company against George W. Hilton to restrain the use of an alleged Trade-Mark.

Mr. Henry J. Homes (*Alfred Taylor*, of counsel) for the plaintiff.

Messrs. Wise & Lichtenstein (*Morris S. Wise* and *George L. Huntress*, of counsel) for the defendant.

WALLACE, *J.*:

The complainant and his predecessors in business have for many years manufactured, advertised, and sold homeopathic remedies, consisting of thirty-five

specifics for various ailments. They have advertised these remedies in various books and pamphlets treating of hygiene and diseases and containing directions for the use of the remedies. The remedies are sold in vials, each of which is labeled "Humphrey's Homeopathic Specific," and upon the label is also printed a number and the name of the ailment for which the remedy in the particular vial is intended—such as "No. 1, Fever;" "No. 5, Dysentery;" "No. 10, Cholera," etc. In the advertisements the remedies are referred to by the numbers, which run from 1 to 35, inclusive. The defendant also manufactures, advertises, and sells homeopathic remedies, consisting of fourteen specifics for various ailments. He advertises them in books and pamphlets. He sells them in vials, each of which is labeled "Dr. Hilton's Specific," and upon the label of each is printed a number, but not the name of the ailment for which the remedy is intended. His numbers run from 1 to 14, inclusive, and in his advertisements the specifics for the different ailments are referred to by their respective numbers. In his system the different numbers do not stand for the same remedies as in the complainant's system. Thus his No. 1 is a remedy for pimples, his No. 5 for canker, his No. 10 for inflammation of the bladder. The complainant insists that the defendant is guilty of unfair competition and that it has a Trade-Mark in the different numbers to and including 35 as applied to homeopathic remedies, which the defendant infringes by the use of any or all of his fourteen numbers.

Neither the complainant, its predecessors, nor the defendant was the first to adopt a system of putting up and selling medicinal remedies in connection with books or advertisements by which the remedies were separately numbered, the numbers placed upon the vials or packets, and the remedies referred to by their number in the books or advertisements containing directions for their use. It suffices to refer to the books and remedies of Dr. Samuel Thomson, author of the "Thomsonian Materia Medica and Botanic Family Physician." The defendant doubtless adopted it because of its convenience. He had a right to do so. The case is destitute of any indication that he has employed the system with a view to deceive the public or to palm off his remedies as those of the complainant.

The complainant has no Trade-Mark in the naked numbers. They have never been used alone by complainant or its predecessors upon the remedies, but have always been used with words, the name of some ailment, and apparently, also, with a symbol consisting of a figure of a woman and lion. At best the numbers are but an element of a Trade-Mark. As used by the defendant they ought not to mislead the public or tend to confuse the identity of his specifics with those of the complainant.

It is said in "Browne on Trade-Marks" (sec. 225) that mere numerals cannot be considered arbitrary symbols, and that there must be some collateral characteristics to invest them with the qualities of a Trade-Mark—some peculiarity of form, ornamentation, coloring, or combination to make them distinctive and take them out of the common category. It is unnecessary in the present case to express an opinion as to the correctness of this proposition. It may be that numerals which are arbitrarily selected without any purpose of identifying the article to which they are affixed from other articles of a similar class may become the subject of a Trade-Mark; but the use of numerals as a short method of identifying the several members of a class and distinguishing one of them from another is as old as the use of written words. When so used they are, in substance and effect, descriptive terms. The number conveys to the reader details which otherwise would have to be amplified in words. Hence it is that the practice is so common with manufacturers and dealers of numbering the varieties so as to indicate by reference to advertisements, photographs, or other descriptive mediums the size, grade, or peculiar characteristics of each for their own convenience and that of their customers. No one can acquire an exclusive right to appropriate them for such a purpose. No one has the right to appropriate to his exclusive use a sign or symbol which, from the nature of the fact it is used to signify, others may employ with equal truth, and therefore have an equal right to employ for the same purpose. It is because of this principle that a Trade-Mark cannot be acquired by the adoption of a word which is merely descriptive of the quality, ingredients, or characteristics of a commodity. (*Manufacturing Co.* v. *Spear*, 2 Sandf., 599; *Canal Co.* v. *Clark*, 13 Wall., 311; *Manufacturing Co.* v. *Trainer*, 101 U. S., 51.) As used by the complainant and its predecessors the numbers merely are not a valid Trade-Mark.

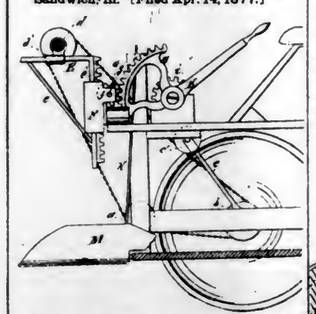
The bill is dismissed, with costs.

PATENTS

Expired, May 29 1894.

The term of these patents granted during the week ending May 29 1877, have expired.
The reissues expired at an earlier date.

191,217. HARVESTER-REELS. H. A. Adams, Sandwich, Ill. [Filed Apr. 14, 1877.]



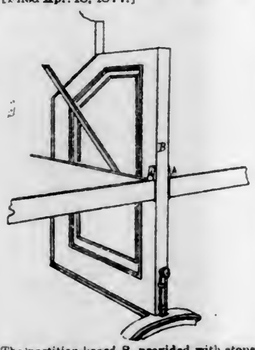
1. The right-angled adjustable brackets E, provided with racks, as described, in combination with the reel-shaft *b* mounted thereon, pinions *g*, and shaft G, supported in fixed bearings on the machine, substantially as and for the purpose set forth.

2. The combination of the reel-shaft *d*, brackets E, provided with racks, pinions *g* on the shaft G, segmental rack H, and lever K, substantially as described.

3. A pivoted divider or grain-guard, M, adjustable at the pleasure of the driver, independently of the adjustment of the reel, substantially as described.

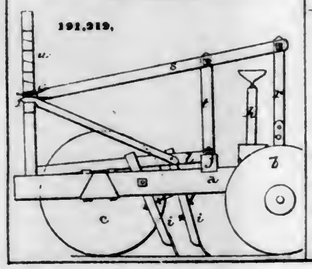
4. The combination of the pivoted guard or divider M, rod N, notched at its upper end, and catch *n'*, substantially as described.

191,218. SLEEPING-CAR BERTHS. Ezra H. Alley and John H. Fancher, Toledo, Ohio. [Filed Apr. 13, 1877.]



The partition-board S, provided with stops A, as a means of preventing both the upward and longitudinal movement of sleeping-car berths, substantially as above described.

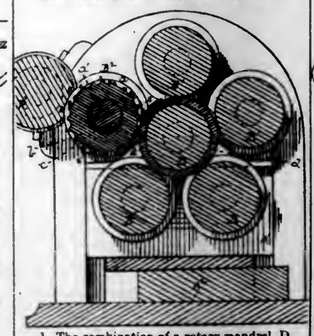
191,219.



191,219. COTTON-CHOPPERS. George W. Banks, Hardin County, Tenn. [Filed May 18, 1877.]

The combination of the frame *a*, supported at its rear end by the gear-wheel *c*, and at its front end by the wheels *b*, which are attached to the axle *c*, the standard *r*, lever *s*, and notched standard *u*, the lever being provided with the two springs 1, for the purpose of holding the front of the frame at any desired height, all the parts being arranged to operate substantially as shown.

191,220. MACHINES FOR CORRUGATING PIPE-SOCKETS. M. Blakey, Etna, Pa., assignor to J. L. Robertson and G. A. Chaffant, same place. [Filed Apr. 19, 1877.]



1. The combination of a rotary mandrel, D, an annular die or equivalent die-roll, having a roughened, ribbed, or toothed surface, and made capable of motion toward and from the mandrel, and suitable devices for giving to such movable die or die-roll a quick, positive motion toward the mandrel, and a quick release, substantially as described.

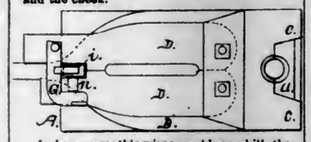
2. An annular die, *b*, working loosely on its shaft, in combination with collared roll B and mandrel D, substantially as described.

3. The roll B', as one of the series of rolls described, made with working ends *a* to work the socket ends, a reduced shaft, *a'*, in combination with loose die *b* thereon, substantially as described.

4. The combination of a revolving ribbed die and a revolving mandrel, suitably arranged for the ribbing of the socket while on the mandrel, substantially as described.

191,221. SMOOTHING-IRON CHILLS. J. F. Blees, Newark, N. J. [Filed Dec. 11, 1876.]

Brief.—The drag is solid, and provided with an upward projection at each end, which keep the cheek in place, and one of which also has in it a portion of the gate. The cheek in one piece has a recess for the molten metal, hinged to which are the parts of the cope, provided with a latch, which locks the cope-sections and the cheek.



1. In a smoothing-iron mold or chill, the bed A, having the post *e* and ridge C, in combination with the part B, substantially as and for the purposes specified.

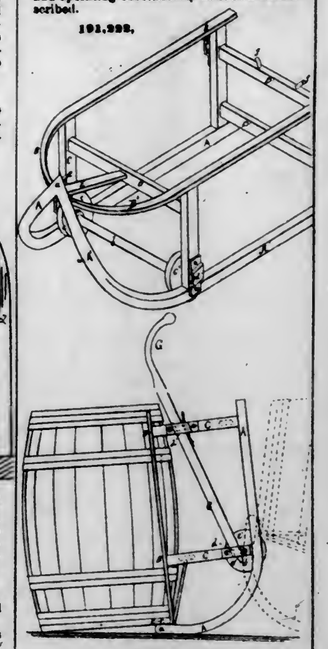
2. The divided top D, with the sections pivoted to the part B, and the hook G and knob *s*, in combination with the stud *t*, for holding the parts in position, substantially as specified, and for the purposes named.

191,222. BARREL-TRUCKS. B. E. Blinn, Minneapolis, Minn. [Filed Apr. 13, 1877.]

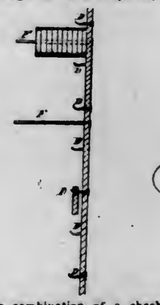
1. The frame consisting of the rangers A A', rails or fenders B B', bent upward and inward, and connected together at *a*, in combination with the wheels *c c'*, arranged and operating substantially as specified.

2. The frame A B and wheels *c c'*, in combination with the handles G G', arranged and operating substantially as shown and described.

191,222.



191,223. GAME APPARATUS. W. B. Briggs, Chicago, Ill. [Filed Apr. 12, 1877.]

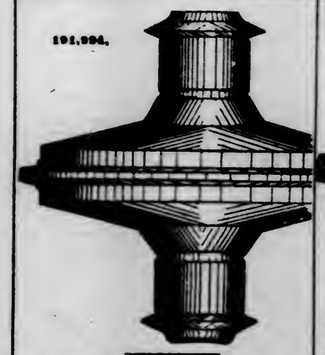


The combination of a checker or chess board, having books or pins D and spindles F, with checker or chess men provided with eyeleted or other holes on both sides, so as to be reversed and hung on the pins or books, as set forth.

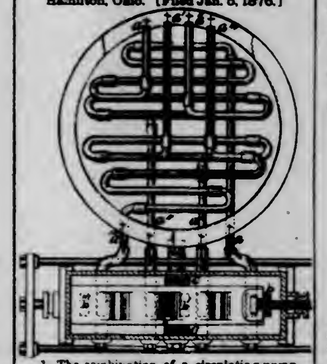
191,226. PROCESS FOR THE MANUFACTURE OF GLASS SHADES. H. Brooke, Brooklyn, N. Y., assignor to B. B. Schneider, New York city. [Filed Jan. 23, 1877.]

An improvement in the process of manufacturing shades and globes by molding the same in pairs in reverse form, bringing the two extended parts together, and having a blow-over in the center and at each end, substantially as herein set forth.

191,224.



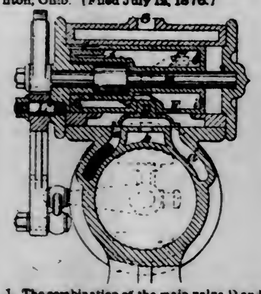
191,225. WATER-TUBE BOILERS. B. Cope, Hamilton, Ohio. [Filed Jan. 5, 1876.]



1. The combination of a circulating-pump and a coiled-tube boiler with the series of independent circulating-pipes *a a' a'' a'''*, having no connection whatever, whereby water is circulated through each pipe separately, substantially as shown and described.

2. The combination of a circulating-pump, divided into two double-acting cylinders, with a coiled-tube boiler for supplying water to each coil of the boiler separately, substantially as shown and described.

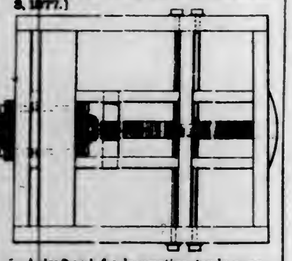
191,226. STEAM-VALVES. B. Cope, Hamilton, Ohio. [Filed July 12, 1876.]



1. The combination of the main valve D and the valve-piston E, the latter having a spiral slot, F, into which a lug upon the main valve enters, whereby the oscillation of the valve-piston causes the main valve to move forward, substantially as described.

2. The main valve D, having a lateral extension, *D'*, on one side, forming an auxiliary valve, in combination with the ports *a c'* in the main-valve seat, leading to the ends of the auxiliary cylinder, the auxiliary exhaust-cavity *b* in the main valve, and the valve-piston E, with its diagonal groove for giving the valve a longitudinal movement, substantially as shown and described.

191,227. DRAFT-RODS FOR TENDERS. W. B. Crane, Piedmont, W. Va. [Filed May 3, 1877.]



1. A draft-rod for locomotive-tenders, universally secured to the rear bolster only, and extending forward through the front bolster, substantially as described.

2. A draft-rod for tenders, extending through the front bolster, in combination with castings on the rear of the frame, and rods connecting said castings, whereby said draft-rod is universally secured in said frame, substantially as described.

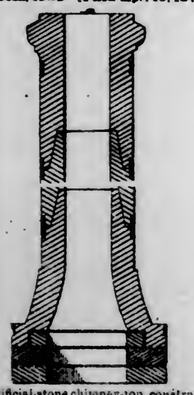
3. A draft-rod for tenders, provided with a stop, and combined with a wedge or key and the front bolster, substantially as described.

191,228. SAFETY-HOLDBACKS. C. H. Dow, Providence, R. I. [Filed Apr. 11, 1877.]



The combination of the auxiliary adjustable holdback A with the thill of a vehicle, substantially as described, for the purposes specified.

191,229. CHIMNEY-TOPS. L. K. Dutton, Oskaloosa, Iowa. [Filed Apr. 10, 1877.]



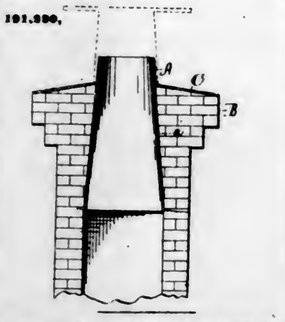
An artificial-stone chimney-top, constructed in sections, each section being provided with strengthening-bands at the bottom and top, as shown, and having a tapering end, provided with lugs *d d*, and a tapering recessed end provided with L-shaped recesses *d' d'*, for the reception of lugs *d*, all constructed, arranged, and operating as shown and described.

191,230. CHIMNEY-TOPS. T. B. Entwisle, Washington, D. C. [Filed Apr. 26, 1877.]

1. The chimney-top described, consisting of the conical casting A, having the square base and flange *a'* projecting downward into the chimney-top B far enough to properly protect the top, and be firmly held thereby, and up above the upper surface of the same, to discharge the products of combustion at a point removed therefrom, as described.

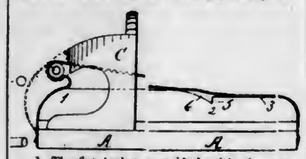
2. In combination with a top, B, and a casting, A, set into the chimney, as described, the cement coating C, as described.

191,230,



191,231. CIGAR-MACHINES. F. W. Felgner, Baltimore, Md. [Filed May 1, 1877.]

Brief.—The pocket in the bed has a convex entrance, and in rear thereof the bed is depressed to facilitate the working of the apron.

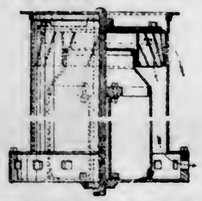


1. The flat bed A, provided with the convex portion 6, wall 5, and reduced surface 3 at the rear of said wall, as and for the purposes set forth.

2. In combination with the belt, and with the carriage C and its roller, applied and arranged to be both traversed in right lines, the bed A, having the convex rise 6, merging into its horizontal portion, and connecting with the wall 5 to form the pocket, as and for the purpose set forth.

191,232. AIR-COOLING APPARATUS. Edw. Fixary, New Orleans, La., assignor of one-half his right to A. C. Janin, same place. [Filed Feb. 6, 1877.]

Brief.—An inner closed cylinder contains the refrigerant material. The outer cylinder has openings at top and bottom. A turbine wheel in the top of the space between the cylinders draws the air through the upper openings in the outer cylinder, forces it down through the purifying-chamber, made by an enlargement of the outer cylinder, and containing a purifying mixture, and out through the lower openings.



1. The combination, within the cooling-chamber, of the refrigerator, the enveloping radiating jacket or cylinder, and the air-forcing apparatus, these elements being arranged for joint operation, as set forth.

2. The combination, within the cooling-chamber, of the inner refrigerating-cylinder, the outer radiating-cylinder with air-openings at top and bottom, and the intermediate turbine with helicoidal vanes for taking the air from the chamber, forcing it through the passage between the cylinders in contact with the refrigerating surfaces, and returning it again to the chamber, substantially as set forth.

3. The purifying chamber, in combination with the inner and outer cylinders and the air-forcing apparatus, substantially as set forth.

191,233. CANOPY-TOPS FOR CHILDREN'S CARRIAGES. C. B. Fosburgh, Louisville, Ky. [Filed Feb. 10, 1877.]



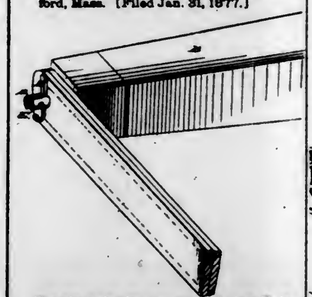
The hollow opening case C, in combination with its cover D, rollers E E, and curtains F and G, substantially as herein described, and for the purpose set forth.

191,234. ANIMAL-TRAPS. J. M. Gleichman, Stuart, Iowa, assignor of one-half his right to R. Conner, same place. [Filed Mar. 24, 1877.]



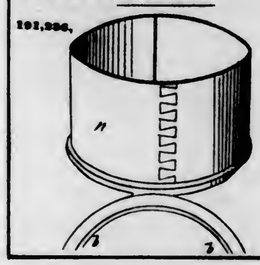
The box A B, having the open end C, and partition D and its gate *c*, the cage I having the fixed bottom H, the falling platform J and its operating mechanism *e d g k m n*, the hinged door *e*, and the looking-glass *r*, all arranged and combined to operate substantially as and for the purposes shown and described.

191,235. WHIFFLETREE-FASTENINGS. S. M. Hamblin, Mattapoisett, assignor of one-half his right to Geo. F. Tucker, New Bedford, Mass. [Filed Jan. 31, 1877.]



The pin A, having ears *a a* and rivet E, in combination with the wedge-shaped fastening-slide D, provided with a coil, *b*, substantially as and for the purpose described.

191,236,



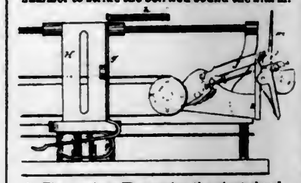
191,236. WOODEN BOXES. G. Harrington, Springfield, Mass. [Filed Feb. 14, 1877.]

Brief.—The top and bottom of a wooden box having cylindrical sides is formed of blocks of wood having grooves to receive the wall of the box.

In combination with the compressible and elastic wall W of a cylindrical wooden box, the top or bottom provided with the circular groove *b* turned therein for receiving and binding the said wall when sprung into the groove, as set forth.

191,237. ALARMS FOR CARDING-MACHINES. W. A. Hathaway, Wickford, assignor of one-half his right to J. Magione, Belleville, R. I. [Filed Dec. 20, 1876.]

Brief.—When the roving breaks, the arm pivoted to the horizontally-sliding carriage strikes the finger and forces it outward, thus causing the pivoted lever to fall. To the short arm of this lever is pivoted the hammer-rod, the curved end of which, upon the fall of said lever, is brought into contact with a series of pins on the roller by means of a spring. This contact of the spring-acted curved end of the hammer-rod with the pins upon the roller causes the hammer to strike the bell and sound the alarm.

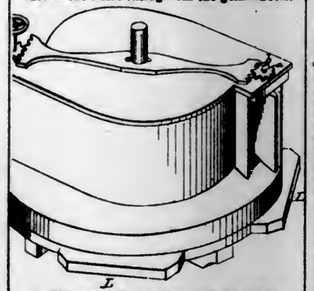


1. The carriage H, carrying the pivoted rod *g*, said rod having curved guide *i* and pin *k*, in combination with lever J, finger *m*, hammer *s*, and bell *r*, substantially as and for the purpose set forth.

2. The combination, with the carriage H, carrying pivoted rod *g*, having guide *i* and pin *k*, of the lever J, hammer *s*, upright bar *k*, finger *m*, bell *r*, and roller I, with pins *j*, substantially as and for the purpose specified.

191,238. TURBINE WATER-WHEELS. Barrack D. Holmes, Buoyrus, Ohio. [Filed Apr. 13, 1877.]

Brief.—To the lower surface of the casing of the flume the followers are movably secured, and they are provided with elongated guide-slots to receive the set-screws, which permits the followers to be moved horizontally, so that they can be adjusted closely to the wheel, preventing any loss of motion or lateral motion. The flume is circular on two opposite sides, and on its remaining sides are provided the openings, which are constructed on a tangent to the arc of the circle of the flume, and provided with centrally-pivoted gates, the pivots of which are furnished on the upper surface of the flume-casing with the gear-wheels.



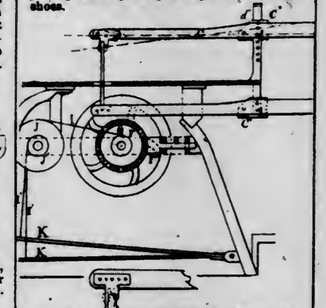
1. The wheel B, provided with the band or periphery H and plates I, the band being scalloped on its lower edge, and the plates I being concave and their sides nearer the solid center of the wheel slightly elevated above the opposite sides, substantially as shown and described.

2. In a water-wheel a follower for preventing lateral motion, and forming an adjustable casing around the wheel, substantially as set forth.

3. The followers L, provided with slots M, and suitable set-screws, substantially as described.

191,239. SCROLL-SAWING MACHINES. Jno. H. Hopkins, Reynoldsville, Pa. [Filed Nov. 8, 1876.]

Brief.—The saw is operated by means of two alternate reciprocating treadles, connected by straps to wheels mounted on a shaft immediately under the table, and which, by belts, operate the driving-shaft, upon which are two bevel-gear spool-wheels, having in their inner sides a toggle-jointed ratchet-pawl, connected to a flat bar, and provided upon its middle part with a ratchet-wheel, and upon one end with a balance-wheel carrying the pitman, and a bevel-pinion gearing into the spool-wheels, and having its bearings in the rear part of the frame, which supports said wheels. The saw-frame is vertically adjustable by means of pivot-rods, which support the vibrating levers in perforated metallic shoes, one of which is secured between perforated standards rigidly attached to the table, the other to pendent brackets under the table, and adjusting-screws passing through the levers and shoes.



1. In a scroll-sawing machine, the toggle-jointed ratchet-pawl M N, substantially as and for the purpose described.

2. In a scroll-sawing machine, the combination of the toggle-jointed pawl M N, wheel F, and ratchet-wheel L, arranged to operate substantially as and for the purpose set forth.

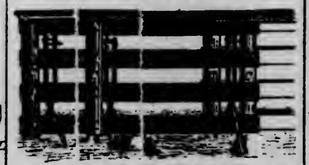
3. In a scroll-sawing machine, the combination of the toggle-jointed pawl M N, ratchets L L, wheels F F, and pinion F', all substantially as and for the purpose herein described.

4. The combination of the toggle-jointed pawl M N, ratchet-wheels F F, pinion F', wheels J J, straps I I', and treadles K K, substantially as shown and described.

5. The saw-frame lever O, supported and pivoted in a shoe having means of vertical adjustment, substantially as and for the purpose shown and described.

6. The saw-frame having a horizontal adjusting-screw, *d'*, and pivoted in the shoe C'', substantially as and for the purpose described.

191,240. FENCES. K. S. Johnson, Town Line, N. Y. [Filed Apr. 9, 1877.]



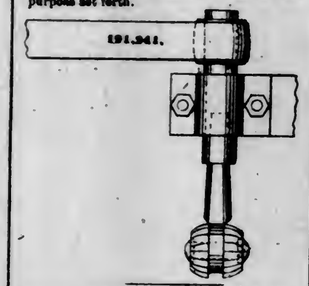
A fence composed of panels, each consisting of horizontal slats and vertical end and middle pieces, retained in position by pairs of rods, bent to transverse one another between two adjacent horizontal slats, whereby the said panels are carried upon the intersecting portions of said rods, as hereinbefore set forth and described.

191,241. TOOLS FOR SHAPING AND DRESSING STONE. H. A. Kimball, Philadelphia, Pa., assignor of one-third his right to Alice E. Miller, Moorestown, N. J. [Filed Jan. 27, 1877.]

One or more cutting-disks or toothed wheels pivoted to a spindle or shaft, with the pivots in a different line or lines of axis to that of the spindle, in such a manner that the revolutions of the spindle or shaft shall revolve

the disks, and cause their cutting-edges to bite the stone in rapid succession, as the disks perpetually roll thereon during the revolutions of the spindle, substantially as and for the purpose set forth.

191,941.

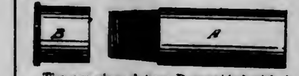


191,942. HORSESHOE-NAILS. A. W. Kingsland, Chicago, Ill. [Filed Apr. 24, 1877.]



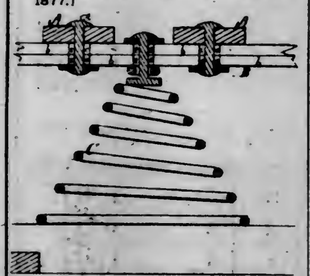
As a new article of manufacture, a horseshoe nail beveled at its point upon one side and both edges, so as to be substantially triangular in cross-section, substantially as and for the purpose set forth.

191,943. CARTRIDGE-SHELLS. Israel Kinney, London, Ontario, Canada. [Filed Oct. 24, 1876.]



The cup-shaped base B, provided with internal screw-threads, as described, in combination with the paper shell A, the two being secured together by screwing the end of the tube into the base, substantially as specified.

191,944. SPRING BED-BOTTOMS. Herman W. Ladd, Chelsea, Mass. [Filed Feb. 27, 1877.]



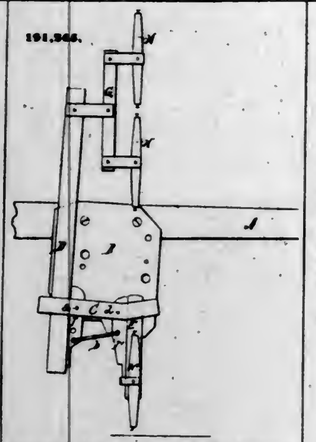
The combination of the slats A and each range of supporting helical springs C, with a compound bar, B, substantially as described, disposed between them, and so connected to them as to admit of each of its bars *b* bending and moving independently of, or lengthwise upon, that or those next to it, all being essentially as and for the purpose explained.

191,945. THREE-HORSE EQUALIZERS. W. McClelland, Fowler, Ill. [Filed Oct. 2, 1876.]

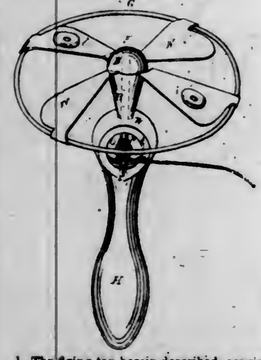
Brief.—An improvement on Patent No. 141,632, of April 6, 1875.

In a draft-equalizer, the combination of the tongue A, the plate B, having a strap, C, for the purpose of forming the pivots *a d*, lever D, double and single trees G H, lever E, eastings I I', and connecting-rod *b*, the said eastings having slots or enlarged openings for their pivots to pass through, substantially as shown and described.

191,946.



191,946. FLYING TOPS. B. Mets, Rochester, N. Y. [Filed Mar. 1, 1877.]

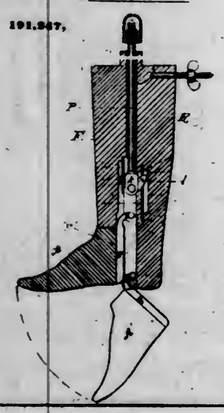


1. The flying top herein described, consisting of the bisected conical body B B', held together by the stem *p*, forming the pintle *p'*, and the wings W, all constructed and arranged substantially as set forth.

2. The flying top, having body B B' *p* and wings W, in combination with handle H, having orifice O, perforation *n*, socket S, and groove *t*, substantially as set forth.

3. The flying top, having wings W, provided with the reed or whistle *l*, in combination with the rim G, as and for the purposes described.

191,947.



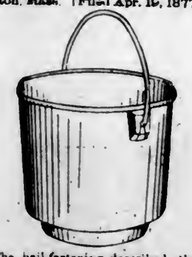
191,947. BOOT-TREES. J. Miller, Rochester, N. Y., assignor to J. Dufner, same place. [Filed Mar. 1, 1877.]

1. In a boot-tree, the leg portions F and R, in combination with the swinging foot A, provided with a tongue, *g*, having a cross-shaped shank cast therewith, and adapted to slide vertically in the groove or recess *e*, all substantially as and for the purpose set forth.

2. The lever-rod P, provided upon its lower end with the cross-headed lever *l*, in combination with the leg portions F and R, provided with grooves or recesses in which the cross may slide vertically, all substantially as shown, and for the purposes set forth.

3. The combination of the rod P, with the knuckle-jointed lever attached thereto, and adapted to slide vertically in grooves or recesses, as shown, with the leg portions F and R and swinging foot A, all substantially as shown, and for the purposes set forth.

191,948. BAIL-FASTENINGS. M. P. Moroney, Boston, Mass. [Filed Apr. 16, 1877.]



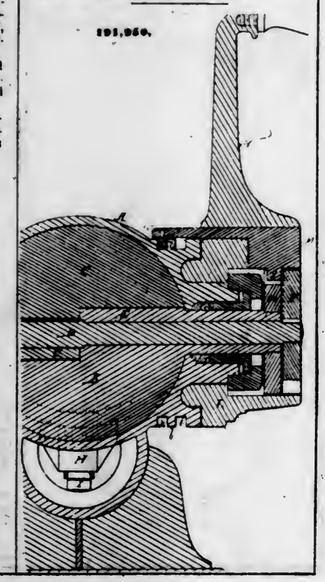
1. The bail-fastening described, the same consisting of a boss having a cavity, *a*, to receive the bail end, and a wedge-shaped recess opening from said cavity, for the reception of a locking device, substantially as shown.

2. The combination of a boss having an interior cavity, *a*, and a recess, *b*, opening into the same from the exterior of the boss, with the bail *d* and plug *e*, substantially as described.

191,949. CEMENT FOR STEAM-JOINTS. S. Otley, Grand Haven, Mich. [Filed Nov. 29, 1876.]

The cement for steam-joints herein described, consisting of mineral paint, yellow ocher, Paris white, plumbago, brick-dust, and litharge, combined with fine-cut hemp and boiled linseed-oil, substantially as set forth.

191,950.



191,950. ROTARY ENGINES. M. Nordmann, Jr., Boston, Mass. [Filed Apr. 11, 1877.]

1. A rotative engine, substantially as described, composed of the case A, with its induct *a* and educt *b*, the two notched pistons B C, their concentric shafts D E, and the stop H, and the spring I, all constructed and arranged essentially in manner and to operate as set forth.

2. The combination of the notched disks F G, rotary head or sleeve L, slide-bolt M, tripper *h*, and the crossed grooves *i k* with the rotative engine, substantially as described, composed of the case A, with its induct *a* and educt *b*, the two notched pistons B C, their concentric shafts D E, and the stop H and spring I, all being constructed, arranged, and applied substantially in manner shown and described.

191,951. BOTTLE-STOPPER FASTENERS. J. H. Parkhurst, Chicago, Ill., assignor of one-half his right to Geo. C. Hutchinson. [Filed Apr. 17, 1877.]

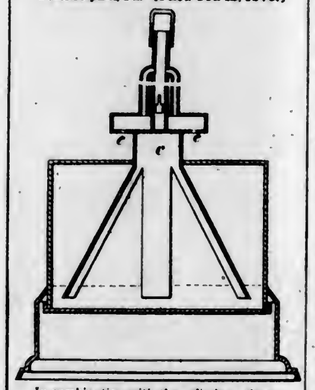


1. The combination, as shown in Fig. 1, of the crank-wire B, constructed as shown and described, with the bail-wire A, constructed as shown and described.

2. The bail-wire A, in combination with the crank-wire B and the cork C, in the manner shown and described, and for the purpose set forth.

3. The combination of the crank-wire B with the bail-wire A, stopper C, and bottle K, in the manner shown and described, and for the purpose set forth.

191,952. VAPOR-BURNERS. R. W. Park, Philadelphia, Pa. [Filed Oct. 12, 1876.]



In combination with the cylinder *c*, the gas-orifices *s a*, affording means for heating said cylinder, substantially as shown and set forth.

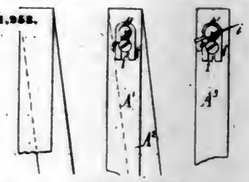
191,953. PANTOGRAPHS. Eugene T. Pearl, Hartford, Conn. [Filed Apr. 23, 1877.]

1. The points D E, each provided with a base-flange, *f*, having an open slot, *f'*, and projection *h*, for rendering the points interchangeable, substantially as hereinbefore set forth.

2. The combination, with a pantograph, of a projecting sight, *i*, attached to the outer bar A^2, for sketching from nature, substantially as hereinbefore set forth.

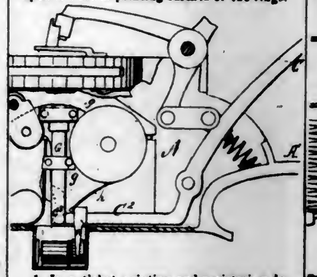
3. The combination, with a pantograph provided with a sight, *i*, of a drawing-board having a fixed sight, *k*, substantially as and for the purpose hereinbefore set forth.

191,954.



191,954. TICKET PRINTING AND RECORDING DEVICES. B. C. Pole, Washington, D. C. [Filed Apr. 3, 1877.]

Brief.—Rings are provided with duplicate printing characters upon opposite sides of one half, and reading-dial and ratchet upon opposite sides of other half. Ink-ribbon, intermittently fed, passes over both printing-surfaces. Recording-paper strip is held upon reels, and intermittently fed at each impression. Composed levers carrying impression-pads press simultaneously a ticket upon the upper printing-surfaces, and the recording-paper strip upon the lower printing-surface of the rings.



1. In a ticket printing and registering device, a ring provided with duplicate printing devices on its opposite flat surfaces, a reading-dial, and a ratchet and operating handle, substantially as and for the purpose set forth.

2. In a ticket printing and registering device, the combination of a ring or rings with printing-characters on their opposite flat surfaces, a reading-dial, and a ratchet and operating handle, of a tape or band and a compound lever so arranged as to press simultaneously a ticket on one flat printing-surface, and a tape or band on the reverse flat surface of the printing ring or rings, substantially as and for the purposes set forth.

3. In a ticket printing and registering device, the combination, with a ring provided with printing-character on its opposite flat surfaces, a reading-dial, and a ratchet and operating-handle, of a recording tape or band, an inking tape or surface, and a compound lever operating double pressing-surfaces to force a card or ticket and a recording-tape simultaneously into position to be similarly printed, substantially as and for the purpose set forth.

4. In a ticket printing and registering device, the combination, with a series of rings, each provided with printing-surfaces on the opposite flat sides, a reading-dial, and a ratchet and operating-handle, of a single inking or marking ribbon or tape passing through the rings and over the printing or marking surfaces, and conducted to rollers on the under side or side of the register, substantially as shown and described.

5. The combination of a removable drawer, carrying the register-tape and said tape-actuating mechanism, with a printing-register, substantially as and for the purposes set forth.

6. The combination, in a removable register-drawer, of the ratchet friction-wheels and the reel, provided with a break-spring, all in combination with a compound lever, substantially as and for the purpose set forth.

7. In a ticket printing and registering device, the combination, with a compound lever, provided with pressing-surfaces adapted to simultaneously press a ticket and register strip against opposite printing-surfaces, of a ratchet-pawl actuating an inking-ribbon, substantially as and for the purposes set forth.

8. A ticket printing and registering device embracing in its construction the case A, having printing and punching mechanism, and provided with lever-actuating handles O and A', and punch-actuating handle M, the latter being located above the former, substantially as and for the purposes set forth.

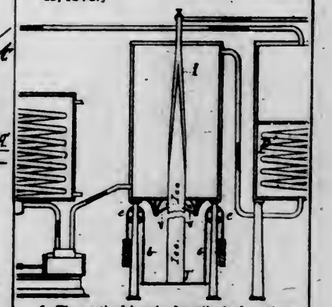
191,956. MANUFACTURE OF WOVEN FABRICS. Ernest Foxcelt, Bradford, England. [Filed Jan. 22, 1877.]

Brief.—A fabric having a thread interwoven consisting of vegetable or animal fiber loosely spun, and wound with a metal covering, the metal and fiber being compacted together by passing between pressure-rollers.

1. The described metal-wound thread for introduction, by weaving, into the body or selvages of woven fabrics, made as set forth—that is, with the fibrous material of such thread upon soft, and with very little twist, then wound or wrapped with the flattened metallic thread, and the whole then passed through a press or rollers, to drive or press the metal into the fibrous body of the elastic thread, as and for the purposes set forth.

2. The described fabric, composed, in part, of the metal-wound thread or threads described, having a slight twist and much elasticity, as stated, and adapted to be dyed or finished, after being woven, without breaking such metal-wound threads or visibly contracting the fabric.

191,956. MANUFACTURE OF ICE. Carroll L. Riker, New York, N. Y. [Filed Feb. 19, 1876.]



1. The method herein described of continuously forming a prism or cylinder of ice of any desired length, the same consisting in withdrawing the frozen mass gradually from the open end of the mold of an ice-machine, and gradually filling the space thereby left empty with water to be frozen, substantially as described.

2. The combination of the chamber S, mold I, and floor J, as set forth.

3. In combination with the mold I, the catches *v v*, substantially as described.

4. The mold I, having a cylindrical or prismatic portion and a tapering portion, as and for the purpose set forth.

5. The method herein described of releasing the ice from the molds, the same consisting in forcing in the feed-water under pressure, substantially as described.

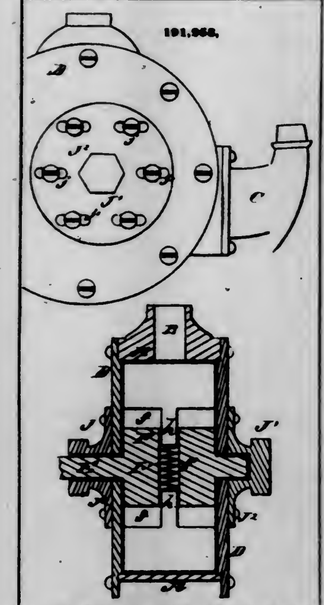
191,957. PROCESSES OF PRESERVING WOOD AND OTHER VEGETABLE MATTER. H. N. Rogé, E. Porst, P. H. Baffoy, and P. S. E. Dupré, Paris, France. [Filed Dec. 21, 1876.]

The method herein described of preserving wood or other vegetable matter by saturating the same with a solution of a soluble salt of lead, which becomes insoluble on coming in contact with the fiber of the wood or other vegetable matter, substantially as specified.

191,958. ROTARY PUMPS AND ENGINES. S. D. Simmons, Brooklyn, N. Y., assignor of one-half his right to A. L. Wood, New York city. [Filed Sept. 30, 1876.]

Brief.—When the piston-cylinder rotates, it touches said cylindrical casing so closely on one side that it makes an air-tight contact between said casing and said cylinder, forcing the pistons inward into recesses and tubular connecting passage as said pistons reach this part of their revolution. While one of the pistons is thus being forced inward the other piston is thrust outward by the action of the spring. As the outwardly-thrust piston revolves, it touches the inside of the casing, and sweeps the water before it around from the induction-pipe to the discharge-pipe. It is then forced inwardly again, while the other piston carries the water around. The water is drawn from the induction-pipe by means of the vacuum produced by the rotation of piston-cylinder and pistons.

191,958.



1. Cylinder A, provided with heads or disks D D, having eccentric oblong apertures, substantially as set forth.

2. Bearings J J', having oblique slots *f f'*, substantially as and for the purpose set forth.

3. Bearings J J', in combination with cylinder-heads D D, fastening-screws *j j*, and shaft C, substantially as set forth.

191,959. BRUSHES. G. S. Snell, St. Louis, Mo. [Filed Apr. 20, 1877.]

Brief.—A brush with a hollow handle for obtaining a tooth-wash, and a valve and passages for the flow of the wash to the bristles.

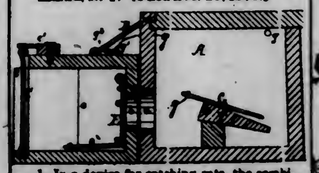


1. The herein-described tooth-brush, consisting of the brush A, handle B, having the chamber *b*, and the shank B', having the passage *b'* and *b'' b''' b''*, substantially as described.

2. The combination of the brush A, hollow handle B, perforated shank B', and valve C, substantially as described.

3. The perforated shank B', perforated plug E, valve C, and seat D, combined substantially as described.

191,960. ANIMAL-TRAPS. La F. Stevens, Elmira, N. Y. [Filed Dec. 20, 1876.]

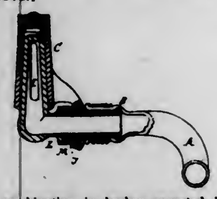


1. In a device for catching rats, the combination, with the bait or feed chamber A, having the entrance-port *a*, of the trap-chamber B, having the port *b*, when the said chamber B is hinged upon the chamber A, over the port *a*, and is so arranged that, the trap being sprung, the chamber B will fall, and be securely held beside the chamber A, and the port *b* will be coincident with the port *a*, as described, and for the purpose specified.

2. In a device for catching rats, the gate E, hung in the port *b*, and constructed with the frame *e'*, covering the said port, and the frame *e''* at an angle thereto, and resting on the floor of the trap, together with the studs or side pieces *e*, as and for the purpose specified.

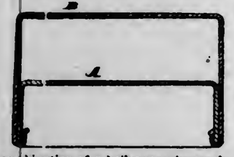
3. In a device for catching rats, the bait-chamber A, having port *a*, the hinged trap-chamber B, having port *b*, the gate E, the ball D, and its locking-groove *d*, the hinged platform F, the bar G, cord *g*, loop *g'*, and pins *g''* and *g'''*, arranged to operate as and for the purpose specified.

191,961. AIR OR VACUUM BRAKES. Wm. J. Stevens, New York, N. Y. [Filed Sept. 30, 1876.]



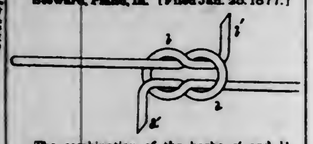
The combination, in brakes operated by vacuum or by air-pressure, of the cocks C C, provided with inlets and outlets, and arranged to be turned, and opened or closed, and be held with the pipe A, with sleeves B B, and arranged to be detached by the motion and separation of the adjoining car, substantially as and for the purpose herein set forth.

191,962. BOILER-COVERINGS. Francis B. Stevens, Hoboken, N. J. [Filed Oct. 26, 1876.]



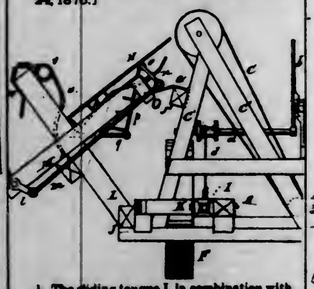
The combination of a boiler-covering made of hollow sections of metal, formed by the inner flanged plate A, secured to the outer flanged plate B by the lips O O.

191,963. BARBED-WIRE FENCES. John F. Steward, Piano, Ill. [Filed Jan. 26, 1877.]



The combination of the barbs *a'* and *b'*, bent as shown, with the knot formed of the interlocked loops *a* and *b*, for the purpose described.

191,964. GRAIN-BINDERS. J. F. Steward, Piano, assignor to E. H. Gammon and Wm. Deering, Chicago, Ill. [Filed Oct. 24, 1876.]



1. The sliding tongue I, in combination with and attached to a binder-frame, carrying a binding mechanism, for adjusting such mechanism to the length of the cut grain, substantially as specified.

2. The carrier B and elevator C, having a fixed position in relation to the main frame, in combination with the adjustable tongue, having a fixed position in relation to the binding mechanism, for regulating the delivery of the grain for binding, substantially as described.

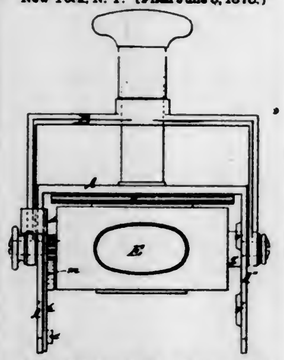
3. The combination of the sliding tongue I, bent bar K, and bar J, supporting the receiver, with the pin *g*, slot A, chain *d*, shaft *a*, lever *b*, and rack *a*, substantially as specified.

4. The combination of the sliding arms *p* and crank-shaft *q* with the tilting receiving-platform H, having openings for the teeth of the arms *p*, all constructed and operating substantially as described.

5. The combination of the toothed arms *p*, slotted receiving-platform H, and the fixed spring-arms *s v*, for compacting the gavels, substantially as specified.

6. The separate plate W, having slot W', attached to the frame, in combination with the needle-arm, whereby the needle-arm is cleared from straws on its upward movement, substantially as described.

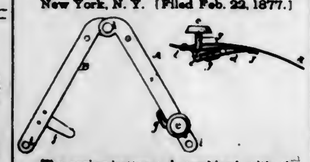
191,965. HAND-STAMPS. B. L. Tarbox, New York, N. Y. [Filed June 6, 1876.]



1. In a hand-stamp, the rack *m*, attached to a hinged lever, *b*, or its equivalent, arranged to operate substantially in the manner and for the purpose described.

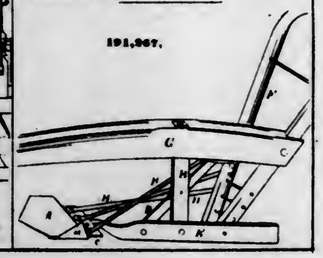
2. The square guiding-block *g* on one side of the die-block E, in combination with the separated guides *e* and *e'* on the inner side of the leg A'' of a hand-stamp, in the manner and for the purpose substantially as set forth.

191,966. GLOVE-FASTENERS. H. Texier, New York, N. Y. [Filed Feb. 22, 1877.]



The spring-button *c d*, combined with the parts *c g g*, attached to the plate A, and the part *f*, attached to the plate B, the whole forming a fastener contructed and operating substantially as shown and described, and for the purposes set forth.

191,967.



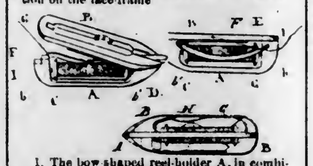
191,967. PLOWS. J. W. Thom, Minneapolis, Kans. [Filed Dec. 18, 1876.]

Brief.—To a cross-plate, secured to a curved land-side bar and brace, a share having cutter is attached.

The combination, in a sod-plow, of the share A, having cutter *a*, the curved land-side bar E, the curved brace D, and plate *c*, all arranged and secured together substantially as described.

191,968. SHUTTLES FOR SEWING-MACHINES. Geo. H. Thomas, Bowmanville, Ontario, Canada, assignor of one-half his right to W. J. McMurtry and C. Tod, same place. [Filed Feb. 19, 1877.]

Brief.—The shuttle is composed of two skeleton frames, hinged together, one forming the face and the other carrying the bobbin, the bobbin being held in its bearings by a projection on the face-frame



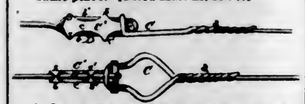
1. The bow shaped reel-holder A, in combination with the slotted plate B, hinged together and forming a skeleton shaped shuttle, substantially as and for the purpose specified.

2. The cap D, attached to the slotted plate B, in combination with the pivot *b'* and reel-holder A, arranged substantially as and for the purpose specified.

3. The combination, substantially as described, of the plate B, spring notched plate E, and wire F, as and for the purpose set forth.

4. The combination of the plate A, guard-plate G, and thread-spring H, substantially as shown and described.

191,969. WIRE BALE-BAND CONNECTIONS. S. L. Thorne, Albany, N. Y., assignor to O. Van Dersee; said Van Dersee assignor of one-half his right to D. H. Mathias, same place. [Filed Mar. 21, 1877.]



1. In a connecting device for wire bale-bands, the combination, with the body *c*, having an attaching-piece adapted to engage with a loop, of the clinching or binding lips *s s* and *s' s'*, employed in pairs, with a groove or recess between, and adapted to receive the limbs of a hook, and being bent over to clinch down or bind on said limbs, as and for the purpose set forth.

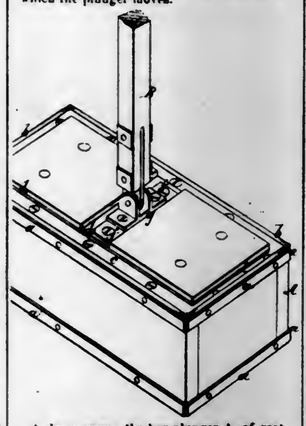
2. The combination, with hook D, of the connecting device C, constructed with the parts described, and secured to the said hook, as set forth, and adapted to engage with a loop made with the opposite end of the wire from which hook D is made, substantially as and for the purpose set forth.

191,970. ORNAMENTED WINDOW-GLASS. Robt. M. Tudor, Philadelphia, Pa. [Filed Jan. 25, 1877.]

As a new manufacture, an ornamented glass window-pane, consisting of a plate of ordinary window-glass, in combination with a paper on which there is printed, painted, or stained opaque lines and transparent colored figures in representation and imitation of the leaden sash and colored glasses in stained windows, substantially as set forth.

191,971. PUMP-PLUNGERS. H. H. Tuttle, San José, Cal., assignor of one-half his right to F. Field, same place. [Filed Apr. 29, 1876.]

Brief.—A box-plunger, rectangular in form, has sides rigid from top to bottom, its upper and lower edges provided with strips of packing material, which keep the plunger steady and free from oscillation. The top edge of the plunger has a cup-shaped packing, the outer edge of which turns up beyond the top of the plunger, thereby presenting a yielding surface against the inside of the chamber in which the plunger moves.



1. In a pump, the box-plunger A, of rectangular form, divided by a single partition, A', into compartments, in combination with the supply-passage M at the base of the pump, substantially as shown and described.

2. The long stiff box-plunger A, having its sides rigid from top to bottom, the said sides having their upper and lower exterior edges provided with projecting strips *a*, in combination with an upwardly-extended packing, *b*, substantially as described.

3. The binding-plate *c*, stamped out of a single piece of metal, in the form shown, in combination with the packing *b*, for the purpose set forth.

4. The rigid rectangular box-plunger, constructed with the projecting strips *a*, the yielding packing-strip *b*, and binding-plate *c*, substantially as described.

191,972. AMALGAMATORS. Thos. Walker, Philadelphia, Pa., assignor to T. Walker, J. W. Bancroft, and S. H. Safford, same place. [Filed Sept. 18, 1876.]

Brief.—The porous section allows the expansion of the air without increase of tension. The ore drops down from the retort, and is carried away by the screw-conveyor. It is cooled on its passage.

1. The retort A, provided at or near its upper end with a porous section, F, as set forth.

2. The combination of the retort A with the annular extension A', having double walls, forming an annular chamber, *s*, and with means, substantially as described, for conveying the ore through this extension, as set forth.

191,973. PAVEMENTS. E. Waters, Bloomington, Ill. [Filed Oct. 31, 1876.]

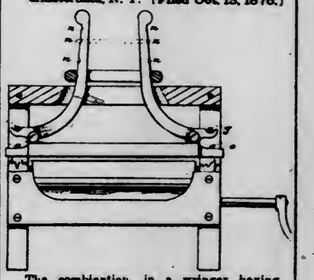


1. The blocks A A, made of brick, artificial stone, or other equivalent material, and provided on one or more sides with projections *a*, which bear against the side of adjoining blocks, and form spaces between the blocks, substantially as and for the purposes herein set forth.

2. The block A, constructed as described, with projections *a*, lugs *b b'*, and grooves or recesses *d d'*, substantially as and for the purposes herein set forth.

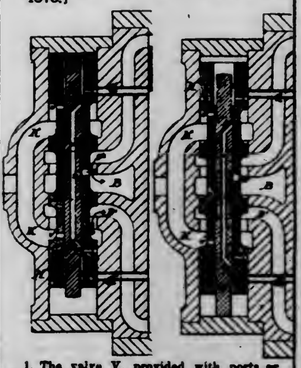
3. The blocks A A, of brick or artificial stone, having projections *a*, lugs *b b'* and recesses *d d'*, and saturated with coal-tar, pitch, or asphalt, or a mixture of the same, cementing the blocks firmly together, when combined and used for the purposes herein set forth.

191,974. CLOTHES-WRINGERS. J. Young, Amsterdam, N. Y. [Filed Oct. 13, 1876.]



The combination, in a wringer having notched levers, of the weight L, operating substantially in the manner and for the purpose specified.

191,975. VALVES FOR STEAM-ENGINES. J. F. Allen, New York, N. Y. [Filed May 5, 1876.]



1. The valve V, provided with ports or passages *a a'*, *v v'*, and *w*, in combination with an auxiliary valve, W, adapted to move independently and in advance of the main

valve V, when arranged to operate in combination with auxiliary passages G G', passing from the cylinder into the steam-chest and the steam-passage K, substantially in the manner described, and for the purpose set forth.

2. The combination of the valve V, auxiliary valve W, central passage J, ports m m', central port n, recesses s s', port w, and exhaust-passage B, in the manner substantially as set forth, and for the purpose described.

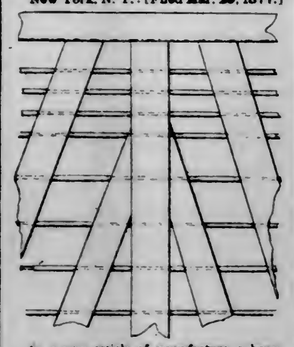
191,276. PAPER BOXES. M. Backes, Wallingford, Conn., assignor to Geo. Parsons, Brooklyn, N. Y. [Filed Apr. 28, 1877.]



1. The combination of the flexible pasteboard box A with the rigid metallic cover B, whose sides extend down as far as the bottom of the box, so that the closed box will have a flexible bottom and rigid top and sides, substantially as herein shown and described.

2. The combination of the flexible pasteboard box A with the rigid metallic cover B, the sides of said cover extending down to the bottom of the box, and being provided with the notches or recesses a a at their lower edges, substantially as herein shown and described.

191,277. HOOP-SKIRTS. Alfred Benjamin, New York, N. Y. [Filed Mar. 29, 1877.]



As a new article of manufacture, a hoop-skirt having hoops formed with cords secured to one or both edges of the same by the braid, a portion of the threads of which pass between the cord and spring, said hoops being secured to the skirt by stitches passing through said corded edge or edge, substantially as and for the purpose set forth.

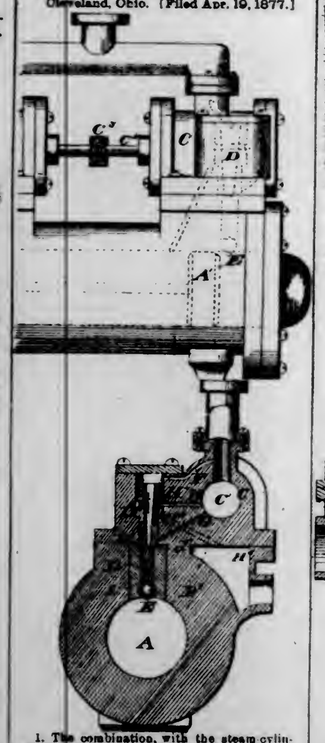
191,278.



191,278. TOY VELOCIPEDES. J. B. Conklin, Seneca Falls, N. Y. [Filed Feb. 7, 1877.]

A toy velocipede consisting of the wire hoop a, having legs f, the shaft e, driving-bar d, the figure of a rider, the carriage, provided with grooved wheels f, and the clock-work driving mechanism, all constructed and arranged to operate as described.

191,279. STEAM-VALVES. Samuel Curtis, Cleveland, Ohio. [Filed Apr. 19, 1877.]



1. The combination, with the steam-cylinder A, independent valve-chambers C, and valves C', the latter connected to move in unison with each other, of the hollow double-seated lift-valves D, steam-conduits & G, and exhaust-conduits H, H', and H², substantially as and for the purpose set forth.

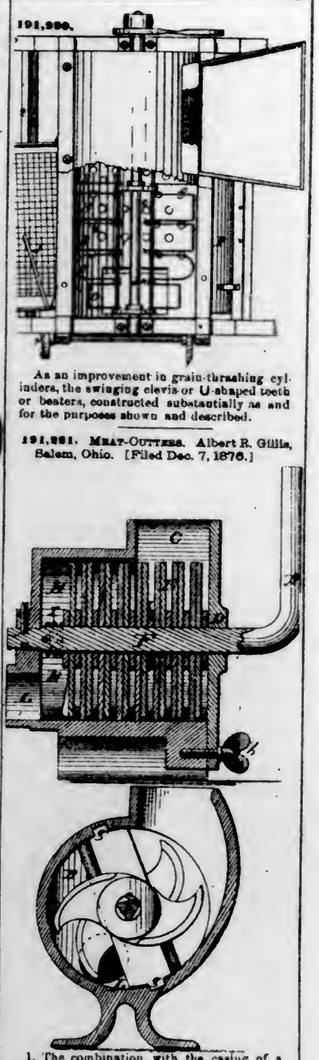
2. The combination, with cylinder A, piston A', independent valve-chambers C, and valves C', of the lift-valves D, provided with suitable steam and exhaust ports, as described, and ball E, the latter arranged to project slightly within cylinder A, substantially as and for the purpose set forth.

3. The combination, with valves C', of the hollow double-seated lift-valve D, steam-passages & G leading to one end of the valve-chamber C, and exhaust-passages H, H', and H², connecting with the upper portion of valve D, substantially as and for the purpose set forth.

4. The combination of the valve D, ball E, and piston A', substantially as and for the purposes described.

5. The combination, with a main steam-cylinder, and two valves located in independent valve-chambers, each of which govern separate steam and exhaust ports leading to the ends of the main cylinder, of independent lift-valves located outside of the main valve-chambers, and steam and exhaust ports connecting the lift-valves with the outer ends of the main valves, the exhaust-ports being open to the atmosphere while the piston is traveling between the lift-valves, substantially as and for the purpose described.

191,280. THRASHING-MACHINES. Rufus Durand, Canandaigua, N. Y. [Filed Oct. 18, 1876.]



As an improvement in grain-thrashing cylinders, the swinging clevis or U-shaped teeth or beaters, constructed substantially as and for the purposes shown and described.

191,281. MEAT-CUTTERS. Albert R. Gillis, Salem, Ohio. [Filed Dec. 7, 1876.]

1. The combination, with the casing of a meat-cutter, having a hopper formed on one end of said casing, of a detachable cylinder-head, which serves to form a removable side of the hopper, substantially as and for the purpose set forth.

2. The combination, with the discharge-orifice of a meat-cutter, of a screw, located in a hub surrounding said orifice, said screw arranged to restrict or enlarge the opening of said orifice, substantially as and for the purpose set forth.

3. The combination, with the casing of a meat-cutter, of the removable head, constructed with open slots a a, and notches or depressions c c and set-screw b, substantially as and for the purpose set forth.

4. The combination, with the revolving shaft, constructed with angular faces, of revolving knives secured to said shaft, and stationary knives, the ends of which are secured to the casing, said stationary knives provided with openings to allow of the free rotation of the shaft therein, substantially as and for the purpose set forth.

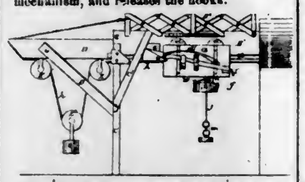
5. The combination of the stationary knives with the casing, having a discharge-orifice

below its center, and provided with grooves located at one side of a perpendicular line drawn through the center of the casing, substantially as and for the purpose set forth.

6. The combination, with the series of knives, of a spiral or other spring located on the shaft, and adapted to impart a yielding pressure to the knives, substantially as and for the purpose set forth.

191,282. HAT-ELEVATORS. G. Hersman, Hersman, Ill. [Filed Apr. 9, 1877.]

Brief.—The cross-bar operating the pivoted hooks is provided with a loop, through which the draft-rope passes, carrying the chain, which, on arriving at the loop, depresses the bar by means of the strain on the hoisting mechanism, and releases the hooks.

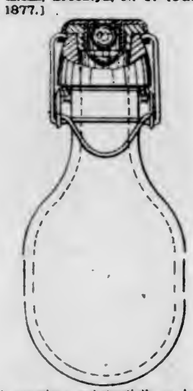


1. The combination, with the stationary ridge-beam B, having tracks a a, of the detachable beam B', with tracks a' a', detachable braces C C', and the detachable beam D, with braces D' and pulleys E E', substantially as and for the purposes herein set forth.

2. The combination of the car G with its wheels d d, the pivoted hooks H H, springs d', cross-bar I, with loop or bend f, and the legs e e, substantially as and for the purposes herein set forth.

3. The combination, with the car G, of the hoisting-rope J, chain m, cross-bar I, connecting the hooks H, the pulley K, and the annular weighted guide L, suspended from the pivoted bail M, all substantially as and for the purposes herein set forth.

191,283. BOTTLE-CLOSING DEVICES. Wm. H. Hicks, Brooklyn, N. Y. [Filed Apr. 14, 1877.]



1. A cap-piece, substantially as hereinbefore described, plain upon its upper surface, but having an opening through it, having on its under side a chamber, the bottom of which is nearly covered by a deflecting plate or shield, and provided with means, substantially as described, to connect to a closing leverage, all arranged substantially in the manner and for the purposes forth.

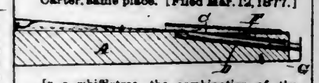
2. In a bottle-closing mechanism the combination, substantially as hereinbefore described, of a cap-piece, plain on its upper surface, but having an opening through it, having on its under side an angularly-projecting flange surrounding said opening, an annular packing-piece surrounding said flange within the walls of said flange, having an annular valve-seat surrounding said opening, and a stopper or valve contained in the chamber formed by the inner walls of said flange above a deflecting and supporting shield, with a lifting and closing mechanism, substantially as described, all arranged to operate substantially in the manner and for the purposes set forth.

3. The combination, substantially as hereinbefore described, of annular packing-piece grooved or recessed on its inner walls, with a flanged cap-piece, which it surrounds, having or provided with openings through its thickness to communicate with said grooves or recesses, all arranged to operate substantially as and for the purposes set forth.

4. In a bottle-closing device a deflecting plate or shield placed beneath a chamber on the under side of a cap-piece, to close, ordinarily close, said chamber at its bottom, but leaving an opening to said chamber at its lower circumference, substantially as and for the purposes set forth.

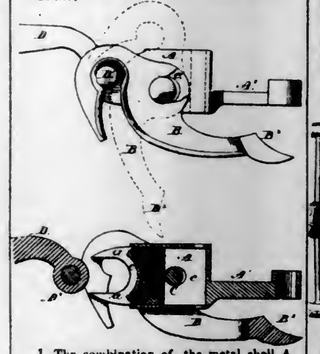
5. The combination, substantially as hereinbefore described, of a lever-wire or metallic piece, curved or bent at its central portion, having bearings or eyes about equidistant from its center, and at its ends arranged to joint to or in bearings attached to a bottle, with a wire or metallic piece bent or curved at its central portion, pivoting in bearings in said lever-wire, and arranged to be attached to a cap-piece of a bottle, all arranged to operate substantially as and for the purposes set forth.

191,284. HORSE-DETACHERS. G. A. Hildebrand, Asheville, N. C., assignor to T. D. Carter, same place. [Filed Mar. 12, 1877.]



In a whiffletree, the combination of the draw-barn D, contained in suitable recesses in the end of the tree, the rubber band C, the guard or band C, the guard or cover F, and the L-shaped piece G, all constructed and adapted to operate in connection with the traces, in the manner and for the purpose specified.

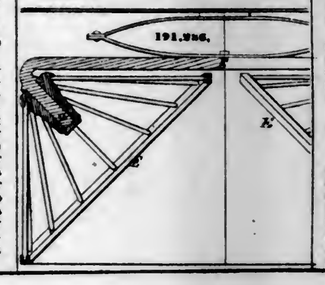
191,285. THILL-COUPLINGS. C. C. Hinkley, Rookford, Ill., assignor to himself and J. D. Tanner, same place. [Filed Sept. 1, 1876.]



1. The combination of the metal shell A and bifurcated hooked bail B, having the thumb-piece B' attached thereto, substantially as described, and for the purpose set forth.

2. The combination of the rubber C, having the metal facing C' inclosed within the shell A, the bifurcated hook B, shell A, and thill-iron D, arranged and operating substantially as described, and for the purpose set forth.

191,286.

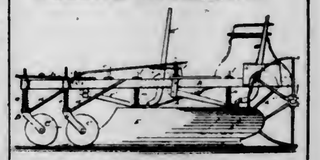


191,286. WHEELS AND AXLES. Jas. Humphrey, Boston, Mass. [Filed July 17, 1876.]

1. A dished wheel for vehicles, in which the spokes are set at an angle of about forty-five degrees with its axis, so that the rim will travel beneath the body of the vehicle, substantially as shown and described.

2. In combination with the dished wheel, as described and shown, the axle E, having its spindle bent, substantially as shown and described.

191,287. ROAD-SCRAPERS. L. F. Jefferson, Monmouth, Ill. [Filed May 8, 1877.]



1. In a road grading and cleaning machine, the side pieces B and B', one of them shorter than the other, for the purpose described, in combination with the cross-pieces a and platform b, as set forth.

2. The trailing or caster wheels C and C', carried by the adjustable vertical screw-threaded standards D, with springs e, in combination with the side pieces B and B' of the machine-frame and flexible supports d, as and for the purposes set forth.

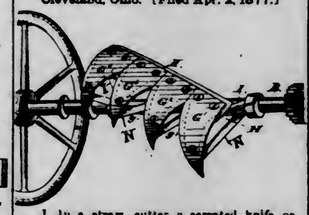
3. The rocker-bar I, provided with guides s, in combination with the tongue L, fifth-wheel or circle, and lever P, provided with the cross-bar h and pins d', for securing and releasing the tongue, as specified.

4. The scraper E, in combination with the supporting-links b', guide-rods l, and springs m, as and for the purposes set forth.

5. The scraper E, in combination with the levers F and F', guide-rods and springs m, links i, hand-levers G and G', and rack-guides k, all constructed and arranged substantially as and for the purpose specified.

6. A road-scraper consisting of the frame B B', supported on wheels A' A' and spring caster-wheels C C', constructed and arranged substantially as set forth.

191,288. STRAW-CUTTERS. Wm. Kachin, Cleveland, Ohio. [Filed Apr. 2, 1877.]



1. In a straw-cutter, a serrated knife or cutter curved to correspond with the surface of the section of a cylinder taken diagonally across its axis, said knife suitably attached to a shaft, substantially as and for the purpose described.

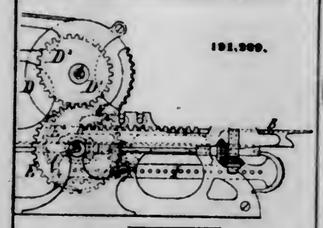
2. In a straw-cutter, a serrated knife or cutter curved to correspond with the surface of the section of a cylinder taken diagonally across its axis, the cutting-edges of the knife diverging equally from a vertical plane at right angles to the axis of the shaft to which said knife is suitably attached, substantially as and for the purpose described.

3. In a straw-cutter, a serrated knife or cutter curved to correspond with the surface of the section of a cylinder taken diagonally across its axis, in combination with bar H, rods I, arms N, and shaft B, substantially as and for the purpose described.

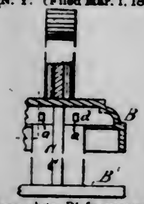
191,289. PRINTING-PRESSES. C. Potter, Jr., Plainfield, N. J. [Filed May 27, 1876.]

The bed B, reciprocated with a uniform movement, in combination with gear wheels, having concentric portions D¹ E¹ for communicating a corresponding motion to the drum D during the time while the impression is being taken, and eccentric portions D² E² for communicating a variable slower motion to the cylinder during the time they are out of gear, substantially as herein specified.

191,289.

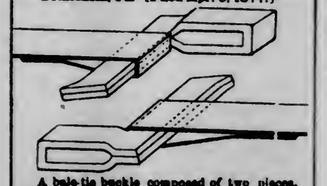


191,290. MONUMENTS. Alex. Smith, Palmyra, N. Y. [Filed Mar. 1, 1877.]



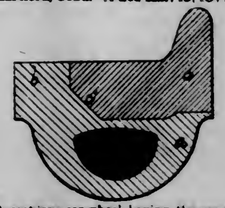
A sub-base plate, B', for monumental headstones, provided with one or more vertical standards, C, adapted to be detachable secured to the base B by a key or keys, *a*, substantially as and for the purposes set forth.

191,291. BALE-TIES. D. A. Tompkins, South Bethlehem, Pa. [Filed Apr. 3, 1877.]



A bale-tie buckle composed of two pieces, each of which is an angled piece, with one end formed into a loop or hook, and the other to pass through the fold in the tie, the looped end of each piece to receive the other end of its corresponding piece, substantially as described.

191,292. CAR-WHEELS. N. Washburn, Hartford, Conn. [Filed Mar. 19, 1877.]



A cast-iron car-wheel having the comparatively unused portion of the tread *b* of cast-iron, and the remaining portion *c*, including the flange, of steel, welded or fused to the iron in the process of casting, substantially as shown and described.

191,293. CAR WHEELS AND AXLES. N. Washburn, Hartford, Conn. [Filed Dec. 14, 1876.]

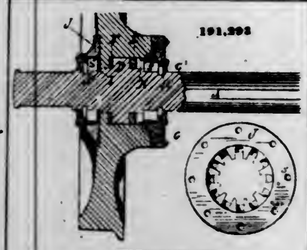
Brief.—One of the wheels is loose upon the axle, the other being of the ordinary construction. The loose wheel is retained in place by a flange on the axle and collars secured to the hub. Loose washers and packing-chambers are provided.

1. The cap-flange G, provided with the radial packing-chambers.

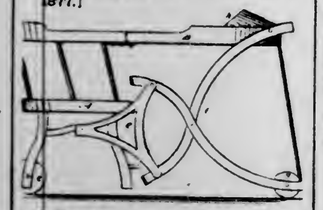
2. In combination, axle A, provided with groove A', wheel C, cap-flange G, and plate T.

3. In combination, axle A, provided with grooves A' A'' and fixed flange D, wheel C, having cap in the hub to receive flange D, loose collars E F, cap-flanges G J, and plates T T'.

191,293



191,294. NURSERY-CHAIRS. L. I. Adams, East Templeton, Mass. [Filed Apr. 9, 1877.]

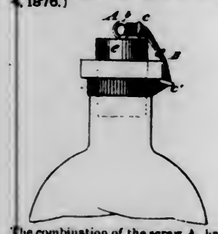


1. The chair A, support C, toy-box B, and triangular pieces *c*, in combination, substantially as herein shown and described.

2. The toy-box B, having the cover A, substantially as shown and described.

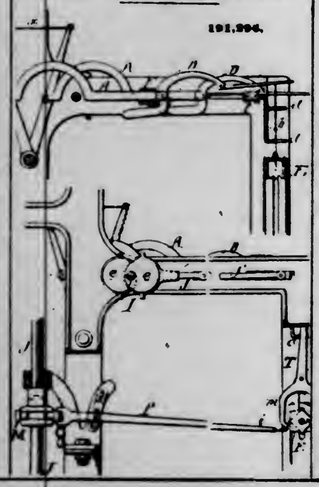
3. The combination of the wheels *e g* with the chair A and support C, substantially as herein shown and described.

191,295. STOPPER ATTACHMENTS. Barnard Arnold, Foster Centre, R. I. [Filed Dec. 4, 1876.]



The combination of the screw A, having the eye *b*, the elastic band B, and the slides *c c'*, substantially as herein shown and described.

191,296



191,296. SHEDDING MECHANISMS FOR LOOMS. J. S. Ashworth and J. J. Hanson, Philadelphia, Pa. [Filed Mar. 16, 1877.]

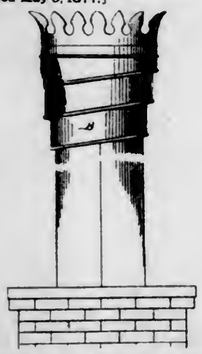
Brief.—The jacks are provided with pivoted levers, and the latter have weighted extensions, adapted to counterbalance the outer ends of the levers. The jacks are further provided with shoulders, which bear against the lifter-bar. By this construction the levers are free from the strain of the heddles when the former are acted upon by the needles of the jacquard mechanism. When the clutch of the shedding shaft is thrown out of gear, the action of the clutch-lever through an intermediate lever reverses the position of the clawkers, in order that the pattern-chain may be turned back when the shedding mechanism is reversed to find the true shed.

1. The combination of the card-cylinder E and its needles *b* with the counterbalanced levers D, jacks A, for operating the heddles, and mechanism for reciprocating said jacks, as set forth.

2. The combination of the reciprocating bars F and F', with the levers D and jacks A for operating the heddles, and passing through openings in said bar F, and provided with shoulders, as described.

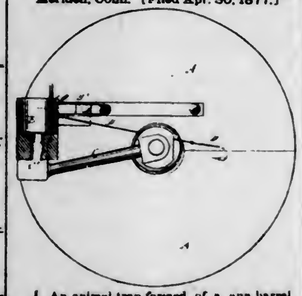
3. The combination of the card-cylinder E, forked lever T, the driving-shaft J and its clutch M, with the lever P, arranged and operating as herein described.

191,297. CHIMNEY-COWLS. Andrew F. Barry and Ira G. Lane, New York, N. Y. [Filed May 5, 1877.]



A chimney cowl or ventilator, consisting of the strip B, bent into a spiral form, and having spaces between the successive convolutions of the spiral, substantially as shown and described.

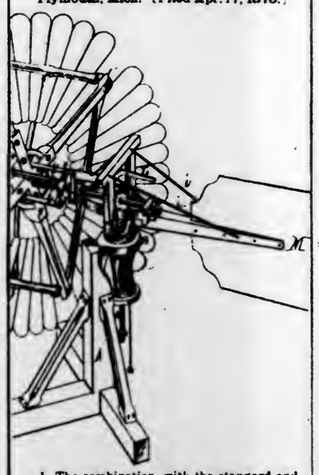
191,298. ANIMAL-TRAPS. E. B. Beach, West Meriden, Conn. [Filed Apr. 30, 1877.]



1. An animal-trap formed of a gun-barrel with spring-hammer, of a circularly-moving piston at the end of a pivoted arm, and of a bait-hook and wire connected to the spring-hammer, substantially in the manner and for the purpose set forth.

2. The combination of a base-disk, A, gun-barrel B, having spring-hammer B', piston C' at the end of pivoted arm C, and bait-hook and wire D' D, attached to spring-hammer, to release hammer on pulling of bait and shoot piston, substantially as set forth.

191,299. WINDMILLS. Lewis H. Bennett, Plymouth, Mich. [Filed Apr. 17, 1876.]

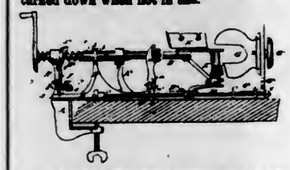


1. The combination, with the standard and ring-brackets S B, of the truncated cone or sleeve C and turn-table D, having boxes at the ends thereof, and all cast in one piece, and to which the tail-vane and shaft of the wind-wheel are secured, substantially as herein shown and described.

2. The combination of the standard A, ring-brackets B, truncated cone or sleeve C, turn-table D, having boxes at the opposite ends thereof, wheel-shaft E, tail-vane M, truss-rods *i*, and hog-frame *j*, the several parts constructed and arranged to operate in the manner herein shown and described.

191,300. APPLE PARING AND CORING, AND PEACH PARING AND STONING MACHINES. Geo. Bergner, Washington, Mo. [Filed Feb. 3, 1877.]

Brief.—A projection on the spring-lever engages the worm on the fork-shaft, which causes the same, upon being revolved, to move back, carrying the rack-rod, which engages the toothed segment of the knife support, with it until the projection on the fork-shaft comes in contact with the curved end of the spring-lever, which disengages the projection thereon from the worm, leaving the whole free to be moved forward by the hand, which throws the knife back to its normal position, so it will not obstruct the operation of the slicing and coring device and the attachment of a fresh apple or peach. The slicing device may be turned down when not in use.



1. In peach and apple parers, the combination of the fork-shaft, having end screw, with a detachable and interchangeable fork, having a central screw-socket, substantially as and for the purpose set forth.

2. The combination of the fork-shaft B, having fixed lug *e*, with the curved tap extension d^3 of the swinging and spring-acted fork-shaft holder F, to throw the same out of gear with worm of fork-shaft, substantially as described.

3. The combination of the swinging and spring-acted fork-shaft holder F, having lug or arm *f* and sliding pivots d^3, with standard having recess f^3 of standard A', to retain the holder securely when in or out of gear with worm, as set forth.

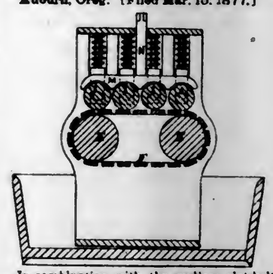
4. The combination of sliding rack-rod D, having hook-shaped end g^3, with the swinging and spring-acted fork-rod holder F, having sliding pivots *d*, to throw the holder into gear with worm by the forward movement of fork-rod, substantially as described.

5. The combination of base-frame A, having guide-supports i^2, with slide-rod H, having adjustable screw-nuts i^3, and swinging knife-standard G^1, substantially as and for the purpose described.

6. The combination of base-frame A, having supports i^2 and guide-rail *i*, with slide-rod H and flanged base-frame of knife-standard G^1, substantially as set forth.

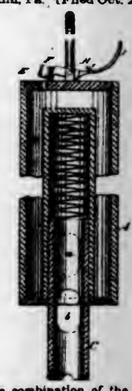
7. The combination of the slicing-knife G, having base-plate k and screw k^1, with the slotted standard G^1 and convex clamping-knob G^2, substantially as described.

191,301. WASHING-MACHINES. D. Best, Auburn, Oreg. [Filed Mar. 15, 1877.]



In combination with the endless slat-belt F, mounted as described, the series of pressing-rollers I I I, each of which is mounted in independent slides *j j*, and pressed downward by a spring, K, and the brake-bar M, applied to said rollers by means of the lever L, and connecting-bar N, substantially as and for the purpose described.

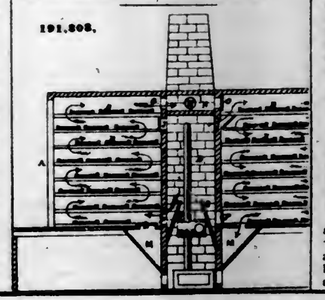
191,302. SAND-PUMPS. William H. Birge, Franklin, Pa. [Filed Oct. 23, 1876.]



1. The combination of the pump-body A, capped tube B, having the opening *a*, the valve C, having the opening *b*, and the spring D, substantially as shown and described.

2. The combination of the lever G, having the enlarged end I, the valve F, and the pump-body A, provided with the air-aperture E, substantially as shown and described.

191,303



191,303. FRUIT-DRIERS. R. B. Blowers, Woodland, Cal. [Filed Apr. 3, 1877.]

1. The heating-chamber D, with its air-passages M N, and the drying-rooms A, with their tiers of trays or other materials, in combination with the doors P and O, the passage N, and the uptake or chimney E, substantially as and for the purpose herein described.

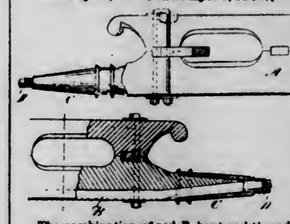
2. The heating-chamber D and the drying-rooms A, having the upper and lower passages N and M, with their respective connecting-doors O P and J L, in combination with the draft-chimney E, whereby a current of heated air may be caused to pass through the drying-rooms in either direction at will, without the aid of any other apparatus for producing a draft, substantially as herein described.

191,304. WIRE SCREWS AND NUTS. John T. Bruen, Brooklyn, N. Y. [Filed Apr. 2, 1877.]



The method of forming a nut for wire screws by slotting a loose tube over the grooves of the screw, inserting in said slots wires that project into said grooves, and setting the metal of the tube down around the wire, as described.

191,305. WAGON-AXLES. W. F. Buckelew, Shreveport, La. [Filed Apr. 7, 1877.]



The combination of rod B, bent and threaded at the ends, the end countersunk shells C, and the bevel-faced nuts D, to hold the shells securely to the axle A, as shown and described.

191,306. FIRE-EXTINGUISHING COMPOUNDS. Friedrich Budy, Leipsic, Saxony, Germany. [Filed Mar. 3, 1877.]

A fire-extinguishing compound consisting of chlorate of potash, rosin, nitrate of potash, and oxide of manganese, moistened with a solution of silicate of soda, and compressed into a block, the latter being surrounded by a fire-proof wrapper and provided with a fuse, as set forth.

191,308.

191,307. EXPANDING ROCK-DRILLS. W. R. Burt, East Saginaw, Mich. [Filed Apr. 9, 1877.]

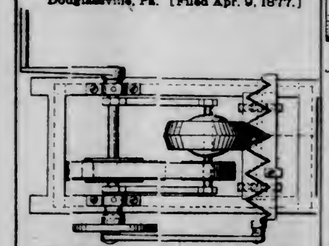
Brief.—The hand holds the arms in their hinged sockets. The sliding wedge is operated by the screw-shaft to contract or expand the hinged arms. The device is for use in enlarging the lower part of salt, oil, and Artesian wells.

The combination of the hinged expanding-arms, having interior guide-grooves, with a vertically-sliding wedge-piece guided therein, and an operating screw-shaft, turning in the head of the arms and in the wedge-piece, substantially as specified.

191,807.

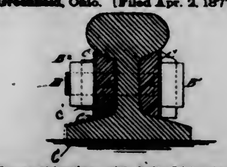


191,808. GRINDSTONE SHARPENING ATTACHMENTS. H. F. Bush and M. L. Bush, Douglassville, Pa. [Filed Apr. 9, 1877.]



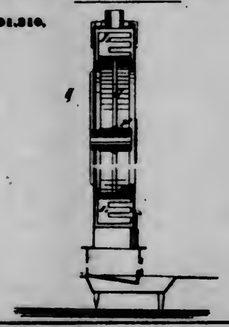
The combination of a driving main grindstone with a second revolving grindstone, turning in bearings of a swinging frame, centered to shaft of main grindstone, and with a reciprocating knife-supporting bar or plate, substantially as and for the purpose herein specified.

191,809. NUT-LOCKS. Samuel Caldwell, Greenfield, Ohio. [Filed Apr. 2, 1877.]



The combination, with bolts B' having recessed heads, nuts B', and fish-plates A, of the washers C extended over the top and bottom of fish-plates, and having one or more upturned flanges, C', substantially as and for the purpose specified.

191,810.



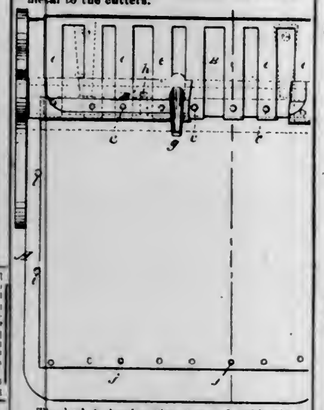
191,810. TIRE-HEATERS. Philip W. Cassil, New Athens, Ohio. [Filed Apr. 16, 1877.]

Brief.—The inner rim is provided with slotted plates, which serve as racks to receive and support tires of different sizes.

The combination of the racks L with the revolving inner rim H of a tire-heating chamber, substantially as herein shown and described.

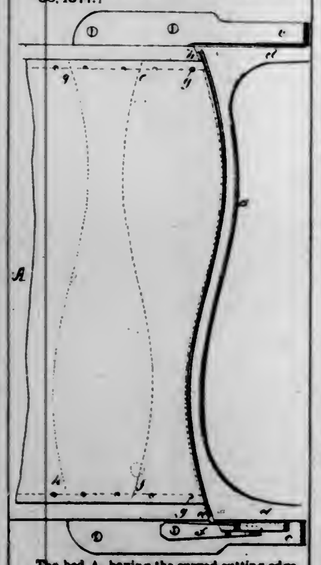
191,811. DEVICES FOR PUNCHING SHEET METAL FOR PIPE-ELBOWS. G. Choate, East Saginaw, Mich. [Filed Apr. 30, 1877.]

Brief.—A gang of punches supported separately by springs; a series of holes corresponding thereto in the table beneath, and a rock-bar operated by a lever to force the punches through the sheet of metal; and guide-pins for properly adjusting the sheet of metal to the cutters.



The bed A, having the stop and guide pins *h i j*, the dies *a*, guide B, punches *c*, bar B', and lever *g*, in combination, substantially as shown and described.

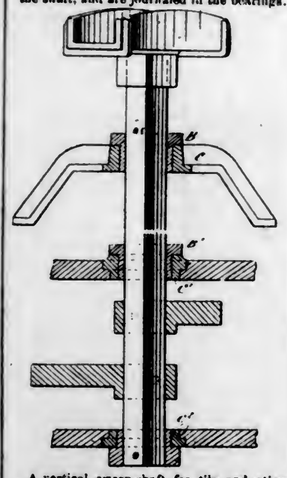
191,812. DEVICES FOR CUTTING SHEET METAL FOR CURVED PIPE-ELBOWS. G. Choate, East Saginaw, Mich. [Filed Apr. 30, 1877.]



The bed A, having the curved cutting-edge *a b*, arms *c*, and guide-pins *g*, and the curved shear-blade B, having arms *d*, in combination, substantially as shown and described.

191,813. TILE-MACHINES. G. S. Clark and W. M. Purcell, Piqua, Ohio, assignors to said Clark and John O'Ferrall & Co. same place. [Filed Mar. 12, 1877.]

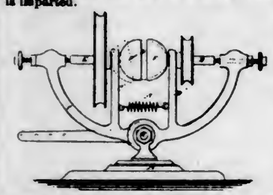
Brief.—The collars are secured by pins on the shaft, and are journaled in the bearings.



A vertical sweep-shaft for tile and other machines, having between itself and its bearings C C' (2 the flanged collars B B' B2, as and for the purpose specified.

191,814. FRICTION-CLUTCHES. Wm. H. Clark, Chicago, Ill. [Filed May 12, 1877.]

Brief.—The two hemispherical cups inclose an elastic ball, and when the cups are drawn in close contact with the ball friction motion is imparted.



The cups F F' and intermediate ball G, in combination with spindles D E, the latter having its bearings in a frame, O O', which is pivoted at *a*, and acted on by a spring, S, substantially as described.

191,815. SCREW-THREAD COUNTERS. C. C. Coleman, Honolulu, Hawaii. [Filed Mar. 17, 1877.]

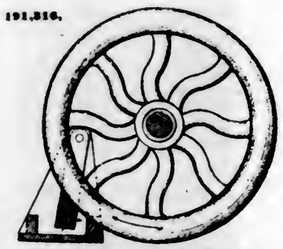


1. The notched or serrated plates C, for the purpose of determining the number of threads upon bolts, nuts, dies, taps, &c., substantially as herein described.

2. The serrated plates C, for indicating the number of threads to an inch, said plates being united at D, so as to form a case or book of indicators of different sizes, substantially as herein described.

191,816. DEVICES FOR PREVENTING BACK MOTION OF SEWING-MACHINES. Geo. M. Converse, Cleveland, Ohio, assignor of one-half his right to G. B. Tuttle, same place. [Filed May 2, 1877.]

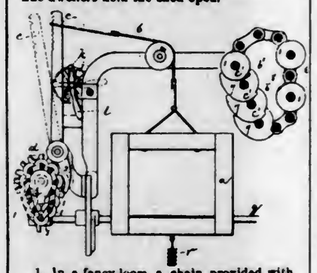
191,816.



The combination, with the fly-wheel of a sewing-machine, of a swinging frame having a friction-pad secured thereto, and a guard and a stop secured relatively to the swinging frame, in the manner described, and thereby serving to limit the movement of the pad in either direction, substantially as described.

191,817. SHEDDING OR HARNESS-OPERATING MECHANISMS FOR LOOMS. G. Crompton and H. Wyman, Worcester, Mass. [Filed Feb. 27, 1877.]

Brief.—The invention comprehends the special arrangement of the shedding mechanism pointed out in the claims. Further, a device is provided for leveling the warps, and for shifting the levers relatively to the pattern-chain, whereby the pattern may be changed without increasing the length of the chain. The chain is of peculiar construction, being provided with elevators, dwellers, and spaces. The dwellers hold the shed open.



1. In a fancy-loom, a chain provided with elevators, dwellers, and spaces, substantially as described, adapted to indicate the pattern to be woven, substantially as set forth.

2. In a fancy-loom, a chain provided with elevators and spaces, and mounted upon a cylinder rotating in stationary bearings, and adapted to indicate the pattern to be woven, in combination with vertical levers connected with the harness-frames by cording, and with springs to depress the harness-frames, the chain being adapted to operate against the short ends of the levers, substantially as described.

3. A lifting-arm to move the vertical levers, connected by cording with the harness-frames, away from the pattern-surface, in combination with a duplex pattern-surface, and with a shifter to move the levers laterally with reference to the pattern-surface, substantially as described.

4. The crank-shaft, its worm-gear *p*, worm-toothed wheel, and pattern-surface, in combination with the short upright levers, provided with ends 2, against which said pattern-surface acts, and with harness-frames, connections *b*, and springs *r*, all substantially as described.

5. The levers *e*, shaft *d*, and lever *f*, in combination with the shifter *j* and lifting-arm *k*, substantially as described.

6. The combination, with levers, connected harness-frames, springs, and pattern-surface, of a lifting-arm to move the levers not acted upon by the pattern-surface, whereby the connected harness-frames are lifted and the warps evened, as set forth.

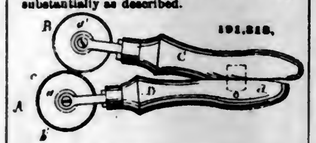
191,818. GRADING-MACHINES. J. B. Cross, Cleveland, Ohio. [Filed May 14, 1877.]

1. The roller A, constructed with a hard interior, an elastic body, *a*, a flexible lining or secondary cover, *b*, and a hard exterior cover of sized braided cord wound thereon, substantially as specified.

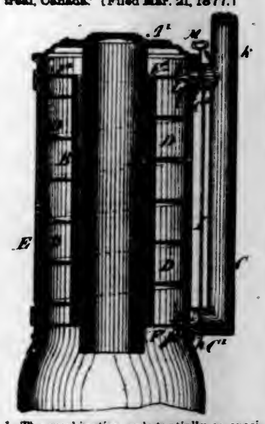
2. The roller B, constructed with a hard interior, a flexible body, *a'*, and a flannel covering, in combination with the roller A, substantially as and for the purposes specified.

3. The handles C D, one or both having a curved or bended side, in combination with the blade or pin *a*, so that the rollers may be brought in contact or separated as the handles are grasped in front or rear of the blade, substantially as described.

191,818.



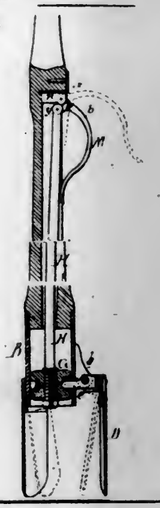
191,819. STOVES. Chas. Dion, Chambly Basin, Quebec, assignor of one-twentieth part of his right to R. A. R. Hubert, Montreal, Canada. [Filed Mar. 21, 1877.]



1. The combination, substantially as specified, of the fire-chamber, the coal-reservoir, the annular flue surrounding the same, the encircling spiral flue covered by hoods at bottom and top, the stove-pipe, having branches C' and C2, and valves for controlling openings in the heads of the spiral flue and the branches of the stove-pipe.

2. In combination with the spiral chamber D, the doors H and L, rod I, cranks k and *l*, and lever K, all as and for the purposes herein set forth.

191,820.



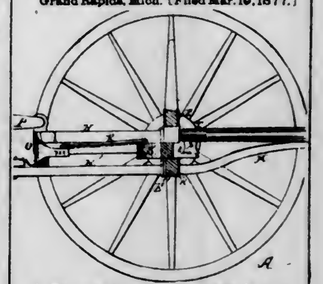
191,820. POST-HOLE DIGGERS. T. S. Dimston, Philadelphia, Pa., assignor to Henry Disston & Sons, same place. [Filed Mar. 16, 1877.]

Brief.—Three circular blades are pivoted to a handle, which has a central rod to operate the shovels by extending or compressing the same, as may be desired.

1. The combination, in a post-hole digger, of the bluged digging-blades D with the lever M and devices, substantially as described, whereby the said lever can be used to both move the blades inward and lock the blades when the latter are open, as set forth.

2. The combination of the blades D and their arms *e* with the rod H and grooved collar G, as described.

191,821. VEHICLE RUNNING-GEAR. J. W. Drew, W. J. Drew, and W. M. Robinson, Grand Rapids, Mich. [Filed Mar. 10, 1877.]



1. The caps G, with their sockets *h*, to receive braces, and with tubes *h* for holding the two bolsters a certain distance apart, substantially as shown and described.

2. The wheel-hub A, formed with a hollow rim, *d*, on its inner end, said rim being provided with the beads *x*, in combination with the wheels a and chair C, substantially as and for the purposes herein set forth.

3. The tubular chair C, provided with the grooved head C' and arms D D, with pivots *f f*, as and for the purposes herein set forth.

4. The combination of the wheel A, having hollow rim *d* on the inner end of its hub, the axle B with block *c*, pivoted chair C, wheels e, and balls *b*, all constructed and arranged substantially as and for the purposes herein set forth.

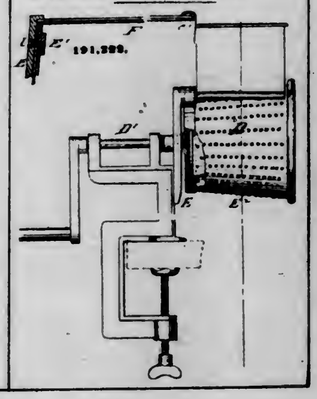
5. The combination of the tongue-bracket O with arms *n n*, tongue P, crossed braces R R, lever S, straps *s s*, and pivoted chairs C C, substantially as and for the purposes herein set forth.

6. The combination of the levers S S, having slotted arms *t t*, the reach L, sleeves T T, with pins *p p*, and the brackets K K, substantially as and for the purposes herein set forth.

7. The combination of the parallel front braces H H and H' H', sleeve I, and tongue-bracket O, substantially as and for the purposes herein set forth.

8. The combination of the bolster-caps G, braces H and J, reach-brackets K, with sockets, and the center braces M, substantially as and for the purposes herein set forth.

191,822.

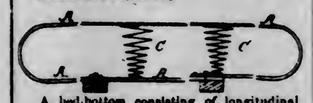


191,329. VEGETABLE SLICERS AND GRATERS. John P. Dunwald, New York, N. Y. [Filed Jan. 19, 1877.]

1. The combination of the tubular slicer or grater D, having a rim or flange at one end, with a head-plate, E, and an interior clamping-ring attached by fastening-screws, substantially as specified.

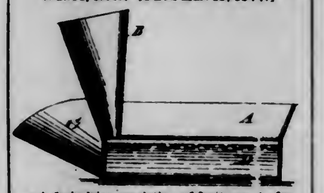
2. The combination of the detachable knives F with the tubular body D, having outer rim with recessed knife-seats, and with the flanged head-plate binding on the opposite ends, substantially as shown and described, for the purpose specified.

191,330. FURNITURE-SPRINGS. J. H. Dustan and D. W. Akin, Spartanburg, Pa. [Filed Oct. 30, 1876.]



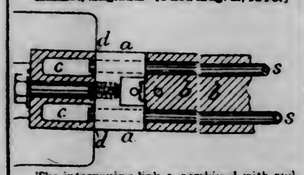
A bed-bottom consisting of longitudinal plate-springs A that have ends meeting, lapping, and fastened together subjacently, their continuity enabling them to sustain the spiral springs C, as shown and described.

191,331. FRUIT-DRIERS. W. M. Eddalman, Wahoo, Nebr. [Filed Mar. 19, 1877.]



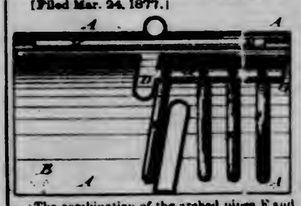
A fruit-drier consisting of fruit-pan A, funnel B, guard C, and water-chamber D, constructed and arranged as shown and described, so that it may be used upon any ordinary stove, as specified.

191,332. EXPANSION-JOINTS FOR TUBULAR WATER FIRE-BARS. Fred. R. Ellis, Liverpool, assignor to O. Haworth, St. Michael's Hamlet, England. [Filed Aug. 11, 1876.]



The intervening link *e*, combined with and located between the end of the grate-bar and the water head or bearer *c*, by which the joint between the pipes *s s* and the water-head at *d* is prevented from breaking by the expansion or warping of the bar.

191,333. BOILERS. R. Bzoell, Chicago, Ill. [Filed Mar. 24, 1877.]

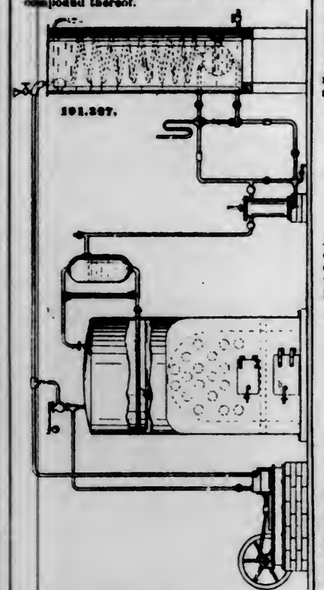


The combination of the arched pipes F and the longitudinal pipe G with the inner shell of the boiler A, and with the circulator D, substantially as herein shown and described.

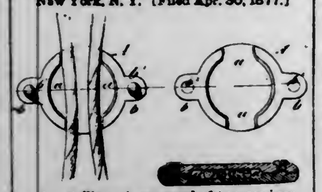
191,334. METHODS OF UTILIZING BISULPHIDE OF CARBON AS A MOTIVE POWER. T. M. Pell, Brooklyn, and H. B. Banster, New York, N. Y., assignors to themselves and W. G. Smith. [Filed Nov. 9, 1876.]

The herein described method of utilizing bisulphide of carbon as a motive-power, viz., by bringing it in contact, in a boiler or suitable receptacle, with heated glycerine or a compound thereof.

191,335.

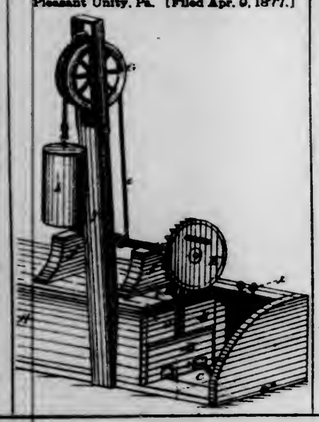


191,336. METALLIC SEALS. F. A. Ferris, New York, N. Y. [Filed Apr. 30, 1877.]



A metallic seal, composed of two semi-sections or shells of corresponding shape, provided with recesses at the inner sides, and united at points sidewise of the strings, substantially in the manner and for the purpose set forth.

191,337. ANIMAL-TRAPS. S. B. Fisher, Pleasant Unity, Pa. [Filed Apr. 9, 1877.]



1. The trap-box A, having fly-door D, partitions K L, and tilting board M, substantially as and for the purpose herein set forth.

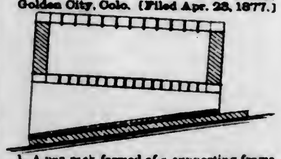
2. The improved animal-trap herein described, consisting, essentially, of the trap-box A, having trap-door C, fly-door D, the shaft of which, *d*, is provided with a pinion, *e*, shaft F, having cog-wheel E, upright *g*, having pulley G, cord *i*, and weight *h*, all combined, arranged, and operating substantially in the manner and for the purpose herein shown and specified.

191,338. BUCKLES. John Fenton, Indianapolis, Ind. [Filed Apr. 2, 1877.]



A buckle consisting of the perforated plate A, provided with a transverse slot at each end to receive the free end of a strap, and the eccentric C, corrugated as shown, and provided with a handle, all substantially as set forth.

191,339. PEN-RACKS. H. W. Forman, Golden City, Colo. [Filed Apr. 28, 1877.]

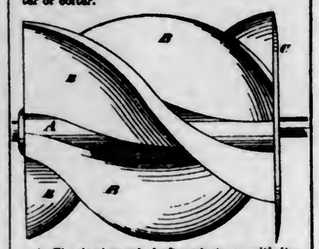


1. A pen-rack formed of a supporting-frame with upper wire frame having large guide spaces or meshes, and of a lower wire frame with closer holding spaces or meshes, substantially in the manner and for the purpose set forth.

2. A pen-rack made of a supporting-frame with top wire frame having large guide spaces or meshes, of a lower wire frame with closer spaces or meshes, and of a blotting-pad or other absorbent material at the bottom of the frame, substantially in the manner and for the purpose set forth.

191,340. ROTARY PLOWS. Wm. Freeborn, San Francisco, Cal. [Filed May 17, 1876.]

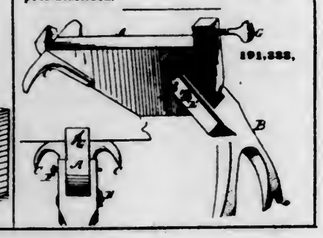
Brief.—A rotary plow whose spiral blades extend straight from the shaft at first, and then assume a concave shape in their outer portions; also, combined with a vertical cutter or colter.



1. The horizontal shaft or hub A, with its circular colter or land-side disk C and spiral mold-boards B B, said spiral mold-boards being continuous, so as to form a rotary plow, substantially as described.

2. The offset D, arranged between and in combination with the spiral concave-convex mold-board and hub A, as and for the purpose described.

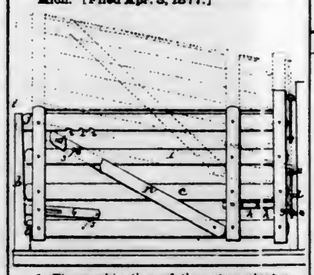
191,341.



191,328. ROOFING-SCAFFOLDS. J. A. Goodnough, Mount Pleasant, Iowa. [Filed Mar. 24, 1877.]

An improved device for supporting roofing-scaffolds, consisting of the clamp A, having set-screw G, and provided at its front with spurs or hooks C, in combination with the arm B, having claws D D, and adjustable at different angles through the medium of the pin F, engaging with the holes in the sides of the clamp A, substantially as described.

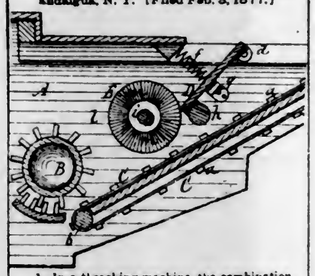
191,334. GATES. H. W. Goodwin, Ionia, Mich. [Filed Apr. 3, 1877.]



1. The combination of the gate *c*, strut *n*, hinges that allow the gate to be raised vertically upward, and the catch 6 for catching in the notch *i* in the top of the post *b* when the end of the gate is raised upward, substantially as shown.

2. The gate *c*, provided with the strut *n* and hinges *d e g*, in combination with slide *h* for catching over the top of the lower hinge, and supporting the gate in an elevated position, substantially as set forth.

191,335. BAND-CUTTING FEEDERS FOR THRASHING-MACHINES. I. H. Green, Canandaigua, N. Y. [Filed Feb. 3, 1877.]



1. In a thrashing machine, the combination of the endless apron C, the spring-presser D, and the cutters E E E, the presser standing directly in the rear of the cutters to hold the bundles while the bands are being cut, as shown and described, and for the purpose specified.

2. The combination, with the circular cutters E E E, of the spring-presser D, pivoted at *d d* at the upper end, standing in an inclined position, with its lower edge resting closely to the cutters, and serving to compress the bundle close to the cutters, to enable the latter to cut the band, as shown and described, and for the purpose specified.

191,336. COIN-HOLDERS. Edgar H. Guild, New York, N. Y. [Filed May 15, 1877.]

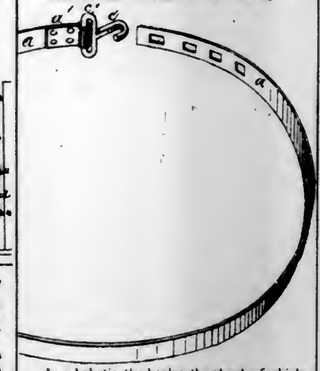
Brief.—Adapted to hold coin of different denominations.



1. A receptacle for holding coins, consisting of a hollow cylinder or a tube, A, of unequal diameters, constructed with inwardly-turned flanges *a a*, extending partly around said cylinder or tube, in combination with the yielding disks B B, constructed and arranged to operate substantially as described.

2. A receptacle for holding coin, consisting of a seamless hollow cylinder or tube, A, having flanges *a a*, movable disks B B, and spring C, substantially as described.

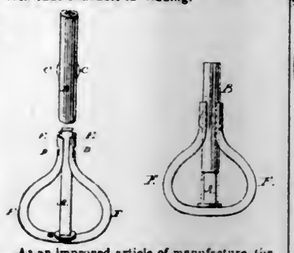
191,337. BALE-TIES. T. D. Hannon, Tuscaloosa, Ala. [Filed Nov. 20, 1876.]



In a bale-tie, the hook *c*, the shank of which is connected to one side of a loop, *c'*, in combination with the band *a*, having its unslotted end passed through and over the opposite side of said loop *c'*, and riveted to the band *a*, substantially as described, for the purpose specified.

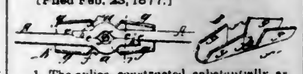
191,338. WATCH-KEYS. Geo. W. Harris, Sturgis, Mich. [Filed Jan. 20, 1877.]

Brief.—The stem or key proper can be removed from the recessed spring-jaws, making both ends available in winding.



As an improved article of manufacture, the hereinbefore described watch-key, consisting of the spring-handle F, having jaws E, provided with slots D, square standard A, adapted to receive the reversible sliding stem B, having lugs C, the several parts being arranged and combined to operate substantially as and for the purpose described.

191,339. SPLICING FENCE AND TELEGRAPH WIRES. W. B. Hayden, Columbus, Ohio. [Filed Feb. 23, 1877.]



1. The splice, constructed substantially as herein described, for the purpose set forth.

2. The clasp-piece B, tapered from its center toward its respective ends to form a reversely-tapering socket, in combination with the wires A, substantially as described.

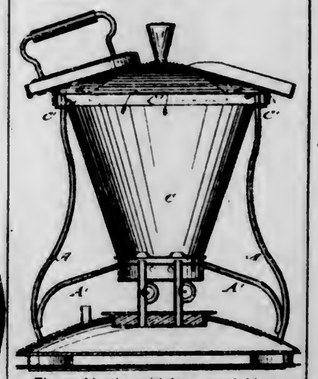
3. The clasp B, cut away as at *f f*, for the purpose set forth.

4. The clasp B, with the projection or teat *f* formed on it, substantially as and for the purpose set forth.

5. The wires A, bent and flattened at their splicing ends, substantially as described.

6. The combination of the solder with the clasp and wires, substantially as and for the purposes set forth.

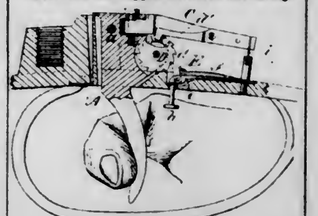
191,340. SAD-IRON HEATERS. W. H. Haylook, Jonesville, N. Y., assignor to himself and J. Higgins, same place. [Filed Apr. 2, 1877.]



The combination, with burners, of chimney C, seat C', corner-pieces *c*, and arms A A', arranged substantially as and for the purpose specified.

191,341. TRIGGERS FOR FIRE-ARMS. Max Heuser, New York, N. Y., assignor to himself, Emil Welte, and C. Otto, Jr. [Filed Mar. 19, 1877.]

Brief.—The trigger has a pivoted arm, which is shifted from one side to the other by the action of a wheel with cam-lugs on its periphery, which is also mounted in the trigger, and is held by a spring-pawl, so as to rotate the wheel when the trigger is released after firing.



1. The combination, in a lock of a gun having two or more barrels, of a single trigger, and a pivoted arm, and a cam for moving the said pivoted arm to strike the dogs of the lock in alternation, substantially as herein shown and described.

2. The roller D, having the cam-lugs *c* and ratchet *d*, the trigger A, pivoted arm C, the spring-tappets *d'*, and the pawl E, in combination, substantially as herein shown and described.

3. The combination of the pawl E, springs *e f*, and pin *h*, for shifting the arm C from one side of the lock to the other at will without discharging the gun, substantially as herein shown and described.

4. The pivoted plate *i* and pin *l*, in combination with the pivoted arm C, substantially as and for the purpose herein shown and described.

191,342. SULKY-PLOWS. Frank A. Hill, San Leandro, Cal. [Filed Mar. 1, 1877.]

Brief.—Reversely-operating cranks and levers to raise the plows, the lever of the right-hand crank being thrown forward, and that of the left-hand crank moved backward. A sectional plow beam, to provide for using one or two plows. Wedge and other devices, to secure the plowshare.

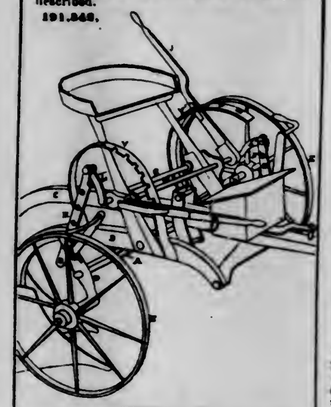
1. The combination, in a wheel-plow, of the wheels E E', oppositely-inclined crank-axles D D', extension-arms F F', supplement-shafts G G', reversely-operated levers I J, and rocks V V', the several parts constructed and arranged to operate in the manner substantially as herein shown and described.

2. In combination with the beam B, diagonal brace *b*, and axle A, of the sectional beam C, having both parts secured by the bolts of

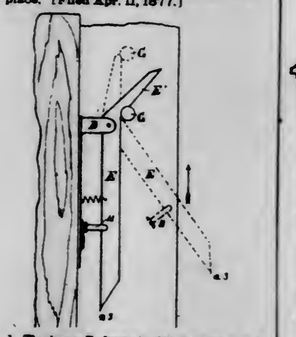
the brace *b*, adapting the frame to the use of one or two plows, substantially as herein shown and described.

3. The mold-board X and land-slide, formed in one piece, and provided with the block Y and extended brace Z, in combination with the share V', with its grooved projection *g*, the two parts being secured by a bolt and key or wedge, *i*, substantially as and for the purpose described.

191,343.



191,343. BURGLAR-ALARMS. Israel Hogeland, Indianapolis, Ind., assignor of one-half his right to Daniel G. Williams, same place. [Filed Apr. 11, 1877.]



1. The lever E formed with a beveled end, *e'*, and with an angular end, E', and hammer H, and pivoted to the stud D, in the manner and for the purposes specified.

2. In combination, the bed C, lever E, and stud G, arranged and constructed to operate in the manner and for the purposes specified.

191,344. SLEEVE-BUTTONS AND STUDS. J. S. Horton, Jamestown, N. Y. [Filed Feb. 10, 1877.]



The button or stud *a*, having curved stationary stem *b*, provided with stop or lip *a*, in combination with curved sliding section *c*, having loop *d*, all combined and arranged in the manner and for the purpose set forth.

191,345. TARGETS FOR SHOOTING-GALLERIES. D. W. Hosball, Dallas, Tex. [Filed Mar. 6, 1877.]

Brief.—An opening through the "bull's-eye" allows the projectile to pass through when a center shot is made, and push out the lower ball. The number of balls thus displaced indicates the number of center shots.

1. The combination of structure A, having target B, and perforation *c*, pivoted lever C, having plunger *e*, and spring *b*, substantially as and for the purpose herein shown and specified.

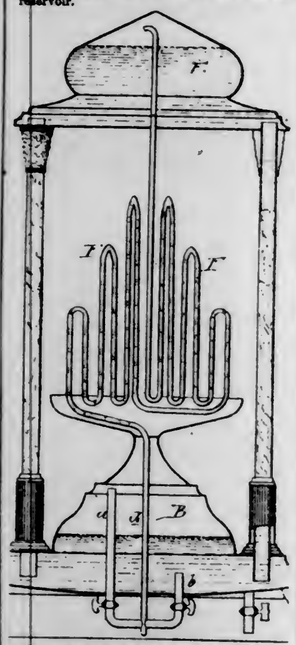
2. The block D, having channels *d f*, adjustable ping *g*, and hopper F, in combination with the pivoted lever C, having piston or plunger *e*, for impelling the balls *s s* previously placed in hopper F, substantially as and for the purpose herein shown and specified.

191,346.



191,346. AERATED-WATER FOUNTAINS. J. O. Johnson, Philadelphia, Pa. [Filed Apr. 16, 1877.]

Brief.—Water is poured into the top reservoir, and it passes through pipes to the lower reservoir, where the contained air is compressed. The valves are now opened, and an equal amount of air and water is forced through the glass tubes, and discharged into the top reservoir.

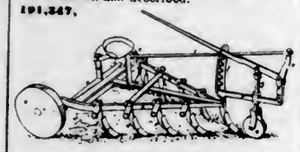


The combination, in an aerated-water fountain, of the elevated reservoir E, compression-chamber B, communicating with the same, the air and water pipes *c* and *b*, and fountain F, of the character described.

191,347. CULTIVATORS. John Jones, Stony Point, Cal., assignor of two-thirds his right to Sidney B. Holly and Wm. H. Magoon. [Filed Jan. 15, 1877.]

The combination, with the plow-frame A B, having its rear end mounted upon the axle D, of the beam-extension F, provided with the rack I, spindle *g*, driving-wheel H, and upward-turned standard I, and secured to the front of the frame, and lever O *p* pivoted to standard I and spindle *g*, and connecting-rod J, which passes back over the frame and under the driver's seat, and rod K secured to the rear axle, the several parts constructed and arranged to operate together in the manner herein shown and described.

191,347.



191,348. BARBED FENCES. Lyman P. Judson, East New Market, Md. [Filed Mar. 24, 1877.]

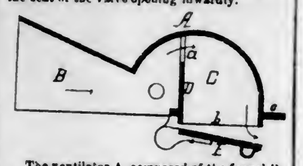
Brief.—The rail is flat, and the barbs are of wire, which pass through it, and are bent to prevent their being withdrawn.



A barbed fence-strip, consisting of perforated metallic strip A *a*, and the wire barbs *b*, the latter passing through perforations of the former, and bent to clamp the strip, substantially as shown and described.

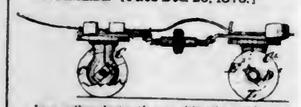
191,349. CAR-VENTILATORS. P. T. Kester, Philadelphia, Pa. [Filed Apr. 30, 1877.]

Brief.—The ventilator consists of an open mouth funnel, which connects with a drum by means of an air-passage formed vertically in the rear part of the diaphragm. The opening or valve-seat for the passage of the air from the drum to the interior of the car is provided with a valve, which can be opened or closed to any desired extent. The attachment of the ventilator to the outside of the car is made by the bolt-lugs, the car being cut away between the roof and the belt waist, for letting in the projection flange which forms the seat of the valve opening inwardly.



The ventilator A, composed of the funnel B, drum C, diaphragm D, and the valve E, as shown and described.

191,350. ROLLER-SKATES. Wm. A. Leggo Montreal, and Francis C. Ireland, Lachute, Quebec, Canada; said Leggo assignor to said Ireland. [Filed Dec. 20, 1876.]



In a roller-skate, the combination, substantially as specified, of the stands, projecting downward from the boot or foot plate, and provided with oblique slots, the angular roller-axles, seated in said oblique slots, and pivoted to the stands, and the springs bearing on the axles.

191,351. ORE-ROASTING FURNACES. H. G. Livermore, San Francisco, Cal. [Filed May 23, 1876.]

1. The inclined floor B, allowing the ore to move over its surface by gravitation, and provided with the interrupting dam or abutments C, in combination with the channels F and the supplemental fire-place E, substantially as described.

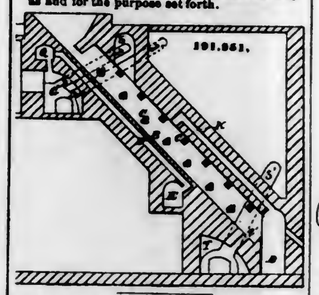
2. In combination with the inclined floor B, provided with the interrupting dams C, of the channels or chambers F, fire-place E, and fire-place D, substantially as and for the purpose specified.

3. The combination, with the chamber B and fire-place D, of the flue K, whereby a current of fresh furnace-flame is introduced into

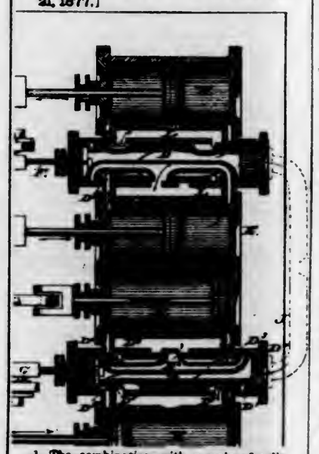
the roasting-chamber midway of its length, substantially as and for the purpose specified.

4. The combination, with the inclined floor B and channels or chambers F, of the fire-place D, fire-place E, and flue K, substantially as and for the purpose set forth.

191,351.



191,352. VALVES FOR TWIN ENGINES. Paul Lohmeyer, Cleveland, Ohio. [Filed Apr. 21, 1877.]

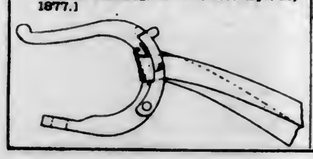


1. The combination, with a pair of cylinders, one of said cylinders provided with an exhaust-chamber with ports leading to the central portion thereof, and the opposite cylinder with a similar exhaust chamber with ports leading to the ends of the same, of an intermediate open-ended valve constructed with steam-ports and central exhaust-passage for one cylinder, and steam and exhaust passages located near the ends of the valve for the opposite cylinder, substantially as and for the purpose set forth.

2. The combination, with a pair of steam-cylinders, constructed with suitable steam and exhaust-ports adjacent to each other, of a hollow valve provided with a central exhaust-passage, whereby live steam may be admitted through the valve to the steam-ports located therein, and also exhaust steam may be conducted from the ends of the valve to a central exhaust-port, substantially as and for the purpose set forth.

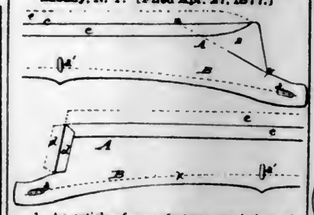
3. The combination, with the four cylinders E, of the open-ended valve D, each constructed with steam-ports D^3, exhaust-ports D^4 D^5, and exhaust-passages D^6, substantially as and for the purpose set forth.

191,353. WATER-HOOKS FOR HARNESS. R. Lowell, Flushing, N. Y. [Filed Apr. 16, 1877.]



The combination of the pivoted keeper B with the hook having the neck or reduced portion *a'*, substantially as and for the purpose specified.

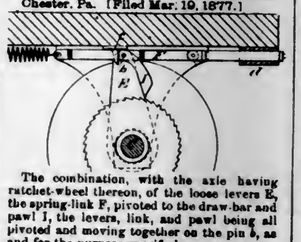
191,354. PAPER COLLARS. Ed Elisha Mack, Albany, N. Y. [Filed Apr. 27, 1877.]



1. An article of manufacture consisting of a standing collar composed of body A, band B, and folding margin piece or flap *c*, with the latter turned down from the upper margin edge *e* of body A, substantially in the manner set forth.

2. An article of manufacture consisting of a standing collar composed of portions A B, and margin folding piece *c*, with button-holes *c a* and *a'* set in the band B, on the curve *x*, and the folding piece turned down from the body A on a curved line greater than the line on which said button holes are set, substantially in the manner set forth.

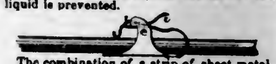
191,355. CAR-STARTERS. John Marsden, Chester, Pa. [Filed Mar. 19, 1877.]



The combination, with the axle having ratchet-wheel thereon, of the loose levers E, the spring-link F, pivoted to the draw-bar and pawl I, the levers, link, and pawl being all pivoted and moving together on the pin *b*, as and for the purpose specified.

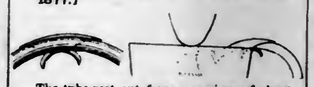
191,356. CLAMPS FOR TUBING. M. Matteson, New York, N. Y. [Filed May 22, 1877.]

Brief.—By raising the end of the cam-lever the tube is compressed, and the flow of the liquid is prevented.



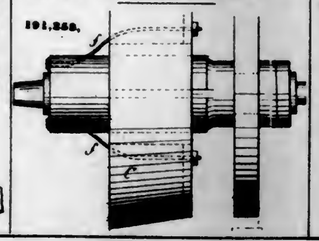
The combination of a strip of sheet metal, *a*, having a hole, *b*, through its center for the passage of the tube, and bent into shape so as to form a clamp, with the stirrup *c*, cam *f*, and stop *e*, substantially as shown and described.

191,357. TUBE-HOLDERS FOR STETHOSCOPES. M. Matteson, New York, N. Y. [Filed May 22, 1877.]



The tube-rest cut from one piece of sheet metal, for supporting and holding in place the rubber tubing of a syringe where it passes over the edge of the vessel out of which water is being drawn, substantially as shown.

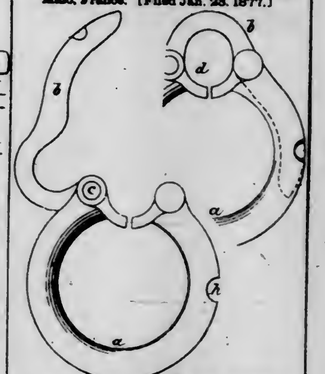
191,358.



191,358. SAND-PUMP REELS. W. J. McKee, Petrolia, Pa. [Filed Mar. 19, 1877.]

The drive-wheel C of a sand-pump reel, having rim, spokes, and hub in one piece, and provided with ears *c*, rods *f*, and nuts at the end of rods, as and for the purpose specified.

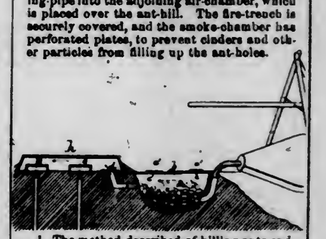
191,359. SAIL-HANKS. Aime Mehu, St. Malo, France. [Filed Jan. 23, 1877.]



The within-described sail-hank, consisting of the ring *a* and the arm or clasp *b*, hinged thereto and locked, as described, the ring and arm being constructed and applied substantially as shown and described.

191,360. INSECT-DESTROYERS. J. C. Melcher, O'Quinn, Tex. [Filed Apr. 26, 1877.]

Brief.—A trench is dug in the ground to receive the combustible material. A hand-bellows drives the smoke through a connecting-pipe into the adjoining air-chamber, which is placed over the ant-hill. The fire-trench is securely covered, and the smoke-chamber has perforated plates, to prevent cinders and other particles from filling up the ant-holes.



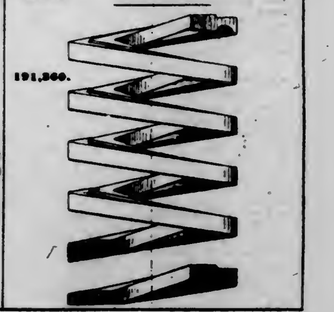
1. The method described of killing ants and insects by building a fire in a trench in the ground, covering the same, and then forcing the products of combustion into a removable smoke-chamber, and thence into the ground, substantially as shown.

2. The removable smoke-chamber *h*, in combination with the fire-trench *c*, and an air-forcing device, substantially as set forth.

3. The combination of the perforated plate *d* and portable smoke-chamber *h*, as described.

4. The combination of the plate *d*, smoke-chamber *h*, and covers *g*, with the fire-trench and air-forcing apparatus, substantially as specified.

191,360.

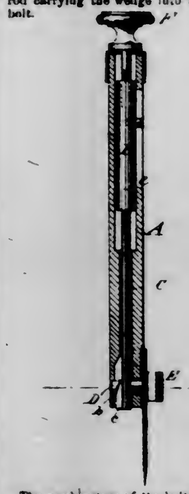


191,361. CAR-SPRINGS. Allen Middleton, Philadelphia, Pa. [Filed Feb. 27, 1877.]

A car-spring, composed of a coiled bar shaped substantially as described—that is, thickest but lightest at the outer edge—and having the preponderance of metal at or near the inner edge, so that when the spring is under pressure the contact of the coils with each other at and near the inner edge shall be prevented by the contact of the coils at the outer edge, all substantially as set forth.

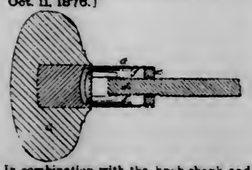
191,362. NEEDLE-CLAMPS FOR SEWING-MACHINES. Joseph V. Morton, Winchester, Ky. [Filed Mar. 19, 1877.]

Brief.—The needle is clamped between one side of the needle-bar and the head of the transverse slotted bolt, the bolt being drawn into the needle-bar by the longitudinal screw-rod carrying the wedge into the slot in the bolt.



The combination of the bolt D, having the slot *b* and head E, the rod C, having the wedge-shaped projection *c*, rod B, and screw F, with the needle-bar A, substantially as herein shown and described.

191,363. ATTACHING KNOBS TO SPINDLES. Joseph Naylor, New York, N. Y. [Filed Oct. 11, 1876.]



In combination with the knob-shank and a notched or properly serrated spindle, the spring dog or dogs *f*, a portion of which projects through the knob-shank, and a tubular sleeve, G, with one or more holes, *i i*, whereby the dogs are confined to secure the knob-shank to the spindle, and its release effected, substantially as herein before set forth.

191,364. TRANSPLANTER AND FERTILIZER. J. H. Nolan and Benj. Fitzpatrick, Chambers County, Ala. [Filed Apr. 23, 1877.]

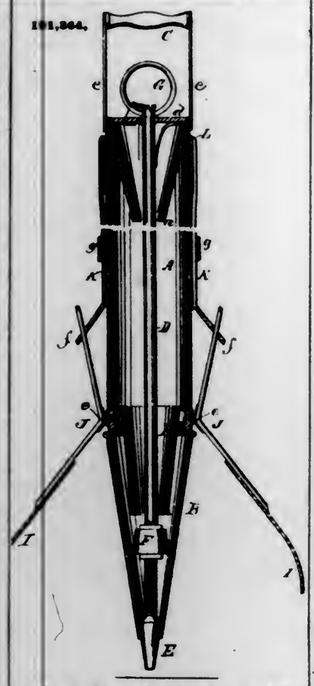
Brief.—A [illegible] transplanter and fertilizer having a hopper to hold fertilizing fluid, and valves to distribute the same in measured quantities.

1. The tube A, having the conical tubes *a b*, the tube B, and the valves E F, having the common rod D, in combination, substantially as shown and described.

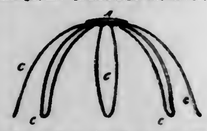
2. The wings I, bent slotted levers J, rods K, having the notched heads *f*, thimble L, and tube A, in combination, substantially as shown and described.

3. The combination of the hook H and tube B, substantially as and for the purpose herein shown and described.

191,365.



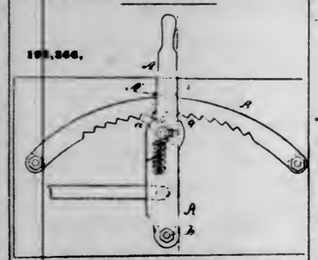
191,365. BOSOM-FORMS. Amasa H. Pike, Chicago, Ill. [Filed Apr. 10, 1877.]



1. A bosom-form wherein are the arms C C each consisting of two flexible, bow-shaped, radial, and concavo-convex ribs, continuous with each other at the lower end of the arm formed by each pair of ribs, the said end of the arms so formed being independent of or disconnected from each other, substantially as and for the purposes specified.

2. A bosom form consisting of the combination of the flat disk A, the radially-grooved disk B, attached to the disk A, and forming therewith the pockets *a a*, and the arms C C, each consisting of two radial, flexible, bow-shaped, and concavo-convex ribs entering the pockets *a a*, and continuous with each other at the lower ends of the said arms, substantially as and for the purposes specified.

191,366.



191,366. WAGON-BRAKE LEVERS. Jacob F. Outsee, Racine, Wis. [Filed Apr. 30, 1877.]

Brief.—Stud *g* on lever A strikes the pawl, and disengages it from the ratchet when it is desired to release the brake.

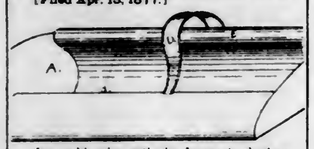
The lever A′, carrying the spring-pawl *a*, the slotted lever A, having the stud *g*, and the curved ratchet-bar B, in combination, substantially as shown and described.

191,367. MEAT-HOLDERS. Samuel Poole, Brooklyn, N. Y. [Filed May 3, 1877.]



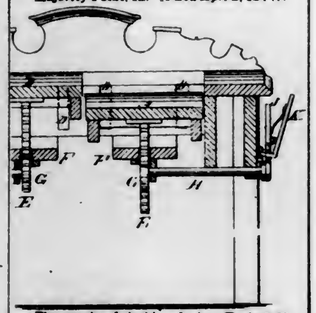
The fork or holder made of the lever A, longitudinal bar *g*, handle *a*, rod *b*, prongs or holders *c*, and swinging prongs or holders *f*, connected to the bar *g*, substantially as specified.

191,368. DUST-PANS. Sarah M. Rennie, Binghamton, N. Y., assignor of one-half her right to Wm. J. Rennie, same place. [Filed Apr. 13, 1877.]



In combination with the device A, the handle D, attached on the inside, and forming a brace for the projecting edge E and opening *c*, constructed as herein described, for the purpose set forth.

191,369. DESKS. James R. Richardson, Majority Point, Ill. [Filed Apr. 2, 1877.]

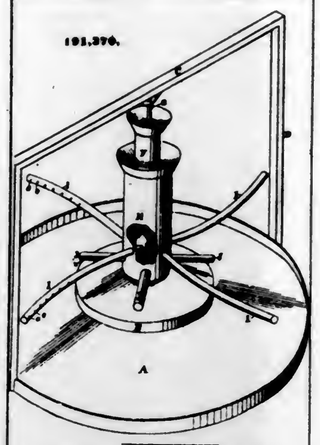


The cranks J, locking devices K, shaft H, toothed sectors G, rack-bars E, and guide-bars F, combined, substantially as described, with the movable portions A B of the desk-top, guided in slots D, for the purpose specified.

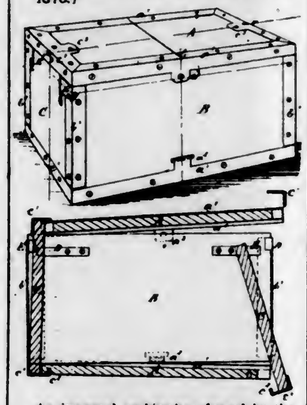
191,370. OIL-WASHERS. J. Richards, Battle Mountain, Nev. [Filed Apr. 13, 1877.]

The pan A, with its inclined bottom and raised central portion B, in combination with the concentric cylinders F H, with their perforated arms I J, said cylinders being connected together, and mounted on the vertical shaft *c*, so as to operate substantially in the manner and for the purpose above described.

191,370.

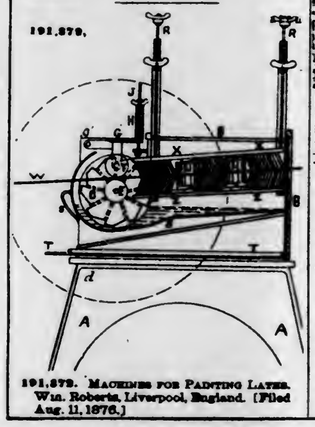


191,371. FOLDING CRATES. Gilbert Robinson, Jr., New York, N. Y. [Filed Dec. 11, 1876.]



An improved packing-box, formed by the combination of the top and bottom boards A, the side boards B, the end boards C, the angular strips *a′ b′ c′*, the spring-catches D, the strap-hooks E *a²* *c²*, and the lugs *a³* *c³* with each other, substantially as herein shown and described.

191,372.

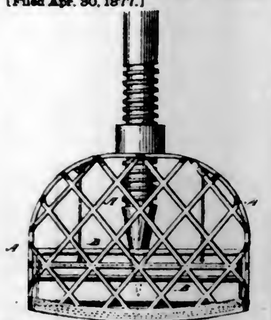


191,372. MACHINES FOR PAINTING LATHS. Wm. Roberts, Liverpool, England. [Filed Aug. 11, 1876.]

Brief.—Two wheels having recesses to catch up the paint are connected by a roller, between which and an upper pressure-roller the lath passes to the adjustable sectional brushes, and is guided between these by side rollers set in spring-frames.

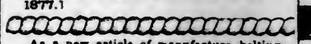
A painting-machine consisting of the paint-reservoir S and the elevator-wheel D, in combination with the spreading-wheels E and F, the brushes X Z, having two or more sets of bristles, and the guide-rollers L, substantially as described.

191,373. BROOMS. James Roney, Scotland, Mo., and Thomas Roney, Hyde Park, Ill. [Filed Apr. 30, 1877.]



The combination of the seamless stock A, ribbed upon its inner surface, and provided with a screw collar, the movable clamps B, ribbed upon their outer surfaces, and the handle D, made with a conical forward end, and having a screw-thread formed upon it, with each other, substantially as herein shown and described.

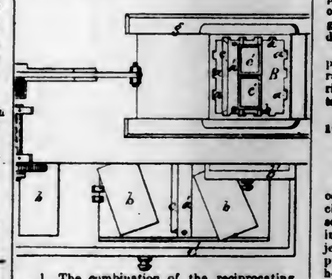
191,374. RAWHIDE BELTING-ROPE. Herman Royer, San Francisco, Cal. [Filed Jan. 27, 1877.]



As a new article of manufacture, belting-rope, formed from long threads of prepared rawhide, cemented together, and twisted or plaited into rope, substantially as herein described.

191,375. VEGETABLE-SLICERS. F. Schmitt, Springfield, Ohio. [Filed Feb. 26, 1877.]

Brief.—The division-boards enable different-sized vegetables or different quantities to be suitably held in the sliding box.



1. The combination of the reciprocating slide and the box B, having grooves *a a*, adapted to receive either transverse or longitudinal partitions *b b*, as set forth.

2. The said reciprocating slide and box and movable partitions, constructed, arranged, and adapted to detachable boxes *c c*, as specified.

191,376. BRICK-KILNS. Joseph A. Schultz, Batavia, N. Y. [Filed Apr. 9, 1877.]

1. The kiln or furnace A, constructed with the upper arch B and lower passage B′, with ledges *a a*, provided with rails *b b*, and the grooves *d d*, whereby, when the loaded cars are run through the kiln, the lower space will be insulated or cut off from the heat above, as shown and described, and for the purpose specified.

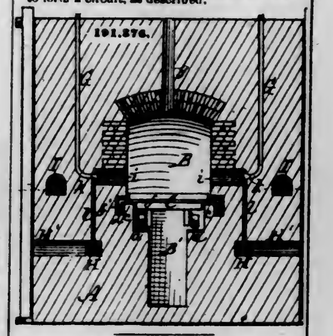
2. In a brick kiln or furnace, the combination, with the side grooves *d d*, provided with a filling of water, sand, or equivalent material, of the cars C, constructed with flanges *f′ f′*, resting in the said grooves, and serving to cut off the passage of heat to the space beneath the cars, as shown and described, and for the purpose specified.

3. In a brick kiln or furnace, the combination, with the arch B, of the pipes G, cylinders F, and tanks E, for feeding petroleum or other combustible fluid to the fires, said pipes having nozzles *h*, entering recesses *i* of the arch, as shown and described, and for the purpose specified.

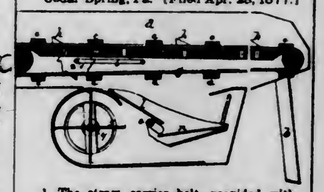
4. In combination with the pipes G and recesses *i*, the cold-air passages H and tubes *l*, as and for the purpose specified.

5. In combination with the arch-space B, the hot-air flues I, extending longitudinally, and opening at the extremities into said arch, to form a circuit, as described.

191,376.



191,377. GRAIN-SEPARATORS. J. Shilling, Cedar Spring, Pa. [Filed Apr. 23, 1877.]



1. The straw-carrier belt, provided with slats of unequal lengths, in combination with the blocks *h*, the shorter slats being made to pass in between the blocks, and the longer ones to pass over them, so as to shake the grain loose from the straw, substantially as described.

2. The endless apron *i*, arranged under the perforated floor, in combination with the ratchet-wheels 2, and the slats *s* of the carrier, whereby the apron is moved intermittently forward, substantially as specified.

191,378. PROCESSES OF PREPARING COFFEE. Frank Silver, San Francisco, Cal., assignor of one-half his right to Alex. P. Adams, same place. [Filed Jan. 31, 1876.]

The process herein described for preparing coffee, the same consisting in mixing it mechanically with sugar, burned as herein described, and in a granular or mealy state, in the proportions described, and then subjecting the compound to hydraulic or other pressure, substantially as and for the purpose herein described.

191,379. TURBINE WATER-WHEELS. Jos. H. Smith, Athens, Tenn. [Filed Apr. 21, 1877.]

Brief.—The chute plates and gates are so arranged that two important advantages are gained, viz: First, whether the gates be opened much or little, they will throw the water directly into the buckets of the wheel, forming, as they do, with the chute-plates, a funnel, into the curved chute through which the water is admitted to the buckets; and, second, the pressure of the water in the flume within which the turbine is placed will be equal on both sides of the gate, and thus exercise a pressure on the gate-plate from the inside corresponding to the pressure on the inside.

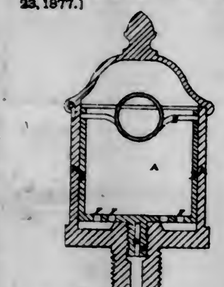
191,879.



1. In a turbine water-wheel, the combination of the chute-plates F F' with the swinging gates G G', so as to form funnels *m*, allowing the water to impinge upon both sides of the gate, whether this is closed or open, or partially open, and thereby at all times exert an equal pressure on both sides thereof, substantially as and for the purpose hereinbefore set forth.

2. As an improvement in turbine water-wheels, the combination of the case A A' E, stationary chute-plates F F', vertically-swinging gates G, having segments G' sliding upon the edges of chute-plates F', so as to form water-tight joints therewith, operating-rods *g*, and rotating annular disk H, all constructed and combined to operate substantially as and for the purpose herein shown and described.

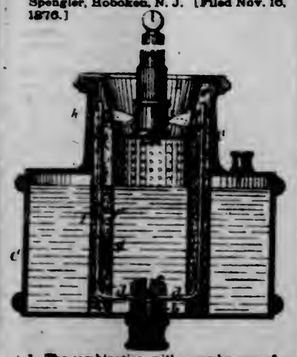
191,880. OIL AND FILTER CUPS. Andrew J. Stevens, Sacramento, Cal. [Filed Mar. 23, 1877.]



1. The filter-cup B, having its bottom perforated, as at F, to permit the filtered material to flow into a receptacle beneath, the feed-slot G, and the screw-stem D, by which the feed is regulated, substantially as herein described.

2. The filter-cup B, fitted into the exterior cup A, the lower part of which serves as a reservoir for the filtered lubricant, said filter-cup having a screw-stem, D, and feed-slot G, in combination with the friction-catch E, substantially as herein described.

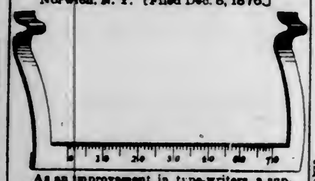
191,881. OIL-GAS BURNERS. Christian G. Spengler, Hoboken, N. J. [Filed Nov. 16, 1876.]



1. The combination, with a gas-burner, of a cistern, C, a heating-cup, B, and a wick-tube, *ff*, substantially as and for the purpose herein shown and described.

2. The combination of the gas-jets *i* with the burner A, cup B, cistern C, gas-expanding chamber *e*, and vaporizing-chamber *g'*, substantially as and for the purpose set forth.

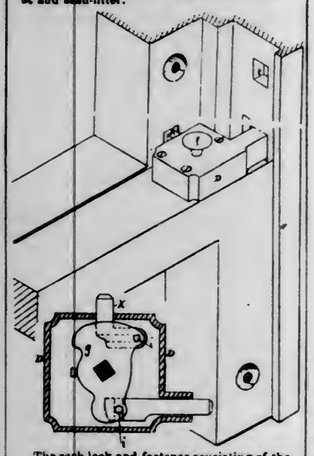
191,882. TYPE-WRITERS. C. H. Stanton, Norwich, N. Y. [Filed Dec. 8, 1876.]



As an improvement in type-writers, a supplemental gage, which corresponds in length and in divisions with the fixed gage, is connected to or with the movable carriage, and is arranged near the paper in close proximity to the line to be printed upon, substantially as and for the purpose specified.

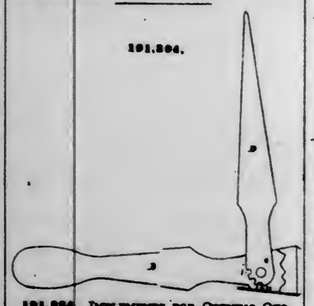
191,883. SASH-FASTENERS. Thos. Stuart, San Francisco, Cal. [Filed Mar. 29, 1877.]

Brief.—Slotted bolts moving at right angles to each other, and connected by plate and pins, and actuated by an upwardly-projecting shaft and thumb-screw. A thimble-socket inserted at intervals on inner face of the sash may be utilized for the double purpose of bolt-socket and sash-lifter.



The sash lock and fastener consisting of the case D, with its slotted bolts J K, operated at right angles to each other, in connection with plate *g*, having pins *i i*, and shaft E, with thumb-screw *f*, the several parts arranged to operate substantially in the manner specified.

191,884.



191,885. IMPLEMENTS FOR OPENING OYSTERS. Thomas W. Temple, Los Angeles, Cal. [Filed Mar. 17, 1877.]

Brief.—A fixed blade in the shape of a flattened spoon is provided with an adjustable spear-shaped blade, adapted, by means of notched sector and spring, to stand at or near right angles thereto, or to fold together when closed, the implement being specially designed for opening oyster-shells after they have been split or separated by a splitting-machine.

The above-described implement for opening oysters, consisting of the handle A, fixed blade B, with its oval-shaped point, and the spear-blade D, which is capable of being fixed at a convenient angle to the blade B, substantially as above described.

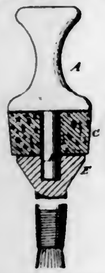
191,886. TOBACCO-PIPES. Saml. H. Thurston, Whitestone, N. Y., assignor to Carl Edelheim, New York city. [Filed Mar. 12, 1877.]



1. A pipe-bowl or cigar-holder formed from pumice-stone, substantially as herein shown and described.

2. The combination, with the bowl or stem of a cigar-holder or pipe, of a lining of pumice-stone, substantially as herein shown and described.

191,887. STOPPERS FOR MUCILAGE-BOTTLES. James Tilghman, New York, N. Y. [Filed May 10, 1877.]



As a new article of manufacture, a combined brush and stopper, consisting essentially of a handle, A, having a stem, B, and a flat end corresponding to the top of the cork, the brush having a flat head, E, corresponding to the bottom of the cork, and the cork C interposed between the said head and end of the handle, and held in place by the central stem B, all combined as shown, and for the purpose described

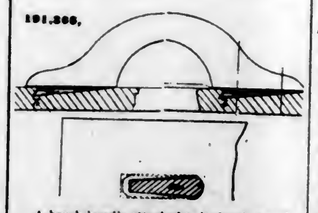
191,887. MANUFACTURE OF BOOTS AND SHOES. Jos. S. Turner, Rockland, Mass. [Filed Apr. 17, 1877.]



In the manufacture of boots and shoes, the within-described method of attaching the outer sole to the welt, consisting in automatically punching the welt and outer sole with a series of coinciding holes, while the outer sole is held in position on the lasted shoe, thereby adapting the welt and outer sole to receive the two threads, which are subsequently passed alternately in opposite directions through such holes by hand, in order to permanently unite the outer sole to the welt, as shown and described.

191,888. BRUSHES. John Waddell, Elora, Ontario, Canada. [Filed Apr. 10, 1877.]

191,888.



A brush-handle attached to its head at each end by a tenon and groove of a bevel, wedge, or inclined shape, whereby a close joint is formed to prevent the play and loosening of the connected parts.

191,889. SPIRIT-LEVELS. F. T. Ward and Thomas Bedworth, Mohawk, N. Y. [Filed Apr. 21, 1877.]

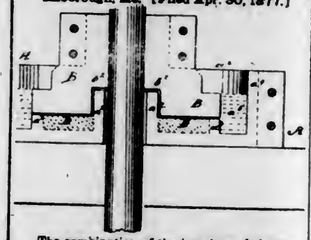


1. The combination of the stock A, hinged casing C having level-glass D, and hinged covering-plate G, substantially as and for the purpose set forth.

2. In a spirit-level, the combination of the hinged casing C having level-glass D, with the covering-plate G having set-screw *j*, substantially as and for the purpose shown and specified.

3. The improved spirit-level and plumb herein described, consisting of stock A having brackets B B', hinged casing C having level-glass D, and set-screws *h i*, hinged covering-plate G having set-screw *j*, and latch *e*, all combined and arranged to operate substantially in the manner and for the purpose herein shown and specified.

191,890. BEARINGS AND BOXES FOR VERTICAL SHAFTS. Levi Webber, North Vassalborough, Me. [Filed Apr. 30, 1877.]



The combination of the box A, made in two parts, bolted together, provided with the lugs or flanges *a'*, the inner rim *a²*, the chambers *a³*, to receive the Babbitt metal, the outer rim *a⁴*, the oil-chamber *a⁵*, and the oil-channels *a⁶*, and the bearing B, made in two parts, bolted together, and provided with set-screws *b'* and a countersink, *b²*, with each other, to adapt them to be connected with a vertical shaft to support its weight, substantially as herein shown and described.

191,891. CUBE-SUGAR MACHINES. Francis Westermann and Otto Mursch, San Francisco, Cal., assignors to Luder Hopken, same place. [Filed Mar. 28, 1877.]

Brief.—A reciprocating plate working in the hopper cuts off a mass of sugar of suitable thickness for filling the molds. The molds are then forced up into this mass of sugar, which is thus compressed into them. Another reciprocating plate shaves off the surplus sugar from the top of the molds, and forms the support for the succeeding mass of sugar cut off above. The molds are then moved below stationary punch, and are given an upward movement, by which the cubes are removed.

1. In a machine for the manufacture of cube sugar, the combination of the hopper A, the series of stationary punches G, and reciprocating molds B, arranged to be moved alternately beneath said hopper to be filled, and beneath said stationary punches to be emptied, substantially as described.

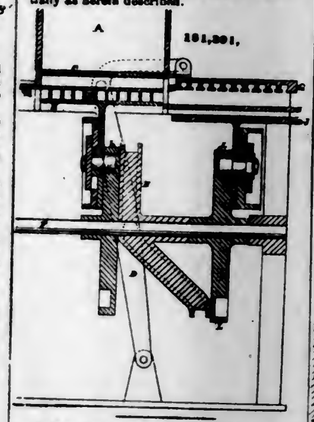
2. The combination, with the hopper A and a series of stationary punches, G, of the reciprocating molds B and mechanism, operating substantially as described, whereby said molds are moved vertically upward into the mass of sugar to be filled, and then depressed and moved beneath said series of stationary punches, and again moved upward, so that the punches will discharge their contents, substantially as specified.

3. In combination with the reciprocating molds B, which are filled by an upward movement into the sugar-receptacle, the cut-off slide C to separate off a portion of the sugar from the main body, and act as a pressure-plate to compress the sugar into the molds, substantially as herein described.

4. The plate H, serving as a temporary bottom for the molds while they are being filled, and the cam I to force the molds upward into the sugar, whereby they are filled and the sugar compressed at one operation, substantially as herein described.

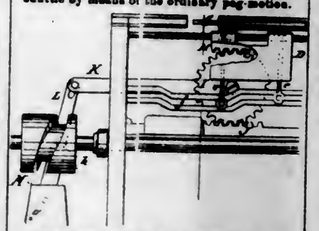
5. The molds B, having the downwardly-projecting edge-plates K, in combination with the plate J and the cam L, whereby the molds are forced upward to the punches, and space is left for the escape of the sugar, substantially as herein described.

191,891.



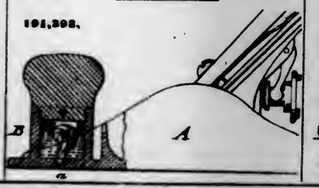
191,892. SHUTTLE-DRIVING MECHANISMS FOR NARROW-WARE LOOMS. William B. Willard, New York, N. Y. [Filed Oct. 7, 1876.]

Brief.—Instead of the pinion being stationary, it is mounted upon the end of a reciprocating rod, and it is revolved by means of a stationary rack. The shuttle-carrier is provided with the usual rack, and actuates the shuttle by means of the ordinary peg-motion.



The combination of the cam M, lever L, rod K, wheel I, racks J and H, and shuttle-carrier D, substantially as herein shown and described.

191,893.



191,894. STUD-FASTENINGS. M. Zacharias, San Francisco, Cal. [Filed Mar. 30, 1877.]



1. A stud-fastening, consisting of the bent stem or prong *e*, in combination with the crank-lever, consisting of the bent arm *f* and latch-arm *g*, pivoted as described, and arranged to latch on the flange *i* on the stud, substantially as above described.

2. The stud C, with its curved stem or prong *e*, in combination with the pivoted bell-crank lever, consisting of the bent arm *f*, latch-arm *g*, and the stop-arm O, substantially as and for the purpose above described.

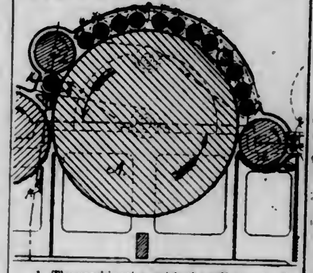
191,895. BENCH-PLANES. Watson Wood, Chelsea, Mass. [Filed Feb. 26, 1877.]

Brief.—An iron or iron-faced plane is provided with an oil or lubricating receptacle in front of the cutting-iron.

The combination of plane A, having hole *e*, and the oil-reservoir B, the two connected directly or by tube with each other, substantially as and for the purpose specified.

191,896. CARDING-ENGINES. R. F. Barker, Providence, R. I., assignor of five-eighths of his right to G. P. Loring and Theodore Vosloker, of Boston, Mass., and Henry A. Stearns, Pawtucket, R. I. [Filed Dec. 18, 1876.]

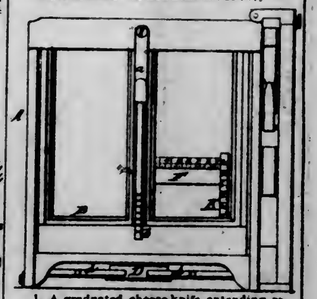
Brief.—Alternate combing and cleaning rolls are arranged over main cylinder, there being located at the end of the series, and near doffer, a raising-cylinder and an imparity-roll, for raising and cleaning the fiber after it has passed the said series of combing and cleaning rolls, and before it is taken off by the doffer. There is a small dirt-receptacle located beneath the imparity-roll.



1. The combination, with the cylinder *i* and impurity-roll *k*, of the receptacle *m*, arranged to receive and collect the imparities, substantially as specified.

2. A carding engine provided with alternate combing and cleaning rolls, a raising-cylinder, and impurity-roll, arranged to raise and clean the fiber after the same has passed the combing-rolls, the whole operating in connection with the main cylinder, as and for the purpose described.

191,897. CHEESE-CUTTERS. A. Beaucoleil, Alpena, Mich. [Filed Mar. 21, 1877.]



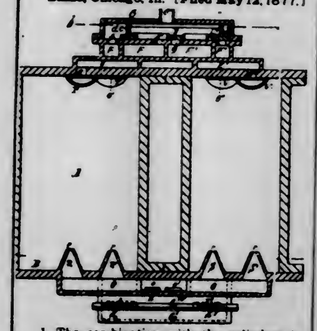
1. A graduated cheese-knife extending radially across a cheese-block, in combination with a fixed block, K, having a vertical scale.

whereby the diameter and thickness of a cheese-cake can be determined, substantially as described.

2. The rotary cheese-block E, provided with a central pin, E', concentric graduated circles on its upper face, and a graduated circumference, in combination with the pointer a, graduated scale K, and cheese-cutter F, substantially as described, and for the purpose set forth.

3. The combination of sash B, having ratchets b, with spring pawl a attached to box A, substantially as and for the purpose set forth.

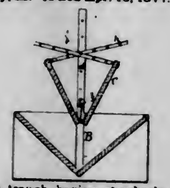
191,397. STEAM VACUUM-PUMPS. Earl S. Blake, Chicago, Ill. [Filed May 12, 1877.]



1. The combination, with the cylinders A A', ducts E E', chambers F F', and the steam-chest C, provided with the ports *f f'* and *g g'*, of the cut-off valve D, arranged to alternately open and close said ports, and having the wings *c* and *c'* arranged to form the chambers *d* and *d'*, substantially as and for the purpose specified.

2. The combination, with the cylinders A A' and collars G G', as described, of the air-chamber P, ducts K K', N N', and O, arranged substantially in the manner and for the purpose set forth.

191,398. FEED-TROUGHS. Theo. L. Block, Sidney, Ill. [Filed Apr. 16, 1877.]



A hog-trough having standards B, from which the hinged top or cover C suspends by the hooks *e* and pins *f*, and the adjusting-racks *h* and pins *g'*.

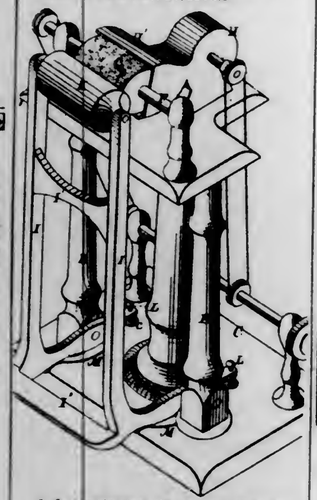
191,399. EXTENSION-CHANDELIERS. John T. Brown, Brooklyn, N. Y. [Filed Feb. 22, 1877.]

1. The combination, with the movable portion of a chandelier and its fixed suspending-tube, of an internal screw and nut, the one turning upon the other by end thrust, and an automatic stop device operating to prevent such turning of the screw or nut, and thereby to stop the descent of the chandelier, substantially as described.

2. The combination of the internally-threaded suspending-tube B, provided with a projection, *b*, the slotted sliding tube T attached to the chandelier, the box F, the screw or threaded rod A, the cylinder *d* attached to said screw and containing the seat *h*, the stop *i*, the spring *k* which acts upon said stop, and the button *m*, substantially as and for the purpose specified.

3. The combination of the supporting-screw A, the suspending-tube B, and springs E, substantially as and for the purpose specified.

191,400. MACHINES FOR WHITENING AND SHAVING LEATHER. Jno. G. Buzzell, Lynn, Mass. [Filed Nov. 20, 1876.]



1. In combination with the abrading-roller G, the bearing-roller K, the pivoted roller-frame I, I', and I'', the set-screws l, and the springs M, said parts being constructed to operate in the manner and for the purpose substantially as specified.

2. In a machine for shaving and whitening leather, a cylinder or other support for receiving the leather, which is arranged parallel to, and in a plane with, the abrading-roller, and is supported within a spring-yielding pivoted frame, and is capable of being moved toward or from said abrading-roller by the oscillation of said frame, substantially as and for the purpose shown.

191,401. LANTERNS. Evan F. Cash and A. L. Baron, Bellaire, Ohio. [Filed Apr. 17, 1877.]

1. In a lantern, the combination of the air-chamber C' between the two globes, the air-chamber C'' between the double walls of the upper part of the base, and the air-chamber C''' between the top of the oil-reservoir and the diaphragm above it, said air-chambers being closed except for the entrance of air above the outer globe and for the exit of air into the interior of the cone, substantially as and for the purposes set forth.

2. In combination with the upper base A of a lantern, and the air-chamber C' extending around said upper base, the openings J J' in such upper base, substantially as and for the purposes set forth.

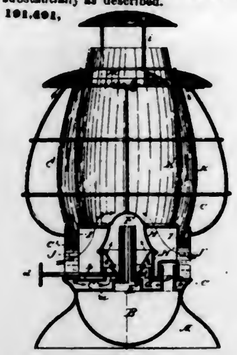
3. In a lantern, the combination of the openings J J' and the perforated disk N, substantially as set forth.

4. In a lantern, the combination of the openings J J', the disk N, and the air-chambers C' C'' C''', substantially as set forth.

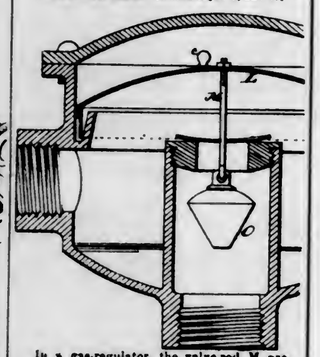
5. In a lantern, the combination of the base A A', the oil-reservoir B, and the opening J, extending through the air-chamber C'' without openings into said air-chamber, substantially as and for the purposes set forth.

6. The method of counterbalancing the air-currents in a lantern by admitting fresh air taken from above the outer globe, through connecting chambers exclusively, into the cone, and fresh air through the sides of the base exclusively to points above the cone, the two currents being kept separate and apart, substantially as described.

191,402.



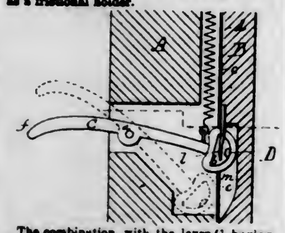
191,403. GAS-REGULATORS. A. F. Chace, Fall River, Mass. [Filed Apr. 7, 1877.]



In a gas-regulator, the valve-rod M, provided with the spring-rod *a*, in combination with the diaphragm L and valve O, as and for the purpose set forth.

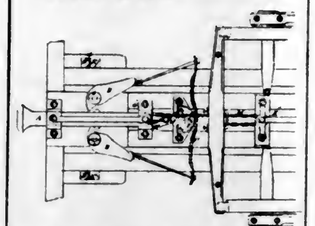
191,405. SASH-FASTENERS. Albert Chamberlin, North Abington, Mass. [Filed Feb. 21, 1877.]

Brief.—A pivoted lever having a rubber face is automatically drawn up by a vertical spring. There is also a stud on the inner end of the lever, and a lip projection on the window-frame, lying across a suitable recess therein, to constitute a positive fastening as well as a frictional holder.



The combination, with the lever C, having cushioned end *b* and spiral spring *d*, of the stud D, lip projection *l*, and recess *m*, and the window and sash frame, as described, for the purpose specified.

191,404. RAILWAY-CAR BUMPERS. Richd. D. Chatterton, Cobourg, Ontario, Canada. [Filed Mar 31, 1877.]

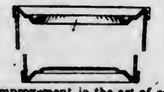


1. The wedged draw or buffing bar A of a railway-car, in combination with levers B B, bearing upon springs C by intermediate connections, adapted so as to increase their power and range, substantially as above described.

2. The combination of the buffer or draw bar A, levers B B, springs C, supplementary springs D, and intermediate levers E, substantially as set forth.

3. The combination of draw-bar A, sheaves K K', and chain M, for the direct attachment of the brake-beam to the draw-bar, as set forth.

191,405. SOLDERING PROCESSES. George M. Clark and Arthur Harris, Chicago, Ill. [Filed Feb. 19, 1877.]



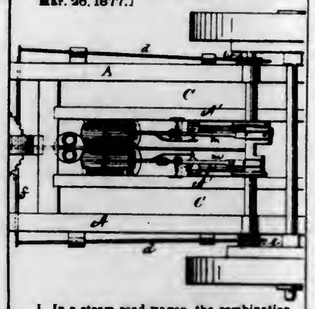
As an improvement in the art of soldering metallic seams, the process herein described, consisting in first heating the joint to be sealed, and then pouring on molten solder, substantially as described.

191,406. OIL-STILLS. John T. Coleman, Baltimore, Md. [Filed Apr. 27, 1877.]



A cylindrical sheet-metal still, divided longitudinally into sections, the said sections being connected together by continuous internal or inwardly-turned flanges, the said flanges having pronounced rounded corners, and connected by rivets, substantially as and for the purposes herein set forth.

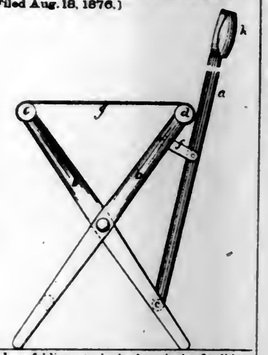
191,407. ROAD-ENGINES. Benj. F. Cornish, French Camp, Miss., assignor of one-half his right to J. L. Power, same place. [Filed Mar. 26, 1877.]



1. In a steam road-wagon, the combination of the boat frame A, with partitions A' A', forming chambers for the tanks C C, the pump E, boiler D, steering-wheel G, and main wheels I, substantially as herein set forth.

2. The treadles h h, with springs i i, connecting-rods *f f*, and oscillating crank-rods *d d*, combined and arranged substantially as described, for throwing the clutches *e e* in and out of gear, as herein set forth.

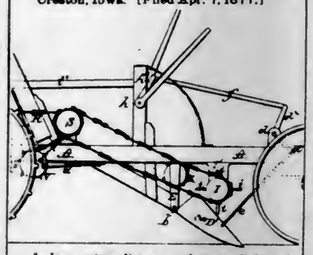
191,408. FOLDING CHAIRS. Isaac N. Dann, New Haven, Conn., assignor to New Haven Folding Chair Company, same place. [Filed Aug. 18, 1876.]



1. In a folding stool, the legs *b*, the flexible seat *g*, back arms *a*, secured to the lower round *c*, and the links *f*, pivoted to the upper portion of the front legs and to said back arms, constructed and arranged to support the back arms away from the top stool-round, as described.

2. The movable brace or link attached at or below the seat of a folding chair, substantially as and for the purpose described.

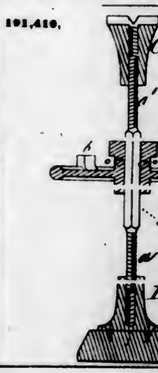
191,409. POTATO-DIGGERS. M. Dargitz, Creston, Iowa. [Filed Apr. 7, 1877.]



1. In a potato-digger, a plow consisting of a series of wide, curved, pointed flat bars, D, connected by a rod, *c*, side pieces D', that serve as side guards, and which are secured to the head *b*, journaled in hangers E, in combination with the operating-levers, that extend back to the driver's seat, by means of which the plow is operated up and down, substantially as shown.

2. The arrangement, with the carrier I *i* and elevator L L', of the chain-wheels O O, chains R R, shaft S', with pulleys S S', and shaft V', with pulleys V V, all as shown and described, whereby the carrier and elevator are operated directly from the chain-wheels by the same chains, substantially as herein set forth.

191,410.

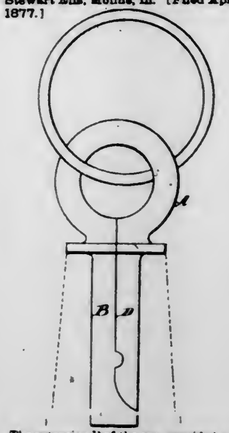


191,410. CARRIAGE-JACKS. C. Duecker, Tamaroa, Ill., assignor to C. B. Gray and A. B. Bowman. [Filed Nov. 11, 1876.]

Brief.—The post is oppositely threaded at top and bottom to work in blocks thereon. Centrally affixed to the post is a horizontal wheel worked by a lever.

The combination, with the shaft A, having oppositely-threaded ends *a a'*, the base B, and cap C, receiving respectively the lower and upper ends of the said shaft, of the wheel D, having a groove, *o*, annularly formed in its hub, and the spaced spurs *b* upon its perimeter, substantially as specified.

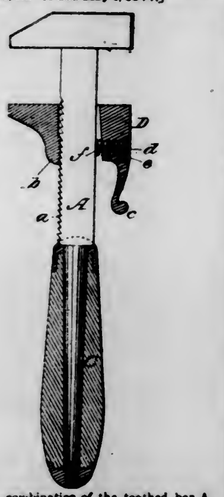
191,411. EYEBOLTS FOR WHIFFLETREES. C. Stewart Ells, Moline, Ill. [Filed Apr. 28, 1877.]



1. The extension D of the eye, provided with the notch or recess *a*, in combination with the projection *b* on the shank, substantially as and for the purpose described.

2. The combination of the shank B, having projection *b*, the eye A, and the extension D, with notch or recess *a*, all substantially as and for the purpose described.

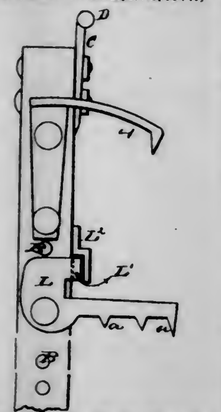
191,412. WRENCHES. Samuel C. England, Moline, Ill. [Filed May 1, 1877.]



1. The combination of the toothed bar A, the sliding jaw D, cast complete in one piece, with its toothed arm *b*, arm *c*, and socket *a*, and the spiral spring *f* seated in the socket and arranged to bear directly upon the bar, with its inner end exposed, as and for the purpose described.

2. In combination with the bar A, the sliding jaw D, provided with the socket *a*, to receive a spiral spring, and with the hole *d* to permit the insertion of the spring without removing the jaw from the bar.

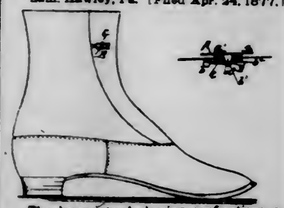
191,413. LADDERS. H. L. Ennes, Liberty Centre, Ohio. [Filed Apr. 28, 1877.]



1. The metal bar C, with side arms D D attached to the top of a ladder, substantially as and for the purpose described.

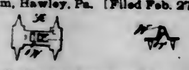
2. The pivoted L-shaped arms L, with teeth *a* and finger L^1, and the pivoted button L^2, applied to a ladder, substantially in the manner and for the purposes herein set forth.

191,414. SHOE-FASTENINGS. F. G. Farnham, Hawley, Pa. [Filed Apr. 24, 1877.]



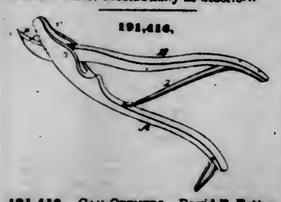
The base-plate A, having perforations *e*, and a central lug, a^2, the stitch-plate a^1, and the spring-key B, constructed as described, in combination with the face-plate C, having a central opening, *c*, attaching-lugs *c'*, and base plate A, as and for the purpose set forth.

191,415. SHOE-FASTENINGS. F. G. Farnham, Hawley, Pa. [Filed Feb. 27, 1877.]



A clip for shoe-fastenings, formed from the blank X, provided with suitable penetrating-points, and having the center bar W, with a slot, *s*, on one side, and the part *r* cut loose on three of its sides on the other, so that when the parts are bent in shape the piece *r* becomes a brace, substantially as described

191,416.



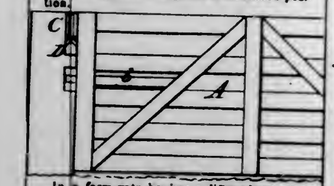
191,416. CAN-OPENERS. David F. Fetter, New York, N. Y. [Filed Apr. 21, 1877.]

Brief.—A pair of spring-pliers has a slotted convex jaw, notched or serrated on either side of the slot, and pivoted thereto; a curved blade having concave cutting-edge, terminating in an upwardly-turned point; the handles authoritatively thrown open by a spring, and held together, when not in use, by a wire loop at their extremities.

The can-opener herein described, consisting of the curved blade D, having an upper concave cutting-edge, *d*, terminating in an upwardly-turned point and pivoted to the convex jaw C, serrated on each side of its slot, handles A B, and spring S, substantially as described, and for the purpose set forth.

191,417. GATE AND DOOR LATCHES AND ROLLERS. John T. Foster, Olive Green, Ohio. [Filed Nov. 14, 1874.]

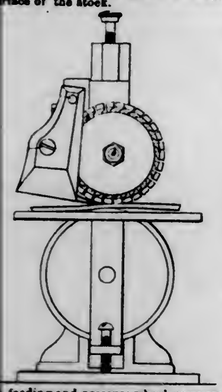
Brief.—The door closes to latch by ascending upon its roller at top a convex curve, and descending a concave grade to its closed position.



In a farm-gate having a lifting-latch, the grooved pulley C having a T-shaped shank, in combination with the pickets *a* fastened in the recesses of the shank, and the guide-support D having the inclined double-beveled edge *i* and concave *j*, substantially as described, and for the purpose set forth

191,418. SKIVING-MACHINES. Hiphalet J. Fox, Boston, Mass. [Filed Apr. 24, 1877.]

Brief.—The periphery of the feed-wheel is composed of a series of yielding blocks, each having a separate or independent action upon the surface of the stock.



1. A feeding and pressure wheel, composed of a spring and yielding blocks, to operate substantially as described.

2. A feeding-wheel provided with yielding blocks, inclined upon their faces at the front of the wheel, substantially as described.

3. In a skiving-machine, the combination of a feeding-wheel, having its face composed of yielding blocks, with a knife to operate, substantially as described.

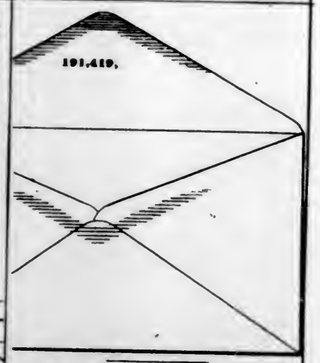
4. In a skiving-machine, a wheel having its periphery composed of yielding blocks, in combination with a supporting-wheel.

5. The feeding-wheel, having its periphery composed of yielding blocks, in combination with a supporting-bed and a knife to skive leather, the feed-wheel operating to hold and move the stock, substantially as described.

191,419. ENVELOPES. Addison C. Fox, Baltimore, Md. [Filed Mar. 23, 1877.]

An envelope having upon its flap a composition which, reacting under the influence of moisture with another composition upon the body of the envelope, into contact with which it comes when the envelope is closed, forms with it an insoluble cement, substantially as described, and for the purpose set forth.

191,419.



191,420. ADHESIVE COMPOSITIONS. Addison C. Fox, Baltimore, Md. [Filed Mar. 23, 1877.]

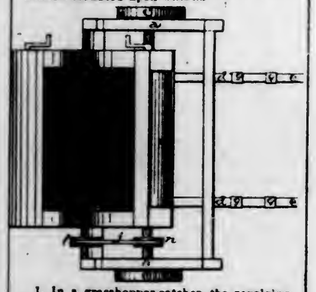
Brief.—The compositions named in the claims are separately soluble in water, but when brought together moist they react chemically, and form an insoluble cement.

1. The compositions herein described, to be used in combination, as set forth, the said compositions consisting, respectively, of chromic acid, ammonia, sulphuric acid, ammonio-sulphate of copper, and paper, and of isinglass and acetic acid, as set forth.

2. An adhesive composition having as ingredients chromic acid and isinglass, dissolved in a suitable acid solvent, substantially as described.

191,421. GRASSHOPPER-CATCHERS. Samuel Godard, Marysville, Mo. [Filed Apr. 26, 1876.]

Brief.—A grasshopper-catching machine, composed of a revolving wire frame, having an opening and hinged door at each end, journaled upon standards which are secured upon a frame mounted upon wheels.

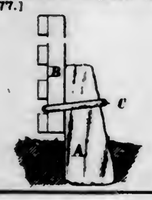


1. In a grasshopper-catcher, the revolving frame *i*, having an opening in each end, and a door for closing the same, substantially as set forth.

2. The combination of the frame *e*, wheels *e*, handles *d*, shafts *e*, and fastening devices *g*, whereby the machine can be moved either by man or horse power, substantially as shown.

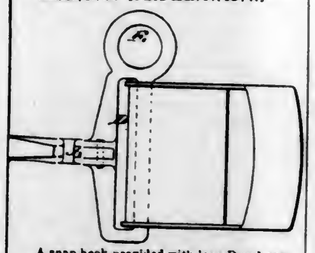
3. The combination of the revolving frame *i*, having an opening at each end, with the standards *h*, frame *a*, wheel *e*, pulleys *l n*, and belt *j*, substantially as described.

191,422. FENCES. Alex. Gosnell, Downeyville, Ind., assignor of one-half his right to Benj. F. Mason, same place. [Filed Mar. 20, 1877.]



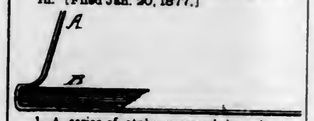
The composite fence composed of tapering stone base A, plain metallic link C, and gravitating wooden panel B, substantially as set forth.

191,423. SNAP-HOOKS. Jonathan Hall, Keene, N. H. [Filed Mar. 17, 1877.]



A snap-hook provided with loop D and supplemental loop or eye E, substantially as shown, and for the purpose set forth.

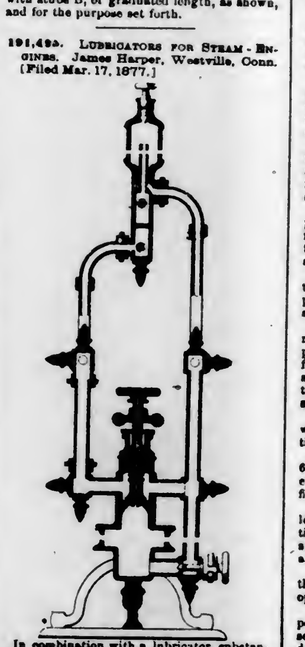
191,424. BOOKS. Jas. M. Harper, El Paso, Ill. [Filed Jan. 20, 1877.]



1. A series of stubs arranged in a book, having the top stub longer than the others, and each succeeding stub longer than the stub below it, so that mucilage or other adhesive substances may be applied to a projecting stub, for the attachment of an invoice or bill, without liability of the stubs below it receiving any of the adhesive material, substantially as set forth.

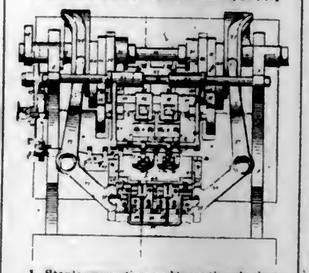
2. The combination of detachable cover A, with stubs B, of graduated length, as shown, and for the purpose set forth.

191,425. LUBRICATORS FOR STEAM-ENGINES. James Harper, Westville, Conn. [Filed Mar. 17, 1877.]



In combination with a lubricator, substantially such as described, a condenser and double connection or passages from the steam-pipe, one passage leading from the steam-pipe to the condenser, thence to the reservoir, the other from the reservoir to the steam-pipe, and a connection or passage between the passage to and from the reservoir, and at a point substantially level with the discharge from the reservoir, substantially as described.

191,426. BOOK-SEWING MACHINES. H. R. Heyl and H. Brehmer, Philadelphia, Pa., assignors to the Novelty Paper Box Company, same place. [Filed Jan. 11, 1877.]



1. Staple presenting and inserting devices, constructed substantially as specified, so as to enter the fold of a partially-opened signature, and present the staple within the same for insertion through the fold.

2. The combination of staple presenting and inserting devices, constructed so as to enter the fold of a partially-opened signature, and present the staple within the same for insertion through the fold, with a work-supporting table, which places the signature in position for the presentation and insertion of the staple, all substantially as specified.

3. The combination of staple presenting and inserting devices, constructed so as to enter the fold of a partially-opened signature, and present the staple within the same for insertion through the fold, with a work-supporting table, which places the signature in position for the presentation and insertion of the staple and clinching devices, all substantially as specified.

4. A support for staple-inserting devices, cut away so as to present the staple within the fold of a partially-opened signature, for insertion through the same, substantially as described.

5. In combination with a bending-fork, grooved plates to receive the staple from the prongs of the fork, and guide and support it while being driven, all substantially as described.

6. In combination with a bending-fork to form the staple, grooved plates to receive the staple from said fork, and guide and support it while being driven, and a staple-driver, all substantially as described.

7. The grooved plates for receiving the staple, and guiding and supporting it while being driven, provided with points to puncture the material, substantially as shown and described.

8. The combination of the staple-driver with the grooved plates, provided with points to puncture the material for the reception of the staple, substantially as described.

9. The clinchers having two motions, first rotating on a common center to bend the staple-legs toward each other, and then moving forward in a straight line to press the bent staple-legs close down upon the material through which they protrude, substantially as specified.

10. The combination of the clincher-plates with the slide that operates them, substantially as specified.

11. The combination of the clincher-plates 68, stud 71, and slide 70, to which said clincher-plates are pivoted, substantially as specified.

12. The combination of the bar 76 with the levers 77, arranged to engage only during the time the clincher-plates are to operate, and at all other times to be detached, substantially as specified.

13. The combination of two slides, 70, with the bar 76, by which they are simultaneously operated, substantially as specified.

14. The combination of two or more independent longitudinally-adjustable staple-inserting devices with an equal number of independent longitudinally-adjustable staple-clinching devices, operating to insert and clinch two or more staples simultaneously, substantially as specified.

15. The combination of staple inserting and clinching devices with a work-supporting table, constructed so as to retain the stapled signature thereon while the next signature is being stapled, all substantially as specified.

16. The combination of staple inserting and clinching devices with a table, 44, and devices to prevent the premature ascent of the table when the downward pressure upon it is removed, substantially as specified.

17. The combination of staple-inserting devices with clamps to hold the tapes or bands at the back of the signature, one clamp being arranged above and another below the line of insertion of the staples, substantially as specified.

18. The combination of the shifting-bar 49 and standards 48 with a swinging bracket, 39, substantially as specified.

19. The combination of a shifting-bar, 49, standards 48, table 44, and clamps 53 57 58 with the staple inserting and clinching devices, whereby the book and tapes are shifted sidewise, causing two or more rows of staples to be inserted into each tape, substantially as specified.

20. In combination with the shifting-bar 49 and standards 48, the cam 60, to automatically shift the bar and standards between each stapling operation, substantially as specified.

21. The combination of the cam 60 with the pawl 64 and clamp 61, constructed and operating substantially as specified.

22. The head-blocks 1, provided with two wire-channels, as and for the purpose specified.

23. The combination, with a staple-driver, 28, of a spring, 34, and a slide, 30, having elongated bearings, substantially as specified.

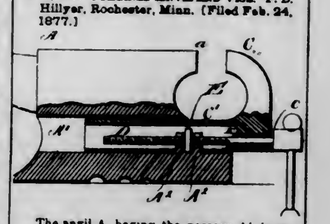
24. The combination of bar 29 with one or more drivers, 28, slides 30, and springs 34, substantially as specified.

25. The combination of bar 14 with one or more bending-forks, 8, substantially as specified.

26. The mandrel 21, bifurcated, combined with the plate 7, through slots in which the bifurcations extend, substantially as specified.

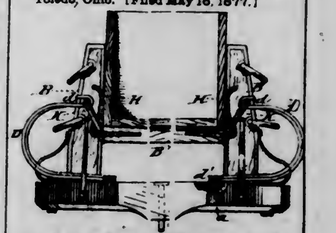
27. The combination of the shaft 22 with one or more mandrels, 21, substantially as specified.

191,427. COMBINED ANVIL AND VISE. P. B. Hillyer, Rochester, Minn. [Filed Feb. 24, 1877.]



The anvil A, having the passage A^1, bearings A^2, and fixed jaw *a* in the plane of the face of the anvil, in combination with the movable jaw C, having the slotted casing C' and passage *c'*, with the operating-screw D and nut E, as and for the purpose set forth.

191,428. VEHICLE-SPRINGS. C. J. Holman, Toledo, Ohio. [Filed May 16, 1877.]



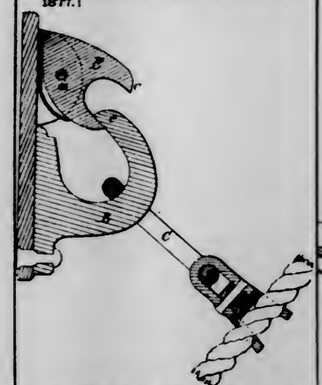
1. The detachable springs, adapted to embrace the standards or stakes of the wagon, and resting upon the bolster thereof, their upper ends supporting the cross-bar on which rests the wagon-body, substantially as and for the purposes specified.

2. In combination with the bifurcated semi-circular springs, provided with hook-shaped upper ends, the cross-bars B', provided with links adapted to engage said hooked ends of the springs, substantially as and for the purposes set forth.

3. In combination with the springs having hooked shaped ends for supporting a wagon-body, the upright curved brackets H, secured to the cross-bars which support the wagon-body, and adapted to rest upon the hooked ends of the springs, substantially as set forth, for the purposes described.

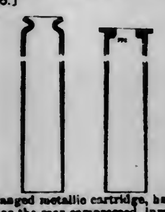
4. The combination, with the semicircular springs D, having hooked ends *d*, of the cross-bars B', having at each end the brackets H, provided with curved upper ends, and the pivoted links K K, substantially as and for the purposes set forth.

191,429. HORSE-HITCHING DEVICES. Oren S. Hosmer, Boston, Mass. [Filed Feb. 26, 1877.]



The thumb-piece or horn C making part of the latch E, and disposed outside of the point or prong *s* of the hook, substantially as and for purposes stated.

191,430. METALLIC CARTRIDGES. Benj. B. Hotchkiss, New York, N. Y. [Filed Sept. 22, 1876.]



1. A flanged metallic cartridge, having the metal near the rear compressed inward, and the extreme rear edge turned outward to form the flange, as and for the purposes specified.

2. A flanged metallic cartridge, having the metal near the rear compressed inward, and the extreme rear edge turned outward, forming a space in the center of the head for the insertion of a primer, as specified.

3. A cartridge-shell formed with the gorge, as specified, and left with the annular space *n* in the head, as and for the purposes specified.

191,431. ANIMAL-ELECTRISING DEVICES. O. G. House, Aurora, Ill. [Filed Apr. 2, 1877.]



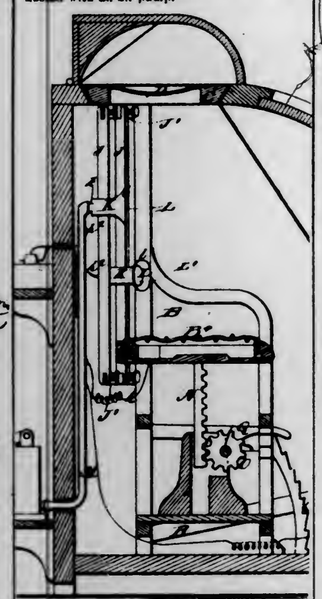
1. The combination, with the spring-bolt and its case, and with the bolt receiver or case B, of the pull-wire J for withdrawing a single bolt, substantially as shown and described.

2. In combination with a series of spring-bolts and bolt-receivers, as described, a series of pull-wires, J, applied severally one for each bolt, and all reaching or extending to the same part of the barn or building, whereby the attendant may, at will, disconnect any given chain or chains from its bolt without disturbing the remainder.

3. In combination with a series of spring-bolts and bolt-receivers, a series of pull-wires severally connected, one to each bolt, and a continuous rod adapted for operating all the bolts simultaneously, permitting the attendant, while standing at a given spot, to release, at option, any one or more or all of the chains or halters, substantially as and for the purposes set forth.

191,432. PNEUMO-ELECTRIC BATHS. Wm. D. Huffman and Sanford W. Huff, Sigourney, Iowa. [Filed Mar. 17, 1877.]

Brief.—The electrode is perforated and connected with an air-pump.



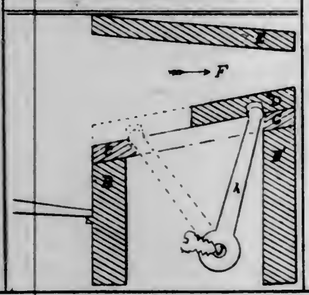
1. In combination with a battery and an air-exhausting apparatus, the chair B, laterally-movable bars J, curved cross-plates J', perforated blocks K, adjustable on said bars, and provided with cups L, having non-conducting rims *l*, and the central perforated electrode L' and air-tube M, substantially as and for the purpose set forth.

2. The perforated block K having an extension, *k*, and cups L with non-conducting rims *l*, and central perforated electrode L', substantially as and for the purpose set forth.

3. A casing or cabinet for a vapor-bath, provided at the top with a detachable frame, having a perforated flexible diaphragm, in combination with a hinged head-rest, substantially as and for the purpose set forth.

191,433. STEAM-BOILER FURNACES. C. F. Rust, Chicago, Ill. [Filed Jan. 20, 1877.]

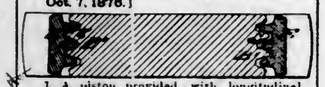
Brief.—The throat of the furnace is made tapering, and is increased or diminished in size by a sliding tile operated by a rocker-arm.



1. The tapering passages F F, as constructed in combination with a movable tile, D, which is designed to vary the size of the rear end of the passages, for the purpose specified.

2. The rock-shaft J, in combination with the arm *h*, and movable tile D, and tapering passage F, as and for the purpose specified.

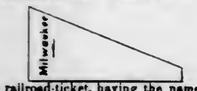
191,434. PACKING FOR ROTARY ENGINES. E. C. Johnson, Williamsport, Pa. [Filed Oct. 7, 1876.]



1. A piston provided with longitudinal fluting or corrugations at its edges, in combination with packing-strips having similar flutings or corrugations on its corresponding face, substantially as set forth.

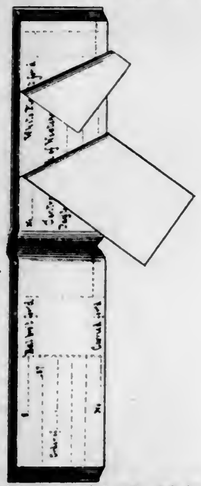
2. The combination of piston-edge B', having corrugations *b'*, with strips E, having corrugations *e*, and cap C, having the end extensions *c c*, substantially as set forth.

191,435. RAILROAD-TICKETS. E. G. Johnson, Milan, Ohio. [Filed Feb. 12, 1877.]



A railroad-ticket, having the names of the place of departure and of destination both upon the face and back thereof, arranged substantially as described, whereby, when cut or separated into two parts, each part will show the name of the place of departure on one side and that of destination on the other side, as and for the purposes set forth.

191,436. BANK-CHECK BOOKS. Milton C. Johnson, Brooklyn, N. Y. [Filed Mar. 28, 1877.]



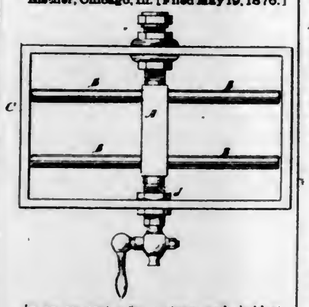
A check-book provided with stub-sheets having stub-blanks on both sides thereof, secured between alternate pairs of two separate check-sheets, the whole being bound together at their ends and adapted to be used substantially as herein described.

191,437. CRANES. Byron Jones, Kendallville, Ind., assignor of one-half his right to Thos. L. Graves, same place. [Filed May 3, 1877.]



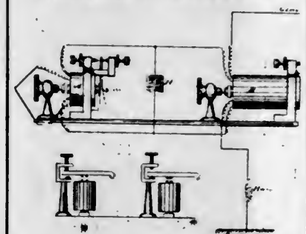
The weighted serrated pawl C, having the arm or handle *f*, provided with a cord or rope, or other suitable medium, *g*, for releasing it, in combination with and suspended directly above the hoisting-rope pulley, substantially as and for the purpose set forth.

191,438. DEVICES FOR SUPPLYING A STEAM AND AIR BLAST TO FURNACES. Evan J. Jones, Indianapolis, Ind., assignor to E. F. Oullen, same place, and L. O. Riggs and D. Bletner, Chicago, Ill. [Filed May 19, 1876.]



In an apparatus for a steam and air blast for furnaces, the combination of the main supply-pipe A, perforated branch pipes B, and conical bearings and their couplings working in case C, and located under the grate-bar, substantially as described.

191,439. QUADRUPLEX TELEGRAPHS. F. W. Jones, Chicago, Ill. [Filed Sept. 13, 1876.]

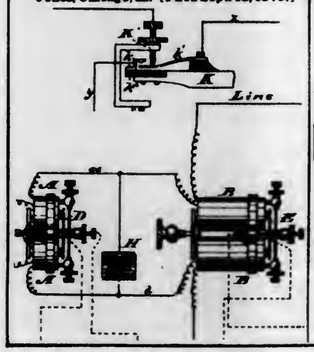


1. A differential relay, A, in combination with a condenser, H, the poles of which are connected respectively to the outgoing ends of the separate convolutions of the relay, substantially as and for the purpose set forth.

2. The combination of the two differential relays A and B and the condenser H, arranged and operating substantially as described.

3. The two differential relays A and B, in combination with the condenser H, arranged between the relays and connected with them as described, and an equating rheostat, substantially as and for the purpose set forth.

191,440. QUADRUPLEX TELEGRAPHS. F. W. Jones, Chicago, Ill. [Filed Sept. 13, 1876.]

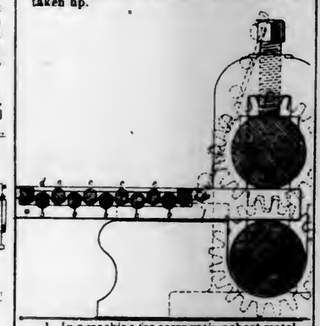


1. In a machine for corrugating sheet metal, the combination of a pair of rolls and longitudinally moving upper and lower dies, the transverse bars of which are adapted to interlock and corrugate the sheet metal placed between them in and during their passage through and between the said rolls, substantially as herein set forth.

2. In a machine for corrugating sheet metal, the combination of the lower die composed of the longitudinal bars *a* and transverse bars *b*, and the upper die composed of the connecting pieces or bars *d* and the transverse bars *c*, substantially as and for the purpose herein specified.

191,441. MACHINES FOR CORRUGATING SHEET METAL. G. F. Klesam, New York, N. Y., assignor of one-half his right to R. F. Bartlett, Baltimore, Md. [Filed Apr. 17, 1877.]

Brief.—The sheet of metal having been placed between the dies, they are made to pass between the rolls, which impart the corrugation as the dies advance, leaving the plain portion free to be drawn over the corrugating-bars as the length of the sheet is taken up.



1. In a machine for corrugating sheet metal, the combination of a pair of rolls and longitudinally moving upper and lower dies, the transverse bars of which are adapted to interlock and corrugate the sheet metal placed between them in and during their passage through and between the said rolls, substantially as herein set forth.

2. In a machine for corrugating sheet metal, the combination of the lower die composed of the longitudinal bars *a* and transverse bars *b*, and the upper die composed of the connecting pieces or bars *d* and the transverse bars *c*, substantially as and for the purpose herein specified.

191,442. HORSE-POWERS. John Kolling and Henry Kolling, Arlington Heights, Ill. [Filed Apr. 20, 1877.]

Brief.—Two shafts, arranged to revolve at different rates of speed, are provided with coupling extremities, for connecting the one or the other with the tumbling-rod, as may be desired.



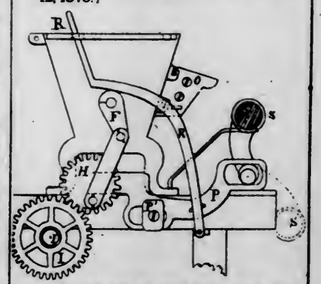
1. In a horse-power, the arrangement of two shafts, B and D, of different velocities, either one to couple with the tumbling-shaft, substantially as shown, and for the purpose specified.

2. The combination of shaft B, having pinion C, and spur-wheel *c*, with shaft D, having pinion *d*, both journaled within the frame A, and provided with projecting squared ends for attaching the tumbling-shaft coupling, substantially as described and shown.

3. In combination with the spider-frame F, brake-lever V pivoted thereto, and the bevel-pinion C, the hub L, hand-lever T, and pin *u*, all arranged as described and shown, and for operate as specified.

4. In a horse-power, the master-wheel I, intermediate wheels H, pinion *s*, shaft B, and bevel-wheels C and *c*, and shaft D, having pinion *d*, all constructed and arranged within a frame, A, in the manner described and shown.

191,443. SEED-DRILL AND FERTILISER. Benj. Kuhns, C. Schols, and D. Y. Kuhns, Dayton, Ohio; said Schols and D. Y. Kuhns assignors to said Benj. Kuhns. [Filed Dec. 12, 1876.]



1. In a machine for distributing grain and fertilizers, the lever P, having in it a slot or equivalent means for allowing of the changing of its pivotal point, and arranged to have a horizontal movement imparted to it throughout all of its parts, and a movement through the arc of a circle at its ends, substantially in the manner and for the purpose set forth.

2. The combination of the driving-wheel I, pinion H, lever P, and lever R, the parts being arranged to operate substantially as and for the purpose specified.

3. The combination of the driving-wheel I, pinion H, the lever P, having both a horizontal and partially rotary movement, and the crank-shaft S, having an eccentric in its arm, substantially as and for the purpose set forth.

191,444. PIANO-FORTES. Hellmuth Krnich and Jacques Bach, New York, N. Y. [Filed Dec. 20, 1876.]



1. A sounding-board for a musical instrument, provided with a series of heels or projections along its edges, substantially as set forth.

2. The combination, with a musical instrument, of a sounding-board secured in place at isolated points on both its upper and lower sides, substantially as set forth.

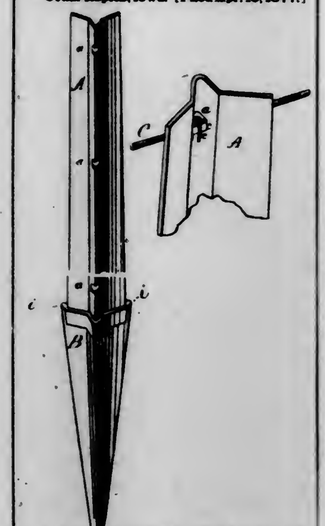
3. The combination, with a fixed iron frame, of a sounding-board provided with heels or projections for bearing against the iron frame, substantially as set forth.

4. The combination, with a fixed iron frame, of a sounding-board provided on one side with heels or projections for bearing upon the former, and on the other with bearing-pieces, arranged farther inward from the edges than the said heel-pieces, and screws impinging against the said bearing-pieces, substantially as set forth, whereby in a very simple and in-

expansive manner provision is afforded for springing and respringing the sounding-board facially at pleasure.

5. The combination, with a stationary iron frame, of a sounding-board provided on one side with heels or projections for bearing against the former, and on the other with metal bearings, of screws for impinging against the latter, and provided with devices for springing and respringing, substantially as set forth.

191,445. FENCE-POSTS. William Langham, Cedar Rapids, Iowa. [Filed Apr. 13, 1877.]



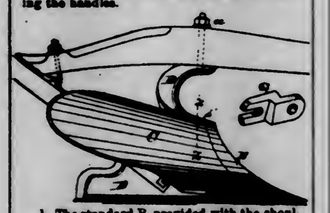
1. In a fence-post, the pointed cast-metal base B and bent metal part A, rigidly secured thereto, and so combined as to afford a driving-shoulder, *i*, substantially as and for the purposes set forth.

2. The combination of post A, having slot *a*, and strip *c*, and staple *c'*, adapted to be secured on wire C, substantially in the manner

---

191,446. PLOWS. William S. Lawrence, Kalamazoo, Mich. [Filed Nov. 18, 1876.]

Brief.—Construction of the standard, moldboard, and coiter. Detachable legs for securing the handles.



1. The standard B, provided with the shoulder *b'*, in combination with the mold-board C and coiter E, extending above the upper edge of the mold-board, flush with the top of the shoulder *b'*, substantially as described.

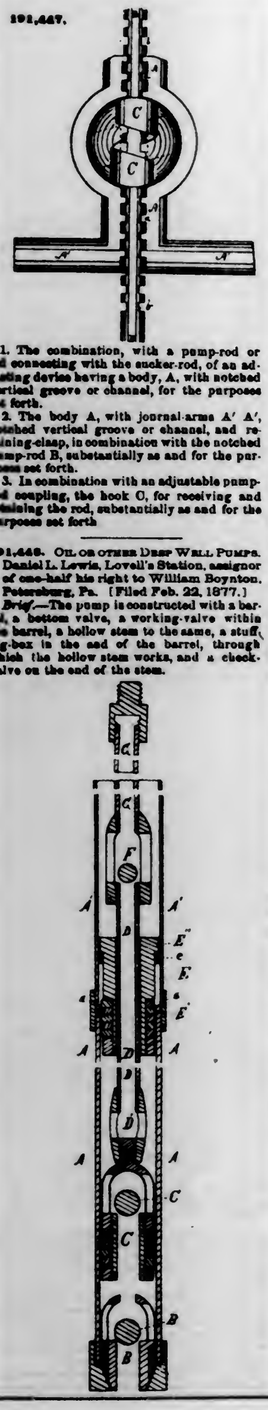
2. The detachable legs G G', bent as described, and adapted to be inserted between flanges on the mold-board or land-side, for securing the handles to the mold-board and land-side, substantially as and for the purpose set forth.

3. The handles F, in combination with the detachable legs G G', constructed as described, the land-side D, and mold-board C, substantially as set forth.

191,447. PUMP-ROD ADJUSTERS. Daniel L. Lewis, Lovell's Station, assignor of one-half his right to William Boynton, Petersburg, Pa. [Filed Feb. 22, 1877.]

Brief.—The pump-rod can be removed by turning the hook at right angles to it.

191,447.



1. The combination, with a pump-rod or rod connecting with the sucker-rod, of an adjusting device having a body, A, with notched vertical groove or channel, for the purposes set forth.

2. The body A, with journal-arms A' A', notched vertical groove or channel, and retaining-clasp, in combination with the notched pump-rod B, substantially as and for the purposes set forth.

3. In combination with an adjustable pump-rod coupling, the hook C, for receiving and retaining the rod, substantially as and for the purposes set forth

---

191,448. OIL OR OTHER DEEP WELL PUMPS. Daniel L. Lewis, Lovell's Station, assignor of one-half his right to William Boynton, Petersburg, Pa. [Filed Feb. 22, 1877.]

Brief.—The pump is constructed with a barrel, a bottom valve, a working-valve within the barrel, a hollow stem to the same, a stuffing-box in the end of the barrel, through which the hollow stem works, and a check-valve on the end of the stem.

1. An oil or other deep well pump, having a working-valve, C, and check-valve F, with connecting hollow stem D joining the same, and said valves operating one within and the other without the barrel A, as and for the purposes set forth.

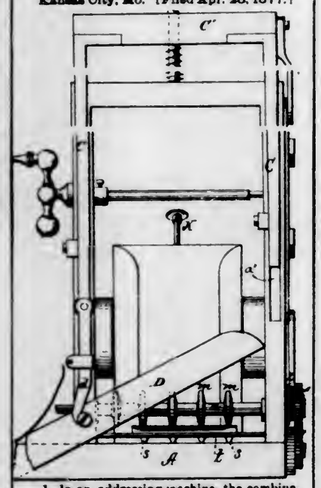
2. An oil or other deep well pump, provided with a hollow piston-stem, D, which has a surrounding plug, E, closing the barrel, and is provided with a working or sucking valve, C, on its lower end, and a check-valve, F, on its upper end, as and for the purposes set forth.

3. Within an oil or other deep well casing or tubing, near the bottom of the same, a chamber filled with an elastic medium, for the purpose of cushioning the vibrations of the column of fluid, substantially as and for the purposes herein set forth.

4. The combination, with a deep-well-pump piston-rod, of the tube G, near the bottom or lower end of the same, filled with air or other elastic substance, substantially as and for the purposes set forth.

5. The combination of the plug E, piston-stem D, and valve B, the piston-stem being of such a length that its upper collar partially seats the plug just before the lower end strikes the valve B to seat or clear it, as set forth.

191,449. ADDRESSING-MACHINES. Abner H. Longley, Jr., Paola, Kans., assignor to Morrison Mumford and M. M. Morrison, Kansas City, Mo. [Filed Apr. 26, 1877.]



1. In an addressing-machine, the combination of the fountain H, having mouth or opening *i*, slide *k*, guide *l*, and operating set-screw K, substantially as and for the purposes herein set forth.

2. The combination of the bed-piece A, movable frame C C', connecting-bar *d*, pivoted bar D, and spring *e*, substantially as and for the purposes herein set forth.

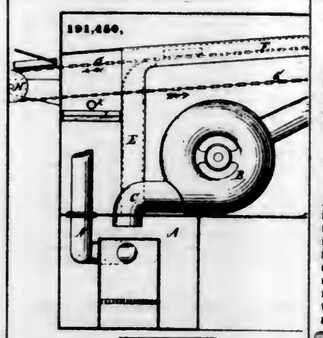
3. The combination, with the roller J and shaft *n*, with its disks *m m*, of the frame C C', pivoted bar D, arm L, with pin *v*, slotted slide O, pawl P, with spring *s*, ratchet R, and gears S S', all constructed and operated substantially as and for the purposes herein set forth.

191,450. APPARATUS FOR DRYING TOBACCO. Cyrus Losee, Brooklyn, N. Y. [Filed Apr. 14, 1877.]

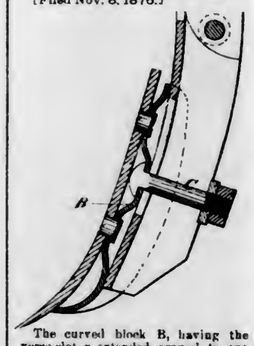
1. The combination of an air-heating chamber, a drying-chamber, a flue which leads from the air-heating chamber into the drying-chamber, an endless chain or apron, which serves to carry the material to be dried through the drying-chamber, and a fan-blower, which draws the air from the drying-chamber and forces it into the heating-chamber, all constructed and operating substantially as shown and described.

2. The combination, with the air-heating chamber A, the drying-chamber F, the flue E, the endless apron or chains G, and the fan-blower B, of an open pan, L, and steam-jet pipe K, substantially as and for the purpose set forth.

191,450.



191,451. CULTIVATORS. Edward P. Lynch and Edgar A. Wright, Davenport, Iowa. [Filed Nov. 8, 1876.]

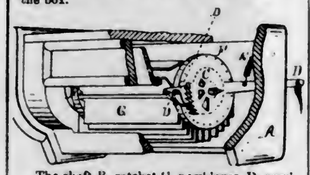


The curved block B, having the transverse slot *x* extended around to one side to permit the bolt C to be shoved forward to bring its round portion in the slot and allow it to be turned therein or shoved out forward, substantially as shown and described

---

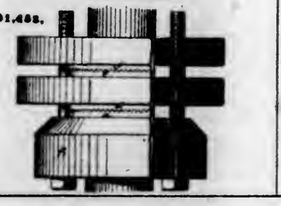
191,452. STATION-INDICATORS. Jas. Mantell, Detroit, Mich., assignor to himself and C. B. Palmer, same place. [Filed Apr. 4, 1877.]

Brief.—The shaft is interruittently rotated by means of a pawl and ratchet. The number of ratchet-teeth corresponds with the number of leaves, and each pull upon the pawl-lever moves the shaft just far enough to release the next succeeding plate, which then drops by its own gravity, and exposes the name of the station through the opening in the box.



The shaft B, ratchet C, pawl-lever D, pawl D', spring E, heads F F, and the leaves G, in combination with the case A, having the ledge *a* over its opening, substantially as and for the purpose set forth.

191,453.

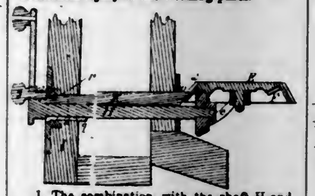


191,454. SECURING AND ADJUSTING ECCENTRICS. James Mason, New Haven, Conn. [Filed Mar. 17, 1877.]

In combination with the roughened-surface collar on the shaft, an eccentric, one or more, provided with corresponding serrations for holding the eccentric in engagement with the collar through the said roughened surfaces, substantially as described.

191,455. SHUTTER-WORKERS. Wm. P. McCobb, Boston, Mass. [Filed May 7, 1877.]

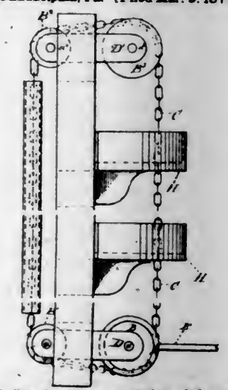
Brief.—As an improvement on Patent No. 187,474, February 20, 1877, there is employed, in combination with the shaft which carries the pinion, a suitable rod, one end of which is adapted to operate with the hinge-plate by frictional pressure thereon, while the opposite end of this rod has a set-screw or other suitable device for advancing or retreating the rod, the construction serving to hold the shutter at any desired point, and to guard against accidental injury to the working parts.



1. The combination, with the shaft H and hinge-plate B, of the rod K, adapted to operate upon said plate with a frictional pressure, substantially as and for purposes stated.

2. The combination, with the plate E, of the shaft H, rod K, with its hub *g*, crank *f*, and screw *g*, whereby a frictional pressure is exerted upon said plate E by means of the end *e* of rod K, substantially as and for purposes stated.

191,456. FIRE-ESCAPES. A. McCambridge, Philadelphia, Pa. [Filed Mar. 9, 1877.]



1. The fire-escape, consisting of the carrying-chain C, pulleys B B' B'' B'', having supports D D', the pulley B being provided with a brake-lever, E, substantially in the manner and for the purpose set forth.

2. The combination of the platforms H, having openings *e*, with the carrying-chain C and supporting-pulleys B, substantially as and for the purpose set forth.

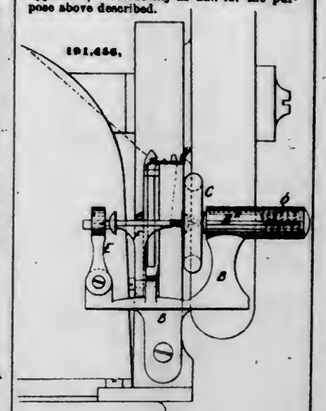
191,456. BOBBIN-WINDERS FOR SEWING-MACHINES. Thomas McGrah, Sheffield, England. [Filed Aug. 31, 1876.]

Brief.—A hinged bracket bears upon and guides the thread to the bobbin, and holds a hinged bearing against one end of the bobbin. When, by reason of the increased diameter of the coils of thread when the bobbin is full, the bracket is forced off the hinged bearing, the spring, acting on the friction-wheel shaft, forces said wheel away from contact with the driving-wheel and stops the winding.

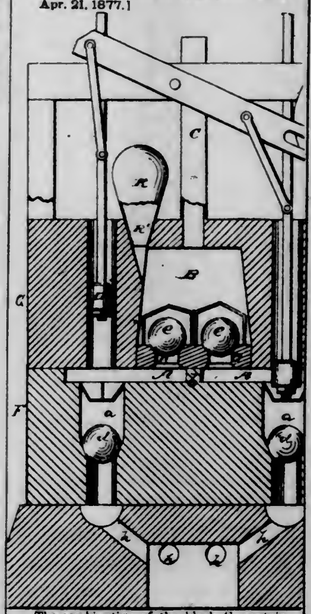
The combination, with the pulley C, hinged bearing E, spring *b* in the socket of the frame B, and bobbin *c*, of the catch-piece F for

gaging the amount of thread wound upon the reel, and releasing the reel from the winding apparatus, substantially as and for the purpose above described.

191,456.



191,457. FORCE-PUMPS. C. H. McKeehan, Texarkana, Ark., assignor of one-half his right to V. T. Hannon, same place. [Filed Apr. 21, 1877.]



The combination of the block G, containing the exhaust-chamber B, discharge C, and passages *c*, the block F, with divided receiving-chambers A and passages *a*, the air-chamber R, valves, and pistons, all substantially as and for the purpose set forth.

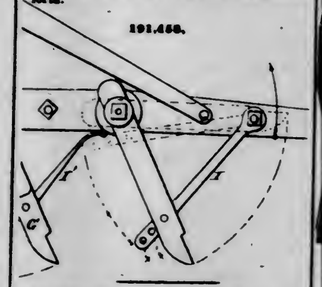
191,458. CULTIVATORS. Thos. F. McNair, Worthville, Ga. [Filed Apr. 23, 1877.]

Brief.—The plow-standards are interchangeable from front to rear, and can be turned up and held out of the way on a line with the beam.

1. The combination, with the beam A and pivoted braces I I, perforated at their rear ends, of the slotted interchangeable plow-feet G G, connected to the beam by the bolt *d*, and capable of being folded on a line with the beam and there secured, substantially as and for the purposes herein set forth.

2. The plow-foot G', pivoted to the rear extremity of the beam A, and capable of being thrown upward when not in use, as set forth.

191,458.



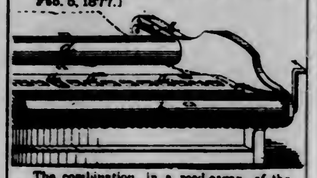
191,459. CARRIAGE THILLS AND POLES. A. McGitt, Washington, D. C., assignor to himself and C. H. Watson, same place. [Filed May 15, 1877.]



1. A thill or pole provided at its forward end with an elastic cushion, C, covering the end of the thill or pole, substantially as and for the purpose set forth.

2. The combined elastic cushion C and sleeve B, with a thill or pole, substantially as and for the purpose set forth.

191,460. AUTOMATIC WIND-INSTRUMENTS. E. P. Needham, New York, N. Y. [Filed Feb. 5, 1877.]

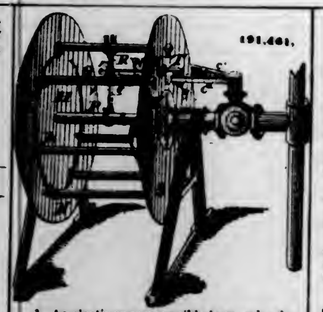


The combination, in a reed-organ, of the perforated roll or sheet of paper, acting as a valve to the reeds, with the hinged roller or rollers d and springs E, substantially as and for the purpose described.

191,461. AUTOMATIC HOSE-REELS. Wm. Neracher, Cleveland, Ohio, assignor of one-half his right to H. B. Piper, same place. [Filed Mar. 7, 1877.]

Brief.—Two disks having slots placed at equal distances. In the slots move rods, which are prevented from falling out by nuts on their ends. Within the space inclosed by the bars are springs, which push the rods outward. Part of the shaft is hollow. From the hollow part extends a curved pipe, to which the hose is attached. The water-cock is opened by means of the lever extending outward from the reel.

191,461.



1. An elastic or compressible hose-reel, substantially as and for the purpose described.

2. The combination of disks or sides provided with radial slots, cross-bars movable in said slots, and spring or springs, so located as to press said cross-bars outward, substantially as described.

3. The combination of lever R, arm G, and spring W, substantially as described.

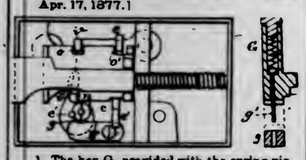
4. The combination of lever R, arm G, spring W, and lever C, substantially as described.

5. In an automatic hose-reel, the water-cock handle or lever C, provided with two or more arms, for the purpose of gradually turning on the water, substantially as described.

6. The combination of hose-reel, hydrant-coupling at the axle, hose attachment within the reel, and yielding arms or supports, substantially as and for the purpose described.

7. The spring provided catch X, in combination with notched arm G, substantially as and for the purpose described.

191,462. LOCKS AND KEYS. A. H. Palmer, Utica, N. Y., assignor of one-half his right to A. D. Barber, Jr., same place. [Filed Apr. 17, 1877.]



1. The key G, provided with the spring-pin g', and detachable piece g, as and for the purposes described.

2. The detachable piece g, having groove h, and being formed to match with the shaft of key G, receive the spring-pin g', and connect with the tumbler D within the lock, substantially as set forth.

3. The tumblers D and D', the former having the lug l^2 and pins e and e', and the latter having the lugs s and s^1, said tumblers being pivoted and provided with springs, substantially as set forth.

4. The tumbler D, provided with the pins e and e', for entering and retaining the part g of the key G, substantially as set forth.

5. The supplementary key H, provided with projection r, and formed to close with and operate with the detachable piece g when the latter is in the lock, as set forth.

191,463.



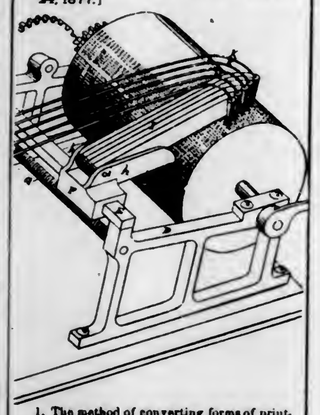
191,463. AWL-HANDLES. Geo. W. Phenix, New Brunswick, N. J. [Filed Dec. 30, 1876.]

Brief.—The awl or tool is secured to a hollow metallic handle, provided with a hinged cover, by means of a cap adapted to be pinned to the handle, and a screw-thimble fitting over the cap, and having an aperture in its top, through which the tool is passed after its tang has been inserted in the cap. A branch gage, fitting over the tool and pinned to the handle, gages the depth of the hole bored.

1. The combination, with the awl-handle A and screw-thimble D, of the cap C, having the rim c and screw-bit d, and the pin e, substantially as specified.

2. The combination, with the awl-cap C, pin e, and handle A, of the branched gage E, having the series of perforations n, substantially as specified.

191,464. COPYING-TELEGRAPHS. Loring Pickering, San Francisco, Cal. [Filed Apr. 24, 1877.]

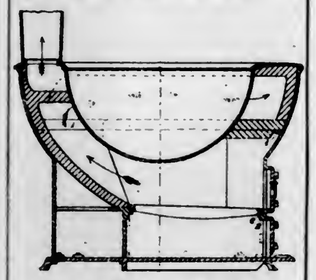


1. The method of converting forms of printing-types into transmitting-plates for telegraphic purposes, consisting in filling between the faces of the types, either in the original form or in a stereotype cast taken therefrom, a non-conducting substance that will, at the same time, insulate the faces of the types and provide a smooth level surface for the contact-points of the wires to pass over, substantially as and for the purpose described.

2. The hinged arms l l, arranged to carry the points of the wires K K K in their free ends, in combination with the slide F and feed-screw G, substantially as and for the purpose described.

3. The arrangement of the contact-points of the several parallel wires of an automatic telegraph apparatus in an oblique or spiral manner, substantially as and for the purpose described.

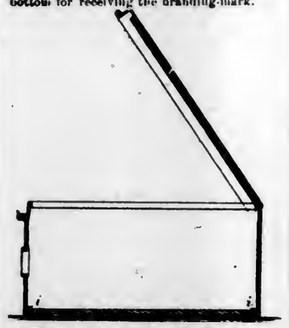
191,465. KETTLE-FURNACES. J. F. Prath, Chicago, Ill. [Filed Dec. 26, 1876.]



A worm-flue kettle-furnace, wherein the said flue, the fire-pot, and the lining for the outer walls consist of removable fire-proof blocks consecutively arranged and matched together, substantially as and for the purposes specified.

191,466. CIGAR-BOXES. James H. Prester, Brooklyn, assignor to himself, Anna E. Gillies, and Martin Simons, New York, N. Y. [Filed Feb. 5, 1877.]

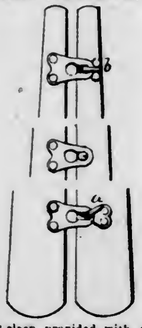
Brief.—The box is of tin, and has flanges that hold a lining of paper, and has a wooden bottom for receiving the branding-mark.



1. The metallic cigar-box having inward flanges o at the bottom of the sides and ends, in combination with the wooden bottom resting upon such inward flanges o and the folded strips i at the edges of the bottom, and soldered to the metal of the box, substantially as set forth.

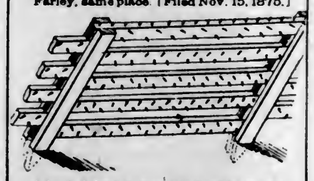
2. A cigar-box constructed of sheet metal and having folded strips of sheet metal soldered to the inside of the box, and the lining of pasteboard or similar material secured by said folded strips, substantially as set forth.

191,467. CORSET-CLASPS. G. W. Reynolds, Boston, Mass. [Filed Nov. 18, 1876.]



A corset-clasp provided with an oblique hook, c, at its lower end, constructed and arranged as shown, in combination with a horizontal or direct hook, b, at its upper end, substantially as and for the purpose herein specified.

191,468. BARBED FENCES. M. C. Richards, Oswego, Ill., assignor to himself and H. W. Farley, same place. [Filed Nov. 15, 1875.]

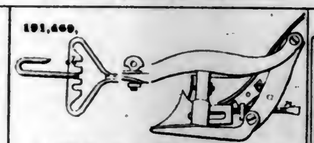


A barbed fence composed of wooden rails, provided with metal barbs pointed at both ends and inserted within, and projecting from, the same, substantially as and for the purpose specified.

191,469. PLOWS. Friedrich Rick, Detroit, Mich. [Filed Apr. 26, 1877.]

Brief.—The horizontal shank of the cutter extends into the plow, and receives a traveling screw, which moves the cutter forward or back.

191,469.



In combination with the slotted colter, the screw n, that is swiveled to the side of the handle, and made to move the colter back and forth, substantially as described.

191,470. RAILROAD-FROGS. John T. Richardson, Harrisburg, Pa., assignor to Pennsylvania Steel Company. [Filed Apr. 23, 1877.]



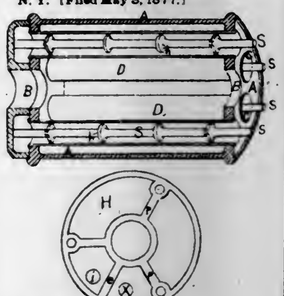
1. The combination of brace-blocks, made to fit and bear against the under side of the head and the base of the rail, and beveled keys driven between and against the blocks and flanged ends of the binding-bars, substantially as and for the purpose set forth.

2. A railway-frog having brace-blocks provided with lugs, in combination with beveled keys and the binding bars and rails of the frog, substantially as and for the purpose set forth.

3. The brace-blocks and beveled keys, having split ends, in combination with the rails and binding-bars, constructed substantially in the manner and for the purpose as shown and described.

4. The brace-blocks and throat-pieces, provided with lugs, in combination with the rails and binding-bars, substantially as and for the purpose set forth.

191,471. HEATERS. Fred B. Rice, Dunkirk, N. Y. [Filed May 3, 1877.]



1. The combination, with the tubes D, of the shell A and heads H, the interior of the heads being divided into spaces by partitions p, and attached to shell A in such a manner as to cause the current of water to be reversed every time it passes through a tube, substantially as and for the purposes set forth.

2. The spindles S, with enlargements or heads h, and projections on said heads, for the purpose of holding the spindles central, in combination with tubes, substantially as described.

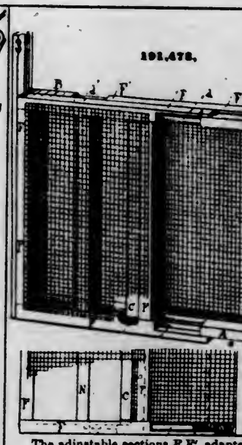
191,472. SNAP-HOOKS. Clark Robinson and Jos. F. Ellis, Eau Claire, Wis. [Filed Apr. 6, 1877.]



As an improved article of manufacture, the hook A, having pivoted within its shank opposite to its point a a wheel, B, provided with an elastic yielding periphery, substantially as and for the purpose specified.

191,473. ADJUSTABLE WINDOW-SCREENS. Samuel Roebuck, Brooklyn, N. Y. [Filed June 17, 1876.]

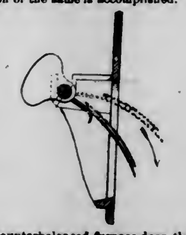
191,473.



The adjustable sections F F', adapted to be applied to window-frames of different widths, and provided with the plungers d, extension f, and guide and stop rails e, having end tenons sliding in grooves s, in combination with the auxiliary frames A B, provided with openings for the reception of the coiled springs s and recesses o, substantially as described, and for the purpose set forth.

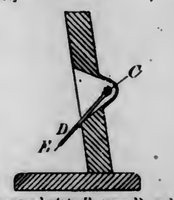
191,474. FURNACE-DOORS. T. W. Rodgers, Boston, Mass., assignor to E. H. Ashcroft, same place. [Filed Apr. 27, 1877.]

Brief.—The air is deflected downward by an inner curve in the door. By this means the gases in the fire-chamber are retarded, by which the air and gaseous material are more intimately mixed, and a more complete combustion of the same is accomplished.



A counterbalanced furnace-door, the swinging plate of which is curved inward in the direction of its greatest length, substantially as and for the purpose set forth.

191,475. PROPULSION OF VESSELS. Thos. S. Seabury, New York, N. Y. [Filed Apr. 23, 1877.]



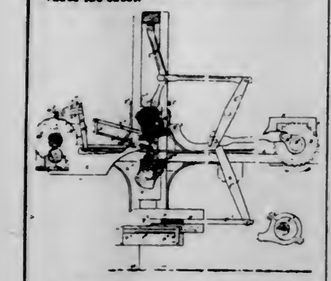
The submerged plate E, arms D, and rocking shaft C, in combination with the sides of a floating vessel, as and for the purpose substantially as set forth.

191,476. DEODORIZING, DISINFECTING, AND FERTILIZING COMPOUNDS. H. Seligman, Irvington, N. Y. [Filed Mar. 15, 1877.]

The mineral potash disinfecting, deodorizing, and fertilizing compound herein specified, consisting of the described mineral salt, with a calcareous substance, such as gypsum, and an acid, such as sulphuric acid, in about the proportions set forth.

191,477. MACHINES FOR CUTTING NAILS. William N. Severance, South Bend, Ind. [Filed Sept. 12, 1876.]

Brief.—Two vertically-reciprocating cutter-stocks, each provided with two sets of reversely-shaped cutters, are caused to oscillate to alternately bring first one set of cutters and then the other into position previous to the cut. The lower cutter-stock is raised and held stationary, while the upper one is descending, by reciprocating cam-ways, which act upon friction-rollers dependent from its sliding journal-boxes. Lock-bolts on segmental pieces attached to the axles of the cutter-stocks enter recesses just before the stocks meet, and serve to hold them immovable while the cut is being made. Feed-rollers intermittingly advance the sheet.



1. The cutter-stocks F and G, each carrying two series of cutters, brought alternately into action from the same direction on the nail-plate in lines at right angles to the plane of the sheet, substantially as set forth.

2. The cutter-stock G, having an oscillating and also a reciprocating vertical movement, by which it is brought up and held stationary under the sheet while the descending cutters are making the cut, substantially as set forth.

3. The cutter-stock G, having two sets of cutters, and having a vertically-reciprocating movement for the purpose of bringing the cutters under the sheet, and also an oscillating movement for bringing the two sets of cutters alternately into action, substantially as set forth.

4. The cutter-stock F, having two sets of cutters, and having an oscillating and also a constant reciprocating movement for bringing the cutters successively into action, substantially as set forth.

5. The cutter-stock G and arms G^1, provided with lock-bolts G^2, received into recesses to hold the cutter-stocks immovable while the cut is being made, substantially as set forth.

6. The combination of the lock-bolts and plates I I^1, recessed, and carrying plates I^2, for fixing position of the cutter-stock, substantially as set forth.

7. In combination with the cutter-stock G, hung in sliding boxes, the reciprocating ways adapted to raise the cutter-stock, hold it stationary, and then bring it down alternately, substantially as set forth.

8. In combination, the cutter-stock G and sliding boxes E, reciprocating ways D D^2, arm O^2, lever O^3, and connecting-rod C, substantially as set forth.

9. In combination with the cutter-stock F and sliding-boxes E^1, the stirrups O^5, toggles O^4, rod O^6, lever O^7, and connecting-rod C, substantially as set forth.

10. In combination with the cutter-stocks and arms G^1 F^1, the reciprocating bifurcated rods H, connected by studs and slots to give oscillation to the cutter-stocks, and at the same time allowing them a reciprocating vertical movement, substantially as set forth.

11. In combination with the intermittent feed mechanism, the cutter-stocks, having both oscillating and reciprocating movements, and duplicate sets of cutters, each set alternately making a cut before the sheet is fed forward, substantially as set forth.

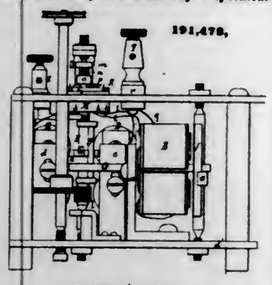
191,478. ELECTRO-MAGNETIC MOTORS. R. J. Sheehy, Boston, Mass. [Filed Feb. 20, 1877.]

Brief.—A coiled spring connects the commutator-spring to the revolving shaft, for the purpose of drawing the commutator-spring over to the next segment of the commutator when the crank has passed the dead point.

1. The four electro-magnets B C D E, their armatures f, and the two forks g, arranged and applied as described, in combination with the shaft H, its crank g, and the current-transferrer R, substantially as specified.

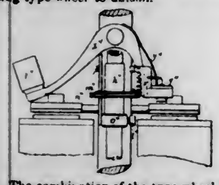
2. The current-transferrer composed of the series of insulated segments A, the shaft H, and the arm p, connected with such shaft by a helical spring, s, as set forth, all being arranged and to operate essentially as specified.

191,479.



191,479. PRINTING-TELEGRAPHS. R. J. Sheehy, Boston, Mass. [Filed Apr. 11, 1877.]

Brief.—Relates to devices for operating type wheel, and making and breaking main-line circuit; for operating press mechanism; for keeping open circuit of press-magnet while type-wheel is in motion; and for adjusting type-wheel to unison.



1. The combination of the type-wheel b^1, its escapement-wheel c^1, and lever f^2, with the magnet f^1, and its armature h^1, and with the vibratory arm P, the insulated stud s^1, and screw s^2, the switch t^1, buttons r^1 s^1, the electro-motor W, and the series A of keys, and the stop-bar D, all being arranged and applied essentially as set forth.

2. The combination of the slotted lever x^2, the connection-link y^2, pin d^2, and lever x^2 with the press-pad or striker i^2, and the arm e^2 of the armature-shaft f^2, as described, all being arranged and applied substantially as set forth.

3. In combination with the printing-wheel b^1 and its shaft a^2, and the escapement c^1 f^2 for revolving such shaft, the mechanism which keeps open the circuit of the press-magnet n^2 while the type or printing wheel may be in motion, such mechanism consisting of the ratchet-wheel r^2, lever s^2, screw w^2, post v^2, spring y^2, stud z^2, arms a^4 b^4, and springs d^4 e^4, all being constructed and applied and to operate essentially as set forth.

4. The combination of the ratchet-wheel r^2, lever s^2, screw w^2, post v^2, spring y^2, stud z^2, arms a^4 b^4, and their springs, all being arranged and applied as explained, and constituting a mechanism for keeping open the circuit of the press-magnet while the printing-wheel may be in motion.

5. The combination for setting or adjusting the type-wheel in unison or due relation with the keys, such consisting of the screw-threaded disk m^1, stud t^2, the lever q^1, teeth r^1, projection s^1, weighted curved lever x^1, and the spring y^1.

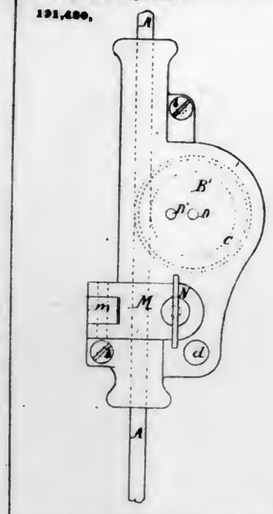
6. In combination with the series A of keys and the type-wheel b^1, provided with mechanism, substantially as described, for revolving and stopping it, as explained, the mechanism for setting or adjusting the type-wheel in unison or due relation with the keys, such mechanism consisting of the screw-threaded disk m^1, the stud t^2, lever q, teeth r^1, projection s^1, weighted lever x^1, and the spring y^1, all being essentially as set forth.

191,480. FIRE-ESCAPES. W. H. H. Sisum, Brooklyn, assignor to H. B. Houghton, New York, N. Y. [Filed May 15, 1877.]

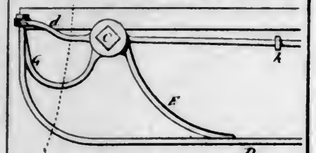
1. The clamp M and screw N, in combination with the stationary wheel or circular part C, grooved as shown, and with a shell or frame having provisions d for receiving an attachment to the person, all adapted for use on a rope, A, as a fire-escape, as herein specified.

2. The combination of the rope A, with the parts B^1, B^2, C, D, D^1, d, M, m, and N, as and for the purposes specified.

191,480.

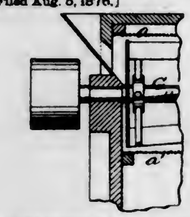


191,481. SLEIGH-RUNNERS. Chas. Smith, New Haven, Conn. [Filed Feb. 20, 1877.]



The herein-described runner for converting wheeled vehicles to sleighs, consisting of the tread D, with bifurcated vertical supports E and G, connected to collars a a, corresponding to the arm of each axle, and the longitudinal braces d f, also connected to the arm of each axle, substantially as specified.

191,482. FLOUR-BOLTING MACHINES. Peter B. Sprenkle and A. B. Sprenkle, York, Pa. [Filed Aug. 5, 1876.]



The combination of the cylinder-screens a a', the reel-fan provided with the oblique blades and annular guard D, and the feed-hopper delivering into the opening of said annular guard, substantially as specified.

191,483. DUMPING-WAGONS. J. G. Stafford, Washington, D. C. [Filed Apr. 12, 1877.]

Brief.—The dumping process is performed by the driver raising the lock K, turning the crank-shaft G downward, thus allowing the bottom board to open outward.

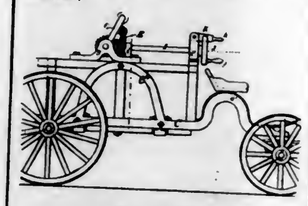
1. The combination of the longitudinal winch-shaft I, lock or stop K, bevel-pinions

H H', and crank G, for raising the hinged bottom boards, as explained.

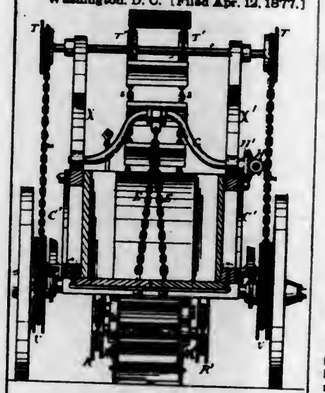
2. The transverse crank G, operated by a longitudinal winch-shaft, I, and employed to raise the hinged bottom boards through the medium of double chains E E, as explained.

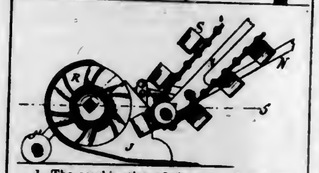
3. The side or sill beams C, constructed with D-shaped brace or bridge-pieces for sustaining the central part of the boards D, and with bows c' to permit the passage of the front wheels in turning.

191,483.



191,484. EXCAVATORS. John G. Stafford, Washington, D. C. [Filed Apr. 12, 1877.]





1. The combination of the scoop J and the recessed cylinder R, working within it, constructed and operating substantially as set forth.

2. The frame N, constructed as described, for carrying the scoop and cylinder and the lower end of the apron.

3. The cylinder R, scoop J, and frame J^1 carried on wheels, substantially as and for the purposes set forth.

4. The combination of the scoop J, cylinder R, and elevating-apron S s, substantially as and for the purposes set forth.

5. The convex-bottomed scoop J, hinged links J^1, carrying-wheels J^2, and elevating-levers O O', constructed and combined to operate as described.

6. The combination of the driving-wheels W, clutch-pulleys U, chains u u, sprocket-wheels T T' M M' B', shafts t m, bucket-apron S s, cylinder R, and scoop J, with clutch-operating mechanism to impart a simultaneous movement to the excavating and loading apparatus, or throw them out of gear, at the will of the operator.

7. The construction of the frame X', constituting a standard for the support of the upper end of the elevating-apron and its operating mechanism, and a jack to connect the bearings of geared shafts G I, as explained.

191,485. FENCE-POSTS. G. B. St. John, Cedar Rapids, Iowa. [Filed Apr. 17, 1877.]

191,485.



1. The metal post A A', having ribs a, flange a', and connecting-straps C, constructed as described, and provided with braces c, substantially as and for the purposes set forth.

2. The post A, having openings B, and connecting straps or pieces C, provided with fence-wire seat c' and interior brace or web c, substantially as and for the purposes described.

191,486. HARVESTERS. Daniel Strunk, Janesville, Wis., assignor to Harris Manufacturing Company, same place. [Filed Aug. 1, 1876.]



1. The combination of a vibrating main frame, mounted upon the main axle, a tongue hinged thereto, a cutting apparatus, connected to the main frame by a rolling joint, and devices for adjusting the tongue and main frame, and cutting apparatus and main frame, through the instrumentality of a lever, connected together, but disconnected from the adjusting-lever E, substantially as and for the purpose set forth.

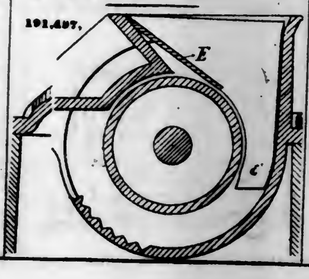
2. The combination of the vibrating main frame mounted on the main axle, tongue C, hinged thereto, angular lever D, linked to the tongue, connecting-rod F, cranked rock-shaft G, carrying the grain-wheel h, and cutting apparatus, attached to the main frame by a rolling joint, substantially as described.

3. The combination of the tongue C, hinged to the main frame, lever D, linked thereto, connecting-rod F, rock-shaft G, and independent or disconnected lever E, substantially as described.

4. The combination of the tongue C, hinged to the main frame, rear extension-arm c, lever D, link d, connecting-rod F, and independent lever E, substantially as described.

5. The combination of the reciprocating connecting-rod F, lever L, link k, rake-standard K, and rocking finger-beam I, substantially as described.

191,487.



191,487. SEEDING-MACHINES. Danl. Strunk, Janesville, Wis., assignor to Harris Manufacturing Company, same place. [Filed Mar. 12, 1877.]

Brief.—Within the feeding-case, at the discharge-opening, and on the rigid side of the case, are made corrugations to retard the discharge of the seed. A plate is introduced into the top of the hopper when small seed is to be planted, and extends over a portion of the seed wheel to prevent crushing the seed.

1. A seed case or cup adapted to receive a revolving feed wheel or cylinder, and constructed with a portion of its interior surface corrugated or roughened near the discharge-opening, substantially as and for the purpose set forth.

2. A revolving feed wheel or cylinder, adjustable laterally to vary the quantity of seed discharged, in combination with a seed case or cup having a section of its interior surface corrugated or roughened, substantially as and for the purpose set forth.

3. A revolving feed wheel or cylinder, provided with means for varying the capacity of its seed-discharging receptacles, in combination with a seed case or cup having its discharge-opening elevated somewhat above the lowest point of its interior vertical diameter, and constructed with a portion of its internal surface corrugated or roughened, substantially as and for the purpose set forth.

4. The seed case or cup, in combination with a plate or cover, E, adapted to be fitted in the throat of the cup, and extend over a part of the smooth portion of the feed-wheel, to reduce friction whenever desired, substantially as and for the purpose set forth.

5. The plate or cover E, constructed with a vertical flange, e, at one side, having a curved extension, e', fitting down around the cylinder, and covering the points at the side of the cup, substantially as and for the purpose set forth.

191,488. LUBRICATING COMPOUNDS. G. W. Sweeney, New York, N. Y. [Filed Nov. 25, 1876.]

A lubricating compound made of graphite, collodion, and camphor, mixed together in about the proportion and substantially in the manner herein specified.

191,489. JOURNAL-BOXES. G. W. Sweeney, New York, N. Y. [Filed Nov. 25, 1876.]



A journal-box the bearing-surface of which is formed by the end grains of the pieces of wood which compose its lining, and which is provided with recesses h—one or more—for the reception of a dry lubricating compound, substantially as and for the purpose herein set forth.

191,490. LUBRICATING COMPOUNDS. Peter Sweeney, New York, N. Y., assignor to Benjamin Collins, same place. [Filed Nov. 25, 1876.]

A lubricating compound made of graphite and collodion mixed together, substantially in the manner and about in the proportion herein set forth.

191,491. LUBRICATING COMPOUNDS. Peter Sweeney, New York, N. Y., assignor to Benjamin Collins, same place. [Filed Nov. 25, 1877.]

A lubricating compound made of graphite, collodion, and mercury, mixed together in about the proportion and substantially in the manner herein set forth.

191,492. BUTTONS FOR CARRIAGE-CURTAINS. Gregor Trinks and A. Pramman, New York, N. Y. [Filed Apr. 25, 1877.]



The combination, with the shank B, having an attaching-point, g, and near its upper end the circular groove b, of the hollow head A, having the nipple C, provided with a slot, c, the flat spring D, secured in the head, and having its free end resting in the slot c, and into the groove of the shank, and the cap F, having the segmental projection e, arranged over the nipple of the head, all substantially as and for the purpose described.

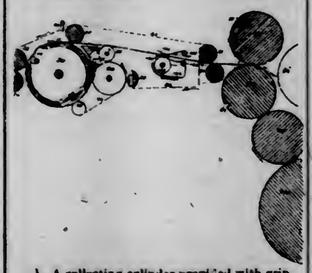
191,493. WRENCHES. Alexander V. Trust, New York, N. Y. [Filed May 10, 1877.]



The combination, in a wrench, of a main jaw, a handle, and a secondary jaw, the main jaw being pivoted to the handle and provided with a mortise, in which the secondary jaw slides, while the secondary jaw engages with a camslot in the handle, all constructed and operating substantially as shown and described.

191,494. SHEET-DELIVERY MECHANISMS FOR PRINTING-MACHINES. S. D. Tucker, New York, N. Y. [Filed May 5, 1877.]

Brief.—A web is printed, perforated, and cut into sheets by an automatic progressive operation of rotating devices. The resulting sheets are directed onto a receiving-cylinder, which is supplied with gripers to seize the leading end of each sheet and guide it about the cylinder. This cylinder is supplied with gathering and folding mechanisms. When the gathering mechanism is in action, each sheet is successively carried onto the cylinder, so as to accumulate a body of any desired number thereon, which are delivered in a single mass and piled flat. When the folding mechanism is in action, each sheet received by the cylinder has its center margin delivered before the folding devices, which double and deliver it once folded. The gathering and folding mechanisms may be adjusted for conjoint action, whereby two or more sheets may be collected on the cylinder, and be simultaneously doubled or folded. A pasting apparatus applies a longitudinal or a transverse line of paste to alternate sheets, so that two, when folded, may adhere together upon the desired margins.



1. A collecting-cylinder provided with gripers for seizing and retaining sheets thereon, and with means for propelling said sheets when released from the gripers, all substantially as described.

2. A delivering-cylinder provided with means for collecting many sheets thereon, and with mechanism for folding such sheets, said collecting means and folding mechanism being constructed substantially as described, so that either may be rendered inactive while the other remains operative.

3. The combination, with a revolving carrier supporting a rotating folding-blade, of a flying-cam, for operating said folding-blade at each second or repeated revolution of said carrier, all substantially as described.

4. The combination, with a delivering-cylinder and folding devices, of rocking tapes or rollers 65, all substantially as described.

5. The combination, with a revolving carrier supporting a rotating folding-blade, of interchangeable cam 15 and actuating toothed wheels 18 63, all substantially as described.

6. The combination, with a revolving carrier supporting a folding-blade, of means for automatically rendering the actuating mechanism of the said folding-blade inoperative at any given time or times of the passage of said folding-blade past its co-operating folding devices, all substantially as described.

7. The combination, with a delivering-cylinder, provided with means for collecting two or more sheets thereon, and mechanisms for folding the same, of means for propelling the leading end of the sheet or sheets until the desired number are collected, which means is automatically thrown out of action to free said leading end when the body of sheets are folded, all substantially as described.

8. The combination, with a delivering-cylinder, provided with means for collecting two or more sheets laid one upon the other in succession thereon, of means for pasting one or more of said sheets, and means for simultaneously folding the same sheets, all substantially as described.

9. A collecting-cylinder, provided with means for receiving sheets at one point, and with means for delivering sheets at two points, all substantially as described.

10. The combination, with a rotating folding mechanism and a longitudinally-pasting mechanism, of a sheet-guide, for automatically moving the sheet or web into and out of contact with said pasting mechanism, all substantially as described.

11. The combination, with a paste-fountain roller and the delivering-cylinder, of a rotating paste-blade and mechanism for accelerating and retarding the movement of said paste-blade, so that it shall travel with the same speed as the surface of the delivering-cylinder in applying a transverse line of paste to the paper carried by said delivering-cylinder, and be carried into contact with the fountain-roller, so as not to sweep over its face, all substantially as described.

12. The combination, with the delivering-cylinder and paste-fountain roller, of the revolving paste-blade 50, rock-arm 102, and actuating-cam 103, substantially as described.

13. A cylinder provided with a cutting-blade and a perforating-blade, the said perforating-blade being removable, substantially as described.

14. The combination, with the cylinder 30 and sheet-directing tapes 61 62, delivering the sheets directly to the cylinder, of the fixed guides 108, substantially as described.

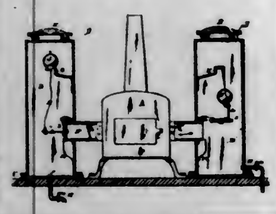
15. The combination with the cylinder 30, sheet-directing switch, and fixed guides 108, arranged together so as to conjointly guide the sheets, substantially as described.

16. The combination of the toothed wheels 18 63 with plates 131, substantially as described.

17. A delivering-cylinder, provided with mechanisms substantially as described, whereby it operates continuously as a collecting-cylinder, and intermittingly as a folding mechanism, all substantially as described.

18. The combination with a rotating folding mechanism, a rotating web-cutting mechanism, and interposed carrying-tapes, which move at a greater surface-speed than the cutting mechanism, all substantially as described.

191,495. FIRE-EXTINGUISHERS FOR CAR-STOVES. J. M. Van Dyke, Mason, Ohio. [Filed Mar. 31, 1877.]



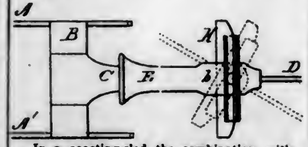
1. The combination, with a car or steamboat stove, of a pair of tanks, B B', higher than, and on opposite sides of, the stove, with which they communicate by passages F, closed by valves I, having a chain or other flexible connection, K, with a ball or heavy mass, J, supported in annular bracket N, from which said mass is readily displaced by any violent disturbance, substantially as set forth.

2. The combination of elevated annular bracket N and ball J, connected by chain or cord K with an arm, L, extending from a valve, I, that closes the passage F from tank B into a car or steamboat stove, substantially as and for the purpose set forth.

3. In combination with valve I, closing the passage F into a railway-stove, the spring M, as and for the object designated.

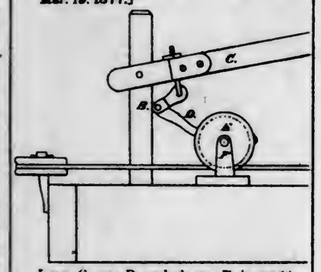
4. The described combination of valves G and I with passage F and automatic releasing mechanism N J K L, for the objects set forth.

191,496. COASTING-SLEDS. Charles R. Van Hoesen, New York, N. Y. [Filed Apr. 4, 1877.]



In a coasting-sled, the combination, with the runners A A' attached to transverse bar B, the reach bar C, and elevated seat E, of the horizontally-vibrating front supporting-runner D with guide foot-rest H journaled in the free end of said bar, and a handle for operating the same, substantially as specified.

191,497. APPARATUS FOR RAISING AND LOWERING THE REELS OF GRAIN-HEADERS. Clinton A. Wood, Racine, Wis. [Filed Mar. 19, 1877.]



Lever C, arm D, and sheave E, in combination with rope H, substantially as and for the purpose specified.

191,498. GAS-BURNERS. H. A. Whitney, Cincinnati, Ohio. [Filed Apr. 4, 1877.]

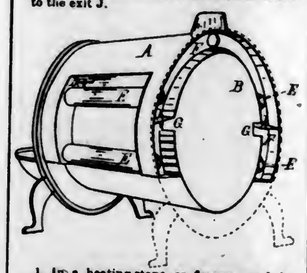


1. A gas regulating or controlling check or strainer, B, attached to or prolonged from the lower end of the tip A, closed at bottom, and having, some distance above the bottom, a series of minute perforations, b, whose combined area is less than that of the outlet, substantially as and for the purpose set forth.

2. The gas-tip A, Fig. 3, whose lower portion, within the pillar, is closed at bottom, and communicates with the gas-supply through minute orifices, b, in its vertical wall, substantially as set forth.

191,499. HEATING-STOVES. Thos. White, Quincy, Ill. [Filed Mar. 15, 1877.]

Brief.—Dampers D and I being closed, the draft will be from the rear of the fire-chamber, through the lower flue E to the front, and thence to the rear through upper flue E. Damper I only being closed, the products pass, at D, into the upper flue E, and thence to the exit J.



1. In a heating-stove or furnace, and in combination therewith, and with the fire-box or combustion-chamber and radiating chambers and flues outside said combustion chamber, the system of dampers and openings described, for affording communication between said combustion-chamber and said radiating-chambers and flues, either at the front or rear of the combustion-chamber, substantially as and for the purposes specified.

2. In a heating-stove or furnace and in combination therewith, the shell A, fire-box B, outside chambers C C F F, dampers D D I, openings G G, outside flues E E, and plates *h h*, arranged to operate substantially as and for the purposes described.

191,500. VALVES. S. Lloyd Wiegand, Philadelphia, Pa., assignor to Saml. S. White, same place. [Filed Apr. 26, 1877.]



In combination with the casing, having the packing-chamber F, the concentric screws, turning in opposite directions, and the valve M, having screw-threaded stem J K, substantially as and for the purpose set forth.

191,501. MANUFACTURE OF CIGARETTES. Asa Willis, Brooklyn, N. Y. [Filed Mar. 29, 1877.]



The process of manufacturing cigars and cigarettes by spirally winding leaf-tobacco, or leaf and scrap together, upon a central wire or mandrel, subsequently withdrawing said wire, and cutting the roll so wound into lengths, substantially as and for the purpose set forth.

191,502. COMBINED TRUCK AND BAG-HOLDER. Daniel S. Wing, Rome, N. Y. [Filed Apr. 28, 1877.]

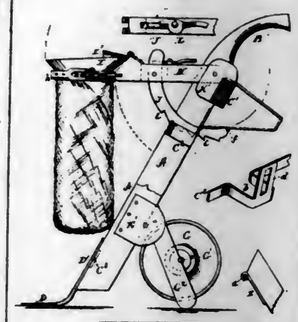
1. The combination, with the main frame, of the shoe or stirrup D, the hinged truck G G^1 G^2, with journals e, and the plates or cheek-pieces E', all constructed substantially as and for the purposes herein set forth

2. The cross-bar C^2, formed with the open slot *b* and the slotted arm *d*, in combination with the arm H and the curved ratchet-bar J, all substantially as set forth.

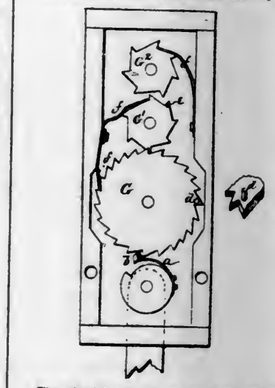
3. The combination, with the truck-frame, of the hinged arm H, carrying the hopper I, the cross-bar C^2, hinged and curved ratchet-bar J, and the eccentric lever L, all substantially as set forth.

4. The hopper I, provided with top flange I' and bottom flange k, for the purposes herein set forth.

191,503.



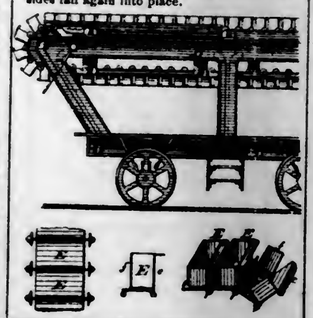
191,505. GRAIN-TALLIES. P. S. Wiseman, Toledo, Ohio. [Filed Mar. 26, 1877.]



The wheel I, cut out on one side, and provided with the spring a and lug *b*, in combination with the ratchets G G^1, having pins *d e*, the ratchet G^2, the dials and fingers, and the branched discharge-spout A, having valve C, all constructed substantially as set forth.

191,504. MACHINES FOR MAKING BRICKS, TILES, &c., FROM SLAG OR SCORIA. Jos. Woodward, Bedall, England. [Filed Sept. 1, 1875.]

Brief.—The slag or scoria runs directly from the spout from the furnace into the molds as they pass along, and as each, in advancing, turns over the roller, the sides fall asunder and allow the brick to fall. In returning to an upright position over the other rollers the sides fall again into place.



1. In a machine for making bricks, tiles, &c., the combination of the molds E, having the side *f* rigidly attached to the base-plate and the side *e* hinged to such base-plate, the base-plate of all the molds being joined together to form an endless chain, substantially as described and shown.

2. The construction of the truck or trolley, with the wrought-iron frame supporting the two rollers, substantially as set forth and described.

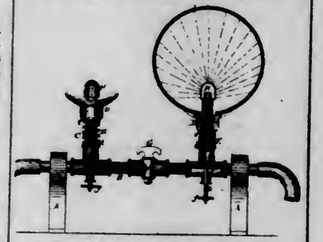
3. The combination and arrangement of the endless chain of molds with the truck or trolley, substantially as and for the purposes set forth and described.

191,505. PANTALOONS. Isaac Zoellner, Chicago, Ill. [Filed July 8, 1876.]



The combination, in a pair of pants or drawers, of the overlapping flaps, extending from the crotch in front to the respective hips, and the extensions of said flaps passing to the rear, and adapted to be secured around the waist at the rear, substantially as herein set forth.

191,506. BARREL-WASHERS. Albert Zoller, Hoboken, N. J. [Filed May 2, 1877.]

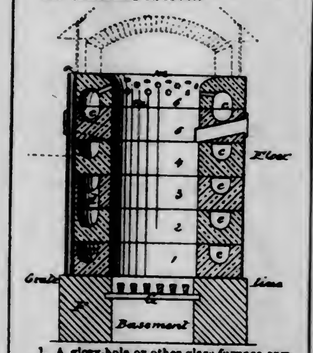


1. The combination, in a barrel-washing machine, of a main or supply pipe, a stationary pipe, C, rising from the same and carrying the rose head H, a spring-supported barrel-holder, D, arranged to move upon the stationary pipe C, and a check-valve, F, arranged in the latter, and a rod or rods connected with the check-valve, and adapted to connect with the sliding barrel-holder on the vertical stationary pipe, substantially as and for the purpose described.

2. The combination of two standards, A A, a horizontal supply-pipe, B, two or more vertical stationary pipes, C, having roses H, and rising from the supply-pipe, the spring-supported barrel-holder D, arranged to slide on the stationary pipes C, the check-valves F in the latter, and rods *g* and h, connected with the check-valve, and upon which the barrel-holders bear, substantially as and for the purpose described.

3. The combination of a main or supply pipe, B, two or more stationary vertical pipes, C, connected with said main or supply pipe, and a check-valve, G, arranged in the main or supply pipe, substantially as and for the purpose described.

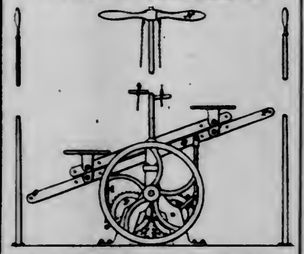
191,507. GLASS-FURNACES. Danl. Bennett, Baldwin Township, Allegheny County, Pa. [Filed May 11, 1877.]



1. A glory-hole or other glass-furnace composed entirely or in part of sections having channels intercommunicating or otherwise equivalently formed, so as to receive air at the bottom and convey the same once or more times around the body of the fire, and discharge the same at the top in a highly-heated state to mingle with the products of combustion, substantially as and for the purposes set forth.

2. In combination with a furnace constructed with intercommunicating circuitous channels, as described, a grate located below the floor at a depth greater than the height of the furnace above the floor, substantially as shown and described.

191,508. MOTORS. Gaston B. B. Bosserian, Paris, France. [Filed May 18, 1877.]

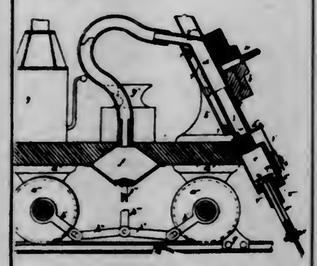


1. A motive-power consisting of balanced levers, in combination with pedals arranged for operation, substantially as herein shown and set forth.

2. In combination with pedals mounted upon balanced levers, of standards or supports, substantially as and for the purposes set forth.

3. Pedals mounted in pairs upon three parallel levers, in the manner shown, or otherwise in equivalently the same manner, whereby the substantial parallelism of the pedals is maintained during the operation, as herein set forth.

191,509. ROCK-DRILLING ENGINES. Wm. H. Elliot, New York, N. Y. [Filed May 11, 1877.]



1. The combination of braces *g*, provided with joints *g''*, or their equivalents, with the gibways and with a car, substantially as and for the purpose specified.

2. The construction of the hollow vertical shaft *d*, provided with flanges, which are fitted to, and combined with, gibways, substantially as and for the purpose specified.

3. The arrangement of the lifting-rope *w*, in connection with shaft *d*, gibway *c*, pulley *w''*, and the axis of the bearing *b''*, substantially as specified.

4. The opening through the piston-rod and the drill-tool, in combination with pump *f* and air-passage *f'*, whereby the same pump is made to operate the rock-drill and to blow out the chips, substantially as and for the purpose described.

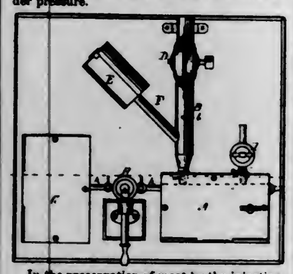
5. The elongation or shank *t* extending up from the rock-drill cylinder, in combination with a guide or way, *d'*, when said guide is made adjustable on axes *x* and *b''*, and supported upon a car, as and for the purpose specified.

6. The strap *r'*, in combination with the screws *r*, provided with elongated heads, with the adjustable gib and with the shaft *d*, substantially as and for the purpose specified.

7. The combination of the crown-wheel and cylinder *s*, points *s'*, slide *s''*, with its pin projecting into the cylinder, and rope *r*, with a rock-drill, whereby the same is supported and fed downward, substantially as specified.

191,510. APPARATUS FOR CURING MEAT UNDER PRESSURE. Nathaniel G. Simonds and E. M. Stevens, Boston, Mass. [Filed Mar. 7, 1877.]

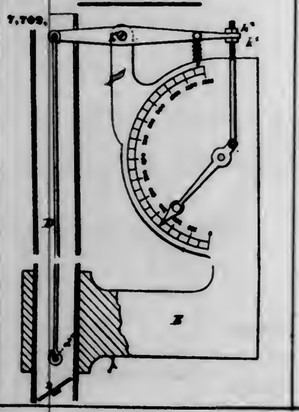
Brief.—Salts and smokes meats in the same vessel, without removal, by creating a vacuum, and then admitting brine under pressure. The brine is drawn off, and a vacuum again formed, when smoke is admitted from the furnace under pressure.



In the preservation of meat by the injection of brine under vacuum, the combination of apparatus consisting of the tanks A and G, connected by pipes and force-pump H, valves *b b*, exhaust-pump I, blower D, furnace E, pipes F and B, and valves *c* and *b*, by which the meat can be preserved by one continuous process.

REISSUES.

7,709.

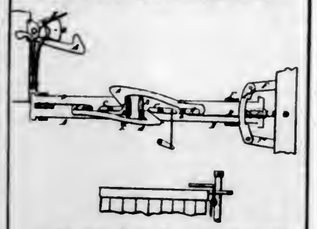


7,702. PYROMETERS. Edward Brown, Philadelphia, Pa. Patent No. 90,815, dated June 1, 1869. [Filed May 14, 1877.]

1. The detachable hand-pyrometer constructed with the tube A, open at each end for the free passage of the hot-blast, in combination with the metal expansion-strip D, arranged therein, for giving motion to the pointer of a dial, secured upon the non-expanding bar E, substantially as described.

2. In a hot-blast pyrometer for temporary indication, the combination of a conductor, having openings for the ingress and egress of the blast, and a valve for admitting the blast upon an expansion-bar within the conductor.

7,703. CAR-COUPLINGS. D. McD. Campbell, Flint, Mich. Patent No. 173,528, dated Feb. 15, 1876. [Filed June 19, 1876.]



1. The check F' and F', as and for the purpose set forth.

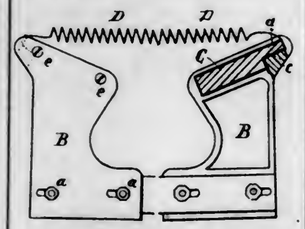
2. The draw-bar B, in combination with the vertical spring B', as and for the purpose described.

3. The draw-bar B having guard E, in combination with check F' and F', as and for the purpose shown and described.

4. The hook A, pivoted on swinging plate A', draw-bar B, bow-spring D, and check F' and F', combined, arranged, and operated, as shown and described, and for the purpose specified.

7,704. BEDSTEAD-FRAMES. J. M. Farnham, Hartford, Conn., assignor to Woven Wire Mattress Company, same place. Patent No. 97,375, dated Nov. 30, 1869. [Filed Mar. 26, 1877.]

Brief.—The inclined position of the end bars allows the fabric to be held securely with but slight contact between them, and the longitudinal adjustment of the end standards provides for the adjustment of the tension of the fabric.



1. The combination of the side bars and end bars and elastic coiled-wire fabric D, attached only to the end bars, with the end bars of the frame elevated above the side bars, so that the fabric will be suspended above the side bars from end to end of the frame.

2. The combination, in a removable bed-bottom or bedstead-frame, of the side bars A, standards or corner-pieces B, end bars C, and the elastic fabric D, combined and arranged substantially as and for the purposes specified.

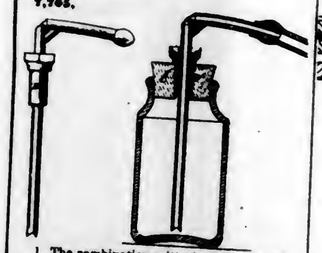
3. The inclined double end bars C of a bedstead-frame, arranged substantially as and for the purpose herein shown and described.

4. The standards B, constructed as described, arranged longitudinally adjustable on the side bars of a bedstead-frame, to permit the inclined end bars to be set a suitable distance apart, as set forth.

7,705. ATOMIZERS. James J. Essex, Newport, R. I. Patent No. 116,266, dated June 27, 1871. [Filed Jan. 24, 1877.]

Brief.—The liquid-tube is embraced by an outer tube, which carries a drip-cup, so that both tubes pass through the same hole in the cork of the bottle.

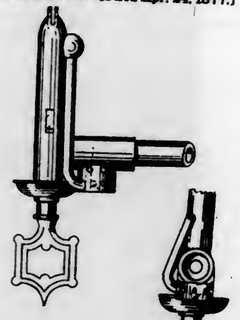
7,705.



1. The combination, with the jet or suction tube of an atomizer, of an attached external vent passing through the same opening in the stopper as the jet or suction tube, substantially as described.

2. The combination, with the suction or jet tube of an atomizer, of an attached external vent passing through the same aperture in the stopper as the said suction or jet tube, and provided with a drip-cup leading into and forming part of the vent-tube, substantially as herein set forth.

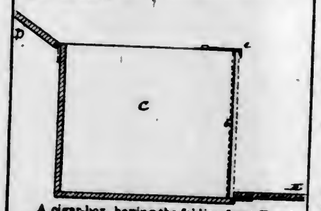
7,706. VAPOR-BURNERS. L. Fischer, Brooklyn, N. Y., assignor to A. H. Watkins, Boston, Mass. Patent No. 86,267, dated Mar. 30, 1869. [Filed Apr. 24, 1877.]



In a vapor-burner, a tube or passage arranged to conduct a portion of the oxygenized vapor from the mixing or gas-chamber to a point below its communication with said gas-chamber for heating purposes.

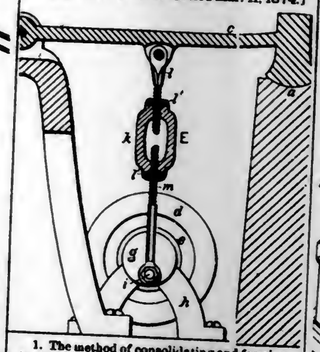
7,707. CIGAR-BOXES. Carl Glund, New York, N. Y., assignor, by mesne assignments, to Lichtenstein Bros. & Co., same place. Patent No. 184,039, dated Nov. 7, 1876. [Filed Apr. 3, 1877.]

Brief.—The front lid of the box is held in place by catches upon the upper edges of the ends, so that it can be operated independently of the cover.



A cigar-box, having the folding front E and folding cover D combined with the pivoted catches *s*, that connect the ends C of the box with the folding front, so that the front cannot be folded down, when locked by said catches, which catches do not interfere with the motion of the cover, substantially as herein shown and described.

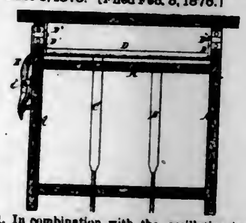
7,708. MACHINES FOR SHAPING HEEL-STIFFENERS FOR BOOTS AND SHOES. John Kimball, Boston, Mass. Patent No. 131,957, dated Oct. 8, 1872. [Filed Mar. 11, 1874.]



1. The method of consolidating and forming heel-stiffeners, in a concave anvil, by the impact of a series of blows of a convex-faced hammer automatically delivered in an unvarying direction relatively to such anvil and stiffener, substantially as described and shown.

2. The heel-stiffener machine, substantially as described and represented, and for the purpose specified, and consisting of the cranked shaft D, connecting-rod E, the heive or shank *c*, convex-faced hammer *b*, and the anvil or post A with its concavity *a*, all combined, arranged, and constructed with a support or frame, C, and provided with suitable pulley, as set forth and shown.

7,709. GRAIN-DRILLS. Benjamin Kuhns, Dayton, Ohio. Patent No. 116,719, dated July 4, 1871; reissue No. 5,432, dated June 3, 1873. [Filed Feb. 5, 1876.]



1. In combination with the oscillating bar D, to which the changeable drag-bars are hitched, and its arms D' D', the studs *e* and *e'*, which play through the side beam of the frame, and are retracted and projected by means such as described, or equivalent means, all operating in the manner set forth.

2. In a shifter for grain-drills, the single oscillating bar D, pivoted to stud D², projecting above the main frame, and operated by the handle D³, substantially as and for the purpose set forth.

3. In a grain-drill, the combination of an oscillating bar, to which a portion of the drag-bars are attached, and locking bolts or pins, arranged substantially as described, for the purpose of holding the oscillating bars in position, as set forth.

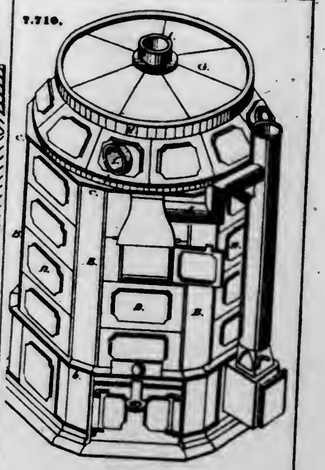
4. The stationary beam A' and drag-bars B, in combination with the oscillating bar D, pivoted to studs D², projecting above the main frame, and the adjustable drag-bars C, substantially as and for the purpose set forth.

7,710. HOT-AIR FURNACES. J. Magee, Chelsea, assignor to the Magee Furnace Company, Boston, Mass. Patent No. 146,512, dated Dec. 16, 1873. [Filed Feb. 14, 1876.]

1. The combination of the casing formed of removable separate panels of non-conducting material, secured in grooved posts B, with the fire-pot or radiator of a hot-air furnace, substantially as set forth.

2. The combination of the outer casing formed of the grooved posts B and removable panels D, of soap-stone or other suitable non-conducting material, with the fire-pot A and the intervening casing C, substantially as set forth and shown.

7,710.



7,711. HORSE-COLLARS. Marshall Turley, Council Bluffs, Iowa. Patent No. 173,092, dated Feb. 15, 1876. [Filed Mar. 13, 1877.]

1. A horse-collar wherein the pads do not meet each other at their lower ends, and are combined with a base-rim having a rope foundation extending between the ends of the pads, for rendering the collar flexible, for the purposes set forth.

2. In a horse-collar, the pads A A, adjustable on a flexible rim, C, for the purposes herein set forth.

3. The combination of the flexible rim C, adjustable pads A A, straps D D, and lacing *a*, substantially as and for the purposes herein set forth.

4. The loop G, in combination with the flexible rim C and adjustable pads A A, for the purposes herein set forth.

7,712. BUCKLES. Barker C. Young, Boston, Mass. Patent No. 162,211, dated Apr. 20, 1875. [Filed Jan. 6, 1877.]

Oaths of Applicants in Foreign Countries.

It is hereby directed that oaths accompanying applications for patents made within the following-named foreign countries must be taken before a minister, chargé d'affaires, consul, or commercial agent holding commission under the Government of the United States:

Austria-Hungary.
Argentine Republic.
Belgium.
Brazil.
Costa Rica.
Denmark.
Haiti
Honduras.
Italy.
Mexico.
Netherlands.
Norway.
Peru.
Portugal.
Russia.
San Salvador.
Servia.
Sweden.
Switzerland.

Applications filed in this Office presenting oaths not executed in compliance with this order will be treated as incomplete.

Issue of June 5, 1894.

Patents	386	No. 520,761 to No. 521,146, inclusive.
Designs	17	No. 23,324 to No. 23,340, inclusive.
Trade-Marks	31	No. 24,806 to No. 24,836, inclusive.
Labels	None.	
Prints	None.	
Reissue	1	No. 11,421.
Total issue	435	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	....	Nevada	....	....
Arizona Territory	....	....	New Hampshire	3	....
Arkansas	5	....	New Jersey	23	4
California	10	....	New Mexico Territ'y	1	....
Colorado	5	....	New York	79	7
Connecticut	19	....	North Carolina	....	....
Delaware	....	....	North Dakota	....	....
District of Columbia	3	....	Ohio	22	1
Florida	....	....	Oklahoma Territory	1	....
Georgia	2	....	Oregon	2	....
Idaho	1	....	Pennsylvania	40	2
Illinois	40	4	Rhode Island	1	....
Indiana	5	....	South Carolina	6	....
Indian Territory	....	....	South Dakota	....	....
Iowa	3	2	Tennessee	3	1
Kansas	3	....	Texas	6	....
Kentucky	3	....	Utah Territory	1	....
Louisiana	2	....	Vermont	....	....
Maine	....	....	Virginia	....	....
Maryland	5	....	Washington	3	....
Massachusetts	30	8	West Virginia	....	....
Michigan	13	1	Wisconsin	7	1
Minnesota	3	....	U. S. Army	....	....
Mississippi	1	....	U. S. Navy	....	....
Missouri	12	....			
Montana	2	....	Total to citizens of the United States	368	31
Nebraska	2	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	....	....	Netherlands	....	....
Austria-Hungary	1	....	Newfoundland	....	....
Belgium	....	....	New South Wales	....	....
Bermuda	....	....	New Zealand	1	....
Brazil	....	....	Norway	....	....
Canada	7	....	Queensland	....	....
Cape Colony	....	....	Russia	....	....
Colombia	....	....	Scotland	....	....
Cuba	1	....	Servia	....	....
Denmark	....	....	South Australia	....	....
Ecuador	....	....	Spain	....	....
England	10	....	Sweden	1	....
France	4	....	Switzerland	....	....
Germany	8	....	Victoria	1	....
Hawaii	1	....	West Australia	....	....
India	....	....			
Ireland	....	....	Total to citizens of foreign countries	35	....
Mexico	....	....			

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business May 29, 1894.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
32	Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 1	May 26	117
2	Farm Stock, Products, etc	Apr. 30	May 21	119
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Apr. 30	May 15	100
31	Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Apr. 30	May 14	81
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Apr. 30	May 9	105
	Between one and two months.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather Working Machinery.	Apr. 2	May 25	250
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Apr. 9	May 24	150
13	Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, etc.	Apr. 5	May 22	188
4	Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Apr. 13	May 21	199
8	Furniture, Toilet, Umbrellas and Canes, etc.	Apr. 5	May 21	278
18	Steam-Engineering, etc	Apr. 3	May 21	189
3	Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Apr. 4	May 17	140
1	Tillage and Fences	Mar. 29	May 17	259
12	Mechanical Engineering, Stores Service, etc.	Apr. 10	May 16	191
21	Textiles, etc.	Mar. 30	May 16	160
19	Stoves and Furnaces	Apr. 20	May 15	240
7	Harvesters, Games and Toys, and Velocipedes.	Apr. 24	May 14	230
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone Working, Vegetable Cutters and Crushers.	Apr. 1	May 14	283
17	Paper-Manufactures and Printing	Apr 14	May 11	163
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Apr. 16	May 10	155
26	Electricity, Generation, Distribution, Electric Railways, etc.	Mar. 31	May 7	148
	Between two and three months.			
10	Carriages and Wagons	Mar. 7	May 21	262
33	Instruments of Precision, Acoustics, Optics, etc.	Mar. 7	May 21	303
24	Sewing-Machines, Crinoline and Corsets, and Apparel.	Mar. 1	May 19	189
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Mar. 5	May 12	241
6	Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Mar. 9	May 11	247
34	Railway-Cars and Fluid-Pressure Railway-Brakes.	Mar. 6	May 8	348
22	Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Mar. 27	May 7	178
	Between three and four months.			
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Feb. 23	May 19	245
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Feb. 14	Mar. 16	321
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Feb. 28	Apr. 26	297
9	Hydraulics, Fire-Extinguishers, etc.	Feb. 13	Apr. 23	561
30	Lamps, Gas-Fittings, Linotyping, Matrix-Making Machines, and Type-Writing Machines.	Feb. 24	Apr. 21	366
	Total number of applications awaiting action			7,301
	Under one month in arrears.			
	Designs	May 25	May 25	30
	Trade-Marks	May 24	May 28	17

PATENTS

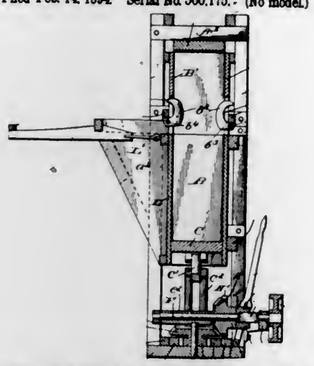
GRANTED JUNE 5, 1894.

520,761. PLACKET-FASTENER FOR GARMENT-SKIRTS. JOHN ADRIANSON, Chicago, Ill. Filed Feb. 1, 1894. Serial No. 498,690. (No model.)



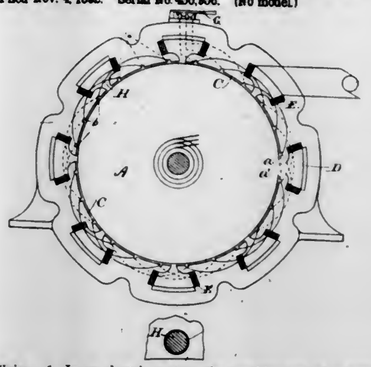
Claim.—As an article of manufacture, a placket fastener consisting of two resilient legs pivoted together at their lower ends and capable of being bent to conform to the shape of the body next which they are worn, and an arm pivoted to the upper end of each of said legs.

520,762. BALING-PRESS. ALVA E. ANDERSON, Clarksville, Tex. Filed Feb. 14, 1894. Serial No. 500,175. (No model.)



Claim.—In a cotton press, the combination of a vertically-disposed compression chamber, a plunger-block operating therein, a rod connected to each end of the block and extending diagonally across each other, two horizontal rack-bars connected one to each end of said rods, a gear connected to the rack-bars and operating to raise and lower the plunger-block, a drive-shaft arranged horizontally above the said gear, a clutch-member mounted loosely on the shaft and geared with said first gear, a companion clutch-member revolving with the shaft and operating with the first clutch-member, a rod connected to the movable clutch-member and extending outwardly, thence parallel with the shaft and finally at right angles to the shaft and parallel with the rack-bars, a box for loosely holding the part of the rod which is parallel with the drive-shaft, a cam-plate on one of the rack-bars and adapted to engage the free end of the rod when the plunger-block has been raised to its limit, and to move the rod bodily, and a lever connected to the rod and adapted to permit the clutch-members to be engaged, whereby, as the gearing raises the plunger-block, the cam on the rack-bar operates to disengage the gearing and allow the block to descend, substantially as described.

520,763. MULTIPHASE-CURRENT MOTOR. LOUIS BELL, Boston, Mass., assignor to the General Electric Company, of New York. Filed Nov. 4, 1892. Serial No. 450,956. (No model.)



Claim.—1. In an electric motor, the combination of a member having a multiphase winding, a second member in intimate magnetic relation to the first, such second member having a winding by which direct currents are passed around the poles and substantially surrounding the first member and so disposed as to produce a practically continuous line of poles around the member upon which it is situated, and a closed-circuited winding also disposed in the pole faces so as to produce a continuous polarity substantially surrounding the first member, substantially as described.

2. In an electric motor, the combination of an armature having a multiphase winding and a field-magnet having a winding by which continuous current is passed around the field magnet poles and a closed-circuited winding, the closed-circuited winding being located in channels or grooves in the field-magnet adjacent to the armature and so arranged as to form substantially a ring of poles around the armature, as set forth.

3. In an electric motor, the combination of an armature having a multiphase winding with a field-magnet having a row of poles with expanded faces practically surrounding the armature, a winding by which a continuous current is passed around the field magnet poles upon such poles, and a closed-circuited winding arranged in grooves or channels in the pole faces, as set out.

4. In an electric motor, a field-magnet having a row of poles forming substantially a continuous ring, a winding thereon by which continuous current is passed around the field magnet poles, an independent closed-circuited winding in grooves in the pole faces, and a switch adapted to open or close such closed-circuited winding.

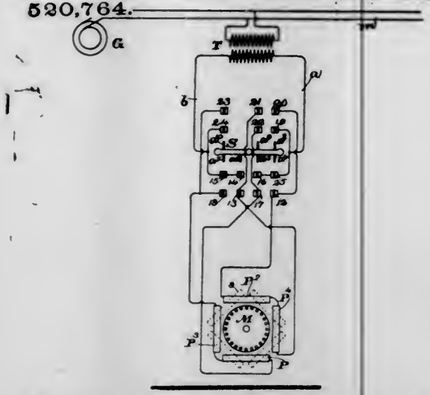
5. In an electric motor, a field-magnet or member having a row of poles with expanded faces nearly but not quite touching one another, a winding thereon by which continuous current is passed around the field magnet poles and having channels in the pole faces and one or more closed-circuited windings disposed in such channels and insulated from the pole faces, such closed-circuited winding arranged to form a substantially continuous line of poles around the field-magnet.

520,764. METHOD OF AND MEANS FOR STARTING ALTERNATING-CURRENT MOTORS. LOUIS BELL, Boston, Mass., assignor to the General Electric Company, same place. Filed July 3, 1893. Serial No. 479,457. (No model.)

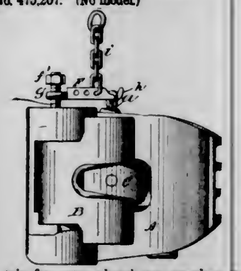
Claim.—1. The method of operating an alternating current motor, which consists in arranging its inducing coils in multiple at starting and when the speed rises, throwing the coils into series.

2. In combination, an alternating current induction motor, and a switching mechanism adapted to connect its inducing coils in series or multiple.

520,764.



520,765. CAR-COUPLING. EDMOND D. BROWNER, Detroit, Mich., assignor to the Gould Coupler Company, Buffalo, N. Y. Filed May 23, 1893. Serial No. 475,207. (No model.)

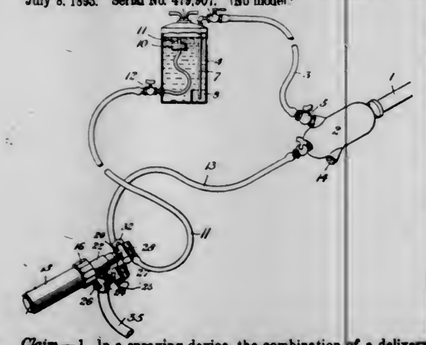


Claim.—1. A trip for rotary head car couplers, comprising an upright portion carrying near its lower end a forwardly projecting extension, the upper and lower sides of which are inclined or oblique, said extension terminating in a depending finger or lug, substantially as described.

2. An automatic trip for rotary head car couplers, comprising an upright portion and a downwardly inclined extension; a link or connecting lever extending between said upright portion and the locking block of the coupler, and means, such as a chain and a lever for actuating the device, substantially as described.

3. A rotary head car coupler provided with the slotted webs *b*, and the inclined slotted web *c*, in combination with a rotary coupling arm or knuckle, means for locking the same in its closed position, and a trip working within said webs *b*, *c*, and consisting of an upright portion and a forwardly projecting extension, the upper and lower sides of which are inclined or oblique, and means substantially such as described for operating said trip for the purposes set forth.

520,766. SPRAYING-MACHINE. ANDREW BRUCK, Allegheny, assignor of nine-twentieths to Charles A. O'Brien, Pittsburg, Pa. Filed July 8, 1893. Serial No. 479,907. (No model.)



Claim.—1. In a spraying device, the combination of a delivery tip exteriorly threaded at one end, a reducer exteriorly threaded, a mixing chamber at the rear of said reducer and a jam nut interiorly threaded at two points to receive said tip and reducer, substantially as set forth.

2. In a spraying device the combination of a delivery tip exteriorly threaded at one end; a reducer exteriorly threaded; a jam nut interiorly threaded at two points to receive said tip and reducer; a mixing chamber at the rear of said reducer and injectors for liquid, vapor and finely divided solids communicating with said chamber, substantially as set forth.

3. In a spraying device the combination of a delivery tip exteriorly threaded at one end; a reducer exteriorly threaded; a jam nut interiorly threaded at two points to receive said tip and reducer; a mixing chamber at the rear of said reducer and injectors for liquid; and vapor communicating with said chamber, substantially as set forth.

4. The combination of a delivery tip, a reducer at the rear of said tip, a mixing chamber, at the rear of said reducer, a compressed vapor injector discharging into said chamber centrally with the rear end of the reducer, and a solid injector discharging at right angles to the vapor injector, substantially as set forth

5. The combination in a spraying machine of an exterior shell for the delivery tip and a removable inner stopper and an injector for liquids, and an injector for finely divided solids connected with a common mixing chamber behind the tip, substantially as set forth.

6. An improvement in spraying by machine power which consists in conveying compressed vapor to a sprayer; conveying liquid and mingled vapor by an independent line to the sprayer, and delivering the liquid therefrom in finely divided streams, substantially as set forth.

7. In a spraying machine the combination of a vapor compressor; a line leading from thence to a sprayer; a line leading from said compressor to the well 8 in a liquid reservoir; said well in said liquid reservoir; a line leading from said liquid reservoir to the sprayer and said sprayer, substantially as described.

520,767. APPARATUS FOR WORKING GLASS. HENRY D. BURNETT, Lynn, and SAMUEL E. DOANE, Swampscott, Mass., assignors to the General Electric Company, of New York. Filed Dec. 3, 1892. Serial No. 454,009. (No model.)

Claim.—1. An apparatus for working glass which consists in a blow pipe for heating it, a reflector in proximity to the flame, valves for shutting off the flame and means for removing the reflector, in order to cool the heated glass without removing it from its position, substantially as described.

2. An apparatus for working glass which consists in a blow pipe for heating it, a reflector in proximity to the flames, valves for shutting off the flame, means for removing the reflector, and an air pipe for projecting a blast of air upon the glass, in order to cool it without removing it from its position, substantially as set forth.

3. A glass blower's blow pipe provided with an air blast pipe terminating near the converging point of the flames, stop cocks in all the air and gas pipes, and a single means for operating all said cocks simultaneously, substantially as described.

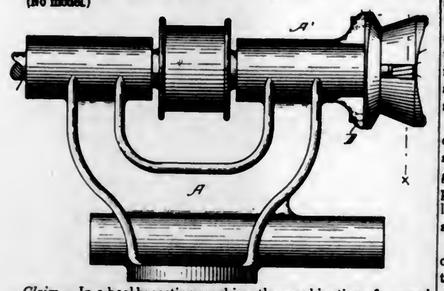
4. A glass blower's blow pipe provided with an air blast pipe terminating near the converging point of the flames, stop cocks in all the air and gas pipes, and means for opening the air blast pipe cock and closing the others, or vice versa, simultaneously, substantially as set forth.

5. A glass blower's blow pipe, provided with a movable reflector, stop cocks controlling the air and gas, and means for simultaneously operating said stop cocks and the reflector substantially as set forth.

6. In a glass blower's blow pipe the combination with a movable reflector, of means for removing it from the converging point of the flames, and simultaneously turning on a cooling air blast, substantially as described.

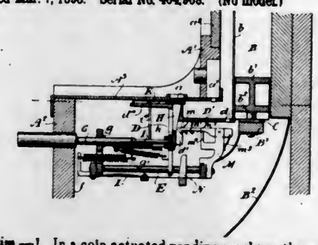
7. In a glass blower's blow pipe, the combination with a movable reflector, of means for simultaneously moving the reflector away from the converging point of the flames, shutting off the flames, and turning on a cooling air blast, substantially as set forth.

520,768. HEEL-BREAST FINISHER. NEWTON CHURCHILL and WILLIAM C. BAXTER, East Bridgewater, Mass., assignors to the Carver Cotton Gin Company, same place. Filed Aug. 9, 1893. Serial No. 482,746. (No model.)



Claim.—In a heel breasting machine, the combination of a coned cutter head having knives adapted to cut on their peripheral ends; with an adjustable shield piece covering the cutting edges of the knives and provided with an opening through which the knives may work on the breast of the heel, and the sole-guard said sole-guard being attached to the front edge of the shield piece substantially as described and for the purpose set forth.

520,769. COIN-ACTUATED VENDING-MACHINE. FREDERIC B. COCHRAN, Brooklyn, N. Y., assignor to the Automatic Vending Company. Filed Mar. 7, 1893. Serial No. 464,968. (No model.)



Claim.—1. In a coin actuated vending machine, the combination of a reciprocating delivery slide, a coin pocket formed therein, an actuating rod arranged to reciprocate in bearings formed in the delivery slide, an aperture in the delivery slide, opposite the coin pocket, through which the actuating rod plays, whereby when the coin pocket is empty the actuating rod may be reciprocated without moving the coin pocket from its normal position, and a retractile spring for maintaining the delivery slide and actuating rod in position substantially as shown and described.

2. In a coin actuated vending machine, the combination of a reciprocating delivery slide, an actuating rod arranged to reciprocate in bearings formed in the delivery slide, a coin pocket formed in the delivery slide, a support carried by and moving with the delivery slide for supporting the coin in the coin pocket in the path of the actuating rod, mechanism for withdrawing said support from under the coin on the inward movement of the delivery slide, and a retractile spring for maintaining the delivery slide and actuating rod in position, substantially as shown and described.

3. In a coin actuated vending machine, the combination of the delivery slide having a coin pocket formed therein, a yielding pin normally projecting under the coin pocket to support the coin therein, a reciprocating actuating rod playing in the delivery slide and arranged to hold the coin in the pocket when pressed inwardly, and to release the same when such pressure is removed, and a stop arranged to engage with and arrest the movement of the coin supporting pin during the inward movement of the delivery slide, whereby the coin is supported in the coin pocket solely by the actuating rod as the delivery slide approches the limit of its inward movement, substantially as shown and described.

4. In a coin actuated vending machine, the combination of the delivery slide formed with the tongue D' and body D^3, a coin pocket formed in said slide, a yielding spring pressed pin carried by said slide, a stop for arresting the movement of said pin when the slide is moved inwardly, an actuating rod carried by said slide and arranged to reciprocate therein in line with the coin when the latter is in its normal position in the coin pocket, a stop on said rod engaging with the delivery slide, and a retractile spring connected with said rod, substantially as shown and described.

5. In a coin actuated vending machine, the combination of a frame mounted in the casing of the machine, rods carried by said frame, a delivery slide mounted to reciprocate on said rods, a delivery slide formed with the tongue D' and body D^3, a coin pocket formed in said slide, a yielding spring pressed pin carried by said slide, a stop for arresting the movement of said pin when the slide is moved inwardly, an actuating rod carried by said slide and arranged to reciprocate therein, in line with the coin when the latter is in its normal position in the coin pocket, a stop on said rod engaging with the delivery slide and a retractile spring connected with said rod, substantially as shown and described.

6. In a coin actuated vending apparatus the combination of a reciprocating delivery slide having a slotted tongue, an actuating rod arranged to reciprocate in bearings formed in the delivery slide, a goods chute and a sliding weight in the goods chute provided with a pin or projection co-operating with the slot in the delivery slide to lock the delivery slide when the goods chute is emptied, substantially as shown and described.

7. In a coin pocket clearing device for vending machines, the combination of a lever projecting across the coin admitting slot so as to be actuated by the insertion of the coin, a yielding pin normally projecting under the coin pocket, and connections substantially as described between said pin and said lever, substantially as and for the purposes set forth.

8. In a coin actuated vending machine, the combination of the delivery slide having a coin pocket formed therein, a lever pivoted to said slide and projecting over the top of the coin pocket, a spring pressed pin normally projecting under the coin pocket, an arm secured to said pin and engaging with said lever, whereby as the lever is actuated by the insertion of a coin, the projecting end of the pin is withdrawn from under the coin pocket, substantially as shown and described.

9. In a coin actuated vending machine, the combination of a hinged door closing the upper section of the case, a hinged door closing the lower section of the case, an intermediate sliding plate provided with a coin admitting slot and with a downwardly extending flange engaging with the lower door, and with an upwardly extending flange engaging with the upper door, and a lock on the upper door, substantially as shown and described.

10. In a coin actuated vending machine, the combination of the reciprocating delivery slide, the reciprocating actuating rod, a coin pocket formed in the delivery slide, a yielding catch arranged in the path of the coin to prevent the return of the delivery slide while the coin is in its normal position in the coin pocket, and a stop below the normal path of the coin, to engage with the coin and block the outward movement of the delivery slide in case the coin falls below its normal position in the coin pocket, substantially as shown and described.

11. In a coin actuated vending machine, the combination of a delivery slide having a coin pocket formed therein, an operating rod playing in the delivery slide, a stop for locking the slide and rod on their return movement, a retractile spring secured to said rod for returning the rod and slide to their normal position, and a friction spring arranged to engage with the slide when the slide is in position to deliver the coin, whereby the return movement of the slide is retarded until the slide and rod are locked by said stop, substantially as shown and described.

520,770. PLASTIC COMPOUND OF CELLULOSE. CHAS. F. CROSS, EDWARD J. BEVAN, and CLAYTON BEADLE, London, England, assignors to Henry G. Nichols, trustee, Boston, Mass. Filed Oct. 15, 1892. Serial No. 449,012. (No specimens.) Patented in France Jan. 10, 1893, No. 227,034; in Belgium Jan. 11, 1893, No. 103,093; in Germany Jan. 13, 1893, No. 70,999; in England Feb. 6, 1893, No. 8,700, and in Italy Mar. 31, 1893, No. 33,347.

Claim.—1. The plastic compound of cellulose herein described which is soluble in water.

2. The process herein described of producing a plastic compound from cellulose or equivalent substances which consists in subjecting such substances to caustic alkali and carbon di-sulphide, substantially as set forth.

3. A soluble compound derived from cellulose, caustic alkali and carbon di-sulphide, substantially as set forth

520,771. WASHING-MACHINE. DENNIS F. EDGAR, Jackson, Mich. Filed Oct. 11, 1893. Serial No. 487,841. (No model.)

Claim.—1. In a washing machine, a washing cylinder of polygonal shape provided at its periphery with perforated rectangular plates.

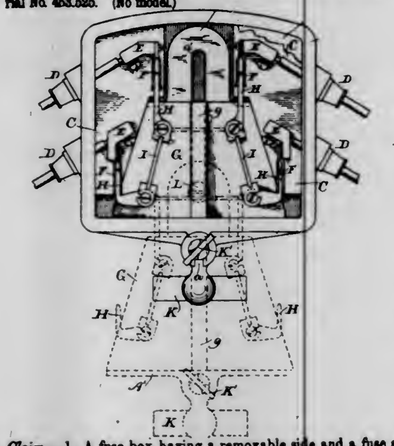
and having at the intervals between the plates corrugated rolls arranged in series and forming rubbing surfaces at the interior of the washing cylinder, one of said series of rolls being mounted in a hinged frame to form a door to provide access to the cylinder, substantially as described.



2. In a washing machine a polygonal washing cylinder provided with perforated rectangular plates arranged at intervals, series of corrugated rolls arranged transversely in the intervals between the plates, and the inwardly extending transversely disposed T-shaped clothes lifters and separators secured to said plates, substantially as described.

3. In a washing machine, a washing cylinder of polygonal shape provided at its periphery with perforated rectangular plates, and having at the intervals between the plates, corrugated rolls arranged in series and forming rubbing surfaces on the interior of the washing cylinder, substantially as described.

520,772. FUSE-BOX. AXEL ENSTRÖM, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Nov. 29, 1892. Serial No. 453,525. (No model.)



Claim.—1. A fuse box having a removable side and a fuse supporting block, attached to such removable side and provided with a septum adapted to divide one side of the box from the other when the block is in place.

2. The combination with a box, of line terminal supports arranged on each side of the same leaving a space between them, and a fuse supporting block adapted to slide in between said supports and fill the space between them.

3. The combination with a box, of line terminal supports arranged at each side thereof, leaving a wedge-shaped space between them, and a wedged shaped fuse supporting block carrying contacts and adapted to slide in between said supports and fill the space between them, being guided by its edges to a proper position to cause said contacts to engage with the line terminals.

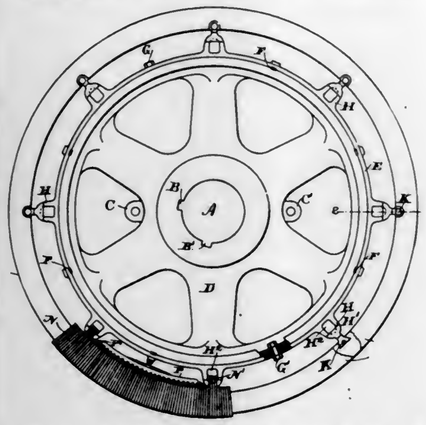
4. A fuse box containing line terminal supports having a space between them, in combination with a removable fuse supporting block adapted to fit into said space, a slotted slide attached to said block and a screw engaging with the slot in the slide, substantially as set forth.

5. A double pole fuse box containing line terminal supports having a space between them, in combination with a removable block carrying two fuses, and adapted to fit into said space, said block having a septum interposed between the two fuses, substantially as described.

6. The combination, with a box having a removable side, of two insulating plates carrying binding posts for the line terminals, each post having a pair of contact leaves, an insulating block supported on the removable side of the box and adapted to fit between said plates, contact blades attached to said block adapted to enter between said contact leaves, fuses connecting the two adjacent blades, and a septum upon the insulating block between the fuses, substantially as set forth.

7. The combination with a fuse box having a screw L, of a slide containing a keyhole slot engaging with said screw, and a fuse supporting block supported on said slide, substantially as described.

520,773. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. HERMANN F. T. ERBEN, Schenectady, N. Y., assignor to the General Electric Company, Boston, Mass. Filed Feb. 9, 1894. Serial No. 499,607. (No model.)



Claim.—1. In an armature for a dynamo-electric machine, a spider having arms extending therefrom adapted to engage the core-disks, such arms provided with an opening, in combination with conductors passing through such opening, and commutator segments connected to such conductors.

2. In an armature for a dynamo-electric machine wherein the armature conductors form the segments of the commutator, a spider having perforated arms through which such armature conductors may extend, and commutator segments formed of the armature conductors, as described, such segments being of various lengths, and adapted to engage both with the conductors passing through the perforations in the spider-arms and with the other conductors of the armature passing between the spider and the core-disks.

3. In an armature for a dynamo-electric machine wherein the armature conductors form the segments of the commutator, a spider having perforated arms, such arms having dove-tailed ends, core-disks engaging with the dove-tailed ends of the arms, end-plates also engaged by the spider-arms, and insulated bolts securing the end-plates and the spider arms together and arranged to compress the core-disks in place.

4. In an armature for a dynamo-electric machine, a spider having perforated arms, such arms being formed with a dove-tailed end, core-disks having ventilating spaces between them, end-plates adapted to engage with the spider-arms, and an insulated bolt in a channel cut in the end of the spider-arm; all arranged and adapted as herein described, to compress the core-disks and end-plates securely in place.

5. In an armature for a dynamo-electric machine, a spider having perforated arms, the ends of the arms being dove-tailed in shape, core-disks having ventilating spaces between them, end-rings arranged to engage with the spider-arms, bolts insulated from the spider-arms arranged in a groove in their dove-tailed ends and adapted to compress the end-plates and the laminations of the core, armature conductors passing respectively between the spider and the core-disks and through the perforations in the spider-arms, and commutator segments of different lengths adapted to engage with the armature conductors passing respectively through the perforated arms of the spider and between the spider and the core-disks.

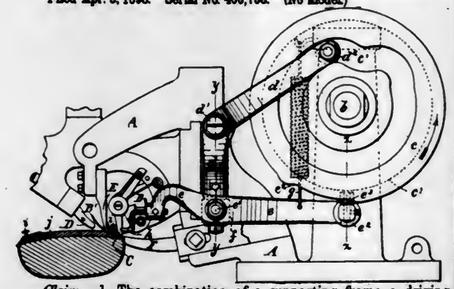
520,774. MULTIPLE RECORD. KATY FENN, Chicago, assignor of one-half to Kate V. Lawlor, Joliet, Ill. Filed Mar. 22, 1894. Serial No. 504,738. (No model.)

Claim.—1. In a multiple recording device, a suitable base plate, a cover hinged thereto and standards projected therefrom, a winding roller adapted to be manually rotated to which one end edge of a continuous length of paper is removably attached and a flat plate supporting member also adapted for rotation about which the said continuous length of paper is wound and from which the paper is unwound and wound upon the roller in the manual rotation of the latter, said plate supporting member by virtue of its flat face over which the paper is stretched serving as a backing.



2. In a multiple recording device, a suitable base plate, a cover hinged thereto and standards projected therefrom, a winding roller adapted to be manually rotated to which one end edge of a continuous length of paper is removably attached, a flat plate supporting member also adapted for rotation about which the said continuous length of paper is wound and from which the paper is unwound and wound upon the roller in the manual rotation of the latter, said plate supporting member by virtue of its flat surface over which the paper is stretched serving as a backing, and a spring piece bearing upon the journals respectively of the roller and the plate member at one side thereof whereby said roller and plate member may be removed and replaced relatively to their respective standards.

520,775. TACK-PULLING ATTACHMENT FOR SEWING-MACHINES. ALFRED B. FOWLER and GEORGE B. WARREN, Exeter, N. H. Filed Apr. 3, 1893. Serial No. 468,788. (No model.)



Claim.—1. The combination of a supporting frame, a driving shaft, a tack pulling tool and intermediate mechanism substantially as described, between the driving shaft and said tool, whereby the tool is caused to describe a parallelogram, or has four distinct movements, a forward movement in substantially a straight line, so as to introduce the tool under the head of the tack or tacks which may be in the path of its movement, an upward movement at an angle to its forward movement in substantially a straight line in order to pull the tack; a backward movement at an angle to its upward movement in substantially a straight line to withdraw the tool, and finally a downward movement at an angle to its backward movement in substantially a straight line to return the tool from whence it started, for the purpose set forth.

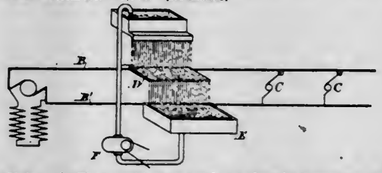
2. In a machine for sewing the uppers to the insoles of boots and shoes, the combination of the supporting frame, the driving shaft, a tack-pulling tool and intermediate mechanism substantially as described between the driving shaft and said tool, whereby the tool is caused to describe a parallelogram, or has four distinct movements,—a forward movement in substantially a straight line and at substantially a right angle to the line of the feeding of the boot or shoe, so as to introduce the tool under the head of the tack or tacks which may be in the path of its movement, an upward movement at an angle to its forward movement in substantially a straight line in order to pull the tack; a backward movement at an angle to its upward movement in substantially a straight line and at substantially a right angle to the line of the feeding of the boot or shoe to withdraw the tool, and finally a downward movement at an angle to its backward movement in substantially a straight line, to return the tool from whence it started, for the purpose set forth.

3. In a machine for sewing the uppers to the insoles of boots or shoes, the combination with the sewing mechanism, of a tack-pulling tool and connecting mechanism substantially as described, between the driving shaft for said sewing machine and said tool whereby the tool is caused to make six motions, in pulling tacks, to wit: a forward movement toward the boot or shoe to introduce the tool under the head of the tack to be pulled, a sidewise movement with the stitch forming mechanism while forming the stitches, an upward movement from the boot or shoe to pull the tack, a backward, a downward and a return sidewise movement to return the tool to the position from whence it started, for the purpose set forth.

4. The combination with a sewing machine for sewing the uppers or welts to the soles or insoles of boots or shoes of a cam mounted on the driving shaft and driven thereby, a lever fulcrumed to the frame of the sewing machine acted upon by the cam to produce a forward and backward movement to the free end of the said lever, a second lever universally jointed to the free end of the first lever, acted upon by the cam to produce an up and down and a horizontally oscillating movement to the free end of the second lever, a tack pulling tool carried by the free end of the second lever, the combined movements of the two levers causing the tack pulling tool to pull the tacks from the boot or shoe ahead of the sewing of the same, and to move with the feed of the sewing machine, for the purpose set forth.

5. The combination with a sewing machine for sewing the uppers to the insoles of boots and shoes, of a cam mounted on the driving shaft of the machine and driven thereby, a lever fulcrumed to the frame of the machine and acted upon by the cam to vibrate the free end of said lever, a tack pulling tool and a lever carrying said tool at one end of said lever being fulcrumed to the free end of the first lever and acted upon by said cam to vibrate the free end of the said second lever, the vibrations of the two levers by said cam being so timed as to cause the tool to describe a parallelogram or to have four distinct movements, a forward, upward, backward and downward movement, and thereby to pull the tacks, substantially as set forth.

520,776. LIGHTNING-ARRESTER. JOHN W. GIBBONEY, Lynn, assignor to the General Electric Company, Boston, Mass. Filed Feb. 6, 1893. Serial No. 461,176. (No model.)



Claim.—1. The combination with an electric generator and a work circuit supplied therefrom, of a constantly maintained short circuit composed of liquid flowing from one main-line conductor to the other, substantially as described.

2. The combination with an electric generator and a work circuit supplied therefrom, of a constantly maintained short circuit composed of liquid flowing in fine streams or drops from one main-line conductor to the other, substantially as set forth.

3. The combination with an electric generator and a work circuit supplied therefrom, of a spray plate connected with one main-line conductor, a grounded receptacle connected with the other conductor below the spray plate, and means for conveying liquid to the spray plate, substantially as described.

4. The combination with an electric generator and a work circuit supplied therefrom, of a spray plate connected with one main-line conductor, a grounded receptacle arranged below the spray plate and connected with the other conductor, and a pump delivering liquid to the spray plate, substantially as set forth.

5. The combination with an electric generator, and a work circuit supplied therefrom, of a constantly maintained short circuit of high resistance, and a spark gap lightning arrester, both connected across the main line conductor and to ground, substantially as described.

520,777. SNOW-PLOW. WILLIAM GRUNOW, Jr., Mount Vernon, N. Y., assignor to Zalmon Goodsell, Bridgeport, Conn. Filed Feb. 15, 1894. Serial No. 500,212. (No model.)

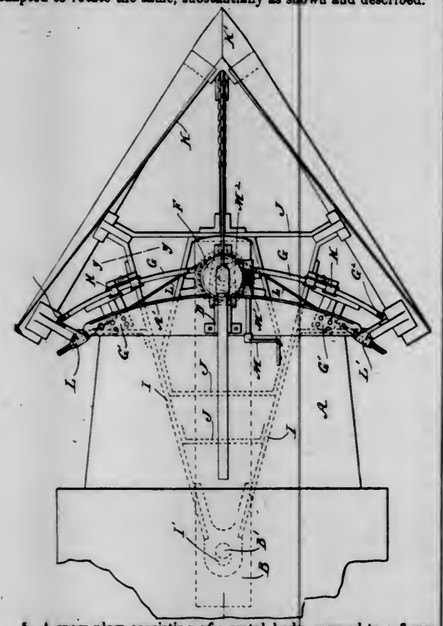
Claim.—1. A snow plow for street and other railways, consisting of a metal body swiveled to the front of a car and adapted to be raised to clear obstructions upon the track, substantially as shown and described.

2. A snow plow for street and other railways, consisting of a metal body suspended from carriages traveling upon guides at the front of the car and adapted to be directed to either side of the track, and means for raising the point of the plow to clear obstructions, substantially as shown and described.

3. A snow plow consisting of a metal body secured to a frame

suspended from carriages traveling upon guides at the front of the car and supported beneath the car-body, means for directing the plow to either side of the track, and a lever upon the car-platform connecting with and adapted to raise, the point of the plow, substantially as shown and described.

4. A snow plow consisting of a metal body secured to a frame suspended from carriages traveling upon guides at the front of the car and supported beneath the car-body, a drum depending from the car-platform and connected by cables with each side of the plow, and a crank upon the platform gearing with the shaft of the drum and adapted to rotate the same, substantially as shown and described.



5. A snow plow consisting of a metal body, secured to a frame suspended by chains from carriages traveling upon guides at the front of the car and removably supported beneath the car-body, a drum fixed upon a shaft at the front of the car-platform, cables connected to each side of the plow being partially wound upon the said drum, a crank upon the platform gearing with the shaft to rotate the drum, substantially as shown and described.

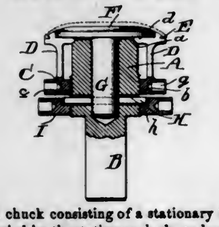
6. A snow plow consisting of a metal body secured to a frame suspended by chains from carriages traveling upon guides at the front of the car and removably supported beneath the car-body, a standard arranged upon the platform, a shaft extending therethrough, a drum fixed upon the said shaft cables connecting each side of the plow with the drum, a crank meshing by means of a worm-gear with the said shaft to rotate the drum, an arm projecting from the standard, a lever pivoted therein, and a chain connecting the said lever with the point of the plow, substantially as shown and described.

7. In a snow-plow, the combination with a girder ranging beneath the car-body and projecting in front of the platform, a shaft extending through the girder at the front of the platform, a drum upon the said shaft and a crank adapted to rotate the drum, of a metal body secured to a frame supported at the rear of the girder and suspended at the front from carriages traveling upon guides, cables connecting the drum with the metal body at each side, and a lever upon the platform connecting with the point of the plow, substantially as shown and described.

8. In a snow plow the combination, with a girder ranging beneath the car-body and projecting in front of the platform, a rod depending from the girder at the rear, a tubular standard extending through the girder at the front of the platform, a shaft journaled in the said standard, a drum fixed upon the shaft, a worm-geared crank meshing with a gear-wheel upon the shaft and a lever pivoted above the said crank, of a metal body comprising a share and mold-boards secured to a frame removably supported upon the rod at the rear of the girder and suspended by chains from carriages traveling upon guides at each side of the said girder, cables connected to each side of the plow and partially wound upon the drum, and a chain connecting the lever above the shaft with the point of the plow, substantially as shown and described.

9. In a snow plow the combination with a girder ranging beneath the car-body and projecting in front of the platform, a rod depending from the girder at the rear, a tubular standard extending through the girder in front of the dash-board and secured by a brace behind the same, a shaft journaled in the said standard, a drum splined upon the shaft and removable therefrom, a worm-geared crank meshing with a gear-wheel upon the shaft and adapted to rotate the drum, a lever pivoted in an arm extending upward from the standard, and segmental guides affixed to the car platform at each side of the girder, of a body consisting of two pieces of metal joined at angles, comprising a share and mold-boards, and bolted to a frame removably supported upon the rod at the rear of the girder, and suspended by chains from carriages traveling upon the segmental guides, cables connected to each side of the plow, and partially wound upon the drum, and a chain connecting the point of the plow with the lever above the standard, substantially as shown and described.

520,778. ENGRAVER'S CHUCK. HENRY GRUNER, Philadelphia, Pa., assignor to the Keystone Watch Case Company, same place. Filed May 22, 1893. Serial No. 475,137. (No model.)



Claim.—1. A chuck consisting of a stationary body, an annular clamping piece carried by the stationary body and movable longitudinally thereon and provided with a spring clamping edge, and a back supporting plate carried by the stationary body and located within the spring clamping edge of the clamping piece, provided with a stem extending into the stationary body which carries a projection extending laterally through the body.

2. A chuck consisting of a stationary body, an annular clamping piece carried by the stationary body and movable longitudinally thereon and provided with a spring clamping edge, and a back supporting plate carried by the stationary body and located within the spring clamping edge of the clamping piece, provided with a stem extending into the stationary body which carries a projection extending laterally through the body, and means carried by the body to act upon the projection of the stem and move the back supporting plate.

3. A chuck consisting of a stationary body, an annular clamping piece carried by the stationary body and movable longitudinally thereon and provided with a spring clamping edge, and a back supporting plate carried by the stationary body and located within the spring clamping edge of the clamping piece, provided with a stem extending into the stationary body which carries a projection extending laterally through the body, and a movable nut carried by the body and adapted to strike the projection of the stem.

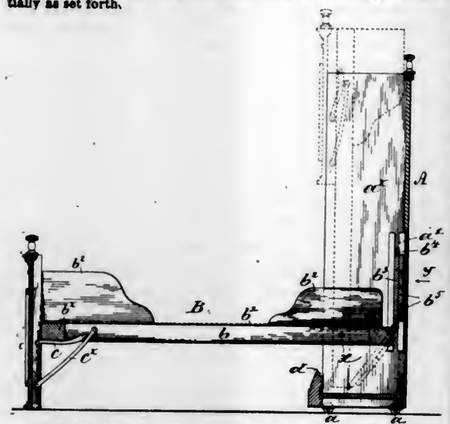
4. A chuck consisting of the stationary body A having the beveled edge *a*, the annular clamping piece C carried by the body A and movable thereon having the spring clamping tongues D having beveled faces *d* resting on the beveled edge *a* of the body A, the plate F located within the spring tongues D, provided with the stem G extending into the body A, the pin H carried by the stem G extending laterally through a slot in the body A, and the threaded nut I carried by the body A and adapted to act on the pin H.

520,779. FOLDING BED. JAMES P. HAYES, Mount Vernon, N. Y. Filed June 29, 1893. Serial No. 479,114. (No model.)

Claim.—1. In a folding bed, the combination with a standard, a folding bed-frame mounted therein, and means for counterbalancing the bed-frame and bedding, said bed-frame having elevated side-boards b^3, on its rails, of a foot-piece C, connected to the bed-frame by links which take under and support the rail of the bed-frame when the foot-piece is folded up against the ends of the side-boards b^3, the said links, and means for holding the foot-piece up firmly to the said side-pieces when the bed-frame is down.

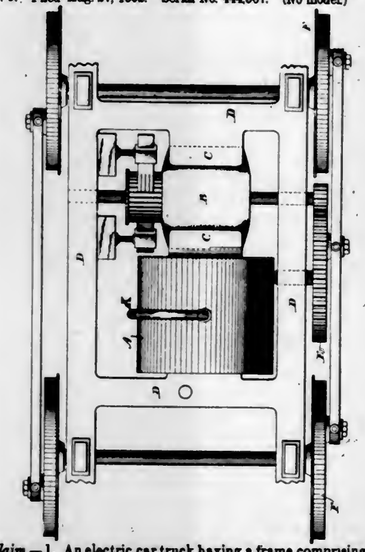
2. In a folding bed, the combination with a standard, a folding bed-frame mounted in the same, and means for counterbalancing the bed-frame and bedding, of a foot-piece C, connected to the bed-frame by pairs of links, each pair consisting of a supporting link *c*, which takes under the end rail b^5 of the bed-frame, and a link c^2, which forms a diagonal brace when the bed-frame is down, and the said pairs of links, substantially as set forth.

3. In a folding bed, the combination with a standard, a bed-frame mounted in the standard and means for counterbalancing the bed-frame and bedding, of the foot-piece C, connected to the bed-frame by links, whereby it forms the upper part of the front of the bed, the said links, and the removable front-board D, all arranged substantially as set forth.



4. A folding bed comprising a standard, a folding bed-frame mounted in said standard, a foot-piece connected to the bed-frame by links, whereby it forms the upper part of the front of the bed when the bed-frame is folded, and a removable front-board D, which occupies the space between the base of the standard and the lower edge of the foot-piece, said front-board being provided with fastening devices, as set forth.

520,780. ELECTRIC-MOTOR TRUCK. JOHN C. HENRY, Westfield, N. J. Filed Aug. 27, 1892. Serial No. 444,307. (No model.)



Claim.—1. An electric car truck having a frame comprising horizontal side bars of magnetic metal, axles journaled in each end of the side bars, and pole pieces lying in a horizontal plane and projecting from cross bars joining the side bars between the axles, whereby the magnetic connection between said pole pieces lies through the cross bars and side bars, substantially as described.

2. A truck for electric cars, comprising a horizontal rectangular frame, wheeled axles journaled in each end of said frame, and a pole piece at each end projecting from a cross bar adjacent to the axle, the vertical height of the frame and pole pieces being less than that of the wheels, substantially as described.

3. An electric motor having its field magnets wound with a multiplicity of parallel conductors, the strand through which the circuit is first completed and last broken in turning the current on and off, being of higher resistance than the adjacent ones, in combination with a switch arranged to connect two or more of said conductors in parallel, substantially as described.

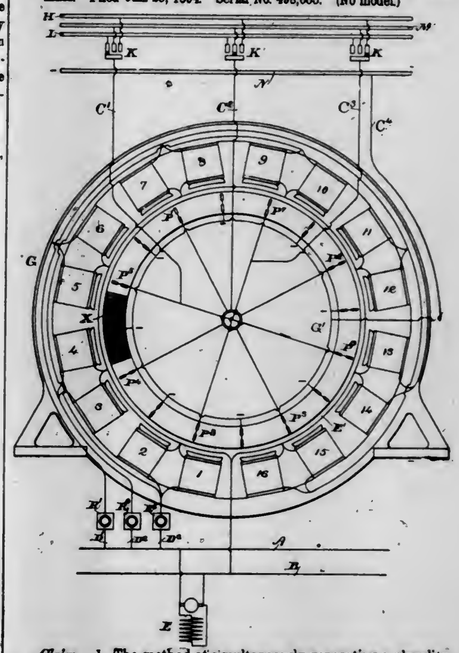
4. An electric motor having its field coils wound with a multiplicity of parallel conductors, the strand through which the circuit is first completed and last broken being of higher resistance than the others, and a switch located on the positive side of the field magnets and adapted to close the circuit through one or more of said conductors, substantially as described.

5. The combination with an electro magnet, of a receptacle surrounding the same, a pipe communicating at each end with the top and bottom of said receptacle respectively, and forming a closed circuit therewith, and a fluid insulant filling said receptacle and pipe, substantially as described.

6. The combination with an electro magnet, of a receptacle surrounding the same, a short pipe communicating at each end with the top and bottom, respectively, of said receptacle, and running parallel with and outside of said receptacle, and a fluid insulant filling said receptacle and pipe, substantially as described.

7. A motor truck comprising two axles, a motor mounted between them, a pinion on the motor shaft, and a large spur gear meshing with said pinion, and connected with the car wheels, said pinion and gear being in line with the wheels, whereby the lower edge of the gear can be brought down near the ground without danger of striking obstructions, substantially as described.

520,781. DYNAMO-ELECTRIC MACHINE. ALBERT B. HERRICK, Schenectady, N. Y., assignor to the General Electric Company, Boston, Mass. Filed Jan. 25, 1894. Serial No. 498,035. (No model.)



Claim.—1. The method of simultaneously generating a plurality of currents of different electro-motive forces in a single armature, which consists in rotating such armature in a composite field of force having some of its parts more highly magnetized than others.

2. The method of simultaneously generating a plurality of currents of different electro-motive forces in a single armature, which consists in rotating such an armature in a composite field of force generated by a plurality of magnetic poles supplied with different amounts of magnetizing current.

3. The method of simultaneously generating currents of different electro-motive forces in the same armature, which consists in rotating such armature in a multipolar field of force and supplying the field-magnets generating such field of force with currents adapted to cause a greater degree of magnetization in some of such field magnets than in others.

4. The method of compensating for drop in potential in an extended system of distribution supplied by a single generator, which consists in rotating the armature of such generator in a composite field of force generated by field-magnets supplied with different exciting currents, then sub-dividing the collected currents and supplying the parts of such system having the greatest drop with the cur-

rents of highest potential, and the parts having less drop with currents of lower potential, as set out herein.

5. The method of compensating for drop in the different parts of a system of distribution, which consists in generating simultaneously currents of different electro-motive force in a single dynamo-electric machine, supplying the currents of higher electro-motive force to the more distant parts of the system, and those of lower electro-motive force to the parts nearer the power station.

6. In a dynamo-electric machine, a number of field-magnets supplied with different amounts of exciting current, an armature rotated in the field of such magnets, a commutator and brushes thereon adjacent to the field-magnets, all of the brushes adjacent to the field-magnets supplied with the same amount of magnetizing current having a common connection.

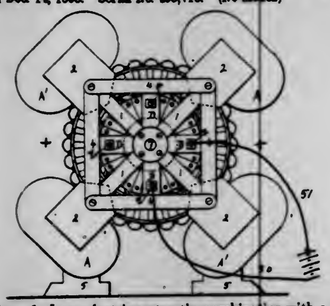
7. In a dynamo-electric machine a composite field-magnet system comprising groups of field-magnets symmetrically arranged, the groups being supplied with different amounts of exciting current, an armature rotated in the field of force generated by such magnets, and connections arranged, as herein described, to take currents of different potential from such armature as its conductors pass the different groups of field-magnets.

8. In a dynamo-electric machine a field-magnet system comprising groups of field-magnets symmetrically disposed, a source of current for such field-magnets, regulating appliances included in the leads from such source of current to the different groups of field-magnets and arranged to independently regulate the magnetic effect of each group, an armature rotated adjacent to such field-magnets, commutator brushes bearing thereon, and leads from such brushes to bus-bars; all arranged, as herein described, to take from a single armature currents of different potential.

9. In a system of distribution, a generator adapted to deliver currents of different potential to different positive bus-bars, feeder lines adapted to feed the currents of highest potential to the parts of the system having the greatest drop, and other feeders arranged to supply the parts of the system having a less drop.

10. In a system of distribution, a generator having a field-magnet system producing a composite magnetic field in which some portions are more highly magnetized than others, an armature rotating in such field, brushes taking currents of different potential from such armature, bus-bars supplied from such brushes, and feeders taking currents from such bus-bars and arranged to take the current of highest potential to the parts of the system having the greatest drop and the currents of less potential to the parts of the system having a less drop.

520,782. ELECTRIC MOTOR. ALFRED HITHAM, Olympia, Wash. Filed Dec. 14, 1893. Serial No. 493,718. (No model.)



Claim.—1. In an electric motor, the combination with a supporting frame; of two or more field magnets within said frame; the projecting ends of each of said field magnets being beveled and pointed; a supporting shaft mounted within said standards and provided with two supporting disks, said disks having radial seatings adapted to removably hold a series of armature coils, one of said disks being dished, so as to provide a supporting sleeve; a commutator fixed to said sleeve; brush holders, suitably supported and protected above said commutator and provided with spring actuated carbon brushes and a series of armature coils removably held within the seatings of said supporting disks, all in proper electric connection and arranged substantially as and for the purpose set forth.

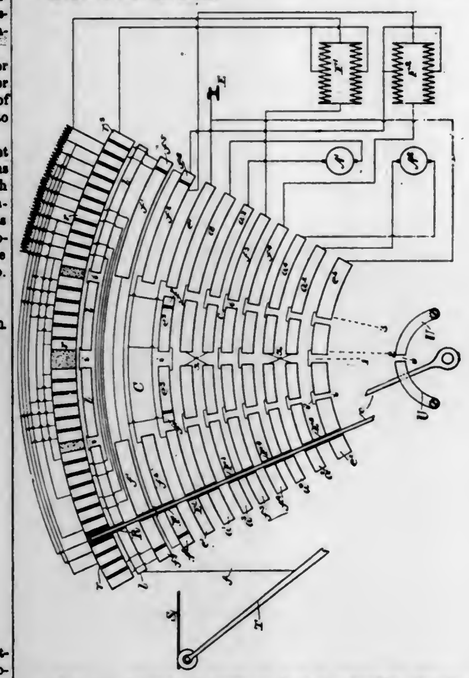
2. An electric motor in combination with a suitable supporting standard; of two or more electro magnets, said magnets being provided at the end with inwardly extending cores, said cores being pointed and beveled at the edge and secured to a suitable supporting frame; a shaft supported within said standard and provided with the disks 12 and 13, said disks being provided with the radial seatings 14, adapted to removably hold the series of armature coils B, said armature coils in operating being attracted and repelled by the field magnets, as well as the coils of the fields. A commutator mounted upon the hub 16, of the dished disk 13, provided with the openings 18, the movable supports D adapted to support the brush holders E, said holders E being provided with spring actuating carbon brushes, all arranged substantially as and for the purpose set forth.

3. In an electric motor, the combination with a supporting frame 1 and 4, and standard 5, of the field magnets A. A. and A' A', provided with the projecting cores, the cores being pointed and beveled so as to centralize the attraction of the poles; the shaft 7, provided with the disks 12 and 13, provided with the radial seatings 4, adapted to removably hold the series of armature coils B; the disk 13 being provided with the hub 16, giving a support to a suitable commutator, the movable supports D, the holding brush supports E, in combination with the spring actuated brush F, all in proper electric connection, substantially as and for the purpose set forth.

520,783. WALL-PLASTER. ALFRED HOBBS, Syracuse, N. Y. Filed Sept. 15, 1893. Serial No. 485,551. (No specimens.)

Claim.—The herein described composition for wall plaster comprising plaster of paris, sand, quick-lime, and pyro-borate of sodium.

520,784. ELECTRIC-MOTOR CONTROLLER. WILLIAM J. HOPKINS and THEODORE STERBBINS, Boston, Mass., assignors to the Thomson-Houston Electric Company, of Connecticut. Filed Sept. 19, 1891. Serial No. 406,176. (No model.)



Claim.—1. The method herein set forth of controlling electric motors, which consists in first connecting them in series with a resistance, gradually cutting out the resistance, connecting the motors in multiple and simultaneously reinserting the resistance in series therewith, and finally gradually cutting out the resistance.

2. A controlling apparatus for electric motors, comprising a fixed contact connected to one side of the circuit, a rheostat in circuit with the motor terminals, a transfer switch for changing the motors from series to multiple connection, and a common operating device for cutting down the resistance, throwing the transfer switch and simultaneously inserting resistance, and then again cutting down the resistance with the motors in multiple, as set forth.

3. In a controlling apparatus for electric motors, the combination with a rheostat and contacts therefor, of a switch comprising contacts for changing the motors from series to parallel connection, a contact connected to the line terminal, a break or breaks therein for breaking the circuit at the time the said change is made, movable contacts for effecting the various connections between the line terminal and the other contacts and a common actuator for said movable contacts, as set forth.

4. In a controlling apparatus for electric motors comprising a set of fixed contacts adapted to connect the motors in series, a set of fixed contacts adapted to connect the motors in parallel, a rheostat and fixed contacts therefor, and a set of movable contacts adapted to successively bridge said sets of contacts, the means for simultaneously breaking the circuit at two or more different points at the moment when said movable contacts are transferred from one of said sets of fixed contacts to the other, as set forth.

5. In a controlling apparatus for electric motors, the combination, with contacts for connecting the motors in series, of contacts for connecting the motors in parallel, a rheostat, a set of contacts connected thereto adapted to be cut out of circuit while the motors are in series, and a second set of contacts connected thereto adapted to be cut out while the motors are in parallel, whereby the same resistance is successively used during the operation of the controller, as set forth.

6. In a controller for electric motors, the combination, with a movable member, of a removable actuator therefor, means for preventing the removal of said actuator except at a certain predetermined position, and a device for locking said movable member in said predetermined position when said actuator is removed, as set forth.

7. A controller for electric motors or other apparatus having a movable contact arm mounted on a spindle, a removable operating arm engaging with said spindle and a locking detent for engaging with said spindle and holding it from rotation when said operating arm is removed.

8. A controller for electric motors or other apparatus having a movable contact arm, a removable actuator engaging therewith, and a detent adapted to lock the contact arm when the actuator is removed.

9. A controller for electric motors or other apparatus having a movable contact arm, a removable actuator engaging with a part attached to said arm, and a locking detent engaging with such part when the actuator is removed, as and for the purpose set forth.

520,785. EAR-PROTECTOR. CARL JUNG, Berlin, Germany. Filed Oct. 10, 1893. Serial No. 487,727. (No model.)



Claim.—An ear protector consisting of the two flaps *a b* connected together by a spring *d* and adapted to fit upon each side of the ear, and a pad *g* connected to the part *a* by a spring, said pad adapted to bear on the front cartilage of the ear and thus hold the protector in place, substantially as described.

520,786. EAR-PAD FOR TELEPHONE-RECEIVERS. JAMES W. KENNEBURGH, Wellington, New Zealand. Filed Nov. 10, 1893. Serial No. 490,564. (No model.)



Claim.—The pad for the ear formed of layers of material joined together in such a manner that a clean surface is exposed when desired.

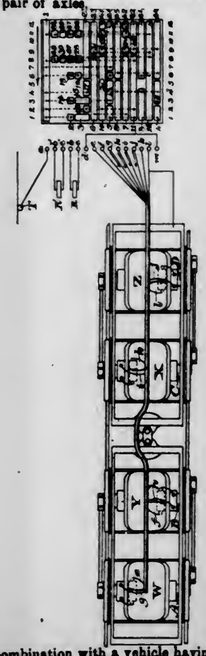
520,787. ELECTRIC LOCOMOTIVE. WALTER H. KNIGHT, Lynn, assignor to the General Electric Company, Boston, Mass. Filed Jan. 18, 1894. Serial No. 497,240. (No model.)

Claim.—1. In a vehicle, the combination with two or more trucks, each having a plurality of separately driven axles mechanically connected together, of means for simultaneously effecting the same change in the motive condition of each truck.

2. The combination with a vehicle, of a plurality of motors each geared to a separate axle, a controller for the motors comprising means for connecting them in series, in parallel or rendering certain of them inactive, and mechanical connections whereby all of the axles are constantly connected to active motors.

3. The combination with a vehicle having four axles and an electric motor driving each axle, of a controller for the motors consisting of a switch for placing them either in series or parallel connection, which at some points leaves part of the motors inactive, and mechanical devices connecting the axles in pairs, the respective axles of each pair being driven by motors that are affected by the controller correspondingly with the respective motors of the other pair of axles.

4. The combination with a vehicle having four axles, of a motor for driving each of the axles, a controller for the motors for connecting the same either in series or parallel and at some points shunting part of the motors, mechanical devices connecting the axles in pairs, one pair of axles being driven by motors one of which is shunted by the controller simultaneously with shunting the corresponding motor of the other pair of axles.



5. The combination with a vehicle having four axles, of an electric motor for driving each axle, a controller for the motors connecting the same either in series or parallel, and at some points shunting two of the motors while the other two motors remain active, mechanical devices connecting the axles in pairs, one axle of each pair being provided with a motor that is active while the other axle of each pair is provided with a motor that at times is shunted.

6. The combination with a vehicle of two motors driving the axles of said vehicle respectively, a controller adapted to place the motors in series, in parallel, or render one inactive, and a mechanical connection between the axles whereby the active motor may act upon both axles, as set forth.

7. The combination with a vehicle, of a plurality of motor trucks, each truck having two axles provided with propelling motors respectively, and a controller consisting of a series of relatively moving contact devices, for connecting the said motors in series, in parallel, or in groups, one position of which places all the motors in series, a second position renders inactive one motor of each truck, and a third position places all the motors in parallel.

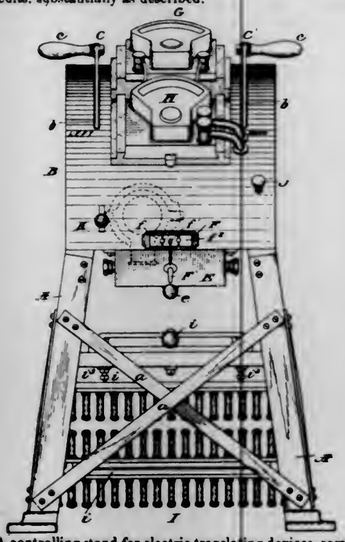
8. The combination with a vehicle, of two motor trucks, each truck having two axles provided with propelling motors respectively, and a controller consisting of a series of relatively moving contact devices, for connecting the said motors in series, in parallel, or in groups, one position of which places the four motors in series, another position renders inactive one motor of each truck leaving two motors in series, a third position places the four motors in groups of two, a fourth position renders inactive one motor of each truck leaving the remaining motors in parallel, and a fifth position places all four motors in parallel.

520,788. STAND FOR CONTROLLING ELECTRIC CIRCUITS. EDWARD R. KNOWLES, Middletown, Conn., and EDWIN H. PARK, Millbury, Mass., assignors to the Schuyler Electric Company, of Connecticut. Filed Mar. 31, 1893. Serial No. 468,473. (No model.)

Claim.—1. A stand for controlling electric translating devices, comprising one or more rheostats, one or more circuit-controlling switches, an ammeter in circuit with one of said rheostats, a volt-

meter, and a switch for closing the circuit through said volt meter, either across the supply mains or across the leads to the translating device, at will, substantially as described.

2. A controlling stand for electric translating devices, comprising two rheostats, each divided into two unconnected portions, and each having a switch lever adapted to close the circuit through successive coils of either portion, and a switch for causing the current through one portion of one rheostat to flow through either of two independent circuits, substantially as described.



3. A controlling stand for electric translating devices, comprising a switch lever, a series of contact plates therefor, and a rheostat divided into two unconnected portions, one terminal of each being connected to the end contact plates, and the other plates being connected successively with the successive resistance coils, the adjacent terminals of the rheostats being unconnected, substantially as described.

4. A controlling stand for electric translating devices, comprising a case, two rheostats inclosed therein, switch levers for said rheostats having handles outside of said case, a rheostat supported between the legs of the stand, a switch suspended under the case and in circuit with said rheostat, and a switch controlling the circuit through one of said rheostats, substantially as described.

5. A stand for controlling electric circuits, comprising a case containing two rheostats, each divided into two portions and each portion included in a separate circuit, a switch lever for each rheostat adapted to close one or the other of the circuits through successive coils, and a switch adapted to turn the current from one of said circuits through an independent circuit, substantially as described.

6. The combination with a case B of two slate partitions *b'*, a frame M arranged between said partitions, two rheostats L L' supported on said frame, contact plates *l l* mounted on said plates, and levers C C' fulcrumed on the outer side of said partitions and making contact with the plates *l l*, substantially as described.

7. In a stand for controlling electric circuits, the combination with an insulating plate, of metallic bushings inserted therein, pins sliding in and projecting from one end of said bushings, screw plugs inserted in the other ends of the bushings, and springs confined between said screws and the pins, substantially as described.

8. In a stand for controlling electric circuits, the combination with the stationary insulating plate S carrying spring pins T, of the movable box U containing the insulating plate S' carrying rigid pins *s*, substantially as described.

9. A stand for controlling electric circuits, comprising the oppositely arranged rheostats L L, the levers C C for controlling them, the rheostat I, its switch lever *i*, the circuit-controlling switch E, the ammeter H, the volt meter G, and the double plug-switch F, substantially as described.

10. A stand for controlling an electric search light, comprising a double rheostat and switch lever for controlling the vertical movement of the projector, a similar rheostat and switch for controlling the horizontal movement, an additional switch for the automatic vibratory movement, a push button for controlling the lens motor, and a rheostat and switch for the lamp circuit, substantially as described.

11. A stand for controlling an electric search light provided with reversible motors for producing respectively the vertical and the horizontal movements of the projector, comprising a reversing switch for each motor, and a rheostat for each motor composed of two unconnected oppositely arranged portions controlled by the switch, substantially as described.

12. A stand for controlling an electric search light provided with a reversible motor for producing the horizontal movement of the projector, and having a separate motor circuit containing a reversing switch, said stand comprising a rheostat and switch for controlling the motor, and another switch for closing the circuit through said separate motor circuit and reversing switch, substantially as described.

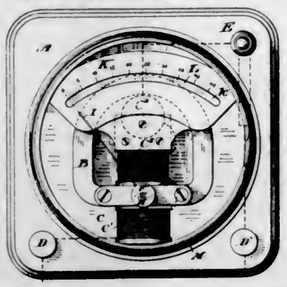
13. A stand for controlling an electric search light, comprising a suitable inclosing case, a volt meter and ammeter mounted on top of said case, a motor-controlling switch lever on each side, moving in a vertical plane, switch handles for the lens motor and the automatic horizontal movement located below the motor switch handles, a double pole switch for the lamp circuit, located below the case, and a lamp rheostat and switch handle supported between the legs of the stand, substantially as described.

14. In an apparatus for controlling electric circuits, the combination with a supply main, of four separate parallel circuits, each containing a rheostat, and two switch levers, each controlling two of said circuits, and adapted to connect either of them with the supply main through the rheostat, substantially as described.

15. In an apparatus for controlling electric circuits the combination with a supply main of four separate parallel circuits, each containing a rheostat, two switch levers, each controlling a pair of said circuits, a reversing switch in a bridge across one pair of circuits, and a switch adapted to cut out one of said circuits, and close a parallel circuit through said reversing switch, substantially as described.

16. In an apparatus for controlling electric circuits, the combination with a supply main of six separate parallel circuits, two switch levers, each controlling a separate pair of circuits through a divided rheostat, a switch controlling a fifth circuit in derivation from one of said first four, a reversing switch in said fifth circuit controlling a shunt across one of said pairs of circuits, and a normally open push button in the sixth circuit, controlling a motor therein, substantially as described.

520,789. VOLTMETER. EDWARD R. KNOWLES, Middletown, Conn., assignor to the Schuyler Electric Company, of Connecticut. Filed Dec. 5, 1893. Serial No. 492,863. (No model.)



Claim.—1. In a volt meter, the combination with a permanent magnet, of a spool of non-magnetic material lying transverse to the poles thereof, and containing a socket, and a shell removably fitted into said socket and having journal bearings for an armature spindle, substantially as described.

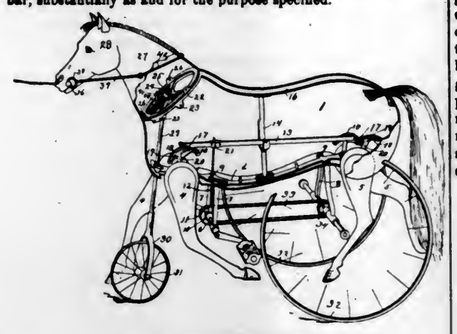
2. In a volt meter, the combination with a permanent magnet, of a spool of non-magnetic material lying transverse to the poles thereof, and containing a socket, a shell fitted removably into said socket, and a spindle carrying an armature and an index, journaled in bearings in said shell, substantially as described.

3. In a volt meter, the combination with an armature, of a spindle on which it is mounted, and a copper shell surrounding said spindle and having bearings in which the spindle is journaled, substantially as described.

4. In a volt meter, the combination with an armature, of a spindle on which it is mounted, an index on the spindle, and a copper shell surrounding said spindle, having bearings in which the spindle is journaled, and a slot through which the index projects, substantially as described.

520,790. TRICYCLE. AUGUSTUS LEININGER and EDWARD SHREINER, Canton, Ohio. Filed Sept. 21, 1893. Serial No. 486,068. (No model.)

Claim.—The combination of the body 1, the lower center bar 2, the back bone 16, the post 14, the rock-bar 13 provided with cross pins or bars 17, the legs 4 and 5 pivotally attached and provided with the extensions 20 having the T shaped heads, provided with the curved slots, and means for communicating a rocking movement to the rock bar, substantially as and for the purpose specified.



520,791. ELASTIC GEAR. CHARLES A. LIEB, New York, N. Y. Filed Nov. 3, 1890. Serial No. 370,156. (No model.)



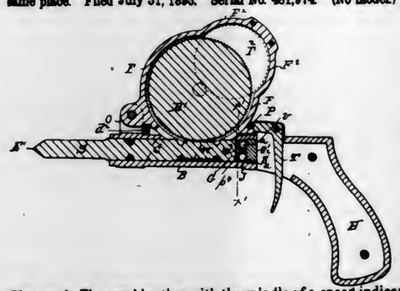
Claim.—1. A gear wheel composed of a series of plates or disks having curved or undulating contact faces.

2. A gear composed essentially of a series of disks of metal, having corrugated faces fastened together, and having cogs or teeth in their peripheries, substantially as set forth.

3. A gear composed essentially of a plurality of separate plates or disks centrally perforated to fit the shaft and keyed thereto at one part only, the several disks being loosely clamped or fastened together whereby one end of the gear may have a slight movement upon the shaft while the other end remains rigid therewith.

4. A gear composed essentially of a plurality of separate plates or disks of metal held together by spring pressure, substantially as set forth.

520,792. BEARING FOR SPEED-INDICATORS. WILLIAM T. LUFTHER, Gloversville, N. Y., assignor of one-half to W. L. Sporborg, same place. Filed July 31, 1893. Serial No. 481,974. (No model.)

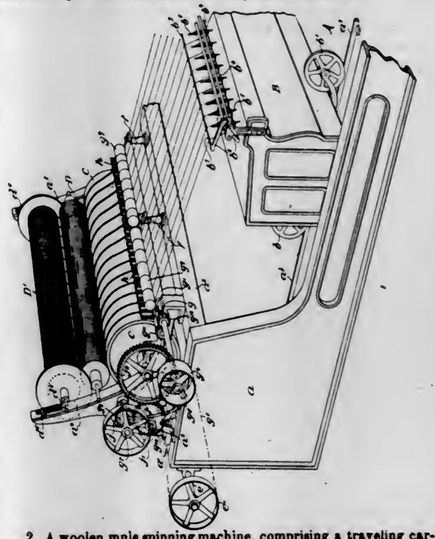


Claim.—1. The combination with the spindle of a speed indicator that is actuated by a contact pressure with a revolving shaft, and by means of which a worm gear on said spindle transmits motion to a registering dial wheel, substantially as described; of a socket bearing for said spindle; the pin p^4, projected laterally from the inner end of said socket bearing; the balls *a*, arranged around said pin; and a washer G, arranged between the said balls and the inner end of the revolving spindle, substantially as and for the purposes set forth.

2. The combination with the spindle of a speed indicator, that is provided with a socket formed in a stock in which to turn, and which spindle is actuated by contact pressure with a revolving shaft, of the plug *v*, made with the projecting pin p^4, arranged in the inner end of said socket; the balls *a*, arranged around said pin; and the washer G, arranged between said balls and the inner end of said spindle, substantially in the manner as and for the purposes set forth.

520,793. APPARATUS FOR SPINNING DIFFERENT-COLORED ROVINGS INTO THREAD OR YARN. JOHN LUNN, Philadelphia, Pa. Filed Oct. 4, 1893. Serial No. 487,146. (No model.)

Claim.—1. A woolen mule spinning machine, comprising a drum, gear for actuating the same, two reels whereof one is provided with enlarged ends held under spring tension in contact with the journals of the other reel engaging said drum, the arrangement being such that rovings are drawn from said reels over said drum, rolls actuated by gear and pulley mechanism and the latter imparting motion to the gear of said drum, detachable rolls held in frictional contact with said positively actuated rolls, guides located between said drum and in rear of said positively actuated and detachable rolls, a traveling carriage provided with spindles and shaper fallers, and means, as described, for actuating said spindles and shaper fallers, all arranged substantially as described and for the purposes set forth.



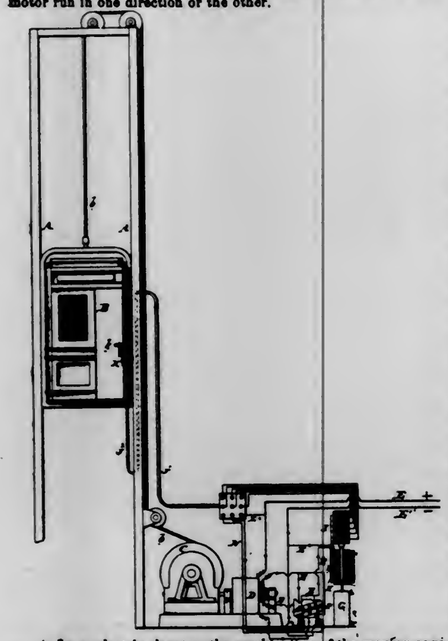
2. A woolen mule spinning machine, comprising a traveling carriage provided with shaper-fallers, frame-work, a drum journaled thereto, gear-mechanism connected with said drum, reels in frictional contact with each other and one of said reels maintained in contact with said drum, an arm or bracket and spring controlled bearing blocks connected with said arm or bracket and with the other of said reels, substantially as and for the purposes set forth.

520,794. ELECTRIC ELEVATOR. WILLIAM D. LUTS, Philadelphia, Pa. Filed Mar. 10, 1894. Serial No. 503,086. (No model.)

Claim.—1. In an electric elevator, the combination of the moving cage, power devices to move the cage, an electric motor to operate the power devices, a rheostat to control the current delivered to the electric motor, a series of solenoids, a core combined with a movable contact adapted to be successively actuated by the said solenoids and held in any position for the purpose of cutting in or out any amount of the resistance of the rheostat desired, an electric switch carried upon the cage consisting of a movable part and a series of contacts, and electric circuits between the several contacts and the respective solenoids controlled by the movable part of the switch on the cage, whereby the movement of the switch may control the energizing of any particular solenoid or pair of solenoids desired and thereby control the speed of the motor.

2. In an electric elevator, the combination of the moving cage, power devices to move the cage, an electric motor to operate the power devices, a rheostat to control the current delivered to the electric motor, a series of solenoids, a core combined with a movable contact adapted to be successively actuated by the said solenoids and held in any position for the purpose of cutting in or out any amount of the resistance of the rheostat desired, an electric switch carried upon the cage consisting of a movable part and a series of contacts, electric circuits between the several contacts and the respective solenoids controlled by the movable part of the switch on the cage, whereby the movement of the switch may energize any particular solenoid or solenoids desired and thereby control the speed of the motor, a reversing switch for the electric motor, electro magnetic devices for operating said reversing switch, electric circuits leading from said reversing switch to the moving cage, and switch devices on the cage for controlling the said circuits for the purpose of operating the electro magnetic switch to make the motor run in one direction or the other.

3. In an electric elevator, the combination of the moving cage, power devices to move the cage, an electric motor to operate the power devices, a rheostat to control the current delivered to the electric motor, a series of solenoids, a core combined with a movable contact adapted to be successively actuated by the said solenoids and held in any position for the purpose of cutting in or out any amount of the resistance of the rheostat desired, an electric switch carried upon the cage consisting of a movable part and a series of contacts, electric circuits between the several contacts and the respective solenoids controlled by the movable part of the switch on the cage, whereby the movement of the switch may energize any particular solenoid or solenoids desired and thereby control the speed of the motor, a reversing switch for the electric motor, electro magnetic devices for operating said reversing switch, electric circuits leading from said reversing switch to the moving cage, a switch device movable in common with the switch device on the cage which controls the energizing of the solenoids for controlling the said reversing switch circuits for the purpose of operating the electro magnetic switch to make the motor run in one direction or the other.



4. In an electric elevator, the combination of the moving cage, power devices to move the cage an electric motor to operate the power devices, a rheostat to control the current delivered to the electric motor, a series of solenoids, a core combined with a movable contact adapted to be successively actuated by the said solenoids and held in any position for the purpose of cutting in or out any amount of the resistance of the rheostat desired, an electric switch carried upon the cage consisting of a movable part and a series of contacts, electric circuits between the several contacts and the respective solenoids controlled by the movable part of the switch on the cage, whereby the movement of the switch may control the energizing of any particular solenoid or pair of solenoids desired and thereby control the speed of the motor, and a circuit interrupter controlled by the movable contact to cut out the motor after the resistances are all in circuit.

5. The combination of a moving cage, power devices to elevate or lower the cage, an electric motor to operate the power devices, electric circuits for supplying current to the motor, an electro magnetic switch for reversing the motor consisting of a movable part operated by two electro magnets, separate circuits running from each of the electro magnets to the moving cage and terminating in contacts thereon, a movable switch on the cage electrically connected with the source of electric supply and adapted to be moved into contact with either of the terminals of the electro magnets to energize one or the other for the purpose of making the motor run in one or the other direction, a rheostat to control the current flowing through the motor, and electrically actuated devices independent of the reversing switch and controlled from the cage to positively operate the rheostat to vary its resistance, at will.

6. In an electric elevator, the combination of the moving cage, power devices to move the cage, an electric motor to operate the power devices, a rheostat to control the current delivered to the electric motor, a series of solenoids, a core combined with a switch adapted to be successively actuated by the said solenoids and held in any position for the purpose of cutting in or out any amount of the resistance of the rheostat desired, an electric switch carried upon the cage consisting of a movable part and a series of contacts, electric circuits between the several contacts and the respective solenoids controlled by the movable part of the switch on the cage, whereby the movement of the switch may energize any particular solenoid or solenoids desired and thereby control the speed of the motor, and suitable retarding devices to prevent the resistance of the rheostat being too suddenly cut out.

7. In an electric elevator, the combination of the moving cage, power devices to move the cage, an electric motor to operate the power devices, a rheostat to control the current delivered to the electric motor, a series of solenoids, a core combined with a switch adapted to be successively actuated by the said solenoids and held in any position for the purpose of cutting in or out any amount of the resistance of the rheostat desired, an electric switch carried upon the cage consisting of a movable part and a series of contacts, electric circuits between the several contacts and the respective solenoids controlled by the movable part of the switch on the cage whereby the movement of the switch may energize any particular solenoid or solenoids desired and thereby control the speed of the motor, suitable retarding devices to prevent the resistance of the rheostat being too suddenly cut out, a reversing switch for the electric motor, electro magnetic devices for operating said reversing switch, electric circuits leading from said reversing switch to the moving cage, and switch devices on the cage for controlling the said circuits for the purpose of operating the electro magnet reversing switch to make the motor run in one direction or the other.

8. The combination of power devices, a controlling device therefor, a series of solenoids, a core connected with the controlling devices adapted to be successively actuated by the said solenoids and held in any position within them, a distant electric switch consisting of a movable part and a series of contacts, and electric circuits between the several contacts and the respective solenoids controlled by the movable part of the switch, whereby the switch may control the energizing of any particular solenoid or solenoids desired.

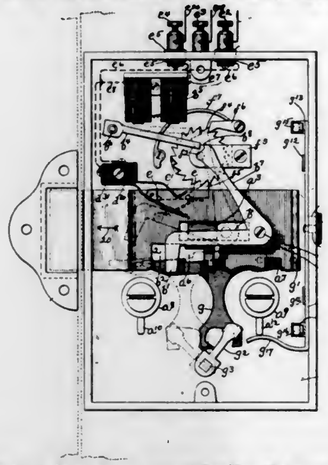
9. The combination of an electric motor, a rheostat to control the current delivered to the electric motor, a series of solenoids, a core combined with a movable contact adapted to be successively actuated by the said solenoids and held in any position for the purpose of cutting in or out any amount of the resistance of the rheostat desired, an electric switch consisting of a movable part and a series of contacts, and electric circuits between the several contacts of the switch and the respective solenoids controlled by the movable part of the switch, whereby the movement of the movable part of the switch may control the energizing of any particular solenoid or solenoids desired and thereby control the speed of the motor.

10. The combination of an electric motor, a rheostat to control the current delivered to the electric motor, a series of solenoids, a core combined with a movable contact adapted to be successively actuated by the said solenoids and held in any position for the purpose of cutting in or out any amount of the resistance of the rheostat desired, an electric switch consisting of a movable part and a series of contacts, electric circuits between the several contacts and the respective solenoids controlled by the movable part of the switch whereby the movement of the movable part of the switch may energize any particular solenoid or solenoids desired and thereby control the speed of the motor, a reversing switch for the electric motor, electro magnetic devices for operating said reversing switch, electric circuits leading from said electro magnetic devices to the switch devices for controlling the said circuits for the purpose of operating the electro magnetic switch to make the motor run in one direction or the other.

11. The combination of an electric motor, a rheostat to control the current delivered to the electric motor, a series of solenoids, a core combined with a movable contact adapted to be successively actuated by the said solenoids and held in any position for the purpose of cutting in or out any amount of the resistance of the rheostat desired, an electric switch consisting of a movable part and a series of contacts, electric circuits between the several contacts and the respective solenoids controlled by the movable part of the switch whereby the movement of the movable part of the switch may control the energizing of any particular solenoid or solenoids desired and thereby control the speed of the motor, and a circuit interrupter controlled by the movable contact to cut out the motor after the resistances are all in circuit.

12. The combination of an electric motor, a rheostat to control the current delivered to the electric motor, a series of solenoids, a core combined with a movable contact adapted to be successively actuated by the said solenoids and held in any position for the purpose of cutting in or out any amount of the resistance of the rheostat desired, an electric switch consisting of a movable part and a series of contacts, electric circuits between the several contacts and the respective solenoids controlled by the movable part of the switch whereby the movement of the movable part of the switch may energize any particular solenoid or solenoids desired and thereby control the speed of the motor, a reversing switch for the electric motor, electro magnetic devices for operating said reversing switch, electric circuits leading from said electro magnetic devices, switch devices for controlling the said circuits for the purpose of operating the electro magnetic switch to make the motor run in one direction or the other, and a circuit interrupter controlled by the movable contact to cut out the motor after the resistances are all in circuit.

520,795. ELECTROPROTECTIVE SYSTEM FOR LOCKS. MORRIS MARTIN, Malden, assignor of one-half to Benjamin W. Wells, Boston, Mass. Filed Nov. 23, 1893. Serial No. 491,720. (No model.)



Claim.—1. In an electro-protective system, the combination of the following instrumentalities, viz:—a lock provided with a circuit controller, and a registering apparatus provided with an electro-magnet in circuit with said circuit controller and energized by the operation of the said lock, substantially as described.

2. In an electro-protective system, the combination of the following instrumentalities, viz:—a lock constructed to be operated by either of two keys in one condition and to be operated by only one of said keys in another condition, an armature in said lock to hold it in its second condition, an electro-magnet to operate said armature to restore the lock into its first condition, and a circuit controller to govern the operation of said electro-magnet, substantially as described.

3. In an electro-protective system, the combination of the following instrumentalities, viz:—a lock constructed to be operated by either of two keys in one condition and to be operated by only one of said keys in another condition, an armature in said lock to hold it in its second condition, an electro-magnet to operate said armature to restore the lock into its first condition, a clock mechanism, a circuit controller for said electro-magnet operated by said clock mechanism to close the circuit at a predetermined interval of time, and a second circuit controller operated by the clock mechanism to close the circuit including the electro-magnet at a predetermined interval of time less than the first interval of time, substantially as described.

4. In an electro-protective system, the combination of the following instrumentalities, viz:—a lock provided with a circuit controller, and a registering apparatus provided with a recording surface, a marking device to operate thereon, and an electro-magnet in circuit with said circuit controller and energized by the operation of said lock, substantially as described.

5. In an electro-protective system, the combination of the following instrumentalities, viz:—a lock constructed to be operated by either of two keys in one condition and to be operated by only one of said keys in another condition, an armature in said lock to hold it in the second condition, an electro-magnet to operate said armature to restore the lock into its first condition, a registering apparatus provided with an electro-magnet, a circuit controller in the said lock actuated by the operation of the lock to energize the register electro-magnet, and a circuit controller at the registering apparatus to energize the lock magnet, substantially as described.

6. In an electro-protective system, the combination of the following instrumentalities, viz:—a lock constructed to be operated by either of two keys in one condition and to be operated by only one of said keys in another condition, a device in said lock to hold it in its second condition, an electro-magnet to operate said device to restore the lock into its first condition, a registering apparatus provided with an electro-magnet, a circuit controller in the said lock actuated by the operation of the lock to energize the register electro-magnet, a circuit controller at the registering apparatus to energize the lock magnet, and an indicator at the lock actuated by the operation of the lock, substantially as described.

7. A lock provided with a bolt mechanism and with a movable tumbler co-operating with the said bolt mechanism to permit the said bolt to be operated by either of two keys of different design or make, means rendered effective by the movement of the bolt to move said tumbler out of the path of movement of one of said keys to render said key inoperative, and means to restore the said tumbler to its normal position in the path of movement of its co-operating key to render the latter key again operative, substantially as described.

8. In an electro-protective system, the combination of the following instrumentalities, viz:—a lock constructed to be operated by either of two keys in one condition and to be operated by only one of said keys in another condition, a device in said lock to hold it in its second condition, an electro-magnet to operate said device to restore the lock into its first condition, a registering apparatus provided with an electro-magnet, a circuit controller in the said lock actuated by the operation of the lock to energize the register electro-magnet, and a circuit controller to energize the lock magnet, substantially as described.

9. In an electro-protective system, the combination of the following instrumentalities, viz:—a lock constructed to be operated by either of two keys in one condition and to be operated by only one of said keys in another condition, a device in said lock rendered effective by the movement of the bolt to hold it in its second condition, and means to operate said device to restore the lock into its first condition, substantially as described.

10. A lock provided with a bolt mechanism, and with a device to permit the said bolt mechanism to be operated by either of two keys of different make or design, means rendered effective by the movement of the bolt to operate said device to render one of said keys inoperative, and means to operate said device to render the said key again operative, substantially as described.

11. A lock provided with a bolt mechanism, and with a device to permit the said bolt mechanism to be operated by either of two keys of different make or design, means rendered effective by the movement of the bolt to operate said device to render one of said keys inoperative, and means to operate said device to render the said key again operative, and an indicating device to denote the number of operations of the lock to a predetermined number, substantially as described.

12. In an electro-protective system, the combination of the following instrumentalities, viz:—a lock provided with a circuit controller, a registering apparatus provided with an electro-magnet in circuit with said circuit controller and energized by the operation of said lock, a shunt circuit for said register magnet and a circuit controller for said shunt circuit, substantially as described.

13. The combination with a lock of an indicator responsive to the operation of the lock for a predetermined number, and means to render the said indicator non-responsive to the operation of the lock and yet permit the said lock to be operated after the said predetermined number of operations at which the indicator is rendered non-responsive, substantially as described.

14. The combination with a lock provided with a removable cover or plate, of a locking device for said cover or plate under the control of the key for the lock, substantially as described.

15. In an electro-protective system, the combination of the following instrumentalities, viz:—a lock constructed to be operated by either of two keys in one condition and to be operated by only one of said keys in another condition, an armature in said lock to hold it in one of said conditions, an electro-magnet to operate said armature to place the lock in the other of said conditions and a circuit controller to govern the operation of the said electromagnet, substantially as described.

16. In an electro-protective system, the combination of the following instrumentalities, viz:—a lock provided with a circuit controller, a registering apparatus provided with an electromagnet in circuit with the circuit controller and governed thereby, substantially as described.

17. A lock constructed to be operated by two keys of different make or design, means rendered effective by the act of locking with either key to render the lock inoperative to be unlocked by one of said keys, and means to restore the lock to an operative condition to enable the inoperative key to again become operative, substantially as described.

520,796. BICYCLE. CHARLES R. MATHER, Toledo, Ohio. Filed July 17, 1893. Serial No. 480,726. (No model.)

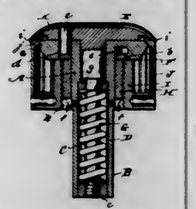


Claim.—1. In a wheel in a frame, an outer rim or tire, an inner rim concentric therewith, said rim consisting of a central and side flanges, planet wheels arranged to straddle the central flange, and bear upon the side flanges, and a spring bar connecting the said wheels and adapted to support the frame.

2. In a bicycle, a frame, spring bars connected to the front and rear forks of the same, planet wheels journaled at the end of each spring bar, the road wheels consisting of the inner and outer concentric rims, the planet wheels contacting with the inner rims, a sprocket wheel upon one of the planet wheels and means for driving the same whereby the bicycle is propelled.

3. In a bicycle, road wheels, each formed with a rim, a rim concentric thereto having a central flange and side beatings, planet wheels journaled in the rim each upon an axle, a spring bar connecting the wheels and journaled upon the axle and a frame supported upon the spring bars.

520,797. ENGRAVER'S CHUCK. FRITZ MINK, Philadelphia, Pa., assignor to the Keystone Watch Case Company, same place. Filed May 22, 1893. Serial No. 475,135. (No model.)



Claim.—1. An engraver's chuck for holding the covers and backs of watch cases, consisting of a clamping piece having a series of spring clamping portions arranged in a circle and provided with notched or undercut edges adapted to engage and hold the edge of the cover or back, and a movable bracing plate located within the spring clamping piece and adapted to be moved in contact with the under surface of the cover or back to brace it while held by the clamping piece, independently of any clamping action.

2. A chuck consisting of an outer clamping portion having an external spring clamping edge, and a back supporting piece located within the outer clamping portion and movable longitudinally with reference thereto to brace the back of the object to be supported by the spring clamping edge.

3. A chuck consisting of a main body portion, an outer clamping portion carried by the body portion and movable thereon and having an external expansible clamping edge, and a back supporting piece carried by the main body portion, located within the outer clamping portion and movable longitudinally with reference thereto.

4. A chuck consisting of a main body portion, an outer clamping portion carried by the body portion and movable thereon and having a spring clamping edge, said body portion and outer clamping portion being provided with opposed inclined faces whereby the spring clamping edge of the clamping portion is operated when said clamping portion is moved on the main body portion, and a back supporting piece carried by the main body portion located within the outer clamping portion and movable longitudinally with reference thereto.

5. A chuck consisting of an outer clamping piece having an external expansible clamping edge, means to expand the clamping edge, and a back supporting piece located within the outer clamping portion and movable longitudinally with reference to the outer clamping portion.

6. A chuck consisting of a stationary body portion provided with an annular beveled edge, an outer clamping portion carried by the stationary body and movable longitudinally with reference thereto, provided with spring clamping pieces having beveled portions resting on the beveled edge of the stationary body, and an adjustable back supporting piece carried by the stationary body and located within the spring clamping piece of the clamping portion.

7. A chuck consisting of a stationary body portion provided with an annular beveled edge, an outer clamping portion carried by the stationary body and movable longitudinally with reference thereto, provided with spring clamping pieces having beveled portions resting on the beveled edge of the stationary body and a movable back supporting piece carried by the stationary body and located within the spring clamping piece of the clamping portion, and means to positively move the back supporting piece.

8. A chuck consisting of a stationary body A provided with an annular beveled edge *a*, an outer clamping portion I carried by the body A and movable longitudinally thereon, having spring clamping tongues provided with beveled portions resting on the beveled edge *a* of the body, and movable back supporting plate E carried by the stationary body and located within the spring tongues J.

9. A chuck consisting of a stationary body A provided with an annular beveled edge *a*, an outer clamping portion I carried by the body A and movable longitudinally thereon, having spring clamping tongues J provided with beveled portions resting on the beveled edge *a* of the body, a movable back supporting plate E carried by the stationary body and located within the spring tongues J, and provided with a rod D extending into the stationary body, and means to actuate the rod D and plate E.

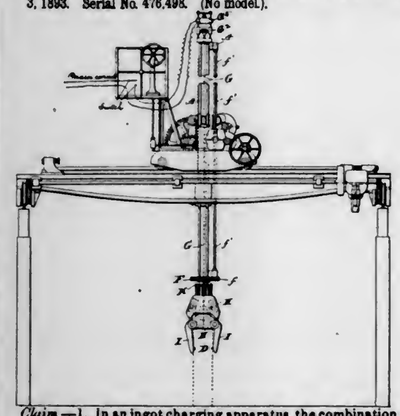
10. A chuck consisting of a stationary body A provided with an annular beveled edge *a*, an outer clamping portion I carried by the body A and movable longitudinally thereon, having spring clamping tongues J provided with beveled portions resting on the beveled edge *a* of the body, a movable back supporting plate E carried by the stationary body and located within the spring tongues J, and provided with a rod D extending into the stationary body and a threaded nut N carried by the rod D for actuating it.

11. An engraver's chuck for holding objects while they are being engraved or ornamented, consisting of a clamping piece having an external clamping edge adapted to hold the object to be clamped, and a movable supporting piece located within the clamping piece and adapted to be moved in contact with the under surface of the object carried by the clamping piece.

12. A chuck consisting of an outer expansible clamping portion, provided with an external clamping edge and a back supporting piece located within the outer clamping portion and movable longitudinally with reference thereto to brace the back of the object held by the clamping edge.

13. An engraver's chuck for holding the covers and backs of watch cases, consisting of a clamping piece having a series of movable clamping portions arranged in a circle and provided with notched or undercut edges adapted to engage and hold the edge of the cover or back, and a bracing plate located within the clamping portions of the clamping piece and movable longitudinally so that it may be brought in contact with the back of the cover to brace it against the action of the tool wholly independent of any clamping action.

520,798. INGOT-CHARGING APPARATUS. THOMAS R. MORGAN, Sr., and WILLIAM H. MORGAN, Alliance, Ohio, assignors of one-half to Thomas R. Morgan, Jr., and John R. Morgan, same place. Filed June 3, 1893. Serial No. 476,498. (No model.)



Claim.—1. In an ingot charging apparatus, the combination with a rotary post a movable cross head thereon, tongs pivoted between the ends to said cross head, and means engaging said tongs at their upper ends for spreading them, of means for elevating the cross head carrying the tongs, substantially as set forth.

2. In an ingot charging apparatus the combination with a rod or bar, a post journaled in the end thereof and means for turning the post, of a slidable cross head on the end of the post, tongs pivoted to said cross head, means engaging the upper ends of said tongs for opening and closing them, and means for elevating said cross head, substantially as set forth.

3. In an ingot charging device, the combination with a post, of tongs mounted at their upper ends in guide ways, a slidable cross head connected to the tongs at points between their ends, electro-magnets and armatures and devices connecting said armatures with the cross head, substantially as set forth.

4. In an ingot charging device, the combination with a post or bar, grasping tongs and devices for actuating said tongs, of a spring buffer carried by said post or bar, substantially as set forth.

5. The combination with a bar or post and a magnet carried thereby, of a movable cross head having tongs pivoted thereto, slidable blocks connected to the tongs at the upper ends of the latter, guide ways for said blocks, an armature and means connecting said cross head and armature, substantially as set forth.

6. The combination with a bar or post and pivoted tongs, of a slidable cross head for actuating the tongs, and electro-magnetic devices for actuating the sliding cross-head, substantially as set forth.

7. The combination with a rod or bar, a post journaled in the end thereof and means for rotating said post; of pivoted tongs, a slidable cross head for actuating the tongs, and electro-magnetic devices for actuating said slidable cross-head, substantially as set forth.

8. The combination with a movable cross head, tongs pivoted thereto, slidable blocks on the upper ends of the tongs, and inclined guide ways for said blocks, of magneto-electric devices for actuating the cross head, substantially as set forth.

9. The combination with a post, an upper movable cross head thereon provided with inclined ways, a lower movable cross head, tongs mounted on said lower head and having slide blocks resting in the inclined ways in the upper cross-head, and means for elevating the lower cross-head.

10. The combination with a post a lower cross head carrying tongs, an upper cross head having inclined guide ways, slidable blocks carried by the tongs and resting in the inclined ways and means for moving the lower cross head toward the upper cross head, of yielding support or backing located above the upper cross head, substantially as set forth.

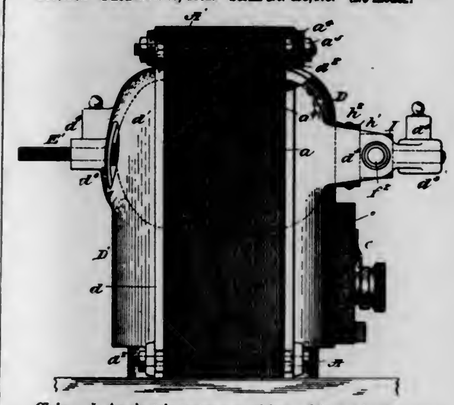
520,799. CLOD CRUSHER AND PULVERIZER. HANS J. NIELSON and NICOLAJ M. NIELSEN, Tyler, Minn. Filed Jan. 12, 1894. Serial No. 496,664. (No model.)



Claim.—1. A suitable frame of a pulverizer, clod-crusher or cultivator having shafts connected thereto, teeth upon the shafts formed in pairs connected together by a central eye, off-sets upon the teeth at a point of juncture with the eyes, and suitable clamping hubs having at their respective ends inclined seats to correspond with the incline on the off-sets, substantially as and for the purpose specified.

2. A pulverizer, clod-crusher, or harrow, consisting of the suitable frame, a hood or fender, a central brace connecting it with the frame, a seat adjustably and removably connected to the brace, shafts connected to the frame, clamping hubs upon the shafts having at their opposite ends inclined seats, and teeth held between the hubs and having eyes and off-sets, substantially as and for the purpose described.

520,800. ALTERNATING-CURRENT MOTOR. OLOF OTTERLI, Middletown, Conn., assignor to The Schuyler Electric Company, of Connecticut. Filed Nov. 29, 1892. Serial No. 453,475. (No model.)



Claim.—1. An electric motor comprising end frames having plane faces to fit against the field magnet core, and dished portions to inclose the field magnet coils, substantially as described.

2. An electric motor, comprising end frames having plane faces to fit against the field magnet core, and cupped portions to receive the clamping bolts which confine the laminæ of the core, substantially as described.

3. An electric motor comprising a laminated field magnet core A and end frames D, D', each having a flange *d*, a dished portion *d'* and the shaft bearing d^3, substantially as described.

4. The combination with the laminated core A, of the clamping bolts A', and nuts a^4, the end frames D, D' having cupped portions d^5, and the nuts a^5, substantially as described.

5. An end frame for an electric motor, comprising a plane face *d*, a dished portion *d'*, a shaft bearing d^3, and arms d^3 supporting said bearing, substantially as described.

6. In an electric motor, a brush holder consisting of a sleeve, an insulating bushing surrounding said sleeve, a nut screwed upon said sleeve, a screw entering the end of said sleeve, a spring inclosed in the sleeve, and a rod of conducting material inserted in the sleeve against the spring, substantially as described.

7. A commutator consisting of the combination with an insulating hub having a flange, of a series of rods surrounding said hub and inserted into the flange, and screws passing radially into the flange and engaging with each rod, substantially as described.

520,801. SPEED-GEARING. JOHN H. PENDLETON, Brooklyn, assignor to R. Duncan Harris, New York, N. Y. Filed June 15, 1893. Serial No. 477,677. (No model.)

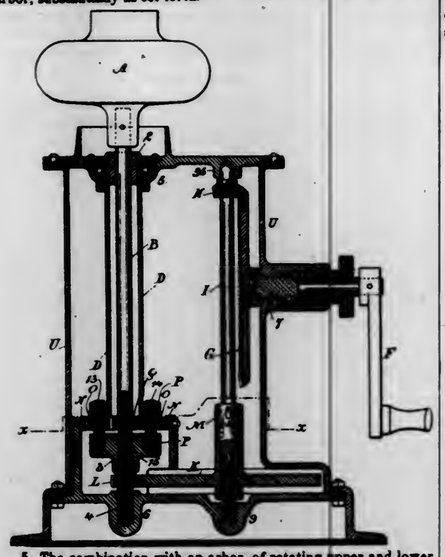
Claim.—1. The combination, with an arbor receiving the maximum speed, of a rotating bearing upon which the arbor is sustained, and a stationary bearing for the rotating bearing and gearing connecting the rotating bearing and the arbor together so that such bearing and arbor rotate in the same direction, the bearing rotating at a slower speed than the arbor, substantially as set forth.

2. The combination with the shaft or arbor B, of a pinion Q, the bearing 2, for the upper part of the arbor, and the socket plate P, forming a rotating bearing for the lower end of the arbor, a pivot for the socket plate and means for rotating the same, and gearing connecting the socket plate and arbor, substantially as set forth.

3. The combination with the shaft or arbor B, of the bearing 2, for the upper part of the arbor, and the socket plate P, forming a rotating bearing for the lower end of the arbor, a pivot for the socket plate, means for rotating the same, a stationary internal gear N, pinions O, O, and their arbors supported and carried by the socket plate, and the pinion Q, upon the arbor B, substantially as set forth.

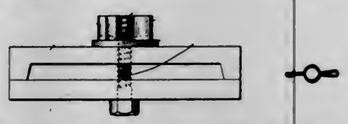
4. The combination with an arbor, of rotating upper and lower bearings for such arbor, connections between such bearings and a pivotal support for the rotating bearings in line with the arbor, gearing

for connecting the rotating bearings and the arbor, a crank and gearing for applying hand power for the rotation of the bearings of the arbor, substantially as set forth.



5. The combination with an arbor, of rotating upper and lower bearings for such arbor, connections between such bearings and a pivotal support for the rotating bearings in line with the arbor, gearing for connecting the rotating bearings and the arbor, a crank and gearing for applying hand power for the rotation of the bearings of the arbor, an automatic clutch between the gearing driven by the crank handle and the gearing that rotates the bearings of the arbor, substantially as set forth.

520,802. BOLT-NUT. MICHAEL REDLINGER and CHARLES MORGAN, Freeport, Ill., assignors to Albert Baumgarten, Edgar H. Morgan, and Charles Morgan, same place. Filed Dec. 23, 1893. Serial No. 494,594. (No model.)



Claim.—1. A nut made up of two members formed of a strip of sheet-metal folded upon itself, said members being formed with inwardly open co-acting screw-threaded beads adapted to embrace a bolt lying between them and to engage the threads thereof.

2. A nut made up of a strip of sheet-metal folded upon itself and having in its two members co-acting screw-threaded beads adapted to embrace and engage a bolt, the free ends of the strip being fastened together.

3. A nut formed from a sheet metal strip folded upon itself and having in its two members co-acting screw-threaded beads adapted to embrace and engage a bolt, one end of the strip being lapped over the other whereby the two are locked together.

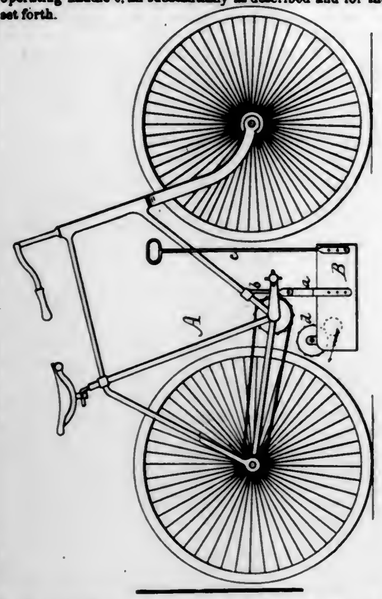
520,803. PRINTING ATTACHMENT FOR BICYCLES. EDMOND REDMOND, Rochester, N. Y. Filed Nov. 27, 1893. Serial No. 492,193. (No model.)

Claim.—1. The combination, with a bicycle of an ink fountain, attached to the frame of the bicycle, and means by which the ink from the fountain is conveyed to the bicycle tire, substantially as described.

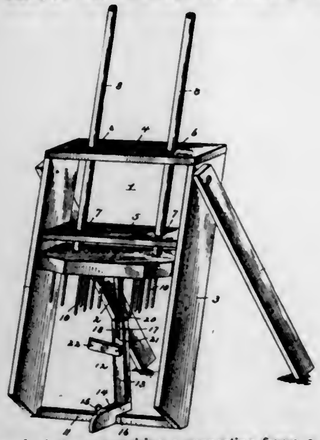
2. The combination with a bicycle frame and the wheels thereof of an inking apparatus attached to the frame, and means substantially as described coatrolled by the rider, whereby the inking apparatus can be thrown into and out of contact with one of the wheels, as set forth.

3. The combination with a bicycle of the reservoir B, flexible suspending arm *a*, *b*, inking wheels *d f* and lever *c*.

4. An inking apparatus for bicycles consisting of the fountain B, the rollers *d*, *f*, the flexible suspending arm *a*, *b*, provided with means whereby the apparatus can be attached to a bicycle frame, and the operating handle *c*, all substantially as described and for the purpose set forth.



520,804. ANIMAL-TRAP. CHARLES J. ROBERTS and JOHN W. OWEN, Buford, Ga. Filed Mar. 10, 1894. Serial No. 503,168. (No model.)

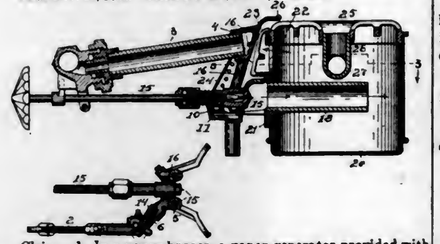


Claim.—1. A trap, comprising a supporting frame, a follower mounted therein, and a trigger comprising a shank having its upper end grooved and provided at its lower end with an angularly disposed foot-piece rigid with it and carrying a bait hook, and an extension adapted to support the follower, and having its lower end recessed and fitting into the groove of the shank, substantially as described.

2. A trap, comprising a supporting frame provided at its lower end with a transverse bar, a follower mounted on the frame, and a trigger comprising a shank having its upper end grooved, a foot piece arranged at the lower end of the shank and rigid with the same and provided at its heel with a recess receiving the transverse bar of the supporting frame, and an extension supporting the follower in an elevated position and having its lower end fitted in the groove of the shank, substantially as described.

3. A trap, comprising a supporting frame provided at its bottom with a transverse bar, a follower mounted in the frame and carrying spikes, an L-shaped trigger having a rigid foot-piece provided at the heel with a recess receiving a transverse bar, said L-shaped trigger being provided at its top with a groove, an extension bar supporting the follower and having its lower end recessed and fitting in the groove of the trigger, and a pivoted latch mounted on the trigger and arranged to close the groove of the same, substantially as and for the purpose described.

520,805. VAPOR-BURNER. HENRY RUPPEL, Cleveland, Ohio. Filed Nov. 18, 1893. Serial No. 491,311. (No model.)

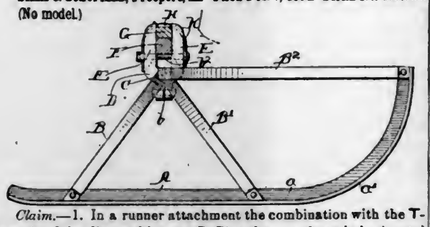


Claim.—1. In a vapor burner, a vapor generator provided with a vapor-controlling valve and an oil and vapor duct leading from said generator and provided with a valve, a drip passage 9 for the oil at the orifice of said valve and an upwardly inclined duct for the vapor discharging from said valve, in combination with a drip cup beneath the drip passage 9, provided with a trough or cavity situated below the end of the drip passage, substantially as described.

2. The burner described, having a vapor expanding drum with an induction tube for the vapor and air and a subsidiary burner 23 at the side of the drum above said induction tube, and communicating with said drum through opening 22, in combination with a vapor generator exposed to said subsidiary burner, and a shield over the entrance to the induction tube and separating the same from the said subsidiary burner, substantially as described.

3. In a vapor burner, the vaporizing chamber 4, tube 16 17 leading from said chamber and connected with the main supply nozzle the said nozzle and valve 15 therein, tube 5 6 also leading from chamber 4 and communicating with a drip cup, valve 2 for said tube, the vapor tube 14 arranged to convey vapor from the orifice of tube 5 6 and direct a flame against chamber 4, the said drip cup located so that ignited oil therein will heat the fluid in tube 5 6 and light tube 14, the main burner in close proximity to chamber 4 having a supplemental burner 23 at its side arranged to heat said chamber 4 and located over tube 14 so that either burner 23 or tube 14 may be automatically lighted one by the other, substantially as shown and described.

520,806. RUNNER ATTACHMENT FOR WHEELED VEHICLES. SILAS C. SCHOFIELD, Freeport, Ill. Filed Feb. 7, 1894. Serial No. 499,318. (No model.)



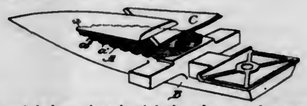
Claim.—1. In a runner attachment the combination with the T-beam, A, of the diagonal braces, B, B', and approximately horizontal braces, B^2, arranged in pairs as shown, the transverse bar, C, spreading and connecting the braces and means substantially as shown and described for detachably connecting said rod with the axle of a vehicle.

2. The combination with the curved beam, A, the braces, B, B', B^2, and the transverse rod, C, spreading and connecting the braces, of plates, D, D, clamped upon the rod, C, and provided with oppositely placed jaws, E, E', adapted to embrace an axle, and bolts, *b*, *b'*, passing through said jaws and adapted to clamp them upon the axle.

3. The combination with the beam, A, braces, B, B', B^2, and rod, C, of the plates, D, D, provided with longitudinally slotted jaws, E, E', and the bolts, *b*, *b'*, adjustable in the slots in said jaws and adapted to clamp the jaws upon an axle.

4. The combination with the beam, A, and its braces and the transverse rod, C, connecting said braces, of the plates, D, D, clamped upon the rod, C, and formed with jaws, E, E', adapted to embrace an axle, the bolts, *b*, b^2, passing through said jaws and the hood, K, held in place by the bolt, *b'*, and adapted to cover the spindle of an axle clamped between the jaws; substantially as shown and described.

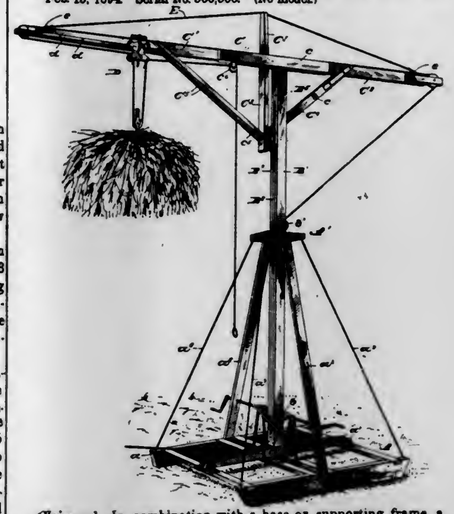
520,807. LEDGER-PLATE. PETER C. SHIPLEY, Red Oak, Iowa, assignor of one-third to Oren E. Jackson, same place. Filed Apr. 20, 1893. Serial No. 471,118. (No model.)



Claim.—A ledger plate having its edges cut into concave scallops with beveled edges, the meeting edges of adjacent scallops being inclined forward from the upper side of the plate, substantially as described

---

520,808. HAY-STACKER. HENRY L. SHORT, Larue, Ohio. Filed Feb. 15, 1894. Serial No. 500,300. (No model.)



Claim.—1. In combination with a base or supporting frame, a rotatable post having a passageway from its lower end to a point a slight distance above the inclined braces of the frame, of a lever pivoted to the upper end of the supporting post, said lever having tracks upon which is mounted a carriage, a hoisting rope attached to said carriage, and pulleys carried by the lever and post, the hoisting rope extending from the carriage over the pulleys entirely along the lever from end to end and thence downwardly through and out of the hollow post, substantially as shown, whereby by properly manipulating the hoisting rope the load can be raised, the carriage moved along the lever, and the lever tilted, for the purpose set forth.

2. In a hoisting device, the combination, of a supporting frame having bearings for a rotatable post, a lever pivoted to the upper end of the post and provided with braces, one of said braces passing through the post and engaging with the brace on the opposite side thereof, substantially as shown and for the purpose set forth.

3. The combination in a hoisting device, of a supporting-post, a trussed lever mounted thereon, braces secured to the lever and to each other, one of the braces being adapted to abut against the supporting post and the other passing through the supporting post, substantially as shown.

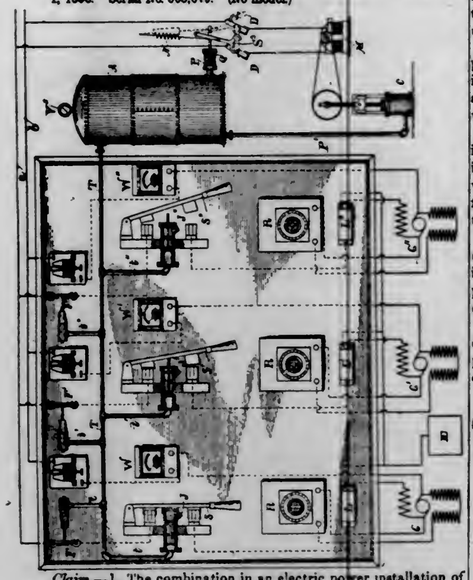
4. In combination with the supporting post having a lever pivoted thereto, of an upright rigidly attached to the lever to one side of its pivot point, parallel brace bars secured to the lever and to the lower end of the upright, and a brace bar secured to the lever on the other side of its pivot and adapted to pass through an opening in the supporting post so as to engage with the lower end of the upright, the last mentioned brace carrying a stop, substantially as shown, whereby the movement of the lever on its pivot is limited in both directions.

5. In combination with a base or supporting frame, of a post having a hollow portion which extends from its lower end to a point a slight distance above the upper ends of the inclined supports of the frame, said supporting post consisting in part of the side pieces B' B' and strips B^3, and B^3, a lever pivoted to the upper end of the post and provided with depending braces, the brace which is attached to the longer arm of the lever abutting against the edges of the side pieces of the post when the lever is in a horizontal position, and a brace which passes through the post between the side pieces thereof said brace having a stop or stops which engage with the edges of the side

pieces of the post to limit the upward movement of the long arm of the lever, and a hoisting rope which extends through the hollow portion of the post and over the lever to a carriage mounted thereon, substantially as shown and for the purpose set forth.

6. In a hoisting device, the combination, of a supporting post, a lever pivoted thereto, said lever being made up of beams C' and C^3 which are connected to each other by parallel pieces c c, braces secured to said lever and to an upright C^3 which is also secured to the lever, and tracks d attached to the long arm of the lever, substantially as shown and for the purpose set forth.

520,809. MEANS FOR PREVENTING ARCING IN ELECTRIC-POWER STATIONS. ELIHU THOMSON, Swampscott, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Sept. 1, 1890. Serial No. 363,679. (No model.)



Claim.—1. The combination in an electric power installation of the various circuit breaking apparatus as described, used in connection therewith, with an air or other insulating fluid distribution system, arranged to deliver a jet of air or like fluid across the arcing space at any desired or necessary one of the said circuit-breaking apparatus, and an electro-magnetic device connected with the general electric circuit of the installation and a controlling means for supplying the insulating fluid and itself controlled by devices operated by the pressure in the air system, as and for the purposes set forth.

2. The combination in an electric power installation, of the various circuit breaking apparatus as described used in connection therewith, with an air or other insulating fluid distribution system arranged to deliver a jet of air or like fluid across the arcing space at any desired or necessary one of the said circuit breaking apparatus, a pump for said distribution system, an electro-magnetic device connected with the general electric circuit of the installation and controlling the pump and itself controlled by devices operated by the pressure in the air system

3. The combination with a reservoir, and an insulating-fluid distributing system leading to the various circuit breaking apparatus of an electric power installation, and designed to prevent arcing thereat by delivering a jet of air or like fluid across the arcing space, of a compressor forcing air into the reservoir, and a pressure valve connected with the reservoir and controlling the compressor.

4. The combination with a reservoir, and an insulating fluid distributing system leading to the various circuit breaking apparatus of an electric power installation and designed to prevent arcing thereat by delivering a jet of air or like fluid across the arcing space, of a compressor forcing air into the reservoir and driven by an electric motor, a controller for the said motor, and a pressure valve connected with the reservoir and actuating the controller.

5. The combination with an air reservoir, and a distribution system for distributing jets of air to the various circuit breaking apparatus of an electric power installation, of a pump for forcing air into said reservoir, an electric motor driving the pump, a switch in the motor circuit, a spring holding the same on either side of a dead center, and a device actuated by the air pressure in the reservoir connected to and automatically operating said switch as set forth.

6. The combination in an electric power installation, of a circuit breaker, with a discharge pipe through which air or other insulating fluid is delivered to disrupt any arcs forming at the circuit-breaker, and a valve held by the circuit breaker in the position closing the pipe when the circuit is closed, but freed when the circuit is broken.

7. The combination with an electric circuit breaker and a discharge pipe through which air or other insulating fluid is delivered to prevent arcing at the circuit breaker, of a self-closing valve in the pipe held closed by the circuit breaker when the circuit is closed, but freed so as to temporarily open the valve when the circuit is broken, as described.

8. The combination with a fuse included in an electric circuit, of a discharge pipe for directing a blast of air across the arcing space formed by the blowing of the fuse, a valve in said pipe held under tension in a closed position by said fuse, and automatically opened upon the rupture of the fuse as set forth.

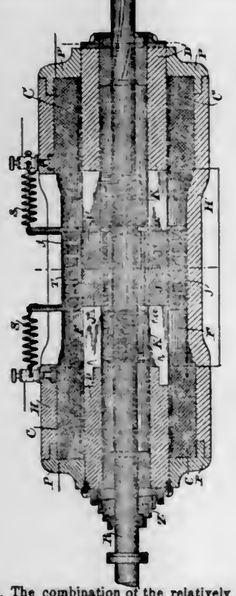
9. The combination with a fuse included in an electric circuit and provided with main and auxiliary fuse wires, of the pipe for discharging a jet of air across the arcing space formed when the fuse is blown, and the valve held under tension in a closed position by said auxiliary wire as described.

10. The combination with a circuit breaker in an electric power installation, and a discharge pipe through which air or other insulating fluid is forced to prevent arcing at the circuit breaker, of the valve automatically opened upon the breaking of the circuit, the spring for closing the valve, and a dash pot for regulating the duration of the air blast as described.

11. The combination with a circuit breaking apparatus of a wall or partition on one side of said apparatus and provided with an opening in proximity thereto, and an air or equivalent blast apparatus for propelling toward said opening any arc which may form at said circuit breaking apparatus.

12. The combination with a circuit breaking apparatus of a wall or partition on one side thereof, and provided with an opening in proximity thereto, and arc propelling means for forcing toward said opening any arc that may form at said circuit breaking apparatus.

520,810. ELECTRIC RECIPROCATING MOTOR. ELIHU THOMSON, Swampscott, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed July 10, 1891. Serial No. 399,043. (No model.)



Claim.—1. The combination of the relatively movable coils or magnets, one of which is supplied with continuous currents, and the other with unbroken undulatory alternating currents of a definite rate of alternation, to cause vibration of one of the coils or magnets, the movable coil with its attached parts having a definite inherent rate of vibration corresponding with the rate of alternation of the propelling current.

2. The combination of the relatively movable coils or magnets, one of which is supplied with continuous currents and the other with unbroken undulatory alternating currents of a definite rate of alternation, to cause vibration of one of the coils or magnets, the movable coil with its attached parts having resilient devices engaging therewith, and having a definite rate of vibration under the influence of the alternating current and the resilient devices, substantially corresponding to the rate of alternation of the current.

3. The combination of the continuously energized magnet having outer and inner pole portions, forming between them a transverse field, a coil movable in said field between such pole pieces and traversed by an alternating undulatory current.

4. The combination of the continuously energized magnet, having outer and inner pole portions, forming between them a surrounding or transverse field and air space, and a coil movably and closely fitted in said space and traversed by an unbroken undulatory alternating current, substantially as described.

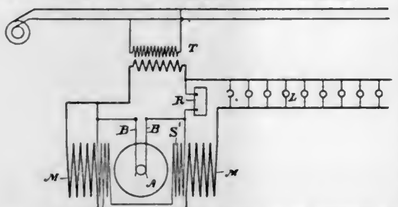
5. The combination of the magnet having inner and outer pole pieces, the reciprocating rod within the inner pole piece, arms attached to said reciprocating rod, and extending into the polar space between the pole pieces, and a coil carried by said arms and movable in said polar space.

6. The combination of the magnet having inner and outer pole pieces, the reciprocating rod within the inner pole piece, arms attached to said reciprocating rod, and extending through the inner pole piece into the field space between the pole pieces, and a coil carried by said arms and movable in said field space.

7. A reciprocating magnet for vibrating electro-motors having a bobbin or support with separators or diaphragms, and magnetically similar coils wound between said separators.

8. The combination in a reciprocating electric motor, of the reciprocating rod, the armature sleeved thereon, stops on said rod, and buffers between said armature and stops.

520,811. ELECTRIC METER. ELIHU THOMSON, Swampscott, Mass. Filed Feb. 21, 1894. Serial No. 501,012. (No model.)



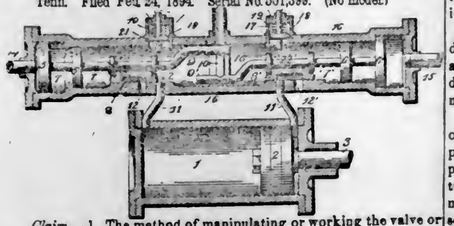
Claim.—1. In an electric meter, a series coil, an armature, a resistance in series with the armature, and a shunt coil arranged to furnish an initial or starting field sufficient to balance the friction of the moving parts, such coil being in series with a resistance.

2. In an electric meter, a series coil, an armature arranged in shunt, a resistance in series with the armature and a coil in a circuit derived from the armature circuit and adapted to furnish an initial field sufficient to balance the friction of the moving parts.

3. In an electric meter, a coil in series with the mains supplying the translating devices with the current to be measured, an armature in shunt to such mains, a starting coil in multiple with such armature and a resistance in series with the armature and the starting coil.

4. In an electric meter, a coil in series with the mains supplying the translating devices with the current to be measured, an armature in shunt to such mains, a starting field coil deriving its energy from the armature circuit, and a resistance in circuit with the armature.

520,812. PNEUMATIC SYSTEM OF AND APPARATUS FOR HANDLING RAILWAY-SWITCHES. JOHN W. THOMAS, Jr., Nashville, Tenn. Filed Feb. 24, 1894. Serial No. 501,399. (No model.)



Claim.—1. The method of manipulating or working the valve or valves admitting air to and exhausting it from the working cylinder, which consists in subjecting each of two pneumatic pistons to the action of a column of compressed air separate and distinct from that which acts on the other, and delivered through controlling pipes, one for each piston, containing air at more than atmospheric pressure at all times, the pistons being subjected, on the sides opposite those on which the controlling pipes are located, to air pressure opposing that in the controlling pipes, and being actuated and controlled in their movements by alternately and at the proper times reducing and restoring the pressure in the controlling pipes, substantially as hereinbefore set forth.

2. The combination of the two pneumatic pistons, the controlling pipes one for each piston, the operating lever, the valve actuated thereby and connections substantially as described between said controlling pipes and the ports controlled by said valve, whereby the one controlling pipe is placed in communication with the exhaust when the other is in communication with the source of compressed air supply, substantially as and for the purposes hereinbefore set forth.

3. The combination with the operating lever and its tappet, of the valve for regulating pressure in the controlling pipes, and means substantially as described whereby said valve is intermittently and automatically connected to and disconnected from the lever during the throw of the latter, substantially as and for the purposes hereinbefore set forth.

4. In combination, the operating lever and its slotted tappet, the two indicator pins, and pneumatic appliances for operating said pins connected to and controlled in their action by the movement of the switch, whereby one or the other of the pins is caused to engage and lock the tappet before the lever completes its full throw in either direction until after the switch has been fully shifted, substantially as hereinbefore set forth.

5. The indicator pins, and the reciprocatory pistons therein to which said pins are severally connected, in combination with the switch, the slide valve mechanism connected to and operated by the switch, and controlling two sets of ports one for each indicator cylinder and connections whereby when one indicator cylinder is opened to its air exhaust or reducing port, the other is opened to its air supply or pressure port, and vice versa.

6. The combination of the reciprocatory rod 5, the valve shifting knockers thereon, the valve mechanism actuated by said knockers at or near the conclusion of the movement of the rod in either direction, the indicator cylinders and mechanism, and connections between the same and the valve mechanism, substantially as and for the purposes hereinbefore set forth.

7. In combination with the valve chest or case and the controlling pipes, the two pneumatic pistons provided with notched stems and the transversely sliding dog arranged between said stems and operating to lock and release each stem alternately at the times and in the manner substantially as hereinbefore set forth.

8. The equalizing piston, its chest and controlling pipe, in combination with the valve operated by said piston, and the ports controlled by said valve, the supply port having direct communication with a source of compressed air supply and being closed at all times by the valve from communication with the compressed air received in the chest through the controlling pipe.

9. The equalizing piston mechanism, in combination with the indicator cylinder and appliances, substantially as and for the purposes hereinbefore set forth.

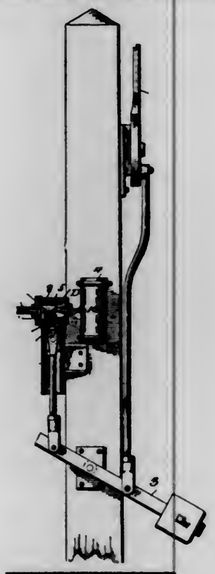
520,813. PNEUMATIC SYSTEM OF AND APPARATUS FOR HANDLING RAILWAY-SIGNALS. JOHN W. THOMAS, Jr., Nashville, Tenn. Filed Feb. 24, 1894. Serial No. 501,400. (No model.)

Claim.—1. In combination, a controlling pipe communicating with a source of compressed air supply, means for reducing and restoring air pressure in said pipe; an equalizing piston and cylinder—the latter connected to said pipe; a working cylinder and piston and a signal connected thereto so as to be operated by the movement of the piston; and a valve mechanism controlled by the equalizing piston for admitting compressed air to and exhausting it from the working cylinder, the combination being and acting substantially as hereinbefore set forth.

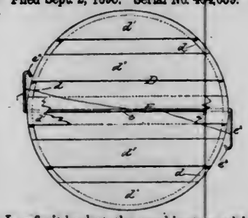
2. The signal operating lever, its tappet and the pneumatic indicator mechanism, in combination with the signal, and valve mechanism for admitting air to and exhausting it from the indicator cylinder, connected to and operated by the signal at the times and in the manner substantially as hereinbefore set forth.

3. The pneumatic selector, comprising a valve connected to and operated by the switch or some part moving therewith, and three ports controlled by said valve communicating, one with the supply port of the signal valve in the tower, and the other two with controlling pipes leading to the cylinders of two valve shifting piston mechanisms, for operating each in connection with a distinct and separate signal, under the arrangement and for operation substantially as hereinbefore set forth.

4. The mechanism for operating a three position signal comprising a three position signal valve in the tower adapted to deliver and graduate air pressures; a single controlling pipe through which said pressures are delivered; an equalizing piston and cylinder—the latter connected to the controlling pipe; two working cylinders, one for "caution" and the other for "safety;" working pistons one for each cylinder whereby the signal may through suitable intermediaries be actuated; a set of admission and exhaust ports for each cylinder; two valves connected to and operated by the equalizing piston in such manner that the "caution" valve will move far enough to open its cylinder to the admission of compressed air, before the "safety" valve is moved to admit air into its cylinder; and a graduated spring or yielding resistance which opposes such movement of the "safety" valve—the combination being and acting substantially as hereinbefore set forth.



520,814. FRUIT-BASKET. CORNELIUS VAN DERZEE, Albany, N. Y., assignor of two-thirds to David H. Mathias and James H. Simonson, same place. Filed Sept. 2, 1893. Serial No. 484,639. (No model.)



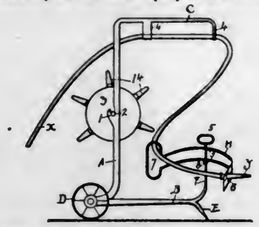
Claim.—1. In a fruit basket, the combination with the staves *a a* of the basket, of the upper hoop secured to the staves at a short distance below the upper end of the staves, with its lower portion of inner side flaring outwardly and downwardly, and producing, between the lower portion of the hoop and the staves, an opening all around, substantially as and for the purposes set forth.

2. In a fruit basket, the combination with the basket having the upper ends of its staves projected above the upper hoop *b*, and the hoop *b* provided in its inner side with the outwardly and downwardly inclined surface, and a cover having its rim seated on the hoop *b* and outside the staves of the basket, of the locking device E, made of a single piece of wire, and comprising the straight middle portion *e*, arms *e'* *e²* and catches *e³* *e⁴*, substantially as and for the purposes set forth.

520,815. COMBINATION REEL AND SPRINKLER. WILLIAM L. VAN HORN, Norfolk, Nebr. Filed Sept. 28, 1893. Serial No. 486,754. (No model.)

Claim.—1. In a hose reel and sprinkler, the combination with a suitable supporting standard provided with an upwardly extending stem, of a revolving nozzle holder mounted upon said stem and adapted to removably hold the nozzle of a suitable garden hose, and an upwardly extending standard adapted to give support to said garden hose, all arranged substantially as and for the purpose set forth.

2. In a hose reel and garden sprinkler, the combination of a suitable supporting standard provided with an upwardly extending stem, a revolving nozzle holder mounted upon said stem, an upwardly extending standard provided with a suitable arm in combination with a detachable reel hose removably held within said standard, all arranged substantially as and for the purpose set forth.

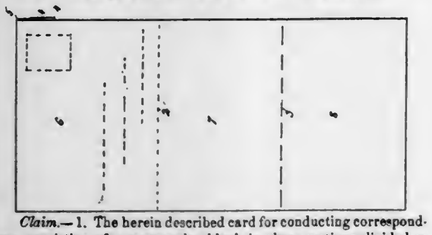


3. In a hose reel and garden sprinkler, the combination with a suitable supporting standard of an upwardly extending stem and revolving nozzle holder mounted upon said stem and provided with a removable holder at one end, and a loop at the other, a suitable hose reel adapted to be removably held within said standard, and an upwardly extending handle, all arranged substantially as and for the purpose set forth.

4. In a hose reel and garden sprinkler, the combination of the standard, A, provided with the upwardly extending portion B, of the upper hanger, C, the ears, 1, secured to said standard, A, adapted to detachably hold the reel, 3, the upwardly extending rod, F, terminating in the handle, 5, and provided with the curved nozzle holder, H, having the movable holder, 6, and the loop, 7, all adapted to hold and revolve a suitable garden hose, substantially as set forth.

5. In a hose reel and garden sprinkler, the combination of the standard A provided with the forwardly extending portion B and an outwardly extending arm C of the stem F, adapted to give support to the revolving nozzle holder H, said holder H being provided with the nozzle holder, comprising a frame 10 and swinging frame 11 and a pivoted spring holder 12, and being further provided with the loop 7, in combination with a detachable reel 3, all substantially as and for the purpose set forth.

520,816. RETURN POSTAL-CARD. JOHN G. WALLACE, Chicago, Ill. Filed Aug. 28, 1893. Serial No. 484,222. (No model.)



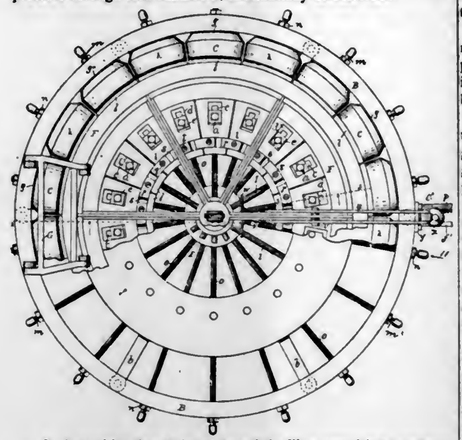
Claim.—1. The herein described card for conducting correspondence, consisting of a rectangular blank in three sections divided as shown and having a spring flap formed by doubling one end and gumming or otherwise fastening the portion 5 of the same, substantially as and for the purpose herein set forth.

2. A card for conducting correspondence composed of three sections divided as shown presenting on the obverse side a section 6 for the address of an outgoing message, a section 8 being the blank face of a return postal card and an intermediate blank section 7: on the reverse side sections 6′ and 7′ to receive the outgoing message and 8′ the address of the return postal in combination with a spring flap adapted to hold the sections together when folded for transmission, substantially as herein set forth.

520,817. MACHINE FOR SETTING TIRES. JONATHAN B. WEST, Rochester, N. Y. Filed May 20, 1893. Serial No. 474,881. (No model.)

Claim.—1 A machine for setting tires and the like comprising a frame, pistons upon said frame, cylinders resting upon said frame and movably fitting upon said pistons, tables extending from the pressure face of said cylinders, slots in said tables, pins with enlarged heads passing through said slots and entering the frame, and means for supplying a fluid under pressure through said pistons; substantially as described.

2. A machine for setting tires and the like comprising a frame, a base ring supported thereby, chambers radially projecting therefrom, cylinders resting upon said frame and movably fitting upon said chambers, tables extending from the pressure face of said cylinders, slots in said tables, pins with enlarged heads passing through said slots and entering the frame, and means for supplying a fluid under pressure through said chambers; substantially as described.



3. A machine for setting tires and the like comprising a supporting structure, a series of movable pistons thereon having faces opposite the supporting structure, a packing between said faces and the supporting structure, a ridge upon one of the faces between which the packing lies, cylinders upon said pistons, said cylinders extending beyond the packing and being arranged to conform to the article to be acted upon, and means for supplying a fluid under pressure between the cylinders and the pistons; substantially as described.

4. A machine for setting tires and the like comprising a supporting structure, a series of adjustable pistons thereon, having faces lying opposite the supporting structure, a packing between said faces and the supporting structure, cylinders upon said pistons, said cylinders extending beyond the packing and being arranged to conform to the article to be acted upon, means for adjusting the pistons from the outside of the supporting structure, and means for supplying a fluid under pressure between the pistons and the cylinders; substantially as described.

5. A machine for setting tires and the like comprising a supporting structure, a series of adjustable tubes thereon, a piston upon each of the tubes, said pistons having faces lying opposite the supporting structure, a packing between said faces and the supporting structure, a cylinder upon each piston, said cylinders extending beyond the packing and being arranged to conform to the article to be acted upon, means for adjusting the tubes, and means for supplying a fluid under pressure through each of the tubes into the cylinders; substantially as set forth.

6. A machine for setting tires and the like comprising a radially perforated supporting structure, a tube fitting loosely through each perforation of the supporting structure and having a piston upon its end, said piston having faces opposite the supporting structure, packing between said faces and said supporting structure, a cylinder movable upon said pistons and extending beyond the packing, an adjusting nut upon each tube and bearing against the supporting structure, and means for supplying a fluid under pressure through said tubes; substantially as described.

7. A machine for setting tires and the like comprising a frame, chambers projecting therefrom, pistons movable in said chambers, said pistons having faces extending opposite the walls of said chambers, packing between said faces and said walls, cylinders fitting over said chambers, said cylinders being arranged to conform to the article to be acted upon, means for adjusting the pistons from outside the frame, and means for supplying a fluid under pressure between the cylinders and the pistons; substantially as described.

8. A machine for setting tires and the like comprising a frame, a base ring supported thereby, chambers radially projecting from the circumference of said ring, said ring being provided with radial perforations leading to said chambers, movable blocks having passages therethrough in said chambers, said blocks having faces extending opposite the walls of said chambers, packing between said faces and said walls, cylinders upon said chambers, tubes fitting loosely through the perforations in the ring and connected to the blocks in line with the passages therethrough, adjusting screws upon the tubes and bearing against the base ring, and means for forcing a fluid under pressure through said tubes; substantially as described.

9. A machine for setting tires and the like comprising a frame provided with a radially perforated base ring, a tube through each perforation of the ring, a two-part piston upon each tube, a packing between the parts of the piston, a cylinder upon each piston, and means for supplying a fluid under pressure to the cylinders; substantially as set forth.

10. A machine for setting tires and the like comprising a frame, radially disposed plungers upon said frame, guide-ways upon said plungers, a plate held in the guide-way upon one plunger and extending into the guide-way of an adjacent plunger, and means for forcibly moving said plungers; substantially as described.

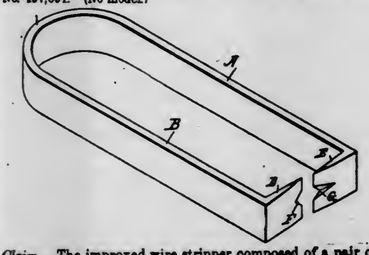
11. A machine for setting tires and the like comprising a frame, radially disposed plungers upon said frame, a groove upon each plunger, a plate held in the groove in each plunger and extending into the groove in an adjacent plunger, and means for forcibly moving said plungers; substantially as set forth.

12. A machine for setting tires and the like comprising a frame provided with a base ring, a series of pistons radially secured to the surface of the ring, a cylinder upon each piston, each cylinder being provided with an extending flat portion the end of which is provided with a groove, an equalizer movably secured in each groove, one end of which projects into the groove in the end of the adjacent portion, and means for supplying the cylinders with a fluid under pressure; substantially as described.

13. A machine for setting tires and the like comprising a frame, a base ring supported thereby, chambers radially projecting from the circumference thereof, cylinders resting upon the frame and movably fitting upon said chambers, extending flat portions upon said cylinders, a slot in said flat portion, pins having enlarged heads passing through said slots and entering the frame, a guide-way upon each flat portion, a plate movably secured in each guide-way and projecting into the guide-way in the adjacent flat portion, and means for supplying a fluid under pressure through said chambers; substantially as described.

14. A machine for setting tires and the like comprising a frame, a base ring supported thereby, chambers radially projecting from the circumference of said ring, said ring being provided with radial perforations leading to said chambers, movable blocks having passages therethrough in said chambers, said blocks having faces lying opposite the walls of said chambers, packing between said faces and said walls, tubes fitting loosely through the perforations in the ring and connected to the blocks in line with the passages therethrough, adjusting screws upon the tubes and bearing against the base ring, cylinders resting upon the frame and movably fitting upon the chambers, extending flat portions upon said cylinders, a slot in said flat portions, pins having enlarged heads passing through said slots and entering the frame, a groove in each flat portion, a plate movably secured in each groove and projecting into the groove in the adjacent flat portion, and means for supplying a fluid under pressure through said chambers; substantially as described.

520,818. WIRE-STRIPPER. JOHN J. BETTINGER, Hamilton, Ohio, assignor to Charles L. Cornell, same place. Filed Jan. 16, 1894. Serial No. 497,091. (No model.)



Claim.—The improved wire stripper composed of a pair of handles joined by a spring bow and armed with blades projecting inwardly at right angles to the handles and adapted to overlap in shear-like contact and provided in the ends of the blades with triangular notches having their sides straight and formed with knife edges.

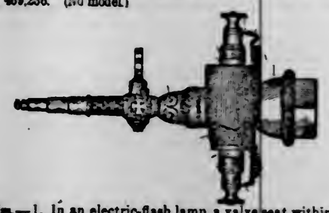
520,819. PROCESS OF PRESERVING ARTICLES OR STRUCTURES. EDWARD M. CAFFALL, Baltimore, Md., assignor of one-half to Charles W. Jackson, same place. Filed Sept. 6, 1893. Serial No. 484,896. (No specimens.)

Claim.—1. The process herein described of preserving articles and structures exposed to action of water and insects, which consists, essentially, in applying successive coats or layers of asphaltum and

zietrisikite to said articles or structures, and subsequently combining said materials *in situ* by heat.

2. The process herein described of preserving articles and structures exposed to the action of water and marine insects, which consists, in first heating the surface of the article or structure, then applying a coating of zietrisikite or other natural mineral wax, then applying a coating of refined melted asphaltum, and finally applying a second coating of zietrisikite or other natural mineral wax and heating the exterior surface to cause the wax and asphaltum to amalgamate.

520,820. SIGNAL-LIGHT FIXTURE. WILLIAM CARTER, JOHN W. DAWSON, and JOSEPH METRICK, Jr., Louisville, Ky., assignors of one-fourth to Henry F. Donegan, same place. Filed Apr. 5, 1893. Serial No. 469,236. (No model.)



Claim.—1. In an electric-flash lamp, a valve seat within an outer shell, a gravity valve in said seat, a diminutive channel between said valve-seat and valve and an electro-magnet supported on said outer shell with its poles in convenient proximity to said valve, all in combination substantially as specified.

2. In an electric flash-lamp, an outer shell of non magnetic material, an electro-magnet supported on said shell with its helix apart therefrom, the poles of said electro-magnet within the shell, a valve or armature normally in contact with the poles of said electro-magnet on a closed circuit, a depending stem from said valve and a hollow valve seat surrounding said valve stem, all combined substantially as specified.

3. In an electric-flash lamp consisting of a main shell, with a movable valve therein, hollow arms projecting laterally therefrom, an electro-magnet supported on said main shell at its exterior, pole-pieces extending from said magnet into said hollow arms through the main shell in convenient proximity to said valve, all combined substantially as specified.

4. In an electric-flash-lamp, an electro-magnet supported at the exterior of the main shell, a movable valve supported in its seat within the main shell, a pair of hollow arms projecting from the main shell and extensions from fixed pole pieces, one at each side, projecting through said main shell into the interior thereof in convenient proximity to said movable valve, all combined substantially as specified.

520,821. CAR-BRAKE. CLARENCE W. CARTER, Minneapolis, Minn., assignor to the Carter Car-Brake Company, same place. Filed July 29, 1893. Serial No. 481,802. (No model.)

Claim.—1. The combination, with the truck wheels, of the brake shoes and their beams, a rod or rods immovably connecting and relatively fixing said beams, means for moving said shoes into engagement with the wheels, and means for taking up the wear in the shoes, substantially as described.

2. The combination, with the truck wheels, of the brake shoes and their beams, a rod or rods immovably connecting said beams, means for moving said shoes into engagement with the wheels, and automatic means for taking up the wear in the shoes substantially as described.

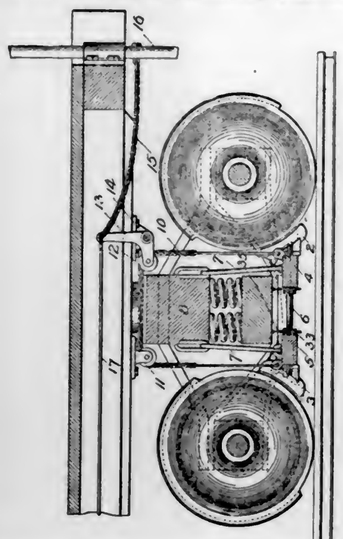
3. The combination, with the truck, of the opposite and relatively fixed brake shoes situated between the pairs of wheels, hangers for the same, and a take-up connected with, and for moving the opposite shoes into engagement with the wheels, whereby the same are semi-automatically set, substantially as described.

4. The combination, with the truck, of the relatively fixed brake shoes and beams situated between the pairs of wheels, hangers for said beams, and a take-up for lifting the shoes into engagement with the wheels, substantially as described.

5. The combination, with the truck, of the brake shoes and beams situated between the pairs of wheels, of the truck, hangers for said beams, and a take-up loop for moving the pairs of shoes into engagement with the wheels, and having its ends secured upon opposite brake beams, sheaves for supporting the upper part of the loop, and a bell crank arranged in connection with one of the sheaves, and means for operating the bell crank, substantially as described.

6. The combination, with the truck, of the brake-shoes, and the beam or beams belonging thereto, a rod or rods immovably connecting said beams, supports for said beams, and a bell crank device for moving the pairs of shoes into engagement with the brake wheels, substantially as described.

7. The combination, with a car-truck, of the brake-shoes, a rod or rods connecting and relatively fixing the same, hangers therefor, means for moving the whole to set the shoes, said rod or rods having threaded ends, ratchet nuts thereon, a pawl or pawls to engage said ratchet or ratchets and connected with a fixed part of the truck, whereby the operation of the brake results in the automatic adjustment of the shoes to take up wear, substantially as described.



8. The combination, with the truck, of the brake shoes belonging to the wheels in opposite pairs, said shoes being relatively fixed and normally supported but both shoes adapted and free to be moved toward the plane of the wheel axles, and means for vertically moving either one of said shoes or both against their wheels, whereby the frictional engagement of one shoe with its wheel and tending in the same direction as the vertical moving force, assists in setting both shoes against their wheels, all without regard to the direction of rotation of the wheels, substantially as described.

9. The combination, with the truck, of the brake shoes of the two pairs of wheels, all of said brake shoes being relatively fixed with respect to the movement toward or from one another, means for normally supporting said shoes, and means for moving either or both pairs of shoes into engagement with the wheels whereby all the shoes are set against the wheels, substantially as described.

10. The combination, with the truck, of the shoes with the supports for said shoes adapted to limit the vertical movement of said shoes away from the wheels but not limiting vertical movement toward the same, and means for moving the shoes of either pair of wheels or of both pairs into engagement therewith, substantially as described.

11. The combination, with the truck, of the relatively fixed brake-shoes, supports for said shoes adapted to limit the vertical movement of said shoes away from the wheels but permitting unlimited vertical movement toward the same, and means for moving the shoes of either pair of wheels or of both pair into engagement therewith, substantially as described..

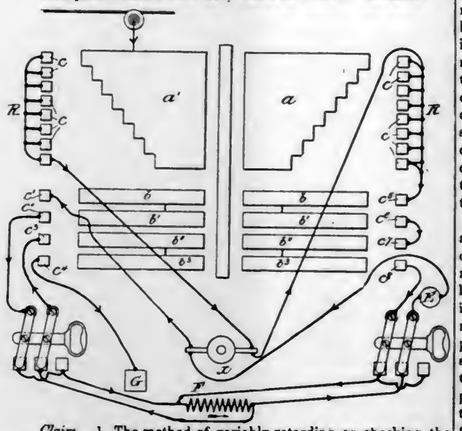
12. The combination, with the truck, of the brake-shoes, with supports therefor, said shoes being relatively fixed with respect to movement toward or from one another, means for moving the shoes into engagement with the wheels, and automatic means for taking up wear in the shoes, substantially as described.

13. The combination, with the truck, of the brake-shoes and beams, supports therefor, the rod or rods connecting and passing through said beams, locking nuts securing the ends of the rod or rods in said beams, and a take-up for moving the shoes into engagement with the wheels, substantially as described.

14. The combination, with the truck, of the brake-shoes belonging to opposite wheels upon the same side of the truck, said shoes being relatively fixed, supports for said shoes, and a take-up connected with the shoes, and, with said supports adapted to permit the see-saw movement of the brake-shoes with the relatively fixing device, whereby either shoe may be moved toward the plane of the wheel axles, substantially as and for the purpose specified.

15. The combination, with the truck, of the brake-shoes belonging to the wheels thereof, a brake-frame relatively fixing all of said shoes, supports for said brake-frame adapted to permit the see-saw movement thereof caused by a change in the running direction of the wheels and at the time of setting the brake, and a take-up for moving said shoes into engagement with the wheels regardless of the running direction thereof, substantially as and for the purpose set forth.

520,822. SYSTEM OF CIRCUIT CONTROL FOR ELECTRIC MACHINES. CHARLES E. DAVIS, Chicago, Ill., assignor to John H. Leslie, same place. Filed Oct. 16, 1893. Serial No. 488,282. (No model.)



Claim.—1. The method of variably retarding or checking the motion of motors normally coupled to the feed circuit in pairs, together with a variable resistance for the operation of such motors; consisting in breaking the supply circuit, connecting the motors in series on a local circuit including said variable resistance, and then causing said resistance to be regulated to suit the requirements regulating or varying said retardation.

2. The method of variably checking the motion of motors normally coupled to the feed circuit in pairs, together with a variable resistance for the operation of such motors; consisting in breaking the supply circuit, connecting the motors in series on a local circuit, the coupling being such that the electro-motive-forces of the two motors acting through said variable resistance though unequal are normally opposed to each other, said local circuit including said variable resistance and regulating such resistance to vary the said checking of the motion.

3. The method of arresting or checking the motion of motors normally coupled to the feed circuit in pairs, consisting in breaking the supply circuit, connecting the motors in series with each other, and closing a short-circuiting device around one of the motors.

4. The method of arresting or checking the motion of motors normally coupled to the feed circuit in pairs, consisting in breaking the supply circuit, connecting the motors in series with each other, closing a short circuit upon one of the motors, and causing the said short circuit to be automatically opened by an electric current.

5. The method of arresting or checking the motion of motors normally coupled to the feed circuit in pairs, consisting in breaking the supply circuit, connecting the motors in series with each other, closing a short circuit upon one of the motors, and causing the said short circuit to be automatically opened by the electric current within such short circuit.

6. The method of variably retarding or checking the motion of motors normally coupled to the feed circuit in pairs, together with a variable resistance for the operation of such motors; consisting in breaking the supply circuit and connecting the motors in series on a local circuit including said variable resistance, the coupling being such that the electro-motive-forces of the two motors acting through the variable resistance though unequal are normally opposed to each other, and coupling to one of the motors a device for automatically causing such motor to preponderate the other as to electro-motive-force.

7. In a controller for electric motors, two series of contacts separated by a space, and cooperating contacts, one set being mounted on a main moving element of the controller and organized for movement relative to the other set or sets, a supply circuit for the motor leading to the controller, and an independent local circuit also leading to the controller, connections between a single set of said contacts and the sections of an artificial resistance and also between others of said contacts and the motor or motors such that when the said moving element is in a central position the contacts are open-circuited, when in a position to one side of said central position the supply circuit is operatively coupled to the motor through said single set of contacts and connected resistance and when in a position on the other side of said central position the motor is disconnected from the said supply circuit, and its circuit is completed through the said local circuit and also through said single set of contacts and connected resistance.

8. In a controller for electric motors, two series of contacts separated by a space, and cooperating contacts, one set being mounted on a main moving element of the controller and organized for movement relative to the other set or sets, a supply circuit for the motor leading to the controller, and an independent local circuit also leading to the controller, connections between the said contacts and the motor or motors such that when the said moving element is in a central position the contacts are open-circuited, when in a position to one side of said central position the supply circuit is operatively coupled to the motor and when in a position on the other side of said central position the motor is disconnected from the said supply circuit and the circuit is completed through the said local circuit, in combination with an electrically operated device as a brake adapted to be thrown into and out of action by the operation of said controller, the same being included in the said local circuit.

9. In a controller for electric motors, two series of contacts separated by a space, and cooperatiag contacts, one set being mounted on a main moving element of the controller and organized for movement relative to the other set or sets, a supply circuit for the motor leading to the controller, and an independent local circuit also leading to the controller, connections between the said contacts and the motor or motors such that when the said moving element is in a central position the contacts are open-circuited, when in a position to one side of said central position the supply circuit is operatively coupled to the motor and when in a position on the other side of said central position the motor is disconnected from the said supply circuit and the circuit is completed through the said local circuit, in combination with an electrically operated device in the said local circuit for affecting the movements of said moving element.

10. In a controller for electric motors, two series of contacts separated by a space, and cooperating contacts, one set being mounted on a main moving element of the controller and organized for movement relative to the other set or sets, a supply circuit for the motor leading to the controller and an independent local circuit also leading to the controller, connections between a single set only of said contacts and the sections of an artificial resistance, and also to the motor or motors such that when the said moving element is in a central position the contacts are open-circuited, when in a position to one side of said central position the supply circuit is operatively coupled to the motor and when in a position on the other side of said central position the motor is disconnected from the said supply circuit and the circuit is completed through the said local circuit, in combination with means connected with said moving element for including more or less of said sections within said local circuit through said single set of contacts.

11. In a controller for electric motors, two series of contacts separated by a space, and cooperating contacts, one set being mounted on a main moving element of the controller and organized for movement relative to the other set or sets, a supply circuit for the motor leading to the controller, and an independent local circuit also leading to the controller, connections between the said contacts and the sections of an artificial resistance, and also to the motor or motors such that when the said moving element is in a central position the contacts are open-circuited, when in a position to one side of said central position the supply circuit is operatively coupled to the motor and when in a position on the other side of said central position the motor is disconnected from the said supply circuit and the circuit is completed through the said local circuit, a temporary short circuit around the artificial resistance, in combination with means for automatically opening the short circuit.

12. In an electric controller, a revoluble shaft, a set of moving contacts mounted upon a drum surrounding such shaft organized to move to and fro over the same region, in combination with connecting mechanism whereby said contacts are caused to make the said to and fro movement by the revolution of the shaft in either direction from a central or mid position of rest.

13. In an electric controller, a shaft capable of but a single revolution or fraction thereof, two drums moved thereby, connecting mechanism whereby one drum is solid on the shaft, and connecting mechanism whereby the other drum reverses its motion at or about the central point in the revolution of the shaft.

14. In an electric controller, a shaft capable of but a single revolution or fraction thereof, two sets of electric contacts operated by said shaft, one moving with the shaft and the other reversing its direction of motion at or about the central point in the rotation of the

shaft and mechanical connection from the shaft to the last named set of contacts.

15. An electric machine alternately operated as a motor and generator having two or more circuits, means for varying the connections or circuit relations so as to change the machine from one to the other, in combination with an operating mechanism consisting in part of an electro-magnetic coil containing two or more separate windings which are connected to the said two or more of such circuits for aiding the current production when the machine is connected as a generator.

16. In an electric machine having two or more circuits, the connections or circuit relations of which may be varied, mechanism consisting in part of two cooperating electro-magnetic coils each of which contains two or more separate windings which are connected in two or more of such circuits.

17. In an electric machine having two or more circuits, the connections or circuit relations of which may be varied, a system of current control affecting such machine consisting in whole or part of two cooperating electro-magnetic coils or systems each of which has two or more separate windings so coupled to two or more of such circuits that while in one system the two aid each other, in the other system they oppose each other.

18. In an electric machine having two or more circuits, the connections or circuit relations of which may be varied, a system of current control affecting such machines consisting in whole or part of two cooperating electro-magnetic coils or systems each of which has two or more separate windings so coupled to two or more of such circuits that while in one system the two aid each other in the other system they oppose each other, a moving contact controlled by the magnetic coils, in combination with a catch also actuated by such coils.

19. In an electric machine having two or more circuits the connections or circuit relations of which may be varied, mechanism consisting in part of an electro-magnetic coil or system containing two or more separate windings, the circuits containing two or more make and break contacts one of which only is controlled by such electro-magnetic coil.

20. In an electric machine having two or more circuits, the connections or circuit relations of which may be varied mechanism consisting in part of an electro-magnetic coil or system containing two or more separate windings the circuits containing two or more make and break contacts one of which is controlled by such system in combination with a separate magnetic field-producing element upon or near which the contacts are located.

21. In an electric machine which is used alternately as a motor and generator by reversing the circuit relation of its field and armature the combination of separate mechanism consisting in part of electro-magnetic coils or system consisting of windings coupled respectively to the circuits of the field and armature whereby said mechanism may perform separate and differing functions as the machine is used respectively as a generator and motor.

520,823. BOAT. CHARLES C. HEIMBAUGH, Momence, Ill. Filed Aug. 21, 1893. Serial No. 483,667. (No model.)



Claim.—1. In a sectional boat, the combination of a section, A, having sockets formed in the frame at one end thereof, a gasket attached to said end frame and provided with openings that align with the sockets therein, and a section provided at its open end with pins or studs adapted to extend through the openings in the gasket and into the sockets in the end frame of the other section, substantially as described.

2. In a sectional boat, the combination of a section having a groove and a series of sockets formed in the frame at one end thereof, a gasket attached to said section and extending across the groove in the end thereof, and a section provided at one end with a series of pins or studs and a bead which align with and are adapted to enter the sockets and groove in the adjacent end of the other section, substantially as described.

3. In a boat, the combination of a middle section having a groove B and sockets C formed in one end and provided at its other end with a series of pins and a bead, W, a gasket attached to said section and extending across the groove in the end thereof, a bow section provided at its rear end, with a bead adapted to enter the groove in the adjacent end of the middle section, and pins or studs adapted to extend into the sockets C in said middle section, a stern section provided at its forward end with a groove, adapted to receive the bead on the rear end of the middle section, and sockets adapted to receive the pins at the rear end of the middle section, and a gasket attached to the stern section and extending across the groove in the end thereof, substantially as and for the purpose described.

4. In a boat the combination with two sections adapted to be connected together, of a bar hinged to one of the sections and provided with slots to receive a stationary hook and staple on the other section, and an arm pivoted to the bar, at an intermediate point of its length, between the slots therein, and having a laterally extending finger adapted to extend through the stationary staple, one end of said arm extending beneath the stationary hook when the finger is engaged with said staple, substantially as described.

520,824. PLASTIC MATERIAL FOR REPLACING WOOD, METAL, STONE, &c. LEOPOLD P. HEMMER, Aix-la-Chapelle, Germany. Filed July 19, 1893. Serial No. 480,945. (No specimens.)

Claim.—A composition of matter acquiring hardness in water and through the humidity of the air, not splitting through drying and exposure to heat, consisting of hydraulic cement, water, a solution of indiarubber, gutta-percha or balata and red oxide of lead, substantially as and for the purpose set forth.

520,825. COLLAR OR CUFF. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to the Arlington Manufacturing Company, of New Jersey. Filed Apr. 2, 1890. Serial No. 346,343. (No model.)

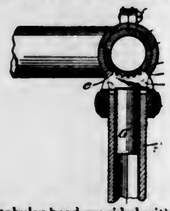


Claim.—1. As a new article of manufacture a collar or cuff formed of two or more plies of textile fabric each previously saturated throughout and coated on both faces with a pyroxyline compound and said plies united together so that the adjacent surfaces of pyroxyline compound are intimately connected to form an integral piece of fabric impervious to moisture.

2. As a new article of manufacture a collar or cuff formed of two or more plies of a textile fabric each saturated throughout with a pyroxyline compound and having interposed between its plies a thin sheet of celluloid and the whole united into an integral fabric.

3. A collar or cuff formed of two sheets of textile fabric of different sizes saturated by a pyroxyline compound, and in which the edges of the larger sheet are turned over the smaller sheets and subjected to heat and pressure whereby the two sheets are united giving a finish to the edges, and the edges are strengthened by having the edge of the fabric of one sheet inclosed in a fold of the fabric of the other sheet.

520,826. BICYCLE. EDWARD D. KING, Milwaukee, Wis. Filed Sept. 16, 1893. Serial No. 485,652. (No model.)

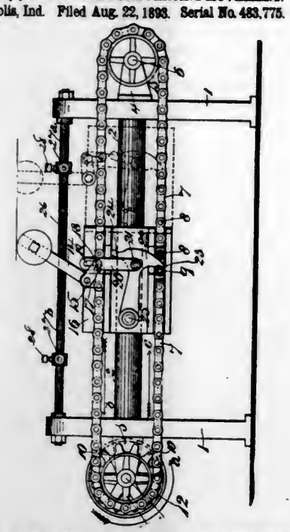


Claim.—1. A tubular head provided with a shank for connection with a bicycle steering-post, a handle-bar having its bearing in the head, a friction-block opposed to the handle-bar and provided with a stem that fits loose in the head-shank, and a nut operative on said shank against the block, substantially as set forth.

2. A tubular head provided with a shank for connection with a bicycle steering-post, a handle-bar having its bearing in the head and centrally provided with peripheral corrugations, a block having a concave corrugated face opposed to the corrugations in the handle-bar and provided with a stem that fits loose in the head shank, and a nut operative on said head shank against the block, substantially as set forth.

3. A tubular head provided with a shank for connection with a bicycle steering-post, a handle-bar section rotarily adjustable in the head, other handle-bar sections fast on the extremities of the first flush with said head, a friction block opposed to the handle bar and provided with a stem that fits loose in the head-shank, and a nut operative on said shank against the block, substantially as set forth.

520,827. REVERSIBLE TRAVERSING MOVEMENT. LOUIS KOSS, Indianapolis, Ind. Filed Aug. 22, 1893. Serial No. 483,775. (No model.)



Claim.—1. In a traversing mechanism, the combination with a traversing carriage and an endless traversing chain mounted on suitable driving and supporting pulleys, of a chain grip intermediate between the top and bottom portions of said chain, and adapted to engage and to disengage alternately the top and bottom portions of the latter, a connecting rod having its end looped or slotted, a weighted tumbling lever having a shorter pin supporting arm, a pin engaging said slot of the connecting rod, and suitable means for tilting or tumbling said weighted lever, substantially as and for the purpose set forth.

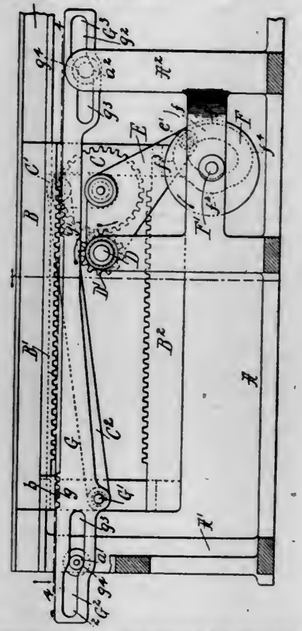
2. In a traversing mechanical movement, the combination with, a suitable traversing carriage, and an endless traversing chain, of a suitable driving chain pulley and a supporting pulley whereon said chain is mounted, a suitable chain grip intermediate between the top and bottom portions of said traversing chain and adapted to engage said top and bottom portions of the chain alternately, a weighted tumbling lever pivoted on said traversing carriage, and having a pin supporting arm, a connecting rod having one of its ends slotted longitudinally and adapted to receive the engaging pin of said pin arm of said weighted tumbling lever, a stop rod and suitable stops adjustably secured thereon, all substantially as and for the purpose set forth.

520,828. MECHANICAL MOVEMENT. ROBERT MIEHLE, Chicago, Ill. Filed July 14, 1893. Serial No. 480,508. (No model.)

Claim.—1. The combination with a reciprocating bed provided with parallel racks and a driving gear wheel mounted to oscillate between said racks and engage the same alternately to drive the reciprocating bed in opposite directions, of means for controlling the movement of said bed at each end of its throw, comprising a reciprocatory bar adapted to be periodically interlocked with the reciprocating bed, a crank pin on said driving gear, and a connecting rod operatively connecting said crank pin with said bar to reciprocate the latter, substantially as described.

2. The combination with a reciprocating bed provided with parallel racks, of a gear-wheel, a driving pinion for actuating said gear-wheel, means for controlling the movement of the bed at each end of its throw comprising a reciprocatory bar adapted to be periodically interlocked with the reciprocatory bed, a crank pin on said gear-wheel, and a connecting rod connecting said crank pin with said bar to reciprocate the latter, and means for oscillating the gear wheel about the axis of rotation of the driving pinion so as to engage said gear wheel alternately with the racks, the movement of the gear wheel about this axis in the direction of rotation of the driving pinion occurring during the movement of the connection between the connecting rod and the reciprocatory bar from the gear wheel, and the movement of the gear wheel in the opposite direction occurring during the movement of said connection in the opposite direction, substantially as described.

3. The combination, with a reciprocating bed provided with parallel racks, of a gear wheel mounted to oscillate between said racks and engage the same alternately to drive the reciprocating bed in opposite directions, a driving pinion for actuating said gear, the axis of rotation of which is coincident with the axis of oscillation of the gear wheel, and means for controlling the movement of said bed at each end of its throw, comprising a reciprocatory bar adapted to be periodically interlocked with the reciprocating bed, a crank-pin on said gear wheel, and a connecting rod connecting said crank-pin with said bar to reciprocate the latter, the said connecting rod being connected with the bar at a point at the side of the driving pinion opposite the gear wheel, substantially as described.



4. The combination with a reciprocating bed provided with two racks, of a gear wheel mounted between said racks, an oscillating lever supporting said gear wheel, a cam engaging said lever to actuate the same, and means for controlling the movement of said bed at each end of its throw, comprising a reciprocatory bar adapted to be periodically interlocked with the reciprocating bed, a crank-pin on said gear wheel, and a connecting rod connecting said crank-pin with said bar to reciprocate the latter, substantially as described.

5. The combination with a reciprocating bed provided with racks, of a gear wheel engaging the same and acting to drive the reciprocating bed alternately in opposite directions, and means for controlling the movement of said bed at each end of its throw, comprising a reciprocatory bar extending longitudinally of the bed and having near the opposite ends thereof projecting parts to engage the bed, and a crank-pin operatively connected with the said bar to reciprocate the same, said reciprocating bed being provided with parts adapted to alternately interlock with said projecting parts of the bar, substantially as described.

6. The combination with a reciprocating bed provided with racks, of a gear wheel engaging the same and acting to drive the reciprocating part alternately in opposite directions, of means for controlling the movement of said bed at each end of its throw, comprising a reciprocatory bar extending longitudinally of the bed and adapted to be periodically raised to interlock with said bed, and a crank-pin operatively connected with said bar to reciprocate the same, substantially as described.

7. The combination with a main frame, of a reciprocating bed provided with racks, a gear wheel engaging the same and acting to drive the reciprocating bed alternately in opposite directions, and means for controlling the movement of said bed at each end of its throw comprising a reciprocatory bar provided at its ends with cam slots, lateral projections on the main frame engaging said cam slots, and a crank-pin operatively connected with said bar to reciprocate the same whereby the latter will be moved periodically to interlock with said reciprocating bed, substantially as described.

8. The combination with a main frame, of a reciprocating bed provided with racks, of a gear wheel engaging the same and acting to drive the reciprocating bed alternately in opposite directions, and means for controlling the movement of said bed at each end of its throw comprising a reciprocatory bar provided at its ends with op-

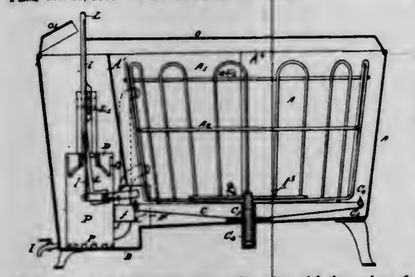
positely arranged cam slots, lateral projections on the main frame engaging said cam slots, and a crank-pin operatively connected with said bar to reciprocate the same, whereby the opposite ends of said bar will be alternately raised to interlock with said reciprocating bed, substantially as described.

9. The combination with a main frame, of a reciprocating bed provided with a double rack, a driving shaft mounted in said frame, an oscillating lever pivotally mounted on said driving shaft, means acting on said lever to oscillate the same, a gear wheel journaled upon said lever and adapted to alternately engage said racks, a driving pinion upon said driving shaft intermeshing with the gear wheel, and means for controlling the movement of said reciprocating bed at each end of its throw comprising a reciprocatory bar provided at its ends with cam slots, lateral projections on the main frame engaging said cam slots, a crank-pin on said gear wheel located at a distance from the axis of the same equal to its pitch radius, and a connecting rod between said crank-pin and bar, substantially as described.

10. The combination with a main frame, of a reciprocating bed provided with racks, a gear wheel engaging the same and acting to drive the reciprocating bed alternately in opposite directions, and means for controlling the movement of said bed at each end of its throw, comprising a reciprocatory bar provided at its ends with cam slots, each formed of two end portions lying parallel to the upper surface of the bar at different distances therefrom and connected by an inclined middle portion, lateral projections on the main frame engaging said cam slots, and a crank-pin operatively connected with said bar to reciprocate the same, substantially as described.

11. The combination with a main frame, of a reciprocating bed provided with a double rack, a driving shaft mounted in said frame, an oscillating lever pivotally mounted on said driving shaft, a cam-wheel provided with a slot having concentric portions of unequal radii connected by eccentric portions, a lateral projection on said oscillating lever engaging the slot of said cam, a gear wheel journaled upon said lever and adapted to alternately engage said racks, a driving pinion upon the driving shaft, intermeshing with said gear wheel, means for rotating said cam-wheel from said driving shaft, and means for controlling the movement of the reciprocating bed at each end of its throw, comprising a reciprocatory bar adapted to be periodically interlocked with the reciprocating bed, and a crank-pin on said driving gear, operatively connected with the said bar to reciprocate the same, substantially as described.

520,829. DISH-CLEANER. CHARLES PALMLEAF, Seattle, Wash. Filed Oct. 19, 1893. Serial No. 488,657. (Model.)

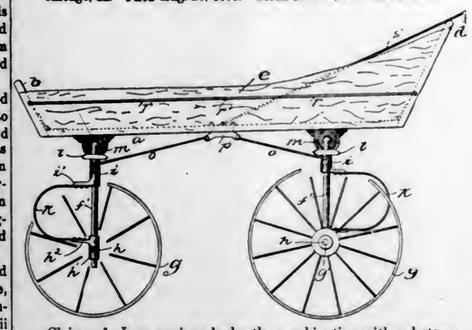


Claim.—1. In a dish-washer, the combination with the casing of a revoluble grating therein supported upon a central pivot, a basket supported upon said grating, of a pair of force pumps, two pipes from each discharging respectively near the top and bottom of the basket, the jets from each pump being at an angle with those of the other, a rocking lever for operating the pumps, a hand lever connected thereto, a lever pivoted to the lower end of the hand lever and in such a position that it may be made to engage the grating to rotate it and means whereby it may be made to so engage it at the will of the operator, substantially as shown and described.

2. In a dish washer, the combination with a casing, of a partition therein forming a circular tub, a central socket in the bottom of the tub, a revoluble grating having a pin to fit said socket, a removable basket for holding dishes resting upon said grating, force pumps for throwing water into the basket, means for operating said pumps, and means connected with said pumps operating means that are adapted to engage the supporting grating at the will of the operator whereby the said grating may be made to revolve, substantially as described.

3. In a dishwasher, the combination with a casing, of a partition therein forming a circular tub, a central socket in the bottom of the tub, a revoluble grating having a pin to fit said socket, and a circular ring upon its outer edge having projections upon it at short intervals, a wire basket having a central hole in its bottom for engaging the upper end which rests upon the central pin and the supporting grating, of the pumps for forcing water into the basket, lever L and connections therefrom to the pumps for operating them, an engaging lever L^3, pivoted upon the main lever L, a spring for holding it normally clear of the basket-supporting grating, and a rod and finger piece connected to this engaging lever, whereby it may be depressed at will so as to engage the projections on the ring of the supporting grating to revolve the same at the will of the operator, substantially as shown and described.

520,830. VEHICLE. DAVID D. PRICE and RICHARD J. DANIELS, Chicago, Ill. Filed Aug. 26, 1893. Serial No. 484,143. (No model.)



Claim.—1. In a carriage body, the combination with a bottom composed of sections $a' a^2 a^3$ hinged together, of head and foot boards d b hinged to said bottom, substantially as described.

2. In a vehicle, the combination with a body composed of hinged sections adapted, when folded, to occupy parallel positions, of wheels mounted to rotate about vertical and horizontal axes, whereby they may be brought into planes parallel to said folded sections, substantially as described.

3. In a vehicle, a carriage body made up of hinged sections, in combination with angular supports f f secured thereto, wheels g g journaled upon the arms thereof, springs k k interposed between the carriage and the wheel, substantially as described.

4. In a vehicle, a carriage body made up of hinged sections, angular supports f f rigidly supporting gears m m, gears l l in engagement with gears m m, connections between said gears l l and the wheels, whereby, when motion is imparted to the gear wheels a corresponding rotary motion may be imparted to the wheels on a vertical axis, substantially as described.

5. In a vehicle, a carriage body made up of hinged sections, supports f f provided with arms f' f', gear wheels m m secured to supports f f, gear wheels l l secured to collars i i surrounding said arms f' f', levers o o connected between said arms f' f' and the carriage body, bearings h' h' adapted to support wheels g g, springs k k interposed between the body of the carriage and the wheels, and means for securing the body in an open position, substantially as described.

6. In a vehicle, a carriage body made up of hinged sections, wheels g g supporting said carriage body through the medium of angular supports f f, levers o o to bring said angular supports close to the carriage body, and means for rotating the wheels and vertical axles whereby they may be brought into snug position, substantially as described.

7. In a vehicle, a carriage body made up of hinged sections, wheels g g supporting the same, and means for folding the wheels close to the carriage body, substantially as described.

8. In a vehicle, the combination with a carriage body, of wheels adapted to flexibly support said body, said wheels being adapted to have separate perpendicular motion with relation to said body, substantially as described.

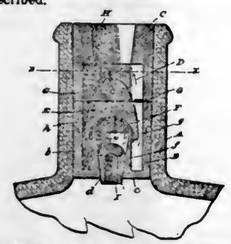
9. In a vehicle, the combination with a vertical shaft, of a bearing adapted to move longitudinally thereon, a wheel journaled to said bearing, and a resilient connection between said bearing and the vehicle body, substantially as described.

10. In a vehicle, the combination with a vertical shaft, adapted to be rotated about a horizontal axis, of a bearing provided thereon and adapted to be rotated upon said shaft as an axis, and a wheel journaled to said bearing, substantially as described.

11. In a vehicle, the combination with an independently mounted wheel, of mechanism for simultaneously moving said wheel about a vertical and a horizontal axis, substantially as described.

520,831. ANTIFILLING DEVICE FOR BOTTLES, &c. ELI S. REED and ANDREW J. STOOPS, Chattanooga, Tenn. Filed Sept. 1, 1893. Serial No. 484,586. (No model.)

Claim.—1. In an anti-filling device for bottles, consisting of an upper and lower section, said lower section having an interior circular wall forming an opening or chamber, communicating with an opening in the bottom of the section, and said upper section having a suitable chamber formed therein, in which is fixedly hung a substantially cone-shaped body in an inverted position and an opening in the upper end of said section for the insertion of a stopper, together with the plug valve located in the central opening of the lower section, substantially as described.



2. In an anti-filling device for bottles, the combination of the upper and lower sections, the lower section being formed with an interior wall which is inclined on its inner face, an inclined plug located in the opening formed by this wall, and an upper section formed with a stopper opening it its upper end and with a receptacle for the rounded end of the plug valve located in a central fixed position by means of pins or bolts.

3. The combination with the lower section B, having the interior wall e, the plug I located in said opening, of the upper section C, formed with the hollow chamber D and having the inverted cone-shaped body E hung therein in a fixed position and the stopper opening H in the upper end of said section, substantially as described.

4. The combination with the lower section B, having the interior wall e and the opening d, the plug valve I located in said opening, of the upper section C having a chamber D therein, the inverted cone-shaped body E hung therein by means of the rods or pins G G, said inverted cone shaped body extending a short distance below the upper edge of the walls e, and the stopper opening H formed in the upper end of said section, substantially as described.

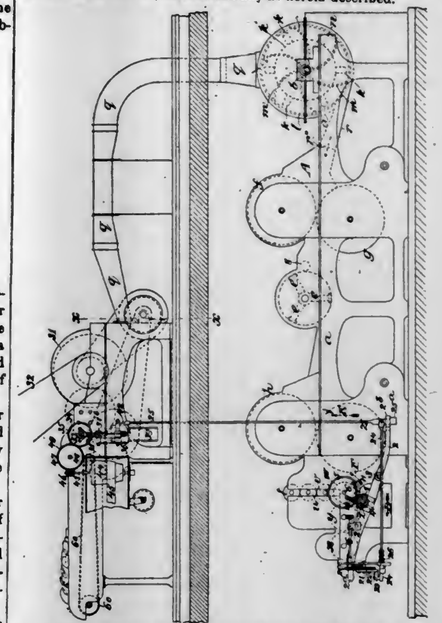
5. The combination with the lower section B, having the side walls b, the bottom c, opening d, interior wall e inclined on its inner face, the inclined plug I located in said opening d, and the annular shoulder on the upper edge of said section, of the upper section C, having the chamber D, provided with an inverted cone shaped body E held in a fixed position by means of the rods G G passing through said body at right angles to each other and at different planes and through the walls of said section, the stopper opening H, and the shoulder h on the edge of the lower end of said section, substantially as described.

520,832. COTTON-OPENER AND STOPPING MECHANISM THEREFOR. WILLIAM RICHARDSON and JAMES FIDLER, Oldham, England; Charles L. Sturtevant administrator of said Fidler and Richardson, deceased; said Sturtevant assignor to the Platt Brothers & Company, Limited, same place. Filed Jan. 11, 1892. Renewed Apr. 11, 1894. Serial No. 507,184. (No model.) Patented in England Apr. 27, 1885, No. 5,182.

Claim.—1. The combination with the beater e and cages f g h j of an exhaust opener, of an axle c arranged parallel with the said beater and cages, two plates or disks l and l' arranged on said axle at a distance apart and carrying fan vanes m and m', casings n and n' for the said plates or disks and fan vanes, an intermediate casing o o' having an inlet tube q and arranged between and communicating laterally with the said casings n and n', and trunks or passages arranged between the said casings n and n' and the cages f g and gradually widening toward said cages, all substantially as and for the purpose herein set forth.

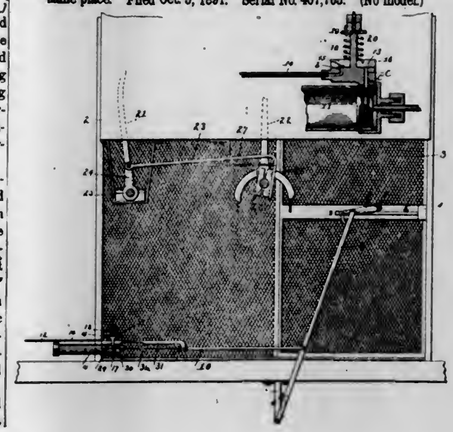
2. The combination with the beater e and cages f g h j of an exhaust opener, of an axle c arranged parallel with the said beater and cages, an opening cylinder k' mounted on said axle and provided with beaters k k, plates or disks l and l' mounted on said axle on opposite sides of said opening cylinder and provided with vanes m and m' constituting fans, a casing o o' for the said opening cylinder k', an inlet tube q to said casing, separate casings n and n' for the disks l and l' and their fans m m' communicating through openings p and p' with opposite sides of the casing o o', disks s and s' mounted on said axle c opposite the openings p and p' and trunks or passages arranged between the said casings n and n' and the cages f g and gradually widening from the said casings toward said cages, all substantially as and for the purpose herein set forth.

3. The combination with an exhaust opener and lap machine and a machine for feeding cotton or other fibrous material to the exhaust opener, the apparatus hereinbefore described for stopping the feeding machine, said apparatus consisting in the combination of the wheel 21 provided with the cam 22, the rod 24 provided with a stud 23 and collar 24^a, the spring 26 on said rod, the rod 25 having a catch hook 25^a, the lever 2, lever 42, connecting rod 41, lever 38, weight 39, and catch box 35, all substantially as herein described.



4. The combination with an exhaust opener and lap machine and a machine for feeding cotton or other fibrous material to the exhaust opener, the apparatus hereinbefore described for starting first the said feeding machine and afterward the lap machine, said apparatus consisting of the combination of the rod 24 provided with a collar 24^a and spring 26, the rod 25 having a catch hook 25^a, the lever 2, lever 42, connecting rod 41, lever 38, weight 39, catch box 35, the axle 6, the wheel 5 mounted loosely upon the said axle and having a projection 30 and a curved slot 11, the adjustable projecting stud 9 in said slot, the wheel 7 fast on said axle 6 and having a projection 12, the flanged disk 13 fast on the axle 6, and the coiled spring 14 attached at one end to the said disk 13 and at the other end to the wheel 5, all substantially as hereinbefore described.

520,833. DEVICE FOR OPERATING ELEVATOR-DOORS. HAROLD ROWNTREE, Kansas City, Mo., assignor of one-half to J. B. Burdett, same place. Filed Oct. 5, 1891. Serial No. 407,763. (No model.)



Claim.—1. The combination of a cylinder and piston actuated by fluid pressure; an elevator well-door; connections between said piston and door; a movable contact-piece carried by the car; devices operated from the car to control its movements; and connections from said devices to said movable contact-piece, substantially as described.

2. The combination of a cylinder and piston actuated by fluid pressure; an elevator well-door; connections between the said piston and door, said connections consisting of a slotted tripping-piece attached to the door and a lever pivoted at one end to said tripping piece and at the other to a fixed support in the elevator well connected at an intermediate point to the piston-rod; a movable contact-piece carried by the car; devices operated from the car to control its movements; and connections from said devices to said movable contact-piece, substantially as described.

3. The combination of a cylinder and piston actuated by fluid pressure; an elevator well door; connections between said piston and door; a movable contact-piece carried by the car; devices operated from the car to control its movements; connections from said devices to said movable contact-piece, said connections comprising a cam operated by the hand-lever which controls the movement of the car; and a rod connected to said movable contact-piece and held in contact with said cam-face by spring pressure; substantially as described.

4. The combination of a cylinder and piston actuated by fluid pressure; an elevator well door; connections between said piston and door; a valve controlling the admission and exhaust of fluid to and from said cylinder; and devices connected to said valve and piston and adapted to partially close the valve before the piston reaches the end of its stroke, substantially as described.

5. The combination of a cylinder and piston actuated by fluid pressure; an elevator well door; connections between said piston and door; a valve controlling the admission and exhaust of fluid to and from the said cylinder; a slide having beveled cam-faces connected to the piston-rod; a T-shaped lever connected to said valve provided with contact-points, adapted to cooperate with the said beveled cam-faces and partially close said valve as the piston nears the end of its stroke, substantially as specified.

6. The combination of a cylinder and piston actuated by fluid pressure; an elevator well door; connections between said piston and door; a rotary-valve controlling the admission and exhaust of fluid to and from said cylinder provided with a laterally projecting arm and impelled in one direction by spring pressure and in the other by a movable contact-piece upon the car; a T-shaped lever having its middle arm forked and connected to said laterally projecting valve-arm; adjustable contacts at the extremities of the side arms of said inverted T-lever and the slide connected to the piston-rod having beveled cam-faces co-acting with said adjustable contacts; substantially as described.

7. The combination with the landing-door of an elevator well, of devices connected thereto and adapted to open and close it; a movable contact-piece carried by the car adapted to put said door-operating devices into action; handling-gear carried by the car, and connected to said movable contact-piece; a cable passing over sheaves at the top and bottom of the elevator well and running with the car and having one or both of its ends connected with the movable contact-piece upon the car; and connections between the control devices governing the movement of the car and the lower sheave to slacken or tighten said cable, whereby said contact-piece is operated by the joint action of said handling gear on the car and said connections to the control devices, substantially as described.

8. The combination with an elevator well door of a cylinder and piston actuated by a fluid pressure; connections between said piston and door; devices operated from the car to control the movements of said piston, and means adapted to automatically confine a portion of the fluid contained in said cylinder as the door nears the end of its movement, substantially as described.

520,834. THILL-COUPLING. FRED SCHELP, Jr., St. Louis, Mo. Filed Mar. 27, 1893. Serial No. 467,726. (No model.)



Claim.—1. In a thill coupling, the combination with the coupling jaws, shaft or pole eye, and pivot pin, of a frame which surrounds said parts and retains the pivot pin in place, said frame bearing against the shaft or pole eye, and a spring for holding said frame in yielding contact with said eye, substantially as described.

2. In a thill coupling, the combination with the coupling jaws, shaft or pole eye, and pivot pin, of a frame which surrounds said parts and bears against the shaft or pole eye, a projection on said frame for retaining it in place, and a spring for forcing the same into yielding contact with the eye, substantially as described.

3. In a thill coupling, the combination with the coupling jaws, shaft or pole eye, and pivot pin, of a frame which surrounds said parts and which is pivoted on the pivot pin, and means on the frame for bearing against the shaft or pole eye, substantially as described.

4. In a thill coupling, the combination with the coupling jaws, shaft or pole eye, and pivot pin, of a frame which surrounds said parts, which is pivoted on the pivot pin, means carried by the frame for bearing against the shaft or pole eye and a spring for holding the same in contact with the eye, substantially as described.

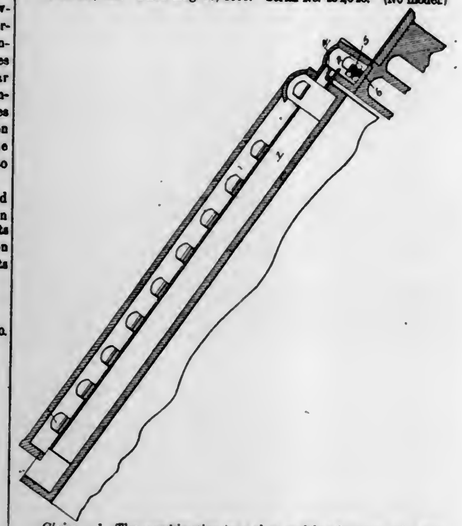
5. In a thill coupling, the combination with the coupling jaws, shaft or pole eye, and pivot pin, of a frame which is provided with recesses or pockets in its inner side faces, into which the pivot pin is received, means carried by the frame for bearing against the shaft or pole eye, and a spring which bears against the lower cross piece of the frame for forcing the same in a direction to permit the bearing on the frame to contact with the eye, substantially as described.

6. In a thill coupling, the combination with the coupling jaws, shaft or pole eye, and pivot pin, of a frame which is composed of two side pieces formed with recesses or pockets in their inner side faces, and a bottom cross piece, a bearing carried by said frame for contacting with the shaft or pole eye and a spring which bears against the lower cross piece for forcing said frame downward, substantially as described.

7. In a thill coupling, the combination with the coupling jaws, shaft or pole eye, and pivot pin, of a frame which is composed of two side pieces, a top cross piece, and a bottom cross piece, said side pieces being recessed for the reception of the pivot pin, a lip on the top cross piece which bears against the shaft or pole eye, a projection which extends to the rear of the eye, and a spring for forcing the frame downwardly, said spring having a bearing on the lower cross piece, substantially as described.

8. In a thill coupling, the combination with the coupling jaws, shaft or pole eye, and pivot pin, of a frame which is composed of two side pieces which embrace the pivot pin, upper and lower pieces which connect said side pieces, a lip on the under side of the upper cross piece which bears against the shaft or pole eye, said lip being formed as to leave a space on one side of the same, and a spring which bears against the lower cross piece to hold the lip in contact with the eye, substantially as described.

520,835. GLASS-MELTING FURNACE. MONROE SKIDMORE, Kokomo, Ind. Filed Aug. 29, 1893. Serial No. 484,340. (No model.)



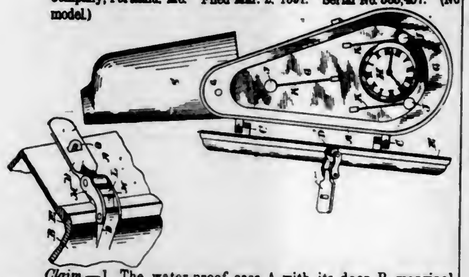
Claim.—1. The combination in a glass melting furnace, of a tank and a pot furnace arranged in juxtaposition on substantially the same plane, and an intervening wall having metal passages provided with valves; substantially as and for the purposes specified.

2. The combination in a glass melting furnace, of a tank and a pot furnace arranged in juxtaposition on substantially the same plane, an intervening wall having metal passages provided with valves below the metal level of the tank, passages above the metal level of said tank which passages connect the tank and pot furnaces, and means for heating the tank and pot chambers separately; substantially as and for the purpose specified.

3. The combination with a tank, of a pot furnace arranged in juxtaposition and with its bench transversely of and on substantially the level of the tank, an intervening perforated wall common to both tank and pot furnace, and suitable valves for the perforations or passages in said intervening wall; substantially as and for the purposes specified.

4. The combination in a glass melting furnace of a tank, a pot-furnace, a recessed metal passage which connects the tank with the pot-furnace, and a ball valve arranged in said metal passage; substantially as and for the purposes specified.

520,836. AUTOMATIC GAS LIGHTING AND EXTINGUISHING APPARATUS. NATHANIEL H. SHAW, Somerville, and AI B. SHAW, Medford, Mass., assignors to the New England Automatic Gas Lighting Company, Portland, Me. Filed Mar. 2, 1891. Serial No. 383,457. (No model.)

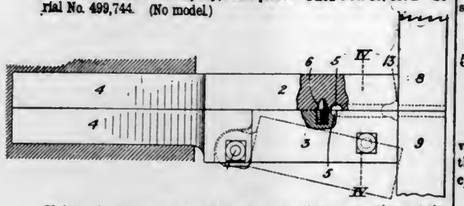


Claim.—1. The water-proof case A with its door B, marginal packing ring F and door-fastening devices, and with means for securing said case to the lamp-post, in combination with the dust guard G within said case, adapted to cover and protect the time movement and expose the dial, for the purpose set forth.

2. A water-proof case for time-mechanism, and means of securing the same upon a lamp-post, in combination with an arm extending rearwardly from said case to support the burner and cock at the rear end of said arm, for the purpose set forth.

3. A water-proof case for time-mechanism, and means of securing the same upon a lamp-post, in combination with a hollow arm running rearwardly from the upper end of said case to support the burner and cock and inclose the cock-operating shaft of the gas-lighting apparatus, and with a close-fitting enlarged chimney adapted to receive the gas-pipe and the sparking apparatus, for the purpose set forth.

520,837. DIE FOR MAKING END-GATE RODS FOR WAGONS. THOMAS W. SMITH and JOHN G. PRICE, Pittsburg, Pa., assignors to the Oliver Iron and Steel Company, same place. Filed Feb. 10, 1894. Serial No. 499,744. (No model.)



Claim.—1. Apparatus for making rods having eyes or rings at the ends, said apparatus comprising ring-gripping dies having a cavity adapted to receive and hold the ring of the blank, in combination with stem-gripping dies adapted to grip the stem, and means whereby said two sets of dies are caused to approach and to form a welding upset on the blank at the juncture of the ring and stem; substantially as described.

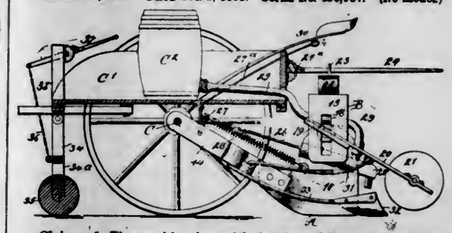
2. Apparatus for making rods having eyes or rings at the ends, said apparatus comprising ring-gripping dies having a cavity adapted to receive and hold the ring of the blank, in combination with stem-gripping dies adapted to grip the stem, said two sets of dies being set transversely to each other, and means whereby they are caused to approach and to form a welding upset on the blank at the juncture of the ring and stem; substantially as described.

3. Apparatus for making rods having eyes or rings at the ends, said apparatus comprising ring-gripping dies having a cavity adapted to receive and hold the ring of the blank, in combination with stem-gripping dies adapted to grip the stem, and means whereby the ring-gripping dies are moved toward the stem-gripping dies; substantially as described.

4. Apparatus for making rods having eyes or rings at the ends, said apparatus comprising ring-gripping dies having a cavity adapted to receive and hold the ring of the blank, in combination with stem-gripping dies adapted to grip the stem; and means whereby said two sets of dies are caused to approach and to form a welding upset on the blank at the juncture of the ring and stem, said ring-gripping dies having an end-recess 13 for forming an enlargement on the metal blank to be treated; substantially as described.

5. Apparatus for making rods having eyes or rings at the ends, said apparatus comprising ring-gripping dies having a cavity adapted to receive and hold the ring of the blank, in combination with stem-gripping dies adapted to grip the stem, and means whereby said two sets of dies are caused to approach and to form a welding upset on the blank at the juncture of the ring and stem, said ring-gripping dies being constituted of hinged parts; substantially as described.

520,838. TRANSPLANTING-MACHINE. AUGUST WILLNER, Germantown, Ohio. Filed Oct. 2, 1893. Serial No. 486,987. (No model.)



Claim.—1. The combination, with the pivoted furrow-opener and a vertically-slotted standard connected with the latter, of a vertically-adjustable wheel, 17, carried by the standard, and a cover, a smoothing wheel, and an arm 20, which is adjustably attached to said standard, as shown and described.

2. In a transplanter, the combination, with the furrow-opener and its arms pivoted to the axle, of a vertical standard attached to the furrow-opener and carrying a supporting wheel, 17, the smoothing wheel whose arm 20 is attached to the standard, and a rigid rod 31, which connects the said arm with one of the arms of the furrow opener, as shown and described.

3. The combination, with the wheeled vehicle, pivoted furrow-opener arranged to follow the same, a standard and gage wheel, 17 connected with the furrow-opener, of a device 24, attached to the vehicle frame and made adjustable vertically, and a connection between such device and the said standard, as and for the purpose specified.

4. The combination, with a wheeled vehicle, of a furrow opener having the lateral supporting wheel 17 and provided with an attached standard, and a spring connection between the standard and a support located above the standard and attached to the vehicle, substantially as and for the purpose set forth.

520,839. LOCOMOTIVE-ENGINE. CHARLES A. BALL, Brooklyn, assignor of one-half to Charles H. Green, New Rochelle, and Herman Knubel, New York, N. Y. Filed July 22, 1893. Serial No. 481,165. (No model.)

Claim.—1. The combination with a steam engine and relief valve of an air heating device communicating with said valve, whereby the suction of the engine draws hot air through the valve chest and cylinder.

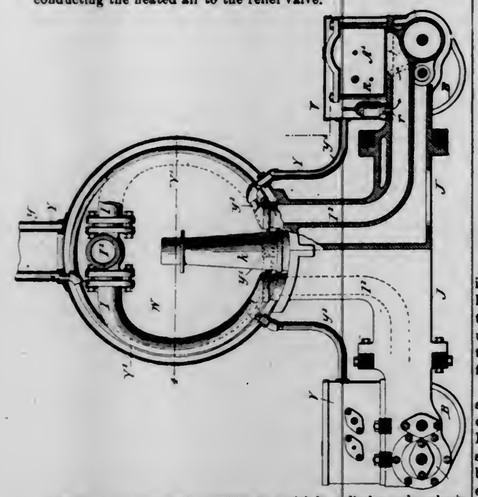
2. The combination with a steam engine and relief valve of an air-passage communicating with said valve, and a heater traversed by said passage to heat the air therein, whereby the suction of the engine draws air through said passage and the air is heated before entering said valve.

3. In a locomotive, the combination with its cylinder, valve chest, relief-valve and smoke-box, of an air-passage communicating with said valve and extended into conductive relation with the smoke-box for imparting heat from the contents thereof to the air drawn through said passage to the relief valve.

4. In a locomotive, the combination with its cylinder, valve chest, relief-valve and smoke-box, of an air passage communicating with said valve and extended within the smoke-box, to be heated by the hot gases therein, whereby air drawn through said passage to the relief-valve is heated.

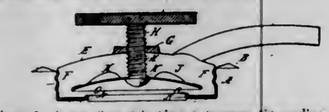
5. In a locomotive, the combination with its cylinder, valve chest, relief-valve and smoke-box, of a casing inclosing the valve chest and

relief-valve, and a hot air passage extended into conductive relation with the smoke-box for heating the air drawn through said passage and terminating in communication with the interior of said casing for conducting the heated air to the relief valve.



6. In a locomotive, the combination with its cylinder, valve chest, relief-valve, smoke-box and stack, of a hot air passage communicating with said relief-valve, and constructed in part by a tubular casing inclosing the stack, and perforated near one end for the admission of air which is heated in passing through the space between said casing and the stack.

520,840. CAN-FAUCET. GEORGE W. BANKER, Keene, N. Y. Filed Mar. 22, 1894. Serial No. 504,582. (No model.)

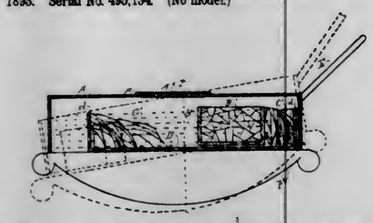


Claim.—1. A can faucet having a taggers tin sealing piece attached to the cup by interlocking edges and a packing in the bottom of the cup. upon which said interlocking edges impinge, substantially as set forth.

2. A can faucet having a taggers tin sealing piece attached to the central part of its bottom by interlocking the edges of the opening in the cup with those of the sealing piece, and a edge on the bottom of the cup outside of the said interlocking edges, adapted to receive the packing for the valve, substantially as set forth.

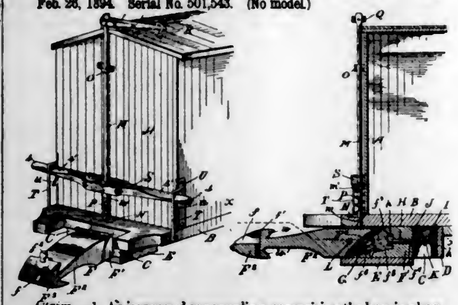
3. A can faucet having a taggers tin sealing piece attached to the bottom of the cup of the faucet by interlocking edges, which interlocked edges project upwardly above the plane of the bottom of the cup, substantially as set forth.

520,841. WASHING-MACHINE. JACOB BEUKEMA, CORNELIUS BEUKEMA, and WILLIAM BEUKEMA, Grand Rapids, Mich. Filed Dec. 29, 1893. Serial No. 495,134. (No model.)



Claim.—The combination, with a washing machine, having a water tight box mounted upon rockers, and a weighted, sliding pounder within; of a longitudinal slide within said box said slide shorter than the box and longer than the pounder and both ends bent to stand parallel with, and between, the ends of the pounder and the box, substantially as, and for the purpose set forth.

520,842. CAR-COUPLING. DANIEL BOYER, Cressona, Pa. Filed Feb. 26, 1894. Serial No. 501,543. (No model.)



Claim.—1. An improved car coupling, comprising the housing having the side pieces C provided with the shoulders *c*, the two-part draw-head embodying the rear or main section and the front pivoted section, the main section F' being provided with a recess receiving a tongue upon the front pivoted section F^2, the spring G provided in said recess, the bolt H, the plates I and J, and the spring K, substantially as set forth.

2. An improved car coupling, comprising the housing having the side pieces C provided with the shoulders *c*; the two-part draw-head embodying the main or rear section F' and the pivoted front section F^2, the section F' having the recess and beveled front end, and the section F^2 having the tongue pivotally mounted in said recess and beveled on its under side and being provided with the beveled rear end abutting against the beveled front end of the section F' and with the arrow-shaped head; the spring G bearing against the tongue of the section F^2; the headed bolt H; the plates I and J; and the spring K; substantially as set forth.

3. An improved car coupling, comprising the housing having the side pieces C provided with the shoulders *c*, the cross piece D, and the bottom piece E; the longitudinally-moving section F' of the draw-head inclosed within the housing and having the recess f^2 and beveled front ends f^3; the spring G; the bolt H carrying plates I and J and the spring K; and the pivoted vertically-moving front section F^2 of the draw-head having the arrow-shaped head F^3, the tongue F^4, and the beveled rear end f^3; substantially as set forth.

4. In a car coupling, a two-part draw-head having in its entirety a longitudinal spring actuated movement and comprising a rear or main section having a longitudinal spring-actuated movement and provided with a recess at its front end, and a pivoted front section having a vertical spring actuated movement and provided with a tongue at its rear end pivotally mounted in the recess in the main section, and a spring provided in said recess and acting against the said tongue, substantially as set forth.

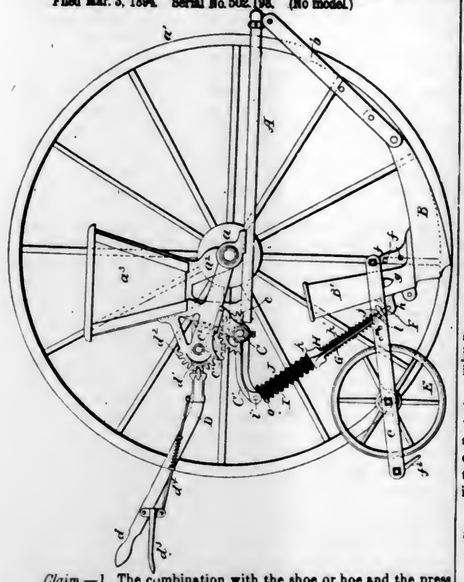
5. In a car coupling, the herein described improved draw-head having a longitudinal spring-actuated movement in its entirety and comprising the main section F' inclosed in a suitable housing and having a longitudinal movement therein and provided with the recess and with the beveled front end, and the projecting pivoted front section F^2 having a vertical movement and provided with the arrow-shaped head, the beveled rear end, and the projecting beveled tongue pivotally mounted in the recess of the main section, and the spring G mounted in said recess and bearing against said tongue, substantially as set forth.

6. In a car coupling, the combination, with a vertically moving spring-actuated draw-head provided with a tongue at its rear end, of a vertical rod having its lower end bearing upon the tongue of the draw-head and provided with a spring for retaining the rod up in position, a cross bar connected with the rod to provide for operating the same and having its ends projecting at the sides of the car, and keepers or devices for engaging said ends, substantially as set forth.

7. As an improvement in car couplings, the combination, with a vertically-moving spring-actuated pivoted draw-head, of a vertical rod having its lower end bearing upon the rear end of the draw-head, the spring P, a cross bar connected with the rod and having its ends projecting at the sides of the car, keepers embracing said ends, and devices for engaging the ends of the cross bar to retain the same in position, substantially as set forth.

8. As an improvement in car couplings, the combination, with a vertically moving spring-actuated pivoted draw head of a vertical rod having its lower end bearing upon the rear end of the draw-head and provided with the collar or shoulder *m'*, the spring P, a lever pivotally connected with the top of said rod, devices for locking said lever, a cross bar connected with the vertical rod above the shoulder and having its ends projecting at the sides of the car, and keepers or devices for engaging the ends of the cross bar, substantially as set forth.

520,843. GRAIN-DRILL. ADELBERT CARPENTER, Minneapolis, Minn., assignor to the Monitor Manufacturing Company, same place. Filed Mar. 3, 1894. Serial No. 502,198. (No model.)



Claim.—1. The combination with the shoe or hoe and the press or covering wheel of a grain drill, of a spring adapted to apply pressure on said shoe or hoe, and a spring adapted to independently apply pressure to said press or covering wheel, said spring being arranged one within the other, substantially as set forth.

2. In a grain drill, the combination with a rearwardly projecting arm, a shoe or hoe, bars or brackets connected to said shoe or hoe and a press wheel carried by said bars or brackets, of a rod connected at one end with the shoe or hoe and at the other end with said rearwardly extending arm, a spring encircling said rod, and bearing at its respective ends against the connection of said rod to the rearwardly extending arm and the shoe or hoe, and a spring encircling said first mentioned spring and adapted to exert pressure on the press wheel, substantially as set forth.

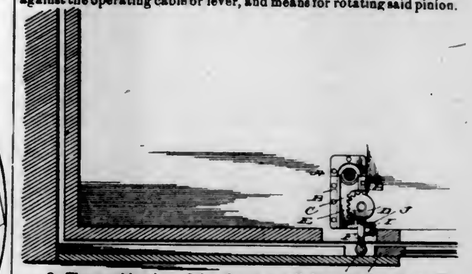
3. In a grain drill, the combination with a rearwardly extending arm, a shoe or hoe, bars or brackets connected to the shoe or hoe and a press wheel mounted in said arms or brackets, of a collar mounted in the free end of said rearwardly extending arm, a rod passing loosely through said collar at one end and at its other end connected with said shoe or hoe, a spring encircling said rod and bearing at its respective ends against said collar and the connection of said rod with the shoe or hoe, and a spring encircling the first-mentioned spring and exerting pressure on said bars or brackets in which the press wheel is mounted, substantially as set forth.

4. In a grain drill, the combination with a shoe or hoe, bars connected thereto, a press wheel mounted in said bars, and a rearwardly extending arm, of a rod connected at its ends to said arm and the shoe or hoe, a spring encircling said rod and bearing at its respective ends on the connection of said rod to the rearwardly extending arm and the shoe or hoe, a bracket through which said spring loosely passes, said bracket being pivotally connected to the bars in which the press wheel is mounted, a tubular casting encircling said spring and adapted to pass loosely through the upper end of said bracket and provided at its upper end with a flange or shoulder, and a spring encircling said tubular casting and bearing at its respective ends on the bracket and said flange or shoulder, substantially as set forth.

5. In a grain drill, the combination with a rearwardly extending arm, a shoe or hoe, bars connected to said shoe or hoe and a press wheel mounted in said bars, of a rod connected with said shoe or hoe and said rearwardly extending arm, a spring encircling said rod and adapted to exert pressure on said shoe or hoe, a bracket through which said spring loosely passes, means for adjustably connecting said bracket to said bars in which the press wheel is mounted and a spring bearing on said bracket, substantially as set forth.

520,844. SAFETY DEVICE FOR ELEVATORS. GEORGE E. DOW, Denver, Colo., assignor of one-half to Charles M. McCabe, same place. Filed Feb. 24, 1894. Serial No. 501,387. (No model.)

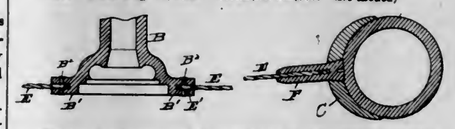
Claim.—1. A safety device for elevators consisting of a clamp adapted to grasp the operating cable or lever and comprising a fixed jaw, guideways extending from said fixed jaw, a sliding jaw mounted in the guideways, a pinion engaging the sliding jaw to force the same against the operating cable or lever, and means for rotating said pinion.



2. The combination of the elevator well door the fixed jaw, the sliding jaw, a pinion engaging the same and having a lever arm projecting into the path of the said elevator well door, and a spring acting on said lever arm in opposition to the said door.

3. The combination of the elevator well door, the fixed jaw, guideways extending from said jaw, a sliding jaw mounted in said guideways and having a rack bar formed on one side, a pinion engaging said rack bar and having a lever arm projecting into the path of the elevator well door, a spring acting on said lever arm in opposition to the said door, and a stop arranged in rear of the lever arm to limit its movement.

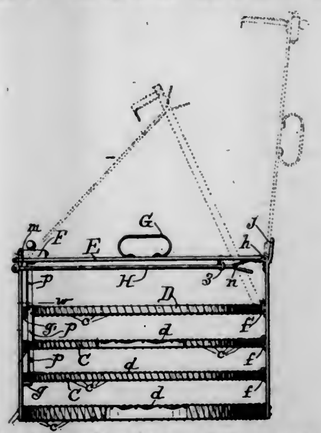
520,845. VELOCIPEDE-WHEEL. EDGAR E. FAY, Worcester, Mass. Filed Aug. 11, 1892. Serial No. 442,803. (No model.)



Claim.—A velocipede wheel comprising in combination the hub B having a laterally projecting annular flange B' adapted to receive and hold the inner ends of the spokes E and means for fastening said ends of the spokes E and means for fastening said ends of the spokes thereto; said spokes E composed of doubled and twisted wire and having a loop at one or both ends; the usual tire D fitted in rim C; said rim C having radial, transverse openings therethrough in line with the spokes to receive the spoke-holding and tightening screws F; said screws F fitted in said openings with their heads next to the tire D, and means whereby the outer ends of the spokes may be attached to said holding and tightening screws, substantially as and for the purpose set forth

---

520,846. CULINARY FRYING-FRAME. CHARLES G. FOLAND Oneida, N. Y. Filed Feb. 14, 1894. Serial No. 500,178. (No model.)

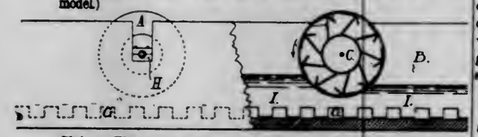


Claim.—1. In a culinary frying-machine, a circular or hoop-like base disposed on edge, side standards rigidly secured thereto and aris-

ing a satisfactory height above the said base, perforated circular shelves at moderate intervals apart above the base portion and removably supported on horizontal planes between the standards by means of lateral projections located along the inner sides of the said standards at requisite distances apart, guards for preventing accidental upward raising of the movable shelves, a vertically-swinging locking-bar hinged upwardly to a part of the stationary frame and its opposite end provided with a latch, and also a handle, said hinged locking-bar being adapted when swung downward and securely connecting with another part of the stationary frame to lock the shelves against lateral or other displacement and when swung upward admitting of the movability of said shelves, all combined and operating substantially as set forth.

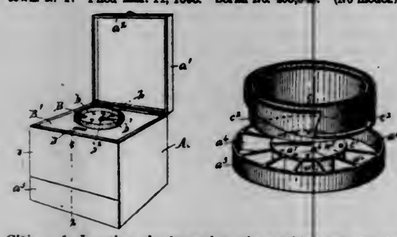
2. The combination, in a culinary frying-frame, of an annular-like base having a perforated seat, diametrically disposed standards uprising from opposite sides of the base and rigidly secured thereto, perforated circular shelves located on horizontal planes between the standards and above the base, said shelves at coinciding sides of their periphery having hinged connection with one of the standards and at their opposite coinciding sides upheld horizontally by projections connected with or contiguous to the second standard, and a normally horizontal locking-bar located above the shelves and connecting the upper ends of the standards, said bar being hinged at one extremity to the contiguous upper end of a standard and provided at its other extremity with a spring-catch adapted to engage with a slot in the upper end of the receiving standard, and a handle upon the locking-bar midway its length, all constructed and operating substantially as described and for the purposes specified.

520,847. GOLD-AMALGAMATING MACHINE. PHILLIP R. GAFFRON, Denver, Colo. Filed Dec. 5, 1892. Serial No. 454,037. (No model.)



Claim.—The combination with a flume or a sluice box of a rotary wheel mounted therein, said wheel being provided with paddles having at their outer ends oppositely projecting flanges forming open boxes of such shape that when rotated by the flow of liquid in the flume, they will retain a charge of mercury placed therein and bring it in contact with the pulp.

520,848. TIME-CHECK RECEIVER. ARCHIE J. HENRY, Watertown, N. Y. Filed Mar. 11, 1893. Serial No. 465,542. (No model.)



Claim.—1. In a time check-receiver, the combination of a clock train and a check conductor surrounding and movable by the clock train and composed of upright vertical annular concentric walls —c— —c— and a bottom wall —c'— having similar inclined portions —c^3— —c^3— extending downwardly from adjacent ends and having an exit opening at their bases or opposite ends, whereby the checks are unretarded in their passage through said guide, substantially as and for the purpose set forth.

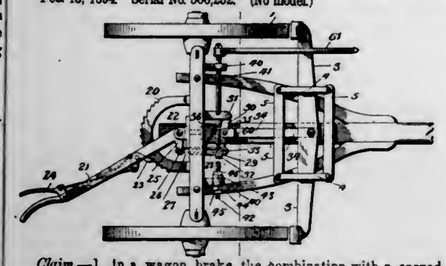
2. In a time check-receiver, the combination of a clock train, a check conductor movable by the minute arbor of the clock train and composed of upright walls —c— —c— and a bottom wall —c'— having similar inclined portions —c^3— —c^3— and extending downwardly from adjacent ends and having an exit opening at their bases or opposite ends, whereby the checks are unretarded in their passage through said guide, and an annular series of check receiving receptacles arranged beneath said conductor, one of said receptacles being of double size substantially as and for the purpose specified.

3. In a time check-receiver, the combination with a clock train and an annular check conductor surrounding and movable by the clock train and composed of upright concentric walls —c— —c— and a bottom wall —c'— having similar inclined portions —c^3— —c^3— extending downwardly from adjacent ends and having an exit opening at their bases or opposite ends, whereby the checks are unretarded in their passage through said guide, of a plate above the conductor a dial thereon through the center of which the arbor of said clock train passes, a hand on this arbor, and at one point in said plate an opening formed above the space between said walls for conducting the checks to the guide of the check conductor, and check receiving receptacles arranged beneath said conductor, substantially as specified.

4. In a time check-receiver, the combination of an outer case, an annular series of check receiving receptacles supported at the base of the case, a dial arranged at the center of said series, a movable finger pivoted at the center of this dial a plate removably supported in the case above the check receiving receptacles and provided with a clock dial, a hand moving over said clock dial and turned by a depending revoluble shaft, a clock train for revolving said shaft, and a hollow check conductor surrounding said train and turned thereby, said conductor being arranged above said check receiving receptacles and beneath said plate and provided with an annular guide having opposite downwardly inclining portions extending from an interposed elevated portion to a diagramatically opposite depressed portion provided with an exit, whereby the checks are unretarded in their passage through said guide, substantially as and for the purpose set forth.

5. In a time check-receiver, the combination of an outer case, an annular series of check receiving receptacles supported at the base of the case, a plate removably supported in the case above the check receiving receptacles and provided with a dial, a minute hand moving over said dial and turned by a depending revoluble shaft, a clock train for revolving said shaft, which constitutes the minute arbor thereof, an annular check conductor arranged above said check receiving receptacles beneath said plate and around said shaft, a hub on the latter connected by arms with ears within the conductor, the latter being provided with an annular guide having opposite downwardly inclining portions extending from an interposed elevated portion to a diagrammatically opposite depressed portion provided with an exit, whereby the checks are unretarded in their passage through said guide, and a hinged cover for the case arranged above said plate, substantially as and for the purpose specified.

520,849. WAGON-BRAKE. JONATHAN JACOBS, Browningsville, Md., assignor of one-half to William H. Broadhurst, same place. Filed Feb. 15, 1894. Serial No. 500,232. (No model.)



Claim.—1. In a wagon brake, the combination with a curved rack bar projecting rearward from the rear bolster, a lever moving thereover and having an arm projecting at an angle from its pivot, a link sliding through the bolster and having an eye at its rear end pivoted to said arm and a slot at its front end, an eye-bolt in the front of the bolster, and a rock lever pivoted to said eye-bolt and having one end bent back upon itself and carrying an upright bolt moving in said slot of the link and connecting the body of the rock lever with the bent-over end; of a brake beam having brake shoes at its extremities, a pitman connecting the beam with the rock lever, and a spring carried by the rear bolster and bearing said rock lever normally forward, as and for the purpose set forth.

2. In a wagon brake, the combination with a curved rack bar projecting rearward from the rear bolster, a lever moving thereover and having an arm projecting at an angle from its pivot, a link sliding through the bolster and having an eye at its rear end pivoted to said arm and a slot at its front end, an eye-bolt in the front of the bolster, and a rock lever pivoted to said eye-bolt and having an upright bolt moving in said slot of the link; of cross bars carried by the rear bounds and connected at their ends by guides, a brake beam moving between said bars and guides and carrying brake shoes, a pitman connecting the beam with the rock lever, and a spring throwing the shoes normally away from the wheels, as and for the purpose set forth.

3. In a wagon brake, the combination with an eye-bolt in the rear bolster, a rock lever pivoted thereto and having an upright bolt at one end, a rear lever, a link connected with the rear lever and having a slot loosely engaging said upright bolt, a brake beam, and a pitman connecting the brake beam with the rock lever between the pivot and bolt of the latter; of a rock shaft journaled in bearings above said rock lever, means for operating the rock shaft independently of the rear lever, and a finger depending from said shaft and engaging said lever, as and for the purpose set forth.

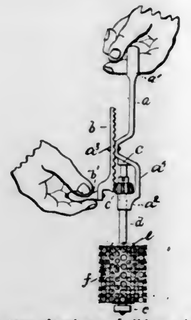
4. In a wagon brake, the combination with an eye-bolt in the rear bolster, a rock lever pivoted thereto and having an upright bolt at one end, a rear lever, a link connected with the rear lever and having a slot loosely engaging said upright bolt, a brake beam, and a pitman connecting the brake beam with the rock lever between the pivot and bolt of the latter; of eye-bolts carried by said bolster, a rock-shaft journaled in the eyes in a plane above the rock lever, said shaft having threads adjacent one eye-bolt, nuts on the threads at each side of the eye-bolt, means for operating the rock shaft independent of the rear lever, and a finger on said shaft engaging the rock lever, as and for the purpose set forth.

5. In a wagon brake, the combination with an eye-bolt projecting forward from the rear bolster, a rock lever centrally pivoted in said eye-bolt, a rear lever, and a link connecting this lever with one end of the rock lever; of a brake beam, a pitman connecting the beam with the rock lever between the eye-bolt and the point of attachment of said link, a rock-shaft journaled in bearings above said rock lever, means for operating this shaft independent of the rear lever, and a finger depending from said shaft and standing in rear of the rock lever on the other side of the eye-bolt than the point of attachment of said pitman, as and for the purpose set forth.

6. In a wagon brake, the combination with a rock lever pivotally connected with the rear bolster, a brake beam connected with said rock lever, and a rear lever for operating the rock lever to apply the brake; of a rock shaft standing adjacent the rock lever and having a finger adapted to engage the same, a crank on one end of said shaft, a front lever pivoted within a toothed rack carried by the wagon body, a rod connecting said front lever and crank, and a thumb lever and pawl carried by the front lever, as and for the purpose set forth

---

520,850. TYPE-CLEANING DEVICE FOR TYPE-WRITING MACHINES. CARL A. JOERISSEN, Ilion, N. Y., assignor of one-half to Louis F. Joerissen, same place. Filed Oct. 23, 1893. Serial No. 489,065. (No model.)



Claim.—1. A type cleaning and ribbon winding device, consisting of a rod or frame having a handle at one end, a sleeve at the other end, and a double bend near the middle forming an offset above the sleeve, a gear wheel *b* pivoted to the rod at its bend and provided with a handle or crank arm, a spindle journaled in the sleeve on the rod, a beveled gear on the spindle meshing with the gear wheel *b*, a removable device on the end of the spindle, a collar against which said device bears and a nut to clamp the removable device against the collar, all substantially as described.

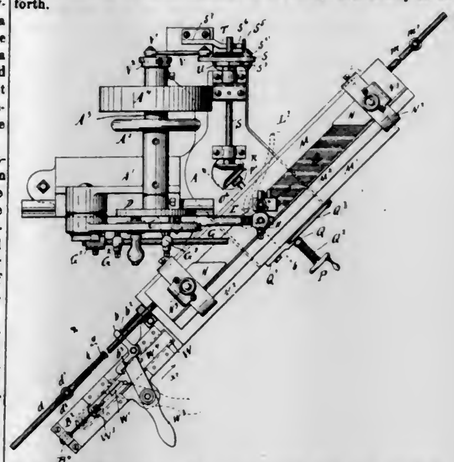
2. As an improved article of manufacture a device to hold the type bars of a type writing machine while being cleaned, consisting of an adjustable spring band or ring open at its ends and adapted to fit over all the type bars in the type basket, a handle thereon, and a sleeve extending over the free ends of the ring, all substantially as described.

520,851. MACHINE FOR GROOVING RAZOR-STROPS. FREDERICK KAMPFE, RICHARD KAMPFE, and OTTO KAMPFE, Brooklyn, N. Y. Filed Dec. 26, 1893. Serial No. 494,760. (No model.)

Claim.—1. The combination with a reciprocating slide, of a lever pivoted to the same, a blade-holder on said lever, a pivoted angle-lever held friction-tight on said slide, a rod adjacent to the slide and adjustable stops on said rod, substantially as set forth.

2. The combination with a reciprocating slide, of a lever pivoted on the same, a blade-holder on said lever, an adjustable stop screw above one part of said lever, an angle-lever mounted pivotally and friction-tight on the slide, and two adjustable stops that act on said pivoted angle-lever, substantially as set forth.

3. The combination with a reciprocating slide, of a swinging blade-holder supported by the same and a blower-nozzle supported by said blade adjacent to and swinging with the blade-holder and participating in all the movements of the same, substantially as set forth.



4. The combination with a reciprocating slide, of a swinging blade-holder supported by the same, means for adjusting said blade-holder higher or lower toward or from the end of the slide, and an air-delivery nozzle adjacent to the blade-holder and also supported on said slide, and means for adjusting the nozzle according to the position of the blade-holder, which nozzle participates in all the movements of the blade-holder, substantially as set forth.

5. The combination with a blade-holder or block having two diagonal slots extending from the opposite sides to the bottom of said block, one slot being in advance of the other, of blades fitting in said slots, and screws for holding said blades in place, substantially as set forth.

6. The combination with a blade-holding block having inclined slots for receiving the blades, of a spring plate held to the bottom of the block and having apertures through which the lower ends of the blades can pass, substantially as set forth.

7. The combination with a reciprocating blade-holder, of a carriage, means for moving the carriage intermittently, and two blades held in the blade-holder in such a manner that their cutting ends intersect, one blade being in advance of the other, substantially as set forth.

8. The combination with a reciprocating blade-holder, of a sliding carriage below the same, a rack and pinion for shifting said carriage in the direction of its length, a shaft for driving the pinion shaft, two ratchet-wheels on said shaft, of which ratchet-wheels one has a greater number of teeth than the other, a pawl-lever on the shaft, and two pawls on said lever for engaging the ratchet-wheels, and means for operating said pawl-lever, substantially as set forth.

9. The combination with a reciprocating blade-holder, of a sliding carriage below the same, a rack and pinion for moving said carriage, a shaft for engaging the pinion shaft, two ratchet-wheels on said shaft, of which one has a greater number of teeth than the other, a pawl-lever on said shaft, two pawls on said pawl-lever, a pin projecting from one of said pawls, a cam-piece on which said pinion can slide, and means for operating the pawl-lever, substantially as set forth.

10. The combination with a reciprocating blade-holder, of a sliding carriage below the same, a rack and pinion for moving said carriage, a shaft engaging the pinion shaft, a pawl-lever mounted on said shaft, and means for rotating said shaft uniformly a number of times, then moving it a greater distance and then again moving it uniformly for a number of times by means of said pawl-lever, substantially as set forth.

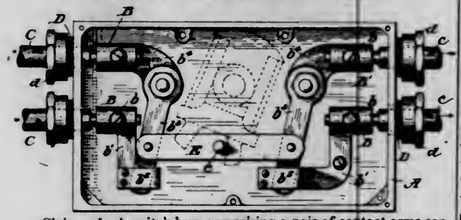
11. The combination with a reciprocating blade-holder, of a carriage below the same, a spring-actuated belt-shifter acting on the belt by means of which the mechanism for reciprocating the blade holder is operated, a slide, a cord connecting the slide with the belt-shifter, a latch for locking said slide in place, and means carried by the sliding carriage for tripping said latch, substantially as set forth.

12. The combination with a reciprocating blade-holder and means for operating the same, of a sliding carriage below the blade holder,

a spring-actuated belt-shifter for the belt for driving the mechanism by which the blade-holder is reciprocated, a slide, a rope connecting the belt-shifter with the slide and passing over suitable pulleys, a lever for shifting said slide, a spring pressed latch for locking said slide, and means carried by the sliding carriage for tripping said latch, substantially as set forth.

13. The combination with a reciprocating blade-holder and means for reciprocating the same, of a sliding carriage below the blade-holder, a spring-actuated belt-shifter for shifting the belt that drives the mechanism for reciprocating the blade-holder, a slide, a rope connecting the slide with the belt-shifter and passing over suitable pulleys, a handle lever for shifting said slide, a spring-actuated latch for locking said slide, a rod projecting from one end of the carriage, a sleeve held adjustably on said rod, and a spring-actuated pusher held in said sleeve, which pusher serves for tripping the above-mentioned latch, substantially as set forth.

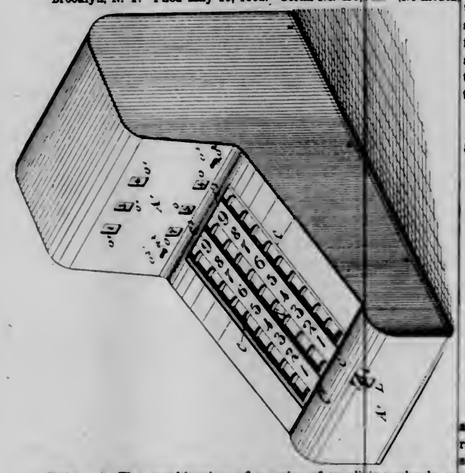
520,852. ELECTRIC-SWITCH BOX. EDWARD R. KNOWLES, Middletown, Conn., assignor to the Schuyler Electric Company, of Connecticut. Filed Dec. 5, 1893. Serial No. 492,862. (No model.)



Claim.—1. A switch box, comprising a pair of contact arms connected by an insulating link, a block pivotally mounted on the under side of the box cover and having a fork to engage with said link, springs having one end secured to the cover and the other end attached to an eye sliding in a slot in said block, and a handle on the outside of the cover, adapted to operate said block through a lost motion device.

2. A water tight switch, comprising the box A with its cover A' and screw threaded necks D, the glands *d* and taper bushings *d'*, the binding posts B B', with arms *b'* and ears b^4, the contact leaves b^3 and pivoted contact arms b^2, the link E connecting said arms and having the pin *e*, the block F mounted on the shaft G journaled in the cover A', said block having the arms *f f'* and two parallel slots, the springs K secured to the cover and engaging with said slots, and the handle H having a hub *h* fitting loosely on the outer end of the shaft, and connected therewith by a lost motion device.

520,853. CASH REGISTER AND INDICATOR. WILLIAM LANG, Brooklyn, N. Y. Filed May 19, 1892. Serial No. 433,040. (No model.)



Claim.—1. The combination of a series of totalizing wheels, a corresponding series of actuating chains, transmitting mechanism between the chains and the totalizing wheels, carrying mechanism for transmitting motion from a totalizing wheel of the lower order to a totalizing wheel of the next higher order, a corresponding series of indicating wheels movable independently of the totalizing wheels, and mechanism for transmitting motion from the actuating mechanism of the totalizing wheels to the indicating wheels, said indicating wheels being in continuous connection by intermediate transmitting mechanism with the actuating mechanism of the totalizing wheels, substantially as set forth.

2. The combination, with a series of endless actuating chains, of a series of totalizing wheels transmitting mechanism between the actuating chains and the totalizing wheels, two cams extending in diametrically opposite directions, located on the hubs of the totalizing wheels, oscillating and spring actuated levers operated by said cams, ratchet wheels on the hubs of the totalizing wheels, oscillating angle levers, connected by pivot links with the oscillating levers and spring pawls on the opposite ends of the angle levers, said pawls engaging the ratchet wheels of the adjacent totalizing wheels of the next higher order, substantially as set forth.

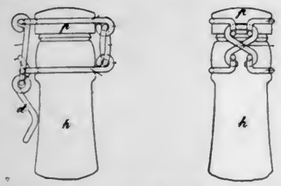
3. The combination with a series of endless actuating chains, of a series of totalizing wheels, mechanism for transmitting motion from the actuating chains to the totalizing wheels, a series of indicating wheels, transmitting mechanism between the actuating mechanism of the totalizing wheels and the indicating wheels, each indicating wheel being actuated by a spiral spring, mechanism for shifting the indicating wheels laterally out of mesh with their transmitting mechanism, and a stop-device for arresting the axial motion of the indicating wheels, substantially as set forth.

4. The combination, with a series of endless actuating chains, having finger pieces for moving the same, of a series of totalizing wheels, mechanism for transmitting motion from the actuating chains to said totalizing wheels, a series of indicating wheels transmitting gear wheels between the totalizing and indicating wheels, said indicating wheels being actuated by spiral springs, a spring actuated shaft; on which the indicating wheels are supported and a lever mechanism for shifting the shaft so that the indicating wheels are moved out of mesh with their motion, transmitting gear-wheels and returned into their initial or starting positions, ready for the next actuation, substantially as set forth.

5. The combination, with a series of actuating chains, of a series of totalizing wheels, actuated by said chains, a series of indicating wheels, motion transmitting mechanism between the registering and indicating wheels, spiral springs attached to the said indicating wheels, fixed stops for arresting the return-motion of the indicating wheels, a laterally shiftable shaft on which the indicating wheels are supported, a lever-mechanism for laterally shifting said shaft and the indicating wheels on the same so as to move them out of mesh with their transmitting mechanism and permit their axial motion until arrested by the fixed stops, and a return spring acting on the shaft, so as to return the same and the indicating wheels into mesh with their transmitting mechanism, substantially as set forth.

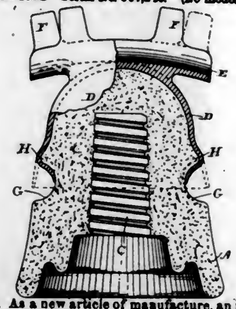
6. The combination, of the indicating wheels, a laterally shiftable shaft for supporting the same, spiral springs applied to said indicating wheels, said springs being set to tension when the wheels are axially rotated, fixed stops for said indicating wheels, a sleeve secured to one end of the shaft, a helical spring acting on the other end of said shaft, a fulcrumed lever pivoted to the fixed sleeve, an oscillating finger adapted to engage the lower end of said fulcrumed lever, an axially turning rod supported in suitable bearings, and a forward-extending lever for turning said rod and shifting thereby the shaft and the indicating wheels in lateral direction, substantially as set forth.

520,854. DEVICE FOR CLOSING BOTTLES, JARS, &c. ALBIN LASCH, Penzig, Germany. Filed Feb. 15, 1894. Serial No. 500,327. (No model.)



Claim.—The open ring surrounding the neck of a bottle or jar, and the open ring surrounding the stopper or lid thereof, both of said rings at their open ends having loops, in combination with a spring shackle composed of a single bent piece of wire, said wire passing through the loops of one of said rings, crossing on itself between said rings, and having its ends engaging the loops of the other of said rings, substantially as set forth, whereby the elasticity of said shackle causes said rings to tightly embrace the parts which they surround.

520,855. FEED-WIRE INSULATOR. CHARLES A. LIEB, New York, N. Y., assignor to the General Electric Company, Boston, Mass. Filed Apr. 12, 1894. Serial No. 507,346. (No model.)

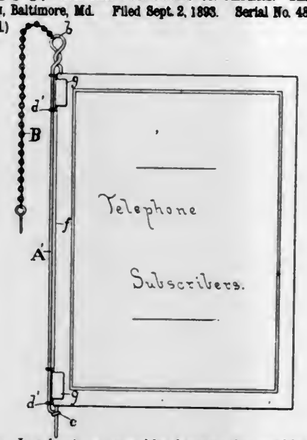


Claim.—1. As a new article of manufacture, an insulator for feed wires or other large electric wires, composed of a body of insulating material, and a metal cap therefor carrying a sleeve having a curved bottom for the feed wire, substantially as described.

2. As a new article of manufacture, a cap and cone insulator consisting of a body of insulating material provided with a recessed portion and a shoulder above such portion, a metal cap therefor having a part engaging with the shoulder, and a sleeve having a curved bottom adapted to contain the feed wire.

3. As a new article of manufacture, a cap and cone insulator comprising a body of insulating material having a screw thread to attach it to a post, a bell-shaped bottom, a recessed portion as G having a shoulder as H, a metal cap as D engaging with such shoulder and a sleeve having a curved bottom, as E, and clips as F arranged to secure the feed wire in place, all substantially as described and set out herein.

520,856. HANGER FOR BOOKS OR PAPERS. SAMUEL F. MILLIRON, Baltimore, Md. Filed Sept. 2, 1893. Serial No. 484,657. (No model.)



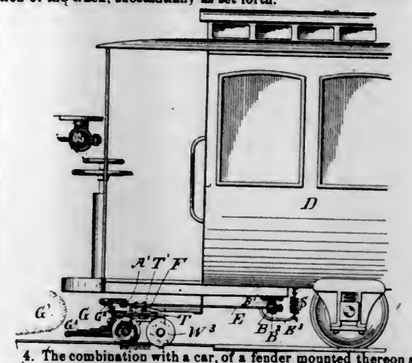
Claim.—In a book or pamphlet hanger, the combination of a seat-plate, *d*, having a flat surface to rest against the back of a book or pamphlet, side tangs, *g*, to clamp the lids of the book, and two right-angularly bent ends each provided with a hole; and a wire hanger provided with two arms, one of which passes through the said holes in the right-angularly bent ends of the seat-plate and has a hook, *c*, at its end to engage the other arm.

520,857. FENDER FOR RAILWAY-CARS. JOHN E. MCBRIDE, New York, N. Y. Filed Feb. 24, 1894. Serial No. 501,326. (No model.)

Claim.—1. The combination with a car, of a fender mounted thereon and connected thereto by a bar or bars pivoted at one end to the fender and universally-jointed to the car at the other end, whereby the fender may have vertically and laterally-swinging movements with relation to the car, substantially as set forth.

2. The combination with a car, of a fender mounted thereon and connected thereto by a bar or bars pivoted at one end to the fender and universally-jointed to the car at the other end, and a spring or springs for pressing the fender toward the road-bed, substantially as set forth.

3. The combination with a car, of a fender mounted thereon and connected thereto by a bar or bars pivoted at one end to the fender and universally-jointed to the car at the other end, and rail-engaging means mounted on the fender, which guide the fender in the direction of the track, substantially as set forth.

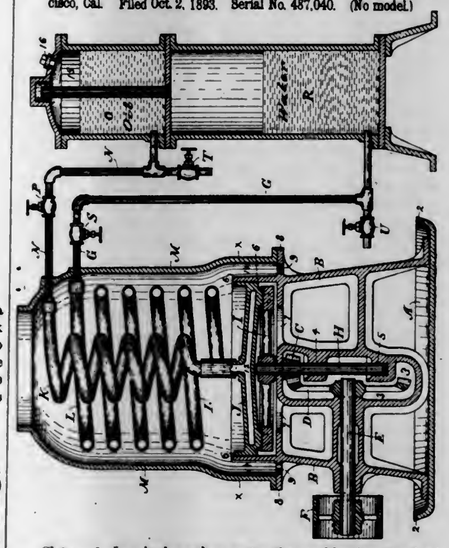


4. The combination with a car, of a fender mounted thereon and connected thereto by a bar or bars pivoted at one end to the fender and universally-jointed to the car at the other end, and rail-engaging means pivotally-mounted on the fender, which guide the car in the direction of the track, substantially as set forth.

5. The combination with a car, of a fender mounted thereon and connected thereto by a bar or bars pivoted at one end to the fender and universally-jointed to the car at the other end; rail-engaging means mounted on the fender, which guide the fender in the direction of the track; and a spring or springs for pressing the fender toward the road-bed, substantially as set forth.

6. The combination with a car, of a fender mounted thereon and connected thereto by a bar or bars pivoted at one end to the fender and universally-jointed to the car at the other end; and a frame pivoted upon the fender and carrying a flanged wheel and a follower-wheel, for engaging the slotted, central rail of a cable-road, and thereby guiding the fender in the direction of the track, substantially as set forth.

520,858. HYDROCARBON-MOTOR. EMORY I. NICHOLS, San Francisco, Cal. Filed Oct. 2, 1893. Serial No. 487,040. (No model.)



Claim.—1. In a hydrocarbon motor the combination of a horizontal impulse wheel, a supporting frame therefor, and two inclosed generators, one for oil and one for water, and connected together at their lower ends before communicating their vapors to the cups in rim of wheel, substantially as described.

2. A hydrocarbon motor with one or more inclosed generators, an impulse wheel, and a supporting frame therefor, in combination

with a tank or tanks of oil and water held under pressure by being connected while in use, to a hydrant or a body of fluid at an elevation for supplying said generators, substantially as described.

3. In a hydrocarbon motor, the combination of the generators K and L, inclosed by the casing M, the impulse wheel I, the cross-bar J, for communicating the vapors to the rim of wheel, and the supporting frame B, with the flanges 8 8, and the openings 7 and 9, substantially as described and shown.

4. In a hydrocarbon motor, the combination with an impulse wheel, a supporting frame therefor, of one or more inclosed generators with oil and water supply pipes connected to a tank or tanks of oil, and water held under pressure by being connected while in use to a hydrant or a body of fluid held at an elevation, substantially as described.

5. In a hydrocarbon motor the combination of one or more generators with oil and water supply pipes, a supporting frame therefor, an impulse wheel, and means for burning the expanded vapors in the wheel chamber for heating said generators, substantially as described.

6. In a hydrocarbon motor the combination of one or more coil generators a horizontal impulse wheel, a supporting frame and oil and water supply tanks placed one above the other and a pipe communicating from the top of the lower tank to the top of the upper tank, substantially as shown and described.

7. In a hydrocarbon motor the combination of a horizontal impulse wheel, a supporting frame and two inclosed coil generators one for oil, and one for water, and each communicating separately with the cups in rim of wheel.

8. In a hydrocarbon motor the combination with one or more coil generators of a horizontal wheel with pockets in the upper side of its rim and having the inner and outer edges of rim raised above the center line of rim substantially as shown and described.

9. In a hydrocarbon motor a horizontal wheel with pockets in the upper side of its rim, and having the inner and outer edges of the rim raised above the center line of rim, substantially for the purpose described.

10. In a hydrocarbon motor a horizontal wheel with one or more rows of pockets in the upper side of its rim and having the inner and outer edges of the rim raised above the center line of rim, substantially as described.

11. In a hydrocarbon motor the combination of one or more coil generators, an impulse wheel, having pockets in its rim and a hollow cross bar communicating the vapors from the generators to the pockets in the rim of wheel, substantially as described.

12. In a hydrocarbon motor the combination of two or more coil generators, a horizontal impulse wheel and the hollow cross bar J, communicating the vapors separately from each generator to the pockets in the rim of wheel, substantially as described.

13. In a hydrocarbon motor the combination of one or more generators with oil and water supply pipes, the casing M, surrounding said generators, the supporting frame B therefor, and a horizontal impulse wheel, inclosed in the upper part of frame B substantially as described.

14. In a hydrocarbon motor the combination of two or more generators with oil and water supply pipes, the casing M, surrounding said generators, the supporting frame B therefor, the gearing C and D, the hollow cross bar J, and a horizontal impulse wheel, substantially as described.

15. In a hydrocarbon motor the combination with one or more inclosed generators with oil and water supply pipes, of a supporting frame and a horizontal impulse wheel mounted on an upright shaft and inclosed in the upper part of the supporting frame, substantially as described.

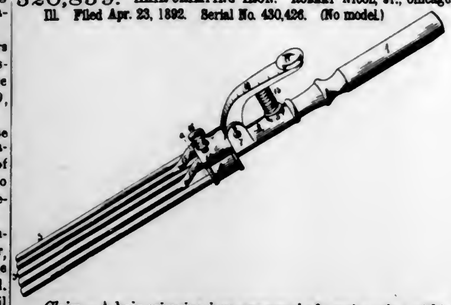
16. In a hydrocarbon motor the combination with inclosed generators with oil and water supply pipes, of a horizontal impulse wheel with pockets in the upper side of its rim, a hollow cross bar with one or more ports communicating with the pockets in rim of wheel, substantially as described.

17. In a hydrocarbon motor the combination of one or more generators with oil and water supply pipes, and communicating with the pockets or cups in a horizontal wheel, a vertical shaft carrying the horizontal wheel, and a bevel pinion, a horizontal shaft carrying a bevel gear and a pulley, and a supporting frame, substantially as shown and described.

18. A hydrocarbon motor consisting of a horizontal impulse wheel, one or more generators with oil and water supply pipes, and means for communicating vapors from generators to cups in said wheel, a vertical shaft carrying a bevel pinion, a horizontal shaft carrying a bevel gear, a casing inclosing the generators, and a supporting frame inclosing the wheel and gears, substantially as described and shown.

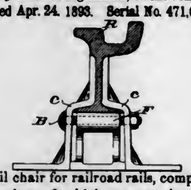
19. In a hydrocarbon motor the combination of the oil and water supply tanks placed one above the other and connected together so as to have the pressure the same in both tanks, a horizontal impulse wheel, a supporting frame therefor, and one or more inclosed coil generators, for supplying vapor to said wheel substantially as described.

520,859. HAIR-CRIMPING IRON. ROBERT NICOL, Jr., Chicago, Ill. Filed Apr. 23, 1892. Serial No. 430,426. (No model.)



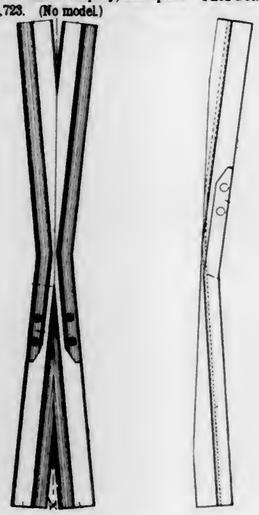
Claim.—A hair crimping iron composed of a main socket within which is secured a series of straight fingers at one end, and its other end made in tubular form within which is secured a handle, two ears extending from the upper surface of the tubular portion, a thumb lever located between the ears and having a pivotal connection therewith, its end made in socket form and to which is secured a series of fingers lying between the finger of the main socket, a set screw having a screw thread connection with the socket of the thumb portion and resting against the upper face of the main socket, and a spring interposed between the tubular portion and the thumb lever.

520,860. RAILWAY-RAIL CHAIR. HENRY O'SHEA, Johnstown, Pa., assignor, by mesne assignments, to the Johnson Company, of Pennsylvania. Filed Apr. 24, 1893. Serial No. 471,659. (No model.)



Claim.—A rail chair for railroad rails, comprising two side members, the upper portions of which engage the rail, while the lower edges are provided with feet for a bearing on the tie; an interposed chock upon which the rail rests, and which has lower flanges bearing on the tie, the edges of which flanges engaging the bases of the side members act as a distance piece between said side members, and means, passing beneath the rail, for securing the two side members against the rail and against the chock, whereby the chair may be attached to a rail without cutting or similarly preparing said rail.

520,861. RAILWAY-FROG. HENRY O'SHEA, Johnstown, Pa., assignor to the Johnson Company, same place. Filed Dec. 15, 1893. Serial No. 493,723. (No model.)



Claim.—1. A railway frog composed of two rails bent and fitted together so that both webs are continuous beneath the point, substantially as described.

2. A railway frog composed of two side bearing girder rails bent and fitted together so that both webs are continuous beneath the point.

3. A railway frog composed of two rails bent and fitted together, each rail comprising a wing portion and a point portion the webs of both rails being continuous.

4. A railway frog composed of two side bearing girder rails, each rail forming the wing and point portions of the same side of the frog.

5. A railway frog composed of two side bearing girder rails, each rail forming the wing and point portions on the same side of the frog, the web of each rail being formed continuous from wing portion to point portion.

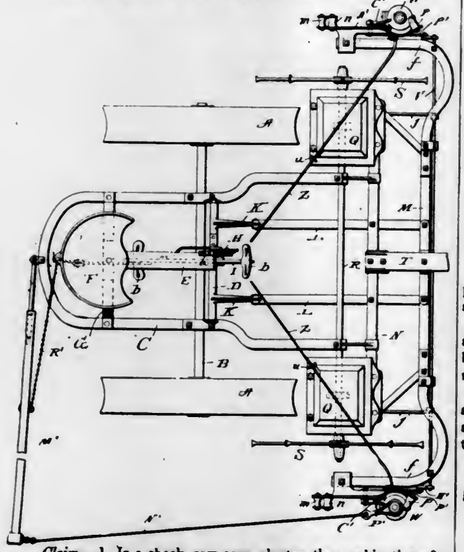
6. In a railway frog a rail bent to the desired angle of the frog, one end of the rail forming a point portion and the other end forming a wing portion of the frog.

7. In a railway frog, a rail bent to the desired angle of the frog, one end of the rail forming a point portion and the other end forming a wing portion of the frog, the web of the rail being formed continuous between the wing and the point portions.

8. In a railway frog composed of side bearing girder rails, a rail bent to the desired angle of the frog, the head of the rail being formed on opposite sides of the web on the two ends of the rail.

9. In a railway frog composed of side bearing girder rails, a rail bent to the desired angle of the frog, the head of the rail being discontinuous, the two portions being on opposite sides of the web, and the head of one end overlapping and being secured to the tram of the other end.

520,862. CHECK-ROW CORN-PLANTER. JAMES W. PARKER, Viola, Ill. Filed Dec. 18, 1893. Serial No. 493,918. (No model.)



Claim.—1. In a check row corn planter, the combination of a runner frame, a frame as A', connected therewith, a plate pivotally connected to the frame A', and having a pendent lug provided with a toe, a dumping sheave journaled on the plate, a gravitating latch adapted to engage the toe of the lug and hold the plate and dumping sheave in their normal operative position, and a handle formed integral with the gravitating latch and extending to a point within convenient reach of the driver, substantially as specified.

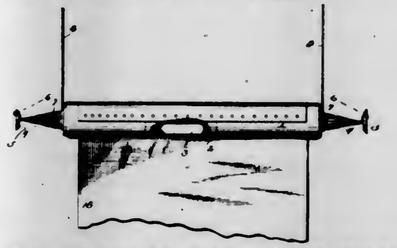
2. In a check row corn planter, the combination of frames as A', plates pivotally connected to the frames and having pendent lugs provided with toes, dumping sheaves journaled on the plates, gravitating latches adapted to engage the toes of the lugs and hold the plates and the dumping sheaves in their normal operative positions, a shaft as B', having its ends curved or bowed and connected to the latches, and a lever fixed on said shaft B', substantially as specified.

3. In a check row corn planter, the combination with a main frame, a frame as A', a plate pivotally connected to the frame A', a dumping sheave journaled on the plate, and a suitable means for holding the plate and the dumping sheave in their operative position, and for releasing them so as to dump the check row wire; of a drag marker connected to the main frame, a cord or chain connected at one end to the outer end of the drag marker, and a loop or eye connected to the opposite end of said cord or chain and adapted to take over the dumping sheave, substantially as and for the purpose specified.

4. In a check row corn planter, the combination of a main frame, a movable runner frame connected therewith, a rock shaft as D, journaled in the main frame and having forwardly extending arms connected with the runner frame, the double lever I, I', fixed on the shaft D, the drag marker connected by the main frame, a chain taking over a pulley carried by the main frame, and having one end connected to the lever I', and its opposite end connected to the drag marker at an intermediate point in the length thereof, a frame as A', connected with the runner frame, a plate pivotally connected to the frame A', and carrying a dumping sheave, a suitable means for holding the plate and the dumping sheave in their operative position and for releasing them so as to dump the check row wire, a cord or chain connected at one end to the outer end of the drag marker, and a loop or eye carried by the opposite end of said cord or chain, and adapted to take over the dumping sheave, all substantially as and for the purpose set forth.

5. In a corn planter, the combination of a runner frame comprising a transverse bar M, having the curved and rearwardly extending arms *f*, seed boxes mounted on the runner frame and provided with rotary seed discharging disks, a rotary shaft as R, journaled beneath the seed boxes, gearing intermediate of the said shaft and the rotary disks, and stellated wheels mounted on the shaft R, and resting between the rearwardly extended arms of the bar M, and the seed boxes all substantially as and for the purpose set forth.

520,863. SHADE-ROLLER. MICHAEL E. REILLY, Wallace, Idaho. Filed May 6, 1893. Serial No. 473,276. (No model.)

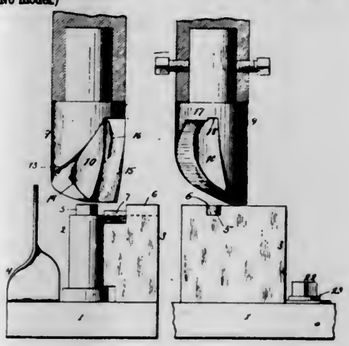


Claim.—1. A shade roller provided with tapered square pivot pins at its ends, and cords connected at the small ends of the pins and attached to a suitable part of the window casing.

2 A shade roller consisting of two sections connected by a tube, a weight arranged in said tube and occupying normally a position below the axis of the roller, pivot pins carried by the ends of the roller, and cords connecting with the pivot pins.

3. A shade roller comprising two sections, a tube connecting the sections at the center, a weight arranged in said tube and adapted to act as a counter-balance, tapered pivot pins carried by the ends of the roller, and cords connecting with the said pins.

520,864. MACHINE FOR FORMING WIRE RAILS. HENRY S. REYNOLDS, Brooklyn, N. Y. Filed Apr. 4, 1892. Serial No. 427,716. (No model.)



Claim.—1. A tool for forming the ends of wire bails for vessel handles, comprising an upright mandrel and a plunger adapted to surround said mandrel having a portion of its side cut away, the walls of said cut being curved to impart a screw action to the plunger, substantially as described.

2. A tool for forming the ends of wire bails for vessel handles, comprising an upright mandrel and a plunger adapted to surround said mandrel, having a portion of its side cut away, one of the walls of said cut being spiral or screw shaped and the inner edge of said wall describing a greater spiral or curve than the outer edge, substantially as described.

3. A tool for forming the ends of wire bails for vessel handles, comprising an upright mandrel and a plunger adapted to surround said mandrel, having a portion of its side cut away, one of the walls of said cut being spiral or screw-shaped, and the other wall being substantially cam-shaped, substantially as described.

4. A tool for forming the ends of wire bails for vessel handles comprising an upright mandrel and a plunger adapted to surround said mandrel, having a portion of its side cut away, one of the walls of said cut being spiral or screw-shaped, and the inner edge of said wall describing a greater spiral or curve than the outer edge, and an opposite wall substantially cam-shaped, substantially as described.

5. A tool for forming the ends of wire bails for vessel handles comprising an upright mandrel, a plunger adapted to surround said mandrel having a portion of its side cut away, one of the walls of said cut being spiral or screw-shaped and the inner edge of said wall describing a greater spiral or curve than the outer edge, and an opposite cam-shaped wall provided on its inner edge with a bend, arc or chamfer, substantially as described.

6. A hollow plunger having a portion of its side cut away, one of the walls of said cut being spiral or screw-shaped and the opposite wall cam-shaped, said walls approaching each other at the top of the plunger and provided with the intermediate slot or recess, in combination with a mandrel adapted to be surrounded by said plunger substantially as described for the purposes set forth.

7. A tool for forming the ends of wire bails for vessel handles, comprising an upright mandrel, a plunger adapted to surround said mandrel having a portion of its side cut away, one of the walls of said cut being spiral or screw-shaped and the inner edge of said wall describing a greater spiral or curve than the outer edge, and an opposite cam-shaped wall provided with a bend, arc or chamfer on its inner edge, said walls approaching each other at the top of the plunger but separated at that point by an integral ring-shaped portion provided with a slot or recess, substantially as described.

8. A tool for forming the ends of wire bails for vessel handles comprising a slotted wire guide, an upright mandrel in line with a portion of the slot in said guide and a screw acting plunger, substantially as described.

9. A tool for forming the ends of wire bails for vessel handles comprising a slotted wire guide, the bottom of said slot and one side thereof being prolonged to an upright mandrel, in combination with a screw acting plunger, substantially as described.

10. A tool for forming the ends of wire bails for vessel handles, comprising a slotted wire guide, the bottom of said slot and one side thereof being prolonged to an upright mandrel, in combination with a plunger adapted to surround said mandrel and having a portion of its side cut away, one of the walls of said cut being spiral or screw-shaped, and the inner edge of said wall describing a greater spiral or curve than the outer edge, and an opposite cam-shaped wall provided with a bend, arc or chamfer on its inner edge, said walls approaching each other at the top of the plunger, but separated at that point by an integral ring-shaped portion provided with a slot or recess, and a gage to limit the insertion of the wire, all combined and arranged to operate, substantially as described.

520,865. APPARATUS FOR CAMBERING RAILS. HERBERT C. RYDING, Johnstown, Pa. Filed July 12, 1893. Serial No. 480,219. (No model.)

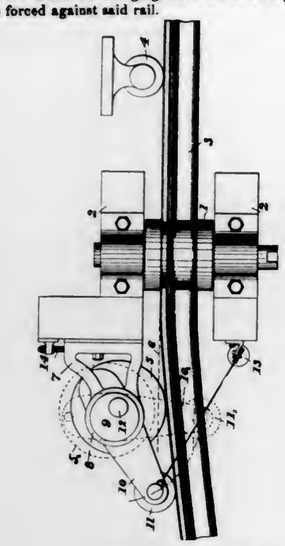
Claim.—1. In a machine for cambering rails or metallic bars a pivoted arm adapted to be moved by the rail as it passes through the machine and a cambering roll mounted in the pivot of said arm eccentrically to said pivot.

2. In a machine for cambering rails or metallic bars a cambering roll normally held out of the path of the rail, an arm extending in the path of the rail and connection between said roll and said arm whereby the action of the rail in pushing the arm from its path causes the roll to be brought into action upon and camber the rail.

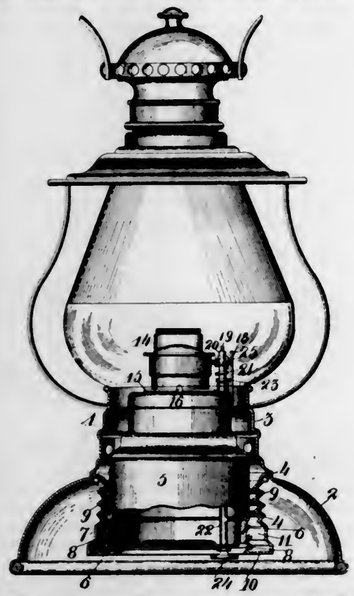
3. In a machine for cambering rails or metallic bars a cambering roll adapted to be by the rail brought into action after the end of the rail has passed the point of action of the roll.

4. In a machine for cambering rails or metallic bars in combination with a pair of horizontal rolls, a vertical fixed roll and a vertical roll adapted to be automatically, by the rail, moved into action against the rail.

5. In a machine for cambering rails or metallic bars in combination with a pair of horizontal rolls, a vertical fixed roll, a pivoted arm normally standing in the path of the rail and a roll so connected with said arm that the rail in swinging the arm out of its path causes the roll to be forced against said rail.



520,866. LAMP OR LANTERN. LOUIS W. SCHEFFER, St. Louis, Mo. Filed Mar. 21, 1892. Serial No. 425,788. (No model.)



Claim.—1. The combination with a handle, and a glass globe, of the frame, having a hollow base provided with an interior depending annular screw-threaded flange, of a drip cup in the form of an annular-trough having concentric vertical outer and inner walls, said outer wall being screw-threaded at its upper end so that its screw-threads will mesh with the threads of said flange on the base, and an oil fount provided at its lower end with an annular threaded flange adapted to mesh with the threaded inner vertical wall of said drip cup, and the drip cup being detachable from the frame, and the oil fount detachable from the drip cup, said oil fount being normally supported in position solely by its connection with said drip cup, substantially as herein specified.

2. The improved lamp or lantern, constructed with a burner having a horizontal outwardly-projecting flange provided with cut-away portions 17, and an oil-fount having an opening in its top, an annular upright flange 12 encircling said opening and adapted to be engaged by said burner, hooks 16 attached to the top of said oil fount so as to register with said cut-away portions 17 of the burner-flange and be engaged by the flange on the burner, portions of the heads of said hooks normally projecting above the flange on the burner, the horizontal burner shaft 18 carried by said burner and having a projecting end, and an upright spring 25 having a free upper end and its lower end fixed to said fount and provided with a depression 26 at a point adjacent to its free upper end, said depression being arranged to receive the projecting end of the said shaft, and thereby lock said burner in position against rotation upon said oil fount, substantially as and for the purpose set forth.

3. The improved lamp or lantern, constructed with a frame an oil fount, a drip cup having a vertical wall surrounding a passage or opening which is formed in said drip cup, means by which the bottom of said oil fount is detachably secured to said drip cup, and a wick-moving shaft extending through said passage or opening of the said drip cup, and connected at its upper end with the burner shaft, whereby the wick of the burner may be adjusted without removing the oil fount from the frame of the lamp or lantern, and the drip cup may be separated from the frame of the lamp or lantern, and from said oil fount, to remove waste oil from said cup, substantially as herein specified.

4. The improved lamp or lantern, having a frame an oil fount, a drip cup in the form of an annular trough, to which the bottom of said oil fount is separably attached to support said fount, said drip cup having a vertical passage or opening interior of its vertical side wall and surrounded by said wall, means for connecting said drip cup to said oil fount and separating the same therefrom by a revoluble movement, and a vertical wick moving shaft which extends through said vertical passage of said drip cup, and through the body of said oil fount, and has its lower end accessible in said passage of said drip cup at the lower end of said oil fount, substantially as herein specified.

5. The improved lamp or lantern, constructed with a frame having a base or stand, a vertical pipe or tube 4 provided with screw-threads and connected at its upper end to said base or stand, so that its lower end will be free, an oil fount 5 provided at its lower end with a cylindrical reduced-portion, a vertical screw-threaded flange 6 having its upper end secured to said fount, so that its lower end will be free, said flange surrounding said reduced portion of the fount, so that an annular space is formed between said reduced portion and said flange, and a drip cup 7 in the form of an annular trough having concentric outer and inner walls, the upper edges of which are free and the lower edge of which is attached to the bottom 10 of said cup, so that the upper end of said cup is open and its lower end closed, said inner and outer concentric walls of said drip cup having screw-threaded portions 8 and 9 respectively, which are adapted to engage said screw-threaded flange 6 and said pipe or tube 4 respectively, said inner vertical wall of said drip cup being located in the annular space between it and the reduced portion of said oil fount, substantially as herein specified.

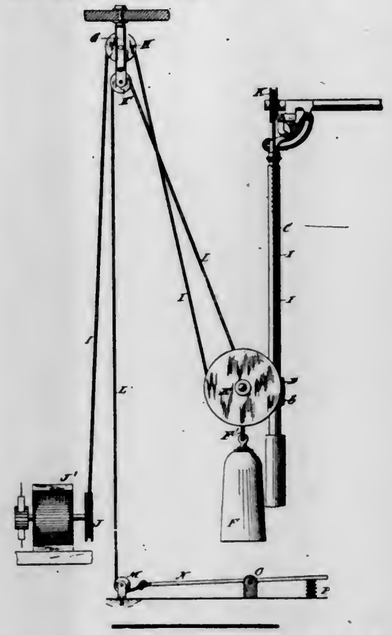
520,867. DENTAL ENGINE. RUFUS G. STANBROUGH, New York, N. Y. Filed Dec. 2, 1892. Serial No. 453,818. (No model.)

Claim.—1. In a dental engine, a tool shaft mounted on a standard adapted to be pivoted to a vertically and pivotally movable operating chair, means for rotating said shaft through a belt, and means for maintaining constant tension upon such belt at the varying heights of the chair, substantially as described.

2. In a dental engine, a tool shaft mounted upon a standard which is adapted to be arranged upon a vertically adjustable operating chair, a belt passing about a driven wheel, overhead twin pulleys about which the belt thence passes, twin pulleys arranged below the tool shaft and receiving the belt from the overhead pulleys, a pulley on the tool shaft about which the belt next passes, and a weight riding upon the belt between the overhead pulleys and the tool shaft, substantially as described.

3. In a dental engine, a tool shaft mounted upon a standard which is adapted to be arranged upon a vertically adjustable operating chair, a belt passing about a driven wheel, overhead twin pulleys about which the belt thence passes, twin pulleys arranged in a loose collar on the standard below the tool shaft and receiving the belt from the overhead pulleys, a pulley on the tool shaft about which the belt next passes, and a weight riding upon the belt between the overhead pulleys and the tool shaft, substantially as described.

4. In a dental engine, a tool shaft mounted upon a standard which is adapted to be arranged upon a vertically adjustable operating chair, a belt passing about a driven wheel, overhead twin pulleys about which the belt thence passes, twin pulleys arranged below the tool shaft and receiving the belt from the overhead pulleys, a pulley on the tool shaft about which the belt next passes, and a weight riding upon the belt between the overhead pulleys and the tool shaft, combined with an independent tension-relieving device applied to the pulleys below the tool shaft, substantially as described.

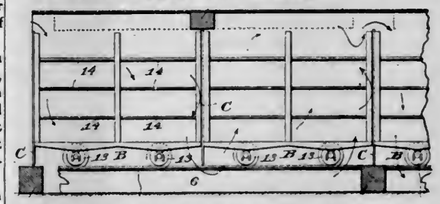


520,868. PROCESS OF MAKING ENAMELED BRICK, TILES, &c. ANDERS M. STRUSHOLM, Perth Amboy, N. J. Filed Mar. 3, 1893. Serial No. 464,569. (No specimens.)

Claim.—1. The herein described process of preparing enameled brick which consists in grinding the surface of a previously burned brick to expose the colors therein, then enameling said surfaces, and finally reburning the brick, substantially as and for the purpose described.

2. The herein described process of making enameled brick which consists first in mixing a suitable metallic oxide with the clay, and molding, drying, and then pulverizing the mixture, then remolding the pulverized clay, and burning the brick, then grinding down the surfaces of the brick, and finally enameling the surfaces thereof, substantially as described.

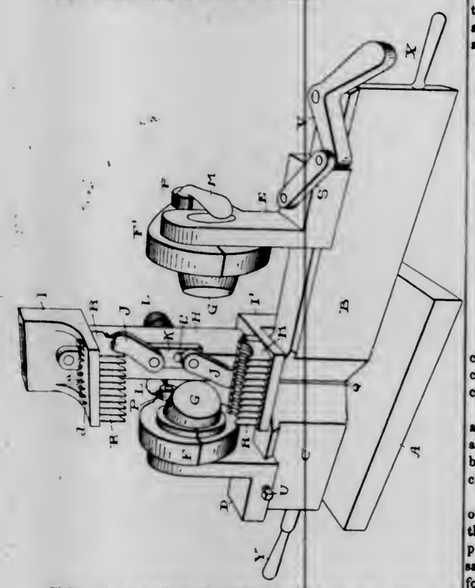
520,869. DRY-KILN FOR POTTERY. JOHN C. TITUS, New Bremen, Ohio, assignor of one-half to W. C. Schmidt, same place. Filed Feb. 19, 1894. Serial No. 500,664. (No model.)



Claim.—1. In a drying kiln, the combination with the side walls and roof thereof, of tracks laid in the bottom of the kiln, cars on the track, transverse air stops located in both bottom and top of kiln and closing plates at the end of each car alternately abutting against said air stops, substantially as described.

2. In a drying kiln, the combination with the side walls thereof, of tracks laid in the bottom of the kiln, cars on the track, transverse air stops located in both bottom and top of kiln, and detachable deflecting closing plates at the end of each car alternately abutting against said air stops, substantially as described.

520,870. MACHINE FOR FORMING CORRUGATED ELBOW-PIPES. WILLIAM C. WINFIELD and JOHN F. MCNUTT, Warren, Ohio, assignors to the Winfield Manufacturing Company, same place. Filed July 12, 1893. Serial No. 480,249. (No model.)



Claim.—1. A machine for bending corrugated pipe, comprising two cores or mandrels upon which the pipe to be bent is placed, said mandrels mounted upon separate swinging beams or levers, the adjustable clamping sections adapted to engage the corrugations of the pipe, the oppositely moving supports for the same and means to operate said supports, substantially as set forth.

2. A machine for bending corrugated pipe, comprising two cores or mandrels upon which the pipe to be bent is placed, said mandrels mounted upon and swinging with pivoted beams or levers having independent pivots or centers and moving in unison, the adjustable clamping sections adapted to engage the corrugations of the pipe, and the oppositely moving supports for the same, substantially as set forth.

3. In the machine described, the combination of the two cores or mandrels upon which the pipe to be bent is placed, with the swinging beams or levers carrying said mandrels one beam driving the other and having independent pivots or centers, substantially as set forth.

4. The combination of the mandrels upon which the pipe is to be bent, with the supports for said mandrels adjustable on the swinging beams or levers carrying said supports and mandrels and one beam driving the other, substantially as set forth.

5. In combination with the mandrels, the two independently pivoted beams carrying the mandrels and having gears at their hubs about their pivots meshing together and serving to cause said beams to move in unison, substantially as set forth

6. The combination of the cores or mandrels with the clamps encircling said mandrels for holding the tube, and eccentrics and links for opening and closing said clamps, substantially as set forth.

7. The combination of the corrugation-clamping sections, the supports for the same having a groove adapted to move upon the slide in opposite directions and means for operating said supports, substantially as set forth.

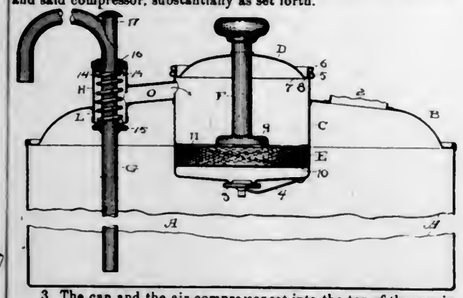
8. The corrugation-clamping sections, in combination with the oppositely moving supports therefor, said supports having groove openings in their faces through which the clamping sections are independently and movably attached thereto, substantially as set forth.

9. The oppositely moving supports having openings through which the corrugation-clamping sections are attached, in combination with a series of clamping sections, one of said sections being rigid with its support and the others movable on said support, substantially as set forth.

520,871. OIL-CAN. WILLIAM C. WINFIELD, Warren, Ohio, assignor to the Winfield Manufacturing Company, same place. Filed Feb. 9, 1894. Serial No. 499,590. (No model.)

Claim.—1. An oil can and an air vent chamber located at the top of the can and having an air inlet from the can, a discharge tube extending through the can and vent chamber and a valve on said discharge tube to close the air inlet to said vent chamber, substantially as set forth.

2. In an oil can, an air compressor, a discharge tube extending through the can, an air vent chamber surrounding the discharge tube at the top of the can and a vent connection between said chamber and said compressor, substantially as set forth.



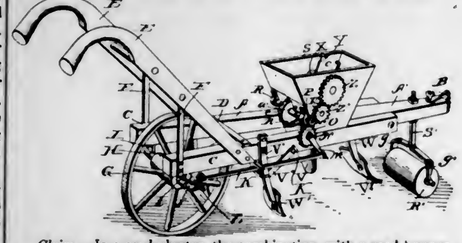
3. The can and the air compressor set into the top of the can, in combination with the vent chamber, the discharge tube through said chamber having a spring support therein and a valve to close said chamber, substantially as set forth.

4. The can, the vent chamber fixed in the top of the can, a slidable discharge tube extending through both the top and bottom of said chamber, a valve on said tube to close the bottom of said chamber and a spring within said chamber to press said tube upward and close the said valve, substantially as set forth.

5. The can and the air compressor fixed and supported in the top of the can, in combination with the vent chamber fixed in the top of the can, a vent passage connecting said chamber with the air compressor, a discharge tube through said vent chamber and a valve on said tube to close the bottom of the said chamber, substantially as set forth.

6. In an oil can, a discharge tube provided with a valve and extending through the top of the can, a spring holder located in the top of the can, a spring surrounding said discharge tube supported by said holder and arranged to press said valve against the bottom of said holder, substantially as set forth.

520,872. COMBINED COTTON AND CORN PLANTER. GEORGE WITTICH, Freyburg, Tex., assignor of one-third to Adolf F. Kauffman, same place. Filed May 22, 1893. Serial No. 475,152. (No model.)



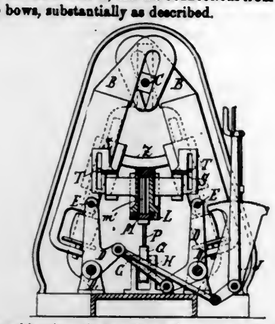
Claim.—In a seed planter, the combination, with a seed hopper for receiving and delivering different kinds of seed, a dropping chute, a removable feed cylinder for controlling the flow of seed from the hopper to the chute, and a removable seed agitator located in the hopper, of removable gearing for imparting motion to the feed cylinder and agitator from the main axle of the vehicle, said gearing consisting of the intermeshing gear wheels O, P, Z and Z', the crank arm M connected to the gear O, a crank extension L on the main axle of the vehicle, and a connecting rod K for imparting motion from the axle to the gear wheel O, substantially as set forth.

520,873. STAVE-JOINTING MACHINE. JOHANN ANTHON, Flensburg, Germany. Filed June 1, 1893. Serial No. 476,255. (No model.) Patented in England May 23, 1893, No. 10,195.

Claim.—1. In combination, the carriage, the cutters, the bows carrying said cutters, the movable parallel rails S and the slotted plates S' and pins T forming the connections between the rails and the bows, whereby the cutters and rails are adjusted simultaneously, substantially as described.

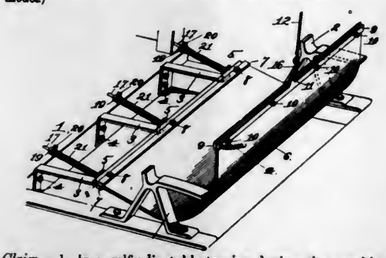
2. In combination, the cutters, the carriage, the pivoted frame L, the pattern P and roller Q, the parallel centering rails S and the levers connecting the same with the frame L, substantially as described.

3. In combination, the cutters, the carriage, the bows carrying the cutters, the centering rails S arranged parallel, extending longitudinally along the stave and connected with the bows to be adjusted therewith, the hand lever J, and the connections from said hand lever to the two bows, substantially as described.



4. In combination, the carriage, the cutters, the bows carrying said cutters, the movable parallel rails S, the connections between said rails and the bows to move therewith and the fingers U projecting inwardly from the parallel rails, substantially as described.

520,874. TENSION DEVICE FOR PAPER-ROLLS. WILLIAM BLACK, Kansas City, Mo. Filed Dec. 29, 1893. Serial No. 496,151. (No model.)



Claim.—1. In a self-adjustable tension device, the combination with a number of supporting brackets carried by a paper-employing machine, and a number of spring-retracted rods carried by said brackets, of a weight, a cable suitably guided and attached to said weight, and a flexible plate secured at its opposite ends to the spring-retracted rods, and the cable, substantially as set forth.

2. In a self-adjustable tension device, the combination with supporting brackets secured to a printing-press, and a suitably guided cable, having a weight at one end, of a flexible plate bearing against a paper roll, and connected to the opposite end of said cable, a series of rods passing through and supported by said supporting brackets, and connected to the adjacent end of the flexible plate, collars mounted adjustably upon said rods, the springs spirally encircling said rods and bearing at their opposite ends against the said collars and the said supporting brackets, substantially as and for the purpose set forth.

520,875. PYROMETER. EDWARD BROWN, Philadelphia, Pa. Filed Sept. 6, 1893. Serial No. 484,923. (No model.) Patented in England Mar. 29, 1893, No. 6,655.

Claim.—1. In a pyrometer the combination of mechanism in the head, which is adjusted to indicate accurately when the stem of the pyrometer is permanently fixed in the heated medium, with an outside expansion tube, an inside bar E., and a sliding rod H., which rod is proportioned in its expansion per degree of heat in excess of that of the tube inclosing it, up to the vicinity of twenty-five per cent. greater; to maintain accuracy of indication under varying depths of immersion as herein described.

2. In a pyrometer stem, the combination of the expansion tube D and the rod H made of pieces A', and more expanding pieces A^2, by which the total expansion of the rod H is adjusted as and for the purpose herein described.

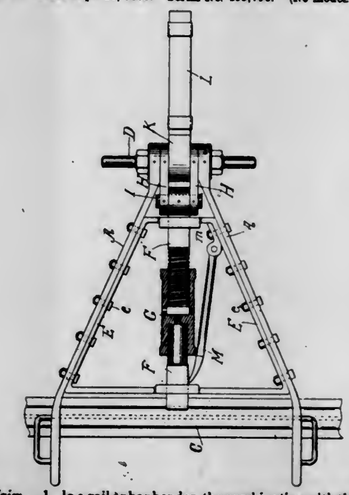
3. In a pyrometer stem, the combination of the outside tube D, the separable thick expansion tube K, screw threaded to the tube D, the interior bar E, the composite sliding rod H as herein described.

4. In a pyrometer or gage head, mechanism in combination as follows:—the frame N, pinion n', quadrant P, adjusting arm W, link r' lever R, connecting link r^3, substantially as described for multiplying the motion of the link r^3 upon the pointer C.

5. In a pyrometer or gage head the following combination of parts: the frame N the top plate n bent over as shown to form a support for pivot for the lever R, pinion n', quadrant P, adjusting arm W, link r', connecting link r^4, for communicating the motion of the stem to the pointer.



520,876. RAIL OR BAR BENDER. MORRIS H. BROWN, Yonkers, N. Y. Filed Sept. 19, 1893. Serial No. 485,796. (No model.)

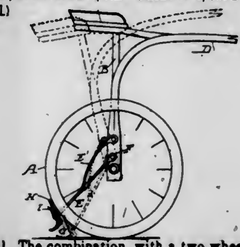


Claim.—1. In a rail or bar bender, the combination with the frame having jaws or hooks to hold the rail, and the ram slidingly supported between the jaws, of an eccentric for imparting pressure to the ram, and an operating lever attached to the eccentric shaft on the side opposite to the eccentric so that it moves away from the ram in operating the latter, substantially as described.

2. The combination of the extensible ram composed of two parts, and a coupling sleeve engaging by means of screw threads with one of the said parts, the operating eccentric and lever, and means for maintaining the pressure of the ram when the lever is reversed, substantially as described.

3. The combination of the triangular frame, the extensible ram sliding therein, the operating eccentric connected with the end of said ram, and a dog or holding bar pivoted to one side of the triangular frame and extending alongside of said ram so as to sustain the pressure thereof longitudinally, substantially as described.

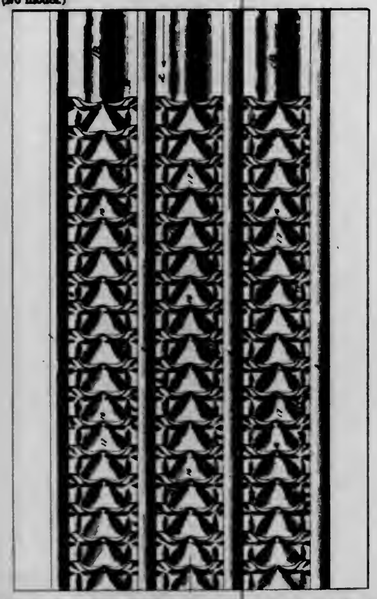
520,877. SULKY-BRAKE. LEONARD E. CLAWSON and JOHN A. MCKERROW, San Francisco, Cal. Filed Feb. 6, 1894. Serial No. 499,273. (No model.)



Claim.—1. The combination, with a two wheeled vehicle, of an arm connected with the vehicle at a point eccentric to the wheel center, and extending downwardly so that it will stand normally out of contact with the ground, and a lever upon the lower portion of said arm provided with a brake surface, adapted to be thrown into contact with the wheel when the frame is raised to force the lever into contact with the ground.

2. The combination with a two-wheeled vehicle of an arm connected with the vehicle frame above the line of the wheel axis, and extending downwardly to the rear, a lever centrally fulcrumed to the arm, having one end extending downward to make contact with the ground when the animal rears, and a brake shoe attached to the opposite end so as to be forced against the wheel by such contact, substantially as herein described.

520,878. GRAIN CLEANING AND SEPARATING SIEVE. CHARLES CLOSE, Webster City, Iowa. Filed Aug. 15, 1893. Serial No. 483,198. (No model.)



Claim.—1. A sheet metal grain sieve having longitudinal rows of transverse openings, one edge of which is raised directly above the other, the under edge having the upturned pommel-point 17 dividing and partially closing said opening at the middle of the raised edge for the purpose stated.

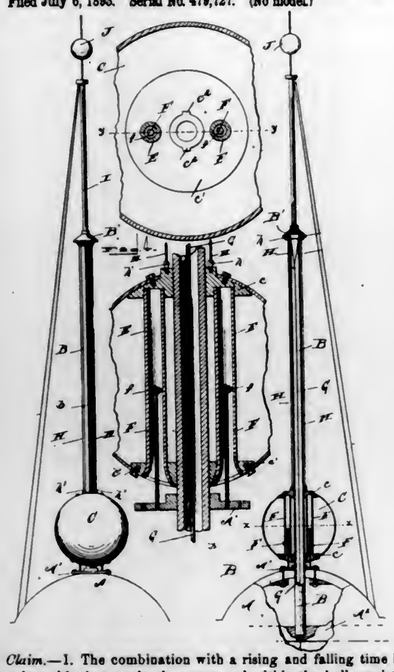
2. A sieve formed of a sheet metal platform having longitudinal rows of openings in transverse relation, the raised edges of which openings have the form of a bow, the lowest edge having a raised point 17 mediately of and partially closing said opening, the surface between the openings formed with steep side-walls 8, obliquely extending from the lobes to said raised point and terminating in oblique flat surfaces 14 and channels 10 joining said flat surfaces and extending straight in longitudinal lines along said flat surfaces, substantially as described.

3. A sheet metal platform sieve having longitudinal rows of transverse openings one edge whereof is raised directly above the other, the upper edge having lobes 4, 4, and the under edge having upturned pommel-point 17 mediately of said lobes and partially closing said opening at the middle point between the lobes, the surface 16 being substantially flat across between the lobes and sloping to the transverse ridge 7, from which the pitch to the edge is greater, said sloping surface having steep sides 8, 8 and flat parts 14, 14 which terminate in said ridge for the purpose stated.

4. A sheet metal platform sieve having parallel longitudinal corrugations and transverse openings between them, the surface between the openings raised and having a bow shaped forward edge forming lobes 4, 4, a substantially flat top between the lobes, which terminate in raised points 17 standing under and mediately of the lobes, the steep side walls 8, 8, the oblique flat side surfaces 14, 14, the cross ridge 7, terminating at the said raised point, the channels 10, 10, the surfaces 6, 6, sloping from the corrugations to the channels, the depressions 11, 11, joining the sloping surfaces at the ridge, the oblique ridges 12, 12, joining the depressions and the surface sloping downward from said point along the transverse ridge 7 to the edge, substantially as described.

5. A sheet metal platform sieve having parallel corrugations and transverse openings between them, the surfaces between said openings raised and having bow-shaped forward edges forming lobes 4, 4, a substantially flat top surface 16, between said lobes sloping downward and having oblique sides, terminating in a raised point 17 at the lowest edge of said surface, the cross ridge 7 extending from said point and the surface therefrom having sloping pitch to the opening and dividing the same at the said raised point under and mediately of said lobes, substantially as described.

520,879. TIME-BALL. WILLIAM F. GARDNER, Washington, D. C. Filed July 6, 1893. Serial No. 479,727. (No model.)



Claim.—1. The combination with a rising and falling time ball of an air cushioning mechanism arranged within the ball consisting of a cylinder and a piston fitted therein, substantially as set forth.

2. The combination of the staff, the ball, the base the cylinder and piston, one secured to the ball, and one to the base, and means for guiding the ball vertically on predetermined lines, substantially as set forth.

3. The combination of the ball, the vertical guide therefor, the cylinder situated within the ball, and the piston and piston support held independently of the ball at the lower end of its path, substantially as set forth.

4. The combination of the ball, a vertical guide therefor, the two cylinders within the ball and arranged on different sides of its vertical axis, and two pistons and piston carriers supported independently of the ball, substantially as set forth.

5. The combination with the rising and falling time-ball, of the cylinder and the piston one of which is within the ball, and the guide for directing the piston into the cylinder, substantially as set forth.

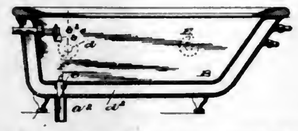
6. In a time-ball, the combination with the top and bottom guide plates, of the cushioning cylinder passing through the lower plate, and having its upper end secured to the upper plate, and the piston in the lines of the cylinder, substantially as set forth.

7. The combination with the rising and falling time ball, having an exterior surface substantially continuous around the vertical axis, of a supplemental air-cushioning mechanism arranged within the ball consisting of a cylinder and a piston fitted therein, substantially as set forth.

8. The combination with the rising and falling time ball, and the base plate A', adapted to be secured stationarily, of the staff or guide having an extension projecting below the base plate and secured in place by devices supplemental to said plate, substantially as set forth.

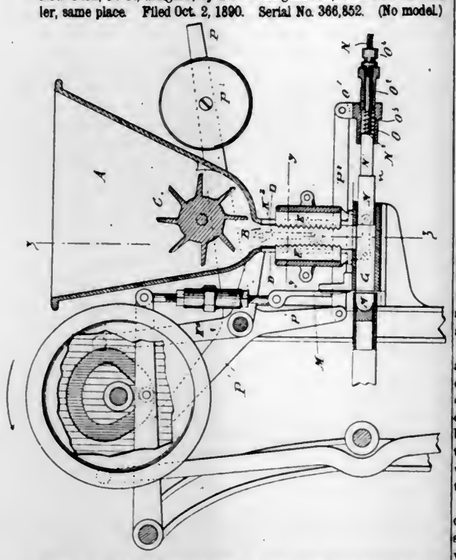
520,880. TUB. WILLIAM GWYNN, Jr., and DENNIS SPENCER, Napa, Cal. Filed Apr. 28, 1893. Serial No. 472,236. (No model.)

Claim.—1. The tub having an outlet pipe, a false-bottom forming a continuous space or chamber and having a hole or opening, the hot-air or steam inlet pipe opening into said space or chamber, an exit-pipe leading therefrom, water supply pipes extending through one end of the tub, and the plug located in said hole or opening and exit-pipe, as set forth.



2. The tub herein-described having the continuous bottom *a* provided at one end with air and vent valves, the exit pipe connected to said bottom, the false-bottom parallel with said bottom *a* forming a heating chamber and having a hole directly, above said exit-pipe, the plug, the steam or hot-air supply and outlet pipes opening into one side of bottom *a* and communicating with said heating chamber, and the water-supply pipes extending through said bottoms at one end, substantially as set forth.

520,881. CIGAR-BUNCHING MACHINE. FERDINAND J. HAGEN, New York, N. Y., assignor, by mesne assignments, to Edward H. Miller, same place. Filed Oct. 2, 1890. Serial No. 366,852. (No model.)



Claim.—1. In a feed-mechanism for cigar-bunching machines, the combination, with a feed-throat having openings in its opposite sides, of a pair of feed-blocks working face to face in said opposing openings, and means for imparting to the feed-blocks a simultaneous longitudinally reciprocating and laterally vibrating motion, substantially as described.

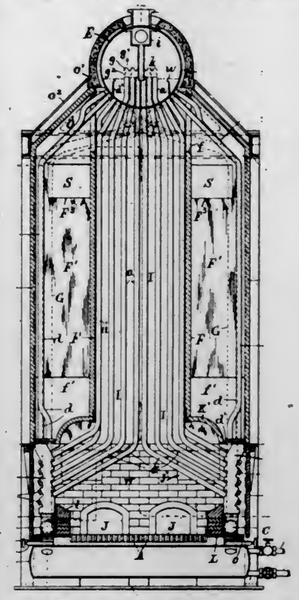
2. In a cigar-bunching machine, the combination, with a mold, a chute into which the loose filler is fed leading to said mold, a sectional plunger working in the chute, plunger-operating mechanism and elastic connections between the plunger-sections and the plunger-operating mechanism, substantially as described.

3. In a cigar-bunching machine, the combination, with a mold, a chute leading to said mold, a sectional plunger working in said chute, plunger-operating mechanism, and means for adjusting the plunger-sections independently with respect to the plunger-operating mechanism, substantially as described.

4. In a cigar-bunching machine, the combination, with a mold, a chute leading to said mold, a sectional plunger working in said chute, plunger-operating mechanism, elastic connections between the plunger-sections and their operating mechanism, and means for adjusting the tension of the said elastic connections of the plunger-sections, substantially as described.

5. In a cigar-bunching machine, the combination with a mold and a chute leading thereto, of a sectional plunger working in said chute, a reciprocating carrier in which the several plunger-sections are mounted to slide, and elastic connections between said carrier and the several plunger-sections, substantially as described.

520,882. WATER-TUBE BOILER. JOHN J. HOGAN, Brooklyn, N. Y. Filed May 13, 1892. Serial No. 432,855. (No model.)



Claim.—1. In a water tube boiler, the combination, with a steam drum and distributing drum arranged substantially as set forth, of a series of ascending water tubes connecting the steam and distributing drums through the furnace, a casing inclosing the boiler, a shield independent of the tubes supported outside of such ascending tubes, and a series of descending water tubes inclosed between such shield and the casing, as set forth.

2. In a water tube boiler, the combination, with a steam drum and distributing drum arranged substantially as set forth, of a series of ascending water tubes projected inward from the distributing drum over the fire, and thence upward through the bottom of the steam drum into the steam space above the water, a casing inclosing the boiler, a series of descending water tubes adjacent to the casing, with their upper ends inserted in the side of the steam drum, and a shield within the casing protecting such descending tubes from the heat of the furnace, as herein set forth.

3. In a water tube boiler, the combination, with a distributing drum and a grate arranged at the side of the same, of a steam drum supported above the grate, a series of ascending water tubes connected with the top of the distributing drum and projected inward over the fire, thence vertically upward through the bottom of the steam drum and within the same above the water line, a series of descending water tubes inserted in the side of the steam drum, a partition wall F dividing the descending and ascending tubes and protecting the descending tubes from the heat of the furnace, and the descending tubes having connection at their lower ends with the lower part of the distributing drum, as and for the purpose set forth.

4. In a water tube boiler, the combination, with a steam drum sustained above a furnace, and a distributing drum arranged at one side of the fire box, of a series of headers projecting upward from such distributing drum, a series of ascending water tubes projected from the face of each header inward over the fire and thence upward through the furnace into the bottom of the steam drum, a series of descending water tubes shielded from the furnace and connecting the side of the steam drum with the upper part of the header, and a partition extended downward within the header between the inlet of such descending tube and the lower ends of the ascending tubes, as herein set forth

5. In a water tube boiler, the combination, with a steam drum and distributing drum arranged substantially as set forth, of a series of ascending water tubes projected inward over the fire and thence extended upwardly through the furnace, a shield independent of the tubes supported outside of such ascending tubes, a casing inclosing the boiler, a series of descending water tubes inclosed between such shield and the casing, and a supplemental pipe for downward circulation connecting the steam and distributing drums outside of the boiler casing, as herein set forth.

6. In a water tube boiler, the combination, with a steam drum and distributing drum arranged substantially as set forth, of a series of ascending water tubes connecting the steam and distributing drums through the furnace, a shield outside of the ascending tubes, a casing inclosing the boiler, a series of descending water tubes between such shield and the casing, and a supplemental mud drum connected with the lower part of the distributing drum, and provided with suitable cocks and pipes for blowing off the same, substantially as herein set forth.

7. In a water tube boiler, the combination, with a steam drum sustained above a furnace, of a distributing drum at one side of the furnace, a series of headers projected upward from the distributing drum, and having their faces adjacent to the furnace formed in a series of backwardly inclined steps with the tube openings formed in the steps in a zigzag line, and a series of ascending water tubes connected with such tube openings and extended inward over the fire and upward into the steam drum in alternating rows of tubes, as set forth.

8. In a water tube boiler, the combination, with a steam drum sustained above a furnace, of a distributing drum at one side of the furnace, a series of headers projected upward from the distributing drum, with tube openings upon one side and at the top, a series of ascending water tubes connected with the lateral openings and extended upward into the steam drum, a descending water tube connecting the steam drum with the top of each header, and a partition within the header dividing the opening in the top from those in its side, as and for the purpose set forth.

9. In a water tube boiler, the combination, with a steam drum and distributing drum arranged substantially as set forth, of a series of ascending water tubes connecting the steam and distributing drums through the furnace, a casing inclosing the boiler, a series of descending water tubes shielded from the furnace within the casing, a mud drum connected with the lower part of the distributing drum and a partition inserted between the lower ends of the ascending and descending tubes and extended downward within the distributing drum toward its junction with the mud drum, as and for the purpose set forth.

10. In a water tube boiler, the combination, with a steam drum and distributing drum arranged substantially as set forth, of a series of ascending water tubes connecting the steam drum and distributing drums through the furnace, a mud drum connected with the lower part of the distributing drum, a scum plate attached to the inner side of the steam drum adjacent to the water line, and a scum pipe inserted in the steam drum above the attachment of such plate and connected with the mud drum by means of the distributing drum, substantially as set forth.

11. The combination, in a boiler, of a steam drum sustained above a furnace, with a distributing drum at one or both sides of the fire box, a series of ascending water tubes connected with the distributing drum and projected laterally into the fire box and thence vertically upward through the furnace into the lower side of the steam drum, a scum plate attached to the inner side of the steam drum adjacent to the water line, and a series of scum pipes connected at their upper ends with the steam drum above the attachment of such plate, and at their lower ends discharging to the distributing drum, as and for the purpose set forth.

12. In a water tube boiler, the combination, with a steam drum sustained above a furnace, and a distributing drum arranged at one side of the fire box, of a series of headers projecting upward from such distributing drum, a series of ascending water tubes connecting each header with the lower side of the steam drum, a scum plate attached to the inner side of the steam drum adjacent to the water line and scum pipes inserted in the steam drum over the attachment of such plate, and extended to the top of the headers, as and for the purpose set forth.

13. In a water tube boiler, the combination, with a steam drum sustained above a furnace, and a distributing drum arranged at one side of the fire box, of a series of headers projecting upward from such distributing drum, a series of ascending water tubes connecting each header with the lower side of the steam drum, a descending or return water pipe connecting the steam drum with the top of the header, and a shield arranged as set forth, to protect the tops of the headers and the descending tubes from the fire, as set forth.

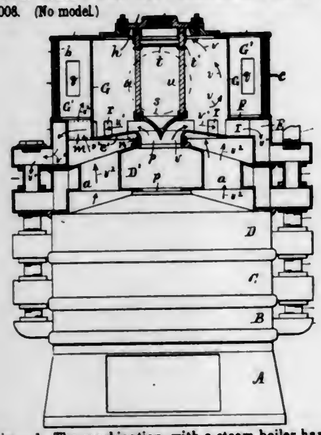
14. In a water tube boiler, the combination, with a steam and distributing drum arranged at the top and bottom of a furnace as set forth, of a casing inclosing the boiler, ascending water tubes connecting the said drums through the furnace and arranged in contiguity to form a wall of water pipes upon the outer side of the furnace, a shield independent of the water tubes outside of such wall, forming a return flue within the boiler casing with an opening connecting the flue with the top of the furnace, and a series of descending water tubes arranged in contiguity to form a wall of water pipes upon the outer side of the flue inside the casing, substantially as set forth.

15. In a water tube boiler, the combination, with a fire box, of a distributing drum at each side of the same, a contracted furnace above the fire box with a steam drum above the same, a casing inclosing the boiler, partitions independent of the tubes, forming descending return flues within the casing at the sides of the furnace, two series of ascending water tubes connecting the steam and distributing drums through the fire box and furnace, and two series of descending water tubes connecting the steam and distributing drums through the return flues, as and for the purpose set forth.

16. In a water tube boiler, the combination, with a furnace and a steam drum above the same, of two distributing drums arranged at the opposite sides of the furnace, two series of water tubes connecting the steam drum with the two distributing drums, a transverse mud drum beneath the distributing drums, a partition or division in each distributing drum above the mud drum, and separate pipe connections from the mud drum to the distributing drum at each side of such division, with valves in such pipe connections, as set forth.

17. In a water tube boiler, the combination, with a steam drum arranged above a furnace, of distributing drums at opposite sides of the furnace, headers projected upward from such distributing drums, a series of water tubes connecting the face of each header with the bottom of the steam drum and extended upward within the drum above the water line, one or more descending water tubes connecting the upper end of each header with the shell of the steam drum next adjacent to the water line, and a supplemental pipe extended from each end of the steam drum at its bottom with branches connected to the ends of the distributing drums, as and for the purpose set forth.

520,883. STEAM-DOME FOR BOILERS. JOHN J. HOGAN, Brooklyn, N. Y. Filed Mar. 26, 1892. Renewed Nov. 4, 1893. Serial No. 490,008. (No model.)



Claim.—1. The combination, with a steam boiler having a central vertical passage for upward circulation, of a steam chamber arranged over such passage, a deflector sustained above the passage, and water outlets from the bottom of the chamber connected with a lower part of the boiler.

2. The combination, with a steam boiler having a central vertical passage for upward circulation, of a steam chamber arranged over such passage, a smoke chamber around such steam chamber to heat the same, a deflector sustained above the passage, and water outlets from the bottom of the chamber connected with a lower part of the boiler.

3. The combination, with a steam boiler having a central vertical passage for upward circulation, of a steam chamber arranged over such passage and having its bottom sloped downwardly from the central aperture, with water outlets communicating with the lower part of the boiler, a smoke chamber around the steam chamber, and a deflector sustained above the central passage, as and for the purpose set forth.

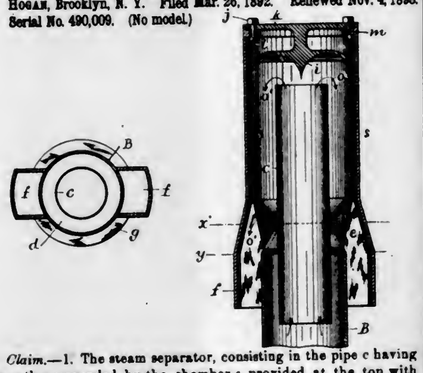
4. The combination, with a steam boiler having a central vertical passage for upward circulation, of a top section applied to such boiler and formed with the hollow ring E, steam chamber G and hollow plate F provided with smoke apertures *m*, the annular smoke chamber above such plate provided with a smoke outlet, the peripheral openings *r* through the plate F for the discharge of water from the steam chamber, and the concavo-conical deflector suspended within the chamber above the central passage and adapted to direct the water toward the openings *r*.

5. The combination, with a steam boiler having a central vertical passage for upward circulation, of a top section applied to such boiler and formed with the hollow ring E, steam chamber G, and hollow plate F provided with smoke apertures *m*, the casing *b* provided with hand-holes *q*, the cover *d* fitted to the casing and the top of the chamber, the peripheral openings *r* connecting the bottom of the chamber with the hollow ring E, water connections from such top section to a lower part of the boiler, and a deflector sustained within the chamber above the central passage and adapted to direct the water toward the openings *r*, as and for the purpose set forth.

6. The combination, with a steam boiler having a central vertical passage for upward circulation, of a steam chamber arranged over such passage, an aperture in the top of such chamber closed by a removable flange, a deflector suspended from such flange over the central passage, and water outlets from the bottom of the chamber connected with the lower part of the boiler.

7. The combination, with a steam boiler having a central vertical passage for upward circulation, of a steam chamber arranged over such passage, an aperture in the top of such chamber closed by a removable pipe flange, rods suspended from such flange with a deflector of their lower ends, and an anti-priming plate upon the rods adjacent to the pipe outlet, as and for the purpose set forth.

520,884. STEAM-SEPARATOR FOR BOILER-TUBES. JOHN J. HOGAN, Brooklyn, N. Y. Filed Mar. 26, 1892. Renewed Nov. 4, 1893. Serial No. 490,009. (No model.)



Claim.—1. The steam separator, consisting in the pipe c having its mouth surrounded by the chamber *s* provided at the top with steam outlet and at the bottom with water outlets, and the device being provided with means for sustaining the lower end of the pipe in proximity to the mouth of a boiler tube.

2. The steam separator, consisting in the pipe c having its mouth surrounded by the chamber *s* provided at the top with steam outlet *n*, and baffle-plate *i* between the mouth of the pipe and such outlet, and having at the bottom one or more outlets with downward passages *f*, and the collar *g* for securing the device upon the end of a boiler tube, substantially as set forth.

3. The combination, with the mouth of a boiler tube, of a pipe c fixed in the bore of the tube to form an annular mouth, a chamber surrounding the mouth of the pipe c and provided at the bottom with water outlets and at the top with steam outlet *n* and baffle-plate *i* below the same, as and for the purpose set forth.

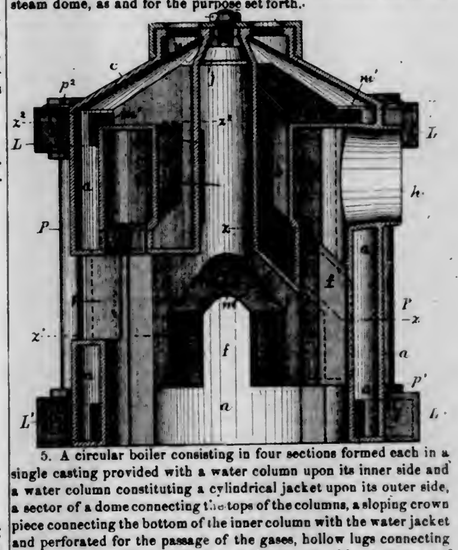
520,885. BOILER IN VERTICAL SECTIONS. JOHN J. HOGAN, Brooklyn, N. Y. Filed May 13, 1892. Renewed Nov. 4, 1893. Serial No. 490,010. (No model.)

Claim.—1. A vertical sectional boiler having separate sections upon opposite sides, formed each in a single casting provided with a water column upon its inner side and a water column constituting a water jacket upon its outer side, and sloping water passages connecting the water jacket with the upper and lower ends of the inner column, as and for the purpose set forth.

2. A vertical sectional boiler having separate sections upon several sides formed each in a single casting provided with a water column upon its inner side and a water column constituting a water jacket upon its outer side, a water tube or connection between the tops of the columns, a sloping crown piece between the water jacket and the bottom of the inner column, and an aperture through such crown piece in the rear of the inner column for the circulation of gases between the columns, substantially as herein set forth.

3. A circular boiler having separate sections upon several sides formed each in a single casing provided with a water column upon its inner side and a water column constituting a cylindrical jacket upon its outer side, the tops of the columns in each section being connected by a sector of a dome having a flat bottom and a top sloped upwardly toward the center of the boiler, and the bottom of the inner column being connected with the water jacket by a sloping crown piece perforated to permit the passage of the gases upward into contact with the flat side of the steam dome, as and for the purpose set forth.

4. A circular boiler having separate sections upon several sides formed each in a single casting provided with a water column upon its inner side and a water column constituting a cylindrical jacket upon its outer side, such jacket being extended below the inner column to form a fire-box casing, the tops of the columns in each section being connected by a sector of a dome, and the bottom of the inner column being connected by a sloping crown piece with water pillars formed upon the inner side of the jacket, and a smoke passage being provided between the water pillars and through the crown piece to permit the access of the gases upward into contact with the under side of the steam dome, as and for the purpose set forth.



5. A circular boiler consisting in four sections formed each in a single casting provided with a water column upon its inner side and a water column constituting a cylindrical jacket upon its outer side, a sector of a dome connecting the tops of the columns, a sloping crown piece connecting the bottom of the inner column with the water jacket and perforated for the passage of the gases, hollow lugs connecting with the exterior of the jacket upon the upper and lower corners of each section, and thimbles connecting the same laterally, as and for the purpose set forth.

6 A circular boiler consisting in four sections formed each in a single casting provided with a water column upon its inner side and a water column constituting a cylindrical jacket upon its outer side, a sector of a dome connecting the tops of the columns, a sloping crown piece connecting the bottom of the inner column with the water jacket and perforated for the passage of the gases, hollow lugs connecting with the exterior of the jacket upon the upper and lower corners of each section, thimbles connecting the same laterally, and pipes connecting the lugs vertically, as and for the purpose set forth.

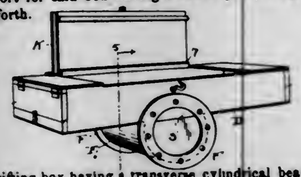
7. A circular boiler having separate sections upon several sides formed each in a single casting provided with a water column upon its inner side and a water column constituting a cylindrical jacket upon its outer side, a sector of a dome connecting the jacket with the inner column at their upper ends, and a sloping crown piece connecting the bottom of the inner column with the water jacket and perforated for the passage of the gases, a sector of a collar upon the top of the steam dome, a cap or band applied to such collar to hold the sections together at the top, an outlet from the top of each section, and water connections between the several sections at the top and bottom, as and for the purpose set forth.

8. A vertical sectional boiler having segmental sections at the ends, with square sections secured between the same substantially as described, and each section being provided with a dome and with the outer column *a* and inner column *b* connected therewith, and a sloping water connection between the lower ends of such columns for circulation through the same, substantially as herein set forth.

520,886. ASH-SIFTER. CHRISTIAN KASPER, Cleveland, Ohio. Filed Dec. 8, 1893. Serial No. 493,096. (No model.)

Claim.—1. In ash sifters, the sifting box having a screen, a cylindrical rocking section fixed across the center of the bottom of the box beneath the screen, a floor beneath the screen forming a passage for the ashes into said cylindrical section, and the base having a circular bearing for said bearing and open through its center for the passage of the ashes, substantially as set forth.

2. The sifting box having a sheet metal bottom with a cylindrical support at its middle forming a part of the bottom and extending across the full width of the box, a screen above said bottom and a pivoted support for said box having a discharge opening, substantially as set forth.



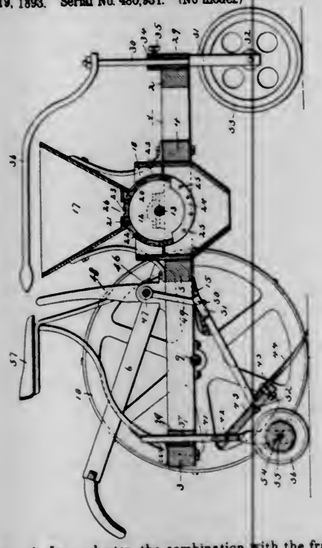
3. The sifting box having a transverse cylindrical bearing surface formed in the bottom of the box and located wholly below the bottom proper, a screen covering the whole of said bottom and cylindrical bearing and supports above the same, and a division plate beneath the screen midway of the said cylindrical bearing and extending into the same, substantially as set forth.

4. The sifting box having greater length than width and provided with a bottom of sheet metal having its center struck up with a cylindrical section for said box, said section having an opening in its bottom for the escape of ashes, a screen stretched over said bottom from end to end of the box, a transverse division plate centrally beneath said screen, and an outlet for the ashes in the bottom of said cylindrical bearing, substantially as set forth.

5. In a sifter, the base described constructed to cover a suitable receptacle and having inclined boards forming a chute for the ashes and bearings in the side pieces for the cylindrical section of the sifting box and inclined outside cross boards having straight inner edges to bear against the sides of the said cylindrical section, in combination with the sifting box having a cylindrical section at its middle, substantially as set forth.

6. The sifting box having a bottom with a transverse cylindrical section extending across the box and wholly beneath the bottom proper and forming a rocking surface for the box, and flanges at the ends of said section to overlap the seat on which the box rests and turns and serving as guards and guides therefor, in combination with the ash receptacle and a cover therefor having a transverse seat for said cylindrical bearing, substantially as set forth.

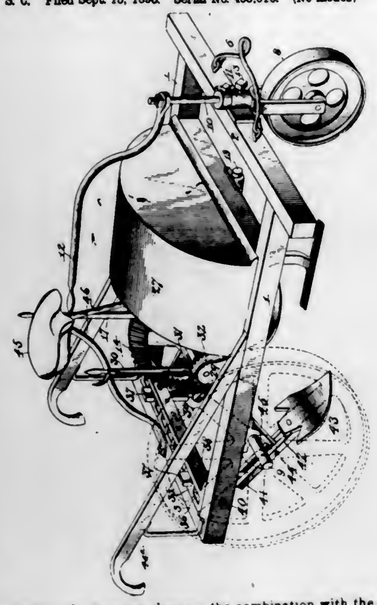
520,887. PLANTER. GEORGE W. MURRAY, Sumter, S. C. Filed July 19, 1893. Serial No. 480,931. (No model.)



Claim.—1. In a planter, the combination with the framework, and the superimposed hopper arranged thereover, of a shaft arranged under the hopper and transverse to the opening therein, a wheel arranged upon the shaft and having at intervals integrally formed peripheral blocks of dovetail-shape and combining to form intermediate dovetail-recesses, seed-cups removably arranged in the recesses, a clamping-ring arranged at the side of the wheel and bearing against the cups and blocks, and bolts passing through the rings and into the blocks, substantially as specified.

2. In a planter, the combination with the hopper shovels, and framework for supporting the same, of the rear plate 37 provided in its front face with vertical recesses 38, the standards 53 depending from and located in the recess and having bearings at their lower ends, the axle 55 mounted in the bearings, the concaved roller mounted on the axle, a clamping-bar arranged across the recess, and clamping-bolts passed through the bar and into the plate, substantially as specified.

520,888. COTTON-CHOPPER. GEORGE W. MURRAY, Rembert, S. C. Filed Sept. 15, 1893. Serial No. 485,810. (No model.)



Claim.—In a cotton chopper, the combination with the rectangular framework comprising a series of cross-bars, a revoluble hoe-carrying shaft and means for operating the same, of a notched bar secured to the rear cross bar, a pair of standards arranged removably in two of the notches of said bar, a clamping-bar located in front of said standard, a pair of clamping-bolts passing through the said clamping-bar and at their inner ends impinged upon the standards, plow-carrying feet pivoted to the lower ends of the standards, a pair of transversely opposite bearings arranged on the framework in front of the standards, a rock-shaft having depending rock-arms journaled in the bearings, links pivoted to the lower ends of the rock-arms and to intermediate points of the plow-feet, a supporting-lever for the shaft and means for locking the same, substantially as specified

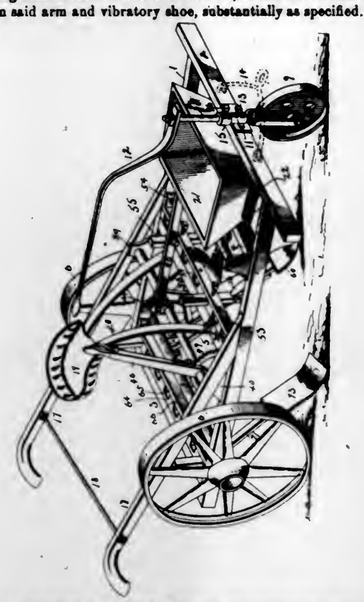
---

520,889. FERTILIZER-DISTRIBUTER. GEORGE W. MURRAY, Rembert, S. C. Filed Sept. 15, 1893. Serial No. 485,611. (No model.)

Claim.—1. In a machine of the class described, the combination with a framework, an axle, and ground-wheels, of a superimposed hopper, opposite bearings arranged therebelow, a crank-shaft located therein, a vibratory-shoe arranged under the hopper, a slotted standard for receiving the crank-shaft and pivoted to the shoe, means for adjusting said shoe, and means for transmitting motion from the axle to the crank-shaft, substantially as specified.

2. In a machine of the class described, the combination with a framework, an axle, and ground-wheels, of a superimposed hopper, opposite bearings below the same, a crank-shaft arranged in the bearings, a vibratory-shoe arranged under the hopper, a slotted standard for receiving the crank-shaft and pivoted to the shoe, means for adjusting said shoe, means for transmitting motion from the axle to the crank-shaft, and shovels arranged at opposite sides of the shoe, substantially as specified.

3. In a machine of the class described, the combination with the framework, the axle having the sprocket-wheel, and the ground-wheels, of the superimposed hopper arranged at the front end of the machine, depending hangers, the vibratory shoe arranged under the hopper, the slotted standard pivoted to the shoe, the transverse cranked shaft engaging the slot of the standard and journaled in the hangers, a sprocket-wheel at the outer end of the crank-shaft, the sprocket-chain connecting the same with the sprocket-wheel of the axle, the bearing-arm extending from the framework and having a threaded eye, an adjusting-rod threaded in the bearing-bracket, a forwardly extending arm at the lower end of the rod, and a loose connection between said arm and vibratory shoe, substantially as specified.



4. In a machine of the class described, the combination with the framework, the axle having the sprocket-wheel, and the ground-wheels, of the superimposed hopper arranged at the front end of the machine, depending hangers the vibratory-shoe arranged under the hopper, the slotted standard pivoted to the shoe, the transverse cranked shaft engaging the slot of the standard and journaled in the hangers, the sprocket-wheel at the outer end of the cranked-shaft, the sprocket-chain connecting the same with the sprocket-wheel of the axle, a bearing-arm extending from the framework and having a threaded eye, an adjusting-rod threaded in the bearing bracket, a forwardly extending arm at the lower end of the rod, a stud rising from the arm and loosely engaging a slot in the front end of the shoe, substantially as specified.

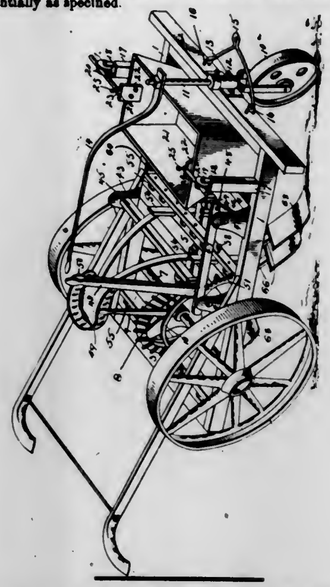
520,890. PLANTER. GEORGE W. MURRAY, Rembert, S. C. Filed Sept. 15, 1893. Serial No. 485,613. (No model.)

Claim.—1. In a planter, the combination with a framework, opposite standards rising therefrom, and grooved rollers arranged in the standards, of an intermediate hopper, plates extending from the ends thereof and having eyes, adjustable rods extending from the plates through the eyes and resting in the grooves of the rollers, binding-bolts passing through the eyes and impinging upon the rods, and means for vibrating the hopper, substantially as specified.

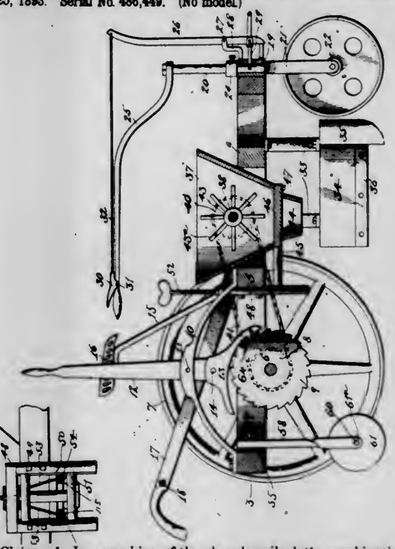
2. In a planter, the combination with a framework, opposite bearings, an intermediate hopper guide-rods extending from the ends of the hopper through the bearings, of an axle, an intermediate shaft terminating at its front end in a crank, a lever pivoted between its ends to the framework, slotted at its lower end to receive the crank, and at its upper end pivoted to the hopper, and means for communicating motion from the axle to the shaft, substantially as specified.

3. In a planter, the combination with a framework, a hopper arranged thereon and adapted to vibrate thereover an intermediate longitudinal shaft terminating at its front end in a crank and provided at its rear end with a pinion, a vibratory lever pivoted between its ends to the framework, slotted at its lower end to receive the crank, and pivoted at its upper end to the hopper, of an axle, ground-wheels therefor, a master-gear arranged on the axle for engaging the pinion, substantially as specified.

4. In a planter, the combination with a framework, and planting-mechanism, of front and rear notched bars extending transverse the framework, a front clamping plate having binding-screws, a pair of standards arranged in each of the notched bars, one standard of each pair being angularly disposed as at 61, front and rear rock-shafts, connections between the two, a lever for operating the shafts, standards adjustably arranged upon the shafts, link-bars pivoted to the lower ends of the standards, and shovel-carrying standards pivoted to each of the rear standards and between their ends to the link-bars, substantially as specified.



520,891. COMBINED COTTON-SEED PLANTER AND FERTILIZER-DISTRIBUTER. GEORGE W. MURRAY, Rembert, S. C. Filed Sept. 25, 1893. Serial No. 486,449. (No model.)



Claim.—1. In a machine of the class described, the combination with the framework, and the fertilizer distributing-mechanism, of a roller arranged thereunder and having a concaved periphery gradually reduced toward the center and provided at its center with an annular cylindrical recess, a superimposed notched bar, standards extending from the ends of the roller and forming bearings for its journals and arranged in the notches of the bar, a clamping-plate arranged in front of the bar, and binding-screws passed through the clamping-plate and bearing upon the standards, substantially as specified.

2. In a machine of the class described, the combination with a framework and a fertilizing-mechanism, of a rear axle, ground-wheels thereon, a ratchet wheel arranged upon the axle, an arched standard arranged over the axle, a lever fulcrumed in the arched standard, a

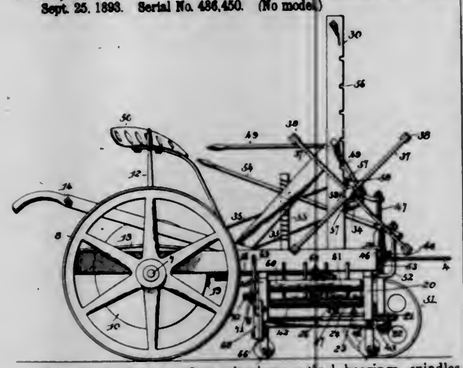
pawl weighted at one end to normally engage the ratchet-wheel, an eye on the pawl and a hook on the framework for engaging the eye for suspending the pawl out of operative position, substantially as specified.

3. In a machine of the class described, the combination with a framework, a fertilizer dropping mechanism, a pair of forwardly converged gage-bars arranged below the said mechanism, and a furrow-opening shoe attached to and conforming with the angle at the meeting ends of the gage-bars and having a rounded lower edge which depends below the lower edges of the gage-bars, of horizontally flared shear-blades 36 secured to the outer sides of the gage-bars with their flared lower edges extending below the plane of the lower edges of the gage-bars and terminating at their front ends in rear of said shoe, substantially as specified.

4. In a machine of the class described, the combination with a rectangular framework, and the furrow-opening devices arranged therebelow, of the superimposed hopper, the agitator arranged therein, a pair of bars pivoted at their front ends at opposite sides of the opening in the bottom of the hopper, cut-offs carried by the bars, opposite vertical ways arranged in rear of the hopper, a sliding frame arranged in the ways, inclined rods arranged upon the sliding frame and passing through perforations in the bars, substantially as specified.

5. In a machine of the class described, the combination with a rectangular framework, and the furrow opening devices arranged therebelow, of the superimposed hopper the agitator arranged therein, a pair of bars pivoted at their front ends at opposite sides of the opening in the bottom of the hopper, cut-offs carried by the bars, an inverted U-shaped frame arranged in rear of the hopper and provided with grooves at the inner side of its vertical terminal, an H-shaped frame having its ends tenoned to enter the groove, inclined rods converging toward their upper ends arranged in the H-shaped frame and passing through openings in the rear ends of the bars, and an adjusting-screw connected to the H-shaped frame and passing through the upper end of the guide-frame, substantially as specified.

520,892. REAPER. GEORGE W. MURRAY, Rembert, S. C. Filed Sept. 25, 1893. Serial No. 486,450. (No model.)



Claim.—1. A reaper frame having vertical bearings, spindles arranged in the bearings and terminating at their lower ends in forked, caster-wheel receiving frames, coiled springs arranged upon the spindles between the forks and under sides of the frame, in combination with means for depressing the frame against the tension of the springs, substantially as specified.

2. In a reaper, the combination with a main frame, and a carrier frame arranged at one side thereof, vertical bores in the carrier frame, spindles arranged therein and extending below the same and terminating in caster-receiving forks, and coiled springs arranged on the spindles between the forks and carrier frame, of an eye at the front end of the main frame, a vertical spindle arranged therein and terminating below the same in a caster-wheel receiving fork, a bracket in front of the main frame and extending therefrom, a lever connected with the bracket and fulcrumed on the spindle, and a locking standard for the rear end of the lever, substantially as specified.

3. In a reaper, the combination with the main frame, a carrier frame, a carrier, and means for operating the same, of a transverse shaft at the outer end of the carrier provided with arms for receiving grain from the carrier, a spring for normally supporting the arms against the weight of the grain and adapted to be overcome at length by the latter, a rocking lever extending from the shaft and carried thereby, and devices arranged upon the outer roll of the carrier for striking said lever, substantially as specified.

4. In a reaper, the combination with a main frame, carrier frame, carrier, and means for operating the same, of a transverse shaft at the outer end of the carrier provided with arms for receiving grain from the carrier, a spring for normally supporting the arms against the weight of the grain and adapt it to be overcome at length by the latter, a rocking lever splined upon the shaft, a cam arranged in the path of the rocking lever and adapted to deflect the same, a spring for supporting the rocking-lever in the path of the cam, and devices carried by the outer roll of the carrier-frame for striking said rocking-lever and depressing the same, substantially as specified.

5. In a reaper, the combination with a main frame, a carrier-frame, a carrier arranged thereon, and means for operating the carrier frame, of a transverse shaft arranged at the outer end of the carrier frame, arms extending inwardly from the shaft below the end of the carrier, a head at the outer end of the shaft, a spring arranged on the shaft, a bell-cranked rocking lever splined on the shaft at the side of the spring and borne upon thereby, the rock arm 64 arranged on the shaft, the link 66 pivoted to the rock-arm, the intermediately pivoted lever 68 pivoted at its outer end to the link 66 and at its inner end arranged in the path of and adapted to deflect the bell crank lever, and the cam 72 carried by the outer end of the outer carrier roll and adapted to strike the bell crank lever when so deflected, substantially as specified.

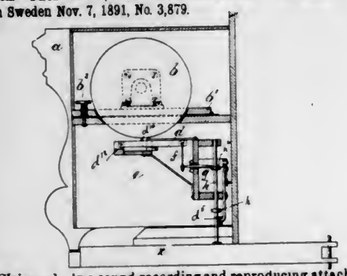
520,893. HEAT-REGULATOR. JAMES F. MCELROY, Albany, N. Y., assignor to the Consolidated Car-Heating Company, Wheeling, W. Va. Filed Dec. 1, 1893. Serial No. 492,505. (No model.)



Claim.—1. In a heat regulator, a seat provided along its front with two openings extending the full length thereof, one near the floor and the other near the top thereof, a heater placed beneath said seat, a shutter adapted to close said upper opening, each end of said shutter provided with a plate, a lifting bar attached to said shutter and to said plate, a lever connected with said plate by the operation of which each end of said shutter may be independently elevated or lowered as desired, so that the flow of heated air of one end of a car or other apartment may be controlled without affecting the flow of the air to the other end of the same, substantially as described and for the purpose set forth.

2. In a heat regulator, a seat provided along its front with two openings, one near the floor and the other near the top thereof, a heater placed beneath said seat, a shutter adapted to close said upper opening, each end of said shutter provided with a means for adjusting the end of the shutter independently, so that the flow of the heated air of one end of a car or other apartment may be controlled without affecting the flow of air to the other end of the same, substantially as described and for the purpose set forth.

520,894. SOUND RECORDING AND REPRODUCING ATTACHMENT FOR KEY-INSTRUMENTS. CARL W. NYSTRÖM, Carlstad, Sweden. Filed Dec. 17, 1892. Serial No. 455,546. (No model.) Patented in Sweden Nov. 7, 1891, No. 3,879.



Claim.—1. In a sound recording and reproducing attachment for key instruments, the combination, with a casing, of a cylinder mounted in the same, a series of levers pivoted below the cylinder and provided with projections for making impressions in the surface of the cylinder, a series of vertically-movable spindles in the casing, means for transmitting motion from said spindles to the levers below the cylinder and mechanism for raising the several spindles simultaneously, substantially as set forth.

2. In a sound recording and reproducing attachment for key instruments, the combination, with a casing, of a cylinder mounted in the same, a detachable frame containing levers for making impressions on the surface of the cylinder, means for operating said levers from the keys, an additional detachable frame in said casing containing pressers for operating the keys and means for operating said pressers from the above mentioned cylinder on which the impressions have been made by the levers, substantially as set forth.

520,895. WOMB-BATTERY. JULIUS C. PETIT, Fort Worth, Tex. Filed Apr. 10, 1894. Serial No. 507,051. (No model.)

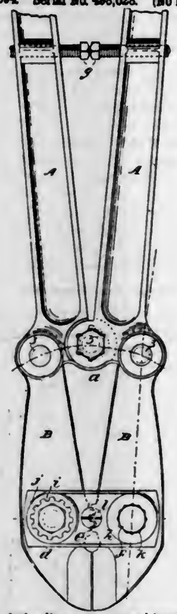


Claim.—1. The herein described electrical device for the treatment of diseases of the womb, comprising a body and a stem; the said stem being composed of a metal either positive or negative to the metal of which the body is composed, substantially as and for the purpose set forth.

2. An electrical device for the treatment of diseases of the womb, comprising a cup shaped body having its edge turned and also having a central, hollow and exteriorly threaded shank, and a hollow, interiorly-threaded stem engaging the shank of the body; the said stem being composed of a metal either positive or negative to the metal of which the body is composed, substantially as specified.

3. The combination with an electrical device comprising a body having a hollow shank and a hollow stem connected to said shank; of the adjusting implement O, having a hook at one end, substantially as and for the purpose set forth.

520,896. BOLT-CLIPPERS. HENRY K. PORTER, Boston, Mass. Filed Jan. 25, 1894. Serial No. 498,028. (No model.)



Claim.—1. In a bolt clipper, the combination with levers A, of the interior ear *n* formed upon one of said levers and with an eccentric passage therethrough with a series of recesses *w* formed at the side of said passage and extending beyond the line of the same, the eccentric *q* formed with a hole therethrough near one side for reception of bolt 5; said eccentric being also formed with a rib *t* upon its outer periphery, that engages in said recesses *w* as said eccentric may be adjusted to either of said seats, for the purposes specified.

2. In a bolt clipper, the combination of handles A, the jaws B formed with a hole larger than the co-acting hole in A, and with side recesses *w* formed therein; the eccentrics *q* formed with a longitudinal rib *t* to fit in either of said recesses *w*, and with a hole for bolt 2, eccentric to the periphery of *q* and of a size corresponding to that in handles A, for the purposes specified.

3. In a bolt clipper the combination of handles A, the jaws B, an eccentric *q* having a longitudinal rib *t* formed thereon and arranged in ear *n* of a handle A formed to receive said eccentric, with side recesses *w* for reception of said rib, and the rear ends of jaws B formed with a hole for reception of an eccentric *q*, with side recesses *w*, and said eccentric *q* formed to fit the hole in the rear end of said jaws and having a longitudinal rib *t* formed upon it and adapted to enter either of the recesses *w* in said hole for the purposes specified.

4. In a bolt clipper the combination of jaws B formed with interlocking teeth *e* the straps *c*, *d*, and bolts *f* passing through the same and through said jaws, the levers A, pivoted together and to said jaws, and formed with interior ear *n* with an enlarged passage for reception of eccentric *q* and with side recesses *w* therein, and the said eccentric *q* formed with a longitudinal rib *t* arranged to fit in either of recesses *w*, for the purpose stated.

5. In a bolt clipper, the combination of jaws B the straps *c*, *d* with bolts *f* passing through the same and said jaws, the handles A pivoted together and to said jaws, and said jaws B formed with an enlarged hole at the rear end, with side recesses *w* in said holes and an eccentric *q* formed with a longitudinal rib *t* to fit in either of said recesses, for the purpose specified.

6. In a bolt clipper, the combination of jaws B, straps *c*, *d*, and bolts *f*, passing through said straps and jaws to hold them in position; the handles A hinged together and to said jaws, the central interior ear *n* formed upon one of said handles and with a passage therethrough, with side recesses *w* extending outside the boundary of said passage, to receive eccentric *q*; and the jaws B formed with an enlarged hole *x* in their rear ends to receive an eccentric *q* and with side recesses *w* at the sides of said holes, and the eccentric *q* formed with a longitudinal rib *t*, adapted to fit in either of said recesses *w* when so inserted, for the purposes specified.

7. In a bolt clipper, the combination of jaws B, the straps *c* and *d*, the bolts *f* passing through said straps and jaws to hold them in position, the locking plate *h* interlocked with said bolts to hold the same from rotation, the handles A hinged together and pivoted to said jaws B, and the interior central ear *n* formed with an enlarged passage therethrough for eccentric *q*, and with side recesses *w* extending outside the boundary of said passage, and said eccentric *q* formed with an external longitudinal rib *t* to fit in either of said recesses for the purposes specified.

8. In a bolt clipper, the combination of jaws B, the straps *c*, *d*, the bolts *f* passing through said straps and jaws to hold said parts in position, the locking plate *h* arranged to lock said bolts and prevent their rotation, the handles A pivoted together and to said jaws, the central interior ear *n* formed upon one of said handles and with an enlarged hole therethrough for eccentric *q*, with side recesses *w* extending outside its boundary; the rear ends of said jaws also formed with enlarged holes to receive eccentric *q* and with side recesses *w* extending beyond the boundary of said holes, and eccentric *q* having a longitudinal rib *t* formed thereon to fit in either of the recesses *w* in said ear *n* and jaws B, for the purposes specified.

9. In a bolt clipper, the combination of adjustable buffers *g*, the straps *c*, *d*, jaws B and bolts *f* passing through said straps and jaws and holding them in position; the handles A pivoted together and to said jaws, and the said jaws B; the central interior ear *n* formed upon one of said handles, and with an enlarged hole therethrough to receive eccentric *q*, and with side passages *w* formed therein and extending beyond the boundary of said hole, and the eccentric *q* having a longitudinal rib *t* formed upon it to fit in either of said recesses, for the purposes specified.

10. In a bolt clipper, the combination of adjustable buffers *g*, the handles A pivoted together and to jaws B, the said jaws and the straps *c*, *d* and bolts *f* by which said parts are held in position; the interior central ear *n* formed with an enlarged hole therethrough for eccentric *q* with side recesses *w* extending beyond the boundary of said hole, and said eccentric formed with a longitudinal rib *t* adapted to fit in either of said recesses, and said jaws formed at their rear ends with enlarged holes with side recesses *w* to receive said eccentric *q* having said rib *t* formed thereon, to fit in either of said recesses *w*, for the purposes specified.

520,897. BUTTON. CHARLES RADCLIFFE, Newark, N. J. Filed May 3, 1893. Serial No. 473,403. (No model.)

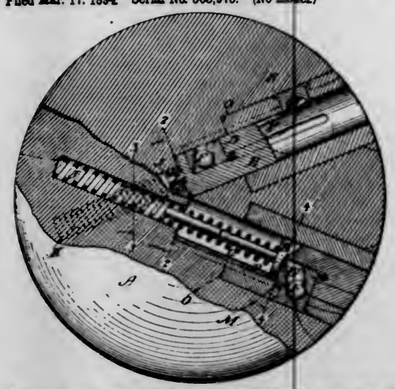


Claim.—1. The herein described method of securing a button to a piece of cloth, which consists in forcing a pointed flat post on a back-plate or shoe of the button through the material, then forcing said pointed post through the hub or shell of the button, and causing said post to form a rectangular slot or opening in said hub, and then twisting the upper portion of said post against the opposite edges of the slot in the hub, said edges thereby forming incisions in the opposite edges of the post, and thereby being forced across said slot in the hub, to cause the holding or locked engagement, substantially as set forth.

2. The herein described method of securing a button to a piece of fabric, which consists in forcing a pointed flat post on a back-plate or shoe of the button through the material, then placing a hub or shell provided with a small central perforation over said post and forcing said pointed post through the hub or shell of the button and causing said post to form a rectangular slot or opening in said hub,

and then twisting the upper portion of said post against the opposite edges of the slot in the hub, said edges thereby forming incisions in the opposite edges of the post, and the upper portion of the post thereby being forced across said slot in the hub, to cause the holding or locked engagement, substantially as set forth.

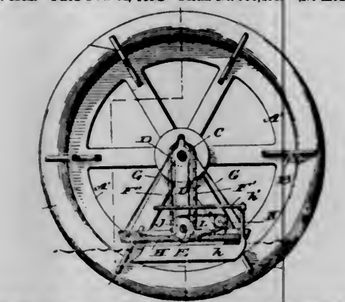
520,898. TENPIN-BALL. CHARLES W. REDMAN, Queens, N. Y. Filed Mar. 17, 1894. Serial No. 503,975. (No model.)



Claim.—1. In a ten pin ball, provided with finger holes, the plugs B, arranged to slide in said holes, and means, whereby said plugs are automatically locked and unlocked to and from the ball, by change of position, all constructed and arranged to operate as and for the purposes specified.

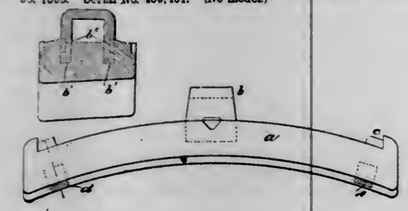
2. The combination with a ten pin ball, of finger holes, automatic closing plugs, closing springs; and means for locking and unlocking said plugs in their holes, all combined to operate substantially as specified.

520,899. AQUATIC BICYCLE. JACOB E. BOWK, Fort Wingate, N. Mex. Filed Feb. 14, 1894. Serial No. 500,155. (No model.)



Claim.—In combination with the pneumatic wheels with paddle extensions as described, the rods D' journaled near their upper ends to the main driving shaft, carrying at their lower ends a shaft having sprocket wheel and chain connection with the main shaft, and paddles for operating the same, the platform H suspended from the upper ends of the bars D' by the rods G, the said platform adapted to carry the steering mechanism, all substantially as shown and described.

520,900. BRAKE-SHOE. CHARLES T. SCHOEN, Allegheny, Pa., assignor to the Schoen Brake Shoe Company, same place. Filed Oct. 23, 1893. Serial No. 489,401. (No model.)



Claim.—1. A brake shoe having a U-shaped clip provided with essentially parallel limbs which are forced part-way into the metal of the shoe without passing entirely through the same, thereby to unite the clip and shoe, substantially as described.

2. A brake shoe having its clip and end-lugs made separately from the shoe and forced part way into it, without passing entirely through it, substantially as described.

3. A brake shoe provided with a clip having essentially parallel limbs constructed with interlocking devices, such as cavities, and having its said limbs embedded in the back of the shoe and the metal of the shoe engaging said interlocking devices on the said limbs, substantially as described.

4. A brake-shoe having its end-lugs formed of pieces forcibly inserted part way in said shoe without passing entirely through it, substantially as described.

520,901. WHEEL-TIRE. OBADIAH SEELY, Syracuse, N. Y., assignor to E. C. Stearns & Co., same place. Filed June 13, 1893. Serial No. 477,442. (No model.)

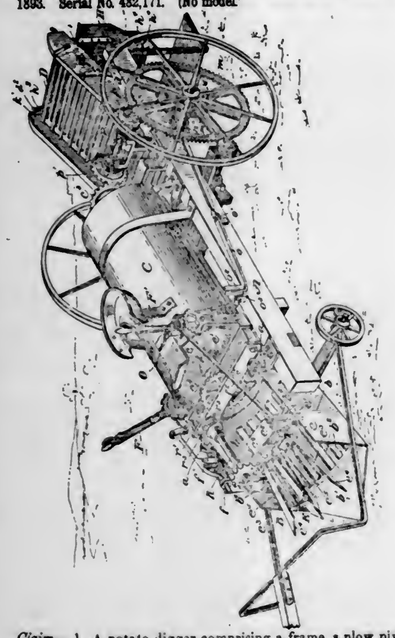


Claim.—1. The combination with the rim and the covering, of a clamping band divided transversely and having its ends separated, and a clamping bolt arranged between the separated ends of the clamping band and having a head which bridges the space between said ends and overlaps the latter, substantially as set forth.

2. The combination with the rim and the covering, of a divided clamping band which clamps the covering against the rim and which is provided with openings at its ends, and a clamping bolt having a head provided with projections which engage in said openings, substantially as set forth.

3. The combination with the rim and the covering, of a divided clamping band which clamps the covering against the rim and which is provided in its ends with notches and with openings adjacent to said notches, a clamping bolt arranged between the ends of the clamping band and passing through the rim, and having a head arranged on the outer side of the clamping band and provided with pins engaging in said openings, and a screw nut applied to the inner end of the shank and bearing against the inner side of the rim, substantially as set forth.

520,902. POTATO-DIGGER. AARON SMETHURST, Bountiful, Utah, assignor of one-half to Charles H. Roberts, same place. Filed July 29, 1893. Serial No. 482,171. (No model.)



Claim.—1. A potato digger comprising a frame, a plow pivoted to said frame, a catch extending upward from said plow, a rod pivoted to the body of the machine and passing through said catch, and means whereby the rod may be raised and lowered, thus correspondingly moving the plow; substantially as described.

2. A potato digger comprising a frame, a plow pivoted to said frame, a plate extending upward from said plow, a second plate upon said first plate, an opening in said second plate, a lever pivoted to the body of the machine, and a rod secured to said lever and passing through the opening in the second plate whereby the plow may be raised and lowered; substantially as described.

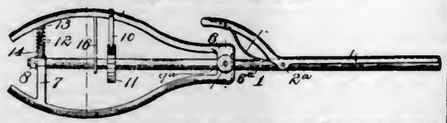
3. A potato digger comprising a frame, a plow pivoted thereto, a plate extending upward from said plow, a second plate upon said first plate, an opening in said second plate, a lever upon the body of the machine, and a rod pivoted to the body of the machine, one end of said rod being pivoted to the lever and the other end passing through the opening in the second plate whereby the plow may be raised and lowered; substantially as described.

4. A potato digger comprising a frame, a plow secured thereto, a vine clearer carried by said plow, a counter shaft upon the body of the machine, means for imparting motion to said counter shaft, a second shaft having a universal joint with said counter shaft and supported near the vine clearer, and connections between the vine clearer and said second shaft; substantially as described.

5. A potato digger comprising a frame, a plow secured thereto, plates extending upward from the plow, a cross bar secured to said plates, a shaft journaled upon said cross bar, tearing arms secured to said shaft, a bearing upon one of the plates extending from the plow, a counter shaft secured to the body of the machine, means for imparting motion to said counter shaft, and a second shaft in gear with the shaft upon the cross bar, said second shaft resting at one end in the bearing upon the plate extending from the plow and at the other end forming a universal joint with the counter shaft; substantially as described.

6. A potato digger comprising a frame, a trough secured thereto, a plow attached to said trough, a cross bar secured to the sides of said trough, a shaft journaled to said cross bar, tearing arms upon said shaft, a bearing upon one side of the trough, a counter shaft supported upon the body of the machine, a plate upon said counter shaft, peripheral slots in said plate, a shaft journaled at one end in the bearing upon the trough and at the other having lugs fitting in the peripheral slots in the plate, said shaft also carrying a gear connected to a corresponding gear upon the shaft secured to the cross bar, and means for imparting motion to the counter shaft; substantially as described.

520,903. CURLING-IRON. CHARLES F. SNYDER, St. Louis, Mo., assignor to Howard R. Stout and Charles F. Stout, Chicago, Ill. Filed June 24, 1893. Serial No. 478,705. (No model.)



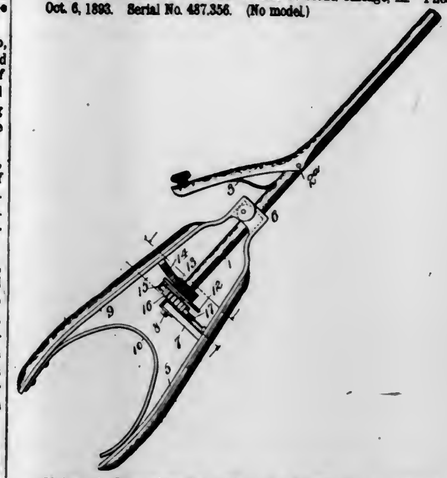
Claim.—1. In combination with a pair of curling tongs, comprising a rod and pivoted jaw, of a handle in which said rod is revolubly mounted, a twin handle pivoted to the first-named handle, a ratchet wheel fixedly mounted on the rod, a spring pawl on the pivoted handle which normally engages the ratchet wheel on the rod, whereby, when the pivoted handle is actuated, the pawl and ratchet wheel with which it engages, operates the rod in one direction only, and a spring for forcing said handle out, substantially as described.

2. In a curling iron, the combination with the rod and pivoted jaw, of a handle in which said rod is mounted, a ratchet wheel fixedly mounted on the rod, a spring pawl mounted on the pivoted handle, which pawl normally engages the ratchet wheel to operate the rod in one direction only when the pivoted handle is actuated, a spring for forcing the pivoted handle out, and means for limiting the outward movement of the pivoted handle imparted by the thrust of the spring, substantially as described.

3. In a curling iron, the combination with the rod and its pivoted jaw, of a handle in which said rod is revolubly mounted, a nut on the end of the rod to prevent its longitudinal movement, a twin handle pivoted upon the first-mentioned handle, a ratchet wheel rigidly mounted on the rod, a spring pawl carried by the pivoted handle which normally engages the ratchet wheel to operate the rod, a spring interposed between the two handles, and a loop extending from the pivoted handle and surrounding the rod for preventing said handle from moving outwardly too far, substantially as described.

4. The combination with a pair of curling tongs, the rod forming one tong of which being extended rearwardly and revolubly journaled in bearings mounted on a handle-piece 5, of a twin handle 9 pivoted at the end of the handle-piece 5, a ratchet-wheel 11 rigidly mounted on the tong rod, and a spring pawl 10 mounted on the pivoted handle 9, which pawl normally engages the ratchet-wheel 11 on the tong rod and rotates the same in one direction only when the handle 9 is compressed, substantially as described.

520,904. CURLING-IRON. CHARLES F. SNYDER, St. Louis, Mo., assignor to Howard R. Stout and Charles F. Stout, Chicago, Ill. Filed Oct. 6, 1893. Serial No. 487,356. (No model.)

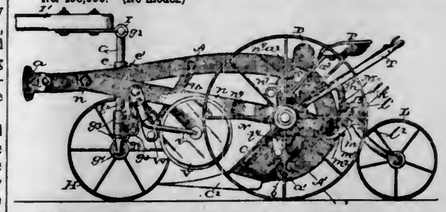


Claim.—1. In combination with a pair of curling tongs, comprising a rod and pivoted jaw, of a handle in which said rod is revolubly mounted, said handle being formed with an upturned lip at its forward end, and ears or wings on each side of said lip, pivot pin passing through said wings, a handle mounted on said pivot pin, which handle extends forward beyond the lip with which it contacts to arrest its outward movement, and means on the rod, which are operated by the pivot handle, for rotating said rod, and its carried clamping jaw, substantially as described.

2. In combination with a pair of curling tongs, comprising a rod and pivoted jaw, of a handle in which said rod is revolubly mounted, a handle pivoted to the first-named handle, a pinion loosely mounted on the rod, a rack on the pivoted handle for engaging the pinion, and a ratchet wheel fixedly mounted on the rod, which is adapted to be engaged by a pawl carried by the pinion for rotating the rod and its carried clamping jaw, substantially as described.

3. In combination with a pair of curling tongs, comprising a rod and pivoted jaw, of a handle in which said rod is revolubly mounted, a handle pivoted to the first-named handle, a spring interposed between the two handles, a pinion loosely mounted on the rod, which carries a pawl for actuating a ratchet wheel fixedly mounted on the rod, a stationarily mounted pawl for preventing a back movement of said ratchet wheel, and a rack on the pivoted handle which engages and operates the pinion, substantially as described.

520,905. WHEEL-PLOW. JOHN W. SWICKARD, Galva, Ill., assignor to Eugenio K. Hayes, same place. Filed Feb. 3, 1894. Serial No. 498,999. (No model.)



Claim.—1. In a three wheel plow, the combination substantially as hereinbefore described, with a plow beam, a forward furrow wheel mounted on the forward end part of said plow beam, a rear furrow wheel mounted on its rear end part, and a plow secured to and below its rear end part, of a crank-shaped frame pivotally connected with the plow beam and carrying a land wheel or supporting wheel on its free end, and means mounted on said frame whereby the plow, the rear end of the plow beam and the rear furrow wheel can be raised and lowered relatively to the land wheel.

2. In a wheel plow, the combination, substantially as hereinbefore described, with a plow beam having a downwardly curved rear end part, and a plow standard fixed to the plow, pivoted with the plow to the lower end part of the plow beam, and provided on its upwardly extended end with a laterally projecting stud pin, of a frame hinged at its forward end to the forward end part of the plow beam, provided with a slotted standard, in the slot of which said stud pin traverses as the plow is raised and lowered, and further provided with a supporting land wheel for its free end.

3. In a wheel plow, the combination substantially as hereinbefore described, with a plow beam having a downwardly curved rear end part, and a plow standard fixed to the plow, pivoted with the plow to the lower end part of the plow beam, and provided on its upwardly extending end with a laterally projecting stud pin, of a frame hinged at its forward end to the forward end part of the plow beam, provided with a supporting land wheel, and with a standard having a slot with an upper end part inclined rearwardly, in which inclined part of said slot the stud pin traverses in both raising and lowering the plow while above ground, with a greater velocity at its point end than at its heel end.

4. In a wheel plow, the combination substantially as hereinbefore described, with a plow beam having a downwardly curved rear end part, a plow standard fixed to the plow, pivoted with the plow to the lower end part of the plow beam, and provided on its upwardly extended end with a laterally projecting stud pin, a bracket secured to the front end part of the plow beam, and provided with a forward furrow wheel, and a rear furrow wheel, secured to the rear part of the plow beam, of a frame hinged at its forward end to the forward end part of the plow beam, provided with a supporting land wheel and a slotted standard, in the slot of which standard the stud pin on the plow standard traverses as the plow is raised and lowered, a locking lever and a link connecting said lever with the lower part of the slotted standard and the plow, whereby the plow can be adjusted in higher or lower positions relatively to other parts, and held after such adjustments.

5. In a wheel plow, the combination substantially as hereinbefore described, with a plow beam having a downwardly curved rear end part, and a plow standard fixed at its lower end to the plow, and secured with the plow to the lower end part of the plow beam, of a frame hinged at its forward end to the forward end part of the plow beam, provided with a slotted guide way in which the upper end of the plow standard is located, and with a lateral bracket, a supporting land wheel, a hand lever, and a link connecting the plow standard or plow with the hand lever.

6. In a wheel plow, the combination substantially as hereinbefore described, with a plow beam having a downwardly curved rear end part, a bracket fixed to its forward end part and provided with a front furrow wheel, a rear furrow wheel secured to its rear end, and a plow standard fixed at its lower end to the plow, and secured with the plow to the lower end part of the plow beam, and having a laterally projecting stud pin on its upper part, of a frame hinged at its forward end to the forward end part of the plow beam, provided with a slotted guide-way in which the upper end of the plow standard is located, and with a lateral bracket, a supporting land wheel, a slotted standard, a hand lever, and a link connecting the hand lever with the plow standard or plow.

7. In a wheel plow, the combination substantially as hereinbefore described, with a plow beam having a downwardly curved rear end part, a bracket fixed to its forward end part and provided with a front furrow wheel, a rear furrow wheel secured to its rear end, and a plow standard fixed at its lower end to the plow and secured with the plow to the lower end of the plow beam, and provided with a laterally projecting stud pin on its upper end part, of a frame hinged at its forward end to the forward end part of the plow beam, and provided with a slotted guide-way in which the upper end of the plow standard slides, and with a lateral bracket, a supporting land wheel, a slotted standard, a rack bar, a lever with a link connection with the plow standard or plow, and a driver's seat mounted on said hinged frame.

8. In a wheel plow, the combination substantially as hereinbefore described, with a plow beam having a downwardly curved rear end part, a bracket fixed to its forward end part and provided with a front furrow wheel, a rear furrow wheel secured to its rear end, and a plow standard fixed at its lower end to the plow and secured with the plow to the lower end of the plow beam, and provided with a laterally projecting stud pin at its upper end part, of a frame hinged at its forward end to the forward end part of the plow beam, provided with a slotted guide-way in which the upper end of the plow standard slides, and with a lateral bracket supported at its outer end by the land wheel, a slotted standard, a driver's seat, and means mounted on said frame for raising and lowering the plow.

9. In a wheel plow, the combination substantially as hereinbefore described, with a plow beam having a downwardly curved rear end part, a bracket fixed to its forward end part and provided with a front furrow wheel, a plow secured to the lower end of the plow beam, a caster wheel swiveled in a bearing at the rear end of the plow beam, a recessed enlargement on the caster wheel standard, a bell crank lever journaled on the plow beam, and a spring; of a frame hinged at its forward end to the forward end of the plow beam, and provided with a supporting land wheel, and means for raising and lowering the plow beam, whereby one end of the bell crank lever is brought into contact with the rear end of the swinging frame, to release the caster wheel when the plow is elevated for turning at the ends of furrows.

10. In a wheel plow, the combination substantially as hereinbefore described, with a plow beam having a downwardly curved rear end part, with a plow secured thereto, a rear furrow wheel secured to its rear end, and a bracket fixed to its forward end, provided with a vertically adjustable front furrow wheel, of a frame hinged at its forward end to the forward end of the plow beam, and provided with a bracket and supporting land wheel at its rear end and with means for adjusting its rear end and the land wheel relatively to the plow beam, and the front furrow wheel.

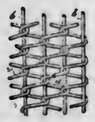
11. In a three wheel plow, the combination substantially as hereinbefore described, with a plow beam, a forward furrow wheel mounted on the forward end part of said plow beam, a rear furrow wheel mounted on its rear end part, and a plow secured to and below its rear end part, of a crank-shaped frame pivotally connected with the plow beam and carrying a land wheel or supporting wheel on its free end, a single lock lever mounted on said crank shaped frame, and means for pivotally connecting said lever with the plow or plow beam, whereby through the action of the crank-shaped frame, and by said single lever, the plow and rear furrow wheel can be raised and lowered relatively to the land wheel, and the plow be properly winged simultaneously with its rising and falling movements.

12. In a wheel plow, the combination substantially as hereinbefore described, with a plow beam and plow, and a frame pivoted at its forward end to the forward end part of the plow beam, supported at its rear end on the land wheel, and provided with means for raising and lowering the plow, of a colter, swiveled to a pendent bar which is pivoted at its upper end to said frame, and a link pivotally connecting the pendent bar and the plow beam, all combined in such manner that the colter will be automatically brought into proper working position relatively to the plow in all adjustments of the plow, while supported by the plow beam and frame.

13. In a three wheel plow, the combination substantially as hereinbefore described, with a plow beam, a forward furrow wheel mounted on the forward end part of said plow beam, a rear furrow wheel mounted on its rear end part, and a plow pivoted to and below its rear end part, of a crank-shaped frame pivotally connected with the plow beam and carrying a land wheel or supporting wheel on its free end, a single lock lever mounted on said crank-shaped frame, and means for pivotally connectiug said lever with the plow or plow beam, whereby by the action of the crank-shaped frame and by said single lever, the plow can be simultaneously raised and lowered, and a standard fixed to the plow, and means interposed between said standard and the plow beam whereby raising and lowering the plow by the single lever will tilt, and raise and lower the plow with a differential movement.

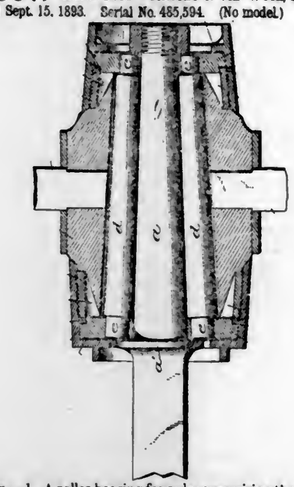
14. In a three wheel plow, the combination substantially as hereinbefore described, with a plow beam, a forward furrow wheel mounted on the forward end part of said plow beam, a rear furrow wheel mounted on its rear end part, and a plow secured to and below its rear end part, of a crank-shaped frame, pivoted at its forward end part to the forward end part of the plow beam and provided at its rear end and outer side with a land wheel, and a single lever mounted on said crank-shaped frame, and means for connecting said lever with the plow, whereby by means of said single lever the plow and rear furrow wheel can be raised, lowered and adjusted relatively to the land wheel.

520,906. WIRE-GAUZE FOR PAPER-MACHINES. PAUL TOURASSE, La Bridoire, France, assignor to Emile Crégut, same place. Filed Jan. 18, 1894. Serial No. 497,271. (No model.)



Claim.—As a new article of manufacture, a wire gauze or fabric suitable for paper making machines, composed of wire helices threaded together and straight wires parallel with the axis of the helices between the interlaced coils of adjacent helices, the fabric being flattened so that the wires lie partically in one plane, substantially as described.

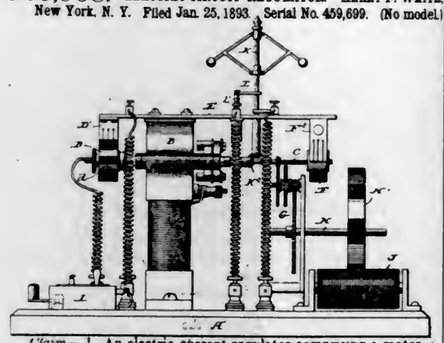
520,907. AXLE-BOX. TIMOTHY C. VAN WYCK, Brooklyn, N. Y. Filed Sept. 15, 1893. Serial No. 485,594. (No model.)



Claim.—1. A roller bearing for axles comprising the combination of the hub, a series of rollers arranged therein so as to form the bearing for the axle, a plate at each end of the rollers and forming a bearing therefor, a rigid band at each end of the hub, and adjacent to each plate, and each provided with an arm or stud arranged to lock with the plate adjacent thereto, whereby the plates are prevented from revolving independent of the hub, and retaining caps for the plates, and adapted to fit the ends of the hub, substantially as described.

2. A roller bearing for axles comprising the combination of the hub, a series of rollers arranged therein so as to form a bearing for the axle, a plate at each end of the rollers and forming bearings therefor, a band adjacent to each of the plates and provided with studs or arms projecting inwardly and into the body of the hub, whereby the bands are made rigid on the hub, the bands each having a second stud or arm projecting therefrom and engaging with the plates, thus holding the plates incapable of independent rotary motion, and caps for retaining the plates and adapted to fit over the hub, substantially as described.

520,908. ELECTRIC-CIRCUIT REGULATOR. HARRY F. WAITE, New York, N. Y. Filed Jan. 25, 1893. Serial No. 459,699. (No model.)



Claim.—1. An electric current regulator comprising a motor, a circuit breaker, the connections by which the current may be applied to the patient and a governing device controlling the circuit whereby when the interruptions fall below a certain number, the circuit through the patient will be interrupted, substantially as described.

2. An electric current regulator, comprising a rotary motor, a rotary circuit-breaker driven by the motor and included in the electric circuit, an induction coil the primary of which is also included in the electric circuit, a rheostat also included in said circuit, electrodes for the application of the current, and switches arranged substantially as described, whereby the current at the electrodes may be controlled and derived from the primary or secondary of the induction coil at pleasure, substantially as described.

3. An electric current regulator, comprising a rotary motor, a rotary circuit-breaker driven by the motor and included in the electric circuit, a circuit-alternator driven by the motor, a rheostat included in the circuit, electrodes for applying the current, and circuit connections between the electrodes, the circuit-breaker and the alternator, substantially as described, whereby an interrupted or alternating current may be regulated and delivered to the electrodes, as set forth.

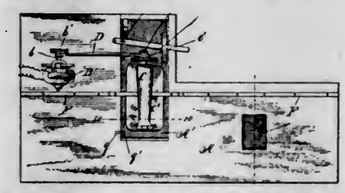
4. An electric current regulator, comprising a rotary motor, rotary circuit breakers driven by the motor, an inductorium the primary of which is included in the circuit, an alternator driven by the motor, a rheostat connected in the circuit, electrodes for applying the current and circuits, and switches arranged substantially as described, whereby primary, secondary or alternating currents may be delivered to the electrodes as desired, substantially as described.

5. In an electric current regulator, the combination with the motor, a circuit breaker driven by the motor, electrodes connected in circuit with the circuit breaker, a governor also driven by the motor, and contacts and connections whereby the circuit of the circuit breaker can be short circuited automatically when the motor falls below a given speed, substantially as described.

6. An electric current regulator comprising a motor, a circuit breaker mounted on the shaft of the motor, another circuit breaker connected to the shaft by reducing gears, an inductorium, a rheostat, electrodes, and circuits and connections between the circuit breakers whereby either one or the other may be included in the circuit of the rheostat and electrodes, substantially as described.

7. An electric current regulator for the administration of electricity therapeutically comprising a motor, circuit breakers driven by the motor, an alternator driven by the motor, an inductorium, a set of electrodes, a rheostat, and circuits and connections whereby either the circuit breaker or alternator can be included in the circuit of the rheostat and electrodes, substantially as described.

520,909. APPARATUS FOR SEWING CARPET-CORNERS. FRANKLIN AMES, Chicago, Ill. Filed Nov. 15, 1890. Serial No. 371,599. (No model.)



Claim.—1. In an apparatus for sewing corners of carpet borders, the table A provided with a track F running lengthwise along the top thereof, in combination with a clamp J J' adapted to seize and retain the corner edges to be sewed and provided with rollers J^2 adapted to be applied to one edge of said track, and a sewing machine mounted on the table and arranged to stitch together the carpet corner edges as the clamp is moved along over the table and guided by the rail thereon, substantially as described.

2. In an apparatus for sewing corners of carpet borders, the table A, in combination with a guide track F mounted on the table top and a clamp J J' adapted to seize and hold together the carpet edges and constructed with angular extensions at the back edge of J' and rollers J^2, mounted on the clamp and arranged to embrace said track between them and the said clamp, substantially as described.

3. The table A, in combination with the clamp movable thereon and adapted to clamp together the edges of the carpet corners, the arm K attached to said clamp and the chain *k* provided with a hook, whereby the rear portion of the carpet may be suspended to prevent displacement by dragging, substantially as described.

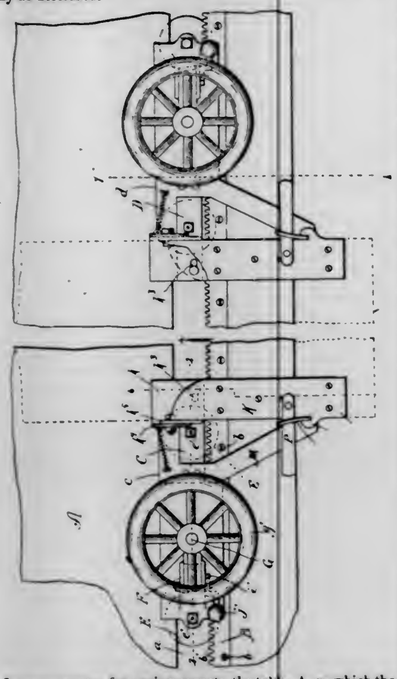
520,910. CARPET-STRETCHER FOR CARPET-SEWING APPARATUS. FRANKLIN AMES, Chicago, Ill. Filed May 22, 1893. Serial No. 475,080. (No model.)

Claim.—1. In an apparatus for sewing carpets, a table, A, on which the carpet is laid, provided with a slot running lengthwise thereof, in combination with a rack bar fastened to the table at one side of the slot, sliding clamp carriers fitted to said slot and movable therein, and a gear pinion on each carrier arranged to engage with the rack, and means for rotating said pinion to adjust the sliding carriers on the table, substantially as described.

2. In an apparatus for sewing carpets, a table, A, on which the carpet is laid, having a longitudinal slot, *a*, in combination with a rack bar, B, shaped in cross section as specified, whereby a horizontal flange or projection is provided at the back edge of the bar, fastening screws, *b*, inserted on the upper side of the table through the horizontal projection of the bar to secure the latter to the table, and movable clamp

carriers fitted to said slot and provided with gears engaging said rack, substantially as described.

3. In an apparatus for sewing carpets, a table, A, upon which the carpet is laid, having a longitudinal slot, *a*, in combination with a rack-bar, B, composed of sections having vertical slots at their respective ends and provided with a horizontal projection extending back over the table, the dowel pins, B', and fastening screws, *b*, substantially as described.



4. In an apparatus for sewing carpets, the table, A, on which the carpet is laid, having a longitudinal slot, *a'*, provided with side grooves, *a'*, in combination with a rack-bar, B, secured to the table at one side of the slot, sliding clamp carriers, C and D, fitted to said slot, anti-friction rollers, E, mounted on the carriers and adapted to run in the side grooves, *a'*, gear pinions, *g*, mounted on said carriers and engaging with the rack, and means for rotating said gears to adjust the carriers lengthwise, substantially as described.

5. In an apparatus for sewing carpets, a table, A, on which the carpet is laid, provided with a longitudinal slot, *a*, in combination with a rack bar, B, secured at one side of the slot, a clamp carrier fitted to the slot and movable lengthwise therein, a shaft, G, mounted on said carrier and provided with a pinion, *g*, engaging with the rack, and mechanism for locking said shaft against rotation as required, substantially as described.

6. In an apparatus for sewing carpets, a sewing table, A, provided with a longitudinal slot, *a*, in combination with a rack, B, applied thereto, a clamp carrier fitted to the slot and adapted to slide therein, a shaft, G, mounted on said carrier and provided with a pinion, *g*, engaging the rack, a ratchet, H, fixed to the shaft, a pawl, I, adapted to engage automatically with the ratchet, and a device for lifting said pawl and retaining it in disengagement from the ratchet, substantially as described.

7. In an apparatus for sewing carpets, a sewing table, A, having a longitudinal slot, in combination with a rack applied thereto, a clamp carrier mounted and movable in the slot, the shaft, G, mounted on said carrier and provided with pinion, *g*, engaging with the rack, the ratchet, H, fixed on the shaft, pivoted pawl, I, adapted to drop automatically into engagement with the ratchet and provided with a side projecting pin, *i'*, and the weighted lever, J, adapted to engage by its short arm with said pin, substantially as described.

8. In an apparatus for sewing carpets, a table, A, having longitudinal slot, *a*, in combination with the rack-bar, B, a clamp carrier fitted to and sliding in said slot, a standard, F, on said carrier provided with slot, *f'*, exteoding through the standard from front to rear, and side slot, *f''*, in one of the walls thereof, the shaft, G, mounted on the carrier and provided with pinion, *g*, engaging with the rack, ratchet, H, fixed on said shaft, pawl, I, pivoted in the through slot of the standard back of its center and provided with a pin, *i'*, extending out through the side slot, *f''*, a weighted lever, J, pivoted to the side of the standard and having a shallow hook, *j*, on its short arm adapted to engage with the pin, *i'*, substantially as described.

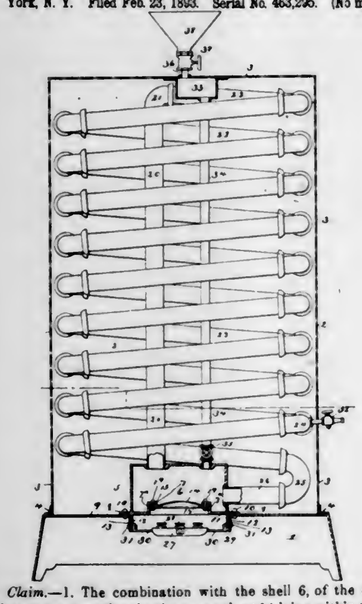
9. In an apparatus for sewing carpets, the lower clamp bar, *k*, provided at its outer end with upright lug, *k'*, at its rear edge, in combination with the upper clamp bar, *k²*, provided with lug, *k³*, depending from its rear edge, a pivot pin, *k⁴*, securing said lugs together, and a bevel face, *k⁵*, at the hinge end of the body of the upper clamp bar, substantially as described.

10. In a carpet clamp for carpet sewing apparatus, the lower clamp bar, *k*, provided with upright stud, N, at the rear edge of its free end, in combination with the upper clamp bar, *k²*, hinged to the former and provided with a hook, O, at the rear edge of its free end, adapted to engage with the stud, N, when closed down on the lower bar, substantially as described.

11. In a clamp for carpet sewing apparatus, the lower bar, *k*, provided with upright stud, N, having a projecting toe, *n*, in combination with the upper bar, *k²*, hinged at one end to the former, and a lever, P, pivoted to the upper bar and adapted to be turned in underneath the toe of the stud to fasten the clamp bars together, substantially as described.

12. In a clamp for carpet sewing apparatus, a movable carrier, in combination with the bar, *k*, fastened to the carrier, a brace, M, extending from the front end of the said bar back to the carrier, and the hinged clamping bars, *k'*, *k²*, secured to the bar, *k*, substantially as described

520,911. HEATING APPARATUS. EDWARD E. ASHLEY, New York, N. Y. Filed Feb. 23, 1893. Serial No. 463,295. (No model.)



Claim.—1. The combination with the shell 6, of the dome 7ª having an aperture therein, the crown sheet 14 lying within the aperture, a non-combustible gasket between the crown and the dome, the crown sheet and the gasket being secured to the dome, substantially as described.

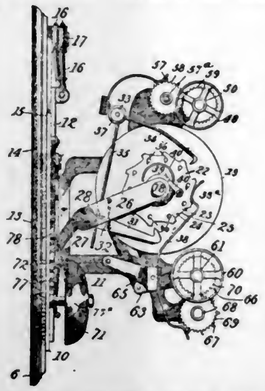
2. The generator shell 6 having the ears 8 secured to a suitable base 9, the dome 7ª, crown sheet 14 secured within the dome, the stand pipe 20 arising from the shell, the return sections of the coil entering the shell below its top, and a heating device suspended below the crown sheet, substantially as described.

3. The combination with the generator shell 6, of the dome 7ª rising therein, and a crown sheet 14 detachably secured within the dome, substantially as described.

4. The combination with the generator, of the base having an opening therein for the reception of the generator, a dome within the generator, the detachable crown sheet within the dome, a circulating and radiating coil comprising the stand pipe 20 having its exit from the top of the generator, and a series of descending coil sections returning to the generator below the exit of the pipe 20, a burner supported below the generator, and a water supply pipe for the generator, substantially as described.

5. In a heating apparatus, the combination with the generator shell 6 having an opening in the bottom 11 thereof, a dome rising from said bottom around said opening a convex crown sheet 14, and a non-conducting gasket interposed between the crown sheet and the dome, both the crown sheet and gasket being detachably secured within said dome, substantially as described.

520,912. FARE-REGISTER. FREDERICK C. BOYD and CHARLES E. GURDING, New Haven, Conn., assignors to the New Haven Car Register Company, of Connecticut. Filed Apr. 20, 1893. Serial No. 471,162. (No model.)



Claim.—1. In a fare register, the ratchet wheels secured to the side of the trip register disks, each provided on one of its sides with pins, means for turning the said wheels and disks, the dogs 34 for engaging the pins on the disk, the rock-shaft by which the dogs are carried, the depending arm 35, and a reciprocating device for engaging said arm, substantially as described.

2. In a fare register, the combination of the rock-shaft 33, its dogs 35, the trip register disks and means for operating the same, the ratchet wheels provide with projections or pins, and means for raising and lowering the arm 35 to throw said dogs into and out of engagement with said pins substantially as described.

3. In a fare register, the combination of the shafts 28 and 33, the disks 19 and their attached wheels, the pawls engaging said wheels, the dogs engaging pins or teeth, the depending arm 35 engaging the shaft 28, and the spring for rocking the shaft 33, substantially as described.

4. The combination of the disks 47 and 48, a drum attached to and moving with the former, the shaft supporting said disk having upon one of its ends a ten-toothed ratchet wheel, the arm 53 journaled on said shaft and carrying a spring-pressed pawl, the pendent arm 55, and its spring, the cam 43 acting upon said pendent arm, and means for turning said cam, substantially as described.

5. The combination with the trip register and zero register disks, of a cam 43, means for moving said cam together with the trip disks to carry the latter to zero, an arm arranged to be operated by said cam and connected to move the zero register disks step by step, substantially as described.

6. The combination of a bell hammer inclined on its inner edge and having the shoulder 81, the click pivoted to the slide, and the arm for restoring the click on the return movement of the slide, substantially as described.

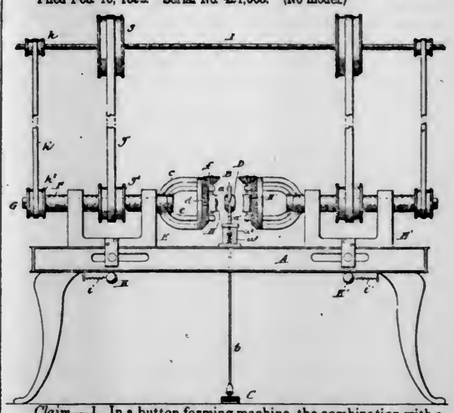
7. In a fare register, the combination of the shaft 18 the cam 43 secured on said shaft and provided with a hole, a sliding knob carrying a pin adapted to the hole in the cam, a zero register and devices for actuating the zero register adapted to be acted upon by the cam, substantially as described.

8. In a fare register, the combination of the frame, the trip register disks and their shaft, a cam secured on said shaft having a hole therein aligning with a similar hole in the frame, a sliding knob carrying a pin adapted to the holes in the cam and frame, a zero register and devices for actuating the zero register, adapted to be acted upon by the cam, substantially as described.

9. In a fare register, the combination of the rock-shaft 33, the dogs secured thereon, the trip register disks and means for operating the same, the ratchet wheels secured to the sides of said disks and provided on one of their sides with projections or pins, the depending arm 35 and devices acting on said arm for raising and lowering it, substantially as described.

10. In a fare register, the combination of the trip register disks and their shaft, the ratchet wheels secured to the sides of said disks and provided on one of their sides with projections or pins, the yoke journaled on the disk shaft, the movable slide connected to the yoke and the pawls pivoted in said yoke and adapted to engage the ratchet wheels on the trip register disks, the dogs and intermediate devices between the dogs and shaft 28, substantially as described.

520,913. BUTTON-MACHINE. GEORGE CARLYLE, Detroit, Mich., assignor to the Standard Pearl Button Company, Limited, same place. Filed Feb. 10, 1892. Serial No. 421,005. (No model.)



Claim.—1. In a button forming machine, the combination with a stationary chuck or holder for the button-blank, of a grinding wheel acting upon the blank and having movements of rotation on axes perpendicular to each other, such movements being obtained by separate power connections, substantially as set forth.

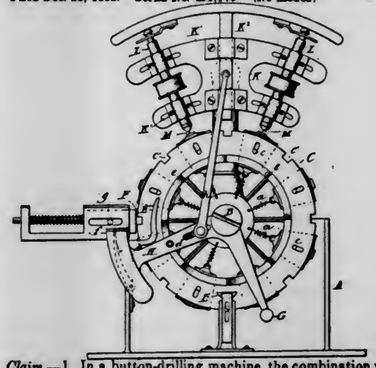
2. In a button forming machine, the combination with a narrow blank-holder or chuck from which the blank projects on opposite sides, of grinding-wheels on opposite sides of such chuck for acting on the opposite faces of the button-blank, substantially as set forth

3. In a button forming machine, the combination with a blank-holder from which the blank projects on opposite sides, of grinding-wheels acting on opposite faces of the blank and having compound movements of rotation, said grinding-wheels having a greater speed of spindle rotation than of rotation at right angles to the spindles substantially as set forth.

4. In a button forming machine, the combination with a blank-holder from opposite sides of which the blank projects, of two grinding-wheels acting on opposite faces of the blank and driven by epicyclic gearing, both elements of which are driven by power connections, substantially as set forth.

5. In a button forming machine, a blank-holder or chuck constructed of plates not exceeding in thickness the thickness of the completed button, whereby the blank will project from opposite sides of the bolder, substantially as set forth.

520,914. BUTTON-DRILLING MACHINE. GEORGE CARLYLE, Detroit, Mich., assignor to Henry W. Crouse, trustee, New York, N. Y. Filed Dec. 23, 1892. Serial No. 456,179. (No model.)



Claim.—1. In a button-drilling machine, the combination with a rotating wheel having a series of chucks mounted radially in its rim,

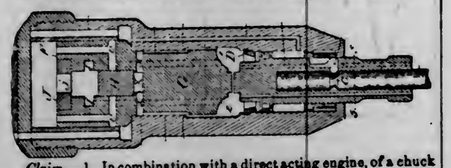
of an arm a pawl and ratchet connection between said arm and wheel whereby the wheel is rotated, and a sliding drill frame carrying a plurality of rotating drill spindles and reciprocated by a connection with such operating arm, substantially as set forth.

2. In a button-drilling machine, the combination with the rotating wheel carrying a series of chucks mounted radially in its rim, of a locking dog for holding such wheel, a sliding drill frame carrying a plurality of rotating drills, an operating arm a pawl and ratchet connection betwen said arm and wheel whereby the wheel is rotated, a connection between such arm and the sliding drill frame for working such drill frame, and a tongue carried by such arm for retracting the locking dog, substantially as set forth.

3. In a button-drilling machine, the combination of a rotary wheel, a series of tapering holes located radially in the rim of said wheel, tapering chuck-jaws in said holes, wedges on said wheel in proximity to said jaws, stationary cams for forcing said jaws outward against said wedges to open the chucks as the wheel rotates, and springs for returning said jaws to their normal position, substantially as set forth.

4. In a button-drilling machine, the combination with a chuck carrying wheel, of sliding chuck-jaws carried in openings in said wheel, stationary wedges on said wheel in proximity to said jaws, and means for forcing said jaws against said wedges to open the jaws, substantially as set forth.

520,915. DIRECT-ACTING ENGINE. PIERRE CHOUTEAU, St. Louis, Mo. Filed Dec. 30, 1893. Serial No. 495,163. (No model.)



Claim.—1. In combination with a direct acting engine, of a chuck or tool holder mounted in the end of its cylinder with which the piston is adapted to co-operate, a stop ring for limiting the inward movement of said chuck, mounted within the cylinder, and means for locking said ring in its position, substantially as described.

2. In combination with a direct acting engine, of a chuck or tool holder mounted in the end of its cylinder with which the piston is adapted to co-operate, a stop ring screwed into the cylinder for limiting the inward movement of said chuck, the screw or pin passing through the cylinder for holding said ring in place, and a spring, seated in a recess and bearing on the head of said screw or pin for holding the same in place, substantially as described.

3. In a direct acting engine, the combination with a chambered piston, of inlet ports leading thereinto, which are opened into the live fluid chamber when the piston is in certain of its positions, outlet ports leading from said chamber to the space above the piston, suitable exhaust ports leading from said chamber, and a solid cylindrically shaped valve which is so arranged as to close the exhaust ports before the outlet ports from the chamber leading to the space above the piston are opened, said valve being operated by the pressure above the piston to open the exhaust ports and close communication between the live fluid chamber and the space above the piston, when the port leading from the live fluid chamber to the chamber in the piston is closed, substantially as described.

520,916. EXCAVATING-MACHINE. RICHARD DALTON, Wilmette, Ill. Filed Oct. 4, 1893. Serial No. 487,139. (No model.)

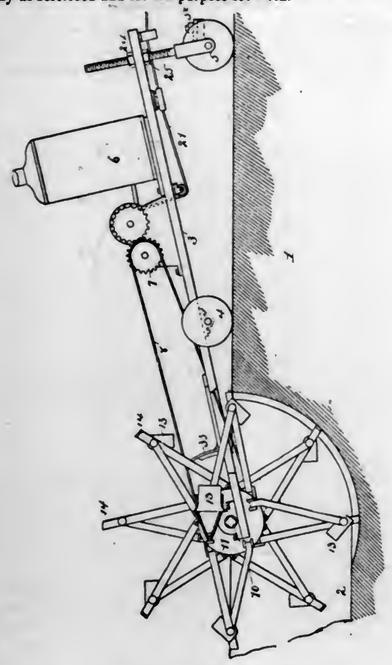
Claim.—1. In an excavating machine the combination with a rotatable hub, of scoops or shovels, radiating arms for carrying the scoops, said arms being pivotally attached to the hub on a line oblique to the direction of their rotation, substantially as described and for the purpose specified.

2. In an excavating machine the combination with a rotatable hub, scoop bearing radiating arms pivotally attached to the hub, the line of pivotal attachment being oblique to the direction of rotation, and means for limiting the swing of the arms to one side of a vertical plane, substantially as described and for the purpose specified.

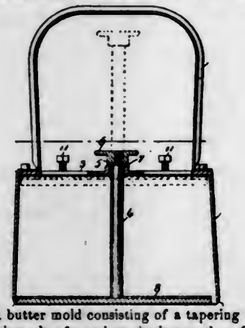
3. In an excavating machine the combination with a rotatable hub and scoop bearing arms radiating from the hub and being capable of swinging transversely to the direction of rotation, of latches for locking the arms in their vertical plane during a portion of their revolution and a fixed cam for automatically displacing the latches and releasing the arms, substantially as described and for the purpose specified.

4. In an excavating machine the combination with a rotatable hub of scoop bearing arms radiating from said hub and being capable of swinging obliquely to the direction of rotation, substantially as described and for the purpose specified.

5. In a ditching machine, the combination with a rotary hub, of a series of radiating arms pivotally attached to the hub near each of its ends and adapted to swing laterally, the line of pivotal attachment of each arm being from the end of the hub obliquely backward with reference to the direction of rotation, and toward the circumferential medium line of the hub, and scoops mounted upon said arms, substantially as described and for the purpose set forth.



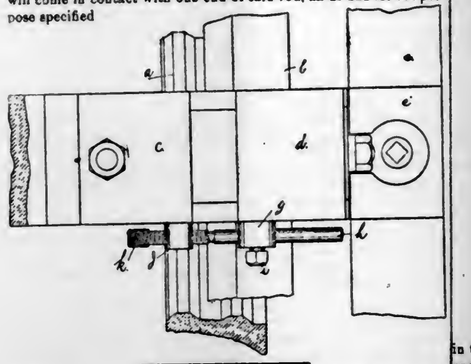
520,917. BUTTER-MOLD. FREDRICK W. EGGLING, St. Louis, Mo. Filed Aug. 16, 1893. Serial No. 483,243. (No model.)



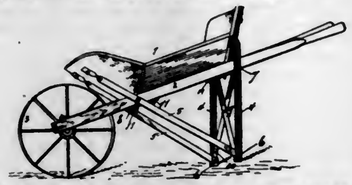
Claim.—A butter mold consisting of a tapering rectangular receptacle, a cutting edge formed on the lower edge of the same, a top plate 3 for said receptacle, a flange 7 forming a part of said plate and arranged around a central opening formed in said plate, a rod passing loosely through said opening and having a reduced screw-threaded upper end forming a shoulder 5, a screw-threaded cap 6 screwed upon said projecting end of the rod the lower portion of which rests upon the flange 7, a rectangular plate 8 secured to the rod and having a facing of wood 9, a U-shaped handle secured to the plate 3 and superposed over the upper end of said rod, and adjusting bolts 11 passed through the plate 3 against the lower ends of which the plate 8 is brought in contact, substantially as set forth.

520,918. ADJUSTABLE STOP FOR TAPER-TURNING LATHES. JOSEPH FLATHER, Nashua, N. H. Filed Apr. 9, 1894. Serial No. 506,915. (No model.)

Claim.—The combination in a metal turning lathe, of a taper attachment having a slide bar, a slide thereon connected with a slide-block operating on ways on tool carriage, a lug on the side of said slide block, a rod passing through a hole in said lug, a set screw to frictionally hold said rod in any desired position, a tool block provided with a lug on its side in alignment with the lug on slide block, and a screw operating in a threaded hole in said lug so that its point will come in contact with one end of said rod, all as and for the purpose specified



520,919. WHEELBARROW. MARTIN V. GARVER, Bryan, Ohio. Filed Dec. 11, 1893. Serial No. 493,325. (No model.)



Claim.—1. In a wheelbarrow, the frame thereof having all its members pivotally connected, whereby the parts of said frame may be folded upon each other horizontally and vertically in substantially parallel lines, substantially as shown and described, for the purpose specified.

2. In a wheelbarrow, the legs having the side-braces and cross-braces (9,) pivotally connected therewith, substantially as shown and described, for the purpose specified.

3. In a wheelbarrow, the legs having the side-braces and cross-braces (9,) pivotally connected therewith, in combination with the handles and pivotal connections between said handles and said side-braces, substantially as shown and described, for the purpose specified.

4. A folding or collapsible wheelbarrow frame, comprising in its construction the handles, the legs, side-braces pivotally connected with said handles and legs, cross-braces pivotally connected with said legs, and folding braces connecting said handles, all substantially as shown and described, for the purpose specified.

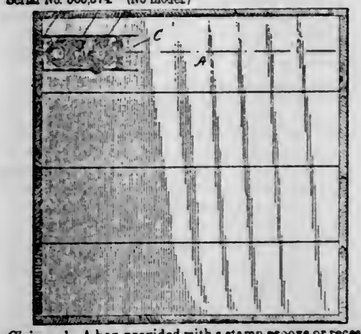
520,920. WHEELBARROW-TRAY. MARTIN V. GARVER, Bryan, Ohio. Filed Jan. 18, 1894. Serial No. 497,226. (No model.)



Claim.—1. In a wheelbarrow tray, pressed or stamped from a sheet of metal, the bottom thereof having a central, longitudinal bend, in combination with the back and front, said back and front each consisting of two flaps, brought together and secured at their meeting edges, substantially as shown and described, for the purpose specified.

2. As an article of manufacture, a wheelbarrow tray, comprising in its construction a sheet of metal having a central, longitudinal bend, end flaps secured together at their meeting edges forming the front and rear of said tray, corrugations laterally of the bottom of said tray, and corrugations in the front and back of said tray, substantially as shown and described, for the purpose specified.

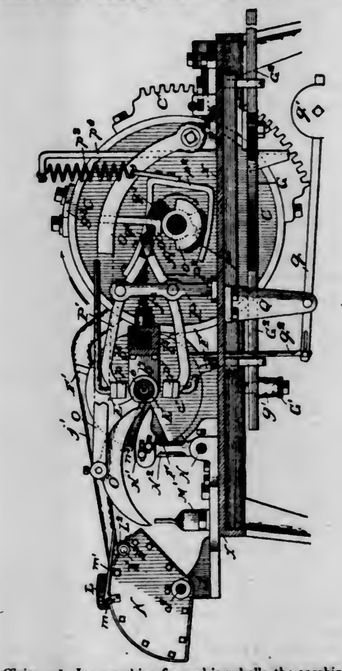
520,921. STAMP GROOVE OR RECESS FOR SHIPPING-CASES. CHARLES F. GOODWILLIE, Chicago, Ill., assignor to the D. M. Goodwillie Company, same place. Filed Feb. 8, 1892. Renewed Apr. 20, 1894. Serial No. 508,374. (No model.)



Claim.—1. A box provided with a stamp groove or recess formed in the extreme end of one of its boards and being provided at one end with the incline or bevel C, and at its other end with an abrupt wall such wall being formed by one of the side or end boards of the box, substantially as set forth.

2. The combination of the board A having a stamp groove or recess formed in the end thereof and the end or side board E forming the end of said groove or recess and having its grain extending perpendicular to the plane of said groove, substantially as set forth.

520,922. APPARATUS FOR AUTOMATICALLY MANUFACTURING SHELLS FOR DYNAMITE. HIRAM P. HALL, Chicago, Ill. Filed June 24, 1892. Serial No. 437,907. (No model.)



Claim.—1. In a machine for making shells, the combination of a mandrel adapted to form the body of a shell, and means for making consecutive folds in the bottom thereof, substantially as described.

2. In a machine for making shells, the device for making the bottom of the shells, which consists of a frame, fingers supported

therein, and means for operating said fingers consecutively to fold the bottom of the shell, substantially as described.

3. In a shell making machine, the device for folding the bottom of the shell, which consists of a frame, fingers arranged therein and radiating from a common center, and means for advancing and withdrawing said fingers consecutively, substantially as described.

4. In a shell making machine, the device for folding the bottom of the shell, which consists of a stationary disk, radiating fingers operating therein, a rotatable cam way, and pins on said fingers adapted to enter the cam way, whereby as the cam way rotates the fingers will advance and retreat from the common center, substantially as described.

5. In a shell making machine, the device for folding the bottom of the shell, which consists of a stationary disk provided with a hollow center, radiating fingers operating in said disk, and means whereby the fingers may be consecutively advanced and withdrawn from the common center, substantially as described.

6. In a shell making machine, a device for folding the bottom of the shell, which consists of a disk provided with an opening at its center of greater diameter than that of the shell, fingers radiating from such center, and means whereby such fingers may be consecutively advanced and withdrawn to fold the end of the shell, substantially as described.

7. In a shell making machine, a device for folding the bottom of the shell, which consists of a disk having an opening at its center of greater diameter than that of the shell and having a cam way therein, a frame supporting radiating fingers, pins on said fingers adapted to travel in such cam-way, and means for rotating said disk, whereby the fingers will be caused to successively advance and retreat from the center of the shell, substantially as described.

8. In a shell making machine, the combination of a movable disk provided with a cam-way, a stationary disk supporting radiating fingers, said fingers being provided with pins adapted to enter said cam-way, whereby as the movable disk is rotated the fingers will advance and retreat in successive order to and from the center of the disk, substantially as described.

9. In a shell making machine, the combination of a mandrel to form the body of the shell, and a device for folding the end of the shell, which consists of a rotatable disk provided with a cam-way having predetermined portions thereof on a line of the circumference of a circle drawn from the center of said disk, and fingers suitably supported and actuated by the contour of the cam-way, whereby the fingers will be in a state of rest for predetermined intervals of time during the rotation of the disk, substantially as described.

10. In a shell making machine, the combination of a mandrel to form the body of the shell, a frame, movable fingers supported therein and adapted to advance and retreat successively, and a device for advancing and withdrawing the fingers to and from a common center, which consists of a rotatable disk provided with a cam-way having one portion thereof approximately on a line of a radius from the common center, and means for retracting one of the fingers, substantially as described.

11. The combination of a movable disk provided with a cam-way, fingers radiating from a common center and provided with pins entering said cam-way, means for supporting said fingers, and means whereby one of said fingers may be rapidly withdrawn from the center, substantially as described.

12. The combination of a movable disk provided with a cam-way, a stationary disk, fingers supported therein and radiating from a common center, pins secured to said fingers and adapted to enter said cam-way, and a spring secured to one of said fingers which is normally held away from the common center, but adapted to be advanced toward such center by the action of said cam-way against the tension of the spring, substantially as described.

13. In apparatus for the automatic manufacture of shells, the combination of a movable disk provided with a cam-way, a portion of which follows approximately a line of a radius from the center of said disks, a stationary disk, fingers supported therein and adapted to be advanced and withdrawn readily to and from a common center, pins secured to said fingers and adapted to enter said cam-way, a spring attached to one of said fingers, whereby when said portion of the cam-way which is approximately on a line of a radius from the center of the movable disk is parallel to the axis of the spring actuated finger, said finger will be withdrawn from the common center by the tension of the spring to its normal position, substantially as described.

14. In an apparatus for the automatic manufacture of shells, a carrier comprising a curved plate having flanged sides, arms secured thereto and mounted on a rock shaft, means for supporting the paper while on the plate, and means whereby said plate may be adjusted on said arms, substantially as described.

15. In apparatus for the automatic manufacture of shells, the combination of a rotatable mandrel, a sleeve loosely mounted on said mandrel, a rotatable disk provided with segmental gear to rotate said mandrel at intervals, internal segmental gear arranged on said disk, a pinion adapted to engage therewith and rotating a shaft, means whereby said shaft may be prevented from rotating at predetermined intervals, a pitman connection secured to said shaft and attached to said sleeve on the mandrel, whereby as the pitman is operated the sleeve will move longitudinally along said mandrel, substantially as described.

16. In apparatus for the automatic manufacture of shells, the combination of a rotatable mandrel, a sleeve loosely mounted thereon, a rotatable disk provided with segmental gear to rotate said mandrel at intervals, internal segmental gear arranged on said disk, a pinion adapted to engage therewith and rotating a shaft, a dog engaging with locks on said pinion, cams on said disk to release said dog, a crank secured to said shaft, a pitman thereon, a sleeve secured to said pitman and traveling in guides, a forked arm connected to said sleeve engaging with a groove on the sleeve mounted on the mandrel, substantially as described.

17. In apparatus for the automatic manufacture of shells, the combination of a mandrel mounted on a table, a pivoted sealing jaw adapted to press on said mandrel, a hanger secured to said table, a lever fulcrumed thereon and carrying a weight at one end, and a rod connected to the other end and passing through an opening in such table to press upward against the framework of the jaw, whereby the end of the jaw may press upon the surface of the mandrel, substantially as described.

18. In apparatus for the automatic manufacture of shells, the combination of a rotatable mandrel to form the body of the shell, and two sealing jaws to compress the paper on the mandrel, the ends of said jaws adjacent to the mandrel being hollow to admit of the passage of steam, &c., substantially as described.

19. In apparatus for the automatic manufacture of shells, the combination of a mandrel adapted to form the body of the shell and provided with a recess at one end, mechanism for folding the bottom of the shell, and a device for creasing the bottom, which comprises a reciprocating piston mounted in a framework, an arm attached thereto and connected with a rod, a bell crank carrying said rod on one arm, and means whereby such bell crank may be operated at desired intervals, substantially as described.

20. In apparatus for the automatic manufacture of shells, the combination of a mandrel adapted to form the body of the shell and provided with a recess at one end, mechanism for folding the bottom thereof, and a device for creasing the bottom of the shell, which comprises a piston reciprocating in a suitable framework, an arm attached thereto and connected with a rod, a bell crank carrying said rod on one arm, a sliding bar connected to the other end of said bell crank, a projecting arm on said bar, a rotatable disk provided with a finger to engage with said projecting arm, whereby as the disk is rotated the piston will be forced forward against the end of the shell, substantially as described.

21. In apparatus for the automatic manufacture of shells, the combination of a paste-box provided with a roller communicating with the interior thereof and projecting beyond its surface, a ratchet wheel secured to the end of such roller, a slotted frame swinging on said roller and carrying a pawl engaging with said ratchet wheel a stationary pin upon which the slotted frame slides, and means for rocking the paste-box, whereby the roller will be rotated, substantially as described.

22. In apparatus for the automatic manufacture of shells, the combination of a paste-box provided with a longitudinal slot, plates arranged near the edge of said slot and having interstices between them, a roller rotating in said slot and provided with peripheral grooves corresponding with said interstices, a carrier mounted on a rock shaft and provided with hooks for holding the edge of the paper, said hooks adapted to move along said grooves, and means for rocking said paste-box and carrier, whereby the carrier will remove the paper from the paste-box to itself, substantially as described.

23. In apparatus for the automatic manufacture of shells, the combination of a paste-box having stops on one of its surfaces, a paste roller adjacent to said stops, a plate pivoted on said box and adapted to raise one end of the paper placed on the box, and means for rocking said plate, substantially as described.

24. In apparatus for the automatic manufacture of shells, a paste-box having a roller communicating with the interior and exterior thereof, means for rocking said paste box, means for holding the edge of the paper over the paste roller, means whereby such roller may be rotated when the box is rocked, a plate pivoted upon such box, a stationary independent bracket, and a rod connected to the plate, whereby as the box is rocked the rod will contact said bracket to raise the plate above the surface of the box, substantially as described.

25. In apparatus for the automatic manufacture of shells, a mandrel to form the body of the shell, a guide for the passage of the paper to the mandrel, which consists of a pivoted arm provided with curved fingers, means whereby such arm may be raised and lowered at predetermined intervals, and means for feeding the paper along the guide to the mandrel, substantially as described.

26. In apparatus for the automatic manufacture of shells, the combination of a mandrel, a pivoted arm provided at its free end with fingers, mechanism for feeding the paper along the fingers to the mandrel, a cam on said shaft, a lug secured to said arm and contacting such cam, whereby the fingers may be raised and lowered at predetermined intervals to guide the paper from the feeding mechanism and guide it to the mandrel, substantially as described.

27. In apparatus for the automatic manufacture of shells, the combination of a mandrel, a paste vessel adjacent thereto, a paste roll therein for pasting an edge of a sheet of paper placed thereon, means for rocking said vessel, and means for conveying the paper from said vessel to the mandrel, substantially as described.

28. In apparatus for the automatic manufacture of shells, the combination of a paste vessel, a paste roll therein for pasting an edge of a sheet of paper placed thereon, said vessel being mounted on a rock shaft, a carrier mounted on a rock shaft, mechanism for rocking the carrier in advance of the paste vessel, whereby as the carrier is rocked the paper will be transferred from said vessel to the carrier, substantially as described.

29. In apparatus for the automatic manufacture of shells, the combination of a paste vessel, a paste roll thereon adapted to paste an edge of a sheet of paper placed thereon, a rock shaft attached to said vessel, a crank and a pitman connected to the main shaft and to said rock shaft, a carrier mounted on a rock shaft, a crank, and a connector connecting it to said main shaft, the latter crank being shorter than the crank on the shaft of the paste-box, whereby as the main shaft is rotated the carrier will rock in advance of the paste vessel, substantially as described.

30. In apparatus for the manufacture of shells, the combination of a hollow mandrel provided with a longitudinal slot, a rod passing through such mandrel and provided with a spiral groove, jaws on said rod, a stationary pin adapted to fit in said groove, and means for moving the rod longitudinally, whereby the rod will be rotated, substantially as described.

31. In apparatus for the manufacture of shells, the combination of a hollow mandrel secured to a hollow rotatable shaft, a longitudinal slot in said mandrel, a rod passing through said mandrel and shaft and provided with a spiral groove near one end, jaws mounted thereon, a stationary pin secured to the inner wall of said shaft and adapted to fit in such groove, a spring secured to said rod to normally hold the jaws in contact with the sides of the slot, and means for moving said rod longitudinally, substantially as described.

32. In apparatus for the manufacture of shells, the combination of a hollow mandrel secured to a hollow rotatable shaft, a longitudinal slot in said mandrel, a rod passing through such shaft, a spiral groove thereon, a stationary pin secured to the inner wall of said shaft and fitting in such groove, said rod being provided with a socket at its end adjacent to the mandrel, a rod fitting in such socket and passing through the center of the mandrel, jaws mounted on the rod in said mandrel, and means for moving said rod longitudinally, substantially as described.

33. In apparatus for the manufacture of shells, the combination of a mandrel having a longitudinal slot and secured to a hollow shaft, a rod passing therethrough and provided with a spiral groove, jaws arranged on said rod, a stationary pin fitting in said groove, a wedge abutting against the end of said rod and adapted to slide back and forth, and means whereby such wedge may be advanced and withdrawn at predetermined intervals, substantially as described.

34. In apparatus for the manufacture of shells, the combination of a hollow mandrel secured to a hollow shaft and provided with a longitudinal slot, a rod passing through such mandrel and shaft, a spiral groove thereon, jaws arranged on said rod, a stationary pin secured to the inner wall of said shaft and fitting in said groove, means for normally holding said jaws closed, a wedge abutting against the end of the rod and adapted to slide back and forth, and cams engaging with said wedge to advance and withdraw it at predetermined intervals, whereby the jaws may be open and closed, substantially as described.

35. In apparatus for the automatic manufacture of shells, the combination of a hollow mandrel secured to a hollow rotatable shaft and provided with a longitudinal slot, a rod passing through such mandrel and shaft, a groove running spirally therein, jaws mounted on said rod, a stationary pin secured to the inner wall of said shaft and fitting in said groove, means for normally holding said jaws closed, and means whereby the rod may be forced inward to operate said slot at the required moment, substantially as described.

36. In apparatus for the manufacture of shells, the combination of a mandrel mounted upon a shaft and the device for opening and closing the jaws of the mandrel, which consists of a disk, cams on said disk, a rod passing through the mandrel and mandrel shaft and carrying the jaws, said rod being provided with a spiral groove, a stationary pin fitting into such groove, a spring on said rod normally holding the jaws closed, a sliding wedge contacting the end of said rod, and a shoulder on said wedge engaging with the cams, whereby the wedge may be reciprocated, substantially as described.

37. In a shell making machine, the combination of a mandrel adapted to form the body of the shell, folding mechanism adapted to fold the bottom of the shell by consecutive folds, and a reciprocating piston adapted to contact the end of the mandrel at predetermined intervals, whereby the folds of the bottom are creased to prevent unfolding, substantially as described.

38. In a shell making machine, the combination of a mandrel adapted to form the body of the shell and provided with a recess at one end thereof, mechanism for folding the bottom of the shell over the end of the mandrel, and mechanism adapted to contact the end of the mandrel and to enter said recess at desired intervals to crease the folds of the shell, substantially as described.

39. In a shell making machine, the combination of a mandrel to form the body of the shell and provided with a recess at one end thereof, mechanism for folding the bottom of the shell over the end of the mandrel, and a piston adapted to strike against the end of the mandrel and to enter said recess to crease the folds, substantially as described.

40. In a shell making machine, the combination of a mandrel to form the body of the shell and provided with a recess at one end thereof, mechanism for folding the bottom of the shell over the end of the mandrel, a reciprocating piston adapted to strike against the folds of the shell and to enter said recess, and a removable head on said piston corresponding to the size of the recess, substantially as described.

520,923. INGOT-MOLD. JOHN ILLINGWORTH, Newark, N. J. Filed Dec. 4, 1893. Serial No. 492,705. (No model.)



Claim.—1. In an ingot mold or matrix, the mold or matrix section consisting of the outer case and an inner matrix portion consisting of a V-shaped part provided with a longitudinal rib at the back angle and transverse ribs, substantially as set forth.

2. In an ingot machine the combination with the bed or frame having a support for the mold sections, of said sections, the sections *g*, *h* of which are separable from the sections *e*, *f*, said sections forming mold or matrix chambers, *i*, the upper one of which is larger than the lower one, and the lower sections serving to compress the ingot substantially as set forth.

3. In an ingot machine, the combination with the frame or bed, the arm *b*, cylinders *c*, *d*, piston rods *c'*, *d'*, and severing device, of separable mold or matrix sections, the lower ones of which are recessed at the angles, as at *u*, substantially as and for the purposes set forth.

4. In an ingot machine, the mold section comprising a casing, *l*, and a separable matrix portion having the V-shaped part, *o*, and at the back of said V-shaped part, the ribs, *q*, the intermediate ribs being arched over the back walls of said V-shaped portion, and being integral with said V-shaped portions at the back angle and near the edges, an opening *r*, being formed admitting a free flow of cooling liquid therethrough, substantially as set forth.

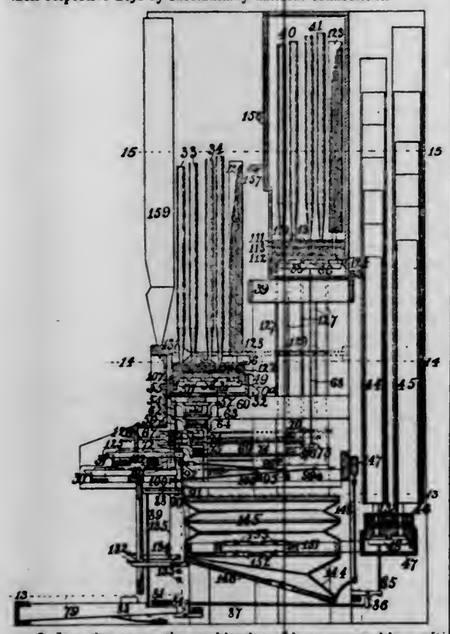
5. In an ingot machine, the combination with the casing open at one side to receive the matrix portion, and at the ends to receive end ribs, of said matrix portion V-shaped in plan and having said end ribs, and having intermediate arches which serve to strengthen the V-shaped portion and are open to allow a flow of liquid therethrough, substantially as set forth.

6. The combination with the casings of an ingot machine of matrix portions which are V-shaped in plan and have on the insides at the longitudinal angles thereof, ribs, *p*, and at various points in their lengths having transverse arches, *q*, serving to strengthen said V-shaped matrix portions, substantially as set forth.

520,924. PIPE-ORGAN. RICHARD W. JACKSON, Chester, Ill., assignor to the Jackson Pipe Organ Company, same place. Filed Dec. 27, 1892. Serial No. 456,307. (No model.)

Claim.—1. In a pipe organ, the combination of a group of valves controlling some of the pipes and suitably arranged in one region of the organ, a manual of keys, intermediate mechanism independent of rollers or rock-shafts, extending across the organ and connecting the respective valves composing such group with keys selected at intervals on the manual, and actuating devices connecting the remaining keys with valves arranged in a different region or regions, whereby a large number of valves may be connected to their operating keys by substantially uniform connections.

2. In a pipe organ, the combination of keys, valves controlling the speaking of the pipes, suitable connections between said valves and keys, the valves being divided into a plurality of groups arranged in different regions of the organ, and the valves composing a single group being connected with keys selected at intervals on the key-board, whereby the valves composing any one group may be connected with their respective keys by substantially uniform connections.



3. In a pipe organ, the combination of keys arranged in a suitable manual, valves controlling the speaking of the pipes and occupying collectively a greater width from right to left of the organ than said keys, intermediate mechanism extending across the organ independent of rock-shafts connecting the valves farthest removed from the center of the organ with keys distributed at intervals over the manual, and devices connecting the remaining keys with valves nearer the center of the organ, whereby a large number of keys may be connected to their respective valves by substantially uniform connections.

4. A pipe organ having a manual of keys, valves controlling the speaking of the pipes and occupying substantially double the space from right to left as an equal number of keys, connections between the keys and the valves, successive pairs of keys controlling a pair of valves located in different regions of the organ, and the key-connections controlling the valves in the same region of the organ being substantially uniform in length.

5. In a pipe organ, keys and valves, and key-connections connecting alternate keys with valves on different sides of the organ, the key-connections controlling valves on the same side of the organ being substantially uniform in length.

6. In a pipe organ, the combination of keys, valves controlling the speaking of the pipes, connections between the valves and keys independent of rollers or rock-shafts, and a system of passage-ways, each passage-way leading from a plurality of suitably-controlled openings in the valve seat to a pipe of the organ, the valves being divided into groups arranged in different regions of the organ, for the purpose set forth.

7. In a pipe organ, the combination of keys, valves controlling the speaking of the pipes, connections between the valves and keys, and a system of passage-ways arranged at different levels, each passage-way leading from a plurality of suitably-controlled openings in the valve seat to a pipe of the organ, whereby the width of the individual passage-ways may be increased and those at different levels may be made to cross one another.

8. In a pipe organ having a plurality of musical stops of the same quality or timbre, a plurality of groove-boards arranged at different levels, each groove or passage-way communicating with a single pipe and communicating also with two openings, both leading to the wind-chest but controlled by different slides and keys, whereby the individual grooves or passage-ways may be made of greater section, and the space on the sound-board may be better utilized in the placing of pipes.

9. In a pipe organ, the combination of a key, a valve controlling the speaking of one or more pipes, two levers pivotally connected by means of a link, an arm of one of said levers being suitably connected with a key of the key-board while an arm of the other lever is connected by a rod with a valve of the organ.

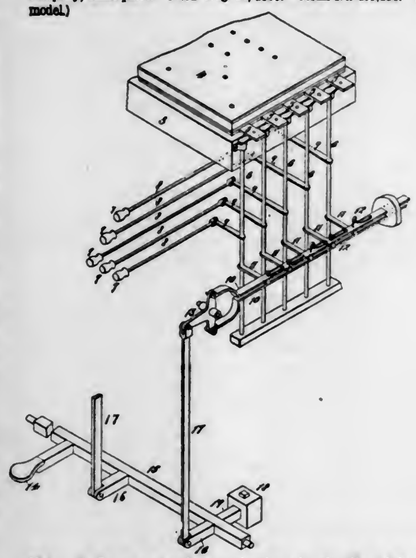
10. In a pipe organ, the combination of a manual of keys, valves controlling the speaking of the pipes, and key connections arranged in a plurality of sets of substantially uniform members, each individual key connection consisting of a pair of bell-cranks having their vertical arms connected by a link, an arm of one of said bell-cranks being suitably connected to a key and an arm of the other being suitably connected to a valve.

11. A pipe organ having each alternate pipe of the chromatic scale arranged in groups or fields at opposite sides of the organ, each of said alternate pipes being arranged in the same relative position in each of said groups or fields at opposite sides of the organ, and key connections for causing the speaking of said pipes.

12. A pipe organ having pipes giving the C's, D's, E's, F♯'s, G♯'s and A♯'s arranged consecutively in a group at the left of the organ and the pipes giving the C♯'s, D♯'s, F's, G's, A's and B's arranged consecutively in a group at the right side of the organ, the size of the pipes in each field decreasing toward the right, and key connections for causing the speaking of said pipes.

520,925. COMBINATION STOP-ACTION FOR PIPE-ORGANS.

RICHARD W. JACKSON, Chester, Ill., assignor to the Jackson Pipe Organ Company, same place. Filed Aug. 14, 1893. Serial No. 483,156. (No model.)



Claim.—1. In an organ, the combination of a plurality of slides, slide-shifting members suitably connected to the respective slides, two reciprocating bars having each a series of adjustable catches for engaging and operating any predetermined number of said slide shifting members, and means for actuating said bars to reciprocate in opposite directions, whereby the performer may pass instantly from one combination of stops to another.

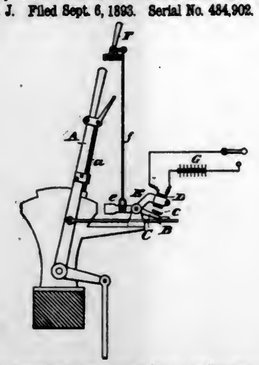
2. In an organ, the combination of two reciprocating bars, adjustable catches carried by said bars and controlling the shifting of the slides in and out of register, a T-lever having its opposite arms flexibly connected with said reciprocating bars respectively, a treadle, and suitable connection between said treadle and the stem of the T-lever, whereby when said treadle is depressed said bars will move in reverse directions, for the purpose set forth.

3. In an organ, the combination of a plurality of slides, rock-shafts having arms suitably connected to said slides, stops connected to the respective rock-shafts and controlling the individual slides respectively, two parallel sliding bars between which projects an arm of each rock-shaft, said arms being adapted to normally move to and fro freely between said parallel bars, adjustable catches in both bars adapted to be set beforehand to engage or to pass the respective arms of said rock-shafts as said sliding bars move in opposite directions, and actuating mechanism for impelling said bars to slide to and fro in opposite directions.

4. In an organ, the combination of a plurality of slides, adjustable slide-shifting mechanism for shifting simultaneously any predetermined number of slides, actuating means controlled by the performer for operating said slide-shifting mechanism, and comprising a suitable weight or spring for returning said slide-shifting mechanism to its normal position when the same has been operated, without disturbing the slides.

520,926. LEVER-CONTROLLING DEVICE.

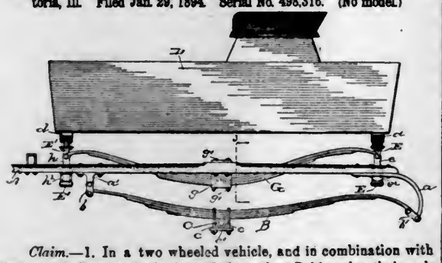
ARTHUR H. JOHNSON, Rahway, N. J. Filed Sept. 6, 1893. Serial No. 484,902. (No model.)



Claim.—The combination with a lever and a movable dog for locking it, of an electric circuit including an electro magnet for attracting said dog, the said electro magnet and the dog being mounted to move toward and away from each other, a device for positively moving the electro magnet toward the dog when the latter is in locking position, the magnet being free to move independently of its said operating device in moving the dog from its locking position and a weight or its equivalent for effecting this movement, substantially as set forth.

520,927. TWO-WHEELED VEHICLE.

JOHN A. JOHNSON, Victoria, Ill. Filed Jan. 29, 1894. Serial No. 498,316. (No model.)



Claim.—1. In a two wheeled vehicle, and in combination with the body, thills and wheels thereof, the springs B, hinged at their ends to the thills and fixed at their midlength parts to the axle, the springs G fixed at their midlength parts to the thills, and hinged to and supporting the springs E, E', at their ends, substantially as and for the purpose specified.

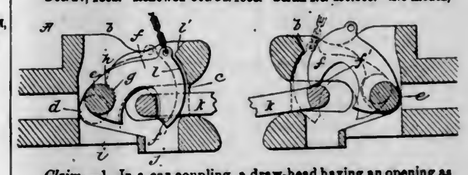
2. In a two wheeled vehicle, and in combination, the thills A, springs B fixed to the axle at or near their midlength portions, and hinged to the thills at their ends, beneath which thills they are located, springs G, fixed at or near their midlength parts to the thills, and hinged at their ends to transverse springs E, E', which support the vehicle body and are supported by the springs G, substantially as and for the purpose specified.

3. In a two wheeled vehicle, and in combination with the body, wheels and thills thereof, semi-elliptic springs, one of which is hinged at each end to each of the thills above it, and both of which are fixed at their midlength parts to the axle, semi-elliptic springs fixed at their midlength parts to the thills, and transverse springs hinged to and supported by the springs which are fixed at their midlength to the thills, substantially as described.

4. In a two wheeled vehicle, and in combination with the body, thills and wheels thereof, semi-elliptic springs, fixed at their midlength parts to the axle, hinges on each of said springs connecting them with the thills and permitting limited endwise movements of the thills and springs with reference to each other, semi-elliptic springs fixed at their midlength parts one to each thill, a transverse spring at each end of the springs which are fixed to the thills at their midlength parts, and hinges connecting the transverse springs and adjacent semi-elliptic springs and permitting limited endwise movements of the transverse springs with reference to the thills, axle and wheels, substantially as described and for the purpose specified.

520,928. CAR-COUPLING.

GEORGE KER, Portland, Oreg., assignor to the Western Automatic Car-Coupling Company, same place. Filed Dec. 27, 1892. Renewed Oct. 31, 1893. Serial No. 489,663. (No model.)



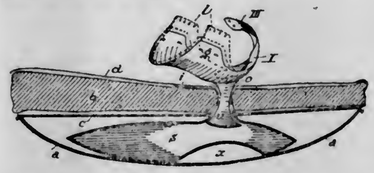
Claim.—1. In a car-coupling, a draw-head having an opening as *b* extending downward and connecting in front with the throat of the draw-head, and in the rear with sockets *d*, adapted to receive the short journals or trunnions *e* of the hook, the said sockets opening out on top of the drawhead and having concave recesses leaving abutments *h* for the trunnions of the hook to bear against when the coupling link pulls on the same in combination with a coupling hook, constructed substantially as described having trunnions adapted to be seated in said sockets *d*, and means for lifting said hook when uncoupling, substantially as set forth.

2. In a car-coupling, a drawhead having an opening as *b* extending downward and connecting in front with the throat of the drawhead, and in the rear with sockets *d*, adapted to receive the short journals or trunnions *e* of the hook, the said sockets opening out on top of the drawhead and having concave recesses leaving abutments *h*, for the trunnions of the hook to bear against when the coupling link pulls on the same, and abutments *l'* for the head of the hook to bear against and lock with as specified, in combination with a coupling hook constructed substantially as described, having trunnions adapted to be seated in said sockets, *d*, and the head of which hook is adapted to lock with the said abutments *l'* in the drawhead, and means for lifting said hook when uncoupling, all substantially as described.

3. In a car coupler, a drawhead having an opening *b* extending downward and connecting in front with the throat of the drawhead, and in the rear with the sockets *d*, adapted to receive the short journals or trunnions *e*, of the hook, the sockets *d* opening out on top of the drawhead, and having concave recesses *g*, leaving abutments *h* for the trunnions of the hook to bear against when the coupling-link draws on the same, an abutment *l'*, for the head of the hook to bear against and lock with, as specified, and a slot *i* and annular opening *j* for the purposes mentioned, in combination with a coupling hook, constructed substantially as described, having trunnions adapted to be seated in said sockets *d*, and the head thereof being adapted to lock with the abutment *l'*, in the drawhead as described, and means for lifting said hook when uncoupling, all substantially as set forth.

520,929. APPARATUS FOR SUPPORTING CHILDREN.

JULIUS KRAUT, Munich, Germany. Filed Nov. 10, 1893. Serial No. 490,596. (No model.) Patented in Germany Dec. 15, 1892, No. 71,725; in England Jan. 9, 1893, No. 426; in France Mar. 24, 1893, No. 228,533, and in Belgium Mar. 24, 1893, No. 104,035.



Claim.—1. In a supporting apparatus for infants, a cushion, in combination with a truss for supporting the body, a receiver below the cushion, and a tube connecting the truss with the receiver, substantially as set forth.

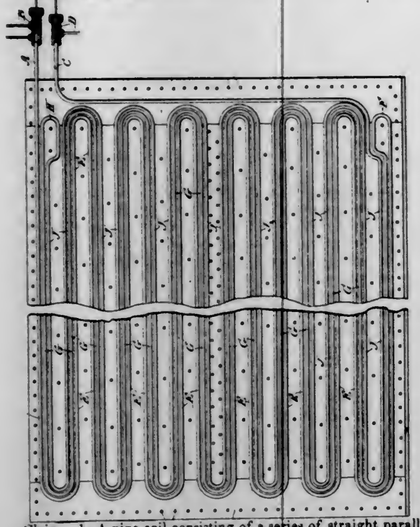
2. In a supporting apparatus for infants, a yielding dished support, and a cushion resting upon and attached to the same, in combination with a truss above the cushion, a receiver arranged within the space between the cushion and the dished support, and a tube connecting the truss with the receiver, substantially as set forth.

3. In a supporting apparatus for infants, the combination of the following parts: a dished support of yielding material, a cushion or pillow mounted upon the same and provided with an opening, a truss adapted to fit the lower part of a child's body and having an exten-

sion for extending between the legs of a child, a receiver below the pillow or cushion, and a flexible tube connecting the receiver with the mouth of the truss, substantially as set forth.

4. An apparatus for keeping infants and children dry, comprising a dished support, having an elastic cloth or tissue, or underbedding stretched over the same, a bodice for inclosing the body and a truss of soft rubber inclosing the bodice and fitting the part of the body resting therein, the said truss being provided with an extension at I, and adapted to convey the discharges to a receiver, *s*, located in the dished support by means of a yielding tube, *u*.

520,930. REFRIGERATING-MACHINE. JOHN LEVY, THOMAS H. BUTLER, and CHARLES A. MACDONALD, Chicago, Ill., assignors to the Hercules Iron Works, same place. Filed Nov. 16, 1892. Serial No. 452,208. (No model.)



Claim.—1. A pipe coil consisting of a series of straight parallel sections in close proximity to each other, said sections connected in groups of two by curves which are substantially struck from a common center, the whole of said pipes lying in a single plane and constituting one continuous pipe or coil with two terminals.

2. In a coil of pipe the combination of a series of parallel straight sections in close proximity to each other, said sections connected in groups of two by curves at the ends of such sections, the whole connected so as to form a continuous passageway from one end of the coil to the other, all of said pipes or coils lying in the same plane and no part crossing any other portion.

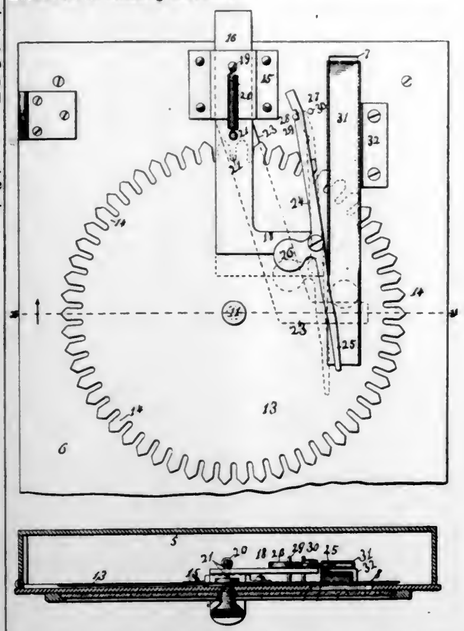
3. In a cooling plate containing cooling coils therein, a distributing system of pipes for the cooling fluid associated with such plate, consisting of a series of coils arranged in groups of sections, each group having three or more parallel coils, and the whole forming a continuous passageway with two terminals.

520,931. COIN-CONTROLLED MECHANISM. HORACE A. MANLEY, Boston, assignor to William N. Osgood, Malden, Mass. Filed Aug. 29, 1893. Serial No. 484,282. (No model.)

Claim.—1. In a coin-controlled apparatus, the combination with a case, and a door for closing the same, the door being furnished with a slot and a list of numbered questions or illustrations, of a rotatable disk within the case having on one surface a list of answers or titles, a shutter for closing the slot in the door, a locking-device working in unison with the shutter and adapted to lock the disk against rotation, and a coin-controlled mechanism for releasing the shutter.

2. In a coin-controlled apparatus, the combination with a coin chute open at the bottom and a portion of one edge, of a counterweighted catch-lever, pivoted on a depressible support, having a curved upper end furnished with a catch-notch and a depending finger adapted to enter the chute, of two pins mounted on a support between which the upper end of the lever moves adapted to limit the vibration of the lever, as described.

3. In a coin-controlled apparatus, the combination with a slotted door centrally perforated, a shaft journaled in said perforation and a toothed disk secured to the inner end of the shaft, of a shutter for covering the slot in the door, a catch adapted to be operated by the opening of the shutter to engage the disk-teeth, and a coin-controlled mechanism for releasing the shutter.



4. The combination with the door 6 having the slots 7 and 8 and a central perforation, the shaft 11 journaled in the perforation and furnished with the thumb-nut 12, and the disk 13, having teeth 14 arranged around its circumference, secured to the inner end of said shaft, of a shutter for closing the slot 8 and adapted to engage the disk 13, and a coin-controlled device for releasing the shutter.

5. The combination with the door 6 having the slots 7 and 8 and a central perforation, the shaft 11 journaled in said perforation, the disk 13 having the teeth 14 mounted on the shaft, and the chute 31 secured to the rear surface of the door extending downward from the slot 7, of the guide 15 secured to the rear of the door, the lever 16 having the arm 18 and push-piece 17 mounted in the guide, the pin 21 extending through such lever, the spring 20 secured to the pin 21 and to a screw on the guide, the shutter-arm 23 carrying the shutter 24, secured to the lever 16, the catch-lever 24 pivoted to the arm 18 and having the finger 25, the counterweight 26, and the bent end 27 furnished with the notch 28, the pin 29 secured in the door for engaging said notch, and the pin 30 also secured in the door for limiting the vibration of the catch, as described.

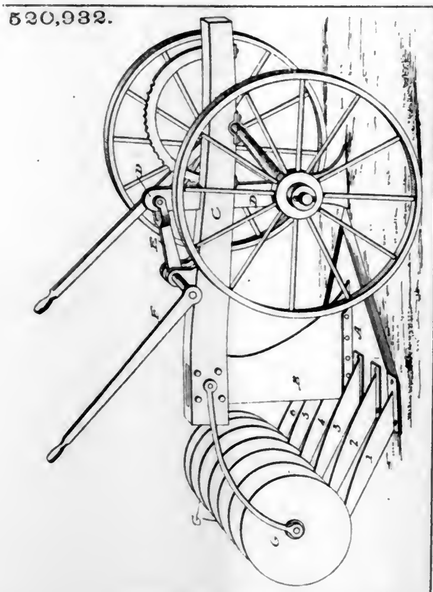
520,932. UNDERCUT PLOW AND SUBSOILER. HORACE B. MARTIN, Chino, Cal. Filed May 1, 1893. Serial No. 472,652. (No model.)

Claim.—1. In an undercut plow, the combination with a suitable draft frame, of a pointed horizontal plate or cutter attached to the frame, to run beneath the surface of the ground, provided at its rear end with a transverse series of knives set parallel to the line of motion and inclined upward and rearward, having their cutting edges standing vertically upward to pulverize the soil by cutting through it from beneath, and to bring stubble, straw, roots and other débris to the surface—substantially as described.

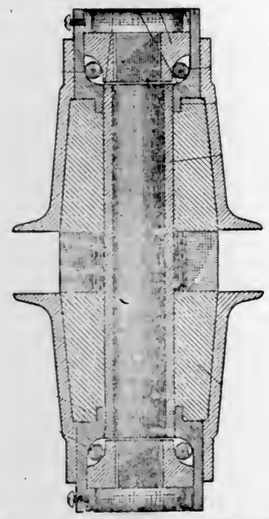
2. In an undercut plow, the combination with a suitable draft frame to which is attached a pointed horizontal plate provided with a transverse series of knives set parallel to the line of motion and inclined upward and rearward, of a follower attached to the rear part of the frame to force the earth down between the knives to insure their more perfect action—substantially as described.

3. In an undercut plow, the combination with a suitable draft frame to which are attached a horizontal plate to run beneath the surface of the ground provided with a series of knives inclined upward and rearward and a follower attached to the frame and located above the knives, of a subsoil blade properly attached to the frame—the whole constructed and arranged substantially as and for the purpose set forth.

520,932.



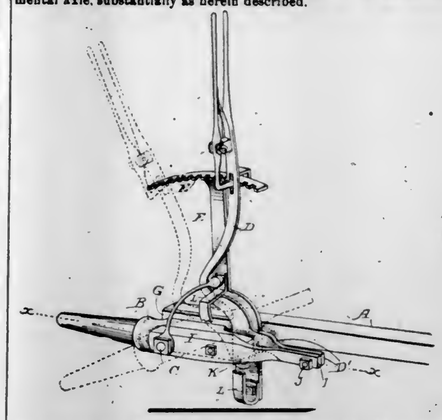
520,933. ANTIFRICTION WHEEL-HUB. EDWIN F. MOORE, Toronto, Canada. Filed Feb. 23, 1894. Serial No. 501,447. (No model.)



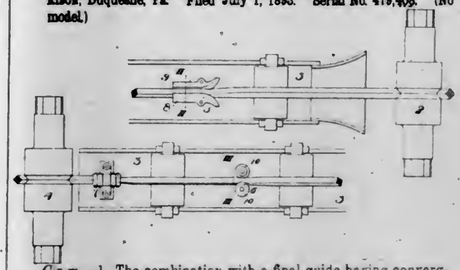
Claim.—The combination of the hub, a metallic sleeve within the bore of the hub screw threaded at each end, a bearing case fitted to each end of the hub, each of said bearing cases screwed on its respective end of the sleeve, a coned bearing within the bearing case, the balls, a ring removably fitted to the bearing case and arranged to lock the coned bearing within the bearing case, a spline or key fitted to the inner surface of the coned bearing adjacent to the outer end of the axle, to enter a correspondingly shaped seat in the said end of the axle, the axle provided with a spline or key contiguous to the dust collar, to enter a correspondingly shaped seat in the adjacent bearing case, substantially as and for the purpose specified.

520,934. SULKY-PLOW AXLE. WILLIAM B. MORRIS, Collinsville, Cal., assignor to E. I. Upham and Wm. Emington, same place. Filed Dec. 22, 1893. Serial No. 494,433. (No model.)

Claim.—In a gang or sulky plow, the combination of the main axle having a permanent wheel upon one end, a plate secured to the opposite end with pivot pins or studs projecting therefrom, a supplemental axle journaled upon the outermost of these pivot pins and having a socketed inner end, a bell-crank lever the angle of which is fulcrumed upon the outer pin and whose inner lower end is extended, a box or casing fitting around and bolted to the inner end of the supplemental axle and having its inner end extended in line with and pivoted to the extension of the lower lever arm, and a yoke embracing and forming a guide and brace for the inner end of said supplemental axle, substantially as herein described.



520,935. EDGING-GUIDE FOR ROLLING-MILLS. THOMAS MORRISON, Duquesne, Pa. Filed July 1, 1893. Serial No. 479,408. (No model.)



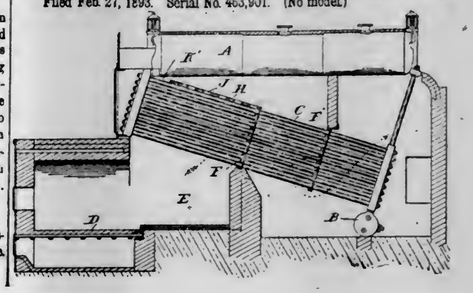
Claim.—1. The combination with a final guide having converging faces, of a preliminary guide separated therefrom and arranged to give an initial twist to the metal; substantially as described.

2. The combination with the final guide having converging faces, of a preliminary guide consisting of two blocks having inclined substantially parallel faces; substantially as described.

3. The combination with the final guide having converging faces of a preliminary guide consisting of two rollers having inclined surfaces; substantially as described.

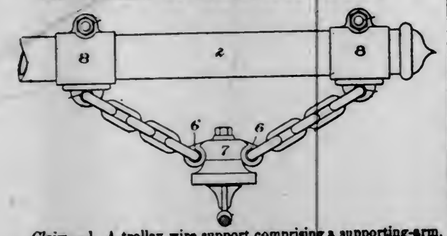
4. The combination with the final guide having converging faces, of preliminary guides one consisting of two blocks having inclined faces, and the other two rollers having inclined surfaces; substantially as described.

520,936. STEAM-BOILER. THOMAS MURPHY, Detroit, Mich. Filed Feb. 27, 1893. Serial No. 463,901. (No model.)



Claim.—In a steam boiler furnace, the combination with the furnace chamber E, of an inclined stack of water tubes above the same, a transverse vertical baffle plate extending from the bridge wall to the top of the stack, an unobstructed passage from the chamber to the top of the stack and extending from the baffle plate to the forward ends of the tubes, and a single apertured baffle plate for the space between the vertical baffle and the forward ends of the tubes secured across the upper course of tubes in front of the vertical baffle plate, substantially as described.

520,937. TROLLEY-WIRE SUPPORT. LOUIS MCCARTHY, Boston, Mass. Filed Mar. 3, 1894. Serial No. 502,252. (No model.)

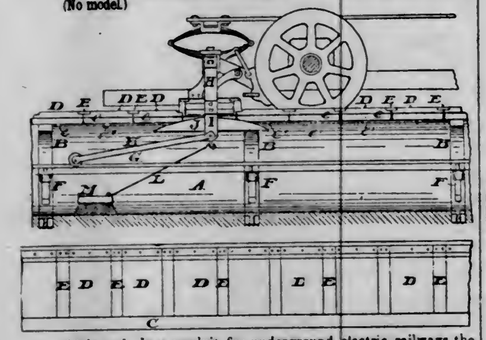


Claim.—1. A trolley wire support comprising a supporting-arm, an insulator, and jointed connectors extending upwardly in opposite directions from the said insulator and suspending it below the points of attachment of the said connectors to the said arm, leaving the insulator unconstrained by its supporting devices and free to respond to the vibrations of the trolley wire, substantially as set forth.

2. A trolley wire support comprising a supporting arm an insulator, jointed connectors extending oppositely from the said insulator and suspending it from the said arm, and jointed checks connected at their inner ends with the said insulator and at their outer ends with projections from said arm, said checks being provided with springs, substantially as set forth.

3. An attaching clip comprising two halves or parts provided at one side of the clip with projections or lips for the reception of a retaining bolt, one of said halves or parts having at the other side of the clip a second lip or projection and the other part having an eye which receives said second lip or projection to connect the parts at the opposite side of the clip and a retaining bolt passing through the projections or lips first mentioned, substantially as set forth.

520,938. CLOSED CONDUIT FOR ELECTRIC RAILWAYS. PAUL PLODECK, Sr., Cleveland, Ohio. Filed Feb. 21, 1894. Serial No. 501,006. (No model.)

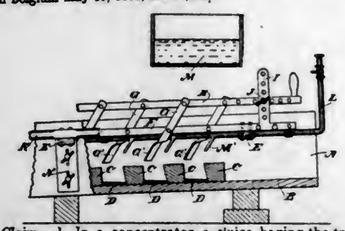


Claim.—1. In a conduit for underground electric railways the combination with a conduit of hinged lids D, D, E, E, lids D D provided on their under sides with friction rollers *d*, covering the slot or opening in the roadway, substantially as described.

2. In a conduit for underground electric railways, the combination with conduit A and the hinged lids D, E, of a hanger H, connected to car truck, arm I, carried on lower end of said hanger, arched bar J attached to arm I, adapted to lift the lids D, E, substantially as and for the purpose set forth.

3. In a conduit for underground electric railways, the combination with conduit A, provided with lids D, E, for covering the opening in the roadway, of a hanger H attached to car-truck, arm I attached to hanger H, arched bar J attached to arm I adapted to lift the lids as described, of trolley levers K, attached to said bar J and arm I and trolley wheels *k*, *k*, adapted to run on the conductors G, G, substantially as described.

520,939. CONCENTRATOR. ALMIRE H. RAPP, San Francisco, Cal. Filed Jan. 20, 1894. Serial No. 497,542. (No model.) Patented in Belgium May 19, 1891, No. 29,612.



Claim.—1. In a concentrator, a sluice having the transversely movable agitating plates provided with lower portions which dip into the passing current, and are turned at an angle to present flat surfaces to obstruct the flow of the current, and means by which said plates are reciprocated in horizontal planes transversely of the sluice.

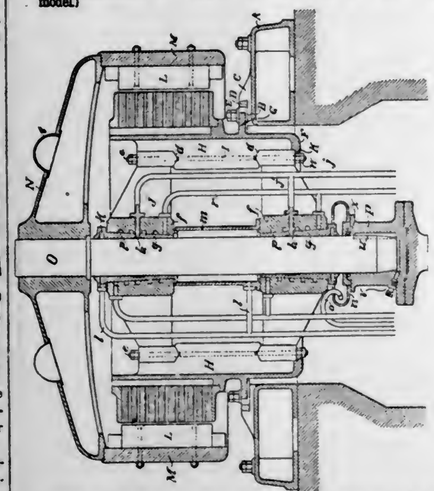
2. A concentrator comprising a conveying sluice or channel, arresting and agitating plates each pivotally secured and adapted to dip into the current, means for reciprocating said plates in horizontal planes transversely of the sluice, and means for varying the angle or position of the plates with relation to the flowing current.

3. In a concentrating sluice, the transversely movable agitating plates each pivotally secured, and means for varying their angle in the direction of the flow of the current.

4. In a concentrator, a sluice having the transverse riffles along its bottom, said riffles having the sides toward the lower end of the sluice formed with undercuts, intermediate pockets between the riffles transversely movable plates having their ends obstructing the flow of the current and adapted to reciprocate immediately over the pockets, and means for reciprocating the plates.

5. The concentrating sluice having transverse riffles, the blades or plates pivoted to arms above the sluice and adapted to be reciprocated transversely to the line of travel of the current within the sluice, a means for adjusting the angle of said plates or lifting them entirely out of the current, consisting of a bar connecting the upper ends of the shanks or handles of said plates, a standard and a latching device by which said arm is held in any desired position, substantially as herein described.

520,940. DYNAMO-ELECTRIC MACHINERY. COLEMAN SELLERS, Philadelphia, Pa. Filed Oct. 27, 1893. Serial No. 489,301. (No model.)



Claim.—1. In a dynamo electric machine having a vertical shaft, a cylindrical frame provided with internal projections having bearings concentric with the axis of rotation of the shaft, substantially as described.

2. In a dynamo electric machine having a vertical shaft, the combination of a cylindrical frame with internal projections having bearings concentric with the axis of rotation, with spider frames having corresponding concentric bearings, and hubs to support the bearings of the shaft, substantially as described.

3. In a dynamo electric machine having a vertical shaft, a cylindrical frame provided with internal projections having bearings concentric with the axis of rotation and spider frames and hubs to support the bearings for the shaft, the said spider frames fitting into the said bearings upon the cylindrical frame and detachably secured thereto and capable of being removed and replaced, the one by being immediately lifted out and the other by being rotated upon its axis until the spider frame is clear of the projections and then by hoistiug, substantially as described.

4. In a dynamo electric machine having a vertical shaft, a cylindrical frame having internal projections and concentric bearings to receive the spider frames within which the shaft is supported, and provided with a ring or flange, or segments of rings, or flanges, so situated as to form a ledge upon which the ends of the lower spider frame may rest when removing or replacing the same, substantially as described.

5. A dynamo electric machine having a vertical shaft, spider frames or supports detachably secured to the concentric bearings of a cylindrical frame and having the hubs of said spider frames concentrically bored to receive conical bushings of bearing metal within which the shaft is supported, substantially as described.

6. In a dynamo electric machine having a vertical shaft, the combination of a shaft carrying a bell-cap and rim within which are supported either the field magnets or the armature plates, the lower end of said shaft being detachably secured to the power shaft, with a cylindrical frame having internal projections and concentric bearings to receive the arms of the spider frames which support the shaft within concentric conical bearings, substantially as described.

7. A dynamo electric machine having a vertical shaft carrying a bell-shaped revolving field or armature and supported within bearings carried by spider frames detachably secured in concentric bearings upon projections within a cylindrical frame which is provided with projections which rest upon the bed-plate and which are capable of adjustment thereon to secure alignment with the power shaft without disturbing the determined concentricity of the stationary and revolving parts of the machine, substantially as described.

8. In a dynamo electric machine having a vertical shaft, the combination of a bell shaped revolving field or armature with two similarly formed spider frames, to be used for top and bottom bearings, a cylindrical frame provided with lugs or projections and a flange or ledge, whereby the lower spider may be removed by being turned around clear of the lugs or projections while resting upon said flange or ledge and then lifted clear of the supporting projections, substantially as described.

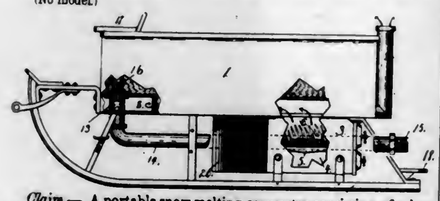
9. In a dynamo electric machine having a vertical shaft, the combination with said shaft of conical bearings continuous throughout their circumference supported within spider frames and a cylindrical frame concentric with said shaft, substantially as described.

10. In a dynamo electric machine having a vertical shaft, the combination of conical bearings with a system of forced circulation of oil by means of induction and eduction pipes and chambers and graduated guiding grooves within the bearings to secure distribution of the oil, substantially as described.

11. In a dynamo electric machine having a vertical shaft, the combination of the bearings provided with a forced circulation of oil by means of induction and eduction pipes placed vertically within the armature and chambers and graduated guiding grooves within the bearings to secure distribution of the oil, with a forced circulation of cooling water by means of induction and eduction pipes placed vertically within the armature and connecting with spiral grooves about the bearings, substantially as described.

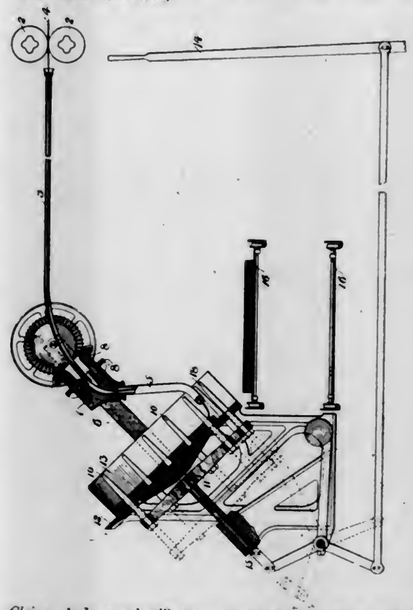
12. In a dynamo electric machine having a bell-shaped revolving field or armature, the combination of a bell-cap with hooded openings, open on the side in the direction of their rotation, to induce by rotation a current of air within the machine to cool the armature and field magnets by contact in passing through the air spaces, substantially as described.

520,941. SNOW OR ICE MELTING APPARATUS. CHARLES F. SPRINGFELS, Buffalo, N. Y. Filed Feb. 10, 1894. Serial No. 499,730. (No model.)



Claim.— A portable snow melting apparatus consisting of a box or receptacle, the furnace located underneath the box or receptacle a draft-passage occupying a hollow space which covers the bottom of the box or receptacle such draft passage extending around a partition wall in the hollow space and opening at one side of the rear end of the receptacle into the fire-box of the furnace and at the other side of the rear end into the smoke-pipe and an outlet passage provided with a vertically adjustable and removable section of pipe all combined and operating substantially as and for the purpose stated.

520,942. METAL-COILING APPARATUS. JOHN STEVENSON, Jr., and CHARLES J. JOHNSON, New Castle, Pa. Filed Sept. 19, 1892. Serial No. 446,276. (No model.)



Claim.—1. In metal-coiling apparatus, the combination with a coiler, of a receiving-bed on which the metal is coiled; said bed being inclined to the horizontal at an angle between ninety degrees and the limiting angle of friction between the bed and the metal substantially as described.

2. In metal-coiling apparatus, the combination with a coiler, of a receiving-bed on which the metal is coiled, and means constructed to hold said coil during the act of coiling, and to release it at the conclusion thereof said bed being inclined to the horizontal at an angle between ninety degrees and the limiting angle of friction between the bed and the metal; substantially as described

3. In metal-coiling apparatus, the combination of a rotary coiler, a receiving-bed, and a drum or frame movable therethrough; said bed being inclined to the horizontal at an angle between ninety degrees and the limiting angle of friction between the bed and the metal substantially as described

4. In metal-coiling apparatus, the combination of a rotary coiler, a receiving-bed, a drum or frame, and an inclosing rim; said bed being inclined to the horizontal at an angle between ninety degrees and the limiting angle of friction between the bed and the metal substantially as described.

5. In metal-coiling apparatus, the combination with a rotary coiler, of a receiving-bed, a drum or frame movable therethrough, and an outer rod-confining frame between which and the drum or frame first named the rod is coiled; said bed being inclined to the horizontal at an angle between ninety degrees and the limiting angle of friction between the bed and the metal substantially as described.

6. In metal-coiling apparatus, the combination of a rotary coiler and a receiving-plate or bed, inclined to the horizontal at an angle between ninety degrees and the limiting angle of friction between the bed and the metal said coiler being journaled on an axis substantially at right angles thereto; substantially as described.

7. In metal-coiling apparatus, the combination with a coiler, of a receiving-bed on which the metal is coiled, and a conveyer at the lower end thereof; said bed being inclined to the horizontal at an angle between ninety degrees and the limiting angle of friction between the bed and the metal substantially as described.

8. In metal-coiling apparatus, the combination of a rotary coiler, an inclined receiving-bed, a movable drum or frame, an inclosing rim open at the lower end, and a movable outer rod-confining frame opposite said open end; substantially as described.

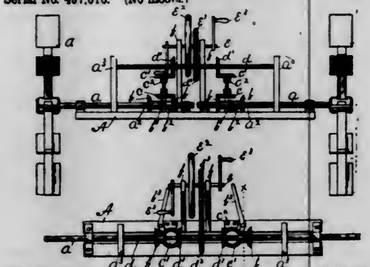
520,943. TRAY FOR DISPLAYING CHAINS. WILLIAM STIEFELHAGEN, Buffalo, N. Y. Filed Mar. 1, 1894. Serial No. 501,925. (No model.)



Claim.—1. A tray for displaying watch or other ornamental chains provided with a removably attached chain-board and a metallic strip having a series of hooks rigidly attached thereto and adapted to be adjustably secured between the tray and its removable chain-board substantially as and for the purpose stated.

2. A tray for displaying watch or other ornamental chains provided with a removably attached and grooved chain-board, and a metallic strip having a series of hooks rigidly attached thereto and adapted to be adjustably secured between the tray and its removable grooved chain-board, the hooks registering with the center of the grooves substantially as and for the purpose stated.

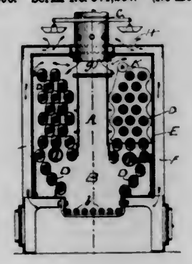
520,944. PADDLE-WHEEL MECHANISM FOR PROPELLING BOATS. JOSEPH C. THOMAS, New Bedford, Mass. Filed Jan. 22, 1894. Serial No. 497,616. (No model.)



Claim.—1. In combination with a boat, the paddle wheels a', mounted on independent shafts a, the sleeves b^3, having the bevel gears b, b, adapted to be shifted longitudinally on said shafts a, and revolve with them; the bevel gears c, and c', mounted on shafts having their bearings in stands c^3, with the gear c, adapted to mesh with either of the gears b, at certain times; a shaft d, mounted in bearings, and bearing bevel gears d', $d,'$ adapted to mesh with the gears c'; and means to revolve said shaft d, all as shown and for the purpose described.

2. A boat propelling apparatus, mounted on a base, adapted to rest across the gunwales of a boat, and be removably secured thereto, consisting of the paddle wheels a', mounted on independent shafts a; the sleeves b^3, one on each shaft, provided with bevel gears b, and adapted to be shifted longitudinally on said shafts, and to revolve therewith; the gears c, and c', mounted on shafts, having their bearings in stands c^3; a shaft d, mounted in bearings, and bearing bevel gears d', d', adapted to mesh with the gears c', and provided with the chain or band wheel d^3; a shaft e, mounted in bearings f, and provided with cranks e^3, and a chain, or band wheel d', connected with the wheel d^3, on the shaft d, by a chain or band, all as shown and for the purpose described.

520,945. STEAM-BOILER. FRANCIS H. TREAT, Chicago, Ill. Filed Nov. 13, 1890. Serial No. 371,287. (No model.)



Claim.—1. In a combined steam and hot-water boiler, the combination, with an internal vertical heating-chamber, a magazine located centrally therein, and external water chambers, of a series of horizontal tubes passing through said heating chamber at each side of the magazine and opening at their ends in said water-chambers, substantially as described.

2. In combination with the water spaces of a boiler, two sets of water tubes arranged in parallel series, one at each side of the fuel magazine, each set being slightly inclined vertically, one set in one direction and the other set in the opposite direction, substantially as described.

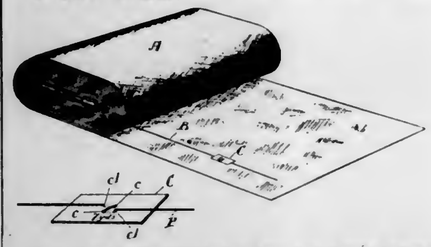
3. In combination with the water spaces of a boiler, an internal vertical heating chamber, a fuel magazine in the heating chamber, and two sets of water tubes arranged in parallel series, one at each side of the fuel magazine and fire space, and communicating with the water chambers whereby the water tubes are brought into contact with the fire and made to form sides of the fire box, substantially as described.

4. In combination with the water spaces of a boiler, two sets of water tubes, arranged in parallel series, one at each side of the fuel magazine, the lowest inner tube of each set being placed somewhat closer to the magazine than others in line above it, substantially as described.

5. In a boiler, a fuel magazine having two of its sides formed by water spaces of the boiler and two by flat metal plates extending down from the top of the boiler, substantially as described.

6. In a boiler, the combination of a fuel magazine extending across the boiler and dividing it into separate chambers for water tubes, a chimney, and a horizontal flue under the chimney and communicating therewith and with each of the water tube chambers, substantially as described.

520,946. LENGTH-INDICATOR FOR FABRICS. JAMES W. WOODS and DAVID I. BARNETT, Toronto, Canada. Filed Dec. 22, 1893. Serial No. 494,463. (No model.)



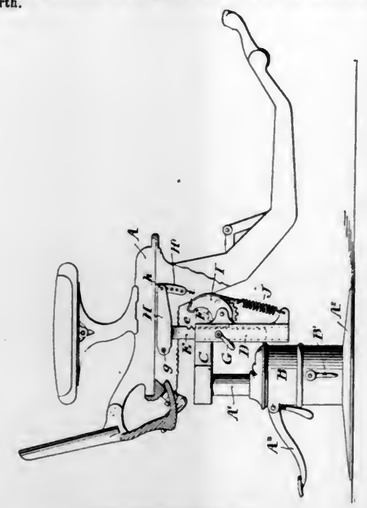
Claim.—The combination with the web A of a length indicator comprised of a cord or twine B having arranged on it at regular intervals tags C, and indicated on the tags C specified quantities to represent the length or quantity of material in the web, eyelets c formed in each of said tags, through which passes the said cord or twine, and eyelets c' also formed in the said tag through which the said cord or twine is laced back upon itself to form a lock to hold the tag stationary on the cord or twine, substantially as specified.

520,947. DENTAL CHAIR. ARTHUR W. BROWNE, Prince's Bay, N. Y., assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Dec. 27, 1893. Serial No. 494,848. (No model.)

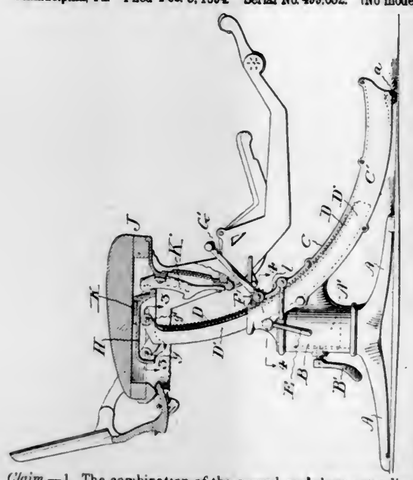
Claim.—1. The combination of the pedestal or base, the main elevating and lowering support carried thereby, the bracket rigid with the upper end of the main support and provided with the downwardly projecting supporter parallel with said support, the rod vertically adjustable in said supporter and sustained at all times in an upright position parallel with the main support, means for securing the vertically adjustable rod against movement in the supporter, the chair body carrier at the upper end of said rod, the chair body having jointed connection with said carrier to tilt upon it, and means for securing the chair body in its tilted position upon its carrier, substantially as set forth.

2. The combination of the pedestal or base, the main elevating and lowering support carried thereby, the bracket rigid with the upper end of the support and provided with the downwardly projecting supporter extending parallel with said support, the vertically adjustable rod sustained by said supporter and provided with the gear rack, the chair-body carrier at the upper end of said rod, the chair-body having jointed supporting connection with said carrier, the pinion meshing with the gear rack of the adjustable rod and the counterbalancing spring having connection at its opposite ends with said supporter and pinion, substantially as set forth.

3. The combination of the pedestal or base, the main elevating and lowering support carried thereby, the supporter having supporting connection with said main support and extending parallel therewith, the vertically adjustable rod sustained by said supporter and provided with the gear rack, the chair-body having supporting connection with the upper end of said rack rod, the pinion meshing with the rack of the adjustable rod, the eccentric sheave segment connected with the pinion, and the counterbalancing spring connected with said segment and the supporter of the rack rod, substantially as set forth.



520,948. DENTAL CHAIR. ARTHUR W. BROWNE, Prince's Bay, N. Y., assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Feb. 5, 1894. Serial No. 499,052. (No model.)

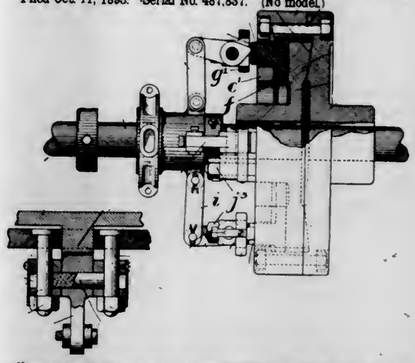


Claim.—1. The combination of the curved rack bars extending parallel with each other and arranged side-by-side, the carrier in which the rack bars are vertically adjustable, means for supporting said carrier, the chair body, the chair body carrier to which the rack bars are jointed at their upper ends the one in advance of the other with the jointing pivot at the upper end of one of said bars having sliding connection with the chair body carrier, and means for actuating the rack bars and for upholding them, substantially as set forth.

2. The combination of the two curved rack bars extending parallel with each other and arranged side-by-side, the carrier in which the rack bars are vertically adjustable, the cylinder carrying said carrier, the pedestal supporting the cylinder and about which the cylinder may be turned, the chair body carrier to which the rack bars are jointed at their upper ends the one in advance of the other with the jointing pivot at the upper end of one of said bars having sliding connection with the chair body carrier, means for actuating the rack bars, and means for upholding them, substantially as set forth.

3. The combination of the curved rack bars, their carrier, the cylinder carrying said carrier, the pedestal supporting the cylinder and about which the cylinder may be turned, the chair body carrier to which the rack bars are jointed the one in advance of the other, the pinions of different sizes gearing one with each bar, means for actuating the pinions, and means for upholding the rack bars, substantially as set forth.

520,949. CLUTCH. MALCOLM CAMPBELL, Boston, Mass., assignor to the Woonsocket Machine and Press Company, Woonsocket, R. I. Filed Oct. 11, 1893. Serial No. 487,837. (No model.)

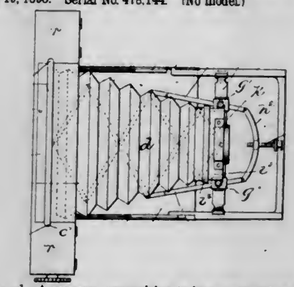


Claim.—1. A friction-clutch, comprising a disk carried by one part, a head carried by the other part and adapted for frictional engagement with one side of said disk, said head having a flange which extends over the opposite side of the disk and is provided with openings, a friction-ring inclosed in the head and adapted for contact with the disk, said ring having projections which engage the openings in the flange of the head, and means acting against said projections to move the ring, disk and head into frictional engagement.

2. A friction-clutch, comprising a disk on one part, a head on the other part for contact with said disk, a loose ring to bear against the disk, a cam-lever to operate the ring, a plate supporting the fulcrum-pin of said lever, bolts connecting said supporting plate with the head and extending across the ends of the fulcrum pin, and means for actuating the lever.

3. A friction-clutch, comprising a disk on one part, a head on the other part for contact with said disk, a loose ring to bear against the disk, a cam lever to operate the ring, a plate supporting the fulcrum-pin of said lever, bolts connecting said supporting-plate with the head and confining the fulcrum-pin in place, nuts on the bolts, and nut-locks consisting of springs fastened to the plate and having angular ends engaging the corners of the nuts.

520,950. CAMERA. THEODORE M. CLARK, Newton, Mass. Filed June 19, 1893. Serial No. 478,144. (No model.)



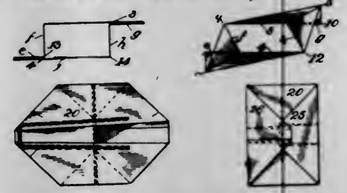
Claim.—1. A camera, comprising in its construction a horizontal platform for the bellows, a sliding extension of said platform, a bellows secured at one end to a stationary support, a sliding support on the platform-extension for the lens-front, lazy-tongs connected with a stationary support at one end and with the sliding lens-front support at the opposite end, and a connection between the lazy-tongs and sliding platform-extension.

2. A camera, comprising in its construction a horizontal platform for the bellows, a sliding extension of said platform, a bellows secured at one end to a stationary support, a sliding support on the platform-extension for the lens-front, lazy-tongs connected with a stationary support at one end and with the sliding lens-front support at the opposite end, rods connected with the central portion of the lazy-tongs, and a yoke joining said rods and connected with the platform-extension.

3. A camera, comprising in its construction a horizontal platform for the bellows, a sliding extension of said platform, a bellows secured at one end to a stationary support, a sliding support on the platform-extension for the lens-front, lazy-tongs connected with a stationary support at one end and with the sliding lens-front support at the opposite end, rods connected with the central portion of the lazy-tongs, a yoke joining said rods, and an adjusting-screw connecting said yoke with the platform-extension.

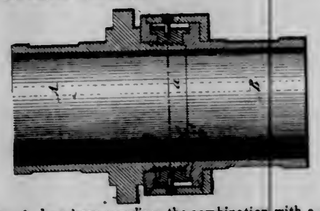
4. A camera, comprising in its construction a case having a hinged side, a bellows adapted to be fastened at one end in the case and to be contained therein when collapsed, a sliding extension on the hinged side of the case, a sliding support for the lens-front adapted to engage the said extension, lazy-tongs connected at one end with the case and at the other with the lens-front support, and jointed rods connected with the middle portion of the lazy-tongs and with the sliding platform-extension.

520,951. PROCESS OF MAKING PAPER BAGS. EDWARD E. CLAUSEN, Hartford, Conn., assignor to Albert H. Walker, trustee, same place. Filed Aug. 18, 1892. Serial No. 443,362. (No specimens.)



Claim.—The herein described process of making a flat bottomed bellows sided bag, which consists in first forming a tubular blank having the walls 3, 4, *e*, *f*, *g*, and *h*, then in folding one end of that blank into an angular box like form while the other end is folded into the form of a bellows sided tube, then collapsing the box into the diamond form by folding down two opposite walls of that box upon the blank, and completing the bag by cross folding the flaps of the diamond, substantially as described

520,952. HOSE-COUPLING. JAMES M. COX, Buffalo, N. Y., assignor of one-half to Bernard Cohen, same place. Filed Mar. 5, 1894. Serial No. 502,303. (No model.)



Claim.—1. In a hose coupling, the combination with a coupling section having an externally screw-threaded portion and an opposing coupling section having a screw-nut or internally screw-threaded portion which receives such externally threaded portion, one of such screw-threaded portions being composed of yielding sections, whereby the parts of the coupling can be connected by a longitudinal movement of one part upon the other, substantially as set forth.

2. In a hose coupling, the combination with a coupling section having an external screw-thread, of an opposing coupling section having an expansible screw-nut or internal thread which receives the external thread of the other section, whereby the coupling sections can be united by a longitudinal movement of one section upon the other, substantially as set forth.

3. In a hose coupling, the combination with a coupling section having an externally screw-threaded portion having its threads provided with abrupt rear sides and beveled front sides, of an opposing coupling section having an expansible screw-nut provided with corresponding threads adapted to engage with the externally threaded portion of the other coupling section, substantially as set forth.

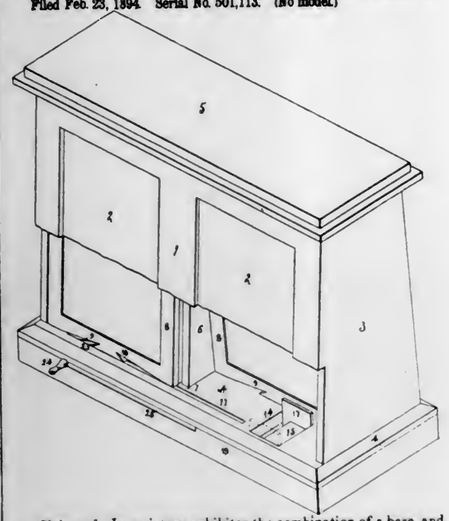
4. In a hose coupling, the combination with a coupling section having an external screw-thread, of an opposing coupling section having an expansible screw-nut which receives said external screw-thread, and a rotary collar whereby said screw nut is turned for tightening the coupling sections, substantially as set forth.

5. In a hose coupling, the combination with a coupling section having an external screw-thread, of an opposing coupling section having a divided screw nut which receives said external screw-thread, a spring for contracting the sections of the screw-nut, and a rotary tightening collar connected with the screw-nut, substantially as set forth.

6. In a hose coupling, the combination with a coupling section having an external screw thread, of an opposing coupling section having an expansible screw nut engaging with said external screw-thread having its sections provided with radial openings or recesses, and a rotary collar having pins or projections which engage in the openings or recesses of said nut-sections, substantially as set forth.

7. In a hose coupling, the combination with a coupling section having an external screw thread, of an opposing coupling section having a rotary tightening collar, a ring secured to the outer end of said collar, and an expansible screw-nut confined between said ring and the outer end of the adjacent coupling section and connected with said tightening collar, substantially as set forth.

520,953. PICTURE-EXHIBITOR. JOHN E. EKLUND, Rockford, Ill. Filed Feb. 23, 1894. Serial No. 501,113. (No model.)



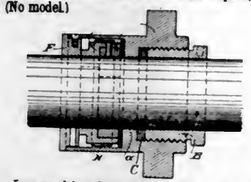
Claim.—1. In a picture exhibitor the combination of a base, and a top portion, a vertical partition separating the top portion into two compartments, mechanism located in the base portion for moving the picture holders from one compartment into the other compartment, the top portion being wider at the bottom than at its upper portion.

2. In a picture exhibitor the combination of a base, and a top portion, a vertical partition separating the top portion into two compartments, mechanism located in the base portion for moving the picture holder from one compartment into the other compartment, the top portion being wider at the bottom than at its upper portion and a spring located in the top of each compartment supporting the upper ends of the picture holders in proper position.

3. In a picture exhibitor, the combination of a base and a top portion, a vertical partition separating the top portion into two compartments, picture holders located in each compartment, the base portion recessed and within which is located the mechanism for moving the picture holders, consisting of two toothed bars located near the faces of the exhibitor, a central toothed wheel meshing with both toothed bars, each bar provided with a hook for engaging the picture holders, a toothed wheel located each side of the central toothed wheel and a transverse toothed bar for each of the end toothed wheels, movable at right angles to the main toothed bars, each provided with a vertical partition for moving the picture holders.

4. In a picture exhibitor, the combination of a base, and a top portion, a vertical partition separating the top portion into two compartments, mechanism located in the base portion for moving the picture holders from one compartment into the other compartment, the top portion being wider at the bottom than at its upper portion, both faces of each compartment having a glass covering.

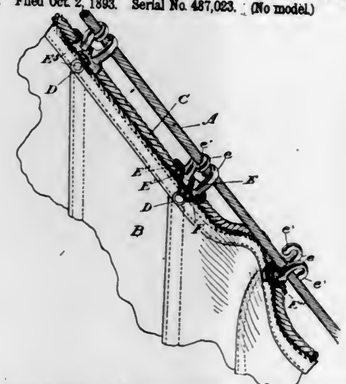
520,954. METALLIC PISTON-ROD PACKING AND GLAND. CHARLES H. ENSIGN, Kekaha, Hawaii. Filed Sept. 5, 1893. Serial No. 484,859. (No model.)



Claim.—1. In a packing for reciprocating rods, the combination, with a gland having inner and outer chambers with intermediate annular flange, and a gland nut fitting within the outer chamber, of the packing rings the diameter of which is less than the diameter of the inner chamber in which they are seated whereby a surrounding steam space is formed, one of said rings having its end projecting, an elastic ring surrounding the packing rings and holding them in place, and a cap closing the outer end of the inner chamber and bearing against the extension of the ring whereby the opposite ends of the rings are held against the annular flange to form a steam tight joint, substantially as herein described.

2. A metallic reciprocating rod packing consisting of a gland having an outer chamber for soft packing and a retaining gland nut fitted therein, an inner chamber with segmental concentric rings of smaller diameter than the chamber, and a surrounding spring by which they are retained in contact with the rod, an annular flange formed in the gland intermediate between the outer and inner chambers having its inner surface faced to form a steam tight joint with the ends of the packing rings, a cap ring fitting the end of the packing, ring chambers extending therein to press against the inner periphery of the packing rings, and an annular space surrounding the rings and the end thereof for the admission of steam to seat and counterbalance the rings, substantially as herein described.

520,955. STAY-TRAVELER. ARTHUR K. EVANS, Toronto, Canada. Filed Oct. 2, 1893. Serial No. 487,023. (No model.)



Claim.—1. A traveler for stays comprising a base and two reversely turned hooks, and a rib E^3 formed between the hooks on the base bar as and for the purpose specified.

2. A traveler for stays comprising a base and two reversely turned hooks and ribs E^3 formed on the ends of the base bar as and for the purpose specified.

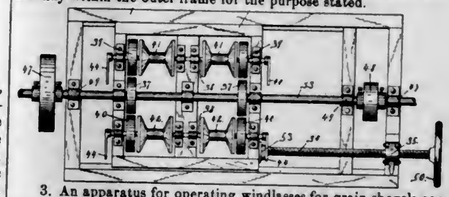
3. A traveler for stays comprising a base and two reversely turned hooks, a concave groove formed at the bottom of the base bar, and lips E^5 extending downwardly from the ends and arranged as and for the purpose specified.

4. A traveler for stays comprising a base, two reversely turned hooks, said hooks having elongated loops e' formed to extend beyond the base bar, the distance between the hooks, the diameter of the loops e', and the distance between the ends of the hooks and the base bar being all substantially equal as and for the purpose specified.

520,956. WINDLASS FOR GRAIN-SHOVELS. JAMES H. FINLEY, Buffalo, N. Y. Filed Mar. 8, 1894. Serial No. 502,829. (No model.)

Claim.—1. An apparatus for operating windlasses for grain shovels consisting essentially of an outer frame carrying the operative shaft, an auxiliary inner frame adjustably seated within the outer frame and upon the operative shaft and carrying the windlass and means for moving the auxiliary inner frame and operative shaft horizontally within the outer frame for the purpose stated.

2. An apparatus for operating windlasses for grain shovels consisting essentially of an outer frame carrying the operative shaft an auxiliary inner frame adjustably seated within the outer frame and upon the operative shaft and carrying the windlass and removable means for moving the auxiliary inner frame and operative shaft horizontally within the outer frame for the purpose stated.



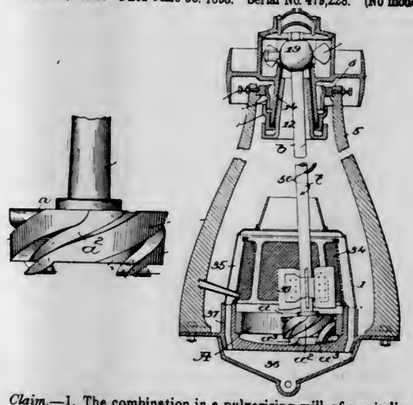
3. An apparatus for operating windlasses for grain shovels consisting essentially of the outer frame 32 carrying the operative shaft 33, the auxiliary inner frame 36 carrying the windlass and adjustably seated in the outer frame 32 and upon the operative shaft 33 and the screw-threaded rod 34 its inner flanged end 51, 52 loosely engaging with the slotted socket 53, 54 upon the auxiliary inner frame 36 and its outer end removably seated in the screw-threaded bearing 55, 57 upon the outer frame 32, the auxiliary inner frame 36 and the operative shaft 33 moving together all combined and operating as and for the purpose stated.

520,957. CLOTHES-PIN. THOMAS J. GORDON, Eureka Springs, Ark., assignor of two-thirds to D. W. Moore, same place, and R. J. March, Lower Ridge, Ill. Filed Oct. 7, 1893. Serial No. 487,467. (No model.)



Claim.—The herein described improved clothes pin formed from wire, and having two similar opposite branches, one upon each side of a central eye or coil for the line, said branches consisting each of a vertical arm *b*, a horizontal arm *c* extending from the upper end of the arm *b*, and at a considerable distance above the line, a depending arm *d* terminating in a foot *e* one of whose branches is extended back parallel with the arms *d* and *c* to about the central portion of the latter where it is twisted around the said arm *c*, and thence extended upwardly to form a handle or lever, the arms *b* of the respective branches leaving said eye or coil at opposite sides of the line whereby the two branches are brought in different planes, substantially as specified.

520,958. ROLL FOR PULVERIZING-MILLS. EDWIN C. GRIFFIN, Newton, Mass. Filed June 30, 1893. Serial No. 479,228. (No model.)



Claim.—1. The combination in a pulverizing mill, of a grinding chamber, and an annular die or ring therein, with a roll having its peripheral crushing surface grooved or channeled, and means to rotate

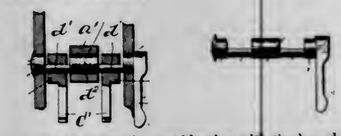
said roll, whereby it is carried around said die and held in contact therewith by centrifugal force, substantially as described.

2. In a mill, an annular die located in the pulverizing chamber, combined with a roll having its peripheral crushing surface provided with inclined grooves or channels, and means to rotate said roll, whereby it is carried around said die, and held in contact therewith by centrifugal force, substantially as described.

3. In a mill, an annular die located in the pulverizing chamber, combined with an inclosed roll eccentric thereto and having its peripheral crushing surface provided with a series of spiral grooves or channels extending from the bottom to the top thereof, and means to rotate said roll whereby it is carried around said die and held in contact therewith by centrifugal force, substantially as described.

4. The combination with an annular die located in the pulverizing chamber of a mill, of a roll eccentric thereto and having a grooved peripheral crushing surface, plows or shoes for said roll at the bottom thereof, and means to rotate said roll whereby it is carried around said die and held in contact therewith by centrifugal force, substantially as described.

520,959. SHIFTING MECHANISM FOR COCKING-ARMS OF BREAKDOWN GUNS. FRANK A. HOLLENBECK, Syracuse, N. Y., assignor to the Syracuse Arms Company, same place. Filed June 10, 1893. Serial No. 477,179. (No model.)



Claim.—1. In a fire arm the combination with the barrels provided with cocking shoulders, of the hammers, the cocking arms therefor, capable of movement longitudinally of the gun, a movable part outside the gun, and connections between said movable part and the cocking arms whereby the cocking arms can be moved out of the path of the cocking shoulders in assembling the parts of the gun, substantially as described.

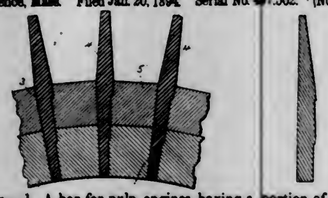
2. In a fire arm the combination with the barrels provided with cocking shoulders, of the hammers, the cocking arms therefor capable of movement longitudinally of the gun, a lever outside the gun, and connections between said lever and the cocking arms whereby the cocking arms can be moved out of the path of the cocking shoulders in assembling the parts of the gun, substantially as described.

3. In a fire arm the combination with the barrels provided with cocking shoulders, of the hammers the cocking arms therefor, a pivot pin having eccentric portions engaging the cocking arms and operating devices for said pin whereby the cocking levers are moved out of the path of the cocking shoulders in closing the gun, substantially as described.

4. In a fire arm the combination with the barrels provided with cocking shoulders, of the hammers and cocking arms therefor, a revoluble pivot pin having eccentric portions engaging said hammers and an operating lever outside of the lock casing connected with said pin, for moving the cocking arms out of operative relation with said cocking shoulders to permit the removal and return of the barrels, substantially as described.

5. In a fire arm the combination with the barrels provided with cocking shoulders, of the hammers, and cocking arms therefor, a revoluble pivot pin provided with bearing blocks engaging bearings in the lock casing, a bolt passing through said bearing blocks, eccentric to the same for supporting the hammers, and devices for connecting said bolt and blocks together for joint movement, substantially as described.

520,960. ROLL-BAR FOR PULP-ENGINES. JOHN H. HORNE, Lawrence, Mass. Filed Jan. 20, 1894. Serial No. 497,502. (No model.)



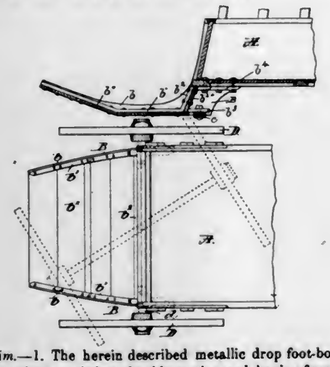
Claim.—1. A bar for pulp engines having a portion of its side surface divided into a number of separate surfaces located in different planes to create successive shoulders, which extend inwardly into the substance composing the bar, substantially as and for the purposes explained.

2. A bar for pulp-engines having a portion of its side surface divided into steps, and made up of a number of plane surfaces extending longitudinally of the bar, and a number of shoulders or risers which separate the several plane surfaces, the risers not projecting beyond the general side surface of the bar, substantially as set forth and described.

3. A bar for pulp engine rolls having its opposite sides tapering from a longitudinal line central or thereabout oppositely to each edge, and having a portion of its surface formed with a series of steps, which extend lengthwise of the bar, substantially as specified and stated.

4. In combination with a roll, a series of bars, a series of plane surfaces longitudinally of each bar, a series of steps which separate the several surfaces, and wedges adapted to be inserted between the individual bars and engage the steps upon the bar, substantially as set forth.

520,961. VEHICLE. JOHN JOHNSTON, Hyde Park, Mass. Filed Aug. 30, 1893. Serial No. 484,382. (No model.)

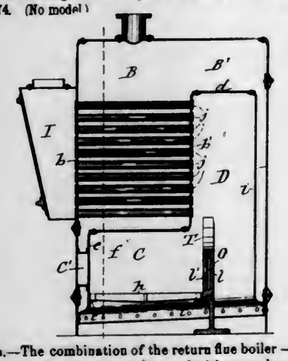


Claim.—1. The herein described metallic drop foot-board supporting bracket, consisting of a side portion, as *b*, having formed upon its inner face a foot-board support, and an upright panel support, and a spring bar seat at or near the rear end of said support, substantially as described.

2. The combination with a body, of foot board supporting drop-brackets secured at their rear ends thereto and consisting each of a metal side inclined inwardly and upwardly at its forward end and provided along its inner face with a foot-board support and at its rear end with a spring bar support, substantially as described.

3. The herein described drop foot board supporting bracket, consisting of a casting presenting a side portion *b* shaped substantially as described, having formed upon its inner face a foot board support, and a spring bar seat at or near the rear end of said bracket, substantially as described.

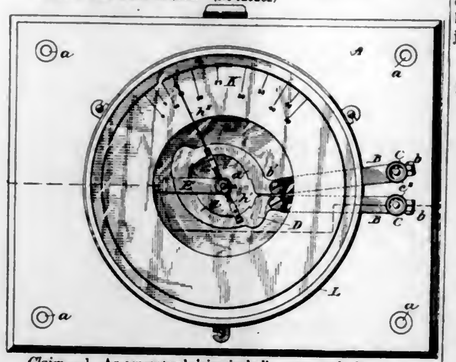
520,962. STEAM-BOILER. ROBERT JOY, Oswego, N. Y., assignor to Thomson Kingsford, same place. Filed Mar. 16, 1893. Serial No. 466,274. (No model.)



Claim.—The combination of the return flue boiler —B— formed with the combustion chamber —D— and with water legs and a water-back and seated upon a floor extending in a uniform plane under the boiler and aforesaid combustion chamber, the bridge-wall —O— sustained on said floor movable longitudinally, and adapted to enlarge or diminish the throat —T— and provided with the ledge —*t*— and

the grate-bars —*h*— supported at their rear ends on said ledge substantially as described and shown.

520,963. AMMETER. EDWARD R. KNOWLES, Middletown, Conn., assignor to the Schuyler Electric Company, of Connecticut. Filed Dec 9, 1892. Serial No. 454,661. (No model.)



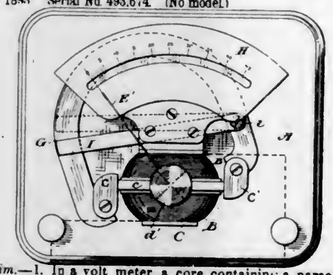
Claim.—1. An ammeter having its helix composed of two or more superposed blanks of sheet metal, the plane of each sheet being transverse to the axis of the needle, substantially as described.

2. An ammeter having its helix composed of a strip of metal containing two narrow and wider portions, one following the other, substantially as described.

3. An ammeter having its helix composed of a continuous strip of metal containing two portions symmetrically arranged on opposite sides of a center and each eccentric to said center, substantially as described.

4. An ammeter having its helix composed of a continuous strip of metal curved around a center, the inner edge of said strip having two opposite portions eccentric to said center, substantially as described.

520,964. VOLTMETER. EDWARD R. KNOWLES, Middletown, Conn., assignor to the Schuyler Electric Company, of Connecticut. Filed Dec 14, 1893. Serial No. 493,674. (No model.)



Claim.—1. In a volt meter, a core containing a narrow transverse socket, in combination with a flat frame removably inserted in said socket and containing bearings for the needle spindle, substantially as described.

2. In a volt meter, the combination with a core having a transverse socket, of a flat frame removably inserted therein, and a spindle mounted in bearings in said frame and carrying a thin needle, and a damping device, substantially as described.

3. In a volt meter, the combination with the field coils, of a permanent horse shoe magnet arranged with its poles on a line oblique to the axis of the field coils, said coils lying between said poles, substantially as described.

4. In a volt meter, the combination with the bobbin C having a central flat socket at right angles to its axis, of a horse shoe magnet G having its poles on each side of said bobbin on a line oblique to the axis thereof, and a frame D received in said socket and carrying a needle *e* adapted to stand normally in the line between the poles of the magnet, substantially as described.

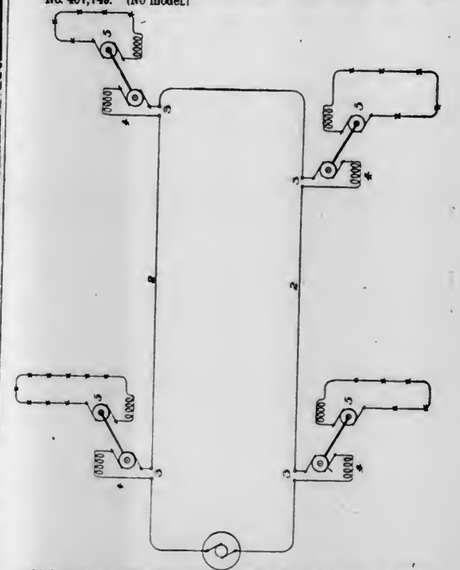
5. In a volt meter, a damping device for the spindle, consisting of a fan secured to the spindle and inclosed in a box fitting it closely and provided with radial partitions, substantially as described.

6. In a volt meter, a damping device for the spindle, consisting of a box containing two opposite sectors and a fan composed of two blades secured to the spindle and lying in the spaces between the sectors, substantially as described.

7. In a volt meter, the removable spindle frame D, carrying the bearing *d*, and the box D, containing the sectors d^2, and the cap d^3 having the bearing d^3, substantially as described.

8. In a volt meter, the combination with the permanent magnet, of a set screw tapped into one leg thereof, and a soft iron bridge bar hinged on said screw, and adapted to be clamped thereby when adjusted, substantially as described.

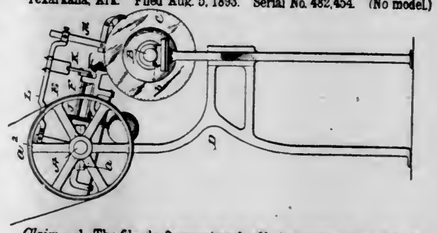
520,965. SYSTEM OF ELECTRICAL DISTRIBUTION. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, same place. Filed Mar. 27, 1893. Serial No. 467,749. (No model.)



Claim.—1. A constant current alternating generator, a series motor in the circuit thereof, a constant current series direct current generator driven by said motor, and translating devices in series with said direct current generator, substantially as described.

2. The method of producing constant direct currents in separated localities, which cousists in supplying an alternating current of constant quantity producing therefrom rotary motion of constant torque, and converting the energy of such motion into electrical energy of one polarity, substantially as described

520,966. GIN-SAW-FILING MACHINE. ROBERT S. MUDFORD, Texarkana, Ark. Filed Aug. 5, 1893. Serial No. 482,454. (No model.)



Claim.—1. The file-shaft carrying the file in combination with the spring actuated guide, for the purpose described

2. The combination of the file-shaft, the file, the boss, the grooved collar, the slotted guide, and the spring, substantially as described.

3. The combination of the arm having the boss, the forked projection at the lower end of the boss, the file-shaft, the file, the grooved collar, the slotted guide, and the spring, substantially as described.

4. The combination of the file shaft and file, the shaft-carrying arm, mechanism for rotating the shaft and raising the arm to throw the file out of action, and the automatically adjustable guide; substantially as described.

5. The combination of the drive shaft, the file-shaft carrying arm, the drive pinion splined upon the drive shaft, the miter pinion on the file shaft, and the adjustable yoke on the inner end of the carrying arm, said yoke being sleeved upon the drive shaft: substantially as described.

6. The combination of the drive shaft, the tilting arm, the file shaft and file carried by the arm, mechanism for driving the file shaft from the drive shaft, and mechanism for periodically raising the arm to throw the file out of action, said raising mechanism being driven by the file shaft; substantially as described.

7. The combination of the driving shaft, the bearings for the saw-shaft, the tilting frame sustaining the file, the rod underlying the frame and the adjustable weight carried by the rod, for regulating the file-pressure, substantially as described.

8. The combination of the driving-shaft, the tilting-arm, the file-shaft driven from the driving-shaft, the crank-shaft driven from the file-shaft, the overhead support, the pawl, and the slotted rod connecting said crank shaft and overhead support, substantially as described.

9. In a saw filer, the combination of the driving shaft, the tilting arm, the file shaft carried by the arm, the standard rising from the arm, the overhead bar jointed to the standard, the pawl carrier and pawl, and mechanism interposed between the file shaft and the overhead bar whereby the arm is automatically tilted: substantially as described.

10. The combination of the driving-shaft, the tilting arm having the standard, the pawl carrier and pawl, the bar connecting said pawl carrier and standard, the crank-shaft the slotted rod, and the stirrup, substantially as described.

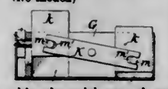
11. The combination of the driving-shaft, the tilting arm, the file shaft carrying the file and driven from said driving shaft, the crank-shaft driven from said file-shaft, the overhead support, the rod connecting said crank-shaft and overhead support, the pawl carrier and pawl, and the file-guide, substantially as described.

520,967. INVALID'S CUSPIDOR. JASPER S. ROSS, Sharon, Pa. Filed Sept. 18, 1891. Serial No. 406,120. (No model.)



Claim.—In an expectoration receptacle the combination of two compartments, one above the other; the upper compartment being without cover, and the lower compartment having one lateral face open; the two compartments being immovably joined together—substantially as and for the purposes set forth.

520,968. NUMBERING-MACHINE. FRANK SANDERS, Brooklyn, N. Y., assignor to Joseph Wetter, same place. Filed July 11, 1893. Serial No. 480,128. (No model.)



Claim.—1. The combination with a numbering-head, of a rocking plunger, contact points for said plunger on opposite sides of its pivot and means to transmit the movement of the plunger to the wheels of the numbering-head, substantially as shown and described.

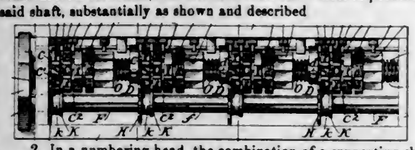
2. The combination with a numbering head, of a pivoted rocking-bar, contact points connected to said bar on opposite sides of the pivot and means to transmit the movement of the rocking-bar to the wheels of the numbering-head, substantially as shown and described.

3. The combination with a series of numbering-wheels and actuating mechanism therefor, of a rocking plunger, contact points for said plunger on opposite sides of its pivot and means to transmit the movement of said plunger to said actuating mechanism, substantially as shown and described.

4. The combination with a series of numbering-wheels and actuating mechanism therefor, of a rocking-bar, contact points connected to said bar on opposite sides of its pivot, and means to transmit the movement of the bar to said actuating mechanism, substantially as shown and described.

520,969. NUMBERING-MACHINE. FRANK SANDERS, Brooklyn, N. Y., assignor to Joseph Wetter, same place. Filed Oct. 19, 1893. Serial No. 488,612. (No model.)

Claim.—1. In a numbering-head, the combination of a shaft, a wheel mounted thereon and slotted to its periphery to permit of its removal from said shaft, and means to hold said wheel in position on said shaft, substantially as shown and described



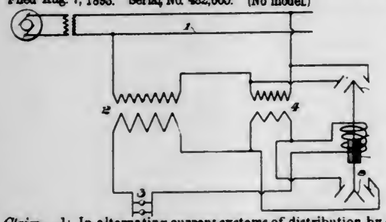
2. In a numbering-head, the combination of a supporting shaft, a wheel mounted on said shaft and slotted to its periphery to permit of its removal therefrom and a collar encircling said shaft and adapted to engage said wheel, substantially as shown and described.

3. In a numbering-head, the combination of a supporting shaft, a wheel mounted on said shaft and slotted to its periphery to permit of its removal therefrom, a collar longitudinally movable on said shaft and adapted to engage said wheel, a fixed abutment, and a spring between said abutment and collar to hold the latter in engagement with the wheel, substantially as shown and described.

4. In a numbering-head the combination of a supporting shaft, a wheel mounted on said shaft and slotted to its periphery to permit its removal therefrom, a collar encircling said shaft and adapted to engage said wheel, said collar having a series of ratchet teeth, and a pawl adapted to engage said ratchet-teeth, substantially as shown and described.

5. In a numbering machine, the combination of a frame, a shaft mounted therein, a series of groups of numbering wheels mounted on said shaft, a corresponding series of abutments adjustably secured to said shaft and a corresponding series of springs interposed between the abutments and the adjacent numbering-wheels on one side, whereby the groups of numbering-wheels may be disposed as desired and be held in position, substantially as shown and described.

520,970. METHOD OF ECONOMIZING THE ENERGY OF ALTERNATING CURRENTS. CHARLES F. SCOTT, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, same place. Filed Aug. 7, 1893. Serial No. 482,605. (No model.)



Claim.—1. In alternating current systems of distribution by converters, a feeding or main converter, translating devices in the secondary thereof, an auxiliary converter having its primary and secondary in series respectively with the primary and secondary of the main converter, and means whereby said auxiliary converter may be short-circuited, substantially as described.

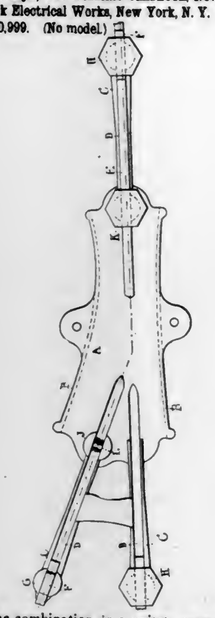
2. As a means for supplying operating current to auxiliary translating devices intended to operate under the influence of a small percentage of the current normally employed by main translating devices with which such auxiliary translating devices are continuously in circuit; a converter having its primary in circuit with the main translating devices and its secondary in circuit with the auxiliary translating device, said converter being so proportioned that its core will be saturated upon the passage of a greater current than that necessary for operating the auxiliary translating device.

3. In alternating current systems of distribution by converters, a main converter having translating devices in its secondary circuit, an auxiliary converter having its primary and secondary respectively in series with the primary and secondary of the main converter, normally open short circuits around the primary and secondary of the auxiliary converter and means adapted to be operated by increase of current in the system whereby said short-circuits may be closed, substantially as described.

4. In alternating current systems of distribution by converters, a main converter having translating devices in circuit with its secondary, an auxiliary converter having its primary and secondary in circuit respectively with the primary and secondary of the main converter, normally open short-circuits around the primary and secondary of said auxiliary converter, a magnetic core carrying bridging pieces for closing said short-circuits upon operation, and a solenoid for operating said core for the purpose of so closing said short-circuits, said solenoid being in circuit with one of the coils of the main converter.

5. In alternating current systems of distribution by converters, a main converter having translating devices in circuit with its secondary, an auxiliary converter having its primary and secondary in circuit respectively with the primary and secondary of the main converter, normally open short-circuits around the primary and secondary of said auxiliary converter, means for closing said short-circuits adapted to be operated by the passage of current, a short-circuiting converter having its primary in circuit with one of the coils of the main converter and its secondary supplying current for operating a short-circuiting device, said short-circuiting converter being so designed that its core may be saturated upon passage of a greater quantity of current than that necessary for operating the short-circuiting device, substantially as described.

520,971. ELECTRIC-RAILWAY OVERHEAD SWITCH. MILLER A. SMITH, Brooklyn, and WILLIAM CLABAUGH, New York, assignors to the New York Electrical Works, New York, N. Y. Filed Feb. 21, 1894. Serial No. 500,999. (No model.)



Claim.—1. The combination, in a switch, crossover &c., of a rib having a substantially horizontal contact portion, an inclined groove, and a split key clamp at the outer end of said groove substantially as set forth.

2. The combination, in a switch, crossover &c., of a rib having a substantially horizontal contact portion, an externally screw-threaded key clamp at the outer end thereof, and a screw-nut for forcing the key of said clamp home, substantially as set forth.

3. The combination, in a switch crossover &c., of a rib having a substantially horizontal contact portion with an upper inclined groove therein, of an externally threaded split boss formed at the outer end thereof and having a key, and a screw-nut for forcing the key home, substantially as set forth.

4 The combination with a switch, crossover &c., of a rib having a substantially horizontal contact portion, an upwardly inclined groove formed therein, a key clamp at the outer end thereof, and a second clamp, substantially as set forth.

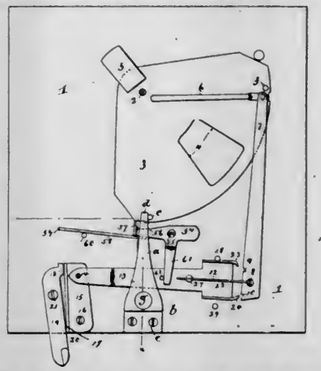
5. The combination, in a switch, a crossover &c., of a rib having a substantially horizontal contact portion, an upwardly inclined groove formed therein, a projection at or near the inner end of the groove, a split screwthreaded boss into which said projection enters, and a screw-nut, substantially as set forth.

6. The combination, in an electric railway device, of a metallic conductor, a conducting base-plate, an upward projection from said base-plate, a spit screwthreaded boss into which said projection enters, and a screw-nut, substantially as set forth.

7. The combination, in a switch, crossover &c., of a main portion, contact ribs integral therewith, one or more of said contact ribs being provided at the outer end with a key clamp and at the inner end with a clamp formed by a screw-threaded split boss into which enters a projection from the switch, crossover &c., and a screw-nut for said boss, substantially as set forth

---

520,972. PHOTOGRAPHIC-CAMERA SHUTTER. ARNER G. TIDDELL, Brooklyn, assignor of one-half to Joseph L. Levy, New York, N. Y. Filed Oct. 11, 1892. Serial No. 448,500. (No model.)



Claim.—1. The combination of a photographic shutter adapted to be reciprocated past a lens opening, a reciprocating finger piece imparting motion to the shutter, and devices for transmitting said motion from said finger piece to said shutter, the finger piece moving always in the same direction when imparting said motion to said shutter in either direction of the latter, substantially as described.

2. The combination of a photographic shutter adapted to be moved past a lens opening, a lever connected to said shutter to rock the same, and a reciprocating propelling bar or connector 13, said connector being provided with projections 23, 24, arranged respectively above and below the lever pivot, said projections contacting with said lever alternately above and below its pivot as the connector is propelled toward the lever, substantially as described.

3. The combination of a shutter, a lever connected to said shutter to rock the same, a reciprocating propelling bar or connector adapted to be propelled into contact with said lever, means for withdrawing said bar from contact with said lever, and a guide spring, as 12, for guiding said bar laterally relative to said lever, said guide spring engaging said bar and said lever, and having sliding connection with one of them, substantially as described.

4. The combination of a camera shutter, a lever connected thereto to rock the same, a reciprocating propelling bar or connector for actuating said lever, contacting with said lever first on one side of its pivot and then on the other, and a spring engaging said lever and bar for laterally vibrating the bar, substantially as described.

5. The combination of a shutter, a shifting connector or bar, a propelling lever and a link from the lever to the shutter, and connecting devices between the bar and propelling lever, the point of connection of said devices to the propelling lever being nearer to the fulcrum than the juncture of said propelling lever with said link, substantially as described.

6. The combination of a camera shutter, a lever having one end connected with the shutter to move the same, and a longitudinally moving bar contacting with said lever first on one side of its pivot and then on the other to actuate the lever, and means for transversely moving said bar into its alternate contacting positions, substantially as described.

7. The combination of a camera shutter, a lever actuating the same, a bar moving to and from the lever, and actuating it, and means for transmitting to said bar a transverse vibratory movement from the vibration of the lever, substantially as described.

8. The combination of a camera shutter, a lever operating the same, and a bar moving to and from the lever to actuate the same, said lever and bar being provided one with a pair of projections and the other with a pair of recesses opposite to the projections, forming two pairs of projections and recesses registering with each other, and arranged so that the members of each pair alternately engage each other, substantially as described.

9. The combination of a camera shutter, a lever operatively connected to the same, a bar loosely contacting with said lever for actuating the same having a longitudinal and also a transverse vibratory movement, and stops for limiting the latter movement, substantially as described.

10. The combination of a camera shutter, a lever operatively connected therewith, a spring extending at right angles therefrom, a bar having a sliding engagement with said spring and actuating the lever, said spring transmitting the vibratory movement of the lever to the bar, substantially as described.

11. The combination of a camera shutter, a lever operatively con-

nected therewith, a longitudinally moving bar for operating the shutter, said lever and bar being provided with two pairs of registering contact portions, one pair on either side of the lever pivot, either of said pairs being thrown out of engagement at the engagement of the other pair, substantially as described.

12. The combination of a camera shutter, a lever operatively connected therewith, a bar, means for moving the same toward said lever, said bar being adapted to contact with said lever alternately above and below its pivot, and automatic means for alternating the position of contact, substantially as described.

13. The combination of the camera shutter, bar 13 for operating the shutter, and operative connection therefrom to the shutter, rocker 15 to which said bar is pivoted, and finger lever 19 operating said connector through the medium of the rocker, substantially as described.

14. The combination of the camera shutter, bar 13 for operating the shutter, and operative connection therefrom to the shutter, rocker 15 to which said bar is pivoted, and finger lever 19 operating said connector through the medium of the rocker, the rocker 15 having a stop 20 for said lever, substantially as described.

15. The combination of a camera shutter provided with notches, a dog having a vibratory motion and arranged to engage either of said notches, a train of operative mechanism for operating the shutter, a bar forming an element of said train, and a spring which simultaneously actuates said dog, and withdraws the bar from its operative connection, substantially as described.

16. The combination of a camera shutter provided with peripheral notches, a dog arranged to engage said notches, a bar and means for transmitting the motion of said bar to said shutter, and means whereby the motion of said bar withdraws the dog before said transmission, substantially as described.

17. The combination of a camera shutter provided with peripheral notches, a bar and means for transmitting the motion of said bar to said shutter, and a bell crank lever whereof one arm carries a dog adapted to engage either of said notches, and the other arm contacts with said bar, substantially as described.

18. The combination of a camera shutter, a bell crank lever, a detaining dog adapted to retain said shutter, carried by one arm of said lever, a reciprocating bar forming an element in the train of operating mechanism for said shutter, engaging the other arm of the lever, and thereby in its forward or propelling movement withdrawing said dog from the shutter, substantially as described.

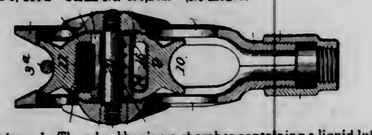
19. The combination of a camera shutter, propelling mechanism therefor, and a spring retaining device, pressing against the shutter, the direction of pressure being normal to the direction of movement of the shutter, and means for regulating said pressure, substantially as described.

20. The combination of a camera shutter, propelling mechanism therefor, and two retaining devices, whereof one is operated direct from the propelling device, and the other through the medium of the shutter, substantially as described.

21. The combination of a camera shutter, an operative train of propelling mechanism therefor, said train being discontinuous when not in operation, and two retaining devices whereof one is disengaged from the shutter before the completion of continuity of the train and the other after said completion, substantially as described.

22. The combination of a camera shutter, a propelling device therefor, and a spring retaining catch overlapping said shutter, which is provided with projections adapted to pass under and engage said catch, substantially as described.

520,973. TROLLEY. EDGAR M. TOUSLEY, Jamestown, N. Y. Filed Jan. 9, 1894. Serial No. 496,272. (No model.)



Claim.—1. The wheel having a chamber containing a liquid lubricant, a bushing containing a semi-plastic lubricant, and an interposed porous body feeding the liquid lubricant to the semi-plastic lubricant between the bearing surfaces, substantially as shown and for the purpose set forth.

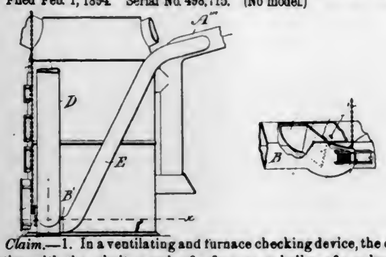
2. The wheel having a chamber containing a liquid lubricant and provided with means for insuring the inward flow of the liquid, a bushing containing a semi-plastic lubricant, and an interposed porous body feeding the liquid to the semi-plastic lubricant between the bearing surfaces, substantially as shown and for the purpose set forth.

3. The wheel having a chamber containing a liquid lubricant, a bushing containing a semi-plastic lubricant, and a porous body interposed in the wall of the bushing and feeding the liquid to the semi-plastic lubricant between the bearing surfaces, substantially as shown and for the purpose set forth.

4. The wheel having a chamber containing an oil lubricant, a bushing provided with interior cavities or grooves containing a semi-plastic lubricant, as plumbago, and a block of wood interposed in the body or wall of the bushing and feeding the oil to the plumbago between the bearing surfaces, substantially as shown and for the purpose set forth.

5. The wheel having a chamber containing a liquid lubricant, a bushing provided internally and on its outer end faces with cavities or grooves containing a semi-plastic lubricant, and an interposed body of wood extending lengthwise of the bushing and feeding the liquid to the semi-plastic lubricant between the bearing surfaces, substantially as shown and for the purposes set forth.

520,974. VENTILATING AND FURNACE-CHECKING DEVICE. JOHN B. WATSON, Toronto, and JOSEPH R. DOUGLAS, Ottawa, Canada. Filed Feb. 1, 1894. Serial No. 498,715. (No model.)

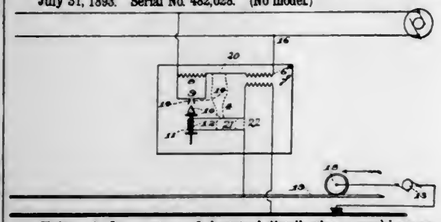


Claim.—1. In a ventilating and furnace checking device, the combination with the ashpit mouth of a furnace or boiler, of a valve box connected with said mouth, a duct connecting said box with the room to be ventilated, a nozzle on the lower rear part of said box, a pipe connecting said nozzle with the smoke stack of the furnace, a valve having a sector shaped back at a right angle and hung at the top of the box on an axle provided with a crank and said valve adapted to allow or interrupt a current passing through said box and to cover or uncover with its back the opening in the said nozzle, and a chain or rod F adapted to operate said crank, substantially as set forth.

2. In a draft and check valve for a furnace or boiler, the combination of a box rectangular in cross section having part of its bottom segmental longitudinally, an opening in the lower part of one of the sides over the segmental bottom, a plate C hung at the top of the box and having a sector shaped back plate c at a right angle adapted to cover said opening, and a crank c' adapted to be operated by a cord chain or rod, substantially as set forth.

3. In a draft and check valve for a furnace or boiler, the combination of a box B rectangular in cross section and having part of its bottom segmental longitudinally, an opening b' in the lower part of one of the sides over the segmental bottom, a plate C hung at the top of the box adapted to sweep the segmental bottom and having a sector shaped back c at a right angle adapted to cover said opening and a slide B" in the side of the box opposite to that in which the opening b' is located and on the same side longitudinally of the valve C as said opening, substantially as set forth.

520,975. CONVERTER SYSTEM FOR ELECTRIC RAILWAYS. GEORGE WESTINGHOUSE, Jr., and CHARLES F. SCOTT, Pittsburg, Pa. Filed July 31, 1893. Serial No. 482,028. (No model.)



Claim.—1. In a system of electrical distribution, a working conductor, an alternating current generator and main line fed therefrom; in combination with one or more converters, the primaries of which are fed by said main line and the secondaries of which are connected to said working conductor, means for resisting flow of current in series with the primaries of said converter or converters, and means actuated by the increase of current due to closing the secondary circuit through the car motors for short-circuiting said current resisting means, substantially as described.

2. In an electric railway, a working conductor, an alternating current generator and main line fed therefrom, and a converter for the working conductor, the primary of which is fed by said main line and the secondary of which is connected to said working conductor; in combination with means for resisting flow of current in series with the primary of said converter and means actuated by the increase of current due to closing the secondary circuit through the car motors for short-circuiting said current resisting means.

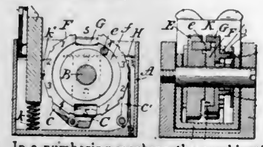
3. In an electric railway, a sectional working conductor, an alternating current generator and main line fed therefrom, and a converter for each section of the working conductor, the primary of which is fed by said main line and the secondary of which is connected to said working conductor; in combination with means for resisting flow of current in series with the primary of said converter, and means actuated by the increase of current due to closing the secondary circuit through the car motors for short-circuiting said current resisting means, substantially as described.

4. In an electric railway, a sectional working conductor, an alternating current generator and main line fed therefrom, and a converter for each section of the working conductor, the primary of which is fed by said main line and the secondary of which is connected to said working conductor; in combination with means for resisting flow of current in series with the primary of said converter, and means actuated by the secondary current for short-circuiting said current resisting means, substantially as described.

5. In an electric railway, an alternating current generator, a main line fed thereby, a sectional working conductor and a converter having its primary fed from said main conductor and its secondary feeding said working conductor, in combination with means for resisting flow of current in series with the primary of said converter, an interrupted short-circuit in shunt around said means, a movable core carrying a bridging piece for closing said short-circuit, and a coil in series with the secondary of said converter for actuating said movable core, substantially as described.

6. In an electric railway system, an alternating current generator, a main line fed thereby, a sectional working conductor, a converter for each section of said working conductor having its primary fed from said main line and its secondary feeding said section of the working conductor, in combination with a choke coil in series with the primary of said converter, an interrupted short-circuit around the choke coil, a movable magnetic core carrying a bridging piece for closing said short-circuit and a coil in series with the secondary of said converter for actuating said core, substantially as described.

520,976. NUMBERING-MACHINE. FRANK W. WICHT, Brooklyn, N. Y., assignor to Joseph Wetter, same place. Filed July 11, 1893. Serial No. 480,145. (No model.)



Claim.—1. In a numbering machine, the combination of a number wheel having a recess, a type-block movable in said recess toward and from the plane of print, a spring to press said type-block from the plane of print, a second number wheel adjacent to the first, an eccentric projection carried by the second wheel and adapted to move the type-block against the pressure of the spring into the plane of print, and means to advance said wheels, substantially as shown and described.

2. In a numbering machine, the combination of a number-wheel having a recess, a type-block movable in said recess toward and from the plane of print, a flat spring fixed to the casing of the machine and tending to press said type-block from the plane of print while the type-block is near the line of print, a second wheel adjacent to the first, an eccentric projection carried by the second wheel and adapted to move the type-block against pressure of the spring into the plane of print, and means to advance said wheels, substantially as shown and described.

3. In a numbering machine, the combination of a number-wheel having a diametrical recess, a type-block movable in said recess and having a type-character on each end thereof, and means substantially as described whereby the bar is moved in opposite directions to bring each end in turn to the plane of print, substantially as shown and described.

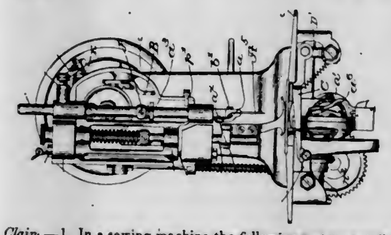
4. In a numbering machine, the combination of a number-wheel having a diametrical recess, a type-block movable in said recess and having a type-character on each end, a spring to press the type-block from the plane of print as each end is brought to the line of print, a second number-wheel adjacent to the first, an eccentric projection carried by the second wheel and adapted to move the type-block against the pressure of the spring, and means to advance said wheels, substantially as shown and described.

5. In a numbering machine, the combination of a number-wheel having a radial recess and an annular recess in its face, a type-block movable in said radial recess, a second number-wheel adjacent to the first, and a pin carried by said second wheel and entering the annular recess in the first wheel to move said block to the plane of print, substantially as shown and described.

6. In a numbering machine, the combination of the number-wheels, a pawl frame to advance said wheel, two oppositely disposed levers pivoted to move in planes parallel with the axis of the wheels and extended above and beyond the wheels in opposite directions, and means to transmit the movement of said levers to the pawl-frame, substantially as shown and described.

7. In a numbering machine, the combination of the number-wheels, a vertically movable block, intermediate means actuated thereby to advance the wheels, and two oppositely disposed levers loosely engaging said block and extended above and beyond the wheels in opposite directions and adapted to be struck by a body moving toward the machine and to transmit its pressure to the block, substantially as shown and described.

520,977. HEMSTITCH SEWING-MACHINE. CHARLES M. ABERCROMBIE, Bridgeport, Conn., assignor to the Wheeler & Wilson Manufacturing Company, same place. Filed Dec. 27, 1892. Serial No. 456,450. (Model.)



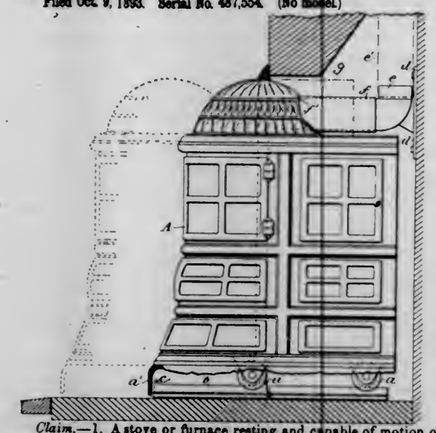
Claim.—1. In a sewing machine the following instrumentalities, viz:—a needle-gate, means to move it laterally, a needle-bar mounted in said gate and provided with a needle, devices to reciprocate the said needle bar vertically in said gate; a spreader-carrier connected loosely with said needle-bar and moved laterally and up and down therewith, a spreader connected to said spreader-carrier and arranged close to one side of the needle, a yielding abutment movable with said needle-bar to depress the spreader-carrier in a yielding manner, and an arresting device adapted to be struck by said carrier during some but not at other descents of the carrier as described with the needle-bar, whereby the entrance of the spreader into that part of the material forming the hem is prevented, but is permitted to enter the body of the material whenever the needle enters said body beyond the edge of the hem, substantially as described.

2. A sewing machine containing the following instrumentalities, viz:—a needle-gate, means to move it laterally, a needle-bar mounted in said gate and provided with a needle, devices to reciprocate the said needle-bar in said gate, a spreader-carrier connected loosely with said needle-bar, a spreader attached to said carrier and adapted to slide up and down close to said needle at one side thereof, and an arresting device for said spreader, said arresting device being supported substantially as described independently of the gate, whereby it may arrest the spreader-carrier before completing its full down stroke with the needle-bar, said spreader-carrier being arrested only when the gate occupies its position nearest to the head of the machine, substantially as described.

3. In a sewing machine for hem-stitch work, a work-support, an eye-pointed needle grooved as usual for the passage of the needle thread and having an independent spreader-groove g^{10} near the usual thread groove, and stitch-forming mechanism located below said work-support and complemental to said needle, a spread-carrier provided with a spreader to enter said groove g^{10}, devices to cause said spreader carrier to be reciprocated with said needle-bar, devices to partially arrest the descent of said spreader at regular intervals during hem-stitching as when the said spreader is not to enlarge the hole made by the needle, and feeding mechanism for the material, substantially as described.

4. The needle-bar, its eye-pointed needle grooved as usual for the passage of the needle thread, and having a distinct independent groove g^{10}, combined with a spreader-carrier and spreader, the lower end of the said spreader entering said groove g^{10}, and means whereby the spreader is adapted to be reciprocated in said groove, substantially as described.

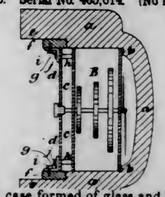
520,978. STOVE OR FURNACE. THOMAS AUSTIN, Brooklyn, N. Y. Filed Oct. 9, 1893. Serial No. 487,554. (No model.)



Claim.—1. A stove or furnace resting and capable of motion on rails, and having a pipe section *f* rigidly attached to it, in combination with an immovable pipe-section *e* secured to the wall and communicating with the flue, said pipe-sections being in alignment and adapted to be telescoped by the movement of the stove on said rails and to maintain a constant communication between the stove and flue irrespective of the position of the stove in the fire-place, substantially as described.

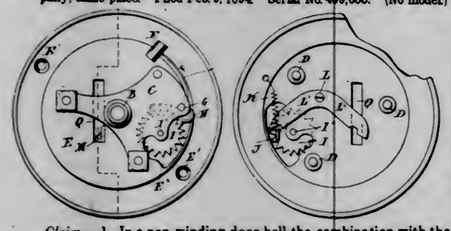
2. A stove or furnace resting and capable of motion on rails, and having a pipe section *f* rigidly attached to it, in combination with an immovable pipe-section *e* secured to the wall and communicating with the flue, said pipe-sections being in alignment and adapted to be telescoped by the movement of the stove on said rails and to maintain a constant communication between the stove and flue irrespective of the position of the stove in the fire-place, in combination with said rails, and stops thereon for limiting the outward movement of the stove or furnace, as set forth.

520,979. CLOCK-CASE. EDWARD P. BAIRD, Plattsburg, N. Y. Filed Mar. 7, 1893. Serial No. 465,014. (No model.)



Claim.—A clock case formed of glass and having a concavo-convex transparent portion *a* formed integral with the main portion of the case, an internal projection for the clock face plate to bear against, and a recess *e* at the rear of the case; in combination with a bearing piece *f* secured in the said recess and adapted to receive the screws for fastening the clock mechanism in the chamber formed between the said recess and projection, substantially as set forth.

520,980. NON-WINDING DOOR-BELL. WILLIAM A. BARNES, Meriden, Conn., assignor to the Browne & Dowd Manufacturing Company, same place. Filed Feb. 9, 1894. Serial No. 499,655. (No model.)

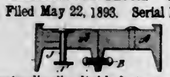


Claim.—1. In a non-winding door-bell the combination with the bell thereof, of an escape-wheel, a verge engaging therewith, a verge-arbor carrying the verge, a bell hammer connected with the arbor and vibrated thereby, a post attached to the escape-wheel, a spring connected with the post for rotating the wheel in one direction, a double-cam plunger, means for operating the same, and connection between the plunger and the escape wheel for rotating the same in the other direction, substantially as described.

2. In a non-winding door-bell, the combination with the bell thereof, of an escape-wheel, a verge engaging therewith, a verge-arbor, a hammer carried thereby, a post secured to the wheel, an operating-lever pivoted between its ends, and engaging at one end with the said post, a spring connected with the wheel for rotating it in one direction, a double cam plunger engaging with the opposite end of the operating-lever, and means for actuating the said plunger, substantially as described.

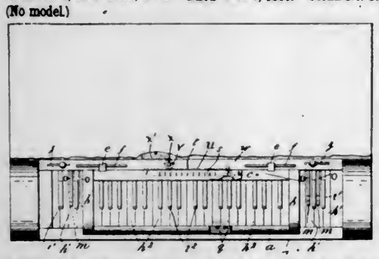
3. In a non-winding door-bell, the combination with the bell thereof, of an escape wheel, a verge engaging therewith, a verge-arbor, a bell-hammer connected with the said arbor, a spring connected with the wheel for rotating it in one direction, and means connected with the wheel and adapted to be manually operated for rotating it in the opposite direction, the said means including a two-armed operating-lever, one arm of which is adapted to be connected with the said wheel, and the other arm to receive an impulse for moving the lever to actuate the wheel, substantially as described.

520,981. ELECTROTYPE-BLOCK. WILLIAM T. BARNUM, New Haven, Conn. Filed May 22, 1893. Serial No. 475,069. (No model.)



Claim.—A longitudinally divided electro-type block-body, composed of two longitudinal members, each having a longitudinal rib at the outer edge of its upper face, and each having two longitudinal flanges respectively depending from its inner and outer edges, means applied to the depending inner flanges of the respective members for loosely connecting them so as to permit their lateral movement toward and away from each other, one or more springs co-acting with the said members to draw them together, and a face-plate adapted to bear upon the upper faces of the respective members, engaged by the ribs formed at the outer edges of the same, and constructed to be held against endwise movement on the members, substantially as described.

520,982. KEYBOARD FOR MUSICAL INSTRUMENTS. ERIK A. EDGREN, New York, N. Y. Filed Feb. 6, 1893. Serial No. 461,291. (No model.)

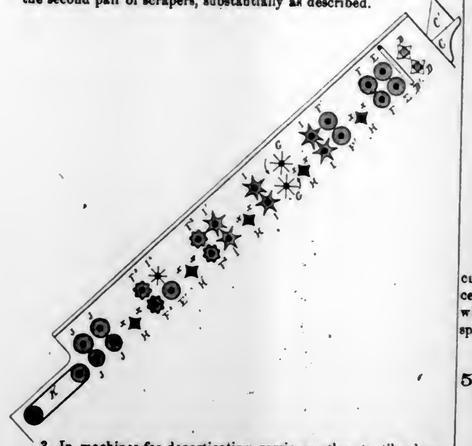


Claim.—The combination with the ordinary key board of a piano, organ or like instrument, of the auxiliary key board *a—b—c*, the attaching bar *w*, detachably secured to the instrument and having the said auxiliary key board hinged to it, the auxiliary keys h^3 and i^3 pivoted to the back edge *c* of the said auxiliary key board, and the transmitting keys *m*, secured to the bar *w*, all constructed and arranged substantially as described.

520,983. MACHINE FOR DECORTICATING RAMIE, &c. PIERRE A. FAVIER, Paris, France. Filed May 12, 1893. Serial No. 473,897. (No model.) Patented in France May 14, 1890, No. 205,678, and July 2, 1891, No. 214,596, and in England June 2, 1890, No. 8,520.

Claim.—1. In machines for decorticating ramie and other textile plants, the combination of a series of nipping, cleaning and scraping cylinders adapted to act in succession upon the material, the upper set of the forward series of said cylinders being in two independent sections side by side with a separate partition between them, whereby more uniform work may be produced from different thicknesses of material, and the machine may be fed by several workmen, all substantially as described.

2. In machines for decorticating ramie and other textile plants, the combination of two pairs of nipping cylinders with two pairs of scrapers between them, means for rotating the first pair of nipping cylinders at a slower speed than the succeeding scrapers, and means for rotating the second pair of nipping cylinders more rapidly than the second pair of scrapers, substantially as described.



3. In machines for decorticating ramie or other textile plants, the combination of nipping and scraping cylinders adapted to act upon the material, with yielding or movable blades in advance of said cylinders and a pair of cylinders at the feeding-in end having rows of pyramidal teeth, to remove and retain the leaves, as and for the purpose described.

4. In machines for decorticating ramie or other textile plants, the combination of nipping and scraping cylinders adapted to act upon the material, with pendent yielding or movable blades or plates in advance of said cylinders adapted to remove and retain the leaves and prevent them from entering the machine, as and for the purpose described.

5. In machines for decorticating ramie and other textile plants, the combination of a horizontal series of nipping cylinders and scrapers with a pair of beating cylinders, the two beating cylinders having their axes in different vertical planes, and means for turning one in a direction opposite to the feed, and the other with the feed, the several cylinders being adapted to act upon the material in succession, substantially as described.

6. A machine for decorticating ramie and other textile plants, having the combination of the following elements adapted to act upon the material in succession:—a pair of cylinders at the feeding-in end with rows of pyramidal teeth and movable blades or plates to remove and retain the leaves, breaking and crushing cylinders, pairs of scraping cylinders and rubber-covered nipping cylinders to act in conjunction with the scraping cylinders, and beaters between the scraping cylinders, all substantially as described.

520,984. MEANS FOR ATTACHING HANDLES TO HEADS OF BROOMS. SQUIRE GREEN, Stretford, assignor to Hugo Ewald Wollmer, Manchester, England. Filed July 28, 1893. Serial No. 481,690. (No model.)



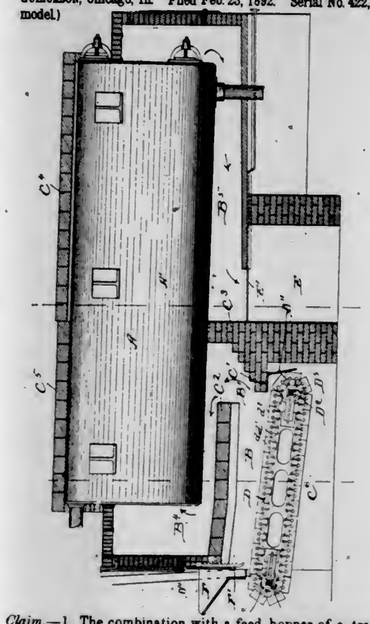
Claim.—The combination of a broom head or other article having a recess therein, with a handle provided at one end with a number of slits or cuts crossing each other, a central hole in the direction of its length, a transverse hole into which the said central hole opens, and a conical peg to enter said central hole, substantially as and for the purposes set forth.

520,985. OVERSHOE-RETAINER. FRANK T. GULSER, Waynesburg, Pa. Filed Dec. 4, 1893. Serial No. 492,662. (No model.)



Claim.—In combination with an overshoe, a spring retainer secured thereto having an arched portion with an eye or loop at its center of a wire removably secured in the eye of said arched portion with its free end having a right angled extension, substantially as specified.

520,986. SELF-FEEDING SMOKELESS FURNACE. GEORGE GULICKSON, Chicago, Ill. Filed Feb. 23, 1892. Serial No. 422,375. (No model.)



Claim.—1. The combination with a feed hopper of a traveling grate, a furnace B having forward and rear compartments B^4 and B^5 surrounding the boiler and separated by a cross wall near the middle portion of the boiler, said furnace being also furnished with an arch projecting between the grate and the boiler, and having a passage B′ for the products of combustion around the rear end of said arch, and an exit flue connecting with the rear compartment of said furnace, substantially as specified.

2. The combination with a feed hopper of a traveling grate, a furnace B having forward and rear compartments B^4 and B^5 surrounding the boiler and separated by a cross wall near the middle portion of the boiler, said furnace being also furnished with an arch projecting between the grate and the boiler, and having a passage B′ for the products of combustion around the rear end of said arch and an exit flue connecting with the rear compartment of said furnace, said transverse division wall having an arch projecting over the rear end of the grate, substantially as specified.

3. The combination with a feed hopper of a traveling grate, a furnace B having forward and rear compartments B^4 and B^5 surrounding the boiler and separated by a cross wall near the middle portion of the boiler, said furnace being also furnished with an arch projecting between the grate and the boiler, and having a passage B′ for the products of combustion around the rear end of said arch and an exit.

flue connecting with the rear compartment of said furnace, said exit flue extending out transversely and horizontally beneath said rear compartment of the boiler, substantially as specified.

4. The combination with a feed hopper of a traveling grate, a furnace B having forward and rear compartments B^4 and B^5 surrounding the boiler and separated by a cross wall near the middle portion of the boiler, said furnace being also furnished with an arch projecting between the grate and the boiler, and having a passage B' for the products of combustion around the rear end of said arch, and an exit flue connecting with the rear compartment of said furnace, and means for automatically and uniformly propelling said traveling grate, substantially as specified.

5. A traveling grate, comprising a series of links each composed of a number of short parallel bars *d* supported on a pair of cross bars *d'* connected to a series of hinge links d^3, substantially as specified.

6. A link chain grate, each link of which comprises a series of short parallel grate bars *d*, cross bars *d'* for supporting said grate bars *d*, and hinge links d^3 furnished with brackets d^6 for supporting said cross bars *d'*, substantially as specified.

7. A link chain grate, each link of which comprises a series of short parallel grate bars *d*, cross bars *d'* for supporting said grate bars *d*, and hinge links d^3 furnished with brackets d^6 for supporting said cross bars *d'*, said cross bars *d'* having rounded or thickened bearing ribs d^9, and said grate bars having slotted eyes d^9 d^{10}, substantially as specified.

8. A link chain grate, each link of which comprises a series of short parallel grate bars *d*, cross bars *d'* for supporting said grate bars *d*, and hinge links d^3 furnished with brackets d^6 for supporting said cross bars *d'*, said bars *d'* having openings d^8, and said brackets d^6 having lugs d^7 entering said openings d^8, substantially as specified.

9. A link chain grate, each link of which comprises a series of short parallel grate bars *d*, cross bars *d'* for supporting said grate bars *d*, and the hinge links d^3 furnished with brackets d^6 for supporting said cross bars *d'*, said cross bars *d'* having rounded or thickened bearing ribs d^9, and said links having slotted eyes d^9 d^{10}, said cross bars *d'* having openings d^8, and said brackets d^6 having lugs d^7, entering said openings d^8, substantially as specified.

10. The combination with the sprocket wheels D^3 and guide ways or tracks D^3 D^4, of a link chain grate D comprising a series of links D', each consisting of a number of short parallel grate bars *d*, cross bars *d'* and hinge links d^3, substantially as specified.

11. The combination with the sprocket wheels D^3 and guideways or tracks D^3 D^4, of a link chain grate D comprising a series of links D', each consisting of a number of short parallel grate bars *d*, cross bars *d'* and hinge links d^3, and a feed hopper F furnished with a grate or slide F', substantially as specified.

12. The combination with the sprocket wheels D^3 and guide ways or tracks D^3 D^4, of a link chain grate D comprising a series of links D', each consisting of a number of short parallel grate bars *d*, cross bars *d'*, hinge links d^3, a feed hopper F, boiler A, furnace B having forward and rear compartments B^4 B^5 separated by a transverse division wall C^3, said furnace also having opposing arches C' C^3, substantially as specified.

13. The combination with the sprocket wheels D^3 and guide ways or tracks D^3 D^4, of a link chain grate D comprising a series of links D', each consisting of a number of short parallel grate bars *d*, cross bars *d'*, hinge links d^3, a feed hopper F, boiler A, furnace B having forward and rear compartments B^4 B^5 separated by a transverse division wall C^3, said furnace also having opposing arches C' C^3, the heat space B^3 of said rear compartment surrounding the boiler at the top, substantially as specified.

14. The combination of the boiler A with the furnace B having forward and rear compartments B^4 B^5, separated by a transverse division wall C^3, and provided with an arch C^3 projecting over the grate to near the rear end of the same and around which arch the flame and products of combustion pass, said compartment B^5 being below the rear end of the boiler and communicating with the front compartment B^4 through the boiler substantially as specified.

15. The combination of the boiler A with the furnace B having forward and rear compartments B^4 B^5, separated by a transverse division wall C^3, and provided with an arch C^3 projecting over the grate to near the rear end of the same and around which arch the flame and products of combustion pass, and an opposite and lower arch C' projecting from said transverse wall C^3 over the rear end of the grate, substantially as specified

16. The combination of the boiler A with the furnace B having forward and rear compartments B^4 B^5, separated by a transverse division wall C^3, and provided with an arch C^3 projecting over the grate to near the rear end of the same and around which arch the flame and products of combustion pass, an opposite and lower arch C' projecting from said transverse wall C^3 over the rear end of the grate, and an exit flue E furnished with a slide or damper E' and extending beneath said rear compartment B^5, substantially as specified.

17. The combination of the boiler A with the furnace B having forward and rear compartments B^4 B^5, separated by a transverse division wall C^3, and provided with an arch C^3 projecting over the grate to near the rear end of the same and around which arch the flame and products of combustion pass, an opposite and lower arch C' projecting from said transverse wall C^3 over the rear end of the grate, and a gate or guard D^{11}, substantially as specified.

18. A traveling grate comprising a series of links each composed of a number of short parallel bars *d* supported on a pair of cross bars *d'* connected to a series of hinged links d^3, said links being provided with rollers or wheels, in combination with a track, substantially as specified.

520,987. BILLIARD-COUNTER. William S. Hannaford, Pasadena, Cal. Filed Apr. 21, 1893. Serial No. 471,3604. (No model.)

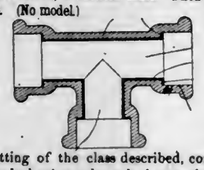


Claim.—1. The billiard counter set forth, consisting of the transversely cleft button provided upon each side with an axially arranged outwardly projecting hub and provided around its extreme outer rim with a groove whose plane is substantially midway between the ends of the two hubs, such button being also provided with an axially arranged wire-receiving opening communicating with the cleft of the button, and an open ring spring clamp arranged in the groove.

2. The billiard counter set forth consisting of the cleft button provided around its rim with a groove and having a wire receiving opening arranged communicating with the cleft of the button, and an open ring spring clamp arranged in the groove around the rim of the button and provided at its ends with points arranged at the mouth of the cleft to respectively engage the outer edges of the walls thereof.

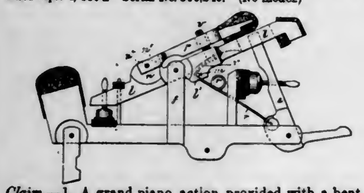
3. The billard counter set forth consisting of the cleft button having a wire receiving opening arranged communicating with the cleft of the button, and an open ring spring clamp arranged around the rim of the button and having its ends bent inward and arranged at the mouth of the cleft to respectively engage the outer edges of the walls thereof.

520,988. FITTING FOR CONNECTING LENGTHS OF PIPE. George W. Harrington, Wakefield, Mass. Filed Aug. 31, 1891. Serial No. 404,274. (No model.)



Claim.—1. A fitting of the class described, composed of a hard metal casing or body having enlarged pipe receiving sockets at its ends whereby shoulders are formed projecting outwardly from the said body portion, and a lead lining applied to the portion or portions of the inner surface of the casing between said sockets and turned outwardly at its ends into the said sockets upon said shoulders to form lead packings or washers within the said sockets integral with said lining of the casing, the fitting and lining being entirely free from inwardly projecting obstructions, whereby a passageway of uniform diameter is formed, as set forth.

520,989. PIANO-ACTION. Joseph Herrdorger. Paris, France. Filed Apr. 4, 1894. Serial No. 506,249. (No model.)



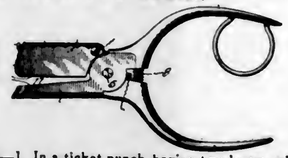
Claim.—1. A grand piano action provided with a bent spring, which is fastened to the repeating lever and extends directly from said lever to the jack, substantially as specified.

2. A grand piano action provided with a slotted repeating lever, a regulating screw engaging the same, and a bent spring which is fastened to the repeating lever and extends directly from said lever to the jack, substantially as specified.

3. A grand piano action provided with a repeating lever and with a finger pivoted directly to said lever and adapted to engage the hammer-shank, substantially as specified.

4. A grand piano action provided with a repeating lever having an upwardly extending projection, and with a slotted finger pivoted to said projection and adapted to engage the hammer-shank, substantially as specified.

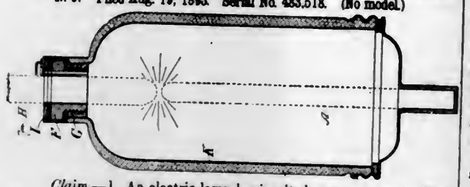
520,990. PUNCH. Warren Hill, Hartford, Conn. Filed Jan. 25, 1894. Serial No. 498,049. (No model.)



Claim.—1. In a ticket punch, having two levers, which are pivoted together, and are provided with a male and female die, a stripper, covering the sides of the jaw that carries the male die, and having its inner end pivoted to that jaw, substantially as and for the purpose specified.

2. In a ticket punch, having two levers, which are pivoted together, and are provided with a male and female die, a movable stripper, covering the sides of the jaw which carries the male die, and having the outer end slotted and held in place by a screw, substantially as and for the purpose specified.

520,991. ELECTRIC-ARC LAMP. Louis E. Howard, Plainfield, N. J. Filed Aug. 19, 1893. Serial No. 483,518. (No model.)

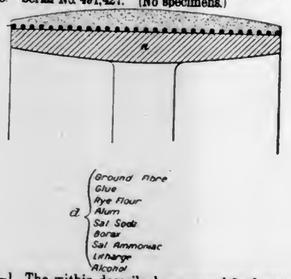


Claim.—1. An electric lamp having its burner or source of light surrounded by a transparent envelope coated with a deposit of translucent metallic oxide.

2. An electric lamp having its burner surrounded by a transparent envelope primarily coated with a thin translucent layer of a metallic compound of the character described.

3. An arc lamp having its arc surrounded by a transparent envelope coated with a deposit of magnesium oxide.

520,992. COMPOUND FOR COVERING BELT-PULLEYS. Arthur L. Huston and William J. Huston, Philadelphia, Pa. Filed Nov. 20, 1893. Serial No. 491,427. (No specimens.)



Claim.—1. The within described compound for forming the driving surface of a pulley, said compound consisting of a cohering homogeneous mortar-like mass of ground fibrous material and a cementing agent soluble in water, substantially as specified.

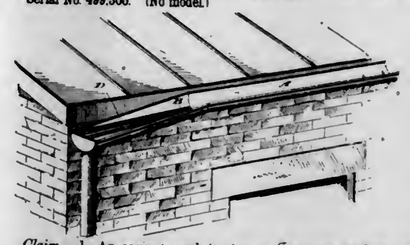
2. The within described compound for forming the driving surface of a pulley, said compound consisting of ground fibrous material, a cementing agent soluble in water, and an absorbent of moisture, such as sal-soda or borax, substantially as specified.

3. The within described compound for forming the driving surface of a pulley, said compound consisting of fibrous material, a cementing agent soluble in water, an oxidizing agent, such as sal-ammoniac, the whole constituting a cohering, homogeneous, mortar-like mass substantially as specified.

4. The within described compound for forming the driving surface of a pulley, said compound consisting of fibrous material, a cementing agent, and litharge, substantially as specified.

5. The within described compound for forming the driving surface of a pulley, said compound consisting of fibrous material, a cementing agent, a moisture absorbent, such as sal soda or borax, an oxidizing agent, such as sal-ammoniac, and a hardening material, such as litharge, substantially as specified.

520,993. EAVES-TROUGH. Thomas C. Keller, Dixon, Ill., assignor of one-half to F. N. Johnson, same place. Filed Feb 6, 1894. Serial No. 499,300. (No model.)



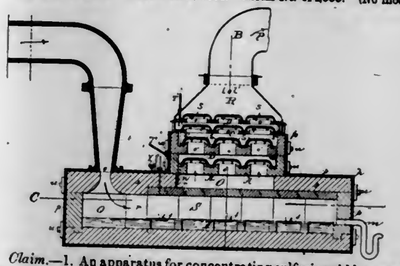
Claim.—1. An eaves trough having a discharge opening and a horizontal grating composed of wires arranged lengthwise of the spout with their upper surface substantially flush with the upper edge of the end thereof over said opening and the ends of said wires being permanently affixed, as set forth.

2. An eaves trough provided with an inclined portion and a grating with its inner ends confined between the overlapping ends of the trough and inclined portion, substantially as specified.

3. An eaves trough provided with an inclined end portion having a discharge opening and a substantially horizontal grating over said opening composed of fixed wires extending in the direction of the length of and from end to end of the inclined portion with its upper surface substantially flush with the upper edge of the outer end of the inclined portion, as specified

4. An eaves trough provided with an inclined end portion having a substantially horizontal grating composed of wires arranged lengthwise of the said portion and fixed in position at opposite ends of the inclined portion, substantially as specified.

520,994. APPARATUS FOR CONCENTRATING SULFURIC ACID BY MEANS OF HEATED GASES. Jacques L. Kessler, Clermont-Ferrand, France. Filed Dec. 9, 1891. Serial No. 414,535. (No model.)



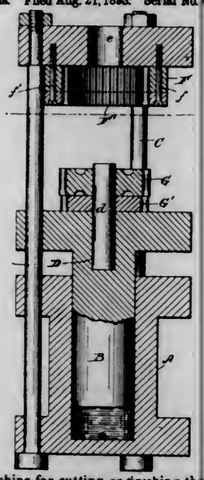
Claim.—1. An apparatus for concentrating sulfuric acid by means of hot gases, consisting of a chamber S, provided with channels *q* closed at the top and open at the lower part, the said channels adapted to divide the gases entering at the end of the chamber, channels *q'*, leading from the channels *q* open at the top, and means for passing sulfuric acid through the channels in the chamber in the opposite direction from that taken by the gases, and maintaining the acid in sheets or layers of a desired depth whereby the gases pass through the sheets of acid and become saturated with acid vapors at the first contact with the acid to be treated.

2. In an apparatus for concentrating sulfuric acid by means of hot gases, the combination of a chamber provided with an inlet for hot gases, channels *q* closed at the top but having openings at the lower part, and channels *q'* leading from the channels *q*, the said channels *q'* being open at the top with a recovery column provided with plates adapted to hold acid and having perforations for passage of the gases, and with a discharge pipe P, and means for maintaining the

acid in layers throughout the apparatus, substantially as and for the purpose set forth.

3. In an apparatus for concentrating sulfuric acid by means of hot gases, the combination of a chamber S adapted to hold a layer of sulfuric acid, and provided with channels q closed at the top, but having openings in the lower part and channels q', leading from the channels q and open at the top, and a recovery column provided with plates adapted to hold layers of acid and having perforations for the passage of the gases from the channels q', and with a discharge pipe P, with a chest to contain coke or its equivalent provided with an inlet connected to the said pipe P and outlet for the gases, and an outlet for the acid the latter outlet leading back to the recovery column substantially as and for the purposes set forth.

520,995. MACHINE FOR FINISHING GEARS. JOHN L. KUHL, Milwaukee, Wis. Filed Aug. 21, 1893. Serial No. 483,595. (No model.)



Claim.—A machine for cutting or finishing the teeth upon gear wheels comprising a suitable base, a plunger movably engaged therewith, and carrying a supporting table for the rough casting or blank of a gear, a head block opposed to said plunger, a die shaped upon its inside to conform to the outside of the finished gear, and supported in said head block in alignment with the plunger, and a support centrally secured to said supporting table, and shaped upon its outside to conform to the inside of said die, and adapted to sustain the rough casting of the gear centrally thereon, whereby a longitudinal movement of the plunger will operate to force said casting bodily through the die and simultaneously shape or finish all of the teeth, substantially as described.

520,996. ELECTRIC-ARC LAMP. LOUIS B. MARKS, New York, N. Y., and CLARENCE RANSOM, Passaic, N. J. Filed Jan. 9, 1894. Serial No. 496,244. (No model.)

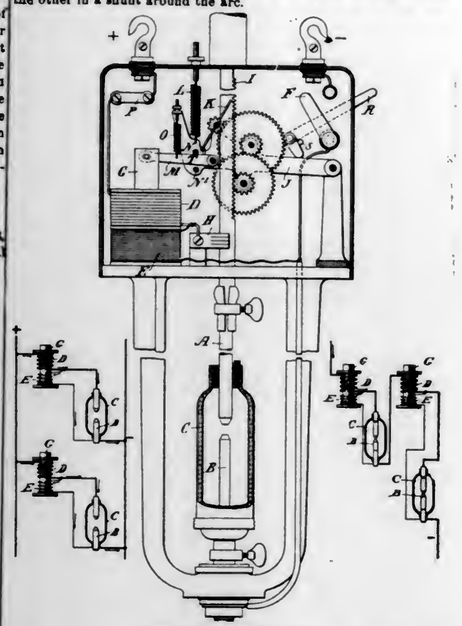
Claim.—1. The method of operating an arc lamp on constant potential circuits which consists in confining the arc within an inclosure, restricting practically all the drop of potential in the arc circuit to the arc and continuously maintaining said drop at a point which prevents an excessive flow of current.

2. The method of operating an arc lamp consisting in confining the arc within an inclosure from which the air is excluded or to which it has difficult access and maintaining a long arc to produce a larger than normal drop of potential, whereby an arc light of normal intensity may be maintained by an amperage lower than normal.

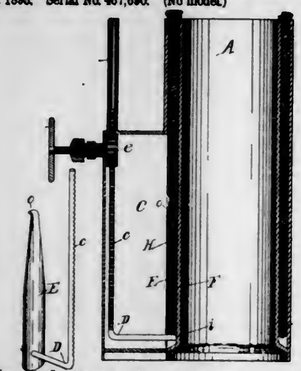
3. An arc lamp provided with a retractile spring tending to normally separate the carbons, a coil connected to the lamp terminals to bring the carbons together when current is admitted to the lamps, and an auxiliary coil in the arc branch for regulating the length of the arc the two coils being in series relation.

4. An arc lamp provided with a retractile spring tending to normally separate the carbons, a shunt coil connected to the lamp terminals to bring the carbons together, and a series coil in the arc branch differentially wound with relation to the shunt coil, both coils being in series relation acting upon the regulating mechanism through the instrumentality of the same core.

5. An arc lamp for constant potential circuits provided with a spring normally holding the electrodes apart two regulating coils differentially acting on said spring, said coil being in series relation to each other and to the supply current, one being in series with and the other in a shunt around the arc.



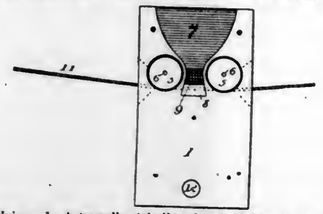
520,997. OIL-BURNER. JAMES M. MERRITT, Homer, Mich., assignor of one-half to Dwight W. Knickerbocker, same place. Filed Mar. 27, 1893. Serial No. 467,690. (No model.)



Claim.—1. In a burner, the combination with the shell having an annular wick space, and a housing at one side thereof; of the wick tube within the wick, the clamping band embracing the wick opposite said wick tube and carrying a rigid vertical arm standing outside the wick and having a hole near its upper end, a gear within said housing, a rack bar meshing therewith and having its lower end turned and passing removably under the lower end of said vertical arm, and an upright spring arm carried by the inturned end of the rack bar, standing over said vertical arm, and having a hook at its upper end passing at this time through the hole in the vertical arm and into the wick, as and for the purpose set forth.

2 In a burner, the combination with the shell having an annular wick space, a housing at one side thereof and a cylindrical tube rising from the top of the housing; of the wick tube within the wick, the clamping band embracing the wick and carrying a vertical arm, a gear within said housing, a round rack bar meshing therewith and having its upper end sliding in said cylindrical tube and its lower end turned and passing under said vertical arm, an arm carried by said lower end, and a hole in one of said arms and a hook on the other entering the hole and indenting the wick when said lower end passes under the vertical arm, as and for the purpose set forth.

520,998. DEVICE FOR CHALKING LINES. SAMUEL R. MILLER, Decatur, Ill. Filed Oct. 16, 1893. Serial No. 488,222. (No model.)

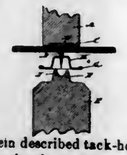


Claim.—1. A traveling chalker for chalk lines comprising a hopper apertured for the passage of the line, provided with carrying pulleys and weighted to maintain an upright position, substantially as set forth.

2. A traveling chalker for chalk lines consisting in the combination of the block 1, apertured to permit the passage of the line and cut away to form the hopper 7 and the recesses for the pulleys, the plates 2 secured to the sides of the block, and the pulleys 5 journaled in the plates and adapted to ride on the line, substantially as set forth.

3. A traveling chalker for chalk lines consisting in the combination of the block 1, apertured to permit the passage of the line and cut away to form the hopper 7 and the recesses for the pulleys, the plates 2 secured to the sides of the block, the pulleys 5 journaled in the plates and adapted to ride on the line, of the bristles or equivalent in the bottom of the hopper adjacent to the line, substantially as set forth.

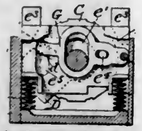
520,999. MECHANISM FOR ASSEMBLING BUTTON PARTS. IRVING G. PLATT, Waterbury, Conn. Filed June 7, 1889. Serial No. 313,486. (No model.)



Claim.—1. The herein described tack-holder and die for assembling button-heads with tacks, the said tack-holder being constructed to receive the head of a tack and hold the same against lateral displacement, and the said die being constructed to receive a centrally perforated button-head, and having formed in it a recess having converging walls with which the shank of the tack is directly engaged, and adapted in capacity and form to contain the curled end of the shank of the tack and shape the same into a retaining end or head, substantially as described.

2. The herein described tack-holder and die for assembling button-heads with tacks, the said tack-holder being constructed with a shallow recess conforming in size to the head of a tack which it holds firmly against lateral displacement, and the said die being constructed to receive and retain a centrally perforated button-head and made with an annular boss containing a central recess having converging walls with which the shank of the tack is directly engaged, and adapted in capacity and form to contain the curled end of the tack and shape the same into a retaining end or head, substantially as described.

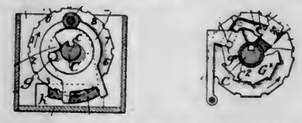
521,000. NUMBERING-MACHINE. JAMES H. REINHARDT, Newark, N. J., assignor to Joseph Wetter, Brooklyn, N. Y. Filed July 11, 1893. Serial No. 480,127. (No model.)



Claim.—1. In a numbering-machine, the combination of an outer casing, a shaft mounted therein, numbering-wheels pivoted upon said shaft, a swinging pawl-frame mounted on said shaft, a rectangular frame spring-seated and movable within said outer casing, said frame being composed of end plates and cross-bars uniting them and having contact points whereby the frame may be depressed, and a lever pivoted to the main casing and in engagement with said movable frame and with said pawl-frame, substantially as shown and described.

2. The combination with a numbering wheel having a radial recess and a type block movable in said recess and having a notched stem, of a fixed shaft upon which said wheel is mounted to rotate, a cam projection fixed on said shaft, and a flat spring secured to the body of the wheel and having a lip to engage said notched stem and an ear, said cam projection being adapted to thrust said spring back out of engagement with the movable block and at the same time to thrust the type block outwardly, substantially as shown and described.

521,001. NUMBERING-MACHINE. JAMES H. REINHARDT, Newark, N. J., assignor to Joseph Wetter, Brooklyn, N. Y. Filed Sept. 19, 1893. Serial No. 485,822. (No model.)



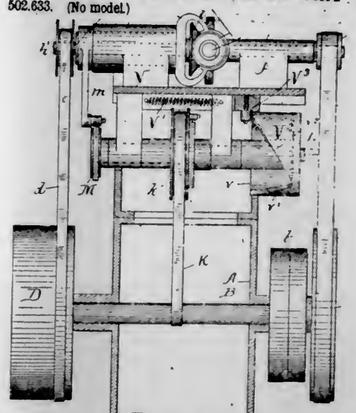
Claim.—1. In a numbering-head, the combination of a series of numbering-wheels, means to actuate the units-wheel step by step, ratchet wheels secured to the remaining numbering wheels, a pawl-frame adapted to actuate said ratchet-wheels, an eccentric projection carried by said units-wheel and intermediate means actuated by said projection to operate said pawl-frame, substantially as shown and described.

2. In a numbering-head, the combination of a series of numbering-wheels, means to actuate the units-wheel step by step, ratchet-wheels secured to the remaining numbering-wheels, a pawl-frame adapted to actuate said ratchet-wheels, an eccentric projection carried by said units-wheel, and a lever engaging said pawl-frame and adapted to be actuated by said eccentric projection to operate said pawl-frame, substantially as shown and described.

3. The combination of a frame, a numbering-head held in said frame, a shaft journaled in said frame, said shaft passing axially through the numbering wheels of said head and the units-wheel being secured to said shaft to rotate therewith, ratchet-wheels secured to the remaining numbering-wheels, a pawl-frame adapted to actuate said ratchet-wheels, an eccentric projection carried by the units-wheel, and intermediate means actuated by said projection to operate said pawl-frame, substantially as shown and described.

4. In a numbering-head, the combination with a numbering wheel having a slot and a movable type-block supported in said slot, of a lever pivoted to said wheel and engaging said movable type-block, a ratchet-wheel fixed to said numbering wheel, and a pawl adapted to engage said ratchet-wheel and to press upon the free end of said lever to throw said block outwardly, substantially as shown and described.

521,002. MACHINE FOR FINISHING BOLT-HEADS AND NUTS. CHARLES E. ROBERTS, Oak Park, Ill. Filed Mar. 7, 1894. Serial No. 502,633. (No model.)



Claim.—1. The combination of the rotating and oscillating chuck for holding the bolt or nut, with a polishing wheel or device oscillating to and from the chuck, substantially as specified.

2. The combination of an axially rotating chuck for holding the bolt or nut, and a rocking support for said chuck and from which it projects at right angles, with a polishing wheel or device having an oscillatory movement to and from the chuck, substantially as specified.

3. The combination of an axially rotating chuck for holding the bolt or nut, means for imparting an oscillation to the chuck, and a

polishing wheel or device having an oscillatory movement to and from the chuck, substantially as specified.

4. The combination of the rotating, oscillating and shifting chuck for holding the bolt or nut, with a polishing wheel or device oscillating to and from the chuck, substantially as specified.

5. The combination with a polishing wheel or device, of an axially rotating chuck carrying the work to be polished, and having an oscillatory movement parallel to the face of the wheel so as to present the work thereto at different radial points, substantially as specified.

6. The combination in a machine for finishing bolt heads and nuts, of a grinding device and a polishing device and an oscillating support therefor, with the axially rotating chuck holding the work and having an oscillatory movement, substantially as specified.

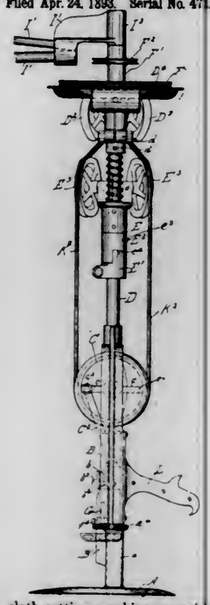
7. The combination in a machine for finishing bolt heads and nuts, of a grinding device and a polishing device, and an oscillating support therefor, with the axially rotating chuck for holding the work and having both an oscillatory and a shifting movement, substantially as specified.

8. The combination with the oscillating frame carrying the polishing devices, of a shifting chuck and its slide, and means whereby said frame is oscillated, substantially as specified.

9. The combination with the coiled polishing belt and its oscillating support, of means for drawing the belt off at each operation of the support, substantially as specified.

10. The combination of the coiled belt, the rounded cushion over which the belt is drawn, and the oscillating support therefor, with an axially rotating chuck having an endwise oscillation over the cushion, substantially as specified.

521,003. CLOTH-CUTTING MACHINE. NATHAN RUBENSTEIN, Chicago, Ill. Filed Apr. 24, 1893. Serial No. 471,538. (No model.)



Claim.—1. A cloth-cutting machine comprising a slotted base provided with a vertical standard, a frame mounted on said standard and having vertical guides, a reciprocating slide adapted to said guides and provided with means for attaching the cutter thereto, a pitman and its crank shaft mounted on said frame the pitman being connected with said slide, a rod also mounted on said frame and being in a vertical line coincident with the right line of said standard, and the mechanism for operating the pitman mounted on said rod, the whole being balanced so as to stand upright by means of the lateral support furnished by the base resting upon a level surface as specified.

2. A cloth-cutting-machine comprising a slotted base provided with a vertical standard, a frame mounted on said standard, vertical guides on said frame, a reciprocating slide provided with means for attaching the cutter thereto, a crank shaft, and pitman connected with said slide, a vertical rod mounted on said frame in vertical line coincident with the right line of said standard, mechanism for operating the crank shaft mounted on the upper part of said rod and connected with the crank shaft, and means mounted on said rod between its ends for throwing said mechanism out of gear with the crank shaft, the whole being balanced so as to stand upright by means of the lateral support furnished by said base resting upon a level surface as specified.

3. A cloth-cutting machine comprising a base, a vertical standard and frame, guides on said frame, a reciprocating slide provided with means for attaching a cutter, a crank shaft and pitman connected with said slide a vertical rod having its lower end mounted on said frame in a line coincident with the vertical line of said standard, mechanism mounted on the upper end of said rod and connected by a belt with a pulley on the crank shaft, and a sliding bracket carrying a tension pulley mounted on said rod between its ends and means substantially as shown for sliding said bracket on said rod as specified.

4. A cloth-cutting machine comprising a base, a vertical standard and frame, guides on said frame, a reciprocating slide provided with means for attaching a cutter, a crank shaft and pitman connected with the slide, a vertical rod connected at its lower end with said frame and in line coincident with the vertical line of said standard, mechanism mounted on the upper end of said rod and connected by a loose belt with a pulley on the crank shaft, a clamp on said belt for checking the same, a sliding bracket on said rod carrying a tension pulley adapted to bear on said belt and an arm adapted to impinge said clamp, and means substantially as shown for sliding said bracket to release said clamp and tighten said belt as specified.

5. A cloth-cutting machine comprising a slotted base, a vertical standard, a frame having vertical guides, a slide adapted to said guides and provided with means for attaching a cutter, a crank shaft and pitman connected with said slide, a vertical rod mounted on said frame in a line coincident with the vertical line of said standard, a horizontal pulley on the upper part of said rod connected by a belt with a pulley on the crank shaft, a pair of clamps supported on said vertical rod in plane with said horizontal pulley and means substantially as shown mounted on said vertical rod for simultaneously releasing said clamps and tightening said belt as specified.

6. In a cloth cutting machine, the combination with the grooved standard a' having a slotted plate a^4 mounted thereon, and the slide b provided with a slotted pin b^3 having a nut, and the cutter blade, the latter having its upper end adjustably secured to the slide by means of said slotted pin and its nut and being adapted to work in the groove of said standard through the slot of said slotted plate as specified.

7. The combination with the frame and the reciprocating slide and pitman and its shaft mounted on the frame, of a pitman-wheel and counter-balance, said pitman-wheel comprising a fixed and a loose disk, on the pitman shaft, having intersecting slots at opposite sides of the axis, with bolts therein for adjustably securing the pitman and counter-balance to the pitman-wheel as specified.

8. In a cloth cutting machine, the standard provided with a groove for guiding the cutter and a plate a^4 having a slot coincident with said groove, in combination with the presser foot having a slot at the rear adapted to fit over said standard and a rod G passing through an opening in said plate a^4 by the side of the slot therein and a screw impinging said rod for adjusting the presser foot at different heights on the standard as specified.

9. The presser foot comprising a horizontal plate provided with a V-slot in its rear and curved upward at both ends, the rear part g' forming a finger guard laterally to a line coincident with the line of the adjacent edge of the part g^2 produced to the rear of the presser foot, a vertical strengthening plate g^3 having its lower edge and ends connected with said horizontal plate and its upwardly curved ends, and being provided with an opening g^3 in its front part, and a connecting rod G as specified.

521,004. RAILWAY-TRACK STRUCTURE. EDWARD SAMUEL, Philadelphia, Pa., assignor to the William Wharton, Jr., & Company, Incorporated, same place. Filed Feb. 24, 1892. Serial No. 442,618. (No model.)



Claim.—1. The combination in a railway track structure, of two or more rails united together sidewise, each rail having a web perforated at intervals, with a continuous cast block extending through the perforations and overlapping the webs of the rails thereby holding the rails rigidly in respect to each other, substantially as described.

2. The combination in a railway track structure, of two or more rails united together sidewise, each rail having a web perforated at intervals, with cast blocks also arranged at intervals extending through said perforations and overlapping the webs of the rails thereby holding the rails rigidly in respect to each other, substantially as described.

521,005. SHIELD FOR PNEUMATIC TIRES. SAMUEL M. SCHINDEL, Hagerstown, Md. Filed Nov. 4, 1893. Serial No. 489,999. (No model.)



Claim.—1. A pneumatic, or air-inflated tire having a protective cushion, or shield, composed of alternate layers of raw cotton and textile fabric, the latter being impregnated with tar and treated with powdered resin, and the whole united by heat and pressure, substantially as described.

2. The combination with a pneumatic, or air-inflated tire, of a protective shield, or cushion, consisting of a plurality of layers of textile fabric and raw cotton, the former being impregnated with pine-tar and treated with resin, and the whole being united under combined heat and pressure, substantially as described.

3. A protective shield or cushion for pneumatic tires, the same consisting of one or more layers of textile fabric, alternating with one or more layers of raw cotton, the textile fabric being treated with tar and powdered resin and the whole united under heat and pressure, substantially as described

4. The combination with a pneumatic tire of a protective cushion, or shield, consisting of one or more layers of textile fabric alternating with one or more layers of such fibrous material as raw cotton, the textile fabric being treated with tar and powdered resin and the whole united under heat and pressure, the shield so formed being attached to the lateral portions of the tire and detached from the bearing face, or portion, substantially as described.

521,006. SHIELD FOR PNEUMATIC TIRES. SAMUEL M. SCHINDEL, Hagerstown, Md. Filed Nov. 4, 1893. Serial No. 490,000. (No model.)



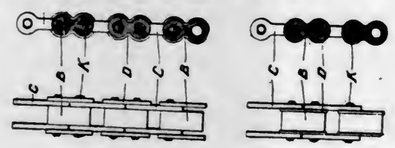
Claim.—1. A pneumatic tire having a protective cushion, or shield composed of one or more layers of textile fabric, alternating with one or more layers of raw cotton, and a layer of wire fabric interposed in the body of the same, said textile fabric and wire fabric being impregnated with tar and sprinkled with resin and the mass being united under heat and pressure, substantially as described

2. The combination with a pneumatic tire of a protective shield, or cushion, composed of one or more layers of textile fabric and a layer of wire fabric, alternating with layers of raw cotton, the textile and wire fabric being impregnated with tar and treated with resin and the whole united by heat and pressure, combined, substantially as described.

3. A protective shield, or cushion, for pneumatic tires consisting of alternate layers of textile fabric and raw-cotton, and a sheet of wire fabric inserted in the mass, said textile and wire fabric being treated with tar and resin and the whole united under heat and pressure, substantially as described.

4. The combination with a pneumatic tire of a protective cushion, or shield, consisting of one or more layers of textile fabric alternating with one or more layers of such fibrous material as raw cotton, with an interposed layer of wire netting, the textile fabric and wire netting being treated with tar and powdered resin and the whole united under heat and pressure, the shield so formed being attached to the lateral portions of the tire and detached from the bearing face, or portion, substantially as described.

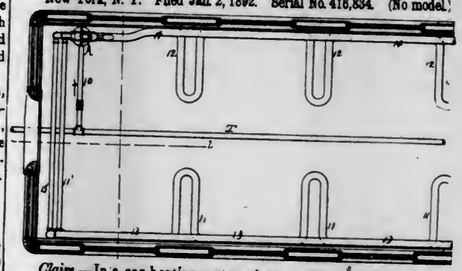
521,007. DRIVE-CHAIN. JOSEPH APPLEBY, Birmingham, England. Filed Oct. 6, 1893. Serial No. 487,319. (No model.) Patented in England May 24, 1892. No. 9,805.



Claim.—1. A drive chain comprising the central angular pin fitted rigidly to the outer links, against rotation, a loose distance piece or sleeve independent of the links fitted to the pin and having an angular interior conforming thereto, whereby it will be held against rotation and having a cylindrical exterior and the inner links and bowls fitted thereto to turn thereon, substantially as described.

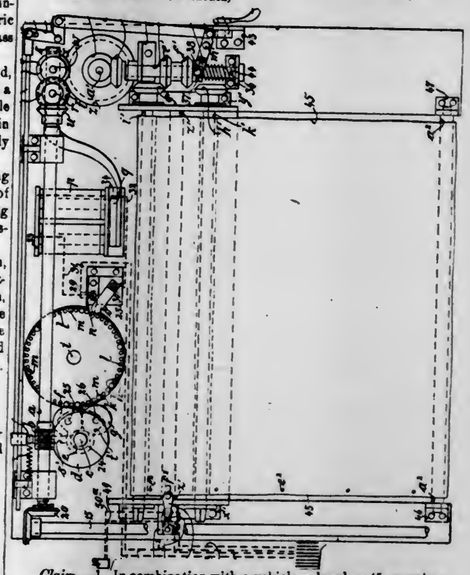
2. In combination in a drive chain, the angular central pin, the loose distance sleeve having an internal space conforming to the angular pin to be held thereto against rotation, and having recessed or slotted ends, the links, having openings for receiving the ends of the distance piece, said openings having nipples or projections to fit the recesses in the ends of the distance pieces to hold the sleeve rigid, said sleeve having the outer cylindrical bearings for the inner links and bowls and the bowls or rollers arranged on the distance pieces, substantially as described.

521,008. HEATING SYSTEM FOR CARS, &c. JOHN W. BEACH, New York, N. Y. Filed Jan. 2, 1892. Serial No. 416,834. (No model.)



Claim.—In a car heating system the combination with a plurality of heating pipes, arranged on opposite sides of the car, the train pipe, a single valve casing on each car, provided with a main inlet connected with the train pipe, a plurality of outlets corresponding in number to the said heating pipes, arranged successively on the casing, connections from the casing to the heating pipe, and a single valve controlling the admission of heating fluid to the pipes on both sides of the car and to any desired number of such pipes, substantially as described.

521,009. ADVERTISING APPARATUS. ADOLF BERLINER, Berlin, Germany, assignor to Karl Köhler, same place. Filed Sept. 2, 1893. Serial No. 484,668. (No model.)



Claim.—1. In combination with a vehicle, a band as 45 carrying a series of advertisements, a train of continuously operating mechanism driven by the vehicle axle and normally out of engagement with the band, electrically controlled mechanism for causing the op-

ating mechanism to operate the band, and a revolving circuit closer adapted to close the circuit at varying intervals of time, substantially as described.

2. In combination with a vehicle, a band as 45 carrying a series of advertisements, a train of continuously operating mechanism driven by the vehicle axle and normally unconnected with said band, electrically controlled mechanism for connecting said operating mechanism with the belt, and a revolving circuit closer having a series of adjustable contact points whereby the circuit may be automatically closed at predetermined varying intervals of time as desired.

3. In an advertising apparatus for vehicles a pair of rollers, a band carrying a series of advertisements mounted thereon, a normally stationary wheel with operative connections to said rollers, a pivoted lever having an armature at one end and a continuously driven wheel at the other, an electro magnet located in proximity to the armature of the lever and mechanism operated by the car wheel for closing the circuit through said magnet and causing said continuously driven wheel to engage the stationary wheel to shift the band, substantially as described.

4. In an advertising apparatus for vehicles a band carrying a series of advertisements mounted upon suitable rollers, a normally stationary wheel with operative connections to the rollers of the band, a pivoted lever carrying an armature at one end and a continuously driven wheel at the other, an electro magnet located in proximity to the armature, a train of mechanism operated continuously by the vehicle wheel, and a revolving disk operated by said mechanism and carrying a series of binding posts corresponding to the series of advertisements and spring contact points in circuit with the magnet in the path of said posts adapted to come in contact with said posts as the disk revolves whereby the circuit is intermittently closed through the magnet and the revolving wheel caused to contact with the stationary wheel to shift the belt, substantially as described.

5. In an advertising apparatus for vehicles a band carrying a series of advertisements mounted on suitable rollers a normally stationary wheel with operative connections to the rollers of the band, a pivoted lever carrying an armature at one end and a continuously driven wheel at the other, an electro magnet in proximity to said armature, a train of mechanism operated by the wheel of the vehicle, a revolving disk continuously driven by said mechanism, a pair of spring contact arms located in proximity to the disk in circuit with the magnet and means carried by the disk for causing said spring arms to contact for a limited time to shift the belt, substantially as described.

6. In combination with the advertising belt adapted to receive a series of advertisements of varying length, electrically controlled means for shifting said belt step by step to bring fresh advertisements in view, and a continuously revolving disk carrying a series of pins arranged varying distances apart to correspond with series of advertisements and adapted to operate said electrically controlled mechanism, substantially as described.

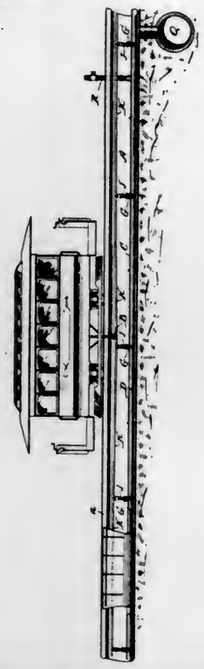
7. In combination with the advertising belt adapted to receive a series of advertisements of varying length, electrically controlled mechanism for shifting said belt and a revolving disk provided with a series of adjustable contact points circumferentially placed upon said disk for operating said electrically controlled mechanism, substantially as described.

521,010. CONDUIT ELECTRIC-RAILWAY SYSTEM. JAMES R. BRAND, Milwaukee, Wis. Filed Mar. 19, 1894. Serial No. 504,220. (No model.) Patented in Canada Apr. 24, 1894, No. 45,378.

Claim.—1. An underground conduit for electric conductors, comprising a closed tube or pipe, a conductor extending longitudinally therethrough, but insulated therefrom, a plurality of contact devices movably engaged within bearings in the side wall of said tube or pipe and adapted for electrical contact with said conductor, means for normally holding said contact devices out of contact with said conductor, and a service rail comprising a plurality of sections flexibly engaged with and insulated from each other at the joint and pivotally connected at the joint with said contact devices, substantially as described.

2. An underground conduit for electric conductors comprising a closed tube or pipe, a conductor extending longitudinally therethrough, but insulated therefrom, a plurality of tubular extensions in the upper side of said tube or pipe, contact devices movably engaged within said extensions, and adapted for electrical contact with said conductor means for normally holding said contact devices out of contact, and a service rail comprising a plurality of sections having overlapping ends pivotally connected and insulated from each other and a flexible connection between said ends and said contact devices, and said sections adapted for successive engagement with a contact device carried by a car, substantially as described.

3. An underground conduit for electric conductors comprising a closed tube or pipe, a conductor extending longitudinally therethrough, but insulated therefrom, tubular connections located at intervals in the upper side of said pipe, plungers vertically movable therein and adapted for engagement at their inner ends with said conductor, springs for normally holding said conductors out of contact with the conductor, shields for protecting said plungers and their bearings from dirt and dust, and a service rail comprising a plurality of sections flexibly engaged at their adjacent ends with each other and with said plungers, but insulated from each other and adapted to be depressed by engagement with a contact device carried by a car substantially as described.



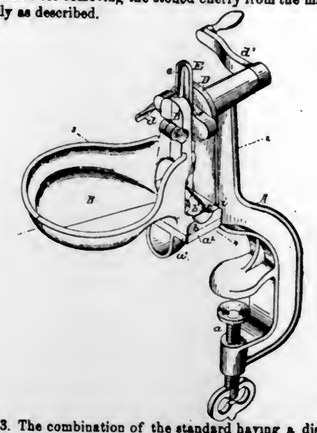
4. The combination in an underground conduit with the closed tube and its contained conductor, of vertically movable plungers extending to the inside of the tube and adapted for electrical contact with said conductor, and a service rail comprising a plurality of sections insulated from each other and flexibly engaged at their adjacent ends with said plungers and each of said sections being provided with an extension adjacent to its pivotal connection with the next adjacent section and arranged to project past said connection, and adapted for engagement by an advancing contact device, before said device reaches said connection, substantially as described.

5. An underground conduit for electric conductors comprising a main casing provided in its upper side with a longitudinal slot, a closed tube or pipe located within said casing, and provided in its upper side with a plurality of tubular extensions, a conductor extending longitudinally through said pipe but insulated therefrom, vertically movable plungers engaged with air and water tight bearings in said tubular extension, and carrying at their lower ends suitable contact shoes for electrical engagement with said conductor, springs for normally holding said plungers out of contact and a contact or service rail comprising a plurality of sections pivotally secured at their adjacent ends to said plungers but insulated from each other and adapted for engagement by an advancing contact device carried by a car, and to be successively depressed thereby so as to bring the plungers successively into electrical contact with said conductor, substantially as described.

521,011. CHERRY-STONER. JOHN W. BROWN, Jr., Philadelphia, Pa. Filed Sept. 28, 1893. Serial No. 486,737. (No model.)

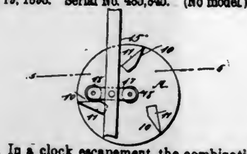
Claim.—1. The combination in a cherry stoner, of the standard, the hopper section secured thereto, a flexible washer, between the standard and the hopper section, a vertical reciprocating ejecting plunger mounted above the washer and adapted to pass therethrough, said plunger adapted to guides in the hopper section, a shaft mounted in the standard and connected to the plunger so as to give it the vertical reciprocating motion required, with a discharging arm carried by the shaft, substantially as described.

2. The combination of the standard, the hopper section mounted thereon, a plate *b* forming part of the hopper section having an opening, a yielding support under said opening, a vertically reciprocating plunger mounted in the hopper section, a shaft mounted in the standard, a disk on said shaft connected to the plunger, and an arm on said disk for removing the stoned cherry from the machine, substantially as described.



3. The combination of the standard having a discharge chute therein, and a supporting plate, a hopper section having an extension or plate secured to the plate of the standard, a flexible support for the cherry to be stoned, a vertical reciprocating plunger having its lower portion cruciform in shape, and having a rib adapted to a slot in the hopper portion and a transverse slot, a shaft mounted in the standard, a disk mounted on said shaft, a pin on said disk adapted to the transverse slot, and through which the vertical reciprocating motion is imparted to the plunger, an arm fixed to said disk and adapted to remove the stoned cherry from the machine as the shaft is rotated substantially as described.

521,012. PENDULUM-ESCAPEMENT. CHARLES E. BUCKNER, Flushing, Mich., assignor of one-half to John K. Clark, same place. Filed Sept. 19, 1893. Serial No. 485,845. (No model.)



Claim.—1. In a clock escapement, the combination, with an escapement wheel having a series of inclined planes formed upon one surface, extending from a point near the center substantially to the periphery, the inclined planes being located at predetermined intervals apart, of a pendulum rod, a cross head secured upon the rod, and friction rollers located upon the ends of the cross head, adapted for alternate engagement with the inclined planes on the wheel, as specified.

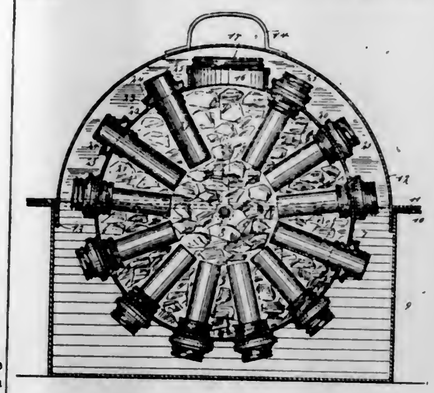
2. In a clock escapement, the combination, with an escapement wheel, blocks secured upon one surface of the wheel and located at predetermined distances apart, the blocks being diagonally placed on the wheel and grouped around its center, corresponding surfaces of the blocks having inclined planes formed thereon, of a pendulum rod adapted to cross the wheel, a cross head secured upon the rod, extending beyond opposite sides, and the friction roller located at each end of the cross head, the roller on the right being adapted to engage with inclined planes at the right-hand side of the wheel and the roller on the left with the inclined planes at the left-hand side of the wheel, as and for the purpose specified.

521,013. ICE-CREAM FREEZER. JOSEPH B. BUTLER, Brooklyn, N. Y. Filed Sept. 23, 1893. Serial No. 486,303. (No model.)

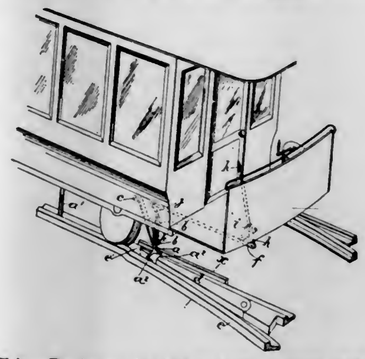
Claim.—1. In an ice cream freezer, the combination with the revoluble drum having the screw sockets with raised outer edges, of the removable cream cups adapted to be screwed into the sockets and provided with flanges to fit the raised edges of the sockets, substantially as described.

2. In an ice cream freezer, the combination with the cream cup having a projecting annular flange with a turned up edge, of a screw cap for the cup, the cap having a depending flange to fit within the flange of the cup, substantially as described.

3. An ice cream freezer, comprising a revoluble drum provided with a series of threaded sockets having raised outer edges, a plurality of cream cups provided with projecting annular flanges having turned up edges and with threaded portions above and below the flanges, and screw threaded covers for the cups having depending flanges fitting in the flanges of the cups, substantially as herein shown and described.



521,014. RAILWAY-SWITCH. HARRY B. BÜTTEL, Newark, N. J. Filed Sept. 19, 1893. Serial No. 485,804. (No model.)



Claim.—The improved switch-operating apparatus, herein described, consisting of a vertically-movable rod mounted in suitable bearings secured to the car, and adapted to engage with and open the switch-tongue; a lever fulcrumed on the platform of the car within reach of the driver or motorman, and means, as *f*, *j*, connecting with said lever and said rod, whereby the latter is operated: as described, and for the purposes set forth.

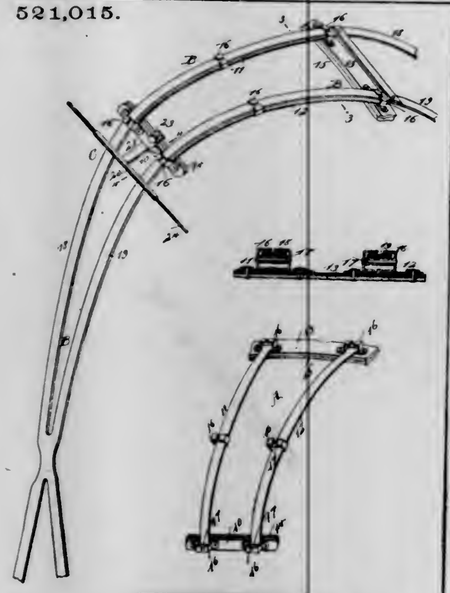
521,015. CHECKREIN-SUPPORT. JOSEPH CARTER, Blyth, Canada. Filed Dec. 4, 1893. Serial No. 492,688. (No model.)

Claim.—1. A combined check rein support and winker stay, comprising a support, consisting of a face bar, and side bars attached at one end to the face bar and provided with sockets, and a winker stay consisting of an adjustable rod adjustably secured to the face bar of the support, substantially as described.

2. The combination with a check support formed of a face bar provided with a slide way and side bars, of an adjustable rod provided with a shank adjustably held in the slide way, substantially as described.

3. The combination, with a support adapted for attachment to a bridle, of a winker stay comprising a body bar having removable and adjustable engagement with the said support, and rods having screw connection with the stay bar, one bar having a right-hand and the other a left-hand thread, the rods being adapted for permanent attachment to the winkers of a bridle, as specified.

521,015.



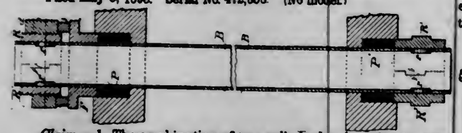
521,016. COMBINATION PENCIL SHARPENER, GRINDER, PROTECTOR, AND ERASER. RICHARD B. CRAMBER, Chester, Pa., assignor to Crosby M. Black, same place. Filed Mar. 6, 1894. Serial No. 502,545. (No model.)



Claim.—1. The tube B, having the clamping guides A A, and a cutting knife D, inclined angularly toward the center of tube B, said tube having the openings F F on opposite sides and provided with the spring guards K K, the abrading sleeve G, and the beveled slot E, substantially as shown and for the purpose specified.

2. In combination with the tube B, having guides A A and the openings F F, the flexible belt or sleeve G, having its inner side lined or coated with emery or its equivalent, and the eraser *g*, held in said sleeve all substantially as shown and described.

521,017. PIPE-JOINT. NATHAN W. CONDICT, Jersey City, N. J. Filed May 3, 1893. Serial No. 472,858. (No model.)



Claim.—1. The combination of two cylinder heads or diaphragms with a pipe connected to one of the cylinder heads and passing through the other, and having at this latter a packing and a two-part collar detachably secured to the pipe and means for applying pressure to the packing through the pipe and detachable collar, substantially as described.

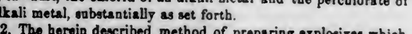
2. A pipe joint comprising a cylinder head or diaphragm and packing in combination with a pipe and a two-part collar detachably secured to the pipe and threaded on its exterior, with a screw-ring applied thereto and a follower to be acted on by the ring and to press upon the packing, substantially as described.

3. The combination of two cylinder heads or diaphragms and packings with a pipe passing through the same and having at opposite ends detachable two-part collars and means for applying pressure to the packing from the said collars, substantially as described.

4. A pipe joint comprising a cylinder head or diaphragm and packing in combination with a pipe passing through the same, and provided with openings beyond the diaphragm or head and a two-part collar having lugs to engage said openings and means for applying pressure to the packing from the said collar substantially as described.

5. The combination of two cylinder heads or diaphragms and packings therefor, with a pipe passing through the same, and having at one end a two-part collar detachably secured to the pipe and at the other end a threaded two-part collar detachably secured to the pipe, a screw ring applied to the threaded collar and a follower to be acted on by the ring and bear on the packing, all substantially as described.

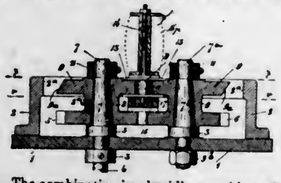
521,018. CONNECTION FOR ELECTRIC WIRES. JAMES Y. DE MOTT, Newark, N. J. Filed Jan. 6, 1894. Serial No. 495,971. (No model.)



Claim.—1. The improved electrical connection or joint, comprising a plate of conductive metal bent longitudinally at the center to form a raised rib and having its opposite edges turned onto said rib and forming a joint thereat, substantially as set forth.

2. The combination with the overlapping wires of a sheet metal plate centrally bent to form a ridge which closely hugs the sides of the said wires and extends to a point, substantially in line with the centers of the same, the opposite edges being turned over said wires onto said rib, and the whole being crimped transversely to hold the parts together, substantially as set forth.

521,019. BRAIDING-MACHINE. JAKOB DRNEK, Vienna, Austria-Hungary. Filed Oct. 18, 1893. Serial No. 488,552. (No model.)



Claim.—The combination in a braiding machine, of the revolving shaft 7, a gear wheel 5, beveled plate 9, and sleeve 8 secured to said shaft and connecting said gear wheel and beveled plate together, said beveled plate being recessed at regular intervals in its periphery, a stationary shaft 7^a, a gear 6 meshing with said gear 5 and revolving on said shaft 7^a, a second plate 9 beveled in an opposite direction to the first plate and overlapping the same, a sleeve 8 uniting said second plate to said gear 6, a casing 2^a surrounding said plates and substantially S-shaped, with the stationary switch plate 15, provided with grooves 16 crossing each other midway between said shafts 7 and 7^a, said plate 15 being placed midway between the sleeves 8, and between the revolving plates and their gears, and with a bobbin holder D carried by said revolving plates and held in the recesses thereof by the casing 2^a, plates 13 secured to said bobbin holder and adapted to rest on the upper and lower surfaces of said revolving plates, two of the sides of said plates being cut on an arc of the circle of the casing 2^a and adapted to bear thereon until the bobbin holder reaches the plate 15, and with a rail 17, carried by the bobbin holder D and adapted to enter the grooves 16 of the plate 15 and to guide said bobbin holder thereon, substantially as described.

521,020. EXPLOSIVE AND PROCESS OF MAKING SAME. WILBRAHAM EVELYN-LIARDET, Elsternwick, Victoria. Filed Nov. 3, 1893. Serial No. 489,941. (No specimens.)

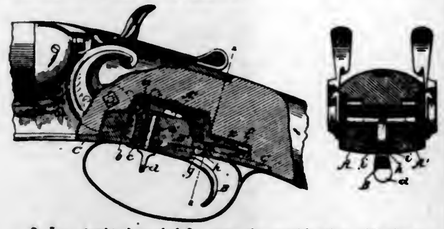
Claim.—1. An explosive consisting of a mixture of tar, picric acid, sawdust, the chlorid of an alkali metal and the perchlorate of an alkali metal, substantially as set forth.

2. The herein described method of preparing explosives which consists in first heating tar to a temperature of about 120° centigrade, then adding picric acid thereto, then gradually adding sawdust to the mixture thus prepared, then heating the mixture of tar, picric acid and sawdust to a temperature of about 100° centigrade, then cooling the mixture and passing it through a sieve, then adding to the sifted product a suitable proportion of a mixture of the perchlorate and chlorid of an alkali metal at the same time heating the mass until the same assumes a black color, and finally cooling and granulating the mixture, substantially as set forth.

521,021. TRIGGER FOR DOUBLE-BARRELED GUNS. WILLIAM FLEMING, Newberry, Pa. Filed Sept. 6, 1893. Serial No. 484,882. (No model.)

Claim.—1. In a double barreled fire arm, the combination with the two sears, of a single trigger having a shoulder adjustable into operative relation with either or both sears substantially as shown and described.

2. In a double barreled fire arm, the combination with the two sears, of a single trigger having an adjustable shoulder made thick enough to operate upon both sears at once, and means for adjusting it into operative position with one sear to the exclusion of the other, substantially as shown and described.



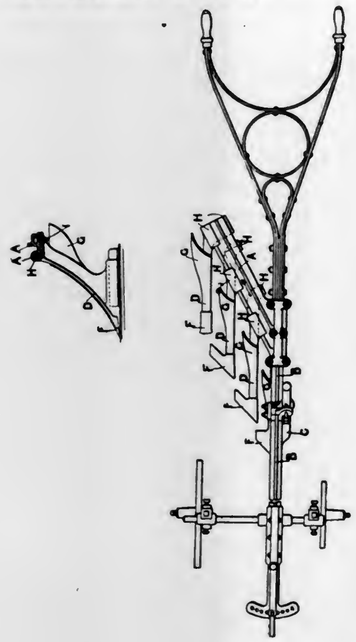
3. In a double barreled fire arm, the combination with the two sears, of a single trigger, an adjustable shoulder carried by said trigger, means for adjusting it laterally, a spring for throwing it to its middle position, and locking devices for holding it to either side of its middle position substantially as and for the purpose described.

4. The combination of the trigger plate having a central recess A with inclined sides, and locking recesses *i* on both sides of the same, the trigger having a laterally adjustable shoulder with slotted extension, and the spring *e* with end *e'* extending through the slotted extension to engage with the recess and cavities below, and operating with the three fold function of depressing the trigger, restoring the trigger shoulder to its normal position, and locking it to one side of its normal position, substantially as shown and described.

5. The combination with the trigger, of a pivotal trigger shoulder having a pin rigidly attached thereto and extending through the trigger and terminating in a thumb piece substantially as and for the purpose described.

6. The combination with the trigger, of a pivotal trigger shoulder having a rigid pin *c* extending vertically through the same and turning loosely in the trigger and terminating in an external thumb piece, and a transverse locking pin *c'* passing transversely through the trigger shoulder and intersecting and locking the pin *c* substantially as and for the purpose described.

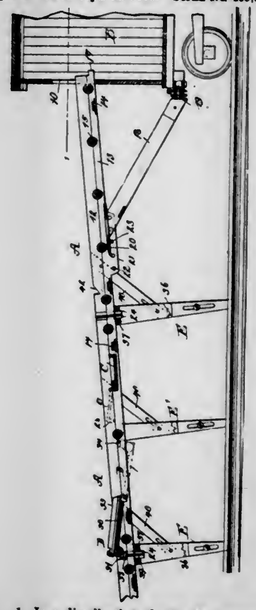
521,022. PLOW OR CULTIVATOR. HENRY FORMAN, Chellaston, England. Filed Dec. 1, 1893. Serial No. 492,479. (No model.) Patented in England Nov. 9, 1892, No. 20,184.



Claim.—1. A plow comprising a beam and a share carried thereby and made up of a series of tines, said series inclining backwardly from the beam and forming a sectional share the sections of said share being adjustable toward and from each other, substantially as described.

2. In combination, the plow beam, the channeled bar A having a rib A' along one edge and a slot in its body portion, said bar being inclined to the plow beam and the series of tines forming a sectional share each tine having a lip to fit the rib along the edge of the channeled bar and the bolt passing through the tine shank and into slot of the said channeled bar, substantially as described.

521,023. RAILROAD RAIL OR TIE DISTRIBUTER. CALEB C GATES, Forsyth, Mont., assignor to himself and James Skinner Hopkins, same place. Filed Sept. 12, 1893. Serial No. 485,329. (No model.)



Claim.—1. In a distributing device for railway rails, ties, and other articles, a series of roller sections one of which is adapted for attachment to a car, and supports adjustably and removably connected with the ends of the sections and coupling the same, as and for the purpose specified.

2. In a device for distributing railway ties, rails and other articles, a series of roller sections, couplings temporarily uniting the sections, adjustable and removable supports connected with the several sections, clamps carried by one of the sections for attachment to the receptacle to be unloaded, and a brace removably connected with the receptacle and with the clamp carrying section, the brace serving to give inclination to the clamp carrying section, substantially as shown and described.

3. In a distributing device for railway rails, ties, and other articles, a series of roller sections, means for coupling and supporting the same, and a retarding device located upon sundry of the sections, as and for the purpose set forth.

4. In a distributing device for railway rails, ties and other articles, a series of roller sections, couplings uniting the same, adjustable and removable supports connected with the sections, and a retarding device and directing mechanism located upon sundry of the sections, as and for the purpose set forth.

5. In a distributing device for railway rails, ties and other articles, the combination with a series of roller sections, sundry of the sections being provided with clamps adapted for attachment to the receptacle to be unloaded, and supports adjustably and removably connected with the sections and coupling the same, of a retarding table pivoted in sundry of the sections, adapted to be inclined above or dropped below the upper surfaces of the rollers of the sections, and a directing mechanism consisting of a pivoted table adapted to be dropped below or raised over the rollers of a section, and a shifting bar having movement over the table, as and for the purpose set forth.

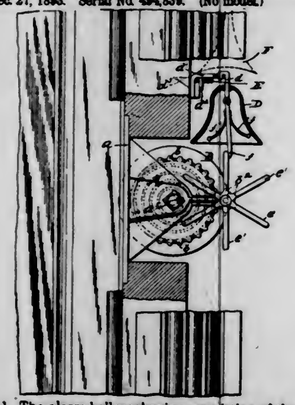
6. In a device for distributing railroad ties, rails, or lumber, a series of roller bearing sections, clamps secured to sundry of the sections, adapted for attachment to the receptacle to be unloaded, and adjustable and removable supports engaging with the sections and coupling the same, as and for the purpose specified.

7. In a device of the character described, the combination, with a series of roller bearing sections, devices for inclining and supporting the same, substantially as shown and described, and a coupling between the sections, of a retarding table pivoted to a section between its rollers, which table is capable of being placed below the level of the rollers or carried above said rollers, substantially as specified.

8. In a distributer for railway rails, ties, lumber or other articles, the combination, with a car and its coupler, of a series of roller carrying sections couplings and supports therefor, clamps located upon one of the sections, adapted for engagement with the body of the car, and a brace connected with the coupler and the car, and removably connected with the roller section adjacent to the car, whereby the inclination of said section may be regulated, substantially as shown and described.

9. In a distributing mechanism for railroad rails, ties, lumber, &c., the combination, with a roller bearing support or tram way adapted to receive the articles to be distributed, of a retarding device consisting of a table pivoted in the support, adapted to be dropped below the upper surface of the rollers, or carried at an inclination above said surfaces, and a directing mechanism, the same consisting of a table pivoted in the support, adapted to be carried over the rollers or placed below their level, said table being provided with guide rollers, and a bar pivoted at one end to the table and having sliding movement over the face of the table, as and for the purpose set forth.

521,024. BURGLAR-ALARM. NOAH HAMLET, Little Rock, Ark. Filed Dec. 27, 1893. Serial No. 494,539. (No model.)



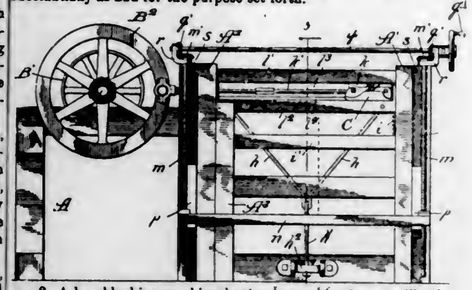
Claim.—1. The alarm bell mechanism, consisting of the frame A, rotating wheel or drum B, journaled in said frame and provided with cogs b; striker C, secured to the stud c, journaled in the extension a^{10}, of the arm a^4; pinion b^3, secured on the inner end of said stud c, and meshing with cogs b; bell D, hung in the window frame; and pendulums f, hung in said bell in position to come in contact with the arms of the said striker, and bearing on each side strikers f', substantially as shown and described and for the purposes set forth.

2. In an alarm bell mechanism, the bell hanging device, consisting of the staple d^3, adapted to be driven into the wall of the window frame; elbow arm d', having the lower rod d^3; said elbow arm suspended in said staple; pendant d, hung in the outer end of arm d', and adapted to bear a bell; cut out E, working under the arm d', and adapted to throw the bell in and out of contact with the striker, substantially as shown and described and for the purposes set forth.

3. In an alarm bell and bell hanging mechanism, consisting of the staple d^3; perforated elbow arm d', having the lower rod d^3; pendant d, hung in the outer end of arm d'; bearing g, secured on the lower end of said pendant; pendulums f, pivoted on the ends of said bearing; strikers f', secured on each side of said pendulums; and bell D, hung on said pendant d, substantially as shown and described and for the purposes set forth.

521,025. BOX-BLOCKING MACHINE. JOSEPH HANDLER, Chicago, Ill. Filed Nov. 24, 1893. Serial No. 491,617. (No model.)

Claim.—1. In a box-blocking machine a plane support, in which a plane is mounted to reciprocate, and a box-support, the said supports being adjustable and resiliently yielding one with relation to the other, and lever mechanism connected with one of the supports and operative to move the same against its resilience, whereby the path of the plane with relation to the box-support may be varied, substantially as and for the purpose set forth.



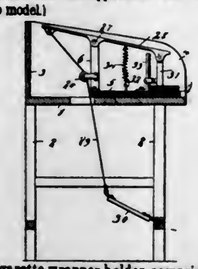
2. A box blocking machine, having in combination a resiliently yielding guide, a reciprocating plane in the guide, a platform to support the box, and lever mechanism connected with the guide for moving it against its resilience to vary the path of the plane, substantially as and for the purpose set forth.

3. A box-blocking machine having, in combination, a movable spring sustained guide frame, a reciprocating plane mounted in the guide frame, a platform to support the box, and lever-mechanism connected with the guide-frame for moving it against the resistance of the springs to vary the path of the plane, substantially as and for the purpose set forth.

4. A box-blocking machine having, in combination with the main frame, a drive shaft, a resiliently yielding guide frame, a plane mounted in the guide-frame and geared to the drive shaft to reciprocate in the guide frame, a platform, to support the box, raising and lowering mechanism for the platform, and lever mechanism connected with the guide-frame for moving it against its resilience to vary the path of the plane, substantially as and for the purpose set forth.

5. A box-blocking machine, comprising, in combination, a frame A, a drive-shaft mounted in the frame, a spring supported guide-frame l movable in guides in the frame, plane O geared to the drive-shaft and mounted to reciprocate in the frame l, a platform n, raising and lowering mechanism for the platform, and a foot-lever connected with the frame l and operative to lower the said frame in its guides against the resistance of its springs, substantially as and for the purpose set forth.

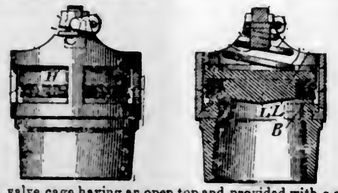
521,026. CIGARETTE-WRAPPER HOLDER. JOSÉ R. HERNANDEZ, Havana, Cuba. Original application filed Sept. 15, 1893, Serial No. 485,542. Divided and this application filed Dec. 5, 1893. Serial No. 492,871. (No model.)



Claim.—A cigarette wrapper holder, comprising a table on which the wrappers are adapted to be laid, uprights rigidly connected with the table, a lever pivotally connected with the uprights, a pedal operatively connected with the rear arm of the lever, a plunger having a pivotal connection with the front arm of the lever, a ring pivotally connected with the plunger and extending approximately perpendicular thereto, a guide secured to the table and arranged parallel to the plunger to be engaged by the said ring, and a spring for pressing the front arm of the lever toward the table, substantially as described.

521,027. VALVE. FRANK W. HESS, Philadelphia, Pa. Filed June 15, 1893. Serial No. 477,654. (No model.)

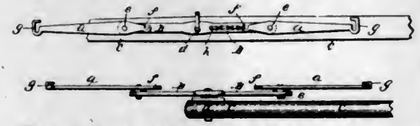
Claim.—1. A valve cage having an open top and provided with a base having a valve seat, a detachable cross bar secured to said cage and having a depending stud, a valve head with packing resting on said seat and provided with a central portion adapted to receive on its under face the impact of the fluid passing through the said base, and a spiral spring bearing against said head, said head loosely fitting in said cage, and said stud normally projecting into a portion only of the convolutions of said spring, said parts being combined substantially as described.



2. A valve cage having an open top and provided with a detachable base having a valve seat therein, a detachable cross bar secured to said cage and provided with a depending stud, a valve head in said cage having a central portion adapted to receive on its under face the impact of the fluid passing through the said base, and a spiral spring bearing against said head, and having only a portion of its convolutions normally encircling said stud said head being limited in its upward movement by contact with said stud, said parts being combined substantially as described.

3. In a valve, a cage, a valve head therein, a spring bearing on said head, and a cross head connected with said cage and controlling said spring, said cross head having ears in which is fitted a securing rod or pin, substantially as described.

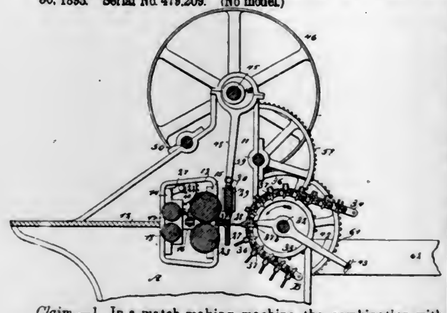
521,028. WHIFFLETREE. JAMES C. H. HOBBS, Salem, Nebr. Filed June 22, 1893. Serial No. 478,545. (No model.)



Claim.—1. A compound, adjustable whiffletree, consisting of two, separate, whiffletree sections, a, a, a common base-plate b, to which said whiffletree sections are pivoted, and the chain h, connecting the inner, adjacent ends of said sections, in combination with a centrally pivoted evener c, to one end of which said compound whiffletree is pivotally secured, in the manner and for the purpose described.

2. A compound, adjustable whiffletree composed of two arms or sections a, a, a base plate b, and a chain h, connecting the inner adjacent ends of the whiffletree sections, in combination with the annular center plates i and j, interposed between the sections a and base plate b and between the base plate b and evener c, as and for the purpose set forth.

521,029. MACHINE FOR MAKING MATCHES. HENRY A. LA CHICOTTE and WALTER B. LA CHICOTTE, New York, N. Y. Filed June 30, 1893. Serial No. 479,209. (No model.)



Claim.—1. In a match making machine, the combination with shaping rolls adapted to rotate in close relation and provided with cutting ribs and circumferential grooves arranged substantially as shown and described, whereby two independent rows of match splints are formed from the veneer passed between the said rows, of a gripping mechanism consisting of jaws adapted to grasp the ends of the two rows of match splints, simultaneously as and for the purpose set forth.

2. In a match making or like machine, a gripping mechanism, the same consisting of an endless belt comprising opposing links, jaws pivotally connected with the said opposing links, the inner face of the jaws being provided with a series of teeth arranged transversely thereon, the teeth upon one jaw alternating with the teeth upon the opposing jaw and adapted to enter the spaces between the teeth of the said opposing jaw, one of the jaws being adapted to be opened and closed, as and for the purpose specified.

3. In a match making machine, a gripping mechanism consisting of a belt or carrier comprising opposing links, jaws angular in cross section pivotally connected with the said opposing links and extending from one to the other, said jaws being provided with inner faces having teeth or ribs arranged transversely thereon, forming spaces or pockets between the teeth to receive the splints, the teeth upon one jaw alternating with the teeth upon the opposing jaw and adapted to enter the spaces of the said opposing jaw, one of the jaws being spring controlled, and means substantially as shown and described for opening the jaws and permitting them to close, as and for the purpose set forth.

4. In a match making machine, a gripping mechanism, the same consisting of an endless belt or carrier comprising opposing links, jaws angular in cross section pivotally connected with the opposing links and extending from one to the other, one of said jaws being fixed and the other spring controlled, said jaws being further provided with cushioned inner faces provided with a series of teeth arranged transversely thereon, the spaces between the teeth forming pockets adapted to receive match splints, the teeth upon one jaw alternating with the teeth upon the opposing jaw and adapted to enter the pockets of the said opposing jaw and hold the splints in position therein, and the said spring controlled jaw having an arm or extension formed thereon, by means of which it is opened and a trip lever for engaging said arm and opening the jaws, substantially as shown and described.

5. In a match making machine, the combination with shaping rolls having their peripheral surfaces alternately provided with grooves and cutting ribs, of a stationary cutter bar having openings adapted to receive the splints from the shaping rolls, a knife held to reciprocate across the openings in the cutter bar, and a gripping mechanism consisting of opposing jaws adapted to clamp between them the splints delivered from the cutter bar, the inner faces of the said jaws having a series of teeth arranged transversely thereon, the teeth of one jaw alternating with the teeth upon the opposing jaw and adapted to enter the spaces between the teeth of the said opposing jaw, as and for the purpose specified.

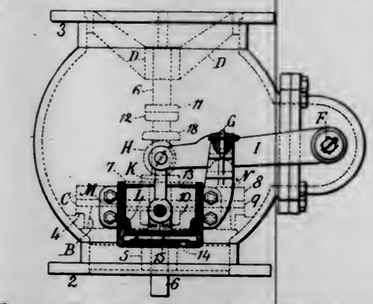
6. In a match making machine, the combination with feed rolls shaping rolls having their peripheral surfaces circumferentially grooved and provided with cutting ribs, the alternating grooves being of different depths, a cutting bar located opposite the delivery portion of the shaping rolls, and provided with openings to receive the splints delivered from the rolls, a knife adapted to move across the openings in the cutting bar, and a time connection between the driving mechanism the knife and the feed and shaping rolls of a conveyer consisting of an endless belt carrying gripping devices, said gripping devices consisting of opposing jaws adapted to clamp between them the splints delivered from the cutting bar the said jaws having their inner faces provided with teeth arranged transversely thereon, the teeth upon one jaw being adapted to enter the spaces between the teeth of the opposing jaw, and trip mechanism adapted for engagement with the jaws and having timed engagement therewith, as and for the purpose specified.

7. In a match making machine, the combination with feed rolls, shaping rolls located adjacent to the feed rolls, said shaping rolls being provided with peripheral grooves and ribs alternately arranged, each roll being provided with two or more series of said grooves and the grooves of one series differing in depth from the grooves of the other series, a guide located between the shaping and the feed rolls, a cutting bar having openings adapted to receive splints from the shaping rolls, a knife adapted to cross the openings in the cutting bar, a driving mechanism and a time connection between the driving mechanism, the feed and shaping rolls and the knife, of a gripping mechanism consisting of an endless belt provided with a series of jaws having their inner faces provided with teeth arranged transversely thereon forming spaces or pockets between the teeth adapted to receive splints, the teeth upon one jaw being adapted to enter the spaces between the teeth of the opposing jaw, a trip mechanism having engagements at predetermined intervals with the jaws, and means substantially as shown and described for dipping the splints and drying them, as and for the purpose set forth.

8. In a match making machine, the combination with a conveyer consisting of an endless belt, said belt being provided with a series of jaws having their inner faces provided with teeth arranged transversely thereon and forming spaces or pockets between the said teeth to receive splints, the teeth of the opposing jaws alternating with each other and adapted to enter the spaces of the opposing jaw, and hold the splints therein, and a tripping device adapted for engagement with the jaws to open and release the same, of receptacles containing inflammable or ignitible material over which the conveyer passes, and series of pulleys arranged in different planes and adapted as supports for the conveyer, as and for the purpose specified.

9. In a match making machine, the combination with a conveyor consisting of an endless belt, said belt being provided with a series of opposing jaws having their inner faces provided with teeth arranged transversely thereon and having spaces or pockets between the teeth adapted to receive the match splints, the teeth of the opposing jaws alternating with each other and adapted to enter the spaces and hold the splints therein, a trip arm connected with one of the jaws of each pair by means of which the jaws are opened, and a tripping device adapted for engagement with the jaws to open and release the same, of receptacles containing inflammable or ignitible material over which the conveyor passes, series of pulleys arranged in different planes and adapted as supports for the conveyer, and a shield located over the receptacles containing the inflammable or ignitible material and below the supporting pulleys of the conveyer, as and for the purpose set forth.

521,030. AUTOMATIC EXHAUST RELIEF-VALVE. GEORGE DE LAVAL, Warren, Mass., assignor to the Geo. F. Blake Manufacturing Company, New York, N. Y. Filed Jan. 15, 1894. Serial No. 496,872. (No model.)



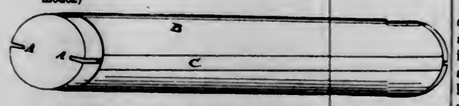
Claim.—1. The combination with the valve seat, of a valve case having an opening at one side above the seat, a removable bonnet covering the opening, a rock shaft supported by the bonnet, an arm extending from the rock shaft to the valve stem, an arm outside the bonnet upon the rock shaft, and a dash-pot and a piston and connection to the outer end of the arm, substantially as set forth.

2. In an automatic relief valve, the combination with a valve and its stem, of a valve case and valve seat, a rock shaft and arm within the valve case and another on the end of the rock shaft, a dash-pot having an inlet opening through its bottom end, a piston within the dash-pot, and a connection to the arm of the rock shaft, substantially as set forth.

3. The combination in an automatic relief valve, of a valve case, a valve movable vertically above the seat, a rock shaft and arm to the valve stem, an arm on the valve stem outside the case, a dash-pot, a piston within the dash-pot connected with the arm, and a movable device adapted to act upon the arm and hold the relief valve above its seat, substantially as set forth.

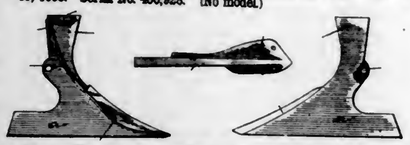
4. The combination in a relief valve, of a case containing the valve seat and having an opening at one side above the valve seat, a removable bonnet covering the opening, a relief valve and its stem, a rock shaft and arm to the valve stem, an arm outside the bonnet, a dash-pot connected at one side of the valve case and having an inlet opening and valve upon the bottom of the dash-pot, a piston within the dash-pot, an arm upon the rock shaft outside the case, a connection from the same to the dash-pot piston; a bracket, forked for the arm, and a suspending pin passing through the bracket and having a lug to determine the position of the pin and adapted to suspend the relief valve, substantially as set forth.

521,031. METHOD OF MAKING PAPER BOXES. ALBERT C. LUTZ, Cleveland, Ohio. Filed Oct. 12, 1893. Serial No. 488,001. (No model.)



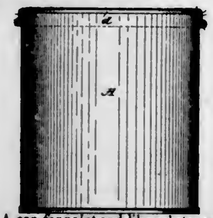
Claim.—The method herein described for making paper boxes, which consists first in providing a grooved roller, next inserting the edge of the paper or board in one of the grooves in said roller, then bending down the paper or board, next pasting or sizing the paper and rolling up the balance of paper on the roller, next when dried cutting a slit in the paper cylinder and gumming over the slit a strip of cloth or tape to form a hinge, next cutting slips on the opposite side of the cylinder, then cutting said cylinders into suitable lengths for boxes, and attaching the heads substantially in the manner and for the purpose set forth.

521,032. PLOW. CYRUS MARSH, Washington, Miss. Filed July 19, 1893. Serial No. 480,928. (No model.)



Claim.—The herein described plow standard, having the long keel portion; the upright portion provided with the offset forming a socket or depressed portion; the curved rib or flange having the angle shaped rest and the two side flanges of different sizes; as shown and for the purpose stated.

521,033. CAN FOR PAINT, PUTTY, LARD, &c. MORRIS A. MARZYNSKI, Boston, Mass. Filed Jan. 24, 1894. Serial No. 497,901. (No model.)



Claim.—1. A can for paint and like substances comprising a can body, a ring bent to form a groove or channel which is located below the top edge and beyond or outside of the line of the body portion of the can, the inner wall of said ring being secured to the can body, and a cover provided with a flange adapted to pass into said groove, and with its lower portion curled to form a projecting shoulder, the outer wall of said groove bearing with spring pressure against the side of said shoulder and being bent to embrace the upper edge thereof, substantially as described.

2. A liquid tight can for paint and like substances, comprising an annular body portion having attached to its annular wall the inner wall of an annular groove or channel located beyond or outside of the line of the annular body portion of the can below the top edge thereof, and a cover provided with a flange adapted to fit into the said groove and having a thicker rounded lower edge adapted to be secured liquid tight in the said groove by the outer wall of the said annular groove or channel, which latter laps around and over the rounded, thickened edge of the said flange, substantially as described.

3. A can for paint and like substances comprising an annular body portion, a seamless ring having the vertical portions *a* and *c* with the groove *b* between, the portion *a* being secured to the can body and the portion *c* lying entirely below the plane of the top of the can, a cover having a flange with its lower end curled to form a rounded shoulder of such diameter as to tightly fit said groove, the wall *c* being bent around said shoulder; substantially as described.

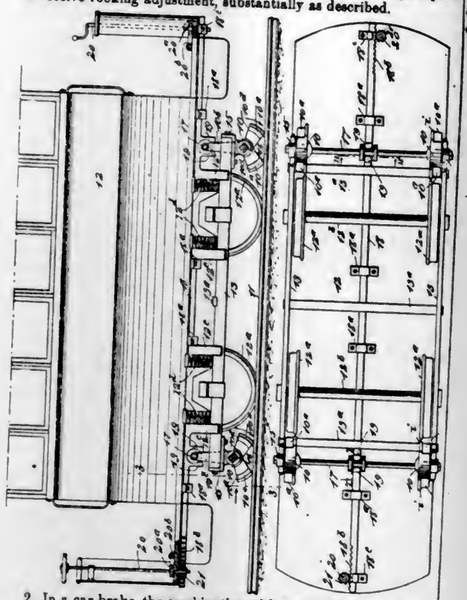
4. A can for paint and other substances comprising an annular body portion and having soldered to its annular wall the inner wall of an annular groove or channel located beyond or outside the line of the annular body portion of the can below the top edge thereof, and a cover provided with a flange adapted to pass into the said groove, and curled at its lower edge to form a shoulder projecting beyond the vertical plane of said flange only in front, and fitting liquid tight against the outer wall thereof, which latter wraps around and over the thickened edge of said flange; substantially as described.

5. A can provided with a ring secured around the top thereof, said ring having a groove or channel below the top edge of the can and beyond or outside the line of the body portion thereof and having an annular groove located inside the plane of said body portion, and a cover having a flange fitting the first groove or channel and having a ridge upon the under surface of said cover fitting the annular groove; substantially as described.

521,034. CAR-BRAKE. JOHN MAYER, Amsterdam, N. Y. Filed Feb. 6, 1894. Serial No. 499,254. (No model.)

Claim.—1. In a car brake, a series of contact blocks hung from the car, each block comprising an upright limb and two divergent

arms having convex lower faces, the blocks being supported to rock near the junction of the arms and limb, and said limb being adapted to receive rocking adjustment, substantially as described.



2. In a car brake, the combination with a car, of a series of contact blocks hung from the car over the track rails, each block having an upright limb, and two divergent arms the lower faces of which are convex, the blocks being pivoted near the junctions of their arms and limbs, and a device on the car adapted for manipulation at each end of said car, and arranged to rock the blocks in either direction substantially as described.

3. In a car brake, the combination with a car, of series of contact blocks hung therefrom over the track rails, and adapted to have contact therewith, each block comprising an upright limb and two depending divergent arms, the blocks being pivoted near the junctions of their arms and limbs, a cushion spring for each block, having two stop limbs, and a device on the car adapted for manipulation at each end of said car, and arranged to rock the blocks in either direction, substantially as described.

4. In a car brake, the combination with a car, and hanger arms thereon, of series of contact blocks pivoted on said arms, each block having an upright limb, and two depending divergent arms the lower faces of which are convex, a transverse rod connecting each pair of opposite blocks at the upper ends of their upright limbs, a longitudinal pusher bar held to slide on the car bottom, a toothed rack at each end of the bar, forks on said bar embracing the connecting rods, an upright rotatable brake shaft at each end of the car, a pinion on each shaft, meshing with the racks, and means to rotate the shafts, substantially as described.

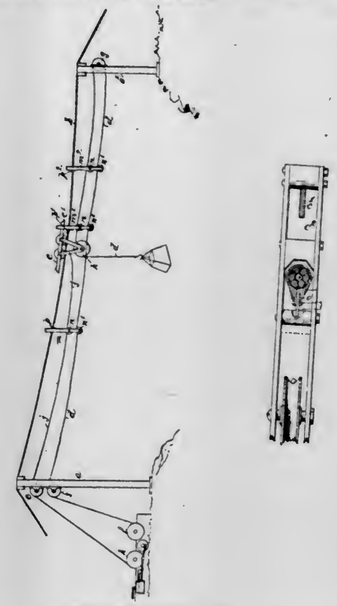
521,035. HOISTING AND CONVEYING APPARATUS. THOMAS S. MILLER, South Orange, N. J. Filed July 12, 1892. Serial No. 439,756. (No model.)

Claim.—1. In a conveying apparatus in combination, a cable or trackway, a carriage, a rope carrier and a stop connected with the cable or trackway and projecting substantially downwardly from the same, whereby auxiliary means of supporting the stop are dispensed with without affording any impassable obstacle to the running of the wheels of the carriage on the cable or trackway, substantially as described.

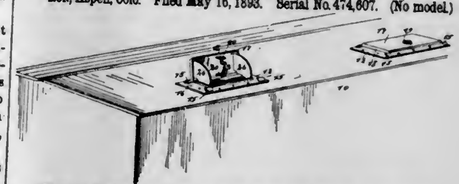
2. In a conveying apparatus in combination, a cable or trackway, a carriage, a rope carrier, a stop-plate parallel with the line of travel projecting downwardly into the line of travel of the rope carrier, and a member whereby said plate is secured to a fixed support so as to project wholly on one side thereof, substantially as described.

3. In a conveying apparatus in combination a cable or trackway a carriage, a rope carrier, a clamp embracing the cable or trackway and a downwardly extending stop-plate secured between the extremities of said clamp parallel with the line of travel, substantially as described.

4. In a conveying apparatus in combination a cable or trackway, a carriage, a rope carrier provided with a slotted opening to receive the cable or trackway and a stop projecting downwardly in only one direction beyond the boundary of said slotted opening below the cable or trackway, substantially as described.



521,036. FREIGHT-CAR. JOHN J. MCCLIMONT and PETER MARRON, Aspen, Colo. Filed May 16, 1893. Serial No. 474,607. (No model.)



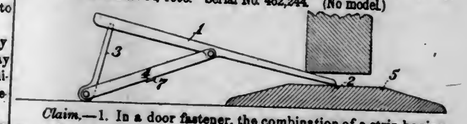
Claim.—1. The combination with a car, having an opening in its roof, of a frame fitted in the opening and provided with raised sockets on its upper side, a cover having end pintles to turn in the sockets, and a lock on the under side of the cover, substantially as described.

2. The combination, with a car having an opening in its roof, of a frame fitted in the opening, a cover hinged to the frame, curved wings secured to opposite ends of the cover, and a lock on the under side of the cover, substantially as described.

3. The combination, with a car, having an opening in its roof, of a frame fitted in the opening, a cover for the opening, a lock on the under side of the cover, and means for hinging the cover to opposite sides of the frame, substantially as described.

4. The combination, of the car having an opening in its roof, the frame fitted in the opening and provided with a depending flange with holes therein, a cover for the opening bolts journaled on the under side of the cover and adapted to enter the holes of the flange, bits on the bolts to turn behind the flange, and weighted levers secured to the bolts and adapted to swing them into closed position, substantially as described.

521,037. DOOR-FASTENER. GEORGE F. MCCOMBS, Allegheny, Pa. Filed Feb. 14, 1893. Serial No. 462,244. (No model.)



Claim.—1. In a door fastener, the combination of a strip having one end constructed to pass under a door, a prop for supporting the

opposite end of the strip above the plane of movement of the lower end of the door, and straps pivotally connected to one end of the prop and to the strip at a point approximately midway of its length, substantially as set forth.

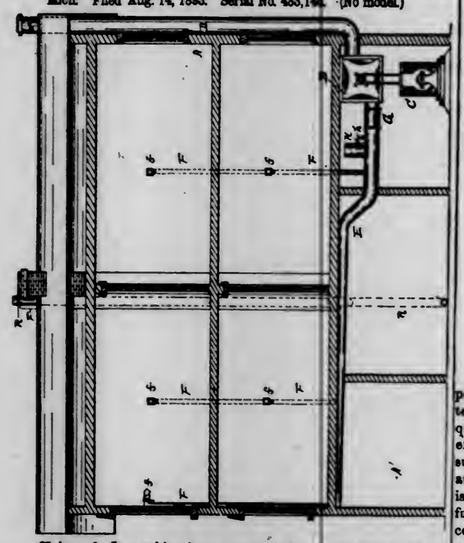
2. In a door fastener the combination of a strip having one end constructed to pass under a door, a prop for supporting the opposite end of the strip above the plane of movement of the lower end of the door, straps having their ends pivotally connected to the prop and strip respectively, and a lock for holding the prop in operative position, substantially as set forth.

3. In a door fastener, the combination of a strip having one end constructed to pass under a door, and adjustable prop for supporting the opposite end of the strip above the plane of movement of the lower end of the door, and straps having their ends pivotally connected to the prop and strip respectively, substantially as set forth.

4. In a door fastener, the combination of a strip having one end constructed to pass under a door, an adjustable prop for supporting the opposite end of the strip above the plane of movement of the lower end of the door, straps having their ends pivotally connected to the prop and strip respectively, and a lock for holding the prop in operative position, substantially as set forth.

521,038. HOUSE VENTILATION.

JOSEPH MCCREERY, Detroit, Mich. Filed Aug. 14, 1893. Serial No. 483,144. (No model.)



Claim.—1. In combination, a rotatable fan, an induction, and an eduction pipe communication with the fan, the eduction pipe provided with a flexible joint of sound-non-conducting material interposed therein, such joint being capable of longitudinal flexure, as set forth.

2. In combination, a rotatable fan, eduction and induction pipes communicating therewith, one of said pipes provided with a joint of felt substantially as and for the purpose described.

3. In combination, a rotatable fan, induction and eduction pipes communicating therewith, and an air flue having several inlets, said eduction pipe communicating with said air flue above the topmost inlet of said flue, substantially as and for the purpose specified.

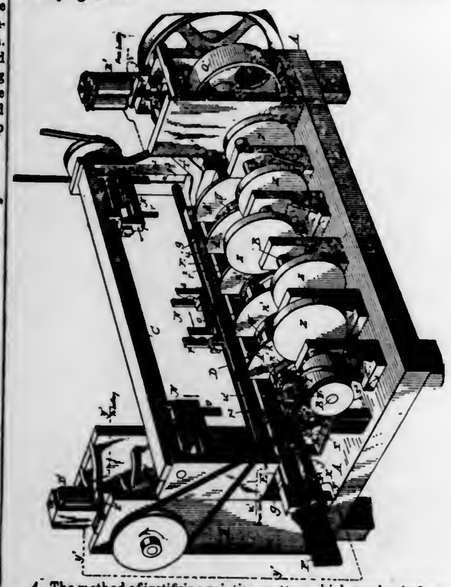
521,039. METHOD OF AND MACHINE FOR JUSTIFYING TYPE.

JOHN L. MCMILLAN, Ilion, N. Y. Filed Nov. 28, 1892. Serial No. 453,412. (No model.)

Claim.—1. The method of justifying type, which consists in producing a line of type matter of slightly less than the required length, and with thin spaces between words; replacing each thin space in succession with another of the next greater thickness; and then replacing the substituted spaces in succession with others of the next greater thickness,—such substitution being continued until the line is brought to the required length.

2. The herein described mode of justifying type matter, which consists in the following steps: first, producing a line slightly shorter than the intended length of the justified line, with thin spaces between words; next, placing such line in a holder capable of expansion to the required length of line but incapable of further expansion while in use; and lastly, removing the thin spaces successively and substituting others of slightly greater thickness until the line is brought to the requisite length and the limit of expansion of the holder is reached.

3. The preliminary steps in the process of justifying type matter, which consists in separating a line of composed type into sections each slightly less in length than the contemplated length of the justified line, placing at the end of each such section a wire or stem longer than the type, and adjusting said wire or stem so that its ends project both above and below the type,—whereby the ends of the sections are marked and a hold is afforded above and below the type for a feeding or carrying device.



4. The method of justifying printing matter, which consists in first producing a line of composed type slightly less in length than the contemplated length of justified line, with thin spaces at the points requiring spaces, clasping said line or section in a holder capable of expansion to the contemplated length of line; forcing the thin spaces successively from the line and introducing thicker ones in their places, and repeating this operation until the line is lengthened and the holder is expanded to the predetermined length; locking the holder against further expansion—moving the holder to a position in line with a receiving galley,—and forcing the justified line from the holder into the galley.

5. In a type-justifying machine, the combination of a channel; automatic feeding mechanism for introducing into said channel a type line to be justified; an automatic ejecting device for removing spaces from said line; and an automatic carrier for inserting thicker spaces in lieu of those removed.

6. In a type-justifying machine, the combination of feeding mechanism for introducing a line section to be justified; a gage or holder to determine the length of the finished line; a locking device for said gage, adapted to lock it against expansion beyond the predetermined length of line; means for effecting a travel of the gage and line section; an ejector for removing spaces from said line section; a carrier for introducing thicker spaces in lieu of those removed; and mechanism for delivering the justified line into a receiving galley.

7. In a type-justifying machine, the combination of a channeled bar or type-way, adapted to receive and guide a line of composed type, a gage or holder movable along said way and serving to hold the type line and to determine and limit its length, and an ejector movable across the channeled bar or way and serving to force from the line the spaces contained therein, said parts being automatic in their action.

8. In a type-justifying machine, the combination of a channeled bar or typeway adapted to receive and guide a line of composed type, a gage or holder moving along said way and serving to determine and limit the length of the line, and an ejector movable across the typeway and serving to remove spaces therefrom and to open the line for insertion of a wider space.

9. In a type-justifying machine, the combination of a channeled bar or typeway adapted to receive and guide a line of type, a gage or holder movable along said typeway and serving to hold the line of type and to determine and limit its length, a plate movable across the typeway and provided with a wedge-shaped or beveled edge and with a recess in rear thereof to contain a type-space; and automatic mechanism for moving said plate; whereby the thin edge is caused to eject from the line a space contained therein, the wedge shaped portion is caused to open the line for a thicker space, and said thicker space is carried into the line.

10. In a type-justifying machine, the combination of a channeled bar or typeway provided with an opening at right angles to the type channel, and a rotatable disk extending into said opening and across the type channel, and provided with openings for the passage of the line of type through the disk.

11. In a type-justifying machine, the combination of a channeled bar or typeway provided with an opening at right angles to the type channel, and a rotatable disk extending into said opening and across the type channel, and provided with a series of openings through which the type line may pass, the rear wall of each opening of the disk being of wedge shape with the thin edge forward, substantially as and for the purpose set forth.

12. In a type-justifying machine, the combination of a channeled bar or typeway, provided with an opening at right angles to the type channel; a rotatable disk extending into said opening and across the type-channel, and provided with openings through which the type line may pass, and a space-reservoir communicating with one of the disk openings in rear of the typeway.

13. In combination with a channeled bar or typeway, a disk movable through the same across the type-channel, and provided with openings through which the type line may pass, and means for rotating said disk.

14. In combination with a channeled bar or typeway, a disk movable through the same across the type channel, and provided with openings at uniform intervals through which the type-line may pass; and means substantially such as described for imparting a step-by-step rotation to the disk.

15. In a type-justifying machine, the combination of a channeled bar or typeway; a series of diska intersecting the typeway, and provided with openings to permit the passage of the type-line; space-reservoirs communicating with the openings in the disks; and means for rotating the disks independently.

16. In a type-justifying machine, the combination of a channeled bar or typeway; a gage or holder movable along said typeway, adapted to hold a line of type and to determine and limit its length; and a plate or carrier movable across the typeway, and adapted to remove a space therefrom, to open the line, and to introduce a thicker space in lieu of the one removed.

17. In a type-justifying machine, the combination of a channeled bar or typeway; a gage or holder movable along the typeway, adapted to grasp a line of type, and expansible to the contemplated length of line; a disk extending across the typeway and provided with a series of openings each adapted to contain a type space; and means substantially such as described and shown for imparting a step-by-step rotation to the disk.

18. In a type-justifying machine, the combination with a channeled bar or typeway, of an expansible holder movable along said typeway and adapted to hold a line of type; means for effecting the travel of said holder; and a series of carriers movable across the typeway and adapted to remove spaces from the line as it passes the disks, and to substitute thicker ones for those removed.

19. In combination with a channeled bar or typeway, a type-holder movable along said way, adapted to hold a line of type and to limit and determine the length of said line; a detent located at the side of the typeway and adapted to move forward into the same and to arrest the line of type in the holder whenever a space nicked to correspond with the detent comes into line with said detent; and a plate or carrier adapted to remove the nicked space and force back the detent.

20. The combination with a channeled bar or typeway, of a type holder movable along said way,—an arresting device adapted to arrest the travel of the holder whenever a properly nicked space comes under its action; and an ejecting device adapted and arranged to remove such space from the line and to force back the arresting device.

21. In combination with a channeled bar or typeway, a series of plates movable across said typeway and provided with openings for the reception and passage of type; a series of reservoirs communicating with the openings of said plates and adapted to deliver differently nicked spaces to said openings; and a series of detents, each adapted to enter the nicking of one class of spaces only, and to arrest the travel of a line of type along the channel or typeway whenever a space of its class comes opposite such detent.

22. In combination with a channeled bar or typeway; a plate movable across the typeway and provided with an opening through it to permit the sidewise passage of a type, the rear wall of said opening being beveled or wedge shaped;—and a detent adapted to move forward into said opening and to enter a notch or nick in a type space in the typeway whenever a properly nicked space comes opposite said detent; whereby the line is arrested during the removal of said space from the line, and the detent is forced back by the advance of the plate across the typeway.

23. The combination in a type-justifying machine, of the following elements: a channeled bar or typeway; means for moving a line of type along said way; a yielding support for the forward end of the type-line; a holder to clamp the line of type; a carrier to move said holder to the typeway: mechanism for actuating said carrier; an electro-magnetic controlling device for bringing said mechanism into or throwing it out of action; and a circuit-closer adapted to complete the electric circuit of said controlling device when the yielding line support reaches a prescribed position.

24. In a type justifying machine, the combination of a channeled bar or typeway; a plate movable across the typeway; mechanism for moving said plate; a detent for holding said mechanism out of action; an electro-magnet for withdrawing said detent; a feeler adapted to enter a nick in a type space of the line to be justified whenever such space comes into alignment with the plate; and a circuit closer adapted to complete the circuit of the electro-magnet when the feeler enters the nick of the space; whereby the plate is caused to move and eject the space when the latter comes into alignment therewith.

25. In combination with a channeled bar or typeway, a type-holder movable along said way, and automatic mechanism substantially such as described and shown for justifying the type in said holder; a galley located by the side of the typeway; a bunter movable across the typeway and adapted to deliver the type from the holder to the galley; mechanism for actuating said bunter; and a clutch controlled by the holder and adapted to throw the bunter into operation when the holder brings the type properly in front of the galley.

26. The combination in a type-justifying machine, of the following elements: a channeled bar or typeway; means for moving a line of type along said way; a yielding support for the forward end of the line; a holder to clamp the line of type; a carrier to move said holder to the typeway; mechanism for actuating said carrier, and a clutch controlling said mechanism, and in turn controlled by the yielding line-support.

27. In a type-justifying machine, the combination of a channeled bar or typeway; a plate movable across said way; mechanism for moving said plate; a detent for holding said mechanism out of action; means for withdrawing said detent; and a feeler adapted to enter a nick in a type space of the line to be justified, whenever such space comes into alignment with the plate, and also to control the action of the mechanism by which the detent is withdrawn

28. In combination with a channeled bar or typeway, a type holder movable along said way, and means substantially such as described and shown for justifying the type in said holder; a galley located by the side of the typeway; a bunter movable across the typeway and adapted to deliver the type from the holder to the galley; mechanism for actuating said bunter; a clutch controlling the action of said mechanism; an electro-magnet controlling said clutch, and a circuit closer located in the path of the holder and serving to complete the circuit of the electro-magnet when the holder reaches the end of its travel along the typeway.

29. The herein described type-justifying machine, comprising the following elements in combination: a suitable framework; a channeled bar or typeway; a series of type-holders movable along said way; means for moving said holders along the way and returning them to the starting point; plates intersecting and movable across the typeway and provided with openings for the passage of the type-line; means for moving said plates; and feelers, one for each plate, controlling the action of the mechanism by which said plates are moved.

30 In a type-justifying machine, the combination of a suitable framework; a channeled bar or typeway E; a series of disks V intersecting said typeway and provided with ratchet wheels U, levers X provided with dogs n', feelers J', and detents n^2 for holding the dogs n' out of action—, said detents being controlled by the feelers J', substantially as set forth.

31. In combination with a channeled bar or typeway, a carrier G having arms e and f movable above and below the typeway; and means for moving said carrier along the typeway; whereby the carrier is adapted to engage a wire or device introduced into the type-line and projecting above and below the same, and thereby to carry forward the type in advance of said wire, but is enabled to clear the type.

32. The combination with a typeway or channel, of a carrier G comprising a rockshaft d and arms e, f, the latter extending above and below the typeway or channel, and a spring reserving to hold the arms normally across said typeway.

33. In combination with a typeway or channel, a carrier for advancing type along said channel, comprising a rockshaft, an arm pro-

jecting from said rockshaft across the type-channel, an arm projecting from said rockshaft away from said channel; and a movable stop adapted to be placed in the path of the latter arm, and, by arresting the same, to throw the carrier out of action.

34. In combination with a typeway or channel *g*, carrier G comprising rockshaft *d* and arms *e f* and *h*; and sliding bar I^3 having stop j^3 adapted to arrest the arms *h* and to swing arm *e* away from channel *g* as the carrier G moves forward.

35. In combination with carrier G having arms *e f* and *h*; slide or bar I^3; and carrier lever H' adapted to depress said slide and to carry it into the path of arm *h* of carrier G.

36. In a type-justifying machine, the combination of a channeled bar or typeway, a carrier adapted to move a line of type along said way, a holder to receive said line of type, and a series of overlapping springs, extending along one side of the typeway throughout that portion of its length through which the carrier moves the type, whereby the line is subjected to light and even pressure at numerous points, and disarrangement of the line is prevented.

37. In combination with typeway or channel *g*, slide K; block L carried by and movable at right angles to slide K; spring *l* bearing against block L and serving to keep its beveled forward end normally within the channel *g*; spring *m*, attached to slide K; and a holder or gage adapted to enter the type channel to bear upon the beveled end of block L, and thereby to force back the latter.

38. In combination with type channel *g*, yielding support L; catch or detent J; and holder N provided with legs *r* and *v* adapted to bear upon and force back the support and the detent, substantially as set forth.

39. In combination with channel *g* having reduced lower channel *e*; carrier G, provided with arms *e* and *f*, the latter extending into the lower channel *b*.

40. In combination with channel *g*, having opening k^3, holder N, provided with leg *r*.

41. In combination with channel *g* provided with opening k^3; detent J; and holder N provided with leg *r*.

42. The combination of channel *g* provided with opening k^3; detent J, and yielding support L extending into said channel and having their ends beveled substantially as set forth; and holder N provided with legs *r* and *v* adapted to move downward directly over the detent and opening k^3, and over support L, substantially as and for the purpose explained.

43. In combination with type-channel *g*, a plurality of feelers J', each having a nose or extension l^3 to enter a properly located nick in the type spaces passing through said channel and to hold the type line against movement, the nose or extension l^3 of each feeler being out of line with that of the next, whereby each is adapted to enter a space nicked to correspond with its location but is prevented from entering spaces not so nicked.

44. In combination with type channel *g*; a feeler J' movable into and out of said channel; and a locking pin o^3 adapted to pass in front of the feeler and withhold it from the channel.

45. In combination with channel *g*, a feeler J' movable into and out of said channel; a stop pin o^3 to prevent the inward movement of the feeler; and a friction device to prevent the accidental displacement of the pin.

46. In combination with a typeway or channel *g*; a feeler movable to and from said channel; a stop pin o^3 to prevent the advance of the feeler, provided with a head or enlargement; and a type-holder N adapted to traverse the typeway and provided with an inclined rib *d'* to pass beneath the head of the pin and elevate the same

47. In combination with a typeway or channel *g*; a feeler movable to and from said channel; a stop pin o^3 to prevent the advance of the feeler, provided with a head or enlargement; and a type-holder N adapted to traverse the typeway and provided with an inclined rib *d'* to pass beneath the head of the pin and elevate the pin, and with incline *e'* to depress the same.

48. In combination with typeway or channel *g*; feeler J'; link m^3; and roller K' forming a bearing and guide for the feeler.

49. In combination with typeway or channel *g*; feeler J'; and link m^3 connecting said feeler with its support; whereby the feeler is adapted to rock or to tip and to move bodily forward and backward.

50. In combination with typeway or channel *g*; plate V movable across said typeway and provided with openings *m'*; and feeler J' adapted to move forward into the openings *m'*.

51. In combination with typeway or channel *g*; plate V movable across said channel, and provided with openings *m'*, having their rear walls beveled substantially as described; and feeler J' provided with nose l^3, adapted to move forward into the openings *m'*.

52. In combination with typeway or channel *g*; feeler J' provided with nose l^3; link m^3 connecting said feeler with its support; and spring n^3 bearing upon the feeler and pressing its nose forward toward channel *g*.

53. In combination with typeway or channel *g*; feeler J' provided with an insulated contact finger p^3, whereby it is adapted to serve also as a circuit closer.

54. The combination of a typeway or channel; a yielding support extending into said channel to sustain the incoming type; an insulated contact finger movable with said support; a second contact finger in the path of the first; a holder to clamp and hold the type in the channel; a carrier to move said holder to the channel; a clutch controlling the movement of the carrier; and an electro-magnet controlling said clutch and included in the circuit with said contact fingers; whereby the carrier is brought into action when said fingers meet.

55. In combination with a typeway or channel *g*; a disk V movable across said channel and provided with openings *m'*; a ratchet wheel U fast to the disk; a dog *n'* adapted to engage and move said ratchet wheel; a pin or bolt u^3 movable to and from the path of the dog and adapted to hold the latter out of action; an electro-magnet for withdrawing the pin from the path of the dog; a feeler J' movable to and from the opening *m'* of the disk; and a circuit closer carried by said feeler and adapted to close the circuit when the feeler advances, and thereby to cause the withdrawal of the pin, the engagement of the dog, and the advance of the disk.

56. In combination with channel or typeway *g*, and disk V provided with ratchet wheel U; dog *n'* adapted to impart motion to the ratchet wheel, and provided with rib w^3; and pin or bolt u^3 movable into and from the path of said dog, and provided with groove v^3 to receive the rib w^3, substantially as and for the purpose set forth.

57. In combination with typeway or channel *g*, carrier G provided with arm *h*; carrier H' for delivering the type-holder N to the channel; and slide or bar I^3 arranged in the path of carrier H' and serving to arrest arm *h* of carrier G.

58. In combination with typeway or channel *g*, a plate, as V, movable across said typeway and provided with openings *m'*; a reservoir to contain type spaces; a guide B' extending from the reservoir to one of the openings *m'*; and a block or body *r'* placed in line with the mouth of guide B' but on the opposite side of plate V therefrom, to prevent the spaces passing through or beyond the plate.

59. The carrier G, comprising a guiding bar, a slide movable upon said bar; a rockshaft mounted in said slide and provided with arms *e, f*, and a spring *i* serving to turn said rockshaft in one direction.

60. In combination with channel or typeway *g*, a carrier G constructed substantially as shown and described, and a lever H and cam I for imparting a reciprocating motion to said carrier.

61. In combination with typeway or channel *g*, disk V provided with openings *m'*; ratchet wheel U connected with said disk; lever X, dog *n'* carried by said lever; spring Y attached to lever X; and cam or eccentric Z bearing upon the lever, all substantially as described and shown.

62. In a machine for justifyiug type, the combination with a typeway or channel *g*, of ratchet wheel U and disk V, lever X provided with dog *n'* and with adjustable plate *p'*, and cam or eccentric Z, arranged to bear upon said plate, substantially as and for the purpose explained.

63. In combination with channel or type way *g*, and disk V provided with openings *m'*; space reservoir C'; guide B'; follower *s'*; and means substantially such as shown and described for advancing the follower.

64. In combination with a typeway or channel *g*, a type holder movable along said channel and adapted to contain a line of type and to determine and limit its length; a bunter O' movable across the typeway and serving to remove type from the holder; a galley to receive the type; mechanism for actuating said bunter, and a clutch controlled by the type-holder and serving to start the bunter actuating mechanism when the holder comes directly opposite the receiving galley.

65. In combination with typeway or channel *g*, a holder N movable along said way, a galley or receiver N^{10} for the type, a bunter to deliver the type from the holder into the receiver, a cam or eccentric Q to move said bunter, a clutch m^3 to connect the cam or eccentric with a driving shaft, an electro-magnet R', to move said clutch, and a circuit closer located in the path of holder N and serving to complete the circuit of the electro-magnet when the holder comes opposite the galley or receiver.

66. In a type-justifying machine, the combination of a type-way or channel, a type-holder movable along said channel, a supporting way for the return of said holder, out of line with the typeway; a carrier for moving the holder from the typeway to the return-way, a second carrier for moving the holder from the return-way to the type-way, and automatic mechanism substantially such as described for imparting motion to the holder and the carriers.

67. The combination in a machine for justifying type, of a typeway or channel; two shafts in different planes, parallel with said channel; a type-holder movable along said channel and provided with devices to engage with said shaft; and shifting or transfer devices adapted to transfer the holders from one shaft to the other at each end of the line of travel.

68. In combination with a typeway or channel *g*, shafts C D; holder N provided with a yielding device to engage with one or the other of said shafts according to the position of the holder; a carrier H' for lowering the holder from shaft C to shaft D; a lifter T' to elevate the holder from shaft D to shaft C; and means substantially as described for imparting motion to said parts.

69. The herein described holder and gage for use in a type-justifying machine, consisting of a main frame provided with arms *p p*; a fixed leg *r*; a movable leg *v*; a spring *b'* tending to move leg *v* toward leg *r*; a notched bar *x*; a locking plate P provided with a finger to enter a notch of the bar *x*; levers *s s*; and spring *o*, combined as shown.

70. A holder or gage for use in a type-justifying machine, comprising the following elements in combination: a main frame provided with a fixed leg; a movable leg; a spring to cause the approach of said legs; and a locking device to hold the movable leg when moved a given distance from the fixed one.

71. The holder N, comprising a main frame; a fixed leg *v*; a sliding leg *r*; a reversible notched bar *x* movable with leg *r*; and a locking plate P, adapted to engage the notched bar, all substantially as shown and described.

72. In combination with the framework of a type-justifying machine provided with a guideway, a type-holder N provided with a head *q* to enter said guideway and direct the holder to the typeway or channel.

73. In combination with shaft C of a type-justifying machine a type-holder N provided with arms *p p*, and yielding arms or levers *s s* to clasp said shaft.

74. The combination of a typeway or channel, a detent adapted to enter said channel, a pin o^3 for holding back the detent, a type-holder having a depending leg *v* to enter the channel, and an inclined rib *d'* upon said leg, to move the pin o^3.

75. The combination with a typeway or channel, a detent adapted to enter the same, and a pin to hold said detent out of the channel, of a type-holder comprising a main frame, a fixed leg *r*, and movable leg *v* provided with inclined rib *d'*, and a locking plate P provided with an inclined face *e'*, substantially as and for the purpose explained.

76. In combination with the typeway or channel of a type-justifying machine, a type-holder provided with legs *v* and *r*, and with rollers in the lower ends of said legs to rest upon the bottom of the channel.

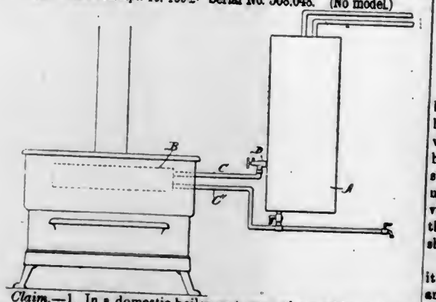
77. In a type-holder or gage for use in a type-justifying machine, the combination of a main frame provided with a fixed leg; a movable member provided also with a leg; a notched bar carried by the movable member; and a locking plate adapted to engage in a notch of said bar.

78. In a type-holder or gage for use in a type-justifying machine, the combination of a main frame provided with a rigid leg; a movable member provided also with a leg, a reversible bar carried by the movable member and provided with alternating notches in its opposite edges; and a locking plate adapted to engage with one or another of the notches when the legs are forced apart, substantially as described.

79. In combination with typeway or channel *g* and with feelers J' adapted to enter said typeway, stop pins o^3 provided with heads or enlargements and serving to hold back the feelers, and type-holder or gage N provided with inclined rib *d'*

80. In combination with typeway or channel *g*, a feeler J' adapted to enter said channel, a stop pin o^3 to prevent the forward movement of the feeler, and a type-holder N provided with inclined rib *d'* and inclined face *e'* respectively, serving to elevate and to depress the locking pin.

521,040. VALVE. GEORGE OLIVER, Chicago, Ill. Filed Feb. 27, 1893. Renewed Apr. 18, 1894. Serial No. 508,048. (No model.)

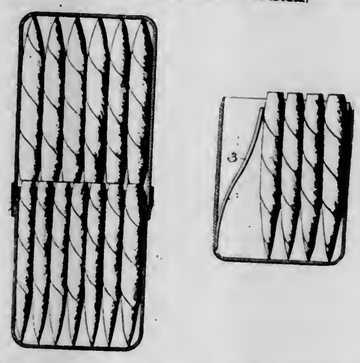


Claim.—1. In a domestic boiler or heater, the combination with a boiler or heater and water front, of a pipe leading from the water front to the boiler or heater, a valve in the pipe consisting of a casing having a valve seat at one end, a cylindrical chamber opposite thereto on the outside, a threaded valve stem having a valve on one end, a disk on its opposite end working in the chamber, apertures in the chamber, and a longitudinal groove in the stem extending part way the length thereof, substantially as described.

2. In a domestic boiler or heater, the combination with a boiler or heater and water-front, of a pipe C, a valve casing into which said pipe discharges having a seat at one end and an outer open ended chamber at the opposite end having ports therein, a threaded valve stem passing through the casing and chamber carrying a valve on its end beyond the casing and having a longitudinal groove therein extending part way its length only, and a flange adjustably held on the stem and working in the chamber, substantially as described.

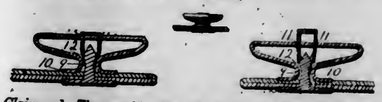
3. In a domestic boiler or heater, the combination with a boiler or heater and water-front, of a pipe C, a valve casing into which the said pipe discharges, having a seat at one end and an outer open chamber at the opposite end, having ports therein, a threaded valve stem passing through the casing and chamber, carrying a valve on its end beyond the casing and having a longitudinal groove therein, a flange on the stem working in the chamber and a nut on the stem for adjusting said flange, substantially as described.

521,041. CIGAR-PACKAGE. SIGMUND PHILIPSON, Austin, Tex. Filed Feb. 18, 1893. Serial No. 462,811. (No model.)



Claim.—The combination with the case or receptacle 1 made of thin sheet metal or the like and provided with a curved flat metal spring secured to the inner edge-wall near its closed end and extending to quite near the open end of said case or receptacle 1, of the case or receptacle 2 of slightly larger dimensions at its open end than case 1, and having a curved metal spring 3 secured to the inner face of one of its edge-walls near the closed end of case 2, and a revenue-stamp 4 affixed by pasting it around the overlapping ends of the cases 1 and 2 securing it to both cases so that the latter cannot be detached from each other without destroying the stamp which will be broken in a straight line so that the two cases when united may thereafter be used as an ordinary pocket cigar-case, as set forth.

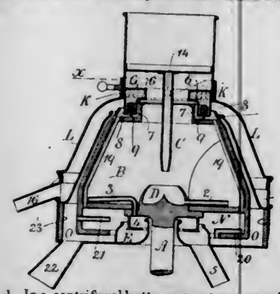
521,042. BUTTON. JOHN V. PILCHER, Louisville, Ky. Filed Apr. 4, 1894. Serial No. 506,282. (No model.)



Claim.—1. The combination of a button shank having a broad base at one end, pointed at the other end, and reduced in size in its body leaving a broader shoulder above; a button head provided with a broad base and a small neck and an opening up through the base, neck and top, the said opening through the neck being of a size to barely permit the passage of the shank shoulder and enlarged upward, and a key passing freely down through the head and provided with legs adapted to fit removably between the said neck of the button and body of the shank beneath the said shoulder of the shank, substantially as specified.

2. The combination of a button-head having an aperture through it; a shank having a shoulder nearly as large as the said aperture and fitted to pass through it; and a key provided with legs adapted to enter the aperture at the opposite side of the button beside the shank and beneath the shoulder, substantially as described.

521,043. CENTRIFUGAL BUTTER-EXTRACTOR. ANDERS PONTEN, New York, N. Y. Filed Sept. 22, 1893. Serial No. 486,203. (No model.)



Claim.—1. In a centrifugal butter extractor a centrifugal cream separating vessel mounted upon a vertical axis in combination with a stationary cooler having one or more annular surfaces concentric with the axis of the centrifugal separator and surrounding the cream discharge thereof and against which the cream is discharged centrifugally from the separator, and means for cooling the annular surface, substantially as set forth.

2. The combination in a centrifugal butter extractor of a cream separator and a cooler having one or more annular surfaces concentric with the axis of the centrifugal separator and surrounding the cream discharge thereof, pipes through which the cooling fluid is caused to flow into and through the cooler, and means for moving the cooler into and out of action, substantially as set forth.

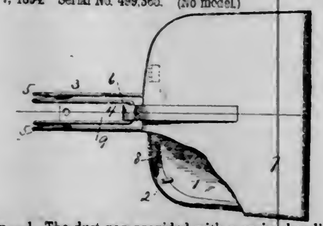
3. The combination in a centrifugal butter extractor, of a cream separating vessel having an annular discharge, a cooler against which the cream is received, an annular cup for the liquid dropping from the cooler, an annular chamber for the coalescing of the butter globules and a passage or pipe from the annular cup into such annular butter separating chamber, substantially as set forth.

4. The combination in a centrifugal butter extractor, of a cream separating vessel having an annular discharge, a cooler against which the cream is received, an annular cup for the liquid dropping from the cooler, an annular chamber for the coalescing of the butter globules and a passage or pipe from the annular cup into such annular butter separating chamber, and an annular receiving vessel around the butter separating chamber, substantially as set forth.

5. The combination in a centrifugal butter extractor of a cream separator, a cooler against which the cream is discharged from the centrifugal separator, an annular chamber for the coalescing of the butter globules connected to and revolving with the cream separator, a pipe leading the butter globules to the annular chamber, an annular receiver for the skim milk below and connected with the cream separator, and an annular vessel surrounding the same for the reception of the skim milk, and a discharge spout for the same, substantially as set forth.

6. The combination in a centrifugal butter extractor with a centrifugal cream separator, of an annular cooler upon the surface of which the cream is discharged when the cooler is lowered, means for raising the cooler, a cover and an annular cream receiver surrounding the centrifugal separator and into which the cream is discharged when the cooler is raised, substantially as set forth.

521,044. DUST-PAN. JAMES RENIKER, Dennison, Ohio. Filed Feb 7, 1894. Serial No. 499,365. (No model.)



Claim.—1. The dust pan provided with a spring handle formed of wire connected at one end to the pan and at the other end to a hinged lid or cover to the pan and at a point intermediate of said two ends made into a coil to constitute a spring, substantially as and for the purposes described.

2. The pan having a lid or cover hinged thereto and provided with an eye or loop at its rear in combination with a handle formed with a loop passing through the loop or eye of the lid and coiled at its rear to form a spring and connected at its forward end to the pan, substantially as and for the purposes described.

3. The combination with the pan and its hinged cover formed with an eye or loop, of the handle formed of wire passed through the loop of the lip and coiled to form a spring and connected to the pan, and the web connecting two parallel members or wires of the handle, substantially as and for the purposes described.

4. The dust pan provided with the feet or supports composed of wire passed through the bottom of the pan with a portion of the wire lying beneath the bottom and another portion lying above the bottom and against the rear of the pan to brace the same, substantially as and for the purposes described.

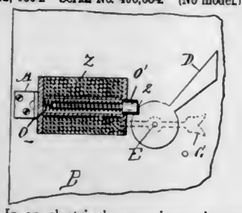
521,045. GATE-LATCH. GABRIEL ROHRBACH, Del Rio, Tex. Filed June 27, 1893. Serial No. 478,960. (No model.)



Claim.—1. The combination in a swinging gate, with the lock or keeper post, and a gate constructed to swing and having its latch end tilted vertically as it is swung, and a latch pivoted on the latch post of the gate, of a catch member on the keeper post, consisting of oppositely arranged pairs of converging flanges separated by slots and swinging detents at such slots, adapted to move away to admit the latch inward through the slots, but hold it from passing outward therethrough, all arranged substantially as shown, whereby the latch will be lifted out over the upper flange members of the catch when the gate is tilted and swung, and whereby the latch enters the slots at the slots as the gate closes, as set forth.

2. As an improvement in gate latches, the combination with the vertically movable latch post of a swinging gate having a pivoted latch, of a catch arranged to be engaged by the latch consisting of oppositely arranged pairs of converging flanges separated by slots to receive the latch, swinging detents pivoted inside the entrance slots, and a keeper disposed between the lower flanges all arranged substantially as shown, whereby the latch will be held from passing back through the slots and whereby it is lifted up over the upper flanges to be disengaged as the latch post is elevated and swung laterally, as set forth.

521,046. ELECTRICAL ANNUNCIATOR. FREDERICK W. ROSS, Boston, Mass., assignor to the Electric Gas Lighting Company, of Maine. Filed Jan. 12, 1894. Serial No. 496,634. (No model.)

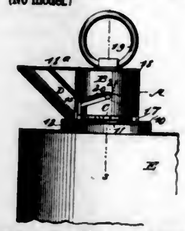


Claim.—1. In an electrical annunciator, the combination of a single helix horizontally attached to the face-plate; a horizontal movable armature core of said helix; and means normally operating to hold said core partially beyond said helix; a tripping lever with ends of unequal weight and provided at one end with a ratchet; an index-spindle supported outside of said magnet, and one end carrying said tripping lever; an index-finger upon the opposite end of said index-spindle a sleeve or support for said index spindle; all so combined that electrically energizing said helix will draw said core farther within the same and will release the tripping lever; substantially as described.

2. In an electrical annunciator, a single helix having a sliding armature-core and mounted horizontally upon the face-plate; a device for holding said core normally beyond said helix; an unequally balanced lever carried upon a spindle, and having a ratchet adapting it to be tripped by said core; a sleeve, outside of said helix, and attached to the face-plate and a spindle within the same, one end carrying said lever; an index finger carried upon the opposite end of said spindle; all substantially as described.

3. In an electrical annunciator, the combination of a horizontal magnet and a core movable therein, and means for normally holding said core beyond said magnet, an unequally weighted lever upon the opposite side of the magnet from the index-finger, and adapted to be normally retained by means of said core; an index-finger and a spindle properly mounted outside of said horizontal magnet, and serving to both carry said index-finger and said lever upon its opposite ends, all substantially as described.

521,047. STOPPER. MAX RUBIN, New York, assignor to the Automatic Faucet Company, Brooklyn, N. Y. Filed Jan. 9, 1894. Serial No. 496,245. (No model.)

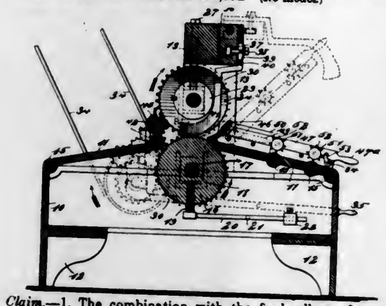


Claim.—1. A stopper, comprising a shell having an inlet in its bottom and provided with a spout leading from one side near the bottom, and a plug valve having a closed lower end and fitted to travel up and down in the shell, said valve being provided at its upper end with a lip adapted to close over the outer end of the spout, when the valve is seated in the shell, to close the inlet thereof and the delivery end of the spout, substantially as described.

2. A stopper, the same consisting of a shell provided with an air vent, a base, an inlet in said base, and a spout adjacent to said base, and a barrel fitted to turn in the shell, provided with a lip adapted to cover the spout, and spiral grooves in opposite faces, lugs located upon the shell, entering the said grooves in the barrel, and a facing of yielding material secured to said barrel and adapted to close the inlet in the base, the lip being so located upon the barrel that when the yielding surface thereof closes the inlet of the shell, the lip will close said spout, substantially as described.

3. A stopper, the same consisting of a shell provided with an air vent, a base, and an inlet in said base also provided with a spout adjacent to said inlet, and a barrel fitted to turn in the shell, provided with a lip adapted to cover the spout, and spiral grooves in opposite faces, provided with branches extending to one edge, lugs located upon the shell, entering the said grooves and capable of traveling in the branches thereof, and a yielding material secured in the bottom of the barrel, adapted to close the inlet in the base of the shell, said lip being so located upon the barrel that when the yielding surface thereof closes the inlet of the shell the lip will close said spout, and whereby also when the barrel is raised the spout and inlet of the shell will be in communication, and whereby further the barrel may be removed from the shell, as specified.

521,048. LEATHER-STRIPPING MACHINE. MICHAEL J. RYAN, New Orleans, La., assignor to himself and James F. Kelly, same place. Filed Jan. 24, 1894. Serial No. 497,864. (No model.)



Claim.—1. The combination with the feed rollers, of movable boxes in which one of the said rollers is journaled, frames in which the said boxes have sliding movement, levers on which the said frames rest, springs interposed between the boxes and the frames, and adjustable weights held on the said levers, as and for the purpose set forth.

2. The combination with the upper feed roller and the lower feed roller having a guide flange, of a vertically swinging knife arranged essentially in the plane of the said guide flange of the roller, substantially as described.

3. A leather stripping machine, comprising a pair of feed rollers, the upper roller having projecting bearing faces, a swinging bar mounted above the upper roller, and a plurality of laterally adjustable knives secured to the said bar and projecting downward between the bearing faces of the upper roller, substantially as described.

4. A leather stripping machine, comprising a pair of feed rollers, the upper roller having a plurality of spaced collars thereon, a swinging knife bar above the upper roller, the knife bar having gage marks upon it, and a series of laterally adjustable knives secured to the knife bar and extending downward between the collars of the upper feed rollers, substantially as described.

5. A leather stripping machine, comprising a table, an arm extending across the table top, and open on one side, a roller mounted in the table top, a second roller mounted above the first and provided with a plurality of spaced collars, a knife bar hung above the upper roller, and a series of knives carried by the knife bar and projecting downward between the collars of the upper roller, substantially as described.

6. The combination, with the table top and the feed rollers mounted thereon, of the supplemental feed rollers arranged behind the main feed rollers, the knives held in grooves in the upper roller, and the presser bar pivoted in front of the main feed rollers, substantially as described.

7. In a leather stripping machine, the combination with the table and the feed rollers thereon, of the vertically swinging knife arranged at right angles to the main feed rollers and near one edge of the table, substantially as described.

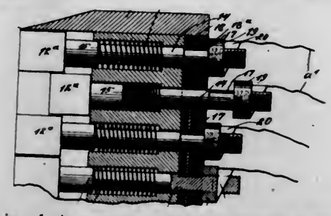
8. The combination, with the feed rollers, and the table, of the vertically swinging knife on the table top, and the spur rollers journaled on the inner side of the knife, substantially as described.

9. The combination, with the table and the feed rollers, of the vertically swinging straightening knife, and the presser foot on one side of the knife, substantially as described.

10. The combination, with the table, and the feed rollers, of the vertically swinging knife having a sharpened lower and front edge, the knife being longitudinally movable on its pivot, substantially as described.

11. The combination, with the frame of the machine and the feed roller arranged therein, of a bar pivoted to the frame and extending longitudinally of the roller, and knives secured to the said pivoted bar and adapted to project adjacent to the feed roller, substantially as described.

521,049. TARGET AND INDICATOR. CHARLES SCHIFFERDECKER, Fort Assiniboine, Mont. Filed Sept. 20, 1893. Serial No. 485,960. (No model.)



Claim.—1. An apparatus of the kind described, comprising a target made up of sections each of which is provided with inwardly movable buttons the shanks whereof have each partly conducting and partly non-conducting surfaces, a conducting plate through which the said shanks slide, an indicating dial having a plurality of indicating devices corresponding to the several target sections, electrically actuated mechanism for operating the said indicating devices, and circuit-closing devices for said mechanism, operated by the depression of the target buttons and by the conducting surface of the said buttons coming in contact with the said conducting plate, substantially as specified.

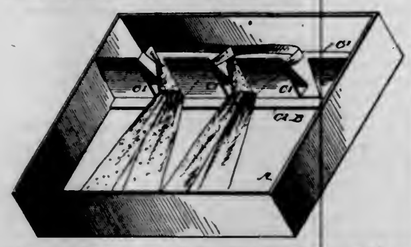
2. An apparatus of the kind described, comprising a target made up of sections, each section of which is provided with inwardly movable buttons, and an indicator having a dial face divided into sections corresponding with those of the target, spring-pressed pointers adapted to protrude through the faces of the dial sections, electrically-operated mechanism for releasing the pointers, and circuit-closing devices for said mechanism, operated by the depression of one of the target buttons, substantially as specified.

3. The combination, with the indicating dial provided with pointers and electrically-operated means of displaying them, of the target buttons having rearwardly-extending shanks, a conducting plate through which the shanks of the target buttons slide, insulating sleeves on the shanks of the target buttons, adapted to lie normally opposite the conducting plate, and electrical connections between the conducting plate, the button shanks, and the indicating mechanism, substantially as specified.

4. In an apparatus of the kind described, the combination with the indicating dial, of a slidable pointer adapted to move through the face of the dial, means, as a spring, for throwing the pointer outward, a catch for holding the pointer against the tension of the spring, and an electro-magnet for releasing the catch, substantially as specified.

5. The combination, with the perforated dial of the indicator, of spring-pressed plungers arranged behind the perforations and provided with pointers to slide through the said perforations, lugs on the plungers, swinging levers to engage the said lugs, and electro-magnets for tilting and raising the levers, substantially as specified.

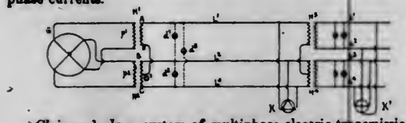
521,050. DISPLAY-BOX. NICHOLAS SCHRODER, New York, N. Y. Filed Oct. 9, 1893. Serial No. 487,606. (No model.)



Claim.—A paper box provided with a holder, comprising flanges adapted to be secured to the bottom of the box, triangular projections extending between the flanges and forming notches for the reception of the article, and tongues extending from one of the flanges to abut the opposite flange at the inner edge thereof, substantially as shown and described.

521,051. SYSTEM OF ELECTRICAL DISTRIBUTION BY ALTERNATING CURRENTS. CHARLES F. SCOTT, Pittsburg, Pa. Filed Feb. 28, 1894. Serial No. 501,565. (No model.)

Brief.—Generates two-phase currents, transforms to three-phase, transmits as three-phase, transforms to two-phase, and utilizes as two-phase currents.



Claim.—1. In a system of multiphase electric transmission, the combination of a source of multiphase currents having a given number of phases, a main line system of conductors, a system of phase transformers at or near the source for receiving the multiphase currents and delivering to the main line system currents having a greater number of phases than received from the source, a system of consumption circuits, and phase transformers at the terminal of the main-line system delivering to said consumption circuits multiphase currents of a smaller number of phases than that of the main line currents.

2. An apparatus for the transformation of two phase alternating currents to three-phase alternating currents or vice versa, consisting of the combination of two alternating current transformers, the ratio of the length of a coil of one transformer to the length of the corresponding coil of the other transformer being approximately that of one to one-half the square root of three, and electrical connections from one terminal of the shorter of said coils to approximately the middle point of the other of said coils.

3. The combination of two alternating current transformers, the ratio of the length of one coil of one transformer to the length of the corresponding coil of the other transformer being approximately that of one to one half the square root of three, electrical connections from one terminal of the shorter of said coils to approximately the middle point of the other of said coils, and a system of electrical conductors for conveying three-phase currents connected with the remaining terminals of said coils and a system of electrical conductors for conveying two-phase currents connected with the terminals of the other coils of said transformers.

4. In an apparatus for the transformation of multiphase alternating currents, the combination of two alternating current transformers, with a connection from one end of one coil of one transformer with approximately the middle point of a coil of the other transformer.

5. An apparatus for transforming multiphase alternating currents in which the different currents bear a symmetrical phase relation to one another into a second system of multiphase alternating currents in which the phases are symmetrically related, which consists of two transformers, one coil or a portion thereof of one transformer being connected to an intermediate point in a coil of the second transformer and a connection from one terminal of the secondary coil of one of said transformers with an intermediate point in the secondary coil of the other transformer.

6. The combination of two alternating current transformers, a source of two alternating currents differing in phase ninety degrees, connections therefrom with the primary coils of said transformers, and a connection from one terminal of the secondary coil of one of said transformers with an intermediate point in the secondary coil of the other transformer, and an electrical connection with the shorter coil at a point approximately two-thirds from its free end.

7. The combination of two alternating current transformers having primaries of equal length, a source of alternating currents of equal potential differing in phase ninety degrees, connections therefrom with said primary coils, a connection from one terminal of the secondary coil of one of said transformers with an intermediate point in the secondary coil of the other transformer, and an electrical connection with the shorter coil at a point approximately two-thirds from its free end.

8. The method of transmission of electric energy to a distance by multiphase alternating currents, which consists in producing two-phase alternating currents, transforming the same into three-phase alternating currents, transmitting the three-phase currents to a distance and at the distant point retransforming the three-phase currents into two-phase alternating currents.

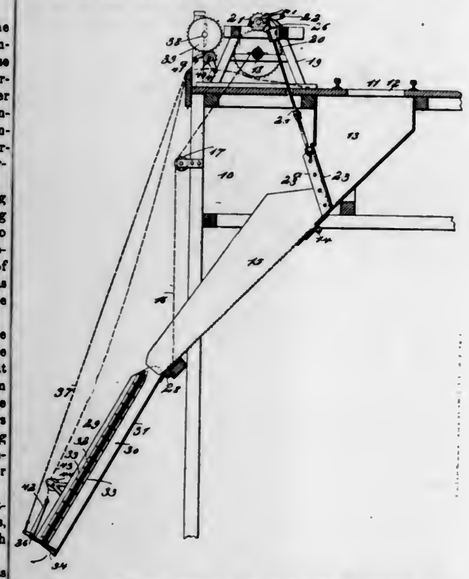
9. The hereinbefore described method of transmission to, and utilization of, electric energy at a distance from its point of generation, by means of multiphase alternating currents, which consists in generating two-phase alternating currents, transforming the same into three phase alternating currents and transmitting the energy in the form of three-phase currents to a distance and there utilizing the energy thus transmitted

10. The method of transmitting electric energy required for operating multiphase apparatus by alternating currents having two phases, which consists in transmitting three-phase alternating currents to a distance, transforming the same into two-phase alternating currents, and utilizing such transformed currents.

11. The hereinbefore described method of multiphase alternating current distribution which consists in generating alternating currents of a given number of phases, transforming the same into alternating currents of a greater number of phases, transmitting the alternating currents thus produced and utilizing such currents.

12. The hereinbefore described method of multiphase distribution which consists in generating alternating currents of a given number of phases, increasing the potential of the currents thus generated and at the same time transforming the currents into alternating currents of a greater number of phases and transmitting the latter currents.

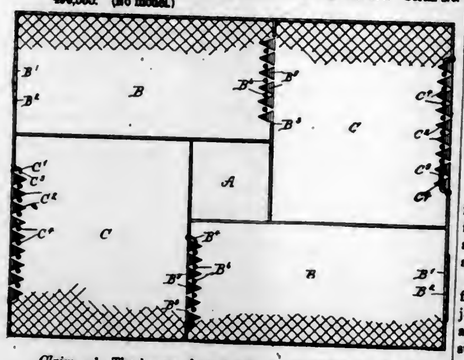
521,052. COAL-CHUTE. JOHN SCULLY, South Amboy, N. J. Filed Dec. 14, 1893. Serial No. 493,646. (No model.)



Claim.—1. The combination of the hopper, the slidable gate, and the screw shaft and nut for positively adjusting the gate, the fixed chute having a screen bottom and arranged below said gate, the lower or swinging chute hinged to the other and closed on four sides, an adjustable gate attached to the lower end of the lower chute, and means for opening and closing it, as shown and described.

2. The combination with a hopper of the swinging chute having open ends, and side pieces having lengthwise grooves, slidable and removable cross plates held in said grooves, and a gate attached to the lower end of said chute and means for adjusting the gate to open or close it, as shown and described.

521,053. FISH-TRAP. WILLIAM SEATON, Greenfield, assignor of one-half to I. R. Cole, Harrisburg, Ark. Filed Jan. 11, 1894. Serial No. 496,535. (No model.)



Claim.—1. The herein described trap, consisting of the central arranged square bait box, the corner square compartments having the openings, the inward swinging rods arranged in said openings, the guards secured at the lower ends of the rods and the oblong corner compartments each having an outlet opening, the whole trap being of rectangular shape.

2. A fish trap consisting of the central or bait compartment, the compartment surrounding the bait compartment and having openings or passages, the plates secured in the passages of the compartments having the inturned barbed or pointed lips, the inward swinging rods in the passages above said plates and the bars secured to the said plates and rods; the whole forming a barrier to prevent the fish from passing out from the trap.

521,054. SMOKE-ARRESTER. WILLIAM P. SHANK, Cairo, Ill. Filed June 21, 1893. Serial No. 478,314. (No model.)



Claim.—1. In an apparatus substantially as described the combination of the water tank, the collecting chamber the nozzles leading from such chamber to the tank and blast devices discharging into said tank whereby to force the soot &c. therefrom, substantially as set forth.

2. An apparatus substantially as described comprising the water tank and the nozzles opening below the surface of the water and having contracted discharge openings substantially as set forth.

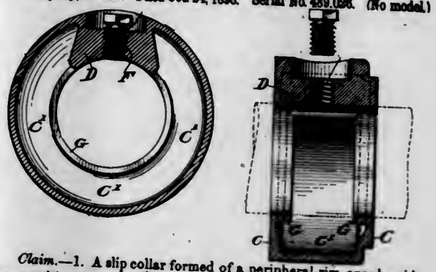
3. In an apparatus substantially as described, the combination of the tank and means whereby the smoke &c. is discharged thereinto, said tank having an outlet for the soot &c., and blast devices discharging into the said tank such devices being arranged relative to said outlet substantially as described and adapted to force the soot &c. therefrom all substantially as set forth.

4. In an apparatus substantially as described, the combination with the tank having an outlet at or about its water level, and a blast inlet opposite said outlet, blast devices communicating with said inlet and devices conducting the smoke &c. to such tank all substantially as and for the purposes set forth.

5. In a smoke arrester the combination of the receiving chamber, having the nozzles, the water tank into which said nozzles discharge, said tank having a blast inlet and and an outlet opposite the same, the tube or flue leading to the receiving chamber and means for creating a blast therein substantially as set forth.

6. The improved smoke arrester consisting of the water tank having a blast inlet at one end and an outlet at the other end, the receiving chamber having its nozzles extending into and discharging below the water level in the tank, the stop plate or board arranged in the tank above the discharge of the nozzles, the flue leading to the receiving chamber and the blower by which to create the blast in said flue substantially as set forth.

521,055. SLIP-COLLAR FOR PULLEYS, SHAFTS, &c. CHARLES W. SHARTLE, Middletown, Ohio, assignor to the Middletown Machine Company, of Ohio. Filed Oct. 24, 1893. Serial No. 489,026. (No model.)



Claim.—1. A slip collar formed of a peripheral rim, annular side flanges with a space between the same, a head projecting inwardly from the rim and joining the adjacent portions of the side flanges, and a set screw in said head, said side flanges joining the peripheral rim, substantially as described.

2. A slip collar consisting of a peripheral rim having annular side flanges with projections on the inner portions of the same, a head projecting inwardly from said rim, and having a radial opening therein, and a screw working in said opening, said parts being combined substantially as described

3. A slip collar formed of a split peripheral rim, split annular flanges at the sides thereof, a head projecting forwardly from the rim and joining the adjacent portions of the side flanges, and a set screw in said head, said side flanges joining the peripheral rim and forming a bearing for the hub or shaft, to which the collar is applied, substantially as described.

521,056. CLEAT. JOHN C. STEELMAN, Linwood, N. J. Filed Mar. 3, 1894. Serial No. 502,215. (No model.)



Claim.—1. As an improved article of manufacture, a clamp, the same consisting of a body provided with a recess or mouth in one of its ends, the said recess or mouth being provided with an inclined lower roughened wall, and a jaw eccentrically pivoted within the said mouth or recess, provided with a concaved, ribbed lower face, as and for the purpose specified.

2. A cleat, the same consisting of a body or block provided with a mouth or recess in one of its ends, the bottom wall of which is inclined and roughened, and a block-like jaw pivotally and eccentrically located within the said mouth or recess, the lower face of which block-like jaw is concaved and roughened, as and for the purpose specified.

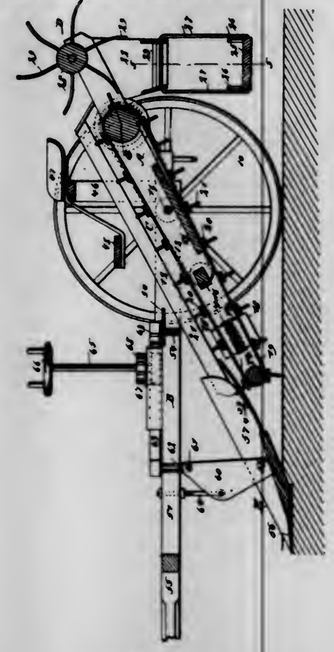
3. A cleat, the same consisting of a body block provided with a recess or mouth in one of its ends, having a downwardly and outwardly inclined roughened lower wall and provided with upper side ears, and a jaw of block-like character, eccentrically pivoted between the ears of the said mouth or recess, the lower face of the said jaw being concaved and roughened and its lower edge shaped to admit of the jaw rocking in an outwardly direction, as and for the purpose specified.

521,057. POTATO-DIGGER. NATHAN STURDY, Chicago, Ill. Filed July 11, 1893. Serial No. 480,120. (No model.)

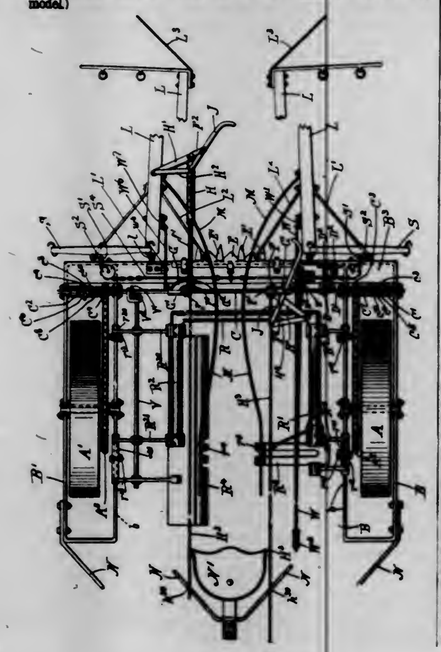
Claim.—1. In a potato digger, an endless elevator, a driving mechanism connected with the elevator, revolving the same, and a reciprocating mechanism, the same consisting of a slide having movement near one of the stretches of the elevator, and offsets, which are adapted for alternate engagement with opposite sides of the elevator, substantially as and for the purpose specified.

2. In a potato digger, the combination, with a shovel having a pivotal and adjustable support, and endless elevator belt held to revolve at the rear of the shovel, and a shaker bar passed between the stretches of the elevator belt, said bar being provided with flanges adapted for engagement with opposite sides of the belt, a driving mechanism connected with the elevator, and a reciprocating mechanism connected with the said driving mechanism and the shaker bar, of a cleaning wheel located at the rear of the elevator, provided with arms adapted to revolve in close relation to the elevator, and a trough located beneath the cleaning wheel, adapted to receive the potatoes, substantially as shown and described.

3. In a potato-digger, the combination of the horizontally sliding rack, 63, and a shaft, and pinion, 67, with the shovel, 57, the vertical, pivoted, shovel supports, 60, and elevator, and elevator frame, as shown and described for the purpose specified.



521,058. CORN-HARVESTER. NASON M. TURNEY and GEORGE W. HARRISON, Piano, Ill. Filed Mar. 18, 1893. Serial No. 466,673. (No model.)



Claim.—1. In combination with a main frame having two traction wheels which support it and a sickle located between the paths of the wheels, a divided or double tongue whose members are hinged respectively at opposite sides of the path of the sickle; the rock shaft extending transversely behind the sickle and below the plane of the cut having lever arms at opposite sides of the path of the sickle; and links from said lever arms extending upward and levers fulcrumed on the frame outside the path of the sickle to which said links respectively are connected, and links from said levers to the two tongues respectively; one of said levers being extended rearwardly to form an operating handle to tilt the machine: substantially as set forth.

2. In a corn harvester, in combination with the main frame and the sickle supported thereon and located at the forward part thereof; a binder having its frame supported on the main frame and having its operating shafts extending fore-and-aft in vertical planes at opposite sides of the sickle's path: substantially as set forth.

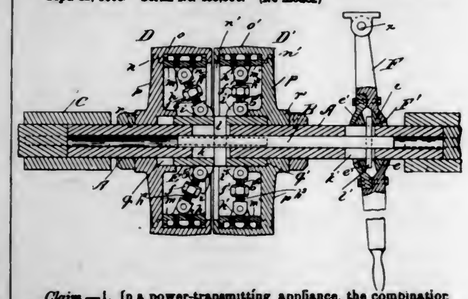
3. In combination with the main frame having two carrying wheels and a sickle located at the forward part between the paths of said wheels; a binder located between the wheels having its operating shafts extending fore-and-aft at opposite sides of the sickle's path: substantially as set forth.

4. In combination with the main frame bifurcated and rearwardly open and traction wheels in its two laterally separated members and a sickle located in front of the interval between them; a binder having its operating shafts extending fore-and-aft at opposite sides of the sickle's path between the two members of the bifurcated main frame; whereby the cut corn may pass directly rearward from the sickle to and through the binder between its said operating shafts to the ground: substantially as set forth.

5. In combination with a main frame having two carrying wheels and a sickle at the forward part between the paths of the wheels, a rearwardly open binder frame having its operating shafts extending fore-and-aft at opposite sides of the path of the sickle, and its connecting trunk extended across the sickle's path behind the same: substantially as set forth.

6. In combination with the main frame having two lateral members and traction wheels in them respectively and the sickle located between the paths of the wheels at the front of the frame, a U-shaped binder frame having the trunk which connects its parallel arms extending across the sickle's path behind the same, and said parallel arms and its operating shafts extending fore-and-aft at opposite sides of the path of the sickle; said frame having its said arms provided respectively with slide-bearings on the opposite members of the main frame: substantially as set forth.

521,059. CLUTCH. THOMAS J. THORP, Forest Grove, Oreg. Filed Sept. 12, 1893. Serial No. 485,336. (No model.)



Claim.—1. In a power-transmitting appliance, the combination with a rotary shaft to be driven, of a rotary head having a hub confined against longitudinal movement on but loosely surrounding the shaft and provided with an annular recess in one end, an annular rim surrounding the hub, a shoe confined in said rim, a supplemental hub confined on the shaft to rotate with it but to permit longitudinal reciprocation thereon in said annular recess and a turn-buckle pivotally connected at its opposite ends, respectively, with the shoe and and supplemental hub, substantially as and for the purpose set forth.

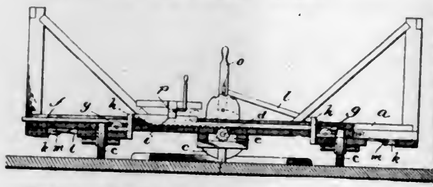
2. In a power transmitting appliance, the combination with a hollow rotary shaft to be driven, of a reciprocable rod in the shaft, a rotary head having a hub confined against longitudinal movement on but loosely surrounding the shaft and provided with an annular recess in one end, an annular laterally flanged rim surrounding the hub, a shoe confined between the flanges in the rim, a supplemental hub keyed to the shaft and said rod to rotate with them but to permit longitudinal reciprocation of the supplemental hub and rod, a turn-buckle pivotally connected at its opposite ends, respectively, with the shoe and supplemental hub, and an operating lever connected with said rod, substantially as and for the purpose set forth.

3. In a power-transmitting appliance, the combination of a rotary-head normally confined loosely on a rotary hollow shaft and provided with an annular rim, a shoe confined on the rim, shiftable tightening means connecting the shoe with the shaft, a reciprocable rod in the shaft and keyed thereto to rotate with it and engaging said tightening means and a lever F having a housing F' at which it surrounds the shaft and containing the annular blocks e and e', and a key f' in the housing between said blocks and passing transversely through a slot k' in the shaft to engage the said rod therewith, substantially as described.

4. In a power-transmitting appliance, the combination with a rotary shaft to be driven, of a pair of rotary heads each having a hub confined against longitudinal movement on but loosely surrounding the shaft, each hub having an annular recess in its inner end an annular circumferential flanged rim and a shoe confined on the rim, a supplemental hub confined on the shaft to rotate with it but to permit longitudinal reciprocation thereon in said annular recess, and tightening means for each shoe, reversely arranged for the respective heads, and comprising a turn-buckle pivotally connected at its opposite ends, respectively, with the shoe and supplemental hub, substantially as and for the purpose set forth.

5. In a power-transmitting appliance, the combination with a hollow rotary shaft to be driven, of a reciprocable rod B in the shaft, rotary annular heads D and D' normally confined on the shaft loosely, shoes m and m' confined in the heads, a supplemental hub E keyed to the rod through the shaft to permit with the rod its longitudinal reciprocating movement, turn-buckles pivotally connecting the shoes with the supplemental hub and arranged, with relation to the respective heads, to assume differential positions, as described, in each by movement of the supplemental hub in either direction, and a lever F having a housing F' at which it surrounds the shaft and containing the annular blocks e and e', and a key f' in the housing between said blocks and passing transversely through the rod B and through a slot k' in the shaft, the whole being constructed and arranged to operate substantially as described.

521,060. TURN-TABLE. JOSEPH B. TINSLEY, Anthony, Kans. Filed Nov. 3, 1893. Serial No. 489,922. (No model.)



Claim.—1. A turn-table having a longitudinally movable rack-bar adapted to be moved by the locomotive entering the turntable and geared to the driving mechanism of the turn table to operate the same, substantially as described.

2. A turn table provided with a longitudinally movable bar adapted to be moved longitudinally by a locomotive entering the table and connected with the driving mechanism of the table to revolve the table by the movement of the locomotive, substantially as described.

3. A turn table having its main drive shaft provided with a pinion and a longitudinally movable rack-bar gearing with said pinion and arranged to be engaged and moved longitudinally by means carried by the locomotive, substantially as described.

4. A turn table having its main drive shaft provided with a pinion, the longitudinally sliding rack-bar on said turn table meshing with said pinion the supporting pulleys and guides for said rack-bar, said rack-bar having an elevated portion provided with the notch arranged to receive means carried by the locomotive so as to move the rack bar as the locomotive enters the turn table substantially as described.

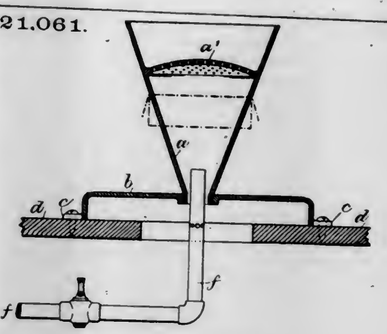
5. A locomotive provided with vertically movable means arranged to engage the notch of the rack-bar on the turn table, and means for operating said engaging means, substantially as described

521,061. DEVICE FOR SHAPING FOLDS OF LINEN COLLARS. ANTHONY C. VAIL, Plainfield, N. J. Filed Apr. 16, 1894. Serial No. 507,623. (No model.)

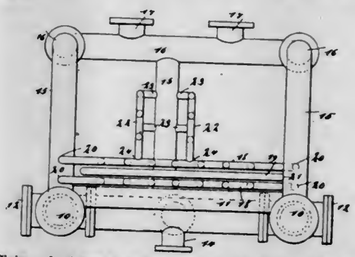
Claim.—1. The combination with a base, of an inverted hollow open ended cone of metal connected to and rising from said base, and a gas burner rising within said cone, substantially as set forth.

2. The combination with a base, of an inverted hollow open ended cone of metal having a perforated diaphragm extending across with in the same, the said cone being connected to said base at its lower end and rising therefrom, and a gas burner entering the open lower end, substantially as set forth.

521,061.



521,062. STEAM-GENERATOR. CHARLES W. VANDERBURGH, Wellington, Canada. Filed July 12, 1893. Serial No. 480,245. (No model.)



Claim.—1. A steam generator comprising a plurality of connected water or mud drums forming the base of the generator and arranged on three sides thereof, a dry steam pipe supported at the top of the generator and extending around the same sides being arranged above and parallel with the said drums, water pipes arranged on three sides of the generator and extending vertically from the drums to the steam-pipe and connecting the same, a feed water inlet in one of the drums, a steam outlet from the steam pipe, a plurality of generating coils extending across the generator and arranged one above the other in a horizontal plane, each of the coils connecting with vertical water pipes on three sides of the generator, and intermediate generating coils connecting with vertical water pipes on two opposite sides of the generator, substantially as described.

2. A steam generator, comprising a plurality of water or mud drums forming the base of the generator and arranged on three sides thereof, one of the drums having a suitable feed water inlet and an outlet, a steam pipe arranged at the top of the generator and extending around three sides of the same, vertical pipes arranged on three sides of the generator and connecting the steam pipes and water drums, horizontal coils of pipes connected with the vertical pipes on three sides of the generator and extending transversely across the generator, intermediate coils connecting with the vertical pipes on opposite sides of the generator and dry steam coils arranged vertically above the horizontal coils and connected with the upper horizontal coil and also with one of the vertical pipes, substantially as described.

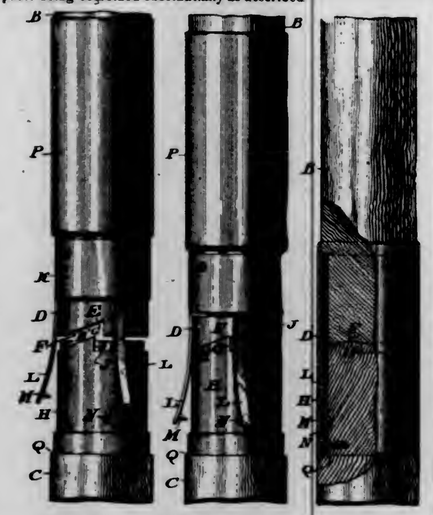
521,063. FLAGSTAFF-COUPLING. HERMANN WETTSTEIN and CARL RÖDMANN, Philadelphia, Pa. Filed Jan. 8, 1894. Serial No. 496,060. (No model.)

Claim.—1. A coupling for a sectional flag staff, consisting of two interlocking collars adapted to be secured to adjacent ends of the sections of the staff, a catch secured to one of the collars and adapted to engage with the other collar, and a sliding sleeve movable on one of said sections and adapted to close said catch, said parts being combined substantially as described.

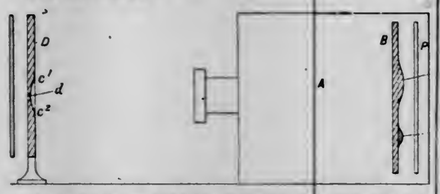
2. A staff, &c., formed in sections, with collars on the ends thereof, a catch on one collar adapted to interlock with the other collar, and a sleeve adapted to embrace said collars and catch, one of the collars having an angular recess which receives a projecting tongue on the other section the parts named being combined substantially as described.

3. A staff formed in sections, one of which has the shoulder Q thereon, the collars K and H secured to said sections one of said collars having a recess in its side, and the other having a tongue engaging in said recess, a catch secured to one of said collars and provided

with a stud entering an opening in the other collar, and a locking sleeve operating said catch, and adapted to rest on said shoulder, said parts being combined substantially as described.



521,064. METHOD OF AND LENS FOR MAKING PHOTOGRAPHS. HENRY V. WEYDE, London, England. Filed May 2, 1893. Serial No. 472,712. Specimens. Patented in France July 29, 1892, No. 223,317; in Belgium July 29, 1892, No. 100,732, and in Italy Sept. 30, 1892, XXVI, 3,246, and LXIII, 468.

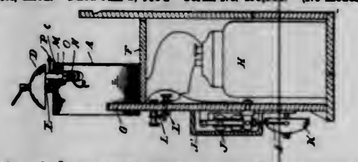


Claim.—1. The method herein described of varying the size or proportions of a part of a photographic picture without distorting or changing the rest, which consists in changing the focus of the rays upon that portion of the photographic field to be modified, preserving the focal length of rays of the other parts of the field, and causing the rays of different focus to gradually flow or merge into each other without any separating line of demarcation between the same, substantially as shown and described.

2. A photographic lens having a plane field with a portion thereof formed to a special focal curve running into the plane field gradually and without any angular line of demarcation between the two, substantially as shown and described.

3. A photographic lens constructed as a flat plane upon one side and with its other side a compound curve partly convex and partly concave, the one gradually merging into the other without angular line of demarcation, substantially as shown and described.

521,065. ELECTRIC ALARM-CLOCK. JOHN S. WHITEHEAD, Detroit, Mich. Filed Jan. 2, 1894. Serial No. 495,388. (No model.)



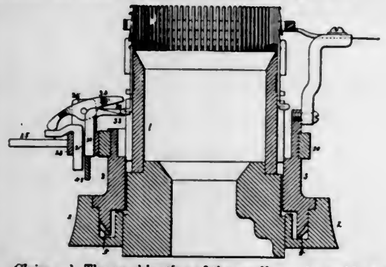
Claim.—1. In an electric alarm apparatus, the combination with an ordinary alarm clock provided with an arm upon the winding arbor of its alarm mechanism, of a battery circuit including an electric alarm, and a circuit closing device in said circuit comprising two self closing contacts adapted to form an electric continuation of the circuit, an insulating lever adapted to engage between the contacts to hold the same apart in one of its positions and a second lever adapted to move said insulating lever out of this position upon the operation of the clock alarm, substantially as described.

2. In an electric alarm apparatus, the combination with an ordinary alarm clock provided with an arm upon the winding arbor of its alarm mechanism, of a battery circuit including an electric alarm, and a circuit closing device comprising the contacts M M' adapted to form a self-closing break in the circuit, the insulating strip O interposed between said contacts and the clock casing, the insulating lever P fulcrumed upon the clock casing and adapted to be moved between the contacts to hold them apart and the lever Q adapted to move said insulating lever out of said position by having one arm in the path of the arm on the winding arbor of the clock alarm and the other arm connected to the insulating lever, substantially as described.

3. In an electric alarm apparatus, the combination with an ordinary alarm clock provided with an alarm bell mounted upon a post on top of the clock casing and with an arm on the winding arbor of the clock alarm, of a battery circuit including an electric alarm and a circuit closing device comprising a fixed contact M and a contact spring M' mounted upon the top of the clock casing and having overlapping ends adapted to form a self closing electrical section of the circuit, the insulating strip O interposed between the contacts and the clock casing, the binding posts N N' connecting the battery circuit with said contacts, the insulating lever P fulcrumed upon the supporting post of the clock alarm, the spring E' upon said post and the lever Q pivotally secured upon the back of the clock casing and carrying the insulating lever, said lever being adapted to be actuated by the arm on the winding arbor of the clock alarm, substantially as described.

521,066. KNITTING-MACHINE. LOUIS N. D. WILLIAMS, Philadelphia, Pa., assignor of one-half to Robert W. Scott, same place. Filed Aug. 31, 1893. Serial No. 484,445. (No model.)

Brief.—The pickers 30 31 are mounted on a ring 20 having frictional connection with the cam-box, so that ordinarily the ring rotates with the cam-box, but when the shoulder of the picker 30 comes in contact with the heel of a needle the rotation of the ring stops. The pickers are operated by the vibrating plates 41, 42, 43, the plate 43 being moved inward and outward by the cam 49, so as to operate either the raising picker 30 or the depressing picker 31.



Claim.—1. The combination of the needle carrier and its needles, a cam box, a plate frictionally mounted upon said cam box, pickers carried by said plate and adapted to be stopped by contact with the needles, and means for operating said pickers, so as to throw the needles into and out of operative position, substantially as specified.

2. The combination of the needle carrier and its needles having bits, a cam box, pickers, one consisting of a shouldered lifter and the other of a depressor above the center of said lifter, a carrier for said pickers having a frictional connection with the cam box, whereby said pickers may be stopped by contact with the bits of the needles, and means for moving the pickers in line with the movement of the needles, substantially as specified.

3. The combination of the needle carrier and its needles having bits, a cam box, a pair of pickers comprising a lifter and a depressor, each adapted to act upon the bits of the needles, a carrier having a frictional connection with the cam box whereby said pickers are carried across the needles until stopped by contact of one of the pickers with a needle bit, means for moving the pickers in line with the movement of the needles, and means for moving them laterally toward and from the needle bits so as to throw them into and out of action, substantially as specified.

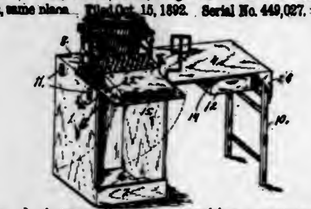
4. The combination of the needle carrier and its needles, a cam box, a pair of pickers adapted to be stopped by contact with the needles, a carrier for said pickers, having a frictional connection with the cam box lifter plates whereby the pickers are operated at each end of the travel of their carrier, and means for vibrating said lifter plates, substantially as specified.

5. The combination of the needle cylinder and its needles, a cam box, a friction ring mounted on said box, a pair of pickers carried by said ring and adapted to be stopped by contact with the needles, a pair of segmental lifters, a plate carrying said lifters, and means for operating said plate, substantially as specified.

6. The combination of the needle cylinder and its needles, the cam box, means for rotating and reciprocating said cam box, a friction ring mounted on the box, a pair of pickers carried by said ring and adapted to be stopped by contact with the needles, a pair of segmental lifters for actuating said pickers, a vibrating lifter plate, and a continuously rotating cam for actuating said plate, substantially as specified.

7. The combination of the needle carrier and its needles, a cam box, a friction plate mounted thereon, pickers carried by said plate and adapted to be stopped by contact with the needles, lifter plates for acting on said pickers, a carrier for said lifter plates, means for vibrating said carrier and means for shifting the plates thereon so as to cause them to act on either picker, substantially as specified.

521,067. COMBINED TYPE-WRITER CASE AND TABLE. FREDERICK C. WOOD, Buffalo, N. Y., assignor of one-half to George C. Bingham, same place. Filed Oct. 15, 1892. Serial No. 449,027. (No model.)



Claim.—1. A typewriter case comprising a rectangular box 1 having a portion of its top and a portion of its front removed, the board 7 below the open front having holes 6, and the sides of the case having holes 11; combined with a removable front piece 4 having a projecting portion 26, pins 5 in the end of said front adapted to enter said holes 6, and a lock 9 at the end of said portion 26, as and for the purpose set forth.

2. A typewriter case comprising a rectangular box 1 having a portion of its top and a portion of its front removed, the board 7 below the open front having holes 6, and the sides of the case having holes 11; combined with a removable front piece 4 having a projecting portion 26, pins 5 in the end of said front adapted to enter said holes 6, a lock 9 at the end of said portion 26, a frame 10 hinged in the angle between the front 4 and portion 26 and adapted to rest against the latter when swung as a support for the whole, and a drawer removably sliding in guides below the front, as and for the purpose set forth.

3. A typewriter case comprising a rectangular box 1 having a portion of its top and a portion of its front removed, a machine supporting board pivoted within said box, and a drawer resting removably on guides within the box above the machine; combined with a removable front piece detachably connected with and closing the open parts of said box and having drawer guides, and means for supporting said piece at the side of the box to form a table, as and for the purpose set forth.

521,068. EYELET-HOLE-PUNCHING MACHINE. HARRY WRIGHT, Kettering, England. Filed Dec. 20, 1892. Serial No. 455,815. (No model.) Patented in England Aug. 13, 1892, No. 14,944, and in Germany Dec. 13, 1892, No. 69,648.

Claim.—1. The combination in a machine for punching eyelets in boots and shoes, of two dies one of which carries two lines of punches for punching all the eyelets in a complete upper at one operation, a gage interposed between said lines of punches and mechanism for operating the dies.

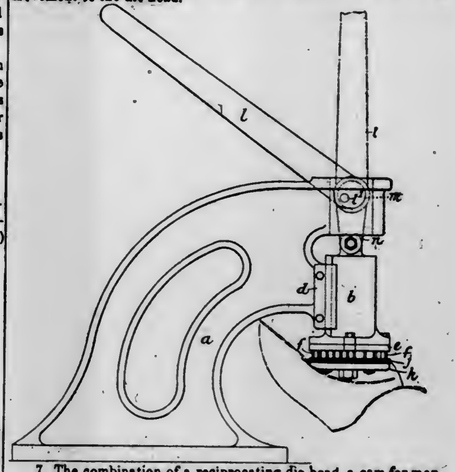
2. In a machine for punching all the eyelet holes in a complete upper at one operation, the combination of a fixed perforated die, a movable die carrying punches and a gage fixed to the perforated die and adapted to fit the throat of the upper to be perforated or punched, substantially as described.

3. The combination in a machine for punching eyelets in boots and shoes, of two dies, one of which carries two lines of punches for punching all the eyelets in a complete upper at one operation, a gage interposed between said lines of punches a gage disposed at one end of both lines of punches, and mechanism for operating the dies.

4. The combination of two dies, one carrying two lines of punches, a gage interposed between said lines, and an adjustable gage at one end of both lines of punches.

5. The combination with operating mechanism and a stationary die, of a standard having a stationary way or guide, and a die secured to the bottom thereof, a punching head embracing said guide having a die upon the foot thereof above the first mentioned die.

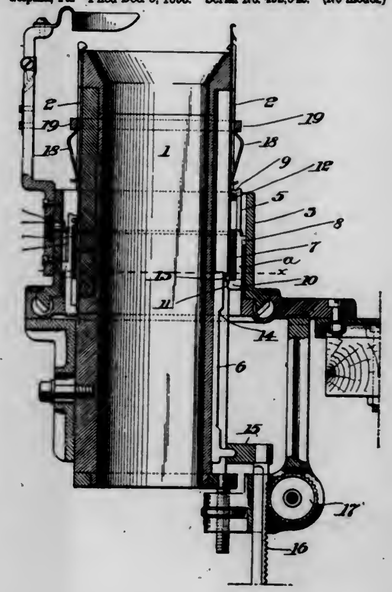
6. In a leather punching machine, the combination of a reciprocating die and head, a cam for operating said head mechanism for driving said cam, another eccentric upon the same cam-shaft, a drive pulley, a clutch device between said pulley and the driving mechanism, and a clutch operating mechanism interposed between the clutch and the second eccentric for giving an intermittent reciprocating movement to the die-head.



7. The combination of a reciprocating die-head, a cam for moving the same, a worm-wheel upon the cam-shaft, a main driving shaft, a worm, a pulley and a clutch upon said driving shaft, a second cam or eccentric upon the said cam-shaft, a clutch operating device interposed between said second cam and the clutch and operated in one of its movements by said second cam, and a lever or treadle mechanism for engaging the clutch.

8. The combination of a stationary die-head, a die secured thereto, a steadying plate also secured to said head, and a gage interposed between said die and plate, a reciprocating die-head having a die thereon, and mechanism for operating the dies.

521,069. KNITTING-MACHINE. WILLIAM H. ZELLERS, Philadelphia, Pa. Filed Dec. 5, 1893. Serial No. 492,842. (No model.)



Claim.—1. The combination with a needle bed, a needle, a cam carrier and its cam, of a jack disposed lengthwise of the needle and provided with needle-engaging and cam-engaging portions, devices adapted to maintain the jack and needle in operative engagement, and means whereby said devices may be operated to effect the disengagement of the jack and needle, to the end that the needle will be idle during the operation of the jack by the knitting cam, substantially as described.

2. The combination with a needle bed, its needles, a cam carrier and its cam, of a series of jacks disposed lengthwise of the needles in operative position relative to the knitting cams, and provided with needle-engaging and cam-engaging portions a series of longitudinally movable slide cams adapted to maintain a predetermined number of said needles and jacks in engagement, and means for operating said slide cams, to effect the disengagement and re-engagement of said needles and jacks substantially as described.

3. The combination with a needle bed, its needles, a cam carrier and its cam, of jacks longitudinally disposed in operative position relative to the knitting cam, and provided with needle engaging and cam-engaging portions devices adapted to act upon a predetermined number of needles to maintain them engaged with said jacks, and means for operating said devices, to effect the disengagement and re-engagement of said needles and jacks whereby when the parts are disengaged the needles will be idle during the operation of the jacks by the knitting cam substantially as described.

4. The combination with a needle bed, its needles, a cam carrier and its cam, of longitudinally-disposed jacks provided with cam-engaging and needle-engaging portions, and devices rearward of and in contact with the needles adapted to effect the disengagement of the latter from the engaging portions of the jacks at predetermined intervals, substantially as described.

5. The combination with a needle bed, its needles, a cam carrier and its cam, of a jack supporting bed intermediate said needle bed and the cam carrier, longitudinally-arranged jacks in said bed in operative position relative to the knitting cam, devices adapted to maintain a predetermined number of needles and jacks engaged, and means for operating said devices, to effect the disengagement and re-engagement of said needles and jacks, substantially as described.

6. The combination with a needle bed, its needles, a cam carrier and its cam, of a jack-supporting bed between said needle bed and the cam carrier, jacks disposed in said jack supporting bed and provided each with two needle engaging portions that inwardly project beyond the respective edges of said latter bed, and provided also with a cam-engaging portion, and devices adapted to effect the disengagement of the jacks and needles at predetermined intervals, substantially as described.

7. The combination with a needle bed, a needle therein provided with two jack-engaging portions, the lower one of which is beveled or pointed, the cam carrier and its cam, of a jack arranged lengthwise of the needle and provided with two needle engaging portions and a cam engaging portion, the lower of which needle engaging portions is notched or hooked and adapted to interlock with the beveled or pointed portion of the needle, and means whereby these interlocking parts may be engaged or disengaged to effect the action or inaction of the needle, substantially as described.

8. The combination with the needle bed, a needle provided with a jack-engaging portion, a cam carrier and its cam, of a longitudinally disposed jack provided with needle engaging and cam engaging portions, a spring tending normally to move the needle out of operative engagement with the jack, and a slide cam rearward of the needle adapted to maintain the latter in operation with said jack against the action of the spring, substantially as described.

9. The combination with the needle bed, its needles, the cam carrier and its cam, of a series of slides of uniform length disposed rearward of, and in contact with, the needles, and provided with cam faces at varying heights, means whereby the needles are held yieldingly against said slides, and means whereby the latter are operated to release the needles and permit the inward movement thereof by the springs, together with the jacks interposed between the needles and the cam carrier, and provided with cam-engaging and needle-engaging portions, substantially as described.

10. The combination with a needle bed, a needle provided with a jack-engaging heel and with a depending jack-engaging portion, a cam carrier and its cam, of a jack provided with a cam-engaging portion and with two needle engaging portions, the upper of which is adapted to engage the heel and the lower of which is notched or hooked to engage the lower end of the needle, substantially as described.

11. The combination of a longitudinally-grooved needle bed, a needle therein provided with a jack-engaging portion, a longitudinally-grooved jack bed exteriorly of said needle bed, and a jack in said jack bed provided with a needle engaging portion, the said jack-bed being so disposed as to support the lower extremities of the needle substantially as described.

12. A jack provided with a needle-engaging portion at each end thereof, and with an intermediate cam-engaging portion, substantially as described.

13. The combination with a cam cylinder and the yarn carrier connected therewith, of the horizontally movable V-shaped stitch cam having a horizontal sliding connection with said cylinder, whereby the said cam will have an independent sliding movement to and fro during the reciprocation of the cam cylinder substantially as described.

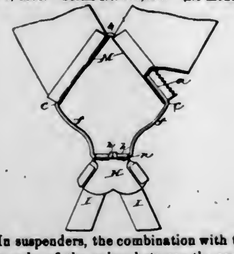
14. The combination with the horizontally-slotted cam cylinder and the yarn carrier connected therewith, of the V-shaped stitch cam in said cylinder and the exteriorly disposed freely movable slide plate to which it is connected, whereby the said cam will have an independent sliding movement to and fro during the reciprocation of the cam cylinder, substantially as described.

521,070. WATCH-BOW FASTENER. DITON H. ARNEY, Atchison, Kans., assignor of one-third to Henry J. Norton, same place. Filed Oct. 11, 1893. Serial No. 487,836. (No model.)



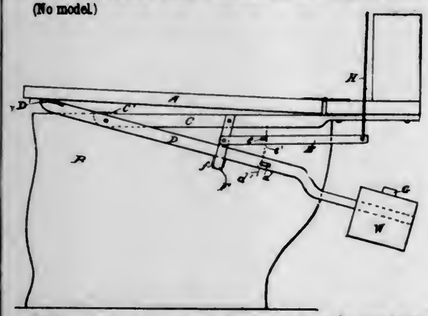
Claim.—The combination in a watch case pendant, of the tubular body A, A', screw threaded exteriorly at its upper end, having registering recesses *a*, *a*, terminating in semi-circular recesses *a'*, *a'*; interior tubular sleeve F, provided with opposite shoulders F', F', having the recessed offsets *f*, *f*; and interiorly-threaded collar or nut E; with the bow or ring D, having annular end-notches or recesses, *d*, forming dovetailed projections D' adapted to engage the circular openings formed by the registering semi-circular recesses *a'* and *f'* in the pendant-body and its sleeve; substantially as described.

521,071. SUSPENDERS. GEORGE E. ADAMS, New Britain, Conn. Filed Oct. 9, 1893. Serial No. 487,630. (No model.)



Claim.—In suspenders, the combination with the shoulder straps and suspender ends, of the union between the same formed by the wire bent to form the long straight bearings at the sides, the ends of the wire being bent horizontally toward each other and upset at the bottom, the long sheet metal clasps passing around the side bearings and embracing the shoulder straps, and the clip passing around the ends of the wire to secure them together and embracing the suspender ends; substantially as described.

521,072. AUTOMATIC PULL FOR WATER-CLOSETS. EUGENE D. ANDRUS, Seattle, Wash. Filed Apr. 22, 1893. Serial No. 471,407. (No model.)

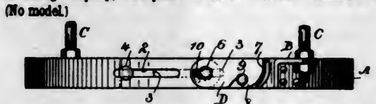


Claim.—In an automatic pull for water closets the combination with the flushing mechanism and a hinged seat, of the beam C, attached at the rear end to the casing and having at its front end a lip

resting on the bowl, a seat lever pivoted thereto and holding the seat slightly raised, a guide attached to the beam C, and guiding the seat lever in its swing, a weight attached to the rear end of the seat lever, of a flushing lever attached to the flushing mechanism and pivoted on the guide, projections on the flushing and seat levers so placed as to engage each other, the projection upon the flushing lever being placed at a much shorter distance from its pivot than the projection on the seat lever, said projections and the pivot points of the levers being at the middle point of their swing upon the same straight line whereby the projections will become disengaged at either extremity of their arc of swing, substantially as shown and described

---

521,073. EXPANSIBLE RING FOR LAMP-SUPPORTS. LEWIS J. ATWOOD, Waterbury, Conn., assignor to the Plume & Atwood Manufacturing Company, same place. Filed Nov. 9, 1893. Serial No. 490,432. (No model.)



Claim.—1. The combination with the expansible spring ring A having a slot 3 and stud 5 in the slot, of the swinging latch D pivoted near one end of the ring and having a hook and a thumb-piece, the stud 9 upon the ring near its other end and over which the hook catches, and a stop finger 10 formed of the metal of the swinging latch pressed back into an opening in the ring to limit the movement of the latch when the ring is open, substantially as set forth.

2. The combination with the expansible spring ring A, having slots 2. and 3. and studs 4. and 5. in the respective slots, of the swinging latch D. pivoted near one end of the ring and having a hook and a thumb-piece, the stud 9. upon the ring over which the hook catches, and a stop finger to limit the movement of the latch when the ring is open, and a finger piece for the hand to act against in operating the latch and spring ring, substantially as set forth.

521,074. SCALE-BEAM. STEPHEN J. AUSTIN, Terre Haute, Ind. Filed Aug. 23, 1893. Serial No. 484,175. (No model.)



Claim.—1. A scale-beam comprising a take-up arm and a work-arm extending from the same side of the fulcrum, poises located on said arms, and adjustable independently of each other, and means for connecting said poises, whereby they are moved in opposite directions and the weight taken by the work-arm is transferred to the take up arm; substantially as described.

2. A scale-beam comprising a take-up arm and a work-arm extending from the same side of the fulcrum, poises of different weight, located on said arms and adjustable independently of each other, and means for connecting the poises whereby they are moved in opposite directions proportionate to the weight of the poises, and the weight taken by the work-arm is transfered to the take-up arm: substantially as described.

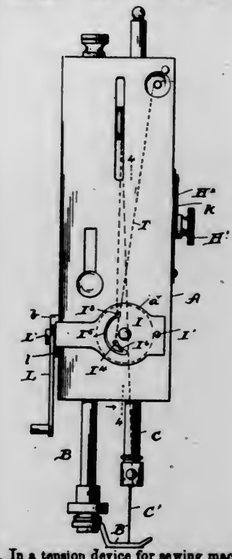
3. A scale-beam comprising a take up arm, a balance arm and a work-arm all extending from the same side of the fulcrum, poises located on said arms and adjustable independently of each other, and means for connecting the poise on the take-up arm with the poise on the work-arm whereby the weight taken up by the work-arm is transferred to the take-up arm; substantially as described.

4. A scale-beam comprising a take-up arm, and a work-arm extending from the same side of the fulcrum, a sliding poise located on the take-up arm, a sliding poise, located on the work-arm, having a belt clamping device, an endless belt, a pulley and disk for supporting the belt and gearing connecting the disk with the take-up poise; substantially as described.

5. A scale-beam comprising a graduated take-up arm 12, a graduated work-arm 18, the take-up poise 15 having a rack-bar 61, the work-poise 80 having the cam-lever 87, the disk 32, the pulley 71, the endless belt 76 connecting the disk and pulley, and the geared connection between the disk and the rack-bar; substantially as described.

6. A scale-beam comprising a graduated take-up arm 12, a poise 15, mounted on the take-up arm having a rack-bar 61; the graduated work arm 18, the poise 80 mounted on the work-arm, having a cam-lever 87 the graduated disk 32, the pulley 71, the adjustable screw 72 for the pulley, the endless belt 76 mounted on the disk and pulley, and the gearing connecting the disk with the rack-bar; substantially as described.

521,075. TENSION DEVICE FOR SEWING-MACHINES. GEORGE W. BAKER, Cleveland, Ohio, assignor to the White Sewing Machine Company, same place. Filed Mar. 16, 1893. Serial No. 466,242. (No model.)

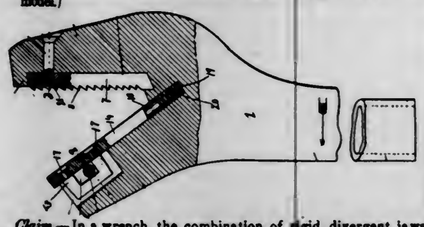


Claim.—1. In a tension device for sewing machines, the combination with the section or casing A of the arm of the sewing machine and an inner tension disk or plate secured against the outer side of the lower portion of said casing, of a yielding lever located within said casing and pivoted thereto at a point between its ends an outer tension disk or plate adapted to co-operate with the inner disk, the said outer disk being connected to the lower end of the pivoted lever by a pin passing through the inner disk, a cam located within said casing and engaging the upper end of the pivoted lever, a dial resting against the outer face of the casing, a pointer or index finger for said dial, and a finger piece connected to the cam for actuating same, substantially as set forth.

2. In a tension device for sewing machines the combination with the section or casing A of the arm of the sewing machine and an inner tension disk or plate secured against the outer side of the lower portion of said section or casing, of a yielding lever located within said casing and pivoted thereto at a point between its ends, an outer tension disk or plate adapted to co-operate with the inner disk, the

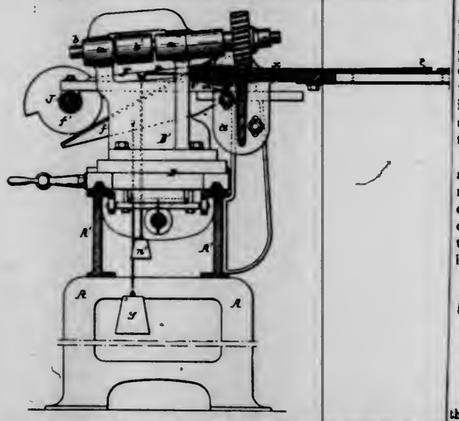
said outer disk being connected to the lower end of the pivoted lever, means for moving said lever for regulating the pressure of the outer tension disk against the inner disk, a pressure bar and a lifter for lifting said pressure bar and directly engaging the outer disk for moving the latter away from the inner disk, substantially as set forth.

521,076. WRENCH. ALBERT BARNES, St. Louis, Mo., assignor to Louisa Barnes, same place. Filed Oct. 16, 1893. Serial No. 488,237. (No model.)



Claim.—In a wrench, the combination of rigid, divergent jaws integrally formed with a handle, one of which jaws is provided with a cut-a-way portion having dovetailed approximating faces, a ratchet-plate having dovetailed ends mounted in said cut-a-way portion, the dovetailed ends of which ratchet-plate engaging the dovetailed faces of the cut-a-way portions, the opposite jaw having an open ended slot, or depression, a recess being formed in the wrench at the convergence of the jaws, a smooth plate mounted on the jaw having the slot, yielding pressure devices mounted in the depression and impinging against the smooth-plate, a staple riveted to the smooth plate and extended within the slot in the jaw, and a pin transversely mounted within the jaw and extended across the said slot and through the said staple, whereby the smooth plate is permitted to move longitudinally of the said jaw, the movement of said plate being limited by the said pin and staple.

521,077. LEATHER-SKIVING MACHINE. JAMES BARKER, Philadelphia, Pa. Filed Oct. 16, 1893. Serial No. 488,313. (No model.)



Claim.—1. The combination in a leather skiving machine, of the rotating cutter with a pivoted work carrying table having its pivotal axis tangential to the periphery of the inner cutting edge of the cutter whereby change in the bevel of the skive can be effected without varying the depth of cut, substantially as specified.

2. The combination in a leather skiving machine, of the main frame with its cutter shaft and cutter, the work carrying table having its pivotal axis tangential to the periphery of the inner cutting edge of the cutter, an arm on said work carrying table, and a cam for acting upon said arm in order to effect adjustment of the table, substantially as specified.

3. The combination of the rotary cutter, a shaft having its axis tangential to the periphery of the inner cutting edge of said cutter, and a work carrying table adjustably mounted upon said shaft so that the work can be moved toward and from the cutter without affecting the pivotal axis upon which the table swings in order to vary the bevel of the cut, substantially as specified..

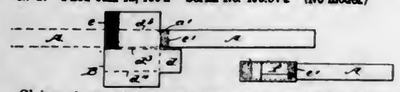
4. The combination of the work holding table, the forked clamp having an upper jaw projecting over the table so as to clamp the work and an under jaw provided with set screws for tightening it upon the table, and a shaft carrying said clamp and adapted to bearings projecting beyond the edge of the table, the axis of said shaft being longitudinally parallel with the jaws, substantially as specified.

521,078. HORSE-BRUSH. HENAN L. BARNEY, Henderson, N. Y. Filed Oct. 13, 1893. Serial No. 488,102. (No model.)



Claim.—The combination, in a horse or currying-brush, of the back 1 provided at its side-edges with parallel recesses *a*, bristles 2 standing out from the bottom face thereof, flaps or side-pieces A extending downward from the side-edges of the brush back and their lower drawing edges disposed on a plane parallel to and slightly above the terminating line of the major portion of the aggregated bristles, and their lower corners rounded as at *e*, guards or stiffening strips B virtually covering the outer sides of the flaps A except for a slight distance from their lower edges, vertical incisions in the bottom portions of the guard-strips creating fingers *h*, straps C disposed outside the upper portions of the guards parallel and contiguous their upper edges, and their ends terminating slightly beyond the ends of the guards and underneath flaps, and nails passing through the straps C and underlying parts into the sides of the back and fastening the aforesaid in place, substantially as described and shown, and for the purposes set forth.

521,079. SAFETY-MATCH. WILLIAM BARNHURST, New York, N. Y. Filed Jan. 12, 1894. Serial No. 496,574. (No model.)



Claim.—1. A safety match, the same comprising a splint and a sleeve constructed from one piece of material, the splint being detachably connected with the sleeve or envelope, the envelope being provided with a rubbing compound and the splint with an igniting compound, the two compounds being normally out of engagement with each other and yet located one in the path of the other, whereby igniting contact is obtained between the two compounds when the splint is separated and drawn from the sleeve or envelope, substantially as shown and described.

2. As a new article of manufacture, a match comprising a splint and a sleeve constituted from one piece of material, the sleeve surrounding the splint and being detachably connected therewith, one of the said parts being provided with an ignitible compound, and the other with a rubbing compound, said compounds being located in the path of travel of one another, whereby the match is ignited when its parts are drawn apart, substantially as described.

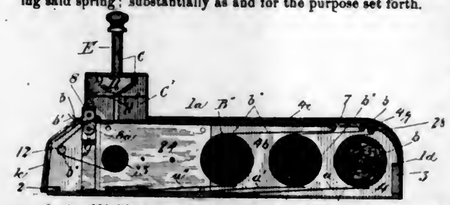
521,080. THREAD-COP FOR SEWING-MACHINE SHUTTLES. HENRY A. BATES, Yonkers, N. Y. Filed Sept. 11, 1893. Serial No. 485,217. (No model.)



Claim.—A cylindrical cop of thread having a central tube and at the end of the cylinder a disk of paper or similar material of a diameter as great as the cylindrical coil, the said disk being caused to adhere directly to the mass of thread by mucilage or other adhesive material to prevent the thread drawing around the axis of the bobbin as the thread is drawn from the cylindrical periphery, substantially as set forth.

521,081. AUTOGRAPHIC REGISTER. HENRY C. BIETTE, Toronto, Canada, assignor of one-half to Andrew Blackburn, trustee, and Florence Ada Ramage, same place. Filed Jan. 9, 1893. Serial No. 457,842. (No model.)

Claim.—1. In an autographic register, the combination of an outer case 1, an inner case 4 inclosed by said outer case, said inner case arranged to form a desk, a series of spindles, B, B', B", for holding a plurality of sheets of writing material, guide rollers, 8 8ª, adapted to feed the material across the top of said inner case, a knife, 11, a spindle, 13, upon which is wound one or more sheets of the said writing material, a pinion, 16, a spindle, 15, for said pinion, one end of the winding spindle mounted upon the end of the spindle 15 of the pinion 16, a gear wheel, 17, to transmit motion to said pinion 16, a spindle, 18, for said gear wheel 17, a pinion, 19, mounted on said spindle 18, a gear wheel, 20, transmitting motion to said spindle 18, a spring, 22, to cause the rotation of said gear wheel 20, and means for winding said spring; substantially as and for the purpose set forth.



2. A self-inking stamp adapted for use with autographic registers comprising a shell, the stamp proper within the shell, a plunger secured to said stamp proper at or near its center, a spring inclosed by said plunger, an inking pad disposed below the stamp proper and divided into two sections, said sections being pivotally secured to said shell and adapted to open outwardly, and V-shaped guides for opening out each of said sections, substantially as and for the purpose set forth.

3. In an autographic register, the combination of an outer case, an inner case inclosed by said outer case, said inner case arranged to form a desk, a series of spindles, B, B', B", for holding a plurality of sheets of writing material, bars for holding the transfer sheets, said bars being provided at each of their ends with an opening, pins secured to the top of the inner case, said pins adapted to pass through the openings in said bars and securely hold the latter, guide rollers adapted to draw said writing material across the top of said inner case, a spindle, 12, a spindle, 13, upon which is adapted to be wound one or more sheets of said writing material, and tension springs, *a*, *a'*, *a"*, one end of each of said springs being secured to the bottom of the outer case while the other end bears against the respective rolls, *b*, *b'*, *b"*; substantially as and for the purpose set forth.

4. In an autographic register, the combination of an outer case, an inner case inclosed by said outer case, uprights, 9, mounted in the forward end of said inner case and projecting through the top thereof, vertical slots in the upper portion of said uprights, guide rollers, 8, 8ª, the roller 8 being permanently journaled in the top of the uprights, the roller 8ª having the ends of its spindle projecting through the slots and riding therein, recesses provided in the forward ends of the sides of the inner case, S-shaped springs mounted in the said recesses and exerting their tension to press the roller 8ª against the roller 8, a knife, and a cam, 10, for regulating the pressure of the roller 8ª against the roller 8; substantially as and for the purpose set forth

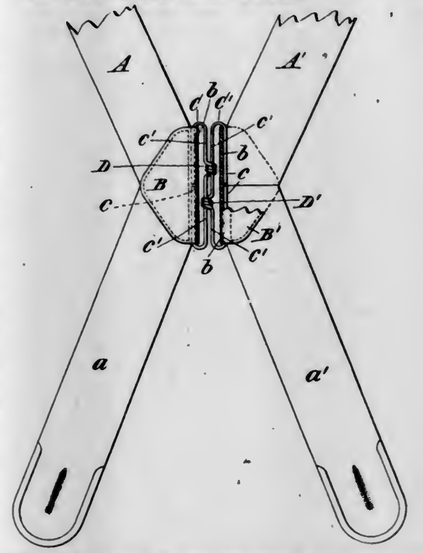
5. An improved spring-actuated mechanism for autographic registers comprising the sides, 24, a spindle, 15, a pinion, 16, mounted on said spindle 15, a gear wheel, 17, meshing with said pinion 16, a spindle, 18, for said gear wheel 17, a pinion, 19, mounted on said spindle 18, a gear wheel, 20, meshing with said pinion 19, a spring, 22, a spindle, 23, for said gear wheel 20, one end of said spindle 23 projecting beyond one of the sides 24, a ratchet wheel, 25, and a thumb wheel, 27, mounted on the projecting end of said spindle 23, and a dog, 26, engaging said ratchet wheel 25: substantially as and for the purpose set forth.

6. In an autographic register, the combination of an outer case, an inner case inclosed by said outer case, said inner case arranged to form a desk, a series of spindles, B, B', B", for holding a plurality of sheets of writing material, guide rollers adapted to draw said writing material across the top of the inner case, a spindle, 12, a spindle, 13, upon which is adapted to be wound one or more sheets of said writing material, one end of said spindle 13 mounted upon the rectangular end of a spindle, 15, the other end mounted in a spring-bearing, 14, a pinion, 16, mounted upon the spindle 15, a gear wheel, 17, meshing with the pinion 16, a spindle, 18, for said gear wheel 17, a pinion, 19, mounted on said spindle 18, a gear wheel, 20, meshing with, and imparting motion to, the pinion, 19; a spring, 22, for rotating the gear wheel 20, and means for winding said spring; substantially as and for the purpose set forth.

7. In an autographic register the combination of an outer case 1, an inner case 4 inclosed by said outer case, a series of spindles for holding a plurality of sheets of writing material, guide rollers adapted to feed the material across the top of said inner case, a knife, a spindle upon which is wound one or more sheets of the said writing material, a pinion, a spindle for said pinion one end of the winding spindle mounted upon the end of the spindle of the pinion, a gear wheel to transmit motion to said pinion, a spindle for said gear wheel, a pinion mounted on said spindle, a gear wheel transmitting motion to said spindle, and a spring to cause the rotation of said gear wheel, substantially as and for the purpose set forth.

8. In an autographic register the combination of the inner case 4, an outer case 1, inclosing said inner case 4, a series of spindles B, B', B" within said inner case, the top 4ª of said inner case forming a desk, guide rollers 8 and 8ª located at the front of said desk, a knife 11, a winding spindle 13, a pinion 16, a spindle 15 for said pinion, one end of the spindle 13 mounted on the rectangular shaped end of the spindle 15 and adapted to be revolved thereby, a gear wheel 17, a spindle 18 for said gear wheel, a pinion 19 mounted on the spindle 18, a gear wheel 20 meshing with the pinion 19, and a coiled spring 22 to rotate the gear wheel 20; substantially as and for the purpose set forth.

521,082. SUSPENDERS. JOSEPH M. BORN, Dayton, Ky. Filed Feb. 19, 1894. Serial No. 500,692. (No model.)



Claim.—1. In a pair of trousers-suspenders, the combination with the straps or webs A, A', having the customary lower back-portions or divergent securing-ends, of a pair of oblong-loops C and C', the loop C having a coil or eye engaging the straight portion of outer limb *c'* of the loop C', and the loop C' having a coil or eye engaging the straight portion of the outer limb *c'* of loop C, and clasps on said straps engaging the limb *c* of said loops C, C', whereby a slide coupling or connection is made in the back of the pair of suspenders, substantially as herein set forth

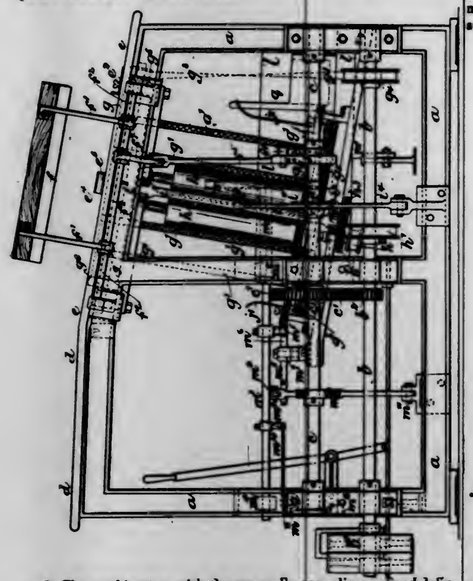
2. In a pair of suspenders, a back slide-connection composed of a pair of oblong loops, each having plain inner limbs *c* and eyes or spirals D, D', of one or more coils, made in their outer limbs *c'*, whereby corresponding loops are provided and adapted to engage each other, substantially as herein set forth.

3. In a slide-connection for the rear, divergent ends of suspenders, an oblong-loop having a straight inner longitudinal member or limb *c* adapted to a clasp on one suspender strap or web and an outer longitudinal member or vertical bar *c'* having one or more spirals made therein and adapted to engage the outer vertical limb or bar of an oblong loop held or mounted in the clasp of the companion web or strap, substantially as specified.

521,083. PAPER-FOLDING MACHINE. ALFRED BRADLEY, London, England, assignor to Leonard Upcott Gill, same place. Filed May 23, 1893. Serial No. 475,257. (No model.) Patented in England July 25, 1892, No. 13,521.

Claim.—1. A folding machine comprising a suitable frame having a slightly inclined table, and a folding board still further inclined and having an opening in line with the table a driving shaft, a cam-shaft located at one side of the frame and connected with the driving-shaft, the inclined rocking axis mounted in bearings at one side of the folding board, provided with arms carrying an inclined folding knife, the curved lever fixed to the axis, the link having a forked lower end straddling the cam-shaft and provided with a truck, the cam fixed to the cam-shaft, and providing a bearing for the truck, the inclined upper gripping rollers mounted in bearings beneath the folding board and receiving the folded sheet pressed between them by the folding knife, the lower inclined rollers, the tapes working over the upper and lower rollers for guiding the folded sheet, the in-

clined support for the folded sheet, the upwardly extending inclined rollers, the upwardly extending inclined knife for pressing the folded sheet between the upwardly extending inclined rollers, the facing guide bar, and the right angled sloping gathering trough, and the pusher; substantially as described.



2. The combination, with the upwardly extending inclined delivery rollers; of the facing guide bar, the right angled sloping gathering trough placed at right angles to the delivery rollers, and the pusher, the pusher-rod having an inner part formed of angular section and an outer part of circular section, the bearings for the two parts of the rod, the collar fixed to the outer part carrying a pin, the crank-lever having an arm formed with a slot through which the pin passes, the vertical lever, a link connecting the levers, a cam-shaft having a cam bearing on the vertical lever and means for returning the pusher; substantially as described.

521,084. SUSPENDER-BUCKLE. DAVID L. DURAND, Birmingham, Conn. Filed Apr. 20, 1894. Serial No. 508,343. (No model.)

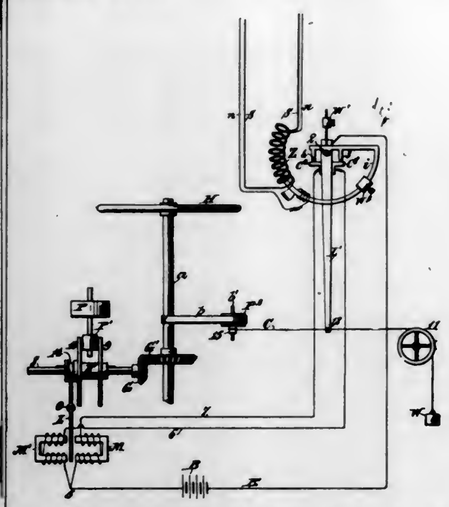


Claim.—1. A suspender-buckle or clasp, consisting of a sheet metal plate having a toothed lower edge and end flanges which are bent around toward one another and are each formed with a slot or orifice, and a connecting tie-plate having a toothed edge and provided at its ends with projecting tongue-pieces inserted into the slots or orifices of the said end flanges, said end flanges and tie-plate being adapted to be compressed upon the end of a suspender-web, substantially as and for the purposes described.

2. A suspender-buckle, consisting of a sheet metal plate having a toothed lower edge, lateral, pivot-supporting lugs at its upper portion, and end flanges which are bent around toward one another and are each formed with a slot or orifice, a connecting tie-plate having a toothed edge and provided at its ends with projecting tongue pieces inserted into the slots or orifices of the said end flanges, and a flanged clamping-lever pivoted to said pivot-supporting lugs, said end flanges and said tie plate being adapted to be compressed upon the end of a suspender-web, substantially as and for the purposes described.

521,085. ELECTRICAL GOVERNOR FOR WATER-WHEELS. CARL S. ENGLISH, Lowell, Mich., assignor of one-half to Charles A. Church and Otto C. McDannell, same place. Filed Dec. 23, 1893. Serial No. 494,599. (No model.)

Claim.—1. In an electrical water wheel governor, the combination of the dynamo conductor having a coil S, a pivoted arm or needle carrying two contacts, a pivoted oscillating arm carrying contacts adapted to engage the contacts carried by said arm or needle, suitable connections between said oscillating arm and the water wheel gate, a circuit breaking device actuated by the movement of the gate mechanism, and means for actuating the gate operating mechanism, substantially as described.



2. The combination of the coil S, and the coil *n*, a needle *i*, suitable connections between said needle and the gate of the water-wheel whereby the flow of water is automatically controlled through the magnetic energy exerted from the dynamo connections, substantially as described.

3. The combination of the coils S and *n*, the needle *i*, the swinging lever L', the flexible connection C, pulley P³ with its hub 15, the weight W, a battery, electro-magnets, conductors connecting said magnets and battery, circuit closing devices actuated by the needle for closing the circuit through either of said magnets, an armature actuated by said magnets, and gearing for actuating a water gate controlled by said armature, substantially as described.

4. The combination of the coils S and *n*, the needle provided with contact points for opening and closing the electric current, the battery B, the electro-magnets M' and M, suitable coils thereon, connections between such coils and the battery, an armature as 11, shifting device as F, provided with friction disks 9 and 10, revolving pulley P', and suitable mechanism connecting the shaft of F to the water-wheel, substantially as described.

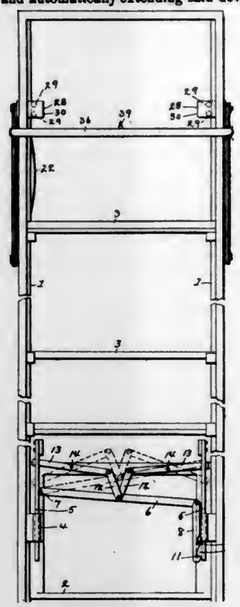
5. The combination of the coil of the dynamo, a needle turning upon a pivot having contact points adapted to open and close an electric current, a battery as B, electro-magnets as M, M', suitable conductors extending from said electro-magnets to said battery whereby the current may be directed through either one or the other of said electro-magnets at pleasure, a lever armature as 11, a shifting mechanism as F, operated by means of a pulley as P, suitable mechanism connecting said shifting mechanism F, with the gate of the water-wheel, a band as *b*, pulley P³, lever L, flexible connection C and weight W, all constructed substantially as and for the purpose described.

521,086. ELEVATOR. ROBERT W. HARE, Allegheny, Pa. Original application filed Aug. 31, 1893, Serial No. 484,462. Divided and this application filed May 12, 1894. Serial No. 511,041. (No model.)

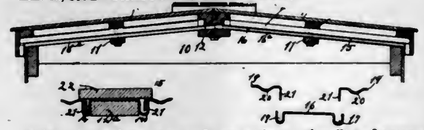
Claim.—1. In an elevator, the combination with a car having adjustable supports or standards adapted to carry a series of doors, of a device for supporting said doors at the top of the shaft, and means for automatically extending and automatically withdrawing said device when the doors are raised from engagement therewith, substantially as described.

2. In an elevator, the combination with a car having supports or standards, of a series of hatch doors adapted to be carried thereby, a device for storing said doors at the top of the shaft, and means for automatically retracting and automatically extending the device, substantially as described.

3. In an elevator, the combination with a car, of a series of hatch doors adapted to be carried on the top thereof, a device at the top of the shaft adapted to receive the doors, and means for automatically retracting and automatically extending said device, for the purpose described.



521,087. CAR-ROOF. CURTIS M. JENNINGS, St. Louis, Mo. Filed Mar. 19, 1894. Serial No. 504,342. (No model.)



Claim.—1. An inner car roof comprising a plurality of gutters, each having a central plain portion and grooves on the sides thereof in a lower plane relative thereto, roof plates, each having a central plain portion, grooves on opposite sides of said plain portion, and down turned flanges on the extreme edges thereof adapted to overlap and be positioned within the gutter grooves, and gutter strips resting upon the plain portions of the gutters and overlapping the adjacent edges of the roof plates.

2. In an inner car roof, the combination of roof plates and gutters having upwardly extending flanges on their upper ends, a ridge strip, T-shaped in cross section, interposed between and overlapping the adjacent upper ends of said roof plates and gutters, and cleats inserted beneath the side wings of said ridge strip and adapted to impinge against and confine the said flanges, as set forth.

3. In an inner car roof, a gutter having a central plain portion and grooved portions on opposite sides of said plain portion, all of said grooved portions being below the plain portion, and roof plates having down turned flanges inserted within said grooves.

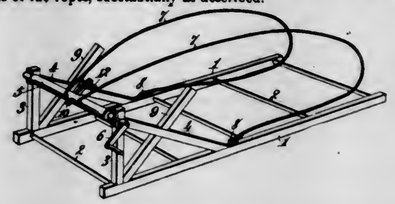
4. In an inner car roof, a gutter having a central plain portion, and grooved portions on opposite edges of said plain portions, strips 16ª upon which the plain portions of the gutters rest, stripe 22 resting upon the plain portions of the gutters, and sheets 18 having down-turned edges fitting in the grooves of the gutters; substantially as and for the purpose set forth

---

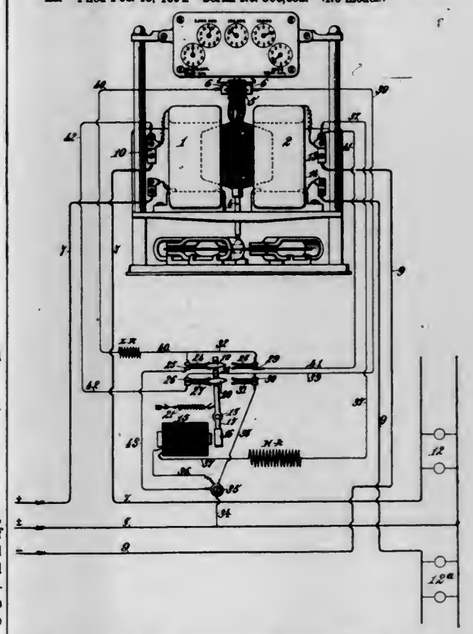
521,088. MECHANISM FOR SHOCKING CORNSTALKS. JOHN W. OGLE, Arcadia, Ill. Filed Mar. 24, 1894. Serial No. 504,948. (No model.)

Claim.—1. In a corn shocker, the combination with a supporting frame of a windlass mounted on posts at one end, ropes connected to said windlass and frame and looped over the latter, brace-bars supporting the posts and bars crossing said brace-bars to form angular spaces to receive the shock when compressed, substantially as described.

2. The combination with a windlass and supporting frame of ropes looped over the latter and connected to it and to the windlass, and a stop consisting of a cross-pin passing through the windlass and having a head parallel to the latter and adapted to pass between the attached ends of the ropes, substantially as described.



521,089. ELECTRIC METER. WARREN B. REED, New Orleans, La. Filed Feb. 13, 1894. Serial No. 500,052. (No model.)



Claim.—1. In a three wire system of electric lighting, the combination with an electric meter, of an electric motor, an armature and armature circuit, normally fed from one side of the system, a shunt circuit connected with the other side and with the neutral wire, and an armature-lever carrying contacts by which the armature circuit is automatically closed upon the live side of the system under all conditions, substantially as described.

2. In a three wire system of electric lighting, the combination with an electric meter, of an electric motor, an armature and armature-circuit normally fed from the negative side of the system, a shunt circuit connected with the positive side and with the neutral wire of the lamp-circuit, and an armature-lever carrying contacts by which the armature circuit is automatically closed upon the live side of the system, substantially as described.

3. In a three wire system of electric lighting, the combination with an electric meter, of an electric motor, an armature-circuit fed from one side of the system a shunt circuit connected with the other side and with the neutral wire of the lamp-circuit, an armature-lever carrying contacts by which the armature-circuit is made upon the live side of the system, and an electro-magnet fed from one side of said system through a circuit of high resistance and holding the armature lever in position to close the armature circuit, substantially as described.

4. In a three wire system of electric lighting, the combination with an electric meter, of an electric motor, an armature and armature circuit normally fed from the negative side of the system through a low resistance, a shunt connected with the positive side and with the neutral wire of the lamp-circuit, an armature-lever carrying contacts adapted to close the armature circuit through either the nega-

tive side or the shunt, and an electro-magnet normally attracting the armature on said lever, substantially as described.

5. In a three wire system of electric lighting, the combination with an electric meter of an electric motor, an armature and an armature circuit of low resistance normally fed from the negative side of the system, a shunt connected with the positive side and with the neutral wire, an armature-lever having contacts adapted to close the circuit of the armature either on the negative or on the positive side, and an electro-magnet lying in a circuit of high resistance which is fed from the negative side, to close the normal armature-circuit, substantially as described.

6. In a three wire system of electric lighting, the combination with an electric meter, of an electric motor having field-coils fed from opposite sides of the system, an armature and armature-circuit of low resistance normally fed from one side only of said system, a shunt connected with the opposite side and with the neutral wire of the lamp-circuit, an armature-lever carrying contacts adapted to close the armature circuit through either side, separately, and an electro-magnet lying in a circuit of high resistance which is fed from the negative side and through the neutral wire, to hold the armature in position to close the normal circuit of the armature of the motor, substantially as described.

7. In a three wire system of electric lighting, the combination with an electric meter of an electric motor, an armature and armature-circuit, an electro-magnet, an armature for the same having contacts which close the armature circuit on the live side of the system, and a wire from the neutral wire normally supplying both the armature circuit and the circuit of the electro-magnet, substantially as described.

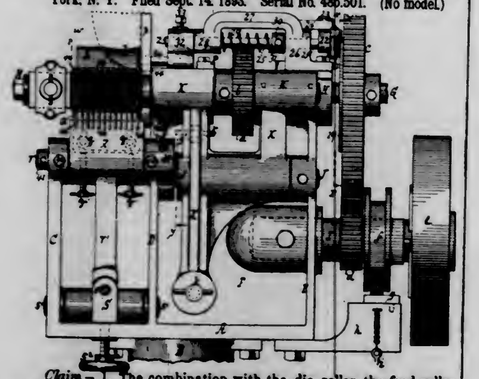
8. In a three-wire system of electric lighting, the combination with an electric meter of an armature-circuit supplied from the live side of the system, normally by the neutral wire which enters the meter, a low resistance interposed in said circuit, a shunt from the positive side, and means for automatically closing the armature circuit through said shunt, in the same direction, substantially as described.

9. In a three-wire system of electric lighting, the combination with an electric meter of an electric motor, an armature-circuit normally fed by the neutral wire, which enters the meter, a low resistance interposed in the armature-circuit, a shunt from the positive side of the system, a spring retracted armature lever having contacts adapted to close the armature circuit in the same direction on the live side of the system, an electro-magnet to attract said armature lever and close the normal armature circuit, and a circuit of high resistance for said electro-magnet, substantially as described.

10. In a three-wire system of electric lighting, the combination with an electric meter, of an electric-motor having a rotating armature and field coils, the latter being supplied from the positive and negative sides of the system, respectively, and an armature circuit fed normally from the neutral wire which enters the meter, substantially as described.

11. In a three-wire system of electric lighting, an electric-meter having two field-coils and a rotating armature, and an armature circuit, the field coils being supplied from the positive and negative wires, and the armature circuit from the neutral wire of the system, all of which wires enter said meter, substantially as described.

521,090. LEATHER-SKIVING MACHINE. JACOB R. SCOTT, New York, N. Y. Filed Sept. 14, 1893. Serial No. 485,501. (No model.)



Claim.—1. The combination with the die roller, the feed roller and the knife of an end-gage movably fitted into the die roller and a stud 15 projecting from the end-gage and made to engage a cam groove 16 in the edge gage substantially as described.

2. The combination with the die roller the feed roller and the knife of an end-gage movably fitted into the die roller, a stud 15 projecting from the end-gage and made to engage a cam groove 16, arranged in the edge gage and having an open space 17—17° to permit the feed roller to push back the end-gage and take hold of the blank substantially as described.

3. The combination with the die roller, the feed roller, the knife and the edge-gage of a pusher 34 for adjusting the blank automatically in relation to the die and means for actuating the pusher substantially as described.

4. The combination with the die roller, the feed roller, the knife, the edge-gage and the pusher 34 of a cam for moving the pusher forward and a spring for retracting the same substantially as described.

5. The combination with the die-roller, the feed-roller, and the knife, of a rocking knife-head provided at opposite ends with projecting journals, one of which is eccentric to the other, bearings oblong in cross-section into which the journals fit and in which said journals are adapted to turn, and means for locking the journals in any desired position, substantially as described.

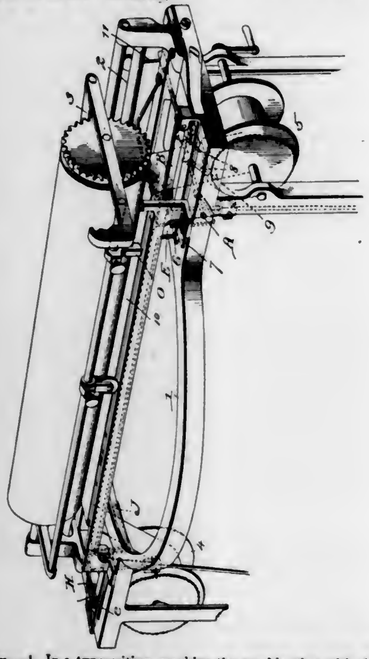
6. The combination with the die-roller, the feed-roller, and the knife, of a rocking knife-head provided at its opposite ends with projecting journals, bearings oblong in cross section in which the journals are adapted to turn, and devices engaging the journals for locking them in any desired position, substantially as described.

7. The combination with a knife, and a die-roller, of a shaft carrying a feed-roller composed of sections, gravitating clearing blades encircling the shaft between the roller sections, having spurs or projections and swung upward by choking of the feed-roller, and a stop arranged in the path of the spurs or projections on the clearing blades for arresting their upward swinging motion, substantially as described.

8. The combination substantially as herein described with the knife and the die roller of a feed roller made in sections, hubs formed on the sections and clearing blades hung on these hubs.

9. The combination with the knife and the die roller of a feed roller made in sections, hubs formed on the sections, clearing blades hung on these hubs, spurs 46 extending from said clearing blades and an abutment N in the paths of these spurs substantially as described.

521,091. RIBBON-REVERSING MECHANISM FOR TYPE-WRITING MACHINES. FRED P. STILES, Sparta, Wis. Filed Apr. 3, 1893. Serial No. 468,916. (No model.)



Claim.—1. In a typewriting machine the combination with the ribbon shifting mechanism, and the carriage having an extension, of a trip having connection with the said ribbon shifting mechanism, an elevating arm to engage with the trip to project the same within the path of the extension on the carriage, and a shaft having a trip arm to be struck by a suitable stop on the ribbon and constructed to actuate the said elevating arm, substantially as and for the purpose set forth.

2. In a typewriting machine the combination with a ribbon shifting mechanism, and the carriage provided with an extension, of a trip having connection with the said ribbon shifting mechanism, a counterbalanced shaft having a trip arm to be struck by a stop on the ribbon, and an elevating arm operated from the counterbalanced shaft to project the said trip connected with the ribbon shifting mechanism within the path of the extension on the carriage, substantially as described for the purpose specified.

3. In a typewriting machine the combination with the ribbon shifting mechanism, and the carriage having an extension of a trip having connection with the ribbon shifting mechanism, a counterweighted shaft having a trip arm to extend within the path of a stop on the ribbon, and an elevating arm connected with the said shaft and operated thereby to project the trip on the shaft mechanism within the path of the extension or stop on the carriage to produce a reverse of the ribbon on moving the carriage to the place of beginning, substantially as described.

4. In a typewriting machine the combination with the ribbon shifting mechanism, and a spring arranged to exert a force to move the same in one direction, of a plate or bar having a projection to engage with a corresponding projection on the ribbon shifting mechanism to hold the latter at the limit of its movement against the tension of the said spring and a ribbon having a stop to operate the said plate or bar to release the said ribbon shifting mechanism, substantially as and for the purpose set forth.

5. In a typewriting machine the combination with the ribbon shifting mechanism, and a spring to exert a constant pressure thereon, of a plate or bar having a projection to engage with a corresponding projection on the ribbon shifting mechanism to hold the latter at the limit of its movement against the tension of the spring, and a trip having connection with the said plate or bar and a ribbon having a stop to engage with the said trip to release the ribbon shifting mechanism, whereby a reverse of the ribbon is effected by the said spring, substantially as set forth.

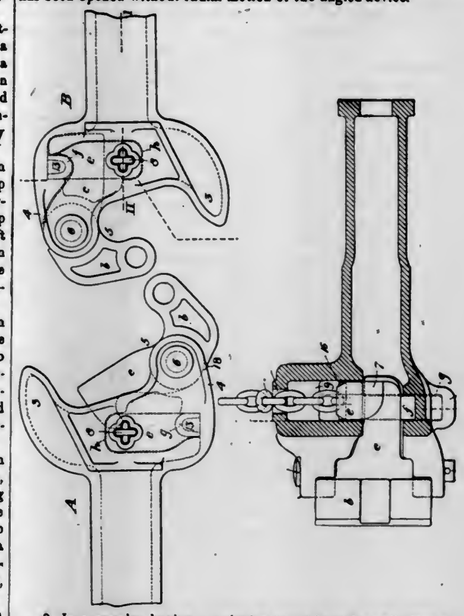
6. In a typewriting machine the combination with the ribbon shifting mechanism, and a spring to move the same in one direction, of a plate or bar having a projection to engage with a corresponding projection on the said ribbon shifting mechanism to hold the latter at the limit of its movement against the pressure of the spring, and a trip connected with the said plate or bar and having parallel portions between which the ribbon passes and constructed to be operated by a stop on the said ribbon to effect a reverse of the shifting mechanism to reverse the ribbon, substantially in the manner set forth.

7. In a typewriting machine the combination of a ribbon provided with stops at the required distance apart, the ribbon shifting mechanism, a trip carried by the said ribbon shifting mechanism and adapted to be struck by a portion of the carriage, a spring for moving the ribbon shifting mechanism in one direction, an elevating mechanism constructed to be operated by one of the stops on the ribbon to project the said trip within the path of the carriage, and a plate or bar having a projection to engage with a corresponding projection on the ribbon shifting mechanism to hold the latter against the pressure of the spring, and constructed to be actuated by the other stop on the ribbon to release the ribbon shifting mechanism, whereby a reverse of the ribbon is effected by means of the said spring, substantially as set forth.

521,092. CAR-COUPLING. CLINTON A. TOWER, Cleveland, Ohio, assignor to the National Malleable Castings Company, same place. Filed Mar. 26, 1894. Serial No. 505,135. (No model.)

Claim.—1. In a car coupler, a swinging knuckle, a locking device including as one of its members a locking head adapted to fit over the tail of the knuckle, and a downwardly projecting member adapted to be swung laterally to open the knuckle, means whereby said locking device is given a limited initial vertical motion, the length of the locking head and the amount of vertical movement of which the device is capable, being so related that said initial vertical motion frees the locking head from the knuckle, whereby the knuckle may be swung without radial movement of the locking device, said knuckle having a projecting arm extending when closed in a plane transversely from the end of said tail, and adapted when the knuckle is swung open, to support the locking device; substantially as described.

2. A coupler having a swinging knuckle and a radially movable angled locking and opening device having means for lifting it to clear the knuckle and for tipping it subsequently to open the same, said knuckle having a horizontally and transversely projecting intermediary arm of such length and position, that, as the knuckle is swung open, said arm shall continue to occupy a position beneath said device to prevent it from dropping back of the tail of the knuckle, the arms of said locking device being of such relative lengths that said device is supported in its tilted position by the floor of the coupler-head alone and being supported by said arm alone when the knuckle has been opened without radial motion of the angled device.

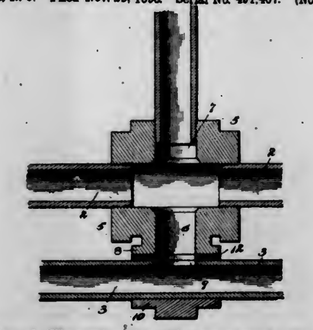


3. In a coupler having a swinging knuckle with a tail piece, a locking device having a locking head engaging the tail piece and having the transverse member *e* and the vertical member *f* with means for moving the latter radially against the tail of the knuckle to force the latter outwardly, said coupler head being provided with a shoulder located below the plane of the transverse member of the locking device, said vertical member of the locking device being adapted to engage said shoulder, substantially as described.

4. In a coupler having a swinging knuckle with a tail piece, the coupler head having the shoulder 13, the locking device carrying a head engaging the tail piece and having the transverse and vertical members, the latter being provided with the recess, the upper end of which is adapted to engage the shoulder whereby the transverse member is kept from contact with the knuckle; substantially as described.

5. In a coupler, the combination of a swinging knuckle having a rearwardly extending arm and a radially movable angled piece which moves in a vertical plane within the coupler-head, and is adapted to engage the rear arm of the knuckle, said rear arm serving as a stop to prevent radial motion of the angled piece beyond a predetermined limit; substantially as described.

521,093. STEAM HEATING APPARATUS. ELIAS WATTS, Keyport, N. J. Filed Nov. 20, 1893. Serial No. 491,467. (No model.)

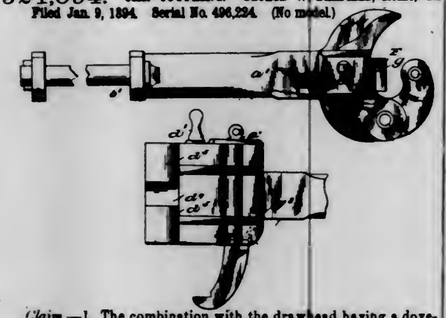


Claim.—1. The combination with a steam-supply pipe, of a coupling having an upper arm for the attachment of a radiator and a lower

arm terminating in a seat which is provided with a removable cap, and a return or waste-water pipe fitting in said seat and provided with an opening registering with the bore of said lower arm, substantially as specified.

2. In a steam-heating system, the combination with a steam-supply pipe inclined upward from the supply-boiler, and a juxtaposed parallel return or waste-water pipe, of a coupling having lateral registering arms for attachment to the adjacent terminals of the sections of the steam-supply pipe, an upper arm for attachment to a radiator, and a lower arm in alignment with said upper arm and terminating at its lower end in a concaved seat for the reception of said return pipe, a gasket arranged upon the seat in contact with said return pipe, the latter being provided with an opening registering with the bore of the lower arm of the coupling, a removable cap secured to the lower arm of the coupling and embracing the lower side of said return pipe, and means for detachably securing said cap to the coupling, substantially as specified.

521,094. CAR-COUPLING. GEORGE W. BARFIELD, Rome, Ga. Filed Jan. 9, 1894. Serial No. 496,224. (No model.)

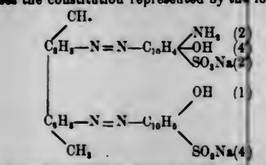


Claim.—1. The combination with the drawhead having a dovetail slot in its under side, a rearward hollow web and a pivoted jaw or knuckle, of a hook having an upper dovetail end fitting said slot and provided with a hole or opening, and a nutted bolt passed through said hole and said hollow web, substantially as set forth.

2. The herein-described improved car coupling, comprising the drawhead having a rigid hook projecting from its under side and also provided with a forward flared end and a central chamber, a hollow rearward extension, two corresponding key-plates, draft-pins passed through holes in said key-plates, a jaw or knuckle pivoted to one side of said flared end and having a curved tongue movable in said chamber, the block fitted in said chamber for locking said tongue therein, the rod extending from said block, and means connected to said rod for operating said block from the sides or top of a car, substantially as set forth.

521,095. SUBSTANTIVE BLUE DYE. HEINRICH A. BERTHSEN, Mannheim, and PAUL JULIUS, Ludwigshafen, assignors to the Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Filed Mar. 30, 1894. Serial No. 505,739. (Specimens.) Patented in England Feb. 6, 1893, No. 2,614, and in France May 15, 1893, No. 227,892.

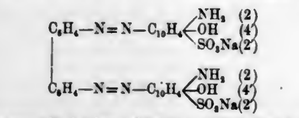
Claim.—As a new article of manufacture the new coloring-matter which can be derived from tetrazo-ditolyl, the 2.4′.2′-amidonaphthol-sulfoacid and 1.4-naphthol-sulfoacid and in the form of soda salt possesses the constitution represented by the formula:



and which is readily soluble in hot and cold water giving red violet solutions, slightly soluble in alcohol, practically insoluble in benzene, ether and ligroin, soluble in sulfuric acid giving a beautiful blue solution and which on diazotising on the fiber assumes a blue color, all substantially as hereinbefore described.

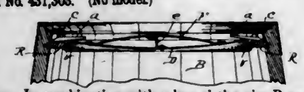
521,096. SUBSTANTIVE VIOLET DYE. HEINRICH A. BERTHSEN, Mannheim, and PAUL JULIUS, Ludwigshafen, assignors to the Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Filed Mar. 30, 1894. Serial No. 505,740. (Specimens.) Patented in Germany Jan. 9, 1893, No. 75,489; in England Feb. 6, 1893, No. 2,614, and in France May 15, 1893, No. 227,892.

Claim.—As a new article of manufacture the new coloring-matter which can be derived from tetrazo-diphenyl and the 2.4′.2′—amidonaphthol-sulfoacid and in the form of soda salt possesses the constitution:



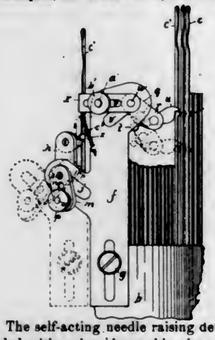
and which occurs in the form of a dark powder which is readily soluble in hot and cold water giving claret red solutions, slightly soluble in alcohol, practically insoluble in benzene, ether and ligroine, soluble in sulfuric acid giving a beautiful blue solution, and which on diazotizing on the fiber assumes a grayish-green color all substantially as hereinbefore described.

521,097. BARREL-HEAD. WILLIAM C. BLUNDELL, Wichita, Kans., assignor of one-half to George P. Dold, same place. Filed Apr. 30, 1892. Serial No. 431,303. (No model.)



Claim.—In combination with a barrel the rim R provided with the groove V and with the studs *c*; the packing placed in said groove; the head D provided with the marginal flange D′; and the keepers *a* made at one end with a hole and at their portion extending from said hole with a laterally beveled under side, and placed on said studs, and adapted to be turned radially on said studs to bring their beveled under side to ride upon the head D, substantially as set forth.

521,098. SELF-ACTING FASHIONING DEVICE FOR CIRCULAR-KNITTING MACHINES. ERNEST C. BRAITHWAITE and JOHN W. HEPWORTH, Philadelphia, Pa. Filed Oct. 15, 1892. Serial No. 449,029. (No model.)



Claim.—1. The self-acting needle raising device consisting of a bracket *f* provided with a slot *j* in combination with the lever *h* provided with the finger *i*, the pin *k*, the lever *m* provided with a slot *n* and the pin *o*, substantially as set forth.

2. The self-acting needle-raising device consisting of a bracket *f* provided with a slot *j* in combination with the lever *h* provided with the finger *i*, the pin *k*, the lever *m* provided with the slot *n*, the pin *o* and thumb-screw *p*, substantially as set forth.

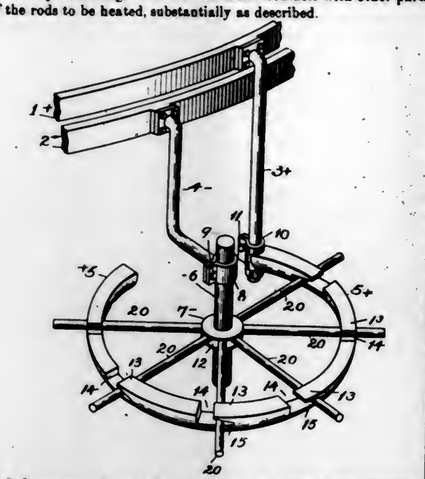
3. The self-acting needle lowering device consisting of a bracket *f*, provided with a slot *v* in combination with a lever made in two parts *q* and *r* united by a spring controlled hinge-joint *s*, pin *w*, lever *x* provided with a slot *y*, a spring *z* and a pin *a′*, substantially as set forth.

4. The self-acting needle lowering device, consisting of a bracket *f* provided with a slot *v* in combination with a lever made in two parts *q* and *r* united by a spring controlled hinge-joint *s*, pin *w*, lever *x* provided with a slot *y*, spring *z*, pin *a′* and a thumb-screw *b′*, substantially as set forth.

521,099. ELECTRIC HEATING APPARATUS. GEORGE D. BURTON, Boston, Mass. Filed Aug. 11, 1893. Serial No. 482,935. (No model.)

Claim.—1. In an electric heater, the combination of a central hub attached to one terminal of the converter, and provided with means for receiving one end of the rod to be heated, and an arc-shaped conductor attached to the other terminal of the converter arranged to swing radially toward and away from said central hub, and provided with a jaw arranged to hold and make contact with another part of the rod to be heated, substantially as described.

2. In an electric heater, the combination of a central hub attached to one terminal of the converter and provided with means for receiving one end of the rods to be heated, and an arc-shaped conductor attached to the other terminal of the converter, arranged to swing radially toward and away from said central hub and provided with a series of jaws arranged to hold and make contacts with other parts of the rods to be heated, substantially as described.

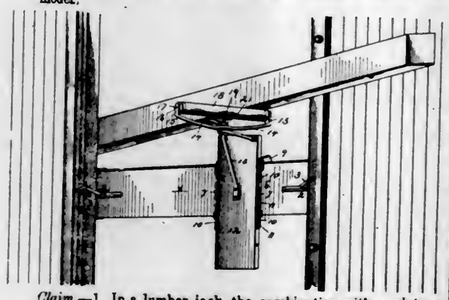


3. In an electric heater, the combination of a central hub attached to one terminal of the converter and provided with a V-shaped circumferential slot for receiving one end of the rods to be heated, and an arc-shaped conductor attached to the other terminal of the converter, arranged to swing radially toward and away from said central hub and provided with a series of jaws arranged to hold and make contact with another part of the rods to be heated, substantially as described.

4. In an electric heater, the combination of a central hub, attached to one terminal of the converter and provided with a V-shaped circumferential slot for receiving one end of the rods to be heated, and an arc shaped conductor attached to the other terminal of the converter, arranged to swing radially toward and away from said central hub, and provided with a series of jaws under cut circumferentially into the substance of the conductor, substantially as described.

5. In an electric heater, the combination of a central hub attached to one terminal of the converter and provided with means for receiving one end of a rod to be heated, and an arc-shaped conductor attached to the other terminal of the converter and adapted to swing away from and toward said central hub, said conductor being provided with a series of undercut tapering jaws, substantially as set forth.

521,100. LUMBER-JACK FOR RAILROAD-CARS. CHARLES D. CLARKE, Merrill, Wis. Filed Nov. 28, 1893. Serial No. 492,232. (No model.)



Claim.—1. In a lumber jack, the combination with a plate or board and means for supporting the same, of an angularly adjustable yoke mounted upon said plate or board, a roller carried by said yoke, and means for securing the yoke in its adjusted positions, substantially as specified.

2. The combination with a plate or board, and means for supporting the same, of a pivot-pin rising vertically from a bracket carried by said plate or board, a yoke mounted centrally upon said pivot-pin, a roller carried by the yoke and a locking nut threaded upon the pivot-pin and adapted to secure the yoke in its adjusted positions, substantially as specified.

3. The combination with a supporting bar, of a stirrup having parallel arms provided with bayonet-slots, supporting hooks carried by the stirrup and engaging said bar an adjustable plate or board arranged to fit between said parallel arms of the stirrup and provided with lateral pins to engage the slots in such arms, and a roller carried by the plate, substantially as specified.

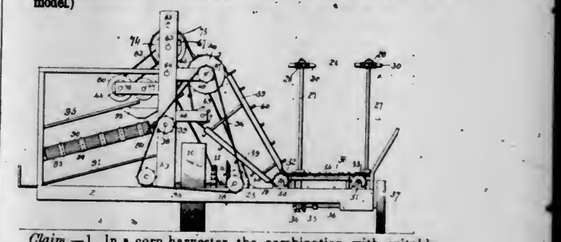
4. The combination of a supporting bar, clamps carried by the bar for engaging the frame of a car door opening, means for adjusting said clamping devices longitudinally of the bar, a stirrup provided with supporting hooks to engage the supporting bar, a plate connected to the stirrup and a roller carried by said plate, substantially as specified.

5. The combination of a supporting bar provided with longitudinal slots, clamping devices arranged at the extremities of the bar, and comprising clamping hooks having threaded shanks to extend through said slots, slidable plates having perforations to receive the shank of the clamping hooks, and adjusting nuts threaded upon said shanks, a stirrup having hooks to engage said supporting bar, a plate connected to the stirrup and a roller carried by the plate, substantially as specified.

6. In a lumber jack or piler, the plate or board having the pins 11 at each side, a stirrup having slots at the sides to receive the pins, hooks 9 on the stirrup, and the roller at the top of the plate or board, substantially as described.

7. In a lumber jack or piler, the plate or board, a bracket arranged thereon, a horizontal yoke carried by and adjustable in a horizontal plane on the bracket, means for adjusting the yoke, a roller mounted in the yoke and vertically-adjustable hooks 9 mounted on the plate or board at each side, substantially as described.

521,101. CORN-HARVESTING MACHINE. CHARLES K. CONNER, New Philadelphia, Ill. Filed Apr. 6, 1891. Serial No. 387,851. (No model.)



Claim.—1. In a corn harvester, the combination with suitable harvesting and elevating mechanism, of a pair of rolls arranged in rear of said elevating mechanism, means for operating the rolls, slots formed in the lower rolls, slots formed in the upper rolls, radial rods arranged in and connecting the slots of one of the rolls and projecting beyond the latter, knives carried by the rods, and an upper pressure roll, substantially as specified.

2. In a corn harvester, the combination with cutting and elevating mechanisms, of a pair of vertically opposite parallel shafts, rolls carried by the shafts, slots formed in the lower roll, slots formed in the upper roll, radial rods arranged in the ends of the slots of the upper roll, longitudinally disposed knives arranged in the slots and connected to the rods, and devices arranged above the upper roll and adapted to depress the rods through the bottom slots, substantially as specified.

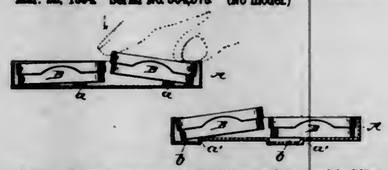
3. In a corn-harvester, the combination with the cutting, operating mechanism, of a pair of inclined husking rolls, one of which is provided with longitudinal grooves, and the other of which is longitudinally grooved and at intervals annularly grooved, belts arranged in the latter grooves, and teeth extending from the belts, substantially as specified.

4. In a corn-harvester, the combination with the framework, the cutting mechanism arranged in advance thereof, the endless carrier supported in rear of the cutting-mechanism, the inclined carrier arranged at the side of the endless carrier, and means for operating these carriers, of standards arranged at the side of the inclined carrier, pairs of separating rolls arranged in the standards, an intermediate slotted apron between the upper end of the inclined carrier and the under side of the lower cutting-rolls, husking-rolls arranged at one side of the cutting-rolls, conveying devices between the slotted apron and the husking rolls, means for operating the husking-rolls, and conveying devices leading from the cutting-rolls, substantially as specified.

5. In a corn-harvester, the combination with the frame work, the cutting and delivering-mechanisms, and means for operating said

mechanisms, of standards arranged at the side of the delivering mechanisms, separating rolls arranged in said standards adjacent to the upper end of the delivery mechanism, an inclined slotted apron arranged between the delivering mechanism and the lower side of the separating mechanism, a pair of inclined husking-rolls, an intermediate conveying device between the apron and the rolls, a pair of superimposed cutting rolls, and means for operating said rolls, substantially as specified.

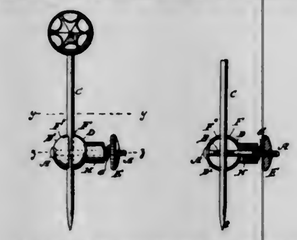
521,102. PACKING OR HOLDING CASE. JOHN CROCKER, New York, N. Y., assignor of one-half to Frederick Leach, same place. Filed Mar. 22, 1894. Serial No. 504,578. (No model.)



Claim.—1. The combination, with a packing and holding case, and a series of boxes or other receptacles contained therein, of fulcra arranged beneath such boxes or other receptacles and upon which they may be tilted when their removal is desired, substantially as described.

2. The combination, with a packing and holding case provided with fulcra in its bottom, of a series of boxes or receptacles arranged within such packing and holding case upon the fulcra, whereby one of their ends is held tilted slightly from said bottom, as and for the purposes set forth.

521,108. SAFETY DEVICE FOR SCARF-PINS. MARCUS CROHN, New York, N. Y. Filed Mar. 9, 1894. Serial No. 502,985. (No model.)



Claim.—1. A device for securing scarf pins and the like, consisting of a screw-stem having an eye for the passage of the pin or shank, a nut engaging the stem, a clamp mounted on the stem, movable along the same and provided with a recess to engage the pin or shank at a point remote from the eye, and a spring arranged on the stem between the said clamp and the said nut, substantially as described.

2. A screw stem provided with an eye adapted for the entrance of a pin or shank, a nut on said stem, a clamp actuated by the nut to engage the pin, and a spring interposed between the nut and the clamp substantially as described.

3. A screw stem provided with an eye adapted for the entrance of a pin or shank, a nut on said stem, a clamp actuated by the nut to engage the pin, a spring interposed between the nut and clamp, and a housing or shell for the spring substantially as described.

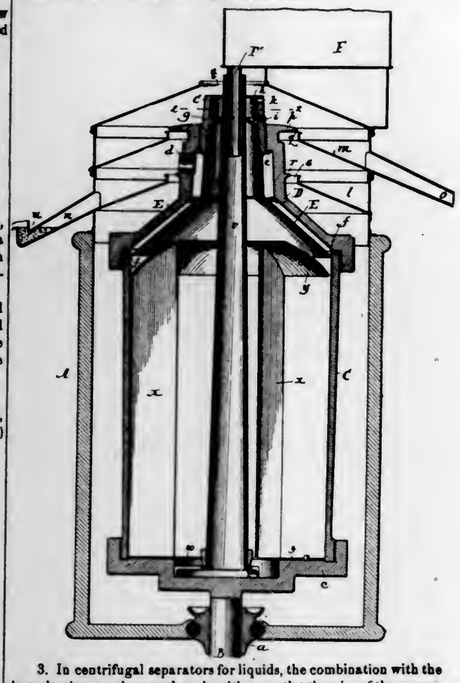
4. A screw stem provided with an eye adapted for the entrance of a pin or shank, a nut on said stem, and a clamp actuated by the nut to engage the pin, said clamp being composed of two sections located on opposite sides of the eye, one of the sections being connected to the screw stem and the other section being actuated by the nut substantially as described.

5. A device for securing scarf-pins and the like, consisting of a screw-stem having an eye for the passage of the pin or shank, a nut on the stem, and a clamp composed of two opposite notched sections D D′ mounted on the screw-stem and between which the pin or shank is adapted to pass through the eye of the stem for clamping pins of varying thickness, substantially as described.

521,104. CENTRIFUGAL SEPARATOR FOR LIQUIDS. DANIEL J. DAVIS, Chicago, Ill. Filed Nov. 11, 1893. Serial No. 490,653. (No model.)

Claim.—1. In centrifugal separators for liquids, the combination with the drum having an elongated neck with an outlet therein, of the removable separating dome inclosed liquid-tight but detachably by said neck beyond the outlet thereof and interspaced from the drum-wall by a suitable stop whereby a free channel is established from the drum interior to the outlet at the neck, substantially as described.

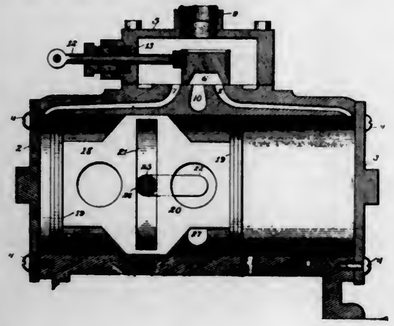
2. In centrifugal separators for liquids, the combination with the drum having an elongated neck with an outlet therein, of the removable separating dome detachably threaded to said neck beyond the outlet and provided with a stop-flange to interspace it from the wall whereby a free channel is established from the drum interior to the outlet at the neck, substantially as described.



3. In centrifugal separators for liquids, the combination with the drum having an elongated neck with an outlet therein, of the removable separating dome detachably threaded to said neck beyond the outlet and provided with a stop-flange to interspace it from the wall whereby a free channel is established from the drum interior to the outlet at the neck; said dome having an inset overflow ledge and a discharge port beyond the same and beyond the joint of the dome with the drum-neck, substantially as described.

4. In centrifugal separators, the combination with the surrounding tier-pans having air-inlet at top and usual discharge tubes, the lower of which is furnished with a trap or seal, of the drum-neck interspaced from said pans, and provided with an overhang lip located within the upper pan, substantially as described.

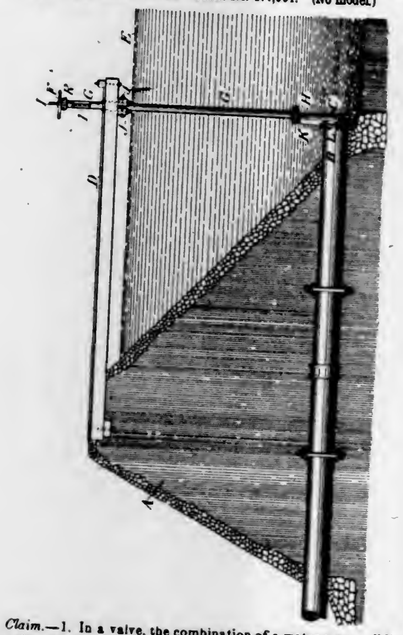
521,105. STEAM-ENGINE. ROBERT B. DAVIS, Altoona, Pa. Filed Dec. 19, 1893. Serial No. 494,049. (No model.)



Claim.—1 In an engine, the combination with a cylinder, valve, slotted piston, diametrical shaft provided with a crank adapted to move within the slot of the piston and mechanism connecting the shaft and valve, of elongated apertures in the sides of the cylinder of a size sufficient to permit of the removal of the shaft and having converging sides and bottom, a plug having its sides and bottom correlatively wedge shaped and provided with a bearing recess at its upper end, and mechanism adapted to urge the plug laterally and longitudinally to compensate for wear, substantially as specified.

2. The combination with a cylinder, piston, and rotary shaft, of bearings in the walls of the cylinder consisting of an elongated aperture having converging sides, and a plug correlatively wedge shaped, the ends of the apertures and plugs being recessed for the reception of the shaft, and means for urging the plug to compensate for wear, substantially as specified.

521,106. SLUICE-VALVE. WILLIAM A. DOBLE, San Francisco, Cal. Filed June 17, 1893. Serial No. 477,961. (No model.)



Claim.—1. In a valve, the combination of a water-way, a sliding valve plate sliding on and opening and closing said water-way, a valve frame with guides at the sides overlapping and guarding the valve plate as shown, the ends of these side guides terminating in curves corresponding to the perimeter of the valve plate so that the latter will be positively stopped by said curves at the ends of its stroke, the operating gearing to open and close the valve, and a rigid strut or tubular connection between the valve and said gearing said strut being rigidly supported and providing a passage for the valve stem and a platform supported above the level of the water by means of said strut or connection, substantially as specified.

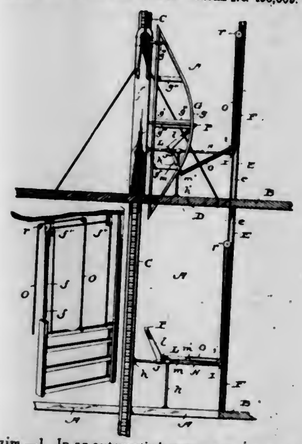
2. In a sluice valve, the combination of the water-way a valve frame attached thereto, a sliding valve plate which opens and closes the water-way, side guides and curved steps on the valve frame for guiding and controlling the movement of the valve plate, a valve stem connected to the valve, a screw nut and wheel attached to the upper end of the valve-stem and operated to lift or lower said stem and its valve, and a strut or tubular connection between the valve and said gearing which is rigidly supported in an upright position so that the strain of opening and closing the valve may not act upon the valve itself but upon said connection and a bridge or platform supported above the level of the water by means of said strut or connection, substantially in the manner specified.

3. In a sluice valve, the combination of the water-way, a valve frame attached thereto, a valve-plate sliding on said frame and opening and closing the water-way, guides at the side of the frame overlapping and guarding the valve-plate as shown, the ends of these side guides terminating in curves corresponding to the perimeter of the valve plate, a strut or connection rigidly supported and extending upward from the valve, a bridge or platform supported above the level of the water by means of said strut or connection, the valve-stem within the strut attached to the valve-plate and an operating wheel at the upper end of said valve-stem for the purpose of sliding the valve-plate to open and close it, substantially as specified.

4. The combination of the subterranean water-way, the vertical valve frame having a flanged coupling thereon to receive said water-way, a sliding valve for opening and closing the water-way, guides at the sides of the valve-frame overlapping and guarding the valve-plate as shown, the ends of these side guides terminating in curves corresponding to the perimeter of the valve-plate so that the latter will be positively stopped by these curves at the ends of its stroke, a valve-stem the sleeve on the valve for receiving the valve-stem and the cross bolts for securing said stem to the valve, a strut or connection fastened to the valve frame and rigidly supported thereby, a bridge or platform supported above the water level by means of the said strut, a screw-nut bearing attached to the upper end of the strut, a screw nut supported thereby and engaging the upper screw-threaded section of the valve-stem and an operating wheel to which the screw nut is attached, all substantially as described.

5. The combination of the water way, a valve frame attached thereto, a valve-plate sliding on said frame and opening and closing the water-way, guides at the sides of the frame overlapping and guarding the valve-plate, a strut or connection rigidly supported and extending upward from the valve, a bridge or platform supported above the level of the water by means of said strut or connection and a valve-stem within the strut, attached to the valve-plate and provided at its upper end with means for operating the same, substantially as described.

521,107. AUTOMATIC HATCHWAY. JAMES M. ELDER, Indianapolis, Ind. Filed Dec. 7, 1893. Serial No. 493,069. (No model.)



Claim.—1. In an automatic hatchway, the cam having its curved front side and its rear side braced by intermediate struts, combined with a sliding gate, the horizontal bar, a bracket in which one end of said horizontal bar is fixed, the vertical brace for the horizontal bar, the clamp fixed to the bar and having the bearing, the lever fulcrumed in the bearing, a cam contact shoe at one end of the lever for said cam to ride against, the pulleys journaled in the bracket and the lever, and a cord or rope passing around said pulleys on the lever and bracket and attached at one end to a gate and at its other end to said bracket, substantially as and for the purposes described.

2. In an automatic hatchway, the combination with a sliding door, and a cam on the elevator cage, of the bracket fixed on one side of the hatchway and provided with the duplex guide pulleys and a socket, a horizontal bar fitted in said socket of the bracket, a sleeve clamped to said bar and provided with a bearing, a lever having its arms arranged out of line with each other and joined at their contiguous ends by a trunnion which is fitted in said bearing, a cam-contact shoe at one end of the lever, and a multiplying cord passing back and forth around alternate guide pulleys on the bracket and lever and having one end attached to the bracket and the other end to the gate, substantially as and for the purposes described.

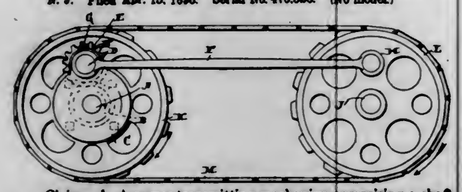
3. In an automatic hatchway, the combination with a sliding gate and a cam on the elevator cage, of a fixed bracket provided with duplex guide pulleys, a lever provided at one end with a cam contact shoe and at its other end with duplex guide pulleys, a fixed bearing in which the lever is fulcrumed, a stop supported by the bearing and

arranged in the path of one arm of said lever to limit the throw of the lever in one direction and hold the same in a position where its cam-contact shoe is in the path of the cage-cam, and a continuous multiplying cable passing back and forth around alternate guide pulleys on the fixed bracket and lever having its respective ends attached to the bracket and to the gate, substantially as and for the purposes described.

4. In an automatic hatchway, the combination with a sliding gate and a cam carried by an elevator cage, of a fixed horizontal bar, a fixed bracket having duplex guide pulleys journaled therein, a bearing clamped to the horizontal bar, a lever fulcrumed to said bearing and carrying a cam-contact shoe and duplex guide pulleys at its respective ends, and a continuous multiplying cable passing back and forth around alternate guide pulleys on the bracket and lever and having its respective ends attached to the gate and bracket, substantially as described

---

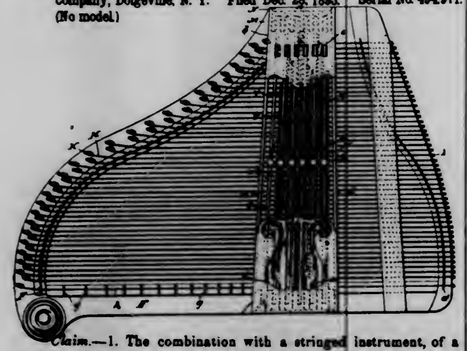
521,108. POWER-TRANSMITTING MECHANISM. DAVID C. FRAKER, New Market, assignor of one-half to John A. Frech, Somerville, N. J. Filed Apr. 15, 1893. Serial No. 470,528. (No model.)



Claim.—1. A power transmitting mechanism comprising a shaft carrying a pinion, a casing revolving around the pinion, a pinion supported by the casing and revolving around and engaging the shaft pinion, a pitman having a detachable connection with the casing pinion, and means for attaching the pinion to the casing.

2. A power transmitting mechanism comprising a shaft carrying a pinion, a casing revolving around the said pinion, a sprocket carried by the casing, a pinion supported and carried by the casing and engaging the shaft pinion, a pitman rigidly connected at one end with the casing pinion, a shaft carrying a crank with which the opposite end of the pitman is connected, a sprocket wheel upon the crank shaft, and a driving belt or chain connecting the two sprockets.

521,109. HARP. ALDIS J. GERY, Dolgeville, and RUDOLF DOLGE, New York, assignors, by mesne assignments, to the C. F. Zimmermann Company, Dolgeville, N. Y. Filed Dec. 23, 1893. Serial No. 494,971. (No model.)



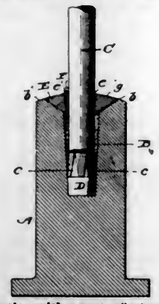
Claim.—1. The combination with a stringed instrument, of a series of damper bars made movable and shiftable independently of one another, and adjustable dampers carried by and movable independently of one of said shiftable damper bars, substantially as described.

2. The combination with a stringed instrument, of a series of damper bars made lengthwise shiftable independently of one another and a slide having dampers and carried by and movable independently of one of said damper bars, substantially as described.

3. The combination with a stringed instrument, of a shiftable damper bar provided with a slide mounted to move along a side face of the bar, dampers supported by said slide clear of the bar, and a shifter or trigger for moving said slide, substantially as described.

521,110. FENCE-POST. CHRISTIAN GROS, Delphi, and JOHN F. THOMAS, Camden, Ind. Filed Jan. 17, 1894. Serial No. 497,192. (No model.)

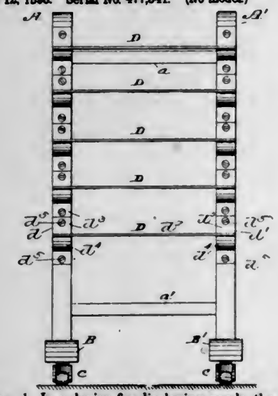
Claim.—1. The combination of a base made of a single piece with a solid lower portion and provided with a vertically tapered socket in its upper portion, a post having its hollow lower end divided longitudinally and forming a plurality of wedge shaped projections, the plug fitting in the lower end of the post and expanding the projections thereof into tight frictional contact with the walls of the socket in said base, and a filling in the base-socket, above the plug therein, and around the post, substantially as and for the purposes described.



2. The combination with a post, of a base having a socket for the post and a cavity or depression in its upper end, a plug contained within the socket and forced by the post against the walls of the socket, a cap fitted around the post and within the cavity of the base, and a key engaging with the post and the cap, for the purposes described, substantially as set forth.

3. A base provided with a socket, the sloping upper edge, and a cavity or depression within said upper end and the sloping edge, combined with a post fitted in the socket, a cap fitted around the post and having its lower side conforming to the cavity or depression and its upper side sloping from the post-opening to the sloping edge of the base, and means for fastening the post to said cap, for the purposes described, substantially as set forth.

521,111. SHOW-STAND. LOUIS J. HAAGEN, Alton, Ill. Filed June 12, 1893. Serial No. 477,341. (No model.)

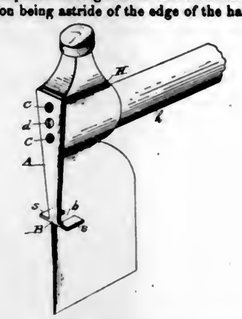


Claim.—1. In a device for displaying goods, the uprights A, A', respectively attached to the base pieces B, B', combined with the goods supports D, each consisting of integral parts namely of brackets d, d', each of said brackets having a base d^3, adapted to be secured to one of the uprights, and provided with a curved widened rest d^5, said rests being connected together by rod d^3 integral with the rests, substantially as described.

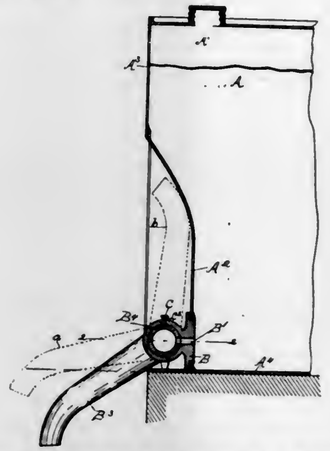
2. As an article of manufacture and sale, the within described goods displaying device, consisting of the bases d, d', each having a curved and widened rest the two being connected by the rod d^3, the several parts integral, and the entirety combined with the uprights and adapted for use in the manner set forth.

521,112. SHINGLE-GAGE. BENJAMIN HAWK, Santa Fé, Okla. Filed Jan. 18, 1894. Serial No. 497,260. (No model.)

Claim.—In combination with a hatchet provided with a handle a shingle-gage comprising a shank having a series of vertically-arranged holes in its upper end, a bifurcated right-angled extension at its lower end, said extension being wider than the lower end of the shank, and a screw passed through one of said holes and into the handle, the bifurcation being astride of the edge of the hatchet.



521,113. OIL-CAN. CHARLES W. HART, Troy, N. Y., assignor, by mesne assignments, to the Hart Manufacturing Company, same place. Filed Nov. 1, 1893. Serial No. 489,699. (No model.) Patented in England Mar. 15, 1892, No. 5,090; in France Mar. 15, 1892, No. 220,157; in Belgium Mar. 15, 1892, No. 98,816; in Germany Mar. 15, 1892, No. 66,651; in Canada Apr. 12, 1892, No. 38,726, and in Austria-Hungary Aug. 23, 1892, No. 14,199.



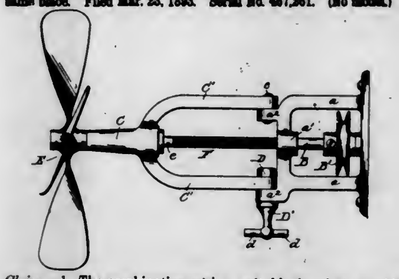
Claim.—1. The combination with a reservoir of an outlet-faucet having an oscillatory nozzle and a valve operated by the movements of the nozzle, so arranged relatively to each other that the valve is open only when the nozzle is below the level of the valve-outlet, and is closed by the upward movement before the nozzle reaches such level, substantially as described.

2. The combination with a can having the outlet provided with a valve for controlling the same, of a nozzle attached to said valve, the nozzle being movable in a vertical plane and having a passage arranged to register with the outlet only when the mouth of the nozzle is situated in a plane below the supporting base of the can, whereby the nozzle can be drained after the valve is closed and before said nozzle is raised to a horizontal position, and whereby the valve can be automatically closed and held closed when the can and its nozzle are placed on the level of the ground or other supporting plane, substantially as described.

3. In a faucet-valve having a spigot provided with an angular oscillatory nozzle, and a spigot-socket provided with an inlet adapted to register with the spigot opening, a yielding stop connection between the spigot and socket whereby the nozzle is temporarily supported in the draining position, substantially as described.

4. In a faucet-valve having a spigot provided with an angular oscillatory nozzle, and a spigot-socket provided with an inlet adapted to register with the spigot opening, the combination with a plurality of stop-seats on the spigot, of a yielding stop on the socket, whereby the nozzle can be successively supported in predetermined positions, substantially as described.

521,114. VENTILATING-FAN. HORACE HOBBS, Milwaukee, Wis., assignor, by mesne assignments, of one-half to Augustus W. Friese, same place. Filed Mar. 23, 1893. Serial No. 467,961. (No model.)



Claim.—1. The combination with a suitable bracket provided with means for attachment to a wall or other stationary support, and having horizontally disposed journal bearings therein, a drive shaft journaled in said bearings and carrying a drive pulley, a yoke or frame pivotally engaged with the outer part of said bracket and provided in its outer end with a bearing, a shaft journaled in said bearing and carrying a fan, and a universally flexible shaft connecting the adjacent ends of the drive shaft and the fan shaft, substantially as described.

2. The combination with a suitable bracket provided with means for attachment to a wall or other stationary support, and having horizontally disposed journal bearings therein, a drive shaft journaled in said bearings and carrying a drive pulley, horizontal extensions upon the bracket above and below the outer end of the drive shaft, a bifurcated yoke provided at its outer end with a journal bearing, and having its inner ends pivotally engaged with the horizontal extensions upon the bracket, a shaft revolubly supported in the journal bearings in said yoke and carrying a fan at its outer end, and a universally flexible shaft connecting the inner end of the fan shaft with the outer end of the drive shaft, substantially as described.

3. The combination with a suitable bracket provided with means for attachment to a wall or other stationary support, and provided with horizontally disposed journal bearings, a drive shaft journaled in said bearings and carrying a drive pulley, horizontal apertured ears upon the outer end of the bracket and located above and below the outer end of the drive shaft, a bifurcated yoke provided at its outer end with a journal bearing, a shaft journaled therein and carrying a fan at its outer end, pivotal connections between the apertured ears upon the bracket and the ends of the bifurcations of the yoke, a set screw for securing said yoke in an adjusted position with respect to the bracket, and a universally flexible shaft connecting the inner end of the fan shaft and the outer end of the drive shaft, substantially as described.

521,115. BAND-CUTTER. WILLIAM J. HOPPER, McLeansborough, Ill., assignor of one-half to James E. Robinson, same place. Filed Jan. 24, 1893. Renewed Nov. 6, 1893. Serial No. 490,168. (No model.)



Claim.—1. In a tool for cutting bands of grain bundles, a handle, a slotted hook at one end of the handle integral therewith and extending at an angle thereto, a fixed and a pivoted blade arranged within the hook, substantially as described and for the purpose specified.

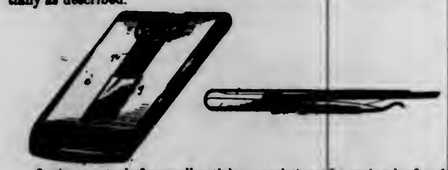
2. The herein described tool for for cutting grain bands, the same comprising a handle, a hook at one end thereof and extending at an angle thereto, two blades within the entrance of the hook, one of the blades being fixed and the other pivoted and a spring attached to the outer under face of the hook with its free end bearing against the lower edge of the pivoted blade near its free end, substantially as and for the purpose described.

521,116. RECEPTACLE FOR SMALL ARTICLES. THOMAS D. INGRAM, Washington, D. C. Filed Feb. 15, 1894. Serial No. 500,297. (No model.)

Claim.—1. A receptacle for small articles, consisting of a spring leaf and co-operating back, the spring leaf having a longitudinal slot extending to its line of connection with the back; substantially as described.

2. A receptacle for small articles, consisting of a slotted spring leaf and co-operating back, the back being provided with an inwardly

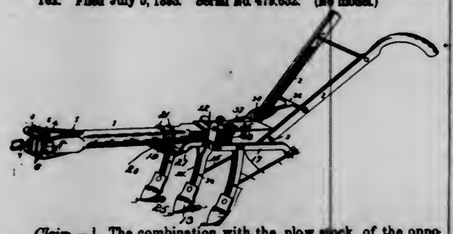
projecting ridge upon which the articles are adapted to rest; said ridge extending longitudinally along the back and opposite the slot, whereby the sides of the slot form guides to direct the thumb during the expelling operation directly above and along said ridge; substantially as described.



3. A receptacle for small articles, consisting of a spring leaf and co-operating back, the spring leaf being slotted longitudinally, and a slide operating within the slot and having an inwardly extending projection against which the articles are adapted to rest; substantially as described.

4. A receptacle for small articles, consisting of a spring leaf and co-operating back, the spring leaf being slotted longitudinally, and a slide operating within the slot and having an inwardly extending projection against which the articles are adapted to rest, and the back being provided with ridges co-operating with the slide: substantially as described.

521,117. PLOW ATTACHMENT. OLE T. J[illegible], Weatherford Tex. Filed July 5, 1893. Serial No. 479,632. (No model.)



Claim.—1. The combination with the plow stock, of the opposite side beams having their front ends inwardly bent under the stock and adjustably connected therewith, the opposite standards secured to the side beams and depending therefrom, brackets laterally and inwardly extending from said side beams and taking under the beam and provided with slots, a clip plate arranged under the brackets, and bolts for securing the clip plate to the beam, said bolts also engaging the slots of the brackets, substantially as specified.

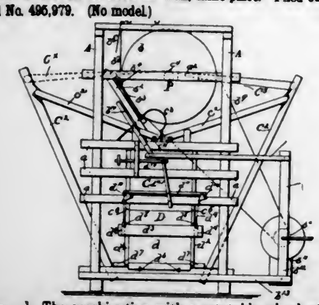
2. The combination with the plow stock, of the opposite side beams having their front ends inwardly or horizontally bent to take under the plow stock, means for securing the front ends adjustably to the stock, a pair of slotted overlapping brackets horizontally and inwardly disposed from and connected to the beams, a clip plate arranged under the slotted brackets and having an opening agreeing therewith, eye bolts at the sides of the stock and passing through the slots of the brackets and openings in the clip plate, a transverse connecting bolt passing through the upper ends of the eye bolts, a pair of handles pivoted to the rear end of the stock, a T-shaped threaded bolt pivoted in the handles, an eye bolt loosely mounted on the connecting bolt and reversely threaded to the T-shaped bolt, and an intermediate connecting turn buckle, substantially as specified.

3. The combination with the plow stock, the opposite beams having their front ends inwardly disposed, overlapped and arranged under the stock and their rear ends downwardly disposed and provided with eyes, of the clip plate arranged under the front ends, the pair of inverted U-shaped clips embracing the stocks and overlapped ends of the beams, passing through the plates and provided with nuts, the pair of bifurcated standards connected with the beams, the brace rods pivoted to the bifurcated standards, inclined rearwardly and passing through the eyes and provided at opposite sides thereof with nuts, substantially as specified.

4. The combination with the plow stock, of the opposite side beams having their front ends inwardly bent under the stock and adjustably connected therewith, the opposite standards secured to the side beams and depending therefrom, brackets laterally extending from said side beams and taking under the beam and provided with slots, and clamping devices for holding the front ends of the beams and also the brackets to the plow stock, substantially as specified.

5. The combination with the plow stock; of the opposite side beams having inwardly bent ends overlapped and adjustably clamped to the under side of the stock, said opposite side beams having downwardly curved rear ends terminating in integral eyes, the standards pivotally secured at their upper ends to said side beams, the brace rods pivotally connected at one end to said standards and having their other threaded ends project through the rear eyes of said side beams, and the adjusting nuts engaging the threaded ends of said nuts at both sides of said eyes, substantially as set forth.

521,118. BALING-PRESS. HENRY R. JERNIGAN, Charlton, Ala., assignor of one-half to Jesse H. Wall, same place. Filed Jan. 6, 1894. Serial No. 495,979. (No model.)



Claim.—1. The combination with a rotatable wheel, of inclined guides rigidly fixed adjacent to the periphery of the wheel, a friction-roller free to move in the guides and adapted to fall by its own weight into engagement with the wheel, and a lever connected with the roller, whereby it may be drawn away from the wheel, substantially as described.

2. The combination in a baling press, of a main shaft, a drive wheel mounted on the shaft, a baling box arranged beneath the shaft, baling levers mounted adjacent to the box and connected with a follower block in the box, an inclined bar arranged adjacent to the drive wheel and extending beneath the drive wheel, a roller arranged on the bar and designed to move up and down on the bar, a lever connected with the roller, and having a rope depending adjacent to the baling box, substantially as described.

3. The combination with the baling box and baling levers, of a chamber composed of movable, interlocking sides, and ends arranged below the baling box, bars engaging the movable sides, bell crank levers to which the bars are connected, and a bar arranged in the path of the movement of the baling lever, and connected to the bell crank levers, substantially as described.

521,119. COOLER. WILLIAM LINTER, Cedar Rapids, Iowa. Filed July 11, 1893. Serial No. 480,168. (No model.)



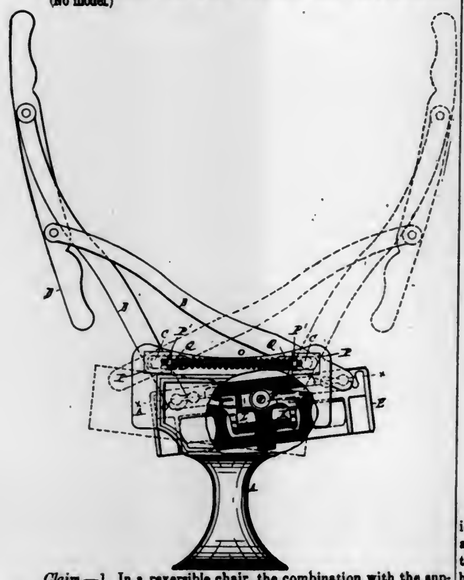
Claim.—In a cooler, the chambered base having its inner and outer walls joined at the top by an imperforate web *d* which is formed with a groove or channel, the vertical filling nozzle D situated at one side of the web *d* and communicating with the chamber in said base, and a draw-off cock near the bottom of the base, combined with a removable cover constructed to fit in the channel or groove of the base, whereby the base can be filled or emptied without removing the cover, substantially as set forth.

521,120. REVERSIBLE CAR-CHAIR. PETER LITTLE, St. Louis, Mo., assignor to Sanford G. Scarritt, same place. Filed Dec. 8, 1891. Serial No. 414,855. (No model.)

Claim.—In a reversible chair, the combination with side frames A' A' and back B, of two intersecting arms or levers C C pivoted on either side of the back and fulcrumed to the frame substantially as shown, and two links D D pivoted together the sum of whose lengths is greater than the distance between the fulcrum points of the levers, the said links connecting the levers, whereby each link may be brought alternately to the same point to be engaged by a locking device, as set forth.



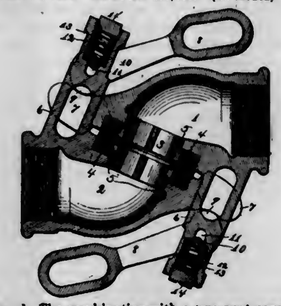
521,121. CAR-SEAT. PETER LITTLE, St. Louis, Mo., assignor to Sanford G. Scarritt, same place. Filed Mar. 12, 1892. Serial No. 424,634. (No model.)



Claim.—1. In a reversible chair, the combination with the supporting chair frame and back D, of a movable seat frame having bearings or notches formed in the ends thereof, intersecting arms pivoted on either side of said chair frame and chair back, and provided with supporting lugs at their lower ends for engagement with the bearings in the seat frame, retaining arms for said lugs pivoted to the seat frame, and springs bearing against said arms, whereby the supporting lugs are held in their bearings—substantially as set forth.

2. The combination of supporting frame A, chair back D, intersecting arms B B pivoted on either side of frame A and provided with lugs G G, sliding plates P carrying pivots C, springs O, seat frame E provided with bearings F F, retaining arms H H having pendent levers K K, springs L acting upon said arms through said levers, constructed and arranged substantially as set forth.

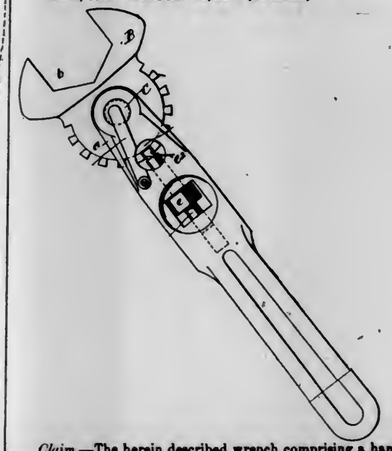
521,122. PIPE-COUPLING. WILLIAM MARTIN, Dunkirk, N. Y. Filed Mar. 16, 1893. Serial No. 466,283. (No model.)



Claim.—1. The combination with a two part coupling, of a post and bearing lugs upon each of the parts, the lugs upon one part adapted to straddle the post upon the other, with levers provided with cam faces pivotally mounted in slotted bearings within the post, and adapted to bear against the lugs, said lugs and levers being provided with co-operating projections and notches, and a spring within the post adapted to yieldingly sustain the connection between said levers and lugs, substantially as specified.

2. In a two part coupling, the combination with posts projecting from each of the parts in opposite directions and carrying cam-levers, mounted in longitudinal slots, of springs in the posts adapted to actuate the levers, bearing lugs projecting from each of the parts adapted to be engaged by the cam-levers of the opposite part, said projection being provided with an inclined shoulder adapted under a separating strain to ride upon the opposite coupling part to force the lever against the action of the spring, substantially as specified.

521,123. WRENCH. ARCHIBALD MCCALLUM, Conrad, Pa. Filed Dec. 5, 1893. Serial No. 492,853. (No model.)

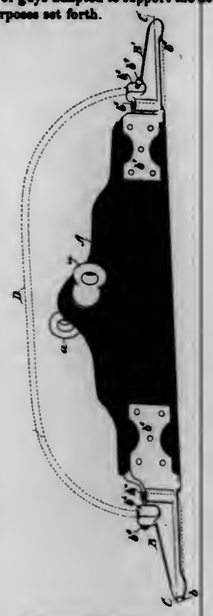


Claim.—The herein described wrench comprising a handle having a forked front end, a removable head held in the fork of the wrench, and formed with a curved and toothed back edge, a pin passing through the fork of the handle and through the head, a pivoted plate on the handle, movable across the pin, and removably retaining said pin in place, and the handle having an orifice, a bolt longitudinally movable in the handle, and adapted to rotate, a stop collar on the bolt, and a spring movably pressing the bolt into engagement with the teeth of the head, the forward end of the bolt being squared and having one side edge beveled and the remaining sides unbeveled, whereby the wrench may be operated as a ratchet wrench in either direction, or may be locked with the handle in fixed relation to the head at any angle, substantially as described.

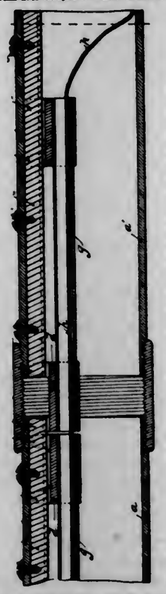
521,124. SECTION-INSULATOR. HENRY B. NICHOLS and FREDERICK H. LINCOLN, Philadelphia, Pa. Filed Jan. 25, 1894. Serial No. 498,005. (No model.)

Claim.—A section insulator for an electric trolley system, com-

prising an insulating block or strip of fiber, hard rubber or the like with end slanting fingers or arms with divided ends engaging said block or strip and each having a channel in the lower edge thereof and a socket, said channel of each finger or arm merging with a vertical opening, tightening means connected with each socket, a bridge wire adapted to be detachably connected with the sockets of said fingers or arms and staples or hooks connected with said block or strip for the reception of guys adapted to support the device, substantially as and for the purposes set forth.



521,125. ELECTRIC SUBWAY. JAMES J. R. PHILIPS, Brooklyn, N. Y., assignor to the Empire City Subway Company, Limited. Filed Aug. 29, 1892. Serial No. 484,332. (No model.)



Claim.—1. The method herein described of laying conductors or cables in ducts or conduits, which consists in inserting the conductor or cable into the conduit, attaching it to a supporting carriage or conveyer, moving said conveyer into the conduit, then successively attaching the conductor or cable to a number of carrier sections and moving them successively into the conduit until the conductor is supported throughout the length thereof, and then removing the conductor or cable from the carriers and separately removing the carriers from the conduit.

2. The method herein described of laying conductors or cables in ducts or conduits, which consists in inserting a carrier which supports a cable into the duct or conduit, moving said carrier into the duct or conduit, then attaching the conductor to another carrier or carrier section, and moving said carrier with the first mentioned carrier into the conduit, then successively attaching it to other carriers or carrier sections, and moving them into the conduit, and then moving the conductor laterally from each carrier, and separately removing the carriers from the conduit.

3. The combination of a conduit, a rail or way in the upper part thereof, and a series of carriers or conveyer sections supported on the rail or way, and in which the cable or conductor may be readily mounted and from which it may be readily detached.

4. The combination, substantially as set forth, of a duct, conduit or conduit section, and a series of carriers or conveyer sections detachably connected together and adapted to traverse and support the wire or cable throughout the length of the conduit.

5. The combination of a conduit, a carrier adapted to traverse it, and which is provided with a lateral opening or openings through which the conductor or cable may be passed to mount it on or detach it from the carriers.

6. The combination, substantially as set forth, of a conduit and a series of carriers or carrier sections, adapted to traverse the conduit, and having detachable connections with each other, and lateral openings through which the conductor or cable may be moved.

7. The combination, substantially as set forth, of a conduit, a carrier adapted to traverse it, composed of stiff or rigid sections detachably connected together and provided with openings through which the conductor or cable may be moved to mount it on or detach it from the carriers.

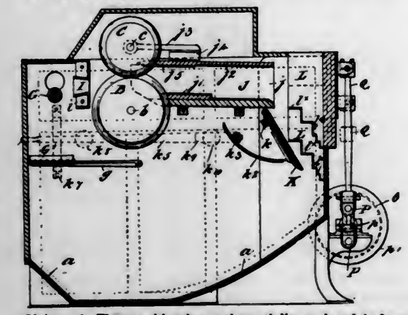
8. The combination of a conduit, a rail or way arranged longitudinally therein, and a movable carriage or conveyer adapted to support the cable or conductor, and having a projecting support for laying the cable or conductor in the desired position, relatively to other conductors in the conduit.

9 A carriage or conveyer for laying a cable or conductor in a conduit, comprising a series of cars, carriers or trolleys detachable connections uniting them, and laterally slotted supports carried thereby.

10 The combination, substantially as set forth, of a conduit, a rail or way therein, a carrier, conveyer or trolley adapted to traverse the way, and adjustable devices carried by the conveyer to vary the line of deposit of the conductor or cable.

11. The combination of a conduit, a longitudinally flanged rail or way secured thereto, a series of cars or conveyers provided with rollers, and adapted to traverse the rail or way, detachable connections between the cars, and longitudinal openings in the cars or conveyers through which the wire or cable may be moved.

521,126. MILLING AND FULLING MACHINE. BENJAMIN PRESTON, Batley, England; William D. Baldwin, administrator, Washington, D. C., assignor to Hannah Preston, Batley, England. Filed Aug. 18, 1892. Serial No. 443,415. (No model.) Patented in England Feb. 24, 1891, No. 3,310, and Mar. 15, 1892, No. 5,123, and in France Dec. 10, 1891, No. 217 976.



Claim.—1. The combination, substantially as hereinbefore set forth, of a casing, milling rolls contained within the casing, power-driven mechanism for operating the milling rolls, means for imparting the requisite drag upon the material, reciprocating stock-feet contained within the casing, power-driven mechanism for actuating them and a bed interposed between the stock-feet and the milling rolls.

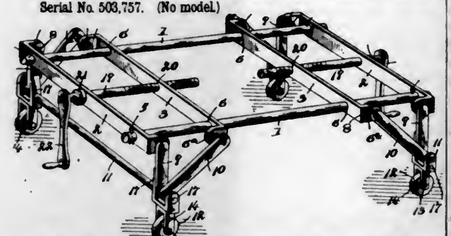
2. The combination of the milling rolls, the reciprocating stock-feet, the adjustable bed interposed between the milling rolls and the stock-feet and co operating with the stock-feet, a shaft carrying a spring for cushioning the bed, and means for adjusting the shaft and spring, substantially as set forth.

3. The combination of the milling rolls, the guide roll, the throat piece interposed between the milling rolls and the guide piece, the knock-off board, the vertically reciprocating stock feet, and the tapered spout interposed between the stock feet and the milling rolls.

4. The combination of the milling rolls, the vertically reciprocating stock feet, the tapered spout interposed between the stock feet and the milling rolls and having its larger end next the stock feet, and the adjustable bed, interposed between the spout and the stock feet.

5. The combination of the milling rolls, the stock feet, a spout interposed between the milling rolls and the stock feet, and an adjustable bed, interposed between the stock feet and the spout.

521,127. STOVE-TRUCK. HARRY M. PUTT, Huntingdon, Pa. assignor of one-half to W. M. Benson, same place. Filed Mar. 15, 1894. Serial No. 503,757. (No model.)



Claim.—1. In a stove truck, the combination of two parallel bars, cross rods fixed to each end thereof and extending from one bar to another, a second rod for each of the fixed rods, and mounted on the parallel bars so as to be capable of movement toward and from the fixed rods, a threaded shaft connecting each of the fixed rods and the movable rod which operates therewith, a swinging rod connected to each end of the said fixed and movable rods, the swinging rods at each end of the rods composing each pair of fixed and movable rods being pivotally joined to each other at their lower ends, and casters connected to each of said joints whereby upon moving the shafts connected to the fixed and movable rods the said rods may be moved toward and from each other and the swinging rods spread or contracted so as to raise or lower the truck, substantially as described.

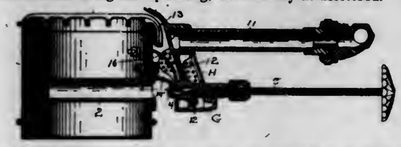
2. In a stove truck, the combination of a frame, two rods pivotally connected thereto and joined to each other at their lower ends, the upper end of one of said rods being capable of movement toward and from the remaining rod, and a screw-shaft connected to the two rods, whereby such movement is allowed and controlled and the truck consequently raised and lowered, substantially as described.

3. In a truck the combination of a frame, a cross-bar movable longitudinally thereon, a rod pivotally connected to each end of the cross-bar, two rods similarly connected to the frame and one adjacent to each of the first rods, the ends of the adjacent rods being pivotally connected to each other, and a threaded shaft connected to the frame and to the cross bar, and whereby the cross bar may be made to move and the rods consequently spread or contracted, substantially as and for the purpose described.

4. In a truck the combination of a frame, a cross bar movable longitudinally thereon, a rod pivotally connected to each end of the cross bar, two rods similarly connected to the frame and one adjacent to each of the first rods, a shaft extending across the machine and operating to join the lower ends of each of the adjacent rods, a yoke for each pair of adjacent rods and having two arms connected to the shaft and arranged on each side the said adjacent rods whereby they are held from lateral displacement and a threaded shaft connected to the frame of the truck and to the cross bar, and whereby the rods may be spread or contracted, substantially as and for the purpose described

521,128. VAPOR-STOVE. HENRY RUPPEL, Cleveland, Ohio. Filed Oct. 7, 1893. Serial No. 487,431. (No model.)

Claim.—1. A vapor stove in which pressure in the oil supply pipe is avoided, comprising a low-down fluid-supply tank, an expansion chamber having a burner cap and an induction tube extending across the center of said chamber, a shield for the induction tube extending down from the surface of the expansion chamber across the entrance to said tube and apart therefrom to admit air and prevent escape and ignition of vapor from about said entrance, an initial burner arranged wholly outside of said shield and separated from the expansion chamber thereby, the fluid supply pipe leading from the fluid tank, the vapor-controlling valve extending through the said shield immediately in front of the entrance to the induction tube, and a separate valve to control the flow of fluid to the initial burner, the combination being and operating, substantially as described.



2. In a vapor stove, a fluid-supply tank having its outlet substantially on a plane with the top of the stove and adapted to relieve the fluid-supply pipe leading to the burner from the head or pressure of the fluid in the tank, in combination with the burner having an expansion drum or chamber closed at its bottom and sides and provided with an induction tube extending inward across its center from one side nearly to the other and about midway of the height of the chamber, a shield for said induction tube closed against the expansion chamber across its top to prevent upward suction and draft across the mouth of said tube and extending down across the mouth of said tube and apart therefrom to permit a free inflow of air, a fluid supply-pipe leading from the bottom of the said fluid supply tank, and a valve projecting through said shield to control the flow of vapor from said pipe into said induction tube, substantially as set forth.

3. In a vapor stove, an expansion chamber for the burner closed at its bottom and sides and having a burner cap across its top, and a vapor induction tube projecting into said chamber about midway between the bottom and top thereof, a shield or apron overhanging the mouth of said vapor induction tube from above the same and extending down directly in front thereof in a plane substantially parallel to said opening, and an induction valve projecting through said shield or apron, substantially as described.

4. In a vapor stove, an expansion chamber for the burner closed at its bottom and sides and having a burner cap across its top, a vapor induction tube projecting into said chamber about midway between its top and bottom and open at both ends, a starting burner and means to supply the burning fluid thereto, an apron or shield for the induction tube closing against the expansion chamber above the induction tube and extending thence downwardly across the outer opening of said induction tube and distant therefrom, said apron or shield placed between said induction tube and the initial burner and wholly separating one from the other, substantially as described.

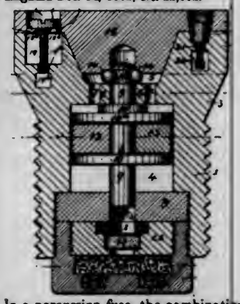
5. The combination of a low-down fluid-supply tank, a main burner, a drum on which said burner is mounted, a vapor induction tube leading into said drum at its side and extending almost across it, an initial burner, a vapor jet or nozzle supported by and above said initial burner and in line with the induction tube, a main fluid-supply tube 11 arranged within the influence of the heat from the main and initial burners and having pipes communicating with the vapor jet or nozzle, a main pipe extending from the tank to the supply tube, a branch pipe leading from the main pipe to the initial burner, a controlling valve therein, and deflectors for conducting the flame of the initial burner to the main burner and for screening the vapor jet, substantially as described.

6. A vapor burner comprising the expansion chamber or drum F, induction tube 2 extending within said drum and almost across it, the main burner cap 3 arranged over the drum, the supplemental burner lip 13 at its side formed integral therewith, vaporizing chamber 11 located within the influence of the heat from the burner, deflector plate 14 for the supplemental burner lip, pipes 12, 12, leading from opposite sides of said vaporizing chamber and communicating with the main supply nozzle, the said nozzle arranged opposite the induction tube, and an initial burner, substantially as and for the purpose set forth.

7. The expansion drum F and main burner 3 thereon having the downward lip 13 at its side formed integral therewith, combined with the pipe 11, shield 14, pipes 12, 12, leading from opposite sides of pipe 11, the main vapor supply jet or nozzle communicating with the said pipe, the initial burner G having opening 15 to receive the main supply nozzle and the apron 14' formed integral with said burner, and a low-down fluid supply tank, substantially as and for the purpose set forth.

8. The vaporizing pipe 11, deflector plate 14, pipes 12, 12, leading from opposite sides of pipe 11 and communicating with the main vapor supply jet or nozzle, and the said nozzle, combined with the expansion drum, main burner cap thereon, the vapor tube 2 arranged in said drum opposite said nozzle, the initial burner, the supplemental burner lip 13 and the low-down fluid supply, substantially as and for the purposes set forth.

521,129. SAFETY PERCUSSION-FUSE. HENRY C. SEDDON, London, England. Filed Feb. 9, 1894. Serial No. 499,673. (No model.) Patented in England Dec. 14, 1892, No. 22,992.



Claim.—1. In a percussion fuse, the combination with the detonating plunger, a securing device for normally preventing movement thereof, and a connection between the securing device and the body of the fuse, said connection being destroyed upon the firing of the gun, the securing device being held in place while the projectile remains in the gun by the pressure of the gas therein, substantially as described.

2. In a percussion fuse the combination with the detonating plunger, of a plate or lid holding said plunger against forward movement, rupturable fastening devices securing said plate or lid to the body of the fuse, said plate or lid being adapted to receive the pressure of the gases of explosion in the gun, whereby the plunger is locked in place after the fastening devices have been ruptured by the explosion and until the projectile has left the gun, substantially as described.

3. In a percussion fuse the combination with the detonating plunger, of a base lid secured by rupturable fastening devices to the body of the fuse, and a centrifugal ball or balls engaging and holding the plunger against forward movement, said ball or balls being held in engagement with the plunger by the base lid, substantially as described.

4. In a percussion fuse, the combination with the detonating plunger, of the base lid, the centrifugal ball or balls cooperating therewith to hold the plunger against forward movement, the fastening screws engaging against a rupturable portion of the lid, and the check screws or devices for preventing the lid from being entirely detached from the fuse, substantially as described.

5. In a percussion fuse, the combination with the detonating plunger having at the rear end a recessed pin, of balls fitting in said recess and holding the plunger stationary, a lid or stopper having a recess at the center gripping and locking the balls in place, rupturable fastening devices securing the lid or cover to the body of the fuse but adapted by the force of the explosion to release the same, and means for preventing the lid or cover from being wholly detached from the fuse, substantially as described.

6. In a percussion fuse the combination with the body of the fuse, having an interior air-tight chamber, a detonating plunger, and a stopper or cover for the air-tight chamber holding said plunger normally immovable, said stopper being movable outwardly by the air pressure within the chamber during the flight of the projectile, thereby releasing the detonating plunger, substantially as described.

7. In a percussion fuse the combination with the body of the fuse, having an air-tight chamber, a detonating plunger, one or more movable bodies engaging with and preventing the movement of said plunger, and a cover or stopper for the air-tight chamber normally retaining said movable body or bodies in engagement with the plunger said cover or stopper being at the base of the projectile, so that the vacuum on its outside due to the movement of the projectile permits the air-pressure in said chamber to force or assist in forcing the cover or stopper away from the body of the fuse, substantially as described.

8. In a percussion fuse the combination with the body of the fuse, having an air-tight chamber, a detonating plunger, a pin or projection thereon provided with a recess therein, centrifugal balls or equivalent bodies engaging in said groove or recess and preventing the movement of the plunger, a stopper or cover for the air-tight chamber holding the balls in engagement with the said pin, said cover being moved outwardly and thereby releasing the balls by the pressure of the air in the chamber during the flight of the projectile, thus allowing the centrifugal action of the latter to throw the balls away from engagement with the groove or recess in the pin, substantially as described.

9. In a percussion fuse the combination with the detonating plunger of a fastening device actuated by the pressure of the gases to prevent the movement thereof while the projectile is in the gun, but which releases or no longer opposes the forward movement of the plunger after the projectile has left the gun, substantially as described.

10. In a percussion fuse the combination with the chambered body, of a detonating plunger therein, and a friction device having a large contact surface adapted to be engaged with the wall of the chamber by the centrifugal action of the projectile, for preventing movement of the plunger during the flight of the latter, substantially as described.

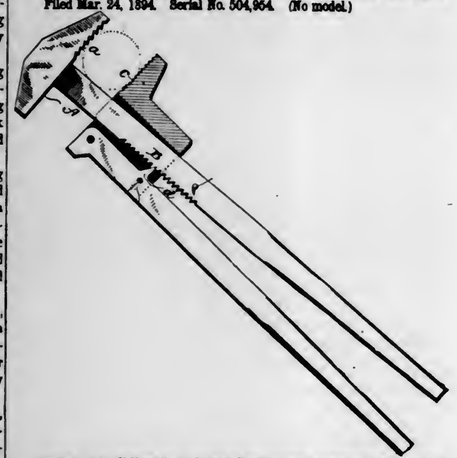
11. In a percussion fuse the combination with a chambered block, of a detonating plunger therein, means for holding said plunger out of contact with the walls of the chamber, and a friction device carried by said plunger and actuated by the centrifugal action of the projectile to prevent forward movement of the plunger during the flight of the latter, substantially as described.

12. In a percussion fuse the combination with the detonating plunger, a securing device for preventing movement thereof until the projectile has left the gun and a friction device operating by centrifugal force for preventing movement thereof, until the flight of the projectile is arrested or checked, substantially as described.

13. In a percussion fuse, the combination with the detonating plunger, of two sets of centrifugal acting devices, the first being impelled by centrifugal action away from the plunger thereby releasing or no longer opposing the forward movement of the latter, the second being held by centrifugal action in contact with the walls of the fuse for preventing forward movement of the plunger until the flight of the projectile is checked, substantially as described.

14. In a percussion fuse for a projectile the combination with the detonating plunger, one or both ends of which may rest in suitable bearings in such a way that the circumference of the main body of the plunger is partly or wholly kept out of actual contact with the wall of its containing chamber, and a centrifugal acting friction device for holding the plunger against forward movement until the flight of the projectile is checked, substantially as described.

521,130. PIPE OR NUT WRENCH. CHARLES VAN DEWATER, Auburn, N. Y., assignor of one-half to James H. Peacock, same place. Filed Mar. 24, 1894. Serial No. 504,964. (No model.)



Claim.—A sliding jaw pipe and nut wrench comprising in combination a jaw having a notched handle, a movable jaw having pivoted between the walls of the projecting portion C a lever provided with a lug, a pin secured to said lever and working in a slot in said movable jaw, the said lug adapted to act as a fulcrum when the device is used as a pipe wrench, and as a means for holding the jaws in a parallel relation, when the device is used as a nut wrench, all substantially as shown and described

---

521,131. INCANDESCENT LAMP. DETLEF C. VOSS, Boston, Mass. Filed Nov. 23, 1893. Serial No. 491,801. (No model.)



Claim.—1. A cement plug wire holder for incandescent lamps composed of the metallic oxides of lead, alumina and manganese, high in oxygen, and mixed, fused and blended by heat into a homogeneous cement free from silica, potash, soda of lime, substantially as and for the purpose described.

2. An insulating cement for incandescent electric lamps free of silica, potash, soda and lime, and composed of the oxides of lead, manganese, and alumina of highest oxidation combined by fusion with each other, substantially as and for the purpose described.

3. An incandescent electric lamp composed of an incomplete glass receiver A in combination with and united to the surface of an insulating plug which carries in and surrounds the leading-in and filament-carrying wires, said insulating plug being composed of a homogeneous cement of the metallic oxides of lead, manganese and alumina, comparatively high in oxygen, and intimately mingled, blended and combined together by fusion, the said incomplete glass receiver and the said insulating plug being superficially united to each other, substantially as and for the purpose described.

4. The insulating plug c composed of an unvitrified cement of the metallic oxides of manganese, lead, alumina, high in oxygen, and blended and fused together, free from silica, potash, soda and lime in combination with insulating wires embedded in the substance of the cement of said insulating plug and with the incomplete transparent glass bulb A which is superficially united to the surface of the insulating plug by fusion, substantially as and for the purpose described.

521,132. ATTACHMENT FOR BICYCLES. MAURICE E. BLOOD, Kalamazoo, Mich., assignor to the Kalamazoo Cycle Company, same place. Filed Oct. 10, 1892. Serial No. 448,433. (No model.)



Claim.—1. A bracket for a bicycle, having three bearing points, two to bear on the handle-bar on opposite sides of the handle bar post and one to bear against the post, and a U-shaped clip to go around the post intermediate between the said three bearing points, the ends of the said clip passing through holes in the said bracket and provided with nuts suitable for clamping the said bracket to the handle bars and post, substantially as and for the purposes specified.

2. The bracket D D having three bearing points to come against the handle-bar and post, the clip *u* for binding the bracket to the post and handle-bars and the holes D′ D′ and screws D″ D″ for receiving and holding bicycle attachments such as carriers, seats, &c., substantially as set forth.

3. The bracket D D having its upper ends *a a* curved over the handle bar and its lower end c provided with a fork or groove *c′* to receive the post, and the clip *u* intermediate between the three points *a a* and *c* for binding the bracket to the post and handle-bars, the said bracket to receive and hold securely attachments such as carriers, seats, &c., substantially as shown.

4. In a child's seat for bicycles the bracket D D, clip *u*, seat F, and forks I I all arranged and for use substantially as specified.

5. In a child's seat for bicycles the rods E E for supporting the seat, the said rods having horizontal portions E E′, upright or inclined portion E″ and horizontal portion E‴ for handles substantially as and for the purposes specified.

6. A seat for bicycles having a support for its rear side on the handle-bar post and having a detachable support for its forward side, consisting of the rods I—I, adjustably connected to a head H, the head H adapted to be hooked or hinged to the forward part of the seat in such a manner that when the supporting rods I—I and head H are in a level or horizontal position, the head H can be withdrawn from the seat but when the rods I—I and head H are in a nearly vertical position the head H will be held securely to the forward part of the seat, substantially as and for the purposes specified.

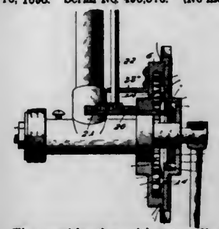
7. In a seat for bicycles a support on the handle-bar post for the rear side of the seat, the front part of the seat being supported on rods extending up from the front fork A, in combination with the head H and plate G adapted to be hooked or hinged together, substantially as shown.

8. In a seat for bicycles a front support for the seat consisting of a plate G constructed substantially as shown with a hook *e* adapted to hook into a head H thereby forming a detachable hinge connection to connect the seat to the supporting rods I—I, for the purposes specified.

9. In a seat for bicycles the rods E—E for supporting the seat, the bracket D—D for receiving and holding the rear ends of the rods E—E and the plate G and board F for clamping and holding the rods E—E at the front part of the seat, the said plate G to have a hinge connection at the upper end of the supporting rods I—I, substantially as and for the purposes specified.

10. In combination with the forks of a bicycle the steps or coasters J formed substantially Y-shaped having grooves crosswise of their forks for the fork of the bicycle and the bottom of their forks adapted to receive the binding bolt *k* substantially as shown.

521,133. MULTIPLE GEARING. WILLIAM H. BRIGHT, Morrow, Ohio, assignor of eleven-twelfths to Peter B. Dunham, Jonah Anderson, Annie V. Bright, F. M. Couden, A. W. Starkey, A. Selzer, D. B. Wilson, Albert Rutterer, A. C. Bowman, and Eugene Dunham, same place. Filed Nov. 10, 1893. Serial No. 490,576. (No model.)

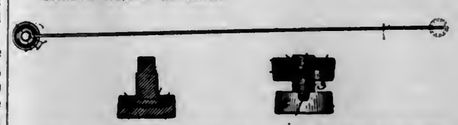


Claim.—1. The combination with a treadle shaft, of a fixed internal gear, a rotary sprocket-disk loosely mounted upon said shaft and provided with internal clutch-teeth, planetary gears carried by the sprocket-disk and meshing permanently with the internal gear-teeth, an adjustable pinion slidably mounted upon the treadle shaft and adapted to engage either the clutch-teeth or the planetary gears, and means for operating said pinion, substantially as specified.

2. The combination with a treadle shaft, of a stationary plate, an internal gear carried by said plate, a sprocket-disk loosely mounted upon the treadle shaft and having a peripheral flange to meet the outer edge of the internal gear, clutch-teeth arranged in a cavity in the sprocket-disk, planetary gears carried by the sprocket-disk and permanently engaging the internal gear-teeth, an adjustable pinion feathered upon the treadle shaft and adapted to engage either the clutch-teeth or the planetary gears, said planetary gears and adjustable pinion being beveled upon corresponding sides to enable the latter to occupy a position between the clutch teeth and said gears, and means for operating the adjustable pinion, substantially as specified.

3. The combination with a treadle shaft, of fixed internal gear, a loose sprocket-disk provided with clutch teeth, planetary gears carried by said disk, and an adjustable pinion feathered upon the treadle shaft and adapted to engage either the clutch-teeth or the planetary gears, of a rack connected to said pinion, a shifting rod provided with a spur-gear in engagement with said rack, and a locking device consisting of a plate carried by the shifting-rod and provided with spaced sockets or depressions, and a spring-actuated locking pin to engage said sockets or depressions successively to hold the adjustable pinion in either of its adjusted positions, substantially as specified.

521,134. SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to the E. J. Brooks & Company, New York, N. Y. Filed Feb. 12, 1894. Serial No. 499,935. (No model.)



Claim.—1. The combination, in a seal, of a flexible shackle provided with a loop at one end, a compressible seal-part comprising a flanged disk and a shouldered stem, and a cup-shaped lining-part, of cut-proof material, to inclose the loops of the shackle-wire within the

fastened seal, these parts being preliminarily united with each other by the metal of said stem, substantially as hereinbefore specified.

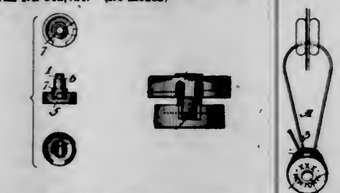
2. The improved seal composed of a flexible shackle-wire having a loop at one end, a compressible seal-part comprising a flanged disk and a shouldered stem, the latter terminating in a rivet-stud, and a cup-shaped inner lining-part surrounding said loop and stem within the flange of said seal-part, united with each other by an upset shoulder of said stem, and a cup-shaped lining-cap and a flanged seal-cap opposed to said inner lining part and flanged disk and attached by said rivet-stud, substantially as hereinbefore specified.

521,135. SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to the E. J. Brooks & Company, New York, N. Y. Filed Feb. 28, 1894. Serial No. 501,842. (No model.)



Claim.—An improved button-seal having a flexible shackle of suitable wire, a soft-metal plug, and a pair of sheet-metal disks, all of which are preliminarily united by the metal of said plug, one of said sheet-metal disks having a marginal rim to securely interlock the edges of said disks with each other when the seal is finally press-fastened, substantially as hereinbefore specified.

521,136. SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to the E. J. Brooks & Company, New York, N. Y. Filed Mar. 7, 1894. Serial No. 502,721. (No model.)



Claim.—1. The combination, in a press-fastened seal, of a flexible shackle-wire, a compressible seal-part of soft-metal preliminarily attached to one end of the shackle, having a disk to receive the press-marks, and provided with a rivet-stud, and a cup-shaped jacket of cut-proof sheet-metal preliminarily attached to said seal-part by means of said rivet-stud and adapted to inclose the edges of the seal-part in the pressed seal, substantially as hereinbefore specified.

2. An improved button-seal composed of a flexible shackle-wire, a compressible rivet-shaped seal-part of soft metal preliminarily attached to one end of the shackle and having its stem provided with a rivet-stud, and a cup-shaped jacket of cut-proof sheet-metal preliminarily attached to said seal-part by said rivet-stud to form one of the disks of the unpressed seal, the other disk belonging to said seal-part and serving to receive the press-marks, substantially as hereinbefore specified.

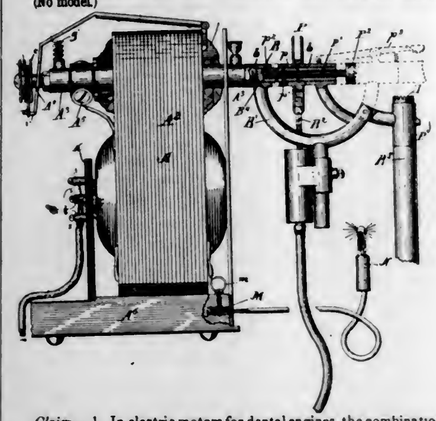
521,137. SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to the E. J. Brooks & Company, New York, N. Y. Filed Mar. 13, 1894. Serial No. 503,473. (No model.)



Claim.—1. In a horseshoe-seal, the combination with a flexible wire-shackle of an open-faced seal-disk having a supplemental notch diametrically opposite the customary edge notch and a hooked stud-pin which overhangs such supplemental notch, substantially as hereinbefore specified.

2. In a horseshoe-seal, the combination with a flexible wire shackle of an open-faced seal-disk having beveled edges provided with radially projecting horns, substantially as hereinbefore specified.

521,138. ELECTRIC MOTOR FOR DENTAL ENGINES. WALTER A. CROWDUS, Chicago, Ill., assignor to the Turney Electric Manufacturing Company, same place. Filed Oct. 22, 1892. Serial No. 449,578. (No model.)



Claim.—1. In electric motors for dental engines, the combination of an electric motor, and a brake located within the magnetic influence of the motor and actuated thereby, substantially as described.

2. In electric motors for dental engines, the combination of an electric motor, a dental engine head attached thereto and in line with the armature shaft and adapted to be driven thereby, and a brake located within the magnetic influence of the motor and actuated by it, substantially as described.

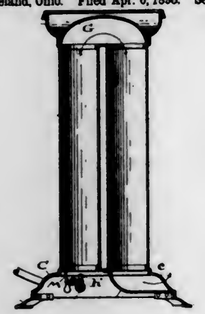
3. In electric motors for dental engines, the combination of an electric motor, a brake attached thereto and actuated by the magnetism of the motor field so that when current is shut off from the motor it instantly stops the revolution of the armature and releases it when the motor is in circuit, substantially as described.

4. In electric motors for dental engines, the combination of an electric motor, a dental engine head attached thereto and in line with the armature shaft, a brake located within the magnetic influence of the field, and a cushion stop attached to the armature shaft and revolving with it and arranged to contact the brake in such manner that the momentum is gradually lessened until brought to a full stop, substantially as described

5. In electric motors for dental engines, the combination of an electric motor, a dental engine head attached thereto and in line with the armature shaft, a cushion stop secured frictionally to the said shaft consisting of a resilient spring secured to and between two metallic disks, and means for regulating the frictional engagement with said shaft, substantially as described.

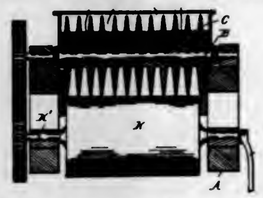
6. In combination with a shunt or compound wound electric motor, a switch regulating device consisting of a moving arm adapted to fit the foot, contact brushes attached to and insulated therefrom, one set of contact pieces electrically connected respectively with the inside and outside field wires and arranged on one side of the foot piece, and a second set of contact pieces arranged on the opposite side of the foot piece in such manner that the movement of the foot piece with its contact brushes to contact such pieces electrically connects them so as to give a reverse rotation to the armature, substantially as described.

521,139. HEAT-RADIATOR. CHARLES I. DANGLER and HENRY RUPPEL, Cleveland, Ohio. Filed Apr. 6, 1893. Serial No. 469,241. (No model.)



Claim.—As a new article of manufacture, the within described air heater and radiator, consisting of a base having two parallel series of openings through its bottom and a passage through the front of the base for the escape of heated air, in combination with combined induction and combustion tubes in the rear series of openings and eduction tubes in the front series of openings, the tubes in both series being of substantially equal cross-section, and all the tubes exposed to the outside atmosphere to radiate the heat into the room, gas burners at the lower ends of the induction and combustion tubes, a curved deflector beneath the eduction tubes to direct the heated air through the said outlet passage in the base, and a cap over both series of tubes and constructed with a continuous chamber common to all the tubes and formed by a diaphragm having openings for both sets of tubes, and a dome convex in cross-section and closed against the escape of air, whereby the air ascending and heated in one set of tubes is caused to cross in said chamber and descend in the other set of tubes and is discharged at the floor, substantially as set forth.

521,140. DOUGH-CUTTING MACHINE. EMIL DEWERTH, Detroit, Mich. Filed Jan. 2, 1894. Serial No. 495,352. (No model.)

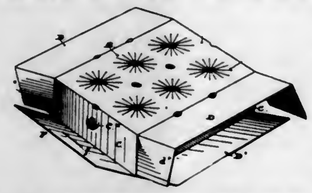


Claim.—1. The combination of the frame, a series of disk cutters secured upon a common shaft, feed tables on opposite sides of the cutters, and a platen slotted to receive and extending on opposite sides of the cutters and forming the top for the space in which the lower portion of the cutters operate, substantially as described.

2. The combination of the frame, the driven cutter shaft, a series of tapering disk cutters secured thereon, inclined feed tables on opposite sides of the cutters, a platen, slotted to receive the upper portion of the cutters, and forming the top for the space in which the lower portion of the cutters operate, and a rotary feed drum below the cutters, substantially as described.

3. In a dough cutter, the combination with the frame, of inclined feed tables thereon, a series of circular cutting disks arranged centrally between the tables, a shaft on which the disks are mounted, a slotted platen through which the disks pass, and curved bearing formed in the platen, substantially as described.

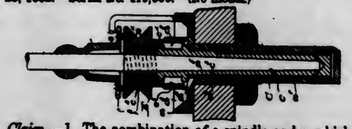
521,141. FRUIT-CARRIER. THADDEUS S. FITCH, San Francisco, Cal. Filed Aug. 25, 1893. Serial No. 484,049. (No model.)



Claim.—1. A fruit carrier constructed with a top having fruit-receiving apertures surrounded by depending fingers integral with the top and extending downward into the space beneath, a bottom joined to said top by vertical sides and ends which support the top at suitable distance above the bottom to produce a receptacle for the fruit, and ventilating apertures in said bottom of relatively small area, whereby the sides, top and bottom constitute a complete inclosure for the fruit and the depending fingers separate and prevent contact between the fruit when in place, substantially as described.

2. A fruit carrying package having a top provided with apertures to insert the fruit, and tapering fingers extending downwardly below the top all around the margin of said apertures, in combination with a closed bottom and standing sides which support said top at a distance above said bottom and join said parts together to form a closed package in which the fruit when inserted through the apertures in the top are entirely inclosed, and ventilating apertures of relatively smaller area than the fruit apertures in said bottom; the top, bottom and vertical sides of said package being integral with one another as hereinbefore described.

521,142. SPINDLE FOR SPINNING-MACHINES. EDWARD J. PEDERSON, Lowell, assignor, by direct and mesne assignments, to Herbert H. Ham, Boston, and Alonzo A. Coburn, Lowell, Mass. Filed Jan. 26, 1892. Serial No. 419,099. (No model.)



Claim.—1. The combination of a spindle and a whirl, formed in separate parts, one of which parts has vertical pins, adapted loosely to engage slots with which the other of said parts is provided, with a bolster, having an internal bearing for said spindle and an external bearing for said whirl, as and for the purpose specified.

2. The combination of a spindle and a whirl, formed in separate parts, said spindle having a flange provided with slots and said whirl having pins which loosely engage said slots, with a bolster, having separate bearings for said spindle and whirl, as and for the purpose specified.

3. The combination of the bolster, provided with an external shoulder, the spindle, supported in said bolster, and a whirl, surrounding said bolster and supported on said shoulder, said spindle having a flange provided with slots and said whirl having pins, loosely to engage said slots, as and for the purpose specified.

521,143. WALL-FINISH COMPOUND. ROBERT E. HAIRE, London, England. Filed Feb. 26, 1892. Serial No. 422,899. (No specimens.)

Claim.—1. An adhesive composition consisting of a base, as pulverized calcined gypsum, and animal glue, substantially in the proportions of five or six pounds of the glue to one hundred pounds of the base, the glue being in a finely divided condition and mixed with the base and capable of being reduced in cold water, substantially as described.

2. The hereinbefore described method of making an adhesive compound of animal glue and a base, consisting in grinding the glue and base separately, and then grinding both together, the ingredients being in a dry condition when ground, and so finely divided as to be capable of being reduced in cold water, substantially as described.

521,144. ANNUNCIATOR. THOMAS J. THOMPSON, Chicago, Ill., assignor to Julian M. McDermid. Filed Sept. 30, 1891. Serial No. 407,245. (No model.)

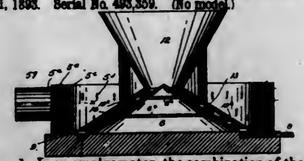


Claim.—1. In an electric annunciator the combination with the single spool of the core provided with projecting ends forming the pole pieces, adjustable screws *h*, *h'* inserted in the under faces of said poles, the armature loosely mounted on said screws, and provided with a notch, the latch *l* rigidly mounted upon the same shaft with the pointer or indicator and the stud *m* forming the bearing of said shaft, said shaft being cut away to admit the latch *l*, and permit the rotation thereof substantially as and for the purpose specified.

2. In an electric annunciator the combination with an electro-magnet provided with a core extending beyond the ends of the helix thereof, an armature occupying a position parallel to the axis of said magnet and adapted to be moved perpendicularly to its length when said magnet is energized, a latch mounted independently of said armature and adapted to rotate by its own weight, said armature being provided on its under surface with a notch adapted to be engaged by said latch, and an index finger secured to said latch; whereby when said magnet is energized the armature is raised to release the latch, substantially as described

---

521,145. AMALGAMATOR. GIDEON DELAGE, Salida, Colo. Filed Dec. 11, 1893. Serial No. 493,359. (No model.)



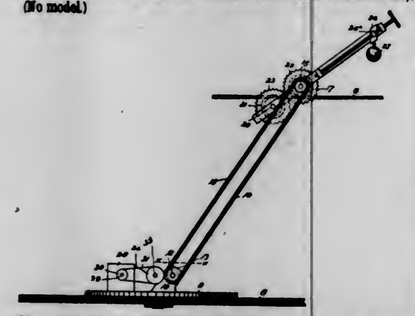
Claim.—1. In an amalgamator, the combination of the tank having the outer rim provided with a tangential inlet, the inner perforated rim, the two rims being suitably separated to form a chamber.

and the conical bottom, the hollow cone covering the conical bottom of the tank and suitably separated therefrom to form a passage way between the two cones and thence to the main chamber of the tank, whereby a rotary movement is imparted to the material in the tank, substantially as described.

2. In an amalgamator, the combination of the tank having two rims suitably separated to form a chamber, the inner rim being perforated as described, and the outer rim provided with an inlet pipe, the stationary cone centrally located in the tank, the circumferential groove formed in the bottom of the tank around the cone, the hollow cone covering the bottom cone and suitably separated therefrom, the outer cone being provided with an inlet opening at the top, substantially as described.

3. In an amalgamator, the combination of the tank having the inner and outer chambers, the two counterpart cones centrally arranged in the tank and suitably separated, a feed opening in the outer cone, and tangential inlets for introducing water to the two chambers of the tank, whereby a rotary motion is imparted to the contents of the tank, substantially as described.

521,146. PROPELLING MECHANISM FOR CANAL-BOATS. HENRY W. HILDEBRAND, Denver, Colo. Filed Dec. 11, 1893. Serial No. 493,302. (No model.)



Claim.—1. The combination with a boom attached to the boat, of a trolley carried by the boom and composed of a weighted lever, two shafts journaled in the lever and carrying pulleys adapted to engage a suitable fast cable, both above and below, fast gears mounted on the pulley shafts and adapted to mesh, and suitable means connected with the boom for transmitting motion from a prime motor on the boat to the trolley, substantially as described.

2. The combination of the trolley mounted on the boom and composed of the lever, two shafts journaled therein, the pulleys mounted on the shafts and engaging a suitable fast cable, both above and below, meshing gears mounted on the pulley shafts, the lever being provided with an arm projecting above the cable and suitably weighted to produce the required friction between the cable and the engaging pulleys, and suitable means connected with the boom for transmitting motion from a prime motor on the boat to the trolley, substantially as described

REISSUES.

11,421. TRAVELER'S COMBINED COLLAR AND CUFF CASE. LEWIS D. DOSHER, St. Louis, Mo., assignor to the Traveler's Portfolio Company, of Missouri. Filed Mar. 31, 1894. Serial No. 505,962. Original No. 470,553, dated Mar. 8, 1892.



Claim.—1. In a collar and cuff case the combination of the oblong case 4 and the compartment 8 within the case 4, one of the ends of the compartment being remote from the case, substantially as and for the purposes set forth.

2. In a collar and cuff case, the combination of the collapsible case 4 and the compartment 8, supported wholly within the case 4 and having its ends remote from the ends of the case, substantially as and for the purposes set forth.

3. In a collar and cuff case, the combination of the case 4, having its folding and expanding bottom and ends 5 and 6, and the compartment 8, supported wholly within the case 4 and composed of the two leaf sides 9 and the expansible bottom and ends 10 and 11, substantially as set forth.

4. In a collar and cuff case, the combination of the case 4, having the folding and expanding bottom and ends 5 and 6, and the expansible compartment 8, supported wholly within the case 4 and formed with expansible bottom and ends 10 and 11, said expansible bottom 10 being attached to the bottom 5 of the case for supporting the compartment 8, substantially as set forth.

5. In a collar and cuff case, the combination of the case 4, the compartment 8, supported wholly within the case 4, and the roll 13, attached to the end of the compartment 8 for preserving the contour of the folded collars, substantially as and for the purpose set forth.

6. In a collar and cuff case, the combination of the case 4, the compartment 8, supported wholly within the case 4 and provided with the expansible ends 11, and the safety-rolls 13, attached to the ends 11 for preserving the contour of the folded collars, substantially as set forth.

7. In a collar and cuff case, the combination of the collapsible case 4, the compartment 8, supported wholly within the case 4 and formed with expansible ends 11, and the tubular safety-roll 13, attached to one of the expansible ends 11 of the compartment 8, substantially as set forth.

8. In a collar and cuff case the combination with the outer case of a safety roll within the case and a partition extending longitudinally of the case from the safety roll, substantially as and for the purposes set forth.

9. In a collar and cuff case the combination with the outer case of a safety roll near each end thereof and a partition extending longitudinally of the case between said safety rolls, substantially as and for the purposes set forth.

10. In a collar and cuff case, the combination of an oblong compartment receiving clean laundered cuffs, and the safety-roll located adjacent to the end of the outer case and furnishing a support around which the collars can be turned for maintaining the shape of the bend of the collars and preventing creasing, substantially as specified.

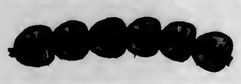
DESIGNS.

23,324. WOVEN FABRIC. WILLIAM T. SMITH, Philadelphia, Pa. Filed Apr. 26, 1894. Serial No. 509,156. Term of patent 3½ years.



Claim.—The design for a woven fabric, as shown in the accompanying drawing.

23,325. TRIMMING. CHRISTOPHER EDUARD HERTLEIN, New York, N. Y. Filed Apr. 26, 1894. Serial No. 509,157. Term of patent 3½ years.



Claim.—The design for trimming as herein shown and described

23,326. SPOON, FORK, OR SIMILAR ARTICLE. SIDNEY SMITH, Bridgeport, assignor to the William Rogers Manufacturing Company, Hartford, Conn. Filed May 7, 1894. Serial No. 510,406. Term of patent 7 years.



Claim.—The design for a handle for spoons, forks and similar articles substantially as described and shown.

23,327. SILVERSMITH'S STOCK. GILBERT L. CROWELL, Jr., Arlington, N. J., assignor to Dominick & Haff, New York, N. Y. Filed Dec. 13, 1893. Serial No. 493,584. Term of patent 7 years.



Claim.—The design for silversmiths' stock and similar articles, substantially as shown and described.

23,328. SILVERSMITH'S STOCK. GILBERT L. CROWELL, Jr., Arlington, N. J., assignor to Dominick & Haff, New York, N. Y. Filed Dec. 13, 1893. Serial No. 493,585. Term of patent 7 years.



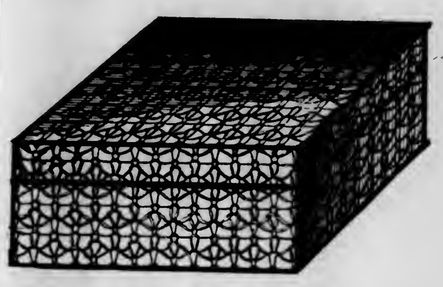
Claim.—The design for silversmiths' stock and similar articles, substantially as shown and described.

23,329. LAMP-STAND. WILLIAM S. GREY, Bristol, Conn. Filed Mar. 26, 1894. Serial No. 505,192. Term of patent 3½ years.



Claim.—The design for a lamp-stand, substantially as shown and described.

23,330. FANCY BOX. EDWARD JANSEN, New York, N. Y. Filed Apr. 28, 1894. Serial No. 509,401. Term of patent 3½ years.



Claim.—The design for fancy-boxes, as shown and described.

23,331. BACK FOR BRUSHES, &c. GEORGE W. SHIEBLER, Brooklyn, N. Y. Filed Feb. 16, 1894. Serial No. 500,424. Term of patent 3½ years.



Claim.—The design for the back of a brush or other toilet article, substantially as shown and described.

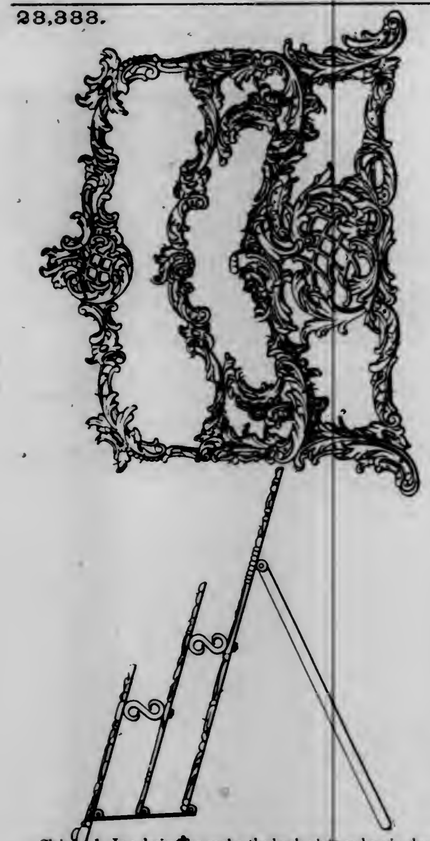
23,332. CLASP FOR GARMENT-SUPPORTERS. EDWARD D. CANDEE, Brooklyn, N. Y., assignor to the Nashawannuck Manufacturing Company, Easthampton, Mass. Filed Apr. 6, 1894. Serial No. 506,637. Term of patent 3½ years.



Claim.—The design for configuration of a drawer supporter clasp substantially as herein shown and described.

23,333. RACK. CHARLES C. WIENTER, Providence, R. I., assignor to the Howard Sterling Company, same place. Filed May 10, 1894. Serial No. 510,800. Term of patent 3½ years.

23,333.



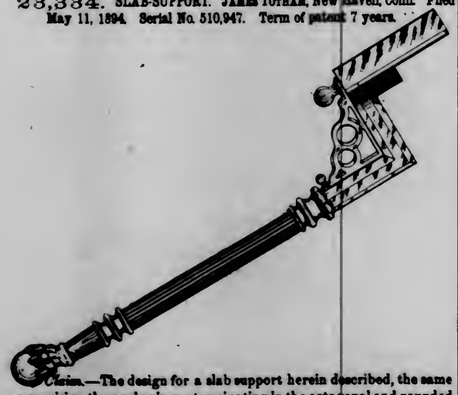
Claim.—1. In a design for racks, the back plate as herein shown and described.

2. In a design for racks, the middle plate as herein shown and described.

3. In a design for racks, the front herein shown and described.

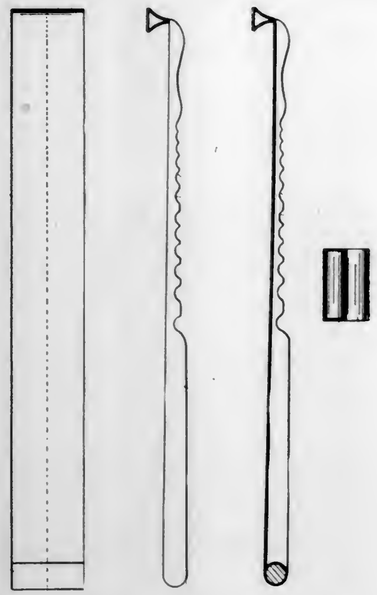
4. The design for racks as herein shown and described.

23,334. SLAB-SUPPORT. JAMES TOTHAM, New Haven, Conn. Filed May 11, 1894. Serial No. 510,947. Term of patent 7 years.



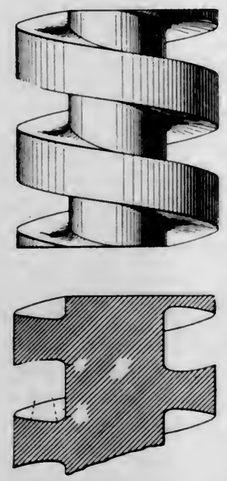
Claim.—The design for a slab support herein described, the same comprising the eagle piece *a* terminating in the octagonal and rounded ornament *a'* the ornamental bracket *b*. the octagonal angle piece *c*. supported on the fluted column *d*. the rounded, tapering and beaded post *e—e* the claw foot *f*. and ball *g*., substantially as described and shown in the accompanying drawings.

23,335. BEAM FOR LETTER-SCALES. JAMES E. WITHROW, Los Angeles, Cal. Filed Nov. 27, 1893. Serial No. 492,151. Term of patent 14 years.



Claim.—The design for a beam for letter and package scales substantially as herein shown and described.

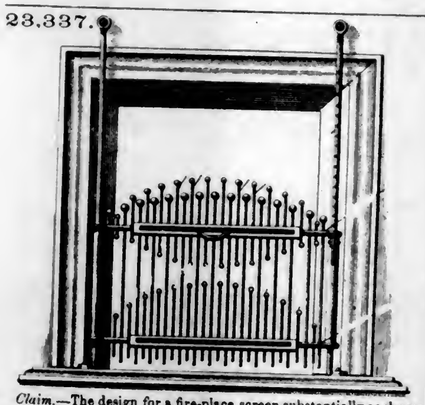
23,336. SCREW. WILLIAM EVERETT QUIMBY, Orange, N. J. Filed Jan. 19, 1894. Serial No. 497,444. Term of patent 14 years.



Claim.—The design for a screw substantially as herein shown and described.

23,337. FIRE-SCREEN. JOHN A. L. GIST, Curia, Ark., assignor of one-half to Robert T. Kerr, Randolph, Tex. Filed Apr. 30, 1894. Serial No. 509,589. Term of patent 7 years.

23,337.



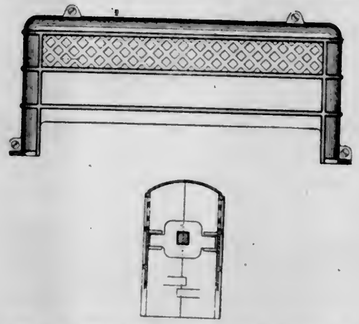
Claim.—The design for a fire-place screen substantially as shown and described.

23,338. SCREEN-DOOR. EDWARD M. KEMP, Rhinelander, Wis. Filed Apr. 27, 1894. Serial No. 509,276. Term of patent 7 years.



Claim.—The design for a screen-door herein shown and described

23,339. RADIATOR. JAMES F. MCELROY, Albany, N. Y. Filed Apr. 10, 1894. Serial No. 507,068. Term of patent 14 years.



Claim.—The design for an electric radiator as herein shown and described.

23,340. MONUMENT. WILLIAM H. PERRY, Concord, N. H. Filed Feb. 1. 1894. Serial No. 498,798. Term of patent 7 years.



Claim.—The design for a monument substantially as shown and described.

TRADE-MARKS

REGISTERED JUNE 5, 1894.

24,806. HOSIERY AND UNDERWEAR. LOWELL HOSIERY COMPANY, Lowell, Mass. Filed May 10, 1894.

SUEZ

Essential feature.—The word "SUEZ." Used since November 1, 1893.

24,807. SUSPENDERS. SCIENTIFIC SUSPENDER COMPANY, LIMITED, Battle Creek, Mich. Filed Mar. 13, 1894.

SCIENTIFIC

Essential feature.—The word "SCIENTIFIC" in connection with a symbol consisting of two parallel horizontal lines and four vertical lines which cross the horizontal lines at right angles. Used since February 27, 1894.

24,808. MEN'S HATS AND CAPS. JAMES MARSHALL, Fall River, Mass. Filed Apr. 2, 1894.



Essential feature.—The representation of an inverted hat with an old rabbit sitting in it and a number of young ones dancing, running and squatting about it. Used since February 1, 1894.

24,809. MEN'S HATS AND CAPS. JAMES MARSHALL, Fall River, Mass. Filed Apr. 2, 1894.

Rabbit

Essential feature.—The word "RABBIT." Used since February 1, 1894.

24,810. MEN'S SHIRTS. MARCH BROS., PIERCE & Co., Boston, Mass. Filed May 5, 1894.

BOSTON JUNIOR

Essential feature.—The words "BOSTON JUNIOR." Used since May 6, 1891.

24,811. RIBBONS, PIECE GOODS, CLOTHS, AND STUFFS MADE OF SILK. A. & S. BLUMENTHAL, New York, N. Y. Filed May 10, 1894.

LA MODE

Essential feature.—The phrase "LA MODE." Used since April, 1892.

24,812. COTTON DRESS GOODS AND SHIRTINGS. CONE EXPORT AND COMMISSION COMPANY, New York, N. Y. Filed June 23, 1893.

GOLDEN CHAIN

Essential feature.—The words "GOLDEN CHAIN." Used since May, 1892.

24,813. COTTON DRESS GOODS AND SHIRTINGS. CONE EXPORT AND COMMISSION COMPANY, New York, N. Y. Filed June 23, 1893.

SOUTHERN SILK

Essential feature.—The words "SOUTHERN SILK." Used since May, 1892.

24,814. SHEETINGS, SHIRTINGS, MUSLINS, DRILLINGS, AND DENIMS. SMITH, HOGG & GARDNER, New York, N. Y. Filed Apr. 21, 1894.



Essential feature.—The representation of an Indian maiden holding aloft the American flag. Used since January 15, 1894.

24,815. CLOTH OR CANVAS BACKED LEATHER. FRANK H. ATWOOD, Boston, Mass. Filed May 10, 1894.

CANVAROO

Essential feature.—The word "CANVAROO." Used since March 1, 1894.

24,816. TEA. L. BELING and VINCENT L. TISSERA, Davenport, Iowa. Filed May 8, 1894.



Essential feature.—The representation of a capital letter "T" with the word "CEYLON" inscribed on its upper portion and the words "COBRA BRAND" superimposed upon its upper half. Used since April 30, 1894.

24,817. TEA. L. BELING and VINCENT L. TISSERA, Davenport, Iowa. Filed May 8, 1894.



Essential feature.—The representation of a capital letter "T" with the word "CEYLON" inscribed on its upper portion and the words "BANNER BRAND" super-imposed upon its upper half. Used since April 30, 1894.

24,818. CRACKERS AND BISCUITS. AMERICAN BISCUIT AND MANUFACTURING COMPANY, Chicago, Ill. Filed July 17, 1893.

SARATOGA FLAKES

Essential feature.—The words "SARATOGA FLAKES." Used since January 1, 1891.

24,819. MILK, CONDENSED AND PLAIN, EVAPORATED CREAM, BUTTER, AND CHEESE. NEW YORK CONDENSED MILK COMPANY, Jersey City, N. J., and New York, N. Y. Filed May 7, 1894.

CHALLENGE

Essential feature.—The word "CHALLENGE." Used since November 20, 1890.

24,820. LARD COMPOUND. ANGLO AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Apr. 27, 1892.

ROYAL BRAND

Essential feature.—The words "ROYAL BRAND" and the representation of a fleur-de-lis. Used since January 1, 1892.

24,821. WRITING-PAPER. CRANE & Co., Dalton, Mass. Filed May 14, 1894.

ELECTRIC

Essential feature.—The word "ELECTRIC." Used since September, 1878.

24,822. WRAPPING, WRITING, PRINTING, AND TOILET PAPER. STONE & FORSYTH, Boston, Mass. Filed Apr. 30, 1894.

SIGNET

Essential feature.—The word "SIGNET." Used since January 1, 1885.

24,823. PREPARATIONS FOR THE SKIN. MAUDE MEYBERG, Chicago, Ill. Filed May 5, 1894.

LA FRECKLA

Essential feature.—The words "LA FRECKLA." Used since July 1, 1892.

24,824. CERTAIN NAMED TOILET PREPARATIONS, INCLUDING SOAP. VAIL BROTHERS, Philadelphia, Pa. Filed May 7, 1894.

NEOLA

Essential feature.—The title "NEOLA." Used since April 1, 1894.

24,825. COMPOUNDS TO REMOVE AND PREVENT SCALE ON BOILERS. RUDOLPH PUHLMAN, Jersey City, N. J. Filed May 2, 1894.

A
C. Co.

Essential feature.—The letters and abbreviation "A. C. Co." Used since February 1, 1882.

24,826. CERTAIN NAMED REMEDY. CHARLES T. SING, New York, N. Y. Filed May 2, 1894.

TONIC OF LIFE



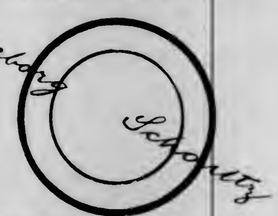
Essential feature.—The words "TONIC OF LIFE," the representation of a dragon surrounded by a circle, and the ginseng plant and the foot. Used since March 29, 1894.

24,827. STOMACHIC AND CARMINATIVE MEDICINE. ELIZABETH DORT, Buffalo, N. Y. Filed May 11, 1894.

SŁAWNY BALSAM MACIERZYNSKI

Essential feature.—The words "SŁAWNY BALSAM MACIERZYNSKI." Used since April 1, 1889.

24,828. REMEDIES FOR DISEASES OF THE STOMACH. INGEBORG SCHOULTZ, Philadelphia, Pa. Filed Apr. 24, 1894.



Essential feature.—The fac-simile signature of the registrant "INGEBORG SCHOULTZ," arranged obliquely across the figure of a circle. Used since December 15, 1893.

24,829. LIVER-PILLS. THE FRANCIS MEDICINE CO., Nashville, Tenn. Filed Apr. 9, 1894.



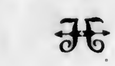
Essential feature.—The representation of a four-leaf-clover. Used since March 15, 1894.

24,830. MEDICINAL STRENGTHENING-PLASTER. JOHNSON & JOHNSON, New Brunswick, N. J., and New York, N. Y. Filed May 7, 1894.



Essential feature.—The representation of a Greek cross of a color other than red, radial rays around said cross, and around them a wreath of oak leaves surrounded by a circular border. Used since April, 1888.

24,831. ANTISEPTIC SURGEONS' DRESSING. JOHNSON & JOHNSON, New Brunswick, N. J., and New York, N. Y. Filed May 7, 1894.



Essential feature.—The two manuscript letters "J" placed back to back with an arrow crossing each horizontally and in opposite directions. Used since April, 1888.

24,832. MEDICINE FOR CORNS AND BUNIONS. CHARLES H VAN WIE, Albany, N. Y. Filed Mar. 10, 1894.

KILL A KORN

Essential feature.—The letters "KILL A KORN" arranged as shown and together forming the words "KILL A KORN." Used since June 1, 1893.

24,833. PAINT OR PREPARATION FOR THE CURE OF CORNS, WARTS, AND SIMILAR GROWTHS. HENRY S. MOORE, Hudson, Mass. Filed May 8, 1894.



Essential feature.—The figure of a lion with one fore-paw extended to the figure of a seated native who is represented as treating the extended paw. Used since June, 1893.

24,834. CURE FOR THE HEAVES IN HORSES. PETER SCHUELK, Stevens Point, Wis. Filed Apr. 14, 1894.



Essential feature.—The representation of a Percheron horse standing in a field. Used since February 23, 1894.

24,835. BELT STUD OR FASTENER. CHARLES A. BINZ and FRANK M. LINDERMAN, Chicago, Ill. Filed Jan. 15, 1894.



Essential feature.—The letters "LX" and the representation of two sections of belting and a belt stud. Used since July 1, 1893.

24,836. VEHICLE-AXLES. CLEVELAND AXLE MANUFACTURING COMPANY, Canton, Ohio. Filed May 1, 1894.

6½

Essential feature.—The figures "6½." Used since September 1, 1887.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

COLHOUN *v.* HODGSON.

Decided April 5, 1894.

1 INTERFERENCE—THE FIRST TO CONCEIVE NEGLIGENT—THE SECOND TO CONCEIVE AND FIRST TO REDUCE TO PRACTICE IS THE FIRST INVENTOR.

Where the first to conceive is negligent in reducing to practice, and the second to conceive is so diligent as to put the invention into practice before the date of the reduction to practice by the first to conceive, *Held*, under such facts, that the second to conceive is the first inventor.

2. SAME—EXPIRED CAVEAT.

Evidence in support of an application assigned to, filed in behalf of, and all expense incident to its prosecution borne by the defeated party to a former interference, for an invention disclosed in an expired caveat of the same inventor, but not reduced to practice until after the reduction by the adverse party to the interference, should be closely scrutinized, and when found to be weak or uncertain where it might have been strong and impregnable should be resolved against the party in interest.

APPEAL from Examiners-in-Chief.

TIN CANS.

Application of Charles M. Colhoun filed September 18, 1891, No. 407,360. Application of John G. Hodgson filed February 3, 1890, No. 339,042.

Messrs. Price & Steuart for Colhoun.

Messrs. Munday, Evarts & Adcock for Hodgson.

SEYMOUR, *Commissioner:*

Hodgson appeals from the decision of the Examiners-in-Chief affirming the decision of the Examiner of Interferences awarding priority of invention to Colhoun on the following issue:

1. A piece of tin adapted to be united by soldering to another piece and furnished with a pocket corresponding in position with the line of the intended joint, said pocket containing sufficient solder for forming the joint, united or combined by heat or melting with the tin coating to that piece only which contains said pocket.

2. A metal can having an opening in one of the heads, a groove formed around the opening, and a coating of solder melted and combined with the tin surface coating in said groove to receive the edge of the cap or cover and be united therewith by soldering in the sealing of the can.

Colhoun's caveat, filed October 18, 1886, is held to disclose the invention in issue, for, although the language of the caveat and of the brief for Hodgson are quite diverse, the caveat can mean nothing less than the fusible union between the solder in the groove and the tin coating of the groove.

Colhoun says in his caveat that his invention consists in coating the groove of the lid of the can with solder, which would ordinarily be understood to mean that there was a fusible union between the solder and the can, and at the end he says it is his intention that the solder shall be applied to the can when it is made. The method of uniting the cap and solder by the conduction of heat through the edge of the cap implies the same thing.

But while Colhoun at the time of filing his caveat had a full conception of the improvement there is nothing in the record to explain the statement of the caveat that he was then engaged in making experiments for the purpose of perfecting his improved process preparatory to applying for Letters Patent thereon, nor to explain the further statement therein that he then desired further time to mature the same, and praying for protection of his right until he should mature his invention. This is not conclusive evidence that Colhoun was then, as he says, making experiments for the purpose of perfecting his invention, nor is it conclusive against Colhoun upon the question whether his invention was then complete, for it may happen, and often does happen, that a caveat is filed after the invention as such is complete. The caveat, however, as was held in *Johnson* v. *Root*, (1 Fish. P. C., 351, 367,) is evidence, and unexplained goes to show with more or less force that Colhoun was at that point of progress toward making an invention which the caveat describes. This statement, indisputable as to date, comes into comparison with Colhoun's statement that he publicly used the improvement in the canning season at his establishment in West River, Md., in September, 1886, applying it to three or four hundred cases of cans, and is in conflict with such statement, for if Colhoun used it in the year he says and to the extent and in the manner he says the invention was complete beyond question at the very time he says it was incomplete. In itself the invention is simple and understandable. To workmen, and even to observers at the works, it was obviously in practice in the season of 1886 or else not, and accordingly complete before the caveat was executed or else not complete for want of reduction to practice until the next season.

The Colhoun record is weak in fixing dates, whereas it might have been made not only strong, but impregnable. If all those who are named saw the improvement, and the cans were put into cases and sold and shipped to different parts of the State, there was proof easily accessible of shipping-receipts, books of accounts, and memoranda of sales that would fix the year beyond cavil. Moreover, Colhoun sold out his business after using the improvement two seasons, and could therefore indisputably fix the date of such use by the date of the sale of his business and his own removal to another State.

Miller, the only other witness upon the question of time, fixes no date, nor is any referred to, except in a leading question which assumed that he was in the employ of Murray, Colhoun & Co. in 1888, and in his case it appears in the cross-examination that he was also in their employ in 1887.

Statements that an ordinary event took place in a given year, four or five years removed, without a showing that the event was related to some other of which the date may be fixed, such statements being for aught that appears mere unaided and unverified recollection, cannot be given much weight. No other basis is furnished for Colhoun's claim that he used this invention as early as 1886, and if he did not use it until 1887 Hodgson's later conception, but prompt and earlier reduction to practice, gives the case to Hodgson.

Now it is necessary to scrutinize this record upon the question of the year of the reduction to practice, for Colhoun's application was filed only after a former interference between Hodgson's present application and Letters Patent No. 420,116, granted to Robert T. Smith January 28, 1890, was determined in Hodgson's favor. After Smith's defeat Smith bought Colhoun's alleged invention, caused this application for patent to be filed, and assumed the expense incident to it. The language of Colhoun's claims is identical with that of the claims of Hodgson, with which they are in interference.

Smith, who is the real party in this interference as well as in the former one, knew beforehand Hodgson's date and his record. It is the duty of the trier to give the Colhoun record criticism upon this point of time, and upon a full review, and not unmindful that it is weak where it might have been strong, it is thought that Colhoun has not sustained his contention by sufficient proof; that he is in error when he states that it was in the canning season of 1886 that he made use of this improvement, and that it was in the year 1887 that this was done, and not earlier. This is no more than holding that Colhoun did not reduce his alleged invention to practice and put it into public use before his caveat asserts that he desires further time to mature it.

Again, if Colhoun used the improvement in the way and to the extent he says he did, it was a public use, and yet in his oath of August 29, 1891, attached to his application filed in September, 1891, he swears that the invention has not to his knowledge been in public use or on sale for more than two years prior to the application.

Hodgson conceived the invention as early as December 1, 1886, and is therefore not the first to conceive. But he reduced it to practice at about the same time and before Colhoun. Upon the decision of the former interference in his favor the case was remanded to the Primary Examiner for the purpose of determining the question of Hodgson's abandonment, and upon consideration a former rejection upon that ground was waived and the point thus decided in favor of Hodgson. It must be considered, therefore, that although Hodgson was not the first to conceive, yet when he did conceive this improvement he promptly and diligently reduced it to practice and has never abandoned it.

On the other hand, Colhoun three times states in his record that he abandoned this improvement, and that statement is reinforced by the fact that in 1888 or 1889 he went out of the canning business.

Upon this record priority is awarded to Hodgson, and the decision of the Examiner of Interferences and of the Examiners-in-Chief is reversed.

But this record shows that as early as the canning season of 1887 the invention was in public use at West River, Md., by Colhoun and his associates, and Hodgson's case must therefore be remanded to the Primary Examiner to determine the question whether the statutory bar does not exist of two years public use prior to his application of February 3, 1890.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals - Second Circuit.

SAUNDERS *et al. v.* ALLEN.

Decided March 13, 1894.

1. SAUNDERS—PIPE-CUTTERS—LACK OF INVENTION—VOID.

Claim 2 in Reissue Letters Patent No. 10,021, to Andrew Saunders, for a pipe-cutter, examined in view of the state of the art, and *Held* to be void for lack of invention, on the ground that there is no invention in placing antifriction-rollers in the jaw of a pipe-cutter having a rotary cutter, it already being old to so use rollers with a fixed cutter.

2. SAME—INCREASED SALES AS EVIDENCE OF INVENTION.

A pipe-cutter was seemingly without patentable invention; but it was shown that sales thereof had increased from three thousand nine hundred and twenty-six in 1885 to ten thousand seven hundred and twenty-seven in 1891. There was nothing to show to what extent price, workmanship, liberal discounts to dealers, and extensive advertising had contributed to the success in introducing the tool. It appeared, also, that an old form of cutter still remained in very general use, and that there was a strong competitor in another patented cutter. *Held* that the increased use was not sufficient to show patentable invention.

APPEAL from a decree of the Circuit Court for the Southern District of New York dismissing complainants' bill. The suit was brought by Alexander Saunders and others against James P. Allen for infringement of Letters Patent Reissue No. 10,021, dated January 31, 1882, to Andrew Saunders, for a pipe-cutter.

Mr. James A. Whitney for the appellants.

Mr. Livingston Gifford for the appellee.

Before WALLACE, LACOMBE, and SHIPMAN, Circuit Judges.

LACOMBE, *J.*:

A pipe-cutter is a tool, worked by hand, which grasps the pipe to be cut between two jaws, one or both of which is provided with a knife, and is then revolved around the pipe, the jaws being gradually brought nearer together, as the cut progresses, by means of a set-screw or other device. So much of the invention as is covered by the second claim, which is the only one defendant is charged with infringing, is thus described in the patent:

The invention further comprises a novel combination of an adjustable rotary cutter with the stock of a pipe-cutting device, and with two bearing or antifriction rollers so placed in said stock as to support and steady the pipe without material friction during the operation of the rotary cutter in severing the same, and a screw for forcing the cutter against the material to be cut.

The stock is simply the support of the movable and moving parts of the apparatus. It is a C-shaped piece of metal, of which the lower curve constitutes one jaw of the tool and the upper curve the other.

As represented in the drawings and described in the patent, the pipe to be cut is placed between the jaws, resting at one side against the antifriction-rollers, and with the rotary cutter pressed against its opposite side by means of the screw, which acts upon a pivoted arm in which the cutter wheel revolves. This pivoted arm is not an element of the claim averred to be infringed. The implement is then turned around the pipe in the usual manner of a pipe-cutter, (rotating the tool by means of the handle,) and as fast as the rotary cutter cuts into the pipe it is fed inward by turning the screw in the requisite direction, so that after a few revolutions of the implement around the pipe the latter is severed.

The claim declared on is as follows:

2. In a pipe-cutting implement, the combination of the anti-friction rollers *a* and an adjustable rotary cutter, D, with a stock, A, and a screw for forcing the cutter toward the material to be cut, substantially as and for the purposes here n set forth.

The stock, the opposed jaws, and the use of a screw to make the jaws bite are concededly old. The complainants' only claim to invention is found in the combination of the rotary cutter in the upper jaw with the broad bearing antifriction-rollers in the lower jaw. The circuit judge found that there was not patentable invention in this combination. This is a question to be determined by a consideration of the state of the art.

The complainants' implement is, as their counsel contends, an improvement on the Stanwood pipe-cutter, patented in 1859, and which went into such general use that it is still commonly spoken of as the "ordinary pipe-cutter." It has the stock, jaws, and screw and the rotary cutter placed in the upper jaw. The pipe to be cut rests in the lower jaw, however, without the interposition of anything to relieve friction. The manifest drawback to this tool was that, in consequence of the friction, it required the exertion of more strength to turn it and it had some tendency to twist the pipe. Its lower jaw had a broad bearing which kept the cutter straight. The only change which complainants have made in this old form of cutter is to relieve the friction by placing two rollers in the lower jaw. Such a mode of relieving friction is so well known in the arts that it would seem not to require patentable invention to suggest its use in a pipe-cutter to meet a recognized defect. The various patents introduced in proof, moreover, show that friction was understood to be a drawback in pipe-cutters and that antifriction-rollers were used to avoid it before the particular combination in suit was devised. In Letters Patent granted to Foster (No. 65,066) May 28, 1867, there are shown two friction-rollers in the lower jaw arranged substantially as are the complainants'—

so as to bear against the pipe, receive all the pressure and working of the pipe, and thus relieve the claw.

Had Foster retained the rotary cutter his tool would have been a complete anticipation of complainants' device. He undertook, however, to further improve the Stanwood cutter by substituting a fixed knife-blade for the rotary cutter in the upper jaw. He states that the pin of the rotary cutter has to bear the whole pressure, and as both pin and cutter are made of small dimensions they soon wear out and require to be frequently replaced. To remedy that difficulty, Foster substituted the stronger and more substantial fixed knife. Because he thus pointed out a mode of overcoming one difficulty and embodied his supposed improvement in his patent, that patent none the less pointed out the device he embodied therein for overcoming the other difficulty. Given the Stanwood cutter and the desirability of relieving friction between the lower jaw and the pipe, and given the Foster antifriction-rollers as a means of relieving such friction, there could be no patentable invention in placing the latter in the former, retaining still its rotary cutter.

Other patents, also, intermediate Stanwood's and the one in suit show variations of combination which relieve friction in pipe-cutters by the use of rollers. Getty's (No. 67,530, dated August 6, 1867; Reissue No. 3,549, dated July 13, 1869) show a V-shaped cutter in the lower jaw and rollers on the upper, giving the pipe "a recess in which to lie, regardless of size." Howarth's (No. 52,715, dated February 20, 1866) has a rotary cutter in the upper jaw and two cutters in the lower. It has the advantage of being capable of use where the angle of a wall or floor prevents an entire revolution of the tool around the pipe and the disadvantage of requiring more care to make the cuts true, as the knife-edges of the lower jaw do not present a broad bearing-surface for the pipe to rest on. The British patent to Liernur (No. 1,648, of 1873) shows a "screw-cutting gear" having, practically, jaws which, the specification states, may be so adjusted that the cutters will effect "a circular incision, the same as is effected by the well-known gas-pipe cutter." One modification of this (shown at Fig. 14) has two rotary cutters on the lower jaw and two antifriction-rollers on the upper one.

In view of the state of the art as thus disclosed, mere mechanical ingenuity, and that of no high grade, was sufficient to devise the improvement upon the old Stanwood cutter, which consists solely in the interposition of antifriction rollers between the lower jaw and the pipe to be cut, their bearing-surfaces forming a recess in which the pipe may rest.

Nor do we find in the record sufficient to warrant any different conclusion upon the theory that the pipe-cutter of the patent supplied a long-felt want which mechanics had tried to supply unsuccessfully, nor that it has driven other competitors out of the market because its superior merits have commended it to the public. In *McClain* v. *Ortmayer* (57 O. G., 1229; 141 U. S., 428; 12 Sup. Ct., 76) it is held that—

the extent to which a patented device has gone into use is an unsafe criterion even of its actual utility;

and in *Duer* v. *Corbin, etc., Co.* (63 O. G., 1060; 149 U. S., 223; 13 Sup. Ct., 850) it is pointed out that other considerations than that of novelty enter into any question of the popularity of a patented article. The Stanwood cutter itself is still in very general use, and the three-wheel cutter of Howarth, in a modified form known as the "Barnes cutter," is apparently a strong com-

petitor with the one-wheel cutter of the patent in suit. There is nothing to show to what extent price, workmanship, liberal discounts to dealers, and ingenious and extensive advertising may have contributed to whatever success has attended the effort to introduce complainants' tool, and in the absence of any information on these points there is not in the circumstance that the sales of this tool have increased from 3,926 in 1885 to 10,727 in 1891 sufficient to warrant the conclusion that there was any patentable invention in devising it in view of the state of the art as indicated *supra*.

The appellants' objection to the competency as proof, under the pleadings, of the Letters Patent to Foster, Getty, and others is without merit. The fourth defense, which may be proved under the general issue, (R. S., 4920,) is:

Fourth, that [the patentee] was not the original and first inventor or discoverer of any material and substantial part of the thing patented.

Manifestly, the last two words refer to the "thing patented" by him—the patentee whose patent is sued upon. The third defense authorized by the same section is that—

it had been patented or described in some printed publication prior to his supposed invention or discovery thereof,

and the fifth is that—

it had been in public use [etc.] more than two years, [etc.]

The section makes notice as to proof to be offered a prerequisite to the introduction of evidence in support of either of these defenses of previous invention, knowledge, or use. Such notice shall state—

the names of patentees, and the dates of their patents, and when granted, and the names and residences of the persons alleged to have invented or to have had prior knowledge of the thing patented, [meaning, evidently, patented by the Letters Patent in suit,] and where and by whom it had been used.

The notice in this case (which was contained in the answer) stated the names of the patentees and the dates of their patents, in which patents defendant contended that the material and substantial parts of the alleged improvement or supposed invention of Saunders were fully described and publicly made known. This was quite sufficient to warrant the introduction of those patents, provided they did in fact describe or disclose the alleged invention or discovery, whether they claimed it or not. Every invention disclosed in a patent and not claimed is dedicated to the public, and no one may thereafter appropriate it. It becomes thenceforth as much a part of the art as does the invention disclosed in the same patent and also claimed therein. The question whether an individual is or is not an original and first inventor or discoverer can only be determined by comparing what he did or discovered with that body of information upon the subject with which he and all the world are chargeable, and which is called the "state of the art." Usually the clearest conception of what that art is will be derived from a study of prior patents, which are open to the public (secs. 892, 486, 490, 491) and assumed to be within the knowledge of all from the date of their issuance and recording in the Patent Office, irrespective of the fact whether the plaintiff or his assignor ever saw them, and without proof of the precise date when they were printed.

The decree of the circuit court is affirmed, with costs.

U. S. Circuit Court—Western District of Pennsylvania.

JOHNSON *et al. v.* JOHNSTON.

Decided February 15, 1894.

1. WATSON—GENERAL INDEX.
Letters Patent No. 461,787, granted October 20, 1891, to Montgomery H. Watson, for an improvement in general indexes to be used in connection with books in which are recorded the names of individuals and facts or transactions connected therewith, *Held* to be for a patentable subject-matter within the term "manufacture" as used in the patent laws.

2. SAME—INDEX—INVENTION—VALID.
Letters Patent No. 461,787, granted to Montgomery H. Watson October 20, 1891, for an improvement in indexes to be used in connection with books in which were recorded the names of individuals and facts or transactions related thereto, examined in view of the art and *Held* to be valid.

BILL by Johnson & Watson against William G. Johnston for infringement of a patent.

Mr. H. A. Toulmin for the complainants.
Messrs. W. Bakewell & Sons for the defendant.

ACHESON, *J.*:

The plaintiffs sue for the infringement of Letters Patent No. 461,787, dated October 20, 1891, granted to Montgomery H. Watson, for an improvement in general indexes. The patented index is designed for use in connection with books in which are recorded the names of individuals and facts and transactions—for example, entries in the order book or appearance docket of a court or the record of deeds or mortgages in the books of a recorder. The specification states that in making up a complete set of index-books for sale and use each index-volume is designated by a letter of the alphabet, all surnames commencing with that particular letter being written in that volume. Each page is headed with such designations as relate to the particular uses of the index and is ruled to agree with such uses. Across each page of the index-volume—preferably near the top—is a table composed of the letters of the alphabet, progressively arranged, which stand for the initials of the Christian names of all persons whose names are written in the columns of that volume, and a figure or figures associated with each of said initial letters, referring to the numbers on the page or pages of the volume. By the use of the index of Christian-name initials and associated numbers the name of any particular person can be found in the index-volume, and opposite this name will be found the volume and page of the record-book containing the matter sought for. No matter at what page of the index-volume the searcher may open it, he will there find a ready and accurate reference to the particular page on which will be found the name for which he is searching. Indeed, every page is a complete index. The claims of the patent are:

1. As a new article of manufacture, an index book or volume consisting of numbered pages suitably ruled, headed and numbered, and of a table composed of the letters of the alphabet appearing on said pages, such letters representing the initials of Christian names, and a figure or figures associated with each of said initial letters and corresponding with a page or pages in said book, the book being designated by a letter of the alphabet.

2. As a new article of manufacture, the herein-described index book or volume, the same being designated by a letter of the alphabet and consisting of a suitable number of pages consecutively numbered, one or more pages of such book being devoted to Christian names commencing with a certain letter of the alphabet and each page being suitably headed and ruled, and a table on each page consisting of the letters of the alphabet progressively arranged, and a figure or figures associated with said letters, such figure or figures corresponding with a page or pages of said book.

Infringement is clearly shown. In truth, the index-books which the defendant made for and sold to the county of Allegheny, Pa., for use in the prothonotary's office, (the act of infringement here complained of,) are identical with the index of the patent. Two defenses have been urged: first, that the patent in suit is not for a patentable subject matter; second, that the patent lacks invention, especially in view of the prior state of the art.

First. The term "manufacture" as used in the patent law has a very comprehensive sense, embracing whatever is made by the art or industry of man not being a machine, a composition of matter, or a design. (Curt. Pat., sec. 27; 1 Rob. Pat., sec. 183.) In *Waring* v. *Johnson* (19 O. G., 1068; 6 Fed. Rep., 500) Letters Patent for an improvement in pocket check-books were sustained by Judge Blatchford, and in *Norrington* v. *Bank* (25 Fed. Rep., 199) Judge Colt sustained a patent whose subject-matter was of a like nature. In *Dugan* v. *Gregg* (48 Fed. Rep., 227) a combined book and index, so connected as to facilitate the more ready and convenient handling thereof, was held to be a patentable improvement by Judge Coxe, who also, in *Carter & Co.* v. *Wollschlaeger*, (53 Fed. Rep., 573,) upheld a patent for an improvement in duplicate memorandum sales-slips, following a decision of Judge Colt in *Carter & Co.* v. *Houghton*, (53 Fed. Rep., 577,) sustaining the same patent. In *Thomson* v. *Bank* (3 C. C. A., 518; 63 Fed. Rep., 250) the United States Circuit Court of Appeals for the Eighth Circuit sustained a patent for a bank-account book, the improvement consisting in a suitable number of full leaves and alternate series of short leaves, each of the latter being creased or perforated for folding in such a manner as to transfer the column of balances on the right-hand page to the succeeding left-hand page. I have no difficulty in holding that the subject-matter of the patent in suit is patentable.

Second. Does the improvement in general indexes devised by Watson involve invention? Here, I think, is the pinch of the case. As anticipating Watson's improvement, or at least as depriving it of the quality of invention, the defendant particularly relies upon the Campbell index, which, it is shown, has been used for many years in Allegheny county. It consists of a blank book with as many divisions as there are letters in the alphabet, devoted, respectively, to surnames having corresponding initial letters, while on a fly-leaf in the front or at the back of the book are the letters of the alphabet, in a horizontal line, representing the initials of the Christian names, under which are placed figures referring to the pages of the book where the names are to be found. Now, at first view this earlier index might seem to be decisive against the plaintiffs. It is, however, shown that in actual practice the Campbell index was found to be subject to serious objections, so much so that, whereas the commissioners of Allegheny county paid $4,000 for the right to use the Campbell index, yet in furnishing indexes for a recently-organized additional court of common pleas they procured from the defendant indexes made in accordance with the patent in suit. The reasons for this change, disclosed by the evidence, are suggestive. As the index-table in the Campbell system is at the front or back of the book, it is necessary for the clerk who writes the names in the volume to turn back and forth from the body of the book to the index-table and for the searcher using the volume to manipulate it in like manner, thus involving much loss of time, constant and great wear and tear of the book, and also liability to mistakes on the part of both clerk and searcher. The evidence is convincing that these evils were experienced.

John Bradley, the prothonotary of Allegheny county, speaking of the Campbell index, testifies:

The constant turning to the index in the book defaced and mutilated the book by finger-marks and sometimes tearing the index itself.

Referring to the Watson index, he states:

We have a system now that is a great saving of time—in that respect much better than the Campbell. * * * The system now in use is a great saver of time, and in a county like this that is very desirable; I mean as compared with the system known as the "Campbell."

In answer to the question whether the wear and tear incident to the Campbell index occurred in the use of the Watson index, he says:

They do not, because anywhere you open the book you find the full index before you.

This feature is the peculiar characteristic and crowning excellency of the index of the patent. The conception was novel and felicitous. Each page is itself a complete index, at once presenting to the eye a full and unerring reference to every other page of the book. All the objections to the Campbell index are thereby obviated. The proofs of general acquiescence in the claims of the patent and of public approbation of the system of indexing it has introduced are unusually strong. In many places the Watson index, altogether upon its intrinsic merits, has superseded the Campbell index. It has been adopted by public authorities after competitive examination and in some instances upon the recommendation of committees of the bar appointed by the courts to consider the subject of the most approved method of keeping indexes to the public records. These facts greatly strengthen the presumption of patentable novelty arising from the grant of the patent. The reasons assigned by the judges in the several above-cited cases for sustaining the patents there involved as evincing invention for the most part apply to the case in hand. The views of the circuit court of appeals in *Thomson* v. *Bank*, *supra*, are especially pertinent. Here, as there, the evils which the patent in suit remedied had been apparent for years; yet no keeper of public records, experienced clerk employed to make entries therein, or user of the indexes thereto had suggested what Watson has accomplished. The improvement was by no means an obvious one. Hence the decision in *Hollister* v. *Manufacturing Co.* (113 U. S., 59; 5 Sup. Ct., 717) is not here applicable. Indeed, Watson has supplied a great desideratum. He has provided for the public an index which is almost, if not altogether, perfect. His work is a distinct and substantial advance upon everything which preceded it. Why, then, should the faculty of invention be denied to him? The decisions of the Supreme Court in *Webster Loom Co.* v. *Higgins*, (21 O. G., 2031; 105 U. S., 580, 591;) *Magowan* v. *Packing Co.*, (57 O. G., 845; 141 U. S., 332; 12 Sup. Ct., 71;) *The Barbed-Wire Patent*, (58 O. G.,

1555; 143 U. S., 275; 12 Sup. Ct., 443, 450,) and *Krementz* v. *S. Cottle Co.* (148 U. S., 556; 13 Sup. Ct., 719) furnish the amplest warrant for upholding the patent in suit.

Let a decree be drawn in favor of the plaintiffs.

U. S. Circuit Court of Appeals—Second Circuit.

AMERICAN CABLE RAILWAY COMPANY *v.* MAYOR, ETC., OF THE CITY OF NEW YORK *et al.*

Decided April 19, 1894.

PROOF OF TITLE TO LETTERS PATENT—CERTIFICATION OF COMMISSIONER OF PATENTS TO COPY ASSIGNMENT—HOW FAR EVIDENCE.

A copy of an assignment of Letters Patent, certified by the Commissioner of Patents to be a true copy from the records of the Patent Office, if objected to at the time of offer, is not competent evidence of title.

Mr. Francis Forbes for the appellants.

Mr. Charles Howard Williams, *Mr. Daniel H. Driscoll*, and *Mr. Edward W. Cady* for the appellee.

WALLACE, *J.*:

The complainant's title to the Letters Patent in suit depends upon the authenticity of the mesne assignments under which it claims. No evidence was introduced tending to prove the execution of the assignments from the patentee to Horton, from Horton to the Cable Railway Construction Company, and from the Cable Railway Construction Company to the complainant, except duly certified copies of the Patent Office record of three instruments which purport to be such assignments. The objection that the instruments were not sufficiently proved was taken in due season and was insisted upon at the hearing in the circuit court. We are of opinion that the objection was valid, and consequently that the complainant was not entitled to a decree.

The assignment of a patent is not a public document, but is merely a private writing. There is no statutory provision requiring it to be recorded in the Patent Office. Section 4898 of the Revised Statutes permits this to be done for the protection of the assignee against a subsequent *bona fide* purchaser or mortgagee. The section does not make the recorded instrument evidence, does not require the assignment to be executed in the presence of any public officer, or to be acknowledged or authenticated in any way before recording, and does not provide or contemplate that it shall remain subsequently in the custody of the Office. It devolves upon the Patent Office merely the clerical duty of recording any instrument which purports to be the assignment of a patent. We are aware of no principle which gives to such a record the effect of primary evidence or of *prima facie* proof of the execution or the genuineness of the original document. To give it such effect would enable parties to manufacture evidence for themselves.

Section 892 of the Revised Statutes does not touch the point. That section provides that written or printed copies of any records, books, papers, or drawings belonging to the Patent Office shall be evidence in all cases wherein the originals could be evidence. The original assignment does not belong to the Patent Office. The section makes a copy evidence of the same class as the original record, but has no application when the original record is not competent. The early cases of *Brooks* v. *Jenkins* (3 McLean, 432) and *Parker* v. *Haworth*, (4 McLean, 370,) in which it was held that a certified copy of the Patent Office record of an assignment of a patent is *prima facie* evidence of the genuineness of the instrument, were decided at first instance and apparently without much consideration. The rule of these cases has been accepted, without discussion, in the later cases of *Lee* v. *Blandy*, (1 Bond, 361,) *Dederick* v. *Agricultural Co.*, (26 Fed. Rep., 763,) and *The National Folding Box and Paper Co.* v. *American Paper Pail and Box Co.*, (55 Fed. Rep., 488.) It is not improbable that these decisions were influenced by the technical nature of the objection in the particular cases; but the rule opens the door to fraud, as any stranger can put an assignment upon record, and it imposes upon a defendant who honestly doubts whether a party who claims title to a patent is the owner the burden which ought to rest upon his adversary.

Our conclusions are supported by the opinion of the circuit court of appeals in *Poine* v. *Trask*, (65 O. G., 298; 56 Fed Rep., 233,) where the question was considered with care, although its decision was unnecessary to the judgment.

We have not considered the point argued by the appellants that the bill should have been dismissed because no proof was given of the complainant's incorporation. The assignment of errors does not present the question.

Although upon the proofs in the circuit court the complainant was not entitled to a decree, it would have been a proper exercise of discretion on the part of the court, in view of the reliance which the complainant had doubtless placed upon the adjudications which have been referred to, to permit the complainant to reopen the proofs and the cause to be reheard.

In reversing the decree and directing the dismissal of the complainant's bill we do so without prejudice to the granting by the circuit court of such an application, if seasonably made by the complainant.

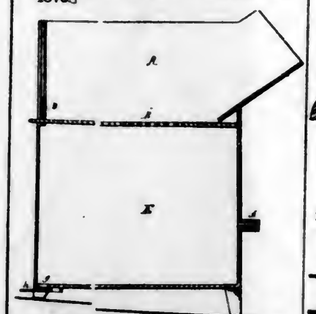
The decree is reversed, with instructions to the circuit court to proceed in conformity with this opinion.

PATENTS

Expired. June 5 1894.

The term of these patents granted during the week ending June 5 1877, have expired.
The reissues expired at an earlier date.

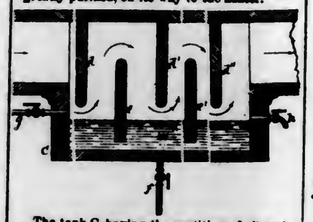
191,511. COAL AND ORE WASHERS. James M. Bailey, Pittsburg, Pa. [Filed Feb. 20, 1876.]



A coal-washing apparatus, consisting of an upper inclined trough, A, with removable sod-gate D, and transverse opening B, and a lower water-chamber, E, provided with suitable inlet *f* and outlet *g*, the several parts being relatively arranged as described, whereby the entering material is buoyed up in a water-bath while subjected to the separating action of water currents injected from below, substantially as hereinbefore described, and for the purpose set forth.

191,512. VENTILATION AND DISINFECTION OF BUILDINGS. Wm. H. Bennett, Brooklyn, N. Y. [Filed Apr. 7, 1877.]

Brief.—The outer air, coming through the air-box in the direction of the arrow, strikes the first partition; it is then deflected downward, losing a portion of its suspended matter. When it reaches partition *a* its course is turned upward, then over partition *a*, and along the cold-air box, until it reaches partition *a'*, when its course is again turned downward upon the surface of the fluid. It then loses still more of its suspended matter, and so on until all the partitions are passed, and it enters the box greatly purified, on its way to the heater.



The tank C, having the partitions *d*, *d'*, and *d''*, with or without partitions *e* and *e'*, or the equivalent of said partitions, hereinbefore set forth, the waste-pipe *f*, supply-pipe *g*, and the escape *h*, in combination with the cold-air box or air-supply pipe of a hot-air furnace or steam-heater, where the method known as indirect radiation is employed, substantially as and for the purpose described.

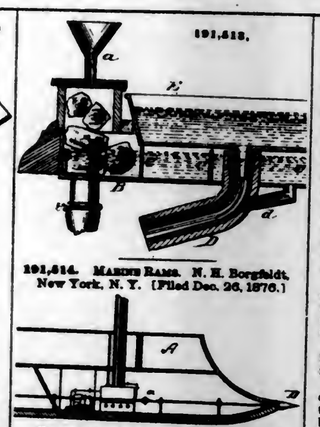
191,513. MILK-COOLERS. Joseph Bisnonett, Jericho, Vt. [Filed Feb. 19, 1877.]

Brief.—The water-vat is provided with a pipe, in the end of which the outlet-pipe from the milk-pan fits. A smaller pipe leads from the vat into the outlet-pipe, to run water through to cleanse it. The pipes can be used without removing the milk-pan.

1. The water-vat B, made of leaded tin, provided with an outlet-tube, D, and the pipe *d*, arranged as described, for the purpose set forth.

2. The water-vat B, provided with an outlet-tube D *a'*, and the pipe *d*, arranged as described, in combination with a removable pan, E, having an outlet-tube, *e*, arranged as described, for the purpose set forth.

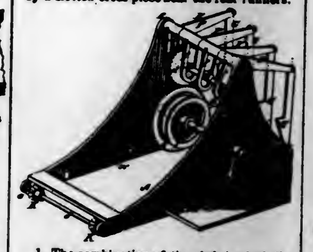
191,514. MARINE RAMS. N. H. Borgfeldt, New York, N. Y. [Filed Dec. 26, 1876.]



The combination of a ship, A, with a ram, D, the sides of which coincide with the bow of the ship, to which it is applied, substantially as specified.

191,515. ICE-CUTTING MACHINES. Charles Chadwick, Hannibal, Mo., assignor of one-half his right to L. P. Munger and Wm. A. Munger, same place. [Filed Apr. 4, 1877.]

Brief.—A cam upon the main shaft operates an elbow-lever, to which is attached a dog engaging with, and causing to revolve, a ratchet-wheel upon a shaft, which carries also serrated disks, to catch upon the surface of the ice and draw the machine. Upon the main shaft is also a gear-wheel, engaging with another upon a second shaft, which carries cams arranged at different angles. Each cam revolves in a slot in the lower arm of an elbow-lever, which is pivoted upon a shaft above; while from the end of the other or vertically-moving arm is suspended a saw, which is braced and guided by a slotted cross-piece near the rear runners.



1. The combination of the sled A, shaft C, cam L, lever M, dog N, ratchet O, spring P, shaft J, and disks K K, substantially as described.

2. The combination of the sled A, shafts C D E J, cams *d d d d*, levers F F F F, saws G G G G, wheels *e d*, cam L, lever M, dog N, ratchet O, spring P, and disks K K, substantially as described.

191,516. TELESCOPIC OR HYDRAULIC ELEVATORS. Wm. R. Cornings, New Britain, Conn. [Filed Nov. 3, 1876.]

Brief.—The main power is applied to the main piston, which, acting upon the fluid above it, gives an independent movement simultaneously to the pistons above it. Any waste or loss of the fluid is supplied by the small reservoirs attached to the cylinders.

1. The described method of raising the sections of an elevator, consisting, essentially, first, in the employment of a single main power; second, in the employment of certain independent volumes of an incompressible fluid; third, in applying the main power by the movement of the main piston, through the medium of the fluid volumes, to the auxiliary piston in such manner that each receives simultaneously an independent movement, substantially as described.

2. In an elevator, the combination of the following elements: a primary piston, adapted, substantially as described, to receive movement from the main power, one or more auxiliary pistons, and intermediate means, substantially as described, for communicating, simultaneously and independently, the movement of the primary to the auxiliary pistons.

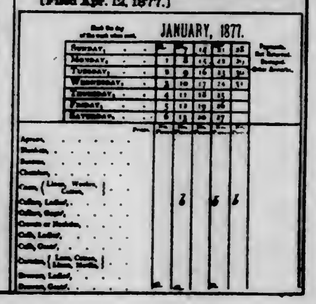
3. The elevator described, having the primary tube A, one or more auxiliary tubes, B C, having pistons *b c*, piston-chambers *b' c'*, and one or more independent volumes of incompressible fluid, E E, substantially as described.

4. In combination with a fluid-chamber, *b' c'*, substantially as described, an auxiliary supply-chamber, F, substantially as described, adapted to restore the loss by leakage, as set forth.

5. In combination with the annular chambers, the supply-tube and check-valve, as and for the purpose described.

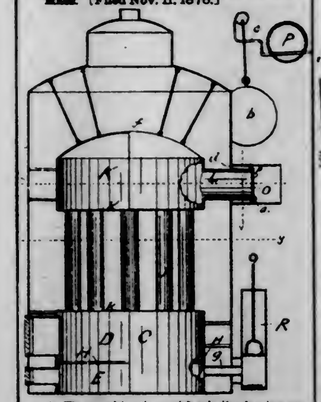
6. A hydraulic elevator, substantially as described, adapted to have its auxiliary sections moved independently and simultaneously by a single main power, as and for the purpose set forth.

191,517. COMBINED CALENDAR AND WASHING-LIST. John O. Coombs, Boston, Mass. [Filed Apr. 12, 1877.]



A combined calendar and washing-list, in which the columns for receiving the figures indicating the numbers of pieces correspond in number with and are formed on the prolongation of the vertical divisional columns of the calendar, as shown and set forth.

191,519. BOILER-FURNACES AND AIR-SUPPLYING APPARATUS. James E. Crowell, Chelsea, assignor to Albt. Merrill, Boston, Mass. [Filed Nov. 11, 1876.]

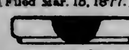


1. The combination, with a boiler having an air-tight fire-box, of the air-pump R, smoke-funnel L, valve P, and damper-presser regulating device, constructed and arranged substantially as described.

2. The combination, in a steam-boiler, of the fire box D, secondary combustion-chamber K, each provided with tube-sheets *k* and communicating flame-tubes J, with the air-pump and pressure-regulating devices, in the manner and for the purpose set forth and described.

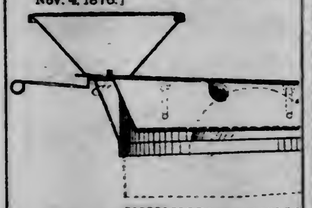
3. The combination, with a steam-boiler, of the pump R, pipe *g*, valve P, and pipe L, valve-crank *e*, and weight *b*, all combined and arranged to operate substantially in the manner set forth.

191,519. SEALING DEVICES FOR BOTTLES, JARS, &c. Catharine L. Darby, Fort Motte, S. C. [Filed Mar. 15, 1877.]



As a new article of manufacture, a sealing device for bottles, jars, &c., consisting of a rubber or elastic cap conforming somewhat to the shape of the bottle neck, and having a contracted and corded lower edge, and a practically spherical central inner projection, adapted to touch only the inner edge or angle of the bottle-neck, substantially as herein specified.

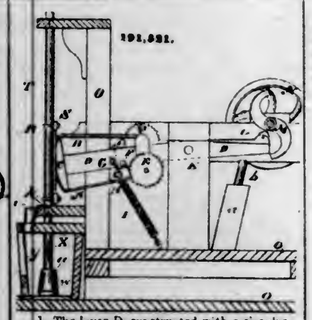
191,520. ASH-SIFTERS. Geo. W. Demond and L. Demond, Brooklyn, N. Y. [Filed Nov. 4, 1876.]



1. The combination of the hopper and casing, having guide-slots, with an extension-plate of the screen forming a partial cut-off to regulate supply of ashes, substantially as described.

2. The extension-plate or cut-off C', having one or more stirrer-pins for the purpose set forth.

191,521. STAMP-MILLS. George Downing, Chicago, Ill., assignor of one-half of his right to Collins Eaton, same place. [Filed Apr. 14, 1877.]



1. The lever D, constructed with a circular-faced cross-piece, C, in combination with the cords A and B and the ratchet-wheels E and Q, in the manner shown and described, and for the purpose set forth.

2. The lever D, constructed with the circular-face cross-piece C, in combination with the cords A and B, the ratchet-wheels E and Q, spring I, and the rod Y, in the manner shown and described, and for the purpose set forth.

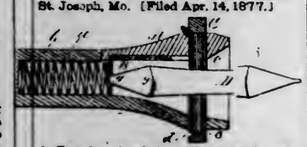
3. The lever D, constructed with the circular-face cross-piece C, in combination with the cords A and B, the ratchet-wheels E and Q, the spring *l*, spring *b*, and rod T, in the manner shown and described, and for the purpose set forth.

4. The lever D, constructed with the circular-face cross-piece C, in combination with the cords A and B, the ratchet-wheels E and Q, spring I, spring *b*, tappets M, and rod T, in the manner shown and described, and for the purpose set forth.

5. The lever D, constructed with a circular-faced cross-piece, C, in combination with the cords A and B, and shaft T, in the manner shown and described, and for the purpose set forth.

6. The shaft T, constructed with the head U secured or formed thereon, in combination with cords A and B, and lever D, as shown and described, and for the purpose set forth.

191,522. CAR-COUPLINGS. Wm. Dueeler, St. Joseph, Mo. [Filed Apr. 14, 1877.]



1. The draw-head A, with spring *b*, and angular plate B, having opening *f* passing through it, in combination with the link or bar D, formed with conical head *g*, and shoulders *g'*, substantially as and for the purpose set forth.

2. The combination, with the angular plate B, having opening *f*, and the spring *b*, of the link or bar D, constructed as described, and the double bolt C, with recesses *d* and pins *c*, to guide said bolt in its movement within the recesses *d*, and also to act as stops, substantially as specified.

191,523. TANK-VALVES. John P. Duncan, Helena, Ark., assignor of one-half his right to D. H. Crebs, same place. [Filed Apr. 10, 1877.]

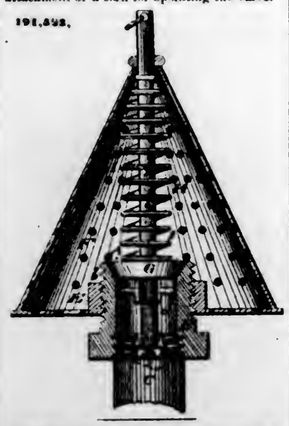
Brief.—The valve-seat has a removable collar, provided with a strainer which covers the valve-seat, and thereby excludes all sediment from contact with the valve or its seat. The valve has a stem, the upper end of which serves as a guide for the valve. A spring serves to seat the valve, while the lower stem serves as a guide to accurately seat the valve.

1. In a valve for tanks, the combination, with the valve-seat, of a removable collar, having a strainer rigidly secured thereto, substantially as and for the purpose set forth.

2. In a valve for tanks, the combination, with the valve-seat and removable collar having a strainer rigidly secured thereto, of a valve and a spring, the latter having its upper end resting against the strainer, and the lower end seated on the upper surface of the valve, substantially as and for the purpose set forth.

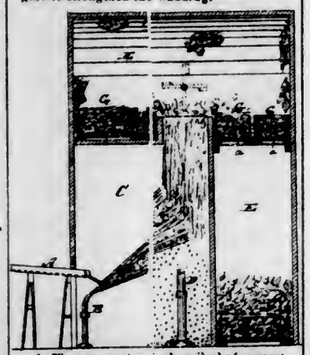
3. In a valve for tanks, the combination, with a valve-seat and a strainer, located above and around the same, of a valve, the upper stem of which extends upwardly through the strainer, and is provided with a ring for the attachment of a cord for operating the valve.

191,524.



191,524. PROCESSES AND APPARATUS FOR TREATING MINERAL WOOL. A. D. Albers, Hoboken, N. J. [Filed Mar. 6, 1877.]

Brief.—The pans are constructed with loose bottoms, and the sheets of wadding formed by compression. Size is mixed with the mineral glue to strengthen the wadding.



1. The process herein described of separating mineral wool from globules by subjecting it to the action of a lateral current, substantially as specified.

2. In an apparatus for making mineral wool, the combination of the conduit A and jet-pipe B with the jet-pipe D, for producing the lateral current, substantially as specified.

3. The combination of the apartment C, containing the trough or conduit A and jet-pipe B, with the compartment E, which communicates with the apartment C, substantially as herein shown and described.

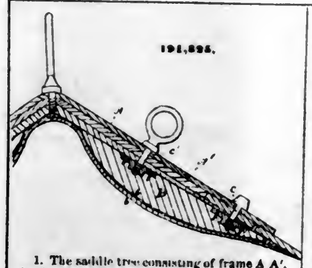
4. The combination, in an apparatus for reducing slag to mineral wool, of the wool-producing mechanism and pans D, arranged to receive the wool as it is formed, and constructed to compress the same, substantially as set forth.

5. The process described of making wadding of mineral wool, consisting in producing the fibers from the liquid slag, conducting them directly, without handling, to, and depositing them in, boxes corresponding in size to the sheets to be produced, and there compressing them, substantially as set forth.

6. As a new article of manufacture, mineral-wool wadding, formed into sheets, substantially as herein specified.

191,525. HARNESS-SADDLE TREES. Wm. L. Frizzell, Davenport, Iowa. [Filed May 14, 1877.]

191,525.

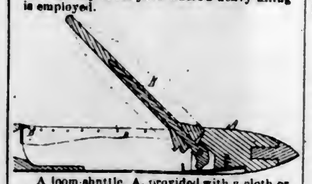


1. The saddle tree consisting of frame A A', having central slot *a* and holes *a'* and *a''*, all arranged substantially as shown and described, and for the purpose specified.

2. The harness saddle composed of the frame A A', adapted to hold the sectional housing by means of stitches, pad B, screws *c* and *c'*, and taps *d*, arranged and combined as shown and described, and for the purpose specified.

191,526. SHUTTLES FOR WEAVING DUCK, &c. Walter L. Gilbert, Plymouth, Mass. [Filed Apr. 11, 1877.]

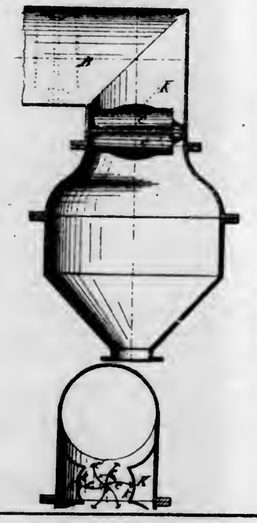
Brief.—The friction-lining prevents the too free delivery of the yarn where a heavy filling is employed.



A loom-shuttle, A, provided with a cloth or friction lining, D, arranged in its bobbin-chamber, substantially as and for the purpose set forth.

191,527. DEVICES FOR COLLECTING AND SAVING PARTICLES OF SUGAR-LIQUOR RISING WITH THE STEAM FROM VACUUM-PANS. Auguste A. Goubert, New York, assignor to Franz O. Matthiessen, Irvington, N. Y. [Filed Mar. 16, 1877.]

Brief.—The particles of sugar-liquor rising with the steam from the vacuum-pan are caught by the curved blades of the revolving wheel in the neck of the pan, and by centrifugal force are carried, in the form of liquor, into the inclined gutters upon the outer edges of the blades, from which the liquor is thrown, so that it will run back into the pan and mingle with the boiling liquor.

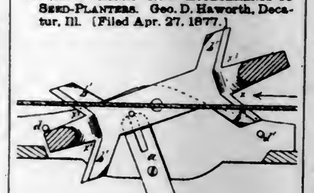


1. A system of radially-arranged curved tapering blades, having a common axis of rotation, in combination with a corresponding system of troughs or gutters respectively affixed to the outer straight edges of the curved blades, substantially as and for the purpose set forth.

2. A wheel composed of the curved blades *c*, provided with the gutters *c'*, in combination with the shields K K, presenting the concave faces *k k*, partially embracing the wheel, and conforming to the shape of the frustum of the cone described by the gutters *c'* in their rotation upon a common axis.

3. In combination with the neck of a vacuum-pan, provided with the shields K K, a wheel, substantially such as described, having its axis of rotation extending across the opening or space in which the wheel is arranged, substantially as shown.

191,528. CHECK-ROW ATTACHMENTS TO SEED-PLANTERS. Geo. D. Haworth, Decatur, Ill. [Filed Apr. 27, 1877.]



1. In a check-row planter, an arm or lever made in a single piece, and adapted to be operated alternately in opposite directions by the direct action of the check-row cord or wire thereon, as explained.

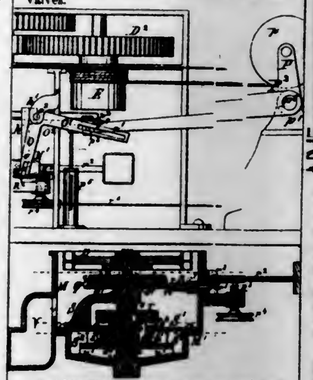
2. The arm or lever B, provided with the recurved and slotted and forked ends, substantially as and for the purpose set forth.

3. The arm or lever B, pivoted midway of its length, and provided with the recurved or slotted ends, and with the diverging arms or forks *b b'*, substantially as described.

4. The lever *a*, through which motion is communicated to the seeding devices, connected directly with, and receiving a positive movement in both directions from, the single vibrating check-row-cord arm or lever B, substantially as described.

191,529. HOISTING-MACHINES. (HYDRAULIC.) Frederick G. Hesse, Oakland, Cal. [Filed Mar. 30, 1877.]

Brief.—A turbine wheel is the motor used to work the elevator, and the ascending and descending weight regulates the speed by means of the centrifugal water-brake and valves.



1. A hoisting apparatus, in combination with a water-wheel, the supply of water to which wheel is regulated by the weight of the load upon the hoisting apparatus, substantially as set forth.

2. A hoisting apparatus, in combination with an automatic centrifugal water-brake, substantially as and for the purpose set forth.

3. The combination of a hoisting apparatus with an automatic centrifugal water-brake and an adjustable friction-stop, substantially as set forth.

4. The combination of the cable X, the levers P' O', the sliding arm N, and the piston H, having a collar, *h'*, on its piston-rod, substantially as set forth.

5. The combination of the cord *j*, the valve J, having passages *j' j'' j'''*, the valve-seat J'', having ports *i' i'' i'''*, the valve-chamber G', and the piston H, substantially as set forth.

6. The combination of the piston H, having a collar, *h'*, and a pin, *h*, and the valve G, substantially as set forth.

7. The valve G, having an opening, *g'*, and guide-plates *g''*, in combination with the bottom F, having an opening, *f*, and the piston H, substantially as set forth.

8. The wheel B, having pins *b*, in combination with the slotted locking-levers Q', the arms Q', the pulley Q', the shaft Q, and the wheel U, substantially as set forth.

9. The shaft Q, having a wheel, U, in combination with the bottom S', the disk S', and the valve T, substantially as set forth.

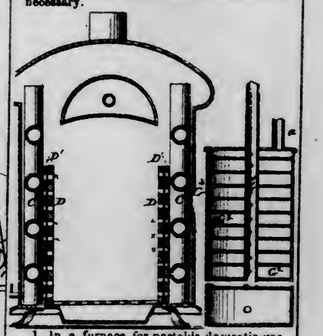
10. The wheel B, having pins *b*, in combination with the slotted locking-levers Q', the arms Q', the pulley Q', having the rims *q* and Q', the friction-lever R, pin *r'*, and weighted lever *r''*, substantially as and for the purpose set forth.

191,530. PROCESSES OF APPLYING OXYGENATED AIR IN BLAST-FURNACES. Charles Hornbostel, Brooklyn, N. Y., assignor to Edward Hornbostel, same place. [Filed May 18, 1876.]

The process herein described of applying oxygen gas to metallurgical operations, and to assist in the combustion of fuel, by conducting a current of air, under pressure, into contact with or through a mixture of black oxide of manganese and sulphuric acid, and from thence to the place of use, substantially as described.

191,531. PORTABLE GAS APPARATUS. D. H. Irland, New York, N. Y. [Filed May 3, 1877.]

Brief.—Gas is generated, scrubbed by means of steam, and is then passed through the condenser and the purifier, and is stored in a holder. The tar is conducted from the steam-scrubber to the furnace, where it is burned. The water-box of the holder has a coil of steam-pipe, by which the water may be warmed when necessary.



1. In a furnace for portable domestic gas apparatus, the combination, with the boiler-tubes C, of the perforated tile-lining D and the sliding perforated dampers D', for the purposes herein set forth.

2. In a gas-retort, a packing or seal, *d*, of isinglass interposed between the lid and the end of the retort, as set forth.

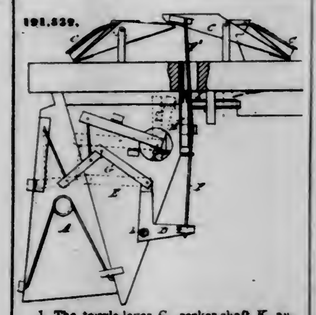
3. In a portable domestic gas apparatus, the hydraulic main and scrubber G', having the perforated steam-pipe G' and the series of perforated diaphragms G', substantially as and for the purposes herein set forth.

4. In a portable domestic gas-machine, the gas-condenser composed of the partitioned box I, upright pipes P', and elbow-connections P', the packing *i*, of sponge or similar absorbent material, placed in the elbows, substantially as and for the purposes herein set forth.

191,532. REED-ORGAN SWELLS. George B. Kelly, Boston, and Albt. K. Hobard, Cambridge, Mass. [Filed June 2, 1876.]

Brief.—Relates to reed-organs the swell of which is operated by the action of the bellows, and disconnecting mechanism connected therewith.

191,539.



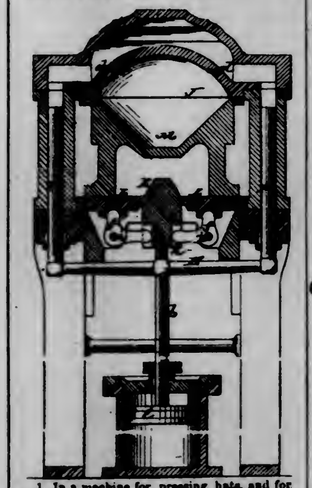
1. The toggle-lever G, rocker-shaft K, angle-lever D, and rod F, all arranged together substantially as described, and interposed between the bellows A and the swell C, so that the toggle-lever can be put into and out of connection with the bellows, to connect or disconnect the bellows and swell, substantially as and for the purpose specified.

2. The slot r in angle-lever D, in combination with shoulder or bead p of the rod F F', which is connected to the swell through angle-lever H, substantially as described, for the purpose specified.

3. The toggle-lever G, rock-shaft K, angle-lever D, and rod F, in combination with the bellows A, swell C, and a knee-swell lever, substantially as described.

191,535. HYDRAULIC HAT-PRESSING MACHINE. Robert Kent, Brooklyn, N. Y. [Filed Apr. 27, 1876.]

Brief.—A continuous motion of the steam-piston lifts the body to be pressed in the mold, and against the elastic diaphragm, to give the hat or body under operation its required form. An arrangement is also provided to lock the mold in its place.



1. In a machine for pressing hats, and for similar purposes, the combination of the steam-piston C, having one or more attached water-plungers, F, and mold M with the dome I and elastic diaphragm J, substantially as and for the purposes herein set forth.

2. The combination of a mold-locking device with and subject to the control of the same piston, which, by its continuous motion, controls the position of the mold in its relation with the dome and the hydraulic pressure on the back of the elastic diaphragm, essentially as described.

3. The combination of the inclined or conically-constructed bolt operating and tripping wedge K, the bolts L L, the levers f f, the mold M, and the piston C, substantially as and for the purposes herein set forth.

191,534. MANUFACTURE OF GLASSWARE. Charles L. Knecht, Pittsburg, Pa. [Filed Feb. 12, 1877.]



In combination with the article of blown glassware, the pressed handle A, having a continuous strengthening device, a, whereby, in the operation of joining the handle to the blown body, the uneven shrinkage between the handle and body is partially compensated by said strengthening device, which is united to the body along its entire length, and acts as a brace to the ends of the handle.

191,535. APPARATUS FOR LIQUORING HARD SUGAR IN CENTRIFUGAL MACHINES. Otto H. Krause, Jersey City, N. J., assignor to F. O. Matthiessen & Wiechers Sugar Refining Company, same place. [Filed Apr. 28, 1877.]

Brief.—Sponge or other absorbent material saturated with water or sugar-liquor, and placed in central molds in a centrifugal machine, evenly distributes the water or sugar-liquor, which, by centrifugal force, is driven through the loaves of hard sugar in the outer molds.

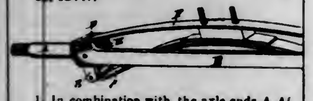


1. The combination of the sugar-molds *b* with the movable molds *c*, for containing an absorbent material.

2. The molds *c*, provided with one or more transverse partitions, *c'*.

3. The molds *c*, constructed with the vertical prolongation *d*.

191,536. VEHICLE SPRINGS AND AXLES. S. W. Ludlow, Cincinnati, Ohio. [Filed Jan. 13, 1877.]



1. In combination with the axle ends A A' and rigid bar B, the sockets D, for receiving the ends of the spring or guide-bar, or both, substantially as and for the purpose specified.

2. The combination of axle ends A A', rigid bar B, spring C, sockets D, and guide-bar F, connected and operating substantially as and for the purpose specified.

3. In combination with the axle ends A A', spring C, and bar B, having sockets D, the links E E', substantially as and for the purpose specified.

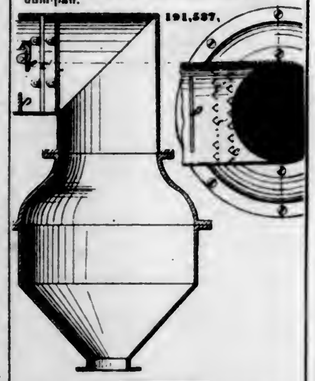
191,537. DEVICES FOR COLLECTING AND SAVING THE PARTICLES OF SUGAR RISING WITH THE STEAM FROM VACUUM-PANS. F. O. Matthiessen, Irvington, and Auguste A. Goubert, New York, N. Y., assignors to said Matthiessen. [Filed Mar. 15, 1877.]

Brief.—The particles of sugar-liquor which rise with the steam from the vacuum-pan are caught by the series of V-shaped deflectors, having gutters at their edges, and by their gravity flow back, in the form of liquor, into the pan.

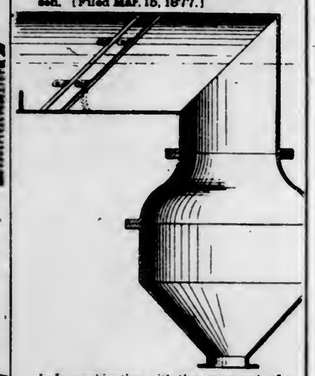
1. In combination with the goose-neck of a vacuum-pan, two or more series of deflectors, each of such deflectors having one or both of its edges carved, as shown, to form troughs or gutters, substantially as and for the purpose set forth.

2. The vertical wall D, extending transversely across the goose-neck, for the purpose of holding back liquor collected upon the bottom of the goose-neck, and thus preventing such liquor from flowing away from the vacuum-pan.

191,537.



191,538. DEVICES FOR COLLECTING THE SUGAR-LIQUOR WHICH BOILS OVER FROM VACUUM-PANS. F. O. Matthiessen, Irvington, and Auguste A. Goubert, of New York, N. Y., assignors to said Matthiessen. [Filed Mar. 15, 1877.]



1. In combination with the goose-neck of a vacuum-pan, a series of deflectors, substantially such as shown and described, erected within the goose-neck, and having their upper ends inclined toward the neck of the vacuum-pan.

2. A series of deflectors, substantially such as described, erected within the goose-neck of a vacuum-pan, and having their lower portions curved toward the neck of the vacuum-pan, substantially as described, and for the purpose set forth.

191,539. PROCESS OF WASHING RAW SUGAR. F. O. Matthiessen, Irvington, N. Y. [Filed Mar. 3, 1877.]

The improvement in the mode of removing impurities from raw sugar herein described, which consists in preparing the raw sugar for washing by mixing it with a sugar-sirup or sugar-liquor, and in then washing the prepared raw sugar in the centrifugal machine, substantially as and for the purposes set forth.

191,540. BIT-STOCKS. James T. Matthews, New Berne, N. C. [Filed Mar. 29, 1877.]

Brief.—The brace is provided with a pivoted head and ratchet at its lower end, for boring holes parallel to flat surfaces while lying upon the same.

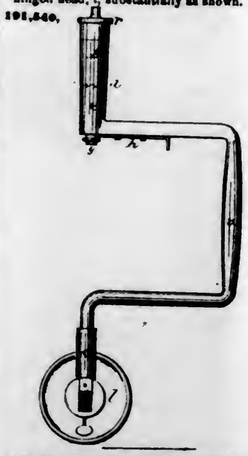
1. The brace *a*, provided with the ratchet *d* at its lower end, and a head, *l*, that is adapted to be opened outward, substantially as shown.

2. The bit stock *a*, provided with the part *b*, that is made separate therefrom, and operated by means of the ratchet-teeth *d*, in combination with the bolt *g*, spring *i*, and a locking device, substantially as specified.

3. The slide A, in combination with the bolt *g* and part *b*, substantially as specified.

4. A brace, *a*, provided with a pivoted or hinged head, *l*, substantially as shown.

191,540.

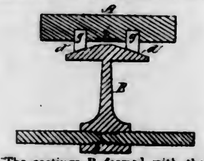


191,541. JAR-COVERS. Edward Meier, Detroit, Mich. [Filed May 17, 1877.]



The combination of the pasteboard *a*, paper *b*, and a fastening-band, *d*, the fastening-band being attached to the paper so as to always be ready for use, substantially as shown.

191,542. ROLLER-SKATES. John Miner, Detroit, Mich. [Filed Apr. 16, 1877.]

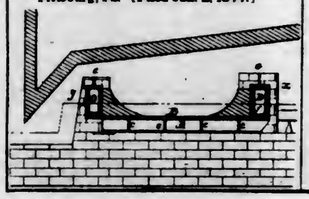


1. The castings B, formed with the laterally-inclined plates *b' b'*, in combination with the heel and sole plate A, with springs *g*, substantially as and for the purpose specified.

2. The combination, with the heel and sole plate A, formed at both ends and upon its under surface with inclines *c*, of the castings B, formed with inclined plates *b' b'* and spring *g*, substantially as and for the purpose set forth.

3. The heel and sole plate A, formed with recesses *c'* and rib *f*, for the reception of the rubber spring *g*, substantially as and for the purpose described.

191,543. CONSTRUCTION OF REVERBERATORY-FURNACE BOTTOMS. P. D. Nicols, Pittsburg, Pa. [Filed Jan. 2, 1877.]



1. The herein-described furnace-bottom, consisting of the top B and bottom A, with the ribs *e e e* and openings S and *f*, as described, and for the purpose set forth.

2. The combination of the bottoms A and B, having the air passage and openings, as shown and described, with the box D, provided with the slotted opening *f* for the admission of air, and the openings *e e e* for its distribution, as shown and described, and for the purpose set forth.

191,544. TOBACCO-PIPES. Nils Peter Oberg, Warren, Pa. [Filed May 10, 1877.]

Brief.—The stem is connected to the bowl by a bayonet-joint, so that it can be removed. The stem is telescopic, in order to shorten it.



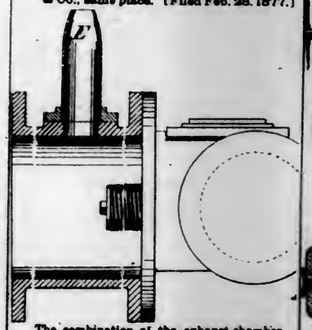
1. The bowl A, provided with the pin or stud *b*, in combination with the stem B, provided with the slot *a*, substantially as and for the purpose set forth.

2. The bowl A, provided with the pin or stud *b*, in combination with the stem B, provided with the opening *c*, substantially as and for the purpose set forth.

3. The stem C, having enlarged head D and packing *d*, in combination with the stem B, provided with a shoulder, *e*, substantially as and for the purpose set forth.

4. The bowl A, in combination with the stem B, provided with slot *a*, opening *c*, and shoulder *e*, and the stem C, having enlarged head D and packing *d*, substantially as and for the purpose set forth.

191,545. EXHAUST APPARATUS FOR STEAM-ENGINES. Charles T. Parry, Philadelphia, Pa., assignor to Burnham, Parry, Williams & Co., same place. [Filed Feb. 26, 1877.]



The combination of the exhaust-chamber, exhaust-muffler located therein, and the blast-nozzle E, whereby the noise of the escaping steam is deadened and the force of the blast retained to create draft, substantially as and for the purpose set forth.

191,546. HYDROCARBON-INJECTORS. H. B. Parson, Watertown, N. Y. [Filed Apr. 26, 1877.]

1. In a hydrocarbon-injector, the combination, with the oil-supply pipe located within the injector, and adapted to have an endwise movement therein, of an oil-supply valve and a coupling-piece, the latter provided with an oil-passage, and also with a passage leading to the open air, substantially as and for the purpose set forth.

2. In a hydrocarbon-injector, the combination, with the outer casing, having a plug secured within one end of the same, of a tube removably secured to a screw-threaded boss formed on the inner end of the plug, said tube provided with a conical valve-seat and a contracted nozzle, and an oil-supply pipe, arranged to extend through said plug, the forward end of the oil-pipe having a conical valve formed thereon, substantially as and for the purpose set forth.

3. In a hydrocarbon-injector, the combination, with the outer casing, and oil and steam pipes arranged within the same, of an atomising-nozzle, formed with a conical deflector, made up of a series of knife-edge deflectors, substantially as and for the purpose set forth.

4. In a hydrocarbon-injector, the combination, with an outer casing having an enlarged chamber formed therein, of an inner steam-tube of practically the same length as the enlarged chamber, and a steam-supply pipe leading to said tube, and an inwardly-opening valve, substantially as and for the purpose set forth.

5. The combination, with the outer casing of a hydrocarbon-injector, constructed substantially as shown, and a valve-casing, the upper end of which constitutes a conical valve-seat, of a valve and a spring, which latter is interposed between the valve-stem guide and a pin or nut secured to the valve-stem, substantially as and for the purpose set forth.

6. In a hydrocarbon-injector, the combination, with the outer casing, having an enlarged chamber formed therein, and suitable steam-pipes, of a removable plug, Q', substantially as and for the purpose set forth.

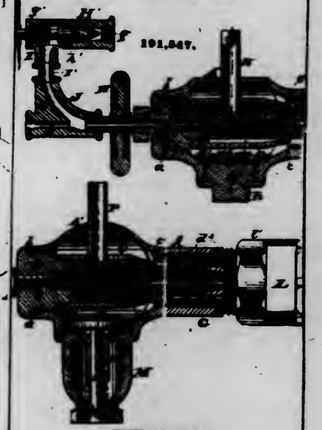
7. In a hydrocarbon-injector, the combination, with casing A, formed with an enlarged portion, A', provided with opening Q, of the steam-pipe P, tubes C D, the several parts constituting the chambers E and F, substantially as and for the purpose set forth.

8. In a hydrocarbon-injector, the combination, with the tubes C and D and steam-pipe P, of the outer casing A, provided with an inwardly-opening valve, constructed with an inclined inner surface, *c'*, in close proximity to the forward end of tube C, substantially as and for the purpose set forth.

9. In a hydrocarbon-injector, the combination, with casing A, having an enlarged portion, A', of the plug B, tubes C D, oil-pipe G, and steam-pipes E F, substantially and as for the purpose set forth.

10. A hydrocarbon-injector constructed with independent steam-chambers and connecting-pipes, the same arranged substantially as set forth, whereby either air and steam, or gas and steam, or oil, air, and steam, may be injected, separately or collectively, into a furnace, substantially as set forth.

191,547.

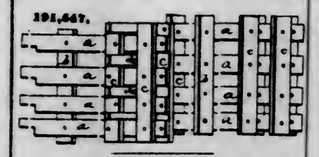


191,547. FENCES. Edgar H. Parry, Exeter, Ill. [Filed Mar. 27, 1877.]

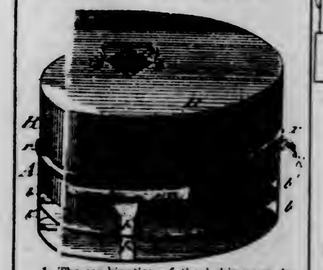
In a removable fence, the combination of two or more panels, *a*, each one of which has the four posts *s* secured to one end, the posts being arranged two on a side, and at an angle to each other, so as to form a double brace with the locking-pins *d*, substantially as shown.

EXPIRED PATENTS.

191,547.



191,548. BAKING-PANS. John H. Pitts, San Francisco, Cal. [Filed Jan. 18, 1877.]

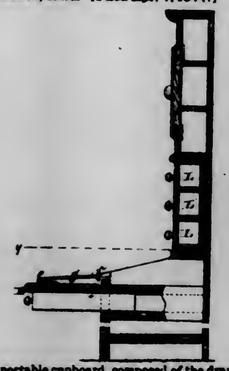


1. The combination of the baking-pan described, provided with radiator I' and handles A A A', with the cover B B, provided with metallic-gauze-covered aperture O g, substantially as and for the purposes herein set forth.

2. The baking-pan A A, provided with radiating-plate P, arranged in the manner described, substantially as and for the purposes specified.

3. In a baking-pan, as described, the cover B B, provided with aperture O, covered with metallic gauze, substantially as and for the purposes herein set forth and specified.

191,549. CUPBOARDS. William H. Sallade, Monroe, Iowa. [Filed Apr. 7, 1877.]



A portable cupboard, composed of the drawers J K L L, the latter being constructed with upper and lower beveled edges, and adapted to make a tight joint with the correspondingly-beveled ledge, which forms a cover for the upper drawer, the top portion of said cupboard being detachably connected by means of a loop and pin with the lower portion thereof, a reversible kneading-board, R, having a rod, g, hinged near one end thereof, the other end being hinged to the meal-receptacle, which is provided with doors having ventilating-openings, substantially as set forth.

191,550. FIRE-PROOF SAFES. Charles A. Seze and James S. Harding, Philadelphia, Pa. [Filed Sept. 1, 1876.]

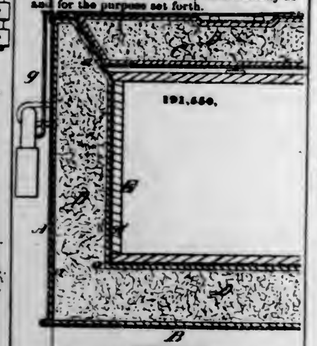
1. A fire-proof box or safe provided with a filling of infusorial earth.

2. A lining for the walls of fire-proof boxes, composed of paper felting saturated with silicate of soda.

3. The lining herein described for the internal chamber of a fire-proof box or safe, the same being composed of wood saturated with silicate of soda.

4. The fire-proof box herein described, composed of the double walls A A', correspondingly-formed bottom and top B C, paper felting a a', infusorial-earth filling D, and wooden lining E, said felting and wood being saturated with silicate of soda, substantially as and for the purpose set forth.

191,550.

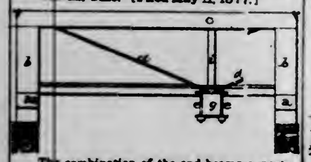


191,551. MOLDS OR DIES FOR FORMING ARTICLES OF PULP. David Scrymgeour, Boston, assignor to W. T. Cook, Foxborough, Mass. [Filed Mar. 24, 1877.]



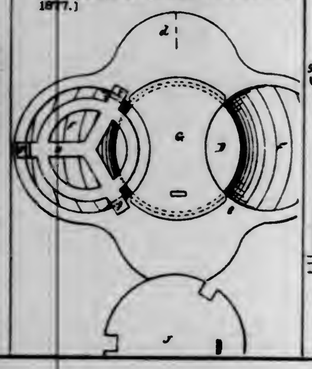
A mold for making hollow articles of paper-pulp, whose interior surface, shaped to conform to the article to be molded, is smooth—that is to say, without water-escape ducts, corrugations, or channels—in combination with a lining of woven wire or other reticulated material, as and for the purposes set forth.

191,552. BENDERS. Byrett S. Sherman, Galena, Ohio. [Filed May 11, 1877.]



The combination of the end beams c, posts b i, horizontal beams c, rod d, stirrup e, cross-bar f, and floor A, all constructed and arranged to operate substantially as shown and described.

191,553. COOKING ATTACHMENTS TO COAL-OIL STOVES. N. H. Sherburne and Edwin S. Skinner, Chicago, Ill. [Filed Apr. 30, 1877.]



1. The removable top C of a coal-oil stove, cast in one piece, and provided with the central opening D, heating-chambers F F, and removable center-plate G, substantially as and for the purpose specified.

2. The removable top C of a coal-oil stove, provided with the central opening D, and one or more heating-chambers, F F, having the lower wall or bottom thereof curved or inclined inward and downward, substantially as and for the purpose specified.

3. The removable top C of a coal-oil stove, provided with the central opening D, heating-chambers F F, and one or more shelves, d d, substantially as and for the purpose specified.

4. The combination, with the removable top C of a coal-oil stove, provided with one or more heating-chambers, F F, of the removable disk H, provided with the arms f, for suspending the disk within the chamber, substantially as and for the purpose specified.

191,554. RIBBON-BLOCKS. G. N. Stanton, New York, N. Y. [Filed Apr. 25, 1877.]



A device for packing and receiving ribbons, consisting of a hollow receptacle with a slot formed in its side, and with a spindle fixed within its interior, a sleeve made in two parts fitting upon said spindle, and a cover depending into the receptacle, but provided with an outside projecting edge, and an angular seat fixed to its under side, which seat receives the upper end of the before-mentioned sleeve, substantially as and for the purpose described.

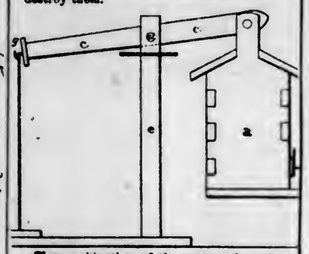
191,555. LABEL-HOLDERS. J. B. Sweetland, Lawrenceville, Pa. [Filed Apr. 20, 1877.]



The combination, substantially as specified, of a tag or card frame, and a spring to which it is pivoted for reversal.

191,556. CHICKEN-COOPS. Robert L. Todd and Nancy J. Todd, Shamrock, Mo. [Filed Apr. 14, 1877.]

Brief.—The coop is attached to a lever, whereby it can be elevated at will, to keep the chickens in it away from animals that would destroy them.



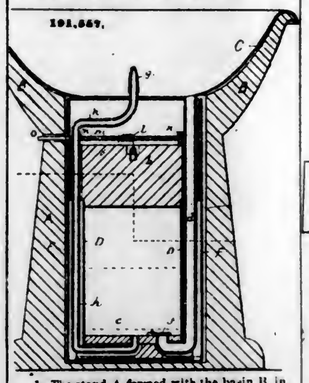
The combination of the coop c, levers e, standards c, bar g, and a holding device, substantially as specified.

191,557. PORTABLE FOUNTAINS. Wm. H. Zinn, Boston, Mass. [Filed Nov. 6, 1876.]

EXPIRED PATENTS.

Brief.—If water be poured into the basin it flows through the pipe into the receptacle, thus enabling said receptacle to be filled by raising the weighted head, which head, as it falls, drives the water out of the receptacle through the nozzle, and secures the play of the fountain, from which the water falling into the basin is again brought back into the receptacle and used again, as before.

191,557.

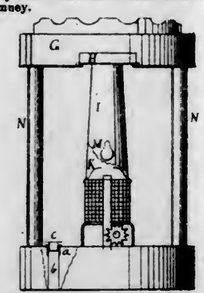


1. The stand A formed with the basin B, in combination with the metallic basin C, arranged in said basin B, as and for the object set forth.

2. The combination of the stand A, formed with the basin B, the basin C arranged in the same, the flexible receptacle D, the pipes d and h in the receptacle, and the heads b and c in the upper and lower ends of the flexible receptacle, as and for the purpose described.

191,558. COAL-OIL STOVES. M. H. Barnes, Chicago, Ill. [Filed Apr. 3, 1877.]

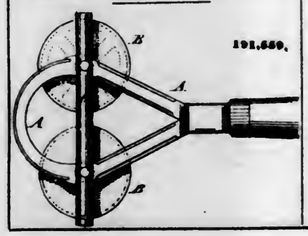
Brief.—The slide by means of which the chimney is secured to the top keeps comparatively cool. The cone is removable with the chimney.



1. In an oil-stove, the chimney I, having in its base the cone or deflector K, and its top fastened to the slide H, by which it is supported in the top G, and by which it is drawn out for cleaning or lighting the wick.

2. A coal-oil stove having the oil-receptacle A, with the top G for the cooking utensils, the two parts connected by the metal strips N N, the top G having a transverse opening, in combination with the slide H and chimney I, substantially as described.

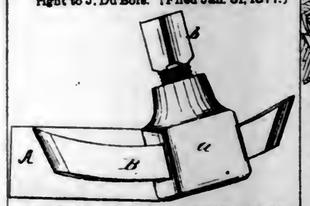
191,559.



191,559. CURRY-COMBS. Thos. D. Bennett and Horace B. Moody, Harrisonville, Mo. [Filed May 12, 1877.]

A curry-comb composed of a supporting-frame, with an arc-shaped stationary front comb, and circular rotary combs back of the same, substantially in the manner and for the purpose set forth.

191,560. LATHE-TOOLS. Edwd. F. Baugier, Williamsport, Pa., assignor of one-half his right to J. Du Bois. [Filed Jan. 31, 1877.]

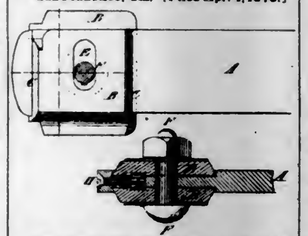


1. The stock or body A, provided with the oblique head a and the screw b, or its equivalent, substantially as and for the purpose shown and described.

2. The combination of the shank or body A, having the oblique head or socket a, with the cutter or tool B secured therein, substantially as shown and described.

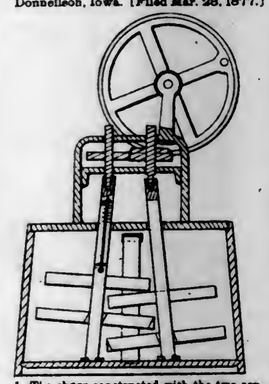
3. In combination with a shank or body, A, having a head or socket, a, a curved cutter or tool, B, substantially as shown and described.

191,561. EXPANDING REAMERS. Robt. Blair, San Francisco, Cal. [Filed Apr. 4, 1876.]



The combination of the sliding cutters B, having rack-arms G and slots E, clamping-bolt F, pinion J, and shaft H, with the stock A, having dovetail grooves, as and for the purpose set forth.

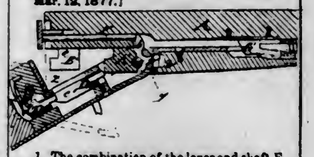
191,562. ROTARY CHURNS. A. J. Borland, Donnelleon, Iowa. [Filed Mar. 28, 1877.]



1. The churn constructed with the two separate revolving dashers, as described, and with the water chamber or tube K in the milk-chamber next to the wall, substantially as set forth.

2. The churn having elliptical chamber and two upright revolving dashers within partly separate spaces, constructed with a horizontal hand-crank and gearing arranged to drive the two casher-shafts in contrary directions, and with a water tube or chamber, substantially as and for the purpose set forth.

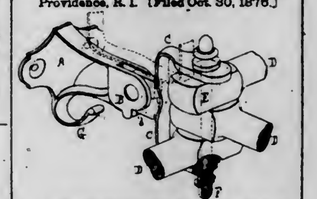
191,563. BARREL-LOADING FISH-ARMS. Victor Bovy, New York, N. Y. [Filed Mar. 12, 1877.]



1. The combination of the lever and shaft E, having arm d and cams g, with the sliding double lock-bolt D having recess d', and with the sliding center firing-pins g', for the purpose of withdrawing simultaneously bolt and firing pins for swinging barrels into open position, substantially as and for the purpose specified.

2. The combination of the fixed elbow-piece b at end of breech-piece with barrels A having recessed lug G', and with detachable fore-stock C having rear recesses b' b', for the purpose described.

191,564. TOWEL-RACKS. C. A. Brickley, Providence, R. I. [Filed Oct. 30, 1876.]



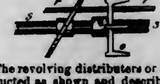
1. The detachable bolt E, with its nut F, in combination with the clamp C and rods D of a towel-rack, substantially as and for the purpose specified.

2. The hinge B, having a horizontal pivot-pin, and provided with the shoulder b, in combination with the bracket A and clamp C, having a vertical pin, E, substantially as and for the purpose specified.

3. The improved towel-rack herein described, consisting of the bracket A, hinge B, clamp C, rods D, bolt E, nut F, and hook G, all combined substantially as described, and for the purpose specified.

191,565. SEED-DRILLS. Hiram L. Brown, Shortsville, N. Y. [Filed May 17, 1876.]

Brief.—To the shaft, at suitable distances, is secured heads, having radial arms that revolve over the discharge-openings. Passing through the heads, near their peripheries, is a longitudinal rod that assists in agitating the material to be sown.



1. The revolving distributers or agitators o, constructed as shown and described, and arranged upon the shaft s, in combination with the openings C, for the purposes set forth.

2. In combination with the distributers or agitators o and distributing-cavities C, the revolving auxiliary agitator r, all constructed and arranged to operate conjointly, in the manner and for the purposes set forth.

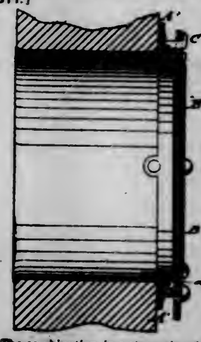
191,566.



191,566. LIMEKILNS. M. Callan, Innerskip, Ontario, Canada. [Filed Sept. 2, 1876.]

In a limekiln having an oval cupola, F, four separate fire-places, A A A' A', arranged in pairs opposite to and in a line with each other, to intersect the cupola at its shortest diameter, in combination with a discharge-channel, B, intersecting the oval-shaped hopper in a line with its longest diameter, substantially as and for the purpose hereinbefore set forth.

191,567. STOVE-PIPE THIMBLES. James Carhartt, Pontiac, Mich. [Filed Apr. 28, 1877.]

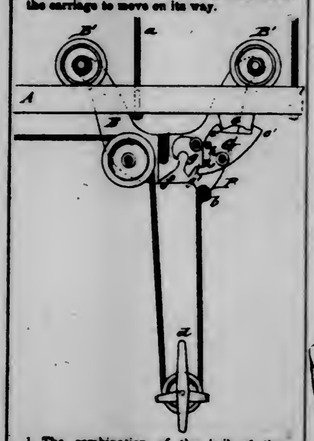


1. The combination, in a stove-pipe thimble, of the face-ring or molding A', having lower pivot-pin and top locking catch or hook, with the swinging cover and ventilator B, having slotted bottom and top lugs, substantially in the manner and for the purpose described.

2. The swinging cover and ventilator B, having a slotted bottom lug, c, with cam-extended c', to bind tightly on stove-pipe when inserted into the thimble, substantially as specified.

191,568. HAY-ELEVATORS. R. L. Church, Walworth, Wis. [Filed Apr. 16, 1877.]

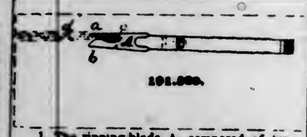
Brief.—The hay is elevated and the pulley-block locked by the grappling-hook, which at the same time releases the catch and allows the carriage to move on its way.



1. The combination of the bail of the obcare-frame of the hay-fork with the stationary guide-hook f, the pivoted grappling-hook g, and the locking-catch G of the carriage B, substantially as and for the purpose set forth.

2. The combination of the swinging grappling-hook g, having shoulder g', tilting catch G, having end lugs or pointsv', and the carriage B with the fixed stop-block and the track-frame, substantially as and for the purpose specified.

191,569. BOTTING-TOOLS. Geo. D. Clark, Finlayville, Conn. [Filed Jan. 26, 1877.]



1. The ripping-blade A, composed of two straight parallel guides, a b, set closely together, and having a knife with two converging cutting-edges at the junction of said guides, substantially as described, and for the purpose set forth.

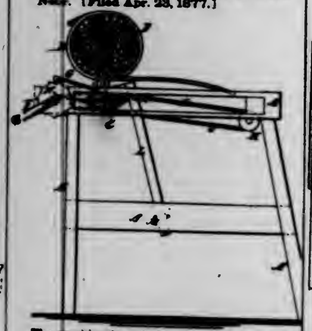
2. A ripping-tool adapted for operation by an endwise pressure, when provided with a smooth-sided sheet-metal handle, B, slightly roughened at its thin edges, substantially as described, and for the purpose specified.

191,570. SKID ATTACHMENTS FOR WAGONS. Charles Crandall, Newport, R. I. [Filed Apr. 6, 1877.]



The combination of the skid C C, having projecting pins D D at the rear, with the springs E E and bars A upon the under side of the vehicle-body, substantially as and for the purpose described.

191,571. MACHINES FOR PRESSING CORN-STALKS, &c., FOR FUEL. Edgar P. Davis, James B. Davis, and John J. Fisk, Orete, Nebr. [Filed Apr. 23, 1877.]



The combination of the two sets of semicircular arms B D, the sliding bar C, the rods or arms K, the crank-shaft E F, and its pawl and ratchet G H, the ropes I and J, the pulley K, and the levers L, with each other, and with the frame A, substantially as herein shown and described.

191,572. FIRE-KINDLERS. John G. Distler, Brooklyn, (Green Point P. O.,) N.Y. [Filed May 12, 1877.]



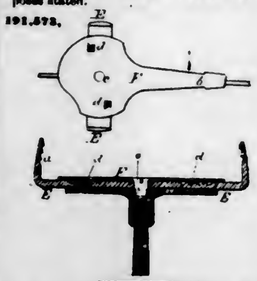
An improved fire-kindler, formed of a corncob, A, steamed, having a number of transverse holes, a', bored through it, dried, dipped in melted white resin, and wrapped in paper, substantially as herein shown and described.

191,573. SKATES. John A. Dodge, Bridgetown, Nova Scotia. [Filed Dec. 16, 1876.]

1. The combination of the lever F and clamp-plates E with the skate-runner, the lever being pivoted to the runner and provided with the obliquely-disposed spurs d, and the plates being furnished with the tangential grooves or teeth e to operate with the said spurs, and with the notches f to receive said spurs and release the plates, the whole being substantially as and for the purposes stated.

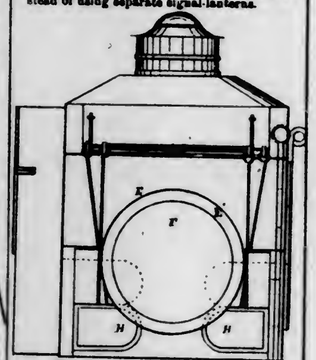
2. The combination, with plates E, having eccentric grooves arranged in parallel series, of the lever F, provided with spurs engaging said grooves, the whole being arranged substantially as described, whereby the changes in position of the latter to accommodate soles of varying widths are effected without additional means, essentially as and for the purposes stated.

191,574.



191,575. LOCOMOTIVE SIGNAL HEAD-LIGHTS. Andw. Dressell, Cleveland, Ohio. [Filed Feb. 26, 1877.]

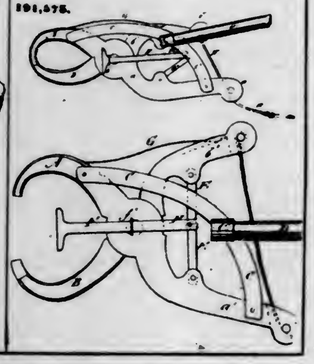
Brief.—Colored glasses are raised at each side and partly in front of the head-light, instead of using separate signal-lanterns.



1. The glass slides H, consisting of two plates of glass, a e, one being colored and the other being uncolored and semi-transparent or its equivalent, substantially as set forth and for the purpose specified.

2. A lantern, having one side, E, hinged, to which is attached a tube, E', provided with a glass, F, and having slits therein for the reception and adjustment of sliding frames with colored glasses, substantially as and for the purpose described.

191,576.



191,575. HOG-CATCHERS. Jas. H. Eames, Emerson, Iowa. [Filed Apr. 30, 1877.]

Brief.—A hinged T-piece, striking against the animal's leg, causes the spring-jaws to close together.

The combination of the pivoted curved jaws A B, provided with shanks a' b', of different lengths, the curved bar C, provided with a socket, c', to receive the handle D, the jointed bar E, the sliding cross or T head trip-bar F, the spring G, and the cord or strap H, with each other, substantially as herein shown and described.

191,576. MATCH-SAFES. John A. Field, Racine, Wis. [Filed Apr. 23, 1877.]



A match-safe the back, top, and front of which are formed from a single piece of sheet metal, and having the opening c, hooks d, and wire-cloth lighter B, substantially as shown and described.

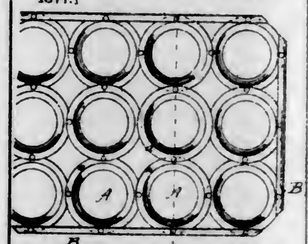
191,577. EASELS. Timothy L. Fisher, Arlington, Mass., assignor to F. S. Frost, same place. [Filed Feb. 5, 1877.]

Brief.—Pertains particularly to the construction of the brace.



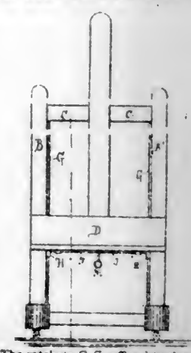
In a tripod-easel having two of its legs framed together, and the other leg hinged to the frame, the brace D and clasp G, constructed as described.

191,578. BAKING-PANS. L. B. Foss, Boston, Mass., assignor to the Dover Stamping Company, same place. [Filed Mar. 7, 1877.]



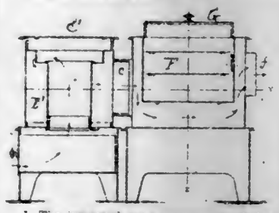
The baking-pan described, the same consisting of the cups A united by their flanges, and the folded binding-strips B, each of a length sufficient only to bind and stiffen upon one side the projecting flanges of the cups.

191,579. EASELS. Francis S. Frost, Arlington, Mass. [Filed Jan. 23, 1877.]



The ratchets G G, affixed to the posts B B', in combination with the rod J, weighted handle M, and clutches N, affixed to the shelf D, the rod J having pawls H H at its ends to engage with the ratchets G G, as described.

191,580. STOVES. John Gladding, 3d, Bristol, R. I. [Filed Mar. 17, 1877.]

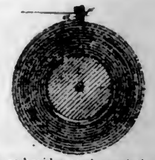


1. The improved summer-stove, consisting of the cylinder A, base B, grate a, top piece C, and ash-pan D, in combination with the case E, by which it is made convertible into a parlor-stove, substantially as described.

2. The improved kitchen-stove, consisting of the following detachable parts: the cylinder A, bases B B', top piece C', ash-pan D, cases E' E'', oven F, pipe c, slide d, and rod e, with or without the baker G, substantially as specified.

191,581. DEVICES FOR PREVENTING THE UNROLLING OF TAPE, &c., FROM SPOOLS. A. C. Gould, Brookline, Mass. [Filed Apr. 9, 1877.]

Brief.—A piece of wire is bent so that the part which rests over the outer layer of tape is doubled; its ends are bent at right angles and inserted in the opposite sides of the spool. In passing the tape through upper portion of wire loop and returning it under doubled portion it will be held in place on spool and prevented from unwinding, except when necessary.

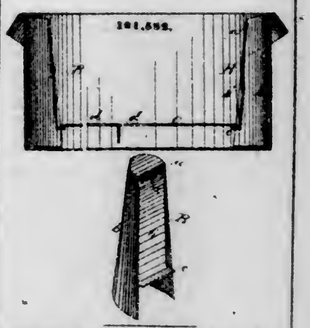


A tape or braid guard consisting of a single piece of wire, C, with the bent ends d d and the double loop e, as and for the purpose set forth.

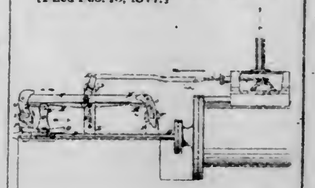
191,582. WASH-BOILERS. Thos. Gunselus, West Troy, N. Y. [Filed Sept. 25, 1876.]

The detachable conduits B, consisting, each, of a curved back piece, b, and a straight front piece, b', having perforations a, and projecting shelf or bracket c for the false bottom C to rest upon, so as to insure its parallelism to the bottom and prevent displacement, substantially as and for the purpose herein shown and described.

191,582.



191,583. VALVE-MOTIONS FOR STEAM-ENGINES. Henry Haering, New York, N. Y. [Filed Feb. 10, 1877.]

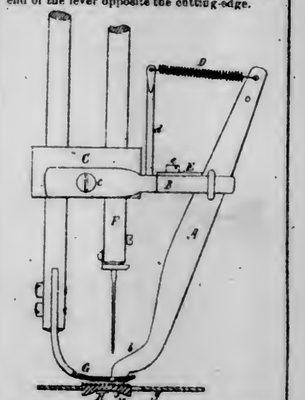


1. The combination of the three-armed bar Q, the levers O, the bar N, and the lever K, with the piston-rod B, and with the valve-stem I of a steam-engine, substantially as herein shown and described.

2. The combination of the lock-bar R, the spring S, the cylinders T, and the pin U, with the levers O, and the three-armed bar Q, substantially as herein shown and described.

191,584. WORK-TRIMMERS FOR SEWING-MACHINES. Hervey H. Hallett, Rockland, Mass. [Filed Mar. 6, 1877.]

Brief.—A lever having a cutting-edge at its lower end is pivoted to an extension on the head of the machine, is held against the work by a spring, so as to move with it as it is fed along, and is moved to trim the goods by the needle-bar, on its downward stroke, striking against a cam-surface on the side of the lower end of the lever opposite the cutting-edge.



1. The improved work-trimmer composed of the carrier B, separate from the work-support plate g, and the lever A pivoted to such carrier, and provided with the cam or incline b and the knife or cutting-edge a, all being arranged and applied substantially as described.

2. The combination of the operative spring D with the carrier B, and with the lever A

pivoted thereto, and provided with the incline *b* and cutting-edge *c*, arranged as set forth.

3. The combination of the adjustable stop E with the carrier B, and the lever A pivoted thereto, and provided with the incline or cam and the cutting-edge, all being substantially as set forth.

4. The combination of the spring D and the adjustable stop E with the carrier B, and the lever A pivoted to each carrier, and provided with the cutting-edge and the incline or cam, arranged as set forth.

5. The combination of the needle-bar F, the presser-foot Q, and the feeder H of a sewing-machine, with the lever A, not only pivoted to a carrier, B, separate from, and arranged over, the work-support feeder *g*, but provided with the cutting-edge *a* and the incline or cam *b*, and arranged with the needle-bar in manner and to be operated thereby, and to be advanced by and with the material to be cut, all being substantially as specified.

191,586. CLEARER-ROLL SUPPORTS FOR SPINNING-FRAMES. Fredric B. Hart, Bristol, R. I. [Filed Jan. 20, 1877.]

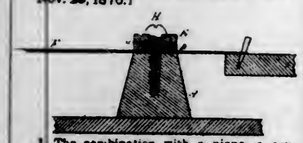
Brief.—The clearer-roll is held to the delivery-roll by hinged or pivoted levers, which are acted upon by connecting-rods and coiled springs. These parts are arranged upon and within a standard or support which is secured to the spinning-frame.



1. The combination, with the standard *g f'*, arranged to support the levers *e*, and contain the coiled springs *f*, with the hinged levers *e*, rods *c*, and springs *f*, all arranged to support the clearer-roll of a spinning-frame, substantially as and for the purpose set forth.

2. The combination, with the standard *g f'*, arranged to support the hinged levers *e*, of the bracket *h*, arranged to secure the standard to the spinning-frame, substantially as and for the purpose specified.

191,587. PIANO-FORTE BRIDGES. Joseph Herald, Hamilton, Ontario, Canada. [Filed Nov. 29, 1876.]

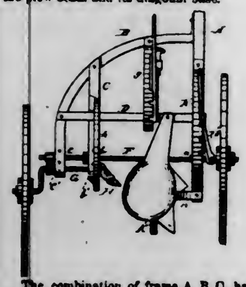


1. The combination with a piano, a cap composed of wooden plate D or its equivalent, and the metallic plate E conformed to the bridges A G, the lower or wooden plate arranged to impinge upon the strings F on the bridges, the whole secured by a screw, H, passing between each pair or trio of strings.

2. A strip of cloth, rubber, or other yielding substance, *a*, when interposed between the plates D and E of a piano sounding-board bridge, substantially as and for the purpose set forth.

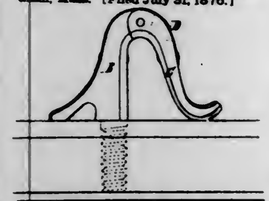
191,588. SULKY-PLOWS. William Henry, Trenton, Mo., assignor of one-half his right to George W. Moberly, same place. [Filed Feb. 19, 1877.]

Brief.—A long and a short axle, each having a rigid lever for turning their cranks; also, rigid hangers, which turn with the axle for the plow-beam and its diagonal base.



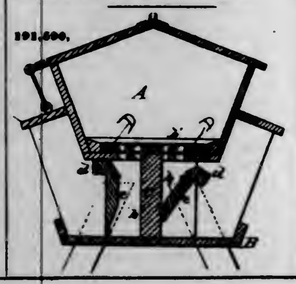
The combination of frame A B C, having bearings *a b c*, long axle F having lever H', and bails or keepers I K rigidly attached thereto, swinging plow-beam E', and pivoted brace L, substantially as and for the purpose herein shown and specified.

191,589. HOLDBACKS. John W. Hight, Waltham, Mass. [Filed July 31, 1876.]



The holdback, consisting of fixed standard B, pivoted S-shaped tongue C, and exterior spring D, fixed to the standard and pressing upon the tongue, all as herein described.

191,590.



191,591. FEED-RACKS. Wm. H. Howard, Albany, Wis., assignor to himself, J. F. Tracy, and Jonathan H. Roberts, same place. [Filed Apr. 2, 1877.]

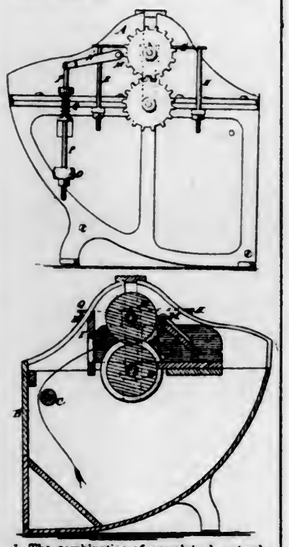
In combination with a supply-hopper, A, having discharge-apertures *a*, and the feed-trough B, having boxes or compartments *b*, the doors or valves *c*, provided with the shoulders *d*, as described, for the purpose of facilitating the feeding of stock, in the manner described.

191,592. HAME ATTACHMENTS. J. Hudson, Detroit, Mich. [Filed Oct. 12, 1876.]



The combination of the sides A, front loop B, center-bar C, back loop D, and hook E, having hole *a*, as shown, all as and for the purposes set forth.

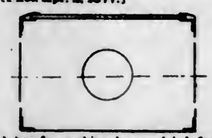
191,593. FULLING-MILLS. James Hunter, North Adams, Mass., assignor to himself and James E. Hunter, same place. [Filed Mar. 19, 1877.]



1. The combination of eye-plate I, extended crimping-box J K, and rolls D E, the extensions K passing along the rolls to eye-plate, and the flange of roll D being arranged inside the said extensions, as and for the purpose specified.

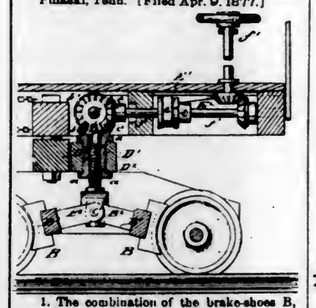
2. The combination, with tongue L attached to shaft M, of the rod P attached to lever N, and having a spring, Q, resting against an adjustable collar, as and for the purpose specified.

191,594. HONEY-BOXES. Geo. F. Johnson and Thos. T. Kelley, Washington, Iowa. [Filed Apr. 2, 1877.]



A box for packing honey, dried fruit, and other substances, composed of thin board top and bottom, connecting metallic corner-strips, and closing sides, and one end of paper or pasteboard and the other end of glass, substantially as specified.

191,595. CAR-BRAKES. Edward S. Jones, Pulaski, Tenn. [Filed Apr. 9, 1877.]

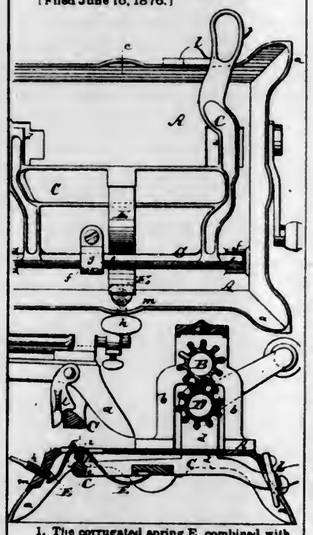


1. The combination of the brake-shoes B, bar B^1, pivoted to a cross-piece, C, by means of arms B^2, with upright screw-post D, screw-nut D^1, and the endless chain for connecting with the locomotive, substantially as and for the purpose set forth.

2. The combination of the lever-acted brake-shoes B attached to a brake-bar, which is pivoted by arms B^2 to a cross piece, C, having upright screw-post D, and screw-nut D^1, substantially as and for the purpose described.

3. The lever E and rod E^2, the bevel-gear *b* sliding on shaft *d*, the collar on sliding shaft *f*, the gear *c*, and gear *b*, all combined as shown and described, for the purpose specified.

191,596. FLUTING-MACHINES. Jos. Keller and August Olmesdahl, New York, N. Y. [Filed June 16, 1876.]



1. The corrugated spring E, combined with the table A and frame C, and placed over the fixed pin *i* and against the under side of the frame C, substantially as specified.

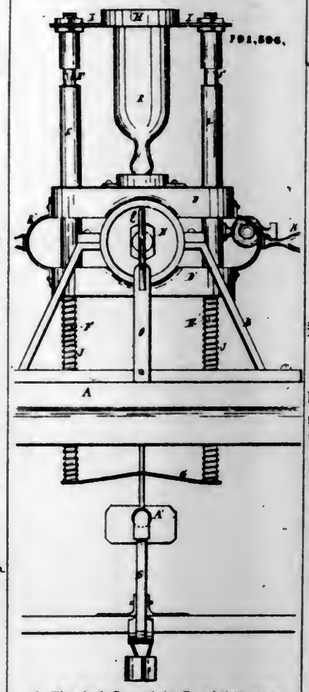
2. The spring E, made corrugated at the part which rests on the supporting-pin *i*, and in combination therewith, substantially as specified.

3. The set-screw *h*, combined with the corrugated spring E and vibrating frame C of a fluting-machine, substantially as herein shown and described.

4. The combination, with the frame C of a fluting-machine and table A, said frame being placed beneath said table, of the catch *l*, constructed and arranged to operate substantially as and for the purpose herein shown and described.

191,597. BOTTLING-MACHINES. William H. Kelley, Cleveland, Ohio. [Filed May 11, 1877.]

Brief.—If the gas-pressure is not sufficient to seat the stopper, air is forced in for the purpose. The supply and escape are through the revolving shaft shown.



1. The shaft C, conduits P and *f*, in combination with the chamber *e'* and screw-plug *r*, substantially as described, and for the purpose set forth.

2. The combination, with the shaft C and conduit P, of the cap or head L and pipe M, in the manner substantially as described, and for the purpose set forth.

3. In combination with the shaft C, screw-plug *r*, and conduit *f*, the cap N and pipe Q, as and for the purpose specified.

4. The hollow standards E, rods F, bar or cross-piece G, springs J, and cap H, in combination with the yokes D and shaft C and standards B, as and for the purpose set forth.

5. In combination with the cross-piece G and rods F, the treadle S and roller A', substantially as and for the purpose specified.

6. The recess *i*, in combination with the head L, pipe M, conduit P, and shaft C, as and for the purpose set forth.

7. In combination with the conduit P, shaft C, head L, pipe B', and faucet L', the air being supplied by a force-pump, for the purpose specified.

191,598. FEED-WATER HEATERS FOR LOCOMOTIVES. Nahum W. Kirby, Indianapolis, Ind. [Filed Apr. 19, 1877.]

1. A feed-water heater located between the forward and rear drivers of a locomotive, and at a point below the low-water line of the tender, whereby water from the tender is heated before reaching the pump, as and for the purposes set forth.

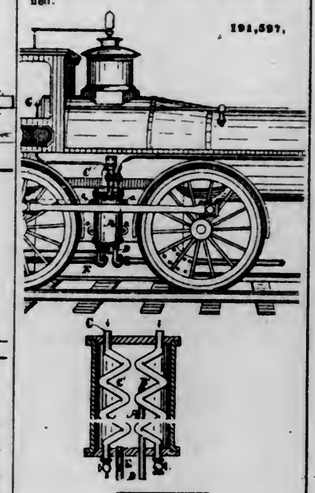
2. The locomotive-engine heater A, with the inlet water-pipe or branch pipe E, the outlet water-pipe or branch pipe D extending its mouth or open end up into the body of the heater, so that the heater shall be filled or partly filled with water before the water shall pass out of the heater through the branch pipe D, and provided, also, with the dead-steam coil B', with a large opening permitting a free exhaust, for heating feed-water for locomotives, substantially as shown.

3. The locomotive-engine heater A, with the inlet water-pipe or branch pipe E, the outlet water-pipe or branch pipe D extending its mouth or open end up into the body of the heater, so that the heater shall be filled or partly filled with water before the water shall pass out of the heater through the branch pipe D, and provided, also, with the live-steam coil C, with a small drip-cock at its lower end, for heating feed-water, substantially as shown.

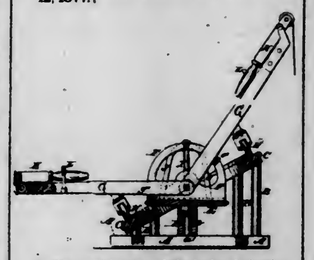
4. A locomotive-engine heater located at a point below the low-water line of the tank, provided with an inlet water-pipe, branching from the main feed-water pipe leading from the tank to the force-pump, an outlet-pipe projecting its open end up into the interior of the heater, and connecting the heater with said feed-water pipe, whereby water from the tender is heated before reaching the pump, as and for the purposes described.

5. The feed-water heater A, provided with the two coils of pipe, the one conducting live steam having a small pet-cock at its lower end where it emerges from the heater, and the other conducting dead steam from the exhaust having a free opening at its lower end, substantially as and for the purposes specified.

191,599.



191,600. HAY DERRICKS AND STACKERS. R. N. B. Kirkham, Kansas, Ill. [Filed May 12, 1877.]

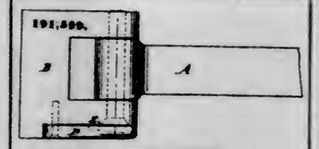


1. The combination of the inclined circular track C and its supporting frame-work A B, the plate F and its pivoting shaft D, the two parallel semicircular plates F, and the levers G and their wheels H with each other, substantially as herein shown and described.

2. The combination of the curved draw-rod or sweep I and its brace J with the circular plate E, the two parallel semicircular plates F, the levers G, and the track C, substantially as herein shown and described.

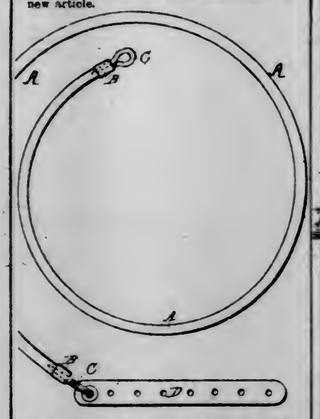
191,601. THILL-COUPLINGS. J. Kitzmiller, Keedysville, Md. [Filed Apr. 23, 1877.]

The combination, with the pivoted cap D and the clip-ing having their adjacent edges flush, of the concealed spring-catch E arranged between the pivoted cap and the ing, substantially as and for the purpose described.

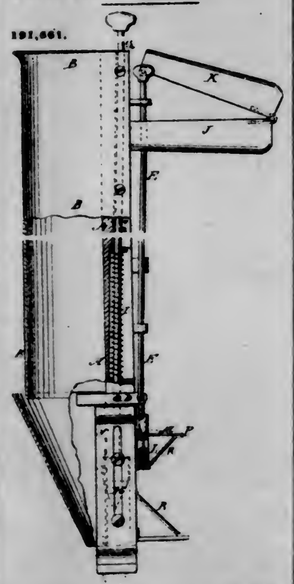


191,599. HARNESS-CORDING FOR POWER-LOOMS. Lucius J. Knowles, Worcester, Mass. [Filed Mar. 2, 1877.]

Brief.—The braided cylindrical cord, in combination with the metallic ferrules, furnishes a firm hold for the screw-threaded shank of the metallic loops. The combination of the braided cord, ferrules, screw-threaded eye-bolts, and adjustable strap constitutes the new article.



A harness-cording, as an improved article of manufacture, the body part A of which is made from braided shroud material, and provided at its ends with metal ferrules B and metallic loops C, to one of which loops is secured the adjustable strap D, all substantially as shown and described.



191,601. TOBACCO-PLANT PLANTERS. Robt. A. Knox, Ghent, assignor to himself and Darnall Brothers, Louisville, Ky. [Filed Mar. 19, 1877.]

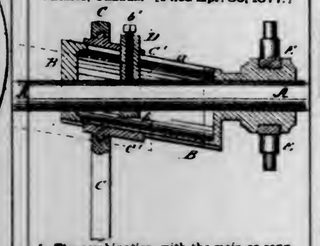
Brief.—A transplanting-machine, so constructed as to open a hole to receive the plant, guide the plant to said hole, and press the soil around it.

1. The combination of the rod G, conical head H, and spring I with the board A, plate B, and hinged plate C, to form a hole to receive the plants, substantially as herein shown and described.

2. The combination of the hinged handle K, the rod L, the pivoted connecting-bars M, the sliding bars N, and the spring O with the stationary handle J, the board A, and the plates B C for pressing the soil around the plant, substantially as herein shown and described.

3. The combination of the pivoted arms D, the rod E, and the spring F with the board A and the semi-conical plate C, for swinging the said plate C back to allow the machine to be raised, substantially as herein shown and described.

191,602. REVERSIBLE BOOMSTICKS. Geo. G. Lafayette and Pitt W. Strong, Brockville, Ontario, Canada. [Filed Apr. 20, 1877.]



1. The combination, with the main or counter-shaft of an engine or other machine requiring an adjustable or reversible eccentric, of a sliding and slotted incline and fixed eccentric or disk, so placed thereon as to be thrown at will to one side of the center of the shaft, or to the opposite side of the same, substantially in the manner and for the purpose set forth.

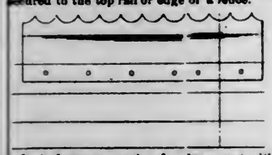
2. The combination of a sliding and slotted incline, placed at a suitable angle to the shaft, with a fixed eccentric or disk and fastening pin or key, secured firmly to axle, substantially as specified.

3. The combination of the shaft A, sliding and slotted incline B, eccentric or disk C, having fixed collar C', and fastening pin or key D, secured firmly to shaft, substantially as set forth.

4. The combination of the shaft A and eccentric or disk C with the pin or key D passing through collar around the shaft, and extending beyond said collar and shaft, and being secured by a set-screw passing through arm of pin and collar, substantially as specified.

191,603. METALLIC FENCE-CAPS. John D. W. Lauckhardt, Brooklyn, N. Y. [Filed Apr. 23, 1877.]

Brief.—A spar-topped cap expanding from its ridge downwardly to its base-line, whence it contracts to the bottom to embrace or be secured to the top rail or edge of a fence.

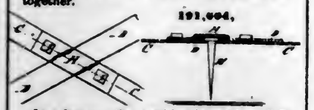


1. A fence-cap made of a base part with tapering sides and spurred top edge, substantially in the manner and for the purpose set forth.

2. A fence-cap made with a base part and a tapering or oblique top part, forming a pointed central ridge, substantially in the manner specified.

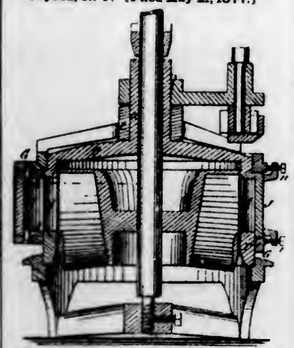
191,604. HARROWS. Hans I. Lund, Charlotte, Iowa. [Filed Apr. 16, 1877.]

Brief.—An iron harrow with bars crossing each other diagonally. The teeth are set in the crossings, and a strap is rivited across the heads into the cross-bars, uniting them rigidly together.



In a harrow, the combination of bars C D and teeth E with bars H, which bear upon the heads of the teeth, and bind together the crossed bars of the frame, substantially as shown and described.

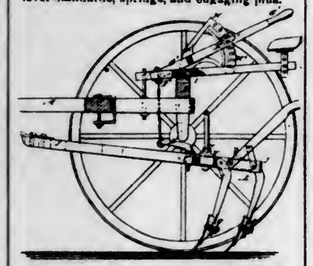
191,605. WATER-WHEELS. Isaac Mallory, Dryden, N. Y. [Filed May 21, 1877.]



The adjustable gates J, constructed with flanges *k k* and set-screws *n n*, and pivoted between the rings of adjustable frame G, in combination with the chute-case D and a wheel, A, substantially as described.

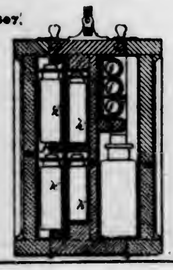
191,606. CULTIVATORS. Austin S. McDermott, Prairie Creek, (Molleray P.O.,) Iowa. [Filed Jan. 29, 1877.]

Brief.—Devices for lifting the plow-beams, consisting of the swiveled cranks, the pivoted lever-standards, springs, and engaging pins.



The combination of the sockets O', the cranks D', the chains E', the levers G', the pivoted standards H', the keepers and catches I' J', and the pins and springs K' L', with the plow-beams J and the axle B, substantially as herein shown and described.

191,607.



191,607. MEDICINE-CASES. J. C. Millard, Pultneyville, N. Y. [Filed Apr. 30, 1877.]

A box having a middle partition, B, and two covers, *c*, the partitions *e* and *e*, pockets *h*, and tray *j*, having the pockets *k*, all constructed and arranged substantially as shown and described.

191,608. CURRY-COMBS. Peter Miller, Chicago, Ill. [Filed Mar. 6, 1877.]

Brief.—The invention relates to a curry-comb; and it consists in the combination of a series of flexible and adjustable rows of teeth with two rigid rows.



The improved curry-comb herein described, consisting of the back A, having a series of adjustable and flexible rows of teeth, C C, arranged between two rigid rows, D' D', substantially as and for the purpose hereinbefore set forth.

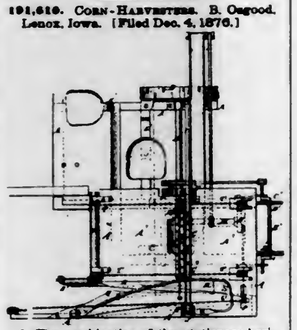
191,609. SASH-FASTENERS. S. G. Monce, Bristol, Conn. [Filed Mar. 8, 1877.]

Brief.—The case which incloses the bolt and spring is cylindrical, and provided with two teeth of peculiar construction, located opposite each other. The case is driven into an auger-hole and given a quarter turn. The teeth or spurs secure it from withdrawal.



The case B, adapted to be received and partially rotated within a cylindrical hole and provided with one or more thin peripheral spurs, substantially of the form shown, and located on the case with reference to the other parts, all substantially as described, and for the purpose specified.

191,610. CORN-HARVESTERS. B. Osgood, Lenox, Iowa. [Filed Dec. 4, 1876.]



1. The combination of the stationary horizontal knife B, the pivoted bar Q, the pitman O', and the curved guide-bar S, with the slotted platform A', for cutting the stalks and throwing them across the said platform, substantially as herein shown and described.

2. The combination of the bars W X, provided with the hooks or headed pins, and the rollers G with the platform A', for basking the ears as the stalks are carried back by the endless chains T, substantially as herein shown and described.

3. The combination of the slotted brackets B', the sliding knives O', the pivoted bars D', and the crank-shaft E', with the frame A, for receiving and cutting up the stalks as they fall from the platform A', substantially as herein shown and described.

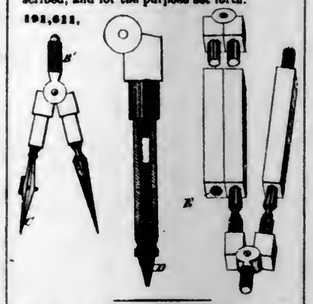
191,611. DRAWING-INSTRUMENTS. John R. Peel, London, Ontario, Canada. [Filed Jan. 13, 1877.]

1. As a new article of manufacture, a foot-rule consisting of a series of hollow bars, *a b c d*, connected by joints of fluted steel, B B', and corresponding sockets E, substantially as shown and described, and for the purpose set forth.

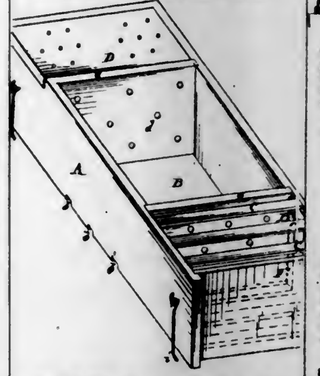
2. The screw pencil-point D, consisting of split cone F and outer tube G, with corresponding threads H I, in combination with a pair of drafting-compasses, substantially as shown and described, and for the purpose set forth.

3. The hollow bars *a b c d*, fluted joints B B', and sockets E, in combination with pen C, pencil D, and points A A', all arranged and operating substantially as shown and described, and for the purpose set forth.

191,611.



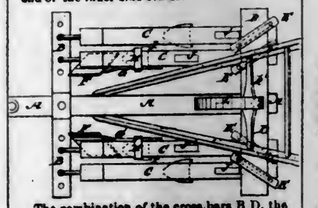
191,612. BEE-HIVES. H. F. Poggenpohl, Iowa City, Iowa. [Filed Oct. 11, 1876.]



In a bee-hive, the case A, provided with a large central ventilating and breeding chamber, B, with bee and air entrances, *b*, and provided with end walls *a*, having perforations *d*, leading into end chambers B' B', furnished with comb-frames, having their tops covered by removable sliding plates D, provided with ventilating-holes leading to a similarly constructed case lying over the case A, substantially as described, and for the purposes set forth.

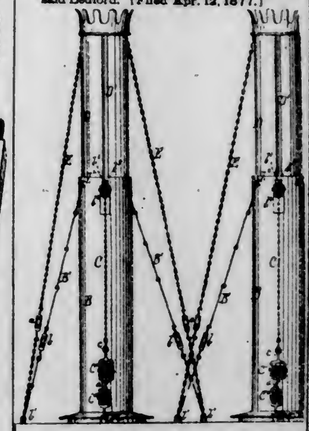
191,613. COMBINED COTTON SCRAPER AND CULTIVATOR. Malachiah Roby, Kosciusko, Miss. [Filed Apr. 30, 1877.]

Brief.—A front and rear cross-bar secured to a center-beam; two beams, with shovels on each side, adjustably attached to the cross-bars; a pair of scrapers clamped to the front end of the inner side beams.



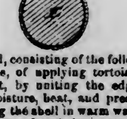
The combination of the cross-bars B D, the side beams C and their plows and standards, the bows and yokes E, the scrapers F G, and the bands H with each other and with the central beam A, substantially as herein shown and described.

191,614. STEAMBOAT SMOKE-STACKS. A. L. Rouse, B. A. Ledford, and John O'Brien, Denver, Colo.: said O'Brien assignor to said Ledford. [Filed Apr. 12, 1877.]



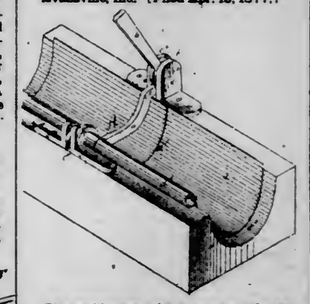
In a steamboat smoke-stack, the stationary section B, movable section D provided with grooves *b' b'*, chains C C, sheaves *b³ b³*, pulley-blocks C' C', guide-chains E E, and link-chains B' B', the whole constructed and arranged to operate substantially as described.

191,615. TORTOISE-SHELL HANDLES. C. W. Schaefer, New York, N. Y. [Filed Apr. 16, 1877.]



The method, consisting of the following consecutive steps, of applying tortoise-shell to handles: first, by uniting the edges by exposure to moisture, heat, and pressure; second, softening the shell in warm water; third, chilling the same; fourth, immersing the same in a bath of soda or salt; and, fifth, mounting on cores or molds.

191,616. GUTTER-HOLDERS. M. Schmitt, Evansville, Ind. [Filed Apr. 12, 1877.]



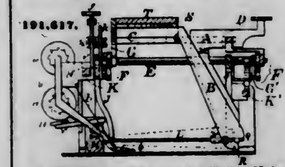
The combination, with a trough, *c*, of a gutter-holder, A, having a brace, *a*, constructed as described, removable bearings *c' c' c'*, and a lever-arm, *b*, formed with an eccentric, *b'*, adapted to operate on the extension *c'* of the brace *a*, the whole being constructed and operating substantially as described.

191,617. TYPE-WRITERS. D. H. Sherman, Urbana, Ohio. [Filed Apr. 21, 1877.]

Brief.—The keys are supported in a vertical position in two semicircular guide-rings, the top one of which is depressed by the operation

of each key. This top ring rests upon connecting-rods fastened to crank-wheels. To these crank-wheels is also connected another rod, bearing a spacing-pawl, in such a manner that each depression of the semicircular ring partially rotates the crank-wheels, thus operating the connecting-rod bearing the space-pawl. The entire operating mechanism is moved at each impression one space, upon guideways provided with a rack, by the operation of the space-pawl. A semicircular glass plate is connected to the top ring, by depressing which the space between words is effected. At the end of each line the space-pawl is thrown out of gear and the carriage run back. The paper rests upon the bed of the machine, and is moved to make the distance between lines by a pawl and ratchet connected to the spring-journaled roller. The ink-ribbon spools are held upon a frame moving on a guide, and operated through connecting-rods from the crank-wheels, in such a manner that the ribbon-frame shall be moved to one side to expose the printing as each key is released.

191,617.



1. The keys A, with the leg M, foot N, heel U, and pin O, in combination with the semicircular bar C, flat semicircular ring L, and type-bars B, operating substantially as shown and described.

2. The type-bars B, with the guide-plates P P', the shoulders Q, and curved arm R, in combination with the key A and the flat semicircular ring L, operating substantially as shown and described.

3. The semicircular bar C, with the notches D, in combination with the semicircular ring S, glass plate T, bell-cranks F F F F, and keys A, operating substantially as shown and described.

4. The semicircular flat ring L, with the apertures 2 2, in combination with the keys A, type-bars B, and frame J J, operating substantially as shown and described.

5. The shafts E E, bell-cranks F F F F, connecting-rods G G', and spring H, in combination with the frame J J and semicircular bar C, operating substantially as shown and described.

6. The semicircular glass spacing-plate T in the semicircular guard-ring S, in combination with the semicircular bar C and type-bars B, operating substantially as shown and described.

7. The spool-frame d, with ribbon guide-pins, slide e, thumb-screw f, nut A, guide-posts g g, and lever k, in combination with the way K, frame J, and connecting-rod G, operating substantially as shown and described.

8. The pawl Y, with the longitudinal seat upon the lower side, the bent lever X and lever V, in combination with the connecting-rod G', ratchets K', and frame J J, operating substantially as shown and described.

9. The paper-roller a, with springs upon the journals, in combination with the bed-plate of the machine, the ratchet-wheel and pawl, key u, and lever v, operating substantially as shown and described.

10. The frame J J, friction-rollers x x x x, in combination with the ways K K', shafts E E, flat semicircular ring L, and the connecting mechanism, operating substantially as shown and described.

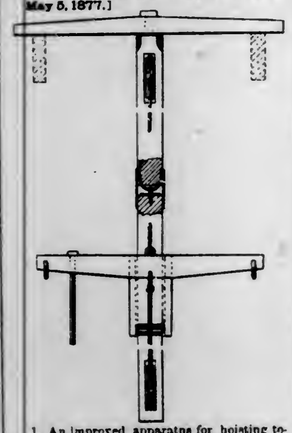
191,618. MANUFACTURE OF PAPER BARRELS. Edwin M. Slayton, Port Byron, N. Y., assignor to Slayton Paper Barrel Company, Hartford, Conn. [Filed June 6, 1874.]



1. The combination, with a delivering apron or belt, of two or more revolving mandrels for forming barrels, casks, or similar packages, from a continuous web of paper stock, said forming-mandrels operating in each respect to the apron or belt as to be brought alternately in action therewith, substantially as described.

2. A jacket or casing provided at its meeting edges with inwardly-projecting lugs b, in combination with a mandrel having a longitudinal slot, e, substantially as described.

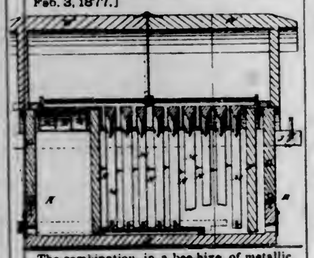
191,619. TOBACCO-HOISTING APPARATUS. C. H. Slaton, Slaughterville, Ky. [Filed May 5, 1877.]



1. An improved apparatus for hoisting tobacco, consisting of a top cross-bar, swiveled and jointed upright, and traveling box and carriage with cross-pieces and stick-supporting hooks, substantially in the manner described, and for the purpose specified.

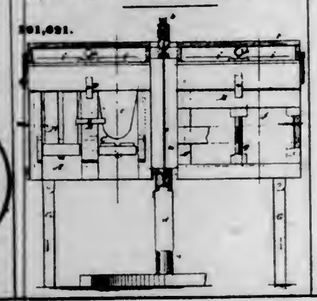
2. The combination, with the suspended and jointed upright, having upper and lower pulley, of a hoisting-rope and traveling carriage with supporting cross-stripe, substantially in the manner described, and for the purpose specified.

191,620. BEE-HIVES. Charles J. Sperry and L. Chandler, New London, Minn. [Filed Feb. 3, 1877.]



The combination, in a bee-hive, of metallic strips H with the stationary and movable parts of the sides G, having grooved adjacent edges, as and for the purpose set forth.

191,621.



191,621. CHICKEN-COOPS. D. M. Sullivan and T. A. Retallio, Montgomery City, Mo. [Filed Mar. 12, 1877.]

1. A chicken-coop consisting of a frame, A, divided into compartments e f, and provided with partitions g, slides i, doors B C, and removable roof F, all constructed and combined substantially as herein shown and described.

2. The vertically-sliding chicken-coop A, having folding legs G, in combination with the supporting-post a and counter-balance device consisting of the pulley h, rope e, and weight d, as and for the purpose set forth.

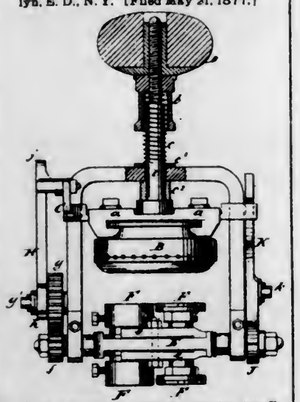
191,622. PLOW-COLTERS. C. R. Thompson, Lebanon, Ky. [Filed Apr. 30, 1877.]

Brief.—Two or more colters or jointers, with cutting-standards and triangular horizontal cutters extending on one side only, and designed to cut the turf loose in narrow strips without removing it from its position.



The combination, with a plow, of two or more colters, B, provided with horizontal triangular cutters b' at their lower ends, and with the same beam A, substantially as herein shown and described.

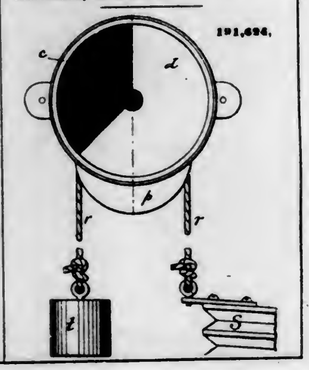
191,623. HAND-STAMPS. L. Tilton, Brooklyn, E. D., N. Y. [Filed May 21, 1877.]



1. In combination with the rotating bar E and the reciprocating inking-pad B, the wheels f g, cam A, lifting-hook H, and the stop-wheel J, and lever K, arranged substantially in the manner and for the purposes described.

2. In combination with the rotating stamp-heads F and reciprocating inking-pad B, the adjustable knob D, jam-nut b, and spring e, substantially as described.

191,624.

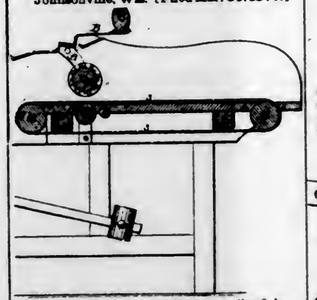


191,624. INDICATORS FOR BELLOWS. Jas. E. Treat, Boston, Mass. [Filed Nov. 20, 1876.]

1. In a bellows-indicator, the employment of one stationary helix-shaped disk in combination with a rotary helix-shaped disk and suitable connecting mechanism from the bellows, as and for the purpose set forth and described.

2. In combination, the disks c d, shaft e, gear g, stop h i, pinion k, shaft l m n o, and pulley p, with its cord r and weight t, substantially as and for the purpose set forth and described.

191,625. STRAW-CUTTERS. A. Vahldieck, Johnsonville, Wis. [Filed Mar. 30, 1877.]

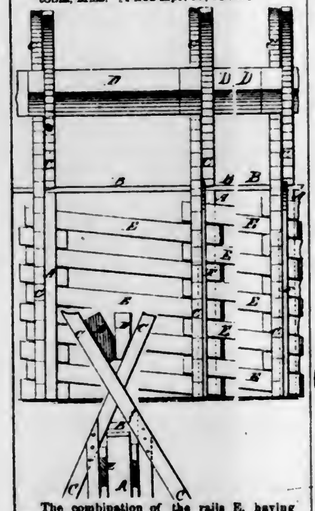


1. In a feed-cutter, the pressure-roller 9, located near the center of the feed-box and made adjustable up and down, as set forth.

2. The combination of an endless belt or apron, s, and an adjustable feed-roller, 9, located near the center of the feed-box, substantially as shown.

3. The combination of the roller 9, located near the center of the feed-box, pivoted frame A, arm B, handle C, and an endless belt, s, substantially as described.

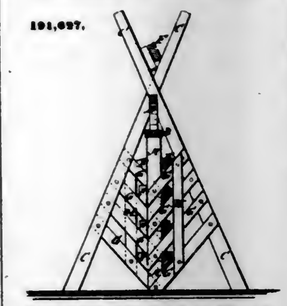
191,626. FENCES. Robert F. Ward, Senatobia, Miss. [Filed Apr. 10, 1877.]



The combination of the rails E, having their ends laid upon the opposite sides of the adjacent posts A, and overlapping each other, and the stakes F, driven into the ground at the opposite sides of the ends of the rails E from the posts A, and having their upper ends nailed to the inclined braces C, with the posts A, the lower riders B, the inclined braces C, and the upper riders D, substantially as herein shown and described.

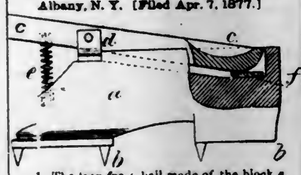
191,627. FENCES. Robert F. Ward, Senatobia, Miss. [Filed Apr. 4, 1877.]

191,627.



The inclined stripe G, having their lower ends notched, and the vertical stripe H, in combination with the rails F, central uprights A, and braces C, substantially as shown and described.

191,628. TRAPS FOR BALLS. Thos. Wilkie, Albany, N. Y. [Filed Apr. 7, 1877.]

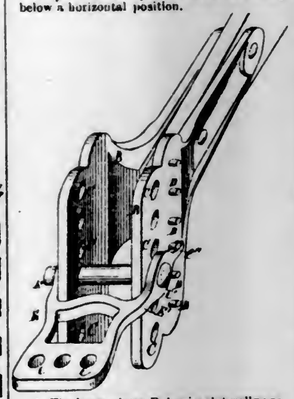


1. The trap for a ball made of the block a, with spikes b upon the under side, and with the bearings d for the lever e above the block a, substantially as set forth.

2. In combination with the block a and lever e, the spring e and the rubber block f, for the purposes and as set forth.

191,629. PLOW-CLEVISES. C. O. Wilder, Monmouth, Ill. [Filed Apr. 7, 1877.]

Brief.—Device to prevent the clevis falling below a horizontal position.



1. The beam-plates B, having laterally-projecting pins or studs D, arranged to operate in combination with a clevis, E, pivoted to the beam-plates, and provided with lugs or projections e'', which come in contact with the studs D, substantially as and for the purpose specified.

2. The beam-plates B, having a series of bolt-holes, C, and series of projecting studs or pins, D, arranged to operate in combination with an adjustable clevis, E, having rear lugs or projections e'', substantially as and for the purpose specified.

191,630. DEVICES FOR ADJUSTING THE POSITION OF CLOCKS. William F. Wuterich, Meriden, Conn. [Filed Nov. 25, 1876.]

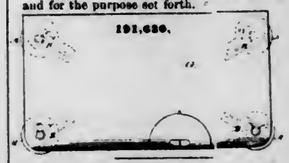
1. The combination of the screw B, with its slot V and the tooth or spur of the plate H working therein, and the flange-nut A and plate H, all substantially as set forth.

2. The combination of the screw B, flange-nut A, and plate H with the supporting stand or board G, as described and shown.

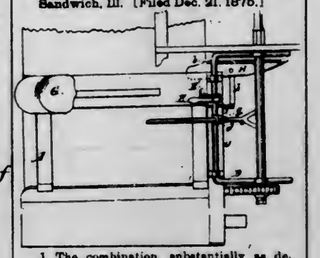
3. The combination of the supporting board or stand G, the screw B, flange-nut A, and spirit level or levels, all as and for the purpose set forth.

4. The combination of the screw B, flange-nut A, spindle or tenon t, and caster K, all as and for the purpose set forth.

191,630.



191,631. HARVESTER-REELS. H. A. Adams, Sandwich, Ill. [Filed Dec. 21, 1876.]



1. The combination, substantially as described, of the vibrating frame, reel-shaft, movable bearings, and sliding bar, for the purposes set forth.

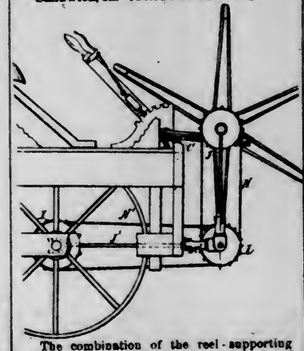
2. The combination, substantially as described, of the sliding bar, guide d, and spring S, for the purpose set forth.

3. The inner grain-guard or divider H, pivoted to the supporting-frame so as to be adjustable vertically, substantially as and for the purpose set forth.

4. The combination of a reel, adjustable vertically, and the pivoted divider H, substantially as and for the purpose described.

5. The combination, substantially as described, of the divider H, provided with an arm, h, connecting-rod i, and vibrating frame D, provided with an arm, I, for the purposes set forth.

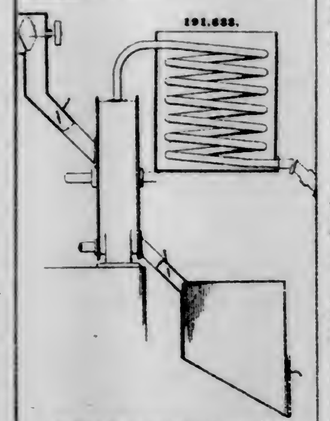
191,632. HARVESTER-REELS. H. A. Adams, Sandwich, Ill. [Filed Dec. 3, 1876.]



The combination of the reel-supporting frame B, hinged to the carrying-frame of the machine, so as to vibrate in a vertical direction, the reel-shaft mounted thereon, a sprocket-wheel on the reel-shaft, a main or driving sprocket-wheel, I, a hinged swinging frame, J J', the sprocket-wheels L M, supported in the swinging frame, and the drive-chains N N', substantially as and for the purpose set forth.

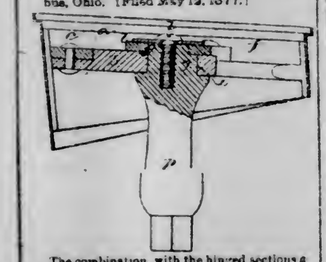
191,633. PROCESSES OF EXTRACTING HYDROCARBONS FROM SUBSTANCES WHICH HAVE BEEN TREATED THEREWITH. Wm. Adamson, Philadelphia, Pa. [Filed Apr. 14, 1877.]

191,633.



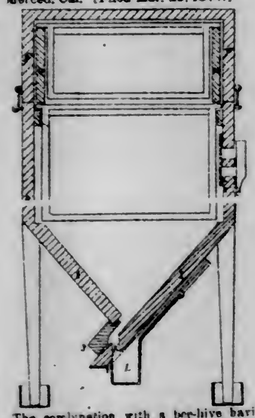
The mode herein described of extracting hydrocarbon from substances treated therewith—that is to say, by subjecting the said substances to disintegration and heat simultaneously, substantially in the manner described.

191,634. EXPANDING-MANDREL. Charles H. Amann and Lewis A. Harker, Columbus, Ohio. [Filed May 12, 1877.]



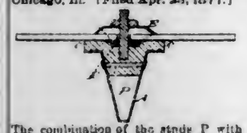
The combination, with the hinged sections *a b*, having, respectively, a hub, *d*, provided with a cylindrical aperture, *e*, and a pivoted arm, *f*, provided with eye *i*, of the shaft P, having a cylindrical rabbet adapted to enter the cylindrical aperture *e* of the hub *d*, and an eccentric adapted to enter the eye *i* of the arm *f*, substantially as specified.

191,635. BEE-HIVES. Thos. A. Atkinson, Merced, Cal. [Filed Mar. 29, 1877.]



The combination, with a bee-hive having the V-shaped bottom I, tubes K, and receptacle L, of the blocks J, arranged on each side of the center of the bottom I, and each having a series of grooves, substantially as and for the purpose specified.

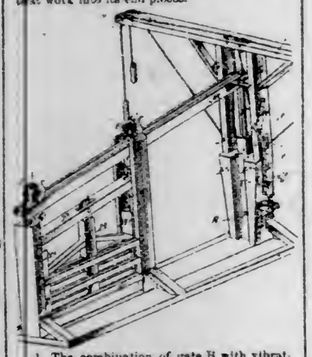
191,636. SKYLIGHT-BARS. J. W. Atkinson, Chicago, Ill. [Filed Apr. 23, 1877.]



The combination of the studs P with the troughs A F, the clamping-plate E, and nut and bolt fastening, as and for the purpose specified.

191,637. GATES. Benj. R. Baker, Northfield, Minn. [Filed Jan. 20, 1877.]

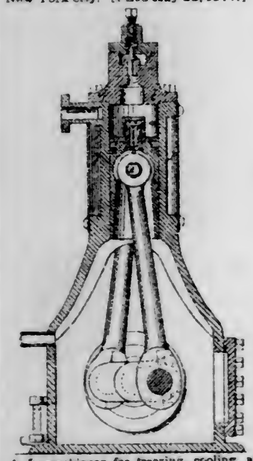
Brief.—The gate, as it closes or opens and descends the incline, is caused to remain horizontal by the pivoted cross-bar, that has rods that work into its end pieces.



1. The combination of gate B with vibrating guideway M, rollers O O, links Q, vibrating bar P, plunger-rods P^1 P^1, and hollow posts B^1 B^1, substantially as and for the purpose set forth.

2. The combination of rod R with cord r^1, slide T, spring t', catch t, bar V on vibrating track M, and gate B, substantially as and for the purpose set forth.

191,638. ICE-MACHINES. Alex. T. Ballantine, New York, N. Y., assignor to United States Ice and Refrigerating Company, New York city. [Filed May 28, 1877.]



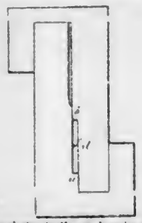
1. In machinery for freezing, cooling, and refrigerating, the combination, substantially as set forth, of a pump for forcing the refrigerating agent, and a chamber, closed to the atmosphere, which surrounds and contains the piston-rod of the pump, and receives and holds whatever matter may escape from that end of the pump-cylinder through which the piston-rod works.

2. The pump, in combination with a chamber which surrounds and contains the piston-rod of the pump, and constitutes a gas-containing receptacle from which the pump draws its supply, substantially as set forth.

3. The combination, substantially as set forth, of these elements: the pump or pumps, the gas-receiving chamber surrounding and containing the pump piston rod or rods, and the rotary crank or driving shaft mounted in bearings in said chamber, the combination being and acting as described.

191,639. DIES FOR SPOOL-BLANKS. H. W. Bassett, Wallingford, Conn., assignor to Hall, Elton & Co., same place. [Filed Mar. 30, 1877.]

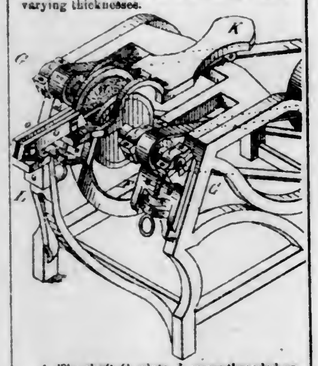
Brief.—The die supports the blank upon its sides, so that pressure decreases its width at the shank and increases the length of the blank.



The dies substantially as herein described, consisting of the shoulder *a* and face *c* on the one part, and corresponding shoulder *b* and face *d* on the other part, and operating together, substantially as specified.

191,640. SANDPAPERING-MACHINES. Jacob P. Peck, Look Haven, Pa., assignor of a part of his right to G. Kintzing and Carrie V. Richards, same place. [Filed Apr. 24, 1877.]

Brief.—Two independently-rotating disks, vertically adjustable, receive article to be polished between them on a supporting-table, which has adjustable guides to accommodate varying thicknesses.



1. The shaft G, plate *d*, screw-threaded on its periphery, and disk *f*, in combination with the conical nut A, to secure the central part of the sand-paper disk, substantially as and for the purpose set forth.

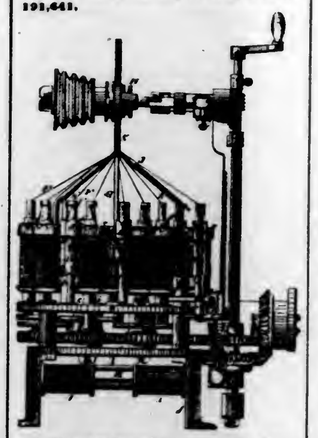
2. The shaft G, plate *d*, and collar *e*, in combination with the disk *f* and nut A, all constructed and operating in the manner and for the purpose described.

3. The table K, provided with the adjustable guides *o*, in combination with the sand-paper heads H, mounted upon the independently-adjustable frames F, as and for the purpose specified.

191,641. BRAIDED HOOP-SKIRT SPRINGS AND MACHINES FOR SAME. A. Benjamin, New York, N. Y. [Filed Mar. 29, 1877.]

Brief.—The braiding-machines of the usual construction, excepting that the feed-tubes which convey the cord to the edges of the spring extend upwardly in a vertical direction to near the tops of the bobbins, and are then bent inwardly in the direction assumed by the threads in braiding, so as to insure even and regular braiding around the cord. The metallic spring is braided over, so as to have on each edge a longitudinal cord, that may be sewed through in securing the spring in place.

191,641.



1. The combination with a braiding-machine of one or more feed-tubes located between the reversely-traveling spools, said tubes extending upwardly in a vertical direction and then projecting inwardly on an angle, substantially the same as that assumed by the threads, nearly to the spring to be braided, substantially as and for the purpose set forth.

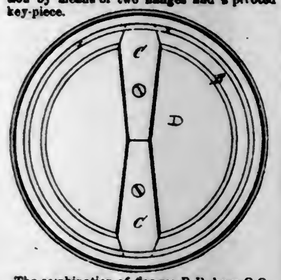
2. As a new article of manufacture, a braid-covered metallic spring provided with a corded edge or edges of sufficient width to allow of the braid-covered spring being secured by sewing through such corded edge or edges, substantially as shown and described.

191,642.



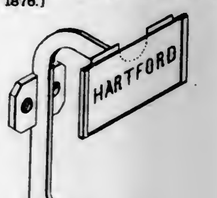
191,644. BARREL-HEADS. G. M. Breinig, Brooklyn, N. Y. [Filed May 16, 1877.]

Brief.—The barrel-head is secured in position by means of two flanges and a pivoted key-piece.



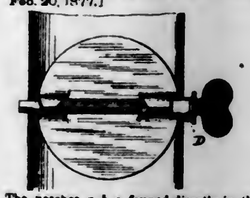
The combination of flanges B B, keys O O, croze E, head D, and shoulder H, operating together substantially as and for the purposes specified.

191,645. LABELED WARDROBE-HOOKS. T. F. Breese, Meriden, Conn. [Filed Nov. 22, 1876.]



The herein-described hook, consisting of the body or base, with the suspending-hook projecting therefrom, combined with a name-plate as a fixed part of the structure, substantially as described.

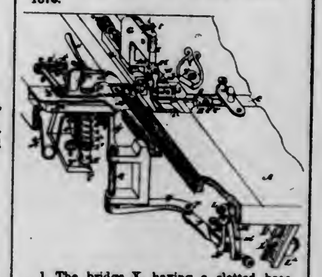
191,646. STOVE-PIPE DAMPERS. Albert Brightman, New Bedford, Mass. [Filed Feb. 20, 1877.]



The notches *a b c*, formed directly in the stove-pipe at the spindle-aperture, in combination with the spindle E of the damper, provided with a lug, D, to engage in said notches, substantially as herein set forth.

191,647. STRAW-BRAID-SEWING MACHINES. S. C. Brown, Philadelphia, Pa., assignor of one-half his right to J. D. Scheetz, same place. [Filed Feb. 3, 1877.]

Brief.—The braids of straw are fed in a line parallel to the motion of the needle, being bent below the table, so that the needle will enter them and emerge from them on the same side. The feed, which consists of griping-jaws, the lower having two and the upper four motions, is adjustable as to length of stitch, and sidewise to give a curved line of motion, by devices specified in the claims. The machine is an improvement on that set forth in applicant's former patent, No. 180,536, August 1, 1876.



1. The bridge X, having a slotted base-plate, made adjustable in the direction of the needle-path, in combination with the bed-plate A, substantially as described.

2. The plunger-foot H, formed in two sections, A A^1, the latter being hinged upon the former, substantially as shown and described.

3. The jaw K, having the extension *k* passing through the base-plate A, and provided with an anti-friction roller, k^1, and spring k^2, in combination with the plate T, substantially as shown and described.

4. The feed-carrier K^1, in combination with the jaws K and K^1, the boss k^3 of the said carrier passing through the jaw K^1, and the extension *k* of said jaw K passing through said boss k^3, substantially as shown and described.

5. In combination with the bed-plate A and jaw K^1, the lever U and slotted bar or plate U^1, for adjusting said jaw, substantially as shown and described.

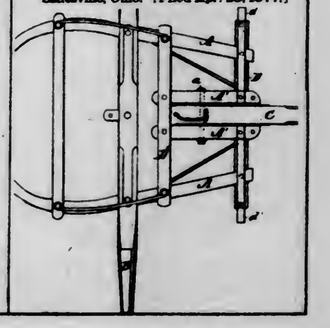
6. In combination with the jaws K K^1, the studs k^4 and k^5 thereon, for causing the simultaneous movement of the jaw K, when the feed is adjusted laterally, substantially as shown and described.

7. In combination with the feed-carrier K^1 and rock-shaft L, the intermediate parts M, N, P, *g*, Q, q', and q^2, for conveying a reciprocating motion to said carrier from said shaft, substantially as shown and described.

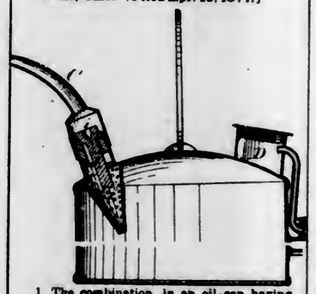
8. In combination with the jaw K, having the downward extension *k* and rock-shaft S, the bracket T, secured to the arm S^2 of said shaft S, and the connecting mechanism, substantially as described, to raise and lower said jaw K, substantially as shown and described.

9. The combination, with the feed devices, of the rock-shaft L, the arm M, the pivoted lever N, the spring n^1, and screw O, whereby the feed is adjusted as to length of stroke, substantially as set forth.

191,648. WAGON-GEARING. W. P. Brown, Zanesville, Ohio. [Filed Apr. 23, 1877.]



191,649. OIL-CANS. Daniel Bennett, Chillicothe, Ohio. [Filed Apr. 10, 1877.]



1. The combination, in an oil-can having the filling-tube D upon its top, of a valve-seat box seated on the handle of said can below the top, a descending tube connecting said box and the upper part of the filling tube, a thumb-valve, and a spring holding said valve upon its seat, substantially as specified.

2. The combination, with an oil-can having a discharge-spout, C, and an automatic drop-valve seated in said spout, of a strainer arranged below the said valve, substantially as specified.

191,643. MORTISING-CHISELS. John Theo. Bowes, Lockport, N. Y., assignor of a part of his right to D. Hoffmeister and Abram Becoue, same place. [Filed Apr. 21, 1877.]

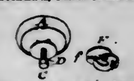
Brief.—A solid chisel, having two opposite bits, is provided with a short center-cutter.

A solid chisel made with two reversed and opposite bits, *c c*, with edges on the four bevels *b*, and a center cutter, D, in the angle, substantially as and for the purpose herein set forth.

1. The combination of the bounds A A A' A', the cross-bars D D', and the tongue C, substantially as and for the purpose described.

2. The combination, with a wagon-gearing having a permanent pivot-bolt, *a*, of the tongue C, having inclined notch *b* and pin *c*, as and for the purpose described.

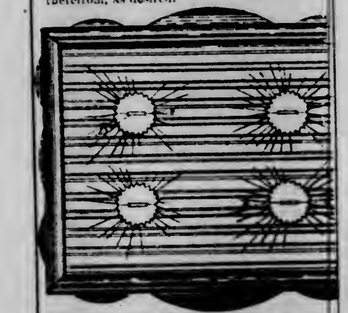
191,649. BUTTON-FASTENINGS. A. Brockmann, Chicago, Ill., assignor to F. W. Ludwig, Cincinnati, Ohio. [Filed May 4, 1877.]



The combination, with a button having a head, A, neck D, and protuberance C, of the washer F, having a notch, *f*, and the hooked latch or catch-piece, H, pivoted to said washer, substantially as and for the purpose set forth.

191,650. UPHOLSTERING-TUFTS. Robert H. Bryant, Chicago, Ill., assignor to Byron L. Lawyer, same place. [Filed Dec. 16, 1877.]

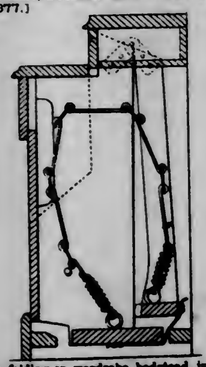
Brief.—Instead of the ordinary thread tuft, a tuft made of leather or other suitable flexible material, and having slits cut therein, is used. The slits extend from opposite points on the edge toward the center, as shown, and may be made with or without enlargements at their inner ends to receive the tufting-thread or loop. By turning up the corners of the tuft it may be inserted under the loop or removed therefrom, as desired.



1. A tuft for upholstering purposes, consisting of a disk of leather or other flexible material, having slits *c* cut in its opposite sides, substantially as and for the purpose set forth.

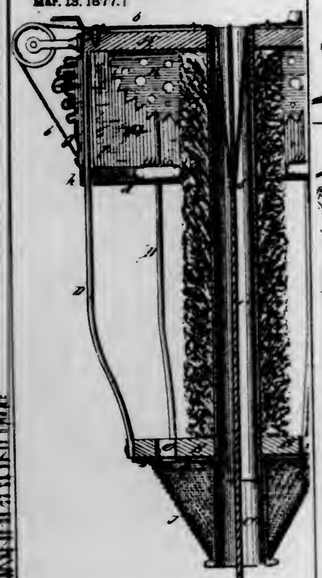
2. An upholstering-tuft consisting of a disk of leather, C, with slits *c* cut in its opposite sides, and enlargements *c'* at the inner ends thereof, substantially as and for the purpose set forth.

191,651. WARDROBE-BEDSTEADS. Sanford S. Burr, Dedham, Mass. [Filed Apr. 21, 1877.]



A folding or wardrobe bedstead, in which a folding bed-frame, that is adapted to fold over onto itself and then turn up into an upright case, is combined with a flexible bed-bottom suspended from the frame by its ends only under the arrangement described, whereby the ends of the bed-bottom, when the frame is turned up into the case, are carried to the lower part of the case, and the upper part of the case between the side rails of the frame is left unobstructed by the bed-bottom.

191,652. FLY-TRAPS. Frank M. Carroll and John Lamb, Grand Rapids, Mich. [Filed Mar. 13, 1877.]



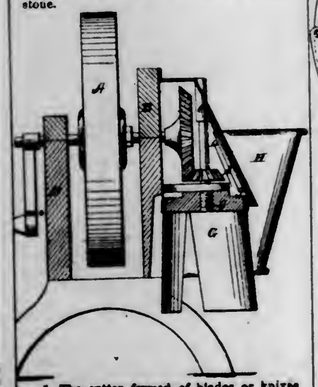
1. In a fly-trap, the disks A B, wire guards D, and curtain G, constructed and arranged to operate substantially as and for the purposes herein set forth.

2. The combination, with the frame A B D, of the curtain G, with elastic band *d* and slide-plates *h*, and the elevating cords *b*, with weighted tassel E, substantially as and for the purposes herein set forth.

3. The combination of the frame A B D, curtain G, and the removable trap I J, all constructed and arranged to operate substantially as and for the purposes herein set forth.

191,653. VEGETABLE-CUTTERS. W. Chapin, Silver Creek, N. Y. [Filed Apr. 12, 1877.]

Brief.—The cutter has flaring knives, and can be used interchangeably, with the pulper in a vertical position on the side of a grindstone.

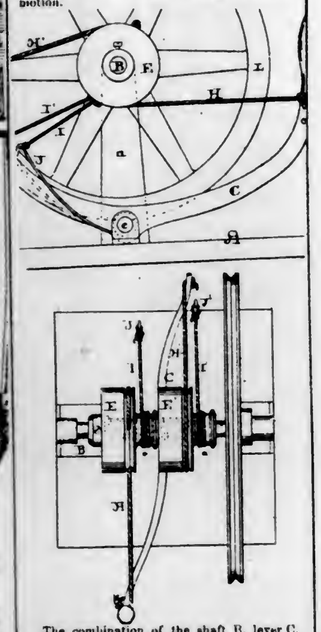


1. The cutter formed of blades or knives *g'''*, head *g*, and ring or band *g''*, said head *g* being provided with a central bore, and constructed and adapted to operate substantially as set forth.

2. In combination with the cutter G, the hopper H, and fly-wheel A, constructed and arranged substantially as and for the purposes described.

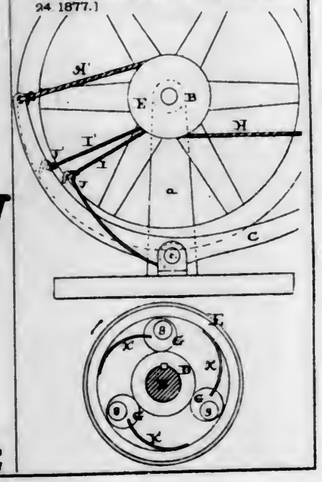
191,654. CONVERTING RECIPROCATING INTO ROTARY MOTION. Chas. Chadwick, Hannibal, Mo., assignor of one-half his right to Peter B. Groat, same place. [Filed Mar. 19, 1877.]

Brief.—To convert reciprocating into rotary motion.



The combination of the shaft B, lever C, spider D, casings E E', rollers G, cords H H' I I', and springs J J', substantially as described.

191,655. CONVERTING RECIPROCATING INTO ROTARY MOTION. Chas. Chadwick, Hannibal, Mo., assignor of one-half his right to Peter B. Groat, same place. [Filed Mar. 24 1877.]



The combination of the shaft B, lever C, collars D, casings E E', cam-wheels G G G, cords H H' I I', and springs J J', substantially as shown and described.

191,656. APPARATUS FOR PUMPING FLUIDS FROM CASKS, &c. Wm. F. Class, Cleveland, Ohio. [Filed May 4, 1877.]



1. The combination of the truncated cone D with check-valve *m*, the flexible disk C, spring H, plate *f*, post *h* having passage *i* and valve *k*, and the treadle G, substantially as and for the purposes herein set forth.

2. The air-chamber E with bent tube I, check-valve J, and flexible tube K, in combination with the air-pump C D, and its valves and treadle, substantially as and for the purposes herein set forth.

191,657. CLASP-BUTTONS. Louis B. Colin, Jersey City Heights, N. J. [Filed Apr. 12, 1877.]



The combination of the sheet metal casings A B struck up with spurs *a a a a*, the former part A being constructed with the central slot or opening *d* in its upper front edge, and with the flat spring-catch *b*, the free end of which sets in said slot, and the latter part B being constructed with the two downwardly-projecting lips *e e* at the sides of its upper front edge, as and for the purpose described.

191,658. BUNG-CUTTERS. Robert Orichton and G. N. Orichton, Parkersburg, W. Va., assignors of one-third of their right to Jas. Rees, Pittsburg, Pa.; said Robert Orichton assignor to Elizabeth A. Orichton, Parkersburg, W. Va. [Filed Sept. 18, 1876.]

Brief.—Bungs and similar forms are cut directly from planks at one operation by means of a tubular cutting-tool, provided with tapered shoulders upon two opposite sides for strengthening the tool against the pressure of the wood when forced therein, vertical on the remainder of its superficies, and beveled in its interior, in connection with suitable operating mechanism.



1. A tool for cutting designs from a board, provided with tapered shoulders on two opposite sides, vertical on the remainder of its superficies, and beveled on its interior, substantially as set forth.

2. The tool V, provided with the shoulders A', as set forth.

191,659. SAW-GUIDES FOR CUTTING MITERS, &c. J. B. Currier, Lowell, Mass. [Filed Mar. 22, 1877.]

1. The saw-guide B, provided with arms B' B', adapted to receive and hold the saw, substantially as described.

2. The rotating index-plate C, provided with a slot or slots internally, to hold or carry the saw-guide, and with a notch or notches externally, to permit its being set and held in place by the clamp E, substantially as described.

3. The combination of the index-plate C, provided with one or more slots, 1, 2, 3, &c., on its internal surface, and the saw-guide B, provided with one or more corresponding splines, *a a*, substantially as described.

4. A saw-guide holder, D D, pivoted at a point below the saw-guide, substantially as described.

5. In combination with a saw-guide, B, and its holder D D, the link F, substantially as described.

6. In combination with the holder D D and screw T, the saw-guide B, provided with an annular shoulder, *s s*, adapted to strike against the screw-head T, substantially as described.

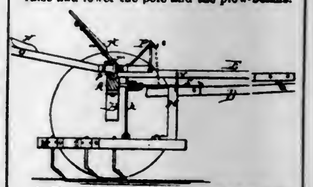
7. The combination of the saw-guide B, the plate A, and gage-irons G or H, substantially as described.

8. The combination of the saw-guide B, index-plate C, the holder X, cap X', and adjustable clamp E, substantially as described.

9. The index-plate C, in combination with the saw-guide B, the latter provided with splines or angles *a a*, and a cylindrical portion below the splines, to enable it to be raised in the index-plate until the splines are withdrawn from the latter, and to enable it to be rotated to a new position in the index-plate, substantially as described.

191,660. CULTIVATORS. Willis E. Dewey, Elkhorn, Wis. [Filed Apr. 12, 1877.]

Brief.—The plow-beams connected by arched arms to the draft-pole, which is hung beneath the split tongue, and sustains the draft in front. It is held up at the rear by a chain secured to the seat-bar. The latter rocks upon the axle, and acts as a lever to raise and lower the pole and the plow-beams.



1. The combination of the tongue or pole D, the angular or bent castings or arms E, having transverse slots *x*, the drag-bars I, pivoting-bolts *b*, and adjusting-bolts *d*, all substantially as and for the purposes herein set forth.

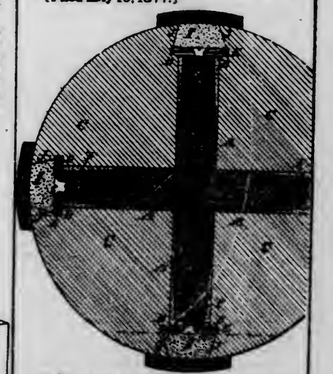
2. The combination of the tongue or pole D, angular slotted arms H, pivoted adjustable drag-bars I, and the split or crotched tongue E, secured to the axle A, and attached above the tongue D to the same by the link *a*, all substantially as and for the purposes herein set forth.

3. In combination with the tongue or pole D, carrying the drag-bars, the hinged lever O, carrying the adjustable seat N, the standard P, with hook *t*, and the connecting-chain *u*, all substantially as and for the purposes herein set forth.

191,661. COMPOSITIONS FOR PRESERVING DRYING, AND BLEACHING FRUIT. John R. Dodge, Jr., Normal, Ill., assignor of one-half his right to William T. Shurtleff, same place. [Filed Apr. 14, 1877.]

A compound for preserving, drying, and bleaching fruit, consisting of charcoal, sulphur, and alum, substantially as described.

191,662. FIRE-PROOF COLUMNS. William H. Drake and Peter B. Wight, Chicago, Ill. [Filed May 10, 1877.]



1. The buttons, countersunk below the surface of the concrete gores C, and having bearing on shoulders D, as and for the purpose set forth.

2. The inclined sided recesses J in a composition column for supporting the concrete I, as specified.

191,663. GAGE-COCKS FOR STEAM-BOILERS. David T. Ellis, Ware, Mass. [Filed May 16, 1877.]



1. The combination, in a try-cock substantially as hereinbefore set forth, of the tube or nipple, the chambered lever pivoted thereto, and the rotating packing, whereby the packing is automatically adjusted to present different portions of its surface to the tube and wear uniformly distributed over the packing.

2. The combination of the weighted lever, constructed as described, with the packing chamber or seat and the packing-wheel detachably mounted in said chamber, substantially as and for the purposes specified.

191,664. HARVESTER-RAKES. Richard Emerson, Syracuse, Ill., assignor of one-half his right to Horatio H. Mason, same place. [Filed Nov. 6, 1876.]

1. The rake-carriage *D*, made in three parts, hinged together around the axes of the bearing-wheels *d d*, having the rake-arm hinged to the middle section, and the end sections provided with guide-wheels d^1 d^1, for the purpose of enabling said carriage to traverse the rail C, and pass its curves smoothly.

2. The combination of the continuous rail C, formed with ribs along its edges and a depressed center, bent to conform to the contour of the grain platform and inclined elevator-frame, the jointed sectional rake-carriage D, provided with rollers *d d* d^1 d^1, adapted to traverse said rail, as shown, and reciprocating upon the upper surface thereof, and the endless drive-chain G, substantially as and for the purpose set forth.

3. The combination of the rake-carriage D, pitman H, slotted arm *h*, and endless drive-chain G, substantially as and for the purpose set forth.

4. The rake-carriage D jointed, and rake E hinged thereto, and provided with a tail-stem and guide-roller, *e*, in combination with the rail C, extending along the platform and elevator, and guide-rod F', extending beyond the upper end of inclined elevator, whereby the rake may be carried in its forward movement beyond and clear from the elevator without dropping, substantially as and for the purpose set forth.

5. The combination of the carriage D, rake E hinged thereto, and provided with a rear extension of its arm, the rail C, guide-rods F and F', switch *f*, and endless chain G, substantially as and for the purpose set forth.

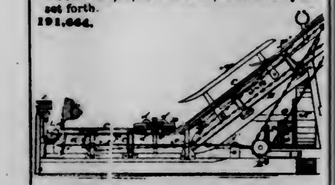
6. The rising and falling reciprocating rake in combination with the grain-guard M at the front side of the elevator-frame, and extending rearward, overhanging the incline, substantially as and for the purpose set forth.

7. The combination of the rear extension of the rake-arm, the sliding rod I, pivoted arm *i*, and spring-clutch I', connected to the sliding rod, substantially as and for the purpose set forth.

8. The divider or branching grain-guard L in combination with the reciprocating rising and falling rake, substantially as specified.

9. The combination of the platform having ribs *a*, rake E provided with a slotted or divided tooth, d^3, and roller d^2, substantially as set forth.

191,664.

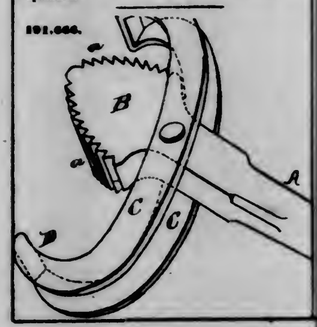


191,665. MANUFACTURE OF PLATED JEWELRY. A. M. English and W. W. Covell, Providence, R. I. [Filed Apr. 14, 1877.]



In combination with the jewelry back-plate A, having a flange, *a*, the ornamental or face-plate B, the rim or bezel C, having an inwardly-projecting flange, *d*, overlying the flange *a* of the back-plate, substantially as specified

191,666.

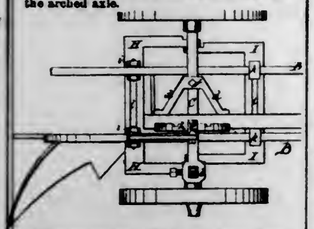


191,666. PIPE-WRENCHES. Geo. Fletcher, Hume, assignor of one-half his right to J. S. Bishop, Fillmore, N. Y. [Filed May 19, 1877.]

In a pipe-wrench, the combination, with the lever or handle A, of the double head B, having transverse teeth or serrations on both its faces *a a*, and the open frame C, straddling the head, pivoted to one side of its center, and having its ends curved to form the jaws D D upon arcs of circles of unequal diameter, substantially as and for the purposes herein set forth.

191,667. SULKY-PLOWS. Albt. A. Fowler, Plano, Tex. [Filed Apr. 13, 1877.]

Brief.—A frame or crank is pivoted to the axle, and extends backward horizontally, bearing studs on which the plow-beams are pivoted. A similar crank extends in front of the axle, having slotted guides, in which the plow-beams work. Both cranks are slotted to move the plow-beams laterally, and the tongue and lever slide correspondingly upon the arched axle.

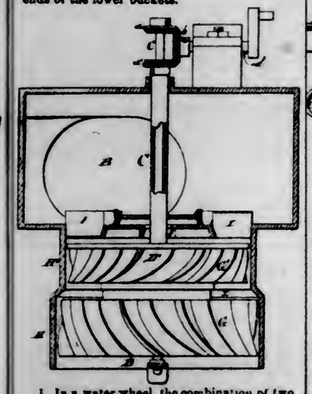


1. The combination of a jointed frame, pivoted to the arch C of the plow, the beams B, studs *i*, and slotted guides *k*, as shown and described.

2. The combination of the plow-beams, the pivot-studs, the vertically-slotted guides, the pivoted parts H I of the vibrating frame, having the parallel slots *l*, all as shown and described.

191,669. WATER-WHEELS. Levi Good, Schuyler Falls, N. Y., assignor of one-third his right to De Witt C. Broadwell, same place. [Filed May 5, 1877.]

Brief.—Two separate and independent wheels rotating in opposite directions, one being located above the other, and having a common axis. The lower wheel is of larger diameter than the upper wheel. They are so arranged that a space will be left between the lower ends of the upper buckets and the upper ends of the lower buckets.



1. In a water-wheel, the combination of two separate wheels revolving around a common axis in opposite directions, the lower wheel being made of larger diameter than the upper wheel, for the purposes set forth.

2. The combination of the upper wheel D G', the lower wheel D G of larger diameter, and the surrounding casing made of two parts, H H', of unequal diameter, substantially as and for the purposes herein set forth.

191,669. COMBINED APPLE PARER AND CORER. Wm. M. Griscom, Reading, Pa. [Filed Nov. 1, 1876.]

191,669.



1. The combination of an apple-paring machine with the sliding frame B, the coring-tube and slicing-arms, the chute I and spout J, having an opening, *s*, opposite the coring-tube, as set forth.

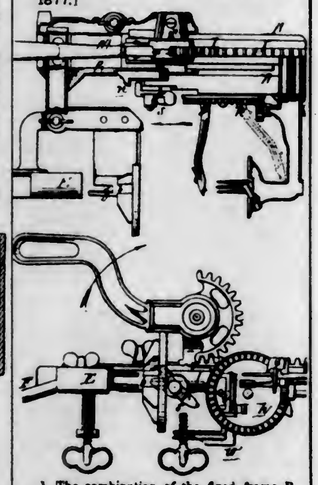
2. The combination of the supplementary paring-knife G with the coring-tube *e*, having a recess, *m*, in its front edge.

3. The combination of the fork *a* and a coring and slicing device with cheeks *n n'* arranged on either side of said fork, as set forth.

4. The combination of the frame B and its projection *t* with the rotating table *b*, having a rim, *u*, recessed at *x*, as set forth.

5. The within-described coring and slicing device, consisting of a tube, *e*, made in two or more sections secured together, and the slicing-arms *f*, riveted to the said sections, as set forth.

191,670. APPLE PARERS AND CORERS. Wm. M. Griscom, Reading, Pa. [Filed Apr. 4, 1877.]



1. The combination of the fixed frame B and its projection *n* with the sliding frame D, its lever *s*, and rotating table A, with cam *t*, as specified.

2. The combination of the coring-tube *b* with the tube E and its inclined chute F, for carrying off the cores, as set forth.

191,671. GATES. John T. Guy, Ottawa, Ohio. [Filed Apr. 21, 1877.]

1. A gate secured by one of its upper rails between two friction-rollers, one of which is secured to a gudgeon mounted upon an arm adapted to move in the arc of a circle around the other roller, the gudgeon of which is fixed to a bracket attached to the fence-post, the lower rail of said gate being secured and adapted to travel between friction-rollers

mounted upon a movable attachment embracing the lower rail, the whole being constructed and arranged to operate substantially as set forth.

2. A gate-hinge consisting of a bracket provided with a horizontal semicircular plate, having a perpendicular stationary gudgeon, to which is pivoted an arm capable of a movement in the arc of a circle, which is provided with a similar perpendicular gudgeon, both gudgeons being provided with friction-rollers, between which the upper rail of the gate is secured, the whole adapted to operate substantially as set forth.

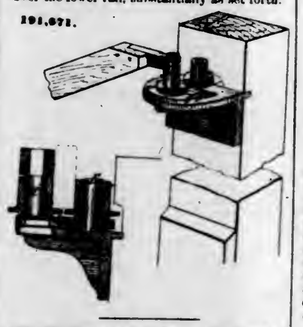
3. In combination with the stationary gudgeon and the plate to which it is attached, provided with a semicircular recess inclining from each end to the center, an arm having a semicircular cam pivoted to said gudgeon, adapted to work in said recess, substantially as and for the purposes described.

4. In combination with the gudgeons of the semicircular plate and pivoted arm swinging thereon, the friction-rollers, provided with flanges at their bases, substantially as herein set forth.

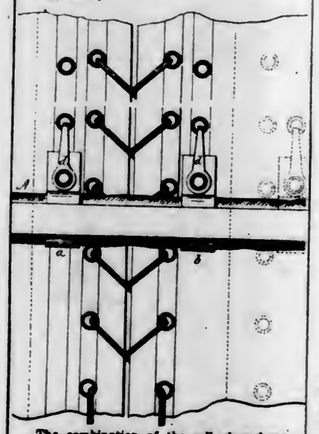
5. In combination with the lower rail of the gate, the movable attachment provided with friction-rollers, between which the lower rail of the gate is retained and adapted to travel, substantially as set forth.

6. The combination, with the movable attachment, of an adjustable bracket hooking over the lower rail, substantially as set forth.

191,671.



191,672. CORSET SKIRT-SUPPORTERS. T. F. Hamilton, New Haven, Conn. [Filed Apr. 21, 1877.]

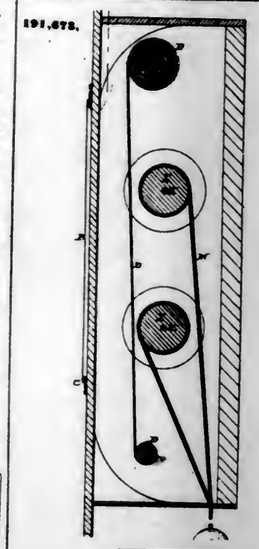


The combination of the roll-shaped supporter A, the loops *a b*, surrounding said supporter, and attached, respectively, one to each part of the corset, substantially as described.

191,673. PICTURE-EXHIBITORS. J. Hannerty, St. Louis, Mo. [Filed Nov. 22, 1876.]

A movable apron, D, carrying pictures, printed matter, or advertisements, and operated by suitable mechanism, in combination with a looking-glass having a transparent portion, B, substantially as set forth.

191,673.



191,674. MEASURING DEVICES FOR HATTERS' USE. Jeremiah A. Harrington, Boston, Mass. [Filed Apr. 5, 1877.]

Brief.—Being composed of a soft non-elastic material, pressing the band downwardly, (aided by a slight lateral pressure at proper points,) will cause it to fit or accommodate itself to the head, so that when it has arrived at the position where the measurement should be taken it will have assumed a shape corresponding with the shape or configuration of the head on the same plane. After the band has been removed from the head it is subsequently used by outlining or tracing the same on paper, or as a mold by which to construct a "block."



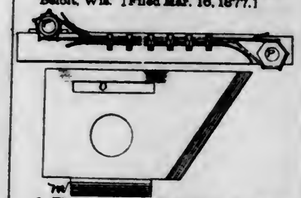
1. A configurator or measuring device for hatters' use, consisting of the endless band A, composed of a soft non-elastic metal or metallic compound, substantially as set forth and specified.

2. The non-elastic metal band A, having its edge *m* longer than its edge *n*, substantially as and for the purpose specified.

3. A configurator for hatters' use, consisting of the flaring non-elastic metallic band A, having its edge or rim *m* concaved, substantially as shown and described.

4. In the art of hat-making, the process of obtaining a block or cast of the hat-supporting portions of the head, by means of the band A applied to the head and subsequently used as a mold, substantially as and for the purpose set forth and specified.

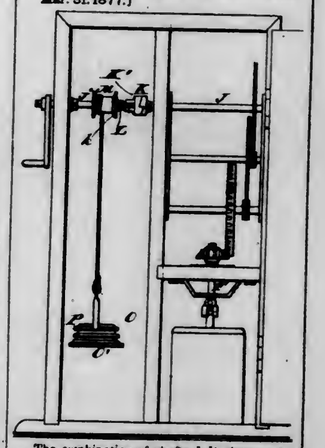
191,673. CUTTING APPARATUS FOR HARVESTERS. H. P. Haskin and J. H. Reigart, Beloit, Wis. [Filed Mar. 16, 1877.]



1. The sickle-section formed of a single piece, with slot O and hook M, for the purposes specified.

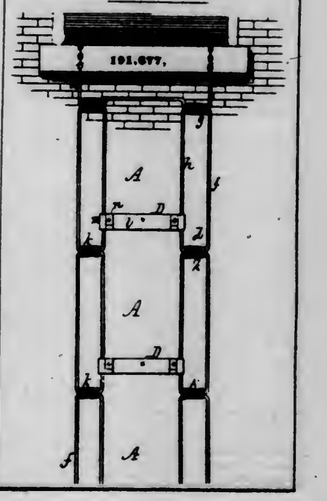
2. The endless sickle, made up of interchangeable sections formed in a single piece, and having slot O and hook M, constructed as described, and for the purposes set forth.

191,676. ROTARY CHURNS. Thos. F. Hatton and John F. Record, Avon, Ind. [Filed Mar. 31, 1877.]



The combination of shafts J J', clutches K K', spring L, drum M, cord or chain O, and weight or weights P with a rotating dasher-shaft and churn-dasher, an operating-crank, and suitable connecting-gearing, substantially as and for the purpose set forth.

191,677.



191,677. FIRE-ESCAPES. Leonard Henkle, Rochester, N. Y., assignor of one-half his right to W. H. Moore, same place. [Filed May 4, 1877.]

1. A fire escape ladder, consisting of links or sections A A, made each of a single piece of wire, bent in the manner described, to form double sides *f h*, with loops *d g* at top and bottom to receive the binding-wires *h h*, and with the straight lengths *e j* forming the step, as shown and described, and for the purpose specified.

2. The combination, with the links or sections A A, provided with the double sides *f h*, of the separate binding-wires *h h*, wound over the loops *d g* in the space between said double sides, as shown and described, and for the purpose specified.

3. The combination, with the lengths *e j* forming the step, of the filling-strip *p*, placed over the said lengths, and an inclosing wrapping embracing the whole, said wrapping being riveted to the strip, in the manner and for the purpose specified.

4. The wrapping D, constructed with the central body *l*, the narrow necks *m m*, and the laps *n n* at the ends, for the purpose of folding over and embracing the step, as shown and described, and for the purpose specified.

191,678. FINGER-BARS FOR HARVESTERS. Manchester, Iowa. [Filed Apr. 24, 1877.]

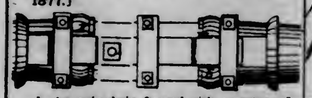


1. The knife-heel plate, having a downwardly-projecting wedge-shaped flange, *a*, substantially as and for the purpose specified.

2. The combination, substantially as specified, of the shoe, the finger-bar, and the knife-heel plate, having a wedge-shaped flange to wedge in behind the edge of the finger-bar.

3. The combination, substantially as specified, of the shoe, the finger-bar, the coupling-bar, and the knife-heel plate, having a wedge-shaped flange to wedge in behind the rear edge of the finger-bar, and a recess in its upper side for the reception of the coupling-bar.

191,679. WAGON-AXLE SKEINS. Hugh L. Hinds, South Bend, Ind. [Filed May 4, 1877.]



1. An axle-skein formed with a portion of its circumference inside the shoulder flat, and with projecting ears or lugs each side of said flattened portion, substantially as herein shown and described.

2. In combination with an axle-skein having a flattened portion and projecting ears or lugs, a horizontal truss-bar with a shoulder at each end, and an interposed cross-bar, substantially as and for the purposes hereinbefore described.

191,680. HINGES AND DOORS FOR BURGLAR-PROOF SAFES. P. F. King, St. Louis, Mo., assignor to Geo. N. Beard and H. I. Beard, same place. [Filed Feb. 2, 1877.]

1. A safe having its door and casing each provided with double screw-threads, substantially as described.

2. The door C, having the independent portion D provided with a screw-thread on its periphery, as and for the purpose described.

3. The combination of the ring, the pintles *h h*, and adjusting-nuts with the hinge-bars, as described.

4. The combination of the hinge-bars, the connecting-bar *g'*, the ring, and the adjusting-screw *h'*, as described.

5. The combination of the hinge-bars having elongated slots and the pintles having the boxes, as described.

6. In combination with a door which oscillates upon a central vertical axis, the adjusting mechanism for limiting its oscillations, as described.

7. In combination with hinge-bars having slotted bearings, substantially as described, a screw-threaded door, adapted, substantially as described, to move the hinges in their bearings.

191,681. PROCESSES OF PREPARING AN IRON AND STEEL CEMENTATION COMPOUND. J. W. Hoxie, Clintonville, Ill. [Filed Oct. 23, 1876.]

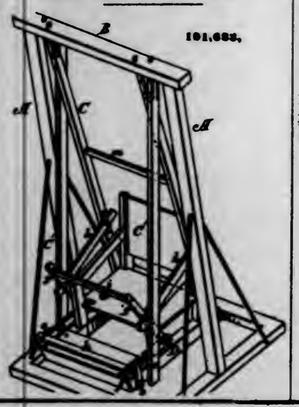
The process of preparing an iron and steel cementation compound, which consists in subjecting the raw material constituting the principal production of the Chester Emery mine to a white heat, pulverizing, moistening with sal-ammoniac, and, finally, reheating it, substantially as herein set forth.

191,682. MANURE-DRILLS. Asa C. Hurley, Purdy, Tenn. [Filed June 7, 1876.]



In combination with a cart of ordinary construction, the detachable frame *D* provided with rollers E E', endless belt G, trough F, and pivoted chute I, the detachable frame D lying under the bottom of said cart, whereby the manure is automatically dropped upon the ground, substantially as described.

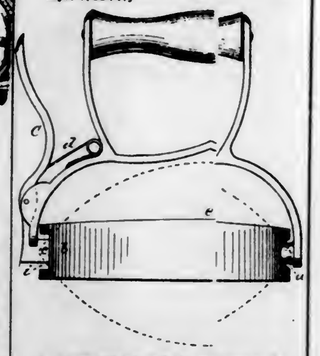
191,683.



191,682. SWINGS. J. J. Janecsek, Washington, D. C., assignor of one-half his right to Wm. H. Faulkner, same place. [Filed May 12, 1877.]

The combination, with the frame A B and hanging rods C C', crossed near their tops, and connected by the brace *m*, of the chair D, provided with the levers *e g*, links *f h*, and bars *i k*, substantially as shown and described.

191,684. FLUTING AND POLISHING IRONS. Charles Johnson, Groton, N. Y. [Filed Apr. 7, 1877.]

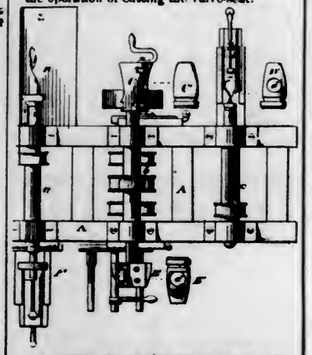


1. A removable handle for sad-irons or fluting rollers, having pivoted lever C, formed with pivotal point *b* and square shoulder *c*, and the spring *d* and pivotal point *a*, substantially as and for the purpose specified.

2. The bed F, having upon both of its faces fluting-grooves *k l*, running at right angles to each other, in combination with a fluting-roller or its equivalent, substantially as and for the purpose set forth.

191,685. MACHINES FOR MAKING VALVE-BUCKETS FOR PUMPS. John N. Kaufhols, Chattanooga, Tenn. [Filed Sept. 30, 1876.]

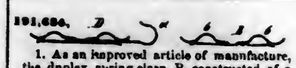
Brief.—The blank from which the valve-bucket is to be formed is longitudinally bored, so as to form a conical bore. It is then submitted to the action of revolving cutters of suitable form for giving the proper contour to the outside of the bucket. It is next bored in cross dimension, then submitted to cutters that form side arches with square bases, after which it is placed upon a shaft provided with a suitable tool for cutting the valve-seat, and given a vibrating motion as said tool performs the operation of cutting the valve-seat.



A machine for manufacturing pump-valve buckets, consisting in the combination, with suitable actuating mechanism, of the tools B, C, D, E, and F, whereby the raw material is respectively bored in length, dressed in exterior, bored in cross-dimension, cut with side arches having square bases, and, finally, formed with a valve-seat, substantially as and for the purpose described.

191,686. SPRING CLASP-HOOKS. John W. Knapp, Jersey City, N. J. [Filed May 18, 1877.]

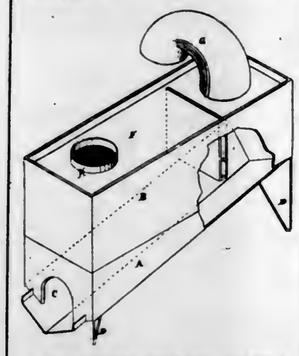
191,687.



1. As an improved article of manufacture, the duplex spring-clasp B, constructed of a single piece of sheet metal or other suitable material, and having its jaws *b b* formed in the margin of the blank A, substantially as and for the purpose described.

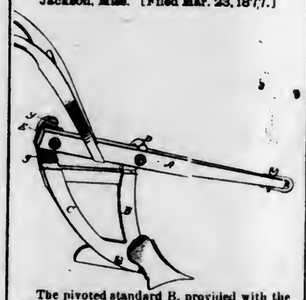
2. The combination of the spring-clasp B and hook *d*, substantially as described.

191,687. QUICKSILVER-CONDENSERS. R. F. KNOX, San Francisco, Cal. [Filed Sept. 9, 1876.]



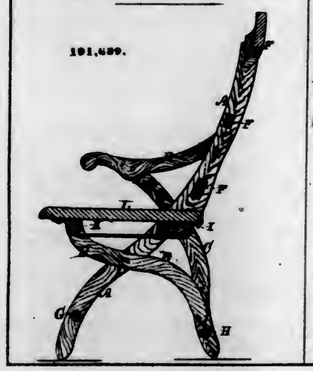
A quicksilver-condensing tank, the base of which is of iron and the body of copper, whereby the deleterious action of the fumes is prevented, substantially as set forth.

191,688. PLOWS. La Fayette W. Liles, Jackson, Miss. [Filed Mar. 23, 1877.]



The pivoted standard B, provided with the circular-faced lug *D*, and the slotted standard C, provided with the grooves *g*, in combination with the beam A, provided with the grooved plate E, all constructed to operate substantially as and for the purpose set forth.

191,689.



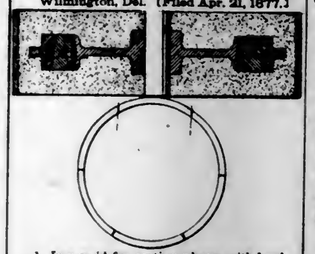
191,689. FOLDING CHAIRS. Benj. F. Little, Norwich, N. Y., assignor to himself and R. B. Prindle, same place. [Filed Feb. 26, 1877.]

1. In a folding chair, the combination of the rails A and C, and the arm D, substantially as and for the purpose specified.

2. The rail A, provided with the shoulder *a*, the rails B and C, the slats F, and the rungs G, H, I, and K, and the seat L, substantially as and for the purpose shown.

3. The hereinbefore-described chair, consisting of the rails A, *a*, B, and C, the arms D, the slats F, the rungs G, H, I, and K, and the seat L, substantially as and for the purpose set forth.

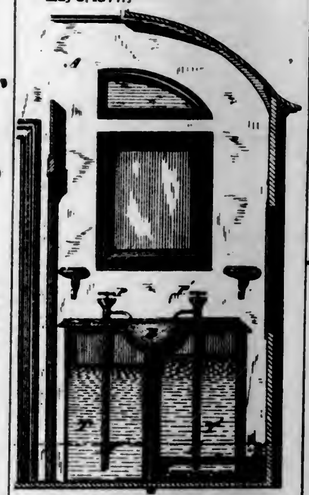
191,690. CASTING PULLEYS. G. G. Lobdell, Wilmington, Del. [Filed Apr. 21, 1877.]



1. In a mold for casting wheels with hardened grooves or recesses, the combination of a chill, A, made in segments, with a continuous ring, B, the chill and ring being made on a taper where they are fitted together, all as set forth.

2. The internal chill D made in segments, one or more of which has beveled ends coinciding with similar ends of adjoining sections, as set forth, for the purpose specified.

191,691. LAVATORY FOR SLEEPING-CARS. Christian E. Lucas, Atlanta, Ga. [Filed May 3, 1877.]

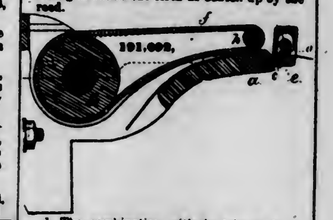


1. The combination, with the heating steam-mains of a railway-car, of a steam-coil placed in the water-tank of the toilet-room, which supplies water to the wash-basin, all as and for the purposes described.

2. In the toilet-stand of a sleeping or parlor railway-car, the combination, with the wash-stand basin B, of the tanks T T', pumps P P', and steam-coil O, connected with the car-heating steam-mains, all constructed, arranged, and operating in the manner and for the purposes set forth.

191,692. TAKE-UPS FOR LOOMS. Jas. Lyall, New York, N. Y. [Filed Feb. 26, 1876.]

Brief.—A range of independent swinging pawls upon a bar, held by spring-pressure upon the cloth above the breast-beam, and acting to retain the cloth as beaten up by the reed.



1. The combination, with the take-up lever of a loom, of a range of holding-pawls attached to a pawl-bar, and acting to retain the cloth as taken up, substantially as set forth.

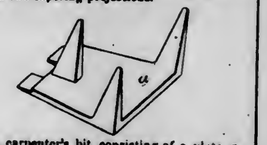
2. The hollow bar *b*, having transverse partitions, in combination with the pivot-rod *c*, pawls *e*, and washers *d*, substantially as set forth.

3. The combination, with the bar *b* and pivoted pawls *e*, of the take-up belt *f* and rollers *g h*, substantially as set forth.

4. A range of swinging holding pawls or points, standing away from the reed, and yielding to the fabric as it is drawn along, in combination with a take-up mechanism that draws along the slack cloth, substantially as specified.

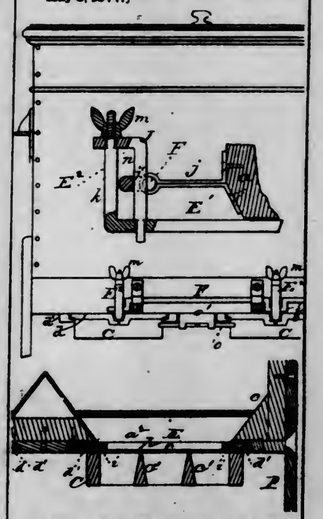
191,693. BENCH-DOGS. William Lyle, Philadelphia, Pa. [Filed May 17, 1877.]

Brief.—The bit is formed of a metallic plate having three downwardly-inclined projections on its under side, and recessed at its front to form two tapering projections.



A carpenter's bit, consisting of a plate, *a*, having tapering projections inclined downward from the front to the rear of the said plate, all substantially as set forth.

191,694. FLOUR BIN AND SIFTER COMBINED. Frank M. Mahan, St. Joseph, Mo. [Filed May 5, 1877.]



1. The combination, with a bin having vertical ends and converging sides and delivering-apertures separated by angular ribs, of a reticulated material, closing said apertures, and reciprocating agitators arranged above said sifters, substantially as specified.

3. In combination with a bin having spaced delivery-apertures and angular ribs between them, of the removable sifter-frames C, having lateral flanges *d*, adapted to be received in slideways of the bin, substantially as specified.

3. In combination with a hopper-bin for ground grain, having delivery-apertures and an angular rib separating the same, and provided with slideways *d*, the sifter-frames having angular supporting-ribs, adapted to be received in said ways, and the agitators adapted to reciprocate on the sifter-frames, substantially as specified.

4. The combination, with a hopper-bin having spaced sifting devices and metallic slides *d* upon its under side, of the agitators E, seated in the frames of the sifting devices, the angular arms E', the slotted extensions E', a crank-shaft, and an operating device therefor, substantially as specified.

5. The combination, with a hopper-bin having spaced delivery-apertures and ribs separating the same, and a reticulated material closing the said apertures, of the reciprocating agitating-frames E, the angular slotted arms E', the shaft F, having crank-arms engaging said slotted arms, and a mechanism for rotating said shaft, substantially as specified.

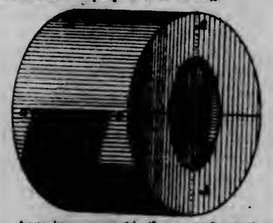
6. The combination, with the stationary sifters, the reciprocating agitator-grates, and the angular arms attached to said grates, of the angular elbow-plates J, removably secured to said arms to form slots *a* for the reception of the cranks of the operating-shaft, substantially as specified.

7. In a mechanism for operating the agitators of a combined flour-bin and sifter, the combination, with the crank-shaft F and the angular arm E', of the detachable angular plate J, substantially as specified.

8. The combination, with the angular arm E', of the detachable elbow-plate J, forming, with said arm, an oblong slot, substantially as specified.

191,695. CASES FOR STORING AND PROTECTING RIBBONS. Albert C. Mason, Galesburg, Ill., assignor to himself, W. O. Douglas, and J. Gilham, Washington, D. C. [Filed May 5, 1877.]

Brief.—The axial block around which the ribbon is wound is fitted at one end into a recess in the cylindrical casing, thus rendering said casing easily handled and compact for storage, and at the same time affording access to sufficient of the projecting axis of the roll for the purpose of rewinding.



As an improvement in the means for storing and handling ribbons, a cylindrical casing for the reception of an axial block, around which ribbons are to be wound, provided with a recess at one end, at its axial center, for the reception of the projecting end of said axial block, substantially as and for the purpose specified.

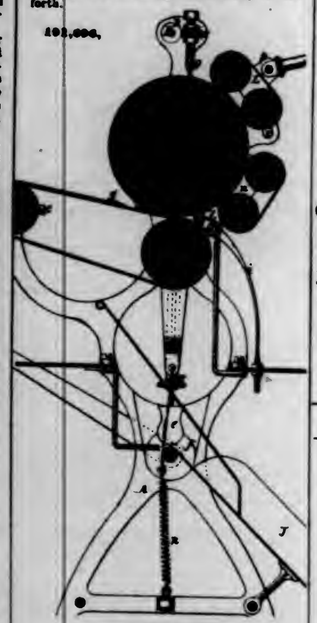
191,696. LITHOGRAPHIC-PRINTING PRESSES. Chas. C. Maurice, New York, N. Y. [Filed Nov. 10, 1876.]

Brief.—Two rollers in a portable frame carry an endless apron, on which the ink is distributed by hand on a table when the frame is placed in brackets with the apron in contact with the stone. The sheets are fed on an endless blanket passing over the impression-cylinder intermittently revolved by hand, and under the stone cylinder constantly revolved. They thence are delivered, under guide-tapes on rollers in elastic arms, to an inclined box.

1. The combination, with the revolving cylindrical stone of a lithographic press and the slotted bracket attached to the frame A, of the removable frame *p*, having a handle, *q*, and bearing the rollers *o o*, and the inking-apron L, passing around said rollers, as and for the object hereinbefore set forth.

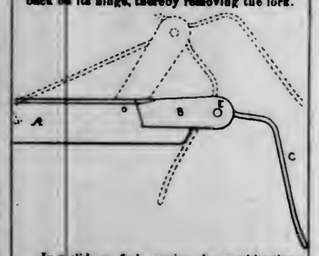
2. The combination of the endless carrying-apron E, pressing-roller F, cylindrical stone B, table *l*, running on rollers supported by elastic arms, and piling-trough J, all constructed and operating substantially as set forth.

191,696.



191,697. STOP-MOTION FORK-SLIDES. John McCaffrey, Jr., Lawrence, Mass., assignor of one-third his right to S. M. Stedman, same place. [Filed Sept. 20, 1876.]

Brief.—The slide is provided with a carrier hinged thereto, and the fork is pivoted to the carrier. This construction secures the fork from injury in case a shuttle should strike against the tines, the carrier then swinging back on its hinge, thereby removing the fork.



In a slide or fork carrier, the combination of the slide A, arm or carrier B, pivoted thereto, and the fork C, constructed substantially as shown and described.

191,698. PROCESSES OF PRODUCING WROUGHT-IRON AND STEEL FROM COLD-SHORT PIG. Charles C. McCarley, Knoxville, Tenn. [Filed May 28, 1877.]

The process herein described for producing wrought-iron and steel from cold-short pig-iron, consisting in treating such iron with a definite dose, corresponding to the quantity of phosphorus in the iron, of manganese and alkali on the hearth of a puddling or equivalent furnace, with a regulated heat, as described, and the manner of manipulation set forth, all substantially as specified.

191,699. BARREL-COVERS. David T. McClellan and Thos. J. McBride, Mt. Vernon, Ohio. [Filed May 3, 1877.]

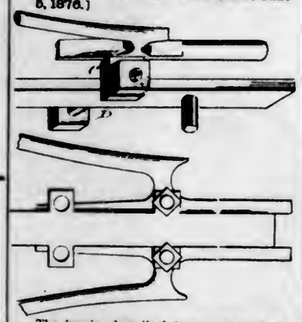
Brief.—The head-fastening is secured in position by means of bolts operated by bevel-gear.

191,699.



A lid-fastener, consisting of the bars C C and screw-rod D, provided with the rigidly-fixed cog-wheel E, in combination with the vertical shaft G passing through and above the lid, and provided with the bevel-pinion F, all constructed and arranged to operate substantially as and for the purpose set forth.

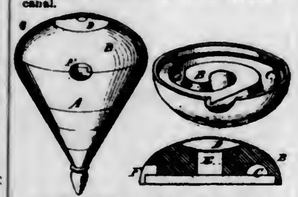
191,700. CARRIAGE-PERCH STAYS. Joseph R. McGuire, Ansonia, Conn. [Filed June 5, 1876.]



The herein-described improvement in attaching stay-ends to carriage-perch plates, consisting in forming the one with a perforated ing, C, and the other with a corresponding bolt, D, substantially as described, whereby the connection is made between the perch-plate and the stay-end independent of the wood.

191,701. SPINNING-TOPS. T. McLaughlin, New York, N. Y. [Filed Apr. 4, 1877.]

Brief.—The whistle is connected with the side orifice by an internal scrolled chamber or canal.



A whistling-top, combining the body, made in sections A B, with the spiral tube C, leading from the opening F to the central chamber E, and the double-acting whistle D, substantially as set forth.

191,702. GRATES. James H. Mearns, Philadelphia, Pa. [Filed Jan. 19, 1877.]

1. The combination of the crank D with the front ends of the grate-bars C, having hooks for holding them in connection with the cranks during the shaking and dumping of the grate, substantially as set forth.

2. The combination of the slip-lever F with the lever E and front crank for supporting the grate in its half dumped position, substantially as set forth.

3. The box G, for preventing the passage of dust from the ash-pit or cellar into the air-chamber, substantially as set forth.

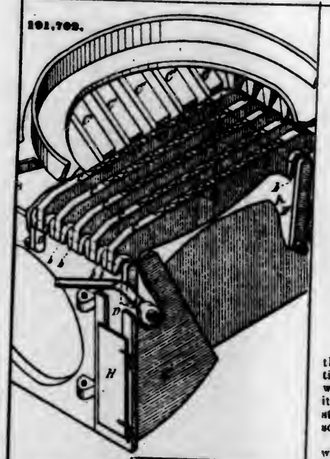
4. The door H, for closing the lower part of the box G to prevent dirt getting therein, and obstructing the working of the lever F, substantially as set forth.

5. The combination of the lever F with the door H, the upper part of the door serving as a stop for the lever when the grate is being raked, substantially as set forth.

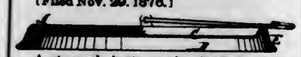
6. The combination of the lever E with the front crank and the back plate of the box G, substantially as and for the purpose set forth.

7. The combination of the crank D' with the crank D, and grate-bars C, the arms of the crank D' being longer than those of the crank D, substantially as and for the purpose set forth.

191,703.



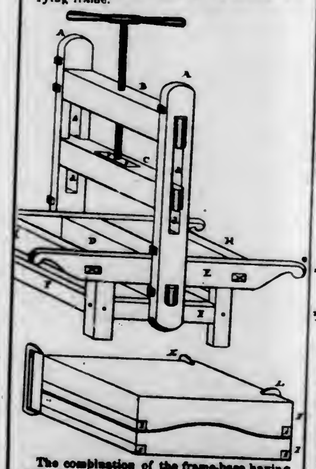
191,703. GRIDDLES. Henry C. Milligan, South Orange, N. J., assignor to Lelanoe and Grosjean Manufacturing Company. [Filed Nov. 29, 1876.]



A stamped sheet-metal griddle in which the rim A is bent up from the bottom C, and has a turned-down flange, E, extending below the bottom and supporting it, substantially as described.

191,704. WOOD-PRESSING MACHINES. S. L. Nagle, Bernville, Pa., assignor of one-half his right to John Weaver, same place. [Filed Mar. 2, 1877.]

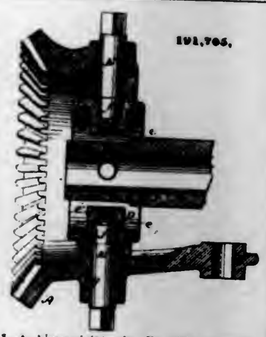
Brief.—The previously-prepared wood is given the desired shape by means of two independent formers supported upon a portable slotted frame, and between which the material is placed, and a slotted frame longitudinally adjustable on the main frame, and carrying a follower vertically adjustable by a screw attached to the upper part of the follower carrying frame.



The combination of the frame-base having side pieces E, handles *e*, cross-piece F, and adjustable block D, with the follower C, screw *s*, frame A A B, the independent formers I J, clamps L L, constructed to operate as above and described, and for the purpose specified.

191,705. OSCILLATING GEARINGS. N. P. Otis, Yonkers, N. Y., assignor to R. Dutton & Co., same place. [Filed Apr. 26, 1877.]

191,705.



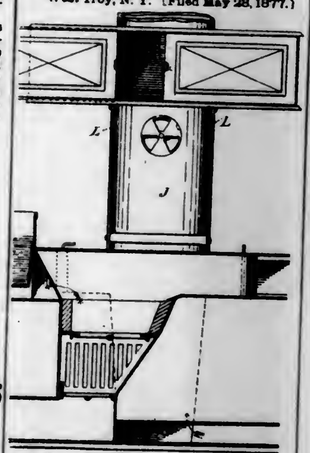
1. A hinge-joint pin, E, with a screw-thread and a conical bearing at its end, fitting into a corresponding seat, in combination with the movable part of said joint, having its bearing upon the body of the pin E, substantially as shown, and for the purpose described.

2. An oscillating gear-wheel, A, combined with the gimbal-ring D and joint-pins E E, having conical ends *f*, and screw-threads to fit corresponding seats *f'*, as and for the purpose set forth.

3. An oscillating gear-wheel, A, and the taper-seated joint-pins E E, combined with the oscillating gimbal-ring D, in which, also, two of said pins are supported to form a joint having universal movements, substantially as and for the purpose set forth.

4. The oscillating gear-wheel A, gimbal-ring D, and taper-seated joint-bolts E, in combination with the main frame of a mowing-machine, substantially as and for the purpose described.

191,706. COOKING-STOVES. Daniel E. Paris, West Troy, N. Y. [Filed May 28, 1877.]



1. In combination with the reservoir, the hot-closet, and the reservoir-case communicating with the fire-chamber and the rear flue, for the purpose of conducting the products of combustion under and around the reservoir and over the hot-closet, whereby the same are simultaneously heated.

2. In combination with the hot-closet, the fire-box and ash-pit below the latter, extending under said hot-closet, for the purpose of heating the lower part of the same without heating the reservoir.

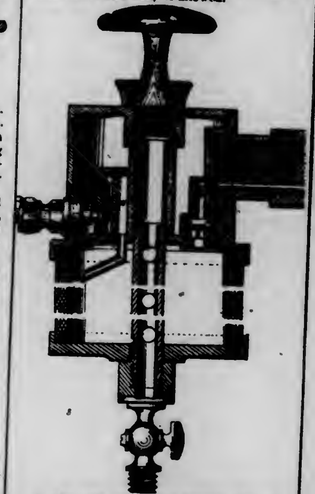
3. The combination of the reservoir, its case, hot-closet, and ash-pit, arranged at one end of the stove or range, for the purpose of heating the said closet above and below, and at the same time heating the reservoir.

4. The draft-openings, arranged one in front and one in the rear of the stove, and provided with doors connected by means of a rod, substantially as described, so as to be operated together, and admit the air simultaneously at both ends of the fire-box, whereby the draft is uniformly supplied to the fire, and the combustion rendered more perfect.

5. The pipe J, provided with the catch *x* and lug *u*, in combination with a closet or shelf and the brackets L L, whereby the closet or shelf is securely supported and heated.

191,707. LUBRICATORS. Chas. H. Parshall, Detroit, Mich. [Filed Apr. 28, 1877.]

Brief.—The water seal trap formed within the body of a condensing-chamber is to prevent the inflow of oil into the latter, while free communication for the water to pass therefrom into the oil-cup is allowed.

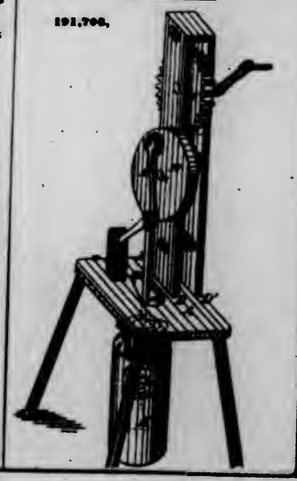


1. The water seal or trap formed within the immediate body of the condensing-chamber, and directly connecting the same with the oil-feeding chamber, substantially as described.

2. The combination, with the water-seal located directly within the condensing-chamber, of the angular discharge-pipe, extending from the same into the oil-cup, substantially as described.

3. The combination, with the auxiliary chamber N, of the central vertical partition *n*, forming the passages *s* and *s'*, the two respectively connecting by immediate openings with the steam-condensing and oil-feeding chambers, substantially as described.

191,708.



191,708. CHURNS. Thos. J. Parrish, Belton, Mo. [Filed Oct. 19, 1876.]

Brief.—The churns being suspended from the bottom of the table enables churns of different lengths to be used.

1. The combination of the bench or table A, having slot *c* and adjustable clamps *c*, with the churn-body, having projecting rim or flange *e*, substantially as and for the purpose shown and specified.

2. In combination with the bench or table A, having adjustable clamps *c* for holding the churn-body during the operation of churning, and operating mechanism, as herein described, the adjustable dasher-staff *k*, having two or more perforations, *v*, substantially as and for the purpose herein shown and specified.

191,709. NEEDLES FOR KNITTING OR SEWING. Samuel Peberdy, Philadelphia, Pa. [Filed Apr. 18, 1877.]

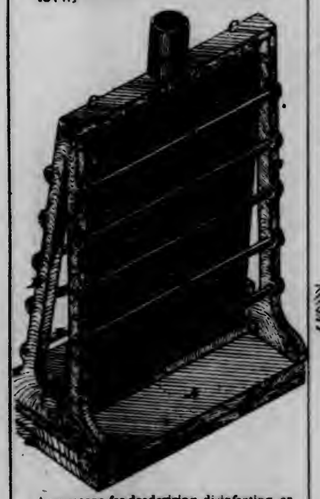
Brief.—A needle which will not "cast-off" on failure of supply of yarn; also, so fashioned as to be adapted to fine work.



1. A knitting-needle in which a lever, D', composed of two arms, *i* and *i'*, united at a bend, *p*, is combined with and pivoted at the extremity of its shorter arm to a slotted stem, substantially as described.

2. A sewing-needle consisting of a stem pointed at one end, and provided at the other end with the said lever D', as specified.

191,710. AIR-COOLING APPARATUS. Charles Pfanne, Washington, D. C. [Filed May 2, 1877.]



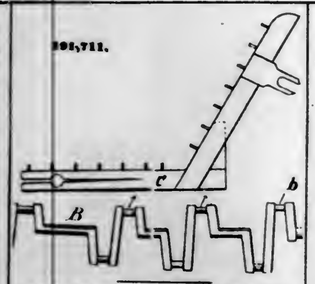
As a means for deodorizing, disinfecting, or cooling a room, a portable screen, covered with absorbent material, and provided with means for supplying liquid to the upper end of the same, and having at its lower end a pan to receive the drip of such liquid, substantially as specified.

191,711. HARVESTERS. William W. Phillee and Albert W. Cox, Hastings, Nebr., assignors, by mesne assignments, to Sandwich Manufacturing Company, Sandwich, Ill., and Theodore L. French, Cedar Falls, Iowa. [Filed Apr. 14, 1877.]

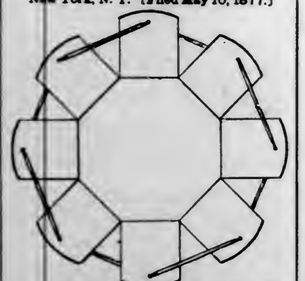
1. The crank-shafts B, constructed with the forward cranks *b* longer than the others on the same shafts, in combination with the vibrating toothed bars C, substantially as and for the purpose set forth.

2. The shafts B, provided with a series of cranks, decreasing in length from front to rear of the machine by a regular gradation, in combination with the vibrating toothed elevator-bars C mounted thereon, substantially as and for the purpose described.

191,711.

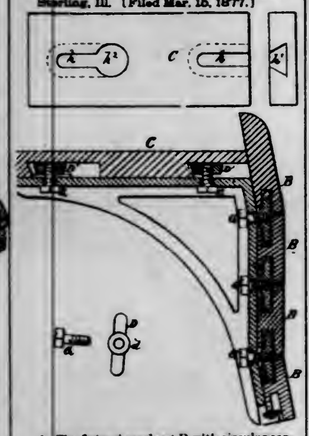


191,712. PAPER BOXES. Pulaski B. Pickens, New York, N. Y. [Filed May 10, 1877.]



In a box, the combination of an open, detached cylinder, a polygonal body, the upper part of which is divided into turn-down flaps, a tape or cord for regulating the position of these flaps, and a cover which fits the polygonal body, substantially as shown and described.

191,713. SCHOOL-DESKS. C. H. Pressbrey, Sterling, Ill. [Filed Mar. 15, 1877.]



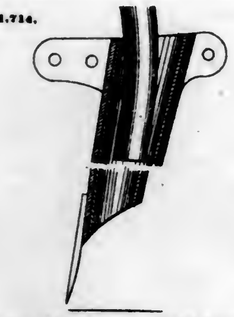
1. The fluke-shaped nut D with circular center *d*, in combination with the slats B, having holes *a* and recesses *b*, and the screws G, substantially as and for the purposes herein set forth.

2. The grooves *h* in the wood C, having angling or lip sides, in combination with the nuts D' and screws G, substantially as and for the purposes herein set forth.

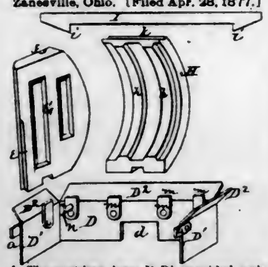
191,714. DRILL-HOLS. E. F. Pryor, Dayton, Ohio, assignor of one-half his right to W. E. Nauman, same place. [Filed Aug. 30, 1876.]

In combination with a conducting-tube of any material, a drill-hos or tooth whose interior surface is coated with any polished enamel substantially as and for the purpose specified.

191,714.



191,715. FIRE-FRONTS. George W. Purcel, Zanesville, Ohio. [Filed Apr. 28, 1877.]



1. The cast-iron base D D', provided with flanges D², lugs *a*, buttons *m*, and studs *n*, as and for the purposes herein set forth.

2. In a fire-place, the tile-jambs G G and tile-backs H H, constructed substantially as described, and for the purposes set forth.

3. The combination of the cast-iron base D D', tile-jambs G G, tile-backs H H, and top bar I, with hooks or shoulders *i i*, substantially as and for the purposes herein set forth.

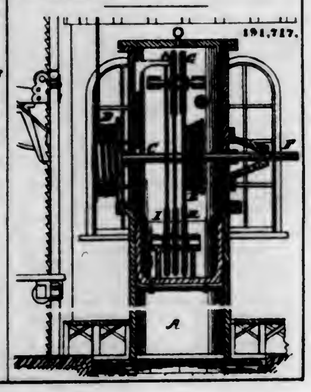
4. The top plates J J, in combination with the bar I, backs H H, and jambs G G, substantially as herein set forth.

191,716. ENGINE-FRAMES. S. W. Putnam, Fitchburg, Mass. [Filed Feb. 2, 1877.]



The trough-shaped frame B, made in one continuous piece, and provided with the strengthening rib H, in combination with the reversible pedestal A, having its bottom cast to conform to the trough shape of the frame, as and for the purpose set forth.

191,717.

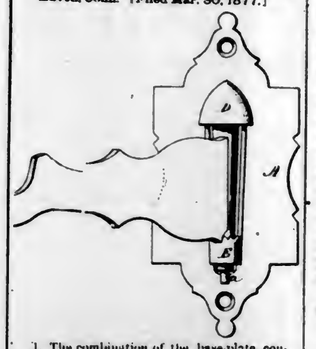


191,717. HOISTING-MACHINES. H. J. Reedy, Cincinnati, Ohio. [Filed Jan. 26, 1877.]

Brief.—The tapering drum, regulated by the screw on the end of the axle, equalizes the pressure as the weight of water varies in the cylinder.

The combination of the vertical cylinder A, sheaves G and I, tapering drum E, shaft C, and screw F, the whole being arranged substantially as and for the purposes hereinbefore set forth.

191,718. BRACKETS. Jos. B. Sargent, New Haven, Conn. [Filed Mar. 30, 1877.]

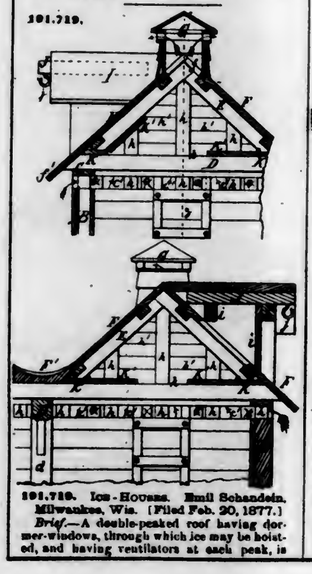


1. The combination of the base-plate, constructed with a vertical slot, through which the bracket-arm is passed from the rear, and a socket at the top, with the bracket-arm constructed to be introduced through said vertical slot, and, with the bearing, to rest in the upper socket, and a bearing against the face of the plate below, substantially as described.

2. The combination of the plate A, constructed with its slot B, through which the bracket-arm is introduced, upper socket D, and lower band E, with the bracket-arm constructed so as to be introduced through said slot B, with a pintle, F, corresponding to the said socket and band, substantially as described.

3. The combination of the plate A, constructed with the slot B, the socket D above, and band E below, with the bracket-arm constructed with a pintle to fit the socket above and the band below, and with a projection, *e*, down on to the surface of the plate, substantially as described.

191,719.



191,720. ICE-HOUSES. Emil Schandein, Milwaukee, Wis. [Filed Feb. 20, 1877.]

Brief.—A double-peaked roof having dormer-windows, through which ice may be hoisted, and having ventilators at each peak, is placed over a single compartment. A flooring just beneath the roof has a narrow opening directly beneath the ventilators, which opening may be enlarged by raising the hinged portion of the flooring on one or both sides. Air enters the building on all sides through openings just below the eaves and overhanging gables, and, passing over the ice to the central floor-openings, rises and escapes through the ventilators.

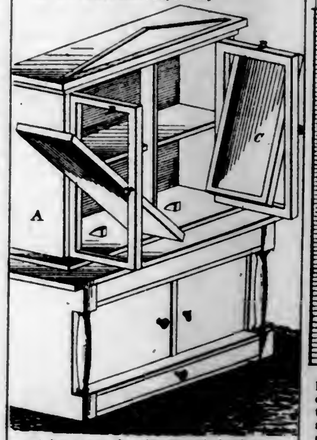
1. In an ice-house, the combination of the walls B, having openings *c'*, and the overhanging gable H of the roof F, substantially as and for the purpose set forth.

2. The combination of the single ventilated ice-chamber of an ice-house and a twin ventilating-roof, whereby the force of ventilation-currents caused by external heating of the roof is augmented, substantially as set forth.

3. The roof having the door *i* in the dormer-window, the said door forming, practically, a continuation of the door B' in the body of the ice-house without cutting through the plate or sill on which the roof rests, substantially as and for the purpose described.

4. In an ice-house, a ventilating-roof, as described, having a floor, K and K', consisting of a stationary part and a movable part hinged thereto, whereby the central ventilating-opening may be made small, to serve as a flue for the passage of air, moisture, and vapor to the ventilators in the roof from below the floor, and the size of the space *k* between said hinged floors for the passage of ice through it may be enlarged at pleasure, substantially as and for the purpose described.

191,720. ADJUSTABLE MIRRORS FOR DRESSING-CASES. Saml. R. Scottron, New York, N. Y. [Filed Nov. 16, 1876.]



A bureau or dressing-case, A, having two hinged skeleton frames, B B, into each of which is pivoted a mirror, C, capable of being placed at any angle, and capable of being revolved on the pivots, so that the mirrors can face on either side of the frame, substantially as and for the purposes herein set forth.

191,721. BREECH-LOADING FIRE-ARMS. John Schudt, New York, N. Y., assignor to himself and Chas. Seeger, same place. [Filed Nov. 24, 1876.]

Brief.—A crank-arm inside the frame is rigidly secured to a transverse shaft or pin, which is operated by an outside lever. When said lever is depressed, the crank-arm presses back the firing-bolt, cocks the gun, and depresses the breech-block to open the breech. A projection on the shaft which carries the crank-arm comes in contact with a downward extension of the extractor below its pivot, and operates it to extract the shell.

1. The combination of the pivoted breech-block B with the pivot-pin *a*, which has the handle *b*, and feather *d*, and with the stock containing the notch *f''* and segmental groove *f'*, substantially as herein shown and described.

2. The thimble *f*, constructed with a central aperture, a notch, *f''*, extending from said aperture to the edge, and with a segmental groove, *f'*, for the purpose of securing the pin *a*, having feather *d*, substantially as herein shown and described.

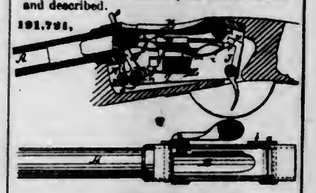
3. The sliding block D, rigidly connected with the firing-pin A, trigger spring *i*, arm *j*, and lug *k*, and combined with the breech-block of a fire-arm, substantially as herein shown and described.

4. The combination of the breech-block B with the slide D, and with the slotted barrel E, containing the spring *l*, substantially as herein shown and described.

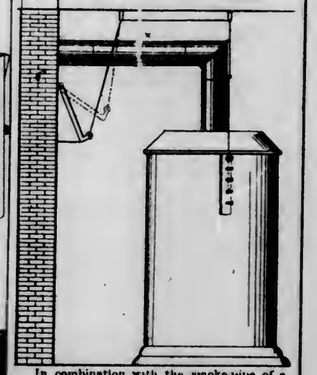
5. The slotted barrel E, made with the transverse shank *m*, and combined with the breech-block B, which is laterally grooved for the reception of said shank, substantially as herein shown and described.

6. The combination of the extractor H and its shaft *s*, having the projection *t*, with the crank F, shaft *n*, projection *w*, and vibrating breech-block, substantially as herein shown and described.

191,721.



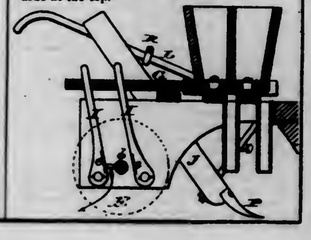
191,722. CHIMNEY-DRAFT REGULATORS. Wm. H. Sears, New Haven, Conn. [Filed Jan. 17, 1876.]



In combination with the smoke-pipe of a heating apparatus, a vertically-inclined check-door arranged in the chimney directly beneath the smoke-pipe, and opening a regulated passage directly into the chimney in the same direction as the smoke enters, all substantially as described.

191,723. CORN-DROPPERS. J. P. Simmons, Cold Spring, Tenn., assignor of one-third his right to J. H. Acuff, same place. [Filed Apr. 21, 1877.]

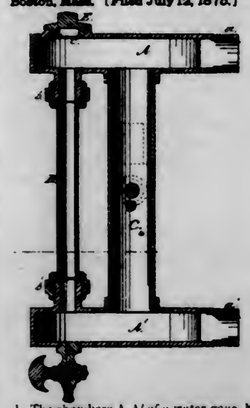
Brief.—Pivoted to one end of the frame are two vertical standards, that pass up through the rear end of the seed-slide, between which revolves the axle of the bearing-wheel, provided with a finger, that strikes, in its revolution, alternately one of the two standards for vibrating the seed-slide. The handles are supported by passing through the plow-standards at the top.



1. The combination of the covering-wheel E, secured on the shaft *b*, the lug or flange *d* on said shaft, the levers I I, pivoted one on each side below the shaft, and the longitudinally-reciprocating slide G, substantially as and for the purpose described.

2. The combination of the marker-shovels P P, standards J J, the handles L L, passing through the upper ends of the standards, and the connecting-rod R, substantially as and for the purpose described.

191,724. WATER-GAGES. Chas. D. Smith, Boston, Mass. [Filed July 12, 1876.]

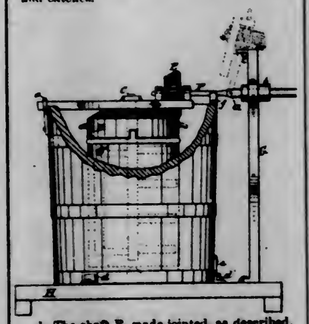


1. The chambers A A' of a water-gage, having connections *a a'* of greater area than the indicating-tube B, substantially as shown, and for the purpose set forth.

2. The combination, with a water-gage, of the chambers A A', having connections *a a'* of greater area than the indicating-tube B, connecting-pipe C, opening *c*, and plug E, as and for the purpose described.

191,725. ICE-CREAM FREEZERS. J. Solter, Baltimore, Md., assignor to J. W. Condon. [Filed Apr. 17, 1877.]

Brief.—The horizontal driving-shaft is jointed, and has its bearing in an outside frame, so that the inner portion with its bevel-wheel and the top plate of the freezer may be lifted from the tub. The tub is held in place by lugs and catches.



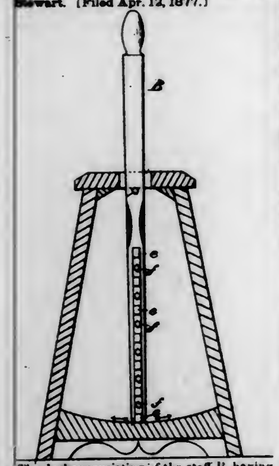
1. The shaft F, made jointed, as described, and having its outer extension arranged in a stationary bearing and its inner section combined with the removable top portion of an ice-cream freezer, substantially as and for the purpose described.

2. The frame G, provided with a seat, *q*, combined with the jointed shaft, and arranged to support the removable top portion of the freezer, substantially as described.

3. The frame G, having a single elongated bearing, *h*, combined with the jointed shaft F, for the purpose described.

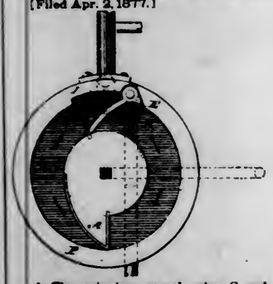
4. The tub, having open bearing *f* and catch *q*, in combination with the driving-shaft and the lugs *d d'*, one of which is notched for the reception of the catch, to prevent the turning of the tub, substantially as described.

191,726. RECIPROCATING CHURNS. Henry C. Sperry, Sheldon, Iowa, assignor to C. P. Butterfield, W. C. Butterfield, and C. S. Stewart. [Filed Apr. 12, 1877.]



The dasher consisting of the staff B, having two alternating series of paddles, *c e f f*, one rectangular and the other diamond-shape, disposed one above and edgewise with the other, substantially as and for the purpose set forth.

191,727. ROTARY PUMPS. Thos. B. Swan, Minot, and E. F. Edgecomb, Poland, Me.; said Edgecomb assignor to said Swan. [Filed Apr. 2, 1877.]



1. The swinging curved valve C and its catch E, adapted to be used in a rotary pump, substantially as specified.

2. The combination, with a revolving paddle, of the swinging curved valve C and its catch E, substantially as specified.

3. In a rotary pump, the combination, with a swinging valve and catch, of an angular curved paddle, A, substantially as specified.

4. The combination, with the barrel P, slotted at I, of the swinging curved valve and its catch, and the rotating cylinder, having the curved angular paddle A, substantially as specified.

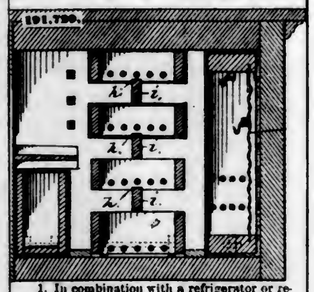
191,728. PROCESSES FOR REDUCING NICKEL ORE. William B. Tatro, Hartford, Conn. [Filed Aug. 31, 1876.]

1. The process of reducing nickel ore, which consists of melting the ore in contact with a flux consisting of floor-spar, lime, saltpeter, potash, and common salt, in about the proportions specified, and removing the foreign matters in a molten state, substantially as set forth.

2. The process of reducing nickel matte, consisting in melting the matte in contact with floor-spar, lime, saltpeter, common salt, and potash, and removing the foreign matter in a melted state, substantially as set forth.

191,729. REFRIGERATORS. Leander Thompson and Benj. B. Parkhurst, New York, N. Y., assignors of one-third their right to Fisher M. Clarke, same place. [Filed Mar. 14, 1877.]

191,729.



1. In combination with a refrigerator or refrigerating-chamber, a sliding provision stall or cupboard open at both sides, whereby the cool air from the single ice-compartment is permitted to pass across and around the stall, substantially as shown and described.

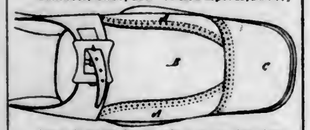
2. In combination with the lower part of a refrigerator or refrigerating-chamber, the water-tight tub or tubs for containing salt meats, &c., the same being provided with one or more rollers at rear end, running on the lower part of the refrigerator, and a roller at the front end resting on the floor of the room, as and for the purpose set forth.

3. In combination with the sliding drawers and their rubber or flexible packing applied to the same near their outer ends, as described, the latches or fastenings operating in the act of fastening to compress such flexible material and tighten the joint, substantially as shown and described.

4. In combination with the sliding drawers, rubber packing, placed around one or more partitions in the drawer, whereby the warm air from the outside is admitted to only one section or compartment of the drawer at a time, or to all, if desired.

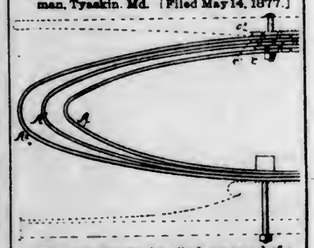
5. In combination with a refrigerator-drawer provided with a groove, *h*, located at about the center of its rear wall, the rib or rail *i*, serving to support the drawer and guide it in its movements, and also permitting the cooled air to have free access to the perforated or open bottom of the drawer, as shown and described.

191,730. MANUFACTURE OF SHOES. James Tibbetts, Saco, Me. [Filed Apr. 11, 1877.]



As an improved manufacture, a shoe having its vamp composed of an instep and two side pieces, A B A, and a box-toe or toe-piece, C, formed and arranged in manner and with the quarters, substantially as set forth.

191,731. ELLIPTIC SPRINGS. Noah J. Tilghman, Tyaskin, Md. [Filed May 14, 1877.]

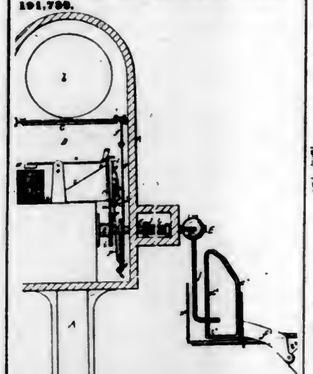


The spring herein described, composed of a series of concentric elliptical plates, A A' A², formed each of a single piece of metal, bent as described, and having their free ends united in the center, and separated by lap-joint plates *a' a²*, substantially as described, and for the purpose set forth.

191,732. ELECTRIC RAILROAD-SIGNALS. J. P. Tirrell, Somerville, Mass. [Filed May 18, 1876.]

Brief.—Locomotive in passing signal mechanically sets signal, at the same time closing one break in the circuit of the electro-magnet whose armature controls releasing-detent, and at next signal closes the second break in the circuit of the unsetting-magnet, thus restoring signal previously passed to "safety."

191,732.

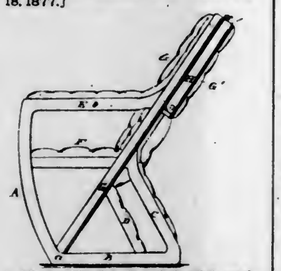


1. Mechanism, substantially such as herein described, for setting and unsetting railroad danger-signals, in combination with an electro-magnet G, its armature H, switch *q*, and spring-fingers *s*, *t*, and *u*, connected with electric wires, substantially as herein described, whereby the setting of one signal secures the unset of a previously-set signal by the then release and action of the setting mechanism to such signal through the then attraction of an electro-magnet, all substantially as herein described.

2. The combination, with the danger-signal C, of the crank-arm *f*, the rod *g*, the shaft E, having a crank, *h*, connected with the rod *g*, the spring *l* around said shaft, and the lever-arm J on the outer end of the same, and with an electro-magnet, armature-fingers *s*, *t*, and *u*, and electric wires at each post A, as and for the object set forth.

3. The combination, with the frame *c²*, composed of two hinged parts, *f² g²*, of the incline *d²*, as and for the purpose set forth.

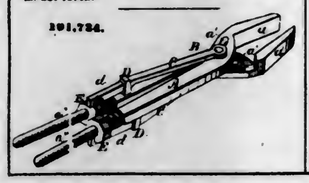
191,733. CONVERTIBLE CHAIRS. James P. True, Poncha Springs, Colo. [Filed Apr. 18, 1877.]



1. The combination, in a chair, of the rockers A, forming at one end, *a*, legs of the easy-chair, the seats D and F, and back G, common to both chairs, substantially as set forth.

2. In combination with the back G, arms C and E, rockers A, and adjustable head-rest, the extension G', and legs H, substantially as set forth.

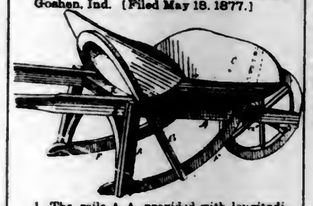
191,734.



191,734. BLACKSMITH'S TONGS. Joseph Van Matre, Cadiz, Ind. [Filed Oct. 6, 1876.]

The means employed for adjusting the rivet B lengthwise of the openings *a'* and *a²*, consisting of the nuts E and E, fitted upon the threaded portions *a'''* and *a''''* of the handles *a''* and *a³*, and the bars C and C, pivoted at their front ends upon said bolt, and at their rear ends caused to loosely embrace the ends of said nuts, said parts being combined in the manner and for the purpose substantially as shown.

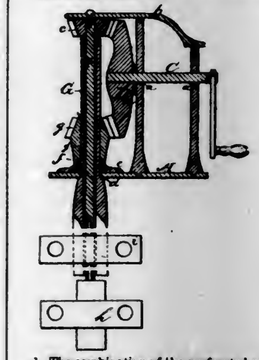
191,735. WHEELBARROWS. E. W. Walker, Goshen, Ind. [Filed May 18, 1877.]



1. The rails A A, provided with longitudinal grooves *a a*, in combination with the floor D and metal rods E, substantially as and for the purpose set forth.

2. The rails A A and legs B B, in combination with the curved supports F F and bow-support G, all constructed to operate substantially as and for the purpose set forth.

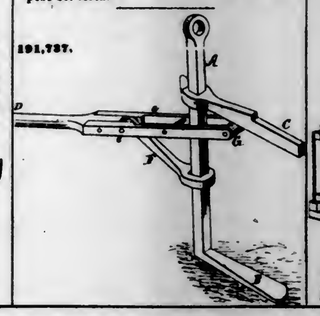
191,736. ROTARY CHURNS. Jas. G. Wallace, Rioville, Tenn., assignor of one-half his right to Edward M. Newton, same place. [Filed May 16, 1877.]



1. The combination of the perforated covering-board A, ring *e* having flange *f*, shaft G, and pinion *g* having sleeve or flange *g'*, substantially as and for the purpose shown and specified.

2. The improved churn-dasher herein described, consisting essentially of the tubular forked shaft G having dasher-blade *i*, shaft F having dasher-blade A, ring *e* having flange *f*, pinion *g* having flange *g'*, pinion *s*, and cog-wheel D, all combined, arranged, and operating substantially as described, for the purpose set forth.

191,737.

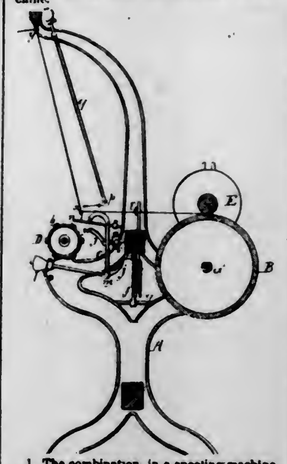


191,737. LIFTING-JACKS. James Weathers, Greensburg, Ind. [Filed May 3, 1877.]

The combination of the standard A, having foot B, the arm C with its opening, the lever D, having jaws *e e*, and bar or roller G on its end, and the bar or bars pivoted to the lever and connected to the standard, all constructed substantially as set forth.

191,738. STOP-MOTIONS FOR SPOOLING-MACHINES. James Wild, Clifton Heights, assignor of one-half his right to E. Hey, Philadelphia, Pa. [Filed Nov. 6, 1876.]

Brief.—The threads pass through a series of eyes variously located. Should a thread break at any point between the bobbin and spool, its eyed finger will fall, and its end lie in the path of the ribbed cylinder. This movement of the finger and cylinder, through the intervening mechanism, consisting of levers, connecting-rods, weighted arms, &c., causes the release of the driving-pulley from the disk on the driving-shaft, and thus stops the machine.



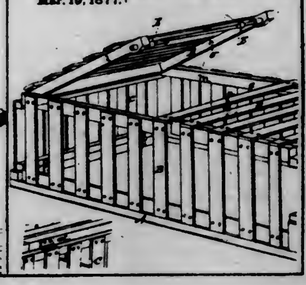
1. The combination, in a spooling-machine, of the ribbed cylinder D or equivalent device, as described, with the arm or arms G, the fingers *n*, and devices, substantially as described, whereby the movement of said arm or arms G is caused to throw the machine out of gear, as set forth.

2. The combination of the ribbed cylinder D, the shaft *m*, its fingers *j*, and arms G having fingers *n*, with the operating-rod *f* having spring *h*, and spring-arm *i* arranged to abut against a lug, *i'*, on the frame, as set forth.

3. The combination of the ribbed cylinder D, the arms G, and their fingers *n*, with the levers J and their rod *w*, and a device substantially as described, for operating said levers, as set forth.

4. The combination of the ribbed cylinder D, the arms G and their fingers *n*, the levers J and their finger-supporting rod *w*, the operating-lever F and the cam-plate *x*, all substantially as described.

191,739. FRUIT-CRATES. George Willard, Chicago, Ill., assignor of one-half his right to O. P. Abercrombie, same place. [Filed Mar. 19, 1877.]



A poultry, egg, or fruit carrier, consisting of the solid bottom A, hinged sides B, hinged ends C, and hinged top pieces D D', having strips l adapted to fold within and lie against the inner sides of the strips m, and provided also with spring-stop E, metal clamps i, and hooks or other fastenings for securing the top pieces together, the several parts constructed and arranged as herein shown and described.

191,740. MILLSTONE-DRESS. Robert S. Williams, Milwaukee, Wis., assignor of one-half his right to Jas. B. Marton, same place. [Filed Apr. 16, 1877.]

Brief.—Unites the two sets of bosom and skirt furrows by the peculiar connection shown, to prevent clogging at the intersection of the radial and tangential furrow.



A millstone-dress, consisting of the tangential furrows A, with the furrows B leading therefrom, upon the bosom of the stone, and both connecting, in the manner described, with the furrows *f* and F upon the skirt, the whole being constructed and arranged as shown, and for the purpose set forth.

191,741. BAG-HOLDERS. Enoch Woods, Englewood, Ill. [Filed Mar. 24, 1877.]



A bag-holder which consists of a strip of thin sheet metal, C, provided on its periphery with a series of projections, D, and reduced serrated ends S S, combined with the lower end of hopper A, so that the serrated ends project outward to admit a bag or sack to be placed above projections D and fastened to the serrated ends S S, as and for the purpose set forth.

191,742. HARVESTER-RAKES. Robert D. Warner, Syracuse, N. Y., assignor to C. C. Bradley, same place. [Filed May 24, 1876.]

1. The ratchet-wheel I, provided with lift-teeth *a a*, in combination with the weight-lever K, the link-piece M, angle-arm N, and the outlet-gate F, for the purpose specified.

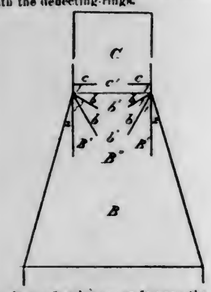
2. The link-piece M, provided with a hole, *f*, in combination with the weight-lever K, provided with the hole *s*, so arranged that when the holes are made to coincide, and a pin passed through both, the free extremity of the lever K will be out of contact with the lift-teeth *a a*, to the end that all the arms may rake.

3. The weight-lever K, provided with the pin *c*, in combination with a link-piece, M, provided with a right-angular slot, R, for the purposes specified.

4. The combination of the balance-weight P, controlled by a cord or chain, the slotted link Q, and the link-piece M, provided with the pin *d*, for the purposes specified.

191,744. REFUSE-BURNERS. William Glue, Muskegon, Mich. [Filed Apr. 30, 1877.]

Brief.—Unburned material carried up by the draft is thrown back into the fire directly beneath the deflecting-rings.



1. In a refuse burner or furnace, the combination of the ring-plate *c*, having opening *c'*, the exit-pipe C and conical section B, as and for the purposes described.

2. In a refuse-burner or furnace, the combination of the inverted conical ring *b*, having opening *b'*, with the conical section B, as and for the purposes described.

3. The downward-projecting cylinder B', in combination with the conical section B, as and for the purposes described.

4. In a refuse-burner or furnace such as above described, the combination of an annular ring, *c*, having opening *c'*, and inverted conical ring or rings *b*, having opening or openings *b'*, as and for the purpose described.

5. In a refuse-burner or furnace such as above described, the combination of an annular ring, *c*, having opening *c'*, inverted conical ring or rings, *b*, having opening or openings, *b'*, and downwardly-projecting cylinder, B', as and for the purposes described.

REISSUES.

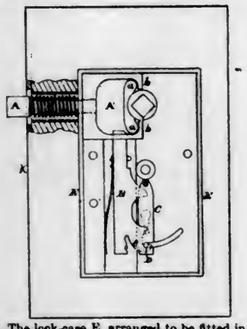
7,719. ROPE-SOCKETS FOR OIL-WELLS. Henry Babcock, Pittsburg, Pa. Patent No. 133,290, dated Nov. 26, 1872. [Filed Mar. 29, 1877.]



1. The herein-described cylindrical socket A for connecting the rope with the drilling-tools employed in oil-wells, the same having its upper end formed with a diameter, and with a bore through which the rope passes, commencing at the upper terminus of the conical bore of the rope-socket, substantially as shown and set forth.

2. In a socket for connecting the rope with the drilling-tools employed in oil-wells, the combination of the cylinder A, tapering sleeve *c*, and screw D, with the wrapped end of the rope, substantially as herein described, and for the purpose set forth.

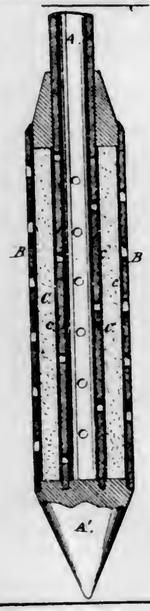
7,720. KEY-HOLE GUARDS FOR LOCKS. Calvin H. Covell, Stockton, Cal. Patent No. 185,502, dated Dec. 19, 1876. [Filed Mar. 29, 1877.]



1. The lock-case E, arranged to be fitted in a corresponding-shaped recess in the side of the door-stile, which recess is made at a distance from the outside edge of the stile, in combination with the enlarged face-plate E', which is arranged to overlap the edges of the case and be secured by screws, which enter the wood opposite the full thickness of the stile, substantially as and for the purpose described.

2. The combination of the locking-bolt B, having the hook-shaped extension *c*, with the operating-pin D of the key hole guard-plate, to retain the guard-plate in position to close the key-hole, substantially as specified.

7,721.

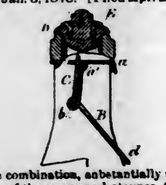


7,721. TUBE-WELLS. T. J. Dean, St. Louis, Mo., assignor to L. M. Rumsey and Moses Rumsey. Patent No. 71,144, dated Nov. 19, 1867. [Filed May 2, 1877.]

1. A tube-well, its lower section consisting of two concentric perforated tubes, one wire-gauze tube surrounding the interior perforated tube, and another lining the exterior perforated tube, a body of filtering material being placed between the two tubes of gauze, substantially as shown and described.

2. In combination with the perforated end of a driven well-tube, a filtering device and a perforated casing, surrounding both the perforated end of the well-tube and the filtering device, for the purpose specified.

7,722. BOTTLE-STOPPERS. Charles De Quillfeldt, New York, N. Y., assignor to Karl Hutter, same place. Patent No. 158,406, dated Jan. 5, 1875. [Filed Apr. 24, 1877.]



1. The combination, substantially as before set forth, of the compound stopper, the yoke, the lever, and the supporting device on the bottle, by means of three pivotal connections, upon which the said members can be turned relatively to each other without disconnecting either one from the other.

2. The combination, substantially as before set forth, of the compound stopper, the lever, and the yoke, by means of two pivotal connections, upon which the said three members can be turned relatively to each other without disconnection, and the pivotal connection of the lever to the bottle, substantially as set forth.

3. In combination with a bottle, the flexible elastic stopper-disk, whose lower surface is larger than the opening in the mouth of the bottle, and which is provided with an upwardly-projecting stem or shank, substantially as before set forth.

4. The combination of a perforated rigid cap-piece, with the flexible elastic stopper-disk, whose lower surface is larger than the opening in the mouth of the bottle, and which is constructed with a stem of reduced diameter, said stem being passed into the perforation of the cap-piece, substantially as before set forth.

5. The combination of the perforated rigid cap-piece and the flexible elastic stopper-disk, constructed with a laterally-perforated stem, through which a wire is passed above said cap-piece to confine said cap-piece to said disk, substantially as specified.

6. The combination, substantially as before set forth, of the flexible elastic stopper disk, constructed with a perforated stem, the perforated cap-piece, and the yoke, which is passed transversely through the said stem for the purpose of preventing the withdrawal thereof from the cap-piece.

7. The combination, substantially as before set forth, of the yoke and the lever, which are directly connected one with the other by a pivotal connection, the lever being constructed with end pivots to enable it to be connected pivotally with the supporting device on the bottle.

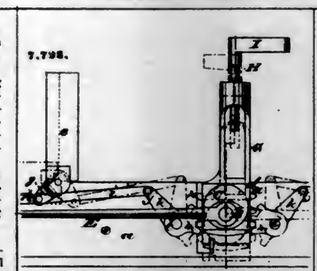
8. The eccentric lever B, made with two pivotal connections, the one joining it to the bottle, the other to the pivoted stopple, so that by vibrating said lever on its connection with the bottle it will carry the stopple toward or away from said bottle, substantially as specified.

9. The combination of the pivoted bottle-stopper with the yoke C, neck-ring *a*, and eccentric lever B, the said yoke and eccentric lever being pivoted together and arranged so that the stopper is forced into the bottle by swinging the handle part of the lever against the side of the bottle, substantially as herein shown and described.

7,723. MACHINES FOR PRESSING AND BUNCHING SHINGLES. Parker Dexter, Clinton, Iowa, assignor to Charles S. Burt and Silas Burt. Patent No. 53,036, dated Mar. 31, 1863. [Filed Aug. 22, 1876.]

Brief.—The bunch of shingles is simultaneously compressed both from above and below by the operation of a single lever.

7,726.



1. In a shingle-bunching machine, the vertically adjustable bars G, or equivalents, provided at their upper ends with hooks or arms projecting over the upper side of the bunch, in combination with mechanism whereby the bars and hooks may be drawn down to compress the bunch from above, substantially as described.

2. In a shingle bunching machine, the vertically-sliding plates F, or equivalents, extending underneath the bunch, in combination with mechanism whereby the plates may be forced upward to compress the bunch from below, substantially as described.

3. The combination of the adjustable bars G, provided with hooks or arms at their upper ends, sliding plates F, and mechanism, substantially as described, whereby, by the movement of a single lever, the bars and plates may be adjusted vertically, so as to compress the bunch of shingles simultaneously both at the top and bottom, substantially as set forth.

4. The combination of the sliding bars G, having hooks or arms I at their upper ends, shaft B, and eccentric cams C, substantially as and for the purpose set forth.

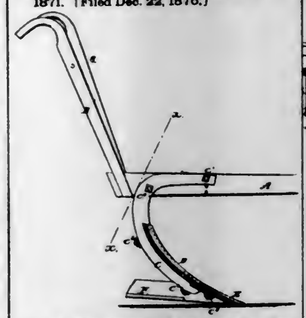
5. The combination of the shaft B, cams D, and sliding plates F, substantially as and for the purpose set forth.

6. The combination of the shaft B, eccentric cams C and D, lever E, sliding plates F, and sliding bars G, having projecting arms at their upper ends, substantially as and for the purpose set forth.

7. The combination of the sliding bars G and swinging adjustable arms I, substantially as described.

8. The combination of the sliding bars G and pivoted swinging end boards J, constructed and operating substantially as set forth.

7,724. PLOWS. Elias Haiman, Columbus, Ga. Patent No. 111,055, dated Jan. 17, 1871. [Filed Dec. 22, 1876.]



1. In combination with the beam A, the double adjustable standard C, with the point E, mold-board D, and land-side F arranged thereon, all substantially as shown and described.

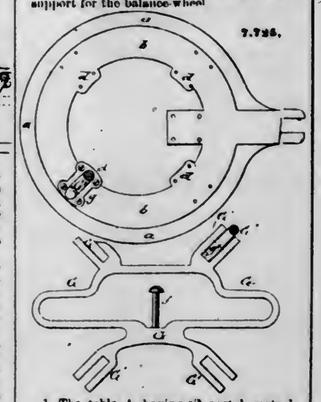
2. The combination of the curved double adjustable standard C and beam A, the standard being pivoted to the beam at c^2 and having its upper portions extended along the beam, all substantially as and for the purpose specified.

3. The arrangement of the plow-point E, mold-board D, land-side F, standard C, and bolts c^2, c^4, c^5, and c^6, as and for the purpose specified.

7,725. SCROLL-SAWING MACHINES. Jerome H. Plummer, Brooklyn, N. Y. Patent No. 168,920, dated Oct. 19, 1875. [Filed Apr. 16, 1877.]

Brief.—The table is provided with a raised strengthening or rib part at its under side, to which the top plates of the supporting-legs are attached. The legs are connected by a horizontal frame, which is extended to form a support for the balance-wheel.

7,725.

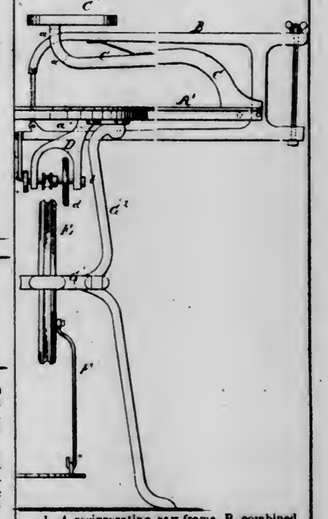


1. The table A, having rib part *b*, seats *d*, and supporting-legs G^2, the latter having lugs and flanged heads, in combination with the connecting-frame having forked socket-arms G^1, as and for the purpose specified.

2. The leg-connecting frame G, having forked socket-arms for legs, curved diametrical extensions, and fixed lateral shafts for balance-wheel, substantially as set forth.

7,726. SCROLL-SAWING MACHINES. Jerome H. Plummer, Brooklyn, N. Y. Patent No. 168,920, dated Oct. 19, 1875. [Filed Apr. 16, 1877.]

Brief.—The rear table-extension, to which the saw-frame is pivoted, is provided with a curved arm, which supports a shelf for the oilers and wrench, and also with slotted arms, which form a guide above and below the table.

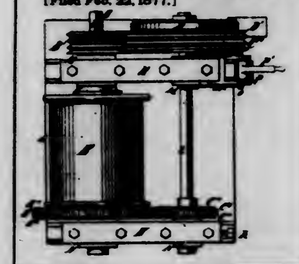


1. A reciprocating saw-frame, B, combined with and pivoted to a table-extension, A', whose slotted arms C D form a guide thereto above and below the table, as and for the purpose set forth.

2. A rear table-extention, A', provided with a curved arm, C, supporting a shelf, C', as and for the purpose specified.

EXPIRED PATENTS.

7,727. HOISTING-MACHINES. George H. Reynolds, New York, N. Y., assignor to himself and C. H. Delamater, same place. Patent No. 81,269, dated Aug. 18, 1868. [Filed Feb. 22, 1877.]



1. The combination, with the driving-shaft and drum of a hoisting-machine, of a jack-shaft interposed between the driving-shaft and drum, and geared with the driving-shaft by V-shaped friction-gearing, and means of moving the said jack-shaft into gear with and out of gear from the jack-shaft, substantially as and for the purposes herein set forth.

2. The combination, with a hoisting-machine in which the drum is driven by a jack-shaft interposed between it and the driving-shaft, of a brake-wheel placed upon the jack-shaft, substantially as and for the purpose herein set forth.

3. In combination with the V-shaped friction gear-wheels B' C', applied to a hoisting-machine, one of the said gear-wheels fitted to its shaft with a feather, by which it is rendered self-adjusting to the other of said wheels, substantially as herein set forth.

4. In combination with the shaft C and friction-wheels B' C', the movable box M', links n^1, and eccentric pins O, mounted relatively to the shaft P and handle p, so that the pins o shall come nearly on their dead-points when the friction-wheels B' C' are properly connected, as and for the purposes herein set forth.

5. The combination, with the cog-wheels C^1 and E^1, by which the jack-shaft and drum of the hoisting-machine are geared directly together, of the bearing-rims C^4 and E^4, the peripheries of which are on the pitch-lines of said wheels, substantially as and for the purpose herein set forth.

6. The combination, with the drum E, surrounding but not touching the driving-shaft, of the journal-boxes M N, each containing a larger bearing for one of the gudgeons E^1 of the drum, and a smaller bearing for the driving-shaft, substantially as herein described.

7. The binders H h^1 h^2, constructed and arranged to serve relatively to the shafts B C and their several connections, so as to support the frame A and aid in preventing any spring or displacement of the parts under the strains and vibrations to which they are subjected, as herein set forth.

NATIONAL LITHOGRAPHING CO. WASHINGTON, D.C.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 67.—No. 11. TUESDAY, JUNE 12, 1894. PRICE—$5 per year.

CONTENTS.

	Page.
ORDER IN RELATION TO DRAWINGS	1335
INDEXES TO PERIODICALS	1335
WITHDRAWAL OF CASES FROM ISSUE	1335
NOTICE	1336
PRINTS	1336
ISSUE OF JUNE 12, 1894	1336
APPLICATIONS UNDER EXAMINATION	1336
PATENTS GRANTED	1337
REISSUES	None.
DESIGNS	1439
TRADE-MARKS	1443
LABELS	None.
COMMISSIONER'S DECISIONS—	
Ex parte Grove	1447
DECISIONS OF THE U. S. COURTS—	
Social Register Association *v.* Howard	1448
The Knickerbocker Company *v.* Rogers *et al.*	1448
Stirrat *et al.* *v.* Excelsior Manufacturing Company	1450

Order in Relation to Drawings.

NOTICE.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 25, 1894.

Order No. 980, respecting the alteration of drawings, was published in the OFFICIAL GAZETTE of December 19, 1893, (65 O. G., 1771,) by mistake, and was never in force. The following is the only order in force upon that subject:

(ORDER No. 986.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 25, 1894.

Erasures or other alterations of drawings will not be made or permitted, except in compliance with this order.

Applicants are requested to furnish, with their originals, a blue print or other photographic copy of all drawings forming part of an application, and where this is done, the original drawings may be taken to the Attorneys' room, but not otherwise.

Before making a requirement to alter an original drawing the Examiner will formally make the blue print or other copy a part of the files, and in case no such copy has been furnished by the applicant, the Office will make such copy without charge, and thereupon the required alteration may be made by the applicant, under the direction of the Examiner and subject to his approval, or, upon request, it will be made by the Office at the expense of the applicant.

The requirement to make alterations in original drawings will be made in writing, and the applicant's response must also be in writing, and in such case the copy of the drawing, the requirement to alter, and the applicant's response will form part of the record.

Action by the Office on the merits will not be suspended pending the change of a drawing, if the invention claimed may be understood by the Examiner.

For the purposes of this order the Office, upon the request of applicants, will make blue prints at the charge of five cents a sheet.

In appeal cases and upon the declaration of an interference a blue print or other copy will be sent forward with the files, the Examiner retaining the original drawings in his room until the hearing.

Except as herein required such blue print or other copy will not be made a part of the file, and may not be preserved after an application passes into a patent.

JOHN S. SEYMOUR,
Commissioner.

PHOTOGRAPHIC COPIES OF DRAWINGS.

A photographic outfit has been added to the equipment of the Patent Office, and positive photographic copies of any drawing, foreign or domestic, in the possession of the Office, will be furnished upon application to parties entitled thereto, at the following rates:

Size 10x15 inches. ..... 25 cents per sheet.
Size 7x11 inches. ..... 15 cents per sheet.
Size 5x8 inches. ..... 5 cents per sheet.

If a copy of the drawings in a pending application of the size 5x8 inches be ordered sent to any address, two copies must be ordered, as one copy is always retained by the Office and placed in the file for the purposes specified in the above Order No. 986, of January 25, 1894.

Coupons will be received in payment of the above fees.

Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading room of the scientific library:

Engineering Review, London, a monthly synoptical index of periodical literature in the English, French, and German languages, including hydraulic, railway, mechanical, electrical, mining, metallurgical, marine, military, and gas engineering.

Electrical Engineering, Chicago, a monthly synoptical index of electrical literature.

Electrical World, New York, a weekly digest of electrical articles.

Journal of the Association of Engineering Societies, Chicago, a monthly synoptical index of civil-engineering literature, mostly American.

Engineering Magazine, New York, a monthly title-index of engineering articles in the English language only.

Withdrawal of Cases from Issue.

Hereafter all amendments proposed to allowed applications which involve a withdrawal from issue, and all petitions and requests relating thereto, shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action.

Notice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 16, 1894.

The Examiners are hereby directed to withhold from issue the application of the prevailing party in interference cases for thirty days from the date of the final decision, in order that an appeal may be taken to the Circuit Court of Appeals for the District of Columbia, if desired.

JOHN S. SEYMOUR,
Commissioner.

PRINTS.

3.—Title: "DR. KILMER SWAMP-ROOT."—*J. Ottomann Lithographing Company*, New York, N. Y. Application filed May 7, 1894.

Issue of June 12, 1894.

Patents	301—No. 521,147 to No. 521,447, inclusive.
Designs	26—No. 23,341 to No. 23,366, inclusive.
Trade-Marks	45—No. 24,837 to No. 24,881, inclusive.
Labels	None.
Print	1—No. 3
Reissue	None.
Total issue	373

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	2	.....	Nevada	.....	.....
Arizona Territory	.....	.....	New Hampshire	3	.....
Arkansas	.....	.....	New Jersey	18	1
California	7	.....	New York	59	11
Colorado	4	.....	North Carolina	2	.....
Connecticut	17	.....	North Dakota	1	.....
Delaware	1	.....	Ohio	17	4
District of Columbia	1	1	Oklahoma Ter.	1	.....
Florida	1	.....	Oregon	2	.....
Georgia	6	1	Pennsylvania	27	5
Idaho	.....	.....	Rhode Island	2	1
Illinois	20	2	South Carolina	.....	.....
Indiana	7	3	South Dakota	.....	.....
Indian Territory	.....	.....	Tennessee	1	.....
Iowa	3	1	Texas	7	.....
Kansas	1	.....	Utah Territory	1	.....
Kentucky	6	.....	Vermont	4	.....
Louisiana	.....	2	Virginia	4	1
Maine	3	1	Washington	1	.....
Maryland	3	2	West Virginia	1	.....
Massachusetts	24	4	Wisconsin	5	.....
Michigan	12	.....	Wyoming	.....	.....
Minnesota	5	1	U. S. Army	1	.....
Mississippi	.....	.....	U. S. Navy	1	.....
Missouri	7	1			
Montana	.....	.....	Total to citizens of the United States	289	42
Nebraska	1	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	.....	.....	Italy	.....	.....
Austria-Hungary	1	.....	Mexico	1	.....
Belgium	.....	.....	Netherlands	.....	.....
Bermuda	.....	.....	New South Wales	.....	.....
Brazil	.....	.....	New Zealand	.....	.....
Canada	5	.....	Norway	.....	.....
Chile, Republic of	.....	.....	Queensland	.....	.....
Colombia	.....	.....	Russia	.....	.....
Cuba	.....	.....	Scotland	2	.....
Denmark	.....	.....	South Australia	.....	.....
Ecuador	.....	.....	Spain	.....	.....
England	16	.....	Sweden	1	.....
France	4	.....	Switzerland	.....	1
Germany	8	2	Victoria	.....	.....
Hawaii	.....	.....			
India	.....	.....	Total to citizens of foreign countries	38	3
Ireland	.....	.....			

APPLICATIONS UNDER EXAMINATION.

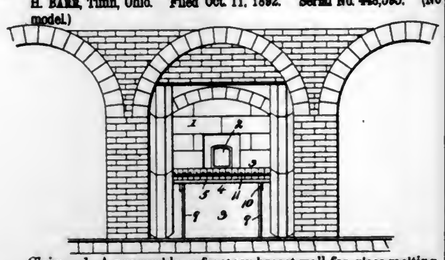
Condition at Close of Business June 5, 1894.

Division No.	Subjects of invention.	Oldest new application awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
32	Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 7	May 31	112
2	Farm Stock, Products, etc	May 5	May 28	104
31	Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	May 7	May 25	73
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	May 5	May 18	99
16	Telegraphy, Telephony, Electric Lighting and Signaling.	May 5	May 15	93
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	May 7	May 10	174
	Between one and two months.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather Working Machinery.	Apr. 7	June 2	276
13	Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Apr. 5	May 31	207
4	Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Apr. 18	May 28	191
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Apr. 17	May 28	159
18	Steam-Engineering, etc	Apr. 6	May 28	196
8	Furniture, Beds, Store Furniture, etc.	Apr. 6	May 28	258
12	Mechanical Engineering, Stores-Service, etc.	Apr. 13	May 25	213
7	Harvesters, Games and Toys, and Velocipedes.	May 1	May 24	239
3	Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Apr. 14	May 24	143
21	Textiles, etc.	Apr. 6	May 24	152
19	Stoves and Furnaces	Apr. 27	May 21	236
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Apr. 9	May 21	274
17	Paper-Manufactures and Printing.	Apr. 17	May 19	144
26	Electricity, Generation, Distribution, Motive Power, etc.	Apr. 5	May 7	164
	Between two and three months.			
23	Instruments of Precision, Acoustics, etc.	Mar. 12	May 26	304
10	Carriages and Wagons	Mar. 16	May 25	240
24	Sewing-Machines, Crinoline and Corsets, Apparel, and Toilet.	Mar. 9	May 25	164
1	Tillage and Fences	Apr. 3	May 22	263
6	Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Mar. 23	May 15	253
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Mar. 5	May 12	250
22	Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Mar. 30	May 10	165
34	Railway-Cars and Fluid-Pressure Railway-Brakes.	Mar. 6	May 8	352
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Mar. 5	Apr. 30	328
30	Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, Optics, Electric Railways.	Mar. 10	Apr. 21	339
	Between three and four months.			
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Feb. 28	May 28	252
20	Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Feb. 26	May 26	315
9	Hydraulics, Fire-Extinguishers, etc.	Feb. 17	Apr. 26	538
	Total number of applications awaiting action			7,270
	Under one month in arrears.			
	Designs	May 28	May 28	62
	Trade-Marks	May 31	May 31	19

PATENTS

GRANTED JUNE 12, 1894.

521,147. BREAST-WALL FOR GLASS-FURNACES. WILLIAM H. BARR, Tiffin, Ohio. Filed Oct. 11, 1892. Serial No. 448,595. (No model.)



Claim.—1. A removable, refractory breast wall for glass-melting furnaces, substantially as specified.

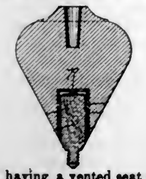
2. A refractory breast wall for glass melting furnaces, and means for adjusting the same to alter the inclination of its surface, substantially as specified.

3. A breast wall for glass melting furnaces having a supporting frame, and removable refractory blocks arranged thereon and forming the surface thereof, substantially as specified.

4. A breast wall for glass melting furnaces having a supporting frame, refractory blocks carried thereby, and rests or supports of which those at the front of the frame are adjustable, whereby the inclination of the frame may be varied, substantially as specified.

5. A breast wall for glass melting furnaces having a frame consisting of a rim connected by intersecting longitudinal and transverse bars adapted to support blocks having refractory surfaces, substantially as specified.

521,148. TOP. JOHN U. BARR, Jr., Penn, Allegheny County, assignor of one-fourth to James I. Kay, Robert D. Totten, and James N. Cooke, all of Pittsburg, Pa. Filed Apr. 2, 1894. Serial No. 506,028. (No model.)



Claim.—1. A top having a vented seat therein extending from the peg-end upwardly into the body-portion, a removable peg entering said seat from the peg-end and vertically movable therein, and means for releasably locking said peg in the seat; substantially as described.

2. A top having a vented seat therein, and a vertically movable peg held within said seat by a bayonet joint, substantially as and for the purposes set forth.

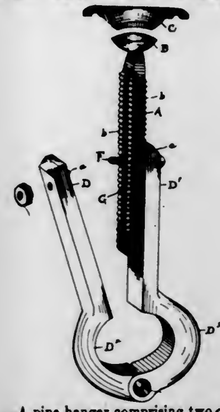
3. A top having a vented seat therein, a thimble in said seat, a vertically movable peg with said thimble and engaging therewith by means of a bayonet joint, substantially as and for the purposes set forth.

4. A top having a vented seat therein, a thimble in said seat, a peg fitting within said thimble and engaging therewith by a bayonet joint, the lugs on said peg being of less thickness than the height of the recesses in said thimble with which said lugs engage, substantially as and for the purposes set forth.

5. A top having a seat formed therein, a peg vertically movable therein, said peg having grooves formed therein to vent said seat, substantially as and for the purposes set forth.

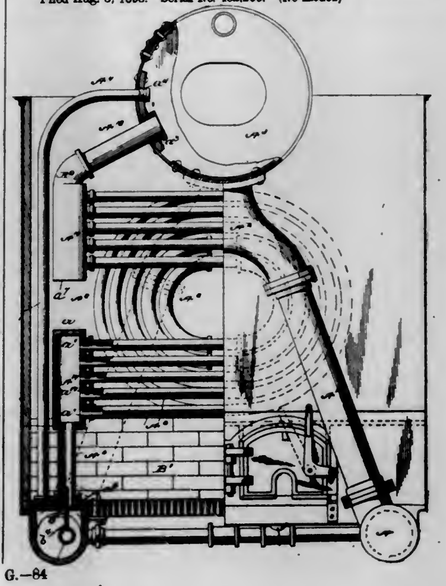
6. A top having a seat formed therein, a peg vertically movable therein, said peg having spiral grooves formed therein to vent said seat, substantially as and for the purposes set forth.

521,149. PIPE-HANGER. RANDOLPH BOYD, Galva, Ill. Filed Feb. 15, 1894. Serial No. 500,216. (No model.)



Claim.—A pipe hanger comprising two clamping arms D D′ having their lower extremities curved and hinged together to form an inclosure for a pipe, the upper extremities of said arms D D′ inclosing a notched hanger bar having a longitudinal slot G, the said extremities engaging the notches of the said bar by means of the lips *a a* on the inner sides thereof, and a bolt F passing through the said extremities and the said slotted hanger bar for clamping the parts together substantially as set forth.

521,150. TUBULAR BOILER. JOHN J. BROWN, Baltimore, Md. Filed Aug. 3, 1893. Serial No. 482,260. (No model.)



Claim.—1. In a boiler or steam generator the combination with the steam drum and the base of the boiler of a series of headers divided into two sections having an open space between one section connected with the base of the boiler and the other with the steam drum and connected together by two or more bent tubes, substantially as described.

2. In a boiler or steam generator the combination with the steam drum and the base of the boiler, of a series of headers divided into two sections having an open space between one part connected with the base of the boiler and the other with the steam drum and connected together by two or more bent tubes, the tubes of one side interlocking with the tubes on the other side to form a crown sheet substantially as described.

3. In a boiler or steam generator the combination with the steam drum and the base of the boiler, of a series of headers divided into two sections having an open space between, one section being connected with the base of the boiler and the other with the steam drum and each part having a series of openings arranged vertically and two or more bent tubes connecting said headers, the tube inserted in the lowermost opening of the lower part of the header being bent upon itself and secured in the topmost opening in the upper part of the header and the other tube or tubes being shortened and secured to the openings in the sections of the headers in the same manner as the lowermost tube substantially as described.

4. In a boiler or steam generator the combination of a header made or constructed in two parts or sections having an open space between, the said two parts or sections being connected by two or more tubes or pipes which are bent or so constructed with fittings as to return over themselves one end of the said bent tube being connected and secured to the lower part or section of the header and the other end to the top part or section of the leader which is placed directly above the bent tubes forming the only direct connection by which the two parts or sections of the headers are connected the said headers forming the sides and the bent tubes the crown of the furnace substantially as described.

521,151. BURGLAR-ALARM. LEROY S. BUFFINGTON, Minneapolis, Minn. Filed Dec. 26, 1893. Serial No. 494,676. (No model.)



Claim.—1. The combination with a globular body formed of connected hollow hemispherical portions; of an internal clock-work mechanism, including a stem for winding it, a gravitating weight for locking it when the body is in normal position and releasing it upon inversion of the body, and a bell-striking device for sounding an alarm upon the inversion of the body and release of such mechanism by the gravitation of said weight, substantially as set forth.

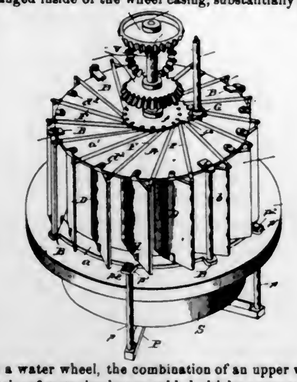
2. In combination, two opposite hollow hemispherical bodies placed mouth to mouth, a stem connecting them, suitable clock-work devices arranged to be wound up by the turning of said stem, and a gravitating weight for locking such mechanism when in one position and releasing it when in another, substantially as set forth.

3. In combination, two opposite hollow bodies placed mouth to mouth, a stem connecting them, an internal clock-work mechanism arranged to be wound up by the turning of one of said bodies while the other is stationary, and a locking device therefor operating by gravity, substantially as set forth.

4. In combination two hollow hemispherical bodies arranged mouth to mouth, connected by means permitting the one to turn while the other is stationary, a clock-work mechanism contained therein and arranged to be wound up by turning one of said bodies while the other is stationary and to reverse the movement of such body when released; means for locking the mechanism when in one position and freeing it when inverted; and a striking device arranged to be operated by such clock-work, substantially as set forth.

521,152. WATER-WHEEL. CHARLES A. CHASE, Houlton, Me. Filed Aug. 15, 1893. Serial No. 483,196. (No model.)

Claim.—1. In a water wheel, the horizontal wheel casing comprising the connected top plate and lower casing ring, said top plate having threaded openings near its edge, a circumferential series of overlapping straight casing gates arranged between the edges of the top plate and said casing ring and having projecting engagement pins at their upper outer corners lower integral pivot pins engaging said casing ring, and unthreaded sockets at their upper edges, removable pivot screws engaging the threaded openings of the casing top plate and having lower unthreaded extremities projecting into the unthreaded sockets of said gates, to detachably pivot the same in the wheel casing simultaneously controlled arms pivotally engaged at one end with said engagement pins to adjust all of the gates, and a bucket wheel arranged inside of the wheel casing, substantially as set forth.



2. In a water wheel, the combination of an upper wheel having a radial series of water buckets provided with lower curved discharge aprons having an outward declination, and an inclosing ring completely encircling said aprons, and a lower reversely turning water wheel of substantially the same diameter as and arranged to fit the lower bottom portion of the upper wheel and provided with a radial series of short angularly disposed buckets arranged reversely to the discharge aprons of the upper wheel buckets and also having an outward declination, and a bucket inclosing ring encircling the lower of the wheel buckets to confine the water directly thereagainst, and adapted to have its upper edge overlap or work outside of the lower edge of the bucket inclosing ring of the upper wheel said lower wheel buckets being arranged in a less number and being of shorter lengths than those of the upper wheel, substantially as set forth.

3. In a water wheel, the inclosing gate inclosed wheel casing having perforated lugs, a step frame having hanger posts adjustably suspended from the perforated lugs of said casing and provided with a central step, an upper bucket wheel arranged to work inside of said wheel casing and having a lower bearing end, and a lower reversely turning bucket water wheel working inside of the lower end of the upper wheel, and having a lower bearing end bearing on the step of said step frame, a step on its upper side which forms a bearing for the lower bearing end of the upper wheel and an oil chamber entirely inclosing the step connection between the upper and lower wheels, substantially as set forth.

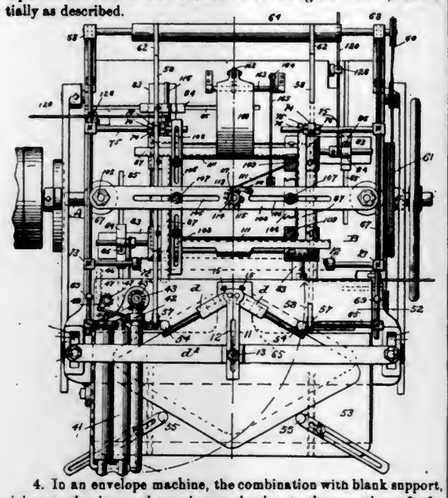
4. The combination of an upper bucket water wheel having a hollow shaft provided with an oil hole, terminating at its lower end in a concave bearing, and having directly thereabove an enlarged bearing collar, and a stepped lower bucket water wheel having a vertical shaft working inside of the hollow shaft of the upper wheel, a step block at the base of said shaft to form a bearing for the lower end of said hollow shaft, and a circular oil cup receiving the enlarged bearing collar of the upper wheel shaft, substantially as set forth.

521,153. ENVELOPE-MACHINE. LAWRENCE J. CHURCH and MICHAEL J. CHURCH, Springfield, Mass. Filed Apr. 27, 1893. Serial No. 472,149. (No model.)

Claim.—1. In an envelope machine, the combination with picker mechanism at the front and creasing and folding devices at the rear of the carrier-devices for conveying the blanks from the picker to the creasing mechanism consisting of upper and lower pairs of roller supported carrier-tapes, certain of the roller-supports for which are adjustable transversely of their run, substantially as and for the purpose set forth.

2. In an envelope machine, the combination with picker mechanism at the front and creasing and folding devices at the rear of the carrier-devices for conveying the blanks from the picker to the creasing mechanism consisting of upper and lower pairs of roller supported carrier-tapes, certain of the roller-supports for which are adjustable transversely of their run and also fore-and-aft, substantially as and for the purpose set forth.

3. In an envelope machine, the combination with a support for blanks and picker mechanism at the front, and creasing mechanism to the rear, of carrier-devices for the blanks consisting of front and rear roller supports, 57 and 59, and the endless tapes, 58, passed around them and the forward upper pair of rollers, 63, 63, and the roll, 64, back of the creasing mechanism, and the tapes, 62, passed around said rolls, 64, 63, the roll, 72, having its lower surface in bearing against the lower course of each upper tape, and the roll, 74, over the upper peripheral portion of which each upper tape, as to the lower course thereof, is passed, whereby the sets of carrier-tapes are separated from each other adjacent the creasing mechanism, substantially as described.



4. In an envelope machine, the combination with blank support, picker mechanism, and creasing mechanism to the rear thereof, of a lower set of carrier tapes and a pair of support-rods, 67, 67, extended horizontally from front to rear of the machine, and having, at their forward extremities the depending members, 66, through which the horizontal rods, 65, are transversely and adjustably supported and connected, the rollers, 63, supported upon the inner extremities of said rods, a roll, 64, suitably hung at the rear of the machine, and the tapes, 62, 62, all arranged substantially as described.

5. In an envelope machine, the combination with a blank support and picker mechanism at front, and expansible and contractible creasing devices to the rear thereof, of upper and lower sets of carrier-tapes, and the rollers, 72 and 74, arranged as described relative to the lower course of the upper tapes, which are both adjustable fore-and-aft, substantially as and for the purpose described.

6. In an envelope machine, the combination with the upper picker support carrying the picker and the depending shafts or bars, 24, 24, with the cam inclines, the guide-boxes, 32, 32, through which the lower portions of the depending shafts play with a close, sliding fit which boxes are pivotally hung, and apertured guides for upper intermediate portions of said shafts, the apertures of which are elongated fore-and-aft, and an abutment part or roll adjacent the course of movement of each of said cam inclines, substantially as and for the purpose set forth.

7. In the picker mechanism of an envelope machine, the combination with the horizontal vertically reciprocatory beam, d^3, of the beam, 11, supported thereon at right angles thereto and longitudinally adjustable, the L-shaped supports having the vertical limbs thereof adjustably supported on said beam whereby the horizontal members thereof may be at any desired angle one to another, and the series of picker sections detachably connected upon the horizontal limbs of said L-shaped supports, substantially as described.

8. In the picker mechanism of an envelope machine, the combination with an L-shaped support, 14, supported by and depending from a reciprocatory part, the series of picker sections removably connected upon the horizontal member of said L-support and having the groove, 18, in the opposite sides thereof and the trough-shaped cap having the inturned flanges 19, 19, engaged with the upper portions of the said sections substantially as and for the purpose described.

9. In an envelope machine, the combination with an upper horizontal picker support and a picker carried thereby and the depending shafts or bars, 24, 24, with the cam inclines and means for imparting vertically reciprocatory movements thereto, and an abutment adjacent the course of movement of each of said depending bars, 24, for exerting a cam-forcing action thereon as they rise whereby a rearward movement is also imparted thereto, substantially as and for the purpose set forth.

10. In an envelope machine in combination, a picker composed of detachably confined sections, and a reciprocatory support therefor, a creasing frame having the sides thereof adjustably movable, carrier-tapes between the picker and creasing frame, a creasing plunger which is contractible and expansible and folder-wings comprising adjustable rocking-supports and detachably connected folder sections, and means for actuating the several instrumentalities, substantially as and for the purpose set forth.

11. In an envelope machine a creasing plunger consisting of adjustably mounted corner supports and a band of flexible material passed and confined in tension around said corner supports, for the purpose set forth.

12. In an envelope machine an expansible and contractible creasing device consisting of adjustably mounted corner supports and a band of flexible material passed and confined in tension around said supports, a terminal portion of the band being passed through one of said corner supports, and a take-up and let-off device for engagement by said band-terminal, for the purpose set forth.

13. In an envelope machine, the combination with the four adjustably mounted depending corner posts, one thereof having the slot, 112, and the winding-shaft, 114, rotatably supported within said post, the flexible band passed in tension around said corner supports, a terminal portion of the band being passed through a slot in one thereof and to a winding engagement with said shaft and the ratchet-wheel on the shaft and detent pawl to engage the ratchet-wheel, substantially as described.

14. In an envelope machine, the combination with a creasing frame having sides thereof movable whereby the size of the rectangular opening bounded thereby may be varied, of a creasing plunger which comprises corner adjustable supports, and a band of flexible material passed and confined in tension around said corner supports, for the purpose set forth.

15. In an envelope machine in combination, the main beam, 100, supported horizontally and having combined therewith means for imparting vertical reciprocatory movements thereto, the bars, 106, 106, ranging fore-and-aft and adjustable transversely along the beam, 100, the posts, 109, having fore-and-aft adjustments along said bars, 106, the vertical shaft, 114, having the winding portion, 113, the flexible band passed in tension around the lower extremities of said posts and having the terminal portion thereof passed through a slot in one of the posts and extended to a winding connection with the said shaft, substantially as described.

16. A rectangular creasing box or frame having its boundaries composed of four endwise movable strips arranged with the end of each next to an intermediate part of the next angularly arranged one, and the upper surface of all of said strips being in a common plane, for the purpose set forth.

17. In an envelope machine, a rectangular creasing box or frame having its boundaries composed of four suitably supported and endwise movable strips or bars arranged with the end of each to be in contact with an intermediate part of the next angularly arranged one, and all of said strips having their upper surfaces in a common plane, substantially as and for the purpose set forth.

18. In an envelope machine, the combination with the main table or support of four bars or strips, 83, which are arranged, the one at right angles to the next, and each movable endwise and also at right angles to its length and carrying at its inner extremity a post, and a bar or strip, 87, supported at the top of each post, said so-supported bars having their upper surfaces in a common plane and adapted to form a closed rectangular creasing frame, substantially as and for the purpose set forth.

19. In an envelope machine, the combination with the main table or support having the grooves, 85, in right angular arrangement as specified, and the apertured blocks, 84, adjustably movable lengthwise along the groove, strips or bars, 83, adjustably movable through the apertured blocks at right angles to the length of the said grooves, the posts having the angularly arranged strips supported at the inner ends of said bars, 83, and means for confining said bars and said blocks in their adjusted positions, substantially as described.

20. In an envelope machine, the combination with the main table or support, of four bars or strips, 83, which are arranged, the one at right angles to the next, and each movable endwise and also in a direction at right angles to its length each of said bars having thereover a shaft mounted for rocking movements and provided with detachably confined folder sections, said shafts being longitudinally and transversely movable in conjunction with said bars, 83, substantially as and for the purpose set forth.

21. In an envelope machine, the combination with the rock-shafts which are adjustably mounted for movements longitudinally and also at right angles to their lengths and having detachable folder sections and provided with crank-arms, 118, of a lever mounted for a swinging movement on a fixed axis opposite each folder-shaft, and a connecting rod between the said lever and rock-shaft crank-arm having a suitable connection with one thereof, and an adjustably sliding connection with the other, and means for operating each of said swinging levers, substantially as described.

22. In an envelope machine, the combination with the main table or support, B, having the four dovetailed grooves, 85, in right angular arrangement, the dovetailed blocks, 84, with transverse apertures therethrough, the bars, 83, movable through said apertured blocks

and a set screw passed vertically through the upper portion of each of said blocks to exert a downward pressure upon the bar, 83, inducing also a confining bind between the dovetailed block and the borders of the groove therefor and the parts 82, mounted upon the bars and having the strips 87 substantially as described.

23. In an envelope machine, the combination with dovetailed grooved table, dovetailed and apertured blocks, 84, strips 83, supporting, at their ends, the posts, 82, with the strips, 87, the rock-shafts having journal-supports through the blocks and posts, and having the crank-arms, 118, the hub, 119, of each of which surrounds the shaft next to the block, 84, and the set screws, 86, all substantially as shown.

24. In an envelope machine, the combination with the main table or support of four bars or strips, 83, which are arranged the one at right angles to the next and each movable endwise and also at right angles to its length and carrying at its inner extremity a post, 82, and a bar or strip, 87, supported at the top of each post and adapted to form a closed, rectangular, adjustable creasing frame, the shafts, 116, having rocking-bearing supports at intermediate portions thereof through one of the posts, 82, and by its end in a socket in an opposite post, folder sections detachably connected with said shafts, and means for rocking the said shafts, and also means for confining the said bars, 83, in their adjusted relations, substantially as and for the purposes set forth.

25. In an envelope machine, the combination with an expansible and contractible creasing frame, of rock-shafts located horizontally thereunder at right angles and mounted for their rocking movements upon support-bearings which are adjustable longitudinally and also at right angles to their length and folding sections consisting of apertured blocks having non-rotatable, detachable engagements with the said shaft and means for imparting the rocking movements to each of the shafts, substantially as described.

26. In an envelope machine, a folding-wing comprising a rock-shaft which is adjustable substantially as described and having a folder sections detachably connected thereupon, one or both of the end sections of the folder-wing carrying an obliquely inclined bearing member, the lower face of which is in a plane coincident with the folding face of the folder sections, substantially as described.

27. In an envelope machine, the combination with folding mechanism comprising a rock-shaft which is adjustable substantially as described, and having folder sections detachably connected thereupon, one or both of the end-folder sections carrying an obliquely inclined and inwardly extended bearing member, *w*, which is composed of step-formed and detachably united sections, 147, 147, the lower faces of which are in a plane coincident with the working face of the folder sections, substantially as described.

28. In an envelope machine, the combination with the rock-shaft having detachably connected folder sections, substantially as described, one or both of the end folder sections having a detachably connected block or plate, 142, with the vertically apertured part, 145, provided with set-screw, 148, of the obliquely arranged bearing member, *w*, having the stud, 146, to enter the apertured part, 145, substantially as described.

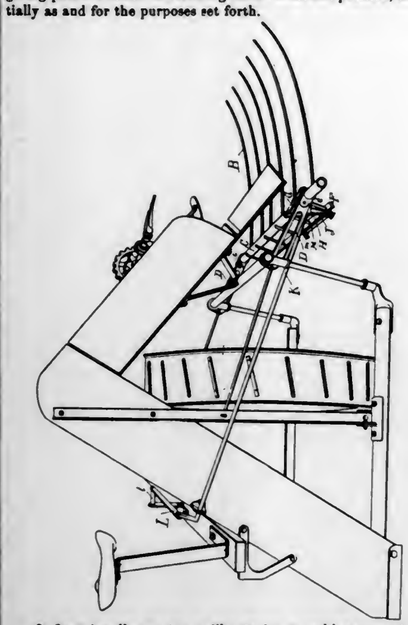
29. In an envelope machine, the combination with the rock-shaft having detachably connected folder sections, substantially as described, an end one thereof having the T-groove, 140, of the block, 142, with the vertically bored part, 145, the headed bolt engaged in said T-slot and having its shank extended forwardly through said block, 142, receiving the confining nut, 144, and the obliquely arranged supplemental bearing part, *w*, having the stud, 146, all arranged as shown.

30. In an envelope machine, the combination with the folding bottom and cam-operated thrust-bar, 172, having the roller stud, 177, the lever, 175, intermediately pivotally supported one arm of which is extended within the aperture of the folding bottom, and the other lying angularly across the path of movement of said stud, 177, and a means for insuring the retracting movement to said lever, substantially as described.

521,154. BUNDLE-CARRIER FOR HARVESTERS. JOHN J. COURTNEY, Minneapolis, assignor to the Walter A. Wood Harvester Company, St. Paul, Minn. Filed July 8, 1893. Serial No. 479,962. (No model.)

Claim.—1. In a bundle carrier or like device, a rocking support C, carrier fingers or teeth B pivoted thereto, connections for simultaneously dumping the carrier and releasing the teeth upon their pivots and unyielding connections for simultaneously and positively restoring the teeth and the carrier to position for receiving the bundles, whereby the teeth may be allowed to fall directly toward the ground and thereafter to trail or fold toward the machine, and whereby all the parts may be simultaneously and positively restored to their normal position, substantially as and for the purposes set forth.

2. In a bundle carrier or like device, a rocking support C, carrier fingers or teeth B pivoted to the said support, a link M and connections or devices permitting or providing lost motion for the said fingers or teeth, and means for rocking the said support and actuating the said link, the said connections or devices permitting or providing lost motion releasing the said fingers or teeth in dumping, and the said lost-motion being taken up by the folding of the teeth, thereby giving positive action in restoring them to normal position, substantially as and for the purposes set forth.



3. In a bundle carrier or like device, a rocking support C and carrier fingers or teeth B pivoted thereto, operating connections for rocking the said support and dumping or raising the carrier, and a device or connection for permitting or providing lost motion between the said operating connections and the said fingers, the proportions of the said lost-motion being such that in dumping the teeth are released and free to fold, taking up the lost-motion, and in returning the carrier to its normal position the actions of the teeth are simultaneous and positive, substantially as and for the purposes set forth.

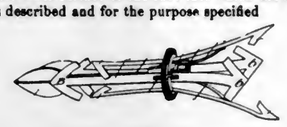
4. In combination in a bundle carrier or like device, a rocking support C, carrier fingers or teeth B pivoted thereto, a reciprocating bar F for rotating the said teeth upon their pivots, an operating crank J, a positive and unyielding connection between the said crank and the said rocking support for dumping and raising the carrier, and a device or connection for permitting or providing lost motion between the said crank and the said bar Γ, the proportions of the said device or connection being such that on dumping the teeth are released and permitted freely to trail or fold, thereby taking up the lost-motion, and on the raising movement of the crank and carrier, the said device forms a positive regulating connection, substantially as and for the purposes set forth.

5. In combination in a bundle carrier or like device a rocking support C, clips or pieces c to which the said support is pivoted, actuating connections for rocking the said support, and a pivotal connection between the said pieces c and the framework of the machine, upon which the said pieces are free to turn independently of the said actuating connections thereby permitting the rise of the said support, substantially as and for the purposes set forth.

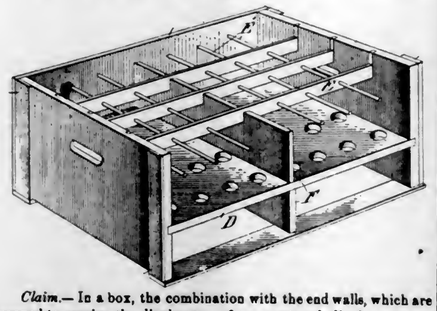
6. In combination in a bundle carrier or like device, a rocking support C, carrier fingers or teeth B, intermediate pieces or clips c to which the said rocking support is pivoted, connections for rocking the said support upon the said pieces or clips for dumping and raising the carrier, and a pivotal connection between the said pieces or clips and the support of the machine upon which the said pieces or clips are free to turn independently of the said connections, whereby the said rocking support and teeth may rise by the movement of the said pieces or clips in passing over obstructions, without disturbing the operating connections, substantially as and for the purposes set forth.

521,155. FLUE-CLEANER FOR STEAM-BOILERS. DANIEL W. DART, Binghamton, N. Y., assignor of one-half to Sidney B. Doolittle, same place. Filed July 10, 1893. Serial No. 480,076. (No model.)

Claim.—The combination, in a boiler flue cleaner, of a central core with attached upwardly and outwardly bent springs, and a series of concavo convex, arrow-head-shaped, cutting-blades surrounding the central core, their concave side facing said core, said blades secured at their blunt ends to each end of concavo convex shanks of equal length whose convex sides are movably, secured at a point alternately forward and backward of the center of their horizontal length, upon lugs or projections formed upon the core, causing the said arrow shaped blades to attain such a position alternately backward and forward of each other as that their shear edges will engage the whole inner surface of the tube into which the device is introduced; as described and for the purpose specified

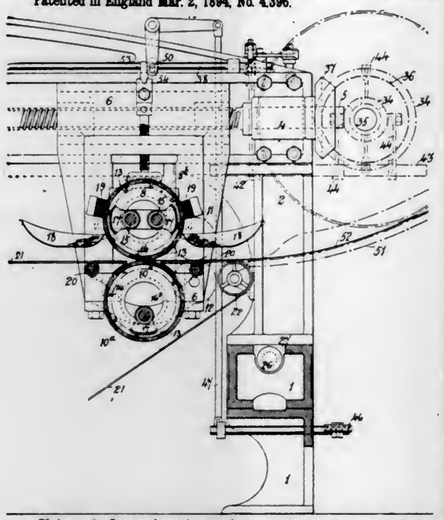


521,156. BOX. THOMAS DRUMMOND, Alton, Ill. Filed Apr. 23, 1894. Serial No. 508,585. (No model.)



Claim.—In a box, the combination with the end walls, which are grooved to receive the diaphragm, of an apertured diaphragm supported in said grooves, a rack located above said diaphragm comprising the parts E and E', a centrally located and transversely-disposed brace F, which is located above and below the apertured diaphragm, and the wear cleats G arranged on the bottom and at the sides of the box, substantially as described.

521,157. MACHINE FOR THE MANUFACTURE OF SOLID-COLOR FLOOR-CLOTHS. JAMES S. FARMER, Salford, assignor of three-fifths to Herbert Lushington Storey and Isaac Henry Storey, Lancaster, England. Filed Apr. 16, 1894. Serial No. 507,738. (No model.) Patented in England Mar. 2, 1894, No. 4,396.



Claim.—1. In combination with a suitable frame work, a traveling carriage, a pair of cutting rollers carried thereby and rotating therein and a traveling support for the foundation fabric moving at right angles to the line of travel of the cutting rollers, substantially as described

2. In combination with a traveling support, a foundation fabric clamped thereto, two or more laterally movable supports, traveling carriages supported thereby and cutting rollers on said carriages, substantially as described.

3. In combination with the support for the foundation fabric, a traveling carriage, cutting rollers supported thereby, a feed band 21 connected to the carriage frame, and a feed chute 52, substantially as described.

4. In combination, a traveling carriage, cutting rollers, receptacles arranged on either side of the upper roller and a traveling table for the foundation fabric adapted to receive the teseræ from the bottom roller, substantially as described.

521,158. CROSS-TIE FOR RAILROADS. FRANK P. FEUERBACHER, Oklahoma, Okla., assignor of one-half to John M. Fightmaster and Henry H. Howard, same place. Filed Mar. 23, 1894. Serial No. 504,830. (No model.)

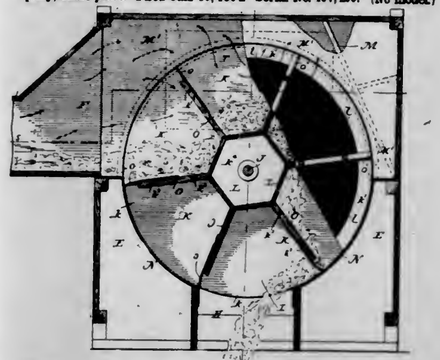


Claim.—1. A metallic cross-tie doubled at its ends on its outer face and bent downward to form depending transverse end flanges, and having the terminals of the metal arranged on its upper face and bent upward to form flanges for locking rails, substantially as described.

2. The combination of a metallic cross-tie provided between its ends with depending longitudinal flanges, and having its ends bent downward to form transverse flanges and having the metal doubled or returned on its outer and upper faces and terminating in locking flanges, said cross-ties being provided with inclined spike openings, and pivoted locking plates arranged adjacent to the locking flanges and provided at their inner terminals with flanges and having openings corresponding with the openings of the cross-tie, said openings being adapted for the reception of spikes, substantially as described.

3. The combination with a rail, of a metallic cross-tie provided adjacent to the rail with an inclined spike opening, and a pivoted clip plate mounted on the cross-tie and engaging the adjacent side of the bottom flange of the rail and provided with a perforation registering with the inclined spike opening and adapted to receive a spike, whereby the latter is turned up or clinched on the lower face of the cross-tie, substantially as described.

521,159. APPARATUS FOR ELEVATING SEED-COTTON. FREDERICK GARRAUX, Atlanta, Ga., assignor to the Winship Machine Company, same place. Filed Jan. 19, 1894. Serial No. 497,429. (No model.)

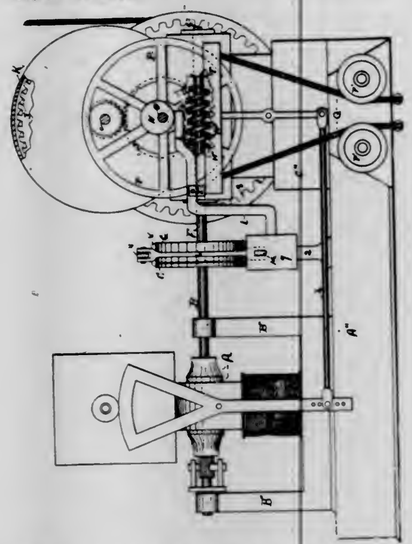


Claim.—1. The combination of a pneumatic tube or flue, a casing, a conveyer mounted therein and having air-tight joints with the casing, an entrance port, a cotton discharge port, and an air discharge port arranged transversely with reference to the entrance port and to one side thereof, and a screen carried by the conveyer arranged edgewise with reference to the entrance port and covering the air discharge port.

2. The combination of the casing, a rotary series of buckets mounted therein and having a screen on one side and a closed disk on the other side, a feed flue through which cotton is fed to the buckets between the sides thereof, and in contact with the screen, air-tight packing separating the lower part of the casing below the entrance

port from the upper part of the casing, packing for forming an air-tight joint between the buckets and the casing thereof below the axis of the conveyer and at the upper part of its periphery on both sides, an air discharge port in one side of the casing close to the screen forming one side of the buckets and a cotton discharge port in the lower part of the casing, the organization being such that the buckets successively take up charges of cotton as it enters the apparatus and delivers it to the cotton discharge port, while the air separates from the cotton at the entrance port and passes through the screen of the buckets on one side only thereof in proximity to the air discharge port of the casing

521,160. DRIVING MECHANISM FOR ELECTRIC ELEVATORS. CHARLES E. GRIGER, Louisville, Ky. Filed Feb. 27, 1892. Serial No. 422,960. (No model.)



Claim.—1. In a device for operating an electric elevator, the combination of a motor, a motor shaft, a driven shaft, a centrifugal clutch connecting said shafts, consisting of a clutch section on the motor shaft having radially movable shoes and a companion clutch section on the driven shaft inclosing the radially movable shoes, and a friction brake bearing on the periphery of each clutch section, substantially as described.

2. In a device for operating an electric elevator, the combination of a motor, a motor shaft, a driven shaft, a friction clutch carried partly on each of said shafts at their adjacent ends and a friction brake bearing on the outer peripheral face of each section of said friction clutch, substantially as described.

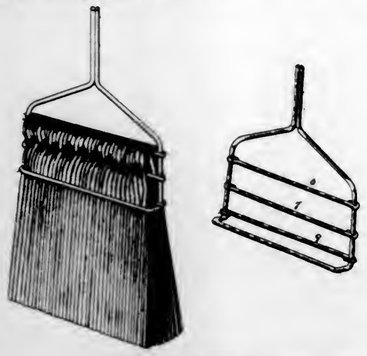
3. In a device for operating an electric elevator, the combination of a motor, a motor shaft provided at its outer end with a clutch section, a series of radially movable shoes carried by said clutch section, a driven shaft, a companion clutch section on one end of said shaft embracing said radially movable shoes, and a brake bearing normally on the outer peripheral faces of said clutch sections, substantially as described.

521,161. BROOM-HEAD. JAMES R. GILBERT, Kissimmee, Fla. Filed Sept. 26, 1893. Serial No. 486,550. (No model.)

Claim.—1. A broom clamp having a body portion provided with downwardly divergent sides connected at their lower extremities by an offset bar forming a pocket, spaced parallel transverse bars connecting said sides above the said connecting bar, and a removable clamping-bar connecting the sides at their lower extremities to close the open side of said pocket, substantially as specified.

2. A broom clamp comprising a body portion having downwardly divergent sides and terminating at its lower end in a pocket provided with a removable side, and transversely-disposed spaced bars provided with terminal eyes slidably mounted upon said divergent sides, and adapted to be tightened by drawing them downward substantially as specified.

3. The combination with a broom clamp provided with parallel spaced bars and a subjacent clamping pocket, of fiber, doubled at its center and engaging the upper transverse bar, and having its sides crossed between the said transverse bars, passed upon opposite sides of the lower transverse bar, and extending downwardly through said pocket, substantially as specified.



521,162. SIGNAL-LANTERN. PETER GRAY, Cambridge, Mass. Filed Nov. 11, 1893. Serial No. 490,695. (No model.)



Claim.—1. In a signal lantern, the combination of the upper section carrying the lenses and having the circular bottom or disk provided with depending lugs, the lower section having the circular disk abutting against the disk of the upper section and having openings to receive the lugs of the upper disk, the depending stem connected to the upper disk for elevating the upper section and revolving it said stem having a handle, and a spring bearing against the lower disk and the handle of the stem for preventing accidental detachment of the locking devices, in the manner described.

2. In a signal lantern, the combination of the stationary section having the abutting disk provided with openings, the adjustable section carrying the lenses and having the abutting disk provided with depending studs, for engaging the openings of the stationary section, and a handle connected with the adjustable section for moving the section to display the lenses.

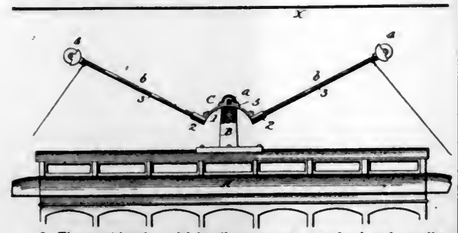
3. In a signal lantern, the combination of the upper section carrying the lenses having the flat bottom or disk, the lower section connected thereto, and having the flat disk resting or abutting against the other disk, openings in the abutting portion of the lower stationary section, a stem connected to the upper movable section and having a handle for rotating the upper section, and studs on the upper section for engaging the openings of the lower stationary section to retain the lantern at the proper adjustment.

4. In a signal lantern, the combination of the upper section carrying the lenses and having the disk, the lower section having the abutting disks, studs on the upper disk and openings on the lower disk to receive the studs, a stem having the upper end connected to the upper disk and having the operating handle or cross-piece to move the upper portion of the lantern, and the spring coiled around the stem, for the purpose described.

521,163. CONTACT-TROLLEY. ROBERT W. HAWKESWORTH, East Orange, N. J. Filed Mar. 15, 1894. Serial No. 503,752. (No model.)

Claim.—1. The combination in a trolley bar of two arms one at an angle to the other and a support to which said bar is pivoted at a point between and above the ends of the arms, substantially as described.

2. The combination with the standard of a railway car, of a trolley bar consisting of two arms connected by an intermediate spring plate or bar, substantially as described

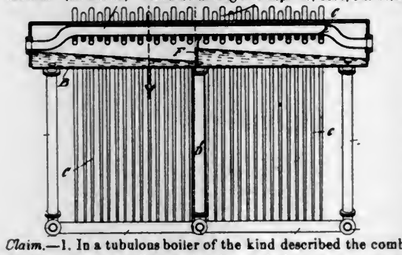


3. The combination with a railway car of a standard, and a trolley bar pivoted to said standard, and provided with trolley wheels and consisting of two arms in the same vertical plane having an intermediate spring connection, whereby one can move to a limited exent independently of the other substantially as set forth.

4. The combination in a trolley bar, of a spring plate, a support to which the plate is pivoted, arms extending from said plate and wheels carried by the arms, substantially as described.

5. The combination of the curved and pivoted spring plate, sockets 2, 2, staffs 3. 3, and wheels 4, 4, substantially as described.

521,164. TUBULOUS STEAM-BOILER. HENRY A. HOUSE and HENRY A. HOUSE, Jr., Bridgeport, Conn., assignors of one-half to Robert Rintoul Symon, London, England. Filed July 13, 1893. Serial No. 480,416. (No model.) Patented in England Sept. 13, 1893, No. 17,224.



Claim.—1. In a tubulous boiler of the kind described the combination with the lower collector chamber and the upper steam and water chamber of the series of heating pipes connecting the two, of nozzles connected to the ends of the heating pipes and projecting from above downward into the upper steam chamber so as to project the water in a direction below the level of the steam pipe, and having their open ends above the normal level of the water in said upper chamber, as set forth.

2. The combination with the lower collector chambers, the upper steam and water chamber and the intermediate heating pipes of a tubulous boiler, of short tubes or nipples entering the steam chamber nozzles extending through the same into the said chamber and having their open ends above the normal level of the water therein, and union nuts connecting the said nipples with the ends of the heating pipes as set forth.

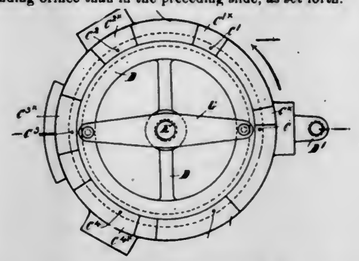
3. The combination with the lower collector chambers the upper steam and water chamber, the heating pipes and the circulating pipes connecting the two chambers at the ends and at intermediate points, of a swiveled or hinged plate of approximately the diameter of the water chamber and suspended over the intermediate circulating pipes and capable of limited swing or play in opposite directions as set forth.

521,165. BURNER FOR THE COMBUSTION OF GAS OR VAPOR FOR HEATING PURPOSES. HENRY A. HOUSE and HENRY A. HOUSE, Jr., Bridgeport, Conn., assignors of one-half to Robert Rintoul Symon, London, England. Filed July 13, 1893. Serial No. 480,420. (No model.)

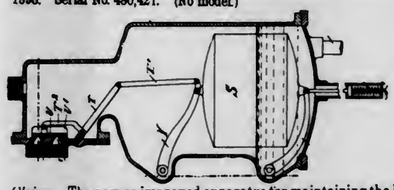
Claim.—1. The combination in a gas or vapor burner with an annular gas chamber provided with orifices at equal distances apart for the escape of gas, a rotary frame mounted concentrically with the gas chamber, and a series of slide valves of different lengths carried by said frame over the orifices in the gas chamber, as set forth.

2. The combination in a gas or vapor burner with a hollow gas chamber provided with orifices for the escape of gas, of a frame or slide movable with respect thereto and blocks or slides independent of but engaged by the frame and adapted to be carried over the orifices, by the movement of said frame, as set forth.

3. In a gas or vapor burner the combination with a gas chamber provided with regularly spaced orifices for the escape of gas, a slide valve for and working over each such orifice, the said valve being independently held against its seat, and arranged so that the leading or cutting-off edge of each successive slide is farther from its corresponding orifice than in the preceding slide, as set forth.

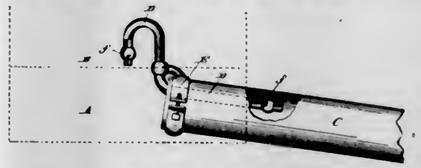


521,166. FEED-WATER AND GAS SUPPLY REGULATOR. HENRY A. HOUSE and HENRY A. HOUSE, Jr., Bridgeport, Conn., assignors of one-half to Robert Rintoul Symon, London, England. Filed July 13, 1893. Serial No. 480,421. (No model.)



Claim.—The new or improved apparatus for maintaining the level of the water in boilers or generators and for regulating the supply of gas for heating the same which consists of a closed chamber connected with the boiler or generator, two steam ports, one leading to a self starting feed pump, and the other to an apparatus for regulating the supply of gas to the gas burners in the furnace of the boiler or generator, a slide valve governing the said two steam ports and a float for actuating the said slide valve, combined, arranged and operating substantially as hereinbefore described.

521,167. MACHINE FOR MAINTAINING AIR-PRESSURE IN CHAMBERS OF HYDRAULIC RAMS. HENRY INGHAM, Bellows Falls, Vt. Filed Dec. 8, 1891. Serial No. 414,441. (No model.)



Claim.—In a hydraulic ram, the combination with a water supply pipe, of an air tube having its discharge end entering said supply pipe and extended in a direction parallel thereto and having its inlet end in communication with the atmosphere only and extended in a substantially vertical direction, an outwardly opening check valve at the discharge end of the air tube and an inwardly opening check valve adapted to close by gravity at the inlet end of the air tube, whereby air is drawn into the ram by the intermittent flow of water through the supply pipe, substantially as described.

521,168. THERMO-ELECTRIC BATTERY. ERNST W. JUNGNER, Skara, Sweden. Filed Mar. 9, 1894. Serial No. 502,990. (No model.)



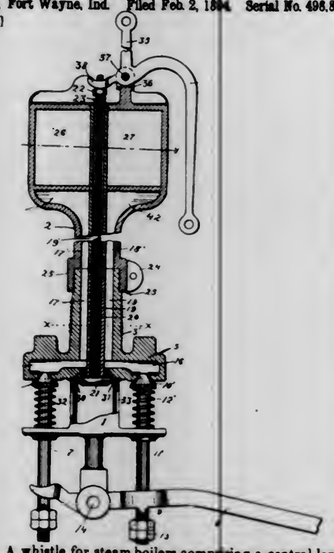
Claim.—1. A thermo-electric chain comprising elements composed of two strips or pieces of different metals, said elements connected in series, the strips or pieces of one kind of metal alternating with those of the other kind and having alternate joints insulated by means of a non-conductor of heat, for the purpose set forth.

2. A thermo-electric chain, comprising elements composed of two strips or pieces of different metals, said elements connected in series, the strips or pieces of one kind of metal alternating with those

of the other kind and having alternate joints insulated by means of a non-conductor of heat, said insulation being of greatest thickness at the joint and decreasing in thickness in opposite directions.

3. A thermo-electric chain, comprising alternate overlapping pieces or strips of different metals, as alternating copper and iron wires, the overlapping portions united by means of a conductor of electricity as fine iron wire and by brazing or soldering, and having its alternate joints insulated by means of a non-conductor of heat, for the purpose set forth.

521,169. WATER-ALARM FOR STEAM-BOILERS. PETER A. KIRCHNER, Fort Wayne, Ind. Filed Feb. 2, 1894. Serial No. 498,873. (No model.)



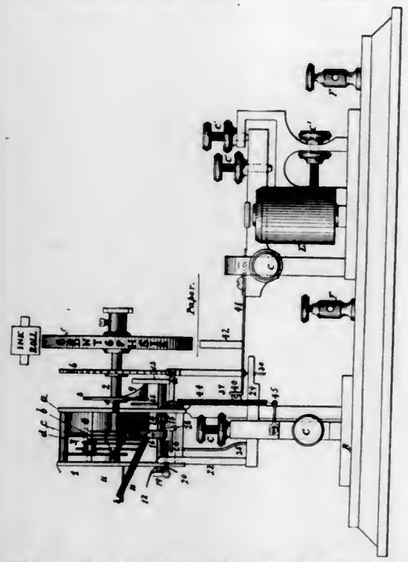
Claim.—1. A whistle for steam boilers comprising a central longitudinal perforation having a proper valve stem loosely mounted therein, carrying a proper spring pressed valve and having a suitable means for operating the same the spring pressed valves 10, and 10′, as shown, vertical steam channels having outlet ports as shown, sounding chambers and lateral openings therefor, as described, the said whistle being adapted for making three separate and independent signals, the third signal being produced by a union of the other two sounds or signals, all substantially as described.

2. In a water-alarm for steam-boilers, the combination of the casting 3 having a vertical threaded portion adapted to be mounted within a boiler shell, provided with a central perforation for the valve stem 20 carrying upon its lower end the spring pressed valve 21, vertical steam channels and transverse channels connected therewith, and having inlet ports and valve seats as described, the casting 1 provided with an opened top chamber having lateral inlet ports, vertical perforations for the valve stems, and a dependent lug in which the float stem is mounted, the valves 10 and 10′ having threaded valve stems with the nuts 13 thereon, loosely mounted in the said casting 1 and carrying spiral springs as shown, and the valve 21 having a spring-actuated stem loosely mounted in the perforation 19, with the float lever 6 fulcrumed on the lug 7 and adapted to actuate the said valves 10 and 10′, and the whistle 2 having steam channels adapted to register with the said channels 17 and 18, and having a lever adapted to actuate the valve 21, all substantially as described.

3. In a water-alarm for steam-boilers, the combination of the casting 3 having a vertical threaded portion adapted to be mounted in a boiler shell and provided with a central perforation 19 for the valve stem 20 bearing on its lower end the valve 21, vertical and transverse steam channels having inlet ports and valve seats as described, the casting 1 having a central chamber with inlet ports and adapted to contain the valve 21, a lug 7 having a bifurcated head, and vertical perforations for the valve stems, as shown, and the valves 10 and 10′ having their stems provided with spiral springs and threaded nuts as described, with the float lever 6 pivotally mounted in the lug 7 and having upon one end the bifurcated lug 8 and upon the other end a proper float, all substantially as described.

4. A whistle 2 for steam boilers consisting of an elongated stem having an annular flange and lateral lugs upon its lower end, and provided with longitudinal steam channels, as described, the said whistle having a central chamber in which is loosely mounted a spring-pressed valve stem carrying upon its lower extremity a normally closed valve 21 and surmounted by a lever arm having a bifurcated lug adapted to operate the said valve, in combination with the channeled casting 3, the chambered casting 1 and the spring-pressed valves 10 and 10′ loosely mounted therein, as described, all substantially as set forth and described.

521,170. PRINTING-TELEGRAPH. OSCAR L. KLEBER, Pittsburg, Pa., assignor of one-half to R. J. Stoney, Jr., and Henry Braun, same place. Filed Apr. 13, 1893. Serial No. 470,237. (No model.)



Claim.—1. In a printing telegraph, a rotatable shaft which has affixed thereon a wheel with alphabetical letters and numeral characters around its periphery, in combination with a toothed wheel and detent to engage therewith, a series of selecting disks of the character shown and described, a finger adapted to pass from one disk to another in the series, and check rotation of the same, and a cam that will move said finger to its primary position or starting point on each revolution of said disks.

2. In a printing telegraph, a type wheel in combination with suitable means for rotating the same, a serrated wheel held in temporary check by a pivoted detent, a series of toothed selecting disks adapted to rotate in unison with said wheels, a finger that will move across the face of said disks and engage them separately, and an electro-magnet that will operate to raise said finger from the selecting disks and draw the detent from the toothed wheel.

3. In a printing telegraph, the combination consisting of a type wheel, suitable means for revolving the same, a toothed wheel and detent whereby said type wheel is temporarily held in check subject to the action of said detent, a series of selecting disks constructed and arranged with respect to each other as shown and described, a finger adapted to press against and move across the face or periphery of said disks, a projection on said finger that will retain the same against that particular disk it happens to be on and keep it there until one of the depressions in said disk is brought opposite said projection, and a means whereby it will slip through said depression and come against the side or solid portion of the next disk.

4. In a printing telegraph, a type wheel in combination with a series of four selecting disks each of which is provided with one or more radial projections and three with radial recesses or depressions, each disk fixed on the same shaft as the type wheel, so as to rotate therewith, and each selecting disk arranged side by side with respect to each other as that a depression in one disk will be, to the extent of its width, in advance of a depression in the next disk; a finger adapted to press against the periphery of said disks by means of a spring, a short hook attached to the armature of an electro-magnet that, when energized, will draw said finger momentarily from the disks and, by the slipping of said hook enable the spring actuated finger to regain its previous position.

5. In a printing telegraph, a revoluble type wheel, in combination with a number of selecting disks which have radial projections and depressions, a movable finger that will operate to check rotation of

said disks, a serrated wheel and detent in conjunction therewith to space off the rotary movement of said type wheel, an electro-magnet that, when energized, will draw said detent from the serrated wheel and thereby liberate the mechanism that gives rotation to the several wheels, an additional electro-magnet provided with an armature that will by its action, in one direction, force the printing stamp or post toward any letter or numeral on the type wheel opposite thereto and thereby cause an impression or print of the same to be made on an interposed sheet or strip of paper.

6. A telegraphic instrument constructed and adapted to transmit and receive Morse telegraphic signals, and translate the same into alphabetical letters and numerical characters, and separately print them, in combination with an electrical generator, a main line of transmission, a polarized relay consisting of a permanently magnetized pivoted bar arranged between the poles of two electro-magnets, a non-magnetic bar pivoted to the free end of the permanent magnetic bar, an iron armature attached to the non-magnetic bar, and an electro-magnet for actuating said iron armature, to open and close the line of a local circuit by impulses sent over the main line of transmission.

7. A telegraphic instrument of the character described, in combination with an electrical generator, a main line of transmission, a pivoted magnetic bar arranged between the poles of two electro-magnets, each having opposite polarities, and in the main line a non-magnetic bar pivoted to the free end of the magnetic bar, an iron armature attached to the non-magnetic bar, an electro-magnet also in the main line for actuating said armature by electrical impulses sent along the main line whereby said non-magnetic bar at each electrical impulse is brought in momentary contact with points in the circuit of a local battery to produce like impulses in said local circuit.

8. In a telegraphic instrument constructed and adapted to electrically transmit and receive Morse telegraphic signals and translate the same into alphabetical letters and numeral characters according to the signal sent, the combination of a type wheel, a serrated wheel, a detent operating in conjunction therewith to space off the movement of said type wheel, and a series of selecting disks one of which has three radial projections and four depressions. The next has two radial projections and one depression; the next one projection and one depression; and the last disk in the series has one projection only.

9. A telegraph instrument, of the character described in combination with a shaft adapted to rock on its axis, and move back and forth lengthwise, a projecting finger attached to said shaft; a spring for drawing the same in one direction and a revoluble cam, that will at proper intervals force the shaft and finger back to its original position or starting point.

10. A telegraphic instrument of the character described in combination with a shaft adapted to rock on its axis and move back and forth lengthwise, a spring for drawing said shaft in one direction, a series of notches or transverse grooves in said shaft, and a rocking lever one end of which is adapted to engage said grooves and temporarily prevent lengthwise movement of said shaft.

11. A telegraphic instrument of the character described in combination with a shaft adapted to rock on its axis and move back and forth lengthwise, a series of grooves in said shaft, a rocking lever that will engage said grooves, a finger projecting outward from the rock shaft to the selecting disks, a spring that will draw said rock shaft in one direction subject to the action of the rocking lever a projecting arm on one end of said shaft, a revoluble wheel provided with a pin that in its circular course will come in contact with such parts as actuate the rock shaft and detent and permit said detent and finger on said rock shaft to return to their respective wheels at the point of commencement.

12. A telegraphic instrument of the character described, in combination with a revoluble shaft, a type wheel and a series of selecting disks: each disk provided with one or more radial projections, collectively arranged with respect to each other, as that said radial projections shall differ in circumferential position; suitable means for rotating said shaft, type wheel and disks; a toothed wheel and detent for controlling same; a rock shaft and a backwardly projecting arm; and an angular lever adapted to draw the detent from the toothed wheel and the finger on said rock shaft from the selecting disks.

13. A telegraphic instrument of the character described in combination with a revoluble shaft, a type wheel and a series of selecting disks: each disk provided with one or more radial projections arranged with respect to each other as that said radial projections shall differ in circumferential positions, transverse depressions in three of said disks which depressions are also arranged to differ in circumferential positions, a toothed wheel and detent for controlling the same; a rock shaft provided with an extending finger adapted to engage said disks separately, a forwardly projecting arm on said rock shaft; a thin flat spring provided with a hook to lightly catch over said arm, an armature bar attached to the lower end of said flat spring, and an electro-magnet for operating same.

14. A telegraphic instrument constructed and adapted to transmit and receive Morse signals and translate the same into alphabetical letters and numeral characters and separately print them, in combination with a suitable electrical generator, a main line of transmission, a polarized relay consisting of a permanently magnetized pivoted bar arranged between the poles of two electro-magnets forming part of the main line, a non-magnetic bar connected to the permanently magnetized bar; an armature attached to the non-magnetic bar; an electro-magnet for actuating said iron armature; a local circuit and battery having no electrical communication with the main line, but in such relative position to the non-magnetic bar of the polarized relay as that a change of polarity in the magnets of said relay will operate to open and close said local circuit.

15. A telegraphic instrument constructed and adapted to transmit and receive Morse signals and translate the same into alphabetical letters and numeral characters, and separately print them, in combination with a suitable electric generator, a polarized relay consisting of electro-magnets of different polarities arranged in and forming part of said main line, a permanently magnetized bar pivoted so as to swing between said electro magnets, a non-magnetic bar pivoted to the magnetic bar, an iron armature affixed to the non-magnetic bar, two adjustable points one of which is insulated and between which the non-magnetic bar is adapted to swing; a spring to draw said non-magnetic bar toward and against said insulated point, an electro magnet forming part of the main line and in such proximity to the armature on the non-magnetic bar as to produce in the same a vibratory movement corresponding to an electrical impulse sent over the line communication without affecting the position of the magnetized bar forming part of said polarized relay

16. A telegraphic instrument constructed and adapted to transmit and receive Morse telegraphic signals and translate the same into alphabetical letters and numeral characters—said instrument consisting of an organized mechanism comprising a revoluble shaft which has rigidly affixed thereon, to revolve in unison with a type bearing wheel—suitable selecting disks provided with radial projections and depressions, also a toothed wheel, in combination with a detent adapted to engage the teeth of said wheel; an electro magnet which, when energized, will operate to withdraw said detent from said toothed wheel and permit it, by the passage of a short electrical impulse, to rotate to the extent of one tooth, and a proportionately greater extent, to escape several teeth, by prolonged or continued electrical action; a finger in peripheral contact with one or other of the selecting disks, and adapted to engage them separately, which finger, by suitable intermediate connections with the parts operated by said electro-magnet, is momentarily withdrawn by said electrical impulse and immediately released to resume its primary position on the disk which will continue to rotate during said prolonged electrical impulse until a projection on said disk comes in contact with said finger, whereby further rotation is suddenly arrested.

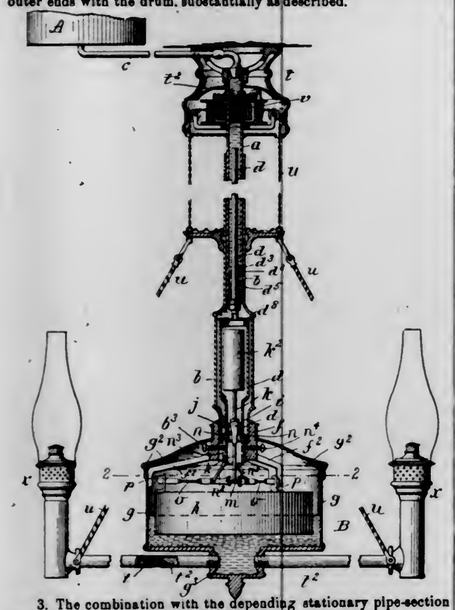
17. A telegraphic instrument constructed and adapted to transmit and receive Morse signals and translate same into alphabetical letters and numeral characters, and separately print them in combination with a main line of communication, a polarized relay of the character described, a local electrical circuit constructed and adapted to operate substantially as described; an electrical battery for working the main line, a wire that connects the copper or positive pole of said battery to a contact point under a suitable key 66; a wire that connects the zinc or negative pole of said battery to a point at the top of said key; a wire which permanently connects said key to the main line, a wire which connects a contact point under the opposite end of key 66 to a similar point back of and under closed key lever 70; a wire from the same point connecting it to the zinc or negative pole of the battery; a wire which connects a point under the forward end of said key lever 70 to the copper or positive pole of the battery; and a wire one end of which terminates in the earth and its other end in said key lever 70, which systemized arrangement of wires and keys enables an operator to suddenly change the polarity of the polarized relay and thereby bring into action such portions of the local circuit as may be required to operate separately the selecting apparatus and the printing device.

521,171. APPARATUS FOR AUTOMATICALLY FILLING LAMPS WITH OIL. LEROY S. LEWIS, Springfield, Mass., assignor, by direct and meane assignments, to the Empire Light Company, of New Jersey. Filed June 30, 1893. Serial No. 479,248. (No model.)

Claim.—1. The combination with the burner, the regulator tank connected therewith, and the oil supply pipe leading into the tank, and having therewithin, near the tank, a valve-seat, the valve with the depending stem, and the float drum, the several arms depending below the valve-seat, which are vertically adjustable, and the radially arranged levers intermediately pivoted on the said depending arms and having their inner ends engaged with the depending valve-stem and their outer ends with the drum, substantially as described.

2. The combination with the burner, the regulator tank connected therewith, and the oil supply pipe leading into the tank, and having

therewithin, near the tank, a valve-seat, the valve with the depending stem, and the float drum, the several arms depending below the valve seat and the radially arranged levers intermediately pivoted on the said depending arms which levers are adapted for slight springing movements in the direction of their swinging movements and having their inner ends engaged with the depending valve stem and their outer ends with the drum, substantially as described.



3. The combination with the depending stationary pipe-section connected with the supply, of a tube section telescoping the stationary section and having the regulator tank supported at its lower end, with which the burners are in communication, an inner tubular part open at its upper and lower ends and within and movable with the said telescoping section and having a close sliding fit within the said stationary section and having a valve-seat at its lower end, a valve thereat, a regulator float in the tank, which has operative connection with the valve, substantially as and for the purpose set forth.

4. The combination with the depending stationary tube section to be connected with the oil supply of a tube section telescoping the stationary section and having the regulator tank supported at its lower end with which tanks the burners are in communication, an inner tubular part open at its upper and lower ends and within and movable with the said telescoping section and having a valve-seat at its lower end formed by two or more separated annular lips, said inner tube extending with a packed sliding fit within the said stationary section, a valve at said seat, and a regulator float in the tank which has operative connection with the valve, substantially as described.

5. The combination with the depending stationary section, *a*, the telescoping outer section, *b*, having the regulator tank connected at its lower end, the tube section, *b*, movable as one with tank and section, *a*, and having the valve-seat, and the enlargement thereabove, the valve with the upwardly and downwardly extended stem, the weight on the upper stem portion within said enlargement, the regulator-float having operative connection with the lower portion of the valve-stem, substantially as described.

6. The combination with a vertical downwardly opening tube section having a valve-seat near its lower end, and a regulator tank in communication therewith, of a valve at said seat with a depending stem, a collar surrounding and vertically adjustable on the lower end of said valve-seat tube and having the depending arms or lugs, n^3, the regulator float and the levers pivotally hung upon said arms, n^3, and engaging the drum, and valve-stem, substantially as described.

7. The combination with the stationary section, *a*, and the telescoping section, *b*, with the regulator tank connected at the lower end thereof, the tube and valve seat section, *d*, and the valve with depending valve-stem, the collar, *n*, with the vertical slot, n^3, and the depending arms, n^3, n^3, the set-screw, b^3, passed through a part which is of, or united to, the section, *b*, through said slot and against the tube section, *d*, and another set-screw passed to a confining engagement against said collar, *n*, the float and levers, all substantially as and for the purposes set forth.

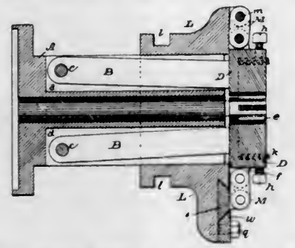
8. The combination with the stationary tube section, *a*, having near its lower end the annular shoulder, d^3, of the telescoping tube section, *b*, and the inner tube section, *d*, within the section, *b*, and extending up within and through the said annular shoulder, the annular screw plug, d^7, the compressible fibrous packings, d^8, d^9, the washers, d^4, d^5, and an intermediate mass of plastic material, substantially as described.

9. The combination with the stationary tube section, *a*, having near its lower end the annular shoulder, d^3, of the telescoping tube section, *a*, and the inner tube section, *d*, within the section, *b*, and extending up within and through the said annular shoulder, the annular screw plug, d^7, the compressible fibrous packings, d^8, d^9, the washers, d^4, d^5, and an intermediate mass of plastic material which is compounded of suet, glycerine, plumbago, paraffine and beeswax, and all arranged, shown, and substantially as set forth.

10. In combination, the supply tanks, the stationary depending tube section, *a*, with packing devices and material at its lower end, the telescoping tube section, *b*, having secured to its lower end the collar, *f*, with the arms, f^3, which support the regulator tank, *g*, lamps and branch tubular connections leading thereto from the tank, the tube section, *d*, with the enlarged lower portion, and the valve-seat, the valve with upwardly and downwardly extended stems, with the weight, k^3, and bevel edged disk *m*, the slotted collar, *n*, with the arms, n^3, the set screws, b^3 and n^4, the regulator float drum with the apertured lugs, *p*, *p*, and the radially arranged levers with the forked ends, all substantially as shown and described.

11. In an apparatus of the character described, section *a*, and the telescoping section, *b*, with the inner tubular section, *d*, movable therewith, having an inverted cup-like lower end enlargement which is screw-threaded, and the lower enlarged tubular section screw-engaging said cup-like part at its upper end, and having the valve-seat and float operated valve at its lower end, and the weight for the valve in the enlarged tube section below the coupling, substantially as described.

521,172. SCREW-CUTTING MACHINE. MICHEL D. LUERS, Cleveland, Ohio. Filed Oct. 27, 1893. Serial No. 489,251. (No model.)



Claim.—1. In a bolt-cutter head the combination with the barrel, the die-carrying arms pivoted at their rear ends therein and having radial movement on such pivots, and a clutch-ring sliding on the barrel outside of the die-carrying arms, and not bearing on said arms, of a toggle connecting the clutch-ring with each die-carrying arm at its forward end, substantially as described.

2. In a bolt-cutter head the combination with the barrel, the die-carrying arms pivoted at their rear ends therein and having radial movement on such pivots, and a clutch-ring sliding on the barrel outside of the die-carrying arms, and not bearing on said arms, of a toggle connecting the clutch-ring with each die-carrying arm in line radially with the die, substantially as described.

3. In a bolt-cutter head the combination of the barrel, die-carrying arms pivoted at their rear ends therein and having radial movement on their pivots, a clutch-ring sliding on the barrel outside of the die-carrying arms, and not bearing on said arms, and a toggle link pivoted at one end to the clutch-ring and at the other to the forward end of the die-carrying arm, substantially as described.

4. In a bolt-cutter head the combination of a barrel, die-carrying arms pivoted at their rear ends therein and having radial movement on their pivots, a clutch-ring sliding on the barrel outside of the die-carrying arms, and not bearing on said arms, and a toggle link pivoted at one end to the clutch-ring and at the other to the die holder in line radially with the die, substantially as described.

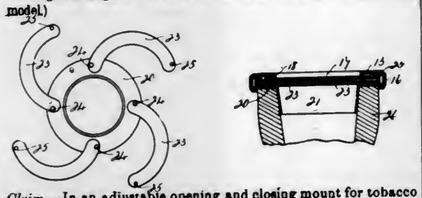
5. In a bolt-cutter head the combination of a barrel, dye-carrying arms pivoted therein at their rear ends and having radial movement on their pivots, a clutch-ring sliding on the barrel outside of the die-carrying arms, and a toggle link pivoted at one end to the forward end of the die-carrying arm and at the other to a forward extending stud on the clutch-ring, whereby the link is brought against the face of the clutch-ring when the dies are closed, and the dies are locked in the closed position, substantially as described.

6. In a bolt-cutter head the combination of a barrel, die-carrying arms pivoted at their rear ends therein and having radial movement on their pivots, a clutch-ring sliding on the barrel outside of the die-carrying arms, and a toggle connecting the forward end of the die-carrying arm with a forward extending stud adjustably secured to the clutch-ring, substantially as described.

7. In a bolt-cutter head the combination of a barrel, die-carrying arms pivoted therein, a clutch-ring sliding on the barrel, and a toggle link pivoted at one end to the die-carrying arm and at the other to a stud seated in an eccentric groove or slot on the clutch-ring, substantially as shown and described.

8. The combination in a bolt-cutter head of the barrel, the die-carrying arms, the clutch-ring sliding on the barrel, the links pivoted at one end to a die-carrying arm and at the other to a stud sliding in the clutch-ring, and a clamp-ring to clamp the studs in place, substantially as described.

521,173. COVER FOR TOBACCO-PIPE BOWLS. THOMAS MORTON, Birmingham, England. Filed Feb. 12, 1894. Serial No. 499,883. (No model.)



Claim.—In an adjustable opening and closing mount for tobacco pipe bowls, the combination with the leaves 23, and the table 20 having the socket 21, of the movable cover plates 15 and 18 having the slots 19, the said leaves being pivoted at their one end to the table 20, and the pins 25 at their other end engaging with the slots 19 in the plate 18, all substantially as set forth and shown.

521,174. DUSTER. ENOCH NATION, Indianapolis, assignor to William E. Nation, Kokomo, Ind. Filed Feb. 26, 1894. Serial No. 501,521. (No model.)



Claim.—1. The combination with an air pump hose or a hose connected with a tank of compressed air and a nozzle terminating said hose and means for regulating the escape of air through the nozzle, of a hood enveloping the nozzle and having an opening opposite the outlet in the nozzle through which the compressed air may be brought into contact with the goods to be cleaned, and an outlet from the hood terminating in a strainer by which the impurities may be deposited and collected in a body and the air allowed to escape.

2. The combination with an air pump hose or a hose connected with a tank of compressed air and a nozzle terminating said hose and means for regulating the escape of air through the nozzle, of a hood enveloping the nozzle and having an opening opposite the outlet in the nozzle through which the compressed air may be brought into contact with the goods to be cleaned, and having an outlet from the hood terminating in a strainer, said strainer consisting in a cloth bag removably secured to the discharge outlet of the hood, substantially as described and for the purposes specified.

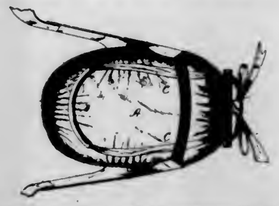
521,175. WELL-DIGGER. ARTHUR ODEWAHN and FREDERICK REICHART, Louisville, Ky. Filed June 21, 1893. Serial No. 478,366. (No model.)



Claim.—1. In an earth auger, the combination of a vertical standard, a cutting blade secured to the lower end of said standard, a shell or bucket sliding on said standard above said blade, a locking device at the upper connection of said shell and standard which locks the same against vertical movement thereon, and a locking device locking the lower edge of said shell directly to the outer edge of said blade against lateral movement only, such locking device being comprised within the periphery of the shell substantially as described.

2. In an earth auger, the combination of a vertical standard a pair of cutting blades secured to the lower end of said standard, said blades being perforated near their outer edge, a shell or bucket sliding on said standard, and pins, projecting downward from the shell, to the inner side of which they are secured near its lower edge, adapted to pass through the perforations of the blades, to hold the shell against backward pressure, substantially as described.

521,176. SUSPENSORY. ANDREW H. PARKER, Evanston, Ill. Filed Jan. 10, 1893. Serial No. 457,966. (No model.)



Claim.—1. The combination, in a suspensory, of a receiving and supporting portion, and a compression band having its loop lying free and loose within the receiving and supporting portion, substantially as and for the purposes specified.

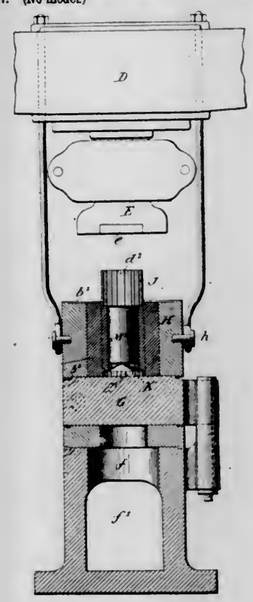
2. The combination, in a suspensory, of a receiving and supporting portion, a compression band having the ends passing through, and its loop lying free and loose withing the receiving and supporting portion; a cushion on the loop of the band, and a retainer on the ends of the band, substantially as and for the purposes specified.

521,177. COMPOSITION OF MATTER. WALLACE M. POPE, Cincinnati, Ohio, assignor to the Ault & Wiborg Company, of Ohio. Filed Apr. 7, 1894. Serial No. 506,747. (No specimens.)

Claim.—1. The herein described composition of matter to be used for canceling or stamping purposes consisting of rosin oil, lamp black, rosin soap and a coal tar acid in substantially the proportions specified.

2. The herein described composition to be used for canceling or stamping purposes consisting of rosin oil, basic analine blue, lamp black, rosin soap and a coal tar acid in substantially the proportions specified.

521,178. PROCESS OF AND APPARATUS FOR MAKING GEAR-WHEELS. ARTHUR T. PORTER, Brooklyn, N. Y., assignor to the United States Projectile Company, same place. Filed Sept. 23, 1893. Serial No. 486,287. (No model.)



Claim.—I. The improved process of making compressed wrought gears, consisting in placing a heated billet in a die having internal gear teeth and subjecting it to heavy pressure from a punch entering said die, so that its metal is caused to flow outward and fill the teeth of the die, and subsequently forcing it out of the die.

2. The improved process of making compressed wrought gears, consisting in placing a heated billet in a die having parallel internal gear teeth and subjecting it to heavy pressure from a punch entering said die, so that its metal is caused to flow outward and fill the teeth of the die, and subsequently applying pressure to its opposite end to force it out of the die through the same end thereof at which the punch entered it, whereby the teeth are smoothed and finished by rubbing against the parallel surfaces of the die.

3. The improved process of making compressed wrought gears, consisting in placing a heated billet in a die open at both ends and having internal gear teeth and subjecting it to heavy pressure between a punch entering said die at one end and a plate closing the other end, so that its metal is caused to flow outward and fill the teeth of the die, and then removing such plate and applying pressure to the end of the billet to force it through the die.

4. The improved process of making compressed wrought gears consisting in placing a heated billet with its end cooler than its remaining portion in a die having internal gear teeth and subjecting it to heavy pressure from a punch entering said die, and acting against said cooler end of the billet, so that the metal is caused to flow outward and fill the teeth of the die.

5. A die for the manufacture of compressed wrought gears having its inner portion formed of chilled cast iron with internal gear teeth, and an outer portion consisting of a steel ring shrunk upon said inner portion to reinforce it.

6. The combination of a female die open at both ends having parallel internal gear teeth, a male die or punch having external teeth adapted to freely enter the teeth of the female die, and a table for supporting the female die and closing its lower end.

7. The combination of a female die open at both ends having parallel internal gear teeth, a table for supporting it, a bottom plate or punch adapted to fill the lower end of the female die, and a male die or punch adapted to enter the upper end of the female die.

8. The combination of a female die having internal gear teeth, a male die or punch adapted to enter said female die, a removable table for supporting said female die during the operation of forming the pressed gear, and a supporting stand having a hole through its top adapted to support the die during the operation of forcing out the gear from the die.

9. The combination with the female die H, male die J and stand F, of the removable table G hung to the stand on a pintle *a*, whereby it may be swung out of the way

10. The combination with a press having a vertically movable head, of a female die, a stationary support therefor, and suspension devices connected to said die and adapted to be lifted by the ascent of the head in order to lift the die off from said support.

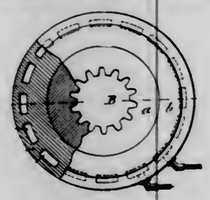
11. The combination with a press having a vertically movable head, of a reversible female die having opposite pivot pins, and suspension rods engaging said pins and connected to the head of the press, whereby the ascent of the head acts through the suspension rods to lift the die, and the die when lifted may be swung upon its pivots to invert it.

12. The combination of stand F, removable table G, female die H, male die J, movable cross-head D, and suspension rods D' by which the die can be lifted off the table G, the latter then moved out of the way, and the die lowered upon the stand.

13. The combination of stand F having top disk F' with centering projection *c*, removable table G having centering projection *b*, female die H having centering recesses *b'* adapted to fit either of said projections *b* or *c*, and means for raising or lowering the die.

14. The combination of stand F, table G, female die H, male die or punch J, and auxiliary punch L for forcing the compressed gear from the die.

521,179. METHOD OF MAKING DIES FOR GEAR-FORGING. ARTHUR T. PORTER, Brooklyn, N. Y., assignor to the United States Projectile Company, same place. Filed Dec. 26, 1893. Serial No. 494,705. (No model.)



Claim.—1. The improved method of making a die in which to forge gear wheels, consisting in cutting a cast iron blank with gear teeth of the diameter and pitch required for the gears to be forged except enough larger to allow for shrinkage, and of a length equal to the die to be made, then casting the die around said blank as a chill-core, and then boring out said blank and driving out its teeth, leaving the die of the exact shape, size and finish required.

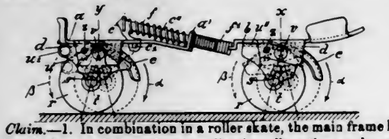
2. The improved method of making a die in which to forge gear wheels, consisting in cutting a cast iron blank with gear teeth of the diameter and pitch required for the gears to be forged except enough larger to allow for shrinkage, and of a length equal to the die to be made, then casting the die around said blank as a chill-core, and then boring out said blank and driving out its teeth, and finally shrinking a steel ring around the exterior of said cast die.

3. The improved method of making a die in which to forge gear wheels, consisting in casting the inner portion of the die around a cut blank as a chill-core, then boring out and removing said blank, casting a steel ring with connected water passages cored out around its upper portion, and finally shrinking said ring around the exterior of said cast die.

521,180. COMPOSITION FOR ARTIFICIAL FUEL. JOHN F. QUINN, New York, N. Y. Filed Feb. 15, 1894. Serial No. 500,195. (No specimens.)

Claim.—The herein described composition of matter to be used as fire kindlers and summer fuel, consisting of resin, coal dust, straw, kerosene, flour and lard in the proportions specified.

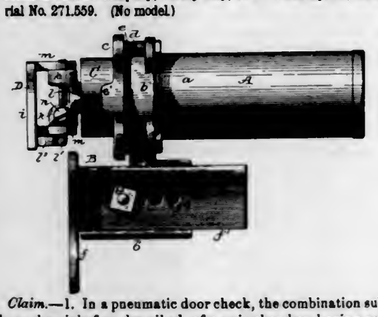
521,181. SELF-ACTING BRAKE FOR ROLLER-SKATES. JOSEF RIEDEL, Vienna, Austria-Hungary. Filed Oct. 10, 1893. Serial No. 487,778. (No model.)



Claim.—1. In combination in a roller skate, the main frame having the side flanges *d d* bent downwardly, the rollers, the supplemental frames carrying the same and having sides overlying the flanges *d d*, and pivoted thereto, the cross piece or stop for limiting the movement of the said frames and the brake block comprising the flanges *e e* bent down from the main frame, substantially as described.

2. In combination in a roller skate the frame having the side flanges *d d* bent downwardly and also the brake blocks *e*, the rollers, the supplemental frames having sides overlying the flanges *d d* and pivoted thereto, said flanges and sides being perforated and the pin passing through the said holes to hold the frames *u* to the flanges *d d* against turning, substantially as described.

521,182. PNEUMATIC DOOR-CHECK. JAMES W. RING, Boston, Mass., assignor, by mesne assignments, to the Van Wagoner and Williams Hardware Company, Jersey City, N. J. Filed Apr. 23, 1888. Serial No. 271,559. (No model.)



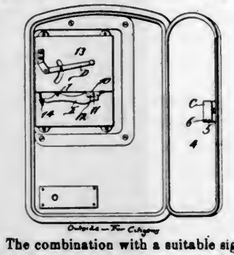
Claim.—1. In a pneumatic door check, the combination substantially as hereinbefore described, of an air chamber having packing at its front or open end, and also having a bracket by which it may be mounted in position for service, a plunger wholly separable from said chamber as during the movement of a door and having a surface throughout its length with which said packing closely engages, a plunger rod pivoted to said plunger, and a bracket on which said rod is pivoted, and by means of which said plunger may be mounted and supported independently of the air chamber on a door or its frame.

2. In a pneumatic door check, the combination with an air chamber, a plunger separable from said chamber, a plunger rod pivoted to said plunger, a bracket, and a spring rock shaft to which said plunger is secured and by means of which it is pivoted to said bracket, substantially as described, said rock shaft normally maintaining the plunger in an inclined position, but permitting it to vibrate in entering and leaving said air chamber.

3. In a pneumatic door check, the combination of the plunger, its rod, the bracket, the spring rock shaft by which the rod is pivoted to the bracket, and a clamp screw on said rod for engaging with said rock shaft, and causing it to semi rotate in its bearings during the swinging movements of the plunger rod, substantially as described.

4. In a pneumatic door check the combination with a plunger, of the air chamber, the annular, flared packing at its open end or mouth, and an annular spring at the rear of said packing, for reducing the diameter of its annular opening, and causing it to maintain air tight relations with said plunger while entering the chamber, substantially as described.

521,183. POLICE SIGNAL-TELEGRAPH SYSTEM. CHARLES A. ROLFE, Chicago, Ill. Filed Oct. 22, 1892. Serial No. 449,595. (No model.)



Claim.—1. The combination with a suitable signal transmitting mechanism available for general business at the front of its alloted box, of supplemental means for operating the same, available only for special signals, at the back of the box when the latter is open at its back, and a setting device subject to and actuated by said supplemental means and operating in conjunction therewith whereby an action of the supplemental means serving to operate the signal transmitting mechanism shall cause the setting device to adjust the latter with reference to the transmission of a determinate signal, substantially as described.

2. The combination with a suitable signal transmitting mechanism available at the front of the box or casing for general business, of a supplemental lever for operating the same available at the back of the box, a setting device subject to and actuated by said lever and operating in conjunction therewith whereby an action on the part of the supplemental lever serving to operate the signal transmitting mechanism shall cause the setting device to set the latter for the transmission of a determinate signal, substantially as described.

3. The combination with a suitable signal transmitting instrument of the lever D for operating the same, and a setting device adapted to set the signal transmitting mechanism for a special signal and comprising a vibratory lever E subject to and operated by the lever D, substantially as described.

4. The combination with the supplemental lever for operating a suitable signal transmitting mechanism, of a setting device adapted to set the signal mechanism for a determinate signal and comprising a vibratory lever carrying a movable stop or abutment which is engaged by the supplemental lever when the latter is moved in one direction and which is moved out of the way by the return movement of the supplemental lever so as to allow the latter to pass to its normal position, substantially as described.

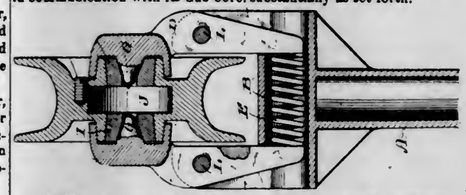
5. The combination with a suitable signal transmitting mechanism, of the lever D for operating the same, and a setting device adapted to set the signal transmitting mechanism for a determinate signal and comprising a vibratory lever, a slide connected with said lever by an adjustable connection, and a bell-crank operated by the slide and arranged for operating the pointer spindle, substantially as described.

6. The combination with suitable signal transmitting mechanism provided with a permanent operating lever, of a signal setting device subject to and actuated by said lever when the latter is operated to start the signal transmitting mechanism, substantially as and for the purpose described.

521,184. TROLLEY. HENRY SCHEELE, JOHN P. SCHEELE, and HENRY A. RUST, Milwaukee, Wis. Filed Feb. 23, 1894. Serial No. 501,096. (No model.)

Claim.—1. The combination of a suitable head having pivotal levers provided with bearings, a trolley wheel loose on these bearings, and a spring under compression between the levers on that side of their pivots opposite said bearings, substantially as set forth.

2. The combination of a suitable head having pivotal levers provided with bearings, a spring under compression between the levers on that side of their pivots opposite the bearings, and a trolley-wheel that is loose on said bearings and has an internal lubricant chamber in communication with its hub-bore, substantially as set forth.

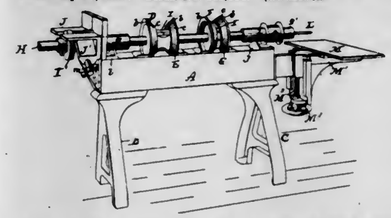


3. The combination of a suitable head having a trolley-wheel having its hub bushed with hardened steel sleeves, pivotal levers provided with bearings engaging the sleeves, and a spring under compression between the levers on that side of their pivots opposite said bearings, substantially as set forth.

4. The combination of a suitable head having pivotal levers provided with hub caps and bearings for a trolley wheel, and a spring under compression between the levers on that side of their pivots opposite said bearings, substantially as set forth.

5. The combination of a head having a pole-socket lower end, a horizontal chamber and upwardly extended ears arranged in pairs at the extremities of the chamber; a lever pivoted between the ears in each pair and provided with a bearing surrounded by a cap, a trolley-wheel having its hub engaged by the caps and bearings on the levers, and a spring in the head-chamber under compression between said levers on that side of their pivots opposite said bearings, substantially as set forth.

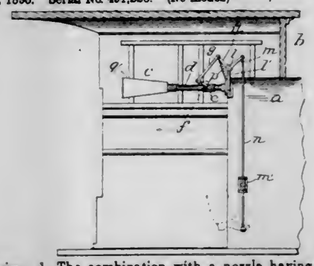
521,185. WOODWORKING-MACHINE. CHARLES SEYMOUR, Defiance, Ohio, assignor to the Defiance Machine Works, same place. Filed July 29, 1892. Serial No. 441,631. (No model.)



Claim.—1. The combination with a hollow bed-plate having a concaved upper surface provided with an inverted T-shaped slot for the accommodation of bolt heads, of guard rings having each an extension which constitutes a foot whereby it is held by a bolt in the concave upper surface of the bed-plate, substantially as set forth.

2. The combination of a hollow bed-plate having a concaved upper surface and guard rings secured thereto, of a shaft, cutters thereon, and vertical laterally adjustable tables, substantially as set forth.

521,186. LOCOMOTIVE ATTACHMENT. FRANK J. SMITH, Marcellus, Mich., assignor of one-half to C. C. Long, same place. Filed Nov. 17, 1893. Serial No. 491,228. (No model.)

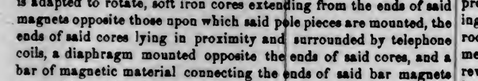


Claim.—1. The combination with a nozzle having connection with a locomotive boiler and arranged to command the approaches to the cap thereof, and a valve, of a transverse shaft having a crank between its ends which is operatively connected with the said valve, and having crank arms at its ends extending at different relative angles, and rods, one on each side of the cab, connected with the said

crank arms and having foot rests at their lower ends, and guides to steady and direct the said rods in their movements.

2. The combination with a locomotive cab, of a nozzle commanding the approaches thereto comprising a tapering case connected at the apex with the boiler, and a series of independent tubes arranged in divergent relation from the inner to the outer end of the case, and a valve under the control of the engineer to establish communication between the bank of divergent tubes and the boiler, substantially as and for the purpose described.

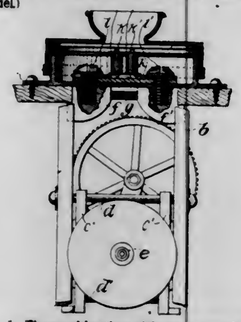
521,187. FELLY FOR BICYCLE-WHEELS. ASA P. SQUIRES, Chicopee Falls, Mass. Filed Mar. 20, 1894. Serial No. 504,389. (No model.)



Claim.—1. The herein described joint for wooden rims or fellies, consisting of the lapping portions A B correspondingly corrugated longitudinally and fitting together as shown and adhesively secured to each other, said corrugations coming to the surface on the outer and inner surfaces of the felly in opposite directions, substantially as set forth.

2. A joint for wooden rims or fellies, comprising lapping portions each of which is longitudinally corrugated on its inner side, substantially as described.

521,188. MAGNETO-TELEPHONE. ALFRED STROMBERG and ANDREW CARLSON, Chicago, Ill. Filed Mar. 9, 1894. Serial No. 503,044. (No model.)



Claim.—1. The combination with permanent bar magnets, of pole pieces mounted upon the ends of said magnets, between which the armature is adapted to rotate, soft iron cores extending from the poles of said magnets, the ends thereof being in proximity and surrounded by telephone coils, and a diaphragm mounted opposite the ends of said cores, substantially as described.

2. The combination with permanent bar magnets, of pole pieces mounted upon the ends of said magnets, between which the armature is adapted to rotate, soft iron cores extending from the ends of said magnets opposite those upon which said pole pieces are mounted, the ends of said cores lying in proximity and surrounded by telephone coils, and a diaphragm mounted opposite the ends of said cores, substantially as described.

3. The combination with permanent bar magnets, of pole pieces mounted upon the ends of said magnets, between which the armature is adapted to rotate, soft iron cores extending from the ends of said magnets opposite those upon which said pole pieces are mounted, the ends of said cores lying in proximity and surrounded by telephone coils, a diaphragm mounted opposite the ends of said cores, and a bar of magnetic material connecting the ends of said bar magnets upon which said soft iron cores are mounted, thereby providing a magnetic shunt about the same, substantially as described.

4 The combination with a permanent magnet, of a casing supporting the diaphragm and metallically mounted upon said magnet, soft iron cores extending from the poles of said magnet through the bottom of said casing, the ends thereof being approached and situated opposite said diaphragm, and telephone coils provided on said cores, substantially as described.

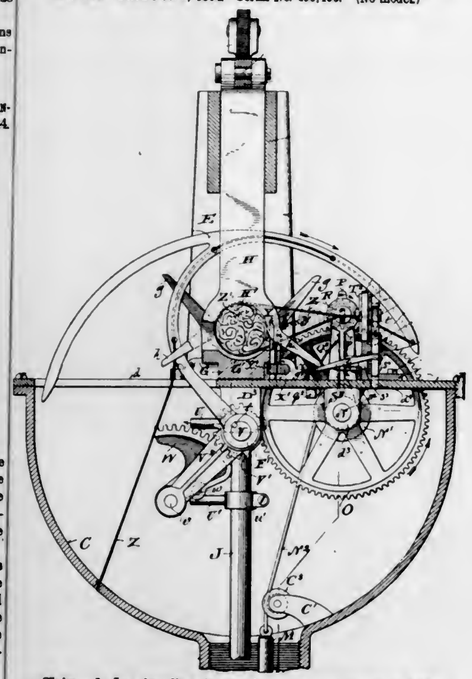
5. The combination with the straight bar magnets *a b*, of the pole pieces *c c'* mounted upon the ends of said magnets, the cast iron pieces *f f'* mounted upon the opposite ends of said magnets, the casing or diaphragm support *h* mounted upon said cast iron pieces *f f'*, the soft iron cores *k k'* mounted upon said pieces *f f'*, and the diaphragm *n* supported upon said diaphragm support *h* and mounted opposite the approached ends of said soft iron cores *k k'*, substantially as described.

6. The combination with a cap, of a diaphragm resting against the under side of the same, a threaded ring adapted to be screwed within said cap against said diaphragm, and a casing provided with threads adapted to engage threads upon said cap, substantially as described.

7. The combination with a cap, of a diaphragm resting against the under side of the same, a threaded ring adapted to be screwed within said cap against said diaphragm, a casing provided with threads adapted to engage threads upon said cap whereby the diaphragm may be adjusted and a threaded ring adapted to be screwed upon said casing and against said cap to lock the same in its adjusted position, substantially as described.

8. The combination with a cap provided with an internally threaded flange, of a threaded ring adapted to be screwed upon said threaded flange, a diaphragm adapted to be clamped between the under side of said cap and said ring, and a casing provided with a thread adapted to engage a thread upon said cap; whereby said diaphragm may be adjustably raised and lowered, substantially as described.

521,189. TOBACCO-TYING MACHINE. RICHARD TELL, Milwaukee, Wis. Filed Feb. 8, 1894. Serial No. 499,466. (No model.)



Claim.—1. In a bundle-tying machine, the combination of a suitable frame and standard, a receiver for the goods to be tied, a compressor for vertical engagement therewith, a vertical rod for operating said compressor, a lever connection between said compressor and rod, a movable needle carrying twine or wire for tying said goods, means for operating the needle, twisting and cutting mechanism, a revoluble shaft connected to the same, a flexible connection leading from said shaft and a double treadle, one part of which is connected to the said vertical rod, and the other part of which is connected to said flexible connection, substantially as set forth.

2. In a bundle-tying machine, the combination of a suitable frame and standard, a receiver for the goods to be tied, a vertically moving compressor having a projecting arm, a movable needle carrying twine or wire for tying said goods, means for operating the needle, cord holding twisting and cutting mechanism, and an operating lever connected to the same projecting beneath the said compressor arm, and adapted to be actuated by the latter as it descends upon the goods to be tied, substantially as set forth.

3. In a bundle-tying machine, the combination of a suitable frame and standard, a receiver for the goods to be tied, a vertically moving compressor, a vertically movable rod for operating the same, a lever connection between the compressor and rod, a series of pins projecting from said rod, a shaft supported beneath said receiver, a movable needle and a mutilated pinion fast on said shaft, a toothed segment supported adjacent thereto and in mesh with said pinion, and a pin projecting from said segment between and transversely to the line of projection of the pins on said rod, substantially as set forth.

4. In a bundle-tying machine, the combination of a suitable frame and standard, a receiver for the goods to be tied, a vertically moving compresser, a movable needle carrying twine or wire for tying said goods, a revoluble shaft beneath the receiver provided with a cam, gear wheel fast on said shaft, a spring supported yoke loose on said shaft, a revoluble sleeve carried by said yoke, a pinion on said sleeve in mesh with said gear-wheel, a spring-controlled twisting hook longitudinally movable within said sleeve, cord holding and cutting mechanism, and a pivoted lever in engagement at one end with said twisting hook and at its other end with the cam on said shaft, substantially as set forth.

5. In a bundle-tying machine, the combination of a suitable frame and standard, a receiver for the goods to be tied, a vertically moving compressor, a movable needle carrying the tying cord, means for operating the needle, cord holding twisting and cutting mechanism, a vertical revoluble rod adjacent to the receiver, and provided with a pinion and with a spiral hook at one end, said hook extending from the said rod on one side only, and flaring vertically and tapering spirally from its end adjacent to said rod toward its free end, and a spring-controlled push-rod provided with a toothed rack for engagement with said pinion, substantially as set forth.

521,190. STOP-MOTION FOR KNITTING-MACHINES. ELI TIFFANY, Bennington, Vt. Filed June 2, 1892. Serial No. 435,261. (No model.)

Brief.—The bar K is reciprocated from the head W X and slides in the way H. Bar K carries bar L, the latter coming in contact with the belt-shipper at each reciprocation and being moved back thereby, a spring Q connecting bars K and L. If the claw should be engaged by a bunch on the needles, the locking device N is released and locks bars K and L together, when bar L, being unable to move back upon striking the belt-shipper, ships the belt.

Claim.—1. In combination with the belt shifting mechanism of a straight knitting machine, a pivoted claw adapted to be reciprocated in front of and in close proximity to the needles and to be rotated by engagement with any abnormal accumulations upon said needles, a reciprocating slide with which said claw is connected and carrying a bar which actuates the belt shifter and has an endwise movement upon said slide, means substantially as shown, for reciprocating said slide and claw, a resilient device, as a spring, connecting said slide and bar, a locking device for effecting fixed engagement between said slide and bar and adapted to be controlled in its action by the action of the pivoted claw, constructed and arranged to operate substantially in the manner described and for the purposes specified.

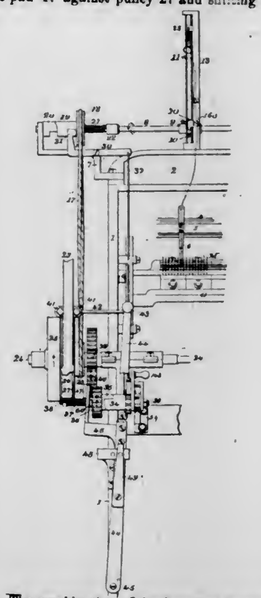
2. The combination with the needles of a straight knitting machine, of the described pivoted claw and locking dog fitted with intermediate provisions for setting said dog out of engagement with the bar which coacts with the belt shifting apparatus for stopping the machine, and the slide K and bar L, mounted on said slide and adapted to slide longitudinally thereon and therewith as and for the purposes specified.

3. The combination of the arm G of the reciprocating slide K, the bar L and spring Q, and means substantially as shown, for reciprocating said slide and bar, substantially as described and for the purposes set forth.

4. The jointed driving arm U S, in combination with the yarn carrying head W X, and the slide K, substantially as specified.

521,191. QUARTER-SAVER FOR FLAT-RIB KNITTING-MACHINES. ELI TIFFANY, Bennington, Vt., and GEORGE E. PARKER, Amsterdam, N. Y., assignors to Eli Tiffany & Sons, Bennington, Vt. Filed June 12, 1893. Serial No. 477,279. (No model.)

Brief.—When a yarn breaks or runs out, ring 12 drops and engages spider 10, stopping the rotation of shaft 8 and clutch member 20. Pulley 18 is thereupon forced to the right, allowing pawl 51 to drop and engage ratchet-wheel 33, stopping the rotation of the same and of cam 34. Cam 35 and wheel 36 are thereby forced to the left, pressing brake-pad 47 against pulley 27 and shifting belt 28 upon pulley 25.



Claim.—1. The combination of the drop ring, means for guiding said ring toward and arresting and holding it in the path of revolution of the fingers of a rotating spider, and a rotating spider, combined and arranged to operate substantially in the manner described and for the purpose set forth.

2. The shifting lever carrying the belt shifting fingers and the brake pad, in combination with the clutch having the described cam faces and square ends, means connected with one of the clutch members for stopping it at the emergent moment, and the brake flange or face on the driving shaft against which the brake works, constructed and arranged to operate substantially in the manner described and set forth.

3. The combination of the drop ring the guide wires on which it slides, the revolving spider, a belt shifter and the described clutch; with devices interposed between said clutch and the belt shifter for stopping the machine, substantially as specified.

4. The combination with the brake pulley of the described cam clutch having the cam faces and squared ends, and a brake pad interposed between the driving member of the clutch and the brake flange substantially as specified.

5. The combination of the drop ring, the wires on which it slides, the guiding lug between the wires opposite the spider, and a shaft carrying a spider and the described cam clutch, substantially as specified.

6. The combination with the upper and lower cam clutches of the interposed lever 30, drop wire 32, clawker 51 and ratchet 33, substantially as and for the purposes described and set forth.

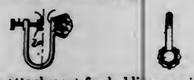
7. The combination with the described cam clutch of the ratchet, the clawker lever and the clawker substantially as specified.

8. The combination of the described cam clutch, a ratchet connected with one member thereof and rotating on a common axis, a clawker and clawker lever for actuating said ratchet, and a spring disposed outside of the loose member of the clutch for maintaining normal contact between the cam faces of the clutch, constructed and arranged to operate substantially in the manner and for the purposes specified.

9. A clutch consisting of a sliding, rotating, member and of a non-sliding, rotating, member, between which are the contact faces which consist in each of a cam face and a square end fitted so as to be substantial counterparts of each other, and means interposed between the driving member of said clutch and the main driver of the machine, in

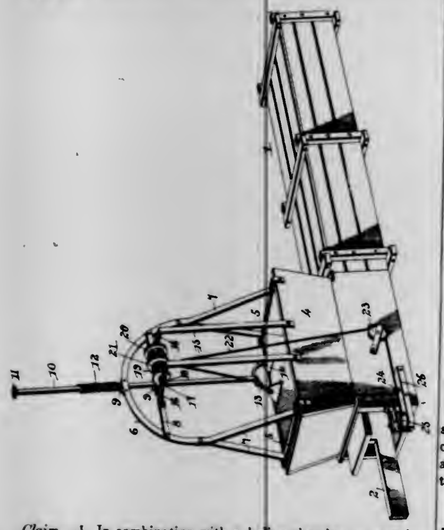
virtue of which the axial movement of the sliding member, caused by the separation of the cams due to the action of the non-sliding member upon or against the sliding one, shall throw off the power, and the position of the two members of the clutch in contact end to end shall hold locked the cut off power devices until released, substantially in the manner described and for the purposes specified.

521,192. ATTACHMENT FOR HOLDING EAR-JEWELS. GEORGE H. TILFORD and ARTHUR F. BENNETT, Providence, R. I. Filed Jan. 4, 1894. Serial No. 495,628. (No model.)



Claim.—In an attachment for holding ear jewels or ornaments, the combination of a loop having a jewel or ornament attached thereto, a screw rod fitted to screw into a hole in one end of the loop, a disk on the inner end of said screw rod, a pad of soft material secured to the face of said disk, with a recess in the end of the loop opposite to said disk, substantially as set forth.

521,193. FEED ATTACHMENT FOR BALING-PRESSES. JOSIAH S. TUTTLE, Burns, Kans. Filed May 31, 1893. Serial No. 476,124. (No model.)



Claim.—1. In combination with a baling-chamber or press-box and its plunger, a hopper supported above the feed-opening of the chamber, a framework arranged upon the hopper, a reciprocating rod 10 carrying the tamping head and provided with a stop and mounted for movement in the framework, a spring 12 coiled around the rod between the head and rod-support, and mechanism connected respectively to the rod and plunger to operate the tamping head, substantially as specified.

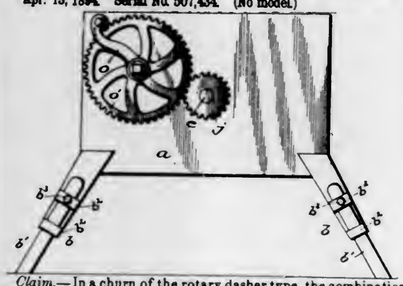
2. In combination with a baling-chamber or press-box and its plunger, a hopper supported above the feed-opening of the chamber, a framework arranged upon the hopper, a reciprocating rod 10 having a stop and carrying the tamping head and mounted for movement in bearings in the framework, said head being arched as shown and having at its ends the transverse forks, a spring 12 coiled around the rod and interposed between the stop and bearing of the rod, and mechanism connected respectively to the rod and plunger to operate the tamping head, substantially as specified.

3. In combination with a baling-chamber or press-box and its plunger, a hopper supported above the feed-opening of the chamber, a framework arranged upon the hopper and having a bearing, a reciprocating rod 10 located therein and provided with a stop and carrying the tamping head, said head being arched, as shown, and having at its ends the transverse forks, a spring 12 coiled around the rod and interposed between the stop of the rod and its bearing, and two drums rigidly connected, and ropes for the drums, the rope of one drum being connected to the rod, and the rope of the other drum having connection with the plunger of the press, substantially as specified.

4. The combination with a baling press and its plunger, of a hopper supported upon the press and provided with eyes, a rod arranged for vertical movement in the eyes and having a tamping head, a pair of drums supported at one side of the rod, a rope secured to one of the drums and to said rod, and an operating rope secured to the remaining drum and to the plunger head, and intermediate guides for said operating rope, substantially as specified.

5. In a baling press, the combination with a baling chamber and its plunger, of a hopper arranged over the opening in the chamber, transverse strips supported upon the hopper, an inverted U-shaped arch having its terminals deflected and secured to the ends of the strips, inclined braces secured to the terminals at their points of deflection and also to the ends of the strips, a transverse brace for the arch, there being vertically aligning eyes in the brace, and the arch, a rod mounted for reciprocation in said eyes and terminating at its upper end in a head, a coiled spring arranged upon the rod between the upper eye and the head, an arched head secured to the lower end of the rod, forks connected to the ends of the arched head, a pair of vertical standards secured to the sides of the hopper and inwardly bent and secured to the transverse brace of the arch, bearings in the horizontal portions of said standard, a shaft journaled in the bearings, a large and small drum rigid with each other mounted on the shaft, a rope secured to the large drum and to the lower end of the rod, a pulley 23 secured to the side of the baling chamber, a horizontally disposed pulley 25 located at one end of the baling chamber, a guide-eye 24 between the same and the pulley 23, an inner eye, an eye upon the plunger head, and an operating rope wound upon and secured to the smaller drum, passed under the pulley 23, through the guide-eye 24, around the pulley 25, and through the inner guide-eye and secured to the eye of the plunger head, substantially as specified.

521,194. CHURN. ROBERT E. VAN COURT, Elkton, Va. Filed Apr. 13, 1894. Serial No. 507,434. (No model.)



Claim.—In a churn of the rotary dasher type, the combination of a tank containing a horizontal shaft provided with oblique disks carrying segmental dashers on diametrically opposite sides thereof, and substantially crescent-shaped brackets located on the side of the tank, opposite each disk, in the manner and for the purpose set forth.

521,195. BAND-CUTTER AND FEEDER. EDWARD J. VRAALSTAD, Hillsborough, N. D. Filed Jan. 16, 1894. Serial No. 497,089. (No model.)

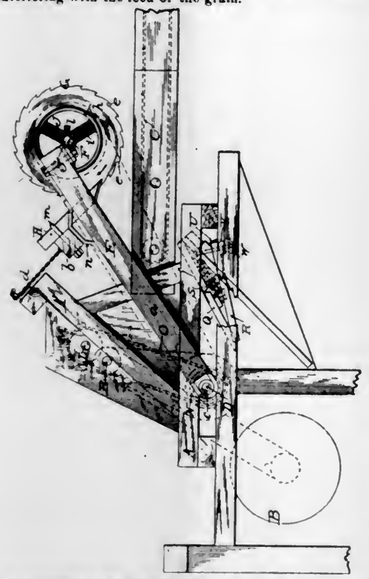
Claim.—1. In a band cutter and feeder, the combination of an endless carrier C; means for cutting the bands; a toothed endless carrier or rake O set away from the delivery end of carrier C and extending from a point above to a point below said carrier C; and a normally-inert, inclined, yielding board Q extending from just below the delivery end of carrier C toward the lower end of rake O, to form, in connection with the rake, an inclined throat into which the grain is tipped after the band has been cut, all substantially as shown and described.

2. In a band cutter and feeder, the combination of a carrier C to receive the bound bundles of grain; the toothed disk G adapted to take hold of and elevate the grain band and to present it to the knife; and the fixed knife H arranged above the lower edge of the disk and at the rear side of the latter, all substantially as shown and described.

3. In combination with the carrier C, the overhanging frame E having the fixed knives H; and the shaft F provided with disks G having hooks or teeth *c*, said knives being located close to the side faces of the disks, and in rear of the shaft.

4. In combination with the carrier C; the overhanging frame E having the fixed knives H; and the shaft F located in advance of the knives and provided with toothed disks G and enlarged sleeves K between the disks, whereby the sleeves will hold the grain upon the carrier while the disks are drawing the band taut and raising it to the knives.

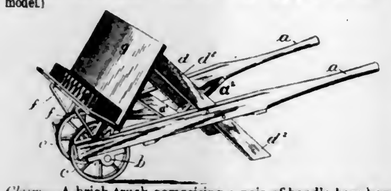
5. In a band cutter and feeder, the combination of a carrier C; a shaft F located above the same and provided with enlarged sleeves and with the toothed disks; and a fixed knife arranged in rear of the shaft, with its lower cutting edge substantially in the same horizontal plane with the lower face of the sleeve, whereby the knife is prevented from interfering with the feed of the grain.



6. In combination with the board Q having its upper end rigid and its lower end hinged or pivoted, the spring S to sustain the lower end of said board and extending from the upper end to the lower end thereof, and the stationary arms R adapted to project above or through the board when the latter is depressed.

7. In combination with a hinged board Q slotted as shown; a series of arms R projecting into the slot, and connected to a bar or rod, a support for said bar and arms independent of the board and means for clamping the bar and its arms in different positions.

521,196. BRICK-TRUCK. DWIGHT M. WARNER and CHARLES E. HAMMOND, Sparta, Mich. Filed Oct. 7, 1893. Serial No. 487,525. (No model.)



Claim.—A brick truck comprising a pair of handle bars having at their forward ends a supporting wheel, a table mounted upon the handle bars and slanting rearwardly at an angle of about forty-five degrees so that when the handle bars are raised the table will extend nearly vertical, and an arm or stud projecting out at right angles from the lower end of the table, upon which arms and table the bricks are adapted to rest in transit, substantially as described

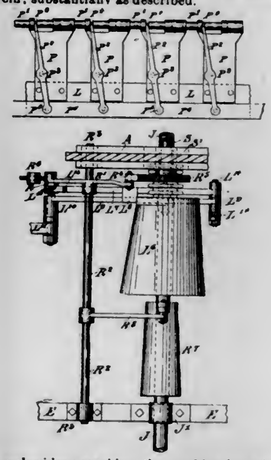
---

521,197. EMBROIDERING-MACHINE. RUDOLPH WEISS, Nottingham, England. Filed Feb. 20, 1891. Serial No. 382,214. (No model.) Patented in England May 6, 1890, No. 7,031; in France Feb. 9, 1891, No. 211,275; in Switzerland Feb. 10, 1891, No. 3,477; in Belgium Feb. 11, 1891, No. 93,726, and in Austria-Hungary July 21, 1891. No. 10,029 and No. 25,753.

Claim.—1. In an embroidery machine, the combination with the thread carrying needles and operating mechanism, of the movable take up bar L carrying movable bolts for holding and releasing the threads; substantially as described

2. In an embroidery machine, the combination with the thread carrying needles and operating mechanism, of the movable take up bar L carrying a series of bolts for holding the threads connected for simultaneous movement, with means for operating said bolts; substantially as described.

3. In an embroidery machine, the combination with the thread carrying needles, and operating mechanism, of the movable take up bar having recesses or openings therein for the passage of the needles and the members moving across said recesses or openings to hold the threads therein; substantially as described.



4. In an embroidery machine, the combination with the thread carrying needles and operating mechanism, of the bar L, brackets P, sliding bolts P' levers P^2 and bar P^6 forming a take up bar; substantially as described.

5. In an embroidery machine, the combination with the thread carrying needles and operating mechanism of the take up bar, the movable bolts on said bar for holding the threads, the flexible connection P^8 for moving the bolts, pulley P^9 lever P^{10} and cam P^{11}, substantially as described.

6. In an embroidery machine, the combination with the thread needles, operating mechanism therefor, movable take up bar and its movement transmitting connections, of an actuating cam L^6 cooperating with said take up bar movement transmitting connections, said cam imparting the complete back and forth movements to the take up bar between successive stitches, and having its cam surface graduated at right angles to its plane of rotation, with automatic means for shifting the relative positions of the cam and take up bar movement transmitting connections, longitudinally of the axis of the cam, whereby the length of the back and forth movement imparted to said bar as produced by said cam, is varied to compensate for the varying length of the thread; substantially as described.

7. In an embroidery machine, the combination with the thread needles, operating mechanism therefor, a take up, a lever L^5 for operating said take up and an operating cam having its cam surface graduated at right angles to its plane of rotation, the lever L^7 moved by the cam and cooperating with the lever L^5 to move the same and mechanism operated by the lever L^7 for shifting the relative position of the cam and lever L^7 whereby the length of the movement of the cut-off may be varied; substantially as described.

8. In an embroidery machine, the combination with the thread needles, operating mechanism cam, take up, and lever L^5 of the lever L^7, lever R' connected therewith, the ratchet wheel R^3 for shifting the relative positions of the cam and lever L^5 and the pawl R^4 moved by the lever R' and engaging said wheel; substantially as described.

9. In a take up bar operating mechanism, the combination with the take up bar, its operating lever and cam cooperating therewith movable with relation to each other, of the ratchet wheel R^3 and worm connected therewith for changing the relation of the cam and lever, the lever L^7, link R, lever R' carrying pawl R^4, shaft R^3 arm R^8 and cam R^7 for operating said arm; substantially as described.

10. In a take up bar operating mechanism, the combination with the take-up bar its operating lever and the movable cam cooperating therewith, of the ratchet wheel R^3, shafts S and S^3 connected by worm gear and rack and a pawl and operating lever therefor for moving said ratchet wheel controlled by the take up bar operating lever; substantially as described.

11. In an embroidery machine, the combination with the needle nippers and the bar F on which they are mounted, of the pendent pivoted hangers G carrying the bar F at their lower ends; substantially as described.

12. In an embroidery machine, the combination with the nippers, take up bars, their operating cam having a variable movement and the nipper-carrying bar F, of a cam F^4 for operating the nipper carrying bar, which cam is graduated, the number of movement giving degrees being increased in different parts of its length to compensate for the increased speed of the take-up bar operating cam as the length of the movement of the take-up bars decreases; substantially as described.

13. In an embroidery machine, the combination with a nipper and the nipper carrying bar F, of cams such as F^4 and F^5 operating the said bar F, levers F^6 arm F^7 shaft F^9, link F^9 and arm F^{11} secured to the shaft F^8; substantially as described and illustrated in the accompanying drawings.

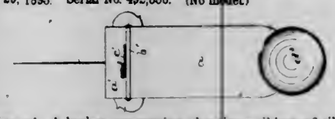
14. In an embroidery machine, the combination with the take up bars having a variable movement, the nippers, nipper carrying bar and nipper releasing shaft K, of a cam K^6 for operating the said shaft K which cam is graduated the number of movement giving degrees being increased in different parts of its length so as to compensate for an increased speed of the cam as the length of movement of the take up bars is increased substantially as described and illustrated in the accompanying drawings.

15. In an embroidery machine, the combination with the needles, take up bars and support bar, of an operating mechanism for said support bar M consisting of rocking shaft M^2 arm M^4 link M^3 bar M^5 brackets M' and means for operating rocking shaft M^2 substantially as described and illustrated in the accompanying drawings.

16. In an embroidery machine, the combination, with the needles, take up bars having a variable movement, and support M, of a cam M^4 for operating the said bar M graduated, the number of movement giving degrees being increased in different parts of its length so as to compensate for an increased speed of the cam as the length of movement of the take-up bars is decreased substantially as described and illustrated in the accompanying drawings.

17. In an embroidery machine, the combination with the needles, and take-up bars having a variable movement, of a power transmitting mechanism for increasing the speed of the machine as the movement of the take up bars decreases, consisting of cone pulleys T' shafts, T^2 and T^3 pulleys T^4 and actuating belt substantially as described and illustrated in the accompanying drawings.

521,198. BADGE. BENJAMIN S. WHITEHEAD, Newark, N. J. Filed Nov. 29, 1893. Serial No. 492,338. (No model.)



Claim.—1. A badge, comprising therein, a ribbon of silk, satin or other like material, bearing an inscription, design or emblem, and a pendant or medallion on the one end of said ribbon, said pendant or medallion comprising therein a suitable back-plate and an open frame, the end of said ribbon being secured between the back-plate and open frame, a piece of silk, satin, paper, or other like material bearing an inscription, design or emblem arranged between said back-plate and open frame, substantially as set forth.

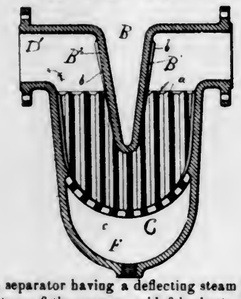
2. A badge, comprising therein a ribbon of silk, satin or other material; bearing an inscription, design or emblem, and a pendant or medallion on the one end of said ribbon, said pendant or medallion comprising therein a suitable back-plate and an open frame, the end of said ribbon being secured between said back-plate and open frame, a piece, of silk, satin, paper, or other like material bearing an inscription, design or emblem, and a piece of transparent material arranged to cover said silk, satin, paper, all arranged and secured between said back-plate and open frame, substantially as and for the purposes set forth.

3. In a badge, the combination with a ribbon thereof, of a head-piece provided with a clamping bar between which and the main portion of said head-piece, the one end of said ribbon is clamped, and a pin provided with a cross-bar secured in the projecting end of said ribbon, substantially as and for the purposes set forth.

4. A badge, comprising therein, a ribbon a, a ribbon a^3, shorter than said ribbon a, a head-piece to which the ends of said ribbons are attached, and a pendant or medallion secured to the end of said ribbon a^3, said pendant or medallion comprising therein a suitable back-plate and an open frame, the end of said ribbon a^3 being secured between said back-plate and open frame, a piece of silk, satin, paper or other like material bearing an inscription, design or emblem arranged between said back plate and open frame, substantially as and for the purposes set forth.

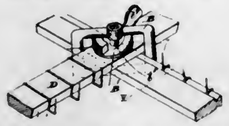
5. A badge comprising therein, a ribbon a, a ribbon a^3, shorter than said ribbon a, a head-piece to which the ends of said ribbons are attached, a pendant or medallion secured to the end of said ribbon a^3, said pendant or medallion comprising therein a suitable back-plate and an open frame, the end of said ribbon a^3 being secured between said back-plate and open frame, a piece of silk, satin, paper or other like material bearing an inscription, design or emblem arranged between said back-plate and open frame, and a piece of transparent material arranged to cover said silk, satin or paper, substantially as and for the purposes set forth.

521,199. OIL AND WATER SEPARATOR. EUGENE AUSTIN, Detroit, Mich. Filed Mar 23, 1894. Serial No. 504,752. (No model.)



Claim.—A separator having a deflecting steam passage, a false bottom at the turn of the passage, said false bottom provided with elongated cross openings, corrugations on the walls of the passage, leading to the openings, and a water chamber below the false bottom whereby the saturated steam is swept over the false bottom, and the water and oil caught by it, substantially as described.

521,200. CURTAIN-STRETCHER. ROBERT J. BARTLEY, Cleveland, Ohio. Filed May 31, 1893. Serial No. 476,075. (No model.)



Claim.—1. In a curtain stretcher, the combination with side and end rails having their ends crossing each other, of tenter hooks projecting from the plane of the under sides of the rails crossing above the other rails, and tenter hooks projecting from the plane of the upper sides of said latter rails, substantially as set forth.

2. In a curtain stretcher, the combination of a dovetailed rail, with a tenter hook having its shank shaped to fit and longitudinally slide upon the dovetailed rail, substantially as set forth.

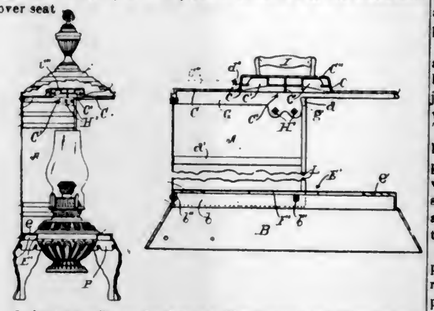
3. In a curtain stretcher, the combination of end rails dovetailed in cross section, side rails having dovetailed outer edges and having their ends crossed beneath the ends of said end rails, tenter hooks having their shanks shaped to fit upon the dovetailed end rails and projecting from the plane of the under sides of said rails, and tenter hooks having their shanks shaped to fit upon the dovetailed outer edges of the side rails and to project in the plane of the upper sides of said side rails, substantially as set forth.

4. In a curtain stretcher, the combination of a clamp stirrup having a bearing in one side, a pivot bolt having a flat head and pivoted in said bearing, a cam disk pivoted upon said pivot bolt and formed with inclines bearing against the cross bar and with a radial handle, substantially as set forth.

5. In a curtain stretcher, the combination of two side rail portions hinged together and formed with dovetailed outer edges, a plate secured across the joints of said side rail portions and formed with side flanges having spaces between them, and tenter hooks having their shanks fitted to longitudinally slide upon the dovetailed outer edges of the side rail portions between the side flanges of the plate, substantially as set forth.

521,201. APPLIANCE FOR HEATING, ILLUMINATING, OR CULINARY PURPOSES. FRANK E. BROWNE, Los Angeles, Cal. Filed Nov. 22, 1893. Serial No. 491,645. (No model.)

Claim.—1. An appliance for heating, illuminating and culinary purposes, provided with a heat deflecting top having a seat arranged to seat an ornamental cover and also having a culinary opening and an upwardly projecting rim integral with the top and surrounding such culinary opening, such rim being provided with upwardly projecting utensil supporting lugs extending above such rim and projecting inwardly; a lid hinged to the top and adapted to be swung upon its hinge and to cover the upwardly projecting lugs and close the culinary opening, and to be swung on its hinge to unclose the opening and to lie flat upon the top and to extend across the ornamental cover seat



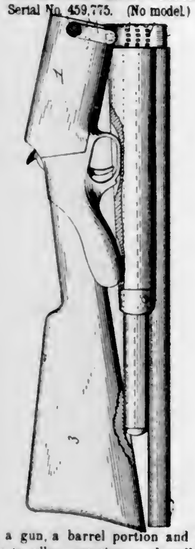
2. In an appliance for heating, illuminating and culinary purposes, the combination of the heat deflecting top provided on its under face with a downwardly projecting semi-circular flange terminating at each end in an upwardly inclined reflector straining face; the semi-circular heat reflector wall provided at its edges respectively with reverse bends forming sockets respectively embracing the sloping ends of the flange and wedged upon such flange to strain the side wall firmly upon the outer side thereof.

3. A curved sheet metal reflector rolled from a polished sheet of metal having ridges or beads on the polished side thereof.

4. The combination of the lamp carrying base; the semi-cylindrical heat reflector fixed to such base, the heat deflecting top fixed to the top of said reflector and the two handles secured to the heat deflecting top and the top of the reflector at the opposite edges of the reflector

---

521,202. FOLDING GUN. ANDREW BURGESS, Buffalo, N. Y. Filed Jan. 26, 1893. Serial No. 459,775. (No model.)



Claim.—1. In a gun, a barrel portion and a stock portion, a hinge joint between to allow rotation as described in combination, and with a spring to shift the joint and raise the barrel, in closing, into engagement with a locking device, substantially as described.

2. In a gun a forward or barrel portion, and a rear or stock part, hinged together by a yielding joint, teeth and grooves in the barrel and stock portion, and means to flex and shift the joint to interlock the teeth, all in combination, substantially as specified.

3. In combination in a gun, a frame open at the front and bottom, and closed and threaded at the top, a barrel with corresponding threads at its top, a joint at the bottom of barrel and frame so arranged, to allow the joint to shift and the barrel to fall and unlock the threads, and flex the joint to open the breech

4 In combination in a gun a frame open at the front and bottom, and closed and threaded at the top, a barrel with corresponding threads at its top, a joint at the bottom of barrel and frame, so arranged, to allow the joint to shift and the barrel to fall and unlock the threads, and flex the joint to open the breech and fold the gun, and a cam catch to hold the barrel up in the frame when in firing position, substantially as specified.

5. In a gun a frame open at the front and closed and threaded at the top, substantially as described, in combination with a barrel having corresponding threads or grooves, at its top, and a flexible joint to connect the frame and barrel, and a spring to shift the parts vertically at the joint, to interlock their threaded portions.

6. In a gun a frame open at its front and having a closed top, and having one or more ribs and grooves in combination with a barrel provided with corresponding ribs and grooves at its top, to interlock with those of the frame, and beveled surfaces on one or both of said sets of ribs, to allow them to ride into locking position as described, and a spring shifting joint to snap the barrel ribs into the grooves of the frame.

7. In a gun, a frame open at its front, and provided with inside projections and spaces between, in combination with a barrel whose rear end at its sides has depressions or spaces to correspond with the projections of the frame, and projections on said barrel to enter the spaces in the frame, and a shifting joint to allow movement of the projections of the barrel and frame, relatively to each other, and interlock them and hold the barrel in the frame, substantially as specified

8. In a folding gun a frame open at its front and bottom, open vertical slots in the sides of the bottom of the frame, in combination with a barrel provided with trunnions at its rear substantially as described, to enter said slots of the frame and turn therein to open the breech and fold the gun, and a catch at the top of the frame to hold the gun in firing position

9 In a folding gun, a frame and a barrel having longitudinal movement in the frame, trunnions on said barrel, slots in the frame to receive said trunnions and guide them downward to allow the barrel to fold beneath the stock, all in combination substantially as described.

10. In a folding gun, a frame having a guideway, a barrel guided to reciprocating movement, in the frame, a stop to limit such movement, and means to lock said barrel to the frame, in firing position; in combination with trunnions on the barrel, and which enter grooves in the frame, to hinge the barrel to the frame, so that said barrel may turn on a vertical plane downward, when in its forward position, substantially as specified

11. In a magazine gun, the barrel, front stock, and magazine connected together, the magazine being under the barrel and provided with a cartridge stop at its mouth, combined with a rear stock hinged to said front stock so as to fold against or extend into line with the barrel, the joint and the feeding end of the magazine being covered by a housing when the gun is in extended or firing position, substantially as described.

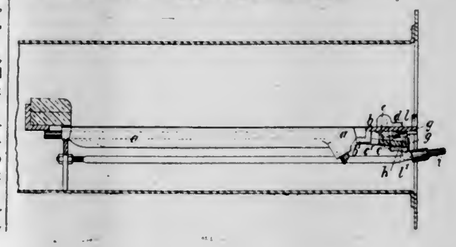
12. In a folding gun, the stock and barrel hinged together by a yielding or slip joint, the housing covering the joint, said housing having projections interlocking with projections on the folding part when the gun is in extended position, all combined substantially as described.

13. In a folding gun, the barrel portion and the stock portion, and a slip jointed hinge connecting the two, whereby the gun may be held rigid in extended position, or folded with the barrel in close proximity to the stock throughout its length, the parts in combination substantially as described.

14 A folding gun having a joint at the junction of the front of the stock or frame and rear of the barrel, so that the barrel and stock may fold into contact substantially throughout their length, the barrel and stock being of substantially the same length, a housing on one of the folding parts overlapping some portion of the other part to strengthen the joint when the gun is in extended position, and a retaining catch to hold the parts in such position, all combined substantially as described

---

521,203. FURNACE. THOMAS E. CADDY, Nottingham, England. Filed Sept. 4, 1893. Serial No. 484,793 (No model.)



Claim.—1. In a furnace the combination with the dead plate carrying the stationary grate bars, of the rocking plate carrying the movable grate bars and means for rocking said last mentioned plate; substantially as described.

2. In a furnace, the combination with the dead plate, formed or provided with depending steps, the stationary bars carried by said steps, the movable plate carrying the rocking bars and means for rocking said plate; substantially as described.

3. In a furnace, the combination with the dead plate, the grate bars carried thereby, of the rocking plate pivotally connected to said dead plate carrying the reciprocating bars, and the lever pivotally connected to the dead plate and rocking plate, whereby said plate may be rocked and the grate bars reciprocated; substantially as described.

4. In a furnace, the combination with the dead plate, the bars carried thereby, of the rocking plate carried by the links pivotally connected to both said plates, the rocking lever pivotally connected to the dead plate and the link connecting the lever and rocking plate; substantially as described.

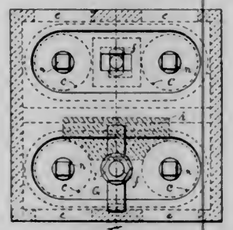
5. In a furnace, the combination with the dead plate, the bars carried thereby, the rocking plate pivotally connected to said dead plate, of the guide carried by said rocking plate for depressing the end of the plate when moved forward and means for rocking said plate; substantially as described.

6. In a furnace, the combination with the dead plate, the bars carried thereby, the rocking plate pivotally connected to said dead plate, of the links pivoted to the rocking plate having bifurcated ends engaging with studs on the dead plate whereby when the rocking plate is moved forward, the lower end will be depressed and its forward end elevated, and means for rocking said plate; substantially as described.

7. In a furnace, the combination with the dead plate provided with depending steps carrying the stationary bars, of the rocking plate carried by links pivoted to both the dead plate and the rocking plate, and having beveled edges between the depending steps, and the reciprocating grate bars carried by said rocking plate having beveled ends cooperating with the beveled edge of the plate, and the lever and link connections for rocking said plate; substantially as and for the purpose set forth.

8. In a furnace, the combination with the dead plate, the grate bars carried thereby, the movable plate carrying the rocking bars, of the stud or stops on the upper front side of said plate bearing against the under side of the dead plate, whereby said movable plate will be held and prevented from tilting; substantially as described.

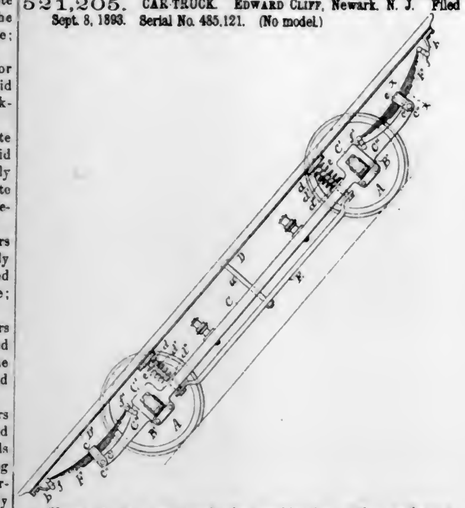
521,204. STEAM-BOILER. JOHN A. CALDWELL, Bay Ridge, N. Y. Filed Mar. 28, 1894. Serial No. 505,363. (No model.)



Claim.—1. In a sectional water tube boiler, in which the several sections are so disposed that the water tubes stand in substantially vertical planes, in combination, a header, substantially quadrangular in outline, having a series of tubes fastened in its rear portion, in substantially horizontal and vertical planes, a suitably-contoured opening in front, bridged so as to form oblong openings, one in front of each horizontal or vertical series of said tubes, and each of said oblong openings being bounded by an inner lip, and plates or covers adapted to close said oblong openings from the inside outwardly, against suitable packing service, all substantially as described and for the purposes set forth.

2. In a sectional water-tube boiler, in which the several sections are so disposed that the water-tubes stand in substantially vertical planes, and in which the several sections are interconnected by two nipples, in combination, a header, substantially quadrangular in outline, having in front a suitably-contoured opening, centrally bridged so as to form two horizontal or vertical oblong openings, each of the latter being bounded by an inner lip, plates adapted to close said oblong openings from the inside outwardly, a series of tubes communicating with said header at the rear, and baffle-brick, disposed, preferably, upon substantially each alternate horizontal pair of said tubes, all substantially as described and for the purposes set forth.

521,205. CAR-TRUCK. EDWARD CLIFF, Newark, N. J. Filed Sept. 8, 1893. Serial No. 485,121. (No model.)

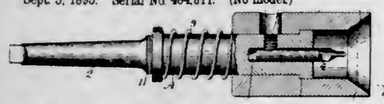


Claim.—1. In a car truck, the combination, with a stationary frame supported upon the running gear, said frame having sections extending outwardly from the axle, of a movable frame supported upon said truck, spiral springs located between the movable and stationary frames, and a half elliptic spring suitably secured to each of the extended sections of the stationary frame and connected at one head by a shackle to the movable frame, and connected at the other head by a shackle to stationary frame, substantially as described.

2. In a car truck, the combination, with a stationary frame supported upon the running-gear, said frame having sections extending outwardly from the axle, of a movable frame supported upon said truck, spiral springs located between the movable and stationary frames, and a half-elliptic spring pivoted at or near its center to each of the extended sections of the stationary frame, and shackled, one end to the stationary frame and the other end to the movable frame, substantially as described.

3. In a car truck, the combination, with a stationary frame supported upon the running-gear, said frame having sections extending outwardly from the axle, of a movable frame supported upon said truck, spiral springs located between the movable and stationary frames, and portions of elliptic springs located between the two frames, and connected to said frames by pivotal bearings only, substantially as described.

521,206. CENTERING-TOOL. FRANK B. COVEL, Hartford, Conn., assignor to the Dwight Slate Machine Company, same place. Filed Sept. 5, 1893. Serial No. 484,811. (No model.)

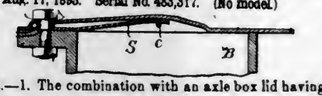


Claim.—1. The combination in a centering tool, of a conically-bored centering-cup having a longitudinally bored axial extension formed integral therewith, which extension forms a guiding sleeve for a spindle, a spindle fitted to slide in said sleeve, and having a collar or abutment at its forward end, a stop for said sleeve, a spiral-spring surrounding the spindle, outside of said sleeve, and bearing against the extreme rear end of said sleeve and against the collar on the spindle, and a tool removably fixed in the forward end of the spindle, substantially as and for the purpose set forth.

2. The improved centering-tool herein described, comprising a conically-bored centering-cup having a longitudinally and concentrically bored extension, or sleeve, formed integral therewith, the smallest diameter of which conical bore of the centering-cup coincides with the greatest diameter of the longitudinal bore of the sleeve, a stop for said sleeve, a spindle closely fitting the bore of the sleeve and having a collar or abutment at its forward end, and capable of being moved to the extreme forward end of the centering-cut, a collar or abutment removably and adjustably secured to the rearwardly projecting end of said spindle, a drilling-tool removably fixed in the forward end of said spindle, a tool-fastening screw extended through said spindle and bearing against said tool with its outer end within the circumferential

line of the spindle, and a resistance spring interposed between the collar of the spindle and the extreme rear end of the sleeve, substantially as and for the purpose described.

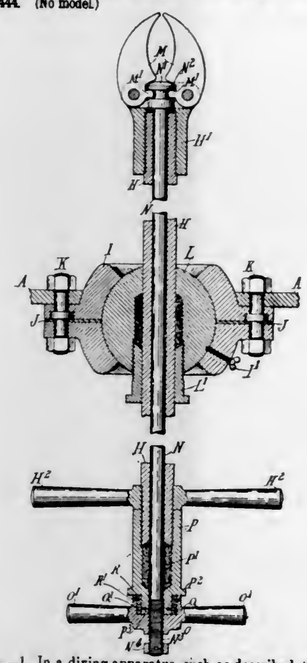
521,207. AXLE-BOX LID. NATHAN H. DAVIS, Philadelphia, Pa. Filed Aug. 17, 1893. Serial No. 483,317. (No model.)



Claim.—1. The combination with an axle box lid having a pivot hole *a*, of a spring having a hole *a'* and a flange *s* said flange being adapted to pass through and project above the hole *a* in the lid, a bolt B' having a head b^3 adapted to bear against the flange *s* and secure one end of the spring to the face of the axle box and means for securing the other end of the spring to the lid.

2. The combination with an axle box lid having a pivot hole *a* and a socket, of a spring having one end secured in the socket in the lid and having a hole *a'* and a flange *s* at the other end, said flange being adapted to pass through and project above the hole *a* in the lid, and a bolt B' adapted to bear against the flange and so secure the spring to the face of an axle box.

521,208. DIVING APPARATUS. JOHN DAY, GEORGE DAY, and JENKIN JENKINS, Maesteg, England. Filed Sept. 25, 1893. Serial No. 486,444. (No model.)



Claim.—1. In a diving apparatus, such as described, the combination with the hermetically closed vessel having the ballast chamber, in the bottom provided with fixed projections, of ballast blocks having one edge supported on said projections and a movable key upon which the opposite edges rest, said key passing through to the inside of the vessel, whereby said blocks may be released by the diver within the vessel; substantially as described.

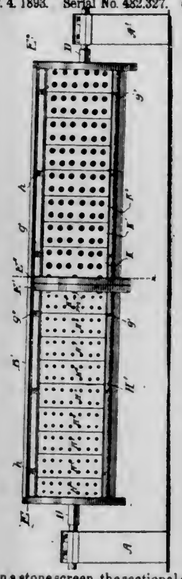
2. In a diving apparatus, such as described, the combination with the hermetically closed vessel having the ballast chamber in the bottom provided with fixed projections and the angle irons slotted transversely, secured beneath the bottom of the vessel, of the ballast blocks having one edge supported on said projections and a T-shaped ballast supporting key having its head working through the slots in the angle irons and its shank extended through to the inside of the vessel whereby the key may be turned and the ballast released when desired, substantially as described.

3. In a diving apparatus, the combination with the hermetically closed vessel, the tube H passing through a packed bearing in the wall of the vessel, the jaws M pivotally supported on the outer end of the tube and the handle on the inner end of the tube; of the rod N passing through the tube and having the head and annular groove on the outer end cooperating with the jaws and the nut screwing upon the inner end of the rod substantially as described.

4. In a diving apparatus, the combination with the hermetically closed vessel the socket secured in the wall thereof and the ball secured in the socket and having an aperture through the same, of the tube passing through the aperture and carrying a tool at the outer end, a rod for operating the tool passing through the tube and a packing gland surrounding the tube within the ball with means for holding the ball against rotation as the gland is set up or loosened; substantially as described.

5. In a diving apparatus, the combination with the hermetically closed vessel having the packed bearing in its wall, of the tube passing through said bearing and carrying a tool upon the outer end, the handled nut screwing upon its inner end and having the packing gland therein, the rod passing through the nut and tube for operating the tool, the nut on the inner end of the rod secured to the handled nut on the tube whereby the rod may be given a longitudinal movement; substantially as described.

521,209. STONE-SCREEN. JOHN J. DONOVAN, Kingston, N. Y. Filed Aug. 4, 1893. Serial No. 482,327. (No model.)

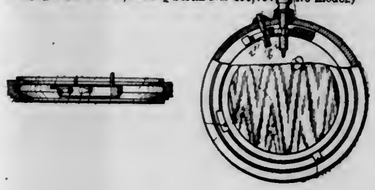


Claim.—1. In a stone screen, the sectional curved perforated plates H H' H", having their straight longitudinal edges flanged or bent, in combination with H-shaped longitudinal bars B B', &c. and ⌐¬-shaped retaining bars f^5 f^6, all bolted together substantially as and for the purpose described.

2. In a stone screen, the sectional curved perforated plates H H' H", having their straight longitudinal edges flanged or bent in combination with H-shaped longitudinal bars B B', &c. and ⌐¬ shaped retaining bars f^5 f^6 and the longitudinal wearing pieces *l l*, all bolted together substantially as and for the purpose described.

3. In a stone screen the combination of sectional curved perforated plates H H' H", &c. with H-shaped longitudinal bars B B' &c. and ⌐¬ shaped retaining bars f^5 f^6, longitudinal wearing-pieces *l l*, end flanges E E', arms or spokes C C' and shaft D.

521,210. WATCHCASE. JOHANNES DÜRRSTEIN, Dresden, Germany. Filed Feb. 2, 1893. Serial No. 460,797. (No model.)



Claim.—1. In a watch, the combination with the case having cut out portions, of the movement provided with the projections adapted to register with the cut out portions in the case, and the locking bolt for locking the parts together; substantially as described.

2. In a watch, the combination with the case having the cut out portions, of the movement provided with the projections to register with said cut out portions and the sliding bolt within the rim of the case adapted to cover one of said projections to lock the parts; substantially as described.

3. In a watch, the combination with the case and the movement fitted therein, of the sliding bolt within said case having the slots wider at one end than the other, and provided with the pins, extending through slots in the rim, for moving the bolt, and the winding stem and set pin, reduced at their middle portion whereby when the bolt is moved forward the narrow portion of the slots will prevent the withdrawal of the pins and stem, but when moved backward the parts can be withdrawn substantially as set forth and described.

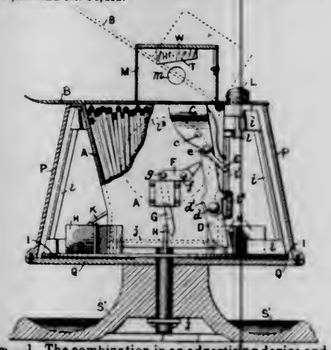
521,211. CASKET-PEDESTAL. EDWARD E. FISHER, Columbus, Ohio. Filed Oct. 6, 1893. Serial No. 487,314. (No model.)



Claim.—1. A pedestal for caskets consisting of a box having legs hinged therein and adapted to be folded therein, covers hinged to said box provided with stops adapted to hold said legs in their standing position.

2. A pedestal for caskets consisting of a box having legs hinged therein and adapted to be folded into said box, covers hinged to said box provided with stops, and springs adapted to hold said covers inward so that the stops will lock the legs in their out-turned or standing position.

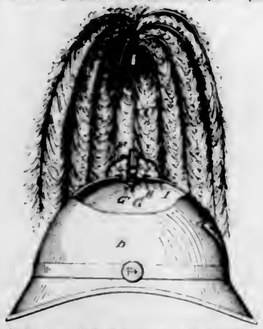
521,212. ADVERTISING MATCH-BOX. JOHN J. HARRISON, London, England. Filed Nov. 23, 1892. Serial No. 452,915. (No model.) Patented in England May 4, 1892, No. 8,416; in France Oct. 31, 1892, No. 225,314; in Belgium Oct. 31, 1892, No. 101,942; in Switzerland Oct. 31, 1892, No. 5,969; in Germany Nov. 1, 1893, No. 69,873; in Victoria Nov. 30, 1892, No. 10,172; in Queensland Dec. 5, 1892, No. 2,252; in New Zealand Dec. 21, 1892, No. 5,960; in India Feb. 20, 1893, No. 29,692; in Canada Mar. 1, 1893, No. 42,134, and in Austria-Hungary Oct. 12, 1893, No. 27,946 and No. 50,482.



Claim.—1. The combination in an advertising device and devices for the use of smokers of a base, a recessed frame or cone mounted on said base, a second frame revolving within said outer frame, a covered receptacle surrounded by said inner frame and a vertical axis extending through the base and frames and secured to the receptacle, substantially as described.

2. The combination in an advertising or exhibiting device, of a base, a drum mounted on said base, a series of stops on said drum corresponding in number and position to the advertisements or exhibits, a receptacle surrounded by said drum, a pivoted lid on the receptacle, and an arm carrying a pivoted pawl on the lid of the receptacle to engage the stops, substantially as described.

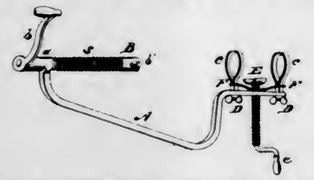
521,213. PLUME-FASTENER FOR HELMETS. LYNN A. HAYES, Bolivar, Mo.; Margaret C. Hayes administratrix of Lynn A. Hayes, deceased. Filed July 3, 1893. Serial No. 479,867. (No model.)



Claim.—1. A plume fastener, comprising a socket frame provided with a shoulder at its upper end and with a depending screw shank at its lower end, a washer, a nut on the said shank, and a plume rod provided with a head having a spring catch for engaging the shoulder of the socket frame, substantially as described.

2. As an improved plume fastener and in combination, an open washer adapted to be secured in the crown of a helmet, having a central aperture, a centrally apertured loose washer adapted to bear loosely on the inner surface of the helmet, a socket plate having a depending screw shank fitting through the apertures of such washers, the securing nut, and the plume rod detachably connected with such socket, all arranged substantially as shown and described.

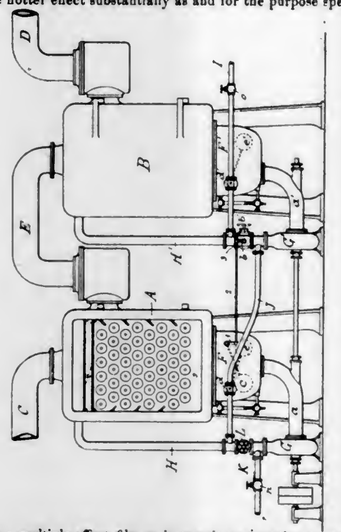
521,214. SPOKE-TENONING MACHINE. JOHANN O. LADE, Merrill, Mich. Filed July 11, 1893. Serial No. 480,189. (No model.)



Claim.—In a spoke tenoning machine of the class described the combination with the bed A consisting of a bar bent as described having at one end a horizontal socket integral therewith for receiving the tool shaft, and on the other end two square sockets the proper distance apart for receiving the adjustable rests C, C, and a screw threaded socket for receiving the clamping device E, and the tool shaft B passing through the horizontal socket on the end of the bed A, the crank *b* on the outer end of the tool shaft, the tool socket *b'* on the inner end of the tool shaft, the coiled spring S surrounding the tool shaft between the tool socket and the tool shaft socket whereby the tool may be pressed against the spoke, of the spoke clamping device described consisting of the two adjustable loop rests C, C, having their lower ends screw threaded and above the thread a square shoulder adapted in fit into the square sockets in the ends of a flat spring and into the square socket in the ends of the bar A, thumb nuts D screwing on to the ends of the loops C, C below the bar A and thereby adjusting the loops, the flat spring F, having its ends bent away from the bar A and provided with square sockets for receiving the square shoulder on the ends of the loops C, C, whereby when the loops C, C are drawn down by the thumb nuts D the spring F will hold the loops rigid and resist the nuts D, the clamp E between the adjustable loops C, C and adapted to press against the lower side of the spoke and clamp the spoke between it and the top of the loops C, C, the clamp consisting of the rest E having a screw threaded stem passing through a socket in the spring F thereby securing the spring to the bed A, and through the screw threaded socket in the bed A, and having upon the lower end of the stem a crank *c* for turning the clamping device as required, whereby by turning the nuts D, D, and the crank *c* the spoke may be readily adjusted while in the clamping device to the line of the tool shaft and held in that position as the tenon is being formed, substantially as and for the purpose set forth.

521,215. PROCESS OF EVAPORATING LIQUIDS IN VACUO AND APPARATUS THEREFOR. SAMUEL M. LILLIE, Philadelphia, Pa. Filed May 19, 1891. Serial No. 393,250. (No model.)

Claim.—1. In a multiple effect film or in transit evaporating apparatus, the combination with two effects of the same of a pump with its induction port connected to the liquid discharge of the cooler effect of the two to receive liquid therefrom, and having two eduction or discharge pipes, one leading to the hotter effect and the other, a return pipe, delivering through suitable distributing devices upon the evaporating surfaces of the cooler effect, and means in the said return pipe for restricting the flow of liquid through it and thereby creating sufficient back pressure upon the pump to force liquid through the eduction pipe leading to the hotter effect against the higher pressure in the latter, a thin liquid feed pipe for the two effects leading into the coolest effect; and a concentrated liquid discharge pipe for the two effects leading away from the hotter effect, whereby the liquid to be concentrated first enters the cooler effect, and having passed through the two effects in succession as described escapes concentrated from the hotter effect substantially as and for the purpose specified.

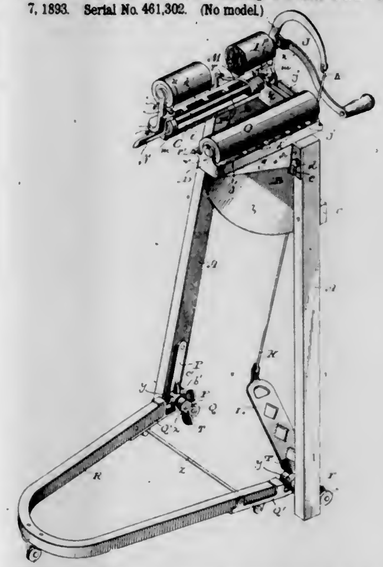


2. In a multiple effect film or in transit evaporating apparatus, the combination with two effects of the same of a pump with its induction port connected to the liquid discharge of the cooler effect of the two to receive liquid therefrom, and having two eduction or discharge pipes, one leading to the hotter effect and the other, a return pipe, delivering through suitable distributing devices upon the evaporating surfaces of the cooler effect, means in the said return pipe for restricting the flow of liquid through it and thereby creating sufficient back pressure upon the pump to force liquid through the eduction pipe leading to the hotter effect against the higher pressure in the latter, and a valve in the said pipe leading to the hotter effect and means whereby said valve is automatically operated by the level of the liquid in the hotter effect to control the flow of liquid through the pipe into the hotter effect, substantially as specified.

3. In a multiple effect film or in transit evaporating apparatus, the combination with two effects of the same of a pump with its induction port connected to the liquid discharge of the cooler effect of the two to receive liquid therefrom, and having two eduction or discharge pipes, one leading to the hotter effect and the other, a return pipe, delivering through suitable distributing devices upon the evaporating surfaces of the cooler effect, a valve in the return pipe and means actuated by the rise and fall of the level of the liquid in the hotter effect and connected to the said valve by suitable mechanism operating to open the valve progressively with the rise of the level of the liquid in the hotter effect, and to close the valve progressively with the falling of the level of the said liquid and thereby govern the flow of liquid from the cooler into the hotter effect substantially as specified

4. In a multiple effect film or in transit evaporating apparatus, the combination with two effects of the same of a pump with its induction port connected to the liquid discharge of the cooler effect of the two to receive liquid therefrom, and having two eduction or discharge pipes, one leading to the hotter effect and the other, a return pipe, delivering through suitable distributing devices upon the evaporating surfaces of the cooler effect, a valve in the return pipe and means actuated by the rise and fall of the level of the liquid in the hotter effect and connected to the said valve by suitable mechanism operating to open the valve progressively with the rise of the level of the liquid in the hotter effect, and to close the valve progressively with the falling of the level of the said liquid and a valve in the pipe leading into the hotter effect with means actuated by the liquid in the hotter effect, and connected to the said valve by suitable mechanism, operating to open and close the valve progressively with the fall and rise of the level of the liquid in the hotter pan respectively, substantially as and for the purpose specified.

521,216. MOP-WRINGER. ELDRIDGE H. NOBLE and JOHN W. WARD, Pottsville, Iowa; said Noble assignor to said Ward. Filed Feb. 7, 1893. Serial No. 461,302. (No model.)



Claim.—1. In a mop wringer, the combination of a horizonal head having a mop-opening in the rear end thereof, a wringer roll journaled in fixed bearings on the head, a spring controlled shaft having its bearings on said head, a vertical stud on the rear one of the latter bearings, levers fast on the shaft, another wringer-roll journaled in the levers, and an angular mop-gage that has pivotal connection with said stud and is provided with a horizontal crook engaged by one of said levers, substantially as set forth.

2. In a mop-wringer, the combination of a horizontal head comprising a pair of arms joined at the front by a cross-piece, bearings extending upward from one of the head-arms, a spring controlled shaft arranged in the bearings, levers fast on the shaft, a wringer-roll journaled in the levers, another wringer-roll journaled on the head-arm, and a double right angle mop-gage pivoted on the rearmost shaft-bearing and provided with a horizontal lateral crook opposed to one of said levers, substantially as set forth.

3. In a mop wringer, the combination of a horizontal head having a mop-opening at the rear end thereof, a wringer-roll journaled in fixed bearings on the head, spring-controlled shaft having its bearings on said head, a vertical stud on the rear one of the latter bearings, levers fast on the shaft, and another wringer-roll journaled in the levers, an angular mop-gage that has pivoted connection with said stud and is provided with a crook engaged by one of said levers and an angular projection on an arm of said head in the path of the free end of the mop-gage, substantially as set forth.

4. In a mop-wringer the combination of a horizontal head comprising a pair of arms joined at the front by a cross-piece, a shaft having its bearing on one of the arms, a wringer-roll journaled on the other arm, levers fast on the shaft, another wringer-roll journaled in the levers, a spring coiled on said shaft, a finger on one of the levers in opposition to an end of the spring, and a catch on the shaft-arm of the head engaged by the other end of said spring, substantially as set forth.

5. In a mop-wringer, the combination of a horizontal head having a mop-opening therein, a shaft and parallel wringer-roll having fixed bearings on the head, levers fast on the shaft, another wringer-roll journaled in the levers, a spring coiled on said shaft and having its ends opposed to projections on said head and one of the levers, a mop gage pivoted adjacent to said opening and controlled by the other lever, and a treadle connected to the spring opposed lever, substantially as set forth.

6. In a mop-wringer, the combination of a horizontal head having a mop-opening therein, a wringer-roll and spring-controlled shaft having their bearings on the head, levers fast on the shaft, a wringer-roll journaled in the levers, a stop at the rear of said head, and a lug extension at the lower end of one of said levers for impingement against the stop when in normal position, substantially as set forth.

7. In a mop-wringer, a head comprising parallel arms united at one end by a cross-piece, bearings on each arm of the head, and water-guide flanges on these arms and the cross-piece, the latter flange being a continuation of one of the arm flanges and returned on said cross-piece adjacent to the same, substantially as set forth.

8. In a mop-wringer, the combination of the wringing apparatus mounted on standards, stud-plates fast to the standards and provided with stops and lugs, and a platform having eye-like terminals that engage the plate-studs, lugs on these terminals in opposition to the plate-stops, notches in said platform-terminals for engagement with the plate-lugs, and thumb-screws on said plate-studs in opposition to the aforesaid platform terminals, substantially as set forth.

9. In a mop-wringer, the combination of a wringing apparatus mounted on the standards, stud-plates fast to the standards and provided with caster-hangers, a platform having pivotal connection with the plate-studs, and stops for limiting the movement of platform on its pivots, substantially as set forth

---

521,217. HANDLE. PHILLIP OSWALD, Syracuse, N. Y., assignor of one-half to Helen A. Wells, same place. Filed Aug. 22, 1892. Serial No. 443,713. (No model.)



Claim.—The herein described handle comprising a rigid central portion of a rectangular cross section, thickened at its longitudinal center, and provided at each end with an enlarged integral ear forming a shoulder and having a circular eye with a rectangular slot at its upper side, filling bars on opposite sides of said central portion, and an outer casing surrounding the whole, said bars and casing resting at their ends against the shoulders of the ears; combined with two hinge plates each comprising two square feet arranged with their adjacent edges separated and each being of a size adapted to be turned on edge and passed through said eye and slot, and an upwardly bowed pivotal bar rounded on its under side and smaller than said feet to which its opposite extremities are integrally connected near the adjacent edges of the feet; a longitudinal supporting bar below the feet, and a bolt removably connecting each foot with this bar, all as and for the purpose set forth.

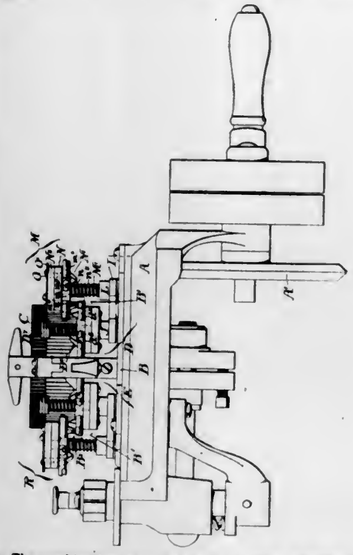
521,218. FASHIONING DEVICE FOR CIRCULAR-KNITTING MACHINES. JOHN B. PAXTON and ELLIS I. O'NEILL, Philadelphia, Pa. Filed May 22, 1893. Serial No. 475,103. (No model.)

Claim.—1. The combination, with the needle cylinder; the cam cylinder; and actuating mechanism for said cam cylinder; of a rotatable needle shifter, capable of movement in the direction of its axis of rotation; and actuating mechanism arranged with reference to said needle shifter, substantially as set forth, whereby movement of the needle shifter in a direction coincident with said axis is derived from the rotation caused by engagement with, and passage by, the needle hub.

2. The combination, with the needle cylinder; the cam cylinder; and actuating mechanism for said cam cylinder; of a rotatable needle shifter, capable of movement in the direction of its axis of rotation; and a cam having an incline arranged with relation to said needle shifter, substantially as set forth, whereby movement of the needle shifter in the direction of said axis is derived from the rotation caused by engagement with, and passage by, the needle-hub.

3. The combination, with the needle cylinder; the cam cylinder; and actuating mechanism for said cam cylinder; of a post carried by the cam cylinder; a needle shifter mounted to rotate and slide longitudinally on said post; a cam having an incline arranged with relation to said needle shifter, substantially as set forth, whereby sliding movement of the needle shifter upon the post is derived from its rotation thereon, and vice versa; and a spring normally tending to throw the needle shifter in a direction opposite to the cam incline.

4. The combination, with the needle cylinder; the cam cylinder, and actuating mechanism for said cam cylinder; of a post carried by the cam cylinder; a needle shifter mounted to rotate and slide longitudinally thereon; a cam having an incline arranged with relation to said needle shifter, substantially as set forth, whereby sliding movement of the needle shifter upon the post is derived from its rotation thereon, and vice versa; and means, substantially as set forth, whereby said needle shifter may be secured in different relations to the needle cylinder to throw the shifting devices into or out of operative position.



5. The combination, with the needle cylinder; the cam cylinder; and actuating mechanism for said cam cylinder; of a post carried by the cam cylinder; a hub mounted to rotate and slide longitudinally upon said post; a plurality of needle shifting arms carried by said hub; a cam wall having a V-shaped depression arranged with relation to said hub and arms, substantially as set forth; and a spring normally tending to throw the hub in a direction toward the apex of said depression, whereby said arms are in succession presented for engagement with the needle hubs, substantially as set forth.

6. The combination, with the needle cylinder; of a cam cylinder having the upper portion of its wall on each side of the knitting cams entirely removed; actuating mechanism for said cam cylinder; a pair of rotatably and axially movable needle lifters arranged on opposite sides of the knitting cams and in proximity to the open portion of the cam cylinder; a pair of rotatably and axially movable needle depressors also arranged on opposite sides of the knitting cams and in proximity to the open portion of the cam cylinder, and guiding devices for said needle lifters and needle depressors, said guiding devices being independent of the cylinder wall, whereby frictional engagement between the cylinder wall and said lifters and depressors is obviated, substantially as set forth.

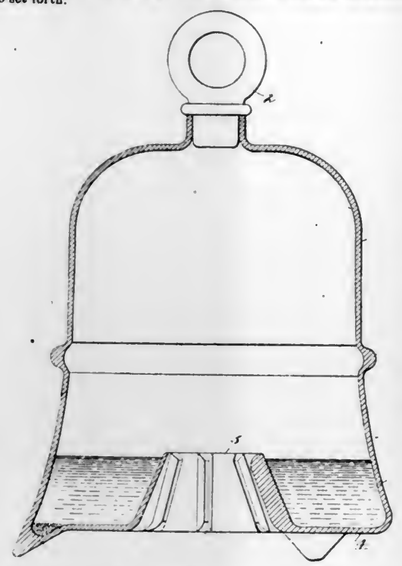
7. The combination, with the needle cylinder and the needles having hubs of uniform length; of a cam cylinder having a needle ledge which is provided with a depression of substantially greater depth than the vertical height of the needle hubs; an inclined movable cam adapted to force one or more needle hubs downward into said depression and engage beneath succeeding needle hubs to raise the same to the idle level; and means for protruding said cam into, or withdrawing it from, the range of the needle hubs, substantially as set forth.

521,219. FLY-TRAP. ALPHONSE PELTIER, Brooklyn, N. Y. Filed Feb. 5, 1894. Serial No. 499,201. (No model.)

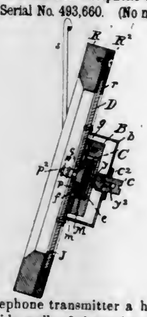
Claim.—1. A fly trap having its body formed of one piece of glass and comprising as integral parts of said body, the upper clear glass portion 1, the lower opaque glass portion 3 and the clear glass bottom portion 4, substantially as set forth.

2. A fly trap having its body formed of glass of one piece and having as integral parts of said body the upper clear glass portion 1, the lower opaque glass portion 3, the annular ring 8 of thick glass between said portions and the flat transparent glass bottom portion 4, substantially as set forth.

3. A fly trap having its body composed of glass in one piece and having a flat bottom 4 with the central inwardly tapering and internally ribbed neck 5 arranged and adapted to operate, substantially as set forth.



521,220. ELECTRIC TELEPHONE. WILTON L. RICHARDS, Malden, assignor to the American Bell Telephone Company, Boston, Mass. Filed Dec. 14, 1893. Serial No. 493,660. (No model.)



Claim.—1. In a telephone transmitter a hollow block of slate forming the casing and side walls of the resistance containing chamber, said block containing a fixed electrode at the rear of said chamber, a vibratory electrode mounted and adapted to vibrate within the front opening of said chamber, and finely divided conducting material placed within said chamber and between said electrodes, substantially as described.

2. In a variable resistance button for a transmitting telephone, the combination of a hollow block of slate forming the casing and side wall of the resistance containing chamber; a fixed electrode secured within said chamber and forming its rear wall or floor; a vibratory electrode mounted and adapted to vibrate within the front opening of said chamber; finely divided conducting material placed within said chamber, and between said electrodes; and a disk of fine wire gauze supporting the said vibratory electrode secured to the front of the casing and closing the said containing chamber: substantially as specified.

3. The combination in a telephone transmitter of a diaphragm, a variable resistance button mounted wholly upon said diaphragm, and a light back support also mounted on said diapragm and delicately holding said button in place, substantially as described.

4. The combination in a telephone transmitter, of a wooden diaphragm; a chambered button having front and back disk electrodes, a slate casing and side wall, and finely divided conducting material contained therein mounted as a whole on said diaphragm and having its front electrode attached to the center thereof; and a support also mounted wholly on said diapragm, and engaging delicately with the rear of the said button and adapted to hold it in place substantially as specified.

5. In a telephone transmitter a diaphragm of wood held in place by spring pressure only; combined with a hollow button mounted thereon, the said button comprising a block of slate forming the casing and side wall of a containing chamber, a carbon disk secured therein and serving as the fixed electrode, a vibratory electrode secured to a flexible disk of wire gauze clamped to the front of said containing chamber, the said electrode being attached also to the center of the said wooden diaphragm and adapted to participate in the vibrations thereof; granular conducting material inclosed in said chamber; and a rear support for said button; substantially as described.

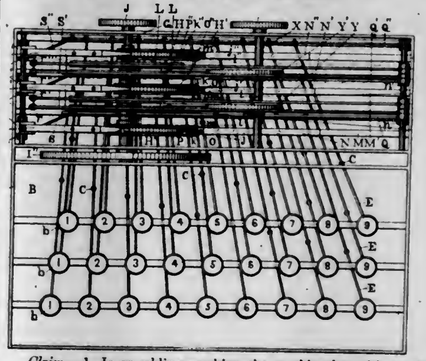
6. The combination in a telephone transmitter with the diaphragm, of a compound variable resistance button comprising a mass of finely divided conducting material in a loose or free state and a containing chamber therefor, having a fixed back electrode, a slate side wall and a vibratory electrode or front plate mounted on a flexible disk of fine wire gauze, and attached to the diaphragm center so as to vibrate therewith, and a support holding the said compound button in place, and itself mounted on the diaphragm, substantially as described.

7. The combination in a telephone transmitter with a diaphragm of wood held in place by spring pressure only; of a compound variable resistance button comprising a mass of finely divided conducting material in a loose or free state, and a containing chamber therefor, having a fixed back electrode, a slate side wall, and a vibratory electrode or front plate mounted on a flexible disk of fine wire gauze, and attached to the diaphragm center so as to vibrate therewith; and a support holding the said compound button in place, and itself mounted on the diaphragm substantially as described.

8. A granular carbon transmitting telephone comprising a frame or ring seat; a diaphragm, a chambered button containing granulated carbon mounted on said diaphragm and having a casing and side wall of slate for the said chamber, a rear wall of carbon constituting the fixed electrode and a front wall of carbon secured to a flexible disk of fine wire gauze forming the vibrating front electrode, the said gauze being clamped to the slate side wall, and the said front electrode being secured to the diaphragm center to vibrate therewith, and a light bridge also mounted on the diaphragm and delicately supporting the same, substantially as described.

9. A granular carbon transmitting telephone comprising a frame or ring seat of wood; a diaphragm of wood held in the said seat by spring pressure; a chambered button containing granular carbon mounted on said diaphragm and having a casing and side wall of slate for the said chamber, a rear wall of carbon constituting the fixed back electrode and a front wall of carbon secured to a flexible disk of fine wire gauze forming the vibratory front electrode, the said gauze being clamped to the slate side wall, and the said front electrode being secured to the diaphragm center to vibrate therewith; and a light bridge also mounted on the diaphragm and spanning the said button and delicately supporting the same, substantially as described.

521,221. ADDING-MACHINE. JOHN P. ROYALL, Columbia, Mo. Filed July 24, 1893. Serial No. 481,365. (No model.)



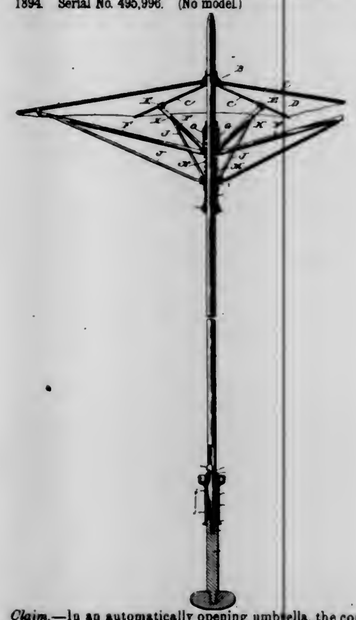
Claim.—1. In an adding machine, the combination with a main shaft, journaled in the frame and having a toothed wheel and an indicating disk fast thereon, and sleeves loosely mounted thereon each having a toothed wheel, two ratchet wheels, and an indicating disk rigid therewith, of a series of levers pivoted to the frame and having wedge shaped projections in contact with the ratchet wheels, and pawls in contact with the adjoining toothed wheels, and a series of key-levers each having a lifting pin, and operating a series of lifting bars pivoted to the frame and connected with levers carrying spring pressed pawls operating the toothed wheels, substantially as and for the purpose described.

2. In an adding machine, the combination with a main shaft, journaled in the frame and having a toothed wheel and an indicating disk fast thereon, and sleeves loosely mounted thereon each having a toothed wheel, two ratchet wheels, and an indicating disk rigid therewith, of a series of lifting bars pivoted to the frame and having a series of depending pins of unequal lengths, the lifting bars connected to stop pawls pivoted to the frame and the pawls adapted to engage the toothed wheels placed opposite them on the main shaft or on the sleeves, each of the series of pawls and toothed wheels operated by a separate series of key-levers, substantially as described.

3. In an adding machine, the combination with a main shaft, journaled in the frame and having a toothed wheel and indicating disk fast thereon, and sleeves loosely mounted thereon each having a toothed wheel, two ratchet wheels, and indicating disk rigid therewith, of a setting shaft journaled in the frame and having a setting wheel and two eccentrics fast thereon, rims on the eccentrics having arms in contact with the ratchet wheels on the sleeves, the rotation of the setting shaft rotating the ratchet wheels and indicator disks for setting, substantially as and for the purpose described.

4. In an adding machine, the combination with a main shaft, journaled in the frame and having a toothed wheel and indicating disk fast thereon, and sleeves loosely mounted thereon each having a toothed wheel, two ratchet wheels, and an indicating disk rigid therewith, of a series of key-levers pivoted in posts attached to the frame, the inner end of levers supported by adjustable posts, each lever having a lifting pin operating a series of lifting bars pivoted to the frame and connected with levers carrying spring pressed pawls in contact with the toothed wheels, substantially as described.

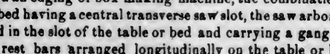
521,222. SELF-OPENING UMBRELLA. HENRY W. SCHOFF, BENJAMIN FINKEL, and FRANCIS E. PROBERT, Oak Park, Ill. Filed Jan. 6, 1894. Serial No. 495,996. (No model.)



Claim.—In an automatically opening umbrella, the combination of the umbrella stick having a slot near its outer end and a shoulder beyond such slot, the spring-actuated runner sliding on the stick and having a locking notch in its outer end, a normally projected spring catch mounted in the slot of the stick and having a hook catch at one end to engage the runner notch and a normally projected cam lug intermediate of its ends, a sliding tip-cup sleeve mounted on the stick over the spring catch and having at one end a tip-cup, and a contracted neck adapted to be moved over said projected cam lug to release the catch from the runner, and a supporting-spring arranged inside of the tip-cup sleeve and supported on the shoulder of the stick, substantially as set forth.

521,223. SPRING-JACK CLEANER. MICHAEL SETER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Apr. 26, 1893. Serial No. 471,873. (No model.)

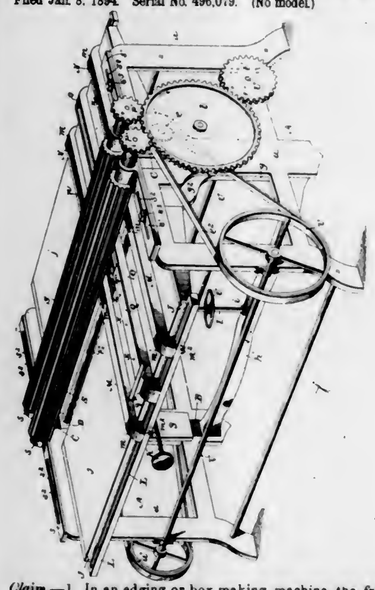
Claim.—1. A spring jack cleaner provided with a concave scraping surface adapted to make contact with the contact anvil, said surface having a radius of curvature in a longitudinal direction greater than the radius of curvature of the contact anvil, and a radius of curvature in a transverse direction substantially equal to that of the contact anvil, said cleaner being also provided with a convex scraping surface adapted to make contact with the line spring, said surface being curved in a longitudinal direction, but rectilinear in a transverse direction, substantially as described.



2. In a spring jack cleaner, a scraping surface having a radius of curvature in a longitudinal direction greater than the radius of curvature of the contact anvil, and a radius of curvature in a transverse direction substantially conforming to the corresponding curvature of the contact anvil, substantially as described.

3. In a spring jack cleaner, a convex scraping surface adapted to make contact with the line spring, said surface being curved in a longitudinal direction and rectilinear in a transverse direction, substantially as described.

521,224. BOX-MACHINE. CALVIN B. SOUTHARD, St. Albans, Me. Filed Jan. 8, 1894. Serial No. 496,079. (No model.)



Claim.—1. In an edging or box making machine, the frame, a vertically adjustable table mounted within the frame and having a transverse saw-slot at the top, a transverse saw arbor arranged in the saw slot of the table and carrying a gang of saws, a feed-slide mounted on top of the table, means for adjusting the position of the feed slide transversely on the vertically adjustable table and feed rolls removably and adjustably mounted on the frame above the table and feed slide, substantially as set forth.

2. In an edging or box making machine, the combination of the table or bed having a central transverse saw slot, the saw arbor or shaft arranged in the slot of the table or bed and carrying a gang of saws, parallel rest bars arranged longitudinally on the table or bed, and having intermediate saw openings or slots through which the saws project a feed slide mounted to move longitudinally on the table between the rest bars and saws, and parallel feed rolls adjustably arranged above the rest-bars and feed slide at an intermediate point of the rest bars, substantially as set forth.

3. In an edging or box making machine, the frame or stand, a vertically adjustable table or bed mounted within the frame or stand, a horizontal saw arbor or shaft mounted on the frame or stand at a point intermediate of the front and rear edges of the table or bed, separated pairs of edging and grooving saws mounted for longitudinal adjustment on said arbor or shaft, the separate saws of each pair being arranged slightly spaced from each other, longitudinal rest bars adapted to be arranged in alignment with the pairs of saws, and a feed slide arranged to work on the table between the separated pairs of saws and the rest bars, substantially as set forth.

4. In an edging or box making machine, the combination of a vertically adjustable table having a central transverse saw-slot, a saw shaft or arbor arranged to rotate in the slot of the table and carrying a gang of saws, parallel rest bars mounted for lateral adjustment on the table and having saw slots or openings through which the saws project, a laterally adjustable feed slide mounted on the table between the rest bars, and parallel feed rolls adjustably arranged above the rest bars and feed slide, substantially as set forth.

5. In an edging or box making machine, the frame or stand having opposite inner vertical guide grooves and a bottom bearing bar, a vertically adjustable table or bed having depending guide arms provided with upper forked ends dividing the table or bed into separate front and rear portions, projected guide ribs engaging the inner vertical guide grooves of the frame or stand and a transverse frame bar, a vertical adjusting screw stepped in said bottom bearing bar and engaging said transverse frame bar, a transversely arranged saw arbor carrying a gang of saws turning in the space between the front and rear portions of the table or bed, and adjustable feed devices arranged on the table or bed, substantially as set forth.

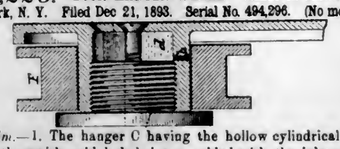
6. In an edging or box making machine, the frame, a vertically adjustable table frame having a central transverse saw slot and opposite grooved side edges at the front and rear sides of said slot, adjustable table boards adapted to slide in the grooved side edges of the table frame, means for adjusting the table boards to and away from the center of the machine, a transverse saw arbor arranged in said saw slot and carrying a gang of saws, and the feeding devices removably and adjustably arranged on top of the table boards, substantially as set forth.

7. In an edging or box making machine, the combination with the machine frame or stand having opposite top bearing notches, a central transverse saw arbor mounted in said top bearing notches and carrying saws, the table or bed mounted within the machine frame or stand and having slotted adjustment strips at the front and rear edges thereof, parallel laterally adjustable rest bars mounted on the table or bed and having shouldered bolt ends adjustably engaging said slotted strips, and intermediate saw slots or openings through which the saws project, a laterally adjustable guide strip arranged on the table or bed and having shouldered bolt ends engaging the front and rear adjustment strips between the rest bars, a spring returned feed slide mounted on said guide strip, opposite pairs of bearing boxes removably and adjustably mounted at each side of the frame bearing notches, and parallel feed rolls journaled in said bearing boxes and geared with the saw arbor, substantially as set forth.

8. In an edging or box making machine, the combination with the machine frame or stand; of a central transverse saw arbor carrying separated pairs of edging and grooving saws, the table or bed, parallel rest bars mounted on said table or bed and having longitudinal top recesses, and saw slots or openings, normally-projected lifting springs seated in the top recesses of said rest bars, a slotted guide strip arranged adjustably between the rest bars, a guide rod arranged longitudinally in said guide strip, a feed slide mounted on said guide strip and having a rest head at one end and a bottom guide block engaging said guide rod, a spring arranged in said guide strip and attached to said feed slide, and the adjustable corrugated feed rolls mounted on the machine frame above said rest bars, and geared with the saw arbor, substantially as set forth.

9. In an edging or box making machine, the combination with the table or bed and the saws; of parallel rest bars arranged on the table or bed, a feed slide mounted on the table or bed and arranged to move between the rest bars, feed rolls arranged horizontally above the rest bars, means for lifting the stock from the feed slide and above the rest bars after leaving the rear feed roll, and means for automatically returning the feed slide to the front of the table or bed after the stock is lifted therefrom, substantially as set forth.

521,225. DOOR-HANGER WHEEL. JAMES A. TRIMBLE, New York, N. Y. Filed Dec 21, 1893. Serial No. 494,296. (No model.)



Claim.—1. The hanger C having the hollow cylindrical hub E integral therewith, said hub being provided with the inlet *a* at its upper end, the outlet *b* at its lower end, and the internal threads, combined with the wheel F mounted on said hub, the threaded cap G having the retaining flange and threaded to engage the internal threads of said hub, and the screw I entering the opposite end of said hub and engaging said cap; substantially as set forth.

2. The hanger C having the hub E and the wheel F mounted upon the said hub, combined with the cap G entering one end of the hub and provided with the retaining flange, and the screw I entering the opposite end of said hub and engaging said cap; substantially as set forth.

521,226. PROCESS OF FACING BRICKS, TILES, &c. ALBERT L. R. VAN DEN BERGHEN, Chicago, Ill., assignor of one-half to Frank Bartolomel, same place. Filed Sept. 20, 1893. Serial No. 486,017. (No specimens.)

Claim.—1. The process of facing bricks, tiles, &c., consisting in first spreading a layer of liquid or semi-liquid facing material on a supporting surface, then imposing the desired face of the article to be coated upon the said facing material while the latter is still soft, allowing it to stand in such material until the material has hardened, and finally removing the article with the coating attached to it, substantially as forth.

2. The process of facing bricks, tiles, &c., consisting in first spreading a layer of liquid or semi-liquid facing material of various colors, in the form of a design, onto a supporting surface, then imposing the desired faces of the articles to be coated, in the said facing material while the latter is still soft, allowing them to stand in such position until the material has hardened, and finally, removing the article with the coating attached to it, substantially as set forth.

3. The process of facing bricks, tiles, &c., which consists in first spreading a liquid or semi-liquid facing material on a surface provided with a suitable design, which it is desired to impress on the face of the article to be coated, then imposing the desired face of the article to be coated upon the facing material while the latter is still soft, allowing it to remain until the facing material has hardened, and finally, removing the article with the coating attached to it, substantially as set forth.

4. The process of facing bricks, tiles, &c., which consists in first spreading a pasty facing material, of various colors, in the form of a design, onto a surface provided with a suitable design, which it is desired to impress on the face of the article to be coated, then immersing the desired faces of the articles to be coated, in the facing material while the latter is still soft, said articles being placed in close proximity to each other, allowing the articles to remain in this position until the facing material has hardened, and finally removing the articles with the coating attached, substantially as set forth.

5. The process of facing bricks, tiles, &c., which consists in first spreading a layer of liquid or semi-liquid material upon a supporting surface, then placing thereon the articles to be faced, in proximity to each other, and interposing separating strips between them, allowing the articles to remain on the facing material until the same has hardened, and then removing them from the supporting surface, substantially as set forth.

521,227. TRUNK-STRAP FASTENER. WILLIAM J. WEBB, Sabine Pass, Tex. Filed Dec. 11, 1893. Serial No. 493,352. (No model.)



Claim.—1. In a strap fastener, a straight lever having a buckle hook at one end adapted to be connected to the buckle end of a strap, and a tapered opening contracted toward the front side of the lever and adapted to receive a loop of the other strap end, and an adjustable loop spreader mounted for adjustment within said opening and adapted to admit the loop of the strap therearound and to provide for the spreading of the same within the opening to prevent its withdrawal, substantially as set forth.

2. In a strap fastener, a straight lever having a handle portion terminating at one end in a securing knob, a bifurcated hook at its other end adapted to be connected to the buckle of a strap, a fastening opening near such buckle book and adapted to receive a loop of the other strap end, an adjustable wedge adapted to be turned crosswise in the strap loop to spread the same within the fastening opening, and a loop or ring suitably arranged on the strap and adapted to engage the securing knob at one end of the lever, substantially as set forth.

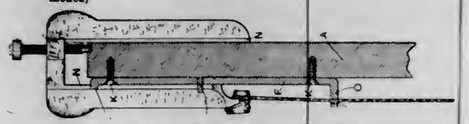
3. In a strap fastener, a straight lever having a buckle hook at one end adapted to be connected to the buckle end of a strap, a wedge shaped fastening opening contracted toward the front side of the lever and adapted to receive a loop of the other strap end, a set screw working in one side of the lever, and a turning wedge attached

to said screw and adapted to work within the fastening opening inside of said loop, substantially as set forth.

4. The combination with a trunk or other piece of baggage; of a transverse strap encircling the baggage transversely and having a loop ring adapted to be arranged at the center and top of the baggage, a longitudinal strap encircling the baggage longitudinally and connected permanently at its ends to the transverse strap at its bottom point of intersection therewith, and adapted to have its upper loop end pass freely and loosely through the top loop ring of the transverse strap, a front end strap attached to said loop end of the longitudinal strap, and a lever fastener adapted to be connected to said front end strap and the front end of the transverse strap, substantially as set forth

---

521,228. STRINGED MUSICAL INSTRUMENT. CHRISTIAN L. G. BECH, Bellevue, Wash. Filed Jan. 25, 1893. Serial No. 459,673. (No model.)



Claim.—1. The combination in a stringed musical instrument of a sliding fork or clevis, of such form and dimensions relative to the fixed part of the instrument that it shall bear upon both the upper and lower surfaces of the bed plate, and carrying the free end of the string and adjustable longitudinally by means of screws, with a fixed bed plate.

2 The combination of bed A. and bed plate F., a sliding fork or clevis B. of such form and dimensions that it shall bear upon both the upper and lower surfaces of the bed plate, and adjustable longitudinally between suitable guides over bed plate F., with screw C., the notched or perforated bridge O., and string I., substantially as described

3 In a stringed musical instrument, the combination of a series of sliding forks B., each fork being of such form and dimensions that it shall bear upon both the upper and lower surfaces of the bed plate, and arranged to move freely by each other, with enlarged portions G., forming suitable bearings for screws C., substantially as described.

4 In an upright or grand piano, the combination of a series of sliding forks B., each fork being of such form and dimensions that it shall bear upon both the upper and lower surfaces of the bed plate, and as described, arranged upon the free upper edge of the iron plate A., this edge having a double curved contour like the top of a harp, substantially as described.

5 As an article of manufacture, the clevis shaped metal fork B., of such form and dimensions that it shall bear upon both the upper and lower surfaces of the bed plate, and with enlarged screw threaded portion G., longitudinal ribs N. N., and a knob or other device at one of the free ends to which a string may be fastened, substantially as described.

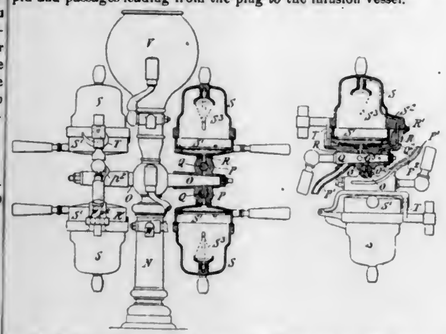
6 As an article of manufacture, the screw threaded fork B., of such form and dimensions that it shall bear upon both the upper and lower surfaces of the bed plate, and screw C., and bed plate F., with raised longitudinal guides and bridge O., provided with suitable notches or perforations, and extending over the entire width of plate F., substantially as described.

7. As an article of manufacture, for use in upright or grand pianos, a bed piece A. with a double curved upper free edge, having suitable depressions P., metal plate F. provided with raised longitudinal guides and notched or perforated bridge O., and the sliding forks B. each fork being of such form and dimensions that it shall bear upon both the upper and lower surfaces of the bed plate, and in alternating pairs with means at one of the free ends of each fork for retaining the strings, and threaded nuts or collars at G. for the reception of screws C., substantially as described.

521,229. APPARATUS USED IN MAKING INFUSIONS AND MAINTAINING SUPPLY OF HOT WATER OR LIQUID. JAMES CHILDS and CHARLES J. JONES, London, England. Filed Sept. 5, 1893. Serial No. 484,825. (No model.) Patented in England May 17, 1892, No. 9,377, and in France Mar. 31, 1893, No. 229,038.

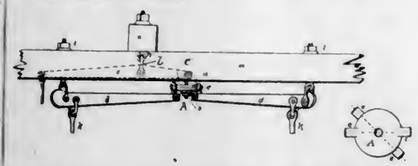
Claim.—1. The combination of a standard provided with a joint pin formed with passages communicating with supplies for steam and boiling water, a shell or block supported on said joint pin and adapted to be rocked or turned around it, an infusion vessel carried by said shell or block, and provided with passages for the entrance and escape of steam, boiling water and air, and a plug or tap in the shell or block provided with passages for controlling the passages to steam and boiling water to the infusion vessel, substantially as described.

2. The combination of a shell or block, an infusion vessel, carried thereby, a joint pin on which the shell or block is mounted and about which the infusion vessel may be turned, steam and water passages formed in the joint pin, a plug arranged in the shell or block and formed with passages communicating with the passages in the joint pin and passages leading from the plug to the infusion vessel.



3. The combination of a steam boiler B, an urn or vessel for containing liquid arranged at a higher level than the steam boiler, a steam pipe passing from the top of the boiler B, and rising up into the interior of said urn or vessel to heat the contents thereof, and a cock at the upper end of the steam pipe for the escape of air, substantially as described.

521,230. SCALE. SAMUEL S. CROMPTON, Moline, Ill., assignor to the Moline Scale Company, same place. Filed July 25, 1893. Serial No. 481,462. (No model.)



Claim.—In a hopper scale, a series of radiating levers *d* pivoted at their outer ends, a lever *c* from which said series of levers are supported and a horizontally adjustable connection between the pairs of levers *d* at their inner ends whereby the angle of the levers *d* to each other may be varied, substantially as described.

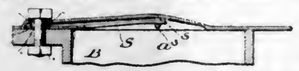
521,231. LID FOR CAR-AXLE BOXES. NATHAN H. DAVIS, Philadelphia, Pa. Filed Apr. 14, 1893. Serial No. 470,306. (No mode'.)



Claim.—1. The combination with an axle box having a shoulder *b*, of a lid A having hinge eyes *a a* whereby it is pivoted to the box and a socket A^3 having a shoulder a^4, a stirrup *a'* secured to the inner face of the lid across the socket and a spring D adapted to seat in the socket and having a turned up end *d* inserted and held between the stirrup *a'* and the shoulder a^4 of the socket and the other end bearing against the face of the shoulder *b* substantially as specified

2. The combination with an axle box having a shoulder *b*, of a lid A having hinge eyes *a a* whereby it is pivoted to the box and a socket A^3 having a shoulder a^4, a stirrup *a'* secured to the inner face of the lid across the socket and a spring D adapted to seat in the socket and having a portion so bent as to extend, when the spring is in place, below the stirrup and having one end bearing against the shoulder a^4 of the socket and the other end bearing against the face of the shoulder *b* substantially as specified.

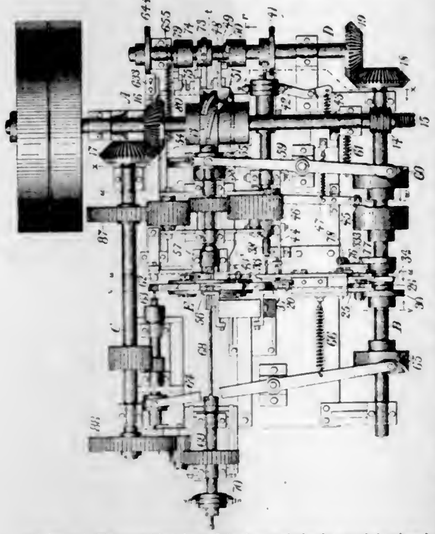
521,232. LID FOR CAR-AXLE BOXES. NATHAN H. DAVIS, Philadelphia, Pa. Filed Apr. 14, 1893. Serial No. 470,306. (No model.)



Claim.—1. As an article of manufacture, an axle box lid formed with a pivot hole as *a* said lid having a socket formed wholly on the inside of the lid, whereby the end of the spring may be held between the upper side of the socket and the inner side of the cover.

2. As an article of manufacture, an axle box lid formed with a pivot hole as *a* said lid having a socket formed wholly on the inside and substantially at the middle of the lid, whereby the end of the spring may be held between the upper side of the socket and the inner side of the cover.

521,233. NUT-FINISHING MACHINE. GEORGE DUNHAM, Unionville, Conn. Filed Apr. 3, 1893. Serial No. 468,844. (No model.)



Claim.—1. The combination of the intermittingly revolving head, a series of nut holding jaws mounted on said head, the hopper, the conveyer 25, the cam for holding the nut conveyed by said conveyer to said jaws, a backer covering one broad side of the nut between said jaws during their period of rest in front of said conveyer and a tool spiudle on that side of the nut which is opposite said backer for operating on the nut while thus held, substantially as described and for the purpose specified.

2. The holding jaws 21, 22 and 23, the middle one of which has a V shaped end while the other jaws are arranged at an angle of sixty degrees to the middle longitudinal line of said middle jaw and have their ends parallel thereto, substantially as described and for the purpose specified.

3. The combination of the intermittingly revolving head, a series of nut holding jaws mounted thereon, a hopper having a side opening which faces the edge of said head, a reciprocating conveyer moving to and from the jaws in the edge of said head and operating mechanism for said head and conveyer, substantially as described and for the purpose specified.

4. The combination of the head having holding jaws, the cam 31 for moving one of said jaws, the rocker arm connected with said cam with its opposite ends projecting in opposite directions therefrom and mechanisms for acting upon the opposite ends of said rocker arm for moving said cam in reverse directions, substantially as described and for the purpose specified.

5. The combination of the head, the nut holding jaws carried thereby, the swinging arm pivoted by its inner end to said head and carrying the moving one of said jaws at its outer end and the cam 31 mounted in said head between the fulcrum of said arm and said moving jaw for pressing upon the body of said arm to close the jaws and hold them closed while the head moves, substantially as described and for the purpose specified.

6. The combination of the intermittingly revolving head having nut holding jaws, the guide or pick off on one broad side of said head, a backer upon the opposite broad side of said head and operating mechanism, substantially as described and for the purpose specified

7. The combination of the intermittingly revolving head, a series of nut holding jaws mounted on said head, the hopper, the conveyer 25, the cam for operating the jaw for holding the nut conveyed by said conveyer to said jaws, a backer covering one broad side of the nut between said jaws during their period of rest and a guide as 43× on that side of the nut which is opposite said backer, substantially as described and for the purpose specified.

8. The combination of the intermittingly revolving head, having nut holding jaws, a stationary backer upon one side of the nut as held in the jaws of said head, a tool carrying spindle on the other side of said nut immediately opposite said backer, a movable backer on the broad side of the head opposite said stationary backer, a tool carrying spindle immediately opposite said movable backer and operating mechanism, substantially as described and for the purpose specified.

9. The combination of the intermittingly revolving head having nut holding jaws, the tapping spindle, a yielding cam and connecting devices for moving said spindle longitudinally to its work and a rigid cam for giving the return motion thereto, substantially as described and for the purpose specified.

10. The combination of the intermittingly revolving head having nut holding devices, a dressing tool and spindle on one side of the nut as held by said head for dressing one broad side of said nut, the tapping spindle on the same side of said nut, the movable backer opposite said tapping spindle and operating mechanism, substantially as described and for the purpose specified.

11. The combination of the intermittingly revolving head having nut holding jaws, the drill spindle and guide or pick off on one broad side of said head, a backer upon the opposite broad side and operating mechanism, substantially as described and for the purpose specified.

12. The combination of an intermittingly revolving head having nut holding jaws, mechanism for conveying nut blanks to the jaws in said head, dressing tools and spindles on the opposite broad sides of said head, a tapping tool and spindle for threading the hole in the nut and operating mechanism, the arrangement and location being substantially as described and operating to automatically receive and hold the blanks in the head and while so held present them consecutively to said dressing and tapping tools for dressing their opposite faces and threading their holes and then to automatically discharge them from said head as set forth.

13. The combination of the head, a series of spindles for operating upon the work held within said head, the driving shaft A, mechanism for moving said head, clutch devices for connecting and disconnecting said head moving mechanism and shaft, and mechanism for automatically tripping said clutch devices, substantially as described and for the purpose specified.

521,234. COMBINED CARPENTER'S BENCH PIN, GUIDE, AND KNIFE. JACOB H. FREDERICKS, Newark, N. J. Filed Aug. 28, 1893. Serial No. 484,168. (No model.)



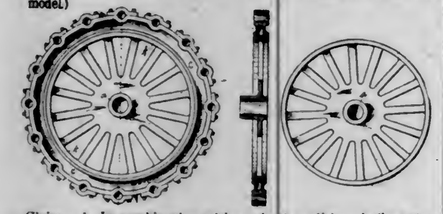
Claim.—1. An adjustable and removable stay pin bracket for carpenters' benches, consisting of a slotted angle bracket provided with pins on one arm adapted to enter the face of the bench to support and secure the bracket thereon and a support adapted to be raised or lowered in the slot of said bracket along the side of the bench, and with a bench knife pivotally secured to the arm of the bracket which is secured to the face of the bench substantially as described.

2. In a carpenter's bench an adjustable and removable stay pin bracket consisting of two portions at right angles to each other, one portion being parallel to the face of the bench and provided with pins adapted to secure said bracket to the face of the bench and also carrying a bench knife which is pivotally secured thereto while the other is parallel to the side of the bench and slotted to receive a removable supporting spool adapted to be adjusted therein, substantially as described.

3. The combination in the bracket *d*, of the slotted portion *e* and portion *f*, with the bolt *h*, spool *g* and lug *i* sliding in the slotted portion *e*, and with the pins *k* and bench knife *l* secured to the portion *f*, substantially as described.

4. The combination in the bracket *d*, of the slotted portion *e* and portion *f* at right angles thereto, with the pins *k* and with a bench knife pivotally secured to the portion *f*, all said parts, substantially as and for the purposes described.

521,235. MECHANISM FOR OILING BEARINGS. DAVID GESSNER, Worcester, Mass. Filed Mar. 18, 1891. Serial No. 385,443. (No model.)



Claim.—1. In combination with a wheel or disk, a hollow tire, bearings on the periphery of the tire and passages connecting the several bearings with the hollow within the tire, substantially as described.

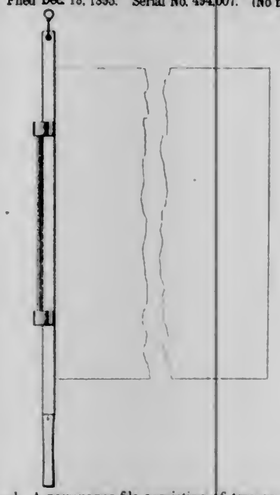
2. In combination with a wheel or disk, a tire containing an open recess and adapted to be closed by a part of the wheel, bearings on the periphery of the tire and passages connecting the several bearings with the said recess, substantially as described.

3. A wheel or disk provided at its periphery with a circumferentially extending oil chamber in combination with bearings located at the periphery, said chamber being in communication with said bearings, whereby oil may be supplied from said chamber to the bearings, substantially as described.

4. In combination with a wheel or disk, a tire having bearings, the wheel or disk and the tire being formed one with a circumferentially extending channel and the other constituting one wall to said channel, whereby when said parts are brought together an oil chamber is formed for the supply of oil to said bearings, substantially as described.

5. A wheel or disk having at its periphery a series of bearings and within said bearings but also at its periphery an oil chamber, in combination with a series of wick tubes whereby said bearings are connected with said oil chamber, substantially as described.

521,236. NEWSPAPER-FILE. JOSEPH GRUNINGER, New York, N. Y. Filed Dec. 18, 1893. Serial No. 494,007. (No model.)

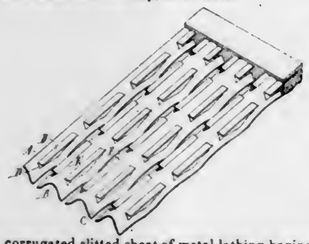


Claim.—1. A newspaper file consisting of two or more parallel sheet metal springs which are curved in at the center and connected by a metal rod fastened in these curves, and two wooden strips forming the file, and a wire spring provided with an eyelet, the ends of the wire spring being independently connected each to one wooden strip, substantially as described.

2. In a newspaper file two or more parallel sheet metal springs which are connected by a metal rod and curved in at the center in combination with the two wooden strips forming the file and a wire spring provided with an eyelet, the ends of the wire spring being independently connected each to one wooden strip, substantially as described.

521,237. METALLIC LATHING. GEORGE HAYES, New York, N. Y. Filed Dec. 2, 1893. Serial No. 492,572. (No model.)

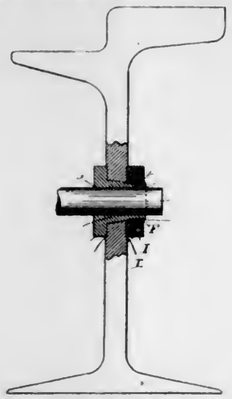
Claim.—1. A corrugated slitted sheet of metal lathing as ridges and hollows, each hollow having through its bottom apertures at intervals, and in the sloping sides of each hollow other apertures "breaking joint" with the apertures in the bottom, apertures in the sloping sides pairing, with a web of the ridge metal between them as a loop or bridge of transverse convexity, as set forth.



2. A corrugated slitted sheet of metal lathing having a series of loops along each ridge at intervals each of convex form transversely, apertured beneath and in the bottom of each hollow, a line of apertures "breaking joint" with the apertures under the loops, and the extended surface of the sheet allowed for by a lateral expansion of the slits in the depressions, as set forth.

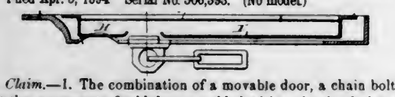
3. A corrugated slitted sheet of metal lathing wherein all the extended surface of the sheet is allowed for by a lateral expansion of the slits in the depressions having three rows of apertures in each hollow and a line of loops along each ridge transversely convex and the ridge line straight from end to end—as set forth.

521,238. BOND FOR ELECTRICAL CONDUCTORS. JOHN HEBR, Philadelphia, Pa. Filed May 11, 1894. Serial No. 510,829. (No model.)



Claim.—The combination with an electrical conductor, of a tapered hole therein, a split bolt having a head and a conical shank externally threaded and a hole passing longitudinally through said head and shank, a nut adapted to be screwed up on said conical shank of said bolt, and a wire adapted to enter and be grasped by the sides of said hole in said bolt

521,239. BURGLAR-ALARM. CLEMENT R. HOOPES, Ogontz, Pa. Filed Apr. 5, 1894. Serial No. 506,393. (No model.)



Claim.—1. The combination of a movable door, a chain bolt to limit the movement of said door provided with a circuit closing device or switch, an electric circuit controlled by a circuit closing device or switch of the chain bolt, and an alarm or indicating device included in the electric circuit.

2. The combination of a moving door, a chain bolt to limit the movement of said door provided with a circuit closing device or switch, an electric circuit controlled by a circuit closing device or switch of the chain bolt, and a battery and alarm or indicator both secured to and movable with the door included in the electric circuit and also carried by the door.

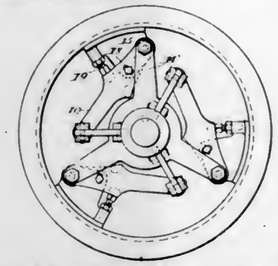
3. The combination of a movable door, a chain bolt to limit the movement of said door provided with a circuit closing device or switch, and means to normally hold the movable bolt in a fixed position to maintain the circuit open.

4. In a chain bolt, the combination of a socket piece, a sliding bolt and chain, and one or more electric contacts arranged within the socket piece but electrically independent thereof and adapted to be brought into contact with the sliding bolt when the latter is moved.

5. In a chain bolt, the combination of a socket piece having a bolt slot provided with a notched recess, a sliding bolt adapted to the notch or recess to hold it normally in a definite position, and one or more electrical contacts arranged close to the notched or recessed portion of the socket piece but electrically independent of said socket piece whereby normally the bolt is out of contact therewith, but adapted to close an electric circuit when the bolt is moved.

6. A chain bolt having a movable bolt and chain connection, combined with an electric circuit closing switch device or contact adapted to close the electric circuit upon movement being given to the bolt.

521,240. FRICTION-CLUTCH PULLEY. THOMAS E. KIRKBRIDE and CHARLES E. OURAM, Philadelphia, Pa. Filed Feb. 26, 1894. Serial No. 501,620. (No model.)



Claim.—1. In a friction clutch the combination with a pulley of a spider and sleeve having concentric hubs, expansion levers one end of each of which is attached directly to the end of one of the arms of the spider, a plurality of links, each of which is attached to the opposite end of one of the said expansion levers and to the said sleeve, and friction shoes directly pivoted at their heels to the arms of the spider and engaging at their toes with the expansion levers, and means for adjusting the pressure of the shoes located at this point of engagement with the expansion levers, substantially as described.

2. In a friction clutch the combination with a pulley of a three armed spider and a sleeve, the spider and sleeve having concentric hubs, three expansion levers one end of each of which is attached directly to the end of one of the arms of the spider, a plurality of links, each of which is attached to the opposite end of one of the said expansion levers and to the said sleeve, the connection between the expansion lever and the link being a swivel joint, three friction shoes one of which is directly pivoted at its heel to each of the arms of the spider and engages at its toe with that one of the expansion levers which is attached to the same arm of the spider, and means for adjusting the pressure of the shoes located at this point of engagement with the expansion levers, substantially as described.

3. In a friction clutch, the combination with a pulley of a sleeve and spider having concentric hubs, expansion levers one end of each of which is attached directly to the end of one of the arms of the spider a plurality of links, each of which is attached to the opposite end of one of the said expansion levers and to the said sleeve, and friction shoes also attached to the arms of the spider and engaging with the expansion levers the mechanism being reversible so as to be adaptable for rotation in either direction, substantially as described.

4. In a friction clutch, the combination with a pulley of a sleeve and spider having concentric hubs, expansion levers one end of each of which is attached directly to the end of one of the arms of the spider a plurality of links, each of which is attached to the opposite end of one of the said expansion levers and to the said sleeve, and friction shoes directly pivoted to the arms of the spider at the heels of the shoes, engaging at their toes with the expansion levers, and means for adjusting the pressure of the shoes located at this point of engagement with the expansion levers, the mechanism being reversible so as to be adaptable for rotation in either direction, substantially as described.

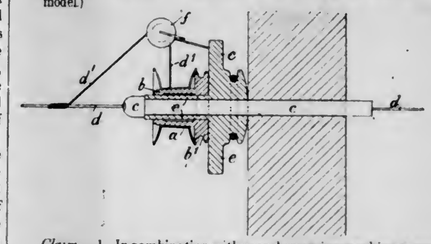
5. In a friction clutch, the combination, with a pulley and with a sleeve and spider, all of which are mounted on aligned centers, of expansion levers, one end of each of which is pivoted to one of the arms of the said spider, links, each of which has its opposite ends attached to the other end of one of the said expansion levers and to the said sleeve, friction shoes, each of which has its heel directly pivoted to one of the arms of the spider, and a bolt connecting each of the said shoes with one of the expansion levers, whereby the latter may be drawn in, substantially as described.

6. In a frictional clutch, the combination, with a pulley and with a sleeve and spider, all of which are mounted on aligned centers, of expansion levers, one end of each of which is pivotod to one of the arms of the said spider, links, each of which has its opposite ends attached to the other end of one of the said expansion levers and to the said sleeve, friction shoes, each of which has its heel directly pivoted to one of the arms of the spider, and mechanism for adjusting the pressure of the shoes, located between the toe of each shoe and one of the expansion levers, substantially as described.

7. In a frictional clutch, the combination, with a pulley and with a sleeve and spider, all of which are mounted on aligned centers, of expansion levers, each of which has oppositely located bearing points, and is pivoted at one end to the end of one of the arms of the spider, links, each of which is attached to the opposite end of one of the expansion levers, and to the sleeve, friction shoes, each of which is directly pivoted to one arm of the spider, and mechanism for adjusting the pressure of the shoes secured to the toe of each friction shoe and bearing on one of the said bearing points of the corresponding expansion lever whereby the parts may be reversed for rotation in either direction, substantially as described

8. In a friction clutch, the combination, with a pulley and with a sleeve and spider, all of which are mounted on aligned centers, of expansion levers, each of which has oppositely located bearing lugs thereon, and is directly pivoted at one end to one of the arms of the spider, links, each of which is attached to the opposite end of one of the expansion levers and to the sleeve, friction shoes, each of which is directly pivoted to one of the arms of the spider, and mechanism for adjusting the pressure of the shoes, located at the toe of each shoe and in the plane of the web thereof and bearing thereon and on one of the lugs of the corresponding expansion lever, whereby the parts may be reversed for rotation in either direction, substantially as described.

521,241. SPOOL AND SUPPORT THEREFOR. ANTON KREIDLER, Stuttgart, Germany. Filed July 6, 1893. Serial No. 479,774. (No model.)



Claim.—1. In combination with a cord covering machine, a spool-support comprising a hollow spindle, a pulley having a long hub mounted on said spindle, a bushing rotatably fitted to said hub, and spools adapted to be slipped over and held frictionally to said bushing, substantially as and for the purposes set forth.

2. In combination with a cord covering machine, a spool-support comprising a hollow spindle, a pulley having a long hub rotatably fitting said hub and provided with a rim to carry a brake band and split spools of sheet metal adapted to be held on said bushing by friction, substantially as and for the purposes set forth.

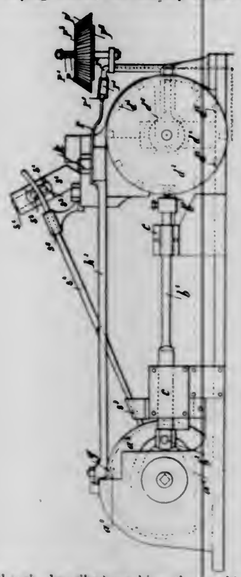
521,242. MACHINE FOR PREPARING AND FINISHING NAILS. JOSEPH M. LAUGHLIN, Paris, France. Filed Jan. 6, 1894. Serial No. 495,956. (No model.)

Claim.—1. In a nail making machine the combination of an intermittently revolving disk, point forming and nail carrying dies carried by said disk, and shank pressing dies, with means for operating the same, all arranged so that the nails are fed in succession from a distributer to the nail carrying dies and by which the nails are presented successively to the action of two pairs of shank-pressing dies of which the first pair compress the nail upon two flanks and the other pair upon its two faces, as specified.

2. In the herein described machine, the combination of combined nail carrying and point pressing dies, a transverse sliding taper-key actuating one of said dies, and means substantially as described for automatically operating said taper-key, as and for the purpose specified.

3. In the herein described machine, the combination of suitably operated combined nail carrying and point pressing dies, and independent dies for pressing the body of the nail upon four sides, whereby a nail can be formed without the loss of material, substantially as specified.

4. In a machine of the kind described, the combination of a rotary distributer, a nail carrying device, a chute interposed between said distributer and nail carrying device, and a movable shutter adapted to be withdrawn from the path of the nail when it is engaged by the nail carrying device, substantially as and for the purposes specified.

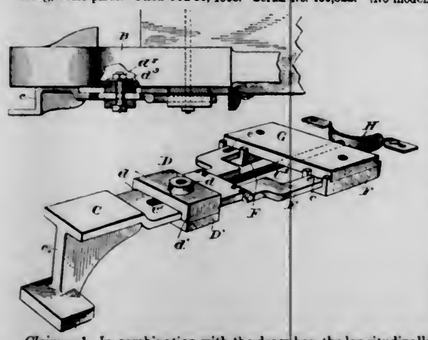


5. In the herein described machine, the combination of a series of rotating nail-pointing and carrying dies mounted upon a rotary wheel or drum, means for automatically rotating the nail-pointing and carrying dies independent of the drum on which they are mounted, and independent dies for pressing the body of the nail, whereby the point of the nail is pressed and different sides of the nail alternately presented to the presses which form the body portion of the nail dies, substantially as described and for the purposes specified.

6. In a nail making machine, the combination of a nail distributer, combined point pressing and nail carrying dies, a chute interposed between said nail distributer and the point pressing and nail carrying dies, independent dies for pressing the body portion of the nail and an extractor for dislodging the nail from said combined point pressing and nail carrying dies, all arranged substantially as described

---

521,243. SAFETY ATTACHMENT FOR CAR-COUPLINGS. JOHN A. MARKLEY, Clifton Forge, Va., assignor of three-fifths to James Clivie Carpenter, John Archer Roberts, John Leslie Duncan, and James Carr King, same place. Filed Oct. 30, 1893. Serial No. 489,522. (No model.)



Claim.—1. In combination with the draw-bar, the longitudinally sliding bar carrying a guard-plate at its front end, the spring adapted to yieldingly resist the rearward movement of said bar and guard-plate, and the guide-bars hinged to said sliding bar, one upon either side thereof, substantially as described.

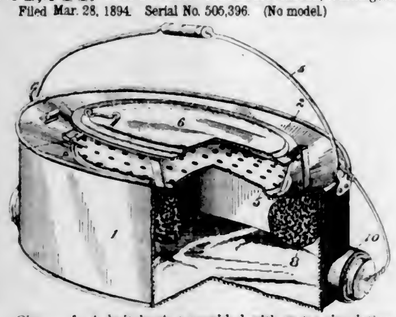
2. In combination with a draw-bar, the longitudinally sliding bar secured thereto and provided with a guard-plate at its front end, the guide bars hinged to said sliding bar, and the spring secured to a rearward extension or rod projecting from said sliding bar so as to yieldingly sustain the guard-plate in normal position, substantially as described.

3. In combination with the draw-bar, the longitudinally slotted spring-pressed sliding bar carrying a guard-plate at its front end, the coupling block and guide for said bar having the apertured boss thereon, the bolt passing through said coupling block and boss into said draw-bar and provided with a nut on its screw-threaded end, and a washer interposed between said nut and boss, whereby a swivel joint connection is formed between said sliding bar and draw-bar, substantially as described.

4. A safety attachment for car couplings, comprising the longitudinally sliding bar, the guard plate supported thereby, the hinged guide-bars, the intermediate rearwardly projecting rod, the spring to which said rod is secured, and the coupling block swiveled to said draw-bar, substantially as described.

5. A safety attachment for car couplings, comprising the longitudinally slotted sliding bar carrying the guard-plate, the longitudinally slotted sliding guide-bars hinged to said sliding bar, the spring, the rod connecting said sliding bar and spring, the stationary coupling block serving as a guide and support for said sliding bar and swiveled to said draw-bar, and the guides for said guide-bars, substantially as described.

521,244. BAIT-BUCKET. OTHO M. MUNCASTER, Washington, D. C. Filed Mar. 28, 1894. Serial No. 505,396. (No model.)



Claim.—1. A bait bucket provided with water-circulating passages in its sides and means for closing said passages when the bucket is out of water, and having a float located inside of, and protected by the walls thereof, substantially as and for the purpose specified.

2. A bait bucket provided with water-circulating passages in its sides and means for closing said passages when the bucket is out of water, and having an annular float composed of cork or other buoyant material, substantially as and for the purpose specified.

3. A bait bucket provided with water-circulating passages in its sides and means for closing said passages when the bucket is out of water, and having an annular float surrounding the opening in the bucket, and located inside thereof, substantially as and for the purpose specified.

4. A bait bucket provided with water-circulating passages in its sides and means for closing said passages when the bucket is out of water, and having a detachable and independent float, substantially as and for the purpose specified.

5. In combination with a bait bucket provided with water-circulating passages in its sides and means for closing said passages when the bucket is out of water, a cover and a detachable float surrounding the opening closed by the cover, substantially as and for the purpose specified.

6. In combination with a bait bucket provided with water-circulating passages in its sides and means for closing said passages when the bucket is out of water, a hinged cover, an annular float surrounding the opening closed by the cover, and means for connecting the float to the under side of the top of the bucket, substantially as and for the purpose specified.

7. A bait bucket provided with a reticulated cover, and an awning or shield located over said cover, substantially as and for the purpose specified.

8. In combination with a bait bucket, a protecting awning or shield arranged over the top opening thereof, substantially as set forth.

9. In combination with a bait bucket, a reticulated cover hinged to the top of the bucket, and an awning or shield connected to the cover and spaced apart therefrom, substantially as and for the purpose specified.

10. In a bait bucket provided with a top inclined toward a central opening, the combination of a movable cover, an awning above

the cover, and a float surrounding the opening closed by the cover, substantially as and for the purpose specified.

11. In a bait bucket having a top inclined toward a central opening, the combination of the hinged, reticulated cover, the awning above, and connected to the cover, and the annular float detachably secured to the under side of the top of the bucket, and surrounding the opening closed by the cover, substantially as and for the purpose specified.

12. In combination with a bait bucket having water-circulating passages and valves for opening or closing such passages, a detachable float secured to the interior of the bucket, a hinged reticulated cover, an awning spaced apart from and connected to the cover, and means for securing the cover and awning in either an open or closed position, substantially as and for the purpose specified.

13. A bait bucket, comprising the bucket proper provided with water-circulating passages in its sides and with screw taps or valves for closing said passages when the bucket is out of water, and an annular float connected with said bucket, substantially as set forth.

14. A bait bucket, comprising the bucket proper provided with water-circulating passages in its sides and means for closing said passages when the bucket is out of water, in combination with a top or cover carrying a float and provided with an opening closed by a reticulated cover, substantially as set forth.

15. A bait bucket, comprising the bucket proper provided with water-circulating passages in its sides and means for closing said passages when the bucket is out of water, in combination with a top or cover carrying a float and provided with an opening closed by a reticulated cover and an awning or shield protecting said cover, substantially as set forth.

16. A bait bucket, comprising the bucket proper provided with water-circulating passages in its sides and means for closing said passages when the bucket is out of water, in combination with a top or cover carrying a float and provided with an opening closed by a reticulated cover, the top being inclined toward said opening, and an awning or shield arranged above the reticulated cover, substantially as set forth.

17. A bait bucket, comprising the bucket proper provided with water-circulating passages in its sides and with screw taps or valves for closing said passages when the bucket is out of water, a top carrying an annular float depending from its under side and protected by the walls of said bucket, said top being inclined toward a central opening, a reticulated cover for closing said opening, and an awning or shield arranged above said cover, substantially as set forth.

18. A bait bucket provided with a float for supporting the same in the water and having water-circulating passages in its sides and means for closing said passages when the bucket is out of water, substantially as set forth.

521,245. REEL. CHARLES C. PARTRIDGE, Hyde Park, Mass. Filed July 25, 1893. Renewed May 7, 1894. Serial No. 510,409. (No model.)



Claim.—1. As a new article of manufacture, the herein described reel, consisting of a rod, spaced disks thereon, the rod extending beyond each end of the disks and loose sleeves thereon movable longitudinally into contact with the disks and forming brakes for the reel, the disks forming guards serving to prevent the cord wound on the reel from interfering with the sleeves, substantially as described.

2. As a new article of manufacture, the herein described reel, consisting of a rod having spaced disks, and handles consisting of loose sleeves on the rod outside of the disks, said sleeves having a longitudinal movement on the rod to form brakes, the sleeves having enlarged inner ends forming flanges thereon, substantially as described.

521,246. HOLLOW RUBBER ARTICLE. EDWARD L. PERRY, Paterson, N. J. Filed Apr. 20, 1894. Serial No. 508,255. (No model.)



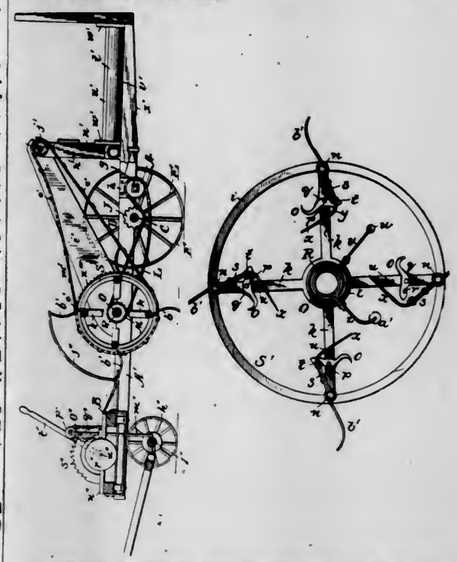
Claim.—1. An oil-can or other hollow rubber article having a bottom of soft rubber and an inner lining thereto composed of spring sheet metal, substantially as and for the purpose set forth.

2. An oil-can or other hollow rubber article having a body of hard rubber or vulcanite and a bottom of soft rubber, and an inner lining to the soft rubber bottom constructed of spring sheet metal, substantially as and for the purpose described.

3. An oil-can or other hollow rubber article having a body of hard rubber or vulcanite and a detachable bottom of soft rubber having its flanged portion of hard rubber or vulcanite, and a lining to the soft rubber bottom formed of spring sheet metal, substantially as and for the purpose specified.

4. An oil-can or other hollow rubber article having a soft rubber bottom and a lining therefor constructed of spring sheet metal, having a concavo-convex central portion and a double flanged rim, substantially as and for the purpose set forth.

521,247. COMBINED HAY RAKE, TEDDER, AND LOADER. JOHN H. RIDINGS, Morris, Ill. Filed Mar. 31, 1893. Renewed Apr. 17, 1894. Serial No. 507,931. (No model.)



Claim.—1. In a combined hay-rake, tedder, and loader, the combination, of a suitable framework vertically adjustable at its front or draft end; a raker cylinder rotatably mounted on the front end of the machine; a series of raker-teeth mounted in rows on shafts journaled around the surface of said cylinder; a detent arm on the end of each shaft; a spring-pressed pawl pivoted to the cylinder and adapted to hold the detent arm in a set raking position; a trip roller supported in stationary position and adapted to throw the pawl out of engagement with the detent arm; another roller similarly arranged and supported for throwing the detent arm back into set position in engagement with the pawl after the aforesaid disengagement; an endless carrier arranged in operative relation to the raker-cylinder at the front, and communicating with a side-delivery mechanism at its rear; a side delivery mechanism detachably secured at the rear end of the framework; and an automatic loader detachably fixed to the side-delivery mechanism and adapted to carry up and deliver the hay into a wagon traveling alongside.

2. In a machine of the class described, the combination, with a suitable frame-work supported by ground-wheels; of a raker-cylinder on the front portion of the frame-work and rotatably mounted on stationary transverse shaft located in front of the driving axle; rows of movable raking teeth on the raker-cylinder; tripping mechanism for throwing said teeth into and out of operative position; and comprising a series of spring-pressed pawls and co-acting detents controlling the positions of the raking teeth of the raker-cylinder, a trip-roller carried by the stationary transverse shaft and adapted to throw the pawls out of engagement with their detents, and another trip-roller similarly arranged on the transverse shaft in a different vertical plane and designed to replace the detents in engagement with their pawls after disengagement sprocket gearing driving said cylinder; and the driving axle carrying drive-wheels and connected with the raker-cylinder by intermediate sprocket-gearing.

3. In a machine of the class described, the combination, with a suitable frame-work supported by ground-wheels; of a raker-cylinder rotatably mounted upon a fixed support on the forward part of the machine in advance of the driving axle; a series of movable raker-teeth carried by said cylinder; tripping mechanism on one end of said cylinder and arranged to automatically throw said teeth into and out of operative position; and comprising a series of spring-pressed pawls and co-acting detents controlling the positions of the raking teeth of the raker-cylinder, a trip-roller carried by the stationary transverse shaft and adapted to throw the pawls out of engagement with their detents, and another trip-roller similarly arranged on the transverse shaft in a different vertical plane and designed to replace the detents in engagement with their pawls after disengagement endless bands or carriers arranged to receive and carry back the hay from the rake; sprocket gearing for imparting motion both to the rake and to the carriers; and a main axle carrying drive-wheels and connected with the raker-cylinder and carrier mechanism by intermediate sprocket-gearing.

4. In a machine of the class described, the combination, with a raker-cylinder rotatably mounted on the machine, of a series of raker-teeth mounted in rows on shafts journaled around the periphery of said cylinder,—a detent-arm on the end of each shaft,—a spring-pressed pawl pivoted to the cylinder and adapted to hold the detent arm in a set raking position,—a trip-roller supported in stationary position and adapted to throw the pawl out of engagement with the detent-arm,—and another trip-roller similarly arranged and supported for throwing the detent arm back into set position in engagement with the pawl after the aforesaid disengagement.

5. In a machine of the class described, the combination with the raker-cylinder comprising three cylinder heads carrying transverse shafts serially disposed around the surface of the cylinder and provided with movable raker-teeth; of a tubular shaft to which said heads are keyed; and a tubular stationary support for the tubular shaft of the cylinder, provided with spacing boxings to separate the two shafts from each other.

6. In a machine of the class described, the combination, with the raker-cylinder having two smooth end-heads and a central head, the latter being provided with spurs around its periphery, all of said heads being keyed on a tubular shaft enveloping a stationary support fixed to the frame-work—of a sprocket-belt passing over the central head,—a roll at the rear of the machine journaled in suitable supports and carrying a centrally disposed sprocket-wheel in alignment with the central head of the cylinder and in engagement with the said sprocket-belt,—loose belts carried by the end-heads and rear roll,—intermediate bands traveling around the raker-cylinder and rear-roll—raker-teeth arranged in rows on the raker-cylinder with a carrier band between any two adjacent pair of raker-teeth,—and means for actuating the cylinder, sprocket-wheels, belts, and bands.

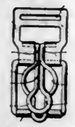
521,248. KNITTING-MACHINE. LEVI E. SALISBURY, Providence, R. I. Filed Jan. 6, 1894. Serial No. 495,899. (No model.)



Claim.—1. In a knitting machine, the combination with a grooved rotatable cylinder, combined needles and carriers mounted in said grooves and mechanism for alternately actuating the needles vertically, of a fixed guide for introducing the knitting-threads to the needles, and a stationary flexible backing thread guide in yielding contact with the front of the raised needles for the purpose set forth.

2. In a knitting machine, the combination with the rotatable cylinder and needles mounted therein, of a stationary guide *e* for introducing the knitting-thread *k* to the hooks of all the needles, a stationary thread-guide *h* for introducing the backing-thread *f* to the front and back of the needles, in advance of the introduction of said thread *k*, cams for carrying the open latches of the alternate needles above the guide *h*, the hooks of the intermediate needles at the same time being maintained below said guide, cams for lifting the last-named needles after passing the guide, and cams for retracting all the needles after the hooks of the latter have received the knitting-threads, substantially as described.

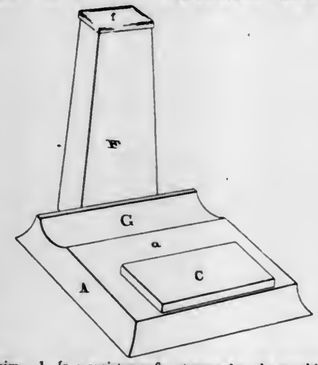
521,249. SUPPORTER. DWIGHT L. SMITH, Waterbury, Conn., assignor of one-half to Earl A. Smith, same place. Filed Apr. 25, 1894. Serial No. 508,980. (No model.)



Claim.—1. A garment supporter consisting of a member A to which a web may be attached and which is provided with eyes 3 and 4, a member B formed from a single piece of wire the central portion of which is shaped to form a fixed loop 6, the halves of said piece of wire forming a shank above the loop, and then passing through eyes 4, and a swinging loop C formed from a single piece of wire the central portion of which is shaped to form a neck 9 the halves of said piece of wire being then curved outward to form an opening 10 through which the fixed loop may pass, and the halves of the piece of wire being closed together above opening 10 to form a shank and then bent outward at right angles to engage eyes 3, said swinging loop being adapted to be moved away from member B when member A is swung forward and the neck to be drawn up under the fixed loop when member A is moved backward to place.

2. A garment supporter consisting of a member A to which a web may be attached and which is provided with an opening 5 and eyes 3 and 4, a member B formed from a single piece of wire the central portion of which is shaped to form a fixed loop 6, the halves of said piece of wire being closed inward to form a shank above the loop, the upper end of said shank lying in opening 5 and the halves of the piece of wire passing through eyes 4, and a swinging loop C formed from a single piece of wire the central portion of which is shaped to form a neck 9 the halves of said piece of wire being curved outward above the neck to form an opening 10 through which the fixed loop may pass the halves of the piece of wire being then closed inward to form a shank the upper end of which lies in opening 5 and the ends of the piece of wire being then turned outward to engage eyes 3, substantially as shown and described.

521,250. MOISTENER FOR STAMPS, ENVELOPES, &c. JOHN G. WILLITS, Haddonfield, N. J., assignor to Anna Eastburn Willits, same place. Filed Feb. 15, 1893. Serial No. 462,470. (No model.)

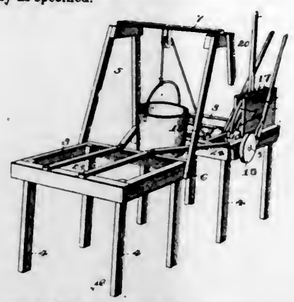


Claim.—1. In a moistener for stamps, &c., the combination of a tank or reservoir having therein a submerged permeable plate, and a partially submerged felt pad, sustained by said plate, adapted for subjection to pressure of the article to be moistened and the rising of the moisture to the outer surface under such pressure, substantially as and for the purpose specified.

2. In a moistener for stamps, &c., the combination of a tank provided with a depression in its top, a flat perforated base, normally submerged and supported by flanges in the depression, a felt pad in the latter and sustained by the base, said pad having its inner surface constantly submerged and its outer surface adapted for subjection to pressure of the article to be moistened, and a standpipe or reservoir above the plane of the pad, provided with a removable cap or cover and communicating with the tank, substantially as and for the purpose specified.

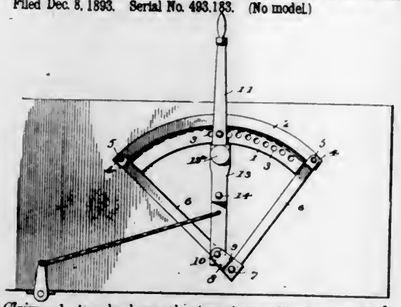
521,251. STUMP-PULLER OR LOAD-LIFTER. MILTON ALLMON, Benton, Ill. Filed Sept. 14, 1893. Serial No. 485,530. (No model.)

1. In a device of the class described, the combination of a frame-work comprising independent spaced self-supporting sections or members, adapted to be arranged upon opposite sides of the object to be elevated, a derrick connecting said sections or members and spanning the interval therebetween, a track arranged longitudinally upon the framework and having removable rail-sections which span the interval between the sections, and elevating devices carried by one of the sections, whereby the tracks upon the other section are unobstructed, substantially as specified.



2. In a device of the class described, the combination of a frame-work comprising independent spaced sections or members connected by a derrick, a track arranged upon said framework and having removable rail-sections to span the interval between the same, a drum shaft provided with a ratchet-wheel, a bracket carried by one of the sections and having parallel side plates, an operating lever fulcrumed between the side plates of the bracket and carrying pawls to engage said ratchet-wheel, a brake mechanism having its lever arranged contiguous to one of the side plates of the bracket, a clutch device having a gravity lever arranged contiguous to the other side plate of the bracket, and locking-pins engaging perforations in said side plates to secure said levers in adjusted position, substantially as specified.

521,252. BRAKE-LEVER. CARL A. ANDERSON, Lynn Center, Ill. Filed Dec. 8, 1893. Serial No. 493,183. (No model.)

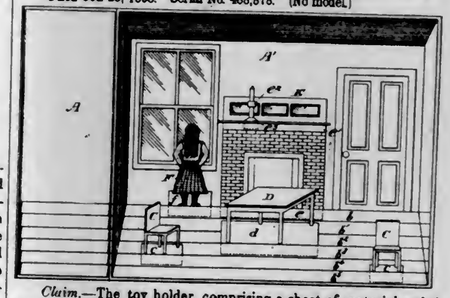


Claim.—1. In a brake-mechanism, the combination with the opposite braces bolted together at their lower ends and diverging toward their upper ends, and the intermediate curved sheet-metal locking-plate perforated to form a scuring-flange and having its inner edge outwardly and downwardly disposed and perforated to form a locking-flange of a brake-lever fulcrumed adjacent to the lower ends of the braces and concentric with the locking-plate, a lug on the inner side of the brake-lever for engaging the perforations of the locking flange, a tubular keeper mounted on the outer face of the brake-lever and having an opening to receive the brake-lever and provided with an upward extending flange at the inner side of the brake-lever to engage under the perforated locking-flange of the locking-plate, and a spring interposed between the brake-lever and the outer side of the tubular keeper, substantially as specified.

2. In a brake-mechanism, the combination with the opposite converging straps bolted together at their lower ends, the upper curved locking-plate having its lower side outwardly and downwardly extended and perforated to form a locking-flange, the triangular plate 7 at the lower ends of the braces offset at its upper end, and having a fulcrum-bolt passed therethrough, bolts through the upper ends of the braces and the upper ends of the locking-plate, the yielding brake-lever pivoted at its lower end on the fulcrum-bolt and extending over and beyond the perforated locking flange, the lug on the inner side of the brake-lever, the tubular keeper arranged on the outer face of the brake-lever and having an opening to receive the same and provided with a flange arranged at the inner side of the lever and extended under the locking-flange, said keeper being provided with a tubular pocket and the coiled-spring arranged in the tubular pocket and interposed between the outer wall of the keeper and the face of the brake-lever, substantially as specified.

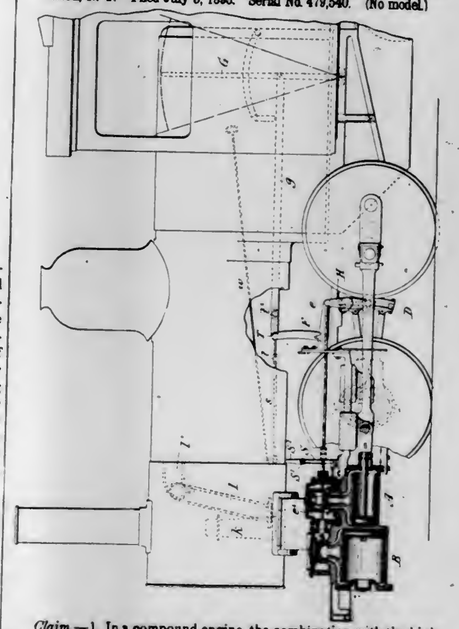
3. In a brake-mechanism, the combination with the curved locking-flange having locking perforations, of a concentrically pivoted lever having an inner locking lug, a tubular keeper arranged on the outer face of the lever and provided with an opening receiving the latter and having its upper end arranged at the inner face of the lever and engaging the flange of the locking-plate over the end of the locking-lug, and a coiled-spring interposed between the outer wall of the tubular keeper and the lever, substantially as specified.

521,253. TOY-HOLDER. FRANK D. ARTHUR, Scarborough, N. Y. Filed Oct. 23, 1893. Serial No. 488,878. (No model.)



Claim.—The toy holder, comprising a sheet of material embellished on its face with a perspective production and having a portion of the sheet which forms the floor or ground of the perspective production provided with one or more thin pockets for the reception of the bases of paper dolls, toy articles of furniture and the like, substantially as set forth.

521,254. COMPOUND LOCOMOTIVE-ENGINE. CHARLES A. BALL, Brooklyn, assignor to the Ball Compound Locomotive Company, New York, N. Y. Filed July 3, 1893. Serial No. 479,540. (No model.)



Claim.—1. In a compound engine, the combination with the high and low pressure cylinders and valves, of a supplemental valve and ports controlled thereby communicating with the opposite ends of the high pressure cylinder, the valve and ports relatively constructed and arranged and of such large area as when the valve is open to establish free communication between the opposite ends of the high

pressure cylinder, whereby to put the high pressure piston in equilibrium and admit high pressure steam to the low pressure cylinder.

2. In a compound engine, the combination with the high and low pressure cylinders and valves, of a supplemental valve and ports controlled thereby communicatiug with the opposite ends of the high pressure cylinder, and the live steam passage, and the valve and ports relatively constructed and arranged when the valve is open to establish communication between said ports respectively and the live steam passage, and thereby to put the high pressure piston in substantial equilibrium with the full live steam pressure on opposite sides thereof.

3. In a compound engine, the combination with the high and low pressure cylinders and valves, of a supplemental valve and ports controlled thereby communicating with the live steam passage, the low pressure valve, and the opposite ends of the high pressure cylinder, the valve and ports relatively constructed and arranged when the valve is open to admit live steam directly to the low pressure valve and establish communication between the opposite ends of the high pressure cylinder.

4. In a compound engine, the combination with the high and low pressure cylinders and valves, of a supplemental valve and ports controlled thereby communicating with the live steam passage, the low pressure valve, and the opposite ends of the high pressure cylinder, the valve and ports relatively constructed and arranged when the valve is open to establish communication between said ports respectively, and thereby admit live steam to the low pressure valve, and to both sides of the high-pressure piston, and put the latter in substantial equilibrium.

5. In a locomotive engine, the combination with the cylinder, valve, and valve-chest, of a supplemental valve inclosed in the valve-chest, consisting of a hollow movable valve working in a seat, said seat having ports communicating with the opposite ends of the cylinder, and the valve constructed in its open position to establish communication between said ports, whereby to put the piston moving in said cylinder in substantial equilibrium.

6. In a locomotive engine, the combination with the cylinder, valve, and valve-chest, of a supplemental valve inclosed in the valve-chest, consisting of a hollow movable valve working in a seat, said seat having ports or openings communicating with the interior of the valve-chest and with the opposite ends of the cylinder, and the valve constructed in its open position to open communication between said ports respectively, whereby the opposite ends of the cylinder are connected with each other and with the interior of the valve chest.

7. In a compound engine, the combination with the cylinders, valves and valve chest, of a supplemental valve inclosed in the valve chest and movable in a seat, said seat having a port communicating with the live steam passage, whereby when the valve is moved to its open position the said port is opened to the valve chest and whereby the supplemental valve is readily accessible and removable by opening the valve-chest, and is protected from excessive heat.

8. In a compound engine, the combination with the cylinders, valves and valve chest, of a supplemental valve inclosed in the valve chest, consisting of a movable cylinder having ports communicating with the valve chest, and a valve seat therefor having ports communicating respectively with the live steam passage and the opposite ends of the high pressure cylinder.

9. In a locomotive engine, the combination with a cylinder and live steam passage and valve chest and valve, of an inner shell in said chest having ports communicating between the cylinder ports and valve ports, and a supplemental valve working through said inner shell and adapted to establish communication between the ports thereof communicating with the cylinder ports whereby to throw the opposite ends of the cylinder into communication with one another.

10. In a locomotive engine, the combination with the cylinder, live steam passage and valve chest and valve, of an inner shell in said chest having ports communicating between the cylinder ports and valve ports, and formed with a sidewise extension to receive a supplemental valve, and a supplemental valve working therein and adapted to establish communication between the ports thereof communicating with the cylinder ports, whereby the supplemental valve is arranged to one side of the main steam passages communicating between the main valve and cylinder.

11. In a compound engine, the combination with the cylinders, valves and valve chest of a supplemental valve inclosed in the valve chest and an inner shell in said chest inclosing the high pressure valve and said supplemental valve and formed with ports communicating between the cylinder ports and live steam passage on the one hand, and the ports controlled by the respective valves on the other hand.

12. In a compound engine, the combination with the cylinders, valves and valve chest, of an inner shell Q within said chest having ports m^3 m^3 communicating with the cylinder ports and the port i communicating with the live steam passage and inclosing the high pressure valve, and the supplemental valve P formed as a movable piston working through said shell and having ports for communicating with the ports therein whereby in one position to close communication therewith, and in another position to open communication therewith and thereby admit live steam into said chest and establish communication between the high pressure cylinder ports.

13. In a compound engine, the combination with the cylinders, valves and valve chest, of a supplemental valve P inclosed in the valve chest, a bushing p therefor formed with ports, and an inner shell Q in said chest inclosing the high pressure valve and said supplemental valve and formed with ports communicating between the cylinder ports and live steam passage on one hand and the ports controlled by the high pressure valve and the ports in said bushing p controlled by said valve P on the other hand.

14. In a compound engine, the combination with the cylinders, valves and valve chest, of a supplemental valve P inclosed in the valve chest and constructed as a tubular piston movable longitudionally parallel with the main valve and having a rod P' passing out through the stuffing box in the end of the chest, and ports controlled by said supplemental valve communicating with the live steam passage for admitting high pressure steam to the low pressure valve.

15. In a compound engine, the combination with the cylinders, valves and valve chest, the low pressure valve rod e' being extended through the valve chest alongside of and exterior to the high pressure valve, of a supplemental valve P arranged beneath the low pressure valve rod, and an inner shell Q within the valve chest inclosing the high pressure valve and said supplemental valve and formed with a sidewise extension beneath the low pressure valve rod for surrounding said supplemental valve, whereby the low pressure valve rod is extended exterior to said inner shell.

16. In a compound locomotive engine, the combination with the cylinders, valve chests, valves and valve gear, of supplemental or starting valves P inclosed in the respective valve chests and means for operating them consisting of a cross shaft S' having arms S connecting with the valve rods of said valves, and an arm S^3, a tappet rod s connected therewith and having tappets engaged by some part of the valve gear and arranged to be displaced when the reversing gear is put to its extreme position in either direction, and a spring centering device U for restoring the valves after displacement to their mid position connected to said shaft.

521,255. TOOL-HOLDER FOR THREAD-CUTTERS. CHARLES R. BENNER, Bridgeport, Conn. Filed Sept. 25, 1893. Serial No. 486,421. (No model.)



Claim.—1. A holder for metal working tools having a slot 1 for the purpose set forth, longitudinal and transverse openings in the same horizontal plane adapted to receive the shanks respectively of inside and outside thread cutters, and suitable means engaging the holder to cause it to clamp the shank of the tool.

2. A holder for metal working tools having a slot 1 for the purpose set forth, longitudinal and transverse openings in the same horizontal plane adapted to receive the shanks of tools, a yoke and a set screw 3 in said yoke adapted to bear on the top of the holder to cause it to clamp the shank of the tool, a stop 6 in the longitudinal opening to determine the inward movement of a tool shank and a set screw 7 to lock the stop.

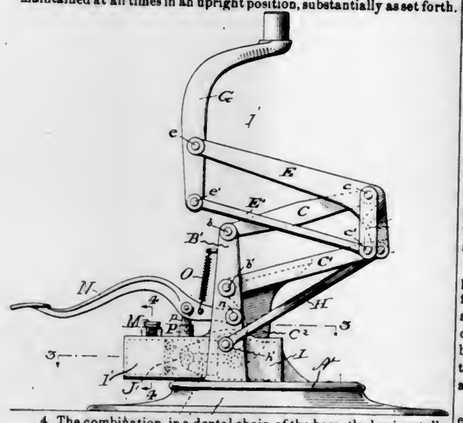
3. A holder for metal working tools having a slot 1 for the purpose set forth, longitudinal and transverse openings adapted to receive shanks of tools, a yoke and a set screw in said yoke adapted to bear on the top of the holder to clamp the tool therein, a gage B having an oblique edge 8 by which the cutting edges of inside or outside thread cutters may be adjusted, and a shank adapted to pass between the yoke and the holder and to be locked in place by the set screw.

521,256. DENTAL CHAIR. ARTHUR W. BROWNE, Prince's Bay, N. Y., assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Feb. 6, 1894. Serial No. 499,283. (No model.)

Claim.—1. The combination, in a dental chair, of a set of parallel arms provided with the actuating lever rigid with one of said arms, the support to which said arms are jointed one above the other, the horizontal cylinder, its piston, the connecting rod jointed to said actuating lever and piston, the chair-body carrier supported by connection with said parallel arms, and means by which said carrier is maintained at all times in an upright position, substantially as set forth.

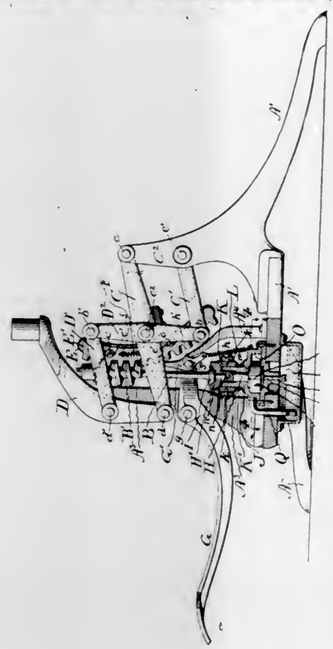
2. The combination, in a dental chair, of the main parallel arms linked together at their outer ends, the support to which they are jointed, means for actuating said arms, the supplementary parallel arms jointed to the linked ends of the main parallel arms, means by which the supplementary parallel arms are caused to rock about their jointed connection with the main parallel arms upon actuation of these main arms, and the chair-body carrier jointed to the supplementary parallel arms and maintained at all times in an upright position, substantially as set forth.

3. The combination, in a dental chair, of the main parallel arms linked together at their outer ends, the support to which they are jointed, means for actuating these arms, the supplementary parallel arms having jointed connection with the linked ends of the main parallel arms and provided with the actuating lever, the coupling link making jointed connection between said actuating lever and support, and the chair body carrier joined to said supplementary arms and maintained at all times in an upright position, substantially as set forth.



4 The combination, in a dental chair, of the base, the horizontally turning support carried thereby, a set of parallel arms jointed to said support and one of which is provided with the actuating lever rigid with it, the horizontal cylinder, its piston, means for actuating the piston, the connecting rod jointed to said actuating lever and piston, the chair-body carrier supported by connection with said parallel arms, and means by which said carrier is maintained at all times in an upright position.

521,257. DENTAL CHAIR. ARTHUR W. BROWNE, Prince's Bay, N. Y., assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Feb. 12, 1894. Serial No. 499,890. (No model.)



Claim.—1. The combination of the base, the chair body carrier, the short lower parallel arms having jointed connection with the base, the longer intermediate arms having jointed connection both with the base and the chair body carrier, the short upper parallel arms having jointed connection with the chair body carrier, the links connecting the upper, lower, and intermediate arms, and means for actuating and for upholding the parallel arms substantially as set forth.

2. The combination of the base, the rotary worm and its shaft provided with the cone, the curved rack engaging the worm, means for actuating the rack to raise it, the parallel arms carrying the rack and having jointed connection with the base, means for supporting a chair body by the parallel arms, and the cone socket and its shaft having supporting connection with the base and with which the worm shaft cone is adapted to be frictionally locked against rotation independently thereof, substantially as set forth.

3. The combination of the base, the rotary worm and its shaft having supporting connection with the base, the curved rack engaging the worm, means for actuating the rack to raise it, the parallel arms carrying the rack, and having jointed connection with the base means for supporting a chair body by the parallel arms, and means by which to control the speed of rotation of the worm shaft to gradually lower the elevating mechanism when it is permitted to descend, substantially as set forth.

4. The combination of the base, the rotary worm and its shaft provided with the cone, the curved rack engaging the worm, means for actuating the rack to raise it, the parallel arms carrying the rack, and having jointed connection with the base means for supporting a chair body by the parallel arms, the cone socket and its shaft, the bearing for the cone socket shaft, the sleeve on this bearing having the cone and socket connection with the cone socket shaft, the spring acting on said sleeve, and the tripping lever, substantially as set forth.

5. The combination, in a dental chair, of the base, the chair body elevating mechanism provided with the curved rack, the shaft provided with the worm engaging the rack of the elevating mechanism, means for actuating the rack, and the mechanism by which the rotation of the worm is controlled in lowering the elevating mechanism, consisting of the pump chamber, the pump blades, their rotary carrier with which the worm shaft has connection, the inlet and outlet pipes, and the liquid-carrying reservoir, substantially as set forth.

6. The combination, in a dental chair, of the base, the worm and its shaft having supporting connection with the base, parallel arms having jointed connection with the base, the chair body carrier having jointed connection with the parallel arms the sectional curved rack carried by said arms and comprising the main section, the auxiliary section adapted to slide thereon, and the spring connecting the rack sections, and means for actuating the rack, substantially as set forth.

521,258. BLACKBOARD-ERASER. ALBERT J. CREAMER, Washington Court-House, Ohio. Filed Mar. 30, 1893. Serial No. 468,395. (No model.)



Claim.—1. As a new article of manufacture, an eraser consisting of a body portion provided with parallel ribs or ridges, a transverse chamber at one end of the body portion and communicating with the spaces between the ribs or ridges, said chamber being formed with a discharge opening, and provided with a removable stopper, substantially as described.

2. As an improved article of manufacture, a black-board eraser comprising a body portion having erasing ridges and a chamber or receptacle communicating with the grooves between said ridges, said chamber or receptacle being designed to receive the chalk-dust, and the ridge 5' at either side being lower or smaller than the other ridges 5, substantially as and for the purposes set forth.

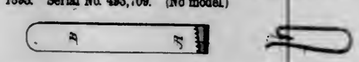
3. As an improved article of manufacture, a black-board eraser comprising a body-portion having an erasing surface provided with grooves and ridges, and a chamber or receptacle communicating with the ends of said grooves, said chamber or receptacle being designed to receive the chalk-dust, and the ridge 5' at either side being lower or smaller than the other ridges 5, substantially as set forth.

4. The combination with an eraser consisting of a body portion and parallel ribs or ridges, and provided at one end with a transverse dust chamber communicating with the spaces between said ribs or ridges, of a covering for the erasing surface, and metallic plates for securing said covering, substantially as described.

5. An eraser comprising a body portion and a series of ribs and grooves, a series of longitudinal openings below said grooves, a series of perforations 11, a transverse dust chamber at one end of the eraser body communicating with the ends of the grooves, and with the ends of the openings below the grooves, and a discharge opening or openings in said dust chamber provided with removable stoppers, substantially as described.

6. The combination with an eraser provided with a dust chamber having a discharge opening substantially as described, of a bellows, and a tube connecting the bellows and dust chamber, substantially as set forth.

521,259. GARMENT-SUPPORTER. FRANCIS G. DAVIS, Watertown, N. Y., assignor to Edmund J. Bonney, same place. Filed Dec. 14, 1893. Serial No. 493,709. (No model.)

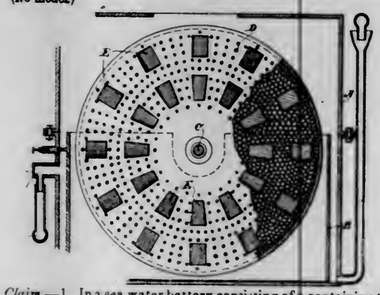


Claim.—1. A garment-supporter consisting of an elongated body of elastic material folded upon itself to form two opposed limbs or jaws, one of said limbs having its inner bearing face provided with an obliquely set row of teeth adapted to engage the fabric interposed between said limbs, substantially as set forth.

2. A garment-supporter consisting of a body of elastic material folded upon itself to form two opposed limbs or jaws, one of said limbs having its end turned up inwardly, and a row of teeth cut in the edge of such turned up end, extending obliquely across it, and adapted to engage the interposed fabric, substantially as set forth.

3. A garment-supporter consisting of an elongated body of elastic material folded upon itself to form two opposed limbs or jaws, one of said limbs having its end turned up inwardly and a row of inwardly beveled teeth cut in the edge of such turned up end, extending obliquely across it, and adapted to engage the interposed fabric, substantially as set forth.

521,260. ELECTRIC BATTERY. FRED. DUBERO and PETER MOHRDIECK, San Francisco, Cal. Filed Jan. 15, 1894. Serial No. 496,965. (No model.)



Claim.—1. In a sea water battery consisting of a containing tank an interior positive element suspended within said tank having a binding post or connection for the positive wire, a negative element consisting of a revoluble hollow cylinder with a filling or negative material and perforations through which the exciting liquid may reach the material when submerged and be drained from it when raised out, and a binding post for the negative electrode forming connection through the shaft of the apparatus.

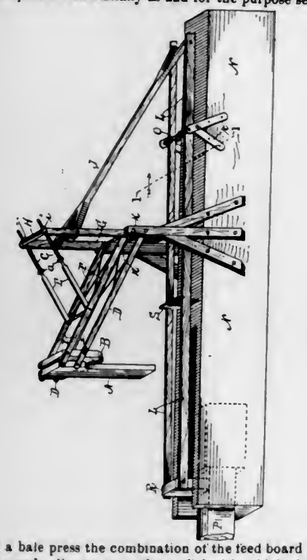
2. In a battery, an exterior tank for containing an exciting liquid, a positive electrical element of the battery submerged therein, a shaft extending across the containing tank and turning in journal-boxes thereon, and a cylinder composed of perforated sides and rim, and adapted to contain a pulverized element which acts as a negative in the battery, substantially as herein described.

3. In a battery, an exterior containing tank for the exciting liquid, a positive element of the battery consisting of a rectangular plate supported within the tank and insulated from the negative element of the battery, a shaft journaled across the tank and rotatable thereon, a cylinder composed of perforated sides and rim secured to said shaft, openings made through the sides of said cylinder and carbon blocks fixed in said openings within the ends projecting upon each side of the cylinder, so that the constant rotation of the cylinder alternately submerges and removes the periphery of the same and the carbon blocks from the exciting liquid, substantially as herein described.

4. A battery consisting of an exterior containing tank, a positive element suspended therein and insulated therefrom, a negative element consisting of a hollow cylinder with perforated sides journaled and revoluble within the containing tank and having a filling of negative material, a supply pipe through which the sea water or exciting liquid is introduced near the bottom of the containing tank, and a discharge pipe having an opening below the level of the supply whereby a constant circulation is maintained.

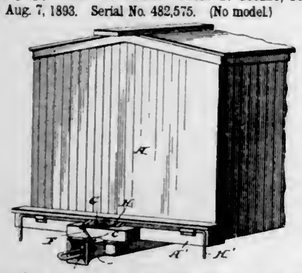
521,261. FEEDER FOR HAY-PRESSES. HENRY FETTE, Goodenow, Ill. Filed Mar. 23, 1894. Serial No. 504,831. (No model.)

Claim.—1. In a bale press the combination of the reciprocating follower P having the standard R forming one end of a feed chamber, the parallel bars L connected at their forward ends with said standard and having the stay head board S for connecting said bars about centrally, the posts K, the bars G pivotally connected to the upper end of said posts, the rod J for connecting bars G with the rear end of the bars L, the grooved rollers O for supporting and guiding the rear ends of the bars L, the parallel arms D and F pivotally connected at their inner ends to posts K and carrying at their outer ends the vertical feed board pivotally connected thereto, feed board A, jaw B pivotally connected to said bars D, F, adjacent to and parallel with said feed board, the rods E for yieldingly connecting the bars F and G and having the coil springs C and adjusting nuts *a* and *i*, and the perforated cross bar H for carrying the outer ends of rods E all arranged to operate substantially as and for the purpose set forth.



2. In a bale press the combination of the feed board A, yielding jaw B arranged adjacent to and parallel with said feed board, and the parallel bars D and F pivotally connected at their outer ends to said feed board and jaw, and the means for operating said bars D and F substantially as and for the purpose set forth.

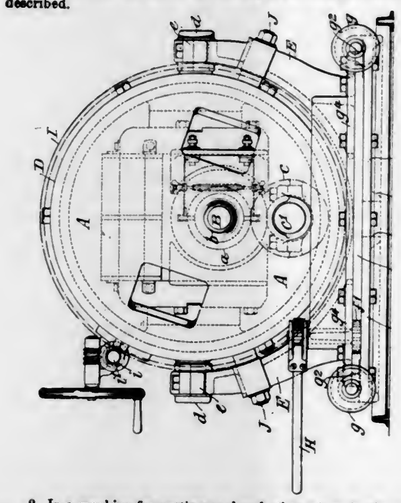
521,262. CAR-COUPLING. JACOB D. GOOLEY, Portland, Oreg. Filed Aug. 7, 1893. Serial No. 482,575. (No model.)



Claim.—In a car-coupler, the combination with the ordinary draw-head having the usual flaring mouth and recess extending therefrom and provided with slots in the upper and under portion, of a flattened wheel eccentrically mounted in the slots, the flattened portion being arranged to bear upon the forward end of the slot and the curved portion to form a bearing for the coupling-link, a link connected to the flattened wheel, and a lever for operating the link and wheel, substantially as described.

521,263. COAL-CUTTING MACHINE. ARTHUR GREENWOOD, Leeds, England. Filed Apr. 20, 1893. Serial No. 471,152. (No model.)

Claim.—1. In a machine for cutting coal and other minerals, the combination with a carriage or base support, of a bed plate swiveled to the latter to rotate on a vertical axis, a frame or hoop trunnioned in the bed plate, a casing embraced by said frame or hoop and adapted to rotate therein on a horizontal axis, cutting mechanism mounted in the casing, a motor also mounted therein, and connections between the motor and cutting mechanism, substantially as described.



2. In a machine for cutting coal and other minerals, the combination with a carriage or base support, of a belt plate swiveled to the latter to rotate on a vertical axis, a frame or hoop trunnioned in the bed plate, a casing embraced by said frame or hoop and adapted to rotate therein on a horizontal axis, cutting mechanism mounted in the casing, a motor also mounted therein, connections between the motor and cutting mechanism, and hand operated devices and connections for rotating the bed plate and casing, substantially as described.

3. The combination with the base G, of bed plate F swiveled thereto, frame or hoop D trunnioned to the bed plate, casing A embraced by the frame or hoop, cutting mechanism mounted in the casing, a motor also mounted therein, and connections between the motor and cutting mechanism, substantially as described.

4. The combination with the base G, of bed plate F swiveled thereto, frame or hoop D trunnioned to the bed plate, casing A embraced by the frame or hoop, cutting mechanism mounted in the casing, a motor also mounted therein, connections between the motor and cutting mechanism, and hand operated devices and connections for rotating the bed plate and casing, substantially as described.

521,264. ARTIFICIAL STONE. LUDWIG GROTE, Landberg-on-the-Lech, Germany. Filed Nov. 22, 1893. Serial No. 491,678. (No specimens.) Patented in England Sept. 12, 1893, No. 17,142.

Claim.—1. A composition of matter for making artificial stone, consisting of chloride of magnesium, acetate of lead diluted in water, calcined magnesite, and a filling material, such as sand, gravel, sawdust, clay, paper, wood pulp, or earthy matter, substantially as set forth.

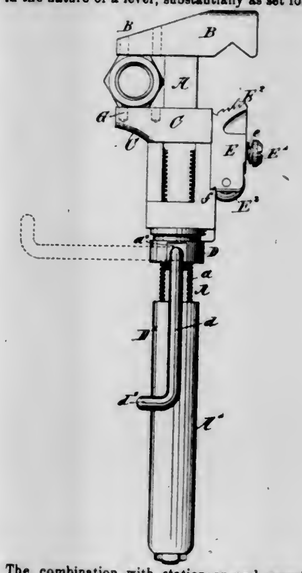
2. A composition of matter for making artificial stone, &c., consisting of chloride of magnesium, acetate of lead diluted in water, a caustifying ingredient such as plumbate of lime, calcined magnesite, an oleaginous substance, and a filling material such as sand, gravel, or earthy matter, substantially as set forth.

521,265. COMBINED WRENCH AND PIPE AND THREAD CUTTER. ROBERT HABERTHUR, West Hoboken, N. J., assignor of one-half to Franz E. Kämmer, same place. Filed Oct. 17, 1893. Serial No. 488,436. (No model.)

Claim.—1. The combination, with the stationary and the sliding jaw of a wrench, of a reversible jaw pivotally mounted on the sliding-jaw and provided at one end with teeth or serrations and at the other end with a rotary cutter, and means for holding said reversible jaw in its several positions, substantially as set forth.

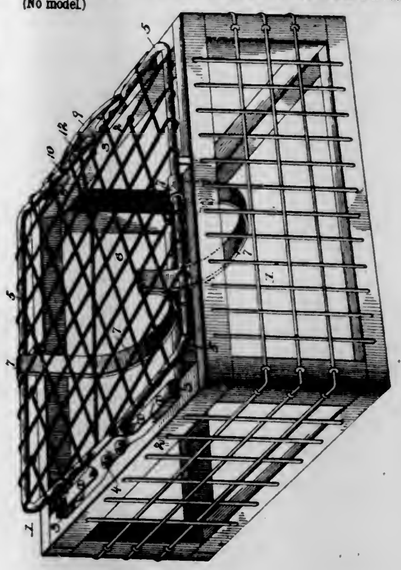
2. The combination, with the stationary and the movable jaw of a wrench, of a screw-nut for actuating the movable jaw, and a swinging lever or bail pivoted to said nut for turning the same, and adapted to be swung alongside the handle of the wrench, substantially as set forth.

3. The combination with a stationary jaw and a movable jaw of a wrench, of a screw-nut for actuating the movable jaw and a bail pivoted to said screw-nut, said bail being formed with substantially straight sides, and a bent U-shaped portion at its outer end, said U-shaped portion extending around the handle of the wrench, the bail being adapted for turning the screw-nut and for finally applying the same, in the nature of a lever, substantially as set forth.



4. The combination with stationary and movable jaws of a wrench, of a post applied to one side of the movable jaw, a reversible spring-jaw applied to said post and provided with teeth or serrations at one end, and with a rotary cutter at the opposite end, said spring-jaw being provided with notches so as to set against the tapering shoulder of the movable jaw, which latter is further provided with recesses at the opposite ends for the rotary cutter, substantially as set forth.

521,266. COMBINED CHICKEN-COOP AND HAWK-TRAP. WILLIAM S. IRWIN, Knoxville, Tenn. Filed Sept. 16, 1893. Serial No. 485,713. (No model.)



Claim.—1. A coop provided with two hinged wings, which form, when set, the top of the coop and which constitute a trap, substantially as described.

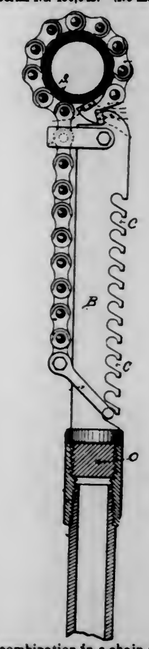
2. A coop having the usual inclosed sides and ends and provided with a top composed of spring-actuating hinged sections, a trigger for the same, and means for tripping the trigger, thereby constituting a trap, said trap when set serving as a cover for the coop, substantially as described.

3. A coop having a top composed of opposite hinged frames, a netting connecting the frames, a spring for actuating the hinged frame, and a trigger connected with the netting for setting the trap and holding the frames apart, substantially as described.

4. A coop comprising a frame having an open top, the opposite hinged frame mounted at the top of the coop frame and conforming to the configuration thereof and extending around the upper edges of the same when in a horizontal position, a netting attached to the hinged frames and completing the top of the coop, a spring for forcing the hinged frames upward, and a trigger for holding the hinged frames in a horizontal position connected with the netting, substantially as described.

5. A coop comprising a coop frame open at the top, the opposite hinged frame journaled at the top of the coop frame and provided with adjacent notches, a netting attached to the hinged frames, a depending inverted substantially heart-shaped spring connected to the hinged frames, and a trigger adapted to engage said notches and connected with the netting, substantially as described.

521,267. PIPE-WRENCH. WILLIAM KING, Longmont, Colo. Filed Feb. 12, 1894. Serial No. 499,945. (No model.)



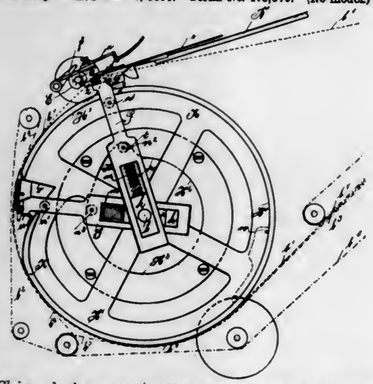
Claim.—1. The combination in a chain pipe wrench of a wrench bar provided with a suitable handle; having several slots in its edge adapted to receive a movable clevis pivoted to a hand chain; and a projecting head, provided with an upwardly and backwardly inclined face with downwardly extending lips on each side, with a terminal link of said chain, having a downwardly and backwardly inclined face adapted to impinge against the inclined face of said head between said lips, as herein specified.

2. The combination in a chain wrench; of a handle and a coupling threaded to the end of said handle, of a wrench bar having a collar and a threaded hub at one end detachably connected to said coupling; of a projecting head provided with lips on the opposite end of said bar adapted to impinge against and partially inclose a projecting end on a chain band link and the lips of said projecting head to pass over and down on each side of it, and a series of slots in said bar adapted to receive a clevis pivoted to a chain; of a clip secured near the end of said bar freely surrounding said chain, as herein specified.

3. The combination in a chain wrench; a wrench bar having a collar and threaded hub, a coupling fitting said hub and a pipe handle fitting said coupling, a series of slots in said bar, a projecting head provided with a backward and upward bevel on its under side and having the sides of said head projecting below the central portion, thereby forming lips, a clevis pivoted to a chain and fitting said slots, a link secured to the end of the chain with an upward projecting end or toe, and having a downward and backward bevel arranged to contact with said projecting head, of said wrench bar, of a hardened square reversible gripping block secured to the said gripping link, and arranged to impinge with its reversible edges against the pipe, as herein specified.

4. In a chain wrench; a chain or gripping band E. having a gripping link H. with an upwardly projecting end I. beveled to contact with the connecting end of a wrench bar or wrench handle and having a square hardened steel block L, detachably and reversibly secured to its under side and arranged to impinge with its edges against said pipe, and having a recess in said link for the reception of said block, adapted to receive the body of the block to prevent its gripping edge extending too far above the binding surface of the chain, as herein specified.

521,268. ROTARY PRINTING-PRESS. JOHANN P. LUHN, Leipsic Germany. Filed June 7, 1893. Serial No. 476,879. (No model.)

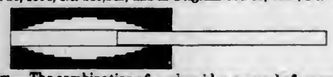


Claim.—1. A rotary printing-press constructed with a rotary impression cylinder having a recess in its circumference parallel with the axis of the cylinder, two gripper-bars mounted to move to and from the circumference of the cylinder and into and out of said recess, grippers in said bars, two sets of arms to which said gripper-bars are attached, and cam-tracks for moving said arms radially, means for supplying the type with ink, substantially as set forth

2. A rotary printing-press constructed with a rotary impression cylinder, having a recess in its circumference parallel with the axis of the cylinder, two gripper bars mounted to move in and out of said recess, which gripper-bars are parallel with the axis of the cylinder, and are provided with grippers, two sets of slotted arms to which the gripper-bars are fastened, slides mounted on the shaft of the cylinder and located within slots in the arms, springs interposed between the slides and the ends of the slots in said arms, means for holding the type and means for providing the type with ink, substantially as set forth.

3. A rotary printing-press constructed with a rotary impression cylinder, having a recess in its circumference parallel with the axis of the cylinder, two independent gripper-bars parallel with the axis of the cylinder and both independent of said cylinder, means for moving said gripper-bars into and out of said longitudinal recess of the cylinder, grippers on said bars, a movable stop adjacent to the grippers, and a means for raising and lowering the grippers and said movable stop, means for holding the type and means for providing the same with ink, substantially as set forth.

521,269. CORE-ATTRACTING SOLENOID. WENZEL R. MICHL, Wetter-on-the-Ruhr, Germany. Filed Apr. 26, 1892. Serial No. 430,734. (No model.) Patented in Germany Feb. 3, 1891, No. 61,179; in France Sept. 21, 1891, No. 216,242, and in Belgium Oct. 12, 1891, No. 96,755.



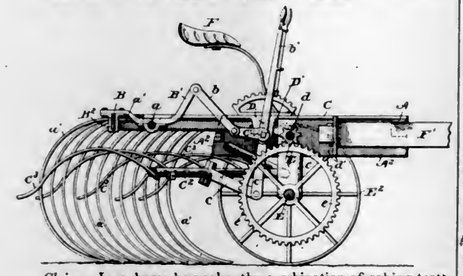
Claim.—The combination of a solenoid composed of convolutions of a single insulated wire the number whereof decreases in the consecutive sectional portions of the solenoid from one end to the middle and then increases again toward the other end with a core arranged within the solenoid so as to be capable of movement in the direction of its long axis, substantially as and for the purpose described

521,270. PROCESS OF MAKING RESINATES OF METALS. FRANZ PIRSCHL, Brooklyn, N. Y. Filed Dec. 15, 1891. Renewed Mar. 26, 1894. Serial No. 505,196. (No specimens.)

Claim.—1 The process herein described of making resinates of metals, which consists in fusing rosin with a metallic oxide in the presence of a flux composed of rosin-oil, substantially as set forth.

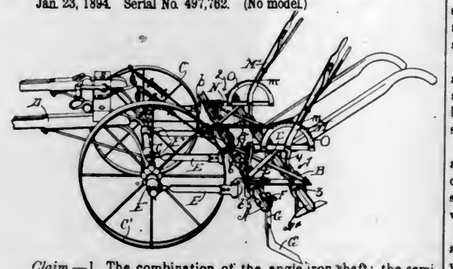
2. The process herein described of making resinates of metals, which consists in fusing rosin and adding a hydrated metallic oxide in presence of a flux composed of rosin-oil, substantially as set forth.

521,271. HORSE HAY-RAKE. ORLANDO RICHARDS, Bristol, Wis. Filed Feb. 10. 1894. Serial No. 499,790. (No model.)



Claim.—In a horse hay rake, the combination of raking teeth adapted to gather the hay, a shaft revolubly mounted parallel with the axle of the rake and geared so as to revolve in unison therewith, a shaft having a main portion extending parallel with the line of rake teeth and having each of its ends bent rearwardly and provided with trunnions extending parallel with the longitudinal disposition of the main portion of the shaft, said trunnions being rockably mounted in the frame of the machine, an arm rigidly secured to the main portion of the shaft and extending in a line parallel with the longitudinal line of the bent ends thereof, a crank-arm connected to the revolving shaft and to the arm on the bent shaft whereby, as the revolving shaft operates, an oscillatory movement will be imparted to the main portion of the bent shaft, said shaft swinging on its trunnions, and finger-bars secured to the main portion of the bent shaft and extending rearwardly therefrom through the space embraced by the rake teeth, said bars being adapted to strike through the said space and to act upon the hay therein, substantially as described.

521,272. CULTIVATOR. JOHN SCHAUMAN, Anaheim, Cal. Filed Jan. 23, 1894. Serial No. 497,762. (No model.)



Claim.—1. The combination of the angle-iron shaft; the semi-cylindrical journal sleeve arranged to fit upon such shaft and provided at one end with a projecting flange, and also provided with the inwardly projecting lugs adapted to embrace the edges of such angle-iron; the bolt or rivet securing such sleeve to the shaft, and the thimble arranged to fit upon the journal sleeve, substantially as and for the purpose set forth.

2. In a cultivator the combination of the angle-iron supporting shaft, the clip open on one side and provided with the projecting lugs arranged to engage such angle-iron and provided with a vertical shank slot arranged at the rear side of such clip and adapted to receive the shank of a cultivator tooth therein; the cultivator tooth shank arranged in such shank slot, and suitable means arranged to bind such shank against the angle-iron.

3. In a cultivator, the combination of the front and the rear tooth supporting shafts; the journal sleeves, each provided at one end with a flange, two sleeves being reversely arranged upon each of such shafts; the thimbles one arranged upon each of such sleeves; the connecting bars connecting each pair of front and rear thimbles, and the braces one extending diagonally from each of the front thimbles to one of the rear thimbles and arranged to hold such thimbles rigidly in position relative to each other.

4. In a cultivator the combination of the angle iron supporting shaft; the clip arranged upon such shaft and provided with a vertical shank slot adapted to receive the shank of a cultivator tooth therein; the cultivator tooth shank arranged in such shank slot and the set screw arranged to force the shank against the angle iron.

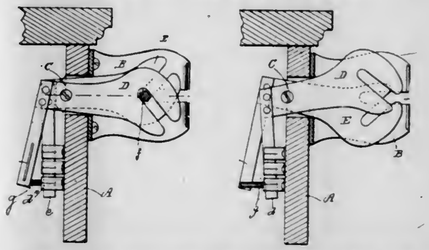
521,273. BICYCLE-TIRE. ROBERT P. SCOTT, Cadiz, Ohio. Filed Feb. 12, 1894. Serial No. 499,957. (No model.)



Claim.— 1. The combination of a flanged wheel rim having a cut away portion, a filling piece therefor and a pneumatic tire having an endless non-extensible selvage, substantially as described.

2. The combination of a flanged wheel rim having a cut away portion, a filling piece therefor having an aperture, a pin passing through the aperture for securing the same to the rim and a pneumatic tire having an endless non extensible selvage lying over the pin and holding it in place, substantially as described.

521,274. TELEPHONE-SWITCH. JOSEPH B. SMITH, Manchester, N. H. Filed Apr. 27, 1894. Serial No. 509,200. (No model.)



Claim.—1. The herein described improved telephone switch consisting of a pair of slotted pivoted rocker arms having secured thereto respective switch levers combined with electrodes *d'' e''* and a detachable hand telephone, substantially as and for the purpose set forth.

2. The herein described improved telephone switch consisting of a stationary slotted bracket B and a pair of slotted pivoted rocker arms D, E, having inclined slots therein and the respective switch levers *d*, *e*, secured to said arms substantially as and for the purpose set forth.

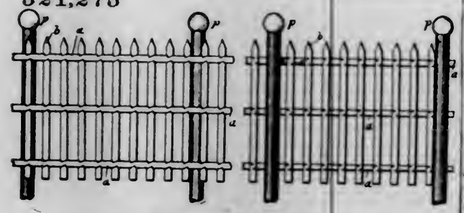
3. The herein described improved telephone switch consisting of a stationary slotted bracket and a pair of pivoted slotted rocker arms combined with a hand telephone having means substantially as described for actuating said rocker arms and suspending said telephone when not in use as and for the purpose set forth.

4. The herein described improved telephone switch consisting of a stationary slotted bracket and a pair of slotted rocker arms provided with switch levers combined with electrodes for alternately changing the calling and speaking circuits and a hand telephone having means for actuating said arms and adapted to be suspended on the switch device when not in use substantially as and for the purpose set forth.

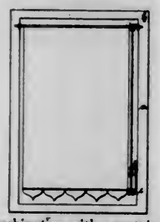
521,275. FENCE. GEORGE C. SNYDER, Chicago, Ill., assignor of one-half to Henry D. H. Snyder, same place. Filed July 15, 1893. Serial No. 430,669. (No model.)

Claim.—The herein described improvement in fences, consisting in the combination with a plurality of flexible ribbon-like picket supports armed with picket-piercing prongs, of a series of pickets, pierced by the prongs and thereby secured upon the supports at a distance apart, all substantially as and for the purpose set forth.

521,275



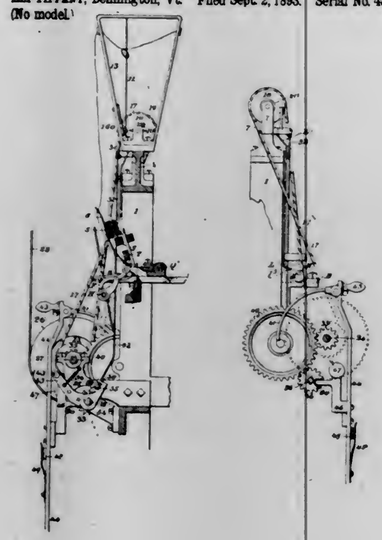
521,276. BAND OR CORD SELF-ACTING UPROLLER ON JALOUSIES. GERALD STAHL, Nuremberg, Germany, assignor to Heinrich Lindner, same place. Filed Mar. 15, 1892. Serial No. 424,974. (No model.)



Claim.—1. The combination with a curtain and roller, of a band having one end secured to the roller, a spring drum to which the other end of the band is fastened, a ratchet wheel on the drum, a pawl engaging the ratchet wheel, a spring brake handle through which the band passes, a chain connecting said spring brake handle with the pawl and a support over which said chain passes, substantially as set forth.

2. The combination, with a curtain and roller, of a band having one end attached to the roller, a drum to which the other end of the band is fastened a pin on which the drum can turn, a spring-coil in said drum and having one end fastened to the drum, the other end being adapted to engage a tooth on the pin, on which the drum rotates, a ratchet wheel on said drum, a weighted pawl engaging said ratchet-wheel, a chain connected with the pawl, a pulley over which the chain passes, and a handle composed of two sections hinged together, which handle is attached to said chain and through which handle said band passes, thereby adapting said handle to serve for disengaging the pawl from the ratchet wheel and also as a brake for the band, substantially as set forth.

521,277. STOP-MOTION FOR STRAIGHT-KNITTING MACHINES. ELI TIFFANY, Bennington, Vt. Filed Sept. 2, 1893. Serial No. 484,662. (No model.)



Claim.—1. A feeler point arranged in front of the needles of a straight knitting machine, adapted to reciprocate in a vertical direction opposite the stitches formed on said needles, means for reciprocating the same, a belt shipping device, and mechanism between said feeler point and the belt shipping device in virtue of which the latter is caused to be operated, substantially in the manner described and for the purposes set forth.

2. A series of feeler points arranged on a support in front of the needles of a straight knitting machine, and adapted to reciprocate in a vertical direction opposite the stitches formed on said needles, a support on which said points are borne, means to reciprocate said support, a belt shipping device, and mechanism between said feeler points and the belt shipping device in virtue of which the latter is caused to be operated, substantially in the manner described and for the purposes specified.

3. The combination with the needles of a straight knitting machine, of the described feeler points and means connected therewith substantially as shown, for imparting to them a vertically reciprocatory movement substantially as specified.

4. The combination with the needles of the described feeler points, mounted on an oscillating bar and means connected with said bar for oscillating the same, substantially as specified.

5. The feeler bar mounted in bearings carried on a movable support which is adapted by its movement to shift the feeler bar entirely out of and away from its working position in front of the needles so as to permit free access to the needles substantially in the manner and for the purposes specified.

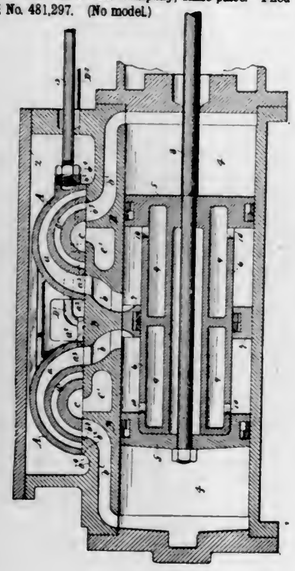
6. The combination of the horizontal needle bar carrying the push-finger, with the feeler bar and arm against which the push-finger acts substantially as specified.

7. The feeler points and support upon which they are borne, in combination with a frame upon which said feeler bar is mounted, and provisions in virtue of which said frame is adapted to withdraw said feeler bar and points from their working position in front of the needles to render said needles and adjacent parts of the machine more accessible, substantially as and for the purposes specified.

8. The combination of the shifting slide with the feeler points, means substantially as shown, for imparting vertical movement to said points in front of the needles, and a device interposed between the points and the shifting slide which is actuated by the alternate rise and fall of the points for locking and unlocking said slide, substantially as specified.

9. The combination with the shifting slide H provided with the locking pin *c*", the locking dog F, the supporting arm E, the feeler bar and means for operating it, and the spring J, with the front needle bar, spring W, the belt shifter and means interposed between the shifting slide H and the belt shifter for actuating the same, substantially as specified.

521,278. ENGINE. ELLIS J. WOOLF, Minneapolis, Minn., assignor to the Woolf Valve Gear Company, same place. Filed July 24, 1893. Serial No. 481,297. (No model.)



Claim.—1. In a compound engine, the combination with a valve-seat having a high and a low pressure port, of a valve having an internal fluid passage, which, in one position of the valve, is uncovered and serves to convey the fluid to the high pressure port, and which, in the opposite position of the valve, serves to convey, in a reverse direction, the fluid from the high to the low pressure port, and means for final exhaust operative to permit the exhaust from the low during the admission to the high pressure port, substantially as described.

2. In a compound engine, the combination with a valve-seat having a high and a low pressure port, of a valve having an internal fluid passage, which, in one position of the valve, is uncovered and co-operates with the ordinary opening to render available an increased admission area to the high pressure port, for a given valve travel, and which, in the opposite position of the valve, serves to convey the fluid from the high to the low pressure port, and means for final exhaust operative to permit the exhaust from the low during the admission to the high pressure port, substantially as described.

3. In a compound engine, the combination with a valve-seat having a high and a low pressure port, of a valve having two internal fluid passages, which, in one position of the valve, co-operate to render available an increased admission area to the low pressure port, for the given valve travel, and means for final exhaust operative to permit the exhaust from the low during the admission to the high pressure port, substantially as described.

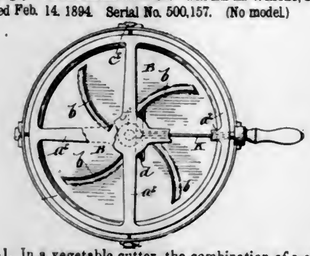
4. In a compound engine, the combination with a valve-seat, having a high and a low pressure port, of a valve having, in addition to the final exhaust cavity, two internal fluid passages, one of which, in one position of the valve, is uncovered, and serves to convey fluid to the high pressure port, and both of which passages, in the opposite position of the valve, co-operate to render available an increased admission area to the low pressure port, for a given valve travel, substantially as described.

5. In a compound engine, the combination with a valve seat having a high and a low pressure port, of a valve having, in addition to the final exhaust cavity, two internal fluid passages, one of which, in one position of the valve, is uncovered and co-operates with the ordinary opening, to afford an increased available admission area to the high pressure port, for a given valve travel, and both of which passages, in the opposite position of the valve, co-operate with each other to render available an increased admission area to the low pressure port, for a given valve travel, substantially as described.

6. In a double compound engine, the combination with the two independent valve seats and the two independent valves on said seats, of a pair of independent supplementary fluid supply passages, each for connecting one high pressure cylinder with a source of fluid supply, and a valve in each of said passages controllable at will, for converting the compounds into simple engines, substantially as described.

7. The combination with two single cylinder compound engines set tandem and having their pistons connected by a common trunk, of the two valve-seats, the two valves on said seats reciprocating in common directions, a pair of supplementary fluid passages, for connecting the respective high pressure ends of the two cylinders with the respective high pressure valve chests, and valves in said passages controllable, at will, for converting the said compounds into simple engines, substantially as described.

521,279. VEGETABLE-CUTTER. DANIEL M. WRIGHT, Scranton, Pa. Filed Feb. 14, 1894. Serial No. 500,157. (No model.)

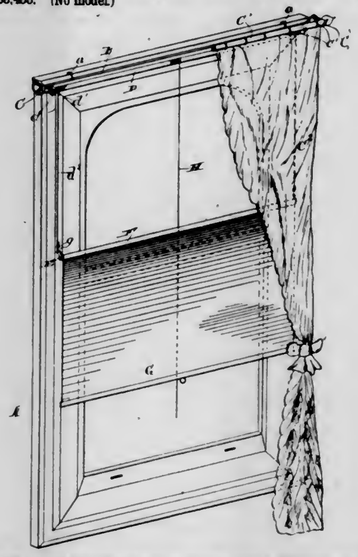


Claim.—1. In a vegetable cutter, the combination of a suitable base, a removable cylinder attached thereto and having formed on its inner surface near its lower end an overhanging circular and upwardly flared flange, a removable knife disk applied in said cylinder and provided with radial cutting blades and having an upturned peripheral flange in proximity to the overhanging flange and presenting a thin edge opposite the under side of the flange, means for revolving the knife disk and a vertical partition, substantially as described.

2. In a vegetable cutter, the combination of a suitable base, a removable cylinder attached thereto and formed on its inner surface near its lower end with a conical flange, a removable knife disk applied in the said cylinder and provided with radial cutting blades and having an upturned peripheral flange in proximity to the conical flange, means for revolving the disk and a vertically adjustable partition for the accommodation of knife disks having different sized cutting blades, substantially as described.

3. In a vegetable cutter, the combination of a base having spaced legs, a removable cylinder formed on its lower end with an engaging bead or lug and on its inner surface near its lower end with a conical flange, a thumb screw for securing the base and cylinder in their engaged position, a vertically arranged revoluble shaft provided on its upper end with a beveled gear and at its lower with screw threads, a removable knife disk secured to said shaft and having an upturned peripheral flange in proximity to the overhanging conical flange and with radial cutting blades, a vertically adjustable partition for the accommodation of knife disks having different sized blades and a crank handle provided with a gear for operating the shaft and the knife disk carried thereby, substantially as described.

521,280. FIXTURE FOR VERTICALLY ADJUSTING WINDOW-SHADES. NICOLAS BOSMANN, Chicago, Ill., assignor to Jacob Schneider and John Katzbach, same place. Filed Aug. 18, 1893. Serial No. 483,433. (No model.)



Claim.—1. The combination of the self-acting elevating-roller D, having the annular flange *d'*, and grooves d^3, at its ends and secured to the supporting-bar B, with said bar having the brackets C, for the curtain pole, and hooks *a*, *a*, to secure it to the window-casing, the self-acting shade-roller F, having at its ends the brackets E, and E', and cords d^3, united thereto at one of their ends and to the elevating-roller at their other ends, and the operating cord H, secured to the central portion of the elevating-roller, substantially as described.

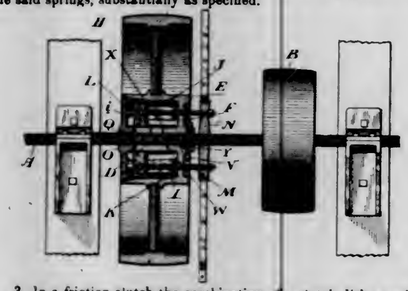
2. The combination of the self-acting elevating-roller *d*, having the annular flanges *d'*, and grooves d^3, at its ends, and means for securing it to the window-casing with the self-acting shade-roller F, having at its end the brackets E, and E', and cords d^3, united thereto at one of their ends by means of the pieces *g*, and at their other ends to the elevating-roller, substantially as described.

521,281. CLUTCH-PULLEY. HERMAN BUNKER, Barrie, assignor of one-third to Walter Peck Chapman, Hamilton, Canada. Filed Feb. 3, 1894. Serial No. 498,973. (No model.)

Claim.—1. In a friction clutch, the combination of a clutch disk, a series of outwardly extending springs attached thereto, and substantially parallel with the axis thereof, with a drum shaped clutch member provided with a seat for each of said springs, a plunger adapted to expand the springs into said seats, and means for moving the said plunger, substantially as specified.

2. In a friction clutch the combination of a clutch disk, a series of outwardly extending springs attached thereto, and substantially parallel with the axis thereof, the hub having a key seat constructed to lock the key therein, the shaft having a recess formed therein, the key provided with a lug adapted to enter the recess in the shaft to lock the disk to the shaft a clutch pulley having a hub loosely mounted

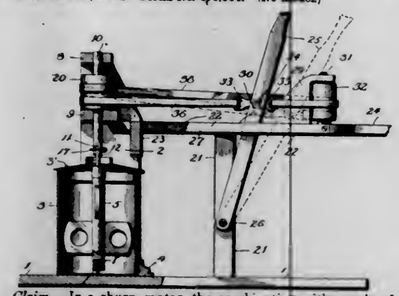
on the shaft, a drum shaped clutch member surrounding the said hub and connected thereto by a plate, said clutch member having a seat for each of the springs on the disk, a plunger loosely mounted and slidable on said hub and adapted to force the springs into the said seats, and means for moving the plunger into or out of engagement with the said springs, substantially as specified.



3. In a friction clutch the combination of a clutch disk, a series of outwardly extending springs attached thereto and substantially parallel with the axis thereof, the hub having a key seat constructed to lock the key therein, the shaft having a recess formed therein, the key provided with a lug adapted to enter the recess in the shaft to lock said disk to the shaft, a clutch pulley having a hub loosely mounted on the shaft, a drum shaped clutch member surrounding said hub and connected thereto by a plate, said clutch member having a seat for each of the springs on the said disk, a plunger loosely mounted and slidable on said hub and adapted to force the springs into the said seats, a slide head loosely mounted upon the said shaft and clear of the clutch pulley, rods connecting the plunger with the slide head, and means for slidably moving the slide head on the shaft to move the plunger into or out of engagement with the said springs, substantially as specified.

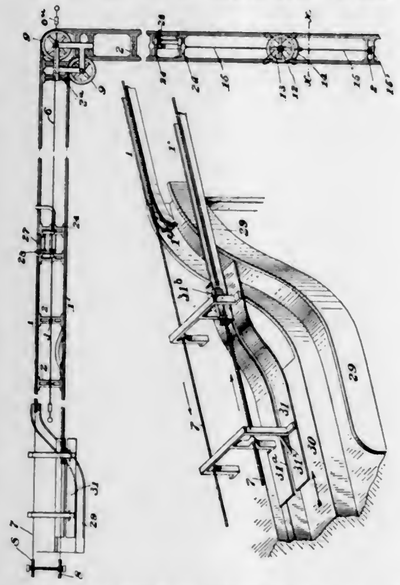
4. In a friction clutch the combination of a clutch disk, a series of outwardly extending springs attached thereto and substantially parallel with the axis thereof, the hub having a key seat constructed to lock the key therein, the shaft having a recess formed therein, the key provided with a lug adapted to enter the recess in the shaft to lock said disk to the shaft, a clutch pulley having a hub and loosely mounted on the shaft, a drum-shaped clutch member surrounding said hub and connected thereto by a plate, said clutch member having a seat for each of the springs on the disk, a plunger loosely mounted and slidable on said hub and adapted to force the springs into said seats, a slide-head loosely mounted upon said shaft and clear of the clutch pulley, said slide-head having a circumferential groove formed therein, a ring encircling the slide head and having lugs adapted to enter the groove a hanger connected to said ring and pivotally connected to a frame work, and a lever connected to said ring, by means of which the slide-head is slid on the shaft, substantially as specified.

521,282. CHURN-MOTOR. FRANK ELLIOTT, North Vernon, Ind. Filed Jan. 31, 1894. Serial No. 498,581. (No model.)



Claim.—In a churn motor, the combination with a pair of uprights connected by two cross pieces, a driving shaft journaled and sliding vertically in said cross pieces, its lower end being bifurcated and having a vertical socket at the bottom of the bifurcation and a transverse hole through the arms thereof, a pulley secured to said shaft and shorter than the distance between the cross pieces, and means for driving the pulley; of a churn body provided with a pin rising from its bottom, a dasher staff having a hole in its lower end fitting loosely around the pin, its upper end being reduced and flattened to fit said bifurcation, having a transverse hole adapted to register with that in the arms of the bifurcation, and having a pin at its upper extremity adapted to enter the socket in the bottom of said bifurcation when the holes align, and a split pin removably passing through said aligned holes for detachably connecting said shaft with the staff, the length of the latter being such that when the pulley rests on the lower cross piece the lower end of the staff will be raised above the bottom of the churn and the bottom of the hole off the tip of the pin, as and for the purpose set forth.

521,283. STORE-SERVICE APPARATUS. JULIUS GOODNOW, Brooklyn, N. Y. Filed Feb. 3, 1894. Serial No. 498,945. (No model.)



Claim.—1. In a store service apparatus, the combination with an endless traveling cord or band having its two sides arranged parallel, of two suspended troughs arranged beneath and adjacent to the respective sides of said cord or band, brackets connecting said troughs one with the other and a wire connected to each of said brackets and adapted to be strained in the direction of its length, substantially as set forth.

2. In a store service apparatus, the combination with an endless traveling cord or band having its sides or strands arranged parallel to one another, of two troughs arranged beneath and adjacent to the respective sides of said cord or band, brackets connecting said troughs, posts on said brackets, suspending wires attached to the upper ends of said posts, and a wire connected to said posts and provided with a tightening device whereby it may be strained in the direction of its length, substantially as set forth.

3. In a store service apparatus, the combination with an endless traveling cord or band, and a trough through which said cord or band plays, said trough having at suitable points along its length several stations, and having an opening 32 adjacent to one of said stations, of a switch trough arranged with one end adjacent to said opening, and a cash box supported on said trough and provided with a friction gripper for attachment to said traveling cord or band, said box having a normally pendent lip or projection adapted to engage the forward end of said switch trough, the said lip being independent of the gripper, substantially as set forth.

4. The combination with the cord, of a cash box provided with a stationary gripper jaw, a movable gripper jaw pivoted on said box and provided with locking notches or shoulders, a spring mounted on said box and adapted to hold said gripper jaws normally opened, and a lever mounted on said box and adapted to engage one or the other of said locking notches or shoulders on the movable gripper jaw, substantially as set forth.

5. The combination with the cord, of a cash box provided with two stationary gripper jaws adapted to bear on one side of said cord, a movable jaw, pivoted on said box and adapted to bear on the opposite side of said cord between said stationary gripper jaws, said movable jaw being provided with locking shoulders or notches and having a spring whereby said gripper jaws are normally held open and a lever pivoted on said box in position to engage one or the other of said locking shoulders or notches, substantially as set forth.

6. The combination with the traveling cord or band, and the track arranged adjacent to said cord, of a cash box adapted to be supported on and to move along said track, a stationary gripper jaw mounted on said box and adapted to bear on one face of said cord, a movable gripper jaw pivoted on said box and adapted to bear on the opposite face of said cord, said movable jaw being provided with a locking shoulder or notch, a lever pivoted to said box and adapted to engage the locking shoulder or notch of the movable jaw, and means, located at suitable points in the track, for actuating said lever, whereby said jaws on the box are closed and said box is thereby attached to the traveling cord, substantially as set forth.

7. The combination with the traveling cord or band, and the track arranged adjacent thereto, and having its end bent away from the plane of movement of said cord, of a cash box provided with a gripper movable jaw and locking lever for clamping on said cord, and adapted to move along and be supported on said track, whereby the momentum of the moving box detaches it from the cord without unlocking the jaws, substantially as set forth.

8. The combination with the traveling cord or band, and the track arranged adjacent thereto, of an inclined plate extending downward from one end of said track, a cash box adapted to move along and be supported on said track and provided with a stationary gripper jaw adapted to bear on one face of the said cord or band, a movable gripper jaw pivoted on said box and provided with a locking shoulder, said movable jaw being adapted to bear on the other face of said cord or band, a lever pivoted on said box and adapted to engage the said locking shoulder on the box, means located on said inclined plate, for actuating said lever, whereby the jaws on the box are opened to receive said cord, and means, located near the end of said track for actuating said lever to close said jaws, whereby the cash box is gripped to said cord and caused to move therewith, substantially as set forth.

9. The combination with a traveling cord or band and the track arranged adjacent thereto, of an inclined plate extending downward from the end of said track, a cash box adapted to move along and be supported on said track and provided with a stationary gripper jaw adapted to bear on one face of said cord, a movable gripper jaw pivoted to said box and adapted to bear on the other face of said cord, said movable jaw being provided with locking shoulders or notches and having a spring whereby the said gripper jaws are held open, a lever pivoted on said box in position to engage said locking shoulders or notches on the movable gripper jaw, a cam piece mounted on said inclined plate beyond the end of the track and adapted to actuate said lever to open said jaws to receive said cord, and a cam piece arranged adjacent to the end of said track and adapted to actuate the said lever to close said gripper jaws, whereby said box is attached to the cord and caused to move therewith, substantially as set forth.

10. The combination with the traveling cord or band and the track arranged adjacent thereto and provided with a hinged section, of a vertically movable cage mounted under said hinged section and adapted to receive and hold the cash box, the said cash box adapted to move along and be supported on said track and having a stationary gripper jaw adapted to bear on one face of the cord, a movable gripper jaw mounted on said box and adapted to bear on the opposite face of the cord, said movable jaw being provided with a locking shoulder, a lever pivoted to said box and adapted to engage the shoulder on the movable jaw, and a dog, actuated by the movement of said cage and adapted to engage said lever whereby said gripper jaws are closed on said cord, substantially as set forth.

11. The combination with the traveling cord or band and the track arranged adjacent thereto and provided with a hinged section, of a vertically movable cage mounted under said hinged section and adapted to receive and hold the cash box, the said cash box adapted to move along and be supported on said track and having a stationary gripper jaw adapted to bear on one face of said cord, a movable gripper jaw mounted on said box and adapted to bear on the opposite face of said cord, said movable jaw being provided with a locking notch or shoulder, a lever pivoted to said box and adapted to engage the shoulder on the movable jaw, a dog pivotally mounted over said track and adapted when actuated, to engage said lever and close said gripper jaws, and a stud mounted on said cage and adapted to engage said dog when the cage is in its elevated position, substantially as set forth.

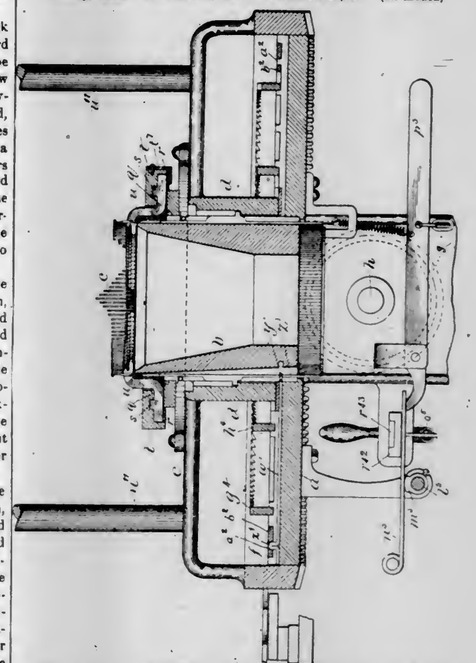
12. The combination with the traveling cord or band, and the track arranged adjacent thereto and provided with a hinged section, of a vertically movable cage having an opening or chamber to receive and hold the cash box, the said cash box adapted to be slid longitudinally into said cage, and to be supported on and moved along said track, and having a stationary gripper jaw adapted to bear on one face of the cord, a movable jaw, mounted on said box and adapted to bear on the opposite face of said cord and provided with a locking shoulder, a lever pivoted to said box in position to engage the shoulder on the movable jaw, a cam piece mounted on the cage in position to engage said lever, whereby the said jaws are opened, a dog pivotally mounted above said track and adapted when actuated to engage said lever and close said gripper, and means for actuating said dog from the movement of said cage, substantially as set forth.

13. The combination with the traveling cord or band and the track arranged adjacent thereto and provided with a hinged section, of a vertically movable cage adapted to receive and hold the cash box in position for attachment to said cord, the said cash box adapted to move along and be supported on said track, means for automatically attaching said cash box to said cord, when the cage is elevated, and a stop actuated by the movement of the cage, and adapted to be thrown into and out of the path of an approaching cash box, said stop being arranged adjacent to said hinged section of the track on the side thereof opposite to the direction in which the cord is moving, substantially as set forth.

14. The combination with an endless traveling cord or band having its two strands arranged parallel, of tracks arranged beneath and adjacent to the strands of the said cord, a bracket or frame longitudinally movable along said track, a sheave mounted on said frame, and adapted to receive the bight of said endless cord or band, and an elastic connector, attached at one end to said frame and at its opposite end to some fixed part, substantially as set forth.

15. In a store service apparatus, the combination with a bracket, and a stud 10, fixed in said bracket and having an oil cup 10^c, fixed on its pendent lower end, and an axial oil duct 10^a at its upper end, of a sheave 9, mounted rotatively on said stud and having a long boss 9^a at its lower side which has a bearing in the bottom of said oil cup, substantially as set forth.

521,284. CIRCULAR-KNITTING MACHINE. ERNEST W. GOURD, Quincy, Mass. Filed Dec. 8, 1891. Serial No. 414,387. (No model.)



Claim.—1. A vertically arranged needle cylinder, provided with needle grooves, gradually deepened from their upper to their lower ends, and the needles therein, combined with a horizontally arranged needle shifter bed, needle shifters supported on the bed, and provided with heels, and oppositely movable cam rings for engaging the heels of the needle shifters to render the needles controlled by the shifters, operative and inoperative, ratchet rings, adapted to engage the cam rings for engaging the shifters to move the same, pawls for engaging the ratchets to move the cam rings, and means for operating the pawls, as set forth.

2. A vertically arranged needle cylinder, provided with needle grooves, gradually deepened from their upper to their lower ends, and the needles therein, combined with a horizontally arranged needle

shifter bed, needle shifters supported thereon, and provided with heels, oppositely movable cam rings for engaging the heels of the needle shifters, to render the needles controlled by the shifters operative and inoperative, radially sliding bolts supported on said cam rings, ratchet rings, pawls for engaging the said ratchet rings, means to operate said pawls, and cams on the bed to engage said bolts, and operate the same to disengage them from, the ratchet rings, as set forth.

3. The combination with the needle cylinder and its needles, of the cam cylinder and an independent cam-ring having a cam groove in two practically equal reaches, jacks corresponding to about half of the needles engaging with said reaches, driving mechanism, and tripping mechanism for causing the driving mechanism to engage the cam-ring and to be disengaged therefrom, whereby said ring is given a half revolution.

4. As a means for throwing substantially one-half of the needles of a circle out of, and bringing them into, action at the commencement and finish of heel and toe work, the combination with a vertically arranged needle cylinder provided with needle grooves, gradually deepened from their upper to their lower ends, of needles located in said grooves, a horizontally arranged needle shifter bed, needle shifters, provided with heels, adapted to engage the tails of the needles to be thrown out of, and brought into, action, the rotary cam ring or cylinder, the ring revolubly supported on the said bed, provided with a groove, one portion of which is described with a greater radius than the other portion, the two portions being connected by an inclined portion, the heels of the needle shifters being arranged to extend into said grooves, movable bolts on the said ring, cams on the needle shifter bed to move said bolts, and a vertically movable bolt on the cam cylinder, the construction and arrangement being such that when the bolt on the cam cylinder is raised, it may engage one of the bolts on the needle shifter ring, and when it is lowered it may engage the other bolt, as set forth.

5. The needle cylinder, needles, and cam cylinder, combined with needle shifters, provided with heels, the needle shifter bed, a ring provided with a groove, one portion of which is described with a greater radius than the other portion, the two portions being connected by an inclined portion, the heels of the needle shifters extending into said groove, sliding bolts on said ring, and means engaging said bolts to move the ring and cams on the bed, to move the bolts to disengage them from their moving means, as set forth.

6. The needle cylinder, needles, and cam cylinder, combined with a driving shaft, two pulleys on the driving shaft, connections whereby one pulley will revolve the cam cylinder in one, and the other, in the other direction, a belt for actuating the said pulleys, a belt shipping bar for shipping the belt from one pulley to the other, a projection on said bar, a movable bolt on the cam cylinder, and a switch for moving said bolt to position to be brought into, and moved out of contact with the said projection on the belt shipper bar, as set forth.

7. The combination, with the needle cylinder, needles, and cam cylinder, of the operating shafts, pulleys and belts connected therewith for operating the cam cylinder at fast and slow speeds, belt shipping mechanism for shipping the belts to run at either fast or slow speed, means for moving, locking, and tripping the belt shipping mechanism, a rod "q'" below the needle cylinder, provided with plates "p'" to receive a weight connected with the descending knit fabric, and connections between the said rod and tripping devices to release the belt shipping mechanism when the weight bears upon the said plates, as set forth.

8. The combination, with the needle cylinder, needles, and cam cylinder, of the operating shafts, pulleys and belts connected therewith for operating the cam cylinder at fast and slow speeds, belt shipping mechanism for shipping the belts to run at either fast or slow speed, means for moving, locking, and tripping the belt shipping mechanism, a rod "q'" below the needle cylinder, provided with plates "p'" to receive a weight connected with the descending knit fabric, and connections between the said rod and tripping devices to release the belt shipping mechanism when the weight bears upon the said plates, means to move the rod to carry one plate from beneath the weight, and bring another into position therebelow, as set forth.

9. The needle cylinder and needles combined with the revoluble cam cylinder, provided with a ledge "a'," a vertically movable slide piece "b^3," the knitting cams connected therewith, a rock shaft "v^3," and disk "y^3," provided on its inner face with an eccentric groove "z^3," and a pin on the slide piece projecting into the eccentric groove "z^3," as set forth.

10. The needle cylinder, needles, and cam cylinder, in combination with the bracket "r^3," the yarn guides constructed as levers pivoted on said bracket, the rock rod "v^3," cross arm "w^3" connected with the said rod, and links "t^3" connecting the ends of the cross arm with the yarn guide levers, as set forth.

11. The needle cylinder, needles, and cam cylinder, in combination with the bracket "r^3," the yarn guides constructed as levers pivoted on said bracket, the rock rod "v^3," cross arm "w^3" connected with the said rod, and links "t^3" connecting the ends of the cross arm with the yarn guide levers, the slide piece "b^3," the knitting cams carried thereby, and disk "y^3" on rock shaft "v^3," provided on its inner face with an eccentric groove "z^3," and a pin on the slide piece projecting into the said eccentric groove, as set forth.

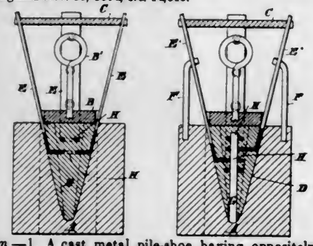
12. The needle cylinder, and needles, combined with the cam cylinder, movable knitting cams on the cam cylinder, movable yarn guides to change the yarn, a mechanism connected with both the yarn guides and knitting cams for moving the same in unison to simultaneously change the yarn and length of stitch, as set forth.

13. The needle cylinder, and needles, combined with the cam cylinder, movable knitting cams on the cam cylinder, movable yarn guides to change the yarn, rock rod "v^3," connections between the same, and the movable knitting cams and yarn guides, and disk "w^3," provided with pins "x^3" on the outer end of said rock rod, and a stop to engage said pins to rock the rod, for actuating the cams and yarn guides in unison, to simultaneously change the yarn and length of stitch, as set forth.

14. A machine for knitting stockings and half hose, comprising in its construction mechanism for automatically varying the speed to knit rapidly in the production of circular work, and slowly in the production of heel and toe work, a mechanism for automatically changing from circular to reciprocating knitting, and a mechanism for automatically varying the length of the stitch and changing the yarn when changing from circular to heel and toe work, and from the latter back to circular work again, as set forth.

15. The needle cylinder, and needles, combined with the cam cylinder, the needle cylinder being provided with needle grooves, gradually deepened from their upper to their lower ends, horizontally arranged needle shifter bed, the needle shifters arranged to be reciprocated thereon, a toothed ring "f" arranged to revolve around the periphery of said bed, and a yoke "e" connecting the ring with the cam cylinder, as set forth.

521,285. PILE-SHOE. ANTHONY HARRIS, Middlesborough, England. Filed Mar. 3, 1894. Serial No. 502,183. (No model.) Patented in England Nov. 10, 1884, No. 14,315.



Claim.—1. A cast metal pile-shoe having oppositely arranged wrought metal arms, said arms being integral and formed of a U-shaped bar the bight of which is embedded in the mass of the shoe, as set forth.

2. A cast metal pile-shoe having two pairs of arms E, of wrought metal, the opposite arms of each pair being formed integrally of a U-shaped bar the bight of which is embedded in the mass of the shoe, said embedded portions crossing each other at different levels in the mass, substantially as set forth.

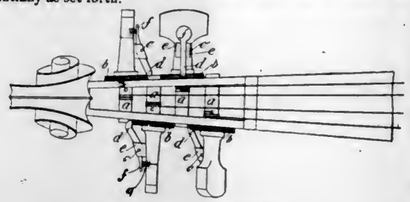
3. A cast metal pile-shoe having wrought metal arms with portions embedded in the mass of the shoe, the embedded portions of adjacent arms extending horizontally into the mass of the shoe and crossing each other at different levels, as set forth.

4. A pointed, cast metal pile-shoe having a substantially rectangular base and provided with four arms of wrought metal projecting upwardly at its respective sides, each of said arms extending down along the face of the shoe and having a bent portion which extends into the side of the shoe and is embedded in the mass thereof to form an attachment of the arm of the shoe, as set forth.

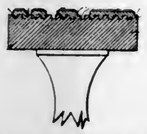
521,286. DEVICE FOR TIGHTENING STRINGS OF MUSICAL INSTRUMENTS. GUILLERMO HEREDIA, Mexico, Mexico. Filed Mar. 1, 1894. Serial No. 501,903. (No model.) Patented in France Mar. 1, 1892, No. 219,791.

Claim.—1. The combination with a stringed musical instrument, and a winding key or peg for the string thereof, of a disk ratchet b, secured to the instrument adjacent to the key, and a spring lever-pawl d, fulcrumed on the key and extending lengthwise of the same, the nose of the pawl being adapted to engage the ratchet, substantially as set forth.

2. The combination with a stringed musical instrument and a winding key or peg for the string mounted rotatively in the instrument, of a disk ratchet b, secured to the instrument concentric with the barrel of the key, a spring lever-pawl d, to engage the ratchet, fulcrumed on the key and extending lengthwise thereof, the thumb-piece of said pawl being arranged adjacent to the thumb-piece of the key whereby both may be grasped at the same time in tuning, substantially as set forth.

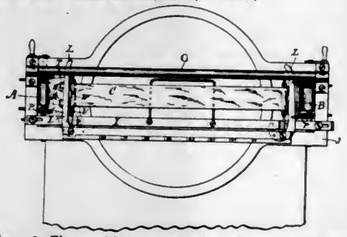


521,287. HAND STAMPING DEVICE. HOWARD S. INGERSOLL, New York, N. Y.; Robert H. Ingersoll administrator of said Howard S. Ingersoll, deceased. Filed Feb. 27, 1888. Serial No. 265,487. (No model.)



Claim.—The combination of an elastic printing type with a supporting bed or holder, each being provided with projecting ribs, by means of which the two may be locked and interlocked indefinitely by simply pressing them together and pulling them apart, substantially as set forth.

521,288. RIBBON-REVERSING MECHANISM FOR TYPE-WRITING MACHINES. CHARLES E. JOHNSON, Mount Jackson, Ind. Filed Jan. 14, 1892. Serial No. 418,010. (No model.)



Claim.—1. The combination with the platen-carriage, the ink-ribbon, and the ribbon-moving mechanism of a type-writing machine, a shifter connected with said ribbon moving mechanism, an obstruction, as a pin or bar, secured to the surface of the ribbon, and intermediate connecting mechanism connecting said pin or bar and said shifter, whereby the shifter is brought by the movement of the ribbon into the path of movement of the platen-carriage, and the shifter operated by the movement of the carriage, as set forth.

2. In a type-writing machine, the combination of the pair of reels mounted at opposite sides of the machine-frame, the ink-ribbon passing from one reel to the other, driving mechanism for turning the reels, the shifting-bar connected with said driving mechanism and arranged to throw the driving-mechanism simultaneously into engagement with one and out of engagement with the other of said reels, the platen-carriage arranged to traverse said frame, the lever pivoted to the frame, having one end arranged to engage the shifting-bar and the other end adjacent to the path of said carriage, the pin or like projection secured to the ink-ribbon, and intermediate connecting mechanism connecting said pin and said lever, whereby the lever is brought into the path of the platen-carriage by the movement of the ribbon, substantially as and for the purpose set forth.

3. In a ribbon reversing mechanism for type-writing machines, the combination of the pair of reels, the ink-ribbon wound thereon and extending from one reel to the other, mechanism for driving the reels, the shifting-bar arranged to shift said driving mechanism from one reel to the other, the swinging frame mounted on the reel-shaft, the plate pivoted to one end of said frame, arranged with its free end in contact with the ink-ribbon, and adapted to engage a projection thereon, the shifting-lever pivoted to the main-frame and arranged to operate the shifting-bar, and the platen-carriage arranged to traverse the main-frame, all arranged to co-operate as set forth, whereby the shifting-lever is brought by the movement of the ribbon into the path of the platen carriage substantially as and for the purpose set forth.

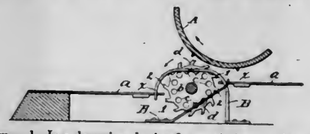
4. The combination, in a typewriting machine, of an ink-ribbon, means for feeding the same, an enlargement on said ribbon, a movable device controlled by said enlargement and capable of being interposed in the path of the carriage for automatically reversing the ribbon, and means for effecting such interposition.

5. The combination, in a typewriting machine, of the ribbon, mechanism for shifting the ribbon embodying a pivoted frame having a hinged or pivoted tongue or projection which extends to alongside said ribbon, and a catch or enlargement on said ribbon adapted to engage with said tongue, whereby the mechanism may be operated and the shifting of the feed thereby effected.

6. The combination, in a typewriting machine, of the ribbon, mechanism for shifting the ribbon, a traveling carriage bearing projections, intermediate mechanism between the ribbon and the carriage, a catch or enlargement on the ribbon near its end adapted to engage with said intermediate mechanism and throw the same up into the path of the projections on the traveling carriage.

7. The combination, in a typewriting machine, of the ribbon, the ribbon spools, frames or levers pivoted on the spool shafts, the ribbon shifting mechanism, a hinged or pivoted tongue or projection which extends to alongside the ribbon, and a catch or enlargement on said ribbon adapted to engage with said tongue, substantially as set forth.

521,289. DAMPING DEVICE FOR MUSIC-BOXES. HENRY LANGFELDER, New York, N. Y., assignor of one-half to F. G. Otto & Sons, Jersey City, N. J. Filed Feb. 2, 1894. Serial No. 498,836. (No model.)

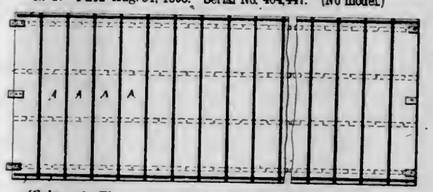


Claim.—1. In a damping device for music-boxes, the combination of a music-tongue, suitably operated star-wheel for actuating the same, a damper for said music-tongue, and oppositely extending cam faces on the side of said star-wheel and the damper inside of the line of teeth on the star wheel substantially as and for the purposes set forth.

2. In a damping device for music-boxes, the combination of a music-tongue, suitably operated star-wheel provided with indentations in the side thereof, a damper having a cam thereon and adapted to be operated by the indented side of the star-wheel, the indentations in the star-wheel and the cam on the damper being located inside of the line of the teeth on the star wheel substantially as and for the purposes specified.

3. A star-wheel for music-boxes provided with cam-operating apertures extending through the same inside of the line of the teeth of said wheel substantially as and for the purposes specified.

521,290. KOCKDOWN BARREL. GEORGE R. LUND, New York, N. Y. Filed Aug. 31, 1893. Serial No. 484,447. (No model.)

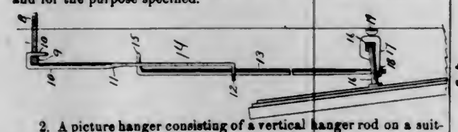


Claim.—1. The combination, with a barrel having a croze at each end and a recess extending from the end of the barrel to the croze, a cover formed of two sector-shaped pieces and a quadrilateral shaped piece between them, the ends of said quadrilateral shaped piece and the curved edges of the sector-shaped pieces fitting in the croze, substantially as set forth.

2. The combination, of a head formed of two sector-shaped pieces, and a quadrilateral piece between them, the curved edges of the sector-shaped pieces and the ends of the quadrilateral piece fitting in the croze of the barrel, the quadrilateral piece having a recess in its outer surface for receiving an implement for turning it on the axis of the barrel, substantially as set forth.

521,291. PICTURE-HANGER. PATRICK H. LYNCH, Bristol, Conn. Filed Oct. 6, 1893. Serial No. 487,395. (No model.)

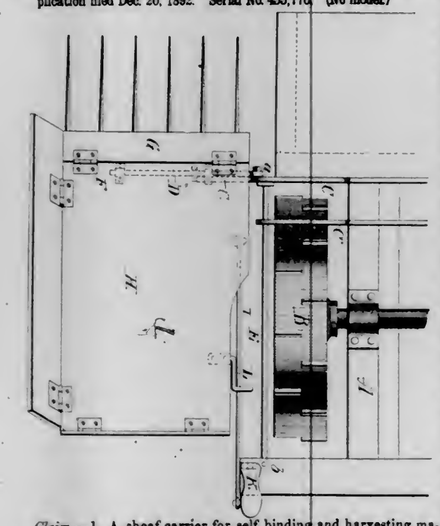
Claim.—1. In a picture hanger, the hanger strap 11 having a hook at its upper end, a series of perforations in its body and a perforated lug at its lower end, and the hanger rod 13 having its body passing through the perforated lug of said hanger strap, and having at its upper end a projecting point 15 for engaging any of the perforations in the body of said hanger strap, substantially as described and for the purpose specified.



2. A picture hanger consisting of a vertical hanger rod on a suitable support, the socket piece 17 at the lower end of said rod and a cross bar consisting of two similar parts with their ends adjustably lapped and secured within said socket piece, substantially as described and for the purpose specified.

3. A picture hanger consisting of the hanger strap, the hanger rod connected thereto and made longitudinally adjustable thereon, the socket piece at the lower end of said hanger rod and an adjustable cross bar secured within said socket piece, substantially as described and for the purpose specified.

521,292. SHEAF-CARRIER FOR BINDING AND HARVESTING MACHINES. LEWIS MILLER, Akron, and ROBERT A. MILLER, Canton, Ohio, administrators of the estate of Jacob Miller, deceased. Original application filed Oct. 21, 1884, Serial No. 144,557. Divided and this application filed Dec. 20, 1892. Serial No. 455,770. (No model.)



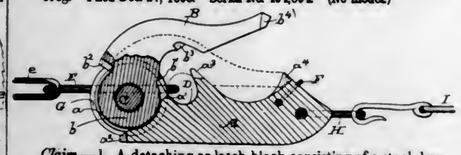
Claim.—1. A sheaf carrier for self binding and harvesting machines, hinged on a single transverse support on the side of the machine, in combination with the rod I, connected at one end to the carrier, and at the other end to the foot lever, the said rod adapted to restore the carrier after dumping the bundles and serve as a support upon which the carrier rests when in horizontal position, as set forth.

2. In a sheaf carrier for grain binding harvesters, the combination with a harvester frame, a bundle carrier support consisting of a bar secured to said frame and projecting beyond one side thereof, and a rod or shaft pivoted to said bar upon pivots in the line of draft so as to be turned to an upright position, of a bottom board loosely journaled on said rod or shaft and end and side sections hinged to the bottom board and adapted to be folded over onto the same, the above parts being arranged to permit the carrier to be tilted to discharge its load, or folded against the side of the machine.

3. A sheaf carrier for self binding and harvesting machines supported on the side of the machine, in combination with the rod I connected at one end to the lower portion of the carrier and at the other to the foot lever, and the arm L substantially as described whereby the carrier is held in its horizontal position by the foot of the driver as set forth.

4. The supporting arm or bar C having a forked upturned end, in combination with rod D hinged thereto and the folding sheaf carrier F whereby the sheaf carrier is adapted to be turned up against the side of the machine as set forth.

521,293. DETACHING-BLOCK. CLAUDIUS W. MOORE, Gardiner, Oreg. Filed Dec. 27, 1893. Serial No. 494,894. (No model.)



Claim.—1. A detaching or latch-block consisting of a stock having on its inner edge an uprising tongue, and a terminal bearing, a keeper hinged to the other end of the stock, and adapted to bear upon the tongue and terminal bearing thereof, and to form between the hinge and tongue, the bed for the detaching link, and a suitable lock for holding the keeper to the stock, substantially as herein described.

2. A detaching or latch-block consisting of a stock having the separated ears at one extremity, a terminal bearing at the other end and an intervening uprising tongue on its inner edge, the keeper having the tenon fitting and pivoted between the ears of the stock, said keeper resting when closed upon the tongue and terminal bearing of said stock and forming between the hinge and the tongue a bed for the detaching link, and the locking clevis for holding the keeper to the stock, substantially as herein described.

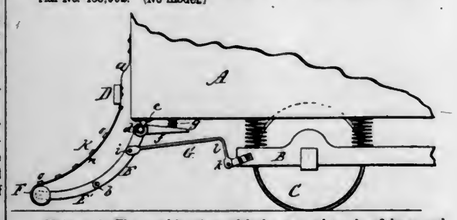
3. A detaching or latch-block consisting of a stock and a keeper hinged together at one end and having a locking device at the other end, said stock and keeper forming between them at their hinge end the bed space in which the detaching link is confined, and disks on each side of the hinge, their peripheries projecting into the bed space of the link and forming carriers upon which the said link may ride out clear of the hinge and block as the keeper is thrown back, substantially as herein described.

4. A detaching or latch-block consisting of a stock and a keeper hinged together at one end and having a locking device at the other end, said stock and keeper forming between them, at their hinge end, the bed space in which the detaching link is confined, and the axially turnable disks pivoted on the hinge pintle and covering each side of said hinge, the peripheries of said disks projecting into the bed space of the link and forming turning carriers upon which the said link may ride out clear of the hinge and block as the keeper is thrown back, substantially as herein described.

5. A detaching or latch-block consisting of a stock having the separated ears and the uprising tongue, a keeper hinged between the ears of the stock and bearing upon its tongue whereby a bed space is formed for the detaching link, a lock for holding the keeper in a closed position and disks on each side of the hinge, their peripheries projecting into the bed space whereby they receive the bearing or strain of the link upon the opening of the keeper, and to direct said link clear of the hinge and block, substantially as herein described.

6. A detaching or latch-block consisting of a stock having the separated ears at one end, a terminal bearing at the other end and an intervening uprising tongue, the keeper having a tenon fitting and pivoted between the ears, said keeper being adapted to fit down upon the tongue and terminal bearing of the stock and to form between the hinge and tongue the bed space for the detaching link, a locking clevis for the keeper, and the axially turnable disks upon the hinge pintle of the stock and keeper and having the peripheries exposed to the link bed whereby said link is directed clear of the hinge and block as the keeper is thrown back, substantially as herein described.

521,294. SAFETY-GUARD FOR STREET-CARS. STEPHEN NORTON and WILLIAM H. RICE, Rochester, N. Y. Filed Sept. 20, 1893. Serial No. 485,992. (No model.)



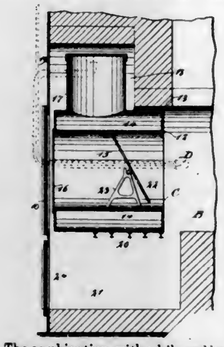
Claim.—1. The combination, with the car and truck, of the guard frame E pivoted to the bottom of the car and provided with the offset arms *f f*, the springs *g g* interposed between said offset arms and the bottom of the car, and the stay bars G G pivoted at one end to the guard frame and at the other to the truck, as herein shown and described.

2. The combination of the guard frame composed of two sections pivoted together so that the outer one can be turned up, and provided with pivots at the top, the open hooks with which said pivots connect, the offset arms at the top of the guard frame, the springs interposed between said arms and the bottom of the car, and the pivoted stay bars connecting the guard frame and truck, as and for the purpose specified.

3. The combination of the guard frame pivoted under the car and provided with offset arms, the springs interposed between the arms and the bottom of the car, the stay bars connecting the guard frame with the truck, the spring roller at the front end of the guard frame, and the flexible guard connecting the roller with the end of the car as described.

4. The combination, with a street car, of a flexible guard composed of chains and cross slats attached at the outer end to the supporting frame, and at the inner end to the car above the bumper, and forming a covering to the bumper, as and for the purpose specified.

521,295. LIMEKILN. JAMES O'CONNELL, New York, and GEORGE SWIFFIN, Tuckahoe, N. Y. Filed May 9, 1893. Serial No. 473,591. (No model.)

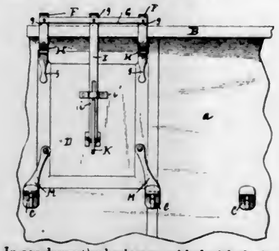


Claim.—1. The combination, with a kiln and its arches, of a boiler permanently located within an arch of the kiln, and having a chamber, a damper located in said chamber, for regulating the supply of heat from the kiln to the boiler, as and for the purpose specified.

2. The combination, with a lime-kiln arch, of a boiler having a chamber whose inner end is open and communicates with the inner end of the arch, and a damper, or heat-fender, located in said chamber and adapted for adjustment for regulating the application of heat to the boiler, substantially as shown and described.

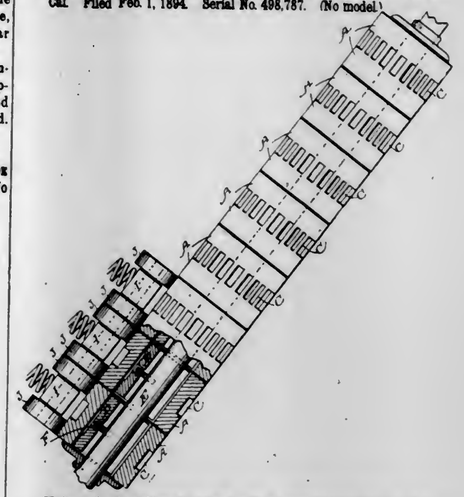
3. The combination, with a kiln and its arches, of a boiler located therein, the body of the boiler comprising a water jacket and an inner chamber extending through from front to rear of the boiler, and open at its inner end, a damper, or heat-fender located within the said boiler chamber, and an air duct located beneath the boiler, in communication with the outside atmosphere and with the arch back of the boiler, substantially as shown and described, whereby the heat of the kiln is regulated and utilized for generating steam for supplying the burners or for other purposes, as and for the purpose set forth.

521,296. CAR-DOOR. WILLIE L. RANSOME, Roanoke, Va. Filed Mar. 31, 1893. Serial No. 468,478. (No model.)



Claim.—In car doors the body *a* provided with the bracket guides O, having recesses therein and located on the lower portion of said body, in the direction that the door moves; and the track B having flanges *g*, in combination with the door D having hangers F, I connected by cross piece G, and provided with wheels *g* adapted to run on said track; the hinges H, whereby said door may be angularly inclined to its normal plane; the lever K fulcrumed at *k* insuring the inclination of said door by direct pulling force; the extension *i*, and yoke *i'*; and the pivoted locking arms M located near each lower corner of the door and adapted to engage the recesses in the guide brackets C before reaching a perpendicular position, whereby a wedge-like joinder between them is created, for the purpose set forth.

521,297. PLANER FEED-ROLL. JOHN D. SIGLER, San Francisco, Cal. Filed Feb. 1, 1894. Serial No. 498,787. (No model.)



Claim.—1. An adjustable feed roll for planers consisting of the independent rigid cylindrical sections provided with internal bores, cylindrical sleeves within said bores having approximately the same length as the sections, and having their lower ends open, and a shaft fitting into the channels in the lower part of said sleeves whereby the sleeves and sections may rise and fall independently.

2. A feed roll mechanism for planers consisting of independent cylindrical sections extending axially in line with each other, internal cylindrical sleeves about which said sections rotate freely, a rectangular shaft fitting into vertical channels made in the lower part of said sleeves, whereby the sleeves and rolls are allowed to rise and fall independently, and a connection between the shaft and each section for guiding the vertical movement of the latter and preventing its movement endwise of the shaft.

3. A feed roll mechanism for planers, consisting of independent cylindrical sections extending axially in line across the planer bed, a bar extending through the center of the hollow sections, sleeves having open channels extending from the bottom above the centers whereby each of the sleeves and its roll are vertically movable independent of the others, and vertical pins slidable in corresponding holes whereby each sleeve is retained within its roller section and is prevented from moving endwise, substantially as herein described.

521,298. WARP STOP-MOTION FOR LOOMS. OBERLIN SMITH, Bridgeton, N. J., assignor of one-half to George Draper & Sons, Hopedale, Mass. Filed May 2, 1893. Serial No. 472,706. (No model.)

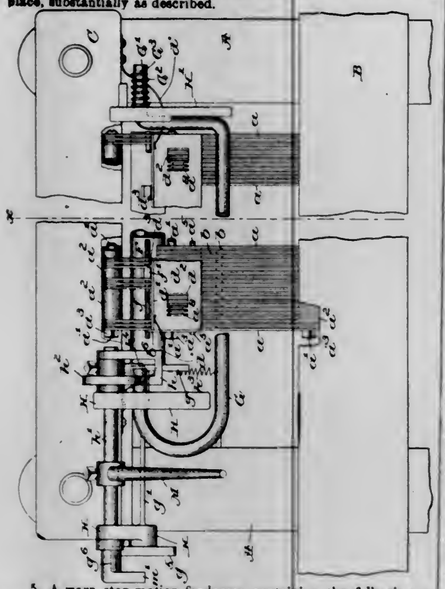
Claim.—1. In a warp stop motion for looms, the combination with a series of reed dents and warp detectors arranged between the same and adapted to be moved from their normal into their abnormal positions by the unbroken warp threads, of a depressor, and actuating mechanism for the same to move said detectors toward their normal positions, substantially as described.

2. In a warp stop motion for looms, the combination of the following instrumentalities, viz:—a lay; warp detectors to be acted upon and moved by the unbroken warp threads; heddles to shed said warp threads, and means to move said heddles rearwardly to tighten said warp threads, substantially as described.

3. A warp stop motion for looms, containing the following instrumentalities, viz:—a lay; warp detectors to be acted upon and moved by the unbroken warp threads; heddles and frames for the same to shed said warp threads; and devices on the lay whereby the latter at each backward movement strikes a heddle frame and

moves the same to tighten said warp threads, substantially as described.

4. A warp stop motion for looms, containing the following instrumentalities, viz:—a series of reed dents, warp detectors moving between the same; and spaces between and separating said reed dents and having portions extending close to the moving parts of said detectors, clamping devices at opposite ends of said reed dents and an additional clamping device intermediate said ends and passing through said spaces close to the moving parts of said detectors, whereby said reed dents are firmly held separated at the proper distances from each other at the points where movement of the detectors takes place, substantially as described.



5. A warp stop motion for looms, containing the following instrumentalities, viz:—a series of reed dents, each provided with an opening extending laterally through it; warp detectors pivoted in and between said reed dents, and having warp supports also located between the said reed dents, and entering the lateral openings therein and spacers between and separating said reed dents and having tail portions extending down past the pivotal points of the said detectors close to the warp supports thereof, to thereby maintain said reed dents properly spaced adjacent said warp supports to prevent displacement of the warp threads, substantially as described.

6. In a warp stop motion for looms, the combination of the following instrumentalities, viz:—a reed composed of reed dents of different lengths, the longer reed dents projecting above the shorter ones; spacers between the reed dents, and bolts to clamp the same and said reed dents firmly together; warp detectors pivoted between the shorter reed dents; and a feeler pivoted in the extended ends of the longer reed dents, substantially as described.

7. A warp stop motion for looms, containing the following instrumentalities, viz:—a reed; consisting of a series of reed dents and clamping devices to clamp the same rigidly together; warp detectors arranged between the said reed dents, and adapted to be moved from their normal into their abnormal positions by the unbroken warp threads; a feeler pivoted also in the dents of the said reed; and cooperating with the said detectors, whereby removal of the reed takes with it both detectors and feeler without disturbing the adjustment of the same one with relation to the other, and a stopping mechanism for the loom controlled by the said feeler, substantially as described.

8. A warp stop motion for looms, containing the following instrumentalities, viz:—a removable reed; warp detectors pivoted in and movable between the dents thereof and adapted to be acted upon by the unbroken warp threads; a feeler; and a depressor both mounted in said reed, and actuating mechanism for the said detectors whereby removal of the reed takes with it the said detectors, feeler, and depressor without disturbing the adjustment of the same, substantially as described.

9. A warp stop motion for looms, containing the following instrumentalities, viz:—a series of reed dents; warp detectors arranged between the same and adapted to be moved by the unbroken warp threads; a feeler pivoted in said reed dents; an independent pivoted feeler-carrier; and means to move the same and thereby the said feeler, substantially as described.

10. A warp stop motion for looms, containing the following instrumentalities, viz:—a series of reed dents; warp detectors arranged between the same and adapted to be moved by the unbroken warp threads; a feeler; a depressor actuated thereby; and a lever to move said feeler in one direction toward said detectors and also in opposite direction to move said depressor toward said detectors, substantially as described.

11. In a warp stop motion for looms, a series of reed dents; spacers separating the same and having projecting lugs; and warp detectors arranged between the said reed dents, combined with a depressor mounted on said lugs, and means to move the same, substantially as described.

12. A warp stop motion for looms, containing the following instrumentalities, viz:—a series of reed dents; warp detectors arranged between the same and adapted to be moved by the unbroken warp threads; a feeler; a depressor actuated thereby; a pivoted lever to move said feeler; and two cam abutment surfaces to act upon opposite ends of said lever and move the same first in one direction to actuate the feeler and then in an opposite direction to actuate the depressor, substantially as described.

13. A warp stop motion for looms, containing the following instrumentalities, viz:—a series of reed dents each provided with an opening as a^x; and warp detectors pivoted between and having thickened heads to constitute warp supports projecting laterally into said openings, the heads of successive detectors being staggered in said openings, substantially as described.

14. A warp stop motion for looms, containing the following instrumentalities, viz:—a series of reed dents, warp detectors arranged between the same and adapted to be moved by the unbroken warp threads; arms pivoted in said reed dents; a feeler carried at one of their ends; a depressor acted upon by the opposite ends of said arms; and a spring to maintain the said depressor in contact with said arms, substantially as described.

15. A warp stop motion for looms containing the following instrumentalities, viz:—a series of reed dents; warp detectors arranged between the same; a gravity-actuated feeler pivoted in said reed dents; an independently pivoted feeler-carrier to engage and move said feeler; a lever to move said carrier and feeler in one direction against gravity; and a catch to engage and hold said feeler and carrier in the positions into which they are so moved; a shaft carrying a dagger and a cam abutment to rotate said shaft and engage and thereby move said catch to release said feeler; and a stopping mechanism actuated by said dagger, substantially as described.

16. A warp stop motion for looms, containing the following instrumentalities, viz:—a series of reed dents; warp detectors arranged between the same and to be moved by the unbroken warp threads, a gravity-actuated feeler a feeler carrier and shaft on which it is mounted provided with the lever g^6; a catch to hold the said feeler in its normal position, the shaft h' on which said catch is journaled, its arms m and m', dagger M, moved by rotation of said shaft the vertically and horizontally adjustable abutment m^3, to control the shaft h' and its plate m^{10}, to control the lever g^6 all substantially as described.

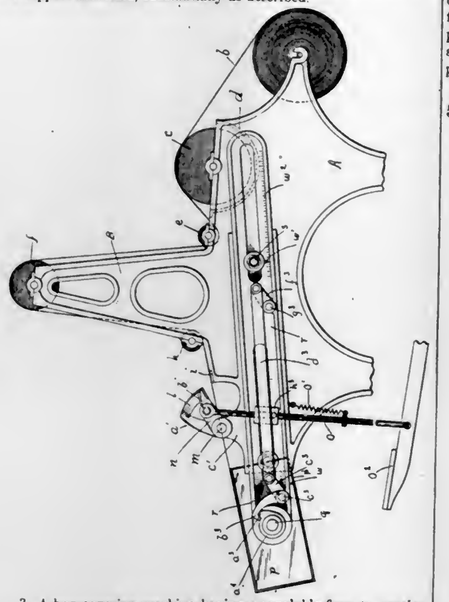
17. In a loom, a lay, a bellows, and means to compress the same at each beat of the lay, and an adjustable outlet for said bellows, arranged to direct a current of air laterally against the warp threads to move the latter into their proper planes in an open shed, substantially as described.

18. In a warp stop motion for looms, a series of warp detectors arranged to be moved from their normal into their abnormal positions by the unbroken warp threads and a support for said detectors, combined with a depressor, and actuating mechanism for the same to move said detectors toward their normal position, substantially as described.

521,299. MACHINE FOR COVERING PAPER BOXES. EUGENE H. TAYLOR, Lynn, Mass. Filed Aug. 9, 1893. Serial No. 482,733. (No model.)

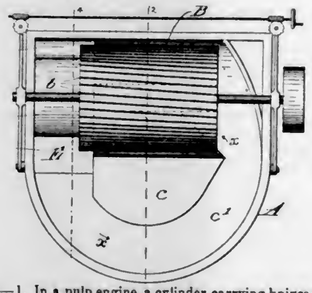
Claim.—1. A box covering machine having a revoluble form to receive the box to be covered, cutters for severing the covering strip, a support for the said form adjustable toward and from the said cutters, cutter-operating mechanism, stop-devices for arresting the form at a given point in its revolution, the same comprising a projection moving with the form and a dog mounted on the adjustable support and engaging the said projection, and operative connections of the said dog through which the latter, in all positions of adjustment of the form support, is disengaged from the said projection each time the covering strip is severed, substantially as described.

2. A box-covering machine having a revoluble form to receive the box to be covered, cutters for severing the covering strip, a support for the said form, adjustable toward and from said cutters, cutter-operating mechanism, and stop devices for arresting the form at a given point in its revolution, the same comprising a projection moving with the form, a dog mounted on said support, and engaging said projection, and a bar operatively connected with said dog, and in sliding engagement with the cutter operating means, whereby to disengage the dog and release the form in any position of adjustment of the support aforesaid, substantially as described.



3. A box covering machine having a revoluble form to receive the box to be covered, cutters for severing the covering strip, the adjustable frame-piece constituting the support for the said form, cutter-operating mechanism including a rod o, stop-devices for arresting the form at a given point in its revolution, the same comprising a projection moving with the form and a dog pivotally mounted on the adjustable frame-piece, and the releasing bar pivotally connected with the said dog and the said frame piece and in sliding engagement with the rod o, whereby to enable the dog to be disengaged from the said projection, in all positions of adjustment of the form-support, each time the covering strip is severed, substantially as described.

521,300. PULP-ENGINE. LARKIN A. THOMAS, Banning, Ga. Filed July 28, 1893. Serial No. 481,769. (No model.)



Claim.—1. In a pulp engine, a cylinder carrying knives and running in the concaved portion of the casing, a channel formed in said casing terminating at each end of the said cylinder, the aforesaid concaved portion being cut away at the channel outlet to expose a portion of the working face of the said cylinder to the direct flow of stuff, substantially as and for the purpose specified.

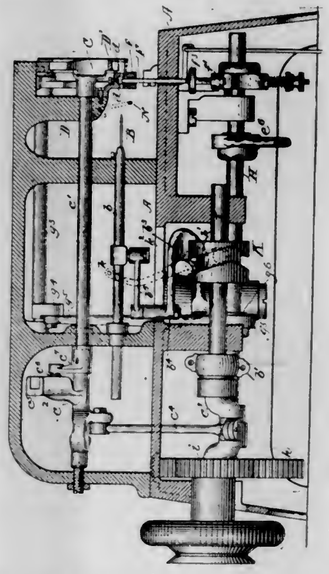
2. In a pulp engine, a concave and a cylinder mounted therein, knives set in said concave and cylinder, a channel leading from the bottom of the said concave and a vertically adjustable dam therein near the said cylinder, for the purpose specified.

3. In a pulp engine, a concave and a channel leading therefrom, a cylinder mounted in the said concave, a curved piece set and sliding circumferentially within said concave, at the point of the opening therefrom of the said channel, and means for securing said curved piece in any set position, for the purpose specified.

4. In a pulp engine, a concave and a channel leading therefrom, a cylinder mounted in said concave, a curved plate set and sliding circumferentially in said concave at the point of the opening therefrom of the said channel, a leaf hinged to the upper edge of the said plate its free end resting on the bottom of the channel and means for securing the said plate in any set position, substantially as and for the purpose specified

---

521,301. SEWING-MACHINE. ROBERT W. THOMSON, Lynn, Mass., assignor to the Globe Button-Hole Machine Company, Boston, Mass., and Kittery, Me. Filed July 14, 1893. Serial No. 480,546. (No model.)



Claim.—1. In an overstitching machine, in combination with a horizontally reciprocating eye pointed needle and a shuttle oscillating in a vertical plane, a stationary plate D' having a working surface upon its under side, a combined yielding rest and feed E, a lifter F, and a presser G, as and for the purposes described.

2. In an overstitching machine, in combination with a horizontally reciprocating eye pointed needle and its co-operating shuttle, the rest and feed E comprising a bar pivoted at one end to an intermittently oscillating fulcrum, and having its other end moved upward by spring pressure, as and for the purposes described.

3. In a machine of the character specified in combination with a horizontally reciprocating eye-pointed needle, its co-operating shuttle and the plate D', the rest and feed E pivoted at one end to an oscillating fulcrum, its upwardly moving spring e, and the presser G, all as and for the purposes described.

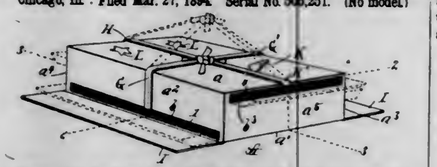
4. In a machine of the character specified, in combination with a horizontally reciprocating eye pointed needle, its co-operating shuttle and the plate D', the vertically yielding and horizontally movable rest and feed E, having a slot or hole e^{10}, and the independent lifter F movable vertically in said slot or recess, as and for the purposes described.

5. In a machine of the character specified, the combination of the horizontally reciprocating eye pointed needle, its co-operating shuttle, the plate D' with the horizontally movable downwardly yielding rest and feed E having the notch or depression e^{11} in its upper surface, the presser G having a downward movement and an oscillating movement and the lifter F, substantially as described.

6. In a machine of the character specified, in combination with the horizontally movable, vertically yielding, rest and feed E, and the downwardly moving oscillating presser G, the supplemental yielding work support M, as and for the purposes described.

7. The combination of the horizontally reciprocating eye-pointed needle, its co-operating shuttle and the rest and feed E, with the presser G operated from above the work to have a downward movement, and an oscillating movement, as and for the purposes described.

521,302. DUPLICATE-WHIST BOX. ARTHUR H. WOODWARD, Chicago, Ill. Filed Mar. 27, 1894. Serial No. 505,251. (No model.)



Claim.—1. In a duplicate whist box, a closed rectangular case, corresponding substantially to a pack of cards in shape and size and divided into four interior compartments, arranged one above the other and each provided with a single opening, one in each side and one in each end of the case, the said openings being arranged in opposite sides and opposite ends respectively of the case, whereby the said case is adapted to receive and retain the four hands of cards in the respective compartments, substantially as described.

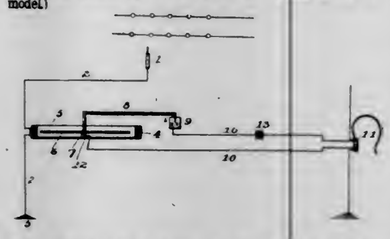
2. In a duplicate whist box, a closed rectangular case adapted in shape and size to inclose a pack of cards and divided into four interior compartments, arranged one above the other and each provided with a single opening in opposite sides and ends of the case and respectively adapted to receive the respective hands of the pack, and a device applied to each compartment whereby the hand therein may be projected a slight distance out through the opening, substantially as described.

3. In a duplicate whist box, a rectangular closed case, A, provided with slots, b, b', running lengthwise of the sides and arranged on different planes, and similar slits, b^3, b^3, running across the respective ends and arranged in different planes, in combination with horizontal partitions, B, arranged within the case to divide the latter into four equal compartments and corresponding to the said respective slots, and tapes, G and G', secured respectively at one end to the base of each compartment and a little distance in front of the back wall thereof and extending thence out through the opening at the front, substantially as described.

4. In a duplicate whist box, a closed rectangular case, A, provided with side slots, b^3, b^3, arranged as described, in combination with horizontal partitions, B, arranged one above the other to divide the interior of the case into four equal compartments corresponding to the respective slots, and a flanged cover adapted to be placed upon the top of the case and pass down at the sides and ends thereof, substantially as described.

5. In a duplicate whist box, a closed rectangular case, A, provided with side slots, b, b', and end end slots, b^3, b^3, arranged as described, horizontal interior partitions, B, side wings or flaps, I, flexibly attached to the lower edges of the case at the sides thereof, and a flanged cover, J, substantially as described

521,303. BUSY-TEST FOR MULTIPLE SWITCHBOARDS. JAMES A. WOTTON, Atlanta, Ga. Filed Apr. 20, 1894. Serial No. 508,356. (No model.)

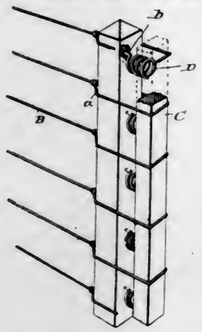


Claim.—1. A head-phone circuit, a circuit-maker included therein, a test-plug, a circuit therefor, a galvanometer included therein, the needle of said galvanometer being connected operatively with the circuit-maker, substantially as and for the purpose specified.

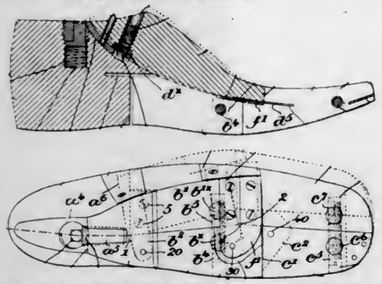
2. A head-phone and a mercury cup electrically connected, a test-plug and circuit therefor including a galvanometer, an arm connected with the needle of said galvanometer and adapted to be dipped by the deflection thereof, into the said mercury-cup, and means for supplying a current to the said arm, substantially as and for the purpose specified.

521,304. WIRE FENCE. SIMON S. YOUNG, Mount Morris, Ill. Filed Mar. 10, 1894. Serial No. 503,167. (No model.)

Claim.—In a fence wire tightener, the combination with the longitudinal wires having the loops a, at one end, the corner posts, and the tension bar C, both received in said loops, and the spiral springs D, having the angular branches b, let into said post, as shown and interposed between the post and the continuous upright tension bar, the whole adapted to operate in the loops of the wires, substantially as specified.



521,305. LAST. SAMUEL APPLETON, Newton, Mass. Filed July 31, 1893. Serial No. 481,920. (No model.)



Claim.—1. A last having its toe, ball and instep portions continuous on the inner side of the last, and rigidly fixed with relation to the heel portion and to each other, combined with an adjustable outer side, substantially as described.

2. A last having a fixed heel portion and an integral continuation thereof on the inner side to the toe, combined with adjustable instep, ball and toe portions at the outer side, substantially as described.

3. A last having its toe, ball and instep portions continuous on the inner side of the last and rigidly fixed with relation to the heel portion and to each other, combined with a movable toe portion, and a separate movable ball and instep portion, at the outer side of the last, connections between the adjacent ends of said movable ball and instep portion and the movable toe portion, and adjusting devices for said movable portions, substantially as described.

4. A last having a removable instep block, and means for adjusting the height thereof, combined with a spring controlled locking device for said instep block, substantially as described.

5. A last having a fixed heel portion, a movable instep and ball portion hinged thereto at the outer side of the last, and an inner side instep and ball portion rigidly fixed with relation to the heel and to each other, combined with means to actuate said movable portion and laterally adjust it, substantially as described.

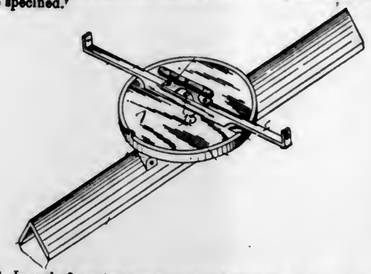
6. A last having a fixed toe portion at the inner side thereof integral with the heel and instep portion on said inner side, combined with a movable toe portion at the outer side, and independent means located at the front and rear of said movable toe portion to adjust either or both ends thereof, substantially as described.

7. A last having a fixed heel portion and an integral continuation thereof on the inner side to the toe, combined with an adjustable longitudinally and laterally convex or outwardly curved instep portion at the outer side of the last, substantially as described.

521,306. SHAFT-SETTING DEVICE. HUMPHREY B. CAMPBELL, Atlanta, Ga. Filed June 26, 1893. Serial No. 478,926. (No model.)

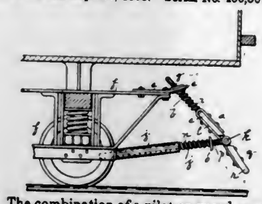
Claim.—1. In a shaft-setting device, the base formed in the shape of an inverted V, a plate secured to the apex thereof, perforated in its center, a second plate seated and adapted to revolve upon said first plate, a bolt adapted to pivot and tighten said plates, and a level and sighting device mounted on said pivoted plate, substantially as and for the purpose specified.

2. In a shaft setting device, a base formed of a long casting in the form of an inverted V, and a leveling and sighting device revoluble on an axis perpendicular thereto, substantially as and for the purpose specified.



3. In a shaft-setting device, a base formed in the shape of an inverted V, a circular plate secured to the top side thereof and a flange extending upwardly around the edge of said circular plate, a disk fitting on said plate within said flange carrying sighting device on its upper side, and a bolt passing through said disk and plate, substantially as and for the purpose specified

521,307. PILOT OR GUARD FOR CARS. ROBERT A. CRAWFORD, Allegheny, Pa. Filed Sept. 27, 1893. Serial No. 486,587. (No model.)



Claim.—1. The combination of a pilot or guard, a support therefor, a sensitive spring acting between the pilot and its support, a swinging toe at the lower end of said pilot, and a powerful spring controlling said toe, substantially as and for the purposes set forth.

2. A pilot or guard having spring-actuated rods sliding upwardly in suitable supports on the car-body or truck, and yielding rods secured to the lower end of said pilot or guard and adapted to support said pilot or guard at the proper angle, substantially as and for the purposes set forth

3. A pilot or guard having rods sliding upwardly in suitable supports on the car-body or truck, springs interposed between said supports and the body of the pilot or guard, and yielding rods secured to the lower end of said pilot or guard and adapted to support said pilot or guard at the proper angle, substantially as and for the purposes set forth.

4. A pilot or guard having spring-actuated rods, sliding in suitable supports on the car-body or truck, rods to support said pilot or guard at the proper angle, said rods being secured at their outer ends to said pilot or guard, the inner ends of said rods resting in suitable supports, and springs interposed between rings on said rods and said supports, whereby said rods act to retain the pilot or guard at the proper angle, substantially as and for the purposes set forth.

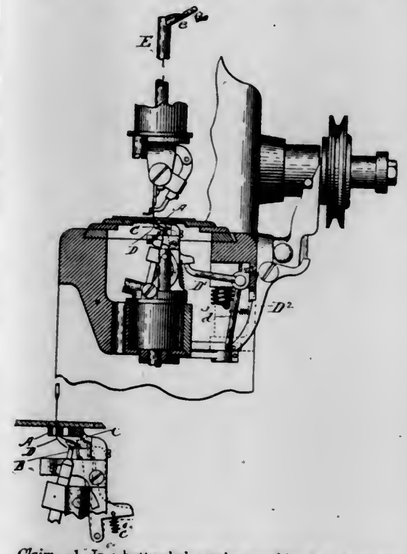
5. A pilot or guard having rods sliding upwardly in suitable supports on the car-body or truck, springs interposed between said supports and the body of the pilot or guard, yielding rods secured to the lower end of said pilot or guard and adapted to support the same at the proper angle, and means for regulating the distance to which said rods may recede, substantially as and for the purposes set forth.

6. A pilot or guard having yielding rods secured to the lower end of said pilot or guard to support said pilot or guard at the proper angle, sensitive springs interposed between shoulders on said rods and permanent abutments, stops adapted to regulate the distance to which said rods may recede and with which said shoulders are adapted to contact, and a swinging toe at the lower end of said pilot or guard operated by a powerful spring, substantially as and for the purposes set forth.

7. A pilot or guard having yielding rods secured to the lower end of said pilot or guard to support the same at the proper angle, sensitive springs interposed between shoulders on said rods and permanent abutments, tubular sections surrounding said rods, and a swinging toe at the lower end of said pilot or guard operated by a powerful spring, substantially as and for the purposes set forth.

8. A pilot or guard having rods sliding upwardly in suitable supports on the car-body or truck, sensitive springs interposed between said supports and the body of the pilot or guard, yielding rods and means for regulating the distance to which said yielding rods may recede, and a swinging toe at the lower end of said pilot or guard operated by a powerful spring, substantially as and for the purposes set forth.

521,308. SEWING-MACHINE. CHARLES A. DAHL, Lynn, Mass., assignor to the Globe Button-Hole Machine Company, Boston, Mass., and Kittery, Me. Filed July 3, 1893. Serial No. 479,439. (No model.)



Claim.—1. In a button-hole sewing machine having means by which it is adapted to stitch a predetermined number of stitches in forming and stitching the button-hole, a thread cutter arranged below the upper surface of the clamp plate, in combination with means comprising a part of the operating mechanism of the machine, whereby the cutter is automatically actuated to sever the upper needle thread below the work and instantly after the completion of the stitching operation of the machine, as and for the purposes described.

2. In a button-hole sewing machine adapted to stitch a predetermined number of stitches in forming or stitching the button-hole, the combination of the upper needle-thread looper or carrier located below the clamp-plate and adapted to automatically carry the upper needle-thread into line with the movement of the thread cutter and an automatically actuated thread cutter arranged below the upper surface of the clamp-plate and operated at the completion of the operation of the stitching devices to sever the upper needle thread below the work and while engaged by the thread looper or carrier, as and for the purposes described.

3. In a buttonhole sewing machine adapted to stitch a predetermined number of stitches in forming or stitching the buttonhole, the combination of an upper reciprocating eye-pointed needle, a lower reciprocating eye-pointed needle, a throat through which the upper-needle thread and the lower-needle thread are passed in the act of forming the stitches, the upper-needle thread-looper or thread-carrier B arranged below the said throat and adapted to carry the upper-needle thread laterally from it, and an automatic upper-needle thread cutter C, arranged below the surface of the clamp-plate and actuated at the completion of the stitching operation of the machine to sever the upper-needle thread while engaged by the said carrier or looper B, as and for the purposes described.

4. In a buttonhole sewing machine adapted to stitch a predetermined number of stitches in forming or stitching a buttonhole, an upper-needle thread cutter arranged below the upper surface of the clamp-plate and in combination with the clamp-plate, and with automatic means for actuating the same to cut the upper-needle thread below the upper surface of the said clamp-plate and connected with an operative part of the sewing machine for positively moving the cutter in one direction at the end of the stitching operation of the machine, and a spring for moving it in the reverse direction, as and for the purposes described.

5. In a button-hole sewing machine adapted to stitch a predetermined number of stitches in forming or stitching the button-hole,

a thread cutter below the upper surface of the clamp-plate for severing the upper needle thread below the work, carried by a moving part of the stitch forming devices of the machine, in combination with means entirely free from manual control for automatically actuating the cutter upon the completion of the stitching operation of the machine, as and for the purposes described.

6. In a button-hole sewing machine adapted to stitch a pre-determined number of stitches in forming or stitching the button-hole, the combination of a thread cutter located below the upper surface of the clamp plate, a rotary or traveling support below the clamp-plate to which said cutter is attached and means entirely free from manual control at one side of the machine for actuating said cutter when it is brought into operative relation thereto by the movement of said traveling or rotary support, as and for the purposes described.

7. In a sewing machine of the character specified, the combination of the stopping lever provided with a movable rod, a rotary clutch pin or projection, a cutter for severing the upper needle thread and intermediate devices between the rod and the cutter adapted to be actuated by the pin striking the rod simultaneously with the action of the said stop lever in stopping the machine, as and for the purposes described.

8. In a button-hole sewing machine of the character specified, the combination of the stitch forming mechanism, a thread cutting device comprising the lever c pivoted at c^3 to a standard c^4 and having the stock c', horizontal arm c^3, and knife C integral with the arm and stock the said stock, arm and knife being shaped substantially as specified and means for actuating the thread cutter at the completion of the stitching operation, substantially as described.

9. In a sewing machine of the character specified, the combination of the bracket c^4 adapted to be rotated with the under section of the stitch forming devices, the lever c pivoted thereto, carrying the knife or thread cutter C, the arm or extension c^5 and the rock lever D', the end of which is in operative relation to the arm c^5 when the stitching devices have been turned, and means for actuating the rock lever at the completion of the stitching operation of the machine, substantially as described.

10. The combination, in a sewing machine of the character specified, of the stitch forming devices rotated in one direction during the stitching of the eye of a button-hole and adapted to be released upon the completion of the stitching of the button-hole to be returned to their normal position, an upper thread cutter C carried by said rotating devices and moved by their rotation into operative relation with an actuating device, a lever D^2 actuated by the stopping devices of the machine and communicating motion to the mechanism releasing the rotary stitching devices, and to intermediate mechanism actuating the cutter, substantially as described.

11. In a sewing machine of the character specified, the combination of a cutter arranged below the work means whereby it is actuated to cut the upper thread upon the completion of the stitching operation of the machine and an upper thread drawer to draw the thread from the work after it has been cut, as and for the purposes described.

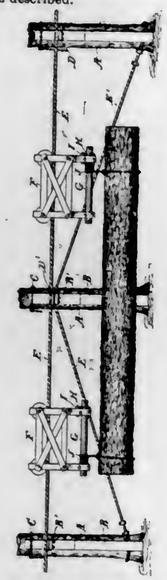
12. In a buttonhole sewing machine adapted to stitch a predetermined number of stitches in forming or stitching the button-hole, the combination of stitch forming devices employing an upper needle and a lower needle, an upper-needle thread cutter arranged below the upper surface of the clamp-plate of the machine connected with a part of the operative mechanism of the machine to be automatically actuated thereby to sever the upper-needle thread below the work and instantly after the completion of the stitching operation of the machine, and a thread drawer to draw the cut upper-needle thread out of the fabric, and also thread from the spool to provide slack thread for the next operation of the needle in stitching the next buttonhole, substantially as described.

521,309. ELEVATED CARRIER. GILES B. DAVIS, White Cloud, Mich. Filed Aug. 30, 1893. Serial No. 484,410. (No model.)

Claim.—1. The combination, in an elevated carrier, with supporting posts, arms projecting horizontally therefrom, blocks on the ends of said arms, the block of the intermediate post having openings extending inward and then downward from its opposite ends and formed with an elevated rib between the horizontal parts of said openings and the other of said blocks having horizontal grooves, and independent sections of cables anchored at their ends and extending through said openings in the blocks in the manner described, of supports for said posts, means, connecting said posts and supports, and wedges between said posts and supports, substantially as shown and described.

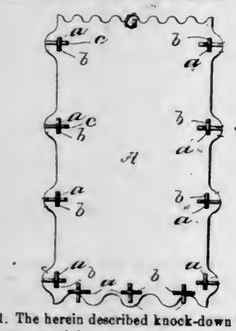
2. The combination, in an elevated carrier, with the supporting posts, blocks supported by said posts, and the cables engaging said blocks, of supports for the posts, a flexible means connecting said posts and supports, and wedges between said posts and supports, substantially as shown and described.

3. The herein described elevated carrier, comprising, supports, posts, connected with said supports, wedges between said supports and posts, horizontal arms projecting from said posts, blocks on the ends of said horizontal arms, the block of the intermediate arms having openings extending from its opposite ends inward and thence inclinatorily downward, and also having an elevated rib between the horizontal parts of said openings and the other blocks having horizontal grooves, independent sections of cables anchored at their ends and extending through said openings in the blocks, in the manner described, a switch rail having one end adapted to rest upon said cable when in use, a block, having a plane surface to support the opposite end of said switch rail and to which the same is pivoted, a side line cable attached to said last-mentioned block in line with said rail when the latter is engaged with the main line cable, and a support for the first-mentioned end of the switch rail when the latter is not in use, substantially as described.



4. In an elevated carrier, in combination with a cable forming the track or line, supports for the same, consisting of posts having horizontally projecting arms, having grooved metal blocks attached to engage the cable, said posts also resting on the ground at their lower ends and attached to trees, or other suitable supports by chains, and wedges between said posts and trees to tighten said chains, substantially as described.

521,310. KNOCKDOWN BOX. BURTON L. GALE, Warren, Pa., assignor to the Warren Extension Table Company, same place. Filed Mar. 10, 1894. Serial No. 503,170. (No model.)

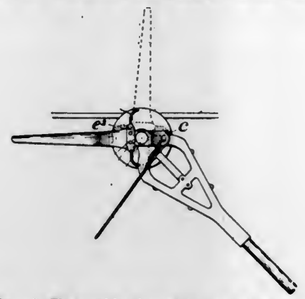


Claim.—1. The herein described knock-down wooden box having the different parts of the same engaging each other by a slot and tenon construction and the tenons secured by pins passing through them, the parts so united being formed of veneers firmly united with the grain running in different directions.

2. The herein described knock-down box, the walls of which are formed of composite parts or panels made of layers of wood veneering with the grain running at different angles, the said parts being joined by having one edge provided with slots and the engaging edge provided with tenons entering said slots and pins passing through said tenons, the edge provided with slots being also provided with projections extending beyond the pins.

3. The herein described knock-down box constructed of composite wooden parts or panels having the grain running in different directions, the parts composing the main body of the box held together by a slot and tenon construction, a bottom provided at all edges with tenons engaging slots in the sides of the main body, pins securing said tenons, and a cover pivoted to the main body.

521,311. TROLLEY-WIRE FINDER. THEOPHILUS E. GRESSLE, Indianapolis, Ind., assignor of nine-twentieths to Frank Hittle, Baltimore, Md. Filed Oct. 28, 1893. Serial No. 489,346. (No model.)

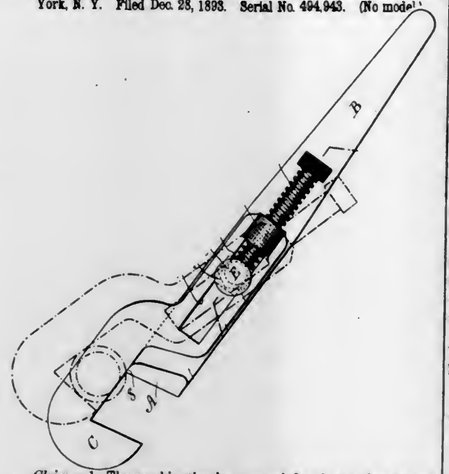


Claim.—1. The combination, with a trolley support and trolley, of directing bars or guides adapted to be elevated by movement upon the axis of the trolley, a double free-ended spring attached to one of said bars or guides, substantially as specified.

2. The combination, with a trolley support and trolley, of directing bars or supports adapted to be erected by movement upon the axis of the trolley, and a double free-ended spring attached to one of said bars or guides said bar or guide having lips, substantially as specified

---

521,312. WRENCH FOR PIPES, RODS, &c. CHARLES HALL, New York, N. Y. Filed Dec. 28, 1893. Serial No. 494,943. (No model.)



Claim.—1. The combination in a wrench for pipes and other articles, of a handle lever having an acute angled end forming a jaw with a chisel-shaped edge, a hook-shaped jaw having a shank at one side of and in line with the handle lever and slotted longitudinally, the inner edge of the hook-shaped jaw being substantially in line with or parallel to the side of the handle lever when the parts stop against each other, a pivot pin having a polygonal portion within the slot and a circular portion passing through a hole in the handle lever, and a screw acting to adjust the hook-shaped jaw in its relation to the handle lever, substantially as set forth.

2. The combination in a wrench for pipes and other articles, of a handle lever having an acute angled end forming a jaw with a chisel-shaped edge, a hook-shaped jaw having a shank at one side of and in line with the handle lever and slotted longitudinally, the inner edge of the hook-shaped jaw being substantially in line with or parallel to the side of the handle lever when the parts stop against each other, a pivot pin having a polygonal portion within the slot and a circular portion passing through a hole in the handle lever, and a screw passing through the pivot pin and acting to adjust the hook-shaped jaw in its relation to the handle lever, substantially as set forth.

3. The combination in a wrench for pipes and other articles, of a handle lever having an acute angled end forming a jaw with a chisel-shaped edge, a hook-shaped jaw having a shank at one side of and in line with the handle lever and slotted longitudinally, the inner surface of the hook-shaped jaw being substantially parallel to the end of the handle lever when the parts stop against each other, a pivot pin having a polygonal portion within the slot, a circular portion passing through a hole in the handle lever, and a screw acting to adjust the hook-shaped jaw in its relation to the handle lever, substantially as set forth.

521,313. PENCIL-SHARPENER. JAMES I. HALL, Kingston, Mass. Filed Feb. 26, 1894. Serial No. 501,526. (No model.)



Claim.—1. In a pencil sharpener, a reciprocable cutting blade, and means to direct its movement, combined with a yielding bed located beneath the path of movement of the blade, to support the pencil beneath its point and rearwardly therefrom while being sharpened, substantially as described.

2. In a pencil sharpener, an adjustable bed to support the pencil to be sharpened, combined with a reciprocable cutting blade movable above the bed, and guides for and in which the blade is pivotally supported, substantially as described.

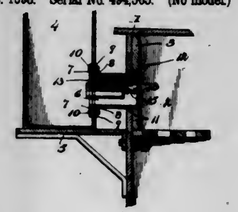
3. In a pencil sharpener, an elastic bed to support the pencil to be sharpened, and means to alter the angle of said bed, combined with a cutting blade adapted to be moved above the bed, trunnions on said blade to enter guides and pivotally sustain the knife in its movement, and guides at the sides of the bed substantially as described.

4. In a pencil sharpener, an elastic bed to support the pencil, and guides at the sides of and inclined with relation to said bed, combined with a cutting blade movable above the bed, and trunnions on said blade to enter the guides and pivotally support the blade, substantially as described.

5. In a pencil sharpener, a yielding bed, beneath and to support the pencil adjacent its point, a reciprocable cutting blade movable thereover, guides for the knife, and a removable stop adjustable on and to limit longitudinal movement of the pencil, substantially as described.

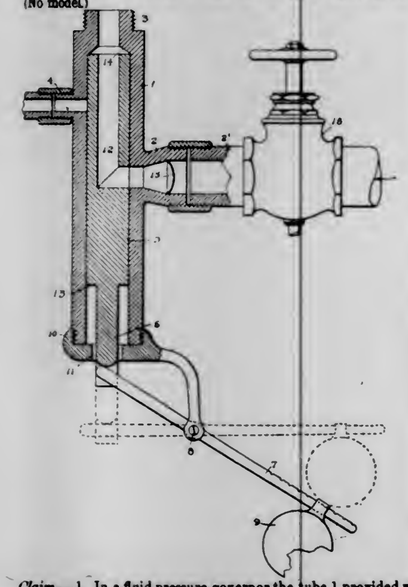
6. In a pencil sharpener, a yielding bed, a cutting blade movable thereover, and irregularly shaped guides to direct the blade and positively regulate the shape of the cut, substantially as described.

521,314. WATER-HEATER. JOHN S. HEATON, Shelbyville, Ky. Filed Dec. 23, 1893. Serial No. 494,565. (No model.)



Claim.—A water heating device for attachment to boilers, consisting of a shell carried by and arranged to communicate with the interior of the boiler, and a hollow part or member fitting removably in the shell with its sides in contact with the sides of the shell and removed from the latter at its top, bottom and outer end to provide a circulating passage, and interior of said part or member being in communication with the interior of the boiler, and its outer end being closed, substantially as specified.

521,315. PRESSURE-GOVERNOR FOR FLUIDS. WILLIAM HOFFMAN, Salt Lake City, Utah. Filed Jan. 13, 1894. Serial No. 496,791. (No model.)



Claim.—1. In a fluid pressure governor the tube 1 provided with suitable nipples 2 and 3 and a safety outlet 4, and the piston 5 having the bent passage 12, and the weighted lever pivoted to the piston rod to counterbalance a part of the downward pressure in the valve, the power arm of the said lever being lowest when the valve inlet is open and horizontal when the safety outlet is open whereby the leverage increases as the valve closes and reaches a maximum when the safety valve is open, substantially as set forth.

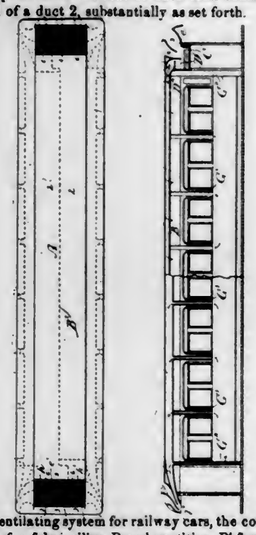
2. In a fluid pressure governor the tube 1 provided with suitable nipples 2 and 3 and a safety outlet 4, and the piston 5 having the bent passage 12, and means for counterbalancing part of the downward pressure on the valve, said means exerting a minimum effect when the inlet is fully open and a maximum when the safety outlet is open and the inlet closed, and said valve having greater surface exposed to the downward than to the upward pressure of the fluid, substantially as set forth.

3. In a fluid pressure governor the tube 1 provided with suitable nipples 2 and 3 and a safety outlet 4, and the piston 5 having a bent passage 12 whereby the passages through the nipples may communicate, said piston exposing more surface to downward pressure than to upward pressure, and when the inlet is closed exposing no surface to pressure from the main in either direction of its (the piston's) path; and having means distinct from said upward pressure for moving it to open the inlet, said means having a maximum effect when the inlet is closed, all substantially as set forth.

521,316. VENTILATING RAILWAY-CARRIAGES. SAMUEL HUGHES, Lindsay, Canada. Filed July 25, 1893. Serial No. 481,387. (No model.)

Claim.—1. In a ventilating system for railway carriages, the combination with the carriage roof of a false ceiling B in the monitor roof provided with screened adjustable openings, false ceilings B″ extending from the sides of the monitor roof to the sides of the carriage and a channel G formed to adjoin each side of the monitor roof, and complete a false ceiling formed in sections and partly or wholly serving the purpose of channels or ducts, substantially as set forth.

2. In a ventilating system for railway cars, the combination with the car roof of a false ceiling B and partition B′ forming two ducts 2 each closed at one end, a tank C at each end of the car, a connecting pipe or uptake D at the rear of each tank connecting said tank with one end of a duct 2, substantially as set forth.



3. In a ventilating system for railway cars, the combination with the car roof of a false ceiling B and partition B′ forming two ducts 2 closed at one end and having at its lower surface a series of openings, a connecting pipe or uptake D at the other end of each duct, heating pipes D″ in said uptake, a wire screen D′ at the bottom of said uptake, a tank C at each end of the car communicating with one of the ducts by said uptake and a blast funnel or injector E on each tank, substantially as set forth.

4. In an over head tank for a ventilating system for railway cars, a bottom c sloping to one side, an overflow pipe and draw-off-pipe with cock at the lowest point of the bottom, a part of one end of the tank extending upward to form part of an inlet and the junction with the bottom made with a large curve and provided with a lip c'', a wire screen E″ hung at the opposite side of the inlet, an ice box F, an uptake D at the rear with wire screen at the mouth and lip dipping in the water at the front and an inlet for air, substantially as set forth.

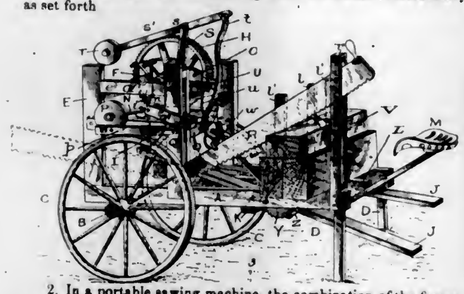
5. In a ventilating system for railway cars, the combination with the raised portion of the roof, of a series of three openings occupying the width of the raised portion of the roof near each end and each divided transversely by a partition and raised and curved rims to form mouths 3 and 4 in the center and 5 and 6 at each side of said center, the mouths nearest the end situated in the curved end of the roof so as to present an inclined face and said openings covered with wire gauze, said openings continued by downwardly projecting throats and through which said transverse partition partly extends, the throats of the central openings connecting with a tank and the side throats forming nozzles in the ends of ducts, substantially as set forth.

6. In a ventilating system for railway cars, the combination of ducts G formed on each side of the car roof and extending to each end of the same, branch pipes G′ and G″ connecting with said ducts and extending down the sides of the car and having one or more openings, and an ejector at each end of each duct having its mouth flush with the top of the car roof and divided transversely by a raised ridge in two parts facing in opposite directions and the end of their throats forming a nozzle in the ends of said ducts, substantially as set forth.

7. In a ventilating system for railway cars, the combination with the raised portion of the roof of openings formed therein and partly situated in the curved ends, said openings continued downward by contracting throats and terminating in nozzles inserted in the open ends of ducts, a partition dividing said throat and mouth transversely and said partition extending upward by a curved rim, substantially as set forth.

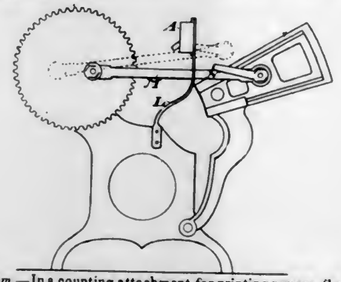
521,317. SAWING-MACHINE. JOHN JULEX, Monticello, Iowa. Filed Sept. 25, 1893. Serial No. 486,447. (No model.)

Claim.—1. In a portable sawing machine, the combination of an elongated wheeled frame having a rest portion at one end and a series of vertical rests arising from said rest portion for the material to rest there-against, a supplemental frame supported on one end of the wheeled frame, a swinging saw arm pivoted at one end to one side of the supplemental frame, a slotted guide for said saw arm, a double crank shaft journaled on said supplemental frame and carrying a gear wheel, a counter shaft geared with the crank shaft and having a crank wheel at one end, a pitman connected to said crank wheel and to the swinging saw arm, extended treadles or foot levers pivotally mounted on the wheeled frame and extended beyond one end thereof, connecting arms connected to the inner ends of the treadles and to the cranks of the crank shaft, a reciprocating saw pivoted at one end to the swinging end of the saw arm, an upright slotted guide extended from one end of the wheeled frame above the plane of the vertical rests to accommodate the movement of the free end of the saw, an operator's seat supported above and between the extended ends of the treadles, and an automatic lifting device for the saw, substantially as set forth



2. In a portable sawing machine, the combination of the frame, a swinging saw arm, means for swinging said arm, the reciprocating saw pivoted at one end to said saw arm, a swinging weight arm pivoted at its lower end to the frame opposite the saw arm and having a hook projecting from its lower end, a weighted bar arranged at the upper end of the arm, and cords or straps connected to one end of the weight bar and the top edge of the saw and to the hook and the saw, substantially as set forth.

521,318. COUNTING ATTACHMENT FOR PRINTING-PRESSES. HENRY LA FOUNTAIN, Cleveland, Ohio. Filed Jan. 15, 1894. Serial No. 497,008. (No model.)

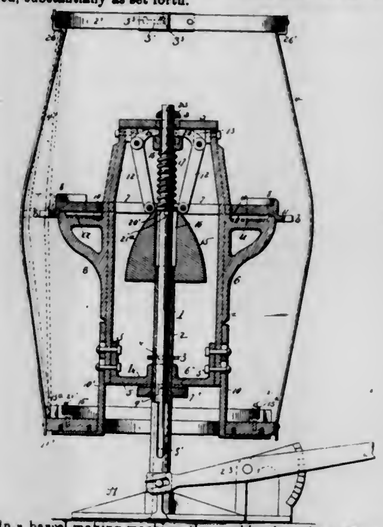


Claim.—In a counting attachment for printing presses, the counting mechanism consisting of box, A, shaft B journaled in said box, counting wheels C C mounted on said shaft and provided with gears, shaft D journaled in the box beneath the counting wheels, gears E mounted on said shaft D and meshing with the gears of said counting wheels, each of said gears E having a lip *e*, locking blocks J J pivotally mounted on a shaft K above said counting wheels C, said blocks having teeth *j*, *j*, engaging with the teeth of the counting wheel gears; weighted lever F loosely mounted on the end of shaft D, ratchet pinion G; also mounted on shaft D, pawl *g* attached to lever F and engaging with said ratchet pinion, stop pins $f f^3$ on the end of box A, push pins *h*, *h*, on said lever F, all constructed and combined to operate in conjunction with the throw-off mechanism of the press, substantially as described and for the purpose set forth.

521,319. BARREL-MAKING MACHINE. PIERCY LITTLE, Northumberland, Pa. Filed July 20, 1893. Serial No. 480,993. (No model.)

Claim.—1. In a barrel making machine, the combination with a platform, of spring rods projecting upwardly from the platform, and a band connected with the upper ends of these spring rods, said bands being substantially impenetrable and made expansible whereby it may be spread apart to furnish clearance for the removal of the barrel upwardly through it.

2. In a barrel making machine, the combination with a platform, of spring rods secured thereto and projecting upwardly from the platform, said rods having shoulders or ledges formed at or near their upper ends adapted to support a barrel hoop, and an expansible and substantially impenetrable band connected with the spring rods above the shoulders or ledges against which the nails are adapted to be clenched, substantially as set forth.



3. In a barrel making machine, the combination with a frame, and a platform vertically adjustable with relation to the frame, of spring rods projecting upwardly from the platform, and an expansible and substantially impenetrable band connected with the upper ends of these rods, substantially as set forth.

4. In a barrel making machine, the combination with a frame, and a platform vertically adjustable with relation thereto, of spring rods adjustable vertically at their lower ends relative to the platform and projecting upwardly, therefrom, and an expansible or separable band said band being substantially impenetrable and connecting the upper ends of these rods together, substantially as set forth.

5. In a barrel making machine, the combination with a platform, and spring rods projecting upwardly therefrom and bearing outwardly, of a separable and substantially impenetrable band connected with the upper ends of the rods, and a slotted latch plate pivoted to one end of the band and having an adjustable connection with a pin on the other end of the band, substantially as set forth.

6. In a barrel making machine, the combination with a frame, and segments for expanding a barrel carried by the frame, of fingers connected with said segments, small segments loosely connected to the ends of the main segments, and a tooth carried by each small segment substantially as set forth.

7. In a barrel making machine, the combination with a platform having studs projecting upwardly therefrom, of rods, and an expansible and substantially impenetrable band for connecting the upper ends of the rods together, substantially as set forth.

8. The combination with the expansible segments of a barrel making machine, of pivoted spring sustained fingers connected thereto, substantially as set forth.

9. In a barrel making machine, the combination with the expansible segments, of a small segment connected to the adjacent ends of each two expansible segments in such manner as not to interfere with the movements of said expansible segments, and a tooth or finger carried by said small segment, substantially as set forth.

10. In a barrel making machine, the combination with the expansible segments, of a small segment having elongated slots, located at the junction of two expansible segments, pins projecting from said expansible segments and adapted to enter said elongated slots in the small segment, and a tooth or finger projecting from the small segment, substantially as set forth.

11. In a barrel making machine, the combination with a series of expansible segments having recesses in their rims, at the junction of two segments, of a small segment having elongated slots, located in said recesses, pins projecting from the expansible segments and entering said elongated slots, and a tooth or finger projecting from said small segments, substantially as set forth.

521,320. COLUMN. NIELS POULSON, Fort Hamilton, N. Y. Filed Mar. 24, 1892. Serial No. 426,262. (No model.)

Claim.—1. A built-up wrought iron or steel column composed substantially as before set forth, of a central core of radially disposed bars each of which has a flange at the inner end by which it is riveted to the leg or web of one of the adjoining bars, and intermediately arranged reinforcing bars.



2. A continuous built-up wrought iron or steel column for tall structures or buildings of several stories composed, substantially as before set forth, of radially disposed bars each of which has a flange at the inner end by which it is riveted to the leg or web of one of the adjoining bars and abutting ends of each line of bars breaking joints with the abutting ends of the adjoining lines of bars.

3. A built-up wrought iron or steel column composed, substantially as set forth, of a central core of radially disposed bars each of which has a flange at the inner end by which it is riveted to the leg or web of one of the adjoining bars, and intermediately arranged reinforcing bars each provided with one or more strengthening ribs or flanges.

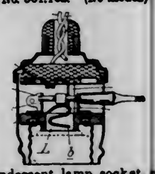
4. A built-up wrought iron or steel column composed, substantially as set forth, of angle bars arranged with their apexes at the axis of the column, and T-bars having their webs between and riveted to said angle-bars.

521,321. METHOD OF MAKING CAR-WHEELS. WILLIAM A. PEARSON, Schenectady, N. Y. Filed Dec. 8, 1893. Serial No. 493,184. (No model.)



Claim.—The method of making car wheels and car wheel centers which consists in forming billets of scrap or bars, the pieces being arranged so that their fiber is interwoven or matted, heating said billets to a welding temperature, forging said billets into half wheel blanks, placing said blanks back to back in pairs, with pieces of metal interposed to permit of proper heating and compensate for deficiencies in the blanks, and then reheating said pairs of blanks and forging them into finished wheels or wheel centers in suitable dies, substantially as described.

521,322. INCANDESCENT-LAMP SOCKET. LUKE R. PECK, St. John's, Mich., assignor of one-half to Robert G. Steel, same place. Filed Feb. 23, 1894. Serial No. 501,163. (No model.)



Claim.—1. An incandescent lamp socket, comprising an upper disk to which the conductors are secured, contacts thereon, a second disk carrying the lamp contacts, a switch, and posts forming a part of the circuit, detachably engaging with the contacts on the upper disk, substantially as described.

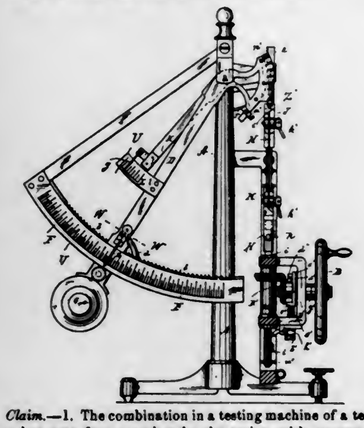
2. An incandescent lamp socket, comprising an upper disk to which the conductors are secured, contacts thereon, a lower disk carrying the lamp contacts, a switch and posts forming a part of the circuit, and heads on the posts adapted to detachably engage with the contacts on the upper disk substantially as described.

3. An incandescent lamp socket, comprising the upper and lower disks detachably secured together by posts forming a part of the circuit, a casing and means engaging the casing for securing the two parts against rotation, substantially as described.

4. An incandescent lamp socket, comprising the upper and lower disks, posts forming a part of the circuit secured to one disk and adapted to detachably engage with the contacts on the other by a partial rotation, and a detachable casing locking the disks against rotation, substantially as described.

5. An incandescent lamp socket, comprising the frame consisting of two disks or heads of insulating material, segmental raised conductor terminal contacts on the upper disk, lamp contacts on the lower disk, posts on the lower disk having heads detachably engaging with the segmental contacts by a partial rotation, and fusible strips connecting the posts with the lamp contacts, substantially as described.

521,323. TESTING-MACHINE. LOUIS SCHOPPER, Leipsic, Germany. Filed July 12, 1893. Serial No. 480,221. (No model.) Patented in Germany Nov. 9, 1888, No. 47,745, Apr. 3, 1890, No. 53,635, and Jan. 28, 1891, No. 58,982; in Austria-Hungary Sept. 2, 1889, No. 10,577 and No. 29,542, and in England Nov. 15, 1890, No. 18,431.



Claim.—1. The combination in a testing machine of a tension lever and an arm for measuring the elongation, with an upper clamp secured to the tension lever and with a lower movable clamp connected to the arm, substantially as specified.

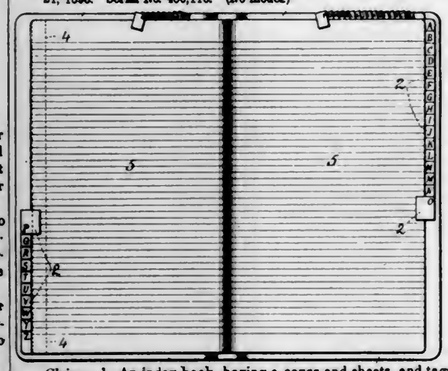
2. The combination of scale F, having rack *b*, with weighted lever D, having pawl *d*, lever R, having nose *s*, slide P, having projection *t*, and with rod *e* connected to the slide, and lever K connected to the rod, substantially as specified.

3. The combination of weighted lever D, having segment n', with lever K, having toothed segment n^3, and with chain Z', for engaging segment n', and rack *e*, for engaging segment n^3, substantially as specified.

4. The combination of lever D, with clamp J, having pin i', and with catch T, having notch a', to engage said pin, substantially as specified.

5. The combination of shaft g', with spindle *i*, having head u' lever h', pin d', plate c', having pin d^3, and with bevel wheel R', having pin d', substantially as specified.

521,324. INDEX. JOHN R. SPEARS, Brooklyn, N. Y. Filed Sept. 21, 1893. Serial No. 486,110. (No model.)

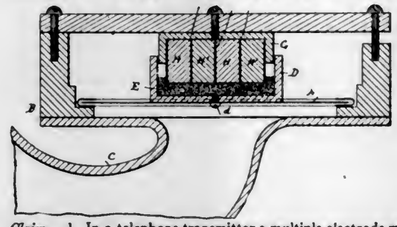


Claim.—1. An index book, having a cover and sheets, and tags fastened to the edges of the sheets and projecting, and containing the letters of the alphabet, such tags being placed at an inclination to the edges of the sheets to cause one corner of each tag to project beyond the end of the next tag to facilitate the handling of the tags and the turning of the sheets, substantially as set forth.

2. In an index book, tags having letters of the alphabet and attached at the top edges of the sheets at an inclination, so that the corners project, in combination with a second set of tags projecting at the outer edges of the sheets and having alphabet letters on each surface substantially as specified.

3. An index book, having a cover and sheets, and tags fastened to the edges of the sheets and projecting, and containing the letters of the alphabet on each of their surfaces, such tags being placed at an inclination to the top edges of the sheets to cause one corner of each tag to project beyond the end of the next tag to facilitate the handling of the tags and the turning of the sheets, substantially as set forth.

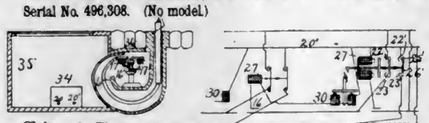
521,325. TELEPHONE-TRANSMITTER. JOSEPH R. SMITH, Manchester, N. H. Filed Apr. 27, 1894. Serial No. 509,199. (No model.)



Claim.—1. In a telephone transmitter a multiple electrode made in sections the alternate insulated layers of which are connected together combined with a cup containing finely divided conducting material supported on a diaphragm and adapted to vibrate in unison with the latter substantially as and for the purpose set forth.

2. In a telephone transmitter a multiple electrode made in sections the alternate insulated layers of which are connected together and rigidly supported combined with a cup containing finely divided conducting material supported on a diaphragm and adapted to vibrate in unison with the latter substantially as specified.

521,326. CONDUIT SUPPLY SYSTEM FOR ELECTRIC RAILWAYS. HARRY ALEXANDER, New York, N. Y. Filed Jan. 9, 1894. Serial No. 496,308. (No model.)



Claim.—1. The combination with a slotted electric railway conduit, of a conductor supporting trough, having a side extending down from the conduit slot, and having a bottom and upturned side, and a working conductor supported in said trough, substantially as described.

2. The combination with a slotted electric railway conduit, of a conductor supporting trough, having a side extending down from the conduit slot, and having a bottom and upturned side, and a working conductor supported by insulators mounted in said trough, substantially as described.

3. The combination of a slotted railway conduit, a conductor supporting trough, the inside of which is coated with a film or coating, insulators supported on the same, and a working conductor carried by the insulators, substantially as described.

4. The combination of a slotted conduit, a plate extending down from the slot into the conduit, and a working conductor supported by means carried at the bottom of said plate.

5. The combination of a supply conductor, a sectional working conductor, normally open branches between the supply and working conductors, and switches with operating magnets and detent magnets in branches distinct from the first mentioned branches.

6. The combination of a supply conductor, a sectional working conductor, normally open branches between the supply and working conductors, switches each having a magnet 27, a circuit closing device for one of said branches, a detent magnet and armature, the magnet 27 and the detent magnet being in branches distinct from the first mentioned branch.

7. The combination of a slot iron, a conductor supporting trough connected thereto, as described, one or more conductors with exposed contact surfaces supported on said trough but insulated therefrom, and of a length equal to the length of the trough, whereby the troughs and conductor sections can be made up as complete articles and placed end to end in a conduit.

8. The combination in a switch of a magnet 27, its armature adapted to close a circuit, a hook or detent device 28, a pivoted latch 29 to engage the same, and a magnet, 30, to the armature of which said latch is connected for disengaging said parts, substantially as described.

9. The combination of a conduit, a single conductor trough therein, and supported by a plate extending down from the conduit slot, and two conductors supported by said trough, substantially as described.

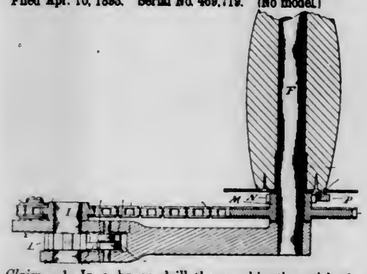
10. A current collector of channel form with flaring ends and interior contact springs, substantially as described.

11. A current collector of channel form with flaring ends, and interior contact springs arranged to make contact with several sides of a working conductor.

12. An insulator consisting of an insulating body and means for supporting the conductor on the upper end thereof, and a bracket supported by the same insulator and adapted to support a supplementary conductor in fixed relation to the first mentioned conductor, substantially as described.

13. The combination in an insulator of a body 10, an insulating cap 13 thereon, and having a groove 14 therein, and a bracket 15, supported in said groove, substantially as described.

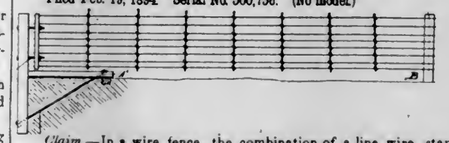
521,327. BRACE-DRILL. ELLIOT E. ANTHONY, Detroit, Mich. Filed Apr. 10, 1893. Serial No. 469,719. (No model.)



Claim.—1. In a brace drill the combination with the socket, crank and handle journaled on the crank, of a sprocket wheel journaled below the handle, a ratchet wheel formed integral with the sprocket wheel, oppositely arranged spring pawls on the lower end of the handle adapted to be engaged with the ratchet wheel, a shaft at the upper end of the socket, a sprocket wheel and a ratchet wheel on said shaft, a sprocket chain connecting the wheel on the crank with the sprocket wheel on the shaft, and two oppositely arranged pawls arranged to engage the ratchet wheel on the shaft, substantially as described.

2. In a brace drill, the combination with the socket and crank having a slot therein, of a shouldered screw slidingly secured in said slot, an idler wheel journaled on said screw, a sprocket wheel on the crank, a sprocket wheel on the socket, a sprocket chain passing around the idler wheel and sprocket wheel on the crank and engaging the sprocket wheel on the socket, and a screw on the crank engaging the shouldered screw for adjusting the idler wheel, substantially as described.

521,328. WIRE FENCE. MARVIN BERDAN, Plymouth, Mich. Filed Feb. 19, 1894. Serial No. 500,756. (No model.)



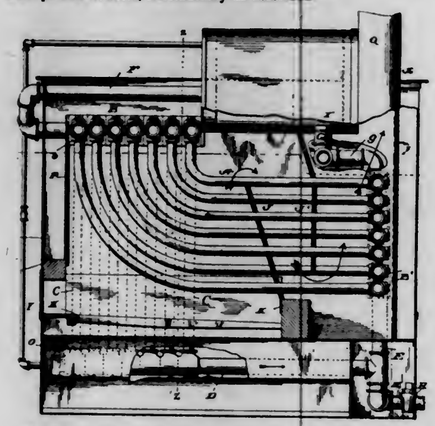
Claim.—In a wire fence, the combination of a line wire, stay wires twisted from end to end, said stay wires provided with openings one to each line wire, and the staples locked diagonally across the line and stay wires, substantially as described.

521,329. STEAM-GENERATOR. DAVID BIRDSALL, Jersey City, N. J. Filed Apr. 17, 1893. Serial No. 470,650. (No model.)

Claim.—1. The combination in a generator, of a series of horizontal rows of bent tubes having their lower ends connected to the rear portion of the generator and their upper ends connected to a series of headers arranged close together and horizontally and transversely of the furnace and forming a closed wall thereof, said headers having flanges and openings to connect each header with the adjacent headers, and all the tubes of each horizontal row being connected to the same header, substantially as described.

2. The combination in a generator, of a series of headers arranged in a vertical plane, a series of headers arranged in a horizontal plane and the members of each series being arranged close together to form a closed wall of the furnace and smoke passage and

communicating near their ends, both series transversely of the generator, and a series of horizontal rows of bent tubes connecting said headers, all the tubes of each horizontal row being connected to the same pair of headers, substantially as described.



3. The combination in a generator, of a series of rear headers arranged in a vertical plane, a series of front headers arranged in a horizontal plane, and the members of each series being arranged close together to form a closed wall of the furnace and smoke passage and communicating near their ends, both series transversely of the generator, and a series of horizontal rows of bent tubes having their lower ends entering the vertical sides of the rear headers, and their upper ends entering the under sides of the front headers, and all the tubes of each horizontal row being connected to the same pair of headers, substantially as described.

4. The combination in a steam generator, of a series of upper tubular headers arranged in a horizontal plane, a corresponding series of lower headers arranged in a vertical plane and both transversely of the generator, a series of bent tubes connecting said headers, a pair of base tubes connected to the rear headers, and a series of pairs of vertical tubes connected to the opposite ends of the upper headers, each upper header having a connection with the base tubes by a pair of vertical tubes, independently of the others, substantially as described.

5. The combination in a generator and with the horizontal series of transverse headers B, the curved tubes A and base tubes D D′, connections between the base tubes and the lower ends of the curved tubes of a series of pairs of down tubes C connecting each of said headers to the base tubes by an independent connection, substantially as described.

6. The combination in a generator, of the horizontal series of headers B, the vertical series of headers B′, the bent tubes A running from one series of headers to the other, the base pipes D D′ connected with the rear series of headers, and a series of pairs of down tubes C connecting each top header with the base pipes independently of the other headers, substantially as described.

7. The combination in a steam generator, of a vertical series of headers B′, a horizontal series of headers B, curved tubes A connecting said two series of headers, a drum I arranged at the end of the horizontal series and connected with both series, pipes D D′ connected with the vertical series of headers, a series of pairs of pipes C connecting the horizontal series of headers to the pipes D D′, each upper header being connected to the pipes D by a separate pair of pipes, and a casing P between the pipes C and the furnace, substantially as described.

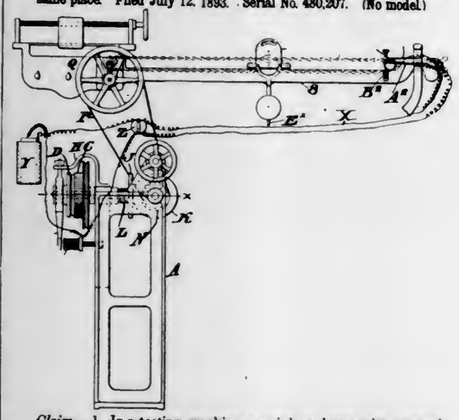
8. The combination of a series of upper headers B, arranged in a horizontal plane, a corresponding series of lower headers B′ arranged in a vertical plane and both series set transversely of the furnace, horizontal rows of tubes A, each tube having one of its ends turned upward and connecting the two series of headers, all the tubes in each horizontal row entering one header in the vertical series and their up-turned ends entering a header in the horizontal series, a drum I arranged at the end of the horizontal series of headers and connected with both series, pipes D D′ connected with the vertical series of headers, a series of pairs of pipes C connecting the horizontal series of headers to the pipes D D′ each header of the upper series being connected to the pipes D D′ by a separate pair of said pipes C, walls N and casing P between the pipes C and furnace, the bridge K at the end of the furnace, and plates J J for directing the currents of the products of combustion, all constructed and arranged substantially as shown and described.

521,330. PNEUMATIC TIRE. ALBERT J. BURNS, Fairport, N. Y. Filed Jan 4 1894. Serial No. 495,711. (No model.)



Claim.—The combination, with the tire A and its supplementary inflatable tubes C C C, of the reservoir D attached to the rim of the wheel but located apart therefrom, the nozzles *c c c* screwed through the reservoir, forming valve seats inside the same, the set of independent valves *f f* attached to screw stems *g g* also located inside the reservoir, and the set of flexible pipes *b b b* connected with the nozzles and extending to the inflatable tubes, as shown and described and for the purpose specified.

521,331. ELECTRIC APPARATUS FOR AUTOMATIC WEIGHING. CHARLES E. BUSBY, Philadelphia, Pa., assignor to Frederick A. Riehle, same place. Filed July 12, 1893. Serial No. 480,207. (No model.)



Claim.—1. In a testing machine, a weighing beam with a traveling poise, an electric circuit with magnet, and contact points, a shaft having therein a loosely-mounted pulley with a clutch member, a friction wheel splined on said shaft, a lever connected with the clutch member and carrying an armature, a second friction wheel adjustable across the face of the first mentioned friction wheel and in contact therewith, and mechanism substantially as described connecting said adjustable friction wheel with operating mechanism for said poise, said parts being combined substantially as described.

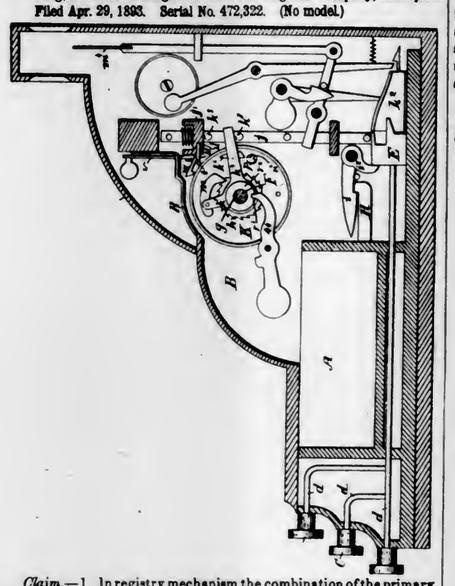
2. A testing machine having a weighing beam with a poise therein, an electric circuit with contact points and a magnet, a screw on said beam adapted to contact with one of said contact points and close said circuit, a shaft with a loose pulley thereon, a clutch member keyed on said shaft with operating lever and armature, a friction wheel rotatable with said shaft, a second rotary shaft carrying a friction wheel rotatable therewith and in contact with said first mentioned friction wheel, and a pulley on said second shaft having a belt connection with a pulley in the poise traveling mechanism, said parts being combined substantially as described.

3. A testing device having a weighing beam with a traveling poise thereon, an electric circuit with contact points and a magnet, a shaft with a loose pulley thereon, and a clutch member, a lever and armature for operating said clutch, a friction wheel keyed on said shaft, a second shaft with a friction wheel keyed thereon and in contact with said first mentioned friction wheel, a spring bearing against said first mentioned friction wheel, a pulley on said second shaft, belt and pulleys for reciprocating said poise and operating mechanism between and connecting said poise reciprocating mechanism and said last mentioned shaft pulley, said parts being combined substantially as described.

4. A testing machine having a weighing beam with a poise thereon, an electric circuit with contact points for closing the said circuit, and a magnet, a switch operated by a projection on the poise for breaking the circuit, a loose pulley driven by the motor of the machine, mechanism consisting of bands, wheels and pulleys for moving the said poise, and a clutch with operative mechanism for connecting said loose pulley and said poise operating mechanism, said parts being combined substantially as described.

5. In a testing machine, a beam and a traveling poise thereon mechanism including a clutch for operating said poise, a lever for the movable member of said clutch, an armature on said lever, and a magnet for said armature, an electric circuit and a switch therein, in combination with means on said poise adapted to engage said switch for breaking the circuit, substantially as described.

521,332. CASH-REGISTER. THOMAS CARROLL, New Haven, Conn., assignor to the Hubinger Carroll Cash Register Company, same place. Filed Apr. 29, 1893. Serial No. 472,322. (No model.)

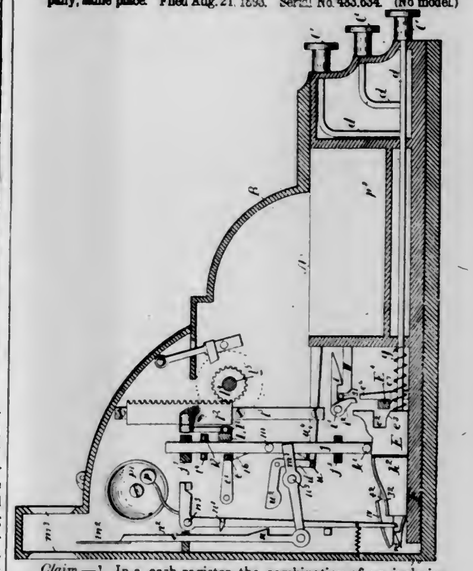


Claim.—1. In registry mechanism the combination of the primary and secondary wheels, arranged to rotate upon a common axis, a pawl and ratchet for imparting ratchet motion to the primary wheel by movement of an external operating part, pawl and ratchet mechanism substantially as described, adapted to periodically actuate the secondary wheel by rotation of the primary wheel, said primary wheel bearing a series of numbers in arithmetical progression proceeding from zero, and the secondary wheel bearing a similar series of numbers in arithmetical progression proceeding from zero and having a common difference equal to the divisions of the wheel multiplied by the common difference of the series of the primary wheel, said numbers being arranged substantially perpendicular to the rotating plane of the wheels, and with the decimal points of corresponding numbers of the respective wheels in alignment, whereby in the collective readings of a pair of wheels, units are brought under units, tens under tens, and hundreds under hundreds, in conformity with the rule governing the addition of decimals, substantially as and for the purpose specified.

2. In cash registry mechanism the combination of a shaft, a series of registering wheels loosely mounted thereon in pairs or sets each comprising a primary and secondary wheel, ratchets carried by the wheels, friction washers mounted upon the shaft intermediate of the wheels and secured to turn with the shaft but adapted to lengthwise movement thereon, a spring and adjusting nut for regulating the friction of said wheels and washers, pawls and operating levers for actuating the primary wheels, rotating pawls carried by the primary wheels and adapted to operate the ratchets of the secondary wheels, springs for holding said rotating pawls normally out of engagement with said ratchets, cams carried by the operating levers and adapted to engage the rotating pawls with the ratchets of the secondary wheels, a detent pawl extended over the entire series of registering wheels, and projections or shoulders carried by the primary wheels and arranged and adapted to engage the detent pawl to hold the wheel against backward movement from the thrust of the cams of the operating levers against the rotating pawls, substantially as and for the purpose specified.

3. In cash registry mechanism the combination of a shaft, a series of registering wheels loosely mounted thereon in pairs or sets each comprising a primary and secondary wheel, friction washers interposed between the wheels and secured to turn with the shaft but adapted to longitudinal movement thereon, ratchets carried by the wheels, independent pawls for operating the primary wheels, rotating pawls carried by the primary wheels and adapted to actuate the ratchets of the secondary wheels, cam mechanism substantially as described for engaging said rotating pawls and their ratchets, means for regulating the friction of the friction washers against the registering wheels, a detent pawl common to the entire series of wheels, stop projections on the wheels for engaging the said detent pawl simultaneously with the engagement of the rotating pawls and their ratchets, a resetting stop or bar guided in bearings in the case, in juxtaposition to the series of wheels, and provided with tongues and notches corresponding to the stop projections of the wheels, and respectively adapted to engage and intercept the stop shoulders of one or both series of the registering wheels, or to permit their free rotation, corresponding to the position of the stop in its bearings, substantially as and for the purpose specified.

521,333. TOTAL-ADDING CASH-REGISTER. THOMAS CARROLL, New Haven, Conn., assignor to the Hubinger Carroll Cash Register Company, same place. Filed Aug. 21, 1893. Serial No. 483,634. (No model.)



Claim.—1. In a cash register the combination of an inclosing case, a cash drawer therein, a series of exterior knobs or drawer pulls having operating shanks or rods guided and adapted to a limited independent movement in the drawer, means for locking the drawer in the case, comprising a fixed hook and a vibrating latch relatively mounted upon the drawer and case, a series of vibratory dogs or arms connected to swing conjointly with the latch, engaging heads for operating said dogs and the latch to release the drawer by initial movement of the drawer pulls, a series of trips normally supported by the said engaging heads, a series of operating cams for depressing said trips in the forward movement of the drawer and elevating them on the return travel thereof, as determined by the initial manipulation of the drawer pulls, a registering lever adapted to be operatively engaged by said trips and actuated through arcs or distances respectively corresponding to the numbers or representative values of the corresponding drawer pulls, and registering mechanism connected with and adapted to be operated by said lever, whereby the registration effected by the respective trips and their operating mechanism is aggregated mechanically, substantially as specified.

2. In a cash register the combination of an inclosing case, a cash drawer therein, a series of exterior knobs or drawer pulls having operating shanks or rods guided and adapted to a limited independent movement in the drawer, means for locking the drawer in the case, comprising a fixed hook and a vibrating latch relatively mounted upon the drawer and case, a series of vibratory dogs or arms con-

nected to swing conjointly with the latch, engaging heads for operating said dogs and the latch to release the drawer by initial movement of the drawer pulls, a series of trips normally supported by the said engaging heads, a series of operating cams for depressing said trips in the forward movement of the drawer and elevating them on the return travel thereof, as determined by the initial manipulation of the drawer pulls, a registering lever pivoted to swing in a plane substantially parallel to the plane of the trips, projections or driving shoulders carried by the trips and adapted to actuate the lever through arcs or distances corresponding respectively to the numbers or representative values of the corresponding drawer pulls, and registering mechanism connected with and adapted to be operated by said lever, whereby the registration of the various trips of the series is rendered total adding, substantially as described.

3. In a cash register the combination with the registering wheels and their actuating pawls and ratchets, of an inclosing case, a lever fulcrumed or pivoted therein, operating connections for transmitting the motion of the lever to the registering mechanism, a cash drawer, a series of exterior knobs or drawer pulls having operating shanks or rods guided and adapted to a limited independent movement in the drawer and provided with engaging heads, a hook carried upon the cash drawer, springs for retaining the knobs, shanks, and engaging heads at the rearward limit of their travel, a latch adapted to engage therewith to lock the drawer in closed position, a series of operating dogs connected to vibrate conjointly with the latch by initial action of the drawer pulls, a series of operating cams mounted on the cash drawer corresponding to the drawer pulls, a series of trips guided and adapted to a limited reciprocating movement in the case normally supported by the engaging heads and adapted through release by the initial action of the drawer pulls, to be tripped or switched into operative engagement with the cams, said trips being arranged along the lever at distances from the fulcrum corresponding inversely to the numbers or representative values of the corresponding drawer pulls, and provided with shoulders or projections for engaging and actuating the lever by the movement of the drawer, and through spaces corresponding to the value or number of the drawer pull manipulated, thereby rendering the mechanism total adding, substantially as specified.

4. In a cash register the combination with the registering wheels and their actuating pawls and ratchets, of an inclosing case, a lever fulcrumed or pivoted therein, operating connections for transmitting the motion of the lever to the registering mechanism, a cash drawer, a series of exterior knobs or drawer pulls having operating shanks or rods guided and adapted to a limited independent movement in the drawer and provided with engaging heads, a hook carried upon the cash drawer, springs for retaining the knobs, shanks, and engaging heads at the rearward limit of their travel, a latch adapted to engage therewith to lock the drawer in closed position, a series of operating dogs connected to vibrate conjointly with the latch by initial action of the drawer pulls, a series of operating cams mounted on the cash drawer corresponding to the drawer pulls, a series of trips guided and adapted to a limited reciprocating movement in the case normally supported by the engaging heads and adapted through release by the initial action of the drawer pulls, to be tripped or switched into operative engagement with the cams, said trips being arranged parallel and equidistant in a plane parallel with the swinging plane of the lever, and provided with driving projections for engaging and operating the lever by the motion of the cash drawer, the corresponding drawer pulls of the respective trips representing values in arithmetical progression, and the highest trip in the series being placed at a distance from the fulcrum of the lever corresponding to the distance of the trips apart, substantially as and for the purpose specified.

5. In a total adding cash register, the combination of an inclosing case, a cash drawer, a locking hook thereon, a latch for engaging the locking hook and a series of operating dogs or arms connected with the latch, a series of movable knobs or handles and their rods or operating shanks, guided in the drawer, engaging heads thereon having their planes of motion coincident with the vibrating paths of the said operating dogs; a lever, fulcrumed or pivoted in the case, a rack, guided in the case and connected with said lever, a pinion intermeshing with said rack, the registering wheels, pawl and ratchet motion for operating the primary registering wheel by said pinion, pawl and ratchet mechanism for periodically operating each of the remaining registering wheels by the motion of the wheel next preceding, a series of cams or motive mechanism carried by the cash drawer and corresponding to the drawer pulls, and a series of trips adapted to be operatively connected with the said cams and the lever by the initial action of the drawer pulls, said trips being arranged to act upon the lever at distances from its fulcrum or center corresponding inversely to the numbers or representative values of the corresponding drawer pulls, and means for restoring the lever to its normal position after registration, substantially as and for the purpose specified.

6. In a cash register the combination with the registering wheels and their actuating pawls and ratchets, of an inclosing case, a lever fulcrumed or pivoted therein, operating connections for transmitting the motion of the lever to the registering mechanism, a cash drawer, a series of exterior knobs or drawer pulls having operating shanks or rods guided and adapted to a limited independent movement in the drawer and provided with engaging heads, a hook carried upon the cash drawer, springs for retaining the knobs, shanks, and engaging heads at the rearward limit of their travel, a latch adapted to engage therewith to lock the drawer in closed position, a series of operating dogs connected to vibrate conjointly with the latch by initial action of the drawer pulls, a series of operating cams mounted on the cash drawer corresponding to the drawer pulls, a series of trips guided and adapted to a limited reciprocating movement in the case normally supported by the engaging heads and adapted through release by the initial action of the drawer pulls, to be tripped or switched into operative engagement with the cams, said trips being arranged parallel and equidistant in a plane parallel with the swinging plane of the lever, and provided with driving projections for engaging and operating the lever by the motion of the cash drawer, the corresponding drawer pulls of the respective trips representing values in arithmetical progression, the highest trip in the series being placed at a distance from the fulcrum of the lever corresponding to the distance of the trips apart, and means for elevating or restoring the lever to the normal or elevated position after registration, substantially as and for the purpose specified.

8. In registering mechanism the combination of a series of registering wheels, suitable pawls and ratchets carried by the wheels, each ratchet adapted to be periodically actuated by the pawl of the wheel next preceding in the series, an oscillating cam bar hinged or pivoted eccentric to the wheels, a series of cams carried by said bar and adapted by oscillation thereof to be projected into or out of the paths of the pawls to engage the pawls with their ratchets in the normal rotation thereof, or permit their uninterrupted revolution in resetting the wheels at zero, substantially as specified.

9. In registering mechanism the combination of a series of registering wheels, suitable pawls and ratchets carried by the wheels, each ratchet adapted to be periodically actuated by the pawl of the wheel next preceding in the series, an oscillating cam bar hinged or pivoted eccentric to the wheels, a series of cams carried by said bar and adapted by oscillation thereof to be projected into or out of the paths of the pawls to engage the pawls with their ratchets in the normal rotation thereof, or permit their uninterrupted revolution in resetting the wheels at zero, the said oscillating bar having an edge or abutment on the side of the fulcrum opposite the said cams adapted to be swung into juxtaposition with the periphery of the registering wheels as the cams are swung out of the path of the pawls, and the wheels being provided with resetting stops or projections adapted to be intercepted by the said abutment to stop the wheels at zero, substantially as specified.

10. In registering mechanism the combination of a series of registering wheels, suitable pawls and ratchets carried by the wheels, each ratchet adapted to be periodically actuated by the pawl of the wheel next preceding in the series, an oscillating cam bar hinged or pivoted eccentric to the wheels, a series of cams carried by said bar and adapted by oscillation thereof, to be projected into or out of the paths of the pawls to engage the pawls with their ratchets in the normal rotation thereof, or permit their uninterrupted revolution in resetting the wheels at zero, the said oscillating bar having an edge or abutment on the side of the fulcrum opposite the said cams adapted to be swung into juxtaposition with the periphery of the registering wheels as the cams are swung out of the path of the pawls, and the wheels being provided with resetting stops or projections adapted to be intercepted by the said abutment to stop the wheels at zero, and the bar being provided with a handle adapted to project out of the inclosing case of the mechanism through the opening formed by removal of the cover, when swung into the position for resetting the registering wheels at zero, whereby the restoration of the parts to working position will be insured by the act of closing the case, substantially as and for the purpose specified.

11. In registering mechanism the combination of a series of registering wheels, suitable pawls and ratchets carried by the wheels, each ratchet adapted to be periodically actuated by the pawl of the wheel next preceding in the series, an oscillating cam bar hinged or pivoted eccentric to the wheels, a series of cams comprising looped or U shaped strips inserted in parallel transverse notches milled in the edge of the bar, each loop forming two cams and being secured to the bar by a screw through the back or bridge portion of the loop, and the ends of said strips being suitably beveled or inclined and adapted by projection into the paths of the pawls by oscillation of the bar to engage the pawls in their revolution and actuate them into engagement with the corresponding ratchets to periodically actuate each wheel by the rotation of the wheel next preceding in the series, substantially as and for the purposes specified.

12. In a cash register the combination of an inclosing case, a cash drawer therein, a series of exterior knobs or drawer pulls having operating shanks or rods guided and adapted to a limited independent movement in the drawer, locking means for securing the drawer in the case, comprising a fixed hook, a vibrating latch relatively mounted upon the drawer and the case, and a series of vibratory dogs or arms connected to swing conjointly with the latch, a series of engaging heads corresponding to and adapted to actuate the dogs by initial action of the drawer pulls, each provided with a slot or recess having one side beveled or inclined to its plane of motion to form a cam surface, and a locking bar or lever pivoted and arranged in juxtaposition to the faces of said engaging heads and in the paths of the inclined cam surfaces thereof, thereby being adapted by withdrawal of any individual engaging head in the initial action of a drawer pull, to be cammed or swung into engagement with the slot or recess thereof, and oblique to or out of alignment with the remaining slots of the series, whereby the action of one of the engaging heads will lock or bar the movement of all the other drawer pulls of the series, substantially as and for the purpose specified.

13. In a cash register the combination of an inclosing case, a cash drawer therein, a series of exterior knobs or drawer pulls having operating shanks or rods guided and adapted to a limited independent movement in the drawer, locking means for securing the drawer in the case, comprising a fixed hook, a vibrating latch relatively mounted upon the drawer and the case, and a series of vibratory dogs or arms connected to swing conjointly with the latch, a series of engaging heads corresponding to and adapted to actuate the dogs by initial action of the drawer pulls, each provided with a rectangular slot or recess in its front face having the lower front edge thereof beveled or inclined to the plane of motion of the engaging head and forming a cam surface thereon, and a locking bar or lever adapted to fit and be received in the said slots and pivoted or hinged to swing in juxtaposition to the faces of the engaging heads, normally arranged in the plane of said inclined cams, whereby in the withdrawal of an engaging head by initial action of the corresponding drawer pull, the lever will be engaged with the slot of the head and thrown out of alignment with the remaining slots of the series to bar or intercept the engaging heads, substantially as and for the purpose specified.

14. In a cash register the combination of an inclosing case, a cash drawer therein, a series of exterior knobs or drawer pulls, having operating shanks or rods guided and adapted to a limited independent movement in the drawer, locking means for securing the drawer in the case, comprising a fixed hook, a vibrating latch relatively mounted upon the drawer and the case, and a series of vibratory dogs or arms connected to swing conjointly with the latch, a series of engaging heads corresponding to and adapted to actuate the dogs by initial action of the drawer pulls, each provided with a rectangular slot or recess in its front face having the lower front edge thereof beveled or inclined to the plane of motion of the engaging head and forming a cam surface thereon, and a locking bar or lever adapted to fit and be received in the said slots and pivoted or hinged to swing in juxtaposition to the faces of the engaging heads, normally arranged in the plane of said inclined cams, whereby in the withdrawal of an engaging head by initial action of the corresponding drawer pull, the lever will be engaged with the slot of the head and thrown out of alignment with the remaining slots of the series to bar or intercept the engaging heads, a series of operating cams or motive mechanisms carried by the cash drawer, and a series of trip mechanisms corresponding to the drawer pulls and adapted to operatively connect the registering and indicating mechanisms, with the motive mechanism by the initial independent action of the drawer pulls, substantially as specified.

15. In a sectional adding cash register, the combination of the series of movable knobs or handles and their rods or operating shanks guided in the drawer, engaging heads thereon, each provided with a slot or recess having one side beveled or inclined to its plane of motion to form a cam surface, and a locking bar or lever pivoted and arranged in juxtaposition to the faces of said engaging heads and in the paths of the inclined cam surfaces thereof, thereby being adapted by withdrawal of any individual engaging head in the initial action of a drawer pull, to be cammed or swung into engagement with the slot or recess thereof, and oblique to or out of alignment with the remaining slots of the series, whereby the action of one of the engaging heads will lock or bar the movement of all the other drawer pulls of the series, substantially as and for the purpose specified.

16. In a cash register the combination of an inclosing case, a cash drawer therein, a series of exterior knobs or drawer pulls having operating shanks or rods guided and adapted to a limited independent movement in the drawer, locking means for securing the drawer in the case, comprising a fixed hook, a vibrating latch relatively mounted upon the drawer and the case, and a series of vibratory dogs or arms connected to swing conjointly with the latch, a series of engaging heads corresponding to and adapted to actuate the dogs by initial action of the drawer pulls, each provided with a slot or recess having one side beveled or inclined to its plane of motion to form a cam surface, and a locking bar or lever pivoted and arranged in juxtaposition to the faces of said engaging heads and in the paths of the inclined cam surfaces thereof, thereby being adapted by withdrawal of any individual engaging head in the initial action of a drawer pull, to be cammed or swung into engagement with the slot or recess thereof, and oblique to or out of alignment with the remaining slots of the series, whereby the action of one of the engaging heads will lock or bar the movement of all the other drawer pulls of the series, a series of operating cams mounted on the cash drawer corresponding to the drawer pulls, springs for retaining the knobs, shanks and engaging heads at the rearward limit of their travel, and a series of trips guided in the case normally supported by the said engaging heads, and adapted when tripped into position for operative engagement with the operating cams by withdrawal of an engaging head, to bolt or chock the head against return movement except by the opening movement of the drawer, substantially as and for the purpose specified.

17. In a cash register, the combination with an inclosing case, of a cash drawer, a locking hook thereon, a pawl for engaging the locking hook and a series of operating dogs or arms connected with the pawl, a series of movable knobs or handles and their rods or operating shanks guided in the drawer, engaging heads thereon having their planes of motion coincident with the vibrating paths of the said operating dogs, springs for retaining the knobs, shanks and engaging heads at the rearward limit of their travel, a series of trips guided in the case normally supported by the said engaging heads, a series of operating cams for depressing said trips in the forward movement of the drawer and elevating them on the return travel thereof, a holding bail or support hinged or guided to swing horizontally toward and into juxtaposition to the series of trips, said trips being provided with holding shoulders or projections for engaging the bail to hold the trips in elevated position, a weight or yielding means for automatically holding the bail against the trips, and engaging means carried by the cash drawer and adapted to hold the bail free of the trips and their holding projections when the drawer is in closed position, and permit their engagement in the opening movement of the drawer, substantially in the manner and for the purpose specified.

18. In a cash register having a series of operating knobs or drawer pulls guided in the drawer, registering and indicating mechanism, motive mechanism carried by the drawer, and tripping mechanism for switching the motive, registering and indicating mechanism into operative connection, the combination with the series of trips, of the holding shoulders or projections thereon, a holding bail or support hinged or guided in the case and adapted to engage and support the said holding shoulders to retain the trips in elevated position, means for actuating the bail into the moving plane of the holding shoulders, and a thrust bar or engaging means carried by the cash drawer and adapted to release the bail free of the trips and their holding projections in the closing movement of the drawer, to permit the fall of any required combination of the trips and their operation by the motive mechanism, in the normal manipulation of the drawer pulls, substantially as and for the purpose specified.

19. In a cash register, the combination of an inclosing case, a cash drawer therein, a series of exterior knobs or drawer pulls having operating shanks or rods guided and adapted to a limited independent movement in the drawer, means for locking the drawer in the case, comprising a fixed hook and a vibrating latch relatively mounted upon the drawer and case, a series of vibratory dogs or arms connected to swing conjointly with the latch, engaging means for operating said

dogs and the latch to release the drawer, by initial movement of the drawer pulls, springs for retaining the knobs, shanks, and engaging heads at the rearward limit of their travel, a series of trips guided in the case normally supported by the said engaging heads, a series of operating cams for depressing said trips in the forward movement of the drawer and elevating them on the return travel thereof, registering and indicating mechanism operatively connected with said trips, and the initial lifting means for raising the trips to and within the acting plane of the elevating incline of the operating cams, substantially as and for the purpose specified.

20. In a cash register the combination of an inclosing case, a cash drawer therein, a series of exterior knobs or drawer pulls having operating shanks or rods guided and adapted to a limited independent movement of the drawer, means for locking the drawer in the case, comprising a fixed hook and a vibrating latch relatively mounted upon the drawer and case, a series of vibratory dogs or arms connected to swing conjointly with the latch, engaging means for operating said dogs and the latch to release the drawer, by initial movement of the drawer pulls, springs for retaining the knobs, shanks, and engaging heads at the rearward limit of their travel, a series of trips guided in the case normally supported by the said engaging heads, a series of operating cams for depressing said trips in the forward movement of the drawer and elevating them on the return travel thereof, registering and indicating mechanism operatively connected with said trips, an elevating bail or movable bar arranged in juxtaposition to the trips, lifting projections or shoulders on the trips adapted to be engaged by said bail to lift the trips, a lifting rod operatively connected to the said bail, and a lifting cam carried by the cash drawer and adapted to elevate the trips through that part of their travel wherein the cam pins j' thereof are below and out of the plane of action of the lifting inclines of the cams, substantially as and for the purpose specified.

21. In a cash drawer, the combination with the movable trips j, their operating cams k^3, and the engaging heads for supporting the trips of the elevating bail t, connection t^3, and the pivoted lifting cam t^2 for raising the trips to and within the acting plane of the elevating inclines of the operating cams, substantially in the manner and for the purpose specified.

22. In a cash register the combination of an inclosing case, a cash drawer therein, a series of exterior knobs or drawer pulls having operating shanks or rods guided and adapted to a limited independent movement in the drawer and provided with engaging heads, locking means for securing the drawer in the case, comprising a fixed hook, a vibrating latch relatively mounted upon the drawer and the case, a series of vibratory dogs or arms corresponding to the engaging heads and connected to swing conjointly with the latch by initial action of the drawer pulls, a series of operating cams mounted on the cash drawer corresponding to the drawer pulls, guide frames or bars mounted in the case, a series of trips guided in the said frames and adapted to reciprocating movement therein by engagement with the cams, means for tripping or switching the trips into operative engagement with the cams by initial action of the drawer pulls, a series of indicator tablets corresponding to the drawer pulls, arms or connections for supporting the tablets, pins or shoulders carried on the trips and adapted to engage said connections to actuate the tablets into exposed position, holding mechanism for sustaining the tablets in exposed position, registering mechanism adapted to be operated by the said trips and cams by the movement of the cash drawer, an elevating bail or movable bar arranged in juxtaposition to the trips, lifting projections or shoulders on the trips adapted to be engaged by said bail to lift the trips, a lifting cam carried by the cash drawer, and a connection for elevating the said bail by said cam, to and within the acting plane of the elevating incline of the operating cam, substantially as and for the purpose specified.

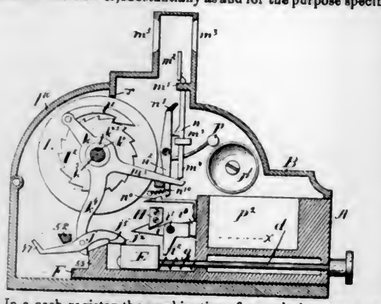
23. In a cash register the combination of an inclosing case, a cash drawer therein, a series of exterior knobs or drawer pulls having operating shanks or rods guided and adapted to a limited independent movement in the drawer and provided with engaging heads, locking means for securing the drawer in the case, comprising a fixed hook, a vibrating latch relatively mounted upon the drawer and the case, a series of vibratory dogs or arms, corresponding to the engaging heads and connected to swing conjointly with the latch by initial action of the drawer pulls, a series of operating cams mounted on the cash drawer corresponding to the drawer pulls, guide frames or bars mounted in the case, a series of trips guided in the said frames and adapted to reciprocating movement therein by engagement with the cams, means for tripping or switching the trips into operative engagement with the cams by initial action of the drawer pulls, a series of indicator tablets corresponding to the drawer pulls, arms or connections for supporting the tablets, pins or shoulders carried on the trips and adapted to engage said connections to actuate the tablets into exposed position, holding mechanism for sustaining the tablets in exposed position, registering mechanism adapted to be operated by the said trips and cams by the movement of the cash drawer, an elevating bail or movable bar arranged in juxtaposition to the trips, lifting projections or shoulders on the trips adapted to be engaged by said bail to lift the trips, a lifting cam carried by the cash drawer, and a connection for elevating the said bail by said cam, to and within the acting plane of the elevating incline of the operating cams, substantially as and for the purpose specified.

24. In a cash register the combination of an inclosing case, a series of exterior knobs or drawer pulls having operating shanks or rods guided and adapted to a limited independent movement in the drawer and provided with engaging heads, springs for retracting the drawer pulls and connections, a hook carried upon the drawer, an arbor journaled in the case and provided with a latch for engaging said hook to lock the drawer in closed position, a series of operating dogs mounted upon said arbor in the paths of the engaging heads, for releasing the latch by initial movement of the drawer pulls, a series of operating cams mounted on the cash drawer, corresponding to the drawer pulls, a series of movable trips guided in the case normally supported by the engaging heads and adapted through release by the initial movement thereof to be tripped or switched into operative engagement with the operating cams, a series of indicator tablets corresponding to the drawer pulls, a series of levers for supporting the tablets, arranged in operative connection or engagement with the trips, a series of holding hooks or latches, and retaining studs for securing the indicator tablets in exposed position, the release mechanism for disengaging the same, a registering lever operated by the said trips, registering mechanism connected with and operated by said lever, the elevating bail t, holding shoulders t^4, the pivoted elevating cam t^2, lifting rod t^3 and projections t^5 and t^6, the holding bail u, projections u^2 on the trips, and the thrust bar u^4 carried by the drawer, all arranged substantially in the manner and for the purpose specified

25. In a cash register the combination of an inclosing case, a cash drawer therein, denominational sets or series of exterior knobs or drawer pulls having operating shanks or rods guided and adapted to a limited independent movement in the drawer and provided with engaging heads, springs for retracting the drawer pulls and connections, a hook carried upon the cash drawer, a latch adapted to engage therewith to lock the drawer in closed position, series of operating dogs connected to vibrate conjointly with the latch by initial action of the drawer pulls series of operating cams mounted on the cash drawer corresponding to the draw pulls, series of trips guided and adapted to a limited reciprocating movement or travel in the case normally supported by said engaging heads and adapted through release by the initial action of the drawer pulls to be tripped or switched into operative engagement with the cams, series of indicator tablets corresponding to the drawer pulls, series of independent levers supporting the tablets, actuating pins or shoulders carried by the trips and adapted to engage the said levers to actuate the tablets into exposed position, holding mechanism comprising series of hooks and studs for retaining the tablets in exposed position, a weight for swinging the same into engagement, a release lever connected with the holding mechanism, and a releasing latch carried on the drawer and adapted to release the holding mechanism and exposed tablets by the action of the drawer, a registering lever for each denominational series of trips adapted to be operated by the respective trips of the series through arcs corresponding to the representative value of the corresponding drawer pulls, the independent registering mechanism for each lever, means substantially as described for resetting the several registering mechanisms at zero, locking means substantially as described for locking the engaging heads of each series by operation of any individual drawer pull or engaging head of a series, a holding bail or support hinged or guided in the case and adapted to engage and support the trips in elevated position, means for engaging the bail with the trips, engaging means carried by the cash drawer and adapted to release the bail from the trips in the closing movement of the drawer, and the initial means for raising the trips to and within the acting plane of the elevating incline of the operating cams, substantially in the manner and for the purpose specified.

521,334. CASH REGISTER AND INDICATOR. THOMAS CARROLL, New Haven, Conn., assignor to the Hubinger Carroll Cash Register Company, same place. Filed Oct. 6, 1893. Serial No. 487,402. (No model.)

Claim.—1. In a cash register the combination of an inclosing case, a cash drawer therein, a series of exterior knobs or drawer pulls and their operating rods movably mounted and carried on the drawer, latch mechanism for automatically locking the drawer in the case, and a means for unlocking the latch mechanism by initial action of the drawer pulls, registering mechanism and operating levers therefor provided with movable trip hooks or latches, an actuating abutment or carrier mounted on the cash drawer, means for normally retaining the trip hooks free of the carrier [illegible]g them to hook upon the same by initial movement of the [illegible], and means for releasing the trip hooks from the carrier at [illegible] point in the travel of the drawer, whereby the registration is effected by the opening movement of the drawer, substantially as and for the purpose specified.



2. In a cash register the combination of an inclosing case, a cash drawer therein, a series of exterior knobs or drawer pulls having operating rods guided and adapted to a limited independent movement in the drawer, means for locking the drawer in the case, comprising a fixed hook and a vibratory latch relatively mounted upon the drawer and case, a swing arm connected to vibrate conjointly with the latch, engaging heads carried upon said operating rods and adapted to individually operate the swing arm and latch to release the drawer by initial movement of the drawer pulls, a series of registering mechanisms corresponding to the series of drawer pulls, operating levers and pawl and ratchet mechanism for operating the registering mechanisms, the series of trip hooks hinged or pivoted to the registering levers normally supported by the engaging heads, and a carrier or abutment secured upon the cash drawer and adapted in the opening movement thereof to operate the registering mechanism by engagement with the trip hooks when said trip hooks are released from the engaging heads by initial withdrawal of the drawer pulls, substantially as and for the purpose specified.

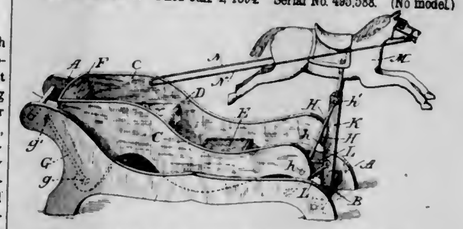
3. In a cash register the combination of the cash drawer, a series of drawer pulls and their connections guided and adapted to a limited independent movement in the drawer, the registering wheels, their operating levers, pawls and ratchets, the trip hooks or catches hinged or movably connected to said levers, a carrier or abutment carried on the cash drawer, means substantially as described for engaging the trip hooks with said carrier by the initial movement of the drawer pulls to operate the registering mechanism by the opening movement of the drawer, and the means for releasing the trip hooks from the carrier at the end of the throw of the registering lever, substantially as and for the purpose specified.

4. In a cash register the combination of the cash drawer, the registering wheels, their operating levers, pawls, and ratchets, the trip hooks pivoted to the said levers, a carrier or abutment carried on the cash drawer, means substantially as described for engaging the trip hooks and carrier to operate the registering mechanism by movement of the cash drawer, means substantially as described for releasing the trip hooks and carrier at a given position of the drawer a series of indicator tablets corresponding to the drawer pulls, levers for supporting the tablets, a holding latch for securing the indicator tablets in exposed position, and the release mechanism for disengaging the same, substantially as and for the purpose specified.

5. In a cash register the combination of an inclosing case, a cash drawer therein, a series of exterior knobs or drawer pulls having operating rods guided and adapted to a limited independent movement in the drawer and carrying engaging heads, a movable part or swing arm guided or hinged upon and carried with the cash drawer in the paths of and subject to engagement by the said engaging heads, a vibratory latch connected to operate with the said swing bar by the initial movement of the drawer pulls and their operating rods and engaging heads, and a fixed hook or catch on the case or frame, adapted to be engaged by said latch to lock the drawer in closed position, the registering levers, pawls, wheels, and ratchets the trips pivoted to the said levers normally supported by the engaging heads, a carrier or abutment carried by the drawer adapted to operate the levers by engagement with the trips on the opening movement of the drawer and retract them in the return movement thereof, said trip hooks having cam surfaces or releasing shoulders and the case being provided with a bar or stop in the path of said shoulders adapted to intercept and release the trips from the carrier, substantially in the manner and for the purpose specified.

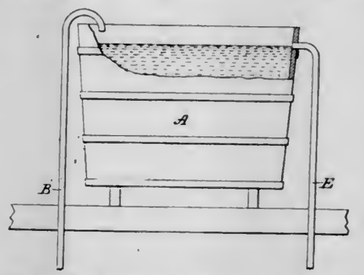
6. In a cash register the combination of an inclosing case, a cash drawer therein, a series of exterior knobs or drawer pulls having operating rods guided and adapted to a limited independent movement in the drawer, release mechanism substantially as described for unlocking the cash drawer by initial movement of the drawer pulls, a series of registering wheels and their ratchets, pawls for driving the ratchets, the operating levers for reciprocating the pawls, the trip hooks carried by said levers, the beveled lever actuating abutment carried by the drawer, the liberating mechanism for releasing the trips from said abutment, the arms carried by the registering levers the rods and indicator tablets guided in the case and supported by said arms, the rods being provided with catches or beveled projections, a pawl adapted to swing under and engage said catches when the tablets are elevated into exposed position, a lever attached to the pawl, a spring for retaining the pawl in position to support the tablets in their exposed position, and a spring hook or elastic catch carried by the drawer and adapted to withdraw the pawl from engagement with the tablet rods to release the same by the movement of the cash drawer, substantially as and for the purpose specified.

521,335. SWING. WILLIAM E. CRANDALL and MATTHIAS SMITH, New York, N. Y. Filed Jan. 4, 1894. Serial No. 495,588. (No model.)



Claim.—In a swing, the combination of a supporting frame work a rigid post secured to the frame work between the front ends thereof, a car or chair, links pivotally connecting the rear of said car to the frame work, converging rods H pivoted at one end to the front of the car said rods being pivoted upon either side of said post near its upper end, and having upwardly extending parts forming a yoke by which yoke a suitable image is supported, and reins attached to said image, substantially as described.

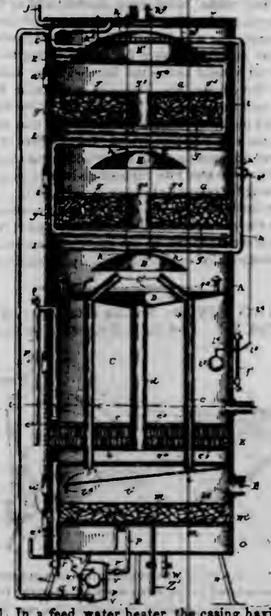
521,336. AUTOMATIC SHUT-OFF FOR ROOF-TANKS. CHARLES F. DE ARDEN, New York, N. Y. Filed Aug. 31, 1893. Serial No. 484,428. (No model.)



Claim.—1. The combination with a roof-tank or reservoir, an overflow pipe for the same, a pump and a pipe to conduct water therefrom to the roof tank, of a feed pipe to supply the source of power to said pump, a valve for said pipe, a lever to operate the valve, a counterweight upon one end of said lever, and a bucket supported by the free end of said lever and adapted to receive the overflow from the tank, a valve to control the discharge from said bucket, an arm connected to said valve, and a stop for the free end of said arm whereby said valve is opened during the descent of the bucket, substantially as shown and described.

2. The combination with a roof-tank or reservoir, an overflow pipe for the same, a pump and a pipe to conduct water therefrom to the roof-tank, of a feed pipe to supply the source of power to said pump, a valve for said pipe, a lever to operate the valve, a counterweight upon one end of said lever, and a bucket supported by the free end of said lever and adapted to receive the overflow from the tank, a cover secured to said bucket and permitting the overflow pipe to pass freely through the same, and a flange on the lower end of said pipe to prevent the withdrawal of the bucket, substantially as shown and described.

521,837. FEED-WATER HEATER AND PURIFIER. FRANK DIEHL, Sheboygan, Wis. Filed Sept. 4, 1893. Serial No. 484,764. (No model.)



Claim.—1. In a feed water heater, the casing having an upper water inlet and a bottom steam inlet, an inclosed water holding chamber or tank located between said inlets and having a central inlet pipe opening into the space above the chamber, and a series of steam pipes passing vertically through said water chamber or tank concentric with the central inlet pipe and having upper projected discharge ends, substantially as set forth.

2. In a feed water heater, the shell or casing having a lower steam inlet, an inclosed water chamber or tank arranged inside of said shell or casing above the steam inlet, a series of spaced horizontal circular water coils arranged inside of the shell or casing above said water chamber, and a spray pipe connected in the circuit of said water coils and discharging into the top of the shell or casing above the uppermost of said circular coils, substantially as set forth.

3. In a feed water heater and purifier, the casing having a bottom steam inlet and an inclosed water chamber directly above the inlet, a series of separated and connected water coils arranged above the water chamber, a spray pipe connected in the circuit of said water coils, and filter baskets alternating with said water coils, substantially as set forth.

4. In a feed water heater and purifier, the casing, the inclosed water chamber open at its top a series of steam heating pipes passing upwardly through the water chamber and projecting there above, an alternate series of circular water coils and immediately adjacent filter baskets located above said water chamber, and a spray pipe leading from the lower one of said water coils, substantially as set forth.

5. In a combined feed water heater and purifier, the casing having a bottom steam inlet, a water chamber arranged above the steam inlet and open at its top, water supply and filtering devices located above the water chamber, an oil chamber located at the bottom of the casing, and an automatically operating water trap feeding automatically from the bottom portion of said oil chamber and a conducting pipe leading from the discharge of said trap into the top of said casing, substantially as set forth.

6. In a feed water heater and purifier, the casing having a bottom steam inlet, an inclosed water chamber arranged above the said inlet and open at its top, a series of steam pipes passing vertically through the water chamber and having upper discharge ends projecting thereabove, an alternate series of water coils and immediately adjacent filter baskets located above the water chamber, a spray pipe connected with the lower one of said water coils and provided with an automatic float actuated feed valve, an oil chamber arranged below the steam inlet, and an automatic water trap feeding automatically from the bottom of the oil chamber and a conducting pipe connected with said water trap and discharging into the top of the casing, substantially as set forth.

7. In a feed water heater and purifier, the casing having a bottom steam inlet, an inclosed water chamber arranged above the steam inlet and provided with a declining top apron and a vertical water pipe leading from the center of said apron to a point near the bottom of the chamber, vertical steam pipes passing entirely through the water chamber and discharging above the same, a filter diaphragm arranged transversely within the water chamber near its bottom, an alternate series of water coils and filter baskets located above said water chamber, said filter baskets having short central steam pipes, and a feed spray pipe connected with one of said water coils and discharging into the top of said casing, substantially as set forth.

8. In a feed water heater and purifier, the casing having a bottom steam inlet, a closed water chamber arranged above the steam inlet and provided with a declining top apron, a vertical water pipe leading from the center of said apron to a point near the bottom of the chamber and a side outlet pipe, vertical steam pipes passing through the water chamber, an overflow siphon having its short leg depending inside of said water chamber, a transverse filter diaphragm surrounding the lower end of the vertical water pipe inside of the water chamber, and water supply and filter devices located above said water chamber, substantially as set forth.

9. In a feed water heater and purifier, the combination with the water supply and filtering devices, and the water collecting chamber having a vertical water supply tube or pipe; of a filter diaphragm surrounding the lower ends of said vertical water pipe within the water chamber and comprising suitably supported parallel sectional perforated strainer plates, and separate courses of perforated filter brick arranged between said strainer plates, substantially as set forth.

10. In a feed water heater and purifier, the casing having a bottom steam inlet, the inclosed water chamber located above said steam inlet and having top vent pipes and a vertical water supply pipe leading there-into, separate spaced filter baskets suitably supported within the casing above the water chamber and having short central steam pipes, said filter baskets comprising parallel strainer plates and filtering material there-between, the casing outlet at the top, suitably supported concaved baffle plates, arranged below said top outlet and below the central steam pipes of said filter baskets, a series of circular connected water coils alternating with said filter baskets, a horizontal top water coil connected with the water supply in the upper one of said circular coils, and the spray pipe connected to the lower one of said circular coils and discharging into the top of the casing over the upper filter basket, substantially as set forth.

11. In a feed water heater, the casing, the inclosed water chamber open at its top, an alternate series of water coils and filter baskets located above said water chamber, a spray pipe connected with one of said water coils and provided with a perforated nozzle portion leading into the top of the casing and an intermediate valve casing provided with an inclined seat, a normally spring-closed valve arranged at one side of said seat, suitably arranged lever devices for opening said valve, a float working inside of said water chamber, and suitable connections between said float and said lever devices, substantially as set forth.

12. In a feed water heater and purifier, the inclosed water chamber having a side outlet and a vertical water pipe, an inclined deflecting plate arranged within the casing below the water chamber and having a depending lip at one end, said plate being arranged above the steam inlet of the casing, vertical water pipes extending through the water chamber and having upper convergent ends, spray and filter devices located above and discharging into the water chamber, and suitably arranged baffle plates, the lower one of which is disposed directly above the upper convergent ends of said vertical steam pipes, substantially as set forth.

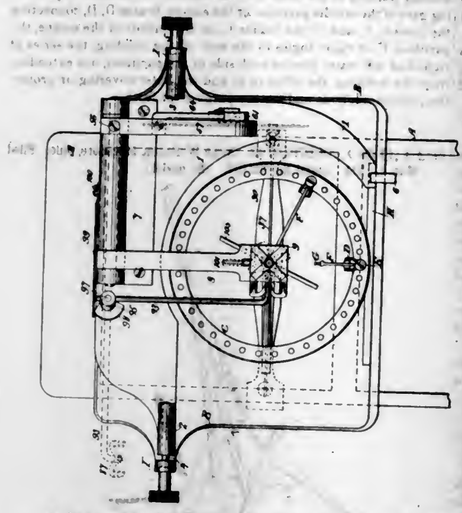
13. In a combined feed water heater and purifier, the casing having a bottom steam inlet, the water heating, filtering and collecting devices arranged above said inlet, a traneverse filter located below the steam inlet and forming there-below an oil chamber, a suitably arranged water tank having an upper siphon inlet pipe having the short leg thereof disposed near to the bottom of the oil chamber, and a bottom discharge pipe leading up into the top of said casing, said water tank being futher provided with an off-standing valve casing connected with a live steam supply pipe and having an interior valve seat, a normally spring closed valve working at one side of said valve seat, a float guided for vertical movement inside of said water tank, and suitable lever connections between said float and said valve substantially as set forth.

521,838. TYPE LEVELING AND ALIGNING DEVICE. LOUIS P. DISS, Ilion, assignor to the Wyckoff, Seamans & Benedict, New York, N. Y. Filed Nov. 14, 1893. Serial No. 490,879. (No model.)

Claim.—1. In a type leveling contrivance, a matrix or plate having a type depression to receive the face of the type and adapted to rock or tilt under the pressure of the type and indicate whether or not the latter is level.

2. In a type leveling contrivance, the combination of a rocking or tilting plate having a type depression to receive the face of a type, and means for indicating the plane of the plate and the type.

3. In a type leveling contrivance, the combination with a head block having a surface arranged in a horizontal plane centrally of a system of type-bars in a type writing machine, of an independent, movable plate adapted to work against said block to indicate the plane of the type face when the latter is brought to bear against it.



4. In a type leveling contrivance, the combination with a head block having a surface arranged in a horizontal plane centrally of a system of type bars in a type writing machine, of an independent, movable plate having a matrix or type impression and adapted to work against said block to indicate the plane of the type face when the latter is in the matrix and the type is pressed against the same.

5. In a type leveling contrivance, the combination with a device having a surface arranged in a horizontal plane centrally of a system of type-bars in a type writing machine, of an independent, movable plate adapted to receive the type and indicate the plane of its face, and means for indicating whether or not the type face and the plate are level.

6. In a type aligning contrivance, a plate having a type impression to receive the type face and movable therewith in the leveling plane to locate the type at the printing center.

7. In a type aligning contrivance, a plate having an impression to receive a type face and movable therewith in the leveling plane to locate the type at the printing center, and means for indicating when the type has been brought to the printing center.

8. In a type aligning contrivance, the combination with means for determining the leveling plane, of type alignment indicators, and an independent, movable matrix.

9. In a type aligning contrivance attached to a type writing machine, the combination with a device arranged in a horizontal plane centrally of the system of type-bars, a movable matrix, and a type-rest.

10. In a type aligning contrivance attached to a type writing machine, the combination with a device arranged in a horizontal plane centrally of the system of type-bars, a movable matrix, and a spring-actuated type-rest.

11. In a type aligning contrivance attached to a type writing machine, the combination with a device arranged in a horizontal plane centrally of the system of type-bars, a movable matrix, alignment indicators, and a type-rest.

12. In a type leveling and aligning contrivance, the combination of a head or block, a movable matrix, a level-indicator, and an alignment indicator.

13. In a type leveling and aligning contrivance, the combination of a head or block, a tilting and bodily movable matrix, and a movable type-rest.

14. In a type leveling and aligning contrivance, the combination of a head or block, a movable type-rest, a tilting and bodily movable matrix, a level indicating means, and alignment indicating means.

15. The combination with the top-plate of a type writing machine, of a leveling and aligning contrivance attached thereto at the same points that govern the planes of the paper-carriage and platen.

16. In a type leveling contrivance, the combination of a matrix having the bearing projection as 29, and means for indicating the level of the matrix.

17. In a type aligning contrivance, the combination of a type, a matrix, and means for indicating the alignment of the matrix.

18. In a type leveling and aligning contrivance, the combination of a type, a matrix, means for indicating the level and means for indicating the alignment of the matrix whereby the level and alignment of the type are indicated.

19. In a type leveling and aligning contrivance, the combination of a matrix having the bearing projection, and means for indicating the level and alignment of the matrix whereby the level and alignment of the type are indicated.

20. In a type leveling contrivance, the combination of an independent, detached matrix, with the block.

21. In a type leveling contrivance, the combination of a matrix having a bearing projection, and a block.

22. In a type aligning contrivance, the combination of a bodily movable matrix, with a block.

23. In a type leveling device, the combination of a plate having a type depression, a block, and indicating pins.

24. In a type leveling contrivance, the combination of a matrix having a projection, a block, and indicating pins.

25. In a type leveling contrivance, the combination of a matrix, a block, the pins, and the cap, arranged to operate substantially as described.

26. In a type leveling contrivance, the combination of a matrix having a projection, the block, the pins, and the cap, arranged to operate substantially as described.

27. In a type aligning contrivance, the combination of a matrix, the block, and the aligning indicators arranged to operate substantially as described.

28. In a type leveling and aligning contrivance, the combination of a matrix having a projection, the block, and the aligning indicators arranged to operate substantially as described.

29. The combination of a rocking or tilting matrix, and a block provided with a series of pins normally flush with the upper side of said block and adapted one or more to be projected beyond the same whenever the matrix, under pressure of a type, may be out of parallelism with the under side of said block.

30. The combination of a rocking or tilting matrix, a block provided with a series of pins adapted to be projected by said matrix and means for mechanically indicating any projection of said pins.

31. The combination of a rocking or tilting matrix, a block provided with a series of pins, and a rotatable cap having a series of arms adapted to perform the several functions hereinbefore described.

32. The combination with a rocking or tilting matrix, of a block having a series of pins adapted to be projected above the upper surface of said block during the leveling operation, and means for preventing such projection of said pins during the alignment operation.

33. The combination with a block, of a movable matrix adapted to register therewith, and means arranged on at least two adjacent sides of said block for indicating when said matrix and block are not in register.

34. The combination with a rectangular block, of a rectangular, movable matrix adapted to register therewith, and tongues arranged on at least two adjacent sides of said block and matrix and adapted to bear against two sides of said matrix and move as the latter is moved and to thus indicate when said matrix has been adjusted to register with said block.

35. The combination with a rectangular block, of a rectangular matrix, and a series of pivoted indicators arranged on at least two adjacent sides of said block and matrix.

36. The combination of a rectangular block, a rectangular matrix, and a set of pivoted and magnifying indicators for said matrix.

37. The combination with a rectangular block, of a rectangular matrix, the set of pivoted indicators having each a straight edge, and the supports for said indicators having each also a straight edge.

38. The combination with a rectangular block, of a rectangular matrix, the slotted bars, and the spring-actuated tongues pivoted at or near their lower ends on said bars.

39. The combination of a rectangular block, a rectangular matrix, and a pair of side indicators pivotally connected to a swinging arm.

40. The combination of a rectangular block, a rectangular matrix, and the pair of side indicators pivotally mounted to be self-adjusting.

41. The combination of a rectangular block, a rectangular matrix, the pair of side indicator-bars, containing each a pivoted indicator and connected to a pivoted yoke, and an arm or support for the latter.

42. The combination with a rectangular block, of a rectangular matrix, the pair of connected side indicators, and the obliquely-pivoted arm or support therefor.

43. The combination with a rectangular block, of a rectangular matrix, and the vertical movable rear indicator.

44. The combination with a rectangular block, of a rectangular matrix, the vertical movable indicator, and the detent.

45. The combination with the rectangular block, of a rectangular matrix, a vertical, movable indicator having a stop to engage said block on its downward movement, and a spring-actuated detent.

46. The combination with a rectangular block, of a rectangular matrix, and a set of indicators adapted to be moved away from said block and matrix to a position of disuse during the leveling operation.

47. The combination with the block, and the matrix, of the side indicators, the pivoted arm or support therefor, and the cam and spring.

48. The combination of a base-plate adapted to be attached to a type writing machine, an arm hinged to said base-plate and carrying a leveling and aligning block, and means for locking said arm and holding said block rigid centrally of the system of type-bars.

49. The combination with the block, and the matrix, of a type-rest provided with jaws for grasping the stem of a type.

50. The combination with the block, and the matrix, of a type rest having a pair of jaws, one of which is pivoted and spring-acting.

51. The combination with the block, and the matrix, of a type-rest provided with a pair of jaws to grasp the stem of a type and formed beneath the same with an opening for the admission of the lower ends of the stem of the type and the free end of the type-bar.

52. The combination with the block, and the matrix, of the type-rest comprising the jaws, the opening, the handle and the sleeve, and a spring for pressing the type-rest toward the block.

53. The combination with the block, and the matrix, of a type-rest arranged to be pressed toward the block, and mounted to be rotated as well as to be moved laterally in any direction.

54. In a wrench for leveling types, the combination of the bifurcated rigid jaw formed with seats for a type-bar, and a pivoted jaw adapted to act in opposition to said rigid jaw.

55. In a wrench for leveling types, the combination of the bifurcated jaw formed with seats for a type-bar, and a spring-actuated pivoted jaw adapted to act in opposition to said rigid jaw and provided with a finger-piece.

56. In a wrench for leveling types, the combination of a handle, a rigid jaw arranged at right angles thereto, a loop between said handle and said rigid jaw, and a pivoted jaw.

57. In a wrench for leveling types, the combination of the handle, the U shaped bend, the rigid bifurcated jaw formed with seats for one side of a type-bar, and a spring actuated jaw pivoted at the lower end of the rigid jaw and provided with a hook adapted to engage the other side of the type bar and act in opposition to the rigid jaw.

58. In a type leveling contrivance, the combination of the bridge, the post, the step, the spindle, the spring, 43, and the type rest.

59. In a type aligning contrivance, the combination of the bridge, the post, the step, the spindle, the type rest, the lever, and the spring, 43.

60. In a type leveling contrivance, the combination of the bridge, the post, the step, the spindle, the type-rest, the lever, and the spring, 41.

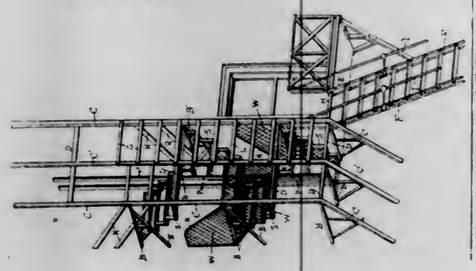
61. In a type leveling and aligning contrivance, the combination of the bridge, the post, the step, the spindle, the type-rest, the spring, 43, the lever, and the catch to hold the lever depressed, whereby the tension of the spring is changed.

62. In a type leveling and aligning contrivance, the bridge, the post, the step, the type-rest, the lever, the springs, 41 and 43, and the catch, arranged to operate substantially as described.

63. In a type leveling and aligning contrivance, the combination of the arm 8 having the block 9, and the arm 57, fastened thereto, the spring 64, the latch, and the keeper, arranged to operate as shown and described.

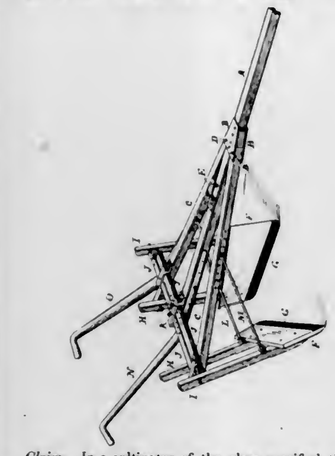
64. The combination with a type writing machine, of a leveling and aligning block suspended centrally of the system of type-bars, and an independent, movable leveling and aligning plate or matrix.

521,339. FIRE-ESCAPE. FRANK J. FAIRCHILD, Saginaw, Mich., assignor of one-half to Thomas Nichels. Filed Mar. 3, 1894. Serial No. 502,168. (No model.)



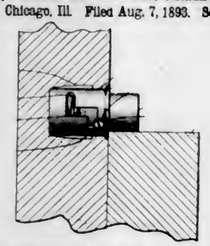
Claim.—In a fire escape consisting of rods B, B, secured in the wall of the building, brackets B' secured under the rods B, B, in the wall and supporting the ends of the rods B, B, angle irons C, C, extending from the first story to the top and forming the outer corners of the escape, and secured to and supported by the rods B, B, the lower ends of the irons C, C, extending into the wall, the iron C' extending parallel to the irons C, C, and secured in the same way, forming part of the middle partition of the escape, braces D, D, connecting the irons C, C, and C', the ladder L, on the outside of the escape, the partition P, at right angles to the wall of the building, the series of right and left stairs, one on each side of the partition, one extending from the building, the other to it, and the outer covering or protection, substantially as and for the purpose set forth.

521,340. CULTIVATOR. NOAH W. FALOR, Mogadore, Ohio. Filed Mar. 2, 1894. Serial No. 502,072. (No model.)



Claim.—In a cultivator of the class specified the combination with a central beam and side beams pivotally hinged thereto on opposite sides, of cultivating scrapers each supported by two bars one whereof is pivotally attached to one of said side beams and the other similarly connected to one end of a horizontal bar, said bars being parallel and adjustably connected with the central beam, and rods flexibly attached to said scraper bars, and adjustably connected with said side beams on opposite sides thereof, and two handles one being connected with said central beam, and one with said side beam, substantially as shown and described.

521,341. FASTENER FOR MEETING-RAILS OF SASHES. GEORGE C. GARDNER, Chicago, Ill. Filed Aug. 7, 1893. Serial No. 482,504. (No model.)



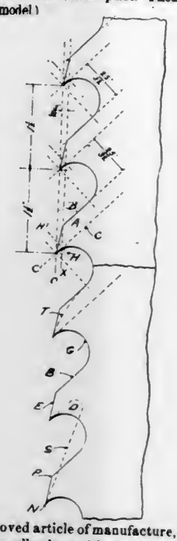
Claim.—The combination with the sash A, B, of the thimble D, having a slot d^2 notched at d^3, d^3, the sliding bolt E fitted within said thimble having a pin e, and the concave outward end e' containing the rib e^3, and the spring F, tending to crowd the bolt outward.

521,342. FERRULE. WILLIAM H. GASKILL, Philadelphia, Pa., assignor to Samuel W. Evans, Jr., same place. Filed Mar. 23, 1893. Serial No. 467,936. (No model.)



Claim.—A point formed with a circumferential groove, and a body receiving the wide end of said point having a folded edge which rests partly on the bottom wall of said groove, and projects partly outside of the same as a shoulder, the part upturned from said edge occupying said groove, all being combined substantially as described.

521,343. SAW. DEXTER HAZARD, Marquette, Mich., assignor of one-half to Frederick O. Clark, same place. Filed Jan. 15, 1894. Serial No. 496,913. (No model.)



Claim.—1. An improved article of manufacture, a saw blade having its teeth formed integrally therewith, the face and throat of said teeth being formed by semi-circle G, with the end of said semi-circle straightened as a cord of arc G, forming face line C; which face line C is one-third the length of the radius of arc G, and drawn from the located point of the tooth on dotted line O at an angle of forty-five degrees deflection therefrom; in connection with B, which is a continuation of arc line G at a tangent to said arc G, as well as a tangent to the arc T; the diameter of semi-circle G being at right angles to face line C at the extreme point of the tooth; said tangent B terminating in dotted line X at a deflection of forty-five degrees from said line X, and united by line E to face line C forming the cutting point of the tooth; the radius of said arc T being the distance between the cutting points of the teeth, and said arc passing through the extreme cutting point and the tangent point of B, at the place where arcs G and T unite, substantially as shown and described.

2. An improved article of manufacture, a saw blade having its teeth formed integrally therewith, the face and throat of said teeth being formed by semi-circle G, with the end of said semi-circle straightened as a chord of arc G, forming face line C; which face line C is one-third the length of the radius of arc G and drawn from the located point of the tooth on dotted line O at an angle of forty-five degrees deflection therefrom; in connection with B, which is a continuation of arc line G at a tangent to said arc G; as well as at a tangent to the arc T; the diameter of semi-circle G being at right angles to face line C at the extreme point of the tooth; said tangent B terminating in dotted line X at a deflection of forty-five degrees from said line X, and united by line E to face line C forming the cutting point of the tooth; the radius of said arc T being the distance between the cutting points of the teeth, and said arc passing through the extreme cutting point and the tangent point of B at the place where arcs G and T unite; with straight line E dressed on a concave from P to N, with projecting corners at the cutting points, substantially as shown and described.

521,344. CINDER-SIFTER. ADONIRAM J. HENDERSON, Toronto Canada. Filed Jan. 9, 1894. Serial No. 496,263. (No model.)



Claim.—1. In a cinder sifter, a completely incased wire screen of substantially cylindrical shape, means for clamping the open mouth of an ash pan against the side of the screen, and means for reversing the screen and imparting a vibratory movement thereto whereby the ashes will be sifted from the pan but cinders will be retained therein substantially as described.

2. The combination with the wire screen, B, attached to the segmental ends, *b*, and provided with a central spindle, C, journaled in the case A, and having a crank handle, *c*, of the boards B" extending longitudinally of said screen, and having ledges adapted to engage the flanges of an ash pan, substantially as described.

3. In combination, the rotating wire screen B attached to the segmental ends and having an opening in one side, boards extending parallel with each other upon opposite sides of the opening, a screen connecting said boards, and means for clamping the mouth of an ash pan against said screen, substantially as described.

521,345. EXPLOSIVE AND PROCESS OF MAKING SAME. HUBERT KOLF, Bonn, Germany. Filed Aug. 11, 1890. Serial No. 361,712. (Specimens.)

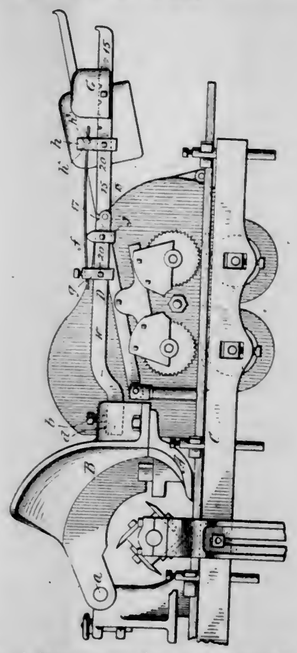
Claim.—1. In the manufacture of explosives, the improvement which consists in nitrating a carbohydrate or a material containing the same, and then successively treating the nitrated carbo-hydrate with a solution of an alkaline sulfid and an alkaline nitrate.

2. In the manufacture of explosives, the improvement which consists in nitrating a carbo-hydrate or a material containing the same and then successively treating the nitrated carbo-hydrate with solutions of an alkaline sulfid, an alkaline nitrate, and of a binitrate of a carbo-hydrate.

3. A substantially smokeless explosive, consisting of a nitrated carbo-hydrate, sulfur chemically combined therewith, and an alkaline nitrate, as described.

4. A smokeless explosive consisting of a nitrated carbo-hydrate, sulfur chemically combined therewith, an alkaline nitrate and a binitrate of a carbo-hydrate.

521,346. ANTI-VIBRATORY PRESSURE-BAR FOR WOODWORKING MACHINERY. ALBERT PREMO, Springfield, Mass. Filed Feb. 16, 1894. Serial No. 500,433. (No model.)



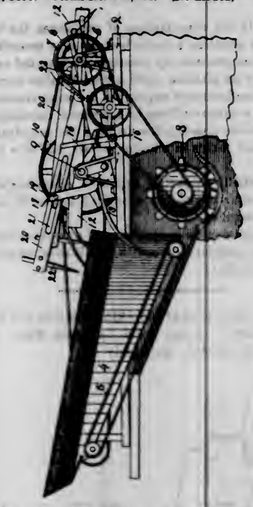
Claim.—1. In a wood working machine, the pivotally hung lever-like part carrying the pressure shoe which has a jointed extension member at its free end which is adapted to carry the weight, and a spring mounted on the lever-like part for supporting the vibratory extension member, substantially as and for the purpose described.

2. In a wood working machine, the pivotally hung part, B, having the shoe, A, and the bar, D, composed of the members 10 and 15, the blocks, *g* and *h*, on said members having the recesses through which portions of the flat spring are passed, and the block, *j*, on one

of the said members between the blocks, *g* and *h*, which is extended to a deflecting bearing against said spring, substantially as described.

3. In a wood working machine, the pivotally hung part, B, having the shoe, A, and provided with the bar, D, composed of the members, 10 and 15, the slide blocks, *g* and *h*, fitted to slide longitudinally on said members and having the recesses, g^4 and h^3, the flat spring having portions thereof embraced by said recessed blocks, and the set-screw, g^5, for confining the spring within the one *g*, and the block, *j*, on one of said members between the blocks *g* and *h*, which is extended to a deflecting bearing against the face of said spring, and set-screws for confining the slide-blocks against movement, substantially as described.

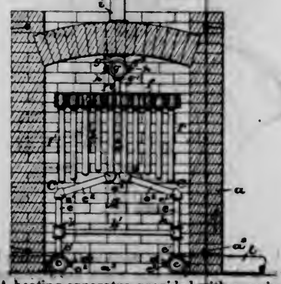
521,347. CLOVER-HULLER FEEDER. MARSHAL T. REEVES and JOHN H. KAILOR, Columbus, Ind., assignors to Reeves & Co., same place. Filed Oct. 2, 1893. Serial No. 487,001. (No model.)



Claim.—1. In a clover-huller-feeder, the combination of the main-frame, the hopper, the series of rake-bars mounted above said hopper, means for imparting a reciprocating, rocking movement to said rake bars, and the series of detaining-bars mounted at one end upon a sliding bearing and pivoted at the other end to said rake-bars, all arranged to co operate in the manner set forth.

2. In a clover-huller-feeder, the combination with the hopper, and the series of rake-bars arranged to traverse said hopper, of the laterally and backwardly projecting teeth 24 secured to the outer rake-bars, as and for the purpose set forth.

521,348. HEATING APPARATUS. EDWARD R. SOLEAU, Newark, N. J., assignor of one-half to Isaac F. Roe, same place. Filed Dec. 1, 1893. Serial No. 492,432. (No model.)



Claim.—1. A heating apparatus provided with a series of sectional fittings *c*, pipes *e* extending from said fittings, angularly arranged pipes e^3 connected with said pipes *e*, pipes e^4 connected with said pipes e^3, and headers *f* on said pipes e^4, said fittings *e* being connected, and arranged on each side of the ash-pit along the sides of the brick setting to form a support for the apparatus, substantially as and for the purposes set forth.

2. A heating apparatus provided with a series of sectional fittings *c*, tie-rods *d*, headers *f*, and connecting pipes or tubes connecting said fittings with said headers, said fittings *c* being connected, and arranged on each side of the ash-pit along the sides of the brick setting to form a support for the apparatus, substantially as and for the purposes set forth.

3. A heating apparatus provided with a series of sectional fittings *c*, tie rods *d* connecting said fittings, pipes *e* extending from said fittings, angularly arranged pipes e^3 connected with said pipe *e*, pipes e^4 connected with said pipes e^3, and headers *f* on said pipes e^4, said fittings *e* being connected, and arranged on each side of the ash-pit along the sides of the brick setting to form a support for the apparatus, substantially as and for the purposes set forth.

4. A heating apparatus provided with a series of sectional fittings *c*, headers *f*, connecting pipes or tubes connecting said fittings with said headers, sectional fittings connected with said headers, and an outlet pipe connected with said fittings, said fittings *c* being connected, and arranged on each side of the ash-pit along the sides of the brick setting to form a support for the apparatus, substantially as and for the purposes set forth.

5. A heating apparatus provided with a series of sectional fittings *c*, pipes *e* extending from said fittings, angularly arranged pipes e^3 connected with said pipes *e*, pipes e^4 connected with said pipes e^3, headers *f* on said pipes e^4, sectional fittings connected with said headers, and an outlet pipe connected with said fittings, said fittings *c* being connected, and arranged on each side of the ash-pit along the sides of the brick setting to form a support for the apparatus, substantially as and for the purposes set forth.

6. A heating apparatus provided with a series of sectional fittings *c*, tie rods *d*, headers *f*, connecting pipes or tubes connecting said fittings with said headers, sectional fittings connected with said headers, tie rods for holding said sectional fittings together, and an outlet pipe connected with said fittings, said fittings *c* being connected, and arranged on each side of the ash-pit along the sides of the brick setting to form a support for the apparatus, substantially as and for the purposes set forth.

7. A heating apparatus provided with a series of sectional fittings *c*, tie rods *d*, pipes *e* extending from said fittings, angularly arranged pipes e^3 connected with said pipes *e*, pipes e^4 connected with said pipes e^3, headers *f* on said pipes e^4, sectional fittings connected with said headers, tie rods for holding said fittings together, and an outlet pipe connected with said fittings, said fittings *c* being connected, and arranged on each side of the ash-pit along the sides of the brick setting to form a support for the apparatus, substantially as and for the purposes set forth.

8. The herein-described heating apparatus comprising therein a brick setting having a bridge wall *a'*, a series of sectional fittings *c*, arranged on both sides of the ash pit, means for securing said fittings together, vertical pipes or tubes extending from said fittings, angularly arranged pipes connected with said vertical pipes, extending in pairs toward one another, vertical pipes connected with said angularly set pipes, headers connected with said pipes, and sectional fittings *g* connected with said headers, provided with means for securing them together, said fittings *c* being connected, and arranged on each side of the ash-pit along the sides of the brick setting to form a support for the apparatus, substantially as and for the purposes set forth.

9. A heating apparatus provided with a series of sectional fittings *c*, headers *f*, connecting pipes or tubes connecting said fittings with said headers, and drop tubes or pipes depending from said headers, said fittings *c* being connected, and arranged on each side of the ash-pit along the sides of the brick setting to form a support for the apparatus, substantially as and for the purposes set forth.

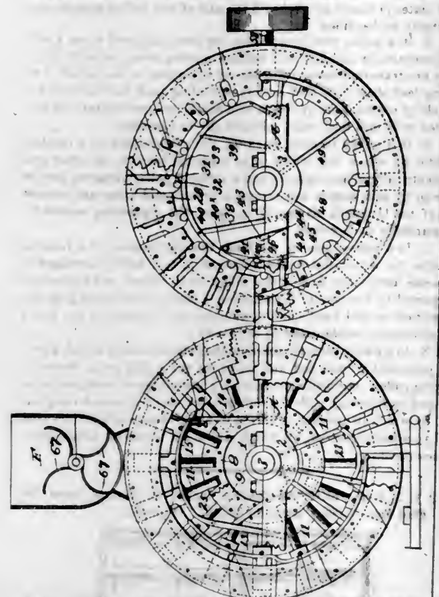
10. A heating apparatus provided with a series of sectional fittings *c*, pipes *e* extending from said fittings, angularly arranged pipes e^3 connected with said pipes *e*, pipes e^4 connected with said pipes e^3, headers *f* on said pipes e^4, and drop tubes or pipes depending from said headers, said fittings *c* being connected, and arranged on each side of the ash-pit along the sides of the brick setting to form a support for the apparatus, substantially as and for the purposes set forth.

11. A heating apparatus provided with a series of sectional fittings *c*, headers *f*, connecting pipes or tubes connecting said fittings with said headers, drop tubes depending from said headers, sectional fittings connected with said headers, and an outlet pipe connected with said fittings, said fittings *c* being connected, and arranged on each side of the ash-pit along the sides of the brick setting to form a support for the apparatus, substantially as and for the purposes set forth.

12. A heating apparatus provided with a series of sectional fittings *c*, pipes *e* extending from said fittings, angularly arranged pipes e^3 connected with said pipes *e*, pipes e^4 connected with said pipes e^3, headers *f* on said pipes e^4, drop tubes or pipes depending from said headers, sectional fittings connected with said headers, and an outlet pipe connected with said fittings, said fittings *c* being connected, and arranged on each side of the ash-pit along the sides of the brick setting

to form a support for the apparatus, substantially as and for the purposes set forth.

521,349. BRICK-MACHINE. HENRY STUCKEY, Bucyrus, Ohio. Filed Jan. 10, 1894. Serial No. 496,361. (No model.)



Claim.—1. The combination with the mold-wheel, and pressing-wheel, each having radial ways and plungers arranged therein, of an adjustable cam for operating the mold-wheel plungers, and a yielding cam for operating the pressing-plungers, substantially as described.

2. The combination with the mold-wheel, having radial slots, of plungers arranged therein and a cam device for operating said plungers, a pressing-wheel having radial slots, a series of plungers arranged in said slots, and provided with anti-friction rollers on their inner ends, and a cam device provided with a hinged yielding end, substantially as described.

3. The combination with the mold-wheel, of a pressing-wheel provided with radial ways, plungers arranged in said ways, and provided with lateral pins, cams for operating said plungers, and a radially slotted rim or casing, substantially as described.

4. The combination of the mold-wheel, formed with molds in its rim, plungers in the molds, stationary cam-bars to move the plungers out and in the molds, a pressing-wheel formed with radial-ways in its rim, pressing-plungers in the ways, a cam-plate to carry the pressing-plungers around the upper portion of the wheel, a hinged cam-plate to push the plungers out, and a cam-bar to draw the plungers inward, as set forth.

5. The combination of the mold-wheel, reciprocating plungers in the molds thereof, means substantially as described to push the plungers outward and inward, the pressing-wheel, reciprocating plungers therein, cams to operate the plungers, and a yielding and adjustable cam to press the plungers on the form in the mold-wheel.

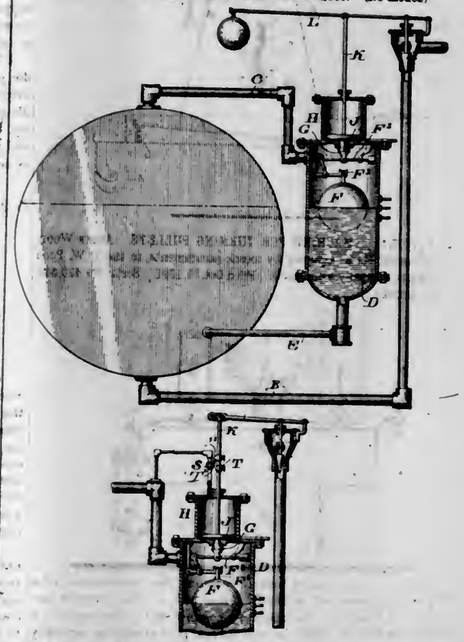
521,350. BALL-COCK VALVE. WILLIAM A. TURNER, Worcester, Mass., assignor to Edmund Converse, same place. Filed Oct. 18, 1889. Serial No. 327,469. (No model.)



Claim.—1. The combination of pipe B, communicating with a valve chamber C, a valve chamber C provided with an opening C' and having a transverse partition D provided with a water way D' and a valve seat D^2, cap E provided with a water way E' and valve seat E^2, cap F provided with a concentric opening F', spindle G sliding in said concentric opening and having a section H adapted to carry a valve disk, a valve disk H' carried on said section, a hollow section I arranged to slide upon the section H, a valve disk I^2 carried by said section I by a screw threaded nut I^3, nut I^3 held upon the section I and provided with wings *a*, *a*, *a*, arranged to bear against the wall of the water way E', pin I' carried by the hollow section I and working in a slot I^3 in the section H, in order to limit the sliding motion of said hollow section, substantially as described.

2. The combination of a barrel inclosing a valve chamber and placed transversely to the water supply pipe, a supply pipe communicating with the central portion of said chamber, caps E and F applied to the ends of said barrel, partition D provided with a valve seat D^2, valve spindle G sliding concentrically in the cap F and having a section H, valve disk H' carried on said section H, a hollow section I sliding on said section H, valve disk carried by said hollow section, spring I^2 acting to separate the sections of the valve stem, means by which the sliding motion of said hollow section is limited, a valve seat provided upon the cap E and a valve disk carried by the hollow section of the valve stem, substantially as described.

521,351. AUTOMATIC BOILER-FEED. HENRY J. WEISSER, Pottstown, Pa. Filed Aug. 26, 1893. Serial No. 484,113. (No model.)

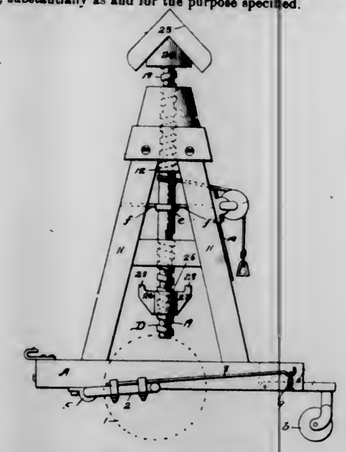


Claim.—1. An automatic boiler feed having a vessel connected by water and steam pipes with the boiler, a water pipe leading into the boiler and having a controlling valve, a valve controlling a steam outlet from said vessel, said valve being connected by levers with a float therein, a box in communication with said steam outlet having a piston therein, a lever connected with said water pipe valve and with said piston, and a supplemental steam pipe leading from the first mentioned steam pipe to said box on the opposite side of the piston from said steam outlet valve of the said vessel, and a valve in said supplemental steam pipe having an arm engaged by stops on the stem of said piston, said parts being combined substantially as described.

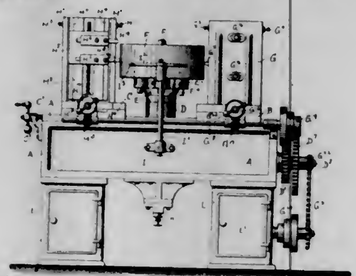
2. The combination of the vessel D, having steam and water communication with a boiler, the box H on said vessel D, the valve G between said vessel and box, the lever F' in said vessel, the float F freely mounted on said lever F', the lever F^2 having a weight on one end, and its other end linked to said lever F', the said valve G being pivotally connected to said lever F^2 intermediate of its fulcrum and its linked connection, a piston in said box, a water supply pipe to said boiler with a valve therein, and a weighted lever connected to said water supply pipe valve and to said piston, substantially as and for the purpose set forth.

521,352. STUMP-EXTRACTOR. WILLIAM R. WILKINSON, Bullock County, Ga. Filed Nov. 25, 1893. Serial No. 491,933. (No model.)

Claim.—The stump extractor comprising the bottom frame, the pyramidal shaped supporting-frame, the cap-piece having the depending edge flanges to take in and set over the top of the support and formed with a conical central portion rising from the base, the right and left hand lifting-screw projected through the cone of the cap-piece, the double inclined head-piece on the lifting screw, the bracket, chains on the bracket, the grooved-pulley mounted on the frame, and a rope on the grooved-pulley having one end fastened to the lifting-screw, substantially as and for the purpose specified.



521,353. MACHINE FOR TURNING PULLEYS. AURIN WOOD, Worcester, Mass., assignor, by mesne assignments, to the L. W. Pond Machine Company, same place. Filed Oct. 31, 1891. Serial No. 410,442. (No model.)



Claim.—1. In a pulley turning machine, the combination of a bed, a spindle journaled vertically in said bed, a pulley support carried by said spindle, a horizontal way below said pulley support, a carriage capable of sliding on said way, a post extending vertically from said carriage when said post is parallel with the axis of said pulley support, a way upon one of its vertical sides of said post, and a tool holder capable of sliding on said way in a plane parallel with the axis of said pulley support, substantially as described.

2. In a pulley machine, the combination of a bed provided with ways extending across the top of said bed, a spindle journaled in said bed and having a pulley support upon its upper end, a carriage arranged to slide along said ways, a plate pivotally attached to and extending upward from said carriage and provided with ways for a tool holder a tool holder sliding along the ways upon said pivoted plate, and means by which said pivoted plate can be held at a desired angle to the axis of said spindle, substantially as described.

3. In a pulley machine, the combination of a bed, provided with ways extending across the top of said bed, a carriage arranged to slide on said ways, a rotating pulley support journaled in said bed, a rotating shaft journaled in said carriage, a plate pivoted upon said carriage concentrically with said shaft, a tool holder sliding along said pivoted plate, a feed screw journaled on said plate, and engaging said tool holder, said feed screw being operatively connected with said shaft, and means by which said pivoted plate is adjustably held in relation to said rotating pulley support, substantially as described.

4. In a pulley turning machine, the combination with a bed and a spindle journaled in said bed and carrying a pulley support, of a way on said bed, carriages moving along said way, rotating feed shafts journaled in said carriages, a driving shaft G^{16} connected with said feed shafts, by which they are simultaneously driven, plates supported on said carriages and pivoted concentrically with said feed shafts, actuating screws journaled on said plates and operatively connected with said feed shafts, and tool holders capable of sliding on said plates in planes parallel with the axis of said pulley support, substantially as described.

5. In a pulley turning machine, the combination of a bed, a spindle journaled in said bed, tool holders moving along ways by which they are traversed across the face of the pulley to be turned a rotating feed shaft G^{16}, feed screws actuating said tool holders and clutching mechanisms by which said feed screws are operatively connected with said feed shaft, substantially as described.

6. In a pulley turning machine, the combination of a rotating spindle, by which the pulley to be turned is carried, an arbor held concentrically in said spindle, and a series of pulley clamping devices carried by said spindle and arranged around said arbor and consisting of the U shaped clamps E^5 carrying the tightening screws E^6, substantially as described.

7. In a pulley turning machine, the combination of a rotating spindle, by which the pulley is carried, a tool holder arranged to traverse across the face of the pulley to be turned, a fixed spindle supported by the face of the machine, a sliding graduated gage bar supported by said fixed spindle, whereby the diameter of the pulley is determined, substantially as described.

8. In a pulley turning machine, the combination of a bed, a spindle journaled in said bed and carrying the pulley to be turned, a driving pulley, intermediate connecting mechanism between said spindle and said driving pulley, a sliding block carrying said driving pulley, by which its position is varied to allow change-gears to be used, and an actuating screw, by which said block is moved, substantially as described.

521,354. SHIPPING-CRATE. GEORGE W. WORDEN, Dover, Del. Filed Feb. 15, 1893. Serial No. 462,467. (No model.)



Claim.—1. The crate adapted to contain tiers of fruit receptacles, comprising top and bottom frames, vertical strips extending around the same at intervals apart and secured to the outer faces of said frames at the respective ends of said strips, an inner facing of veneering or thin board secured to said vertical stripe, horizontal cleats secured to the veneering or thin board on the inside of the crate at intervals above each other sufficient to permit the outer edges of the fruit receptacles to pass thereunder and be held down thereby, and a series of removable slats or racks supported on the said horizontal cleats, as and for the purpose set forth.

2. The crate comprising top and bottom frames, vertical strips extending around the same at intervals apart and secured to the outer faces of said frames at the respective ends of said strips, an inner facing of veneering secured between said strips and frame, horizontal cleats secured to the inner face of the veneering facing, slats secured to the bottom of the lower frame and thin yielding slats secured to and supported on the upper side of the bottom frame, substantially as described.

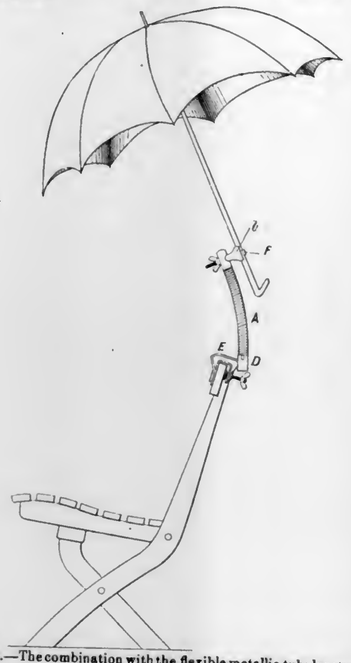
3. The crate comprising the top and bottom frames, vertical strips extending around the same at intervals apart and secured to the outer faces of said frames at the strips respective ends, an inner facing of veneering secured between said strips and frame, horizontal cleats secured to the inner face of the veneering, slats secured to the bottom of the lower frame, thin yielding slats secured to and supported on the upper side of the bottom frame, and a series of removable slats or racks supported on the horizontal cleats, substantially as described.

4. The crate comprising the top and bottom frame, vertical strips extending around the same at intervals apart and secured to the outer faces of said frames at the ends of said strips, an inner facing of veneering secured between said strips and frame, horizontal cleats secured to the inner face of the veneering, slats secured to the bottom of the lower frame, thin yielding slats secured to and supported on the upper side of the bottom frame, one or more intermediate fruit supporting yielding slats or racks supported at their ends by said horizontal cleats and adapted to be removed, and a top tier composed of short slats secured to cleats and formed in two sections, said sections being supported on the top horizontal cleats and the edges of the fruit basket, substantially as described and for the purpose set forth.

5. The crate comprising the top frame A and bottom frame B, vertical side strips C secured to the outer faces of said frames and

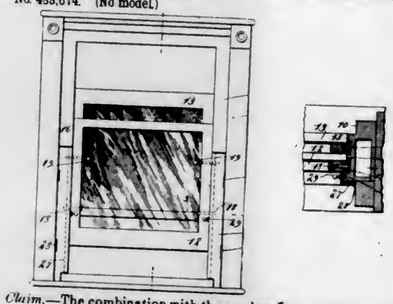
connecting the same, an inner facing F of veneering or thin board held between said strips C and the frame, and slats secured to the bottom frame on the under side thereof, top strips secured on the upper frame at the sides thereof, and one or more cover boards L, having cleats on the under side adapted to project under said top strips and rest on the basket, substantially as described.

521,355. FLEXIBLE SUPPORT FOR UMBRELLAS, &c. WILLIAM J. YAPP, London, England. Filed Sept. 27, 1893. Serial No. 486,632. (No model.)



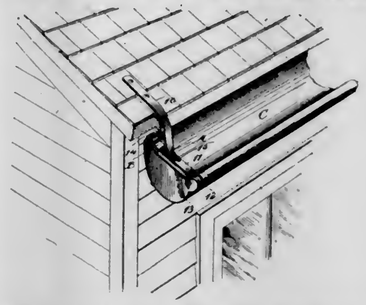
Claim.—The combination with the flexible metallic tubular standard, constructed of a spirally coiled interlocking strip, of the plugs fitting the ends of said standard, clamping devices connected with the said plugs, and a stiffening wire traversing the said standard and having its ends held in slots formed in the inner ends of the said plugs, substantially as shown and described.

521,356. WINDOW. CLEMENT AJELLO, New York, assignor of one-half to Lorenzo Gull, Brooklyn, N. Y. Filed Oct. 20, 1893. Serial No. 488,674. (No model.)



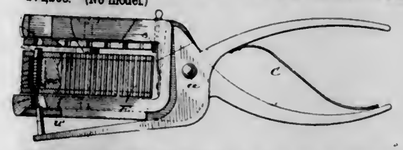
Claim.—The combination with the window frame, recessed at the top and having outer and inner stop beads whose lower portions are cut away, bars adapted to slide between the beads, sashes pivoted to said bars and removable pins for securing the sashes in normal position, the angular covers hinged to the inner side of the frame and adapted to fold flush into the spaces formed by the removal of portions of the inner stop-beads, and thumb-screws for securing the covers closed, all arranged and operating as shown and described.

521,357. EAVES-TROUGH HANGER. FRANK P. ALBRO, Mayville, N. Y. Filed Feb. 23, 1894. Serial No. 501,182. (No model.)



Claim.—As a new article of manufacture, the herein described eaves-trough hanger consisting of two members A, B, the member A forming a shank 10, a horizontally ranging part 11, a semi-cylindrical or concaved body 13, the circular member 12 located at the angle of the horizontal part 11 and the body 13, and adapted to receive the rounded head or edge of the eaves-trough, the entrance or neck of such circular member being contracted, and the returned end 14 at the free end of the body 13, and the member B forming a horizontal part having one end pivotally secured to the horizontal part 11 of the member A, and having its opposite, free end formed with an upward and a downward bend engaging the returned end 14 of the member A, such upward and downward bends of the member B, being spaced apart and adapted to receive between them the straight edge of the trough, substantially as described.

521,358. FIGURE-PUNCH FOR CHECKS OR OTHER PAPERS. JAMES B. BACKUS, New York, N. Y. Filed May 18, 1888. Serial No. 274,268. (No model.)



Claim.—1. A punch for checks and other papers, consisting of the combination of two arms pivoted to each other and constituting an operating handle, a cylinder pivoted upon one of the arms and having a series of openings and a series of punches carried in said openings, a disk moving with said cylinder against which said punches may be thrust, said disk and cylinder being separated to receive the paper to be punched, and a single stud carried by the other arm for operating the punches, said stud being rigidly fixed to and under the direct influence and control of the handle arm and acting directly upon the said punches substantially as shown and described.

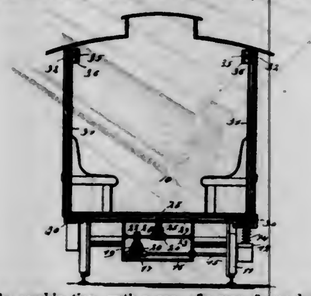
2. A punch for checks and other papers, consisting of the combination of two handle levers or arms, one having a frame D with parallel jaws, one of which jaws and a portion of the frame being recessed externally, and the other of which handle levers or arms is fulcrumed to the first named lever externally within its recess, and carries at its opposite end a rigid inwardly projecting stud, and a rotary cylinder or head pivoted between the jaws of the frame and bearing a series of retractile punches adapted to be directly operated upon by the stud, substantially as shown and described.

3. The combination of the pivoted lever arm A having frame D composed of parallel jaws, the revolving punch carrying cylinder pivoted to revolve between the same, and having disk F with notched periphery, and the spring *g* secured between the jaws of the frame in position substantially parallel to the axis of the cylinder, and having a projection adapted to enter the notches of the disk, the said spring being also extended through the frame D and provided with a thumb piece *r* substantially as and for the purpose described.

521,359. STATION-INDICATOR. ARTEMAS BAKER, Lancaster, Tex., assignor of one-half to Artemas Phelps, same place. Filed July 11, 1893. Serial No. 480,111. (No model.)

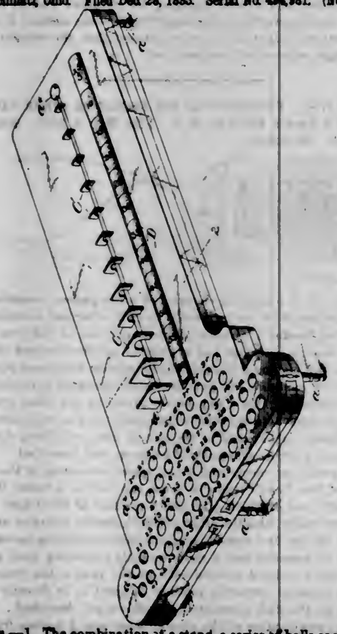
Claim.—1. The combination, with a car, of a rigid map frame slidably mounted in a guide way arranged in the side of said car, a map carried by the frame and provided with the names of stations, a pointer or indicator opposite the map, a spring-pressed wheel jour-

nailed beneath the car and adapted to run upon the track, and a gear connection between the wheel and the map frame whereby the revolution of the wheel slides the frame, substantially as described.



2. The combination, with a car, of a map frame held to slide therein, a map carried by the frame and provided with the names of stations, a pointer or indicator opposite the map, a rack bar on the map frame, a vertical shaft mounted in the car and geared with the map frame, a wheel journaled beneath the car and running on the track, and an operative gear connection between the wheel and the vertical shaft, substantially as described.

521,360. EDUCATIONAL APPLIANCE. ALBERTINA RECHMANN, Cincinnati, Ohio. Filed Dec. 28, 1893. Serial No. 494,981. (No model.)



Claim.—1. The combination of a stand, a series of balls each carrying a mathematical problem, a series of arches each adapted to engage the balls carrying the problems requiring the same answers, and an indicator adapted to register with the arches, substantially as and for the purpose specified.

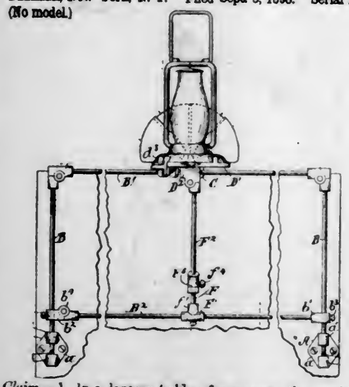
2. The combination of a stand, a series of balls each carrying a mathematical problem, a series of arches each adapted to engage the balls carrying the problems requiring the same answers, an indicator adapted to register with the arches and carrying a table of figures arranged to bring the results of the mathematical tables in series corresponding with the arches, substantially as and for the purpose specified.

3. The combination of a stand, a series of graduated balls each carrying a mathematical problem, a series of arches each adapted to engage the balls carrying the problems requiring the same answer, and an indicator adapted to register with the arches, substantially as and for the purpose set forth.

4. The combination of a stand, a series of balls each carrying a mathematical problem, a series of graduated arches each adapted to engage with the balls carrying the problems requiring the same answer, and an indicator adapted to register with the arches, substantially as and for the purpose specified.

5. The combination of a stand, a series of graduated balls each carrying a mathematical problem, a series of graduated arches each adapted to engage the balls carrying the problems requiring the same answer, and an indicator adapted to register with the arches, substantially as and for the purpose specified.

521,361. LANTERN-HOLDER FOR WAGONS, &c. GEORGE J. BEEHLER, New York, N. Y. Filed Sept. 8, 1893. Serial No. 485,050. (No model.)



Claim.—1. In a lantern-holder for wagons, the combination of sockets adapted to be secured to a wagon, a frame composed of a horizontal bar and legs hinged to said bar and adapted to enter said sockets, and a holder for a lantern mounted on said bar, substantially as shown and described.

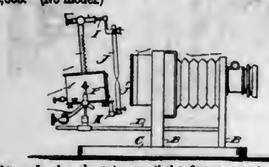
2. In a lantern-holder for wagons, the combination of a frame composed of a horizontal bar and legs hinged to said bar, a slide mounted on said bar, and a ring holder for a lantern composed of sections pivoted together and to said slide, substantially as shown and described.

3. In a lantern-holder for wagons, the combination of a horizontal bar, means to support said bar, a slide mounted on said bar, a ring-holder composed of sections pivoted together and to said slide, and a sectional reflector having its sections pivoted to said slide, substantially as shown and described.

4. In a lantern-holder for wagons, the combination of a frame composed of an upper horizontal bar and legs hinged to said bar, a holder for a lantern mounted on said bar, a lower bar adapted to engage said legs, a socket carried by said lower bar, and a leg hinged to said holder and adapted to enter said socket, substantially as shown and described.

5. In a lantern-holder for wagons, the combination of a horizontal bar, means to support said bar, a slide mounted on said bar, a ring holder for a lantern composed of sections pivoted together and to said slide, a leg pivoted to said slide, and a brace pivoted to said holder and to said leg, substantially as shown and described.

521,362. ELECTRIC-ARC LIGHT FOR MAGIC LANTERNS. CHARLES BEEHLER, Jersey City, N. J. Filed Mar. 16, 1894. Serial No. 503,865. (No model.)



Claim.—1. An electric arc light for magic lanterns, comprising a casing mounted to slide vertically and supporting the carbons, a bell crank lever engaging with one arm the said casing, and means for imparting a swinging motion to the said bell crank lever to raise or lower the said casing, substantially as shown and described.

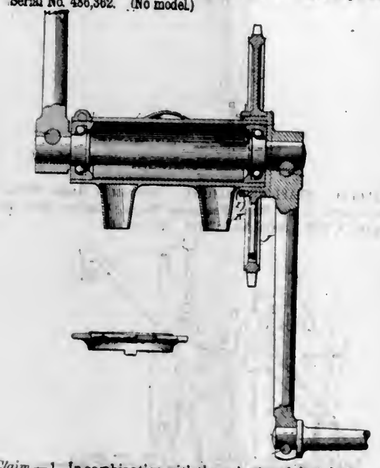
2. An electric arc light for magic lanterns, comprising longitudinally-adjustable posts, connected sleeves fitted to slide on the said posts, a casing pivoted on the cross bar connecting the said sleeves with each other, a bell crank lever engaging the said cross bar, and a screw rod engaging the said bell crank lever to raise or lower the said casing, substantially as shown and described.

3. An electric arc light for magic lanterns, comprising sleeves fitted to slide vertically, a cross bar for connecting the sleeves with each other, a casing pivoted on the said cross bar and provided with a lip having a slot, and a set screw screwing in a projection from the said cross bar and engaging the said slot in the lip, substantially as shown and described.

4. An electric arc light for magic lanterns, provided with a carbon carrier, comprising a tube supported on a rack, a rod fitted to slide in the said tube and provided with a clamp for the carbon, and a screw rod turning in the said tube and screwing in the said rod, substantially as shown and described.

5. An electric arc light for magic lanterns, provided with a carbon carrier, comprising a tube supported on a rack, a rod fitted to slide in the said tube and provided with a clamp for the carbon, a screw rod turning in the said tube and screwing in the said rod, and a pin projecting from the said rod and engaging a longitudinal slot in the said tube to prevent the rod from turning, substantially as shown and described.

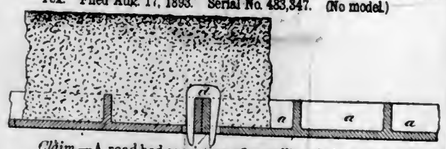
521,363. BICYCLE. ALFRED H. BISHOP, Toledo, Ohio, assignor to the Snell Cycle Fittings Company, same place. Filed Sept. 25, 1893. Serial No. 486,362. (No model.)



Claim.—1. In combination with the yoke A and shaft C, the crank D with boss G and slotted flange H, the sprocket wheel J with hollow hub provided with lugs or keys *b* and the securing screw ring K, substantially as and for the purposes set forth.

2. The crank formed with the hollow boss G and slotted flange H, in combination with the sprocket wheel J having a hollow hub provided with lugs or keys *b* adapted to interlock with the boss, substantially as and for the purposes set forth.

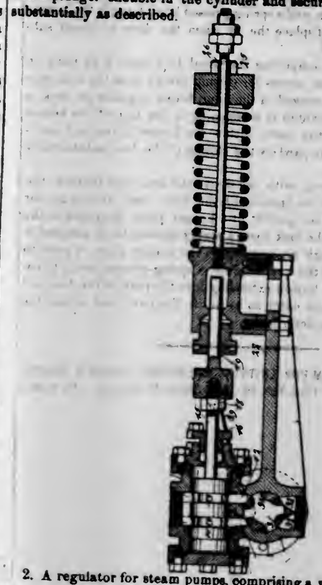
521,364. ROAD-PAVEMENT. GEORGE R. BOWEN, San Antonio, Tex. Filed Aug. 17, 1893. Serial No. 483,347. (No model.)



Claim.—A road bed consisting of metallic cellulated plates forming a rigid base, and loose fragmentary material filling the cells and covering the plate, the walls of the cells maintaining the fragmentary material in place without cement or the like, substantially as described.

521,365. REGULATOR FOR HYDRAULIC STEAM-PUMPS. THOS. J. DAVIS, Charlotte, N. C. Filed Sept. 27, 1893. Serial No. 486,614. (No model.)

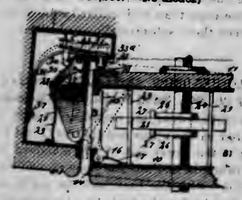
Claim.—1. A regulator for steam pumps, comprising a sliding piston valve in the steam inlet of the pump; a rotary valve arranged also in the inlet and at right angles to the ports of the sliding valve, a spring-repressed cross bar connected with the rod of the sliding valve, a crank connection between the cross bar and the rotary piston valve, a cylinder connected with the water under pressure from the pump, and a plunger slidable in the cylinder and secured to the cross bar, substantially as described.



2. A regulator for steam pumps, comprising a valve casing having ports therein and adapted to connect with the steam supply of the pump, a sliding piston valve having ports to register with those of the valve casing, a second rotary valve arranged adjacent to the sliding valve and provided with ports to register with the ports of the valve casing, a spring-repressed cross bar connected to the piston rod of the sliding piston valve, an adjustable crank connection between the cross bar and the stem of the rotary valve, a cylinder connected with the water under pressure from the pump, and a plunger arranged to slide in the cylinder and connected with the cross bar so as to push the latter against the tension of its spring, substantially as described.

3. The combination, of the cross bar pressed in one direction by a spring and in the opposite direction by water under pressure from a steam pump, a two-part valve casing adapted to be arranged in the steam inlet of the pump, one part of the valve casing having internal diametrical ports registering with the other part of the valve casing, a sliding piston valve held to move opposite the ports in the valve casing and connected with the cross bar, a rotary cored valve arranged at right angles to the sliding valve and provided with ports to register with those of the valve casing, a crank on the stem of the cored valve, and an adjustable connection between the crank and the cross bar, substantially as described.

521,366. LOCK. WILLIAM W. DAVIS, New York, N. Y. Filed Oct. 5, 1893. Serial No. 487,260. (No model.)



Claim.—1. A door lock, comprising the usual case and lock spindle, a fly hinged in the opening of the lock case to swing at right angles to the plane of the face plate, a spring-pressed latch in the keeper plate of the door frame, adapted to press inward against the fly, and a slide bolt carried by the lock spindle and disconnected from the fly but adapted to move the fly against the latch, substantially as described.

2. A door lock, comprising a lock case in the door, the usual knob spindle arranged transversely in the case, a fly hinged in the case to work at right angles to its face plate and adapted to close an opening therein, a slide bolt disconnected from, but arranged to move

endwise against the fly, means, as the tumblers and studs, for moving the bolt from the knob spindle, a keeper plate arranged in the usual way in the door frame, and a spring-pressed latch hung in the keeper plate and adapted to displace the fly when the door is closed, substantially as described.

3. A door lock, comprising the usual lock case, a fly hung on the opening of the case, means for closing the fly from the lock spindle, a keeper plate arranged in the door frame opposite the lock, a spring-pressed latch pivoted in an opening in the face of the keeper plate, a pawl to hold the latch within the keeper plate, and mechanism for releasing the pawl by the closing of the door, substantially as described.

4. The combination, with the door, the lock case therein, the lock spindle, the fly in an opening of the lock case, and means for closing the fly from the spindle, of a keeper plate arranged in the door frame opposite the lock case, a spring-pressed latch adapted to swing outward through an opening in the keeper plate, a pawl to hold the latch within the keeper plate, a spring-pressed catch to engage the pawl, and a button extending into the path of the door and adapted to operate the catch so as to lift the pawl and release the latch, substantially as described.

521,367. CAM FOR KNITTING-MACHINES. GEORGE H. GILBERT, Philadelphia, Pa. Filed Feb. 26, 1894. Serial No. 501,435. (No model.)



Claim.—1. A drawing cam for knitting machines, having on its forward side a sharp incline for depressing the needles to the casting point, a more gentle incline for depressing the needles from the casting point to the drawing point, a notch behind said gentle incline for permitting a sudden rise and descent of the needles, and a retaining portion behind said notch for preventing sudden rise of the needles after their bits have left the notch, substantially as specified.

2. A drawing cam for knitting machines having on its forward side a sharp incline for depressing the needles to the casting point, and a more gentle incline for depressing the needles from the casting point to the drawing point, and, beyond the latter, a retaining portion for preventing sudden rise of the needles after they have drawn the stitches.

3. A drawing cam for knitting machines having opposite inclined sides and, adjacent to the lower or inner end, inclined portions which are, in respect to the line of reciprocating movement of the needles at a much more obtuse angle than the inclined sides of the cam.

4. A drawing cam for knitting machines having opposite inclined sides, and on each side of the lower or inner end an inclined portion which, in width, is equal to or somewhat greater than the distance between adjoining needles, and in depth is equal to the distance between the casting point and the drawing point in the longitudinal movement of the needle.

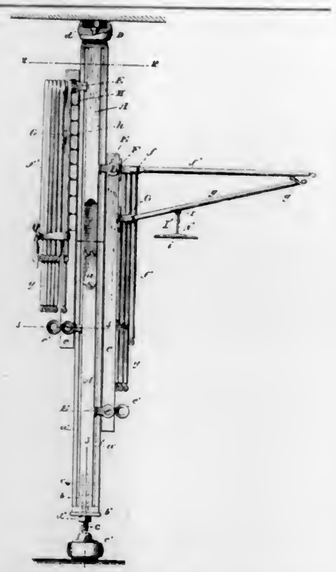
5. A drawing cam for knitting machines having opposite inclined sides, and at the lower or inner end opposite inclined portions which are, in respect to the line of reciprocating movement of the needles, at a much more obtuse angle than said inclined sides of the cam, and having a notch between them, substantially as specified.

521,368. CLOTHES-DRIER. EZRA B. GILDERSLEEVE, New York, N. Y. Filed July 19, 1893. Serial No. 480,398. (No model.)

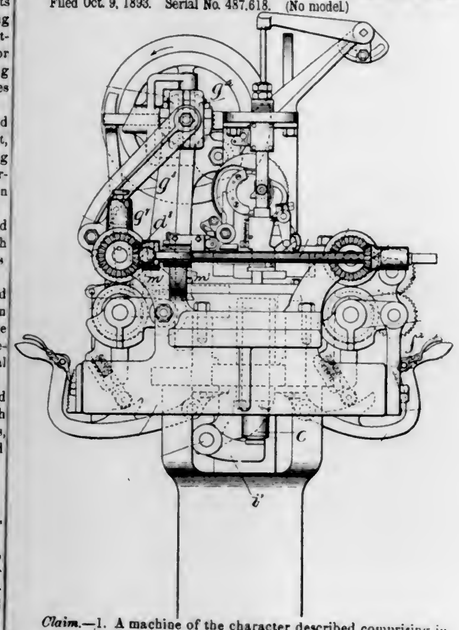
Claim.—1. In a clothes drier, the combination with a standard, a cap pivotally secured on the upper end thereof, a nut *b* rigidly secured in an opening in the lower end of the standard, a base *c'*, a threaded bolt C operating in said nut and opening and having a ball and socket connection *c* with the base, and the nut *d'* arranged on said bolt below the standard and adapted to be screwed up on the bolt close to the standard, substantially as and for the purpose described.

2. The combination of a standard, a piece *e* arranged to slide thereon, a series of arms *f'* pivotally connected with said sliding piece at the top thereof, a series of rods *g* pivoted to the piece and adapted to support the arms, and the rings *g'* carried by the arms to engage with the ends of the rods, when the arms are elevated, to hold them rigid, said rings being at all times around the rods and holding the rods and arms compactly folded when not in use, substantially as described.

521,368.



521,369. STAPLING-MACHINE. WILLIAM S. HAMM, Newton, Mass., assignor to the Staple Fastening Machine Company, Saco, Me. Filed Oct. 9, 1893. Serial No. 487,618. (No model.)



Claim.—1. A machine of the character described comprising in its construction two sets of feed-rollers at opposite sides of the machine, one roller of each set being adjustably supported, gearing connecting all the said feed-rollers, and means for actuating the same step-by-step, said means being capable of adjustment so as to actuate the rollers in either direction.

2. A machine of the above described character comprising in its construction two sets of feed-rollers at opposite sides of the machine, one roller of each set being adjustably supported, and one roller carrying a ratchet, a pitman connected with the driving-shaft and carrying a reversible pawl for engaging said ratchet, and means operatively connecting the two sets of feed rollers.

3. In a machine of the character described, a longitudinal feed, a transverse feed, an intermittent driver, means for operatively connecting the same with the longitudinal and the transverse feed, to produce step-by-step action thereof, and means for rendering both feeds inoperative, substantially as and for the purposes described.

4. In a machine of the character described, a longitudinal feed, an intermittent driver connected therewith, means for rendering said longitudinal feed inoperative, a transverse feed, and means for connecting said driver with and disconnecting it from the said transverse feed.

5. In a machine of the character described, the combination of means for feeding the work longitudinally, an intermittent driver connected therewith, means for rendering said work-feeding means inoperative, a tool supporting carriage movable transversely of the work, and means for connecting said driver with and disconnecting it from said carriage.

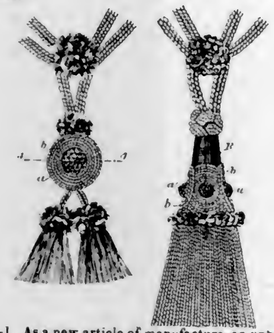
6. In a machine of the character described, the combination of means for feeding the work longitudinally, an intermittent driver connected therewith, means for rendering said work-feeding means inoperative, a tool-supporting carriage movable transversely of the work, an anvil mounted on said carriage, and means for connecting the driver with and disconnecting it from the carriage.

7. In a machine of the character described, the combination of feed-rollers for moving the work longitudinally, an intermittent driver adapted to actuate the same, a tool-supporting carriage movable transversely of the work, and means for connecting the same with and disconnecting it from the intermittent driver.

8. In a machine of the character described, the combination of two sets of feed-rollers, one roller of each set being movable out of operative relation with the other, means for operatively connecting the sets of rollers and for disconnecting them, an intermittent driver for actuating the rolls, a tool-supporting carriage movable transversely of the work, and means for connecting the same with and disconnecting it from the intermittent driver.

9. In a machine of the character described, the combination of two sets of feed rollers, one roller of each set being movable into and out of operative relation with the other, gearing connecting the sets of rollers and including a clutch, a ratchet on one of the rollers, a pitman connected with the driving shaft and carrying a pawl engaging said ratchet, a tool-supporting carriage movable transversely of the work and having a rack, a gear movable into and out of engagement with said rack, and connections between said gear and the roller carrying the ratchet.

521,370. UPHOLSTERY PENDANT OR ORNAMENT. GEORGE F. HENSEL, Philadelphia, Pa. Filed Jan. 26, 1894. Serial No. 498,084. (No model.)



Claim.—1. As a new article of manufacture, an upholstery ornament consisting of a block having a jewel of glass secured to and projecting beyond the face of the block so as to permit the passage of light through the same, from side to side, substantially as specified.

2. An upholstery ornament consisting of a block having an ornamental covering combined with a jewel of glass secured to the block and projecting beyond the ornamental covering, substantially as specified.

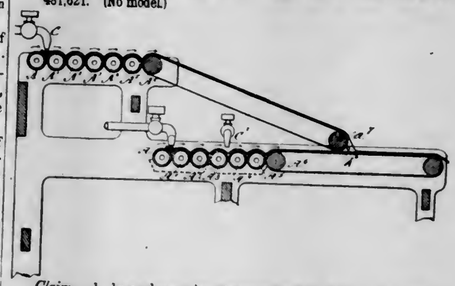
3. As a new article of manufacture, an upholstery ornament having a block with recess therein and a glass jewel having a base secured within said recess, and a faceted portion projecting beyond the face of the block, substantially as specified.

4. An upholstery ornament consisting of a block having an ornamental covering and a jewel of glass secured to the block and projecting beyond said ornamental covering, the lower portion of the jewel being overlapped by a portion of the ornamental covering which aids in securing the said jewel in place on the block, substantially as specified.

5. An upholstery ornament consisting of a block having a recessed face and an ornamental covering and a jewel of glass having a base secured within the recess of the block, and a body portion overlapped by the ornamental covering of the block, substantially as specified.

6. As a new article of manufacture, an upholstery ornament consisting of a perforated block, a jewel of glass applied to the block so as to close an end of the perforation therein, and a supporting cord whereby the block is suspended so as to permit the passage of light through the perforation, substantially as specified

521,371. PROCESS OF AND APPARATUS FOR MAKING GLUE. PETER C. HEWITT, New York, N. Y. Filed July 27, 1893. Serial No. 481,621. (No model.)



Claim.—1. In a glue cooler, the combination of two or more cylinders arranged to revolve in the same direction in close proximity one to another, the first cylinder being arranged to deliver the cooled glue to the second cylinder, and means, substantially as described, for cooling the cylinders.

2. In a machine for forming liquid glue into sheets, the combination of two or more cylinders arranged to revolve in the same direction in close proximity one to another, and a supply for delivering the liquid glue to the cylinders, substantially as described.

3. In glue cooling apparatus, the combination of two glue coolers, one cooler being arranged to deliver the sheet of glue to the sheet delivered by the other cooler, thereby forming one sheet, substantially as specified.

4. In glue-cooling apparatus, the combination of two series of cooling cylinders, one series being arranged to deliver the sheet of glue to the other series, and means for cementing the two sheets of glue together, substantially as specified.

5. The method of cooling glue, which consists in bringing a body of liquid glue into contact with a body of glue cooled below the gelatinizing point, removing the heat from the liquid glue by contact with the body of cooled gelatinized glue, and causing the body of liquid glue to attach itself to the body of gelatinized glue without mixing the two bodies of glue, thereby forming a single sheet of glue, which consists at first of a layer of gelatinized glue and a layer of liquid glue, and which, by the absorption of heat from the liquid glue by the cooled glue, becomes a single thick sheet of gelatinized glue, substantially as specified.

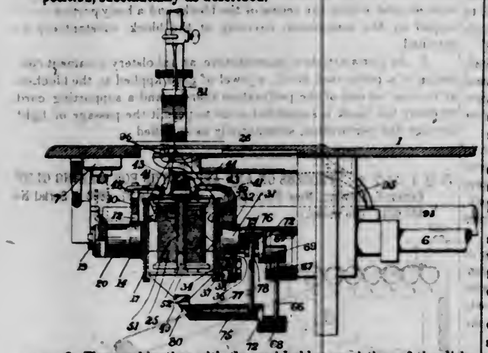
6. The method of forming a thick sheet of glue, which consists in separately forming two or more sheets of gelatinized glue, superposing said separately formed sheets, causing the adjacent surfaces of the sheets to adhere, and finally evaporating the sheets to dryness, substantially as herein specified.

521,372. SEWING-MACHINE. JOHN HOLROYD, CHARLES B. HUNT, and RICHARD J. JOHNS, London, England, assignors to the New Branston Two Reel Sewing Machine Company, Limited, same place. Filed Nov. 9, 1893. Serial No. 490,485. (No model.) Patented in England Sept. 12, 1893, No. 17,155.

Claim.—1. In a reel sewing-machine, the combination of the reel-carrying bracket 17 provided with trunnions pivotally mounted in bearings, a spring for tilting said bracket in its bearings, a disk 14 arranged over one of said trunnions and secured to one side of said bracket, said disk being provided upon its periphery with a notch 13, a pivoted lever 10 provided at one end with a hook or nose 12, and a spring 15 for normally holding said hook or nose in engagement with the notch 13 to lock the bracket in operative position, substantially as described.

2. In a reel sewing-machine, the combination of the reel-carrying bracket 17 provided with trunnions pivotally mounted in bearings, a spring for tilting said bracket in its bearings, a disk 14 arranged over one of said trunnions and secured to one side of said bracket, said disk being provided upon its periphery with a notch 13 and a stop or shoulder 27, a pivoted lever 10 provided at one end with a hook or

nose 12, and a spring 15 for normally holding said hook or nose in engagement with said notched disk to lock the bracket in operative position, substantially as described.

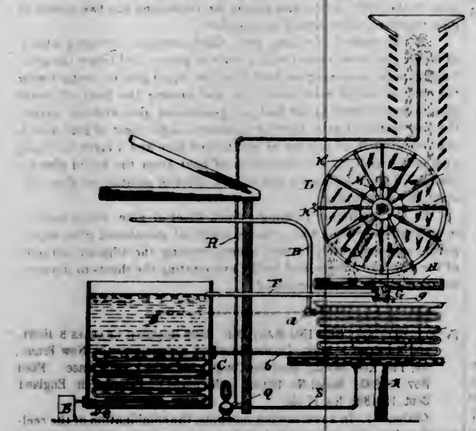


3. The combination with the reel holder consisting of the disks 48 and 49 connected together by the posts 50 and 51, of the swinging reel support consisting of the plate 53 pivotally mounted on the post 51 and carrying a hollow pedestal 54, a plunger 55 projecting through an aperture in the bottom of said plunger and engaging a centrally arranged recess in the disk 49, a spring 56 arranged within the hollow pedestal, and a screw plug 57 for controlling the tension of said spring, substantially as described.

4. The combination with the bracket 17 of the reel holder 16 provided upon its upper side with two lugs 43 and 44 curved upwardly and toward each other, one of said lugs being higher than the other, the shaft 6, the cam 31 mounted on said shaft, and the reel lifting device actuated by said cam and provided with the curved thread guides 41 and a lifting prong 42 engaging the lugs 43 and 44, substantially as described.

5. In a two reel sewing machine, arms 66, 67, on collar 64 in combination with arms 77, 78 on socket 79 employed in conjunction with cranks 70, 71, 73, 74 for operating hook 80 from eccentric 63, arms 77, 78 with boss 79 being fixed to under shaft 6, substantially as described.

521,373. CONDENSER. SAMUEL W. JOHNSON, Newport News, Va. Filed Nov. 9, 1893. Serial No. 490,461. (No model.)



Claim.—1. The herein described method or system of utilizing waste condensing-water, in a condensing-apparatus, to further condense the fluid in the pipes, the same consisting in first conveying said water to a suitable distributing-receptacle or vessel; then distributing it in showers or small columns over the liquid cooling-coils into a second vessel or receptacle, then conducting it to a pump and forcing it to a suitable height and spraying it into the first mentioned receptacle, there to have the operation repeated.

2. The herein described method or system of utilizing waste condensing-water, in a condensing-apparatus, to further condense the fluid contained in the pipes, the same consisting in first conveying said water to a suitable distributing-vessel; then distributing it in showers or small columns over the liquid cooling-coils into a second vessel; then conducting it to a pump and forcing it to a suitable height, from which it falls in sprays, and finally subjecting the sprayed water to a current of air before it falls into the first mentioned vessel.

3. The herein-described method or system of utilizing waste condensing-water, in a condensing apparatus, to further condense the fluid contained in the pipes, the same consisting in first conducting the said water to a suitable vessel; then distributing it in showers or columns over the liquid cooling coils into a second vessel; then conducting it to a pump and forcing it to a suitable height; then spraying it upon revolving sheets of absorbent material, and finally, subjecting the water to currents of air.

4. In a condensing-apparatus, the combination, with a water-supply pipe, of a wheel having paddles of absorbent material, and a slotted tower to protect the water from winds and direct it upon said paddles, substantially as specified.

5. In a condensing-apparatus, the combination, with a water-supply pipe, of a wheel having paddles of absorbent material, a slotted tower for protecting the water from the wind, and a vessel for receiving said water and distributing it over a series of cooling-coils containing the fluid to be cooled, substantially as specified.

6. In a system of utilizing the waste condensing-water in a condensing-apparatus, the combination with the water supply pipe, of a suitable receiving and distributing vessel, a drip pan, a pump for forcing the water through a pipe, a slatted tower in which the open end of said pipe is situated, and a wheel having paddles of absorbent material, substantially as specified.

7. The combination, with a condensing-apparatus, and a water-supply pipe, of a receiving and distributing-vessel, a drip pan situated beneath the first mentioned vessel and connected with a pump, a pump for forcing the water through a pipe leading to a slatted tower, the tower inclosing the open end of said pipe, and a nozzle attached to the pipe for spraying said water, substantially as specified.

521,374. THERMOMETER. ALBERT A. KEENE, Philadelphia, Pa. Filed Feb. 19, 1894. Serial No. 500,814. (No model.)

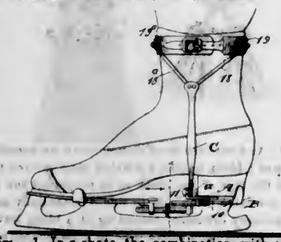


Claim.—1. As an improved article of manufacture, a thermometer having a transparent body part comprised of layers of glass, a scale strip of translucent material secured between the two layers and bearing a graduated scale, and a thermometer bulb and tube secured to the body part in proper relation to the scale, and means for securing the layers together, all substantially as described.

2. In combination in a thermometer a transparent body part comprised of two layers of glass, a scale strip of translucent material secured between the two layers and bearing a graduated scale, a thermometer tube and bulb secured to the body part, and a frame extending around the edges of the body part, substantially as described.

3. In combination in a thermometer, a transparent body part composed of two layers of glass, a scale strip of translucent material secured between the two layers, a moisture proof layer extending around the edges of the body part, a thermometer tube secured to the body part, all substantially as described.

521,375. SKATE. LUKE W. KENNEY, New York, N. Y. Filed Jan. 19, 1894. Serial No. 497,410. (No model.)



Claim.—1. In a skate, the combination, with a heel plate, provided with a clamping member, of an auxiliary heel plate provided with an opening for the passage of the clamping member of the main heel plate and with a flange at its front end the said flange being provided with recesses in opposite ends, an ankle support the body portion of which is of yoke formation, and provided with a headed stud and a set screw at an interval apart corresponding to the distance between the recesses in the flange of the auxiliary heel plate, the said stud and set screw being adapted to enter said recesses, as and for the purpose set forth.

2. The combination, with the heel plate of a skate, provided with a clamping member, of an auxiliary heel plate provided with an opening for the passage of the clamping member of the main heel plate and with a flange at its front end the flange being provided with recesses in opposite ends, an ankle support, the body portion of which is of substantially U-shape, a stud provided with a head located upon the body portion of the yoke at one side of its center, and a set screw located in the same portion of the yoke at the opposite side of the center, the said set screw being provided with a flanged head and an extension from the head adapted to be grasped by an implement to facilitate the manipulation of the set screw, the said screw and stud being adapted to enter the recesses in the flange of the heel plate, as and for the purpose set forth.

3. As a new article of manufacture, an auxiliary heel plate for skates, formed with a forward clamping member for engagement with the heel of a boot or shoe, a flange in advance of the clamping member adapted for attachment to an ankle support, and a slot between the clamping member and flange for the passage of the forward clamping member of a main heel plate, as set forth.

4. In a skate, the combination, with a heel plate and its forward clamp, of an auxiliary plate removably attached to the heel plate, provided with an opening for the upward passage of the forward clamp of the heel plate, and a flange in advance of the said opening, adapted for attachment to the ankle support, as and for the purpose set forth.

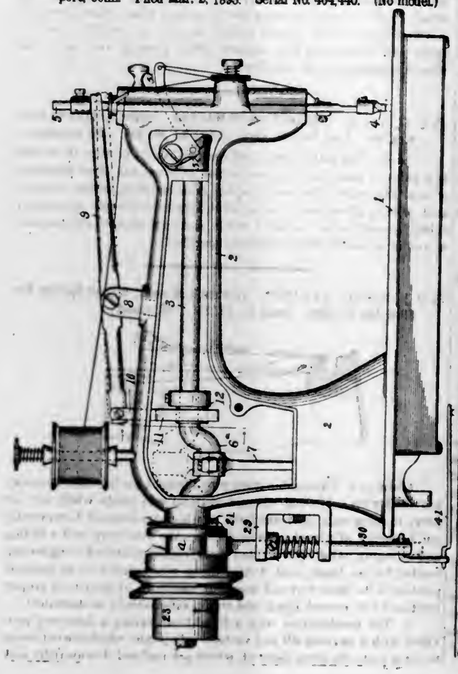
5. In a skate, the combination with the heel plate thereof provided with a clamping member, of an auxiliary heel plate apertured for the passage of the clamping member of the main heel plate, and provided with a flange on its front end, apertured lugs on its under side, and screws in said lugs, substantially as described.

521,376. CAR-COUPLING. ABRON LA RUE, Danville, Pa. Filed Jan. 31, 1894. Serial No. 498,563. (No model.)



Claim.—The combination with a draw-head having a pivoted jaw, means for locking said jaw, and the rear portion L of dovetailed form, of a draw-bar having a seat to receive said portion L, said portion L and its seat being arranged to permit a lateral swing of the draw-head with relation to the bar, substantially as specified.

521,377. SEWING-MACHINE. CHARLES F. LITTLEJOHN, Bridgeport, Conn. Filed Mar. 2, 1893. Serial No. 464,440. (No model.)



Claim.—1. In a sewing machine of the character described, the combination of the main shaft and its driving mechanism, the presser-foot and needle bar, and their operating mechanisms, and connections between the driving mechanism and the main shaft so constructed and arranged relatively to the presser-foot and needle bar mechanisms as to automatically and positively arrest the needle-bar and presser-foot in an elevated position on the stopping of the machine at any stage in the operation of stitching, as set forth.

2. In a sewing machine, the combination of the presser foot and its bar, the needle bar, operating shaft and connections, means for elevating said presser-foot and needle-bar at each revolution of the shaft, and a driving pulley and a clutch device between the pulley and shaft comprising independent frictional connections between the driving part of the clutch device and the said shaft, substantially as described.

3. In a sewing machine, the combination of the presser-foot bar, means for lifting the foot at each revolution of the shaft, operating shaft and connections, and a driving pulley and a clutch device between the pulley and shaft, comprising independent frictional connections between the driving part of the clutch device and the said shaft, substantially as described.

4. In a sewing machine, the combination of the main shaft, the presser foot and its bar, a lever and the connection from the shaft for operating said presser foot and the bar to lift the same at each revolution of the shaft, and a clutch device between the driver and the main shaft, consisting of two parts and a bolt, means for disengaging the clutch parts, and independent frictional driving connections between the driving part of said clutch and the main shaft to advance the latter a predetermined distance after the clutch parts have been disconnected, substantially as described.

5. In a sewing machine the combination of the main shaft and means for operating the same, the presser foot and its bar, a lever for operating said presser foot and bar to lift the same at each revolution of the shaft, a yoke operating said lever from the shaft, means on the shaft for operating the yoke, and a clutch device between the driver and the main shaft, consisting of two parts and an intermediate bolt, and means for shifting said bolt to disconnect it from one of the parts and means for elevating the presser foot after the shifting of said bolt, and as the machine stops, substantially as described.

6. In a sewing machine, the combination with the main shaft and means for operating the same, the presser foot and its bar, a lever and connections from the shaft for operating said presser-foot and bar at regular intervals, and a clutch between the main-shaft driver and main shaft consisting of two parts and a bolt, means for shifting the bolt, and a shoulder or bearing arranged to be struck by the bolt as the presser foot reaches its elevated position, substantially as described.

7. The combination of the shaft-driver, presser-foot and connections and means for driving the same, of a clutch device between the driver and shaft having a part *a* carrying a bolt, a part *b* and means for driving the latter, frictional connections between said driver and shaft, and means for shifting the bolt immediately before the presser-foot is elevated, substantially as set forth.

8. The combination of the shaft-driver, presser-foot and means for operating the same to lift it at each revolution, and a clutch between the driver and main shaft consisting of the parts *a*, *b*, and bolt having a shoulder, and a movable wedge having a shoulder 34, and means for shifting the position of the wedge to engage the bolt immediately before the presser-foot reaches its elevated position, substantially as described.

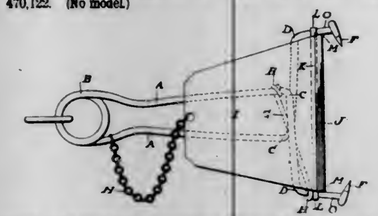
9. In a sewing machine of the character described, the combination of the main shaft and its driving mechanism, the presser foot and its rod, a lever and connections for operating said presser foot and rod to lift the same at each revolution of the main shaft, the needle bar and its operating mechanism, and connections between the driving mechanism and the main shaft so arranged relatively to the presser foot and needle bar mechanisms, as to automatically and positively arrest the needle bar and presser foot in an elevated position, substantially as set forth.

10. In a sewing machine of the character described, the combination with the main shaft and means for operating the same, the presser-foot and its bar, and a lever for operating said foot and bar, connections between said lever and the main shaft for vibrating the same, of the clutch ring, the bolt or slide 18 working therein and formed with the bits 16 and 17, the spring plate attached to the side of said clutch ring and normally pressing the bolt inward, the drive pulley having the inclined groove or recess on its inner side, and the spring-actuated rod 30 having its upper portion beveled or inclined and formed with the "stop" or shoulder, the said rod being normally maintained upward, substantially as described.

11. In a sewing machine of the character described, the combination of the main shaft, presser-foot and bar, and operating lever, connections between said lever and main shaft for vibrating the same, of the clutch and stop mechanism consisting of the hub formed or provided with the clutch ring, the drive pulley, the spring cushion or cap bearing against said drive pulley, and adjustable with respect

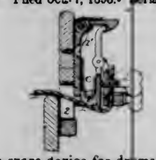
thereto, the spring bolt working in said hub, and the spring-actuated rod 30 formed at its upper portion with a curved and beveled member and constructed with the stop 34, substantially as described.

521,378. ANIMAL-TRAP. SAMUEL L. LOOMIS, Santa Cruz, and ALLEN M. HARRIS, Watsonville, Cal. Filed Apr. 12, 1893. Serial No. 470,122. (No model.)



Claim.—An animal trap consisting essentially of two parts; first a piece of wire bent into a coil spring as at B and having arms A bent upward as at O and terminating in prongs F, the said arms being normally pressed together by said spring; and second, a trigger plate I bent downward at J and provided with a transverse rod or wire K having projecting arms L forming a fulcrum bar in rolling contact with and adapted to rest on said arms A, to extend the same when the trap is set, substantially as and for the purposes described.

521,379. SNARE DEVICE FOR DRUMS. EDWIN A. LOUGEE, Haverhill, Mass. Filed Oct. 7, 1893. Serial No. 487,494. (No model.)



Claim.—1. In a snare device for drums, the combination of the member (A) the snap catch lever, the snare castoff member, the snare straining member, adjusting screw (G), and bite plate (f') and screws (f^2) substantially as, and for the purpose described.

2. The combination with the hoop and the snares of a drum, of a snare device, consisting of the member (A), the snap catch lever, the snare castoff member, the snare straining member, and bite, and strain adjusting device, substantially as, and for the purpose described.

3. In a snare device for drums, the member (A) designed to be retained on the hoop of a drum, and to pivotally retain as described the snap catch lever, and the snare castoff lever, in combination with the spring pressed snap catch lever, the snare castoff lever, the snare straining member and bite and adjusting screw (G), substantially as, and for the purpose described.

4. In a snare device for drums, the member (A), the snap catch lever, the snare castoff lever, substantially as specified, in combination with the snare straining member pivotally retained on the snare castoff member and provided with an efficient snare bite and snare strain adjusting device, substantially as described.

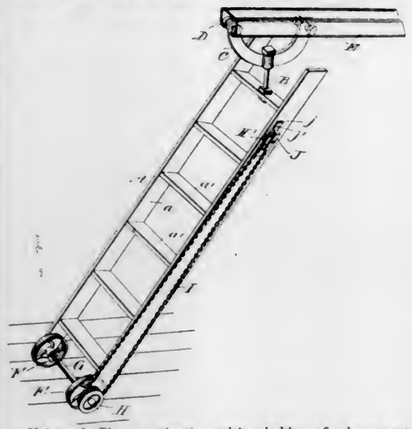
521,380. TOBACCO-PIPE. NEIL MACPHAIL, Glasgow, Scotland. Filed Oct. 24, 1893. Serial No. 489,067. (No model.)



Claim.—1. The combination, in a pipe having a radial smoke opening at its outer end, and a smoke channel extending beyond the outlet to the bowl and communicating with the radial opening, of the cleaner located within the smoke channel, having a rod, a knob located at the inner end of the rod beyond the outlet to the bowl and a knob located at the outer end of the smoke channel; substantially as described.

2. The combination, in a pipe having radial smoke openings e at its outer end, and a smoke channel extending beyond the outlet to the bowl, and communicating with the radial openings, of the cleaner located within the smoke channel, having a rod, a knob located at the inner end of the rod beyond the outlet to the bowl, and a knob located at the outer end of the smoke channel; substantially as described.

521,381. LADDER. FRANK B. MALLORY, Flemington, N. J. Filed Oct. 21, 1893. Serial No. 488,779. (No model.)



Claim.—1. The combination with a ladder, of a hanger at the upper end, running wheels at the lower end of the ladder, an endless chain extending longitudinally of the ladder, and chain wheels over which said chain travels, the lower one of the chain wheels having a driving connection with the running wheels at the bottom of the ladder, substantially as described.

2. The combination, with a ladder and an over-head track, of a guide at the upper end of the ladder, suspending the same from the track, propelling wheels on the lower end of the ladder, a shaft on which the said wheels are fixedly secured, the shaft extending at one end beyond the ladder, a chain wheel on said extended end, a second chain wheel on the ladder near the upper end, and an endless chain passing over said chain wheels, substantially as described.

3. The combination, with a ladder and an over-head track therefor, of a guide at the upper end of the ladder, suspending the same from the track, bearing boxes at the bottom of the ladder in the side bars thereof, the boxes having flanges secured to the side bars, a shaft journaled in said boxes, having fixed wheels for propelling the ladder, the shaft projecting beyond the ladder at one side, a chain wheel fixed to said projecting end, a second chain wheel journaled in a housing or frame having flanges secured to the ladder near the upper end thereof, and an endless chain passing over said chain wheels, substantially as described.

521,382. COMPOSITION OF MATTER. JOSEPH MATTHEWS, Brunswick, Ga. Filed Feb. 28, 1894. Serial No. 501,851. (No specimens.)

Claim.—The within described composition of matter, to be used as a paint or paste for the preservation of wood, the same consisting of coal tar, rosin, pine tar, camphor gum, sulphur, tallow, carbolic acid, arsenic, phosphorus, borax, oil rhodium, bi-chloride of mercury, cobalt, ground poke-root bark, ether, and mineral dust, substantially as and in or about the proportions specified.

521,383. CAR-DOOR. PATRICK T. MOONEY, Walnut Springs, Tex. Filed Jan. 18, 1894. Serial No. 497,301. (No model.)



Claim.—1. The combination with a freight-car having a doorway provided with a beveled sill and vertical side jambs which are cut away to form seats the front faces of which are inclined downwardly and inwardly, of a track arranged above the door-way, and a sliding and swinging car-door provided with rigidly attached hangers suspended by the track, said door seating, when closed, in an inclined position in the door-way and normally assuming, by gravity, a proper position to be moved along said track, substantially as described.

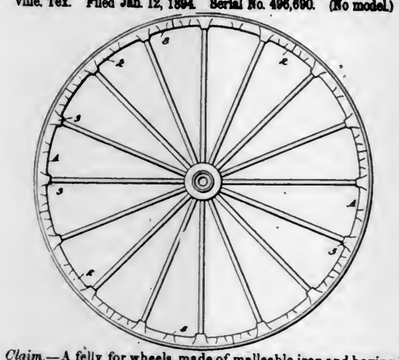
2. The combination with a freight-car having a door-way provided with a beveled sill and vertical side jambs which are cut away to form seats the front faces of which are inclined downwardly and inwardly, of a track arranged above the door-way, a sliding and swinging car-door provided with rigidly attached hangers suspended by the track and seating in an inclined position in the door-way when closed and fastened and normally assuming, by gravity, a proper position to be moved along said track when unfastened, a rock-shaft extending across the outside of the door and having hooked cranks, a lever secured to said rock-shaft and provided with a staple, and a gravity latch also provided with a staple and adapted to drop in front of the upturned end of the lever said staples of the latch and lever being adapted to be connected by a lock, substantially as described.

521,384. GARMENT-FASTENING. MARY C. MORAN, Newton, Mass. Filed Jan. 15, 1894. Serial No. 496,936. (No model.)



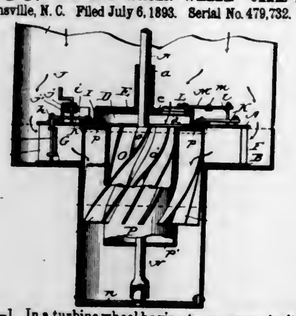
Claim.—A garment-fastening composed of a single wire whose base-portion is formed of two arms separated throughout their length, attaching eyes on the outer sides of said arms, and a doubled-back hook-engaging loop springing from said base arms and spanning the space between them.

521,385. FELLY FOR WHEELS. JEREMIAH T. MOSELY, Shelbyville, Tex. Filed Jan. 12, 1894. Serial No. 496,690. (No model.)



Claim.—A felly for wheels, made of malleable iron and having its inside edge narrower than its peripheral surface, and provided with a central channel extending longitudinally of said peripheral surface, said felly being provided with conical spoke sockets, the larger ends of which are directed outwardly and open into the base of said channel, the inner smaller ends of said sockets being surrounded by the projecting flanges 3 of greater width than the narrow inside edge of the felly, substantially as and for the purpose set forth.

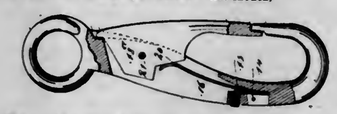
521,386. TURBINE WATER-WHEEL. JAMES M. PARKER, McAdensville, N. C. Filed July 6, 1893. Serial No. 479,732. (No model.)



Claim.—1. In a turbine wheel having two concentrically disposed water wheels, the combination of a case having top and side ports to admit water, respectively, to the inner and the outer wheels, gates for controlling the water through the said ports, a rotatable ring I, links K connecting the side gates with the said ring, toggle levers L and M connected, respectively, with the case and the top gate, and links m connecting the ring I with the said levers M, substantially as described.

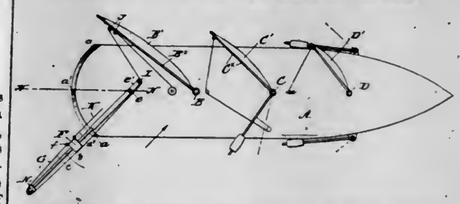
2. The herein described water motor consisting of, a case comprising the upper plate A having a centrally raised portion D, the lower plate B and the tubular portion C depending from the lower plate B, chutes F arranged between the upper and lower plates, gates G for controlling the passage ways formed between the said chutes, a gate E for controlling the flow of water through openings provided in the raised portion D, a ring I encircling the raised portion D, links connecting the said ring with crank arms attached to the gates G, toggle levers L and M connected at their ends, respectively, with the plate A and the gate E, links m connecting the toggle levers M with the ring I, means for turning the said ring, and an inner and an outer turbine wheel mounted on the same shaft and separated by a cylindrical case, substantially as and for the purpose specified.

521,387. SNAP-HOOK. JOSEPH PICKETT, New Hope, Pa. Filed Oct. 20, 1893. Serial No. 488,676. (No model.)



Claim.—In a snap hook, the combination, with a body having a chamber formed therein and terminating at one end in a hook, and a block secured in the rear lower portion of the chamber, forming a pocket in the lower portion of said chamber, of a tongue provided with a recess adapted to receive the hook extremity of the body, said tongue being further provided with a shank integral with it and of greater width, the said shank being pivoted in the chamber of the body, a lip projected from the shank, entering a recess in the body and engaging with the rear wall of the recess simultaneously with the engagement of the tongue with the hook of the body, a spring located in the pocket of the body chamber and having bearing against the shank of the tongue, and an adjusting screw having bearing against the spring, whereby the tension of the spring may be regulated, as and for the purpose set forth.

521,388. BOAT-BALLASTING DEVICE. JAMES P. POOL, Brooklyn, N. Y. Filed Oct. 25, 1893. Serial No. 489,150. (No model.)



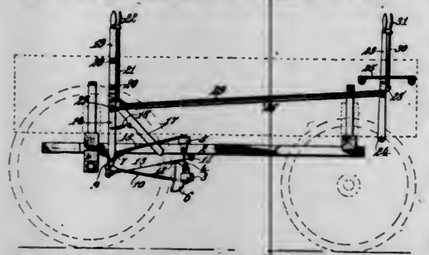
Claim.—1. As an improvement in means for ballasting boats, the combination with the boat body and the sail boom, of a weighted boom pivoted on the boat, connections between such sail and weight booms, arranged substantially as shown, whereby such weight booms will be projected at right angles from the sail, to the windward, as and for the purposes set forth.

2. As an improvement in boat ballasting devices, the combination with the sail boom of a swinging ballast boom pivoted at its inner end to the boat and projected over it, a weight longitudinally movable on such ballast boom, and a cable connected to such weight, passed over the outer end of the ballast boom, back over the inner end, and connected to the sail boom, all arranged substantially as shown, whereby the ballast boom is drawn to the windward as the sail swings leeward and the weight slid out on the ballast boom a degree proportionate to the wind pressure on the sail to balance the boat, substantially as set forth.

3. In a ballast means for boats, the combination with the boat having ways a a', inclined downward and inward from the outer edges of the taffrail and the sail boom having guides, of the ballast boom having guides at the inner and outer ends and pivotally connected at its inner end to the boat, a roller weight longitudinally movable on the ballast boom adapted to travel on the ways a a' when at its innermost position, a cable connected to such weight, extended outward over the outer boom guide, then inward over the inner boom guide, then over the sail boom guides, and a winch or fastening on the boat for the free end of such cable, and means for pulling the weight inward, all arranged substantially in the manner shown and described.

4. As an improved means for ballasting boats &c., a weighted ballast boom connected with the sails of the boat and projected over the side thereof and operated thereby to be moved toward the windward as the sail moves or fills leeward, substantially as and for the purpose described.

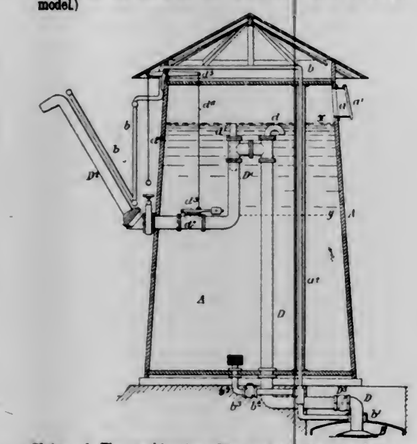
521,389. VEHICLE-BRAKE. CHARLES SAMPLE, Valley Grove, W. Va. Filed Jan. 27, 1894. Serial No. 498,331. (No model.)



Claim.—1. In brake operating mechanism for vehicles, the combination with the brake-bar, a rock-shaft having an arm, a rod connecting said arm and brake-bar, and a spring having one end connected with the rock-shaft arm and its other end secured to a fixed support on the hounds and independent of the reach and brake-bar, of a lever mounted on one end of the rock-shaft, a ratchet-bar having its upper end pivoted to said lever, a fixed slotted bar to engage said ratchet-bar, a spring to hold the ratchet-bar in engagement with the slotted bar to lock the brakes, lever connections mounted on the rock-shaft operating lever for releasing the ratchet-bar, and means for operating the said rock-shaft lever from either or both ends of the vehicle, substantially as described.

2. In brake-operating mechanism for vehicles, the combination with the brake-bar, a rock-shaft having an arm, a rod connecting said arm and brake-bar, and a spring connected with the rock-shaft to let off the brakes, of a lever mounted on one end of the rock-shaft, a detachable extension for said lever, a ratchet-bar pivoted to the rock-shaft lever and working in a fixed slotted bar to lock the brakes, a spring to hold the said ratchet-bar and slotted bar in engagement, a lever mounted at the forward end of the vehicle and detachably connected with the lever on the rock-shaft, and releasing mechanism through which the ratchet-bar is connected with both levers, substantially as described.

521,390. STORAGE-RESERVOIR FOR STEAM VACUUM WATER-ELEVATORS. PAUL SATTELKAU and HERMAN R. WINKELMANN, Brooklyn, N. Y. Original application filed Oct. 20, 1893, Serial No. 488,687. Divided and this application filed Mar. 9, 1894. Serial No. 502,950. (No model.)



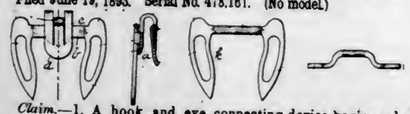
Claim.—1. The combination of the storage reservoir, the vacuum-tank, a discharge pipe for the water elevator extending to the storage reservoir, a discharge pipe for the storage reservoir, an emergency valve in said pipe, said valve being situated some distance above the bottom of the water reservoir so that a body of water will be retained in the reservoir, with a spray pipe communicating with the reservoir below the valve, substantially as described.

2. The combination with a vacuum tank, the reservoir, the discharge pipe for the tank, said reservoir being connected to the discharge pipe some distance above the bottom thereof, a valve in said connection and a spray pipe communicating with the reservoir below said connection and extending to the vacuum tank, substantially as described.

3. The combination of the storage reservoir, the discharge pipe, the vacuum tank, an overflow opening for the reservoir in the discharge pipe, so that the overflow water from the reservoir will pass through the discharge pipe to the tender and not be wasted, substantially as described.

4. The combination of the storage reservoir, the vacuum tank, the discharge pipe therefor, an overflow pipe for the reservoir, said overflow pipe entering the discharge pipe of the storage reservoir and through which the overflow water will pass to the tender, substantially as described.

521,391. HOOK AND EYE. JOSEPH F. SCHOEPPL, Pittsburg, Pa. Filed June 19, 1893. Serial No. 478,161. (No model.)

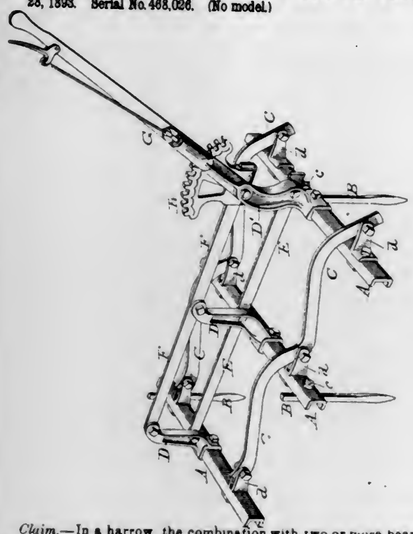


Claim.—1. A hook and eye connecting device having a body portion and having separate wings connected to the body portion and projecting from such points of connection at an angle thereto, such wings having shoulders extending from the points of connection on the opposite side to the body portion, substantially as and for the purposes set forth.

2. A hook and eye connecting device having a body portion and having separate wings connected to the body portion and projecting from such points of connection, said wings coverging toward each other, and said wings having shoulders extending from such points of connection on the opposite side to the body portion, substantially as and for the purposes set forth.

3. In a hook and eye or like connecting device, a body portion having a hook extending from one side thereof and having wings projecting from the ends thereof, and having a tongue projecting from said body portion between said wings on the side opposite to the hook, substantially as set forth.

521,392. HARROW. NILS O. STARKE, Madison, Wis. Filed Mar. 28, 1893. Serial No. 468,026. (No model.)

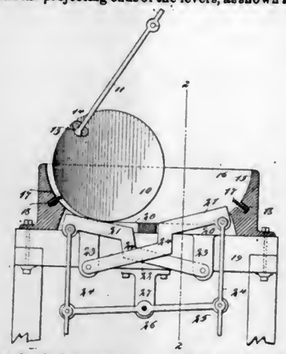


Claim.—In a harrow, the combination with two or more beams and their teeth; of means for connecting and for rocking the beams; an arm *d* projecting from each beam; and the rods C extending from one beam to the next and connected with the arms *d*; said rods C being curved or arched where they pass over the beams.

521,393. MECHANICAL MOVEMENT. ROBERT STERLING, Hartington, Nebr. Filed Sept. 27, 1893. Serial No. 486,629. (No model.)

Claim.—1. A mechanical movement, comprising a fixed and slotted bed, a wheel adapted to roll forward and backward thereon, a lever normally projecting through said bed and into the path of the wheel, and a vibrating lever, which is pivoted above the wheel and has a loose connection with the latter at its lower end, as shown and described.

2. In a mechanical movement, the combination of two levers, which cross each other as shown, being arranged side by side, but fulcrumed on opposite sides of a central point and their free ends normally projecting above a horizontal plane, means for holding them normally in such position, and a wheel adapted to roll forward and backward on the projecting ends of the levers, as shown and described.



3. A mechanical movement, comprising a slotted bed, having side flanges and springs arranged at the ends of the slot, a wheel held to roll on the bed, levers fulcrumed beneath the bed and having their upper ends projecting normally through the slots, and driving rods connected to the levers and held together by a walking beam, substantially as described.

521,394. APPARATUS FOR MEASURING AND RECORDING ELECTRIC CURRENTS. WILLIAM THOMSON, Glasgow, Scotland. Filed Feb. 8, 1893. Serial No. 461,547. (No model.) Patented in England Oct. 27, 1891. No. 18,436.



Claim.—1. In an electric meter, the combination of the fixed solenoid carrying a scale, the movable magnet carrying an indicator and a yielding support for holding the magnet normally in elevation and in proper relation to be attracted by the solenoid, substantially as described.

2. In an electric meter, the combination of the fixed solenoid energized by the current to be measured, the movable magnet supported in proper relation to be attracted by the solenoid, and the yielding support for holding the movable magnet normally in elevation, consisting of a pair of oppositely wound spiral springs, substantially as set forth.

3. In an electric meter, the combination of the fixed solenoid energized by the current to be measured, the movable electro-magnet supported in proper relation to be attracted by the solenoid, the yielding support for the movable magnet forming conductors for its winding and suitable conductors for supplying current to the movable electro-magnet, as and for the purpose set forth.

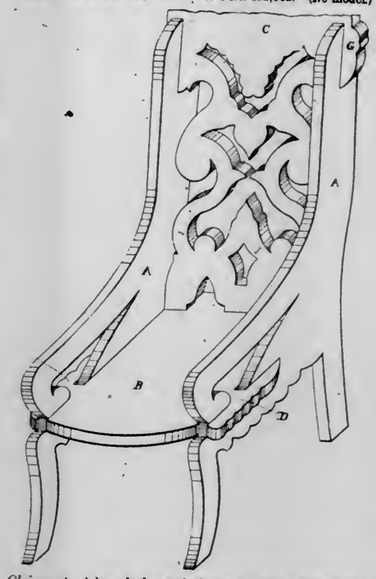
4. In an electric meter, the combination of the fixed solenoid energized by the current to be measured, the movable electro-magnet supported in proper relation to be attracted by said solenoid, the spiral springs affording a yielding support for the electro-magnet and conductors for its winding, and a suitable resistance for controlling the energizing of the movable magnet, substantially as and for the purpose set forth.

5. In an electric meter, the combination with the fixed solenoid and the movable magnet yieldingly supported in proper relation to be attracted by said solenoid; of the device for recording the extent of relative movement between the solenoid and magnet, and a suitable clock-work for periodically establishing working connection between the movable magnet and the recorder, substantially as described.

6. The combination of a fixed solenoid, a movable magnet yieldingly supported in proper relation to be attracted by the fixed solenoid, a suitable recording device, and a clock-work having a periodically reciprocating presser-foot, a longitudinally movable bar *j*, supported by the movable magnet in the path of the presser-foot and periodically returned to normal position by the same, and an arm controlled by the clock-work for forcing the bar *j* into actuating relation with the clock-work simultaneously with the movement of said bar by the presser-foot, substantially as and for the purpose explained.

7. In an electric meter, the combination of the fixed and movable magnets, the longitudinal bar *j*, controlled in its position by the movable magnet, a recording device actuated by the longitudinal movement of the bar when forced into engagement therewith, and a clock-work having connections for periodically moving the bar and simultaneously forcing the same into engagement with the recording device, substantially as and for the purpose set forth.

521,395. KNOCKDOWN CHAIR. ABE R. VAN NORMAN, Grand Rapids, Mich., assignor to the Grand Rapids Piano Case Company, same place. Filed Nov. 25, 1893. Serial No. 492,002. (No model.)



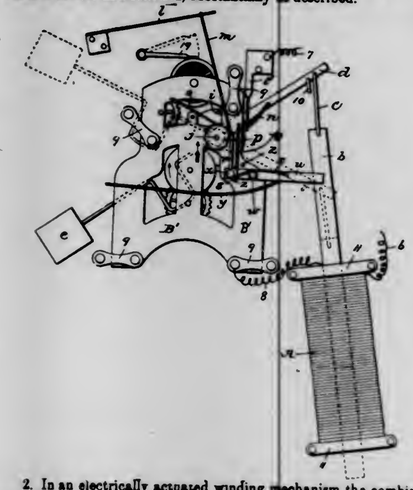
Claim.—1. A knock-down chair, consisting of side frames A having transverse openings E, a seat B having approximately T-shaped heads D at its side edges and slots or openings I at its rear end, and a chair-back C engaging the upper ends of the side frames and having projections J at its lower end for engaging the slots or openings at the rear end of the seat, substantially as described.

2. A knock-down chair, consisting of side frames A having transverse openings E and provided at their upper ends with slots F, a chair seat B having approximately T-shaped heads or wings D at its side edges and slots or openings I at its rear end, and a chair-back C having its upper end portion provided with wings G and slots H, and its lower portion with projections J to engage the slots or openings at the rear end of the seat, substantially as described.

521,396. ELECTRIC CLOCK-WINDING MECHANISM. ADOLPH E. VIDAL and GASTON HERVIEU, London, England. Filed Sept. 30, 1892. Renewed Nov. 1, 1893. Serial No. 489,761. (No model.)

Claim.—1. In an electrically actuated winding mechanism, the combination with an arbor of a ratchet wheel mounted thereon, con-

nected with a suitable source of power, of a suitable solenoid core adapted to drive the said ratchet wheel, a second ratchet wheel mounted on the said arbor, and having the same pitch as the first named ratchet wheel, a contact piece actuated by the last named ratchet wheel, a solenoid and an electric circuit including the said contact maker and solenoid, substantially as described.



2. In an electrically actuated winding mechanism the combination with a ratchet wheel connected with a suitable source of power, of a suitable solenoid core adapted to drive the said ratchet wheel, a second ratchet wheel driven by the said motive power, a click and contact piece adapted to bear on the said last named ratchet wheel, a pivoted arm carrying the said click and contact piece, and adapted to be struck by the said armature, a fixed contact piece, a solenoid, and an electrical circuit including the said contact pieces, and solenoid, substantially as described.

3. In an electrically actuated winding mechanism, the combination with a ratchet wheel, connected with a suitable source of power, of an armature adapted to drive the said ratchet wheel, of a second ratchet wheel driven by the said power, a click and contact piece secured together and pivoted on a suitable support, the said click bearing on the said last named ratchet wheel, a fixed contact piece, a magnet adapted to actuate the said armature, and an electrical circuit including the said contact pieces and magnet, substantially as described.

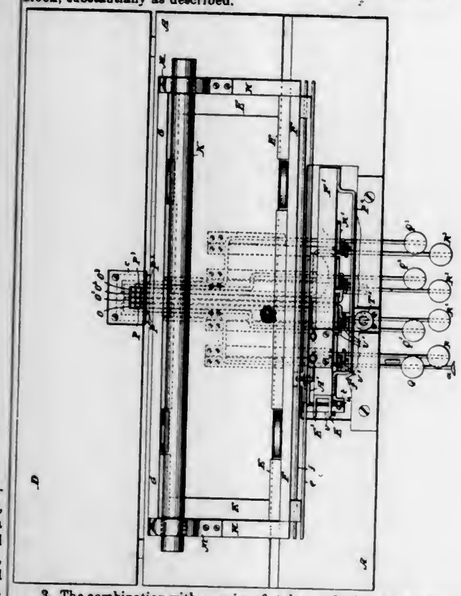
4 In an electrically actuated winding mechanism, the combination with a ratchet wheel, connected with a suitable source of power, of an armature adapted to drive the said ratchet wheel, connected with a suitable source of power, of an armature adapted to drive the said ratchet wheel, a second ratchet wheel driven by the said power, a pivoted arm adapted to be struck by the said armature, a click and contact piece secured together and pivoted on the said arm, the said click bearing on the said last named ratchet wheel, a fixed contact piece, a magnet adapted to actuate the said armature, and an electrical circuit including the said contact pieces and magnet, substantially as described.

5. In an electrically actuated winding mechanism, the combination with an arbor, of a ratchet wheel, mounted thereon, a spring having its opposite ends secured to the said ratchet wheel and arbor, of an arm pivoted on the said arbor, and having a dog engaging the said ratchet wheel, an armature secured to the said arm, a second ratchet wheel, driven by the said spring a second pivoted arm adaped to be struck by the armature arm, a click having a contact piece secured thereto pivoted on the second arm, a fixed contact piece, a magnet adapted to attract the said armature, and an electrical circuit including the coils of the said magnet and the said contact pieces, substantially as described

521,397. WRITING-MACHINE. William B. Wait, New York, N. Y. Filed May 25, 1893. Serial No. 475,488. (No model.)

Claim.—1. The combination with a stylus, or printing bar, and an actuating key or lever, of a paper carriage, a table on which the carriage travels and which table has a recess or cut out portion, a feed block for the carriage actuated by the key, hangers depending from the table, a cross piece or brace supported by the hangers in the cut out portion of the table and supporting the feed block, a platform secured to the lower part of the hangers, and a key restoring spring and key fulcrum supported on said platform, substantially as described.

2. The combination with a stylus, or printing bar, and an actuating key or lever, of a paper carriage, a table having a recess or cut out portion and on which table the carriage travels, a feed-block for the carriage actuated by the key, and a cross piece or brace inserted into the cut out portion of the table and made to support the feed-block, substantially as described.



3. The combination with a series of styluses of printing bars and actuating keys or levers, of a paper carriage a table on which the carriage travels and a feed block for the carriage, said feed block being made to reciprocate on the table, bell crank levers for actuating the block and links for conveying motion from the keys to the levers, said links being connected to the levers by varying pin and slot connections so that the levers are variably actuated substantially as described.

4. The combination with a stylus or printing bar and an actuating key or lever, of a paper carriage, a table on which the carriage travels a feed block for the carriage, an actuating lever as M′ N′ for the block and a link made to extend from the key to the block actuating lever said block being made to reciprocate on the table substantially as described.

5. The combination with a stylus, or printing-bar, and an actuating key or lever, of a paper carriage provided with a feed rack, a table having a recess or cut out portion and on which table the carriage travels, a feed-block provided with a pawl for engaging the rack and a cross piece or brace inserted into the cut out portion of the table, said feed-block being actuated by the key and being guided to reciprocate or slide on the cross piece, substantially as described.

6. The combination with a style or printing bar and an actuating key or lever, of a table a paper carriage made to travel on the table and provided with a feed rack and a feed block made to slide on the table and actuated by the key, said feed block being provided with an overweighted pawl adapted to ride over the rack during the back stroke of the block and to engage the rack during the feed stroke of the block substantially as described.

7. The combination with a stylus, or printing bar, and a paper carriage provided with a feed-rack, of a table having a recess or cut out portion and on which table the carriage travels, a cross-piece or brace secured in said recess, a feed-block made to slide on the cross piece and adapted to engage the rack, a spring for giving a feed stroke to the block, and a key or lever for actuating the stylus and for giving a back stroke to the block, substantially as described.

8. The combination with a series of styluses or printing bars and actuating keys or levers, of a paper carriage, a feed block for the carriage, a series of actuating levers as M′ N′ for the feed block and links made to extend from the keys into variable engagement with the block actuating levers substantially as described.

9. The combination with a stylus or printing bar and an actuating key or lever, of a paper carriage provided with a feed rack and a stop rack, a table on which the carriage travels, a feed block actuated from said key or lever and made to slide along the table, a feed pawl carried by said block to engage the feed rack, and a stop pawl

movable independently of the feed pawl and actuated by the feed block to engage the stop rack of the carriage, said stop pawl being pivoted clear of the feed block by which it is held in engagement with the stop rack and being adapted to move out of engagement when freed by the feed block, substantially as described.

10. The combination with a stylus or printing bar and an actuating key or lever, of a paper carriage, a feed block provided with a feed pawl for the carriage, a table on which the carriage and feed block are reciprocated, and a stop pawl for the carriage, said stop pawl being pivoted clear of the feed block and actuated therefrom to engage the stop rack and being so overbalanced as to drop out of engagement on the back stroke of the feed block, substantially as described.

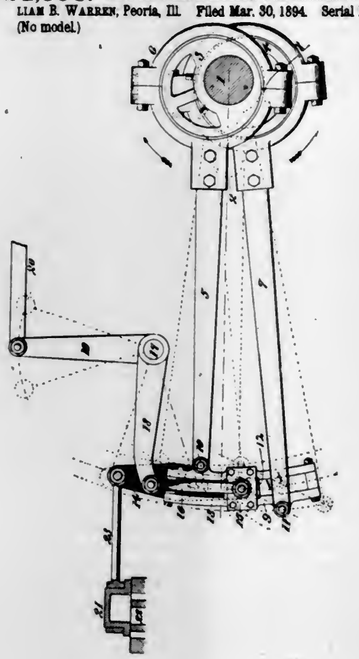
11. The combination with a stylus or printing bar and an actuating key or lever, of a paper carriage provided with separately attached racks, a feed block provided with a feed pawl to engage the feed rack of the carriage, a table along which said carriage and feed block are made to reciprocate, and a stop pawl pivoted clear of the feed block and actuated therefrom to engage the stop rack of the carriage, said stop pawl being made rigid or unyielding in the direction of the feed of the carriage and yielding or movable in the direction opposed to the feed of the carriage, substantially as described.

12. The combination with a stylus or printing bar and an actuating key or lever, of a paper carriage provided with independently attached feed and stop racks, a feed block provided with a feed pawl to engage the feed rack, a table on which the carriage and feed block are made to reciprocate, a stop pawl pivoted clear of the feed block and actuated therefrom to engage the stop rack, said stop pawl being rearwardly yielding to allow the carriage to be set back, and a movable releasing key adapted to act on the feed pawl while leaving the stop pawl in engagement, substantially as described.

13. A pair of styluses or printing bars, and an actuating key for each bar, combined with a yoke having slotted portions and suspended at said slotted portions from the actuating keys so as to allow each of said keys to be independently depressed, and a third key to which said yoke is firmly pivoted so that the depression of said third key will actuate the yoke to produce a simultaneous action of the actuating keys, substantially as described.

14. The combination with a stylus or printing bar and a die or face against which said bar acts of an arm or goose neck *f* for supporting the die, a table or support A for the arm, a carriage made to travel on the table and a roller *l*′ for holding the carriage to the table substantially as described.

521,398. SHIFTING LINK-MOTION FOR LOCOMOTIVES. William B. Warren, Peoria, Ill. Filed Mar. 30, 1894. Serial No. 505,672. (No model.)



Claim.—1. In a link motion for locomotives, the link 9 having the points of connection between the link and the eccentric rods on opposite sides of the link and at equal distances from the saddle pin, and having these points of connection so disposed with relation to the saddle pin that a straight line drawn from one connection to the other will pass through the saddle pin; substantially as and for the purpose set forth.

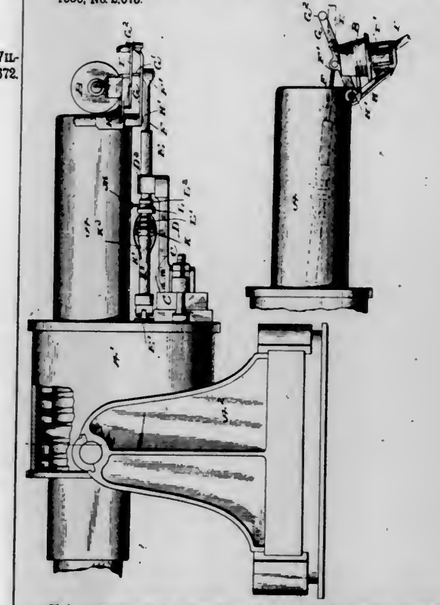
2. In a link motion for locomotives, the link 9 having the points of connection between it and the eccentric rods at unequal distances from the center of the main shaft, and on opposite sides of the saddle-pin, with the center of the saddle-pin at the intersection of a line drawn centrally through the link in a longitudinal direction, and a line formed in the arc of a circle in which the saddle-pin moves.

521,399. BALL-BEARING. Michael Wogan, U. S. Navy. Filed Mar. 9, 1894. Serial No. 503,050. (No model.)



Claim.—The herein-described improved ball-bearing, comprising the ring or cylinder having an inner central circumferential flange the outer edge of which is flared, forming continuous oppositely extended shoulders, said flange dividing said ring into two chambers, rings or bands in said chambers, two series of balls located in said chambers and held in place by said shoulders, and the cap-plates connected to said ring or cylinder for confining said balls in said chambers, both of said cap-plates having circular openings corresponding to that formed by said flange, one of said cap-plates also having a circumferential flange, the other cap-plate being removably secured to said ring or cylinder, substantially as set forth, both of said series of balls being designed to protrude into the plane of the openings in said cap-plates.

521,400. AUTOMATICALLY-OPERATED BREECH MECHANISM FOR GUNS. Jean B. G. A. Canet, Paris, France, assignor of one-half to the Sir Joseph Whitworth & Company, Limited, Openshaw, England. Filed May 17, 1893. Serial No. 474,530. (No model.) Patented in France Dec. 31, 1887, No. 187,906, and in England Feb. 11, 1888, No. 2,075.



Claim.—1. The combination with a recoiling gun, a non-recoiling mount, and a breech-block, of a main lever for operating the breech-block, a secondary lever connected to the breech and acting upon the said main lever, a lengthwise movable rod connected with the secondary lever, and means for holding the rod during the running out of the gun for causing the secondary lever to act on said main lever and open the breech-block, substantially as described.

2. The combination with a recoiling gun, a non-recoiling mount, and a hinged breech-block, of a lever for operating the breech-block, a secondary lever connected at one end to the hinge of the breech-block and acting at the opposite end against the said main lever, a lengthwise moving rod pivoted to the secondary lever, and means for holding the rod during the running out of the gun for causing the secondary lever to act on said main lever and open the breech-block, substantially as described.

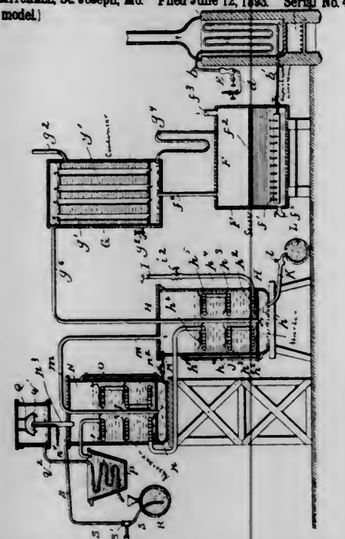
3. The combination with a recoiling gun, a non-recoiling mount, and a hinged breech-block, of a main lever for operating the breech-block, a secondary lever pivoted to the hinge of the breech-block and bearing against the said main lever, a stop G′ for limiting the forward movement of the secondary lever, a rod F connected to the secondary lever, and means for locking the rod during the running out of the gun, for causing the secondary lever to act on said main lever and open the breech-block, substantially as described.

4. The combination with a recoiling gun, a non-recoiling mount, and a hinged breech-block, of a main lever for operating the breech-block, a secondary lever connected with the hinge of the breech-block and bearing against the said main lever, a stop G′ for limiting the forward movement of the secondary lever, a tube E hinged to a part of the non-recoiling mount, a rod F pivoted to the secondary lever and adapted to slide in said tube, spring-catches K′ for locking the rod to the tube during the running out of the gun, and means for releasing the spring catches from the rod, substantially as described.

5. The combination with a recoiling gun, a non-recoiling mount, and a hinged breech-block, of a main lever for operating the breech-block, a secondary lever connected to the hinge of the breech-block and acting upon the said main lever, a stop G′ for limiting the forward movement of the secondary lever, a tube E hinged to a part of the non-recoiling mount, a rod F pivoted to the secondary lever and adapted to slide in the tube, spring catches K′ pivoted to the tube and adapted to lock the rod thereto during the running out of the gun, a spring controlled sleeve L having a recess for receiving and engaging the spring catches, a stud M fixed to the gun and adapted to engage with and push forward the sleeve just before the completion of the running out of the gun for raising the spring-catches and releasing the rod, and a spring F^3 for returning the rod and the secondary lever to their normal position, substantially as described.

521,401. PROCESS OF AND APPARATUS FOR MANUFACTURING AQUA-AMMONIA.

THOMAS CHARLTON, Denver, Colo., and KERR M. MITCHELL, St. Joseph, Mo. Filed June 12, 1893. Serial No. 477,394. (No model.)



Claim.—1. The described process of treating ammoniacal liquors, to separate and eliminate therefrom free ammonia, consisting in forcing into and through such liquors, a superheated mixture of air and steam, passing upward such combined steam and air thus surcharged with the volatile ammonia, into a condenser in which the steam is condensed, and carrying forward the ammoniacal liquors or vapors through absorbers, and mixing with a little steam that portion of the vapors which has not been absorbed, and then discharging it into a suitable receiving vessel, all substantially as set forth.

2. The described process of treating ammoniacal liquor to extract ammonia therefrom, consisting in first passing mixed air and steam through the liquor, and through a condenser and absorbers, withdrawing the strong liquor from the first absorber, and then returning the residuum liquor in the reverse direction from the last to the first absorber, all substantially as set forth.

3. The described process of treating ammoniacal liquors to separate and eliminate therefrom free ammonia, consisting in forcing into and through such liquors a superheated mixtnre of air and steam, passing upward such combined steam and air thus surcharged with the volatile ammonia, into a condenser in which the steam is condensed, and carrying forward the ammoniacal vapors through absorbers, and mixing with a little steam that portion of the vapors which has not been absorbed, then discharging it into a suitable receiving vessel, and then returning such aqua ammonia in the reverse direction from the last to the first absorber, to be again treated, all substantially as set forth.

4. In an apparatus for eliminating free ammonia from ammoniacal liquors, the combination with an absorber, of the mixing chamber Q, vapor pipes n^2 and n^4 one extending above the other, the concave deflector cap q' suspended over the tops of both these pipes, and the discharge pipe g^3, leading from said chamber to a receiving tank, all substantially as set forth.

5. The absorber having in combination with a perforated plate within it and near its bottom, a pipe g^3 serving to conduct the ammoniacal vapors from the condenser into the space in the absorber beneath such plate,—the system of horizontal pipe coils above such plate located one coil above the other, and connecting with each other alternately at their centers and circumferences as shown, and the baffle-plates h^4, h^5, one extending from the inner periphery of the tank and having a central opening, and the other extending from the central pipe g^3 and leaving a space between its upturned edge and the inner periphery of the tank, all substantially as set forth.

6. The absorber having in combination with a perforated plate within it and near its bottom, a pipe g^3 serving to conduct the ammoniacal vapors from the condenser into the space in the absorber beneath such plate,—the system of horizontal pipe coils above such plate, located one coil above the other and connecting with each other alternately at their centers and circumferences as shown,—and the baffle-plates h^4, h^5, one extending from the inner periphery of the tank and having a central opening, and the other extending from the central pipe g^3 and leaving a space between its upturned edge and the inner periphery of the tank, and another absorber having a similar system of baffle-plates and similar coil pipes connecting with coil h^3, all substantially as set forth.

7. In combination with a still, the pipe f'^4 leading therefrom, the siphon pipe g^4, the condenser and its pipes g', and vapor pipes g^2 leading from the coudenser through the top of the absorber to a space beneath its interior perforated bottom.

8. In combination with the absorbers, the mixing chamber Q, the pipes n^3, n^4, discharging coil g^3, reservoir R, pipe s, injector s', and pipe and cock n' n^3 all substantially as set forth.

521,402. SEPARATOR AND GRADER.

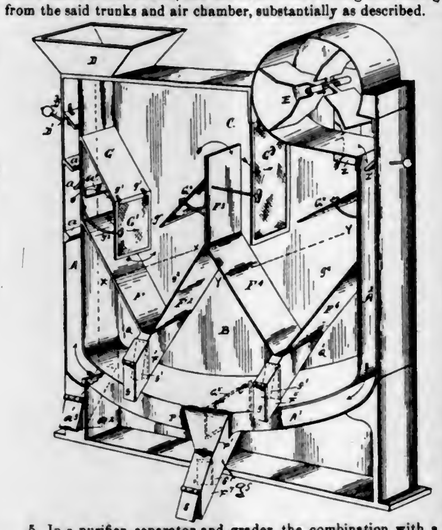
DAVID J. DAVIDSON, Port Huron, Mich., assignor of two-thirds to Abraham S. Martin and Stephen G. Martin, same place. Filed Oct. 31, 1893. Serial No. 489,617. (No model.) Patented in Canada Dec 5, 1893, No. 44,823.

Claim.—1. In a continuous air belt purifier, separator, and grader the combination with a fan and fan casing, of an air chamber connected with the fan casing and separating devices mounted therein, a vertical air trunk communicating with said air chamber, an air passage leading from the fan into said vertical air trunk separate from said air chamber, and a feeding device opening into the upper end of the vertical air trunk, substantially as and for the purposes described.

2. In a continuous air belt purifier, separator, and grader, the combination with a fan and fan casing, of an air chamber connected with the fan casing and separating devices mounted therein, a vertical air trunk communicating with said air chamber, an air passage leading from the fan into said vertical air trunk separate from said air chamber, means for controlling the pressure of the air in said passage, and a feeding device opening into the upper end of the vertical air trunk, chutes for withdrawing the settlings from said vertical trunk, and said settling chambers, and double valves controlling said chutes for making them air tight, substantially as described.

3. In a continuous air belt purifier, separator, and grader, the combination with a fan and fan casing, of an air chamber connected with the fan casing and separating devices mounted therein, a vertical air trunk communicating with said air chamber, an air passage leading from the fan into said vertical air trunk separate from said air chamber, means for controlling the pressure of the air in said air passage, an automatic feeding device at the top of said vertical trunk, and deflectors therein for directing the feed to the center of said trunk, substantially as and for the purposes described.

4. In a purifier, separator, and grader, the combination with a suitable casing, having vertical air trunks at its opposite ends, and a horizontal air trunk at its base connecting the lower ends of the said vertical air trunks, forming an air chamber in the central portion of the said casing and between and above the said air trunks, one of the said vertical trunks being connected with said air chamber, a grain feeding device located above the said air trunk and above the said connection, a fan casing connected with the upper end of the opposite vertical trunk and with the interior of the said air chamber, cant boards in the base of the said air chamber, diaphragms located above the said cant boards, and means for withdrawiug the settlings from the said trunks and air chamber, substantially as described.



5. In a purifier, separator and grader, the combination with a suitable casing having vertical air trunks at its opposite ends, and a horizontal air trunk at its base, connecting the lower ends of the said vertical air trunks, forming a central air chamber in the central portion of the said casing and between and above the said trunks, one of the said vertical trunks being connected therewith, a grain feeding device located above the said air trunk and above the said connection, a fan casing connected with the upper end of the opposite vertical trunk, cant boards in the base of the said air chamber, adjustable foraminous diaphragms above the said cant boards, and means for withdrawing the settlings from the said trunks and air chambers, substantially as described.

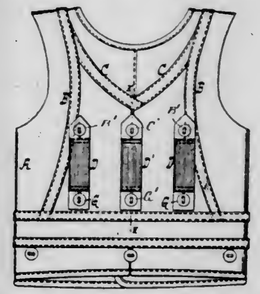
6. In a purifier, separator and grader, the combination with a suitable casing, having vertical air trunks at its opposite ends, and a horizontal air trunk at its base, connecting the lower ends of the said vertical air trunks, forming a central air chamber in the central portion of the said casing and between and above the said air trunks, one of the said vertical trunks being connected therewith, a grain feeding device located above the said trunk and above its connection with the air chamber, a fan casing connected with the top of the opposite air trunk and with the top of the central air chamber, cant boards within the said casing between its connection with the said vertical trunk and the fan casing, a foraminous diaphragm above, the connection between the vertical air trunk and the chamber and above the first cant board, similar diaphragms above each of the successive cant boards, and means for discharging the contents of the said trunks and chambers, substantially as described.

7. In a purifier, separator, and grader, the combination with the casing B, the vertical air trunk A, provided with an aperture a' near the top thereof, and deflectors a, a feed hopper above said aperture and mounted over said trunk, a fan and an air passage from said fan to said vertical air trunk, with means for controlling the air flowing through said passage a central air chamber connected with said air trunk and said fan, cant boards forming V-shaped settling chambers in said air chamber, foraminous diaphragms adjustably mounted in said air chamber and adapted to control the area of the air passages above said cant boards, and through said air chamber, and normally air tight delivery chutes at the base of said V-shaped settling chambers, substantially as and for the purposes described.

8. In a purifier, separator, and grader, the combination with the vertical trunk A provided with deflectors a and orifice a' near the top thereof, of the feed hopper D mounted above said vertical trunk and delivering its contents above said orifice, a normally air tight delivery chute at the base of said trunk, a fan and an air passage delivering air to said trunk, an expansion air chamber C connected to said fan by an aperture Z and to said trunk by the orifice a', cant boards F, F^3, F^4 and F^6 forming V-shaped settling chambers in the base of said air chamber, normally air-tight chutes delivering the settlings from said chamber, a partition F^2 between the upper part of said settling chambers, deflectors G and foraminous diaphragms adjustably mounted in said chamber above said cant boards, so as to intercept all or part of the laden air current substantially as and for the purposes described.

521,403. UNDERWAIST.

CHARLES R. DE BEVOISE, Flushing, N. Y. Filed Dec. 21, 1893. Serial No. 494,313. (No model.)

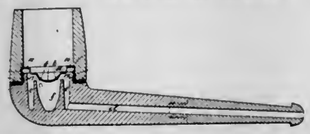


Claim.—1. An underwaist having a waist-band E, shoulder-straps B extending over the shoulders and along the front and rear of the waist body to the waist-band, a supporting-strap C secured at the upper ends to the shoulder-straps and to the waist body, and converging along the rear of the waist body toward the waist-band, the tabs D engaging the shoulder-straps, and the tab D′ engaging the lower converging portion of the supporting-strap, substantially as described.

2. An underwaist having a waist-band E, shoulder-straps B extending over the shoulders and curved along the front and rear to the waist-band, and provided with buttons B′, the supporting-strap C secured at the upper ends to the shoulder-straps and to the waist body, converging along the rear of the waist body toward the waist-band and provided with a button C′, lengthwise elastic tabs D engaging the buttons of the shoulder straps, and the lengthwise elastic tab D′ engaging the button of the supporting-strap, substantially as described.

521,404. TOBACCO-PIPE.

WILLIAM DEMUTH, New York, N. Y. Filed Dec. 8, 1893. Serial No. 493,108. (No model.)



Claim.—A tobacco-pipe, consisting of a stem provided at its butt with a screw-threaded portion, a nicotine chamber f and an annular space e and having a smoke-passage d leading into the annular space, a detachable bowl having a concave sheet metal bottom b removably seated therein and provided with perforations at its central portion, and a sheet metal thimble c detachably secured to the bowl and having a screw-threaded portion entering the latter and removably retaining the sheet metal bottom in position slightly above the top edge of the nicotine chamber, substantially as and for the purposes described.

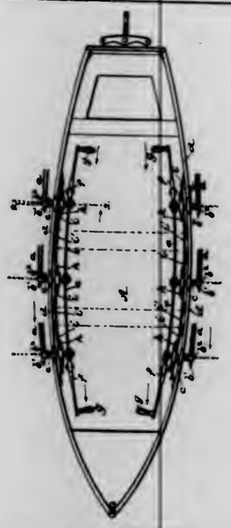
521,405. PROPELLING MECHANISM FOR BOATS.

CHARLES P. DIEGO, Owensborough, Ky. Filed Aug. 14, 1893. Serial No. 483,112. (No model.)

Claim.—1. The combination, with a boat, two or more brackets attached to its sides, and paddle rods having their inner bearings in said brackets, of a horizontal bar, e, which connects the inner, pendent, crank arms of said rods, and is provided with upturned ends having hand-holds, as shown and described.

2. The combination, with a boat, the swinging paddle rods, and horizontal bars, e, which connect the inner ends of the crank arms, and are constructed with upturned ends, of the detachable handle arms, f, having sockets to adapt them for attachment to the ends of said bars, e, as shown and described.

521,405.



521,406. SINK. BENJAMIN F. FORD, New Castle, Mo. Filed Aug. 26, 1893. Serial No. 484,092. (No model.)



Claim.—1. In combination with the sink having in its bottom a longitudinal channel the open top and bottom receptacle adapted to be placed and held at the pump end of the sink and over the said channel, substantially as described.

2. The sink having a channel or water passage in its bottom and strips or cleats by its side at the pump end of the sink, combined with the open top and bottom water receptacle.

3. In a sink, as described, having a longitudinal channel opening at its end into a vertical outlet or escape passage external to the main body of the sink and in combination with said channel an outlet or escape passage the vertically sliding, handled gate at the end of said channel and between it and the said outlet or escape passage, substantially as set forth.

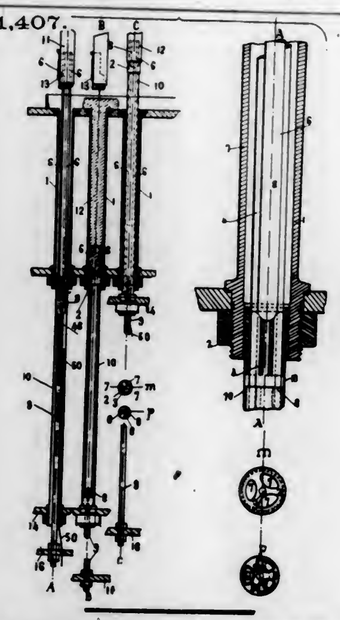
521,407. APPARATUS FOR MANUFACTURING HOLLOW CANDLES. LOUIS J. B. FOURNIER, Marseilles, France. Filed Jan. 25, 1894. Serial No. 498,157. (No model.)

Claim.—1. In a machine for making hollow candles, the combination with a series of cylindrical molds 1, of perforated pushers 2 fitted to slide in said molds and provided with hollow stems 10 carried by a platen 14, the core pins 6 projecting through said perforated pushers and carried by heads 8, rods 9 passing through the hollow stems 10 and secured at their upper ends to the heads 8 and at their lower ends to a platen 16, and means for independently raising and lowering said platens, substantially as described.

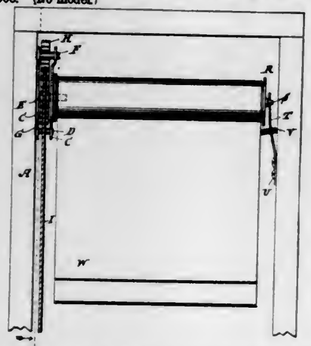
2. In a machine for making hollow candles, the combination with a cylindrical mold, of a pusher 2 fitted to slide in said mold and provided with a central aperture for the passage of the wick and with concentric apertures for the passage of core pins, core pins 6 passing through said apertures and carried by a head 8, a rod 9 secured to said head and provided with a coiled spring between which and the rod 9 the wick passes, and means for independently actuating the pusher and core pins, substantially as described.

3. In a machine for making hollow candles, the combination with a cylindrical mold, of a pusher 2 fitted to slide in said mold and provided with a central aperture for the passage of the wick and with concentric apertures for the passage of core pins, a hollow stem 10 carrying said pusher, core pins 6 passing through said apertures, a head 8 carrying said core pins, a rod 9 secured to said head and passing through the hollow stem 10, a tension device carried by the rod 9 for regulating the tension of the wick, and means for independently actuating the pusher and core pins, substantially as described.

521,407.



521,408. DEVICE FOR ADJUSTING WINDOW-SHADES, &c. PHILIPP GOLDMANN, New York, N. Y. Filed Jan. 4, 1894. Serial No. 496,606. (No model.)



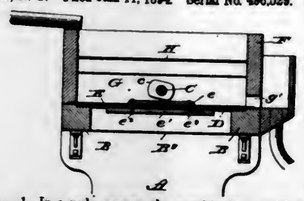
Claim.—1. A casing or frame provided with gear wheels having their journals mounted directly in the casing, and an actuating loop or cord interposed between the wheels, one of said wheels having its journal provided with an angular end to detachably engage a roller or transmitting mechanism, substantially as described.

2. A casing or frame provided with gear wheels having their journals mounted directly in the casing, and an actuating loop or cord interposed between the wheels, one of said wheels having a short shaft provided with an angular end to engage a roller or transmitting mechanism and said frame being made to sit close to the wheels to retain the cord in place, substantially as described.

3. A casing or frame provided with gear wheels having their journals mounted directly in the casing, and an actuating loop or cord interposed between the wheels one of said wheels having its journal provided with an angular portion to detachably engage a roller or transmitting mechanism, and one of said wheels being movable toward and from the other wheel and exposed to a yielding or spring pressure, substantially as described.

4. A casing or frame provided with gear wheels, and an actuating loop or cord interposed between the wheels, one of said wheels having its journal provided with an angular portion to engage a roller or transmitting mechanism, combined with a setting device for holding the roller in engagement with said wheel, said setting device consisting of an arm fixed at one end and having a set-screw intermediate its ends which serves to adjust the free end of the arm, substantially as described.

521,409. PULP-SCREEN. EDWARD M. HALL and FRANK PEARSE, Dexter, N. Y. Filed Jan. 11, 1894. Serial No. 496,529. (No model.)

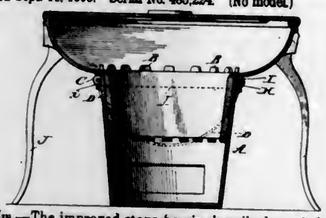


Claim.—1. In a pulp-screen, the combination, with a base having a diaphragm and transverse springs connected thereto, of a shaft having cams for vibrating the diaphragms, the shaft and cams carried thereby being within the pulp-chamber, substantially as described and for the purpose set forth.

2. In a pulp screen constructed substantially as described, the combination, of the diaphragms having springs and bearing-plates attached above said springs, of a shaft mounted above the diaphragms and below the screen-plate, said shaft having cams which are adapted to bear upon the bearing-plates, substantially as described and for the purpose set forth.

3. In a pulp-screen, the combination, of a base constructed substantially as described and provided with transverse beams B^3, diaphragms connected to said base and provided with springs, bearing-plates e attached to the springs and reinforcing strips e' attached on the under side of the diaphragms and beneath the springs, a shaft having cams mounted thereon, and a screen-plate secured to the box and adapted to rest upon the partitions F' thereof, substantially as shown and for the purpose set forth

521,410. COOKING STOVE. REBECCA H. HAYES, Galveston, Tex. Filed Sept. 11, 1893. Serial No. 485,224. (No model.)



Claim.—The improved stove herein described consisting of the furnace having at its upper end the upwardly extended knobs or projections and the heating top provided with a removable top plate and having at its bottom the opening to receive and the flange to encircle the top of the furnace the flange encircling the furnace top being constructed and arranged substantially as described whereby the knobs or projections of the furnace will extend up into the heating top and be adapted to support a vessel when it is desired to concentrate the heat thereupon.

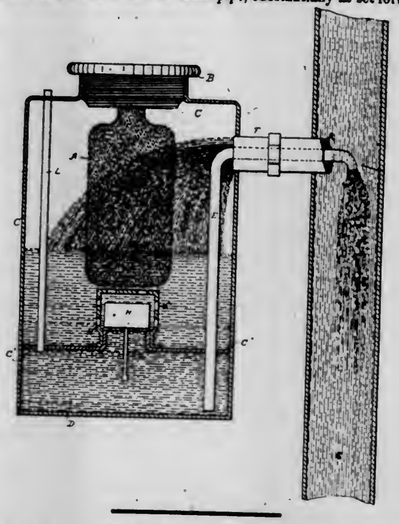
521,411. SANITARY ARRANGEMENT FOR AUTOMATICALLY DISINFECTING WATER-CLOSETS, &c. SAMUEL A. JOHNSON, London, England. Filed May 17, 1893. Serial No. 474,592. (No model.) Patented in England May 14, 1892, No. 9,206; in Germany Nov. 1, 1892, No. 27,193; in France Nov. 7, 1892, No. 212,249, and in Belgium Nov. 8, 1892, No. 77,273.

Claim.—1. In a disinfecting apparatus, the combination with a casing provided with an inlet and having its interior divided into two compartments, connected by a valved passage, of an outlet tube, connected to one of said compartments and having a bent end adapted for insertion in the flush pipe, substantially as set forth.

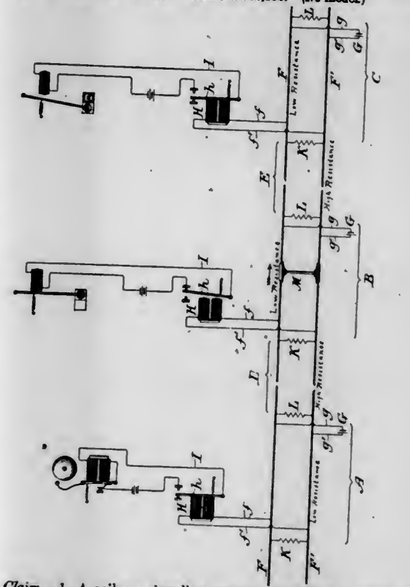
2. In a disinfecting apparatus, the combination with a casing having its interior divided into two compartments connected by a valved passage, one of which compartments is provided with a liquid inlet and the other of which compartments is provided with an air inlet, of an outlet tube connecting with the last named compartment at one end and having its other end bent and adapted for insertion in the flush pipe, substantially as set forth.

3. In a disinfecting apparatus, the combination with a casing having its interior divided into two compartments connected by a valved passage, of a liquid inlet pipe connecting at one end with one of said compartments and having its other end beveled and adapted for insertion in the flush pipe, and a liquid outlet pipe connecting at one end with the other compartment and having its other end bent downwardly and adapted for insertion in the flush pipe, substantially as set forth.

4. In a disinfecting apparatus, the combination with a casing having its interior divided into two compartments connected by a valved passage, said compartments lying in different horizontal planes, of liquid inlet pipe connecting at one end with the upper of said compartments and having its other end beveled and adapted for insertion in the flush pipe, and a liquid outlet pipe connecting at one end with the lower compartment, said outlet pipe being carried upwardly through the liquid inlet pipe and having its other end bent downward and adapted to lie within the flush pipe, substantially as set forth.



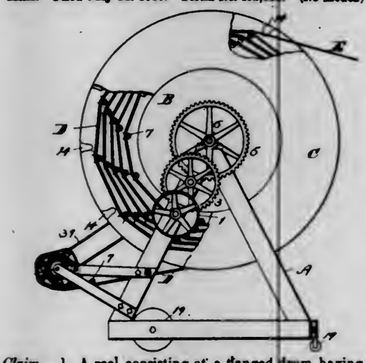
521,412. TRACK-CIRCUIT. LOUIS F. JOHNSON, Poughkeepsie, N. Y. Filed Apr. 7, 1894. Serial No. 506,159. (No model.)



Claim.—1. A railway signaling system comprising a series of protected sections composed of two opposite lines of rails the rails of each line being connected to offer low resistance, intermediate sections composed of lines of rails of relatively high resistance, a battery and a relay connected to each protected section and a connection between the opposite lines of rails at the end of each protected section, said connection having a resistance approximating that of the relay and less than that of the adjacent unprotected section, substantially as shown and described.

2. A railway signaling system comprising a series of protected sections composed of two opposite lines of rails the rails of each line being connected to offer low resistance, intermediate sections composed of lines of rails of relatively high resistance, a battery and a relay connected to each protected section, and a connection between the opposite lines of rails at each end of each protected section, each of said connections having a resistance approximating that of the relay and less than that of the adjacent unprotected section. substantially as shown and described

521,418. REEL. MARGARET E. KNIGHT, South Framingham, assignor to herself, and Robert D. Evans and John S. Lockwood, Boston, Mass. Filed July 31. 1893. Serial No. 482,033. (No model.)

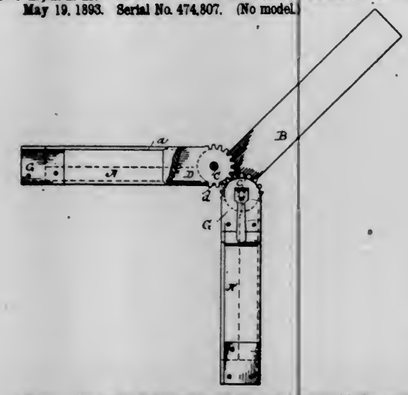


Claim.—1. A reel consisting of a flanged drum having a series of slots or pockets spirally arranged upon the inner surfaces of its flanges and a strip of flexible material which has a series of rods secured thereto at intervals corresponding successively to the intervals between the successive pockets, which rods are adapted to be drawn into and held in said pockets when the said strip of material is wound upon the drum.

2. A reel consisting of a drum having flanges provided with a series of slots or pockets and a flexible apron provided with projecting rods, which slots are adapted to receive said rods, and said rods to enter said slots, automatically, when the apron is wound upon the drum.

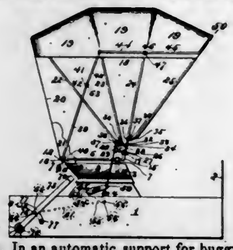
3. In a reel for winding and supporting strips of plastic material, a flexible belt or apron which has projecting rods secured thereto at intervals throughout its length, and a drum adapted to receive and support said rods, when the said apron is wound thereon, and thereby hold the successive convolutions thereof out of contact with each other.

521,414. BEVEL. JOSEPH T. LANGLAIS, Berkeley, Cal. Filed May 19, 1893. Serial No. 474,807. (No model.)



Claim.—An angle indicator consisting of a single blade, handles pivoted to one end of said blade and provided around their pivots with intermeshing segmental gears, said handles being further provided with longitudinal slits or recesses in their inner sides whereby they are adapted to fit over and cover the blade, and a clamping device on one of the pivots to hold the blade and handles at any desired angle.

521,415. SUPPORT FOR BUGGY-TOPS. THOMAS MACGLASHAN, Salem, Mo. Filed Nov. 18, 1893. Serial No. 491,369. (No model.)



Claim.—1. In an automatic support for buggy tops, the combination of the collapsing top 19, and the automatically elevated pedestals 73 and supporting balance bar 79; substantially as shown and described.

2. In an automatic support for buggy tops, the combination of the buggy body 1, the hood 19, the system of pivoted, self-adjusting rocker arms, pedestals and combined supporting bar and balance lock; substantially as shown and described.

3. In an automatic support for buggy tops, the combination of the collapsing top, the compound lever crank rocker arms 51, the link rod 56, the pedestals 73, and the supporting and balance bar 79, with the connecting drive and draw rods 61, and crank levers 68; substantially as shown and described.

4. In an automatic support for buggy tops, the combination of the collapsing top, with its bows, the link rod 56, the compound lever rocker arms 51 having the shaft 52, and the crank levers 54, 54 and 55, the operative link rods 61, the crank levers 68, having the angle feet 69, the pedestals 73 and the bar 79; substantially as shown and described.

5. In an automatic support for buggy tops, the combination of the buggy top, the bow frame, the top cover or hood 19, the pivotal connection of said bow frame to said body, the pivotal operative link rod 56, the pivotally attached compound lever rocker arms, the link rods 51, the crank levers 68, having the angle feet 69, the pedestal 73, the combined supporting bar and balance lock 79, the folding brace arms 39 and 42, the rear and forward sections 44 and 45 of the upper folding arms, with the surmounting hood bow 50, and the anti-friction arc plates 76, with their holder hooks 78; substantially as described.

521,416. FIRE-ESCAPE. CHARLES A. NOACK, St. Louis, Mo. Filed Feb. 5, 1894. Serial No. 499,229. (No model.)



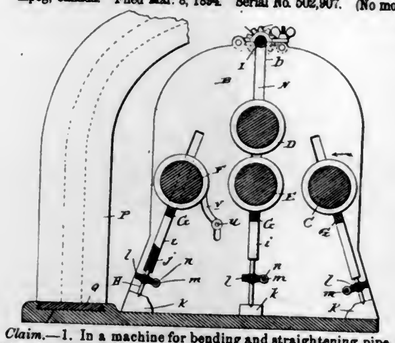
Claim.—1. In a fire escape, plates 2 and 3 each having a horizontal and a vertical slot, plates 4 and 5, each having an opening which registers with said vertical slot, and each also having two slots adjacent their upper ends which extend in radial alignment with said opening, substantially as set forth.

2. An improved fire-escape having opposite vertical frame-pieces, a wire or cable, two rollers mounted parallel between said frame-pieces to automatically clamp said wire or cable between them with a variable pressure, and a reel upon which said wire, or cable, may be wound. substantially as herein specified.

3. In a fire escape, two outer plates 2 and 3, each having a vertical slot 9 and a horizontal slot 18, two plates 4 and 5, each having an opening which registers with the slots 9, and also having two slots 19 which are in radial alignment with the last mentioned opening, a drum 6 having a flange 7 and a trunnion 8 at each end, said trunnions constructed to engage the openings in the plates 4 and 5 and the vertical slot 9 in the plates 2 and 3, and two rollers 15 and 16 constructed

with a trunnion at each end, which engages the slots 18 and 19 and forms bearings for said rollers, substantially as set forth.

521,417. MACHINE FOR BENDING PIPE. JAMES C. ORR, Winnipeg, Canada. Filed Mar. 8, 1894. Serial No. 502,907. (No model.)

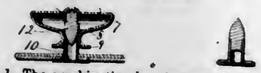


Claim.—1. In a machine for bending and straightening pipe, the combination of the bed, the standards rising from the bed, the rollers journaled in suitable bearings in the standards and having peripheral grooves, a dovetail block or slide arranged in a transverse groove in the bed and carrying vertical guides, and a suitable means for adjustably fixing the said block or slide, substantially as and for the purpose set forth.

2. In a machine for bending and straightening pipe, the combination of the standards having vertical slots or ways *b*, and the vertical or vertically-oblique slots or ways *c*, *c'*, disposed on opposite sides of the vertical slots or ways *b*, the roller D, the roller E, journaled in adjustable bearings arranged in the vertical ways or slots *b*, the rollers C, F, journaled in adjustable bearings arranged in the vertical or vertically-oblique ways or slots *c*, *c'*, the adjustable yoke frames engaging the bearings of the rollers C, E, and F, and having projections provided with threaded bores, the screws bearing upon a suitable support and taking into the threaded bores of the yoke frames, and a suitable means for rotating the screws, substantially as specified.

3. In a machine for bending and straightening pipe, the combination of the standards having the vertical slots or ways *b*, and the vertical or vertically-oblique slots or ways *c*, *c'*, disposed on opposite sides of the vertical slots or ways *b*, the roller D, having its shaft journaled in bearings in the vertical slots or ways *b*, the roller E, also having its shaft journaled in adjustable bearings in the vertical slots or ways, the rollers C, F, having their shafts journaled in adjustable bearings in the vertical or vertically-oblique slots or ways, *c*, *c'*, gear wheels mounted on the shafts of the said rollers C, D, E, F, the short shaft *u*, arranged and adapted to be adjustably fixed in a slot *v*, in one of the standards and the gear wheel *t*, mounted on said short shaft and adapted to mesh with the gear wheels on the shafts of the rollers C, and E, substantially as specified.

521,418. BUTTON. JOHN V. PILCHER, Louisville, Ky. Filed Apr. 16, 1894. Serial No. 507,707. (No model.)



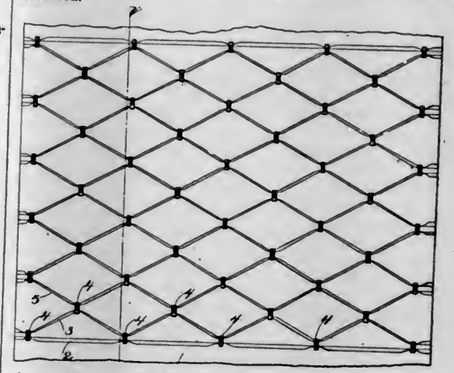
Claim.—1. The combination in a button of a head having a perforated collet; a shank having a hollow body and a bodkin pointed at one end and shaped at the other to fit the body of the shank and adapted to fit in a reversed position in the head as a spreader for the shank, substantially as described.

2. A button comprising a head, a shank, and an anvil; the anvil being a bodkin reversible relative to the shank substantially as described, whereby the bodkin point is first a leader to penetrate the cloth ahead of the shank, then in its reverse position it is an anvil to spread the shank within the button.

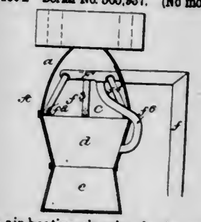
521,419. CASKET-LINING. FREDERICK S. PINKHAM, Everett, Mass., assignor to the Pinkham Manufacturing Company, of Maine. Filed Jan. 5, 1894. Serial No. 495,814. (No model.)

Claim.—1. A casket lining composed essentially of a strip of cloth folded upon itself, the folded edges being connected together by metallic clasps to give additional and well distributed weight thereto, substantially as described.

2. A casket lining composed essentially of a strip of cloth folded upon itself, and metallic clasps each consisting of two connected clamps, which nip the folded edges, and permanently hold them connected together, but separated by a short distance, substantially as described.



521,420. HEATER. DWIGHT S. RICHARDSON, Brooklyn, N. Y. Filed Mar. 31, 1894. Serial No. 505,937. (No model.)



Claim.—1. An air-heating chamber in the combustion-chamber of a heater, having conduits extending downward toward the sides of the combustion-chamber, said conduits having openings in them to deliver heated air into the combustion-chamber.

2. An air-heating chamber in the combustion-chamber of a heater, having conduits extending downward toward the sides of the combustion-chamber, said conduits having openings at or near their lower ends.

3. An air-heating chamber in the combustion-chamber of a heater, having one or more arms extending downward toward the sides of the combustion-chamber, and having also a conduit, extending down from said air-heating chamber, into the fire-pot below the normal level of the fire.

4. In combination with an air-heating chamber, in the combustion-chamber of a heater, and having air-feeding conduits, terminating near the top of the fire-pot, a conduit, leading from said air-heating chamber, and extending partially through the combustion chamber to the outside of the same;—the air from the air-heating chamber being carried by said conduit to the fire-pot, below the level of the fire.

5. In combination with an air-heating chamber, in the combustion-chamber of a heater; an air-pipe, having one or more openings entering the fire-pot below the normal level of the fuel.

6. An air-heating crab or chamber for heaters, having an opening for the admission of air, and having discharge pipes leading therefrom and terminating in substantially the same plane.

7. In combination with an air-heating chamber in the combustion-chamber of a heater, and having air-feeding conduits terminating near the top of the fire-pot, a conduit leading from said air-heating chamber, and entering the fire-pot from the outside thereof, below the normal level of the fuel.

521,421. COMBINED NUT-WRENCH AND LUBRICATOR. JOSIAH S. SCARBOROUGH, New Philadelphia, Ohio, assignor of one-half to Orson Lusk, same place. Filed Aug. 11, 1893. Serial No. 482,938. (No model.)

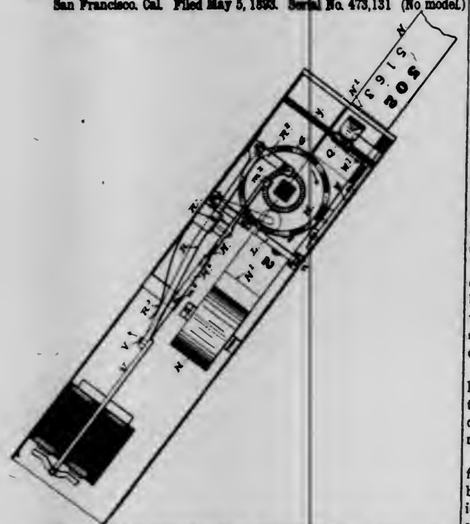
Claim.—1. The combination with the tubular part A having a tapering end, and having a tapering orifice *a*, a seat *a'* and stops *f* of a pointer having a valve to close against said seat *a'*, and having its outer portion tapering to correspond with said tapering orifice *a* through which it extends and projects beyond the tapering end of the part A, a cross piece F seated against said stops *f*, and a spring E mounted on the inner portions of said pointer and confined between said valve and cross piece, substantially as and for the purpose set forth.

2. The combination with a nut wrench having slots a^3 between the body portions of the wrench and the jaws, of an inverted U spring straddling the back of the wrench and having its ends projected through said slots and extending along the faces of said jaws, substantially as and for the purpose described.



3. The combination with a nut wrench having a depression in its back and a rivet g' cast therewith, of an inverted U spring straddling the back of said wrench and seated in said depressions and held therein by said rivet, and having its ends extending along the faces of the jaws, substantially as shown for the purpose described.

521,422. TELEPHONE-CALL RECORDER. WILLIAM F. SMITH, San Francisco, Cal. Filed May 5, 1893. Serial No. 473,131. (No model.)



Claim.—1. The combination of the type-wheel G, setting-wheel H, setting-lever R, brake-lever M, coil-springs $g^{\times}$ $h^{\times}$ and a polarized relay having separately acting armatures S' S^2 and rods or arms U V actuated by said armatures, constructed to operate substantially as described.

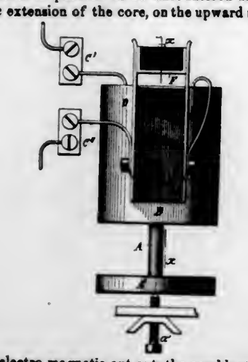
2. The combination of the type-wheel G, setting-wheel H, coil-springs $g^{\times}$ $h^{\times}$ setting-lever R means to vibrate the said lever by pulsations of an electric current, brake-lever and actuating means whereby said lever is caused to hold and release said setting-wheel at proper intervals to set and reset the type-wheel, locking lever and printing-lever actuated by or from the movements of said setting mechanism while the type-wheel is held at rest, constructed to operate substantially as described.

3. The combination with the reciprocating feed-plate adapted to feed the paper-strip step by step with relation to the movements of the type-wheel G as described, of the swinging brake-block Q having a pointed end to engage the paper, for operation as and for the purpose described.

4. The combination of the sliding-piece B', dogs G G' carried thereby and arranged to act in contrary directions, the rocker-plate B having contact-points and surfaces $d^{\times}$ and f set in working relation to said dogs as described, the stationary conducting strip T, "ground-wire" z, contact strip X Y and slotted-plated having a numbered scale therein to measure the length of movement of the sliding-piece, constructed for operation substantially as described.

521,423. AUTOMATIC ELECTROMAGNETIC CUT-OUT. LOCIUS T. STANLEY, Brooklyn, N. Y., assignor to Henry R. Cutter, Philadelphia, Pa. Filed July 18, 1893. Serial No. 480,945. (No model.)

Claim.—1. In an electro-magnetic cut-out the combination of a vertically movable magnetic plunger having a pole plate at its lower and a non-magnetic extension at its upper end, a coil surrounding said plunger, a magnetic casing or jacket surrounding the coil, and a pivoted switch lever in position to be encountered and raised by the non-magnetic extension of the core, on the upward movement of the same.



2. In an electro-magnetic cut-out, the combination of a vertical coil or helix inclosed at its top and sides by a magnetic jacket, a core movable therein and provided at its lower end with a magnetic pole plate, an adjusting screw for regulating the position of the core and pole-plate, and a pivoted switch lever above the coil adapted to be shifted by the engagement therewith of a non-magnetic extension of the core, as set forth.

3. In an electro-magnetic cut out, the combination with a magnetic coil, a movable core, a pivoted switch lever and two switch plates or terminals normally bridged by the switch lever, of a fuse box having stationary and slightly resilient terminals adapted to mechanically engage with the switch plates and connect the box to the same, as set forth.

4. In an electro-magnetic cut out the combination with the strips or plates forming or connected with the switch terminals, of a fuse box having slightly resilient projections thereon adapted to engage with the switch plates and mechanically secure the box thereto, and springs bearing upon the said projections and forming jaws for receiving the terminals attached to the fuse, as set forth.

5. The fuse box herein described composed of a refractory insulating substance and containing a space or chamber with two contracted arms or passages extending therefrom, a fusible strip or wire contained in the said chamber and having its ends secured to terminals at the ends of the contracted passages, as set forth.

6. The combination with a fuse box having a U-shaped chamber for containing a fuse, the arms of parallel passages of said chamber being contracted to nearly the size of the fuse wire, while the remaining portion forms a space of relatively greater capacity, of a fusible strip contained in said chamber and having its ends secured to copper terminals at the ends of the contracted arms or passages.

7. The combination with the fuse block containing an enlarged space or pocket e'' and two contracted arms or passages e e' extending therefrom, of stationary terminals or clips c c' on the outside of the block, a fusible wire extending through the pocket and contracted passages, and having its ends attached to copper wires that pass through perforations in the block at the ends of the contracted passages and connect with the clips or terminals, as set forth.

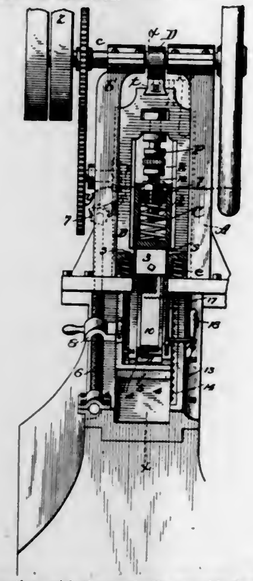
521,424. MACHINE FOR MAKING RASPS. JOHN H. STOKES, Freehold, N. J., assignor to the Stokes Bros. Manufacturing Company, same place. Filed Mar. 2, 1892. Serial No. 423,503. (No model.)

Claim.—1. In combination with the bed of a rasp punching machine, a punch holder arranged to reciprocate at an angle to said bed and a punch rigidly fixed in said holder, thereby reciprocating in a direct line and at a certain angle to the bed, the said punch being formed with plain inclined faces on its under side, meeting in a central point forming edge, arranged to form the bottom of the tooth cavity, and with a beveled end sloping from the point below, and arranged to push up the metal and form the face of the tooth, substantially as described.

2. In combination with the bed of a rasp punching machine, a punch holder arranged to reciprocate at an angle to said bed, a gang punch each punch of the gang being formed with plain inclined faces on its under side, meeting in a central point forming edge and arranged to form the bottom of the tooth cavity and all having beveled ends sloping at about the same angle, from the points below, and arranged to form the face of the teeth, said gang being set in the holder to reciprocate in a direct line in relation to the bed, and mechanism

for changing laterally the relative position of the punch gang and the bed, substantially as described.

3. In combination, with the vertically movable frame B, means for applying pressure thereto, a tool carried by a barrel C, receiving movement from said frame B, and a spring between said barrel and frame, substantially as described.



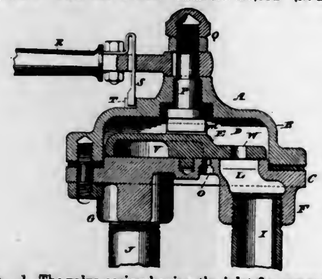
4. In combination, with the vertically movable frame B, means for applying pressure thereto, a barrel C, a tool carried thereby, a spring between said barrel and frame and means for adjusting the spring, substantially as described.

5. In combination with a tool, the frame, means for applying downward pressure to said frame, a spring between said tool and frame and spring between the hammer frame and main frame for lifting said hammer frame after its downward movement, substantially as described.

6. In combination with a punch and mechanism for operating it, a stationary table for supporting the blank, a longitudinally movable holder between the blank and table, the blank being movably supported within the holder, and means for shifting the blank laterally within the holder, substantially as described.

7. In combination with a gang punch and mechanism for operating it, a table, a longitudinally movable holder, and a laterally movable plate 12 supporting the blank, and means for shifting the plate 12, substantially as described.

521,425. ENGINEER'S VALVE. WILLIAM A. THACHER, New York, N. Y., assignor to the Thacher Car and Construction Company, same place. Filed Feb. 6, 1893. Serial No. 461,144. (No model.)



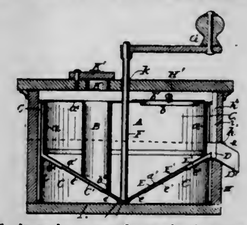
Claim.—1. The valve casing having the inlet for compressed air and two outlets therefor, and the two train pipes connected with said outlets, combined with the rotary disk valve E seated within the interior chamber of said casing over the inlet and delivery ports and having in its lower face the recess V and being provided with means of communication from said inlet to either one of said outlets, the said recess V being sufficient in extent to connect the said outlets together when the communication of the latter with the supply inlet is cut-off by said valve and permit the air in one of said train pipes to exhaust into the other thereof, substantially as set forth.

2. The valve casing having in one section the elongated inlet port L and the delivery ports M, N, combined with the valve E resting on said section over said ports and having the ports X, Y, and recess V, the latter being sufficient in extent to connect the ports M, N, and the port L being sufficient in extent to communicate with the port Y while the port X registers with the port M, and to communicate with the port X while the port Y registers with the port N; substantially as and for the purposes set forth.

3. The valve casing having in one section the elongated inlet port L, the delivery ports M, N, and exhaust port O, combined with the valve E resting on said section over said ports and having the ports X, Y and recess V, the latter having the extensions a, b, adapted when the valve is turned to its extreme position to the right or left to communicate with the exhaust port O, the said port L being sufficient in extent to communicate with the port Y while the port X registers with the port M, and communicate with the port X while the port Y registers with the port N, and the recess V being sufficient in extent to connect the ports M, N, to permit the air from the port N to exhaust into the aperture O while communication is established between the ports L, Y, X, M, and to permit the air from the port M to exhaust into the aperture O while communication is established between the ports L, X, Y, N; substantially as set forth.

4. The valve casing having in one section the elongated inlet port L, and the delivery ports M, N, combined with the valve E seated on said section over said ports and having the ports X, Y, recess V and aperture W, the said recess being sufficient in extent to connect the ports M, N, and the inlet port L being sufficient in extent to at all times remain in communication with the aperture W and to communicate with the port Y while the port X registers with the port M, and communicate with the port X while the port Y registers with the port N; substantially as and for the purposes set forth.

521,426. ICE-CREAM FREEZER. WALTER R. THATCHER, Oskaloosa, Iowa. Filed Aug. 1, 1893. Serial No. 482,055. (No model.)



Claim.—1. In an ice cream freezer having a revolving ice cylinder, provided with a conical form bottom, the combination with the same, of a conical material supporting bottom which corresponds with the angle of the conical bottom of the said ice cylinder, and having the series of zones or concentric planes c c' c^2, of upper side surfaces in which each succeeding zone or plane is at a short distance below the line of surface of the preceding one, and the series of guide bars E E' E² fixed to said material supporting bottom, substantially as and for the purposes set forth.

2. In an ice cream freezer, the combination with the case C, inverted cone shaped material supporting bottom C' fixed within said case and having step f at its apex, a series of guide bars E E' and E² secured to the upper side of the said bottom, and a revolving ice cylinder having the bottom d' substantially corresponding in form with the said material supporting bottom, of a vertical shaft secured centrally within the said ice cylinder and having its foot end secured to the apex of the said bottom of the ice cylinder and having its upper portion secured to the top wall of the same with the end thereof extended upwardly above the said top wall, a crank handle secured to the upper end of said vertical shaft for revolving the said ice cylinder, and the stationary bearing k between the top wall of the said revolving ice cylinder and the said crank handle, whereby the pressure of the frozen material, at the said guide bars, against the bottom of the revolving ice cylinder will be prevented from canting the same out from its normal position when the freezer is being operated, substantially as and for, the purposes set forth.

3. In an ice cream freezer, the combination with an ice cylinder, closed by a top wall and provided with a vertical shaft for revolving the same and having an inverted cone shaped bottom for separating the refrigerating agent within it from the material to be frozen below it, the fluid chamber B separated by a vertical wall, between the top wall and bottom of the said cylinder, from the refrigerating agent,

the stationary inverted cone shaped bottom C' for supporting the material, to be frozen, in contact with the said bottom of the ice cylinder, the case C having vertical side walls and secured to the said stationary cone shaped bottom and inclosing both the side wall of the ice cylinder and the downwardly projected cone shaped bottom and provided with the discharge spout D, of the outer case H having its side walls and bottom of non-conducting material and supporting within it the case C from its bottom, and provided with opening h', the discharge spout D' communicating from the spout D leading from the case C to the ontside of said outer case, and the removable cover H having in it the central bearing k for support of the vertical shaft of the ice cylinder and provided with the covered opening K for access to the fluid chamber B, substantially as and for the purposes set forth.

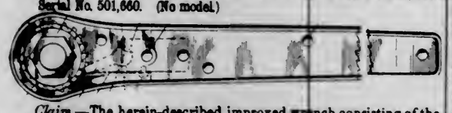
4. The combination with the case supporting the revolving ice cylinder and a fixed discharge spout, fixed to the same, for leading the frozen material to an exit, of the outer case H provided, within its wall, with opening h' and vertical way h^3 through which the said fixed discharge may pass to opposite said perforation, and a supplemental discharge spout contained within the said opening, and telescoping with the said discharge spout, substantially as and for the purposes set forth.

521,427. SEAL. EDWARD L. TORSCH, Baltimore, Md., assignor to Torsch & Lee, same place. Filed Jan. 8, 1894. Serial No. 496,133. (No model.)



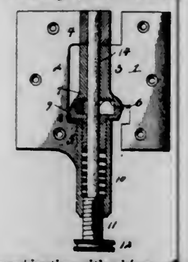
Claim.—A seal composed of frangible material adapted for use with a shackle wire, having a cavity for receiving the barbed end of said shackle wire and a shoulder in the cavity adapted to retain said barbed end, said cavity being lined on all sides with a metallic lining, substantially as described.

521,428. WRENCH. WILLIAM C. BARR, Jersey City, N. J., assignor to J. Henry Haggerty, New York, N. Y. Filed Feb. 27, 1894. Serial No. 501,660. (No model.)



Claim.—The herein-described improved wrench consisting of the handle formed in two corresponding parts or sections united together and distended at one end and having coincident holes or openings, a block held between said parts or sections having a socket, a pawl fitted in said socket, a spring secured to said block bearing against said pawl, nut-receiving sockets having a cylindrical connecting portion extended through said holes or openings, and the ratchet wheel on said cylindrical portion, substantially as set forth.

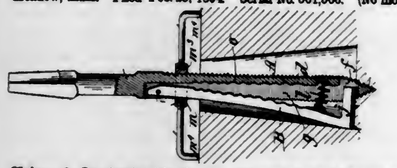
521,429. LOCK-HINGE. WILLIAM T. BERNOTTE, Temple, Tex., assignor of two-thirds to Charles C. Kirkpatrick and William P. Rylander, same place. Filed Aug. 4, 1893. Serial No. 482,355. (No model.)



Claim.—1. The combination with a hinge, of a clutch having one of its members secured to and carried by one of the leaves of the hinge, and the other of its members slidably mounted upon the other leaf of the hinge with its face in operative relation with the first-named member, a spring arranged to actuate the slidable member and hold the same in engagement with the fixed member, and an adjusting-screw operatively connected to the spring to vary the tension thereof, substantially as specified.

2. The combination with a hinge having its leaves connected by a pivot-pin, of a clutch having one of its members fixed to one of the leaves and its other member slidably mounted upon the other leaf, in registration with the eyes forming parts of said leaves, an actuating-spring arranged in operative relation with the slidable member of the clutch, and an adjusting screw, integral with said pivot-pin and engaging one end of the actuating-spring whereby the tension of the latter may be varied, substantially as specified.

521,430. BORING-BIT. ABRAHAM A. BOURGEOUS, East Longmeadow, Mass. Filed Feb. 23, 1894. Serial No. 501,306. (No model.)



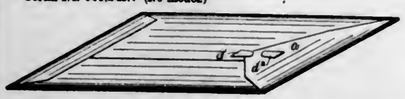
Claim.—1. In a boring bit, the screw-threaded shaft having near its tapered worm-pointed end the transverse aperture, and a groove along its length which communicates with said opening, a bar having its upper end pivotally connected within the said groove, and extended downwardly along said groove and provided at its lower end with an angularly extended member which has a cutting lip, or router, and which may recede into said aperture, the spring applied to said bar for forcing it to a downwardly diverging angle to the shaft, and a guard screw threading on the shaft for controlling the distention of the lip-carrying bar, and a movable piece set in said groove behind the bar, substantially as and for the purpose set forth.

2. In a boring bit, the screw-threaded shaft having near its tapered worm-pointed end the transverse aperture, and a groove along its length which communicates with said opening, in the base of which is a series of depressions, a bar having its upper end pivotally connected within the said groove, and extended downwardly along said groove, and provided at its lower end with an angularly extended member which has a cutting lip, or router, and which may recede into said aperture, a spring applied to said bar for forcing it to its greatest diverging angle to the shaft, a ball behind the bar to have its seat in some one of said depressions, and a guard screw-threading on the shaft for controlling the distention of the lip-carrying bar, substantially as described.

3. A boring bit comprising a screw-shaft with the longitudinal groove, g, and transverse aperture, f, the downwardly divergent outwardly reacting bar, B, having the angular projection, j, with the cutter, a collar, m, surrounding the shaft having the sockets, m^3, and the detachable extension arms, m^3, m^3, substantially as described.

4. A boring bit comprising a screw-shaft with the longitudinal, groove, g, and transverse aperture, f, the downwardly divergent outwardly reacting bar, B, having the angular projection, j, with the cutter, a collar, m, surrounding the shaft having the sockets, m^3, and the detachable extension arms, m^3, m^3, having the depending members, m^4, substantially as described.

521,431. ENVELOPE. CHARLES M. CARNAHAN, Newport, Ky., assignor to the Globe Company, Cincinnati, Ohio. Filed Mar. 12. 1894. Serial No. 503,245. (No model.)

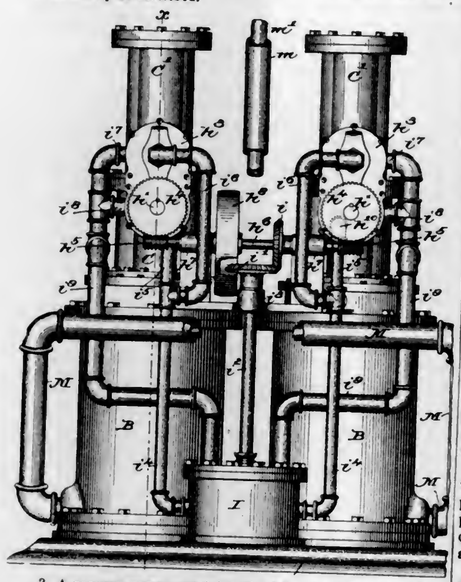


Claim.—An envelope having the end flap a, in combiuation with the metallic strip D having tangs d and d^3 passed outward through the body portion of the envelope, one of said tangs being passed through said flap and compressed downward thereon toward its point, the other tang being compressed and bent upward overlapping the point of said flap when closed, as set forth.

521,432. VACUUM-PUMP. EDWIN D. CHAPLIN, Natick, Mass. Filed May 29, 1893. Serial No. 475,855. (No model.)

Claim.—1. A vacuum pump containing the following instrumentalities, viz:—a pump cylinder, an inlet and outlet therefor; a cut-off piston to open and close said inlet; a main piston; one or more passages therein through which fluid drawn into said cylinder is forced; and means to reciprocate said pistons, substantially as described.

2. A vacuum pump containing the following instrumentalities, viz:—a pump cylinder, an air inlet therefor, a pump piston therein; a power cylinder, its piston connected with and to move said pump piston; valves to control the movements of said power piston and its connected pump piston; and independent automatic valve operating mechanism actuated independently of said pistons whereby the movements of said valves may be varied at will irrespective of said pistons, substantially as described.



3. A vacuum pump containing the following instrumentalities, viz:—a pump cylinder, an air inlet in the side thereof near one end; a tubular cut-off piston within said cylinder to cover and uncover said inlet; a main piston moving within said tubular piston; one or more passages in said main piston through which fluid drawn into said cylinder is forced; valves controlling said passages, and means to reciprocate said pistons to operate, substantially as described.

4. A vacuum pump containing the following instrumentalities, viz:—a pump cylinder; an air inlet in the side thereof; main and cut-off pistons in said cylinder; two power cylinders and pistons therein connected respectively with said main and cut-off pistons, substantially as described.

5. A vacuum pump containing the following instrumentalities, viz:—a pump cylinder; an air inlet in the side thereof; main and cut-off pistons in said cylinder; two power cylinders arranged with axes coincident with the axis of said pump cylinder; and pistons therein connected respectively with said main and cut-off pistons, substantially as described.

6. A vacuum pump containing the following instrumentalities, viz:—a pump cylinder; an air inlet in the side thereof; pump pistons in said cylinder; two power cylinders; pistons therein connected respectively with and to actuate said pump pistons; and valves for said power cylinders connected to move together, but having differently arranged ports to thereby produce different movements of said pistons, substantially as described.

7. A vacuum pump containing the following instrumentalities, viz:—a pump cylinder; an air inlet in the side thereof at or near one end; main and cut-off pistons therein and means to reciprocate the same, the said cut-off piston being moved to open and again close said port while the main piston is moving in one direction, substantially as described.

8. A vacuum pump containing the following instrumentalities, viz:—a pump cylinder; an air inlet in the side thereof; main and cut-off pistons in said cylinder moving one within the other, and at the ends of their reciprocations in one direction resting upon a common cylinder head, substantially as described.

9. A vacuum pump, containing the following instrumentalities, viz:—a pump cylinder; an air inlet in the side thereof; main and cut-off pistons in said cylinder, moving one within the other, said pistons at the ends of their reciprocations in one direction resting upon a common cylinder head and at or near the ends of their reciprocations in the opposite direction contacting one with the other, and valves in said pistons, substantially as described.

10. A vacuum pump containing the following instrumentalities, viz:—a pump cylinder; an air inlet in the side thereof; main and cut-off pistons in said cylinders moving one within the other, the inner or main piston at the end of its drawing-in movement contacting with the cut off piston in its cutting-off movement, the main piston changing its direction of movement to and returning for a time in unison with the further cutting-off movement of the said cut-off piston, substantially as described.

11. A vacuum pump containing the following instrumentalities, viz:—a pump cylinder provided with valves; an air inlet for said cylinder; two pistons moving one within the other in said cylinder; valves in and means to move said pistons whereby a vacuum is formed between the two pistons into which the air drawn into the cylinder is permitted to enter, and a second vacuum formed in the said cylinder between its end and said pistons into which the air from the space between said pistons is exhausted, substantially as described.

12. A vacuum pump containing the following instrumentalities, viz:—a pump cylinder; a cut-off piston therein cone shaped at its upper side, and having a cone-shaped recess at its under side; valves in said piston; a main piston movable within said cut-off piston and also made crowning at its upper side and provided with a conical recess at its under side, the conical cylinder head b and head b' having a conical recess, valves in said main piston and in said cylinder head b', power cylinders and pistons therein connected with and to move said main and cut-off pistons, all to operate, substantially as described.

13. A vacuum pump containing the following instrumentalities, viz:—a pump cylinder; a pump piston therein; a power cylinder, a piston therein connected with and to operate said pump piston, a pressure creating device and power connections between it and the inlet and exhaust of said power-cylinder, whereby said device takes the exhaust fluid from said power-cylinder and returns it again thereto under pressure to actuate the piston therein; valves controlling said inlet and exhaust, and means to actuate said valves and said pump, substantially as described.

14. A vacuum pump containing the following instrumentalities, viz:—a pump cylinder; pump pistons therein; power cylinders and pistons therein connected respectively with and to operate said pump pistons; rotatable toothed intermeshing valves to control movements of said power pistons, and means to rotate said valves, substantially as described.

15. A vacuum pump containing the following instrumentalities, viz:—a pump cylinder; pump pistons therein; power cylinders, pistons therein connected with and to operate said pump pistons; valve seats c^9, c^9 provided respectively with exhaust depressions c^9, c^{10}; and inlet ports for the said power cylinders; valves h and h', having inlet ports h^{14}, h^{16}, and exhaust depressions h^{13}, h^{17}, and means to rotate said valves, all to operate, substantially as described.

16. A vacuum pump containing the following instrumentalities, viz:—a pump cylinder; pistons therein; power cylinders, pistons therein connected with and to operate said pump pistons; rotatable valves for and to control said power cylinders; and worm-wheel mechanism to rotate said valves, substantially as described.

17. A vacuum pump containing the following instrumentalities, viz:—a pump cylinder, pistons therein; power cylinders, pistons therein connected with and to operate said pump pistons; valves to control said power cylinders and the movements of the pistons therein; a pressure creating device, as the pump I, to create pressure to actuate the power pistons; and common actuating mechanism for said valves and pressure creating device whereby the pressure created varies with and follows the movements of said valves, substantially as described.

18. A vacuum pump containing the following instrumentalities, viz:—a base; a plurality of pump cylinders, pistons in each; power cylinders and pistons therein connected with and to actuate the said pump pistons, valves for the said power pistons; common actuating mechanism for said valves whereby the pistons in the said power cylinders are caused to move uniformly with relation to each other; a single pressure creating device to supply fluid under pressure for and to operate said power pistons, substantially as described.

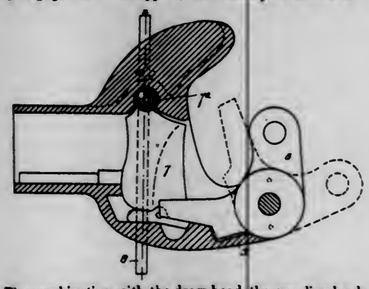
19. A vacuum pump containing the following instrumentalities, viz:—a pump cylinder; a main box-like piston f adapted to be filled with oil, and a cut-off piston e, both in said cylinder; valves f^2 and e^2; and means to reciprocate said pistons relatively to each other, substantially as described.

521,433. CAR-COUPLING. HENRY DEITZ, Denver, Colo. Filed July 5, 1893. Serial No. 479,673. (No model.)

Claim.—1. In a car coupler, the combination with the draw-head and coupling hook, of the locking dog terminating at one extremity in a ball or spherical shaped projection engaging a suitable socket formed in the draw-head, the ball extremity being provided with an arm which projects through an opening in the side of the draw-head;

the dog being held in place by passing a suitable key through an aperture in the arm extremity, substantially as described.

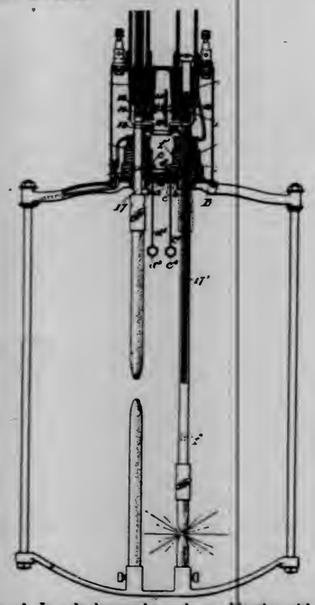
2. In a car coupler, the combination with the draw-head, the locking dog and the transverse bar for manipulating the same, of an arm connected with said bar and provided with a suitable support attached to the car, said arm being provided with a short head which normally engages the said support, substantially as described.



3. The combination with the draw-head, the coupling hook and the transverse bar, of the locking dog having one extremity engaging a suitable socket formed in the draw-head and suitable means for retaining the dog in operative relation with the other parts, substantially as described.

4. The combination of the drawhead, and the pivoted coupling hook, means for temporarily locking the coupling hook in the open position in the draw-head, said means consisting of one or more projections formed on one part and adapted to enter counterpart recesses formed in the other part, the locking dog having one extremity engaging a suitable socket formed in the draw-head, means for retaining the dog in operative relation with the other parts, and the transverse bar for manipulating the dog, substantially as described.

521,434. DUPLEX ELECTRIC-ARC LAMP. GEORGE F. EDENS and JOHN R. BREWER, Xenia, Ohio. Filed Mar. 31, 1894. Serial No. 506,838. (No model.)



Claim.—1. In a duplex arc lamp the combination with the feed-rods, of a trip-lever for each feed-rod adapted to hold same in a raised position and having a portion thereof arranged in the path of movement of the adjacent feed-rod, the said feed-rods carrying means for engaging a portion of the trip-levers for releasing the adjacent feed-rods, whereby the arc may be completed in either set of carbons by the downward movement of the adjacent feed-rod, substantially as described.

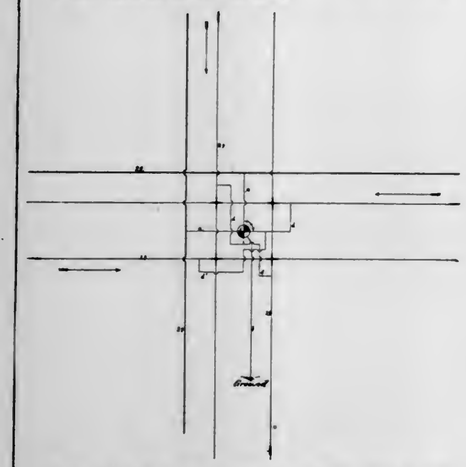
2. In a duplex arc lamp the combination with the feed-rods, of a trip-lever for each rod engaging a portion thereof for holding same in a raised position, and extending in the path of movement of the adjacent feed-rod, the said feed-rods having projections for engaging a portion of the trip-levers for releasing the adjacent feed-rods, whereby the arc may be automatically completed in either set of carbons by the downward movement of the adjacent feed-rod, substantially as described.

3. In a duplex arc lamp, the combination with the feed-rods, of a spring-pressed trip-lever for each rod one end of which lever engages a projection on said rod for holding same in a raised position, the other end of said lever extending in the path of movement of the adjacent feed-rod, the said feed-rods having projections for engaging a portion of the trip-levers for releasing the adjacent feed-rods, whereby the arc may be completed in either set of carbons by the downward movement of the adjacent feed-rod, substantially as described.

4. In a duplex arc lamp, the combination with the feed-rods, of a trip-lever for each feed-rod adapted to hold same in a raised position and having a portion thereof arranged in the path of movement of the adjacent feed-rod; the said feed-rods carrying means for engaging a portion of the trip-levers for releasing the adjacent feed-rods, whereby the arc may be completed in either set of carbons by the downward movement of the adjacent feed-rod, together with means extending without the casing for disengaging said levers from the feed-rods, substantially as described.

5. In a duplex arc lamp, the combination with the feed-rods, of a spring-pressed trip-lever for each rod, one end of which lever engages a projection on said rod for holding same in a raised position, the other end of said lever extending in the path of movement of the adjacent feed-rod; the said feed-rods having projections for engaging a portion of the trip-levers for releasing the adjacent feed-rods, whereby the arc may be completed in either set of carbons by the downward movement of the adjacent feed-rod, together with a handle without the casing having a connection with the trip-levers for raising the feed-rods or disengaging said levers from the feed-rods, substantially as described.

521,435. AUTOMATIC ELECTRIC SIGNAL-LAMP. JOHN R. FARMER, St. Louis, Mo., assignor, by direct and mesne assignments, of two-thirds to O. M. Schmidt and W. B. Grable, same place. Filed Apr. 9, 1894. Serial No. 506,797. (No model.)



Claim.—1. In an automatic electric signal lamp, a hood or case containing mechanism for turning a suspended lantern, a lantern suspended from said hood or case having different colored lights on adjacent sides with insulated trolley wires leading to the junction and connected to the feed line through the lamp so that when the trolley reaches the insulated trolley wire it completes a circuit through the lamp, turns the lantern and illuminates the same: substantially as described.

2. The combination in an automatic electric signal lamp of the electro magnets 4, sliding armatures 5, the turning lantern 14 suspended from the hood or casing 1, the trolley leading to the junction, insulated and connected to the feed line through the electro magnets 4, so arranged that the trolley on reaching the insulated trolley wire completes the circuit through the lamp, turns the red light to the cross track and illuminates the lantern: substantially as described.

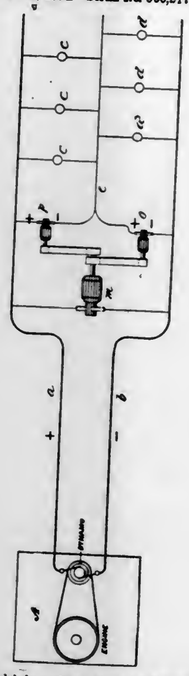
3. The combination in an autoinatic electric signal lamp, of hood or casing 1 containing the electro magnets 4, the armatures 5 connected by the plate 9, the crank 12 connected to the hollow shaft 13 and operated by the plate 9, the lantern suspended on the hollow shaft 13 and arranged to turn with it, and an electrical connection made by the trolley of the car by which the current will pass through one of the electro magnets 4, turn the lantern 14 and illuminate the same: substantially as described.

4. The combination in an automatic electric signal lamp of the hood or casing 1 containing the rectangular frame 3, the electro magnets 4, and sliding armatures 5 connected together by the plate 9 which operates the crank 12 for turning the lantern 14 the lantern 14 suspended under the hood or casing 1, and an electrical connection made by the trolley of the car by which the current will pass through one electro magnet 4, through the car motor and to the ground, turning and illuminating the lantern 14: substantially as described.

5. The combination in an automatic electric signal lamp, of the hood or casing 1 containing the electro magnets 4 placed within the rectangular frame 3 the sliding armatures 5 connected by the plate 9 to the crank 12, the suspended lantern 14, and the shunt circuit connection 27, all arranged substantially as described.

6. In an automatic electric signal lamp, a hood or case containing the mechanism for turning a suspended lanteru, a lantern having different lights on adjacent sides, and supplementary wires 32 suspended and insulated from the trolleys leading to the junction, so that when the trolley reaches the supplementary wire 32, it will be brought in contact with the trolley, the supplementary wire being connected through the mechanism for turning and illuminating the lantern to the ground: substantially as described.

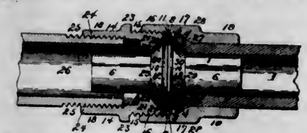
521,436. SYSTEM OF ELECTRICAL DISTRIBUTION. THOMAS J. FAY, New York, N. Y., assignor to the C. & C. Electric Company, of New Jersey. Filed Feb. 15, 1894. Serial No. 500,217. (No model.)



Claim.—1. In a multiple series system of distribution, the combination of a main generating station, two main conductors leading therefrom, an intermediate or compensating conductor between the groups or sets of translating devices, two generators connected in series with each other and normally tending to augment the supply of current to the mains, but so connected as to supply extra current to either group of translating devices which requires it in order to establish a balance between the two groups, and an electric motor driving both generators and supplied with current from the mains, substantially as described.

2. In a multiple series system of distribution, the combination of a main generating station, two main conductors leading therefrom, an intermediate or compensating conductor between the groups or sets of translating devices, two generators connected in series with each other and normally tending to augment the supply of current to the mains, but so connected as to supply extra current to either group of translating devices which requires it in order to establish a balance between the two groups, said generators being driven by electric power derived from the two main conductors, substantially as described.

521,437. COMBINATION SOFT AND HARD METAL PIPE COUPLING. SAMUEL M. FRIEDE, St. Louis, Mo., assignor to the Star Coupler Company, same place. Filed Oct. 9, 1893. Serial No. 487,592. (No model.)



Claim.—1. In a pipe coupler, the combination of the soft metal pipe 1 having the bevel joint lip 2, the splice pipe 6, the close joint gasket 8, mounted on said splice pipe, the said gasket 8 having duplex bevel jointer sides 10, meeting at their peripheral edge 11, the combined intermediate, hard metal pipe and screw coupling collar 14, having the bevel inwardly projecting joint seat 20, the head 21, and the contact embracing shoulder 22, and the major screw coupling collar 17, having the bevel joint seat 27; substantially as described.

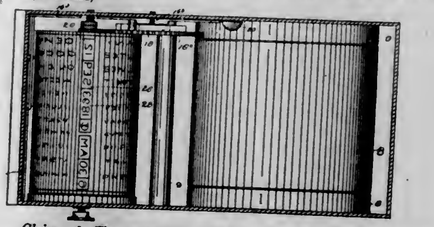
2. In a pipe coupler, the combination of the soft metal pipe 1 having the bevel joint lip 2, the close jointer gasket 8 having the duplex bevel joint sides 10, and their meeting, peripheral edge 11, the combined intermediate screw pipe, and minor coupling collar 14, having the bevel joint face 20, and the major screw coupling collar 17, having the bevel face 27; substantially as described.

3. In a pipe coupler, the combination of the soft metal pipe 1, having the flaring bevel joint lip 2, the close jointer gasket 8, having the duplex bevel joint sides 10, and their meeting, peripheral edge 11 pointing to the intervening space between the joint ends of pipes, the elastic seal washers 12, the combined, intermediate screw pipe and minor coupling collar 14 of hard metal, having the bevel joint face 20, and the major screw coupling collar 17, of hard metal having the bevel joint seat 27; substantially as described.

4. In a pipe coupler, the combination of the soft metal pipe 1, having the flaring bevel joint lip 2, the splice pipe 6, the close joint gasket mounted on said splice pipe, the said gasket having the duplex bevel joint sides 10, that meet at their peripheral joint pointer edge 11, the elastic seal washers 12, having the inner seal faces 13, the outer seal faces 30, and the seal edge 29, the combined intermediate screw pipe, and minor coupling collar 14 of hard metal, having the bevel joint face 20, the major screw coupling collar 17 of hard metal, having the bevel joint seat 27, and the hard metal screw jointed extension pipe 26; substantially as described.

5. In a pipe coupler, the combination of the soft metal pipe 1, having the bevel joint lip 2, the close jointer double faced gasket 8, having the peripheral edge 11, the hard metal pipe 14, having the bevel joint face 20, and the elastic seal washers 12; substantially as described.

521,438. TICKET-PRINTING MACHINE. WILLIAM R. GRAY and DAVID F. BOWEN, Denver, Colo. Filed Nov. 13, 1893. Serial No. 490,867. (No model.)



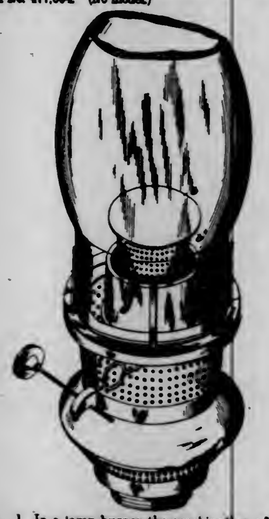
Claim.—1. The combination with the casing of a slotted printing drum journaled therein, and provided with movable blocks, and devices mounted on the drum-spindle, and independently adjustable for changing the time-printing designations, said devices consisting of a disk loosely mounted on the drum-spindle, and so connected therewith that it moves with said spindle in one direction only, said disk having a yielding printing face, and an arm made fast to the spindle,

and also having a yielding printing face, one of said devices carrying the hour designations, and the other, the fractional hour designations, substantially as described.

2. The combination with the casing of a slotted printing drum, the spindle journaled in the casing and carrying the drum, a disk loosely mounted on the drum-spindle, and so connected therewith that it moves with the spindle in one direction only, said disk having a yielding printing face, an arm made fast to the spindle, and also having a yielding printing face, and a lever located in the drum and carrying a yielding face-plate upon which are formed the characters designating ante and post meridian time, said lever being adjustable, whereby its position may be reversed at certain intervals, according as it is necessary to expose the one or the other designation, substantially as described.

3. In a ticket printing device, the combination with a suitable casing, the printing drum provided with a gear attached to one end thereof, the spring supported reciprocating plate 16 provided with a stem protruding from the casing and having a pawl, a gear wheel 18 engaging the gear on the drum and provided with a ratchet face, a pawl attached to the plate and engaging the teeth of the ratchet, a locking pin or tooth made fast on said plate and engaging the gear 18, the arrangement being such that as the plate 16 is actuated, the wheel 18 is unlocked before the pawl engages its ratchet face, substantially as described.

521,489. LAMP. WILLIAM A. PHILLIPS, U. S. Army, assignor of one-half to Thomas J. Porter, Miles City, Mont. Filed June 9, 1893. Serial No. 477,094. (No model.)



Claim.—1. In a lamp burner the combination of the crank rod, the ring and spring connected thereto the wick cylinder and the chimney ring, substantially as described.

2. In a lamp burner, as described the combination of the crank rod, the movable part about the wick tube, the spring connection between said part and the crank, and the wick tube, substantially as set forth.

3. In an Argand lamp burner, as described the combination of the fixed ring at the top of the foraminous part of the burner, the chimney springs attached thereto, and the movable chimney ring of smaller diameter than the fixed ring, and having chimney springs attached thereto, and the crank and spring piece for moving said smaller ring, substantially as set forth.

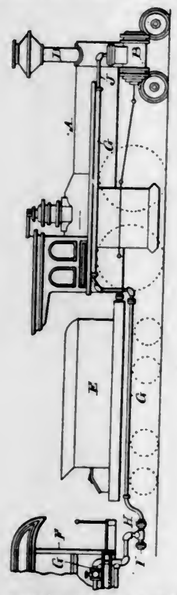
4. In a lamp burner, as described, the combination of the crank rod, the movable part about the tube, the guide rods depending from the same, the spring connection between said movable part and the crank, the wick tube and the chimney support, all substantially in the manner and for the purpose set forth.

5. In a chimney raising device a crank rod connected with the operative parts by means of a spring, in the manner set forth, whereby in operating the mechanism the spring is at a dead center both when the chimney is up and when down, substantially as set forth.

6. The combination, in a lamp, of the chimney ring, and chimney springs attached there with the band or ring and the spring connected therewith and with the handle by which the parts are moved, substantially as set forth.

7. In an Argand burner, as described, the combination of a spring connecting the movable part about the wick tube to the crank rod, of the frame supporting the movable chimney ring, fitted with chimney springs and smaller in diameter than the fixed chimney ring at the top of the foraminous part of the burner, so that by turning the crank rod the movable chimney ring slides up and down between the chimney springs of the fixed chimney ring.

521,440. STEAM HEATING APPARATUS. CHARLES H. ROBINSON, St. Paul, Minn., assignor to Arthur S. Browne, Washington, D. C. Original application filed Apr. 5, 1887, Serial No. 233,804. Divided and this application filed Nov. 10, 1891. Serial No. 411,480. (No model.)



Claim.—1. In a steam-heating apparatus for utilizing a portion of the exhaust steam from engines, pumps, and other steam-operated motors, the steam radiating system, the motor, and the exhaust pipe thereof, said exhaust pipe being constructed as usual so as to freely discharge the steam without obstruction, in combination with a connecting pipe connecting the steam radiating system to said exhaust pipe, said connecting pipe opening into the exhaust pipe close to the place where the steam escapes from the cylinder and where the escaping steam is still under pressure, and a back-flow preventer operating in conjunction with said connecting pipe, said back-flow preventer being located immediately adjacent to said exhaust pipe, substantially as set forth, whereby the free exhaust of the steam is permitted, and a small portion of the exhaust steam is forced by its own pressure intermittently into the radiating system at each successive exhaust.

2. In a steam-heating apparatus for utilizing a portion of the waste steam from engines, pumps, and other steam-operated motors after said steam has ceased to be operative in the motor but while it is still under pressure, the steam radiating system, and the motor, in combination with the connecting pipe connecting said radiating system and said motor so as to receive the waste steam while it is still under pressure, and a back-flow preventer consisting of a check valve in said connecting pipe, said valve being located in close proximity to the motor, substantially as set forth, whereby said valve opens under the direct influence of and responsively to the high exhaust pressure in said exhaust pipe.

3. In a steam heating apparatus for utilizing a portion of the exhaust steam from engines, pumps, and other steam operated motors, the steam radiating system, the motor, and the exhaust pipe thereof, in combination with a pipe connecting said exhaust pipe with said radiating system, said connecting pipe opening into the side of but without obstructing the passage within said exhaust pipe at a point close to the exhaust port where the steam is of sufficient pressure to force itself by its own pressure into said connecting pipe, and a check valve in said connecting pipe which opens intermittently at each stroke of the piston to admit steam into said radiating system, said check valve being located in close proximity to the exhaust pipe substantially as set forth.

4. In a steam heating apparatus for utilizing a portion of the exhaust steam from engines, pumps, and other steam-operated motors, the steam radiating system, the motor, and the exhaust pipe thereof, said exhaust pipe being constructed as usual so as to freely discharge the steam without obstruction, in combination with a pipe connecting said steam radiating system and said exhaust pipe, said connecting pipe opening into the side of but without obstructing the passage within the exhaust pipe close to the place where the steam escapes from the cylinder and where it is still under pressure, and a partly steam-balanced steam-actuated valve in said connecting pipe close to said exhaust pipe, said valve being constructed to be normally closed and to be automatically opened to admit steam to the radiating system, when the exhaust steam is above a certain pressure at each successive exhaust, substantially as set forth.

5. In a steam heating apparatus, a valve mechanism located between the steam radiating system and the source of steam supply, said mechanism consisting of a casing, formed with a valve seat, in combination with a valve which moves to and from said seat by the variations of steam pressure, an expansible balancing chamber on the opposite side of the valve from the source of steam, the valve being carried by the movable part of said chamber, and said valve having an orifice extending therethrough for establishing communication at all times between said steam supply and said balancing chamber, substantially as set forth.

6. In a steam heating apparatus, a valve mechanism located between the steam radiating system and the source of steam supply, said mechanism consisting of a casing formed with a valve seat, in combination with a valve which moves to and from said seat by the variations of steam pressure, an expansible steam balancing chamber on the opposite side of said valve from the source of steam, said chamber having an area less than the area of the valve, said valve being carried by the movable part of said chamber, and said valve having an orifice through it which establishes communication at all times between said balancing chamber and the steam supply, substantially as set forth, whereby the steam pressure in said balancing chamber is proportioned to that in the source of supply.

7. In a steam heating apparatus, a valve casing having a seat for the valve, a steam supply pipe entering said casing, and a steam discharge pipe leading therefrom, in combination with a steam actuated valve located in said casing and movable to and from said seat, an expansible balancing chamber above said valve having an area less than the area of the seat, said valve being carried by the movable part of said chamber, and said valve having an orifice therethrough which establishes communication at all times between said chamber and the steam supply pipe, substantially as set forth.

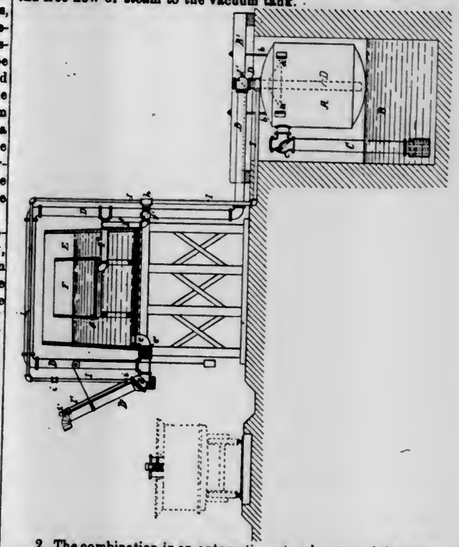
8. In a steam heating apparatus, a valve casing having a seat for the valve, and a tubular projection within said valve casing in line with said seat, in combination with a steam actuated valve which moves to and from said seat, said valve having a chambered stem which co-operates with said tubular projection to constitute an expansible balancing chamber, the area of which is less than the area of said valve seat, and said valve having an orifice therethrough which establishes communication at all times between said chamber and the steam supply, substantially as set forth.

9. In a steam heating apparatus, a valve mechanism located between the steam radiating system and the source of steam supply, said mechanism consisting of a casing formed with a valve seat, a valve which moves to and from said seat by the variations of steam pressure, an expansible balancing chamber on the opposite side of the valve from the source of steam, said valve being carried by the movable part of said chamber, and said valve having an orifice extending therethrough which establishes communication between the source of steam and said balancing chamber, in combination with an auxiliary valve for controlling the size of said orifice, substantially as set forth.

10. In a steam-heating apparatus, the steam supply pipe, the valve-casing located therein, said casing having a valve seat, and the cover of the casing having an inwardly-extending chambered projection, in combination with a rising and falling valve within said casing, said valve having a chambered stem co-operating with said chambered projection to constitute an expansible balancing chamber between said valve and casing cover, said valve having also an orifice extending therethrough, and an auxiliary valve having steam passages therethrough, said auxiliary valve controlling said orifice in the main valve, substantially as set forth.

521,441. STEAM VACUUM WATER-ELEVATOR. PAUL SATTELIAU and HERMAN R. WINKELMANN, Philadelphia, Pa., assignors to the Automatic Water Tank Company, Camden, N. J. Filed Oct. 20, 1893. Serial No. 488,687. (No model.)

Claim.—1. The combination in a steam vacuum water elevator, of the steam pipe on the tender, and a valveless pipe for conveying steam from the tender pipe to the vacuum tank, said valveless conveying pipe having means for checking the flow of air but allowing the free flow of steam to the vacuum tank.



2. The combination in an automatic water elevator, of the vacuum tank, the inlet and outlet therefor, a reservoir above the tank, a pipe connecting the reservoir and the tank so that after the tank has been partially filled by water drawn through the inlet pipe it will be completely filled by water flowing from the reservoir by gravity, substantially as described.

3. The combination in an automatic water elevator, of the reservoir, a vacuum tank, an inlet for said tank, and an outlet therefor also communicating with the reservoir, and a steam pipe communicating with the tank and with the reservoir, substantially as described.

4. The combination in an automatic water elevator, of the reservoir, the vacuum tank, an inlet therefor, a valve in said inlet pipe, an outlet pipe for the tank communicating also with the reservoir, a valve in said pipe and a steam pipe communicating with the tank and with the reservoir, and a valve between the said pipe and reservoir, the whole so constructed that when the vacuum tank is partially filled by the water entering the inlet pipe it will be completely filled and the valves water sealed by water from the reservoir, substantially as described.

5. The combination in an automatic vacuum water elevator, of the vacuum tank, suction pipe therefor and discharge pipe, a spray reservoir mounted above the tank, a steam pipe connected to the vacuum tank, said spray reservoir being connected to the discharge pipe, and to the vacuum tank, substantially as described.

6. The combination of a vacuum tank, suction pipe therefor, the discharge pipe, the steam pipe connected to the tank, an elevated spray reservoir, the pipe connecting said spray reservoir with the discharge pipe of the vacuum tank, and a pipe connecting the spray reservoir with the steam pipe, substantially as described.

7. The combination of the steam vacuum water tank, a discharge pipe entering the tank at the top, and extending to a point near the bottom of the tank, a collar around the discharge pipe at the top of the vacuum tank forming a steam space communicating with the tank and a steam pipe connected to said collar, substantially as described.

8. The combination of the vacuum water tank, the discharge pipe entering the tank at the top, a collar around said discharge pipe, situated at the top of the tank, a spray device mounted on the discharge pipe below the collar, and a pipe communicating with the steam supply and the spray reservoir so that the steam and spray water will enter the tank through the collar, substantially as described.

9. The combination in a vacuum water tank, of the suction pipe, its valve, the discharge pipe, its valve, the steam inlet pipe, with an elevated spray water reservoir, connected to the discharge pipe, and also connected to the steam pipe, the check valve to prevent the steam from entering the spray reservoir but which will allow the flow of water from the spray reservoir to the tank, substantially as described.

10. The combination in a vacuum tank, of the suction pipe and discharge pipe therefor, with a steam pipe, a spray water reservoir connected to said steam pipe and to the discharge pipe, said steam

pipe being enlarged from the point where it connects with the spray reservoir to the vacuum tank, substantially as described.

11. The combination of the vacuum tank, the suction pipe, the discharge pipe, steam inlet pipe, the storage tank mounted above the vacuum tank, a spray water reservoir coupled to the discharge pipe and the steam pipe, and communicating with the storage tank, substantially as described.

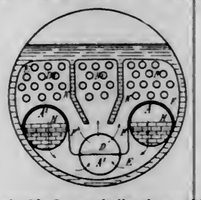
12. The combination in a vacuum tank, of the suction pipe therefor, discharge pipe, a storage tank, said discharge pipe extending above said storage tank, a steam pipe also extending above the storage tank and connected to the vacuum tank, a spray reservoir connected to the discharge pipe and to the steam pipe and communicating with the storage tank, substantially as described.

13. The combination of the vacuum tank, its suction pipe, the discharge pipe therefor, and the steam pipe, a storage tank, a spray water reservoir mounted within the storage tank and communicating therewith, connecting pipe connecting the spray water reservoir with the discharge pipe of the vacuum tank and with the steam pipe, substantially as described.

14. The combination of the suspended vacuum tank, its discharge pipe, and suction pipe, a storage tank, spray reservoir mounted within the storage tank and connected to the discharge pipe and with the storage tank, said discharge pipe extending above the storage tank and terminating below said tank, in the form of a goose neck, a valved outlet for the storage tank, communicating with the said discharge pipe, a steam inlet pipe communicating with the vacuum tank, and connected to the spray water reservoir, substantially as described

---

521,442. TUBULAR BOILER. JEAN P. SERVE, Lyons, France. Filed Dec. 13, 1893. Serial No. 493,534. (No model.)



Claim.—1. In a double-furnace boiler the combination of the internal chamber A provided with a grate G, the other internal chamber A' provided with a longitudinal partition D, a combustion chamber L divided into two compartments by means of a partition M and having a partition O serving to distribute the gases in the boiler, substantially as hereinbefore described and shown.

2. In a boiler having furnaces and boiler tubes, the combination of lateral internal chambers provided with grates, an intermediate chamber provided with a longitudinal partition, and a combustion chamber divided into two compartments by a partition, one of the compartments connecting with the said lateral chamber. and the other with the boiler tubes.

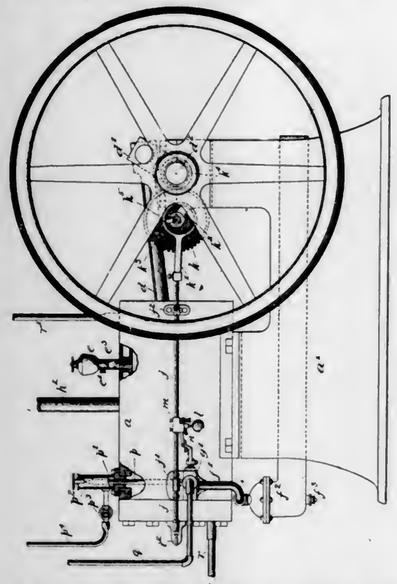
3. In a boiler having furnaces and boiler tubes, the combination of lateral internal chambers provided with grates, an intermediate chamber provided with a longitudinal partition, and a combustion chamber divided into two compartments by a partition, one of the compartments connecting with the said lateral chamber, and the other with the boiler tubes, and partitions *k*, dividing the boilers into three groups and bent toward each other, away from the said lateral chambers and toward the intermediate chamber.

521,443. GAS-ENGINE. SYLVANUS D. SHEPPERD, Newark, N. J., assignor to the Backus Water Motor Company, same place. Filed Oct. 26, 1893. Serial No. 489,213. (No model.)

Claim.—1. In a gas engine, the combination of a cylinder, a jacket, walls cast between the jacket and the cylinder to form inlet and outlet passages, and a double head having a water space and cast with passages separated from the water space, said double head being adapted to close the end of the cylinder, and to form the end of the water jacket, the passages in said double head being arranged to align with the passages of the cylinder.

2. In a gas engine, the combination of a cylinder and water jacket, cast with walls between them to form inlet and outlet passages, a double head adapted to close the end of the cylinder and to form the end of the water jacket, provided with passages to align with the passages of the cylinder, said passages in the double head opening into valve seats in the cylinder head, and valves fitted to the valve-seats.

3. In a gas engine, the combination of a cylinder and water jacket, cast with walls between them to form a gas inlet passage at one side and an exhaust passage at the other side, a double head adapted to close the end of the cylinder and to form the end of the water jacket and provided with passages arranged to align with the inlet and outlet passages of the cylinder and opening through the head of the cylinder, and an air inlet passage communicating with the gas inlet passage.



4. In a gas engine, the combination of a cylinder and water jacket, cast with walls between them to form a gas inlet passage at one side and an exhaust passage at the other side, a double head adapted to close the end of the cylinder and to form the end of the water jacket and provided with passages arranged to align with the inlet and outlet passages of the cylinder and opening through the head of the cylinder, an air inlet passage communicating with the gas inlet passage, spring actuated valves fitted to close the inlet and exhaust openings in the cylinder, and a check valve in the exhaust passage of the head.

5. In a gas engine, the combination of a cylinder and water jacket, cast with walls between them to form a gas inlet passage at one side and an exhaust passage at the other side, a double head adapted to close the end of the cylinder and to form the end of the water jacket, provided with passages arranged to align with the inlet and outlet passages of the cylinder and opening through the head of the cylinder, an air inlet passage communicating with the gas inlet passage, spring actuated valves fitted to close the inlet and exhaust openings in the cylinder, a piston rod and a crank shaft, an eccentric actuated thereby, a sliding rod, and a lever, communicating motion from the sliding rod to the exhaust valve.

6. In a gas engine, the combination of a cylinder and water jacket, cast with walls between them to form a gas inlet passage at one side and an exhaust passage at the other side, a double head adapted to close the end of the cylinder and to form the end of the water jacket and provided with passages arranged to align with the inlet and outlet passages of the cylinder and opening through the head of the cylinder, an air inlet passage communicating with the gas inlet passage, spring actuated valves fitted to close the inlet and exhaust openings in the cylinder, a piston in the cylinder, and a valve for temporarily making communication between the cylinder and the exhaust passage.

7. In a gas engine, the combination of a cylinder and water jacket, cast with walls between them to form a gas inlet passage at one side and an exhaust passage at the other side, a double head adapted to close the end of the cylinder and to form the end of the water jacket and provided with passages arranged to align with the inlet and outlet passages of the cylinder and opening through the head of the cylinder, a vertical air inlet passage communicating with the gas inlet passage near its opening into the cylinder, spring actuated valves fitted to close the inlet and exhaust openings in the cylinder, a piston in the cylinder and an opening through the cylinder into the exhaust passage, near the outward limit of movement of the piston.

8. In a gas engine, the combination of a cylinder, a piston working therein, gas and air passages for the admission of an explosive mixture to the cylinder, an open-ended pipe extending from the center of the combustion chamber to the outside of the cylinder where it is closed, and a furnace outside the cylinder for continuously heating the closed end of the pipe while the engine is in operation.

9. In a gas engine, the combination with the explosion chamber, of a pipe extending from the center of the combustion chamber to the outside thereof, and open at the center of the combustion chamber, and means outside the cylinder for heating the closed end of said pipe.

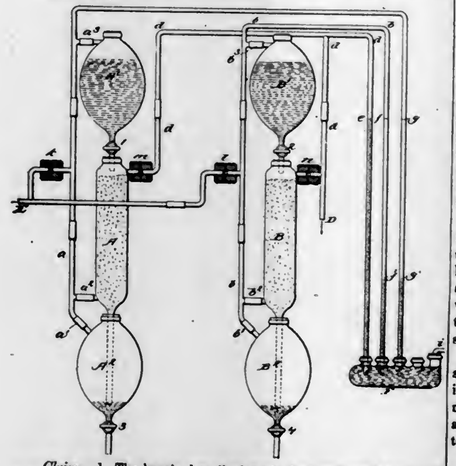
10. The combination of a gas admission valve, a sliding rod, an exhaust valve connected with and operated thereby, a weight carried by said sliding rod, devices connected with the rod for operating the gas admission valve, means for making the valve actuating devices inoperative when the weight moves relatively to the rod beyond its normal stroke, a stop for limiting the movement of the weight in one direction, and an adjustable spring arranged to offer an adjustable resistance to its movement in the other direction.

11. In a valve controlling device for gas engines, the combination, of a gas valve normally held closed, a sliding rod, a weight carried thereby, a hooked lever or arm carried by the sliding rod, a head on the stem of the valve with which the hooked arm engages, an inclined guide for disengaging the hooked arm from the valve stem head, an arm from the weight for preventing the hooked arm engaging the valve stem head, another arm projecting from the pendulous weight embracing a rod, and nut stop on this rod above the arm and a spring and nut on this rod below the arm.

12. In a gas engine, the combination of a working cylinder, its piston, a gas admission valve, means for operating it, a main exhaust opening at the outer end of the cylinder, a supplemental exhaust valve in the rear end of the cylinder behind the piston, means for opening the supplemental exhaust valve at each alternate stroke of the piston, and an automatic governor for controlling the gas admission valve.

13. The combination of the working cylinder, the piston reciprocating therein, the main exhaust opening, the supplemental exhaust opening in the cylinder in rear of the piston, a valve for controlling said opening, a sliding rod operatively connected with said supplemental exhaust valve to open it at each alternate reciprocation only of the piston, a gas admission valve, a weight carried by the sliding rod and movable relatively thereto and operatively connected with the gas admission valve, and devices operated by said weight to cause the operating devices of the gas admission valve to miss opening said valve when the speed of the engine is excessive.

521,444. PROCESS OF AND APPARATUS FOR ANALYZING GASES. EDWARD A. UEHLING, Birmingham, Ala., assignor of one-half to Alfred Steinbart, same place. Filed Apr. 20, 1893. Serial No. 471,142. (No model.)



Claim.—1. The herein described method of analyzing gases and determining the percentage of a constituent thereof, which consists in continuously passing the gas to be analyzed by means of a constant suction through minute inlet and outlet apertures; second, abstracting the said constituent from the gas during its passage between and through said minute apertures whereby the normal tension of a gas is varied, and using the variation of tension in the changed gas as a measure for determining the percentage of said constituent.

2. The herein described method of analyzing gases and determining the percentage of the different or required constituents thereof, which consists in continuously passing the gas to be analyzed through a connected series of minute inlet and outlet apertures; second, abstracting a particular constituent from the gas during its passage through each connected pair of corresponding minute inlet and outlet apertures, whereby the normal tension of the gas is varied, and using the variation of the tension of the changed gas in its passage between each pair of said corresponding minute inlet and outlets, as a measure to determine the percentage of the required constituents.

3. The herein described method of analyzing and determining the percentages of the constituents of gases, which consists in passing the gas to be analyzed under tension through minute apertures into and through a connected series of tubes and again through minute apertures, second, abstracting a constituent from the gas in its passage through said tubes by absorption, whereby the normal tension is varied, and using the variation of tension in the changed gas for operating a manometer to register the percentage of said constituent.

4. In apparatus for analyzing gases, a tube or chamber for containing an absorbent and having a minute inlet and outlet, and a manometer having communication with the absorption tube to indicate the change of tension of the gas between the said minute inlet and outlet caused by the absorption of the constituent the percentage of which is to be determined, substantially as described.

5. An apparatus for analyzing gases consisting of an absorption tube or chamber having a minute inlet and outlet, a receptacle or reservoir connected with the upper end of the absorption tube for supplying an absorbent to said absorption tube and a manometer having communication with the said absorption tube and reservoir, substantially as described and for the purpose set forth.

6. An apparatus for analyzing a gas consisting of an absorption tube or chamber containing non-corrodible particles, and having receptacles connected with its opposite ends to supply fresh and receive the saturated absorbent, respectively, a manometer having connection with the absorption tube and with the said receptacles, means for passing the gas through the absorption tube under tension, diaphragm plates having minute apertures which constitute respectively the inlet and the outlet to the absorption tube, and an indicator to register the tension of the gas, substantially as described for the purpose specified.

7. An apparatus for analyzing gas consisting of an absorption tube having minute inlet and outlet for the gas, and having receptacles connected with the opposite ends, the upper receptacle containing the absorbent to be supplied to and from the said absorption tube, the lower receptacle to receive the saturated absorbent from the said absorption tube, and a manometer having independent connection with the absorption tubes, and with the said receptacles, substantially as described.

8. An apparatus for analyzing and determining the percentages of the different or any one of the constituents of gases, consisting of a series of absorption tubes or chambers, each having a receptacle at its upper and lower ends, and having apertured plates constituting the inlet and outlet, the upper receptacle containing the absorbent and the lower receptacle receiving the saturated absorbent; means for supplying gas to the absorption tubes under tension, an indicator for registering this tension, a separate manometer for each absorption tube having connection therewith and with the said receptacles, to indicate the change of tension in the gas between the inlet and the outlet due to the absorption of the constituent whose percentage is to be ascertained, substantially as set forth.

9. An apparatus for analyzing gases consisting of a connected series of absorption tubes or chambers, suitable inlets therefor connected with a source of supply of the gas to be analyzed, suitable outlets connected with a partial vacuum of constant tension, both inlets and outlets provided with minute apertures, a manometer connected with the outlets, and a manometer connected with the said absorption tubes between the said inlets and outlets, substantially as described for the purpose specified.

10. In an apparatus for the analysis of gas in which the percentages of any number of constituents are indicated by the difference in tension, an absorption tube or chamber arranged between a minute inlet and outlet through which the gas passes in the way described, and a manometer having communication with the said absorption tube between the said inlet and outlet, substantially as described.

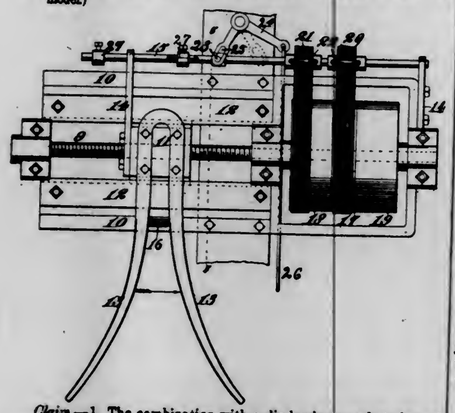
11. An apparatus for the analysis of gas consisting of the absorption tube or chamber A connected with minute inlet and outlet apertures *k* and *m*, the inlet reservoir A' for the absorbing liquid and the outlet receptacle A^3, the pipes *a*, *d*, D, and the reservoir F connecting said pipes for operation in the way described.

12. An apparatus for the analysis of gases which indicates continuously and automatically the variation in the composition of any gas by the change in tension caused by the absorption of the constituent, consisting of a tube or chamber between a minute inlet and out-

let, a manometer for indicating the variation of tension having communication with the said tube between the inlet and outlet, in the way described, and a manometer indicating the initial tension of the gas.

13. The apparatus herein described for the analysis of gas consisting of the vessel A having an upper and a lower connecting receptacle A', A^2, the pipe *a* connecting the said receptacles and the lower end of the said vessel A, a minute inlet aperture *b* connecting the pipe *a*, a like minute aperture *m* connecting the upper end of said vessel A and the pipe *d*, and the reservoir F connecting the said pipes, for operation in the way described.

521,445. SCREW-DUMMY FOR SEWER-PIPE DIES. ALFRED F. FOSTER, Alton, Ill. Filed Apr. 22, 1893. Serial No. 471,392. (No model.)



Claim.—1. The combination with a die having a socket-plug, of a mechanism for moving said socket-plug, said mechanism consisting of a screw-threaded shaft and means for driving the same, and a screw-threaded block working thereon, and means for transmitting the motion of said threaded block to said socket-plug, substantially as described.

2. The combination with a pipe die having a rotary socket plug and a locking device therefor, said socket-plug having a lever arm fixed thereto, of a device for applying power to said lever arm, said device comprising a screw-threaded shaft and means for driving the same, and a screw-threaded block working on said shaft and connected to said lever arm, substantially as described.

3. The combination with a pipe-mold having a rotary socket-plug and a post on which said socket-plug is journaled so as to be free to rotate and move longitudinally therewith, and a hook-and-lug locking device holding said socket-plug in position, said socket-plug having a lever arm fixed thereto, of a device for applying power to said lever arm, said device comprising a screw-threaded shaft and means for driving the same and a screw-threaded block working on said shaft, and connected to said lever arm, substantially as described.

4. The combination with a pipe-mold having a rotary socket-plug and a post on which said socket-plug is journaled so as to be free to rotate and move longitudinally therewith, and a hook-and-lug locking device holding said socket-plug in position said socket-plug having a lever arm fixed thereto, of a device for applying power to said lever arm, said device comprising a screw-threaded shaft and means for driving the same and a screw-threaded block working on said shaft, and downwardly diverging arms on said block between which said lever arm is arranged, substantially as described.

5. The combination with a pipe-die having a rotary rocket-plug and a hook-and-lug locking device for holding said socket-plug in position, and a lever arm fixed to said socket-plug, of a screw-threaded shaft having two loose pulleys and an intermediate fixed pulley thereon, a screw-threaded block working on said shaft, a projecting piece fixed to said block and downwardly diverging arms on said block between which said lever arm is arranged, a sliding bar carrying loops through which the pulley belts pass and tappets on said sliding bar arranged to be struck by said projecting piece, substantially as described.

6. The combination with a pipe-die having a rotary socket-plug and a hook-and-lug locking device for holding said socket-plug in position, and a lever arm fixed to said socket-plug, of a screw-threaded shaft having two loose pulleys and an intermediate fixed pulley thereon, a screw-threaded block working on said shaft, a projecting piece fixed to said block and downwardly diverging arms on said block between which said lever arm is arranged, a sliding bar carrying loops through which the pulley belts pass and tappets on said sliding bar arranged to be struck by said projecting piece, and a device for positively operating said sliding bar, substantially as described.

521,446. ARTIFICIAL LEG. JOHN MCGUIRE, St. Paul, Minn. Filed June 5, 1893. Serial No. 476,572. (No model.)

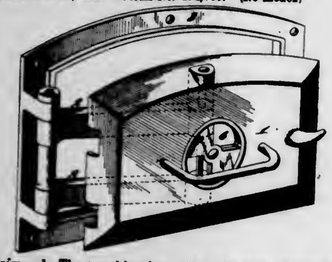


Claim.—1. The combination of the corset, or socket open at both ends, adapted to be laced upon the stump, and fitted to and working in the artificial leg, and the elastic straps attached to said leg and corset and serving as a support for the latter, substantially as described.

2. The combination with the hollow artificial leg, of the corset or socket open at both ends adapted to be laced upon the stump and working in said leg, and elastically supported therein, substantially as described.

3. The combination with the hollow artificial leg, having vertical slots therethrough, of the corset adapted to be laced upon the stump, and fitted to and slidable in said leg, the spurs upon said socket projecting through said slots, and the elastic straps secured at one end to said spurs and at the other to the upper part of said leg, substantially as described.

521,447. FURNACE-DOOR. CHARLES K. PICKLES, St. Louis, Mo. Filed Dec. 26, 1893. Serial No. 494,769. (No model.)



Claim.—1. The combination with a furnace provided with an opening, of a door for said opening adapted to uncover either end of said opening separately and both ends together, substantially as described.

2. The combination with a furnace provided with an opening whose ends are approximately straight, of a door for said opening connected to said furnace by a duplex hinge, whereby it is adapted to control the amount and course of the draft, substantially as described.

3. The combination with a furnace provided with an opening whose ends are approximately straight, of a horizontal arm pivotally secured thereto, and a door pivotally secured to the end of said arm, all substantially as and for the purposes set forth.

4. The combination with a furnace provided with an opening whose ends are approximately straight, of a horizontal arm pivotally secured thereto, and a door pivotally secured on its inner face to the end of said arm, all substantially as and for the purposes set forth.

5. The combination with a furnace provided with an opening whose ends are approximately straight, of an arm pivotally secured to said furnace and a door for said opening pivotally secured near its middle portion to the end of said arm, all substantially as and for the purpose set forth.

6. The combination with a furnace provided with an opening whose ends are approximately straight, of a door for said opening connected to the furnace by a duplex hinge and having a handle in the central front portion thereof, all substantially as and for the purposes set forth.

7. The combination with a furnace, of a door connected therewith by a duplex hinge, said door having an opening in its face plate and having a lining plate slightly removed from the face plate thereof, substantially as described.

8. A furnace door frame provided with lugs and an arm having pintles engaging said lugs, the outer end of said arm being pivotally connected to the middle portion of the door, substantially as described.

DESIGNS.

23,341. TYPE-BORDER. EDWARD B. FOX, Bryn Mawr, Pa. Filed Feb. 1, 1894. Serial No. 498,800. Term of patent 7 years.



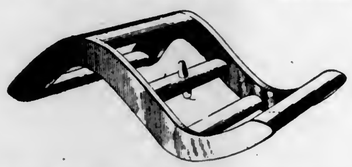
Claim.—The design for a type border substantially as herein shown and described.

23,342. BADGE. WILLIAM C. FINCK, Elizabeth, N. J., assignor to the Ancient Order of Foresters of America, Brooklyn, N. Y. Filed May 7, 1894. Serial No. 510,404. Term of patent 14 years.



Claim.—The design for a badge substantially as herein shown and described

23,343. BUCKLE. GEORGE MILLER AYLESWORTH, Collingwood, Canada. Filed May 15, 1894. Serial No. 511,368. Term of patent 14 years.



Claim.—The design for a buckle herein shown and described.

23,344. FERRULE. HOMER A. CURTISS, Meriden, Conn. Filed Apr. 20, 1894. Serial No. 508,383. Term of patent 3½ years.



Claim.—The design for a ferrule substantially as shown and described.

23,345. CAP FOR KNIVES OR FORKS. HOMER A. CURTISS, Meriden, Conn., assignor to the Meriden Cutlery Company, same place. Filed Mar. 9, 1894. Serial No. 503,060. Term of patent 3½ years.



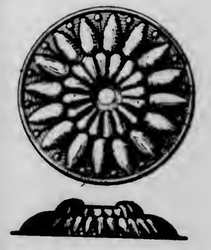
Claim.—The design for a cap for knives and forks, substantially as shown and described.

23,346. TOOL-HANDLE. EDWARD TODD, Jr., New York, N. Y., assignor to Edward Todd & Co., same place. Filed Apr. 18, 1894. Serial No. 508,045. Term of patent 7 years.



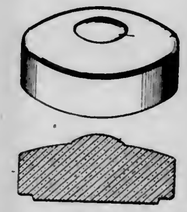
Claim.—The design for a tool handle, substantially as shown and described.

23,347. STAIR-CARPET BUTTON. ROBERT H. WARREN and DAVID WALKER, Newark, N. J. Filed May 15, 1894. Serial No. 511,367. Term of patent 7 years.



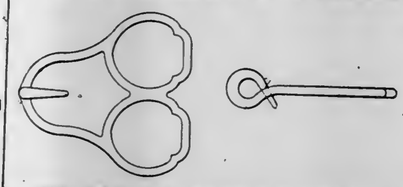
Claim.—The design for a stair button herein shown and described.

23,348. LENS FOR VAULT-LIGHTS. PHILIP SCHWICKART, Brooklyn, N. Y. Filed Apr. 25, 1894. Serial No. 509,038. Term of patent 14 years.



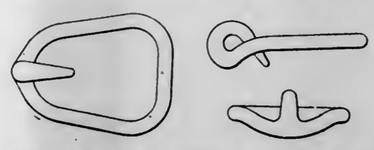
Claim.—The design for a lens for vault lights as herein shown and described.

23,349. HAMMOCK-HOOK. ISAAC E. PALMER, Middletown, Conn. Filed May 18, 1894. Serial No. 511,725. Term of patent 14 years.



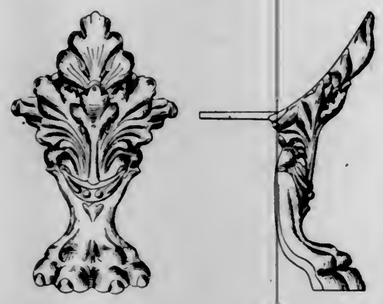
Claim.—The design for a hammock supporting hook, substantially as herein shown and described.

23,350. HAMMOCK-HOOK. ISAAC E. PALMER, Middletown, Conn. Filed May 18, 1894. Serial No. 511,726. Term of patent 14 years.



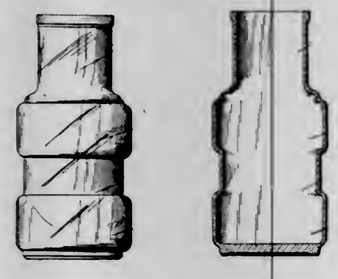
Claim.—The design for a hammock supporting hook, substantially as herein shown and described.

23,351. LEG FOR BATH-TUBS. WILLIAM C. FENT, New York, N. Y., assignor to the J. L. Mott Iron Works, same place. Filed May 7, 1894. Serial No. 510,405. Term of patent 14 years.



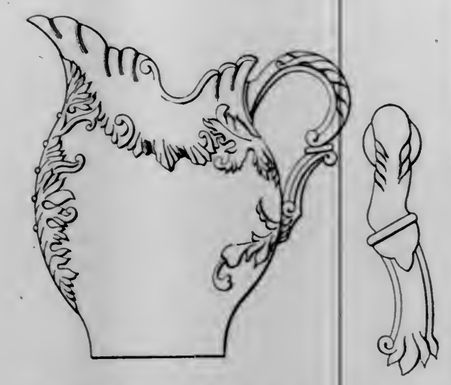
Claim.—The design of the leg for a bath tub or similar article substantially as described and represented.

23,352. BOTTLE. WILLIAM L. JUHRING, Brooklyn, N. Y. Filed May 16, 1894. Serial No. 511,437. Term of patent 7 years.



Claim.—The design for a bottle herein shown and described.

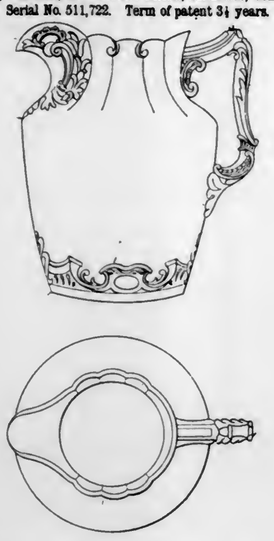
23,353. PITCHER, &c. JAMES BARLOW and JOHN M. POPE, Trenton, N. J. Filed Sept. 1, 1893. Serial No. 484,606. Term of patent 3½ years.



Claim.—1. The design for a pitcher and other articles substantially as shown and described.

2. In the design for a pitcher or other like article, the handle, substantially as shown and described.

23,354. EWER, &c. HENRY BRUNT, Baltimore, Md. Filed May 18, 1894. Serial No. 511,722. Term of patent 3½ years.



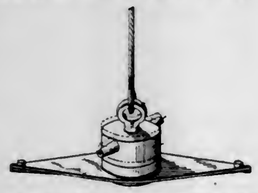
Claim.—The design for a ewer or jug as herein shown and described.

23,355. HOLDER FOR FIRE-KINDLERS. PHILIP J. HARRAH, Bloomfield, Ind. Filed Apr. 25, 1894. Serial No. 509,026. Term of patent 3½ years.



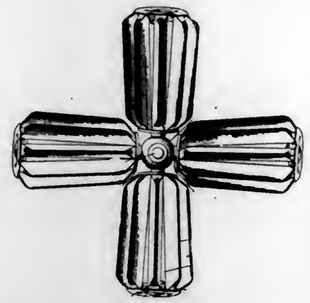
Claim.—The design for a fire-kindler holder, substantially as shown and described.

23,356. TOY-CAP EXPLODER. CHARLES A. HOTCHKISS, Bridgeport, Conn., assignor to Ives & Williams, same place. Filed Apr. 16, 1894. Serial No. 507,774. Term of patent 7 years.



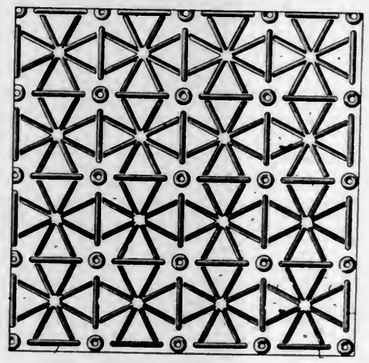
Claim.—The design for a toy-cap exploder substantially as shown and described.

23,357. CLOTHES-POUNDER. HENRY W. POTTEIGER and WILLIAM A. KOHNAR, Reading, Pa. Filed May 1, 1894. Serial No. 509,722. Term of patent 3½ years.



Claim.—The design for a pounder herein shown and described.

23,358. FINISHING-PLATE. EDWARD A. LANGENBACH, Canton, Ohio, assignor to the Berger Manufacturing Company, same place. Filed May 14, 1894. Serial No. 511,254. Term of patent 7 years.



Claim.—The design for metallic nnishing plates herein shown and described.

23,359. PUZZLE-BODY. FRANCIS H. YOST, Philadelphia, Pa., assignor of one-half to William H. Harris, same place. Filed Apr. 4, 1894. Serial No. 506,349. Term of patent 3½ years.



Claim.—The design for the body of a puzzle, substantially as shown and described.

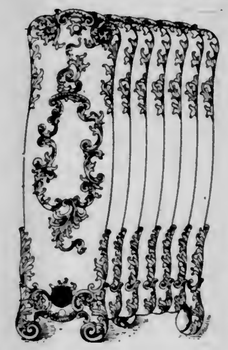
23,360. GAME-BOARD. GEORGE HENRY WILDSMITH, Leeds, England. Filed May 9, 1894. Serial No. 510,663. Term of patent 14 years.

23,360.



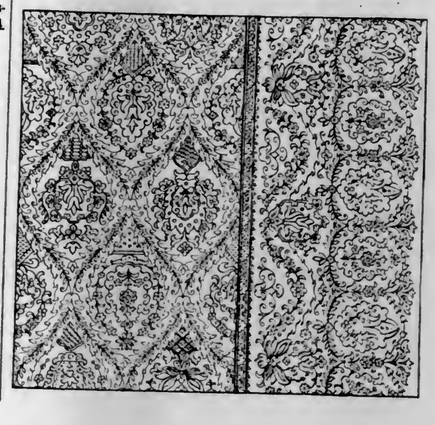
Claim.—The design for a gameboard as herein shown and described.

23,361. RADIATOR. CHARLES F. WALTHER, Buffalo N. Y. Filed Jan. 17, 1894. Serial No. 497,205. Term of patent 14 years.



Claim.—The design for a radiator, substantially as shown and described.

23,362. CARPET. GIULIO MARCHETTI, Halifax, England. Filed Apr. 17, 1894. Serial No. 507,925. Term of patent 3½ years.

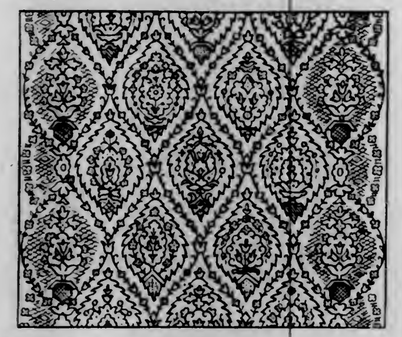


Claim.—1. In a design for a carpet, the body substantially as shown and described.

2. In a design for a carpet, the border substantially as shown and described.

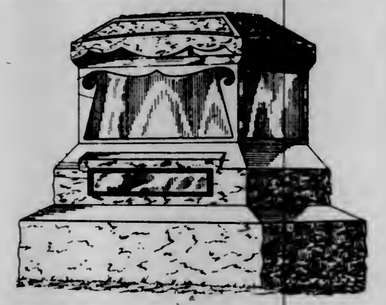
3. The design for a carpet, comprising the body A and the border B substantially as shown and described.

23,363. CARPET. GIULIO MARCHETTI, Halifax, England. Filed Apr. 17, 1894. Serial No. 507,928. Term of patent 3½ years.



Claim.—The design for a carpet, substantially as shown and described.

23,364. MONUMENT. WILLIAM H. PERRY, Concord, N. H. Filed May 14, 1894. Serial No. 511,253. Term of patent 7 years.



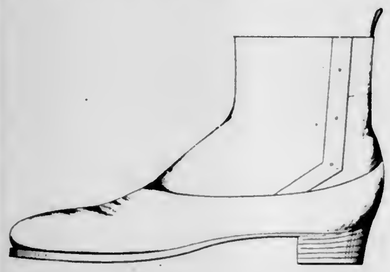
Claim.—The design for a monument substantially as herein shown and described

23,365. MONUMENT. CHRISTIAN CLAUDY, Birmingham, Ala. Filed May 7, 1894. Serial No. 510,407. Term of patent 7 years.



Claim.—The design for a monument herein shown and described.

23,366. SHOE. STEPHEN W. WEST, New York, N. Y. Filed Mar. 10, 1894. Serial No. 503,208. Term of patent 3½ years.



Claim.—The design for a shoe, herein shown and claimed

TRADE-MARKS

REGISTERED JUNE 12, 1894.

24,837. STRAW HATS. M. KUREMAN & SON, New York, N. Y. Filed May 18, 1894.

Vesta Tilley

Essential feature.—The words "VESTA TILLEY." Used since April 15, 1894.

24,838. CHILDREN'S SUITS. BOWLBY & Co., St. Paul, Minn. Filed Apr. 28, 1894.

KPF

Essential feature.—The letters "K P F." Used since June 1, 1892.

24,839. COTTON PLAIDS AND STRIPES. EAGLE AND PHENIX MANUFACTURING COMPANY, Columbus, Ga. Filed May 18, 1894.

RESCUE

Essential feature.—The word "RESCUE." Used since January 1, 1877.

24,840. SATEENS AND TWILLS FOR DRESS AND LINING PURPOSES. LESHER, WHITMAN & Co., New York, N. Y. Filed May 1, 1894.

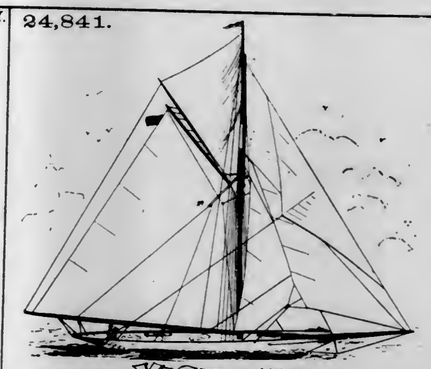
EAGLE BRAND

LEATHER FINISH

Essential feature.—The representation of an eagle, accompanied by the words "EAGLE BRAND" and "LEATHER FINISH." Used since March 1, 1893.

24,841. BROWN AND BLEACHED SHEETINGS AND SHIRTINGS. DUDLEY, BATTELLE & HURD, New York, N. Y. Filed Apr. 20, 1894.

24,841.



VIGILANT

Essential feature.—The word "VIGILANT" and the representation of a sloop yacht. Used since September 9, 1893.

24,842. REPELLENTS OR WATERPROOF CLOTH. DEXTER WOOLEN MILLS, Boston, Mass. Filed May 1, 1894.

GOLD MEDAL

Essential feature.—A rectangular space inclosed by the representation of scroll work with the words "GOLD MEDAL," two medallions, one in part overlapping the other, and the words "PARIS 1855. LONDON 1862," between the words and the medallions. Used since January, 1892.

24,843. FIBER, LEATHER-BOARD, LEATHEROID, AND TRUNKS AND OTHER ARTICLES MADE THEREFROM. JOSIAH CUMMINGS, Son & Co., Boston, Mass. Filed Mar. 21, 1894.

HUB

Essential feature.—The word "HUB." Used since January 1, 1893.

24,844. BONBONS AND CHEWING-GUM. THE ROYAL REMEDY AND EXTRACT COMPANY, Dayton, Ohio. Filed Apr. 30, 1894.

TOLU PLUMS

Essential feature.—The words "TOLU PLUMS." Used since January, 1890.

24,845. PERFUMERY. INDIANAPOLIS DRUG Co., Indianapolis, Ind. Filed Sept. 29, 1893.

CHRYSANTHEMUM BOUQUET

Essential feature.—The words "CHRYSANTHEMUM BOUQUET." Used since February 2, 1892.

24,846. DENTAL PREPARATIONS. JOAQUIN A. BERMUDEZ, New Orleans, La. Filed May 14, 1894.

CAMEO

Essential feature.—The word "CAMEO." Used since February, 1894.

24,847. LIQUID SHOE-DRESSING. C. L. HAUTHAWAY & SONS, Boston, Mass. Filed Apr. 9, 1894.

IDEAL

Essential feature.—The word "IDEAL" in gilt letters on a blue ground. Used since January 1, 1894.

24,848. POLISH FOR METAL. THE HARVEY CHEMICAL Co., Lafayette, Ind. Filed Apr. 17, 1894.



Essential feature.—The words "PRIDE OF THE BAR ROOM." Used since January 15, 1894.

24,849. COMPOUND FOR REMOVING SCALE FROM BOILERS. W. M. PLANTS & Co., Chicago, Ill. Filed Apr. 14, 1894.

ANCHOR

Essential feature.—The word "ANCHOR." Used since January, 1890.

24,850. CHEMICAL COAL-SAVER. HOUSEHOLD FRIEND COMPANY, Richmond, Va. Filed May 19, 1894.



Essential feature.—The words "HOUSEHOLD FRIEND" and a representation of the legendary Old King Cole. Used since December 7, 1892.

24,851. BAR-SOAP. JOS. BIECHELE SOAP Co., Canton, Ohio. Filed May 14, 1894.

WHITE CITY.

Essential feature.—The words "WHITE CITY." Used since November, 1893.

24,852. LAGER-BEER. JACOB CONRAD, Philadelphia, Pa. Filed May 12, 1894.

FARRO

Essential feature.—The word "FARRO." Used since January 1, 1893.

24,853. CHOCOLATES AND COCOAS. RUEF-SUCHARD ET CIE. Neufchâtel, Switzerland. Filed Feb. 28, 1894.

SUCHARD

Essential feature.—The word "SUCHARD." Used since 1861.

24,854. COFFEE. THE UNION PACIFIC TEA COMPANY, Newark, N. J., and New York, N. Y. Filed May 21, 1894.

CAMEL

Essential feature.—The word "CAMEL." Used since February 1, 1890.

24,855. BAKING-POWDER. PASQUIER & STANKARD, Indianapolis, Ind. Filed May 12, 1894.

CRITERION

Essential feature.—The word "CRITERION." Used since September 1, 1892.

24,856. BAKING-POWDER. SCUDDER-GALE GROCER COMPANY, St. Louis, Mo. Filed Apr. 14, 1894.

PICNIC

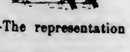
Essential feature.—The word "PICNIC." Used since January, 1891.

24,857. BAKING-POWDER. FREDERICK W. YOUNG, New Orleans, La. Filed May 9, 1894.

BON TON

Essential feature.—The words "BON TON." Used since July 28, 1888.

24,858. CREAM OF TARTAR. JOHN BIRD COMPANY, Rockland, Me. Filed May 16, 1894.



Essential feature.—The representation of three crows. Used since April 1, 1890.

24,859. FLOUR. FRANCIS E. SMITH, New York, N. Y. Filed May 7, 1894.

LA SUPERBE

Essential feature.—The words "LA SUPERBE." Used since July, 1872.

24,860. WHEAT-FLOUR. KUNHARDT & Co., New York, N. Y. Filed Mar. 24, 1894.

KKK

Essential feature.—The letters "K K K." Used since February, 1893

24,861. WHEAT-FLOUR. WILLIS JOHNSTON, Washington, D. C. Filed Apr. 27, 1894.



Essential feature.—The words "ELECTRIC LIGHT" and a representation of the upper part of an electric light bulb, with zigzag rays emanating from it. Used since October 1, 1892.

24,862. BREAD. JOHN H. ALTHAUS, Providence, R. I. Filed May 10, 1894.

Essential feature.—The word "QUAKER." Used since April 1, 1894.

24,863. BURNED STARCH MADE OF POTATOES. B. P. DUCAS COMPANY, New York, N. Y. Filed May 14, 1894.



Essential feature.—The representation of an isosceles triangle with a lion supporting the right-hand side of it. Used since October, 1892.

24,864. COMPOUND OF LUBRICATING-OILS FOR EXTERNAL USE FOR VETERINARY PURPOSES. WALTER A. LOWE, Allegheny, Pa. Filed Mar. 16, 1894.



Essential feature.—A monogram of the letters "L C Co." Used since October 19, 1893.

24,865. PILLS. C. I. HOOD & Co., Lowell, Mass. Filed May 12, 1888.



Essential feature.—The words "HOOD'S PILLS" arranged on a ribbon in the form of a letter Z. Used since April 1, 1888.

24,866. PHARMACEUTICAL PREPARATIONS. SIEGMUND RADLAUER, Berlin, Germany. Filed May 18, 1894.

ANTINERVIN.

Essential feature.—The word "ANTINERVIN." Used since the year 1891.

24,867. ANTIPYRETIC AND ANODYNE POWDERS FOR HEADACHE AND NEURALGIA. FELIX A. WHEELER, Chicago, Ill. Filed May 8, 1894.

CAPITICURA.

Essential feature.—The word "CAPITICURA." Used since February 21, 1894.

24,868. NERVE MEDICINE AND TONIC. MAGIC MEDICINE Co., Mansfield, Ohio. Filed Apr. 16, 1894.



Essential feature.—A representation of the Colossus of Rhodes. Used since January 1, 1894.

24,869. CERTAIN NAMED MEDICINAL AND CHEMICAL COMPOUNDS. C. F. BOEHRINGER & SÖHNE, Waldhof, near Mannheim, Germany. Filed Mar. 31, 1894.



Essential feature.—The initials and character "B & S" surmounted by an inclined twig or branch. Used since October, 1893.

24,870. CERTAIN NAMED REMEDIES. ELIZABETH WOOD and ANNIE L. WOOD, McGregor, Iowa. Filed May 16, 1894.

WOOD'S



Essential feature.—A portrait of T. W. Wood and the word "WOOD'S." Used since 1878.

24,871. REMEDY FOR RHEUMATISM. WILLIAM JOHN GARDNER, Buffalo, N. Y. Filed Apr. 20, 1894.



Essential feature.—A bust portrait of the registrant. Used since February 16, 1889.

24,872. REMEDY FOR RHEUMATISM. JULE KERR, New York, N. Y. Filed May 15, 1894.

ANAKEN

Essential feature.—The word "ANAKEN." Used since March 1, 1894.

24,873. REMEDY FOR CHILBLAINS. LUKE KU-RA-TIV CO., Cleveland, Ohio. Filed Apr. 27, 1894.

KU RA TIV

Essential feature.—The syllables "KU RA TIV." Used since October 15, 1893.

24,874. WOODEN AND PAPER MATCHES. AMERICAN SAFETY-HEAD MATCH COMPANY, Lebanon, Pa. Filed Apr. 18, 1894.

SAFETY-HEAD

Essential feature.—The word "SAFETY-HEAD." Used since June 1, 1893.

24,875. TOBACCO-PIPES. LEONARD HAX, Philadelphia, Pa. Filed May 14, 1894.



Essential feature.—The representation of a keystone. Used since May 1, 1894.

24,876. VITREOUS CHINA, INCLUDING PLUMBERS' AND TOILET WARE. MARYLAND POTTERY COMPANY OF BALTIMORE CITY, Baltimore, Md. Filed Apr. 27, 1894.



Essential feature.—A monogram of the letters "M P C." Used since March 24, 1894.

24,877. VITREOUS CHINA, INCLUDING PLUMBERS' AND TOILET WARE. MARYLAND POTTERY COMPANY OF BALTIMORE CITY, Baltimore, Md. Filed Apr. 27, 1894.

HEALTH

Essential feature.—The word "HEALTH." Used since March 24, 1894.

24,878. VESSELS FOR PHYSICIANS' AND SURGEONS' USE. LEONARD A. DESSAR, New York, N. Y. Filed Feb. 23, 1894.

DESSAR



Essential feature.—The word "DESSAR" in conjunction with the representation or picture of a vessel similar to a Roman lamp. Used since January, 1891.

24,879. HARNESS-SNAPS. JAMES C. COVERT, West Troy, N. Y. Filed May 19, 1894.

YANKEE SNAP

Essential feature.—The words "YANKEE SNAP." Used since July 1, 1893.

24,880. BICYCLES. EDW. K. TRYON, JR., & CO., Philadelphia, Pa. Filed May 17, 1894.



Essential feature.—The word "APOLLO." Used since January 1, 1893.

24,881. IRON AND STEEL FIREPROOF SAFES. MIGUEL J. SANCHES, New York, N. Y. Filed May 15, 1894.

DIAMOND FIRE PROOF SAFE

Essential feature.—The word "DIAMOND" in connection with the words "FIRE PROOF SAFE." Used since March 1, 1894.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE GROVE.

Decided May 25, 1894.

TRADE-MARK—"BROMO-QUININE"—DESCRIPTION—MISREPRESENTATION—REGISTRATION REFUSED.

"Bromo-Quinine" is a compound word descriptive of the preparation to which it is applied, indicating that it contains bromine or a bromide and quinine. If it does not contain bromide, the description is false, and in either case the term is not a valid Trade-Mark.

ON petition.

TRADE-MARK FOR REMEDIES FOR COUGHS, COLDS, ETC.

Application of Edwin W. Grove filed December 21, 1893, No. 45,669.

Messrs. Higdon & Higdon & Longan for the applicant.

FISHER, *Assistant Commissioner:*

This is a petition taken from the action of the Examiner refusing to register as a Trade-Mark for cold, cough, and headache remedies the compound word "Bromo-Quinine."

The petitioner prays, first—

that the Examiner be instructed as to the meaning in the English language of the word "bromo,"

and, second—

that the phrase "Bromo Quinine" may under the law be adopted as a legal Trade-Mark.

Turning to the "Century Dictionary," I find the words, "bromochloralum," "bromoform," "bromogelatin," and "bromo-iodized," which are names for or descriptive of substances one of the component parts of which is a bromide or which contains bromine as one of the constituent elements. It thus appears that "bromo" when compounded with another word signifies that bromine or a bromide is a constituent part of a chemical mixture or compound; but the meaning of the word "bromo" and whether or not it is an English word were fully settled by the decision of the New York Supreme Court in the case of *Keasbey et al.* vs. *Brooklyn Chemical Works*, which decision appears on page 3 of the "Trade-Mark Record," April 19, 1893. In this case the plaintiffs used as a Trade-Mark to designate their goods—a medical preparation—the compound word "Bromo-Caffeine." This preparation was composed of a bromide, caffeine, and other ingredients. It was contended on behalf of the plaintiffs that the word "bromo" in medical nomenclature had no definite meaning.

The court said:

This contention we do not think can be sustained. The finding of the court is that the ingredients which gave to the plaintiffs' preparation its medicinal properties and produce the effect claimed by its use are bromide of potassium and caffeine, and that bromide of potassium is one of what is known as the class of "bromides." Under these circumstances it is difficult to see why the use of the word "bromo" is not and was not intended to be descriptive of one of the ingredients in the composition manufactured by the plaintiffs, and that such is the necessary result of the use of the word is plainly established by the evidence of Dr. Hamilton, one of the witnesses for the plaintiffs.

It appears that this witness testified substantially as follows: that he knew the preparation termed "Bromo-Caffeine;" that he believed it contained bromides and caffeine; that from its name it contained bromide, either free or in combination, because "bromo" is a *most-commonly* used word; that the compound word conveyed to his mind the fact that bromide of some sort and caffeine were combined.

To this testimony the court said:

And we think that is just what the term was intended to convey to the ordinary purchaser of the article.

The court further said:

It seems to us that it is difficult to get a combination of words which so correctly describes a manufactured article * * * as the one adopted by the plaintiffs. If these words are not descriptive under this evidence and these findings, it would seem to be impossible to imagine a combination of two words which would be descriptive in case the composition contained other ingredients absolutely unnecessary for the production of the medical result.

From this it is obvious that the word "bromo" is not a fanciful term, nor is it a foreign word, as applicant contends. It is a word that has a definite, common, and well-understood meaning in the English language. "Bromo-Quinine" is therefore a descriptive compound word, which indicates that the article or preparation to which it refers or is applied contains bromine or a bromide of some sort and quinine, and I am of the opinion that under the "Bromo-Caffeine" decision, *supra*, it is not a valid Trade-Mark.

Applilicant, however, contends that this decision is not applicable to his case, because the court held that the word "Bromo-Caffeine" actually described the ingredients of the preparation to which it was applied, whereas in his case the word "Bromo-Quinine" is not descriptive of his preparation, which contains no bromide. To this it is only necessary to say that if his preparation contains no bromide to place this word as a Trade-Mark on such a preparation is to use the word in a deceptive sense and is a misrepresentation as to the quality of the goods, and therefore it is not a valid Trade-Mark. See the familiar cases of "Night Blooming Cereus," (*Phalon* v. *Wright*, 5 Phila., 464;) "Balsam of Wild Cherry," (*Fowle* v. *Spear*, 7 Pa. L. J., 176;) "Balm of Thousand Flowers, (*Fetridge* v. *Wells*, 13 How. Pr., 385.) and also "White Pine," (*ex parte Burke*, 26 MS. Dec., 328,) and "Tamarac," (*ex parte Johnson*, 50 MS. Dec., 25.)

It follows, therefore, that the action of the Examiner should be; and it is hereby, affirmed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—District of New Jersey.

SOCIAL REGISTER ASSOCIATION *v.* HOWARD.

Decided February 16, 1894.

TRADE-MARK—INFRINGEMENT—SOCIAL REGISTER.

The words "Social Register," as applied to a list of persons resident in a certain locality, compiled by its publisher with reference to the personal and social standing of such persons, constitute a valid Trade-Mark, and their use by the publisher of a competing list will be restrained.

ON MOTION for injunction *pendente lite*. Bill by the Social Register Association against Frank Howard.

Mr. G. G. Frelinghuysen for the complainant.

Mr. John Albert McGown for the defendant.

GREEN, *J.:*

The complainant has for a number of years published in the city of New York, under the distinctive name and title of *Social Register*, a list of the names and residences of certain persons living in and in the immediate vicinity of New York city, including the town of Orange, N. J. These publications were at first monthly, but soon became and are now published quarterly. They are prepared with great care, not only as to the facts contained but as well as regards the personal social standing of those whose names are "selected" for publication. The publication was evidently one of value to those who desired a list of this character, and speedily became pecuniarily remunerative to its projector. The *Social Register* was thoroughly well known, and to some extent might be regarded as authority upon the matter it concerned itself with. It coming to the knowledge of the complainant that the defendant, Frank Howard, had published a similar list of persons residing in Orange, N. J., which he called *Howard's Social Register*, and which publication bore some resemblance to the complainant's publication, it caused notice to be served upon him forbidding him to use the title "Social Register," which it claimed had become its property by virtue of its prior and distinctive use of those words as a Trade-Mark. The defendant not heeding this notice, the complainant has filed its bill of complaint against him for injunction and relief, and now moves for an injunction *pendente lite*, forbidding the defendant from using as a title to his publication the words "Social Register." These words "Social Register" are clearly selected arbitrarily to designate the publication of the complainant, and cannot be properly called descriptive in any sense. Hence the words, when chosen, associated together, and applied to a list of persons selected at will by the compiler, as in the case at bar, become a Trade-Mark, and are entitled to protection as such. It is not necessary to cite authorities to sustain this statement. If this be so, undoubtedly the complainant is entitled to protection from any encroachment upon its acquired rights to the sole use of the terms so employed. Now, it can scarcely be doubted that to permit the defendant to use the same words to designate a similar publication, which is admittedly a rival, so far, at least, as the town of Orange may be concerned, would be to give to the defendant the advantage of the prestige which has already crowned the complainant's publication, and, while thus benefited, the defendant would in equal degree inflict damage pecuniary in character upon the complainant. This a court of equity should refuse to do. It should be its purpose and object in matters of this sort to prevent one from stealing away unfairly the business and good-will which have been acquired by another. While fair competition promotes the public good and is to be encouraged, unfair competition based upon unlawful tactics should be enjoined.

The motion for injunction *pendente lite* is granted.

U. S. Circuit Court—Northern District of Illinois.

THE KNICKERBOCKER COMPANY *v.* ROGERS *et al.*

Decided April 30, 1894.

1. PRIOR KNOWLEDGE TO OVERCOME A PATENT—MUST BE BEYOND A REASONABLE DOUBT—RULE OF EVIDENCE.

Evidence of the prior existence of the patented invention, to deprive an inventor of the fruit of his genius, must be so definite as to produce strong belief that the machine existed, and where such machine would naturally be known to more than a few observers the fact that the evidence tends to disclose that it had been known only to a few at a particular time throws doubt upon its existence at that time.

2. DOUBLE USE—CHANGE OF FORM—RULE OF NOVELTY.

Where the novelty of an invention resides in the particular form adopted, it is not negatived by prior structures in another art which were not capable of doing its work, though afterward, in the light of that invention, they can be modified to perform its function.

3. MYSTERY IN MODE OF OPERATION.

An inventor is not to be deprived of the fruit of his invention simply because the physical laws upon which it operates are not susceptible of satisfactory exposition.

4. PARTICULAR CLAIMS ADJUDICATED.

Claims 1, 2, and 3 of Patent No. 403,362, claims 1 and 2 of Patent No. 403,363, claim 4 of Patent No. 403,770, and claims 1 and 2 of Patent No. 408,987, of Orville M. Morse, for improvements in dust collectors, are all valid.

Mr. Albert H. Walker and *Mr. Charles K. Offield* for the complainant.

Messrs. Winkler, Flanders, Smith, Bottum & Vilas for the defendants.

GROSSCUP, *J.:*

The complainant claims under Letters Patent issued to Orville M. Morse, Nos. 403,362, 403,363, 403,770, and 408,987. Claim 2 of Letters Patent 403,363 is as follows:

A dust-collector consisting of a tapering separating-chamber having an imperforate peripheral wall in which the whirling body of air forms a vortex, and in which the air moves from the periphery toward the axis of the vortex as it becomes freed from the solid matter, said chamber having at its large end a tangential inlet for the dust-laden air, and a discharge-aperture for the purified air opening into the atmosphere, and provided with a tubular guard projecting into the separating-chamber, and at its small end a discharge-opening for the separated dust, substantially as set forth.

There was much diversity of view at the hearing as to the mode of operation of this collector. I cannot accept all of the proofs urged by counsel for the complainant—not because they are disapproved, but because they are not satisfactorily proved, and are, therefore, largely speculative. It seems to me, however, that the following mode of operation can be fairly and without abstruse speculation attributed to the collector: The current of dust-laden air, being blown through the tangential opening into the collector, is projected around the interior of the large end

of the cylinder and cone. By reason of the fact that its specific gravity is greater than that of the air all particles of dust are thrown by centrifugal force to the interior walls of the cone and, circulating spirally down these walls, emerge from the small opening at the lower end of the cone. The air from which the dust has been more or less precipitated is itself subjected to the spiral motion and centrifugal force, and also to a degree of condensation greater than the outside air, by reason of the inpouring currents through the tangential opening, and therefore upon reaching the lower edge of the tubular guard pours upward around the exterior walls of the guard to the air without. The effect of the centrifugal force, however, is such that at the immediate axis of the whirling air there is a rarefaction that causes the outward air to pour in both through the guard and through the lower opening. What office this plays in the ultimate operation of the collector I am not able satisfactorily to determine. The net result of the operation is, however, clearly shown to be that a large percentage of the dust flows through the lower opening, while the air rising through the tubular guard is almost entirely freed of dust.

The evidence established beyond any doubt that the machine is highly successful, and that no other device of its form or substantial mode of operation was ever before employed in the art to which it has been put.

The defendants deny infringement, and also the novelty and patentability of the Morse invention.

It seems clear to me that if claim 2, above quoted, is valid the defendants' devices are an infringement thereof.

With the addition of some immaterial and unnecessary features these devices are almost the exact counterparts of Morse's conception. If the efficient purpose of the Morse invention is to precipitate, by means of the tangential entrance, the dust against the interior wall of the cone and by means of the spiral rotation cause it to emerge from the lower opening, while the freed air, moving toward the axis of the vortex, rises through the tubular guard, there can be little doubt but that defendants' devices operate according to like tendencies and effects.

I am not satisfied with the proof that a collector like the Morse invention was in use prior to his invention. Proof of such anticipation, to deprive the inventor of the fruit of his genius, ought to be so definite and cogent as to leave in the mind a strong belief that such machine existed. The proof here falls short of that. It leaves my mind in some doubt respecting that alleged fact; but in view of the indefiniteness of the testimony respecting the date of seeing it and of the improbability that such machine was in successful operation without coming to the knowledge of more observers, located as it was said to have been, this doubt does not rise to the dignity of a reasonable belief that such machine existed.

The two previously-admitted inventions that are urged with the most emphasis as anticipations of the Morse invention are the Pratt steam-separator and the Stratton steam-separator. It will be observed that these were in an entirely-different field of the art; but if they disclose a method of separating steam from water which by mere mechanical adaptation or change could be applied to the use of separating dust from air such fact alone would not foreclose them as anticipations. An examination of these separators, however, shows that before they were readapted, for experimental purposes in this suit, to the uses of dust-collectors they had entirely-different relative form and openings. As steam-separators they were practically cylinders with enough of a cone only at one end to act as a hopper or drainage to the precipitated water. As dust-collectors they are practically cones, being only cylindrical where their interior walls first meet the incoming currents. As steam-separators the openings at each end for the escape of steam and water, respectively, are the same. As dust-collectors the opening for the escape of the freed air is many times larger than that for the dust. As steam-separators the action of the spiral currents is not affected by or adapted to the influence of immediate contact with the outside atmosphere As dust-collectors the size of the openings and the arrangement of the tubular guard show that such adaptation is one of the essential features of its operation.

I have been unable to ascertain definitely why these steam-separators in their original form and with the original openings might not be adapted to the purposes of collecting dust; but the fact nevertheless remains that for some practical reasons they are not; otherwise why should their proportions and openings be disturbed and essentially rearranged to such close approximation to the Morse invention? It is evident that this readaptation—this decided change of form—was essential to success in their changed use. The reason for the change may be occult; but the effect of the change is unquestioned, and in my judgment an inventor ought not to be deprived of the fruit of his invention, where it has brought a new device into successful operation, simply because the physical laws upon which it operates are not susceptible of satisfactory exposition.

The essence of the Morse invention is in so changing the form of all preceding machines and devices that when used in dust-collecting it successfully precipitates nearly all the dust through the lower opening and leaves the freed air to rise through the upper. It is not in that respect a mere change of form of an old device such as is usually regarded as a mechanical change only. The essence of the invention is in the particular form adopted. Neither the form nor relativity of openings of a former device would perform the office required. Other forms—such as the originals of the steam-separators—will collect a large portion of the dust from the air; but such is not a successful and accomplished dust-collector. A dust-collector must approximately collect all the dust or it is not a dust-collector. The evidence in this case shows that Morse was the first who, either through experiment, happy accident, or knowledge of the abstruse force of physical laws, hit upon the right form of cone and tubular guard and relative size of upper and lower openings in connection with a tangential inlet to constitute a successful dust-collector of that character.

The complainant claims that claims 1, 2, and 3 of

Patent No. 403,362, claims 1 and 2 of Patent No. 403,363, claim 4 of Patent No. 403,770, and claims 1 and 2 of Patent No. 408,987 have been infringed by the defendants and are valid, and the court so finds, but construes all those claims as calling for a tapering separating-chamber, either expressly or by implication. For the foregoing reasons the finding will be for the complainant, and an injunction issue accordingly.

U. S. Circuit Court of Appeals—Eighth Circuit.

STIRRAT *et al. v.* EXCELSIOR MANUFACTURING COMPANY.

Decided May 7, 1894.

STIRRAT—WATER-HEATING DEVICE FOR STOVES—INFRINGEMENT.

Letters Patent No. 357,874, for a water-heating device for stoves and ranges, issued February 15, 1887, to Robert J. Stirrat and Robert G. Stirrat, construed, and *Held* to be restricted to a hollow long center in combination with the connecting-pipes, and *Held*, further, not to be infringed by Letters Patent No. 358,123, to O'Keefe and Filley, dated February 22, 1887, in which there is no hollow long center.

APPEAL from the Circuit Court of the United States for the Eastern District of Missouri.

Mr. A. C. Fowler for the appellants.

Mr. Paul Bakewell for the appellee.

Before CALDWELL and SANBORN, Judges.

Judge SANBORN delivered the opinion of the court.

This was a suit for the infringement of Letters Patent No. 357,874, for a water-heating device for stoves and ranges, issued to the appellants, Robert J. Stirrat and Robert G. Stirrat, February 15, 1887. The defense was that there was no patentable novelty in complainants' device, and that the appellee, the Excelsior Manufacturing Company, a corporation, did not infringe. The circuit court dismissed the bill on the latter ground.

The device of the appellants consists of the combination of the hollow long center plate of a stove or range with a supply-pipe which leads from the lower part of a water-tank through the wall of a stove or range, thence in front of the fire-back, and is then inserted in the under side of the long center plate near the end farthest from the source of supply, and an eduction-pipe which leads to the hot-water tank and is screwed into the long center plate at the end opposite to that at which the supply-pipe is inserted. The device of the appellee consists of the combination, with the solid long center plate of a stove, of a water-box, slotted lugs and bolts or screws by which it may be fastened to the long center, and a supply-pipe and an eduction-pipe arranged and inserted in the water-box in substantially the same way in which the appellants arrange and insert the like pipes in their hollow long center plate. The device of the appellee is described in Letters Patent No. 358,123, to O'Keefe and Filley, dated February 22, 1887. In operation the cold water is led through the supply-pipe in front of the fire-back and thence, in appellants' device, through the hollow long center, and in the appellee's device through the water-box fastened on the under side of the long center, to the hot-water tank.

The claims and specifications of every patent must be read and construed in the light of a full knowledge of the state of the art when the patent was issued. A patent to the original inventor of a machine which first performs a useful function protects him against all machines that perform the same function by equivalent mechanical devices; but a patent to one who has simply made a slight improvement on a device that performed the same function before as after the improvement is protected only against those who use the very improvement he describes and claims or mere colorable evasions of it.

If Robert J. Stirrat, the inventor of the device of appellants, had been the first to discover and to reduce to practical operation a combination of pipes or water-boxes, or both, to be used in stoves or ranges for the purpose of heating water and tempering the heat of the long center plates or tops of stoves or ranges and had broadly claimed for his invention the protection of the patent laws, the appellee's device would clearly have been an infringement upon his patent. On the other hand, it is not less certain that if devices of this character had long been in use before his invention, if the machine used by the appellee, or devices so analogous to it that it required no invention to conform them to that of the appellee, had long been known and used for this purpose, and if this invention of Stirrat was nothing more than a slight improvement of well-known devices in features of construction specifically pointed out in the specification and claims of his patent, then the appellee ought not to be charged as an infringer here. In other words, the question of infringement or non-infringement in this case must be determined by the limitations placed upon this patent by the state of the art when it was issued and the specification and claims of the inventor himself. (*McCormick* v. *Talcott et al.*, 61 U. S., 402, 405.)

What, then, was the state of the art? As early as 1875 two horizontal pipes placed against the fire-back of a stove, the one above the other, and connected together in the form of an ox-bow, so that the cold water should be led into the stove through the lower pipe and back when heated through the upper pipe to the receptacle for hot water, were in common use. In Letters Patent to Wood, No. 115,800, dated June 6, 1871, and to Weldon, No. 227,334, dated May 4, 1880, a water-back for a stove or range with a partition therein extending nearly the length of the box to divide the cold water from the hot and an arrangement for passing the pipe from each side through the wall of the stove or range are shown. In Letters Patent No. 258,098, to William Miller, dated May 16, 1882, a fire-box lined on each side with a water-back having a hollow extension that supports the panel or long center of the stove or range containing the fire-box is shown. In the specification to that patent Mr. Miller says:

> I am aware it is not new to support the long centers or top plates of ranges or similar cooking apparatus by a coil of water-pipes extending from the front to the rear of the furnace and communicating with the water-back proper and boiler of the range or stove. Furthermore, I am aware it is not new to support these long centers by means of water-chambers extending completely across from the front to the rear of ranges, etc., as such devices are seen in several patents.

Letters Patent No. 277,009, to Newton Cooper and Thomas E. Conwell, dated May 8, 1883, show the long center of a stove with water-passages in it connected by

pipes with a water-reservoir. They also show water-passages in other parts of the top of the stove and describe an arrangement for connecting these with the interior of a hollow fire-back so that the water may pass through the latter and the passages in the top of the stove to and from the reservoir. In the specification these patentees say:

> We are aware that water-pipes have been placed contiguous to the under side of stove-tops and to the rear sides of stove fire-backs, but not entering the body of either, and we do not claim the same. In our invention the water enters directly into the body of both the top and fire-back.

Thus it appears that there was no novelty in suspending pipes in front of the fire-backs of stoves or ranges for the purpose of heating water; that there was no novelty in making the fire-backs of stoves hollow and heating the water therein; none in providing the long centers or tops of stoves with water-passages through which the water might circulate to and from the reservoir; none in connecting the hollow fire-back with the passages in the top of the stove, so that the water might circulate from the reservoir through the stove-top and the fire-back and thence to the reservoir; none in placing water-pipes contiguous to the under sides of long centers of stoves, and none in connecting such contiguous pipes with the hollow fire-backs or water-backs proper of stoves so that the water would circulate through the water-backs and the contiguous pipes. (*Vide* Miller, No. 258,098, *supra*.) The appellee seems to have simply turned over the old device described by Miller and placed the pipe on the fire-back and bolted the water-back to the long center. Was this invention, and if so was it Stirrat's?

In his original application, filed October 23, 1883, Stirrat says:

> My improvement consists in forming a water-passage in the long center or centers connected with the water-tank by suitable pipes.

And his only claim was—

> the long center of a stove or range formed with a water-passage therein communicating with induction and eduction pipes.

This claim was immediately rejected by the Commissioner of Patents, with the statement that the patent to Cooper and Conwell, *supra*, proved that it was old to construct a long center of a stove to form a water-back; that the patents to Weldon, No. 227,334, dated May 4, 1880, *supra*, and to Wood, No. 115,800, dated June 6, 1871, *supra*, proved that it was old to construct a water-back with a partition and to pass the pipes therefrom through the side of the stove, and that Stirrat's claim contemplated simply the substitution of the construction shown by the last-named patents for that of Cooper and Conwell, which did not involve invention. The references made by the Commissioner were conclusive proof that Stirrat had not made the invention he supposed he had, and he abandoned it; but the ingenuity and perseverance of his counsel, after repeatedly amending his application, extracted from the Commissioner the patent in suit, in February, 1887. This patent has three claims, which read as follows:

> 1. The combination, with the removable top plate of a cooking-stove having a chamber therein, of an exit-pipe leading from said chamber at one end of the plate and an inlet-pipe running parallel to the exit-pipe, extending to the other end of the plate and communicating with the chamber, substantially as described.
> 2. The combination, with the removable top plate of a cooking-stove having a chamber therein, of an exit-pipe leading from said chamber at one end of the plate and an inlet-pipe communicating with the chamber at the other end of the plate and extending downward horizontally and upward beneath the plate, and then parallel to the exit-pipe, substantially as described.
> 3. The combination, with a cooking stove or range, of a hollow long center plate, supply-pipe F, formed with horizontal section F'' and vertical sections F' F''', and the eduction-pipe G, substantially as described.

In the specification Stirrat says, among other things:

> My invention relates to those water-heating devices in which the water to be heated is caused to pass through the long center and a water-back.
> My improvement consists in features of construction hereinafter described, and pointed out in the claims.
> * * * * * * *
> The long center C is cast with a projection having a water-passage through it almost from end to end, as shown at C. The under side of the long center is tapped at C^2 and the section F' of the water-pipe screwed therein.
> * * * * * * *
> It will be seen that the construction I have shown provides a combined long center and water-back.

Now, it must be borne in mind that the patent to Cooper and Conwell, *supra*, exhibited a hollow long center, water-passages through other parts of the top of the stove, and a combination of a water-back with the hollow stove-top so that the water could pass from the reservoir through a part of the top of the stove and the water-back, and thence be returned to the reservoir through another part of the stove-top. The improvement in the construction shown in this patent over that of Cooper and Conwell, if any, is the combination of the water-back with the hollow long center instead of combining it with any other part of the top of the stove. It is unnecessary to consider here whether or not there was any patentable novelty in this improvement. If there was, it is difficult to see how it could extend to the device of the appellee or how there could have been any novelty in the latter. The evils to be remedied by these devices were that when too large a portion of the fire-back of a stove was covered by water-pipes or by a water-back the oven beneath would not heat evenly, and that the long center plate would warp and burn out unless it was protected by water passing through it or by a water pipe or box contiguous to it. The prior patents to which we have referred show that the device of keeping the long center cool by placing a water-pipe or a water-box directly beneath and contiguous to it was old and well known. If the two legs of the old ox-bow pipe prevented the oven from heating quickly and evenly it must have been obvious to any mechanic skilled in the art that if they were raised a few inches, so that the lower one only would rest on the fire-back, this evil would be remedied. It was an old and well-known device to place water-boxes or contiguous pipes beneath the long center of stoves to temper their heat. (Letters Patent No. 258,098, to Miller, and No. 277,009, to Cooper and Conwell, *supra*.) To make the upper leg of the ox-bow in the form of a water-box and fasten it detachably to the long center when it had been raised from the fire-back was but to adopt this old device for cooling the center plate. The only change required to conform the old ox-bow to the device of appellee was to raise it a few inches in the stove and to make the upper leg in the form of a water-box and bolt it to the long center plate. The only change required to conform the old device described in the patent to Miller as a coil of pipes supporting the long center and communicating with the water-back to that of the appellee was to turn that device over and to attach the water-back to the long center and let the coil of pipe rest on the fire-back.

There was certainly no invention—no discovery—in making these changes. They are so simple and so obviously effective to remedy the evils complained of that they must have occurred to any mechanic familiar with such devices who sought to remedy them. If, therefore, the claims of this patent warranted a construction broad enough to cover the device of the appellee, we should have no hesitation in holding it void for want of novelty. (*Atlantic Works* v. *Brady*, 23 O. G., 1330; 107 U. S., 192, 199; *Vinton* v. *Hamilton*, 21 O. G., 557; 104 U. S., 485, 491; *Slawson* v. *Railroad Co.*, 24 O. G., 99; 107 U. S., 649, 653; *King* v. *Gallun*, 25 O. G., 980; 109 U. S., 99; *Double-Pointed Tack Co.* v. *Two Rivers Manufg. Co.*, 25 O. G., 1075; 109 U. S., 117; *Estey* v. *Burdett*, 26 O. G., 637; 109 U. S., 633; *Bussey* v. *Excelsior Manufg. Co.*, 26 O. G., 733; 110 U. S., 131; *Phillips* v. *Detroit*, 111 U. S., 604; *Morris* v. *McMillin*, 29 O. G., 951; 112 U. S., 244; *Hollister* v. *Benedict Manufg. Co.*, 113 U. S., 59; *Elbert* v. *St. Paul Gas Light Co.*, 50 Fed. Rep., 205, 211.) But in our opinion the claims of this patent do not warrant any such construction. The claim of a specific combination or device in a patent is a renunciation of every claim to any other combinations or devices for performing the same functions that are apparent from the face of the patent and are not colorable evasions of the combination or device claimed. The statute requires the inventor to—

particularly point out and distinctly claim the part, improvement, or combination which he claims as his discovery. (Sec. 4887, Rev. Stat.)

When, under this statute, the inventor has done this, he has thereby disclaimed and dedicated to the public all other improvements and combinations apparent from his specification and claims that are not evasions of the device and combination he claims as his own. The claims of his patent limit his exclusive privileges, and his specifications may be referred to to explain and to restrict, but never to expand, them.

When the claims and specification of this patent are read in view of the state of the art to which we have adverted and fairly construed in accordance with these established rules, no attempt to claim the invention of such a combination as that of the appellee will be found, but a plain disclaimer of any such invention. In each of the three claims of the patent the inventor specifies and claims—

a hollow long center plate, [or] the removable top plate of a cooking-stove having a chamber therein—

as one of the elements of his combination. In his specification he declares that his invention—

relates to those water-heating devices in which the water to be heated is caused to pass through the long center.

In the device of the appellee there is no hollow long center; nor is it one of those heating devices in which the water to be heated is caused to pass through the long center. We think these claims and specification, especially in view of the state of the art, constitute a fair disclaimer and dedication to the public of all right on the part of Stirrat to protection against any such device as that used by the appellee, and hence that the latter was guilty of no infringement in its use. (*Keystone Bridge Co.* v. *Phœnix Iron Co.*, 12 O. G., 980; 95 U. S., 274, 278; *Miller* v. *Brass Co.*, 21 O. G., 201; 104 U. S., 350, 352; *McClain* v. *Ortmayer*, 57 O. G., 1229; 141 U. S., 419, 424; *Dobson* v. *Cubley*, 63 O. G., 1059; 149 U. S., 117, 121: *Heine Safety Boiler Co.* v. *Anheuser-Busch Brewing Association*, 43 Fed. Rep., 786, 789; *Maddock* v. *Coxon*, 45 Fed. Rep., 578.)

The brief and argument of counsel for appellants in this case are instructive and exhaustive. Every authority and suggestion that could be advantageously urged in their behalf seem to have been presented. Perhaps the strongest statement of their claim is that the only difference between the device shown in the patent and that used by the appellee is that in the former the hollow long center plate is made in one piece, while in the latter it is made in two pieces—a solid long center plate and a water-box bolted to it—and that this simple change in construction cannot be pleaded to avoid infringement.

This position would be unanswerable if Stirrat were a pioneer here, and if he had not expressly restricted his claims to a combination the essential element of which was the hollow long center; but the state of the art to which we have adverted was such when he made his invention that there was no patentable novelty in a combination of a water-box bolted to the long center with the supply and eduction pipes used by the appellee, and this fact and the specific limitations he imposed upon himself in his claims have forced us to the conclusion that his patent was properly restricted by the court below to the special feature of construction he described and claimed—viz., the hollow long center, through which the water was caused to pass, in combination with the connecting-pipes.

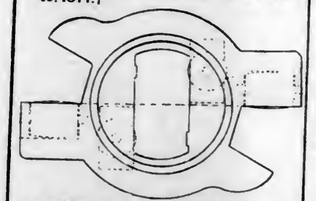
The decree below must accordingly be affirmed, with costs, and it is so ordered.

PATENTS

Expired, June 12 1894.

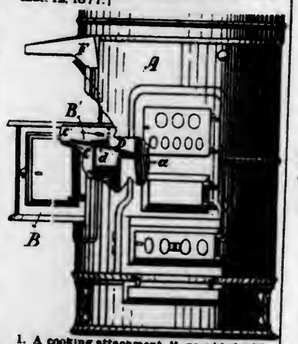
The term of these patents granted during the week ending June 12, 1877, have expired.
The reissues expired at an earlier date.

191,745. MILLSTONE-DRIVERS. William S. Armstrong, La Crosse, Wis. [Filed Apr. 10, 1877.]



A millstone-driver having anti-friction rollers seated in the driving-horns and in the spindle-socket, either or both, for the purpose set forth, and substantially as described.

191,746. FURNACES. Henry W. Austin and William B. Hosford, Chicago, Ill. [Filed Mar. 12, 1877.]



1. A cooking attachment, B, provided with a passage for the circulation of heated gases, in combination with a furnace, to the side of which it is attached, a passage or flue, D, leading directly from the combustion-chamber of the furnace into the cook-stove attachment, and a regulating-damper, *d*, arranged in the inlet-flue D, substantially as and for the purpose set forth.

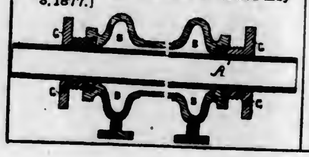
2. A furnace, A, in combination with a cooking attachment, B, constructed with a circulation-passage, *c'*, around the oven, a passage or flue, D, forming direct communication between the combustion-chamber of the furnace and the pass *pc c'* in the stove, and a flue, E, connecting the other extremity of the circulation-passage with the back pipe K, substantially as and for the purpose set forth.

3. The cook-stove attachment B, provided with a removable oven, C, in combination with the flue E, leading from the attachment to the back pipe K, substantially as and for the purpose set forth.

4. The damper *d*, placed within the inlet-flue D, in combination with the dampers *g*, the shafts H and I, provided with arms *h* and *i*, and the connecting-link J, substantially as and for the purpose set forth.

5. The hood F, arranged over the cooking attachment B, in combination with the discharge-pipe *f* connected to the hood, substantially as and for the purpose set forth.

191,747. FEED-WATER HEATERS. Charles F. Barrett, New York, N. Y. [Filed May 3, 1877.]



The combination of pipe A, jacket E, reservoirs B and B', packing-glands G G, and chamber H, operating together substantially as and for the purposes set forth.

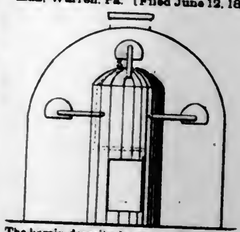
191,748. MACHINES FOR MOLDING STAIR-RAIL WREATHS. John B. Bowden, Zanesville, Ohio, assignor to himself, Wm. H. Griffith, and H. F. Achauer, same place. [Filed Apr. 19, 1877.]

Brief.—The collars which hold the bit may be made of any thickness, so as to regulate the depth of cut.



The combination of the collar and bit, for the purposes described, with an adjustable semicircular table, to accommodate the twist of the stair-rail.

191,749. PROCESSES FOR MANUFACTURING CARBURETED-HYDROGEN GAS. J. H. Bowman, Warren, Pa. [Filed June 12, 1876.]



The herein-described process of making carbureted hydrogen gas—that is to say, by passing steam into a heated retort containing iron or other suitable metal, and by passing air into another heated retort containing charcoal, coke, or other suitable carbonaceous material, the gases so generated being then passed from said retorts into a still or suitable chamber and mixed with hydrocarbon vapors thereby generated, the gases and vapors so united being then passed into and through a third heated retort containing a mixture of carbonaceous material and metal in suitable form, whereby the gases and vapors become chemically and permanently combined in the form of carbureted hydrogen gas, ready for illuminating purposes, substantially as set forth.

191,750. SEWING-MACHINE TRIMMERS. E. F. Bradford and W. R. Peirce, Boston, Mass. [Filed Mar. 12, 1877.]

Brief.—Improvement on Patent No. 177,371, May 16, 1876, consisting of the construction specified in the claim, and rendering the cutter easily removable from the feed-dog.



The trimmer-bar *g*, constructed with the upwardly-projecting trimmer *f*, and having the pin *i* passing through an opening in the trimmer-bar, and having a knob, *i'*, in combination with the flat spring *h*, attached at one end to the under side of the trimmer-bar, and connected at its other end to the pin *i*, substantially as described, the trimmer-bar being adapted to be connected to the feed-dog of a sewing-machine, for the purpose set forth.

191,751. MUCILAGE-HOLDERS. J. Vincent Browne, New York, N. Y. [Filed Jan. 18, 1877.]



The combination, with the receptacle or bottle *a*, its perforated cork or stopper *b*, and porous sponge *f*, of the metallic tube *c*, with its guide *g*, valve *d*, spindle *e*, and spring *k*, substantially as and for the purpose set forth and described.

191,752. ROWLOCKS. J. J. Currier, Gloucester, Mass., assignor to Israel C. Mayo, same place. [Filed Apr. 30, 1877.]



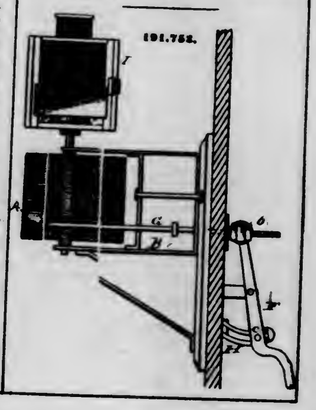
1. The combination of the rowlock and its furcated tenon with the rotary socket-piece and the connection-link, all being arranged and applied substantially as set forth.

2. The combination of the base-plate, the rotary socket-piece, the link and the rowlock, provided with the furcated tenon, all being arranged and applied substantially as set forth.

3. The base-plate and the holding-plates, in combination with the grooved socket-piece, arranged therewith, as set forth.

4. The rotary socket-piece, in combination with the rowlock, provided with a tenon to enter such socket-piece.

191,753.



EXPIRED PATENTS.

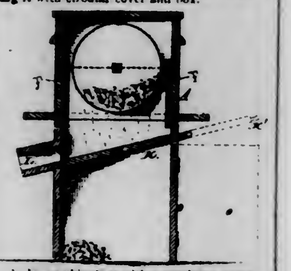
191,753. RAILROAD-SIGNALS. L. B CARVER, Xenia, Ind. [Filed Apr. 11, 1877.]

Brief.—A day and night signal are mounted on a vertical oscillating shaft, which is operated by a pivoted hand lever.

In combination with the signals A and I, the lever F, adjustable nut *b*, pintle *c*, thumb-screw *d*, washer *e*, indicator H, and rod G, all arranged and operating substantially as and for the purpose set forth.

191,754. ASH-SIFTERS. John R. Darke and D. S. Smith, South Evanston, Ill. [Filed Nov. 15, 1876.]

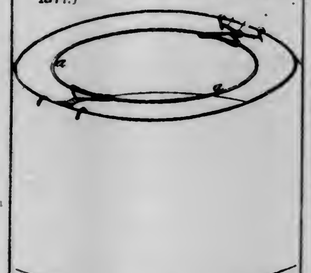
Brief.—Adapts the sifter to barrels by making it with circular cover and box.



1. In combination with a revolving screen mounted in a box, A, the dust-receptacle, provided with mouth L and door O, and slotted to receive the removable inclined plate K, as shown and described.

2. The combination, with the box A, carrying the screen or sifter, and provided with extending cleats F F, of the dust-receptacle, having the removable inclined plate K, mouth L, and door O, arranged to operate substantially as and for the purposes set forth.

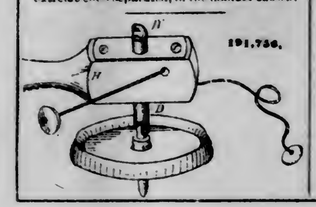
191,755. LAMP-SHADE HOLDERS. Alfred H. Duff, Philadelphia, Pa. [Filed May 11, 1877.]



1. The holder for annular lamp shades consisting of the two wires *a*, curved, crossed, and twisted together, and provided with two diverging ends on each side, as and for the purposes set forth.

2. In combination with an annular lamp-shade, the holder consisting of the wires *a*, bent and united in the manner shown, and having the diverging ends passed through and folded down within the upper edge of the shade, as shown.

3. A holder for annular lamp-shades consisting of wires curved, crossed, and loosely entwined near their ends, and having their extreme ends separated, in the manner shown.



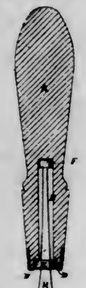
191,756.

191,756. SPINNING-TOPS. Henry D. Forbes, Cambridge, Mass. [Filed Mar. 13, 1877.]

The combination of the handle H with the quill or tube D D', said quill having a lantern lock or bayonet-catch at each end, and provided with a reel, K, all arranged to operate together substantially as described, and for the purpose set forth.

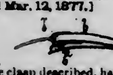
191,757. TOOL-HANDLES. Charles Groth, San Francisco, Cal. [Filed May 5, 1877.]

Brief.—Tools having long tapering shanks are secured to their handles by means of a partial disk fitted in a ferrule in the end of the handle.



The tool-handle A, with its bore B and projecting points D D, in combination with the tool-shank H, with its disk F and partial disk E, substantially as and for the purpose described.

191,758. SHOE-CLASPS. J. C. Hammond, Jr., and Theo. R. King, Rockville, Conn. [Filed Mar. 12, 1877.]



1. The clasp described, having the tongue *b*, pivoted to spring *a*, provided with the fall-back *b'* and the lever end *b''*, arranged in the rear of the pivotal point of the tongue.

2. The combination of the tongue *b*, pivoted to spring *a*, having the fall-back *b'* and lever end *b''* in the rear of its pivot, with the bearing-spring *c* and base-plate *c*, substantially as described.

191,759. RESTORING AND RECOVERING ALKALINE WASTES. William W. Harding, Philadelphia, Pa. [Filed Oct. 16, 1876.]

The process herein described for recovering alkali from the waste liquor used in disintegrating paper-stock, in reducing it first to a dry porous or flocculent substance, by exposing the liquid in thin layers to the action of heated cylinders or plates and scraping or brushing and then incinerating the porous mass in the hearth of a reverberating furnace, all substantially as set forth.

191,760. SUBMARINE BOATS. Charles F. Hanis and Charles F. Pike, Philadelphia, Pa. [Filed Oct. 6, 1876.]

1. The metallic frame *q*, and water-proof covering *r*, forming the arms *g' g'*, in combination with the car, substantially as shown and described.

2. The adjustable legs *u u u u* and levers *x x*, in combination with the car, substantially as and for the purpose set forth.

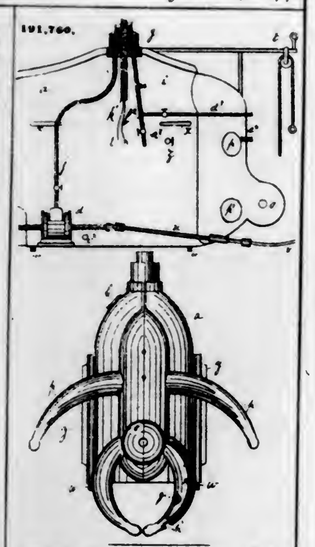
3. The flexible shaft *v* and shaft *u*, provided with means to give it motion, in combination with the car, as and for the purpose set forth.

4. The compartment *y*, valve *z*, pipe *b'*, valve *a'*, and air-chamber formed by the pipe *g*, in combination with the car, substantially as and for the purpose set forth.

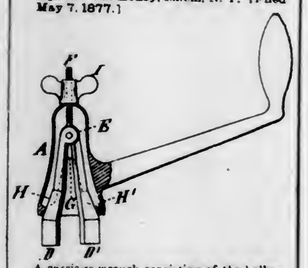
5. The combination of the tube *g* with the spirally-wound wire, substantially as shown and described.

6. The tubes *d'* and *d''*, in combination with the car, substantially as and for the purpose set forth.

191,760.

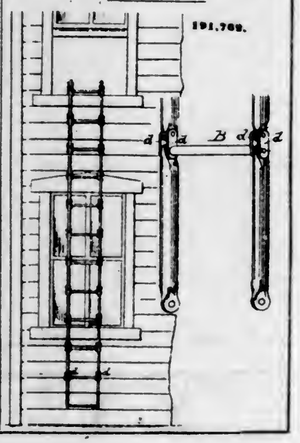


191,761. CARRIAGE-WRENCHES. Eli K. Holley, Lockport, assignor of one-half his right to J. B. Holley, Salem, N. Y. [Filed May 7, 1877.]



A carriage wrench consisting of the hollow casing A, provided with the handle B C, in combination with the wrench-jaws D D', having the tapering or inclined sides H H', and provided with a joint, E, screw F, thumb-nut I, and spring G, as specified.

191,762.



191,762. FIRE-ESCAPES. H. HUTH, Milton, assignor to himself and Jno. H. Schreiner, Philadelphia, Pa. [Filed Apr. 26, 1877.]

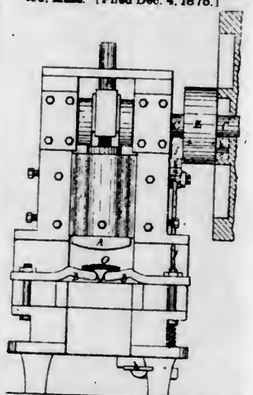
In a folding fire-escape, the double links *d d*, pivoted at one end to the side bars by a pin, and at the other end to the adjoining side bars by the rounds or cross-bars B, all constructed and arranged to operate in the manner and for the purpose set forth.

191,763. METHODS OF SECURING METAL PLATES ON STRUCTURES. W. G. HYNDMAN, Cincinnati, Ohio. [Filed Apr. 26, 1877.]



The method of fastening or securing metallic plates to structures by means of a wrought-metal barbed nail and a concave-convex washer of soft material, substantially as and for the purpose set forth.

191,764. MACHINES FOR SHAPING THE SOLES OF BOOTS AND SHOES. John Kimball, Boston, Mass. [Filed Dec. 4, 1876.]

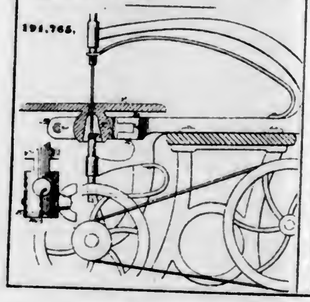


1. The process above described, consisting in fastening the tread of the sole crosswise after it is attached to the upper by subjecting it to heavy pressure between a rounding surface, and a hollowing-surface, all as set forth.

2. The process above described of smoothing the inner surface of the sole after it is united to the upper by inserting within the shoe after it is formed the sole-shaped piece *k* of hard metal, and then compressing the sole between the bed and plunger, as set forth.

3. In combination with the plunger, the bed-piece B, having the narrow slot open at its forward end, in order that the shoe may be readily placed upon the bed-piece and submitted to the action of the plunger without injury to the upper, the whole combination being and operating substantially as and for the purpose specified.

191,765.



191,765. SCROLL-SAWING MACHINES. Geo. B. Lewis, Seneca Falls, N. Y. [Filed Apr. 6, 1877.]

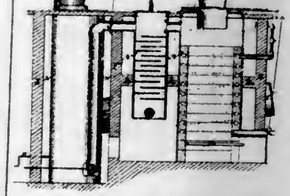
Brief.—The table is angularly adjustable by means of a hollow ball formed on its under surface, and secured in a hinged clamp on the main frame. The saw is held in a slotted and perforated clamp, provided with a guide-pin.

1. The combination of the clamp A B, provided with the pin *x*, screw *w*, and hinge *u*, with the table V, having the hollow ball *e*, constructed as shown and described, for the purpose specified.

2. A saw-clamp, provided with the hole F and slot *m*, in combination with the pin E and screw *a*, constructed, as shown and described, for the purpose specified.

191,766. PROCESSES AND APPARATUS FOR MANUFACTURING ILLUMINATING-GAS. M. W. Kidder, Boston, Mass., assignor to himself and Person Noyes, same place. [Filed May 4, 1876.]

Brief.—Steam is generated and superheated in passages in the wall of the generator, and is admitted to the ash-pit, and thence to the incandescent fuel in the generator, where it is decomposed, forming carbonic oxide and hydrogen, which are purified and stored in a holder, or are passed directly into a heated chamber with steam, where part of the carbonic oxide is converted into carbonic acid, taking oxygen from the steam and setting free hydrogen. These gases are passed through lime purifiers, for removing carbonic acid and sulphur compounds, and are then stored. When the temperature of the coal in the generator is reduced below a decomposing point by the admission of steam, it is revived by the admission of oxygen gas. The water-gas is enriched by admitting it with oil into a heated chamber, where the two are passed over heated plates, or the water gas is passed up through bituminous coal, distilling at a low temperature, where it combines with the vapors given off, and carries them out and into a reheating-chamber, where a fixed gas is produced, which is washed and purified. The water-gas generator is heated externally as well as by internal combustion. Gas is burned in the fire-box of the furnace.



1. The process for producing illuminating-gas, which consists, first, in heating bituminous coal in a closed chamber or retort sufficiently to expel the hydrocarbon vapors from the coal without decomposing said vapors; and, secondly, in introducing combustible non-luminant gases—such as water-gas, hydrogen, carbonic oxide or marsh gas—beneath the coal in said chamber, and passing it upwardly through such heated coal, whereby the nascent hydrocarbon vapors are taken up and lifted out from the coal and the non-luminant gases carbureted, the mixed gases and vapors being subsequently superheated, as specified.

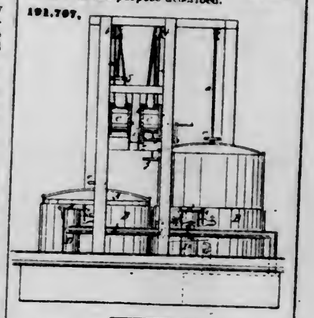
191,767. APPARATUS FOR CARBURETING AIR. Loomis Mann, Ionia, Mich. [Filed May 4, 1877.]

Brief.—Two reciprocating cylinders working in a water-seal are alternately filled with air, by which a continuous supply of air is forced to the carbureter. The pressure of air is regulated by weights, placed either upon a disk on the air-cylinder or on a counterbalance-disk suspended by a cord. Two valves in the air-pipes, leading to the two air-cylinders, are connected by levers, by which one is closed when the other is opened.

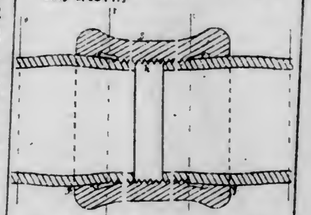
1. The combination of the drums C C and their gear-wheels *p* with the sliding pinion *q* and trip-stop *r*, as and for the purpose specified.

2. The disks *o g*, in combination with the suspending-cord *a* of the air-tank, and counter-cord A of the drum C, for the reception of weights, transferable from one to the other, as and for the purpose described.

191,767.



191,768. UNION AND JOINT FOR TUBING. Geo. Matheson, McKeesport, Pa. [Filed May 4, 1877.]

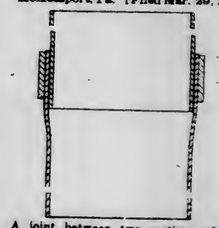


1. In a union or joint for tubing for deep wells, the socket or union made to impinge upon an inclined bearing beyond the screw-threads of the socket and tubing, substantially as herein described, and for the purpose set forth.

2. The socket B, provided with a recess, *e*, and bell-mouth *g*, substantially as herein described, and for the purpose set forth.

3. In a union or joint for tubing, the enlargement of the tube in its outer diameter at or about the part between the lines D C, in combination with the bell-mouth socket B, having recess *e* between said bell-mouth and screw-threads, substantially as herein described, and for the purpose set forth.

191,769. PIPE-JOINTS. George Matheson, McKeesport, Pa. [Filed Mar. 29, 1877.]

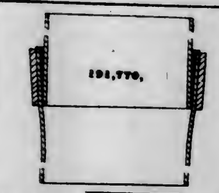


A joint between two sections of pipes, formed by making one end of each section bell-mouthed and placing over said bell-mouthed end a ring, whereby the edge of said bell-mouthed end may be called by upsetting between the inner walls of the ring and the outer walls of the entering pipe, substantially as herein described, and for the purpose set forth.

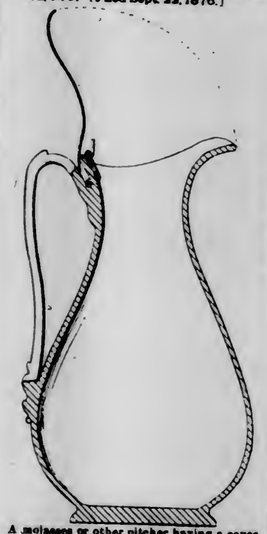
191,770. PIPE-JOINTS. George Matheson, McKeesport, Pa. [Filed Mar. 29, 1877.]

A joint formed between two sections of pipe by making one end of each section bell-mouthed and interposing a lead gasket between the inner wall of the bell-mouth and the outer wall of the entering pipe, and subsequently placing a sleeve over the bell-mouth and calking the lead gasket, substantially as herein described, and for the purpose set forth.

191,770.

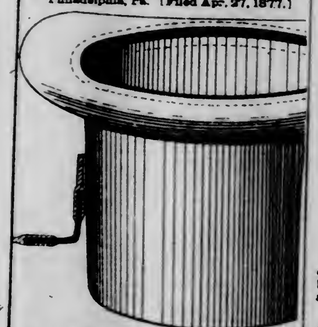


191,771. PITCHERS. Charles Moyer, Trenton, N. J. [Filed Sept. 22, 1876.]



A molasses or other pitcher having a cover secured thereto by an elastic strap passing through perforations in the body of the pitcher and secured to the cover, substantially as specified.

191,772. HATS. Manoel J. Nascimento, Philadelphia, Pa. [Filed Apr. 27, 1877.]

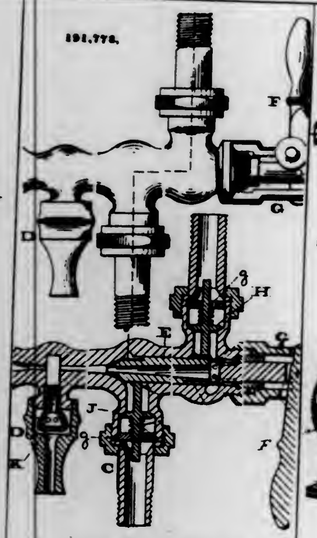


As a new article of manufacture, a hat, the side crown and brim of which are united by a yielding and moisture-proof rubber connecting-piece, substantially as shown and described, and for the purposes set forth.

191,773. INJECTORS. William H. Newell, Philadelphia, Pa. [Filed Nov. 3, 1876.]

Brief.—The spindle opens the steam and water valves by means of cams. The overflow-valve is formed of a plug, with its head perforated, and inclosed by a sleeve, which automatically covers and uncovers the perforations.

191,774.



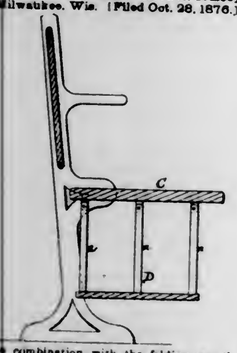
1. In an injector a steam-spindle, with valve-operating cam-faces, substantially as and for the purpose set forth.

2. The rotary yoke G, with lever F, in combination with the spindle E, and valves H J, substantially as and for the purpose set forth.

3. The overflow-chamber D with the plug K and its encircling sleeve L, substantially as and for the purpose set forth.

4. The connections, provided with strainers *g*, in combination with the stems of the valves H J passed through said strainers, substantially as and for the purpose set forth.

191,774. OPERA-CHAIRS. Robt. H. Ormsby, Milwaukee, Wis. [Filed Oct. 28, 1876.]



The combination, with the folding seat C, of the folding shelf D and depending bars *a*, hinged to the seat and shelf, substantially as and for the purpose specified.

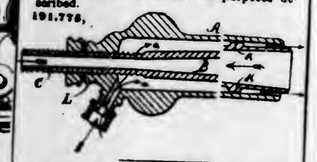
191,775. SPRINGS. John S. Parsons, Indianapolis, Ind., assignor of one-half his right to J. H. Yandt, same place. [Filed Sept. 19, 1876.]

Brief.—The inner tube adjusts in the outer by means of a screw-thread.

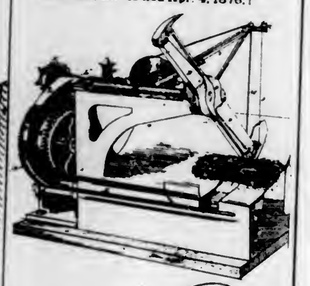
1. The outer tube A of a syringe, formed with its rear end contracted, and provided with a screw-thread in which operates the screw-threaded end C of the inner tapering tube B, in the manner and for the purposes specified.

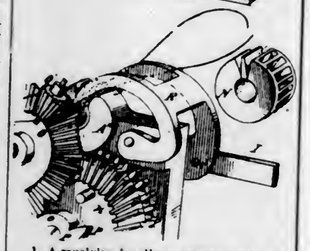
2. The inner tapering tube B, provided at its large end with lugs K K K to guide said inner tube B in the center of tube A at its nozzle end, and having its small end provided with a screw-thread, C, which operates in the contracted end L of the outer case A, in the manner set forth, and for the purposes described.

191,776.



191,776. GRAIN-BINDERS. Wm. H. Payne, Sandwich, Ill. [Filed Apr. 4, 1876.]





1. A revolving bundler or gatherer, consisting of a main straight arm attached to a drive-shaft and auxiliary arms provided with hooks on their outer ends, and pivoted to the former, in combination with a cam-guide constructed, arranged, and operating substantially as described.

2. The revolving arm D, in combination with the vibrating pieces D', pivoted on opposite sides of the arm D, and provided with hooks at their extremities, the pins d^3 on the inner ends of the pieces D', and the cam *a*, in which both pins travel, substantially as and for the purpose set forth.

3. The bundle-holder L^1, provided with curved arms P, and vibrating intermittingly away from the binding mechanism, substantially as and for the purpose set forth.

4. The combination of the bundle-holder L^1, compressing-cord M, and revolving gathering-arm, substantially as described.

5. The combination of the revolving gathering-arm, vibrating bundle-holder L^1, and band-wire V, substantially as described.

6. An independent wire-carrier, in combination with the notched vibrating placer R, disconnected from the wire-carrier and wire, and twisting pinion N, substantially as and for the purpose set forth.

7. The twisting-pinion N, constructed with its sides closed flush with all the teeth except one, so as to leave the two spaces on opposite sides of said tooth clear, substantially as and for the purpose set forth.

8. The wheel O and pinion O', for seizing and holding the band-wire, substantially as described.

9. The combination of the wire-holders O O', twisting-pinion N, and band-placer R, substantially as described.

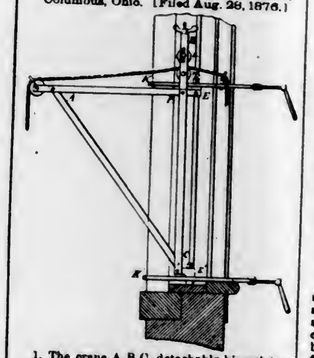
10. The combination of the bevel-wheel O notched as described, and collar P, provided with projecting tooth *p*, substantially as set forth.

11. The combination of the pivoted band-placer R, reciprocating bar I, provided with a pin, *i*, and a camway, which moves the pin back and forth, substantially as described.

12. The arm L, loosely journaled on the shaft E, in combination with the bundle-holder L^1 and the cam f^3 on the wheel F, substantially as and for the purpose set forth.

13. The combination of the arm L, hung loosely on the shaft E, pin or stop *i*, and pivoted dog L^2, substantially as and for the purpose set forth.

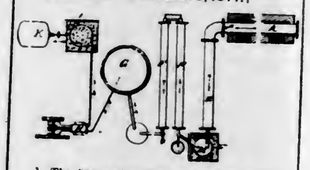
191,777. FIRE-ESCAPES. John C. Peppler, Columbus, Ohio. [Filed Aug. 26, 1876.]



1. The crane A B C, detachably hinged to two clamps, K K', screwed to the side of a window-frame, substantially as described, and for the purpose set forth.

2. The combination of the crane A B C with a pulley-block, H, with two pulleys, *m* and *n*, the upper one, *n*, of elastic material, being adjustable by the thumb-screw *d* to admit of squeezing the rope between the pulleys, so as to let it pass more or less freely, substantially as herein described, and for the purpose set forth.

191,778. MANUFACTURING SULPHUROUS ANHYDRIDE. Raoul P. Pictet, Geneva, Switzerland. [Filed Mar. 9, 1877.]



1. The herein-described method or process of producing and storing fluid sulphurous oxide, and rendering the same pure and anhydrous—that is to say, by heating together sulphur and sulphuric acid alone, and then immediately passing the product successively through a cleansing medium and an anhydrating medium, whereby it is freed from all extraneous matters, including water and the vapor of water, and then immediately condensing the said gas, by pressure, into a fluid, and collecting and storing the same, the entire continuous operation from the beginning to the end being carried on with the atmosphere, and all other extraneous substances excluded from contact with the materials used, and from the resulting gas and fluid, all substantially as described.

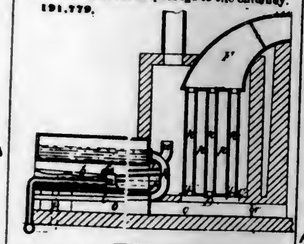
2. The apparatus described for making, purifying, anhydrating, and storing sulphurous oxide, consisting of the heating-retort A, the vessel and pipes for holding and delivering into the retort sulphuric acid, without the admission of atmospheric air, the discharge-pipe E, the inclined pipes F F, the gasometer G, the pump H, the refrigerator I, and the fluid-holder K, with the pipes connecting the several named parts, all constructed and combined to operate substantially as and for the purpose set forth.

191,779. HOT-AIR APPARATUS. Charles Pottier, London, England, assignor of one-half his right to H. A. V. Le Lubez, same place. [Filed Jan. 9, 1877.]

1. In combination with a steam-boiler, the improved hot-air apparatus, substantially as shown and described, consisting of the series of horizontal and inclined tubes and air-chambers, applied to utilize the waste heat of the boiler, as set forth.

2. The vertical tubes *p p p* in the large air-chamber having direct communication with the bottom flue *e*, and also with the outlet-flue F, and serving to utilize the heat from such bottom flue before its passage to the chimney.

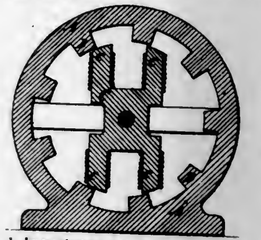
191,779.



191,780. PROCESSES FOR MAKING CAST METAL FROM TINNERS' SCRAP. J. Milton Sanders, New York, N. Y., assignor to J. H. and Chas. H. Covel, same place. [Filed Oct. 12, 1876.]

The process of making cast metal from tinners' scrap, which consists in subjecting the scrap to a temperature of 3000° or 4000°, or sufficient to effect the volatilization of the tin coating, and at the same time fusing the iron base plates to a consistent mass by suitable flux, as described, liquid hydrocarbon being injected during treatment, substantially in the proportions specified, whereby the metal is properly carburized, and its ready flow in casting insured, all substantially as herein set forth.

191,781. ELECTRO-MAGNETIC ENGINES. W. E. Sawyer, New York, N. Y. [Filed Mar. 26, 1877.]



1. In an electro-magnetic engine, a fixed or revolving drum, provided with projections circumferentially equidistant, any adjoining two of which, together with that portion of the circumferential mass of the drum which is between such two projections, forms the armature of an electro-magnet, substantially as shown and described.

2. In an electro-magnetic engine, the combination, with an electro-magnet whose poles consist of elongated edges running parallel to each other, of an armature whose ends consist of elongated projections running parallel to each other, and also to the elongated poles of the magnet, the distance between the projections of the armature being the distance between the poles of the magnet, as and for the purpose specified.

3. In an electro-magnetic engine, the arrangement of an electro-magnet with relation to a drum or barrel provided with circumferentially equidistant projections, any adjoining two of which, together with the circumferential mass of iron between them, constitute an armature, whereby the action of the magnet is such as to cause one of its poles to precede the other in the direction of its revolution, substantially as shown and described.

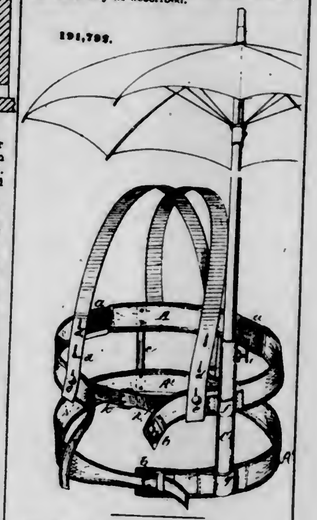
191,782. UMBRELLA-SUPPORTS. B. Burgh Smith, Sr., Theoville Farm, near Greenville, S. C. [Filed Nov. 6, 1876.]

1. An umbrella-support in which are combined two belts adapted to be secured around the chest and waist of the wearer, and attached together parallel, or nearly so, with each other, a socketed rod connected with the two belts, and a suitable clamping device for holding the umbrella or parasol handle in the socketed rod, substantially as described.

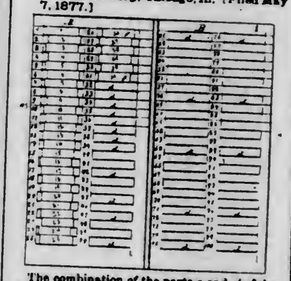
2. The two belts A A', connected by braces or stays *c c*, and each having one or more elastic insertions, *a*, in combination with the vertical socketed rod C, secured to the two belts, and having a clamping device for holding an umbrella or parasol handle in its socket, substantially as described.

3. The combination of the two belts A A', connected by braces *c c*, the socketed rod C, secured at its lower end in a socket in the lower belt, and in a loop on the upper belt, and the diagonal shoulder-straps secured to the latter, and having button-holes adapted to connect with buttons on the upper belt, substantially as described.

191,782.

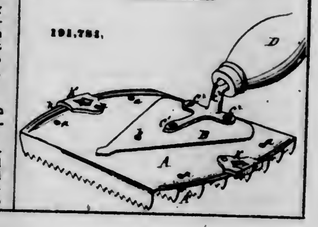


191,783. DRUGGISTS' PRESCRIPTION-FILES. C. G. Stromberg, Chicago, Ill. [Filed May 7, 1877.]



The combination of the parts *a* and *a'* of the leaves A B with one or more series of parallel slits, *d*, and with or without the dividing-leaf C interposed between the parts *a* and *a'*, substantially as and for the purposes specified.

191,784.



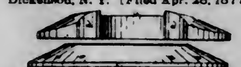
191,784. CURRY-COMBS. Miles Sweet, Troy, N. Y. [Filed Nov. 16, 1876.]

1. In combination with the comb-back A and re-enforcing piece B, a malleable-metal grooved shank having the extension C' and two lateral arms or braces, C', provided with rivets or rivet-studs for connecting, by the same operation, the re-enforcing-piece, the back of the comb, and the shank, substantially as and for the purpose described.

2. In combination with the shank of a curry-comb and its handle, the independent and separate wire E fastened at one end through the end of the shank, and bent or looped at the other, where it issues from the handle, substantially as and for the purpose set forth.

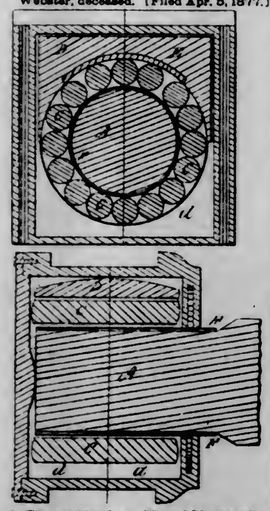
3. In combination with the sheet-metal back of a comb having circular ends, the independent knocker K riveted and danged to said back in the center of each circular end, substantially as and for the purpose described.

191,785. HORSESHOES. W. M. Temple, Port Dickenson, N. Y. [Filed Apr. 28, 1877.]



The horseshoe A, having a convex or beveled bearing on the entire bearing part of the hoof, constructed in the specific manner herein described and shown, for the purpose set forth.

191,786. CAR-AXLE BOXES. Lewis D. Webster, Chicago, Ill., administrator of Jos. D. Webster, deceased. [Filed Apr. 5, 1877.]



1. The combination, with anti-friction rollers in a railroad journal-box, of a rocking bearing, D, within the box, to secure parallelism between the journal and rollers, substantially as set forth.

2. The rocking bearing herein described, composed of the rocking piece D and the bands *d*, constructed substantially as and for the purpose set forth.

3. The combination, with anti-friction rollers and rocking bearing D, of the removable bearing E, made and operating substantially as described.

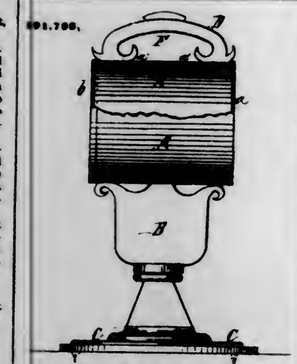
4. The combination, with the anti-friction rollers and rocking bearing, of the removable bearing E in said rocking bearing, and the removable sleeve F on the axle or journal, substantially as and for the purposes set forth.

191,787. STOVE-POLISHES. E. L. Whiton, West Stafford, Conn. [Filed Mar. 14, 1876.]

A stove-polish, consisting of gum-arabic and graphite united to form a powder, and in the proportions substantially as set forth.

191,788. TWINE-HOLDERS. Jos. C. White, New York, N. Y. [Filed Apr. 11, 1877.]

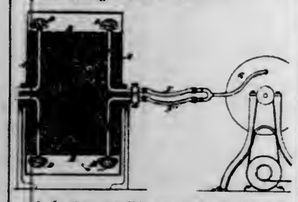
191,789.



As a new article of manufacture, a twine-holder, consisting of the holder A, with the fixed head *a* and the movable head *b*, ornamented as described, the standard B, foot-piece C, having screw-holes, bracket F, with the twine-cutter D secured to its upper part, substantially as described, and for the purpose set forth.

191,790. GAS AND AIR CARBURETERS. W. H. Winn, New York, N. Y. [Filed Jan. 11, 1877.]

Brief.—Perforated diaphragms extend across the reversible cylinder near each end, and in each space left between the diaphragm and the head of the cylinder are two perforated bulbs, communicating, through the axes of the cylinder, with flexible tubes, which on one side are inlets from the fan-blower, and on the other outlets for the carbureted air. Air is forced from the lower inlet-bulb up through the saturated fibrous material, and out through the upper outlet-bulb. By means of cocks communication through these tubes is closed, and upon the cylinder being reversed opened through the other set.

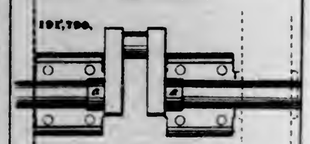


1. In the reversible carbureting-cylinder A the perforated or foraminated diaphragms B, at or near its ends, in combination with the duplicate systems of inlet and outlet pipes C C', substantially as and for the purpose herein set forth.

2. The perforated bulbs D, in combination with the duplicate system of inlet and outlet pipes C C', and the central portion of the reversible cylinder A, containing the absorbent material, all substantially as and for the purpose herein set forth.

3. The flexible connecting-tubes F, with the duplicate systems of pipes C C within the reversible cylinder A, and the pump G, whereby the gas or air is forced to and through the said cylinder, substantially as and for the purpose herein set forth.

191,790.

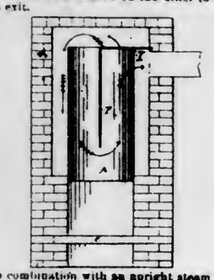


191,790. CRANE-SHAFTS FOR STEAM-ENGINES. Daniel A. Woodbury, Rochester, N. Y. [Filed May 18, 1877.]

As an improvement in that class of crank-shafts which have the crank formed in one piece therewith, and the journals located close to the crank, the enlargement *a* directly in the neck of the crank, and forming part of the journal, substantially as and for the purposes set forth.

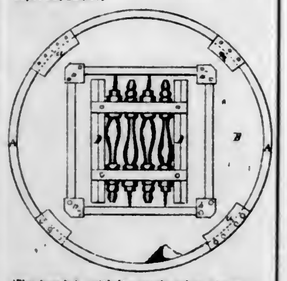
191,791. MODES OF SETTING STEAM-GENERATORS. Enos D. Wood, Utica, N. Y. [Filed Feb. 20, 1877.]

Brief.—The plates so divide the space around the boiler that the smoke is compelled to drive at one side and ascend on the other to reach the exit.



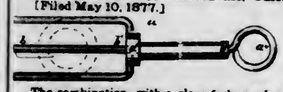
In combination with an upright steam generator or boiler, the plates I and F, constructed and operated substantially as described, for the uses and purposes mentioned.

191,792. DEVICES FOR PACKING TABLES AND OTHER ARTICLES. Ezra P. Wright, Springfield, Ohio, assignor of one-half his right to Justus V. Elster, same place. [Filed Apr. 16, 1877.]



The band A, with its overlapping pieces *a a*, for uniting the ends thereof and clamping together the two table-tops B B, substantially as shown and described, as and for the purpose hereinbefore set forth.

191,793. GLASS-TOOLS. Geo. Zimmerman and George Beatty, Steubenville, Ohio. [Filed May 10, 1877.]



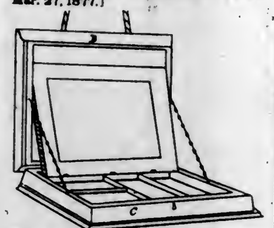
The combination, with a glass fork, *a*, of a rotating prong, *b*, constructed and arranged substantially as and for the purpose set forth.

191,794. CIGAR-LIGHTERS. H. P. Andrews, Boston, Mass. [Filed Mar. 27, 1877.]



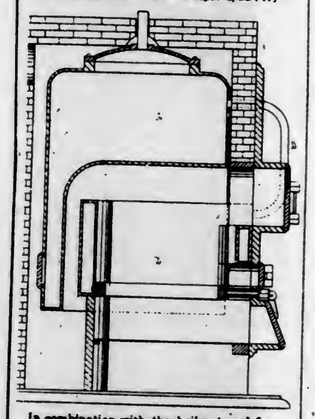
As a new article of manufacture, a pocket cigar-lighting device, consisting of the combination, in the case A, of the movable cap or cover B, the tinder-wick carrier C, the percussion-strip feeder and striker-retractor E, the tinder wick feeder F, and the striker G, all constructed, arranged, and operating in the manner and for the purpose specified.

191,795. PICTURE-FRAMES. S. A. Bowers and Wm. Murphy, Burlington, Vt. [Filed Mar. 27, 1877.]



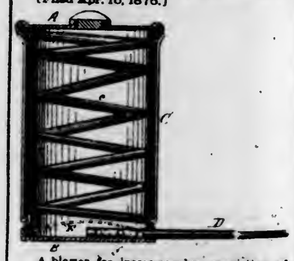
The combination, in the frame A, of the subdivisions B C, hinged together, the division C being covered by a lid, the whole constructed to form a frame for a picture, with a receptacle or receptacles to hold writing, toilet, or other articles, and adapted to be suspended against the wall of a room, substantially as described and shown.

191,796. STEAM-HEATERS. R. G. Brown, Waltham, Mass. [Filed Apr. 4, 1877.]



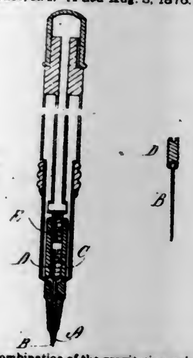
In combination with the boiler A and fire-box B, the inlet and outlet pipes C and D, constructed and arranged substantially as described.

191,797. BLOWERS FOR INSECT-POWDERS. William F. Brummer, Milwaukee, Wis. [Filed Apr. 15, 1876.]



A blower for insect-powder, consisting of the top A and bottom B, flexible covering C, spring *c*, concavo-convex sieve E, and nozzle D, having openings *f*, substantially as and for the purpose specified.

191,798. FOUNTAIN-PENS. Alonzo T. Cross, Providence, R. I. [Filed Aug. 3, 1876.]



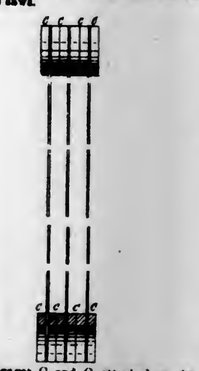
1. The combination of the gravitating-valve C, the swivel needle B, and writing-point A, substantially as described.

2. The combination of the gravitating-valve C, adjusting-screw D, swivel-needle B, and writing-point A, substantially as described.

3. The combination of the gravitating-valve C, needle B, and valve-adjusting screw E, substantially as described.

191,799. GANG-SAW GAGES. T. Emery, Peshtigo, Wis. [Filed Sept. 21, 1876.]

Brief.—The gang of saws is firmly secured in position parallel with each other, and their removal and readjustment rendered easy and convenient by permanently attaching gage-plates to one or both sides of the saws, immediately below the hangers at the top of the saws and directly above the hooks at the bottom of the saws.



The saw-gages C and C, attached to the saw in the manner and for the purpose set forth.

191,800. BRICK-MACHINES. W. A. Graham, Carlisle, Pa. [Filed May 19, 1877.]

Brief.—The molds are reciprocated to receive the clay-press and discharge the bricks. A reciprocating press-plate receives the main pressure, and travels with the mold during such pressure, returning by means of a spring to its former place when the pressure is released. An endless belt carries off the bricks.

1. A bed-plate, *s*, having an intermittent back-and-forth movement, in combination with the pressing and molding devices of a brick-machine, for the purposes set forth.

2. A bed-plate, *s*, having an intermittent back-and-forth movement, in combination with a traveling mold provided with a plunger or piston, substantially as and for the purpose set forth.

3. The combination of a bed-plate, *s*, having an intermittent back-and-forth movement, in the manner substantially as described, with a traveling mold provided with a plunger, *w*, and an actuating cam, U, for the purpose set forth.

4. A bed-plate, *s*, provided with friction rolls *t*, and having a back-and-forth movement, in combination with the compressing devices of a brick-machine, substantially as and for the purpose set forth.

5. The combination of a bed-plate, *s*, having a back-and-forth movement, and a spring, R, with the compressing devices of a brick-machine, substantially as described.

6. The combination of a bed plate, *s*, provided with friction-rolls *t*, and having a back-and-forth movement, and a spring, R, with the compressing devices of a brick-machine, for the purposes set forth.

7. The combination of the cam-arm 2, constructed and arranged substantially as described, with a reciprocating or vibrating mold, Q, and its plunger *w*, for the purpose set forth.

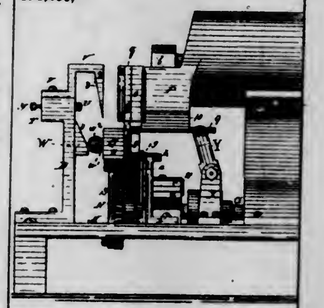
8. The combination of the cam W, as arranged, with a reciprocating or vibrating mold, Q, and its plunger *w*, substantially as and for the purpose set forth.

9. The combination of the cam-arm 2 and cam W, as arranged, with a moving mold and its plunger, substantially as and for the purposes set forth.

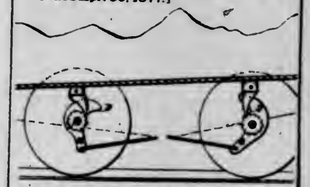
10. The combination of the scraper S, constructed, arranged, and operated substantially as described, with a traveling-mold provided with plungers, for the purposes set forth.

11. The combination of the elastic disk y^1, adjusting-screw *y*, disk y^1, and a movable cam-pin, U, with the compressing plunger or piston of a brick-mold, substantially as and for the purpose set forth.

191,800.



191,801. CAR-STARTERS. Lydia W. Hermance and Jas. D. Mott, of Moses Kill, administrators of Charles W. Hermance, deceased, assignors of one-half their right to Albt. S. Burdick, Saratoga Springs, N. Y. [Filed Apr. 30, 1877.]



1. The combination of the levers D D, secured to the axle of the car, and the friction-rollers on the bottom of the car, to operate substantially as and for the purposes described.

2. The combination of the pawl secured to the bottom of the car, and the ratchet-wheel on the axle, to operate as and for the purposes set forth.

3. The combination of the levers with the friction-rollers and pawl secured to the bottom of the car, and the ratchet-wheel attached to the axle, substantially as and for the purposes set forth.

191,802. SKYLIGHTS. Stanton M. Howard, Wheeling, W. Va., assignor of one-fourth of his right to Wm. G. Wilkinson, same place. [Filed Dec. 26, 1876.]

1. As an improvement in skylights the well or light-shaft B C, constructed with outer rim or ledge 1, upon which the glass dome or skylight rests, inner ledge or rim 2, the top

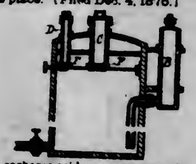
edge of which is made much higher than the outer ledge 1, intermediate gutter K, and downwardly-slanting outlets *s s*, all constructed and arranged as and for the purposes described.

2. In combination with the wall or light-shaft B C, constructed with outer lower ledge 1, and top or inner higher ledge 2, the circular elliptical glass dome A, constructed with flange *b* around its base, and fastening-lugs *z*, as and for the purposes described.

191,802.



191,803. CHEMICAL FIRE-EXTINGUISHERS. Alexander R. Hughes, Philadelphia, Pa., assignor, by mesne assignments, to North American Fire-Annihilator Company, same place. [Filed Dec. 4, 1876.]



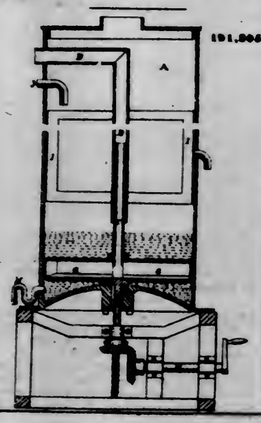
In a carbonic-acid-gas generator for fire-extinguishers, the combination of the acid-reservoir B, the soda-receptacle C, water-tube D with the rock-shaft and valves P P, for the practically continuous generation of carbonic-acid gas for filling the boilers M, substantially as and for the purposes set forth.

191,804. DRIVE-COCKS FOR WATER-MAINS. James D. Keegan and Adolph Luhrs, New York, N. Y. [Filed Apr. 16, 1877.]



A drive-cock, the end of which, projecting within the main, is provided with a cross-piece, *b*, arranged wholly within the cock, and with side openings arranged above the cross-piece, as set forth.

191,805.



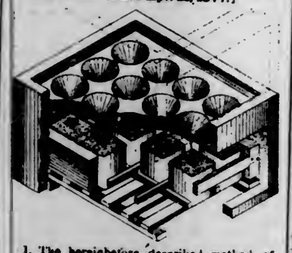
191,806. MERCURY-CONDENSERS. William H. Long and Alex. W. Castle, San Jose, Cal. [Filed Mar. 26, 1877.]

1. A fume or vapor condensing apparatus, consisting of the water-chamber A, with its conveying-pipe B, and the rotary pipe C, having the hollow arms G, substantially as and for the purpose described.

2. A fume or vapor condensing apparatus, consisting of a water vessel or chamber, A, with a conveying-pipe, B, in combination with the rotary pipe C, carrying hollow open-ended arms G, substantially as and for the purpose specified.

3. The rotary hollow shaft C, with its arms G constructed so their rapid rotation in water will form a vacuum and draw the fumes into the water, in combination with the wings I, to prevent an undue movement of the water, substantially as described.

191,806. RAISING AND TRANSPLANTING PLANTS. Conrad Loskamp, East Goldenham, N. Y. [Filed Apr. 21, 1877.]



1. The hereinbefore-described method of raising and transplanting plants, which consists in planting roots, seeds, &c., in earth contained in a series of paper bags, moistening the earth in the bags simultaneously by water supplied centrally thereto, hastening germination, forcing the growth of the plants, and preventing injury to the bags by the circulation of warm air about the outsides of the bags, and finally transplanting the plants with the bags and earth about the roots.

2. The combination, substantially as hereinbefore set forth, of a rack for holding and separating the bags, an open-bottomed frame, in which the rack is supported, and water holders or receptacles for supplying water centrally to the earth in the bags.

3. The frame, constructed as described, with an open end, an open bottom, and a closed top provided with the series of water-holders.

191,807. STOVES. Andrew Lynd, Albany, N. Y., assignor of one-half his right to J. B. Miller, same place. [Filed Mar. 7, 1877.]

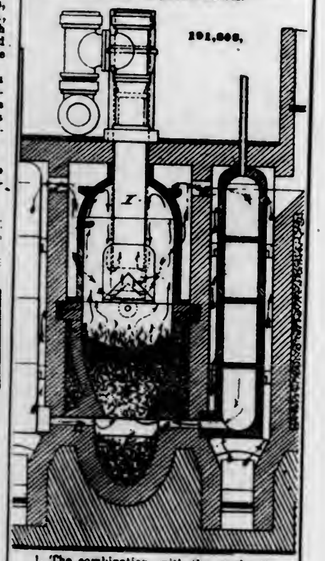


The combination, with the combustion-chamber B, in which the disengaged gases burn above the fuel, of the air-heating chamber E, situated above the plane of the top edge of the fire-pot and concentrically with the same, and composed of two or more compartments, each separated from the other by finely-perforated walls, and from the combustion-chamber by a finely-perforated wall, and the air ducts or ports *c c* leading to the first compartment of the series from without, substantially as and for the purposes set forth.

191,808. APPARATUS FOR THE MANUFACTURE OF ILLUMINATING-GAS. Philip W. Mackenzie, Blauvelt ville, N. Y. [Filed Aug. 16, 1876.]

Brief.—Steam is superheated and passed into the coal at the bottom of the combustion-chamber. The gas and vapors arising from the combustion of the coal with the superheated steam rise into the externally-heated dome of the combustion-chamber, where they are converted into a fixed gas, which passes out through the downwardly-extending eduction-pipe. Coal fed to the combustion-chamber is distributed by cones placed therein.

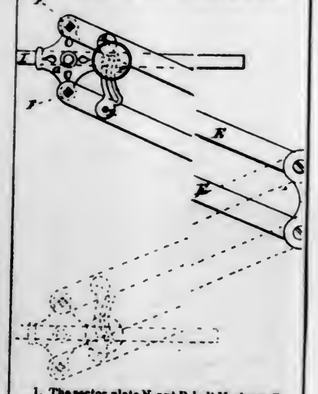
191,808.



1. The combination, with the combustion-chamber A and one or more inlets or tuyeres, *c*, for superheated steam below said chamber, of the externally-heated dome or chamber D, mounted on and in communication with the combustion-chamber, substantially as and for the purposes herein set forth.

2. The combination of the gas-escape dip-pipe I, and one or more distributing-cones, J, with the externally-heated dome or chamber D and the combustion-chamber A of the furnace, essentially as described.

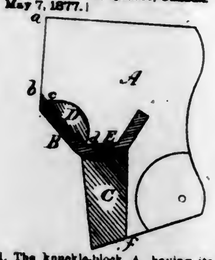
191,809. DENTAL BRACKETS. C. M. Mossley, Brooklyn, E. D., N. Y. [Filed Feb. 3, 1877.]



1. The sector-plate N, nut P, bolt M, clamp G, constructed with the bearings L S thereon, in combination with the outer ends of the parallel bars E, as and for the purposes set forth.

2. The clamping-plate G, when constructed with the three bearings F, F, and L, in combination with the articulable rod I, as and for the purposes set forth.

191,810. PIANO-FORTE ACTIONS. William Muth, Montreal, Quebec, Canada. [Filed May 7, 1877.]



1. The knuckle-block A, having its front face constructed in the form of the line *a b c d e A f*, substantially as and for the purpose set forth.

2. The cashions B and C and the backings D E, combined with and attached to the knuckle-block A, substantially as and for the purpose set forth.

191,811. FILE-HOLDERS. W. T. Nicholson, Providence, R. I., assignor to the Nicholson File Company, same place. [Filed Mar. 15, 1877.]

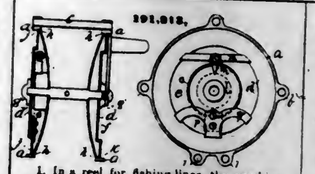
Brief.—The rear socket may be made like the tip socket, and the brace be omitted, so that the file can be carved upward.



1. A file-holder, embodying in combination a suitable handle and two sockets, which are adjustable with relation to each other, and have recesses therein, which retain the file by abutting contact therewith, substantially as described, whereby a file may be sprung longitudinally, to adapt the curvature of its face to various kinds of work to be dressed, as set forth.

2. The combination, with a suitable longitudinally-compressing file-holder, of a file which is sprung or bent therein, substantially as described.

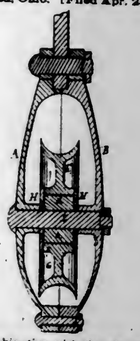
191,812.



1. In a reel for fishing-lines, the combination of the thin metal sides *d d'*, having recesses *e f* struck up therein, with a frame, *a a*, forming flanges or rims A A and *k* around said sides, as and for the purposes herein described.

2. In a fishing-reel having a recessed side to contain the click mechanism, the combination of the cross-pieces *n q*, in combination with the block *p*, spring *o*, and dog *m*, arranged substantially as and for the purposes set forth.

191,814. PULLEY-BLOCKS. John L. Pope, Cleveland, Ohio. [Filed Apr. 23, 1877.]

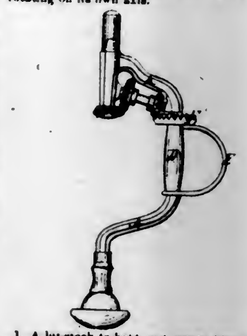


1. In combination with the sheave F, rollers *a*, and cheek-pieces A and B of the block, the washers H, bearing on the hub G of the sheave, substantially as described, and for the purpose specified.

2. In tackle-blocks having roller-bushed sheaves, the interposed washers H, in combination with a hub larger than the bosses, for receiving the lateral strain or pressure, substantially as herein set forth.

191,815. BIT-STOCKS. Daniel Powers, Shelburne Falls, Mass. [Filed May 26, 1876.]

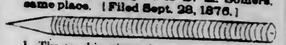
Brief.—The bit is rotated a greater number of times than the handle by forming a socket in the shaft, which has a bearing in the handle, and connected by gearing to a sleeve on said handle, which, while it is held from rotation on its own axis, rotates around the axis of motion of the shaft. A guard is attached to the sleeve to aid in holding the sleeve from rotating on its own axis.



1. A bit-stock to hold and rotate bits and drills, having the socket to hold said bits or drills in a shaft which has a bearing in the lower part of the brace, and is connected to a sleeve upon the handle, which sleeve is constructed to rotate around, but not upon, the axis of motion of said shaft, or a projection thereof, in common with said handle, while the handle rotates in said sleeve, all constructed and operating substantially in the manner and for the purposes herein shown and described.

2. The combination of the brace, the sleeve D provided with guard E, and the socket-shaft C with suitable operative connecting mechanism, substantially as and for the purposes specified.

191,816. PENCILS. Frederick Skoles, New York, N. Y., assignor to D. M. Somers, same place. [Filed Sept. 28, 1876.]

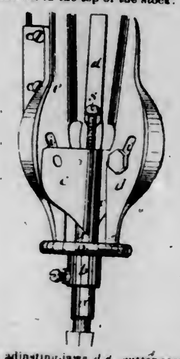


1. The combination of a series of layers or funnels of paper, felt, cloth, wood, or other material, pasted, glued, or pressed compactly together, with a stem or needle of lead, when each layer or funnel is provided with an open seam, substantially as described.

2. The combination of a layer or coating or surface of sand, with one side or surface of each layer or funnel of a lead-pencil case or covering, substantially as described.

191,817. HOLLOW AUGERS. G. N. Stearns, Syracuse, N. Y. [Filed Oct. 26, 1876.]

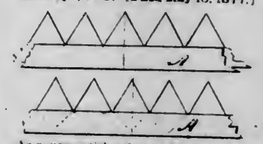
Brief.—Straight and tapering tenons of different lengths and diameters are cut by means of a jaw carrying a laterally-adjustable cutter and two slotted guide-jaws, all pivoted to a metal stock, and adjusted by a hand-wheel attached to a movable sleeve, and provided with cam slots, through which the lower ends of the jaws pass, and a longitudinally-adjustable screw inserted in the top of the stock.



1. The adjusting-jaws *d d*, cutter carrying jaw *e* provided with the slots *i i i*, in combination with each other, and the stock *a* provided with the wings *c c c* and the screw *s*, substantially as herein set forth and described.

2. The hand-wheel *p* with cam slots having sleeves *b*, held on a stock by screw *n*, in combination with the slotted adjusting-jaws herein described, substantially as and for the purpose specified.

191,818. BARBED FENCES. Cyrus L. Topliff, Brooklyn, N. Y. [Filed May 18, 1877.]

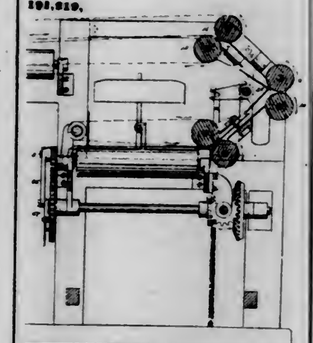


As a new article of manufacture, a fence cap, consisting of a wooden strip, A, with metallic strips projecting from its upper surface, substantially as described.

191,819. FOLDING-MACHINES. S. D. Tucker, New York, N. Y. [Filed Mar. 21, 1877.]

Brief.—From the rapidly-moving pair of delivery rollers the sheets, alternately directed by a vibrating switch into rigid diverging conductors, pass to two pairs of slow moving rollers and sets of tapes, carrying them over rollers, between which they are folded by blades oscillated by cranks. One part of each conductor is pivoted, so as to swing aside, and the switch is readily removable.

191,919.



1. The combination, with a pair of delivering-rollers, of diverging rigid conductors, for conveying the sheets in two distinct streams, substantially as described.

2. The combination of the delivering-rollers, receiving-rollers, and diverging rigid conductors, substantially as described.

3. The combination of a pair of delivering-rollers driven at high speed with a pair of receiving-rollers driven at low speed, for controlling the movements of the sheet, substantially as described.

4. A pair of delivering-rollers driven at high speed, and a pair of receiving-rollers driven at low speed, said pairs of rollers being separated such a distance that the sheet will enter the latter an instant before leaving the former, and thus be carried onward, substantially as described.

5. The combination, with rollers, as 9 10 and 11 12, of the stationary plate 8, removable plate 7, and switch 25, substantially as described.

6. The combination, with delivering-rollers 9 10 and diverging rigid conductors, of the removable switch, substantially as described.

7. The combination of the switch, fast-running delivering-rollers, and slow-running receiving-rollers, substantially as described.

8. The combination of the delivering-rollers, switch, and diverging rigid conductors, substantially as described.

9. In combination with the folding-blade shaft, the rock arm 66, short connecting rod 67, and wheel 28, whereby an alternately fast and slow movement is imparted to the folding blade, substantially as described.

10. The combination, with the folding-blade shaft 3, of the recessed hub 75, pin 1, and spring 65, substantially as described.

191,920. CAR-AXLE BOXES. W. H. Wilcox, Cleveland, Ohio. [Filed Apr. 6, 1877.]



1. The combination of the grooved and collared rollers herein described, grooved axle-journal H, and grooved journal-box, as and for the purpose set forth.

2. The combination of the grooved and collared rollers herein described, radially-slotted rings, grooved axle-journal H, and grooved journal-box, all constructed and arranged to operate substantially as herein set forth.

191,921. MACHINES FOR CUTTING MARBLE, GRANITE, &c. Robert R. Atchison, Boston, Mass. [Filed Apr. 9, 1877.]

Brief.—Tools are rapidly reciprocated within a rotating head by means of pins engaging in a cam-slot. The tools may be of semi-elliptical, wedge, or other form.

1. The combination, with the rotating head and cam-groove, of chisels or tools and slide-rods, provided with rigid arms, extended into the cam-groove, to operate substantially as described.

2. The rotating head and tools and mechanism to reciprocate the tools, in combination with a vertically-movable slide and mechanism to lower the head into working position, substantially as described.

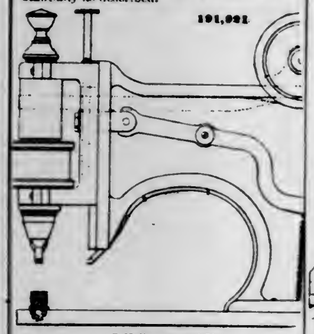
3. The head-carrying slide and the rotary head *s* and its tools *t t*, adapted to be reciprocated, as described, in combination with the lever to move the slide and an adjusting device, *u*, to change the position of the slide with reference to the end of the arm, to govern the descent of the tools and head, according to the thickness of the material and the depth of the cut required therein.

4. The rotating head and reciprocating tools carried thereon, in combination with a support for the material and mechanism to raise and lower the head, substantially as described.

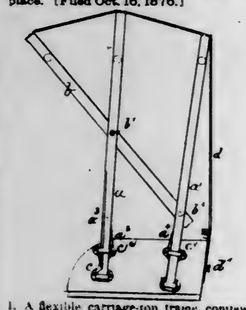
5. The rotating head and reciprocating tools, in combination with a pipe to conduct air to discharge the cuttings from the face of the material, substantially as described.

6. The rotating head and reciprocating tools, in combination with a supporting-surface and a guide and pattern-plate, to operate substantially as described.

191,921



191,922. REMOVABLE CARRIAGE-TOPS. J. B. Ashelman, Red Wing, Minn., assignor of one-half his right to Frank Ives, same place. [Filed Oct. 16, 1876.]



1. A flexible carriage-top frame, composed of two upright bows, and a bracing bow pivoted to both the upright bows, substantially as set forth.

2. The combination, with the socket-piece *c*, of bow *a* and spring latch a^2, substantially as and for the purpose set forth.

3. The combination, with socket-pieces *c* and c^1, of bow *a*, provided with spring-latch a^2 and shoulder a^3, bow a^2 provided with shoulder a^4, and bow *b*, substantially as and for the purpose set forth.

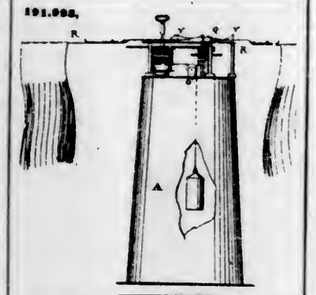
191,923. AUTOMATIC FLY-FANS. J. Baird, Lowisville, Ind. [Filed Apr. 9, 1877.]

1. In combination with the shaft I, the disk Q arranged to rotate loosely upon the same, and provided with the series of vertically-articulated and longitudinally-adjustable arms R, constructed and arranged to operate substantially as and for the purposes set forth.

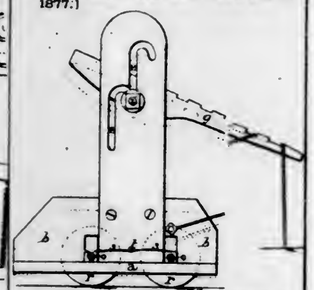
2. In combination with the disk Q, constructed and arranged to operate as described, the series of abruptly-terminating inclines V, substantially as and for the purposes set forth.

3. In combination with an automatic fly-brush, the detachable base, composed of the hollow conical frustum A, substantially as and for the purposes set forth.

191,923.



191,924. LIFTING-JACKS. W. J. M. Batchelder, Honey Creek, Ind. [Filed May 11, 1877.]

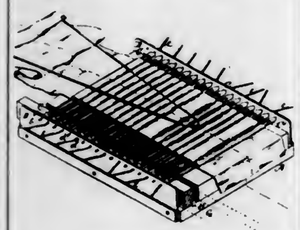


1. The lever *g*, provided with a support at its smaller end, for the purpose of keeping it raised above the ground, substantially as set forth.

2. The combination of the axles *a*, wheels *r*, board *b*, having slots therein, and springs *s*, substantially as specified.

3. A lifting jack having its frame provided with vertical slots, and which is depressed by the weight applied to the end of the lever, so that the jack will settle down and rest solidly upon the ground, and then rise upward, by means of springs, as soon as the weight is removed, so as to rest upon the wheels, substantially as set forth.

191,926. PLAITING-MACHINES. Leonard B. Berrien, Galesburg, Ill. [Filed Apr. 18, 1877.]



1. In a plaiting-machine, the plaiting-bars constructed with a longitudinal slot, *e*, in each bar, substantially as and for the purpose specified.

2. Longitudinally-slotted plaiting-bars C, having a crank, *c*, on their ends, substantially as described, and for the purpose specified.

3. Longitudinally-slotted plaiting-bars C, having a journal, *d*, on each end, combined to operate with frame-bars H B and a base, A, substantially as and for the purpose specified.

4. The locking-bar G, arranged to operate with the slotted plaiting-bars C, base A, and bars B, in which the bars C are journaled, substantially as described, and for the purpose specified.

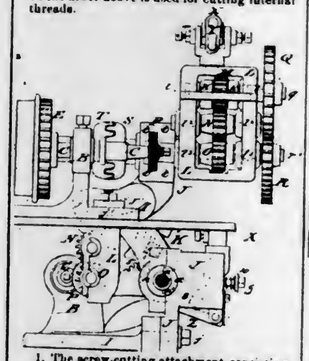
5. In combination with slotted plaiting-bars C and the frame in which they are mounted,

an actuating-bar, G, for rotating them successively, substantially as and for the purpose specified.

6. The actuating-bar G, having fingers *g' g''* and recess *g* at one end, arranged for operation with the pivoted slotted bars C, substantially as described, and for the purpose specified.

191,926. MACHINES FOR CUTTING SCREW-THREADS. Louis Bollmann, Vienna, Austria. [Filed Jan. 3, 1877.]

Brief.—A machine to be attached to the shear of a lathe, and deriving its power from the lathe-pulley through the medium of a universal clutch-joint. The attachment consists of a frame, to which is hinged a lateral arm, that carries hinged to its outer end a pendent frame, in which are journaled two cutter-arbors. This frame is adjustable to different inclinations in relation to the lateral arm by a rack and worm-screw, and the outer end of the arm and with it the arbor-frame are adjustable to different degrees of elevation by a long screw working in swiveled nuts. A spirally-toothed revolving cutter attached to the lowermost arbor cuts threads upon the external surface of a tube or rod attached to the lathe, or a similar, but smaller, cutter placed on the arbor above is used for cutting internal threads.



1. The screw-cutting attachment, consisting of the bed-plate I, main support J, adjustable arm K, movable cutter-carrying frame L, the arm K and frame L being adjusted to the work by a toothed segment, 5, and screw-spindle W, and by universally-jointed crank screw-spindle X, substantially as specified.

2. The combination of supplementary revolving shaft G of lathe, connected by a universally-jointed clutch-wheel mechanism ST, with shaft *r'* and the cutter-shaft-revolving gear-wheels, substantially as and for the purpose described.

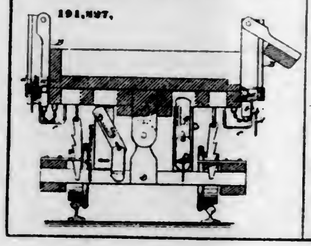
3. The combination of toothed and slotted segment *5* of frame L with screw-spindle W and clamp-screw V, to adjust and lock cutter-carrying frame L, substantially as set forth.

4. The combination of pendent frame L, pivoted arm K, and fixed support J with universally-jointed screw-spindle X, turning in supports of frame L, and support J, to raise or lower arm K and frame L, to work as described.

5. The combination of arm K, having recess *8* at rear part, with locking-key *g* and fastening-screws 10 of support J, to support movable frame for internal work, as described.

6. The combination of arm K with spring-catch Z of support J, to hold arm K and frame L in position against lateral displacement, substantially as set forth.

191,927.



191,927. DUMPING-CARS. H. S. Bower, Mulberry Grove, Kans. [Filed Mar. 24, 1877.]

1. The combination, with side board B, of the latch *a*, pivoted rest *b*, and cross-pin *d*, as and for the purpose described.

2. The combination, with a dumping car-body supported on central and side posts, of the tilting-bars F, hung to staples *e*, and detachably locked by cross-pins *e'*, as and for the purpose specified.

3. The combination of the car-body, having pendent rack-bars, with the slotted guide-plates of the truck-frame, to lock the car in a tilting position for dumping the load, substantially as and for the purpose described.

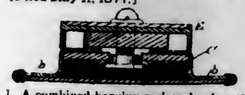
191,928. APPARATUS FOR FRAMING BILLS, SHOW-CARDS, &c. O. C. Brown, Cardington, Ohio. [Filed June 6, 1877.]



1. The method of framing, temporarily for exhibition, bills, show-cards, or pictures, by means of the frame A and spring-fasteners C, constructed and arranged for operation substantially as described.

2. The combination of the frame A with a bill, card, or picture, B, and the flexible or spring-fasteners C, substantially as and for the purpose hereinbefore set forth.

191,929. HARNESS-SADDLES. Edwin R. Cahoone and Noble Teas, Newark, N. J. [Filed May 11, 1877.]



1. A combined housing and pad, when the same is constructed with the housing under the pad, as shown and described.

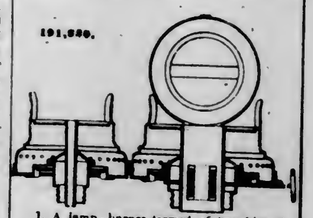
2. In combination with a combined pad and housing, with the housing under the pad, an under plate adapted to permit the turret and screw-nuts to be removed or replaced, all substantially as shown and described.

3. In combination with a pad and housing, in which the housing is below the pad, a tree-frame inside said pad, all substantially as shown and described.

4. The tree E, constructed with edges turned upward, as shown in Figs. 8 and 9, combined with the pad-leather *b* and plate C, as set forth.

191,930. LAMP-BURNERS. Jas. Cain, Pittsburg, Pa. [Filed May 21, 1877.]

191,930.

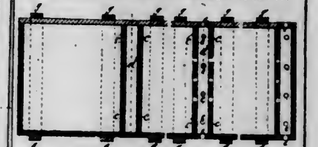


1. A lamp-burner formed of two hinged sections, which are split diametrically and longitudinally through the wick-tube, substantially in the manner described, and for the purpose specified.

2. A lamp-burner made of two hinged sections of equal size, each having a section of the wick-tube which is split through its entire length, as described.

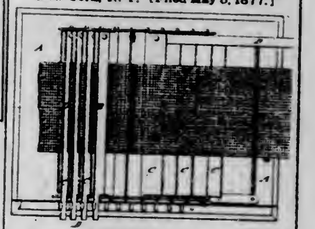
3. A lamp-burner made of two sections, being split diametrically and lengthwise through the wick-tube, and with fixed or removable ratchets, and hinged at one side and locked at the opposite side, substantially in the manner described, and for the purpose specified.

191,931. PACKING-CASES. William Carter, Masham, England. [Filed Apr. 7, 1877.]



The packing-case divided up into sections by partitions *c*, and intermediate spaces *d*, and provided with the battens *g*, substantially as set forth.

191,932. PLAITING-MACHINES. J. E. Chapin, New York, N. Y. [Filed May 5, 1877.]

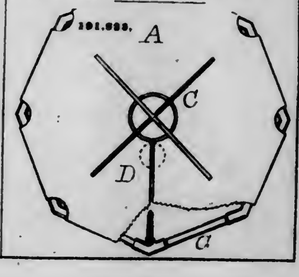


1. The combination of a main board, having hinged folding-plates and needles pivoted to the latter, with a detachable side strip, having needle-locking catches or hooks, substantially as and for the purpose set forth.

2. The combination of the main board A, having a wedge-shaped strip, with the hinged folding-plates C and needles D pivoted to one end of the plates, substantially as specified.

3. The combination of the main board A, having hinged folding plates C and needles D pivoted thereto, with a spring-actuated tension-rod, E, substantially as and for the purpose specified.

191,933.

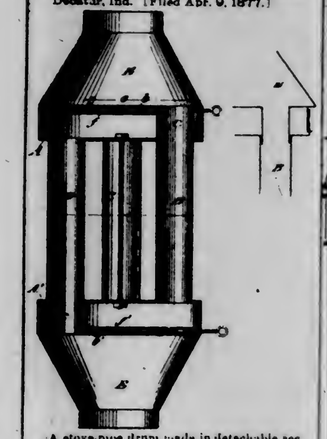


191,823. FRUIT-GATHERERS. I. Clark, Tippecanoe City, Ohio. [Filed June 4, 1877.]

Brief.—The frame is pivoted, and supported by legs of any desired length. The tube in the center, through which the fruit is emptied, is crossed by two divisions of the canvas at right angles, to prevent the fruit approaching from the sides from coming in contact.

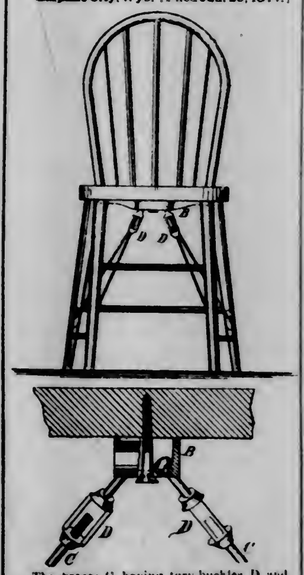
The canvas A, having divisions C, dividing the central tube, in combination with the frame composed of the rods G and cosslings H, provided with legs F, substantially as set forth.

191,824. STOVE-PIPE DRUMS. Jacob Cloes, Decatur, Ind. [Filed Apr. 9, 1877.]



A stove-pipe drum made in detachable sections, consisting of the heads A A', the pipes B C D, and the conical end-pieces E E, the latter having apertured heads *b b'*, and dampers *f f'*, as shown and described.

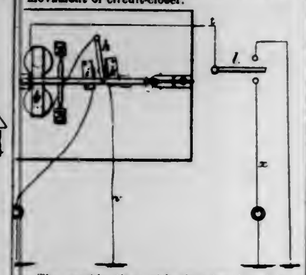
191,825. CHAIR-BRACES. Jas. W. Collins, Laramie City, Wyo. [Filed Jan. 29, 1877.]



The braces C, having turn-buckles D and plates *c*, in combination with the cross-piece B having a central socket for receiving the heads of the said braces, substantially as herein shown and described.

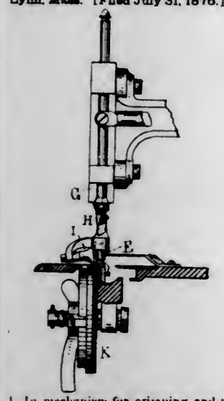
191,826. ELECTRICAL RAILWAY-SIGNALS. Jos. I. Conklin, Jr., New York, assignor to himself and Chas. A. Dresser, Brooklyn, N. Y. [Filed Nov. 14, 1876.]

Brief.—Movement of circuit-closer in one direction closes circuit of opposing battery *m*, thus operating signal, which closes circuit of the other opposing battery *p*. Movement of circuit-closer in other direction breaks circuit of battery *m*, leaving battery *p* free to act, which, in operating signal, breaks its own circuit and closes ground-connection, thus providing path for current from battery *m* on next movement of circuit-closer.



The combination, with the signal and its circuit-changer A, of the battery-connections *z* and *x*, ground-connections *r w*, single main line *t*, and circuit-changer *l*, substantially as and for the purposes set forth.

191,827. MACHINERY FOR FOLDING AND CRIMPING LEATHER. Edward Corbett and F. W. Coy, Boston, and John E. Wheeler, Lynn, Mass. [Filed July 31, 1876.]



1. In mechanism for crimping and folding leather and other materials, the work-support A, raised above the the table, curved substantially as shown, and adapted to serve as an anvil for the reciprocating cutter B, in combination with the feeding-rolls I K, whereby the edge of the material to be crimped is turned upward from the table as it feeds and is cut, substantially as described and shown.

2. In a machine for cutting and crimping the edge of leather and other materials, and in combination with the curved cutting block or anvil A, the cutting-tool B, having its cutting-edge formed oblique to its vertical edge-lines, to coincide with the curve of the cutting-block at the point of contact therewith, substantially as described and shown.

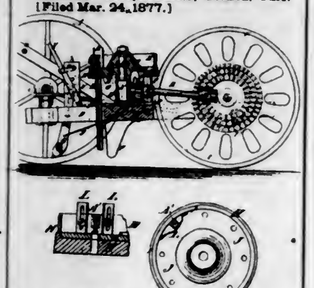
3. In a machine for crimping and folding the edge of leather or other material, the combination of the jaw C, spring D, friction head E, and hammer H with the table or bed-plate, substantially as shown and described.

4. In a machine for crimping and folding the edge of leather and other material, the combination of the grooved feed-roll K, presser I, constructed and arranged to act in conjunction with said roll K, and vertically-reciprocating slitting-tool B with the folding-jaw C and work-support A, all arranged to feed, crease, slit, and fold the edge of the work, substantially as described and shown.

5. In a machine for crimping and folding the edge of leather and other materials, the combination of work-support A, reciprocating cutter B, folding-jaw C, friction-hammer E, and contact-hammer H, all combined and arranged to operate substantially in manner as described and shown.

6. In mechanism for crimping and folding the edge of leather and other material, the combination of the folding-jaw C, hammer E, head H, and the reciprocating bar or carrier, all constructed and arranged to operate substantially in manner as described and shown.

191,828. COMBINED POTATO AND CORN PLANTER. Joseph Custer, Goshen, Ohio. [Filed Mar. 24, 1877.]

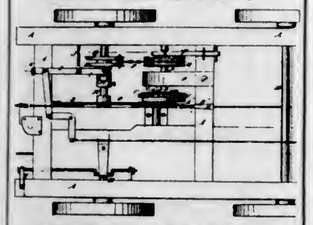


1. The axle B, long-armed clips C, and pivoted braces *b'*, in combination with planter-frame D, pilot-wheel U, and hopper H, substantially as described.

2. The combination, with frame D and sliding hopper H, of the dropping-plate J having bevel-wheel O, the shaft K having gear-wheels Q S, and the concentric wheels T T on the side of ground-wheel U, as and for the purpose set forth.

3. The combination, with hopper H, of the dropping-wheel J, guard I, and knife M, as and for the purpose specified.

191,829. CAR-STARTERS. Andw. J. Curtis, Monroe, Mo. [Filed Apr. 9, 1877.]

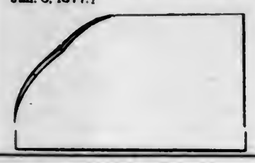


1. The combination of the clutch H, the chain-wheels G Q, the chain P, the coiled spring D, the pawl and ratchet-wheel V, and the gear-wheels U B, with each other, and with the axle E and the frame A of a car, substantially as herein shown and described.

2. The combination of the clutch H, the chain-wheels G Q, the chain P, the coiled spring D, the pawl and ratchet-wheel A, the gear wheels U B, and the double gear-wheel O O', with each other, and with the axle E and the frame A of a car, substantially as herein shown and described.

3. The combination of the lever-pawl E', the spring F', and the push-pin G', with the gear-wheel B of the axle E, substantially as herein shown and described.

191,830. FELTED FABRICS. A. M. Daniels and S. L. Tuttle, Hartford, Conn. [Filed Jan. 6, 1877.]



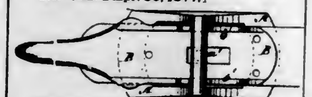
A felted fabric composed of two faces of raw silk with the natural gum remaining in it, and an interior filling of cotton or its equivalent, substantially as herein described.

191,841. MARKING PLUG-TOBACCO. David W. De Forest, Brooklyn, assignor to Buchanan & Lyall, New York, N. Y. [Filed Apr. 26, 1877.]



The herein-described improvement in permanently printing or embossing plug-tobacco in the process of its manufacture, consisting in compressing the plugs upon interlaid embossing-plates, that remain between the plugs, after pressure, until the tobacco sets and hardens, so as to produce a permanent and legible mark in the surface of the tobacco, substantially as set forth.

191,842. COMBINED SNAP-HOOK AND BUCKLE. Francis J. Deiss, Pierce City, Mo. [Filed Apr. 30, 1877.]



The combination of the frame A, made with arched side bars and having a rigid tongue, *a'*, attached to its central cross-bar, the plate B, slotted to receive the tongue *a'*, and having inclined flanges formed upon its side edges, and the snap-hook *c' c'* formed upon the forward end of the said plate B, substantially as herein shown and described.

191,843. PYROTECHNIC SIGNAL-CARTRIDGES. Jacob John Detwiller, Jersey City, N. J. [Filed Feb. 26, 1877.]



1. The pyrotechnic signal herein described, consisting of a combustible material formed into a single mass or star capable of emitting one colored stream of light when propelled by an explosive charge of gunpowder, in connection with a primed and charged cartridge-shell adapted for use in an ordinary fire-arm, as and for the purpose set forth.

2. The herein-described endless fuse for pyrotechnic stars or signal-balls, consisting of a thin cotton wick saturated with a combustible fluid or varnish and wound continuously around the signal-ball, as and for the purpose set forth.

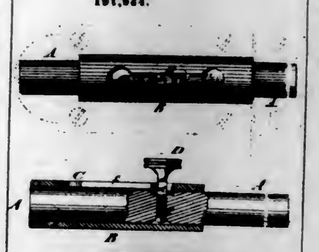
3. The cartridge-shell having projections formed on the end to indicate the color of the signal at night, as herein set forth.

191,844. DOOR-BOLTS. A. A. Dennett, New Britain, Conn. [Filed May 5, 1877.]

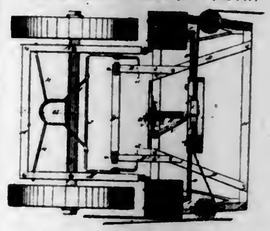
Brief.—The thumb-piece of a sliding bolt is provided with a cross-bar, which, by a half-turn, engages in enlarged openings of the bolt-cases, and serves to lock the bolt either retracted or projected.

The combination of the thumb-piece D, having cross-bar *d* and shank or spindle *c*, with the sliding bolt A and tube B, having openings O O and slot *e*, said thumb-piece being capable of receiving a half-turn in opposite directions, to lock or unlock the bolt, as and for the purpose set forth.

191,844.



191,845. SEED-PLANTERS. M. N. De Vears, Springfield, Ill. [Filed Apr. 19, 1877.]



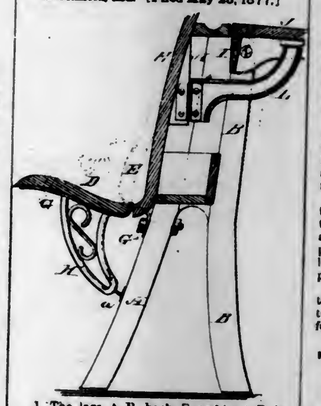
1. In a two-frame seed-planter, the combination of the lever-rod J with the pivoted or flexibly-supported seat G, having its front support on the lever-rod for raising or lowering the front frame, substantially as herein set forth.

2. In a seed-planter, the combination of the rear frame A, the front carriage D, flexibly connected thereto, and having hounds D', with foot-rests *a*, the seat G, with flexible supports H and rigid supports I, and the bent pivoted cross-bars J, having its ends forming the arms *d d*, substantially as and for the purposes herein set forth.

3. The oscillating cogged segmental dropping-slides L L, connected or geared together by the centrally pivoted pinion *h*, as and for the purposes set forth.

4. The combination of the geared oscillating slides L L, arms *f f*, connecting-bar O, levers V, S, and N, and the cam-wheel P, all constructed and arranged to operate substantially as and for the purposes herein set forth.

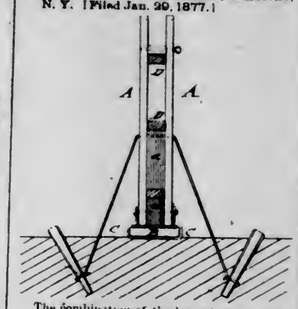
191,846. SCHOOL-DESKS. Henry H. Hibreg, Greenfield, Ind. [Filed May 23, 1877.]



1. The legs A B, back E, and seat D, in combination with the strap-hinges G G' and the brackets H, the brackets being secured to the bottom of the seat, and provided with tenons *b*, and the legs A provided with cushions *a*, substantially as and for the purpose set forth.

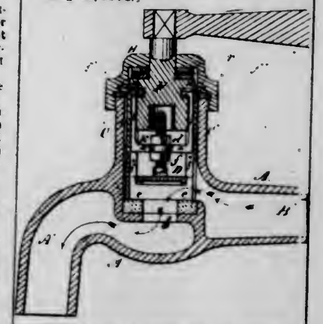
2. The combination, with the back and end pieces of a school-desk, of the desk-top J, with cleat I, and the hinged supporting-arms L L, arranged to swing inward laterally out of the way, allowing the top J to swing downward, constructed and arranged substantially as and for the purpose set forth.

191,847. FENCES. Jas. Garrett, Pembroke, N. Y. [Filed Jan. 29, 1877.]



The combination of the braced uprights A A, intermediate blocks *a*, shoe B, wire link C, and panels D, as shown and described, for the purpose specified.

191,848. FAUCETS. George Gorman, New York, N. Y., assignor of one-half his right to William G. Bent, same place. [Filed Aug. 16, 1876.]



1. The barrel A, comprising the combination of the bib A', tee tail B', and the body C', and constructed water-way *b*, and packed or valve seat *c*, with the internal elastic sleeve G, serving as a guide for the valve D, the hanger E, carrying the said valve, and the actuating-block F, constructed with the cam-groove *g*, the said parts being constructed and arranged, in relation with each other, substantially as and for the purpose herein set forth.

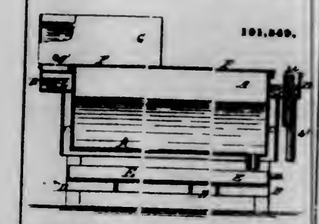
2. The combination of the hanger E, arranged within the body or vertical part C' of the barrel A, and for operation by the actuating-block F, with the nut *d* and screw *f*, substantially as and for the purpose herein set forth.

3. The combination, with the barrel A and the actuating-block F, arranged to actuate the valve D by means of the cam-groove *g*, as set forth, the screw-cap H, the duplicate packing-rings *n*, and the intermediate metallic washer *i*, all substantially as and for the purpose herein set forth.

4. The combination, in a faucet substantially as herein set forth, of the sleeve G and the packed valve-seat *c*, substantially as and for the purpose herein set forth.

191,849. MILK-COOLERS. Rollin C. Greene, Potsdam, N. Y., assignor to himself and N. P. Chaney, same place. [Filed Dec. 18, 1876.]

Brief.—A reservoir surrounded by an air chamber, which also extends beneath it. Beneath this is an independent tank or basin. Near and in line with the top of the reservoir, on all sides, is a continuous tank or trough, projecting horizontally beyond the rest of the apparatus.

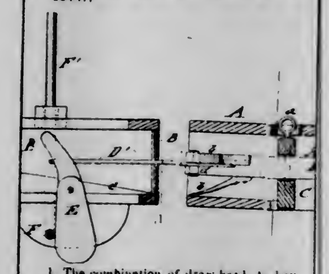


191,849.

1. The combination, with the milk-pan A, of the top water-tank B, and the surrounding air-chamber C, below said tank, substantially as and for the purpose set forth.

2. The milk-pan herein described, consisting of the pan A, top water-tank B, surrounding air-space C, bottom tank E, feed-tank G, and supporting-frame D, as and for the purpose set forth.

191,850. CAR-COUPLINGS. David R. Halter, Lee's Cross Roads, Pa. [Filed May 28, 1877.]



1. The combination of draw-head A, having swinging and spring acted coupling-link, with the draw-head B, having pivoted and weighted draw lever E and laterally-sliding coupling and uncoupling pin F, substantially in the manner and for the purposes set forth.

2. The combination of draw-head A, having pivoted guide-frame C, with the adjustable link-stock, having cushioned side and bottom springs, and with the locking-pin a, passing through guide frame and stock, substantially as specified.

3. The combination of link-stock D, having side grooves, with the forward-extending coupling-link D' and fastening-band d, substantially as described.

191,851. STIRRUPS. Sumner J. Harkness, Thorndike, Mass. [Filed May 15, 1877.]

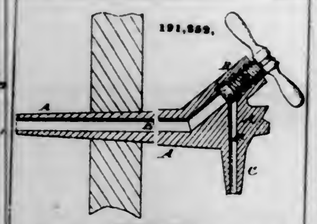


1. The stirrup a, made from a continuous sheet of steel, its upper portion being adapted to spring open and become released from the stirrup-strap, substantially as shown and described.

2. The stirrup a, made from a continuous sheet of steel, and adapted to open outward at its upper portion, in combination with the attachment b, having the studs or projections e for catching in the openings in the ends of the stirrup, substantially as described.

191,852. FAUCETS. Ralph Hathaway, Memphis, Tenn. [Filed Apr. 2, 1877.]

A faucet for barrels and vessels, containing liquids, consisting of the tube A B, having obtuse-angled channel E, the perpendicular channel F, and the rubber valve on end of screw, all as shown and described.

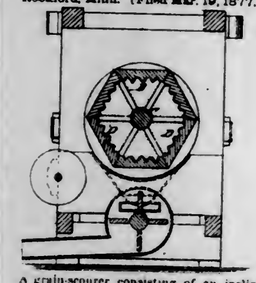


191,852.

191,853. PROCESSES FOR TREATING SEWAGE. F. Hills, Chiswick, England. [Filed Nov. 9, 1876.]

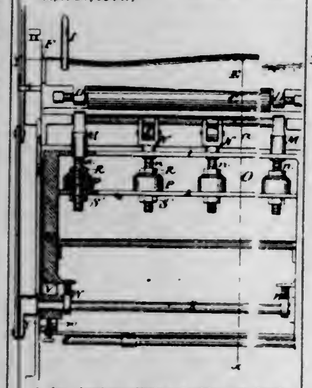
The hereinbefore-described process of clarifying, deodorizing, and purifying sewage, which consists in treating the sewage with a disinfecting compound composed of a mixture of sea-water, or its specified equivalent, lime, and tar, substantially as set forth.

191,854. GRAIN-SCOURERS. Jas. S. Hillyer, Rockford, Minn. [Filed Mar. 19, 1877.]



A grain-scourer consisting of an inclined revolving cylinder, the inner face of which is longitudinally corrugated and covered with a coating of emery, as shown and described.

191,855. MACHINES FOR SPLITTING LEATHER. J. Hodskinson, Salem, Mass. [Filed Apr. 27, 1877.]



1. In a leather-splitting machine, an elastic metal roll, L, supported by end bearings M, and intermediate supports N, which bearings and supports are adapted to yield independently, as set forth.

2. A pressure roll, L, having an elastic metal body, combined with independently-yielding or elastic bearings and supports, and a rigid bar, adapted to support said yielding bearings and supports, as set forth.

3. An elastic metal roll, L, having independently-yielding bearings and supports, combined with a splitting-knife, B, and an upper roll, C, as set forth.

4. The combination of the rigid bar or frame O, the roll L, the posts s, nuts R S', and springs P, as set forth.

5. The yielding supports N, having friction rollers S, in combination with the roll L, as set forth.

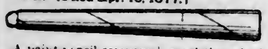
6. The rigid horizontal bar O, supporting the roll L, in combination with means, substantially as described, whereby said bar is adjusted, as set forth.

7. In a leather-splitting machine, a winding-drum, *a*, connected to the driving-shaft through an idle-wheel, *e*, located on a pivoted lever, *f*, which lever is connected to a weighted piece, *m*, in such manner as to be turned on its pivot by the downward movement of the piece *m*, and thus disconnect the wheel *e* from the drum *a*, as and for the purpose set forth.

8. The idle wheel *e*, combined with the wheels *b c*, lever *f*, weighted piece *m*, and intermediate connections, as set forth.

9. The guard or flange *o*, combined with the connecting-rod *b* and piece *m*, as set forth.

191,856. PAINT-PENCILS OR CRAYONS. W. J. Holton and James E. Field, Milwaukee, Wis. [Filed Apr. 16, 1877.]



A paint-pencil compound, consisting of coloring matter, tallow, and resin, in the proportions specified.

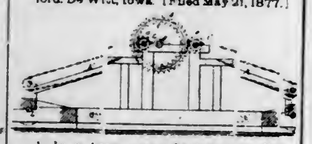
191,857. COMBINED SNAP-HOOK AND BUCKLE. J. R. Hopper, Rochester, N. Y. [Filed Mar. 27, 1877.]



1. A harness-hook having the latch or tongue *y*, and the tongue or lever *t* pivoted on separate axes, as described, and adapted to be operated by the strap without the intervention of a spring, substantially as set forth.

2. In combination with a tongue or latch, *y*, the tongue or lever *t*, having the counter-arm *n*, said latch and tongue being pivoted on separate axes, substantially as and for the purposes set forth.

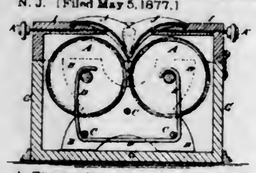
191,858. HORSE-POWERS. D. K. Hungerford, De Witt, Iowa. [Filed May 21, 1877.]



1. In a horse-power, having its endless treadles inclined as described, the shafts C C', geared to the driving-shaft B by means of pinions *e e'*, and large wheels *b c*, substantially as specified.

2. Inclined treadle-carrying frames K K, adjustable by means of eccentrics *i* on shafts L, substantially as specified.

191,859. ROLLER RAZOR-SHARPENERS. W. T. Jahns and Chas. H. White, Jersey City, N. J. [Filed May 5, 1877.]



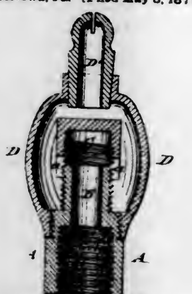
1. The combination of the rollers A, covered with leather and coated with emery flour, the plates B, the rods C, the springs D, the gear-wheels E, and the crank F, with each other, substantially as herein shown and described.

2. The combination, with box G, of the socket L and U-spring M, substantially as and for the purpose specified.

3. The combination of the pivoted, curved, and leather-faced plates J with the slotted cover I and the rollers A, substantially as herein shown and described.

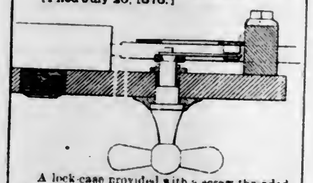
4. The combination of the set-screws K with the slotted cover I and the curved plates J, substantially as herein shown and described.

191,860. GAS-REGULATORS. S. S. Jones, Norristown, Pa. [Filed May 5, 1877.]



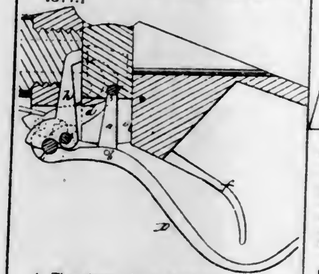
A gas-regulator consisting of socket-tube A, having threaded extension-tube B, side-slotted cap-valve C *a*, adjustable on said extension, and the inclosing-bulb D, the latter connecting with the burner D', as shown and described.

191,861. DOOR-LOCKS. Thos. F. Keenan, and Warren H. Taylor, Stamford, Conn. [Filed July 20, 1876.]



A lock-case provided with a screw-threaded escutcheon integral therewith, to pass into and through an aperture in a door for direct attachment of a lock to a door, substantially as described.

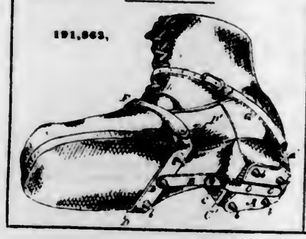
191,862. BREECH-LOADING FIRE-ARMS. D. Kirkwood, Boston, Mass. [Filed Mar. 12, 1877.]



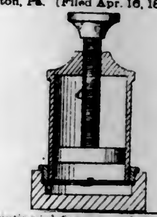
1. The ejector A, so constructed and arranged as to be successively acted upon at points on different sides of the center on which it works, and with varying leverage, substantially as and for the purpose set forth.

2. The guard-lever D and breech-block C, connected by a link, *a*, pivoted at one end to the guard-lever, and provided at its opposite end with a stud, *c*, entering a hole in the block, substantially as and for the purpose described.

191,863.

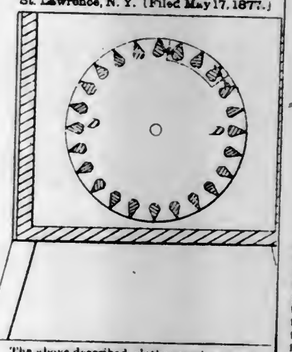


191,864. INKING APPARATUS. J. G. Kurtz, Milton, Pa. [Filed Apr. 16, 1877.]



A printing-ink fountain or feeder, composed of a fountain with movable interior piston or pressure plate, bottom feeding cloth or screen, and hermetically-sealing base plate, substantially in the manner and for the purpose set forth.

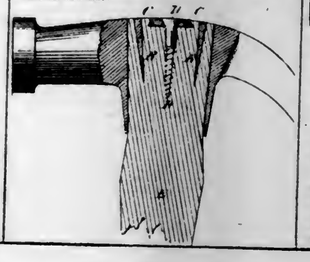
191,865. WASHING-MACHINES. A. P. Ladd, St. Lawrence, N. Y. [Filed May 17, 1877.]



The above-described clothes carrier or hollow cylinder, provided with ribs or beaters D, rounded or blunt on their inner surfaces, for rubbing the clothes, and having sharp edges set radially outward, so as to direct the currents of water inward upon and through the clothes, and acting equally well when the stroke or motion of the machine is reversed, substantially as set forth.

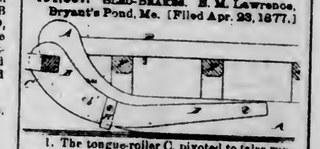
191,866. TOOL-HANDLES. Lazare Landeker, San Luis Obispo, Cal. [Filed Feb. 26, 1877.]

Brief.—Hammers, axes, and similar tools provided with eyes, can be secured to their handles by means of a perforated bar having beveled edges, and fitting in a dovetail groove in the tool, and fastened in position by a screw passing through the bar into the handle. The handle can be tightened by wedges upon either side of the bar.



The combination, with socket and handle, of the cross-bar C and screw D flush with the end of handle, as shown and described.

191,867. SLED-BRAKES. H. M. Lawrence, Bryant's Pond, Me. [Filed Apr. 23, 1877.]



1. The tongue-roller C, pivoted to false runners B, the latter being rear-pivoted to runners A, as shown and described.

2. The combination of false runners B, pivoted at the rear to runners A, the said runners A B having, respectively, the holes *a' b'* to receive pins, as and for the purposes specified.

191,868. FEED-WATER HEATERS. William Lowe, Bridgeport, Conn. [Filed May 28, 1877.]

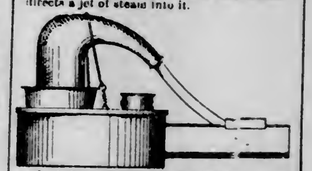


1. In a feed-water or other water heater, the combination of the shell A with heads B and C, the straight tubes D fastened permanently in one head, and passing through the other head loosely, and also through a follower, with packings G surrounding the tubes, substantially as shown and described, whereby the tubes are allowed to expand and contract through said packings, head, and follower, as herein set forth.

2. The combined steam-nozzle and follower F, in combination with the head C, countersinks *a*, tubes D, and packings G, substantially as and for the purposes herein set forth.

191,869. DEVICES FOR CLEANING SMOKING-PIPES. Shubael K. Luce, Attleborough, Mass. [Filed Apr. 26, 1877.]

Brief.—The pipe is placed over a device that directs a jet of steam into it.



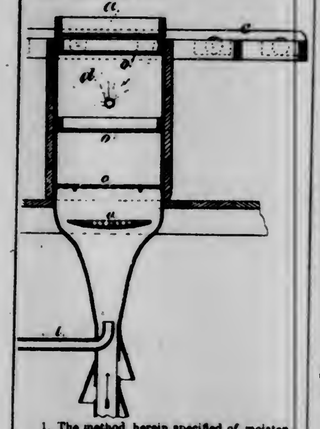
1. A device for cleaning tobacco-pipes, consisting of a water-receptacle in which steam is generated, and an outlet for the steam, and a guide for the same, to direct it to the bowl of the pipe or pipe-stem, substantially as and for the purpose set forth.

2. A device for cleaning tobacco-pipes, consisting of a water-reservoir, a trough for receiving the drippings from the pipe, and a packing around the outlet for the steam, substantially as and for the purpose set forth.

3. A device for cleaning tobacco-pipes, consisting of a water-reservoir, a trough for receiving the drippings, a packing around the steam-outlet, and a yielding bed for holding the bowl in position over the steam-outlet, substantially as and for the purpose specified.

191,870. MANUFACTURE OF TOBACCO. H. C. Lyall, Brooklyn, N. Y. [Filed Mar. 24, 1877.]

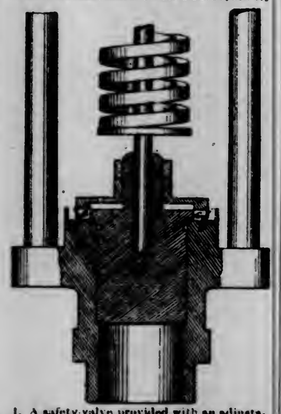
Brief.—The leaf-tobacco in the tray is taken from the drying-house to the steaming apparatus without handling.



1. The method herein specified of moistening tobacco after it has been dried by exposing the same to the direct action of moist steam previous to its removal from the drying-trays, substantially as set forth.

2. The steam-box *d*, provided with air-inlets and equalising-septums *e*, in combination with the slideways *c* and trays *a*, containing the tobacco to be moistened, substantially as set forth.

191,871. STEAM SAFETY-VALVES. Wm. B. Mack, Boston, Mass. [Filed Feb. 17, 1877.]



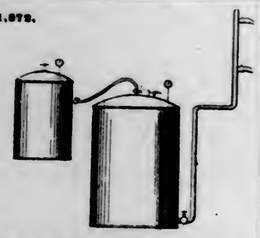
1. A safety-valve provided with an adjustable lip, the diameter of which is greater than the diameter of a projecting lip on the valve-seat, which forms a wall to the plane adjacent to the valve, in combination with said plane and lip, substantially as and for the purpose described.

2. A valve-seat having a plane extending from the point of escape of steam, and provided with a projecting lip to direct the steam upward, and an intermediate lip, as and for the purpose set forth.

191,872. METHOD OF EXTINGUISHING FIRES. Chas. M. Martin, New York, N. Y. [Filed Mar. 7, 1877.]

Brief.—The smaller vessel may be an ordinary gas-generator. The larger contains a liquid extinguishing solution. If the propulsive power of the former become exhausted, the latter may still be available to a certain extent.

191,872.



The method of extinguishing fires herein described, consisting in projecting upon the fire an extinguishing compound having a low propulsive power, by means of a fire-extinguishing gas having a high propulsive power, substantially as and for the purpose set forth.

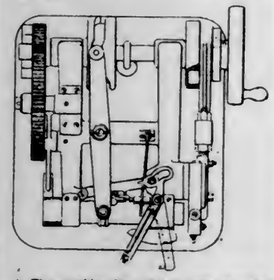
191,873. SAD-IRONS. Thos. H. McCaffrey, Providence, R. I., assignor to himself, H. J. Gorman, and William J. Armstrong, same place. [Filed Apr. 23, 1877.]



1. A reversible sad-iron having one of the cross-bolts *d'* extended to the outside, and provided with a handle, as and for the purpose described.

2. The combination of the sad-irons A B, having connecting end posts, with lateral fastening-bolts and perforated sides, substantially as described.

191,874. MACHINES FOR UNITING THE SOLES TO UPPERS OF BOOTS AND SHOES. Gordon McKay, Cambridge, Mass. [Filed Nov. 11, 1876.]



1. The combination, with a semi-rotating carrier, of a shifting strip-box, substantially as described.

2. A semi-rotating and reciprocating carriar and a locking device, in combination with a shifting strip-carrier adapted to contain nail-strips of different widths, substantially as described.

3. A semi-rotating carrier and shifting strip-box, provided with two passages to contain nail-strips of different widths, and mechanism for shifting it, in combination with nail-cutting mechanism and a nail-driver, adapted to cut a nail at will from either strip and drive it before another nail is cut from the strip.

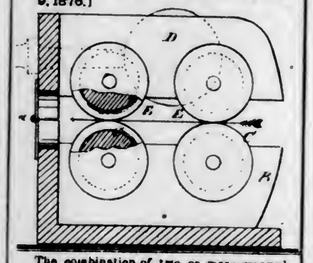
4. A strip-box and friction devices to engage the strip, in combination with a gage to determine the forward position of the strip and the width of the nail to be cut, and with cutters adapted to hold the strip as the strip-box moves from the cutters, substantially as described.

5. A rotating carrier and a shifting strip-box, in combination with mechanism adapted to shift the strip-box to insure the presentation of the nail-strip to the cutters, to sever a nail from the strip with the head or enlarged part of the nail next to be driven upermost, substantially as described.

6. A shifting nail-strip box and nail-cutting mechanism, combined with the head or cutter-housings, provided with passages for the reception of the nail-strip not being acted upon by the cutter, substantially as described.

7. A nail-receiving groove or chamber adapted to receive the end of a nail-strip, in combination with cutters and a gage to determine the position of the strip and the width of the nail to be cut, substantially as described.

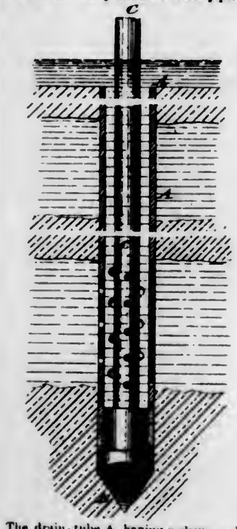
191,875. ROLLS FOR REDUCING TUBES. W. McKennie, New York, N. Y. [Filed Dec. 9, 1876.]



The combination of two or more grooved rollers, C E, the fixed support B, and the hinged frame D, substantially as herein shown and described.

191,876. DRAINS. Geo. O. Mosier, Dunellen, N. J. [Filed May 12, 1877.]

Brief.—The inner pipe perforated at the bottom, and extending above the surface of the water to be drained, allows the air to escape from the lower porous stratum and the water to flow freely down the outer pipe.



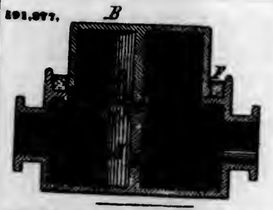
The drain-tube A, having a drive-rod, B, and central air pipe C, the latter extending with its upon end above that of the former, and both perforated near the bottom, as and for the purpose specified.

191,877. BY-PASS VALVES FOR GAS-WORKS. Peter Munsinger, Philadelphia, Pa., assignor to Morris, Tasker & Co., (limited,) same place. [Filed Oct. 10, 1876.]

Brief.—The surfaces of the cap and its seat which come in contact are ground and polished to form a tight joint, and a liquid seat is used to prevent leakage of gas in case of excessive pressure.

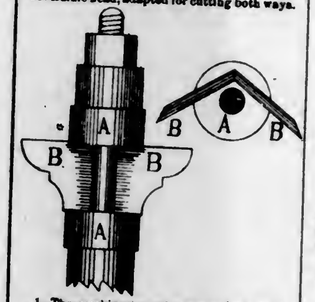
The combination, in a by-pass valve for gas-works, of the pivoted cap B with the liquid-seal F, substantially as described.

191,877.



191,878. CUTTER-HEADS. O. R. Patterson, Pittston, Pa. [Filed Feb. 24, 1877.]

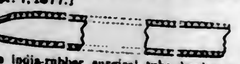
Brief.—Two adjustable flat or curved knives are secured between grooved collars upon a reversible head, adapted for cutting both ways.



1. The combination of sectional cutters B B with collars A A, arranged to cut both ways, substantially as and for the purpose described.

2. A reversible cutter-head, with adjustable straight knives, constructed and operating substantially as shown and described.

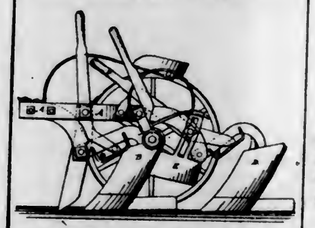
191,879. INDIA-RUBBER SURGICAL TUBES. Edward Pharo, Brooklyn, N. Y. [Filed Apr. 7, 1877.]



The india-rubber surgical tube having a rounded point, and an opening or eye having rounded polished edges, as a new article of manufacture.

191,880. COMBINED DITCHING, GANG, AND SHOVEL PLOW. August Pirch, Denver, Colo. [Filed May 21, 1877.]

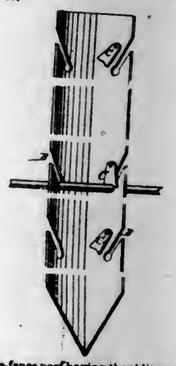
Brief.—Two front plows, side by side, turning furrows from each other, and two rear plows cutting furrows outside the former, each plow raised by its own lever; surface-scrapers to throw outward the earth from the center plows, the latter adjusted automatically with the crank-axles. The rear plow-beams adjust laterally, and may be removed, or the plows removed from one side and the other rear plow shifted to form a gang-plow.



1. In a sulky-plow adapted for ditching purposes, the combination and arrangement, with the frame A, of the plows D, each plow being separately adjustable, the adjustable scrapers E, and the levers L O, for raising the plows, substantially as described.

2. In combination with the frame A, the cross-rods B B, arranged to support the rear plows and their lifting-levers, and adjust the same laterally thereon, as that by a removal of the front and rear plows on one side the remaining rear plow can be shifted, so as to adapt the machine for a gang-plow.

191,881. IRON POSTS FOR WIRE FENCES. John Plane, Belvidere, Ill. [Filed Mar. 24, 1877.]



A wire-fence post having the oblique notches B and the buttons C, the latter pivoted with respect to said notches, as shown and described, for the purpose specified.

191,882. HAND SEED-PLANTERS. Francis B. Preston, Fayette, Mo. [Filed Apr. 2, 1877.]



1. The combination, with plates M N, of spring O, hinged plate P, and plate F, forming the rear side of the passage, as and for the purpose specified.

2. The plate M, provided with a toe, as and for the purpose described.

191,883. PROCESSES FOR THE MANUFACTURE OF GAS. Thomas B. Redwood, Fairlawn, Pinchley, England. [Filed Aug. 26, 1876.]

1. The herein before-described process of manufacturing coal-gas, which consists in distilling coal and leading the gas so obtained, with vapors generated with it, into contact with copper or an alloy of copper, kept in a highly-heated state, and arranged so as to expose a large extent of surface, substantially as set forth.

2. The herein before-described process of manufacturing gas, which consists in distilling coal, passing a stream of water-gas through the retorts during the distillation of the coal therein, and leading the combined products into contact with copper or an alloy of copper, kept in a highly-heated state, and arranged so as to expose a large extent of surface, substantially as described.

191,884. LAMP-CHIMNEY FASTENINGS. Geo. Richards, Flatbush, N. Y. [Filed May 21, 1877.]

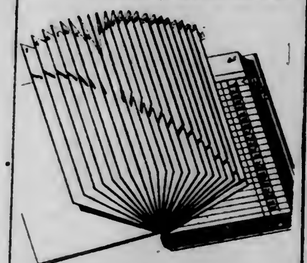


1. The inwardly-projecting notched or sectional flange *e'*, formed around the lower edge of a lamp-chimney to receive springs attached to the top plate of the burner, substantially as herein shown and described.

2. The springs C, attached to the top plate of a lamp-burner, and having outwardly-projecting legs *d'* formed upon their ends to overlap an inwardly-projecting flange of a lamp-chimney, substantially as herein shown and described.

191,885. INDEXING. David A. Roberts, Columbus, Ohio. [Filed Apr. 23, 1877.]

Brief.—Book is opened at any desired page by placing a blade (provided with a shoulder to bear against the edges of the closed leaves) upon the first leaf, when a slight pressure and a downward movement cause the blade to pass through consecutive slits until a point is reached opposite the desired page-number, seen upon a movable or fixed marginal index.



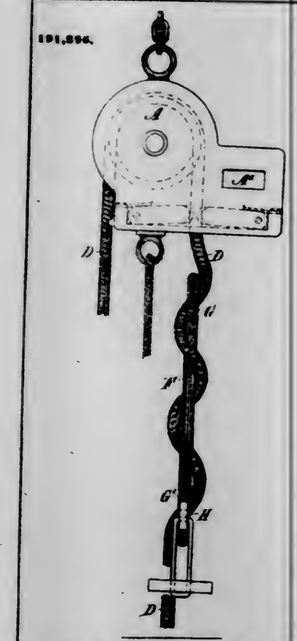
A book having one slit in each leaf, each succeeding slit being cut a little lower down than the preceding one, as shown and described, to adapt a book to be posted in the manner described.

191,886. FIRE-ESCAPES. Joseph Rock and Jules Coles, Montreal, Quebec, Canada. [Filed Oct. 12, 1876.]

1. The combination, in a fire life-preserving apparatus, of a pulley carried in a box having extensions, in which are pivoted clips or dogs, holding between them a cord, passing over the sheave or pulley, substantially as and for the purposes herein set forth.

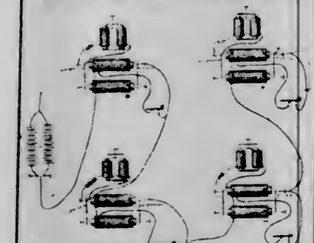
2. The combination of the pulley or sheave C, box A, with extension A', line D, clips or dogs E, and bar F, with rings G G', and extensions H H, all substantially as herein set forth and for the purposes described.

191,896.



191,897. DUPLEX TELEGRAPH. Charles H. Rudd, Chicago, Ill. [Filed Jan. 20, 1876.]

Brief.—Pole-changer rapidly reversing line-currents. Line-currents pass through armatures and back stops of two polarized relays, one responding to +, other to — currents, which serve to still further subdivide pulsations. By depressing key in shunt around back stop of relay the intermittent currents of the polarity necessary to operate that relay are sent to line without this subdivision, and are then of sufficient length to operate the corresponding polarized relay-armature at receiving end, and give signal.



1. In combination with a relay, the armature of which and its insulated back-stop screw form a part of the main circuit, a key connected in a wire running from the armature to the back-stop screw, substantially as and for the purpose set forth.

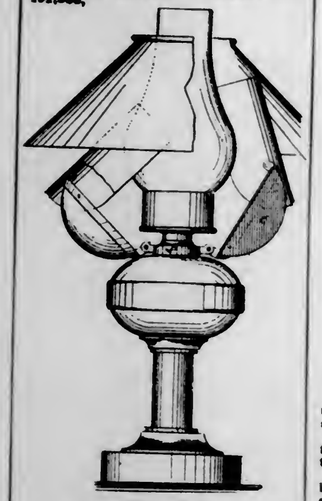
2. A relay consisting of two straight electro-magnets arranged parallel to each other, having helices connected in the same circuit, and wound in the same direction, and having two magnetic armatures at opposite ends of the relays, respectively, in combination with a sounder and local circuit connected through the contact-points of one armature and a key placed in a shunt connecting the other armature to a line, substantially as and for the purpose set forth.

191,898. LAMP-REFRACTORS. A. Schaeffer and A. Pfrunder, Louisville, Ky. [Filed Apr. 30, 1877.]

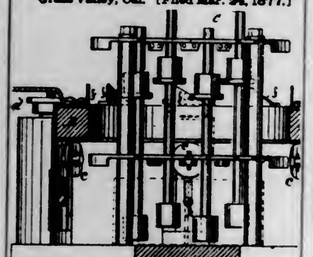
1. The combination, with a lamp, of one or more adjustable refractors, having pivoted and self-adjusting shades, substantially as shown and described.

2. The combination, with a detachable collar fitted to the neck of a lamp, of hinged and adjustable refractors and shades, pivoted to the latter, substantially as described.

191,899.

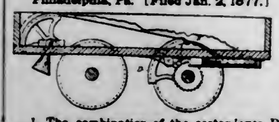


191,899. CHEE-STAMPS. Thomas Schofield, Grass Valley, Cal. [Filed Mar. 24, 1877.]



The plain ring B, supported on bottom rolls *c*, guided by flange side rolls *d*, and having angular lifting-cams *f* on its inner edge, in combination with stamp-rods within the ring, and having tappets, as shown and described, for the purpose specified.

191,900. CAR-STARTERS. Henry Schreiner, Philadelphia, Pa. [Filed Jan. 2, 1877.]



1. The combination of the sector-lever D, chain H, guide-pulleys I I, double sector J J', and draft-chain L, substantially in the manner and for the purpose set forth.

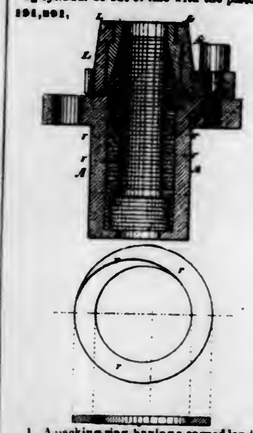
2. The soundless strip K, connected with the under side of the pawls G G, substantially as and for the purpose set forth.

3. The weighted sector N, having a rope, P, in combination with the sector-lever D, for giving a reverse movement to the lever, substantially as set forth.

191,901. PACKING FOR PISTON-RODS, &c. Charles T. Sleeper, Chicago, Ill., assignor of one-half his right to Mary E. Otis; said Otis assignor to George G. Benedict, same place. [Filed Mar. 20, 1876.]

Brief.—The packing-rings are provided with curved lap-joints, to enable them to be contracted as they are forced into the cone. The lateral movement of the cone allows it to adjust itself to the piston-rod should the packing-cylinder be out of line with the piston.

191,901.



1. A packing-ring, having a curved lap-joint, the faces being curved, substantially as shown and described.

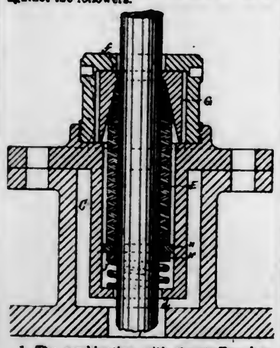
2. A packing-ring, having a curved lap-joint, the curve being eccentric to the ring, substantially as described.

3. The combination, with the cylinder A and laterally-movable cone C, as described, of the series of packing-rings *r*, adjusted within the cylinder and cone, substantially as specified.

4. The combination, with the cylinder A, cone C, and the series of packing-rings *r*, of the cone L, having the shoulder *s* adjusted to bear against a corresponding shoulder on the cone C, substantially as and for the purpose specified.

191,902. STUFFING-BOXES FOR STEAM-ENGINES. Charles T. Sleeper, Chicago, Ill., assignor of one-half his right to George G. Benedict, same place. [Filed Feb. 19, 1877.]

Brief.—The inclined shoulder on the sleeve allows the packing as it is worn to slide up its surface, while at the same time it prevents the packing from being forced into the chamber of the sleeve by the pressure of steam against the followers.

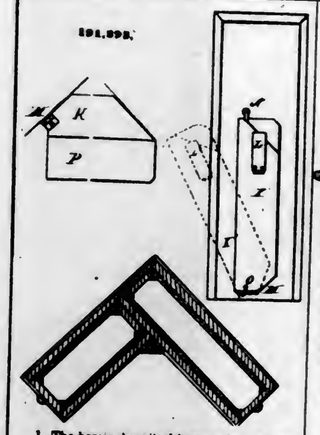


1. The combination, with the stuffing-box C and series of packing-rings E, adjusted within the stuffing-box, of the sleeve G, having the conical chamber to receive the packing-rings as the same are forced from the stuffing-box, and provided with the curved or angular retaining-shoulder *f*, substantially as and for the purpose specified.

2. The combination, with the stuffing-box C and series of packing-rings E, of the followers H H' and spring J, substantially as and for the purposes specified.

191,903. DESKS. Jos. I. Stewart, Boston, Mass. [Filed May 28, 1877.]

191,893.



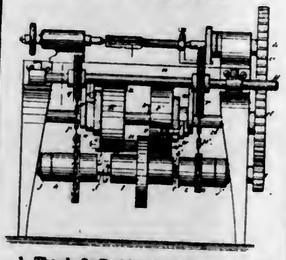
1. The herein-described base or drawer section for a corner-desk, the same being made up of the two tiers of drawers at right angles to each other, and adapted to receive and hold the desk proper, or mirror-section, in the manner set forth.

2. In combination with the base-section, composed of two tiers of drawers of unequal lengths located at right angles to each other, the mirror-section having hinged central mirror and writing shelf or leaf attached, substantially as and for the purposes set forth.

3. In combination with the hinged door H, the writing-leaf K P, hinge M, pivoted as at O, and the hinged prop L, the whole being adapted to operate substantially as set forth.

191,894. LATHES FOR CUTTING SCREW-TAPS. G. R. Stetson, New Bedford, Mass., assignor to himself and Morse Twist Drill Company, same place. [Filed Mar. 12, 1877.]

Brief.—The machine is designed to rotate the tap-blank slowly while the threads are being cut, and rapidly while the tool is passing over the flutes. Two sleeves rotate upon the lower shaft of the machine. One of these sleeves carries a small and the other a large pulley, which are connected, respectively, with large and small pulleys on the driving-shaft. A clutch feathered to the lower shaft (the said shaft being connected with the blank-holding mandrel by gearing) is caused to engage with the sleeve of the large pulley while the tap-blank is being threaded, and with the sleeve of the small one while the cutter is passing over the flutes, by spring-plungers carried in the rotating disks of an upper shaft.



1. The shafts D *f*, having the unequal pulleys *w e q r*, connected by chains *p p'*, the shaft *f* being provided with fast pulley-sleeves *h i*, and sliding clutch L, in combination with the wheels *c d e* and mandrel *b*, as and for the purpose described.

2. The combination of the cylinders E F, spring-followers *s v*, having fingers *s'*, and the stationary cams *w*, for moving the sleeve *l* longitudinally on its shaft, substantially as herein shown and described.

191,895. CORRUGATED COUNTER AND LINING FOR BOOTS AND SHOES. Benj. J. Stevens, New York, N. Y. [Filed Apr. 20, 1877.]

191,896.

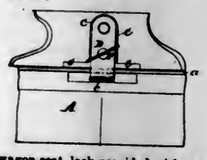


1. As a new article of manufacture, a combined lining and heel-stiffener for boots and shoes, constructed in one piece, substantially as and for the purpose set forth.

2. The combined lining and heel-stiffener for boots and shoes, constructed in one piece, and provided with projection B upon the inner side, substantially as and for the purpose set forth.

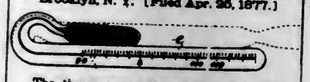
3. In a boot or shoe, the combined lining and heel-stiffener, constructed in one piece, substantially as and for the purpose described.

191,896. WAGON-SEAT LOCKS. Charles E Stone, Salisbury Mills, Mass. [Filed Apr. 30, 1877.]



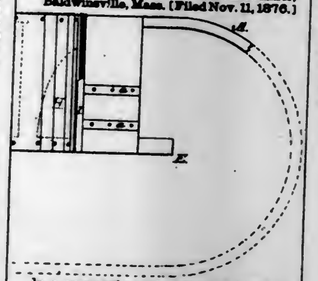
A wagon-seat lock provided with the beveled nib *e*, on the lower end of swiveled plate D, the same being arranged to enter a groove in the side board A, and catch under the iron strip *e*, as shown and described.

191,897. THERMOMETERS. F. A. Stoblmann, Brooklyn, N. Y. [Filed Apr. 26, 1877.]



The thermometer, having a return-bend between the bulb and the index, and having a register in the index portion of the tube, substantially as set forth.

191,898. PULP-ENGINES. Edwin Sumner, Baldwinsville, Mass. [Filed Nov. 11, 1876.]

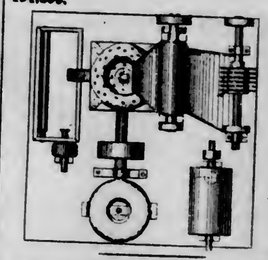


In a paper-pulp engine, the combination with the grinding-roll, the curb A, and the midfallow E, of an inclined transversely arranged chute, adapted to receive the watery pulp thrown up by the roll, and to effect a homogeneous mixture of the stock, substantially as described, and for the purpose set forth.

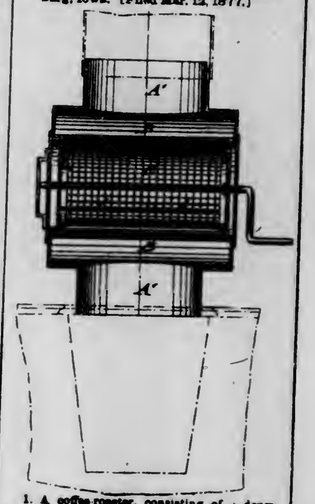
191,899. PROCESSES FOR MANUFACTURE OF PAPER-PULP FROM WOOD. James Taylor, Luserne, and James T. Outterson, Palmer Falls, N. Y. [Filed Mar. 2, 1877.]

The process for preparing wood-pulp, consisting essentially of cutting the wood crosswise of the grain, crushing it endwise of the grain, then picking it, and then subjecting it to the action of steam-pressure, substantially as herein set forth.

191,900.



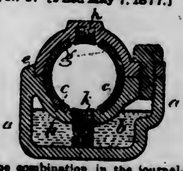
191,900. COFFEE-ROASTERS. George W. Tinsley and Amandus Hackman, Blakesburg, Iowa. [Filed Mar. 12, 1877.]



1. A coffee-roaster, consisting of a drum with pipes A', an interior cylinder with detachable heads, and within the latter a wire-cloth cylinder, arranged substantially as shown and described.

2. The combination of the interior heating-cylinder, having detachable heads, with the revolving roasting-cylinder, whose shaft is supported in center bearings of the heads, and resting against stop-plate of outer head, substantially as herein described.

191,901. BOXES FOR SHAFTING. Joseph B. Tomlinson, Black Hawk, Colo., assignor to himself and Gibbons L. Kelly, Brooklyn, N. Y. [Filed May 7, 1877.]



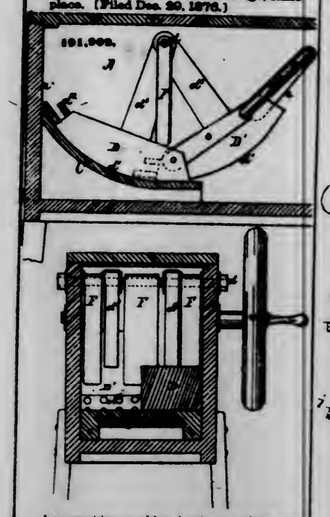
1. The combination, in the journal-box, of the upper bearings *g g*, pad *h* between such bearings, the lower bearings *e e* and pad *h* between said bearings, the oil-chamber *b* in the bottom of the shell *a*, and the spring cut-off plates *m n* in the recesses at the ends of boxes, substantially as specified.

2. The combination, in the journal-box, of the oil-chamber *b*, spring-pad *h* between the bearings *e e*, and the spring cut-off plates *m n*, and thin recesses at the ends of the journal-box, substantially as set forth.

191,902. WASHING-MACHINES. John St. Tonge, Williamstown, Mass., assignor of

one-half his right to Jos. St. Tonge, same place. [Filed Dec. 29, 1876.]

191,902.



In a washing-machine having the frame or tank A, the combination of the perforated upwardly-curved concave clothes-board and guideway C, the suspended alternately-reciprocating hammers or beaters D D' having the curved or convex under faces d', and the pins or pegs d² set in the upper ends thereof, together with the hinged partition-pieces F, all arranged to operate as and for the purpose specified.

191,903. MILK-CANS. Joseph D. Tudor, Philadelphia, Pa., assignor of one-half his right to W. B. Hamm, same place. [Filed Feb. 23, 1876.]

Brief.—The handle is pivoted in the cover, so that it can be held firmly in the hand, when the can is revolved on its lower edge, to remove it from place to place.



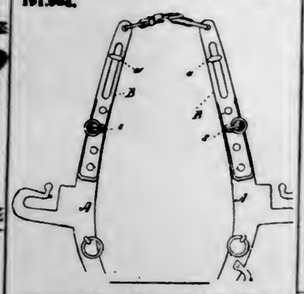
1. The combination, with the lid or cover A, of the revolving handle B, having the spindle C' and plate D, substantially as described.

2. The combination of the revolving handle B, having the spindle C', with beaded plate D, and the cover A, having the grooved plate F, substantially as described.

191,904. HAMES. Hiram Mason, Nelsonville, Ohio. [Filed May 19, 1877.]

The hame-branches A, having the end lugs a, in combination with the slotted extensions B and clamp-screws c, substantially as specified.

191,905.



A vapor-bath consisting of the cylinder A, having the head a, the centrally-perforated head b, the perforations g e, the nozzle i, and the cups d h, the latter having the wooden cover B, all constructed and arranged substantially as herein shown and described.

191,906. PHOTOGRAPHIC PRINTING-FRAMES. Harvey L. Walter, and Reuben Durrin, Manchester, Iowa. [Filed Feb. 22, 1877.]



1. The combination of the support-frame A, the negative-frame D, and tinting-frame D', whereby both the negative-frame and tinting-frame can be brought over the support-frame, for the purposes herein set forth.

2. The negative-frame D and tinting-frame D', connected to the support-frame A by means of double-acting hinges A h, whereby said frames D D' may be turned on top of or beneath the frame A, substantially as and for the purposes herein set forth.

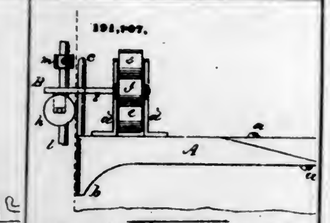
191,907. LOOM-TEMPLES. Jas. E. Waterbury, Kernaelearville, N. Y. [Filed Apr. 1d, 1877.]

Brief.—The temple is adapted to be used in the weaving of tubular fabrics. The temple-bar is provided with rollers at its outer ends, and with projecting rods, about which the filling is looped. A spring-bar is secured to the framing of the loom at each end of the breast-beam. This bar carries two rollers, one above the other, below the fabric, which work between the rollers of the bar. A guide-roller bears against each end of the bar. A bracket attached to the lathe operates the spring-bar and moves the temples.

1. The bar A, provided with rollers a and rods c, adapted to be placed in a tubular fabric, in combination with a roller-guide for guiding and moving the bar A, substantially as shown and described.

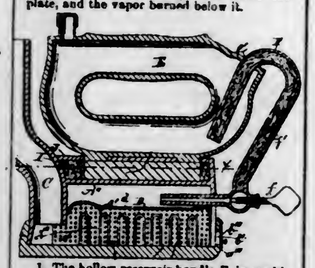
2. The spring B, carrying rollers f g h, in combination with the rod I, having collars m and bracket C, adapted to be secured to the lathe for moving and guiding the bar A, substantially as shown and described.

191,907.



191,908. SAD-IRONS. Harvey L. Wells, Burlington, Iowa. [Filed Apr. 18, 1877.]

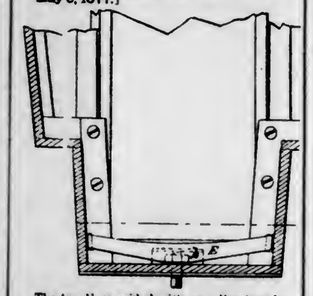
Brief.—The fluid is vaporized above the plate, and the vapor burned below it.



1. The hollow reservoir-handle E, in combination with the pipe F, chamber A', and plate D, substantially as described, and for the purpose specified.

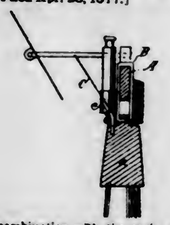
2. In combination with the chambers A'' A''', diaphragm D, and pipe F, leading from a gasoline-reservoir, an air-regulating valve, b''', substantially as described, and for the purpose specified.

191,909. CARRIAGE-BODY ADJUSTERS. I. Wilkins, Jr., Green Point, N. Y. [Filed May 5, 1877.]



The bar E, provided with an adjusting device, in combination with the sill of a carriage-body, substantially as herein shown and described.

191,910. APPARATUS FOR ILLUMINATING SCALE-BEAMS. Joshua W. Wood, Loami, Ill. [Filed Apr. 28, 1877.]

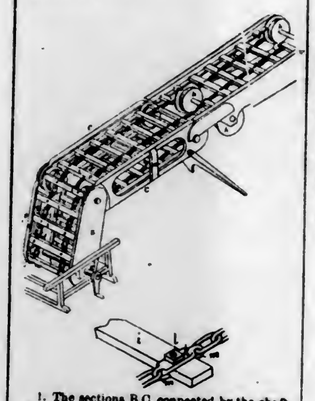


1. In combination with the scale-beam, a device for throwing light on the same, said device being adapted to be moved along the beam, substantially as and for the purpose specified.

2. In combination with the scale-beam A, the reflector C and sliding loop B, substantially as and for the purpose specified.

191,911. ENDLESS-CHAIN ELEVATORS. Jno. A. Woodward, San Francisco, Cal., assignor of two-thirds his right to I. W. Gates and S. A. Sanderson, same place. [Filed Apr. 19, 1877.]

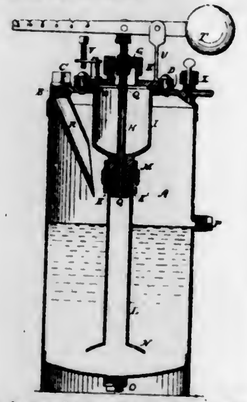
Brief.—The elevator can be used to transfer grain or freight from one vessel to another or to the wharf.



1. The sections B C, connected by the shaft E, and provided with the side rails O, in combination with the flanged wheels A, substantially as and for the purpose described.

2. An endless-chain elevator consisting of the slats i, plates k, having hooks or eyes formed upon their ends, and attached to the slats transversely of their length by bolts l, and the links j, substantially as herein shown and described.

191,912. CARBONIC-ACID-GAS GENERATORS. Otto Zwietusch, Milwaukee, Wis. [Filed Apr. 26, 1877.]



1. In a carbonic-acid-gas generator, the coupling M between the chamber I and acid-leading pipe L, as described.

2. In a carbonic-acid-gas generator, in combination with diaphragm E and screw-nut F, the curved or hollow washer G, for the purpose set forth.

3. In a carbonic-acid-gas generator, the acid-chamber I and pipe L, in combination with the automatic valve K and channel Q in rod H.

4. In a carbonic-acid-gas generator, in combination with diaphragm E, rod H, and lever T, the ball, and set-screw P.

5. In a carbonic-acid-gas generator, the generating-chamber A, provided with inlet C, and the incline transfer-pipe K, substantially as and for the purpose set forth.

6. The diaphragm E, in combination with the rod H, having the channel Q, and provided at its lower end with a valve fitting in the valve-seat K'.

7. In a carbonic-acid-gas generator, the diaphragm E, in combination with rod H, acid-chamber I, and acid-leading pipe L, provided with the coupling M, all constructed to operate substantially as and for the purpose set forth.

8. In a carbonic-acid-gas generator, a combination of the diaphragm E and the rod H, provided with the channel Q, substantially as and for the purpose set forth.

9. In a carbonic-acid-gas generator, the combination of a closed acid-chamber having a hollow valve-rod within, and a leading-pipe attached at the lower end extending near to the bottom of the generating-chamber, the whole adapted and arranged that all the gas used as equalizing pressure must pass through the purifying solution in the generating-chamber before it is drawn off.

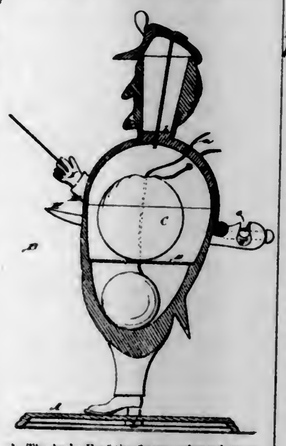
10. In a carbonic-acid-gas generator, the diaphragm E and rod H, provided with the channel Q, in combination with the pipe L, valve K, and catch N, substantially as and for the purpose set forth.

191,913. BARBED HOOP-IRON FENCE-STRIPS. Walter G. Barnes, Freeport, Ill. [Filed Apr. 17, 1877.]



A barbed fence-strip, A, having its barbs or spurs cut from the edges, and strengthened by a continuous or broken corrugation along its middle line, substantially as and for the purpose herein set forth.

191,914. TWINE-HOLDERS. A. Beausoleil, Alpena, Mich. [Filed Apr. 26, 1877.]

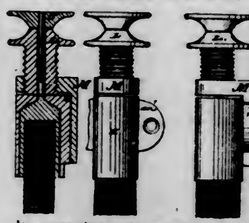


1. The body B of the figure, adapted to receive one or more balls of twine, and provided with a diaphragm, D, a twine-cutter, and a card-rack, substantially as described, and for the purpose set forth.

2. The twine-holder, having the body B, arms H H, and sword E, slotted as described, and provided with the removable blade d, substantially as and for the purpose set forth.

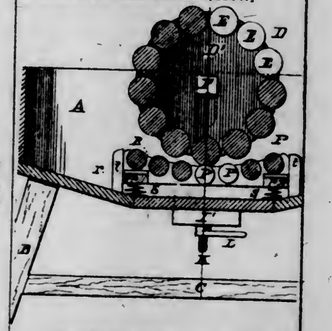
3. As an article of manufacture, the within-described twine-holder, consisting of the platform A, body B, head C, arms H H with hands I I, and sword E with blade d, all constructed substantially as and for the purposes described.

191,915. CORN-PLANTERS. J. O. Bennett, Urbana, Ohio. [Filed Dec. 11, 1876.]



In a corn-planter, the cut-off brush holder having the screw-stem n', the socket I, having a dovetail projection on its side, the nut or button o', the tubular screw L, having a circumferential flange, and the auguer bracket M, all constructed and arranged as shown and described, whereby the brush may be adjusted up or down and held in any adjustment, as specified.

191,916. WASHING-MACHINES. George W. Benton, Canaseraga, N. Y., assignor of one-half his right to Jonathan Garwood, same place. [Filed Feb. 26, 1877.]



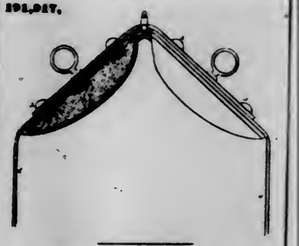
1. In washing-machines, a revolving cylinder composed of a series of solid round rods placed between metal disks having depressions of more than a half-circle and less than a whole, so that part of said rods project over the periphery of said disks, said rods having a space between them, to allow ready draining of the cylinder, and being clamped between the disks by a collar on one end and a nut on the other end of an angular shaft, and prevented from moving out of said recesses by their walls embracing more than one-half of the circular circumference of said rods, substantially as hereinbefore set forth and described, for the purpose stated.

2. The hereinbefore-described washing-machine, consisting of a rectangular tub, A, revolving cylinder D, composed of disks D' having circular depressions to retain solid cylindrical rods E, as described, concave rubbing-bed P, guides f, conical volute springs S, and the tensioning device consisting of the rods K, guide-blocks I fastened to the tub A, followers V, springs N, and handle-nuts L, the whole constructed and arranged substantially as described.

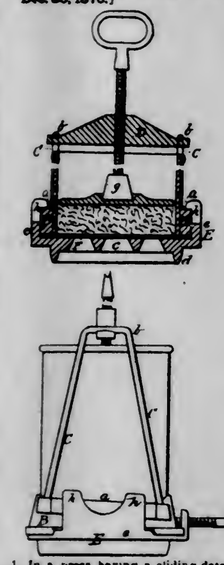
191,917. HARNESS-SADDLES. Jas. F. Best, Galva, Ill. [Filed Mar. 19, 1877.]

In a harness-saddle, the skirts or straps c c, having a series of apertures adapted to register with screws d d, and the ferret-screws for the purpose of rendering said skirts or straps adjustable vertically, substantially as and for the purpose set forth.

191,917.



191,918. HOUSEHOLD-PRESSES. William Y. A. Boardman, Boston, Mass. [Filed Dec. 30, 1876.]



1. In a press having a sliding detachable base, the thumb-screw *s* for starting the same, substantially as specified.

2. A press-cylinder, having a marginal casting at its lower end, and parallel inclined ledges *a*, substantially as specified.

3. A press-cylinder, having a marginal casting at its lower end, forming a bearing for the hooks of the detachable base, and, furthermore, provided with looped arms extending from said marginal casting above the mouth of the cylinder for the attachment of the cross-head, substantially as and for the purpose specified.

4. The base B, having the parallel flanges or arms *h*, the central grating, and the tapped lug *l* for the starting-screw, substantially as specified.

5. The combination, with the cylinder and its marginal casting, having ledges *a* and loops C, of the cross-head and follower-screw, and the base, having connecting flanges or arms parallel with each other, substantially as specified.

191,919. CORNER-STAKES. S. D. Bonner, Newaygo, Mich. [Filed Apr. 14, 1877.]

Brief.—A hollow stake to contain records, provided with a removable cap, having marked upon it the various signs pertaining to land areas.

1. The improved corner-stake or "witness" herein described, consisting of the top part A, shell B, and cap-piece C, constructed and combined substantially as and for the purpose hereinbefore set forth.

2. In combination with a recessed stake, A, and cap-piece C, the wire *d*, carrying a spiral, *d'*, and weight *e*, substantially as and for the purpose hereinbefore set forth.

191,920.

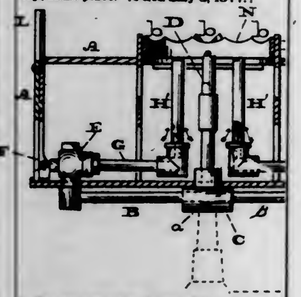


MACHINERY FOR STRETCHING LEATHER BELTING. James Brady, Brooklyn, N. Y. [Filed May 2, 1877.]



The combination of the delivery-roll B, the receiving-roll B', the flexion and reflexion rollers E E', and the brake F, substantially as and for the purpose described.

191,921. GAS APPARATUS FOR HEATING TOOLS. Peter Bradley, Philadelphia, Pa., assignor of one-half his right to Jas. Bradley, same place. [Filed May 3, 1877.]



1. The gas-conducting pipes B and G and intermediate cocks F, in combination with the central branch C, main jet D, and auxiliary jets H, substantially as and for the purpose set forth.

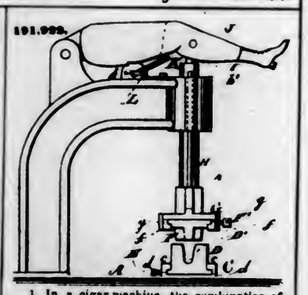
2. The combination, with the pipes B G and cocks F, of the perforated screw-plugs F', substantially as and for the purpose set forth.

3. The combination, with the jets D H, of the band N, substantially as and for the purpose set forth.

191,922. CIGAR-MACHINES. Wm. Brosseker, Baltimore, Md., assignor of two-thirds his right to A. J. La Fleur and Jos. Turner, same place. [Filed Mar. 24, 1877.]

Brief.—The molds are removable, and the upper one is held away from the lower by a spring-prop, that is overcome when pressure is applied to it.

191,923.



1. In a cigar-machine, the combination of the upper mold-die F, the vertical shaft H, connected with operating-lever J by means of doubly-pivoted link-bar I, the prop K, pivoted at its lower end between lugs *k* and spring L, substantially as shown and described.

2. In a machine for the manufacture of cigars, the combination of bed-piece A, standard B, boxes C and G, mold-sections D and F, plunger H, prop K, and operating-lever J, substantially as and for the purpose set forth.

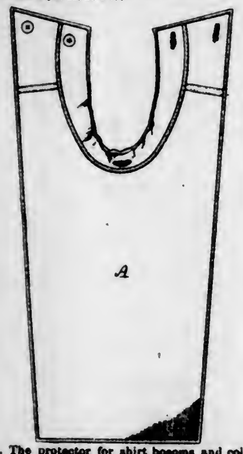
191,924. PROTECTION-TIPS FOR OAR-BLADES. Mason Britton, Wauseon, Ohio. [Filed May 24, 1877.]



1. As a new article of manufacture, the metal protection-tip for boat-oar blades, pressed or stamped from sheet metal into shape for receiving the end of an oar-blade, having bifurcated ends *a*, substantially as shown and described.

2. The improvement in boat-oars consisting of the metal protection-tip A, with bifurcated ends *a*, substantially as shown and described, fitting over and secured to the end of the oar-blade, for the purpose specified.

191,924. SHIRT BOSOM AND COLLAR PROTECTORS. Wm. F. Brown, Newark, Ohio. [Filed Apr. 11, 1877.]



1. The protector for shirt bosoms and collars, consisting of a dickey, A, with collar B made from material having a linen or textile body, and re-enforced upon one side with rubber or other coating impervious to moisture, substantially as and for the purpose set forth.

2. The collar B, made of the material named, and in one piece, and cut diagonally, as shown at *b*, substantially as and for the purpose set forth.

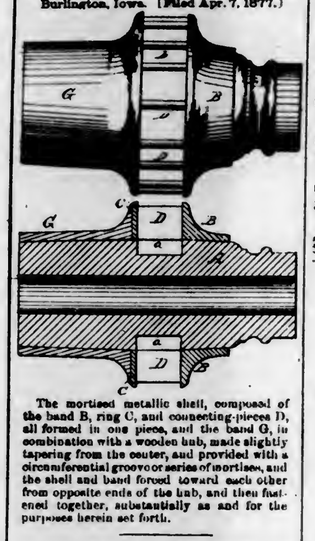
191,925. PIN-BOXES. John Bryan, Birmingham, assignor to the Star Pin Company of Shelton Town, Huntington, Conn. [Filed Mar. 31, 1877.]

191,926.



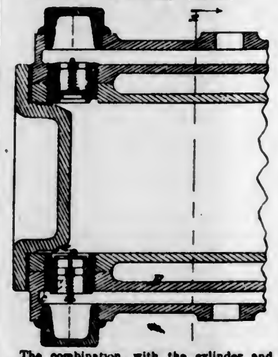
The pie-case herein described, consisting of the paper bottomless box A, with a closed top, *a*, the sides of the box adapted to extend below the points of the pins, and provided with the cover B, substantially as and for the purpose set forth.

191,926. VEHICLE-HUBS. M. C. Buffington Burlington, Iowa. [Filed Apr. 7, 1877.]



The mortised metallic shell, composed of the band B, ring C, and connecting-pieces D, all formed in one piece, and the band G, in combination with a wooden hub, made slightly tapering from the center, and provided with a circumferential groove or series of mortises, and the shell and band forced toward each other from opposite ends of the hub, and then fastened together, substantially as and for the purposes herein set forth.

191,927. AIR-PUMPS. Emil Borgin, New York, N. Y. [Filed May 7, 1877.]



The combination, with the cylinder and jacket of an air-pump, of sockets *e e* for the reception of the valve-boxes, inserted into and forming a tight joint between the cylinder and jacket, substantially as herein described.

191,928. GRAIN-BINDERS. John E. Buxton, Owatonna, Minn. [Filed Apr. 7, 1877.]

1. In a grain-binding machine, the arms D' mounted upon independent shafts, and rotating upon each side of the wire-arm to preserve a clear space for said arm, and so bent as to have their outer ends concentric, or nearly so, with their shafts, to hold the bundle against the compressor, substantially in the manner described.

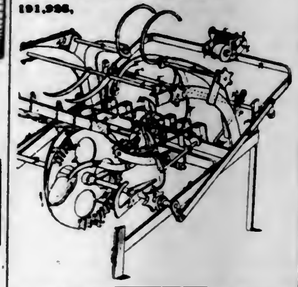
2. In a grain-binding machine, the vertically-sliding hook M, to carry down the upper end of the wire, and hold it with the lower end, until it is cut off and twisted, by means of its operating lever and cam, and raised to its normal position by the weight m', substantially as and for the purposes described.

3. The rods n attached to the rock-shaft P, in combination with rock-shaft E', and slotted connecting-rod p, for removing the binding-wire from the twisting-wheel, and discharging the bundle of grain, substantially as described.

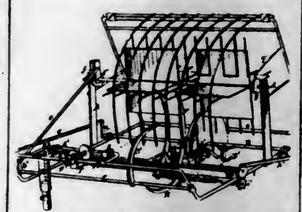
4. The bent arm or bail R, pivoted to the opposite sides of the frame, controlled by a spring that forces it away from the arm E, and carrying the spool of wire, said bail by its operation taking up the slack of the binding-wire, substantially in the manner described.

5. In a grain-binding machine, an adjustable pressure-controlling rubber roller, in combination with spring *o'* and wire spool, to secure a uniform tension upon the wire, substantially in the manner described.

191,928.



184,929. GRAIN-BINDERS. John E. Buxton, Owatonna, Minn. [Filed Oct. 9, 1876.]



1. In combination with a grain-receiver, D, revolved periodically, and a shield hinged above it to guide the falling grain from the first receiver, D, to a second receiver, the compressor H and its sleeve H', mounted loosely upon a shaft, G, to which it is connected by a spring, G', substantially as and for the purposes described.

2. In combination with a grain-receiver, D, shield E, compressor H, and wire twisting wheel L, a forked wire-receiver, I, holding block I' connected rigidly to the frame and clamping-arm, substantially as described.

3. In combination with the twisting-wheel L and pinion m, the segment crown-wheel M and spring-cog n, substantially as and for the purposes described.

4. In a grain-binder, substantially as set forth, and combined therewith, the take-up weight Q and carriage P for the binding wire spool, and the tension-spring *s*, all substantially as and for the purposes set forth.

191,930. WEIGHT-MOTORS. John M. Cayce, Franklin, Tenn. [Filed May 31, 1877.]

Brief.—The weights operate a rocking frame, which turns the driving-wheel, by peculiar mechanism.

1. Two weighted levers, geared together, and combined with a pivoted frame, substantially as described, whereby the aggregate weight of the levers is transmitted to the frame, and the levers made to counterbalance each other, to permit their transfer from side to side with a power less than that represented by their actual weight.

2. Two weighted levers, combined with a pivoted frame, and geared together to permit the shock or momentum of one to be met and neutralized by the shock or momentum of the other, substantially as described.

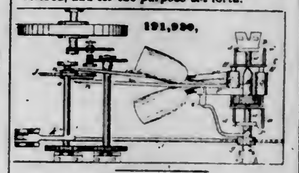
3. The pivoted frame, having stop-bars H with elastic cushions, in combination with the weighted levers, arranged upon opposite sides of said stop-bars, and geared together, as described.

4. The combination of the weighted levers, geared together, as described, the pivoted frame C, having stop-pins *d d*, and the supporting-standards B, substantially as and for the purpose described.

5. The combination, with the weighted levers, geared together so as to counterbalance each other, of a fork, *e*, cog-wheel *g*, guide-roller *i*, rack-bar *i*, rod *j*, and hand-lever *k*, substantially as described, and for the purpose of operating said weighted levers.

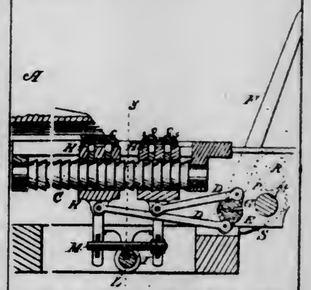
6. The diametrically-arranged arms *n n'*, carrying pawls *o o'*, in combination with the enlarged ratchet-wheel J, the rocking frame O, and with the two pitmen *m m'* pivoted at one end to the rocking frame, and at their others to the bars *n n'* between the pawls and the center of the wheel, substantially as described, and for the purpose set forth.

191,930.



191,931. HEAD-BLOCKS FOR SAW-MILLS. Hugh Cleghorn, Muskegon, Mich. [Filed Dec. 27, 1876.]

Brief.—The setting mechanism is positive in its action, moving the log a certain specified distance at each reciprocation of the setting-lever, causing the lumber to be of uniform thickness.



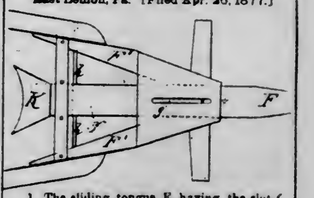
1. In head-blocks for saw mills, the round rack C, constructed substantially as and for the purpose shown and described.

2. The combination of the rack C, pawl-sleeves H, with their vertically-moving pawls *e*, connections D, and rock-shaft E, substantially as and for the purpose set forth.

3. The reciprocating pawl-sleeves H and pawls *e*, in combination with their lifting devices, consisting of the stirrups O, bar M, eccentric L, and shaft I, as and for the purpose specified.

4. The variable stop devices, consisting of the notched disk P, eccentric R, and spring-pawl S, in combination with the setting-lever F and devices for moving forward the setting-jacks, as set forth.

191,932. WAGON-BRAKES. Martin Clifford, East Lemon, Pa. [Filed Apr. 26, 1877.]



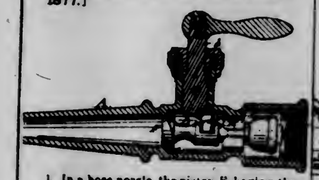
1. The sliding tongue F, having the slot *f* and plate K, as and for the purpose described and shown.

2. The brakes A, pivoted to bar B, lever E, and tongue F, having plate K, when combined, arranged, and operated as shown and described, and for the purpose specified.

191,923. COMPOSITION FOR PRINTERS' INKING-ROLLS. John Clifford, Cambridge, Mass. [Filed Apr. 6, 1877.]

A composition for printers' inking-rolls, consisting of glue, glycerine, sugar-house syrup, water, castor-oil, and olive-oil, compounded in about the proportions herein set forth.

191,924. HOSE-NOZZLES. John Clifford and John Gielow, Chicago, Ill. [Filed Apr. 7, 1877.]



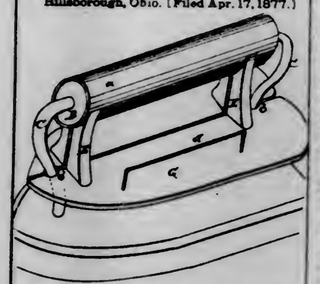
1. In a hose-nozzle, the piston F, having the stem D, and provided with the spiral grooves *e e*, substantially as and for the purpose set forth.

2. In a hose-nozzle, the valve E, in combination with the stem D and piston F, the latter provided with the spiral grooves *e e*, and all constructed to operate substantially as and for the purpose set forth.

3. In a hose-nozzle, the stem D, provided with the valve E and spirally-grooved piston F, and having the guides *d d*, in combination with the spindle *b*, provided with the eccentric pin *a*, all constructed to operate substantially as and for the purpose set forth.

4. In a hose-nozzle, the stem D, provided with the valve E and spirally-grooved piston F, in combination with the spindle *b*, provided with an eccentric pin, *a*, substantially as and for the purpose described.

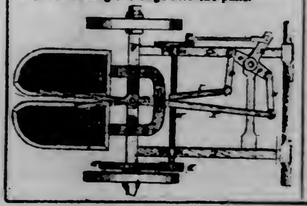
191,925. SAD-IRON HOLDERS. J. R. Claxton, Hillsborough, Ohio. [Filed Apr. 17, 1877.]



The within-described sad-iron holder, consisting of the longitudinally-bisected wooden tube D, with legs E and shield G, the tube being surrounded by a leather covering, *c*, forming a hinge for the tube, and the wire staples *d* attached to the shield G, all constructed substantially as and for the purposes herein set forth.

191,926. MACHINES FOR REMOVING BUGS FROM POTATO-VINES. James M. Conrad, Cuba, N. Y. [Filed Apr. 17, 1877.

Brief.—A push-carriage bearing two pans in the front, which pass on either side of the potato-row, and beaters, with suitable machinery for shaking the bugs into the pans.

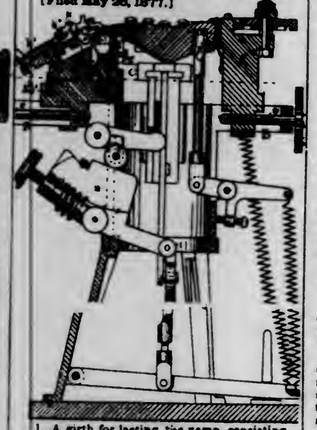


1. The combination of beaters M and L with pans R and S, substantially as described, whereby the beaters are adapted to vibrate in opposite directions, and over the pans alternately.

2. In a machine for destroying potato-bugs, the levers I and K carrying beaters, in combination with the T-lever H and connecting-links and rods, with the crank-shaft E, operating-wheel D, and adjustable pans, substantially as described.

3. The pans R and S, in combination with the slotted arms P and Q, pivoted upon the axle, as described, for the purpose set forth.

191,927. LASTING-MACHINES FOR BOOTS AND SHOES. G. W. Copeland, Malden, and Braxton Woodward and Matthias Brock, Boston, Mass., assignors to said Copeland. [Filed May 26, 1877.]



1. A girth for lasting toe vamp, consisting of two series of unyielding straps connected or disconnected, rigidly secured at one end to the fingers of the vamp-lasting apparatus, and at the other and to a set of springs or weights on the opposite side of the machine, substantially as described.

2. In combination with an elastic heel-pad, embracing and supporting the quarters of the shoe, and with reciprocating folding-plates of the spring-rods *p' p'*, all arranged and operating substantially as described.

3. A spring toe stretching and smoothing pad having a vertical motion, and also adapted to move against the upper at the toe in combination with suitable devices for folding the upper over upon the sole, substantially as shown and described.

4. For toe-lasting devices, the combination of wrinkle-sweeping fingers with oscillating turning and smoothing finger-plates moving in unison therewith, substantially as described.

5. In a lasting-machine the right and left screws, as shown in combination with gears operating to bring the shoe, without regard to its size, into the proper position, with reference to the girth, for the purpose, and operating substantially as described.

6. The automatically-acting heel and toe supports, consisting of a post resting upon a cam or wedge, the cam or wedge being actuated at the commencement of the upward rise of the girth-carrying cross-head, substantially as and for the purposes described.

7. In a lasting-machine the combination of a girth composed of unyielding straps rigidly secured at one end to the pivoted and adjustable fingers of a vamp-lasting apparatus, and at the other end to a set of springs or weights, with toe and heel lasting mechanism, automatically adjustable with reference to the girth while moving to clamp the boot or shoe, substantially as and for the purposes described.

8. The combination of the cam *a*, adjusting-screw *s*, and arc *t*, with the secondary lever of the train actuating the girth-carrying cross-head, substantially as and for the purposes described.

9. In combination, the vibrating toe-rest, post, and set screw, substantially as described.

10. The vibrating or oscillating toe-rest, in combination with the toe-lasting mechanism, substantially as shown and described.

11. The combination with reciprocating toe-lasting plates of a reciprocating toe-clamp arranged to operate between such plates, acting alternately, substantially as shown, and for the purposes described.

12. The automatically-removable toe-clamp, forming an abutment for the toe of the boot or shoe to rest against when adjusted in place, and also serving as a clamp to prevent the boot or shoe from rising when acted upon by the girth, substantially as shown and described.

13. In combination with the cam or other actuating mechanism, the folding plates provided with an oscillating or rocking motion, for the purposes substantially as set forth.

14. In a lasting-machine, oscillating plates for lasting the heel or toe, provided with fingers controlling the position of the wrinkles or folds, substantially as described.

15. In a lasting-machine, oscillating finger-plates provided with fingers for sweeping the wrinkles or folds into the desired position, substantially as and for the purposes described.

16. The combination with oscillating finger-plates of the reciprocating toe-clamping device, substantially as shown and described.

17. In a lasting-machine the combination of the arm h^1, the spring h^2, wedge or cam h, spring h^3, post g, and oscillating toe-support g^1.

18. In a lasting-machine the combination of the lever j, arm j^1, combined arm and slide j^2, rack j^3, gear i^2, crank i^3, and toe stretching and smoothing pad i.

19. In a lasting-machine, the combination of the right and left screw s s, and shaft f, suitably geared to produce motions of the heel and toe lasting mechanism, substantially as and for the purposes described.

20. In a lasting-machine, the combination of the toe-clamp k, connection k^1, nut k^2, slide k^3, and cam path E^2.

21. In a lasting-machine, the combination of the finger-plates l, oscillating-plates l, barrels n, carriages n^1, levers n^2, and cam-paths E^3.

22. The tapering square spindle, in combination with a last mortised or bored for the reception of the spindle at right angles with a line across the tread of the toe portion of the last, for the purposes shown and described.

191,928. MILLSTONE-DRESSING MACHINES. Jno. C. Cookson and Louis Rastetter, Fort Wayne, Ind., assignors to John Orff, same place. [Filed Mar. 31, 1877.]

Brief.—The tool-holder is reciprocated longitudinally, and is automatically carried across the bed-plate, and depressed by an arm working in a slot. The extension of the bed-plate affords additional resting-surface for steadying the device. It is an improvement on devices embraced in Patent No. 185,125, dated December 5, 1876.

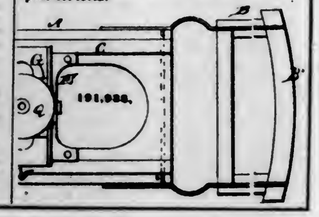
1. In a millstone-dressing machine, the bed-plate A, provided with the extension B, having the curved flat plate B', flush with the lower face of the bed-plate, substantially as described, and for the purpose set forth.

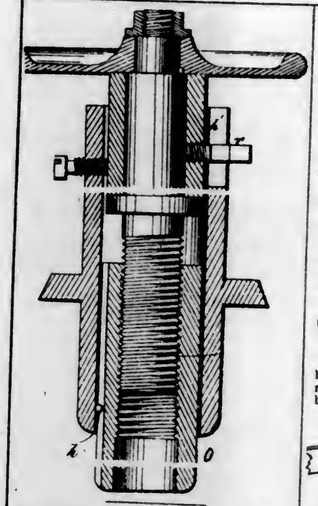
2. The combination of cylinder H, having guide-stud *h*, grooved screw-threaded tool-holder O, adjusting-rod P, provided with the arm R, having roller *r*, and guideway S, substantially as and for the purpose set forth.

3. The combination of cylinder H, having guide-stud *h*, grooved screw-threaded tool-holder O, adjusting-rod P, arm R, guideway S, and clamping-screw U, substantially as described, and for the purpose set forth.

4. The combination of cylinder H, having guide-stud *h*, with grooved screw-threaded tool-holder O and adjusting rod or shaft P, substantially as and for the purpose set forth.

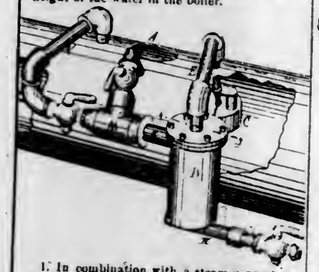
5. In a millstone dressing machine, the combination of the lower guideway pivoted at one end, with a cam-shaft journaled across the bed-plate below the other end of said guideway, substantially as and for the purpose set forth.





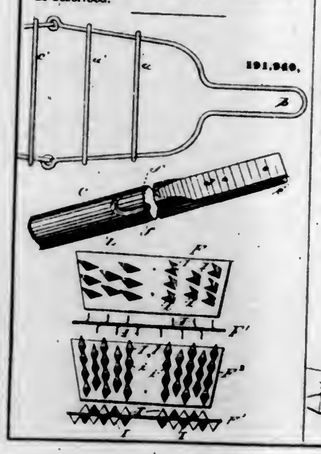
191,929. DEVICES FOR EXTRACTING MUD FROM STEAM-BOILERS. Thomas Orndoy, Bay City, Mich. [Filed Feb. 19, 1877.]

Brief.—The cup-shaped float slides up and down on a pipe, thus adjusting itself to the height of the water in the boiler.



1. In combination with a steam-generator, A, the cup-shaped float C, supported by and sliding on the pipe B, as and for the purposes described.

2. In combination with a steam-generator, A, the pipe B, cup-shaped float C, settling-chamber D, and return-pipe K, substantially as described.



191,940. BROOMS. Jas. Davidson, Kalida, Kans. [Filed Feb. 26, 1877.]

Brief.—A wire folding-clamp, between which are placed plates with triangular tongues to hold the broom-corn; also, a grooved and split handle, on which the clamp is held by rings.

1. The combination of the clasp A, having contracted portion *b*, with the handle C, having grooves L *f f*, substantially as and for the purpose set forth.

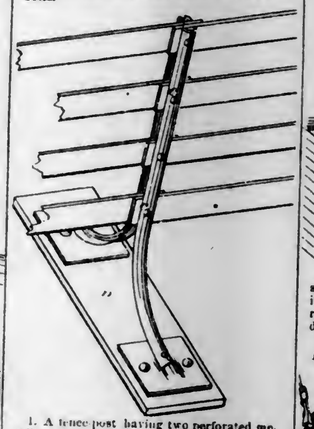
2. In combination with a wire broom-clasp, constructed substantially as herein described, the handle C having grooves L, substantially as and for the purpose herein set forth.

3. The wicker plate or plates F F^1 F^2, having sharp triangular tongues I, substantially as and for the purpose set forth.

4. The combination of the handle C, having flat split portion *d* and grooves *f* L, with the wicker plate or plates, and clasp A, herein described, substantially as and for the purpose herein set forth.

191,941. FENCE-POSTS. Howard Delano, Syracuse, assignor to himself and Ralph Dewey, Otto, N. Y. [Filed Dec. 20, 1876.]

Brief.—The post is in two sections, which have biting-edges, that are made to clamp the rails between them when drawn together by bolts.



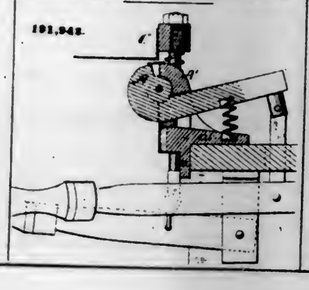
1. A fence-post having two perforated metallic sections with biting or clamping edges, in combination with independent clamping-bolts and wooden panels or rails.

2. A fence-post consisting of the vertical bisected metallic biting or clamping sections secured to the panels by screw-bolts, and having foot-flaring extensions secured to a base, substantially as herein set forth.

191,942. PROCESSES OF PREPARING MASH. Rudolph D'Heureuse, New York, N. Y. [Filed Aug. 15, 1876.]

The process of preparing mash from mixtures of malt, wort, or extract of malt and unmalted grain, or from malt alone, which consists in subjecting the mashing preparation to a temperature ranging from 140° to 175° Fahrenheit, or thereabout, and to a pressure above the atmospheric pressure of fifteen pounds per inch, whereby the saccharification of the starch is expedited without injuring the diastase of the malt, substantially as set forth.

191,943.



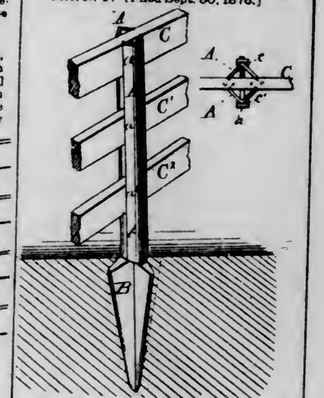
191,943. PAPER-BAG MACHINES. Albert S. Dennison, Watertown, N. Y. [Filed May 5, 1877.]

Brief.—To secure the seams of paper bags, the metal securing-strip, together with the end of the paper tube, is forced down between the open clamping-jaws by a descending blade, which is returned by a spring. This gives the metal strip a V shape, and it is then securely clamped upon the tube by closing the clamping-jaws upon it.

1. The combination of the crimping-blade C and griping-jaws A A^1, as set forth.

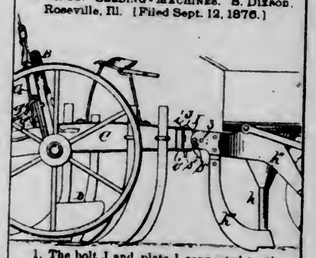
2. The jaws A A^1, in combination with the folding-blade, the latter being mounted upon vertical rods, and operating as set forth.

191,944. FENCE-POSTS. Ralph Dewey, Otto, N. Y. [Filed Sept. 30, 1876.]



The combination of the metallic perforated sections A A, having biting-edges *o o*, with independent clamping bolts *a* a^1 a^2, wooden rails C C^1 C^2, and point B, substantially as described.

191,945. SEEDING-MACHINES. S. Dixon, Roseville, Ill. [Filed Sept. 12, 1876.]



1. The bolt J and plate I connected to the beam C by plate *i* and slotted plate *i'*, to allow oscillation of the beam C and its plows, substantially as described and for the purpose specified.

2. The plate I constructed as described, and connected to the frame *h''*, having series of holes, by a bolt, *r'*, and combined to operate with the plow-carrying frame and seeding-frame, substantially as described and for the purpose specified.

3. The elongated staple *g'*, combined with chain G, axle B, beam C, and devices connecting it to the frame *h''*, substantially as described and for the purpose specified.

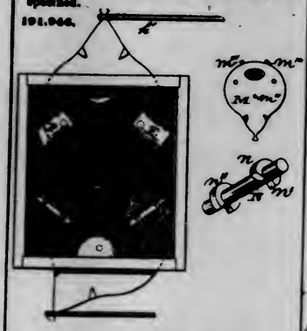
191,946. SEEDING-MACHINES. S. Dixon, Roseville, Ill. [Filed Jan. 13, 1877.]

Brief.—The seed is forced from the holes in the oscillating feed-plates by grooved disks secured to a rock-shaft, one point of which projects into a seed-hole, and is struck by a pin on the feed-plate as it oscillates, thus forcing one out and the other in.

1. The rock-shaft N, having disks *n* and *n''* operating in combination with seed-cup plate M, having passages *m* and projecting pins *m'''*, substantially as and for the purpose specified.

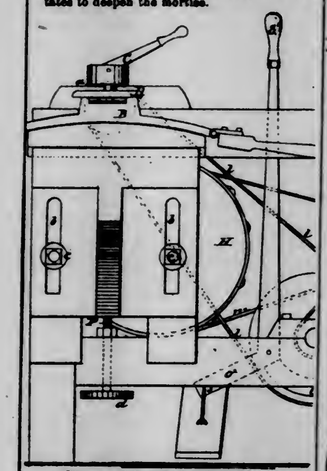
2. The combination of seed-hopper H and oscillating seed-cup plates M, having the passages m and pins m', with the rock-shafts N having disks n and n'', and with the housings P, substantially as and for the purpose specified.

191,946.



191,947. MORTISING-MACHINES. Alfred D. Eddy and H. J. Stolsenbach, Tiffin, Ohio. [Filed Apr. 2, 1877.]

Brief.—The material to be mortised is clamped upon a reciprocating concave table, connected by a tongue and groove to a convex bed, by means of a cam-lever pivoted to the head of a post fixed in said table, and acting upon a bar hinged to the side of the table. The tool is adapted, by means of opposite grooves and a notch in its cutting end, to be sharpened without decreasing the diameter of the tool at that point. The tool is mounted in a sliding mandrel, and advances as it rotates to deepen the mortise.



1. The mortising-tool *a*, having opposite lengthwise semicircular grooves and a curved or semicircular notch in its cutting end between the rounded cutters, whereby said tool is adapted to be sharpened by dooping the notch, without thereby decreasing the diameter of the tool at that point, as set forth.

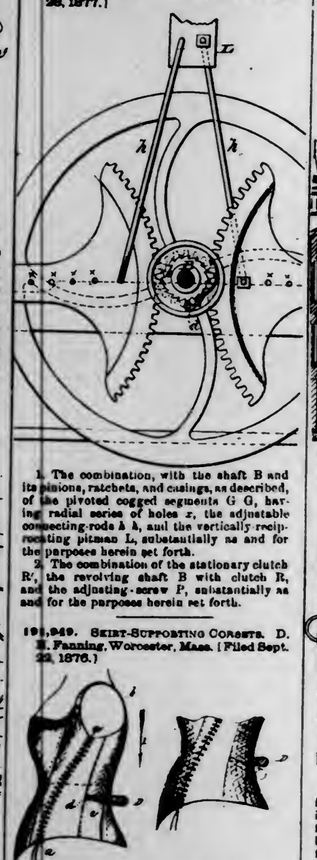
2. In a mortising-machine, the combination of the convex bed and reciprocating concave table, the two being connected by a tongue and groove, a device for clamping the work upon the table, and a mandrel revolving in fixed bearings, all constructed and arranged as shown and described, to operate as and for the purpose specified.

3. In a mortising-machine, in combination with the reciprocating table B, the bar D, hinged at the outer side thereof, the post *a*, fixed in the table and projecting through said bar, the cam-lever C, pivoted to the top of the post, and the spring, arranged as shown and described, for the purpose described.

4. In a mortising-machine, the combination of the cam-wheel H, the reciprocating bar I, having arms or pins for embracing the periphery of said wheel, the mandrel G, carrying tool A, the connecting-bar *f*, and spring *g*, the reciprocating bar and mandrel being arranged parallel, all as shown and described, to operate as and for the purpose specified.

5. In a mortising-machine, the cam-wheel proper, having the peripheral plate, provided with slots and secured by clamp-screws, whereby the throw of the cam may be raised by adjusting the said plate, as set forth.

191,948. MECHANICAL MOVEMENTS. Jos. I. Etheridge, Mishawaka, Ind. [Filed Apr. 26, 1877.]



1. The combination, with the shaft B and its pinions, ratchets, and casings, as described, of the pivoted cogged segments G G, having radial series of holes *x*, the adjustable connecting-rods h h, and the vertically reciprocating pitman L, substantially as and for the purposes herein set forth.

2. The combination of the stationary clutch R', the revolving shaft B with clutch R, and the adjusting-screw P, substantially as and for the purposes herein set forth.

191,949. SKIRT-SUPPORTING CORSETS. D. E. Fanning, Worcester, Mass. [Filed Sept. 22, 1876.]

The combination, with a closed-back corset, of a self-adjusting skirt-supporter, D, arranged to fall or incline down from the points at which it is permanently secured to the corset, for giving support to the back of the wearer, substantially as shown and described.

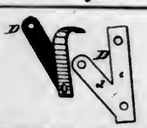
191,950. FOUNTAIN-PENS. Leon Fargue, Paris, France. [Filed Feb. 27, 1877.]



A pen having a plain open concavity, provided with a quantity of solidified ink prepared with an adhesive substance, substantially as described, and adapted to be partially dissolved to render the pen self-supplying by dipping in water, as set forth.

191,951. WINDOW-BLINDS. John F. W. Fawcett, Cedar Springs, Mich. [Filed Mar. 20, 1877.]

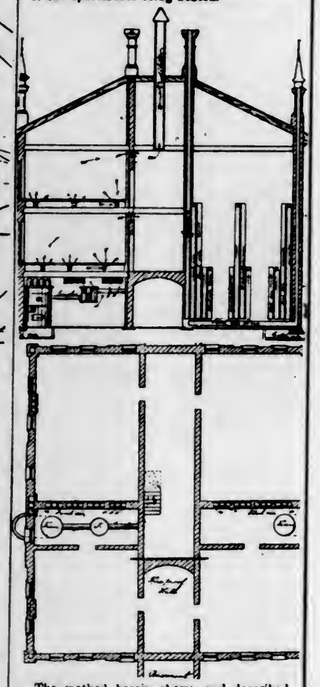
191,951.



The fastener D, herein described, consisting of curved body-plate *c* and ear or bracket *d*, the latter bent at a right angle to the former, substantially as and for the purpose set forth.

191,952. HEATING AND VENTILATING BUILDINGS. William F. Flagg, Bloomington, Ill. [Filed May 25, 1877.]

Brief.—Heated air is passed from the furnace direct to the room or apartment being heated, and returned to the furnace-chamber, where the foul air is discharged into the open air, while the better portions of the air are subjected to radiated heat, and again returned to the apartments being heated.



The method herein shown and described for heating and ventilating buildings, consisting in passing the fresh heated air from the furnace direct to the room or rooms being heated, and returning it to the furnace-room, from which the foul air is discharged to the open air, while the better portions of the air are subjected to radiated heat, and again returned to the room or rooms being heated, substantially as specified.

191,953. FIRE-PLACES. Robert Gilchriest, Louisville, Ky. [Filed Mar. 10, 1877.]

1. In combination with a tilting platform, the adjustable transverse braces d^2 of the truck-frame, substantially as specified.

2. The combination, with a truck, having a vibrating platform journaled therein, of a gear-wheel on the journal of the platform, a worm-screw journaled in the truck engaging therewith, and an actuating device for the screw, substantially as specified.

3. The combination, with a sub-platform and an upper platform, vibrating thereon horizontally, a master-wheel upon the under side of the latter, a gear-wheel upon the former meshing therewith, and supporting rollers between the platforms, substantially as specified.

4. The combination of the inclined end braces K', having extension-arms K'', and adjustable supporting-legs F', with the carrier-platform and the vibrating and adjustable sub-platform supporting the carrier, substantially as specified.

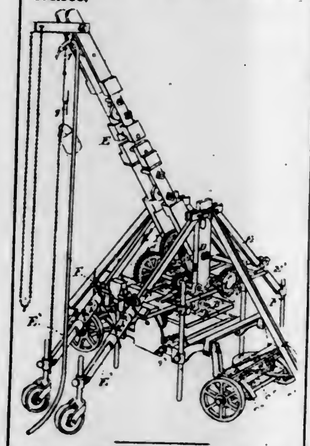
5. The combination, with a ladder-platform and a tilting sub-platform carrying the same, of the inclined end braces, the detachable and sectional sockets into the ends thereof, the sockets upon the lower ends of said sections, the adjustable rods or casters fitting in said sockets, and adjusting set-screws, substantially as specified.

6. The combination, with a ladder-truck, a tilting platform journaled thereon, and a horizontally-vibrating ladder-carrying platform mounted thereon, of a king-bolt extending through both platforms, and secured to the tilting or lower one, substantially as specified.

7. In combination with the standards D, ladder E, and shaft g^1, the lateral gears I' I', secured to said shaft and side rails of the ladder, the worm-screws I' at each side thereof, the shaft K having, bevel-gears *k*, and an actuating mechanism for rotating said shaft, substantially as specified.

8. The reel I, sliding laterally on shaft g^1, and the winding-drum P, laterally adjustable on its splined shaft, in combination with the ladder-sections, having laterally-adjustable sheaves or pulleys, substantially as specified.

191,955.



191,956. LEVELS. Samuel Gissinger, Pittsburg, Pa., assignor of one-half his right to B. W. Sweetzel, same place. [Filed Nov. 27, 1876.]



1. A plumb, level, and clinometer pendulum, constructed in two parts, with a joint below the primary center of oscillation, for the purpose of breaking up the vibrations of the pendulum and quickly bringing it to a state of rest, substantially as described.

2. In combination with pendulum *a e*, the adjustable ball or weight *d*, substantially as and for the purposes explained.

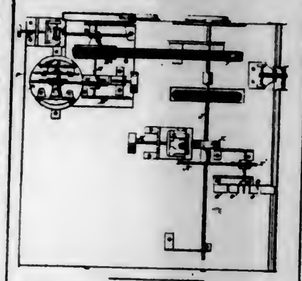
191,958. MOTIVE POWERS. Robt. D. Green, Columbus, Miss. [Filed May 29, 1877.]

1. A series of engines, or trains of gearing, each provided with an independent winding apparatus, and each operated independently of the others by a rubber strap, belt, or band, and all connected to and operating a common main shaft, substantially as and for the purposes herein set forth.

2. The combination of the conical drum O, cog-wheel D, connected with the gearing E, link-chain G, clamps *h*, and rubber straps or bands O', substantially as and for the purposes herein set forth.

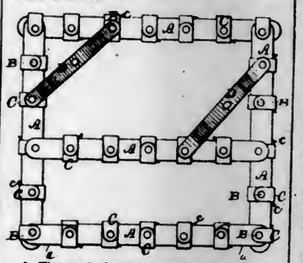
3. The pivoted frame L', carrying the pinion *d*, and operated by the set-screw M, in combination with the train of gearing E, substantially as and for the purposes herein set forth.

4. In combination with the main shaft J, the gear-wheels N N', and the fly composed of the wheel O, with centrally-pivoted and adjustable wings O', substantially as and for the purposes herein set forth



191,956. HARROWS. J. W. Greer, Prince of Wales, Ky. [Filed Apr. 30, 1877.]

Brief.—The harrow-tooth is set in the center of the beam, and passes through the perforated arms of two clips, which overlap each other, and are fastened with a wedge on the side. The beams are secured at the corners with bars bent around the sides, and held by the teeth. The two bars are double, the ends fastened in the teeth above and below the beams, and riveted together in the center. The harrow is adjustable, and may be given different forms.

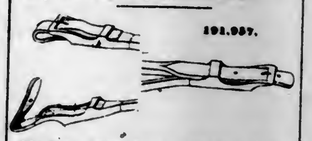


1. The tooth-clamping mechanism, consisting of the clips C C, in combination with and embracing the beam A, and having their horizontal arms or portions overlapping each other, and provided with apertures and wedge *e*, substantially as and for the purpose set forth.

2. The plates *e e*, in combination with the beams A A, having the teeth B B and clips C C, between the overlapping and underlapping portions of which are inserted the ends of the said plates, also having apertures for the passage of the said teeth, substantially as and for the purpose set forth.

3. The braces D D, consisting each of concavo-convex plates or bars united together, and provided with apertures, in combination with the beams A A and teeth B B, substantially as and for the purpose set forth.

191,957.



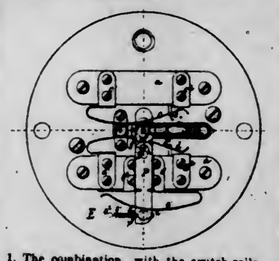
191,957. CHECK-REINS. Charles A. Haas, Delmar, Iowa. [Filed Jan. 6, 1877.]

Brief.—A square check-rein is formed from a flat strap in such manner that the stitching is entirely concealed.

As an improved article of manufacture, a square check-rein constructed as hereinbefore described, and combined with the buckle K, having the tubular end, substantially as and for the purpose specified.

191,958. ELECTRO-MAGNETIC RAILROAD-SWITCH SIGNALS. Thos. S. Hall and G. H. Snow, West Meriden, Conn., assignors to the Hall Railway-Signal Company. [Filed Oct. 11, 1876.]

Brief.—Movement of switch-rails from main to side track causes one circuit to be closed and opened again, and another circuit to be opened and left open. In putting switch-rail back to main line the circuit left open will be closed and remain so, and a third circuit will be closed and opened again.



1. The combination, with the switch-rails of a railroad-track, and a signal adapted to be operated by an electric current, the circuit of which is closed by a passing train or otherwise, of three circuit-closers controlled by the movement of the switch-rails, substantially as described.

2. The combination of the sliding plate P and buttons p^2 J with circuit-closers *c d e*, and with the switch-rails of a railroad track, substantially in the manner shown and described.

3. The combination of the projection p^1, pin *s*, and spring *s'*, with the sliding plate P, buttons p^2 J, circuit-closers *c d e*, and with the switch-rails of a railroad track, substantially as specified.

4. The combination of the arm K and centralizing spring L with the sliding plate P, buttons p^2 J, circuit-closers *c d e*, and with the switch-rails of a railroad track, substantially as specified.

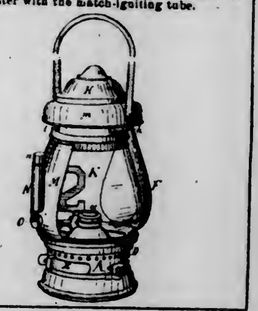
5. The combination of the cams *g g'* with the sliding plate P, buttons p^2 J, circuit-closers *c d e*, and with the switch-rails of a railroad track, substantially as described.

6. The combination of the cam-lever G, carrying the cams *g g'*, with the sliding plate P, buttons p^2 J, circuit-closers *c d e*, and with the switch-rails of a railroad-track, substantially as set forth.

7. The combination of the sections connecting-rod G^1 G^2, with the cam lever G, sliding plate P, buttons p^2 J, circuit-closers *c d e*, and with the switch-rails of a railroad-track, substantially as described.

191,959. LANTERNS. Richd. Hammill, Chicago, Ill. [Filed Feb. 17, 1877.]

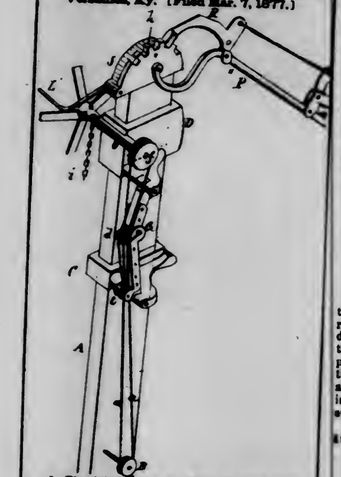
Brief.—The sliding shield covers the exposed part of the globe when desired. In it is a funnel-shaped opening, which can be made to register with the match-igniting tube.



1. In a lantern, the combination with the globe of the tube G, having a slanting end, the leaf-spring secured within the tube, the flat-cut spring *g*, and the funnel-shaped boss O in the sliding shield, all constructed and arranged substantially as described and shown.

2. The combination, in a lantern, of the oil-reservoir A, ring D, metallic half-globe F, glass half-globe E, sliding shield M, and hinged dome H, all secured together, constructed, and arranged substantially as described and shown.

191,960. HARVESTER-RIBBLE. H. S. Harris, Versailles, Ky. [Filed Mar. 7, 1877.]



1. The jointed arm or elbow G, connecting the movable head-block D, carrying the reel, with a stationary point on the reel-staff, and provided with the pulleys *d* and *e*, as described, in combination with the chain *a*, driving-pulley B, and pulley *f*, on the reel-shaft, substantially as and for the purposes herein set forth.

2. The combination, with the reel-staff *A*, of the stationary head-block C, the movable head-block D, carrying the reel-shaft and reel, the pulleys *d*, *e*, *f*, and B, jointed arm G, chains *a t*, arm L, lever F, notched segment *h*, and pawl R, all substantially as set forth.

191,961. MECHANICAL MOVEMENTS. A. F. Harvey, Kirkwood, Mo. [Filed May 17, 1877.]

1. The herein-described mechanism for effecting changes in the speed of machinery, consisting of the concave pulleys A A' and the wheel D substantially as described.

2. In combination with the pulleys A A', the wheel D, having movable bearings *d' d''*, for the purpose of moving the wheel into and out of the plane of the shafts of the pulleys, substantially as described.

3. The combination of the pulleys A A', wheel D, and rest I, substantially as described.

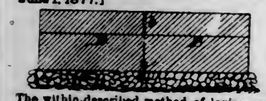
4. The combination of the pulleys A A', the wheel D having the movable bearings *d' d''*, and the rest I, substantially as described.

5. The combination of the wheel D, rest I, rod K *k*, and lever L, substantially as described.

6. The combination of the guide *m*, lever L, rest I, rod K *k*, and wheel D, substantially as described.

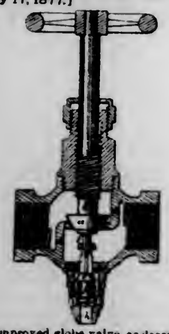
7. The combination of the lever L, guide *m*, and lock *m'*, substantially as described.

191,962. ARTIFICIAL-STONE PAVEMENTS. Chas. Hones, Washington, D. C., assignor to George W. Cook, same place. [Filed June 1, 1877.]



The within-described method of laying artificial-stone pavements, by first dividing the road-bed into sections, then laying the foundation of alternate sections and cutting through the same at proper intervals, then putting on the top-dressing and pressing the the same down into the cuts, and, when these alternate sections have become hard, then laying the other sections in the same manner, substantially as herein set forth.

191,963. GLOBE VALVES OR WATER-COCKS. Ernest Hoehn, Lawrence, Mass. [Filed May 17, 1877.]



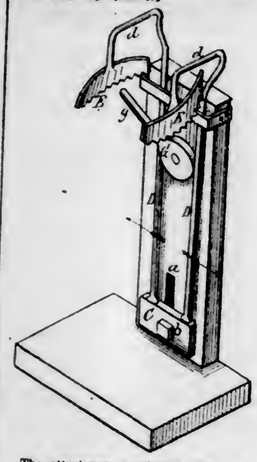
The improved globe-valve, as described, provided not only with the waste-educt and valve and a closing-spring, arranged as shown, but having to its main-valve stem *b* and the cap of the case screws, as shown, for operating such main valve and stem, all being as represented.

191,964. HOSE NOZZLES OR PIPES. Charles T. Holloway, Baltimore, Md. [Filed Apr. 28, 1877.]

Brief.—This hose-pipe is intended for fire-extinguishers containing carbonic or other gas, and is provided with a valve, which has its seat on the outer end of the pipe, and moves at right angles to the axis of the pipe.

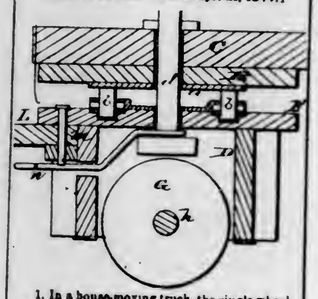
A hose pipe or nozzle, A, provided with a pivoted or swinging lever and valve, B, with suitable packing *s*, and an adjusting-screw, *i*, or equivalent device, constructed and arranged substantially as shown and described.

191,965. BAG-HOLDERS. Miller B. Hudson, Canandaigua, N. Y., assignor of one-half his right to Henry F. Sterling, same place. [Filed May 7, 1877.]



The attachment consisting of the spring-arms D D and sliding block C, connected together to form one device, in combination with the pivoted cam G, resting between the arms, for the purpose of expanding them at any adjustment, as herein shown and described.

191,966. TRUCKS FOR MOVING BUILDINGS. Henry C. Hulet and James D. Murphy, Darlington, Ind. [Filed Apr. 21, 1877.]



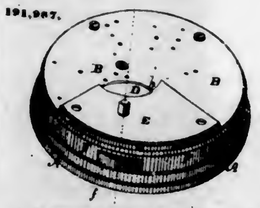
1. In a house-moving truck, the single wheel or roller G, mounted in a housing, D, having the bolster B' with rollers *b* attached to it, in combination with the upper bolster B, having circle *a*, and the king-bolt *d*, substantially as and for the purpose described.

2. The adjustable sliding brace J J', in combination with the single-roller truck herein described, for the purpose set forth.

3. The combination of the stationary bolster B with plate *a*, bolster B' with rollers *b*, housing D, roller G, adjustable brace J J', king-bolt *d*, hitching device *n*, and shafts or tongue L, all constructed substantially as and for the purpose described.

191,967. DUST-CAPS FOR WATCHES. Geo. Hunter, Elgin, Ill. [Filed Apr. 2, 1870.]

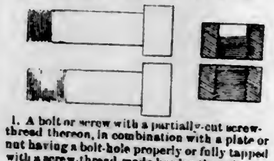
191,967.



1. In combination with the open recess *b* of the top plate B, the barrel-bridge E, extending across said recess, and provided with a lip, *e*, which incloses the outer edge of the same, has its lower edge flush with the lower face of said plate, and forms a continuation of the line of the edge of the latter, substantially as and for the purpose specified.

2. In combination with the pillar-plate A, the recessed top plate B *b*, and with the barrel-bridge E, having the downward-projecting lip *e*, the dust-band F, arranged to extend from said pillar-plate to said top plate, and to embrace the edges of the latter and of said lip, substantially as and for the purpose shown.

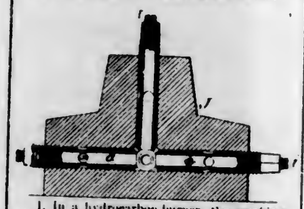
191,968. FORMING THREADS ON SCREW BOLTS AND NUTS. Alfd. B. Ibbotson, Florence, Italy, and Frederick J. Talbot, Sheffield, England. [Filed May 28, 1877.]



1. A bolt or screw with a partially-cut screw-thread thereon, in combination with a plate or nut having a bolt-hole properly or fully tapped with a screw-thread made harder than the uncut or unscrewed portion of the said bolt, so that in screwing the said bolt or screw into the said tapped or threaded hole the formation of the thread on the said bolt or screw will be completed, in the manner set forth, and for the purpose specified.

2. A bolt or screw with the thread fully or properly cut thereon, in combination with a plate or nut having a hole therein, and formed of metal softer than the said bolt or screw, and with the thread only partially cut therein, so that the thread in the said hole or nut is completed by the forcing of the said bolt or screw into the same, in the manner above set forth, and for the purpose specified.

191,969. HYDROCARBON-BURNERS. Wm. L. Imlay, Camden, assignor to D. Smith, Burlington, N. J. [Filed May 9, 1877.]



1. In a hydrocarbon-burner, the combination of the block J and its passages with tubular stems adjustable from and toward a central discharge-opening, as set forth.

2. The combination of the block J with the tubular stems, having longitudinal openings, and plugs *i* closing the outer ends of said openings, as described.

191,970. SINKS. George Jennings, London, England. [Filed May 19, 1877.]

1. The sink A, suitably lined, having compartment or chamber A'', provided with an outlet or escape passage or opening and separated from the main sink chamber A' by perforated partition B, substantially as and for the purposes set forth.

2. In the sink A, the partition B, adapted in position to allow outlet from chamber A' into chamber A'', the valve D D', operating in seat *c*, and cover C, all combined substantially as and for the purposes set forth.

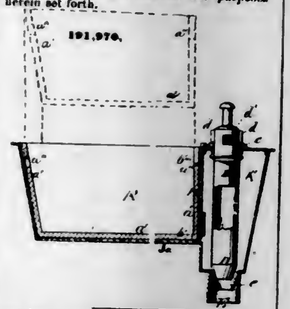
3. The valve D, having hollow stem D' with port *d'*, and provided with webs *d*, and combined with boss *c* of cover C having notches *c'*, substantially as and for the purposes set forth.

4. In combination with a sink, A, having chambers A' A'' and partition B and valve D D', constructed as described, the reticulated cover C, constructed as shown, substantially as and for the purposes set forth.

5. In a sink, substantially as herein described, the partition B, adapted to be moved in cleats or guides *b*, and having finger projection, or flange *b'''*, substantially as described.

6. In the sink A A' A'' *c'*, having perforated and removable partition B, the valve D, having conical ends and hollow stem D', provided with webs *d* and having port *d'*, and adapted to seat *e* and exit E, as described, its upper part working in cover C, the several parts combined and adapted to operate substantially in the manner and for the purposes herein set forth.

191,970.



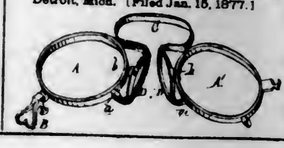
191,971. LIQUID-MEASURES. Wm. K. Johnston, Cordova, Ill., assignor of one-half his right to C. L. Maxwell, Princeton, Iowa. [Filed Jan. 20, 1877.]



1. The combination, with the notched or serrated indicating-plate E, of the measuring-vessel C, float D, guide-tube D'', rod D' D', and index *d*, substantially as described, and for the purpose set forth.

2. The combination of a notched or serrated indicating-plate, E, with a pointer, *d*, substantially as and for the purpose set forth.

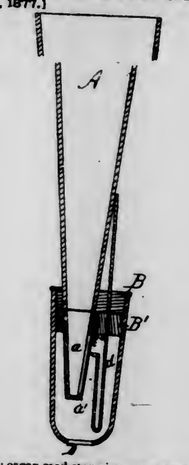
191,972. EYEGLASSES. George Johnston, Detroit, Mich. [Filed Jan. 15, 1877.]



1. The combination, with the bows A A' of a pair of eyeglasses, of the spring C, of the form shown, secured to each of the said bows at two points, by means of the studs *a b*, constructed and arranged substantially as described.

2. In a pair of eye or nose glasses, the combination and arrangement of the frames A A', handle B, and springs C D, when constructed and secured together substantially as herein specified.

191,973. REED-PIPES FOR ORGANS. Wm. A. Johnson, Westfield, Mass., assignor to Johnson & Son, same place. [Filed May 21, 1877.]



1. An organ reed stop pipe, constructed with a gradually-increasing interior diameter from the bottom of the eschallot *a* to the top of the tube A, substantially as and for the purpose set forth.

2. The combination of the bottom tube D, the lower portion B' of the block, the tapering eschallot *a*, reed *a'*, wedge *c*, and spring *d*, substantially as set forth.

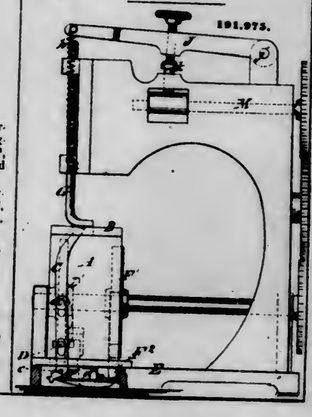
3. The combination of the bottom tube D, spring *d*, eschallot *a*, block-pieces B' B, wedge *c*, reed *a'*, and tube A, substantially as set forth.

191,974. WASH FOR INGOT-MOLDS. Wm. R. Jones, Braddocks, Pa. [Filed Apr. 4, 1877.]

Brief.—Coats the mold freely with whitewash, so that the ingot may slip easily therefrom.

The herein-described mold-wash, consisting of water and caustic lime or oxide of calcium, substantially as and for the purposes set forth.

191,975.



191,975. SEWING-MACHINES. John Keats, Wood Green, England. [Filed Dec. 16, 1876.]

1. The combination of the vertical feed-bar C, the levers F, F', and D, the cams F' D', and the spring e, substantially as herein described.

2. The combination, with the presser of a sewing-machine, of two springs or sets of springs, both of which, in their normal condition, act upon the presser to hold it down upon the work, and an automatic lifting or relieving device, applied to one of said springs or sets of springs to take its pressure from the presser without interfering with the pressure of the other spring or set, substantially as herein described.

3. The combination of the presser-rod G, the spring or springs g g, the spring or springs h h, the lever J, and the cam M, substantially as and for the purpose herein set forth.

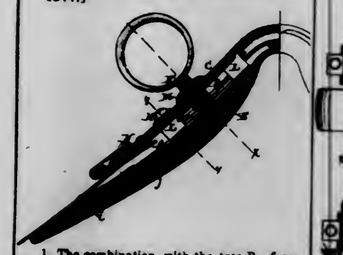
191,976. LAMP-EXTINGUISHERS. George D. Kilmer, Wilmington, Del. [Filed Mar. 17, 1877.]

Brief.—The figure shows the extinguisher closed, as when the light is to be extinguished. The wick-tube (not shown) is embraced by the jaws. They are operated from their base by a forked lever, which embraces the wick-tube.



The longer jaw B and shorter jaw B', provided with perforations a a, in combination with the removable bent rod b, wick-tube A', and slotted cap A', substantially as described and for the purpose set forth.

191,977. PADS FOR HARNESS-SADDLES. J. F. KNOTT, Orange, N. J. [Filed Jan. 11, 1877.]



1. The combination, with the tree B, of an independent pad-plate, A, of equal width to the pad, and having its ends projecting beyond the ends of the tree to form an extended bearing for the saddle, as set forth.

2. A pad-plate, A, having the shoulders a a, to form a seat for the saddle tree, substantially as described.

3. The combination of tongues c c with the opening D, substantially as and for the purpose described.

4. A pad-plate, A, having the loops J J for receiving the screw-burrs, substantially as described.

5. The combination of a sleeve, M, with the terret-burr E, to protect the screw-shank of the terret, substantially as described.

191,978.

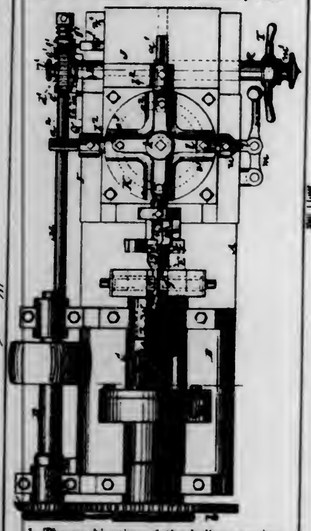


191,979. EMBROIDERY-PATTERNS. A. Komp, New York, N. Y. [Filed May 28, 1877.]

An embroidery-pattern composed of a perforated sheet of paper or card-board, with designs or characters which are raised above the surface of the body of said sheet, substantially in the manner and for the purpose shown and described.

191,980. MACHINES FOR TURNING, DRILLING, AND TAPPING SUCKER-ROD CONNECTIONS. Albert D. Laws, Bridgeport, Conn. [Filed Apr. 17, 1877.]

Brief.—The connection is centered and clamped near both ends by devices within the main spindle, with all of which it rotates to be operated upon successively by the tools. The feed-screw is loose on its shaft, and adapted to be engaged by a clutch splined to said shaft. When unclutched at the proper time by a projection on the carriage, this feed-screw serves to lock the carriage in its place. By means of a hollow cross-shaft, rod passing through the same, loose worm-wheel of the feed device, nut and hand-wheel, the carriage may be arranged to be turned back by hand.



1. The combination of the hollow rotating main spindle C, constructed to carry the sucker-rod connection concentrically and longitudinally within it, with a center mandrel, G, rotating with the spindle, and upon which the split end of the sucker-rod connection rests, and a device for automatically centering the split end of said sucker-rod connection, substantially as described.

2. The combination of a hollow cone or female centering device, H, with the inner mandrel G and outer hollow main spindle C, essentially as described.

3. The combination, with the hollow main spindle C, constructed to carry the sucker-rod connection concentrically and longitudinally within it, of a chucking or clamping device for centering and holding the split end of said sucker-rod connection within the main spindle, and a separate chucking or clamping device for centering and holding the forward end of said connection, substantially as and for the purpose described.

4. The loose feeding-screw d and its half-clutch f', in combination with the adjustable half-clutch f, the feed-operating shaft M, the carriage J, the worm-wheel Q, by which motion is communicated from the screw to the carriage, and means controlled by the motion of the carriage for throwing the screw out of gear and locking the carriage, substantially as specified.

5. The combination of the hollow cross-shaft R, the loose worm-wheel Q of the carriage-feeding devices, the carriage J, geared with and for operation by the shaft R, the friction-clutch S, and the tightening and releasing rod k' with its adjusting-nut n', essentially as and for the purposes herein set forth.

191,980. PROCESSES FOR MAKING ILLUMINATING-GAS. James M. Leighton, Rochester, N. Y., assignor to himself, John T. Salter, Geo. W. Dyer, and T. S. Sprague. [Filed Mar. 14, 1877.]

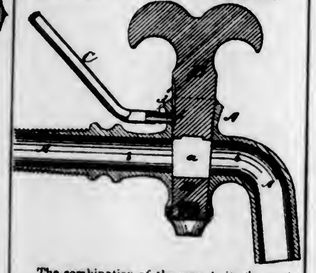
The process, in making illuminating-gas from wood and fluid hydrocarbons, of injecting such hydrocarbons, under air or gravity pressure, through a pipe into a retort, and spraying such hydrocarbons as they leave the pipe by a jet of steam introduced into such pipe in the same line of direction with a volume of wood gas flowing in behind such sprayed hydrocarbons, so that such wood gas shall take up such sprayed hydrocarbons and sweep them out of the retort, substantially as described.

191,981. CASTING GROOVED PULLEYS. W. W. Lobdell, Wilmington, Del. [Filed Apr. 21, 1877.]



The within-described wheel, having a grooved rim, made in two parts, secured together and chilled at the groove only, as set forth.

191,982. VENT-FAUCETS. Adolph Luhrs, New York, N. Y. [Filed May 4, 1877.]



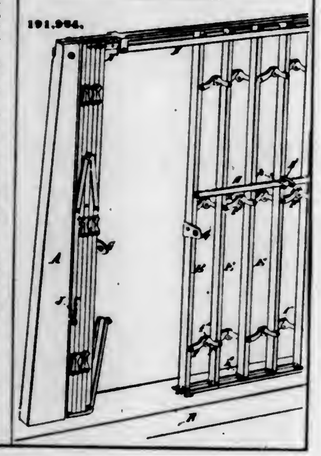
The combination of the case A, its flange d and opening e', the plug B, its opening a and groove e, and the pipe C communicating with the openings e' in the flange, all as set forth.

191,983. CASTING GROOVED PULLEYS. W. W. Lobdell, Wilmington, Del. [Filed Apr. 21, 1877.]



The chills B B', adapted to the inner circumference of the rim of a grooved pulley, for the purpose of chilling the groove on the outer circumference of the pulley, as set forth.

191,984.



191,985. GATES. James E. Q. Maddox, Cincinnati, Ohio. [Filed Apr. 14, 1877.]

1. The grating or gate for hallways or doorways, composed of expanding bars E, joined together by knuckle stop-joints P f f' f'', substantially as and for the purpose specified.

2. In combination with the sliding bars E and connecting devices F, the hinged gutter-plate I, substantially as and for the purpose specified.

3. In combination with the folding bars E and pieces P, the hinges P at the sides and the side bars N, one of which, at N', permits of the swinging of the gate when in a folded condition, substantially as and for the purpose specified.

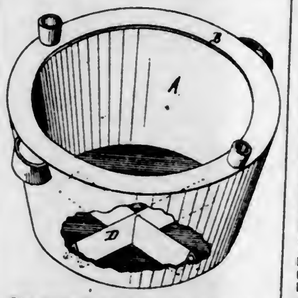
191,986. FEEDERS FOR THRASHING-MACHINES. Enoch J. Marsters, Stockton, Cal. [Filed Mar. 13, 1876.]



1. In a feeder for thrashing-machines, the combination, with the feed-box A B, of the reciprocating pushers C, sliding in guides attached to the said feed-box, the crank-shaft F, journaled in the upper end of the feed-box and having the series of quarter-bends, and the pitman E, connecting the cranks directly to the said pushers, constructed and arranged substantially as and for the purposes set forth.

2. The combination, with the pushers C, working in the alternation specified, of the two sets or series of teeth attached, respectively, to the lower end and the middle portion of said pushers, as and for the purpose set forth.

191,987. DOUGH-RAISERS. Jno. W. Martin, Alliance, Ohio, assignor of one-half his right to Geo. Burgert, same place. [Filed Oct. 28, 1876.]



The combination of the exterior metallic vessel A, provided with ribs D on its bottom and at the top with the inwardly-projecting flange B, and the interior metallic vessel C, having at the top the outwardly-projecting flange a, all substantially as and for the purposes herein set forth.

191,987. LAMPS. Eli C. McCloy, Norwalk, Ohio, assignor to himself and B. A. F. Greer, Mount Vernon, Ohio. [Filed Jan. 29, 1877.]



The combination with the annular oil reservoir or receiver C of the series of connecting or feeding tubes B, and the series of wick-tubes E, arranged outside of the circumference of the annular reservoir or receiver, substantially as herein shown and described.

191,988. GAS-STOVES. William McKenzie, Detroit, Mich., assignor of one-half his right to Jos. H. Berry, same place. [Filed Jan. 16, 1877.]

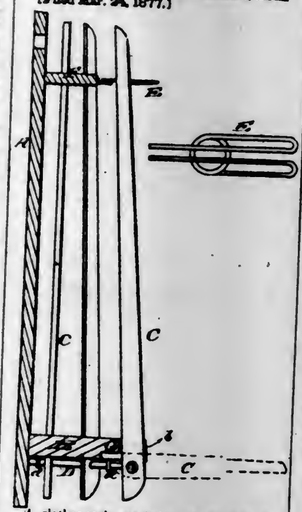
191,989.



1. The combination of the cage E with the burner-tube, case, and one or more perforated plates above said burner, substantially as described.

2. The combination of the case A, expansion-chamber B, valve C, tube D, cage E, and perforated plates F F, substantially as and for the purpose set forth.

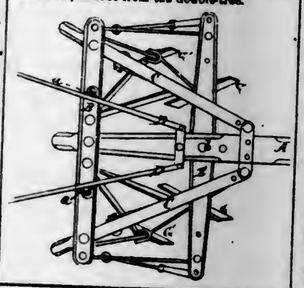
191,990. TOWEL-RACKS. Wm. H. Merritt and Frank A. Bokenfels, Manistee, Mich. [Filed Mar. 24, 1877.]



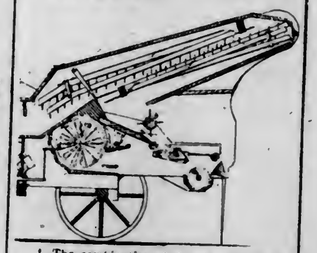
A clothes-rack consisting of the back A, having the upper bracket F, provided with the spring wire clamps E, made in one piece, bent spirally at their middle parts with straight projecting ends, and the lower bracket B, having recess b, shoulders G, and bent rod D, to which the bars C are pivoted, the whole constructed, arranged, and operating in the manner and for the purpose set forth.

191,990. CULTIVATORS. Nelson Messenger and Jas. Erwin, Newark, Ill. [Filed Sept. 20, 1876.]

Brief.—The shovel-standards are braced both to the frame and to each other. The draft is pendent from the double-tree.



191,991. GRAIN-SEPARATORS. John L. Metcalfe and John T. Metcalfe, Quincy, Pa. [Filed Feb. 8, 1877.]



1. The combination of the wind-regulator of the fan wheel with the ball governor and adjusting weight, substantially as described.

2. The combination of the upper rakes I, actuated at their feed end by a multiple crank-shaft, and sliding in guides at their opposite end, with their lower rakes J actuated in a similar manner at their discharge end, and sliding in guides at their feed end, the two sets of rakes overlapping throughout nearly their entire length, and having teeth on their proximate faces, substantially as described.

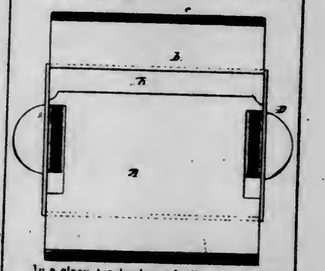
3. The rake-bars, arranged with their upper surfaces horizontal, and each bar set throughout its entire length with staggered teeth, substantially as described.

4. The combination of the toothed feed-roller N with the smooth incline, and with the comb or teeth a extending horizontally from the incline, the roller being arranged over the lower end of the incline, and the comb projecting from a point above said lower end, substantially as described.

5. The combination of carding-rollers, having both peripheral and longitudinal grooves, with the combs, having teeth that enter the peripheral grooves, substantially as described.

6. The combination of the elevator, the screen arranged in the bottom thereof, the sliding buffers, operating against the under surface of the screen, and the lever Q, by which the buffer is operated from the pulley of the lower rake-shaft, substantially as described.

191,992. CLASPS FOR BOOKS. Julius Muller and Edwd. Hilpert, Berlin, Prussia. [Filed Mar. 10, 1877.]



In a clasp for books and albums, the combination, with the hinged or stationary plate A, provided with projections f, and the shell or case B, provided with the pins g and book e, of the springs D, all constructed as shown and described, and operating substantially as set forth.

191,993. BARBED FENCES. Aaron J. Nellis, Pittsburg, Pa. [Filed Mar. 15, 1877.]

Brief.—The wire that forms the loop is plain, and projecting laterally in opposite directions are the barbs. The flat fence-rails have these barbs strung on them.

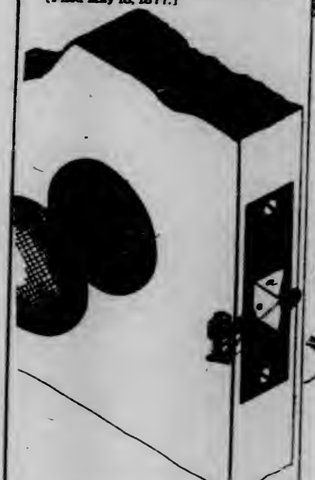
1. The looped wire or metallic fence-barb b c d, substantially as and for the purpose specified.

2. In combination with a metallic fence rail or strip, A, the twisted and looped barb *b c d*, secured thereon, substantially as and for the purpose specified.

191,988.



191,996. LATCH-BOLT LOCKS. J. G. Newell, New Haven, Conn., assignor of one-half of his right to L. G. Currier, same place. [Filed May 18, 1877.]



1. In combination with a latch-bolt provided with a notch near the face-plate, when the bolt is in its normal condition, the transverse hinged lever *b*, substantially as and for the purpose described.

2. In combination with a latch-bolt provided with a notch near the face-plate, when the bolt is in its normal condition, the transverse hinged lever *b*, and the stop *f*, substantially as and for the purpose described.

191,995. BURIAL-CASKETS. Albert H. Nivdlinger, Rochester, N. Y., assignor to the Stein Manufacturing Company, same place. [Filed Mar. 19, 1877.]

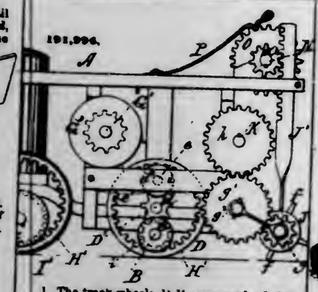


The combination, with the slots *b b* and the inclined back hooks *f f*, of the depressed channels or ways *d d*, located in the rear of, and outside of, the slots, and centering to the same, whereby the operator, by drawing on the end of the lid, without lifting, can release it from its engagement with the casket, as shown and described, and for the purpose specified.

191,995. CULTIVATORS. Oliver A. Olmsted, Santa Rosa, Cal. [Filed Mar. 14, 1877.]

Brief.—The rims of the main wheels are not secured to spokes or axle, but kept in position by the inside pinion and toothed wheels, that gear into the cogs of the large wheels. The tire is wider than the rim to give a broad tread, and is made removable. The cultivating-cylinder is raised in gear with its driving pinions by a vertical rack and pinion operated by a hand-wheel upon the shaft, and held in position by a spring-pawl. The traction and cultivating mechanism are driven by separate engines.

191,994.

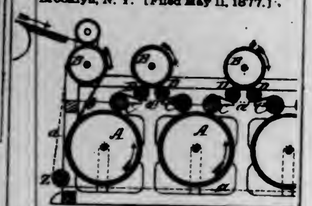


1. The track-wheels D I', composed of the internally-toothed rings *c'*, having removable tires H' of broader tread than said rings, the edges of the said tire extending out beyond the adjacent edges of the rings, substantially as specified.

2. The track-wheel D, having a raised toothed ring, *c'*, in combination with the lantern-wheels *e d*, the driven pinion *d*, its shaft D', the clutch-pinion E', pinions F F, and gear-wheel F', the driving-pinion G, and driven shaft G', substantially as specified.

3. The rotary cultivator-cylinder J, journaled in the lower ends of the vertical guided racks J', in combination with the pinions *n*, engaging said racks, a hand-wheel, O, and shaft N, operating said wheel, and a spring-pawl, P, holding said pinion against backward rotation, substantially as specified.

191,997. DRYING. Henry D. Ostermoor, Brooklyn, N. Y. [Filed May 11, 1877.]



1. A machine for drying and preparing cotton-felt, consisting of an upper and a lower row of hollow cylinders, heated by steam, an intermediate row of rolls, C, a series of pairs of rolls, D, adapted to hold the felt to the hollow cylinders, a carrying-apron, and compressing and calendering rolls, all constructed, arranged, and operating substantially as herein set forth.

2. The fixed supply and escape pipes and their branches, arranged upon opposite sides of the machine, in combination with hollow revolving cylinders, having hollow journals, as set forth.

3. The spur gear J and pulleys M, arranged upon the hollow journals of the revolving steam-drying cylinders, and the lower intermediate pinions K and pulleys L, in combination with the driving-pulley and the drying-cylinders, as set forth.

4. The endless carrying-apron *a*, arranged, as described, to pass forward, under, around, and in contact with the lower cylinders A, under and without touching the upper cylinders B, and held away, at its returning side, from said lower cylinders by the end rolls Z Z, as set forth.

191,998. SPRING-GUNS. C. Palatini, New York, N. Y. [Filed May 4, 1877.]

Brief.—The device is for the purpose of throwing a projectile, to which a cord or line is attached, into a window or over the roof of a burning building, to afford means for drawing up ladders or other means of escape from the outside by those in the building.

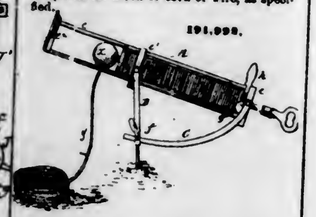
1. A spring-gun consisting of the open frame A, a spring-acted piston and devices, substantially as described, for retracting, holding, and releasing said piston, the whole adapted for use in the manner and for the purpose set forth.

2. In a spring-gun, the barrel, consisting of the rods *c c* and rings *c d*, the latter being broken at *c* for the purpose as set forth.

3. The combination of the piston-frame A, the piston and devices for retracting the piston and releasing it at any point, all as set forth.

4. The projectile provided with a stem or receptacle for a coil of cord or wire, as specified.

191,998.

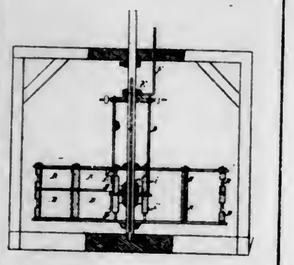


191,999. COMPOUNDS FOR ARTIFICIAL STONE. C. B. Peirce, McPherson, Kans. [Filed Feb. 20, 1877.]

The artificial stone described, consisting of glue, potassa, molasses, copperas, sulphuric acid, marble-dust, lime, cement, and water, prepared and compounded in about the manner and proportions described.

192,000. CURRENT-WHEELS. William J. Perkins, Cedar Falls, Iowa, assignor of one-half his right to J. G. Wallace, same place. [Filed Nov. 11, 1876.]

Brief.—This wheel has horizontally-vibrating floats journaled in its arms in tiers, one above the other, and a vertically-movable non-rotating collar on the main shaft, having spaced spurs, adapted to look one or more of the said floats against swinging down stream, whereby the power of the wheel may be utilized fully, in part, or not at all.



1. In combination with a water-wheel having horizontally-vibrating floats B B, with notches *j j* and *g*, the vertically-movable collar C, having locking-spurs *i i*, adapted for use substantially as specified.

2. In combination with a horizontally-rotating water-wheel, its notched vibrating floats, and the vertically-movable sparred collar C, the rods D D, sliding collar E, clamp-screws *m*, and the lifting-rod F, substantially as specified.

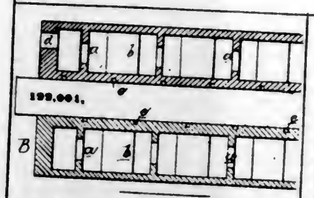
3. In combination with shaft A and a vertically-movable current wheel rotating therewith, the vertically-movable sleeve C, connecting-rods D, the vertically-adjustable grooved collar E, set-screws M, and a rod for raising the said collar, substantially as set forth.

4. In combination with the inner-tiered floats B of a current-wheel, having each a heel, *p*, projecting therefrom outward, and adapted to be locked against swinging down stream, the outer vibrating floats adapted to lock with the heels of the inner ones, substantially as specified.

192,001. WOOD-DRYING APPARATUS. P. Pfeffer, New York, assignor to G. W. Read, Brooklyn, N. Y. [Filed May 14, 1877.]

A press plate, the working face of which is provided with grooves, which extend to the edges of said working-face, so as to form passages for the discharge of the vaporized moisture from the wood.

192,001.



192,002. TOE-WEIGHTS FOR HORSES. S. A. Phelps, Syracuse, N. Y. [Filed Apr. 23, 1877.]

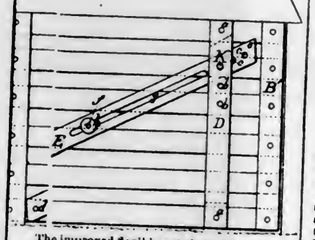


1. The toe-weight herein described, provided with a hinged tenon, substantially as shown and specified.

2. The combination of the weight *w* and hinged tenon *e* with each other and the securing-straps, substantially as specified.

192,003. GATES. Thomas B. Piburn, Brooklyn, Mo. [Filed Jan. 13, 1877.]

Brief.—The invention consists in the improved construction of the main brace.



The improved flexible gate herein described, having on each side of the pivoted gate bars the oblique slotted braces E, pivoted at their lower ends to the lower rail, the rabbeted and perforated guards D, through which the free ends of said braces pass, the coupling-bolt *f*, its washer *k*, and the locking-pins K, all constructed and arranged as specified.

192,004. AUTOMATIC SUGAR-PURGING APPARATUS. Chas. Plagge, New York, N. Y. [Filed Nov. 14, 1876.]

Brief.—The green sugar is conducted into molds, after which it is treated with purging-sirup, which is admitted at the top of the mold upon a perforated plate. As the sirup percolates through the sugar, it drips into a vessel, which forms part of an apportioning device for automatically regulating the amount of sirup admitted. The molds are secured to a revolving cover-plate, by which each one is brought successively into contact with the sugar-filling pipe.

1. The combination of the fixed plate C, having the passages *a* and *g*, the mold-carrying cut-off plate F, having the passages *h* formed therein, and the molds K, substantially as and for the purpose described.

2. The combination, with the fixed plate C, the plate F, and molds K, all constructed substantially as described, of an automatic counterpoised apportioning apparatus, arranged to receive the purging-sirups after passing through the molds, and control their flow, substantially as and for the purpose set forth.

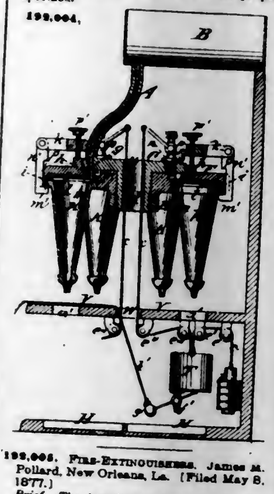
3. The combination of the receiver B and pipe A with the fixed plate C, mold-carrying cut-off plate F, and molds K, all constructed and arranged substantially as and for the purpose set forth.

4. The combination of the mold-carrying cut-off plate, the molds K, and a clamping device for attaching said molds to said plate, substantially as and for the purpose specified.

5. The combination of the pipe A, the plate C, having passage *g*, and the plate F, having passages *h*, the strainers *i*, and the short tubes *n* attached to the latter, and arranged to form a continuous passage from the receiver B when the said parts are brought into relation with each other, substantially as and for the purpose described.

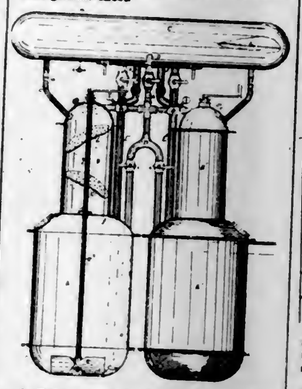
6. The combination, with the revolving plate F and the molds K, of the strainers *i*, constructed and arranged to allow green sugar to flow into the mold for filling said mold, and purging-sirups to subsequently pass into said molds for purging the contained sugar, substantially as and for the purpose specified.

192,004.



192,005. FIRE-EXTINGUISHERS. James M. Pollard, New Orleans, La. [Filed May 8, 1877.]

Brief.—The bicarbonate being introduced into the generator, hot water or steam is let in, expelling the air and moistening the soda, also maintaining a high temperature. When the soda is sufficiently moistened a stream of acid is introduced. The gas is kept below the steam-pressure, and the steam constantly agitates the mass at the bottom of the generator. The steam and gas escape together, the former imparting heat to the latter, which is thus made to occupy a larger space and produce greater effect.



1. The process, herein described, of expelling the air from the generators of chemical fire-extinguishers, and preventing the crystallization of the sulphate of soda, the said process consisting in the introduction into the generators of currents of steam or hot water, substantially as described.

2. The process herein described for expelling the air, along with a portion of the gas contained in the carbonate, by means of a current of steam, a portion of the steam escaping with the gas, and expanding or increasing its volume by imparting its heat to the gas as the steam is condensed, and a portion of the steam condensing in and moistening the carbonate preparatory to the introduction of the acid, so that the direct use of a volume of water is avoided, and the carbonate converted to the sulphate with the use of but one equivalent of water.

3. The method of agitating and mingling the chemicals previous to and during the admission of the acid, the same consisting in the admission into the generator of a current of steam, substantially as described.

4. The process of agitating and mingling the chemicals in a fire-extinguisher, the same consisting in admitting a portion of the diluted acid to the bottom of the generator, whereby the gases thus liberated produce the desired effect, substantially as described.

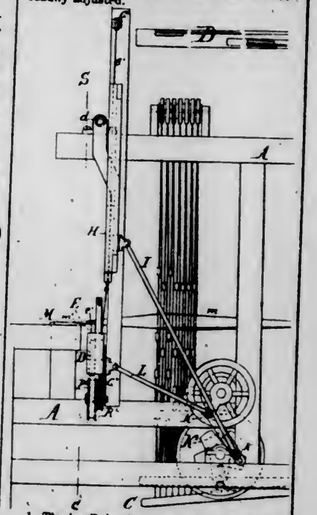
5. In a fire-extinguisher, a generator, A, provided with dome B, in which is operated an independent set of beaters, *h*, for the purposes set forth.

6. In combination with the generators of a fire extinguisher, an agitating-screw, *e*, arranged to operate in but one direction, as described, and for the purpose set forth.

7. The combination of the vertical generators A A', with domes B B' surmounted with cylinders C C', the whole connected by the system of pipes D, E, F, G, *h*, and K', as shown and described, and for the purpose set forth.

192,006. LOOMS FOR WEAVING HAIR-CLOTH. Wm. J. Porter, New York, N. Y. [Filed Oct. 13, 1876.]

Brief.—The weft-inserting hook moves in a curved groove upon the extension of the lay. This motion of the hook causes its point to travel toward the reed as the latter advances toward the breast-beam, thereby drawing the hair into the warps in a line substantially parallel to the fell. This prevents bending the hair. The shuttle-driving mechanism receives motion from the crank-shaft through the intervention of a primary and secondary crank-pin, whereby the throw of the hook can be readily adjusted.



1. The lay D, having a curved way or guide, *d*, in combination with the carriage E and attached hook *e*, as and for the purposes herein set forth.

2. The combination of the primary crank-pin K, secondary crank-pin *k*, arm K', rod I, hook *e*, and connecting mechanism, adapted to serve as and for the purposes herein specified.

192,007. PORTABLE FOLDING BOATS. C. F. Prentice, New York, N. Y. [Filed May 26, 1877.]

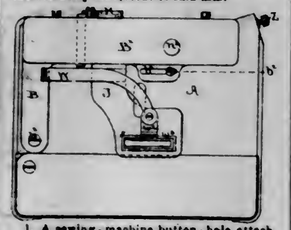
1. In an extensible portable boat, the ribs jointed at their terminal and at their tangential points, and provided with jointed longitudinal braces I and vertically-folding foot-braces L, substantially as and for the purpose set forth.

2. The ribs of an extensible portable boat, constructed substantially as described, arranged in planes with the cross-section of the boat, and at angles other than right angles to the keel-line when extended.



192,006. BUTTON-HOLE ATTACHMENTS FOR SEWING-MACHINES. Wm. Randel, Troy, N. Y., assignor of one-half his right to J. W. Cipperley, J. C. Cole, and T. B. Haslehurst, same place. [Filed Jan. 2, 1877.]

Brief.—The mechanism for automatically feeding the material, so that, first, one side of the button-hole will be made, second, the material will be carried over to bring the other side under the needle, and, third, the feed will be reversed to make the other side, is all contained in the recessed portion of a vibrating arm, all the motions being derived from the vibratory movement of said arm.



1. A sewing-machine button-hole attachment, consisting of a vibrating arm, B, provided with the button-hole clamp, and with automatic reversible feeding mechanism, and with automatic laterally-shifting mechanism, whereby the forward feed on one side, the switching over to the other side, and the reverse feed on the other side of the button-hole is effected by the vibrations of said arm B, as set forth.

2. The combination of the plate A, provided with a stud, x^2, with the vibrating arm B and slotted arm T, for the purpose of imparting motion to the feeding device, in the manner herein specified.

3. The combination of the guide-bar C, provided with the cross-bar c^2, spring-pawl D, and lever B, with the clamping device herein described, for the purpose set forth.

4. The feeding device herein described, consisting of the combination of the rack I, pinion N, ratchet-wheel O, arms P and Q, double pawl R, and springs S, as and for the purpose specified.

5. The combination of the guide-bar C, slide f^2 provided with projections f^3, with the spring-pawl D, rod E, adjustable stop F, and spring I, as and for the purpose herein specified.

6. The combination, with the adjusting-screw Z, of the sliding block x^1, held laterally in a fixed position in the bottom plate A, stud x^2, and slotted arm T, as and for the purpose set forth.

7. The combination, with the slide f^2 and brake-lever U, of the arm Q and pawl R, as and for the purpose specified.

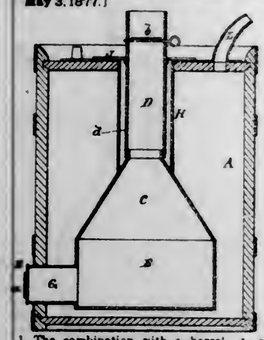
8. The combination of the sliding clamp-plate with mechanism, substantially as described, for automatically changing the position of said clamp laterally, and mechanism, substantially as described, for automatically reversing the motion of said clamp laterally, whereby the material is so fed with relation to the needle that the button-hole is stitched on both sides, as set forth.

192,009. GATES. Fredk. Rau, Albia, Iowa. [Filed Mar. 20, 1877.]



The sliding gate G, having catch or projection *d*, in combination with the pivoted bar F having boat spring D, provided with the catch *e*, substantially as and for the purpose herein set forth.

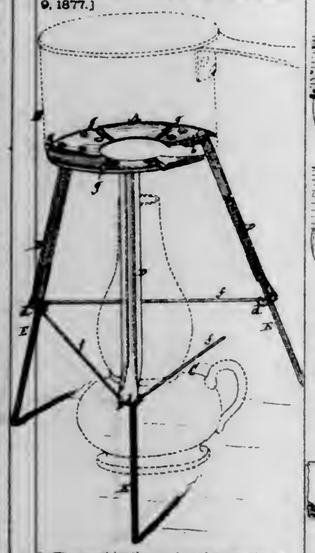
192,010. FEED-STEAMERS. Robert M. Rice and F. M. Gortner, Keota, Iowa. [Filed May 3, 1877.]



1. The combination, with a barrel, A, of the furnace B with flue G, having damper *a* and conical top C, the smoke-pipe D, having damper *b*, surrounding sleeve H, and cold-air chamber *d* between the sleeve and smoke-pipe, substantially as and for the purposes herein set forth.

2. The combination, with the furnace B C, of the sleeve H, annular plate I, smoke-pipe D, and flanged four-armed spider J, substantially as and for the purposes herein set forth.

192,011. PORTABLE LAMP-STOVES. M. T. Richardson, Brooklyn, N. Y. [Filed Apr. 9, 1877.]

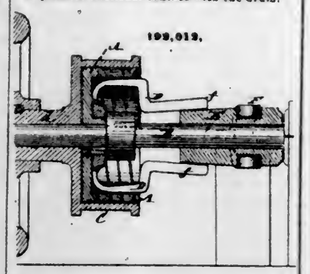


1. The combination, with the annular or open cap A, of the detachable legs D, the screw-rod extensions E, and the hooking braces *f*, substantially as specified.

2. The annular or open cap A of the stove, constructed with a depressed or dished upper surface, and provided with upper grooves or perforations *g* extending through the outer edge of the cap, essentially as and for the purpose herein set forth.

192,012. FRICTION DEVICES FOR CONTROLLING MOTION. Alex. K. Rider, Walden, N. Y. [Filed Nov. 23, 1876.]

Brief.—A spiral coil cut from a hollow cylinder open at one end is by the other end attached to the shaft. The coil is within a hollow drum, also open at one end, and connected to a hub loose on the shaft, which becomes fixed thereto by the expansion of the spring, to produce frictional contact with the drum.

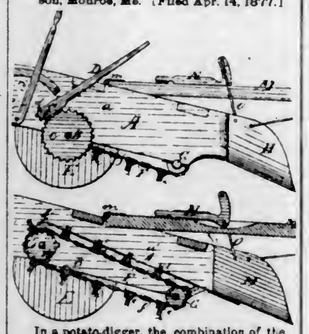


1. The combination, in a friction coupling, of a spiral or helical coil, fast at one end to a rotating shaft or carrier, a friction hub or box, and means for positively engaging and disengaging said coil with and from said box or hub, substantially as specified.

2. The expanding yoke D, in combination with the coil A and the shaft or carrier B, essentially as described.

3. The cone E, in combination with the expanding-yoke D, the coil A, the shaft B, and the friction hub or box C, substantially as specified.

192,013. POTATO-DIGGERS. A. J. Robertson, Monroe, Me. [Filed Apr. 14, 1877.]



In a potato-digger, the combination of the screen-bars *k k*, attached to the rear end of the scoop H, and having downwardly-curved free rear ends, in combination with the elevator F arranged underneath, and having cross-bars *e e*, which, by striking against the rear ends of the screen-bars *k k*, impart to these a trembling or vibrating motion, substantially as described, for the purpose shown and specified.

192,014. CAR-WINDOWS. Geo. S. Roberts, Meredith, N. H. [Filed July 31, 1876

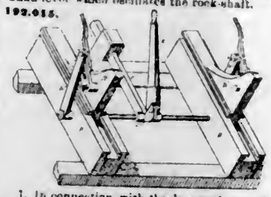


A railway car constructed with two lines of alternating posts, *a a* and *c c*, for the insertion of windows in oblique or zigzag positions, and for forming bays or recesses in the sides of the car, opposite to the several seats thereof, substantially as and for the purpose herein specified.

192,015. HEAD-BLOCKS FOR SAW-MILLS. Alex. Rodgers, Muskegon, Mich. [Filed Dec. 23, 1876.]

Brief.—One of the setting-jacks can be adjusted in advance of the other, when such adjustment is rendered necessary by the taper of the log being cut, by means of a link pivoted to the side of the jack, and provided with a handle and with a peculiarly-formed slot, in which works a pin upon the upper end of a vertical arm on a rock-shaft passing through the blocks. The jacks are retracted after a log has been sawed by a weighted lever connected to the rock shaft by a sleeve provided with a projection, which engages with the hand-lever which oscillates the rock-shaft.

192,015.



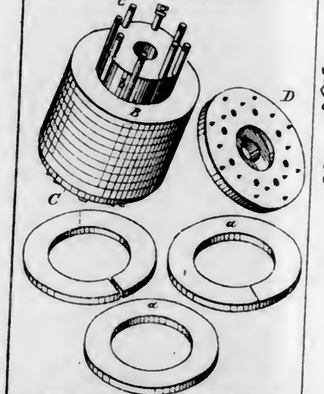
1. In connection with the log-carriage and head-blocks of a saw-mill, the links I, constructed as and for the purpose specified.

2. The setting-jacks H, in combination with the links I, arms H, rock-shaft D, and hand-lever E, as and for the purpose set forth.

3. The weighted lever F, provided with the sleeve F and projection *e*, in combination with the lever E, rock-shaft D, and the devices by which it is connected with the setting-jacks of a saw-mill carriage, substantially as and for the purpose specified.

192,016. FRICTION-WHEELS FOR SAW-MILLS. Alex. Rodgers, Muskegon, Mich. [Filed Dec. 26, 1876.]

Brief.—To obviate the frequent renewing of the paper rings forming the working-surfaces of friction-wheels for saw-mills, the wheels are formed of a series of concentric paper or mill board rings impregnated with suitable abrading material, placed upon a hub having a flange at one end, and provided with longitudinal grooves flush with its periphery, and mounted upon a shaft provided with a corresponding flange, the whole held in place by suitable bolts passing through the flanges and grooves, and fastened by nuts at outer ends.



1. The hub B, provided with the flange C and grooves *b* for the reception of the bolts *c*, as and for the purpose shown and described.

2. The hub B, provided with the flange C and grooves *b*, in combination with the rings *a*, follower D, and bolts *b*, substantially as and for the purpose specified.

3. In a friction wheel, as described, the rings *a*, impregnated or interleaved with emery or other abrading material, as and for the purpose set forth.

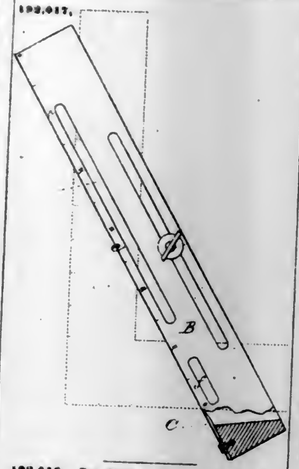
192,017. BEVEL-RULES. John C. Rorick, Wauseon, Ohio. [Filed Mar. 24, 1877.]

Brief.—Slide slotted so that it can be used with the ordinary square, and removes the necessity of slotting the square.

1. The slide for a bevel square, having an oblong view slot or slots, a clamp and clamp-slot, and a longitudinal slot for a try square, substantially as specified.

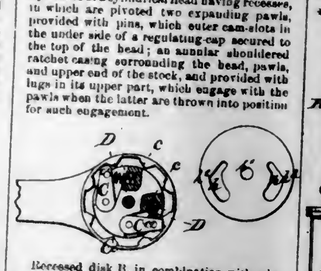
2. A slide for a try square, having a removable adjustable finger, C, substantially as specified.

192,017.



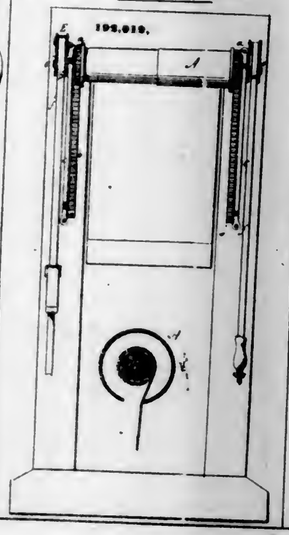
192,018. BIT-STOCKS. Clemens B. Rose, Miller's Falls, Mass.; Bowdoin S. Parker, administrator. [Filed Oct. 28, 1876.]

Brief.—The bit is securely held in the stock by means of a cylindrical head having recesses, in which are pivoted two expanding pawls, provided with pins, which outer cam-slots in the under side of a regulating-cap secured to the top of the head; an annular shouldered ratchet casing surrounding the head, pawls, and upper end of the stock, and provided with lugs in its upper part, which engage with the pawls when the latter are thrown into position for such engagement.



Recessed disk B, in combination with pivoted dogs or pawls C C, having pins *c' c'*, and springs D D, substantially as set forth.

192,019.



192,019. CURTAIN-FIXTURES. Hilliard E. Sawyer, South Meriden, Conn., assignor of one-half his right to D. P. Sawyer, same place. [Filed Mar. 30, 1877.]

1. The combination, in a curtain-fixture, of the longitudinally-slotted tube A and a certain arranged therein through said slot, with means for winding the same, the pinions *a*, stationary racks *b*, and a device for raising or lowering the said tube while in connection with said racks, substantially as described.

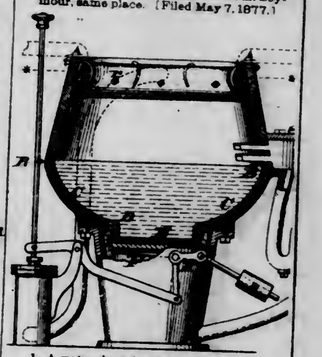
2. The combination, in a curtain-fixture, of the slotted tube A, pinions *a*, stationary racks *b*, and a device for raising or lowering the said tube while in connection with said racks, a roll for the curtain within the said tube, and a cord and pulley outside said tube in connection with said roll, for winding the curtain within the tube, substantially as specified.

192,020. HUBS FOR LOCKS. John Schade, Stamford, Conn. [Filed Mar. 13, 1877.]



The combination of the revolving hub or roll-back and the wire inserted longitudinally in its slot to form a projection therein, substantially as set forth.

192,021. WATER-CLOSETS. A. S. Seymour, Portsmouth, Ohio, assignor to Ida M. Seymour, same place. [Filed May 7, 1877.]

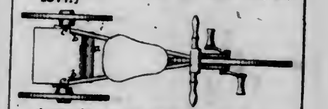


1. A water-closet basin, having an outward flare from its extreme upper margin A to the junction B, with concave bottom C, which latter converges from all sides to the outlet D, substantially as herein described, and for the purpose set forth.

2. The wash-pipe G, applied near the top of a water-closet basin, and passing completely around within the same, said pipe being furnished with a continuous slot or vantage, Q, for discharging an unbroken sheet of water against the walls of the basin, substantially as herein described, and for the purpose set forth.

3. The combination, with the continuously-slotted wash-pipe, of a water-closet basin, the bolts E and nuts *r* for adjusting the area of said vantage, substantially as herein described, and for the purpose set forth.

192,022. STEPS FOR VELOCIPEDES. John Shaller, New York, N. Y. [Filed May 10, 1877.]



A step for a three-wheeled velocipede, provided with an inclined retaining-flange, *a*, two recesses, *b*, and two supporting shoulders, *c*, all as shown and described.

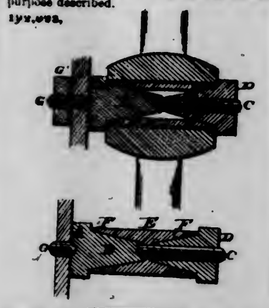
192,023. JOURNALS. William C. Shipherd, Cleveland, Ohio, assignor of two-thirds his right to J. J. Brooks and S. K. Davis, same place. [Filed Feb. 27, 1877.]

1. The combination of a bolt, A, provided with conical stem B and cylindrical stem C,

with the nut D, provided with the conical stem D', and the cylindrical packing E F, substantially as and for the purpose described.

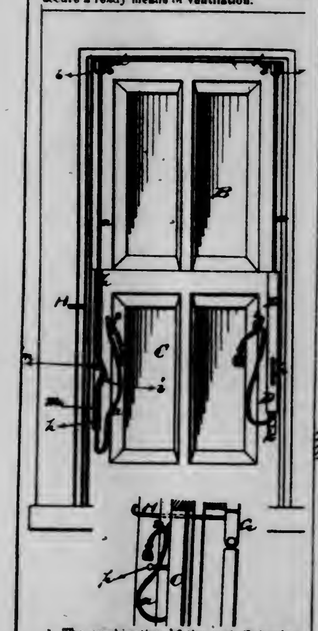
2. In connection with the double conical compensating bolt and nut and the cylindrical packing, the stud or shank G, with or without the nut G', substantially as and for the purpose described.

192,021.



192,021. SASH-BALANCES. N. J. Skaggs, Talladega, Ala. [Filed May 6, 1877.]

Brief.—A slight novelty in the combination and arrangement of old devices, and the addition thereto of a stop so manipulated as to secure a ready means of ventilation.



1. The combination of the sash C, having grooves h and inclined recesses i, the cords a, rollers n, with handles p, slotted covering-strips D, and pulleys m, all substantially as and for the purposes set forth.

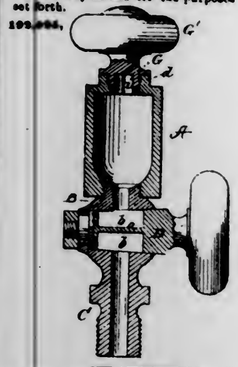
2. The stop G and handle H, arranged in combination with the top sash B and suitable balancing devices, as and for the purpose set forth.

192,025. LUBRICATORS. Albert S. Skinner, Hastings, Mich. [Filed Apr. 26, 1877.]

1. The screw-plug G, hollow at its lower end, and provided with longitudinal slots i i, in combination with the tapering mouth d, having interior screw-threads, whereby vent is given to the reservoir, and the plug is prevented from becoming loose or disengaged by jarring, substantially as and for the purposes herein set forth.

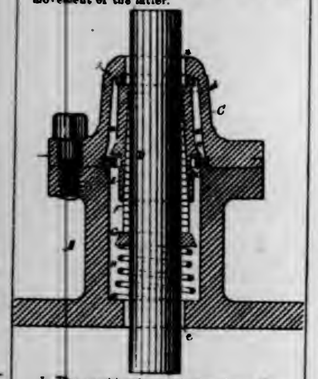
2. The combination of the reservoir A, open at both ends, and provided with screw-threads in each opening, the removable screw-plug G, with slots i i, and the removable barrel H, having tapering plug-valve D, with partition a, and hollow screw-stem C, all constructed substantially as and for the purposes herein set forth.

192,026.



192,026. STUFFING-BOXES FOR STEAM-ENGINES. Chas. T. Sleeper, Chicago, Ill., assignor of one-half his right to G. G. Benedict, same place. [Filed Apr. 26, 1877.]

Brief.—An annular ring is fitted into a recess in the end of the cap adjacent to the stuffing box, upon which rests a shoulder formed around the sleeve, to prevent the sleeve from being moved inward against the pressure of the spring should the packing in the sleeve wedge against the piston-rod in the backward movement of the latter.



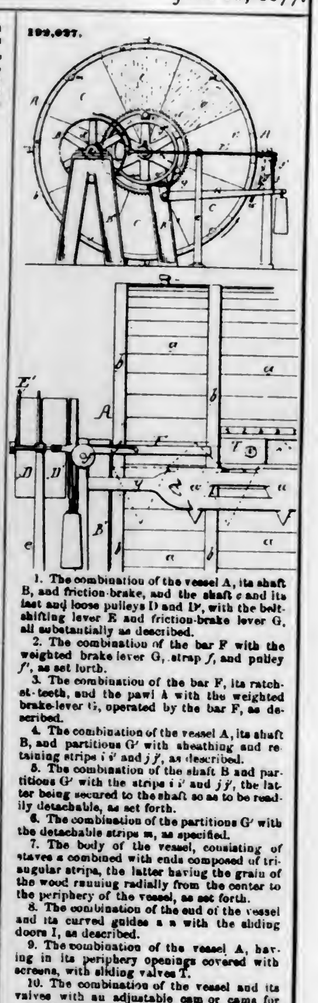
1. The combination with the sleeve E, arranged to admit of a lateral movement with the piston-rod, and provided with the shoulder K', of the cap C and rings J and K, substantially as and for the purpose specified.

2. The combination with the sleeve E, fitted within the cap C and stuffing-box A, and having the conical cavity provided with the curved retaining-shoulder d, and having the external shoulder K', of the ring K, series of packing-rings F, follower G, and spring H, substantially as and for the purpose specified.

192,027. WASHING-MACHINES. Leopold Sternberger, Philadelphia, Pa. [Filed Mar. 19, 1877.]

Brief.—The cylinder is divided into compartments by means of removable slatted partitions extending from the staves to the central shaft, the compartments being provided with sliding doors at one end of the cylinder and sliding drain-valves operated by cams. The belt-shifter is provided with a weighted bell-crank lever, which operates the friction-brake, when the power is removed, for the stopping of the machine. A funnel passing through a recessed ring surrounding the shaft allows washing-fluids and soap to be introduced into the cylinder.

192,027.



1. The combination of the vessel A, its shaft B, and friction-brake, and the shaft c and its fast and loose pulleys D and D', with the belt-shifting lever E and friction-brake lever G, all substantially as described.

2. The combination of the bar F with the weighted brake lever G, strap f, and pulley f', as set forth.

3. The combination of the bar F, its ratchet-teeth, and the pawl A with the weighted brake-lever G, operated by the bar F, as described.

4. The combination of the vessel A, its shaft B, and partitions G' with sheathing and retaining stripe i i' and j j', as described.

5. The combination of the shaft B and partitions G' with the stripe i i' and j j', the latter being secured to the shaft so as to be readily detachable, as set forth.

6. The combination of the partitions G' with the detachable stripe m, as specified.

7. The body of the vessel, consisting of staves a combined with ends composed of triangular strips, the latter having the grain of the wood running radially from the center to the periphery of the vessel, as set forth.

8. The combination of the end of the vessel and its curved guides a a with the sliding doors I, as described.

9. The combination of the vessel A, having in its periphery openings covered with screens, with sliding valves T.

10. The combination of the vessel and its valves with an adjustable cam or cams for operating said valves.

11. The combination of the end of the vessel A with the stationary ring J, having a recess or opening, t, as and for the purpose set forth.

12. The combination of the ring J with the trough M, as specified.

192,028. DOUBLE-ACTING PUMPS. Thomas B. Swan, Mechanics Falls, Me. [Filed May 19, 1877.]

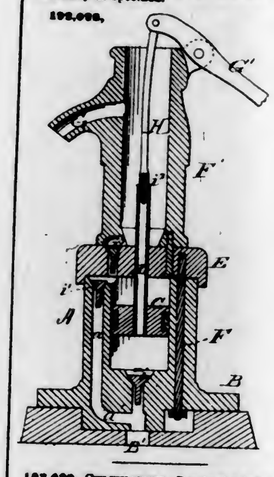
Brief.—The pump-cylinder has a valve opening upward at its lower end, and a piston working therein. A hollow piston-rod extends through the said piston, and has a valve opening upward at its upper end. A supplemental pipe or conduit communicates at its lower end with the feed or suction tube, and with the pump-cylinder at its upper end. A pump barrel communicates with the cylinder by means of a valve opening upward.

1. In a pump, the combination, with a cylinder A and its piston C, of the hollow rod D extending through said piston and the valve P closing its upper end, substantially as specified.

2. The combination, with the cylinder A having valve f at its lower end, and the piston C having a hollow rod closed at its upper end and by a valve, P, of the supplemental conduit a, opening at its lower end into the feed-pipe below its valve i, and communicating by means of a valve, s', with the cylinder at its upper end, and the pump-barrel F having valve P, substantially as specified.

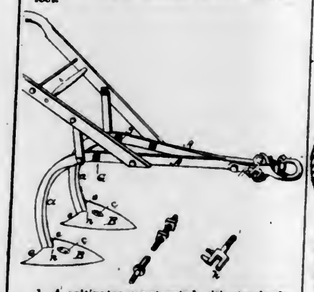
3. The combination, with the barrel F having valve P, and the cylinder having valve i, of the piston having hollow rod D with valve P', and the supplemental conduit a having valve P and opening into the feed-pipe, substantially as specified.

192,029.



192,029. CULTIVATORS. Pembroke S. Tartt and Geo. F. Wilson, Wingo's Station, Ky. [Filed Nov. 13, 1876.]

Brief.—Standards with cutting-edges, and horizontal shovels with sharp edges on all sides; devices for fastening shovels and plow-feet.



1. A cultivator constructed with standards a a, sharpened on their front edges, and provided with horizontal flat feet b b, combined with shovels B B, slightly convex transversely, and with edges on a horizontal plane, as and for the purpose set forth.

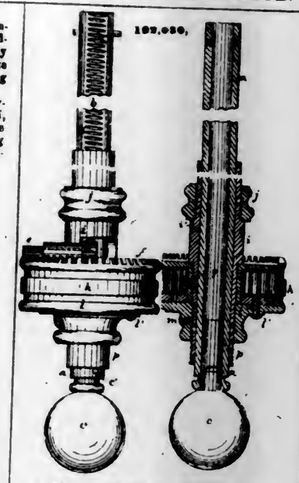
2. The shovels B B, of the form described and shown, with sharp rear edges s s, as and for the purpose set forth.

3. The horizontal flat feet b b, having depressions or cells in the upper surfaces, with tapped screw-holes in said cells, combined with the shovels B B, having projection on the under side to fit said depressions, and cells on the upper side to receive the flush heads of the bolting-bolts c c, whereby both upper and under surfaces are smooth and unobstructed, and the bolts c c are relieved of all shearing strains.

192,030. SLIDES FOR CHANDELIERS. Chas. Y. Taylor and John T. Bruen, Brooklyn, N. Y. [Filed Dec. 20, 1876.]

Brief.—When the pipe having a rack or teeth cut in its outer surface is pulled down, the horizontal shaft carrying a cog-wheel and pinion is turned, and motion communicated to the disk-wheel, which closes the coil-spring.

192,030.



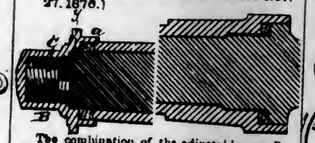
1. The combination of pipe-boot i with its attachments of adjusting-collar l, spring-box A, and spring g, the spring-power resting upon said pipe-boot, and from thence acting upon the gearway of the movable pipe c by means of the disk-wheel f, pinion e, cog-wheel d, and gearway b in the movable pipe c, substantially as described, and for the purpose herein set forth.

2. The combination of gearway b, cog-wheel d, pinion e, and disk-wheel with tangential cogs f, by means of which the power of spring g is controlled and acts in a rigid manner upon the movable tube c, substantially as described, and for the purpose herein set forth.

3. The ball-plug or swivel handle to drop-light basket.

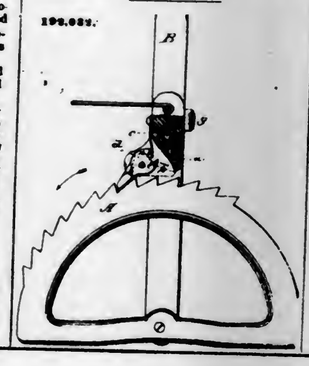
4. The combination of the racked pipe, the disk-wheel with tangential cogs, the pipe-boot, the spring and spring-box, with adjusting-collar and the ball-plug, or their equivalent, for the purpose set forth.

192,031. ADJUSTABLE AXLE-NUTS. Orrin B. Thompson, Jersey, Ohio. [Filed Nov. 27, 1876.]



The combination of the adjustable nut B, having the recess y, with an axle having a screw, O, in the end of the spindle, substantially as shown and described; all constructed, arranged, and operating so that the nut shall inclose the screw O.

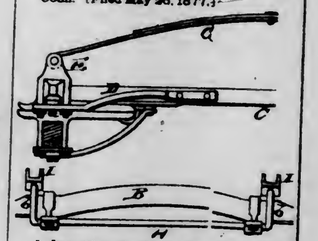
192,032.



192,033. WAGON-BRAKE LEVERS. Poul Thomsen, Atchison, Kans. [Filed Apr. 21, 1877.]

The combination of the segmental ratchet A, brake-lever B and swinging pawl-box C, the latter having lugs f g, pawl b, and operating-spring c, substantially as and for the purpose herein shown and specified.

192,033. SIDE-SPRING VEHICLES. Monroe Throop and Wm. H. Doyle, Bantam Falls, Conn. [Filed May 26, 1877.]

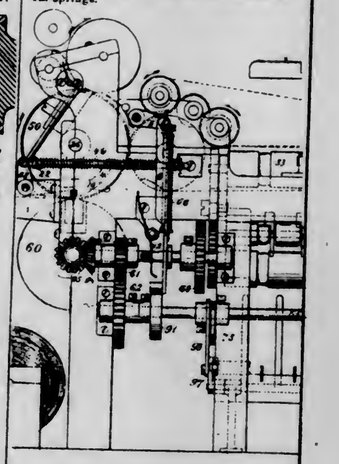


1. In a side spring buggy, the combination, with the head block A and hind axle B, of the side springs G G, the stationary jacks E E on the head-block, and the shaft H under the hind axle, provided with arms b b and jacks I I, substantially as and for the purposes herein set forth.

2. The combination of the block A, hind axle B, reaches C C, braces D D, jacks E E, springs G G, and the shaft H with arms b b and jacks I I, substantially as and for the purposes herein set forth.

192,034. FOLDING-MACHINES. S. D. Tucker, New York, N. Y. [Filed Dec. 2, 1876.]

Brief.—One of the cutting-cylinders carries also a blade, which folds the sheet into spring-gripers on the other cutting-cylinder. Connected with the latter are two delivery-cylinders, which, by the aid of a rocking switch, receive alternate sheets and pass them over two sets of rollers, where oscillating blades make the cross-fold. The sheets are then brought together by endless tapes and delivered before the fly. The sheets may be perforated instead of cut, when vibrating guides will break them from the web. The oscillating folding-blades are connected together and to the operating-crank by rods made up of two parts sliding together, and connected by spiral springs.



1. A pair of cylinders provided with cutting mechanisms and with a folding blade and co-operating nipping devices, in combination with a delivering-cylinder, substantially as described.

2. The combination, with a pair of cylinders provided with sheet-folding devices, of two

delivering-cylinders and a device for directing the sheets alternately to said delivering-cylinders, all substantially as described.

3. In combination with mechanism imparting to a sheet its first fold, a cutter for dividing it into two sheets, mechanism for subsequently folding said sheets, and devices for collecting said sheets together and delivering the same, all substantially as described.

4. The combination of the guiding-fingers with the cutter and its carrier, whereby the parts of the web are torn asunder on the partially-severed line, substantially as described.

5. The combination, with a folding-blade and an actuating device vibrating said blade positively in both directions, of an interposed yielding mechanism, which is provided with means for adjusting its resistance so that the said yielding mechanism shall operate when the ordinary movements of the folding-blade are obstructed, all substantially as described.

6. The combination of folding-cylinder 50, delivering-cylinders 30 90, and switches 2, substantially as described.

7. The combination, with the folding-blades, of rods provided with adjustable elastic portions, connecting the said blades together, or either of them, with the actuating mechanism, all substantially as described.

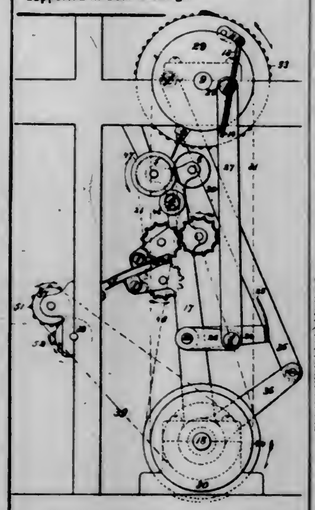
8. The combination with the pairs of folding-rollers 32 33, of the delivering-rollers 38 and connecting tapes, substantially as described.

9. The combination of a rotating carrier supporting a single sheet-folding device with means for delivering the sheets it carries into co-operating folding devices alternately at two or more points, all substantially as described.

10. The combination, with a rotating carrier supporting a sheet-folding device, of the co-operating sheet-receiving cylinders, one of which cylinders is provided with a recess, as 107, all substantially as described.

199,026. FOLDING-MACHINES. S. D. Tucker, New York, N. Y. [Filed Dec. 1, 1876.]

Brief.—A rotating cylinder carries a blade, which is radially projected by fixed eccentrics, to fold the sheet into a pair of rollers mounted in an oscillating frame, to which is attached an oscillating blade, making the second fold into a pair of rollers mounted in the same frame, whence, through inclined guides, the twice-folded sheet is delivered to receiving rollers supported in fixed bearings.



1. A pair of folding-rollers, as 5 6, mounted in an oscillating or swinging frame, which moves them to and fro to approach, engage, and pass a folding-blade in combination therewith to double or fold a sheet, substantially as described.

2. The combination of a revolving folding-blade carrier with a pair of folding-rollers mounted in an oscillating or swinging frame, substantially as described.

3. The combination of a revolving carrier, a folding-blade reciprocating therein, and a pair of folding-rollers mounted in an oscillating or swinging frame, substantially as described.

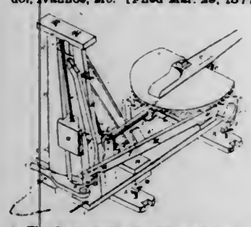
4. The combination of a folding-blade mounted in a moving carrier with the folding-rollers 5 6 7 8 and vibrating folding-blade 23 supported in an oscillating or swinging frame, substantially as described.

5. The combination, with a single stationary sheet-nipping device, of a pair of sheet-delivering rollers carried by a frame, which oscillates or swings to and from said sheet-nipping device, all substantially as described.

6. The combination of a vibrating frame, rollers 7 8, angular or inclined conductor 45, and rollers 37 38, all substantially as described.

7. The combination, with rollers 7 8 and rollers 37 38, of a frame oscillating or swinging to carry the rollers 7 8 to and from the rollers 37 38 to deliver the sheets to the latter, as and for the purpose described.

199,036. POST-DRIVERS. Madison Vancedol, Ivanhoe, Mo. [Filed Mar. 29, 1877.]



1. The drum-shaft i, having pinion i', and supported by pivoted lever L, in combination with the latch-lever N and driving-gear J, as and for the purpose described.

2. In a post-driver, the latch-lever N, having a handle, n, so as to enable it to be disengaged by hand from lever M when desired, for the purpose set forth.

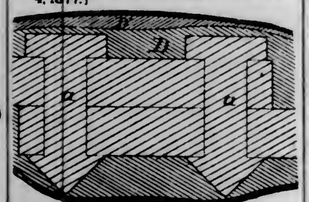
3. The operating segment-gear J and handle K, in combination with dog o, and recessed plate O for holding the lever at any desired position, as set forth.

4. The semicircular plate O, having two of its recesses, o^2 o^3, provided with removable sliding bottoms o^3, as and for the purpose set forth.

5. The main frame A R C, in combination with a pivoted post-holder, P, having notched or scalloped inner edge, as and for the purpose set forth.

6. The driving-gear J, pinion i', winding-drum I, and rope G, in combination with the idler-drum L', pulley H, and hammer D, all constructed and arranged as and for the purpose set forth.

199,037. COMPOSITION SHEATHING FOR VESSELS. Frederic P. Warren, Southsea, and Edward Field, Adelphi, Great Britain, assignors to said Edward Field. [Filed Jan. 4, 1877.]



1. The within-described protector to prevent incrustation, corrosion, &c., on surfaces of vessels, consisting in an external covering of paper, and an intermediate layer of cement, as and for the purpose specified.

2. The layer or coating of cement, the layer of paper, the coating of size, and the coating of paint, all arranged and combined as specified, for the purpose set forth.

199,038. SPOOL-CASES. Nathl. Waterbury, Baltimore, Md. [Filed Apr. 13, 1877.]

1. The box or case A, having a number of compartments conforming in shape to and receiving spools of thread, in combination with, and hold down therein by, elastic straps or bands B B, substantially as and for the purpose set forth.

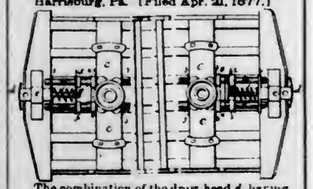
2. The box or receptacle A, having the plate or knife *b*, in combination with the cover C, having the elastic material *c*, which, when the cover is closed, will be wedged in between the said plate and cover, and thus fasten the latter in place, substantially as set forth.

3. The box or receptacle A, having a number of compartments to receive spools of thread, and elastic straps or bands B B, directly through which the thread is passed, substantially as and for the purpose set forth.

199,039.

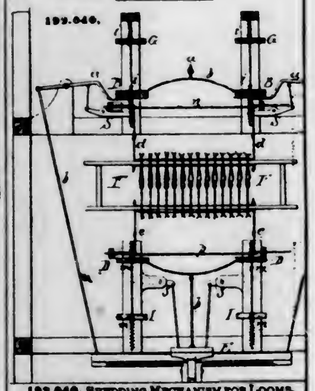


199,039. CAR-BUMPERS. Alvin W. Wetkert, Harrisburg, Pa. [Filed Apr. 21, 1877.]



The combination of the draw-head *d*, having the bolt *g* projecting from its rear end, two sliding plates, *i*, having the spring 1 placed between them, and draft-irons 2, that are fastened directly to the bolster, the various parts being secured together by means of keys, and adapted to operate substantially as shown and described.

199,040.



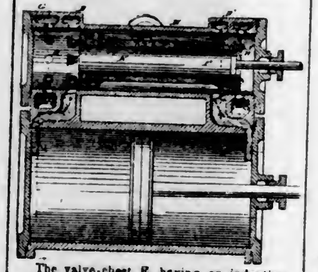
199,040. SHEDDING MECHANISM FOR LOOMS. Henry Wolbold, Philadelphia, Pa. [Filed Apr. 7, 1877.]

Brief.—The heddles are provided with knot-cords above and below, each series of the latter being under the control of a separate jacquard mechanism. The heddles are positively raised and lowered against the tension of springs, the latter being connected to the suspension-boards. In order to preserve the parallelism of the suspension-boards with the knot-boards at the forming of the shed, the former are connected at each end by rods or wires to compensating-levers, which are operated by the heddles. The levers draw down the suspension-boards in connection with the cords and prevent all twisting of the said boards.

1. The combination of the heddles, their cords *d* and *e*, and selecting mechanism with the operating-bars B and D and the spring-plates G and I, as specified.

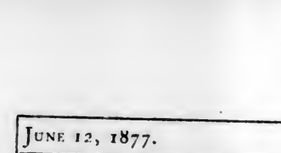
2. The combination of heddle-operating mechanism, substantially as described, with spring-plates G and compensating-levers S, as set forth.

192,041. STEAM-ENGINE VALVES. Horace E. Woods, Rock Island, Ill. [Filed May 10, 1877.]



The valve-chest E, having an induction-port, and the surrounding annular chambers D D' and G G' at its ends, and constructed with the trapezoidal ports F, communicating with the cylinder of the engine and the chambers D D', and the ports H H', communicating with chambers G G', and eduction-ports I I', in combination with the hollow valve-stem K, having at its ends the pistons L L', substantially as and for the purpose described.

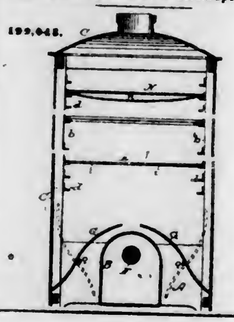
192,049. STEAM PUMPING MACHINERY. W. E. Worthen, New York, N. Y. [Filed Apr. 3, 1877.]



1. The air-pump P M, mounted within the main casing A, and main plunger B, operated by a direct connection, *b*, as herein specified.

2. The main casing A A' A² A³ A⁴, hollow plunger B *b*, air-pump barrel P, exhaust-steam passage E, delivery passages *p*, and air-pump piston M, operated by the connection *m*, all combined and arranged for joint operation in a steam-pumping machine as herein specified.

199,043.



199,042. FRUIT-DRIERS. John Emmerman, Mansfield, Ohio. [Filed May 12, 1877.]

1. The dampers G G of the curvilinear shape shown, in combination with the furnace A B and drying-chamber, substantially as described.

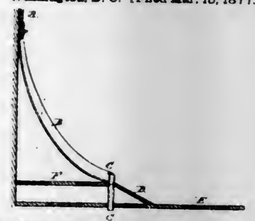
2. In a fruit drier, the galvanized sheet-metal cover C, substantially as and for the purpose set forth.

199,044. BILLIARD-CUES. Warren Hill, Boston, Mass. [Filed Aug. 8, 1874.]



The cue-tip C, provided with the threaded shank B, the tip and its shank being composed of leather in one piece, in combination with the threaded socket *a* for attaching the tip, substantially as specified.

199,045. URINALS. John Walter Osborne, Washington, D. C. [Filed Mar. 15, 1877.]



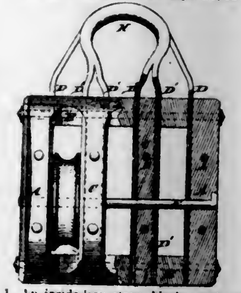
1. As an article of manufacture, a urinal, consisting of the plate or back B, provided with raised edges, and inclined or curved downward and outward to the point C, over and across which the user can conveniently stand, furnished also with the service-pipe for water A, and the waste-pipe G, substantially as shown and described.

2. The method of insuring the catching of the drip, and thereby preventing the offensive odor which usually attends the use of urinals, by means of the incline and platform, so relatively arranged that the user of the urinal will preferably assume the position in relation to the trough which is necessary to secure the object set forth.

3. In combination with a urinal, the inclined surface D and platform F, arranged substantially as shown, and for the purpose described.

REISSUES.

7,728. TACKLE-BLOCKS. Jos. F. Harcourt, Cincinnati, Ohio. Patent No. 78,663, dated June 9, 1868. [Filed Sept. 25, 1876.]



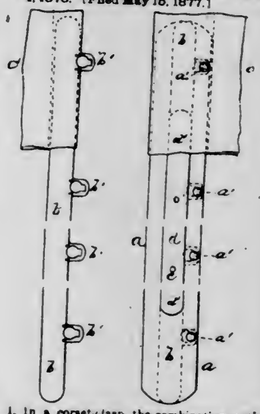
1. An inside iron strap-block constructed with a wooden partition, in which the intermediate metal strapping is embedded, the thickness of the wooden partition being in excess of the thickness of the said metal strapping, substantially as and for the purpose specified.

2. In a two or more sheave block, the partitions C, provided with grooves G G' in the sides, the depth of the grooves being at least equal to the thickness of the strap, but not extending entirely through the partition, substantially as specified.

3. In a two or more sheave block, the partitions C, extending in one piece from side to side of the block, and provided with grooves G G' in the sides, the depth of the grooves being at least equal to the thickness of the strap, but not extending entirely through the partition, substantially as specified.

4. The eye H, ending in forks or straps D', separated in passing through the partitions, substantially as and for the purpose specified.

7,729. CORSET-SPRINGS. C. Judson, Newton, Mass. Patent No. 7,034, dated Apr. 4, 1876. [Filed May 15, 1877.]

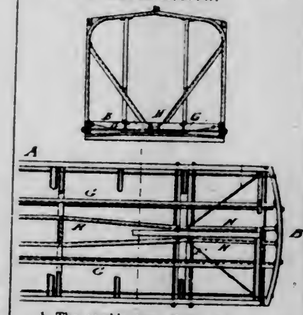


1. In a corset-clasp, the combination, with the busk a, of the short strengthening steel *d*, said steel *d* being fastened or fixed to the said busk upon each side of the waist portion or center of the busk, and having its ends free, as and for the purpose herein specified.

2. In a corset-clasp, a busk or spring, having its studs or fastening devices placed near the edge farther from that side of said busk or spring over which the fastening-spring is brought to be attached to said busk or spring, thus causing the said fastening-spring to lie upon said busk or spring near its center or farther edge, for the purpose set forth.

3. In a corset clasp, the herein described springs *a d b* and studs *a'*, arranged so that, when clasped, the spring *b* lies centrically over and upon the springs *d* and *a*, thus constituting a pile of three springs, as and for the purpose above described.

7,730. METAL CAR-FRAMES. Frederick J. Kimball, Philadelphia, Pa., assignor to the Empire Transportation Company, same place. Patent No. 183,956, dated Oct. 31, 1876. [Filed Feb. 10, 1877.]

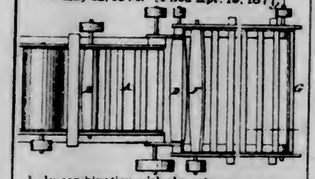


1. The combination of the side and end bars A B and connecting knee-pieces D with the longitudinal and transverse bars G, H, and I, substantially as specified.

2. The arched channel-standards and wood-en corner-pieces, as shown and described.

3. The middle longitudinal bars H, having the outward bow or set, and provided with suitable stays H', as and for the purpose described.

7,721. TERRACING-MACHINES. W. M. Leyde, Newport, Minn. Patent No. 190,604, dated May 12, 1874. [Filed Apr. 19, 1877.]



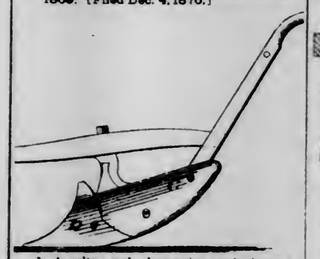
1. In combination with the primary carrier A and secondary carrier G, the picker D, provided with the convex-edged blades or flanges *d*, substantially as and for the purpose shown.

2. In combination with the primary carrier A, the secondary carrier G, the sides of which project over the main body of the machine, substantially as and for the purpose shown.

3. The combination of the primary carrier A, picker D, and beater or agitator F, each provided with convex-edged blades, with secondary carrier G made of a width greater than the primary carrier A, substantially as described.

4. The combination of the secondary carrier G made of a width greater than the primary carrier A, of the beater or agitator F, picker D, primary carrier A, and picker B, the several parts constructed and arranged to operate in the manner substantially as and for the purpose set forth.

7,729. PLOWS. Jas. C. McNutt, Blairsville, and Alonzo B. Furman, Strattonville, Pa., assignors, by mesne assignments, to Jas. Oliver. Patent No. 95,261, dated Sept. 28, 1869. [Filed Dec. 4, 1876.]



1. A colter and plow-point made in one piece, the same having a curve like or nearly like unto that of the mold-board of the plow to which it is attached, substantially as and for the purpose described.

2. A plow the colter-point and mold-board of which are given the same or nearly the same curve, substantially as and for the purpose shown.

3. The groove *c* formed in the part of the mold-board that is covered with a plow-point and colter, substantially as and for the purpose described.

7,732. PROCESSES AND APPARATUS FOR THE MANUFACTURE OF DEODORIZED HEAVY HYDROCARBON OILS. Joshua Merrill, Boston, Mass. Patent No. 90,284, dated May 18, 1869. [Filed May 25, 1877.]

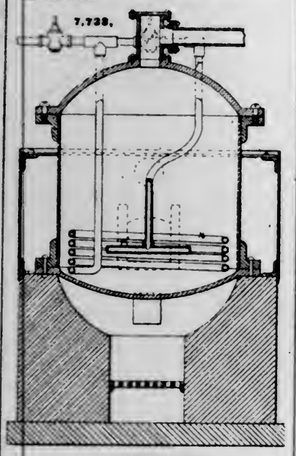
Brief.—Produces a distillate deodorized heavy hydrocarbon oil, suitable for lubricating and other purposes, free from the characteristic odors of hydrocarbon oils, and having a slight smell like fatty oil, by distilling, at a low heat, from the oil treated (if an oil which has already been distilled) the volatile matters from which the objectionable odors arise, leaving inodorous oil behind. If the oil under treatment is a crude oil, distills off the light products, and then carries over the heavy oil for use at a temperature below that at which objectionable products are formed by decomposition.

1. The above-described heavy hydrocarbon oil, suitable for lubricating and other purposes, free from the characteristic odors of hydrocarbon oils, and having a slight smell like fatty oil.

2. The above-described mode of manufacture of deodorized heavy hydrocarbon oils, which, when finished, are distillates suitable for lubricating and other purposes, free from the characteristic odors of hydrocarbon oils, and having a slight smell like fatty oil, by distilling from them the volatile matters from which the objectionable odors arise, and preventing the formation of such matters by keeping the temperature of the oil in the still below that at which these matters form by decomposition of the oil, substantially as described.

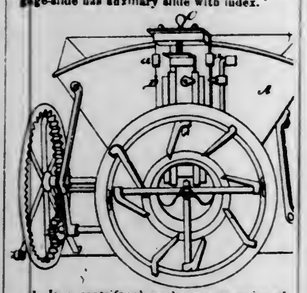
3. In combination with a still suitable for distilling oils, the superheating-coil, with its steam-pipe, outlet-pipe, and open return-pipe, and their stop-cocks, arranged substantially as described.

7,733.



7,734. SEED-SOWERS. Jonathan Pearce, Shelbyville, Ky. Patent No. 186,214, dated Jan. 16, 1877. [Filed May 19, 1877.]

Brief.—Adjustable ribs in revolving mouth piece for distributing the seed. The main gage-slide has auxiliary slide with index.

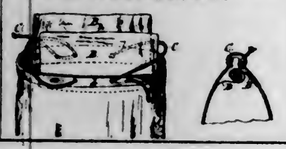


1. In a centrifugal seed-sower, a series of adjustable ribs arranged within the mouth piece, for the purposes herein set forth.

2. In a centrifugal seed-sower, a series of stationary ribs, and a series of adjustable ribs, both series arranged within the mouth-piece, for the purposes set forth.

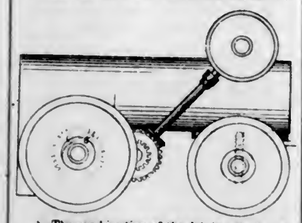
3. The combination of the main slide D, having apertures *b* and F, and guides *d d*, the auxiliary slide E, provided with the index-finger G, and the adjusting screw O, all constructed and arranged in guides *a* on the hopper A of a seed-sower, substantially as and for the purposes herein set forth.

7,735. BAG-FASTENERS. Henry Redden, New York, N. Y., assignor to Andrew M. Underhill. Patent No. 188,673, dated Mar. 20, 1877. [Filed May 26, 1877.]



A grain-bag provided with apertured hem *a b*, folding apron B, and running cords C, the apron being fastened on the inside near inner edge of hem, while the cord runs parallel to hem, as shown and described, to allow the bag to be fastened quickly without sewing, and opened without cutting.

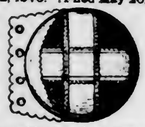
7,736. TRACTION-ENGINES. Geo. Rogers, Mount Vernon, Ohio. Patent No. 173,406, dated Feb. 15, 1876. [Filed May 23, 1877.]



1. The combination of the driving shaft and the rear axle, having truck-wheels adapted to be loosely or rigidly secured to it, with the supplemental shaft, provided with cog-wheels, gearing with wheels on the rear axle, and the intermediate connecting-shaft, engaging at one end the driving-shaft and at the other end the supplemental shaft, as herein shown and set forth.

2. In a traction-engine, a boiler supported so as to be capable of oscillatory movement upon its power-driven axle as an axis, and means for so moving said boiler, in combination with a rotary supplemental shaft, which derives its rotary movement from the driving-shaft of the engine, is carried by and partakes of the movement of the boiler, and gears with wheels on said axle, substantially as shown and set forth.

7,737. BOSOM-PADS. John C. Tallman, New York, N. Y. Patent No. 185,362, dated Dec. 12, 1876. [Filed May 26, 1877.]

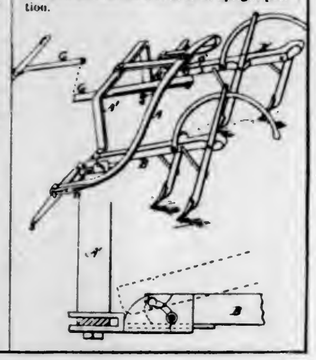


1. The combination, in bosom-pads, of the crossing or radial strips or plates and the intervening gores, substantially as and for the purposes set forth.

2. The combination, with two bosom-pads, of a flexible and adjustable connection, substantially as and for the purposes set forth.

7,738. EQUALIZING-CULTIVATORS. Mathias Eichholtz, Troy, Ohio, assignor, by mesne assignments, to Henry H. Pattee, James H. Pattee, and Ithamar P. Pillsbury, Monmouth, Ill. Patent No. 88,557, dated Apr. 6, 1869: reissue No. 6,008, dated Aug. 11, 1874. [Filed May 26, 1877.]

Brief.—Beam-yoke sustains plow-beams, and is also itself sustained in an upright position.



1. The combination of two plow-beams and a beam-yoke, connected together by joint-pieces so that the yoke sustains the beams in upright working position without their being connected together in rear, and is itself supported in an elevated position, the beams having also lateral and vertical motion, substantially as and for the purpose specified.

2. Two plow-beams, B B', connected together by an elevated beam-yoke, A, so that either may operate in advance of the other while both are drawn forward in the line of progression, the attachment of the plow-beams to said yoke being by joints, which sustain the plows in an upright working position without rear connections or other support, and permit of their being freely moved independently in a lateral direction, and in a limited vertical direction, permitting the necessary vertical movement of the plows, and sustaining the beam-yoke in an elevated position, combined and operating substantially as and for the purpose specified.

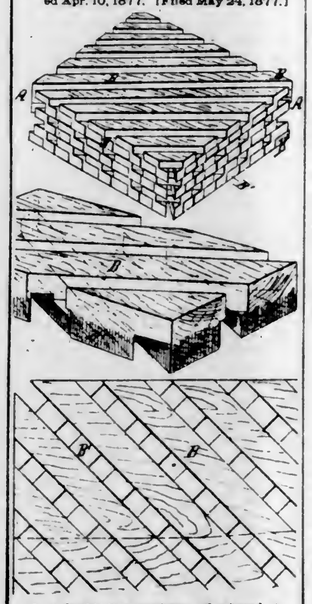
3. The guide or sustaining pole G, loosely connected to the beam-yoke A, and combined with said yoke and the plows B B', substantially as and for the purpose specified.

7,739. PROCESSES FOR PREVENTING THE ACCUMULATION OF CARBON IN RETORTS. Watson Karr, Frostburg, Md. Patent No. 187,866, dated Feb. 27, 1877. [Filed May 16, 1877.]

Brief.—Semi-bituminous coal, which, upon distillation, evolves light carbureted hydrogen, is placed in the rear end of the retort, forming from one-tenth to one-fifth of the charge, and the charge is completed with bituminous coal. Light gas generated at the back end of the retort combines with and carries off the heavy carbonaceous tarry vapors distilled from the bituminous coal, thus preventing the deposit of carbon upon the interior of the retort.

In the manufacture of illuminating gas, the process of preventing the accumulation of carbon in retorts by combining bituminous and semi-bituminous coals, substantially in the manner described.

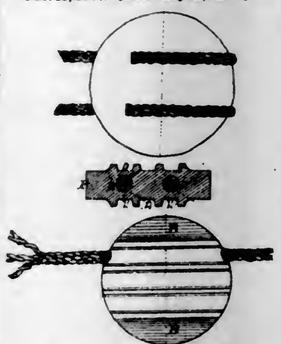
7,740. FIRE-KINDLERS. Chas. H. Hayden, Columbus, Ohio. Patent No. 189,310, dated Apr. 10, 1877. [Filed May 24, 1877.]



1. A fire-kindler consisting of a board, A, cut into two series of obliquely or otherwise arranged sticks B B', united intact at their intersections, and having intermediate passages for the promotion of combustion, substantially as and for the purposes specified.

2. A kindling-pile constructed of two or more pieces of board, A, each cut into a series of obliquely or otherwise arranged sticks, B B', united intact at their intersections, said pieces A being united together, leaving passages for the promotion of combustion, substantially as specified.

7,741. METALLIC SEALS. Edwd. A. Locke, Boston, Mass. Patent No. 187,396, dated Feb. 13, 1877. [Filed May 31, 1877.]



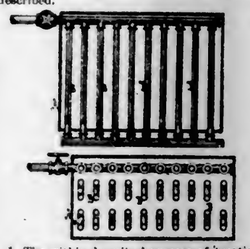
1. In combination with a soft metal seal, a sealing-shackle composed of a number of wires, which are arranged to form upon or within the surface of said shackle a series of disconnected depressions, substantially as and for the purpose specified.

2. A sealing device in which the seal is primarily secured upon one end of a shackle by compressing mechanically a portion of the metal surrounding the opening through which said shackle end passes, substantially as and for the purpose shown.

3. A sealing-disk provided upon one or both of its sides with a groove or grooves to receive the rearward-turned ends of the shackle, substantially as and for the purpose set forth.

7,742. TREATING AND DRYING ANIMAL MATTER. Wm. C. Marshall, New York, N. Y. Patent No. 137,699, dated Apr. 8, 1873. [Filed May 31, 1877.]

Brief.—First, the within-described process of treating animal matter by exposing the same to action of heating-coils arranged in a closed chamber, substantially in the manner set forth; second, the combination of a series of heating-coils B, at suitable distances apart, with a closed chamber, A, substantially in the manner and for the purpose herein shown and described.



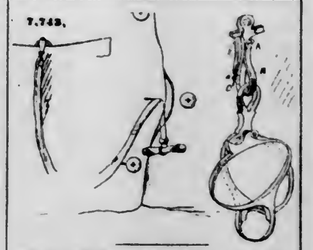
1. The within-described process of treating animal matter by exposing the same to the action of heating-coils arranged in a closed chamber, substantially in the manner herein set forth.

2. The combination of a series of heating-coils, B, at suitable distances apart, with a closed chamber, A, substantially in the manner and for the purpose herein shown and described

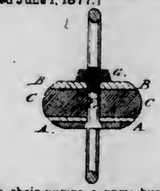
7,743. EYEGLASS-HOLDERS. S. F. Merritt, Springfield, Mass. Patent No. 56,867, dated Oct. 16, 1866. [Filed June 4, 1877.]

As a new article of manufacture, an eyeglass-holder, consisting essentially of the shank A, spring snap-hook B, and pin D, constructed and arranged to operate substantially as and for the purpose described.

7,743.



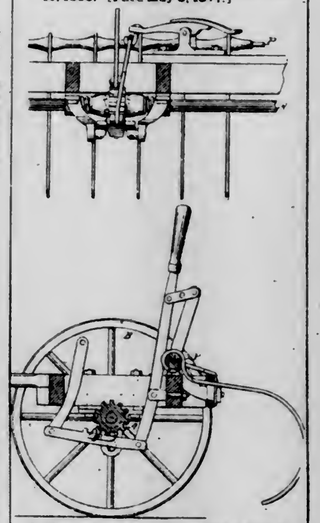
7,744. CHAIN-PUMP VALVES. O. O. Witherell, Lewiston, Me., assignor to Lewis M. Rumsey and Moses Rumsey, St. Louis, Mo. Patent No. 83,117, dated Oct. 13, 1868. [Filed June 1, 1877.]



1. In chain pumps a pump-bucket, having a solid body of rubber of sufficient thickness to sustain the pressure of water, in combination with the links and beads by which the chain is formed.

2. In combination with a pump-bucket, having a solid rubber block, C, the metal heads A B, screw or bolt E, and nut G, constructed substantially in the manner and for the purposes specified.

7,745. HORSE-RAKES. Jonathan Hunsberger, Worcester Township, Montgomery County, assignor to Reuben Hoffheins, York, Pa. Patent No. 78,909, dated June 16, 1868. [Filed May 8, 1877.]



1. The divided shaft A A and the wheels B B, secured thereto, combined with the rake shaft P and connecting mechanism, whereby said shaft P may, at the will of the driver, be coupled with said revolving shafts A, to cause a rotation of said rake, substantially as set forth.

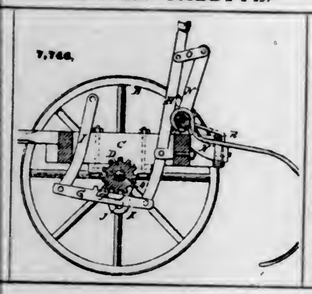
2. The wheels B B, secured, severally, to the free ends of the divided axle A A, and the rake-shaft P, combined with plates or disks secured to the proximate ends of said axles, and an intermediate device engaging with

said disks, whereby the motion of said axles may be transmitted to said rake-head, for the purpose set forth.

3. The wheels B B, severally secured to the ends of the divided axle A A, and the rake-shaft P, combined with movable plates or disks on the proximate ends of axles A A, said plates being sustained by springs with an elastic pressure against an intermediate device engaging with said disks, whereby said disks become self-adjusting, to transmit the motion of one or both of said axles to said rake-head, as set forth.

7,746. HORSE-RAKES. Jonathan Hunsberger, Worcester Township, Montgomery County, assignor to Reuben Hoffheins, York, Pa. Patent No. 78,969, dated June 16, 1868. [Filed May 8, 1877.]

7,746.



1. An axle divided in the center, so that the parts may turn independently combined with a toothed rack and cog-wheel connected with the parts of said axle, substantially as herein shown and described, for the purpose of operating the rake-teeth to discharge the collected hay.

2. The combination of the foot-lever L, toothed rack G, cog-wheel D, sliding spring-clutches E, and levers H and N, with each other, and with the axle A, frame C, and pivoted bar R, substantially as herein shown and described, and for the purpose set forth.

3. The combination of the arms K and blocks J with the flanges f', formed upon the side edges of the toothed rack G, substantially as herein shown and described, and for the purpose set forth.

NATIONAL LITHOGRAPHING CO. WASHINGTON, D.C.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 67.—No. 12. TUESDAY, JUNE 19, 1894. PRICE—$5 per year.

CONTENTS.

	Page.
CHANGES IN CLASSIFICATION	1453
ORDER IN RELATION TO DRAWINGS	1453
ISSUE OF JUNE 19, 1894	1454
APPLICATIONS UNDER EXAMINATION	1454
PATENTS GRANTED	1455
REISSUES	1562
DESIGNS	1562
TRADE-MARKS	1567
PRINTS	None.
LABELS	None.
DECISIONS OF THE U. S. COURTS—	
Dunham v. Dennison Manufacturing Company	1571
Forgie v. Oil Well Supply Company	1573

Changes in Classification.

(ORDER No. 1000.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 9, 1894.

It is hereby directed that sub-class 1, Drying, in Class 26, Cloth-Finishing, and sub-class 26, Drying, in Class 28, Cordage, in Division XXI, be abolished.

The following sub-classes are established in Class 14, Bridges, Division IV:

13. Bascule.
14. Lift.
15. Swing.

The following sub-classes are substituted for those now included under Class 34, Driers, in Division XXVIII:

1. Absorbent.
2. Baffles and screens.
3. Condensers.
Cylinder—
4. External,
Internal—
5. Rotary horizontal,
6. Rotary inclined,
7. Stationary horizontal,
8. Stationary inclined,
9. Vertical.
10. Disk and hopper.
11. Elevator.
12. Endless carrier.
13. Endless scraper.
Floors—
14. Fixed,
15. Tilting section.
16. Forms and platens.
17. Frames and trays.
18. Heaters.
19. Houses and kilns.
20. Lath and chain.
21. Pans.
22. Pan and boiler.
23. Pan and scraper.
24. Processes.
25. Push-bar.
26. Racks and stands.
Reels—
27. Skein,
28. Tray-carrier,
29. Winding.
30. Retort.
31. Rolls.
32. Rotary disk.
Shafts—
33. Inclined,
34. Vertical,
35. Zigzag.
36. Shaft and cylinder.
37. Shaft and shelf.
38. Shaking.
39. Shelf and tray.
40. Sliding rack.
41. Solar.
42. Spiral.
43. Stirrers.
44. Trough and beater.
45. Trough and screw.
Truck and rail—
46. Horizontal,
47. Inclined.
48. Web.

The following sub-classes in Class 57, Hoisting, Division XII, are abolished:

4. Cranes and derricks—
56. Jibless,
57. Lever-jib,
58. Non-pivoted jib—
59. Rotating—
60. Portable,
61. Pivoted-jib.
Cranes and derricks—
Pivoted-jib—
62. Rotating—
63. Portable,
64. Sliding-jib,
65. Traveling, double-track,
66. Trolley.

A new class, entitled Class 212, Cranes and Derricks, is hereby established in the same division, to include the following sub-classes:

1. Cranes and derricks.
2. Rectilinearly-movable load-support—
3. Electric,
4. Hydraulic,
5. Longitudinal-shaft driver,
6. Stationary motor,
7. Traveling-motor,
8. Load-lifting devices.
9. Rotary load-support—
10. Vertically-adjustable jib,
11. Motor-operated—
12. Vertically-adjustable jib.
13. Rotary rectilinearly-movable load-support.
14. Stationary load-support—
15. Jib.

JOHN S. SEYMOUR,
Commissioner.

Order in Relation to Drawings.

NOTICE.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 25, 1894.

Order No. 980, respecting the alteration of drawings, was published in the OFFICIAL GAZETTE of December 19, 1893, (65 O. G., 1771,) by mistake, and was never in force. The following is the only order in force upon that subject:

(ORDER No. 986.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 25, 1894.

Erasures or other alterations of drawings will not be made or permitted, except in compliance with this order.

Applicants are requested to furnish, with their originals, a blue print or other photographic copy of all drawings forming part of an application, and where this is done, the original drawings may be taken to the Attorneys' room, but not otherwise.

Before making a requirement to alter an original drawing the Examiner will formally make the blue print or other copy a part of the files, and in case no such copy has been furnished by the applicant, the Office will make such copy without charge, and thereupon the required alteration may be made by the applicant, under the direction of the Examiner and subject to his approval, or, upon request, it will be made by the Office at the expense of the applicant.

The requirement to make alterations in original drawings will be made in writing, and the applicant's response must also be in writing, and in such case the copy of the drawing, the requirement to alter, and the applicant's response will form part of the record.

Action by the Office on the merits will not be suspended pending the change of a drawing, if the invention claimed may be understood by the Examiner.

For the purposes of this order the Office, upon the request of applicants, will make blue prints at the charge of five cents a sheet.

In appeal cases and upon the declaration of an interference a blue print or other copy will be sent forward with the files, the Examiner retaining the original drawings in his room until the hearing.

Except as herein required such blue print or other copy will

not be made a part of the file, and may not be preserved after an application passes into a patent.

JOHN S. SEYMOUR,
Commissioner.

PHOTOGRAPHIC COPIES OF DRAWINGS.

A photographic outfit has been added to the equipment of the Patent Office, and positive photographic copies of any drawing, foreign or domestic, in the possession of the Office, will be furnished upon application to parties entitled thereto, at the following rates:

Size 10x15 inches. ..... 25 cents per sheet.
Size 7x11 inches. ..... 15 cents per sheet.
Size 5x8 inches. ..... 5 cents per sheet.

If a copy of the drawings in a pending application of the size 5x8 inches be ordered sent to any address, two copies must be ordered, as one copy is always retained by the Office and placed in the file for the purposes specified in the above Order No. 966, of January 25, 1894.

In ordering copies of foreign drawings, the examining division, the class, and sub-class where such drawings may be found, must be given.

Coupons will be received in payment of the above fees.

Issue of June 19, 1894.

Patents	327	No. 521,448 to No. 521,774, inclusive.
Designs	30	No. 23,367 to No. 23,396, inclusive.
Trade-Marks	27	No. 24,882 to No. 24,908, inclusive.
Labels	None.	
Prints	None.	
Reissue	1	No. 11,422.
Total issue	385	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama			Nevada		
Arizona Territory			New Hampshire		1
Arkansas			New Jersey	28	1
California	11		New Mexico Territ'y		
Colorado	2		New York	46	8
Connecticut	17		North Carolina	1	
Delaware			North Dakota	1	
District of Columbia	4		Ohio	28	2
Florida			Oregon		
Georgia	1		Pennsylvania	37	1
Idaho			Rhode Island	5	2
Illinois	23	2	South Carolina		
Indiana	7	1	South Dakota		
Indian Territory	1		Tennessee	2	
Iowa	6	1	Texas	5	
Kansas	5		Utah Territory	1	
Kentucky	3	1	Vermont	3	
Louisiana	4		Virginia	6	
Maine	4		Washington	3	
Maryland	3		West Virginia	1	
Massachusetts	28	5	Wisconsin	6	
Michigan	11		Wyoming	1	
Minnesota	3		U. S. Army		
Mississippi	3		U. S. Navy		
Missouri	15				
Montana			Total to citizens of the United States	326	25
Nebraska	1				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic			Netherlands		
Austria-Hungary			Newfoundland		
Belgium	1		New South Wales		
Bermuda			New Zealand		
Brazil			Norway		
Canada	6		Queensland		
Cape Colony			Russia		
Colombia			Scotland	1	
Cuba			Servia		
Denmark			South Australia		
Ecuador			Spain		
England	15		Sweden		
France	2	1	Switzerland		
Germany	6	1	Victoria		
Hawaii			West Australia		
India					
Ireland			Total to citizens of foreign countries	31	2
Mexico					

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business June 12, 1894.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
32	Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 14	June 8	100
31	Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	May 14	June 2	74
16	Telegraphy, Telephony, Electric Lighting and Signaling.	May 12	June 2	94
2	Farm Stock, Products, etc	May 12	June 2	100
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	May 12	May 26	90
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	May 12	May 18	142
	Between one and two months.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Apr. 13	June 9	255
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Apr. 23	June 8	150
13	Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Apr. 17	June 5	194
21	Textiles, etc.	Apr. 13	June 5	143
4	Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Apr. 26	June 4	210
26	Electricity, Generation, Distribution, Motive Power, etc.	Apr. 13	June 4	166
8	Furniture, Beds, Store Furniture, etc.	Apr. 12	June 4	271
7	Harvesters, Games and Toys, and Velocipedes.	May 7	June 2	248
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Apr. 18	June 1	270
18	Steam-Engineering, etc	Apr. 16	June 1	214
12	Mechanical Engineering, Stores-Service, etc.	Apr. 16	June 1	222
19	Stoves and Furnaces	May 1	May 23	231
3	Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Apr. 21	May 28	148
6	Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Apr. 12	May 26	216
17	Paper-Manufactures and Printing.	Apr. 25	May 19	195
	Between two and three months.			
20	Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Mar. 17	June 4	291
23	Instruments of Precision, Acoustics, etc.	Mar. 12	June 2	302
1	Tillage and Fences	Apr. 7	June 1	271
24	Sewing-Machines, Crinoline and Corsets, Apparel, and Toilet.	Mar. 27	June 1	178
10	Carriages and Wagons	Apr. 5	May 29	235
22	Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Apr. 11	May 16	175
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Mar. 12	May 15	334
34	Railway-Cars and Fluid-Pressure Railway-Brakes.	Mar. 16	May 8	340
30	Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, Optics, Electric Railways.	Mar. 14	Apr. 21	358
	Between three and four months.			
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Mar. 5	June 4	255
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Mar. 7	May 19	261
9	Hydraulics, Fire-Extinguishers, etc.	Feb. 21	May 17	528
	Total number of applications awaiting action			7,261
	Under one month in arrears.			
	Designs	May 31	June 2	64
	Trade-Marks	June 12	June 9	32

PATENTS

GRANTED JUNE 19, 1894.

521,448. SAND MOLD. STEPHEN J. ADAMS, Pittsburg, Pa. Filed Oct. 24, 1892. Serial No. 449,901. (No model.)



Claim.—1. The combination of a series of sand molds and a continuous runner extending along the same and formed in the sand of the molds above the mold cavities and communicating with the several pouring gates leading to the mold cavities of the several molds, substantially as and for the purposes set forth.

2. A sand mold having two or more mold cavities and having a pouring gate extending down into the mold and communicating with the mold cavities, and having a runner formed in the sand of the mold above the mold cavities and extending along the same entirely across the upper part of the mold, in combination with another sand mold adjoining the same and with which said runner communicates, substantially as and for the purposes set forth.

3. The combination of two or more sand molds, a runner formed in the sand of the molds extending along the upper part thereof and communicating with the pouring gates, and a bridge runner extending over the space between the two adjoining molds, substantially as and for the purposes set forth.

4. The combination of two or more sand molds having the top surfaces thereof approximately on the same level and having pouring gates extending down into and communicating with the mold cavities thereof, and a runner formed in the sand of the molds and extending between the pouring gates of the two molds and inclined from the pouring gate of one mold to the pouring gate of the adjoining mold, substantially as and for the purposes set forth.

5. The combination of two or more molds having pouring gates extending down into and communicating with the mold cavities thereof, a runner formed in the sand of and extending along the top of the molds between the pouring gates, and a rigid bridge over the spaces between the molds, substantially as and for the purposes set forth.

6. The combination of two or more sand molds, one having a seat formed in the upper part of the sand thereof, and a bridge runner extending from the other mold and entering said seat and extending over the space between the two adjoining molds, substantially as and for the purposes set forth.

7. The combination of two or more sand molds, one having a seat formed in the upper part thereof, and a bridge runner extending from the other mold over the space between the two adjoining molds and entering said seat, said bridge runner having a lip on the edge thereof to press into the seat of the mold, substantially as and for the purposes set forth.

8. The combination of two flasks for sand molds, one having a recess in the top edge thereof, and a bridge extending between the two adjoining flasks and fitting in said recess, substantially as set forth.

9. In sand molds, the combination of two adjoining flasks, one flask having a recess therein and the other flask having a bridge secured thereto and extending over and entering into the seat formed in the adjoining flask, substantially as and for the purposes set forth.

521,449. SAND MOLD. STEPHEN J. ADAMS, Pittsburg, Pa. Filed Oct. 24, 1892. Serial No. 449,903. (No model.)

Claim.—1. In combination with a series of sand molds set upon a level floor or platform, a trough extending over the same and having openings therein, and tubular leaders extending from such openings to the pouring gates of the several molds, said leaders being rigid with the trough and detachable from the molds, and the passages in the leaders being tapering toward the upper end, substantially as and for the purposes set forth.

2. In combination with a sand mold, a removable tubular leader extending up from the pouring gate of the mold, and having a block at the base thereof resting on and forming a mold weight for the mold, substantially as and for the purposes set forth.

3. In combination with a sand mold, a runner resting on and extending up from the pouring gate of the mold, and having an annular lip at the base thereof to press into the sand of the mold and form a close joint therewith, substantially as and for the purposes set forth.



4. In combination with a sand mold, a removable tubular leader extending up from the pouring gate of the mold, and having a refractory lining the inner walls whereof are tapering toward the top, substantially as and for the purposes set forth.

5. The combination with a series of sand molds, of a continuous runner extending over the same and communicating with the pouring gates of the several molds, and a feeding basin adapted to receive the metal from the ladle and feed it to the runner, said basin being mounted at its forward end so as to be raised to feed the metal to the runner, substantially as and for the purposes set forth.

6. The combination with a runner for feeding metal to sand molds, of the frame k', the feeding basin k mounted on said frame, and having the geared segmental arm and the pinion k^2 engaging therewith, substantially as and for the purposes set forth.

7. The combination with a runner for feeding metal to sand molds, of a feeding basin mounted so as to be raised to feed the metal to the runner, and a feeding spout hinged to the mouth of said basin and adapted to feed the metal into said runner, substantially as and for the purposes set forth.

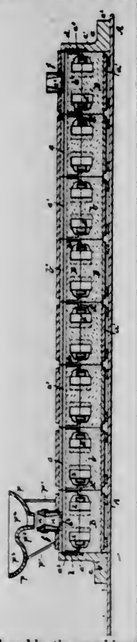
8. The combination with a series of sand molds of a runner extending along the same and adapted to feed the metal to the pouring gates of the several molds, and a runner-cover adapted to fit over said runner and removable therefrom, substantially as and for the purposes set forth.

9. The combination with a series of sand molds, of a runner extending along the same and adapted to feed the metal to the pouring

gates of the several molds, and a removable runner cover adapted to fit over said runner said cover having a raised central portion p', substantially as and for the purposes set forth.

10. In combination with a series of sand molds, a trough extending over the same and having openings therein, and tubular leaders extending from said openings to the pouring gates of the several molds, said leaders being rigid with the trough and detachable from the molds, and said leaders having annular lips at the base thereof to press into the sand of the mold and form close joints therewith, substantially as and for the purposes set forth.

521,450. APPARATUS FOR FORMING SAND MOLDS. STEPHEN J. ADAMS, Pittsburg, Pa. Filed Oct. 24, 1892. Serial No. 449,905. (No model.)



Claim.—1. In sand molds, the combination of a series of molds in line with each other and having mold cavities therein, and a horizontal continuous runner inclosed within the several sand molds above the mold cavities thereof and communicating with the different down-take runners leading to the mold cavities, substantially as and for the purposes set forth.

2. In sand molds, the combination of a series of sand molds in line with each other and having mold cavities therein, a horizontal continuous runner inclosed within the several sand molds above the mold cavities thereof and communicating with the different channels leading to the mold cavities, and a reservoir extending above the series of molds and communicating with the continuous runner, substantially as and for the purposes set forth.

3. In sand molds, the combination of a series of sand molds in line with each other having mold cavities therein, a horizontal continuous runner inclosed within the several sand molds above the mold cavities thereof and communicating with the different channels leading to the mold cavities, a feeding reservoir communicating with the continuous runner, and a receiving reservoir communicating with the continuous runner, substantially as and for the purposes set forth.

4. In sand molds, the combination of a series of sand molds in line with each other, a horizontal continuous runner inclosed within the same series of molds above the mold cavities, and down-take runners leading therefrom to the mold cavities, each such down-take runner being of approximately the section of the continuous runner, substantially as and for the purposes set forth.

5. In sand molds, the combination of a mold support, a series of molds resting on said support and in line with each other, and an abutment confining the end mold of the series, such abutment resting on the mold support and being held in place and confining such end mold by its weight, substantially as set forth.

6. In sand molds, the combination of a series of molds set in line and in contact with each other, and an abutment confining the end face of the series of molds, such abutment resting on the mold floor and having the horizontal extension c^3 to support it against such end face, substantially as and for the purposes set forth.

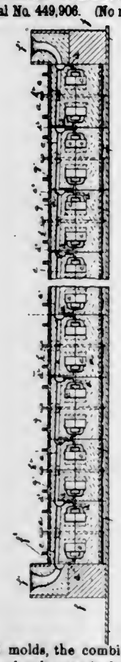
7. In sand molds, the combination of a series of sand molds, set in line with each other, a horizontal continuous runner inclosed within said several sand molds, separate runners or channels leading therefrom to the mold cavities, and an abutment confining the end runner leading to the end mold cavity of the series, substantially as and for the purposes set forth.

8. In sand molds, the combination of a series of sand molds, a continuous runner extending through said series of molds, separate runners or channels leading therefrom to the mold cavities, and an abutment confining the end runner leading to the end mold cavity of the series, said abutment having a sand pocket in its face, substantially as and for the purposes set forth.

9. In sand molds, the combination of a series of molds set in line and in contact with each other, a continuous runner extending through said series of molds and runners leading therefrom to the mold cavities, abutments at the end of the series to confine the end faces of the series of molds, and a series of removable mold covers fitting over the tops and sides of the molds and resting thereon to confine the same, substantially as and for the purposes set forth.

10. In sand molds, the combination of a series of molds set in line with each other and having a horizontal continuous runner inclosed within and extending through the same, above the mold cavities, and down take runners leading thereto a reservoir supported on the molds, and a passage or opening between said reservoir and the continuous runner, substantially as and for the purposes set forth.

521,451. SAND MOLD. STEPHEN J. ADAMS, Pittsburg, Pa. Filed Oct. 24, 1892. Serial No. 449,906. (No model.)



Claim.—1. In sand molds, the combination of a series of sand molds in contact with each other, an inclosed continuous runner extending through the same, and runners leading from the continuous runner to the individual mold cavities the section of the continuous runner in each mold being formed on an incline, substantially as and for the purposes set forth.

2. In sand molds, the combination of a series of sand molds in contact with each other, and an inclosed continuous runner extending through the same, the section of the runner extending through each mold being formed on an incline, and a down-take runner or channel leading from such continuous runner at the point of junction of two of such molds and communicating with the mold cavities, substantially as and for the purposes set forth.

3. In sand molds, the combination of a series of molds placed in contact with each other, an inclosed continuous runner extending through such series, each section of such runner in each mold being formed on an incline, and having a pocket at the lower end thereof, and runners leading from such continuous runner to the individual mold cavities, substantially as and for the purposes set forth.

4. In sand molds, the combination of a series of sand molds placed in contact with each other, an inclosed continuous runner extending through such series, the section of such runner in each mold being formed on an incline and having a pocket c^3 at the lower end thereof, and the molds having the abutments or shoulders d^3 opposite such pockets c^3 and runners leading from such continuous runner to the individual mold cavities, substantially as and for the purposes set forth.

5. In sand molds, the combination of a series of sand molds placed in contact with each other, an inclosed continuous runner extending through such series, the section of such runner in each mold being formed on an incline, and the molds having abutments or shoulders d^3 at the lower ends of such inclined sections of the continuous runner, and runners leading from the lower ends of such inclined sections to the mold cavities, substantially as and for the purposes set forth.

6. In sand molds, the combination of a series of sand molds placed in contact with each other, and having a continuous runner extending through the series of molds and runners leading therefrom to the mold cavities, and an abutment confining the end mold of said series and having a reservoir or basin formed therein and communicating with the continuous runner extending through the series of molds, substantially as and for the purposes set forth.

7. In sand molds, the combination of a series of sand molds placed in contact with each other and having a continuous runner extending through such series and runners leading therefrom to the mold cavities, and an abutment having the basin f' and the side opening f^3 communicating with the continuous runner in the series of molds, substantially as and for the purposes set forth.

8. In sand molds, the combination of a series of molds placed in contact with each other, and having a continuous runner extending through such series, and runners leading therefrom to the mold cavities, and an abutment having the basin f' and the side opening f^3 communicating with the continuous runner in the series of molds, such basin within the abutment being formed of sand, substantially as and for the purposes set forth.

9. In sand molds, the combination of a sand mold resting on a suitable support and a mold cover adapted to fit over the top and down two opposite sides thereof and so confine the mold, and catches to engage with the mold support and so hold the mold cover around the mold, substantially as and for the purposes set forth.

10. In sand molds, the combination of a sand mold resting on a suitable support and a mold cover having a top portion and side portions rigid therewith and extending down therefrom to confine the sides of the mold, the lower portions of the side plates being outwardly flaring, substantially as and for the purposes set forth.

11. The combination with a sand mold, of a cover or mold confiner, and catches journaled and rotatable in the mold cover and provided with lips to engage with the mold support, substantially as and for the purposes set forth.

12. The combination with a sand mold of the cover g having the top portion g' and side plates h, the catches k journaled in the mold cover and having handles k^3 and the lips k' at the lower end, and a mold support with which such catches engage, substantially as and for the purposes set forth.

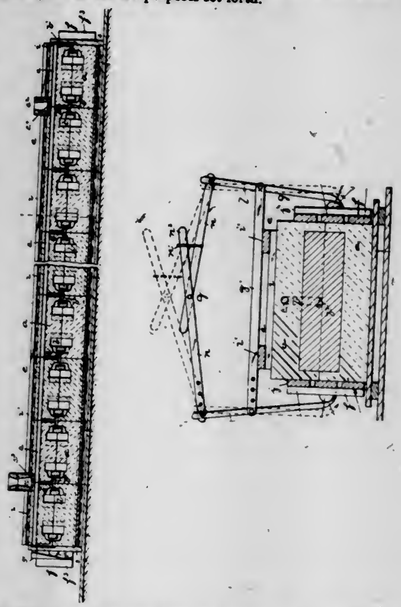
13. In sand molds, the combination with a set or series of molds placed in contact with each other, and having an inclosed continuous runner extending through the same, and runners leading from the continuous runner to the individual mold cavities, of a cover extending over one or more of the molds and having an opening therein, and a knife or cutter adapted to pass through such opening and sever the metal in the continuous pouring runner within the series of molds, substantially as and for the purposes set forth.

14. The herein-described method of forming castings, consisting in casting metal within a set of series of sand molds placed in line with each other by feeding the metal through a continuous runner communicating with the mold cavities in said series of molds, and subsequently, while the metal is confined within the said molds, severing the metal within the continuous runner to separate the castings from each other, substantially as and for the purposes set forth.

15. The herein-described method of forming castings, consisting in casting metal within a set or series of sand molds placed in line with each other by feeding the metal through a continuous runner communicating with the mold cavities in said series of molds, and subsequently, while the metal is confined within the molds and before it is fully set, severing the metal within the continuous runner to separate the castings from each other, substantially as and for the purposes set forth.

521,452. SAND MOLD. STEPHEN J. ADAMS, Pittsburg, Pa. Filed Oct. 24, 1892. Serial No. 449,907. (No model.)

Claim.—1. In sand molds, the combination with a series of molds arranged in line with each other and each resting on a common horizontal support, of side retaining plates extending along two or more of said molds and clamps for holding the plates to the molds, substantially as and for the purposes set forth.



2. In sand molding apparatus, the combination with a series of molds set in line with each other and each resting on a horizontal support extending under the series, of a top retaining plate and side retaining plates extending along two or more molds in said series and clamps holding said plates in place upon the molds, substantially as and for the purposes set forth.

3. The combination of a series of sand molds set in line with each other, of a pliable mold retaining plate extending along two or more of the molds in said series and a clamp for holding it in place, substantially as and for the purposes set forth.

4. The combination with a series of sand molds set in line with each other and each resting on a common horizontal support, of a mold retaining plate adapted to extend along the series of molds and give support thereto, such plate being formed of a series of strips and of supports therefor connected to the strips and extending at an angle thereto so forming an open retaining plate, substantially as and for the purposes set forth.

5. The combination with a series of sand molds set in line with each other and each resting on a common horizontal support, of a top retaining plate, side retaining plates and a clamp bearing on the top plate and engaging the side plates, substantially as and for the purposes set forth.

6. The combination with a series of sand molds set in line with each other, and resting on a common horizontal bed, of detachable side retaining plates and a detachable end retaining plate held in place by the side retaining plates, substantially as and for the purposes set forth.

7. The combination with a series of sand molds set in line with each other, of a top retaining plate, side retaining plates, and a clamping device resting upon the top plate and having movable arms engaging with the side plates, substantially as and for the purposes set forth.

8. The combination with a series of sand molds set in line with each other, of a top retaining plate, side retaining plates, and a clamping device resting upon the top plate and having movable arms engaging with the side plates, said arms having inwardly extending lower ends, substantially as and for the purposes set forth.

9. The combination with a series of sand molds set in line with each other, of a top retaining plate, side retaining plates having the cleats j' provided with lugs j^3, and the clamp having arms provided with inwardly extending lower ends, said clamp bearing on the top plate and the free lower ends of its arms engaging with the lugs on the cleats of the side plates, substantially as and for the purposes set forth.

10. The combination with a series of sand molds set in line with each other, of a top retaining plate, side retaining plates, the clamp *g* having the bar *g'* bearing on the top plate, the side arms *l*, toggle arms *n*, and link *n'*, substantially as and for the purposes set forth.

11. The combination with a series of sand molds set in line with each other, of the side retaining plates having the ribs f^3 at the ends thereof, the end retaining plate *s*, and tightening devices between said end retaining plate and said ribs, substantially as and for the purposes set forth.

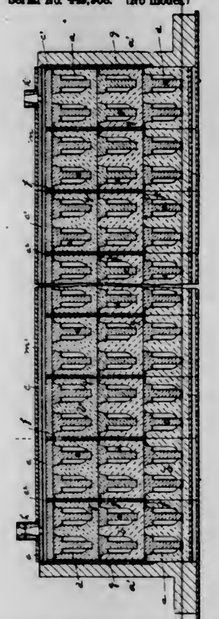
12. The combination with a series of sand molds set in line with each other, of a top retaining plate and side retaining plates extending along the same, said side retaining plates being movable with relation to the top retaining plate, and clamping mechanism engaging with both said top plate and said side plates and holding said plates in place, substantially as set forth.

13. The combination with a series of sand molds set in line and in contact with each other, of a top retaining plate, side retaining plates, clamping mechanism for holding the same in place, and clamps securing the side retaining plates to the mold support, substantially as and for the purposes set forth.

14. The combination of a series of sand molds set in line with each other, and having a continuous runner extending through said series of molds, and channels or runners leading to the mold cavities therein, an inclined bed plate supporting said molds at an incline, and a feeding reservoir or basin communicating with the lower end of the inclined runner, substantially as and for the purposes set forth.

15. The combination of a series of sand molds set in line and in contact with each other, and having a continuous runner extending through said series of molds, and channels or runners leading to the mold cavities therein, an inclined bed plate supporting said molds at an incline, a feeding reservoir or basin communicating with the lower end of the inclined runner, and a reservoir communicating with the upper end of said inclined continuous runner, substantially as and for the purposes set forth.

521,453. SAND MOLD. STEPHEN J. ADAMS, Pittsburg, Pa. Filed Oct. 24, 1892. Serial No. 449,908. (No model.)



Claim.—1. In sand molds, the combination with a series of molds placed in line and in contact with each other, of a series of separate sand molds resting thereon and having a continuous horizontal runner extending through the same, and down-take runners leading from the horizontal runner to the mold cavities in the lower series of molds, substantially as set forth.

2. In sand molds, the combination of a series of sets of molds placed in line and in contact with each other, each set being formed of two or more molds the one resting upon the other, a continuous runner extending along said molds above the mold cavities of the several sets, and down-take runners or channels leading from the continuous runner to the cross gates communicating with the mold cavities in the sets of molds, substantially as set forth.

3. In sand molds, the combination of a set of molds placed the one on the other, each mold having a mold cavity or cavities, and cores placed within the same, and the mold resting on the one below it confining said cores in place, substantially as set forth.

4. In sand molds, the combination of a set of molds placed the one on the other, each mold having a mold cavity or cavities, and cores placed within the same, and the mold resting on the one below it confining said cores in place and forming with said mold cross runners leading from the down take runner to the mold cavities in the lower mold, substantially as set forth.

5. In sand molds, the combination of a series of sets of molds placed in line and in contact with each other, vertical down take channels formed between the sets of molds to feed the metal to the cross runners leading to the mold cavities in such sets of molds, and a separate sand mold hoving an inclosed runner extending through the same communicating with the down take channels leading to the mold cavities of such sets of molds, substantially as set forth.

6. In sand molds, the combination of a bed plate having a vertical side plate rigid therewith, a series of molds placed in line with each other and resting on said bed plate and against said vertical plate, and a mold cover placed upon the top and the other side of the set or series of molds, substantially as set forth.

7. In sand molds, the combination of a bed plate having a vertical side plate rigid therewith, a series of molds placed in line with each other and resting on said bed plate and against said vertical plate, a mold cover placed upon the top and the other side of the set or series of molds, and a clamp engaging with such mold cover and the vertical plate extending up from the bed plate, substantially as set forth.

8. In sand molds, the combination of a bed plate having a vertical side plate rigid therewith, a series of molds placed in line with each other and resting on said bed plate and against said vertical plate, and a mold cover placed upon the top and the other side of the set or series of molds, said mold cover being formed of a top plate and a vertically downwardly extending plate, substantially as set forth.

9. In sand molds, the combination of a bed plate having a vertical side plate rigid therewith, a series of molds placed in line with each other and resting on said bed plate and against said vertical plate, and a mold cover placed upon the top and the other side of the set or series of molds, said mold cover being formed of a top plate and a vertically downwardly extending plate, said top plate having a downwardly extending rib extending along the side opposite to the vertically downwardly extending plate, substantially as set forth.

10. In sand molds, the combination of a bed plate, a series of sand molds placed thereon in line with each other, side and top confining plates, and a U-shaped clamp passing over the side and top confining plates and clamped to the side plates, substantially as set forth.

11. In sand molds, the combination of a bed plate, a series of sand molds placed thereon in line with each other, side and top confining plates, the side plates having secured thereto a stop and a wedge, and a U-shaped clamp passing over the side and top confining plates and between such stop and wedge so that when rocked it will ride up said wedge to clamp the parts together, substantially as set forth.

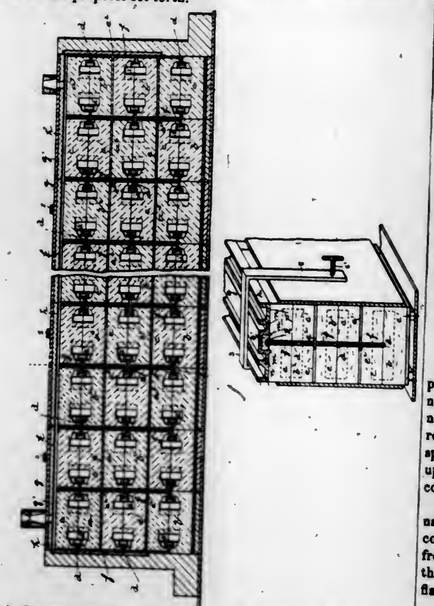
12. In sand molds, the combination of a bed plate, a series of sand molds placed thereon in line with each other, side and top confining plates, and a U-shaped clamp passing over the side and top confining plates and clamped to the side plates, one or both of said side plates having double inclined wedges formed thereon, the inclines of which extend toward each other, and the clamp being adapted to be placed between such wedges and then rocked to engage therewith and clamp the side plates together, substantially as and for the purposes set forth.

13. In sand molds, the combination of a mold support having lugs thereon, a series of sand molds placed in line with each other, top and side plates confining said molds, and a U-shaped clamp passing over the top and side plates and clamping the same to the molds and having lips or lugs thereon adapted to engage with the lugs on the mold support, substantially as set forth.

521,454. SAND MOLD. STEPHEN J. ADAMS, Pittsburg, Pa. Filed Oct. 24, 1892. Serial No. 449,909. (No model.)

Claim.—1. In sand molds, the combination of a series of two or more sets of molds placed in line and in contact with each other, each set being formed of two or molds the one resting on the other, said sets of molds having a down take channel or runner leading between the sets to the cross gates communicating with the mold cavities in the sets of molds, and the molds above the bottom mold in each set being supported on bottom boards having recesses or openings therein for the down take channels, substantially as set forth.

2. In combination with a series of sand molds having down take channels leading to the mold cavities, and a continuous runner formed of an inverted trough resting on said series of molds and forming a close joint therewith, and having a runner groove communicating with the pouring gates leading to the mold cavities, substantially as and for the purposes set forth.



3. In combination with a series of sand molds having down take channels leading to the mold cavities, a continuous runner formed of an inverted trough resting on said series of molds and forming a close joint therewith, and having a runner groove communicating with the pouring gates leading to the mold cavities, said inverted trough being formed of a metal body having a tile or like lining therein in which the runner groove is formed, substantially as and for the purposes set forth.

4. In combination with a series of sand molds having down take channels leading to the mold cavities, a continuous runner formed of an inverted trough resting on said series of molds and forming a joint therewith, and having a runner groove communicating with the pouring gates leading to the mold cavities, said trough having longitudinal ribs formed thereon to enter the sand and insure a tight joint, substantially as and for the purposes set forth.

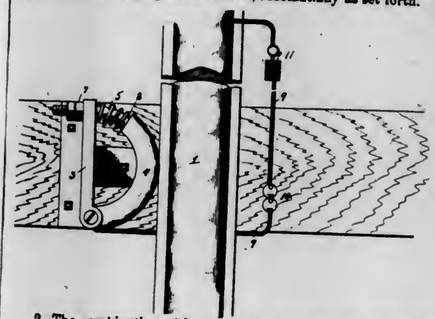
5. In combination with a series of sand molds having down take channels leading to the mold cavities, a continuous runner formed of an inverted trough resting on said series of molds and forming a joint therewith, and having a runner groove communicating with the pouring gates leading to the mold cavities, said trough having horizontal plates extending out at the side thereof, substantially as and for the purposes set forth.

6. In combination with a series of sand molds having down take channels leading to the mold cavities, a continuous runner formed of an inverted trough resting on said series of molds and forming a joint therewith, and having a runner groove communicating with the pouring gates leading to the mold cavities, and separate horizontal plates extending along the sides of the trough to confine the mold, substantially as and for the purposes set forth.

7. In combination with a series of sand molds having down take channels leading to the mold cavities, a continuous runner formed of an inverted trough resting on said series of molds and forming a joint therewith, and having a runner groove communicating with the pouring gates leading to the mold cavities, and separate horizontal plates extending along the sides of the trough to confine the mold, said separate plates having upwardly extending ribs, and a clamp extending over said trough and horizontal plates and bearing on said ribs, substantially as and for the purposes set forth.

521,455. ELECTRIC RAILWAY-SIGNAL. CHARLES R. ALSOP, Middletown, Conn., assignor to Lucy C. Alsop, same place. Filed Oct. 12, 1893. Serial No. 487,963. (No model.)

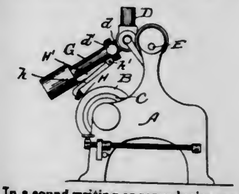
Claim.—1. In an electric railway signal, the combination with a track rail included in an electrical signal circuit; of a horizontally movable contact bar pivoted at one end adjacent to the track rail and included in the same signal circuit therewith, a suitably arranged spring for normally adjusting said contact bar in close proximity to the track rail, said contact bar and the track rail being adapted to be simultaneously engaged by the flange of a car wheel which forms the circuit closing plug therebetween, substantially as set forth.



2. The combination with a rail, of a chair provided with a support arranged parallel with said rail, a contact-bar pivotally connected to said support and in circuit with a rail, a battery and a signaling device, said contact-bar being provided at its free end with a reduced stem fitting in a guide opening in said support, an actuating spring connected to the contact-bar, and an adjusting-nut threaded upon the extremity of said stem to regulate the interval between the contact-bar and the rail, substantially as specified.

3. The combination with a rail in electrical circuit with a signaling device and a battery, of a laterally movable spring-actuated contact-bar, in the same circuit with the rail and normally spaced from the inner side of the rail, whereby the circuit is completed through the rail and contact bar by the interposition of the metallic flange of a car-wheel, substantially as specified.

521,456. ERASING ATTACHMENT FOR PHONOGRAPHS. EDWARD H. AMET, Chicago, Ill. Filed Feb. 10, 1894. Serial No. 499,699. (No model.)



Claim. 1. In a sound writing or reproducing machine, the combination of a revolving chuck or holder for supporting and revolving the wax or other cylinder, of a knife for paring or smoothing the cylinder, a movable weight for pressing the knife against the cylinder, and a spring connection or cushion between the knife and said movable weight, substantially as specified.

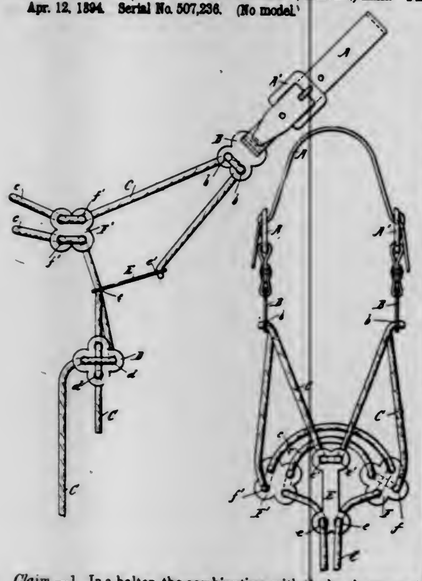
2. In a sound recording or reproducing machine, the combination with a revolving chuck or holder for supporting and revolving the wax or other cylinder, a traveling block or trunnion, a weighted arm carried by said traveling block or trunnion, a paring knife carried by said weighted arm, and a spring connection or cushion between the knife and weighted arm, so that the pressure of the weight is exerted upon the knife through the spring or cushion and the knife thus permitted to follow inequalities in the cylinder without producing injurious vibrations of the weighted arm, substantially as and for the purpose specified.

3. In a sound recording or reproducing machine, the combination with a revolving chuck or holder for supporting and revolving the wax or other cylinder, a traveling block or trunnion, a weighted arm carried by said traveling block or trunnion, a paring knife carried by said weighted arm, and a spring connection or cushion between the knife and the weighted arm so that the pressure of the weight is exerted upon the knife through the spring or cushion and the knife thus permitted to follow inequalities in the cylinder without producing injurious vibrations of the weighted arm, said knife being secured to secondary arm *h* pivotally connected to said weighted arm and the spring acting against said secondary arm *h*, substantially as specified.

4. The combination in a wax or other cylinder paring device, of a revolving chuck or holder for supporting and revolving the cylinder, with a paring knife, a movable weight for pressing the paring knife against the cylinder, and a spring connection or cushion between the knife and said movable weight, substantially as specified.

5. The combination in a cylinder paring device of a revolving chuck or holder for supporting and revolving the cylinder, of a traveling slide or block, a weighted arm pivotally connected to said slide, a knife or tool for paring or smoothing the surface of the cylinder, and a spring connection between said knife or tool and said pivotal weighted arm, substantially as specified.

521,457. HALTER. THOMAS R. BURNETT, Mulvane, Kans. Filed Apr. 12, 1894. Serial No. 507,236. (No model.)



Claim.—1. In a halter, the combination, with the head strap and the perforated plates B secured to its ends, of the chin plate having the holes e' and e, the perforated cheek plates F and F' and a single continuous looped rope having the central portion of its loop between the said holes e', passing through the holes in the plates B, F and F', and through the said holes e, and forming the nose loops c in its course, substantially as set forth.

2. In a halter, the combination, with the adjustable head strap and the perforated plates B secured to its ends, of the chin plate having the holes e' and e, the perforated cheek plates F and F', the fastening plate, and a single continuous looped rope, having the central portion of its loop between the said holes e', and having its ends passed crosswise through the holes of the said fastening plate, and passing through the holes in the plates B, F and F' and forming the nose loops c in its course, substantially as set forth.

521,458. SAFETY-BOLT. PHILIP BURNS, Norwich, Conn. Filed Jan. 8, 1894. Serial No. 496,114. (No model.)

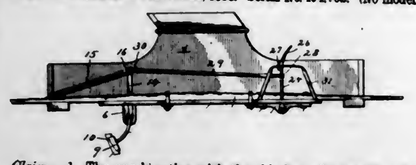


Claim.—1. In combination with a knob-latch and its strike-plate, a safety-bolt with inclined ways g^3 as set forth, located in the rear of said strike-plate and adapted to enter the case of the latch, and a slide-plate intermediate said knob-latch and safety-bolt; said slide bearing upon the inclined ways of the safety-bolt, substantially as and for the purpose specified.

2. In combination with a strike-plate, a bolt seated in the rear thereof, a spring that seeks constantly to force said bolt outward, and a movable cam-plate, substantially as set forth, for forcing said bolt inward against the force of said spring.

3. In combination, a knob-latch bolt, a coincident safety-bolt with inclined ways located in the door jamb, as set forth, a strike-plate, a spring in the rear of said safety-bolt and a slide-plate having an opening f and forked ends bearing upon said inclined ways; said slide-plate being formed with up-turned ends that may engage the strike-plate, in the manner and for the purpose specified

521,459. BRAKE FOR SIDE-BAR VEHICLES. THOMAS H. CARTER, Walnut, Miss. Filed Dec. 26, 1893. Serial No. 494,762. (No model.)



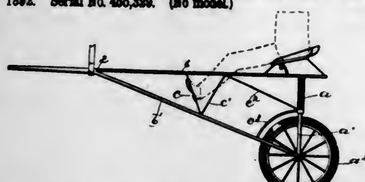
Claim.—1. The combination with the side-bar of a vehicle, of a plate secured to the under side thereof and provided with front and rear slots formed in lateral extensions projecting beyond the side-bar, a plate on the opposite side-bar near the rear end thereof, depending bearing standards on said plates, a transverse crank-shaft carrying brake-shoes, an inverted U-shaped bail located in the rear slots of the first-mentioned plate and secured to the crank-shank, a spring for retracting the bail, a bearing-plate secured to the front end of the first-mentioned plate, a bifurcated lever having its terminals passed through the slots of the latter plate, a bearing-bolt arranged in the bearing-plate and connected to the terminals of the latter, a foot-plate at the upper end of the lever, a connecting-rod between the lever and the bail, a dog carried by the lever, and the opposite inverted U-shaped bars arranged on the extensions of the slotted plate and embracing the foot-lever, one of said bars having notches for engaging the dogs, substantially as specified.

2. The combination with the opposite side-bars of a vehicle, of the depending bearings arranged upon the side-bars, the transverse shaft arranged in the bearings and terminating in brake-shoes, a bail of inverted U-shape arranged on the rear end of the side-bar and secured at its terminals to the crank-shaft, a spring for retracting the bail, bearings near the front end of the side-bar, a transverse bolt arranged in the bearings, a bifurcated lever embracing the side-bar and secured to the bolt and terminating at its upper end in a foot-plate, and a connecting rod between the foot-lever and the bail, substantially as specified.

3. The combination with the side-bars of a vehicle, of bearings supported by the side-bar, a brake-shaft arranged in the bearings, a rock-arm carried by the brake-shaft, a brake-lever in front of the rock-arm and supported by the side-bar, means for locking the lever, and a connecting-bar between the two levers, substantially as specified.

4. In a brake mechanism for side-bar vehicles, the plate 3 secured to the under side of the side-bar, the bail 14 embracing the side-bar and plate, the rock-shaft 7 mounted in the bail, the brake-devices carried by the rock-shaft, the brake-lever 24 also embracing the side-bar and plate, connections between the bail and the brake-lever, and means for adjusting the throw of the brake-lever, substantially as specified.

521,460. SULKY. STERLING ELLIOTT, Newton, assignor to the Hickory Wheel Company, South Framingham, Mass. Filed Dec. 16, 1892. Serial No. 455,339. (No model.)



Claim.—1. A sulky, each shaft of which is in a plane above the top of the wheels, and is a single bar at the forward end, and is split or divided back of said end, one portion extending horizontally to the seat and support, and the other extending at an angle to the first and downward to the axle, substantially as set forth.

2. A sulky provided with shafts each of which is a single bar at the forward end and divided toward the back end, the upper portion extending to the seat frame, the lower portion to the axle, and the two portions being braced to form one rigid structure, substantially as set forth.

3. A sulky provided with a pair of divided shafts, each shaft constructed of a single piece split or divided at a suitable point from the forward end thereof, and arms projecting from the lower divided portions of said shafts so as to embrace the wheels, substantially as described.

4. A sulky provided with a pair of divided shafts consisting of upper and lower portions the former of which extend back to the frame of the sulky, occupying a plane above the tops of the wheels, and the latter extending back to the wheel supports, and braces connecting said upper and lower portions to form a rigid structure, substantially as described.

5. A sulky provided with a pair of divided shafts, each constructed of a single piece split or divided at a suitable point from the forward end thereof, the lower divided portions of which being provided with projecting arms, and struts or supports connecting the upper and lower divided portions of said shafts, and connections between said projecting arms and the lower divided portions, substantially as described.

6. In a sulky, the combination of a cross-bar or frame, having at its ends depending wheel-supporting arms or forks, and a pair of divided shafts each constructed of a single piece, and consisting of an upper and lower portion, the rear ends of the said upper portions being connected with the body of the cross-bar or frame, and the rear ends of the lower divided portions being connected to the lower ends of said wheel-supporting arms, substantially as described.

7. In a sulky, the combination of the frame, seat, wheel-supporting frame having at each end a wheel support, and wheel, and shafts, each shaft having an upper portion on a place above the wheels and below the seat, and a lower portion which is split to form a fork receiving the wheel, the ends of said split portion being attached adjacent to the lower ends of the wheel supports, substantially as set forth.

8. In a sulky, the combination of a cross-bar or frame having at its ends depending wheel-supporting arms or forks, and a pair of divided shafts, the lower divided portions of which are provided with projecting arms, and the rear ends of the upper divided portions being connected to the body of the cross-bar or frame, and the rear ends of the lower divided portions, together with said projecting arms, constituting forked braces which are connected to the lower ends of the wheel supporting arms, substantially as described.

9. In a sulky, the combination of a cross-bar or frame having at its ends depending wheel-supporting arms or forks, and a pair of divided shafts, the rear ends of the upper portions of which being connected to the cross-bar or frame, and the rear ends of the lower divided portions of which being connected to the lower ends of said wheel-supporting arms, and braces connecting the said lower divided portions with the cross-bar or frame, substantially as described.

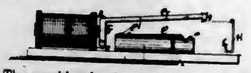
10. In a sulky, the combination of a cross-bar or frame having at its ends depending wheel-supporting arms or forks, and a pair of divided shafts the rear ends of the upper divided portions of which are connected with the cross-bar or frame, and the rear ends of the lower divided portions of which are connected to the lower ends of said wheel supporting arms, and braces connecting the said lower divided portions with the cross-bar or frame, and braces connecting the said upper divided portions with said cross-bar or frame, substantially as described.

11. In a sulky, the combination of a cross-bar or frame having at its ends wheel-supporting arms, a pair of divided shafts, the lower divided portions of which are provided with projecting arms, and with said arms connected to the lower ends of the wheel-supporting arms, short connecting bars connecting the said projecting arms and lower divided portions, and braces connecting the said short connecting bars, with the cross-bar or frame, substantially as described.

12. In a sulky, the combination of a wheel-supporting frame wheels thereon, a seat located above the tops of the wheels, a pair of divided shafts, the upper portions of which extend rearwardly in substantially a horizontal plane to the wheel supporting frame, and the lower portions of which extend at an angle with relation to the upper portions and are connected with the wheel-supports at their lower ends, braces interposed between and connecting said upper and lower portions of the shafts, and cross pieces connected between said braces to form foot rests, substantially as described.

13. In a sulky, a rigid frame constructed and arranged to support a seat and a pair of wheels, with the seat in elevation above the tops of said wheels, and a pair of shafts, each comprising a substantially horizontal upper portion, and a lower portion arranged at an angle with relation thereto, the rear extremities of said portions being connected to said frame at suitable points whereby the frame serves as a rigid connection between said upper and lower portions, substantially as described.

521,461. COMBINED ANNUNCIATOR AND SPRING-JACK. HENRY M. FISK, Chicago, Ill. Filed May 14, 1894. Serial No. 511,246. (No model.)

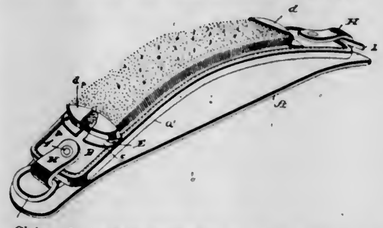


Claim.—1. The combination in a switch-board of a jack, and a drop adapted to swing in front of it, an electro magnet located in the rear of the jack and an armature having a connection for catching and supporting the drop when it is raised by the entrance of the connecting plug as set forth.

2. The combination in a switch-board of an annunciator drop adapted to hang in front of the jack and be lifted by the operator's plug as it is thrust into the jack and a trigger or arm for catching it when so raised and an electro magnet and its armature and connections whereby the support is drawn from engagement with the drop when the magnet is energized as set forth.

3. The combination in a switch-board of an electro-magnet, a jack located in front of it and a drop hung in front of the jack with a support for the drop when raised and a connection between the support and armature for drawing the support from engagement with the drop when the magnet is energized as set forth.

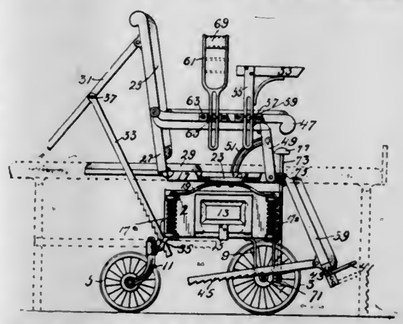
521,462. STALLION-SHIELD. JAMES W. FITZGERALD, Maysville, Ky. Filed July 5, 1892. Serial No. 438,896. (No model.)



Claim.—1. A stallion shield having a bed of staples or pricking points and also having the protecting plates at opposite ends of said bed, substantially as specified.

2. The shield comprising the belly strap, the sole leather B, the leather or canvas C, the interposed metal strip D, the blunt staples and tacks or points arranged in the piece C, the combined pieces being secured near opposite ends in a bowed manner to the belly strap and in the longitudinal center by rivets F, and said parts being also secured together near their inner longitudinal edges by staples G, substantially as specified.

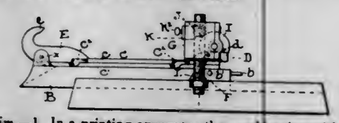
521,463. INVALID-CHAIR. OLIVE L. SMITH-FRASER, Minneapolis, Minn. Filed Dec. 13, 1892. Serial No. 455,017. (No model.)



Claim.—1. In an invalid chair, the combination of the chair-body 2, the springs 17ª located on opposite sides of the chair body at the front and the rear thereof so as to permit movement of said springs without interference with said body, the springs 19 and 21 lying at opposite sides of the body 2, each of said springs connecting two of the springs 17ª and being arched to bring the central portion thereof above the top of the chair-body 2, and the seat 17 extending from spring 19 to spring 21 and connected to both of said springs and formed with an opening 23 between said springs and over the chair-body 2, substantially as and for the purposes described.

2. The combination with the body 2, of the seat portion supported above it, the hinged back serving as a horizontal extension of the seat portion when lowered, the handles 31 hinged to the back and serving as supports for the back when the back is lowered, and the notched bars 33 pivotally connected at one end to said handles and adjustable relatively to a catch adapted to engage the notches of the bars, said bars serving to brace the handles in their raised or lowered position, substantially as described.

521,464. STENCIL-PRINTING MACHINE. WILLIAM G. FUERTH, Newark, N. J., assignor to the A. B. Dick Company, of Illinois. Filed Jan. 3, 1893. Serial No. 457,030. (No model.)



Claim.—1. In a printing apparatus the combination with a sliding frame of an inking roller movable vertically, a stationary bed supporting said roller, a finger depending from the roller bearing box whereby said roller is locked in its highest position, said finger being pivotally connected at one end with said box, its other end being free and a pin on the sliding frame whereby said roller is brought into printing position substantially as set forth.

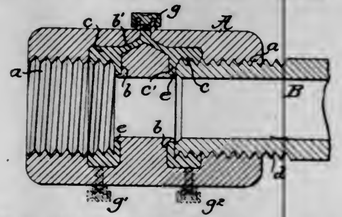
2. The combination with the base of a stencil printing apparatus having a sliding frame one part for the impression sheet and one for the stencil sheet, of a vertically moving inking roller and an incline at each end of said two part frame, whereby the position of the inking roller is governed.

3. In a printing apparatus the combination with a sliding frame of an inking roller movable vertically, a stationary bed supporting said inking roller an incline at each end of said sliding frame whereby said roller is moved vertically, a finger depending from the roller bearing, and a pin on the sliding frame, one of said inclines being located with respect to said pin so as to raise said roller before the pin releases the finger substantially as set forth.

4. The combination in a printing apparatus of an inking roller, a box bearing at each end thereof, a supporting finger hinged at one end of said bearing its other end being free, said roller and bearings being adapted to be depressed by gravity upon the release of said supporting finger, a post for each bearing supported on a stationary bed and a cross-bar between said boxes whereby the inking apparatus may be readily removed, substantially as set forth.

5. The combination in a printing apparatus of an inking roller, an ink supply roller, a box bearing at each end of said inking roller, and an angular slotted bearing plate carried thereby to support said ink supply roller substantially as set forth.

521,465. PIPE-COUPLING. WELLESLEY W. GAGE, New York, N. Y. Filed Oct. 12, 1892. Serial No. 448,637. (No model.)

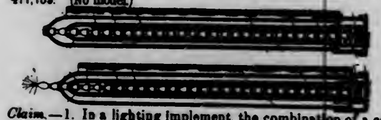


Claim.—1. The herein described pipe coupling having a lead seal for the pipe joint and a spring bearing against the seal and against a fixed abutment.

2. The herein described pipe coupling having a lead seal for the pipe, a passage leading outward closed by a screw cap and a spring interposed between the lead and the cap forming an abutment.

3. The herein described pipe coupling having a recess, an end wall with an overlying lip, said recess being filled and the wall being lined with a soft metal for sealing the pipe,—the lip confining the soft metal to the end of the pipe while being compressed in forcing the pipe "home."

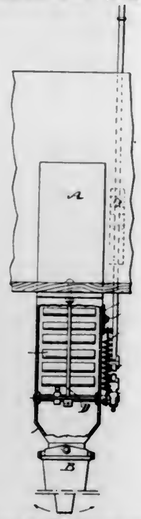
521,466. MAGAZINE-LIGHTER. FRANK GOFF, Camden, and THOMAS H. JOINER, Burlington, N. J. Filed June 15, 1893. Serial No. 477,739. (No model.)



Claim.—1. In a lighting implement, the combination of a casing provided with interiorly roughened or serrated friction or igniting fingers, concentric guide and feed tubes provided at their corresponding ends with co-operating jaws to engage successively the frictionally ignitible heads or enlargements of a continuous taper, the guide tube being fixed and a spring-actuated operating cap connected to said feed-tube and slidably fitted upon the lower end of the casing, substantially as specified.

2. In a lighting implement, the combination of a casing provided with friction or igniting fingers, a guide-tube arranged concentrically in the casing and fixed thereto, a slidable jaw-bearing feed-tube mounted exteriorly upon said guide-tube, and a slidable spring-actuated operating cap fitted upon the lower end of the casing, connected to said feed-tube and provided with an aperture registering with the guide-tube to enable tapers to be inserted without removing the cap, substantially as specified.

521,467. SANDING DEVICE. WILLIAM GRUNOW, Jr., Mount Vernon, N. Y., assignor to Zalmon Goodsell, Bridgeport, Conn. Filed Feb. 15, 1894. Serial No. 500,213. (No model.)



Claim.—1. A railway sanding device consisting of a hopper having a chute at the base thereof, an ejector valve journaled in the sides of the hopper at the mouth thereof, a rod pivoted to the ejector-valve and having agitating cross-bars affixed thereto, and means for depressing one end of the ejector valve, substantially as shown and described.

2. A railway sanding device consisting of a hopper having a chute depending therefrom, a normally closed ejector-valve journaled in the sides of the hopper at the mouth thereof, a rod pivoted to the ejector-valve and having agitating cross-bars affixed thereto, and an operating lever pivoted to the dashboard of the car and adapted to depress one end of the said ejector valve, substantially as shown and described.

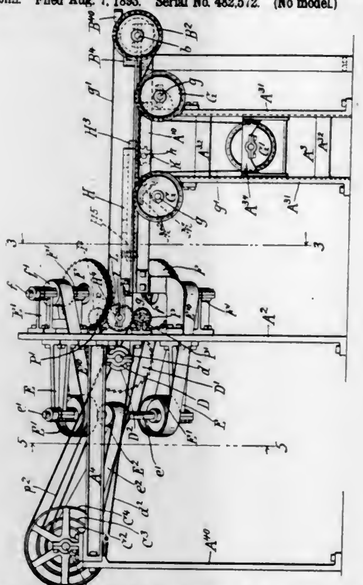
3. In a railway sander, the combination with a device of the character shown, of sand agitating and dislodging mechanism consisting of a rod pivoted to the valve of the sander and cross-bars permanently affixed thereto, substantially as shown and described.

4. In a railway sander, the combination with a device of the character shown, of a normally closed ejector-valve journaled in the sides of the sander at the mouth thereof and adapted, when open, to be depressed at one end and raised at the other, and agitating and dislodging mechanism consisting of an upwardly extending rod pivoted to the ejector valve and provided with cross-bars permanently affixed thereto, whereby the sand is prevented from caking and is ejected from the mouth of the hopper when the valve is open, substantially as shown and described.

5. In a railway sander, the combination with a hopper secured beneath the car, an ejector valve journaled in the mouth thereof, an agitating rod pivoted to the said valve and provided with cross bars affixed thereto, of an operating lever pivoted to the dashboard of the car and connected by means of a pitman with a bell-crank lever secured to the journal of the ejector-valve, and a spring attached to the free arm of the said lever and fastened to the hopper, substantially as shown and described.

6. In a railway sander, the combination with a hopper secured beneath the car, a normally closed ejector-valve journaled in the sides of the said hopper at the mouth thereof, an agitating rod pivoted to the said valve and provided with cross-bars affixed thereto, of an operating lever pivoted to the dash-board of the car, surrounded by a regulating guide, and connecting by means of a pitman with a bell-crank lever secured to the journal of the ejector-valve, and a spring attached to the free arm of the said lever, and adjustably fastened to the hopper by a loop having an elongated slot therein, and a set-screw extending through the said loop, substantially as shown and described.

521,468. MACHINE FOR TURNING SPOOLS. EBER HUBBARD, Chicago, Ill., assignor to the Willimantic Linen Company, Hartford, Conn. Filed Aug. 7, 1893. Serial No. 482,572. (No model.)



Claim.—1. In a machine for dressing spools, in combination with the frame (A^3), suitably secured in an upright position; the oblique shafts *f f* carrying dressing devices journaled out of line with each other upon one side of the upright frame, and an oblique counter-shaft *d'* journaled upon the opposite side of the frame; the pulleys on said shafts respectively, and the belts from the counter-shaft to the shafts *f f*, traversing the frame: substantially as set forth.

2. In a machine for dressing spools, in combination with the upright frame A^3, oblique shafts *f f*, journaled upon one side of the upright frame and carrying oblique dressing devices, and the horizontal shaft *d'* journaled upon the opposite side of the upright frame carrying the dressing devices *D'*, whose operating periphery extends through the upright frame to the side at which the oblique devices are located; and the mechanism for driving said shafts and dressing devices respectively; and suitable mechanism for advancing the spool toward the upright frame from the side at which the oblique dressing devices are located; substantially as set forth.

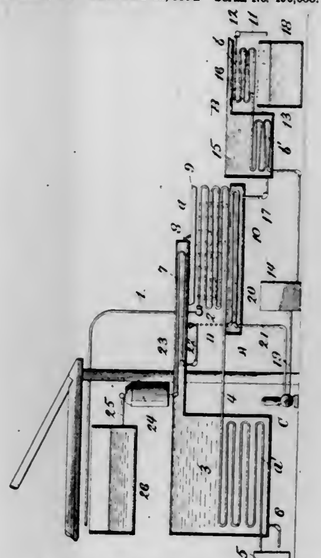
3. In a spool-dressing machine, in combination substantially as set forth, the driving mechanism for the dressing devices; the dressing devices themselves; the spool spindle carriage and the spindle-driving mechanism; said four elements being arranged on their supporting frame in the order named, whereby the dressing mechanism and the spool spindle carriage are the proximate elements and intermediate the two driving mechanisms, said driving mechanisms being independently driven; as and for the purpose set forth.

4. In a spool dressing machine, in combination with a horizontal bed and the spool carriage adapted to reciprocate thereon; the upright frame A^3 located intermediate the ends of the bed and having vertical guide-ways; the pulley carriage A^{34}, adapted to slide in said guide-ways, and the pulley journaled thereon; the spool-rotating spindle on the spool carriage, and its driving shaft journaled on the bed; the guide pulleys G G, and the belt which communicates motion from the driving shaft to the spool spindle, passing over the guide pulleys G and under the pulley G' on a vertical sliding carriage: substantially as set forth.

5. In combination with the bed and the spool carriage adapted to reciprocate thereon, a pulley-driving spindle journaled on the carriage and the pulley which drives it having its shaft journaled on the bed; means for reciprocating the carriage on the bed; the belt-shifting lever pivoted on the bed, and the cam lever M fulcrumed on the bed and connected to the belt-shifting lever, the carriage being adapted to engage said cam to tilt it as the carriage reciprocates to shift the belt: substantially as set forth.

6. In combination with the spool carriage, the spool carrying spindles journaled thereon; a shaft in which the idle spindle is journaled adapted to be reciprocated lengthwise of the carriage; the stripper having guide-bearings on the carriage parallel with the spindle axis; an arm from said reciprocating shaft which has a slotted connection with the stripper, whereby the longitudinal movement of said shaft first disengages the idle spindle from the spool and then actuates the stripper to disengage the spool from the operating spindle: substantially as set forth.

521,469. SURFACE CONDENSER. SAMUEL W. JOHNSON, Newport News, Va. Filed Jan. 12, 1894. Serial No. 496,653. (No model.)



Claim.—1. In a condensing apparatus, the combination, with the condensing-coils and cooling-coils, the latter situated on a plane higher than the former, of a water-tank, in which the condensing-coils are submerged, having its walls so constructed and arranged that the overflow water will be conveyed to and caused to flow over said cooling-coils.

2 In a condensing apparatus, the combination; with the condensing-coils and the cooling-coils arranged at a higher level than said condensing-coils, of a water-tank, in which the condensing-coils are submerged, provided with an inlet and with an overflow trough situated on a plane higher than said cooling-coils and having an outlet, whereby the overflow water is caused to flow over the cooling-coils.

3. A condensing-apparatus, comprising gas condensing-coils submerged in a water-tank provided with an overflow as described, a set of gas cooling coils, connected with and placed on a higher level than said condensing-coils, a set of steam condensing-coils submerged in a water-tank as described, which is fed from the overflow of water from the first mentioned tank and a set of steam cooling coils connected with the set of steam condensing-coils and placed on a higher level therewith, whereby the condensing water may be used four separate times in the process of condensation.

4. The combination, with a water-supply tank as described provided with an over-flow, the condensing-coils submerged in said tank and connected with a liquefied-gas receiver, and the cooling-coils placed on a higher level than said condensing-coils and connected therewith, of a drip-pan situated beneath said cooling coils, a second water-tank connected by a pipe with said drip-pan, a second set of condensing-coils situated in said second tank and connected with a condensed-water receiver, a second set of cooling-coils placed on a higher level than the second set of condensing-coils, and a boiler-feed tank situated beneath said second set of cooling coils for catching the condensing-water as it is distributed over said coils.

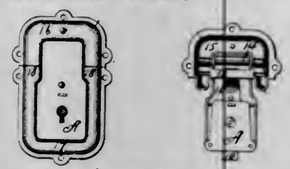
5. The combination, with the steam-condenser, of a condensed-water receiver connected with a pump, a coil situated in the drip-pan beneath the gas cooling-coils and connected with said pump, a set of drip-coils connected with said coil and with a coil situated in the over-flow trough of the water tank, and a filter connected with the coil in said over-flow trough and with a storage tank.

521,470. NUT AND BOLT LOCK. FRANK P. JOHNSON, Danville, Pa. Filed Feb. 17, 1894. Serial No. 500,566. (No model.)



Claim.—The combination with a bifurcated shank, of a spring key constructed of a single piece of resilient metal doubled to form the loop or bend 6 and having divergent sides arranged in the bifurcation of the shank, and provided with longitudinal slots, and a fastening device arranged in the slots of the sides and securing the key to the shank, said diverging sides frictionally engaging the shank and securing the key, substantially as described.

521,471. TRUNK-LOCK. EDWARD A. JUDD, New Britain, Conn., assignor to the Corbin Cabinet Lock Company, same place. Filed Nov. 3, 1893. Serial No. 489,912. (No model.)

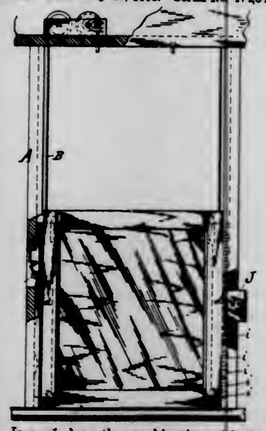


Claim.—1. The herein described hasp lock, consisting of the hasp plate B having a bead 16 struck up from sheet metal the combined lock and hasp pivoted within the space inclosed by said bead, and the combined guard and keeper with the continuous struck up bead 17 with its ends meeting the ends of the bead in said hasp plate, substantially as described and for the purpose specified.

2. In a hasp lock, the hasp plate B having the bead 16 in the form of an inverted U and the integral dowel pins 13 projecting from the lower ends of said bead all struck up from a single piece of sheet metal, substantially as described and for the purpose specified.

3. In a hasp lock the hasp plate B having the bead 16 in the form of an inverted U, dowel pins projecting from the lower ends of said bead, pintle recesses in the inner side walls of said bead and the cross bar 12 connecting the lower ends of said bead, the combined lock hasp pivoted within the space inclosed by said U shaped bead, its pintle resting in said side recesses of said bead and projecting into the hollow part thereof, and the securing plate 15 within said hollow bead, substantially as described and for the purpose specified.

521,472. SWINGING WINDOW. MICHAEL F. MAHONEY, San Francisco, Cal. Filed May 17, 1893. Serial No. 474,544. (No model.)



Claim.—1. In a window, the combination with the pulley stiles having slots or grooves, extending their full length, of sashes having plates engaging said slots and hung or supported in said sashes by links, one link having the function of a lever, being pivoted or fulcrumed at one end at opposite points, to both the sash and the plate, and the other end adapted for manipulation by the hand, substantially as and for the purpose set forth.

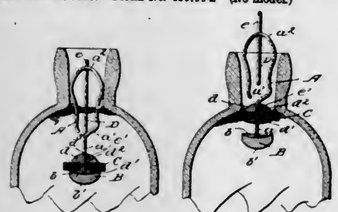
2. In a window, the combination, with the pulley-stiles having slots or grooves extending their full length, of the sashes having plates hung or pivoted therein, and engaging said slots or grooves, and one of said plates geared to raising and lowering mechanism, substantially as and for the purpose set forth.

3. The combination of a window-sash, provided with a movable rack or plate adapted to be moved inward and outward, a gear or cog wheel and a hollow shaft carrying said wheel and provided with a clutch-head, and a shaft adapted to be manipulated by hand, and passing through said hollow shaft and having a clutch-head held in engagement with the aforesaid clutch-head by a spring, substantially as set forth.

4. The combination with the window sash, of the movable plate secured thereto, said plate having its outer face indented or cut away, of the vertical grooves or channel within which same work when thrown outward, of the contact switch operated by the movable plate contacting therewith as the window is raised.

5. The combination with the window sash, of the vertical clamp or holding plate secured thereto, of the movable plate located between the vertical plate and sash and held in place by the former, said movable plate having its outer face indented or cut away, of a device for throwing the movable plate in or out parallel with the vertical plate, of the groove or channel within which said plate fits when thrown outward, and of the contact switch operated by the movable plate connecting therewith as the window is raised.

521,473. BOTTLE-STOPPER. GILBERT L. MATHEWS, Newton, N. J. Filed Oct. 25, 1893. Serial No. 489,114. (No model.)



Claim.—1. A bottle stopper, comprising a rod having an upper widened or loop portion, a flexible valve, upper and lower washers between which said valve is secured, a central shank connecting said washers and movable on said rod, and a disk secured fast to the lower end of said rod and having an upper concave face, the edges of said disk overlapping and inclosing the edges of said lower washer and bearing against said flexible valve, substantially as set forth.

2. A bottle stopper, comprising a rod having a lower perpendicular portion and an upper looped end, a flexible valve having a central opening, the upper and lower washers having a connecting shank fitted on the perpendicular portion of said rod and passed through said central opening of said flexible valve, the disk connected to the lower end of said rod and having an upper concaved face and its edges overlapping and inclosing the edges of said lower washer, and the rod having a loop and secured at its lower end to said upper washer, substantially as set forth.

521,474. APPARATUS FOR HANDLING BILLETS, INGOTS, &c. HENRY OLIVER and EDWARD SCOTT, Allegheny, Pa. Filed Feb. 14, 1894. Serial No. 500,122. (No model.)

Claim.—1. A plant for handling billets, slabs, ingots, &c., consisting in a discharge platform, an endless track arranged in front thereof, an endless line of carriers mounted on said track, and a series of water discharge pipes in the course of said carriers, substantially as set forth.

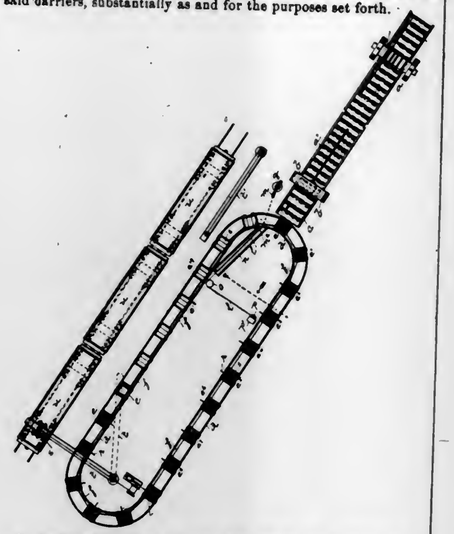
2. A plant for handling billets, slabs, ingots, &c., consisting in a discharge platform, an endless track arranged in front thereof, an endless line of carriers mounted on said track, pans on said carriers, and a crane for lifting said pans therefrom and carrying the same to the point of unloading, substantially as set forth.

3. A plant for handling billets, slabs, ingots, &c., consisting of a discharge platform, an endless track arranged in front thereof, an endless line of carriers mounted on said track, pans on said carriers, a railroad track adjacent to said endless track, and a crane for lifting said pans and carrying the same to the cars on the railroad track, substantially as set forth.

4. A plant for handling billets, slabs, ingots, &c., consisting in a shear having a table forming a discharge platform, an endless track arranged in front of said platform, and an endless line of carriers mounted on said track, substantially as set forth.

5. A plant for handling billets, slabs, ingots, &c., consisting of a discharge platform, an endless track arranged in front thereof, an endless line of carriers mounted on said track, and a series of water discharge pipes placed at positions corresponding to the positions of the carriers when at rest and adapted to discharge water upon the carriers, substantially as set forth

6. A plant for handling billets, slabs, ingots, &c., consisting in a discharge platform, an endless track arranged in front thereof, an endless line of carriers mounted on said track, and a series of water discharge pipes placed in positions corresponding to the positions of the carriers when at rest, said pipes extending up at the side of and over said carriers, substantially as and for the purposes set forth.



7. A plant for handling billets, slabs, ingots, &c., consisting in a discharge platform, an endless track arranged in front thereof, an endless line of carriers mounted on said track, and a series of water discharge pipes placed in positions corresponding to the positions of the carriers when at rest and extending up at the side of and over said carriers, said discharge pipes having sprinkling arms extending over the carriers, and the sprinkling arms of one set of discharge pipes extending over the outer portion of the pan while the sprinkling arms of the next carrier extend over the inner portion thereof, substantially as and for the purposes set forth.

8. In a plant for handling billets, slabs, ingots, &c., a series of endless carriers mounted on an endless track, said carriers being bottomless, removable pans supported thereon, said pans being formed of bars bent up at their ends and having hooked portions, and cross pieces on said bars having intervening spaces, substantially as and for the purposes set forth.

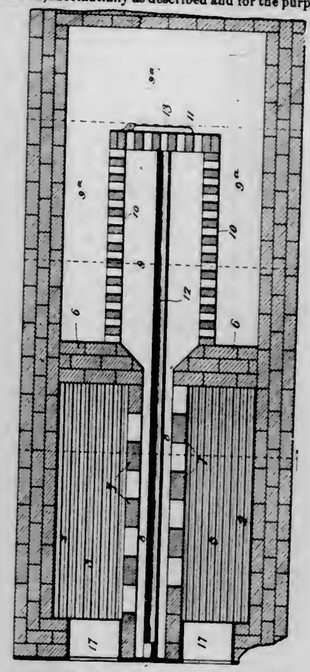
9. In a plant for handling billets, slabs, ingots, &c., the combination of a discharge platform, an endless track, an endless line of carriers mounted on said track, and having connecting devices thereon, and a jacking mechanism consisting of a ram and a chain or rope extending from the same over pulleys to and adapted to be connected to the different carriers to move the line of carriers intermittently, substantially as set forth.

10. In a plant for handling billets, slabs, ingots, &c., the combination of a discharge platform, an endless track, an endless line of carriers mounted on said track and having connecting devices thereon, and a jacking mechanism consisting of a ram and a chain or rope extending from the same over pulleys to and adapted to be connected to the different carriers to move the line of carriers intermittently, and a rope or chain connected to the same and provided with a weight to draw the rope back to its normal position, substantially as set forth.

11. In a plant for handling billets, slabs, ingots, &c., the combination of a discharge platform, an endless track, an endless line of carriers mounted on said track and having connecting devices thereon, and a jacking mechanism, said jacking mechanism consisting of a vertical hydraulic ram, pulleys mounted on each side of the endless track, and a rope passing from the vertical hydraulic ram over said pulleys and adapted to be connected to the carriers, substantially as set forth.

521,475. STEAM-BOILER FURNACE. OREL D. ORVIS, Chicago, Ill. Filed July 21, 1893. Serial No. 481,107. (No model.)

Claim.—1. In a steam boiler furnace the combination with two fire-boxes, of a central flue having perforated walls opening to both boxes, a combustion chamber whose walls reach to the boiler and have their upper portions perforated for the escape of the products of combustion, substantially as described and for the purpose specified.



2. In a steam boiler furnace the combination with a boiler and with side walls of a transverse wall 6 closing the back of the fire-boxes, a pair of parallel perforated walls longitudinally through the furnace forming a central flue leading through the wall 6, walls 10, 10, 11, back of the wall 6 and forming therewith a combustion chamber, said walls 10, 10, 11, having apertures adjacent to the boiler for the passage of the products of combustion.

3. In a steam boiler furnace the combination with a pair of fire-boxes and with a combustion chamber, of a flue for conveying the products of combustion from both fire-boxes to the combustion chamber and an air flue for delivering atmospheric air to the flue and chamber, substantially as described and for the purpose specified.

4. In a steam boiler furnace the combination with an inner and an outer combustion chamber, the walls separating the two extending to the boiler and being apertured adjacent thereto for the passage of the products of combustion, of a fire box opening to the inner combustion chamber, substantially as described.

5. The combustion, in a steam boiler furnace, with the fire box, and a chamber, 9^a, located back of the fire-box and formed by the outer walls of the furnace and the boiler, of a combustion chamber, 9, inclosed within the chamber 9^a, and having the upper portion of its walls perforated, substantially as described and for the purpose specified.

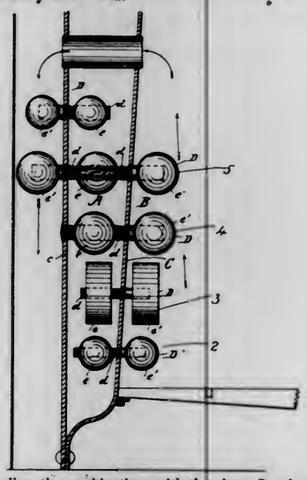
6. The combination, in a steam boiler furnace, with the fire-box, and a chamber, 9^a, located back of the fire-box and formed by the outer walls of the furnace and the boiler, of a combustion chamber, 9, inclosed within the chamber, 9^a, and an air flue leading to the combustion chamber, 9, substantially as described and for the purpose specified.

521,476. BOILER. JAMES H. READER, Tyrone, Pa. Filed Mar. 22, 1894. Serial No. 504,662. (No model.)

Claim.—1. In a boiler, the combination, with a water or air space having a plate C on one side, of a heat transmitter consisting of a stem having a head cast upon one end of it, a screw-threaded portion screwed through the said plate and forming a tight joint therewith, and a movable head screwed on its other end, substantially as set forth.

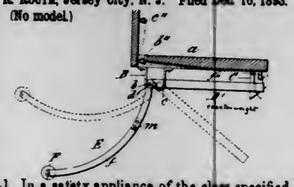
2. In a boiler, the combination, with the plates C and *c* inclosing a water or air space, of a combined heat transmitter and stay

consisting of a stem screwed through the said plates and having an exterior head and a head on its screwthreaded portion between the plates, substantially as set forth.



3. In a boiler, the combination, with the plates C and c inclosing a water or air space, of a combined heat transmitter and stay consisting of two stems screwed through the said plates from opposite sides, each stem being provided with an exterior head, and a head coupling the screwthreaded ends of the stems in the said space, substantially as set forth.

521,477. SAFETY APPLIANCE FOR STREET-RAILWAY CARS. OSWALD R. ROUTH, Jersey City, N. J. Filed Dec. 16, 1893. Serial No. 493,858. (No model.)



Claim.—1. In a safety appliance of the class specified, the combination of a pivoted scoop capable of a horizontal movement, a roller at the front of said scoop, a counterbalance at the rear of said scoop, pivotal movable bearings or supports for said scoop and means for normally holding suspended the said counterbalance and for releasing it to raise the scoop when the latter is moved backward, substantially as and for the purposes herein set forth.

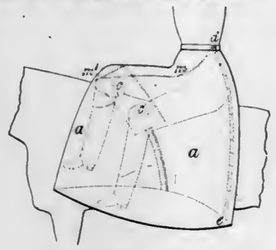
2. In a safety appliance of the class specified the combination of the scoop, E, roller, F, bearings, *d*, hangers, C, having sockets, *b*, and, *c*, the frame, D', arranged to counterbalance the scoop, and the shoulders, C', arranged to support the rear or inner end of said frame when the bearings, *d*, are in the sockets, *b*, and to release the same when said bearings are brought back to the socket, c, all substantially as and for the purpose herein set forth.

3. In a safety appliance of the class specified the combination of a pivoted scoop capable of a horizontal movement, a counterbalance at the rear of said scoop, pivotal movable bearings or supports for said scoop, and a joint, *m*, provided in said scoop to permit it to be turned upward away from its normal position with reference to the counterbalance when not in use, substantially as and for the purpose herein set forth.

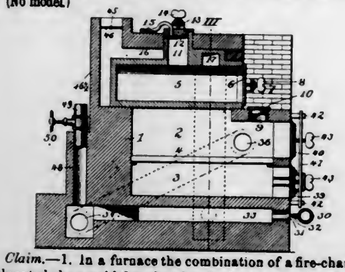
4. In a safety apphance of the class specified, the combination with a pivoted scoop capable of a horizontal movement, a roller at the front of said scoop, a counterbalance at the rear of said scoop, pivoted movable bearings or supports for said scoop and means for normally holding suspended the said counterbalance and for releasing the same from such suspended position, of a chain for replacing the parts after such release and a pulley or pulleys for guiding said chain in its operation, substantially as and for the purpose herein set forth.

521,478. RIDING-HABIT. FREDERICK SCHAFER, London, England. Filed Sept. 4, 1893. Serial No. 484,737. (No model.) Patented in England Mar. 9, 1892. No. 4,678.

Claim.—In a riding-habit skirt, in combination, with a burstable seam extending from top to bottom thereof, a locking waistband-fastener, a device for unlocking the same and a cord connected at one end to the unlocking device and at the other end to one of the knee-pieces of the skirt, whereby, should the wearer be thrown or unseated from her horse, the unlocking device will be actuated by the pull upon the said cord so as to permit the opening of the fastener, substantially as, and for the purpose, above specified.



521,479. APPARATUS FOR GENERATING GAS. HEINRICH F. D. SCHWARM, Kansas City, Mo. Filed Sept. 12, 1893. Serial No. 485,371. (No model.)



Claim.—1. In a furnace the combination of a fire-chamber, a retort located above said fire-chamber, hydrogen gas-chambers located in the walls of said fire-chamber, means for conveying the gases from the said retort to a central passage way located beneath the said fire-chamber, and means for conveying atmospheric air by and with the gases from the hydrogen gas-chambers into a V shaped channel 33; the said V shaped channel 33, the same located beneath the said fire-chamber, for conveying the injected resultant free hydrogen gas and atmospheric air to said central passage way for the purpose as specified, chambers 34, and 48, into which said compound gases from said central passage way are discharged, and pipes with seals for conveying said compound gases from said chambers 34, and 48, into the fire-chamber and other directions, substantially as and for the purpose set forth.

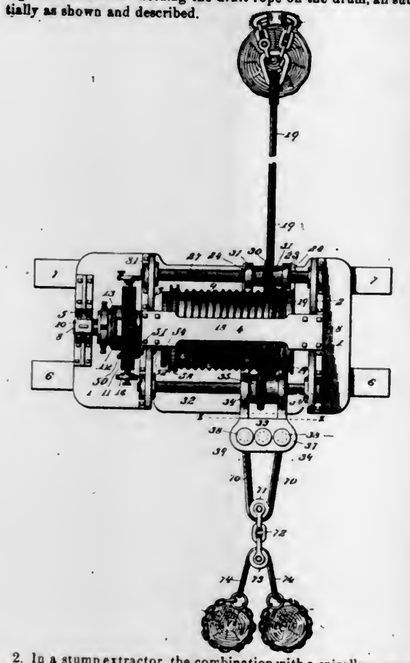
2. In a furnace the combination of a fire chamber, a retort situated over the same, a combination of auxiliary chambers located beneath the fire-chamber, a pipe leading from the retort to said auxiliary chambers, chambers for producing hydrogen gas, a passage-way leading from said hydrogen gas chambers to the auxiliary chambers and pipes leading from said auxiliary chambers for conveying the compound gases to the fire chambers: substantially as and for the purpose set forth.

3. In a furnace, the combination of a fire chamber, a retort, hydrogen gas chambers, means for conveying the gases from the retort and hydrogen gas chamber to channels beneath the furnace for conveying the carbon gas and the hydrogen gas to a central channel, a V shaped channel for conveying atmospheric air to said central channel, a chamber into which said compound gases from said central channel are discharged, and pipes for conveying said compound gases into the fire chamber and other directions: substantially as and for the purpose set forth.

4. In a furnace in connection with a brick-kiln, furnace or boiler &c. the combination of a fire chamber, a retort, hydrogen gas chambers, means for conveying gases from the said retort and hydrogen-gas chambers to channels beneath the furnace for conveying the said gases to a central channel, and a V shaped channel for conveying atmospheric air to said central channel, means for conveying the gases and air from said auxiliary chambers into the said fire chamber, substantially as shown and set forth.

521,480. STUMP-EXTRACTOR. JOHN C. SHARP, Delavan, Wis. Filed Oct. 5, 1892. Serial No. 447,969. (No model.)

Claim.—1. In a stump extractor, the combination with a spirally grooved winding drum and mechanism for rotating the same, a draft rope attached to the drum, of a groove-traveler sliding on a bearing parallel with the face of the drum, and said groove-traveler moved by contact with the spiral groove, and having a rounded hub projecting from its side for holding the draft rope on the drum, all substantially as shown and described.



2. In a stump extractor, the combination with a spirally grooved winding drum and mechanism for rotating the same, a draft rope attached to said drum, of a groove-traveler, consisting of a wheel having a convex face to fit into the spiral groove of the drum, and said groove-traveler mounted on a bar to slide across the face of the drum by bearing against said spiral groove, all substantially as shown and described, and for the purpose set forth.

3. In a stump extractor, the combination with a spirally grooved winding drum and mechanism for rotating the same, a draft rope attached to the drum, of a bar parallel with the face of the drum, a groove-traveler mounted on said bar to slide thereon, and said groove-traveler consisting of a wheel having a rounded hub projecting from its side, the face of said wheel being of convex form to project into and fit the spiral groove and moved by contact with said spiral groove, all substantially as shown and described.

4. In a stump extractor, the combination with a spirally grooved winding drum, and mechanism for rotating the same, a draft rope attached to said drum, of a sliding draft rope guide, having a groove traveler, consisting of a wheel bearing against the spiral groove, whereby the sliding draft-rope guide is moved across the face of the drum, all substantially as shown and described.

5. In a stump extractor, the combination with a spirally grooved winding drum and mechanism for rotating the same, of a sliding draft rope guide through which the draft rope passes, a groove-traveler, consisting of a wheel bearing against the spiral groove of the drum, for moving said sliding draft rope guide, and means for allowing a vertical play to the draft rope, all substantially as shown and described, and for the purpose set forth.

6. In a stump extractor, the combination with a spirally grooved winding drum and mechanism for rotating the same, a draft rope attached to said drum, of a sliding draft rope guide provided with guide rollers, and also having a groove-traveler, consisting of a wheel bearing against the spiral groove of said drum, for moving the said sliding draft rope guide, all substantially as described and shown.

7. In a stump extractor, the combination with a spirally grooved winding drum and mechanism for rotating the same, a draft rope attached to the drum, of transverse bars and a sliding draft rope guide mounted to slide upon the same, said sliding draft rope guide, consisting of vertical side pieces, a base, a transverse cross piece, guide rollers mounted between the cross and base pieces, and mounted between the upper ends of the side pieces a groove-traveler, consisting of a wheel bearing against the spiral groove of the drum, for moving the sliding draft rope guide, all substantially as described and shown.

8. In a stump extractor, the combination with a spirally grooved winding drum and mechanism for rotating the same, a draft rope attached to said drum, of a sliding draft rope guide mounted on upper and lower transverse bars, guide rollers mounted in its lower part, and said sliding draft rope guide having two vertical side pieces, through the upper ends of which, the upper transverse bar passes, and a groove-traveler, consisting of a wheel, mounted upon the upper transverse bar between the side pieces and bearing against the spiral groove of the drum for moving the sliding draft rope guide, all as and for the purpose described.

9. In a stump extractor, the combination with a spirally grooved winding drum and mechanism for rotating the same, a draft rope attached to said drum, of a sliding anchor rope carrier mounted to slide on a bar, and a groove traveler in contact with the spiral groove of the drum for moving said sliding anchor rope carrier, all as and for the purpose described.

10. In a stump extractor, the combination with a spirally grooved winding drum and mechanism for rotating the same, a draft rope attached to said drum, of a sliding anchor rope carrier, and a groove-traveler consisting of a wheel bearing against the spiral groove of the drum for moving the said sliding anchor rope carrier, all substantially as shown and described.

11. In a stump extractor, the combination with a spirally grooved winding drum and mechanism for rotating the same, a draft rope attached to said drum, of a sliding anchor rope carrier mounted to slide upon a rocking bar, and a groove-traveler bearing against the spiral groove of the drum for moving said sliding anchor rope carrier, all substantially as shown and described.

12. In a stump extractor, the combination with a spirally grooved winding drum and mechanism for rotating the same, a draft rope attached to said drum, of a sliding anchor rope carrier mounted to slide upon a rocking bar and a groove-traveler consisting of a wheel bearing against the spiral groove of the drum for moving said sliding anchor rope carrier, all substantially as shown and described.

13. In a stump extractor, the combination with a spirally grooved winding drum and mechanism for rotating the same, a draft rope attached to said drum, of a sliding draft rope guide, a groove-traveler bearing against the spiral groove of the drum for moving the sliding draft rope guide, a sliding anchor rope carrier, and a groove-traveler bearing against the spiral groove of the drum for moving said sliding anchor rope carrier, all substantially as shown and described.

14. In a stump extractor, the combination with a spirally grooved winding drum and mechanism for rotating the same, a draft rope attached to said drum, of a sliding draft rope guide, a groove-traveler consisting of a wheel bearing against the spiral groove of said drum for moving the sliding draft rope guide, a sliding anchor rope carrier mounted to slide on a rocking bar, and a groove-traveler consisting of a wheel bearing against the spiral groove of the drum for moving said sliding anchor rope carrier, all substantially as shown and described.

15. In a stump extractor, the combination with a spirally grooved winding drum and mechanism for rotating the same, a draft-rope attached to said drum, of a sliding anchor rope carrier mounted upon a rocking bar, a groove-traveler for moving the said sliding anchor rope carrier, and slotted bearings for said groove traveler whereby the sliding anchor rope carrier may adjust itself to the vertical angle of the anchor rope, all substantially as shown and described.

16. In a stump extractor, the combination with a spirally grooved winding drum and mechanism for rotating the same, a draft rope attached to said drum, of a sliding anchor rope carrier mounted upon a rocking bar, a groove traveler consisting of a wheel bearing against the spiral groove of the drum for moving said sliding anchor rope carrier, and slotted bearings for said groove traveler whereby the sliding anchor rope carrier may adjust itself to the vertical angle of the draft rope, all substantially as shown and described.

17. The combination, in a stump extractor with mechanism for operating the same, of an anchor rope suitably connected with the rear part of the machine, said anchor rope being doubled back and having its two ends each connected with one of two suitable separate anchors, all for the purpose of securely anchoring the machine and permitting it to swing laterally from such anchorage, substantially as shown and described.

18. The combination, in a stump extractor with mechanism for operating the same, of a draft equalizing pulley suitably connected with the rear part of the machine, and an anchor rope passing about said pulley and each of its ends connected with one of two suitable separate anchors, all for the purpose of securely anchoring the machine and permitting it to swing laterally on the ground into its proper draft line, substantially as described.

19. The combination, in a stump extractor with a winding drum and mechanism for rotating the same, a draft rope attached to said

drum, of a draft equalizing pulley suitably connected with the rear part of the machine, and an anchor rope passing about the pulley, said anchor rope having each of its ends connected with one or two suitable separate anchors, all for the purpose of securely anchoring the machine and permitting it to swing laterally on the ground into its proper draft line, substantially as set forth.

20. In a stump extractor, the combination with a winding drum and mechanism for rotating the same, a draft rope attached to said drum, a sliding anchor rope-carrier, suitable mechanism for moving the same, of a draft equalizing pulley suitably connected with the machine, an anchor rope passing about said pulley and each of the ends of said anchor rope connected with one of two suitable separate anchors, all for the purpose of securely anchoring the machine and permitting it to swing laterally on the ground into its proper draft line, substantially as described.

21. In a stump extractor, the combination with a winding drum and mechanism for rotating the same, a draft rope attached to said drum, a sliding anchor rope carrier sliding on a bearing in the rear part of the frame of the machine, suitable mechanism for moving said sliding anchor rope carrier, a special anchor rope connected to said sliding anchor rope carrier, of a double equalizing device consisting of two pulleys and connecting clevises and link, the special anchor rope passing through the special pulley and an anchor rope rove through the other of said pulleys and having each of its ends conected with one of two suitable separate anchors, all substantially as described.

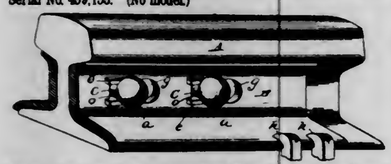
22. In a stump extractor, the combination with a winding drum and mechanism for rotating the same, a draft rope attached to said drum, a sliding draft rope guide and suitable mechanism for moving the same, of an eye or connection on the frame of the machine to which the other end of the draft rope is adapted to be attached, and a draft equalizing device on the draft rope between said frame connection and said sliding draft rope guide, all substantially as shown and described.

23. In a stump extractor, the combination with a winding drum and mechanism for rotating the same, a draft rope attached to said drum, a sliding draft rope guide having guide rollers mounted therein, between which guide rollers the draft rope passes, mechanism for moving said sliding draft rope guide, of an eye or connection on the frame of the machine to which the other end of the draft rope is adapted to be attached, and a draft equalizing pulley on the draft rope between said frame connection and said sliding draft rope guide, all substantially as shown and described.

24. In a stump extractor, the combination with a winding drum and mechanism for rotating the same, a draft rope attached to said drum, a sliding anchor rope carrier, mechanism for moving the same, a special anchor rope having one of its ends attached to said sliding anchor rope carrier and its other end passed through a special draft equalizing pulley and attached to an eye or connection on the rear part of the machine, all substantially as shown and described.

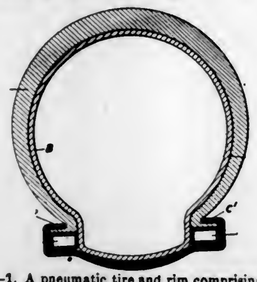
25. In a stump extractor, the combination with a winding drum and mechanism for rotating the same, a draft rope attached to said drum, a sliding draft rope guide, mechanism for moving the same, of an eye or connection on the frame of the machine to which the outer end of the draft rope is adapted to be attached, a draft equalizing pulley on said draft rope between said frame connection and said sliding draft rope guide, a sliding anchor rope carrier, mechanism for moving the same, one end of a special anchor rope attached to said sliding anchor rope carrier and the other end adapted to be connected with an eye or connection on the rear part of the frame of the machine, a special draft equalizing pulley on said special anchor rope between its frame connection and said sliding anchor rope carrier, and said special pulley connected with another pulley having an anchor rope rove through it and each of the ends of said anchor rope adapted to be attached to two suitable separate anchors, all substantially as described.

521,481. FISH-PLATE SPLICE FOR CONNECTING RAILROAD-RAILS. WILLIAM J. SHELDON, Middletown, Pa. Filed Jan. 21, 1893. Serial No. 459,153. (No model.)



Claim.—The combination with the fish plates provided with the bolt holes and the slots leading therefrom, having adjacent wedge surface, of the bolt C, having the large and small heads, and the middle portion *e* in full size, and the flattened and reduced portion *d. d*, substantially as described.

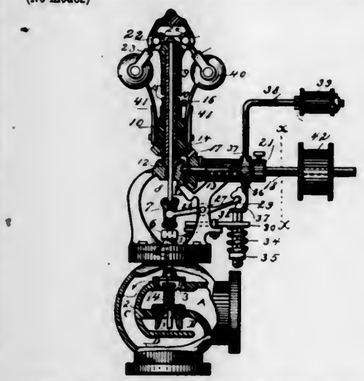
521,482. PNEUMATIC TIRE AND RIM FOR WHEELS. JAMES W. SHALLMAN, London, England. Filed Nov. 11, 1893. Serial No. 490,710. (No model.) Patented in England Apr. 15, 1893, No. 7,731; in France Oct. 13, 1893, No. 233,370; in Germany Oct. 25, 1893, No. 75,189, and in Canada Apr. 26, 1894, No. 45,899.



Claim.—1. A pneumatic tire and rim comprising a cover, a fastening ring attached to one of the edges of the cover and made from a single length of material the ends whereof are brought close together but left unjoined, an air-tube lying within the cover, a turned-over edge of the rim, a groove beneath the turned-over edge, and a piece in the groove for the unjoined ends of the fastening ring to abut against, the fastening ring being prevented from expanding or creeping by moving it under said turned-over edge.

2. A pneumatic tire and rim comprising a cover, a fastening ring attached to one of the edges of the cover and made from a single length of material the ends whereof are brought close together but left unjoined, an air-tube lying within the cover, a turned-over edge of the rim, a groove beneath the turned-over edge, and a piece of metal secured in a slot at the side of the rim so as to occupy the space between the unjoined ends of the fastening ring, the fastening ring being prevented from expanding or creeping by moving it under said turned-over edge.

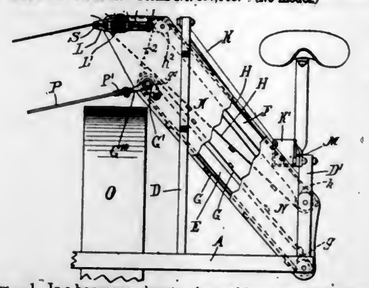
521,483. CENTRIFUGAL HIGH-SPEED GOVERNOR. FRED W. SPACKE, Indianapolis, Ind. Filed May 20, 1893. Serial No. 474,971. (No model.)



Claim.—1. In a centrifugal steam governor the tubular spindle 10 screwed into the center of the supports 13, at 12. The valve rod 8, passing through said tubular spindle 10, revolving and supported on the lower end in valve coupling 7, on its upper end rigidly connected to the governor head 9, said head slipping over tubular spindle 10. The head 9 with horizontal shafts 22, the balls 40 with ball supports 23 sliding through said shafts 22. Spring 16 attached on the upper end to balls 40 on the lower end to bevel pinion 14. A suitable trip 29 and the lever 26 engaged with coupling 7 whereby valve 4 is instantly closed when lever 26 is released from trip 29 substantially as set forth.

2. In a centrifugal steam governor, the vertical valve rod 8, its coupling 7, rod 5 and valve 4 connected in a vertical alignment with said valve rod. The lever 26 pivoted intermediate between its ends and having one end engaging the coupling 7 and the opposite end engaging said trip hook 29. The trip hook supporting lever 30, its fulcrum 32, and adjusting screw 33, one end of lever 30 having an opening to receive the shank of said hook 29, the compression spring 34 and the adjusting nut 35, all substantially as described and for the purpose set forth.

521,484. HARVESTER-ELEVATOR. ANDREW STARK, Chicago, Ill. Filed Mar. 24, 1893. Serial No. 467,505. (No model.)



Claim.—1. In a harvester elevator, in combination with the lower or grain-supporting element of the elevator, an overhanging endless carrier and its guide-rollers, said carrier having its lower ply extending normally in a line close to the upper or delivery side of the grain-supporting element at its apex; a third guide for the upper ply of said endless carrier deflecting said upper ply; the delivery side guide roller for said upper carrier having its bearings adapted to yield under the strain of the endless carrier to afford slack to the latter when the elevator is crowded with grain: substantially as set forth.

2. In a harvester elevator, in combination with the lower or grain-supporting element of the elevator, an overhanging endless carrier and its guide rollers, said carrier having its lower ply extending normally in a line close to the upper or delivery side of the grain-supporting element, a third guide for the upper ply of said endless carrier located above a direct line between the extreme guide rollers of the same and deflecting said upper ply; bearings for the extreme stubbleward guide roller of said upper carrier adapted to yield under the strain of the carrier to afford slack to the latter as the quality of grain being elevated may require; substantially as and for the purpose set forth.

3. In a harvester elevator, in combination with the elevator having an upright post near the forward stubbleward corner; a brace or tie-bar extending from such post above the elevator downward, rearward and grainward, and secured independently of the lower elevator frame to the main frame of the machine at the rear of the rear grainward corner of the elevator: substantially as set forth.

4. In combination with the lower or grain-supporting element of the elevator, an overhanging endless carrier having its rear roller-supporting bar suspended, a bar located above the elevator and extending obliquely downward and grainward from front to rear and supported at its extremities beyond the elevator, the seat-supporting bar overhanging the grain's path at the entrance of the elevator, and suitably supported at front and rear of said path; rigid connections from the seat-plank and from said oblique bar to the rear roller-supporting bar of the overhanging carrier, whereby the latter is suspended and the elevator made rearwardly open: substantially as set forth.

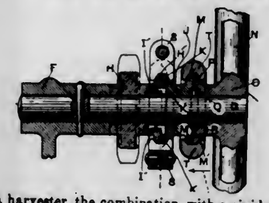
5. In a harvester elevator an overhanging endless carrier comprising three guide rollers in combination with the side-bars of such carrier, the brackets L bolted thereto and having the slots l^9, the sleeves L' which afford bearings for the extreme roller having the stem L^{10}, the ends of the side-bars having sockets to receive said stem, and terminated cylindrically by the said sockets, and the springs L coiled about said cylindrical terminals and stem respectively and re-acting between the side-bars and the journaled bearings to hold the latter yieldingly stubbleward: substantially as set forth.

6. In combination with the lower grain-supporting element of the elevator, the overhanging endless carrier having side-bars F' F' and the sheath plates N^2 N^3, the brackets L L secured to the side-bars outside of the sheath-plates and riveted to the latter beyond the ends of the side-bars; and the yielding bearing for the extreme guide roller lodged and adapted to reciprocate in said brackets: substantially as set forth.

521,485. FRICTIONAL CLUTCH FOR HARVESTERS. HENRY C. STONE, South Evanston, Ill., assignor to Olive A. Stone, same place. Filed Dec. 27, 1892. Renewed Nov. 27, 1893. Serial No. 492,152. (No model.)

Claim.—1. In a harvester, the combination, with a stud pin adapted to be rigidly secured at one end to the frame of the machine, a sprocket wheel loosely mounted thereon and adapted to be connected with the operating parts of the machine, a fly wheel loosely mounted upon said pin, a sleeve loosely mounted upon the pin between the sprocket wheel and the fly wheel, a friction clutch connecting one end of said sleeve with the fly wheel, another clutch connecting the other end of the sleeve with the sprocket wheel, and both of said clutches being adjustable to any desired tension, and means for preventing the longitudinal movement of the wheels and sleeve upon the pin, substantially as set forth.

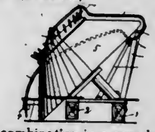
2. In a harvester, the combination, with a rigid pin, of a sprocket wheel mounted loosely thereon, a sleeve adjacent the sprocket wheel, a fly wheel adjacent the sleeve, a pin through the rigid pin at the adjacent ends of the sleeve and the hub of the fly wheel, the ends of which pin engage with the outer end of the sleeve and prevent its longitudinal movement upon the rigid pin, substantially as set forth.



3. In a harvester, the combination, with a rigid pin, of a sleeve loosely mounted thereon, a fly wheel loosely mounted upon the pin and secured to the sleeve, and means intermediate the wheel and the sleeve for preventing the longitudinal movement of the sleeve upon the pin, substantially as set forth.

4. In a harvester, the combination, with a rigid pin, of a sprocket wheel loosely mounted thereon, one end of which is provided with gravity pawls, a sleeve upon the pin, one end of which is provided with ratchet teeth to be engaged by the pawls, a fly wheel upon the outer end of the pin, the inner end of which is recessed, a pin through the rigid pin, the ends of which project into the recess of the fly wheel, and a frictional clutch connecting the fly wheel and the sleeve for holding them together in frictional contact, substantially as set forth.

521,486. MACHINE FOR HARVESTING CORN. JOHN R. TUCKERMAN and GEORGE T. TUCKERMAN, Cassville, N. Y. Filed Mar. 15, 1893. Serial No. 466,077. (No model.)



Claim.—1. The combination in a corn harvesting machine, of a frame, a knife secured on the frame and having its cutting edge converging with the frame, of a stalk handling cone secured on the frame and having its periphery running on the ground, and a stalk holder passing partially around the cone, substantially as set forth.

2. The combination in a corn harvesting machine, of a frame, a knife secured on the frame, a stalk handling cone mounted on an inclined shaft held in the frame, and having its periphery running on the ground and its upper face in a substantially horizontal position, of a stalk holder passing partially about the cone, and a series of inclining pins fixed in the cone to engage the upper ends of the stalks, substantially as set forth.

3. In a corn harvesting machine, a frame, a knife secured in the frame and having its cutting edge converging with the frame, a finger projecting forward from the outer end of the knife, a cone-shaped stalk carrier mounted on a movable shaft in the frame and having its periphery running on the ground in the opening between the finger and the frame, a semi-flexible stalk holder secured to the end of the finger and passing thence to the side of the cone and partially around the cone, a series of stalk engaging inclined pins secured in the smaller end of the cone, combined substantially as set forth.

4. In a corn harvester, the combination of a frame, a knife secured on the frame and having its cutting edge converging with the side of the frame, a stalk handling cone mounted upon a swinging shaft and running on its periphery on the ground in advance of the knife, a stalk holding band partially surrounding the cone, a trough-like device for engaging the butts of the severed stalks, and converging with the strap for holding the stalks, substantially as set forth.

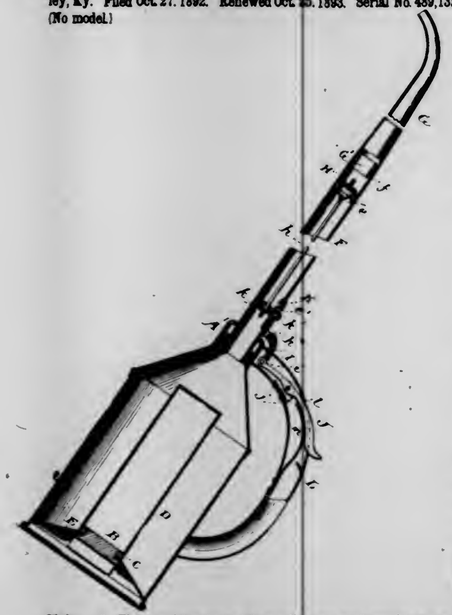
5. In a corn harvester, a frame, adapted to be moved forward, a knife secured on the rear portion of the frame and having its cutting edge converging with the side of the frame, a finger projecting forward from the knife substantially parallel with the side of the frame, a corn handling cone mounted upon a vibrating shaft and having its periphery running on the ground between the finger and side of the frame and in advance of the knife, a stalk guide and holder secured at its front to the finger and rising and curving diagonally around and across the face of the cone, and secured at its opposite end to a yielding spring, a circle of inclined stalk engaging pins provided in the smaller end of the cone, a butt holding device adjacent to the pe-

riphery of the cone and starting from a point adjacent to the cutting edge of the knife, and a stalk supporter secured above the periphery of the cone, all combined, substantially as set forth.

6. In a harvesting machine, a frame, a knife, a rotary stalk-carrier operated by direct traction on the ground and a holder in opposition to a portion of the periphery of the carrier, combined substantially as set forth.

7. In a corn harvesting machine, a frame, a knife, a rotary conical stalk-carrier running in direct contact with the ground and driven by traction therefrom, and a stalk-holder adapted to hold the stalks on the periphery of the carrier, combined substantially as set forth.

521,487. LOCOMOTIVE-OILER. JAMES H. TURNER, Pewee Valley, Ky. Filed Oct. 27, 1892. Renewed Oct. 25, 1893. Serial No. 489,132. (No model.)



Claim.—1. The combination with an oiler can and nozzle, screw-jointed together, of a reinforcing exterior neck having the top edge inwardly curved to form a lateral bearing for the tube F above the joint as shown and described.

2. The combination with the reciprocating valve-stem of a locomotive oiler of the slotted tube F, and the slide K, the latter made in two parts connected by a screw passing through said slotted tube and movable therein, as and for the purpose set forth.

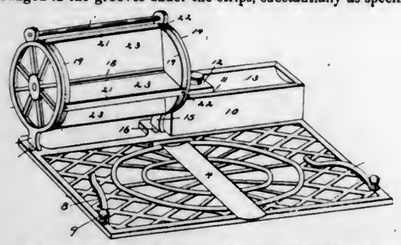
3. The combination with the valve-stem slide K of the link I pivoted to the ears of said slide, the thereto end-pivoted lever J, the hollow slotted handle L, and the sprig *m* arranged under the free end of said lever, the rear end of said lever being made to project through said slotted handle as shown and described.

4. The combination in a locomotive oiler of a valve H, a valve-seat *c*, a valve-rod *h*, an arm *k*, a slot *c'*, an arm *p* a screw *p'* and the slide K, having an air hole S with the tube F having an air-hole S'; as and for the purposes set forth.

5. The combination of the tube F having an air-hole S, with the slide K having a similar air-hole S', with the screw *k'*, the valve-rod *h* and the valve H, whereby the raising of the slide K and with it of the valve H, at the same time and with the same mechanism opens the valve to the nozzle G, and causes the air-holes S and S' to coincide with each other, thus admitting air to the tube F, and thereby facilitating the free flow of the oil from the nozzle G as shown and described.

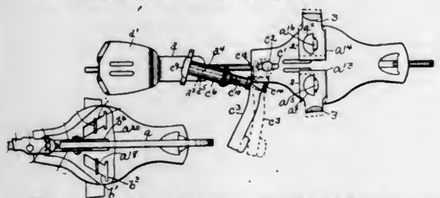
521,488. BOOK-REST FOR HOTEL-REGISTERS. CALEB A THOMPSON and OSKER G. EBERSVELLER, Tazewell, Va. Filed May 31, 1893. Serial No. 476,106. (No model.)

Claim.—1. In a register-book support, the combination with a rotatable table for supporting the book, of opposite standards having studs let into the table, a bearing shaft arranged in the standards, opposite disk-like heads arranged upon the ends of the bearing shaft and having pairs of radial grooves, transverse retaining strips connecting the disk-like heads at the outer ends of the grooves, pins extending through the strips into the heads, and pairs of glass panels arranged in the grooves under the strips, substantially as specified.



2. In a register-book support, the combination with a table, of opposite standards, a bearing shaft arranged in the standards, opposite heads arranged upon the ends of the bearing shaft and having pairs of radial grooves, transverse retaining strips connecting the heads at the outer ends of the grooves, and pins extending through the strips into the heads, substantially as specified.

521,489. SKATE. JOSEPH L. WHELPLEY, Boston, Mass. Filed Feb. 19, 1894. Serial No. 500,628. (No model.)



Claim.—1. In a skate, the combination of the following instrumentalities, viz:—a foot plate having an unbroken surface and provided with straight slots extended substantially at right angles to the longitudinal center of the foot plate on opposite sides of said longitudinal center, toe clamps resting directly upon the unbroken surface of the foot plate arms attached to the said toe clamps and extended down through the said slots, enlargements on said arms and a cam plate located on the under side of the foot plate and provided with inclined slots or ways having enlargements and co-operatiug with the said depending arms on the toe clamps, an actuating lever to move said cam plate, a heel knife, and an adjusting device loosely connected to the heel plate and to the actuating lever, substantially as described.

2. In a skate, the combination of the following instrumentalities, viz:—a foot plate provided with straight slots extended substantially at right angles to the longitudinal center of the foot plate, toe clamps resting directly upon the foot plate and provided with arms extended down through the said slots, and having enlargements at their ends a cam plate provided with inclined slots or ways having enlargements and co-operating with the said depending arms on the toe clamps, an actuating lever to move said cam plate, a heel knife, an adjusting device loosely connected to the heel knife and to the actuating lever, and a locking device for the said actuating lever attached to and depending from the heel plate, substantially as described.

3. In a skate, the combination with a foot plate provided with straight slots toe clamps resting on the upper surface of the foot plate and provided with arms having enlargements or heads, of a cam actuating plate located on the under side of the foot plate and provided with diverging cam slots to engage the said arms and effect the movement of the toe clamps and enlarged openings in the cam plate communicating with the cam slots and adapted to permit of the passage through them of the enlargements on the toe clamp arms, substantially as described.

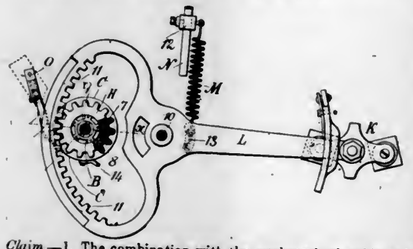
4. In a skate, the combination of the following instrumentalities, viz:—a foot plate provided with straight, narrow slots extending entirely through the foot plate substantially at right angles to the longitudinal center of the same, toe clamps resting directly upon the upper surface of the foot plate and provided with substantially wide other-than-round arms extending down through the said slots, enlargements on said arms, a cam plate in contact with the under side of the foot plate and provided with diverging cam slots having enlargements to receive the enlargements on the arms of the toe clamps, and means to operate said cam plate, substantially as described.

5. In a skate, the combination of the following instrumentalities, viz:—a foot plate provided with straight, narrow slots extending entirely through the foot plate substantially at right angles to the longitudinal center of the same, toe clamps resting directly upon the upper surface of the foot plate and provided with substantially wide other-than-round arms extending down through the said slots, enlargements on said arms, a cam plate in contact with the under side of the foot plate and provided with diverging cam slots having enlargements to receive the enlargements on the arms of the toe clamps, an actuating lever loosely connected to said cam plate, a threaded rod pivotally connected to said lever, an internally threaded socket into which said threaded rod is extended, closed at one end and provided with a journal or extension upon which said socket rotates axially, and a bearing for said journal, substantially as described.

6. In a skate, the combination of the following instrumentalities, viz:—a foot plate provided with straight, narrow slots extending entirely through the foot plate substantially at right angles to the longitudinal center of the same, toe clamps resting directly upon the upper surface of the foot plate and provided with substantially wide other-than-round arms extending down through the said slots, enlargements on said arms, a cam plate in contact with the under side of the foot plate and provided with diverging cam slots having enlargements to receive the enlargements on the arms of the toe clamps, an actuating lever loosely connected to said cam plate, a threaded rod pivotally connected to said lever, an internally threaded socket into which said threaded rod is extended, closed at one end and provided with a journal or extension upon which said socket rotates axially, and a bearing for said journal, and an enlargement on the front end of the said threaded rod to engage the foot plate, substantially as described.

7. In a skate, the combination of the following instrumentalities, viz:—a foot plate provided with substantially straight slots extended on opposite sides of the longitudinal center of the foot plate substantially at right angles to said longitudinal center, toe clamps consisting of flat portions 2 having uprights or lugs 3 and depending arms struck out of the flat portion and depending from substantially the longitudinal center of the flat portion 2 of the toe clamp, the said arms being extended down through the slots in the foot plate and provided with enlargements or heads, a cam plate on the under side of the foot plate in contact with the bottom of the foot plate and provided with diverging cam slots to engage the depending arms on the toe clamps and means to operate the said cam plate, substantially as described.

521,490. FOOT OR HAND POWER. JOSEPH A. WILKIN, Matamoras, Pa., assignor to himself, and James J. Mills, Port Jervis, N. Y. Filed May 22, 1893. Serial No. 475,007. (No model.)



Claim.—1. The combination with the ratchet wheel and its axis, of two parts movable around such axis, one of which parts has a wedge-shaped slot, a pawl having a pivot supported by the other part and a bar across the axis of the pawl entering the wedge-shaped slot, whereby one side of the wedge-shaped slot when pressed against the cross bar causes the pawl to separate from the ratchet and the other side of the slot when pressed against the cross-bar causes the pawl to engage the ratchet wheel and give motion to the same, the pressure coming directly on the pivot of the pawl, substantially as specified.

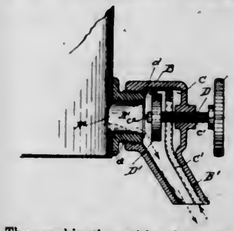
2. The combination with the ratchet wheel and pawl, of a case having notched lugs upon the interior thereof, a disk fitting into the case and having notches and being supported by the notched lugs, a pawl pivot passing through the eye of the pawl and having its bearings in the back of the case and in the disk, there being a cross bar at the outer end of the pawl pivot, the ring H having a wedge-shaped slot for the reception of the cross bar of the pivot, whereby the pawl is thrown out of contact with the ratchet wheel or into contact with the same by the slight turning movement of the ring upon the hub of the case, substantially as set forth.

3. The ratchet wheel A and its pawl F, in combination with the case C having within it a disk D, a pawl pivot having its bearing in the back of the case and in the disk that is within the case, such pawl pivot having a cross bar at the outer end thereof, and the ring H having a wedge-shaped slot for the reception of the cross bar of the pivot pin, such ring being adapted to receive a partial turning movement to act upon the cross bar of the pivot pin and throw the pawl into or out of contact with the ratchet wheel, and a friction spring applied to the exterior of the ratchet case, substantially as set forth.

4. The ratchet wheel A and its pawl F, in combination with the case C having within it a disk D, a pawl pivot having its bearing in the back of the case and in the disk that is within the case, such pawl pivot having a cross bar at the outer end thereof, and the ring H having a wedge-shaped slot for the reception of the cross bar of the pivot pin, such ring being adapted to receive a partial turning movement to act upon the cross bar of the pivot pin and throw the pawl into or out of contact with the ratchet wheel, a friction spring applied to the exterior of the ratchet case, and lugs upon the exterior of the case, and a stop for arresting the movement of the case, substantially as set forth.

5. The ratchet wheel A and its pawl F, in combination with the case C having within it a disk D, a pawl pivot having its bearing in the back of the case and in the disk that is within the case, such pawl pivot having a cross bar at the outer end thereof, and the ring H having a wedge-shaped slot for the reception of the cross bar of the pivot pin, such ring being adapted to receive a partial turning movement to act upon the cross bar of the pivot pin and throw the pawl into or out of contact with the ratchet wheel, a treadle, lever and segmental rack acting upon teeth around the ring H, and a spring to raise the treadle, substantially as set forth.

521,491. OIL-CAN FAUCET. GEORGE W. ARPER, Oakland, Cal. Filed Feb. 23, 1894. Serial No. 501,818. (No model.)



Claim.—1. The combination with a faucet for drawing off the contents of oil cans and similar packages, of an air chamber communicating with the interior of the can directly connected with the faucet, an air vent tube leading from the end of the faucet spout into the air chamber, and the cut off valve of the faucet.

2. The combination with an oil can or similar vessel, the boss projecting therefrom, an air chamber formed within the boss the faucet movably secured to the boss so as to be swung at right angles to the can, whereby the end of the faucet may be carried above the bottom of the can, said faucet connected with the air chamber, the air vent tube leading from the end of the faucet into the air chamber and the cut off valve for the faucet.

3. In a faucet for drawing off the contents of oil cans or similar packages, the combination with the air chamber, an air vent tube leading from the lower end of the faucet into the air chamber, a valve stem extending into the chamber, a valve carried thereby and an air vent groove cut within the outer portion of the stem, said groove adapted to vent the air chamber when the valve is closed.

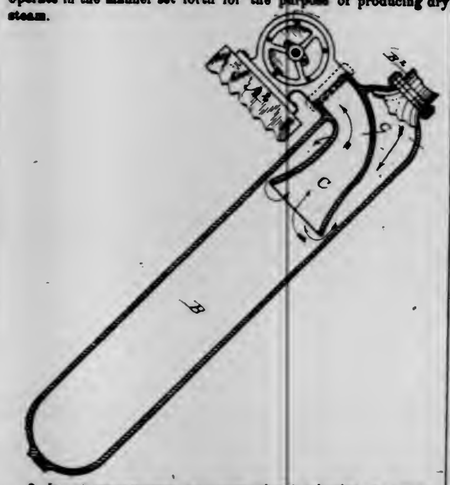
4. A faucet for drawing off the contents of oil cans or similar packages consisting of the spout, an upper enlarged air chamber to which the spout is directly connected, a cut off valve for controlling the outflow from the spout, and a vent tube leading from the lower end of the spout into the air chamber.

521,492. STEAM-SEPARATOR. GEORGE W. AULMANN and WILLIAM H. HARRIS, Des Moines, Iowa. Filed Feb. 23, 1894. Serial No. 501,315. (No model.)

Claim.—1. A steam and water separator and throttle valve combined, consisting of a valve chamber and valve and valve operating mechanism, and a separator chamber connected with the valve chamber and also adapted to be connected with a steam supply pipe at its top end and provided with an opening at its bottom, and a concentric open-ended tube that extends downward from the valve chamber and terminates in a bell-shaped mouth in the central portion of the separator chamber, to produce a contracted annular steam passage way at the lower end of the separator tube to operate in the manner set forth.

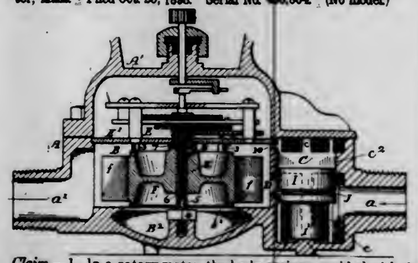
2. In a steam and water separator, an open-ended separator tube, having a flaring or enlarged bell-shaped mouth at its lower end, in combination with a separator chamber adapted to be connected with a steam supply pipe at its top end to produce a contracted annular steam passage way at the bottom of the separator tube and a throttle valve at the upper end of the tube, and provided with an orifice at

its lower end for conducting water from the separator chamber, to operate in the manner set forth for the purpose of producing dry steam.



3. In a steam separator, a separator chamber having an open top adapted to be connected with a steam supply pipe and an opening in its bottom to discharge water and a steam conductor extending outward from the top of said chamber and adapted to be connected with a valve chamber and extending downward in the separator chamber and terminating in an open bell-shaped mouth as and for the purposes stated.

521,493. ROTARY WATER-METER. PHINEAS BALL, Worcester, Mass. Filed Oct. 23, 1893. Serial No. 488,864. (No model.)



Claim.—1. In a rotary meter, the body-casing provided with the upright valve-chamber and a wheel-chamber, inlet and outlet passages respectively communicating with said chambers, and a definite delivery-mouth between said chambers disposed for directing the current of fluid upon the wheel, in the manner set forth, in combination with the rotatable measuring-wheel, comprising the central body having a series of radial vanes; and the vertically-movable unattached valve of invariable weight disposed within said valve-chamber, its cylindrical head acting as a cut-off across said mouth and operating by gravity and the force of the inlet fluid, as set forth.

2. In combination, the body-casing, the register-operating gearing, the measuring-wheel consisting of a central body with projecting radial wings rotating on a vertical axis within the wheel-chamber, the upright inlet-valve-chamber having the definite mouth for delivering the fluid therefrom upon said wheel, the vertically moving gravity valve fitting within said valve-chamber and sliding as a cut-off across said mouth, for increasing or diminishing its passage automatically, as the flowage is increased or diminished, said valve having an annular pass-way-groove therein which partially uncovers said delivery mouth when the valve is depressed, substantially as shown and described.

3. In a rotary meter, in combination with the body casing provided with the wheel-chamber, the valve-chamber and the delivery mouth arranged in the side thereof for directing the impelling current; of an automatic controlling valve having a narrow circumferential groove about its cylindrical face, that aligns with and partially uncovers said delivery mouth when the valve is depressed or at inactive position, as set forth.

4. In a rotary meter, as described, the meter casing containing the wheel-chamber and the inlet or valve-chamber having the definite mouth for directing the fluid upon the measuring wheel and provided with a small aperture or opening from the upper part of said valve-chamber to the outlet or wheel-chamber, in combination with the measuring wheel, the gravity-valve of definite weight for controlling said mouth, having a narrow annular groove around the lower part of its head, and a dependent end or stop that arrests downward action of the valve while its groove is in conjunction with the mouth, all substantially as set forth.

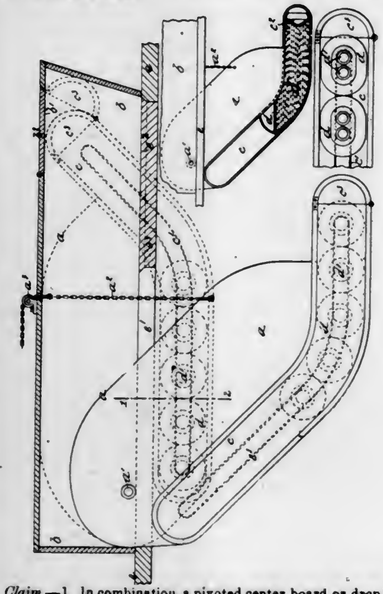
5. The gravity-valve having the annular groove formed around its seating head and provided with a series of vertical ports leading from the under side of the head into said groove, as set forth, in combination with the upright inlet-chamber, the delivery mouth controlled by said valve, and the rotary measuring-wheel in a fluid meter, for the purpose set forth.

6. In a rotary meter, the meter casing having its wheel-chamber B, provided with the bottom-cavity or sub-chamber B^3 opening into said wheel-chamber, and the annular inwardly projecting flange or ledge b' partially separating said chambers; in combination with the rotatable wheel F disposed within said wheel-chamber with its vanes extending over said ledge, substantially as and for the purpose set forth.

7. In a fluid meter having an operating wheel or fan, and a fixed mouth for directing the fluid upon said wheel, the combination with said mouth and the inlet thereto, of the closed valve-chamber, its interior fitted with ribs *c*, annular bridge c^3 with cylindrically turned inner surface and foot stop 12, and an automatically actuated valve, its head fitted to said inner surface and moving across said mouth to open or close its passage, said valve having its lower end adapted for resting upon said stop when the valve is inactive or depressed to its lowest position, for the purposes set forth.

8. The meter body or casing internally provided with narrow inwardly projecting ribs 3, in combination with the measuring-wheel having outwardly projecting vanes *f*, the ends of which match in circle and contour the inner faces of said ribs and pass, without contact, in adjacent proximity to said ribs as the wheel rotates, for the purpose set forth.

521,494. ADJUSTABLY-WEIGHTED CENTER-BOARD. FRANCIS W. BREWSTER, Bournemouth, England. Filed Feb. 19, 1894. Serial No. 500,631. (No model.)

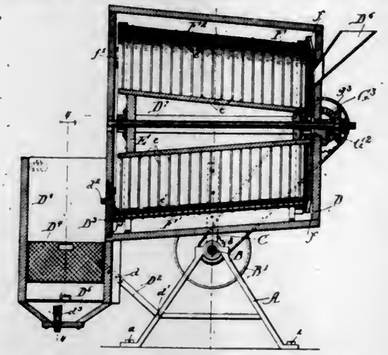


Claim.—1. In combination, a pivoted center board or drop keel, and adjustable ballast contained therein and adapted to automatically shift along the lower edge or part thereof to the lowest part thereof upon the center board being raised or lowered, as set forth.

2. In combination, a pivoted center board, a ballast carrying tubular closed bulb of an angular or curved formation secured to the lower edge or part of the center-board, and contained adjustable ballast adapted to automatically shift along and within the bulb to the lowest part thereof upon the center-board being raised or lowered, and means of raising and lowering the center-board, as set forth.

3. In combination, a pivoted center board, a ballast-carrying tubular closed bulb of an angular or curved formation secured to the lower edge or part of the center-board and formed with inner rails or guideways, and contained adjustable ballast adapted to automatically roll or slide along and within the bulb to the lowest part thereof upon the center board being raised or lowered, and means for raising and lowering the center-board, as set forth.

521,495. MACHINE FOR PEELING POTATOES. DAVID GRANT, Chicago, Ill. Filed June 26, 1893. Serial No. 478,901. (No model.)



Claim.—1. In a machine for peeling potatoes, a frame "A" a case "D" pivoted to said frame, a receiving box "D'" fixed to said case, a revoluble drum "F" and rotary brush E within said case, driving mechanism consisting of a horizontal shaft "B" driving shafts "G G'" by suitable mechanism, clutches for engaging and disengaging said mechanism with shafts "G G'," gears "G^5" and "G^6" engaging teeth on said drum and gears "G^3" and "G^4" engaging gear "G^2" on shaft "D^7" of brush substantially as shown and described.

2. In a machine for peeling potatoes a revoluble drum "F" and a rotary brush "E" revolving within said drum said brush having flexible steel blades curved at their extremities as shown at "*e*" in combination with mechanism for reversing the direction of travel of the brush in order to change the application of the curved ends of the blades on the stock to be peeled to suit the nature of said stock

3. In a machine for peeling potatoes a revoluble drum "F" having a series of straight bars "F^2" and a series of V-shaped projections "F" on its interior in combination with a rotary brush "E" substantially as shown.

4. In a machine for peeling potatoes a frame "A" carrying a horizontal driving shaft "B," a case "D" pivoted to frame "A" concentric with the shaft "B," a rotary drum "F" revoluble within said case, a rotary brush "E" revoluble within said drum, mechanism for driving said drum and brush from the shaft "B" whereby the same may operate in any desired position of the case "D" with relation to frame "A," mechanism for holding said case "D" in different positions with relation to said frame "A" whereby the angle of incline of travel of stock through the drum may be varied to suit the varying condition of stock

521,496. ICE-VELOCIPEDE. LOUIS GRIENEISEN, Philadelphia, Pa. Filed Dec. 5, 1893. Serial No. 492,829. (No model.)

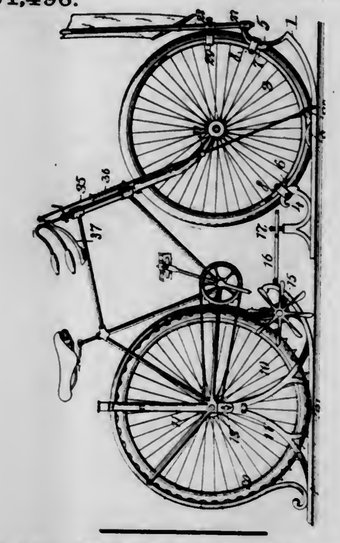
Claim.—1. In an ice carriage two runners placed one in advance of the other, a propelling wheel supported on one of said runners, a means of rotating said wheel and thereby propelling said carriage by the contact of the wheel periphery with the surface whereon the runners rest, a link connection between said runners, and means for moving the other of said runners to place the same at an angle to the runner supporting the driving wheel.

2. In combination with a bicycle having its wheels each supported on a single runner, a pivoted outrigger as 30 and lever mechanism for operating said outrigger.

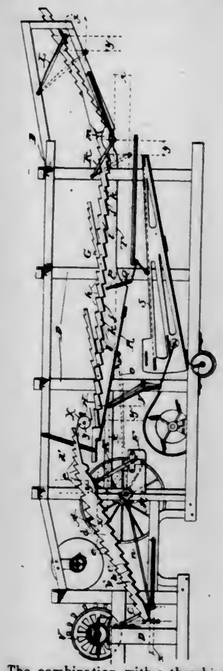
3. In combination with a bicycle having its wheels each supported on a single runner, a mast and sail supported on one of said runners, a pivoted outrigger as 30 and lever mechanism for operating said outrigger.

4. In combination with a bicycle the runner 1 and means for clamping the front wheel 3 of said bicycle to said runner, the runner 9 having standards 11 and bearings in said standards for the axle of the lead wheel 10 of said bicycle, guard 14 around said wheel 10, shaft 22 carrying blade wheels 23 journaled in said guard 14 and said shaft 22 being rotated from said wheel 10.

521,496.



521,497. THRASHING-MACHINE. JACOB HAWK, Canton, Ohio. Filed Jan. 22, 1894. Serial No. 497,609. (No model.)

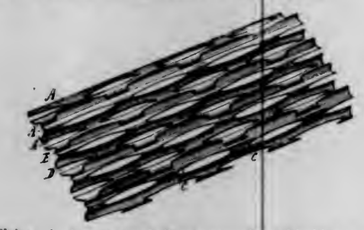


Claim.—1. The combination with a thrashing device, and supporting frame, of a vibrating elevator secured to said frame by links C and E, to vibrate diagonally and vertically to the frame, and having buckets as *a* and extended end portions *d'*, a vibrating table G, and a picker X, located between said tables, the fingers *x* of the picker to pass up between the extended end portions *d'*, of the elevator, substantially as described and for the purpose set forth.

2. The combination with a thrashing device, and supporting frame, of a vibrating elevator A, having buckets *a*, and extended end portions *d'*, a vibrating table G secured to the frame on links J, K and L to vibrate longitudinally and vertically thereon, the verti-

cal movement to increase gradually from the front to the rear portion, of the picker X located between the rear end of the elevator A and the front end portion of the vibrator G, the fingers of said picker to pass up between the extended end portions a' of the elevator, substantially as described and for the purpose set forth.

521,498. METALLIC LATHING. GEORGE HAYES, New York, N. Y. Filed Jan. 19, 1894. Serial No. 497,382. (Model.)



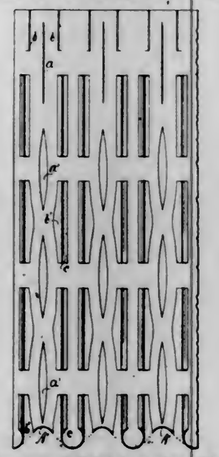
Claim.—1. A corrugated slitted sheet of metal lathing as ridges and hollows, each hollow having through its bottom, apertures at intervals, and in the sloping sides of each hollow other apertures "breaking joint" with the apertures in the bottom, the apertures in the slopes arranged in pairs with a web of the ridge metal between each pair as a loop or bridge, with its outer edges raised and a concavity between, as set forth.

2. A corrugated slitted sheet of metal lathing having a series of loops along each ridge at intervals, each loop having upturned edges forming a concave, the extended surface of the sheet being allowed for by a lateral expansion of the slits in the depressions, as and for the purpose herein described.

3. A corrugated slitted sheet of metal lathing having regular and prescribed slits through the metal, arranged in three rows to each depression of the main face, the slits of the outermost lines having one edge of the border metal upturned, as and for the purpose herein described.

4. A sheet metal lathing having series of parallel slits as pairs in rows, the metal web between each pair raised as a loop with upturned edges and being concave between, apertured beneath, and between every two rows of loops so formed, a single line of slitted apertures "breaking joint" therewith, as set forth.

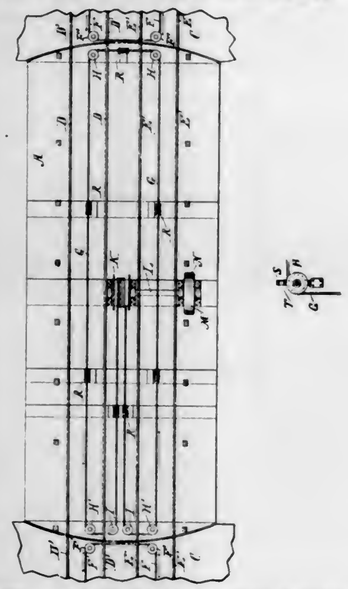
521,499. METALLIC LATHING. GEORGE HAYES, New York, N. Y. Filed Mar. 28, 1894. Serial No. 505,369. (No model.)



Claim.—1. A corrugated slitted sheet of metal lathing having in each hollow two rows of apertures, and in each ridge one row of apertures, and the extended surface of the sheet allowed for by the lateral expansion of the slits in the ridges, as set forth.

2. A corrugated slitted sheet of metal lathing having in each hollow two rows of apertures and in each ridge one row the apertures in the hollows having outwardly turned lips as shown and the extended surface of the sheet allowed for by the lateral expansion of the slits in the ridges as set forth.

521,500. CABLE STREET-RAILWAY. FRED HOCH, Wauwatosa, Wis. Filed Oct. 27, 1893. Serial No. 489,284. (No model.)



Claim.—1. The combination with a movable bridge having two longitudinal lines of railway tracks, of an endless cable running in opposite directions between and parallel with the rails of the two tracks, small pulleys H H and H′ H′ axled in the bridge at the extremities of said parallel lines of said cable about which the cable runs, said pulleys being arranged in two sets, one set at each end of the bridge, the pulleys of each set being at a distance apart, two intermediate pulleys I I at one end of the bridge about which also the cable runs, idle wheels supporting the cable medially, a horizontal drum journaled in the bridge about which drum the cable runs in a loop intermediate of the pulleys I I, one line of the cable extending from a pulley I to the top of the drum and the other line extending from the other pulley I to the bottom of the drum, the two lines of the cable being so disposed as not to cross or contact with each other, and means on the bridge for driving the drum, substantially as described.

2. The combination of a movable bridge, pulleys axled vertically therein, an endless cable running about the pulleys adapted to take cars across the bridge, and rollers T so placed near to the pulleys as to retain the cable in place thereon when lengthened and loose on the pulleys by expansion under heat or otherwise, substantially as described.

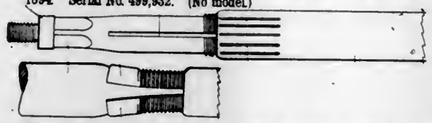
521,501. FLOAT. DAVID M. IRELAND, Detroit, Mich. Filed Nov. 23, 1893. Serial No. 491,735. (No model.)



Claim.—1. A float, comprising a hollow air-tight globe of thin sheet metal, consisting of two hemi-spherical corrugated shells united at their base so as to form a hollow sphere having a central circumferential bead and peripheral corrugations.

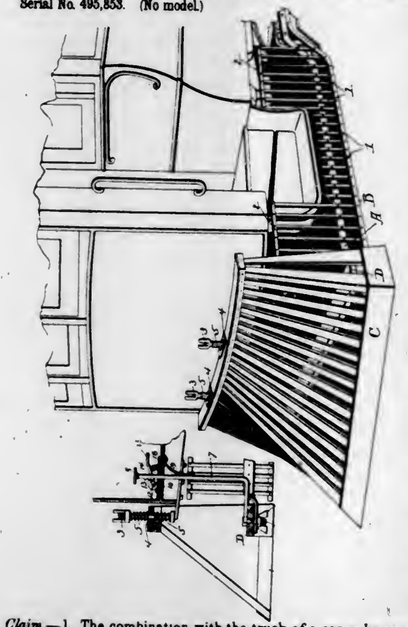
2. A float, comprising a hollow air-tight globe composed of two hemi-spherical shells of thin metal having radial corrugations and united at their base by interlocking flanges, forming a hollow sphere provided with meridional corrugations crossed at right angles by a circumferential bead substantially as set forth.

521,502. ADJUSTABLE SOCKET-CLAMP FOR SUCKER-RODS. JOSEPH A. KIDD and GEORGE W. HESS, Haskins, Ohio. Filed Feb. 12, 1894. Serial No. 499,932. (No model.)



Claim.—In an adjustable socket clamp for sucker rods, a socket having longitudinal slits and a threaded exterior and a threaded ferrule run upon the same, the upper ends of the socket sections extending above the ferrule to form spring arms.

521,503. FENDER FOR CARS OR LOCOMOTIVES. JAMES B. KRAUSE and ROBERT H. CROSBY, Williamsport, Pa. Filed Jan. 5, 1894. Serial No. 495,853. (No model.)



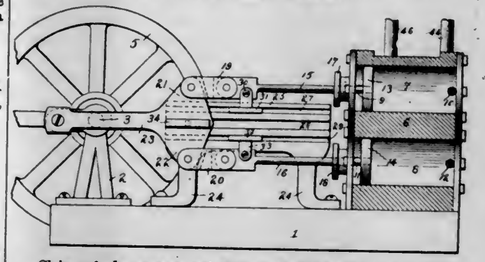
Claim.—1. The combination with the truck of a car or locomotive, of a fender comprising truss rods and vertical rods rigidly secured thereto, said truss rods secured at their rear or inner ends to the truck whereby the entire weight of the fender is supported at this point, substantially as set forth.

2. The combination with a fender comprising truss rods and vertical or cross-rods rigidly secured to the truss rods whereby the several rods are trussed and braced and the entire weight of the fender is sustained upon the truck, of a rod extending upward into the car from the fender where it may be depressed by the motorman to lower the fender, substantially as set forth.

3. The combination with a fender comprising truss rods, and vertical cross rods secured to the truss rods, and a cow catcher or pilot located at the outer end and forming a part of the fender, and means connected with the car with which the cow catcher has yielding sliding connection, for preventing lateral movement of the cow-catcher or pilot, substantially as set forth.

4. The combination with a pilot or cow-catcher, a ratchet toothed rod extending upward therefrom, a pawl, and a spring for normally holding the rod and pawl in engagement with each other, of a rock shaft, means for rocking the latter, and a cam or eccentric on this shaft in position to engage the rod whereby to force it away from the pawl whereby it is permitted to rise and resume its normally elevated position, substantially as set forth.

521,504. STEAM-ENGINE. PHILIP B. LANDGRAF, Chicago, Ill. Filed Feb. 17, 1894. Serial No. 500,452. (No model.)



Claim.—1. In a steam engine a rotary valve having a peripheral groove, an opening for live steam and a groove for the exhaust steam; as and for the purpose set forth.

2. In a steam engine a rotary valve having a peripheral groove in constant communication with the exhaust pipe, a slot therethrough in constant communication with a source of live steam, and a groove on the inner face thereof communicating with said peripheral groove; as and for the purpose set forth.

3. In a double cylinder engine having ports for each cylinder, a valve chest, a steam pipe connection for admitting steam to said chest, a valve seated in said chest having a slot through which the live steam may pass into the cylinders, and also provided in one face with a groove in constant communication with an exhaust passage, and means for moving said valve; all substantially as and for the purpose set forth.

4. In a double cylinder engine a valve chest, two steam ports for each cylinder communicating with said valve chest at equi-distant points in a circular path, the ports of each cylinder communicating at diagonal points in said chests, a valve having a live steam opening therein of a length slightly greater than the distance between two contiguous openings of the said ports, and also having suitable exhaust passages, means for operating said valve, and suitable steam and outlet pipes all combined and arranged as and for the purpose set forth.

5. In a steam engine provided with double cylinders, pistons arranged in said cylinders, a steam chest, suitable steam and exhaust connections communicating therewith, a pair of steam ports for each cylinder communicating with said steam chest at diagonally opposite points said points of communication being equi-distant from each other in a circular path, a rotary valve having a slot therethrough for the passage of live steam, of a length slightly greater than the distance between the openings of two contiguous cylinder ports, and also having a groove on its inner face in constant communication with the exhaust connection and with two or more of said openings thus forming an exhaust passage as and for the purpose set forth.

6. In a double cylinder a valve chest, two steam ports for each cylinder communicating with said chest, said points of communication being arranged at equal distances apart in a circular path, the two openings of each cylinder being arranged diametrically opposite each other, steam supply and exhaust pipes and a valve having a single live steam opening and suitable exhaust passages; as and for the purpose set forth.

7. In a double cylinder steam engine the combination with cylinders, piston rods, main shaft and connecting rod having pivotal connection on opposite sides of a central longitudinal line thereof with each of said piston rods, of a single valve for controlling the admission of steam to each cylinder, adapted to admit live steam simultaneously to one end of one cylinder and to the opposite end of the other cylinder at each dead center; as and for the purpose specified.

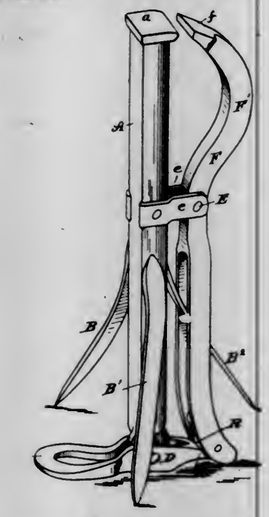
8. In a steam engine the combination of the cylinder, piston rod, connecting rod, main shaft, a rotary valve for controlling the admission and exhaustion of steam to and from the cylinder, having a hub projecting through the valve chest, a gear mounted on said hub outside of said chest and suitable gearing intermediate the main shaft for driving said gear and rotating said valve; as and for the purpose specified.

521,505. BLACKSMITH'S VISE. ARTHUR LENNON, Fayette, Ohio. Filed Jan. 31, 1893. Serial No. 460,377. (No model.)

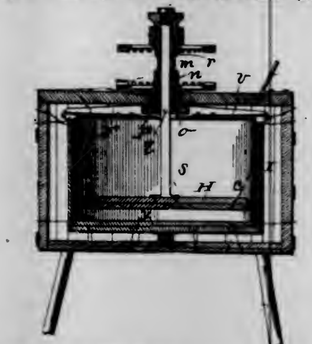
Claim.—1. In a blacksmith's vise, the combination of a swinging jaw pivoted to the fixed jaw and provided with a fork terminating its lower end, between the prongs of which one leg of the tripod supporting the fixed jaw extends, a cam lever pivoted to the fixed jaw, a friction roller supported by the extreme lower ends of the fork of the swinging jaw and adapted to engage with the cam surface of said lever, substantially as and for the purpose specified.

2. In a blacksmith's vise, the combination of supports pointed at their lower ends, a fixed jaw rising from below through the stand-

ards, terminating at its upper end with an anvil face, and at its lower end with a support for a lever, a lever pivoted to said lower end, a swinging jaw hinged to said fixed jaw, provided below the hinge pivot with a fork, between the sides of which one of the supporting standards extends, and a roller bearing supported at the lower end of the swinging jaw adapted to engage with said lever and be moved outward by the same, thereby closing the grip of said jaws, substantially as described.



521,506. WASHING-MACHINE. JOSEPH A. MEIGEL, McKeansburg, Pa. Filed Aug. 29, 1893. Serial No. 484,340. (No model.)



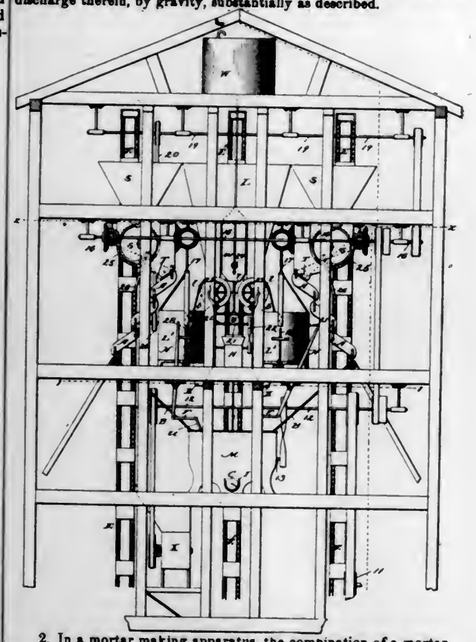
Claim.—1. A washing-machine, comprising an outer stationary tub provided with a cover, an inner revoluble tub communicating with the outer tub and a revoluble and vertically adjustable disk rubber, in combination with mechanism supported upon the cover of the outer tub for revolving said inner tub and rubber in opposite directions.

2. In a washing-machine, the combination of an outer tub, an inner revoluble tub communicating with the outer tub, a transverse bar engaging the upper edge of the inner tub and connected to a revoluble sleeve extending through the cover of the outer tub, a vertically adjustable and revoluble rubber and suitable gearing to revolve the inner tub and the rubber in opposite directions.

3. In a rotary washing-machine, the combination of an outer tub, an inner revoluble tub, a bar provided with latches engaging the upper edge of the inner tub, a vertically adjustable and revoluble rubber provided with a shaft extending through the cover of the tub, a pair of horizontal gear-wheels connected respectively to the inner tub and the rubber and a pinion intermediate said gear wheels.

521,507. APPARATUS FOR MAKING MORTAR. THOMAS D. MCCLARY, Washington, D. C. Filed May 18, 1893. Serial No. 474,697. (No model.)

Claim.—1. In a mortar making apparatus, the combination of a lime-slaker and a rotating lime-meter, the latter provided with compartments, each compartment having a false-bottom adapted to be adjusted, or removed, the meter arranged above the slaker so as to discharge therein, by gravity, substantially as described.



2. In a mortar making apparatus, the combination of a mortar mixer, a lime slaker, a rotary lime meter provided with compartments having adjustable partitions, a water meter provided with a graduated scale and automatic cut-off, and a sand-meter, as described; the slaker and sand meter being arranged to discharge into the mixer, by gravity, substantially as set forth.

3. In a mortar making apparatus, the combination of a mortar-mixer and a sand-meter, said meter having compartments, each provided with inlet and discharge openings, as described, with the mangle-gear, lever, and pawl, whereby the meter is adapted for operation, substantially as described.

4. In mortar making apparatus the combination of a lime slaking tub or tank, having an annular depression or channel, a port leading from the channel through which lumps and waste may be discharged, and a gate for opening and closing said port, substantially as described.

5. In mortar making apparatus a lime slaking tub or tank having an annular depression or channel, a port leading from the channel, and a large port in the bottom of the tub in combination with a screen to cover the large port and a gate for closing and opening the channel port, substantially as described.

6. In mortar making apparatus the combination of a lime slaking tub or tank having an annular depression or channel, a screen and a gate in the channel, substantially as described.

7. In mortar making apparatus the combination of a lime slaking tub having an annular depression, a main port and screen in the bottom, a port and screen in the channel for discharging the contents to mixer below, and a port and gate in the channel for discharging refuse, substantially as described.

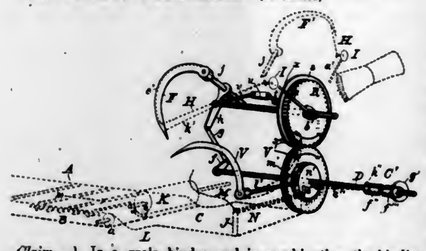
8. In mortar making apparatus the combination of a lime slaking tub having two ports and screens for discharging the lime paste, a perforated sliding gate for simultaneously opening and closing said ports and means for operating said sliding gate, substantially as described.

9. In mortar making apparatus the combination of a lime slaking tub, a chute and port leading into said tub and a gate or cut off for opening the port to discharge lime into the slaker and to close the same after the slaker has been charged, substantially as described.

10. In mortar making apparatus the combination of a lime slaker, a chute and port leading into the same and a cylindrical lime meter registering with the mouth of the chute or port for discharging lime to the slaker and for closing the port, substantially as described.

11. The combination in a mortar-making apparatus, of a lime-crusher, a lime-meter having compartments provided with false-bottoms adapted to be adjusted or removed, as desired, a lime-slaker, a water-meter having a graduated standard and a float-valve adjustably connected therewith, the said meters arranged to discharge into the slaker, by gravity, the bottom of the slaker provided with ports and screens, a mixing-tank arranged below the slaker, a sand-meter provided with mangle-gear and operating lever and pawl, a feed regulator, and screens arranged between the said meter and mixer, the mixer provided with a discharge port and an interior swinging gate for opening and closing said port, substantially as described.

521,508. GRAIN-BINDER. DANIEL MCPHERSON, Caledonia, N. Y. Filed Feb. 1, 1894. Serial No. 498,718. (No model.)



Claim.—1. In a grain binder and in combination the binding platform, the binder-arm, the knotter, the frame situated above and pivoted at or near the rear vertical plane of the platform and supporting said arm and knotter above the platform, mechanism to oscillate the frame and simultaneously carry the bundle above said platform and the devices supported thereon and to the rear thereof, and devices for vibrating the arm, all substantially as set forth whereby the bundle can be simultaneously lifted and bound and then discharged from an elevated position on the side opposite that from which it was raised.

2. In a grain binder and in combination, the binding platform, the binder-arm, the knotter, the frame situated above and pivoted at or near the rear vertical plane of the platform and supporting said arm and knotter above the platform, mechanism to oscillate the frame and simultaneously carry the bundle above said platform and the devices supported thereon and to the rear thereof, devices for vibrating the arm, and a spring-held compressor, all substantially as set forth whereby the bundle can be simultaneously lifted and bound and then discharged from an elevated position on the side opposite that from which it was raised.

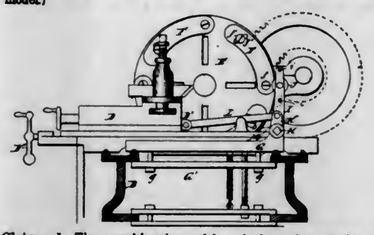
3. In a grain binder, the combination with the binding platform, of the intermittently revolving driving shaft D arranged at or near the rear of the platform, the shaft O, the frame *i* pivoted thereon, the binder arm supported by the frame, the knotter also supported in the frame, and mechanism operated by the shaft D intermediate the same and the frame and adapted to secure the simultaneous oscillation of the binder arm and knotter, devices to operate the knotter, and devices to vibrate the binder arm to and from the same, the mechanism being all situated above the platform and adapted to simultaneously lift and bind the bundle and subsequently drop it on the side thereof opposite that from which it was raised, substantially as set forth.

4. In a grain binder, the combination with the grain platform, of the intermittently rotating shaft D, the shaft O supported by suitable standards, the frame i secured on shaft O and supporting the binder arm and knotter, the gear Q and loose gear R, devices to operate the knotter, mechanism to vibrate the binder arm, and means such as cranks *f*, *h* and link *g* for securing the oscillation of the frame supporting the binder arm and knotter, the mechanism being all situated above the platform and adapted to simultaneously lift and bind the bundle and subsequently drop it on the side thereof opposite that from which it was raised, substantially as set forth.

521,509. PROCESS OF MAKING COFFEE SUBSTITUTES. REINHARDT RAHR, Manitowoc, Wis. Filed Oct. 10, 1892. Serial No. 448,423. (No specimens.)

Claim.—The herein described process of producing a substitute for coffee from barley malt which consists in steeping the malt, separating the steeped malt from the water, then subjecting the malt to a low degree of heat whereby the starch products are converted into maltose and then raising the temperature and continuing the treatment at the elevated temperature until the maltose is converted into caramel, and arresting the treatment at a point short of carbonization, substantially as described.

521,510. LATHE FOR RELIEVING TAPS. WILLIAM A. ROBERTSON, Cedar Rapids, Iowa. Filed Mar. 13, 1894. Serial No. 503,402. (No model.)



Claim.—1. The combination with a lathe substantially as described of cams mounted on its face-plate and separated a short distance therefrom by intermediate washers or thimbles, a flange traveler mounted on an upwardly extending arm, connected with a rectangular rock-shaft, suitable bearings for said rock-shaft, a crank arm mounted to slide freely on said rock-shaft, and a bar connecting said crank with the tool-slide, and means for holding said traveler in contact with the cams, substantially as and for the purpose set forth.

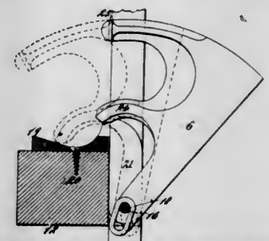
2. In a lathe the combination with its face-plate of adjustable cams corresponding in number to the sides of the work designed to be turned, a crank arm provided with a suitable traveler adapted to ride on the outer faces of said cams, means for retaining the same in contact with said cam surfaces, a rock-shaft on which said arm is mounted, a crank thereon and a connection of said crank with the tool-slide, substantially as and for the purpose set forth.

3. The combination with a lathe substantially as described of one or more cams mounted on the face-plate, a rock-shaft, bearing blocks adapted to retain said rock-shaft, a crank arm or lever, with a traveler connected therewith, adapted to ride on the said cams, a crank connection of said rock-shaft with the tool-slide, a spring connected with an arm extending from said rock-shaft to draw the traveler into contact with the cams, and a stop to limit the inward throw of said traveler.

4. In a lathe the combination of a faceplate provided with one or more cams mounted thereon, the rock-shaft H, angular in cross section, the arm I suitably fixed thereto, and provided with a traveler moving on the surface of said cams, the crank K adapted to slide on said rock shaft, connecting rod or bar L, bearings *k k*, and the bearing blocks G G, substantially as and for the purpose set forth.

5. In a lathe the combination with the face plate provided with one or more cams of the rock-shaft H, the traveler J and its arm I connected with said rock-shaft, crank K adapted to slide on said rock-shaft, connecting bar L, lever M, spring N, and adjustable post P, substantially as and for the purpose set forth.

521,511. DOG OR STOP DEVICE FOR BALING-PRESSES. ANDREW SCHULER, Lott, Tex., assignor to the Kingsland & Douglas Manufacturing Company, St. Louis, Mo. Filed Apr. 7, 1893. Serial No. 469,395. (No model.)

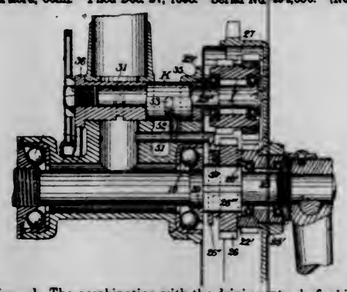


Claim.—1. A dog for baling presses yieldingly connected with the press, a fulcrum or pivot about which the dog may move during its excursion, and a suitably-disposed obstacle upon which the dog may also move during part of its excursion.

2. A dog for baling presses, pivoted by a slot near one end thereof, and having a backwardly-extending arm, and an inclined obstacle against which the arm is adapted to come when the dog has moved about the pivot through part of its excursion, the said plate forming with the aforesaid arm a surface upon which the dog slides during the remainder of its movement.

3. In a baling press, a dog pivoted to the side of the pressure-chamber through the slot 18, the said dog being provided with the arms 23 and 24, and a plate 19 placed at the side of the pressure-chamber behind the dog, substantially as herein described.

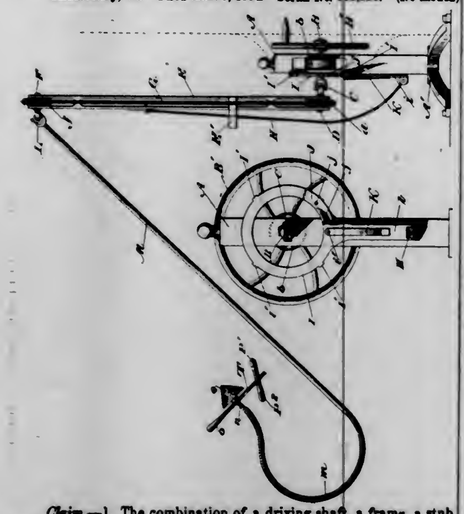
521,512. VARIABLE-SPEED MECHANISM. AUGUSTUS SEQUEIRA, Hartford, Conn. Filed Dec. 27, 1893. Serial No. 494,836. (No model.)



Claim.—1. The combination with the driving-wheel of a bicycle, of the driving-shaft 12 revolubly carried at one side of said wheel and operatively connected therewith, a fast and a loose gear-wheel on said shaft, a clutch-device connected therewith, a speeding-gear shiftably supported at one side of the fast and loose gear-wheels and having teeth in position to mesh with the teeth of said wheels, an eccentric-shifter connected with said feeding-gear and comprising an eccentrically-bored sleeve and a gear-supporting stud secured in the bore of said sleeve and an actuator-arm fixed to said sleeve for actuating said shifter to throw the speeding-gear into and out from engagement with the fast and loose gear-wheels, substantially as described.

2. In a bicycle, the driving-wheel B, the driving-shaft carried in a bracket located at one side of and operatively connected with said wheel, the driving and driven gears on said shaft in combination with speeding-gears revolubly mounted upon a stud fixed in a shiftable eccentrically-bored sleeve journaled in said bracket at one side of the driving and driven gears, said operating gear being in position for engagement with and disengagement from the driving and driven gears, an actuator fixed to said sleeve for operating the same to shift the speeding-gears toward and from the driving and driven gears, and a clutch for connecting and disconnecting the driving and driven gears, substantially as and for the purpose described.

521,513. HORSESHOE-CALK SHARPENER. ALVIA B. SMITH, Middlebury, Vt. Filed Mar. 3, 1894. Serial No. 502,229. (No model.)



Claim.—1. The combination of a driving shaft, a frame, a stub shaft journaled in said frame, and a universal joint connection between said stub shaft and driving shaft, said joint also constituting a connection between the frame and driving shaft, and suspending the former on the latter a second stub shaft journaled in the outer end of the frame, and means for driving the latter stub shaft from the former; with a tool carrying shaft mounted in a hand frame, and a flexible universal connection between said shaft and the second stub shaft, substantially as set forth.

2. The combination of the hand frame, the handles adjustably attached thereto, and the tool carrying shaft journaled therein, with the flexible shafting connections between said tool carrying shaft and a main driving shaft, substantially as described.

3. The combination of the triangular frame, a tool carrying shaft journaled therein, the handles adjustably attached to the frame, and the grip piece adjustably attached to one of the handles, substantially as set forth.

4. The combination of a main shaft journaled in a suitable support, and means for rotating it, a frame carrying stub shafts at its opposite ends, a universal joint connection between one of the stub shafts and the main shaft, whereby the frame is supported on the main shaft means for driving one of the stub shafts from the other, a rod connected to the second stub shaft by a universal joint, a holder for a rotating tool provided with adjustable handles, and a flexible connection between said rod and the tool holder, substantially as described.

5. The combination of the standard, the plate fixed thereon, the rotatable plate attached to and adjustable on the fixed plate, a spring supported on said movable plate, a main shaft on the standard, and a frame upheld by the spring and adjustably supported on the main shaft, a tool holder, flexible connections between said holder and the outer end of said frame, and means for transmitting motion from a main shaft on the standard along said frame and flexible connections to the tool-holder, substantially as specified.

6. The combination of the main shaft, a support therefor, an adjustable frame, supported on and connected to the main shaft stub shafts journaled in opposite ends of said frame, a universal joint connection between one of said shafts and the main shaft, and pulleys and belt for transmitting motion from one of the stub shafts to the other, an adjustable spring mounted on the support for upholding and adjusting the position of the frame relative thereto with a frame provided with handles, a rotating tool-holding shaft journaled in said hand frame, and flexible connections between the tool-holding shaft and the stub shaft on the free end of the spring controlled frame, all constructed substantially as and for the purpose set forth.

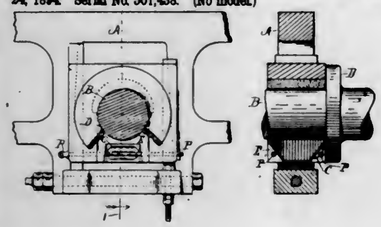
521,514. TELEPHONE-SWITCH. ALFRED STROMBERG and ANDREW CARLSON, Chicago, Ill. Filed Jan. 26, 1894. Serial No. 498,135. (No model.)



Claim.—1. The combination with a hand telephone, of a movable contact element provided thereon and adapted to be actuated by the hand holding the telephone, a telephone line, one side thereof terminating in said movable contact element, two contact anvils adapted to be alternately engaged by said movable contact element, signaling apparatus connected between one of said contact anvils and the second side of the telephone line, and a telephone set connected between the other of said contact anvils and the second side of the line; whereby either the signaling apparatus or the telephone set may be placed in circuit by the manipulation of said contact element, substantially as described.

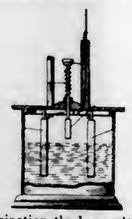
2. The combination with a telephone receiver provided upon its end with three binding posts, of a movable contact element carried thereon and connected with one of said binding posts, two contact anvils adapted to be alternately engaged by said contact element and connected respectively with the remaining binding posts, a telephone coil between one of said contact anvils and its binding post, a telephone line one side thereof being connected with the binding post, connected with said movable contact element, the other two binding posts being connected by parallel branches with the opposite side of the line, and calling apparatus located in the branch that is not in circuit with the telephone coil, substantially as described.

521,515. OIL-CELLAR FOR DRIVING-BOXES FOR LOCOMOTIVES. FRANK H. TAYLOR and FRANK RILEY, Joliet, Ill. Filed Feb. 24, 1894. Serial No. 501,438. (No model.)



Claim.—The cellar E having its end beveled, and having a transverse aperture F in said beveled portion, and having a web between said aperture and its upper side to prevent spreading apart of the upper part of the cellar, in combination with a door c for closing said aperture, and the bolt or rod P for securing said door to said cellar all arranged to operate substantially as and for the purpose set forth.

521,516. LAMP-LIGHTER. ALBERT H. TODD, Senatobia, Miss. Filed Aug. 8, 1893. Serial No. 482,666. (No model.)



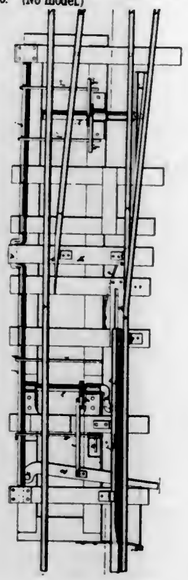
Claim.—1. In combination, the lamp with its burner, the chamber A forming the base of the lamp and containing the battery elements, the tube C extending up from said base adjacent to the burner, the electrical connections extending through said tube to the wick and the handle O arranged opposite to the tube C, substantially as described.

2. In combination, the burner, the platinum coil, the movable support therefor, the battery chamber A, the carbon elements therein, the wires leading therefrom to the platinum coil, the zinc element, the push rod therefor, the tube C containing the circuit wires, and the wire leading through said tube from the push rod for operating the platinum coil to and from the wick, substantially as described.

521,517. PROCESS OF MAKING DRY ADHESIVE PASTE. PHILIP VANDENBURGH, Cleveland, Ohio. Filed Feb. 15, 1894. Serial No. 500,274. (No specimens.)

Claim.—The process of making a dry paste which consists (first) in mixing flour and water to make a dough, (second) fermenting said dough, until it is sour and most of its albuminous constituents are decomposed (third) cooking the fermented dough by a low heat and then evaporating the moisture therefrom, and (fourth) pulverizing the resulting product, substantially as and for the purpose specified.

521,518. AUTOMATIC RAILROAD-SWITCH. LURIA WASHINGTON and WILLIAM H. ROBERTS, Coal Creek, Tenn. Filed Sept. 21, 1891. Serial No. 406,410. (No model.)

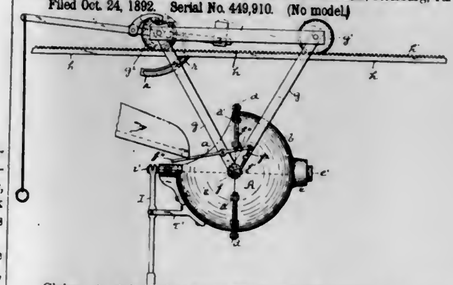


Claim.—1. The combination, with the rail *t*, connected with the lever *g* by the lever *h* and rockshaft *y*, of the lever *a* to adjust said parts and the lever *q q* and spring *b* substantially as and for the purposes set forth.

2. The combination with rail *t*, rock shaft *y*, and lever *g* of the lever *i*, the rockshaft *j j*, and the tie bar *m* and spring *p*, as and for the purposes set forth.

3. The combination with the tie-bar *m* and rockshaft *j j*, provided with arms *i'*, two or more, of track levers, adapted to be actuated by train and adapted to actuate rockshaft *j j*, by arms overlying the said arms *i'*, substantially as set forth.

521,519. POURING-LADLE. STEPHEN J. ADAMS, Pittsburg, Pa. Filed Oct. 24, 1892. Serial No. 449,910. (No model.)



Claim.—1. A ladle for casting metal in molds, mounted on trunnions and having a cover extending over one side thereof and a receiving opening on the other side, and an outlet in the base of the ladle body and a longitudinally movable valve controlling the said outlet, said ladle being adapted to swing on its trunnions so that when receiving the metal the ladle body is swung over to bring its pouring outlet above the level of the metal and the metal is held in the basin formed by one side of the ladle body and by the cover extending over the same, substantially as set forth.

2. A ladle for pouring metal into molds, mounted on trunnions and formed in two sections, the upper section having a cover extending over one side of the ladle, and the lower section having a valve controlled outlet, substantially as and for the purposes set forth.

3. A ladle for pouring metal into molds, having a pouring outlet in the base, a longitudinally movable stopper adapted to form a seat with such pouring outlet, and a bearing for the stopper rod in the upper part of the ladle, said bearing having a part thereof hinged so as to open to permit the removal of the stopper thereof, substantially as and for the purposes set forth.

4. In ladles for pouring metal into molds, the combination of a ladle body having a pouring outlet in the base, a cover extending over one side thereof, a valve or stopper carried on the end of a longitudinally moving rod having a bearing in the cover of the ladle, and an operating lever pivoted on said cover and engaging with said longitudinally moving rod, substantially as and for the purposes set forth.

5. In ladles for pouring metal into molds, the combination of a track having a rack face thereon, a frame running on said track and carrying the ladle and having a pinion engaging with said rack face, and mechanism carried by the frame for rotating said pinion, and so propelling the ladle, substantially as and for the purposes set forth.

6. In ladles for pouring metal into molds, the combination of a track, a frame running on said track and carrying the ladle, mechanism carried by the frame for propelling said ladle, and a stop on the ladle frame to regulate the length of movement of the frame on the track, substantially as and for the purposes set forth.

7. In ladles for pouring metal into molds, the combination of a track having a rack face thereon, a frame carrying the ladle and having a pinion engaging with said track, a ratchet wheel on said frame, and a lever mounted on said frame and having a pawl engaging with said ratchet wheel to turn the same, substantially as and for the purposes set forth.

8. In ladles for pouring metal into molds, the combination of a track, a frame on said track carrying the ladle, a ratchet wheel on said frame, a lever mounted on said frame and having a pawl engaging with said ratchet wheel to propel the frame, and a stop mounted on the frame, in line with said lever to limit the movement thereof, substantially as and for the purposes set forth.

521,520. APPARATUS FOR FORMING MOLDS. STEPHEN J. ADAMS, Pittsburg, Pa. Original application filed Oct. 24, 1892, Serial No. 449,905. Divided and this application filed May 8, 1893. Serial No. 473,267. (No model.)

Claim.—1. In sand molding apparatus, the combination of a flask, a pattern and pattern plate closing the lower end thereof, a confining plate closing the upper end thereof, the flask having guide-holes in its side walls above the pattern, a guideway in line with the guide-holes of the flask and forming a guide course parallel with the confining plate, and a runner former fitting in said guideway and adapted to be forced through said guide-holes and through the sand within the flask, and so form a runner extending through the mold above the mold cavity, substantially as set forth.



2. In sand molding apparatus, the combination of a flask, a plate adapted to be applied to and confine the sand in the flask, and having a guide at one end, and a runner former adapted to be forced through said guide and through the sand within the flask in line with the confining plate, substantially as and for the purposes set forth.

3. In sand molding apparatus, the combination of a flask having ribs thereon to mold gates or runners, and a confining plate adapted to be applied to the flask, a guide in line with said ribs, and a runner former adapted to be forced through said guide and through the sand within the flask, in line with said ribs, substantially as and for the purposes set forth.

4. In sand molding apparatus, the combination of a flask having guide holes in the side walls thereof, a guideway in line with said guide holes, and a tubular cutter fitting in the guideway and adapted to be forced through the flask and cut a runner therein and carry out the sand therefrom, substantially as set forth.

5. A tubular cutter for forming runners within sand molds, having a beveled cutting edge and of smaller interior diameter at the cutting edge than in its body, substantially as and for the purposes set forth.

6. In sand molding apparatus, the combination of a flask, a confining plate adapted to be applied thereto having a pattern or block adapted to be forced into the sand and provided with a guide in line with said pattern or block, and a runner former adapted to be forced through said guide and through the sand in the flask and in line with said block and confining plate, substantially as and for the purposes set forth.

7. In sand molding apparatus, the combination of the flask *h* having the loop h^5 and the runner forming plate *k*, having the pin *k'* engaging therewith, and provided with the guide k^3, substantially as and for the purposes set forth.

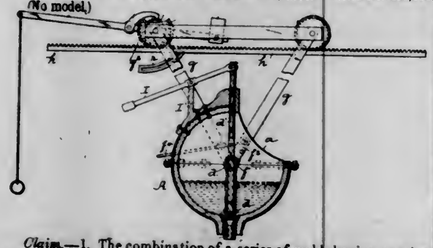
8. In sand molding apparatus, the combination of the flask having the loop h^5 and the holes h^2 h^4, and the runner forming plate *k*, having the pin *k'* engaging with the loop, and provided with the guide k^3 in line with said holes in the flask, substantially as and for the purposes set forth.

9. In sand molding apparatus, the combination of the flask *h* having the loop h^5 and lugs h^7 and the runner forming plate *k* having the pin *k'* engaging with said loop, and the lips k^3 engaging with said lugs, and the guide k^3, substantially as and for the purposes set forth.

10. In sand molding apparatus, the combination of the flask *h*, the runner forming plate *k* having the guide k^3, and the block or pattern *m* removably attached to said plate in line with said guide, substantially as and for the purposes set forth.

11. In sand molding apparatus, the combination with the mold support, and the sand mold resting thereon, of a protecting shield having a horizontal portion adapted to rest upon the sand mold and a vertical portion adapted to extend down the side thereof and prevent direct contact therewith, substantially as and for the purposes set forth.

521,521. CASTING SAND MOLDS. STEPHEN J. ADAMS, Pittsburg, Pa. Original application filed Oct. 24, 1892, Serial No. 449,910. Divided and this application filed Nov. 23, 1893. Serial No. 491,698. (No model.)



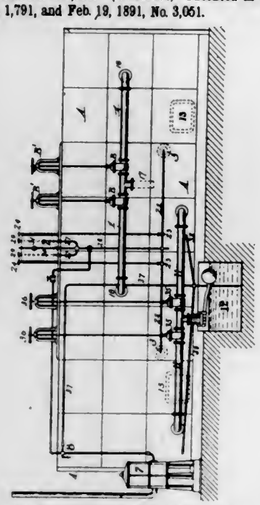
Claim.—1. The combination of a series of molds having pouring gates entering the same, and having an exposed continuous runner on and extending along the upper part of the series between and communicating with the pouring gates, and a ladle carried above such continuous runner adapted to move above the molds and to feed the metal to the continuous runner, substantially as set forth.

2. The combination of a series of molds having pouring gates extending down into the same, and having an exposed continuous runner on and extending along the upper part of the series of molds between and communicating with the pouring gates, a ladle carried above the continuous runner, and propelling mechanism for moving the ladle, said mechanism operating to move the same intermittently for regulated distances corresponding to the distances between the pouring gates, substantially as set forth.

3. The combination of a series of molds having pouring gates extending down into the same, and having an exposed continuous runner on and extending along the upper part of the series of molds between and communicating with the pouring gates, a ladle carried above the continuous runner, propelling mechanism carried by the ladle frame for moving the ladle, said mechanism operating to move the same intermittently for regulated distances corresponding to the distances between the pouring gates, and stop mechanism controlling such intermittent movement, substantially as set forth.

4. The combination of a series of sand molds having pouring gates extending down into the same, a series of mold weights placed on said molds and having holes therein, and a trough extending over the molds and forming a continuous runner, said trough having tubular extensions passing through the mold weights and communicating with the pouring gates of the molds, substantially as set forth.

521,522. APPARATUS FOR PURIFYING WATER. LEONARD ARCHBUTT and RICHARD M. DEELEY, Derby, England. Filed May 31, 1892. Serial No. 434,955. (No model.) Patented in England Feb. 1, 1889, No. 1,791, and Feb. 19, 1891, No. 3,051.



Claim.—1. The combination of the softening tank, the open compartment or chamber therein for receiving the chemicals, the injector for maintaining a rapid circulation from the chamber to the tank and vice versa, an agitator for stirring the mud at the bottom of the tank, and a draw off pipe for discharging the clear water when the mud has settled.

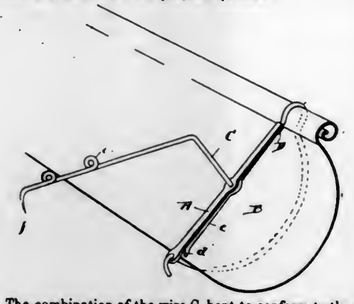
2. The combination of the softening tank, means for mixing chemicals with the contents thereof, perforated pipes at the bottom of the tank, an injector for forcing air through such perforated pipes to agitate the mud at the bottom of the tank, and a draw off pipe for discharging the clear water when the mud has settled.

3. The combination of the softening tank, means for mixing chemicals with the contents thereof, an agitator for stirring the mud at the bottom of the tank, and a floating draw-off pipe.

4. The combination of the softening tank, means for mixing chemicals with the contents thereof, means for agitating the mud at the bottom of the tank, a draw-off pipe, and means for supplying combustion gases into the draw-off pipe.

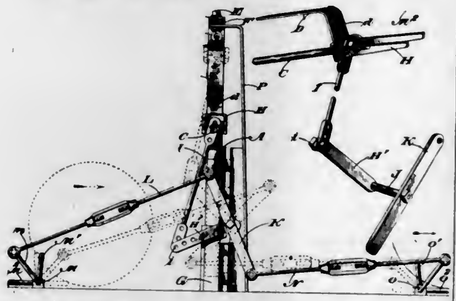
521,523. EAVES-TROUGH HANGER. HARRY A. BERGER, Canton, Ohio, assignor to the Berger Manufacturing Company, same place. Filed Oct. 23, 1893. Serial No. 488,842. (No model.)

Claim.—1. The combination of the wire C, provided with the loops *c*, and the tang *f*, the cross bar A, provided with the apertures *a* and *b*, and the right angled flange *c*, and shoulder *d*, and the tang D, substantially as and for the purpose specified.



2. The combination of the wire C, bent to conform to the curvature of an eaves trough, the bar A, provided with the shoulder *d*, the apertures *a* and *b*, the tang D, and the wire C, secured to the cross bar or bridge A, substantially as and for the purpose specified.

521,524. SELF-OPENING GATE. GEORGE L. DUNCAN, Piqua, Ohio. Filed Feb. 9, 1894. Serial No. 499,653. (No model.)



Claim.—1. The combination of a rod suspended from an oscillating bar; stationary uprights at each end of said bar, yokes attached to said bar embracing said uprights, and a gate suspended by hangers from said rod, substantially as described.

2. The combination of the bar having downturned ends and centrally suspended from a suitable support, guide yokes attached to the outer ends of said bar, a rod strung between the ends of said bar, and an endwise movable gate suspended on said rod, substantially as specified.

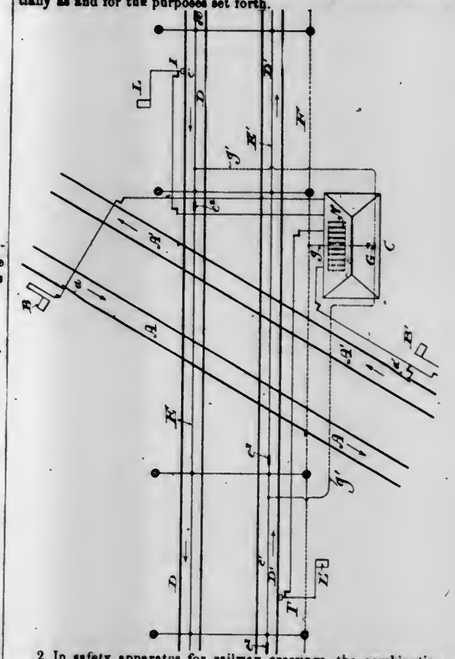
3. The combination of the oscillating support, suspended above the gate-way, a longitudinal rod attached to said support and guide yokes attached to the ends of said support with a gate having an inclined bar secured to its top, hangers attached to said inclined bar engaging said rod, thereby suspending the gate on the rod, and means for oscillating said support, substantially as described.

4. The combination of a rod suspended from an oscillating bar, stationary uprights at each end of said bar, yokes attached to said bar embracing said uprights, and a gate suspended by hangers from said rod, with a rock shaft having a lever on one end and a crank arm on the other, means connected with said lever for rocking said shaft from either side of the gate; and a pitman connecting the crank arm to one end of the suspended bar, substantially as described.

5. The combination of an oscillating bar suspended above the gate-way, a longitudinal rod attached to said support and guide yokes attached to the ends of said support, a gate having an inclined bar secured to its top, and hangers attached to said inclined bar engaging said rod thereby suspending the gate on the rod; with a rock shaft having a lever on one end and a crank arm on the other; means connected with said lever for rocking said shaft from either side of the gate; and a pitman connecting the crank arm to one end of the oscillating bar, substantially as described.

521,525. SAFETY APPARATUS FOR RAILWAY-CROSSINGS. GEORGE GIBBS, Milwaukee, Wis. Filed Dec. 13, 1893. Serial No. 493,609. (No model.)

Claim.—1. In safety apparatus for railway crossings, the combination with an electric line, of an interlocking machine controlling the operation of the safety devices of the several intersecting lines, a trolley wire or conductor having an insulated section at the approach to the crossing, and a connection between said insulated section and a source of electricity comprising a switch connected with and controlled in operation by said interlocking machine, substantially as and for the purposes set forth.



2. In safety apparatus for railway crossings, the combination with intersecting tracks of an interlocking machine controlling the operation of the safety devices of the intersecting lines, a scotch block located adjacent to one of the intersecting tracks at the approach to the crossing and connected with and controlled in operation by said interlocking machine, a trolley wire or electric conductor having an insulated section at the approach to the crossing, and a switch through which said insulated section is connected and disconnected with a source of electricity, also controlled in operation by said interlocking machine, substantially as and for the purposes set forth.

3. In safety apparatus for railway crossings, the combination with an interlocking machine controlling the operation of the safety devices of the several intersecting lines, of a scotch block located at the approach of an intersecting line to the crossing and connected with and controlled in operation by said interlocking machine, said scotch block consisting of a casing, a longitudinally sliding bar guided therein and adapted to be projected through an aperture in the upper side of said casing, and a cam lever inclosed in said casing and engaging with said bar, substantially as and for the purposes set forth.

4. In safety apparatus for railway crossings, the combination with an interlocking machine controlling the operation of the safety devices of the several intersecting lines of a scotch block located at the approach of an intersecting line connected with said interlocking machine and composed of a casing, a sliding bar guided obliquely therein and adapted to be projected through an aperture in its upper side, and a cam lever fulcrumed in said casing in engagement with said bar and provided with an abutment adapted to engage with a shoulder on said bar and receive the end thrust thereon, substantially as and for the purposes set forth.

5. In safety apparatus for railway crossings, the combination with an interlocking machine controlling the operation of the safety devices of the several intersecting lines, of a trolley wire or conductor having an insulated section at the approach to said crossing, a connection between said insulated section and a source of electricity, provided with a switch which is connected with and controlled in operation by said interlocking machine, and a scotch block located at the approach of the electric line to the crossing and connected with said interlocking machine, substantially as and for the purposes set forth.

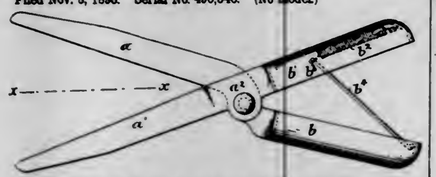
6. In safety apparatus for railway crossings, the combination with an interlocking machine controlling the operation of the safety devices of the several intersecting lines, of a trolley wire or conductor having an insulated section at the approach to said crossing, a connection with a source of electricity provided with a switch connected with said interlocking machine, a scotch block, and a signal located at or near the approach of the same line to said crossing, and each connected with said interlocking machine, substantially as and for the purposes set forth.

7. In safety apparatus for railway crossings, a scotch block consisting of a casing, a longitudinally sliding bar guided therein and adapted to be projected through an aperture in the upper side of said casing, and a cam lever fulcrumed within said casing and engaging with said bar, substantially as and for the purposes set forth.

8. In safety apparatus for railway crossings, a scotch block consisting of a casing having an aperture in its upper side guided obliquely therein, and a cam lever inclosed in said casing in engagement with said bar and provided with an abutment adapted to engage with a shoulder on said bar and receive the end thrust thereon, substantially as and for the purposes set forth.

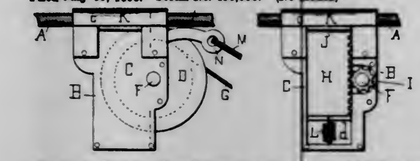
9. In safety apparatus for railway crossings, the combination with an electric line, of a trolley wire or conductor having an insulated section at the approach to the crossing terminating in advance of the crossing, and a connection with a source of electricity provided with a switch under the control of an operator, the main trolley wire or conductor extending past the crossing so as to supply current to a motor thereon when the insulated section is deprived of current, substantially as and for the purposes set forth.

521,526. SHEARS. DANIEL H. HOLLINGSWORTH, Brooklyn, N. Y. Filed Nov. 8, 1893. Serial No. 490,340. (No model.)



Claim.—A pair of shears having each of its blades provided with a hollow handle and a spring secured in the hollow of one of the handles and connecting with a bar pivoted in the hollow of the other handle, one of said blades having a perforated ear projecting from one side out of line with the cutting edge, and the other blade provided with an opening in line with the cutting edge and a pivot passed through the said openings to hold the plates assembled.

521,527. CANAL TOWAGE. JOSEPH L. MORRIS, Camden, N. J. Filed July 19, 1893. Serial No. 480,955. (No model.)

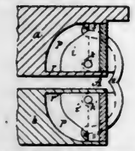


Claim.—1. In a canal and water-way towage system, the combination of a continuous-motion endless-cable arranged and operated above the surface or sides of a canal, a removable-grip suspended from and carried by the cable, a distinct and separate tow-line or connection between the grip and boat, solely for towing the boat, and a distinct and separate grip-line or connection between the grip and boat, solely for operating the grip, for the purpose shown and described.

2. In a canal and water-way towage system, the combination of a continuous-motion endless-cable arranged and operated above the surface or sides of a canal or water-way, an elevated, longitudinally slotted, cable carrying-tube, having intermediate grip-attaching stations, and a removable grip suspended from and carried by the cable, and provided with connections for towing a boat and operating said grip, for the purpose shown and described.

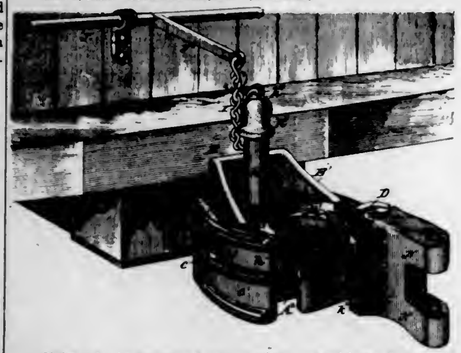
3. In a canal and water-way towage system, the combination of a continuous-motion endless-cable arranged and operated above the surface or sides of a canal or water-way, a removable-grip consisting in a fixed-jaw which embraces said cable and is suspended therefrom, and a movable-jaw having a vertical movement by means of a rack and pinion operated by a line or connection from a boat, and a tow-line between the grip and boat, for the purpose shown and described.

521,528. CONCEALED HINGE. ALFRED A. OAT, Sr., Philadelphia, Pa. Filed Feb. 24, 1892. Serial No. 422,643. (No model.)



Claim.—In a concealed hinge the combination of the two leaves *l l'* having sockets *i* and *i'* and abutments *s s'*, with the double segmental curved link *e e* having stops *m m'*, said link having one end pivoted on a fixed center in one socket and capable of rotating or oscillating segmentally therein, the other end of said link being similarly pivoted on a fixed center in the other socket and also capable of rotating or oscillating in the latter, said sockets being attached to frames and doors or lids as and for the purposes shown and described.

521,529. CAR-COUPLING. ARTHUR ROOT, Alexandria, Va. Filed Nov. 2, 1893. Serial No. 489,781. (No model.)



Claim.—1. An improved car coupling, comprising a drawhead provided with apertured ears at one side of its front face, and abutment seats adjacent to such ears in the top and bottom wall of such head, a coupling or knuckle member pivoted in such ears and having a centrally disposed projecting arm adapted to swing into the mortise, abutment shoulders at the inner end of such arm, and an automatically dropped pin, all arranged substantially as shown, whereby the said arm will engage the pin to move it to its coupled position, and the shoulders engage the abutment portions to limit the inward movement of such pin-operating arm, as and for the purpose set forth.

2. As an improvement in car couplers, the combination with the draw-head having its lower pin aperture formed with an extension, and a swinging coupling knuckle having a rearwardly extending arm, of a coupling pin having a crank or wing portion, adapted to fit in the lower aperture extension when the pin is in its lower or coupled position, and to be swung forward in the path of the knuckle arm when raised to its uncoupled position, all arranged substantially as shown and for the purpose described.

3. In a car coupling, the combination with the draw-head C having its upper and lower pin apertures formed with extensions *f'* and *g'* respectively, and a coupling knuckle pivoted at its front end, said knuckle having an inwardly extending arm, of a coupling pin having a laterally projecting crank member or wing adapted to be passed through the extensions *f'* and *g'* and to seat in the lower extension *g'* when the pin is at its coupled position, and a cam portion L formed on the bottom of the draw-head mortise, adapted to form a slide guide for the lower end of the pin wing, when such pin is elevated to its uncoupled position, whereby to give it a partial rotation forward in the path of the extending arm of the knuckle member, all arranged substantially as shown and described.

4. In a car coupling having a knuckle coupling member, having a projecting arm adapted to swing rearward into the mortise as the heads come together, of a coupling pin held for vertical movement in the drawhead, and provided with a wing portion arranged to engage the draw-head and hold the pin from turning in its apertures, and means for turning such pin automatically with its wing portion into the path of the arm on the knuckle when such pin is raised to an uncoupled position, all substantially as shown and for the purposes described.

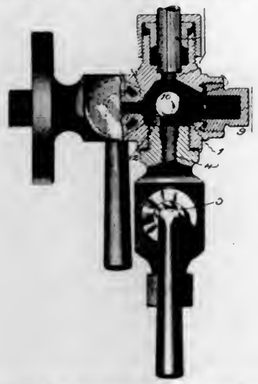
5. The combination with the draw-head C having its pin apertures F and G formed with extensions *f'* and *g'* projected in reverse directions, and a coupling pin having a main coupling member *K'*, a wing portion *h* and a guide h^3, said wing adapted to be passed through the extension *f'* and to seat in the extension *g'* when the pin is at its coupled position, the cam L, and the guard M, arranged substantially as shown, of the knuckle member K pivotally connected to the front of the draw-head and provided with an arm k^3, said wing adapted to engage the top of the draw-head and limit the upward movement of the pin as it is elevated and to swing inward toward the mouth of the draw-head by gravity as it seats on the cam L to move in the path of the knuckle K, all arranged substantially as and for the purposes shown and described.

6. The combination with the draw-head C having its top and bottom curved outward at one side to form a nose *c*, and its opposite side to form ears D, the inner ends of which terminate in abutment shoulders *d d'*, and a vertically movable coupling pin held in such draw-head, of the knuckle K having sockets to receive the ears D, projecting knuckle fingers N, a rearwardly projecting arm *k'* extended from a point between the fingers k^2 and bumper or abutment portions k^3 adapted to engage the shoulders *d d'* when the knuckle is swung inward and thereby prevent the arm *k'* being swung against the side walls of the mortise, all arranged substantially as shown and for the purpose described.

7. In a car coupler, the combination with the draw-head having its lower pin aperture formed with an extension *g'*, and a cam member L inclined upward from its outer end inward, and the swinging knuckle K, all arranged substantially as shown, of the pin H having a main coupling portion *h'*, a wing portion *h* having its lower edge beveled, said wing adapted to fit in the extension *g'* when the pin is in its coupled position, said wing adapted to limit the upward lift of the pin by contact with the top of the draw-head, and means for turning the pin with its wing onto the cam L, whereby the said pin will be turned in its pin apertures by gravity, as the beveled under portion of the wing engages such cam, all as hereinbefore set forth.

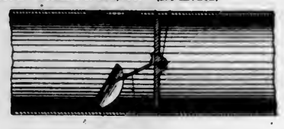
8. The combination with the draw-head C having curved sides *c*, its members A' A^2 having their pin apertures formed with reversely extending portions *f' g'*, the cam L at one side of the lower aperture and the guard M at the other side, the reinforce guide portion M' at the draft end of the lower aperture, the pin H having a wing portion *h* arranged as shown, said draw-head having abutment portions on its front face, of the knuckle K having coupling fingers N N, a pin-operating arm k^3, and contact or abutting portions k^4, all arranged substantially as shown and described.

521,530. BALL-VALVE FOR WATER-GAGES. GEORGE H. WALL, London, England. Filed Feb. 13, 1893. Serial No. 462,052. (No model.)



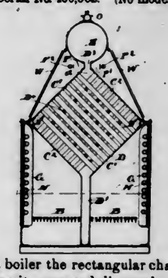
Claim.—A valve for automatically stopping a fluid passage, consisting of a spherical body with a projecting stem or handle that is unobstructed in its movement with the spherical body, substantially as described and for the purpose specified.

521,531. DAMPER. EDWARD WEBSTER, Hartford, Conn. Filed Mar. 15, 1894. Serial No. 503,799. (No model.)



Claim.—In combination with the pipe of a stove, furnace or like apparatus having a check opening through the wall beyond the damper, a damper pivoted within the pipe and carrying a supplemental damper *d* on a rigid projection from the main damper and adapted to close the opening through the wall of the pipe and means for turning the damper, all substantially as described.

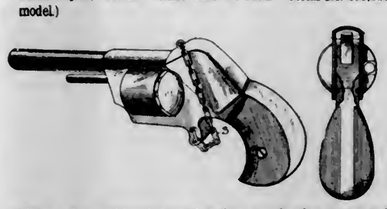
521,532. STEAM-BOILER. DENIS AHERN, New York, N. Y. Filed Sept. 26, 1893. Serial No. 486,502. (No model.)



Claim.—1. In a boiler the rectangular chamber D, and diagonal tubes C' C^3, traversing it, arranged diamond-wise, as shown, in combination with the continuous water leg D', extending downward from its lower angle, the series of pipes G, headers H and connecting pipes I, serving as water legs at the sides, with the connections D^2 to the upper angle of the chamber and separating drum E, all arranged for joint operation as herein specified.

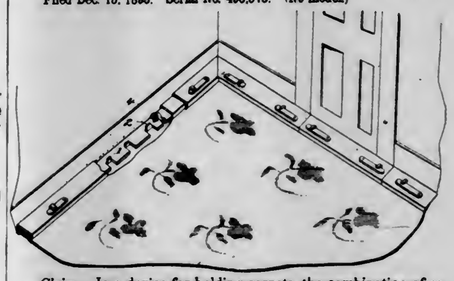
2. In a boiler, the rectangular chamber D, having diagonal tubes C', C^3, traversing it obliquely in opposite directions, the flanged lips or edges of the plates of which it is composed extended outward horizontally, and adapted to serve as supports the gussets D^2 reinforcing the joint and the panels W connected by detachable bolts to said flanged lips, all combined and arranged to serve as herein specified.

521,533. HAMMER-GUARD FOR FIREARMS. MARY L. CAMPBELL, Noyan, Canada. Filed Jan. 27, 1894. Serial No. 498,226. (No model.)



Claim.—In combination with a fire arm having recesses in the opposite sides thereof, and a hammer, of a cap adapted to be mounted over the hammer and conforming in shape to the adjacent portions of the fire arm, the lower front portion of the cap being provided with inwardly extending lugs or projections adapted to engage the recesses in the sides of the fire arm, and a chain attached to the said cap and to the fire arm, substantially as and for the purposes specified.

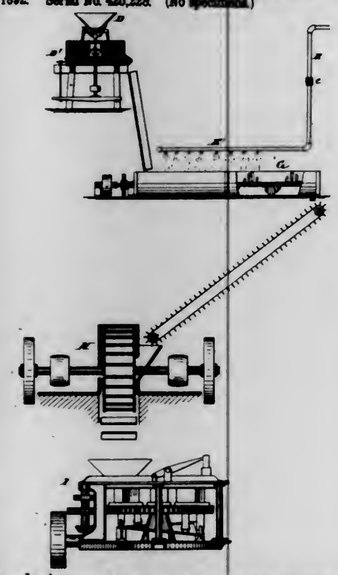
521,534. CARPET-FASTENER. PASCO CROVICH, Seattle, Wash. Filed Dec. 13, 1893. Serial No. 493,575. (No model.)



Claim.—In a device for holding carpets, the combination of securing plates, having upwardly projecting spurs and slots in their outer edges, eyes extending through said slots, pivoted hooks on the said securing plates, removably engaging said eyes, head lugs extend-

ing upwardly from opposite ends of said securing plates, covering plates fitted over said securing plates and the carpet engaging the same provided with slots through which said head lugs extend, and latches pivoted on the said securing plates and removably engaging said head lugs, substantially as described.

521,535. MANUFACTURE OF BRICKS. CHARLES B. COXE, Brooklyn, N. Y., assignor to Edward B. Esterbrook, same place. Filed Mar. 17, 1892. Serial No. 425,228. (No specimens.)



Claim.—In the manufacture of bricks, the method described of treating slate, consisting of first heating to a temperature of from 150° to 200° Fahrenheit, grinding, slightly dampening, molding and compressing all in the heated condition and subsequently drying and burning, all substantially as herein specified.

521,536. ROW-BOAT. MICHAEL F. DAVIS, Portland, Me. Filed June 23, 1890. Renewed Sept. 4, 1893. Serial No. 484,796. (No model.)



Claim.—1. In the manufacture of row boats, a wooden skin lined on the inside only with fabric or light material, in the manner and for the purposes set forth

2. In a row boat, the combination of a wooden skin lined, as described, with stiffening pieces covered as set forth and each secured by means of its said cover to the inside face of the skin.

3. In a row boat, the body or skin A lined internally at B with suitable material and combined with the strip C, covered with the material D, and secured to the inside face of the boat by the margins of said covering, all as set forth.

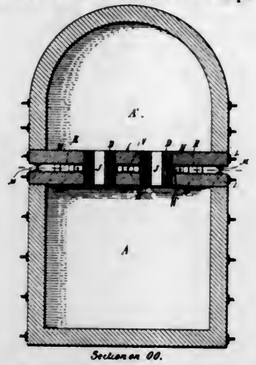
4. In a row boat, the skin A lined on the inner face as set forth, and having between it and the keelson several layers of the lining, substantially as and for the purpose set forth.

5. In combination with the wooden skin of the boat, the covered strengthening strips C, secured by cement, or otherwise, to and upon the inside of said skin by means of the free ends of the cover.

521,537. GLASS-MELTING FURNACE. EDWARD H. EVERETT and ALEXANDER SAMUELSON, Newark, Ohio. Filed Mar. 6, 1893. Serial No. 464,763. (No model.)

Claim.—1. A tank for glass melting furnaces having a bridge section between the melting chamber and the working-out chamber, composed of two walls severally supported on the separate unconnected hearths of said chambers and separated from each other by an air chamber, and provided with passages between the melting chamber and the working-out chamber formed by a block or blocks extending through the bridge walls and across the air space; substantially as and for the purposes described.

2. A tank for glass melting furnaces having a bridge anchored to the bottom structure of the furnace by means of suitable anchor plates and tie-rods; substantially as and for the purposes described.



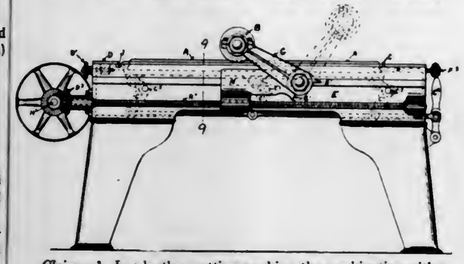
Section on 00.

3. The combination of the bridge of a glass melting furnace, with the air chamber K, passages J, anchor plate U and rods V, secured to the bottom structure of the furnace; substantially as and for the purposes described.

4. A tank for glass melting furnaces provided with a bridge composed of an independent section secured by its own buck-staves and tie-rods, independent of the other parts of the structure; substantially as and for the purposes described.

5. In a tank for glass melting furnaces, a bridge composed of two walls, severally supported on the separate unconnected hearths of the melting and working-out chambers and having an intermediate air chamber extending up from the cave of the furnace and opening at the sides, with passages extending from the melting chamber to the working-out chamber through the bridge walls and across the intermediate air chamber, so that the air therein shall have access to the external sides of said walls and passages; substantially as and for the purposes described.

521,538. LEATHER-CUTTING MACHINE. PHILIP GOLDSTEIN, Newark, N. J. Filed Mar. 28, 1893. Serial No. 467,939. (No model.)



Claim.—1. In a leather cutting machine, the combination with a cutting roller composed of a series of disks clamped upon a common shaft and having interspaces between their edges forming annular grooves on the surface of said roller, of a knife bed composed of a series of parallel knives arranged longitudinally of said bed and spaced to coincide with the grooves of said roller, and means for moving said roller over said knife bed longitudinally.

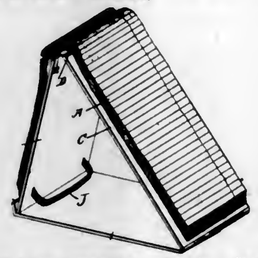
2. In a leather cutting machine, the combination with a cutting roller having a series of annular grooves, of a knife-bed upon which said roller acts, said knife-bed being composed of a series of sets of longitudinal knives, spaced to coincide with the grooves of said roller, each set of knives being held by a suitable holder that is movable independently of the other holders, whereby the set of knives held by it can be brought into or removed from action

3. In a leather cutting machine, the combination with a cutting roller having a series of annular grooves, of a knife-bed upon which said roller acts, a series of parallel contiguous knife-holders that hold one or more of the knives comprising the knife-bed, said holders being movable vertically so as to bring its contained knife or knives into action or out of action, and means for clamping said knife-holders together so as to hold them against movement when being acted upon by said roller.

4. In a leather cutting machine, the combination with the knife holders, C, containing knives, A, with separating strips, A', of means, substantially as shown, for clamping the said knife holders together.

5. In a leather cutting machine, the combination with a knife bed formed of parallel longitudinal knives, of cutting roller, B, mounted on the tilting arms, G, which are pivoted to slide-blocks, H, the screws, H', on the sides of the machine which engage said slide-blocks, and means for operating said screws.

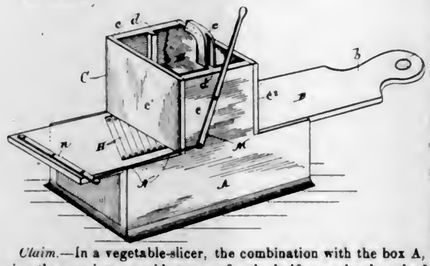
521,539. BOOK-COVER. HARVEY K. GREBLE, Hamilton, Ohio, assignor of one-half to Harry G. Wallace, same place. Filed Feb. 17, 1894. Serial No. 500,457. (No model.)



Claim.—1. In a book cover, the combination, of a front cover and a back cover united together at one edge by a flexible joint or hinge having a width between the inner faces of the covers of not less than the thickness of the book, a third cover hinged to the edge at the free end of the back cover and adapted to lie against the outer surface of the back cover, and have its free end project beyond the hinge uniting the front and back covers and a rigid ledge projecting from the inner surface of the third cover at the free end thereof, substantially as and for the purpose set forth.

2. The combination, of a book having a joint permitting the book to open reflexly, a stiff front cover and back cover upon the book and united together by a flexible joint or hinge to the book at the joint thereof, and a third cover jointed or hinged to the free end of said back cover and lying against the outer surface of said back cover and having a rigid ledge projecting from its inner surface at its free end outwardly beyond the joint between the front and the back cover, substantially as and for the purpose set forth.

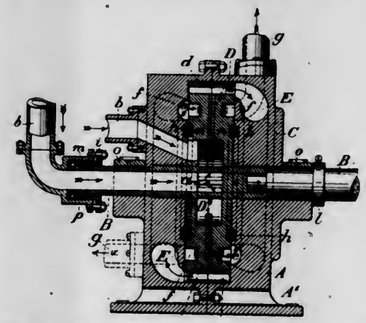
521,540. VEGETABLE-SLICER. NARCISSE HENEAULT and THERESIA HENEAULT, Chicago, Ill. Filed Feb. 19, 1894. Serial No. 500,703. (No model.)



Claim.—In a vegetable-slicer, the combination with the box A, having the mortises or guide-way *a*, for the knife-carrying board, of the hopper C, having the guide-cleats *d*, and beveled portions c^3, the feed-plunger E, having the handle *e*, and the grooves e', and adapted to operate within the hopper, the board B, having the opening b^2, and adapted to operate between the hopper and box A, and a series of knives secured to said board and obliquely and angularly across the opening therein, all constructed, arranged and operating, substantially as and for the purpose set forth.

521,541. ROTARY ENGINE. HENRY P. HOLLAND, San Francisco, Cal. Filed Sept. 1, 1893. Serial No. 484,570. (No model.)

Claim.—1. A double expansion rotary engine, consisting of the hollow shaft, B, the bed piece, A, resting on bed piece, A', in which said shaft is mounted, the same being in two halves, each containing a steam or power chamber, and forming a casing, when joined together at the outer circumference inclosing the rotating cylinder and receiver; the steam chest or receiver, D, surrounding said shaft, into which the steam discharges from the hollow shaft; the port inlets, *a*, in the hollow shaft through which steam or power is discharged into the receiver; the cylinder, C, surrounding said receiver, which with the receiver revolves with the shaft inclosed in said casing; the conduits, *c c*, for the passage of steam or other power employed in operating said engine, extending from the receiver to the power chambers in the casing; the power chambers, E E, one in each half of the casing into which the steam or other power discharges from the conduits and expands; the pockets, *d d*, on the inside circumference of the casing against which the steam or other power acts as it discharges from the conduits into the chambers, said chambers being open from the top to the bottom next to the cylinder, half way round on opposite sides, to receive the steam or other power as it forces itself into and against the pockets from the conduit discharges as the cylinder revolves; the port inlets, *e e*, for the passage of the steam or power from the chambers into the revolving cylinder; the buckets, *f f*, on the inside of said cylinder against which the steam or other power pushes and acts upon them by its expansion, as it comes through the port entrance from the chambers into the cylinder, filling the same; the exhaust ports, *g g*, through which the steam or other power discharges from the cylinder; the collars, *l l*, on the end of the shaft; the packing rings, *n n*, on the cylinder; the boxes, *o o*, about the shaft; and the sleeve, *p*, substantially as herein described and set forth.



2. In a double expansion rotary engine the combination of the hollow shaft B., having port inlets *a. a.* with the steam chest or receiver D. and cylinder C., the casing or bed piece A. having chambers E. E. containing pockets *d. d.* into and against which the steam or power employed forces itself as it comes from the receiver through the conduits *c. c.*, the ports *e. e.* opening for the passage of steam or other power from the chambers into the cylinder, the buckets *f. f.* exhaust ports *g. g.*, substantially as herein described and set forth.

3. In a double expansion rotary engine the combination of the steam chest or receiver D. cylinder C. and shaft B. having port inlets *a a* and *b b* for the admission of steam or other power into the receiver through the side of the casing, by which the rotating cylinder and receiver are propelled, with the outside casing in two halves A. A. joined together at the top and bottom forming with A' the bed piece in which the shaft carrying the steam chest or receiver, and the cylinder are mounted; the conduits *c. c.*, chambers E. E., pockets *d. d.*, ports *e. e.* and buckets *f. f.*, and the exhaust ports *g. g.*, substantially as herein described and set forth.

4. In a double expansion rotary engine the combination of the port inlets *a. a.* in the hollow shaft B. and the port inlets *b. b.* on the side of the casing extending through into the receiver, with the steam chest or receiver D. on shaft B., the conduits *c. c.*, casing A. in two halves united and forming in one with A' the bed piece in which said shaft is mounted; the chambers, E. E., pockets *d. d.*, ports *e. e.*, cylinder C., buckets *f. f.*, and the exhaust ports *g. g.* substantially as herein described and set forth.

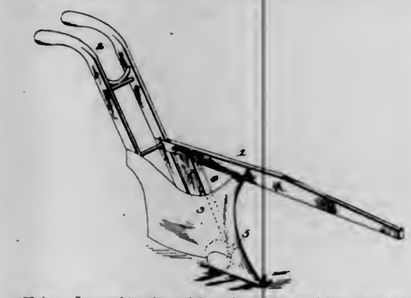
5. In a double expansion rotary engine the combination of the conduits *c. c.* extending from the steam chest or receiver to the outside casing A. with shaft B., port inlets *a a* and *b b* steam chest or receiver D. chambers E. E., pockets *d. d.*, ports *e. e.*, cylinder C. buckets *f. f.*, and the exhaust ports *g. g.*, substantially as herein described and set forth.

6. In a double expansion rotary engine the combination of the outside casing A. in two halves, which united together at the outer circumference form with A' the bed-piece in which the shaft B. carrying the steam chest or receiver D. is mounted, with the chambers E. E., pockets *d. d.*, ports *e. e.*, cylinder C., buckets *f. f.*, steam chest or receiver D., shaft B., port inlets *a. a.* and *b. b.*, conduits *c. c.* and the exhaust ports *g. g.*, substantially as herein described and set forth.

7. In a double expansion rotary engine, the combination of the cylinder C., attached to shaft B., mounted in bed piece A, and A'. with port inlets *a a* and *b b* re-

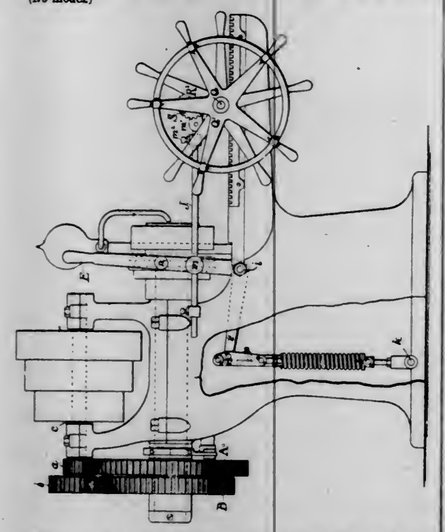
ceiver D., conduits *c. c*, chambers E. E., pockets *d. d.*, ports *e. e.* buckets *f. f.* and exhaust ports *g. g.*, substantially as herein described and set forth.

521,542. SEED-SOWING ATTACHMENT FOR PLOWS. GEORGE W. JOHNSON, Floresville, Tex. Filed Sept. 22, 1893. Serial No. 486,193. (No model.)



Claim.—In combination with a plow, of a seed box attached to the beam in rear of the plow point, a bearing and operating wheel having a spindle or axle extending through the lower portion of the said seed box, a feeding roller mounted in said box and on the said spindle or axle of the operating wheel, and sliding boards within the box, to direct the seed to the feeding roller and prevent lateral escape of the seed, substantially as described.

521,543. SCREW-CUTTING MACHINE. DEXTER J. JONES and WILLIAM L. CLOUSE, Tiffin, Ohio. Filed Jan. 18, 1893. Serial No. 458,856. (No model.)



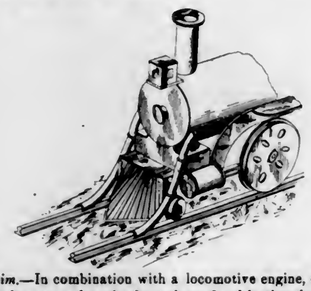
Claim.—1. In a screw-cutting machine an opening mechanism having a lever E pivoted to the body of the machine and connected with the head by means of a swivel block at *n*, engaging in a grooved ring operating conjointly with the rod J and stop *m'*, in combination with the straps G, G', rod F, spiral spring I and frame *j* to which said lever E is pivoted, the lower terminal of the rod F pivoted to the bed plate of the machine, substantially as and for the purpose set forth.

2. In a screw cutting machine, the cyliaders M, M arranged in cavities in the shipper-collar, said cavities in open connection with the recesses in the barrel, the spiral-springs *r, r* and adjusting screws *q, q*, in combination with said barrel having two annular bearings and a key-way, the set-screw *x*, the shouldered spindle T and the key T', in the manner substantially as and for the purpose set forth.

3. In a screw-cutting machine, the head constructed with a stop-motion device consisting of the cylinders M, M, arranged in cavities in the shipper-collar said cavities being in open connection with the recesses in the barrel, operating conjointly with the spiral springs *r, r* and adjusting screws *q, q*, substantially as and for the purpose set forth.

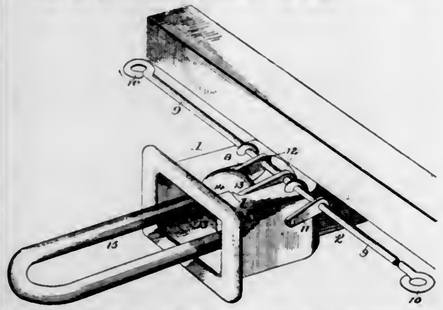
4. In a screw-cutting machine, the automatic opening device consisting of the straps G, G', rod F, spiral spring I and frame *j*, in combination with any suitable means for operating the same for the purpose set forth.

521,544. SNOW-CLEANING ATTACHMENT FOR LOCOMOTIVE-ENGINES. MARION F. MAUDEN, Glasgow, Mo. Filed Oct. 10, 1893. Serial No. 487,750. (No model.)



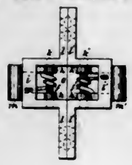
Claim.—In combination with a locomotive engine, of a pair of curved tubes secured to the front thereof and having their lower engaging ends slotted and adapted to embrace the upper, opposite sides of each track rail and their upper ends deflected outwardly, substantially as and for the purposes specified.

521,545. CAR-COUPLING. WILLIAM C. NELSON, Santa Rosa, Cal. Filed Feb. 23, 1894. Serial No. 501,218. (No model.)



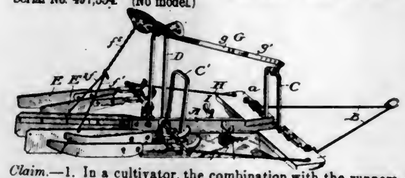
Claim.—In a car coupling, the combination of a draw-head having slots in the upper and lower portions thereof, the upper slot having opposite side flanges and a forwardly extending recess, a rotatable cross rod at the rear of the upper portion of the draw-head projecting outwardly therefrom and having operating means in connection therewith, a pair of parallel arms secured to the said rod and located over the opposite side flanges and in the upper slot, a dog pivoted between the said arms and provided with upper front shoulder to extend over the upper front portion of the draw-head in advance of the upper slot, the lower portion of the said dog being widened, and a gravitating link holder consisting of a link bar extending through the draw bar and having a pivotal connection at its rear end and an upwardly extending bend at the front end provided with divergent arms arranged at an oblique angle to a horizontal plane, the under side of the same conforming to the shape of one end of a link, substantially as and for the purposes specified.

521,546. SELF-CLOSING CONCEALED HINGE. ALFRED A. OAT, Sr., Philadelphia, Pa. Filed Feb. 21, 1894. Serial No. 500,972. (No model.)



Claim.—In a concealed hinge the combination of two leaves each having a socket, of a double segmental curved link pivoted therein at their respective centers, with springs attached to each half of said link, the other ends of said springs being each attached to its respective socket and leaf as and for the purposes shown and described.

521,547. LISTER-CULTIVATOR. STALEY D. POOLE, Moline, Ill., assignor to the Deere & Company, same place. Filed Jan. 20, 1894. Serial No. 497,554. (No model.)



Claim.—1. In a cultivator, the combination with the runners, of the arched bar connecting the forward portions thereof, and the arched seat-supporting bar connecting their rear portions and carrying a seat thereon, together with the cultivating blades secured to the lateral arms of said seat-supporting arch, so that their rear ends may be elevated or depressed when said bar is rocked in its bearings by the weight of the driver while on the seat, substantially as described.

2. In a cultivator, the combination with the runners, of the arched bar connecting the forward portions thereof, and the arched seat-supporting bar connecting their rear portions, together with the cultivating blades secured to the lateral arms of said seat-supporting arch, so that their rear ends may be elevated or depressed when said bar is rocked in its bearings, and a jointed rod or bar connecting the front and rear arches, substantially as described.

3. A cultivator comprising the runners having the shields hinged thereto, the arched seat-supporting bar mounted thereon, the blades projecting rearwardly from the horizontal arms of said bar, the flexible connection between said arched bar and shields, the arch connecting the forward portions of said runners, and the jointed bar connecting said arches, substantially as described.

4. In combination with the runners having the shields hinged to the rear ends thereof, the arched seat-supporting bar journaled in bearings mounted on said runners and having the spring-blades secured to the lateral arms thereof, a flexible connection between said shields and said seat-supporting arch, an arched bar connecting the front portions of said runners, and a bar extending between and pivotally connecting the two arches and provided with a rule joint, whereby the blades may be held to their work or elevated by the weight of the driver when thrown forward in his seat, substantially as described.

5. A cultivator comprising the runners provided with laterally extending wings or leveling boards having the draft devices secured thereto, the arched bar connecting said wings, the arched seat-supporting rocking bar connecting the rear portions of the runners and provided with rearwardly projecting blades adapted to be elevated or depressed when said bar is rocked, and the rule-jointed bar extending between the arches and pivotally connected thereto, substantially as described.

6. In combination with the runners, and the arches connecting the same; one of said arches being journaled upon said runners and having a seat mounted thereon, a jointed rod or bar pivotally connecting said arches and adapted to flex when lifted, and the rearwardly projecting blades secured to said seat-supporting bar, substantially as described.

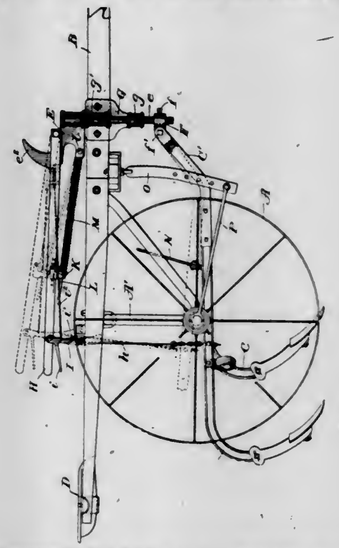
7. In combination with the runners and the arched seat-supporting bar journaled thereon, the rearwardly projecting cultivating blades secured to the rocking arms of said bar, and means for normally locking the seat in its rearward position against forward movement, but adapted to permit such movement when desired, substantially as described.

521,548. WHEEL-CULTIVATOR. STALEY D. POOLE, Moline, Ill., assignor to the Deere & Company, same place. Filed Jan. 20, 1894. Serial No. 497,555. (No model.)

Claim.—1. In a wheeled cultivator, the combination with the hinged plow beams, of the operating lever connected thereto, the swinging locking plate to which said lever is pivoted, means for locking said lever, and a spring acting through said lever to assist in raising the plows when the lever is unlocked, substantially as described.

2. In combination with the plow beams, the lifting lever and detent carried thereby; the locking plate having the notch therein adapted to be engaged by said detent, and the dog adapted to release said detent and sustain said lever in an elevated position when the latter is raised, substantially as described.

3. In combination with the plow beams and the lifting lever, the power-storing spring bearing upon the lever and adapted to assist in raising the beams when the lever is unlocked, the swinging locking plate to which said lever is pivoted, the detent, and the dog for actuating said detent so as to release the lifting lever, substantially as described.



4. In combination with the hinged plow beams and the pivoted lever for raising said beams, the swinging locking plate having the journal pin to which said beams are hinged, means for locking and releasing said lever, and a spring extending between the lever and locking plate and tending normally to raise the lever, substantially as described.

5. In a wheeled cultivator, the hanger consisting of a broad flat plate or casting adapted to be secured to the tongue or frame and having a socket upon the front face thereof and a narrow pendent portion with a similar socket; said sockets being formed integrally with the plate and adapted to receive the journal pin to which the plow beams are hinged, substantially as described.

6. In a wheeled cultivator, the swinging locking plate adapted for the pivotal attachment of the lifting lever and formed integrally with a journal pin to which the cultivator beams are secured, the said plate being arranged at the end of the pin opposite the point of attachment of the beams, substantially as described.

7. In combination with the hanger having the sockets formed integrally therewith, the swinging locking plate provided with a pendent pin or rod journaled in said sockets; said hanger and plate being adapted for the pivotal attachment of the plow beams and lifting lever, respectively, so as to permit the latter to swing laterally in unison with each other, substantially as described.

8. In combination with the hanger removably secured to the machine frame, the journal pin detachably fitted in sockets on said hanger and the beams secured to said pin: the latter having a notched locking plate formed integrally therewith for the pivotal attachment of the lifting lever, substantially as described.

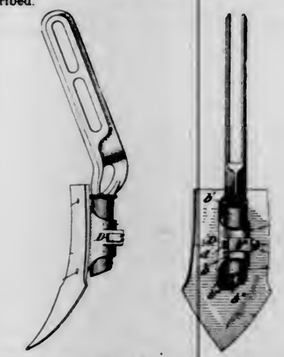
9. A wheeled cultivator comprising the wheeled frame, the hanger depending from said frame, the pins or rods journaled in bearings carried by said hangers, the plow beams hinged to said pins, the swinging locking plates mounted on said pins, the levers pivoted to said locking plates, the springs acting on said levers and tending normally to raise said beams, and means for locking and releasing the levers, substantially as described.

521,549. DEVICE FOR ATTACHING CULTIVATOR-SHOVELS. STALEY D. POOLE, Moline, Ill., assignor to the Deere & Company, same place. Filed Feb. 19, 1894. Serial No. 500,785. (No model.)

Claim.—1. The combination with the shank, of the vertically adjustable and rotatable shovel block provided with a tubular socket to receive the shank, and a removable bolt fitting an opening through the block and having an abutting wedge-shaped head for securing the parts together, substantially as described.

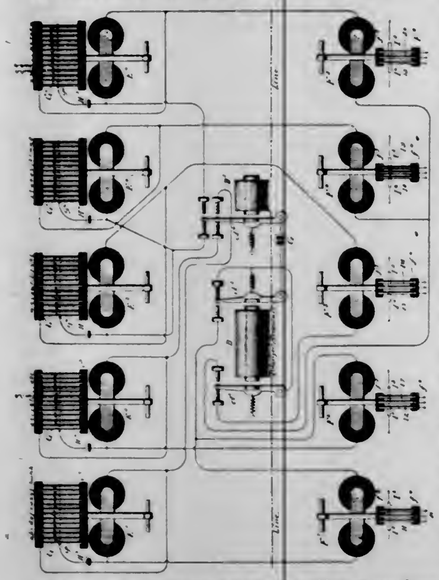
2. The combination with the cylindrical shank, of the shovel and the shovel block secured to the shovel and having a tubular portion

to receive the shank and an aperture intersecting the opening through the block so as to receive a clamping bolt, and a wedge-shaped bolt fitting said aperture and serving to bind the parts together, substantially as described.



3. The combination with the shank of a cultivator beam, of a shovel block consisting of a tubular portion to receive the shank and a horizontal off-set with opening therethrough, together with a wedge-bolt seated in said off-set and adapted to clasp the shank against the wall of the socket, substantially as described.

521,550. PRINTING-TELEGRAPH. EDWIN POPE, Quebec, Canada. Filed June 20, 1890. Serial No. 356,117. (No model.)



Claim.—1. The combination of a magnet and its armature lever, of a link attached to the inner end of the lever, the said link having a pair of catches or pins which are located beneath a pair of printing levers and the said link being operatively connected with an adjustable ring or arm, the relation of the parts being such that the pin or catches on the link can alternately but not both at once come into operative connection with the printing levers; substantially as described.

2. The combination with a series of pairs of printing levers and a series of catches under the same, the said catches being formed on or attached to a series of links secured to armature levers, of a ring with which the said links are operatively connected, and a pair of electro-magnets for shifting the position of the said ring; substantially as described.

3. The combination with a series of printing magnets provided with armature levers p^5, links p^8, and pins or catches p^9, of a series of pairs of printing-levers r^4 and r^5, and a ring t^6 with which the said links are operatively connected, the said ring having attached to it the armatures t^8 and t^9 of the magnets S, S'; substantially as described.

4. The combination with a type lever and means for operating it, of a magnet whose core is located in the path of the said lever and serves as an anvil for the stroke of the same as well as to aid in its operation; substantially as described.

5. The combination with a type lever and means for operating it, of a magnet whose core is located in the path thereof and serves as an anvil for the stroke of the same, and whose poles are arranged in proximity thereto so as to aid in its operation; substantially as described.

6. The combination with a magnet whose core serves as an anvil for the stroke of a printing lever, of a casing having slots through which the usual printing and paper rolls pass; substantially as described.

7. The combination with a magnet whose core serves as an anvil for the stroke of a printing lever, of a casing having slots through which the usual printing and paper rolls pass, the casing forming one of the poles of the said magnet and being placed near the path of the said lever so as to aid in its operation; substantially as described.

8. The combination with a single main circuit with means for producing therein permutation of single and successive currents, of two or more relays located in said circuit and adapted to respond to said changes in the electrical conditions of said circuit, a series of local electro-magnets E', &c. F', &c., the circuits of which are controlled by relays in groups of two, means actuated by the energizing of any pair for keeping the circuit of one of them closed after a change in the condition of the main circuit, and a series of receiving magnets D^6, whose circuits are controlled by the local magnets; substantially as described

9. The combination with a series of receiving magnets, each of whose circuits is open at three or more points and a series of groups of three magnets E', E^2, I and F', F^2, I &c. adapted when operated to close the circuit of the receiving magnets at all points, of two or more relays adapted to respond to different conditions of a single main circuit with means for producing successive changes in single currents along said main line, the said relays serving by the position of their armatures to control the said magnets in groups of two for keeping the circuit of one of them closed after a change in the condition of the main circuit whereby by single and successive changes in the main line the circuit of any receiving magnet as D^6 may be completed; substantially as described.

10. The combination with a type lever, of an electro-magnet having its core in the path of the type on said lever so as to serve as an anvil therefor, and a movable strip adapted to pass over the said core and receive the said impressions of the type; substantially as described.

11. The combination with the single main line, the series of local magnets E', E^2, &c., the corresponding series F', F^2, &c., a relay in the main line controlling two magnets at a time, one in each of the series, a retaining circuit for each magnet E, a printing circuit controlled jointly by said two magnets, and a magnet as I in the printing circuit controlling said retaining circuit; substantially as described.

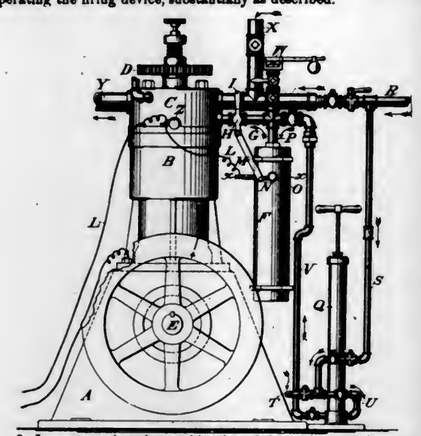
12. The combination with a series of magnets E', E^2, &c., of the corresponding series F', F^2, &c., a relay controlling two magnets at a time, one magnet from each series, a retaining circuit for each magnet E, a printing magnet D^6, a local circuit therefor, and three circuit closers in said circuit controlled by the said two magnets jointly with a third magnet from series E; substantially as described.

13. The combination with the series of magnets E', E^2, &c., of the corresponding series F', F^2, &c., a relay adapted to act in a distinctive manner under each electrical condition of the main line, means for transmitting along said main line a series of successive single impulses, said relay controlling with each action the circuit of two magnets, one from each of the two series, a printing magnet, a local circuit therefor, and two or more circuit closers therein controlled by the combined action of the magnets in the two series; substantially as described.

521,551. APPARATUS FOR STARTING GAS-ENGINES. JOHN W. RAYMOND, San Francisco, Cal. Filed Apr. 10, 1893. Serial No. 469,772. (No model.)

Claim.—1. In a gas engine, the combination of the engine cylinder or combustion chamber thereof, the supplementary chamber or receiver charged with explosive gas or vapor under pressure, a connecting passage between the cylinder and the receiver, having a cock therein, a firing device within the receiver and mechanism for simultaneously opening the cock and operating the firing device so as to start the engine independent of its regular source of supply, substantially as specified.

2. In a gas engine, the combination of the engine cylinder or combustion chamber thereof, a supplementary chamber or receiver charged with explosive gas or vapor under pressure, a connecting pipe between the cylinder and receiver having a cock therein, a compressing pump or other source of supply connected to the receiver so that it may be filled and prepared between the intervals of starting the engine, and the firing device within the receiver, together with mechanism for simultaneously opening the discharge cock and operating the firing device, substantially as described.

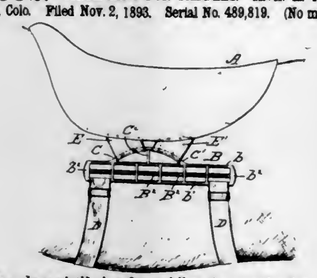


3. In a gas engine, the combination of the engine cylinder or the combustion chamber thereof, a supplementary chamber or receiver charged with explosive gas or vapor under pressure, a connecting passage between the cylinder and the receiver having a discharge cock therein, a compressing pump or other source of supply having a pipe leading to the receiver and another pipe leading to the engine cylinder, said pump being operated so as to fill the receiver and prepare it between the intervals of starting the engine, a firing device within the receiver and leverage mechanism connected to the discharge cock and to the firing device so as to operate them both simultaneously, substantially as described.

4. In a gas engine, the combination of the engine cylinder or combustion chamber thereof, a supplementary chamber or receiver charged with explosive gas or vapor under pressure, a discharge cock between the receiver and the cylinder, a firing device within the receiver and leverage mechanism connecting the discharge cock and the firing device so that both may be operated simultaneously by a single movement, substantially as described.

5. In a gas engine, the combination of the combustion chamber, a supplementary chamber charged with explosive gas or vapor under pressure, a discharge cock between the two chambers, a firing device within the receiver, consisting of two electrodes and an operating handle connected to the discharge cock and to one of the electrodes so that the operation thereof will open the cock and break the electric circuit so as to fire the charge in the receiver, substantially as described.

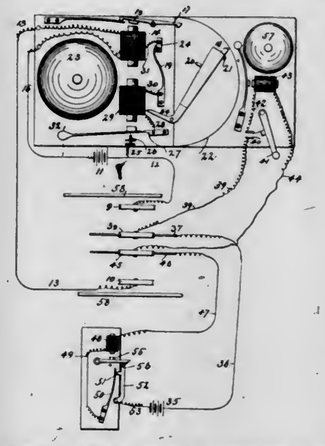
521,552. GIRTH-RING FOR SADDLES. IRVIN H. REED, Leadville, Colo. Filed Nov. 2, 1893. Serial No. 489,819. (No model.)



Claim.—In a girth ring for saddles, the combination of a ring consisting of an elongated frame having parallel side bars and end bars, a central longitudinal bar, suspending loops C C having oppositely inclined sides and arranged at one side of the longitudinal center of the upper side bar of the ring, and the attaching straps E and E' on the inclined portions of the loops, substantially as described.

521,553. ELECTRIC RAILWAY-SIGNAL. BARNEY SAMUELS, St. Joseph, Mo. Filed July 26, 1893. Serial No. 481,562. (No model.)

Claim.—1. In a train signaling mechanism, the combination of an audible and a visual signal carried by the train, electro-magnets for releasing and actuating the signals, circuit closing devices for causing the current to pass through the releasing magnet, and independent circuit closing devices to cause the current to pass through the magnet for operating the audible signal, substantially as set forth



2. In a train signaling mechanism, the combination of an audible and a visual signal carried by the train, a releasing magnet to liberate the visual signal whereby the audible signal is sounded, a second magnet for operating the audible signal, independent circuit closing devices for the two sets of magnets, and independent sets of contact rails on the track bed for successively closing the respective circuits through the said magnets, substantially as specified.

3. In a train signaling mechanism, the combination of an audible and a visual signal carried by the train, independent magnets for actuating the signals, an automatic circuit closing device normally held open by the visual signal for closing the circuit through the magnet for operating the audible signal, and independent circuit closing devices for effecting communication between the train and the switch and station, substantially as described.

4. In a train signaling mechanism, a signal on the train, short rails to close the circuit and actuate the said signal, an order signal circuit closed by the alarm signal, a second set of short rails to establish the circuit between the train and the station, and a circuit closer under the control of the operator at the station to transmit orders to the engineer, substantially as set forth.

5. In a train signaling mechanism, the combination of an audible signal, a magnet for operating the audible signal, plate 24, spring 19, visual signal 18 for actuating the audible signal and normally holding the spring 18 out of electrical connection with the plate 24, catch 17, release magnet 14, and circuit closing devices, substantially as described, for sending the current through the said magnets, substantially as specified.

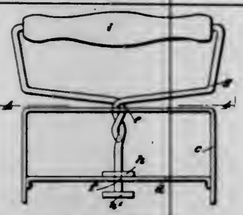
6. In a train signaling mechanism, the combination with a signal carried by the train, and circuit closing devices between the train and the station, of drop arm 52, spring 50, magnet 48 and catch 55, 56, substantially as described for the purpose specified.

7. In a train signaling mechanism, the combination of visual signal 18, an audible signal operated when the visual signal is exposed, catch 17, release magnet 14, a second magnet for sounding the alarm, contacts 9, 10 and 38, 45, short rails 6, 7 and 37, 46, conductors 4 and 5, circuit closing devices operated by the switch-operating mechanism, circuit closer 67 at the station, drop arm 52, spring 50, catch 55, 56 and magnet 48, whereby a visual and audible signal will be simultaneously actuated on the moving train, a visual signal at the station exposed, and the train put in electrical connection with the station to receive orders, substantially as set forth.

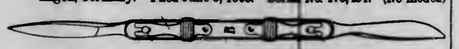
521,554. FRAME FOR CARRYING CANS OR OTHER VESSELS. PAUL SCHOLTEN, Wattenscheid, Germany. Filed Feb. 9, 1894. Serial No. 499,599. (No model.)

Claim.—A carrying device comprising a frame for attachment to the articles to be carried, and a handle having a screw-like stem engaging a corresponding opening in the said frame and movable there through to a limited extent, substantially as and for the purpose described.

521,554.



521,555. SURGICAL INSTRUMENT, WILHELM SCHERRER, Tuttlingen, Germany. Filed June 3, 1893. Serial No. 476,451. (No model.)

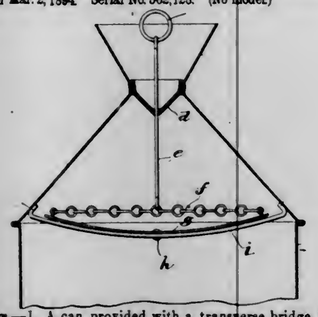


Claim.—1. In bistouries and similar instruments, the combination, with a blade having a tang provided with beveled edges, of a haft consisting of two scales flanged at their ends, the flanges being beveled and overlapping the beveled edges of the tang, and means for locking the two scales together, substantially as set forth.

2. In bistouries and similar instruments, a haft consisting of a scale provided with a pivot-pin, a second scale provided with a perforation adapted to receive the pivot-pin, in combination with a locking slide movable on the second scale and adapted to engage the pivot-pin, substantially as set forth.

3. In a bistoury or similar instrument, the combination, with a blade, two haft-scales provided with flanges or lips to hold the knife in position, and a pivot-pin extending from one haft-scale, of a locking slide on the latter adapted to engage the pivot-pin, and provided with a spring-tongue adapted to bear on the haft scale, substantially as set forth.

521,556. SELF-CLOSING CAN. ISAAC SEXTON, Somerville, Mass. Filed Mar. 2, 1894. Serial No. 502,128. (No model.)



Claim.—1. A can provided with a transverse bridge having a centrally attached spring the ends of which are free to rise, combined with a stopper and connections substantially as described between said stopper and the ends of the spring the said bridge forming a rest or stop for the ends of the spring when in their normal position.

2. The combination of the can having the rigid bridge *i*, the spring centrally attached to said bridge and having its ends free to rise therefrom, the chain or flexible connection *f* secured to the ends of the spring, the stopper *d*, and the rigid rod *e* secured to the center of the chain and to the stopper, as set forth.

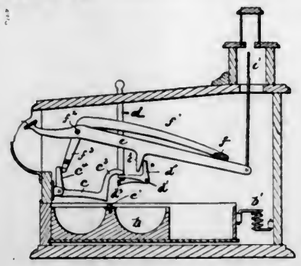
521,557. STOVE-LID LIFTER. AMOS SHEPARD, Plantsville, assignor to the Peck, Stow & Wilcox Company, Southington, Conn. Filed Apr. 21, 1894. Serial No. 508,471. (No model.)



Claim.—1. The herein described implement socket and handle, consisting of the side pieces, upper and lower half sockets and the central cross bar, and a slotted handle with its end confined in said socket and its cross bar within the slot of the handle, substantially as described and for the purpose specified.

2. The herein described implement socket and handle consisting of the socket having the upper and lower connected half sockets, and the cross bar 7 provided upon one side with the web 10, and the slotted handle secured within said socket, substantially as described and for the purpose specified.

521,558. CASH-REGISTER. RALPH P. THOMPSON, Springfield, assignor to C. W. Price, Greenfield, Ohio. Filed Mar. 18, 1893. Serial No. 466,602. (Model.)



Claim.—1. In a cash register, a normally locked cash receptacle, a series of operating keys, means for unlocking said receptacle independent of the operation of said keys, and means for preventing the relocking of said cash receptacle until one or more of said keys have been operated, substantially as specified.

2. In a cash register, a normally closed cash drawer or receptacle and operating keys, controlling devices by the operation of which the opening of said drawer or receptacle is effected, and mechanism connected to said keys to prevent the return of said drawer or receptacle to its normal condition until a key has been operated, substantially as specified.

3. In a cash register, a cash receptacle, a series of operating keys, and mechanism the operation of which effects the opening of said receptacle, a retaining device released by the operation of said mechanism and when so released prevents the locking of said cash receptacle in its closed position until said retaining device has been acted upon by the operation of a key, substantially as specified.

4. In a cash register, the combination with the registering keys and the cash drawer or receptacle, as described, an intermediate engaging device adapted to be released by the unlocking of said drawer or receptacle so as to contact with the locking mechanism and prevent the re-locking of said drawer or receptacle, said engaging device being connected with said keys so as to be returned to its normal position by the depression of a key, substantially as specified.

5. In a cash register, the combination with the cash drawer, of a catch for holding the drawer closed, a series of keys, a lever, and connections whereby the operation of one or more of said keys throws the catch into position to engage the drawer, and the operation of said lever disengages the catch from the drawer, substantially as set forth.

6. In a cash register, the combination with a cash drawer, of a catch for holding the drawer closed, a series of keys, a connection whereby the operation of one or more of said keys throws the catch into position to engage the drawer, means for disengaging the catch from the drawer, and means for preventing the catch from engaging the drawer again until one or more of said keys have been operated, substantially as set forth.

7. In a cash register, the combination with the cash drawer, of a catch for holding the drawer closed, a series of keys, a lever, and connections whereby the operation of one or more of said keys throws the catch into position to engage the drawer, and the operation of said lever disengages the catch from the drawer, and means to prevent the catch, after the operation of said lever, from engaging the drawer again until one or more of said keys have been operated, substantially as set forth.

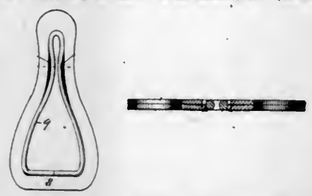
521,559. COMBINED REFRIGERATOR AND FILTER. CHARLES L. SHERWOOD, Faribault, assignor of one-third to Oscar W. Ball, Rice County, Minn. Filed Nov. 21, 1893. Serial No. 491,603. (No model.)



Claim.—1. In a refrigerator, the combination with the outer casing of a water filter, mounted therein, and partially dividing the same into two separate compartments, said water filter being formed with an upper removable section, substantially as described.

2. The herein described refrigerator, having a separable water filter therein, and partially dividing the interior of the frame of said refrigerator into two parts or compartments, and adapted to receive the water from the melting ice, and purify the same for usage, thereby dispensing with the use of a drain spout, substantially as described.

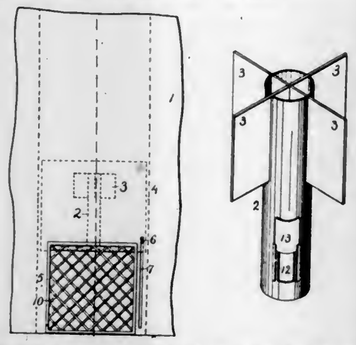
521,560. GARMENT-SUPPORTER. CHARLES J. WHITE, New Britain, Conn. Filed May 11, 1894. Serial No. 510,939. (No model.)



Claim.—1. The herein described garment supporter, the body of which consists of two pieces of metal laid together, while the inner edge consists of rounded wire having a thin web or fin between said two pieces of metal and by means of which said lining is held in place, substantially as described and for the purpose specified.

2. A garment supporter, consisting of a body composed of two thicknesses of metal and a lining of wire having a thin fin or web extending in between said thicknesses for holding said lining in place, and having portions of said lining set in slightly from the inner edge of said body to serve as springs, substantially as described and for the purpose specified.

521,561. VENTILATOR. WALTSIE F. WOLFE, Newton, Mass. Filed Aug. 10, 1893. Serial No. 482,862. (No model.)



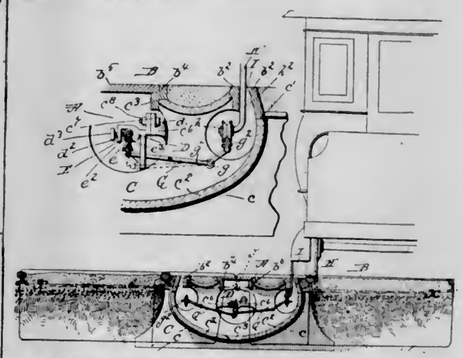
Claim.—1. The combination with a ventilating flue having a burner therein, of a vertically arranged tube 2 over said burner open at both ends and having wings 3 lying in vertical planes and extending on the inside of and within the tube, substantially as shown and described.

2. The herein described radiator for ventilating flues comprising tube 2 open at both ends, and wings 3 secured to said tube arranged in planes parallel or co-incident with the longitudinal axis of the tube and extending on the outside of and within the tube, substantially as shown and described.

521,562. CONDUIT ELECTRIC RAILWAY. THOMAS ARMAT, Washington, D. C. Filed Mar. 28, 1893. Serial No. 467,949. (No model.)

Claim.—1. In an electric-railway, the combination with an insulated supply conductor supported centrally of a conduit and provided at intervals with contact-points, of a series of frames arranged on opposite sides of the conductor and carrying on the outer edges and insulated therefrom metallic strips and transversely disposed continuations leading from said strips toward the conductor aforesaid, said frames being mounted within the conduit and with the pivotal centers in parallel alignment with said conductor whereby as the frames are rocked the terminals of said transverse continuations will be swung into engagement with the contact-points of the supply conductor, as specified.

2. In an electric railway, the combination with an insulated supply conductor adjustably supported within a conduit and provided at intervals with contact-points, of a series of frames arranged at each side and in parallel alignment with the conductor, said frames being independently journaled and carrying thereon, longitudinally arranged metallic strips and transverse branches leading from said strips inwardly toward the supply conductor and terminating in engaging heads, and a current gatherer adapted for traveling over said longitudinally arranged strips thereby rocking the frames and bringing said heads of the transverse branches into engagement with the contact-points, as specified.



3. In an electric railway, the combination with an insulated supply conductor having a series of contact-points thereon, of frame sections independently pivoted at each side of and carrying on the edges remote from the conductor metallic rods which are adapted when said frame sections are rocked to be brought into electrical connection with the contact-points of the conductor through suitably arranged branches, and a current-gatherer provided with a yielding incline adapted for engaging a projection of each succeeding frame-section, thereby bridging the space between the ends of said metallic rods without breaking the circuit, as specified.

4. In an electric railway, the combination with an insulated supply conductor of the contact points thereon, a traveling current gatherer and the intermediate contact devices comprising a series of swinging frames arranged on each side of the supply conductor and adapted to be engaged and operated by the current gatherer to complete the circuit, as specified.

5. In an electric railway, the combination with a slotted conduit, of the insulated working conductors within the conduit, the contact points on the supply conductor, an electric motor adapted to travel over the conduit, a current gatherer depending from the motor through the slot and into the conduit, and the intermediate and gravitating contact devices pivotally mounted within the conduit and on each side of the supply conductor, said devices having an independent movement about a horizontal axis and being adapted to complete the motor circuit when engaged by the current gatherer, as specified.

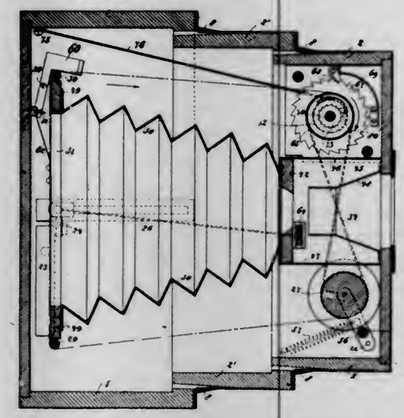
6. In an electric railway, the combination with an insulated supply conductor adjustably supported within a conduit and provided at intervals with metallic projections electrically connected with said supply conductor, of a series of swinging frame sections each carrying suitably arranged conductors, and a current gatherer adapted to engage said last mentioned conductors, rock the frame sections and thereby complete a motor circuit through said metallic projections of the supply conductor, as specified.

521,563. ROLL-HOLDING CAMERA. ALOIS DELUG, Stuttgart, Germany. Filed Aug. 11, 1893. Serial No. 482,931. (No model.) Patented in Germany Mar. 16, 1892, No. 67,626, and Mar. 26, 1893, No. 74,154, and in England July 20, 1893, No. 14,045.

Claim.—1. In a photographic apparatus, a housing, a yoke, pivoted in the front portion of the housing, a delivery roll journaled in the yoke, a receiving roll journaled above the delivery roll, a cord or belt communicating motion from the receiving roll to the delivery roll, and a spring attached to the housing and to the yoke, whereby the cord is kept normally tight, substantially as set forth.

2. In a photographic apparatus, a collapsible housing, a roll-shaft journaled in the housing, a spiral spring connected to the roll-shaft, a ratchet wheel fixed to said shaft, a sleeve rotatable on the roll-shaft and provided with a pawl engaging the ratchet wheel on the roll-shaft, a ratchet wheel on the sleeve, a pawl secured to the housing and engaging the ratchet wheel on the sleeve, a pulley on the roll-shaft, and a cord wound on the pulley and connected to the back of

the housing, whereby, when the housing is extended, the spiral spring will be wound, and, when the housing is collapsed, the sleeve will be rotated by the spiral spring, substantially as set forth.



3. In a photographic apparatus, a collapsible housing, a yoke pivoted in the front portion of the housing, a delivery roll journaled in the yoke, a cord-pulley fixed on the delivery roll, a roll-shaft journaled in the front portion of the housing above the delivery roll, a spiral spring attached to the roll-shaft, a ratchet wheel and a cord pulley fixed on the roll-shaft, a sleeve rotatable on the roll-shaft and provided with a pawl engaging the ratchet wheel on the roll-shaft, a ratchet wheel fixed on the sleeve, a pawl secured to the housing and engaging the ratchet wheel, a cord wound on the cord-pulley on the roll-shaft and secured at one end to the rear of the housing, a cord-pulley fixed on the sleeve, a cord passing around the pulley on the sleeve and around the pulley on the delivery roll, a pair of rollers in the rear portion of the housing, and a spring secured to the housing and to the yoke, substantially as set forth

4. In a photographic apparatus, a collapsible housing, a series of film-rollers journaled in the housing, and a marking device arranged to mark the film, and actuated by the collapsing of the housing, substantially as set forth.

5. In a photographic apparatus, a collapsible housing, a series of film-rolls journaled in the housing, a punch located in the rear portion of the housing, and means for forcing the punch against the film when the housing is collapsed, substantially as set forth.

6. In a photographic apparatus, the combination, with a collapsible housing, of a pair of angle arms pivoted in the housing, a rod connecting the angle-arms and provided with a punch, and a spring tending to hold the punch away from the film, substantially as set forth

---

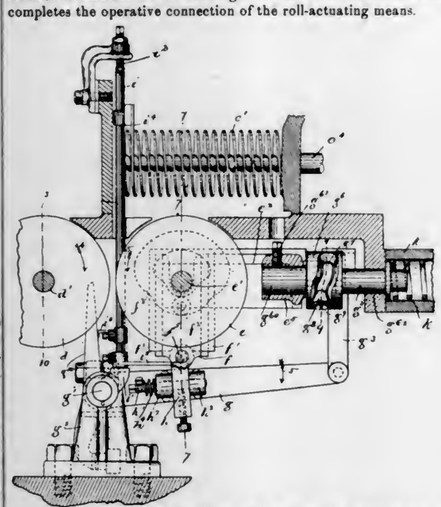
521,564. MACHINE FOR MARKING MAIL-MATTER. FRANK N. ETHERIDGE, Boston, Mass., assignor to the American Postal Machines Company, Portland, Me. Filed Oct. 16, 1891. Serial No. 408,884. (No model.)

Claim.—1. In a machine for marking mail matter, the combination of marking means, including a marking and impression roll normally separated from each other and one movable toward and from the other, a reciprocating mover, a lever having a movable abutment normally retracted from the path of said reciprocating mover, letter-actuated devices for moving said abutment into the said mover's path, and suitable connections between the lever and the movable roll whereby said lever's vibration received from the mover carries said roll toward the other roll.

2. In a machine for marking mail matter, the combination, substantially as hereinbefore set forth, of a letter-conveying belt, a positive letter feed which receives letters from the belt and moves them laterally out of the path in which they are moved by the belt, and printing mechanism to which the letters are presented by said positive feed.

3. In a machine for marking mail matter, the combination of a letter conveying belt, two feeding screws on positively rotated shafts arranged substantially at right angles to the direction of movement of the belt, one of said shafts being higher than the belt and adapted to serve as a stop for the letters delivered by the belt, while the other shaft, which is located between the said belt and stops, is located at a lower point, said screws constituting a positive feed adapted to engage the letters delivered by the belt and move them laterally out of the path in which they are moved by the belt, as set forth.

4. In a machine for marking mail matter, the combination of two feeding screws on positively rotated shafts, one arranged at a higher point than the other, printing mechanism including a printing roll and an impression roll, both located at a lower point than said screws, one of said rolls being laterally movable toward and from the other, normally inoperative means for actuating said laterally-movable roll toward the other roll, and letter-controlled devices for rendering said actuating means operative, comprising a shaft having an arm or projection located in the path through which the letters are moved by said screws and another arm arranged to coact with the clutch which completes the operative connection of the roll-actuating means.



5. In a machine for marking mail matter, the combination of printing mechanism, including a printing roll and an impression roll, a carriage supporting the latter and movable with it toward and from the printing roll, carriage-moving mechanism consisting of two normally separated parts, namely, first, a continuously-moving actuating device, and, secondly, a lever and devices adapted to be operated thereby to move the carriage, a dog or clutch on said lever adapted, when displaced from its normal position, to enter the path of said actuating device, receive motion therefrom, and impart said motion to the lever, a positive letter feed adapted to move letters laterally toward the printing mechanism, and a clutch-shifting device arranged to be moved by a letter impelled by said feed, and to throw said clutch into the path of the actuating device, as set forth.

6. In a machine for marking mail matter, the combination of printing mechanism, including a printing roll and an impression roll, a carriage supporting the impression roll and movable with the latter toward and from the printing roll, a collar having a cam groove affixed to said carriage, a stud fitted to rotate in said collar and provided with a roll or projection located in said groove, the groove being so formed that the movements of the rolls therein, caused by the rotary movement of the stud, move the collar, carriage, and impression roll toward and from the printing roll, a lever connected with said stud and adapted to impart motion thereto, a reciprocating slide or actuating device continuously operated by the power of the machine, a dog or clutch on said lever normally out of the path of said actuating device, and moved into said path when displaced, a letter-operated clutch-shifting device adapted to displace said clutch and thereby cause the movement of the lever in the direction required to move the impression roll toward the printing roll, and a spring which moves said lever in the opposite direction and thereby retract the impression roll, as set forth.

7. In a machine for marking mail matter, the combination of printing mechanism, including a printing roll and an impression roll, a carriage supporting the impression roll and movable with the latter toward and from the printing roll, normally inoperative carriage-moving mechanism consisting of a continuously-moving actuating device, a lever, and devices adapted to be operated thereby to move the carriage, a dog or clutch on said lever adapted, when displaced from its normal position, to enter the path of said actuating device, receive motion therefrom, and impart motion to the lever, a positive letter feed adapted to move letters laterally toward the printing mechanism, a clutch-displacing device, comprising a shaft having an arm or projection, such as i^3, located in the path in which letters are moved by said feed, and another arm arranged to displace said clutch and cause the movement of the lever by the actuating device, an arm, such as g^{10}, moving with said lever, and an arm, such as i^4, on the said shaft arranged to be moved by the arm g^{10} and to turn the shaft in the direction required to separate the arm i^2 from a letter pressed thereagainst by the feed, as set forth

8. In a machine for marking mail-matter, the combination of a letter-conveying belt, feeding screws arranged to receive letters from said belt and feed them positively out of the path of the belt, printing mechanism, including a printing roll and an impression roll, both located below the plane in which the letters are fed by said screws, normally inoperative mechanism for moving the impression roll toward the printing roll, said mechanism comprising a clutch and a letter-operated clutch-shifting device through which the clutch is made operative by a letter moved by said feeding screws, and mechanism for rotating said feeding screws and the printing and impression rolls in time with each other, substantially as set forth.

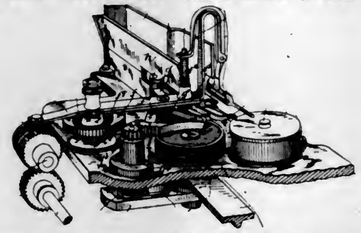
9. In a machine for marking mail matter, the combination of feeding screws arranged to positively feed letters laterally, printing mechanism including a printing roll and an impression roll, the shafts p and q suitably connected, eccentrics on said shafts, and a system of rods connecting said eccentrics with wrist pins on the shafts of the said feeding screws and rolls, said rods being movable endwise in centers journaled in fixed bearings, as set forth.

10. In a machine for marking mail matter, the combination of a letter-conveying belt, feeding screws arranged to receive letters from said belt, printing mechanism including a printing roll and an impression roll, located below the path in which letters are fed by said screws, a packing screw located below said printing roll and impression roll, the conpected shafts p and q, eccentrics on said shafts, and a system of rods connecting said eccentrics with the belt driving pulley, the shafts of the feeding screws, the shafts of the printing and impression rolls, and the shaft of the packing screw, said rods being controlled by centers journaled in fixed bearings, as set forth.

11. In a machine for marking mail matter, the combination of a printing roll, an inking roll supported by and movable on a stud, said inking roll having a flange bearing on one side of the printing roll, and a spring arranged to press said flange against the side of the printing roll, as set forth.

12. In a machine for marking mail matter, the combination of a printing roll and an impression roll, which are normally separated, letter-controlled mechanism for bringing them together, and yielding fingers arranged to support a letter at a point between said rolls, said fingers being adapted to yield to the movement imparted to the letter by said rolls as set forth.

521,565. STAMP-CANCELING MACHINE. FRANK N. ETHERIDGE, Boston, Mass., assignor to the American Postal Machines Company, of Maine. Filed Nov. 5, 1892. Serial No. 451,056. (No model.)



Claim.—1. In a stamp-canceling machine, the combination of a die cylinder connected with the driving mechanism of the machine, an impression roll, a letter-conveyer, a movable letter-arresting stop standing normally in the letter path, reciprocating actuating means timed with respect to the die-cylinder, and means controlled by the passing letter for operatively connecting the said reciprocating actuating means and the movable stop whereby the latter is withdrawn from the path of the letter.

2. In a stamp-canceling machine, the combination of a die cylinder connected with the driving mechanism of the machine, an impression roll, a letter-conveyer, a movable letter-arresting stop standing normally in the letter-path, a driver reciprocating in the direction of the letter-path, a shoe carried by said driver and reciprocating in a direction transverse to the letter-path, and connecting means between the driver and the stop which are rendered operative by the reciprocating shoe through the medium of the letter.

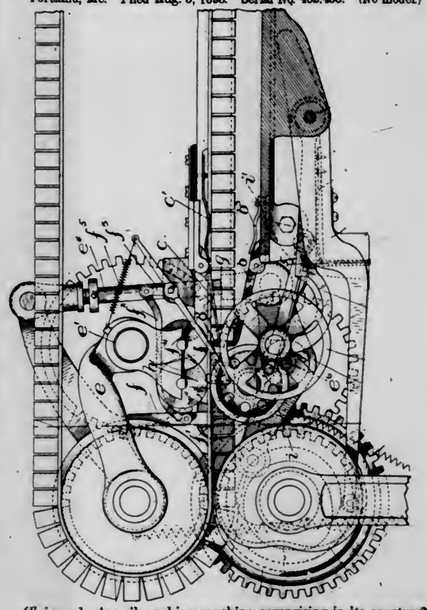
3. In a stamp-canceling-machine, the combination of a die cylinder connected with the driving mechanism of the machine, an impression roll movable toward and from the die-cylinder, and yieldingly actuated toward the same a movable letter-arresting stop standing normally in the letter-path, letter-controlled means timed with respect to the die cylinder for withdrawing the stop from the letter-path, and connecting devices between the said means and the impression roll normally holding the latter away from the die-cylinder and when the stop is withdrawn permitting the said roll to move toward the die-cylinder.

4. In a stamp-canceling machine, the combination of a die cylinder, a letter conveyer, a letter stop normally in the letter path, a letter-receiving throat having an offset in one side at the end next the die cylinder, a shoe movable into and out of the throat, and operating mechanism therefor timed to cause said shoe to move a letter into said offset and prevent the entrance of a succeeding letter into the offset portion of the throat until after the release of the last arrested letter, and mechanism controlled by an arrested letter whereby the stop is withdrawn when the printing die reaches a predetermined point in its rotation, as set forth.

5. In a stamp-canceling machine, the combination of the die cylinder, the impression roll, the conveyer, the letter stop, the movable carrier for said stop having a rib or flange, the oscillating lever having a roll bearing continuously on one side of said rib, the letter-displacing shoe or presser, the coupling device comprising a plate arranged to be moved by said presser only through the medium of an interposed letter, a trundle-roll or stud on said motor connected with said plate and normally raised out of contact with the rib on the stop-carrier, said roll or stud being movable into engagement with said rib by the action of a letter on said plate, and connections between the driving shaft of the machine and the said die cylinder, motor and letter presser whereby the movements of said parts are definitely timed, as set forth.

6. In a stamp-canceling machine, the combination of the die cylinder, the impression roll yieldingly pressed toward the die cylinder, the conveyer, the letter stop, the movable carrier for said stop having a rib or flange, the oscillating lever having a roll bearing continuously on one side of said rib, the letter-displacing shoe or presser, the coupling device comprising a plate arranged to be moved by said presser only through the medium of an interposed letter, a trundle-roll or stud on said motor connected with said plate and normally raised out of contact with the rib on the stop carrier, said roll or stud being movable into engagement with said rib by the action of a letter on said plate, an impression-roll-displacing device which is caused by the stop-carrier to hold the impression roll away from the die cylinder when the letter stop is in its normal position and permits the said roll to approach the die cylinder when the stop is displaced, and connections between the driving-shaft of the machine and the said die cylinder, motor and letter presser whereby the movements of said parts are definitely timed, as set forth.

521,566. MAIL-MARKING MACHINE. MARTIN V. B. ETHERIDGE, Everett, Mass., assignor to the American Postal Machines Company, Portland, Me. Filed Aug. 5, 1893. Serial No. 482,435. (No model.)



Claim.—1. A mail-marking machine comprising in its construction a stop to intercept the pieces in transit to the marking devices, a

pivoted arm carrying rollers to move the pieces free of said stop, a lever for actuating said arm, yielding connections between the lever and arm, and a cam for actuating the lever.

2. A mail-marking machine comprising in its construction a stop to intercept the pieces in transit to the marking devices, a spring-pressed finger to deflect the pieces against the stop, a pivoted arm carrying rollers to act against the mail-pieces and against the deflecting finger and move them clear of the stop, a lever for actuating the arm, yielding connections between the lever and arm, and a cam for vibrating the lever.

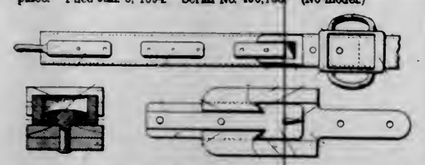
3. A mail-marking machine comprising in its construction marking and impression cylinders, one movable toward and from the other and yieldingly actuated toward the same, a pivotal carrier for the movable cylinder, an arm connected with said carrier, means for vibrating said arm, and a letter-controlled fulcrum for the arm.

4. A mail-marking machine, comprising in its construction a marking-cylinder, an impression-cylinder movable toward and away from said marking-cylinder and spring actuated toward the same, a pivotal support for said impression-cylinder, a movable fulcrum for said support, a finger in the path of the mail-piece and suitably connected with said fulcrum whereby the latter is moved out of operative position by the passing mail-piece, and a cam arranged to operate the impression-cylinder support through suitable connections.

5. A mail-marking machine comprising in its construction marking and impression cylinders, one movable toward and from the other and yieldingly actuated toward it, a pivoted carrier for the movable cylinder, an arm connected with said carrier, a lever, a rod connecting said lever with the arm, a cam for actuating the lever, and a letter-controlled fulcrum for the arm.

6. A mail-marking machine comprising in its construction marking and impression cylinders, one movable toward and from the other and yieldingly actuated toward it, a pivoted carrier for the movable cylinder, an arm connected with said carrier, a lever, a rod connecting said lever with the arm, a cam for actuating the lever, a movable fulcrum for the arm, a pivotal finger spring-actuated into the letter-path, and a rod connecting said finger with the fulcrum.

521,567. HAME-TUG FASTENING. WILLIAM P. GELABERT, Sweet Springs, Mo., assignor of one-half to Thomas G. Nelson, same place. Filed Jan. 3, 1894. Serial No. 496,160. (No model.)



Claim.—1. A hame tug fastening comprising a series of separate plates adapted to be secured to the hame portion of the tug, each plate having inwardly extending recesses along its edges terminating in shoulders, and a hook adapted to be secured to the trace portion of the tug having inwardly projecting ribs for engaging said recesses and shoulders, substantially as described.

2. A hame tug fastening comprising a plate secured to the hame portion of the tug having its longitudinal edges provided with recesses terminating in inwardly inclined locking shoulders and a hook secured to the trace portion of the tug having forwardly extending arms, each having an inwardly projecting rib to engage the recesses of said plate, said ribs terminating at the rear in inwardly inclined locking shoulders for engaging the locking shoulders of said plate to prevent said arms from spreading apart, substantially as described.

521,568. BURIAL-CASE. JAMES F. HOBSON, New Antioch, Ohio. Filed Dec. 7, 1893. Serial No. 493,032. (No model.)

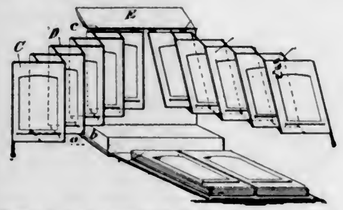


Claim.—1. The combination in a burial case of a flared open top earthen box, an interior rim near the top of the box having recesses therein, transverse slats to fit in the recesses, lugs on the interior of the case, a cover having depending catches to engage the lugs when in position, a removable piece forming the upper part of one end of the box, bolts at the corners of the box, bolts engaging each other to secure said removable piece in position, and an inside and an outside cover, substantially as described and set forth.

2. An earthen burial case comprising a flared open top box A, an interior rim *a'*, near the top of the box, lugs on the interior sides and ends of the box, a cover B, having depending flexible catches to engage the lugs when in position, a removable upper end piece whereby the case may be opened, a cover which rests upon cover B, and an outside cover, as and for the purposes set forth

---

521,569. PHOTOGRAPH-ALBUM. GUSTAV KOLL, New York, N. Y., assignor to Isaac Kaufmann & Bro., same place. Filed Oct. 9, 1893. Serial No. 487,703. (No model.)



Claim.—1. In a photograph album, the combination of an upright supporting-frame, folding picture-frames, connected in sets by lazy-tongs and located one at each side of said supporting-frame, hinge-connections between the tops of the rear picture-frames of each set and the supporting-frame, a lid hinged to the latter, a front-plate or wall hinged to the base of the supporting-frame, and means for holding the said picture frames, lid and plate or wall in closed position, substantially as set forth.

2. In a photograph album, the combination with an upright supporting-frame, several sets of folding picture-frames located one at each side of said supporting-frame, lazy-tongs connecting said picture-frames, hinge-connections between the tops of the rear frames of each set and the supporting-frame, the outer frames of each set having a depending leg whereby the sets of said picture-frames are supported in open position, a lid hinged to the supporting-frame, a front plate or wall hinged to the base of the supporting-frame, and means for holding said picture-frames, lid and plate or wall in closed position, substantially as set forth.

521,570. WHEEL. JOSEPH M. MCMASTER, Rochester, N. Y. Filed Nov. 21, 1893. Serial No. 491,586. (No model.)



Claim.—1. In a wheel, the combination, with a stiff rim capable of maintaining its circular form under the load to which it is subjected, of tension springs attached to the inside of the rim and tension wires connecting the springs with the hub the springs and wire being made independent of each other, but attached together by joints that allow free action, the whole so arranged that, when the hub is depressed, tension is produced on the top springs, the bottom springs are relaxed, and a free joint action is produced between the hub and springs, as herein shown and described.

2. The combination, in a wheel, of two rims suitably braced together, a set of springs attached to the inner side of the inner rim, and connections between the springs and hub, whereby when the hub is depressed tension is produced on the top springs and the bottom springs are relaxed, as specified.

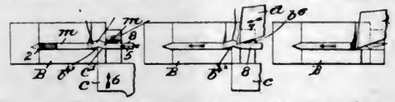
3. A wheel provided with two rims one inside the other and separated by an intervening space, braces connecting the rims, and packings of non-resonant material between the braces and rims at the points of contact, as and for the purpose specified.

4. In a wheel the combination of a stiff rim, springs attached thereto, and tension wires attached to the springs extending to opposite ends of the hub, in the manner and for the purpose specified.

5. The combination, with a stiff rim, of guides attached thereto, springs passing between the guides and held by same against lateral motion, a hub, and connections attached at one end to the hub and at the other to the springs outside of the guides, as and for the purpose specified

---

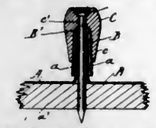
521,571. METHOD OF MAKING SPIKES. JOHN J. O'NEILL, Lawrence, Mass. Filed Jan. 2, 1894. Serial No. 496,411. (No model.)



Claim.—1. The herein described method of making spikes and the like from bar metal, which consists in clamping a bar of sufficient length for a plurality of spikes, offsetting the bar to form a short bend therein to form one side of a point for a spike, severing the bar diagonally to form the other side of the point for the same spike, and at a continuous operation upsetting the bar beyond the point of severance to form the head of another spike, substantially as described.

2. The herein described method of making spikes and the like from bar metal, which consists in clamping a bar of sufficient length for a plurality of spikes, offsetting the bar to form a short bend therein the concaved face of which has the bevel of one side of a point for a spike, severing the bar diagonally from the convex side of the bend or offset commencing back of and working toward the center of said offset to thus form the second half or side of the same point, and at a continuous operation upsetting the bar beyond the point of severance and principally at that side of the spike toward which the metal of the bar was bent to form the offset to thereby form the head of another spike, substantially as described.

521,572. FASTENING FOR METALLIC ROOFS. JOHN O. PEW, North Bloomfield, Ohio. Filed Feb. 23, 1894. Serial No. 501,234. (No model.)



Claim.—1. A washer clip of soft metal provided with a forked lower end adapted to straddle the cap plate, a central hole, and a projecting portion adapted to be hammered down over the head of the nail or screw when driven in, substantially as set forth.

2. A washer clip of soft metal provided with a forked lower end adapted to straddle the cap plate, a central hole, and a projecting flap upon one side of it, adapted to be hammered down over the head of the nail or screw when driven in, substantially as set forth

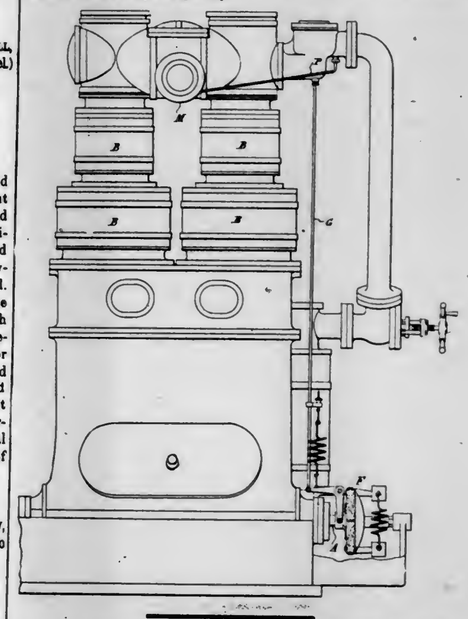
---

521,573. EXPANSION-GEAR FOR ENGINES. MARK H. ROBINSON, Thames Ditton, England, assignor to Willans & Robinson, Limited, same place. Filed Mar. 5, 1894. Serial No. 502,432. (No model.)

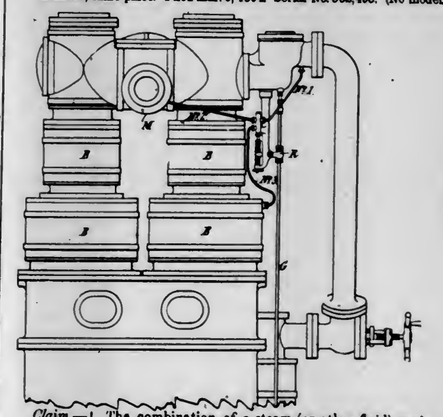
Claim.—1. The combination of a steam (or other fluid) engine cylinder steam chest, pipe supplying steam thereto, throttle valve and governor acting thereon—valve for controlling passage of steam to cylinder—cut off valve for controlling passage of steam to first valve—a cylinder open at one end to steam chest—and at the other to steam supply pipe—a piston working therein and connections from piston to cut off valve whereby an inward movement of the piston toward the steam chest shifts the cut off valve in a direction to make the cut off earlier and an outward movement in a direction to make it later.

2. The combination of a steam (or other fluid) engine cylinder, steam chest—pipe supplying steam thereto, throttle valve and governor acting thereon, hollow piston rod of piston working in cylinder extending into the steam chest—sleeve in steam chest surrounding the end of the hollow piston rod—oblique ports in sleeve and in piston rod—a cylinder open at one end to steam chest and at the other to steam supply pipe—a piston working therein and connections from the piston to the sleeve whereby an inward movement of the piston turns the sleeve in a direction to make the cut off earlier and a movement in the opposite direction to make it later.

3. The combination of a steam (or other fluid) engine cylinder, steam chest—pipe supplying steam thereto, throttle valve and governor acting thereon, hollow piston rod of piston working in cylinder extending into the steam chest—sleeve in steam chest surrounding the end of the hollow piston rod—oblique ports in sleeve and in piston rod—a cylinder open at one end to steam chest and at the other to steam supply pipe—a piston working therein and connections from the piston to the sleeve whereby an inward movement of the piston turns the sleeve in a direction to make the cut off earlier and a movement in the opposite direction to make it later and means for causing any inward movement to take place slowly while the outward movement is left free to take place quickly



521,574. EXPANSION-GEAR FOR ENGINES. MATTHEW H. P. R. SANKEY, Thames Ditton, England, assignor to Willans & Robinson, Limited, same place. Filed Mar. 6, 1894. Serial No. 502,493. (No model.)

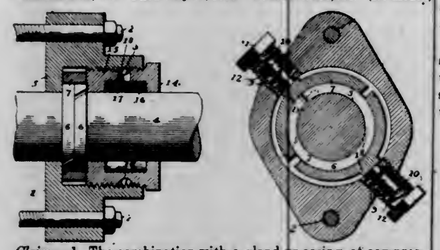


Claim.—1. The combination of a steam (or other fluid) engine cylinder, steam chest, pipe supplying steam thereto, throttle valve and governor acting thereon, valve for controlling passage of steam to cylinder of engine—cut off valve for controlling passage of steam to first valve a cylinder open at one end to steam chest and at the other communicating with a valve by which it can either be opened to the steam supply or to the exhaust (or other place of lower pressure)—means for operating this valve by the action of the governor—a piston working in the cylinder and connections from piston to the cut off valve whereby an inward movement of the piston toward the steam chest shifts the cut off valve in a direction to make the cut off earlier and an outward movement in a direction to make it later.

2. The combination of a steam (or other fluid) engine cylinder, steam chest, pipe supplying steam thereto, throttle valve and governor acting thereon, hollow piston rod of piston working in cylinder extending into the steam chest—sleeve in steam chest surrounding the end of the hollow piston rod, oblique ports in sleeve and in piston rod—a cylinder open at one end to steam chest and at the other communicating with a valve by which it can either be opened to the steam supply or to the exhaust (or other place of lower pressure)—means for operating this valve by the action of the governor—a piston working in the cylinder and connections from the piston to the sleeve whereby an inward movement of the piston turns the sleeve in a direction to make the cut off earlier and a movement in the opposite direction to make it later.

3. The combination of a steam (or other fluid) engine cylinder, steam chest, pipe supplying steam thereto, throttle valve and governor acting thereon, hollow piston rod of piston working in cylinder extending into the steam chest—sleeve in steam chest surrounding the end of the hollow piston rod, oblique ports in sleeve and in piston rod—a cylinder open at one end to steam chest and at the other communicating with a valve by which it can either be opened to the steam supply or to the exhaust (or other place of lower pressure)—means for operating this valve by the action of the governor—a piston working in the cylinder and connections from the piston to the sleeve whereby an inward movement of the piston turns the sleeve in a direction to make the cut off earlier and a movement in the opposite direction to make it later, and means for causing any inward movement to take place slowly while the outward movement is left free to take place quickly.

521,575. ROD OR VALVE PACKING BOX. DAVID SPENCER, Shenandoah, Va. Filed July 22, 1893. Serial No. 481,221. (No model.)

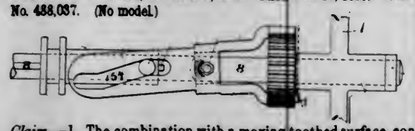


Claim.—1. The combination with a gland or casing, of compressible packing rings, curved jaws engaging opposite sides of the packing rings, adjustable guide-tubes passed from the outside through threaded perforations in the walls of the gland or casing and accessible from the outside thereof, and tension springs coiled within said guide-tubes and bearing at their inner ends against the jaws, substantially as specified.

2. The combination with a gland or casing, of compressible packing rings, approximately semicircular jaws arranged in contact with the outer surfaces of said rings and provided with radially-disposed stems, adjustable guide-tubes threaded in perforations in the walls of the gland or casing, and tension springs arranged within the guide-tubes and embracing said stems, substantially as specified.

3. The combination with a gland or casing, of packing rings arranged therein, a clamping device arranged in operative relation with said rings, and an annular bushing threaded into the outer end of the bore of the gland or casing and provided with an inwardly-extending rim or flange to engage said clamping device and packing rings, and having an inner oil chamber communicating by radial perforations with an exterior oil channel, substantially as specified.

521,576. SHUTTLE-BOX-OPERATING MECHANISM FOR LOOMS. GEORGE W. STAFFORD, Providence, R. I. Filed Oct. 13, 1893. Serial No. 488,037. (No model.)



Claim.—1. The combination with a moving toothed surface, constituting a driver, a driven gear having toothless spaces on opposite portions thereof, operating connections intermediate such gear and the shuttle-boxes, and the said shuttle boxes, of movable teeth at the said toothless spaces of the gear spaced less than the full diameter of said gear apart, and means for shifting said teeth simultaneously to project one of the same at one side of the gear into position for being engaged with the said toothed surface and withdraw the other at the other side out of position for engagement, and for locking the said teeth in the new position relatively to the gear until a subsequent rotation of the gear is required.

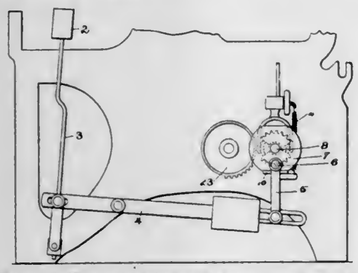
2. The combination with a driver constituted by a moving toothed surface, a driven gear having toothless spaces on opposite portions thereof, operating connections intermediate such gear and the shuttle-boxes, and the said shuttle-boxes, of a tooth-carrier movable diametrically of said gear and provided with teeth at the said toothless spaces, and means for moving the said tooth-carrier and thereby radially shifting the said teeth, to project one of the same at one side of the gear into position for being engaged with the said toothed surface and withdraw the other at the other side out of position for engagement and also hold the said toothed carrier locked in the said position relatively to the gear until a subsequent rotation of the gear is required, substantially as described.

3. The combination with a driver constituted by a moving toothed surface, a driven gear having blank or toothless spaces on opposite portions thereof, a shaft on which said gear is mounted, operating connections intermediate said shaft and the shuttle boxes, and the said shuttle-boxes, of the tooth-carrier pivoted to the said shaft and provided with teeth at the said toothless spaces of the gear, the sleeve engaging with said tooth-carrier to move the same and change the position of its teeth, and means to move the sleeve, substantially as described.

4. The combination with the gear having blank or toothless spaces at opposite points among the teeth thereof, of the tooth-carrier provided with teeth at the said toothless spaces, and means for moving said tooth-carrier diametrically of the gear, to project one of the teeth at one side of the gear to fill the toothless space at that side and withdraw the other tooth at the opposite side of the gear out of the toothless space at that side of the gear, and also hold the said tooth carrier locked in its new position relatively to the gear until a subsequent shift is required, substantially as described.

5. The combination with the gear having blank or toothless spaces at opposite points among the teeth thereof, and its shaft, of the tooth-carrier pivoted to said shaft and provided with teeth at the said toothless spaces, and the sleeve on said shaft engaging with the tooth-carrier to swing the same, substantially as described.

521,577. SHUTTLE-BOX-OPERATING MECHANISM FOR LOOMS. GEORGE W. STAFFORD, Providence, R. I. Filed Oct. 31, 1893. Serial No. 489,596. (No model.)



Claim.—1. The combination with a driver consisting of a moving toothed surface, and the shuttle-boxes, of box-operating devices embracing a driven gear having independently movable toothed segments in the same vertical plane and also means for moving the said toothed segments to throw them at one side of the said gear into range with the said moving toothed surface, as when the gear is to be partially rotated to shift the shuttle-boxes and simultaneously produce an opposite blank space at which the moving toothed surface runs out of mesh to leave the gear at rest, substantially as described.

2. The combination with a moving toothed surface, and the shuttle-boxes, of box-operating devices embracing a gear having movable toothed segments, cams acting on the said toothed segments of the gear to shift them peripherally of the latter, and means for changing the positions of such cams, substantially as described.

3. The combination with a moving toothed surface, and the shuttle-boxes, of box-operating devices embracing a gear having movable toothed segments, reversely disposed wedge-shaped cams located between the proximate ends of such segments, a collar carrying the said cams, and means for moving the said collar, substantially as described.

4. The combination with a supporting shaft, of the two toothed segments having each a collar or hub slipped upon the said shaft, the reversely disposed wedge-shaped cams placed between the ends of the said segments, and the collar carrying the said cams, substantially as described.

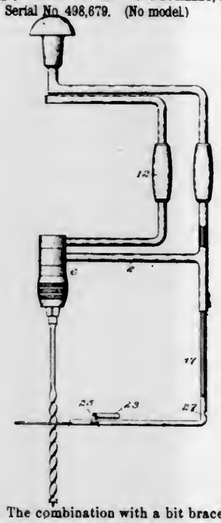
521,578. AXLE-LUBRICATOR. FRANKLIN P. WHITE, Shallotte, N. C. Filed Jan. 31, 1894. Serial No. 498,635. (No model.)



Claim.—1. The combination of a spindle having a longitudinal opening, and provided with an outlet, an axle nut arranged on the spindle, a hollow vent screw screwing into the outer end of the axle nut and having its outer end exposed and provided at one side with an opening communicating with its interior, and an adjusting screw mounted on the vent screw to close the vent opening and having its head arranged on the exterior of the vent screw, substantially as described.

2. The combination of a spindle having a longitudinal bore and provided with an outlet communicating with the exterior of the spindle, an axle nut having its threaded opening extending entirely through it, a hollow vent screw arranged in the outer end of the axle nut, and provided with a vent opening communicating with its interior, said vent screw being provided at its outer end with a threaded opening, and an adjusting screw having its inner end beveled and arranged at the inner terminus of the vent opening, substantially as and for the purpose described.

521,579. GAGE-BRACE. JOHN F. ALLEY, Norton, Va. Filed Jan. 31, 1894. Serial No. 498,679. (No model.)



Claim.—1. The combination with a bit brace having a supporting frame, of a gage mounted to slide upon said frame and having a horizontal arm, a foot pivotally connected to said arm, and means for adjusting the foot angularly with relation to the arm, substantially as specified.

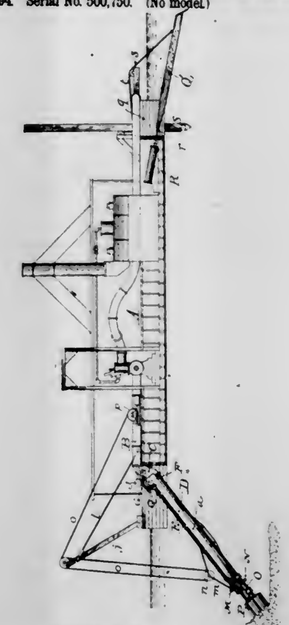
2. The combination with a bit brace having a supporting frame, of a gage provided with a stem fitting slidably in a tubular rod forming one member of said frame and having a foot adapted to bear upon the surface adjacent to the bit, said stem being adapted to slide freely into said tubular rod as the boring proceeds, substantially as specified.

3. The combination with a bit brace having a supporting frame, of a gage provided with a stem which is fitted slidably in a tubular rod carried by said frame, and feathered in said rod to prevent independent relative rotation of the parts and having a foot to bear upon a surface adjacent to the bit, whereby as the boring proceeds said stem recedes into the tubular rod, and a locking device to secure the gage in its folded position, substantially as specified.

4. The combination with a bit brace having a supporting frame, of a gage mounted to slide on said frame and having a pivoted foot, an arm connected to an extension of said foot, and a set-screw to engage the arm and lock the foot at any desired angular adjustment, substantially as specified.

5. The combination with a bit brace having a supporting frame, of a gage mounted to slide on said frame and having a pivotal foot, a graduated arm connected to said foot and operating in a suitable guide, and means to lock the graduated arm at any desired adjustment, substantially as specified.

521,580. DREDGER. LINDON W. BATES, Chicago, Ill. Filed Feb. 19, 1894. Serial No. 500,750. (No model.)



Claim.—1. In combination with a boat having a fixed elbow; a ladder pivoted to the elbow; a suction pipe carried by the ladder and having a curved end to fit the elbow; a rotatable pipe-section 10 provided with a cutter and a gear-ring N; a shaft extending lengthwise of the ladder and provided with a pinion M to engage the gear-ring; and means for rotating the shaft.

2. In combination with the boat having the curved elbow; the ladder provided with a suction-pipe having a curved end; a rotatable cutter carried by a rotatable section of the pipe; a gear-ring N; the shaft F provided with gears G H; the shaft I provided with gear J; and a shaft L provided with gears M and Q.

3. A cutter-body having the openings *f* and *h* in its periphery and end,—said openings *h* forming a continuation of the openings *f*,—in combination with knives extending lengthwise and over the end of the body, substantially as shown and described.

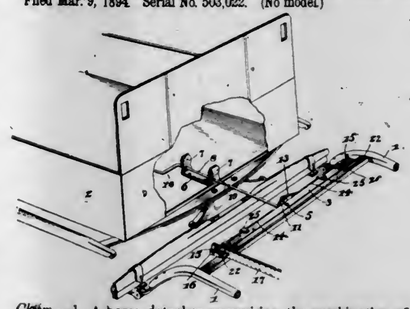
4. The herein-described cutter, comprising the flanged heads *b* and *c*; longitudinal arms *e*; and knives applied to the arms.

5. The herein-described cutter, comprising the flanged heads *b* and *c*; the body portion composed of strip *d* and arms *e*; and knives applied to the periphery

6. In combination with a boat having a wellway, the supporting frame at the rear end; a push bar mounted therein; means for reciprocating said push bar, and a vertically-moving spud

---

521,581. HORSE-DETACHER. BURDINE BLAKE, London, Ohio. Filed Mar. 9, 1894. Serial No. 503,022. (No model.)



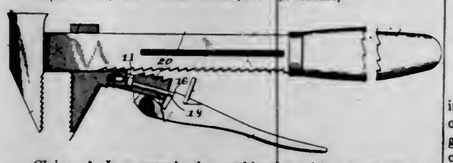
Claim.—1. A horse detacher comprising the combination of a singletree, two reciprocating bars arranged one at each end thereof,

fingers hinged to the ends of the bars, the fingers being adapted for the reception of the traces and to normally lie flush with the rear side of the singletree, and means for moving the bars and their fingers longitudinally, whereby the fingers will be made to clear the singletrees and release the traces, substantially as described.

2. A horse detacher comprising the combination of a singletree, two reciprocating bars arranged one at each end thereof, fingers hinged to the outer ends of the bars and adapted for the reception of the traces, the fingers being further adapted to lie normally against the rear side of the singletree, a spring rod arranged at each forward end of the singletree and operating with the fingers to normally hold the trace in place, and means for reciprocating the bars and whereby the fingers are moved to clear the ends of the singletrees and the traces detached, substantially as described.

3. A horse detacher comprising the combination of a singletree, two reciprocating bars arranged one at each end of the singletree, fingers hinged to the outer ends of the bars and adapted to normally lie against the rear ends of the singletree, the fingers being adapted to receive the traces and hold them in place, links connected to each of the inner ends of the bars, a revolving plate to which the links are connected, and a shaft upon which the plate is mounted, whereby the bars and the attached fingers may be moved longitudinally and the traces released, substantially as described.

521,582. WRENCH. FRANCIS E. BURGEVIN, Burgevin, Ind. Ter. Filed Jan. 31, 1894. Serial No. 498,619. (No model.)



Claim.—1. In a wrench, the combination with a toothed stock terminating in a fixed head forming a jaw, of a movable jaw slidably mounted upon said stock, a locking-block pivotally connected to the movable jaw and provided with teeth to engage the teeth of the stock, the pivot whereby the movable jaw and locking block are connected being arranged in a slot in the former whereby the jaw is capable of a limited longitudinal movement independent of the block, a lever fulcrumed upon the locking-block, and connections between the lever and the movable jaw, whereby when the free end of the former is drawn toward the stock the jaw is advanced toward the fixed head, substantially as specified.

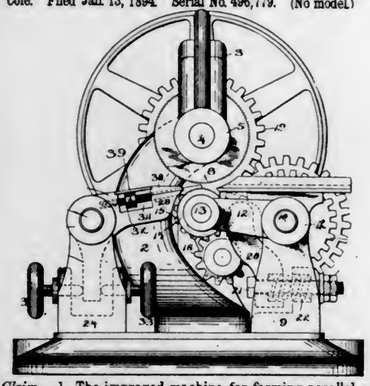
2. In a wrench, the combination with a stock terminating at its outer end in a fixed head forming a jaw, and provided with teeth at one of its sides, of a movable jaw loosely mounted on the stock, a toothed locking block slidably and pivotally connected with said movable jaw and provided with a bore, a push-rod longer than and arranged in the bore, and a lever eccentrically pivoted to the locking-block with relation to the rod and having a shoulder for bearing against the inner end thereof, substantially as specified.

3. In a wrench, the combination with a stock terminating at its outer end in a fixed head forming a jaw, and provided with teeth at one of its sides, of a movable jaw loosely mounted on the stock, a toothed locking-block slidably and pivotally connected with such movable jaw and provided with a bore, a push-rod longer than and arranged in the bore, a lever eccentrically pivoted to the locking block with relation to the rod and having a shoulder for bearing against the inner end thereof, and means for locking the lever in a closed position against the stock, substantially as specified.

4. In a wrench, the combination with a stock terminating at its outer end in a fixed head forming a jaw and provided with teeth at one of its sides, of a movable jaw loosely mounted on the stock, a toothed locking-block slidably and pivotally connected with said movable jaw and provided with a bore, a push-handle longer than and arranged in the bore, a lever eccentrically pivoted to the locking-block with relation to the rod and having a shoulder for bearing against the inner end thereof, a groove formed in the side of the stock, and a spring-catch carried by the lever for engaging the groove, substantially as specified.

5. In a wrench, the combination with a rectangular stock having one face provided with inclined teeth and terminating at its outer end in a head forming a jaw, of a plainly bored sliding jaw loosely mounted on the stock and provided adjacent to the teeth and at its inner end with a reduced longitudinally slotted portion, the slot of which is of greater length than the width of the teeth, the locking-block provided at its forward ends with perforated ears engaging the reduced and slotted portion of the jaw and provided at its inner side with teeth corresponding with those of the stock and at its outer rear side with ears, a transverse pin passed through the slot of the jaw, and the forwardly disposed ears, a lever pivoted between the ears at the rear side of the block, a bore formed in the block, a headed rod longer than the bore mounted in the same and adapted to be borne upon and operated by the lever, and means for locking the lever against the stock, substantially as specified.

521,583. MACHINE FOR GROOVING INSOLES. GEORGE A. COLE and EUGENE H. TAYLOR, Lynn, Mass.; said Taylor assignor to said Cole. Filed Jan. 13, 1894. Serial No. 496,779. (No model.)



Claim.—1. The improved machine for forming parallel grooves in the surfaces of insoles to render the latter flexible, having a pair of feed-rolls one of which is formed with annular grooves, a series of groove cutters, formed as V-shaped strips a swinging support or holder on which said groove-cutters are mounted with their working ends between the feed-rolls and with the side edges of the V in the grooves aforesaid, at one side of the line of travel of the stock as it is fed forward by the said feed-rolls, and set screws for adjusting said support or holder to raise or depress the said working ends in the annular grooves aforesaid and vary the depth of the grooves made by the angles of the groove-cutters, substantially as described.

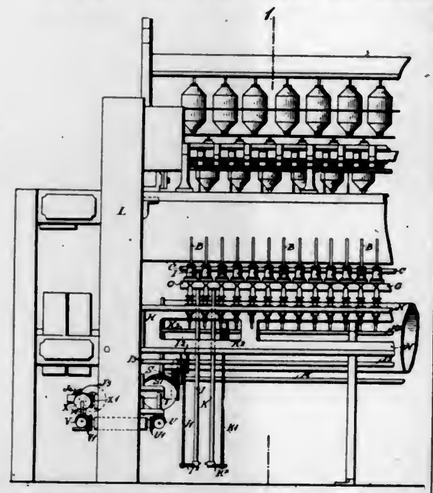
2. The improved machine for forming parallel grooves in the surfaces of insoles to render the latter flexible, having a pair of feed-rolls, bearings for the shaft of one of said feed-rolls, a gear on said shaft, a gear 17, operative connections intermediate said gears, a frame supporting the other of said feed rolls, and movable concentrically about the axis of said gear 17, gearing for rotating the feed-roll on said frame from the gear 17, a spring acting upon said frame to press its feed-roll toward the other, a stop to limit the movement of the frame under the action of the spring, a series of groove cutters, and a support or holder on which said groove-cutters are mounted with their working ends between the feed-rolls and at one side of the line of travel of the stock as it is fed forward by the said feed-rolls, substantially as described.

3. The improved machine for forming parallel grooves in the surface of insoles to render the latter flexible, having the feed-rolls 8 and 14, the latter formed with annular grooves 38, the swinging frame 12 on which the feed-roll 14 is mounted, the spring 22 acting on said frame, the adjustable stop 21 engaging with said frame, gearing for driving feed roll 14 from the shaft of feed-roll 8, the series of groove cutters, the swinging frame on holder 27 in which said cutters are mounted with their working ends between the feed-rolls and in the annular grooves aforesaid, at one side of the line of travel of the stock as it is fed forward by the said feed-rolls, and the set screws 33, 33, for adjusting said frame or holder 27 to raise or depress the working ends of the groove-cutters in the said annular grooves, substantially as described.

4. The improved machine for forming parallel grooves in the surface of insoles to render the latter flexible, having a pair of feed rolls, a series of groove cutters, a removable support or holder in which said groove cutters are mounted with their working ends between the feed rolls and at one side of the line of travel of the stock as it is fed forward by the said feed-rolls, the said support or holder having a series of grooves for the reception of the groove cutters and a removable cover plate for holding said groove-cutters in the said grooves, and means for adjusting the said support or holder to shift the free ends of the said groove-cutters into the desired position between the rolls, substantially as described.

5. The improved machine for forming parallel grooves in the surfaces of insoles to render the latter flexible, having a pair of feed-rolls, a series of independent groove cutters, and a support or holder in which said groove-cutters are mounted with their working ends between the feed rolls and at one side of the line of travel of the stock as it is fed forward by the said feed-rolls, and a series of screws on the said support or holder for separately adjusting the individual groove-cutters endwise, substantially as described.

521,584. RING-SPINNING FRAME. PHINEHAS P. CRAVEN, Manchester, England. Filed Oct. 28, 1892. Serial No. 450,301. (No model.)



Claim.—1. In combination, the bobbin spindle, the traveler arranged to carry the thread about the same, and guiding means for the traveler operating upon the same to move it toward and from the bobbin spindle, substantially as described.

2. In a spinning machine the traveler, the conical guide ring and means for moving one of said parts vertically in relation to the other combined with the bobbin spindle about which the traveler lays the yarn and toward which the guide ring moves the traveler, substantially as described.

3. In a spinning machine, the traveler, the guide ring, and means for moving one of said parts vertically in relation to the other combined with the bobbin spindle about which the traveler lays the yarn and toward which the guide ring moves the traveler, substantially as described.

4. In combination, the bobbin spindle, the traveler, the guide ring, means for moving the traveler vertically in relation to the bobbin spindle, means for moving the guide ring vertically in relation to the bobbin spindle to correspond to the growth of the bobbin, said operating means acting also to move the traveler and guide ring in relation to each other, substantially as described.

5. A traveler for spinning frames comprising a bearing adapted to turn in a horizontal plane, a stem depending therefrom to one side of the axial line of the bearing, said stem having at its lower end a projecting portion extending substantially concentric to the axial line and a guide for the thread, substantially as described.

6. A traveler adapted to lay yarn about a bobbin spindle and the like, consisting of a stem having an upper bearing for connection with its support, a lower guiding bearing for the yarn and having a steadying finger A^4, substantially as described.

7. In combination, the bobbin spindle, the traveler, the guiding ring for said traveler having the rods F^6 and the spring clasp for holding the ring, comprising the clips F^6 and the yielding means for holding them together, substantially as described.

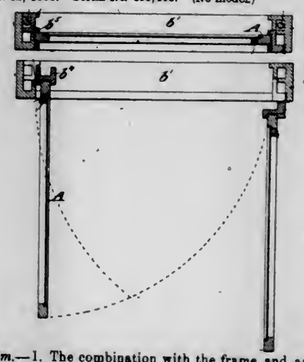
8. In combination, the bobbin spindle, the traveler arranged to lay the thread about the bobbin, one of said parts being movable, the means for operating the said movable part in relation to the other whereby the yarn will be wound up and down on the bobbin, said means including the building motion lever, the cam carried thereby, the revolving shaft M, the cam N carried thereby and engaging the cam on the building motion lever, the means for operating the cam on the building motion lever and the driving connections from the building motion lever to the said movable part for winding the yarn up and down on the bobbin spindle, substantially as described.

9. In combination, the bobbin spindle, the traveler, the guiding ring for the traveler formed in sections with means for clamping the sections together and holding the ring in place.

10. In a spinning frame, the traveler, the guide ring and means for moving one of said parts vertically in relation to the other, combined with the bobbin spindle about which the traveler lays the yarn, said guide ring being of less height than the conical part of the bobbin, substantially as described.

11. In a spinning frame, the guide ring, the traveler and the means for moving one of said parts vertically in relation to the other, combined with a bobbin spindle about which the traveler lays the yarn, said traveler consisting of the stem having a bearing for attachment to its support and a broadened lower end A^4 bearing on the interior of the guide ring, substantially as described.

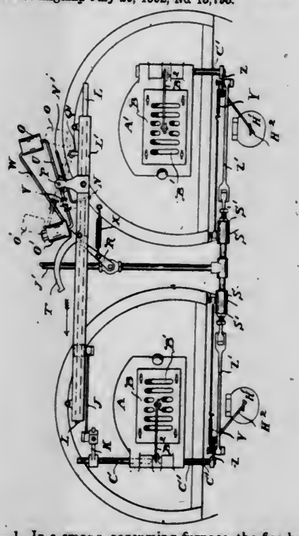
521,585. WINDOW. GIOVANNI GIGLIO, New York, N. Y. Filed Dec. 12, 1893. Serial No. 493,463. (No model.)



Claim.—1. The combination with the frame and an upper and lower sash free to slide up and down within the frame, of hinged frame sections at the opposite sides of the frame and means for locking the window sashes to and releasing them from the hinged sections of the frame, one sash to and from one hinged section and the other sash to and from the other hinged section, substantially as set forth.

2. The combination with the window frame, an upper and a lower sash free to slide up and down within the frame, hinged frame sections located respectively at the outside and inside corners of the opposite sides of the frame, and means for locking the sashes to the hinged sections to swing in a direction lateral with respect to the plane of the window, of a removable stop constructed to interlock with the frame at the free swinging edge of the sash, substantially as set forth.

521,586. SMOKE-CONSUMING FURNACE. JESSE GRAHAM, Morley, England. Filed Aug. 1, 1893. Serial No. 482,099. (No model.) Patented in England July 29, 1892, No. 13,793.



Claim.—1. In a smoke consuming furnace the fire box, the air inlet pipe extending in rear of the same, and opening to the atmos

phere, the valve or door controlling said open end, the draft plate B at the front of the furnace, the steam jet directed to the air pipe H, the steam cylinder S, the connections therefrom to the draft slide at the front of the furnace and with the valve of the air pipe H, the steam valve and means for operating the same, said means being in connection with the furnace door, substantially as described.

2. In a smoke consuming furnace, the fire box, the air inlet pipe extending in rear of the same and having a valved opening to the atmosphere, the draft plate B at the front of the furnace, the steam jet directed to the air pipe, the steam cylinder S, the connections therefrom to the valve of the air pipe H and to the draft plate B, and the steam valve, substantially as described.

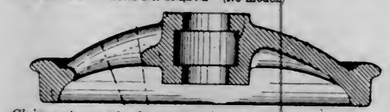
3. In combination in a smoke consuming furnace, the fire box, the perforated arch in rear thereof, the steam jet, the air pipe H leading from said steam jet to the perforated arch, the valve controlling the air pipe H, the connection to the said valve controlled by the pressure of steam, the steam valve for controlling the pressure and the supply to the steam jet and the connection for operating the steam valve extending from the furnace door whereby when said door is opened the steam pressure will open the air valve of pipe H and then supply the steam jet, substantially as described.

4. In combination in a smoke consuming furnace the air pipe H leading into the same, the steam jet directed to the pipe H, the steam supply, the valve controlling the same, the tipping vessels O O' with connections between them, said vessels being arranged to control the closing of the steam valve, the sliding bar L and the connection therefrom to the furnace door to be operated thereby, substantially as described.

5. In combination, in a smoke consuming furnace, the door, the draft slide B thereon, the hinge pin C connected to and movable with the door, the hinge pin C' arranged to have movement independent of the door, the air pipe H extending into the furnace, the steam jet leading thereto, the steam supply and valve, the piston S, connected with the steam supply, the connections from the hinge pin C for operating the steam valve when the door is opened, the valve plate H' for the pipe H, and the connections from the piston S to the hinge pin C', and the valve plate H', substantially as described.

6. In combination in a smoke consuming furnace, the door A having the draft slide B thereon and the hinge pin C rigidly connected to turn with the door, the air pipe H having a valve plate H', the piston having connection with the valve plate and with the movable hinge pin C' connected with the draft slide, the sliding bar L connected with the hinge pin C, the steam valve, the steam pipe extending therefrom to the piston and to the steam jet leading into the air pipe H, the lever R of the steam valve arranged to be operated by the movement of the bar L to open the steam valve, the catch T for holding the lever R in open position and the tipping device O O' arranged to be operated by the movement of the sliding bar for releasing the catch, substantially as described.

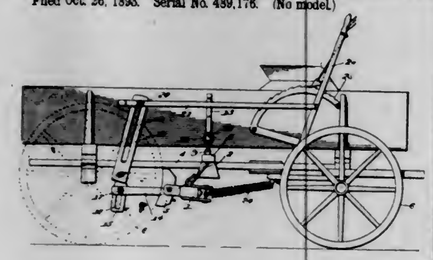
521,587. CAR-WHEEL. LOUIS J. HIRT, Somerville, Mass. Filed Dec. 21, 1893. Serial No. 494,274. (No model.)



Claim.—A car wheel composed of a hub, rim, and spokes separated to leave openings and corrugated in the direction of their length, the outer and inner faces of the said spokes having the curves 6, 7, respectively, substantially at right angles to a radial line through the said spoke and both curves extending from the hub to the rim in unbroken lines, to obtain a corrugated spoke of uniform thickness from the hub to the rim, substantially as described

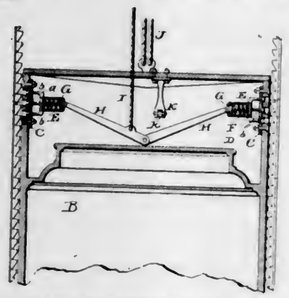
---

521,588. VEHICLE-BRAKE. JOHN C. F. HURST, Holton, Kans. Filed Oct. 26, 1893. Serial No. 489,176. (No model.)



Claim.—In a brake, the combination with a vehicle, of a transverse bar secured to and supported by the running gear thereof, depending guide plates provided with perforations and having shanks extending through the transverse bar and provided with perforations, supporting irons secured to the body of the vehicle and provided with hooks connected with the shanks for links engaging the perforations of the shanks, a brake-bar provided with brake shoes, the approximately U-shaped links receiving the lower portions of the guide plates and arranged in the perforations thereof and having their lower ends hingedly connected with the brake-bar, and means for operating the brake-bar, substantially as described.

521,589. SAFETY ATTACHMENT FOR ELEVATORS. FRANK W. JANDELL, Mapleton, N. D. Filed Apr. 17, 1894. Serial No. 507,885. (No model.)



Claim.—1. In a safety attachment for elevators, the combination with a car, a movable bolt adapted to pass through the side thereof, a spring bearing at one end against the base of the bolt and a movable plunger bearing against the other end of the spring, of an inclined lever attached at one end to the plunger, a safety rope attached to the lower end of the lever and means for moving said lever in the direction of its length when its lower end is moved vertically by the safety rope, substantially as set forth.

2. The combination with bolts located on opposite sides of an elevator, springs bearing against said bolts, and a movable plunger behind each spring, of a lever connected to each plunger, the two levers being connected at their inner ends, and a safety rope attached to one of said levers, substantially as set forth.

3. The combination with bolts located on opposite sides of an elevator, a sleeve carried by each set of bolts, a spring in each sleeve and a plunger bearing against each spring, of a lever connected to each plunger the two levers being connected at their inner ends and a safety rope attached to one of said levers, substantially as set forth.

4. The combination with bolts located on opposite sides of an elevator, a sleeve carried by each set of bolts, a spring in each sleeve and a plunger bearing against each spring, of a lever connected to each plunger, the two levers being connected at their inner ends, a safety rope attached to one of said levers, and a lock for holding the levers elevated after they have been raised by the safety rope, substantially as set forth.

5. The combination with plates C having holes therein and adapted to be secured to an elevator car, plates D each having a series of bolts passing through the holes of its respective plate C, a sleeve on the inner face of each plate D, a spring in each sleeve and a plunger bearing against each spring, of the levers connected to the plungers and to each other and safety rope for raising the levers to approximately horizontal positions, substantially as set forth

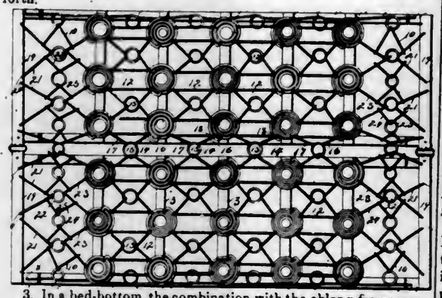
---

521,590. SPRING BED-BOTTOM. DAVID LEONARD, St. Louis, Mich., assignor to Frank G. Kneeland, David E. Harrison, and John R. Knight, same place. Filed Oct. 23, 1893. Serial No. 488,914. (No model.)

Claim.—1. In a bed bottom, the combination with opposite side-bars, transverse slats, and a series of convolute-springs arranged on the slats, the ends of said side bars being upturned to form standards and perforated, of connections between the springs, a longitudinal stringing wire passed through the upper coils of the outer springs, clipped thereto, and engaging the perforations of the standards, short tie-wires between the springs, and eyes coiled between the springs upon the stringing-wire and loosely engaging the tie-wires, which pass therethrough, substantially as specified.

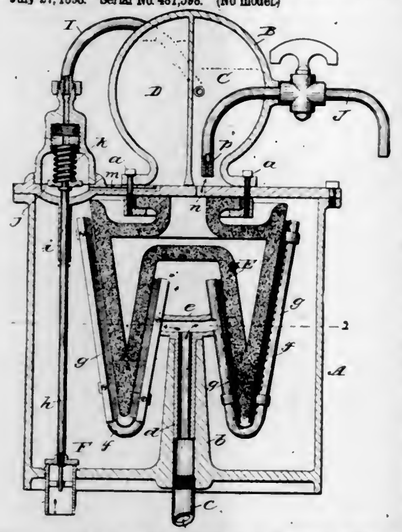
2. In a spring bed bottom, the combination of the opposite sections hinged together, slats arranged therein, the convolute springs arranged on the slats, the star shaped frames 12 connecting a series of four adjacent springs of each section and formed of a single piece

of wire, circularly bent at its center to form a bridge eye or coil located between the sets of springs and having its terminals diverge to engage over the upper coil of two of the springs, thence transversely disposed to engage the upper coils of the adjacent two springs and finally returned and secured to the central bridge eye or coil, the diverging parts of the frame forming V shaped portions extending from the central coil and connected at their apices to the springs, and the flexible star-shaped frames 14 having a hinged connection between the inner springs of the two sections, substantially as set forth.



3. In a bed-bottom, the combination with the oblong frame comprising side and end-bars, the latter being above the former, and the transverse slats, of the convolute springs arranged on the slats, connections between the same, V-shaped wires connecting each pair of end-springs and terminating at their angles in eyes, similar V-shaped wires connected to the end-bars and at their inner ends bent to form eyes loosely coupled with the companion V-shaped wires, and the intermediate pairs of loosely coupled V-shaped wires engaging the terminals of those V-shaped wires of the end-bars and of the convolute-springs, substantially as specified.

521,591. FILTER. ELMORE P. LYNN, Cincinnati, Ohio. Filed July 27, 1893. Serial No. 481,598. (No model.)



Claim.—1. In a filter, the combination of a filtering vessel, an earthen-ware filtering partition therein, a valve in the filtering vessel opening to outside, a diaphragm chamber containing a diaphragm connected to said valve and communicating on one side through a restricted opening with an air chamber and the filtering vessel and on the opposite side with the chamber for filtered water, said chamber having a restricted outlet, substantially as described.

2. In a filter, the combination of a filtering vessel, an earthenware filtering partition therein, a chamber for the filtered water, a diaphragm chamber communicating on one side with the chamber for the filtered water and on its other side with an air chamber communicating through a restricted opening with the filtering vessel, and a valve in the filtering vessel actuated by the diaphragm, whereby the opening and closing of the valve is rendered automatic, substantially as described.

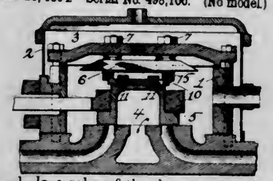
3. In a filter, the combination of a filtering vessel, an earthenware filtering partition therein, a chamber for the filtered water, a diaphragm chamber communicating on one side with the chamber for the filtered water and on its other side with an air chamber communicating through a restricted opening with the filtering vessel, a valve in the filtering vessel actuated by the diaphragm, and a spring for said diaphragm and valve, whereby the opening and closing of the valve is rendered automatic, substantially as described.

4. In a filter, the combination of a filtering vessel, an earthenware filtering partition therein, a cleaning device automatically actuated by the inflowing water and which is in close proximity to the surface of the filtering medium, and an automatically actuated valve the opening of which causes said cleaning device to press and revolve against said filtering medium when the same is clogged and requires cleaning, substantially as described.

5. In a filter, the combination of the vessel A, the earthenware partition E therein of the shape described, the hollow boss *b*, the sleeve *d* loosely journaled therein and carrying the lateral pipe *e* the pipes *f* secured to the pipe *e* and containing perforations, and the brushes *g* carried by said pipes, substantially as described.

6. The herein described filter composed of the vessel A with valve F and hollow boss *b*, the filtering medium E of the shape described, the chamber B with the compartments C, D; the former communicating with the filtering medium and having a discharge pipe J, the diaphragm chamber H communicating by pipe I with the compartment C, the diaphragm *j* in said chamber, the spring *k* for said diaphragm, the valve stem *h* connected to the diaphragm, the port *m* between the compartment D and the diaphragm chamber, the loosely journaled sleeve *d* carrying pipes *e* and *f*, and the brushes *g* carried by the pipes *f*, the whole constructed and operating in the manner and for the purpose specified.

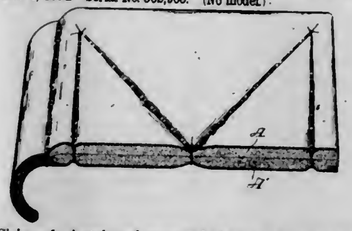
521,592. SLIDE-VALVE FOR STEAM-ENGINES. FRANK P. MALONE, Evanston, Wyo., assignor of one-half to John Carrick, same place. Filed Jan. 26, 1894. Serial No. 498,106. (No model.)



Claim.—1. In a valve of the character described, the seat and the wear plate adjustable relatively to said seat, and the interposed slide having a cup-shaped bull-ring attached to the upper surface of the slide by perforated bolts passing through the bottom of the cup and the top of the slide, thus affording passage for steam, the balance-ring surrounding the bull-ring and held against the wear plate by springs arranged directly under the balance ring, and the interposed packing between the bull-ring and the balance-ring, all combined substantially as described

2. In a valve of the character described, the seat and wear plate adjustable thereto, the interposed slide having a plurality of cup-shaped bull rings attached by perforated bolts to afford steam passage as described, a balance ring surrounding each bull ring, and springs directly under the balance ring, and suitable packing between the bull ring and balance ring, all combined substantially as described.

521,593. STAIR-PAD. MARTIN H. MARCUS, Baltimore, Md. Filed Mar 8, 1894. Serial No. 502,903. (No model.)



Claim.—1. A stair pad composed of two or more layers of soft elastic material secured together and having one edge bent to form a nosing, said nosing portion having a stiffening solution applied to and incorporated therein to give it sufficient rigidity to preserve its rounded shape, substantially as set forth.

2. A stair pad composed of layers of cotton batting one edge of which is bent to form a nosing and having a stiffening solution applied thereto whereby to give it sufficient rigidity to preserve its shape and the remaining portion, tufted or otherwise fastened to hold the layers together and preserve the normal shape of the pad, substantially as set forth

3. A stair pad composed of layers of soft material, one edge of which is reinforced by additional layer of the same kind of material which forms the body portion, said reinforced portion bent to constitute a nosing, substantially as set forth.

4. A stair pad composed of layers of soft material, one edge of which is reinforced by additional layers of the same kind of material which forms the body portion, said reinforced portion having a stiffening solution applied thereto and bent to form a nosing, substantially as set forth.

5. A pad composed of layers of batting or equivalent material, one layer longer than the other and lapped around it, a portion coated with a sizing, or stiffening solution and folded upon itself and this folded portion pressed to force the solution into the interstices and formed into a curved nosing, substantially as set forth

521,594. ELECTRIC BELT. ERASTUS M. MILES, Chicago, Ill.

Filed July 1, 1893. Serial No. 479,364. (No model.)



Claim.—1. In a battery for electric belts, a cell composed of an outer shell or case, F, of copper, in combination with an inner plate, D, of zinc bent upon itself but with a space between the two sides opening out between the two free edges, and an absorbent strip, E, arranged within the said space and surrounding the said inside element, D, in the space between the latter and the outside element or shell substantially as described.

2. In a battery for electric belts, the cells, in combination with a hinge device connecting adjacent cells and provided with an eye or loop formed in the hinge itself for making connections, substantially as described.

3. In a battery for electric belts, the cells, C, in combination with the wire hinges, G, connected to opposite elements of adjacent cells, and provided with a loop or eye, g^3, formed by bending the wire into a loop at one end of each hinge, substantially as described.

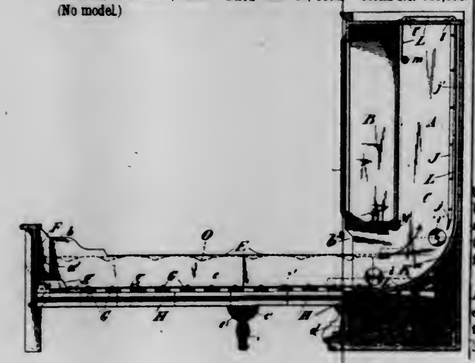
4. In a battery for electric belts, a switch or cut-out, I, consisting of a single strip or wire bent upon itself, and with the ends diverging, substantially as described.

5. In a battery for electric belts, the cells, C, in combination with a hinge connecting adjacent cells and provided with an eye or loop, g^3, the switch or cut-out, I, constructed as specified, and the electrode conductors, substantially as described

6. In electric belts, an electrode consisting of a disk, k, provided with loops, k', k^3, in one piece with said disk, substantially as described.

7. In an electric belt, the battery cells, in combination with hinge connections between the cells, provided with eyes or loops, g^3, the cut-outs, I, constructed as specified, the electrodes, K, consisting of a disk, k, provided with loops, k', k^3, in one piece therewith, the conductors, J, and the belt, A, substantially as described.

521,595. CABINET OR WARDROBE BEDSTEAD. FREDERICK W. NYE, Cincinnati, Ohio. Filed Mar. 10, 1894. Serial No. 503,096. (No model.)



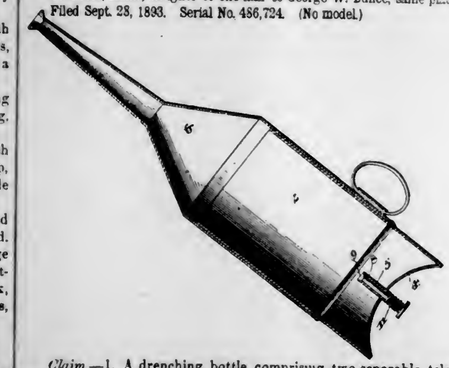
Claim.—1. In a cabinet or wardrobe bedstead, the combination with a permanently-upright frame or casing having a suitable receptacle or chamber with a lower front opening or orifice leading thereto, of an extensible-bedstead composed of a flexible, slatted-bottom, a pair of hinged side-rails, a foot board hinged to said side rails, and the latter swung or hinged to said casing, extension-bar supports H, having slide couplings H' for said slatted bottom, and suitable guides in said casing for said slatted-bottom, the said movable or extensible bedstead being drawn into and from said casing, by means of any suitable power device, for closing and opening positions, substantially as herein set forth.

2. In a cabinet or wardrobe bedstead, the combination of a casing having a front wardrobe-compartment and a rear main-compartment, the latter having a lower fore-orifice under said wardrobe-compartment, a drawer or locker compartment under said lower fore-orifice, a flexible slatted-bottom or apron, a series of extension-slides or bars H having slide couplings H' and projecting forward from said casing under said slatted-bottom and thereby supporting the latter, suitable guides in the casing for the movement or passage, in either direction, of said slatted-bottom with its bed thereon to or from said main-compartment, a suitable foot-board at the outer end of said slatted-bottom, and folding side-rails pivotally connected at their inner ends to the casing, and likewise connected at their outer ends to said foot-board, and auxiliary legs or supports under the hinged folding-portions of both said side rails, the whole being constructed and the bedstead adapted to be drawn by means of any suitable mechanism into concealed confinement within the said main receptacle or rear chamber, and readily withdrawn therefrom for use, substantially as herein set forth.

3. In a cabinet or folding bedstead, the combination of a casing or permanently-upright receptacle having an open lower-orifice, a reciprocating foot-board, a pair of folding side-rails hinged at their opposite ends to the end walls of said casing and the opposite ends of said foot-board, respectively, and a suitably supported slatted-bottom or apron for receiving the mattress or bed, said side rails, foot board, and slatted-bottom together with the bed, being adapted to be closed within said casing, substantially as and for the purpose herein set forth.

521,596. VETERINARY DRENCHING-BOTTLE. PETER SCHAEFER, St. Peter, Minn., assignor of one-half to George W. Bunce, same place.

Filed Sept. 23, 1893. Serial No. 486,724. (No model.)



Claim.—1. A drenching bottle comprising two separable telescoping sections and provided with a vent, one of the sections having a spout, substantially as described.

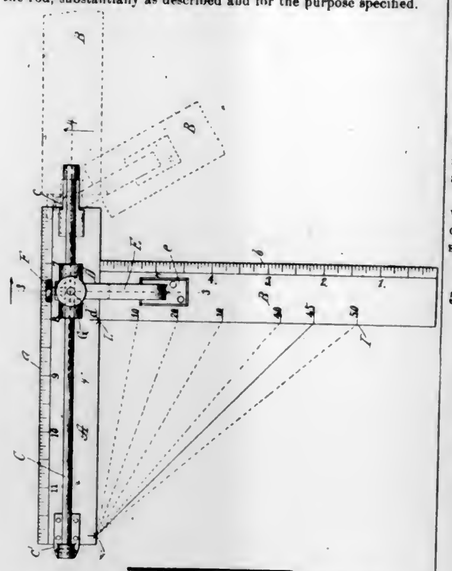
2. A drenching bottle comprising the upper and lower separable telescoping sections, the upper section being provided with a spout and the lower section having an inwardly extending concavo-convex bottom provided with a vent opening, and a spring actuated valve for closing the vent opening, substantially as described

521,597. DRAFTSMAN'S RULE. FRANCIS W. ALTPETER, Chicago, Ill. Filed Feb. 19, 1894. Serial No. 500,642. (No model.)

Claim.—1. In a draftsman's rule the combination of the members, A, B, the rod, C, mounted above the member A, and projecting beyond one of its ends, a block, D, adapted to slide upon the rod, and an arm, E, rigidly attached to the member, B, and pivotally attached to the block, D, substantially as described and for the purpose specified.

2. In a draftsman's rule the combination of the two members, A, B, adapted to be joined end to end and form a continuous straight edge, a slide rod fixed to one of the members as A, along its longitudinal median line, and projecting beyond one of its ends, a slide block carried by the rod, a rigid arm fixed to the other member, as

B, and pivotally connected with the slide block, and means for locking the arm upon the block and means for locking the block upon the rod, substantially as described and for the purpose specified.

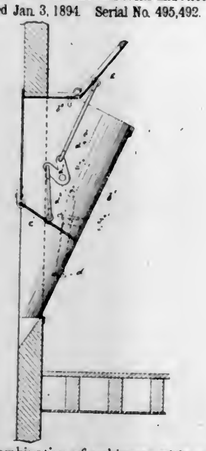


521,598. SAFETY ATTACHMENT FOR BROOCH-PINS. ADA F. BOCK, Akron, Ohio. Filed Mar 2, 1894. Serial No. 502,093 (No model.)



Claim.—The combination, with the body of a clasp-pin ornament having hinge members and a loop; and a pin adapted to fit said hinge members and engage said loop, of a separate wire arranged to pass through said hinge members and pin and operate as a pintle therefor, its other end being bent to engage the pin between the hinge and loop and constantly press it outward, as shown and described.

521,599. ASH-CHUTE. LOUIS BOFIRD and JACOB BLACKMAN, New York, N. Y. Filed Jan. 3, 1894. Serial No. 495,492. (No model.)



Claim.—1. The combination of a chimney with a chute, a pair of lids of which one is open when the other is closed, a bell crank pivoted to the chute, a foot bar pivoted to the bell crank, and a pair of rods that connect the bell crank to the lids, substantially as specified.

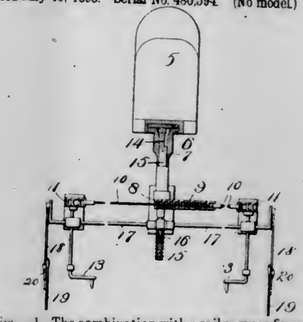
2. The combination of a chute with an upper and a lower lid, a foot bar, a bell crank, rods that connect the bell crank to the lids and with a spring and slotted guide for locking the foot bar in its depressed position, substantially as specified.

521,600. PREPARATION FOR PROTECTING METALS AGAINST CORROSION. AUGUST BUECHER, Heidelberg, Germany. Filed Dec. 8, 1893. Serial No. 493,173. (No specimens.) Patented in Germany Apr. 7, 1893, No. 72,320

Claim.—1. An anti-corrosive paint for steel and iron articles, which consists of an intimate mixture of finely-pulverized metallic zinc, calcium-carbonate and a suitable polishing substance with an alcoholic saponate-solution, substantially as set forth.

2. An anti-corrosive paint-composition for steel and iron articles, which consists of the mixture of finely-pulverized metallic zinc, calcium-carbonate and a suitable polishing substance with an alcoholic solution of saponates and benzene, substantially as set forth.

521,601. SEARCH-LIGHT. OWEN G. CATES, Jr., St. Louis, Mo. Filed July 15, 1893. Serial No. 480,594. (No model.)



Claim.—1. The combination with a railway car formed with a recess in its side which opens to the exterior, of a revoluble table mounted in said recess, a lamp base pivoted at one side to said table, a sleeve extending down from the table to the interior of the car, means for revolving the table through the medium of the sleeve, and a rod extending through the sleeve and having a link on its upper end, which link is connected to the pivoted lamp base, through the medium of which rod and link, the lamp base may be tilted, substantially as described.

2. The combination with a railway car formed with a recess in its side which opens to the exterior, of a revoluble table mounted in the recess, a lamp base pivoted at its outer edge to said table, a sleeve extending down from the table to the interior of the car, a sprocket wheel on the lower end of the sleeve, chains for rotating said sprocket in either direction, a rod within the sleeve, a link connecting the upper end of the rod with the pivoted lamp base, said rod having teeth formed on its lower end, and means for operating the rod while the table is in any of its revolved positions, substantially as described.

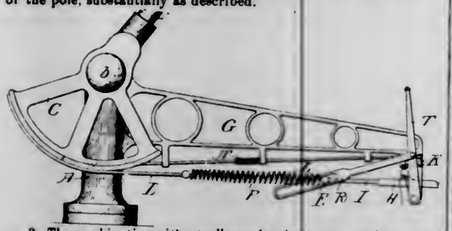
3. In a search light, the combination with the revoluble lamp table formed with a hollow sleeve, of a rod slidingly mounted in the sleeve and having a link connection with the lamp base, threads formed on the lower end of the rod, a segment for engaging the threads, and means for operating the segment to elevate the rod, substantially as described.

4. In a search light, the combination with the revoluble lamp table formed with a hollow sleeve, of a threaded rod slidingly mounted in the sleeve and having a link connection with the pivoted lamp base, a segment for elevating the rod through the medium of its engagement with the threads on the rod, a horizontally-disposed rod upon which said segment is fixedly mounted, which rod has rock-arms on its ends, links attached to said rock-arms, and formed with ratchet teeth, an operating lever to which said links are connected, and a pawl pivoted on the lever and sliding on the link, substantially as described

521,602. TROLLEY-POLE CATCHER. OWEN G. CATES, Jr., St. Louis, Mo. Filed Mar. 12, 1894. Serial No. 503,275. (No model.)

Claim.—1. The combination with the trolley pole and its means for holding the trolley in contact with the wire, in which means are included springs, of a bolt for holding the springs under tension, a bell-crank lever connected to the bolt, a rod connected to the other arm of the bell-crank lever, and projections on the rocker arms of the trolley pole for engaging and operating the arm when the trolley leaves the wire, whereby the bolt is actuated to release the tension of the springs, substantially as described

2. The combination with a trolley pole, pivot-post, reach-arm and springs, of a movable bearing for one end of the springs, a threaded rod connected to said movable bearing, a sleeve upon said rod, a projection on the sleeve, a bolt which is adapted to engage the projection and hold the pole in an operative position, and means for operating the bolt to release the projection upon the forward movement of the pole, substantially as described.



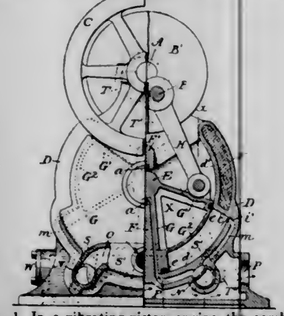
3. The combination with a trolley pole, pivot-post, reach-arm and springs, of a movable bearing for one end of the springs, a bolt for retaining the springs under tension, a bell-crank lever for operating the bolt, a rod connected to the bell-crank lever, and extending within the path of the lower end of the trolley pole, a spring surrounding the rod for holding the same and the bolt in a normally operative position, and means on the lower end of the trolley pole for coming in contact with the rod and actuating the same when the trolley wheel jumps the conducting wire, substantially as described.

4. The means for resetting a tripped trolley pole, comprising the combination with the spring bearing bar, of slotted links through which said bar passes, and a lever to which said links are connected, substantially as described.

5. The combination with the means for tripping a trolley pole whose wheel has jumped the conducting wire, of mechanism for resetting the trolley pole comprising a slotted link through which one of the spring bars passes, a lever to which said link is connected, said lever having an eye in its free end, substantially as described.

6. The combination with a pivoted trolley pole, of a spring or springs connected thereto for holding the trolley in contact with a conductor, a catch for normally holding the springs under tension, and means for adjusting the relation between the springs and catch, whereby the tension of the springs can be adjusted or regulated, substantially as described.

521,603. VIBRATING-PISTON ENGINE. WILLIAM E. CRIST, Brooklyn, N. Y. Filed Oct. 12, 1889. Serial No. 326,840. (No model.)



Claim.—1. In a vibrating-piston engine, the combination of a sectoral chamber having parallel side walls, a vibrating piston working therein, and a division plate concentric with the axis of the piston to inclose the inner portion of one face of said piston and reduce the effective area of said face, substantially in the manner and for the purpose herein set forth.

2. The combination, in a vibrating-piston engine, of pressure or working chambers of unequal area, a vibrating-piston interposed between them, a communicating passage connecting them, and valves governing said passage and the steam-supply and exhaust ports of the engine; whereby the steam or motive force admitted at its initial or high pressure into the chamber of least area on one side of the piston is thence exhausted into the chamber of larger area and allowed to expand therein against the opposite side of the same piston before being finally exhausted from the engine, substantially in the manner and for the purpose herein set forth.

3. In a vibrating-engine, a piston constructed of two diverging wings projecting from the same side of its pivotal shaft in combination with connecting-plates inclosing a portion of the angular space included between said wings, whereby the area of the working surface upon one face of the piston is reduced below that upon its opposite face, substantially in the manner and for the purpose herein set forth.

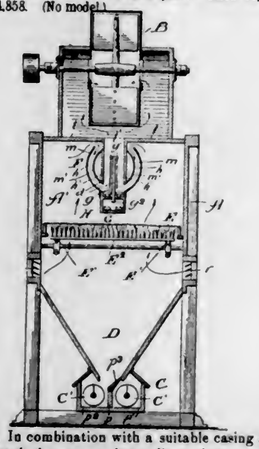
4. The combination in a vibrating-engine with suitable supply and exhaust pipes and a valve or valves controlling the same, of a sectoral casing, a vibrating piston working therein having the effective surface area upon one of its faces reduced by a division plate or wall extending therefrom concentric with its axis to inclose the inner portion of said face, an abutment projecting inwardly from the casing into contact with said division plate, and a valve-controlled passage connecting the spaces on the opposite sides of the piston, substantially in the manner and for the purpose herein set forth.

5. The combination in a vibrating-piston engine, with suitable supply and exhaust passages and controlling valves substantially as described, of a sectoral-casing, a rock-shaft, a vibrating-piston carried by said rock shaft and having working or pressure surfaces of unequal area upon its opposite sides, and corresponding, fixed, radial abutments of unequal area against and between which the piston vibrates, substantially in the manner and for the purpose herein set forth.

6. The combination in a vibrating-piston engine with its casing and suitable supply and exhaust passages and controlling valves substantially as described, of a rock-shaft; a sectoral working-chamber left open at one end, closed by a radial abutment at the other and having the rock-shaft at its apex, the outer peripheral wall of said chamber being formed in two sections curved about the axis of the rock-shaft, with the radius of the outer section less than that of the inner and the two connected by an offset serving as the second abutment in the chamber; a piston-plate projecting from the rock-shaft to vibrate between said abutments and traverse with its outer end the inner section of the peripheral wall; and a curved partition plate, concentric with said peripheral wall and which extends from the outer face of the piston to move therewith and ride over and against the inner face of the outer section of the peripheral wall, all substantially in the manner and for the purpose herein set forth

7. The combination in a vibrating engine, with its casing, and suitable supply and exhaust valves and passages, substantially as described; of a sectoral working-chamber having its outer peripheral wall divided into two sections describing arcs of unequal radii about a common center; a rock-shaft having its axis coincident with said center; piston-plates of unequal radii projecting from said rock-shaft at divergent angles to sweep severally over said sections; and a curved, plate extending from the end of the shorter piston-plate to intersect the longer piston-plate upon an arc concentric with that of the section of shortest radii which it traverses in the movements of the piston, substantially in the manner and for the purpose herein set forth.

521,604. DUST-COLLECTOR. EMIL R. DRAVER, Alliance, Nebr., assignor to Florence N. Draver, same place. Filed Sept. 5, 1893. Serial No. 484,858. (No model.)



Claim.—1. In combination with a suitable casing and a fan for forcing air through the same, a dust-collector interposed in the path of the air-current and containing a passage having the inlet at its upper end and leading thence downward, an outlet-passage leading from the lower end of the inlet-passage to the fan-chamber, and a dust-intercepting deflector in said outlet-passage adjacent to the lower end of the downward extending passage and forming the upward extension thereof leading to the outlet, substantially as described.

2. In combination with a suitable casing and a fan for forcing air through the same, a dust collector interposed in the path of the air-current and containing an outwardly curved passage *h* having the inlet at its upper end and an upward extension *h'* leading from its lower end to the outlet and a dust-intercepting deflecting board *g* forming one side of the said extension *h'*, substantially as described.

3. In combination with a suitable casing and a fan for forcing air through the same, a dust-collector interposed in the path of the air-current and containing a passage having the inlet at its upper end and leading thence downward, an outlet-passage leading from the lower end of said inlet-passage to the fan chamber and a dust-intercepting deflecting-board *g*, yieldingly supported in said outlet-passage adjacent to the lower end of the downward-extending passage and forming the upward extension thereof leading to the outlet, substantially as described.

4. In combination with a suitable casing and a fan for forcing air through the same, a dust-collector interposed in the path of the air-current and containing a central upright dust-intercepting deflector, and passages, at opposite sides of the deflector, each having the inlet at its upper end and leading thence downward to said deflector and branching into an upward extension *h'* leading, between the deflector and adjacent said passage, to the outlet, substantially as described.

5. In combination with a suitable casing and a fan for forcing air through the same, a dust-collector interposed in the path of the air-current and containing the outwardly curved passages *h* each having the inlet in its upper end and an upward extension *h'* leading from its lower end to the outlet, and a dust-intercepting deflector interposed between the said passages and forming the said extensions, substantially as described.

6. In combination with a suitable casing and a fan for forcing air through the same, a dust-collector interposed in the path of the air-current and containing a central upright dust-intercepting deflector formed with a center-board *g* having a head *g'*, cloth-covered sides and screens *d*, and passages *h*, at opposite sides of the deflector, each having the inlet at its upper end and leading thence downward to said deflector and branching into an upward extension *h'* leading, between the deflector and adjacent said passage, to the outlet, substantially as described.

7. In combination with a suitable casing having a fan B arranged to draw air through the same, middlings-purifying mechanism, substantially as described, in the casing, and a chamber A' therein between the fan and air-inlet, and a dust-collector in said chamber, containing a passage having the inlet at its upper end and leading thence downward an outlet-passage leading from the lower end of the inlet-passage to the fan chamber and a dust-intercepting deflector in said outlet-passage adjacent to the lower end of the downward-extending passage and forming the upward extension thereof leading to the fan, substantially as described.

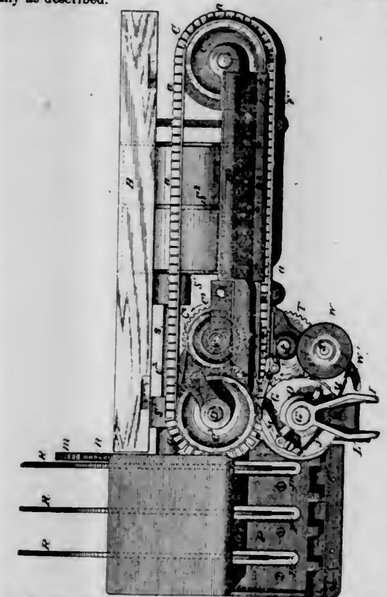
8. In combination with a suitable casing having a fan B arranged in its top portion to draw air through the casing, middlings-purifying mechanism, substantially as described, in the casing and a chamber A' therein formed, between the fan and air-inlet, by a partition *l* having an opening *l'* flanked by the sides *k*, and a dust-collector in said chamber and containing an upright dust-intercepting deflector formed with a board *g* supported between the said sides and curved passages *h* on the outer surfaces of said sides, each having the inlet at its upper end and leading thence downward to said deflector and branching into an upward extension *h'* leading between the deflector and adjacent side *k* to the opening *l'*, substantially as set forth.

9. In combination with a casing A having a fan B arranged in its top-portion to draw air through the casing, middlings-purifying mechanism, substantially as described, in the casing and a chamber A' therein formed between the fan and air-inlet, by a partition *l* having an opening *l'* flanked by the sides *k*, and a dust-collector F in said chamber containing an upright dust-intercepting deflector formed with a board *g* supported between said sides and provided with a head *g'*, a base g^2 and cloth-covered screened sides, passages *h* in the outer surfaces of said sides, each having the inlet at its upper end and leading thence downward to said deflector and branching thence into an upward extension *h'* leading, between the deflector and adjacent side *k*, to the opening *l'*, and a trough H provided with a valve-controlled outlet *i* and containing a conveyer G provided with means for jarring the board *g*, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

521,605. STAMP-CANCELING AND POSTMARKING MACHINE. MARTIN V. B. ETHRIDGE, Boston, Mass., assignor to the American Postal Machines Company, Portland, Me. Filed Nov. 23, 1889. Serial No. 331,356. (No model.)

Claim.—1. In a stamp-canceling and post-marking machine, the combination of the vertical belt C, mounted on suitable rolls and having its lower edge provided with a series of projections *a a*, the incline consisting of the plate or board B^3, the facing table and the vertical longitudinal plate or guard F' secured rigidly on the machine frame alongside of the moving belt and parallel thereto.

2. The combination with the letter hopper, of a pair of similarly-converging letter-deflecting springs or guides secured therein at points directly opposite to each other on opposite sides of the hopper, and projecting into the letter-path with their free yielding ends closely contiguous to and almost in contact with each other so that each piece of mail matter may be received directly between them and be simultaneously acted on by both so as to be guided forward, substantially as described.



3. The combination of the facing table, the vertically moving belt or carrier, the vertical longitudinal plate or guard alongside thereof, and the two converging letter-deflecting springs or guides of similar shape and arrangement secured within the hopper at points directly opposite to each other on opposite sides thereof and projecting into the letter path with their free yielding ends closely contiguous to and almost in contact with each other so that the letter may be received between them and simultaneously acted on by both so as to be surely guided forward, the rotary printing roller, the impression roller, one of which is yieldingly arranged relatively to the other, substantially as described.

4. In a stamp-canceling and post-marking machine, the combination of the letter hopper or receptacle, consisting of the vertical moving support having a series of projections on the lower edge thereof, a vertical plate located opposite said support and parallel thereto at a suitable distance therefrom, the facing table and an incline above the support and between it and the facing table, the printing roller, impression roller and letter guide, substantially as described.

5. The combination with the letter hopper, of the pair of similarly-shaped and arranged letter-deflecting springs or guides located within the hopper and secured at points directly opposite to each other on opposite sides of the hopper in a V-shape, so as to project into the letter-path with their free yielding ends closely contiguous to and almost in contact with each other so that each piece of mail matter may be received directly between them and so be surely guided forward, and a yielding timing lever against which the forward end of each letter is directed by the aforesaid springs, substantially as described.

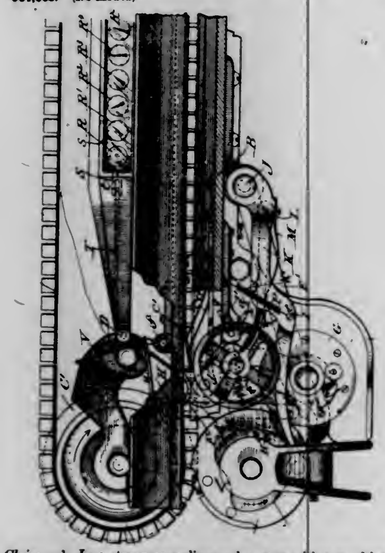
6. In a stamp-canceling and post-marking machine, the combination of a letter hopper or receptacle consisting of the vertical-moving support having a series of projections on the lower edge, a vertical plate opposite said support at a suitable distance, the facing table, the converging letter deflecting springs or guides arranged in the hopper so as to project from opposite sides thereof, the ends of said springs being closed to each other so that they may act to move the letter slightly away from the belt and guide its forward end, and a yielding timing lever in advance of said springs and arranged to be encountered by the letter after it passes said springs, substantially as described.

7. The combination of the hopper or receptacle, consisting of a

vertical moving support having a series of projections on the lower edge thereof, a plate located opposite said support, parallel thereto and at a suitable distance therefrom, the facing table, the printing roller and the impression roller, one of which is yieldingly arranged relatively to the other and the latter deflecting springs or guides arranged convergingly within the hopper so as to project from opposite sides of said hopper with their ends closely contiguous to each other, substantially as described.

521,606. STAMP-CANCELING AND POSTMARKING MACHINE.

MARTIN V. B. ETHERIDGE, Everett, Mass., assignor to the American Postal Machines Company, Portland, Me. Filed Feb. 16, 1891. Serial No. 381,383. (No model.)



Claim.—1. In a stamp-canceling and post-marking machine, the combination with the letter-conveying belt, a tripper in the letter-path and the timing stop in the letter-path, of means for causing the letter to pass the timing stop, a friction roller or rollers supported in the end of the spring arm, whose other end is supported by the main frame of the machine, said friction roller or rollers being kept constantly in contact with the vertical surface of the letter-conveying belt, substantially as described.

2. In a stamp canceling and post marking machine, the combination of the letter-conveying belt, the impression and printing rollers, a releaser or tripper in the letter-path, a timing lever a friction roller or rolls carried by a spring arm whose other end is secured to the main frame of the machine, said friction roll or rolls being located at a point between the timing lever and the printing mechanism and kept constantly in contact with the vertical face of the letter-conveying belt and another friction wheel or wheels supported in a vibrating frame together with a cam on the printing roller shaft, which acts in conjunction with the said frame, substantially as described.

3. In a stamp-canceling and post-marking machine, the combination with the letter-conveying belt, a tripper in the letter-path and a timing stop in the letter-path, of the printing mechanism, a friction roll or rolls carried by a spring arm and adapted to bear frictionally upon the letter-belt at a point near the timing and trip levers and means for causing the letter to pass the timing stop, substantially as described.

4. In a stamp canceling and post marking machine, the combination of a letter conveying device, a printing roller and an impression roller, a timing lever in the letter path and also a tripper in the letter path which releases the printing roller and a wheel or wheels supported yieldingly in a rocker frame or arm, together with a cam on the printing roller shaft operating in conjunction with said arm to cause said wheel or wheels to be brought temporarily in contact with a passing letter, substantially as described.

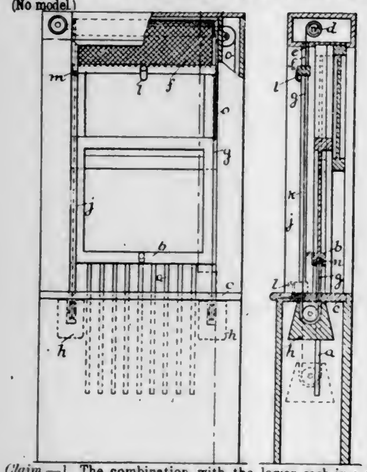
5. The combination in a stamp-canceling machine, of the letter-belt, the impression roller, a printing roll, a timing stop, a cam on the shaft of the printing roll, a lever pivoted to the main frame and having its free end in contact with the periphery of said cam, and a loose wheel or wheels carried by said lever adapted to be in contact with the letter belt at certain times, substantially as described.

6. The combination of a letter conveying belt, a printing roller and an impression roller, the timing stop in the letter path and also a tripper in the letter path, a friction roller or rollers A A carried by a spring arm A' and bearing against the letter belt, an arm or frame I pivoted at J to the main frame and having its end operated upon by the cam O on the printing roller shaft, the arm K pivoted in the lever I and the wheels N N supported in the arms K, all operating, substantially as described.

7. The combination with the letter-conveying belt, the printing and impression rolls, of the arm I pivoted to the main frame, the cam O upon the printing roller shaft and operating against the end of arm I, the arm K pivoted in arm I the wheels N N supported in the end of the lever K and the springs P P connected to the lever I and also to the main frame and the timing stop in the letter-path, substantially as described.

521,607. GUARD AND SHADE ATTACHMENT FOR WINDOWS.

THEOPHILE EUPHRAT, Darien, assignor of one-eighth to Charles S. Trowbridge, South Norwalk, Conn. Filed Apr. 6, 1894. Serial No. 506,562. (No model.)



Claim.—1. The combination with the lower sash in a window having the guard pendent from the lower cross bar of the sash and extending through the window sill, of a curtain or screen suspended from a self raising curtain roller and connected with raid lower sash by cords working over guide pulleys suitably for pulling the curtain down when the sash is raised substantially as described.

2. The combination with the sash of the self raising curtain roller and curtain, the cords connecting the lower ends of the curtain and the lower end of the sash through the space below the sill, and the pulley weights suspended in the bights of the cords, said cords adjusted to lodge the pulley weights against the cover of said space when the curtain is up and the sash is down, and said space adapted for the descent of the pulley weights substantially as described.

3. The combination with the sash of the self raising curtain roll concealed in the top of the window frame, the curtain suspended from said roll through a slot of the frame, the cords connecting the lower end of the curtain and the lower end of the sash through the space below the sill, and located in concealing grooves in the sides of the window frame, and the pulley weights suspended in the bights of the cords, said cords adjusted to lodge the pulley weights against the cover of said space when the sash is down and the curtain is up, and said space adapted for the descent of the pulley weights substantially as described.

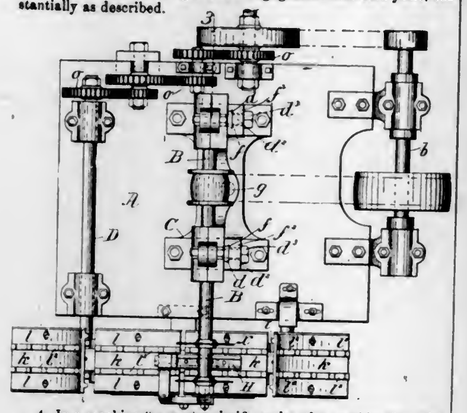
521,608. MACHINE FOR SAWING KNIFE-HANDLE BLANKS.

FREDRICK C. FEICKER, Northampton, Mass. Filed Aug. 2, 1893. Serial No. 482,156. (No model.)

Claim.—1. In a machine for sawing knife scales, the combination with the saws of an endless carrier having a series of tables each with bars thereon which are adjustable transversely of the direction of travel of the carrier and provided with transverse depressions or rests for holding the scales horizontally at right angles to said direction of travel, substantially as described.

2. In a machine for sawing knife scales, the combination with the saw-shaft and the saws and the support in which the saw-shaft is journaled which is vertically adjustable, of the endless carrier with the series of tables having the bars, with depressions for receiving the scales, which bars are transversely adjustable, and the vertically adjustable presser foot with yielding bottom bearing sections, substantially as described.

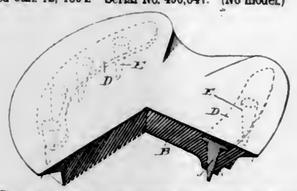
3. In a machine for sawing knife scales, the combination with the main table of the machine having the standards, f^2, with vertical ways, f, f, and vertical slots, f^2, and the endless carrier and series of tables, k, thereon for receiving and conveying the scales to be sawed, of a yoke in which the saw-shaft is journaled and provided with the members which have guiding engagements in said vertical ways and the studs or tenons which pass through said slots and receive confining nuts, and the vertical screws, g, rotatably mounted in the main table and having a screw engagement with said yoke, substantially as described.



4. In a machine for sawing knife scales, the combination with the main table having the yoke, G, comprising the separated members with the longitudinal trough-ways, q, q, in their tops, of the wheel, h, with ratchet-like sides, and the roller with side flanges, the endless link-formed carrier having the outwardly projected studs, f^3, to be engaged by the teeth of said wheel and having the series of tables, k, with the longitudinal ribs, t, t, on their bottoms, and carrying the bars, l, with the transverse rest depressions, and the saws, all substantially as described.

521,609. HORSESHOE-PAD.

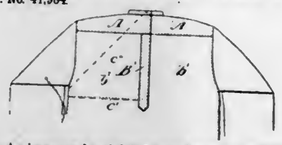
ALBERT L. GRANT, Philadelphia, Pa. Filed Jan. 12, 1894. Serial No. 496,647. (No model.)



Claim.—The pad formed from rubber and having the beveled marginal flange and the metallic plates embedded in the rubber and carrying projected calks or points, said plates being separated from each other and arranged one on each side of the longitudinal center of the pad throughout its length and close to the margin of the body, in combination with a shoe having its upper face shaped to retain and support the pad, substantially as specified.

521,610. SHIRT.

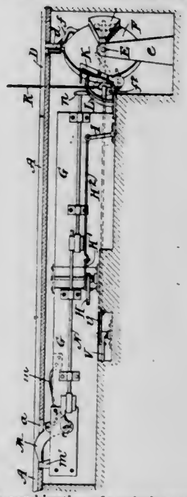
HENRY A. HAGEN, Berlin, Canada. Filed June 28, 1893. Serial No. 479,008. (No model.) Patented in Canada Feb. 16, 1893. No. 41,984.



Claim.—An improved article of manufacture, consisting of a shirt having a vertical placket in the back and having a piece forming a right angled triangle secured to the underlapping edge of the placket by one of the sides adjoining the right angle and extending the full length of said placket to the neck band, and the base or other side of said piece adjoining the right angle secured across the other side of the back of the shirt opposite to the edge of the placket to which the vertical edge is secured and extending from the base of the placket to the side seam, so that the hypotenuse of said piece is free and extends from the side seam on one side to the neck band on the other side, substantially as set forth.

521,611. RAILWAY SWITCH AND SIGNAL.

SAMUEL S. HEIN, New York, N. Y. Filed Feb. 21, 1894. Serial No. 500,995. (No model.)



Claim.—1. The combination of a switch tongue, an overbalanced disk having on its periphery a cam to engage a projection from said tongue and adapted to shift the same when released, a latch to retain said disk in position, a lever adapted to be moved by an approaching car and intermediate means to disengage said latch and release the disk and means to reset said disk, substantially as shown and described.

2. The combination of a switch tongue, an overbalanced disk engaged therewith and adapted to shift the same when released, a latch to retain said disk in position, means to disengage said latch and release the disk, a lever adapted to be moved by an approaching car a bell-crank having a bent arm overlying a projection from said disk and connections between said lever and bell-crank whereby the movement of said lever returns said disk into position to be held by said latch, substantially as shown and described.

3. The combination of a switch tongue, an overbalanced disk having on its periphery a cam to engage a projection from said tongue and adapted to shift the same when released, said disk being obliquely disposed with respect to its axis of rotation, a latch to retain said disk in position, means to disengage said latch and means to reset said disk into position, substantially as shown and described.

4. The combination of a switch tongue, an overbalanced disk engaged therewith and adapted to shift the same when released, said disk being composed of a plate fixed to its supporting shaft and a weight carrying disk secured to said plate, and means to set said disk in position against the tendency of the over-balancing weights, substantially as shown and described.

5. The combination of a switch tongue, a disk engaged therewith and adapted to shift the same, means to actuate said disk, a signal, a lever connected to said signal to actuate the same and adapted to be operated by the movement of said disk, and a lock adapted to retain said lever from movement independently of the movement of the disk and to be released by an approaching car, substantially as shown and described.

6. The combination in a cable railway of a movable switch tongue, a tongue movably supported between the diverging grip slots, and a connection between said tongues to operate the second from the first and adapted to be disengaged from the second by an approaching grip to permit the passage of the latter, substantially as shown and described.

7. The combination, in a cable railway, of a movable switch tongue, a movable tongue between the diverging grip slots, a lever pivoted to the switch tongue, a second lever pivoted to the first named lever and adapted to engage the second named tongue, and means to press said second named lever into engagement with said second tongue, while permitting the disengagement of the same, substantially as shown and described.

8. The combination, in a cable railway, of a movable switch tongue, a movable tongue between the diverging grip slots, a lever pivoted to

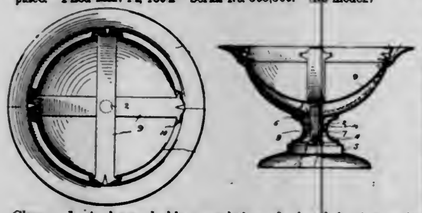
said switch tongue, a second lever pivoted upon the first and adapted to engage a second named tongue, and a weighted lever bearing upon said second lever and adapted to hold the same normally in engagement with said second named tongue, substantially as shown and described.

521,612. CHEESE-HOLDER. LOUIS C. HILLER and WILLIAM R. MACKAY, Meriden, Conn., assignors to the Meriden Silver Plate Company, same place. Filed Jan. 15, 1894. Serial No. 496,871. (No model.)



Claim.—A cheese-holder consisting of a suitable stand having a table upon which a cheese rests, a central stud and ways 6, curved arms which are adapted to engage a cheese and are provided with shanks engaging the ways, a disk having curved slots, and a sleeve adapted to receive the shank and provided with a finger piece, and screws carrying rollers which engage the slots and themselves engage the shanks as and for the purpose set forth.

521,618. CHEESE OR ORANGE HOLDER. LOUIS C. HILLER, Meriden, Conn., assignor to the Meriden Silver Plate Company, same place. Filed Mar. 14, 1894. Serial No. 503,569. (No model.)



Claim.—1. A cheese holder consisting of a bowl, having on its inner side a shoulder, spring arms which bear against said shoulder, a shank by which the spring arms are carried, a base by which the parts are supported and suitable means for raising and lowering the shank whereby the spring arms are moved in or out through engagement with the shoulder.

2. A cheese or orange holder consisting of a bowl, having on its inner side a shoulder and at its bottom an opening with an inwardly extending rib, spring arms which bear against the shoulder and are carried by a threaded shank having a groove which is engaged by said rib, and a suitable base having a nut which is engaged by the threaded shank so that when the bowl is rotated the shank and threaded arms will be raised or lowered through the engagement of the shank with the nut, and the upper ends of the spring arms will be moved in or out through engagement with the shoulder.

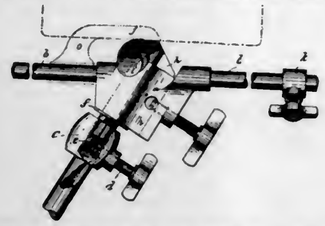
521,614. OILER FOR BICYCLES, &c. LUDWIG HIRSCH, New York, N. Y. Filed Oct. 9, 1893. Serial No. 487,661. (No model.)



Claim.—1. An oiler, composed of a suitable body, a shifting spout or tube guided in a stuffing-box of the body, an inner elongated stationary guide-pin projecting from the bottom of the oiler in line with the spout to a point near the top of the body, said spout being adapted to be moved inwardly over the pin and seated at its inner end on the bottom of the body, or outwardly so as to clear the same, substantially as set forth.

2. An oiler, composed of a suitable body, an inner elongated stationary guide-pin projecting from the bottom of the oiler to a point near the top of the body, a movable spout or tube, arranged in line with said pin and guided in a suitable stuffing box of the body, so as to fit onto said pin, said spout being provided with a flaring mouth at its inner end, adapted to seat upon the bottom of the body, at the base of the pin, and with a shoulder near its outer end, substantially as set forth.

521,615. DEVICE FOR GRINDING TWIST-DRILLS. ERNEST G. HOFFMANN, New York, N. Y. Filed June 26, 1893. Serial No. 478,806. (No model.) Patented in England Dec 11, 1890, No. 20,237.



Claim.—1. In grinding twist drills and the like, a drill holder having means for securing the drill therein and provided with guide rods, a stop device for regulating the amount to be taken off each face in the different positions of the drill, and rests adapted to support said rods of the holder and provided with stops adapted to engage with and stop the holder at a definite distance from the grinding device, substantially as set forth.

2. In grinding twist drills and the like, a drill holder having means for securing the drill therein and provided with an adjusting device for engaging with a groove of the drill and a stop device for regulating the amount to be taken off each face in the different positions of the drill, and rests adapted to support said holder and provided with stops adapted to engage with and stop said holder at a definite distance from the grinding device, substantially as set forth.

3. In grinding twist drills and the like, a detached drill holder having means for securing the drill in appropriate position therein, in combination with rests adapted to support said holder and stops adapted to engage with and stop the holder at a definite distance from the grindstone, said rests and stops and holder being shaped so as to permit the holder to be rocked in grinding the drill, substantially as set forth.

4. In grinding twist drills and the like a detached drill holder having means for securing the drill in appropriate position therein and having guide rods, and a bushing on one of said rods, in combination with rests adapted to support said rods, and stops adapted to engage with said rods and also with said bushing to stop the holder at a definite distance from the grinding device and in a definite lateral position relatively thereto, substantially as set forth.

5. In grinding twist drills and the like a drill holder having means for securing the drill therein, a stop device mounted upon the drill and abutting against the holder for regulating the amount to be taken off each face in the different positions of the drill, an adjusting device for engaging with a groove of the drill, and means for setting the holder at a definite distance from the grinding device, substantially as set forth.

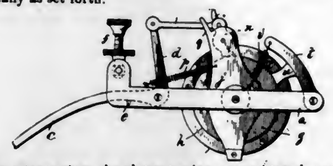
6. In grinding twist drills and the like a drill holder having means for securing the drill therein, a stop device mounted upon the drill and abutting against the holder for regulating the amount to be taken off each face, an adjusting screw carried by the holder for engaging with a groove of the drill, and rods carried by the drill holder, and means for setting the holder at a definite distance from the grinding device, substantially as set forth.

7. In grinding twist drills and the like a drill holder having means for securing the drill therein, a stop bushing upon the drill and means for setting the same thereon, and a screw stop carried by the said stop bushing and abutting against the drill holder, and means for setting the holder at a definite distance from the grinding device, substantially as set forth.

8. In grinding twist drills and the like, a drill holder having an adjustable key block for clamping the drill therein, a stop bushing upon the drill and means for setting the same thereon and a screw stop carried by the said stop bushing and abutting against the drill holder, an adjusting device carried by the holder for engaging with a groove of the drill, and rods carried by the drill holder, and rests and stops for engaging with said rods and guiding and stopping the holder at a definite distance from the grinding device, substantially as set forth.

521,616. TYPE-WRITING MACHINE. JOHN H. HUDSON, Marshall, Tex. Filed Jan. 31, 1894. Serial No. 498,576. (No model.)

Claim.—1. A type writer spacing mechanism comprising the platen having a circular tread at one end, a rocking frame, the locking lever or cam fulcrumed in said frame and arranged to engage said tread and move the platen forward and a spacing lever pivotally connected to said cam and arranged to positively operate the same, substantially as set forth.



2. In a typewriter, the platen having a metal tread, a swinging plate having a pointer at the side of the platen carrying the paper, a locking lever or cam carried by said plate and arranged to engage said tread and move the platen, and a spacing lever positively connected with said cam to operate the same, as set forth.

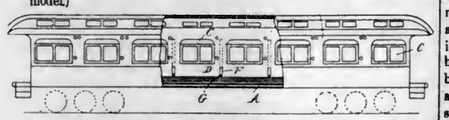
3. In a typewriter, the combination of the platen having a metallic tread at one end, a rocking frame at said end of the platen at one end having a pointer extended laterally over the face of the platen, the locking lever or cam fulcrumed in said frame so that its biting edge moves into and out of engagement with the tread, the spacing lever and a link connecting the spacing lever and said cam to operate the parts, as set forth.

4. In a typewriter the combination of the platen having an end head provided with the circular tread, a rocking plate between its ends fulcrumed at the end of the platen and having the pointer at one end, and the hollow head at the opposite end, the locking lever fulcrumed in said head over said tread to bite the same, the vertically rocking spacing lever having the end extended and connected by a link with said cam to rock the same and the plate, and a variable stop limiting the swing of said parts to move the platen around, substantially as described.

5. A type writer having a rocking frame at one end of the platen provided with a pointer to move over the face of the platen and with a rocking cam therein arranged to engage an edge or tread of the platen and turn the same, a variable stop limiting the feeding throw of the parts and means substantially as described, connected to said cam to rock the same and said frame, substantially as set forth.

6. In a type writer, the combination of the platen, the frame, the rocking plate fulcrumed at the end thereof, and having a pointer, the rocking cam in said plate over and arranged to engage a tread of said platen, said cam and plate having extended ends whereby the cam can be disengaged from the tread, the spacing lever fulcrumed on the frame and connected to said cam to operate the same, a vertically adjustable screw in the frame to limit the upward movement of the spacing lever, and a spring to yieldingly hold the parts in their normal position, substantially as described.

521,617. VENTILATING DEVICE FOR CARS. CARLETON B. HUTCHINS, Detroit, Mich. Filed Feb. 10, 1894. Serial No. 499,742. (No model.)



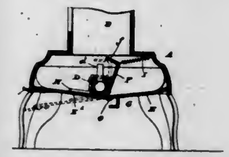
Claim.—1. In a railway car, the combination with a series of air educt pipes extending from near the floor of the car between the windows thereof and terminating at a point adjacent to the top of the car, of a removable section for the pipe formed with lateral hollow offsets, and a dust collecting pocket in line with the pipe and below the lateral passage in the offset, substantially as described.

2. In a railway car, an air educt pipe extending through the casing between the windows, a lateral offset at the bottom, the head F extending downward inside the car, the radiator located directly below the head and having the spur G entering said hood, the lateral external discharge at the top of the pipe, and a valve H in said offset, substantially as described.

521,618. RADIATOR. JONATHAN JOHNSON, Lowell, Mass. Filed Sept. 5, 1893. Serial No. 484,821. (No model.)

Claim.—1. As an improvement in heaters, the combination with a radiating pipe of the burner chamber in the base, the burners located within said chamber, said chamber being inclosed on all sides with the exception of a central longitudinal slot through which air is admitted, one of the inclosing plates carrying an integral lighting plate which is movably supported, substantially as described.

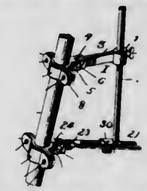
2. The combination in a gas or oil heater, with a series of burners and a base inclosing the burners, of an adjustable lighting plate suspended upon the supply pipe and forming a part of the bottom of the base, substantially as described.



3. In a heater, the combination of the base having bottom plates whose longitudinal edges are slightly apart to provide an air slot the burners within said base and an adjustable lighting plate carried by one of said bottom plates which plate is supported upon the supply pipe and provided with a closing spring and an operating handle, substantially as described.

4. In a heater in combination with the base and a supply pipe therein, a longitudinal bottom plate having an integral lighter plate supported on the supply pipe and operating in conjunction with the burners, substantially as described.

521,619. CYCLE-CANOPY AND SUPPORT. WILLIAM T. JORDAN, Augusta, Ga. Filed Feb. 7, 1894. Serial No. 499,373. (No model.)



Claim.—1. In a cycle canopy, the combination with the canopy proper, and a staff supporting it; of a supporter consisting of an eye pivotally connected with the head of a cycle so as to swing in a vertical plane, and a slide below the eye also connected with said head and having a block adjustable longitudinally of the cycle, as and for the purpose set forth.

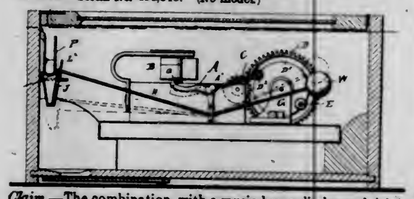
2. In a cycle canopy, the combination with the canopy proper, and a staff supporting it; of a supporter consisting of an eye pivotally connected with the head of a cycle so as to swing in a vertical plane, a slide below said eye comprising a fork also pivotally connected with the head of the cycle and extending rearward therefrom, and a block longitudinally adjustable in said fork and having a hole through which the canopy staff passes loosely, as and for the purpose set forth.

3. In a cycle canopy, the combination with the canopy proper, and a staff supporting it; of a supporter consisting of a clamp connected with the head of a cycle and having a stud in its rear member, an upright bar having a slot embracing said stud, a set screw taking into the stud, an eye pivotally connected with the upper end of said bar and embracing said staff, a fork carried by the lower end of the bar, and a block adjustable in said fork longitudinally of the cycle and having a hole loosely embracing said staff, as and for the purpose set forth.

4. In a cycle canopy, the combination with the canopy proper, and a staff supporting it; of a supporter consisting of a clamp connected with the head of a cycle, an upright bar carried by its rear member, an eye pivotally connected with the upper end of said bar and embracing said staff, a fork pivotally connected with the lower end of the bar so as to move in a vertical plane, and a block adjustable in said fork longitudinally of the cycle and having a hole for the reception of said staff, as and for the purpose set forth.

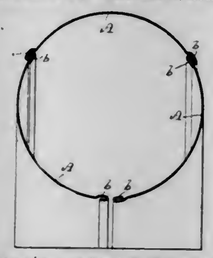
5. In a cycle canopy, the combination with the canopy proper, and a staff supporting it; of a supporter consisting of a two-membered clamp bolted around the head of a cycle, the rear member having a stud, an upright bar having a slot fitting over said stud, a set screw entering the stud and holding the bar removably and adjustably in place, horizontal bifurcations at the ends of said bar, an eye having a tongue entering the upper bifurcation, a set screw through the arms of the bifurcation and the tongue, a fork having a tongue entering the lower bifurcation, a set screw through the arms of the bifurcation and this tongue, a block sliding in the fork and having a hole, a set screw in the block for holding it at adjusted positions in the fork, the canopy staff passing downward through said eye and loosely through the hole in the block, and a set screw in the rear of the eye against said staff, as and for the purpose set forth.

521,620. COIN CONTROLLED MUSIC-BOX. HENRY LINGFELDER, Brooklyn, assignor to M. J. Paillard & Co., New York, N. Y. Filed Nov. 18, 1893. Serial No. 491,315. (No model.)



Claim.—The combination, with a music-box cylinder and driving mechanism, of a wheel rotated with the cylinder and provided in its side with a groove having a notch and a projection extending into the groove, a pivoted starting and stopping lever having a pin traveling in said groove, and having one arm projecting up into the flier of the driving-mechanism of the music-box, a rod projecting from a downwardly-projecting arm of said starting and stopping lever, a coin-pocket on the free end of said arm, a pivoted bottom for said coin-pocket, a spring acting on said pivoted bottom, an arm projecting from said pivoted bottom above the pivot, a fixed pin for tripping said arm, a coin-chute leading to the pocket, a rod projecting from the downwardly-extending arm of the starting and stopping lever, and a counterbalancing weight for the coin-pocket secured to the end of said rod, substantially as set forth.

521,621. STOVEPIPE-ELBOW. CHARLES LINDEMANN and AUGUST LINDEMANN, Milwaukee, Wis. Filed June 15, 1891. Serial No. 396,224. (No model.)

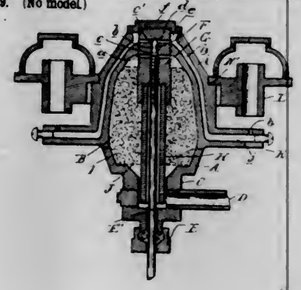


Claim.—1. As an improved article of manufacture, a partly finished curved stove-pipe elbow made from sections seamed together, in the direction of the length of the elbow when completed, and having meeting edges disunited, but in condition to be interlocked and secured without departure of the completed elbow from a standard diameter at its ends, substantially as set forth.

2. As an improved article of manufacture, a partly finished curved stove-pipe elbow made from a series of sections, more than two, seamed one to another in the direction of the length of the elbow, when completed, and meeting edges of two of said sections disunited, but in condition to be interlocked and secured without departure of the completed elbow from a standard diameter at its ends, substantially as set forth.

3. As an improved article of manufacture, a curved stove-pipe elbow comprising three sections having their greatest length longitudinally of the elbow and seamed together at their meeting edges, substantially as set forth.

521,622. MULTIPLEX VAPOR-BURNER. RANSOM E. OLDS and WALLACE S. OLDS, Lansing, Mich. Filed Jan. 27, 1894. Serial No. 498,179. (No model.)



Claim.—1. In a gasoline burner, the combination with a generator having a series of passages therein, an inlet, an exit at the top of the generator connected with the series of passages, lateral arms on the generator having passages therein connecting with the passages in the generator, an annular flange on the generator having a fluid channel into which the passages in the lateral arms lead, and burners above the open ends of the passages in the arms, substantially as described.

2. In a gasoline burner, the combination with the burners and generator, of conduits connecting the generator and burners, an inlet in the lower portion of the generator, a plug in the upper portion having lateral ports *a*, lateral ports *d*, and a vertical passage connecting the lateral ports, and a valve controlling the passage, substantially as described.

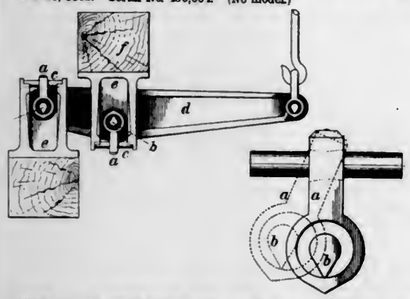
3. In a gasoline burner, the combination with the burners and generator, of conduits connecting the generator and burners, an inlet in the lower portion of the generator, a plug in the upper portion having lateral ports *a*, lateral ports *d*, and a vertical passage connecting the ports, a valve and the beveled faces *c c'* on the valve adapted to close the lower and upper ends respectively of the passage, substantially as described.

4. In a gasoline burner, the combination with the burners and retort having a supply port at its lower end and an educt port at its upper end, a connection between the educt port and burners, reticulated diaphragms at the top and bottom of the retort, a fibrous noncombustible material between the diaphragms, a valve controlling the educt port having its stem extending through the retort, and a tubular standard surrounding the valve stem having its upper end secured to the retort and separating the valve stem from the fibrous material, substantially as described.

5. In a gasoline burner, the combination of the retort casing centrally apertured at top and bottom a plug fitting the top aperture and extending through the casing, a screw cap engaging the top of the plug, inclosing a channel around the plug, from which a series of feed conduits connect, a port leading from the retort to the channel through the plug, a valve to control said port having its stem projecting through the lower end of the retort, substantially as described.

6. In a gasoline burner, the combination with the burners and circular retort, an inlet in the lower portion of the retort, a plug in the upper portion, educt ports in the plug, an annular channel *e* surrounding the plug, into which the educt ports lead, conduits connecting the annular channel and burners, and a detachable cap *f*, forming the upper wall of the annular channel, substantially as described.

521,623. WEIGHING-SCALE. HARVLIN PADDOCK, St. Johnsbury, Vt., assignor to the E. & T. Fairbanks & Company, of Vermont. Filed Oct. 26, 1892. Serial No. 450,084. (No model.)

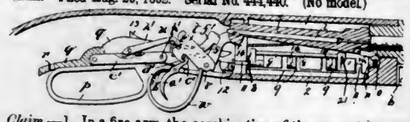


Claim.—1. In combination with a scale lever, loops having eyes in which the pivots of the lever rest, said loops having openings through them, and rigid horizontal rods *c* passing through said openings and directly supporting said loops whereby said loops are capable of adjustment on said rods, and means for supporting the rods *c*: substantially as described.

2. In combination with a scale lever, having suitable knife edge pivots, loops *a*, having eyes in which the knife edge pivots rest, said loops having openings near their upper ends, horizontal rods passing through said openings, said openings tapering from both sides of the loops toward the center, whereby the loops bear upon the rods only at one point, and are permitted sliding and swinging movement thereon; substantially as described.

3. In a railroad scale, in combination with the timbers *f*, the supporting standards *e*, the rods *c*, rigidly supported on said standards, the lever *d*, with pivots *b*, the loops *a*, having eyes in which the pivots rest, and having openings at their opposite ends through which the rods *c*, pass, said openings being formed to give the loops a limited sliding movement on said rods; substantially as described.

521,624. MAGAZINE-FIREARM. PETER SHECKLER, Stockton, Kans. Filed Aug. 29, 1892. Serial No. 444,440. (No model.)



Claim.—1. In a fire arm, the combination of the operating lever having an up and down and longitudinal movement, and the spring stationarily located in the receiver in front of the operating lever, and in the path traversed by said lever to engage the front end of the lever when the lever is swung up and exert longitudinal rearward tension on said lever for the purpose described.

2. In a fire arm, the combination of the vertically and longitudinally movable operating lever extending up at its front end and controlling the gun lock and bolt, a link pivoted to said lever and in the receiver, and a spring located in the receiver with an inwardly extending end in front of and in the path traversed by said lever to engage the front end of said lever as and for the purpose set forth.

3. In a fire arm, the combination of the receiver, the operating guard lever, the link pivoted to said lever and in the receiver, the hammer carried by the lever and provided with a cocking catch or notch and with a sear notch, the cocking hook pivoted to said link and arranged to engage said cocking catch of the hammer when the lever is swung down, and the trigger having a sear hook to engage said sear notch of the hammer, substantially as described.

4. In a fire arm, the combination of the receiver, the barrel, the bolt having the firing pin, the operating lever at the under side of the receiver and extending into the same and hinged to the end of the bolt, the hammer pivoted in said lever, the cocking hook pivoted in a link connecting the lever and receiver, and the trigger pivoted in said lever.

5. In a fire arm, the combination of the reciprocating bolt, a guideway therefor, the front end of said bolt being confined in said guideway so as to permit vertical rocking of the rear end of the bolt, an internal downwardly projecting shoulder in the upper part of the receiver into engagement with which the rear end of the bolt is arranged to be lifted when in firing position, and the operating lever controlling said bolt, substantially as described.

6. In a fire arm, the receiver having the transverse loading opening at the inner end of the barrel open at the sides and closed at the top and bottom so that a magazine cartridge belt can pass therethrough, the bottom floor of said opening having the guide way, the reciprocating bolt arranged to move across said opening and confined in said guide at its front end so that its rear end can swing vertically, and an operating lever controlling said bolt, substantially as described.

7. In a fire arm, the receiver, the reciprocating bolt, the receiver having a guide way for the front end of said bolt, guides in the receiver for the rear end of said bolt independent of and in different planes from the guides for the front end of the bolt, an operating lever for controlling said bolt, and the gun lock controlled by said lever, substantially as described.

8. In a fire arm, the combination of the reciprocating bolt, the operating lever at its upper end pivotally joined to the bolt, a hammer pivoted in said lever, a link at one end pivoted in the receiver and at its opposite end pivoted to said lever and at a point beyond the hammer so that the hammer is between the link and bolt, and means, substantially as described, carried by said link for cocking said hammer by the approach and separation of the upper portion of the lever and the link, substantially as described.

9. In a fire arm, the combination of a reciprocating bolt, an operating lever controlling the same, a hammer pivoted in the operating lever, said lever provided with curved guiding edges on opposite sides of said hammer, a link pivoted in the receiver and to said lever, and a cocking hook carried by the link and extending through the lever and arranged to slide on said edges and to engage and cock the hammer, substantially as described.

10. In a fire arm, the combination of the receiver, the gun lock frame inserted therein with its upper longitudinal edges forming guides, the bolt having its rear end resting on and guided by the upper edges of said frame so that it can be lifted from said frame, the operating lever normally fitting against the under side of said frame and projecting through the same and hinged to the rear end of the bolt so as to lift the same from said guiding edges, and the lock carried by said lever, substantially as described.

11. In a fire arm, the combination of the receiver, the operating lever, a hammer pivoted therein having catches or notches, a trigger in said lever having a sear hook on its inner end to engage a catch of the hammer and hold the same cocked, the link pivoted in the receiver and to said lever, the cocking hook pivoted to said link and having a beveled outer end, the inner edges of said lever being curved so as to throw the hook into engagement with a catch of the hammer when the lever is forced down, said edges being formed to throw the hook out of engagement with the hammer when the trigger engages the same, substantially as described.

12. In a fire arm, the combination of the receiver having the transverse loading opening, the barrel, the longitudinal under cut guide groove in the bottom of said opening, the bolt having a bottom rib fitting said groove with lateral projections extending under the edges thereof, a lever to reciprocate said bolt, and the gun lock.

13. In a fire arm, the combination of the receiver having the transverse opening, the barrel, the bolt arranged to reciprocate across said opening, the magazine cartridge belt of longitudinally split holders passing through said openings so that the bolt passes through each holder in removing and returning cartridges, substantially as described.

14. In a fire arm, a magazine comprising a series of connected split cartridge holders, in combination with the receiver and the bolt having an extractor and arranged to force each cartridge from its holder, discharge the cartridge and then return it to the holder, and feeding means for the magazine.

15. In a fire arm, the combination of the receiver having transverse opening, the series of cartridge holders passed through said opening and loosely joined together to form an endless belt, the feed mechanism comprising movable fingers projecting up through the bottom of said opening between the holders to move them in one direction, the gun lock, a bolt to force the cartridge from the holders to the firing chamber, means to operate said bolt, and connections from said bolt operating mechanism to operate the feed mechanism, substantially as described.

16. In a fire arm, the combination of the receiver having a transverse opening, a magazine belt passing through said opening, a feed mechanism in the receiver beneath said opening comprising a swinging plate, bent levers fulcrumed thereto forming fingers which project and recede through openings in the bottom of said plate, and mechanism to swing said plate, and project and recede the fingers in proper sequence, a bolt and operating means for controlling the bolt and said plate swinging mechanism, substantially as described.

17. In a fire arm, the combination of the receiver having the transverse opening, the feed mechanism located beneath the bottom of said opening and comprising a swinging plate, bent levers pivoted thereto so as to project and recede through apertures in the bottom wall of said opening, a rock shaft carried by the plate and connected to move said levers, said rock shaft provided with a crank arm, and a lever operated by the operating mechanism of the fire arm and connected with said crank arm to actuate the feed.

18 In a fire arm, the combination of the reciprocating bolt, the operating lever for the same, the gun lock controlled by said lever, the magazine belt passing through an aperture in the receiver traversed by the bolt, the feeding mechanism for said belt comprising movable fingers and a cam lever engaged and operated by said bolt and connected to operate said fingers.

19. In a fire arm, the combination of the receiver having a transverse opening to receive a magazine belt, a feeder to move said belt, a bolt to reciprocate across said opening and carry the cartridge to and from the barrel, an operating lever connected to operate said bolt, and a lever mounted in the receiver and controlling said feeder and controlled by the reciprocation of said bolt, substantially as described.

20. In a fire arm, the combination of the receiver having a feeder to move a belt magazine, a reciprocating bolt having a side projection, a guide for said projection, an operating lever controlling said bolt, and a swinging lever controlling said feeder and arranged beside said guide so as to be engaged and rocked by said projection, substantially as described.

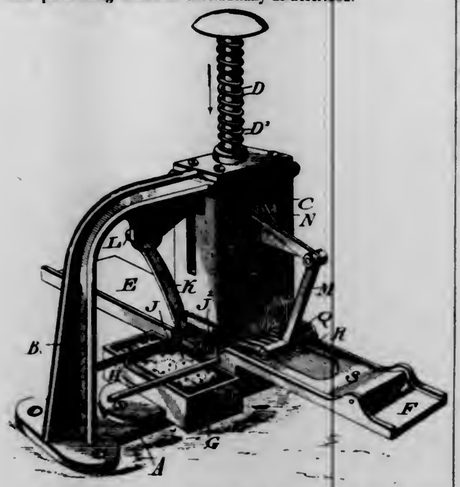
21. In a fire arm, the combination of a receiver having a feeder to move a magazine cartridge belt, said feeder having a lateral operating arm, a rocking lever in the receiver fulcrumed between its ends, the lock and bolt mechanisms arranged to rock said lever, the inner end of the lever loosely joined to said lateral arm of the feeder substantially as described.

22. A fire arm having a transverse opening in its receiver to receive a magazine belt, said opening having a stationary rounded floor, and a swinging feeder beneath the floor arranged to intermittingly extend above the floor to move said belt, substantially as described.

521,625. DEVICE FOR AFFIXING POSTAGE OR OTHER STAMPS TO ENVELOPES, &c. JOSEPH C. STEELMAN, Philadelphia, Pa. Filed May 23, 1893. Serial No. 475,219. (No model.)

Claim.—1. A stamp affixing device having a bed, a box with a plunger therein, above said bed, stamp and envelope tables projecting from said bed, a moistening box, a lever having at one end a brush and connected at the other end with the said plunger, a track for said brush, and a lever with pivoted fingers on one end and at its other connected with said plunger, said parts being combined substantially as described.

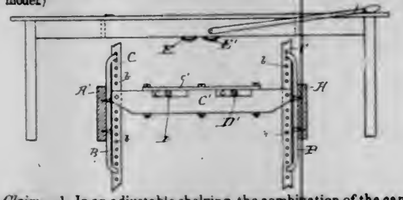
2. A stamp affixing device having a base with a bed, an arm rising from said base, a box depending from said arm having a space between it and the said bed, a spring-controlled plunger in said box normally raised and carrying a cutter, an elbow lever pivoted to an ear on said box and carrying a moistening brush, an elbow lever pivoted to an ear on said box and carrying stamp-feeding fingers, and a bed knife, said elbow levers being engaged by said plunger, said parts being combined substantially as described.



3. In a stamp-affixing device, a bed having stamp and envelope tables extending therefrom, and a box with moistening material connected therewith, guides supported over said box, a brush fitted to said guides, a feeding finger over the stamp table, a plunger and elbow levers, said levers being connected with said brush and finger respectively, and engaging with said plunger, substantially as described.

4. In a stamp-affixing device, a stamp-supporting table having a spring thereon between which and the table a stamp may be placed, and a feeding finger above said table, said table having a groove for the reception of the point of the finger, and said spring being cut away above said groove, said parts being combined substantially as described.

521,626. SHELVING. ALFRED B. WAGNER and EDWARD LIESENHOFF, Miamisburg, Ohio. Filed Mar. 7, 1894. Serial No. 502,632. (No model.)



Claim.—1. In an adjustable shelving, the combination of the cam-levers, the horizontal bar with slots, adapted to be actuated by said cam-levers, vertical bars with openings therein, rigidly attached to said horizontal bar, a series of shelf-frames, and a series of brackets supporting said frames, and means for connecting said brackets with or releasing them from the vertical bars, substantially as described.

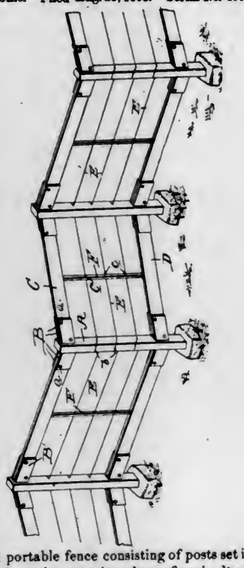
2. In an adjustable shelving, the combination of the slotted horizontal bar, vertical bars with openings therein, and guides, for said vertical bars to move in, a series of brackets with openings therein, a series of slotted cross-pieces to which said brackets are attached, and upon which the shelving-frames are supported, push-rods adapted to penetrate the openings in said brackets and vertical bars, connections between said push rods whereby the movement of one will correspondingly move the other, and means for operating the vertical bars.

3. The combination with the horizontal bar C', the vertical bars C provided with openings, rigidly attached thereto; of the slotted cross-pieces I, adapted to support the shelf frames, the brackets H rigidly attached to said cross-pieces, said brackets provided with slots for the bars C to move in, and openings, the levers L and L', and the push rods N and N' adapted to enter the openings in the brackets H and bars C, to secure them to each other, and means for raising or lowering the bars C' and C, as herein described.

4. The combination of the horizontal bar C' with slots therein, the vertical bars C provided with openings and guides, attached to the bar C', cam levers adapted to work in the slots in the bar C', to move said bar, and shelf frames provided with push rods and lever mechanism, whereby said frames may be supported on the bars C or released therefrom, as herein described.

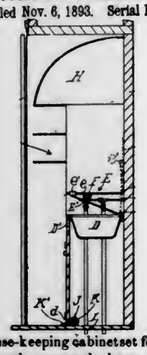
5. The combination of the vertical bars C provided with openings the cross-pieces I, and rods J supported thereon, said cross-pieces and rods comprising the shelf frame, the brackets H provided with ears with openings therein, the levers L and L' having their fulcrum on the shelf frame, the push rods N and N' attached to said levers and adapted to enter the openings in the brackets and vertical bars, as herein described.

521,627. PORTABLE WORM FENCE. CORNELIUS B. WILCOX. Deerfield, Ohio. Filed Aug. 23, 1893. Serial No. 483,863. (No model.)



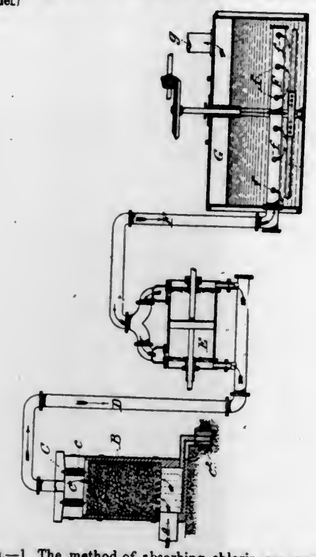
Claim.—A portable fence consisting of posts set in worm fashion and having kerfs on the opposite edges of each alternate pair, panel supports consisting of the ends B^3 which are secured to the posts and the arm B, panels secured to the said arms, wires strung in the said kerfs, and spacing strips F, having kerfs in which the wires are seated, substantially as herein described.

521,628. HOUSEKEEPING-CABINET. BERTHA S. WILKINS, Los Angeles, Cal. Filed Nov. 6, 1893. Serial No. 490,082. (No model.)



Claim.—The house-keeping cabinet set forth provided with a sink and with a cooking rack arranged above such sink, pivoted to the wall of the cabinet and adapted to fold against such wall and to unfold into a horizontal position above such sink, and the fuel burner pivoted to the wall of the cabinet and arranged to fold thereagainst and to unfold to bring the burner beneath the cooking rack when such rack is unfolded into its horizontal position.

521,629. PROCESS OF AND APPARATUS FOR ABSORBING CHLORIN GAS. PHILIP J. WORSLEY, WILLIAM WINDUS, and BENJAMIN BRACEY, Bristol, assignors to the United Alkali Company, Limited, Liverpool, England. Filed Dec. 11, 1893. Serial No. 493,354. (No model.)



Claim.—1. The method of absorbing chlorin gas consisting in dehydrating the gas and pumping the dry product into vessels containing the absorbing liquid, substantially as described.

2. In an apparatus for absorbing chlorin gas, the combination with a dehydrater, of a pump, and an absorbing vessel through which the gas successively passes, and a distributer in said absorbing vessel having slots or small openings on the under side thereof, substantially as described.

521,630. BRUSH-MACHINE. HYPPOLITE BESSON, London, England, assignor, by direct and mesne assignments, to the Consolidated Manufacturing Company, Philadelphia, Pa. Filed Sept. 29, 1892. Serial No. 447,353. (No model.) Patented in England Nov. 30, 1891, No. 20,808; in France Sept. 20, 1892, No. 225,070; in Belgium Sept. 21, 1892, No. 101,437; in Germany Sept. 29, 1892, No. 72,471; in Italy Sept. 30, 1892, No. 32,714; in Spain Dec. 21, 1892, No. 13,811; in Canada Nov. 16, 1893, No. 44,711, and in Austria-Hungary Mar. 20, 1894, No. 44 and No. 558.

Claim.—1. In a brush machine, the combination of a hopper, a tuft-gathering blade or plate movable across the mouth of the hopper, and an end plate of the hopper secured to a sliding stem or rod, and bodily movable to and fro at right angles to the blade or in other words, freely adjustable lengthwise of the bristles in the hopper, as and for the purpose specified.

2. In a brush machine, the combination of a hopper, a tuft-gathering plate or blade movable beneath the hopper a pair of end plates in the hopper both of which are carried by rods or stems arranged in guides and freely movable in straight lines and adjustable in a direction cross-wise of the plate or parallel with the length of the bristles within the hopper.

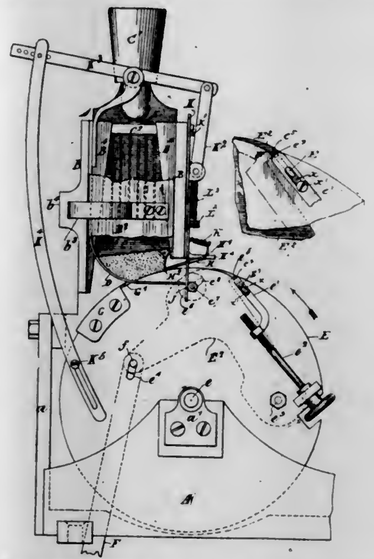
3. In a brush machine, the combination of a notched blade or plate, a hopper, a pair of end plates secured to rods or stems arranged in guides and movable in straight lines in a direction lengthwise of the bristles in the hopper, and means for enabling the end plates to be moved simultaneously.

4. In a brush machine, the combination of a notched blade or plate, a hopper having freely movable end plates, and a movable comb occupying a plane parallel with the sides of the notched blade, substantially as specified.

5. In a brush machine, the combination of a hopper, a tuft-collecting plate moving across the mouth of the hopper on which the bristles rest a weighted plate in the hopper, and a vertically movable comb carried by the weighted plate.

6. In a brush machine, the combination of a hopper, movable beater plates at opposite ends thereof, a weighted plate in the hopper carrying a vertically movable cone, and a notched plate moving beneath the hopper.

7. In a brush machine, the combination of a hopper, a notched plate movable beneath the hopper, and a bristle feeder or compacter on the edge of the plate projecting upwardly for moving the bristles from the rear side of the hopper toward the front side, for the purpose specified.



8. In a brush machine, the combination of a hopper, a notched plate movable beneath the hopper, a bristle collector or compacter secured to said plate projecting therefrom and having a forwardly projecting finger between which and the edge of the plate the bristles are collected, compacted and moved from the rear side of the hopper toward the front side.

9. In a brush machine, the combination of a hopper, a notched plate movable beneath the hopper and having jaws at the edge of and above the notch and a cut-off plate, the edge or top of which intermittingly occupies the space between the jaws.

10. In a brush machine, the combination of a hopper, a plate movable beneath the hopper and having a notch formed in an enlargement at the side of the plate, and provided with jaws at the edge of and above the notch, and a cut-off plate, the edge or top of which intermittingly occupies the space between the jaws.

11. In a brush machine, the combination of a hopper, a notched plate or blade movable beneath the hopper, a cut-off plate, the edge of which co-operates with jaws at the edge of and above the notch in the movable notched plate, a pivot bolt connecting the cut-off plate with the notched plate, means for moving the cut-off plate relatively to the notched plate, and a spring washer or yielding clamp connected by a bolt with the notched plate and cut-off plate, for the purpose specified.

12. In a brush machine, the combination of a hopper, a notched tuft-carrying plate movable beneath the hopper, a cut-off plate, means for giving movement to the notched plate and to the cut-off plate, an adjustable gage for varying the depth of the tuft notch, and an adjusting screw for giving movement to the gage in a direction parallel with the length of the notch.

13. In a brush machine, the combination of a hopper, a tuft-collecting plate movable across the mouth of the hopper, a vertically moving arm bearing on the edge of the plate and having an upwardly projecting finger at its inner end.

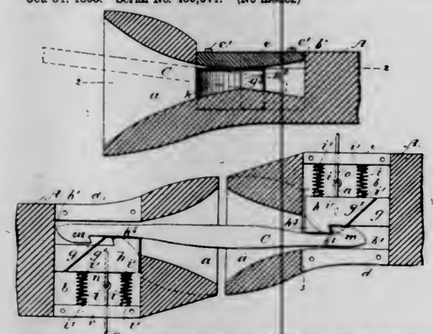
14. In a brush machine, the combination of a hopper, a tuft-collecting plate or blade movable beneath the hopper, a spring-actuated arm bearing on the edge of the plate beneath the hopper and having a spring finger projecting upwardly from the end of the arm into the hopper.

15. In a brush machine, the combination of a hopper, a tuft-collecting plate movable beneath the hopper, an arm having a vertically moving outer end bearing on the edge of the plate beneath the hopper and having also a spring arm projecting upwardly into the hopper and a collector carried by the plate for moving the bristles in the hopper toward the spring plate carried by the arm.

16. In a brush machine, the combination of a hopper, a tuft-collecting plate movable beneath the hopper, a separator blade for separating the ends of the bristles collected on the plate from those remaining in the hopper, and means for giving to the separator blade proper movements in a plane parallel with the axes of the bristles.

17. In a brush machine, the combination of a hopper, a tuft-collecting plate movable beneath the hopper, a separator blade for separating the ends of the bristles collected by the plate from those remaining in the hopper, means for giving an up-and-down or vertical movement to the separator blade, and means for moving the blade horizontally for the purpose specified.

521,631. CAR-COUPLING. EMERSON L. BOLLES, China, La. Filed Oct. 31, 1893. Serial No. 489,671. (No model.)



Claim.—1. In a car coupling, a drawhead having a vertically oval throat, a lateral chamber, a spring-pressed latch block hook-shaped at one side and movable transversely in said chamber, a hook ended link bar adapted to engage said block, a shackle loop on the block and links and levers connected with the block and adapted to retract the same, substantially as described.

2. In a car coupling, a drawhead having a flared vertically elongated throat at the front end, and a narrower throat extension at the rear of the flared throat, the bottom wall of which is upwardly swelled between the flared throat and the rear end of said extension, substantially as described.

3. In a car coupling, the combination, with a drawhead having a flared throat at the front end, a narrower throat extension at the rear end of said flared throat, and a chamber at one side of the throat extension, of a spring-pressed latch block in the lateral chamber, projecting its hook in the throat extension, three pivoted levers, and links connecting said levers with the latch block to retract said latch block, substantially as described.

4. In a car coupling, the combination, with a drawhead having a flared throat at the front end, and a transverse chamber at the rear end of the flared throat, partly divided by a longitudinal wall that is diagonally cut at its front end producing a throat extension, of a spring-pressed latch block in one part of the chamber the hook of which enters the throat extension, and a device to retract the latch block, substantially as described.

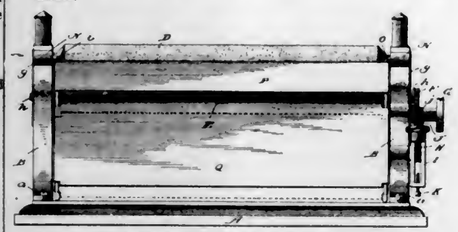
5. In a car coupling, the combination, with a drawhead having a vertically oval flaring throat at the front end, a narrow throat extension at the rear end of the flaring throat, the bottom wall of which is swelled near its longitudinal center, a lateral chamber, and a removable cover for the chamber and throat extension, of a spring-pressed latch-block in the lateral chamber, projecting its hook shoulder in the throat extension, and a device adapted to retract the latch block by manipulation from the sides or roof of a car, substantially as described.

521,632. SEAL. FRANKLIN W. BROOKS, New York, N. Y. Filed Mar. 20, 1894. Serial No. 504,366. (No model.)



Claim.—A baggage or car seal embodying in its organization a sheet metal cup with a converging wall, pierced at one point as described, a compressible soft metal plug B adapted to receive the free end of the wire E, and to be compressed within the cup A, and a bail wire provided at one end with an anchor F, all substantially as and for the purposes set forth.

521,633. COPY-HOLDER. JOHN E. BUCKLIN, Washington, D. C., assignor, by direct and mesne assignments, to the Bucklin Copy-Holder Company, Richmond, Va. Filed Oct. 5, 1893. Serial No. 487,236. (No model.)



Claim.—The frames B' provided near their upper ends with forwardly projecting ribs N bored to constitute boxes or bearings, the two wire arms O bent at right angles at their upper ends and located within the ribs N, and bridged or connected near such bent portions by a permanently connected flat strip P, and provided below said strip with a movable and adjustable plate Q, in combination with the rolls D, E, and means for operating the same, substantially as described.

521,634. COVER FOR BUTTER-RECEPTACLES, &c. EZNRY C. CARTER, East Orange, N. J. Filed Mar. 8, 1894. Serial No. 502,837. (No model.)

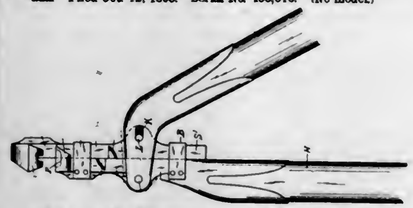


Claim.—1. The combination with a receptacle having its open end provided with a croze, and opposite dovetail grooves, which are of different size and located above the croze, of a cover composed of side sections adapted to fit in said croze, and an intermediate wedge-shape section having beveled sides which fit in said grooves, and means for connecting the several sections, whereby the middle one is slidable between the others, yet remains engaged therewith, as shown and described.

2. The combination, with a receptacle, having a croze, and its upper edge grooved or slotted transversely at diametrically opposite points, the sides of the grooves being undercut to form a dovetail, of the sectional cover whose middle or locking section has its end portions beveled to adapt them to fit in the dovetail grooves, and means for holding it in slidable engagement with the side sections, as shown and described

---

521,635. WIRE-FABRIC TOOL. SELDEN S. CASEY, London, Canada. Filed Oct. 12, 1893. Serial No. 488,016. (No model.)



Claim.—1. The stationary standard, S, provided with the jaw, J, in the upper face of which the concave, F, is formed, and the straps, B, B, in combination with the adjustable standard, S', provided with the jaw, J', formed with the die, D, and the handles, H, H', the latter of which is pivotally secured to the standard, S, and formed with a slot, K, through which and the standard, S', the pivot bolt, L, extends, substantially as and for the purpose set forth.

2. The stationary standard, S, provided with the jaw, J, in the upper face of which the concave, F, is formed, the cutter, C, and the straps, B, B, in combination with the adjustable standard, S', provided with the jaw, J', formed with the die, D, the cutter, C', and the handles, H, H', the latter of which is pivotally secured to the standard, S, and formed with a slot, K, through which and the standard, S', the pivot bolt, L, extends, substantially as and for the purpose set forth.

3. The stationary standard, S, provided with the jaw, J, in the upper face of which the concave, F, is formed, and the straps, B, B, in combination with the adjustable standard, S', provided with the jaw, J', formed with the die, D, the staple puller, E, and the handles, H, H', the latter of which is pivotally secured to the standard, S, and formed with a slot, K, through which and the standard, S', the pivot bolt, L, extends, substantially as and for the purpose set forth.

4. The stationary standard, S, provided with the jaw, J, in the upper face of which the concave, F, is formed, the cold chisel, G, and the straps, B, B, in combination with the adjustable standard, S', provided with the jaw, J', formed with the die, D, and the handles, H, H', the latter of which is pivotally secured to the standard, S, and formed with a slot, K, through which and the standard, S', the pivot bolt, L, extends, substantially as and for the purpose set forth.

5. The stationary standard, S, provided with the jaw, J, in the upper face of which, the concave, F, is formed, the cutter, C, the cold chisel, G, and the straps, B, B, in combination with the adjustable standard, S', provided with the jaw, J', formed with the die, D, the cutter, C', the staple puller, E, and the handles, H, H', the latter of which is pivotally secured to the standard, S, and formed with a slot, K, through which and the standard, S', the pivot bolt, L, extends, substantially as and for the purpose set forth.

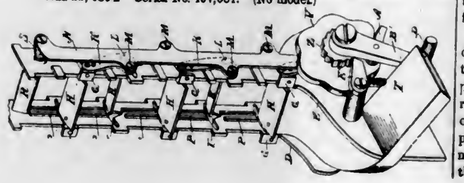
521,636. BOTTLE. CLEMENT CLARK, Sandusky, Ohio, assignor of one-half to John S. Clark, Detroit, Mich. Filed Apr. 17, 1894. Serial No. 507,844. (No model.)



Claim.—1. The combination with the bottle and its neck having the inwardly extending flange C, with the upper inclined bearing E, contracted section G, shoulder H and upper inclined entering section J of the ball valve, closing the aperture through the flange C, a bushing having the lower tapering section apertured on the sides, the central tubular section, the split ring arranged in a groove at the lower end of the body section, a flange L at the top and a packing ring adapted to be compressed between the flange L and the top of the bottle.

2. In a device of the kind described, the combination with the neck of the bottle and a ball valve therein closing the passage at the lower end of the neck, of the shoulder H formed therein, the flange bushing having the lower tapering section Q', and the elliptical ring adapted to be forced over such outer section and to enter the groove at the lower end of the body portion, the parts to be arranged and combined, substantially as and for the purpose described.

521,637. COIN-DISPLAYER. JOSEPH P. CLEAL, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Jan. 22, 1894. Serial No. 497,681. (No model.)



Claim.—1. In a coin displayer, the combination of a series of display receptacles arranged one above the other and each divided into two compartments by a vertical partition, and a series of reciprocating plates forming the bottoms of the respective receptacles and each co-operating alternately with the two compartments of its receptacle, substantially as and for the purpose described.

2. In a coin displayer, the combination of a series of display receptacles arranged one above the other and provided with glass-covered windows at their opposite sides each receptacle being divided into two compartments by a vertically arranged glass plate, and a series of reciprocating plates forming the bottoms of the respective receptacles and co-operating with the opposite compartments thereof in the manner described.

3. In a coin displayer, the combination of a series of display receptacles arranged one above the other, a series of reciprocating plates forming the bottoms of the respective receptacles, a series of bell-cranks, one connected to each plate, the adjacent ones being arranged in reverse order, and means common to the bell-cranks for simultaneously actuating them to reciprocate the plates, substantially as and for the purpose described

4. In a coin displayer, the combination of a series of display receptacles arranged one above the other, a series of reciprocating plates forming the bottoms of the respective receptacles, a pair of pivoted arms connected to each plate for reciprocating the same, one of said arms being a bell-crank and the bell-cranks of the adjacent pairs being arranged in reverse order, and a reciprocating bar or plate common to all of the bell cranks for simultaneously actuating the same, substantially as and for the purpose described.

5. In a coin displayer, the combination of a series of display receptacles arranged one above the other, a series of reciprocating plates forming the bottoms of the respective receptacles, a series of bell-cranks arranged in reverse order and each connected to one of the reciprocating plates, a reciprocating bar common to all of the bell-cranks for actuating the same, and a rotary disk provided with a cam groove engaging a projection on said bar for actuating the same to reciprocate the plates, substantially as and for the purpose described.

6. In a coin displayer, the combination of a series of display receptacles arranged one above the other and each divided into two compartments by a transparent vertical partition, a series of reciprocating plates forming the bottoms of the respective receptacles and each cooperating alternately with the two compartments of its receptacle, a series of bell-crank arms arranged in alternately reversed order and connected to the respective plates, and a reciprocating bar common to all of the bell cranks for actuating the same, substantially as and for the purpose described.

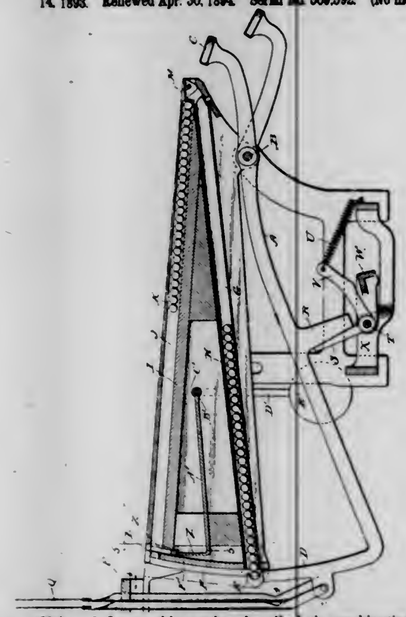
7. In a coin displayer, the combination of a series of display receptacles arranged one above the other and each divided into two compartments by a transparent vertical partition, a series of reciprocating plates forming the bottoms of the respective receptacles and each cooperating alternately with the two compartments of its receptacle, a series of pairs of pivoted arms, one pair connected to each plate and one arm of each pair being a bell-crank, and the bell cranks of the adjacent pairs being arranged in reverse order, a reciprocating bar common to all of the bell-cranks for actuating the same to reciprocate the plates, and a rotary disk provided with a cam groove engaging a projection upon the reciprocating bar, substantially as and for the purpose described.

8. The combination, with a cash-register having a money drawer, of a coin displayer, composed of a series of display receptacles arranged one above the other and each divided into two compartments, a movable shunting plate co-operating with the upper receptacle to direct the coins alternately into its opposite compartments, and connections with the money drawer for actuating said plate by the movements of the drawer, substantially as and for the purpose described.

9. The combination, with a cash-register having a money-drawer, of a coin displayer, composed of a series of display receptacles arranged one above the other and each divided into two compartments, a series of reciprocating plates forming the bottoms of the respective receptacles and each co-operating alternately with the opposite compartment of its receptacle, a vibrating shunting plate co-operating with the upper receptacle to direct the coins alternately into its opposite compartment, and means operated by the money drawer for actuating the same and the reciprocating plates, substantially as and for the purpose described.

10. The combination, with a cash-register having a money-drawer, of a coin displayer composed of a series of display receptacles arranged one above the other and each divided into two compartments, a series of reciprocating plates forming the bottoms of the respective receptacles and each cooperating alternately with the opposite compartments of its receptacle, and means intermediate such plates and the money drawer of the register for causing the movements of the drawer to reciprocate the plates, substantially as and for the purpose described.

521,638. CASH-REGISTER. JOSEPH P. CLEAL, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Apr. 14, 1893. Renewed Apr. 30, 1894. Serial No. 509,592. (No model.)



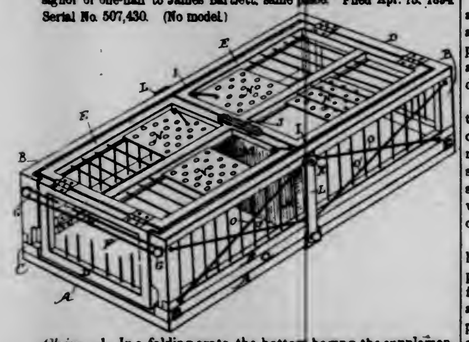
Claim.—1. In a machine such as described, the combination, with the board or plate having the registering grooves J, of the automatically operating plate Z normally out of the path of the balls and co-operating with said grooves in the manner described to prevent escape of the balls therefrom when the machine is tilted.

2. In a machine such as described, the combination, with the board or plate having the registering grooves J, of the rock-shaft B', the weight E' connected thereto, and the plate Z carried by said shaft and co-operating with the grooves J in the manner described to prevent escape of the balls.

3. The combination of the forwardly-inclined board I provided with the registering grooves J, the rearwardly-inclined supply-tubes G, the plate F' provided with the channels F and openings L connecting the tubes G and registering grooves J, the operating keys A provided with the upward extensions D having the cups E, the rock-shaft B', the weight E' connected thereto, and the plate Z carried by the rock-shaft and co-operating with the grooves J in the manner described to prevent escape of the balls.

521,639. WITHDRAWN.

521,640. FOLDING CRATE. ARTHUR W. COATS, Ukiah, Cal., assignor of one-half to James Bartlett, same place. Filed Apr. 13, 1894. Serial No. 507,430. (No model.)



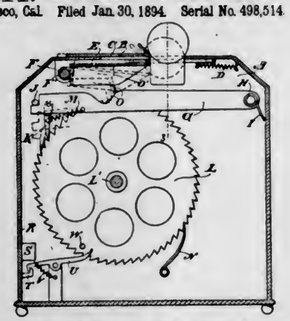
Claim.—1. In a folding crate, the bottom having the supplemental side strips fixed permanently upon it, sides hinged upon the top of said strips adapted to open outwardly into a vertical position about their hinges and slotted links extending across the ends of these sides, pins passing through the slots and into the ends, and slidable within the links of the slots so as to allow the sides to be folded or unfolded, substantially as herein described.

2. In a folding crate, the bottom having side strips permanently fixed upon it, sides having their lower edges hinged upon these strips adapted to open upwardly and outwardly about their hinges, slotted links through which pins pass into the upper ends of the sides, said pins being slidable within the links so as to retain the sides in the vertical position when opened, end sections pivoted between the permanent supplemental side rails, and adapted to turn about their hinge bars to stand in a vertical position, projections upon the vertical end posts of the side and end sections adapted to interlock to hold the parts when opened, and top sections hinged to the top bars of the end sections and meeting in the center with overlapping perforated plates at each side and a groove or channel made between these meeting ends, together with a rod passing through the top rails of the sides through the holes in the plates and the slot between the ends, said rod having a head upon one end and a nut upon the other whereby the whole is locked together by a single fastening as described.

3. A folding crate composed of the bottom having the supplemental permanently fixed side strips, sides hinged upon the top of said strips to open outwardly and upwardly, with end links and pins whereby they are retained in position, top and end sections hinged together, the end sections also hinged between the supplemental side strips of the bottom, a fastening consisting of a rod extending through the center of the top rails of the sides through overlapping plates upon the meeting ends of the top sections and a groove or channel formed between them, and vertical truss plates L attached to the center of the bottom having the upper ends adapted to fit upon the central securing rod whereby the top and bottom are connected and the latter is supported and prevented from sagging as described.

4. A folding crate composed of a bottom with permanently fixed side strips, sides hinged to the top of said strips, to open or close about the hinges, and slotted end links and pins, top and end sections hinged together, the end sections also hinged between the side strips of the bottom, a rod extending through the upper rails of the sides and adapted to lock the meeting ends of the top sections together, vertical truss plates L and diagonal plates O and O' from the angles to the centers of the sides, substantially as herein described.

521,641. REGISTERING TOY BANK. ARTHUR W. COFFIN, San Francisco, Cal. Filed Jan. 30, 1894. Serial No. 498,514. (No model.)



Claim.—1. A deposit receptacle for coins of varying diameters and denominations, comprising a case or box with a slotted opening, a slide controlling the entrance to said opening and actuated by the passage of the coin, a mechanism actuated by the slide so that its amount of movement shall be dependent upon the character of coin deposited, and means for indicating the amount of said deposit.

2. In a deposit receptacle for coins, and in combination with a toothed wheel, a means for indicating its movement, and an exterior casing having a slot in its top, a slide exterior of the slot and normally closing its entrance, and a mechanism interposed between the slide and wheel for moving the latter a distance proportionate to the size of the coin inserted and the amount of movement of the slide, whereby coins of different denominations may be deposited and their combined values indicated.

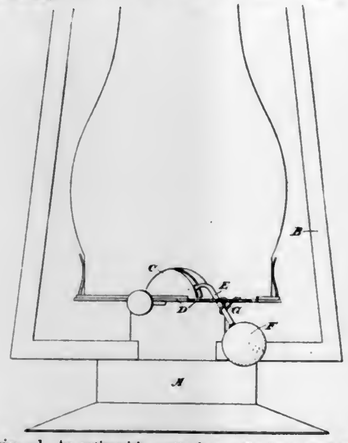
3. A deposit receptacle for coins, consisting of an exterior case having a slotted opening in the top, a sliding spring-actuated covering plate by which the opening is normally closed, which plate is movable for the introduction of any coin into the slot, a fulcrum plate G movable by the pressure of an introduced coin, a toothed ratchet wheel, pawl, and intermediate lever mechanism whereby the passage of the coin acts to rotate the wheel and an index connected with the wheel to show the amount of the deposit, substantially as herein described.

4. A deposit receptacle for coins consisting of an exterior case having a slotted opening in the top, a spring-actuated plate sliding over said opening to normally close it, said plate being moved back by the introduction of a coin, a fulcrum plate E situated below the opening having a spring by which it is normally held in position, said plate receiving the coin, and movable about its fulcrum to allow the passage of any coin, a second fulcrumed lever G movable simultaneously with the movement of this plate and to a distance governed by the diameter of the passing coin, a pawl carried by said lever, a ratchet wheel journaled within the case and connected with an exterior indicating and registering device, said ratchet wheel being moved by the action of the pawl whenever a coin is introduced, substantially as herein described.

5. A deposit receptacle for coins consisting of an outer case having a slotted opening in the top, a slidable, spring-actuated cover by which said opening is normally closed, said cover being movable by the introduction of any coin, an indicator and register upon the exterior of the case, an interior ratchet wheel and connected lever mechanism whereby the introduction of the coin acting thereon will rotate the ratchet wheel and move the indicator, and a second slot made by the side of the first one and extending sufficiently beyond it so that the introduction of a nickel five cent piece in this slot will operate the register to the same extent as the introduction of a silver five cent piece in the first named slot, substantially as herein described.

6. The deposit receptacle for coins consisting of the exterior case having slotted openings in the top, a movable cover, lever plates, ratchet wheel, indicator and register and intermediate connections whereby the indicator is moved whenever a coin is introduced into the receptacle, a door having a hook or catch, a lever adapted to engage such catch and retain the door in its closed condition while thus engaged, a pin upon the ratchet wheel adapted to strike the lever and disengage the latching device whenever the ratchet wheel has been rotated to the desired point, substantially as herein described.

521,642. LANTERN OR LAMP EXTINGUISHER. CHARLES W. COTTRELL, Washougal, Wash. Filed Nov. 24, 1893. Serial No. 491,879. (No model.)



Claim.—1. An extinguisher attachment for lamps and lanterns consisting in an air tube of a diameter to pass through one of the apertures in the foraminated ventilator disk, bent laterally at its upper end, and provided at its outer end with an air bulb, and an attaching device secured to the tube between said bulb and bend and formed of an upwardly projecting bifurcated arm or staple, the ends of which are adapted to be passed through said ventilator and bent laterally in opposite directions, substantially as herein described.

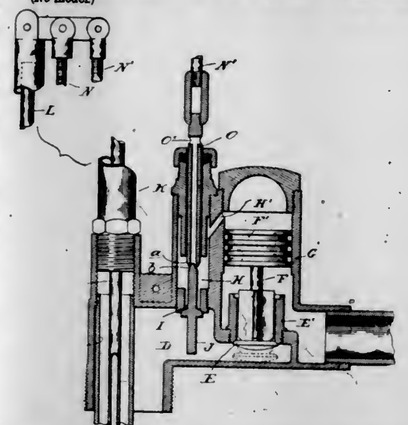
2. In combination with the wick tube and perforated ventilator of a lantern or lamp, a pipe passing from without through one of the holes of the ventilator and having its inner end open and in proximity to the wick tube whereby it is adapted to direct a jet of air against the wick and flame, the air bulb on the outer end of the pipe, and the staple secured to the pipe and having its arms passing up through holes in the ventilator and bent over, whereby the pipe is secured to the lantern or lamp, substantially as herein described.

521,643. CAN-OPENER. MADISON DALLAS, New Orleans, La. Filed Oct. 31, 1893. Serial No. 489,649. (No model.)

Claim.—The herein described can-opener, consisting of a cover the under surface of which is provided with an annular ring having a cutting-blade connected with the outer side thereof, a handle secured to the top of the cover, and a pin projecting downwardly from said handle and through the top of the cover, substantially as and for the purpose set forth.



521,644. AUTOMATIC CONTROLLING DEVICE FOR BOILER-FEEDERS. JOHN DESMOND, Detroit, Mich., assignor to the Penberthy Injector Company, same place. Filed Aug. 26, 1893. Serial No. 484,123. (No model.)



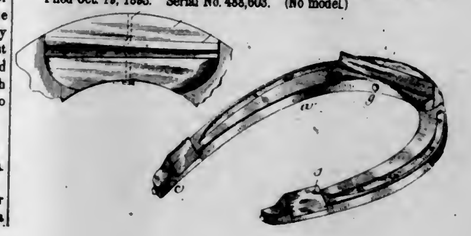
Claim.—1. The combination of a steam supply valve normally held closed by the boiler pressure, a piston for actuating said valve, an auxiliary valve for controlling a port supplying steam to the main valve piston and normally held closed by the boiler pressure, and mechanism for actuating said auxiliary valve controlled by the height of the water, substantially as described.

2. The combination of a steam supply valve normally closed by the boiler pressure, a piston for opening said valve, a cylinder in which said piston works, an auxiliary valve controlling a port for supplying steam to said cylinder and normally held to its seat by the boiler pressure, mechanism for actuating said auxiliary valve controlled by the height of the water, and a vent from the cylinder, opened only on the closing of the auxiliary valve, substantially as described.

3. The combination of a steam supply valve, normally closed, a piston for opening said valve, an auxiliary valve for controlling a port supplying steam to the main valve piston, and a thermostat controlled by the height of the water for actuating said auxiliary valve, substantially as described.

4. The combination of the valve casing, the main steam valve therein, the cylinder above said valve, the piston therein, an auxiliary valve for controlling a supply port to said cylinder, the actuating mechanism for said auxiliary valve comprising a thermostatic device controlled by the height of the water, the hollow stem actuated thereby, having the vent O, and the conical bearing *b*, on the stem of the valve J, controlling said vent, substantially as described

521,645. HORSESHOE. WILLIAM F. DOWNEY, Washington, D. C. Filed Oct. 19, 1893. Serial No. 488,603. (No model.)



Claim.—1. The horse shoe having the way, in combination with the calk having the transverse passage curved or deflected toward one end of the calk, and the pin arranged to pass through said shoe and through said passage so as to bend the pin and prevent loosening thereof, substantially as described.

2. The herein described calk having the inclined sides and the transverse pin way curved or deflected between its ends toward one end of the calk to receive a pin passed through the shoe so that the pin is bent in the groove and so that the calk is forced longitudinally when the pin is forced in.

3. The shoe having an undercut way and the pin holes opening into said way, in combination with the calk having the curved groove in its under side to register with said pin way, and the pin arranged to pass through said groove so that the pin is bent in the groove when the pin is forced through said holes and groove.

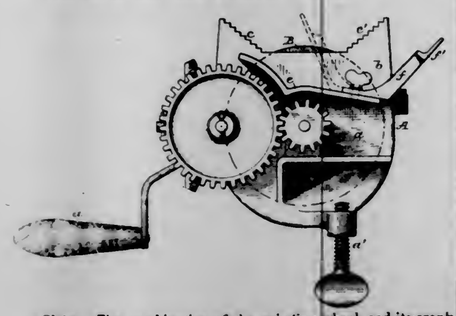
4. The combination with a shoe having a way, the calk in the way, and the pin arranged to pass through the shoe and enter the calk, with the head of the pin at the inner edge of the shoe said pin having a head and an auxiliary shoulder to prevent the head engaging the shoe so that the head can be readily grasped by pliers or the like.

5. A horse shoe calk, arranged to slide into an undercut tapered way, tapered toward one end and in its inner edge or face provided with a transverse groove extending thereacross, and between its ends deflected laterally toward the large end of the calk, as and for the purpose set forth.

6. A horseshoe having the undercut way and provided with a transverse pin hole from the inner edge of the shoe opening into said way and continued into the shoe at the opposite side of said way, the calk arranged to slide into said way and having a transverse pin way arranged to register at its ends with said pin holes in the shoe, said pin way being deflected toward one end of the calk, and a pin of pliable or a bendable metal so that when driven through said pin hole it will enter said pin way of the calk, will move the calk slightly longitudinally, will be bent laterally by said deflection, and will enter the opposite pin hole, thereby securing the pin.

7. A horse shoe having the undercut way in the under face tapering toward one end, the pin hole from the inner side of the shoe into the way near or at the upper wall thereof and continued into the shoe from the opposite side of the way, the calk arranged to fit said way and tapered toward one end and having the transverse groove in its large upper face arranged to register with said holes, and the pin arranged to pass across the top of the way and fit in said groove.

521,646. GRINDING-MACHINE. RUFUS DUTTON, Yonkers, N. Y. Filed Sept. 22, 1888. Serial No. 286,095. (No model.)

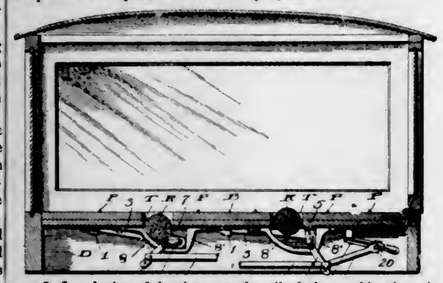


Claim.—The combination of the grinding wheel, and its crank and gearing, of a casing or frame serving as a water pan and provided with the two sets of knife gages, substantially as described, whereby while the grinding wheel is being driven by one hand, the operator may hold a knife in the other, and move it to and fro longitudinally with its edge properly presented to the grinding surface, because of the supporting and gaging contact of the back of the blade first with one set and then with the other set of said gages.

521,647. HEARSE. CHARLES EDWARDS, Pigg's Manor, Pa. Filed Mar. 22, 1894. Serial No. 504,661. (No model.)

Claim.—1. In a hearse, the combination with a base having transverse slots, pointed pins rising from said base, and a roller at the rear end of the base; of levers pivoted beneath the base, rollers journaled in said levers and standing within the slots in the base, and means substantially as described for swinging the levers to project the rollers through the slots when desired and raise them to a line above the points of the pins, as and for the purpose set forth.

2. In a hearse, the combination with a base having transverse slots, pointed pins rising from said base, and a roller at the rear end of the base; of levers pivoted beneath the base, rollers journaled in said levers and standing within the slots in the base, a hand-lever also pivoted beneath the base, and connections substantially as described between said hand-lever and pivoted levers for swinging the latter when desired to project said rollers through the slots to a line above the points of the pins, as and for the purpose set forth.



3. In a device of the character described, the combination with a slotted base, caps secured to said base, levers having T-heads at one end pivoted within said caps beneath the base, and a roller standing within said slot and having trunnions journaled in the levers; of a rod having cranks at its extremities journaled in eyes in the free ends of said levers, hangers depending from the base beneath the body of the rod, and means for swinging the body of the rod, as and for the purpose set forth.

4. In a device of the character described, the combination with a slotted base, levers pivoted at one end beneath the base, and a roller standing within said slot and having trunnions journaled in the levers; of a rod having cranks at its extremities journaled in eyes in the free ends of said levers, hangers depending from the base beneath the body of the rod and each having one upright end beyond the transverse line of said eyes, and means for swinging the body of the rod, as and for the purpose set forth.

5. In a device of the character described, the combination with a slotted base, caps secured to said base, levers having T-heads at one end pivoted within said caps beneath the base and provided with lateral enlargements between their ends, and a roller standing within said slot and having trunnions journaled in said enlargements in the levers; of a rod having cranks at its extremities journaled in eyes in the free ends of said levers, hangers depending from the base beneath the body of the rod and each having one upright end beyond the transverse line of said eyes, and means for swinging the body of the rod, as and for the purpose set forth.

6. In a device of the character described, the combination with a slotted base, a pair of levers pivoted at one end to said base and having eyes at their opposite ends, a roller standing in said slot and having trunnions journaled in said levers between their ends, and hangers depending from the base just inside said levers; of a rod whose body slides within said hangers and whose ends are cranked and journaled in the eyes of the levers, an arm projecting from the center of the rod at the opposite side from said cranks and at an angle to their plane if continued through the rod, a hand-lever, and connections between said hand-lever and arm, as and for the purpose set forth.

7. In a device of the character described, the combination with a base having a number of transverse slots, levers pivoted at one end to said base and having eyes at their free ends, rollers standing within the slots and having trunnions journaled in the levers between the ends of the latter, and hangers depending from the base just inside the levers and each having one upright end toward the rear end of the base, which upright end stands in rear of the transverse line of the eyes of the levers; of rods whose bodies move in said hangers and whose ends have cranks journaled in the eyes of the levers, an arm projecting from the center at the opposite side of each rod from its cranks and at an angle to their plane if continued through the rod, a rod connecting the arms, a hand-lever pivoted beneath the rear of the base, and a pitman connecting the hand-lever with the rear arm, all as and for the purpose set forth.

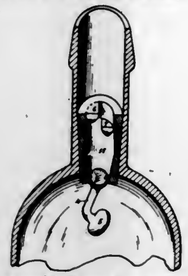
521,648. MILK COOLER AND AERATOR. HENRY W. GAILAY, Cortland, assignor of one-half to Philo B. Spaulding, New Hartford, N. Y. Filed Apr. 23, 1894. Serial No. 508,583. (No model.)

Claim.—1. In a milk-cooler, a primary cooling-chamber having a conical wall, an annular and supplemental cooling chamber surrounding the lower end of the primary chamber and in communication therewith, and an annular milk receptacle intermediate said cooling chambers, in combination with a milk-reservoir provided with perforations through which the milk is discharged.



2. In a milk-cooler a primary cooling-chamber having a conical wall, an annular and supplemental cooling chamber surrounding the lower end of the primary chamber and communicating therewith at the bottom and top of said secondary chamber and having an inwardly and downwardly inclined inner wall, and an annular V shaped milk receptacle intermediate said chambers, in combination with a milk-reservoir provided with perforations through which the milk is discharged.

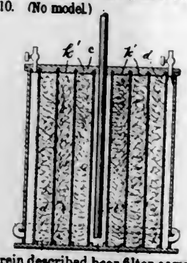
521,649. BOTTLE-STOPPER. JOHN C. GROUT, Detroit, Mich. Filed Apr. 30, 1894. Serial No. 509,612. (No model.)



Claim.—1. In a stopper for bottles, the combination of a case having a passage way therethrough, tortuous at its upper end and coned at its lower end, a ball valve adapted to seat itself in the conical opening and provided with a curved stem terminating with a weight, substantially as described.

2. The combination of a bottle having a neck contracted at its lower part, a case adapted to seat in the contracted part of said neck and having an opening therethrough at the upper end and contracted in cone form at the lower end, a ball valve provided with a weighted stem adapted to seat itself in the conical passage way through the case, substantially as described.

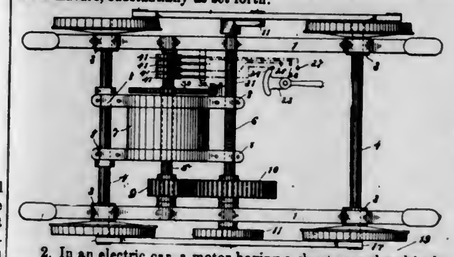
521,650. FILTER. CARL HAFNER, Chattanooga, Tenn., assignor to Charles Reif and John Kraus, trustee, same place. Filed June 3, 1893. Serial No. 476,510. (No model.)



Claim.—The herein described beer filter composed of the casing, the plurality of separately removable perforated parallel concentric plates *d*, having interposed sheets of gauze, the spaces between said plates receiving filtering material such as hops, the closed bottom of the casing formed to removably receive the lower edges of said plates *d*, and the single removable cover *c*, of the casing having the plurality of separated ribs on its under side projecting down into the spaces between the said plates to press down the loose filtering material and in the grooves between which the plates are held as set forth.

521,651. ELECTRIC-RAILWAY-CAR MOTOR. JOHN C. HENRY, Westfield, N. J. Filed Aug. 25, 1892. Serial No. 444,054. (No model.)

Claim.—1. In an electric car a motor having a multipolar field magnet of high resistance, a pole-changer in circuit with the field only, and mechanism for operating said pole-changer synchronously with the armature, substantially as set forth.



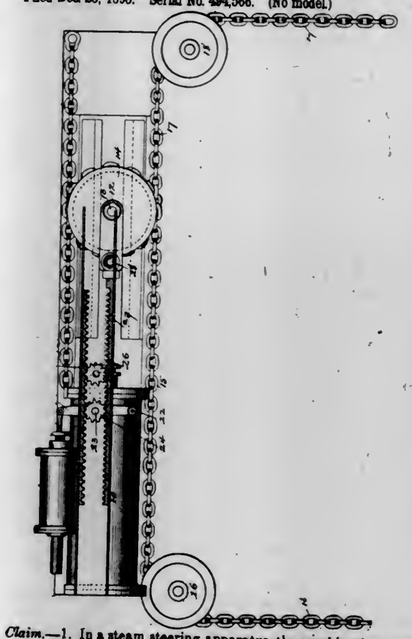
2. In an electric car, a motor having a shunt wound multipolar field magnet, a rotating pole changer in the field circuit, a gear wheel on the armature shaft, and a pinion on the shaft of the pole-changer, substantially as described.

3. In an electric car, a motor having a shunt wound multipolar field magnet of high resistance, an automatic pole-changer in the field circuit, an armature containing several coils in parallel circuit terminating in collector rings, and a switch for cutting out one or more of said coils, substantially as set forth.

4. An electric motor having a multipolar armature with alternating pole pieces of constant polarity, a shunt wound multipolar field magnet, a two-part pole changer in the field circuit, and gearing for rotating said pole changer in a ratio equal to one half the number of pole changes to be made in one revolution of the armature, substantially as described.

5. An electric motor, consisting of the shunt wound field magnet having the pole pieces projecting inwardly alternately from each end of the core, the armature 17 provided with pole pieces of alternate polarity, and having a plurality of coils terminating at one end in the collector rings 41, the two part pole changer 31, the brushes 34, 35 forming the terminals of the field circuit, the gears 38 and 39 for rotating the pole changer synchronously with the armature, and the switch 23 for controlling the armature circuits, substantially as described.

521,652. STEAM STEERING APPARATUS. EDWARD HEYDE, East Saginaw, Mich., assignor to the Wickes Brothers, same place. Filed Dec. 23, 1893. Serial No. 494,566. (No model.)



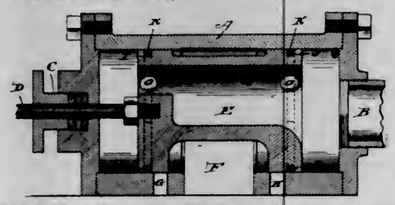
Claim.—1. In a steam steering apparatus, the combination with a steam cylinder and its piston rod, of a cross head carried by said

piston rod, two sheaves carried by the cross head, chains each having one end made fast and carried over said sheaves respectively in opposite directions and connected to the tiller, a steam valve, a valve gear actuated by the piston rod, and means, for manually controlling the valve independently of the movements of the piston rod, substantially as described.

2. In a steam steering apparatus, the combination with a steam cylinder and its piston and piston rod, of a valve for controlling the cylinder ports, a swinging lever pivoted to the valve rod, a pinion carried by said lever and two sliding racks inmeshed with the pinion, one of said racks connected to the piston rod and means for moving the other rack independently, substantially as described.

3. In a steam steering apparatus, the combination with a steam cylinder and its piston and piston rod, of a slide valve for controlling the cylinder ports, a swinging lever pivoted to the valve rod, a pinion carried by said lever, two sliding racks inmeshed with the pinion, one of said racks connected with the piston rod and moving therewith, a steering wheel, an operating rod turned thereby, a loose pinion carried by said rod and inmeshed with the rack connected to the piston rod, a pinion secured to turn with the operating rod and inmeshed with the other of said racks and a clutch, one member of which is carried by the loose pinion and the other by the rod, substantially as described.

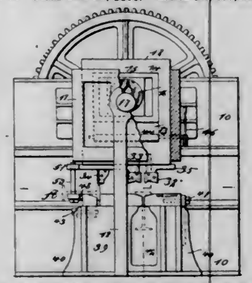
521,653. SLIDE-VALVE. EDWARD HEYDE, East Saginaw, Mich., assignor to the Wickes Brothers, same place. Filed Dec. 23, 1893. Serial No. 494,567. (No model.)



Claim.—1. A slide valve construction, comprising in combination, a steam chest having ports through its bottom wall and terminating below its longitudinal center, a valve having its body circumferentially grooved toward its ends, packing rings secured in the lower portions of said grooves, and packing segments mounted in the upper portions of said grooves upon outwardly forcing springs, substantially as described.

2. The combination with a valve chest having ports extending through less than half of its circumference, a slide valve having its body circumferentially grooved toward its ends, packing rings of less length than the ports secured in said grooves, packing segments movably supported in said grooves and having their ends above the ends of the ports and outwardly forcing springs upon which the movable segments are mounted, substantially as described.

521,654. BEAM-FRAMING MACHINE. ROBERT H. IRELAND, New York, N. Y. Filed Oct. 25, 1893. Serial No. 489,069. (No model.)



Claim.—1. In a beam framing machine, a knife head, mechanism for reciprocating the same, knives constructed substantially as described, carried by the head, and a table located beneath the knives, fitted to support a beam in an upright and horizontal position, the said table having adjustable portions whereby the openings to receive the beams may be increased or decreased in size, substantially as and for the purpose specified.

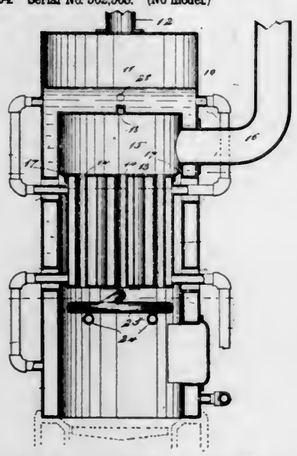
2. In a beam framing machine, a reciprocating knife head, knives of substantially angular construction arranged in pairs and connected with the head, and a knife likewise connected with the head, of angular construction, one member of the knife being at an obtuse angle to the opposing member, a driving mechanism connected with the knife head, and a table shaped to receive a beam in a horizontal or vertical position, and having adjustable portions to increase or decrease the size of the openings to receive the beams, as and for the purpose set forth.

3. In a beam framing machine, a reciprocating knife head, a mechanism for driving the same, substantially as shown and described, knives attached to the said head, adapted to cut the flanges of beams, said knives being substantially L-shaped in cross section, a knife likewise carried by the head, adapted to cut the side edges of the web of a beam, said knife comprising two members arranged at an obtuse angle to each other, and a table located beneath the knives, shaped to receive and support beams in a horizontal or vertical position, the said table having a stationary block and adjustable blocks arranged at opposite sides of the stationary block as and for the purpose set forth.

4. In a beam framing machine, the combination with a box or casing and supports therefor, a driving shaft provided with an eccentric, a knife head consisting of a frame having vertical movement in the casing, and provided with a rectangular opening, a box having vertical movement in the opening in the frame or knife head, and a strap connected with the eccentric and having horizontal movement in the box, of a mechanism located in the opening in the knife head at the bottom thereof for placing the head in communication with the sliding box, knives carried by the said head, adapted to cut the ends of the flanges of iron beams and the side edges of the web of the beams, and a table located beneath the knives and shaped to support the beams in a horizontal or perpendicular position, the said table being slotted and having adjustable blocks to increase or decrease the size of the openings to receive the beams, as and for the purpose set forth.

5. In a beam framing machine, the combination with a box or casing and supports therefor, a driving shaft provided with an eccentric, a knife head consisting of a frame having vertical movement in the casing and provided with a rectangular opening, a box having vertical movement in the opening in the frame or knife head and a strap connected with the eccentric and having horizontal movement in the box, of the leaves pivoted in the lower part of the opening in the frame or knife head for placing the knife head in communication with its sliding box, means for raising and lowering said leaves, substantially as described, knives carried by the said head, and a table located beneath knives, as and for the purpose specified.

521,655. BOILER. ALBERT JARGER, Jersey City, N. J. Filed Mar. 6, 1894. Serial No. 502,505. (No model.)



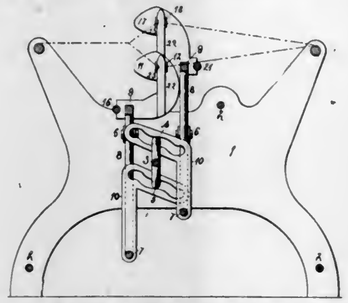
Claim.—1. A boiler composed of a vertical, hollow or double-walled shell, having a water and steam space at the top, and an annular-water containing space communicating with such steam space and extending thence to the bottom of the shell, a smoke-box and fire-box, a tubular section intermediate of and connecting such boxes, and circulation pipes connecting said tubular section with the water space of the shell, as shown and described.

2. A boiler, comprising a hollow walled shell, a tubular central section arranged within the shell, circulation pipes connecting the tubular section with the shell, a coil arranged beneath the tubular section, and pipes connecting the coil with the lower and upper portions of the shell, substantially as described.

3. The combination, with the boiler, of the circulation pipe connecting with it at different levels, the return pipe of the boiler, the tank connected with it, a second pipe leading from the tank to the circulation pipe, valves in the second pipe and in the circulation pipe, a float in the tank, and mechanism for opening and closing the valves by the movement of the float, substantially as described.

4. The combination, with the boiler and its heating coil, of the circulation pipe connecting the lower portion of the boiler with the coil, a return pipe connected with the circulation pipe, valves controlling the return and circulation pipes, and a float actuated mechanism operated by the water in the return pipe to move the valves, substantially as described.

521,656. LOOM. EMIL G. JOHANSON, Rockford, Ill., assignor to Charles Alstrom and Olof Hagenson, same place. Filed Dec. 7, 1893. Serial No. 493,061. (No model.)



Claim.—1. In a loom, a finger for supporting a warp thread made from sheet material, having a hooked upper end, and a perforation, a spring bar secured to one side thereof overlying the perforation and provided with a notch located over the perforation.

2. In a loom, the combination of two series of fingers, each series having a suitable support, the fingers provided with a hooked upper end and a perforation, a spring bar secured to one side thereof overlying the perforation and provided with a notch located over the perforation forming a guide and support for a warp thread.

3. In a loom, the combination of two series of fingers, each series having a suitable support, the fingers provided with a hooked upper end and a perforation, a spring bar secured to one side thereof overlying the perforation and provided with a notch located over the perforation, forming a guide and support for a warp thread and a shaft provided with a crank for each series by which movement is imparted thereto.

4. In a loom, the combination of two series of fingers, each series having a suitable support, the fingers provided with a hooked upper end and a perforation, a spring bar secured to one side thereof overlying the perforation and provided with a notch located over the perforation, forming a guide and support for a warp thread, the support for each series having a vertical movement, rollers forming guides for the supports and means for imparting movement to the supports.

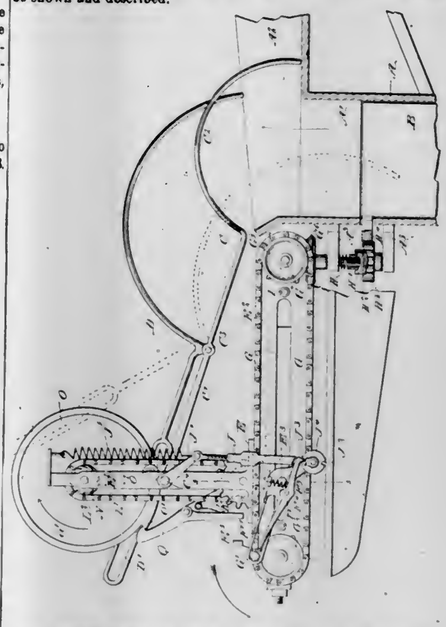
521,657. AUTOMATIC HAY-PRESS FEEDER. WILLIAM H. H. JOHNSON, La Due, Mo. Filed Oct. 3, 1893. Serial No. 487,071. (No model.)

Claim.—1. A press feeder of the class described, comprising a rake for raking the hay into the plunger box feed hopper, and a feed bar pivoted on the said rake and adapted to press the hay down the feed hopper into the plunger box in advance of the plunger, substantially as shown and described.

2. A press feeder of the class described, comprising a rake for raking the hay into the plunger box feed hopper a plunger, a feed bar pivoted on the said rake and adapted to press the hay down the feed hopper into the plunger box in advance of the plunger, a spring barrel for imparting a swinging motion to the said feed bar to move the latter into and out of the said feed hopper, and means for connecting the spring barrel with the feed-bar, substantially as shown and described.

3. A press feeder of the class described, comprising a rake for raking the hay into the plunger box feed hopper a plunger, a feed bar pivoted on the said rake and adapted to press the hay down the feed hopper into the plunger box in advance of the plunger, and mechanism, substantially as described, for imparting a reciprocating motion to the said rake and the feed bar carried thereon, the said mechanism being actuated from the plunger of the press, substantially as set forth.

4. A press feeder of the class described, comprising a plunger an endless chain adapted to receive an intermittent movement from the plunger, a slotted lever arm engaging a friction roller on the said chain, a carriage on which the said lever arm is pivoted, and a rake carried by the said carriage and moving with the same, substantially as shown and described.



5. A press feeder of the class described, comprising a plunger an endless chain adapted to receive an intermittent movement from the plunger, a slotted lever arm engaging a friction roller on the said chain, a carriage on which the said lever arm is pivoted, a rake carried by the said carriage and moving with the same, and stops for limiting the traveling motion of the said carriage, as set forth.

6. A press feeder of the class described, comprising a plunger an endless chain adapted to receive an intermittent movement from the plunger, a slotted lever arm engaging a friction roller on the said chain, a carriage on which the said lever arm is pivoted, a rake carried by the said carriage and moving with the same, a pawl held on the said lever arm, a notched disk held on said arm and engaged by the said pawl, and a crank arm connected with the said slotted lever arm and fastened on a shaft carrying the rake, the said shaft being journaled in the said carriage, substantially as shown and described.

7. A press feeder of the class described, comprising a plunger an endless chain adapted to receive an intermittent movement from the plunger, a slotted lever arm engaging a friction roller on the said chain, a carriage on which the said lever arm is pivoted, a rake carried by the said carriage and moving with the same, a pawl held on the said lever arm, a notched disk held on said lever arm and engaged by the said pawl, a crank arm connected by an adjustable link with the said slotted lever arm, a shaft carrying the said crank arm and journaled in the said carriage, and a rake secured on the said shaft, substantially as shown and described.

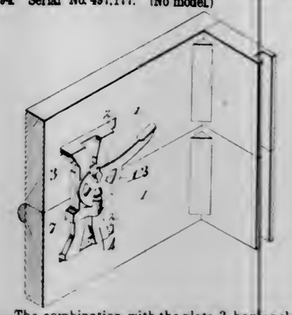
8. A press feeder of the class described, comprising a plunger, an endless chain adapted to receive an intermittent movement from the plunger, a slotted lever arm engaging a friction roller on the said chain, a carriage on which the said lever arm is pivoted, a rake carried by the said carriage and moving with the same, a pawl held on the said lever arm, a notched disk held on said lever arm and engaged by the said pawl, a crank arm connected by an adjustable link with the said lever arm, a shaft carrying the said crank arm and journaled in the said carriage, a rake secured on the said shaft, a feed bar pivoted on the said rake and having a slotted extension, and a spring barrel carrying a pin engaging the said slotted extension substantially as shown and described.

9. In a press feeder, the combination with a plunger and traveling chain carrying a friction roller, of a slotted lever arm pivoted on a fixed stud and engaged by said roller, the link J, a crank and rake arranged as specified, a stud on the lower end of said link, a notched

disk mounted on said stud and a spring-pressed pawl fulcrumed on the lever arm and engaging the said disk, substantially as shown and described.

10. A press feeder of the class described, comprising a carriage having an intermittent sliding movement, a fixed rack under the said carriage, a gear wheel in mesh with the said fixed rack and mounted to rotate loosely on a shaft journaled in the said carriage, a ratchet and pawl mechanism connecting the said gear wheel with the said shaft, a second shaft journaled on the said carriage and adapted to be driven from the said first named shaft, a spring barrel mounted loosely on the said shaft, a spring within the said barrel and attached at one end to the said shaft and at its other end to the said barrel, a spring-pressed tripping pawl adapted to engage a shoulder on the said barrel and adapted to strike a fixed lug, the said pawl being pivoted on the said carriage, and a pin carried by the said barrel and engaging a slotted extension of the feeder bar, substantially as shown and described.

521,658. CLAMP. WILLIAM KLINE, Piqua, Ohio. Filed Jan. 17, 1894. Serial No. 497,177. (No model.)



Claim.—The combination with the plate 3, having slot 5, a flange 6 at its outer end, lugs 7, 7, at its side edges and a central lug 8, at its inner end provided with an upwardly extending projection 8^a, of the plate 4, having a flange 12 at its outer edge and a lug 10 at its inner end provided with a downwardly extending projection 14^a, and the lever having a notch 14 and a cam head 15, substantially as and for the purpose specified.

521,659. SCREEN FOR HALF-TONE PROCESS. MAX LEVY, Philadelphia, Pa. Filed Mar. 1, 1894. Serial No. 501,984. (No model.)



Claim.—1. A grating or screen for the purpose set forth, which consists of parallel lines of varying thickness and distance apart and crossed so as to form transparent apertures of varying sizes arranged in groups.

2. In a grating or screen for the purpose set forth, the combination, of alternately thinner and thicker lines spaced at alternately greater and less distance apart and crossed by a similar series of lines similarly placed.

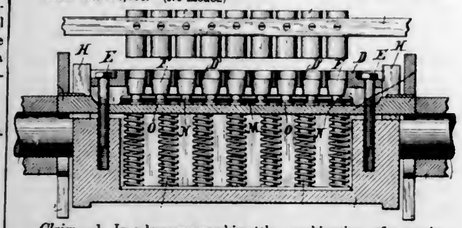
3. A grating or screen for the purpose set forth, the combination of alternately thinner and thicker parallel lines spaced at alternately greater and less distance apart and crossed by a single set of uniform parallel lines.

4. In a grating or screen for the purpose set forth, the combination with two sets of lines crossed at right angles with each other, of two other sets of lines crossing the first two sets diagonally at regular intervals forming different sized transparent apertures arranged in groups.

5. In a grating or screen for the purpose set forth, the combination with two sets of lines crossed at right angles with each other, of two other sets of lines crossing the first two sets diagonally at regular intervals, forming at their intersections different sized obstructions arranged in groups.

6. A photo-mechanical half-tone printing-surface the subdivisions of which consist of regularly disposed groups of dots the individual members of each group differing from each other.

521,660. LOZENGE-MACHINE. HENRY LUCAS, Lake, assignor to the George Ziegler Company, Milwaukee, Wis. Filed Nov. 13, 1893. Serial No. 490,788. (No model.)

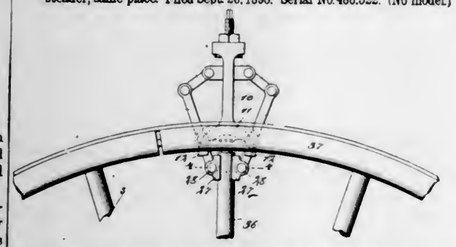


Claim.—1. In a lozenge machine, the combination, of a revoluble cylinder having a recess therein, a radially movable stock within the recess, said stock provided upon its outer side with an open ended groove, punches having their lower ends retained in said groove, and adapted to be slid longitudinally along the groove, so as to pass out of the open ends thereof when the matrix plate is removed, and a matrix plate fixed to the cylinder within the recess thereof, said plate provided with matrix openings in which the punches are adapted to reciprocate, substantially as set forth.

2. In a lozenge machine, the combination, of a revoluble cylinder having a recess therein, a radially movable stock within the recess, said stock having a dovetailed or interiorly expanded open-ended groove, punches provided with contracted necks and expanded feet, which feet fit in the dovetailed groove of the stock, and are adapted to be slid longitudinally along the groove so as to pass out of the open ends thereof, and a matrix plate secured detachably within the recess of the cylinder, said plate provided with matrix openings in which the punches are adapted to reciprocate, substantially as set forth.

3. In a lozenge machine, the combination, of a revoluble cylinder having a recess therein, a radially movable stock within the recess, said stock provided upon its outer side with an open ended groove, a matrix plate detachably secured within the recess of the cylinder said plate having matrix apertures therein, and punches, each punch having a sharp edge at its front or head end, and a contracted or tapering body of less diameter than the matrix aperture, and also having its lower end retained in the groove of the stock, and adapted to be slid longitudinally along said groove so as to pass out of the open ends thereof when the matrix plate is removed, substantially as set forth.

521,661. TIRE-TIGHTENER. WILLIAM T. MACKEY, Vancouver, Canada, assignor of three-fifths to John W. Weart and Archibald B. Docksteader, same place. Filed Sept. 26, 1893. Serial No. 486,522. (No model.)



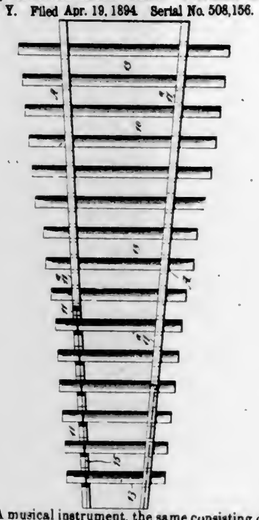
Claim.—1. A device for expanding vehicle wheels, which comprises jaws for clamping a spoke, devices for actuating said jaws to cause them to simultaneously approach or recede from each other, a screw which operates said devices, a lifter adapted to engage the under side of the felly, and a nut which connects the lifter with the aforesaid screw, as shown and described.

2. The herein-described device for expanding wheels, which comprises a lift bar having arms to project beneath the felly, clamping jaws to engage a spoke adjacent to the felly, toggle levers to operate the jaws, a screw for actuating the toggle levers, and an operative connection between the screw and the lift bar, whereby the latter may be moved in relation to the jaws, substantially as described.

3. A device for expanding wheels, comprising an adjusting screw, a lift bar operatively connected with the screw and provided with projecting arms to engage a felly, a follower mounted on the screw, a pair of jaws to clamp a wheel spoke, toggle levers connecting the follower with the jaws, and a tie bar mounted loosely on the screw and connecting two of the toggle levers, substantially as described.

4. A wheel expander, comprising an adjusting screw, a nut on the screw, a lifter journaled on the nut and provided with projecting arms to engage a felly, a tie bar journaled on the lower end of the screw, a follower threaded on the screw, toggle levers connecting the follower and tie bar, two of the levers being fulcrumed on the latter, and oppositely arranged jaws carried by toggle levers and adapted to clamp the spoke, substantially as described.

521,662. MUSICAL INSTRUMENT. BERNHARD H. MONNEUSE, Brooklyn, N. Y. Filed Apr. 19, 1894. Serial No. 508,156. (No model.)



Claim.—1. A musical instrument, the same consisting of a frame, open at the top and provided with openings in its sides, tubes constructed to produce predetermined sounds when struck, and extending through transversely opposing openings, and a flexible support maintaining said tubes in suspension within the openings through which they pass, and out of contact with the walls of said openings, as and for the purpose set forth.

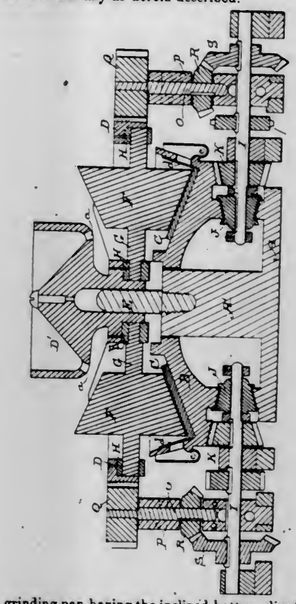
2. A musical instrument, the same consisting of a frame having openings produced in its sides, tubes constructed to give forth a predetermined tone, passed through aligning apertures in the frame, and a cord or tape attached to the frame, passed across the openings therein and looped around the tubes, maintaining the tubes in pendent position, free from contact with the walls of the opening, substantially as described.

3. A musical instrument, the same consisting of a frame having openings in its sides, tubes arranged to produce the tones of a predetermined scale and passed through aligning apertures in the frame, and flexible hangers secured to the frame, extending within the said openings and surrounding and receiving the said tubes, and a cap strip whereby the hangers are concealed and protected, as and for the purpose set forth, the haugers serving to hold the tubes out of contact with the walls of the said openings, as and for the purpose set forth.

4. A musical instrument, the same consisting of a frame having openings in its sides, tubes arranged to produce the tones of a predetermined scale and passed through aligning apertures in the frame, a cord or tape attached to each side of the frame near one end, passed over all the openings in a side and looped around all of the tubes within said openings, and a cap strip covering and concealing the upper portions of the said tapes or cords, the said cap strip being removable, as and for the purpose set forth.

521,663. ORE GRINDER AND AMALGAMATOR. CHARLES N. MOORE, Newhall, Cal. Filed Oct. 30, 1893. Serial No. 489,524. (No model.)

Claim.—1. A grinding pan having the inclined bottom, a fixed central post with a standard about which the center of the pan is fitted to revolve, horizontal shafts extending outwardly from beneath the bottom of the pan, anti-friction rollers upon said shafts, and flanges upon the bottom of the pan adapted to travel upon said rollers, a toothed gear surrounding the bottom of the pan, pinions upon the horizontal shafts engaging said gear, and mechanism whereby the shafts are driven so as to transmit motion to the pan, together with grinding shoes or rollers movable over the bottom of the pan, the horizontal gear wheel above and of greater diameter than said pan and having bearings in which said shoes or rollers are mounted, and gearing connecting said horizontal shafts with said roller carrying gear wheel substantially as herein described.



2. A grinding pan having the inclined bottom, dies fixed therein, a central base and standard about which the center of the pan is fitted to rotate, radial shafts extending outwardly beneath the bottom of the pan, antifriction rollers upon said shafts by which the pan is supported, a gear around the periphery of the bottom of the pan and pinions upon the shafts adapted to engage the gear, sprocket wheels fixed upon the shafts and receiving power by chains from other sprocket-wheels fixed upon a driving counter-shaft, conical rollers having horizontal shafts journaled in a gear-wheel turning loosely above the top of the pan and intermediate gears whereby motion is transmitted to drive said gear and the crushing rollers with relation to the pan, substantially as herein described.

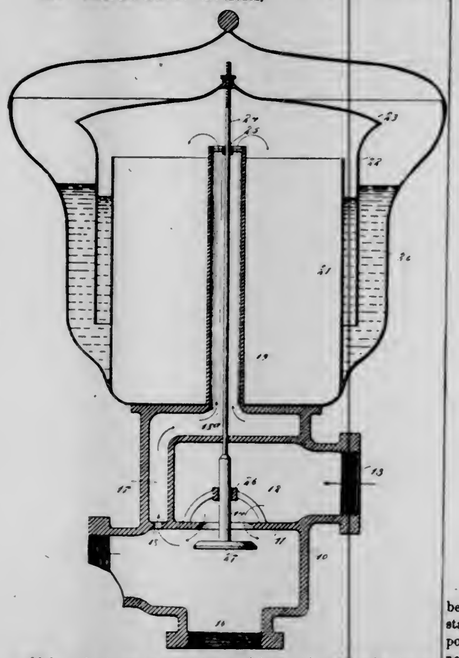
3. A grinding pan having the inclined bottom and dies, radial shafts with supporting anti-friction rollers upon which the pan rests, pinions upon the shafts and a gear upon the pan bottom through which motion is transmitted to rotate the pan, a central base and standard about which the center of the pan is fitted to rotate, a fixed spindle extending upwardly from the standard, a gear of larger diameter than that of the pan having a central hub fitted to rotate upon the spindle, conical rollers, the shafts of which are journaled in boxes in the hub and rim of the gear, so that the rollers travel upon the dies on the pan bottom, vertical shafts having spur pinions adapted to engage the gear, and bevel gears upon said shafts and upon the main driving shafts whereby motion is communicated to rotate the gear and the crushing rollers simultaneously with the movement of the pan, substantially as herein described.

4. A grinding pan having the conical bottom and die mechanism by which a rotary motion is imparted to the pan about a central base and standard, a vertical spindle extending upward from the standard, a spur gear of larger diameter than that of the pan, intermediate gears whereby motion is transmitted from the main driving shafts to rotate the pan and the gear, crushing rollers, the peripheries of which fit the bottom of the pan, and the shafts of which are journaled so as to be driven by the gear, a hopper extending upwardly from the hub of the gear having a conical bottom, and discharge openings around the periphery through which ore is delivered between the crushing rollers and the bottom of the pan, substantially as herein described.

5. A grinding pan having the inclined bottom and dies fitted thereon, conical rollers with horizontal shafts a horizontal gear-wheel having the same axis of rotation as the pan, and journal-boxes in which the shafts of the grinding rollers are carried, a central conical hopper

adapted to deliver ore around its periphery between the grinding rollers and the bottom of the pan, horizontal radial shaft with pinions engaging a gear upon the bottom of the pan, and vertical shafts with gears engaging the periphery of the gear which carries the crushing rollers, intermediate gears and pinions whereby the vertical shafts are driven and the pan and crushing rollers rotated simultaneously, openings with screens fitted around the bottom and outer periphery of the pan, and a surrounding amalgamated copper trough into which the pulp is discharged through the screens, substantially as herein described.

521,664. GAS-GOVERNOR. SILAS H. MOORE, New York, N. Y., assignor to himself and Alfred M. Vernon, same place. Filed Nov. 1, 1893. Serial No. 439,711. (No model.)



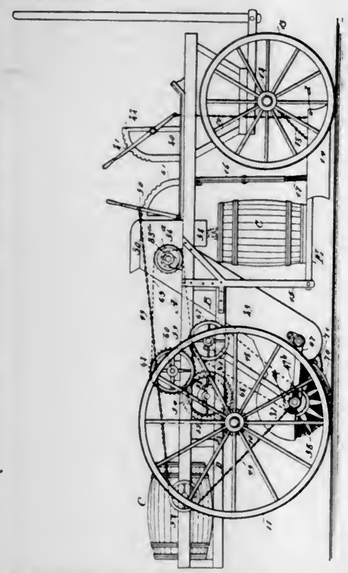
Claim.—1. A gas governor, comprising a valve casing having an upper and lower chamber connected by a passage, the upper chamber having an inlet and the lower one an outlet, a liquid-containing tank seated on the flat top of the valve casing, a central tube projecting upward into the tank which is fitted closely around the base of said tube and forms a liquid-tight joint therewith, a right-angular channel leading from the lower chamber of the valve casing and delivering into the tube, a float suspended in the tank and extending over the tube top, a valve rod carried by the float and extending down through the tube and top of the lower or gas inlet chamber wherein it is guided, a skeleton guide attached to the partition between the chambers, and a valve on the lower end of the rod, to close the central gas passage in the partition, substantially as described.

2. As an article of manufacture, the valve casing consisting of an integral casting having the following construction and arrangement of parts; the flat top, from which a tube projects vertically; a gas passage extending horizontally and vertically, and communicating at its upper end with said tube and at its lower end with a gas outlet chamber formed in the lower portion of the casting; an inlet chamber arranged above such outlet chamber; and an intervening partition having a gas passage; as shown and described.

521,665. STREET-SWEEPER. GEORGE MORROW, Salt Lake City, Utah. Filed Aug. 23, 1893. Serial No. 483,350. (No model.)

Claim.—1. In a sweeper, the combination, with a frame, a platform located beneath the frame, and a mold board adjustably connected with the said platform, of an elevator carried by the frame at the rear of the platform and mold board, a brush held to revolve at the mouth of the elevator, the said elevator having its delivery end over the said platform, and guard plates located at the receiving end of the elevator, partially encircling the brush, said plates having yielding movement to and from the brush, substantially as and for the purpose specified.

2. In a sweeper, the combination, with a frame, a platform located beneath the forward portion of the frame, pivotally connected with hangers attached to the frame, a lift lever connected with the platform, and a mold board pivotally connected to the forward portion of the platform and having adjustable connection at its rear with the rear portion of the platform, of an elevator pivotally located in the frame, having an exit opening over the platform and provided with an extension at its lower end, a broom held to revolve in the extension, lift levers connected with the elevator and broom, whereby both may be simultaneously raised, and a driving mechanism, substantially as shown and described for the elevator and broom, as and for the purpose specified.

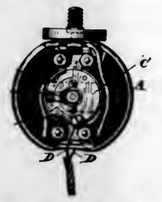


3. In a sweeper, the combination, with a frame, a platform located beneath the frame and pivoted to a support at its rear end, a substantially triangularly shaped mold board attached to the forward portion of the platform, a lift lever located upon the frame and connected with the forward portion of the platform, and yielding braces connecting the frame and platform, of an elevator casing pivoted upon the platform, having a seat formed at its top, provided with an opening, and an outlet at its upper end leading over the forward platform, the casing being provided with a rear extension, an elevator located within the casing, a broom located within the extension of the casing, a lift lever located upon the frame and connected with the elevator casing, and a driving mechanism driven from the axle and having driving connection with the broom and elevator, substantially as and for the purpose specified.

4. In a sweeper, the combination, with a frame, a platform located beneath the frame and pivoted to a support at its rear end, a substantially triangularly shaped mold board attached to the forward portion of the platform, a lift lever located upon the frame and connected with the forward portion of the platform, and yielding braces connecting the frame and platform, of an elevator casing having a seat formed at its top, provided with an opening, and an outlet at its upper end leading over the forward platform, the casing being provided with a rear extension, an elevator located within the casing, a broom located within the extension of the casing, a lift lever located upon the frame and connected with the elevator casing, a driving mechanism driven from the axle and having driving connection with the broom and elevator, and a series of spring-controlled plates adapted substantially for engagement with the ground, hinged upon the lower portion of the elevator casing, adapted as guards for the broom; and a well formed in the frame of the machine, as and for the purpose set forth.

521,666. ALTERNATING-CURRENT REGULATOR. OLOF OFFRELL, Middletown, Conn., assignor to the Schuyler Electric Company, of Connecticut. Filed Dec. 12, 1892. Serial No. 454,900. (No model.)

Claim.—1. A regulator for an alternating current translating device, comprising two opposing electro-magnets in circuit therewith, and a core without a coil pivoted between the common pole pieces of said magnets and adapted to be turned more or less transversely to the lines of force joining said poles, substantially as described.



2. A regulator for alternating current translating devices comprising a helix having a laminated core, an armature movable to and from said core, and a switch moving with the armature and adapted to shunt the helix when moved in one direction and to break the circuit when moved in the other direction, substantially as described.

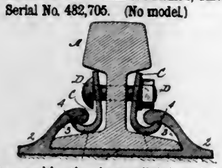
3. A regulator for alternating current translating devices, comprising a circular helix in circuit with said translating device having two diametrically opposite poles and a revoluble armature without a coil mounted concentrically within said helix, substantially as described.

4. The combination with a helix, of a spindle, an armature mounted thereon in proximity to the poles of the helix, a stationary disk carrying contact plates connected with the coils of the helix, and a contact arm on the spindle adapted to bear against said plates, substantially as described.

5. The combination with a helix having two opposite poles, of an armature mounted to turn into line with or transverse to said poles, a spindle carrying the armature, a contact arm on the spindle, and two contact plates connected with the ends of the helix, one of which contacts with the arm as the armature passes from a position transverse to the poles to a position in line therewith, substantially as described.

6. The combination with the I-shaped frames B, of the segmental core a, a', wound with coils, and having polar projections a^4 secured to the ends of the frames, the plates c, c' insulated from the frames, and connected with the ends of the coils, the spindle H journaled in the frames B and carrying the armature I and contact arm k', and connected with one terminal of a translating device, and a line wire D connected with the plate c, substantially as described.

521,667. RAIL-JOINT. MILES O. PERKINS, Galveston, Tex. Filed Aug. 8, 1893. Serial No. 482,705. (No model.)

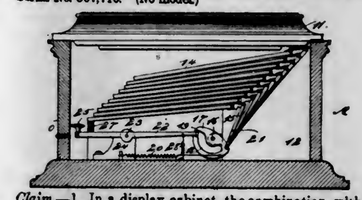


Claim.—1. The combination in a rail joint of the rail, the chair having the base plate and the flanges projecting therefrom inwardly to points between the edges of said base plate and the rail web the lever side plates having their lower arms engaging said chair flanges at points between the edges of the rail base and the web of the rail and fastenings for said lever plates substantially as and for the purposes set forth.

2. The improved rail joint herein described consisting of the rail the chair having its base plate fitted under said rail and provided with the flanges which project up over said rail base and extend to points between the edge of the rail base and the rail web said chair base and flange being formed to grip the edges of the rail base and the lever side plates having their short arms arranged to engage the chair flanges at points vertically over the rail base that is to say at points between the edges of said base and the web of the rail all substantially as and for the purposes set forth.

3. The combination substantially as set forth of the rail, the chair having a base plate fitting under said rail and flanges which project inwardly over the base of the rail to points between the edge of the rail base and the rail web, the lever side plates fulcrumed upon the rail base and having their short arms engaging the under sides of the chair flanges at points directly over the rail base and between the edges of said base and the rail web, the upper edges of the upright arms of said lever plates being free to spring inward and outward under the crown of the rail and the bolts connecting said upright arms substantially as set forth.

521,668. PHOTOGRAPH-DISPLAY CABINET. HENRY W. POTTIGER and WILLIAM A. KORMAN, Reading, Pa. Filed Apr. 16, 1894. Serial No. 507,710. (No model.)

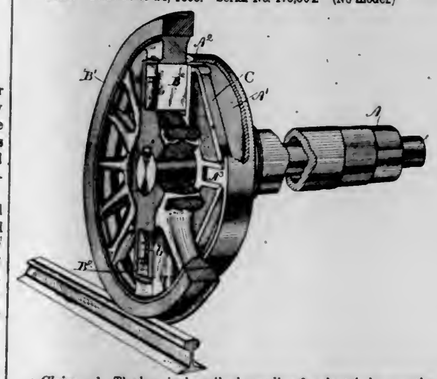


Claim.—1. In a display cabinet, the combination, with a casing, and a series of leaves adapted to contain pictures, pivoted in the casing one above the other, of cams pivotally mounted upon a shaft, links connecting said cams one with each leaf at its pivot end, a spring exerting tension upon the cam in a given direction, and levers having locking engagement, one with each cam, as and for the purpose specified.

2. In a display cabinet, the combination, with a casing, a series of leaves pivoted therein, and arms projected downward from the pivot portion of said leaves, of a series of cams of substantially segmental construction, pivotally mounted in the casing below the pivots of the leaves, the said cams being provided with longitudinal slots and a recess at a predetermined point in the wall of the slots, a link connection between each cam and an arm of one of the leaves, a spring attached to the end of the cam with which the link is connected, and exerting tension on the cam in a direction opposite to that of the link, and levers located one in front of each cam, said levers being provided with lugs adapted to enter the recesses in the cams and lock the cams in a predetermined position, substantially as shown and described.

3. In a display cabinet for photographs and other pictures, the combination, with a casing, leaves or boards pivoted at their lower ends in the casing, one above the other, the line of pivots being arranged upon an inclined plane, arms projected downward from the pivot end of the leaves or boards, and cams pivotally mounted within the casing, beneath and in advance of the pivots of the leaves, each cam being substantially oval and provided with a concentric slot and a recess at the upper end of the slot, of a link connecting each cam with an arm of one of the leaves, the said links being pivotally connected with the lower rear portions of the cams, springs attached to the lower forward portion of the cams and exerting tension thereon in a forwardly direction, and a series of levers pivotally mounted in the casing, one lever being located in front of each cam and provided with a locking lug adapted to enter the recess in the cam, as and for the purpose set forth.

521,669. COUPLING FOR ELECTRIC LOCOMOTIVES. EDWARD D. PRIEST, Lynn, assignor to the General Electric Company, Boston, Mass. Filed June 21, 1893. Serial No. 478,364. (No model.)



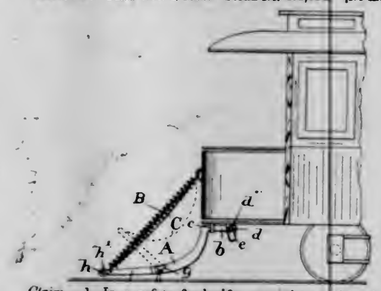
Claim.—1. The herein described coupling for electric locomotives comprising a driving member normally concentric with an axle of the locomotive, a driven member consisting of a wheel keyed to said axle, and a float or independent connector mutually engaged by said members, whereby they are held in driving relation but are permitted to move out of their normal concentric positions, as set forth.

2 The herein described coupling for an electric locomotive comprising a hollow driving shaft normally concentric with an axle of the locomotive and having a disk at its outer end, in combination

with the said axle passing longitudinally through said driving shaft, a wheel carried by said axle, and a float or connector mutually engaged by said wheel and said disk whereby the said shaft and axle are flexibly held in driving relation, as set forth.

3. The herein described coupling for an electric locomotive comprising a driving member surrounding an axle of the locomotive and having a disk, flange and projections on said flange, as described, a driven member comprising a wheel carried by said axle and projections on said wheel, and a float or connector engaging the said projections respectively, whereby a movement of one member is imparted to the other member, substantially as described.

521,670. SAFETY CAR-FENDER. FREIDRICH H. REICH, Baltimore, Md. Filed Dec. 4, 1893. Serial No. 492,794. (No model.)



Claim.—1. In a safety fender for cars, the combination of the two side bars each made in two sections which are pivoted together; a cross-bar, *k*, connecting the lower front pivoted ends of the side bars; another cross bar, *i*, connecting the back part or section of said side bars; springs attached by one of their ends to the car-front and by their other ends to the lower front section of said side bars,—said springs having an inclined position and adapted to draw up the pivoted section of the side bars; an inclined flexible curtain-like buffer; and a latch-bar having one end attached to a cross-bar of one section and its other end provided with a hook-lip to engage a cross-bar on the other section,—said latch-bar serving to hold down the front section of said side bars against the lifting action of the springs.

2. In a safety fender for street cars, the combination of the side bars made in two parts or sections, one section having a longitudinal slot with a lateral termination, and the other section provided with a pivot-pin working in said slot, whereby the front section may be pushed back the length of the slot and also tilt up; two springs each attached by one end to the car-front and by their other end to the front section of the side bars,—said springs having an inclined position and adapted to draw up the front part of the side bars; an inclined flexible curtain-like buffer, C, secured at its lower end to the side bars; and a latch bar having one end attached to a cross-bar of one section and its other end provided with a hook-lip to engage a cross-bar on the other section,—said latch-bar serving to hold down the front section of said side bars against the lifting action of the springs.

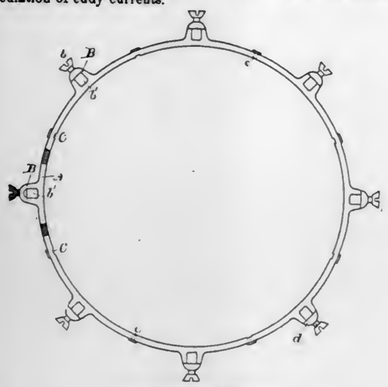
3. In a safety fender for cars, the combination of the two downwardly-curved and forwardly-projecting side-bars each having a pivot to tilt up and a horizontal upper end; one or more retaining sockets, *c*, on the car-body to receive the said horizontal ends of the side-bars; spiral springs each attached by one end to the car-front and by the other end to the said side-bars and having an inclined position and adapted to draw up the front ends of said bars; an inclined flexible curtain-like buffer, C, suitably secured; and a latch-bar for holding down the front ends of the side bars against the lifting tension of the spiral springs and releasing said side-bars and allowing them to tilt up when an object is encountered.

521,671. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. EDWIN W. RICE, Jr., Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Apr. 19, 1894. Serial No. 508,121. (No model.)

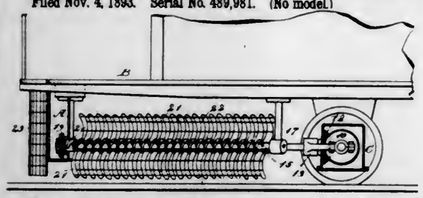
Claim.—1. As a new article of manufacture, an armature spider for a dynamo-electric machine, composed of a ring of diamagnetic material, provided with projecting arms having dovetailed ends and a lug projecting from each side of the arm adapted to engage with devices for keeping in place the core disks.

2. As a new article of manufacture, an armature spider for dynamo-electric machines, composed of a ring of diamagnetic material having projecting arms, the arms having lugs upon their opposite ends and being cut through with slits interrupting their continuity and preventing the circulation of eddy currents.

3. As a new article of manufacture, an armature spider for a dynamo-electric machine, composed of a ring of diamagnetic material having projecting arms, the arms having dovetailed ends, lugs upon opposite ends thereof, an opening through each arm, and cut through with slots interrupting their continuity and adapted to prevent the circulation of eddy currents.



521,672. FENDER FOR TRAM-CARS. SAMUEL J. ROSENFELD, New York, N. Y., assignor, by direct and mesne assignments, to himself, and Joseph A. Louchheim and Edwin S. Simon, Philadelphia, Pa. Filed Nov. 4, 1893. Serial No. 489,981. (No model.)



Claim.—1. A rotary car fender, consisting of a shaft and arms rotating therefrom, the said arms being convexed upon ascending faces, substantially as shown and described.

2. In a car fender, the combination, with a car platform, of fender shafts located beneath the platform, a driving mechanism connecting the shafts with an axle of the car, and a series of curved arms radiating from each shaft, the arms being arranged in rows longitudinally of the shaft and in substantially stellated order, the shaft being revolved in a manner to carry the convexed surfaces of the arms upward, as and for the purpose specified.

3. In a car fender, the combination, with a car platform, of fender shafts located beneath the platform, a driving mechanism connecting the shafts with an axle of the car, a series of curved arms radiating from each shaft, the arms being arranged in rows longitudinally of the shaft and in substantially stellated order, the shaft being revolved in a manner to carry the convexed surfaces of the arms upward, and a pilot located in front of the outer ends of the fender shafts, inclining in direction of said shafts, substantially as and for the purpose specified.

521,673. UNICYCLE. HENRY J. SACKSTEDER, Louisville, Ky. Filed Oct. 17, 1893. Serial No. 488,360. (No model.)

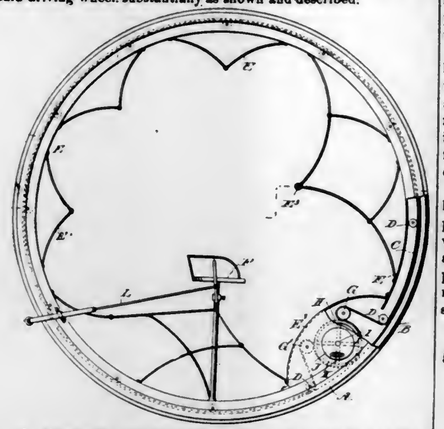
Claim.—1. A unicycle comprising an exterior rim, a wheel for supporting the rider, a traveling belt or chain interposed between the said exterior rim and the rim of the wheel, and means for driving said belt substantially as shown and described.

2. A unicycle comprising an exterior rim having a tire, a wheel for supporting the rider and provided in its rim with friction rollers, a traveling belt or chain interposed between the said exterior rim and the said friction rollers, and means for driving said belt substantially as shown and described.

3. A unicycle comprising an exterior rim having a tire, a wheel for supporting the rider and provided in its rim with friction rollers, a traveling belt or chain interposed between the said exterior rim and the said friction rollers, and a driving wheel provided with treadles and over which passes the said belt or chain, substantially as shown and described.

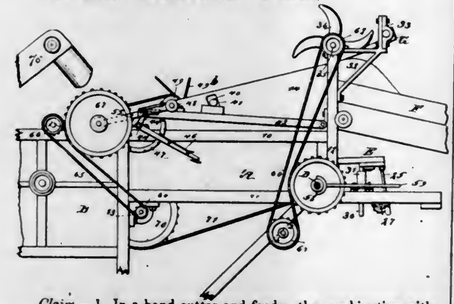
4. A unicycle comprising an exterior rim having a tire, a wheel for supporting the rider and provided in its rim with friction rollers, a traveling belt or chain interposed between the said exterior rim and

the said friction rollers, a driving wheel provided with treadles and over which passes the said belt or chain, and an additional set of friction rollers for holding the said belt or chain to the rim of the said driving wheel, substantially as shown and described.



5. A unicycle comprising an exterior rim having a tire, a wheel for supporting the rider and provided in its rim with friction rollers, a traveling belt or chain interposed between the said exterior rim and the said friction rollers, a driving wheel provided with treadles and over which passes the said belt or chain, disks held on the shaft for the said driving wheel, and treadles held on the said disks, substantially as shown and described.

521,674. FEED AND BAND-CUTTING ATTACHMENT FOR THRASHING-MACHINES. MOSES SCHLATTER, Burrton, Kans. Filed July 20, 1893. Serial No. 481,026. (No model.)



Claim.—1. In a band cutter and feeder, the combination with a cutter and a feed-table arranged below it, of an adjustable regulator roller, slatted divide board adjustable with said regulator roller and a feed roller in rear of the regulator roller, substantially as described.

2. In a band cutter and feeder, the combination with a rotary cutter and a feed-table arranged below it, of a vertically adjustable regulator roller, a feed roller in rear of the regulator roller, a link connection between the said rollers, and a pivoted and slatted divide board adjustable with the regulator roller, substantially as described.

3. In a band cutter and feeding attachment for thrashing machines, the combination, with a crank shaft provided with crank arms, feed tables connected one with each crank arm, the said tables being provided with a stepped upper surface, and a series of pins projected from said surface for a portion of its length, the rear or inner portions of the tables having irregular partitions upon their upper faces, of a slatted regulating platform through which the pins of the tables extend, said platform being located over the tables, resting at one end thereon, and an adjusting mechanism connected with the opposite end of the platform whereby it may be raised or lowered to increase or to decrease the length of the pins above the platform, as and for the purpose specified.

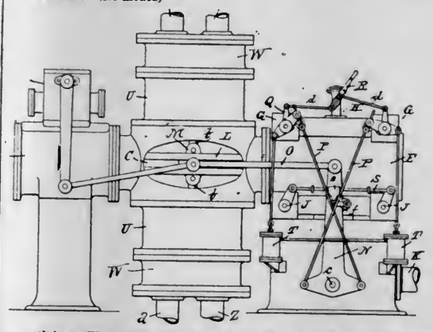
4. In a band cutter and feeder for thrashing machines, the combination with a rotary knife, and regulator roller provided with spikes or pins, of a pivoted and slatted divide board below the knife and regulator roller, and means for adjusting said divide board, substantially as described.

5. In a band cutter and feeder for thrashing machines, the combination with a pivoted and slatted divide board, of pivoted arms upon which the free end of the divide board is supported, a regulator roller mounted in the free ends of the said arms and provided with projecting spikes or pins, and means for adjusting the free ends of the said arms, substantially as described.

6. In a band cutter and feeder for thrashing machines, the combination with a pivoted and slatted divide board provided with a transverse bar projecting beyond the sides of the frame, of pivoted arms upon which the ends of the transverse bar rest, a regulator roller mounted in the free ends of the said arms and having projecting spikes or pins, a shaft provided with crank arms engaging the free ends of the before mentioned pivoted arms, and means for operating said shaft, substantially as described.

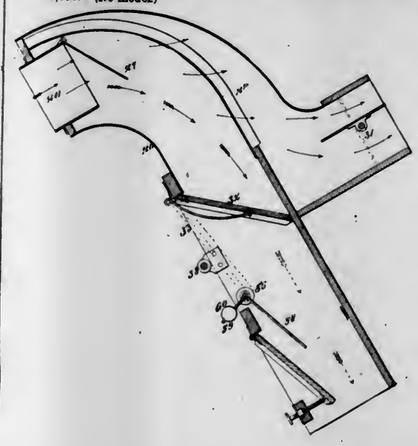
7. In a band cutter and feeder for thrashing machines, the combination with feed tables formed with a stepped upper surface for a portion of their lengths and the remaining portion of their lengths with saw-tooth partitions and having pins on the stepped portion, of a slatted regulating platform projecting over the portions of the tables provided with the pins and beyond the ends of the said tables, and means for adjusting the projecting end of the platform vertically, substantially as described.

521,675. PUMPING APPARATUS FOR GAS, AIR, WATER, &c. GEORGE P. SCHNEIDER, Cleveland, Ohio. Filed Feb. 11, 1893. Serial No. 461,937. (No model.)



Claim.—The combination, substantially as set forth, of a steam cylinder and an expansion cylinder arranged in a common line, a piston-rod common to both of said cylinders, a crosshead on said rod, a guide for said crosshead, a pair of compression cylinders in a common axial line at right angles to said guide, inlet and outlet valves for said compression cylinders, a piston in each of said compression cylinders, and toggle-links connecting the pistons of the compression cylinders with said crosshead.

521,676. GOVERNOR FOR SEED-COTTON-HANDLING APPARATUS. ANDREW SCHULER, Lott, Tex. Filed May 22, 1893. Serial No. 475,066. (No model.)



Claim.—1. In a seed-cotton handling apparatus provided with pneumatic means for delivering the seed-cotton to a receiver, the combination of a pneumatic cotton conveying tube, a receiver, a valve controlling the passage of cotton into the receiver, and actuating appliances for intermittently operating said valve, the said actuating appliances being operated by an external source of power.

2. In a seed-cotton handling apparatus, the combination with a receiver, of a valve controlling the draft of air by which the seed-cotton is fed into said receiver, actuating appliances for intermittently operating said valve, the said actuating appliances being operated by an external source of power.

3. In a seed-cotton handling apparatus, the combination with a receiver, of a valve controlling the draft of air by which seed-cotton is fed into the receiver, actuating means for operating said valve, a shaft adapted to rotate in suitable bearings and operating said actuating means, whereby said valve will be intermittently opened and closed as said shaft revolves.

4. In a seed-cotton handling apparatus, the combination with a receiver, of a pivoted valve controlling the draft of air by which seed-cotton is fed into the receiver, a shaft having suitable bearings and adapted to be rotated by any proper propelling means, and intermediate mechanism between said shaft and said pivoted valve for intermittently opening said valve.

5. In a seed cotton handling apparatus, the combination with a receiver, of a valve controlling the draft of air by which seed-cotton is fed into the receiver, a shaft journaled in suitable bearings, a cam mounted upon said shaft, and intermediate mechanism between said cam and said valve for intermittently opening said valve as said cam revolves.

6. In a seed-cotton handling apparatus, the combination with a receiver, of a valve normally closed, a shaft journaled in suitable bearings, a cam mounted upon said shaft, a sliding rod connected with said valve and adapted to come in contact with said cam as it revolves, whereby said valve will be intermittently opened and closed as said shaft revolves.

7. In a seed-cotton handling apparatus, the combination with a receiver, of a valve normally closed, a shaft journaled in suitable bearings, a pulley mounted upon said shaft whereby the same may be rotated, a cam also mounted upon said shaft, and a sliding rod connected with said valve and adapted to come in contact with said cam as said cam revolves, whereby said valve will be intermittently opened and closed as said shaft revolves.

8. In a seed-cotton handling apparatus provided with means for delivering the seed-cotton to a receiver, the combination with the receiver of a pivoted valve controlling the passage of cotton into the receiver, a rod attached at one end to said pivoted valve, and having its other end properly supported, a cam mounted upon a suitably-journaled shaft and adapted to strike against said rod, and propelling devices for rotating said shaft, whereby said valve will be intermittently opened and closed as said shaft revolves.

9. In a seed-cotton handling apparatus provided with means for delivering the seed-cotton to a receiver, the combination with a receiver of a pivoted valve controlling the passage of cotton into said receiver, a rod attached at one end to said pivoted valve, and having its other end properly supported, a cam mounted upon a suitably-journaled shaft and adapted to strike against said rod, a ratchet-wheel also mounted upon said shaft, a ratchet adapted to engage with said ratchet-wheel, a rod for propelling said ratchet, the said rod having a longitudinally slotted end, a pin passing through said slot, a crank-arm, secured to said rod by said pin a shaft upon which said crank-arm is mounted, and a pulley for communicating motion to said shaft bearing said crank-arm.

10. In a seed-cotton handling apparatus the combination with a receiver of a valve controlling the passage of cotton into said receiver actuating appliances for intermittently opening and closing said valve, and automatic means controlled by the cotton accumulating in said receiver for arresting the operation of said actuating appliances and stopping the flow of cotton into the receiver until the accumulated cotton is removed.

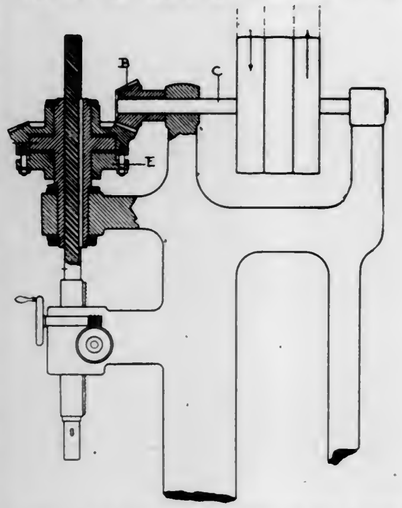
11. In a seed-cotton handling apparatus having a valve controlling the passage of cotton into a receiver, the combination with the receiver, of actuating appliances for intermittently opening and closing said valve, and automatic means controlled by the seed-cotton accumulating in said receiver for throwing said actuating appliances out of engagement with said valve so that said valve will not be operated by said actuating appliances until the excess of cotton accumulated in the receiver is removed.

12. In a cotton-handling apparatus the combination of means for delivering seed-cotton to a plurality of receivers, two or more receivers valves controlling the passage of cotton into each of the receivers, actuating devices for intermittently operating said valves, the said actuating devices operating to open said valves in such order relatively to one another that one or more of said valves will be open and one or more closed at any given time.

13. In a cotton-handling apparatus provided with a plurality of receivers, the combination with each receiver of a pivoted valve attached to said receiver and controlling the passage of seed-cotton into the receiver, a shaft journaled in suitable bearings and placed contiguous to said receivers, propelling appliances for rotating said shaft, and intermediate mechanism connecting said shaft to said valves, whereby said valves will be intermittently opened as said shaft revolves.

14. In a cotton-handling apparatus the combination of means for delivering seed-cotton to a plurality of receivers, two or more receivers pivoted valves controlling the passage of cotton into each of the receivers, a shaft journaled in suitable bearings and placed contiguous to said receivers, propelling appliances for rotating said shaft, cams mounted upon said shaft adjacent to each receiver, the said cams having different radial positions upon the shaft, and sliding rods attached to the valves and adapted to come in contact with the cams as they revolve, whereby the several valves will be intermittently opened and closed as said shaft revolves.

521,677. ADJUSTABLE FRICTION-CLUTCH. GEORGE H. SMITH, Providence, R. I., assignor of one-half to Elmer A. Beaman, same place. Filed Oct. 17, 1892. Serial No. 449,071. (No model.)



Claim.—1. In a drill press, the combination with a longitudinally movable tool spindle, of a friction clutch surrounding the same, one member of the clutch rotating with the spindle, the other member adapted to drive the same, and means for varying the pressure between the two members, substantially as described.

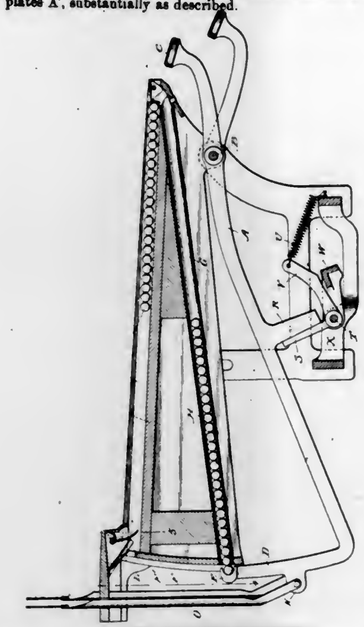
2. In a drill press, the combination with a longitudinally movable tool spindle, and a key way carried thereby, of a sleeve surrounding the spindle, a key carried thereby and sliding in the key way, a bearing in which the sleeve is supported, a gear carried loosely upon the sleeve, and an adjustable frictional connection between the sleeve and the gear.

521,678. CASH-REGISTER. CHARLES G. SMYTH, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Apr. 14, 1893. Renewed Apr. 30, 1894. Serial No. 509,593. (No model.)

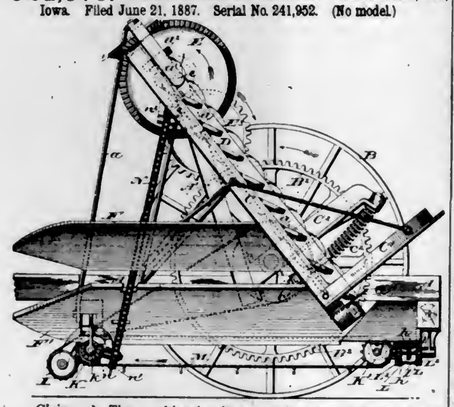
Claim.—1. In a machine such as described, the combination, with the board or plate having the registering-grooves J, of the swinging plates A′ hung above their rear ends and operated automatically by the balls to permit the passage of the balls into the grooves and prevent their escape therefrom, substantially as described.

2. In a machine such as described, the combination, with the board or plate having the registering-grooves J, of the swinging plates A′ hung upon their rear ends and co-operating therewith to permit the passage of the balls into the grooves and prevent their escape therefrom, and the guide-plates D′ arranged in rear of the swinging plates A′, substantially as described.

3. In a machine such as described, the combination, with the board or plate having the registering-grooves J, of the plate P having the depending flange along its forward edge, the swinging plates A′ strung upon the rod B′ beneath the plate P′ and behind its flange, and the guide-plates D′ secured to the under side of the plate P′ and extending downwardly and forwardly toward the lower ends of the plates A′, substantially as described.



521,679. CORN-HARVESTING MACHINE. JOHN A. STONE, Vail, Iowa. Filed June 21, 1887. Serial No. 241,952. (No model.)



Claim.—1. The combination in a corn harvesting machine of a pair of snapping rollers set with their upper ends inclined forwardly and mechauism arranged to turn the under sides of said rollers toward each other whereby the corn is drawn between them from the under side, and a stalk cutter at the lower end of said rollers substantially as and for the purposes set forth.

2. The combination in a corn harvesting machine of a pair of snapping rollers set with their upper ends inclined forwardly and supported at their lower ends in rearwardly yielding bearings and mechanism arranged to rotate said rollers, substantially as and for the purposes set forth.

3. The combination in a corn harvesting machine of a pair of snapping rollers and an upwardly and forwardly inclined frame carrying said rollers arranged to swing in the direction of the travel of the machine upon an axis transverse thereto and near the upper end of said frame, and having a yielding connection at or near its lower end with some fixed part of the machine, substantially as and for the purposes set forth.

4. The combination in a corn harvesting machine of the snapping rollers inclined forwardly at their upper ends and rotating toward each other at their under sides so as to draw the stalks between them from underneath, and an ascending gathering chain extending from a point near the ground to a point adjacent to the under side and upper part of said rollers and provided with projections arranged to engage leaning or fallen stalks and to raise the same into position to be operated upon by said snapping rollers, substantially as and for the purposes set forth.

5. The combination in a corn harvesting machine of the snapping rollers inclined forwardly at their upper ends laterally inclined ear-catching leaves or boards placed under said rollers and formed at their front ends into diverging gathering guides or points, a gathering chain or belt provided with projections and extending upwardly between said leaves or boards, from a point near the ground to a point adjacent to the upper portions of said rollers, a trough formed along and parallel with the lower of said leaves or boards and a conveyer working in and lengthwise of said trough, substantially as and for the purposes set forth.

6. The combination in a corn harvesting machine of the upwardly and forwardly inclined snapping rollers, a rotary cutter attached to one of said rollers or its shaft, and a fixed cutter working with said rotary cutter, substantially as and for the purposes set forth.

7. The combination in a corn harvesting machine of the snapping rollers inclined forwardly at their upper ends and rotating toward each other at their under sides so as to draw the stalks between them from underneath, an ascending gathering chain extending from a point near the ground to a point adjacent to the under side and upper part of said rollers, laterally inclined catching boards placed underneath said rollers with a space between them, upwardly inclined cleaning rollers, an elevating chain or belt arranged to carry the ears over said cleaning rollers, an elevator trough arranged to retain the ears upon said cleaning rollers, and a conveyer arranged to conduct the corn from said gathering boards to said elevator and cleaning rollers, substantially as and for the purposes set forth.

8. The combination in a corn harvesting machine of the main frame, an upwardly and forwardly inclined frame fixed relatively thereto, a roller frame hinged at or near its upper end in or to said inclined frame and having a spring connection at or near its lower end with a fixed part of the machine, a pair of square snapping rollers furnished with oblique alternating wings and supported and bearing in said roller frame, and mechanism connecting said rollers with a driving wheel substantially as and for the purposes set forth.

9. In a corn harvesting machine a pair of upwardly extending parallel snapping rollers, capable of yielding rearwardly in the direction of the travel of the machine, substantially as and for the purposes set forth.

10. In a corn harvesting machine the combination with a pair of upwardly extending, rearwardly yielding stem severing rollers and driving mechanism connected therewith, of husk removing mechanism and a conveyer arranged to gather the ears as they leave the stem severing rollers and conduct the same to the said husk removing mechanism, substantially as and for the purposes set forth.

521,680. CORN-HARVESTING MACHINE. JOHN A. STONE, Vail, Iowa. Filed June 21, 1887. Serial No. 241,953. (No model.)

Claim.—1. The combination in a corn harvesting machine of a pair of snapping rollers, set obliquely to the line of travel of the machine, a stalk cutter and a conveyer arranged to conduct the stalks transversely to the line of travel of the machine and present the same obliquely to said rollers, substantially as and for the purposes set forth.

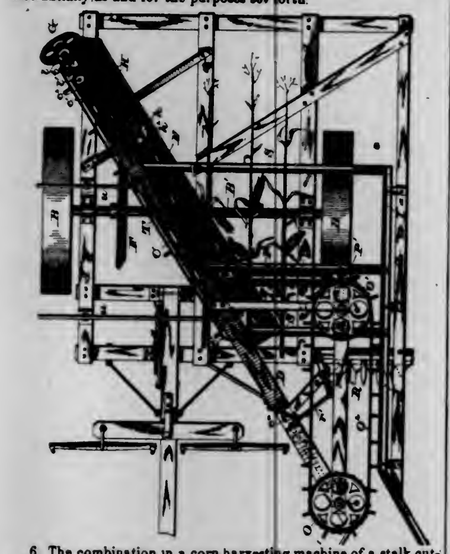
2. The combination in a corn harvesting machine of a stalk cutter, a rest or support located behind said cutter transversely to the line of travel of the machine and arranged to receive and support the stalks in a vertically inclined position with the tops uppermost and to the rear, a pair of snapping rollers placed one above the other and vertically inclined upward and rearward so as to receive the stalks from said rest or support between them, and conveying mechanism arranged to conduct the stalks delivered upon said rest or support laterally and deliver the same obliquely and butts first to said snapping rollers, substantially as and for the purposes set forth.

3. The combination in a corn harvesting machine of a stalk cutter, a belt provided with projections arranged to conduct the stalks to said cutter and deposit the same upon a transverse support or guide, snapping rollers set obliquely to said support or guide, and a conveyer arranged to move the stalks laterally upon said support or guide and to deliver the same obliquely to said rollers, substantially as and for the purposes set forth.

4. The combination in a corn harvesting machine of a stalk cutter, snapping rollers, and a conveyer working obliquely to said rollers and arranged to receive the stalks as they are cut and conduct the same separately and laterally to said rollers, which receive them butts first substantially as and for the purposes set forth.

5. The combination in a corn harvesting machine of a stalk cutter a pair of snapping rollers, one set above the other, obliquely to the

line of travel of the machine a conveyer arranged to feed the stalks laterally and butts first thereto, a trough set underneath the receiving sides of said rollers, and arranged to catch the ears as they drop therefrom, and a conveyer working in, and lengthwise of, said trough, substantially as and for the purposes set forth.



6. The combination in a corn harvesting machine of a stalk cutter a pair of snapping rollers set one above the other obliquely to the line of travel of the machine, conveying mechanism arranged to feed the stalks separately, obliquely and butts first to said rollers, a conduit arranged to catch the ears as they are severed from the stalks by said snapping rollers, husk stripping rollers and a conveyer traversing said conduit and arranged to move the ears over said husk stripping rollers, substantially as and for the purposes set forth.

7. The combination in a corn harvesting machine of a pair of snapping rollers set one above the other obliquely to the travel of the machine and vertically inclined, a stalk cutter, a guide set parallel with the travel of the machine over said cutter, a transverse rest or support extending therefrom obliquely to said rollers, an elevating belt working parallel with said guide and arranged to conduct the stalks to said cutter and deliver the same upon said rest or support and a conveyer working parallel with said rest or support and arranged to conduct the stalks laterally and singly to said rollers to which they are fed butts first, substantially as and for the purposes set forth.

521,681. CORN-HARVESTING MACHINE. JOHN A. STONE, Vail, Iowa. Filed June 21, 1887. Serial No. 241,955. (No model.)

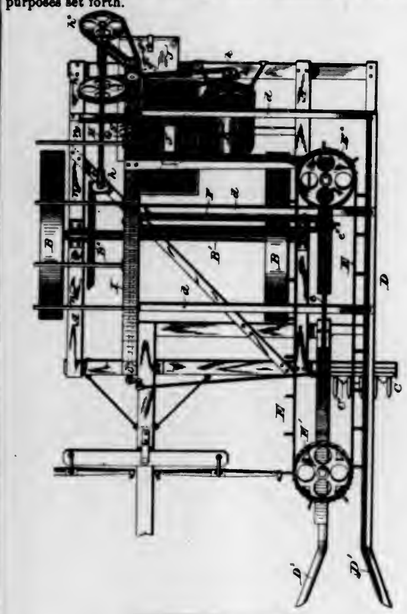
Claim.—1. The combination in a corn harvesting machine of a pair of rollers provided with ribs or projections on their faces, mechanism for rotating the same toward each other and guards extending transversely between said rollers, substantially as and for the purposes set forth.

2. The combination in a corn harvesting machine of a stalk cutter, a pair of rollers set one above the other and provided with ribs or projections on their faces, mechanism for rotating said rollers, guards extending transversely between said rollers and a conveyer arranged to move the stalks as they are cut laterally to said rollers, substantially as and for the purposes set forth.

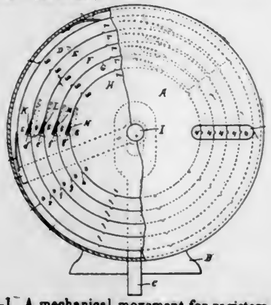
3. The combination in a corn harvesting machine of a pair of rollers provided with longitudinal ribs notched at intervals, curved guards extending between said rollers and lying close to their faces in the notches in said ribs, substantially as and for the purposes set forth.

4. The combination in a corn harvesting machine of a stalk cutter, an endless belt provided with projections driven approximately in the line of travel of the machine, a conveyer driven transversely to the line of travel of the machine and a pair of ear severing rollers placed transverse to the movement of said conveyer, said endless belt being arranged to conduct the stalks to said cutter and deliver the same upon said conveyer, which is arranged to move them laterally to said ear severing rollers so as to cause only the ear bearing portions of the stalks to pass between and the butts to clear said rollers, substantially as and for the purposes set forth.

5. The combination in a corn harvesting machine of a stalk cutter, gathering arms, a guide and a conveyer working therewith and arranged to conduct the stalks in an upright position to said cutter and deposit the same upon transverse supports or guides, a conveyer arranged to move the stalks laterally upon said transverse guides or supports, a pair of rollers set one above the other and arranged to receive the stalks from said transverse conveyer and guards placed over the receiving sides of said rollers and arranged to prevent the ears from being drawn between them substantially as and for the purposes set forth.



521,682. REGISTER FOR ROTATIONS OF VEHICLE-WHEELS, &c. HUGH D. STUDABAKER, Bluffton, Ind. Filed Nov. 27, 1893. Serial No. 492,046. (No model.)



Claim.—1. A mechanical movement for registers, comprising a series of rotatable registering disks concentrically mounted on a supporting shaft in a slotted containing case, the said disks having an equal number of peripheral spurs adapted for engagement with spring pawls as described, and provided with the springs K securely mounted in suitable slots therein, and adapted to unlock said disks and engage said spurs as described, the annular plates R rigidly secured to said case and provided with the guides o and locking spring P, the transverse shaft I rigidly mounted in said case, and proper operating and retaining mechanism, all substantially as described.

2. In a mechanical movement for registers, the combination of a series of rotatable registering disks concentrically mounted on a supporting shaft, having an equal number of peripheral spurs for the purpose specified, and provided with the springs K mounted in suitable slots as described, and a series of annular plates rigidly secured to the plate A provided with the guides o and having the locking springs P adapted to secure said plates against rotation, with the containing case having a slot T, a base B', a perforation for the lever C,

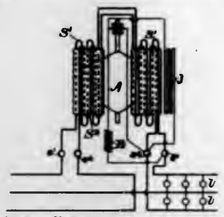
and a holding spring *a*, an operating lever C and a radial arm J having an engaging spring *i* on the free end thereof adapted to rotate the said disks, all substantially as described.

521,683. HAT-PIN RETAINER. CLOTILDE P. THOMAS, Evansville, Ind. Filed July 26, 1893. Serial No. 481,546. (No model.)



Claim.—The herein described hat pin retainer composed of an elongated rod having widely separated securing means, such as eyes, at its ends arranged to be secured at the front and rear of a hat as set forth, the rod between said eyes being bent downwardly and laterally toward and beyond the fastener at one end, so that when the fastener is secured in the hat the downward and lateral bulge or bend will project rearwardly beside the roll of hair at the rear of the head for the purpose set forth.

521,684. METER FOR RECORDING MEASUREMENTS OF ELECTRIC POWER. ELIHU THOMSON, Swampscott, assignor to the General Electric Company, Boston, Mass. Filed Jan. 31, 1894. Serial No. 498,594. (No model.)



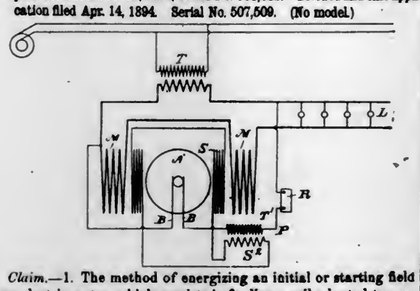
Claim.—1. A recording watt-meter for the three-wire or series-multiple system, comprising an armature in shunt between the mains of such system and two sets of series coils furnishing the field, the sets symmetrically disposed so that some of the coils of each set are upon each side of the armature, thus furnishing a composite field of substantially equal intensity in all its parts.

2. A recording watt-meter for use upon the three-wire or series-multiple system, comprising a series of field-magnet coils arranged in sets, part of each set upon each side of the armature, an armature, a resistance, and a starting coil, the armature and starting coil being in multiple with each other and in series with the resistance, and all three being in shunt to the mains of the system.

3. A recording watt-meter for the three-wire or series-multiple system, comprising field-magnet coils connected across the outer mains of such system and disposed in sets, some of the coils of each set being upon opposite sides of the armature, an armature in shunt to the mains and a resistance in series with such armature.

4. A recording watt-meter for the three-wire or series multiple system, comprising field-magnet coils connected across the outer mains of such system and disposed in sets, parts of each set being upon opposite sides of the armature, an armature, a starting coil and a resistance, the armature and starting coil being in multiple with each other and in series to the resistance, and all three being in shunt to the mains.

521,685. ELECTRIC METER. ELIHU THOMSON, Swampscott, Mass., assignor to the General Electric Company, of New York. Original application filed Feb. 21, 1894, Serial No. 501,012. Divided and this application filed Apr. 14, 1894. Serial No. 507,509. (No model.)



Claim.—1. The method of energizing an initial or starting field for an electric meter, which consists in feeding a coil adapted to provide such a field by induction from an armature circuit in shunt to the mains supplying the current to be measured.

2. In an electric meter and in combination, a coil in series with the mains, an armature in shunt to such mains, and a starting coil supplied with current by transformation from the armature circuit.

3. In an electric meter and in combination, a coil in series with the mains, an armature in shunt to such mains, a resistance in series with the armature, and a starting coil supplied with the current by transformation from the armature circuit.

4. In an electric meter and in combination, a coil in series with the mains, an armature, a shunt circuit supplying the armature, a transformer having its primary in the shunt circuit, a resistance in series with the shunt circuit, and a starting coil in series with the secondary of the transformer.

521,686. SHOE-FASTENING. THOMAS U. WALTER, Huntington, assignor of four-ninths to Anthony D. Garden, Wheeling, W. Va. Filed Dec. 2, 1893. Serial No. 492,602. (No model.)



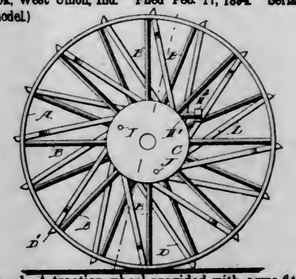
Claim.—1. As an improvement in shoe fasteners, the combination with the shoe body having an upper flap secured thereto, having button holes formed each with an inlet and a downwardly and outwardly projected keeper portion, a button holding flap, a yielding member, connected with the flap and with the shoe body, arranged substantially as shown, whereby when pulled upon such flap will move diagonally outward and upward, said flap member having buttons having head portions adapted to register with the inlet portions of the button holes in the upper flap when such lower flap is pulled upward as set forth.

2. As an improvement in shoe fasteners, the combination with the shoe body having a button hole flap, its button holes having diagonally downward extending keeper portions, of a movable button holding flap having rigid projecting button like portions, and an elastic connecting member secured to the lower and inner end of such button flap and to the shoe body, all substantially as shown and described.

3. As an improvement in shoe fasteners, the combination of a button hole flap having holes formed with keeper like portions, a button holding flap, an elastic connection between the lower and inner end of such flap and the shoe body and button or fastening members arranged diagonally on the flap, and provided with restraining portions adapted to seat in the body portions of the button holes when the parts are in their connected positions, all substantially as and for the purposes described.

4. The combination with the upper flap B, having button holes formed with an eyelet portion *d* and a keeper portion *d'* and the shoe body proper of the flap C, the elastic connection E, the diagonally disposed fasteners secured thereon, said fasteners having shanks f^3, head portions f^2, and convex portions f' all arranged substantially as and for the purposes described.

521,687. TRACTION-WHEEL. SYLVESTER WARNER and OWEN E. COOK, West Union, Ind. Filed Feb. 17, 1894. Serial No. 500,502. (No model.)



Claim.—1. A traction wheel provided with arms fitted to slide loosely at their outer ends in the rim of the wheel, a yieldingly

mounted wheel concentric with the axle of the traction wheel and connected with the said arms and a spring against the action of which said wheel turns, substantially as shown and described.

2. A traction wheel, comprising movable arms fitted to slide at their outer ends in the rim of the wheel, a wheel mounted to turn on the axle of the traction wheel and connected with said arms, a sleeve held on the axle, and a yielding spring connection between the said sleeve and the said wheel carrying the arms, substantially as shown and described.

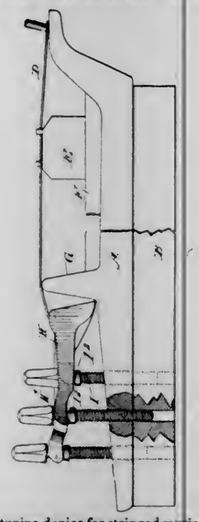
3. A traction wheel, comprising movable arms fitted to slide at their outer ends in the rim of the wheel, a wheel mounted to turn on the axle of the traction wheel and connected with said arms a sleeve held on the axle, a yielding spring connection between the said sleeve and the said wheel carrying the arms, and means, substantially as described, for turning the said sleeve so as to increase or decrease the tension of the yielding spring connection between the sleeve and the wheel, substantially as shown and described.

4. A traction wheel, comprising movable arms fitted to slide loosely at their outer ends in the rim of the wheel, a wheel mounted to turn on the axle of the traction wheel, and pivotally-connected with the said arms, and a locking device, substantially as described, for locking the said wheel in place in either of two positions for holding the said arms locked either in an outermost position or in an innermost position, substantially as shown and described.

5. A traction wheel, comprising movable arms fitted to slide loosely at their outer ends in the rim of the traction wheel, a wheel mounted to turn and concentric with the axle of the traction wheel, the said wheel being provided with an elongated aperture, and a fixed pin passing loosely through the said elongated aperture to limit the turning movement of the said wheel, substantially as shown and described.

6. A traction wheel provided with two series of apertures through its rim, the apertures of one series alternating with those of the other series, a series of arms sliding through said openings and a common spring controlled wheel or sleeve to which the inner ends of the arms are connected, substantially as described.

521,688. TUNING DEVICE. DANIEL M. WHITE, Boston, Mass. Filed Nov. 24, 1893. Serial No. 491,923. (No model.)

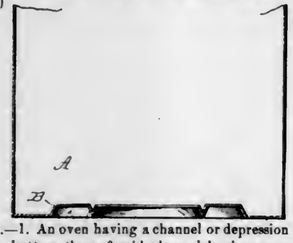


Claim.—1. A tuning device for stringed musical instruments comprising a metallic string plate having an integral bridge over which pass the strings, a series of L shaped levers having their downward arms fulcrumed on the base of the said bridge, the said levers being provided at their sides with flanges in alignment with the strings and for connection with the same, a wooden pin block or support for the said string plate and threaded wrest pins in engagement with the free ends of the said levers for adjusting the latter and consequently the pitch of the strings carried thereby, the said wrest pins screwing in the said string plate and each extending in alignment with the corresponding string carried by its lever, the said wrest pins also extending into the said wooden pin block or support to transmit the sounds of the strings from the levers to the wrest pins and to the said pin block or support, substantially as described.

2. A tuning device, comprising a metallic string plate, having a bridge over which passes the string, a lever fulcrumed on the said bridge, a wrest pin screwing in the said plate and engaging the free end of the said lever to impart a swinging motion to the latter when screwing the wrest pin up or down, and a flange formed on the said lever and having notches for the passage of the string to take up the slack, substantially as shown and described.

3. A tuning device, comprising a metallic string plate, having a bridge over which passes the string, a lever fulcrumed on the said bridge, a wrest pin screwing in the said plate and engaging the free end of the said lever to impart a swinging motion to the latter when screwing the wrest pin up or down, a flange formed on the said lever and having notches for the passage of the string to take up the slack, and means, substantially as described, for fastening the end of the string to the said lever after leaving the corresponding notch in the said flange, as set forth.

521,689. OVEN. WILLIAM H. WILDER, Northampton, Mass. Filed Feb. 25, 1893. Renewed Nov. 21, 1893. Serial No. 491,579. (No model.)

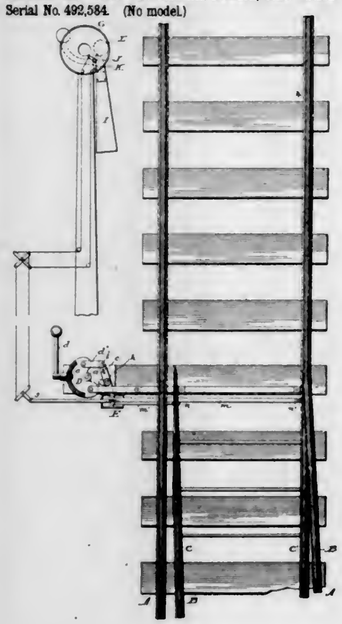


Claim.—1. An oven having a channel or depression in the under face of the bottom thereof, said channel having an approximately square outer wall and a circular inner wall, substantially as described.

2. An oven having its bottom provided with a central opening and an outer flat portion, with an annular depression interposed between said opening and flat portion, said annular depression having approximately square outer bounding wall and a circular inner wall, substantially as described.

3. An oven or the like having a bottom with an opening therein, an outer bearing surface for a flat top stove, and a plurality of bearing walls between said outer bearing and the opening, substantially as described.

521,690. SAFETY SWITCH SIGNAL DEVICE. HARRY M. ABERNETHY and JOSEPH M. GRAHAM, Newark, Ohio. Filed Dec. 2, 1893. Serial No. 492,584. (No model.)



Claim.—1. A safety switch signal device, consisting of a switch stand, to which is directly connected signal mechanism, the latter being also connected to the switch points, as set forth and described.

2. A safety switch signal device, consisting of a switch stand to which is connected both the switch-operating mechanism and signal mechanism, the latter being also connected with the switch points through the medium of connecting rods, substantially as set forth and described.

3. The combination in a safety switch signal device, of a switch-stand, switch rod secured to said stand and switch points at one side of the pivotal point of the stand, and signal mechanism secured to the other side of said pivotal point and connected with the switch points through the medium of connecting rods and levers, substantially as described.

4. The combination in a safety switch signal device, of the switch stand, switch rod and arm secured thereto, and a lever, one end of which is connected to said arm and the other end to a box adapted to receive one end of the signal bars or rods, the other end of said bars or rods being suitably fastened to the switch points, as set forth and described.

5. The combination in a safety switch signal device, of the switch stand, switch rod and arm secured thereto, a pivoted lever, one end of which is secured to said arm and the other end adapted to carry a box, and the signal rods or bars suitably connected to the switch points, substantially as described.

6. In a safety switch signal device, the combination of the switch stand, switch rod secured to said stand and switch points, with signal mechanism connected to the switch stand and points and leading from the latter to the signal post, substantially as described.

7. In a safety switch signal device, the combination of the switch stand, switch rod secured at one end thereof, and an arm secured to the other end, a pivoted lever connected with said arm and adapted to support and carry with it a box, so constructed as to receive one end of the signal rod and one end of a bar to which the mechanism leading to the signal post is suitably secured, substantially as set forth and described.

8. In a safety switch signal device, the combination of the switch stand, signal mechanism connected with said stand and switch points, and means for keeping the signal mechanism normally under tension, as set forth and described.

9. The combination in a safety switch signal device, of the switch stand, switch rod connecting said stand and switch points, signal rods connected to said switch points, the counter-balanced semaphore supported by the signal post, with mechanism located between and connected to the said counter-balanced semaphore and signal rods, said mechanism being normally under a pull or tension, substantially as set forth and described.

10. The combination with a switch stand, of the switch rod, and arm connected to said stand, a pivoted lever one end being secured to said arm and the other end supporting a box, rods connected to the switch points and terminating within said box, with a counter-balanced semaphore carried by the signal post, and mechanism leading from the said box to the counter-balanced semaphore, substantially as set forth and described.

11. In a safety switch signal device, a signal mechanism consisting of an arm attached to the switch stand, a pivoted lever secured at one end to the said arm and the other end supporting and carrying a box, rods or bars secured to the switch points and terminating in said box, a counter-balanced semaphore carried by the signal post, with mechanism leading from the box to said counter-balanced semaphore, substantially as described.

12. A signal device for railway switches, consisting of switch mechanism attached to the switch stand, signal rods or bars connected to the switch points, a counter-balanced semaphore carried by the signal post, said post being located at a suitable distance from the switch, with mechanism normally under tension leading from the said rods or bars to the counter-balanced semaphore, substantially as described.

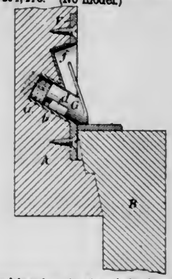
13. A signal device for railway switches, having a box, the inner surface of each side of which is provided with a lateral projection, rods or bars secured at one end of the switch points, the other ends resting between said projections, and a bar loosely connected between the said rods within the box, and leading to a bell-crank lever to which is attached mechanism leading to a counter-balanced semaphore, substantially as described.

14. The combination in a signal device for railway switches, of the arm secured to the switch stand, lever connected to the arm, a box carried by said lever and provided with a projection extending laterally from each side of the interior of the same, rods or bars connected at one end to the switch point or points and the other end resting loosely between said projections and adapted to receive between the loose ends a bar connected with mechanism leading to the signal post and counter balanced semaphore, substantially as described.

15. The combination in a safety switch signal device, of the switch stand, pivoted lever, box connected to and supported by said lever and having lateral projections within the same, rods or bars one end of each being secured to the switch point or points and the other end of each resting loosely between said projections, a bar adapted to rest loosely between the loose end of said rods or bars, a counter-balanced semaphore, and mechanism normally under tension connecting the counter-balanced semaphore with the said bar, the latter and the rods or bars being so constructed as to permit the bar to disconnect and thereby allow the semaphore to indicate danger when the switch points are obstructed or disconnected, all substantially as described.

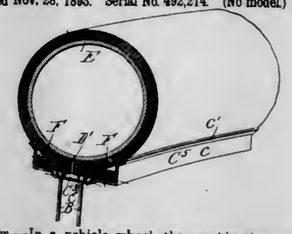
16. The combination in a safety switch signal device, of the switch stand, pivoted lever connected to and carrying with it a box, the latter having lateral projections within the same, the counter-balanced semaphore, mechanism normally under tension and leading from said semaphore to the box and terminating with a bar located within the box, signal rods or bars, one end being fastened to the switch points the other end resting loosely between the said projections and adapted to clamp said bar and normally retain it, yet release the same when the switch points become obstructed or disconnected, thereby permitting the signal to indicate danger, all substantially as set forth and described.

521,691. SASH-FASTENER. CHARLES C. ALGEO, Philadelphia, Pa., assignor of one-half to W. Irving Steel, same place. Filed Nov. 20, 1893. Serial No. 491,416. (No model.)



Claim.—The combination in a sash lock, of the casing having an upwardly inclined bolt guide, a recess above the bolt guide, a bolt adapted to the guide and having a beveled tongue adapted to the recess, and so proportioned that the lower sash as it descends will push the bolt back by the tongue and said tongue acting as a finger push to release the sash, substantially as described.

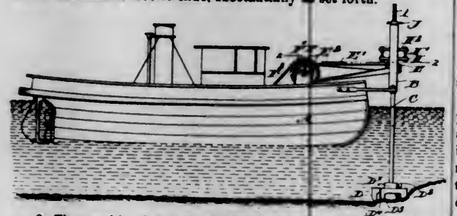
521,692. VEHICLE-WHEEL. CHARLES L. AMES, Oak Park, Ill. Filed Nov. 28, 1893. Serial No. 492,214. (No model.)



Claim.—In a vehicle wheel, the combination with a hub, of a rim having a middle part, C', straight in cross section and parallel to the axis of the wheel, parts, C^3, at each side of said part, C', extending outward from the axis of the wheel a distance substantially equal to the thickness of the heads of the spokes, parts, C^4, at the sides of the parts, C^3, farthest from the middle of the rim and straight in cross section and parallel to the axis of the wheel, and flanges, C^5, extending away from the axis of the wheel from each part, C^4, at the margin of the latter farthest from the middle of the rim, a tubular tire, D, slotted along the seat and having at each side of the slot a tongue, D^2, resting on one of the parts, C^4, binders, F, resting upon said tongues between the latter and the body of the tire, and spokes, B, extending from said hub through said rim and having their heads, B', resting in the channel, C^2, substantially as described.

521,693. EXCAVATOR. GEORGE P. AUDERTON, Concession, La. Filed Jan. 27, 1894. Serial No. 498,220. (No model.)

Claim.—1. An excavator of the character described comprising a vertically extending frame provided with vertically aligned apertures, and bearings, a shaft extending up through the lower of the said apertures and having an excavating device on its lower end and a supporting head or collar on its upper end, a vertically adjustable stirrup in the upper part of the frame and having an aperture in its lower member or plate in which the upper end of the shaft turns with its collar or head resting on the upper side thereof, a shank extending through the upper aperture in the frame and provided with mechanism thereabove for raising and lowering it, and an operating pulley or wheel on the shaft between the bearings on the frame and through which the shaft is free to slide, substantially as set forth.



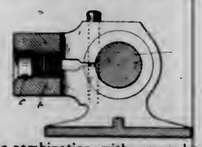
2. The combination with the frame and the vertical shaft turning and sliding therein and having an operating pulley through which it slides and a fixed collar or head on its upper end, of a stirrup within the upper part of the frame and comprising the lower plate having an aperture for the said shaft and on the upper side of which plate the said collar or head rests, an upper parallel plate, bolts connecting said plates, a screw shank extending from the upper plate through an aperture in the top of the frame and provided thereabove with an adjusting nut, substantially as set forth.

521,694. PRESERVING FOOD COMPOUNDS. FANNIE ANKER, Jersey City, N. J. Filed Apr. 28, 1894. Serial No. 509,338. (No specimens.)



Claim.—The herein described process of preparing and preserving a food compound, which consists in thoroughly blending a meat extract with vegetable matter, sauces and condiments, then pressing the cold compound through a lengthened tube and into a capsule on the exit end of said tube, gradually forcing off the capsule by the pressure of the compound filling the same, then cutting off the compound at or near the end of the filled capsule and finally closing the capsule, substantially as set forth.

521,695. DEVICE FOR SECURING PISTON-RODS TO CROSS-HEADS. EDWIN J. ARMSTRONG, Oswego, N. Y., assignor to the Ames Iron Works, same place. Filed Feb. 12, 1894. Serial No. 499,888. (No model.)



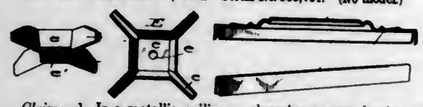
Claim.—1. The combination, with a cross head having an opening therethrough formed with screw-threads, a beveled mouth or seat at the end of said opening, and a blank or unthreaded portion intermediate said beveled mouth and the screw-threaded portion of the opening, of a piston rod having a screw-threaded end, and a nut having a beveled face adapted to fit the beveled mouth of the opening, substantially as described.

2. The combination with a cross head having a screw threaded opening therethrough of greater diameter for a portion of its length at one end than at the other, and with a beveled mouth or seat, of a screw-threaded piston rod adapted to fit the smaller diameter of the opening, and a nut having a beveled face adapted to fit the beveled mouth of the opening, substantially as described.

3. The combination, with a crosshead having an opening formed with a beveled seat or mouth, a portion of said opening being screw-threaded, of a piston rod having an unthreaded portion between two threaded portions at one end, and a nut having a beveled face adapted to fit said beveled seat, substantially as described.

4. The combination, with a cross head having an opening formed with screw-threads and a beveled mouth or seat, of a piston rod adapted to engage a section of said opening at one end thereof whereby a space is provided surrounding said rod within the opening adjacent its beveled mouth, and a jam nut adapted to fit into said beveled mouth or seat, substantially as described.

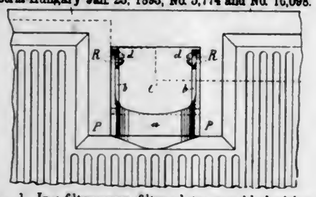
521,696. METALLIC CEILING. ELIPHALET ARMSTRONG, Bellville, Ohio. Filed Mar. 15, 1894. Serial No. 503,701. (No model.)



Claim.—1. In a metallic ceiling a clamping rosette having an apertured body portion, and the U-shaped arms extending therefrom, substantially as and for the purpose described.

2. In a metallic ceiling the combination with the strips of the panels having side flanges, the U-shaped clamping strips or caps adapted to bind the adjacent or abutting flanges together the clamping rosette having an apertured body portion and U-shaped wings to receive the clamping strips or caps, and the screw passing through the aperture in the rosette into the strip, substantially as shown and described.

521,697. FILTER-PRESS. HANS BERG, Durlach, Germany. Filed Jan. 23, 1894. Serial No. 497,741. (No model.) Patented in Germany June 24, 1892, No. 67,036; in France June 30, 1892, No. 209,498, and in Austria-Hungary Jan. 23, 1893, No. 5,774 and No. 16,098.



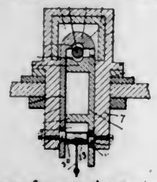
Claim.—1. In a filter-press, filter-plates provided with projecting rims having depressed portions forming fluid inlets, transverse passages communicating with said portions and forming a common fluid channel; combined with clamping plates fitting the depressed portions and adapted to compress the cloth at the fluid inlets, substantially as described.

2. In a filter-press, filter-plates provided with depressed portions forming fluid inlets when the plates are placed together, and clamping-plates pivoted to said filter-plates and adapted to compress the cloth at the inlets, substantially as described.

3. In a filter-press, filter plates provided with depressed portions forming fluid inlets when the plates are placed together, combined with clamping-plates constructed to fit said depressed portions and to abut when the plates are placed together, substantially as described.

4. A filter plate provided with depressed portions on opposite sides, and pivoted clamping plates for securing the cloth at the depressed portions, substantially as described.

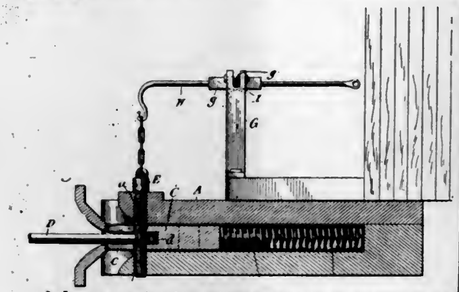
521,698. MEANS FOR OPERATING SECTIONAL NUTS OF VISES. JOHN E. BOEGEN, Bay City, Mich., assignor to Thomas E. Webster, same place. Filed Mar. 19, 1894. Serial No. 504,230. (No model.)



Claim.—In a means for operating the sectional nut of a vise, the combination of a vise having the nut-section 10, having the portion 12, and the nut-section 13, having the portion 15, extending into the opening 8, and the opening 18, in the portion 12, and the opening 19, in the portion 15, the hollow arm 20, carrying the cams 21, and 22, operating in the openings 18, and 19, and the weight secured to the hollow arm, and means for oscillating the said arm and cams, as described, substantially as and for the purpose set forth.

521,699. CAR-COUPLING. WILLIAM BROOKING, River, Ind. Filed Nov. 2, 1893. Serial No. 489,886. (No model.)

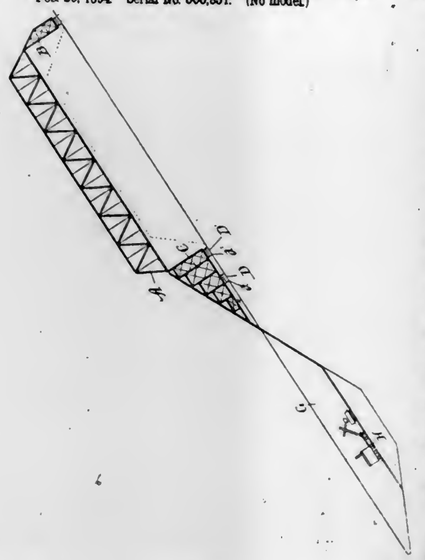
Claim.—1. In a car-coupler, the combination with the draw-head having a link-pin hole, and of the link and pin, of means for raising the link-pin from engagement with the link, comprising an upright, G, having lateral and longitudinal bifurcations in its upper end, levers supported in said bifurcations and extending at right-angles to each other, a block, *g*, joining said levers and having a bearing in one of the bifurcations, and bolts, *g'*, for retaining the levers in position, the combination being and operating substantially as and for the purpose set forth.



2. In a car-coupler, the combination with the draw-head having a link-pin hole, a sliding block working in prescribed limits within the draw-head and having a recess in its outer end, a link adapted to rest in said recess, and a pin adapted to pass through the draw-head and the said block, of mechanism for raising the said pin out of engagement with the link comprising an upright having lateral and longitudinal bifurcations in its upper end, levers supported in said bifurcations and extending at right angles to each other, a block joining said levers and having a bearing in one of the bifurcations, and bolts for retaining the levers in position, substantially as described.

3. In a car-coupler, the combination with the draw-head having a link pin pole, a sliding block working in prescribed limits within the draw-head and having a recess in its outer end, a spring located in the draw-head and exerting an outward pressure on the block, a link adapted to rest in said recess, and a pin adapted to pass through the draw-head and the said block, of mechanism for raising the said pin out of engagement with the link comprising an upright having lateral and longitudinal bifurcations in its upper end, levers supported in said bifurcations and extending at right-angles to each other, a block joining said levers and having a bearing in one of the bifurcations, and bolts for retaining the levers in position, substantially as described.

521,700. APPARATUS FOR EXCAVATING DITCHES. GEORGE B. CHRISTIE, JESSE LOWE, and GEORGE A. LEDERLE, Chicago, Ill. Filed Feb. 20, 1894. Serial No. 500,851. (No model.)



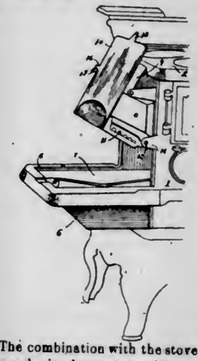
Claim.—1. In apparatus for excavating ditches, the combination of a span covering the area of a spoil bank, movable towers at each end of the span for supporting and moving it, wheels for supporting the towers, tracks upon which the wheels rest and run, an inclined apron for one of the towers, and a track supported and running only in the longitudinal direction of the apron and span, substantially as described.

2. In apparatus for excavating ditches, the combination of a span covering the area of a spoil bank, movable towers at each end of the span for supporting and moving it, wheels for supporting the towers, tracks upon which the wheels rest and run, an inclined apron for one of the towers, a track supported and running only in the longitudinal direction of the apron and span, a dump car for the track, and means for moving the dump car, substantially as described.

3. In combination with a power excavator mounted on a track within the bed of a cut, a traveling span covering the area of a spoil bank, wheeled towers at each end of the span upon which it is mounted and moved, tracks upon which the towers travel, an inclined apron forming part of the front tower, a track supported by and running only in the longitudinal direction of the apron and span, a dump car for the track, and means for moving the dump car, substantially as described.

4. In combination with a track mounted within the bed of the cut and having a curved portion, a power excavator mounted upon the track for excavating material, substantially as described.

521,701. COOKING-STOVE. ARTHUR B. CLUNIES, Rochester, N. Y., assignor to the Sill Stove Works, same place. Filed Apr. 13, 1894. Serial No. 507,370. (No model.)



Claim.—1. The combination with the stove-body having the forwardly extending ash-pit, the grate and fire-pot, of the combined hearth and front mounted on horizontally extending pivots and adapted to be swung vertically to permit access to the forward portion of the ash pit, substantially as described.

2. The combination with the stove-body having the forwardly extending ash-pit and the grate and fire-pot, of the combined hearth and front mounted on horizontally extending pivots and adapted to be swung vertically to permit access to the forward portion of the ash-pit, and a catch for retaining said hearth and front when raised, substantially as described

3. The combination with the stove-body having the forwardly extending ash-pit, and the forwardly extending arms at the sides, the grate, and the fire pot, of the vertically-movable combined hearth and front, the latter having arms pivoted on those on the stove-body, and a catch for retaining the hearth when elevated, substantially as described.

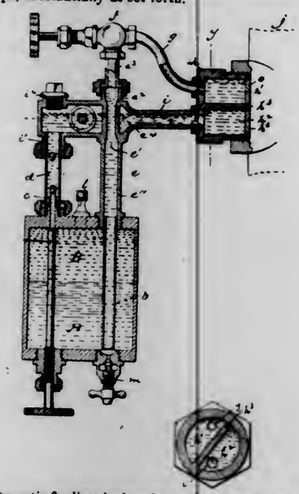
4. The combination with the stove-body having the forwardly extending ash-pit, the grate and the fire-pot, of the combined hearth and front pivoted loosely to the sides of the stove-body, said hearth having the securing lug, and the stationary catch on the stove-body with which the lug on the hearth cooperates to retain the latter when swung upon its pivots, substantially as described.

5. The combination with the stove-body having the forwardly extending ash-pit, and the grate, and fire-pot, of the combined hearth and front, pivoted to the stove-body on horizontally extending pivots, and the draft slide or register on the front, substantially as described.

521,702. LUBRICATOR. CHARLES COUSE, Belleville, N. J. Filed Feb. 19, 1894. Serial No. 500,610. (No model.)

Claim.—1. In an automatic feeding device for oil, &c., the combination with the reservoir and means for feeding the oil or liquid therefrom in small quantities regularly, into a sight tube, said sight

tube, a horizontal tube connecting with said sight tube, supplying water thereto and receiving oil therefrom, and a feed water pipe, of an enlarged chamber, interposed between the end of the horizontal tube and said feed water pipe and having a small opening into said feed water pipe, substantially as set forth.



2. In an automatic feeding device, the combination with the reservoir, sight tube, feeding projection and water induction tube, *b*, the casting, *i*, having the horizontal liquid way therethrough connecting with the sight-tube, and a vertical way therein crossing the first said way, and connecting with the tube, *b*, below and forming a hydrostatic column above the same, a branch pipe, *g*, leading to the top of said column, and a partitioned coupling, *k*, connecting said parts *g* and *i*, all said parts being combined substantially as and for the purposes set forth.

3. The combination with the reservoir *a*, having the water induction pipe *b*, feeding projections *c* and sight tube, *d*, a horizontal tube or casting, *i*, connecting with said induction tube and sight tube but having its fluid passage independent of those in said sight tube and water induction pipe and connecting with an enlarged chamber coupling having a small feeding perforation through which the feed water enters said chamber and said enlarged chambered coupling, substantially as set forth.

4. In combination with the reservoir, and pipe or duct, *i*, for feeding oil therefrom to the feed water pipe, and said feed water pipe, a chamber interposed between said pipe or duct and said feed water pipe for preventing eddies being formed in said duct, *i*, by the rapid flow of water in said water pipe and pipes or ducts for feeding water to the reservoir substantially as set forth.

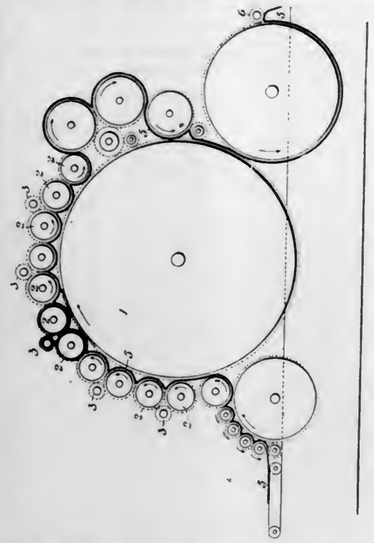
5 The combination with the reservoir, *a*, induction tube, *b*, sight tube, *d*, and horizontal pipe, *i*, leading to the feed water pipe, of a pipe or tube, c^3, extending above said horizontal pipe and forming a hydrostatic column of water above said tube, *b*, and a branch pipe *g*, leading to the top of said column and a partitioned coupling *k*, adapted to connect said parts to the feed water pipe, substantially as set forth.

6. The combination with an automatic feeding device, the pipes *g* and *i*, a coupling, *k*, adapted to be connected to the feed water pipe and having an interior partition or diaphragm extending between the mouths of said pipes, and a plate, *o*, at the end of said coupling having perforations k^4, at one side of said partition and k^4, k^5, for the outflow of oil and the inflow of water respectively, substantially as set forth.

7. In combination with the reservoir having the induction pipe, feeding projection, and sight tube, of the casting having the horizontal part to lead to the feed water pipe and having means to receive the sight tube and a downward extension, *e*, to connect with the induction tube, *b*, also an upward extension, e^3, to receive the tube, e^3, a valve, *f*, a branch pipe, *g*, a valve, *k*, and a coupling for attaching said parts to the feed water pipe, all arranged and adapted to operate substantially as set forth.

8. The combination with an automatic lubricating apparatus, of the water induction branch pipe *g* and oil eduction pipe, *i*, of a coupling, *k*, having an interior partition separating the entrances of said pipes to said couplings and a rear plate, *o*, having perforations for the oil and water the oil perforation lying above said water perforation to emit said oil above said water perforation to prevent the oil entering said water perforation.

521,703. SCRIBBLER OR CARDING ENGINE. ERNEST CROWTHER and WILLIAM H. CROWTHER, Pudsey, England. Filed Dec. 12, 1893. Serial No. 493,514. (No model.)



Claim.—1. The combination with a scribbler or carding engine having a number of workers touching each other, arranged around the main drum of card covered cleaners, arranged above the workers, projecting into the angle where the circumferences of the workers converge, and in contact each with its two adjacent workers, for the purpose of cleaning the same, substantially as described.

2. The combination with a scribbler or carding engine, having a number of workers touching each other, arranged around the main drum, of card covered rollers projecting into the alternate angles or spaces where the circumferences of the workers converge, arranged above the workers and in contact each with its two adjacent workers, for the purpose of cleaning same, substantially as described.

521,704. LINE-GUIDE FOR FISHING-RODS. SAMUEL T. DAVIS, Lancaster, Pa. Filed Sept. 23, 1891. Serial No. 406,558. (No model.)



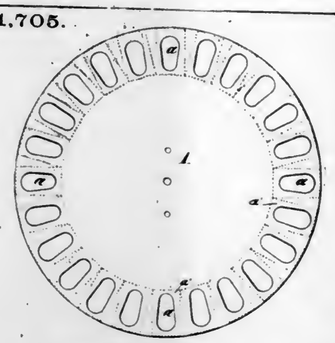
Claim.—1. A pole tip provided with a jaw having two parts or arms, each of said arms provided at its upper end with circular recesses, and at the lower end with a semicircular shank, the pulleys mounted in the recesses in the arms of said jaw, and the ferrule adapted to receive the shank of the jaw, substantially as described.

2. A pole tip to be attached to the forward end of a fishing rod comprising in combination, a jaw made in two parts or arms, each of said arms provided on its inner face with circular recesses, a pulley or pulleys having hubs which are journaled in said recesses, the semicylindrical projections which when brought together form the shank of the jaw, the ferrule in which said shank is mounted and swiveled, substantially as described.

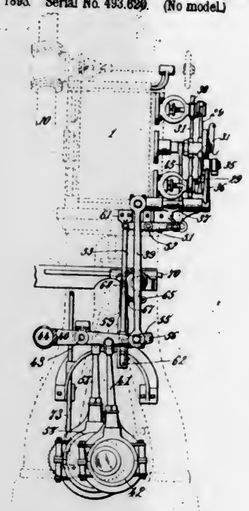
521,705. PROCESS OF PRODUCING POSITIVE PHONOSCOPIC PLATES. GEORGES DEMENY, Paris, France. Filed July 18, 1893. Serial No. 480,870. (No specimens.)

Claim.—The process herein described of producing exhibition plates for phonoscopes by first preparing upon a band or film a series of negative images representing consecutively the transitions of movement of an animated object; secondly, severing the strip or film to separate the different images; thirdly, fixing the separated negative images in proper order and position upon a support or holder, and finally obtaining positives by photography, substantially as described.

521,705.



521,706. HIGH-SPEED ENGINE. JOSIAH DOW, Philadelphia, Pa. Filed Dec. 14, 1893. Serial No. 493,629. (No model.)



Claim.—1. In a compound engine, the combination of a high pressure cylinder and a low pressure cylinder placed side by side in compact close relation to each other and provided with direct steam connecting passages leading from the exhaust of the high pressure cylinder to the induction of the low pressure cylinder, an initial steam chamber and an exhaust chamber intermediate said cylinders, and cylindrical oscillatory valves at both ends of both the high pressure and the low pressure cylinders and located between the said cylinders, each valve adapted to control both the induction and eduction of its cylinder and the valves at the ends of the high pressure cylinder being also adapted to control the lead of steam to the low pressure cylinder, substantially as described.

2. In a compound engine, the combination of a high pressure cylinder and a low pressure cylinder placed side by side in compact close relation to each other and provided with direct steam connecting passages leading from the exhaust of the high pressure cylinder to the induction of the low pressure cylinder, an initial steam chamber and an exhaust chamber intermediate said cylinders and each provided at both ends with cylindrical valve seats, and cylindrical oscillatory valves located in said valve seats at the high pressure cylinder and low pressure cylinder, respectively, and each adapted to control both the induction and eduction of its cylinder, the valves at the high pressure cylinder being arranged to govern the admission of steam to the low pressure cylinder from the exhaust lead of the high pressure cylinder, substantially as described.

3. In a compound engine, the combination of a high pressure cylinder and a low pressure cylinder placed side by side in compact close relation to each other, an initial steam chamber and an exhaust chamber intermediate said cylinders and alternating with intervening closed spaces, both ends of the cylinder-casting being provided between the cylinders with cylindrical valve seats located at the high pressure and low pressure cylinders and with direct steam connecting passages leading from the exhaust of the high pressure cylinder to the induction of the low pressure cylinder, and cylindrical oscillatory valves located in said valve seats at both ends of and between the cylinders, each valve being adapted to control both the induction and eduction of its cylinder and the valves at the high pressure cylinder controlling also the lead of steam to the low pressure cylinder, substantially as described.

4. In a compound engine, the combination with a high pressure cylinder and a low pressure cylinder placed in compact close relation to each other and having direct steam connecting passages tapering from the ports of the high pressure cylinder to the ports of the low pressure cylinder, whereby the clearance between the cylinders and through the valves is reduced and a free outlet afforded for the passage of steam from the high pressure cylinder to the low pressure cylinder, of valves located between said cylinders and each adapted to control both the induction and eduction of its cylinder, the valves at the high pressure cylinder being also adapted to control the lead of steam at the low pressure cylinder, substantially as described.

5. In a compound engine, the combination of the high pressure cylinder and the low pressure cylinder placed side by side in compact close relation to each other and provided at both ends with direct steam connecting passages and with cylindrical valve seats located at both ends of and between the cylinders, cylindrical oscillatory valves for both ends of each cylinder, located in said valve seats between the cylinders and each adapted to control both the induction and eduction of its cylinder, a single main wrist plate intermediate the cylinders, and valve gear and wrist plate connections through which all the said valves controlling the ports of both the high pressure and low pressure cylinders are actuated, substantially as described.

6. In a compound engine, the combination with the high pressure cylinder and the low pressure cylinder placed in compact close relation to each other and having direct steam connecting passages, of an initial steam chamber and an exhaust chamber located between said cylinders and having cylindrical valve seats at their ends, oscillatory valves located in said valve seats at the ports of both the high and low pressure cylinders and between the same, each of said valves adapted to control both the induction and eduction of its cylinder, the valves at the high pressure cylinder controlling both the exhaust from that cylinder and the lead of steam at the low pressure cylinder, a single main wrist plate intermediate the cylinders and through which the said valves controlling the ports of both the high and low pressure cylinders are actuated, and suitable valve gear and wrist plate connections, substantially as described.

7. In a compound engiue, the combination with the high pressure cylinder, the low pressure cylinder, their cylindrical oscillatory valves, a single main wrist plate and the valve gear and wrist plate connections, of a counter-balanced main rocker arm actuated from an eccentric on the engine shaft, a rock shaft provided with arms, a rod connecting one arm of said rock shaft with the main rocker arm on one side of its fulcrum and at a point opposite its counter-balanced end, and a rod connecting the other arm of said rock-shaft with the main wrist plate, substantially as described.

8 In a compound engine, the combination with the oscillatory valves, the main wrist plate, and the valve gear and wrist plate connections, of a counter-balanced main rocker arm fulcrumed intermediate its ends, a rock shaft provided with arms, a rod connecting one arm of said rock shaft with the main rocker arm at a point opposite its counter-balanced end, an eccentric rod extended from an eccentric on the engine shaft and connected with said counter-balanced main rocker arm at a point between and below the rocker arm fulcrum and the attachment of the rod connecting with the rock shaft arm, and another rod connecting the other arm of said rock shaft with the main wrist plate, substantially as described.

9. In a compound engine, the combination with the oscillatory valves, the main wrist plate and the valve gear and wrist plate connections, of a counter-balanced main rocker arm actuated from an eccentric on the engine shaft and connected with the said main wrist plate, a slotted link carried by said main rocker arm and actuated from the cut off eccentric, a block adapted to slide in said link, a cut off mechanism connected with and actuated from said block, a slotted pendulum, a block adapted to slide in the slot of the pendulum and connected with the slide block of the slotted link, an oscillatory plate having a cam groove or slot engaged with a pin on the pendulum, and a rack and pinion gearing for actuating said cam plate and pendulum from a governor to vary the position of the link slide block and determine the point of cut off, substantially as described.

10. The combination with an oscillatory valve, a main wrist plate, the valve gear and wrist plate connections, a counter-balanced main rocker arm connected with the said main wrist plate and actuated from an eccentric on an engine shaft, a slotted link fulcrumed to said main rocker arm and actuated from a cut off eccentric, and a block

adapted to slide in said link, of a balanced centrally fulcrumed auxiliary rocker arm having one end connected with said block, a pivotally supported equalizer lever having a varying connection with the other end of said auxiliary rocker arm, and cut off mechanism connected with said equalizer lever, substantially as described.

11. The combination with an oscillatory valve, the main wrist plate, a valve gear and wrist plate connections, of a counter balanced main rocker arm actuated from a main eccentric rod, a two armed rock shaft intermediate the main wrist plate and main rocker arm and connected with both by rods, a slotted link carried by the main rocker arm and actuated from the cut off eccentric rod, a slide block supported in said link, governor mechanism connected with the said slide block to control its position in the slotted link and determine the point of cut off, a balanced auxiliary rocker arm having one end connected with the link slide block, an equalizer lever having a varying connection with the other end of the auxiliary rocker arm, and a quadrant or auxiliary wrist plate connected with said equalizer and with the cut off plate that controls the action of the valve gear, substantially as described.

12. The combination with an oscillatory valve, a main wrist plate, the valve gear and wrist plate connections, the cut off plate and its auxiliary wrist plate, of a counter-balanced main rocker arm actuated from a main eccentric and connected with the main wrist plate of the valve gear, a link carried by said main rocker arm and actuated from the cut off eccentric, an auxiliary balanced rocker arm intermediate said link and the auxlliary wrist plate, a link slide block connected with one end of the auxiliary rocker arm, equalizer mechanism intermediate of and connected with the auxiliary rocker arm and auxiliary wrist plate, and governor mechanism connected with the link slide block to determine the point of cut off, substantially as described.

13. The combination with an oscillatory valve, its valve gear, main wrist plate and wrist plate connections, of a counter-balanced main rocker arm fulcrumed intermediate its ends and connected with the main wrist plate and main eccentric rod, a link carried by said main rocker arm and actuated from the cut off eccentric rod, a block adapted to slide in or on said link and controlled by a governor, a centrally fulcrumed and balanced auxiliary rocker arm having one end connected with said block, an equalizer lever having a varying connection with the other end of said auxiliary rocker arm, and means for connecting the equalizer lever with a cut off quadrant or auxiliary wrist plate through which the cut off is controlled, substantially as described.

14. The combination with an oscillatory valve, its valve gear and wrist plate connections, a main rocker arm connected with a main wrist plate and actuated from the main eccentric rod, a link carried by the main rocker arm and actuated from the cut off eccentric rod, and a link slide block, of a centrally fulcrumed and balanced auxiliary rocker arm connected with the link slide block and with a cut off mechanism, a slotted pendulum lever, a slide block located in the slot of the pendulum and connected with the link slide block, an oscillatory plate having a helical cam groove or slot engaged with a pin or roller on the pendulum, and rack and pinion gearing actuated from a governor to oscillate the cam plate and pendulum for shifting the link slide block and controlling the point of cut off, substantially as described.

15. The combination with the cylinders, balanced pistons, cranks, rods, valves and valve gear of a compound engine, of a counter-balanced main rocker arm connected with the main wrist plate of the engine valve gear and actuated from the main eccentric rod, a link carried by said main rocker arm and actuated from the cut off eccentric, a link slide block, a balanced and centrally fulcrumed auxiliary rocker arm having one end connected with the link slide block and its other end with an equalizing mechanism through which the cut off devices are actuated, a pendulum provided with a slide block that is engaged with the link slide block, a counter-balanced oscillatory cam plate engaged with the pendulum, and gearing for actuating said cam plate and pendulum from a governor to vary the position of the link slide block and control the point of cut off, substantially as described.

16. The combination with a valve, its valve gear, a cut off plate that controls the action of the valve gear, a rocker arm actuated from a main eccentric and connected with the valve gear, a link carried by said main rocker arm and actuated from a cut-off eccentric, a block adapted to slide in or on said link, and connections from said block to the cut off plate, of a slotted pendulum, a block adapted to slide in the slot of the pendulum and connected with the link slide block, an oscillatory plate having a cam grove or slot engaged with a pin on the pendulum, and rack and pinion gearing for actuating said plate and pendulum from a governor, to vary the position of the link slide block and determine the point of cut off, substantially as described.

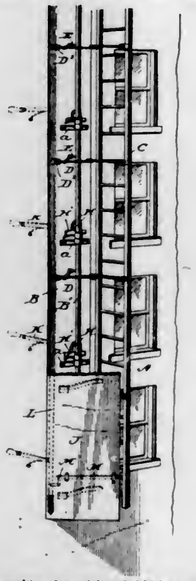
17. The combination with a valve, its valve gear and cut off connections, a main rocker arm connected with the valve gear and carrying a link that is actuated from a cut off eccentric and provided with a link slide block for controlling the cut off connections, of a pendulum for shifting the position of the link slide block to control the point of cut off, and an oscillatory cam plate plate engaged with the pendulum and actuated from a governor, substantially as described.

18. The combination with a valve and its valve gear and cut off devices comprising a link slide block for controlliug the point of cut off, of a slotted pendulum, a slide located in the slot of the pendulum and connected with the link slide block, an oscillatory plate having a helical cam groove or slot engaged with a pin or roller projecting from the peodulum, and means for actuating said cam plate and peodulum from a governor to shift the link slide block and vary the point of cut off, substantially as described.

19. In a compound engine, the combination with a high pressure cylinder and a low pressure cylinder placed close together and having direct steam connecting passages leading from the exhaust of the high pressure cylinder to the induction of the low pressure cylinder, of induction and eduction valves located between said cylinders, the valves at the high pressure cylinder controlling the lead of steam to the low pressure cylinder from the exhaust lead of the high pressure cylinder and the valves at the low pressure cylinder controlling the exhaust therefrom, pistons located in said cylinders and balanced in stroke one against the other, both in movement and weight, valve gear and wrist plate connections, and a governor controlled cut-off, whereby the lead and compression of steam are determined and a balancing of steam pressure is obtained through and between the cylinders and connecting passages at beginning and end of each stroke, substantially as described.

20. The combination with the cylinders, balanced pistons, crank rods, valves, valve gear and cut-off devices of a compound engine, of a slide through which the point of cut-off is controlled, a pendulum connected with and adapted to shift said slide, a cam connected with and actuating the pendulum, and means for oscillating said cam from a governor to control the movements of the pendulum and slide and vary the point of cut-off, substantially as described.

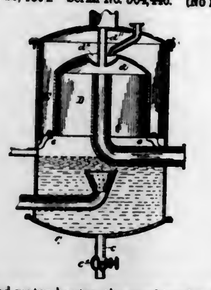
521,707. FIRE-ESCAPE. JOHN ECKLEY and JOSEPH C. STRICKLAND, Wallaceton, Pa. Filed Mar. 20, 1894. Serial No. 504,447. (No model.)



Claim.—1. In combination with a rigid hinged ladder, lever mechanism for turning said ladder upon its hinges, consisting of a hand wheel G having geared connection through the shaft G', pinion H and segmeot H' with a series of levers connecting the rotary shaft B to the edge of the ladder, and the arms O secured to the door J adapted to engage with the ladder and close said door as the ladder is folded into the recess B, all substantially as shown and described.

2. In combination with the wall of a building provided with a vertical recess extending from the top to the bottom thereof, a ladder within the recess and having one of its sides hinged at one of the side edges of the recess, a shaft also within the recess, lever connections between the shaft and the ladder adapted to cause the ladder to turn upon its hinges upon rotation of the shaft, and mechanism upon the inside of the building for rotating the shaft, substantially as described.

521,708. FEED-WATER HEATER. BENJAMIN EYNON, Pittsburg, Pa. Filed Mar. 20, 1894. Serial No. 504,446. (No model.)

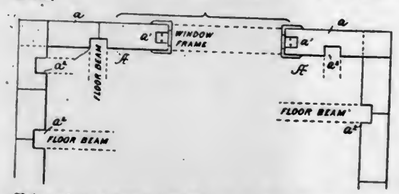


Claim.—In a feed water heater, the combination with the casing A, the exit pipe B', the steam inlet pipe F, and the water inlet pipe G, of the dome D, having the concavo-convex top with the cup *d* at the center of the same, and the relief pipe *d'* of less diameter than said pipe F and arranged to convey steam from within the dome to below said exit pipe, substantially as described.

521,709. CAR-TRUCK. SAMSON FOX, Harrogate, England, assignor to the Fox Solid Pressed Steel Company, Chicago, Ill. Filed Mar. 6, 1889. Serial No. 302,160 (No model.) Patented in England July 30, 1888, No. 11,017; in France July 9, 1889, No. 199,490; in Belgium July 10, 1889, No. 86,924; in Italy Dec. 31, 1889, No. 60; in Spain Feb. 1, 1890. No. 10,151, and in Austria-Hungary Apr. 22, 1890. No. 53,984.

Claim.—The within-described bogie-frame for railways, comprising wheel pieces D provided with horn plates, pieces E connecting the wheel pieces together, a spring bolster F secured to the wheel pieces, a truck bolster H, a cross-tie I, and brake-beams R, each of the parts being composed of metallic plates having pressed flanges formed thereon, and the parts being connected together in the manner set forth to form a truck-frame, substantially as described.

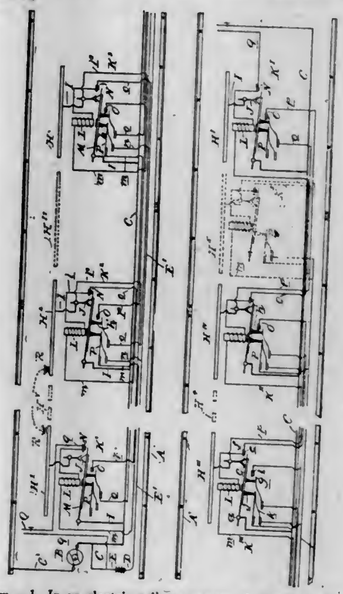
521,710. BRICK OR TERRA-COTTA HOUSE. GEORGE E. HAGERMAN, Brooklyn, N. Y. Filed May 19, 1892. Serial No. 433,631. (No model.)



Claim.—1. In a house, a wall made of slabs having depressions in the sides for floor beams and rafters, as set forth.

2. In a house, a wall made of slabs having depressions in the ends for window and door frames and depressions in the sides for floor beams and rafters, as set forth.

521,711. SUPPLY SYSTEM FOR ELECTRIC RAILWAYS. THOMAS HARRIS, Detroit, Mich. Filed Apr. 28, 1893. Serial No. 472,163. (No model.)



Claim.—1. In an electric railway system, the combination with a continuous power line, of a working conductor composed of sections normally disconnected from said power line, a switch line and a return switch line extending along the working conductor from a stationary source of electricity, an electro-magnet for each section of the working conductor, the armature of which is adapted to connect the section with the power-line and with the switch line, two energizing circuits for each magnet one connecting the section of the working conductor with the return switch line through a normally open and a normally closed break controlled by the next adjacent magnets respectively, and the other connecting the two switch lines through the said normally closed break of the other circuit and a normally open break controlled by the magnet itself, and a contact on the car adapted to connect two adjacent sections of the working conductor, substantially as described.

2. In an electric railway system, the combination with a continuous power line, of a working conductor composed of sections normally disconnected from said power-line, a contact on the car adapted to connect two adjacent sections in the travel of the car, a switch and a return switch line extending along the working conductor from a stationary source of electricity, an electro-magnet for each section of the working conductor, the armature of which is adapted to connect the section with the power line and with the switch line, and two energizing circuits for each magnet, one connecting the section of the working conductor with the return switch line and including a normally closed break controlled by the succeeding magnet and a normally open break controlled by the preceding magnet and by a push button for the initial magnet, and the other circuit connecting the two switch lines and including the said normally closed break of the other circuit and a normally open break controlled by each magnet itself, substantially as described.

3. In an electric railway system, the combination with an insulated power line and an insulated return power-line, of two exposed working conductors composed of corresponding sections normally disconnected from the power lines and with which the cars are adapted to travel in multiple connection, a contact on the car adapted to connect the adjacent ends of the sections of one of the working conductors, a switch line and a return switch-line extending along the working conductors from a stationary source of electricity, and an electro-magnet for each two corresponding sections of the working conductors, two armatures for each magnet, one adapted to connect the section of one working conductor to the return power line, and the other armature being adapted to connect the corresponding section of the other working conductor to the power line, and to the switch line, two energizing circuits for each magnet, one connecting the sections of one working conductor (that which is adapted to be connected with the switch line) with the return switch line including a

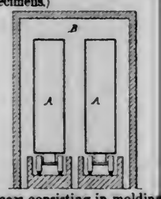
normally closed break and a normally open break respectively controlled by the adjacent magnets, and the other energizing circuit connecting the switch lines and including the normally closed break of the other circuit and a normally open break controlled by each magnet itself, substantially as described.

4. In an electric railway system, the combination with a power-line, of a working conductor composed of sections normally disconnected from said power-line, a contact on the car adapted to connect one section with the adjacent section of said working conductor in the travel of the car, a switch line and a return switch line extending along the working conductor from a stationary source of electricity, a switch magnet for each section of the working conductor, the armatures of each of which are adapted to connect said section with the power-line and with the switch line, and two energizing circuits for each magnet, one adapted to connect the magnet between the return switch line and its section of the working conductor and including a normally open and a normally closed break controlled by the magnets of the adjoining sections of the working conductor respectively—in reverse order in the two magnets of each section—and the other circuit adapted to connect the magnet with the switch lines and including the said normally closed break of the other circuit and a normally closed break controlled by the magnet itself, substantially as described.

5. In an electric railway system, the combination with a continuous power line, of a working conductor composed of sections normally disconnected from said power-line, a contact on the car adapted to connect the ends of adjoining sections of the working conductor, a switch magnet for each section of the working conductor the armature of which is adapted to connect the section with the power line, a source of electricity adapted to operate said switches and having one pole connected to the power-line and the other to a return switch line extending along the power-line, and connections whereby each magnet is comprised in two circuits, one between the return switch conductor and the section of the working conductor, which the magnet controls, and including a normally open and a normally closed break controlled respectively by the magnets of the adjacent sections and the other circuit between the power-line and the switch return line and including the said normally closed break of the other circuit and a normally open break controlled by the magnet itself, substantially as described.

6. In an electric railway system, the combination of two working conductors each composed of corresponding sections, a continuous insulated power-line and a continuous insulated return power-line, both normally disconnected from said working conductors, cars adapted to travel in multiple connection with corresponding sections of the two working conductors and provided with a contact or contacts adapted to connect the adjoining ends of the sections of one of the working conductors, a switch magnet for each two corresponding sections of the working conductor provided with two armatures one adapted to connect the sections of one of the working conductors with the power line and the other adapted to connect the corresponding section of the other conductor with the return power-line, a source of electricity adapted to operate said switches and having one pole connected to the power-line and the other to a return switch line extending along the power-line, and connections whereby each magnet is comprised in two circuits, one between the return switch conductor and the section of the working conductors which the magnet is adapted to connect with the power-line and including a normally open and a normally closed break controlled respectively by the magnets of the adjacent sections and the other circuit between the power-line and the switch return line and including the said normally closed break of the other circuit and a normally open break controlled by the magnet itself, substantially as described.

521,712. PROCESS OF MAKING POTASH ALUM AND ALUMINA. JOSEPH HEIBLING, Paris, France. Filed Feb. 24, 1893. Serial No. 463,545. (No specimens.)

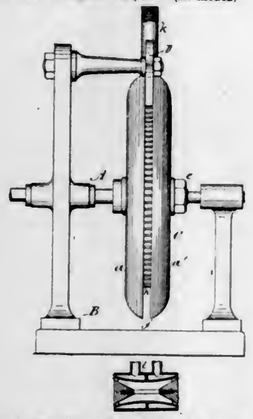


Claim.—1. The process consisting in molding into blocks a mixture of clay, sulfate of potash and sulfate of ammonio, and exposing the said blocks to a temperature of from 275° to 300° centigrade, substantially as set forth.

2. The process consisting in mixing clay, sulfate of potash and sulfate of ammonia, exposing the mixture to a temperature of from 275° to 300° centigrade and allowing the ammonia to pass off, dissolving the mixture, then eliminating the iron and subsequently precipitating the alumina.

3. The process consisting in mixing clay with sulfate of ammonia and sulfate of potash, heating this mixture until the ammonia is driven off, filtering, eliminating the iron and finally adding the ammonia previously driven off, whereby the alumina is precipitated, and the sulfate of ammonia and the sulfate of potash are regenerated.

521,713. TURBINE. GEORGE M. HOPKINS, New York, N. Y. Filed Dec. 14, 1893. Serial No. 493,624. (No model.)



Claim.—1. A turbine wheel, having a smooth uninterrupted exterior and provided with an annular space with its sides surrounded by wings except at its point of support having at the sides thereof wings for receiving the impact of the propelling medium, and a nozzle held wholly within the annular space and constructed to project a thin wide jet of steam against the wings, as specified.

2. The combination, with a wheel having a hollow rim with an annular space, and wings projecting into the annular space and furnished with a groove extending from the periphery of the wheel to the annular space, of an annular nozzle supported within the annular space and provided with two concentric annular apertures, one for projecting steam against the wings and the other for the passage of air, from the rear to the front of the nozzle as herein specified.

3. A turbine wheel formed of two like halves both placed on the shaft and oppositely arranged with respect to each other each half being separately supported by the shaft, the division line between the halves being in the plane of rotation of the wheel, the said halves being mounted rigidly on a shaft, in contact with each other, the complete wheel having a hollow rim with inwardly-projecting wings, substantially as specified.

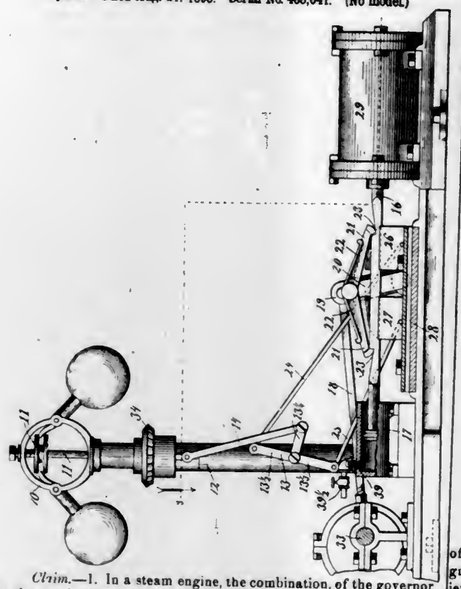
4. In a turbine, a wheel having a hollow rim provided with inwardly-projecting wings, and having a groove extending from the periphery of the wheel inwardly, the groove being enlarged within the rim of the wheel, forming a passage for the nozzle, a nozzle placed in the said passage and constructed to direct a thin stream of steam against the wings, and furnished with an opening from front to rear for the passage of any fluid or liquid from the rear of the nozzle to the front thereof, as specified.

5. A turbine, formed of a wheel having a hollow rim with inwardly-projecting wings, and provided with openings through the wings which form an annular passage through the hollow wheel rim and wings contained thereby, the wheel having a peripheral groove extending to and communicating with the annular passage, and a nozzle supported within the annular passage of the wheel rim and adapted to direct a jet of steam against the inwardly projecting wings, substantially as specified.

6. In a steam turbine, the combination with a wheel having a hollow rim with inwardly-projecting wings, of an ejector nozzle placed with the hollow rim and having two concentric annular openings, the outer one being for the discharge of steam under pressure and the inner one being for removing air, steam or water from the rear of the nozzle on the ejector principle, substantially as specified.

7. The combination, with a turbine wheel having a hollow rim containing inwardly projecting wings and provided with an annular passage parallel with the plane of rotation, of an annular nozzle supported within the annular passage and arranged to discharge a thin stream of steam in a direction tangential to the path of the inner edges of the wings, substantially as specified.

521,714. CUT-OFF FOR STEAM-ENGINES. WILLIAM JACKAWAY, Waukegan, Ill., assignor of one-half to Christian L. Bosler, same place. Filed Aug. 21, 1893. Serial No. 483,641. (No model.)



Claim.—1. In a steam engine, the combination, of the governor, a three-armed crank pivoted on the main-stand supporting the governor, a three-armed crank pivoted on the main-stand supporting the governor, the valve-stem having two notches in its upper side, a two-armed crank operated by the eccentric-rod, two dogs pivoted on the inner arm of said crank so as to engage with the notches, cams connected by rods with the two opposite arms of the three-armed crank so as to slide under the lower ends of the dogs, substantially as and for the purpose specified.

2. In a steam engine, the combination of the governor, a three-armed crank pivoted on the main-stand supporting the governor, the valve-stem having two notches in its upper side, a two-armed crank operated by the eccentric-rod, two dogs pivoted on the inner arm of said crank so as to engage with the notches, cams connected by rods with the two opposite arms of the three-armed crank so as to slide under the lower ends of the dogs, the dash-pot, 17, having in it the tube, 39, and the regulating valve, 39¼, secured in said tube, substantially as and for the purpose specified.

3. In a steam engine the combination of the governor; the main-stand, 12; the three-armed crank, 13; the valve-stem, 16, having the two notches, 23, in its upper side; the arm, 20, of the two armed crank; the two dogs, 21 21¼; the cams, 26, and 27; the rods, 24 and 25; the tube, 39, in the dash-pot; the regulating valve, 39¼; and the springs, 22, substantially as and for the purpose specified.

521,715. MECHANISM FOR LOADING WATCH-JEWELS. LEMUEL N. JACKMAN and CURTIS A. SMITH, Elgin, assignors to the Elgin National Watch Company, Chicago, Ill. Filed Aug. 22, 1892. Serial No. 443,765. (No model.)

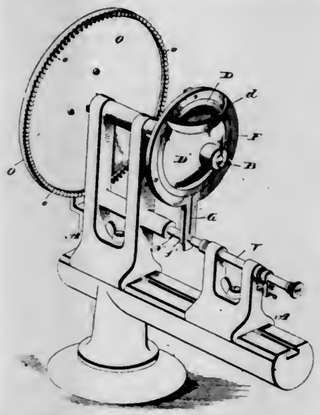
Claim.—1. In a machine for loading jewels into a holder, the combination with a holder adapted to receive and hold a number of jewels, of a reciprocating plunger, and a hopper discharging to a point in line with said plunger, substantially as and for the purpose shown.

2. In a machine for loading jewels into a holder, the combination of a horizontally reciprocating plunger, a holder supported in line with the latter adapted to receive and hold a number of jewels, and a hopper having a guide depending vertically from it to convey jewels into the path of the plunger, substantially as and for the purpose set forth.

3. In a machine for loading jewels into a holder, the combination with a reciprocating plunger for moving jewels to a holder, of a hopper having a discharge opening leading thereto, and several ways communicating with said opening at the same time, which permit the passage of jewels only in a predetermined position, substantially as and for the purpose described.

4. In a machine for loading jewels into a holder the combination with a reciprocating plunger for moving jewels to a holder, of a hopper having several openings discharging simultaneously to a common space which permit the passage of jewels in one position only, and a guide leading from said space to the holder, substantially as and for the purpose specified.

5. The combination with a reciprocating plunger for moving jewels into a holder of a hopper comprising a vibratory and a fixed part and a guideway leading from the hopper conforming to the shape of the jewels to permit their passage in one position only, substantially as and for the purpose shown.



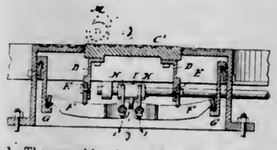
6. The combination with means for moving jewels into a holder, of a hopper comprising a vibratory and a fixed part, a number of guideways leading from the hopper that conform to the shape of the jewels to permit their passage in one position only, and the guide depending from the fixed part of the hopper to which all of said guideways discharge, substantially as and for the purpose set forth.

7. In a machine for loading jewels into a holder, the combination of a jewel hopper, or receptacle, a plunger for moving jewels therefrom into the holder, and the toothed wheel for reciprocating said plunger, substantially as and for the purpose described.

8. In a machine for loading jewels into a holder, the combination of a jewel hopper or receptacle, a reciprocable plunger for moving the jewels therefrom into the holder, the rock shaft to which said hopper is attached, means for rocking said shaft and the toothed wheel for reciprocating the plunger, substantially as and for the purpose specified.

9. In a machine for loading jewels into a holder, the combination of a jewel hopper comprising a fixed and a movable part, a rock shaft connected to the latter, a reciprocating plunger to which jewels are fed from the hopper, and the toothed wheel, journaled on said rock shaft to reciprocate the plunger, substantially as and for the purpose shown.

521,716. RAILROAD-SWITCH. LOUIS N. JAGEL, Clarenceville, and CHARLES G. SMITH and ABRAHAM B. PRUDEN, Brooklyn, N. Y. Filed Mar. 9, 1894. Serial No. 503,055. (No model.)



Claim.—1. The combination with a depressible plate, and a switch-tongue, of a rock-shaft journaled beneath the depressible plate and switch-tongue and having a rigid arm engaging the latter, a lever pair supporting the depressible plate, and connections between the lever pair and the said rock-shaft, substantially as described.

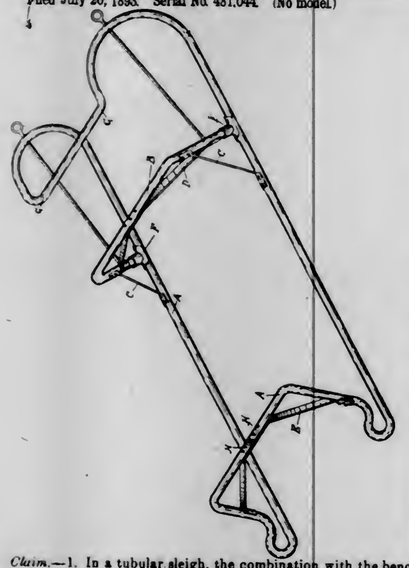
2. The combination with depressible plates, and a switch tongue, of a rock-shaft journaled beneath the depressible plate and switch tongue and having a rigid arm engaging the latter, a lever secured intermediate its ends to the rock-shaft, and pivotally mounted levers supporting the depressible plate and connected with the opposite ends of the rock shaft lever, substantially as described.

3. A switch and in arm for actuating the switch, combined with a lever pair connected to the arm, independent hangers or supports each made to form a fulcrum for a lever of the pair, a leg resting on each lever of the pair, and a plate supported by the legs substantially as described.

4. The combination with a depressible plate, and a switch-tongue, of a rock-shaft journaled beneath the depressible plate and switch-tongue and having a rigid arm engaging the latter, levers pivotally supported at one end and connected at the other end with the rock-shaft by intermediate connections, and supports between the depressible plates and the levers, substantially as described.

5. The combination with depressible plates C and C', and a switch-toogue D, of a rock-shaft K journaled beneath the depressible plates and switch-tongue and having a rigid arm L engaging the latter, a lever I secured intermediate its ends to the rock-shaft, the levers F pivotally supported at one end and having their opposite end connected with the ends of the rock-shaft lever, and legs D secured to the depressible plates and bearing against the said levers F intermediate their ends, substantially as described.

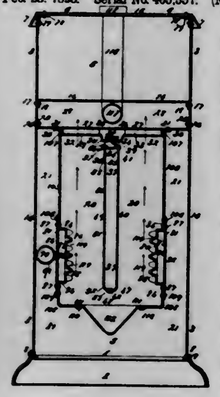
521,717. TUBULAR SLEIGH. JAMES S. JOHNSON, Almont, Mich. Filed July 20, 1893. Serial No. 481,044. (No model.)



Claim.—1. In a tubular sleigh, the combination with the bench and runner, of a coupling composed of a collar K having the inner flange I and annular groove J extending around the said flange and into which bench B extends, substantially as described.

2 In a tubular sleigh the combination with the bench and runner of a coupling consisting of a collar K having thereon a flange L, and provided with a groove J, substantially as shown and described.

521,718. MEAT-BROILER GAS-STOVE. BENJAMIN S. KOLL, St. Louis, Mo., assignor, by mesne assignments, to Lewis R. Jones, same place. Filed Feb. 23, 1893. Serial No. 463,357. (No model.)



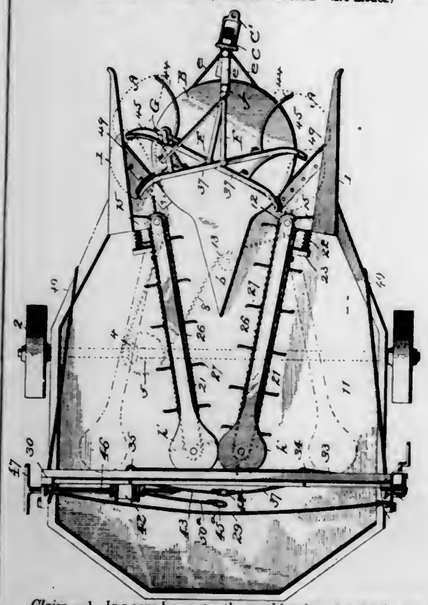
Claim.—1. In a meat broiler stove, the combination of the inclosing plates of the stove, the ceiling plate 24 provided with the hot air vents 27, the perforate hanger plate 29, provided with the slot way 35 and having the raised track 64, the broiler rack 37, having the head 36 that runs on said track, and the duplex respectively facing systems of projecting jet burners 86; substantially as described.

2. In a meat broiler stove, the combination of the perforate ceiling plate 24, the perforate hanger plate 29, having the hanger longitudinal boxing 34, and raised track 64, provided with the slotways 35, the suspended hinged wicket broiler rack 37 having the head 36 that slides on said track, the drop holder latch 54 to said rack, the pendent reflector and partition plates 105, the duplex jet burner boxes, secured to said reflector plates, the duplex respectively facing series of jet burner nipples, the angle plates 108, having the groove flanges 110, and the sliding drip pan 112 having the rim flanges 111, that slide on said flanges 116; substantially as described.

3. In a meat broiler stove, the combination of the duplex vertical systems of jet burner boxes 81, the duplex series of projecting horizontal nipples, said respective series of nipples facing each other and forcing their products of combustion in direct contact with the broiling material, the vertical reflector plates 105 from which said burner boxes hang pendent, and the vertical combination back reflector and partition plate 19; substantially as described.

4. In a meat broiler stove, the combination of the duplex vertical systems of jet burner boxes, the duplex series of jet nipples mounted in said boxes, and said series facing toward each other, the reflector plates 19 and 105, the said reflector plates and stove casing plates providing the inclosure of the combustion chamber 20 provided with its draft channel 119, and of the dead air chamber 21, the gas supply pipe 96, the valve 101, the gas jet 100, the valve rod 102, the turn disk 104, the supply tubes 90, and 89, the angle plates 105, the drip-pan 112 and the broiling rack 37; substantially as described.

521,719. CORN-HARVESTER. WILLIAM K. LEGGETT, Columbus, Ohio. Filed Dec. 12, 1892. Serial No. 454,864. (No model.)



Claim.—1. In a corn harvester the combination of gathering arms pivotally connected midway of their ends to vibrating arms, and having double tines at each end, and means for actuating said gathering arms, substantially as set forth

2. In a corn harvester the combination with upper and lower gathering arms connected midway of their ends to vibrating arms, of a crank shaft having a double crank at each end, and having the crank arms of the upper crank longer than the crank arms of the lower crank, and means for actuating said crank shaft, substantially as described.

3. In a corn harvester, the combination of upper and lower gathering arms, the lower gathering arms having a single tine and the upper gathering arms having double tines the crank shaft having an upper and lower double crank, the crank arms of the upper crank being longer than the crank arms of the lower crank, and means for actuating said crank shaft, substantially as and for the purpose set forth.

4. In a corn harvester the combination with the platform having guards 1 projected forwardly therefrom, and having the approximately cylindrical shaped frame B projected vertically therefrom and forming passages between its sides and the opposing sides of the guards, of gathering arms connected midway of their ends to vibrating arms and adapted to have their ends work beyond the opposite sides of the frame B, to carry the stalks through the said passages in a positive manner, and a single crank shaft for actuating the said gathering arms, substantially as set forth.

5. In a corn harvester, the combination with the cutting and gathering mechanism, of two carriers pivotally connected with the frame of the machine and held together at their rear ends, so as to yield and separate under a certain lateral pressure substantially as set forth.

6. In a corn harvester the combination with the cutting and gathering mechanism; of two carriers pivotally supported at their forward ends and yieldingly held together at their rear ends, and yielding support in the rear of said carriers to support the shock during the formation of the same, substantially as set forth.

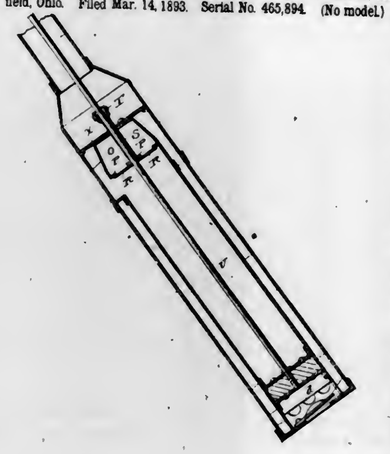
7. In a corn harvester the combination with cutting and gathering mechanism of two carriers comprising a frame which is pivotally supported at its front end, and having the rear end expanded, and an endless conveyer provided with fingers, which latter are disengaged from the stalk by the expanded end of the carrier frame, and springs for pressing the rear ends of the carriers together, substantially as set forth.

8. In a corn harvester, the combination with the cutting and gathering mechanism, of two carrier frames pivotally supported at their forward ends, and having guards at their rear ends, a shaft at the forward end of each carrier concentric with the axes about which the carrier frames turn, an endless conveyer supported by shafts at each end of the carrier frames and springs for pressing the rear ends of the carrier frames yieldingly together, substantially as set forth.

9. In a corn harvester, the combination with the cutting, gathering and shock forming mechanism, of a swinging derrick, a temporary binder, consisting of a spool mounted in a frame, cords connected with said spool and having rings, and a bar passing through said spool and adapted to be thrust through the shock and receive said rings on its projecting ends, and an elevating appliance attached to said temporary binder, consisting of a windlass and cord the latter being attached to the spool frame and one of the rings, respectively, substantially as herein specified.

10. In a corn harvester, the combination of guards 1 projected forwardly from the platform, an approximately cylindrical shaped frame B rising from the platform and forming passages A and having a rear tapering extension, two carriers pivotally supported at their forward ends and having guards at their rear ends, springs for yieldingly pressing together the rear ends of said carriers, a yielding support arranged in the rear of the carriers, and a swinging derrick provided with a temporary binder and shock elevating devices, substantially as described for the purpose set forth.

521,720. PUMP FOR DRILLED WELLS. DAVID LIPPY, Mansfield, Ohio. Filed Mar. 14, 1893. Serial No. 465,894. (No model.)



Claim.—A submerged double acting pump consisting of an outer shell which communicates at its upper end with a discharge pipe and has its lower end closed by a cap provided with a central valve and an upwardly extending perforated flange surrounding said valve, a tube arranged within the shell and resting at its lower end upon the perforated flange at the bottom thereof, a tubular partition arranged near the upper end of said tube and forming a chamber which opens through the outer shell and communicates with the inner tube through suitable valved passages in its lower side, valves arranged above said partitions to close the passages between the inner tube and outer shell, and a piston arranged within the inner tube and having its stem extending through a sleeve in the tubular partition, substantially as and for the purpose described.

521,721. ELECTRIC LAMP FOR BICYCLES. GEORGE MAYR, Brooklyn, assignor of one-half to Elkin Farmer, New York, N. Y. Filed Nov. 7, 1893. Serial No. 490,307. (No model.)



Claim.—1. A dynamo-electric generator, consisting of top and bottom frame-pieces, each provided with a suitable head, having a clamping-device pivotally connected therewith, suitable field-magnets and a gearing frame-portion, connecting said top and bottom plates, a lateral bearing-piece secured to said magnets, a horizontal shaft, carrying suitable armature parts, a commutator, and a pinion, the said shaft being disposed transversely between the field-magnets, and bearing respectively at its inner and outer ends in the gearing frame-portion and lateral bearing-piece above named, a train of gearing-mechanism within said frame-portion, the initial driver of the gearing-mechanism being carried by a shaft having a sprocket-wheel mounted thereon, and the final driver thereof being adapted to mesh at all times with the said pinion on the armature-shaft, and two suitably-disposed commutator-brushes, one being directly connected with one of the field-magnets, substantially as herein described.

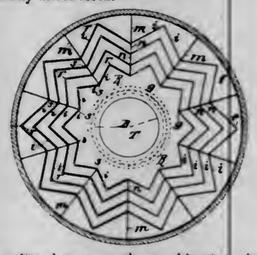
2. In combination with a dynamo-electric generator, composed, in part, of a gearing frame-piece, and a horizontal, armature-shaft carrying a pinion, a train of gearing-mechanism, disposed in said gearing frame-piece, the initial driver thereof being carried by a shaft having a sprocket-wheel mounted thereon, and the final driver thereof being adapted to mesh at all times with the said pinion on the armature-shaft, all substantially as described and for the purpose set forth.

3. In combination with a bicycle, having a sprocket-wheel mounted on the hub of one wheel thereof, a dynamo-electric generator, consisting, in part, of a gearing frame-piece, a horizontal armature-shaft carrying a pinion, and a train of gearing-mechanism, disposed in said frame-piece, the initial driver of the gearing-mechanism being carried by a shaft having a sprocket-wheel mounted thereon, and the final driver thereof being adapted to mesh at all times with the said pinion on the armature-shaft, the said generator being suitably disposed upon the bicycle-frame, and a driving-connection, as the endless-chain *t*, on the sprocket-wheels named, all substantially as described and for the purpose set forth.

4. In combination with a bicycle, having a sprocket wheel mounted on the hub of one wheel thereof, a dynamo-electric generator, suitably disposed upon the bicycle-frame and consisting, in part, of a gearing frame-piece, a horizontal armature-shaft carrying a pinion, and a train of gearing-mechanism, disposed in said frame-piece, the initial driver of the gearing-mechanism being carried by a shaft having a sprocket-wheel mounted thereon, and the final driver thereof being adapted to mesh at all times with the said pinion on the armature-shaft, an electric lamp of any approved construction, mounted on the bicycle-frame, and circuit-connections leading from said generator to said lamp, all substantially as described and for the purpose set forth.

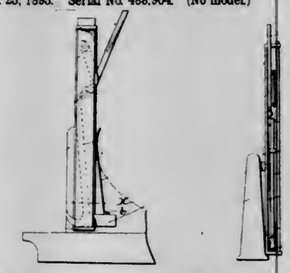
521,722. CENTRIFUGAL CREAMER. JULES MELOTTE, Remicourt, Belgium, and WILHELM REUTHER, Hennef-on-Sieg, Germany. Filed Aug. 24, 1893. Serial No. 483,994. (No model.) Patented in Belgium Feb. 29, 1892, No. 98,564; in Germany Mar. 13, 1892, No. 62,294; in France Aug. 1, 1892, No. 223,395, and in England Aug. 12, 1892, No 14,575.

Claim.—1. In a centrifugal creamer the combination with a rotatable drum, having an inlet and outlets for the cream and blue milk, of an angular or polygonal partition having two series of apertures arranged at different distances from the center of rotation said partition being provided on its outer faces with a series of lateral flanges or stay plates, substantially as set forth.



2. In a centrifugal creamer the combination with a rotatable drum having an inlet and outlets for the cream and blue milk, of a series of polygonal partitions arranged in said drum and provided with lateral flanges or stay plates whereby they are centered in said drum and spaced relatively to one another, each of said partitions being provided with two series of apertures arranged at different distances from the axis of rotation, substantially as set forth.

521,723. SAWMILL-DOG. JAMES H. MINER, Biloxi, Miss. Filed Oct. 23, 1893. Serial No. 488,904. (No model.)



Claim.—1. In combination with the standard, the pivoted operating lever, the bar suspended from said lever having a dog connected to the lower end thereof, said dog being held normally in rear of the front face of the standard and adapted to be projected beyond the same by the foot of the operator, and means for engaging the dog as it is raised to prevent its backward movement, substantially as described.

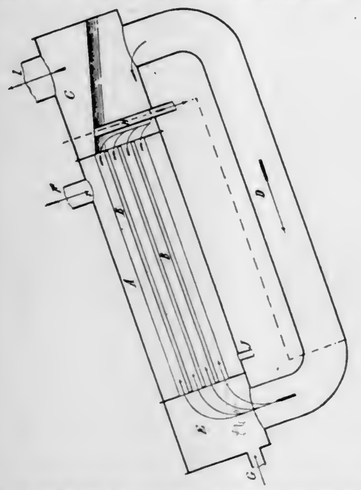
2. In combination with the standard, a lever pivoted thereto, a swinging bar suspended therefrom having a dog of increased thickness rigidly connected thereto and held normally in rear of the front face of the standard, a sliding bar held parallel to the standard and a gripping block secured to the sliding bar, for gripping the dog between itself and the bar as the dog is raised when in its forward position, substantially as described.

3. In combination with the saw carriage standard, the stationary bar connected thereto, an operating lever pivoted on said stationary bar, a movable bar sliding in guide ways on the stationary bar and having connection with the operating lever, a swinging bar depending from the operating lever between the stationary and sliding bars, and carrying a dog, and a friction block carried by the sliding bar for engaging said dog, substantially as described.

521,724. APPARATUS FOR EVAPORATING LIQUIDS. WILLIAM J. MIRRLEES and DAVID BALLINGALL, Glasgow, Scotland. Filed May 18, 1893. Serial No. 474,715. (No model.) Patented in England May 19, 1892, No. 9,499.

Claim.—1. An apparatus for evaporating liquids comprising a heating chamber A, having a steam or vapor inlet F at the top, and an outlet J at the bottom for the water of condensation, the evaporating tubes B, extending through the heating chamber and adapted to conduct the liquid in an upward direction, the chamber E at the inlet of the tubes, the separating compartment C at the outlet of the tubes, having an outlet I at the top for the vapor, and the pipe H extending upwardly through the separating compartment having its inlet on a level with the discharge ends of the upper evaporating tubes, substantially as described.

2. An apparatus for evaporating liquids comprising a heating chamber A having an inlet F, and an outlet J, the evaporating tubes B, extending through the heating chamber and adapted to conduct the liquid upwardly, the chamber E in front of the tubes, having the inlet G, the separating compartment C, into which the upper ends of the tubes discharge, having the vapor outlet at the top, the liquid pipe H connected with the separating compartment, having its inlet on a level with the discharge ends of the upper evaporating tubes, and the return tube D connecting the bottom of the separating compartment with the chamber E; substantially as described.



3. An apparatus for evaporating liquids comprising a heating chamber A having a steam or vapor inlet F at the top, and an outlet J at the bottom for the water of condensation, the evaporating tubes B extending in series through the heating chamber, and adapted to conduct the liquid in an upward direction, the chambers E at the inlet of the tubes, the inlet G, the separating compartment C, into which the tubes discharge, having an outlet I at the top for the vapor, and the pipe H extending upwardly through the separating compartment having its inlet on a level with the discharge ends of the upper evaporating tubes, substantially as described.

4. An apparatus for evaporating liquids comprising a heating chamber A having a steam or vapor inlet F at the top, and an outlet J at the bottom for the water of condensation, the evaporating tubes B, extending in series through the heating chamber and increasing in number from the bottom to the top thereof, in each series, and adapted to conduct the liquid in an upward direction, the chambers E, at the inlet of the tubes, the separating compartment C, into which the tubes discharge, having an outlet I at the top for the vapor, and the pipe H extending upwardly through the separating compartment having its inlet on a level with the discharge ends of the upper evaporating tubes, substantially as described.

521,725. GEOCENTRIC ASTRONOMICAL CHART. ARTHUR H. MOLESWORTH, London, England. Filed Jan. 6, 1893. Serial No. 45,474. (No model.) Patented in England Aug. 14, 1891, No. 13,748, and in France Aug. 11, 1892, No. 221,181.

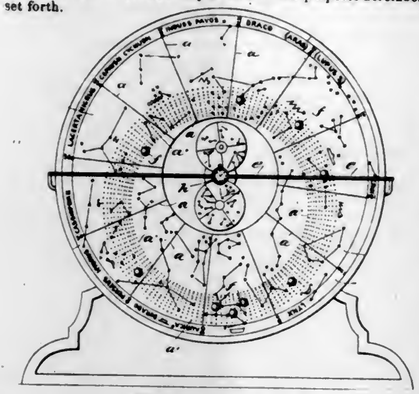
Claim.—1. A rotatory chart divided to represent the zodiac, a cross-bar arranged across the face of the chart to represent the earth's horizon and a series of removable bodies and means for attaching them to and causing them to move with the chart, substantially as described.

2. A rotatory chart divided to represent the zodiac, and marked to represent all possible positions of the bodies of the solar system with reference to the zodiac, in combination with a series of detachable bodies *f* mounted upon pins adapted to engage with the said chart and be carried thereby, substantially as described.

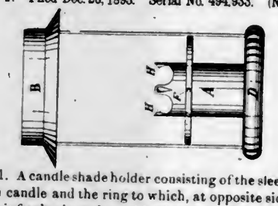
3. The combination of a rotatory chart divided to illustrate the zodiac, a mechanism to rotate the same, a series of independent bodies adapted to be attached to the said chart and to move therewith, and to be moved by hand from one position to another thereon, substantially as set forth.

4. The combination of a rotatory chart divided to illustrate the zodiac, a mechanism to rotate the same, a time indicating device operated by such mechanism, and the independent, detachable bodies

which represent the bodies of the solar system, adapted to be attached by hand to the said chart in different positions and to move therewith when so attached, substantially as and for the purposes hereinbefore set forth.



521,726. CANDLE-SHADE HOLDER. ROBERT W. MORGAN, New York, N. Y. Filed Dec. 28, 1893. Serial No. 494,933. (No model.)

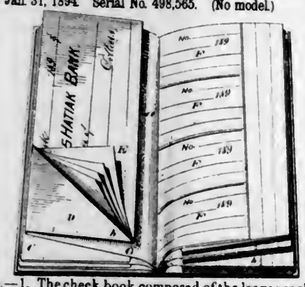


Claim.—1. A candle shade holder consisting of the sleeve adapted to fit over the candle and the ring to which, at opposite sides thereof, the said sleeve is freely pivoted, combined with the side supports freely pivoted above their lower ends to said ring at opposite sides thereof and at right angles to the pivots securing said sleeve, the weight at the lower ends of said side supports and removed from the sides of the candle, and a shade support at the upper ends of said side supports; substantially as set forth.

2. A candle shade holder, consisting of the sleeve adapted to fit over the candle and the ring to which at opposite sides thereof the said sleeve is freely pivoted, combined with the side supports freely pivoted above their lower ends to said ring at opposite sides thereof and at right angles to the pivots securing said sleeve, the heavy ring connecting the lower ends of said side supports and being of such greater diameter than the sleeve as to be free of the candle when in use, and a shade support at the upper ends of said side supports; substantially as set forth.

3. A candle shade holder, consisting of the sleeve adapted to fit over the candle, combined with the side supports at opposite sides thereof, the weight at the lower ends of said side supports and removed from the sides of the candle, a shade support at the upper ends of said side supports, and pivotal connections intermediate said sleeve and said side supports and at a point above the lower ends of the latter; substantially as set forth.

521,727. CHECK-BOOK. ROBERT W. MORGAN, New York, N. Y. Filed Jan. 31, 1894. Serial No. 498,565. (No model.)

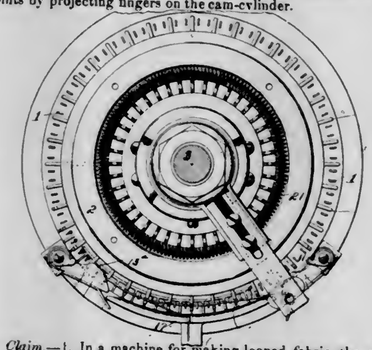


Claim.—1. The check book composed of the leaves each of which is provided on its outer edge with the hinged pad of separate independent checks facing upward when the book is open and retained together by adhesive material applied at the edge of the pad, and each of which leaves bears on its obverse face stubs and on its reverse face the deposit spaces; substantially as and for the purposes set forth.

2. The check book composed of the leaves each of which is provided at its outer vertical edge with the inwardly folded section and bears on its one face the stubs and its opposite face the deposit columns, combined with the separate independent checks padded together by adhesive material and secured on said folded section: substantially as and for the purposes set forth.

521,728. MACHINE FOR MAKING LOOPED FABRIC. EDWARD MURBY, St. Louis, Mo. Filed Feb. 24, 1894. Serial No. 501,433. (No model.)

Brief.—The needle cylinder and dial revolve and the looping points are stationary in the dial. The loops are removed from the points by projecting fingers on the cam-cylinder.



Claim.—1. In a machine for making looped fabric, the combination of a needle cylinder, a dial or plate fitting within the needle cylinder, stationary points carried by the dial plate, and a finger for moving the loops off of the points; substantially as set forth.

2. In a machine for making looped fabric, the combination of a needle cylinder, a dial plate fitting within the needle cylinder, stationary points carried by the dial plate, and means for moving the points out of working position, and a finger for moving the loops off of the points; substantially as set forth.

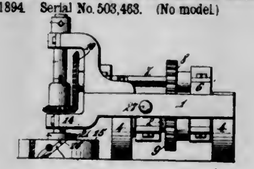
3. In a machine for making looped fabric, the combination of a needle cylinder, a dial plate located within the needle cylinder, points carried by the dial plate, fingers for moving the loops from the points, and means for moving the fingers out of working position; substantially as set forth.

4. In a machine for making looped fabric, the combination of a needle cylinder, a dial plate located within the needle cylinder, points carried by the dial plate, fingers for moving the loops from the points, springs for holding the fingers in their working position, and means for moving the fingers out of working position; substantially as set forth.

5. In a machine for making looped fabric, the combination of a needle cylinder, a dial plate located within the needle cylinder, points carried by the dial plate, fingers for moving the loops from the points, springs acting to hold the fingers in their working position, plates mounted on shafts, and having out-turned ends 15, stops 11 secured to the shafts and means for moving said plates and fingers; substantially as set forth.

6. In a machine for making looped fabric, the combination of a needle cylinder, a dial plate located within the needle cylinder, points carried by the dial plate, fingers for moving the loops from the points, springs acting to hold the fingers in their working positions, plates connected to the fingers, and stops for limiting the inward movement of the fingers; said plates having flat surfaces 13ª, substantially as and for the purpose set forth.

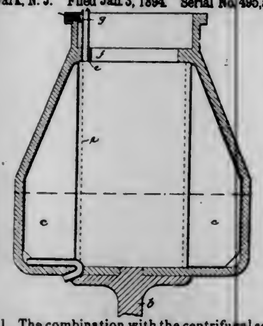
521,729. MACHINE FOR DRESSING OR POLISHING FLOORS. WILLIAM W. MURRAY and THOMAS W. CROMER, Baltimore, Md. Filed Mar. 13, 1894. Serial No. 503,463. (No model.)



Claim.—1. The combination in a floor planing or polishing machine, of a wheel carriage having the wheels of one on its axles fast thereon, a horizontal shaft mounted above said axle and geared therewith and carrying at its end a bevel-wheel fast thereon, a yoke-shaped frame carried by the carriage, a vertical longitudinally movable shaft journaled in said frame and having a bevel-gear feathered thereon and meshing with the bevel-gear on the end of the horizontal shaft, a horizontally rotary tool head detachably secured to the lower end of said vertical shaft, and a screw-cap adjustably engaged with the upper screw-threaded end of said vertical shaft and resting on the top of the yoke-shaped frame, substantially as described.

2. The combination in a floor planing or polishing machine, of a wheeled carriage, a vertical shaft geared with and driven by one of the carriage axles, and a horizontally rotary tool head carried by the lower end of said vertical shaft, planer bits carried by said tool head and brushes arranged on the tool head intermediate the planer bits, substantially as described.

521,730. CENTRIFUGAL SEPARATING-MACHINE. OLOF OHLSON, Newark, N. J. Filed Jan. 3, 1894. Serial No. 495,516. (No model.)



Claim.—1. The combination with the centrifugal separating bowl of internal wings, each consisting of a piece of sheet metal doubled as described, and at both its vertical and horizontal edges oppositely bent to form directly opposite flanges which engage the vertical sides and bottom of the centrifugal separating chamber, and the doubled part back from said opposite flanges being united by tin or other allied metal, substantially as set forth.

2. The combination with the bowl, of a cream eduction tube, having a fixed bearing upon the bowl, and having a free end controlled by a set screw and movable to or from the center of the bowl therewith and said set screw, substantially as set forth.

3. The combination with the bowl having the bearing *f*, a tube fixed on said bearing and having a free end, a set screw having its bearings adjacent to said free end, and adapted to move the same toward or from the center of the bowl, substantially as set forth.

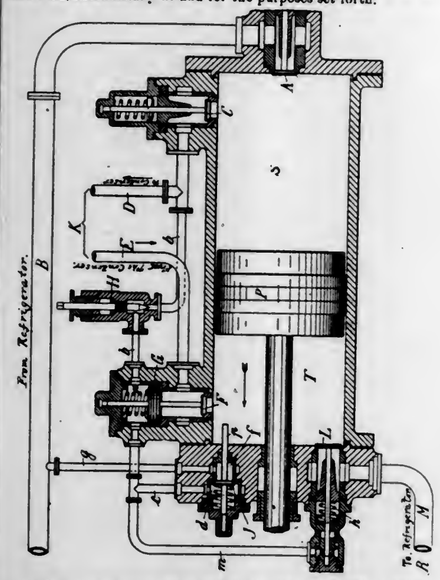
521,731. VALVE FOR EXPANSION-CYLINDERS OF VAPOR-COMPRESSION ENGINES. EMIL RIEGELMANN, Augsburg, Germany. Filed Dec. 26, 1891. Serial No. 416,195. (No model.) Patented in Germany June 4, 1891, No. 60,282; in England Sept. 15, 1891, No. 15,629, and in Austria-Hungary Aug. 23, 1892, No. 45,458 and No. 31,740.

Claim.—1. In a vapor compressing engine having a refrigerator and a condenser, the combination of the expansion cylinder and its piston with an inlet valve and a movable abutment therefor moved in one direction by condenser pressure and in the other by refrigerator pressure, and outlet valves for the expansion cylinder controlled by condenser pressure, substantially as described.

2. In a vapor compressing engine having a refrigerator and a condenser, the combination of the expansion cylinder and its piston with inlet and outlet valves for the expansion cylinder, supplementary controlling valve J, a pipe connection from one side of the valve J to the condenser and from the other side of the valve to the refrigerator, the said valve J being operated by the piston to control the action of the pressure from the condenser on the said inlet and outlet valves, all substantially as described.

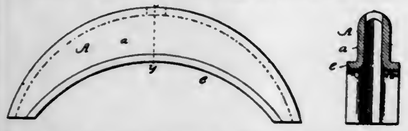
3. The combination of an inlet valve for the expansion cylinder controlled by a piston working fluid-tight in a casing with a pipe connection between the condenser and the space between the valve and its piston, two pipe connections with the space on the other side of the piston, one communicating with the condenser and being throttled, the other leading to the refrigerator and provided with a valve, and means for automatically opening and closing the last named valve, all substantially as and for the purpose set forth.

4. The combination of an outlet valve for the expansion cylinder to the refrigerator and a valve casing, with a spring to close the valve, a pipe connection leading from the condenser to the casing back of the valve rod, whereby the pressure from the condenser overcomes the pressure of the spring as soon as the pressure in the expansion cylinder is about the same as that in the refrigerator, and means for controlling the pressure from the condenser on the back of the said valve rod, substantially as and for the purposes set forth.



5. In a vapor compressing engine having a condenser, the combination of the expansion cylinder with an inlet valve for the cylinder, a piston to control the said valve a pipe communicating with the condenser and leading to the space beyond the piston, and an adjustable throttle in the said pipe, substantially as and for the purpose set forth.

521,732. YOKE FOR MANHOLE-COVERS. JAMES P. ROE, Pottstown, Pa. Filed Apr. 11, 1894. Serial No. 507,170. (No model.)



Claim.—1. A yoke or bridge for man-holes, hand-holes, sludge-holes, and the like, consisting of a wrought iron or steel, sheet or plate stamped, pressed or rolled the desired shape and with side flanges, substantially as described.

2. A yoke or bridge for man-holes, hand-holes, sludge-holes and the like, consisting of a wrought iron or steel sheet or plate, stamped, pressed, or rolled, the desired shape and with side flanges and with lateral flanges, substantially as described.

3. A yoke or bridge for man-holes, hand-holes, sludge-holes and the like, consisting of a wrought iron or steel sheet or plate, stamped, pressed or rolled into a channel form and having a bar connecting the edges of said channel, substantially as described.

521,733. MANHOLE-COVER. JAMES P. ROE, Pottstown, Pa. Filed Apr. 11, 1894. Serial No. 507,171. (No model.)



Claim.—1. A plate or cover for the man holes, hand holes, or sludge holes, of steam boilers, tanks, and for other purposes, consisting of a wrought iron or steel sheet or plate pressed or stamped to shape and formed with a recess in its outer face adapted to receive and hold a bolt rigidly in a plane at right angles to said plate or cover, substantially as described.

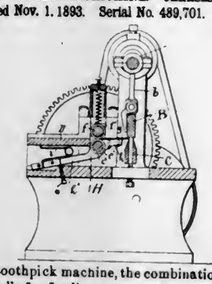
2. In a plate or cover for the man-holes, hand holes, and sludge-holes of steam boilers, tanks, and the like, formed of wrought iron or steel pressed or stamped the desired shape and having a dove-tailed recess stamped or pressed therein, and a bolt having a tapering head adapted to fit within said recess, substantially as described.

3. In a plate or cover for the man-holes, hand-holes and sludge-holes of steam boilers, tanks, and the like, formed of wrought iron or steel pressed or stamped into shape and having a recess stamped or pressed therein, a bolt having a head adapted to fit within said recess, and means for preventing lateral movement of said bolt in said recess, substantially as described.

4. In a plate or cover for the man-holes, hand-holes and sludge-holes of steam boilers, tanks, and the like, formed of wrought iron or steel pressed or stamped the desired shape, having a recess stamped or pressed therein, and formed with a projection in its bottom, and a bolt having a head adapted to fit within said recess and formed with a concavity to fit over said projection, substantially as described.

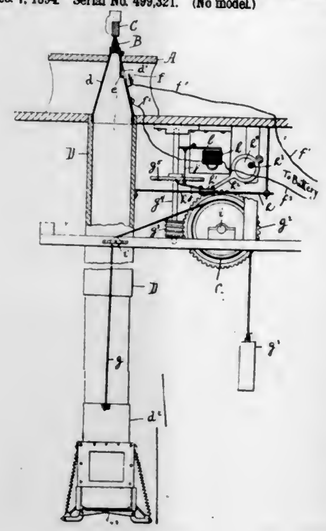
5. In a plate or cover for the man-holes, hand-holes, and sludge-holes of steam boilers, tanks, and other similar vessels or receptacles, of wrought iron or steel pressed or stamped in the desired shape and having a recess stamped or pressed in said plate, a bolt having a head adapted to enter said recess, and means for securing said bolt rigidly in said recess in a plane at right angles to the plate, substantially as described.

521,734. TOOTHPICK-MACHINE. CHARLES F. SCAMMAN, Deering, Me. Filed Nov. 1, 1893. Serial No. 489,701. (No model.)



Claim.—In a toothpick machine, the combination of a fixed knife, upper and under rolls for feeding a strip of veneer over the edge of said knife, a reciprocating block for forcing said veneer against said knife, a plate between said rolls and said knife for supporting said veneer, a lever pivoted on said under roll and having a rearward projecting arm to which said plate is secured and a forward projecting arm and a spring adapted to act against said forward arm, substantially as described.

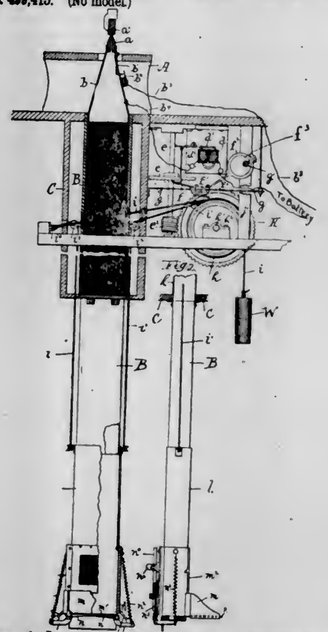
521,735. APPARATUS FOR HANDLING AND PACKING TOOTH-PICKS. CHARLES F. SCAMMAN and HENRY P. CHURCHILL, Deering, Me. Filed Feb. 7, 1894. Serial No. 499,321. (No model.)



Claim.—1. In an apparatus for handling and packing toothpicks the combination with the knives of the toothpick machine, of a spout beneath said knives into which the toothpicks drop, a movable arm projecting into said spout through an opening in the same, a telescoping section on the lower end of said spout, a let-off device for releasing the said section, the said let-off device being operated by a ratchet and pawl and mechanism connecting said arm and said pawl by which the pawl is lifted into engagement when said arm is pressed outward by the weight of the picks in said spout, substantially as described.

2. In an apparatus for handling and packing toothpicks, the combination with the knives of a toothpick machine, of a spout beneath said knives into which the toothpicks drop, a pivoted arm hanging normally in said spout when the same is empty, a telescoping section on the lower end of said spout and let-off mechanism for releasing the same, said let-off mechanism being operated by a ratchet and a reciprocating pawl, a pivoted lever for lifting said pawl, said lever being connected with the armature of an electro-magnet, a fixed arm against which said pivoted arm is adapted to swing and an electric circuit connecting said fixed arm, said pivoted arm and said magnet whereby the said pawl will be lifted into engagement when said pivoted arm is pressed outward by the weight of picks in said spout, substantially as described.

521,736. APPARATUS FOR HANDLING AND PACKING TOOTH-PICKS. CHARLES F. SCAMMAN, Deering, Me. Filed Feb. 7, 1894. Serial No. 499,415. (No model.)



Claim.—1. In a toothpick machine, the combination with the cutting knives, of a spout into which the picks drop laterally, having a trap at the lower end for the removal of the picks, the substantially entire upper end of said spout being gradually contracted to a narrow opening at least as long as the pick at the point where the picks enter.

2. In a toothpick machine, the combination with the cutting knives, of a spout permanently located below said knives and into the top of which spout the picks are dropped laterally, said spout being capable of holding a plurality of boxes of picks, and means at the lower end of said spout for removing said picks one box at a time.

3. In an apparatus for handling and packing toothpicks, the combination with the cutting knives, of a spout beneath said knives into which the picks drop, a telescoping section on the lower end of said spout and a trap or valve on the lower end of said section for removing the picks, substantially as described.

4. In an apparatus for handling and packing toothpicks, the combination with the cutting knives, of a spout beneath said knives into which the picks drop, a telescoping section on the lower end of said spout, positive automatic let-off mechanism for operating said telescoping section and a trap or valve for removing said picks, substantially as described.

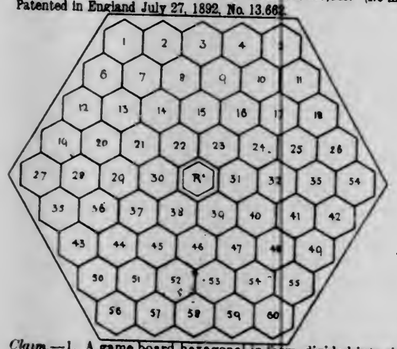
5. In an apparatus for handling and packing toothpicks, the combination with the cutting knives, of a spout beneath said knives into which the picks drop, a telescoping section on the lower end of said spout, counter-weighted cords for supporting said section, a drum on which said cords are wound, a shaft on which said drum is loosely mounted, a ratchet on one end of said drum and a gear on the opposite end, a disk secured to said shaft and a pawl pivoted to said disk and adapted to engage said ratchet, a worm adapted to engage said gear and a shaft on which said worm is mounted, a ratchet on said shaft and a reciprocating pawl for operating said ratchet, substantially as described.

6. In a toothpick machine, a spout into which the picks drop, a pair of trap doors pivoted on the lower end of said spout, a vertically sliding plate forming the front of said spout immediately above said trap doors, horizontal guides in said plate and a cut-off plate adapted to be inserted in said guides and means for securing said trap door in place, substantially as described.

7. In a toothpick machine, a spout into which the picks drop, a pair of trap doors pivoted on the lower end of said spout, horizontal guides adapted to move vertically in said spout, and a cut-off plate adapted to be inserted in said guides and means for securing said trap door in place, substantially as described.

8. In a toothpick machine, a spout into which the picks drop, a counter-weighted telescoping section on the lower end of said spout, a pair of trap doors on the lower end of said telescoping section, horizontal guides adapted to move vertically on said telescoping section, and a cut-off plate adapted to slide in said horizontal guides.

521,737. GAME BOARD OR APPARATUS. HENRY W. C. SMITH, Bristol, England. Filed Sept. 5, 1892. Serial No. 445,143. (No model.) Patented in England July 27, 1892, No. 13,662.



Claim.—1. A game board hexagonal in form, divided into sixty-one positions, the central position being the point of attack and defense, substantially as described and shown.

2. A game board hexagonal in form, divided into sixty-one positions, each of the six sides having on it five positions, the central point being the position of attack and defense, and being a non-playing position, substantially as described and shown.

3. A game and apparatus consisting of a game board hexagonal in form, divided into sixty-one positions the central position being the point of attack and defense, and three sets of pieces for each player; one set consisting of five in number, one set of four and one set of three, substantially as and for the purposes described.

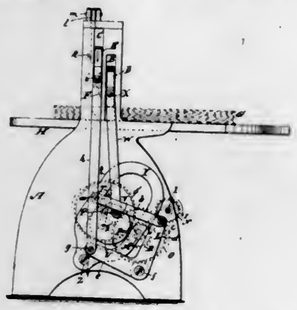
4. A game apparatus consisting of a game board hexagonal in form, divided into sixty one positions the central position being the point of attack and defense, and three sets of pieces for each player; one set consisting of five in number, one set of four and one set of three, and one additional piece for each player, substantially as and for the purposes described.

521,738. SELF-CLAMPING PAPER-CUTTER. CHARLES L. SMITH, New York, N. Y., assignor to T. W. and C. B. Sheridan, same place. Filed Feb. 9, 1894. Serial No. 499,664. (No model.)

Claim.—1. The combination with a clamp, and a knife-stock, of a rotatable cam connected with the clamp, mechanism for rotating the cam, a yoke or frame engaged with and vibrated by the cam, and connections between the said yoke or frame and the knife-stock, substantially as described.

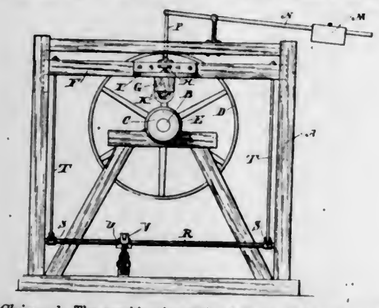
2. The combination with a clamp, and a knife-stock, of a main driving-shaft, a shaft having an attached cam and rotated by the main driving-shaft, a link pivotally connected with the cam and with the clamp, a yoke or frame engaged with and vibrated by the cam, and lever and link connections between the yoke or frame and the knife-stock, substantially as described.

3. The combination with a clamp, and a knife-stock, of a main driving-shaft, a rising and falling shaft provided with an attached cam and geared to the driving-shaft, a yoke or frame engaged with and vibrated by the cam, a link pivotally connected with the cam and with the clamp, a lever connected with the knife-stock, and a link connection between the yoke or frame and the said lever, substantially as described.



4. The combination with a clamp, and a knife-stock, of a main driving-shaft, a rising and falling shaft geared to the main driving-shaft and having an attached cam, a link pivotally connected with the cam and with the clamp, a pivoted yoke or frame engaged with and vibrated by the cam, a bell crank-lever having a link connection with the knife-stock, and a link pivotally connecting the said lever with the yoke or frame, substantially as described.

521,739. TUB ROLLER AND SHAPER. WARREN B. SYLVESTER, Portland, Ind. Filed Feb. 11, 1891. Serial No. 381,089. (No model.)



Claim.—1. The combination with a frame, a shaft and a tapering mandrel thereon, of a beam in the frame arranged at right angles to and movable toward and from the mandrel, a cross head secured to the beam substantially parallel with the mandrel and movable with the beam toward and from the mandrel in the line of a true right angle to the axis of the mandrel, wheels axled in the cross head at a distance apart opposite to the mandrel and suitable means for moving the beam and cross head toward and from the mandrel as set forth

2. The combination with a frame, a shaft journaled therein and a tapering mandrel thereon, of a beam movable in the frame toward and from the mandrel, a cross head on the beam arranged substantially parallel with the axis of the mandrel but pivoted to the beam and adjustable obliquely thereon, a smaller and a larger wheel axled in the cross head and located respectively opposite the larger and the smaller part of the mandrel, and suitable means for moving the beam toward and from the mandrel, as set forth.

3. The combination with a frame, of a shaft, a thereto affixed outwardly projecting long tapering shaper provided with an annular radial flange at its smaller outer end, which radial flange is adapted to prevent the accidental escape of the tub therefrom, a head located near the shaper and supported on a counterpoised movable beam arranged to be moved toward and from the mandrel in the line of a true right angle to the axis of the mandrel, and bearing wheels journaled in the head adapted to be forced against the article on the shaper inside of the radial flange, substantially as described.

4. In a tub roller having a mandrel-like revolving shaper, a beam movable toward and from the shaper, a cross head pivoted thereto and adjustable obliquely thereon and bearing wheels journaled in the cross head and adapted to be forced toward and against the shaper, in combination with a counterpoise connected to the beam, a rock-

shaft journaled in the frame having radial arms connected to the movable beam and a pedal for rocking the shaft, substantially as described.

521,740. PNEUMATIC TIRE. PARDON W. TILLINGHAST and FRANK MALLALIEU, Providence, R. I. Filed Mar. 3, 1894. Serial No. 502,159. (No model.)



Claim.—1. The method herein described of making pneumatic tires, which consists in separably vulcanizing together an inner air tube and an outer covering so that while attached one to the other to prevent creeping or shifting the air tube can be separated from the covering at any desired point, substantially as set forth.

2. The herein described method of making pneumatic tires, consisting in partially vulcanizing a rubber air tube, applying the outer covering thereto, and finally vulcanizing the whole, substantially as and for the purpose specified.

3. The herein described method of making pneumatic tires, consisting in vulcanizing a rubber air tube, then desulphurizing the same, applying the outer covering to the air tube, and finally vulcanizing the whole, substantially as and for the purpose specified.

4. The herein described method of making pneumatic tires, consisting in first subjecting a rubber air tube to vulcanization, bringing the ends thereof together in contact with raw rubber, applying a covering to the air tube, and finally vulcanizing the whole, substantially as and for the purpose specified.

5. As a new article of manufacture, a pneumatic tire, consisting of an air tube and an outer covering separably vulcanized together so that while attached one to the other to prevent creeping or shifting the air tube can be separated from the covering at any desired point, substantially as described.

6. A pneumatic tire, consisting of an air tube, and an outer covering separably vulcanized together so that the two are attached to prevent creeping or shifting while the air tube can be separated from the covering at any desired point, and a strip of narrow fabric interposed between the said air tube and the said covering along the inner circumference of the air-tube, substantially as described.

7. A pneumatic tire, consisting of an air-tube, and an outer covering separably vulcanized together so that they are attached one to another to prevent creeping or shifting while the air tube can be separated from the covering at any desired point, and a narrow strip of fabric coated with soap-stone and interposed between the air-tube and the said outer covering along the inner circumference of the air tube, substantially as described

---

521,741. CAR-FENDER. JAMES TOBIN, Indianapolis, Ind. Filed Dec. 28, 1893. Serial No. 495,158. (No model.)



Claim.—1. In combination with a car, a spring actuated bar connected to the car with an end extending in front of the same, and a triangular flexible fender supported at one of its corners on the projecting end of the bar and at the other corners attached to the car, substantially as shown and described.

2. In combination with a car, a substantially vertical fender triangular in form and with its sides flexible, and a horizontally acting spring device adapted to keep the forward corner of the fender to the front, substantially as shown and described.

3. In combination with a car, a plunger connected to the car with an end extending in front of the same, a fender mounted on the projecting end of the plunger, and a link and a lever mounted on the car and adapted when operated to withdraw the plunger, substantially as shown and described.

4. In combination with a car, a plunger connected to the car with an end extending in front of the same, a fender mounted on the projecting end of the plunger, a link and lever mounted on the car and adapted when operated to withdraw the plunger, a pawl adapted to lock the plunger when it is in, and means of releasing such pawl, substantially as shown and described.

5. In combination with a car, a horizontal plunger connected to the car with an end extending in front of the same, a vertical bar secured on the outer end of such plunger, a vertical bar secured to each end of the dash board, and flexible strips extending from the forward vertical bar to those secured to the dash board.

6. In combination with a car, a horizontal plunger connected to the car with an end extending in front of the same, a vertical bar secured on the outer end of such plunger, a vertical bar secured to each end of the dash board, flexible strips extending from the forward vertical bar to those secured to the dash board, and a stay located between the vertical bars and secured to each flexible strip to keep them at the proper distance apart.

7. In combination with a car, a horizontal plunger connected to the car with an end extending in front of the same, a vertical bar secured on the forward end of such plunger a vertical bar secured to each end of the dash board, flexible strips extending from the forward vertical bar to those secured to the dash board, a stay located between the vertical bars and secured to each flexible strip to keep them at the proper distance apart, and spring supported rods extending from the lower flexible strip up to the car and adapted to centrally support such flexible strips.

8. In combination with a car, a substantially vertical triangular fender, and means of so securing the fender to the car that the fender will be as a whole vertically movable automatically, substantially as shown and described.

9. In combination with a car, a fender, bars secured to the car and provided with vertical slots, and bolts extending from the fender and operating loosely in such slots, substantially as shown and described.

10. In combination with a car, a fender, a plunger connected to the car with an end extending in front of the same, a bar mounted on the forward end of such plunger provided with vertical slots, and means of so connecting such fender to such bar that the fender will be vertically movable, substantially as shown and described.

11. In combination with a car, a substantially vertical triangular fender whose sides are flexible, and spring actuated hinges connecting the fender to the car in such manner that the sides of the fender will automatically yield inwardly when they contact with an object, substantially as shown and described.

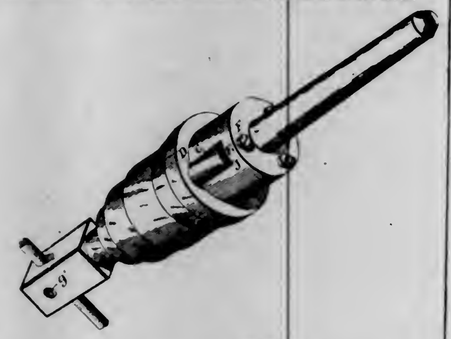
12. In combination with a car, a fender consisting of three uprights, one in front and two attached to the car, such uprights being enlarged outwardly at a point about knee high from the ground, and flexible bars connecting such uprights and extending about the outer surface of the same, substantially as shown and described.

521,742. TUBE-EXPANDER. CHARLES W. UMHOLTZ, Bristol, Va. Filed Sept. 21, 1893. Serial No. 486,099. (No model.)

Claim.—1. In a tube expander, the combination of the tubular stock or body having a series of slots or openings near one end, one side of said slots or openings being disposed parallel with the longitudinal bore of the stock or body, and the other side of said slots or openings being disposed at an angle to the longitudinal bore of the stock or body to dispose the central longitudinal line of said slots or openings at an angle to the longitudinal center of the stock or body, the stop collar mounted adjustably on the stock or body, the tapered rollers mounted in said slots or openings and having one end received within one end of said collar, and the tapered mandrel, substantially as set forth

2 In a tube-expander, the combination of an exteriorly-threaded stock having a series of slots or openings near one end, a series of radially-adjustable swaging rollers loosely mounted in said slots or openings, an adjustable stop-collar engaging the threads of said stock and

having at its inner end a stop-flange provided with a series of semicircular bearing sockets or notches and adapted to receive one end of said rollers, and the tapered mandrel, substantially as set forth.



521,743. RAILWAY-SWITCH. DAVID F. VAUGHAN, Haddonfield, N. J. Filed Dec. 15, 1893. Serial No. 493,733. (No model.)



Claim.—1. In a railway switch of the class recited, the combination with the fixed main track and siding-rails of the pivoted switch-rails, the point of one of said switch-rails being in advance of the point of the other switch-rail, and the transverse distance between the inner side of the point of the main-track switch-rail and the outside of the head of the siding switch-rail being equal to, or a little more than, the gage of the wheels adapted to run on the track-way, less the thickness of the wheel-flange, whereby when the switch is partially closed the wheels on one side of the axles will be caused to pass on the outside of one of the switch-rails and the wheels on the opposite side, on the inside of the other switch rail; the wheels on one side running upon one of the fixed rails, and those on the opposite side upon one of the switch rails substantially as and for the purpose set forth.

2. In a railway switch of the class recited, the combination with the fixed main-track and siding-rails of the pivoted switch-rails, the point of one of said switch-rails being in advance of the point of the other switch-rail, the latter rail having the extension, A^2, beyond its point, together with the tie and switch-rod, connected to the point of the first mentioned switch-rail and to the said extension, substantially as and for the purpose specified.

3. In a pivoted point railway switch, the combination with the switch-rails, of the lugs, the tie-rods having the jaws in which said lugs are pivoted, and the upper jaw of said rod extended so as to stay the upper portion of the web of the switch-rail, substantially as described.

521,744. PENCIL HOLDER AND SHARPENER. HENRY A. VRAHIR, New Orleans, La. Filed Mar. 22, 1894. Serial No. 504,672. (No model.)



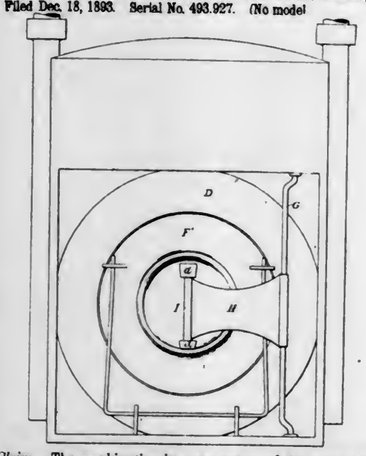
Claim.—1. A pencil holder and sharpener comprising a tube adapted to receive a pencil at one end, and having a collar *f*, a cone arranged in the tube and having a groove, a removable knife arranged in the groove of the cone and having a shoulder adapted to engage the collar of the tube, and a suitable means for holding the knife in its seat, substantially as specified.

2. A pencil holder and sharpener comprising a tube adapted to receive a pencil at one end, a cone arranged in the tube and formed integral therewith and having a longitudinal groove D, a removable knife arranged in the groove of the cone and having its rear portion resting upon the outside of the tube, and a suitable means for holding the knife in position, substantially as and for the purpose set forth.

3. The tube having the cone arranged therein and slotted as described, and also having the groove to seat a removable knife, in combination with the knife and the slidable band for holding the knife in its seat, substantially as specified.

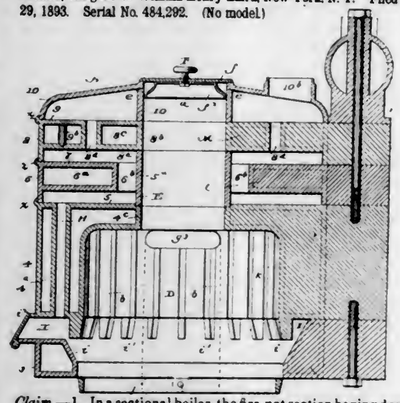
4. The knife for the purpose described, formed from a single piece of material and comprising a longitudinally curved blade, having one or more shoulders at one end, and a shank on the outer side of the shoulder or shoulders, substantially as specified.

521,745. GAS-METER. FREDERICK C. VINEY, Philadelphia, Pa. Filed Dec. 18, 1893. Serial No. 493,927. (No model.)



Claim.—The combination in a gas meter, of the measuring bellows, the flag wire having upper and lower bearings located laterally beyond the limits of movement of the outer disk of the bellows, said flag wire being cranked in that portion which is between said bearings, and an arm secured to the cranked portion of the flag wire, said arm extending laterally across the face of the outer disk of the meter, and being connected at its inner end to said disk, substantially as specified.

521,746. SECTIONAL BOILER. GEORGE A. WATSON, Toronto, Canada, assignor to William Henry Laird, New York, N. Y. Filed Aug. 29, 1893. Serial No. 484,292. (No model.)



Claim.—1. In a sectional boiler, the fire-pot section having double walls whereby a fire-pot and a surrounding water space are formed therein, said fire-pot having a contracted upper portion forming the mouth of the fuel magazine, a partition extending across said annular water-space from the outer to the inner wall and to the mouth of the fuel magazine and inlet and outlet ports arranged on opposite sides of said partition, substantially as described.

2. The combination, in a furnace, of a fire-pot section having double walls whereby an annular water space is formed therein, a grate below the same whereby an annular gas-space is formed between said grate and fire-pot section, a series of gas flues extending through said water space and connecting at their lower ends with the said gas space, and a series of air flues extending horizontally across said water-space and connecting at their inner ends with the interior of the fire-pot above said gas space, substantially as described.

3. The combination in a furnace, of a casing, a grate arranged therein, a hollow fire-pot section having its lower portion arranged above said grate whereby an annular gas-space is formed between said grate and fire-pot section, said fire-pot section being provided with a series of fingers depending into the combustion chamber whereby the gas-space is partially separated therefrom, and a series of draft-flues extending through the hollow of the fire-pot section and connecting at their lower ends with the said gas space, substantially as set forth.

4. The combination in a furnace, of a grate, a fire-pot section arranged above said grate and having double walls whereby a central fire-pot and a surrounding water space are formed therein, a series of gas-flues extending vertically through said water-space, and a series of air flues extending horizontally through said water-space, and connecting at their inner ends with the interior of the fire-pot section above the lower ends of the gas-flues substantially as set forth.

5. In a boiler-furnace the combination of the grate, the fire-pot section above the same having an annular water chamber surrounding the fire-pot, upwardly leading gas-flues or tubes passing through the water-chamber, and the draft tubes external to the fire-pot section and communicating with the upper part of the fire-pot, so that the currents of air pass upwardly outside of the walls of the furnace, inwardly into the upper part of the fire-pot, downwardly through the same, and then upwardly through the internal gas flues of the fire pot section, substantially as described.

521,747. PNEUMATIC DOOR-CHECK. JEROME W. WETMORE, Erie, Pa., assignor, by mesne assignments, to the Van Wagoner & Williams Hardware Company, Jersey City, N. J. Filed Apr. 11, 1887. Serial No. 234,430. (No model.)



Claim.—1. In a pneumatic door check, the combination substantially as hereinbefore described, of an air cylinder and its piston, a piston sleeve or rod, and a retractile spring which is attached to the piston and serves as a flexible, extensible and retractile extension of the piston sleeve or rod, for pulling the latter and the piston, outwardly in the cylinder and presenting the outer end of said sleeve or rod in position to receive the thrusting shock incident to the closing of a door, and enabling said shock to be borne by air, compressed within the cylinder.

2. In a pneumatic door check, the combination substantially as hereinbefore described, of an air cylinder, a piston, a hollow sleeve, or piston rod, and a retractile spiral spring normally housed within said sleeve or rod, and serving as a flexible, extensible, and retractile link, by which, during the opening of a door, the piston is moved forward in the cylinder, and the piston rod or sleeve projected beyond the open end of the cylinder for enabling it to receive and impart the shock of a closing door to the piston and air cushion within the cylinder.

3. In a pneumatic door check, the combination substantially as hereinbefore described, of an air chamber, a piston, a spiral spring serving as a flexible, extensible, and retractile link, by which the piston is moved outwardly in the cylinder, during the opening movement of a door, an auxiliary spiral spring within said cylinder, surrounding the other spring, and co-operating therewith, and a tubular sleeve which is interposed between said springs, and serves as a means for receiving and imparting the thrusting force of a closing door to the piston.

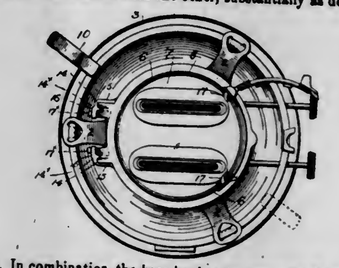
4. In a pneumatic door check, the combination with a piston, of an air cylinder, open at its front end, closed at its rear end, and provided with an air passage extending from near said rear closed end, a short distance forward or toward the open end of the cylinder, substantially as described, whereby just prior to the end of the inward or compressing movement of the piston, the compressed air will be permitted to freely pass by the piston and outward at the open end of the cylinder, substantially as shown and described.

521,748. OIL OR LAMP STOVE. HARLAN P. WILDER, Gardner, Mass. Filed Jan. 11, 1893. Serial No. 458,000. (No model.)

Claim.—1. In an oil stove the base and the cone stand, said parts being sprung into connection with each other, substantially as described.

2. In combination, the base having a bead or flange and the cone stand having the hook projections or feet to connect with said flange, the connection being formed by springing one part into the other, substantially as described.

3. In combination, the base having an upwardly flaring flange, and a cone stand supported on said flange, one of said parts being sprung into connection with the other, substantially as described.



4. In combination, the base having the upwardly flaring flange, the cone stand and the laterally extending feet sprung into connection with said flange, substantially as described.

5. In combination, the cone plate, the drum shell having perforations at its ends, the connecting plate between the ends of the drum shell, and the projections on the said plate adapted to the openings in the drum shell, substantially as described.

6. In combination, the cone plate, the drum shell having perforations at its end, and a connecting plate having hooked shaped projections, substantially as described.

7. In combination, the cone plate, the drum shell having opening and connecting plate between the ends of the drum shell having integral projections, substantially as described.

8. In combination, the base or cone stand and chimney, the hinge connection between them consisting of the hooks and pintles engaging each other with lugs or bearing portions arranged to hold the hooks and pintles together until the chimney is swung to a certain point, said pintles having cut away portions to receive the said hooks to permit the detachment thereof from the pintles substantially as described.

9. In combination, the base or cone stand, the chimney and the hinge connection between them consisting of the pintle bearings on the cross bar $8^{\times}$ having shoulders and cut away portions and the hooks engaging said bearings, substantially as described.

10. In combination, the base or cone stand, the chimney and the hinge connection between them consisting of the cross bar $8^{\times}$ having the shoulders and cut away parts forming pintle bearings, the hooks engaging said pintle bearings and the lug $9^{\times}$ bearing on the cross bar to hold the same in position engaging the hooks, substantially as described.

11. In combination, the cone stand or base, the chimney and the hinge connection between comprising the hooks and the pintle bearings having shoulders and cut away portions, said cut away portions being arranged to permit a lateral movement of the pintles through the hooks in the direction of the axis of the hinge only when the cut away portion is made to align with the hinge hooks, substantially as described.

12. In combination the cone stand or base, the chimney the handle and the hinge connection comprising the pintles and hooks or bearings therefor one of said hinge portions being formed with the handle, substantially as described.

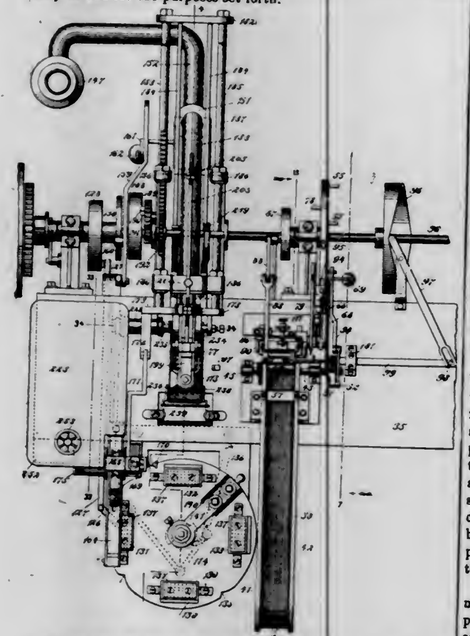
13. In combination, the cone stand or base, the chimney the handle and the hinge connection comprising the cross bar $8^{\times}$ on the chimney carrier and the hooks $7^{\times}$ and bearing $9^{\times}$ on the handle engaging said cross bar, substantially as described.

521,749. MACHINE FOR MAKING CIGARETTES. JOHN R. WILLIAMS, East Orange, N. J. Filed Feb. 19, 1894. Serial No. 500,748. (No model.)

Claim.—1. The feed belt for the filler tobacco, and pawl and ratchet mechanism for imparting motion thereto, combined with the spring supported table on which the filler tobacco for a cigarette is fed, the spring supported plate above said table, the sensitive plate between said table and plate and against which the tobacco is fed by said belt, the knife pivoted at one end for severing the charge of tobacco, and mechanism intermediate said sensitive plate and the mechanism imparting motion to the belt whereby the latter is stopped by the movement of said sensitive plate due to the pressure of the filler tobacco; substantially as and for the purposes set forth.

2. The feed belt for the filler tobacco, and pawl and ratchet mechanism for imparting motion thereto, combined with the spring sup-

ported table on which the charge for a cigarette is fed, the sensitive plate above said table and against which the tobacco is fed, the knife pivoted at one end for severing the charge of tobacco, and mechanism intermediate said sensitive plate and the mechanism imparting motion to the belt whereby the latter is stopped by the movement of said sensitive plate due to the pressure of the filler tobacco; substantially as and for the purposes set forth.



3. The feed belt for the filler tobacco, and pawl and ratchet mechanism for imparting motion thereto, combined with the table on which the tobacco for a cigarette is fed, the plate above said table, the sensitive plate between said table and plate and against which the tobacco is fed, the shaft loosely receiving said table and plate, the independent unequal springs at one end respectively supporting said table and plate and at the other end rigidly secured to said shaft, the knife for severing the charge of tobacco, mechanism for rotating said shaft and turning said table, plate and springs downward to discharge the filler tobacco therefrom, and mechanism intermediate said sensitive plate and the mechanism imparting motion to the belt whereby the latter is stopped by the movement of said sensitive plate due to the pressure of the filler tobacco; substantially as set forth.

4. The feed belt for the filler tobacco, and pawl and ratchet mechanism for imparting motion thereto, combined with the spring supported table on which the filler tobacco for a cigarette is fed, the plate above said table, the sensitive plate between said table and plate and against which the tobacco is fed, the knife pivoted at one end for severing the charge of tobacco, the shaft receiving said table and its spring and the plate above it, mechanism for rotating said shaft and turning the table downward to discharge the filler tobacco thereon, and mechanism intermediate said sensitive plate and the mechanism imparting motion to the belt whereby the latter is stopped by the movement of said sensitive plate due to the pressure of the filler tobacco; substantially as and for the purposes set forth.

5. The feed belt for the filler tobacco and mechanism for imparting motion thereto, combined with the table on which the filler tobacco for a cigarette is fed, the sensitive plate above said table and against which the tobacco is fed, the arms intermediate said plate and the longitudinally adjustable support therefor, the knife for severing the charge of tobacco, and mechanism intermediate said sensitive plate and the mechanism imparting motion to the belt whereby the latter is stopped by the movement of said sensitive plate due to the pressure of the filler tobacco; substantially as and for the purposes set forth.

6. The feed belt for the filler tobacco, and the pawl and ratchet mechanism for imparting motion to said belt, combined with the table on which the filler tobacco is fed, the sensitive plate on said table the rock shaft to which said plate is connected, the trip-arm on said shaft, the pivoted weighted rod engaging said arm, the segment adjacent to the said ratchet, the lever engaging said segment to raise and lower the same and connected with said pivoted rod, means for re-engaging said trip-arm and pivoted rod and lowering said segment, and the knife for severing the charge of tobacco; substantially as and for the purposes set forth.

7. The feed belt for the filler tobacco and mechanism for imparting motion thereto, combined with the table on which the tobacco for a filler is fed, the sensitive plate against which the tobacco is fed the rock shaft to which said plate is connected, the knife for severing the charge of tobacco, means intermediate said rock shaft and the mechanism imparting motion to said belt whereby the latter is stopped by the movement of said shaft, an arm extending from said shaft toward the knife, and an arm on the knife, to engage said last mentioned arm and insure the stoppage of the feed mechanism during the descent of the knife; substantially as and for the purposes set forth.

8. The feed belt for the filler tobacco and mechanism for imparting motion thereto, combined with the table on which the tobacco is fed, the frame above said table, the sensitive plate between said table and frame, the pivoted top plate above said frame, the knife for severing the charge of tobacco for a cigarette, mechanism intermediate said sensitive plate and the mechanism imparting motion to the belt whereby the latter is stopped by the movement of said sensitive plate, mechanism for turning the said top plate upward when the knife descends, and mechanism for turning said table and frame downward to discharge the severed filler tobacco; substantially as and for the purposes set forth.

9. The feed belt for the filler tobacco the rollers on which said belt is mounted, mechanism for imparting motion thereto, the feed roller over the inner roller of said belt and beneath which the tobacco feeds, the throat formed at the outlet between said rollers, and mechanism for revolving said feed roller, combined with the spring supported yielding table on which the filler tobacco passes from said throat and is severed by the knife, the sensitive plate on said table and against which the tobacco is fed, the knife pivoted at one end for severing the charge of tobacco for a cigarette, mechanism intermediate said sensitive plate and the mechanism imparting motion to the belt whereby the latter is stopped by the movement of said sensitive plate, and mechanism for turning said table downward to discharge the filler tobacco; substantially as and for the purposes set forth.

10. In a cigarette machine the feed belt for the filler tobacco, mechanism imparting motion thereto, a table beyond the belt to support the protruding portion of the tobacco while the charge is being severed and the vertically movable knife for severing the charges thereof, combined with the cigarette rolling apron located to one side of the said feed belt, the shuttle which receives said charges and having the pivoted door and latch, mechanism for reciprocating said shuttle in a horizontal direction over the bed plate of the machine from said feed mechanism to the rolling apron, the stud for freeing said latch when the shuttle is over the rolling apron, and the incline for closing said door on the return of the shuttle to the feed mechanism; substantially as and for the purposes set forth.

11. The rolling mechanism comprising a perforated rolling apron and air suction apparatus in communication therewith, combined with a cutting die in the outline of the wrapper to be used and air suction apparatus connected with said die, a pneumatic wrapper carrier reciprocating between said cutting die and apron, and means for releasing the wrapper at the die when it is to be taken up by the carrier, and releasing it from the carrier when it is to be given to the rolling apron; substantially as and for the purposes set forth.

12. The rolling mechanism comprising a rolling apron, combined with a cutting die in the outline of the wrapper to be used, air suction apparatus connected with said die, a pneumatic wrapper carrier reciprocating between said cutting die and apron, and means for releasing the wrapper at the die when it is to be taken up by the carrier and releasing it from the carrier when it is to be given to the rolling apron; substantially as and for the purposes set forth.

13. In a cigarette machine the rolling mechanism comprising a rolling apron, and co-operating means for rolling the cigarette therein and the wrapper cutting table having dies in the outline of the wrappers to be cut, said table being movable to change the position of the dies, combined with the pneumatic wrapper carrier means for reciprocating it with the rolling mechanism between said apron and dies, and means for releasing the wrapper from the carrier at the rolling apron; substantially as and for the purposes set forth.

14. The rolling mechanism comprising a rolling apron, and co-operating means for rolling the cigarette therein combined with the wrapper cutting table, dies on said table in the outline of the wrappers to be cut, air suction apparatus connected to said dies, mechanism for applying paste to one edge of the wrapper, a reciprocating wrapper carrier adapted to travel between said dies and said apron, means for reciprocating said carrier means for releasing the wrapper at the cutting die when taken by the carrier and means for releasing the wrapper from the carrier when the latter is over the apron; substantially as and for the purposes set forth.

15. The rolling mechanism comprising a perforated rolling apron, and air suction apparatus connected to the rolling table, combined with the revoluble wrapper cutting table bearing dies in the outline of the wrappers to be cut, air suction apparatus connected to said dies, mechanism for applying paste to one edge of the wrapper while held on a cutting die, a pneumatic wrapper carrier connected with the rolling mechanism means for reciprocating it between said cutting table and said apron, and operating valves for said air suction; substantially as and for the purposes set forth.

16. The rolling mechanism comprising a perforated rolling apron, and air suction apparatus connected therewith, combined with the cutting die in the outline of the wrappers to be cut, air suction apparatus connected therewith, the pneumatic wrapper carrier, the reciprocating telescoping tube carrying said pneumatic wrapper carrier, means for depressing said carrier upon the cutting die to take the wrapper therefrom, means for reci procating the carrier and for depressing it upon the rolling apron to deliver the wrapper thereto, and valves for releasing the wrapper from the die and tube; substantially as and for the purposes set forth.

17. The rolling mechanism comprising a perforated rolling apron and air suction apparatus connected therewith, combined with the pneumatic cutting die in the outline of the wrappers, means for applying paste to one edge of the wrapper while on the die, a pneumatic wrapper carrier connected with and traveling in advance of rolling mechanism for taking a wrapper from the die and delivering it to the apron on the rear movement of the rolling mechanism, and valves for releasing the wrapper at the die and carrier; substantially as and for the purposes set forth.

18. The rolling mechanism, and the feed mechanism of a cigarette machine, combined with the revoluble wrapper cutting table, the dies on said table in the outline of the wrappers to be cut, air suction apparatus connected therewith, means for applying paste to one edge of the wrapper while on a die, means for carrying the cut wrapper from the die to the rolling mechanism, means for releasing the wrapper at the cutting die when taken by the carrier; and means for releasing it when over the apron substantially as and for the purposes set forth.

19. The rolling mechanism means for operating the same, and the feed mechanism of a cigarette machine, combined with the revoluble wrapper cutting table, the dies on said table in the outline of the wrappers to be cut, air suction apparatus connected therewith, means for applying paste to the edge of the wrapper while on the die, a pneumatic wrapper carrier reciprocating with the rolling mechanism for carrying the wrapper from the die to said rolling mechanism, means for releasing the wrapper at the cutting die when taken by the carrier; and means for releasing the wrapper from the carrier when the latter is over the apron substantially as and for the purposes set forth.

20. A cigarette machine comprising in its structure feed mechanism for the filler tobacco a knife for severing the charges thereof, rolling mechanism for rolling the cigarette, and a traveling shuttle for conveying the separate charges of filler tobacco from the feed mechanism to the rolling mechanism, combined with a wrapper cutting table, a die thereon in the outline of the wrapper to be cut, air suction apparatus connected therewith, means for applying paste to the edge of the wrapper while on the die, means for conveying the cut wrapper from the die to the rolling mechanism, and means for releasing the wrapper at the cutting die when taken by the carrier; substantially as and for the purposes set forth.

21. A cigarette machine comprising in its structure feed mechanism for the filler tobacco a knife for severing the charges thereof, rolling mechanism having a perforated rolling apron and supporting table, air suction apparatus connected therewith, and a traveling shuttle for conveying the separate charges of filler tobacco from the feed mechanism to the rolling mechanism, combined with a wrapper cutting table, a die thereon in the outline of the wrapper to be cut, air suction apparatus connected therewith, means for applying paste to the edge of the wrapper while on the die, a pneumatic wrapper carrier connected with the rolling mechanism means for reciprocating said carrier between said die and apron, and means for releasing the wrapper at the cutting die when taken by the carrier; substantially as and for the purposes set forth.

22. In a cigarette machine the rolling apron and the reciprocating roller which folds said apron over the filler tobacco, combined with the compressor blade adapted to travel with said roller, means for holding the said blade against the loop in said apron while the said roller moves a definite distance onward to draw the loop down to size against said blade, and means for causing the said blade to follow said roller after the loop has been drawn down to size; substantially as and for the purposes set forth.

23. In a cigarette machine the rolling apron, and the reciprocating roller which folds said apron over the filler tobacco, combined with the compressor blade adapted to travel with said roller, means for holding the said blade against the loop in said apron while the said roller moves a definite distance onward to draw the loop down to size against said blade; means for adjusting the distance said roller may travel ahead of said blade while closing said loop, and means for causing the said blade to follow said roller after the loop has been drawn down to size; substantially as and for the purposes set forth.

24. In a cigarette machine, the rolling apron, and the reciprocating roller which folds said apron over the filler tobacco, combined with the compressor blade adapted to travel with said roller, the springs exerting their tension against said blade to carry it over the filler tobacco and loop of said apron, the chain holding said blade after having passed over said loop while the said roller moves onward to draw said loop down to size, and means for causing the said blade to follow said roller after the loop has been drawn down to size; substantially as and for the purposes set forth.

25. In a cigarette machine, the rolling apron, and the reciprocating roller which folds said apron over the filler tobacco, combined with the compressor blade adapted to travel with said roller until it has passed over the loop in the apron, a free connection intermediate the roller and blade which permits the roller to travel onward without the blade a definite distance to draw the loop in the apron down to size, and a stop on the said connection to cause the blade to follow the roller after the said loop has been drawn down to size; substantially as and for the purposes set forth.

26. In a cigarette machine, the rolling apron, and the reciprocating roller which folds said apron over the filler tobacco, combined with the compressor blade adapted to travel with said roller until it has passed over the loop in the apron, the tape having a stop on its free end and extending from said blade to the shaft of said roller, the disks on said shaft receiving between them said free end of said tape, a pin between said disks to retain said tape and engage said stop thereon and means for adjusting said disks to regulate the point at which said stop will be caught by said pin; substantially as and for the purposes set forth.

27. In a cigarette machine, the rolling apron, and the reciprocating roller which folds said apron over the filler tobacco, combined with the compressor blade adapted to travel with said roller until it has passed over the loop in the apron, the tape having a stop on its free end and extending from said blade to the shaft of said roller, means for retaining said free end against said shaft and arresting said stop after the roller has traveled onward alone a definite distance to draw the loop down to size, means for holding said blade against the said loop until the roller has drawn the loop to size, and gearing for revolving said roller and shaft to wind said apron and tape during the rolling of the cigarette; substantially as and for the purposes set forth.

28. In a cigarette machine, the rolling apron, and the reciprocating frame carrying a roller which folds said apron over the filler tobacco, combined with the compressor blade the cross bar to which said blade is connected and which is supported by rods of said frame, the springs on said rods and exerting their tension to keep the said blade normally forward to follow the roller, the chain connected with said blade to arrest it after it has passed over the loop in the apron, while the roller moves onward to draw the loop to size against said blade, and means for causing the blade to follow the roller while the cigarette is being rolled; substantially as and for the purposes set forth.

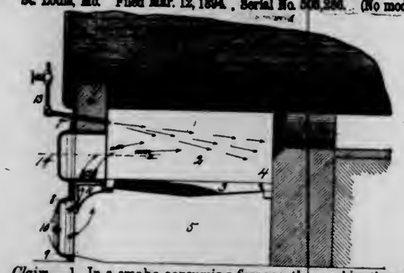
29. In a cigarette machine, the rolling mechanism, and the wrapper table, combined with the paste receptacle, the traveling paste carriage, the threaded tube carried thereby, the sliding frame in which said tube is mounted and which holds the paste-brush, the set screw engaging said tube for adjusting the brush vertically, and the set screw connected with said sliding frame for adjusting said brush laterally; substantially as and for the purposes set forth.

30. In a cigarette machine, the rolling mechanism, and the wrapper table, combined with the paste receptacle, the traveling carriage carrying the paste-brush, the tramway on which the roller of said carriage moves, and the sliding block having inclined ends mounted on said tramway in the path of said roller; substantially as and for the purposes set forth.

31. In a cigarette machine, the rolling mechanism, and the wrapper table, combined with the paste receptacle, the traveling carriage held down upon its tramway, the roller having its axle confined in vertical slots in said carriage and connected with the brush supporting frame, the springs pressing upon said axle, the movable block having inclined ends and retained on said tramway in the path of said roller, and means for reciprocating said carriage from the paste receptacle to the wrapper table and back to said receptacle; substantially as and for the purposes set forth.

32. In a cigarette machine, the rolling mechanism, combined with the revoluble wrapper cutting table having upon its upper surface the hollow cutting dies in the outline of the wrappers to be cut, the frame supporting said table and containing independent compartments, communicating with said cutting dies, air pipes leading to said compartments, air suction apparatus connected with said pipes, and means for cutting off the air from one of said compartments without disturbing the suction in the other compartment; substantially as and for the purposes set forth.

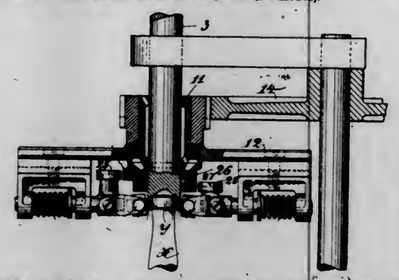
521,750. SMOKE-CONSUMING FURNACE. JOHN M. WILLIAMS, St. Louis, Mo. Filed Mar. 12, 1894. Serial No. 503,286. (No model.)



Claim.—1. In a smoke consuming furnace, the combination of a boiler, a fire box, an ash pit, a grate, an opening for admitting air into the ash pit, door-way lining and perforations in the lower side of said lining and through which air passes from the ash pit into the fire box; substantially as and for the purpose set forth.

2. In a smoke consuming furnace, the combination of a boiler, a fire box, a grate, an ash pit, door-way lining and perforations in the lower side of said lining through which air is admitted from the ash pit into the fire box, and means for injecting suitable quantities of steam into the fire box; substantially as and for the purpose set forth.

521,751. APPARATUS FOR CAPPING BOTTLES. NATHANIEL R. ABBOTT and HENRY RAU, Brooklyn, N. Y., said Rau assignor to said Abbott; said Abbott assignor of one-half to William D. Elger, same place. Filed Feb. 20, 1894. Serial No. 500,845. (No model.)



Claim.—1. An apparatus or machine for applying a sheet metal sealing cap upon a bottle, comprising a base to support the bottle, means for holding the bottle stationary and the cap pressed down thereon, a rotating carrier adapted to move concentrically about the axis of the bottle, rollers mounted in said carrier and adapted to bear on the flange of the cap as they revolve, springs which keep said rollers pressed upon the flange on the cap, and stationary cams which serve to press the rollers outwardly, radially, at each rotation of the carrier, substantially as set forth.

2. An apparatus or machine for applying a sheet metal sealing cap upon a bottle, comprising a base to support the bottle, a plunger 3, arranged to press upon the cap and hold it down on the bottle, the spring 5, on the plunger, the rotating carrier provided with rollers for rolling down the flange of the cap, the springs behind the rollers, the cams 27, a lever 7, for raising the plunger 3, the cam and its rod for operating said lever, and gearing intermediate said cam and the rotating carrier, whereby the withdrawal of the plunger is automatically effected when the rollers are withdrawn and the bottle thus released, substantially as set forth.

3. The combination with the frame, the plunger 3, mounted in the frame, mechanism for imparting a reciprocating movement to said plunger at regular intervals, the rotating carrier mounted in the frame concentrically with said plunger, gearing connecting the carrier-rotating and plunger-operating mechaniam, the rollers 24, mounted in sliding forks in the carrier, the said forks, the roller-springs 25, the cams 27, arranged in different planes, and the rollers 28, on the said forks and adapted to bear and roll on the respective cams 27 as the carrier rotates, substantially as set forth.

4. In an apparatus for applying a sealing cap on a bottle, the combination with means for holding the cap down firmly in place on the bottle, of a rotating carrier, a fork 21, mounted in said carrier, a rolling rubber 24, carried by said fork, and a spring 25, which keeps the rubber pressed up toward the bottle-neck, said rubber being mounted on rocking bearings so that it will adapt itself to the surface of the bottle-neck, as set forth.

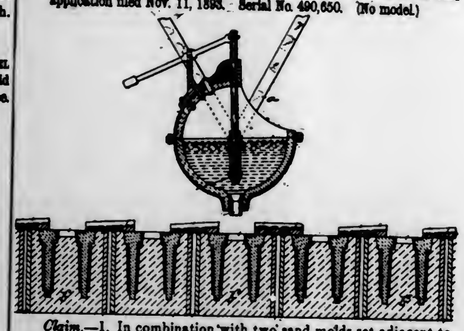
521,752. BOTTLE-SEALING AND STOPPER-RETAINING DEVICE. NATHANIEL R. ABBOTT, Brooklyn, N. Y., assignor of one-half to William D. Elger, same place. Filed Apr. 27, 1894. Serial No. 509,218. (No model.)



Claim.—1. A closing or sealing cap for a bottle comprising a cupped sheet-metal cap having a cupped adherent and smooth lining of comparatively thick paper, and a disk of cork fitting into said lined cap, the lining being interposed between the crown of the metal cap and said disk of cork, substantially as set forth.

2. A bottle having its neck gradually flared toward the mouth and provided with a closing device, said closing device comprising a cork disk *c*, and sheet metal cap *a*, with a lining *b* of soft packing material and a pendent flange fitting smoothly about the tapered neck of the bottle, said flange having numerous indentations *e* in it, substantially as set forth.

521,753. SAND MOLD. STEPHEN J. ADAMS, Pittsburg, Pa. Original application filed Oct. 24, 1892, Serial No. 449,902. Divided and this application filed Nov. 11, 1893. Serial No. 490,650. (No model.)



Claim.—1. In combination with two sand molds set adjacent to each other, a block resting on the sand molds adapted to bridge the space between the molds, and extending toward, but not to the centers of the molds and having a channel therein to receive the metal and direct it to the pouring gate of one of the molds, and a traveling ladle adapted to be moved from the pouring gate of one mold to the pouring gate of the other mold, above the bridge block, substantially as and for the purposes set forth.

2. In combination with two sand molds set adjacent to each other, a block resting on the sand molds adapted to bridge the space between the molds, and extending toward but not to the centers of the molds and having an inclined channel therein to receive the metal and direct it into the pouring gate of one of the molds, and a traveling ladle adapted to be moved from the pouring gate of one mold to the pouring gate of the other mold, above the bridge block, substantially as and for the purposes set forth.

3. In combination with two sand molds set adjacent to each other, a block adapted to bridge the space between the molds, and having a channel therein to receive the metal and direct it into the pouring gates of the molds, said channel being inclined from its center toward its ends, substantially as and for the purposes set forth.

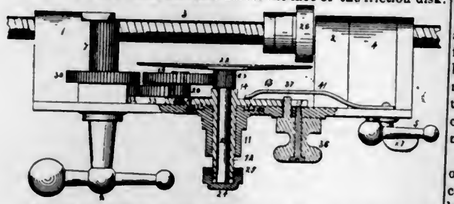
4. In combination with two sand molds set adjacent to each other, a block adapted to bridge over the space between the molds, said block having lips thereon for engaging with the sand on top of the molds, substantially as and for the purposes set forth.

5. In combination with a series of sand molds set adjacent to each other, blocks having channels therein and bridging over the spaces between the molds, extending toward but not to the centers of the molds, and a frame extending over the series of molds, and loosely supporting said blocks, substantially as set forth.

6. In combination with two or more sand molds set adjacent to each other, blocks having channels therein and adapted to bridge over the spaces between the molds, said blocks being supported in a frame extending over the series of molds by means of pins on said blocks engaging with openings in said frame, substantially as and for the purposes set forth.

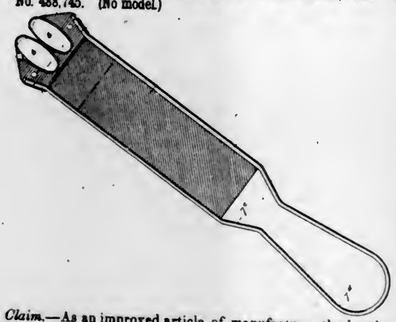
521,754. LATHE. WILLIAM F. BARNES, Rockford, Ill., assignor to the W. F. & John Barnes Company, same place. Filed Feb. 17, 1892. Serial No. 421,856. (No model.)

Claim.—1. In a lathe, the combination of a lathe apron, a cross feed, a friction disk carried by the apron, a friction wheel, a toothed rack, gear connection between the friction disk and toothed rack, gear connection between the cross feed and friction disk, the gear connection between the rack and friction disk and between the cross feed and friction disk made movable into and out of engagement, the friction wheel made movable across the face of the friction disk.



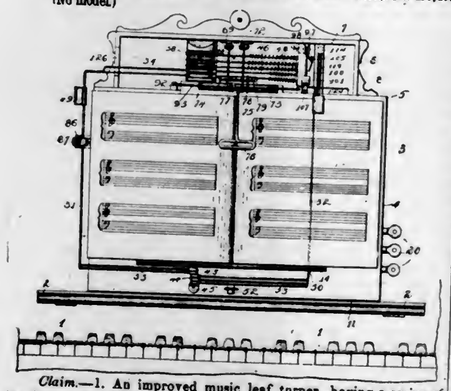
2. A lathe apron provided with gear and friction mechanism for operating the cross and line feeds, a pinion mounted on a movable base for forming a connection between the friction mechanism and gearing of the cross and line feeds, said base provided with projections which enter recesses in the apron when the pinion is out of mesh, and which ride upon the inner face of the apron when the pinion is in mesh, a spring pressing on the base holding it in contact with the apron and means for moving the base against the spring force.

521,755. COMBINED KNIFE-SHARPENER AND HONE-STONE HOLDER. PHILLIP BIRCH, Denver, Col. Filed Oct. 20, 1893. Serial No. 488,745. (No model.)



Claim.—As an improved article of manufacture, the herein described knife sharpener, consisting of the head plates, sharpener plates held between the recessed head plates, the latter being slotted to expose the adjacent edge of the sharpener plates, a wire handle connected to the head plates, and a hone stone seated between and retained by the sides of the wire handle, substantially as described.

521,756. MUSIC-LEAF TURNER. WILLIAM C. BOEING and THEODOR P. STORK, Hermann, Mo. Filed Nov. 29, 1892. Serial No. 453,493. (No model.)



Claim.—1. An improved music leaf turner, having a series of semi-rotary music leaf turner frames rectangular in form and horizontally arranged, a retaining mechanism having a downwardly and inwardly operative tongue, a wire gage 124 for releasing said retaining mechanism said retaining mechanism also including a depending tongue 122 adapted to engage and hold the leaves of the music after one of same has been turned, to prevent leaves from being turned by suction caused by the turning of one of said leaves, substantially as shown and described.

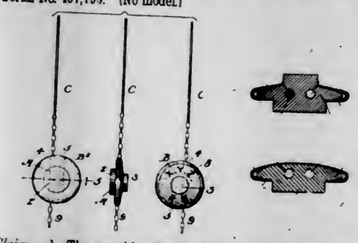
2. An improved music leaf turner, having a series of spring-actuated semi-rotary music leaf turner-frames rectangular in form, said frames being journaled in a horizontal position to the main frame and held in a position to the right side of the device by the retaining mechanism, consisting of a bar 101, lever 107, rock-lever 97 carrying the tongue 100, and the frame mechanism, consisting of arm 114, carrying a tongue 122, arranged and combined to operate in the manner set forth and for the purposes stated.

3. An improved music leaf turner having a finger-lever vertically oscillatory, said finger-lever connecting at its rear end with a vertical lever, said vertical lever operating three other levers, one of said levers having a horizontal movement, and adapted to operate a bumper to engage the frames when resuming their normal position, one of said levers having a vertical movement and adapted to operate the releasing mechanism, and the other of said levers having a vertical movement and adapted to operate the retaining mechanism, substantially as set forth.

4. An improved music leaf turner, having a releasing mechanism for releasing the frames in successive order, said releasing mechanism consisting of a vertically oscillatory lever 97 intermediately pivoted, its forward end carrying a depending tongue 100, the downward movement of said tongue adapted to lower a vertically oscillatory lever 107 having a projection upon its outer end to release the turner-frames in successive order, substantially as set forth.

5. An improved music leaf turner having a retaining mechanism operative by a vertical slide indirectly connecting with a lever adapted to operate all parts, said operative slide having a fixed horizontally projecting arm, a semi-rotary block mounted in said arm, a spring mounted upon said arm to control the normal position of said block, an angle spring projecting downwardly from said block, the free end of said spring operative in a vertical slot, an outwardly, downwardly, and inwardly projecting tongue secured to the under side of said rotary block, and a wire stop to push up upon the free end of said spring and draw the hooked tongue downwardly and inwardly, by the downward movement of the operative lever, substantially as set forth.

521,757. SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to the E. J. Brooks & Company, New York, N. Y. Filed Jan. 23, 1894. Serial No. 497,799. (No model.)



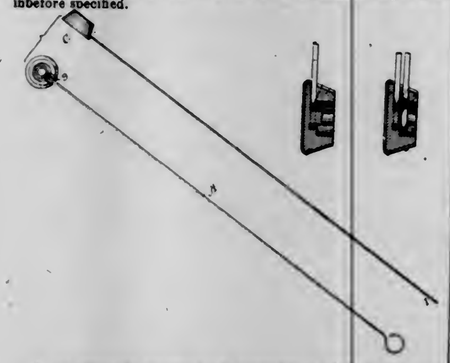
Claim.—1. The combination, in the unpressed seal, of a leaden part having a disk-shaped body provided with a pair of threading-holes and a pair of sheet-metal shell-parts having overlapping marginal rims provided with holes in line with said threading-holes, the seal-disk so formed being adapted to be fastened on one end of a shackle-wire by preliminary compression, substantially as hereinbefore specified.

2. The combination, in the unpressed seal, of a leaden part having a disk-shaped body provided with a pair of threading-holes and with oppositely projecting heads of less diameter than said body, a permanently-attached sheet-metal shell exposing said heads, and provided with holes in line with said threading-holes, and a shackle-wire one end of which is fastennd by preliminary compression within one of said threading holes, substantially as hereinbefore specified.

521,758. SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to the E. J. Brooks & Company, New York, N. Y. Filed Mar. 9, 1894. Serial No. 503,033. (No model.)

Claim.—1. The combination, in an unpressed seal, of a compressible seal-disk of soft metal having an outward peripheral flare adjoining its back and a compressible cut-proof cap of sheet-metal tightly overlapping said flare and thereby fixedly dovetailed to the seal-disk

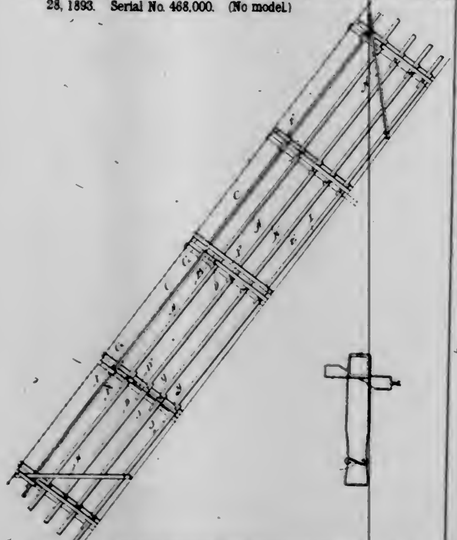
with the disk of the cap in solid contact with said back of the seal-disk, whereby said disk of the cap is itself adapted to receive a distinguishing impression when the seal is pressed, substantially as hereinbefore specified.



2. An improved horseshoe-seal composed of a flexible shackle of suitable wire, a compressible seal-disk of soft metal, preliminarily fastened on one end of said wire, having a solid flat back a beveled edge forming an outward peripheral flare adjoining said back a loop-receiving recess in its face and a notch through which both shackle ends ultimately extend, and a compressible cut-proof cap of sheet-metal preliminarily attached to said seal-disk independently of the shackle-wire, said cap having an inturned rim which tightly overlaps said flare in the unpressed seal without obstructing said notch, and a flat disk held in close contact with said back of the seal-disk, substantially as hereinbefore specified.

3. The combination in a horseshoe-seal of a compressible seal-disk of soft metal having a loop-receiving recess and a notch in its face and a stud-pin and annular shoulder within said recess, said shoulder being formed on the wall surrounding said recess, a flexible shackle wire having loops at its respective ends fitted to said stud-pin and to the outer portion of said recess, and a compressible cut-proof cap of sheet-metal having a rim which tightly embraces said disk without obstructing said notch and is adapted to extend over the outer loop of the shackle-wire when the seal is finally pressed, substantially as hereinbefore specified.

521,759. FENCE. PETER H. CHRISTIE, Clove, N. Y. Filed Mar. 28, 1893. Serial No. 468,000. (No model.)

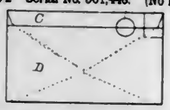


Claim.—1. The combination with the overlapped rails and a pair of stakes crossed over the overlapped ends, of the crossed wire loop passing around the stakes just below said rails and having one of its branches forming a loop or coil around said ends, a rider rail resting in the stakes, a second loop passing around the stakes with one of its branches above and the other below the rail last named, and a lever having its end passed over the upper and under the lower of said branches and its other end secured to another member of the fence; whereby the rails in said coil are bound together and the whole is made rigid.

2. The combination with the overlapped rails, stakes crossed over them, and a wire tie connecting the stakes below said rails, passing around the latter and having a dependent loop to receive lower rails, of rider rails resting in the stakes, a wire loop passing around the rails above their crossing, and a vertical post secured in the loop and lashed to rails in said dependent loop.

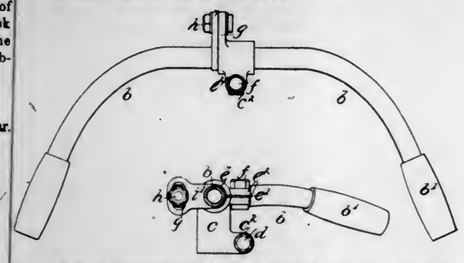
3. The combination with the rails A, stakes crossed over them, and the ties binding the stakes together below the rails and provided with a bight encircling the latter and with the dependent loop, of the rails in said loop, the post beside said loops wired to the rails last named, the barbed wire secured to the tops of the posts, the loops passing around the post and stakes above the crossing, the straining-lever riders and the braces inserted in the upper loops and wired to the rails below.

521,760. ENVELOPE. MORGAN J. CRAMER, Chest Springs, Pa. Filed Feb. 24, 1894. Serial No. 501,443. (No model.)



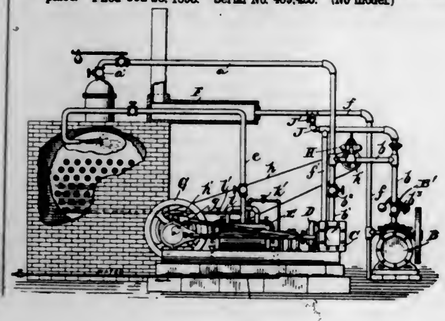
Claim.—An envelope having side and end flaps and a sealing flap forming the front of the envelope which is somewhat less in width than the body of the envelope the flaps being folded so that the sealing flap covers the joints between the remaining flaps whereby when closed only a single joint is exposed, over which the stamp may be placed.

521,761. VELOCIPEDE. GEORGE H. DAY, Hartford, Conn., assignor to the Pope Manufacturing Company, Boston, Mass. Filed Apr. 20, 1892. Serial No. 429,866. (No model.)



Claim.—In combination with the steering post of a bicycle or like vehicle, a socket piece removably secured thereto, a transverse handle socket through the socket piece, clamping means for securing the handle in the socket, projecting arms from the socket piece and the handle bar respectively, and a clamping bolt whereby the arms are secured against sliding movement on each other, all substantially as described.

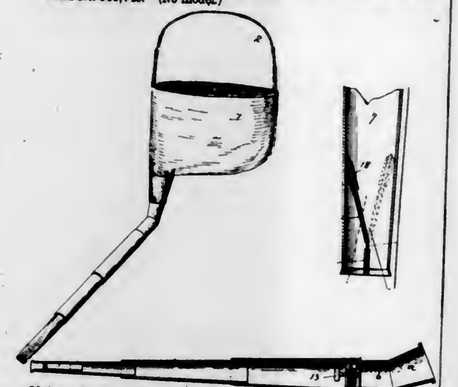
521,762. MIXED AIR AND STEAM ENGINE AND GENERATOR. HEZEKIAH E. DEPP, Sedalia, Mo., assignor to Olivia M. Ritchey, same place. Filed Oct. 28, 1893. Serial No. 489,425. (No model.)



Claim.—1. The combination with a steam boiler, of an engine, steam connection from said engine to said boiler, an air compressor introduced in said connection and discharging into the boiler, a steam discharge from said compressor to said engine, and a governor operated by said compressor and placed in the supply pipe of said engine, substantially as described.

2. The combination with a steam boiler, of an air compressor actuated by and discharging into the same, an engine, steam connection between said engine and said compressor and between said boiler and engine, a governor regulating the supply of steam from the boiler to the engine and operated by the compressor, and a steam exhaust heating the air supplied to the boiler from the compressor, substantially as described.

521,763. HAND SEED-PLANTER. WILLIAM DULIN, Avoca, Iowa, assignor of one-half to H. R. Dulin, same place. Filed Mar. 30, 1894. Serial No. 506,743. (No model.)



Claim.—1. A seed sower consisting of a seed receptacle, a sowing-spout connected thereto, and an automatic deflector or fly-valve mounted in the lower or outer end of the sowing-spout and adapted to change the direction of the flight of the seed the instant the spout comes to rest, at the ends of the throws, substantially as described.

2. A broadcast seeder consisting of a seed receptacle a sowing-spout connected thereto, and an automatic deflector mounted in the lower end of the sowing spout, said deflector consisting of a plate of suitable length, approximately fitting the spout, said plate being hinged therein at its lower end, substantially as described.

3. A broadcast seeder consisting of a seed receptacle a sowing-spout connected thereto said spout tapering from its upper to its lower end, its lower end being formed oblong, a transverse partition in said oblong end, and a laterally swinging valve hinged to said partition, substantially as described.

4. A broadcast seeder consisting of a seed-receptacle, a sowing-spout connected thereto, and a valve in the sowing spout, said valve consisting of two slotted stationary plates, two separated disks of a smaller diameter than the sowing spout and a disk of yielding material secured between the disks of unyielding material, the edge of said disk being bent over on the outer edge of one of the disks of unyielding material to form a packing ring when the valve is in the spout, said disks being cut away as shown, and a set screw securing the disks between the slotted plates, substantially as described.

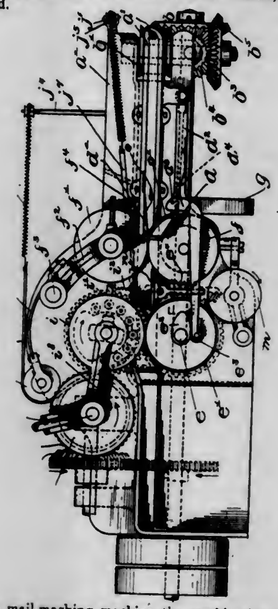
521,764. MAIL-MARKING MACHINE. MARTIN V. B. ETHRIDGE, Everett, and HENRY E. WAITE, Newton, assignors to Charles F. Brown, Reading, Mass. Filed Mar. 12, 1894. Serial No. 503,278. (No model.)

Claim.—1. In a mail-marking machine, the combination with a rotary marker and an opposed backing or support, of a normally disconnected and retracted impression bed or pad, a driver, and letter-controlled means for operatively connecting the pad and driver to bring said pad between the marker and the opposed backing or support.

2. In a mail-marking machine, the combination of a rotary marker, a normally inactive band having an impression pad, and letter-controlled means for rendering said band active to bring its impression pad into operative relation with the rotary marker.

3. In a mail-marking machine, the combination of a rotary marker, a normally retracted band having an impression pad, a driver, and letter-controlled means for operatively connecting the band and driver to bring the pad into operative relation with the marker.

4. In a mail-marking machine, the combination of a rotary marker, a normally retracted band having an impression pad, rollers supporting said band, and letter-controlled means for establishing operative engagement between the band and rollers, for the purpose described.



5. In a mail-marking machine, the combination of a marking cylinder, a rotary disk in juxta-relation thereto, a normally retracted band extending between the disk and marking cylinder and having an impression pad, a driving drum, and letter-controlled means for operatively engaging the band with said drum, for the purpose described.

6. In a mail-marking machine, the combination of a marking cylinder, a rotary disk in juxta-relation thereto, a normally retracted band extending between the disk and marking cylinder and having an impression pad, feed-rollers one of which is movable toward and from the other, and means actuated by the movable feed-roller for pressing the band into operative engagement with the driving drum, for the purpose described.

7. In a mail-marking machine, the combination of a marking cylinder, a rotary disk in juxta-relation thereto, a normally retracted band extending between the disk and marking cylinder and having an impression pad, feed-rollers one of which is carried by a laterally movable support, and an idler carried by said support and adapted to press the band into operative engagement with the driving drum.

8. In a mail-marking machine, the combination of a marking cylinder, a rotary disk in juxta-relation thereto and carrying a series of anti-friction rollers, a normally inactive and retracted band extending over said anti-friction rollers and having an impression pad, and letter-controlled means for bringing the said pad into operative relation with the marking cylinder.

9. In a mail-marking machine, the combination of a marking cylinder, a rotary disk in juxta-relation thereto, a normally retracted band extending between said disk and the marking cylinder and having a thickened portion to constitute an impression bed, and letter-controlled means for rendering the band operative to interpose its thickened portion between the marking cylinder and opposed disk.

10. In a mail-marking machine, the combination of a marking cylinder, a rotary disk in juxta-relation thereto, a band extending between the marking cylinder and opposed disk and having an impression pad at one end, a spring tending to impel the band in a direction to draw the pad between the marking cylinder and disk, a superior spring retracting the band, a driver, and letter-controlled means for connecting the band with the driver, substantially as and for the purpose described.

11. In a mail-marking machine, the combination of an oscillating feed-roller, a stop in the letter-path in advance of said roller, and means for periodically retracting said stop.

12. In a mail-marking machine, the combination of a rotary marking cylinder, an oscillating feed-roller, a stop in the letter-path in advance of the said feed-roller, and means for periodically retracting said stop.

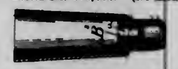
13. In a mail-marking machine, the combination of a rotary marking cylinder, an oscillating feed-roller, a stop in the letter path in advance of the said roller, a lever carrying said stop, and a cam on the journal of the marking cylinder and adapted to co-act with said lever to retract the stop.

14. In a mail-marking machine, the combination of a hopper, a movable stop at the outlet end thereof, normally closed jaws adjacent to said stop, and means for periodically retracting the stop and opening the jaws.

15. In a mail-marking machine, the combination of a hopper, a movable stop at the outlet end thereof and against which the letters abut, normally closed jaws in advance of the said stop, one of said jaws being connected with the stop, and means for periodically retracting the stop and thereby opening the jaws.

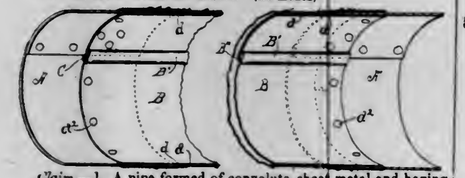
16. In a mail-marking machine, the combination of a hopper, a movable stop at the outlet end thereof and against which the letters abut, normally closed jaws in advance of the said stop, one of said jaws being connected with the stop, means for periodically retracting the stop and thereby opening the jaws, and an oscillatory feed-roller beyond the stop.

521,765. FERRULE. WILLIAM H. GASKILL, Philadelphia, Pa. Filed May 20, 1893. Serial No. 474,866. (No model.)



Claim.—A ferrule having a body formed of a reduced portion on its lower end, an inturned recess at the place of junction of the wide and reduced portions, a hollow point having its upper end seated in said recess, and a base on the lower end of the reduced portion closing said end.

521,766. SHEET-METAL PIPE. CHARLES S. HAMLIN, Los Angeles, assignor of one-half to Arthur C. Harper, University, Cal. Filed Jan. 13, 1894. Serial No. 496,770. (No model.)



Claim.—1. A pipe formed of convolute sheet metal and having its end provided with a thimble of thicker material than the body of the pipe, such thimble being provided in its end with the slot arranged to receive one of the leaves of such body.

2. A pipe having its body formed of a convolute of sheet metal and having its end formed of a thimble of sheet metal thicker than the sheet metal which forms the body of the pipe, riveted to such body and arranged with its lap embracing one of the leaves of the body.

3. A pipe having a body formed of convolute sheet metal and having a sheet metal thimble seated between the folds of such body and suitable means for securing the folds and the thimble together.

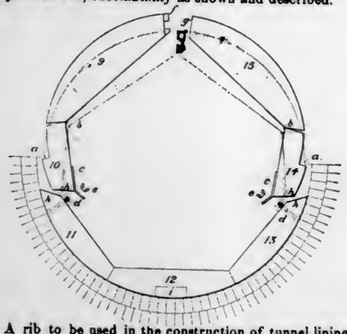
4. A pipe having a body formed of convolute sheet metal and having a sheet metal thimble seated between the folds of such body and having a wire wrapping arranged to compress the outer fold of the body against the inserted end of the thimble.

5. The combination of the body formed of a single sheet of metal comprising two sections provided between said sections with a longitudinally arranged S-shaped fold or lap which forms a seat for the edge of one of the sections, said sheet being rolled into convolute form with the edge of one section of the sheet inserted in the seat formed by the lap, and the outer section of the sheet rolled about the inner section; the thimble of sheet metal of greater thickness than the sheet metal which forms the body of the pipe, said thimble being arranged encircling the inner section of the sheet which forms the body of the pipe and having its lap embracing the inner portion of the outer section of such sheet; means for securing the thimble to the body of the pipe, and suitable means for securing the pipe in shape.

521,767. CENTERING FOR TUNNELS. JAMES MCNAMARA, Seattle, Wash. Filed Mar. 15, 1893. Serial No. 466,184. (No model.)

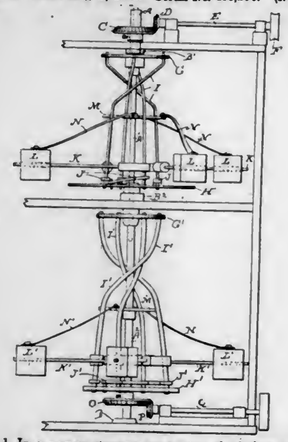
Claim.—1. A rib to be used in the construction of tunnel linings composed of sections in which the joints are in the main radial so that they will form a self supporting arch, but having one or more of the joints making an angle with the radial plane, and means for locking together the sections on either side of this joint, substantially as shown and described.

2. A rib to be used in the construction of tunnel linings, composed of sections in which the joints are in the main radial so as to act as an arch, but having one or more of the joints at such an angle with the radius that one of the sections adjoining may be withdrawn toward the center, and means for locking and unlocking the sections at this joint at will, substantially as shown and described.



3. A rib to be used in the construction of tunnel linings, composed of sections which, up to the springing of the arch, are, upon their outer surface, shaped to fit the inner surface of the lining, and above this point are, upon their outer surface, shaped to a contour parallel to the inner surface of the lining, and sufficiently smaller to just accommodate the lagging between, the joints between the sections being radial and such that they will act as an arch, except those at the springing of the arch, which are shaped so that one of the sections adjoining may be withdrawn toward the center, and means for locking and unlocking the sections at these joints at will, substantially as shown and described.

521,768. POWER-STORAGE APPARATUS. ALBERT G. PAGE, San Francisco, Cal., assignor of one twenty-fourth to Frank H. Johnson, same place. Filed Aug. 3, 1893. Serial No. 488,290. (No model.)



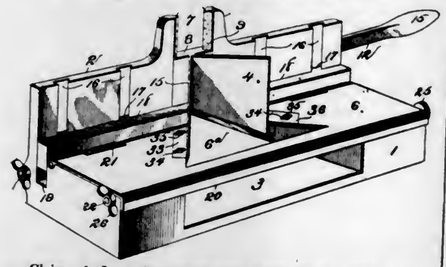
Claim.—1 In a power storage apparatus, the independent vertical shafts standing in line and movable with relation to each other, mechanism through which power is applied to rotate the uppermost of the shafts, a disk secured to the lower end of each of said shafts, the vertical lever rods crossing each other spirally having their ends loosely connected with each of said disks, horizontally disposed lever arms, having their inner ends secured to the lever rods, weights upon the outer ends of said arms adapted to be raised by the twisting of the said lever rods in one direction and depressed when the lever rods are allowed to turn in the opposite direction, and stays on the lower ends of the lever rods having their outer ends loosely connected with the contiguous disk, substantially as herein described.

2. In a power storage apparatus, the independent vertical shafts standing in line and movable with relation to each other, means for applying power to the uppermost of said shafts, a disk fixed to the lower end of each of said shafts having holes made in them near their peripheries, spiral lever rods having their ends loosely entering the holes in said disks, said lever rods crossing each other spirally, horizontal stays each having one end secured to one of the lever rods

above the lower disk and the opposite end loosely connected with said lower disk, horizontal lever arms fixed to the lever rods and extending outwardly therefrom, weights upon the outer ends of said horizontal lever arms, a cross fixed to the lower shaft above the lower disk, and links connecting the weights with the cross, substantially as herein described.

3. The combination of the shafts A, A' and A^3 arranged in line and movable with relation to each other, a power mechanism connected with the shaft A and a disk on said shaft, a disk upon the shaft A^3 and independent disks upon the shaft A', a series of spirally arranged lever rods having their opposite ends loosely passing through the disk on the shaft A and one of the disks on the shaft A', a similar series of lever rods having their opposite ends loosely passing through the disk on the shaft A^3 and the remaining disk on the shaft A', horizontal stays having one end secured to the lower ends of each lever rod and the opposite end loosely connected with the contiguous disk, lever arms rigidly connected with each lever rod and extending outwardly, weights slidable upon said lever arms, crosses on the shafts, and connections from the weights to the crosses, substantially as herein described.

521,769. MITERING-MACHINE. HENRY A. RIEMANN, Hannibal, Mo. Filed Jan. 15, 1894. Serial No. 496,882. (No model.)



Claim.—1. In a mitering machine, a base having a back cast integral therewith, a block located in a suitable groove formed between said back and base, a rock-shaft mounted in suitable bearings located on the rear of the back, lugs formed on or fixed to said rock-shaft, which project through suitable openings in the back so they can engage the block for raising and lowering the same, and means for retaining said rock-shaft in the required position, substantially as set forth.

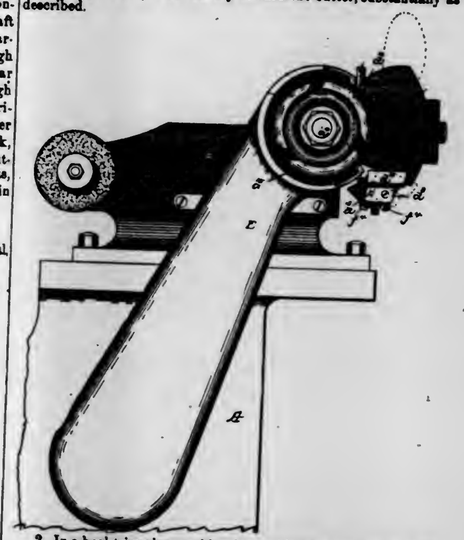
2. In a mitering machine, a base, a plate hinged to the upper surface of said base adjacent one corner thereof, a rock-shaft located on said base and having its bearings adjacent the upper edge thereof, and lugs or projections formed on or fixed to said rock-shaft which engage the lower surface of said plate, for raising the same, substantially as set forth.

3. In a device for cutting miters, a base, an adjustable plate having an opening therein, mounted on said base, said opening constructed to allow cutting knives to pass through, and blocks 33 and 36 connected to said plate adjacent the cutting knives, said blocks being so constructed that they can be adjusted when the plate 6 is adjusted, substantially as set forth.

4. A mitering machine, comprising the following elements, to-wit: A base 1, a back 2 cast integral therewith, a cut away portion 3 formed in the upper side of said base to allow cutting knives 4 and 5 to pass below the upper surface of said base, an adjustable plate 6 having an opening 6^a therein, hinged to the upper surface of said base adjacent the rear edge, a block 8 located in a cut away portion 7 and having its bearings in the back 2, a lever 12 fulcrumed to the rear side of the back and pivoted to said block 8, a block 18 located in a groove 19 formed in the upper surface of the base adjacent the front side of the back, said block constructed with a series of dovetailed projections 17 which engage a like number of receding grooves 16 formed in the front side of the back, a rock-shaft 27 having a head 31 at one end and a thumb-nut 32 at the opposite end, and a series of lugs or projections formed on or fixed to said shaft intermediate said head and nut, said lugs constructed to engage the block 18, a shaft 22 having a head 25 at one end and a thumb-nut 26 at the other end, and a series of lugs or projections 23 formed thereon intermediate the head and nut, said projections 23 constructed to engage the lower surface of the plate 6 adjacent its free end for adjusting the same, all arranged and combined to operate in the manner set forth and for the purposes stated.

521,770. HEEL-TRIMMING MACHINE. CHARLES H. TRASK, Lynn, Mass. Filed Dec. 17, 1889. Serial No. 334,057. (No model.)

Claim.—1. In a heel trimming machine, the combination with a rotary cutter, a longitudinally movable bar or support located at one side of the axis of said cutter and having its forward end adjacent to said cutter and unrestricted or free to move in a direction toward and from the cutter, a top lift edge rest carried thereby, and a cam for governing the movement of the free end of the bar and of the top lift edge rest carried thereby toward the cutter, substantially as described.



2. In a heel trimming machine, in combination with a rotary cutter, a longitudinally movable bar or support located at one side of the axis of said cutter and having its forward end adjacent to said cutter and unrestricted or free to move in a direction toward and from the cutter, a tread rest carried thereby, and a cam for governing the movement of the free end of the bar and of the tread rest carried thereby toward the cutter, substantially as described.

3. In a heel trimming machine, in combination with a rotary cutter, a longitudinally movable bar or support located at one side of the axis of said cutter and having its forward end adjacent to said cutter and unrestricted or free to move in a direction toward and from the cutter, a heel rest carried thereby, and a cam for governing the movement of the free end of the bar and of the heel rest carried thereby toward the cutter, substantially as described.

4. In a heel trimming machine, in combination with a rotary cutter, a longitudinally movable bar or support located at one side of the axis of said cutter and having its forward end adjacent to said cutter and unrestricted or free to move in a direction toward and from the cutter, a top lift edge rest and tread rest carried thereby, and a cam for governing the movement of the free end of the bar and of the top lift edge rest and tread rest carried thereby toward the cutter, substantially as described.

5. In a heel trimming machine, in combination with a rotary cutter, a longitudinally movable bar or support located at one side of the axis of said cutter and having its forward end adjacent to said cutter and unrestricted or free to move in a direction toward and from the cutter, a top lift edge rest, tread rest and heel rest carried thereby, and a cam for governing the movement of the free end of the bar and of the top lift edge rest, tread rest, and heel rest carried thereby toward the cutter, substantially as described.

6. In a heel trimming machine, in combination with a rotary cutter, a longitudinally movable bar or support located at one side of the axis of said cutter and having its forward end adjacent to said cutter and unrestricted or free to move in a direction toward and from the cutter, a tread rest and heel rest carried thereby, and a cam for governing the movement of the free end of the bar and of the tread rest and heel rest carried thereby toward the cutter, substantially as described.

7. In a heel trimming machine, in combination with a rotary cutter, a longitudinally movable bar or support located at one side of the axis of said cutter and having its forward end adjacent to said cutter and unrestricted or free to move in a direction toward and from the cutter, a top lift edge rest and heel rest carried thereby, and a cam for governing the movement of the free end of the bar and of the top lift edge rest and heel rest carried thereby toward the cutter, substantially as described.

8. The combination in a heel trimming machine of the cutter head, a longitudinally movable bar or support located at one side of the axis of said cutter and having its forward end adjacent to said cutter and unrestricted or free to move in a direction toward and from the cutter, a cam for governing the path of the free end of the bar, and a top lift edge rest supported at the forward end of said bar to move crosswise the same, and an adjusting screw for moving the said rest upon the bar into desired position thereon, as and for the purposes described.

9. The combination in a heel trimming machine of the cutter head, a longitudinally movable bar or support located at one side of the axis of said cutter and having its forward end adjacent to said cutter and unrestricted or free to move in a direction toward and from the cutter, a cam for governing the path of the free end of the bar, and a tread rest supported at the forward end of said bar to move crosswise the same, and an adjusting screw for moving the said rest upon the bar into desired position thereon, as and for the purposes described.

10. In a heel trimming machine, the combination with the trimming cutter of a support having the recess d^{16}, of the heel rest B, mounted upon said support and having a threaded rod extending through said recess, and an adjusting nut held in said recess through which said threaded rod extends, as and for the purposes described.

11. The combination of the cutter head with the longitudinally movable bar, the front end of which is free or unrestricted, the top lift edge rest and tread rest supported thereby, the cam F, and the spring f, substantially as described.

12. The combination of the cutter head with the longitudinally movable bar, the front end of which is free or unrestricted, the top lift edge rest and tread rest supported thereby, the cam F, adjusting nut f^7, and spring f, substantially as described.

13. The combination of the cutter head with the longitudinally movable bar, the front end of which is free or unrestricted, the top lift edge rest and tread rest supported thereby, the cam F, the adjustable nut f^7, to act as a stop, the spring f and a relatively fixed abutment against which the nut f^7 brings up, substantially as described.

14. The combination of the cutter head with the longitudinally movable bar, the front end of which is free or unrestricted, the top lift edge rest and tread rest supported thereby, the cam F, and the adjustable nut f^7, having a sleeve or barrel upon which the spring f, is mounted, substantially as described.

15. The combination of the cutter head, the longitudinally movable bar D, the front end of which is free or unrestricted as specified, the governing cam F, and the rear support d for said bar, and the front support or rest for said bar, the front end of said bar being held to said front support by means of a washer and bolt d^{14}, which bolt extends through a slot in the bar, substantially as described.

16. The combination in a trimming machine of the rotary cutter, the longitudinally movable bar D, the top lift edge rest and tread rest supported thereby, and the cam F, having a guiding surface and adjustable upon its support to present different sections of its guiding surface to the bar, as and for the purposes described.

17. The combination in a trimming machine of the rotary cutter, the longitudinally movable bar the front end of which is free or unrestricted. the top lift edge rest and a heel rest carried thereby, the cam F, having the cam surfaces f^{10} f^{11} mounted upon a rotary shaft, the stud f^8, whereby it is adapted to be turned, and locking devices for locking it in any desired position, substantially as described.

18. In a heel trimming machine the combination with the rotary cutter, of a supporting bar adjacent thereto, top lift edge and heel rests carried thereby, and a cam for governing the longitudinal path of the top lift edge rest and heel rest in relation to the cutter head comprising a plate having a guiding surface and adapted to be turned, substantially as described.

19. In a heel trimming machine the combination with the rotary cutter, of a supporting bar adjacent thereto, top lift edge and heel rests carried thereby, and a cam for governing the longitudinal path of the top lift edge rest and heel rest in relation to the cutter head comprising a plate having a stud or shaft extending through a hole in its support and threaded to receive a locking screw, substantially as described.

20. In a heel trimming machine the combination with the trimming mechanism, of a supporting bar adjacent thereto, top lift edge and heel rests carried by said bar, and a cam for governing the longitudinal path of the top lift edge rest and heel rest in relation to the cutter head comprising a plate having a locking device and also an outward extending arm whereby its position is easily adjusted, substantially as described.

21. The combination in a trimming machine of a shaft, a rotary cutter carried at each end of the shaft and heel governing or presenting devices in connection with each cutter head embracing a longitudinally movable bar the front end of which is free to be governed by a cam, a top lift edge rest, tread rest, and heel rest carried thereby, a spring for moving the said bar outwardly or toward the front of the cutter head, and a cam for governing the backward movement of the said rests, and with which the bar is held in contact, substantially as described.

22. The combination in a heel trimming machine of the casting E having a passage e and the hood G, shaped as specified, and also having brackets or supports $d^{\prime}$ d^{3} for the longitudinally movable bar D, with the cutter head, the said longitudinally movable bar, the rests carried thereby and their governing cam, substantially as described.

23. The combination, in a heel trimming machine, of the rotary shaft, a cutter head carried at each end thereof, the two castings E, having exhaust passages e, extending to the common exhaust chamber, the exhaust fan or fans in said chamber, the sections of shells embracing or surrounding the cutters as specified and integral with said castings for carrying the longitudinally movable bars, said bars each of which carries at its front end a top-lift edge rest, tread rest, and heel rest, and a cam in connection with each bar for governing its longitudinal movement and that of the rests it carries, substantially as described.

24. The combination, in a heel trimming machine, of the rotary cutter, the longitudinally movable bar supporting at its front end the top lift edge rest and the tread rest, and having a projection f^{9}, to come in contact with the guiding surfaces of a governing cam, and said governing cam, substantially as described.

25. In a heel trimming machine, the combination with a rotary cutter, of a spring-pressed, longitudinally movable bar, supported at each end against vertical movement, adjacent to said cutter, one end of said bar having free horizontal movement, a top lift edge rest carried by said bar, and a cam for governing the movement of the said bar and top lift edge rest, substantially as described.

26. In a heel trimming machine, the combination with a rotary cutter, of a longitudinally movable bar supported at each end against vertical movement, adjacent to said cutter, a top lift edge rest carried at one end of said bar, which end has free horizontal movement, means for adjusting and controlling the longitudinal movement of the said bar and a cam for governing the horizontal movement of said free end, substantially as described.

27. In a heel trimming machine, the combination with a rotary cutter, of a longitudinally movable bar supported against vertical movement at each end, adjacent to said cutter, a tread rest carried at the front end of said bar, said front end and tread rest having free horizontal movement, means for controlling and adjusting the longitudinal movement of said bar, and a cam for governing the horizontal movement of the free end of said bar.

28. In a heel trimming machine, the combination with a rotary cutter, of a longitudinally movable threaded bar, supported against vertical movement, adjacent to said cutter, one end of said bar having free horizontal movement, suitable rests carried by said free end, a spring for moving said bar longitudinally, a nut on said threaded bar to control the tension of said spring and the longitudinal movement of said bar, and a cam for governing the horizontal movement of said free end, substantially as described.

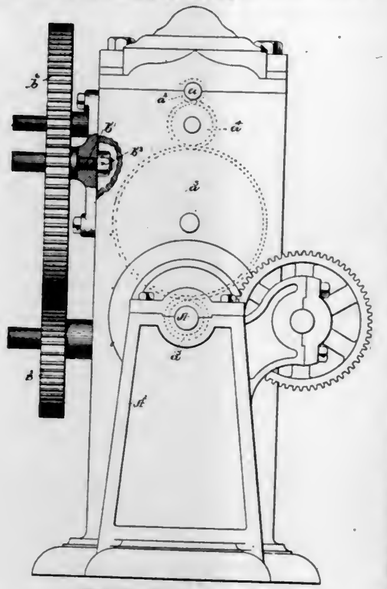
521,771. MILLING-MACHINE. CHARLES H. TRASK, Lynn, Mass. Filed Mar. 3, 1890. Serial No. 342,342. (No model.)

Claim.—1. The combination of the main shaft of the machine, the shaft a carrying a milling tool and connected with the main shaft, an arbor for supporting a tool blank, the arbor support B, an arbor rotating device supported by the arbor frame, its gear b^{3} a driving gear operated by the main shaft, and an adjustable intermediate gear connecting the said driving gear and the gear b^{5} upon the arbor frame, to permit the vertical movement of the arbor frame operating gear, as and for the purposes described.

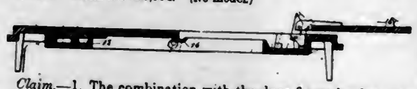
2. The combination with the main shaft of the machine, the shaft a carrying a milling tool and connected with the main shaft, an arbor for supporting a tool blank, the arbor frame, means for communicating vertical movements to said frame, an arbor rotating device supported by said frame, its gear b^{3}, a driving gear operated by the main shaft, an adjustable intermediate gear connecting the said driving gear and the gear b^{5} to permit of the vertical movement of the gear b^{5}, and an adjustable spindle or shaft on which said intermediate gear is mounted to turn, substantially as described.

3. The combination with the main shaft of the machine, the shaft a carrying a milling tool and connected with the main shaft, an arbor for supporting a tool blank, the arbor frame, means for communicating vertical movements to the said frame, an arbor rotating device supported by said frame, its gear b^{3}, a driving gear operated by the main shaft, an intermediate gear connecting the said driving gear and the gear b^{5} to permit of the vertical movement of the gear b^{5}, a spindle or shaft on which said intermediate gear is mounted to turn, and a bracket having a slot b^{13} in which said spindle or shaft is adjustably secured, the said bracket having also in its ends slots for the passage of the securing bolts, and the said slots permitting the bracket to be moved to vary the inclination of the slot b^{13}, substantially as described.

4. The combination with the main shaft of the machine, the shaft a carrying a milling tool and connected with the main shaft, an arbor for supporting a tool blank, the arbor frame, means for communicating vertical movements to the said frame, an arbor rotating device supported by said frame, its gear b^{3}, a driving gear operated by the main shaft, an intermediate gear connecting the said driving gear and the said gear b^{5}, to permit of the vertical movement of the gear b^{5}, a spindle or shaft on which said intermediate gear is mounted to turn, and a bracket having a slot b^{13} in which said spindle or shaft is adjustably secured, substantially as described.



521,772. DOOR AND HINGE. WILLIAM VAUGHAN, Jr., Passaic, N. J., assignor of one-half to William Latham, same place. Filed Feb. 9, 1894. Serial No. 499,591. (No model.)



Claim.—1. The combination with the door frame having a gutter in its upper face around the door opening, of the hinged doors one of which is provided at its free edge with a gutter discharging into the first named gutter; the free edge of the other door being adapted to overlap the said guttered edge of the first named door, substantially as described.

2. The combination with the door frame having recesses in its upper face at opposite sides of its door opening, of the hinged doors flush with the outer face of the frame and each provided with slotted hinge butts having inclined or undercut end walls 19, links pivoted in the butt slots and having said ends inclined or shaped to engage the correspondingly shaped portions 19, and the stationary slotted butts secured to the outer walls of said frame recesses and to which the opposite or outer ends of the links are pivoted, substantially as described.

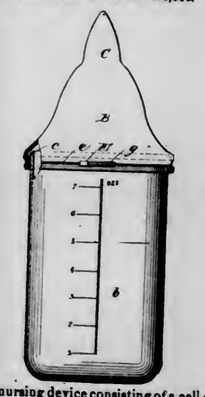
3. The combination, with the door frame having recesses therein and bearing blocks in the bottoms of the recesses, of the swinging door, the slotted butts secured to the door, the slotted blocks in the recesses of the frame, and the links connecting the blocks and butts and adapted to lie upon the bearing blocks, substantially as described.

4. The herein-described hinge, comprising a pair of butts having projecting knuckles, a flange on one of the butts, a link arranged between the knuckles and having side lugs interlocking with the knuckles and pivoted thereto, and bosses on one set of lugs to overlie the upper side of the flange of the butt, substantially as described.

5. The herein-described hinge, comprising a butt having end flanges and knuckles arranged between the flanges, a second butt having projecting knuckles thereon and a flange at right angles to the knuckles, and a link connecting the two sets of knuckles, the link having side lugs projecting between the knuckles with bosses on one set of the lugs to engage the flange on the second butt, substantially as described.

6. The herein described hinge, comprising a butt having end flanges, knuckles projecting from the back part of the butt between said flanges, a second butt having projecting knuckles and a flange at right angles to the knuckles, and a link connecting the knuckles of the two butts, the link having side lugs to interlock with the butts, the lugs on one side being flat ended and the other set of lugs having end bosses to engage the flange of the second butt, substantially as described.

521,773. NURSING-BOTTLE. WILLIAM M. DECKER, Kingston, N. Y. Filed Sept. 23, 1893. Serial No. 486,686. (No model.)

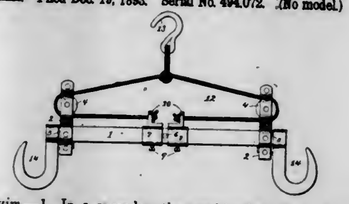


Claim.—1. A nursing device consisting of a cell or receptacle having substantially an uncontracted and open upper portion closed by an elastic breast of dome-shaped form, terminating at its apex in a perforated nipple, substantially as and for the purposes set forth.

2. In a nursing device, the combination, with a receptacle having an uncontracted open upper end and an elastic dome-shaped cover terminating at its apex in a dome-shaped nipple, of a clamping device for the cover consisting of a pliable band and a locking bar pivoted in a slot of the link and attached by its inner end to the other end of the band, substantially as described.

3. As a new article of manufacture a cover for a nursing cell or food receptacle, consisting of an elastic dome-shaped breast open at its base and adapted to embrace the cell, and terminated near its upper portion and made integral with a perforated nipple, substantially as and for the purpose set forth.

521,774. ANIMAL-SPREADER. JOHN E. PERL, Osage Mission, Kans. Filed Dec. 19, 1893. Serial No. 494,072. (No model.)



Claim.—1. In a spreader, the combination with a horizontal frame, of arms horizontally movable thereon, a rope secured at its opposite ends to the arms, and rope guiding mechanism whereby the weight of the frame is adapted to cause the arms to slide in opposite directions, substantially as set forth.

2. In a spreader, the combination with a horizontal frame consisting of separate side pieces and end pieces, of intermediate horizontally sliding arms provided with collars, pulleys in the end pieces, and a rope supported at a point between its ends above the frame, passing around the pulleys and secured at its opposite ends to the collars, substantially in the manner and for the purpose specified.

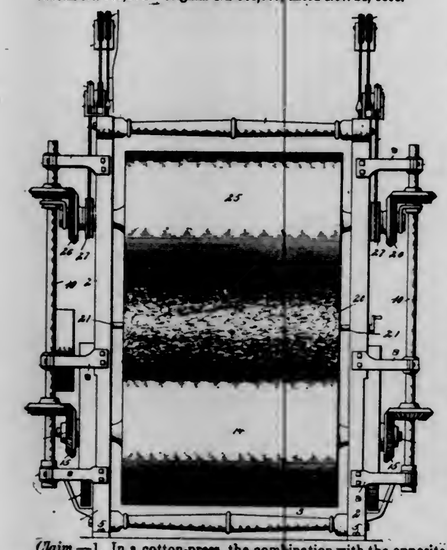
3. In a spreader, the combination with a horizontal frame, horizontally sliding arms thereon, a rope adapted to actuate the arms and support the frame, and mechanism adapted to limit the movement of the arms in either direction, substantially as specified.

4. The combination with a horizontal frame, of horizontally sliding arms thereon, collars adjustable upon the arms, and a rope secured at its opposite ends to the collars guided by the frame and supported at a point intermediate of its ends above the frame, substantially as set forth.

5. The combination with the frame 1, end pieces 2, pulleys 3, of the sliding arms 5 and 6 provided with outwardly opening hooks 14 and adjustable collars 7 and 8, a rope 12 secured at its opposite ends to the adjustable collars, passing around the pulleys 4, and provided with supporting mechanism at a point intermediate of its ends, substantially as specified.

REISSUES.

11,422. COTTON-PRESS. WILLIAM T. BESSONETTE, Temple, assignor, by direct and mesne assignments, to the Bessonette Cotton Compress Manufacturing Company, Waco, Tex. Filed Apr. 19, 1894, Serial No. 508,234. Original No. 506,900, dated Nov. 21, 1893.



Claim.—1. In a cotton-press, the combination with the opposite side frames, the upper and lower rolls, movable journal-boxes for the upper roll, and means for giving motion to said rolls, of an intermediate core-roll, means for exerting pressure upon the upper roll, and means for raising said upper roll above and out of contact with the core roll, substantially as specified.

2. In a cotton press of the class described, the combination with the opposite side-frames, the upper and lower rolls, movable bearing-boxes for the upper roll, pulleys arranged on the ends of the shaft of said roll, and means for giving motion to said rolls, of an intermediate core-roll, means for securing the same removably in position, pulleys on the upper ends of the frames, cables secured at one of their ends to the frame above the upper roll, and passed under the pulleys, on the shaft, and up over the pulley of the frame outwardly to a winding-drum, and means for operating said drum, substantially as specified.

3. In a cotton press of the class described, the combination with the opposite frames, an upper and a lower roll journaled therein, the upper roll being movable vertically, of an intermediate core-roll, rods arranged in openings on the frame and having their lower ends supported upon the bearings of said upper roll, pulleys located in the upper ends of the rods, cables connected to the frames and passed over the pulleys, weights connected to the ends of the cables, for exerting pressure on the upper roll, and means for giving motion to the rolls, substantially as specified.

4. In a cotton press of the class described, the combination with the opposite frames, an upper and a lower roll journaled therein, the upper roll being movable vertically in said frames, of an intermediate core roll, rods arranged in openings in the frame and having their lower ends supported upon the bearings of the said upper roll, pulleys mounted in the upper ends of the rods and pulleys also mounted in the said frames, cables passing over said pulleys on the rods with weights at the ends thereof to bear down on said rods, and cables passing over said pulleys on the frame and passing under the bearings of said upper roll, and a drum and means for revolving the same for winding up said latter cables and so raising said upper roll clear of the core roll, substantially as described.

5. In a cotton press of the class described, the combination with the opposite side frames, the upper and lower rolls journaled therein, vertically movable boxes for the upper roll, vertically movable boxes arranged between the rolls, bearing pins arranged in said latter boxes, means for adjusting one of the pins, a core roll having its shaft journaled upon the pins, and means for giving motion to said rolls, of rods arranged in the upper ends of the frames and bearing upon the bearings of the upper roll, pulleys arranged in the upper ends of the rods and in front and in rear thereof, and guide pulleys arranged adjacent to the press, cables connected to the machine and having their free ends passed over the inner pulleys of the rods down over one of the pulleys of the frame, again over the outer pulleys of the rods, and down under the remaining pulleys of the frame, thence over the guide-pulleys, and weights depending from the guide-pulleys, substantially as specified.

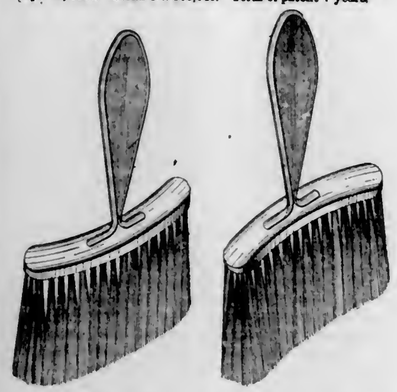
6. In a cotton press of the class described, the combination with the opposite side frames, the upper and lower rolls journaled therein, vertically movable boxes for the upper roll, vertically movable boxes arranged between the rolls, bearing-pins arranged in said latter boxes, means for adjusting one of the pins, a core-roll having its shaft journaled upon the pins, and means for giving motion to said rolls, of rods arranged in the upper ends of the frames and bearing upon the bearings of the upper roll, pulleys on the rods and on the frames, and cables passing over said pulleys, with weights on the ends of said cables for pressing said rods downward and so exerting a pressure on said core roll, substantially as described.

7. In a cotton press of the class described, the combination with the opposite side frames having vertical slots, boxes below the said slots, the shaft 13 arranged in the journal-boxes, the pinions 15 thereon, the movable journal boxes 16 and 23 arranged in the slots, the core-roll 20 having a shaft 21 journaled in the boxes 16, the shaft 24 carrying the roll 25 journaled in the boxes 23, the beveled pinions 26 arranged on the shaft 24, of the bearing arms 8 projecting from the frame, the vertical shafts 10 arranged therein, the pinions 11 on the lower ends of the shaft meshing with the pinions 15, the L-shaped brackets 28, the pinions 12 splined on the shafts 10 and having their hubs connected with the brackets, and means for raising and lowering the compression roll out of and into contact with the core roll, substantially as specified.

8. In a cotton press of the class described, the combination with the opposite frames having vertical slots, boxes below the said slots, the shaft 13 arranged in the journal boxes, the pinions 15 thereon, the movable journal boxes 16 and 23 arranged in the slots, the core-roll 20 having a shaft 21 journaled in the boxes 16, the shaft 24, carrying the roll 25, journaled in the boxes 23 the beveled pinions 26 arranged on the shaft 24, of the bearing arms 8 projecting from the frame, the vertical shafts 10 arranged therein, the pinions 11 on the lower ends of the shaft meshing with the pinions 15, the L-shaped brackets 28, the pinions 12 splined on the shafts 10 and having their hubs connected with the brackets, means for detaching said core roll from its bearings, and means for raising and lowering the compression roll out of and into contact with the core roll, substantially as specified.

DESIGNS.

23,367. HAT-BRUSH. ALFRED S. MILES, Brooklyn, N. Y. Filed Apr. 18, 1894. Serial No. 508,046. Term of patent 7 years.



Claim.—The design for a hat brush, substantially as herein shown and described.

23,368. BROOCH. WALLACE DURAND, Newark, N. J. Filed May 25, 1894. Serial No. 512,481. Term of patent 3½ years.



Claim.—The design for a brooch or breast-pin herein shown and described.

23,369. BROOCH. WALLACE DURAND, Newark, N. J. Filed May 25, 1894. Serial No. 512,482. Term of patent 3½ years.



Claim.—The design for a brooch or breast-pin herein shown and described.

23,370. BROOCH. WALLACE DURAND, Newark, N. J. Filed May 25, 1894. Serial No. 512,483. Term of patent 3½ years.



Claim.—The design for a brooch or breast-pin herein shown and described.

23,371. BROOCH. WALLACE DURAND, Newark, N. J. Filed May 25, 1894. Serial No. 512,484. Term of patent 3½ years.



Claim.—The design for a brooch or breast-pin herein shown and described.

23,372. BROOCH. WALLACE DURAND, Newark, N. J. Filed May 25, 1894. Serial No. 512,485. Term of patent 3½ years.



Claim.—The design for a brooch or breast-pin herein shown and described.

23,373. BROOCH. WALLACE DURAND, Newark, N. J. Filed May 25, 1894. Serial No. 512,486. Term of patent 3½ years.



Claim.—The design for a brooch or breast-pin herein shown and described.

23,374. BROOCH. WALLACE DURAND, Newark, N. J. Filed May 25, 1894. Serial No. 512,487. Term of patent 3½ years.



Claim.—The design for a brooch or breast-pin herein shown and described.

23,375. BROOCH. WALLACE DURAND, Newark, N. J. Filed May 25, 1894. Serial No. 512,488. Term of patent 3½ years.



Claim.—The design for a brooch or breast-pin herein shown and described.

23,376. BROOCH. WALLACE DURAND, Newark, N. J. Filed May 25, 1894. Serial No. 512,489. Term of patent 3½ years.



Claim.—The design for a brooch or breast-pin herein shown and described.

23,377. BROOCH. WALLACE DURAND, Newark, N. J. Filed May 25, 1894. Serial No. 512,490. Term of patent 3½ years.



Claim.—The design for a brooch or breast-pin herein shown and described.

23,378. BROOCH. WALLACE DURAND, Newark, N. J. Filed May 25, 1894. Serial No. 512,491. Term of patent 3½ years.



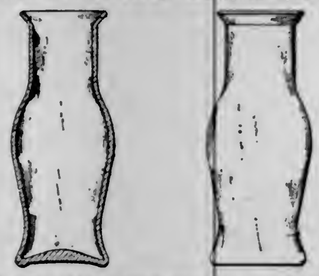
Claim.—The design for a brooch or breast-pin herein shown and described.

23,379. SPOON. GEORGE E. HOMER, Boston, Mass. Filed Jan. 25, 1894. Serial No. 498,064. Term of patent 7 years.



Claim.—The design for a spoon as herein shown and described.

23,380. BOTTLE. WILLIAM L. JUHRING, Brooklyn, N. Y. Filed May 22, 1894. Serial No. 512,125. Term of patent 7 years.



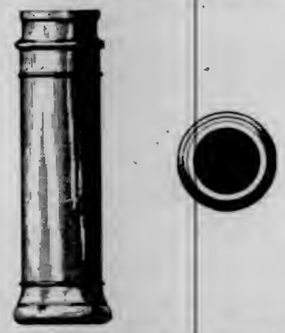
Claim.—The design for bottles herein shown and described.

23,381. BOTTLE. CHARLES A. TATUM, New York, N. Y., assignor to Whitall, Tatum & Co., same place. Filed May 23, 1894. Serial No. 512,234. Term of patent 14 years.



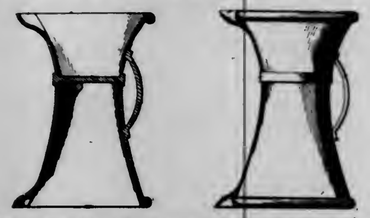
Claim.—The design for a bottle, substantially as shown and described.

23,382. PACKING-JAR. CHARLES GULDEN, New York, N. Y. Filed Apr. 24, 1894. Serial No. 508,881. Term of patent 7 years.



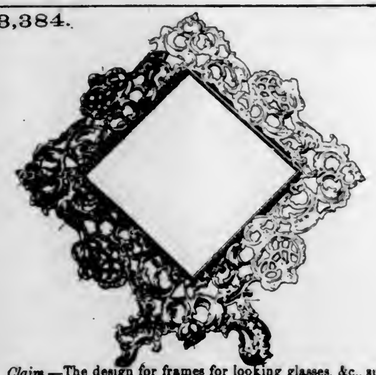
Claim.—The design for a packing jar, substantially as herein shown and described.

23,383. MEASURING-VESSEL. ROBERT CEDERSTROM, St. Louis, Mo. Filed May 21, 1894. Serial No. 512,018. Term of patent 7 years.



Claim.—The design for a measuring vessel, as herein shown and described.

23,384. MIRROR-FRAME, &c. LOTHAR VON GRAVE, Wallingford, Conn., assignor to the H. L. Judd & Company, New York, N. Y. Filed May 1, 1894. Serial No. 508,731. Term of patent 3½ years.



Claim.—The design for frames for looking glasses, &c., substantially as shown and described.

23,385. PICTURE-FRAME, &c. LOTHAR VON GRAVE, Wallingford, Conn., assignor to the H. L. Judd & Company, New York, N. Y. Filed May 8, 1894. Serial No. 510,544. Term of patent 3½ years.



Claim.—The design for frames for pictures, mirrors and the like substantially as shown and described.

23,386. PICTURE-FRAME, &c. LOTHAR VON GRAVE, Wallingford, Conn., assignor to the H. L. Judd & Company, New York, N. Y. Filed May 10, 1894. Serial No. 510,802. Term of patent 3½ years.



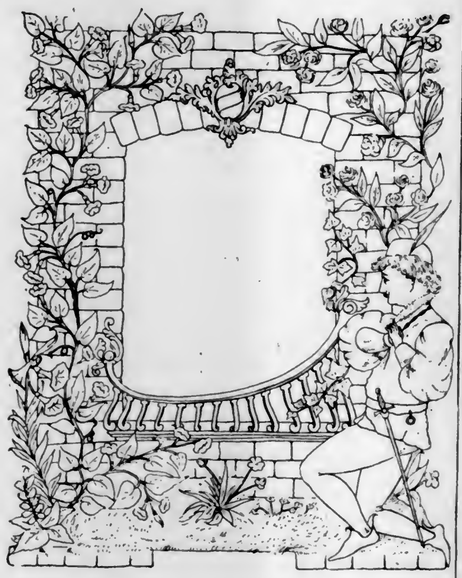
Claim.—The design for frames for pictures, mirrors and the like, substantially as shown and described.

23,387. PICTURE-FRAME, &c. LOTHAR VON GRAVE, Wallingford, Conn., assignor to the H. L. Judd & Company, New York, N. Y. Filed May 10, 1894. Serial No. 510,803. Term of patent 3½ years.



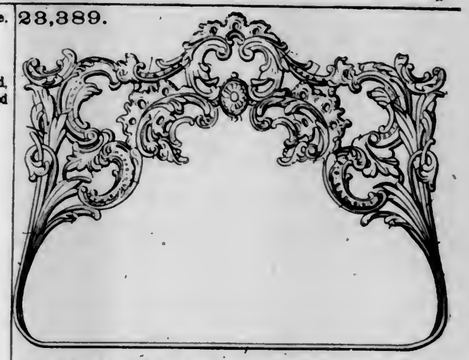
Claim.—The design for frames for pictures, mirrors, and the like, substantially as shown and described.

23,388. PICTURE-FRAME. CHARLES F. MOSMAN, Bridgeport, Conn., assignor to Andrew Krouse, same place. Filed May 23, 1894. Serial No. 512,236. Term of patent 3½ years.



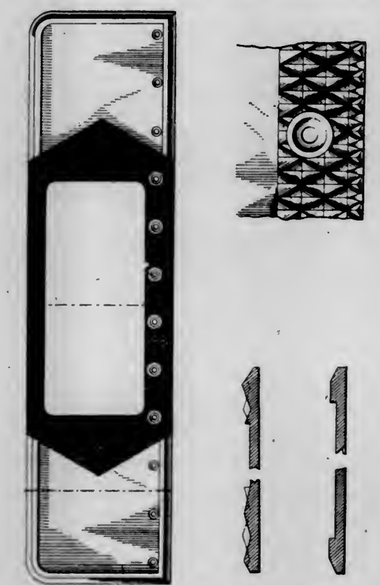
Claim.—The design for a picture frame substantially as shown in the accompanying drawing.

23,389. BACK PLATE FOR RACKS. CHARLES C. WIENTGE, Providence, R. I., assignor to the Howard Sterling Company, same place. Filed May 10, 1894. Serial No. 510,796. Term of patent 3½ years.



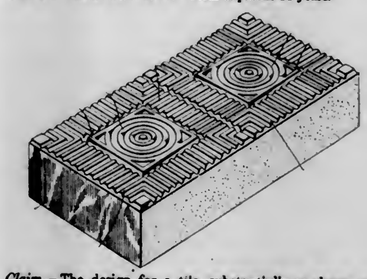
Claim.—The design for back plates for racks as herein shown and described.

23,390. THRESHOLD-PLATE. WILLARD F. RICHARDS, Buffalo, N. Y. Filed May 4, 1894. Serial No. 510,112. Term of patent 14 years.



Claim.—The design for a threshold plate herein shown and described.

23,391. TILE. WILLIAM B. HAYDEN, New York, N. Y. Filed May 26, 1894. Serial No. 512,570. Term of patent 14 years.



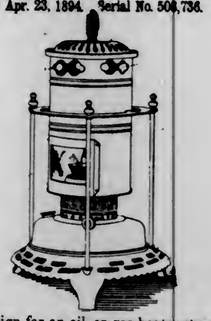
Claim.—The design for a tile, substantially as shown and described.

23,392. SAP-SPOUT. ALONZO M. FOSTER, Cabot, Vt. Filed May 14, 1894. Serial No. 511,252. Term of patent 7 years.



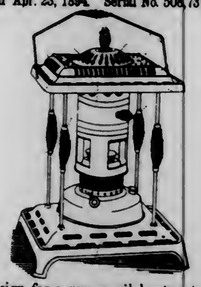
Claim.—The design for a sap spout, substantially as herein shown and described.

23,393. OIL OR GAS HEATER STAND. AUGUSTINE C. WEST, Boston, Mass. Filed Apr. 23, 1894. Serial No. 508,736. Term of patent 7 years.



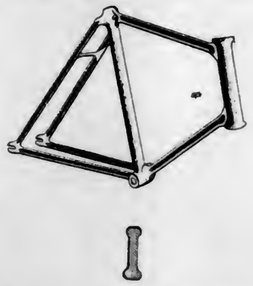
Claim.—The design for an oil, or gas heater-stand, substantially as described and shown.

23,394. OIL OR GAS HEATER STAND. AUGUSTINE C. WEST, Boston, Mass. Filed Apr. 23, 1894. Serial No. 508,737. Term of patent 7 years.



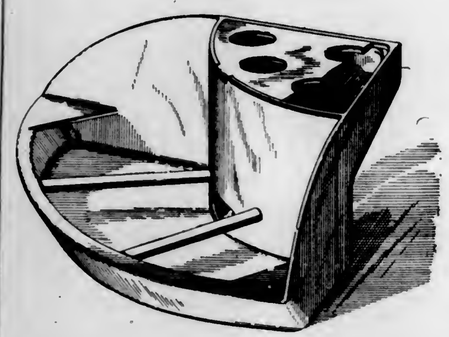
Claim.—The design for a gas, or oil heater-stand, substantially as described and shown.

23,395. BICYCLE FRAME. FRANK G. STARK, St. Louis, Mo., assignor to the Carbo-Alumina Metal Company, same place. Filed Jan. 8, 1894. Serial No. 496,208. Term of patent 14 years.



Claim.—The design for a bicycle frame, substantially as herein shown and described.

23,396. FEED-TROUGH. JARED G. DAVIS, Lee, Mass. Filed May 16, 1894. Serial No. 511,434. Term of patent 14 years.



Claim.—The design for a feed trough hereiu shown and described.

TRADE-MARKS

REGISTERED JUNE 19, 1894.

24,882. CERTAIN NAMED PAPER. CRANE & Co., Dalton, Mass. Filed May 26, 1894.

PARCHMENTINE.

Essential feature.—The word "PARCHMENTINE." Used since November, 1877.

24,883. WRITING AND OTHER PAPER. CRANE & Co., Dalton, Mass. Filed May 26, 1894.

FLAXINE

Essential feature.—The word "FLAXINE." Used since June 15, 1876

24,884. COTTON FABRICS. AMOSKEAG MANUFACTURING COMPANY, Manchester, N. H. Filed Mar. 14, 1894.

BLUE JACKET

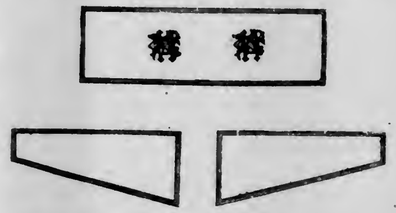
Essential feature.—The words "BLUE JACKET." Used since February 17, 1894.

24,885. CASSIMERES. THE REYNOLDS MANUFACTURING CO., Davisville, R. I. Filed May 16, 1894.



Essential feature.—The representation of a curtain hanging in festoons from a central point to a point on each side from which it hangs loosely down and the word "WASHINGTON." Used since 1849.

24,886. BUTTONS MADE OF WOOD, IVORY, AND METAL, AND CLOTH-COVERED BUTTONS. NELSON C. NEWELL, Springfield, Mass. Filed May 14, 1894.



Essential feature.—A monogram composed of the letters "NCN" and the representation of a parallelogram flanked by quadrilateral wings, of the form of right triangles with their apexes cut off. Used since March 25, 1874.

24,887. CIGARETTES. WILLIAM P. WARD, New York, N. Y. Filed May 4, 1892.



Essential feature.—The word "TOPSY" and a representation of the head and shoulders of a negro girl. Used since March 1, 1892.

24,888. CHEWING-GUM. ALBERT F. LEVI, Cincinnati, Ohio. Filed Apr. 2, 1894.

SPRUCINE

Essential feature.—The word "SPRUCINE." Used since February 1, 1894.

24,889. GELATINE. M. MICHAELIS & SONS, New York, N. Y. Filed Feb. 19, 1894.

GOLDEN FLAKE

Essential feature.—The words: "GOLDEN FLAKES." Used since December 15, 1889.

24,890. WHEAT-FLOUR. KUHRARDT & CO. New York, N. Y. Filed Mar. 24, 1894.

CHATEAUBRIANT

Essential feature.—The word "CHATEAUBRIANT." Used since October 16, 1891.

24,891. WHEAT-FLOUR. SPARKS MILLING COMPANY, Alton, Ill. Filed May 23, 1894.

ARMADALE

Essential feature.—The word "ARMADALE." Used since 1865.

24,892. CERTAIN NAMED FOOD PRODUCTS. R. C. WILLIAMS & Co. New York, N. Y. Filed May 22, 1894.

Elite

Essential feature.—The word "ELITE." Used since January, 1884.

24,893. CURED MEATS AND LARD. MINNESOTA PACKING AND PROVISION COMPANY, Chicago, Ill., and South St. Paul, Minn. Filed May 22, 1894.

"SWEETHEARTS"

Essential feature.—The word "SWEETHEARTS." Used since April 19, 1894.

24,894. LAUNDRY STARCH. THE NATIONAL STARCH MANUFACTURING COMPANY, Covington, Ky., and New York, N. Y. Filed Jan. 11, 1894.

24,894.



Essential feature.—A representation of the sun partly visible above clouds and surrounded by rays. Used since 1876.

24,895. TOILET SOAP. BELLE V. CUSHMAN, New York, N. Y. Filed Apr. 28, 1894.

BELL'S.
HYGEIA.

Essential feature.—The words "BELL'S HYGEIA." Used since April 1, 1894.

24,896. PERFUMERIES, TOILET WATERS, SACHET-POWDERS, AND TOILET SOAP. THE C. B. WOODWORTH SONS COMPANY, Rochester, N. Y., Boston, Mass., and Chicago, Ill. Filed May 18, 1894.

DIANA

Essential feature.—The word "DIANA." Used since April 1, 1894.

24,897. MEDICINAL PREPARATIONS FOR THE HAIR AND SCALP. EXCELSIOR MANUFACTURING CO., Logansport, Ind. Filed May 15, 1894.



Essential feature.—The representation of a human head with bald forehead having a monogram imprinted thereupon. Used since January 1, 1894.

24,898. CARBONATED TONIC MEDICINAL BEVERAGES. G. D. DOWS & COMPANY, Revere and Boston, Mass. Filed May 18, 1894.

STOCKENE

Essential feature.—The word "STOCKENE." Used since May 15, 1893.

24,899. MEDICINAL PREPARATION FOR THE CURE OF COUGHS, CONSUMPTION, SUMMER COMPLAINT, AND KIDNEY DISEASES. FISHER & FAIRBANKS, Boston, Mass. Filed May 22, 1894.

ROCK

Essential feature.—The word "ROCK," and the representation of a seal bearing the monogram "F & F." Used since February, 1879.

24,900. REMEDY FOR DISEASES OF THE LUNGS AND AIR-PASSAGES. THOMAS S. SPIVEY, Cincinnati, Ohio. Filed May 23, 1894.

PIPTHOL

Essential feature.—The word "PIPTHOL." Used since April 15, 1894.

24,901. PAIN-ERADICATORS, OINTMENTS, SALVES, LINIMENTS, AND PINK-EYE, DISTEMPER, AND COLIC CURES. THE NEW METZGER MEDICINE COMPANY, Decorah, Iowa. Filed Apr. 7, 1894.

METZGER'S

Essential feature.—The name "METZGER'S." Used since January, 1884.

24,902. MEDICINAL STRENGTHENING-PLASTERS. JOHNSON & JOHNSON, New Brunswick, N. J., and New York, N. Y. Filed May 24, 1894.

Johnson's

Essential feature.—The fac simile signature "JOHNSON'S" in round hand script. Used since April, 1888.

24,903. VESSELS FOR PHYSICIANS' AND SURGEONS' USE. LEONARD A. DESSAR, New York, N. Y. Filed Feb. 15, 1894.

DR. DESSAR'S NASAL DOUCHE CUP.

Essential feature.—The words "DR. DESSAR'S NASAL DOUCHE CUP." Used since January, 1891.

24,904. LUBRICATING-OIL. ABRAM W. HARRIS, Providence, R. I. Filed Apr. 16, 1894.

ENGINE OIL

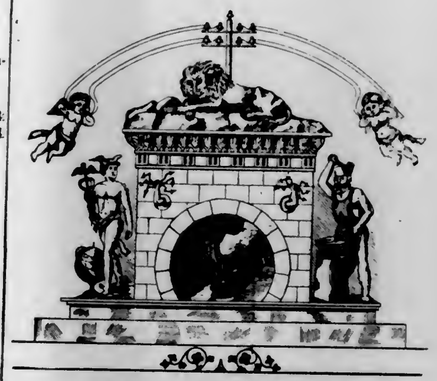
Essential feature.—The words "ENGINE OIL" over the representation of a heart-shaped shield. Used since January 7, 1885

24,905. CLEANING AND POLISHING PREPARATION FOR USE ON WOOD AND METAL. EUGÈNE FOURGAULT, Asnières, France. Filed Jan. 12, 1894.

Eugène Fourgault

Essential feature.—The fac-simile signature, "EUGÈNE FOURGAULT" written in an oblique direction. Used since February 15 1893

24,906. PORTLAND CEMENT. H. & E. LION, Hamburg, Germany. Filed May 8, 1894.



TELEPHONE

Essential feature.—The representation of a stone arch with a tunnel-like opening in which appears a locomotive and a train of cars, on the top of the arch a reclining lion, at the left of it, a figure of Mercury and a globe, and at the right of it, a figure of Vulcan, and upon its face, bended human arms holding bunches of barbed shafts and directly above the structure a telephone pole with double wires extending down each side and terminating in the figure of a cherub holding a telephone receiver to its ear and a telephone transmitter to its mouth and the word "TELEPHONE" as shown in the accompanying fac simile. Used since December 15, 1885.

24,907. FLASH-LAMPS. ALEXANDER HERSLEY, Philadelphia, Pa. Filed May 17, 1894.

SUN-FLASH

Essential feature.—The word "SUN-FLASH." Used since March 15, 1892.

24,908. REFRIGERATORS. THE FRANCIS T. WITTE HARDWARE COMPANY, New York, N. Y. Filed Dec. 1, 1893.

MACKINAW

Essential feature.—The word "MACKINAW." Used since July 1, 1887.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

DUNHAM *v.* DENNISON MANUFACTURING COMPANY.

Decided May 26, 1894.

DUNHAM—COMBINED TAG AND ENVELOPE—REISSUE—DIFFERENT INVENTION—VOID.

The reissue No. 10,488, dated June 10, 1884, altering the description throughout and changing the claims of Patent No. 277,245, dated May 8, 1883, to Joseph T. Dunham, for "a combined tag and envelope, consisting of an envelope having at one end a flap of sufficient size to cover one side of the envelope," so as to include a flap of any size or shape, *Held* to be void, as being for a different invention.

APPEAL from the Circuit Court of the United States for the Southern District of New York.

STATEMENT OF THE CASE.

This was a bill in equity for the infringement of two patents for inventions, granted by the United States to the plaintiff; the one a reissue, dated June 10, 1884, of a patent issued May 8, 1883, for "a new and improved combined tag and envelope;" and the other an original patent, dated November 24, 1885, "for certain improvements in envelopes." Upon a hearing in the circuit court on pleadings and proofs, the bill was dismissed, for the reasons stated in the opinion of Judge COXE, which was as follows:

This is an equity action founded upon two Letters Patent granted to the complainant. The first, a reissue patent, No. 10,488 dated June 10, 1884, is for a combined tag and envelope; and the second, No. 331,118, dated November 24, 1885, is for an improvement in envelopes.

The reissued patent will be first considered. The defenses are lack of novelty and invention, non-infringement, and that the reissue is void because of an unwarrantable expansion of its claims. The original Patent, No 277,245, was dated May 8, 1883. The application for the reissue was filed March 18, 1884, ten months and ten days thereafter.

The invention of the original was limited, as clearly as the drawings and the language of the description and claims could limit it, to an envelope having at one end a flap of sufficient size to cover one side of the envelope. The inventor says:

"The object of the invention is to form an envelope with an end flap covering its side, as hereinafter described. * * * An envelope, A, preferably made of strong water-proof paper, is provided with an end flap, B, of sufficient size to cover the entire envelope. An eyelet, C, is secured in that end of the envelope opposite to the one to which the flap B is attached, and the flap B is provided on its free end with an eyelet, D, which, when the flap B is folded over the envelope, rests upon the eyelet C."

He then describes the manner in which the name of the consignee is concealed by writing it on the inside of the flap, so that dealers engaged in the same business cannot ascertain the names of their rivals' customers. The name of the consignor is printed on the outer surface of the flap, where also appears the name of the city or town to which the goods are destined; and a notice to carriers that the full name of the consignee may be found on the inner surface.

It is evident that the patentee considered this peculiar form of flap the main feature of his invention. It is also clear that an envelope which does not include a flap large enough to cover its side does not infringe the claims, which are as follows:

1. A combined tag and envelope made substantially as herein shown and described, and consisting of an envelope having at one end a flap of sufficient size to cover one side of the envelope, as set forth.

2. In a combined tag and envelope, the combination, with an envelope, A, having a flap, B, at one end, of the eyelet D in the free end of the flap, and the eyelet C in that end of the envelope opposite the one to which the flap is attached, substantially as herein shown and described, and for the purpose set forth.

The specification is perfectly plain. There is no ambiguity about the description, and the claims, in language equally clear, cover what is said to be the invention, and the whole thereof.

Soon after the patent was granted, the defendant, in the summer of 1883, commenced manufacturing tag envelopes, which the complainant insists are infringements of the reissue, but frankly admits that they do not infringe the original patent, for the reason that they do not have the flap B.

The reason for the reissue is thus stated in the complainant's brief: "Soon after putting the patented article on the market, complainant was informed that defendant, a corporation that had for some time manufactured in Boston and made extensive sales throughout the country of a shipping tag, was manufacturing and selling a tag envelope similar to complainant's. Complainant immediately applied to counsel for the purpose of commencing suit against defendant, and was advised by such counsel, after an examination of his Letters Patent and a statement of his invention and application, that his patent was defective, indefinite and ambiguous in its claims, so as to render it practically inoperative, and that he had better apply for a reissue."

The patentee himself states that the alleged infringing envelope of the defendant was one of the forms "invented by him, but not shown in his patent," and he therefore sought a reissue which would cover it.

Turning now to the reissue, it is manifest that the effort was to discard the flap B as an element of the invention, and expand the claims sufficiently to cover an envelope, no matter what the size or shape of its flap. The invention no longer consists in "an envelope with an end flap covering its side," as in the original, but "in a tag provided with means for attaching it to the merchandise, and with an envelope or pocket to receive a bill or invoice of the merchandise." The drawings are referred to as showing the invention "in its preferred form." The end flap is no longer "of sufficient size to cover the entire envelope," but it must cover it "substantially."

The claims of the reissue are as follows:

1. A combined tag and envelope, substantially as described, wherein the flap which closes the mouth of the envelope is fastened down by the cord or other device which secures the tag to the merchandise, as set forth.

2. A combined tag and envelope, substantially as described, the flap having an eyelet-hole which, when the said flap is folded down on the envelope, coincides with an eyelet-hole in the envelope, whereby the cord or hook for attaching the tag may be passed through both holes, substantially as set forth.

3. In a combined tag and envelope, the combination, with an envelope, A, having a flap, B, at one end, of the eyelet D in the free end of the flap, and the eyelet C in that end of the envelope opposite the one to which the flap is attached, substantially as herein shown and described, and for the purpose set forth.

The third claim of the reissue is the same as the second of the original, but it is not contended that this claim is infringed. Claims 1 and 2 of the reissue are unquestionably broadened. They are no longer limited to a flap of sufficient size to cover the entire envelope. Should the court hold that they are so limited, it is admitted that they are not infringed

It is thought that these expanded claims cannot escape the force of the repeated decisions of the Supreme Court relating to reissued patents.

The patentee made no move until the defendant had produced its envelope, which could be sold without infringing the original patent. If he had been the first inventor of this new and improved form, he might have described and claimed it in the original patent. He did neither. He now seeks by the reissue to include structures and improvements which were neither described nor claimed in the original. This he cannot do. The defendant has acquired valuable rights which cannot be trampled upon in this manner.

The law upon this subject is too well settled to require a citation of authorities; but the case of *Coon* v. *Wilson*, (30 O. G., 889; 113 U. S., 268,) seems peculiarly applicable and controlling. Substitute the nomenclature pertaining to envelopes for that relating to collars, and the opinion in *Coon* v. *Wilson* is as applicable to this controversy as if written for the purposes of this action only: "Although this reissue was applied for a little over *ten* months after the original patent was granted, the case is one where it is sought merely to enlarge the claim of the original patent, by repeating that claim and adding others; where no mistake or inadvertence is shown, so far as the *extended flap* is concerned; where the patentee waited until the defendant produced *its short-flapped envelope*, and then applied for such enlarged claims as to embrace

the defendant's *envelope*, which was not covered by the claim of the original patent, and where it is apparent, from a comparison of the two patents, that the reissue was made to enlarge the scope of the original. As the rule is expressed in the recent case of *Mahn* v. *Harwood*, (80 O. G., 657; 112 U. S., 354,) a patent cannot be lawfully reissued for the mere purpose of enlarging the claim, unless there has been a clear mistake, inadvertently committed, in the wording of the claim, and the application for a reissue is made within a reasonably short period after the original patent was granted. But a clear mistake, inadvertently committed, in the wording of the claim is necessary, without reference to the length of time. In the present case there was no mistake in the wording of the claim of the original patent. The description warranted no other claim. It did not warrant any claim covering *an envelope not provided with the flap B*."

The second patent in controversy, No. 331,118, dated November 24, 1885, is for an improvement in envelopes intended for mailing samples and similar matter, and for use as tags for marking goods to be shipped. The defenses are abandonment, lack of novelty and invention, and non-infringement.

The principal object of the invention, as stated in the specification, was to obviate the difficulty which existed in prior devices, which were so constructed that, in order to get at the contents of the envelope, it was necessary to untie the string or remove the fastening which secured the flap. The envelope of the patent is so constructed that the flap can be opened, when desired, and the contents inspected, without tearing the envelope, or removing or breaking the fastenings. The claims are as follows:

1. An envelope having a flap, C, provided with a re-enforced hole, *c'*, and having a similar hole, *c*, in the front ply of its body, and the said holes constructed to register or coincide when the flap C is folded down, whereby the end of the back ply, *b*, of the envelope-body, which extends entirely across the latter, is clamped and removably secured, substantially as shown and described.

2. A mailing and tag envelope having a flap, C, folded over on and secured down to the inner face of the front ply of the body, the said flap being also constructed to take over the free end of the back ply of the body, as shown, whereby the mouth of the envelope covered by said flap C is secured against accidental opening, substantially as and for the purposes set forth.

In view of what was known when the patent was applied for, a broad construction of these claims is out of the question. A construction which would include the defendant's envelope would render the claims void for lack of novelty, for the general features of the patented envelope are shown in the Patent No. 81,962, September 8, 1868, to Sigmund Ullman, and in other prior structures. If the claims are limited to the peculiar construction shown in the specification and drawings, the defendant does not infringe. In the defendant's envelope one eyelet is used, which aids the gum in fastening the flap down permanently upon the back ply of the envelope.

A large number of exhibits have been introduced, showing the defendant's envelope. These have been changed and mutilated by the witnesses in illustrating opposing theories. But both sides apparently agree that the envelopes made by the defendant since the date of this patent are constructed with the eyeleted flap securely fastened. The complainant's brief contains this statement: "After defendant put its tag envelope on the market, it changed the construction several times, until it finally adopted the form introduced in evidence as the infringing specimen. See complainant's Exhibit Taylor and Mayo, which was received in 1883, and also has the eyelet-holes, with washers only; also complainant's Exhibit John S. Smith, which was received in 1884, and has the washers reinforced with a short metallic eyelet, with the eyeleted end tightly gummed down; also Exhibit Alonzo B. Smith, received in 1886, with printed advertisement on front, which had the eyeleted end tightly gummed, with washers reinforced by short metallic eyelets."

Evidently it is not intended that the defendant's envelope shall be opened and the contents removed at the end thus securely fastened. The bill or invoice is inserted at the opposite end; the flap at that end is then fastened down, in the well-known manner, by moistening the gum by which it is provided, or the flap may be tucked in between the plies. In other words, the defendant takes an ordinary envelope with the opening at one end; and at the other end, which is never intended to be opened, he puts an eyelet reinforced by washers through the front ply, a portion of the back ply, and the flap of the envelope. The sole object of the eyelet is to provide a suitable hole into which the cord or hook which fastens the envelope to the merchandise may be introduced. The effect of the eyelet and washers is to prevent the back ply from being left free at this end. The defendant has not the object of the patent in view, and does not adopt the patented device.

In complainant's envelope, according to the theory of his expert witness, "the leading idea or principle of the invention is the holding down of the back ply of the envelope by the overlapping of the flap thereon, and the omission of any permanent or secure attachment of the flap to said back ply. * * * The claims are limited to this end of the back ply being left free." This feature is entirely wanting in defendant's envelope. Instead of omitting the secure attachment, he has added the metallic eyelet and washers to the gum of the ordinary envelope. The claims must be restricted to the form and description of the patent, and thus construed they are not infringed.

It is unnecessary to examine the other defenses presented. The bill is dismissed. (40 Fed. Rep., 667.)

From the decree of the circuit court dismissing the bill the plaintiff appealed to this Court.

Mr. Arthur S. Browne and *Mr. Charles G. Coe* for the appellant.

Mr. W. W. Swan for the appellee.

Mr. Justice GRAY, after stating the case, delivered the opinion of the Court.

The facts of this case, and the reasons against maintaining the suit, are so clearly and fully stated in the opinion delivered in the circuit court, that there is no occasion for extended discussion.

The patent of May 8, 1883, was expressly and distinctly, both in the specification and in the claims, limited to an envelope, with an opening at one end; with a flap, attached to the envelope at that end, of sufficient size to cover the whole of that side of the envelope in which the opening was; and with an eyelet in the flap, resting on an eyelet in the opposite end of the envelope, through which eyelets the flap could be secured to the envelope, and both flap and envelope be fastened to the object to be carried. The patentee thus gave the public to understand that an envelope, the flap of which did not cover its whole length, would not come within his patent, and might rightfully be made by any one. After the defendant had made envelopes with a short flap of semicircular shape and covering little more than the opening of the envelope, (which, it is admitted, did not infringe the plaintiff's patent as originally issued,) the plaintiff obtained a reissue, enlarging the claims, and altering the specification throughout, so as to include an envelope with a flap of any size or shape, and to make the invention consist, not, as in the leading words of the description in the original patent, of—

an envelope with an end flap covering its side,

but in—

a tag provided with means for attaching it to the merchandise, and with an envelope or pocket to receive a bill or invoice of the merchandise.

The words of the description in the original patent were neither technical nor complicated; but they were of the simplest kind, and their meaning and scope could not have been misunderstood by any one who read them with the slightest attention, least of all by the patentee. To uphold such a reissue under such circumstances would be to grant a new and distinct privilege to the patentee at the expense of innocent parties, and would be inconsistent with the whole course of recent decisions in this Court. (*Miller* v. *Brass Co.*, 21 O. G., 201; 104 U. S., 350; *Mahn* v. *Harwood*, 30 O. G., 657; 112 U. S., 354; *Coon* v. *Wilson*, 30 O. G., 889; 113 U. S., 268; *Topliff* v. *Topliff*, 59 O. G., 1257; 145 U. S., 156; *Huber* v. *Nelson Co.*, 63 O. G., 311; 148 U. S., 270; *Leggett* v. *Standard Oil Co.*, 63 O. G., 1201; 149 U. S., 287; *Corbin Co.* v. *Eagle Co.*, 65 O. G., 1066; 150 U. S., 38.)

The patent of November 24, 1885, has clearly not been infringed by the defendant; for the peculiar feature of this patent consists in the flap being constructed so that it can be opened, and the contents taken out, without tearing the envelope or removing or breaking the fastenings; whereas in the defendant's envelope that flap is fastened down so that it cannot be opened without injury to it or to the envelope, and the contents are taken out by opening a flap, no more firmly secured than with gum, at the opposite end of the envelope.

Upon these grounds, without considering the questions of lack of novelty and invention in the several patents, the entry must be

Decree affirmed.

U. S. Circuit Court of Appeals—Third Circuit.

FORGIE *v.* OIL WELL SUPPLY COMPANY.

Decided November 21, 1893.

1. FORGIE—OIL-WELL WRENCH—NOT AN INVENTOR—PATENT VOID.
   Letters Patent No. 422,879, dated March 4, 1890, issued to William Forgie, for an oil-well wrench, *Held* to be void, for the reason that Forgie was not the inventor of the wrench.
2. INVENTOR—SUGGESTIONS BY ANOTHER—EMBODYING THE SUGGESTIONS.
   Where F suggests the idea to B that a lifting-jack could be altered so as to adapt it to wrench the drill-rods of oil-wells, but gives no explanation of how such adaptation might be brought about, and where B, without further communication, changes the jack to adapt it to the suggested new use, *Held* that whatever of invention may be involved in the change of the jack belongs to B and not to F.

APPEAL from the Circuit Court of the United States for the Western District of Pennsylvania.

Mr. W. L. Pierce for the appellant.

Mr. James I. Kay for the appellee.

Before DALLAS, BUTLER, and GREEN, Judges.

GREEN, *J.*:

The bill of complaint in this case was filed to restrain the appellee, the defendant below, from infringing certain Letters Patent, numbered 422,879, granted to the appellant on the 4th day of March, 1890, for certain new and useful improvements in wrenches for oil-well tools. In the specification of the Letters Patent it was stated that the invention related to an automatic wrench for coupling and uncoupling the sections of a drill-rod for a well boring or drilling apparatus. The coupling for which the invention was especially adapted for use consisted of a tapering or conical screw the sockets of which were fitted tightly and securely together.

The drilling of oil-wells, especially in the State of Pennsylvania, has become an art well defined and perhaps unique. Originally oil-wells were drilled only two or three hundred feet deep; but, since the flow of oil has lessened from these comparatively shallow reservoirs, wells are now more commonly sunk to a much greater depth—in not a few instances to the depth of three thousand feet—and as the depth has increased so has it been found necessary to increase the diameter of the well. The earlier wells were not more than four inches in diameter; now they are scarcely less than twelve to sixteen or eighteen inches. It followed, of course, that in the drilling of these larger and deeper wells the tools commonly used would necessarily have to be much increased in size successfully to perform the excavation. The apparatus used in drilling these wells is composed of what may be termed a "string" of tools or heavy iron or steel rods, having a sharpened end, operated by steam-power. This string of tools is lifted to a sufficient height by the action of the steam directly over the excavation. When at its maximum height it is dropped suddenly into the well and the drilling is accomplished by the repeated pounding of the tools upon the bottom of the excavation. A string of tools weighs generally from two to three thousand pounds, and it is readily seen with the momentum acquired in their fall its operation is simply tremendous. Now, usually the larger part of the excavation is drilled through solid rock, and hence the concussion of the tools with the rock not only rapidly dulls the lower or sharpened tool in the string, but as well causes dust to arise, which, entering the joints, makes it almost impossible to unscrew them. The lower part of the string of tools is technically called "the bit," and this is fastened by a screw-joint to the tool next above it. At very short intervals it becomes necessary from the dulling effect of the concussion upon the bit to draw the tools from the well and remove the lower section for the purpose of sharpening. This was always an exceedingly difficult operation. As stated, not only did the concussion dull the end of the bit and cause dust and little particles of rock to fill the threads of the screw by which it was attached to the next tool above it, but as well the threads of the screw subjected to so great a blow would be battered and distorted by the concussion with the solid rock.

The manner in which, in the earlier days of oil-wells, the bit was originally unscrewed from the tool immediately above it was this: An arc-shaped track about half an inch thick, called in the evidence a "circle-plate," was secured to the floor of the derrick and connected with the well. In the plate two parallel lines of holes were made nearly from end to end. At one end of this circle-plate was rigidly secured a stout post against which rested the end of a stationary wrench-bar. The other end of this wrench-bar was hook-shaped to grasp the lower section of the drill-rod. This was really, in effect, only a powerful hand to hold stationary the lower section while the upper section was rotated. The upper section of the drill-rod was gripped by the end of a similar wrench-bar, called the "moving" wrench-bar. The other end of this wrench-bar projected out over the circle-plate. A pinch-bar, or practically a crowbar, with the end slightly bent, and of suitable size at the lower end to enter the holes in the circle-plate, was thrust in one of the holes. Two men facing each other grasped this pinch-bar and, one pushing and the other pulling, used it as a lever against the moving wrench-bar. By this means the moving wrench-bar and the drill-rod were swung through a short arc about equal to the distance from one hole to another on the circle-plate. The pinch-bar then, of course, lost its bearing in the first hole of the circle-plate and was removed to the next hole in advance, and so by this crude, tiresome, and repeated application of force to the bar the sections of the drill-rod were at last uncoupled. So difficult was the operation that it often required the united power of many men to accomplish it successfully.

Mr. Forgie, the appellant, was an oil-well driller, and in 1886 was in charge of a gang of men drilling oil-wells in western Pennsylvania. As such operator he was constantly meeting with this great difficulty caused by the want of effective means to couple and uncouple the various parts of strings of tools, and that difficulty evidently caused him to consider whether, in some way or other, the power generated or transmitted by a machine could not be utilized to overcome it. The evidence does not disclose how he came to consider whether the machine or tool generally known

as a "lifting-jack" could be so utilized; but it is apparent from what he did that such an idea was in his mind.

In 1885 Mr. Josiah Barrett, of Allegheny, Pa , had perfected a lifting-jack, or invented certain new and useful improvements in lifting-jacks which very greatly increased the capacity of that tool and perfected its operative power. Mr. Forgie had heard of Mr. Barrett, and probably of the success of his inventive efforts, and sought an interview with him at the office of the Duff Manufacturing Company, of which Mr. Barrett was superintendent. At that interview the difficulties which embarrassed drillers of oil-wells in the manipulation of their drilling-tools were stated by Mr. Forgie, and apparently were fully discussed. Evidently the suggestion that the mechanism and operative power of a lifting-jack could be in some manner utilized to couple and uncouple the sections of a drill-rod was original with Mr. Forgie; but beyond this mere suggestion the evidence does not disclose any further action on his part tending to a solution of the problem involving the adaptation of the jack to the novel purpose.

As a result of this interview, or of others which followed it, Mr. Barrett prepared plans and patterns, changing in some degree and altering not so much the mechanism of his jack as its operation, and made therefrom an experimental tool which successfully accomplished the object in view.

Practically that which had been done was nothing more or less than the adoption of Mr. Barrett's lifting-jack to the movement of the wrench-bar. A number of these tools or devices were made by Mr. Barrett for Mr. Forgie and sold by Mr. Forgie. They became very popular in the oil regions. They clearly filled a vacant place and successfully vanquished the difficulties which had been so hard to combat. In 1890 Mr. Forgie, without notifying Mr. Barrett of his purpose, applied for and obtained Letters Patent for this tool or device as his own invention. As Mr. Barrett continued after the issue of the patent to manufacture the reconstructed jack and put it upon the market for sale, Mr. Forgie filed his bill charging infringement and seeking an injunction and other relief. There is no dispute that the tool manufactured and sold by Barrett is exactly similar to that which had been previously manufactured for and sold by Forgie. If the Letters Patent are valid or if Mr. Forgie is entitled to the credit of the invention, undoubtedly the defendants have infringed.

In the answer filed by the defendants in this cause two defenses are interposed. The one relates to the patentability of the device in question. The second is much more important and serious. It is set forth in the answer in these words:

> But this defendant denies that the said William Forgie was the original, true, and first inventor of said invention, but, on the contrary, this defendant alleges that Josiah Barrett, of the city of Allegheny, county of Allegheny, and State of Pennsylvania, was the inventor and originator of all the material and useful parts of said improvement, and that he communicated the same to the said William Forgie, and that the said William Forgie surreptitiously applied for a patent upon the improvement of said Josiah Barrett and unlawfully obtained Letters Patent therefor.

If that allegation be true, this cause is ended. Who, then, was the inventor of this device in question, Forgie or Barrett? In considering this question it may be well at the outset to understand who are the contestants for the honor of this alleged invention.

Forgie was born in Washington, Pa., about forty-five years ago. He had, probably, but little education, certainly none of a technical character. He appears to have begun life pretty early on his own account, and as a carpenter, or, perhaps, as an apprentice to a carpenter. Tiring, apparently, of this occupation he became a sailor and followed the sea for a period of two years. That seemed to weary him as well and he left that service to become a soldier, doubtless serving out his term of enlistment. He gained some knowledge as a sapper and miner in a military school in Canada, whither he had drifted. Returning to the United States he again enlisted in the army and served for a period of three years. At the end of that period he went to the oil country in Pennsylvania and began to work there as a carpenter. Then he became a driller of oil-wells, and finally a contractor for the construction of oil-wells themselves. Certainly his life and occupations seem not to have been of that character which would carry with them a knowledge of mechanics or of the operation of the laws of mechanics even in their simplest form.

So far as Mr. Barrett, the other claimant of this invention, is concerned, the facts are meager. He does not disclose in his testimony his earlier occupations; but it appears that for a long number of years he had been connected with an iron manufacturing company as a valued employé. He was an inventor, and had, previous to the time in question, invented several tools or machines, especially this lifting-jack, which, it is said, ranks as one of the best known. He had advanced himself in life until he had become the superintendent of a large manufacturing company.

Now it appears from the evidence, as has been stated, that Forgie seems to have been impressed with the apparent inability of mere muscular force rapidly and properly to operate a wrench for the unscrewing of oil-tools, and to have reached the conclusion that in some way or other a mechanical device could be substituted; but this notion, whatever it was, was extremely hazy and without any well-defined limit. He does not, at least in the *prima facie* case as made by him, speak of or describe his alleged invention with particularity, and one of his own witnesses, who was called to substantiate his claim that he was the inventor of the tool in question, is compelled to admit that even after he had received from Mr. Forgie an explanation of mechanical details he was utterly unable to explain intelligibly any of them, and could only say that Forgie had three or four ideas about the matter, but that he did not know whether any of them were practical or not; that the whole of Forgie's idea, as the witness recollected it, was that a jack was to be applied to the screwing and unscrewing of oil-well tools in same way or other. He simply proposed, so far as the witness understood him, to get something that was easier to wrench the joints and unwrench them. The only conclusion which can be drawn from the testimony touching Forgie's knowledge or conception of the present device, which he afterward patented, is that it was extremely indefinite and utterly un-

practical, and it was because of his own inability to formulate his ideas definitely that he sought Mr. Barrett for the purpose of suggesting to him the use of the lifting-jack and to discover from him if it could be so altered and changed and modified that it might accomplish the purpose desired. The accounts given by Mr. Forgie and by Mr. Barrett of the first interview which took place between them is not contradictory. Undoubtedly Mr. Forgie did describe to Mr. Barrett the usual method of coupling and uncoupling the tools with the old appliances and the great necessity for overcoming existing difficulties. He conceded the value and power of the jack invented by Mr. Barrett, and repeatedly said that if it could only be made applicable to this work of coupling and uncoupling oil-well tools he thought it would do the work with ease; but there was the rub. How could it be so applied? Evidently Forgie had not the slightest idea as to this, for nowhere does it appear that he made the slightest suggestion of any practical benefit looking to this end. A lifting-jack was to be used primarily for lifting perpendicularly; but the wrench-bars, in the act of coupling or uncoupling oil-well tools, must be moved horizontally. To a most superficial observer it must have been apparent that to accomplish the last result the position and plans of operation of a lifting-jack must be materially changed. Yet this primary step toward success in solving the problem under consideration was taken by Barrett and not by Forgie. At that very first interview there is no dispute about the fact that Barrett put his jack in such position that it would operate horizontally, and then described to Mr. Forgie the changes that he would make in it, so that it would exert pressure upon the oil-tool wrench; nor is there any serious dispute that at this interview Mr. Barrett also made various sketches or rough drafts of the proposed changes in the jack and of the patterns that would be necessary to construct the tool in accordance therewith. Then, too, it is not denied that Mr. Barrett suggested to Mr. Forgie that a Mr. Rankin, who was a pattern-maker and made for him all the patterns for his lifting-jack, had better be employed to change those patterns or make new patterns according to the rough drafts that Mr. Barrett had made, which would be necessary for the making of the device as it was to be altered. Mr. Forgie, in his account of this same conversation, while he takes more credit to himself for suggestions than Mr. Barrett gives him, does not contradict Mr. Barrett in any particular point, but admits, among other things, that Barrett did say, referring to his lifting-jack:

> Why not go on and use this machine of mine? I have everything necessary to do the work with and can do it much cheaper, and I know it will do the work;

and he adds—

> and consequently we agreed upon that method, and I went to the pattern-maker and got the patterns made accordingly.

This is a corroboration of Barrett's statement, and, taking both accounts together, it clearly shows that when Forgie went to Barrett he had no definite plan in his mind; that he was in pursuit of information and aid; that various plans were talked about, and that finally the conclusion was that Barrett's jack, to be altered as Barrett suggested, was the one that would do the work. Nowhere is there the least intimation in the testimony that Forgie suggested any other mechanism than that which Barrett had described to him as part of his jack. It is a very remarkable feature of this case, and extremely suggestive of the power of Forgie to appropriate, that more than a year afterward, when he applied for this patent, he embodied in the specification of his invention every part of the mechanism of Barrett's lifting-jack without a change or a shadow of a change.

If the statement of Mr. Barrett is true, and it seems to be in harmony with and to be corroborated by other matters in the cause than those referred to, it is quite clear that he should have the honor of this invention, if there be patentable novelty in it at all. Forgie had conceived of no practical tool or device. He had no theory or plan which would enable a lifting-jack to be used as the motive power to couple and uncouple a string of tools used for boring an oil-well. He simply stated when he went to Barrett the necessities of the case and sought from him information whether a certain tool invented and patented by him could not be adapted to meet these necessities.

If this were all the testimony in the case we should have but little, if any, hesitation in giving the credit of this invention to Barrett; but there are other matters which still more strongly preponderate against the claim of Forgie, and one is that for a long time after this modified jack of Barrett was applied to the oil-tool wrench the tool was stamped as Barrett's patent with the full knowledge and consent of Forgie and without protest or objection. This stamping of the tool continued for nearly a whole year. Forgie was the sole person employed to sell them during that time. Every tool passed under his eye, and yet he stands with his mouth closed, without a word of objection to the bold and unlawful appropriation by Barrett of this device as his invention if he were not the inventor. Another corroborating circumstance is this: Rankin, the pattern-maker, who was an entire stranger to Forgie and who had no interest in this matter, states that when Forgie came to see him about the pattern he gave him express directions to see Barrett and obtain from him instructions how to make the patterns. He told him that Barrett was to get up the plans, and that in fact Barrett did get them up and give them to him to make.

Another circumstance corroborating Mr. Barrett's contention is found in this fact: It appears that after a year or more, during which time Mr. Barrett was manufacturing this tool for Mr. Forgie to sell and during which time Barrett's name appeared as patentee upon the machine itself, it came to the knowledge of Barrett that Forgie, after the tool had left Barrett's factory, had chipped off or ground off his name as patentee and affixed his own name in place thereof; that Barrett immediately protested to Forgie that he could not permit such change to be made, and threatened if Mr. Forgie did not instantly cease he himself would stop manufacturing the tool in question for him, and that thereupon Mr. Forgie agreed that he would not again offend in this particular. How can such conduct on the part of Forgie be reconciled to his claim that he was the original inventor of the device in question?

Nor do we think that the facts stated by Mr. Forgie, when examined long after the close of the defendant's case, strengthen his position in the slightest. It was a perfectly-well-defined issue in this case whether Barrett or Forgie was the inventor of this device, and whether Forgie had not surreptitiously and in fraud of Barrett's rights obtained Letters Patent therefor. When he was first examined by his own counsel, upon his direct testimony he failed to give evidence which would raise a doubt as to Barrett's primary conception of the changes in the jack necessary to be made prior to any suggestion which Forgie may have made; but after the close of the defendant's case, and not in rebuttal thereof, but as a part of the *prima facie* case which he should have made originally, and under the explanation or excuse that his counsel had failed to ask him proper questions to bring out the true facts, Forgie, in detail, claims that he was the first inventor of all the mechanism connected with the tool in question, and insisted that he had explained it in full to Barrett only for the purpose of obtaining from Barrett information where the necessary patterns could be made. Such testimony is interjected in the cause at too late a date to be of much weight. Besides, notwithstanding that claim of Forgie, which clearly was an afterthought, he utterly fails to produce any witnesses who had known of such a conception by him of the mechanism in that jack, or any sketches, or any drawings, or any patterns showing that he had materialized his knowledge, if he had any at all, into any practical plan. Admitting that he may have had some conception of what was wanted—which, however, is very doubtful—mere conception is not invention. It is the crystallizing of that conception into the invention itself, operative and practical, that entitled the inventor to the protection of Letters Patent.

Nor can full weight be given to the testimony of Forgie, because he repeatedly contradicts himself while upon the witness stand in important particulars. This may have arisen from infirmity of memory or from the peculiar position that he occupied as a witness in the case; but he cannot rid himself of the effect of the contradictions nor ask the court to place that faith in his statements which, perhaps, otherwise might be given to them.

It is unnecessary to go over any more of the evidence on this part of the case in detail. It is enough to say that the court are satisfied that Mr. Forgie was not the inventor of this device, but that the real credit of the invention, if any there be, belongs to Mr. Barrett.

Counsel for the appellant insisted that if the testimony left in the mind of the court a reasonable doubt upon this point his client was entitled to the benefit of it. A large number of cases, both in the Supreme Court and in the circuits, hold that doctrine; nor do we propose to dispute it. If it were an open question we might consider whether the presumption arising from the granting of the Letters Patent could not be overthrown, as any other presumption at law is overthrown, by the preponderance of evidence; but, accepting it as settled that any doubt is fatal to a claim antagonistic to the validity of Letters Patent themselves because of fraud, we can but say that in this case the principle cannot afford the appellant any assistance. The evidence is too convincing to permit the shadow of a doubt.

Having arrived at this conclusion, it is not necessary to discuss the question of novelty which was raised and ably argued by both counsel before the court. The result is that the judgment of the court below is affirmed.

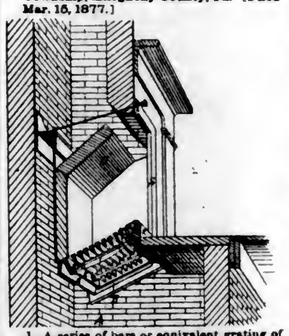
[Vol. 67. No. 12.]

PATENTS

Expired, June 19 1894.

The term of these patents granted during the week ending June 19, 1877, have expired. The reissues expired at an earlier date.

192,046. FIRE-PLACES. Jas. Adair, Aleppo Township, Allegheny County, Pa. [Filed Mar. 16, 1877.]



1. A series of bars or equivalent grating of a fire-grate, extending transversely across from side to side of a fire-chamber, with their side faces oblique to the natural line of draft and sloping from front to rear, whereby the ascending flame, smoke, and ashes are, by the incoming air, deflected or projected obliquely from a vertical direction, substantially as described.

2. In combination with a fire-grate, a rocking-bar, single or double, having the journals v v, and having at one end a poker-slot, substantially as described.

3. In combination with a fire-grate, a rocking-bar, single or double, having the journals v v, and having at one end a poker-slot and stop-pin, substantially as described.

4. An inclined stationary frame, B, having a beveled front, and with its stringers notched or cut away to gain a bearing on the hearth-stone, substantially as described.

5. A flanged grate-frame hung on trunnions, having seats or bearings front and rear, for the gudgeons or journals of the comb-grates and rocking-bar, and with a fore-plate provided with a poker-hole, and a hinged pawl thereat, substantially as described.

6. A mantel-frame having its lower ends or feet connected by a cross-bar made in one piece therewith, in combination with a low-down grate, substantially as described.

7. The stationary frame B, and the ornamenting and protecting cross-bar E at its front end, and a non-conducting packing-space between them, combined substantially as described.

8. The combination of the stationary frame, downwardly inclined from front to rear, and the grate-frame tilting thereon, the center of rotation extending from side to side of the fire-chamber, substantially as described.

9. The combination of a grate-frame, a rocking-bar, and a grate resting on the bar and hinged at one side of the center line of the frame, within which it vibrates, substantially as described.

10. The combination of a rocking-bar and a grate resting thereon and pivoted off the center, substantially as described.

11. The combination of a rocking-bar, the comb-grates resting thereon, the grate-frame, and inclined stationary frame, substantially as described.

12. The rocking-bar I, carried wholly by the tilting grate-frame E, and accessible only through or over the grate frame, for the purpose of agitating the grate-bars, the combination being substantially as set forth.

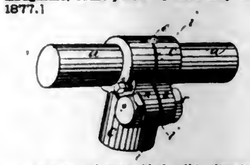
192,047. CIGAR-BOXES. Benjamin Ash, New York, N. Y. [Filed Mar. 8, 1877.]

Brief.—The box is made in two sections, so that when fastened together they constitute a complete box, and when the top is removed the bottom forms a receptacle for displaying the goods.



A cigar-box constructed of a lower section, A, and of an upper removable section, B, the section A being composed of the bottom *a*, back *b*, top *c*, front *f*, and sides *d*, and the section B made of the front *f'*, top *g*, and sides *d'' d''*, but without any back, all arranged to constitute a box, substantially as specified.

192,048. ADJUSTING-CLAMPS. J. S. Atkinson, Pittsburg, Pa., assignor to Jones & Laughlins, same place. [Filed May 28, 1877.]



1. A perforated open sided solid adjusting-clamp, the walls of the hole or perforation extending almost or entirely around, and, at least, more than half way around, the piston or sucker rod, and adapted to be sprung into a griping contact with the rod by the partial or complete closing together of the sides of the slit or open side, substantially as set forth.

2. In a sucker-rod coupling or clamp, the combination of piece *c*, having a hole, *s*, for the reception of the rod, and slit *t*, with lugs *u*, bolt *v*, and nut *r*, substantially as set forth.

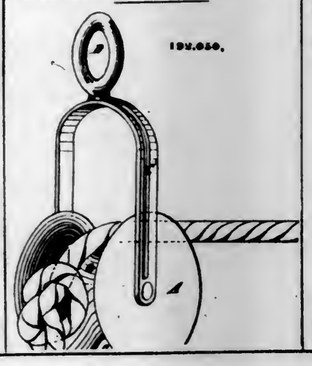
192,049. CHAIN-PUMP BUCKETS. Ira Avery, Tunkhannock, Pa. [Filed Mar. 13, 1877.]



1. A chain-pump bucket composed of a link of common pump chain, with a broad zinc disk or valve-seat cast around the middle part thereof, a thin disk of rubber, slightly broader than the diameter of the tubing to be used, slipped over the upper end of said link and laid upon the zinc disk, or upon other thin rubber disks of smaller diameter, no two of said disks being of the same size, as and for the purposes substantially specified.

2. The combining of tubing of two sizes of bore, (the difference being about one-eighth of an inch in the diameter,) so that there shall be no appreciable friction between the bucket and the tubing that is above the first or lower section, and that the additional amount of water to be raised by reason of such slight enlargement shall also be unappreciable in amount, substantially as set forth.

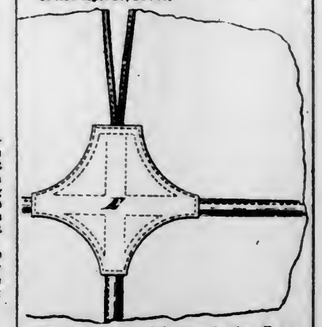
192,050.



192,050. PULLEYS. Marcus Bloch, Herman Bloch, and David Bloch, New York, N. Y. [Filed Apr. 9, 1877.]

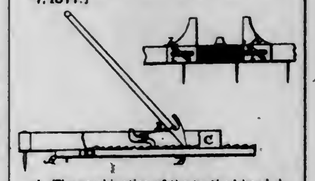
A new article of manufacture, consisting of a pulley, A, made of wood, and having a wide deeply-grooved periphery, and a long narrow shackle, D, made of metal, strengthened externally with longitudinal ribs C, and provided with a suspending device, substantially as and for the purposes set forth.

192,051. RE-ENFORCING SHIELDS FOR SEAMS. Albert Borchardt, Hoboken, N. J. [Filed Apr. 17, 1877.]



The fastening and barring leather E, arranged over a seam or seams on the inner side of a garment, and adapted to operate as a shield to prevent the seams from irritating the skin of the wearer, substantially as herein shown and described.

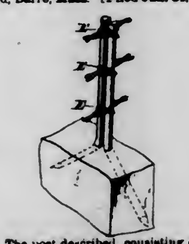
192,052. CARPET-STRETCHERS. Theodore H. Brumfield, Geddes, N. Y. [Filed May 7, 1877.]



1. The combination of the toothed head A, ratchet-bar B with slotted projections *i i*, and the screw cams or eccentrics *h h*, substantially as and for the purpose herein set forth.

2. The slotted bar C, with spike *s*, pawl D, and bail E, in combination with the ratchet-bar B, toothed and perforated head A, with notch and an operating-lever, substantially as and for the purposes herein set forth.

192,053. FENCE-POSTS. Ezekiel W. Bullard, Barre, Mass. [Filed Jan. 31, 1877.]

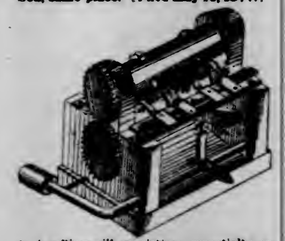


1. The post described, consisting of two or more parts driven into the ground at diverging inclinations, and having their upper parts in upright position, and secured together hold-

ing the fence between them, substantially in the manner and for the purposes above set forth.

2. The barbed post described, having barbs formed of the ends of the wires E E, making the binders or withes, substantially as and for the purposes described.

192,034. ROLLS FOR THE MANUFACTURE OF SUCKER-ROD JOINTS. John Cain, Sandy Lake, Pa., assignor to W. S. Moorman & Son, same place. [Filed May 16, 1877.]



1. A rolling-mill consisting, essentially, in a system of rolls, one of which has a raised working-face extending only partially around the roll, and the other a grooved working-face bordered by collars extending above the plane of the roll, one of said collars extending only partially around the roll, whereby the blank may be inserted between the rolls while in motion, and by imparting lateral movement to the blank the same may be inserted between the working-faces of the opposite rolls, substantially as described.

2. In a rolling-mill, the combination with a roll having an eccentric rib formed thereon, the same extending only partially around the roll, of an opposite roll provided with a working-face bordered by collars extending above the plane of the roll, one of said collars extending only partially around the roll, substantially as described.

3. In a rolling mill, the combination, with a roll having an eccentric rib provided with a convex working-face, said rib extending only partially around the roll, of an opposite roll provided with a working-face bordered by collars extending above the plane of the roll, one of said collars extending only partially around the roll, substantially as described.

4. In a rolling-mill, the combination, with a roll provided with an eccentric rib having a convex working-face, said rib extending only partially around the roll, of an opposite roll provided with a concave working-face bordered by collars extending above the plane of the roll, one of said collars extending only partly around the roll, substantially as described.

5. The combination, with a roll provided with the eccentric ribs extending only partly around the roll, of a roll having flat and convex working-faces, each face of which is bordered by a pair of collars, one of the pair extending only partly around the roll, substantially as described.

6. The combination, with a pair of rolls, one of which is provided with eccentric ribs extending only partly around the roll, while the other is provided with working-faces bordered by collars, one of the collars adjacent to each working face extending only partly around the roll, of a laterally-moving guide, a portion of which is located between the plain surfaces on the rolls, substantially as described.

7. A pair of rolls, one having eccentric ribs extending only partly around the roll, and the other provided with working-faces bordered by collars, one of the collars adjacent to each working-face extending only partly around the roll, in combination with a laterally-moving guide, and a rock-shaft having a treadle and weighted arm or lever secured thereto, substantially as described.

192,035. WHEELS FOR TRUCKS, CASTERS, &c. Geo. P. Clark, Windsor Locks, Conn. [Filed Mar. 17, 1877.]

Brief.—Two metallic disks clamping an elastic tire.

1. A wheel for hand-trucks, casters, &c., composed of two compressing-disks, each of which is provided with a peripherical gauge, an annular shoulder, and a section of belt, in combination with an annular rim of vulcanized rubber or other non-sounding material, substantially as described.

2. The combination, with an annular compressible rim, of two metallic disks, each of which has an annular shoulder for supporting the rim, and an annular flange, which is beveled inward from its periphery to said shoulder, substantially as described.

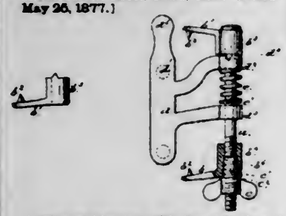
192,036.



192,036. COMPOSITION VEHICLES FOR PAINTS, &c. H. O. Crowell, New London, Conn. [Filed Oct. 4, 1876.]

A composition of matter for admixture with vegetable or animal oils or liquid hydrocarbons, for lubricating purposes or as a vehicle for paint, consisting of salts of tartar, caustic lime, carbonate of magnesia, and water, substantially as set forth.

192,037. ICE-CREEPERS. Charles P. Dewey and Robert P. Scott, Cadiz, Ohio. [Filed May 26, 1877.]



1. The combination, with the calk-plate *d* supported on a rod, *a*, of the adjustable jaws *b b'*, for the purpose set forth.

2. The combination, with the bolt *a* and the sliding jaw *b*, constructed with the recess b^1, of the nut *c*, having the elongated end c^1, and shoulder c^2, for the purpose set forth.

3. The combination, with the calk-plate *d*, having the lugs d^2 d^3, and notches or recesses d^4, of the jaw *b'*, constructed with the cam or projection b^4, and spring *e*, substantially as and for the purpose specified.

192,038. EMERY-WHEELS. William Esty, Fitchburg, assignor to Vitrified Wheel and Emery Company, Ashland, Mass. [Filed Jan. 9, 1877.]

Brief.—Moistens mixture with gum-water, or sour beer or water; sifts, molds, dries, and bakes.

A porous stone for grinding or polishing purposes, composed of emery, corundum, or other sharp gritty substance reduced to grains or kernels of suitable fineness, mixed with about an equal quantity of the fine flour of the same material, and a quantity of broken glass, slate, or other vitreous substance, the whole being cemented into a cohesive mass by heat, substantially as described.

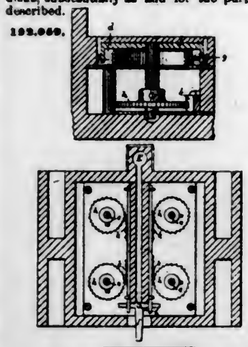
192,039. KILNS FOR BAKING EMERY-WHEELS. William Esty, Fitchburg, assignor to Vitrified Wheel and Emery Company, Ashland, Mass. [Filed Jan. 9, 1877.]

1. In combination with the combustion-chamber of a furnace or kiln, one or more circular disks or platforms sunk in suitable recesses formed for the purpose in the floor of said combustion-chamber, and adapted to be automatically rotated about a vertical axis, substantially as and for the purpose described.

2. In combination with the combustion-chamber of a furnace or kiln the disk G, provided with the downwardly-projecting annular rib *g*, the annular trough *d*, and a packing of dry sand, powdered soapstone, or other granulated material nearly filling the trough *d*, and surrounding the lower edge of the rib *g*, substantially as and for the purposes described.

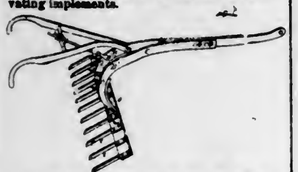
3. The combination with the combustion-chamber of a furnace or kiln of one or more disks G, mounted upon vertical shafts, one or more ratchet-wheels *h*, one or more reciprocating bars *j*, one or more pawls *k*, and a single operating-lever, I, all arranged and co-operating, as set forth, to impart an intermittent rotary motion to any object placed upon said disks, substantially as and for the purposes described.

192,040.



192,040. CULTIVATORS. Jas. J. Faulkner, Louisville, Ky. [Filed Sept. 30, 1876.]

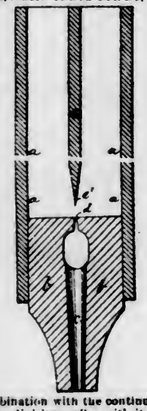
Brief.—A short beam adjustable forward and back upon the other, and details of construction to adapt the frame for various cultivating implements.



1. The main beam A, having the curved rear arm B and two sets of perforations, the one in rear of the other, in combination with the branch beam C, having a single set of perforations, whereby the branch beam is adjustable longitudinally, and the whole adapted to receive either a tare-plow, cultivator-shovels, or a clod-cutter, substantially as and for the purpose described.

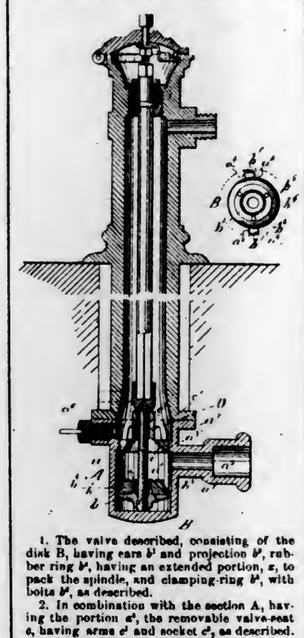
2. The combination of the main beam A, having a curved standard, B, the longitudinally-adjustable branch beam C, having a like standard, B', the harrow-beam m, provided with spaced teeth t, having their shanks at right angles to their cutting-blades, and the curved arms *e*, corresponding to the curvature of the standards B B', substantially as specified, and for the purpose set forth.

192,041. ORGAN-PIPES. Carl Fogelberg, Boston, Mass. [Filed Oct. 26, 1876.]



In combination with the continuous pipe *a*, having the division-wall *e*, with its projecting sharp edge *e'*, the mouth-piece *b*, having channel *c* and slit or opening *d*, substantially as described.

192,042. HYDRANTS. Wm. T. Garratt, San Francisco, Cal. [Filed Apr. 14, 1877.]

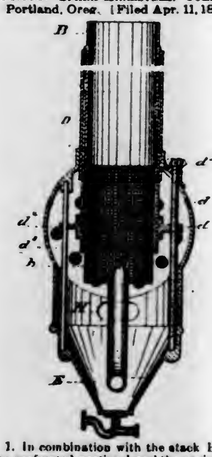


1. The valve described, consisting of the disk B, having ears b^1 and projection b^2, rubber ring b^3, having an extended portion, *x*, to pack the spindle, and clamping-ring b^4, with bolts b^5, as described.

2. In combination with the section A, having the portion a^2, the removable valve-seat *c*, having arms c^1 and socket c^2, as described.

3. In combination with the valve held from revolution by the part A, the spindle D and the seat *c*, having the socket c^2, as described.

192,043. SPARK-ARRESTERS. John Gates, Portland, Oreg. [Filed Apr. 11, 1877.]



1. In combination with the stack B having the perforated portion *b* and the conical chamber E, the damper D, adapted to shut down upon the conical portion and close the draft.

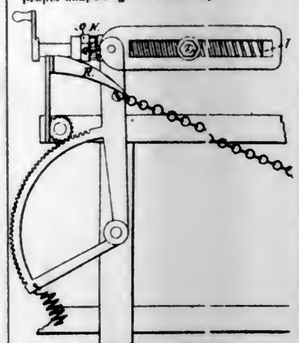
2. In combination with the perforated smoke-stack and the sliding damper, the chamber E having the water-pipe G, as described.

3. In combination with the perforated smoke-stack and the chamber E having the exhaust-pipe, the goose-neck and pipe G, as and for the purpose set forth.

4. In combination with the perforated smoke-stack and the damper D having ears d^3, the vertical rod d^2, the vertical screw-rod d^1, having bevel wheel d^5 and horizontal rod with bevel-wheel d^6, as described.

192,044. SPINNING-MULES. Saml. George, Lowell, Mass. [Filed Aug. 31, 1876.]

Brief.—The point of the cop is shaped by the nose-peg, which is attached to the sleeve, and projects from it through the slotted arm. Said nose-peg is traversed by means of a stud projecting from the sleeve and working in a screw of variable pitch, so that, by turning the screw equal amounts at each return of the radial arm to an upright position, the proper shape is given to the cop.



1. The combination of the screw I, formed with a varied pitch in different parts of its thread, the studded sleeve K, and the nose-peg L, substantially as and for the purpose herein specified.

2. The combination of the screw I, the nose-peg L, the ratchet N, the pawl P, the lever O, and the incline R, as and for the purpose described.

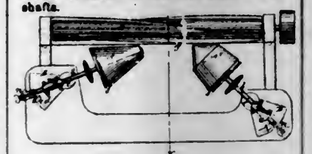
192,045. HATS. Delos W. Gitchell, Orange, N. J. [Filed Nov. 28, 1876.]



A wool felt hat having a napped and curled surface, substantially as herein described.

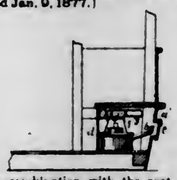
192,046. MACHINES FOR SHEARING HATS. Delos W. Gitchell, Orange, N. J. [Filed Nov. 28, 1876.]

Brief.—The cone-blocks are mounted on pivoted segmental frames, adjustable in their pivots toward and from the center. They are also capable of adjustment on said segmental frames, longitudinally of their shafts, by means of screws at the rear ends of their shafts.



The combination of the adjustable swiveling carrier B, having an attached bearing, *m*, the cone-block A or A^1, the rotating and longitudinally-adjustable spindle *b*, carrying said block, the screw block or holder *n*, and the rotating cutting-cylinder D, and fixed cutting-blade *g*, substantially as shown and described.

192,047. APPARATUS FOR HEATING VEHICLES. Abner C. Goodell, Jr., Salem, Mass. [Filed Jan. 9, 1877.]



1. In combination with the seat of a vehicle, a lamp-stove, placed between the seat and the floor, provided with a filling-tube, *h*, and with longitudinal flues *e g*, hung near the seat, substantially as and for the purpose described.

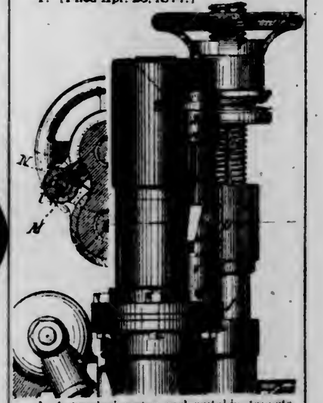
2. In combination with the lamp-stove, placed between the seat and the floor of a vehicle, and provided with a filling-tube, *h*, the aperture through the side of the car surrounding said filling-tube *h*, and provided with the removable cap *c*, substantially as and for the purpose described.

3. In combination with a street car or omnibus, a lamp stove placed between the seat and the floor, flues *e g* and *j*, and screen *d*, substantially as described.

4. In combination with the body of a car or omnibus, a seat having heating-flues *e g* hung between it and the floor, a lamp also placed beneath it, and discharging its products of combustion into said flues, and a discharging-flue, *j*, communicating with the atmosphere, substantially as described.

5. In combination with the seat of a vehicle, a lamp-stove, the boxing *k*, projecting from the side of the vehicle and opening into the vehicle beneath the seat, and designed to partially surround the lamp-stove, substantially as and for the purpose described.

192,048. ROCK-DRILLS. A. A. Goubert, New York, and N. W. Pratt, Brooklyn, N. Y. [Filed Apr. 23, 1877.]



1. A trunked piston and suitable tappets reciprocating therewith, in combination with a valve operated by the tappets, and adapted to admit live steam to the upper and smaller area of the piston during the whole of the working stroke, and at the conclusion of the working stroke to open communication between the opposite ends of the cylinder, and thus admit the steam which has effected the working stroke to the lower and larger area of the piston for the purpose of effecting the return stroke, substantially as described.

2. A reciprocating valve, the stem of which is provided with shoulders or collars, in combination with a reciprocating tappet, and with a double-acting yielding spring stop, two of the collars acting to receive and transmit to the valve-stem the reciprocating motion of the actuating tappet, and similar collars serving to receive and transmit to the valve stem the thrust of the yielding spring stop, whereby, if the valve overruns, it is made to follow back the actuating-tappet on the reverse stroke, and return to one of its two normal positions, where it holds the ports respectively wide open.

3. In combination with a steam-cylinder provided with a trunk-piston, substantially such as described, wherein the live steam which is used for effecting the working stroke is whipped around to the opposite side of the piston to effect, by its expansion, the return stroke, the reciprocating valve C and the posts *d* and *f*, whereby, when the piston overruns, the valve-motion is prolonged sufficiently to open the live steam port, and thus admit live steam in front of the piston, to form a steam-cushion to arrest the blow of the piston, and whereby the live-steam port is closed immediately after the commencement of the return stroke of the piston.

4. The feeding cam N, composed of the two parts, n' and n², keyed to the opposite ends of the rock shaft M, substantially as shown, and for the purpose set forth

5. A reciprocating tool-stock provided with a male screw thread which engages a reciprocating nut, whereby the tool-stock is fed longitudinally by the rotation of a wheel which is loosely keyed to the tool-stock, in combination with a vibrating friction-clutch, whereby such wheel may be rotated any part of a revolution within the range of motion of the vibrating friction clutch.

6. A rocking cam for operating the actuating-pawl of the feed-wheel, provided, first, with a short and sharply-inclined face or tappet, by means of which the cam is suddenly rocked in one direction during the latter part of the downward stroke of the tool-stock, and, secondly, with a longer and less sharply inclined face or tappet, by means of which the cam is more gradually rocked in the opposite direction during the return stroke of the tool stock, substantially as and for the purpose described.

7. The cam N and the reciprocating wedge which actuates it, in combination with a friction-pawl and feed-wheel, for effecting the longitudinal feed of a reciprocating tool-stock, substantially as set forth.

8. A device for operating the feed, which consists of a tappet, which gives a quick movement during the latter part of every working stroke of the tool-stock, and of a second tappet, which gives a slower motion in the opposite direction to feed the tool-stock more or less during every return stroke, the amount of such feed for each successive blow being automatically governed by the extent to which the tool, at the preceding blow, has penetrated the material operated upon, substantially as set forth.

192,069. GRAIN CONVEYERS AND DRIERS. William H. Higbie, Peoria, Ill. [Filed Oct. 30 1876.]



1. In combination with a partially-hollow conveyer-shaft and its spiral flange or flanges, a spiral steam pipe following the line of the flange or flanges, and receiving its steam from said shaft, and discharging it again into said shaft, for the purpose of heating said flange or flanges and the trough to dry the passing grain, substantially as described.

2. The combination, in a grain-conveyer, of the steam-chest or shaft-journal F with a partially hollow shaft D, provided with the spiral steam-pipe E, having openings into said shaft by which to receive and discharge steam to heat the flange or flanges and dry the conveyed grain, substantially as and for the purposes described.

3. The combination with the trough A, provided with a spiral steam pipe around the shaft, of the cover C having ventil.. g-holes t p, as described.

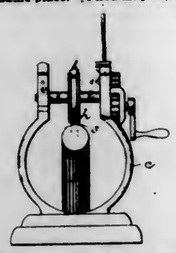
4. The combination of the cover C and the air-regulating block G, substantially as described, when used in connection with and in combination with the trough A and shaft D, as described.

192,070. FURNACE-GRATES. M. G. Imbach, Brooklyn, N. Y. [Filed Dec. 6. 1876.]



I claim as my invention the grate provided with a girder composed of alternate, single, furcated, and double sections, as shown, and for the purpose specified.

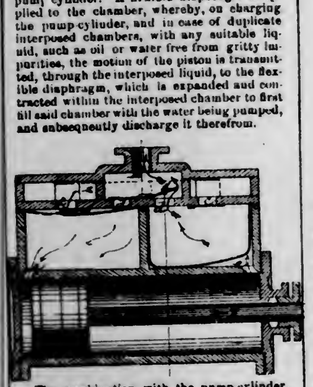
192,071. MACHINES FOR GROOVING SHEET-METAL PIPES. Frank M. Irons, Greenville, Mich., assignor of one-half his right to J. H. Milor, same place. [Filed May 21, 1877.]



The combination of the arm r, having the roller s journaled in its end, grooved wheel A, shaft i, vertically-adjustable box *d*, pivoted box *s*, regulating-screw, and frame c, all combined, and arranged to operate substantially as shown and described.

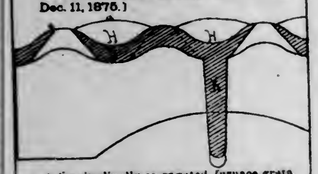
192,072. PUMPS. H. A. Jamieson, Brooklyn, N. Y. [Filed Dec. 8, 1876.]

Brief.—One or more chambers are arranged between the inlet and outlet valves and the pump cylinder. A flexible diaphragm is applied to the chamber, whereby, on charging the pump-cylinder, and in case of duplicate interposed chambers, with any suitable liquid, such as oil or water free from gritty impurities, the motion of the piston is transmitted, through the interposed liquid, to the flexible diaphragm, which is expanded and contracted within the interposed chamber to first fill said chamber with the water being pumped, and subsequently discharge it therefrom.



The combination, with the pump-cylinder, its piston or plunger, and the inlet and outlet valves of the pump, of one or more interposed chambers and flexible diaphragms, substantially as and for the purposes herein set forth.

192,073. FURNACE-GRATES. Alvin Lawrence, Lowell, Mass., assignor to himself and J. K. Foster, Philadelphia, Pa. [Filed Dec. 11, 1875.]



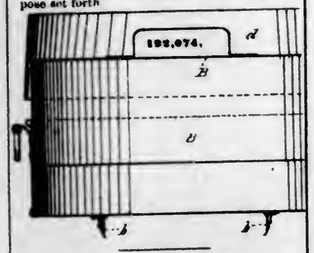
A longitudinally-corrugated furnace grate, constructed as described, with ash-receiving valleys H between rising ridges or swells a, which are perforated through their highest surfaces, substantially as and for the purpose described.

192,074. PANS FOR ROASTING AND BAKING MEATS. Amalie A. Lehnert, Philadelphia, Pa. [Filed Sept. 14, 1876.]

1. The hinged bars b b, in combination with the bottom of a baking and roasting pan, substantially in the manner and for the purpose set forth.

2. The elevated cover B, having on its top the receptacle *d* for the reception of fuel, substantially in the manner and for the purpose set forth

192,074.



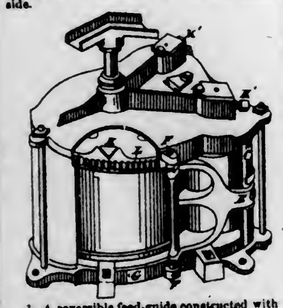
192,075. BRUSHES. Henry Lumbard, Chicago, Ill. [Filed Mar. 24, 1877.]



The elongated metal band B, which is constructed to hold the bristles at one end and receive the handle A at the other end, the handle and bristles both being inserted in the band, in combination with a partition-plate, D, soldered fast to the band, and extended into a slot in the handle and into the bristles, and the handle and bristles being secured by rivets, as and for the purpose set forth.

192,076. CANE-MILLS, Abraham G. Munn, Charles T. Clark, and Thomas Brennan, Louisville, Ky. [Filed Mar. 24, 1877.]

Brief.—Mill is geared to reverse motion; feed-guide is adapted to operate upon either side.



1. A reversible feed-guide constructed with journals and a device for locking it in position, in combination with a cane-mill having bearings on both sides thereof to receive said feed guide, substantially as and for the purpose described.

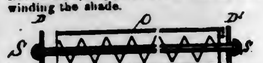
2. A cane-mill provided with bearings F F on both sides, in combination with a reversible feed-guide and mechanism for securing the same in position, substantially as specified.

3. A reversible feed-guide constructed with feed-openings b, tables c therefor, a tongue, E, and journals a, in combination with a cane-mill, substantially as described.

4. The main or driving roller of a cane-mill, constructed with open V-shaped legs K, having perfectly vertical plane sides, in combination with a gear-wheel, L, having correspondingly-shaped recesses *i*, constituting a rigid connection, whereby said roller and wheel are so firmly held together as to prevent the latter from rising, and the mill be thus rendered capable of operation in either direction.

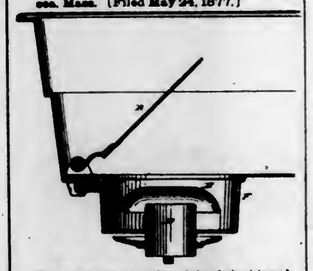
192,077. CURTAIN ROLLERS AND BRACKETS. Edwin F. McComas, Erie, Pa., assignor of one-half his right to Jno. H. Silderis, same place. [Filed Apr. 26, 1877.]

Brief.—The spring both winds up the shade and causes the roller to press against the bracket with a force proportional to the tension of the spring produced in winding or unwinding the shade.



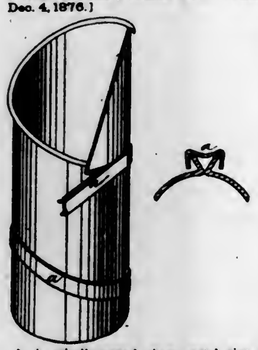
The combination of the hangers D D', shaft S, and cylinder B, said cylinder having a rotary action between said hangers and upon said shaft, and a lateral action against one of said hangers, as and for the purposes set forth.

192,078. SINK-TRAPS. John Magee, Chelsea, Mass. [Filed May 24, 1877.]



The combination with a sink of the hinged or removable strainer-plate B, stationary convex cap E, provided with arm c, dish F and pipe D, the several parts constructed and relatively secured together and to the sink, substantially as herein shown and described.

192,079. SPIRALLY-WOUND SHEET-METAL TUBES. H. Noble, Boston, Mass. [Filed Dec. 4, 1876.]



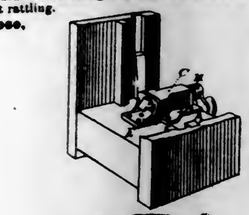
1. A spirally-wound sheet-metal pipe in which the seam or joint is re-enforced by a strip of metal, a, clinched down thereon, substantially as and for the purpose described.

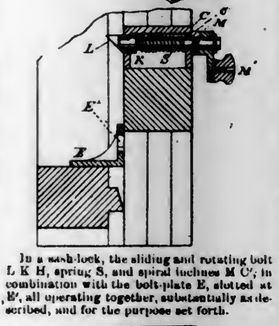
2. A spirally-wound sheet-metal pipe, constructed with a joint formed by turning and abutting the edges of the metal, and uniting or locking them together by means of a re-enforcing-strip, a, substantially as set forth.

192,080. FASTENERS FOR MEETING RAILS OF SASHES. Ephraim Parker, Boston, Mass. [Filed Apr. 18, 1877.]

Brief.—A sliding and rotating spring-bolt, with beveled nose, is arranged to engage automatically with an elongated slot in the keeper or bolt-plate, and, at the same time, by spiral inclines and partial rotation, to draw the draw the meeting-rails together and prevent rattling.

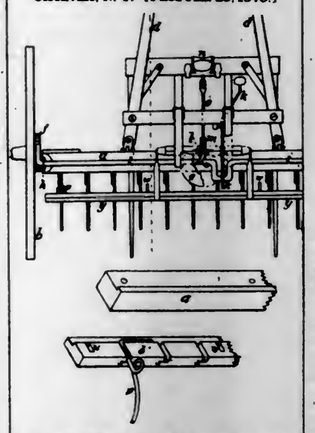
192,080.





In a sash-lock, the sliding and rotating bolt L K H, spring S, and spiral inclines M C', in combination with the bolt-plate E, slotted at E', all operating together, substantially as described, and for the purpose set forth.

192,081. HORSE HAY-RAKES. W. H. Patten, Clockville, N. Y. [Filed Jan. 20, 1876.]



1. The shaft or rod i, formed with its crank and pawls of one piece, as herein described, and mounted with its ends free to spring upward to relieve it from either wheel in turning, as and for the purposes herein specified.

2. The device for attaching the teeth to the rake-head, consisting of two parts, one of which is grooved transversely and rabbeted to hold the teeth, and the other formed with a lip and bearing adjusting slots, to compensate for wear.

3. The slotted lever k, constructed and arranged as specified, in combination with the sunk crank on rod i, as and for the purposes herein set forth.

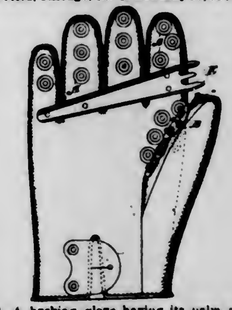
4. The slotted connecting-rod o, in combination with the arm m and treadle n, to permit the rake-teeth to swing under in backing, as described.

5. In combination with treadle n, the lever m and connecting-rod o, constructed and arranged so as to pass beneath the rake-head in its oscillation, and permit two points of bearing, as and for the purposes described.

6. The center bearing l, with its oblique opening above to hold the rod i steadily when in place, and to readily release it, as described.

7. The oblong bearings A, in combination with the rod i, and pawls rigidly affixed thereto so as to allow the rod i to rise to free the pawl from the ratchet, in the manner and for the purpose described.

192,082. CORN-HUSKING GLOVES. James Peters, Chicago, Ill. [Filed May 17, 1877.]



1. A husking-glove having its palm and digits protected by leather disks A fastened in place by rivets, substantially as described.

2. The group of shoe-rivets B upon the thumb of a husking-glove, in combination with the prongs E of the husking-pin, substantially as and for the purpose specified.

192,083. FIRE-EXTINGUISHERS. Henry O. Peters, Hoosick Falls, N. Y. [Filed Mar. 14, 1877.]

1. The combination of the weight D, rest or support C, tube or conductor B, and gate lever E, the combination operating so that the weight displaced from the support by the inclination of the tube shall be connected by the latter so as to operate the lever, substantially as and for the purpose described.

2. The combination of the weight, support, conductor B, gate-lever E, and gate or valve F, the combination operating so that the falling of the weight shall open the valve, substantially as and for the purpose described.

3. The combination, in a railroad-car, of the following elements: a stove or furnace, reservoir, and weight, with suitable connecting mechanism, substantially as described, the combination operating so that the inclination of the car, when displaced from the track, as in accidents, shall unrest the weight, that, falling, shall open the reservoir and let its contents upon the fire, substantially as and for the purpose described.

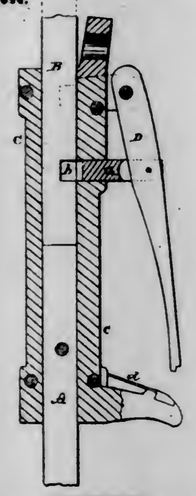
4. The combination of the tube or pipe B with conical chamber , the cross-piece C, stationary inside chamber A, the lever E, connecting with valve F, inside reservoir G, which is placed on the stove by connection with opening H, at the top of which is placed the valve F, together with the connecting-pipe I at the top of the reservoir G, for the purpose of carrying off the steam through the stove-pipe, all substantially as shown and described.

192,084. COUPLINGS FOR WELL-AUGER SHAFTS. D. N. Roe, Parkersburg, Iowa, assignor to O. T. Hodges, same place. [Filed Dec. 7, 1876.]

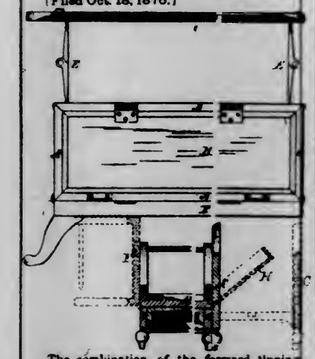
The rectangular box or coupling C, provided with the hinged lever D, pivoted key G, and spring *d*, in combination with the shaft-

section A, secured permanently in the coupling, and the shaft-section B, provided with the notch *b*, and fastened by the key, substantially as herein set forth.

192,084.



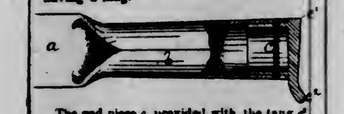
192,085. BED-LOUNGE. Alexander Rothschild and Thos. S. Birch, Hartford, Conn. [Filed Oct. 18, 1876.]



The combination of the forward-tipping seat F and the backward-folding part H with the rectangular frame A, the bars E, and the back C, substantially as herein described.

192,086. TOOL-HANDLES. Edwd. H. Sears, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Feb. 12, 1877.]

Brief.—A blade and handle, formed of one piece of metal, is provided with an end piece having a tang.

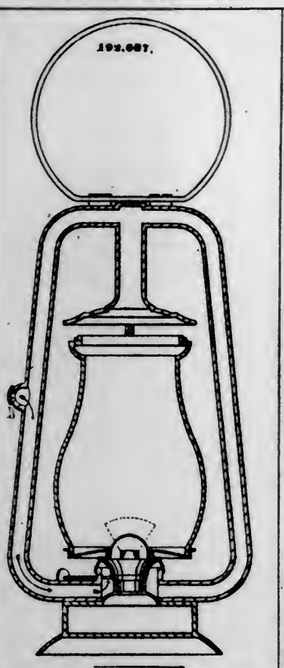


The end piece *a*, provided with the tang *a'*, in combination with the hollow handle *b*, provided with blade *c*, in the manner and for the purpose specified.

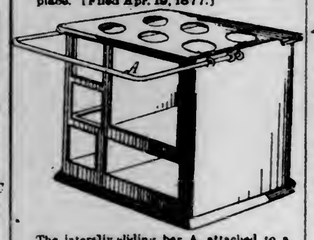
192,087. LANTERNS. Daniel Sherwood, Lowell, Mass., assignor to Fredk. Dietz, New York, N. Y. [Filed Apr. 11, 1877.]

In combination with one of the tubes of a tubular lantern, the tube or mouth piece D, connected to the air-space around the flame of the lamp, substantially as described.

192,087.



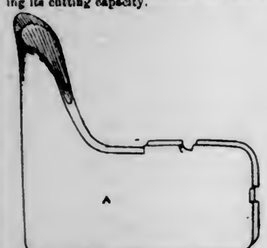
192,088. STOVES. Robert Simpson, Boston, Mass., assignor, by mesne assignments, to the Highland Foundry Company, same place. [Filed Apr. 19, 1877.]



The laterally-sliding bar A, attached to a stove, substantially as described.

192,089. SAW-TEETH. N. W. Spaulding, San Francisco, Cal. [Filed Mar. 15, 1877.]

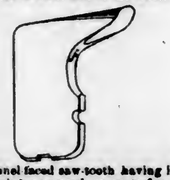
Brief.—The edges of the bonnet-shaped cutting-point of the tooth are spread by a suitable tool, which flares or upsets the entire semi-circular cutting-rim of the same, for giving it the proper amount of clearance and increasing its cutting capacity.



The saw-tooth A, having its bonnet-shaped or convex cutting-rim upset or expanded, substantially in the manner and for the purpose described.

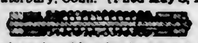
192,090. SAW-TEETH. N. W. Spaulding, Oakland, Cal. [Filed June 21, 1876.]

Brief.—The tooth is made of gouge shape, so as to cut in front and at the sides.



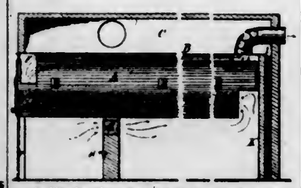
A channel faced saw-tooth having its main cutting-point covered so as to form a continuous or bonnet-shaped cutting-point, said point being formed on circular lines and inclined inward the throat *f* of the tooth, substantially as described.

192,091. SPRING-HINGES. James Spruce, Waterbury, Conn. [Filed May 8, 1877.]



The inner knuckles of a sheet-metal spring-hinge, having short tubes made of separate pieces, secured thereto by brazing, welding, swaging, or in any equivalent manner, in combination with a spiral spring, the end coils of which have bearing on said tubes, while the extreme ends of the spring rest upon the leaves of the hinge, substantially as and for the purpose set forth.

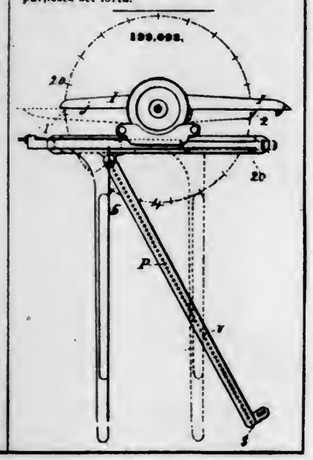
192,092. HEATING-FURNACES. C. Stewart, Worcester, Mass. [Filed Nov. 2, 1876.]



1. The heating chamber C, having the space I I surrounding the walls K and a metal plate, R, between it and the fires F F, in combination with the boiler A and the fires F F over it, constructed and operating in the manner and for the purposes described.

2. The arches G G over the openings in the wall H, in combination with the chambers on each side of the wall H and boiler A above the opening, whereby the flame after contact with the boiler is depressed, and, passing under the arches, comes again in contact with it, with an eddy or curling motion, mingling with the air of the second chamber, as and for the purposes set forth.

192,093.



192,093. CIRCLE-DIVIDING INSTRUMENTS. Myron G. Stolp, Aurora, Ill. [Filed Jan. 15, 1877.]

1. A circle-dividing instrument in which a rule adapted to turn upon a center actuates a shifting square, substantially as and for the purpose set forth.

2. In combination with the bed or support, the wheel F and the bar I, affixed thereto and adapted to revolve therewith, and having a straight marking edge coinciding with the diameter of the wheel, substantially as and for the purpose described.

3. In combination with the bed, a sliding T square, adapted to be held thereto, and to be shifted in right lines thereon, substantially as shown and described.

4. In combination with the bed, the sliding T square, wheel F, and straps connecting the wheel and square, substantially as and for the purpose set forth.

5. In combination, the bed, T square, and graduated bar P, substantially as and for the purpose set forth.

6. The graduated perforated bar P, having its zero point adapted for connection with the bed, and at its other extremity adapted to be secured to a table, and provided with a projection or pin, *s*, substantially as shown and described.

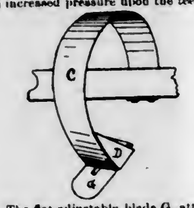
7. In combination with the wheel, T square, and straps, adjusting devices for adjusting the tension of the straps, substantially as shown and described.

8. In combination with the bed, the wheel F, and bar I, the centering pin *s*, whereby the wheel may be centered and retained in position.

9. In combination, the bed, T square, and their connecting devices, bar I, and graduated bar P, substantially as and for the purpose set forth.

192,094. HARROWS. C. R. Taylor, South Bend, Ind., assignor of one-half his right to John Grant, Chicago, Ill. [Filed June 5, 1877.]

Brief.—Flat coiled springs of any desired number are used, and fastened on the rear side of the harrow-beam to be in line with the draft. The springs coil more closely and with increased pressure upon the teeth.



1. The flat adjustable blade G, attached to a coiled spring, and forming a harrow-tooth, as herein set forth.

2. The combination of the coiled spring C, shoe D, and adjustable blade G, substantially as and for the purposes herein set forth.

192,095. PROCESSES OF TREATING HORN FOR THE MANUFACTURE OF COMBS. Stephen A. Tisdale, Leominster, Mass. [Filed Feb. 28, 1877.]

The improved process of treating horn for the manufacture of combs, consisting in first cutting and splitting the horn as specified, then immersing it in boiling water, afterward in melted tallow, and finally pressing it between the plates of press-irons heated by steam, as and for the purpose set forth.

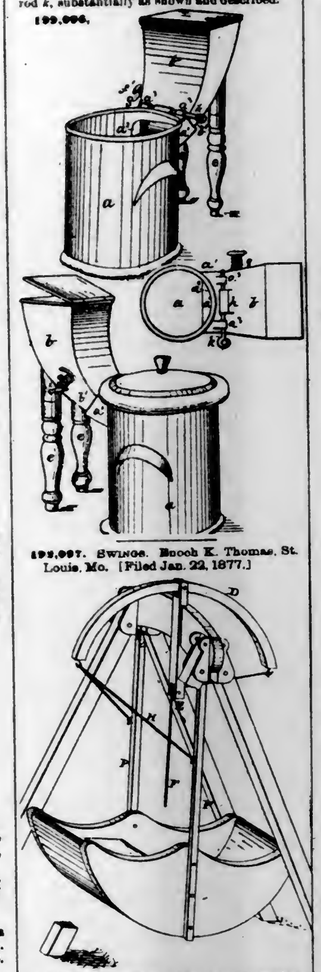
192,096. EARTH-CLOSETS. E. W. Thompson, Brooklyn, N. Y. [Filed Feb. 14, 1876.]

1. The portable hopper *b*, provided with curved chute *b'*, and at its lower extremity legs *c*, also a valve, *f*, with handle and stem *f'*, the said stem having coiled spring *g* connected therewith and with side of the hopper or its chute, and arranged to throw back the valve *f* automatically as the power of the hand is removed, in combination with the portable pail or vessel *a*, connected to the hopper *b* by bolt or rod *k*, permitting its removal when desired, the whole constructed and combined to operate substantially as shown and described.

2. The combination of coiled spring *g* with stem *f'* of valve *f*, and side of hopper or chute *b* and *b'*, for the purpose of constituting the valve self-closing, as described and set forth.

3. The portable vessel *a*, provided with aperture *a'* to receive the chute *b'*, in combination with hopper *b*, connected therewith by bolt or rod *k*, substantially as shown and described.

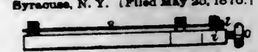
192,096.



192,097. SWINGS. Enoch K. Thomas, St. Louis, Mo. [Filed Jan. 22, 1877.]

The lever D, operated by the cord F running over the pulley E, with the connecting-cord H attached to the swinging bars P P, substantially as above described, and for the purposes set forth.

192,098. PLAITING-MACHINES. M. Toohey, Syracuse, N. Y. [Filed May 25, 1876.]



1. In a plaiting-machine, the plaiting-rods *g*, provided with heads *l*, substantially as and for the purpose set forth.

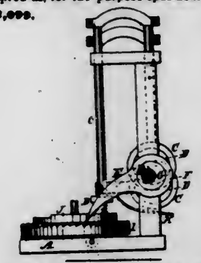
2. A plaiting-machine, provided with the removable strip *i*, in combination with the base-board *a*, and plaiting-rods *g*, having heads *l*, substantially as described and shown, and for the purpose set forth.

192,099. MEAT-CHOPPERS. H. Van Doren, South Branch, N. J. [Filed Apr. 3, 1877.]

1. The shafts *c d d*, with knives B and sleeves C, and the pawl E, with sleeve F, in combination with the driving-shaft *g* and eccentrics G D, and the rotating table I, substantially as and for the purpose set forth

2. In a meat or vegetable chopper, the table I, with band or hoop J, in combination with the apron K, for the purpose specified.

192,099.



192,100. SPRINKLERS. Edward K. Walker, Exeter, N. H., and Thos. Roddick, Stranraer, Scotland. [Filed Apr. 23, 1877.]

Brief.—The automatic valves are to facilitate the filling of the bulb.



The herein-described sprinkler, consisting of the combination, with the bulb *a*, of the T-pipe *b*, having perforations *c c c* and automatic valves *d d d*, as and for the purpose set forth.

192,101. RAILROAD-JOINTS. William M. Watson, Tonica, Ill. [Filed Apr. 2, 1877.]

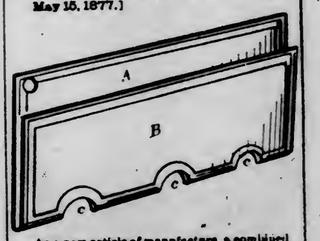


1. In combination with a railroad-rail, a joint-plate, one end of which is attached firmly to the rail, substantially as described.

2. In combination with a railroad-rail and joint-plate, a clamp-bolt, *c*, substantially as described.

3. In combination with railroad-rail joint-plate and clamp-bolt, a clamp-plate, D, substantially as described.

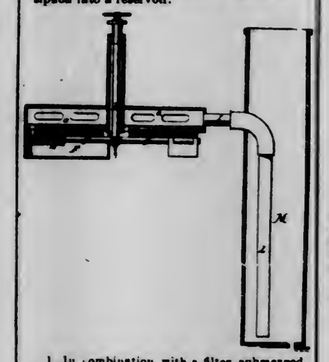
192,102. PAPER FOLDERS AND CUTTERS. A. W. Watries, Cambridge, Mass. [Filed May 15, 1877.]



As a new article of manufacture, a combined paper folder and cutter, consisting of a folded plate, having the back A, the front B, and one or more holes, C, upon the line of the fold, substantially as described.

192,105. FILTERS. Henry W. Watson, New York, N. Y. [Filed Feb. 22, 1877.]

Brief.—The filter is placed in a stream of running water, which operates the revolving brushes. The filtered water is drawn by a siphon into a reservoir.

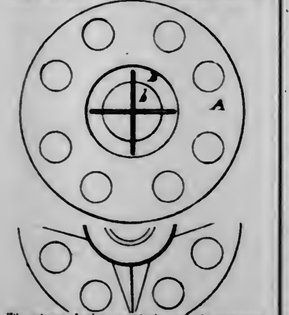


1. In combination with a filter submerged in running water, revolving or removable brushes B B, operated by the water in which they are submerged, substantially as and for the purpose herein specified.

2. In combination with a submerged filter, a cistern or reservoir, M, extending below the same, and a drawing-off pipe, L, extending from the filter nearly to the bottom of the said cistern or reservoir, substantially as and for the purpose herein specified.

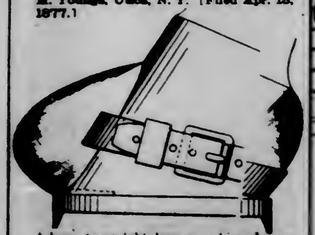
3. In combination with a filter submerged in running water, and clearing-brushes operated by the motion of the water, a break-water, F, arranged and operating substantially as and for the purpose herein specified.

192,104. RECIPROCATING CHURNS. Samuel Yates, Sedalia, Mo. [Filed May 24, 1877.]



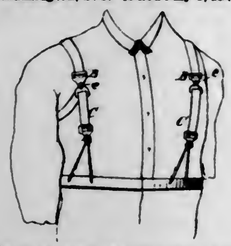
The churn-dasher consisting of the concave disk A attached by angular braces to the tubular shaft D, having an enlarged air-chamber, B, provided with a flat metallic valve, S, to conduct the air through the chamber into the cream under the disk, substantially as described.

192,106. TOE-WEIGHT ATTACHMENTS. Q. M. Yeomans, Utica, N. Y. [Filed Apr. 13, 1877.]



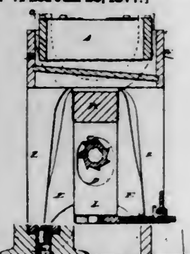
A horse toe-weight having a hinged spur, so as to be adjustable to the varying shapes of horses' feet, substantially as specified.

192,108. SHOULDER-BRACES. A. Adamson, Washington, D. C. [Filed July 6, 1876.]



The combination and arrangement of the detachable elastic front intermediate suspender-straps C C, their slides B B, and cast off hooks *a c*, with the front shoulder portions of the braces, substantially as shown and described.

192,107. PAPER-PULP SCREENS. William Blizzard and Edmund Mather, Harrisburg, Pa. [Filed Jan. 20, 1877.]

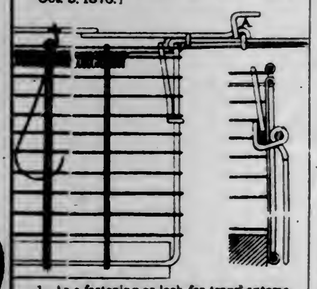


1. A paper-pulp screen mounted upon a central stem as its sole support, and guided as described, whereby an equal vertical motion is imparted to all its parts by the operating mechanism, substantially as set forth.

2. The paper-pulp screen A, provided with the screen-supporting stem P L, located centrally thereunder, and guided as described, in combination with the tappet gear C C′ and wedge M, regulated by screw V and nut Q, all operating jointly, substantially as and for the purpose set forth.

3. The paper-pulp screen A, provided with standards O, bridge-tree W, central stem P L R, in combination with guides E E, stand K, tappet-gear C C′, and wedge M and its adjusting devices V Q *m*, all arranged and operating substantially as and for the purpose set forth.

192,102. ANIMAL-TRAPS. B. I. Braddock, Lowell, Mass., assignor to Samuel Sewall, Jr., and G. A. Marden, same place. [Filed Oct. 6, 1876.]

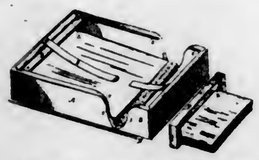


1. As a fastening or lock for traps, automatic swinging hooks arranged upon the door of the trap, in combination with detents or fastenings upon the body of the trap, substantially as and for the purpose set forth.

2. In combination with the swinging hooks, a swinging arm or handle, arranged to operate substantially as and for the purpose set forth.

3. In combination with the arm or handle attached to the swinging hooks, a bar which overrides the end of the handle when the trap is set, substantially as and for the purpose set forth.

192,109. TEMPORARY BINDERS. Bloomfield Brower, New York, and John F. Adams, Irvington, N. Y. [Filed Apr. 17, 1877.]



1. A letter file consisting of a holder having vertical recesses, as 6, and a series of leaves held in a binding-back, which is capable of introduction and removal vertically from said holder, substantially as described.

2. The detachable binding back, consisting of a frame-work supplied with means, substantially as described, for holding the index-leaves and providing for their vertical adjustment.

3. The combination, with a pack of sheets or index-leaves, held at one end in a holder or file, of a swinging spring, S, attached to said holder or file so as to bear upon the free ends of said sheets to hold them or swing away to release them, substantially as described.

4. The combination of the swinging spring S with the holder provided with vertical recesses, as 6, and the removable binding-back D, substantially as described.

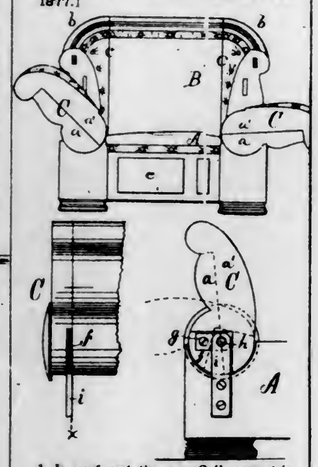
5. The combination of the swinging spring T with the cover B, the holder A, and the index-leaves, substantially as described.

6. The binding-back D, consisting of plates *m n* and rods *t*, substantially as described.

7. An associated pack of index-leaves, having its outside leaf provided with the binding cord or band *c* attached thereto, and adapted for operation substantially as described.

8. The combination of the spring B with the cover B and the holder A, substantially as described.

192,110. SOFA-BEDSTEADS. John C. Christinger, Bristol, Conn. [Filed Feb. 10, 1877.]



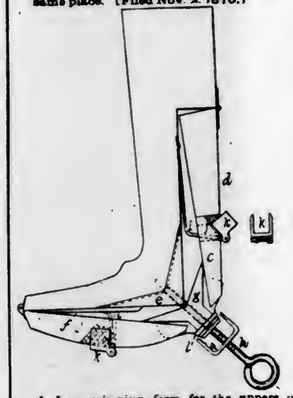
1. In a sofa-bed, the arms C C, concentrically hinged in the sockets of the seat, and divided into hinged halves *a a′*, substantially as described, and for the purpose set forth.

2. In a sofa-bed, the back B, hinged to the seat A, and provided at each end with wings *b b*, hinged for folding outward at right angles to the back, substantially as described, and for the purpose set forth.

3. The combination of the arms C C, divided into hinged halves, the seat A, and back B, provided with wings *b b*, substantially as described, and for the purpose set forth.

4. In a sofa-bed, the plate *g*, bearing the pin or pivot *h*, and the strap *f*, hung on said pivot, in combination with the arm C, having semicircular base and slotted at *f*, and the seat A, having semicircular socket at the end, the parts *g*, *h*, and *i* being applied wholly back of the front face of the arm, all operating together, substantially as described, and for the purpose specified.

192,111. CRIMPING-FORMS FOR BOOT-UPPERS. J. B. Clair, Oldtown, Me., assignor of one-half his right to Jas. W. Waldron, same place. [Filed Nov. 2, 1876.]



1. In a crimping-form for the uppers of boots, the combination of the form *a*, spring-jaws *d f*, angle-iron *g*, screw *h*, and clamps *l m* and *k k*, all operating as set forth, for the purposes specified.

2. In a crimping-form for the uppers of boots, substantially as herein described, the eccentrically-pivoted leg and foot clamps *k k*, as and for the purposes set forth.

3. The springs *i i*, in combination with the leg and foot clamps *k k* eccentrically pivoted thereto, as and for the purposes described.

4. A crimping-form for the uppers of boots in which the leg and foot portions of said front are retained in place on the form by elastic fastenings, substantially as described, for the purposes specified.

192,112. ART OF MAKING MOLDS AND THEIR COUNTERPARTS. Wm. B. Closson, Boston, Mass. [Filed Jan. 19, 1877.]



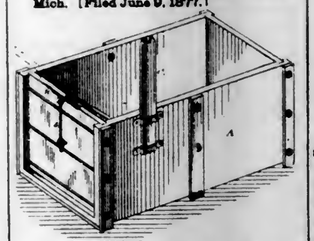
1. The method, substantially as described, of making a mold from an object, such consisting in the employment of divisional plates therewith, and depositing on their opposite surfaces and those of the object, by means of the electroplating process, a coating of metal, and subsequently separating such coating at, or removing it from, the edges of the plates, as set forth.

2. The method, substantially as described, of making a mold with a sprue or filling-passage, such consisting in the employment of divisional plates and sprue-formers, as described, therewith, and depositing on their opposite surfaces and those of the object, by means of the electroplating or electrotyping process, a coating of metal, and subsequently separating such coating at, or removing it from, the edges of the plates and outer ends of the sprue-formers, all as set forth.

3. The method, substantially as described, of producing a fac-simile from such mold, such consisting in covering the surface of the matrix with a very thin coating of wax, and filling such coating with a re-enforce of plaster, or other suitable material, and subsequently applying powdered graphite to the waxen coating, and depositing thereon, by the electroplating or electrotyping process, a thin coating of metal.

4. As a new manufacture, a mold made, in the manner described, with projections and corresponding cavities to the parts about its matrix, to enable the said parts to be readily adjusted to each other, so as to bring the opposite parts of the matrix in their true relations to each other, as set forth.

192,113. FEATHERING OR COMMINUTING COPPER OR OTHER METALS. J. R. Cooper, Franklin Township, Oakland County, Mich. [Filed June 9, 1877.]

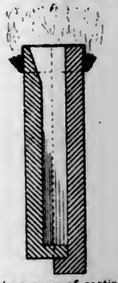


1. The within-described method of feathering copper and other metals, which consists in pouring the molten metal onto an inclined plane and projecting against the metal a flattened stream of water, substantially as and for the purpose set forth.

2. The tank A, provided with the adjustable board B and standard C, substantially as described.

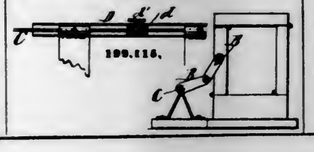
192,114. CASTING BRASS AND OTHER METALS. J. R. Cooper, Franklin Township, Oakland County, Mich. [Filed June 9, 1877.]

Brief.—Produces flame with gas, oil, or alcohol. May be inflamed by heat of molten metal or otherwise. Fibrous material may be used in the fuel-supporting device.



1. The within process of casting brass and other metals, which consists in creating and maintaining at the mouth of the mold a flame that will encircle or partially encircle the molten metal during the whole time that the mold is being filled therewith, so as to expel air from the mold and carry off the vapors evolved from the metal, thereby preventing their condensation within the mold, as well as preventing the oxidation of the molten metal, substantially as set forth.

2. A mold for casting brass and other metals, provided with a device for maintaining a reducing-flame at the mouth of the mold, substantially as set forth.

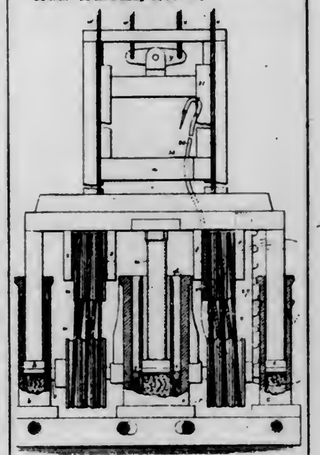


192,115.

192,115. LANDAU-CARRIAGE TOPS. Robert Dunn, South Bend, Ind. [Filed Dec. 19, 1876.]

The spring C, as described, when held in the rest D, and the stop *d*, in combination with the braces B, substantially as and for the purpose set forth.

192,116. HYDRAULIC ELEVATORS. Karl Fletcher, Boston, Mass., assignor to himself and D. N. Pickering, Marshalltown, Iowa. [Filed May 9, 1877.]



1. The cross-head, its central and two end pistons, the sheaves *n r* placed between the auxiliary and end pistons, and the auxiliary piston surrounding the central piston, in combination with the central and the two end cylinders, and the auxiliary cylinder, and the two sets of sheaves *q r*, located between the end and auxiliary cylinders, all arranged to operate as and for the purpose described.

2. A rotating water-supplying drum and hose, in combination with and operated by the cross-head as it is raised and lowered, substantially as described.

3. The combination, with the chest, of the main and auxiliary valves connected with a rock-shaft, and adapted to be operated, substantially as described, by means of a single rope, to admit water under the main and auxiliary piston, as set forth.

4. The valve *o′* and its connected rock shaft and arm *q′*, in combination with the valve *r′* and the slotted link 8, so that movement of the rock-shaft will raise first one and then the other valve, substantially as described.

5. The chest provided with the receiving-chamber 13, passage 11, supplying-chamber 14 and passages leading from it to the main cylinders, auxiliary supplying-chamber 17 and passages 12 *c′* leading into and from it, and exhaust-passages 21 26, in combination with valves *o′ r′ s′ t′*, substantially as described.

6. The combination, with the lever 35, of links *j′*, *u′*, and the rock shafts operated by them to open and close the main and auxiliary valves and the exhaust-valves, substantially as described.

192,117. BOTTLE-STOPPERS. H. N. Gale, Bristol, Conn. [Filed May 16, 1877.]

Brief.—The lock-plate, being pushed down to the stopper-cap, prevents any considerable movement of the bail or stopper.

1. The jointless link and cap-plate D *a*, in combination with the yoke of a bottle-stopper, substantially as described, and for the purpose specified.

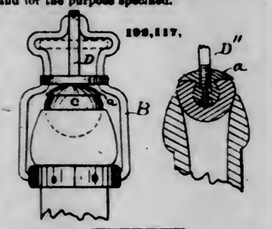
2. The combination of the following four elements, to wit: first, a cap-plate and cushion; second, a link for pressing the cap-plate and cushion into the mouth of the bottle or jar; third, a yoke or bail, attached by a joint at one end to said link and at the other end to the neck of the bottle or jar; and, fourth, an additional device for locking the bail and link by engagement with both of said parts, substantially as described.

3. In a bottle-stopper, or fruit-jar, the yoke B, having the bearing and shoulders for the

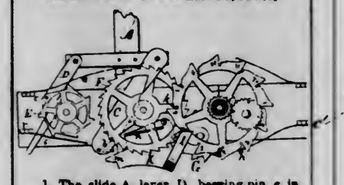
upper end of the link, the widened portion to allow the lock-plate to pass between the yoke-arms without engagement, and then a contracted portion for engagement with the ends of the lock-plate, substantially as described, and for the purpose specified.

4. In a bottle-stopper, the combination of the swinging yoke or bail, a swinging link attached by a joint to the upper end of said yoke or bail, a cap-plate and cushion, and an adjustable device for changing the length of the link and cap-plate, so that more or less pressure may be imparted to the cushion through the medium of said link, substantially as described, and for the purpose specified.

192,117.



192,118. CALENDAR-CLOCKS. D. J. Gale, Bristol, Conn. (Filed Mar. 30, 1877.)



1. The slide A, lever D, bearing pin *c*, in combination with post *r*, and day-of-the-week wheel E, substantially as described, and for the purpose specified.

2. The combination of the day-of-the-week wheel E, day-of-the-month wheel F, and pins *c b*, both connected to the same operating mechanism, substantially as described, and for the purpose specified.

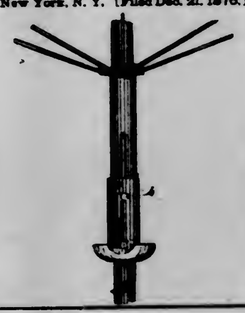
3. The lever which operates the month-wheel, provided with the vertical shoulder *d*, and hung to turn freely on the slide A, in combination with the axle which acts as a guide to impart the peculiar motion to the engaging-point *b*, of said lever, substantially as described, and for the purpose specified.

4. The short-month lever K, hung on a stationary axis, and provided with the arms *l* and *m*, and the flange *n*, substantially as described, and for the purpose specified.

5. The combination of the pattern-wheel J, short-month lever K, wheel F, bearing-pins *k* and *o*, and the lever and slide C A, operating together substantially as described, and for the purpose specified.

6. The combination of the month-of-the-year wheel G, arranged on an independent axis, so as to be rotated in either direction, with pattern-wheel J, short-month lever K, wheel F, bearing-pins *g*, *k*, and *o*, the lever C, and slide A, all operating together substantially as described, and for the purpose specified.

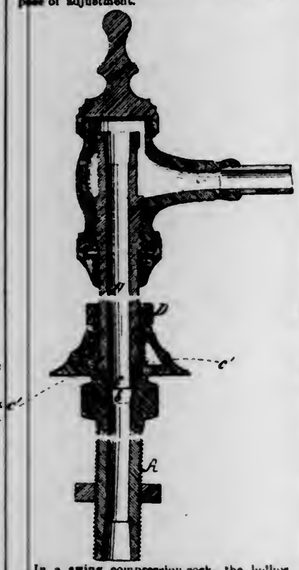
192,119. UMBRELLAS. Thomas G. Hofer, New York, N. Y. (Filed Dec. 21, 1876.)



In combination with an umbrella-runner and an umbrella tip-cap fastener, a lug, *b*, attached to the former, and a slotted tube or sleeve, D, attached to the latter, constructed and arranged substantially as herein described, and for the purpose set forth.

192,120. BASIN-COCKS. John K. James, Cambridge, Mass., assignor to C. Harrison, New York, N. Y. (Filed May 21, 1877.)

Brief.—The valve-neck is connected with its base by means of a friction-nut for the purpose of adjustment.



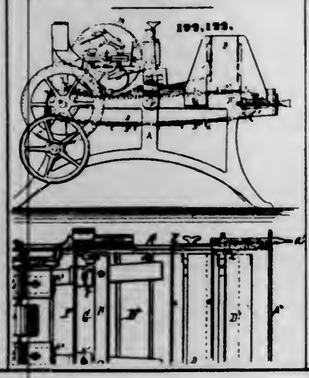
In a swing compression-cock, the hollow neck C, provided with the tapered lower end *e*, and the annular shoulder *e'*, in combination with the hollow nut D, and the hollow bolt A, provided with the hollow conical seat *b*, as and for the purposes set forth.

192,121. BARS FOR TUBS, &c. Andrew J. Johnson, Cleveland, Ohio. (Filed Mar. 29, 1877.)



As an article of manufacture, the slotted plate A, provided with penetrating or attaching points, and the loop D, substantially as and for the purpose described.

192,122.



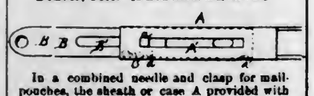
192,123. MACHINES FOR UBOING, CHAMFERING, AND EQUALIZING STAVES. Samuel F. Maxwell, Clifton, W. Va. (Filed Nov. 25, 1876.)

Brief.—The staves are equalized, crozed, and chamfered by means of two circular saws two crozing and two chamfering tools, attached to opposite ends of the same shaft which has its bearings in a frame above an endless belt, carrying plates upon which the staves are placed and fed to the aforesaid tools, and suitable operating mechanism.

1. In a stave-machine, the combination of the frame A, endless belt D, provided with slots d^3, plates D^2, provided with flanges *d*, pulleys C, provided with studs *c'*, shaft *b*, shaft D^1, pressers N', springs n^2, pulley m^2, shaft L', saws M, and tools $m\ m^1$, substantially as described.

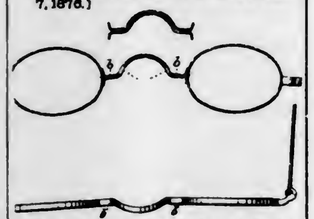
2. In a stave-machine, the combination of the frame A, endless belt D, plates D^2, pulleys C m^2, shaft *b*, shafts D^1 L', pressers N', springs n^2, saws M, tools $m\ m^1$, screws *a'* K', and receptacle E, substantially as described.

192,124. FASTENING DEVICES FOR MAIL-BAGS. Julius Metz and Egbert Hinman, Denver, Colo. (Filed Nov. 24, 1876.)



In a combined needle and clasp for mail-pouches, the sheath or case A provided with a slot, A', and holes *a' a'*, and needle B, provided with a slot, B', pin *a*, and spring-catch C, the whole constructed and arranged to operate substantially as described.

192,125. SPECTACLE-FRAMES. William H. Peckham, Jersey City, N. J. (Filed June 7, 1876.)

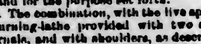


In spectacle-frames, the nose-piece *b*, made in two pieces, suitably connected together through the body and detached at the ends, so as to form a spring for the lens-frame, substantially as and for the purpose set forth.

192,126. DOOR-CHECKS. Deon B. Peck, Burlington, and Deon C. Peck, Winsted, Conn. (Filed May 22, 1877.)

Brief.—Made with two outwardly-curved ends. Is secured by a secured by a single screw in the middle, and with this spring the projecting knob or button of an ordinary door-bumper automatically engages, the construction being such that the curved ends of the spring act upon the rounded shoulders of the bumper, while the projecting button is clasped and held as against jarring or slight pressure.

192,127. HORSESHOES. Chas. H. Perkins, Providence, R. I. (Filed Dec. 16, 1876.)



A horseshoe constructed from blanks, substantially as described, with inner beveled edges A—that is to say, almost perpendicular upon the inside at the toe, while at the heel it presents a broad and gentle slope, as set forth.

192,128. TILE-MACHINES. Benj. P. Perry, Richmond, Ind. (Filed Sept. 7, 1876.)

1. The base of the pug-mill cast as an integral part of a cylindrical plunger-chamber, said chamber being bored out, and having a reciprocating plunger turned and fitted thereto, substantially as set forth.

2. In a tile-mill, a cylindrical plunger-chamber, having a reciprocating plunger fitted thereto, and having the base of the pug-mill and the flanges H cast thereto, substantially as set forth.

3. A cylindrical plunger-chamber, having the flanges H cast as an integral part thereof, in combination with the die D, recess F, buttons E, and screws G, entering the flanges to retain the die in place, substantially as set forth.

4. In combination with a cylindrical plunger-chamber, having a reciprocating plunger fitted thereto, the detachable plate C, substantially as and for the purpose specified.

192,129. METAL-WORKING LATHES. S. W. Putnam, Fitchburg, Mass. (Filed Sept. 12, 1876.)

1. In combination with the tail-stock of a lathe, the guards *e e* and tie-bolts *e' e'*, substantially as and for the purpose set forth.

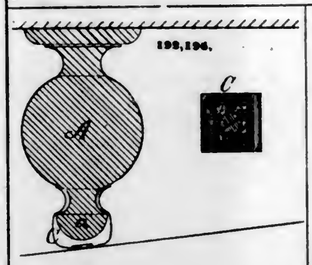
2. In combination with the eccentric or crank shaft *f*, tie-piece F, and tie-bolts *e' e'*, the gear G and worm-screw *g*, substantially as and for the purpose described.

3. In combination with the bearing *m* of the slide *z*, the setting-over bolts *i i*, arranged within the tail-stock, substantially as and for the purpose set forth.

4. The combination, with the eccentric back-gear, of the slotted shell *n n''* and the ring *n'''*, as and for the purpose set forth.

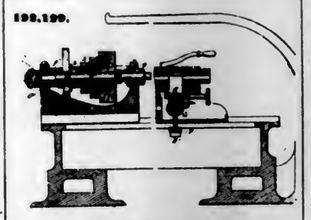
5. The combination, with the live spindle of a turning-lathe provided with two straight journals, and with shoulders, as described, of the conical boxes O and O', the cap V, and nuts *r* and *s*, as and for the purpose set forth.

192,130.

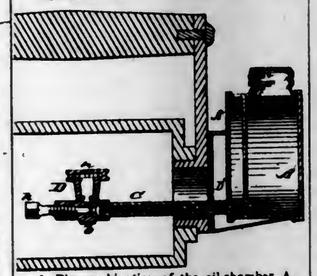


The button *a*, fixed upon an enlarged globular base—as the end of knob A—in combination with the sheet-metal spring C, having outwardly-curved ends, which set upon the rounding shoulders of said globular base, all substantially as and for the purpose set forth.

192,131.



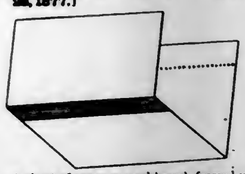
192,132. LAMPS FOR HEATING A TAILOR'S GOOSE. Jas. Rookie, Martlinsr, Mo. (Filed Apr. 2, 1877.)



1. The combination of the oil-chamber A, air-chambers A' and D', tube C, adjustable valve and burner, with a tailor's goose, all constructed, arranged, and operating as shown and described.

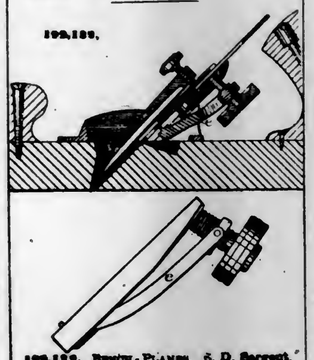
2. The tube *b*, adjustable valve *d*, slit *e*, and core *f*, in combination with a deflector, *h*, substantially as shown and described.

192,133. LETTER-SHEETS AND ENVELOPES. L. H. Rogers, New York, N. Y. (Filed Jan. 23, 1877.)



A sheet of paper or card board, formed with a sealing-flap, a line of perforations between the flap and the body of the sheet, and mucilage on the back of the sheet, placed in such position that the flap will fold unto it, substantially as set forth.

192,134.

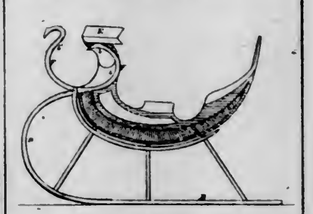


192,135. BENCH-PLANES. S. D. Sargent, New Britain, Conn., assignor to The Stanley Rule and Level Company, same place. (Filed Nov. 4, 1876.)

Brief.—The plane-bit is adjustable by means of a forked link, one end of which is pivoted to a threaded nut upon a screw working in a fixed internally-threaded stud upon the under side of the frog, and the opposite end, provided with a thin projection engaging with grooves in the under side of the bit, lies loosely in a longitudinal slot formed in the frog.

In a device for adjusting plane-bits, the link *c*, constructed to operate substantially as shown and described, for the purpose set forth.

192,136. SLEIGHS. Georg Schaffner, Albany, N. Y. (Filed May 14, 1877.)



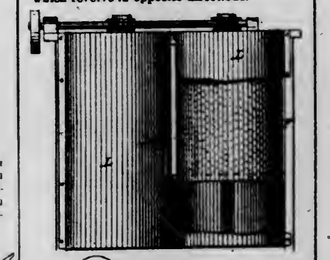
1. In a sleigh, the combination of the circular frame F, consisting of parts *b* and *b'*, with the runner B, substantially as and for the purpose set forth.

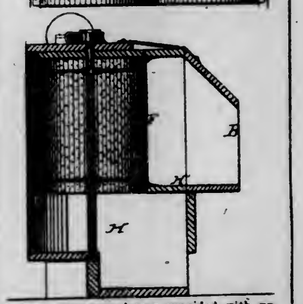
2. In a sleigh, the combination of the driver's seat E with the part *b* of the circular frame F, substantially as and for the purpose set forth.

3. In a sleigh, the combination of the driver's seat, the circular frame F, consisting of parts *b* and *b'*, and the runner B, substantially as and for the purpose set forth.

192,134. COTTON CLEANERS AND CONDENSERS. Ferdinand E. Smith, Prattsville, Ala. (Filed Mar. 9, 1877.)

Brief.—Two vertical perforated and hollow cylinders, with lower open ends, allow the dirt to be conveyed by the air-blast within the cylinders and fall below, while the cotton is conveyed in a bat between the cylinders, which revolve in opposite directions.



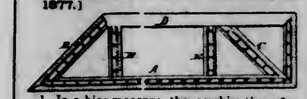


1. A cotton-condenser provided with upright perforated cylinders, closed above and open below, substantially as set forth.

2. In a cotton-condenser, the casing L, which covers the entire rear superficies of, and conforms to, the cylinders, and is provided with the slot M, substantially as set forth.

3. The combination of the flue B, upright cylinders F, and air-chamber H, substantially as shown and described.

192,125. BIAS-MEASURE. J. Kirk Somes, Springfield, Mass., assignor to himself and L. R. White, same place. [Filed May 28, 1877.]



1. In a bias-measure, the combination of a long bar, A, a bias bar at an acute angle thereto, provided with the common English metric or equivalent scale of linear measure, and a bar, B, at right angles to bar A, also provided with such scale, substantially as described.

2. As an article of manufacture, the bias-measure herein described, consisting of the two parallel bars, A D, bias-bars B C at either end, respectively, with scale on both sides, cross-bars E, with scale, and bar F uniting one end of bar A with extended end of bar D.

192,126. DEVICES FOR SECURING AND PROTECTING TAPES. William H. Stafford and Simeon S. Cook, Woonsocket, R. I. [Filed Apr. 25, 1877.]

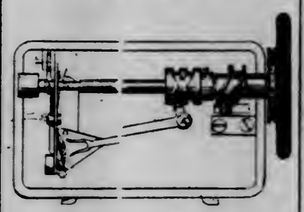
Brief.—The tape or other narrow fabric is secured upon the spool by means of a curved wire spring, made by bending the wire and inserting its ends in the center of the spool upon opposite sides. The spring presses upon the periphery of the coiled tape as it is drawn off, and also protects the sides from bulging or falling outward.



The combination, with the spool *a*, of the curved wire spring *b*, pivoted directly to the spool, arranged to support the sides of the tape roll and to press upon the periphery, substantially as and for the purpose described.

192,127. SHUTTLE-DRIVING MECHANISMS FOR SEWING-MACHINES. Samuel M. Stewart, New Harrisburg, assignor of one-half of his right to J. M. Purdue and Wm. F. Faas, both of Minerva, Ohio. [Filed Dec. 4, 1876.]

Brief.—On the main shaft of the machine are two cams, one single-grooved for driving the needle-arm, and the other a double-grooved switch-cam for driving the shuttle. By means of this cam the shuttle is quickly thrown in one direction, has a rest at the end of the stroke, and is quickly returned and has another rest, and so on, making, in connection with the needle, a stitch at each forward and each backward movement.



1. The combination, substantially as specified, of the needle-arm, the cam for driving it, the L-shaped shuttle-carrying lever, and the double-grooved cam for driving it, the said cams being timed for operating relatively, as set forth.

2. The combination, substantially as specified, of the double-pointed shuttle, the L-shaped lever carrying it, and the double-grooved cam for driving said lever.

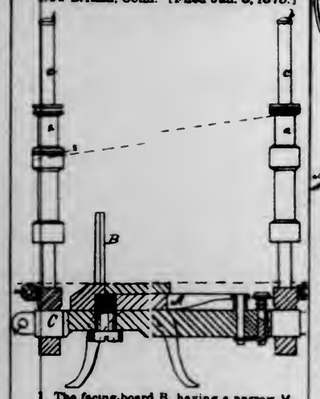
192,128. WORKING RATTAN. Thomas P. Thorpe, New York, N. Y., assignor of one-half his right to C. B. Atwood, same place. [Filed May 28, 1877.]

Brief.—A platform having a V-shaped longitudinal groove, in which is placed a diamond-shaped carrier, having a tapering groove at the top. Over said groove is placed a V-shaped knife, and in advance of which is an adjustable guide-piece.



The combination of the carrier B having groove *b* with knife C, holder D, and platform A having groove *a*, all substantially arranged as and for the purpose set forth.

192,129. MITRE-BOXES. Justus A. Traut, New Britain, Conn. [Filed Jan. 8, 1876.]



1. The facing-board B, having a narrow V-sided slot, the widest part or top of which V is on the rear side of said board, in combination with the swing-beam C, having its axis of motion located centrally with the said slot from right to left, and in the same vertical plane with the face of the facing-board, substantially as described, and for the purpose specified.

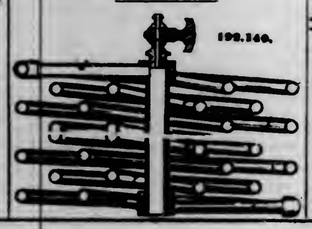
2. In a miter-box, the T-shaped frame, carrying only one pair of guiding-rollers, *a a*, and secured within the clamping-socket at the ends of the swing beam, substantially as described, and for the purpose set forth.

3. In a saw-guide for a miter-box, the shaft *c c*, provided with caps *b b*, in combination with the rollers *a a*, counterbored, as described, whereby the rollers are allowed to rise above the ends of the shaft, but are prevented from becoming accidentally detached or slipped off, as set forth.

4. The combination of the rollers *a a*, having grooves *c c*, with the removable connecting-bars *e*, all substantially as described, and for the purpose set forth.

5. The rollers *a a*, having grooves *c c*, in combination with the connecting-bar *e* and series of washers *w*, substantially as and for the purpose set forth.

192,140.



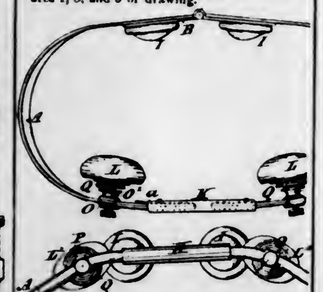
192,140. STEAM-RADIATORS. Jas. R. Worswick and J. A. Prindle, Cleveland, Ohio. [Filed Sept. 10, 1875.]

Brief.—The coil of pipes is put in a case with walls of non-conducting material. Flanges on the inside of the wall of the case deflect air among the coiled pipes. The whole device is to be suspended beneath the floor of a room to be warmed.

The series of tubular coils herein specified, more or less in number, in combination with the shell or case C and spiral flanges H G, substantially in the manner as set forth, and for the purpose specified.

192,141. TRUSSES. John R. Alexander, Montreal, Quebec, Canada. [Filed Jan. 31, 1877.]

Brief.—This invention consists of details of construction fully shown by claims and Figures 1, 3, and 5 of drawing.



1. A truss or abdominal support the band of which is composed of two untempered metal straps, (not springs,) hinged together at one end and adjustably connected together at the other end, substantially as and for the purpose specified.

2. In any truss or abdominal support, the combination, with the junction-piece K, of the pieces A A, received therein and secured by springs *e*, substantially as described.

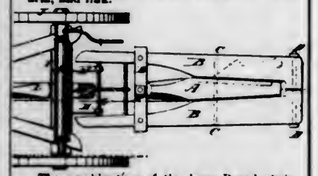
3. In any truss or abdominal support, the combination, with the side pieces A A, each provided with a pin and screw, of the piece B, hinged and perforated, and the plates H, with or without pads I, all substantially as herein set forth, and for the purposes described.

4. The combination, substantially as specified, of the pad L, the central pin M, fixed thereto, the fastening-ring O O', the flanged sleeve N, secured to said ring, and the spring Q.

5. The combination, with the band A and junction-piece K, of the abdominal support R, secured thereon by pins S and nut S', and provided with springs for pressure, substantially as herein described.

192,142. WHEEL-PLOWS. A. A. Amonett, Wrightsborough, Tex., assignor to himself and Jas. R. Wells, same place. [Filed Apr. 23, 1877.]

Brief.—Plow-beam, at its center, pivoted on a horizontal bolt in the frame-bars; its front end adjusted up and down on a vertical bolt; the whole raised by a lever, rock-shaft, a rigid arm, and link.

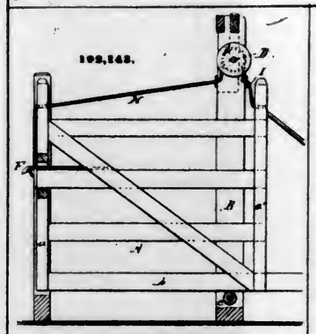


The combination of the bars B and their cross-bar E and bolts C D F, the cross-rod G, and the eyebolts H, with the plow-beam A and the wheels and axle J I, substantially as herein shown and described.

192,143. GATES. Daniel Barrett and Jas. F. Quinn, Wilmington, Ill., assignors to said Quinn. [Filed Apr. 23, 1877.]

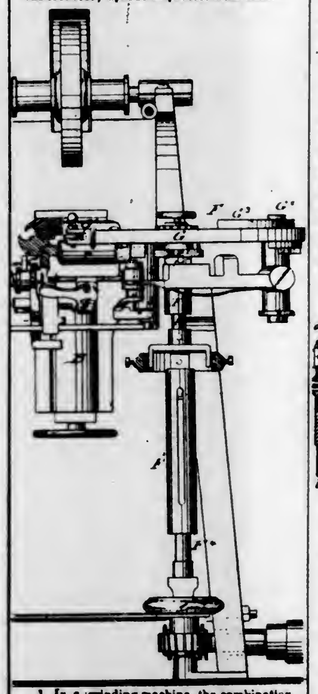
The gate A, having the extended rail *b* and stiles *a a'*, the spring-latch F, and rope H I, in combination with the shaft D, having cranks E, and carrying the drum *i*, substantially as shown and described.

192,144.



192,144. GRINDING-MACHINES. Louis Boltmann, Vienna, Austria. [Filed Sept. 1, 1876.]

Brief.—A three-part grinding-table on a vertically-adjustable support is moved from side to side by means of a crank-arm and compound biting-levers, with interposed coiled springs. The upper part is moved from front to rear by a crank-arm provided with a curved elliptical rack, against the adjacent sides of which a continuously-rotating pinion alternately engages. The intermediate part or carriage raises and lowers by four friction-rollers, and inclines by the respective movements of the upper part; an elastic hood over the grinding-wheel; shower-bath under the tool-rest; aprons to protect from dust.



1. In a grinding-machine, the combination of the supports of the emery-wheel with a projecting hood, applied to elastic spring bars or springs to take up the shock of a bursting wheel, substantially as described.

2. The combination of the slide-rest C, having friction-rollers, with the bed B^1, having inclines, whereby the table is adapted to be raised and lowered, as shown and described.

3. The combination of the toothed segment-lever G with the continuously-revolving gear-wheel F and the adjustable toothed section G^2, to lengthen or shorten the stroke of the slide-table, substantially as specified.

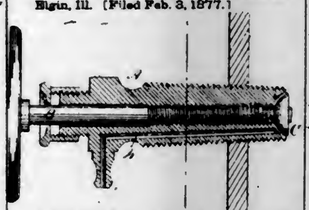
4. The combination of the gear-wheel F with the universal joint and double transmitting-shaft to follow the up and down motion of slide-rest, substantially as described.

5. The combination of the slide-rest with the friction-pallets and lever mechanism, arranged to operate in both directions to produce automatic side motion of slide-rest, as herein described.

6. The combination of the slide-rest C, having end rollers with weighted covering-aprons to protect the mechanism below against dust, substantially as set forth.

7. The combination, in a grinding-machine, of a vertically-sliding support, B, a swinging bed, B^1, seated thereon, and rising-and-falling slide-rest, and a reciprocating slide-table for the work, substantially in the manner and for the purpose set forth.

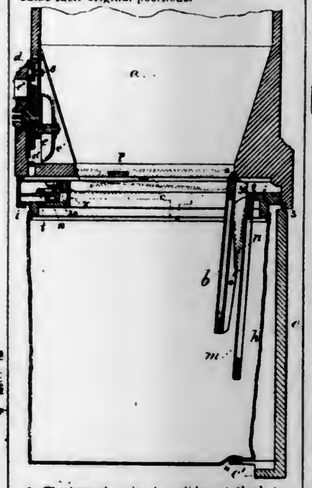
192,145. GAGE-COCKS. Henry Lee Borden, Elgin, Ill. [Filed Feb. 3, 1877.]



A gage-cock for steam-boilers consisting of a body, A, bored longitudinally and threaded internally, and provided with the passage *b* and valve-seat, as described, a threaded spindle, H, that extends through the body, and a valve, C, attached to the inner end of the said spindle, substantially as herein set forth.

192,146. LETTER-BOXES. Mario Bragaldi, New York, N. Y. [Filed Feb. 9, 1877.]

Brief.—A letter-box with double swinging bottom flaps, the lower one being secured by a lock or dog, combined with a time dial indicating the time for collections, the inner flap being opened by the insertion of the pouch-frame, which is slid into grooves in the box-frame, said inner flap being connected to the pouch-flap in the act of insertion, so they fall together, when released, by pushing in the pouch frame, thereby allowing the contents of box to fall into pouch. The act of withdrawing pouch causes said connected flaps to assume their original positions.



1. The letter box having slides at the bottom, with bolts for the swinging flap *b*, that are withdrawn by the frame of the pouch as it is inserted into the slides, in combination with the pouch, frame, flap, and bolts, that are operated by projections on the box, substantially as set forth.

2. The flaps *b*, and *m*, in combination with the connecting-flanges *n c* and frame *i*, substantially as set forth.

3. The bolts *p*, dogs 17 and *r*, in combination with the letter-box, flap *b*, frame *i*, and supporting-slides *l*, substantially as set forth.

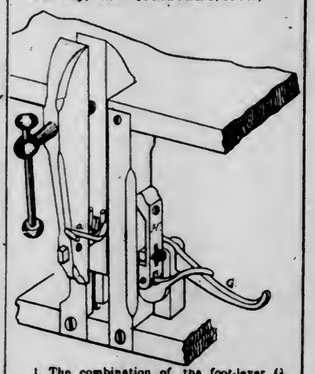
4. The combination, with the letter-box, pouch-frame, pouch, and flap *m*, of the bolts *f*, pinions, and racks 21, substantially as and for the purposes set forth.

5. The bolt *i*, pinions 19 and 20, and locking-bolt *e*, connected to the pouch-frame *i*, in combination with the rack 21 and incline 23 on the letter-box, substantially as set forth.

6. The covering-flap or bottom *e*, in combination with the letter-box and locking bolt or dog *d*, substantially as set forth.

7. The combination, with the locking-bolt *d* and cam-wheel *e*, of the dial *o'* and opening in the letter-box, whereby the time of delivery is indicated by the movement of the wheel *o* in opening the lock, as set forth.

192,147. BENCH-VISES. E. H. Brower, Carson City, Mich. [Filed Jan. 3, 1877.]



1. The combination of the foot-lever G, spring H, dog J, and cam-lever I with a carpenter's vise, the several parts being constructed and arranged to operate substantially as and for the purpose specified.

2. A carpenter's vise provided with the ratchet-bar K, dog *b*, and lever *a*, substantially as described, and for the purpose set forth.

192,148. MORTISING-CHISELS. Geo. Butler, New Brunswick, N. J. [Filed June 4, 1877.]



A mortising-chisel concaved upon its back and edge, substantially as herein shown and described.

192,149. COMPOUND FOR THE MANUFACTURE OF PORCELAIN ADAPTED FOR DENTAL PLATES, TEETH, &c. Almon B. Cady, Kenton, Ohio, assignor of one-half his right to Willis S. Walker, same place. [Filed Oct. 20, 1876.]

Brief.—The ingredients are mixed, and then incorporated by the addition of rain or distilled water, and in a pasty mass is to be molded and subjected to heat in the usual manner.

In the manufacture of porcelain especially adapted for dental plates and teeth, the above-described composition or compound, consisting of Delaware spar, silex, asbestus, mica, titanium, and kaolin, substantially as set forth.

192,150. GRAIN-BINDERS. Edwin Chapman, Rochester, Minn., assignor to Chapman Binder Company, same place. [Filed Feb. 16, 1876.]

1. The wire-carrier arm *e*, made with a metal plate at the end thereof passing edgewise through the narrow slot *b'* of the grain-receiving platform *b*, in combination with the hinged tongue 50, fork *w*, twisting-wheel *o*, rock-shaft *c'*, and actuating mechanism, substantially as set forth.

2. The combination, with the wire-carrier arm and its rock-shaft, of the stop motion

wheel *g g'*, crank *d*, connecting-rod *d*, and arm *d* upon the rock-shaft *e'*, substantially as specified.

3. The fingers *e* upon the rock-shaft *e'*, and connected by the cross-bar *e'*, in combination with the wire-carrier arm *a*, substantially as set forth.

4. The friction-plates *n*, with grooves in their surfaces, and the cones 17 for centering the spool or reel of wire, in combination with the spring and frictional adjusting-screw 18, as specified.

5. The sliding rod 21, sheave 20, and spring 22, in combination with the wire-holding spool *n* and wire-carrying arm *a*, for the purposes and as set forth.

6. The frictional pinion *k* upon the driving-shaft *l* and the chain-wheel *l'*, in combination with the stop-motion wheels and binding mechanism, substantially as set forth.

7. The combination, with the grain-receiver *b*, of the hinged side boards *p* and adjusting mechanism, substantially as and for the purposes set forth.

8. The combination, with the twisting mechanism, of the springs *y* upon the surface of the platform, for the purposes set forth.

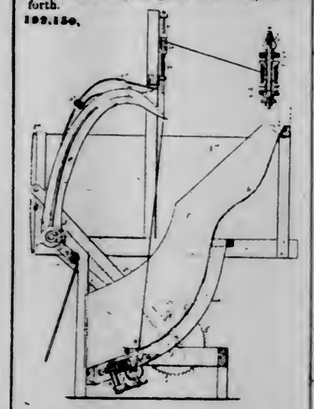
9. The polygonal holding and cutting jaws *t*, constructed of steel plates, and operating substantially as set forth.

10. The combination, with the polygonal holding and cutting jaws *t*, of the revolving twisting-wheel *o* and its clamp *o'*, substantially as set forth.

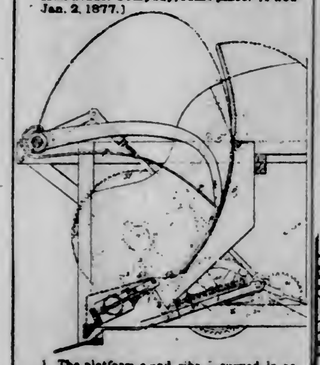
11. The rock-shaft 39 and its actuating mechanism, in combination with the revolving holding-jaws *t*, the twisting-wheel, and the clamping-plate *o*, substantially as specified.

12. The combination, with the grain-binding mechanism, of the inclined platform or receiver and a canvas or equivalent inclosure, *b*, for protecting the grain from wind, as set forth.

192,150.



192,151. GRAIN-BINDERS. Edwin Chapman, Rochester, Minn., assignor to Chapman Binder Company, same place. [Filed Jan. 2, 1877.]



1. The platform *g* and ribs *i*, curved in an arc of a circle from the center of the shaft *b*, and having an upward curved ledge, 15, and an opening for the wire-carrying arm *k*, in combination with said wire-carrying arm *k*, shaft 5, spring gathering-arms *p*, and the wire-twisting mechanism that is beneath the ledge 15, substantially as set forth.

2. The pushers *r* below the platform, and passing through slots in the platform, and also acting as stops, in combination with the ledge 15, gathering-arms *p*, and wire-carrying arm *k*, substantially as set forth.

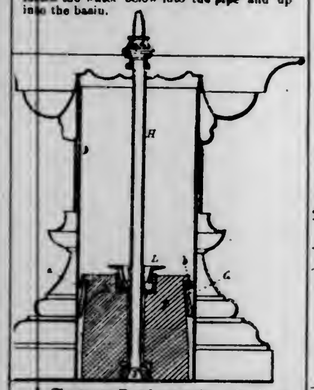
3. In a grain-binder, the combination, with the wire-carrier and twisting mechanism, of the pushers *r*, that pass through slots in the platform and act as stops, as and for the purposes set forth.

4. The pushers *r*, fitted to slide upon the bar *r'*, and the compressing-spring 28, in combination with the actuating-crank 21, shaft 22, and stop-motion gearing, substantially as set forth.

5. In combination with the wire-twister *t*, the adjustable knives or cutters *n n'*, actuating-levers *r r'*, and rod *r*, substantially as set forth.

192,152. FOUNTAINS. William J. Clark and William H. Clark, Salem, Ohio. [Filed Dec. 16, 1876.]

Brief.—The piston is adjusted in the cylinder, with the jet-pipe projecting through the cap and the nozzle attached thereto. Water is then poured into the basin until it and the cylinder are both filled. The water flows into the cylinder through an opening in the cover, around the jet-pipe. The piston is then pulled upward by the jet-pipe until it is felt to touch the cap of the cylinder. The jet-pipe is then pushed down to its former position. The piston, being made of lead, will descend in the cylinder of its own gravity, and, in so doing, forces the water below into the pipe and up into the basin.



1. The piston F and expansive valve G, secured thereto in the manner as described, in combination with the cylinder D, substantially as herein set forth, and for the purpose specified.

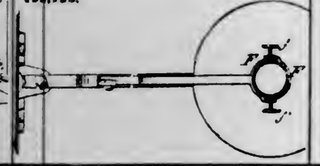
2. The movable jet-pipe H, constructed and arranged to operate in combination with the piston F and cylinder D, substantially in the manner described, and for the purpose herein specified.

3. The packing *c* or its equivalent, in combination with the jet-pipe H and piston F, substantially as herein set forth, and for the purpose specified.

4. In combination with the jet-pipe H, the feet J or its equivalent, substantially as herein described, and for the purpose specified.

5. The combination of the piston F, the valve G, the packing *c*, the jet-pipe H, the cylinder D, and basin A, substantially as herein described, and for the purpose specified.

192,153.

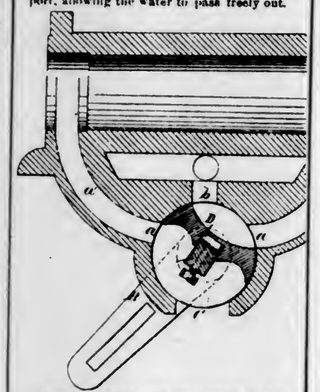


192,153. LAMP-SHADE HOLDERS. Partrick J. Clark and Joseph Kintz, West Meriden, Conn. [Filed Oct. 23, 1876.]

The lamp-shade holder or ring F, constructed of two sections, having overlapping ends, and held together by screws *f f'*, in combination with an attaching-arm and a shade, having a neck to receive the holder, as and for the purpose set forth.

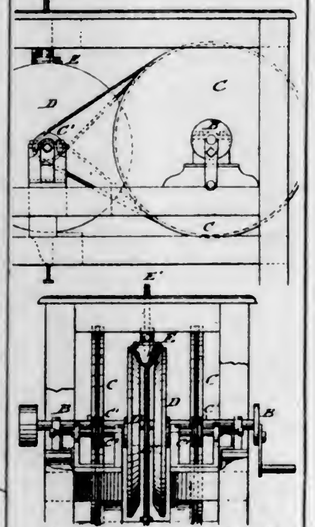
192,154. HYDRAULIC ENGINES. J. Coates, Erie, Pa. [Filed Apr. 23, 1877.]

Brief.—The rocking valve is grooved on the back, so that it moves clear of the exhaust-port, allowing the water to pass freely out.



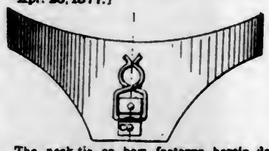
The combination, with the cylinder A, having chest B C, ports *a a b*, and passages *a' a'*, of the back grooved rocking valve D, operating as shown and described, so that the valve may move clear of the exhaust-port, and allow the water to pass out freely without interrupting the valve.

192,155. DEVICES FOR TRANSMITTING MOTION. P. Derkum, Richmond, Ind. [Filed Mar. 12, 1877.]



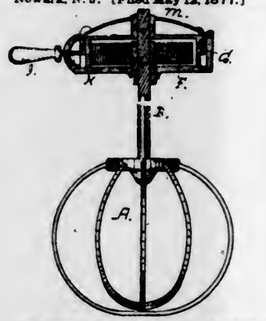
A device for transmitting motion from a horizontal to a vertical revolving shaft, consisting of a revolving crank-shaft, B, with wheels C, that impart, by connecting belts and pulleys, revolving motion, but in opposite direction, to disks D, with beveled edges, and thereby continuous revolving motion to a conical friction-pulley, E, and a vertical shaft, E', substantially in the manner set forth.

192,156. CLASPS FOR HOLDING NECK-TIES. Alvin H. Dodd, New York, N. Y. [Filed Apr. 23, 1877.]



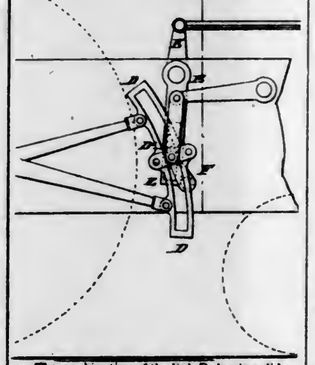
The neck-tie or bow fastener herein described, consisting of a spring-clasp formed from a single piece of wire, bent into loop-shape, to receive an attaching-plate, having an eye for the reception of the collar-button, and provided with outwardly-branching ends, to facilitate the entrance and removal of said button, as and for the purpose set forth.

192,157. EGG-BEATERS. Eustache R. Dulje, Newark, N. J. [Filed May 12, 1877.]



The beaters A on the shaft B, to which is secured the barrel D supporting the spring F, and the cord G having the handle I, in combination with the case K and cap *m*, substantially as and for the purpose specified.

192,158. LINK-MOTIONS FOR STEAM-ENGINES. Frederick Fischer, New York, N. Y. [Filed May 28, 1877.]



The combination of the link D, having slide-pin D', slotted rocker-arm E, having slide-pin E', and swinging crank-arm F, connecting both slide-pins by pivot-pin, substantially in the manner and for the purpose specified.

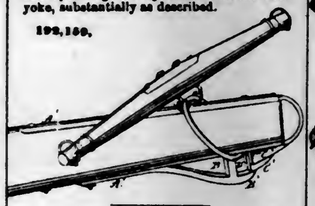
192,159. VEHICLE-POLE TIPS. Benj. Foltz, Rockford, Ill. [Filed Mar. 19, 1877.]

1. The combination of the vehicle-pole, the upper strap-iron, the under strap-iron, the hold-back-post, the guard B', the permanent leg C, and the pivotal locking-latch, all arranged and operating substantially as described and set forth.

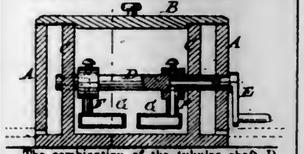
2. In a vehicle-pole having the upper and lower strap-iron, the combination of the hold-back-post, the permanently-secured leg for use in the forward draft, and the spring-latch for securing purposes, all arranged and operating substantially as described, and for the purpose set forth.

3. The combination of the tongue, tongue-iron A', holdback B, lip B', recessed lug O, latch C', and spring *c*, all these parts arranged and operating in conjunction with the neck-yoke, substantially as described.

192,160.



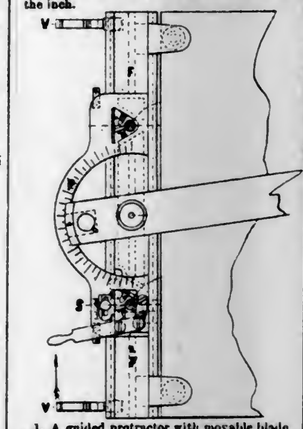
192,160. OIL-BOXES FOR LOCOMOTIVE-ENGINE CYLINDERS. Wm. A. Foster, Fitchburg, Mass. [Filed May 5, 1877.]



The combination of the tubular shaft D, provided with the crank E, the tubular arms F, and the buckets G, with the oil-box A B divided into three compartments by the partitions C, substantially as herein shown and described.

192,161. PARALLEL RULERS. Jos. Gardam, Brooklyn, N. Y. [Filed May 9, 1877.]

Brief.—A parallel ruler moved by a lever-arm, in combination with an adjustable index-stop, to draw any desired number of lines to the inch.



1. A guided protractor with movable blade propelled by a linked lever, in conjunction with two toggles or keys, to produce the parallel motion of the blade, substantially as shown and described.

2. The graduated index-stop S, as required for the purpose set forth.

3. The combination of the springs V V with the frame F, for the purpose of supporting scales of either trapezoidal or triangular section, substantially as specified.

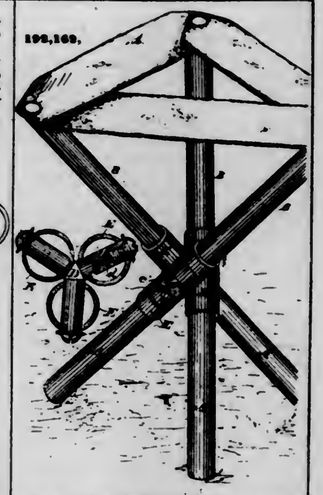
192,162. CAMP-STOOLS. Ernest W. Gourd, Franklin, N. H. [Filed Apr. 11, 1877.]

1. The tri-pivot having longitudinal holes in each of its branches provided with female screws, substantially as described.

2. The combination of the tri-pivot and the double sockets, secured together by screws, substantially as described.

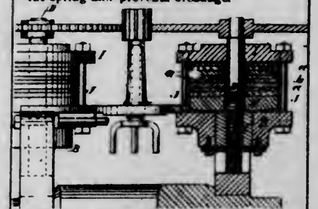
3. In a pocket camp-stool, the combination of the detachable sectional legs A and B and the tubular metallic sockets E, substantially as described.

192,163.



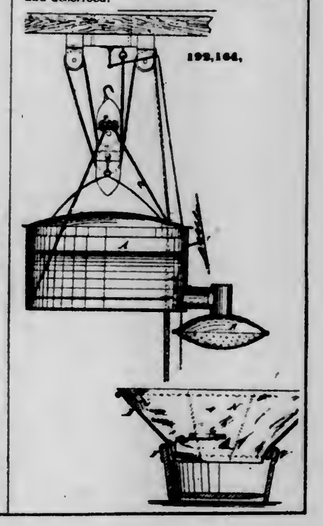
192,163. RELIEF APPARATUS FOR ROLLING-MILLS. E. C. Hegeler and F. W. Matthiessen, La Salle, Ill. [Filed May 5, 1877.]

Brief.—The nuts in which work the adjusting screws are fitted loosely in the housings, and held down against the pressure of the rolls by powerful springs bolted above them. Excessive pressure on the rolls compresses the spring and prevents breakage.



The combination, in a rolling-mill, of the plate B, nut C, screw D, disk H, spring composed of rubber disks *a* and metallic disks *b*, plate I, and bolts J, substantially as shown and described.

192,164.



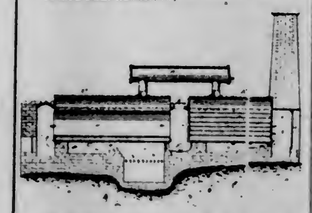
192,164. BATHING APPARATUS. W. J. Hill, Matteson, Ill. [Filed Apr. 29, 1877.]

1. The covered reservoir A, having the nipple a, the valve s, and sprinkler B, in combination substantially as herein shown and described.

2. The funnel-shaped frame D, having the movable part E, and hooks q, and the waterproof covering N, in combination substantially as shown and described.

3. The bracket F and seat G, in combination substantially as and for the purpose set forth.

192,165. COMPOUND STEAM-BOILERS. R. R. Hind, Kohala, Hawaii, Hawaiian Islands. [Filed Jan. 29, 1877.]



The combination of the single-flue boiler C and the tubular boiler E, placed end to end, with a space between them, and connected together by the steam-drum D and the circulating-pipe F, with each other and with the furnace and chimney, substantially as herein shown and described.

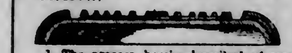
192,166. DEVICES FOR COATING CAKES WITH COCOA-NUT, &c. Danl. M. Holmes, New York, N. Y., assignor to The Van Derveer & Holmes Biscuit Company, New York city. [Filed May 26, 1877.]

Brief.—Water is poured in at E until the rubber sheet containing the grated cocoa-nut, sugar, &c., floats in a horizontal or slightly-convexed position. The pan containing the cake to be coated is then inverted within the rubber bag, which will yield and bring the material in contact with the cakes. To withdraw the water from the tank A the pipe K is turned down.



The water-tight box A, provided with a flexible water-proof sheet, B, a water-pipe, E, and air passages a', to adapt it to be used for coating soft cakes with cocoa-nut, sugar, &c., substantially as herein shown and described.

192,167. METHODS OF ORNAMENTING METALLIC SURFACES FOR JEWELRY. Edward Huguenin, Philadelphia, Pa. [Filed Apr. 30, 1877.]



1. The process herein described of ornamenting jewelry by applying on a bottom plate of greater thickness a number of thinner plates of variously-colored metal, soldering or heating them together, and rolling them to the required thickness, to be finally engraved according to the desired colors and designs, substantially in the manner and for the purpose set forth.

2. As an improved article for jewelry, a blank or plate of solid metal formed of a bottom plate or backing of greater thickness and of a number of superimposed plates or layers of variously-colored metal, substantially as specified.

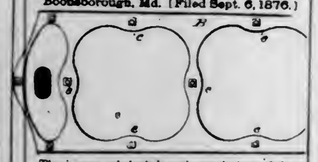
192,169.



192,168. DEVICES FOR AIDING COMBUSTION IN STEAM-BOILER AND OTHER FURNACES. Wm. S. Hutchinson, Chicago, Ill. [Filed Mar. 20, 1877.]

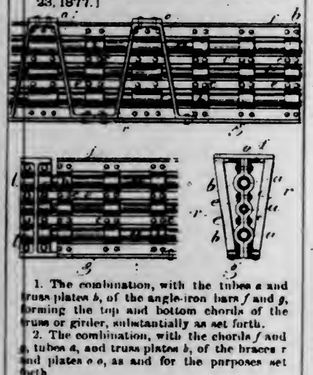
The combination of thimble c, T-coupling n, jet-tube s, T-coupling n', and pipe d, as a device complete for being built into the wall of the chamber D, arranged for the injection of air and steam into the furnace, substantially as set forth.

192,169. DASH-BOARDS. Geo. H. Hutton, Boonsborough, Md. [Filed Sept. 6, 1876.]



The improved dash-board, consisting of the frames or plates A B, formed with their inner surfaces plain and flat, and having the swell or enlargement c, for the purpose specified.

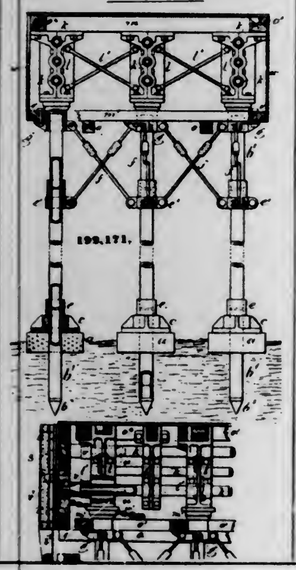
192,170. TUBULAR GIRDERS AND BEAMS. Job Johnson, Brooklyn, N. Y. [Filed May 23, 1877.]



1. The combination, with the tubes e and truss-plates b, of the angle-iron bars f and g, forming the top and bottom chords of the truss or girder, substantially as set forth.

2. The combination, with the chords f and g, tubes e, and truss-plates b, of the braces r and plates o o, as and for the purposes set forth.

192,171.



192,172. BULK-HEADS AND PIERS. Job Johnson, Brooklyn, N. Y. [Filed Apr. 26, 1877.]

1. In combination with the metallic tubular piles, the foundation-blocks a, with holes through them for such piles, and the metallic caps c, resting upon such blocks, substantially as set forth.

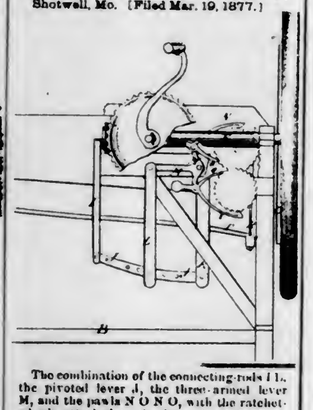
2. The combination, with the tubular metallic or other piles and foundation-blocks, of the tubular or other girders k, cap-pieces g, and braces f f', substantially as set forth.

3. The combination, with the tubular girders and piles, of the yielding fenders and the supporting-plungers u, that pass into the ends of the girder-tubes, substantially as set forth.

4. The combination, with the yielding fenders and pier, of the sliding plunger u, guides r², and the levers t', and weights t², substantially as set forth.

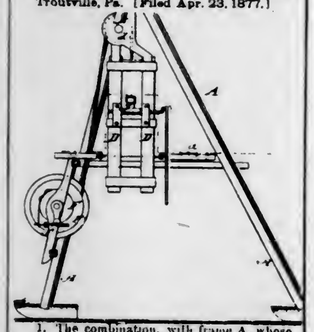
5. The fenders for piers and bulk-heads, made of the vertical guides r² and rollers r², substantially as set forth.

192,173. STRAW-CUTTERS. Geo. M. Keller, Shotwell, Mo. [Filed Mar. 19, 1877.]



The combination of the connecting-rods I L, the pivoted lever J, the three-armed lever M, and the pawls N O N O, with the ratchet-wheels attached to the journals of the feed-rollers and with the driving-gearing of the machine, substantially as herein shown and described.

192,175. POST-DRIVERS. W. Kindermann, Troutville, Pa. [Filed Apr. 23, 1877.]



1. The combination, with frame A, whose cross-rods are provided with pins a, of the guide-frame D, having perforated arms b, as and for the purpose described.

2. The combination, with a cord from a ram, a guide-frame having pulley d, a shaft having socket-pulley F, and a spring-clutch, F', of a plate and shoulder, f, arranged as and for the purpose specified.

192,174. MACHINES FOR STUFFING HORSE-COLLARS. John M. Lichliter, Luray, Va., assignor to B. F. Grason, Jr., same place. [Filed May 21, 1877.]

1. The combination of the carriage K, hopper L, endless toothed belt M, rollers N, and the stationary forked rod U with the frame B,

substantially as herein shown and described.

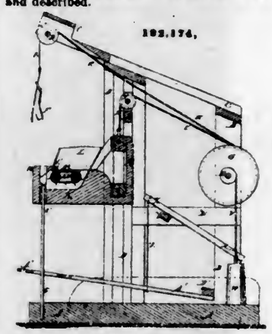
2. The combination of the pulley O, the pawl-and-ratchet wheel P, the strap Q, the spring R, the armed segment S s', and the stop T with the feed belt and rollers M N, the carriage K, and the frame B, substantially as herein shown and described.

3. The combination of the rope and pulley I J, the pulley and shaft G H, and the rope and weight V W with the carriage K and the frame B, substantially as herein shown and described.

4. The combination of the pulley, rope, and hook D E F with the pulley and shaft G H, the rope and weight V W, and the frame B, substantially as herein shown and described.

5. The combination of the lever X, the rope Z, and the treadle A' with the weight W and the frame B, substantially as herein shown and described.

192,174.

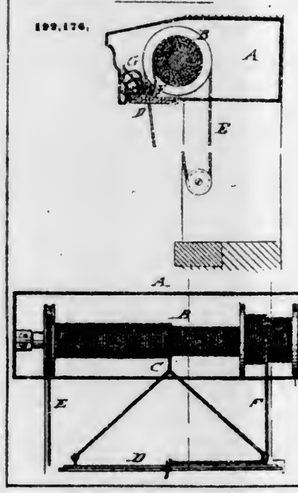


192,175. COILED SPRINGS. James Ludlum, Pompton, N. J. [Filed May 28, 1877.]



A spring having in the terminal coil an offset to receive the end of the rod of which the spring is formed, substantially as shown and described.

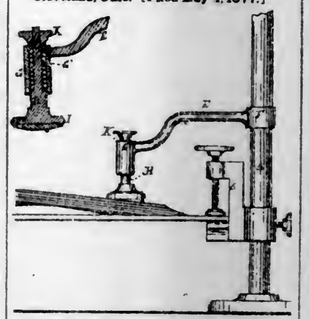
192,176.



192,176. FIRE-ESCAPES. R. J. Macdonald, New York, N. Y. [Filed May 5, 1877.]

A fire-escape consisting of cornice A, roll H, rope ladder C, seat D, cords E F, and pulley d, arranged substantially as shown and described.

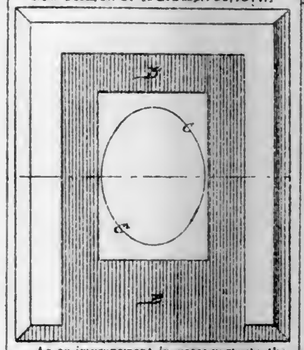
192,177. BOOK-SUPPORTS. H. L. Marshall, Cleveland, Ohio. [Filed May 4, 1877.]



1. In combination with the standard A, arm E, and sleeve G, the stem H, nut K, and spring G', in the manner substantially as described, and for the purpose set forth.

2. In combination with the standard A and screw-clamp C, the sliding horizontally-movable arm E, substantially in the manner as herein described, and for the purpose specified.

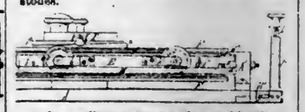
192,178. PICTURE-FRAMES. Edward Maux, New York, N. Y. [Filed Apr. 30, 1877.]



As an improvement in passe-partouts, the combination, with the usual frame, of a backing having an opening corresponding to the size of the picture to be framed, and placed back of the face-lining of the glass, substantially in the manner and for the purpose set forth.

192,179. MILLSTONE-DRESSERS. Jno. McD. McIntyre, Lockport, N. Y., assignor of one-third his right to Wm. Duncan, same place. [Filed Apr. 10, 1877.]

Brief.—The carbon-point is secured in the tool-stock, which is so mounted as to enable the point to operate at any desired angle and inclination. The centering-screw engages with the end of the spindle, or in the recess of a temporary center-piece, in dressing millstones.



1. In a millstone-dresser, the combination, with the frame A and centering-screw b, of the angle-piece B', made laterally adjustable on the frame, and bracket or screw-bearing B, made longitudinally adjustable on the angle-piece, substantially as and for the purpose hereinbefore set forth.

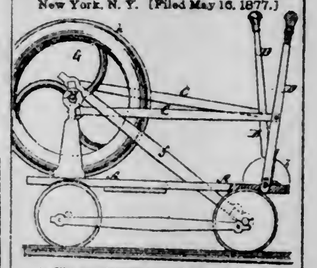
2. The combination, with the frame A and tool-stock bar E, of the end pieces A', provided with segmental recesses C, and adjustable segmental blocks D, provided with ways d² for adjusting the inclination of the tool, substantially as hereinbefore set forth.

3. The combination, with the bar E, of the guide-bars F F F', pivoted near their outer ends to the bar E at f, and made vertically adjustable at their inner ends by the set-screw g and bolt f', passing through the slotted hole in the bar E, substantially as and for the purpose herein before set forth.

4. The combination, with the frame A, provided with ways d², and bar E sliding therein, of the feed-screws H H', and cross-piece M, of the pivoted bearings l and pivoted plates m, substantially as and for the purpose hereinbefore set forth.

5. In a millstone-dresser, the combination, with the tool-stock P, of the carbon-point holder composed of the split sleeve r, provided with a conically enlarged lower end, and screw and nut r' r², and inclosing-cylinder S, substantially as and for the purpose hereinbefore set forth.

192,180. MOTIVE POWERS. S. Mellins, New York, N. Y. [Filed May 16, 1877.]



1. The combination of the hand-lever D, having pins c, with the frame A and check-pieces b b, the check-pieces serving to hold the pins a to the frame and to guide and steady the lever, substantially as herein shown and described.

2. In a propelling-vehicle, the combination of the platform A having uprights with the axle B carrying the fly-wheel G, and with the operating-rods C and weighted hand-levers D, which are pivoted to the platform A and guided between the check-pieces b, substantially as and for the purpose herein shown and described.

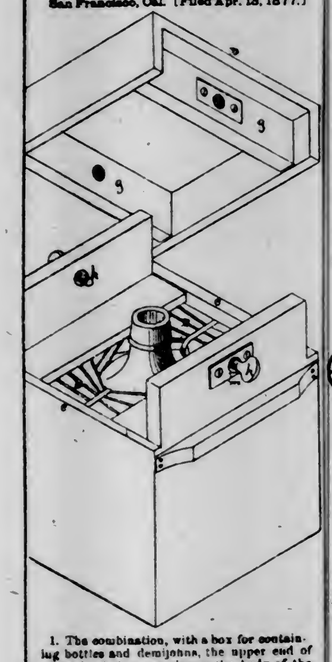
192,181.



192,181. STOVE-PIPE SAFE AND REGISTER. Horatio B. Morrison, Mason City, Iowa. [Filed May 10, 1877.]

The combination of the horizontally-moving ring, projections, and hinged doors with operating devices, whereby the doors may be opened from above or below, substantially as specified.

192,182. DEMIJOHN-CASES. C. Newman, San Francisco, Cal. [Filed Apr. 13, 1877.]



1. The combination, with a box for containing bottles and demijohns, the upper end of which is of the same size as the body of the box, and provided with the side pieces C C, of the flat removable top or cover D, provided with the bars *g g* and screws *h h*, substantially as herein shown and described.

2. The combination, with a square-top box for inclosing and protecting bottles and demijohns, and provided with one or more low sides *s*, of a flat-top cover, D, which is supported above the top of the bottle or demijohn, and secured by screws or other fastening which pass through the sides of the box and cover, substantially as herein shown and described.

3. The combination, with the box and cover, of the screw provided with the shank K between the head and screw-portion, pin hole *i*, and wire, and the plate *m*, substantially as and for the purpose specified.

192,183. GATHERING AND PLAITING ATTACHMENTS FOR SEWING-MACHINES. L. Onderdonk, Adams' Station, N. Y. [Filed Mar. 10, 1877.]

Brief.—The slides carrying the ruffling-plates are attached to an extension of the presser-foot, and are moved, through the medium of a cog or pinion on a rock shaft, by a lever attached to the needle-bar. Provision is made for adjusting the device for different widths of plaits, for automatically reversing the direction of the movement of the slides, and folding in opposite directions alternately to form box plaiting.

1. The presser-foot A, with extensions a^2, a^3, and a^4, substantially as shown and described.

2. The combination, substantially as described, of the lever B, provided with the slot F, and the rock-shaft C, having a crank, *e*, for the purposes set forth.

3. The combination, substantially as described, of the cog-wheel D, provided with the pin d', shifting-plate A', provided with projection D', shaft C, and adjustable arm G, for the purposes set forth.

4. The cog-wheel D, in combination with plate B', the dogs *i i*, with their springs *d* and the shifting-plate A', substantially as shown and described.

5. The combination, substantially as described, of the slides E' and F, the latter being provided with an extension, F', hinged to the former, as and for the purposes set forth.

6. The combination, substantially as described, of the slides E' and F, with their extensions E^2 and F', and of the plate G', as and for the purposes set forth.

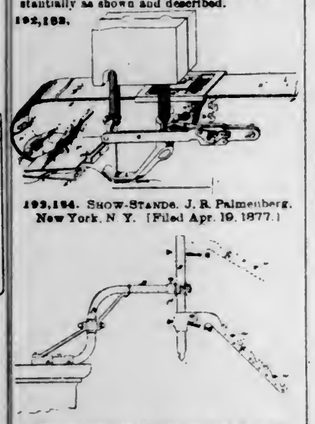
7. The combination, substantially as described, of the cog-wheel D and slides F and E', said slides being connected by slots and pins, as set forth, whereby the motion of the slide F is communicated to the slide E', as described.

8. The combination, substantially as described, of the rectangular-shaped extension E^2, provided with the lip *r* and the plate G', provided with a reversely-bent lip, r^2, for the purposes set forth.

9. The plate G', in combination with the slides E' and F, substantially as shown and described.

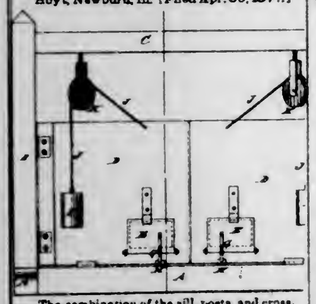
10. The presser-foot A, and its extensions a^2, a^3, and a^4, in combination with the tension-spring H and the slides E' and F, substantially as shown and described.

192,184. SHOW-STANDS. J. R. Palmenberg, New York, N. Y. [Filed Apr. 19, 1877.]



The combination of the bracket B, rod C, bar D, hinged brackets E, and cross-bars *w w*, arranged to operate substantially as and for the purpose herein described.

192,185. GATES. J. T. Piggott and A. W. Hoyt, Newburn, Ill. [Filed Apr. 30, 1877.]



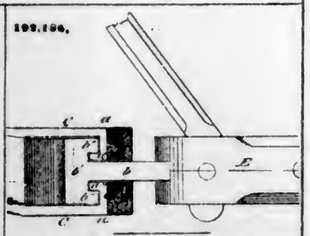
The combination of the sill, posts, and cross-beam A B C, the hinged gates D, the trap-doors E, the stop-hooks F, the latch-hooks G, the catches H, and the weights, ropes, or chains, and swiveled pulleys I J K, with each other, substantially as herein shown and described.

192,186. THILL-COUPLINGS. J. T. Pomeroy, Edgerton, Wis. [Filed Apr. 23, 1877.]

The side pieces *a a*, connected by rivet C, and having ribbed flanges $a' a''$, in combination with the plate E, having bar *b*, and grooved ribbed head $b' b''$, as and for the purpose specified.

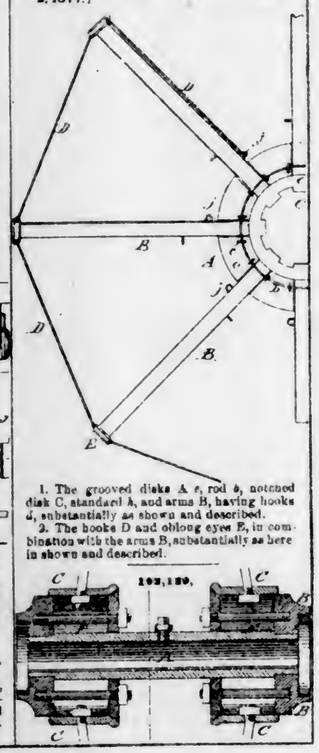
192,187. THILL-COUPLINGS. Chas. B. Post, New London, Ohio. [Filed Feb. 10, 1877.]

Brief.—The axial bolt has a lug to fit the slot in ear, and the bail-retainer has a recess to fit around the yoke.



The combination of the bolt or pin F, provided with the stop *f'*, the U-shaped recessed fastener G, and the rubber block D, with the hooks B formed upon the forward arm of the clip A, and with the forwardly-projecting end of the yoke C, substantially as herein shown and described.

192,188. CLOTHES-LINE HOLDERS. Richard Raby, Jr., Loudonville, Ohio. [Filed Apr. 2, 1877.]



1. The grooved disks A *e*, rod *b*, notched disk C, standard *h*, and arms B, having hooks *d*, substantially as shown and described.

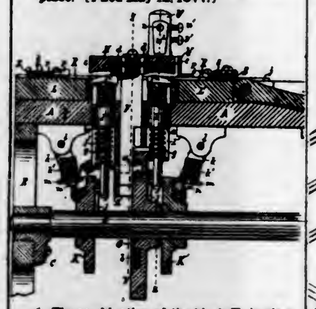
2. The hooks D and oblong eyes E, in combination with the arms B, substantially as here in shown and described.

192,189. [illegible]

192,189. VEHICLE-WHEELS. De La Fayette Remington, Silverton, Oreg. [Filed Feb. 26, 1877.]

The slide sleeves C, adjusted by means of the rings and screw-bolts with respect to the collars B, as and for the purpose specified.

192,190. MACHINERY FOR FORMING BOX-TOES FOR BOOTS AND SHOES. Davis B. Reynolds, Brockton, Mass., assignor of one-half his right to W. L. French, same place. [Filed May 19, 1877.]



1. The combination of the block H, having formed upon opposite ends thereof two male dies, *a a*, and adapted to be moved vertically and horizontally, two vertically-yielding followers, F F, the fixed female die L, and horizontally-reciprocating female die L', all arranged and adapted to operate substantially as and for the purposes described.

2. The combination of the rod F, mounted in fixed bearings and adapted to be moved only in a vertical direction, and the block H, having formed on either end thereof a male die, *a*, and secured to the upper end of said rod F, and adapted to move vertically therewith and horizontally thereon, substantially as described.

3. The combination of the rod F, die-block H, and one or more springs, *d*, all arranged and adapted to operate substantially as and for the purposes described.

4. The combination of a vertically-reciprocating male die, a horizontally-reciprocating female die, adapted to engage with said male die, a toggle-joint connected to said female die and some fixed portion of the machine, and adapted to impart to said female die a reciprocating motion, and a cam connected by suitable rods or levers to the knuckle of said toggle, and adapted to impart motion thereto, substantially as and for the purposes described.

5. The combination of the rod F, provided with the truck *s*, the cam G, adapted to impart to the rod F a vertical reciprocating motion, and the die-block H, secured to the rod F, and adapted to be moved vertically therewith and horizontally thereon, substantially as described.

6. The combination of a male die adapted to be moved vertically and horizontally, a follower or clamping-jaw fitted to and adapted to be moved vertically in fixed bearings, a spring adapted to force said follower upward, and an intermittently-acting cam adapted to draw said follower away from said male die, substantially as and for the purposes described.

7. In combination with a vertically-reciprocating male die, a vertically-moving follower or clamping-jaw, and a fixed or horizontally-reciprocating female die, a reciprocating feed-plate adapted to receive the blank and automatically feed it between the male die and its follower, substantially as described.

8. In combination with the die-block H and follower P, the feed-plate R, lever-frame *k k'*, truck *m*, and the cam K or K', all arranged and adapted to operate substantially as and for the purpose described.

9. In combination with the horizontally-reciprocating feed-plate R, one or more registering-gages, *p p*, secured thereon, all arranged and adapted to operate substantially as and for the purpose described.

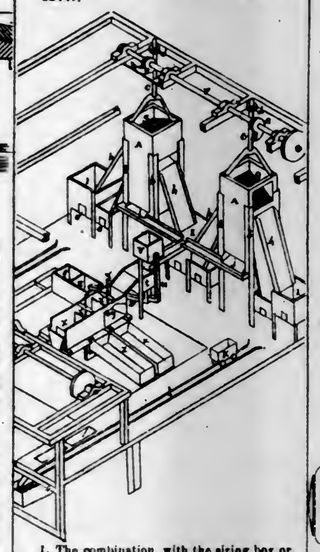
10. In combination with the feed-plate R, the spring *r*, arranged and adapted to operate substantially as and for the purpose described.

11. In combination with a vertically-reciprocating male die and a fixed or movable female die adapted to mold a box-toe, a pair of griping-jaws, adapted to receive and gripe the box-toe as it is moved upward out of the female die, withdraw it from the male die, and discharge it at one side of the machine, substantially as described.

12. The combination, with the feed-plate R, of a toothed rack, *s*, pinion *t*, vertical spindle U, and jaw-plates u^2 and v^2, all arranged and adapted to operate substantially as and for the purpose described.

13. The combination of the vertical spindle U, fixed jaws u^2, tube *o*, rod o^2, jaw-plate v^2, pin v^3, spring *w*, and adjustable cam-block x^2, all arranged and adapted to operate substantially as and for the purposes described.

192,191. ORE-SEPARATORS. Jos. Richards, Battle Mountain, Nev. [Filed Apr. 13, 1877.]



1. The combination, with the sizing box or boxes A, with their grading screens *g g* and spout or spouts *j*, of the series of conducting-troughs and the settling-tanks *t x x x*, all constructed and arranged substantially as and for the purpose described.

2. The sizing and washing tank *t*, connected by the pipe *u* with the elevated water-reservoir V, in combination with the settling-tanks *x x x*, with their conical plug openings, and the inclined receiving-tanks *z z*, all combined and arranged substantially as and for the purpose described.

192,192. MACHINES FOR MAKING PLUMBERS' TRAPS. John Robertson, Brooklyn, N. Y. [Filed Apr. 23, 1877.]

Brief.—A sliding plate, with a single orifice, bounds the lead-containing cylinder at top, and above it is the die-holder, having two ducts that lead up to an annular channel at the base of the die or discharge-orifice. Thus, as the chutes are more or less opened to the upflow of the lead, the latter unites in the annular channel under unequal pressure, and so issues from the die. The apparatus is supported on trunnions for the more convenient heating of the parts, and the charging of the cylinder with lead when required.

1. The core-holder E, provided with two passages, *i* and *j*, and with the projecting core proper *h*, substantially as herein shown and described.

2. The combination of the core-holder E and core *h* with the outer shell C, forming the constriction-chamber *c*, substantially as herein shown and described.

3. The combination of the movable valve F, having the aperture *l*, with the core-holder E, having the separate passages *i* and *j*, and with the lead-chamber *d*, substantially as herein shown and described.

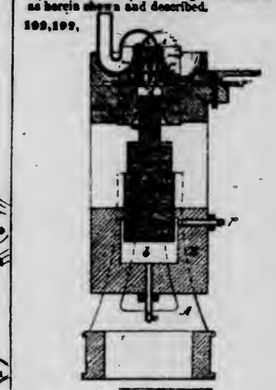
4. The combination of the movable perforated valve F and lead-chamber *d* with a mold, having two passages, *i* and *j*, that lead into an annular constriction-chamber, substantially as herein shown and described.

5. The shell or casing C of the constriction-chamber, said shell having the pockets *m m*, substantially as and for the purpose herein shown and described.

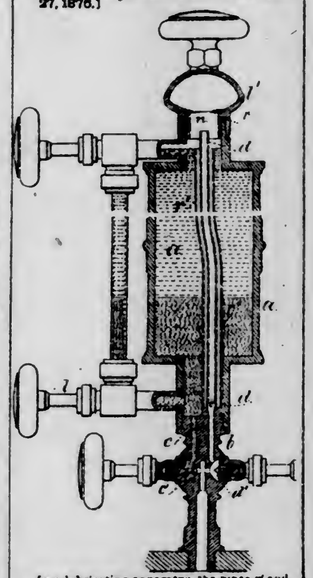
6. The mold B C E, provided with trunnions *a a*, and pivoted in the frame A, so that it can be reversed, substantially as herein shown and described.

7. The combination of the block B, having trunnions *a a*, with the chambers *b d*, ram D, and mold C E, all arranged substantially as herein shown and described.

192,193. [illegible]



192,194. LUBRICATORS. Saml. Enshworth, New York, N. Y., assignor to himself and J. G. Crawford, same place. [Filed Sept. 27, 1876.]



In a lubricating apparatus, the pipes *r'* and *d*, vessel *a*, and valves d' o', in combination with the hollow condensing-cover F, and pipe *n*, substantially as and for the purposes set forth.

192,194. PRECIPITATORS FOR STEAM-ENGINE BOILERS. Levi Shook, Pittsburg, Pa., assignor of one-half his right to Jas. Rose, same place. [Filed Apr. 13, 1877.]

1. A precipitator for steam-boilers, consisting of an inner casing for collecting the floating precipitation, and provided with a pipe and cock for drawing off such precipitation alone, in combination with an outer casing for containing the sunken precipitation, and also provided with a pipe and cock for drawing off

each precipitation alone, all so arranged that the contents of either or both casings may be simultaneously or separately discharged, substantially as set forth.

2. A precipitator for steam-boilers, provided with an inner casing for collecting the floating precipitation, and encompassed by an exterior casing for collecting the sunken precipitation, substantially as set forth.

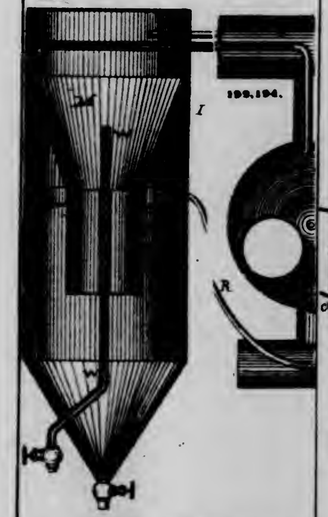
3. A precipitator for steam-boilers in which the water is superheated in a pipe led through the boiler, whence it is discharged through apertures in the end of the pipe, which conveys it into the precipitator, and is heated therein by a jet of steam to a degree at which all animal, vegetable, and mineral matter is precipitated, substantially as set forth.

4. A precipitator for steam-boilers, consisting of an inner and outer casing, provided with a pipe to draw the pure water between the casings from a point between the floating and sunken precipitation, substantially as set forth.

5. The combination of the precipitator or casing I, the interior casing M, and chamber N, substantially as shown and described.

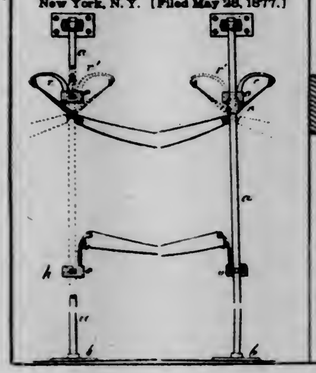
6. The precipitator I, provided with the pipes R and L and pipe F, having the perforations K, in combination with the inner casing M, having pipe W, substantially as set forth.

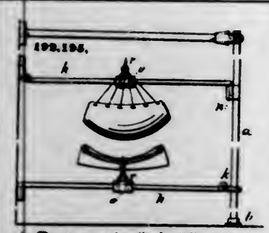
7. The precipitator I, provided with the casing M, chamber N, and channel P, in combination with the pipe R, substantially as set forth.



192,194.

192,194. FRAMES FOR HAMMOCKS AND COTS. Henry C. Siller and Charles Siller, Jersey City, N. J., and Chas. H. Dessart, New York, N. Y. [Filed May 26, 1877.]





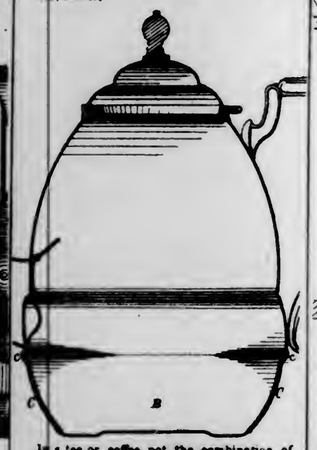
192,195.

1. The hammock-rails h, sliding blocks c, and stretcher-forks r, in combination with the hammock or cot, substantially as set forth.

2. The movable vertical posts a and sockets b, in combination with the hammock-rails h, blocks c, forks r, and hammocks, substantially as set forth.

3. The stretcher-forks r, arranged to stand in opposite directions for distending the hammocks, substantially as set forth.

192,196. TEA AND COFFEE POTS. Michael Simons, Yalesville, Conn. [Filed Aug. 27, 1874.]



In a tea or coffee pot, the combination of the inner hard-metal bottom section B and the outer soft-metal covering C, substantially as and for the purpose specified.

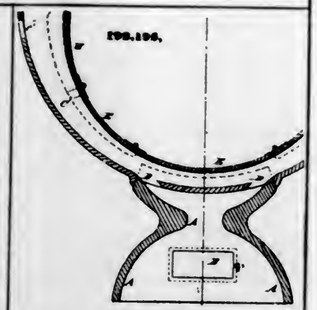
192,197. SAD-IRONS. Francis M. Snively, Bellaire, Ohio. [Filed Feb. 19, 1877.]



The wooden handle A attached to the seat B, as shown, in combination with the iron D and bolt c, said bolt passing vertically through the center of the seat B into an orifice in the bottom of the groove in the iron D, and held therein by a spring, b, all constructed and operating in the manner hereinbefore set forth.

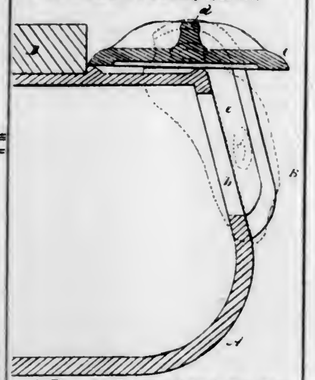
192,198. TIRE-HEATERS. Wm. E. Stewart, Xenia, Ohio. [Filed May 5, 1877.]

An improved tire-heater formed by the combination of the hollow base A, the semi-ring trough C, provided with the holes D, and the cap E, made in sections, hinged to each other, and having flanges formed upon their side edges, substantially as herein shown and described.



192,199.

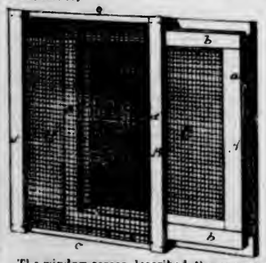
192,199. RAILWAY-AXLE-BOX LIDS. F. C. L. G. Busemihl and Herbert H. Hewitt, Detroit, Mich. [Filed May 5, 1877.]



1. The cover C, having flanged ends and a central rib, d, and provided with the projections e, substantially as and for the purpose herein shown and described.

2. The cover C, having projections e, in combination with the box A, having formed upon it the grooved ears B, substantially as shown and described.

192,200. WINDOW-SCREENS. Brastus C. Underwood, Boston, Mass. [Filed Apr. 19, 1877.]



The window-screen described, the same consisting of two independent frames, A B, the former being provided with recessed and grooved cross-pieces b and the vertical bar a, and the latter with the cross-piece e, recessed as shown, and the vertical slats d, joining the sides of cross-pieces e at their ends, as shown, each having the wire or cloth netting C fastened thereto, and arranged to operate as described.

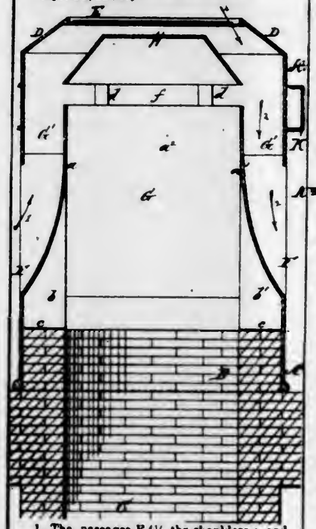
192,201. PROCESSES OF DYEING TISSUE AND BONBON PAPERS. Isabella J. Van Skelline, Brooklyn, E. D., N. Y. [Filed Feb. 13, 1877.]

1. The process herein described of dyeing tissue-papers for bonbons and other like articles, by treating the same with a solution of cosine, combined with the salts of tin, lead,

or zinc rendered alkaline, and subsequently with an alkaline alum mordant, substantially as herein described.

2. The application of cosine as the central or main color, which may be substituted by saffrine, in whole or in part, as its equivalent, so as to vary the shades, as desired, in the tinting of the edges of bonbon-wrappers or motto-papers, substantially as and for the purpose set forth.

192,202. CHIMNEY-TOPS. Jas. J. Van Wie, Dubuque, Iowa, assignor of one-half his right to Wm. P. Allen, same place. [Filed Apr. 30, 1877.]

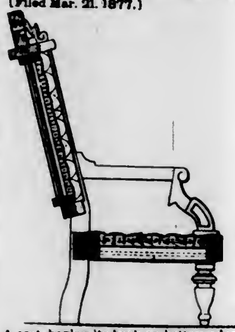


1. The passages F G', the shoulders e, and the passage G, formed by plates a and b, applied to the case A A', which is in form like the chimney C, in the manner and for the purpose described.

2. The chimney-cap having a passage, E, through its top, oblique passages F G' in its sides, a central vertical passage, G, a flaring or beveled hood, H, above the upper edge of the walls of the central passage, and a lateral passage, f, between the base of the hood and the said walls of the central passage G, substantially as and for the purpose described.

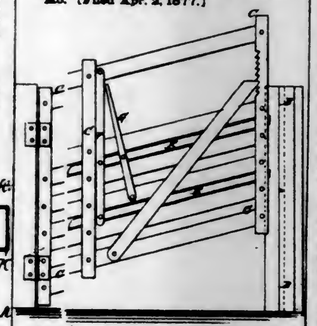
3. The chimney-cap A, having a passage, E, in its top, oblique passages F G' in its sides, a vertical central passage, G, a flaring or beveled hood, H, and a lateral passage, f, shoulders e, extension A^1, and beveled surface D, substantially as and for the purpose described.

192,203. SEATS AND BACKS FOR CHAIRS. Harwood Wakeman, New York, N. Y. [Filed Mar. 21, 1877.]



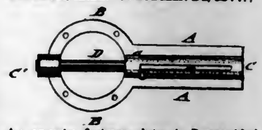
A seat having its back or bottom adapted to receive two frames, one containing cane or open work, and the other upholstered and made changeable, so that either frame and surface can be positioned for use, substantially as set forth.

192,204. GATES. Eli Wayland, Salisbury, Mo. [Filed Apr. 2, 1877.]



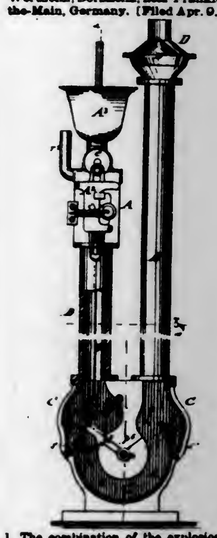
The combination, with the lifting-gate C, having two latches, E E, of the bar F, swinging from a pivot on top-rail and pivoted to both the latches, thus allowing the upper latch-lever G to work both latches, as shown and described.

192,205. OX-BOW FASTENERS. P. Webb, Greenleaf, Minn. [Filed Mar. 24, 1877.]



An ox-yoke fastener-plate, A B, provided with aligned tubes C C', the former having L-shaped slot e, and a bolt, D, having side stud that works in said slot, as shown and described.

192,206. ATMOSPHERIC GAS-ENGINES. Jos. Wertheim, Bornheim, near Frankfort-on-the-Main, Germany. [Filed Apr. 9, 1877.]



1. The combination of the explosion-dome A, siphon-tube B B', paddle-casing C, having valves b, b^1, and b^2, oscillating paddle C', and the liquid-piston, actuated alternately by the force of the explosion and the pressure of the atmospheric air, substantially in the manner and for the purpose set forth.

2. The combination of the explosion-dome A, having entrance and and ignition openings d d^1, with a reciprocating slide-valve, A^1, having slot f and communicating groove f^1, to supply the gas-and-air mixture simultaneously through both openings, substantially as and for the purpose set forth.

3. The combination of the explosion-dome and of the reciprocating spring-actuated slide-valve A^1 with a loose crank-disk, e, having recessed hub, and with a driving-pin, e^1, on the revolving crank-disk shaft, to admit rapid downward passage of slide-valve, substantially as set forth.

4. The combination of the explosion-dome A and slide-valve A^1 with an igniting apparatus, G, composed of a casing, g, and of a sliding and spring-actuated cap, g^1, with burner and air-supply recesses, substantially as described.

5. The combination of explosion-dome A and slide-valve A^1 with fixed casing g, having interior pivoted deflecting-hood i, with sliding and guided spring-cap g^1, having fixed lunar rod i^1, burner g^2, and outer stud l, and with outer inclined stop l^1 of face-plate A^2, to prepare igniter for explosion, substantially as specified.

6. The combination of the explosion-dome A and slide-valve A^1 with fixed casing g, sliding and guided spring-cap g^1, having outer pin m, and with stop m^1 of face-plate A^2, to open igniter after explosion, substantially as described.

7. The combination of the explosion-dome, slide-valve, and igniter, having interior burner, deflecting-hood, and air-slots, with a fixed gas-pipe that relights the burner after each explosion, substantially as set forth.

8. The combination of the explosion-dome A, siphon-tube B B', paddle-casing C, having valves b b^1 b^2, with oscillating paddle C', having recesses with upper and lower pivoted valves p^1 p^2, to work in conjunction with the liquid-piston, substantially in the manner set forth.

9. In a gas-engine, the paddle-casing C, having side pockets a a^1, with detachable plugs, to collect and remove impurities, substantially as set forth.

10. The combination of the explosion-dome A, siphon-tube B B', paddle, and paddle-casing with return-valve b^2, fulcrumed and spring-actuated lever b^3, valve-rod b^4, and escape-valve r, to open or close valve of dome, as required, substantially as described.

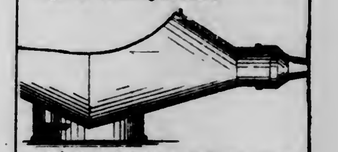
11. In a gas-engine, the combination of explosion-dome A and siphon-tube B B' with escape-valve r, channel r^1 valve r^2, and exit-tube r^3, to admit expulsion of gases of combustion, substantially as set forth.

12. The combination of the explosion-dome, siphon-tube, paddle-case, and oscillating paddle with suitable mechanism, constructed substantially as shown, for changing the reciprocating motion of paddle-shaft into continuous rotary motion, substantially in the manner and for the purpose set forth.

13. In a gas-engine constructed substantially as shown, a siphon-tube having its reservoir-carrying leg extended above the explosion-dome, substantially as described.

192,207. SCALE-PANS. Edward M. Whyler, Hays City, Kans. [Filed Mar. 3, 1877.]

Brief.—A rim attached to bottom of scale-pan is provided with a tube to contain small weights for balancing the scales.



A funnel scale-scoop provided with the tube D, as and for the purpose specified.

192,208. GRAIN-REDUCING APPARATUS. J. L. Wilson, Woodstock, Ontario, Canada, assignor to J. Forrest, same place. [Filed May 12, 1877.]

Brief.—Slices the kernels presented by gravity by spring-knives actuated by the fixed stop, Guards prevent the kernels from falling out of the cylinder until sliced. Pivoted agitators play laterally across the faces of the exit-channels to prevent clogging of the same.

1. The combination, in a grain-crushing machine, of the revolving cylinder, to which the grain to be cut is fed from the interior, and

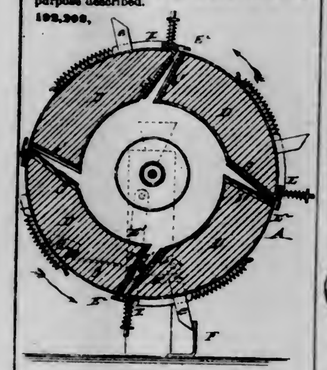
which is provided with grooved and tapering exit-channels, with the intermittently-sliding and spring-acted knives and guards, guided along the circumference of the cylinder, and with a fixed actuating stop-plate, substantially in the manner and for the purpose set forth.

2. The combination of the cylinder A, having grooved and tapering exit-channels for conducting the grain from the interior to the circumference, with the cutting-knives E E and guards E^1 E^1, attached to pivoted frames E^2, and operated by pivot-arms *e* and fixed stop-plate F, substantially as specified.

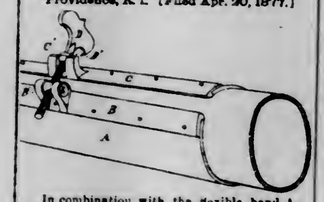
3. The combination of the exit-channels of the cylinder with pivoted and laterally-moving agitators G, to prevent clogging of channels, substantially as set forth.

4. The combination of the cylinder A, having tapering and grooved exit-channels *b*, with the pivoted agitators G, connecting-rods *g'*, spring-rods *g*, spring-acted knife-frames E^2, blades *e'*, pivot-arms *e*, and stop-plate F, to work agitators and knives by the contact with stop-plate, substantially in the manner and for the purpose described.

192,208.

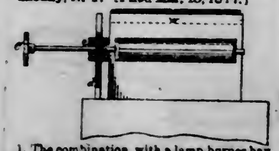


192,209. HOSE-JACKETS. Alanson Work, Providence, R. I. [Filed Apr. 20, 1877.]



In combination with the flexible band A, provided with the metal supports B and C, the screw D and nut E, so arranged that the nut constitutes the pivot upon which the screw is hinged, substantially as shown and described.

192,210. COAL-OIL LAMPS. A. Winterburn, Albany, N. Y. [Filed Mar. 15, 1877.]

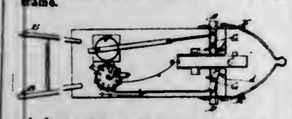


1. The combination, with a lamp-burner having a wick raising and lowering device, of the stop-bar *d*, operated by pinion *c*, secured to the shaft carrying the wick-raising wheels, and adapted to arrest the movement of the said shaft when the same is revolved in a direction to lower the wicks, substantially as and for the purpose set forth.

2. The combination, with the lamp-burner and a stop-bar, *d*, adapted to be moved simultaneously with the feeding mechanism in either direction, of the spring-bracket *e*, substantially as and for the purpose set forth.

192,211. SEED-PLANTERS. James H. Adair, Lynnville, Ky. [Filed May 6, 1877.]

Brief.—Upon laterally-adjustable slides are pivoted arms that are struck by pins on a centrally-revolving wheel, imparting motion to seeding devices by connecting-rods. The slides are adjusted away from contact with the wheel by cam-levers journaled at each side of the frame.



1. In a seed-planter, the combination of a central operating-wheel, provided on both sides with removable pins or cams, and two independently and separately moving slides carrying the operating mechanisms, substantially as set forth.

2. The combination of the wheel C with pins or cams B, the slides D, cam-levers E, and arms G, having springs *d*, and connected with the dropping apparatus in the hoppers, substantially as and for the purpose described.

192,212. APPARATUS FOR EXCAVATING PRIVY-VAULTS. Asel Ames, Jr., Philadelphia, Pa. [Filed Apr. 14, 1877.]

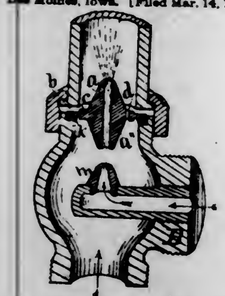
Brief.—By means of a flap-valve, applied to the vault end of the suction-hose, the contents of such hose are retained when the receiver has been filled, thus obviating the necessity of refilling it every time the receiver is filled. The induction and eduction hose are connected to the sides of the receiver, respectively at the top and bottom, for greater convenience in filling and emptying the same.



1. In an apparatus for cleaning privy-vaults, &c., a foot-pipe provided with a flap-valve, and attached to the vault end of the suction-hose, for the purpose hereinbefore set forth.

2. In an apparatus for cleaning privy-vaults, &c., a pump-receiver having the pump-hose B at the top thereof, the suction-hose D connected to the side of the receiver at the top, and the tank-hose E attached to the side of the receiver at the bottom, substantially as shown, and for the purpose set forth.

192,213. INJECTORS. William A. Ashcraft, Des Moines, Iowa. [Filed Mar. 14, 1876.]



1. In a steam injector pump, the reversible combining-tube *a a'' b c d*, substantially as and for the purposes shown and described.

2. The combining-tube *a a'' b c d*, in combination with the washer *k* and the fixed steam-nozzle *m*, substantially as and for the purposes specified.

192,214. WATER-COIL STEAM-GENERATOR. George H. Babcock, Plainfield, N. J., and Stephen Wilcox, Brooklyn, N. Y. [Filed Nov. 28, 1876.]

1. The combination of two or more distinct coils, mounted at different levels, and each connected independently with a separating-drum, as and for the purposes herein specified.

2. The series of conical coils D^1 D^2, &c., telescoped and inclosed, as and for the purposes herein specified.

3. The baffle-plate O^1 O^2, in combination with the series of conical coils, and with the inclosing case, to induce a downward draft through the conical spaces between the coils, as herein set forth.

4. The intermediate vessel E, in combination with the separating-drum G and a series of coils, D^1 D^2, &c., as and for the purposes specified.

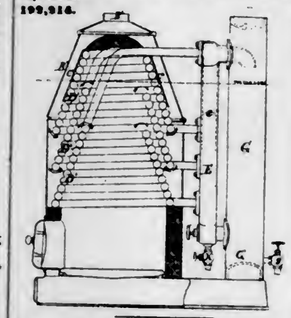
5. The self-acting valve H, in combination with a coil-boiler, and with a separating vessel, to prevent the regurgitation of the water and steam, as herein specified.

6. The valve controlling means I, in combination with the valve H, and with one or more heating-coils, and with the separating-drum G, as herein specified.

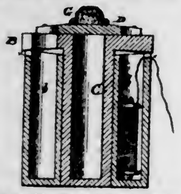
7. In combination with a coil-boiler having a separating-drum, G, and a valve, H, with closing means, as shown, the blow-off valve K, adapted to induce a violent passage of the steam and water through the coils, as and for the purposes herein specified.

8. The mud-space G', below the bottom connection in the drum G, in combination with the blow-off cock *g*, and with provisions for the generation of steam in one or more connected coils, as and for the purposes herein specified.

192,215.



192,216. BOBBIN-HOLDERS. James R. Barlow, Howell, Mich., assignor of one-half his right to Burr R. Smith, same place. [Filed May 3, 1877.]



1. The combination of the cylinder A, having holes *b* arranged in a circle near the outer edge, and each hole having a notch, *x*, and a number on the outside of the case under each notch, with the revolving cap B, having single hole *d*, as and for the purposes herein set forth.

2. The combination of the cylinder A, having central bore *a* and holes *b*, the cylindrical needle-case C, and the cap B, with single hole *d*, substantially as and for the purposes herein set forth.

3. The combination of the cylinder A, having central bore *a* and holes *b*, with notches *x*, the cap B, with single hole *d*, the cylindrical needle-case C, and the cap D, with emery pad G, all substantially as and for the purposes herein set forth.

192,217. PLAITING-MACHINES. J. F. Barrow and John Solter, Baltimore, Md., assignors to the American Machine Company, Philadelphia, Pa. [Filed Apr. 6, 1877.]

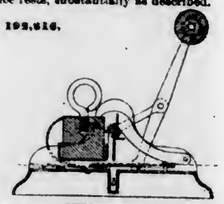
1. In a plaiting-machine, the combination of a folder moving practically in a vertical line, a horizontally-moving gatherer, and a lever or series of levers provided with a handle, and attached to the said folder and gatherer in such manner as in the forward and backward motion of the handle to cause the alternate operation of the same, substantially as and for the purpose herein specified.

2. In a plaiting-machine, a gatherer and a folder connected to act reciprocally as described, and adapted to be operated or moved alternately in the plaiting operation, by means of a handle, substantially as herein set forth.

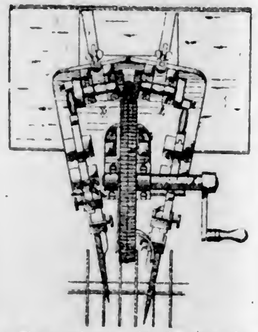
3. The folder and gatherer herein described, provided with adjustable stops or gages to limit their reciprocating movement, substantially as and for the purpose herein specified.

4. In a plaiting-machine, a reciprocating gatherer, adapted to be operated by means of a handle, in combination with a smoothing device having a practically flat smoothing surface, and adapted to be elevated by the entrance of the said gatherer between the said smoothing surface and that portion of the machine upon which the said smoothing device rests, substantially as described.

192,218.



192,217. GIN-SAW-FILING MACHINES. M. McP. Board, Canton, Miss. [Filed May 1, 1877.]



1. The combination with the supporting frame, adjustable in a vertical plane, of the bed-plate secured thereon, and adapted to be held at different distances to and from the saw, substantially as described.

2. The combination, with the main actuating gear-wheel provided with the double-beveled cogs, of the pinions engaging therewith at right angles, respectively, with the bevels of the cogs, and revolving in planes diagonally intersecting that of the said main gear, substantially as described.

3. The combination, with the angularly-adjustable supporting-frame, of the independent adjustable metallic bed-plate, the latter having bearings for the pinion gears, and file-rods cast in the same piece therewith, substantially as described.

192,218. FEED-CUTTERS. Leander Becker York, Pa. [Filed May 26, 1877.]

1. In a feed-cutter, the combination, with the broad sides F of the box, of its yielding or hinged bottom H, and spring, substantially as specified.

2. The combination, with the broad sides and spring bottom, the pressure-head P and pressure-bar *g*, of the angular knife V, rigidly secured to the frame, substantially as specified.

3. The combination, with the feed-board E and the bottom-board H, having a hinge-joint connection therewith, of their respective abutments or bearings, and the spring *s*, substantially as specified.

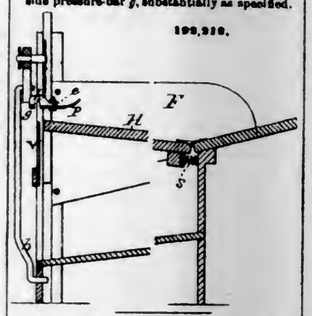
4. The pressure-head P, having the outside pressure-bar *g*, supported by the notched or bent arm *h*, substantially as specified.

5. The combination, with the slide-gate, having the slotted lugs *e* projecting inward, of the adjustable pressure-head and its clamp nuts and screws, substantially as specified.

6. The combination, with the yielding bottom, fixed sides, and fixed knife, of a rising-and-falling pressure-head and pressure-bar, substantially as specified.

7. The combination, with the yielding bottom H and angular fixed knife V, of the rising-and-falling pressure-head P and its outside pressure-bar *g*, substantially as specified.

192,219.



192,219. BUTTER-WORKERS. Demott S. Bennett, Manchester, Iowa, assignor of one-half his right to Wm. H. Board, same place. [Filed May 16, 1877.]



1. The combination, substantially as specified, of the trough, the roller having fixed journals projecting over the sides of the trough, the lever-handles connected to the journals outside of the trough, and the anti-friction roller running under the bottom of the trough.

2. In a butter-worker, substantially such as described, the chamber at one end of the trough, inclosed by the partition B' and sides higher than the sides of the trough, and adapted to support the roller and lever handles, in the manner and for the purposes specified.

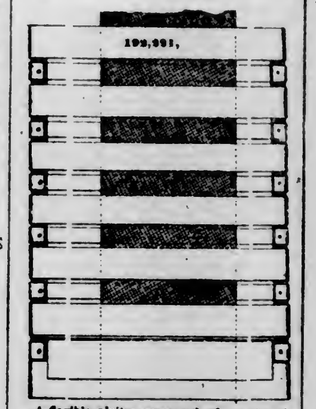
192,220. WAGON-BRAKES. Carl F. J. Beothin, Flushing, N. Y. [Filed May 16, 1877.]



In a brake mechanism, the lever B having the elongated slot *g*, and pivoted at its upper end connected at its lower end to the brake-rod, in combination with the lever A, pivoted at its lower end, and provided between such pivot and its free end with a stud, *f*, resting in the slot *g* of the lever B, substantially as shown and for the purpose described.

192,221. PLAITING-MACHINES. J. L. Bliss, Lenox, and G. H. Bliss, West Stockbridge, Mass.; said J. L. Bliss assignor to said G. H. Bliss. [Filed Mar. 16, 1877.]

192,221.



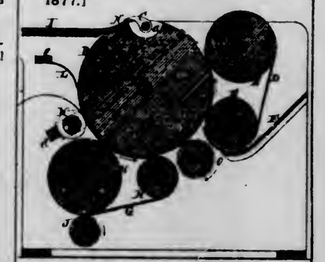
A flexible plaiter, composed of a series of slats of different widths, arranged one in advance of the other, and tapes or bands, to which said slats are permanently secured at or near their opposite ends, the whole being constructed to admit of the slats being reversely folded one upon the other into a pile when plaiting the fabric, and of being unfolded to provide slits for the introduction of the latter and for the withdrawal of it, when plaited, without removing the slats, substantially as specified.

192,222. WATCHES. Edward G. Boynett, Jersey City, N. J. [Filed May 2, 1877.]



A watch having its movement placed on a central pivot, on which it is free to oscillate or rotate, substantially in the manner and for the purpose herein described.

192,223. BRONZING MACHINES. William Braidwood, Mount Vernon, and J. Braidwood, New York, N. Y. [Filed Apr. 12, 1877.]



1. In a bronzing-machine, the combination, with the single-sheet carrying-cylinder B, of an endless bronzing-apron, D, its supporting-rollers E E, and a bronze-fountain F, substantially as described.

2. In a bronzing-machine, the combination of the revolving cylinder B, provided with gripers O, the endless bronzing-apron D, passing around upper and lower rollers E E, and arranged vertically in contact with the cylinder B, the fountain F, in which said bronzing-apron revolves, and the wiping-apron G, passing around rollers H H, and

arranged beneath the cylinder B, all substantially as herein shown and described.

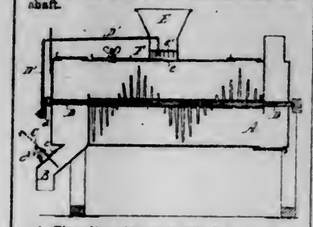
3. The combination, with the cylinder B, the endless brousing-apron D, arranged vertically at the side of the cylinder, the fountain F, in which the brousing-apron revolves, and the endless revolving wiping-apron G, arranged horizontally beneath the cylinder, of the spring pressure-roller K, arranged at the side and bearing upon the surface of the cylinder, substantially as and for the purposes described.

4. The sheet-carrying cylinder B, having its periphery constructed with a longitudinal rigid raised ridge, N, in combination with the gripers C, pivoted in the recess *a* of the cylinder, the said raised ridge serving to turn the sheet away from the cylinder when released by the gripers, as and for the purpose described.

5. The combination, with the sheet-carrying cylinder B and the ridge N, of a series of strippers or knives, L, when said ridge is provided with openings for the passage of said strippers or knives, substantially as described.

192,224. APPARATUS FOR CLEANING AND POLISHING COFFEE. James H. Brookmire, St. Louis, Mo. [Filed Apr. 6, 1877.]

Brief.—The polishing material is fed from the hopper, and regulated in its discharge into the cylinder by the slide across the perforated bottom, which bottom is kept from clogging by the rake attachment operated from the shaft.

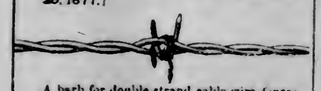


1. The adjustable hand-slide F, in combination with hopper E, having perforated bottom *e*, as and for the purpose set forth.

2. The crank *d*, rod D', and raker *d'*, in combination with hopper E and power-shaft D, to operate as and for the purpose set forth.

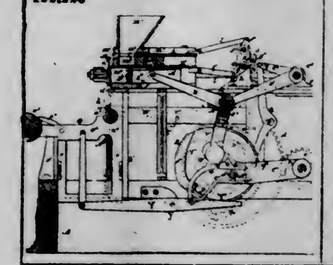
3. The combination of the adjustable hand-slide F, the hopper E, having perforated bottom *e*, the adjustable hand-slide C, the discharge-chute B, said parts being arranged with relation to cylinder A, as shown, and by means whereof the discharge of the entered coffee can be regulated so as to be subjected at same time to required polishing action, and as set forth.

192,225. BARBED-WIRE FENCES. Arthur Burnell, Marshalltown, Iowa. [Filed May 25, 1877.]

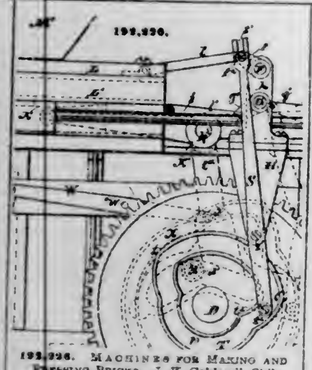


A barb for double-strand cable-wire fences composed of two pointed pieces of wire, each of which passes over a strand of the cable, thence between its strands, and reciprocally binds the other wire to the strand of the cable, wherefrom the points of the wires project as from a center, substantially as set forth.

192,226



192,226. MACHINERY FOR MAKING AND PRESSING BRICKS. J. K. Caldwell, Philadelphia, Pa. [Filed Nov. 6, 1876.]



Brief.—The clay is measured for the molds by means of slides reciprocating in the lower portion of the hopper. After the compression of the bricks, they are carried forward by means of the platens and followers, moving jointly, to be dropped onto the off-carrying endless belt, moving intermittently in the direction of the length of the machine.

1. In a machine for making or pressing bricks or other articles, and in combination with the plunger or plungers thereof, a toggle or toggles having movable fulcra, for operating said plungers, substantially as set forth.

2. In combination with the measuring-boxes and molds of a machine for making or pressing bricks or other articles, cut-off slides L L', arranged and operating substantially as described, the lower slide forming the bottom of said measuring-boxes and part of the top of the molds, and both slides reciprocating alternately, as and for the purpose set forth.

3. In combination with the plunger-impelling device or toggle K', the platen I, connected with the former, substantially as described, so that said platen will be held up to or against the push of the plungers by the force or power by which the latter are advanced toward said platen.

4. In combination with the plungers K K, a toggle, K', arranged and operated, as described, to pass beyond its dead-center, so as to increase the distance between said plungers and the platen after compression, for the purpose specified.

5. A wiper, N, arranged and operated to reciprocate vertically between the platen and plungers, substantially as and for the purposes set forth.

6. In combination with crank-shaft D, the lever or levers C', having a cam slot or groove, and operating as set forth, to convert a rotary into a reciprocating motion.

7. In a machine for making or pressing bricks or other articles, a vertically-reciprocating receiving-table extending forward of the platen, and arranged and operated to be elevated to receive the contents of the molds, and to descend with each charge, substantially as set forth.

8. In a machine for making or pressing bricks or other articles, a table having a traveling-band on which the contents of the molds are received, said band having an intermittent forward motion in the direction of the length of the machine, substantially as described.

9. In a machine for making or pressing bricks or other articles, a receiving-table which rises and falls, as described, and is provided with a traveling band or apron having an intermittent forward motion in the direction of the length of the machine, substantially as described.

10. The combination of slides L L', hopper M', measuring-boxes m^2, and molds m^1, substantially as shown and described.

11. The combination of plungers K K, slides L L', measuring-boxes m^2, and molds m^1, arranged and operating substantially as shown and described.

12. In combination with the plungers K K and toggle K', the cam-levers C', pitmen C^1, and crank-shaft D, substantially as shown and described.

13. In combination with the rock-shafts F G and cut-off slides L L', the pivoted levers S Y and cams T U, arranged and operating substantially as shown and described.

14. In combination with the platen I and plungers K K, the shaft E, mounted in sliding or movable bearings, and connected with said platen and plungers, substantially as described, so as to move said parts simultaneously, to cause the bricks to be ejected from the molds, as set forth.

15. In combination with the sliding-shaft E, the loose collars e^3, rock-arms e^2, pivoted levers Q, and cams R, arranged and operated substantially as shown and described.

16. In combination with the vertically-moving table O, the levers Y, pivoted at y_1, and operated from the cams Y', substantially as shown and described.

17. In combination with the table O, having rollers o^1 o^2 for the reception of a traveling band, o^3, the levers W Z, pitmen z^1 z^2, crank p^2, ratchets p p^1, pawls p^3 p^4, and cam X, as set forth.

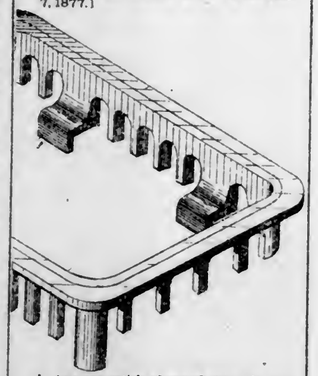
18. In combination with the wiper N, sustained on rods n^1, the levers W, standards or pitmen n^4, and cams X, substantially as shown and described.

19. Plungers K, recessed at k^4 to prevent clay which has worked over the tops of said plungers from being carried back into the molds, said recesses having open tops, as set forth.

20. A machine for making or pressing bricks or other articles, comprising the following instrumentalities: cut-off slides L L', measuring-boxes m^2 m^1, plungers K K, platen I, wiper N, and receiving-table O, said plungers being operated by toggles which open against a shaft, E, connected with said platen, and said table rising to receive the contents of the molds, and descending therewith, and having an endless apron moved intermittently forward, substantially as and for the purpose set forth.

21. The sliding diaphragm M, for varying the sizes or areas of the measuring-boxes, as set forth.

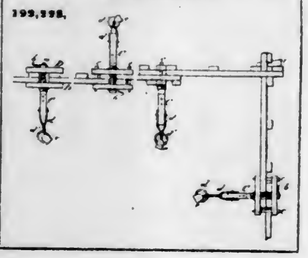
192,227. GRATE-EXTENSIONS FOR STOVES. Sarah C. Call, Boston, Mass. [Filed May 7, 1877.]



1. As a new article of manufacture, the protector for cooking-stoves and ranges, adapted, substantially in the manner specified, to be placed between the top of the fire-box and the removable top plate of the stove or range, to prevent the fuel from getting into the flues, substantially as described.

2. The combination, with the protector, of the lug *e* and lip *f*, to hold the protector up at one side and prevent it moving backward, substantially as described.

192,228.



192,220. PORTABLE FENCES. T. A. H. Cameron, Petra, Mo. [Filed June 14, 1877.]

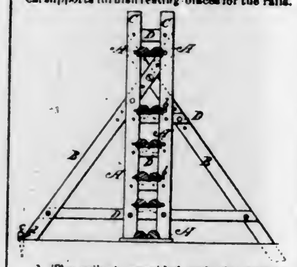
1. The brace C, provided with the pivoted strap *d* and rlug d^2, through which the holding-down pin *e* passes for the purpose of securing its lower end, as and for the purpose specified.

2. The brace C, constructed as described, in combination with the fence-panels and clamping-pieces D, as and for the purpose set forth.

3. The clamping-pieces D, provided with guide-pins *c*, bolt *c*, and hand-nut *b*, in combination with the brace C, all constructed and operating as shown and described.

192,229. PORTABLE FENCES. T. A. H. Cameron, Petra, Mo. [Filed June 13, 1877.]

Brief.—The rails are notched near their ends. Transverse perforations are made near the notches to receive the pins by which the rails are connected. Cross-pieces secured to vertical supports furnish resting-places for the rails.

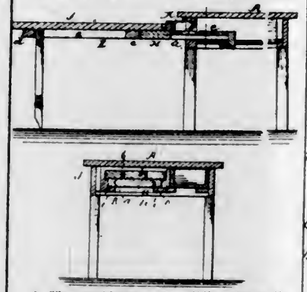


1. The rails A, provided with the notches *a* and perforations to receive the pins *b*, in combination with the vertical supports C and cross-pieces D, substantially as and for the purposes set forth.

2. The rails A, pins *b*, supports C, and cross-pieces D, in combination with the braces B, as and for the purpose specified.

3. The portable fence composed of the rails A having notches *a* near each end, pins *b*, vertical supports C, cross pieces D, braces B, wire loops *d*, and holding-pins *c*, all constructed, combined, and arranged in the manner set forth.

192,230. IRONING-TABLES. G. Chellini, Washington, D. C. [Filed June 1, 1877.]



1. The combination of a sliding frame E, independently-sliding carrier H, and board J, with table A, or other suitable support, substantially as and for the purpose described.

2. The combination of the sliding frame E, independently-sliding carrier H, and reversible board J, having perforations at both ends for engaging with studs upon said carrier, substantially as described.

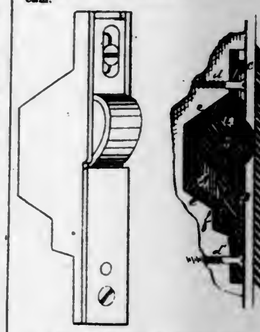
3. The combination of the sliding frame E, independently-sliding carrier H, and reversible board J, with table A, having the stop and catch K, substantially as and for the purpose described.

4. The combination of a sliding frame, E, independently-sliding board J, legs G, and catch K, with a table, A, substantially as described.

5. The sliding carrier H, having studs *b b*, in combination with the board J and its supporting frame and table A, substantially as described.

192,231. SASH-HOLDERS. Geo. W. Clark, Wheeling, W. Va., assignor of one-half his right to John Fleding, same place. [Filed May 16, 1877.]

Brief.—A leather-faced rubber cam, preferably formed around a wood or metal core, is formed with a flat spring-piece extending from the side of cam, as an integral part of the same. This spring-piece fits in a recess in the end of the shell or case, and there is an adjustable slide-plate and set-screw for regulating the degree of contact or pressure of the cam.



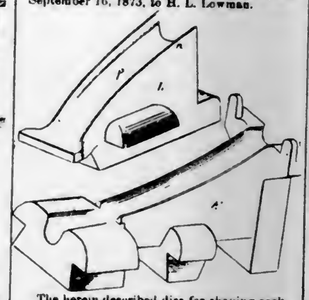
1. In a sash-holder, the leather-faced rubber cam E, having an elongation or spring-piece, *b*, and either with or without a metal or wooden core, H, substantially as herein shown, and for the purpose set forth.

2. In a sash-holder, the leather-faced india-rubber cam E, metallic case A, adjustable slide-plate C, and pivoted face-plate B, substantially as herein shown, and for the purpose set forth.

3. The combination, in a sash-holder, of case A *a*, cam E, spring-piece *b*, adjustable plate C, pivoted plate B, and set-screw *d*, all constructed and arranged substantially as described, for the purpose set forth and shown.

192,232. DIES FOR SHAPING SHOVEL-SOCKETS. Frederick M. Clemons, Seymour, assignor of two-thirds his right to Royal M. Bassett and Theodore S. Bassett, Birmingham, Conn. [Filed May 12, 1877.]

Brief.—Improvement on Patent No. 142,859, September 16, 1873, to H. L. Lowman.



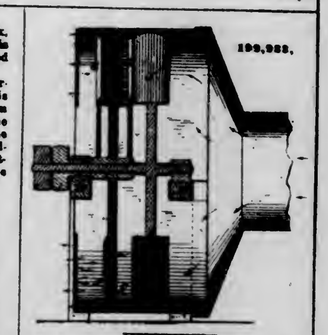
The herein-described dies for shaping sockets of shovels and similar implements, consisting of the two parts E L, their faces or division in a plane parallel to the plane of the implement, and each constructed with a cavity semi-cylindrical in transverse section, and longitudinally the shape of the socket to be produced, one of the parts provided with stops G, substantially as and for the purpose described.

192,233. ICE AND REFRIGERATING MACHINES. Thomas Cook, Philadelphia, Pa. [Filed June 13, 1877.]

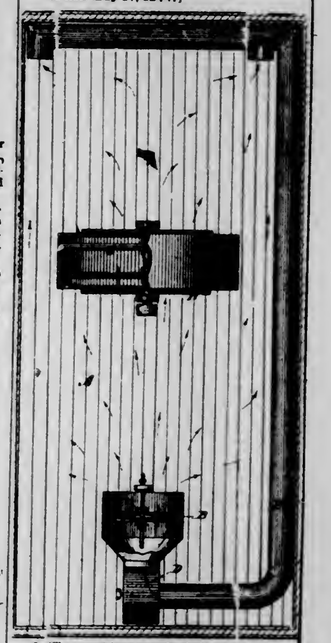
1. The combination of scrapers with a refrigerating-surface, A, to prevent the accumulation of frost and snow thereon, substantially as described.

2. The combination of brushes with the refrigerating-surface to sweep over the latter, substantially as described, for the purpose specified.

192,234.



192,234. ICE AND REFRIGERATING MACHINES. Thomas Cook, Philadelphia, Pa. [Filed May 17, 1877.]



1. The combination of a hollow revolving refrigerating-wheel with a vessel of incongealable liquid for washing or wetting its surface, and a fan for blowing air against it, substantially as described.

2. The combination of a swinging tank of incongealable liquid with the refrigerating-wheel and the fan, substantially as described.

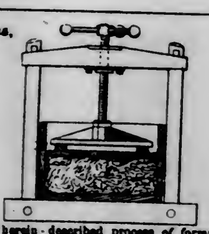
3. The combination of a refrigerating-wheel and wetting apparatus with two fans on opposite sides to blow the air in contrary directions against it, substantially as described.

4. The combination of the revolving refrigerating-wheel B and fan-wheel D blowing air through it, as described, with the closed chamber A and the air-pipe F extending from the suction-opening of the fan-box to the opposite end of the chamber A, substantially as described.

5. The combination, in a closed chamber, A, of the revolving air-refrigerating wheel B and the fan D with a revolving ice-wheel, G, and means for supplying water to be congealed thereon, substantially as described.

192,235. PLASTERING-HAIR BALES. R. S. Craig, Cincinnati, Ohio, assignor to J. A. Morris, same place. [Filed Feb. 14, 1877.]

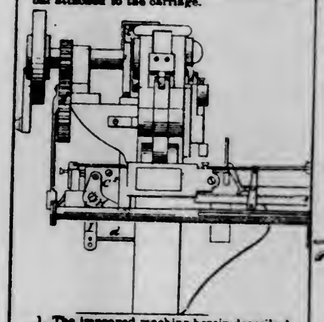
192,924.



The herein-described process of forming plasterers'-hair bales, substantially as specified—that is to say, first pressing the hair in a baling-box by means of a suitable press, then retaining the compressed hair in the baling-box until it sets, and then applying the wrapper.

192,926. HORSESHOE-NAIL MACHINES. R. M. Cummings, Nashua, N. H. [Filed May 29, 1877.]

Brief.—The blanks fall upon a bar projecting from beneath the griping-die, which sustains them while being griped and headed, and then recedes and discharges them from the machine. The plate-holders and operating devices are the same as those shown and described in Patent No. 190,011, granted to applicant April 24, 1877. The forward feed is effected by a pawl, which engages with a rack-bar attached to the carriage.

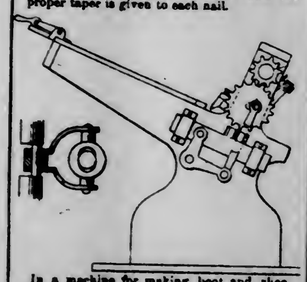


1. The improved machine herein described, constructed and operating in the manner and for the purpose set forth.

2. The combination of the reciprocating die-holder C', arm I, connecting-rod d, and lever J for operating the reciprocating bar C', and arranged to give said bar a longer stroke than the die C, substantially as herein set forth.

192,927. CUT-NAIL MACHINES. R. M. Cummings, Nashua, N. H. [Filed May 29, 1877.]

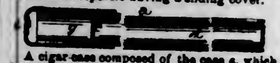
Brief.—The plate-holder is inclined and the plate fed to the cutters by gravity, aided by the weight of the clamp. The cutters are carried by a frame, which oscillates on a vertical pivot after each cut, in virtue of which the proper taper is given to each nail.



In a machine for making boot and shoe nails, the combination of an eccentric shaft, connected by a forked pitman with a swivel on a rocking lever-block, gear-wheels and pitmen connecting the eccentric shaft with a sliding bar, and an oscillating plate carrying the lever-block, and operated by the sliding bar, the oscillating plate and lever-block having the blades or cutters attached to them, substantially as and for the purposes herein set forth.

192,928. CIGAR-CASES. WM. H. Denney, Philadelphia, Pa. [Filed Dec. 7, 1876.]

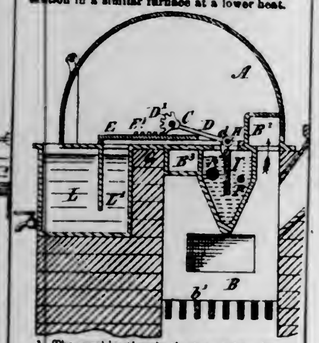
Brief.—The receptacle for cigars slides within an outer case, and in one end of the case is a match-receptacle having a sliding cover.



A cigar-case composed of the case e, which has the pouch d inserted in one end, and a match-box, g, having a cover, i, substantially as shown and described.

192,929. APPARATUS FOR TEMPERING AND CONVERTING IRON. Charles Dion, Chambly Basin, assignor of one-half his right to James Baylis, Montreal, Quebec, Canada. [Filed Sept. 22, 1876.]

Brief.—A plate to be hardened is made fast to a hinged plate, and dipped alternately in a hot and a cold bath, without being exposed to the outside air. Hot bath may be of lead or other molten metal, or of heated air only. Cold bath may be oil or water. When one bath is in use the other is closed automatically to prevent either affecting temperature of the other. Wire to be hardened is passed through tube in heating-bath without contact with its contents, and thence directly into oil or water bath, or against blast of air. To convert iron wire into steel, pass it guided through bath of molten iron. May repeat operation in a similar furnace at a lower heat.



1. The combination, in the tempering-chamber A, of the transverse shaft, operating, by means of projecting arms holding the rod, from which hangs the carrying-plate, to dip alternately into a hot-chamber and tank the article to be tempered, as herein set forth.

2. The combination, substantially as specified, of the tempering-furnace A, the shaft C, and the cover-plate E, reciprocated by means of pinions D' and rack G'.

3. The combination, with the tempering chamber A, of the tank L, having diaphragm L', and arranged substantially as and for the purposes set forth.

4. In combination with the furnace-chamber B and tempering-chamber A, the flues B', B', and B', and the heated chamber K, as and for the purposes herein set forth.

5. In combination with a bath or vessel containing hot air or molten metal, a tube passing through it and entering a bath of oil, water, or other fluid, so that the wire drawn through such tube shall not come in contact with the external air, as herein described.

6. The combination of the tube N and rod N' with groove N', as herein described.

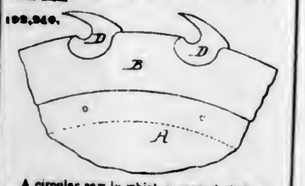
7. In an apparatus for tempering iron and steel, the combination, substantially as specified, of the tempering-bath, the pyrometer, and the damper controlling the draft of the furnace.

8. The combination, with a furnace-chamber and ash-pit, of upper and lower blast-flues, communicating, respectively, with them, and opened and closed automatically by the rise and fall of the temperature of the furnace.

192,930. CIRCULAR SAWS. Henry Disston, Philadelphia, Pa. [Filed Feb. 16, 1877.]

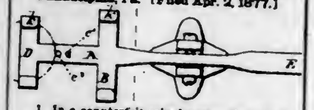
Brief.—The continuous ring for increasing the diameter of a circular saw is provided with insertible teeth. To prevent any distortion of the blade the teeth are inserted in the ring first, after which the ring is fitted to the central disk.

192,940.



A circular saw in which a central disk, A, ring B, and detachable teeth D are combined, substantially in the manner set forth.

192,941. COIN-DETECTORS. Patk. Doherty, Philadelphia, Pa. [Filed Apr. 2, 1877.]



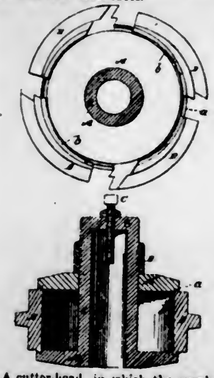
1. In a counterfeit-coin detector, the combination of the resisting-arm E, the arm A, the gage B for testing the diameter and thickness of the coin, and the adjusting-stop c^4, as herein described.

2. The combination of the arm E, the arm A, a gage for detecting the diameter of the coin, and stop c^4, for adjusting the instrument, as herein described.

3. The combination of the arms E A, the gages B and D, and the adjusting-stops c^4 c^5, as herein described.

192,942. CUTTER-HEADS. John Du Bois, Williamsport, Pa. [Filed Aug. 7, 1876.]

Brief.—A series of removable curved cutters having ribs upon their ends, and their outer surfaces curved in the arcs of circles eccentric to the ribs, are secured between two clamping-plates having annular concentric grooves in their inner faces.



1. A cutter-head, in which the number of bits or cutters may be changed at will, consisting of two clamping-plates, A A', provided with annular-concentric grooves a and thin curved bits or cutters D, having their ends provided with the ribs b to enter the grooves a, and their outer surfaces curved in the arcs of circles eccentric to the ribs, as shown and described.

2. In a cutter-head for wood-working purposes, the combination of two clamping-plates, A A', provided with annular-concentric grooves a and thin bits or cutters D, constructed and arranged in the peculiar manner shown and described.

3. The combination of the plate A, provided with the annular V-shaped groove a, and the central neck having the exterior screw-thread, the plate A', provided with the annular groove a, the nut B, mounted on the central neck and turning loosely against the outside of the plate A', and the cutting plates or bidkes D, provided with the V-shaped ribs b, seated in the grooves a, and having their outer surfaces curved in the arcs of circles eccentric to the axis of the plates A A', as shown.

192,943. DROPPING ATTACHMENTS TO CORN DRILLS OR PLANTERS. John H. Farmer, Richmond, Ind. [Filed May 5, 1877.]

Brief.—Centrally journaled is a carved feed-plate, having seed-cells near each end for the reception of a single kernel of corn, so that, as the plate is vibrated each way, seed will be carried up and discharged over the flange at each side into the chute. The hopper-bottom is inclined from front to rear, and is provided with a transverse partition having an opening, through which the seed passes to the feed-wheel.



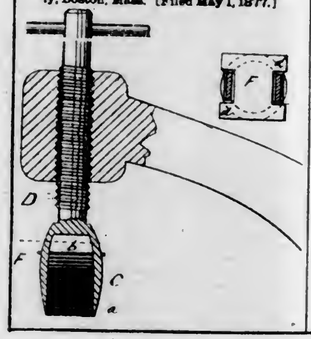
1. A corn-planter having a side plate, D, delivering grain from a hopper through a suitable opening, e, and a feed plate or wheel, E, having a vibratory movement, and adapted to deliver seed from a seed-cell or cells formed on its edge over elevated edge or edges g or g' in the case of the wheel or plate, substantially as and for the purpose specified.

2. The curved plate D and seed wheel or plate E, forming, when united, a throat for collection of seed, gradually contracted, as shown, to guide the seed into the mouth of the cell G', substantially as and for the purpose specified.

3. The seed-cell G', having its side h formed so as to flare inwardly in both directions, substantially in the manner and for the purpose specified.

4. The curved plate D and seed wheel or curved plate E, forming, when united, a throat for collection of seed, gradually contracted to guide the seed into the mouth of the seed-cell G', and also forming the seed-cell G' contracted downward, substantially as shown, and for the purpose specified.

192,944. OAKUM-CUTTERS. Timothy J. Feely, Boston, Mass. [Filed May 1, 1877.]

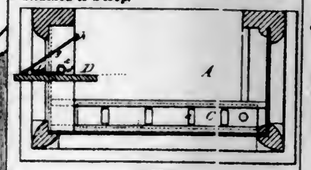


1. The cutter C, attached to the screw D, and adapted to rotate therewith while being forced through the material in order to give a circular and drawing cut, as and for the purposes specified.

2. In combination with a cutter, C, the plate F, arranged for operation substantially as and for the purpose specified.

192,945. VENTILATING BULK-WINDOWS. Matthew W. Ferguson and Jas. Ferguson, Philadelphia, Pa. [Filed Jan. 20, 1877.]

Brief.—The floor of the window has along its front portion a series of air-inlets, which are seated in a register-slideway having the openings to coincide with the said inlets. At the upper part of the window is located the ventilator-valve, which consists of a plate having central journals at its upper and lower ends, upon which it turns by means of a cord attached to a loop.





1. The combination, with the centrally-pivoted valve D and its loop f, of the ventilator-frame, its stud e, arranged obliquely with reference to the valve-journal, and the spiral spring d, seated on said stud, and bearing, by its extended arms, on said valve, substantially as specified.

2. A bulk-window having a spring-ventilator-valve, D, at its upper end, and a pendent cord, g, attached thereto, and in its floor a series of air-inlets and a register-slide, C, substantially as specified.

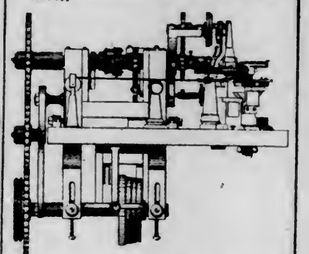
192,946.



192,946. SHAWL-STRAPS. W. P. Ferguson, Brooklyn, N. Y. [Filed Nov. 1, 1876.]

A shawl-strap, consisting of a handled bar in combination with a right-angled lever, e e, revolving in raised ears b b, and the longitudinal slot having the serrated side c, all constructed to operate substantially as hereinbefore set forth.

192,947. ENGRAVING-MACHINES. Charles H. Field, Providence, R. I. [Filed Mar. 23, 1877.]



1. In a rosette-engine, the combination, with a suitable graver-carriage and the vibrating and revolving work-spindle, of a revolving and vibrating pattern-block, substantially as described, whereby portions only of a plate may be machine-engraved, and portions thereof reserved with any desired outline for a plain finish or the introduction of other styles of engraving, as set forth.

2. The combination, with the work-spin...e in a rosette-engine, of a vertical vibrating frame which supports the spindle, and a rosette-shaft is centrally pivoted and balanced, substantially as described, whereby the vibration of the work-spindle is easily and smoothly effected, as set forth.

3. The combination, in a rosette-engine, of a vibrating frame centrally pivoted, a work-spindle mounted in said frame above the pivots, and a rosette shaft mounted in said frame below the pivots, substantially as described.

4. The combination, with a pivoted vibrating frame, of a rosette-shaft adjustably mounted in said frame, substantially as described, whereby said shaft may be located at any desired position with relation to the frame-pivots, and thereby increase or lessen the extent of the vibration of the frame, as set forth.

5. The combination, with a laterally-vibrating work-spindle and a spiral spring which forces said spindle in one direction, of a lever, which, when the frame is vibrated laterally, forces the spindle in the opposite direction, substantially as described, whereby both the longitudinal and lateral reciprocation of the work-spindle are effected simultaneously, as set forth.

6. In a rosette-engine, the combination, with a graver-carriage, a traversing screw, and a traversing block, of a slide in the traversing block which has a movement at right angles to the path of the screw, and to which the graver-carriage is connected by a vertical pivot, substantially as described, whereby the graver-carriage may be moved bodily with the slide in a line at right angles to the path of the traversing block, as set forth.

7. The combination, with the traversing block, its screw, the graver-carriage, and the slide in the block to which the carriage is attached, of the slotted lever and the friction-roller stud which occupies the slot in the lever, substantially as described, whereby, as the traversing block is moved to and fro on its screw, the slide and the carriage are moved bodily at right angles to the axis of the screw, as set forth.

8. The combination, with the traversing block, its slide, to which the graver-carriage is attached, and the slotted lever which is connected to the block and its slide, of a lever which is connected at one end to the traversing block, and carries at its opposite end a stud and roller occupying the slot in the lever which is connected with the slide, substantially as described, whereby the slide and the graver-carriage are moved easily and rapidly, as set forth.

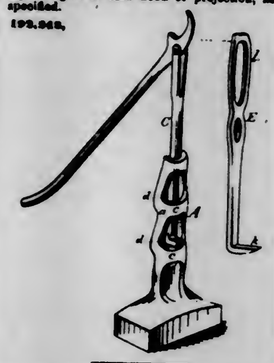
192,948. LIFTING-JACKS. John U. Fiester, Winchester, Ohio. [Filed Apr. 7, 1877.]

1. The combination, with the axially-open bearing-post A, having the alternate side

steps *c* and passages *e* at the ends of the same, communicating with the axial opening, of the vertical adjustable fulcrum-rod C, having the bearing-toe *d*, and adapted to be adjusted from one step to another by half-turns, substantially as specified.

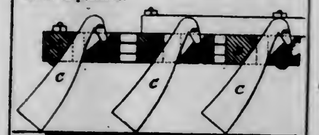
2. The link-hook attachment E, having at one end a hook or projection, *k*, and at the other a loop, *l*, the breadth of which is at right angles to said hook or projection, as specified.

192,248.



192,249. HARROWS. Samuel J. Franklin, Fair Mount, Ga. [Filed May 5, 1877.]

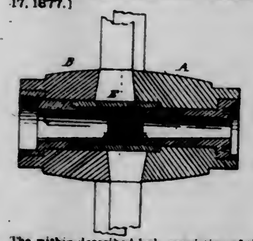
Brief.—The harrow is square and rigid. The teeth are made in the form of blades, with a hooked upper end, which blades fit into slits in each of the harrow-beams, between which they are secured, and deflect at an angle of about forty-five degrees. The hook and the slits together alone hold the tooth in position.



1. The harrow-tooth C, made in blade form and provided with a hook, *a*, at its upper end, substantially as and for the purpose described.

2. The harrow consisting of the teeth C, made in blade-form, with a hook, *a*, at their upper ends, in combination with the sets of bars, slitted as described, to receive said teeth, substantially as and for the purpose set forth.

192,250. VEHICLE HUBS AND BOXES. Jas. J. C. Frazer, Philadelphia, Pa. [Filed May 17, 1877.]



The within-described hub, consisting of the mortised sectional wooden hub A B, the interior sectional box C D, and the screw-sleeve E connecting the sections C D and forming the oil-chamber *a*, all constructed substantially as and for the purposes herein set forth.

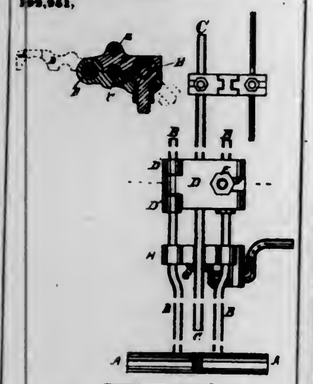
192,251. PUMP-ROD ADJUSTERS. Hiram Freeman, Parker's Landing, assignor to Jarecki Manufacturing Company, Erie, Pa. [Filed Apr. 23, 1877.]

1. The combination, with the journal-arms A A and uprights B B, of the hinged clamp D D', substantially as and for the purposes mentioned.

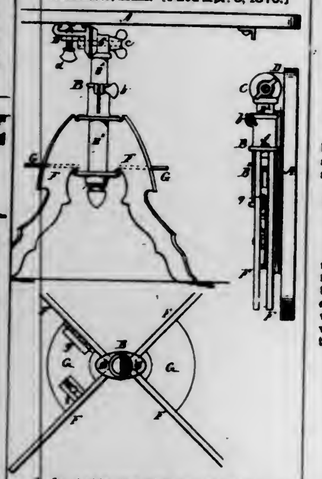
2. The combination, with the journal-arms A A and uprights B B, of the clamp D D', arranged to slide upon the said uprights, as and for the purposes mentioned.

3. In combination with the pump-rod C and a clamping device for holding the same, the adjusting mechanism G G', or its equivalent, for adjusting said rod up and down, for the purposes mentioned.

192,252.



192,252. FOLDING-TABLES. Geo. W. Gates, Worcester, Mass. [Filed Apr. 3, 1876.]



1. In combination with the table-top A, an adjustable rotating supporting-column, provided with hinged feet or legs, and having a laterally movable and adjustable connection with the table-top and a hinged head or adjusting-joint device, C, whereby the column, legs, and top can be folded or closed together, substantially in the manner described.

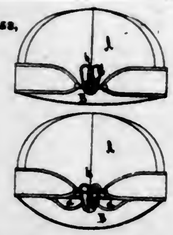
2. The combination, with the standard B and hinged legs F, of the hinged segments G, substantially as and for the purpose set forth.

3. In combination, substantially as described, the standard B' B', hinged legs F, segments G, adjusting-head C, slide D, plate E, table-top A, spring H, and clamp devices *b c d*, for the purposes set forth.

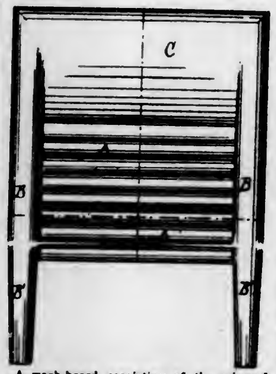
192,253. CAPS. Leonhard Girbardt, New York, N. Y., assignor to Adolph Schwarz and Brother, same place. [Filed May 23, 1877.]

The combination, with the crown A and front B, hinged to said crown, of the vertically-arranged slide C, constructed with the slit *a*, and adapted to engage buttons *b c* for holding the hinged front up or down, substantially as and for the purpose described.

192,254.



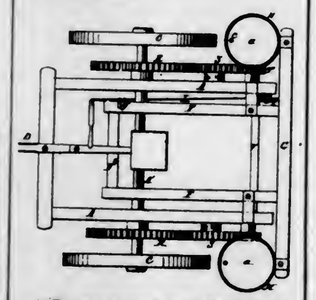
192,254. WASH-BOARDS. John Graves, New York, assignor to himself and Henry W. Shepard, Brooklyn, N. Y. [Filed Apr. 11, 1877.]



A wash-board consisting of the crimped body, the top C, and the side pieces B B, all stamped from a single piece of sheet metal, as and for the purpose specified.

192,255. CORN-PLANTERS. Jas. B. Greene, Centerville, Ind., assignor of one-half his right to Nelson Greene, same place. [Filed Mar. 16, 1877.]

Brief.—The seed-hopper and opener are mounted on an angle-arm that is secured to the supplemental frame. Motion is imparted to the seed-disk through the medium of a bevel-gear secured to the bottom, and engaging with bevel-wheel secured to a cog-wheel, which forms one of a series that receives motion from the axle.



1. The supplemental frame F hung upon the axle A', the beppers H, their dropping-disks *a*, pinions *c*, and drill-tubes I arranged at the outer ends of said frame-bar G, in combination with the draft-frame A, having the operating-gearing R S T U arranged outside of both frames, and between the outside frame and the hoppers and their dropping devices, as and for the purpose described.

2. The seed-dropping devices arranged upon the outer rear corners of the supplemental frame F, outside of the operating-gearing, and in rear of and in line with the supporting roller-wheels, said supplemental frame being

adapted to be raised and lowered upon the axle to put its planting devices in or out of gear without regard to the operating gearing, substantially as herein set forth.

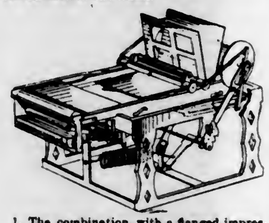
3. The angle-irons J combined with the supplemental frame F, the dropper-disks *a*, the drill-tubes I, and the operating-gearing, as described, and serving as the supports for the dropper-disks, their ring-plate bearings *d*, bevel-pinions *c*, and drill-tubes I, substantially as herein set forth.

4. The combination, with the revolving disk-dropper *a* and its attached bevel-pinion *c*, of the ring-plate bearing *d* and the drill-tube I, as and for the purpose stated.

5. The supplemental frame F, hung upon the axle so as to extend in front thereof, as described, in combination with the operating-gearing for the dropper-disks and the tongue D of the machine, whereby the weight of the rear portion of the supplemental frame is relieved from the short axles of the operating-gear of the draft-frame, as described.

192,256. PRINTING-PRESSES. William A. Harp, Covington, Ga., assignor of one-half his right to Enoch Steadman, same place. [Filed Nov. 2, 1876.]

Brief.—The flat bed is stationary. At its side are ways, over which the impression-cylinder is rolled by slotted arms rocked by a treadle. The ways are lifted and lowered on arms of shafts rocked by the engagement of flanges on the cylinder with crank-arms on the shafts. Swinging levers, fulcrumed on the cylinder-shaft, are linked to the inking-roller carriage, and their free ends engage guides on the sides of the frame.



1. The combination, with a flanged impression-roller and a type-bed, of a roller-track mounted on levers, connected with rock-shafts which are provided with arms or levers at their ends, lying in the path of the roller flanges, substantially as and for the purposes specified.

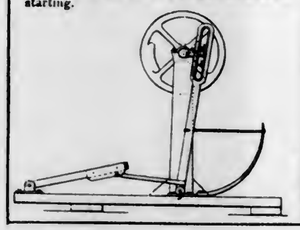
2. The combination, with the flanged roller, type-bed, vertically-moving track, its rock-shafts and levers, of vertically-adjustable studs or stops beneath the track, substantially as and for the purposes specified.

3. The combination, with a weighted or spring treadle and an impression-roller, of a rock-shaft and slotted levers, connected with the treadle and roller, substantially as and for the purposes specified.

4. The combination, with an impression-roller which moves over a stationary type-bed, and an inking-roller frame or carriage, of levers pivoted on the axis of the roller, links connecting the upper ends of said levers and the carriage, and parallel guiding-rods which control the lower ends of the levers, substantially as and for the purposes specified.

192,257. TREADLE MECHANISM FOR OPERATING MACHINERY. William A. Harp, Covington, Ga., assignor of one-half his right to Enoch Steadman, same place. [Filed Nov. 2, 1876.]

Brief.—The treadle oscillates a lever which has a slot, in which the crank-pin works. A spring leaves the lever in proper position for starting.



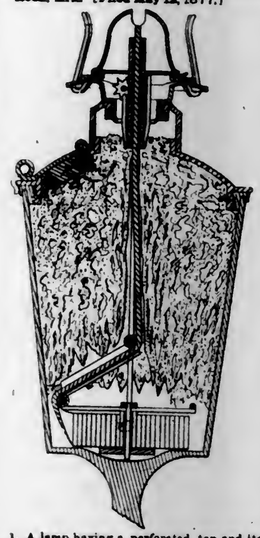
The combination, with a treadle, crank, and slotted lever, of a counterweight or spring, substantially as and for the purposes specified.

192,258. PENCIL-SHARPENERS. Peter R. Hansbury, Philadelphia, Pa. [Filed Apr. 21, 1877.]



The combination, with a slate-frame, having an angular notch formed therein, of the inclined file-plates *a a'* and the spaced parallel bars extending across the said notch, substantially as specified.

192,259. LAMPS. Beall Hempstead, Little Rock, Ark. [Filed May 12, 1877.]

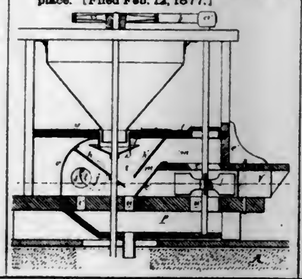


1. A lamp having a perforated top and its body partly or wholly filled with an absorbent material, and the wick passing through the absorbent material, substantially as specified.

2. The combination, with a lamp filled with absorbent material, of an inside reel, arranged at or near the bottom of the same, and a wick coiled around said reel and extending through the absorbent to the burner, substantially as specified.

3. The combination, with a lamp filled with an absorbent material and a screw cap, of the rods *c*, projecting downward into the said material, substantially as and for the purpose specified.

192,260. GRAIN-SEPARATORS. Justus J. Hendrickson, Bridgeport, Pa., assignor of one-half his right to John Kinzie, same place. [Filed Feb. 12, 1877.]

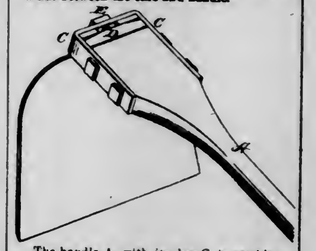


1. The combination, with the grain-delivery chamber *i*, air-chamber *j*, fan I, and passages *m* and P, arranged substantially as described, so that the stream of grain in its passage from the chamber *h* to the stones is subjected to the action of two moving columns of air, as set forth.

2. The combination of the discharge-passage of the fan with the loosely-hinged valve V, as specified.

192,261. TOOL-HANDLES. John L. Hudson, Cumming, Ga. [Filed Apr. 12, 1877.]

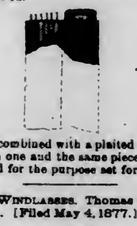
Brief.—The blade is provided with two ears, which are placed in a strap upon the handle, and the tool is secured in position by a set-screw passing through the strap and ears into a nut between the ears and handle.



The handle A, with its bar C, in combination with the implement provided with ears or equivalent, and the nut D and screw E, as and for the purpose specified.

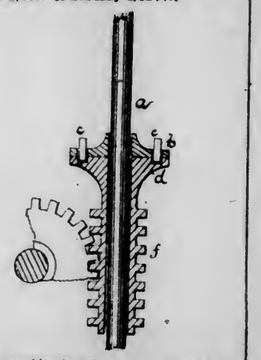
192,262. CORDED-EDGE BRAID. Friedrich W. Huppelsburg, Brooklyn, N. Y. [Filed Mar. 24, 1877.]

Brief.—The flat braid serves as a means of attaching the plaited cord wherever the latter is to be applied.



A braid combined with a plaited cord upon one edge, in one and the same piece, substantially as and for the purpose set forth.

192,263. WINDLASSES. Thomas W. Hyde, Bath, Me. [Filed May 4, 1877.]

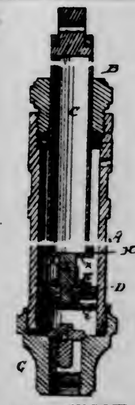


The combination of the screw *f*, which is loose on the shaft *a* and has the ratchet-plate *d*, with the pawl-disk *b*, pawls *c*, and the capstan *k*, operating as herein described.

192,264. PUMPS. Evan Jones, Ottumwa, Iowa. [Filed May 17, 1877.]

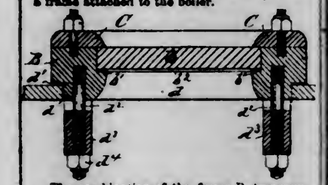
The combination of the tube A with packing-box B and valve G', the hollow removable plunger C, the cup H, with openings *z* and projecting rod *h*, the piston D, with openings *i*, and sliding valve E, substantially as and for the purposes herein set forth.

192,264.



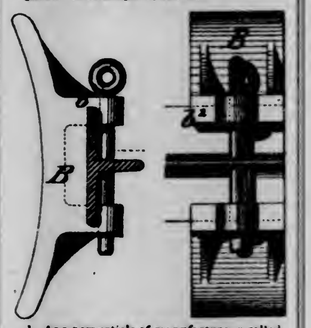
192,265. STEAM-BOILER ATTACHMENTS. Simon Kemper, Hermann, Mo. [Filed May 2, 1877.]

Brief.—To enable the operator to see inside the boiler, a transparent medium is secured in a frame attached to the boiler.



The combination of the frame B, transparent media *b*, packing *b*' *d*', ring C, arches *d*', and fastening-bolts, all said parts being constructed and arranged as and for the purpose set forth.

192,266. BRAKE BEAMS AND SHOES. F. J. Kimball, Philadelphia, Pa., assignor to Empire Transportation Company, same place. [Filed Apr. 9, 1877.]



1. As a new article of manufacture, a rolled-metal brake-beam for railroad-cars, the said beam having a flange or flanges standing from the body thereof in the direction of the strain to which the beam is subjected, substantially as herein specified.

2. A brake-shoe having an inner bearing-face and upper and lower flanges, one or both of which are provided with a projecting lip for direct attachment to the brake-beam, and which are also perforated for the entrance of a connecting-pin, substantially as set forth.

3. The combination of a rolled-metal brake-beam, constructed as described, and a brake-shoe, attached directly thereto by upper and lower flanges, and a connecting-pin, passing through one or more of the flanges of the beam, substantially as set forth.

192,267. CARRIAGE-CURTAIN FASTENERS. James S. Kuder, Tiffin, Ohio. [Filed July 22, 1876.]

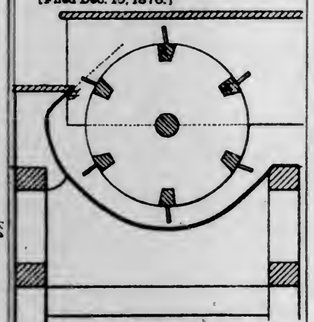
192,267.



1. The rubber button, provided with corrugations of spiral form, and recesses of sufficient width to allow the ribs to lie down therein, constructed as described, and for the purpose set forth.

2. The rubber button, having spiral corrugations, substantially as described, in combination with the screw or rivet, as specified.

192,268. THRASHING-MACHINES. Henry Kurtz and Ephraim Kurtz, Richmond, Pa. [Filed Dec. 16, 1876.]



The combination, with a thrashing-cylinder, of the curved dedector *z*, extending across the front of the machine, and having its marginal portion formed into a guide-lip, G, directed rearwardly and obliquely into the thrashing-throat, a little off from the surface of the cylinder and within the sweep of the teeth, substantially as specified.

192,269. WHIP-SOCKETS. James Lowth, Chicago, Ill. [Filed Feb. 19, 1877.]

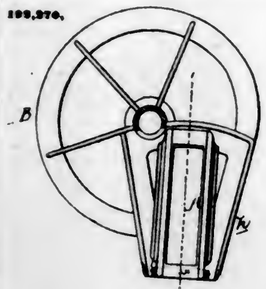


1. The pivoted jaw or throat-piece A, having the rigid extension L, provided with the perforated lug S, the front I having the slot T, and the fixed part of the socket, all combined and constructed as shown and described, whereby the said jaw may be secured by a padlock in the manner specified.

2. The body or fixed portion of the socket, having the slot M, the hinged jaw A, and its rigid extension L, all as shown and described.

192,270. MILLSTONE-DRESSING MACHINES. Thomas McFeely, Marion, Ind., assignor to S. E. Griscom, Pottsville, Pa. [Filed Mar. 21, 1877.]

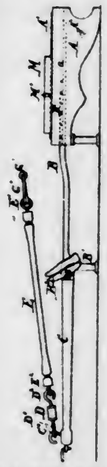
192,270.



1. The combination of the bed-plate B, provided with a projection, *b*, and adapted to the surface of the stone, as described, with the guide-base A, connected to the said projection, all substantially as set forth.

2. The combination of the bed-plate of a millstone-dressing machine with the base-plate A, adapted to be both tilted vertically and adjusted horizontally on said bed-plate, substantially as described.

192,271. EXERCISING-MACHINES. John McLaughlin, New York, N. Y. [Filed May 23, 1877.]



1. The frame A, sliding seat M, foot-rest B', adjusting means B², and attaching means C' on the frame, or an extension thereof, adapted to serve in combination with the stretchers E and suitable handles thereto, as herein specified.

2. The crosser D and attaching means D' D², in combination with the sliding seat M, a suitable strong supporting-frame, and the stretchers E, substantially as herein specified.

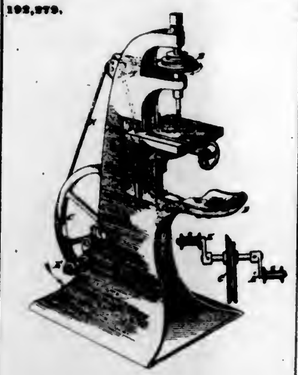
3. In combination with the stretchers E E, with a hook on each, as shown, the sliding seat M, having eyes M', adapted to serve the double functions of a seat in the rowing apparatus and a base or platform in the health-lift, as herein specified.

4. The spring-handles G G', adapted to be strongly and reliably engaged and easily disengaged, in combination with the elastic stretchers E and with the sliding seat M and frame A, to allow of readily changing at will, as herein specified.

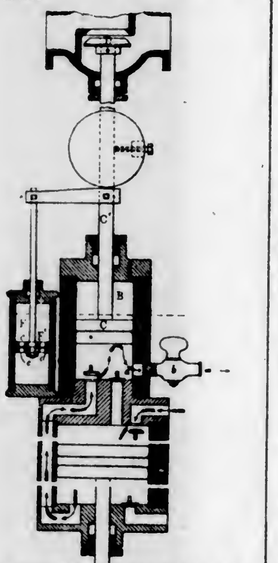
192,272. FOOT-POWERS. Frank Millward, Cincinnati, Ohio. [Filed May 15, 1876.]

The combination of the stationary frame A, carrying a seat, D, projected therefrom, the driving-pulley C mounted in said frame, and provided on each side with opposite foot-cranks E E', the belt H, and the pulley B of the machine to be driven, substantially as and for the purpose specified.

192,273.



192,273. STEAM-ENGINE GOVERNORS. N. B. Nash, Westerly, R. I. [Filed Nov. 20, 1876.]



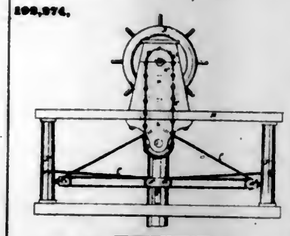
1. As a pneumatic engine-governor, an air-pump and communicating air-cylinder, combined with a supplemental cylinder, the piston of which has a movement common with that of the air-cylinder piston, and operates in a fluid for preventing the too sensitive action of the governor-valve, substantially as herein set forth.

2. In a steam-engine governor, the cylinder B, piston C, and piston-rod C', in combination with the supplemental or regulating cylinder F, the said cylinder F being provided with a piston having perforations therein, the effective sizes of which are variable, the said piston being operated through the medium of suitable mechanism from the piston-rod C', substantially as and for the purpose specified.

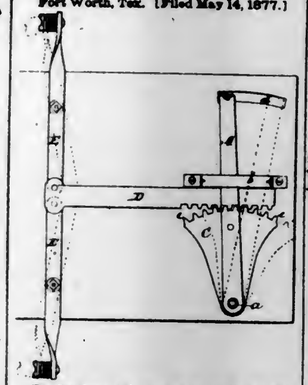
192,274. STEERING APPARATUS. Wm. H. Nelson, Salem, Mass. [Filed May 11, 1877.]

In a steering apparatus for ships, the combination of shaft *a'*, carrying wheel A and chain-pulley *a²*, together with housing *s* on the upper deck M, with the tiller T, having blocks *c c'* and *d d'*, the posts P P', with blocks *e' e²* and *f' f²*, respectively, and the cable C, together with the suspended drum B below said deck M, as described, and for the purpose specified.

192,274.

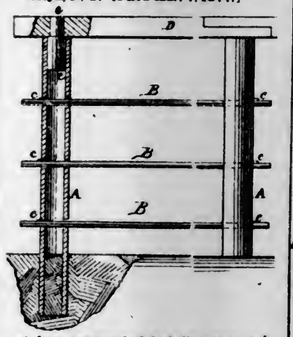


192,275. WAGON-BRAKES. J. M. O'Neall, Fort Worth, Tex. [Filed May 14, 1877.]



The foot-lever A, having an upwardly-curved end, *e*, the toothed sector C, the guide *b*, the sliding rack-bar D, and the pivoted brake-levers E, attached to the under side of a buggy or wagon body, having the slot *d*, all combined, substantially as shown and described, to operate as specified.

192,276. FENCES. John W. Paisley, Randolph, N. Y. [Filed Mar. 7, 1877.]



A fence composed of the hollow posts A A, the rails B B, the wedges *c c*, and the top rail D, with its pins *c c*, all constructed substantially as and for the purpose specified.

192,277. PROCESSES AND APPARATUS FOR MANUFACTURING PAPER LINT OR FELT. Joseph Parker and Joseph H. Greenleaf, New Haven, Conn.; said Greenleaf assignor to said Parker. [Filed June 13, 1877.]

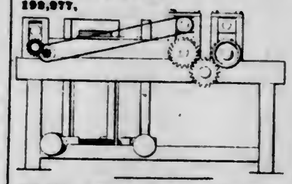
1. The process herein described for the manufacture of paper felt or lint, consisting in subjecting the paper to a breaking or rubbing and breaking process wherein the whole body is softened, substantially as described.

2. In a machine for the manufacture of paper felt or lint, the combination of fluted rolls and vertically-reciprocating breakers, substantially as described.

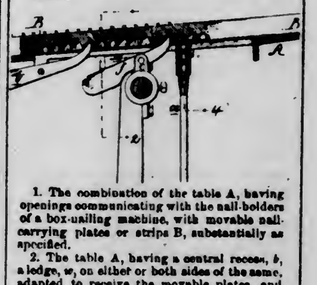
3. In a machine for the manufacture of paper felt or lint, the combination of fluted rolls and reciprocating brakes with feeding mechanism to draw the material through the rubbing and breaking devices, substantially as described.

4. In a machine for the manufacture of paper felt or lint, the combination of reciprocating brakes with the feeding mechanism to draw the material through said rubbers, substantially as described.

192,277.



192,278. FEEDING MECHANISMS FOR MAILING-MACHINES. Geo. H. Perkins and John Bosorth, Philadelphia, Pa. [Filed May 7, 1877.]



1. The combination of the table A, having openings communicating with the nail-holders of a box-nailing machine, with movable nail-carrying plates or strips B, substantially as specified.

2. The table A, having a central recess, *b*, a ledge, *w*, on either or both sides of the same, adapted to receive the movable plates, and means, substantially as described, for reciprocating said plates.

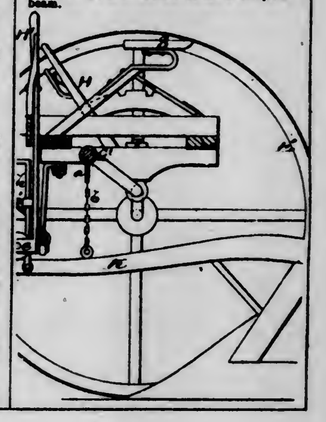
3. The plates B, each provided at one end with a latch, *z*, and at the other end with a pin, *y*, as specified.

4. The combination of the plates B and their racks *x* with the rock-shaft *g*, carrying a pawl, *f*, and governed in its forward movement by a spring, as specified.

5. The combination of the rock-shaft *g*, its collar *m*, and plate *b*, with lug *n*, with the loose lever E and spring *h*.

192,279. SULKY-PLOWS. John E. Porter, Cherokee Station, Kans. [Filed May 19, 1877.]

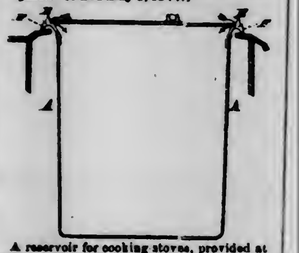
Brief.—The axle has a central crank, to which a lifting-chain from the plow-beam is attached, and a second crank for the furrow-wheel. A lever, rigid upon the axle, raises the plow-beam and adjusts the wheel at the same time. A laterally-acting lever adjusts the level of the plow. A rod yoked to the plow-beam slides vertically in guides upon the lever, and permits free movement of the plow-beam.



1. In a sulky-plow, the axle forming the straight arm G, crank-arm G^1, and center crank G^2, in combination with the wheels E, arm a with chain b connecting with the plow-beam, and the lever H, whereby the plow is raised or lowered and the wheels adjusted with one operation of the same lever, as set forth.

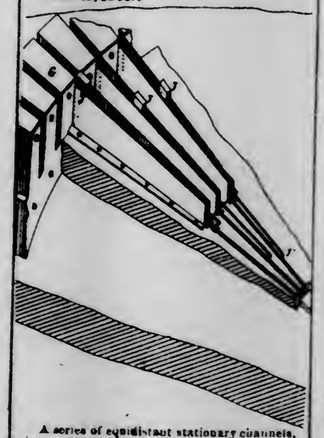
2. The combination of the pivoted lever H' with guide i, the sliding rod h, forked at its lower end, and the plow-beam E, substantially as and for the purpose described.

192,260. RESERVOIRS FOR STOVES AND RANGES. Albert J. Redway, Cincinnati, Ohio, assignor to Redway & Burton, same place. [Filed May 6, 1877.]



A reservoir for cooking stoves, provided at the rim with an elevated ridge, B, and a pendent ridge, F, substantially as and for the purposes specified.

192,261. TYPE-DISTRIBUTING MACHINES. Dexter Reynolds, Albany, N. Y. [Filed June 19, 1876.]



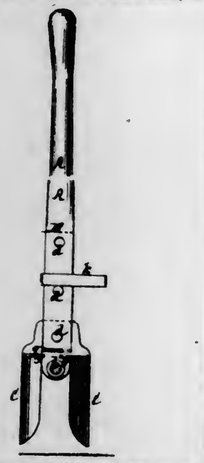
A series of equidistant stationary channels, in combination with a series of equidistant coincident channels, provided with a ratchet, E, actuated by a pawl, F, or their mechanical equivalents, to give them an intermittent movement, so as to cause them to become seriatim and respectively coincident with the others, each of the channels of the series into which the types are to be distributed being provided with fixed pins, and each of the channels in the other series into which the types are to be placed for distribution constructed for and provided with pushers J, having a movement equal to the length of a line of types in any ordinary column or page, and actuated by a weight, K, attached to a cord, L, or their mechanical equivalents, substantially as described.

192,262. TREE AND POST HOLE DIGGERS. William H. Rhodes, Elyria, Ohio. [Filed Oct. 26, 1876.]

Brief.—A pair of coupling-irons hinged together at their lower extremity, having arms, to which a pair of handles are riveted, and a projecting rim, forming a seat for the curved blades.

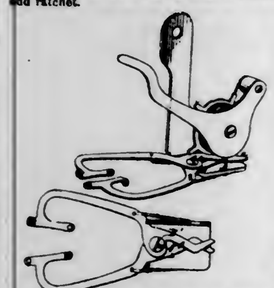
The metal foot-pieces B, to which the half-handles A A are attached, and by which they are pivoted or jointed at *b*, constructed with curbs *f*, to which the blades C C are attached, said curbs being mounted by an overhanging top or flange, *g*, all combined substantially as specified.

192,263.



192,264. EMBROIDERING ATTACHMENTS FOR SEWING-MACHINES. T. M. Rice, Kalamazoo, Mich., assignor to The Davis Sewing Machine Company, Watertown, N. Y. [Filed May 2, 1877.]

Brief.—The attachment consists of two pivoted thread-crossing arms, having cam-shaped ends, and operated by fingers arranged radially on the periphery of a disk, actuated by the needle-bar through the medium of a pawl and ratchet.



1. The combination of two pivoted thread-carrying arms, formed at one end with cam or inclined surfaces, substantially as described, and intermittently-moving fingers, each of which in turn enters between and spreads apart these cam-like or inclined ends of the arms, substantially as and for the purposes set forth.

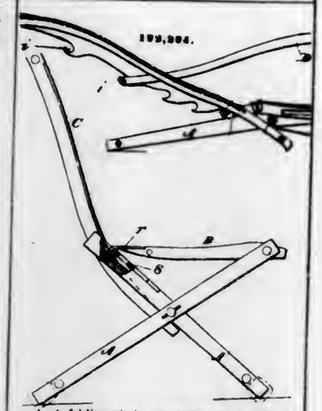
2. In an embroidery attachment for sewing-machines, the combination, substantially as set forth, of two horizontally-vibratory thread-carrying arms, with intermittently-moving fingers, each of which in turn enters between and spreads apart the cam or inclined ends of the arms, and a spring or springs by which said arms are returned to their normal position when disengaged from said fingers.

3. The two horizontally-vibratory thread-carrying arms and their spring or springs, in combination with the intermittently-moving fingers and the ratchet, spring-pawl, and lever for actuating said fingers, substantially as set forth.

4. The embroidery attachment for sewing-machines, consisting of the two thread-carrying arms and their spring or springs, the intermittently-moving fingers, the ratchet, pawl, and lever, all mounted on and carried by a frame adapted to be attached to the sewing-machine, and combined and arranged for joint operation, as shown and described.

192,264. FOLDING CHAIRS. J. Richardson, New York, N. Y. [Filed May 26, 1877.]

192,264.



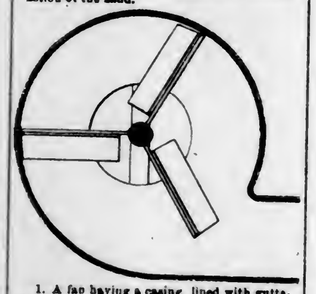
1. A folding chair consisting of the pivoted cross-legs A and A^1, with the seat B pivoted to the legs at its front edge, and provided at its rear edge with the hooks F, arranged to engage with the plates *s*, or the equivalent adjusting devices shown in Fig. 1, all constructed and arranged to operate as set forth.

2. In combination with the folding legs and seat, arranged as described, the hinged arms D, connected by the cross-rod *a*, arranged to engage in the notches or hooks *i* upon the back, substantially as shown and described.

3. The combination of the pivoted legs A and A^1, hinged adjustable seat B, and the sliding leg-rest *g*, all constructed and arranged to operate substantially as set forth, whereby the chair can be converted into a couch, and also be folded up at will, as herein described.

192,265. EXHAUST AND BLOWING FANS. F. Rohrbacher and F. Hormann, Philadelphia, Pa. [Filed May 26, 1877.]

Brief.—The fan-casing is lined with gutta-percha or other yielding material, and the front surface of the blades is covered with the same material, as a protection against the wearing action of the sand.



1. A fan having a casing lined with gutta-percha, leather, or other yielding material capable of resisting the abrasive action of sand impelled against the said casing by the action of the blades or paddles of the fans, as set forth.

2. The combination, with the fan blades or paddles, of gutta-percha or other equivalent yielding material secured to the front of the said blades, all as set forth.

192,266. OVERSHOT WATER-WHEELS. S. L. Rose, Rose Grove, Iowa. [Filed June 12, 1877.]

1. The bucket *D*, having back *a* lower than ends and front, and false back *b*, by which water flowing over the back *a* will be guided and conducted by false back *b* into the bucket below, substantially as described and set forth.

2. The rods *f f* for connecting the links, or heads of buckets as links, in the endless chain of buckets, having projecting ends engaging with the notches upon pulley A for propelling said pulley, substantially as described, and for the purposes set forth.

3. The buckets having the eyes m projecting back from the top and bottom of the heads of the buckets, in combination with the rods *f f*, passing through said eyes to form the chain, substantially as described, and for the purposes set forth.

4. The tail-race chute H, curved and inclined, as shown, closely confining the water to the lower end of the chain of buckets during its passage around the lower pulley C, substantially as described, and for the purposes set forth.

5. Articulating-arms B, to accommodate the irregular and varied motions of pulley C, substantially as described, and for the purposes set forth.

6. The small pulley C, in combination with and secured to vibrating arms, by which the endless chain of buckets is held vertical and steady to and in the tail-race chute, and emptying-buckets suddenly reversed, as described, and for the purposes set forth.

7. The chamfered pulley C, in combination with chamfered pulley A, constructed as described, by means of which the endless chain of buckets is guided and inclined to its proper position upon those pulleys, as described, and for the purposes set forth.

8. In combination with the chain of buckets, the pulley A, wheels E and F, and pinion X, all so arranged by reason of the greater weight of the power side of the chain that the friction is principally transferred to pinion X, substantially as shown, and for the purposes set forth.

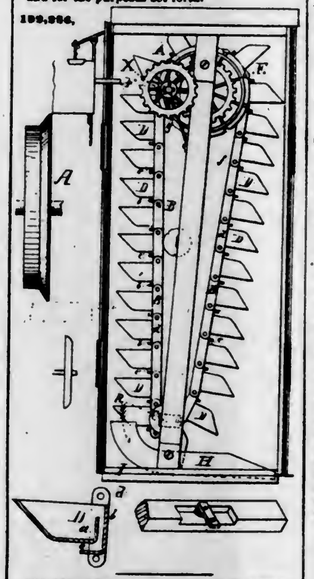
9. In combination with the chain of buckets, two or more power-transmitting pulleys, A, with their trains of gearing, as shown, whereby the power may be taken from different points of the height of the chain without the use of vertical shafting, substantially as described, and for the purposes set forth.

10. The combination, with the flume, the gate opening downwardly, and having the discharge-spout attached to its upper part, whereby the water is taken from its highest elevation, substantially as described, and for the purposes set forth.

11. The application and use of the endless chain of buckets as a current-wheel, as described, and for the purposes set forth.

12. The wheel composed of the chain of buckets, constructed as described, having but a single bearing upon the power transmitting shaft passing through the wall of the building, said shaft having an interior bearing within the building, as shown and described, and for the purposes set forth.

192,266.



192,267. PORTABLE FENCES. J. T. Roundtree, Martinsville, Mo., assignor of two-thirds his right to J. L. Roundtree and W. W. Jessee, same place. [Filed Apr. 14, 1877.]

192,267.



1. In a portable fence, the combination, with the panel A, composed of spaced rails B and uprights C C', of the panel A^1, having extensions *a* on one end, and an upright, C, and the latch-bar D, pivoted to the lowest extension of the panel, and adapted to be thrown up into a vertical position across the remaining extensions, and to be secured thereto by a pin, substantially as specified.

2. The combination, with the panel A, constructed as described, a panel, A^1, having extensions *a* beyond its end upright C, and a pivoted lock-bar, D, coupling the said panels, of a pin, *d*, extending through a rail, B, of panel A, between the upright C' of panel A^1 and the said lock-bar D, substantially as specified.

192,268. RETORT CHARGING AND DISCHARGING APPARATUS. Thomas F. Rowland, Brooklyn, N. Y. [Filed Apr. 13, 1877.]

Brief.—Coal is discharged from a revolving meter, through an adjustable telescopic chute, into the retort-charging scoop having a removable bottom. After the scoop has been projected into the retort the charge of coal is deposited by the withdrawal of its bottom. The coke is removed by a rake. The carriage of the rake and charger run upon wheels, and are traversed upon their rails by endless chains and suitable gearing. An air-engine, placed upon the frame supporting the different machines, traverses the frame on rails in front of the retorts, and operates the different machines.

1. The combination of a revolving meter, M, and a coal-charging apparatus or scoop, D, upon one frame, with intermediate power mechanism whereby each may be operated independently of the other, substantially as described.

2. The combination of a revolving meter, M, a coal-charging apparatus, D, and a coal-discharging apparatus, A, carried upon the same frame, and adapted to be brought opposite the retort to be discharged, substantially as described.

3. The combination of a meter, a coal-charging apparatus, having a removable bottom, and a coal-discharging apparatus, and an engine carried upon the same frame and adapted to be brought opposite the retort to be discharged, substantially as described.

4. The combination of an engine, a coal-measuring, a coal-charging, and coal-discharging apparatus, and a frame carrying them, with apparatus whereby the power of the engine is utilized either in moving the entire apparatus upon supporting-rails into a position to charge or discharge retorts, or in operating the meter, the charging apparatus or the discharging apparatus, or either of them, without interfering with the operation of the others, substantially as described.

192,269. GAS-RETORT CHARGERS. Thomas H. Rowland, Brooklyn, N. Y. [Filed Jan. 29, 1877.]

1. The combination of a scoop, having a removable bottom, with a screw-elevator, whereby the elevation of the scoop is altered to correspond with that of the retort to be charged, substantially as described.

2. The combination of a scoop, having a removable bottom, with apparatus, substantially as described, whereby the bottom is automatically withdrawn when the scoop is in position to deposit the coal in the retort.

3. The combination of a scoop, having a removable bottom, with apparatus for withdrawing the bottom and a stop or tripping device, which throws the bottom-withdrawing mechanism into operation at the right position of the scoop, substantially as described.

4. The combination of a scoop, having a removable bottom, with apparatus for withdrawing the bottom and a latch or locking apparatus which prevents the operation of the bottom-withdrawing apparatus until the latch is tripped, substantially as described.

5. The combination of a scoop, having a removable bottom, with apparatus for causing the withdrawal of said bottom and a lug or equivalent device connected with the bottom and acting at the proper time upon the bottom-withdrawing mechanism to prevent the further removal of the bottom, substantially as described.

6. The combination of a scoop, having a removable bottom, with a bottom-supporting guide or guides and a supporting locking apparatus for the purpose of sustaining the end of said guide, substantially as described.

7. The combination of a scoop-bottom supporting-guide with a locking apparatus, substantially as described, whereby the withdrawn bottom is supported at different elevations, substantially as described.

8. The combination of a scoop, having a bottom-withdrawing mechanism, with a locking apparatus which supports the bottom when in its withdrawn position, and is freed by the return of the scoop, substantially as described.

9. A scoop having a removable bottom and a bottom-supporting guide and locking apparatus, whereby the withdrawn bottom is supported at different elevations, in combination with mechanism whereby the scoop-bottom and guides are elevated or depressed when the scoop is in its withdrawn position, substantially as described.

10. The combination of a scoop, having a removable bottom, with a supporting traveling frame, which carries said scoop, and is itself supported upon two sets of runners or rollers, one set of which travels upon the upper surface of a rail, while the other set travels upon the under surface of a rail, substantially as described.

11. The combination of scoop-supporting frame with spring-buffers, whereby the forward and backward movement of the frame is limited, substantially as described.

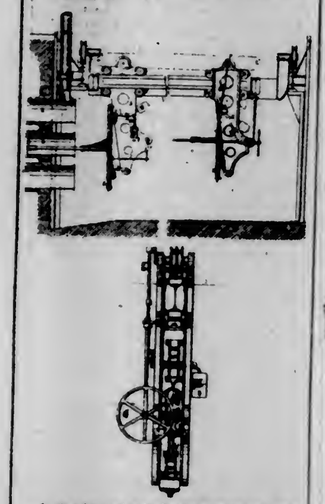
12. The combination of a scoop and its bottom-supporting mechanism with a roughened surface, A, substantially as described.

13. A scoop and removable scoop-bottom combined with mechanism, substantially as described, whereby the withdrawn bottom is forced into its original position by the return movement of the scoop.

14. The combination of a scoop, having a removable bottom, with a bottom-supporting guide, which is automatically locked against a supporting-frame by the advance of the scoop, and is automatically detached by the return of the scoop, substantially as described.

192,269.

192,988. GAS-RAKING APPARATUS. Thos. F. Rowland, Brooklyn, N. Y. [Filed Jan. 20, 1877.]



1. A rake and rake-handle combined with mechanism, substantially as described, whereby the rake is swung laterally upon a pivot, so as to rest upon any portion of the bottom of a retort, and thereby entirely clear the retort of the deposited coke.

2. A rake and rake-handle combined with mechanism, substantially as described, whereby the rake is automatically adjusted and compelled to enter the retort at its center, and whereby it is shifted over any portion of the bottom of the retort at the will of the operator.

3. A rake and rake-handle combined with mechanism, substantially as described, whereby the downward position of the rake upon the bottom of the retort is regulated or altered at any point of its travel, while the rake and rake-supporting mechanism advance and retire in the same line, as distinguished from a rake which is laterally adjustable by the lateral movement of its entire supporting mechanism.

4. A rake and rake-handle carried upon a traveling frame, and supported upon two sets of pivots, one of which allows the rake to be swung in a vertical direction, while the other allows it to be swung in a lateral or horizontal direction, substantially as described.

5. The combination of a rake, a vertical screw supporting it, and an advancing and retiring traveler, whereby the vertical position of the rake is altered so as to correspond with the retort to be discharged, substantially as described.

6. A rake, a rake-carrier, and a power-chain, combined with mechanism, substantially as described, whereby the power is first directly applied to elevating the rake, and is then employed in advancing the carrier.

7. The combination of a rake, a rake-carrier, and an air-cylinder, whereby the jar arising from the sudden stopping of the vertical movement of the rake is avoided, substantially as described.

8. The combination of a rake and rake-carrier with spring-buffers, whereby the motion of the carrier may be arrested, substantially as described.

9. The combination of a rake, H, a rake-handle, S, a vertically-pivoted rake-carrier, E, and a controlling-arm, T, whereby the lateral position of the rake can be altered and controlled, substantially as described.

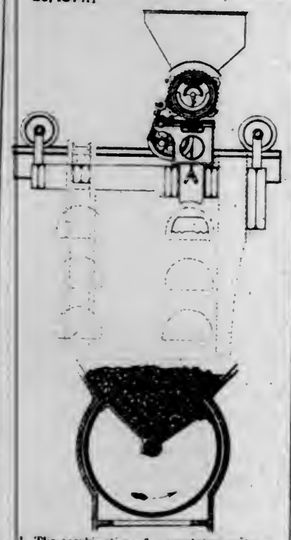
10. The combination of a rake, H, rake-handle S, vertically-pivoted rake carrier E, controlling-arm T, and guide V, substantially as described.

11. A rake and rake-handle firmly attached to each other, and combined and connected with mechanism, substantially as described, whereby the rake, on its withdrawal from the retort, is forced downward by a positive automatic motion through the coke and against the bottom of the retort, whereby the retort is effectually cleared of the deposited coke, as distinguished from a rake which is allowed to drop by its own weight.

12. A rake-carrier, E, supported on two pivoted links, *b* and *i*, of equal length, whereby the carrier is maintained constantly parallel with itself, substantially as described.

13. The combination of the channeled rod G', the miter-gears X and Z, the worm-gear J K, and the guide V, substantially as and for the purposes described.

192,989. REVOLVING COAL-METERS. Thos. F. Rowland, Brooklyn, N. Y. [Filed Jan. 20, 1877.]



1. The combination of a revolving coal-meter with an adjustable partition or diaphragm mounted on a central spindle or axis and turning with said axis, whereby the capacity of the meter may be varied, substantially as described.

2. The combination of a revolving coal-meter with a partition or diaphragm mounted on a central spindle and turning with said spindle and mechanism, substantially as described, whereby the partition is firmly set in different positions.

3. A revolving coal-meter combined with a cog-wheel whereby it is revolved, and a worm-wheel or gear whereby the cog-wheel is revolved, substantially as described.

4. The combination of a revolving coal-meter, having an adjustable partition with a cog-wheel attached to it and by which it is revolved, substantially as described.

5. The combination of a coal-meter with an adjustable chute or coal-guide, which chute serves to conduct the coal to the scoop and is variable in length to correspond with the varying position of the scoop, substantially as described.

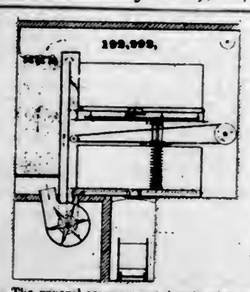
6. The combination of a coal-meter with an adjustable chute, which consists of a series of boxes or guides sliding telescopically over each other, substantially as described.

7. The combination of a coal-meter and an adjustable chute with mechanism, substantially as described, whereby the chute is automatically lowered into the scoop beneath during the passage of the coal, and is automatically raised after its discharge, whereby the scoop is enabled to advance into the retort free of the chute, substantially as described.

8. The combination of a revolving coal-meter, having a cam attached to it, with mechanism, substantially as described, whereby a chute or coal-guide is elevated or lowered at different points in the revolution of the meter.

9. The combination of a revolving coal-meter supported on friction-rollers, with a coal guide or chute, substantially as described.

192,990. MALTING OF GRAIN. J. A. Saladin, Nancy, France. [Filed June 5, 1877.]



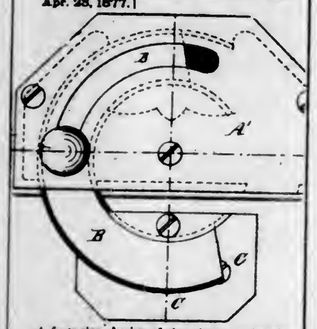
1. The general arrangement herein shown and described, of soaking and germinating tubs and discharge passage for operation, as set forth.

2. The process of malting, substantially as herein shown and described, the same being divided into two operations, which are effected in separate receptacles placed one above the other.

3. In combination with the malting apparatus, as described, of mechanical stirrers, operating substantially as shown and set forth.

4. In the process of malting, herein described, agitating the mass of grain while subjected to a blast of cold and moist air.

192,992. FASTENING DEVICES FOR FURNITURE. Henry Schaaf, St. Louis, Mo. [Filed Apr. 23, 1877.]



A fastening device of the character herein shown and described, consisting of the casing parts A A', the bolt B, and lug-plate C, all said parts being constructed and combined to operate substantially as set forth.

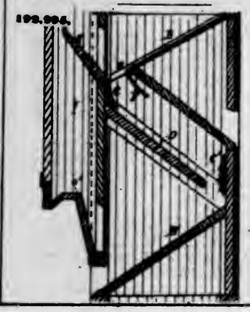
192,994. LAMPS. George Simmonds, San Francisco, Cal. [Filed Mar. 9, 1877.]



1. The hollow bowl, with its central short tube A, substantially as shown and described.

2. A wickless chamber or nursery light, consisting of an open reservoir of oil, supplied with a floating bowl, having in its center a small short tube, A, substantially as shown and described.

192,996.

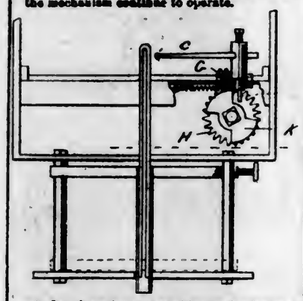


192,996. GRAIN-CLEANERS. C. B. Slater, Manchester, Ohio. [Filed May 7, 1877.]

The apparatus for cleaning grain, consisting of the screens or riddles, inclined diaphragms of sand or emery stone, the brushes, the curtain, and the draft-tube, all combined together as and for the purposes described.

192,998. MACHINES FOR MAKING LOOM-HARNESS. Jos. Sladdin, Lawrence, Mass. [Filed Dec. 12, 1876.]

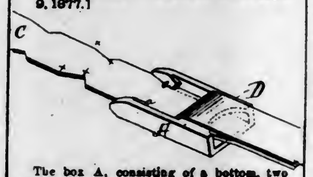
Brief.—Improvement upon the machine covered by reissued Letters Patent of August 8, 1871, numbered 4,509 and 4,510. The machine is adapted to make heddles for fancy looms. The finger is automatically operated by a pattern-cam to withdraw, at the requisite intervals, the length of yarn or twine from the reach of the twister, thereby interrupting the formation of the heddles, while the other parts of the mechanism continue to operate.



1. In a loom-harness machine, such substantially as described, the combination of a finger, C, with mechanism for automatically operating said finger to hold the length of yarn, out of which the heddle-eyes are made, from the twister which makes the eye, as and for the purpose set forth.

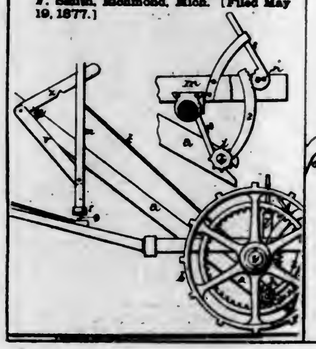
2. The worm-gear G, gear-wheel H, and pattern-cam K, in combination with a finger, C, each and all constructed and arranged substantially as described, for the purpose specified.

192,997. COTTON-BALE TIES. John L. Slocumb, Edwards' Depot, Miss. [Filed Apr. 9, 1877.]



The box A, consisting of a bottom, two side flanges, having interior projections *a a*, and an elevated bridge-piece, D, between the flanges, forming an opening underneath for the free passage of the notched band C, all constructed as and for the purposes set forth.

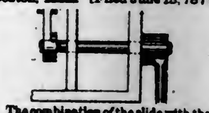
192,998. HAY RAKE AND LOADER. Hiram F. Smith, Richmond, Mich. [Filed May 19, 1877.]



1. The combination of the frame e, hinged or pivoted at its upper end, frame m, shaft h, hanger 10, segmental rack 2, matching gear o, and lever *s*, whereby the lower end of the frame e can be moved nearer to or farther from the rake-teeth, substantially as shown.

2. The combination of the frame m, cross-beam 8, springs 9, standards u, beams v, levers *x*, and springs y, substantially as specified.

192,999. COPYING-PRESSES. G. A. Smith, Boston, Mass. [Filed June 13, 1877.]

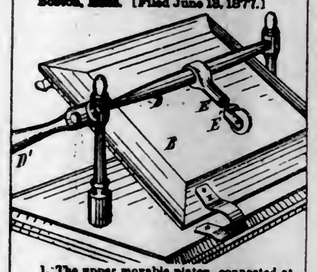


1. The combination of the slide with the lower vertically-reciprocating platen, substantially as and for the purpose set forth.

2. The slide on the reciprocating lower-platen B, in combination with the copying-portfolio, secured to and moving with said slide, substantially as described.

3. The slide B' on the movable platen D, in combination with the inclines *h* or their equivalents, and cars *g* on the portfolio, for the purpose set forth.

193,000. COPYING-PRESSES. G. A. Smith, Boston, Mass. [Filed June 13, 1877.]



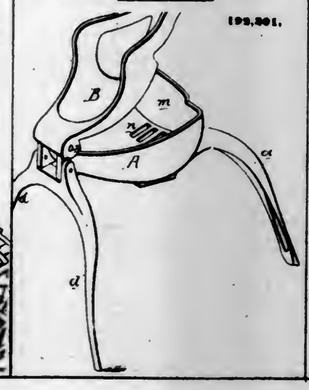
1. The upper movable platen, connected at one side or edge with the lower platen or bed-plate by spring-hinges or their equivalent, adapting said platen to be automatically raised at the front or opposite side or edge when the pressure is removed, in combination with the vibrating actuating-arm E, moving back and forth over said platen, substantially as described.

2. The combination, with the upper hinged movable platen B, of the buttons *b*, adapting the lid or cover of the copying-book or portfolio to be attached to and to move with said platen, as described.

3. The combination, with the rock-shaft D, of the arm E, adapted to be vibrated back and forth in the arc of a circle over the platen B, and to depress and release said platen at each swing or movement, as described.

4. The combination, with the vibrating arm E, of the friction-roller, made adjustable in the outer end of said arm or cam, substantially as described.

193,001.



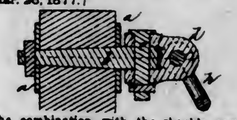
193,002. LEMON-SQUEEZERS. James H. Spencer, Philadelphia, Pa. [Filed Apr. 26, 1877.]

1. A lemon squeezer, consisting of a concave socket, A, made to accord, or nearly so, with the half of a lemon, and the presser B convex on the under side, the two parts being hinged together and bearing the within-described relation to each other, so as to act on the half of a lemon, in the manner specified.

2. The combination of the presser B with the socket A, having at its enlarged end a grating or discharge-opening, *a*, and partition *m*, which bear such relation to the socket that half a lemon may be deposited in the same, and squeezed by the presser without encroaching on the said grating or flange, all substantially as set forth.

3. The combination of the presser B with the socket A and legs *a d*.

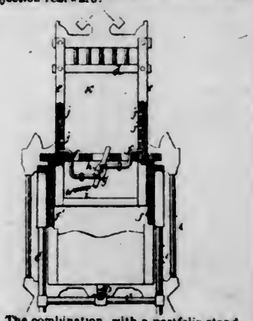
193,003. PEAK-BOLTS FOR MASTS. Melville Stevens, East Gloucester, Mass. [Filed Mar. 26, 1877.]



The combination, with the shackle composed of the two parts or links *d h*, of the peak-bolt *b* and metal band *a*, the several parts constructed and relatively secured together and to the mast-head of a vessel, substantially as herein shown and described.

193,005. PORTFOLIO-HANGERS. D. J. Stein, New York, N. Y. [Filed May 16, 1877.]

Brief.—The link connecting the front and rear supports of the easel are made to fold up at every point of adjustment to avoid their projection rearward.

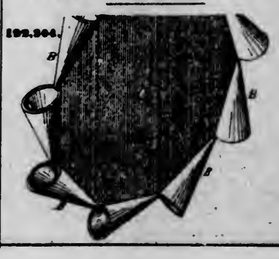


1. The combination, with a portfolio-stand, A, of a sliding frame, E, composed of a horizontal traverse, *d*, and two guides, *e*, which fit into sockets or gaideways in the stand A, and which are adapted to engage with a suitable catch or latch, substantially as and for the purpose shown and described.

2. The combination, with a portfolio-stand, A, and a sliding frame, E, composed of a horizontal traverse, *d*, and the guides *e*, of two hooks, *f f*, a lever, *g*, and spring *i*, all constructed and operating substantially as and for the purpose set forth.

3. The combination, with a portfolio-stand, A, and its hinged brace C, of a link-latch, D, composed of a series of hinged sections, and provided with notches *c*, substantially as and for the purpose shown and described.

193,004.



192,304. WATER-WHEELS. Saml. Stearns and Russell R. Ogden, Glen's Falls, N. Y.; said Ogden assignor to Henry F. Peak, same place. [Filed Nov. 4, 1876.]

Brief.—This wheel has tapering and pyramidal buckets arranged on its periphery.

The conical pyramidal buckets B B, arranged on the periphery of the wheel A, for the purposes herein set forth.

192,305. DOUBLE-ACTING HINGES. A. A. Stimson and C. T. Sabin, Montpelier, Vt. [Filed Feb. 12, 1877.]

Brief.—One of the leaves of a double-acting hinge is provided with lateral flanges embracing the jamb, and angular flanges abutting against the door-casing, and in addition thereto one of the leaves or plates is made adjustable by means of perforated ears, slots, and screws, thus varying the distance between the parallel plates, and adapting the hinge to doors of different thicknesses.

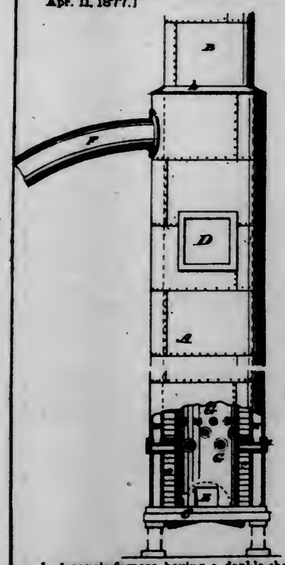


1. A hinge-plate having lateral flanges embracing the jamb and angular flanges abutting against the door-casing, substantially as and for the purpose set forth.

2. In a double-acting hinge, the leaves A A, provided with the fixed flange B and the adjustable flange B', substantially as and for the purpose set forth.

3. The hinge-leaves A A, having the flanges B and B', rendered adjustable by means of the perforated ears *c*, slots *d d*, and screws *e e*, substantially as set forth.

192,306. CUPOLA-FURNACES. Uriah B. Stribling, Madison, Ind., assignor to himself and Isaac N. Todd, same place. [Filed Apr. 11, 1877.]



1. A cupola-furnace having a double shell extending from the platform or fire-bed C to a point above the charging-door D, a blower-pipe, F, connected with the air-space *a*, as shown, and two or more rows of tuyeres, G G, cut away at *d* to form side inlets, and supported at their outer ends in the outer shell A, all in the manner substantially as set forth.

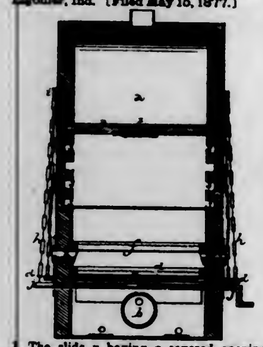
2. In combination with the shells A B, arranged to form a continuous annular air-space, *a*, extending from the fire-bed at C to the ring-cover *b* above the charging-door D, the tuyeres G G, cut away at *d* to form a side inlet, the hook ends being supported in the outer shell A, substantially as herein shown and described.

3. In a cupola-furnace, a tuyere provided with an opening in the side to admit the air-blast, and an opening in the outer end to admit of viewing the interior or clearing out the tuyere, substantially as set forth.

4. In a cupola-furnace having a double shell and an air-space, *a*, extending from a point below the tuyeres to a point above the charging-door, a series of tuyeres of different caliber, in tiers, the smallest above and the largest below, the said tuyeres being supported at the outer end in the outer shell, all substantially as herein set forth.

5. The combination of the outer shell A, extending from a point below the tuyeres to a point above the charging-door, inner lined shell B, blower pipe or pipes F, and tuyeres G G, the latter being of different calibers, having side inlets *d* and openings in the outer ends for viewing, and arranged in tiers, substantially as shown.

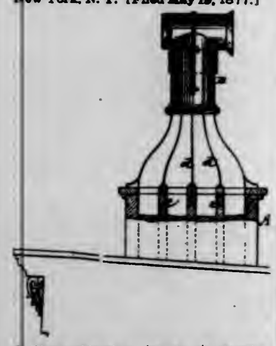
192,307. FRUIT-DRIERS. David Stutsman, Lagonier, Ind. [Filed May 16, 1877.]



1. The slide *r*, having a covered opening through its center, substantially as described.

2. The combination of the house *a*, fire-chamber *b*, sliding rods *d*, mortises *g*, chains *h*, and a winding device, *j*, substantially as specified.

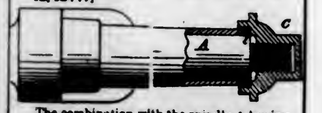
192,308. CHIMNEY-TOPS. John Sutton, New York, N. Y. [Filed May 19, 1877.]



1. The combination, with the flue-dividing walls *c* in the shaft of the chimney, of the terminal flue dividers or conductors *d*, arranged to extend upward from said walls and to converge toward or within a common outlet, substantially as specified.

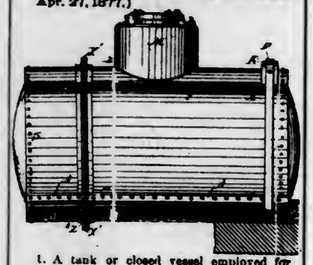
2. The combination, with the shaft A, of the flue partitions or walls *c*, arranged to stop short of the top of said shaft, the cap, cowl, or chimney top or outlet B, and the upwardly-converging terminal flue dividers or conductors *d*, of a lesser thickness than said walls, essentially as shown and described.

192,309. ADJUSTABLE AXLE-NUTS. Orrin B. Thompson, Jersey, Ohio. [Filed Apr. 12, 1877.]



The combination, with the spindle A having screw-tenon *a*, of the closed cap or axle-nut C screwed on said tenon, and the set-screw A screwed into said nut in the same threads, and completely inclosed within the nut, substantially as and for the purposes herein set forth.

192,310. METAL TANKS. Robert Tippett and D. L. Jones, Harrisburg, Pa. [Filed Apr. 27, 1877.]



1. A tank or closed vessel employed for transporting oil or other fluids in bulk on car-platforms, when made of two or more longitudinal sections, outwardly flanged on their edges, and riveted together thereby, wholly on the outside of tank, substantially as and for the purpose set forth.

2. A closed vessel for transporting oil, or other fluids in bulk, composed of two or more longitudinal sections, provided without outwardly-turned flanges on their edges, and riveted together mediately by having interposed between the flanged sheets forming the seam a strip of soft metal for calking the seam, substantially as set forth.

3. A closed tank, as described, composed of sections riveted together by means of outwardly-turned flanged seams, and soldered or brazed at the seam crevice to exclude the oil from the rivets, substantially as set forth.

4. The oil-tank provided with raised seams A, as described, in combination with one or more anchoring-ties, F', bearing on tank-body by means of braces K, as and for the purpose set forth.

5. The series of two or more girdling braces, Z' Z', in combination with the adjustable band X X', and applied to an oil-tank, substantially as and for the purpose herein set forth.

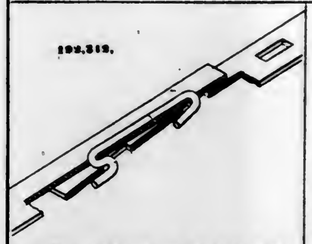
192,311. TREADLES. George H. Truxell, Greensburg, Pa. [Filed May 9, 1877.]



The combination of the double treadle *c c'*, cord *a*, fly-wheel A, shaft *a*, and V-grooved wheel *d*, provided with an adjusting friction-washer and set-screw, substantially as shown, whereby the wheel *d* may be adjusted so as to turn with difficulty, and prevent the jumping of the cord *a*.

192,312. BALE-TIES. John P. Verree, Philadelphia, Pa. [Filed May 31, 1877.]

192,313.



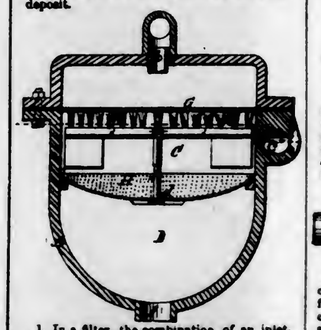
1. The combination, with the band, of the rod inserted through holes therein near one end, and then bent to form two hooks, as described and shown, one at each end of the rod, projecting in the same direction and setting out from the band, to admit of the connection at two points of the other end of the band, as set forth.

2. The combination, as hereinbefore set forth, of the band provided with a series of slots or openings near one end and the rod or wire having its ends passed through the band at or near its opposite end, and bent at both ends to form two hooks projecting in the same direction, as shown and described, whereby the openings may be engaged in pairs with the hooks, in the manner set forth.

3. The combination, with the band, slotted as described, of the rod secured to the band and provided with a double and a single hook, substantially as and for the purpose set forth.

192,313. SELF-CLEANING FILTERS. Henry W. Watson, New York, N. Y. [Filed Feb. 16, 1877.]

Brief.—The water flows through a lateral passage underneath the filtering diaphragm, and rotates a set of brushes bearing against said diaphragm. A partial partition is placed between the water-inlet chamber and the mud-receptacle to prevent the stirring up of the deposit.



1. In a filter, the combination of an inlet-chamber, C, having an oblique or nearly tangential water-inlet, *c*, with a sediment-receptacle, D, substantially as and for the purpose herein specified.

2. In a filter, a partition or diaphragm, H, constructed and operating substantially as described, situated between an inlet-chamber, C, having an oblique inlet, *c*, and a sediment-receptacle, D, substantially as and for the purpose herein specified.

3. In a filter, a revolving brush or brushes, A A A A, operated by the inflowing water, in combination with an upwardly-filtering diaphragm, G, substantially as and for the purpose herein specified.

4. In a filter, a water or fluid inlet, *c*, arranged to introduce the fluid in a laterally-oblique direction, so as to impart a rotary motion to the inflowing fluid in the filter, in combination with a filtering diaphragm or surface, E, arranged to receive the sweeping and cleansing action of the rotating fluid, substantially as and for the purpose herein specified.

192,314. CAR-PROPELLERS. Milton A. Wheaton, San Francisco, Cal. [Filed Apr. 16, 1877.]

1. A double cable constructed and arranged in a railroad substantially as and for the purposes herein described.

2. A griping apparatus constructed and operating substantially as and for the purpose herein described.

3. In a griping device to be used with a double cable, each of the lugs and inclined slots *r r*, by means of which the compound vertical and horizontal movement of the gripers are obtained, substantially as and for the purposes herein described.

4. In combination with a car or dummy and griping device, the swing-bar *f*, substantially as and for the purposes herein set forth.

5. The plates *j*, provided with inclines at the lower ends, in combination with the strips O and *p* having corresponding inclines, substantially as and for the purposes herein set forth.

6. The combination of the strips O and *p* and the plates *j*, all having inclines, as described, with the ratchet-notches for the lever *g*, having their lower parts beveled out so that the passing cable may lift without injury to the griping apparatus when too low, substantially as herein described.

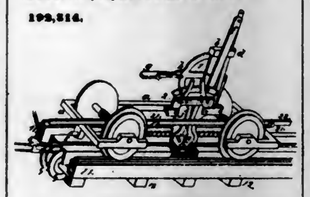
7. The combination of the gripers with the sliding collar *w* and the bumper *s*, substantially as and for the purposes herein described.

8. The combination of the plate *j*, metal collar *l*, and vibrating rod *f*, substantially as and for the purposes herein set forth.

9. The strips O and *p*, in combination with a lever, *m*, substantially as and for the purposes herein set forth.

10. The double cable provided with the plates or catches *b*, in combination with the strips O *p*, having recesses S, substantially as and for the purposes herein set forth.

192,315.



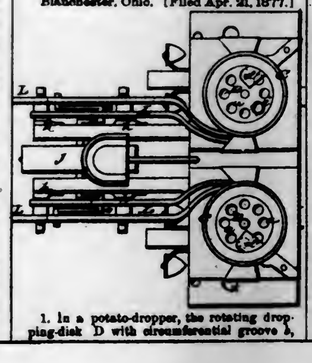
192,315. TOP-ROLLS FOR SPINNING-MACHINERY. S. B. Whittemore and Wm. A. Green, Bristol, R. I. [Filed Mar. 19, 1877.]

Brief.—The covering for the roll consists of an intermediate layer of textile fabric, treated with a solution of gum, beneath and over which is another layer of rubber, all of which are united, and to the roll by vulcanization. The outer covering of leather is then applied in the usual way.



A top-roll provided with a suitable outer covering and a foundation composed of textile fabric interposed between two layers of vulcanizable india-rubber, united to each other and to the roll by vulcanization, substantially as described.

192,316. POTATO CUTTER AND DROPPER AND CORN-PLANTER. Zachariah J. White, Blanchester, Ohio. [Filed Apr. 21, 1877.]



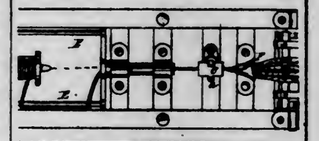
1. In a potato-dropper, the rotating dropping-disk D with circumferential groove *b*, and the stationary knives *d d'* combined therewith, substantially as and for the purpose described.

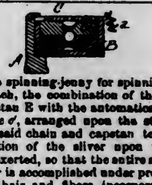
2. The combination of the grooved rotating dropping-disk D, stationary knives *d d'*, bed A with dropping-holes *a*, conductor G with furrow-opener H, and coverers I, substantially as and for the purpose described.

3. In combination with the rotating dropping-disks D D, the center-wheel J, rod *f* with double crank at each end, the longitudinal slotted dogs L with vertically-slotted arms *l'*, and stationary guide-pins *m*, all substantially as and for the purpose described.

192,317. ROPE-MACHINES. David Whiton, William Thomas, and Charles F. Hough, Hingham, Mass., assignors to Morris F. Whiton, same place. [Filed Mar. 6, 1877.]

Brief.—The rope is twisted between dies pressed together by a spring situated between the chain and the fiber, the loose and projecting fibers being thus forced into the body of the rope, producing a smooth, even, and well-rounded surface.





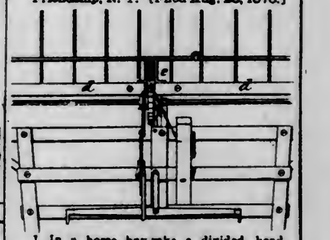
1. In a spinning-jenny for spinning yarn at short ratch, the combination of the chain D and capstan B with the automatically-operating dies *c c'*, arranged upon the standard A, between said chain and capstan to compress that section of the sliver upon which the twist is exerted, so that the entire spinning of the sliver is accomplished under pressure and the loose hair and fibers incorporated, compressed, and twisted into the roving, substantially as described.

2. The combination of the stand A, provided with cross-piece or block B, hinged cap C, and spring *d*, with the removable dies *c c'*, substantially as shown and described.

3. The combination of the stand A, provided with cross-piece or block B, hinged cap C, and spring *d*, with the reversible die-pieces *c c'*, substantially as and for the purpose described.

4. In a rope-machine for spinning yarn at short ratch, the combination of the chain D and capstans E with the mouth-piece F and automatically-operating dies *c c'*, supported on standard A, in relation to the chain and capstan as set forth, all operating substantially as described.

192,318. HORSE HAY-RAKES. J. B. Wisner, Friendship, N. Y. [Filed Aug. 28, 1876.]



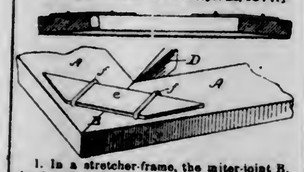
1. In a horse hay-rake a divided head, hinged near the revolving axle, with the lifting mechanism on the revolving axle, moving in the space between the parts, as set forth.

2. The divided head, hinged to the revolving axle at the outer ends, and supported at the inner upon a casting, through a part of which the said axle passes, as set forth.

3. The casting *e*, formed with a rearward extension, *e'*, for supporting the tooth-board, said extension being recessed to receive the spring, substantially as described.

4. The casting *e* supporting the divided rake-head, and formed with shell or casing *e''* adapted for the reception of the ratchet, as set forth.

192,819. STRETCHER-FRAMES. J. H. Witt, Columbus, Ohio. [Filed Apr. 21, 1877.]



1. In a stretcher-frame, the miter-joint B, having the abutting faces of the strips A cut with a vertical bevel or incline, substantially as and for the purposes described.

2. In a stretcher-frame, A A, the miter-joint B, formed as described, combined with metal strips *e* and staples *f f*, substantially as described.

3. In combination with a stretcher-frame having the abutted faces of strips A in the miter-joint B cut with a vertical incline or bevel and provided with slot B', the metal strip C and wedge D, substantially as and for the purposes set forth.

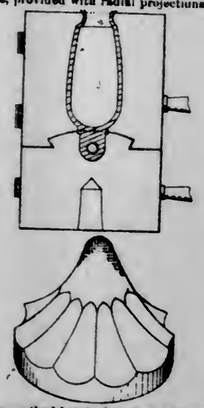
199,390. PROCESSES OF UNITING BESSEMER METAL AND INCREASING THE TENSILE STRENGTH THEREOF. Elias T. Day, Jersey City, N. J., assignor to F. O. Matthiessen, trustee, Irvington, N. Y. [Filed May 16, 1877.]

In the manufacture of merchant bars or rods from steel scrap, the method of improving the tensile strength of the product herein described, which consists in coating steel slabs or fagots with boracic acid, and then forming the slabs into piles, and heating and rolling or hammering the piles into bars or rods, substantially as set forth.

REISSUES.

7,747. METHODS OF MAKING SMOKE-BELLS. Jas. S. Atterbury and Thos. B. Atterbury, Pittsburg, Pa., assignors to Dithridge & Co., same place. Patent No. 57,063, dated Aug. 14, 1866; reissue No. 6,886, dated Feb. 1, 1876. [Filed Mar. 30, 1877.]

Brief.—The article is first blown in a divided mold. The end to be flared of the smoke-bell is reheated and pressed over a tool of conical shape, provided with radial projections.



1. The method herein described of forming the eye or loop of the smoke-bell by projections on the inside of the mold, which, when the latter is closed, extend across the forming cavity.

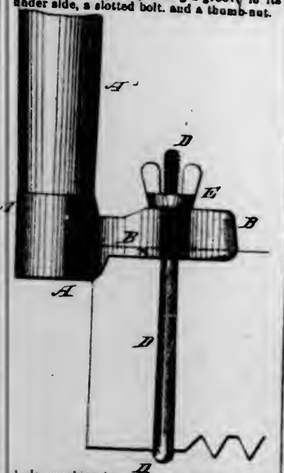
2. The method of flaring glass smoke-bells and other glass articles without external pressure by reheating the end to be flared and pressing it over a tapering or coniform former, substantially as described.

3. The method of crimping or fluting smoke-bells and other glass articles by reheating the end of the article and pressing it over a tapered or coniform former having radially-projecting edges, substantially as described.

4. A tapered or coniform plug or former for flaring and shaping the open end of smoke-bells and other articles, substantially as described.

7,748. SAW-TANGS. Eben M. Boynton, Grand Rapids, Mich., assignor to Wheeler, Madden & Clemson Manufacturing Company. Patent No. 73,227, dated Jan. 14, 1868. [Filed June 1, 1877.]

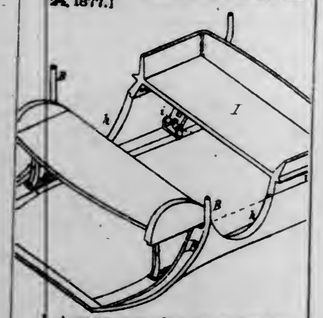
Brief.—The saw-blade is secured to the handle by means of a socket provided with a laterally-projecting arm, having a groove in its under side, a slotted bolt, and a thumb-nut.



1. In combination with a saw-handle and saw blade, a socket, provided with a laterally-projecting arm, and a clamping-bolt, substantially as and for the purpose set forth.

2. The detachable saw-tang, consisting of the socket A, with the arm B, having the groove *n* formed in its under side, in combination with the slotted bolt D and the thumb-nut E, substantially as described.

7,749. SHIFTING-SEAT CARRIAGE. Charles N. Dennett, Salisbury, Mass. Patent No. 173,774, dated Feb. 22, 1876. [Filed Jan. 24, 1877.]



1. A canopy or standing top carriage having its front posts B B secured to the outside of the panels, in combination with a shifting front seat, so that the seat of full width of the body may be turned back, substantially as described and shown.

2. In a canopy-top carriage, the combination of a back jump-seat and a turn-out seat the ends or arms whereof, when so turned down, are flush with the outside of the body-panels, substantially as described and shown.

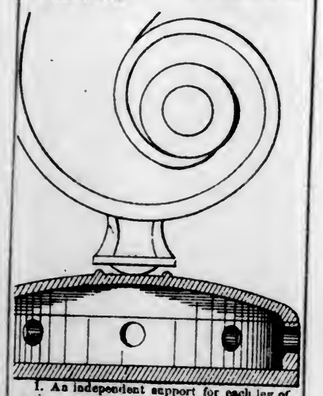
3. In combination with a jump-seat and a cut-down panel in a four-post canopy-top carriage, a turn-down seat the arms or ends whereof fill or curtain the spaces A when the back seat is jumped forward for use as the single seat of the carriage.

4. The combination of a back jump-seat, a single pair of jumping-irons attached thereto at its rear edge, and a front seat of the full width of the back seat, whereby the back seat may be jumped forward and rest upon or above the front seat, substantially as described and shown.

5. The stops *i*, in combination with the single pair of jumping-irons *i* and the back seat I, when arranged to act automatically, as and for the purposes specified.

7,750. PIANO ATTACHEMENTS. Jas. Fairman, New York, N. Y. Patent No. 189,441, dated Apr. 10, 1877. [Filed May 14, 1877.]

Brief.—Resonant-cups are placed one under each leg of the piano-forte to increase the amount of tone.



1. An independent support for each leg of a piano, consisting of a resonant shell or chamber, constructed with a thin horizontal sheet, upon which the leg is supported centrally, said sheet being supported at its outer edge in such manner as to form an air-chamber immediately below that part upon which the caster rests.

2. A support for a leg of a piano-forte, consisting of a hollow block with an arched top, and a perforated rim, substantially as set forth.

3. A support for a leg of a piano-forte, made with an arched top, a perforated or partly-open rim, and a projecting circular bead on its top, substantially as set forth.

7,751. COAL-OIL STOVES. John A. Frey, New York, N. Y., assignor, by mesne assignments, to C. Riessner & Co., same place. Patent No. 159,149, dated Oct. 20, 1874. [Filed May 24, 1877.]

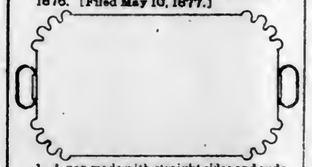


1. A coal-oil stove having its wick-wheels, wick-wheel shafts, and the entire upper surface of its oil-reservoir covered by a water-reservoir, substantially as and for the purpose specified.

2. A coal-oil stove in which the entire upper surface of its oil-reservoir is protected by a water-reservoir, and its wick-wheels and their shafts are inclosed by means of housings that are within said water-reservoir and below its upper edge, substantially as and for the purpose shown.

3. The combined cap and chimney, consisting of the cap F, provided with kerbs *f* and *f*, the sheet-metal cylinder G, and the bead H, provided with the openings h and h, and flanges or flue-plates *h'* and *h'*, depending from the sides only of said openings, said parts being constructed and combined to operate in the manner and for the purpose substantially as set forth.

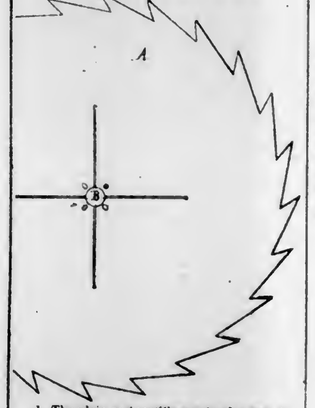
7,752. BAKE-PANS. John Gilbert, Newark, N. J. Patent No. 177,114, dated May 9, 1876. [Filed May 10, 1877.]



1. A pan made with straight sides and ends, and bent or scalloped at the corners, to contract the surplus metal resulting from turning up the sides and ends, substantially as herein shown and described, whereby the pan may be brought into shape by a single pair of dies and at one operation, as set forth.

2. A pan made of one piece of metal struck up to form straight sides, and with corners formed of the surplus metal bent or scalloped, substantially as described.

7,753. CIRCULAR SAWS. Jas. K. Lookwood, Alpena, Mich. Patent No. 70,728, dated Nov. 12, 1867. [Filed May 16, 1876.]



1. The plain and rectilinear circular saw A, constructed with slots having parallel sides, extending from the eye toward the periphery for the purpose of preventing the buckling of the saw by expansion, substantially as set forth.

2. A circular saw constructed with more or less slots, extending from the eye toward the periphery, and terminating in holes punched in said saw, substantially as and for the purposes described.

3. A circular saw constructed with more or less slots, extending from the eye toward the periphery, in combination with the slotted holes near the eye, substantially as and for the purposes specified.

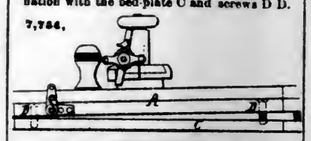
4. A circular saw constructed with more or less slots, extending from the eye toward the periphery, the holes at the termination of the slots, and the slotted holes near the eye, substantially as and for the purposes set forth.

7,754. MILLSTONE-DRESSING MACHINES. Leonard Moore, Cole's Creek, assignor to Saml. E. Griscom, Pottsville, Pa. Patent No. 186,686, dated Jan. 30, 1877. [Filed May 17, 1877.]

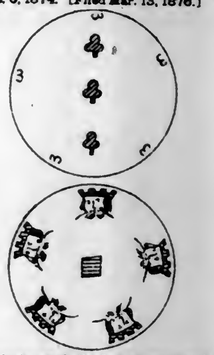
1. The combination, in a millstone-dressing machine, of the following elements, namely, a bed-plate, C, to bear on the stone, a cutter-carriage, and an intermediate plate, through the medium and by the adjustment of which the said cutter-carriage may be tilted, substantially in the manner described.

2. The adjustable guide-plate A, in combination with the bed-plate C and screws D D.

7,754.



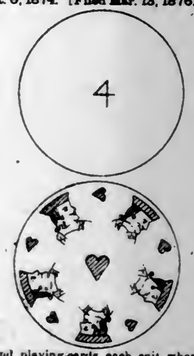
7,755. PLAYING-CARDS. Ivory N. Richardson, Malden, Mass., assignor to Ivory W. Richardson. Patent No. 155,752, dated Oct. 6, 1874. [Filed Mar. 13, 1876.]



1. Playing-cards the face or court cards in each of the suits whereof are distinguished by an indicating color of the regalia or headdress of the effigy or designating character of the card.

2. Playing-cards the suit of the emblematic or spot-cards whereof is shown by the indicating or suit color of a numeral or figure, which numeral or figure also shows the size or value of the card, whereby the player, as soon as he recognizes such figure or numeral, can know by the color and character thereof both the suit and size or value of the card, substantially as described and shown.

7,756. PLAYING-CARDS. Ivory N. Richardson, Malden, Mass., assignor to Ivory W. Richardson. Patent No. 155,752, dated Oct. 6, 1874. [Filed Mar. 13, 1876.]



Round playing-cards, each suit whereof is indicated by a distinguishing color, and is also provided with numerals or figures to indicate the size or value of the cards, substantially in manner as described and shown.

7,757. PLAYING-CARDS. Ivory N. Richardson, Malden, Mass., assignor to Ivory W. Richardson. Patent No. 155,752, dated Oct. 6, 1874. [Filed Mar. 13, 1876.]

Playing-cards each suit whereof is indicated by a distinguishing ground color of the face thereof, and provided with numerals or letters to indicate the size or value of the cards, substantially in manner as described and shown.

7,757.



7,758. FLOOR-PROTECTORS FOR STOVES. Fredk. J. Seymour, Wolcottville, Conn., assignor to himself and Phelps, Dodge & Co. Patent No. 183,711, dated Oct. 24, 1876. [Filed June 7, 1877.]



1. The sheet-metal rib for the edge of a floor-protector, strengthened by the edge of the sheet metal, which is folded beneath the rib, and extends from the under side of the rib to the floor, substantially as set forth.

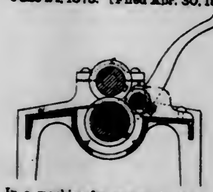
2. The floor-protector for stoves, having a rib around the edge of the sheet metal, doubled in the top part and outer edge of the rib, and embossed, substantially as set forth.

7,759. COATS. Albert P. Silva, Elmira, N. Y., assignor to Jno. Paret, New York city. Patent No. 184,902, dated Nov. 28, 1876. [Filed June 9, 1877.]



1. A coat having a supplementary collar inside of the neck or ordinary collar, substantially as and for the purpose set forth.
2. The inside openings for the reception of the supplementary-collar ends, substantially as set forth.
3. A coat constructed, substantially as hereinbefore set forth, with inside openings, the ordinary collar, and a supplementary or inner folding collar, the ends of which, when not in use, are secured in said openings.
4. A coat sleeve constructed, as herein before set forth, with a mitten connected with or forming an extension thereof.
5. A coat constructed, substantially as hereinbefore set forth, with sleeves provided with folding mittens, connected with or forming parts of said sleeves.
6. A coat constructed, as hereinbefore set forth, with a supplementary collar upon the inside of the ordinary collar, and mittens connected to or forming extensions of the sleeves.

7,760. STRAP-MACHINES. A. F. Stowe, Worcester, Mass. Patent No. 126,766, dated Apr. 16, 1872; reissue No. 5,462, dated June 24, 1873. [Filed Apr. 30, 1877.]

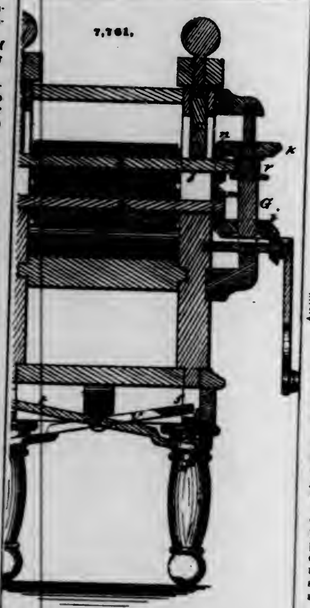


In a machine for cutting leather, the combination, with the main feed-rollers B U thereof, of an auxiliary spring-pressed feed or pressure roller, E, arranged therewith, substantially in manner and to operate as and for the purpose set forth.

7,761. CLOTHES-WRINGERS. N. B. White, South Dedham, Mass., assignor, by mesne assignments, to Empire Wringer Company, Auburn, N. Y. Patent No. 34,618, dated Mar. 4, 1862; reissue No. 2,287, dated June 12, 1866; reissue No. 7,006, dated May 2, 1876. [Filed Apr. 19, 1877.]

1. In a wringing-machine, the combination of the elastic rollers, impervious to water, and an adjustable spring or springs, and a driving-gear, said gear being arranged to rise and fall with the upward and downward movement of the movable roll, for the purpose set forth.
2. In a wringing-machine having rubber rolls, a purchase cog-wheel mounted upon an independent axis, and connected, by intermediate gearing, with the cogs upon the ends of the roller-shafts, for the purpose set forth.
3. In a wringing-machine for wringing clothes, the gear K, having groove r, and the gears s, i, and m, and shafts b and G, arranged substantially as described, in combination with rolls of india-rubber, as set forth.

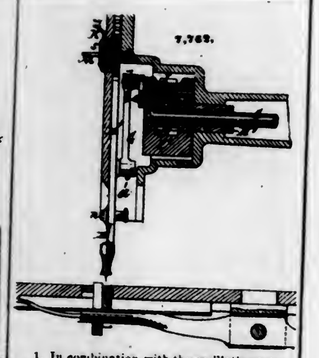
7,761.



7,762. SEWING-MACHINES. R. Whitehill, New York, N. Y. Patent No. 166,172, dated July 27, 1875. [Filed Oct. 26, 1876.]



7,762.



1. In combination with the oscillating take-up K, the stationary bar or pin M, arranged to occupy an excentric position relatively with the arbor N or axis of oscillation of the take-up, substantially as specified.
2. The combination, with the oscillating take-up arbor N and the mechanism for oscillating the same positively, of the take-up K, movable around said arbor to provide for adjusting it to different thicknesses of fabric, substantially as herein described.
3. The combination of the needle bar or carrier D^1, the actuating-shaft C, the sun and planet gears H I, and means of attaching the planet-gear to the said shaft, the said bar or carrier being placed in front of the said gears, and also in front of the end of the shaft, substantially as and for the purpose herein described.
4. The combination of the actuating-shaft C, the sun and planet gears H I, the excentric or wrist pin A, the connecting-rod G, and means of attaching the planet-gear and pin A to said shaft, with the needle-bar D^1, placed in central relation with the said shaft, substantially as and for the purpose herein specified.
5. The combination of the actuating-shaft C, the sun and planet gears H I, the wrist or pin A, and the shaft f, which carries the planet-gear and pin A, with the hub C^1, containing bearings for the said shaft on the opposite sides of the planet-gear, substantially as herein described.
6. In a sewing-machine in which the needle bar or carrier, actuated by sun and planet gears, is arranged in front of the actuating-shaft C, the combination, with such actuating-shaft and a shuttle-driver, D^2, working parallel therewith, of an upright shaft, B^3, geared at its upper end, by bevel-gears b^4 c^4, with the said actuating-shaft, and having at its lower end a crank connected with the shuttle-driver, for operation of the latter, substantially as specified.

NATIONAL LITHOGRAPHING CO. WASHINGTON, D.C.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 67.—No. 13. TUESDAY, JUNE 26, 1894. PRICE—$5 per year.

CONTENTS.

	Page.
ORDER IN RELATION TO DRAWINGS	1577
INDEXES TO PERIODICALS	1577
NOTICE	1577
OATHS OF APPLICANTS IN FOREIGN COUNTRIES	1578
ISSUE OF JUNE 26, 1894	1578
APPLICATIONS UNDER EXAMINATION	1578
PATENTS GRANTED	1579
REISSUES	1713
DESIGNS	1714
TRADE-MARKS	1716
PRINTS	None.
LABELS	None.
COMMISSIONER'S DECISIONS—	
Dalley *v.* Jones	1719
DECISIONS OF THE U. S. COURTS—	
Reece Button-Hole Machine Company *v.* Globe Button-Hole Machine Company *et al.*	1720

Order in Relation to Drawings.

NOTICE.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 25, 1894.

Order No. 960, respecting the alteration of drawings, was published in the OFFICIAL GAZETTE of December 19, 1893, (65 O. G., 1771,) by mistake, and was never in force. The following is the only order in force upon that subject:

(ORDER No. 966.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 25, 1894.

Erasures or other alterations of drawings will not be made or permitted, except in compliance with this order.

Applicants are requested to furnish, with their originals, a blue print or other photographic copy of all drawings forming part of an application, and where this is done, the original drawings may be taken to the Attorneys' room, but not otherwise.

Before making a requirement to alter an original drawing the Examiner will formally make the blue print or other copy a part of the files, and in case no such copy has been furnished by the applicant, the Office will make such copy without charge, and thereupon the required alteration may be made by the applicant, under the direction of the Examiner and subject to his approval, or, upon request, it will be made by the Office at the expense of the applicant.

The requirement to make alterations in original drawings will be made in writing, and the applicant's response must also be in writing, and in such case the copy of the drawing, the requirement to alter, and the applicant's response will form part of the record.

Action by the Office on the merits will not be suspended pending the change of a drawing, if the invention claimed may be understood by the Examiner.

For the purposes of this order the Office, upon the request of applicants, will make blue prints at the charge of five cents a sheet.

In appeal cases and upon the declaration of an interference a blue print or other copy will be sent forward with the files, the Examiner retaining the original drawings in his room until the hearing.

Except as herein required such blue print or other copy will not be made a part of the file, and may not be preserved after an application passes into a patent.

JOHN S. SEYMOUR,
Commissioner.

PHOTOGRAPHIC COPIES OF DRAWINGS.

A photographic outfit has been added to the equipment of the Patent Office, and positive photographic copies of any drawing, foreign or domestic, in the possession of the Office, will be furnished upon application to parties entitled thereto, at the following rates:

Size 10x15 inches. ..... 25 cents per sheet.
Size 7x11 inches. ..... 15 cents per sheet.
Size 5x8 inches. ..... 5 cents per sheet.

If a copy of the drawings in a pending application of the size 5x8 inches be ordered sent to any address, two copies must be ordered, as one copy is always retained by the Office and placed in the file for the purposes specified in the above Order No. 966, of January 25, 1894.

In ordering copies of foreign drawings, the examining division, the class, and sub-class where such drawings may be found, must be given.

Coupons will be received in payment of the above fees.

Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading room of the scientific library:

Engineering Review, London, a monthly synoptical index of periodical literature in the English, French, and German languages, including hydraulic, railway, mechanical, electrical, mining, metallurgical, marine, military, and gas engineering.

Electrical Engineering, Chicago, a monthly synoptical index of electrical literature.

Electrical World, New York, a weekly digest of electrical articles.

Journal of the Association of Engineering Societies, Chicago, a monthly synoptical index of civil-engineering literature, mostly American.

Engineering Magazine, New York, a monthly title-index of engineering articles in the English language only.

Notice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 16, 1894.

The Examiners are hereby directed to withhold from issue the application of the prevailing party in interference cases for thirty days from the date of the final decision, in order that an appeal may be taken to the Circuit Court of Appeals for the District of Columbia, if desired.

JOHN S. SEYMOUR,
Commissioner.

Oaths of Applicants in Foreign Countries.

It is hereby directed that oaths accompanying applications for patents made within the following-named foreign countries must be taken before a minister, chargé d'affaires, consul, or commercial agent holding commission under the Government of the United States:

Austria-Hungary.
Argentine Republic.
Belgium.
Brazil.
Costa Rica.
Denmark.
Haiti.
Honduras.
Italy.
Mexico.
Netherlands.
Norway.
Peru.
Portugal.
Russia.
San Salvador.
Servia.
Sweden.
Switzerland.

Applications filed in this Office presenting oaths not executed in compliance with this order will be treated as incomplete.

Issue of June 26, 1894.

Patents	411	No. 521,775 to No. 522,185, inclusive.
Designs	10	No. 23,397 to No. 23,406, inclusive.
Trade-Marks	29	No. 24,909 to No. 24,937, inclusive.
Labels	None.	
Prints	None.	
Reissue	1	No. 11,423.
Total issue	451	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	.....	Nevada	1	.....
Arizona Territory	.....	.....	New Hampshire	6	.....
Arkansas	2	.....	New Jersey	16	1
California	12	.....	New York	66	9
Colorado	2	1	North Carolina	1	.....
Connecticut	10	1	North Dakota	2	.....
Delaware	.....	.....	Ohio	21	.....
District of Columbia	5	.....	Oklahoma Ter	.....	.....
Florida	.....	.....	Oregon	2	.....
Georgia	2	1	Pennsylvania	54	2
Idaho	.....	.....	Rhode Island	2	1
Illinois	31	2	South Carolina	1	.....
Indiana	13	.....	South Dakota	2	.....
Indian Territory	1	.....	Tennessee	2	.....
Iowa	3	.....	Texas	7	.....
Kansas	2	.....	Utah Territory	1	.....
Kentucky	2	.....	Vermont	.....	1
Louisiana	1	.....	Virginia	6	.....
Maine	2	.....	Washington	2	.....
Maryland	6	3	West Virginia	2	.....
Massachusetts	38	3	Wisconsin	11	.....
Michigan	20	.....	Wyoming	.....	.....
Minnesota	2	.....	U. S. Army	.....	.....
Mississippi	1	.....	U. S. Navy	.....	.....
Missouri	12	.....			
Montana	.....	.....	Total to citizens of the United States	375	25
Nebraska	2	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	.....	.....	Italy	.....	.....
Austria-Hungary	.....	.....	Mexico	.....	.....
Belgium	.....	1	Netherlands	.....	.....
Bermuda	.....	.....	New South Wales	1	.....
Brazil	.....	.....	New Zealand	.....	.....
Canada	4	.....	Porto Rico	1	.....
Chile, Republic of	.....	.....	Queensland	2	.....
Colombia	.....	.....	Russia	1	.....
Cuba	.....	.....	Scotland	3	1
Denmark	.....	.....	South Australia	.....	.....
Ecuador	.....	.....	Spain	.....	.....
England	13	.....	Sweden	1	.....
France	6	.....	Switzerland	.....	.....
Germany	14	2	Victoria	.....	.....
Hawaii	.....	.....			
India	.....	.....	Total to citizens of foreign countries	46	4
Ireland	.....	.....			

APPLICATIONS UNDER EXAMINATION.

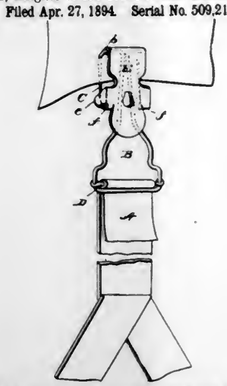
Condition at Close of Business June 19, 1894.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears.—Under one month.			
32	Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 22	June 11	116
16	Telegraphy, Telephony, Electric Lighting and Signaling.	May 21	June 11	79
31	Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	May 21	June 11	88
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	May 22	June 4	63
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	May 19	June 1	155
	Between one and two months.			
5	Fine Arts, Stationery, Book-Binding, Music, etc.	May 1	June 15	136
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Apr. 21	June 15	239
21	Textiles, etc.	Apr. 19	June 13	133
24	Sewing-Machines, Crinoline and Corsets, Apparel, and Toilet.	Apr. 23	June 11	162
8	Furniture, Beds, Store Furniture, etc.	Apr. 19	June 11	241
4	Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	May 9	June 10	169
2	Farm Stock, Products, etc	May 14	June 9	105
12	Mechanical Engineering, Store-Service, etc.	Apr. 23	June 9	214
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, Vegetable Cutters and Crushers.	Apr. 27	June 8	263
19	Stoves and Furnaces	May 15	June 7	203
26	Electricity, Generation, Distribution, Motive Power, etc.	Apr. 20	June 7	183
3	Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Apr. 28	June 6	131
13	Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Apr. 20	June 6	200
18	Steam-Engineering, etc	Apr. 20	June 5	232
1	Tillage and Fences	Apr. 19	June 5	279
7	Harvesters, Games and Toys, and Velocipedes.	May 14	June 4	273
6	Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Apr. 20	June 2	198
10	Carriages and Wagons	Apr. 19	May 29	238
17	Paper-Manufactures and Printing	Apr 25	May 28	195
22	Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Apr. 21	May 21	153
	Between two and three months.			
20	Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Mar. 24	June 12	257
23	Instruments of Precision, Acoustics, etc.	Mar. 31	June 11	275
34	Railway-Cars and Fluid-Pressure Railway-Brakes.	Mar. 26	June 6	307
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Mar. 19	May 15	308
30	Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, Optics, Electric Railways.	Mar. 22	Apr. 21	366
	Between three and four months.			
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Mar. 5	June 9	253
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Mar. 10	May 26	271
9	Hydraulics, Fire-Extinguishers, etc.	Mar. 8	May 17	538
	Total number of applications awaiting action			7,023
	Under one month in arrears.			
	Designs	June 12	June 13	47
	Trade-Marks	June 12	June 16	10

PATENTS

GRANTED JUNE 26, 1894.

521,775. GARMENT-SUPPORTER. GEORGE E. ADAMS, New Britain, Conn., assignor to the Traut & Hine Manufacturing Company, same place. Filed Apr. 27, 1894. Serial No. 509,213. (No model.)



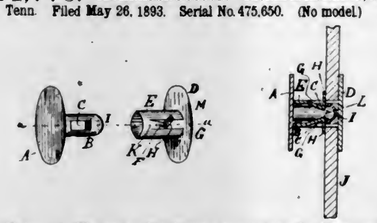
Claim.—1. In a supporter, the combination with the frame formed of wire with the depending loop for the attachment of the fabric, the ends of the wire being bent downwardly on the rear side of the frame forming hook pins, of the keeper hinged to and overlying the frame and the ears on the keeper projecting rearward of the frame and protecting the points of the hook pins when the keeper is closed against the frame; substantially as described.

2. In a supporter, the combination with the frame to which the webbing is attached having the downwardly projecting hook pins on the rear side at the upper end, of the keeper hinged on the front side of the frame and the upwardly projecting supplemental hooks carried thereby and cooperating with the downwardly projecting hook pins on the frame to prevent the escape of the fabric, and a fastener for holding the keeper closed; substantially as described.

3. In a supporter, the combination with the frame to which the webbing is attached having the downwardly projecting hook pins on the rear side at the upper end, of the keeper hinged on the front side of the frame, the ears on each side of the keeper covering the points of the hook pins when the keeper is closed and the supplemental reversely arranged hooks on the keeper for preventing the escape of the fabric; substantially as described.

4. In a supporter, the combination with the frame having its side pieces brought into proximity, of the keeper hinged to the frame, the headed projection on the keeper passing between the side pieces of the frame to hold the keeper closed and the cooperating members on the frame and keeper respectively, for attaching the device to the fabric; substantially as described.

521,776. SEPARABLE BUTTON. THOMAS E. ANDERSON, Jackson, Tenn. Filed May 26, 1893. Serial No. 475,650. (No model.)

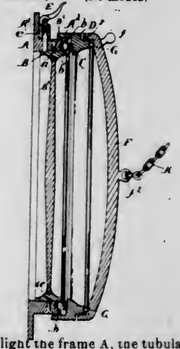


Claim.—1. The separable button consisting of a front and rear solid disk having centrally projecting rigid cylindrical tubes fitting into each other, the inner tube having apertures in its sides and the outer tube having oppositely located foot-shaped spring hooks moving in apertures in the sides of the tube and engaging with their inner and heel-shaped portion the apertures in the inner tube, while their outer or toe portions engage the cloth of the garment on both sides of the stem and hold it against the rear disk, substantially as shown and described and for the purpose set forth.

2. In a separable button, the combination of the solid disk A, the round-ended rigid tube B, having the oppositely located apertures C, with the solid disk D, having the larger tube E, provided with the slots G; the foot-shaped spring hooks F, secured to the front portion of the tube and having the heel-shaped curves L, for engaging the apertures C, in the tube B, and the outwardly projecting toes or arms H, for retaining the cloth in which the button is secured, against the rear disk of the button; said spring hooks being adapted to close inward to let the cloth pass over them, and then to be held outward by the inner tube in which they interlock and also being provided with the holes M, substantially as and for the purpose set forth.

3. In a separable button, and as an article of manufacture, the combination of the front disk A, having the stem B, provided with notches or apertures as C, with the rear disk D, having a tube as E, provided with spring hooks as F, H, for engaging the inner tube B, and the cloth in which the button is secured; said spring hooks being formed by punching out tongues in the sides of the tube and bending them into the shape shown substantially as set forth.

521,777. SIDE LIGHT. CHARLES ANDERSON, Detroit, Mich. Filed Dec. 14, 1893. Serial No. 493,710. (No model.)



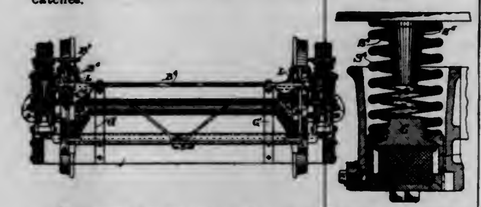
Claim.—1. In a side light the frame A, the tubular packing ring fitting a groove formed therein, said frame having external screw threads, a ring C bearing against the tubular packing ring and a ring D with interior threads engaging the threads on the frame, substantially as described.

2. In a side light, the frame having a horizontal flange externally threaded, a ring D having two horizontal flanges, one internally screw threaded and engaging the thread on the frame, the other flange externally threaded and a dead door F having a horizontal flange with internal threads to engage said external threads, and suitable packing interposed between the ring D and frame A, and dead door F and ring D, substantially as described.

521,778. RAILWAY-CAR TRUCK. NORMAN C. BASSETT, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Apr. 20, 1891. Serial No. 389,566. (No model.)

Claim.—1. The combination of a motor truck frame having side bars with pedestals thereon, axle boxes with side lugs, springs interposed between the side bars and side lugs, removable supports for said springs and means for clamping said supports in place.

2. A spring box for supporting car bodies, having an open bottom provided with catches and a bottom plate engaging with such catches.



3. A spring box for supporting car bodies having a removable bottom plate engaging in and closing the lower end of said box, and forming a support for the car spring.

4. A spring box for supporting car body springs, having an open bottom, a bottom plate engaging therewith by a rotary interlocking joint, and a supplementary lock to prevent rotation of the bottom plate.

5. The combination of the open bottom spring box having grooves and projections, a bottom plate having lugs entering the grooves and engaging with the projections, and a locking screw substantially as and for the purpose set forth.

6. The combination of the spring box, the car springs, the stud on the car body, and the cushion independent of said springs and arranged to take the impact of said stud.

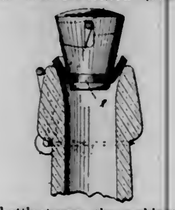
7. The combination of the stud on the car body, the spring box, the spring, the sleeve supporting the spring from the bottom of the box, and the cushion and cap within said sleeve, and independently supported on the said bottom.

8. The combination of the stud on the car body, the flaring spring box, and the spring interposed between the stud and the box.

9. The combination of the tapering stud on the car body, the flaring spring box, and the spring interposed between the stud and the box.

10. The combination of the stud on the car body, the spring box supported on the truck frame, the cushion for taking the impact of said stud, and the car spring supported independently of said cushion, and interposed between the said stud and spring box.

521,779. BOTTLE-STOPPER. BENJAMIN BOLEY, Brooklyn, N. Y. Filed Oct. 23, 1893. Serial No. 488,964. (No model.)



Claim.—1. In a bottle stopper, the combination of a part adapted to be stationarily secured to the bottle neck, a plug having an upwardly elongated or slotted aperture transversely therethrough, a bail passed through said aperture, and an operative connection between said bail and stationary part for drawing the bail, and with it the plug, down toward said stationary part, the width of said aperture, transverse to its direction of elongation, being substantially that of the bail, whereby the bail is restricted to an up and down movement in said aperture, substantially as described.

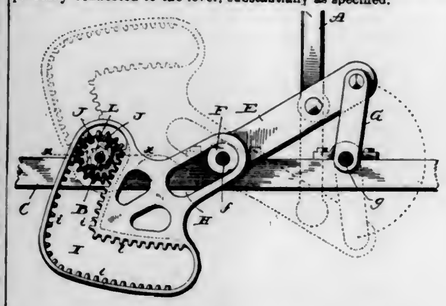
2. In a bottle stopper, the combination of a plug having an elongated or slotted aperture whereof one end is located in a diametral plane of said plug, a bail passed through said slot, and means, adapted to be secured to the bottle neck, for drawing the bail bodily downward thereto, substantially as described.

3 In a bottle stopper, the combination of a plug having an elongated or slotted aperture whereof both ends are located in a diametral plane of said plug, a bail passed through said slot, and means, adapted to be secured to the bottle neck, for drawing the bail bodily downward thereto, substantially as described.

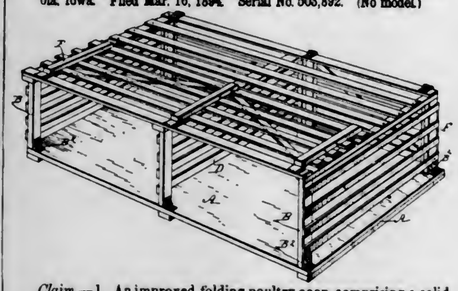
521,780. MECHANICAL MOVEMENT. JOSEPH C. BUTLER, New Providence, Iowa. Filed Sept. 23, 1893. Serial No. 486,341. (No model.)

Claim.—1. In a mechanical movement, in combination, a reciprocating part, a shaft to be rotated thereby, gear wheels loosely mounted on said shaft, means to clutch them thereto alternately, a lever having curved rack bars meshing with said wheels and to which said reciprocating part is connected, a pivot for said lever away from said shaft and means to move the lever longitudinally as it is vibrated by said part, substantially as specified.

2. In a mechanical movement, in combination, a reciprocating part a shaft to be rotated thereby, gear wheels loosely mounted on said shaft, means to clutch them thereto alternately, a lever having curved rack bars at one end meshing with said wheels and connected to said reciprocating part near its other end, a pivot for the lever between its ends over which it is adapted to slide, and a pivoted bar pivotally connected to the lever, substantially as specified.



521,781. FOLDING POULTRY-COOP. ISAAC T. CARTER, Indianola, Iowa. Filed Mar. 16, 1894. Serial No. 503,892. (No model.)



Claim.—1. An improved folding poultry coop, comprising a solid bottom piece, two end pieces each composed of two square ended uprights and slats fixed thereto and placed on the said bottom with said uprights resting thereupon, hinges secured to the bottom and said uprights, all in the same side, a top composed of two cross pieces placed upon said uprights, slats fixed to said cross pieces, hinges connecting the uprights and said cross pieces on the opposite side of the uprights from the aforesaid hinges and two side pieces each composed of two or more square ended uprights, slats fixed to the uprights, and hinges for connecting the uprights with the top of the crate and allowing them to swing downwardly with said uprights engaging the top and bottom of the crate with their ends and the end uprights with their sides, to thoroughly brace the crate, substantially as and for the purposes stated.

2. An improved folding poultry coop comprising a solid bottom piece, two end pieces and a central partition each composed of two or more square ended uprights, slats fixed thereto placed on said bottom with said uprights resting thereon, hinges secured to the bottom and to said uprights all in the same side, a top composed of three cross pieces and slats fixed thereto, said cross pieces resting upon said uprights, hinges connecting the uprights with the said cross pieces and on the opposite side thereof from the aforesaid hinges two side pieces each composed of three uprights having square ends, and slats fixed thereto, hinges for connecting the said uprights with the crate top to allow them to swing downwardly with their square ends resting upon the crate bottom and the under side of the crate top and their sides engaging the said uprights fixed to the bottom or be capable of swinging upwardly to lie on top of the crate, substantially as and for the purposes stated.

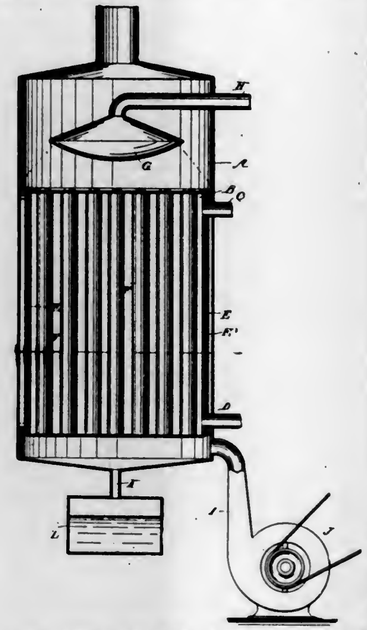
521,782. HITCHING DEVICE FOR STOCK. SAMUEL F. CLARK, Oil City, Pa. Filed Oct. 10, 1893. Serial No. 487,743. (No model.)

Claim.—The combination with a manger or like hitching station having an opening formed therein, of a plate secured thereto, said plate having a countersunk opening coinciding with said first mentioned opening, and a groove in the periphery of said countersunk opening, a cover hinged on one side of said plate constructed to

fit within said countersunk opening, said cover having a groove formed in the edge thereof coinciding with said first mentioned groove, substantially as and for the purposes set forth.



521,783. CONDENSER. CARY S. COX, Spottiswood, assignor to himself, and Hugh A. Blodget, Bakersfield, Cal. Filed Aug. 2, 1893. Serial No. 482,172. (No model.)



Claim.—1. A condenser comprising a steam drum, a series of tubes passing through the heads of the drum and lined with water-absorbent fabric, and a means for holding such lining in place, as shown and described

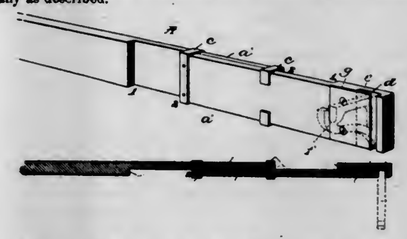
2. A condenser, comprising a steam drum, and a series of tubes connecting the heads of the said drum with each other, each tube being lined at its inside with water evaporating fabric, and a perforated metal sheet or covering for the said fabric within the tube, substantially as shown and described.

3. A condenser comprising a shell through which air circulates, a drum contained within the said shell and provided with a steam inlet pipe, and a water outlet pipe, a series of tubes connecting the heads of the drum with each other, each tube being lined at its inner surface with a water evaporating fabric, and a water sprinkler arranged within the said shell above the upper head of the said drum, substantially as shown and described.

521,784. WINDOW-SHADE HOLDER. ABRAHAM B. DUNKLE, Steelton, Pa. Filed Dec. 31, 1892. Serial No. 456,930. (No model.)

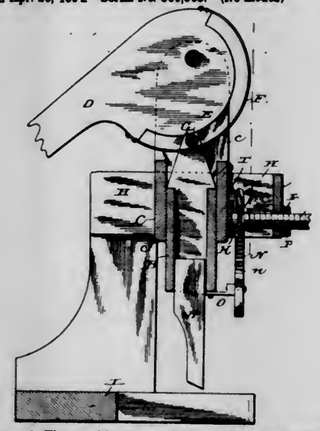
Claim.—1. A support for brackets and the like comprising a strip provided with a groove formed therein, the sides of said groove from the back to the front lying in the same line, and a separate plate fitting partly over said groove; substantially as described.

2. A support for brackets and the like comprising a strip provided with a groove formed therein and extending to the lower edge thereof, and a separate plate fitting partly over said groove; substantially as described.



3. A support for brackets and the like comprising a strip provided with a groove formed therein and extending to the lower edge thereof, and a separate angle plate fitting partly over the face of said groove and extending beneath the same whereby the bracket is held in place; substantially as described.

521,785. MACHINE FOR CUTTING METAL BARS, &c. WILBUR F. EVERETT, Reno, assignor to Daniel Miller Bull, Verdi, Nev. Filed Apr. 23, 1894. Serial No. 509,363. (No model.)



Claim.—1. The combination with the guide-way or rails H H and cross piece L, of the carriage or block C movable on said guide-way, lever D having cam E and strip F, tool holder B reciprocable on carriage C and having anti-friction roller G journaled thereto and between cam E and strip F, feed screw J having one end rotatably secured to carriage C and the other engaging a threaded nut on the cross piece, the said nut, ratchet wheel M rigidly secured to screw J, and a pawl N connected with tool holder B and adapted to engage the wheel M, all substantially as shown and described.

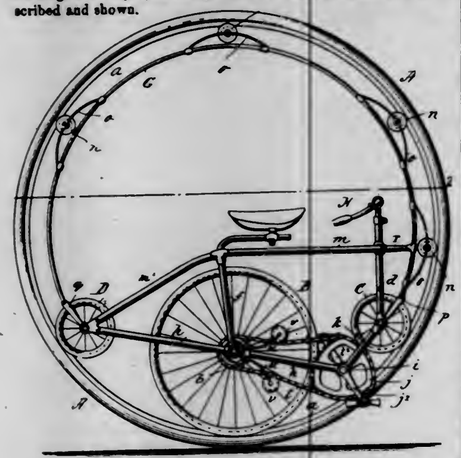
2. The combination with the guide-way or rails H H and cross piece L, of the carriage or block C movable on said guide-way, tool holder B reciprocable on carriage C, feed screw J having one end rotatably secured to the carriage and the other engaging a threaded nut on cross piece L, the said nut composed of separable parts, means for opening said parts and also for securing them together, ratchet wheel M rigidly secured to screw J, and a pawl N connected with tool holder B adapted to engage wheel M, all substantially as shown and described.

3. In combination, a guide-way, a carriage or block C movable on said guide-way, a reciprocating tool holder B, feed screw J rotatably secured to said carriage, ratchet wheel M rigidly secured to screw J, and a pawl N having a series of teeth *n* to engage wheel M extending a distance about that of the maximum stroke of the tool holder, substantially as shown and for the purpose set forth.

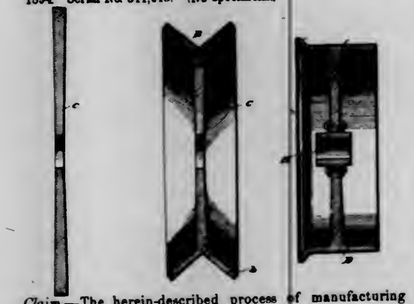
521,786. MONOCYCLE. JOHN W. FINCH, Northampton, Mass. Filed May 31, 1893. Serial No. 476,063. (No model.)

Claim.—In a velocipede, the combination with the great wheel, A, with the internal track-flange, *a*, of the grooved wheel, B, and the forward and rearward grooved wheels, C, D, all running peripherally on said track-flange, and said wheel, B, having a sprocket wheel

thereon, the upright forks, *d*, and *f*, for wheels, B, C, the paired side members, A, A, running from the said rear wheel to and in advance of the wheel, B, forming the bearings therefor and supporting in advance thereof a sprocket-wheel and pedal crank, the forwardly and upwardly extended members, *k*, *k*, having connection with the said fork, *d*, and members, *h*, the upper frame members, *m* and m^3, the chain and the brace, G, arching the frame and having the fork extremities which are connected to the bearing support of the front and rear wheels, C and D, and the forward brace, *r*, connecting the head frame of the machine and said brace, G, above the front brace-fork, and the grooved rolls, *n*, *n*, supported by said arching brace and running internally upon the great wheel track, substantially as described and shown.



521,787. PROCESS OF MANUFACTURING CAR-WHEELS. ANDREW J. FISHER, Buda, Ill. Filed June 4, 1892. Renewed May 17, 1894. Serial No. 511,615. (No specimens.)



Claim.—The herein-described process of manufacturing car wheels, which consists in splitting a circular blank disk edgewise, during rotation, by cutting into the circumference thereof, and finally spreading out the separate split portions, during the rotation of the disk, under a die pressure, substantially as set forth.

521,788. CLOSURE FOR BOTTLES. ROBERT FLANIGAN, Baltimore, Md., assignor of one-half to J. S. Detrick, same place. Filed Dec. 14, 1893. Serial No. 493,648. (No model.)



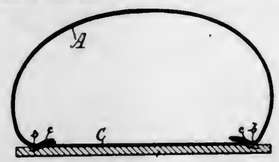
Claim.—1. The combination with the bottle having the under-cut near its mouth, of the integral metallic cap having the downwardly extending flange fitting around the bottle mouth, and turned back upon itself at its lower edge to form a hollow bead, rounded on its inner surface, cooperating with the undercut in the bottle, and the sealing disk within the cap; substantially as described.

2. The combination with the bottle having the under-cut near its mouth of the integral cap having the downwardly extending flange, fitting around the bottle mouth with the inwardly beaded lower edge cooperating with the under-cut on the bottle, the upwardly extending edge of said beaded portion being turned out, into proximity to, but not in contact with the inner surface of the body of the flange, and the sealing disk in said cap; substantially as described.

3. A closure for bottles consisting of the integral cap having the downwardly extending flange formed with a hollow bead at its lower edge, the beaded portion formed with a rounded inner surface and being slitted vertically to provide for a greater range of elasticity and the sealing disk within said cap; substantially as described.

4. A closure for bottles consisting of the integral, metallic cap having the downwardly extending flange with the inwardly beaded lower edge, the upwardly extending edge of said beaded portion being turned out into proximity to, but not in contact with, the surface of the body of the flange; substantially as described.

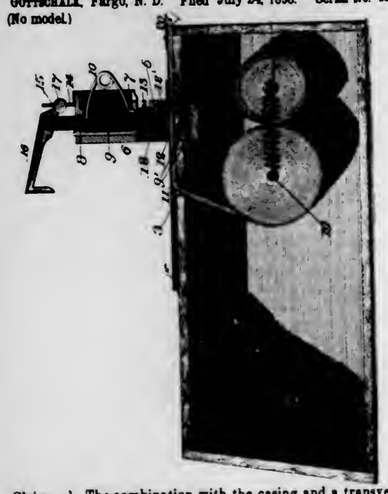
521,789. SHOE. EDWIN L. GODING, Portland, Me., assignor to the Holdfast Sole Stay Company, same place. Filed Feb. 9, 1894. Serial No. 499,619. (No model.)



Claim.—1. The process of making turned shoes consisting of placing the sole on the last, lasting the upper and drawing its edge over the edge of the sole and stitching it thereto, leaving an inward projecting edge to the upper, applying a stay piece to the outer face of the sole across the ball and stitching it to the said inward projecting edge on each side of the shoe, and finally turning the shoe.

2. The herein described turned shoe having the upper stitched to a leaf in the upper side of the sole by a row of stitches and having a flexible stay piece capable of being turned with the shoe, extending across the ball of the shoe and stitched to the edges of the upper inside said row of stitches forming a seam on the inside of the shoe.

521,790. CASH-RECEIPTS-RECORDING APPARATUS. CHARLES GOTTSCHALK, Fargo, N. D. Filed July 24, 1893. Serial No. 481,318. (No model.)



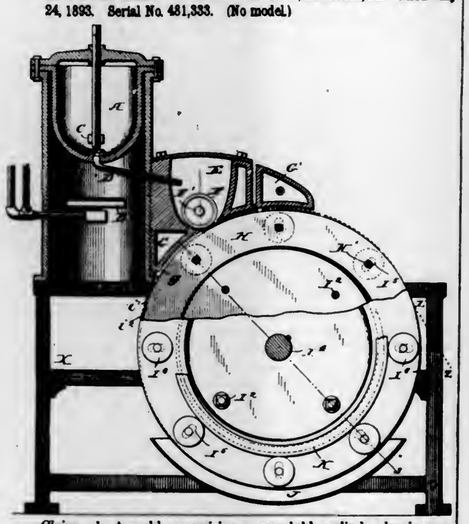
Claim.—1. The combination with the casing and a transversely sliding bank of vertically reciprocating punches on its upper side, of the supply roller within the casing and from which under the punches extend the several strips, the casing being provided with an opening for the return of the lowermost strip, a spring pressed storage roller in the casing parallel with the supply roller, and movable toward it; the paper on the two rolls being in direct contact; whereby as the supply roll is unwound it will act on and wind the storage roll.

2. The combination with the casing having a supply roll journaled therein, slots in the sides of the casing extending toward the said roll, a storage roll journaled in said slots, springs forcing the storage roll toward the supply roll to bring the two rolls of paper in direct contact, a slot above the supply roll, a passage for the strips of paper along the top of the casing, a second slot in the top of the casing over the storage roll communicating with said passage for the return of the lowermost strip from the supply roll, a die plate sliding transversely across the table beneath the said passage and in line with a slot 12 in the upper side thereof, a bank of punches connected with said die plate and extending across the upper side of the casing over the slot 12, substantially as herein described.

3. An apparatus of the character described comprising the casing 1, having a guide forming slot 3 across its top, and paper receiving slots 1^a 1^b at opposite sides thereof, a supply roll in the receptacle from which several strips of paper are led through slot 1^a and passage 11^a with the lowermost strip returned through slot 1^b to the storage roll, the transverse bar 4, sliding in the slot 3 and carrying the die plate 9′ under the passage 11^a, and the bank of punches also carried by the plate 4 above said passage way; the punching mechanism sliding at right angles to the direction of movement of the paper, substantially as herein described.

4. In an apparatus of the character described the casing 1, having slots 1^a 1^b, and a longitudinal passageway 11^a along its upper side over said slots, and the cutter hinged to the outer edge of the upper side or cover plate 11 of said passageway, in combination with the supply roll 19 in the casing from which several strips extending through slot 1^a and passage 11^a past said knife, the lowermost strip being returned through slot 1^b, and the storage roll 20′ on which the latter strip is wound by coming in direct contact with the paper being unwound from the supply roll; the storage roll being spring pressed and movable toward the and from the supply roll to compensate for the change in the diameters of said rollers, substantially as herein described.

521,791. MACHINE FOR MAKING STORAGE-BATTERY GRIDS OF FORCED LEAD. WILLIAM W. GRISCOM, Haverford, Pa. Filed July 24, 1893. Serial No. 481,333. (No model.)



Claim.—1. A mold comprising a revoluble cylinder having recesses extending around its periphery and provided with eccentric ejectors, rotating with the mold, substantially as described.

2. A mold comprising a revoluble cylinder having circumferential and transverse recesses in its periphery, one deeper than the other, and provided with ejectors forming the bottoms of the deepest recesses and means for moving said ejectors outward during the rotation of the cylinder, substantially as described.

3. A revoluble mold cylinder having ridges or flanges provided with teeth and annular recesses between the ridges or flanges and movable rings eccentrically mounted in said recesses, forming a portion of the molding surface and acting as ejectors, and turning with the cylinder on an axis eccentric thereto, substantially as described.

4. The combination with the revolving cylinder having annular recesses, of rings eccentrically mounted in the recesses and turning with the cylinder on an axis eccentric thereto, substantially as described.

5. The combination with the revolving cylinder having annular recesses in its periphery, of rings eccentrically mounted in said recesses, turning with the cylinder on an axis eccentric thereto rods connecting the rings and extending through slots in the mold and an eccentric cam supporting the rods, substantially as described.

6. The combination with the revolving cylinder composed of disks having projecting teeth and smaller disks interposed between the toothed disks and leaving annular grooves in the periphery of the cylinder, of rings eccentrically mounted in the grooves and connected to rotate with the cylinder and means for moving the rings radially to the cylinder, substantially as described.

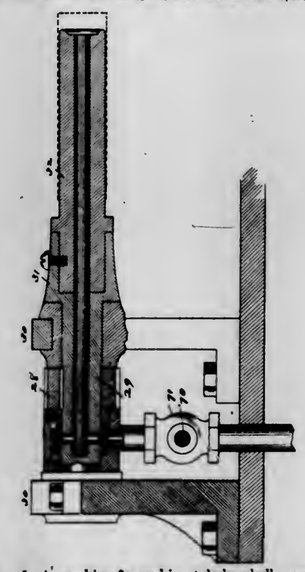
7. The combination with a revolving cylinder having annular grooves in its periphery, of a chill having detachable pieces fitting the grooves of the cylinder, substantially as described.

8. The combination with a revolving cylinder having annular grooves in its periphery, of rings eccentrically mounted in said grooves, turning with the cylinder on an axis eccentric thereto a reservoir arranged to supply metal for the cylinder, and a chill, having pieces connected therewith and extended into the grooves of the cylinder, substantially as described.

9. The combination with a revolving cylinder having grooves in its periphery, of rings eccentrically mounted in said grooves, turning with the cylinder on an axis eccentric thereto a reservoir to contain the metal, and means for forcing the metal into the cylinder, substantially as described.

10. The combination with the revolving cylinder having annular grooves in its periphery, of rings eccentrically mounted in the grooves, devices connecting the rings with the cylinder so that they will rotate therewith, means for moving the rings radially to the cylinder, the reservoir for the metal and chills arranged with relation to the reservoir, the construction being such that the eccentric rings form a portion of the mold, and act as ejectors of the molded article, substantially as described.

521,792. MACHINE FOR MAKING TUBULAR CASINGS. EDWARD M. HARRINGTON, Miller, Ind., assignor of one-half to William B. Lewis, Chicago, Ill. Filed May 25, 1893. Serial No. 475,419. (No model.)



Claim.—1. A machine for making tubular shells, comprising in combination a rotatable hollow mandrel, mechanism whereby blanks of material are successively presented to the mandrel, means for securing the blanks to the mandrel, means for crimping one end of the shell upon the mandrel, and means whereby air under pressure is admitted to the hollow of the mandrel to discharge the shell, substantially as described.

2. A machine for making tubular shells, having a revoluble hollow mandrel, said mandrel having a longitudinal slit to receive the edge of a blank of material whereby the material is caused to be wound around the tube upon the mandrel, a crimper to close one end of the tube and means whereby air under pressure is admitted to the hollow of the mandrel to remove the tube therefrom, substantially as described.

3. In a machine for making tubular shells, the combination with a revolving mandrel and means for winding a blank about the man-

drel to form a hollow shell with one of its ends projecting beyond the mandrel, of a crimper for crimping or folding the projecting end of the shell, comprising a crimper arm pivoted at its outer end and having a series of rigid crimping fingers thereon adapted to engage the projecting end of the shell and crimp it, and means for rocking the said crimper upon its pivot, substantially as described.

4. In a machine for making tubular shells, the combination with a rotatable mandrel slotted to receive the edge of a blank, a pivoted crimper having rigid crimping fingers and a pivoted plunger normally supported out of line with the mandrel, means for rocking the crimper upon its pivot, means for moving the plunger into line with the mandrel and for reciprocating the plunger whereby to impinge it upon the outer side of the crimps or folds and compress them against the end of the mandrel, and means for discharging the finished tube from the mandrel, substantially as described.

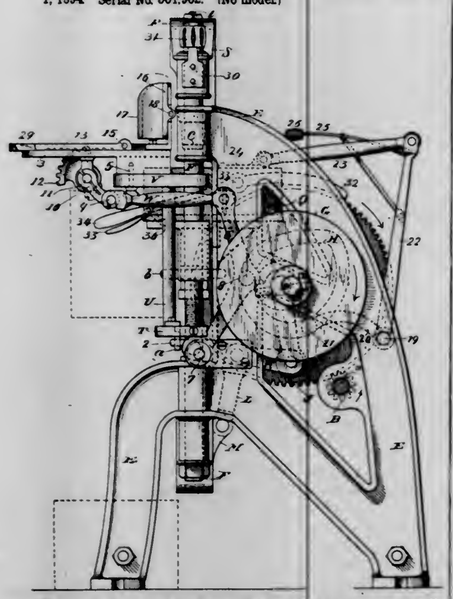
5. A machine for making tubular shells having a rotatable mandrel provided with a slit to receive the edge of a blank of material and means for rotating the mandrel with the engaged blank to form a tube, a crimper adapted to close one end of the tube, a plunger and a pressure cylinder into which one end of the plunger is projected, said plunger and cylinder being pivotally mounted and adapted to be moved into line with the mandrel, and means for admitting air under pressure into the cylinder behind the plunger whereby the plunger is caused to impinge the crimped end of the shell, substantially as described.

6. In a machine of the class described, the combination with a revoluble hollow mandrel having a longitudinal slit whereby to secure material therewith, feed mechanism, clamping jaws, crimper, plunger, means whereby air under pressure is caused to operate the plunger, and means for admitting compressed air to the mandrel to discharge the shell, substantially as described.

7. A machine for forming shells or tubes from flat blanks, comprising in combination the following instrumentalities; a rotatable mandrel, means for feeding the blanks to the mandrel, means for securing the margin of the blank to the mandrel, means for crimping or folding an end of the shell which is projected beyond the mandrel, and pneumatic means for discharging the shell, substantially as described.

8. In a machine of the class described, the combination with a hollow revolving mandrel and means for securing the margin of a blank to and winding it about the mandrel into the form of a tubular shell, means for closing one end of the tube and means for admitting air under pressure to the hollow of the mandrel whereby to discharge the shell, substantially as described.

521,793. SOLE-CUTTING MACHINE. JOHN J. HEYS, Lynn, Mass., assignor of one-half to Maurice V. Bresnehan, same place. Filed Mar. 1, 1894. Serial No. 501,902. (No model.)



Claim.—1. In a machine for cutting out shoe soles, a cutting die *c*, formed with slots *g*, *g* at its respective ends, and slots *f*, *f* in its respective sides, in combination with girt S formed with longitudinal rib *e*, *e* and transverse rib *d* respectively constructed and arranged to fit the said slots in said cutting die, and means as brackets A formed with pins *i* to fit in holes *j* in said die, whereby said die can be quickly and accurately adjusted and secured upon its girt S, as specified.

2. In a machine for automatically feeding and cutting out shoe soles, a rotary cutting block arranged below the cutting die, a clearer arranged to rest on said block and means substantially as described to slide said clearer across said block after the cutting of the respective soles thereon, substantially as specified.

3. In a machine for cutting out shoe soles, a cutting die provided with means for its speedy and certain adjustment as specified, a rotary cutting block in combination with an automatic clearer resting and acting upon the top surface of said block, substantially as specified.

4. In a machine for cutting out shoe soles, a fixed table having a horizontal reciprocating slide arranged therein, a rotary cutting block arranged to be vertically reciprocated from a practical level of said slide to below the same and vice versa, with means to maintain said slide at rest while the block is reciprocated in part of its movement, and a cutting die arranged above said cutting block, substantially as specified.

5. In a machine for cutting out shoe soles the combination of a horizontal cutting block provided with means to intermittently rotate the same, and also provided with means by which it is vertically reciprocated; a cutting die arranged above said cutting block, and a guard arranged in front of said cutting die to prevent the mutilation of the hands of the operator, substantially as specified.

6. In a sole cutting machine, the combination of crank shaft D duly rotated, the pitman J connected with crank I and lever K, said lever, its pivoted fulcrum L, rod N to which lever K is pivoted, block Q seated on girt P, and an adjusting nut by which to adjust the height of said block, substantially as specified.

7. In a sole cutting machine the combination of shaft 19 the upright arm 22 arranged thereon, arm 20 with trundle 21 in the end of arm 20 and arranged to move in cam groove H, the connector 23 carried by upright 22 and clearer 24 arranged upon and adapted to clear the upper face of block Q as it is reciprocated, substantially as specified.

8. In combination with trundle 21 arm 20, upright 22 and arm 25, the buffer 26 arranged to engage block Q and slightly rotate the same at the descent thereof, substantially as specified.

9. In a sole cutting machine the combination of cam wheel G, lever 6 arranged to be actuated by said wheel, connector W engaged with pin 9, crank 10, rock shaft 11, segmental gear 12 and rack 13 to actuate feeder 29, all substantially as specified.

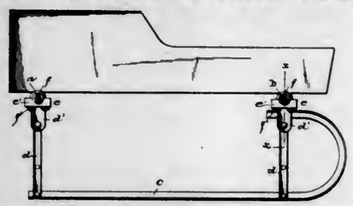
10. In a sole cutting machine and in combination with a rotary block Q arranged to be vertically reciprocated by the rotary motion of shaft D, the reciprocating feeder 28 moving at right angles to said shaft, as described, with intermediate connecting mechanism whereby the rotation of shaft D will reciprocate feeder 28, in conjunction with the motion imparted to said cutting block, substantially as specified.

11. In a sole cutting machine and in combination with vertically reciprocating block Q mounted on rod N the vertically moving girt T, provided with elongated hole *q* and the pin 2, projecting from rod N and engaging in said hole, whereby block Q will rise a portion of its distance before girt T is moved upward, substantially as specified.

12. In a sole trimming machine the combination of reciprocating slide 28, and the adjustable end pieces 14, arranged to be moved in adjustment by screw 15, substantially as specified.

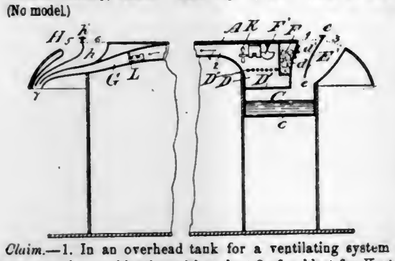
13. In combination with girt S formed with longitudinal ribs *e* and transverse ribs *d*, the die *c* formed with recesses *f* for reception of rib *d* and recesses *g* to receive ribs *e*, whereby said die may at all times be correctly positioned in the manner specified.

521,794. SLEIGH-RUNNER ATTACHMENT. HENRY J. HOWARD, Paris, Ill. Filed Feb. 7, 1894. Serial No. 499,409. (No model.)



Claim.—In a vehicle, the combination of the axles, a horizontal bar for each end of the axles and adapted to be rigidly secured to the under side thereof, said bars having on their lower side two downwardly-depending lugs, brace-rods connected to the lugs and depending downwardly therefrom, runners to which the lower ends of said brace-rods are rigidly connected, and two clip-blocks secured one to the under side of each of the bars on the front axle, the front ends of the runners being bent upwardly to their respective clip-blocks and adapted to be clamped to the front axle by such means, whereby the runners are removably secured to the axles, substantially as described.

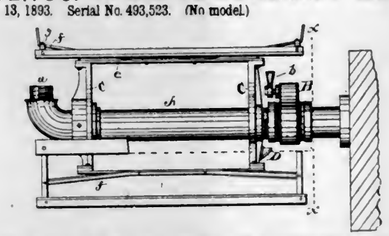
521,795. VENTILATING RAILWAY-CARRIAGES. SAMUEL HUGHES, Lindsay, Canada. Filed Sept. 8, 1893. Serial No. 485,057. (No model.)



Claim.—1. In an overhead tank for a ventilating system for railway cars, the combination with a duct 2 of a blast fan K at its junction with the uptake, an uptake D joining said duct to the top of a tank, an injector E joined to the front of said uptake, a tank C having openings in said injector and uptake, an ice box F secured to the partition between said injector and uptake, a door *d'* in said partition and a movable top on the mouth of said injector substantially as set forth.

2. In a ventilating system for railway carriages, the combination with the exhaust ducts G, of an exhaust or ejector at each end thereof and an electric suction fan near each ejector and within said duct, substantially as set forth.

521,796. HOSE-REEL. JAMES B. HUNTER, Cato, N. Y. Filed Dec. 13, 1893. Serial No. 493,523. (No model.)



Claim.—1. A hose-reel comprising the combination with the main-pipe, of brackets journaled thereon and having their extremities connected by cross pieces, springs mounted upon said cross-pieces, curved arms secured upon the free ends of said springs, cross-bars connecting the ends of said arms, a valve in said pipe and means for operating it, and means for connecting the hose to the reel and to said pipe.

2. In a hose-reel, the combination with the main pipe, brackets journaled thereon, cross-pieces connecting their extremities, springs upon said cross-pieces, curved arms transverse to the free ends of said springs, and cross-bars connecting the ends of said arms, in combination with a spring pawl mounted upon said bracket, and a valve in said pipe adapted to be operated by said pawl when the reel is rotated.

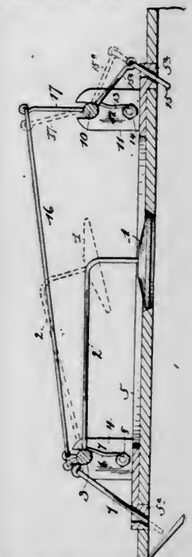
521,797. LAMPBLACK OR CARBON-BLACK MACHINE. JOHN E. JAMES, Worthington, Pa., assignor of one-half to John M. Williams, same place. Filed Mar. 23, 1894. Serial No. 504,771. (No model.)

Claim.—1. In a lamp-black or carbon-black machine, the combination of the collecting plate, having an air-vent opening, a valve or damper for governing said opening and means controlled by the scraper or brush for automatically raising said valve or damper, substantially as described.

2. In a lamp-black or carbon-black machine, the combination of the collecting plate having an air-vent opening, a valve or damper for governing said opening, and means controlled by the scraper for automatically raising said valve and means also controlled by said scraper or brush for automatically lowering said valve or damper, substantially as set forth.

3. The combination of the collecting plate a valve or damper for the vent opening therein, a rock-shaft connected to said damper or valve, and an arm connected to said rock-shaft and depending through the plate of a lamp-black or carbon-black machine, and means for actuating said arm, substantially as set forth.

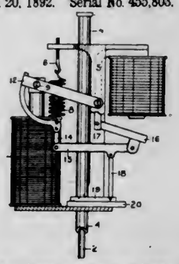
4. The combination of the collecting plate a valve or damper for the vent opening therein, rock-shafts connected together and one carrying said valve or damper, and arms, one connected to each rock-shaft and depending in the path of the scraper, brush or other device for removing the lamp-black or carbon-black deposits, substantially as set forth.



5. In a valve or damper actuating device, the combination, with the collecting plate and rock-shaft carrying the valve or damper for the vent opening in said plate, of the friction retaining device, having a pivoted hook or latch hooked over the journal of the said shaft and means for operating the damper, substantially as set forth.

6. In a valve or damper actuating device, the combination, with the collecting plate having a vent-opening, of the base having the studs, 5^a, entering openings in the said plate, and the arms, 9 and 15, of said damper actuating mechanism, passing through said studs, and means for operating the damper, substantially as set forth.

521,798. ELECTRIC-ARC LAMP. S. P. JOHNSON, Schenectady, N. Y. Filed Dec. 20, 1892. Serial No. 455,803. (No model.)

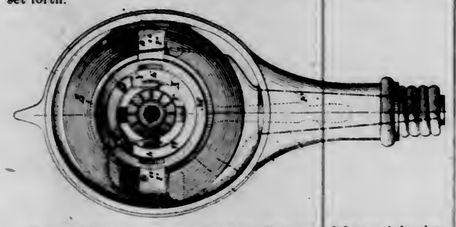


Claim.—In an arc lamp an arm or lever 12 actuated by the shunt spools 13, a second lever 15 linked to said arm 12 at one end, the other end of the second lever 15 actuated by the series spool 11 in combination with a clutch 19 linked to the lever 15 near its center as described.

521,799. ELECTRIC MOTOR. JOSEPH LEE, Brooklyn, N. Y. Filed Aug. 2, 1893. Serial No. 482,168. (No model.)

Claim.—1. In an electric motor or dynamo, the central frame A having the interior curved electro magnets O, P, and the removable caps B, C, fitting the opposite sides of and closing said frame, combined with the ring speed regulator M about equal to the width of said electro-magnets and having the exposed switch handle *d*, the armature L inclosed within said regulator M, and the inclosed commutator and brushes: substantially as and for the purposes set forth.

2. In an electric motor or dynamo, the elongated electro-magnets having the cores and curved facing flanges, combined with the revoluble ring speed regulator M in the magnetic field and having at its opposite sides the grooves *a*, *a*, and plates *b*, *b'*, the revoluble armature L within said regulator, the commutator and brushes, and the inclosing frame of the motor; substantially as and for the purposes set forth.



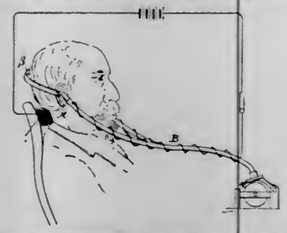
3. In an electric motor or dynamo, the central frame A having the interior curved cores R, R', and facing flanges S, S', extending toward but not meeting each other, and the conductor on said cores, combined with the revoluble armature L within the circle of the electro magnets, the commutator and brushes, and the hollow caps B, C, fitting the opposite sides of said central frame A and inclosing the operative parts; substantially as and for the purposes set forth.

4. In an electric motor or dynamo, the elongated electro magnets having the cores and curved facing flanges, combined with the hollow speed regulator in the magnetic field, the revoluble armature within said regulator, the commutator and brushes, the conductor being wound around from the obverse to the reverse face of one of said cores and from the reverse to the obverse face of the other of said cores; substantially as set forth.

5. In an electric motor or dynamo, the frame consisting of the central portion A and removable caps B, C, said portion A having the interior elongated curved facing electro magnets and the downwardly extending neck D, combined with the revoluble armature within the circle of the electro-magnets, the commutator and brushes, and the contacts for the supply current at the lower end of said neck; substantially as set forth.

6. In an electric motor or dynamo, the frame consisting of the central cast metal portion A and removable caps or faces B, C, said portion A having the exterior flanges Q, the elongated electro magnet cores and curved facing flanges, and the downwardly extending neck D receiving the conductors, combined with the revoluble armature within the circle of the magnets, and the commutator and brushes; substantially as set forth.

521,800. SOUND-CONDUCTING APPARATUS. GEORGE A. LEECH, New York, N. Y. Filed Aug. 19, 1893. Serial No. 483,571. (No model.)



Claim.—1. The combination, with a phonograph or other variable sound producing instrument, of ear tubes leading therefrom, an electric circuit, an electrode thereof connected to one of the ear pieces of said tubes and the other electrode connected to a suitable support, whereby the sound effect may be augmented by the simultaneous effect of the electric current, as and for the purpose described.

2. The combination with a phonograph or other variable sound producing instrument, of ear tubes leading therefrom, and terminating in resonators fitted to the ears, and an electric circuit the electrodes of which are attached to the resonators and to a suitable support respectively, as and for the purpose set forth.

3. The combination with a variable sound producing instrument, of a resonator constructed to fit over the ear and consisting of a hollow body curved to correspond with a reverse impression of the human ear, and a tube leading into said resonator at the same relative location and angle as that of the external meatus of the ear, as and for the purpose set forth.

4. In apparatus for the treatment of the deaf, the resonator having curves complementary to those of the ear, and adapted to be secured thereto, of an electrode attached thereto, substantially as described.

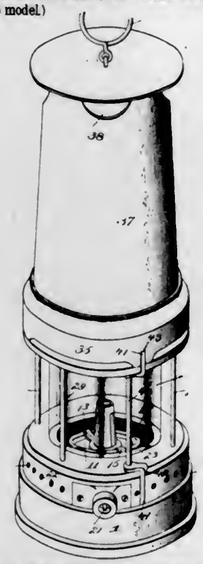
5. The process of treatment for deafness, consisting in mechanically agitating the parts of the tympanum, and simultaneously stimulating the vibratory connections of said parts, by the passage of an electric current, as and for the purpose described.

6. In the treatment of the deaf, the process of removing false tissues consisting in mechanically stimulating the vibratory connections of the middle ear, and simultaneously producing electrolysis therein, substantially as described.

7. In apparatus for treatment of the deaf, the combination of the following instrumentalities, the sound producer, the sound conducting tubes, the ear resonator, the ear electrode, a battery, and the chair or other support carrying another electrode, said electrodes being connected to the terminals of said battery, substantially as described.

8. The combination, with a variable sound producing instrument, of resonators constructed to fit over the ears, a spring connecting them to hold them in place, short flexible tubes leading from the resonators, and adapted to receive the ordinary ear pieces, substantially as shown and described.

521,801. SAFETY-LAMP. THOMAS LOWTHER, HUGH TOAL, and ROBERT HAY, Mount Pleasant, Pa. Filed Nov. 28, 1893. Serial No. 492,300. (No model.)



Claim.—1. In a safety-lamp, the combination with a reservoir-cap, a burner carried thereby, a base-ring removably secured to the reservoir-cap, a cap-ring spaced from and connected to the base-ring, a chimney interposed between the planes of the base-ring and the cap-ring, a crown ring supporting a ventilator, and a half-thread and lug connection between the crown-ring and the cap-ring, of a swiveled latch carried by the base-ring and cap-ring and provided at its upper end with an arm to engage registering notches in the cap-ring and crown-ring and provided at its lower end with an arm adapted to fit in an exterior groove in the base-ring, and a flange or rim carried by the reservoir-cap and engaging the extremity of the lower arm of the swiveled latch to hold the latter in its locking position when the reservoir-cap and base-ring are connected, substantially as specified.

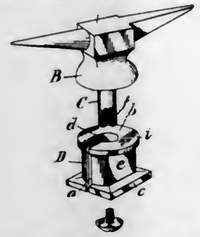
2. In a safety lamp, the combination with a reservoir-cap, and a burner-ring supported thereby, of a base-ring seated upon the upper side of the reservoir-cap around the burner-ring and provided with lugs engaging half-threads upon the burner-ring, a cap-ring spaced from and connected to the base-ring and provided in its under side with a seat, ventilating devices supported upon the cap-ring, a ventilating-ring fitted removably within the base-ring and provided at its upper side with a seat, said base-ring and the removable ventilating-ring being provided with registering horizontal perforations, and a chimney interposed between and fitted at its extremity in the seats of the cap-ring and ventilating-ring, substantially as specified.

3. In a safety-lamp, the combination with suitable supporting, inclosing, and ventilating devices, of a burner-ring provided with a flange surrounding an annular seat, the burner tube provided with a disk fitting in said seat, and a spring yoke provided with hooked terminals engaging half threads on the outer surface of said flange of the burner-ring, substantially as specified.

4. In a safety-lamp, the combination with a reservoir-cap, a burner-ring, a base-ring surrounding and secured to the burner-ring, a pawl and ratchet connection between the base-ring and the reservoir-cap, a cap-ring spaced from and connected to the base-ring, and a chimney arranged between and held in place by the base-ring and cap-ring, of a ventilating guard secured at its lower end to the cap-ring, a crown-ring removably secured to the cap-ring and supporting a ventilator, and locking devices for said crown-ring which are controlled by the connection of the reservoir-cap and base ring, substantially as specified.

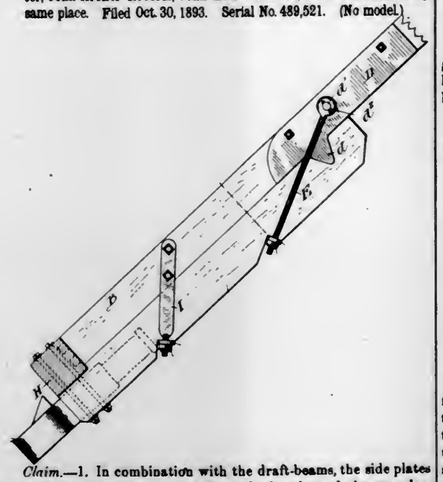
5. In a safety-lamp, the combination with a reservoir-cap supporting a burner-ring, of a base-ring removably secured to the reservoir-cap and provided with a series of ventilating perforations, said base-ring having an inner annular removable member or ventilating-ring 23 provided with perforations corresponding with those of the main body of the base ring, a reticulated guard covering said perforations, a chimney surmounting the removable member or ventilating-ring, and ventilating devices arranged above the upper end of the chimney, substantially as specified.

521,802. JEWELER'S ANVIL. OTTMAR H. LUTZ, Ann Arbor, Mich. Filed Apr. 13, 1893. Serial No. 470,162. (No model.)



Claim.—The combination with the vise, of the anvil provided with an annular body portion, the central stem depending from said body portion and having a tapped end, the compressible base having a central aperture that receives the stem of the anvil and a vertical slot opening into said aperture only, said base also having the upper and lower extending flanges embracing the opposite sides of said jaws and the screw in the end of said stem extending onto said base.

521,803. FASTENING FOR DRAFT-BEAMS. JOHN A. MARKLEY, Clifton Forge, Va., assignor of three-fifths to James Clivie Carpenter, John Archer Roberts, John Leslie Duncan, and James Carr King, same place. Filed Oct. 30, 1893. Serial No. 489,521. (No model.)



Claim.—1. In combination with the draft-beams, the side plates having the pendent lugs, the inclined draft-rods, and the cross-bar secured to the free ends of said rods and engaging the under sides of said draft-beams, substantially as described.

2. In combination with the draft-beams, the side plates having the studs projecting therefrom, the draft-rods hinged at one end upon said studs and extending forwardly therefrom on a gentle incline, and the cross-bar connecting the lower ends of said rods and bearing upon the under sides of said beams, substantially as described.

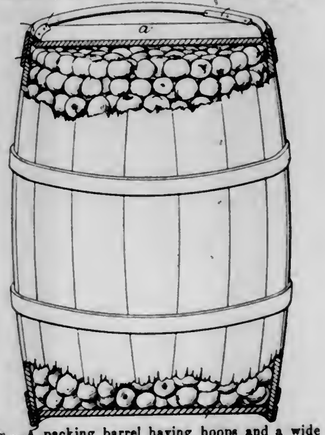
3. In combination with the draft-beams and stringers, the side plates secured to said stringers and provided with pendent lugs, the draft-rods hinged to said side plates and the cross-bar connecting the lower free ends of said rods, substantially as described.

4. In combination with the draft-beams and stringers, the side plates having the pendent lugs adapted to prevent lateral movement of said draft-beams, substantially as described.

5. The combination with the draft-beams and stringers and the draft-rods hinged at one end to said stringers and inclined forwardly and downwardly therefrom to a detachable connecting bar underneath the draft-beams, of the forwardly inclined braces rigidly secured at their upper ends to said stringers and having their lower ends detachably secured to a connecting bar also engaging the under sides of said draft-beams, whereby the latter are firmly but removably supported beneath the stringers, substantially as described.

6. Mechanism for securing the draft-beams of railway or other cars, comprising the side plates provided with pendent lugs and laterally projecting studs, the draft-rods having eyes hinged to said studs and having a cross-bar detachably secured to their free ends so as to engage the under sides of the draft-beams, and the brace-rods having their free ends detachably secured to a cross-bar also adapted to engage the under sides of said beams, substantially as described.

521,804. PACKING-BARREL. EDGAR T. MASON, Kansas City, Mo. Filed July 19, 1893. Serial No. 480,962. (No model.)



Claim.—A packing barrel having hoops and a wide annular groove in its inner side, near the upper edge for receiving an annular head and means for retarding the movements of said head within the limits of the groove substantially as described.

521,805. FABRIC FOR BICYCLE-TIRES. GEORGE C. MOORE, Easthampton, Mass. Filed Jan. 12, 1894. Serial No. 496,663. (No specimens.)



Claim.—1. A fabric for lining pneumatic bicycle tires, woven to form a seamless tube having longitudinal portions of different lengths, two of such longitudinal portions being longest and two midway intermediate longitudinal portions being shortest, with gradual diminution in length between the longest and the shortest portions thereof, so that when said tube is folded longitudinally on its shortest portions and then doubled or curved over longitudinally on its longest portions it will form a double curved tube open along its inner side and adapted to form a complete circle.

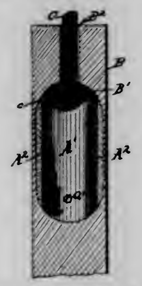
2. A fabric for lining pneumatic bicycle tires, woven to form a seamless tube having longitudinal portions of different lengths, two

of such longitudinal portions being longest and two midway intermediate longitudinal portions being shortest, with gradual diminution in length between the longest and the shortest portions thereof, and having heavier warps at its shortest portions than at its other parts, so that when said tube is folded longitudinally on its shortest portions and then doubled or curved longitudinally on its longest portions it will form a double curved tube open along its inner side and adapted to form a complete circle, with enlarged transverse or beaded edges formed by the heavy warps.

3. A doubled curved seamless fabric, for use in pneumatic bicycle tires, having longest warps at two longitudinal portions and shortest warps at two other longitudinal portions midway between the first named portions with gradual diminution in the lengths of the warps from the longest to the shortest thereof, so that when said fabric is folded along the line of its shortest warps and then folded or curved over along the line of its longest warps it will form a double curved tube open along its inner side.

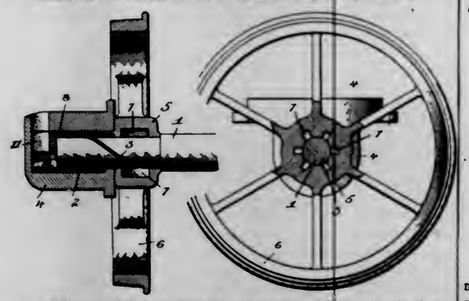
4. A doubled curved seamless tubular fabric, for use in pneumatic bicycle tires, having longest warps at two longitudinal portions and shortest and very heavy warps at two other longitudinal portions midway between the first named portions, with gradual diminution in the lengths of the warps from the longest to the shortest thereof, so that when said fabric is folded along the line of its shortest warps and then folded or curved over along the line of its longest warps it will form a double curved tube open along its inner side, with edges which are enlarged transversely by the heavy warps.

521,806. SASH-CORD FASTENER. LEVIN H. MULLIKIN, Trappe, Md. Filed Nov. 9, 1893. Serial No. 490,418. (No model.)



Claim.—As an improved article of manufacture, a sash cord fastener, having an open upper end through which the cord knot may be drawn, and consisting in a back, forwardly extending parallel sides and inwardly extending flanges at the outer edges of said sides, and spaced apart at their adjacent edges; the said sides and flanges being disconnected at their upper ends thereby rendering the bore of the fastener smooth or unobstructed from end to end to permit the knot of the sash cord to come into direct contact with the top wall of the sash mortise, substantially as herein described.

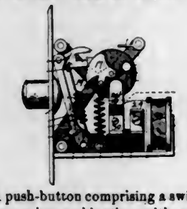
521,807. CAR-AXLE LUBRICATOR. DENNIS MCCARTHY, Miner's Mills, Pa. Filed Jan. 31, 1894. Serial No. 498,651. (No model.)



Claim.—1. The combination, with a journal box, of a wheel provided in the wall of its spindle opening with an annular series of oil recesses extending longitudinally of the hub and communicating with the spindle opening throughout their entire length, and a journal having an oil pocket and arranged in the opening of the hub of the wheel and extending beyond the latter into the journal box, substantially as described.

2. A journal box provided with a bearing plate having at its outer extremity a pair of oppositely disposed projections fitting against the outer wall of the journal box to retain the bearing plate in proper position, and having the space between them registering with the oil hole or opening, said bearing plate being provided at the inner terminals of the projections with a segmental flange to abut against the outer end of a journal substantially as described.

521,808. PUSH-BUTTON. JAMES F. MCLAUGHLIN, Philadelphia, Pa. Filed Mar. 22, 1893. Serial No. 467,133. (No model.)



Claim.—1. A push-button comprising a switch and a spring tending to open the same, in combination with a push-piece and intermediate mechanism for closing the switch, and a trip timed with reference to the intermediate mechanism to uncouple the switch from the latter when it arrives in the closed position, whereby the switch is automatically open after having been momentarily closed, substantially as described.

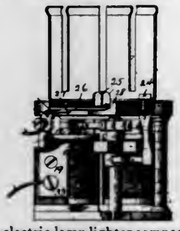
2. In a push-button, the combination of a stationary and a rotatable element of a switch, and a spring tending to rotate the latter in one direction; with a pawl constructed and related to the movable member to engage and actuate the same in the other direction, and means for throwing the pawl out of engagement at a predetermined length of stroke, and a lever and thumb piece for actuating the pawl, substantially as described.

3. In a push-button, the combination of a stationary and a spring controlled rotatable element of a switch, a double toothed pawl engaging the rotatable element with one of said teeth for rotating the same in one direction against the action of the spring, and a fixed pin in the path of the second tooth for disengaging the pawl; with a lever and a thumb-piece for actuating the pawl, substantially as described.

4. A push-button comprising a stationary and a movable element of a switch, a spring tending to maintain the two elements of the switch out of contact, a pawl engaging the movable element for actuating it against the action of its spring, a fixed pin in the path of the pawl for disengaging it from the movable element, a spring actuated lever carrying the pawl, and a push piece for actuating the lever against the action of its spring, substantially as described.

5. A push-button comprising a switch composed of a spring retained rotatable insulating disk with a metal conducting plug passing eccentrically through it, and two fixed conducting springs in the path of the plug; and means for actuating the disk against the action of its spring consisting of a spring retained lever carrying a spring retained pawl, a guide mounted to rotate with the disk and normally engaged by the pawl, a fixed pin in the path of the pawl for directing it out of engagement with the guide, and a push piece for actuating the pawl-lever in one direction, substantially as described.

521,809. ELECTRIC-LAMP LIGHTER. JAMES F. MCLAUGHLIN, Philadelphia, Pa. Filed Mar. 22, 1893. Serial No. 467,134. (No model.)

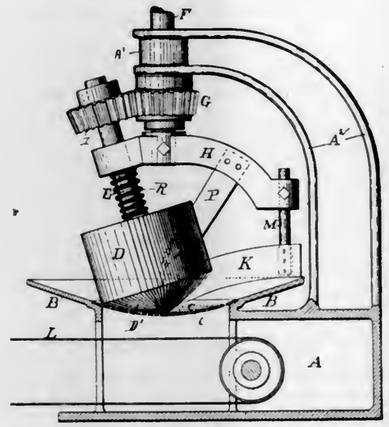


Claim.—1. An electric-lamp lighter composed of two electro magnets connected in series in a shunt around the lamp terminals, one of which magnets is fixed and the other constituting an armature to the first; a circuit breaking and making wheel in the lamp circuit actuated by the armature, and a push button or key in the shunt, at a distance from the lamp, for closing and opening the shunt, substantially as described.

2. In an electric-lamp lighter, the combination of two bar electro-magnets having laterally extended pole pieces, one of which magnets is fixed and the other pivoted, to act as an armature to the first; with a circuit controller in the lamp circuit, actuated by the armature, and a high resistance shunt around the lamp terminals, including the electro magnets, and a circuit controlling push-button or key in the shunt and at a distance from the lamp, substantially as described.

3. In an electric-lamp lighter, the combination of a fixed bar electro-magnet having laterally extended pole pieces, and a pivoted bar electro-magnet having similar pole pieces in inductive proximity to the pole pieces of the fixed magnet; with a shunt around the lamp terminals including the coils of the electro-magnets and an artificial resistance, all in series, a circuit breaking wheel in the lamp circuit, actuated by the armature, and a circuit controller for the shunt circuit, substantially as described.

521,810. MACHINE FOR THE MANUFACTURE OF FOOD PRODUCTS FROM CEREALS. HENRY D. PERKY, Denver, Colo., assignor to the Cereal Machine Company, of Colorado. Filed July 7, 1893. Serial No. 479,850. (No model.)



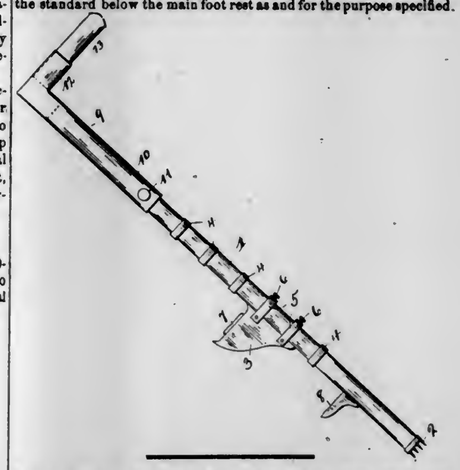
Claim.—1. In a machine for treating cereals, the combination of the frame, the hopper, its perforated bottom plate, the cylinder having a spheroidal or conical base working in contact with said plate, and capable of a rotary and a revolving movement, and a feed scraper, substantially as specified.

2. In a machine for treating cereals, the combination of the frame, the hopper, its bottom plate having perforations therethrough wider at the bottom than at the top, the cylinder having a spheroidal or conical base in contact with said bottom plate, its oblique shaft, means for imparting a rotary and a revolving movement to said shaft and cylinder, the feed scraper, and the scraper P, substantially as specified.

3. In a machine for treating cereals, the combination of the frame, the perforated hopper, the cylinder having a spheroidal or conical base, its oblique shaft, the gear wheel on said shaft, the stationary gear wheel on the frame, the vertical driving shaft, the cross arm carried by said driving shaft, and carrying said oblique shaft, and the feed and cylinder scrapers carried by said cross arm, substantially as specified.

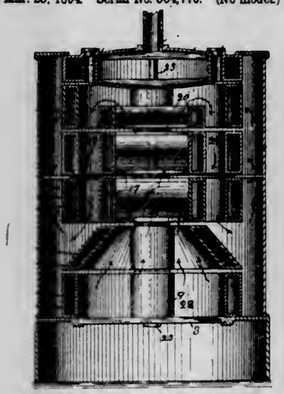
521,811. STILT. EDWARD PIEPENBRING, Washington, D. C. Filed Dec. 27, 1893. Serial No. 494,825. (No model.)

Claim.—1. The herein described stilt consisting in the combination with a standard 1, of a main foot rest 3, a series of rings 4 carried by the standard at equal distances apart, rings or sleeves 5 carried by the foot rest at distances apart corresponding to the distances between the rings 4, said sleeves 5 being adapted to slip over the rings 4 and to be out of contact with the standard, said rings and sleeves being provided with aligned openings, a set screw adapted to work in said openings and engage the standard, and an auxiliary foot rest carried by the standard below the main foot rest as and for the purpose specified.



2. The herein described stilt consisting in the combination with a standard 1, of a main foot rest 3, a series of rings 4 carried by the standard at equal distances apart rings or sleeves 5 carried by the foot rest at distances apart corresponding to the distances between the rings 4, said sleeves 5 being adapted to slip over the rings 4 and to be out of contact with the standard, said rings and sleeves being provided with aligned openings, a set screw adapted to work in said openings and engage the standard, and an auxiliary foot rest carried by the standard below the main foot rest as and for the purpose specified.

521,812. STEAM-BOILER. FRANK FROX, Terre Haute, Ind. Filed Mar. 23, 1894. Serial No. 504,776. (No model.)



Claim.—1. In a boiler, a series of sections arranged one above the other, each of said sections consisting of a hollow plate forming two communicating annular chambers of different diameters arranged concentrically with an open space between them, the space between the inner sides of the smaller chambers forming a flue for the products of combustion from a furnace arranged beneath said sections, said inner sides being connected by hollow bars which cross said flue and communicate with the interior, and which have side walls which converge from their horizontal centers upward and downward, substantially as set forth.

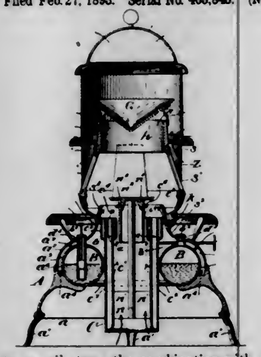
2. In a boiler, the combination of the lower hollow plate forming a single annular chamber which is substantially rectangular in cross section, and a second hollow plate arranged above the first and forming an annular chamber of substantially the same size and outline on its under side as the annular chamber of the first plate, but having inner and outer walls which converge concentrically toward its upper side, thereby forming an annular chamber which is rhomboidal in cross section, the interiors of both plates communicating through suitable registering openings, and the combined plates forming a combustion chamber having hollow walls and a contracted central opening for the escape of the products of combustion, as set forth.

3. In a boiler, the combination of a hollow plate forming an annular chamber which is substantially rectangular in cross section, a second hollow plate forming an annular chamber of substantially the same size and shape as the annular chamber of the first plate, at one side, and having inclined converging walls substantially as set forth, whereby a combustion chamber inclosed by hollow walls the upper part of which converge toward the axis of the chamber, is formed, a series of hollow plates arranged above said combustion chamber and forming two communicating annular chambers of different diameters arranged concentrically with an open space between them, the inner

sides of the smaller chamber forming an inclosed space of substantially the same diameter as the interior of the combustion chamber at its smallest part, said inclosed spaces forming an upward flue for the products of combustion, and said open spaces between the annular chambers forming downward flues communicating with said upward flue, the interiors of the several plates all communicating with each other through suitable registering openings, a crown-plate covering the top of the several flues, and an inclosed casing forming with the outer edges of the boiler plates an annular chamber for the passage of the products of combustion, all arranged to co-operate substantially as set forth.

4. In a boiler, the combination with two or more hollow plates having several registering openings connecting the interior of the plates, of a series of tubes arranged in said openings and extending partly across the interior of the plates, substantially as and for the purpose set forth.

521,813. HEATING OIL-STOVE. VICTOR E. RANDALL, Burlington, Mich. Filed Feb. 27, 1893. Serial No. 463,843. (No model.)



Claim.—1. In an oil stove, the combination with a burner, of cylindrical oil founts lying parallel and spaced therefrom by an oil burner, an oil conduit uniting with the burner and connecting the said founts, one of the said founts being provided with an inlet aperture, the other with an indicating float, and braces connecting the ends of said founts, substantially as specified.

2. In an oil stove in which the base constitutes two rectangular sections, the lower portion having a downwardly and outwardly flaring bottom and its top adapted as a seat for an upper section; brackets or lugs extending inwardly and curved downwardly from near the top of said section; an upper section adapted to rest upon the lower section and curved inwardly and upwardly and terminating in an annular neck; two cylindrical oil reservoirs connectively united by an oil conduit and braces, one of said reservoirs being provided with an inlet filling orifice, the other having an oil indicating float; an annular burner centrally located between said reservoirs; an oil conduit connecting said tanks with burner; air passages encircling said oil reservoirs and burner between the said base sections; said burner adapted to extend up within the neck portion of said top base section and even with the top therewith and spaced therefrom by an annular air passage; the said oil reservoirs adapted to be seated upon the downwardly and inwardly curved brackets of the lower base section; the upper base section having integral lugs adapted to impinge upon the cylindrical oil reservoirs; said upper base section having orifices through which the oil filling and oil indicating mechanism may protrude; tightening bolts passing through the upper base section and connectively uniting with the lower base section for securing the parts aforesaid intact in combination, substantially as and for the purposes specified.

3. In an oil stove in which an annual burner or wick tube is centrally located between two parallel cylindrical oil reservoirs; said oil reservoirs being connectively engaged by connecting braces and an oil conduit, the said oil conduit connectively engaging at the side of said burner tube for the purpose of supplying the same with oil; an oil inlet entering one of said oil reservoirs and an oil indicating float connectively operative with an opposite oil reservoir from the one which the reservoirs are filled with oil.

4. In an oil-stove in combination with a base and burner located therein, of a combustion chamber surmounting said base, said chamber constituting vertical non-illuminating sections and intermediate upwardly indrawn illuminating sections, the bottom consisting of a bowl shaped portion and having an annular and upwardly indrawn air deflecting collar, the said collar and combustion chamber registering with a corresponding seat of an upper base section, and pivotally connected therewith, substantially as set forth.

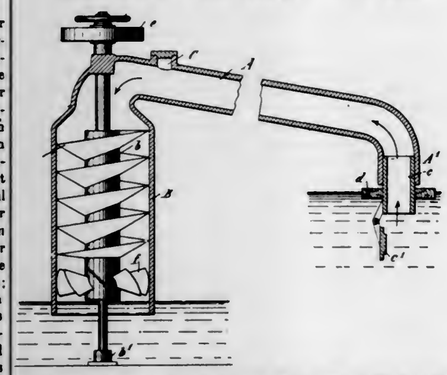
5. In an oil stove, in combination with a burner; a combustion chamber surrounding the upper end of the burner; a radiating drum surmounting the combustion chamber; an inverted cone-shaped diaphragm suitably supported within the radiating drum and spaced therefrom, the said drum arranged so that the exterior air will enter the same from between the combustion chamber and said drum, and the products of combustion at a central lower portion, the products of combustion and exterior air commingling as they make their exit upward between, respectively the aforesaid diaphragm and drum.

6. In an oil stove in combination with a burner, a combustion chamber surrounding the upper portion of the burner; a radiating drum surmounting said combustion chamber; an inverted cone-shaped diaphragm supported within said drum and spaced therefrom; a perforated plate dividing the combustion chamber from the radiating drum, said plate constituting an outer ornamental portion and an inner cylindro-conical section; the said cylindro-conical section adapted to receive the products of combustion, the perforated portion adapted to receive cold air from the exterior; the products of combustion and the cold air from the exterior entering the drum below the cone-shaped diaphragm, substantially as specified.

7. In an oil stove the combination of a base, a burner located therein; a combustion chamber surmounting said base and encircling the burner; said combustion chamber having an annular bowl shaped bottom; a centrally located upwardly curved and indrawn air deflecting collar adapted to form a seat upon an upper neck portion of the base section, the walls of the said combustion chamber being fluted, alternately formed recesses trending upward and inwardly toward the top thereof, constituting mica sections, intermediate vertical sections or flutations constituting non-illuminating portions.

8. In an oil stove in combination with a base, an oil burner located therein; a combustion chamber surmounting said base and encircling the burner, said combustion chamber being fluted, alternating upwardly indrawn portions constituting mica sections, intermediate vertical flutations constituting non-illuminating sections; a heating drum surmounting said combustion chamber and spaced therefrom by a perforated collar, said perforated section registering with indrawn mica sections of the combustion chamber for the admission of exterior cold air to the drum, the blank sections of said collar registering with vertical fluted walls of the combustion chamber, substantially as and for the purposes hereinbefore set forth.

521,814. WATER-MOTOR. ALFRED A. RAUBOLD, Gremsmuhlen, Germany. Filed Nov. 16, 1893. Serial No. 491,184. (No model.)



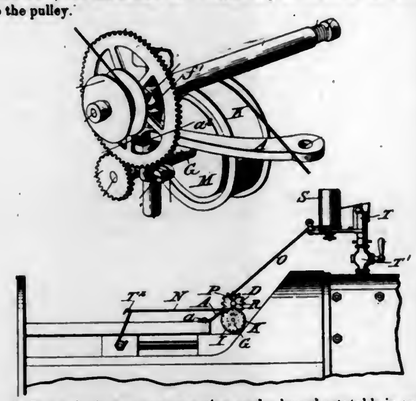
Claim.—In combination in a water motor, the vertical casing containing the screw, the siphon connected with the upper end of said casing, the hollow screw shaft, and the means for closing the inlet end of the siphon and the outlet end of the casing comprising the valve C, the swiveled blades *f* carried by the hollow screw shaft, and the means for adjusting said blades consisting of the wheels *g h* and the shaft *k* extending through the hollow screw shaft, substantially as described

---

521,815. STEAM-ENGINE INDICATOR. EDWARD J. REA, Washington, D. C. Filed June 17, 1893. Serial No. 477,993. (No model.)

Claim.—1. In a reducing gear an operating cord, a barrel actuated by the operating cord, an indicator cord a pulley for operating the indicator-cord, mechanism for transmitting motion from the barrel to the pulley, and means for throwing said mechanism out of operation, whereby the barrel may be moved by the operating cord while the pulley is stationary.

2. In a reducing gear an operating cord, a barrel rotatable in one direction by the operating cord, means for rotating the barrel in the opposite direction, an indicator cord a pulley for actuating the indicator-cord, and mechanism for transmitting motion from the barrel to the pulley.



3. In a reducing gear an operating cord, a barrel rotatable in one direction by the operating cord, means for rotating the barrel in the opposite direction, an indicator cord a pulley for actuating the indicator-cord, mechanism for transmitting motion from the barrel to the pulley, and means for throwing said mechanism out of operation, whereby the barrel will be moved by the operating cord while the pulley is stationary, and the operating cord will be kept taut.

4. In a reducing gear, the combination, with a main-shaft, and a gear-wheel attached to the shaft, of a pinion-shaft, a gear-pinion mounted on the pinion-shaft and meshing with the gear-wheel, a barrel attached to the pinion-shaft, an operating cord and mechanism attached to the barrel for taking up the slack in the operating cord when wound on the barrel.

5. In a reducing gear, the combination, with a main-shaft, and a gear-wheel attached to the shaft, of a pinion-shaft, a pinion mounted on the pinion-shaft, and means for throwing the gear-wheel and pinion into and out of mesh with each other.

6. In a reducing gear, the combination, with a longitudinally-movable main-shaft, and a gear-wheel attached to the shaft, of a pinion-shaft, and a pinion mounted on the shaft and meshing with the gear-wheel.

7. In a reducing gear, the combination, with a longitudinally-movable main-shaft, and a gear-wheel attached to the shaft, of a pinion-shaft, a pinion mounted on the pinion-shaft, and a spring arranged to hold the gear-wheel into mesh with the pinion.

8. In a reducing gear, the combination, with a longitudinally-movable main-shaft, and a gear-wheel attached to the gear-shaft, of a pinion-shaft, a pinion mounted on the pinion-shaft and meshing with the gear-wheel, and a thumb-screw clamping the main-shaft at any desired position.

9. In a reducing gear, the combination, with a vertically-adjustable pinion-shaft, of a barrel on the shaft, and a spring loosely attached to the barrel and capable of being reversed, substantially as set forth.

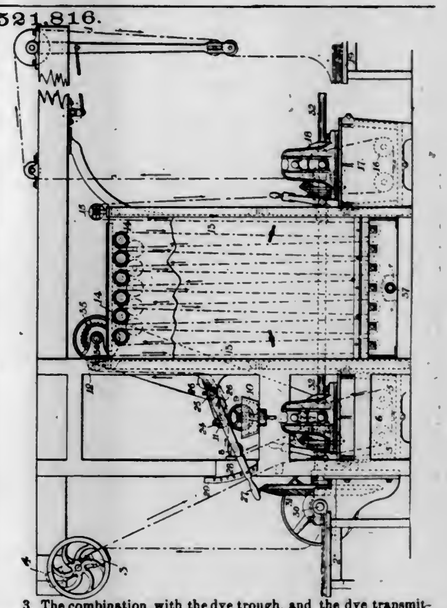
10. In a reducing gear, the combination, with a longitudinally-movable main-shaft, a gear-wheel on the main-shaft, a pinion-shaft, and a pinion on the pinion-shaft and meshing with the gear-wheel, of a helical spring around the main-shaft, and a guard-tubing around the spring, substantially as set forth.

521,816. APPARATUS FOR DYEING. JOSEPH REFFITT, Leeds, England. Filed Feb. 19, 1894. Serial No. 500,761. (No model.)

Claim.—1. The combination, with the two water troughs 6 and 17, and the rollers journaled therein for the material to pass under; of the squeezing rollers 7 and 18 journaled above the said troughs, driving mechanism for revolving the last said rollers simultaneously; a dye trough, a dye transmitting roller journaled therein, and presser and guide rollers for the material, all arranged above the rollers 7, and a steam box provided with rollers at its top and bottom for the material to pass around and arranged between the dyeing devices and the rollers 18, substantially as set forth.

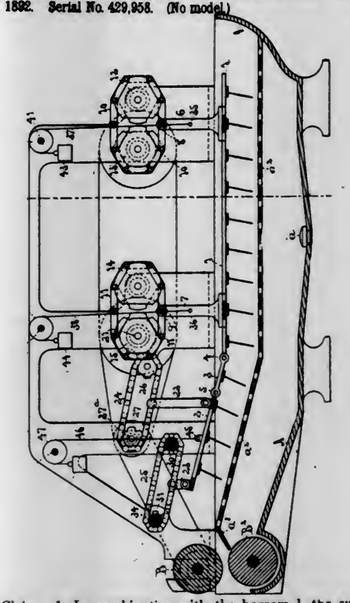
2. The combination, with the water trough 6, and the rollers 5 journaled therein for the material to pass under; of the squeezing rollers arranged above the said trough; the dye trough, the dye transmitting roller journaled therein, the guide rollers 8 and 26, and the movable presser roller 11 for holding the material in contact with the said dye transmitting roller, substantially as set forth.

521,816.



3. The combination, with the dye trough, and the dye transmitting roller journaled therein; of the revoluble shaft 25, the guide rollers 26 mounted in brackets secured to the said shaft, the slotted arms 24 secured on the said shaft, the presser roller carried by the said slotted arms, and a lever for oscillating the said shaft and pressing the material upon the dye transmitting roller, substantially as set forth.

521,817. WOOL-WASHING MACHINE. DAVID H. RICE, Brookline, assignor to C. G. Sargent's Sons, Graniteville, Mass. Filed Apr. 20, 1892. Serial No. 429,958. (No model.)



Claim.—1. In combination with the harrow 1, the supporting chains 10, 11, and the sprocket wheels carrying the same, disposed so that the parallel portions of said chains are parallel to the line of forward movement desired for the harrow through the bowl, substantially as described.

2. The combination of the harrow 1, the supporting chains 10, 11, their supporting sprocket wheels arranged to drive the harrow through the bowl reciprocally, and one or more counterbalancing weights attached to the harrow by means of cords passing over pulleys, and arranged to relieve the chains and sprocket wheels from the weight of the harrow, substantially as described.

3. The combination of the harrow 1, supported upon chains and sprocket wheels, with the carrier, 2, linked thereto, and also supported upon chains and sprocket wheels, by swinging links, arranged to convey the wool up the carrier bed as the harrow moves through the bowl, substantially as described.

4. The combination, in a wool-washing machine, of a carrier or harrow formed of two portions linked together, one portion carried by chains and sprocket gears arranged at one angle, and the other portion carried by chains and sprocket gears arranged at another angle to the surface of the fluid in the bowl, substantially as described.

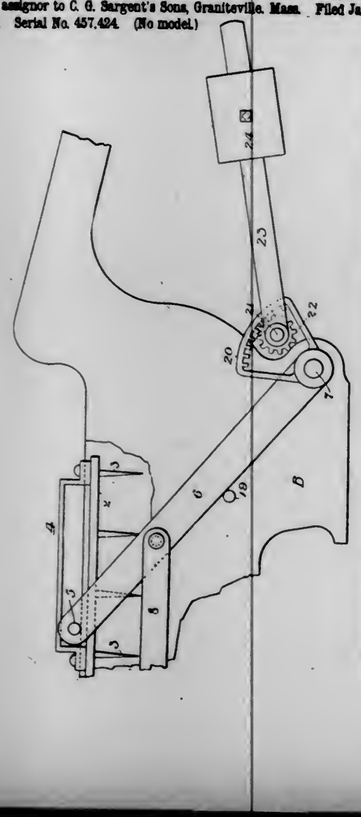
5. The combination, in a fiber-washing machine, of three harrows or carriers, 1, 2, 3, articulated or linked together, and driving mechanism arranged to propel one of these carriers forward at one angle or inclination to the surface of the washing fluid in the bowl, and the others at a different forward inclination or angle to said fluid surface, simultaneously, substantially as described.

6. The combination, in a fiber-washing machine, of three harrows or carriers, 1, 2, 3, articulated or linked together, driving mechanism arranged to propel one these carriers forward at one angle or inclination to the surface of the washing fluid in the bowl, and the others at a different forward inclination or angle to said fluid surface, simultaneously, and counterbalancing mechanism attached to said harrows or carriers and arranged to suspend the same during their movements, substantially as described.

7. The combination, in a fiber-washing machine, of two harrows or carriers, one driven by chains and sprocket gears of one length or diameter, and the other driven by chains and sprocket gears of a different length and diameter, and driving pulleys connected therewith arranged to cause said harrows to perform their reciprocal movements respectively in the same period of time, substantially as described.

8. The combination, in a fiber-washing machine, of a harrow or carrier sustained and carried by two chains and two pairs of sprocket gears of different lengths and diameters respectively, and provided with driving mechanism arranged to cause each of said chains to complete its movement around the sprocket gears in the same period of time, substantially as described.

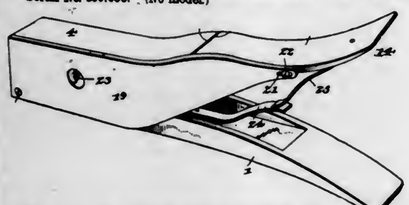
521,818. WOOL-WASHING MACHINE. DAVID H. RICE, Brookline, assignor to C. G. Sargent's Sons, Graniteville, Mass. Filed Jan. 5, 1893. Serial No. 457,424. (No model.)



Claim.—1. The combination in a fiber washing machine, of the harrow arranged to move forward through the bowl and up and down to convey the fiber forward, the swinging arms, 6, 6, arranged to move up and down on rock shafts at their lower ends and support the harrow, a sector, 20, attached to one of the rock shafts of the arms, 6, a shaft, 21 and pinion, 22, engaging with sector 20, and a weighted lever, 23, attached to the rock shaft, 21, and arranged to swing downward and diminish its pull upon its rock shaft in proportion as the arms, 6, 6, rise with the harrow, substantially as described.

2. The combination, in a fiber washing machine, of the harrow arranged to move forward through the bowl and up and down to convey the fiber forward, the swinging arms, 6, 6, arranged to move up and down on rock shafts at their lower ends and support the harrow, an internally geared sector, 20, attached to one of the rock shafts of the arms, 6, a shaft, 21, and pinion, 22, engaging with the sector, 20, and a weighted lever, 23, attached to the rock shaft, 21, and arranged to swing downward and diminish its pull upon its rock shaft in proportion as the arms, 6, 6, rise with the harrow, substantially as described.

521,819. BULLET-MOLD. GEORGE P. RIGGS, Sistersville, W. Va., assignor of one-half to William Heald, same place. Filed Oct. 31, 1893. Serial No. 489,653. (No model.)



Claim.—1. The combination of the upper and lower members pivotally connected intermediate of their ends and having their front ends forming jaws and provided with mold cavities, the lower member having its rear portion forming a grip and the upper member being provided with front and rear shoulders, the lever pivoted to the upper members between the shoulders thereof and having its movement independent of the upper member limited by said shoulder, and a cutting plate pivoted at its front end to the lower member and loosely connected with the lever and provided with an opening communicating with the mold cavities of the members, substantially as described.

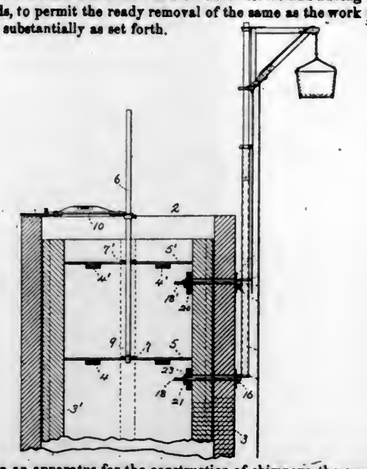
2. The combination of the lower member terminating at its front end in a jaw having a mold cavity and having its rear portion forming a grip and provided between the grip and the jaw with a semi-circular recess and adjacent to the same with a semi-circular perforated shoulder 3, an upper member terminating at its front end in a jaw having a mold cavity corresponding to that of the lower member and provided intermediate of its ends with a semi-circular recess and a perforated semi-circular shoulder 6, the shoulders of the two members aligning, said upper member being recessed at its rear end to form the front abutting shoulder 9 and the rear stop shoulder 17 and between the same having a semi-circular shoulder 10 and recess 11, a pivot connecting the perforated shoulders 3 and 6 of the members, the lever 13 having the grip portion 14 and at its front end the semi-circular shoulder 12 and recess 15, said shoulder 12 aligning with the shoulder 10 and pivoted thereto, the opposite springs 24 and 25 arranged upon the upper side of the lower member and the under side of the lever and adapted to ride over each other, the knife plate 19 pivoted at 20 to the lower member and having the cutting perforation 23 and provided at its rear end with the slot 21, and a headed stud extending from the lever through the slot, substantially as described.

521,820. APPARATUS FOR THE CONSTRUCTION OF CHIMNEYS. HIRAM C. ROWELL, Berlin, N. H. Filed Feb. 16, 1893. Serial No. 462,551. (No model.)

Claim.—1. In an apparatus for the construction of chimneys, the combination with supporting puds adapted to be removably secured within the work, of platforms carried by said puds, an axial pole or rod carried by said platform and a sweep pivotally mounted on said rod, for securing measurements during construction, substantially as set forth.

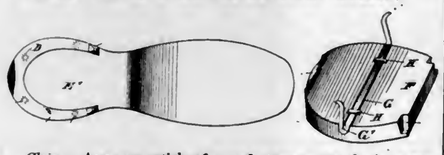
2. In an apparatus for the construction of chimneys, the combination with supporting puds adapted to be removably seated in the inner face of the work, and platforms carried by said puds, of a pole or rod adjustably mounted in said platforms, and an extensible and contractible sweep pivotally mounted on said pole or rod and provided with means for securing the level.

3. In an apparatus for the construction of chimneys, the combination with interior platforms, of supporting puds for said platforms mounted in niches in the inner face of the structure and having beveled ends, to permit the ready removal of the same as the work progresses, substantially as set forth.



4. In an apparatus for the construction of chimneys, the combination of the bevel-ended supporting puds 4, 4', the platforms 5, 5', carried thereby, the axis pole or rod 6, adjustably mounted in said platforms, the leveling sweep 10, and the graduated arm 12 having an extensible and contractible connection therewith.

521,821. ICE-CREEPER. JAMES R. RUSSELL, Hopewell Hill, Canada. Filed July 14, 1893. Serial No. 480,483. (No model.)



Claim.—As a new article of manufacture, a cover for ice creepers, consisting of a block recessed to receive the spurs or projections of the creeper, and a clamp for securing the cover to a boot or shoe over the creeper, consisting of a bar secured to the block and having its ends bent upwardly and outwardly, as set forth.

521,822. GAS GENERATOR AND BURNER. CLIFFORD F. SANFORD, Findlay, Ohio. Filed Jan. 11, 1894. Serial No. 496,502. (No model.)

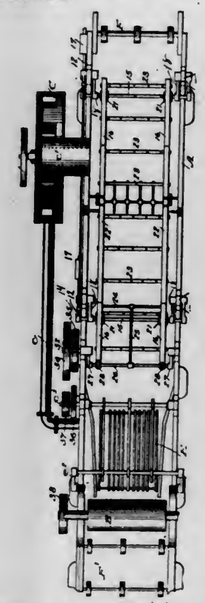


Claim.—1. A gas generator and burner, consisting of a central mixing tube, the annular chamber B conical in cross-section and joining onto the top of the mixing tube and provided with holes around its lower edge, an annular generating chamber surrounding the chamber B and arranged above the said holes, a cover provided with a concave surface arranged over the top of the mixing tube, and a gas pipe connected to the generating chamber and provided with a projecting nozzle arranged under the mixing tube, substantially as set forth.

2. A gas generator and burner, consisting of a central mixing tube having a curved lip *a*, the annular chamber B conical in cross-section and provided with the downwardly add outwardly flaring side *b* joining onto the said lip, and the holes around the lower edge of its outer side; an annular generating chamber surrounding the chamber B above the said holes and having the curved bottom edge *c*, the cover provided with the concave surface *e* extending over the lip *a*; and a gas pipe connected with the generating chamber and provided with a projecting nozzle arranged under the mixing tube, substantially as set forth.

521,823. WOOL-WASHING MACHINE. FREDERICK G. SARGENT, Graniteville, Mass. Filed Nov. 10, 1893. Serial No. 490,593. (No model.)

Claim.—1. The combination with the bowl of the wool washing machine, of the perforated false bottom, 1, the cross partition, 2, dividing the bowl beneath the false bottom into two portions, the fluid inlet passage, 3, underneath the false bottom near the feed-out end of the machine, the fluid outlet passage, 7, on the opposite side of the partition 2 near the feed-in end of the machine, and means whereby the washing fluid may be forced through the inlet passage, 3, up through the false bottom on one side of the partition 2 along over the false bottom in a direction contrary to that of the progress of the fiber through the bowl and down through the false bottom and out through the outlet, 7, on the opposite side of the partition 2, substantially as described.



2. The combination of the harrow, 6, suspended upon the rocker arms 18, at their outer end and arranged to move to and fro thereon, the weighted arms, 12, pivoted to the bowl and provided at one end with the counter-balancing weight, 17, and connected at their other ends with the rocker arms, 18, by the pivoted links, 14, 14, the whole being so arranged that the varying pressure of the counterbalancing weight on the arms, 12, due to their upward and downward motion shall correspond with the varying pressure of the harrow on the rocker arms, 18, due to their upward and downward motion, substantially as described.

3. The combination of the harrow, 6, suspended upon rocker arms, 18, at their outer end and arranged to move to and fro thereon, the rotating crank, 27, connecting with the harrow by a pitman, 25, pivoted to the said harrow, and the link, 28, pivoted at its lower end to the rocker arms, 18, and having a slot at its upper end embracing the wrist pin of the crank 27, substantially as described.

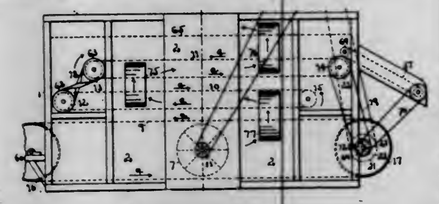
4. The combination of the harrow, two or more counterbalancing mechanisms acting upon different portions (longitudinally reckoned) of the same, and means of connection between the said counterbalancing mechanisms so arranged that the said counterbalancing mechanisms shall act in concert.

5. The combination of the harrow, two or more counterbalancing mechanisms acting upon different portions (longitudinally reckoned) of the same, and a link connecting the said counterbalancing mechanisms so arranged that the said counterbalancing mechanisms shall act in concert.

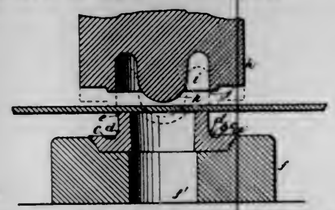
521,824. FIBER-DRIER. FREDERICK G. SARGENT and ALLAN C. SARGENT, Graniteville, Mass. Filed Jan. 6, 1894. Serial No. 495,933. (No model.)

Claim.—1. The combination of a drying chamber, two or more screen aprons within it, an inlet below the lowest screen apron, an outlet 5 above the highest screen-apron, independent conduits from the space under each screen apron to the space under the screen apron next above, each space having the conduits that open therefrom and thereinto at opposite ends thereof, and means for introducing air through the inlet and withdrawing it through the outlet.

2. The combination of a drying chamber, two or more endless traveling screen aprons within it, an inlet below the lowest screen apron, an outlet 5 above the highest screen apron, a fixed screen between the traveling screen aprons and the outlet, independent conduits from the space between the upper and lower parts of each screen apron to the space between the upper and lower parts of the screen apron next above and from the space between the upper and lower parts of the upper screen apron to the space between the fixed screen and the outlet, each space having the conduits that open therefrom and thereinto at opposite ends thereof, and means for introducing air through the inlet and withdrawing it through the outlet.



521,825. APPARATUS FOR INSERTING, FINISHING, AND SECURING SPUTS IN BOILERS. WALTER S. SHIPS, Brooklyn, N. Y. Filed June 19, 1893. Serial No. 478,141. (No model.)



Claim.—1. The herein described process of inserting and securing sputs in and to boilers, which consists in locating the sput on the boiler sheet, forcing a portion of such sheet within the sput and using each sput as a die to punch its hole in the boiler sheet, and then clamping or swaging the metal of the sput around said sheet, substantially as described.

2. The herein described process of inserting and securing sputs in and to boilers, which consists in locating the sput on the boiler sheet, forcing a portion of said sheet within said sput, punching an opening in the sheet to receive the sput, and then swaging or compressing the metal of the sput around the opening in the sheet, substantially as described.

3. The process of inserting, finishing and securing sputs in boilers, which consists in using each sput as a die to punch its hole in the boiler sheet; then coring out the internal diameter of said sput, and then swaging or compressing the metal thereof around the opening in the boiler sheet, substantially as described.

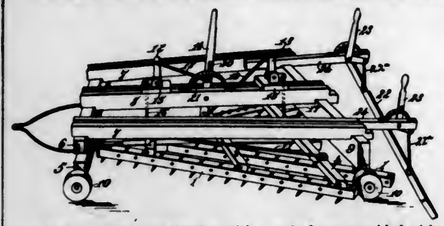
4. The process of inserting and securing sputs of the construction described, in boilers, which consists in using each sput as a die to punch its hole in the boiler sheet; then forcing the edges of said sheet within an annular groove in the base of said sput, imparting to such sheet an annular angular flange or depression, and then swaging or compressing the metal of the sput into said flange, or depression in the sheet, substantially as described.

5. The process of inserting, finishing and securing sputs of the construction described, in boilers, which consists in using each sput as a die to punch its own hole in the boiler sheet; and forcing the edges of said sheet within an annular groove in the base of said sput, imparting to said sheet an annular angular flange or depression, in one operation, and then coring out the internal diameter of the sput to uniform size and swaging or compressing the metal of said sput into the flange or depression in the sheet, in another operation, substantially as described.

6. In an apparatus for inserting, securing and finishing in boiler sheets, sputs having a base, a groove therein and a tubular projection, the combination of a receptacle for the base of said sput, and a plunger provided with a cutting or folding edge, an annular recess adapted to contain the walls of the sput, and a projecting nose, substantially as described.

7. In an apparatus for inserting, securing and finishing in boiler sheets, sputs having a base, a groove therein and a tubular projection, the combination of an apertured receptacle for the base of said sput and a plunger comprising a circular portion, a flaring or tapering portion, and a forming or finishing groove, substantially as described.

521,826. COMBINED HARROW AND SCRAPER. ISAAC SMITH, Lexington, Ky. Filed Sept. 28, 1893. Serial No. 486,696. (No model.)

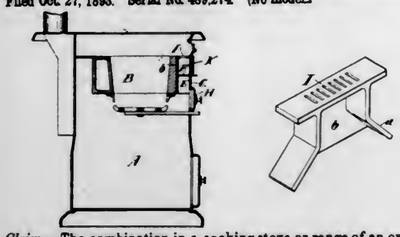


Claim.—1. The combination with a main frame provided with a front and a rear wheeled axle, and a harrow frame suspended beneath said main frame and adapted to bodily rise and fall parallel with the surface traversed, of draft rods jointed at their front ends to the front wheeled axle and at their rear ends to the rear portion of the said harrow frame, substantially as described.

2. The combination with a main frame provided with a front and a rear wheeled axle, and a harrow frame arranged beneath said main frame and adapted to bodily rise and fall parallel with the surface traversed, of divergent draft rods secured at their front ends to the front wheeled axle and at their rear ends to the rear portion of the harrow frame, front and rear bell-crank levers pivoted to the main frame, links pivotally connecting the bell-crank levers with the harrow frame, a main lever pivoted to the main frame between the said bell-crank levers, and links pivotally connecting the bell-crank levers with the said main lever at opposite sides of its pivotal attachment to the main frame, substantially as described.

3. The combination with a front and a rear wheeled axle, of oblique bars 7 rigidly connecting the axles, a center bar 8 connected with said axles, a harrow frame arranged beneath the bars and adapted to bodily rise and fall parallel with the surface traversed, divergent draft rods secured at their front ends to the front wheeled axle and at their rear ends to the rear portion of the harrow frame, bell-crank levers pivoted to the center bar, links pivotally connecting the bell-crank levers with the harrow frame, a main lever pivoted to the center bar between the bell-crank levers, and links connecting the bell-crank levers with the said main lever at opposite sides of its pivotal attachment to said center bar, substantially as described.

521,827. STOVE OR RANGE. JAMES SPEAR, Philadelphia, Pa. Filed Oct. 27, 1893. Serial No. 489,274. (No model.)



Claim.—The combination in a cooking stove or range of an oval fire pot the major axis of which runs lengthwise with the front of the stove, a plate *b* upon the front of the fire pot, a grated lip extending from said plate *b* to said front wall, projections *a*, *a*, extending from said plate *b* to said front wall, said projections being farther apart at their bottoms than at their tops and forming with the plate *b* and the front wall a flue E, a damper F within said flue E, and a door K in the front wall through which access may be had to said flue and damper.

521,828. SELF-CLOSING UMBRELLA. JAMES H. SPRAGUE, Norwalk, Ohio. Filed Nov. 29, 1893. Serial No. 492,378. (No model.)

Claim.—1. The combination with an umbrella stick having upper and lower slots; of the upper and lower catches provided with rounded portions, and upper and lower connected plugs mounted for simultaneous movement within the stick and adapted to be engaged by the rounded portions of said catches, substantially as set forth.

2. The combination with an umbrella-stick having slots, and upper and lower spring-catches, of upper and lower plugs having inclined faces adapted to be moved against by the spring-catches, and an intermediate connecting-wire between the plugs, substantially as specified.

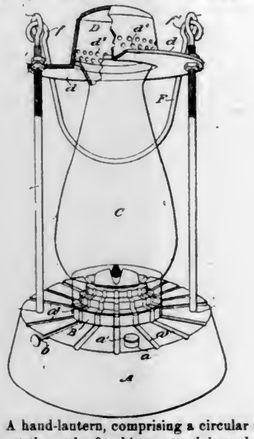
3. The combination with an umbrella-stick having upper and lower slots and upper and lower spring-catches having at their opposing outer ends rounded faces, of upper and lower plugs arranged at the rounded faces of the catches and having inclined slots receiving said rounded faces and opposing the same, and an intermediate connecting-wire for the plugs, substantially as specified.



4. The combination with the tubular stick having the upper and lower slots, and the upper and lower catches pivoted therein and having their shouldered portions extending through the slot, the upper catch having at its upper end the inclined rounded projection 10, and the lower catch having at its lower end the rounded edge 17, of the upper and lower plugs slidably mounted in the tubular stick above and below the catches and provided at their inner ends with inclined slots receiving the rounded parts of the catches, and with kerfs, and a connecting-wire let into the kerfs and having the metal upset thereover, substantially as specified.

5. The hollow umbrella stick having upper and lower slots, and the upper and lower spring catches arranged in the stick and projecting through the slots thereof, in combination with the upper and lower connected plugs mounted to move simultaneously, said plugs being engaged by the catches, and a rivet 27 to limit the movement of the upper plug, substantially as specified.

521,829. LANTERN. MARSHALL G. STEVENS, Merchantville, N. J. Filed Feb. 19, 1894. Serial No. 500,605. (No model.)



Claim.—1. A hand-lantern, comprising a circular slanting base adapted to support the neck of a chimney or globe and provided with a channeled or fluted radiating top surface, a circular fluted or channeled step-like holder, a perforated bonnet or cap with a rim, vertical rods or supports detachably engaging the rim of said bonnet or cap and said base, and a bail connected with said rods or supports, substantially as and for the purposes set forth.

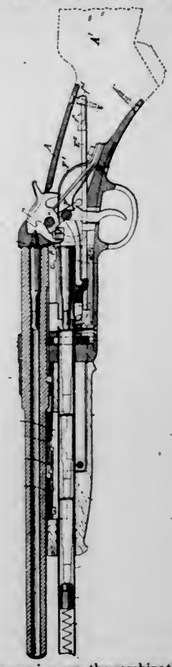
2. A hand lantern provided with a circular slanting base forming an oil reservoir and with a channeled or fluted radiating top surface, a circular fluted or channeled step-like wick-tube holder and slotted-cap and wick regulating device, a chimney provided with a neck adapted to engage said holder, a perforated bonnet or cap with a rim, and vertical rods or supports detachably engaging said bonnet or cap and base, substantially as and for the purposes set forth.

521,830. CLASP FOR GARMENT-SUPPORTERS. CHARLES W. STIMSON, New York, N. Y. Filed Aug. 7, 1893. Serial No. 482,522. (No model.)



Claim.—In a clasp for garment supporters, the combination, with a back plate and a headed button sliding thereon, of a front plate hinged to said back plate and having an aperture therein enlarged at one end to permit of the passage of the head of the button and contracted at the other end to cause said front plate to engage and retain the head of the button, a spring for causing said front and back plates to swing widely apart when the button is moved opposite the enlarged portion of the aperture in said front plate, and a strip of fabric secured to the sliding button and to the body of the clasp, and forming a means for drawing back and retracting said button, substantially as described.

521,831. BREECH-LOADING GUN. ISAAC N. P. STOKES, New York, N. Y. Filed Mar. 13, 1893. Serial No. 465,764. (No model.)



Claim.—1. In a magazine gun, the combination with a stationary breech-block, of a barrel movable longitudinally with respect to the breech-block, a cartridge carrier movable transversely to the barrel and adapted to transfer cartridges from a magazine to a position in alignment with the barrel, a sliding hand-piece and independent connections between the same and the barrel and cartridge carrier respectively, whereby the feed mechanism is operated simultaneously with the movement of the barrel.

2. In a magazine gun, the combination with a stationary breech-block, of a barrel movable longitudinally with respect to the breech-block, a cartridge-feeding mechanism, a sliding hand-piece, connections between the same and the barrel, other connections between the same and the feed mechanism, and a bolt for engaging with the barrel operated by the hand-piece for locking the barrel when in position against the breech-block.

3. In a magazine gun, the combination with a stationary breech-

block and sliding barrel, of a locking plate or bolt for engaging with the barrel and movable transversely to the same, a sliding hand-piece, a connection with lost motion between the same and the barrel, and a part moving with the hand-piece and adapted to engage with and operate the locking plate at a point in its path of movement when the barrel is in position against the breech-block, as set forth.

4. The combination in a magazine gun with a stationary breech-block, a sliding barrel and a magazine opening into the breech case, of a vertically movable carrier within the case for receiving and transferring the cartridges, a lever connected therewith, a sliding hand-piece connected with the barrel and a bar or rod attached to the same and adapted to engage with the carrier lever and raise the carrier when the barrel and hand-piece are thrust forward.

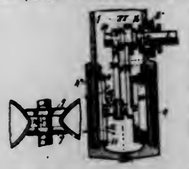
5. In a magazine gun, the combination with a sliding barrel and a hand-piece for moving the same, of a means for connecting the barrel and hand-piece consisting of a stud or projection on the barrel extending through a slot in the hand-piece, a spring arm carried by the hand-piece and engaging with the stud, and a plate or bar secured to the stationary frame of the gun adapted to engage with the said spring arm at a predetermined point in its path and raise it from engagement with the stud.

6. The combination with the sliding barrel and the magazine below and parallel with the same, of a cartridge carrier and ejector located in the breech casing under the barrel, a lever pivoted to the carrier and adapted to raise it when the barrel has been moved forward, a spring-actuated stop normally depressed by the carrier, but adapted to intercept and prevent the ejection of the cartridges from the magazine when the carrier is raised, a hand-piece or slide and connections between the same and the barrel and carrier lever respectively.

7. The combination with the stationary breech-block, having the extractor hooks *h*, *h* and spring *c*, and the sliding barrel, of the cartridge carrier movable vertically within the breech casing and in front of the breech-block, and consisting of a trough provided with a spring catch overhanging the forward end, and a spring-actuated hinged plate bridging the rear end.

8. The combination with the sliding barrel and hand-piece connected therewith with lost motion, of the vertically movable plate or bolt L′ adapted to enter a recess in the barrel, the cartridge-feeding mechanism, the sliding bars E′ E″ for operating the feeding mechanism and connected with the hand-piece, and provided with inclines for raising the bolt or plate L′ by engagement therewith.

521,832. STEAM-RADIATOR. HAMILTON W. STONE, St. Louis, Mo. Filed June 7, 1893. Serial No. 476,899. (No model.)



Claim.—1. A radiator section 1 in which is placed a valve 2 operating over a seat 10 placed around the orifice 4, the valve arm 18 loosely mounted on the turning rod 6, the wedge 21 firmly mounted on the turning rod 6, and the bearing block 13 secured to the opposite side of the section from the valve seat 10.

2. In a sectional radiator a valve 2 placed within one of the sections, said valve 2 being loosely mounted on the turning rod 6 and allowed a limited amount of play by the slot 19 and lugs 17 and having its seat 10 around the orifice 4, the wedge 21 securely fixed to the turning rod 6 and operating between the valve 2 and the bearing block 13 supported by the opposite side of the section, all substantially as described.

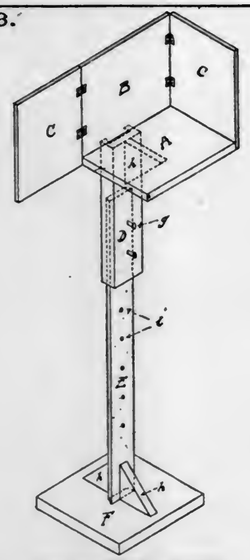
521,833. MODEL-STAND. CHRISTINE SULLIVAN, Cincinnati, Ohio. Filed Nov. 23, 1893. Serial No. 491,805. (No model.)

Claim.—1. The combination in a model stand of a standard having an adjustable cabinet thereon, consisting of a shelf, a back piece, and light-regulating wings hinged to said back piece substantially as and for the purpose described.

2. The combination in a model stand of a standard, a bracket vertically adjustable thereon, an object cabinet supported by the bracket, consisting of a back piece and light-regulating wings hinged to said back piece substantially as and for the purpose described.

3. The combination in a model stand of a shelf, back board, wings hinged thereon and adapted to swing over the shelf, the interior surface of the back piece and wings provided with a dull, dead finish and a standard adapted to support the same substantially as and for the purpose described.

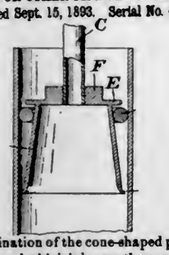
521,833.



521,834. COMPOSITION FOR REMOVING PAINT. EWALD TESSEN, Rostock, Germany. Filed Sept. 29, 1893. Serial No. 486,793. (No specimens.)

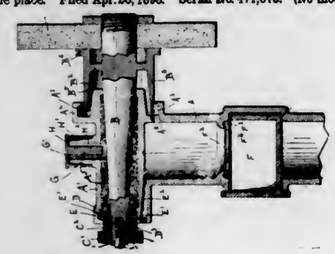
Claim.—As a means for destroying and removing paints or old and dry layers of color, a composition of matter consisting of eight per cent. oil-lime-soap, sixteen per cent. carrageen-slime, thirty-four per cent. chalk and forty-two per cent. caustic lye, substantially as described.

521,835. SOIL OR OTHER PIPE PLUG. HENRY G. TILLINGHAST, Baltimore, Md. Filed Sept. 15, 1893. Serial No. 485,632. (No model.)



Claim.—The combination of the cone-shaped plug having a flange or collar, E, at its small end which is larger than and projects circumferentially beyond said small end, and a bell-shaped flange at the other end; a ring of rubber packing around said plug which is of relatively smaller size than the said flange or collar; and a pipe, C, connected with the cone-plug and having a lateral curve which serves as a hand-grasp, whereby when the cone-plug is inserted large end first in a pipe to be tested, the said flange or collar prevents the rubber ring from coming off the cone-plug.

521,836. BEARING FOR EMERY-WHEELS. OAKLEY S. WALKER, Worcester, Mass., assignor of one-half to the Norton Emery Wheel Company, same place. Filed Apr. 20, 1893. Serial No. 471,073. (No model.)



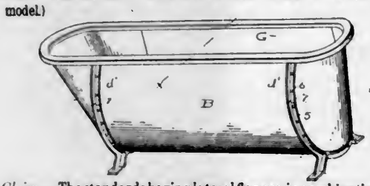
Claim.—1. The combination with a supporting stand A and journal bearing of a spindle B provided with a web B^3 and sleeve B^2, the latter serving as a pulley for said spindle, said sleeve and web, being formed integral with said spindle, substantially as described.

2. The combination with a spindle B, of a web B^3 and a sleeve B^2, integral with said spindle, said sleeve having a flange B^4 and said spindle having a screw threaded section B′ and a nut carried by said screw threaded section by which an emery wheel is clamped against said flange, substantially as described.

3. The combination, with a hollow stand A and bearing A′ and a spindle B, provided with a screw threaded end C, of a nut C′ held on said screw threaded end and having a cylindrical hub C^2, said bearing A′ provided with a flange E extending over a portion of said hub C^2 and having an annular channel E′ surrounding said hub, provided with a passage E^2 leading from said channel to the interior of said hollow stand, substantially as described.

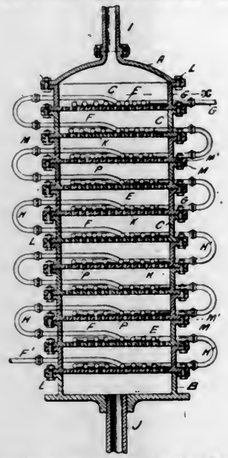
4. The combination with a tapering bearing A, of a tapering spindle B having its smaller end split and provided with a screw thread C, a nut carried by said spindle and arranged to bear against the end of the bearing, said spindle having a concentric screw threaded hole D in its end and a screw held therein, provided with a tapered section, whereby the split end of the spindle is expanded and the nut held from turning, substantially as described.

521,837. BATH-TUB. ALMON G. WARD and WILLIAM C. WHEFIELD, Warren, Ohio. Filed Oct. 9, 1893. Serial No. 487,572. (No model.)



Claim.—The standards having lateral flanges, in combination with the casing made in sections fixed to said flanges and having their edges abutting, the filling and the sheet metal inside, substantially as set forth.

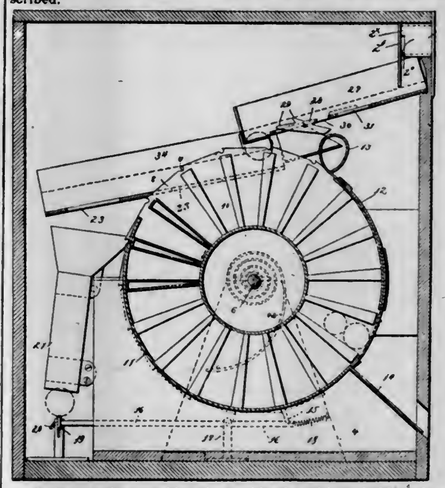
521,838. CONDENSER. EDWARD H. WARDWELL, South Orange, N. J. Filed Mar. 27. 1891. Serial No. 386,624. (No model.)



Claim.—A condenser consisting of a series of superposed vessels C, each having a top and a bottom flange whereby adjacent vessels may be joined, and each vessel having a perforated bottom, and coils of pipe laid within said vessels, the coil of one vessel being connected with and thereby rendered continuous of the coil of the next adjacent vessel or vessels, substantially as described.

521,839. VENDING-MACHINE. JAMES A. WESTBAY and WILLIAM T. WESTBAY, McKeesport, Pa. Filed Mar. 9, 1894. Serial No. 502,973. (No model.)

Claim.—1. In a vending machine, the combination with a suitable casing, a rotary magazine arranged within said casing and having a series of pockets adapted to successively register with a delivery opening in the casing, and a coin guideway, of a lever fulcrumed within the casing and having at one end a pawl, adapted to engage with the teeth of a ratchet on the rotary magazine, and having its other end extending across the lower end of the coin guide way, and a spring for normally maintaining the pawl on said lever in engagement with the teeth of the ratchet, substantially as shown and described.



2. In a vending machine, the combination with a suitable casing, of a rotary magazine mounted on a fixed shaft within the casing, a coiled spring attached at one end to said magazine and at its other end to the shaft, means for normally holding the magazine against rotation, and a coin guide arranged to deliver coins to the magazine retaining devices, substantially as shown and described, for the purpose specified.

3. In a vending machine, the combination of a casing having a coin receiving opening and a delivery slot, a magazine rotatably mounted in the casing and having pockets adapted to register with the delivery slot, devices for normally retaining the magazine and releasing the same when operated upon by a proper coin, a coin guide leading to the retaining devices, and a pivoted plate having points adapted to enter an opening in a spurious coin and prevent it from operating upon the retaining devices.

4. In a vending machine, the combination with a rotary magazine, devices for retaining the same and releasing said magazine when operated upon by a coin, a coin guide or channel having a series of discharge openings, and the weighing devices in said channel, comprising the tilting plate or platform, the stem carrying the weight and the tube carrying the movable weight, all acting in the manner described.

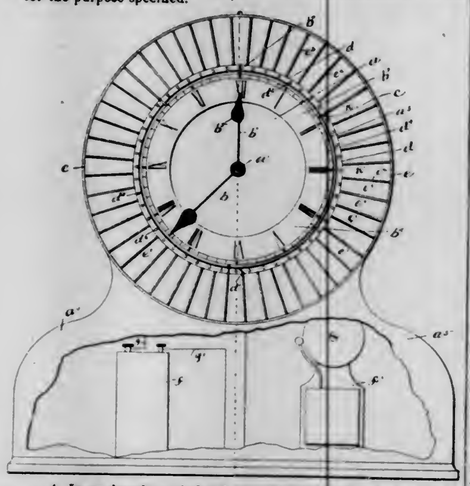
521,840. ELECTRIC ALARM-CLOCK. NINA F. WHITNEY, Columbus, Ohio. Filed Dec. 2, 1893. Serial No. 492,579. (No model.)

Claim.—1. In an electric reminder the combination with a clock mechanism, the hand post and hands and an extension of one of said hands, of a metallic band *d* adjacent thereto, pin holes in said band in radial alignment with the hour markings on said clock dial, pins adapted to be detachably supported in said pin holes and to project within the path of the clock hour hand extension, an electric connection between said pins and hands when the same are in contact through an electric source and bell and a circular rack about said clock face, substantially as and for the purpose specified.

2. In an electric reminder the combination with a clock mechanism, a ring face raised as described therefrom, the hand post and hands, and a depressed extension on one of said hands adapted to pass under said face ring, of a metallic band about said clock, pin holes therein opposite the hour and hour fraction marks of said clock face, pins having flexible endings adapted to be supported in said band pin holes and in the path of said hand extension and an electric circuit adapted to be closed through an electric battery and bell by contact of said hand and post endings, substantially as and for the purpose specified.

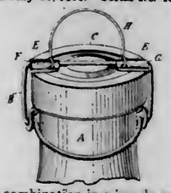
3. In an electric reminder the combination with a clock mechanism, a raised dial or face ring therefor as described, the hour and minute hands and a depressed extension finger on one of said hands the latter passing beneath the dial ring, of a metallic band about said clock face, pin holes in said band opposite the dial marks, pins hav-

ing flexible endings adapted to enter said holes and project within the path of the hand extension, a radial receptacle about said band and pockets therein in radial alignment with said pin holes and dial marks and means for closing an electric circuit through a battery and bell when said hand and pins are in contact, substantially as and for the purpose specified.



4. In an electric reminder the combination with a clock mechanism, a perforated band *d* adjacent thereto, of a pin *h* adapted to be inserted in any one of said perforations, a disk pivoted on said pin *h*, radially arranged pins on said disk which are adapted to be projected within the path of the clock hour hand and a portion of which pins are insulated from said disk and an electric connection through a battery and bell with the band *d* and said hour hand, substantially as and for the purpose specified.

521,841. COVER FOR MILK-JARS. CURTIS N. WILCOX, Brooklyn, N. Y. Filed July 28, 1893. Serial No. 481,892. (No model.)



Claim.—1. The combination in a jar-closing device of a cover of sheet metal having perforated ears at opposite edges, a wire or bail extending across said cover, the said wire being passed through the perforated ears which are bent down over the wire, and a bowed or arched wire the ends of which pass under the transverse portion of the bail through perforations in the ears and are twisted or turned around the bail, as set forth.

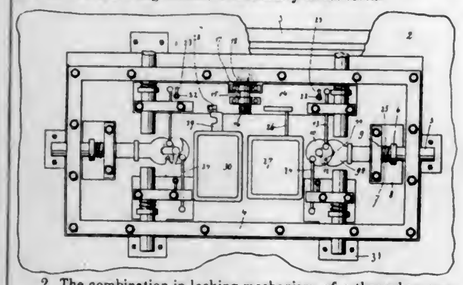
2. In a jar cover the combination with a sheet metal plate having a central raised portion with a transverse groove therein, which at its middle point is slightly higher than the edges of the cover, of a wire yoke or bail for clamping the cover to a jar and having a straight portion lying in the transverse groove, as set forth

3. The combination of a sheet-metal plate having the depression or groove D, and ears E; a bail B passing through perforations in said ears which are bent down over the wire, and the bowed wire H, the ends of which pass under the wire B through perforations in the ears E over the depression D and are bent or twisted around said wire.

4. The combination with a jar cover and a bail for securing the same to the jar and having a straight portion extending across the upper surface of said cover, of a bowed or arched wire, the ends of which engage with said straight portion to form a handle and projections on the cover surrounding the bail and forming stops for preventing the displacement of said handle along the wire or bail as set forth.

521,842. LOCKING MECHANISM FOR SAFES. CHARLES O. YALE, New York, N. Y. Filed Jan. 29, 1892. Serial No. 419,630. (No model.)

Claim.—1. The combination of two or more independently movable locking bolts, of a throw-bar for simultaneously operating the bolts, a shoulder on each bolt adapted to engage the throw-bar in positively withdrawing the bolt, and a spring introduced between the throw-bar and bolt and exerting pressure in the direction of the throw of the bolt whereby each bolt is capable of independently yielding as the bolt work is being locked, substantially as set forth.

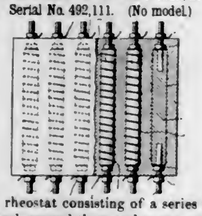


2. The combination in locking mechanism, of a throw-bar, two or more independently movable locking bolts, each having a shoulder adapted to engage the throw-bar in drawing the bolts, a spring for each bolt introduced between the throw bar and bolt and exerting pressure in the direction of the throw of the bolt, whereby each bolt is capable of independently yielding with reference to the throwing mechanism, and a wedging face on the jamb for each bolt to engage upon, substantially as set forth.

3. The combination of two or more locking bolts, mechanism for simultaneously operating the bolts constructed to confine the bolts within independent limits of movement with reference thereto, a spring for each bolt introduced betwen the operating mechanism and bolt and operating to project the bolt with reference to the operating mechanism, substantially as set forth.

4. The combination with a jamb receding by steps from the face inwardly, of a step having a groove therein and a sheet metal packing secured at one edge by being tucked into a narrow groove provided therefor, the packing conforming to the face of the step and to the groove therein and having its opposite edge secured on the side of the step by being tucked into a narrow groove or recess provided therefor, and a door receding by steps, and having tongues adapted to enter the groove of the steps on the jamb, substantially as set forth.

521,843. RHEOSTAT. BURTON E. BAKER, Bridgeport, Conn. Filed Nov. 27, 1893. Serial No. 492,111. (No model.)



Claim.—1 A rheostat consisting of a series of cores having resistance wires wound around them and screws extending from their ends with which the resistance wires are connected, said cores and resistance wires being embedded in a block 5 from which the ends of the screws protrude.

2. The cores having screws extending from their ends and resistance wires wound around them and connected to the screws.

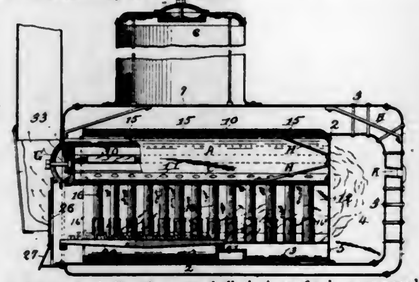
3. A rheostat consisting of a series of cores having screws extending from their ends, resistance wires wound around said cores and engaging the screws, nuts 4 by which the ends of the resistance wires are held in place, a block 5 in which said cores and resistance wires are embedded, the ends of said screws extending outward from the block and nuts 7 outside of the block by which lead wires are connected to the screws.

521,844. STEAM-BOILER. HENRY N. BARTH, Chicago, Ill. Filed Oct. 27, 1893. Serial No. 489,280. (No model.)

Claim.—1. A horizontal generally cylindrical steam boiler having within the outer shell the chamber or concentrator approximating the segment of a cylinder extending horizontally within the outer shell and having a crown sheet over the fire chamber, and water tubes leading in a nearly vertical direction from the water space below the fire box, through the fire chamber, and into the concentrator, substantially as described.

2. In a steam boiler, the outer shell, the inner water chamber or concentrator, the fire box sides formed by the extension of the plates of said concentrator, the bottom trough and the water tubes leading from said trough through the fire box and into the concentrator, substantially as described.

3. In a steam boiler, the generally cylindrical horizontal shell, the concentrator inclosed therein, the fire box inclosed in the shell and having side walls and outer tubes extending in nearly vertical direction through said box to the concentrator above the same, and having fire tubes extending in horizontal direction at the sides of said fire box, substantially as described.

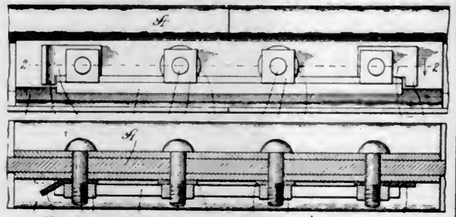


4. In a steam boiler, the outer shell, the inner fire box composed of inclined sides and a bottom trough and a grating, the concentrator above said fire box, the water tubes extending through said fire box, and the fire tubes extending from the inclosed chamber at the rear of the boiler alongside the fire chamber to the front of the boiler, all combined and relatively arranged substantially as described.

5. The concentrator inclosed in the boiler shell and having nearly vertical water tubes connecting therewith, and having a convex crown sheet with its sides inclined downward toward the ends of the adjacent water tubes, whereby sediment may pass to the tubes, all substantially as described.

6. The horizontal segmental concentrator inclosed in the main horizontal generally cylindrical shell and having nearly vertical water tubes entering the lower part thereof, and having openings at the upper part through which circulation is had, in combination with the fire box shell and accessories, substantially as described.

521,845. NUT-LOCK. JULIUS C. BROWN, Santa Barbara, Cal. Filed May 9, 1894. Serial No. 510,596. (No model.)



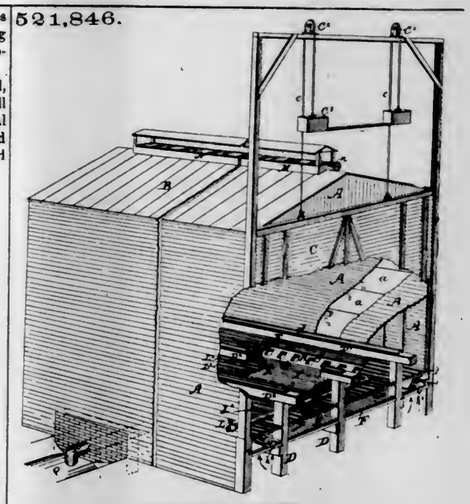
Claim.—1. In a nutlock to be used in conjunction with a fish plate, the combination with a key piece of uniform size throughout its length, and angular in cross section, and having one leaf adapted to lie behind the nuts and one leaf extending between the nuts and the foot of the fish plate, and a pair of washers each having a straight edge for contact with the top of the key piece, and a lug projecting perpendicular to such edge so as to prevent the longitudinal movement of the key piece, substantially as described and for the purpose specified.

521,846. LUMBER-DRIER. WILLIAM L. BURTON and HENRY MEYERDING, New Orleans, La. Filed Apr. 1, 1892. Serial No. 427,351. (No model.)

Claim.—1. In a drier the combination of a slatted floor 'E, a tightly closed floor F, studdings uniting said floors adjacent to their sides, a stationary perforated plank G alongside of said studdings, a longitudinally movable valve-plank G^2 upon the plank G and a shorter movable valve-plank H upon the plank G^2, with a series of steam pipes located horizontally above the upper floor substantially as described.

2. A drier having in the bottom thereof an air box, the top of which forms the floor of the drier and consists of slats kept apart, the bottom or floor of said box being substantially air tight, perforated plank-valves G and G^2 on the side of the air box, a series of steam pipes located horizontally above the air box, and a horizontal smoke flue under said box substantially as described.

521,846.



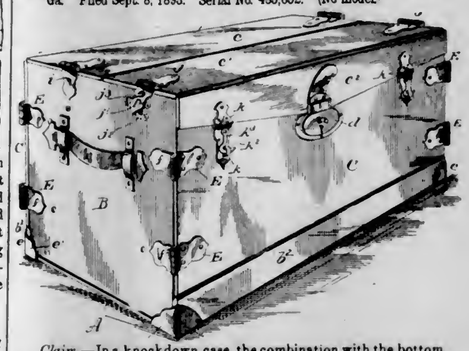
521,847. LINE-FASTENER. RICHARD M. CHRISTENSEN, New York, N. Y. Filed Sept. 29, 1893. Serial No. 486,813. (No model.)



Claim.—1. A rope fastener or grip consisting of a block having two passages through which the ends of the rope pass in opposite directions, and an oblique opening intercepting one of said passages into which a free end of the rope is passed to become gripped by the other end.

2. A line fastener or grip consisting of a block having two parallel passages through which the ends of the line pass in opposite directions and having an oblique kerf or slit entering the side of the block and intercepting one of the passages, said slit having contracting sides between which both ends of a rope are clamped one against the other.

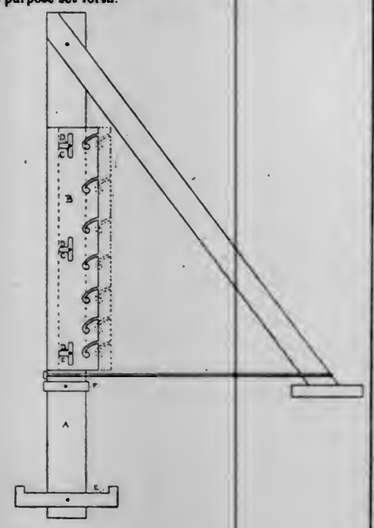
521,848. KNOCKDOWN CASE. MARY M. CLECKLEY, Augusta, Ga. Filed Sept. 8, 1893. Serial No. 485,052. (No model.)



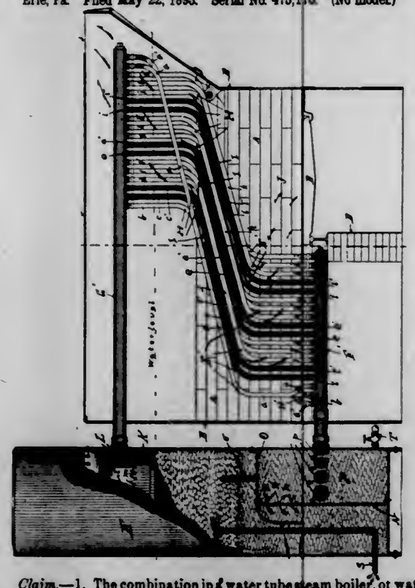
Claim.—In a knockdown case, the combination with the bottom, sides and ends hinged thereto, hasps made in two leaves hinged together located at the corners of the case, and fastening devices inside for engaging said hasps from the inside of the case whereby to lock the adjacent edges of the ends and sides together, of a cover hinged to one of the sides, said cover made in two or more sections hinged together, one section having hasps, devices inside of the case for fastening these hasps and another section having hasps which fasten on the outside of the case whereby one section is unfastened from the outside and the other from the inside, substantially as set forth.

521,849. FENCE-POST. PAUL C. CRETCHER and JOHN R. MILLER, Huntsville, Ohio. Filed Mar. 1, 1894. Serial No. 502,001. (No model.)

Claim.—The fence post composed of the clamping side pieces A, the center piece having the T-shaped slots, and recessed grooves, as and for the purpose set forth.



521,850. WATER-TUBE STEAM-BOILER. LEONARD D. DAVIS, Erie, Pa. Filed May 22, 1893. Serial No. 475,170. (No model.)



Claim.—1. The combination in a water tube steam boiler, of water tubes extending from headers in the rear of the fire box to headers at the front of the boiler above the fire box, and a series of flues, one above another, extending from the rear toward the front of the boiler, the walls of which consist of the central portions of said water tubes, through which flues the heat and products of combustion pass on their way from the rear of the fire box of said boiler to the smoke stack, substantially as set forth.

2. The combination in a water-tube steam-boiler, of inclined water-tubes, and a flue or flues, inclined upward from the rear toward the front of the boiler, the walls of which consist of the central portions of said inclined water-tubes placed in close contact with each other, through which flue or flues the heat and products of combustion pass on their way from the rear of the fire-box of said boiler to the smoke-stack, substantially as set forth.

3. The combination in a water-tube steam-boiler, of water-tubes curved near their ends and having their central portions inclined, and a series of flues, one above another inclined upward from the rear toward the front of the boiler, the walls of which consist of the central portions of said inclined water-tubes, through which flues the heat and products of combustion pass on their way from the rear of the fire-box of the boiler to the smoke-stack, substantially as set forth.

4. The combination in a water-tube steam-boiler, of water-tubes curved near their ends and connected into horizontal header pipes and having their central portions inclined upward from the rear toward the front of the boiler, with inclined flues, the walls of which consist of the central inclined portions of said water-tubes, through which flues the heat and products of combustion pass on their way from the rear of the fire-box of the boiler, upward and forward to the smoke-stack, substantially as set forth.

5. The combination in a water-tube steam-boiler, of a series of flues, one above another, inclined upward from the rear toward the front of the boiler, the wall of which flues consist of inclined water-tubes placed in close contact with each other, and each succeeding flue projecting rearward beyond the flue immediately below it far enough to form the inlet thereto, so as to insure each flue receiving its share of the heat and products of combustion, substantially as set forth.

6. The combination in a water-tube steam-boiler, of a group of water-tubes curved near the ends thereof and secured in header pipes communicating with downflow pipes or drums, the central portions of which water-tubes between the curves therein being closely in contact with each other and inclined upward from the rear toward the front of the boiler, so as to form an inclined flue or flues between the curves in said water-tubes, the walls of which flue or flues consist of the central inclined portions of said water-tubes, substantially as and for the purposes set forth.

7. The combination in a water-tube steam-boiler, of a fire box at the front of the boiler, header pipes extending rearwardly from the rear of the fire-box, water-tubes inserted in said header pipes and extending upward some distance substantially parallel to each other, so that the heat and products of combustion pass from the rear of the fire-box freely between and around them, bends in said water-tubes at some distance above said header pipes by means whereof said water-tubes are brought into contact with each other in tiers, one above another horizontally inclined from the said bends upward toward the front of the boiler, a second set of bends in said water-tubes above the fire-box and near the front of the boiler whereby said water-tubes are again separated from each other, so as to allow the heat and products of combustion to pass between them, and header pipes secured to the upper ends of said water-tubes, substantially as and for the purpose set forth.

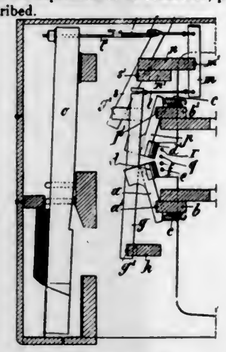
8. The combination in a water-tube steam-boiler, of water-tubes formed into a group of flues inclined upward from the rear toward the front of the boiler, the vertical and horizontal walls of which flues consist of the central portions of the water-tubes placed in close contact with each other, so as to form a rectangular group of flues extending from the rear toward the front of the boiler substantially as set forth.

9. The combination in a water-tube steam-boiler, of horizontal pipes F, F' &c., at the lower part of the boiler, and horizontal pipes G, G' &c., at the upper part of said boiler, water-tubes curved near their ends and having the central portions thereof inclined, connecting said pipes at the lower and upper parts of the boiler, with a vertical pipe or drum connecting with the ends of said pipes at the lower and upper parts of the boiler, and a semi-disk O and a diaphragm M in the lower part of said vertical pipe or drum, forming a chamber around the inlets of the pipes at the lower part of the boiler, substantially as and for the purpose set forth.

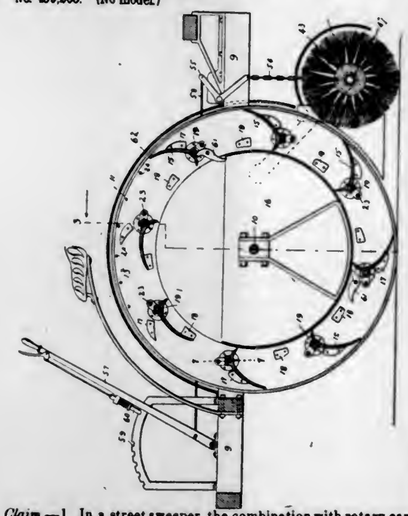
10. The combination in a water-tube steam-boiler, of horizontal pipes F, F' &c., at the lower part of the boiler, and horizontal pipes as G, G' &c., at the upper part of said boiler, water-tubes curved near their ends and having the central portions thereof inclined connecting said pipes at the lower and upper parts of the boiler, with a vertical pipe or drum connecting with the ends of said pipes at the lower and upper parts of the boiler, a deflector M in the upper part of said pipe or drum above the inlets of the horizontal pipes at the upper part of the boiler, a semi-disk O and a diaphragm N in the lower part of said vertical pipe or drum, forming a chamber around the outlets of the pipes at the lower part of the boiler, substantially as and for the purpose set forth.

521,851. KEYBOARD MECHANISM FOR PLAYING UPON STRINGED INSTRUMENTS. EDMUND J. DE VLAMINCK, Vésinet, France. Filed Aug. 5, 1893. Serial No. 482,458. (No model.) Patented in France Dec. 28, 1892, No. 226,665, and in Belgium May 3, 1893, No. 104,515.

Claim.—In a device for mechanically fingering stringed instruments of the violin class the combination of a keyboard composed of key levers *o*, a series of spring retracted presser levers *a* provided with forked top, levers *g* carried by said forks and adapted to depress levers *a*, levers *m* connected to levers *g* and to key levers *o* by cords and adjusting wires; a second series of spring retracted presser levers *p* provided with forked tops, forked topped levers g^3 carried by the forks of levers *p*, levers *s* connected by cords and adjusting wires to key levers *o*, and carried by the forks of levers g^3 and adapted to depress levers g^3 and *p* all arranged so that a depression of one of the key levers will cause a depression of its connected, presser lever, substantially as described.



521,852. STREET-SWEEPER. PETER B. DONAHOO, San Francisco, Cal., assignor to George S. Switzer, same place, and Hugh R. Bean and George B. Sinclair, Chicago, Ill. Filed Jan. 21, 1893. Serial No. 459,263. (No model.)



Claim.—1. In a street sweeper, the combination with rotary carriers, and buckets carried thereby, of a receptacle adapted to receive dirt from said buckets, means for delivering dirt from said buckets into said receptacle, and devices for automatically overturning said receptacle, substantially as described.

2. In a street sweeper, the combination with rotary carriers, and buckets carried thereby, of a receptacle adapted to receive dirt from said buckets, means for delivering dirt from said buckets into said receptacle, and mechanism operating to overturn said receptacle only when the sweeper is backed, substantially as described.

3. The combination with a rotary carrier, and buckets carried thereby, of a dirt receptacle suspended within the circle of said buckets, and a bar carried by said carrier and adapted to automatically engage said receptacle when the carrier is rotated in a reverse direction, substantially as described.

4. The combination with disks 13 and 14, a receptacle 16, and a shaft 10 supporting said receptacle, of an arm 61 supported by one of said disks and adapted to engage the edge of said receptacle when the disks are rotated in a reverse direction, substantially as described

5. In a street-sweeper, the combination with a shaft 10, of carrying-wheels 11 and 12, one of which is loose on the shaft and the other one of which is keyed to the shaft to rotate the latter in either direction, disks 13 and 14 mounted upon the shaft and adapted to rotate therewith, buckets carried by the disks, means for sweeping dirt into the buckets, a dumping receptacle arranged within the circle of the buckets, and means for dumping the receptacle by backing the sweeper, substantially as described.

6. In a street-sweeper, the combination with a shaft 10, of carrying-wheels 11 and 12, one keyed to the shaft and the other loose thereon, disks 13 and 14, one of which is keyed to the shaft and rigidly attached to the carrying-wheel which is keyed to the shaft, buckets carried by said disks, means for sweeping dirt into said buckets, a dumping receptacle arranged within the circle of the buckets, and means for dumping the receptacle by backing the sweeper, substantially as described.

7. The combination with rotary supporting disks or plates 13 and 14, and tilting buckets 15 pivoted thereto, of an outer and an inner series of independent stop blocks rigidly attached to the inner sides of the said disks or plates and respectively supporting the buckets in operative position and when overturned, substantially as described.

8. The combination with disks, as 13 and 14, of brackets 21 carried thereby, rods 23 connecting brackets of opposite disks, shafts 19 journaled in said brackets, and buckets carried by said shafts, substantially as described.

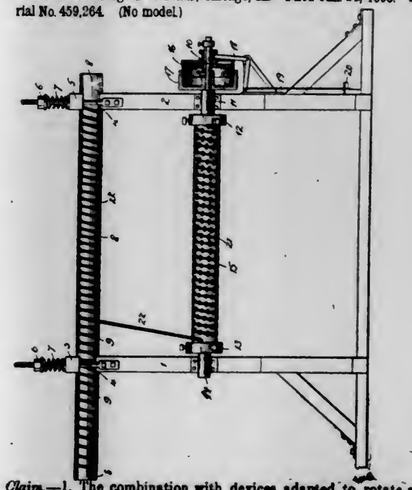
9. The combination with a street sweeper frame, of a rotary brush having a hollow hub 44, a non-rotary shaft 47 extending through the brush-hub and on which the latter rotates, and suspended rods 46 having screws 48 projecting laterally from their lower ends, screwing into the ends of the said non-rotary shaft and provided with bearings which support the ends of the rotary brush-hub, substantially as described.

10. The combination with a street sweeper frame, of a rotary brush having a hollow hub 44 a non-rotary shaft 47 extending through the brush-hub and on which the latter rotates, and suspended rods 46 having rigid screws 48 at their lower ends which screw into the ends of the non-rotary shaft, substantially as described.

11. The combination with a rotary brush having a hub 44, of a sprocket-wheel 49 formed integral with the guard 53 and with the central laterally projecting hollow hub 50 extending into the end of the rotary brush-hub, and a support extending into said hollow hub, and on which said hub rotates, substantially as described.

12. The combination with a rotary brush having a hub 44, of sprocket-wheels 49 having guards 53 and central laterally projecting hubs 50 which extend into the ends of the rotary brush-hub, suspended rods 46 having screws 48 at their lower ends, a non-rotary shaft 47 on which the brush-hub rotates and into which the said screws of the suspended rods are screwed, and bushings 52 interposed between the hubs of the sprocket wheels and the said screws, substantially as described.

521,853. BROOM-MAKING MACHINE. PETER B. DONAHOO, San Francisco, Cal., assignor to George S. Switzer, same place, and Hugh R. Bean and George B. Sinclair, Chicago, Ill. Filed Jan. 21, 1893. Serial No. 459,264. (No model.)

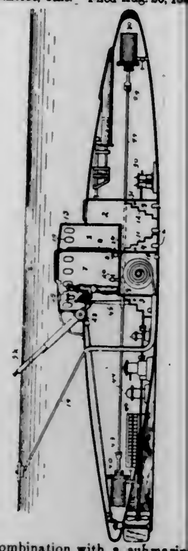


Claim.—1. The combination with devices adapted to rotate a broom-hub of the class described, of a rope-holding drum, said drum

having a groove similar to that of the broom hub in point of diameter and inclination, substantially as described.

2. The combination with uprights 1 and 2, and rods 3 and 4 carried thereby, of a drum 8 mounted between said rods, cross bars 5, springs 7 adapted to exert a downward pressure upon said cross bars, and mechanism for rotating the hub of a broom, substantially as described.

521,854. SUBMARINE BOAT. DANIEL T. FREESE and JAMES D. CAWN, North Amherst, Ohio. Filed Aug. 26, 1892. Serial No. 444,165. (No model.)



Claim.—1. The combination with a submarine vessel provided with a water-ballast chamber 9 having an aperture 16 communicating with the outside of the vessel and an opening 20 through which air may be supplied to the interior of the vessel, a pump having its eduction port communicating with the interior of the ballast chamber, and a pipe or hose constructed so that one end may be extended to the atmosphere above the water in which the vessel is submerged and having its other end connected with the induction port of said pump, substantially as described.

2. The combination with a submarine vessel provided with a water-ballast chamber having an aperture 16 communicating with the outside of the vessel and an opening 20 through which air may be supplied to the interior of the vessel, of a rotatable pipe or pump cylinder 18 having its eduction and induction ports located within the ballast chamber, and a hose constructed so that one end may be extended to the atmosphere above the water in which the vessel is submerged and having its other end connected with the induction port of said pipe or cylinder whereby the hose may be wound upon said pipe and within the ballast chamber substantially as described.

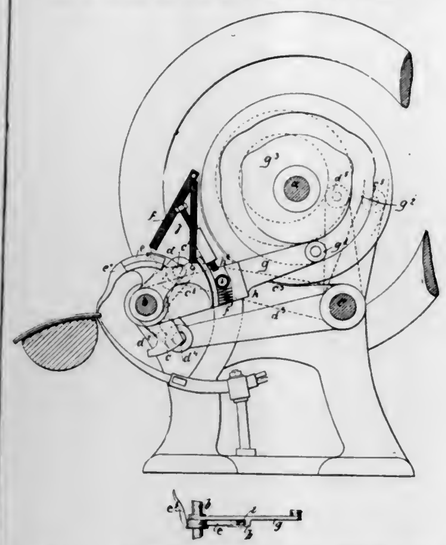
3. The combination in a submarine vessel, of the chamber No. 7, water chamber No. 1, intermediate chamber No. 7 and water chamber No. 2, a door between chambers Nos. 7 and 1, means for supplying compressed air to chamber No. 1, the said water chamber No. 2, a door between chambers Nos. 1 and 2, and a door leading from the latter to the outside of the vessel, substantially as described.

4. The combination with a submarine vessel provided with a chamber No. 7, substantially as described, of a speculum comprising a water-tight tube constructed so that one end may be extended beyond the surface of the water in which the vessel is submerged and its other end located within said chamber, and reflectors in the ends of the tube, and the casing or tube 32 into which the speculum may be drawn having a water-tight cap 37, substantially as described.

5. Means for maintaining a submarine vessel in a horizontal position comprising two water chambers one at or near each extremity of said vessel and each having an opening for the admission and discharge of the water, movable diaphragms or piston to vary the amount of water in the chambers, means rigidly or positively connecting said diaphragms constructed so that the pistons or diaphragms may be moved simultaneously to increase the amount of water in one of the chambers and reduce it in the other, and vice versa, the said means also constructed so that when either one of said pistons be moved in either direction the pressure of the water upon one will counteract that upon the other, substantially as described.

6. Means for maintaining a submarine vessel in a horizontal position comprising two chambers 40, 40 having an opening for the admission and discharge of the water, one at or near each extremity of said vessel, pistons 41, 41 in said chambers to vary the amount of water therein, rods 42, 42, each connected respectively with one of said pistons, levers 43, 43 connected with said rods, and the bar 44 joining said levers, whereby the pistons may be moved simultaneously in opposite directions with respect to the chambers and when one of said pistons be moved in either direction the pressure of the water upon one of the pistons will counteract that upon the other, substantially as described.

521,855. SEWING-MACHINE. PAUL GÖHRING, Ober-Ursel, assignor to Eisengiesserei and Maschinenfabrik für Schuh und Lederindustrie, vormals Miller & Andreæ, Bockenheim, near Frankfort-on-the-Main, Germany. Filed Sept. 8, 1892. Serial No. 445,375. (No model.) Patented in Germany July 21, 1892, No. 69,735; in France Aug. 29, 1892, No. 223,944, and in England Aug. 30, 1892, No. 15,528.



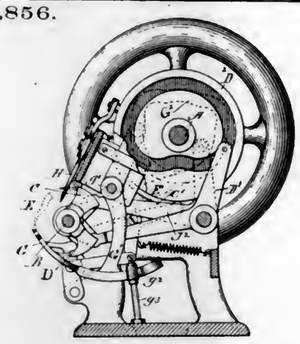
Claim.—1. In a sewing machine of the kind described, a work support, a shaft, a lever pivotally mounted on said shaft and carrying a presser foot, a second or operating lever, one end of which is also pivotally mounted on said shaft, operating mechanism whereby said operating lever is oscillated and a clamp mechanism, one member of said clamp being connected with said operating lever, the other with said presser foot lever, all as and for the purposes set forth.

2. In a machine of the kind described: the combination, with the presser-foot e', the lever e carrying the same, said lever having an arc-shaped end, and the lever g adapted to be operated by a cam-disk g^3, and having a lateral extension k provided with inclines k' arranged in the form of a gable roof, of the roll i, the spring f', adapted to effect the automatic coupling of levers e and g at each downward movement of the latter, the set-screw j, adapted to couple the same parts antomatically at each upward movement of lever g, and the spring f adapted to effect the automatic adjustment of the presser-foot e' to the thickness of the sole, substantially and for the purpose as described.

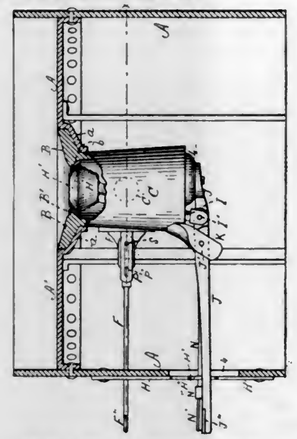
521,856. SEWING-MACHINE. PAUL GÖHRING, Ober-Ursel, assignor to the Deutsch-Amerikanischen Maschinen-Gesellschaft, Frankfort-on-the-Main, Germany. Filed Oct. 19, 1893. Serial No. 488,568. (No model.) Patented in Germany July 20, 1892, No. 67,584; in France Aug. 29, 1892, No. 223,994, and in England Aug. 30, 1892, No. 15,528.

Claim.—In a sewing machine, in combination, a cam shaft, a needle carrying shaft, a needle carrier and an awl carrier, both being mounted and adapted to oscillate on said needle carrying shaft, as described, a thread guide located below the work, the stud g' located between said cam shaft and said needle carrying shaft and close to the path of said needle carrier, a lever G' adapted to oscillate on said stud, the upper end of said lever being operated by a cam on said cam shaft, and its lower end carrying said thread guide, all as and adapted for the purposes set forth.

521,856.



521,857. TUYERE. JOHN G. HABELT, Boston, Mass. Filed Jan. 19, 1894. Serial No. 497,391. (No model.)



Claim.—The herein described improved tuyere comprising the hearth B provided with the central opening B', tubular portion C provided with the side opening C', the blast pipe E, the horizontally sliding damper F moving across said blast pipe, the actuating rod F' pivotally connected with said damper, and the horizontally slotted arm P extending from the wall of the tuyere, the pivot extending into and sliding in the slot in said arm, substantially as set forth.

521,858. PUNCHING AND FORMING MACHINE. CAMPBELL P. HIGGINS, Roselle, N. J. Filed May 27, 1893. Serial No. 475,789. (No model.)

Claim.—1. In a punching and forming machine, the combination of a stationary platen, the forming die supported thereon, the punching and forming die movable relatively to said forming die, the movable blocks for securing the punching die in a fixed position relatively to the said forming die, the movable female die and the movable forming die, substantially as specified.

2. In a punching and forming machine, the combination of the forming dies, the punching dies, the interposing blocks for holding the male punching die in an operative position, and means for moving said interposing blocks in both directions, substantially as specified.

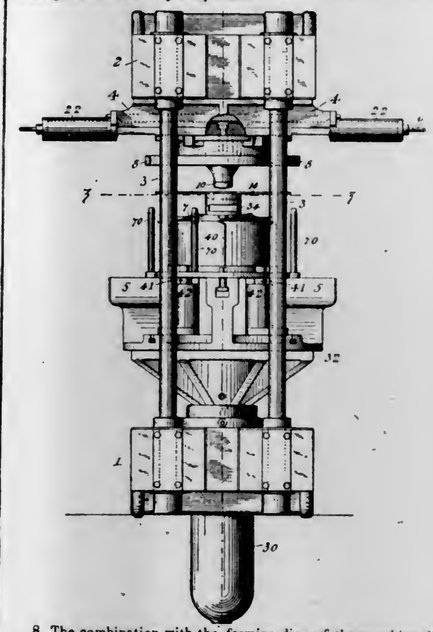
3. In a punching and forming machine, the combination with forming dies of the manhole punching and forming dies, means for holding one of said punching and forming dies in an operative position, means for advancing the other of said punching dies, and a contractible casting-off collar, substantially as specified.

4. The combination with the punching dies and the forming dies, of the segmental casting-off collar surrounding one of said forming dies, substantially as specified.

5. The combination with the fixed forming die and the fixed punching die, of the movable forming die, the movable punching die, and the casting off collar consisting of segments internally tapered and surrounding the movable forming die, substantially as specified.

6. In a punching and forming machine the combination with the punching dies and the forming dies, of the contractible casting-off collar and the hydraulic plungers for operating said collar, substantially as specified.

7. In a punching and forming machine, the combination of a fixed platen, a flanging collar carried thereby, a forming die movable in the flanging collar, the male punching die, the movable platen, the forming die carried by said movable platen, the female punching die movable within the last named forming die and in advance of said forming die, substantially as specified.



8. The combination with the forming dies, of the punching die having the stem portion provided with gains, the interposing blocks and means for moving said interposing blocks into engagement with the gains of said stem portion, substantially as specified.

9. The combination with the upper forming die and the male punching die, of the movable platen, the forming die carried thereby, the cylindric plunger operating in a hydraulic cylinder and carrying said platen, the lifting ram operating in said cylindric plunger, and the female punching die carried by said ram, substantially as specified

---

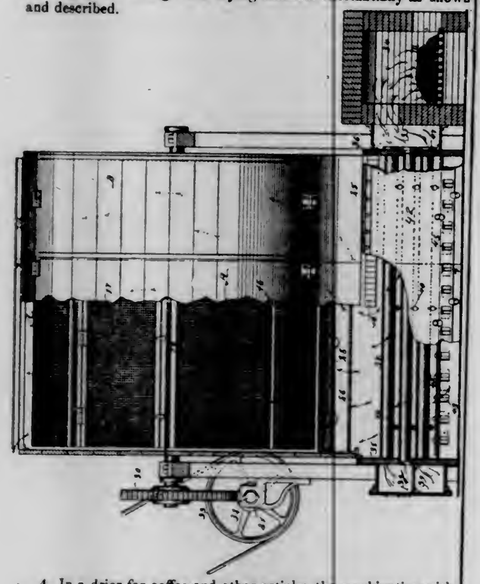
521,859. COFFEE-DRYING APPARATUS. RICHARD P. HOCKING, Mayaguez, Porto Rico. Filed June 20, 1893. Serial No. 478,285. (No model.)

Claim.—1. In a drier for coffee and other articles the combination with a cylindrical revoluble drying chamber having its side walls constructed of a perforated or reticulated material, the drying chamber being provided with an inlet door and a discharge door, of a casing encircling the cylinder and provided with inlet and outlet doors, means substantially as described for passing a heating agent through the drying chamber, an opening formed in said casing for the escape of the heating agent passed through the drying chamber, and a valve arranged at said opening to regulate the amount of the heating agent escaping therefrom, substantially as shown and described.

2. In a drier for coffee and other articles a casing provided with a valved opening and having inlet doors at its top and outlet doors at its lower end, a cylinder held to revolve within the casing and provided with an annular drying chamber having its side walls perforated or reticulated, the outer side wall of the drying chamber being provided with an inlet door and a discharge door arranged on opposite sides thereof, and a furnace adapted for heating air and communicating with the interior of the casing below the drying chamber, substantially as shown and described.

3. In a drier for coffee and other articles, a cylinder mounted to revolve and provided with a drying chamber having doors for the admission and discharge of the material to be dried, a casing surrounding said cylinder and also provided with inlet and discharge doors, a flooring formed in said casing below the cylinder and provided with an opening for the admission of the heating agent to the drying cham-

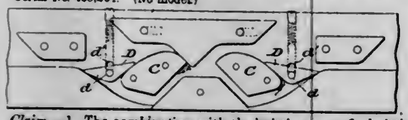
ber, a hood arranged above the said opening to deflect the heating agent to the sides of the drying cylinder and means for passing the heating agent through the drying chamber substantially as shown and described.



4. In a drier for coffee and other articles, the combination with the revoluble drying chamber having its side walls perforated or reticulated, the outer wall being provided with an inlet and an outlet door for the material, of a casing encircling said drying chamber and provided with inlet doors and a valved opening at its top and having a neck at its lower end extending downward and provided with doors arranged on opposite sides thereof, a flooring located in the neck of the casing and inclining from the center in opposite directions, the flooring being provided with an opening for the admission of hot air to the drying cylinder and a furnace adapted for heating the air substantially as shown and described.

5. In a drier for coffee and other articles a revoluble cylinder provided with an annular perforated or reticulated drying chamber, inlet and outlet doors formed in the outer wall of said chamber, a casing surrounding the cylinder and provided at its top with inlet doors for the material to be dried and a regulating valve for the exit of the heating medium, the said casing having a neck at its lower end extending downward and provided with doors on opposite sides thereof, the neck of the casing being further provided with a floor inclined in opposite directions from the center toward the doors and having an opening for the admission of hot air to the drying chamber, a hood arranged over the opening in the floor, said hood being inclined from the center in opposite directions, and a furnace adapted to heat the air substantially as shown and described.

521,860. NEEDLE-ACTUATING CAM FOR KNITTING-MACHINES. HARRY A. HOUSEMAN, Philadelphia, Pa. Filed Sept. 11, 1893. Serial No. 485,261. (No model.)



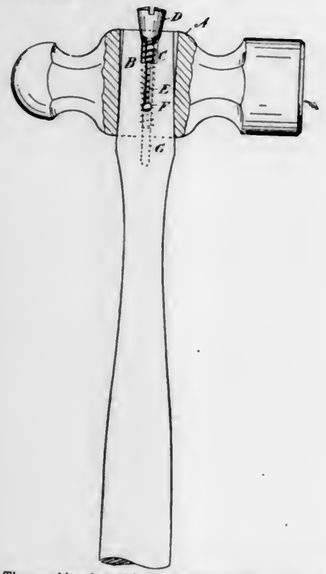
Claim.—1. The combination with the knitting cam of a knitting machine, of a switch cam, a pin secured to said cam, there being an orifice in the cam cylinder in which said pin rests, and a spring actuated pin bearing against said pin.

2. The combination with the knitting cam of a knitting machine, of a switch cam having one end resting against the knitting cam, a pin secured to said cam, there being an orifice in the cam cylinder in which said pin rests, and a spring actuated pin bearing against said pin.

3. The combination with the knitting cam of a knitting machine, of a switch cam, a pin secured to said cam, there being a slot in the cam cylinder, into which said pin passes, and a vertical spring actuated pin passing down into said slot and resting upon said pin.

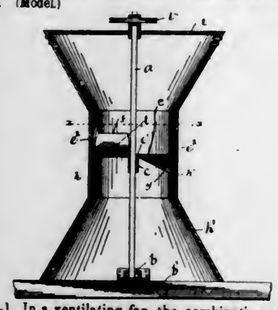
4. The combination with the knitting cam of a knitting machine, of a switch cam having one end resting upon said knitting cam, a pin secured to said cam, there being a slot in the cam cylinder into which said pin passes, and a vertical spring actuated pin passing down into said slot and resting upon said pin.

521,861. FASTENING DEVICE. JOHN ZEISER, St. Louis, Mo., and FRANK A. LEEMAN, Batavia, N. Y. Filed Sept. 11, 1893. Serial No. 485,290. (No model.)



Claim.—The combination with a hammer or other tool, of a handle helve having a longitudinal slot forming a bifurcated end, and a longitudinal hole at the inner end of the slot forming a continuation in line therewith in the solid body of the handle, a straight screw-shank having a wedgecone head and abruptly diminishing neck, whereby the shank portion is bedded in the body portion of the helve below the slot, unaffected by the separation of the bifurcated end by the entering head portion.

521,862. VENTILATING-FAN. WILLIAM H. MCCONNELL, Nelsonville, and FRANK A. RAY, Congo, Ohio. Filed Aug. 24, 1892. Serial No. 443,965. (Model.)



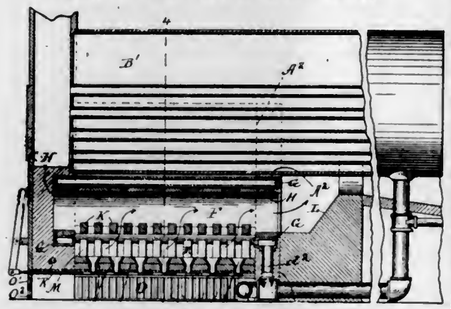
Claim.—1. In a ventilating fan, the combination with a cylindrical casing, and a rotating shaft concentric therein, of a fan body secured to said shaft and comprising two oppositely disposed vanes, each having its outer edge struck on the arc of a circle smaller than said casing, and its body formed into a double or compound curve on a line approximately parallel with said outer edge, as and for the purpose set forth.

2. In a ventilating fan, the combination with a cylindrical casing, and a rotating shaft concentric therein; of a fan body secured to said shaft and comprising two oppositely disposed vanes, each having its outer edge struck on the arc of a circle smaller than said casing and its body formed into a double or compound curve on a line approximately parallel with said outer edge and a flange rising from each of said outer edges and conforming with the curvature of the vane, as and for the purpose set forth.

3. In a ventilating fan, the combination with a cylindrical casing, and a rotating shaft concentric therein; of a fan body secured to said shaft and comprising two oppositely disposed vanes, each having its body formed into a double or compound curve throughout its length in its direction of movement, thus producing rear and front wings, the rear wing rising higher above the longitudinal center of the vane than said said front wing depends therefrom, substantially as described.

4. In a ventilating fan, the combination with a cylindrical casing, and a rotating shaft concentric therein; of a fan body secured to said shaft and comprising two oppositely disposed vanes, each having its body formed into a double or compound curve throughout its length in the direction of its movement, thus producing rear and front wings respectively rising above and depending below the central line of the vane, the rear end of the rear wing being parallel with said line, and the front end of the front wing being oblique to said line and approximately diametric with the central shaft, substantially as described.

521,863. STEAM-BOILER FURNACE. OREL D. ORVIS, Chicago, Ill. Filed Mar. 12, 1894. Serial No. 503,300. (No model.)



Claim.—1. In a down draft furnace the combination with a pair of fire-boxes, of a chamber below the grates a tubular flue located between the fire-boxes and opening substantially through its entire length, to the chamber below the grates, and a wall closing the rearward end of such chamber, substantially as described and for the purpose specified.

2. In a down draft furnace the combination with a pair of fire-boxes, and with a wall closing the rear end thereof, of a chamber below the grates a tubular flue located between said fire-boxes and leading from this chamber through said wall, substantially as described and for the purpose specified.

3. In a steam boiler furnace the combination with upper and lower fire-boxes, and with a wall for closing the rearward end thereof, of a tubular flue leading from the chamber between the two sets of grates through said wall, substantially as described and for the purpose specified.

4. The combination with a pair of down draft fire-boxes, an up draft fire-box below them, and with the wall, A^3, for closing the rearward end of said boxes, of a retort flue located between the down draft boxes and leading from the chamber below them through the wall, A^3, substantially as described and for the purpose specified.

5. The combination with a steam boiler; of a down draft furnace having its fire-box closed by a back wall, A^3, a tubular water shell, or jacket, forming a flue leading from the chamber below the grates through the wall, A^3, and service and return pipes connecting such water shell with the boiler, substantially as described and for the purpose specified.

6. The combination with a steam boiler, of a furnace having two down draft fire-boxes, a back wall, A^3, for closing such fire-boxes, a tubular water shell, or jacket, located between the fire boxes and having its central chamber opened to the chamber below the grates and to the combustion chamber back of the wall, A^3, and service and return pipes connecting the water jacket with the boiler, substantially as described and for the purpose specified.

7. The combination with a steam boiler, of a furnace having two down draft fire-boxes, a back wall, A^3, for closing such fire-boxes, a tubular water shell, or jacket, located between the fire-boxes and projecting through the wall, A^3, and having the rearward end of the central chamber open and a longitudinal aperture for communication between its central chamber and the chamber below the grates, fire-bricks placed across the longitudinal aperture and spaced apart, and service and return water pipes connecting the water shell with the boiler, substantially as described and for the purpose specified.

8. The combination, in a down draft furnace, with the fire-box, a wall, A^3, for closing the rear end of such fire-box, and with a retort flue leading from the chamber below the grates, through the wall, A^3, of an apertured wall of fire-brick, M, located across the line of draft from the grates to the retort flue, substantially as described and for the purpose specified.

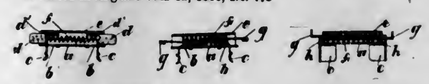
9. The combination in a down draft furnace, with the fire-box, a wall, A^3, closing the rear end thereof, and with a retort flue leading from the chamber below the grates through the wall, A^3, of air ducts leading from without and opening to the intake aperture of the retort flue, substantially as described and for the purpose specified.

10. In a steam boiler furnace the combination with down draft grates, of inclined deflecting plates, Q, located below such grates and up draft grates at the foot of such plates, substantially as described and for the purpose specified.

11. In a steam boiler furnace the combination with down draft grates, a solid wall, A^3, at the rear of such grates, a retort flue at the side of such grates and leading from the chamber below them through the wall, A^3, of up draft grates below and at the side of the down draft grates, and deflecting plates, Q, below the down draft grates and adapted to throw the fuel falling therefrom in the direction of the up draft grates, substantially as described and for the purpose specified.

12. In a steam boiler furnace the combination of a pair of down draft, and a pair of up draft, fire-boxes, a wall, A^3, closing the rear end of such boxes, a retort flue located between the down draft fire-boxes and opening to the fire-box chamber along its under side and extending through the wall, A^3, a central air flue, O, between the up draft fire-boxes, vertical grates forming the side walls of the air flue, deflecting plates, Q, below the down draft grates and adapted to convey the fuel falling therefrom to the vertical grates, air openings leading upwardly from the air flue, O, a damper for closing the air openings, series of fire-brick spaced apart and interposed between the grates and the intake aperture of the retort flue, and a series of fire-brick spaced apart and located across such intake aperture, substantially as described and for the purpose specified.

521,864. COVER FOR TOBACCO-PIPES. ARCHIBALD A. PERCY, Glasgow, Scotland. Filed Mar. 5, 1894. Serial No. 502,426. (No model.) Patented in England Jan. 12, 1893, No. 715



Claim.—1. A cover for tobacco pipes having adjustable grips or holders, said grips or holders being retained in the adjusted position by one or more springs detachably connected to said grips or holders, substantially as set forth.

2. In combination, a cover having slots, adjustable grips fitted and sliding in slots made in said cover, and one or more springs for holding said grips in position, substantially as set forth.

3. In combination a cover plate *a* having slots *b*, adjustable grips *c* sliding in said slots, and a spring *f* for retaining said grips in the adjusted position, substantially as hereinbefore set forth.

521,865. TRACTION DEVICE FOR CANALS. FRANCIS A. POCOCK, Scranton, Pa. Filed Feb. 13, 1893. Serial No. 462,175. (No model.)

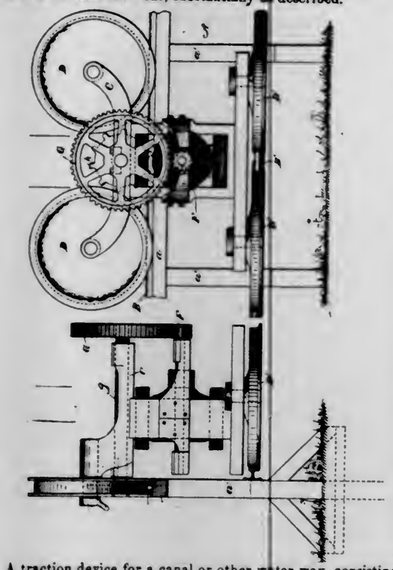
Claim.—1. A traction device for a canal or other water way, consisting of an elevated structure adjacent thereto, an upper supporting rail and a side bearing rail carried by said structure but insulated from each other and electrically continuous, so as to serve as working conductors, and an electric locomotive hung upon the upper rail and steadied by the side rail, and comprising current collecting devices bearing upon said rails, substantially as described.

2. A traction device for a canal or other water way, consisting of an elevated structure adjacent thereto, an upper supporting rail thereon, a side bearing rail on the side farther from the water, said rails being electrically continuous and serving as working conductors, and an electric locomotive hung upon the upper rail with the greater part of its weight on the side farther from the water, and comprising current collecting devices bearing upon the rails, substantially as described.

3. A traction device for a canal or other waterway, consisting of an elevated structure adjacent thereto, an upper supporting rail thereon, a side bearing rail on the side farther from the water, said rails being electrically continuous and serving as working conductors, an electric locomotive hung upon the upper rail with the greater part of its weight on the side farther from the water, and comprising current collecting devices bearing upon the rails, and a draw bar located above the supporting rail on the side nearer the water, substantially as described.

4. In a traction device for a canal or other water way a locomotive adapted to run on a track adjacent to said canal, and a longi-

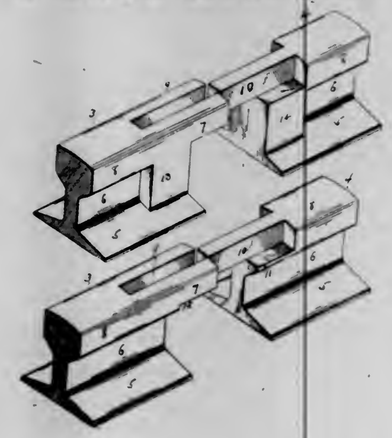
tudinal draw bar arranged on that side of the locomotive next the canal with its ends symmetrically disposed on each side of the driving wheel, in combination with a tow rope adapted to be attached to either end of said draw bar, substantially as described.



5. A traction device for a canal or other water way, consisting of an elevated railway adjacent thereto, rigid working electric conductors incorporated in said railway, an electric locomotive supported on said railway, and comprising current collecting devices bearing against said conductors, and a drawbar on said locomotive arranged above said railway and at one side of the supporting wheels, whereby an abnormal strain on said drawbar will separate one of said collecting devices from its rigid conductor, and thus automatically break the electrical circuit, substantially as described.

6. A traction device for a canal or other water way, consisting of a single rail elevated railway adjacent thereto, rigid working electric conductors incorporated in said railway, an electric locomotive supported on said rail and capable of being tilted laterally thereon, and comprising current collecting devices bearing against said conductors, and a drawbar on said locomotive arranged above said rail and at one side of the same, whereby an abnormal strain on said bar will tilt the locomotive and separate one of said collecting devices from its rigid conductor, thereby breaking the electrical circuit, substantially as described.

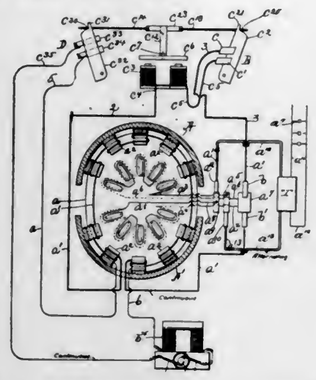
521,866. RAILWAY-RAIL JOINT. HARA ROBERTS, Fort Wayne, Ind. Filed Aug. 26, 1893. Serial No. 484,107. (No model.)



Claim.—1. A joint for railway rails consisting of the tongue 10 formed partly on the head of the rail and projecting beyond its end; the bracing blocks placed between the head and the base of the rail integrally with said parts and the web: a grooved head on the opposite rail adapted to receive the tongue 10, the grooved part of the head extended to correspond with the extension of said tongue; and bracing blocks placed between the head and the base of the opposite rail integrally with said parts and the web.

2. A joint for railway rails consisting of the tongue 10 formed partly on the head of the rail and projecting beyond its end: and a projecting head 7 on the opposite rail, provided with a slot 9 extending back and over the web, the parts being adjusted to each other so as to form a closed joint when the ends of the rails are brought together substantially as described.

521,867. CONTROLLER FOR ALTERNATING-CURRENT MACHINES. EDMUND B. V. SEAVERNS, Brookline, Mass. Filed Mar. 29, 1893. Serial No. 468,125. (No model.)



Claim.—1. The combination with an alternating current machine having a composite field, one winding of which is traversed by a continuous current and is in series circuit with the main line traversed by the alternating current, of a switch or circuit controller included in the said field winding traversed by the continuous current, substantially as described.

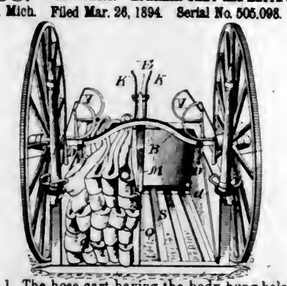
2. The combination with an alternating current machine having a composite field, one winding of which is traversed by a continuous current and is in series circuit with the main line traversed by the alternating current, of a switch or circuit controller included in the said field winding traversed by the continuous current, and an electro-magnet also included in the said field winding traversed by the continuous current and automatically operated by an increase in current to actuate the said switch or circuit, controller, substantially as described.

3. The combination with an alternating current machine having a composite field consisting of one winding included in circuit with a second machine or exciter, and the other winding traversed by a continuous current being included in series circuit with the main line, traversed by an alternating current, of switches or circuit controllers included in the said field windings, and an electro-magnet included in the circuit of the second field winding and automatically operated by an increase in current to actuate the said switches, substantially as described.

4. The combination with an alternating current machine having its field magnets traversed by a continuous current, of a switch or circuit controller included in the circuit traversed by the continuous current, and an electro-magnet also included in the circuit traversed by the continuous current and energized by a short circuiting of the circuit traversed by the alternating current to automatically operate the said switch or circuit controller to open the circuit traversed by the continuous current, substantially as described.

5. The combination with an alterating current machine having a composite field, one winding of which is traversed by a continuous current and in series circuit with the main line traversed by the alternating current, and the other winding included in circuit with a second machine or exciter, of a switch or circuit controller in said exciter circuit, and an electro-magnet in the field winding traversed by the continuous current and in circuit with the line wires and operated by a predetermined increase in current in the said winding to automatically operate the switch in the exciter circuit, substantially as described.

521,868. HOSE-CART. EPHRAIM SHAY and LETTE SHAY, Harbor Springs, Mich. Filed Mar. 26, 1894. Serial No. 505,098. (No model.)



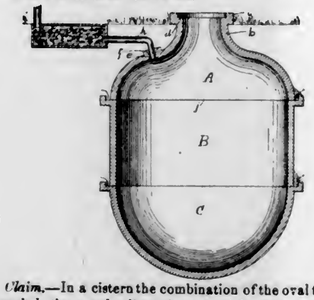
Claim.—1. The hose cart having the body hung below the axle, and having a drag attachment at the front end, connected to the body, so balanced that the body will swing in about horizontal position and support the drag tongue, substantially as described.

2. In a hose cart the wheels with the bowed axle, the rectangular body suspended from said axle at the sides, the tongue and drag ropes connected to the front of the body, and the nozzle supports at the rear of the body, all combined and relatively arranged substantially as described.

3. In a hose cart, the wheels, the curved axle and body hung beneath the same, and the vertical partition extending lengthwise of the body and connected to said axle the rear end of the body being open for the delivery of fakes of hose from either side, substantially as described.

4. In a hose cart, the wheels, the curved axle, the body suspended at the sides from the curved axle, braces connecting the body to the axle, and a partition composed of vertical rods connected to a bow piece, which piece is attached to the front of the body and to the axle. all substantially as described.

521,869. CISTERN. THOMAS J. SHEARER, Indianapolis, Ind., assignor of one-half to James J. Beechler, same place. Filed Sept. 19, 1893. Serial No. 485,843. (No model.)



Claim.—In a cistern the combination of the oval top section having neck *b*, the angular lip *c*, the water inlet *e*, having the raised ring *f*, the perpendicular central section B, having the angular lip *c'*, the oval bottom section C, having the angular lip *c''*, as shown and described.

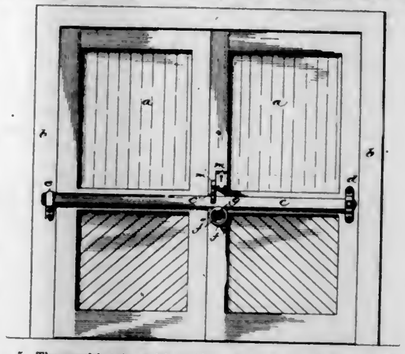
521,870. DOOR-SECURER. FRANK J. SMITH, Marcellus, Mich. Filed Jan. 29, 1894. Serial No. 498,327. (No model.)

Claim.—1. A door fastening comprising a cross bar, a cam for moving the cross bar in a plane parallel with the door to release the latter, and a key operated lock adapted to have its bolt projected across the path of the cross bar to secure the latter from movement, substantially as described.

2. A door fastening comprising a cross bar pivoted at one end, a keeper to receive the other or free end of the cross bar, a knob operated cam adapted to engage with the under side of the bar and lift the free end from the keeper, and a key operated lock located above and adapted to have its bolt engage with the upper side of the cross bar, substantially as set forth.

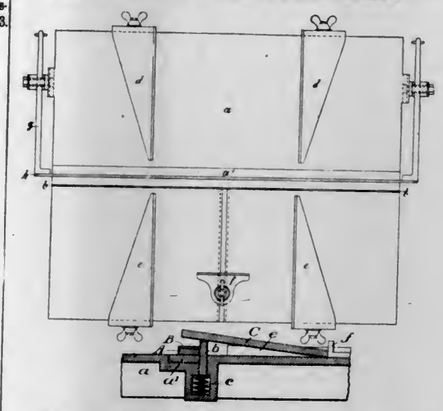
3. The herein described door fastening comprising a cross bar pivoted at one end, a keeper to receive the free end thereof, an arm projected from the cross bar, a key operated lock adapted to have its bolt projected across the path of the said arm, a knob spindle having a flanged cam to engage with the cross bar, and bearings for the ends of the spindle having sleeves which are let into the door, the inner bearing having an escutcheon and plate for the cross bar to rub against in its movements, substantially as described.

4. The combination in a door fastening device, a pivoted cross-bar, a keeper adapted to engage the free end of said bar, an eccentric for raising and lowering said end, an arm on the bar, and a lock provided with a bolt adapted to be thrown into the path of said arm to intercept the lifting action of the bar, substantially as described.



5. The combination with a pivoted door-bar, of a keeper adapted to engage the free end of the bar, an eccentric located on the inside of the door, an actuating spindle extending through the door and to which the eccentric is fixed, an upwardly projecting arm fixed to the bar, and a lock provided with a bolt adapted to be thrown out within the range or path of said arm to prevent the bar from moving out of its keeper in the manner and for the purpose substantially as described.

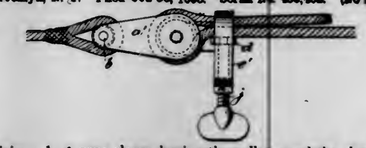
521,871. APPARATUS FOR APPLYING GUMMED ORNAMENTAL PAPER STRIPS ON PASTEBOARD. JOSEPH TEMLER, Warsaw, Russia. Filed June 5, 1893. Serial No. 476,644. (No model.)



Claim.—1. In a machine for applying gummed strips to card-board or other surfaces, a plate or table *a* having a bar *b* normally projecting above its surface and depressible to a position flush with said surface, an adjustable ruler *h*, adjustable to and from said bar *b* whereby the width of the gummed strip is determined, and movable away from the surface of the table whereby it is out of the way when the card-board is brought into contact with said gummed strip, and adjusting gages *d d* having an adjustment in the direction of the length of said bar *b* for determining the length of the gummed strips, in combination with adjusting gages *e e* and *f* for the card-board located on the side of the bar *b* opposite to that on which the ruler *h* and gages *d d* are located, said gages *e e* having an adjustment in the direction of the length of said bar *b* for determining the length of the card-board, and the gage *f* being adjustable to and from the bar *b* for determining the position on the card-board for the application of the gummed strip, substantially as set forth.

2. In a machine for applying gummed strips to card-board or other surfaces, a plate or table *a* having a bar *b* normally projecting above its surface and depressible to a position flush with its surface, in combination with an adjustable ruler *h* adjustable to and from said bar *b* and movable away from the surface of the plate or table, substantially as set forth.

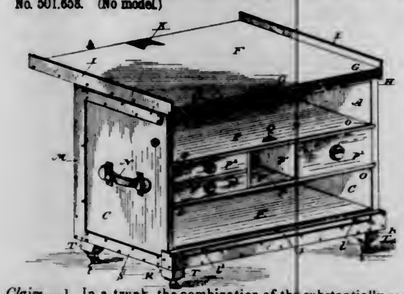
521,872. CLAMP. WILLIAM YRAGUI and BROR R. WESTLIN, Brooklyn, N. Y. Filed Oct. 30, 1893. Serial No. 489,462. (No model.)



Claim.—1. A rope clamp having the pulley *c* and the clamping jaws *d d'* supported by a suitable frame, substantially as described.

2. In a rope clamp in combination, the stud *b*, the pulley *c* and the clamping jaws *d d'* and a suitable frame, substantially as described.

521,873. COMBINATION TRUNK, BUREAU, AND WRITING-TABLE. SALLIE T. ANDRUS, Aurora, Ill. Filed Feb. 27, 1894. Serial No. 501,658. (No model.)



Claim.—1. In a trunk, the combination of the substantially rectangular trunk body consisting of the rear side wall, opposite end walls and a top and bottom wall, and provided at its front lower edge with a bottom strip, a top flange plate projected from the upper front edge of the top wall of the trunk body, a hinged front cover hinged at its upper edge to the front top edge of the trunk and provided at its opposite side edges with flanged corner plates adapted to embrace the opposite side edges of the trunk body, headed catch studs or pins projected from said front bottom strip, and latch plates pivoted to the cover and provided with rounded cam edges adapted to engage in rear of the edge of said studs or pins, substantially as set forth.

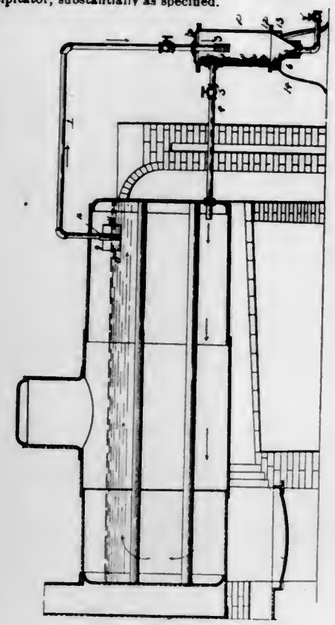
2. In a combined trunk and bureau, the combination of a substantially rectangular trunk body provided with a hinged trunk cover, and having in its opposite end walls opposite pairs of parallel supporting grooves leading out to the front side edges of the body, a removable and replaceable drawer frame comprising parallel shelves and a series of intermediate partition boards permanently or rigidly connecting said shelves, the latter being provided with projected ends adapted to loosely engage in said supporting grooves and finger notches near their front edges, said drawer frame occupying an intermediate portion of the trunk body and when removed leaving the trunk space unoccupied, and suitable drawers or trays arranged for support between the shelves of the removable drawer frame and providing a part of such frame so as to be removed therewith when desired, substantially as set forth.

3. In a trunk of the class described, the combination with the trunk body having an encircling bottom flange, of opposite legs hinged to opposite bottom portions of the trunk body and adapted to be folded within said encircling bottom flange, said legs being provided at their extremities with opposite feet carrying caster rollers, and at a point intermediate of the feet with rounded transverse grooves terminating at diagonally opposite points in abrupt engagement shoulders, and metal lock springs secured to the bottom of the trunk body at one end and provided near their opposite free ends with locking flanges or lips doubled out therefrom and adapted to engage at one side of either shoulder extremity of said grooves, said springs normally bearing in said grooves in either position of the legs, substantially as set forth.

521,874. AUTOMATIC BOILER-CLEANER. ALVIN L. BAUHARD, Bristol, Tenn. Filed June 14, 1893. Serial No. 477,567. (No model.)

Claim.—1. In a boiler-cleaning apparatus, the combination with a precipitator, a pipe leading thereto from the boiler, and a pipe leading therefrom to the boiler, of an accumulator attached to the inlet end of the pipe leading to the precipitator and comprising a sleeve 10 fitted snugly upon the end of said pipe, and radially-disposed wings 11 secured at their inner edges to the sleeve depending below the plane of the inlet end of the same and separated at their adjacent edges below said inlet end to form a passage, substantially as specified.

2. In a boiler-cleaning apparatus, the combination with a precipitating chamber, a pipe leading thereto from the boiler, and a pipe leading therefrom to the boiler, said chamber having a funnel-shaped or conical bottom with a blow-off pipe connected to its apex, of an accumulator attached to the inlet end of the pipe leading to the precipitator and having radially-disposed wings to guide the floating impurities to the said inlet end, and an atomizer connected to the discharge end of the same pipe to which the accumulator is connected, said atomizer consisting essentially of a perforated receptacle or basket 3, having no outlet except through its perforations, whereby the contents of the pipe are finely divided as they are discharged into the precipitator, substantially as specified.

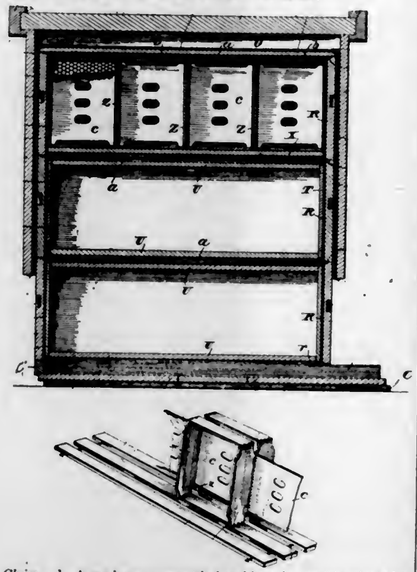


521,875. STOVEPIPE-JOINT. FRANK R. BRAMAN, Saltilloville, Ind. Filed Jan. 23, 1894. Serial No. 497,797. (No model.)



Claim.—In a pipe joint, the combination of a section or length of pipe constructed of sheet metal, having its edges secured together to within a short distance of the receiving end of the section or length to form an expansible receiving end provided with an encircling exterior bead 1, and a clamp having relatively adjustable members secured to the said bead adjacent to the free edges of said receiving end, and connected by an adjusting screw the inner ends of the securing devices for the members being arranged in the concavity of the bead to avoid obstructing the bore of the section of pipe, substantially as specified.

521,876. BEEHIVE. FRANCIS DANZENBAKER, Washington, D. C. Filed Feb. 24, 1894. Serial No. 501,446. (No model.)



Claim.—1. As an improvement in bee hives, in combination with the casing and the frame or part to be supported therefrom, a removable support, or hanger, comprising a vertical portion and oppositely extending horizontal portions at the upper and lower extremities, respectively of the latter, the upper of which engages said casing and the lower the frame or other part to be supported, substantially as described.

2. As an improvement in bee hives, a reversible bottom therefor, consisting of side rails, a bottom having its edges secured to said rails, the projecting portions of the rails being deeper on one side than on the other, and the transverse rails C C' connecting the side rails at opposite ends and arranged on opposite sides of the bottom boards, substantially as described.

3. As an improvement in bee hives, a reversible bottom therefor, consisting of side rails having their inner sides grooved, the portions on each side of the grooves being of different depths a bottom having the ends of its board or boards resting in said grooves, means for securing the bottom to the rails at or near the middle of the same, whereby the outer, free edges of the bottom are free to expand and contract, and rails or bars C C' connecting the side rails at their ends, substantially as described.

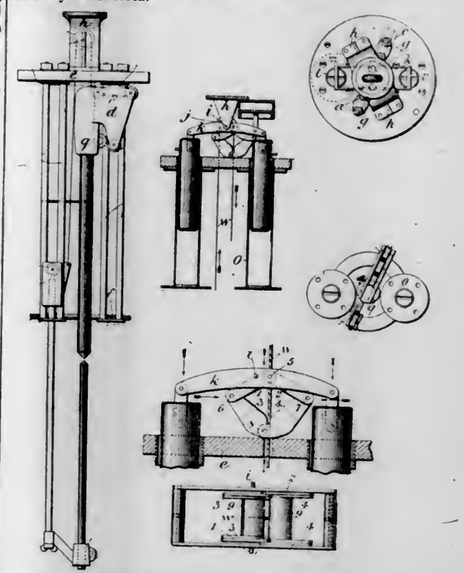
4. A section for comb honey having its sides notched or cut away at their corners, substantially as and for the purpose set forth.

5. As an improvement in bee hives a mat or covering consisting of paraffine paper, substantially as and for the purpose set forth.

6. As an improvement in bee hives, in combination with the casing and the honey sections, a mat for the latter consisting of paraffine paper placed next to the same, and a backing, as paper, placed over the paraffine paper, substantially as and for the purpose set forth.

521,877. ELECTRIC-ARC LAMP. WILLIAM J. DAVY, London, England. Filed Apr. 14, 1894. Serial No. 507,611. (No model.)

Claim.—1. In electric arc lamps in which the positive and negative holders are connected together by a cord passing over a pulley and in which the tendency of the carbon holders is to approach, the gravity friction grip device consisting of a system of links pivoted together to form a closed frame, of grip jaws between which passes the part of the cord or connecting device tending to move downward and which are attached to the jointed frame in such position that they approach one another as the frame elongates in a vertical direction, of a stop on which the lower end of the link frame rests and of a means for determining the position of the upper end of the frame relatively to the said stop according to the resistance of the lamp substantially as set forth.



2. In electric arc lamps in which the positive and negative holders are connected together by a cord passing over a pulley and in which the tendency of the carbon holders is to approach, the gravity friction grip device consisting of a lever mounted on the spindle of the loose cord pulley, of a means for determining the position of one end of the lever according to the resistance of the lamp, of a system of links suspended from the lever and pivoted together to form a closed frame, of grip jaws between which passes the part of the cord or connecting device tending to move downward and which are attached to the jointed frame in such position that they approach one another as the frame elongates in a vertical direction, and of a stop on which the lower end of the link frame rests substantially as set forth.

3. In electric arc lamps in which the positive and negative holders are connected together by a cord passing over a pulley and in which the tendency of the carbon holders is to approach, the arc striking and maintaining mechanism consisting of a lever mounted on the spindle of a loose cord pulley, of a solenoid core attached to the lever, of a corresponding solenoid arranged in series, of a system of links suspended from the lever in such manner that they are raised when a solenoid core is drawn into its coil and pivoted together to form a closed frame, of grip jaws between which passes the part of the cord or connecting device tending to move downward and which are attached to the jointed frame in such position that they approach one another as the frame elongates in a vertical direction and of a stop on which the lower end of the link frame rests, substantially as set forth.

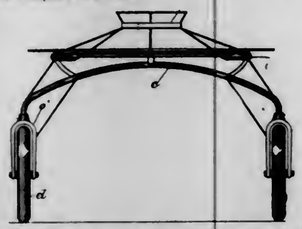
4. In electric arc lamps in which each positive holder is connected to the corresponding negative holder by a cord passing over a pulley and in which the tendency of the carbons is to approach, a series of gravity friction grip devices one for each pair of carbons and each device consisting of a system of links pivoted together to form a closed frame, of grip jaws between which passes the part of the cord or connecting device tending to move downward and which are attached to the jointed frame in such position that they approach one another as the frame elongates in a vertical direction, of a single stop on which the lower ends of the links rest, and of a means whereby the upper ends of the frames are raised together to a height dependent on the current through the lamp the said devices being so connected to the said means that they are successively raised off the said stop, substantially as set forth.

521,878. SULKY. STERLING ELLIOTT, Newton, assignor to the Hickory Wheel Company, South Framingham, Mass. Filed Oct. 14, 1892. Serial No. 448,801. (No model.)

Claim.—1. In a sulky, the combination of the shafts, seat and wheels and a supporting frame for said parts consisting of a cross-bar having downwardly projecting ends, and forks detachably con-

nected to the extremities of said cross-bar, substantially as shown and described.

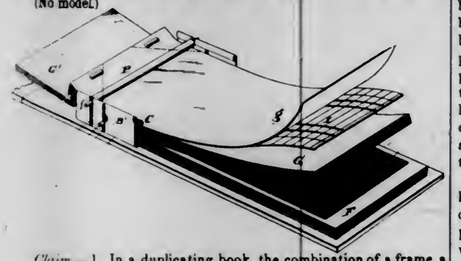
2. In a sulky, the combination of the shafts, seat and wheels, and the supporting frame consisting of the cross-bar having downwardly projecting ends, the extremities of which are screw threaded, and forks for the wheels having screw threaded nipples at the crown or head to receive the screw threaded extremities of said cross-bar, substantially as shown and described.



3. In a sulky, the combination of the shafts, seat and wheels, and a supporting frame for said parts comprising two forks for the wheels, and a cross-bar the extremities of which are connected to the crown or head of said forks, substantially as shown and described.

4. A sulky having a cross bar with its ends curved downward, and forked and supporting the wheels between the forks substantially as shown and described.

521,879. DUPLICATING CASH OR RECEIPT BOOK. ELMER E. GARRETT, Philadelphia, Pa. Filed Feb. 7, 1894. Serial No. 499,354. (No model.)



Claim.—1. In a duplicating book, the combination of a frame, a book having detachable sheets secured to said frame, a sheet of carbon or duplicating paper resting upon the upper surface of said book, a support for said carbon paper to hold it in position, an upper book inverted and arranged above the carbon paper and movably supported so that it may be shifted bodily with reference to the lower book, and means carried by the frame for holding the said upper or movable book in position upon the lower book and carbon paper.

2. In a duplicating book, the combination of a frame, a book having detachable sheets secured to said frame, a sheet of carbon or duplicating paper resting upon the upper surface of said book, a support for said carbon paper to hold it in position, an upper book inverted and arranged above the carbon paper and movably supported, means carried by the frame for holding the said upper or movable book in position upon the lower book and carbon paper, and an obstruction or finger arranged beyond the lowermost book and adapted to catch the sheets of the uppermost book when reciprocated to turn them backward away from the lowermost book.

3. In a duplicating book, the combination of a frame, a book having detachable sheets held to said frame, a sheet of carbon or duplicating paper resting upon the upper surface of said book, a support for said carbon paper to hold it in position, an upper book inverted and arranged above the carbon paper and movably supported, means carried by the frame for holding the said upper or movable book in position upon the lower book and carbon paper, an obstruction or finger arranged beyond the lowermost book and adapted to catch the sheets of the uppermost book when reciprocated to turn them backward away from the lowermost book, and an inclosing case or cover secured to the frame and finger or obstruction for supporting the books and protecting them.

4. In a duplicating book, the combination of a frame, a lower book detachably secured to the said frame, a sheet of carbon paper resting upon said book, a movable support for said carbon paper to permit it to rest upon the uppermost sheet of the book as the sheets are removed, an upper inverted book movably supported above the first mentioned book and carbon paper, and means carried by the frame to hold the upper book in position upon the lower book and carbon paper.

5. In a duplicating book, the combination of a frame, a lower book detachably secured to the said frame, a sheet of carbon paper resting upon said book, a movable support for said carbon paper to permit it to rest upon the uppermost sheet of the book as the sheets are removed, an upper inverted book movably supported above the first mentioned book and carbon paper, and means carried by the frame to hold the upper book in position upon the lower book and carbon paper, consisting of a movable transverse bar or rod resting above the upper book and connected with the frame.

6. In a duplicating book, the combination of a frame, a lower book carried by said frame an upper book resting upon the lower book but having the front or free ends of the sheets extended back or at a distance from the free ends of the sheets of the lower book to form an offset or step between the two books, means for holding the upper book in position with the lower book with freedom of movement so that the upper book may be shifted bodily on the lower book, and an interposed duplicating or carbon paper arranged between the adjacent pages of the two books.

7. In a duplicating book, the combination of a frame, a lower book detachably secured to said frame, an upper book resting upon the lower book but having the front or free ends of the sheets extended back or at a distance from the free ends of the sheets of the lower book to form an offset or step between the two books, means for holding the upper book in position upon the lower book, an interposed duplicating or carbon paper arranged between the adjacent pages of the two books, and an obstruction or finger arranged at a distance above or beyond the lower book adapted to catch and turn the leaves of the upper book when reciprocated.

8. In a duplicating book, the combination of a frame, a lower book detachably secured to said frame, an upper book resting upon the lower book but having the front or free ends of the sheets extended back or at a distance from the free ends of the sheets of the lower book to form an offset or step between the two books, means for holding the upper book in position upon the lower book, an interposed duplicating or carbon paper arranged between the adjacent pages of the two books, an obstruction or finger arranged at a distance above or beyond the lower book adapted to catch and turn the leaves of the upper book when reciprocated, and an adjustable receiver's slip having portions of its upper end notched or cut away so as to form a projecting portion adapted to be held in the binding of the upper book by friction.

9. In a duplicating book, the combination of a frame, a book having detachable sheets secured to said frame, a sheet of carbon or duplicating paper resting upon the upper surface of said book, a support for said carbon paper to hold it in position, an upper book inverted and arranged above the carbon paper and movably supported, means carried by the frame for holding the said upper or movable book in position upon the lower book and carbon paper, and an adjustable receiver's slip having portions of its upper end notched or cut away so as to form a projecting portion adapted to be held in the binding of the upper book by friction.

10. A duplicating book, comprising two independent books, superimposed one upon the other with an interposed sheet of duplicating paper, the upper book being free to be shifted bodily upon the lower book so as to permit the stubs or record sheets to be turned back from between the two books and means to hold said superimposed books together with said freedom of movement.

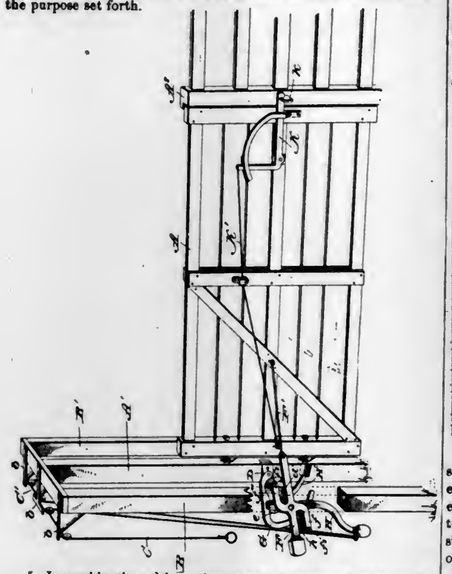
521,880. GATE. FRANK S. GRAY, Trenton, Ky. Filed Feb. 8, 1894. Serial No. 449,508. (No model.)

Claim.—1. In combination with a swinging gate having a latch, a rotatable bar suitably supported, and means for turning said bar, a rod connecting the bar to the gate and a flexible connection extending from the latch to a point adjacent to where the rotatable bar and rod are connected, substantially as shown, whereby the elevation or depression of the bar will cause the latch to be released

2. In a swinging gate, the combination, of a supporting frame mounted so as to be out of line with the gate, and supporting a shaft, a rotatable bar mounted on the shaft and having projecting pins, a weighted lever loosely mounted on the shaft and provided with a pawl which is adapted to engage with the pins, a disk rigidly attached to the shaft and provided with notches with which a pawl engages, (the rotatable bar being connected to the gate by a rod,) and means for elevating the weighted lever, substantially as shown and for the purpose set forth.

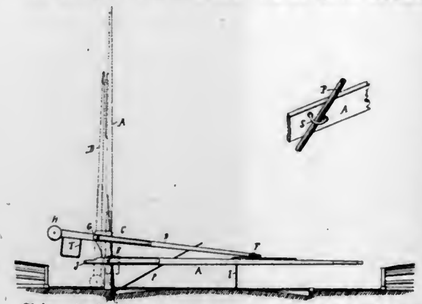
3. In a swinging gate, means for operating the same comprising flexible connections which extend from a distance on each side of the gate to a weighted lever which is loosely mounted on a shaft, said lever having a pivoted pawl or dog, a rotatable bar connected to the gate and adapted to engage with said pawl, the points of connection of the pawl with the rotatable bar being on opposite sides of the supporting frame for said bar, substantially as shown.

4. In a swinging gate, the combination, of a lever H having weighted ends which do not move in the same plane, said lever carrying a pivoted pawl or dog, and a rotatable bar one end of which is weighted and the other connected to the gate, said bar having members *f* and *f'* which extend in opposite directions and have pins with which the pawl or dog engages, substantially as shown and for the purpose set forth.



5. In combination with a swinging gate constructed substantially as shown, a supporting frame D on the gate post a shaft mounted in said frame to which is rigidly connected a disk having notches and a rotatable bar having projecting pins, a weighted lever loosely mounted on the shaft and provided with a pawl or dog having a recess, to engage said pins alternately a pawl pivoted to the frame and engaging the notches of the disk, and flexible connections attached to the weighted lever, substantially as shown and for the purpose set forth.

521,881. RAILWAY-CROSSING GATE. LEVI HARRIS, Kalamazoo, Mich., assignor of two-thirds to Oscar M. Allen, Sr., and Horace B. Peck, same place. Filed Dec. 11, 1893. Serial No. 493,403. (No model.)

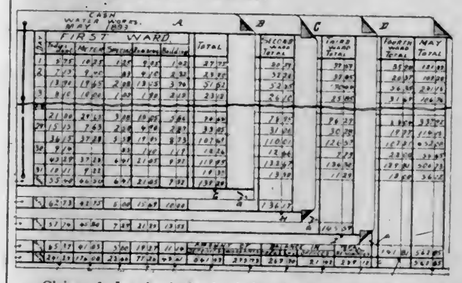


Claim.—1. A railway crossing gate, comprising posts one at each side of the track at one side of the street, gate-bars, one being fulcrumed at the lower end to one of the posts, and another to the other post, weighted-levers above and parallel with the gate-bars, one of said levers being fulcrumed at a point above the lower end to one of said posts and the other to the other post, the lower ends of said levers being provided with weights beyond the fulcrum, the upper end of said weighted levers forming a sliding connection with the gate-bars, and a revoluble rod transverse to and beneath the track, the ends of said revoluble rod being turned at right angles and forming sliding connections with the gate bars, substantially as set forth.

2. A railway crossing gate, comprising gate-bars fulcrumed at the lower ends, levers weighted at the lower ends and fulcrumed at a point above said ends, the upper ends of said weighted-levers forming a sliding connection with the gate-bars, and a revoluble connecting rod right angled at the ends and forming a sliding connection with the gate bars, substantially as set forth.

3. A railway crossing gate, comprising a post at the side of the street, a gate-bar fulcrumed at one end to said post, the other end extending across the street and side walk at the other side, and a lever fulcrumed above its lower end to said post, said lower end of the lever being of a length to extend across the side walk at this side of the street, and bearing a weight, and the other end of said weighted-lever forming a sliding connection with the gate-bar, substantially as set forth

521,882. SYSTEM OF BOOKKEEPING. WILLIAM HIMROD, Erie, Pa., assignor of one-half to Julia A. Himrod, same place. Filed June 17, 1893. Serial No. 477,902. (No model.)



Claim.—1. In a book for book keeping, the combination of a series of sheets, the second sheet extending to the right beyond the end of the first, said extension being ruled for columns of figures, and extending below the first sheet sufficiently to receive a row of figures thereon, and each subsequent sheet likewise extending at the right side and bottom beyond the sheet preceding it, and likewise ruled on its projecting end, substantially as set forth.

2. In a book for book keeping, the combination of a series of sheets, the second of which extends to the right beyond the end of the first sheet far enough to show rulings for one or more columns of figures, and below the lower edge of the first sheet far enough to show one or more lines for figures, and each subsequent sheet likewise extending beyond and below the sheet preceding it, with rulings for vertical columns for dates and for figures on the left hand portions of all of the sheets, so that said columns on each sheet are directly under the like columns on the preceding sheets; and also, columns ruled on the projecting right hand ends of each sheet, substantially as set forth.

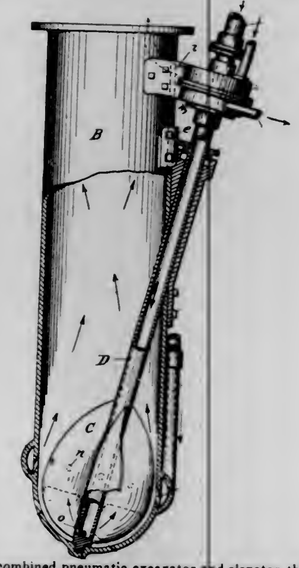
3. A book for book keeping consisting substantially of a series of sheets, the second sheet extending at the right beyond, and at the bottom below the sheet preceding it, and each succeeding sheet likewise projecting at the right beyond and at the bottom below the sheet preceding it, each of said sheets being ruled to receive the accounts for a ward or other subdivision of a business, and the end and bottom of the first sheet and the projecting ends and bottoms of each succeeding sheet being ruled to receive entries thereon, so that daily, weekly, monthly or yearly balances on each or all of the sheets may be shown, substantially as set forth.

4. In a book for book keeping, the combination of a series of leaves, each successive leaf extending beyond and below the leaf preceding it, whereby each leaf will show the daily balances or aggregates of the several departments of the business for a ward or other division of the business, and the final sheet, also, the aggregates of the several departments of all of the wards or other divisions, substantially as set forth.

521,883. EXCAVATOR AND ELEVATOR. HENRY P. HOLLAND, San Francisco, Cal. Filed Sept. 1, 1893. Serial No. 484,571. (No model.)

Claim.—1. A combined pneumatic excavator and elevator consisting of elevating tube K., the header A., attached to the lower end of the elevating tube having the auger shaped twirler C. on the hollow shaft D. for loosening and drawing into the end of the header such material as it may come in contact with, the casing B. surrounding the twirler, through the upper side of which the twirler shaft passes, and is mounted upon the outside; the small rotary engine E. on upper end of said shaft mounted upon said casing as a bed piece; the discharge escape *i*; the mounting piece *m*. for said rotary engine; the mounting piece *d*. for twirler shaft, the boxing *c*., the socket *b*. in which the lower end of twirler shaft revolves; the compressed air or water receiver F., the air or water escape *n*. *n*. for forcing compressed air or water up the header for carrying the material acted upon by the twirler forward, on and through the elevating tube, the

compressed air or water discharges *o. o.* on the inside of the end of hollow shaft just back of the lips of the twirler, through which compressed air or water may be forced to prevent suction, the lips of the twirler *f. f.*, the grooves *w. w.* through which the material being elevated passes up the header, the guards *a. a.*, the air or water pipe *p.* for conveying compressed air or water to the main air or water pipe, the main air or water supply pipe, L.; the pipe *s.* attached to main air or water pipe through which compressed air or water may be forced into the receiver; the pipe *l.* attached to main air or water pipe for conveying compressed air or water to the hollow shaft, and through which it passes to the discharges near end of the shaft, the pipe *k.* through which compressed air or water is conveyed for operating the small rotary engine on the end of the twirler shaft, the pipes *t. t.* through which additional compressed air or water is forced into the elevating tube, to aid in elevating the material passing through said tube, the discharge *v.*, the connecting joint *u.*, the couplings 1, 2, 3, 4, the valves 5. 5., for governing the admission of the compressed air or water, and the clamps 6, substantially as herein described and set forth.



2. In a combined pneumatic excavator and elevator, the elevating tube, K, having discharge, *v*, through which sand or other loose or fine material may be forced by compressed air or water, combined with the header, A; the air or water supply pipe, *p;* the main compressed air or water pipe, I; the pipe, *s*, conveying compressed air or water to the receiver on the lower end of the header; the receiver, F; the air or water discharges, *n n;* the pipe, *l*, supplying compressed air or water to the hollow shaft through which it is conducted to the discharges near end of said shaft; the pipe, *k*, through which compressed air or water is conveyed for operating the small rotary engine on the end of the twirler shaft in casing, B; the small rotary engine, E, mounted on header casing for operating the twirler; the discharge escape, *i;* the mounting piece, *m*, on said casing for mounting said rotary engine; the twirler shaft, D; the mounting piece, *d;* the twirler, C; the boxing, *c;* the air or water discharges, *o o;* the grooves, *w w;* the lips, *f f;* the guards *a a;* the socket *b;* the pipes, *t t*, through which compressed air or water is forced into the elevating tube furnishing additional elevating power; the connecting joint, *u;* the couplings, 1, 2, 3, 4; the valves, 5 5; substantially and for the purposes herein described and set forth.

3. In a combined pneumatic excavator and elevator, the combination of the air or water supply pipe, *p*, attached to an air compressor for conveying compressed air or water to the main air or water pipe; the main air or water supply pipe, L; the pipes, *s*, *l* and *k*, supplying compressed air or water to the receiver, to the hollow shaft of the twirler, and to the small rotary engine; with the header, A; the small rotary engine, E, mounted upon the header casing, for operating the twirler in the header; the mounting piece, *m;* the discharge escape, *i;* the hollow shaft, D; the mounting piece, *d;* the boxing, *c;* the twirler, C; the casing B; the air or water receiver, F, surrounding the lower end of the casing; the air or water discharges, *n n*, on the receiver for operating the material to be elevated; the grooves W. W; the lips, *f f;* the guards, *a, a;* the socket, *b*, forming the center where said guards meet, and in which the end of the twirler shaft revolves; the air or water discharges, *o o*, at the end of the shaft back of the lips of the twirler to prevent suction; the pipes, *t t*, through which compressed air or water is forced into the elevating tube, furnishing additional elevating power; the elevating tube K; the discharge, *v;* the connecting joint, *u;* the couplings, 1 2 3 4; the valves, 5 5, for governing the admission of compressed air or water to connecting pipes, substantially and for the purposes herein described and set forth.

4. In a combined pneumatic excavator and elevator, the combination of the twirler, C; the lips of the twirler, *f f;* the grooves, *w w;* the guards, *a a;* the hollow shaft, D, carrying said twirler at its lower end, its upper part passing through and mounted upon said casing; the socket, *b*, in which the end of the twirler shaft revolves, the casing, B, inclosing the twirler and the lower portion of said shaft; the air and water discharges, *o o*, on inside of the end of the hollow shaft through which compressed air or water may be forced to prevent suction, with the compressed air or water receiver, F; the air or water escapes, *n n*, for forcing compressed air or water up the receiver, for carrying the material acted upon by the twirler forward through the elevating tube, K, the small rotary engine, E, on the upper end of the shaft and mounted upon said casing as a bed piece; the dischareg escape, *i;* the mounting piece, *m*, for said rotary engine: the mounting piece, *d*, for twirler shaft; the boxing, *c;* the elevatiog tube, K; the discharge, *v*, to elevating tube; the pipe, *s*, attached to main air and water pipe for conducting compressed air to the receiver; the pipe, *l*, attached to main air and water pipe for conducting air or water to the hollow shaft through which it passes to the discharges near end of shaft; the pipe, *k*, for conducting compressed air or water to the rotary engine on the header; the connecting joint, *u;* the couplings, 1 2 3 4; and valves, 5 5, substantially and for the purposes herein described and set forth.

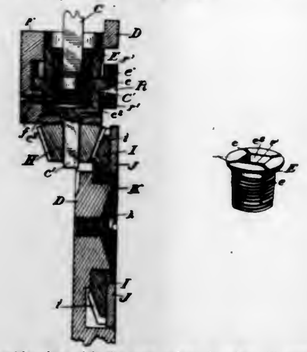
5. In a combined pneumatic excavator and elevator, the combination of the small rotary engine, E, on the end of the twirler shaft, D, having discharge, *i*, and operated by compressed air or water supplied from the main air and water pipe, with the supply air and water pipe *p;* the main air and water pipe, L; the pipes, *t t*, supplying additional compressed air or water to the elevating tube; the compressed air and water pipes, *s*, *l* and *k*, supplying compressed air or water to the receiver, to the hollow shaft of the twirler, and to the small rotary engine; the rotary engine, E, for operating the twirler; the mounting piece, *m*, securing said rotary engine to the casing; the boxing, *c;* the mounting piece, *d*, supporting twirler shaft on the casing; the casing B; the receiver, F; the air or water discharges, *n n;* the twirler shaft, D; the twirler, C; the lips, *f f;* the grooves *w w;* the air and water discharges, *o, o;* the guards, *a a;* the socket, *b;* the connecting joint, *u;* the couplings, 1 2 3 4; the valves, 5 5, for governing the admission of air or water to connecting pipes, and the elevating pipe, K, and discharge, *v;* substantially and for the purposes herein described and set forth.

6. In a combined pneumatic excavator and elevator, the combination of the hollow shaft, D, for conducting compressed air or water to the air and water discharges on the end of said shaft, for preventing suction of the materials operated upon by the twirler: the mounting piece, *d;* the air and water discharges, *o o*, in the end of the twirler shaft, with the twirler, C: the compressed air and water receiver, F; the discharges, *n n*, on said receiver, for forcing the material operated upon by the twirler up through the elevating tube; the lips of the twirler, *f f;* the grooves, *w w*, in the twirler through which the materials are forced and carried; the guards, *a a*, on the head of the header casing, protecting the twirler; the socket, *b*, in the center of said guard piece in which the end of the twirler shaft revolves; the rotary engine, E; operating the twirler; the mounting piece, *m;* the casing, B; the connecting joint, *u;* the discharge, *i;* the couplings, 1 2 3 4; the valves, 5 5; the pipe, *p*, conveying compressed air or water to main air and water pipe; the main compressed air or water pipe, L; the pipes, *s*, *l* and *k*, conveying compressed air or water to the receiver, to the hollow shaft, and to the rotary engine; the pipes, *t t*, conveying compressed air or water to the elevating tube; the elevating tube, K, through which the materials to be elevated are forced, and the discharge, *v*, substantially and for the purposes herein described and set forth.

521,884. STEM-WINDING WATCH. GEORGE S. KLEIN, Toronto, Canada. Filed Feb. 23, 1894. Serial No. 501,173. (No model.)

Claim.—1. The combination with a stem arbor of indeterminate length in a case-pendant, of a collar, having a stem longitudinally adjustable within the bevel pinion by which the winding and setting train is set in motion, and connected to the stem arbor by a hollow threaded plug provided with a series of splits which plug is screwed home into the collar, and means whereby the collar is operatively connected to the yoke so as to change it to the setting or winding positions as shown and for the purpose specified.

2. The combination with the stem arbor, C, in a case-pendant, of a collar, C', having a square stem, c', extending through the bevel pinion, H, a threaded plug, E, made hollow and provided with splits, e, and a square upper hole, e^3, to grip the stem arbor and tapered at the top so as to fit into a corresponding taper at the top, of the cylindrical hole c^3, and an annular projection, c, made in the collar and means whereby the annular projection, c, is connected to the yoke, so that the position of such yoke is changed to throw in the winding or setting train as and for the purpose specified.

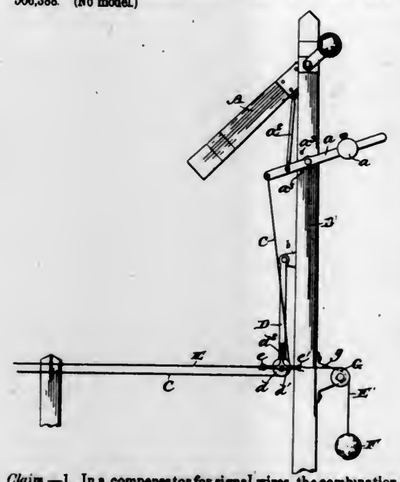


3. The combination with the stem arbor, C, collar, C', connected to the stem arbor by the threaded split plug, E, as specified, and having an annular ring, c, of the bevel pinion, H, meshing with the crown wheel, i, of the gear wheel I, the yoke, J, containing the gear wheels, L. and M, and the pivoted bell crank lever, R, provided with jaws, r', which extend at each side of the annular projection, c, of the collar, C', the arm, r^3, designed to be brought into engagement with the notch j', the tail, r^2, having a notch, r^4, made in the end and the spring crank, s, one end of which fits into the notch, r^4, and the other into the notch, j', in the yoke, J, as and for the purpose specified

4. The collar, C', having a cylindrical hole, c^3, threaded as specified, and the threaded plug, E, provided with splits; e, cylindrical opening, e', and the square top opening e^3, which plug, E, is screwed home into the cylindrical threaded hole. c^3, of the collar as and for the purpose specified.

5. The combination with the stem arbor, of the collar C', split plug, E, designed to be inserted in a cylindrical socket in the collar and grip, by the square opening at the top of the plug, the stem arbor, and the bevel pinion H, situated on a square stem of the collar and designed to communicate motion to the winding or setting trains, whichever may be thrown in, as and for the purpose specified.

521,885. COMPENSATOR FOR SIGNAL-OPERATING WIRES. JOHN S. LYMAN, Winchester, Mass. Filed Apr. 5, 1894. Serial No. 506,388. (No model.)

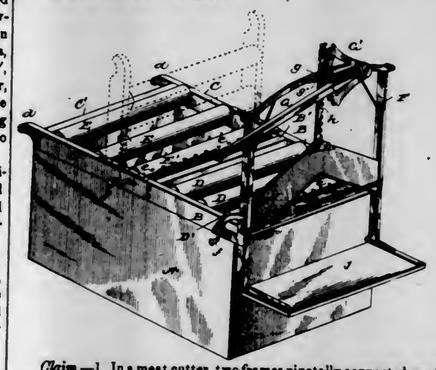


Claim.—1. In a compensator for signal wires, the combination of a supporting post, a signal operating lever pivoted on the same, a movable pulley and a stationary pulley, a wire from the signal tower passing over the stationary pulley and terminating in a weight and connected to and adapted to move the movable pulley as said wire expands or contracts and an independent wire from the signal tower passing about the movable pulley and connected to the semaphore operating lever, substantially as described.

2. In a compensator for signal wires, the combination or a supporting post, a signal operating lever pivoted on the same and provided with a counterbalance weight, a stationary pulley, a movable pulley, means for supporting said pulley but allowing it to move to the right or left, a wire from the signal tower connected to said pulley and adapted to draw it in one direction, a wire connected to the opposite side of said pulley and adapted to draw it in the opposite direction; said wire passing over the stationary pulley, a weight attached to the end of said wire and an independent wire connecting the signal tower and the semaphore and passing about the movable pulley, substantially as described.

3. In a compensator for signal wires, the combination of a supporting post, a signal operating lever pivoted on the same, a compensating arm pivoted at its upper end and carrying at its lower end a pulley, a double yoke on said pulley, a fixed pulley, compensating wires E and E' attached to the movable pulley, the wire E' passing over the fixed pulley and terminating in a weight and an operating wire C passing around the movable pulley and attached to the signal, substantially as described.

521,886. MEAT-CUTTING MACHINE. MILTON LYTCH, Rowland, N. C., assignor to Rosanna Lytch, same place. Filed Aug. 23, 1893. Serial No. 483,803. (No model.)

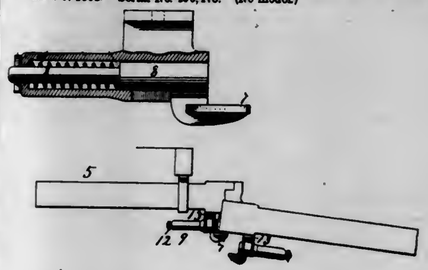


Claim.—1. In a meat cutter, two frames pivotally connected, each containing two or more supporting or feeding rollers, one frame being adapted to fold upon the other, and the rollers of the folding frame being adapted to fall between the rollers of the stationary frame when folded, as and for the purpose specified

2. The herein specified meat cutter composed of a box, rollers arranged across the box, some of the rollers having pins to engage with and positively feed the meat and adapted to be rotated by hand, a pivoted frame carrying a number of the rollers at one end of the box and adapted to be turned up, a frame F having its lower ends extended, a board J pivoted to the extended ends of the said frame F, a reciprocating knife having a rack bar, and a segment lever for operating the said knife, substantially as set forth

---

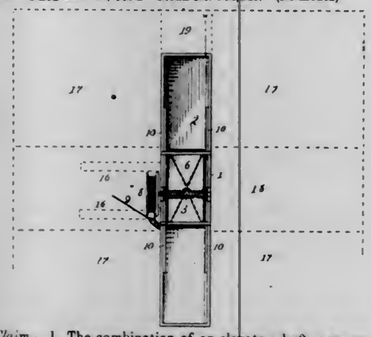
521,887. CAR-COUPLING. JAMES O. MITCHELL, Stuart's Draft, assignor of one-half to Sarah Elizabeth Rankin, Basic City, Va. Filed Nov. 9, 1893. Serial No. 490,475. (No model.)



Claim.—1. The combination in car couplings of a drawhead adapted to be hooked sidewise to its mate; a shelf provided with a shank; a socket fitted for the said shank to telescope within it and adapted to be bolted to the drawhead with the shelf projecting below the mouth of the drawhead, and a spring acting between the socket and shank to project the shelf, substantially as described

2. The combination of a socket adapted to be bolted to the drawhead of a car coupling; a shelf provided with a shank fitted to telescope within the socket, and a spring acting between the socket and shank to project the shelf substantially as described whereby the shelf may be held below the mouth of the drawhead to prevent another drawhead coupled therewith from falling away from its mate.

521,888. ELEVATOR AND DUMP. WILLIAM L. OAKES, Decatur, Ill. Filed Mar. 19, 1894. Serial No. 504,140. (No model.)



Claim.—1. The combination of an elevator shaft, a wagon way through the shaft, a pit at the base of the shaft extending through and beyond the same, bins adjacent to the extensions of the pit, an elevating dump box having guide rollers, and a system of tracks and switches in the shaft adapted to guide the box to either end or to the center of the pit, substantially as set forth.

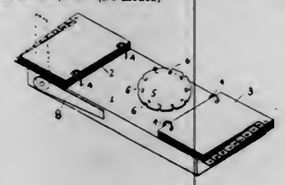
2. The combination of an elevating shaft, an elongated pit at the base of the shaft, bins adjacent to the pit, an elevating dump box for the shaft adapted to reach the extremities of the pit for the purpose of receiving the contents of the bins, a winding axle at the top of the shaft crosswise to the length of the pit, and a rope connecting the axle with the box, substantially as set forth.

3. The combination of an elevator shaft, an elongated pit at the base of the shaft, bins adjacent to the pit, an elevating dump box for the shaft adapted to reach the extremities of the pit for the purpose of receiving the contents of the bins, a winding axle at the top of the shaft crosswise to the length of the pit, a drum for the fall rope at the top of the shaft and connected with the axle, and a rope connecting the axle with the box, substantially as set forth.

4. The combination of an elevator shaft, an elongated pit at the base of the shaft, bins adjacent to the pit, an elevating dump box for the shaft adapted to reach the extremities of the pit for the purpose of receiving the contents of the bins, a winding axle at the top of the shaft crosswise to the length of the pit, and ropes converging from the ends of the axle toward the box and connecting the axle with the box, substantially as set forth

5. The combination of an elevator shaft, an elongated pit at the base of the shaft, bins adjacent to the pit, an elevating dump box for the shaft adapted to reach the extremities of the pit for the purpose of receiving the contents of the bins, a winding axle at the top of the shaft crosswise to the length of the pit, a rocking equalizer secured to the box, and ropes converging from the ends of the axle toward the box and connecting the axle with opposite sides of the equalizer substantially as set forth.

521,889. GAME-COUNTER. HARRY C. PHILLIPS, Rochester, N. Y., assignor of one-half to James Palmer, Jr., same place. Filed Apr. 9, 1894. Serial No. 506,918. (No model.)



Claim.—1. In a counter, the combination with the base, of two series of cards or leaves pivoted thereon at one edge, each card having a number or other indicia on one face and the cards of each series adapted to be turned toward the cards of the other series to expose the numbers or indicia, substantially as described.

2. In a counter, the combination with the base, of two series of cards or leaves pivoted thereon at one edge, each card having a number or other indicia on one face, and the cards of each series adapted to be turned over toward the cards of the other series to expose the numbers or indicia, the edges of the cards of each series being cut away and marked on the back to form indices, substantially as described.

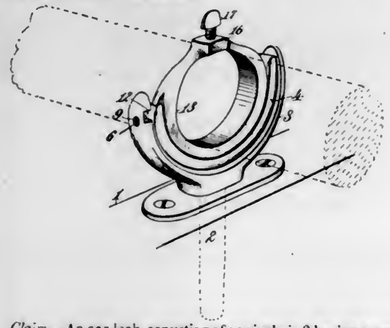
3. In a counter, the combination with the base, of two series of cards or leaves, each card having a number or indicating mark on one face, and the staples on which said cards are threaded permitting them to be turned over toward each other to cause the numbers or indicia to combine, substantially as described.

4. In a counter, the combination with the base, the disk pivoted thereon having the flexible edge, and numbers and recesses near its edge and the stationary pin cooperating with said recesses, whereby the disk may be disengaged from the pin and rotated and again engaged, substantially as described.

5. In a counter, the combination with the base, of the two series of cards or leaves pivoted thereon at one edge, each card having a number or other indicia on one face and the cards of each series adapted to be turned toward each other so as to combine the indicia on their faces, and a flexible counter-disk pivoted on the base having the notches and the pin cooperating therewith, substantially as described.

6. In a counter, the combination with the base, of two series of cards or leaves pivoted thereon at one edge having numbers or indicia on one face, the rotatable and flexible disk having recesses, and the pin cooperating therewith, and the finger pivoted on the base and adapted to be projected above the same, substantially as described.

521,890. OAR-LOCK. JOSEPH D. PRESCOTT, Boston, assignor of one-half to Charles H. Wilder, Chelsea, Mass. Filed July 29, 1893. Serial No. 481,881 (No model.)



Claim.—An oar-lock, consisting of a swivel-pin 2 having a crutch-arm 3, the ends of which are provided, respectively, with the pivot bearings 9 and 10, the former constructed with the horizontally walled entrance-slot 12, the continuous fulcrum-ring 13 having the set-screw 17 and the central rib 14 vanishing into the body of the ring toward the set-screw, and a segmental ring seat provided with a circular groove 15 to receive said central rib, and having pivots 6 detachably engaging the said pivot bearings of the crutch-arm, substantially as described.

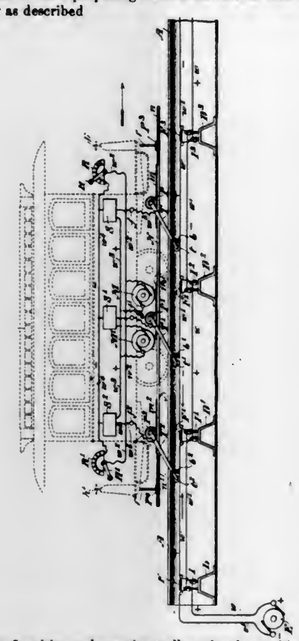
521,891. CONDUIT ELECTRIC RAILWAY. CHARLES J. REED, Orange, N. J., assignor, by direct and mesne assignments, to the Reed Electric Company, Philadelphia, Pa. Filed Apr. 14, 1892. Serial No. 429,184. (No model.)

Claim.—1. A pair of electrical conductors crossing each other at stated intervals and connected to the opposite poles of an electrical generator, in combination with a slitted conduit; the successive sections of the overlapping conductors lying in alignment with the slit of the conduit, substantially as described.

2. A pair of mains or leads located in a slitted conduit and overlapping each other at stated distances, the ends of the mains being connected to the opposite poles of an electrical generator, one portion of the sections made by the overlapping conductors being bare for trolley connections and the other portion covered with insulating material, substantially as described.

3. An electrical generator connected to a pair of mains or leads which overlap or cross each other at intervals, the overlapping portions being located in alignment with each other and directly beneath the slot of a surrounding slitted conduit.

4. A pair of mains or leads located in a slitted conduit and overlapping or crossing each other at intervals, in combination with three or more trolleys carried by a car and extending through the slit of the conduit into contact with the mains and having electrical connections with one or more propelling electric motors on board the car, substantially as described



5. A pair of positive and negative trolley wires located in a slitted conduit and crossing each other at intervals so as to form succeeding sections in alignment and beneath the slit of the conduit, substantially as described.

6. A slitted conduit inclosing a pair of trolley wires located substantially in vertical alignment with or beneath the slit and three or more trolleys, one in advance of the other and extending into the slit and resting on said wires, substantially as described.

7. A conduit having a single slit, a pair of trolley wires located therein, three or more trolleys carried by a car and extending through the single slit and resting on the trolley wires in alignment with each other in the direction of the length of the slit and means for lifting the trolleys entirely out of the conduit, substantially as described.

8. Three or more trolley arms extending through a single slit in a conduit inclosing a pair of trolley wires, said trolley arms being located in alignment with each other in the direction of the length of the conduit, in combination with means for lifting said trolleys, all carried by a moving car, substantially as described.

9. Three or more trolley arms located one behind the other and extending into a single slit in a conduit, in combination with means for lifting all the trolley arms at will, substantially as described.

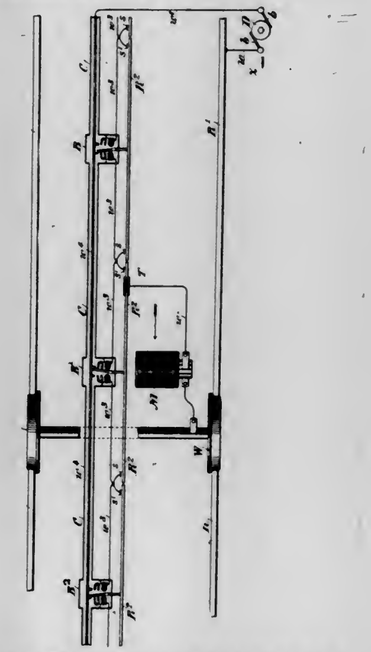
10. One or more trolley arms pivotally secured to a car and having each a pinion meshing with a sliding rack secured to the car, in combination with one or more pinions provided with one or more hand controlling wheels, substantially as described.

11. One or more trolley arms each secured to a yielding or elastic connection carried by a car and provided with a pinion meshing with a corresponding rack secured also to the car and pinion and hand operating mechanism for varying the angular position of the trolley arm or arms, all substantially as described.

12. Two or more trolley arms each provided with a pinion geared to a rack having longitudinal movement; a yielding connection between each trolley arm and its pinion in combination with hand actuating mechanism at each end of the car operatively connected with the rack.

521,892. CONDUIT ELECTRIC RAILWAY. CHARLES J. REED, Orange, N. J., assignor to the Reed Electric Company, Philadelphia, Pa. Filed Feb. 13, 1893. Serial No. 462,078. (No model.)

Claim.—1. In a system of electric railways a generator of electricity, an insulated current main connected thereto and having exposed contacts in switch boxes located at intervals throughout the route; sectional trolley conductors having normally open branch connections each with a switching device located in one of the switch boxes; a pair of electro-magnets in each switch box one of which has normally open circuit connections with the sectional conductor next in advance and the other similar normally open circuit connections with the sectional conductor next in the rear, in combination with a traveling trolley operatively connected with an electric motor carried by the car and adapted to close the circuit through one of the electro-magnets next in advance so as to connect the next succeeding sectional trolley conductor with the current main and then to close the circuit through one of the electro-magnets in the switch box last passed, whereby the sectional conductor last passed is disconnected substantially as described.



2. In a system of electric railways an insulated current main or lead having exposed contacts in switch boxes located at various points throughout the route; a normally disconnected sectional trolley conductor for each switch box; a pair of electro-magnets in each switch box one of which is provided with normally open circuit connections for connecting it electrically with the front end of one of the sectional trolley conductors the other being provided with similar circuit connections for connecting it with the rear end of the next sectional trolley conductor in advance, and circuit connections through a traveling trolley, whereby the sectional trolley conductors are successively cut into and out of circuit as the car advances substantially as described.

3. In a system of electric railways an insulated current main; a series of sectional trolley conductors; an insulated branch conductor running from each trolley conductor into a water tight switch box and connected to a switching device controlled in its movements by two electro-magnets, the contacting portion of said switching device lying in the path of a fixed contact connected to the insulated current main, said electro-magnets being located in normally open branch circuits running respectively to the adjacent ends of the two trolley conductors next in advance and in the rear, in combination with a traveling trolley carried by a moving car or vehicle and adapted to close the circuit between the trolley conductors and the aforesaid normally open branch circuits as the car advances, substantially as described.

4. A trolley consisting of a two-part trolley wheel, one of which parts is provided with an inwardly extending boss or projection which constitutes the axle of the trolley in combination with a trolley arm journaled upon the axle and held between the two parts, substantially as described.

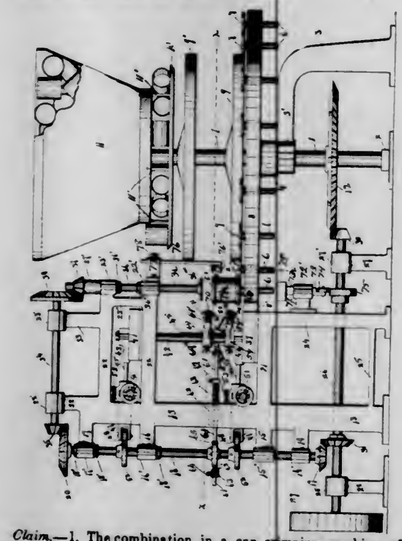
5. A trolley consisting of a two-part trolley wheel, one of which parts is provided with an inwardly extending boss or projection constituting the axle of the trolley, in combination with a trolley arm located between the two parts of the wheel and means for holding the parts together, substantially as described.

6. A trolley consisting of a two-part trolley wheel, one of which parts is provided with an inwardly extending boss or projection constituting the axle of the trolley, the inner face of the other part resting thereon, the parts being held together by a screw, in combination with a trolley arm located between the two parts, the upper portion of said trolley arm being surrounded by insulating material, substantially as described.

7. A trolley consisting of a two part trolley wheel, one of which parts is provided with an inwardly extending boss or projection constituting the axle of the trolley, the other part being held thereto by a screw, in combination with a trolley arm journaled on the axle between the two parts and surrounded above the trolley wheel by a glazed coating of insulating material, substantially as described.

8. In an electric railway system an insulated current feeder or main having circuit connection through an exposed contact inclosed in a water tight switch box with a magnetic switching lever electrically connected with an exposed trolley conductor, said lever lying in close proximity to a non-magnetic box cover, in combination with a portable magnet adapted to actuate the switching lever through the cover, and additional permanent magnets adapted to hold or secure the switching lever in either of two positions, substantially as described.

521,893. CAN-CRIMPING MACHINE. JOHN W. ROBERTS, Cleveland, Ohio, assignor to the Roberts Tinware Company, same place. Filed Mar. 14, 1893. Serial No. 466,003. (No model.)



Claim.—1. The combination, in a can crimping machine, of a bracket having a reciprocating movement, a crimping-disk carried by said bracket, a link centrally pivoted upon the bracket, a rod pivoted at one end to the pivoted link and carrying a smoothing disk at its opposite end, and means for throwing the pivoted link to reciprocate the smoothing disk independently of the reciprocating movement of the crimping disk, substantially as illustrated and described.

2. The combination, in a can-crimping machine, of a bracket carrying a crimping-disk, a link centrally pivoted upon the bracket, a reciprocating rod having one end pivotally connected with one end of said centrally-pivoted link and carrying at its opposite end a smoothing disk, a cam, and intermediate connection between said cam and the said centrally-pivoted link, substantially as illustrated and described.

3. The combination, in a can-crimping machine, of a bracket carrying a crimping-disk, a link pivoted upon said bracket, a reciprocating rod having one end pivoted to said pivoted link and the opposite end carrying a smoothing-disk, a bar attached to said pivoted link, a cam, and an arm adjustably fixed to said bar and having engagement with said cam, substantially as illustrated and described.

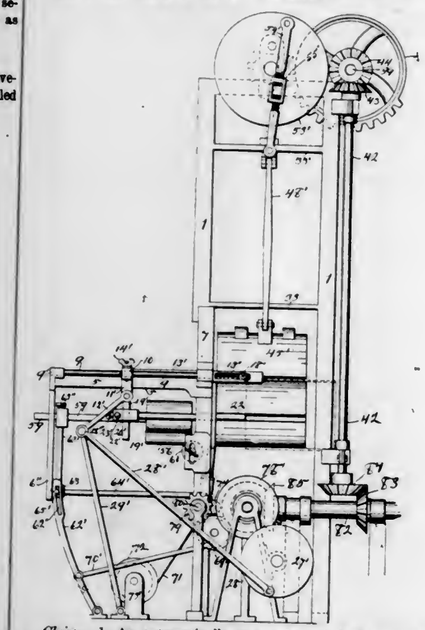
4. The combination in a can-crimping machine, of mechanism which automatically gripe and rotates a can, a crimping disk, a cam to reciprocate the crimping-disk, a smoothing-disk to follow the crimping-disk, and means for throwing the smoothing-disk into contact with a can being operated upon after the crimping-disk has been thrown into contact with the can, substantially as illustrated and described.

5. The combination, in a can-crimping machine, of a vertical shaft having fixed thereon brackets with arms carrying crimping-disks, and cams to reciprocate said vertical shaft laterally, substantially as illustrated and described.

6. The combination, in a can-crimping machine, of a vertical shaft having fixed thereon brackets provided with arms carrying crimping-disks pivoted thereto, cams to reciprocate said vertical shaft laterally, and adjustable connection between said cams and vertical shaft, substantially as illustrated and described.

7. The combination, in a can-crimping machine, of a vertical shaft having fixed thereon brackets provided with arms having crimping-disks pivoted thereto, cams to reciprocate said vertical shaft laterally, and yielding connections between said cams and vertical shaft, substantially as illustrated and described.

521,894. CAN-SEAMING MACHINE. JOHN W. ROBERTS, Cleveland, Ohio, assignor to the Roberts Tinware Company, same place. Filed Apr. 6, 1893. Serial No. 469,367. (No model.)



Claim.—1. An automatically operated stock-feed consisting of sliding stock-guides having lateral and longitudinal adjustment, and means for reciprocating the sliding stock-guides, substantially as illustrated and described.

2. An automatically operated stock-feed consisting of sliding stock-guides having lateral and longitudinal adjustment, with means for reciprocating stock-guides and giving them a rest at the end of each stroke, substantially as illustrated and described.

3. Sliding stock-guides, a rocking-bar, any suitable connection between the sliding stock-guides and the rocking-bar, a mutilated gear, and connection between the mutilated gear and rocking-bar, substantially as illustrated and described.

4. Sliding stock-guides having lateral and longitudinal adjustment, a rocking-bar, any suitable connection between the rocking-bar and the sliding stock-guides, a mutilated gear and connection between the mutilated gear and the rocking bar, substantially as illustrated and described.

5. A supporting frame forming a table, guide rods secured to the table, a bar sleeved upon the guide rods and having movement along the guide rods, stock-guides secured to the bar sleeved upon the guide rods, and means for reciprocating the same, substantially as illustrated and described.

6. A supporting frame forming a table, guide rods secured to the table, a bar sleeved upon the guide rods, and having movement thereon, stock-guides secured to the bar secured upon the guide rods, a rocking-bar, a link pivoted to the rocking-bar and to the bar sleeved upon the guide rods, a mutilated gear and connection between the mutilated gear and the rocking-bar, substantially as illustrated and described.

7. Sliding stock-guides having lateral and longitudinal adjustment, discharge rods, and means for reciprocating the sliding stock-guides and discharge rods, substantially as illustrated and described

8. Discharge rods, sliding stock-guides, a rocking-bar, any suitable connection between the sliding stock-guides and rocking-bar, a mutilated gear, and connection between the mutilated gear and the rocking-bar, substantially as illustrated and described.

9. A supporting frame forming a table, guide rods secured to the table, a bar sleeved upon the guide rods and having movement thereon, stock-guides and discharge-rods carried by the bar sleeved upon the guide rods, a rocking-bar, any suitable connection between the rocking-bar and the bar sleeved upon the guide-rods, a mutilated gear, and connection between the mutilated gear and rocking-bar, substantially as illustrated and described.

10. The combination of an open split cylinder, hinged segments, and means for closing the hinged segments upon the open split cylinder, one of the hinged segments closing slightly in advance of the other, and opening them, substantially as illustrated and described.

11. The combination of an open split cylinder, hinged segments, means for raising and lowering the hinged segments vertically above the open split cylinder, and means for closing the segments upon the split cylinder, one of the segments being closed slightly in advance of the other, and opening them, substantially as illustrated and described.

12. The combination of an open split cylinder, a vertical bar having a reciprocating movement above the split cylinder, segments hinged to said vertical bar, and means for closing the segments upon the split cylinder, one being closed in advance of the other, and opening them, substantially as illustrated and described.

13. An open split cylinder, a vertical bar, a cam to give the vertical bar reciprocating movement, segments hinged to the vertical bar, a cross-bar above the segments, links between the cross-bar and the segments, drivers to raise and lower the cross-bar whereby the segments are alternately closed upon the split cylinder and opened free of the split cylinder and a soldering iron to reciprocate through the split cylinder, substantially as illustrated and described.

14. A soldering iron, a slotted rocking bar, suitable connection between the soldering iron and the slotted rocking-bar, a mutilated gear and connection between the slotted rocking-bar and the mutilated gear, substantially as illustrated and described.

15. A soldering iron having a chamber therein, air openings to the chamber and a pipe entering the chamber, flexible gas tubing connected with the pipe that enters the chamber, a slotted rocking-bar, suitable connection between the slotted rocking-bar and the soldering iron, a mutilated gear and connection between the mutilated gear and the slotted rocking-bar, substantially as illustrated and described.

16. A soldering iron having a chamber therein, a pipe entering said chamber, flexible gas tubing connected with the pipe that enters the chamber, a slotted rocking-bar, suitable connection between the slotted rocking-bar and the soldering iron, a mutilated gear, a connection between the mutilated gear and the slotted rocking-bar, and an automatic solder-feed, substantially as illustrated and described.

17. An open split cylinder, a soldering-iron, and means for reciprocating the soldering iron within the split cylinder and outside the front end of the split cylinder, substantially as illustrated and described.

18. An open split cylinder, a soldering iron to reciprocate in the split cylinder, a slotted rocking-bar, suitable connection between the soldering iron and the slotted rocking-bar, and means for reciprocating the slotted rocking-bar and the soldering iron, substantially as illustrated and described.

19. An open split cylinder, a soldering iron, a slotted rocking-bar, suitable connection between the soldering iron and the slotted rocking-bar, a mutilated gear and connection between the slotted rocking-bar and the mutilated gear, substantially as illustrated and described.

20. An open split cylinder, a soldering iron having a chamber therein to reciprocate in the split cylinder, air openings to the chamber and a pipe to enter the chamber, substantially as illustrated and described.

21. An open split cylinder, a soldering iron having a chamber therein to reciprocate in the split cylinder, air openings to the chamber, a pipe entering the chamber, flexible gas tubing connected with the pipe that enters the chamber, and means to reciprocate the soldering iron, substantially as illustrated and described.

22. An open split cylinder, a soldering iron having a chamber therein to reciprocate in the split cylinder, air openings to the chamber, a pipe entering the chamber, flexible gas tubing connected with the pipe that enters the chamber, a slotted rocking-bar, suitable connection between the slotted rocking-bar and the soldering iron, a mutilated gear, and connection between the mutilated gear and the slotted rocking-bar, substantially as illustrated and described.

23. An open split cylinder, hinged segments, means for closing the segments upon the split cylinder and opening them, a soldering iron, and means for reciprocating the soldering iron through the open split cylinder, substantially as illustrated and described.

24. An open split cylinder, hinged segments, means for closing the segments upon the split cylinder and opening them, a soldering iron, a slotted rocking-bar, suitable connection between the soldering iron and the slotted rocking-bar, and means for reciprocating the slotted rocking-bar and the soldering iron, substantially as illustrated and described.

25. An open split cylinder, hinged segments, means for closing these segments upon the split cylinder and opening them, a soldering iron, a slotted rocking-bar, suitable connection between the soldering iron and the slotted rocking-bar, a mutilated gear, and connection between the slotted rocking-bar and the mutilated gear, substantially as illustrated and described.

26. An open split cylinder, hinged segments, means for closing the segments upon the split cylinder and opening them, a soldering iron having a chamber therein, air openings to the chamber, a pipe to enter said chamber, and means to reciprocate the soldering iron within the open split cylinder, substantially as illustrated and described.

27. An open split cylinder, hinged segments, means for closing the hinged segments upon the split cylinder and opening them, a soldering iron having a chamber therein to reciprocate in the split cylinder, air openings to the chamber, a pipe entering the chamber, flexible gas tubing connected with the pipe that enters the chamber, a slotted rocking-bar, suitable connection between the slotted rocking-bar and the soldering iron, a mutilated gear and connection between the mutilated gear and the slotted rocking-bar, substantially as illustrated and described.

28. An open split cylinder, a vertical bar having reciprocating movement above the split cylinder, segments hinged to the vertical bar, means for closing the segments upon the split cylinder and opening them, and a soldering iron to reciprocate within the split cylinder, substantially as illustrated and described.

29. An open split cylinder, a vertical bar, a cam to give the vertical bar reciprocating movement, segments hinged to the vertical bar, a cross-bar above the segments, links between the cross-bar and the segments, drivers to raise and lower the cross-bar whereby the segments are alternately closed upon the split cylinder and opened, a soldering iron having a chamber therein, air openings to the chamber, a pipe entering the chamber, flexible gas tubing connected with said pipe, and means for reciprocating the soldering iron within the open cylinder, substantially as illustrated and described.

30. An open split cylinder, a vertical bar, a cam to give the vertical bar reciprocating movement, segments hinged to the vertical bar, a cross-bar above the segments, links between the cross-bar and the segments, drivers to raise and lower the cross-bar whereby the segments are alternately closed upon the split cylinder and opened, a soldering iron having a chamber therein, air openings to the chamber, a pipe entering the chamber, flexible gas tubing connected with said pipe, a slotted link, connection between the slotted link and the soldering iron, a mutilated gear, and connection between the mutilated gear and the slotted rocking bar, substantially as illustrated and described.

31. A supporting frame forming a table, sliding stock-guides upon the table, means for reciprocating the sliding stock-guides, an open split cylinder, hinged segments, and means for closing the segments upon the split cylinder and opening them, substantially as illustrated and described.

32. A supporting frame forming a table, sliding stock guides upon the table, means for reciprocating the sliding stock-guides, an open split cylinder, a vertical bar having reciprocating movement above the split cylinder, segments hinged on the said vertical bar and means for closing the segments upon the split cylinder and opening them, substantially as illustrated and described.

33 A supporting frame forming a table, sliding stock-guides upon the table, means for reciprocating the sliding stock-guides, an open split cylinder, a vertical bar above the split cylinder, a cam to give the vertical bar reciprocating movement, segments hinged to the vertical bar, a cross-bar above the segments, links between the cross bar and the segments, and drivers to raise and lower the cross-bar whereby the segments are alternately closed upon the split cylinder and opened free of the split cylinder, substantially as illustrated and described.

34. A supporting frame forming a table, guide rods secured to the table, a bar sleeved upon the guide rods and having movement thereon, stock-guides secured to the bar sleeved upon the guide rods, a rocking-bar, suitable connection between the rocking-bar and the bar sleeved upon the guide rods, a mutilated gear, connection between the mutilated gear and the rocking-bar, an open split cylinder, a vertical bar above the split cylinder, a cam to give the vertical bar recip

rocating movement, segments hinged to the vertical bar, a cross-bar above the segments, links between the cross-bar and the segments, and drivers to raise and lower the cross-bar whereby the segments are alternately closed upon the split cylinder and opened, substantially as illustrated and described.

35. A supporting frame forming a table, guide rods secured to the table, a bar sleeved upon the guide rods, and having movement thereon, stock-guide rods and discharge rods carried by the bar sleeved upon the guide rods, means for reciprocating the sleeved bar carrying the stock-guide rods and discharge rods, an open split cylinder, a vertical bar above the split cylinder, a cam to give the vertical bar reciprocating movement, segments hinged to the vertical bar, a cross-bar above the segments, links between the cross-bar and segments, and drivers to raise and lower the cross-bar whereby the segments are alternately closed upon the split cylinder and opened, substantially as illustrated and described.

36. A supporting frame forming a table, sliding stock-guides upon the table, means for reciprocating the sliding stock-guides, a soldering iron, a slotted rocking-bar, suitable connection between the soldering iron and the slotted rocking-bar, a mutilated gear and connection between said mutilated gear and rocking-bar, substantially as illustrated and described.

37. A supporting frame forming a table, guide rods secured to the table, a bar sleeved upon the guide-rods and having movement thereon, stock-guides secured to said bar, a pivoted rocking-bar, suitable connection between said pivoted rocking-bar and the bar sleeved upon the guide rods, a mutilated gear, suitable connection between said mutilated gear and rocking-bar, a soldering iron, a slotted rocking-bar, suitable connection between the slotted rocking-bar and the soldering iron, and a mutilated gear with which the slotted rocking-bar has connection, substantially as illustrated and described.

38. A supporting frame forming a table, guide rods secured to the table, a bar sleeved upon the guide rods and having movement thereon, stock-guides secured to the bar sleeved upon the guide rods, a rocking-bar, suitable connection between the rocking-bar and the bar sleeved upon the guide rods, a mutilated gear, connection between said mutilated gear and said rocking-bar, a soldering iron having a chamber therein, air openings to the chamber, a pipe entering the chamber, flexible gas tubing connected with said pipe, a slotted rocking-bar, suitable connections between the slotted rocking-bar and the soldering iron, and a separate mutilated gear with which the slotted rocking-bar is connected, substantially as illustrated and described.

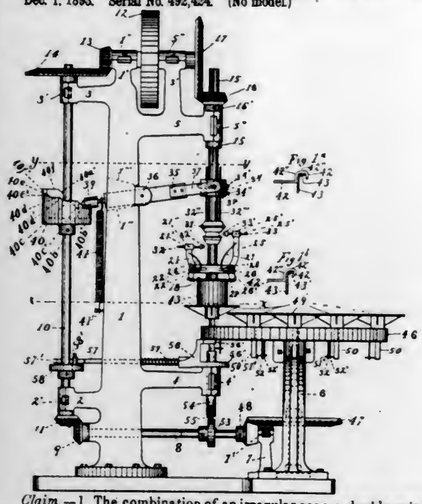
39. An open split cylinder, hinged segments, means for closing the segments upon the split cylinder and opening them, a soldering iron, means for reciprocating the soldering iron through the split cylinder, and means for feeding stock into the machine, substantially as illustrated and described.

40. An open split cylinder, a vertical bar above the split cylinder having a reciprocating movement, segments hinged to the vertical bar, means for closing the segments upon the split cylinder and opening them, a soldering iron reciprocating through the split cylinder by means of a mutilated gear and intermediate connection between the mutilated gear and the soldering iron, and reciprocating stock-guides, substantially as illustrated and described.

41 An open split cylinder, a vertical bar above the split cylinder, a cam to give the vertical bar reciprocating movement, segments hinged to the vertical bar, a cross-bar above the segments, links between the cross-bar and the segments, drivers to raise and lower the cross-bar whereby the segments are closed upon the split cylinder and opened, reciprocating stock-guides, a soldering iron having a chamber therein, air openings to the chamber, a pipe within the chamber, flexible gas tubing connected with said pipe, a slotted rocking-bar, suitable connection between the slotted rocking-bar and the soldering iron, a mutilated gear, and connection between the mutilated gear and the slotted rocking-bar, substantially as illustrated and described.

42. A split cylinder, a vertical bar above the split cylinder, a cam to give the vertical bar reciprocating movement, segments hinged to the vertical bar, a cross-bar above the segments, links between the cross-bar and the segments, drivers to raise and lower the cross-bar whereby the segments are closed upon the split cylinder and opened, a supporting frame forming a table, guide rods secured to the table, a bar sleeved upon the guide rods and having movement thereon, stock-guides and discharge-rods carried by the bar sleeved upon the guide-rods, a rocking-bar, suitable connection between the rocking-bar and the bar sleeved upon the guide rods, a mutilated gear, connection between the mutilated gear and the rocking-bar, a soldering iron having a chamber therein, air openings to the chamber, a pipe within the chamber, flexible gas tubing connected with said pipe, a slotted rocking-bar, suitable connection between the slotted rocking-bar and the soldering iron, a mutilated gear with which the slotted rocking-bar has connection, and a solder feed, substantially as illustrated and described.

521,895. CAN-SEAMING MACHINE. JOHN W. ROBERTS, Cleveland, Ohio, assignor to the Roberts Tinware Company, same place. Filed Dec. 1, 1893. Serial No. 492,424. (No model.)



Claim.—1. The combination of an irregular cone a double swing lever, and a seaming disk carried by the double swing lever, substantially as illustrated and described.

2. An irregular cone, a double swing lever, a seaming disk carried by the lower end of the lever and a friction roller carried by the upper end of the lever, substantially as illustrated and described.

3. The combination of a vertical shaft, an irregular cone upon the vertical shaft and having movement thereon, a cross-bar fixed upon the vertical shaft, double swing levers pivoted to the cross-bar, and seaming disks carried by the double swing levers, substantially as illustrated and described.

4. A vertical shaft, an irregular cone upon the vertical shaft and having movement thereon, a cross-bar fixed upon the vertical shaft, slots laterally through the cross-bar near its ends, double swing levers pivoted in the slots of the cross-bar, and seaming disks carried by the double swing levers, substantially as illustrated and described.

5. The combination of a vertical shaft, an irregular cone upon the vertical shaft and having movement thereon, a cross-bar fixed to the vertical shaft, double swing levers pivoted to the cross-bar, seaming disks carried by the double swing levers, a cam having a series of steps and inclines, and intermediate connection between the cam and the irregular cone whereby the irregular cone is lowered and raised upon the vertical shaft by the rotation of the cam, substantially as illustrated and described.

6. The combination of a vertical shaft, an irregular cone upon the vertical shaft, a cross-bar fixed to the vertical shaft, slots laterally through the cross-bar near its ends, double swing levers pivoted in the slots of the cross-bar, seaming disks carried by the double swing levers, a cam having a series of steps and inclines, and intermediate connection between the cam and the irregular cone whereby the irregular cone is lowered and raised upon the vertical shaft by the rotation of the cam, substantially as illustrated and described.

7. The combination of a vertical shaft, an irregular cone upon the vertical shaft, a cross-bar fixed to the vertical shaft, double swing levers pivoted to the cross-bar, seaming disks carried by the double swing levers, a sleeve upon the vertical shaft above the irregular cone, any suitable connection between said sleeve and the irregular cone, a rocking bar having connection at one end with said sleeve and its opposite end being operated by a cam having a series of steps and inclines, substantially as illustrated and described.

8. The combination, in a can seaming machine, of a lock for the spindles of the cam carrier disks consisting of a lock-frame having two arms, the upper arm being shorter than the lower arm, the lower arm having a slot through it, a horizontal bar having one end attached to the lock-frame and the opposite end provided with a hook, a rotating trip to engage said hook to withdraw the frame, and a spring to return the lock-frame upon the release of the hook from engagement with the rotating trip, substantially as illustrated and described.

9. The combination, in a can seaming machine, of a vertical shaft carrying a can carrier frame having an intermittent rotary movement, can carrier disks having spindles journaled around said frame, a plunger below the orbit of the spindles, a cam below the plunger adapted to raise the spindles as the spindles successively come over the plunger in their travel at the end of each intermittent movement of the can carrier frame, a vertical shaft above the orbit of the can carrier disks, said shaft carrying on its lower end a gripping disk, an irregular cone upon the vertical shaft carrying the gripping disk, a cross-bar attached to said vertical shaft, double swing levers pivoted to said cross-bar, a vertical shaft having thereon a cam provided with steps and inclines, intermediate connection between said cam and the irregular cone whereby the cone is lowered and raised by the rotation of the cam having a series of steps and inclines, substantially as illustrated and described.

10. The combination, in a can seaming machine, of a vertical shaft having fixed thereon a can carrier frame, can carrier disks having spindles journaled around the can carrier frame, a drive-gear fixed upon the vertical shaft of the can carrier frame, a horizontal shaft having fixed thereon a cam below the orbit of the spindles, a mutilated pinion to mesh with the gear that is fixed upon the vertical shaft of the carrier frame, a plunger above said cam and below the orbit of said spindles, a lock for said spindles adapted to engage and lock successively the spindles after each intermittent movement of the carrier frame, a vertical shaft above the orbit of the can carrier disks, a gripping disk upon the lower end of said vertical shaft, an irregular cone upon the vertical shaft above the orbit of the can carrier disks, a cross-bar fixed upon the same vertical shaft, double swing levers pivoted to said cross-bar, seaming disks carried by the double swing levers, a vertical shaft having fixed thereon a cam having a series of steps and inclines, driving connection between the horizontal shaft and the vertical shaft having fixed thereon a cam with inclines and steps, and intermediate connection between the cam having a series of steps and inclines and the irregular cone whereby the irregular cone is lowered and raised by the rotation of said cam, substantially as illustrated and described

---

521,896. CAN-SOLDERING MACHINE. JOHN W. ROBERTS, Cleveland, Ohio, assignor to the Roberts Tinware Company, same place. Filed Dec. 1, 1893. Serial No. 492,425. (No model.)

Claim.—1. The combination of a vertical shaft having two wheels thereon with fingers secured upon the rims of said wheels, a segmental frusto conical plate with an upturned flange, a groove around said segmental frusto conical plate near its lower edge, said segmental frusto conical plate and upturned flange being divided off into sections to form an acid bath, a solder bath and a cooling section, a solder-box below that section of the segmental frusto conical plate and flange which forms the solder-bath, openings from the solder-bath into the solder-box, a heating-pipe below the solder-box, a warmer pipe below the acid bath a cooling pipe around the cooling section of the segmental frusto conical plate and flange, an inverted segmental frusto conical plate having an upturned flange below the first mentioned segmental frusto conical plate, a chute leading from the upper segmental frusto conical plate to the lower inverted segmental frusto conical plate, the inverted segmental frusto conical plate and its flange being divided off into sections by dams to form an acid bath, a solder-bath and a cooling section, a solder-box underneath the solder-bath of the inverted segmental frusto conical plate and flange, openings from said solder-bath into said solder-box, a heating pipe below said solder-box, a warmer pipe below the lower acid bath, a cold blast pipe along the cooling section of the inverted segmental frusto conical plate and a groove formed around said inverted segmental frusto conical plate near its junction with its upturned flange, substantially as illustrated and described.

2. The combination, in a can soldering machine, of two sections, the upper section being adapted to have cans rolled around it at one angle of inclination to solder one end of a can and the lower section being adapted to have cans rolled around it at an angle of inclination opposite their inclination on the upper section to solder the opposite end of the can, a chute leading from the upper section to the lower section and adapted to change the angle of inclination of cans in their travel down said chute, a vertical shaft having thereon two wheels, carrying fingers around their rims, the fingers of the upper wheel being adapted to roll cans around the upper section of the machine and the fingers of the lower wheel being adapted to roll cans around the lower section of the machine, substantially as illustrated and described.

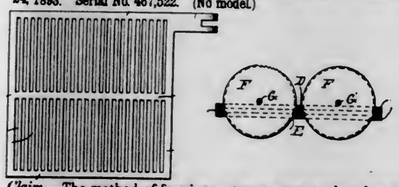
3. The combination, in a machine for soldering cans, of a solder-bath consisting of a segmental frusto conical plate with an upturned flange, a groove formed around said segmental frusto conical plate near its junction with said flange, a solder-box secured to the under side of said segmental frusto conical plate and flange, and openings from said solder-bath into said solder-box, substantially as illustrated and described.

4. The combination, in a can soldering machine, of a solder-bath consisting of an inverted segmental frusto conical plate having an upturned flange, a groove around said inverted segmental frusto conical plate near its junction with said flange, a solder-box secured to the under side of said inverted segmental frusto conical plate and flange, and openings from said solder-bath into said solder-box, substantially as illustrated and described.

5. The combination in a can soldering machine, of a solder-bath consisting of a segmental frusto conical plate having an upturned flange, a groove around said segmental frusto conical plate near its junction with said flange, a solder box secured to the under side of said segmental frusto conical plate and flange, a solder box secured to the under side of said segmental frusto conical plate and flange, openings from said solder-bath into said solder-box, and a wheel having fingers around its rim, substantially as illustrated and described.

6. The combination, in a can soldering machine, of a solder-bath consisting of an inverted segmental frusto conical plate and upturned flange, a groove around said inverted segmental frusto conical plate near its junction with said upturned flange, a solder-box secured to the under side of said inverted segmental frusto conical plate and flange, openings from said solder-bath into said solder-box, and a wheel carrying fingers around its rim, substantially as illustrated and described.

521,897. METHOD OF FORMING STORAGE-BATTERY PLATES. CHARLES SORLEY and JAMES K. PUMPELLY, Chicago, Ill., assignors to the Pumpelly-Sorley Storage Battery Company, same place. Filed Mar. 24, 1893. Serial No. 467,522. (No model.)



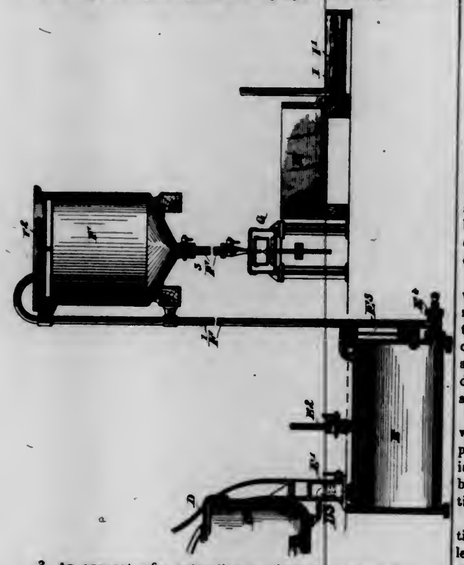
Claim.—The method of forming a storage or secondary battery plate, which consists in clamping a sheet of lead between two plate forms, and then bringing the same against the gang of saws, which cut through the metal of the plate, thus leaving the plate of an integral piece, but with an outside frame, and a series of ribs there-across

---

521,898. PROCESS OF AND APPARATUS FOR EXTRACTION OF GOLD OR SILVER FROM ORES. JOSEPH W. SUTTON, Chelmer, Queensland. Filed Oct. 6, 1892. Serial No. 448,066. (No model.)

Claim.—1. In the wet process for the extraction of precious metals from their ores, the improvement which consists in pulping the ore, chlorinating the same while being agitated, leaching the chlorinated pulp, separating the precious metal from the liquor by precipitation and evaporating to dryness the remaining liquor, for the purposes set forth.

2. In the wet process for the extraction of precious metals from their ores, the improvement which consists in pulping the ore, chlorinating the same while being agitated, leaching the chlorinated pulp, separating the precious metal from the liquor by precipitation, utilizing a portion of the spent liquor for pulping a fresh batch of ore, and evaporating the surplus liquor, for the purposes set forth.



3. An apparatus for extracting precious metals from the ores, comprising a chlorine generator, a chlorinator connected therewith, a centrifugal connected by feed chute with the chlorinator, means for supplying a leaching agent to the basket of the centrifugal, a receiving tank, a connection between the tank and shell of the centrifugal for conveying the expelled liquid from said shell to said tank, a precipitating tank, means for conveying the liquid from the receiving to the precipitating tank, a second centrifugal connected with the precipitating tank, a receiving tank H connected with the shell of the last named centrifugal, and an evaporator connected with said receiving tank H, for the purposes set forth.

4. The combination with the chlorinator, the centrifugal or hydro extractor D and the precipitating tank F provided in its upper portion with a perforated pipe and having a conical bottom, of the tank E, means for conveying the liquid from the shell of the centrifugal D to said tank, a pipe connected with the tank near its bottom and with the perforated pipe of the precipitating tank, and a steam conduit opening into the tank at the upper portion thereof, for the purposes set forth.

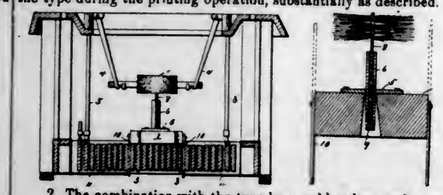
521,899. PROCESS OF SEPARATING GOLD FROM ITS CHLORID SOLUTIONS. JOSEPH W. SUTTON, Chelmer, Queensland. Filed Dec. 28, 1892. Serial No. 456,586. (No specimens.)

Claim.—1. In the separation of gold from its chlorid solutions, the improvement which consists in mixing the solution with a vehicle for the gold, substantially such as described, precipitating the gold by means of a suitable reagent, as sulfate of iron, separating the vehicle containing the gold from the spent solution, treating said vehicle with a suitable reagent, as sulfuric acid, and filtering the gold from the vehicle, substantially as and for the purpose set forth.

2. In the separation of gold from its chlorid solutions, the improvement which consists in mixing the solution with a vehicle for the gold, substantially such as described, and with a distributer of said vehicle, as an alkali, precipitating the gold in the mixture by a suitable reagent, as sulfate of iron, and agitating the mixture during the operation of precipitation, allowing the vehicle to collect and entrain the precipitate of gold, separating the vehicle containing the gold precipitate from the spent solution, treating said vehicle with a suitable reagent, as sulfuric acid, for the purposes stated, and separating the gold therefrom.

521,900. CLEANING ATTACHMENT FOR TYPE-WRITING MACHINES. CHARLES T. THATCHER, Rochester, N. Y. Filed Feb. 14, 1893. Serial No. 462,293. (No model.)

Claim.—1. A type-cleaning attachment for type-writers consisting of a broad stable base adapted to rest upon and be supported by two or more of the key levers of a type-writer within the type-basket, and a brush freely supported thereon adapted to be engaged by the type during the printing operation, substantially as described.



2. The combination with the type-bars and key levers of a type-writer, of a type-cleaning attachment consisting of a broad base or support resting upon and supported by the key levers inside of the basket, and a brush freely supported on said base and adapted to be engaged by the type during the printing operation, substantially as described.

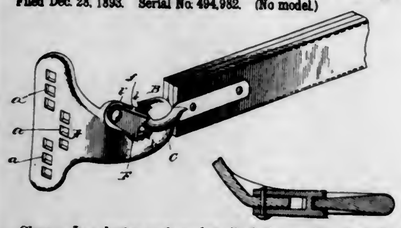
3. The combination with the type-bars and key-levers of a type-writer, of a type-cleaning attachment consisting of a broad stable base resting upon and supported by the key levers within the type-basket, the vertically adjustable tubular standard thereon and the circular cleaning brush having the long stem or rod loosely supported in the standard, said brush being arranged in the path described by the type during the printing operation and serving to engage and clean them, substantially as described.

4. The combination with the type bars and key-levers of a type-writer, of a type cleaning attachment consisting of a base or support resting upon the key-levers inside the basket having the depending legs passing between the levers, and a brush supported on said base adapted to be engaged by the type during the printing operation, substantially as described.

5. In a type-cleaning attachment for type-writers, the combination with the broad stable base or support adapted to rest upon the key levers within the basket and the adjustable tubular standard thereon, of the cleaning brush composed of bristles secured between twisted wires, said wires extending below the brush and forming a rod loosely supported and rotatable within the tubular standard, substantially as described.

6. In a type-cleaning attachment for type-writers, the combination with the broad stable base or support adapted to rest upon the key levers within the basket, of a tubular standard on the base, a rod loosely supported in said standard, having the brush at its upper end adapted to be engaged by the type during the printing operation, substantially as described.

521,901. HAME-HOOK. ALEXANDER THOMSON, Fitchburg, Mass. Filed Dec. 28, 1893. Serial No. 494,982. (No model.)

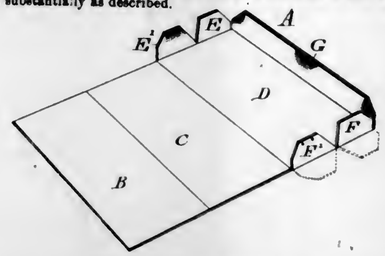


Claim.—In a device such as described, the combination with the body having the extended base for attachment to the collar and having the rearwardly extending hook flattened vertically in cross section and having the relatively narrow entrance opening, of the gravitating keeper F pivotally connected to the body above the level of the hook opening but adjacent to the entrance opening and having the web adapted to enter the same, the end of the keeper being recessed to counteract the tendency of the cooperating member to work the same open said keeper when closed being downwardly inclined; substantially as described.

521,902. COMBINED ENVELOPE, LETTER-SHEET, CIRCULAR, AND CASING. WILLIAM A. WRIGHT, Centreton, N. J., assignor of one-third to Lafayette Palmer, Harrisburg, Pa. Filed June 15, 1893. Serial No. 477,649. (No model.)

Claim.—1. The folds B, C, and D, the separate flaps E, F, and E', F', on the sides of the fold D, and the flap G on the end of said fold D, the flaps G and E', F', having adhesive material thereon, substantially as described.

2. The folds B, C, and D, the flaps E, E', F, F', and the flap G on the end of said fold D, the flaps G, E', and F' having adhesive material thereon, and perforated at the place of occupation of said material, substantially as described.



521,903. MATCH-BOX. JACOB P. WRIGHT, New Haven, Conn. Filed Aug. 1, 1893. Serial No. 482,088. (No model.)



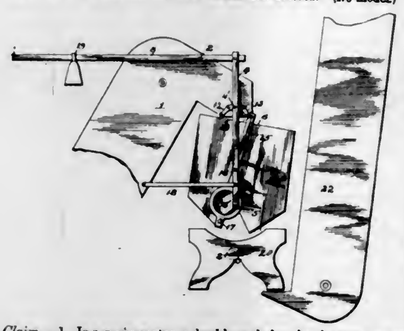
Claim.—1. A box for matches having a bottom, with a raised portion, to engage and support the bodies or splints of the matches, and a depression along the side of such portion, adapted to accommodate the lower side of the head of a match, so that the match body may rest squarely upon the raised portion of the box bottom, substantially as and for the purpose described.

2. A box for matches having a bottom with a raised portion, to engage and support the bodies or splints of the matches, and depressions along both sides of such portion to accommodate the under sides of the heads of matches whose bodies rest upon the raised portion, substantially as and for the purpose described.

3. A box for matches having the bottom with the raised central portion, to form a flat table to engage and support the bodies or splints of the matches, connected with the box sides and ends by downwardly bent portions, which, along the sides of the box, are made wide enough to accommodate the under sides of the heads of the matches resting on the raised central portion of the bottom, substantially as and for the purpose described.

4. A box for matches having its sides and ends connected in any suitable manner and a bottom with its central portion struck up, to form a raised table with depressed portions extending around the sides of the raised portion and connected with the box sides and ends, substantially as and for the purpose described.

521,904. GRAIN-METER. CHESTER L. WYLIE, Valley City, N. D., assignor of two-thirds to Ole P. Enerson, same place, and Smith B. Clary, Fargo, N. D. Filed Jan. 22, 1894. Serial No. 497,662. (No model.)



Claim.—1. In a grain meter, a double scale box having two egress openings, a door closing each of said openings alternately, a counterbalanced beam from which the scale box hangs, rods connecting the beam and the box, in combination with a lever pivoted to said rods and having one end connected to the scale box and the other to its door, substantially as described.

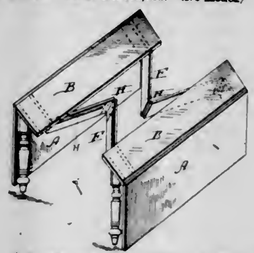
2. In a grain meter, a double scale box, having two egress openings therein, a door closing each of said openings alternately, a counterbalanced beam from which the scale box hangs, and rods connecting said beam and scale box, in combination with a lever having its opposite ends connected to the box and the door thereof, and provided with an opening to admit of the passage of the pivots supporting the box, substantially as described.

3. In a grain meter, a double scale box having lugs near its top and two egress openings in its bottom, a door closing each of said openings alternately, a counterbalanced beam from which the scale box hangs, and rods connecting said beam and scale box, in combination with a lever pivoted to the rods and having its opposite ends connected to the box and the door thereof, and stops to engage with the lugs on the box, substantially as described.

4. The combination in a grain meter, of an elevator 1, having stops 12, 13, a counterbalanced beam 3, rods 4 hung therefrom, a double scale box 6 pivoted to said rods, and having lugs 11, a door arranged to close the egress openings in said box alternately, levers 15 pivoted to the rods 4 and having their opposite ends connected to the box and its door, substantially as described.

5. The combination in a grain meter, of an elevator 1, having lever stops 12, 13, a counterbalanced beam 3, rods 4 hung therefrom and having a pin for operating said lever stops, a double scale box 6 pivoted to said rods and having lugs 11, a vibrating door arranged to close the egress openings in said box alternately, levers 15 pivoted to the rods 4 and having their opposite ends connected to the box and its door, all substantially as shown and described.

521,905. EXTENSION-TABLE. MARCELLUS H. YOUNG and JAMES M. MATHEWS, Seattle, Wash.; said Mathews assignor to said Young. Filed Aug. 3, 1893. Serial No. 482,282. (No model.)



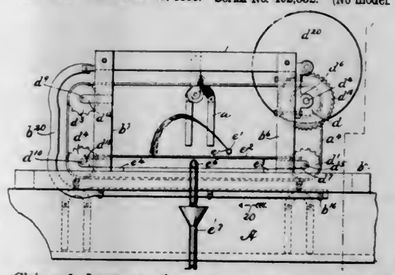
Claim.—1. An extension table consisting of a folding frame, having the end bars, E, the folding bars F, divided and hinged as hereinbefore set forth; the movable detachable top consisting of the leaves B and A, having the bars D and L of the stops S and S'; the auxiliary leaves X; and auxiliary detachable legs Y all arranged substantially as and for the purposes specified.

2. The movable top consisting of the leaves B, attached to the table-frame by means of the bars D, the drop-leaves A, and the auxiliary leaves X, all constructed and arranged to operate as set forth.

3. The combination in an extension table of the folding frame having the bars F consisting of the long extension folds and the alternate long and short end sections, and the legs, detachable at O; the sliding top consisting of the leaves B and A with bars D and L and stops S and S', the extra leaves X, and the auxiliary legs Y, all arranged substantially as and for the purposes specified.

4. In an extension table, the combination of the folding frame with the sliding top consisting of the leaves B, attached to the frame by means of the bars D, and the drop leaves A attached to B by means of hinges at G having the guide bars L, and held in place by means of the stop S' fitting over a pin P; all constructed and arranged substantially as and for the purposes set forth.

521,906. MAGNETIC SEPARATOR. HENRY CARMICHAEL, Malden, Mass. Filed Nov. 29, 1893. Serial No. 492,352. (No model.)



Claim.—1. In a magnetic separator, the combination of the following instrumentalities, viz:—a movable carrier or support, and a

magnet pivotally attached to said carrier and a receptacle through which the said magnet is passed, substantially as described.

2. In a magnetic separator, the combination of the following instrumentalities, viz:—a movable carrier or support, an electro-magnet provided with a series of cores or legs and pivotally attached to the said carrier, and hydraulic means for acting upon the said legs, substantially as described.

3. In a magnetic separator, the combination of the following instrumentalities, viz:—a movable carrier, an electro-magnet pivotally supported therefrom above its center of gravity, whereby the said magnet is maintained in a substantially perpendicular position during the travel of said carrier, a receptacle for the material to be freed from magnetic particles and means to connect the said electro-magnet in circuit when in its lowered position, and passing through said receptacle, and means to disconnect the said electro-magnet when in its elevated position out of the said receptacle, substantially as described.

4. In a magnetic separator, the combination of the following instrumentalities, viz:—a movable carrier, a plurality of electro-magnets pivotally secured thereto, a water discharge pipe located within the movable carrier to act on an electro-magnet in its elevated position, and a trough or receptacle to receive the water discharged by the said pipe, substantially as described.

5. In a magnetic separator, the combination of the following instrumentalities, viz:—a movable carrier consisting of endless bands or chains, rods a^3 connected to the said chains to move therewith, a compound electro-magnet pivotally suspended from said rod and composed of a series of substantially horse-shoe shaped electro-magnets, each having a long and short leg, the short leg of one electro-magnet being secured to the long leg of its contiguous or adjacent electro-magnet to stagger the long legs of the electro-magnets, substantially as described.

6. In a magnetic separator, the combination of the following instrumentalities, viz:—a movable carrier, an electro-magnet pivotally secured thereto and provided with a series of cores or legs staggered or alternately arranged, a receptacle for the material to be freed from magnetic particles through which the said electromagnet is carried substantially as described.

7. In a magnetic separator, the combination of the following instrumentalities, viz:—a movable carrier consisting of endless chains or bands a^4 a^5, rods a^3 connected therewith, a plurality of electro-magnets suspended on the said rods, conducting tracks extended in the direction of the said endless carrier, and a brush co-operating with one of the said tracks and electrically connected with the said electro-magnet, substantially as described.

8. In a magnetic separator, the combination of the following instrumentalities, viz:—a movable carrier consisting of endless chains or bands a^4 a^5, rods a^3, connected therewith, a plurality of electro-magnets suspended on the said rods, conducting tracks extended in the direction of the travel of the said endless carrier, a brush carried by the said rod but insulated therefrom and co-operating with one of the said tracks, and a guide wheel or roller mounted on the said rod and co-operating with the other of the said tracks, substantially as described.

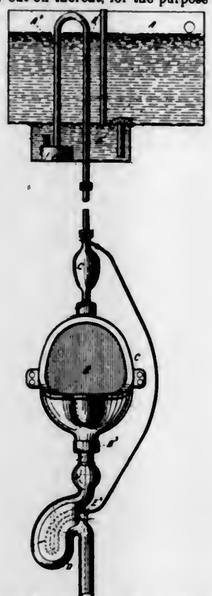
9. In a magnetic separator, an electro-magnet provided with a back strap having depending from each side of it a plurality of poles or legs forming passageways, the said passageways between adjacent legs on one side of the back strap being substantially opposite the depending legs on the opposite side of the back strap to stagger the said passageways and legs, and a winding or coil upon the back strap, substantially as described.

10. In a magnetic separator for fluid pulp, a movable carrier or support and an electro-magnet carried thereby and provided with a back strap having a plurality of poles or legs depending from opposite sides of the said back strap, the said poles or legs being separated to form passageways through which the pulp may pass, substantially as described.

521,907. AUTOMATIC FLUSHING APPARATUS FOR URINALS, &c. WILLIAM CLARK and ALEXANDER CAMERON, Sydney, and CHARLES KIRK, North Sydney, New South Wales. Filed Nov. 1, 1893. Serial No. 489,746. (No model.)

Claim.—1. In an automatic flushing device, the combination with a supply tank, a main siphon whose short leg dips into said tank, a vessel to be flushed interposed in the long leg of the siphon and an air cut off in said long leg on the tank and sewer side of the vessel respectively, of an air chamber on said sewer side of the vessel, an inverted siphon arranged therein whose long leg extends into the like leg of the main siphon a receiving basin or saucer on the long leg of said inverted siphon below the discharge from the vessel, an auxiliary siphon connecting the said chamber with the long leg of the main siphon on the sewer side of said vessel below the air cut-off thereat, and a by-pass pipe connecting the air chamber with the long leg of the main siphon on the tank side of the vessel above the air cut-off thereat, for the purpose set forth.

2. In an automatic flushing device the combination with a supply tank, a main siphon whose short leg dips into said tank, a vessel to be flushed interposed in the long leg of the siphon and an air cut-off in said long leg on the tank and sewer side of the vessel respectively, of an air chamber on said sewer side of the vessel an inverted siphon arranged therein whose long leg extends into the like leg of the main siphon a receiving basin or saucer on the long leg of said inverted siphon below the discharge from the vessel, said basin provided with a perforated cover, an auxiliary siphon connecting the said chamber with the long leg of the main siphon on the sewer side of said vessel below the air cut-off thereat and a by-pass pipe connecting the air chamber with the long leg of the main siphon on the tank side of the vessel above the air cut-off thereat, for the purpose set forth.



3. In an automatic flushing device, the combination with a main siphon, a vessel to be flushed interposed in the long leg thereof, said leg of increased cross-sectional area on the sewer side of the vessel, and provided with an air cut-off on said sewer side and on the supply side respectively, of an air chamber on the sewer side of the vessel, an inverted siphon therein whose long leg extends into the like leg of the main siphon a receiving basin or saucer on the said long leg of the inverted siphon below the discharge from said vessel, said inverted siphon and its receiving basin of less cross sectional area than that of the aforesaid long leg of the main siphon on said sewer side, an auxiliary siphon connecting the lower end of the air chamber with the long leg of the siphon below the air cut-off on the sewer side, and a by-pass pipe connecting the upper end of said chamber with the long leg of the main siphon above the air cut-off on the supply side of the vessel, for the purpose set forth.

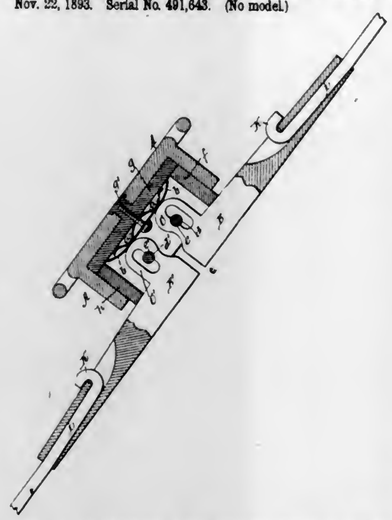
4. In an automatic flushing device, the combination with a supply tank, a main siphon whose short leg dips into said tank, a vessel to be flushed interposed in the long leg of said main siphon, and an air cut-off in the last named leg on the tank and sewer side of the vessel respectively, of an air chamber on said sewer side of the vessel, an inverted siphon therein whose long leg extends into the like leg of the main siphon a receiving basin or saucer on said long leg of the inverted siphon below the discharge of the vessel to be flushed, an auxiliary siphon connecting the air chamber with the long leg of the main siphon on the sewer side of the vessel below the air cut-off therein, a by-pass pipe connecting the air chamber with the said long leg of the main siphon on the tank side of the vessel above the air cut-off, and a weeping tank in said air chamber adapted to receive a portion of the flushing liquid, substantially as described.

5. In an automatic flushing device, the combination with the long leg of the main siphon, the air cut-off therein, and the vessel to be flushed interposed in said long leg on the sewer side of its air cut-off, a trap comprising a basin and a partition or plate dipping into the same arranged in said long leg of the main siphon on the sewer side of the vessel, and means for gaining access to said trap, an air chamber, an inverted siphon in the long leg of the main siphon a receiving basin or saucer on said long leg of the inverted siphon below the outlet of the vessel to be flushed, the short leg of said inverted siphon projecting into the air chamber, a by-pass pipe connecting the said chamber with the long leg of the main siphon above the air cut-off on the supply side of the vessel, an auxiliary siphon connecting the air chamber with the long leg of the main siphon below the trap on the sewer side of the vessel, and a weeping tank in the upper part of the air chamber adapted to receive a portion of the flushing liquid, substantially as and for the purpose set forth.

6. In an automatic flushing device, the combination with the long leg of a main siphon, a vessel to be flushed connected thereto, and an air cut-off interposed between said vessel and the short leg of the siphon, of a casing, as F, provided with inlet and outlet branches connected with the vessel and a sewer or drain respectively, an air cut-off in said casing, an air chamber forming part of the casing and provided with a removable cover, an inverted siphon whose short leg projects into the air-chamber and whose long leg is provided with a receiving basin or saucer below and centrally of the inlet branch of the said casing, an auxiliary siphon in the air chamber connecting the same with the outlet branch of the casing, and a by-pass pipe connecting said chamber with the long leg of the main siphon above the air cut off therein on the supply side of the vessel, substantially as and for the purpose set forth.

7. In an automatic flushing device, the combination with the long leg of a main siphon, a vessel to be flushed connected thereto, and an air cut-off interposed between said vessel and the short leg of the siphon, of a casing as F provided with inlet and outlet branches connected with the vessel and a sewer or drain respectively, an air cut-off in said casing, an air chamber forming part of the casing and provided with a removable cover, an inverted siphon whose short leg projects into the air chamber and whose long leg is provided with a receiving basin or saucer below and centrally of the inlet branch of the said casing, an auxiliary siphon in the air chamber connecting the same with the outlet branch of the casing, a weeping tank in the upper end of said chamber, and a by-pass pipe connecting said chamber with the long leg of the main siphon above the air cut-off therein on the supply side of the vessel, said by-pass pipe adapted to discharge into the weeping tank, substantially as and for the purpose set forth.

521,908. AUTOMATIC SAFETY-JOINT FOR ELECTRIC WIRES. JAMES H. CURRY, Wilkinsburg, Pa., assignor of eighty-three one-hundred-and-twenty-eighths to Frank B. Tomb, same place, Samuel J. Graham and A. H. Childs, Pittsburg, Pa., and Robert A. Gillispie. Filed Nov. 22, 1893. Serial No. 491,643. (No model.)



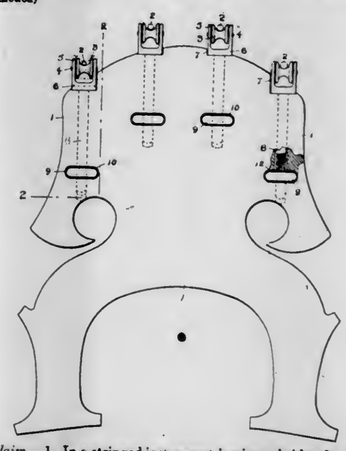
Claim.—1. An automatic safety joint for electric circuit wires, consisting of a box or support having two insulated anchorage pins, and two arms connected with said pins by a loose slotted connection with supporting seats for sustaining the arms when under tension, and a bridge connection for the two arms for electrically connecting them when supported by tension in these seats substantially as shown and described

2. An automatic safety joint for electric wires, consisting of a box or support having two insulated anchorage pins, and two arms connected with said pins by a loose slotted connection with supporting seats for sustaining the arms when under tension, a bridge for connecting the two arms, and means for holding the arms out of electrical contact when they fall away from the bridge substantially as shown and described.

3. The combination of the box A having a non-conducting lining with conducting bridge spring *a b* held in the top of the same and insulated anchorage pins *d d'* in the sides, the tension arms B B' with slotted elbows C C', having seats *e e'*, and insulating block c substantially as shown and described.

4. The tension arms B B' having tubular outer ends with chambers opening upon the sides for connecting with the line wires and having slotted elbows C C' with locking seats *e e'*, the box A having a non-conducting lining with conducting bridge springs *a b* in the top, the anchorage pins *d d'* insulated from each other and held in the sides of the box, and the non-conducting block c all combined substantially as shown and described.

521,909. BRIDGE FOR STRINGED INSTRUMENTS. ANDREW GRAHAM, Claremont, N. H. Filed Jan. 2, 1894. Serial No. 495,402. (No model.)



Claim.—1. In a stringed instrument having a bridge for the support of the strings intermediate their ends, movable string bearings supported in the top of the bridge, and devices for separately raising or lowering the bearings, substantially as set forth.

2. In a stringed instrument having a bridge for the support of the strings intermediate their ends, a pulley for each string, and devices for separately raising or lowering each pulley, said devices comprising a nut situated in a transverse slot in the bridge and a screw rod situated in the plane of the bridge and adjustable by said nut substantially as set forth.

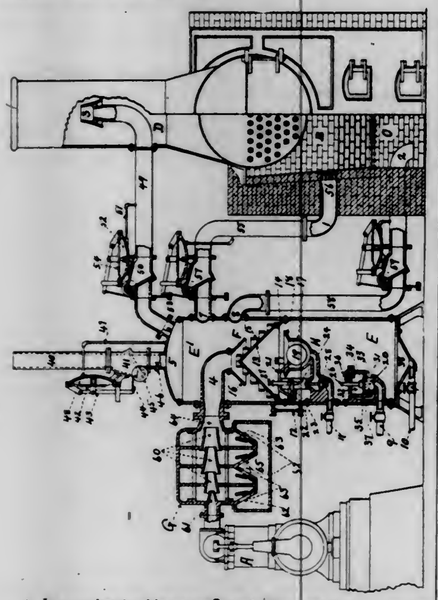
521,910. HEAT-MOTOR PLANT. ROBERT D. KINNEY, Philadelphia, Pa. Filed Mar. 24, 1894. Serial No. 504,997. (No model.)

Claim.—1. In a steam-motor plant, the combination consisting of a steam engine cylinder having its exhaust port in communication with the atmosphere and with the combustion chamber of a furnace through the medium of an air mixing and steam condensing chamber, an oil water and aero-vapor separating chamber, and closed conduits or pipes having regulating-valves therein, each constructed substantially as shown and described and arranged and connected together in series as set forth.

2. In a steam-motor plant, the combination consisting of a steam-engine cylinder having its exhaust port in communication with the atmosphere through the medium or an air-mixing and steam-condensing chamber provided with air-inlet openings and air-inlet regulating valves and jet-nozzles, an oil water and aero-vapor separating chamber provided with a water and oil collector a sediment basin with a discharge valve and separate automatic intermittent oil and water and aero-vapor discharge valves and outlets, each constructed substantially as shown and described and arranged and connected in series as set forth.

3. In a combustion-blast apparatus for furnaces, the combination consisting of a steam-jet air blower, a water and aero-vapor separator connected to receive the discharge from said blower, water and blast reservoirs connected to said separator, blast-pipes or conduits having regulating valves therein and leading from said blast-reservoir to the atmosphere and to the combustion-chamber of a furnace respectively,

water discharge conduit having regulating valve therein and leading from said water-reservoir to receptacle for receiving the water of condensation collected in and discharged from said water-reservoir, substantially as shown and described.



4. In a combustion-blast apparatus for furnaces, the combination consisting of the exhaust port of a steam-engine cylinder, a steam-jet air blower connected therewith so as to receive and be dependent upon the discharge from said exhaust-port for the operation of said blower, a water oil and aero-vapor separator having water and blast reservoirs and connected to receive the discharge from said blower, blast-pipes having regulating valves therein and leading from said blast-reservoir to the atmosphere and to the combustion chamber of a furnace respectively, water and oil discharge conduits having regulating valves therein and leading from said water and oil reservoir to receptacles respectively provided for receiving the water and oil collected in and discharged from said water and oil reservoir, substantially as shown and described.

5. In a separator for extracting water grit dirt &c. from steam or other gaseous substance, the combination consisting of a casing comprising an outer vessel or shell having located in its interior a conical deflecting surface provided with openings or space between the lower peripheral edge of said deflector and the inside surface of said shell, cylindrical rings of different diameters mounted on said conical deflector and having spaces or openings between the lower edge of said cylindrical rings and the outer-surface of said conical deflector, a sediment chamber or basin, a water collecting chamber, an inlet pipe terminating with a funnel shaped opening and located concentrically over said conical deflector and in as close proximity thereto as will admit a free discharge or passage of the inflowing current, discharge pipes with suitable valves for draining the water and other extracted matter collected in said collecting chambers respectively, and a steam or current discharge opening to allow the purified current to pass out of said shell, substantially as shown and described.

6. In liquid collecting and automatic discharging receptacles the combination consisting of an outer casing or inclosing vessel, the overflow basin 17, ball-float 19 reposing in said basin, lever 21 attached to said ball-float, axle 22 attached to and forming the fulcrum of said lever, arms 23 attached to said axle and projecting on each side of the valve-stem casing 24 and provided with seats for bearing or engaging with studs 25, valve-stem 30, valve-stem casing 24 forming a well around the said valve-stem 30, the engaging studs 25 projecting from the extended valve-stem 26, extended valve-stem 26 provided with side extensions for straddling the valve-casing 24 and for carrying the studs 25 and having its reuniting extension provided with a hole forming an actuating collar engaging with the stop-nuts 27 on the valve-stem 30 and as a means for actuating the valve 28, cylindrical valve 20, cylindrical valve-chamber 37, piston 31, cylindrical chamber 32, valve 36, conduit 35, outlet opening 9, substantially as and for the purpose shown and described.

521,911. RAWHIDE-WOUND GUN. FREDERICK LATULIP, Syracuse, N. Y., assignor of one-half to John H. Link, same place. Filed July 29, 1893. Serial No. 481,844. (No model.)



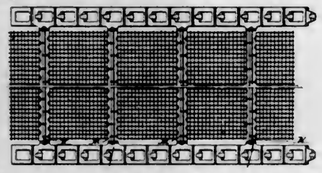
Claim.—1. A gun having a metallic core provided with retaining collars or bands, an intermediate casing of rawhide and a metallic covering for said casing.

2. A gun having a metallic core formed with integral collars or bands on its exterior, and having an intermediate casing formed of strips of raw hide wound in successive overlapping layers, and a metallic covering for said casing.

3. In a gun the combination with a metallic core having a series of retaining collars or bands formed on its exterior and along its length, the same being of less diameter than the gun when built up, of an intermediate casing formed of strips of raw hide wound upon said core and between and over said collars or bands, and an exterior metallic covering, substantially as described.

4. The combination with a steel core having retaining bands or collars formed on its periphery, of an intermediate covering formed of strips of raw hide wound in layers thereon and between said collars, said layers or strips being subjected to a softening bath of cement, whereby they are rendered flexible in winding and held in position when wound, substantially as and for the purposes specified.

521,912. APRON FOR TEXTILE MACHINERY. JOHN H. LORIMER, Philadelphia, Pa. Filed Oct. 3, 1893. Serial No. 487,079. (No model.)



Claim.—1. In a conveying apron for textile machines, the combination of two flexible parallel chains or bands connected at intervals by transverse rods, a series of interposed independent frames composed of interlaced or woven wire.

2. In a conveying apron for textile machines, the combination of two flexible parallel chains or bands connected at intervals by transverse rods, a series of interposed independent frames composed of interlaced or woven wire, and loose connections between the interposed frames and the transverse rods.

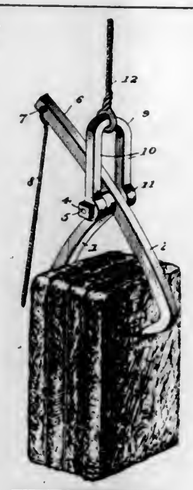
3. A conveying device for textile material consisting in the combination of two parallel sprocket chains, transverse bars or rods connected to links of the two chains and arranged at a distance apart, and interposed independent frames formed of woven wire arranged intermediate of the sprocket chains and rods or parts and flexibly connected to said rods.

4. A conveying device for textile material consisting of the combination of two parallel sprocket chains, transverse bars or rods connected to links of the two chains and arranged at a distance apart, interposed independent frames formed of woven wire arranged intermediate of the sprocket chains and rods or parts and flexibly connected to said rods, an inclosing chamber or vessel, and guide wheels or pulleys for guiding the sprocket chains arranged within the said chamber.

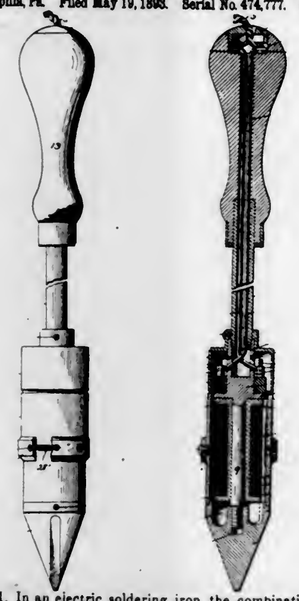
521,913. GRAPPLE. DANIEL E. LYON, Oswego, Ill. Filed Dec. 18, 1893. Serial No. 493,990. (No model.)

Claim.—The herein described grapple having pivotal jaws 1 and 2 arranged in contiguous planes with their adjacent sides in contact, a pivotal bolt 4 engaging registering perforations in said jaws, an inverted U-shaped clevis or loop provided at the extremities of its parallel arms with eyes 11 engaging said pivot-bolt, the interval between the arms of the clevis or loop being equal to the combined thicknesses of the jaws 1 and 2, whereby said jaws fit snugly therebetween and are held from lateral vibration thereby, the clevis or loop being adapted for attachment to an elevating or draft rope, and an arm 6 integral with and formed as an extension of the jaw 2 and provided with a terminal perforation for the attachment of a trip-rope, substantially as specified.

521,918.



521,914. ELECTRIC SOLDERING-TOOL. JAMES F. MCLAUGHLIN, Philadelphia, Pa. Filed May 19, 1893. Serial No. 474,777. (No model.)



Claim.—1. In an electric soldering iron, the combination of a casting, a spool or bobbin removably mounted upon the same, a heating coil upon the spool and binding posts to which the terminals of the coil are detachably secured; with leading wires also detachably secured to the binding posts, a metallic mantle for the coil, and a removable bit securing the mantle in place, substantially as described.

2. An electric soldering iron, composed of a removable heating coil mounted upon a casting binding posts for connecting the terminals of the coil with the leading wires, a two part removable metallic covering for the coil and binding posts, and a removable bit for locking these parts together, substantially as described.

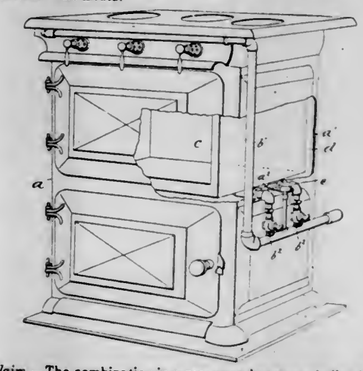
3. In an electric soldering iron, the combination of a cylindrical casting formed at one end into a thimble and at the other end as a spindle, an annular insulating block upon the casting carrying binding posts for connection with the leading wires passing through the thimble, and a spool with a heating coil mounted upon the spindle, said coil having its terminals also connected with the binding posts; with locking pins between the casting and spool to prevent the latter from turning with reference to the former, and a bit screwed upon the spindle, substantially as described.

4. In an electric soldering tool, the combination of a heating coil and a perforated inclosing mantle for the same, with means for controlling the radiation of heat through the perforations, substantially as described.

5. In an electric soldering tool, the combination of a heating coil and a perforated inclosing mantle for the same; with a perforated ring upon the mantle, adapted to turn upon the latter, whereby the size of the passages for radiation of heat from the coil into the air can be regulated, substantially as described

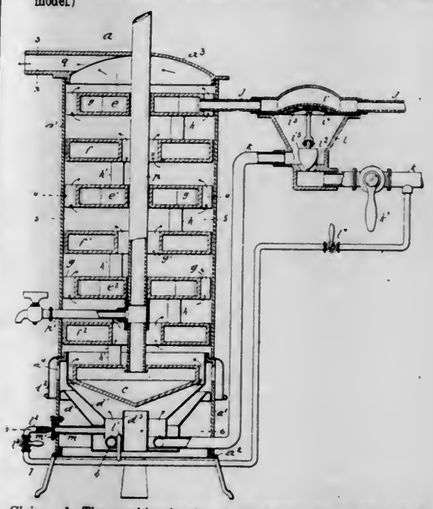
6. In an electric soldering tool, the combination of a heating coil and an inclosing mantle provided with a circumferential series of heat radiating passages; with a ring, rotatable upon the mantle provided with holes corresponding to the said passages, whereby the latter may be partly or wholly closed and the heat of the tool regulated, substantially as described.

521,915. MEANS FOR LIGHTING GAS RANGES, HEATERS, &c. CARTER H. PAGE, Jr., Philadelphia, Pa., assignor to the United Gas Improvement Company, same place. Filed Sept. 25, 1893. Serial No. 486,399. (No model.)



Claim.—The combination in a gas range, heater or similar device of a burner, a jet-burner, a spring tending to normally extinguish the jet-burner, and an operating handle for restraining said spring and permitting of the lighting and temporary combustion of the jet-burner, substantially as described.

521,916. APPARATUS FOR HEATING WATER. CARTER H. PAGE, Jr., Philadelphia, Pa., assignor to the United Gas Improvement Company, same place. Filed Sept. 25, 1893. Serial No. 486,400. (No model.)

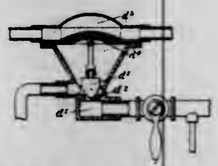


Claim.—1. The combination in a water heater, of a casing or shell having at its base a burner, a closed hot water receptacle disposed above said burner and clear of the curved walls of the shell or cas-

ing, an eduction water pipe communicating with said receptacle and leading directly out of the shell or casing and through which the hottest water rises, a series of closed communicating drums through which cooler water descends into the receptacle and around which the gaseous products circulate, a water induction pipe for supplying cooler water to the uppermost drum, and a pipe communicating with the lowest drum and with the hot water receptacle, substantially as described.

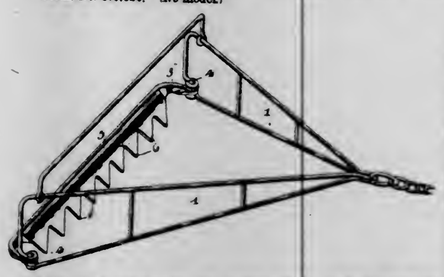
2. The combination in a water heater of a casing or shell having at its base a burner, a closed hot water receptacle disposed above said burner and clear of the curved walls of the shell or casing, a series of closed communicating drums whereof alternate drums have large openings at their centers and have their peripheries fitted to the curved walls of the casing or shell and whereof the intermediate drums have smaller openings at their centers and have parts of their peripheries fitted to the curved walls of the shell or casing and have their other parts indented and provided with flues separating the water and products of combustion, a water eduction pipe leading from the top of the water receptacle through and past the central openings in the drums to prevent the passage of the products of combustion at the centers of the intermediate drums, a water induction pipe for supplying cooler water to the uppermost drum, and a pipe communicating with the lowest drum and hot water receptacle, substantially as described.

521,917. APPARATUS FOR HEATING WATER. CARTER H. PAGE, Jr., Philadelphia, Pa., assignor to the United Gas Improvement Company, same place. Original application filed Sept. 25, 1893, Serial No. 486,400. Divided and this application filed Dec. 30, 1893. Serial No. 496,241. (No model.)



Claim.—A thermostatic device comprising a casing having a gas-way and a water way, a movable diaphragm applied to the water way and exposed to the interior of the casing, a volatile substance or material contained in said casing and a valve attached to the diaphragm and adapted to admit and exclude gas to and from the interior of the casing and the gas-way, substantially as described.

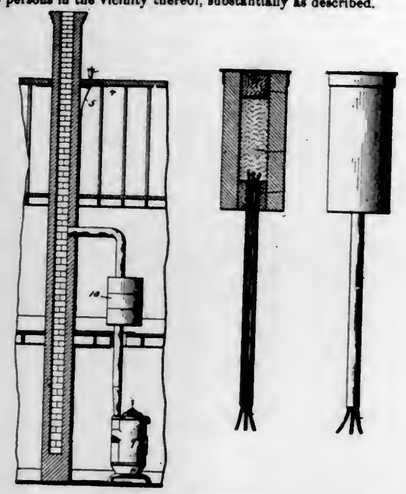
521,918. OYSTER-DREDGE. ANDREW D. POST, Keyport, N. J., assignor of one-half to Garret E. Post, same place. Filed July 7, 1893. Serial No. 479,829. (No model.)



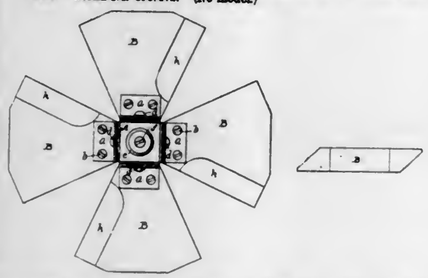
Claim.—The herein described oyster-dredge, the same consisting of the opposite triangular frames, the upper transverse connecting-bar, and the lower transverse connecting-bar at the outer divergent ends of said frames, and the independent toothed rake-bar riveted to the aforesaid lower transverse connecting-bar, substantially as specified.

521,919. FIRE-ALARM. PATRICK J. REGAN, Iowa City, Iowa. Filed Nov. 21, 1893. Serial No. 491,592. (No model.)

Claim.—A fire alarm consisting of a body-portion adapted to receive an explosive material, a metallic tube fitting in the body portion and having one end in communication with the interior thereof while the remaining end is adapted to project through the outer wall of the house or other structure with which the alarm is used, and a fuse having one end seated in the explosive material of the body-portion and passing through the iron tube, while the remaining end of the fuse proceeds to the interior of the house or other structure, whereby the presence of fire in said house or structure will be communicated to persons in the vicinity thereof, substantially as described.



521,920. CHURN-DASHER. JOHN W. RICKER, Chelsea, Mass., assignor of one-half to George A. Horn, Newark, N. Y. Filed Nov. 9, 1893. Serial No. 490,472. (No model.)



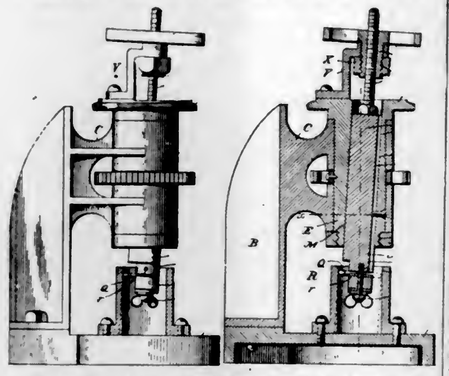
Claim.—A churn dasher having a staff and a series of floats hinged thereto and adapted to have vertical movement, and adjustable stops held by the staff to control the downward movements of the floats, the latter being broader at their outer free ends than at the inner ends and having their opposing edges inclined, substantially as shown and described.

521,921. FRUIT-CAN. CONRAD SCHIFFERLY, Fort Wayne, Ind. Filed Mar. 13, 1893. Renewed Apr. 25, 1894. Serial No. 509,031. (No model.)



Claim.—The combination with a jar or can having an exteriorly-threaded neck, of a removable cap provided with a peripheral depending interiorily-threaded rim and a central cylindrical integral stopper, the diameter of which is approximately equal to that of the throat of the jar or can and the sides of which are parallel with the same, said stopper being provided at its top with a reduced portion or neck forming a circumferential channel 8 and a shoulder 5 parallel with and contiguous to the under surface of the cap, and an elastic gasket arranged in contact with the under surface of the cap with its inner or smaller periphery fitted in said channel between the shoulder 5 and the surface of the cap and having its outer periphery in contact with the inner surface of the rim of the cap, substantially as specified.

521,922. METAL-BORING MACHINE. DAVID STEVENSON, Cold Spring, N. Y. Filed Jan. 30, 1894. Serial No. 498,508. (No model.)



Claim.—1. In a boring machine, the combination with suitable bearings, of a rotating bar spindle mounted for a fixed rotation in said bearings and having a longitudinal oblique bore crossing the central longitudinal axis thereof, a boring bar mounted for a longitudinal movement in the oblique bore of said spindle and adapted to turn therewith, means for adjusting the boring bar longitudinally in the spindle and for feeding the same beyond the spindle and into the work, and a tool axially adjustable on the lower projected end of said boring bar, substantially as set forth.

2. In a boring machine, the combination with a vertically arranged bearing; of a bar spindle journaled for a fixed rotation in said bearing and having a longitudinal oblique opening therein crossing its central axis, a longitudinally adjustable boring bar mounted to slide in said oblique opening and to be projected at one end out of said opening and beyond the spindle, and an adjustable tool clamped to the outer end of said boring bar, and having a complete circular adjustment thereon, substantially as set forth.

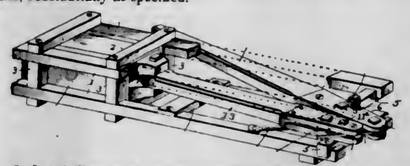
3. In a boring machine, the combination of the upright having an off-standing vertically disposed cylindrical bearing, a cylindrical bar spindle mounted for a fixed rotation in said vertically disposed bearing and having a longitudinal opening disposed at an angle to its central axis, a boring bar mounted to slide longitudinally in the opening of said spindle and having a longitudinal groove at one side, and extending from end to end, a set screw working through one side of the spindle and adapted to project into the groove of the boring bar, to hold the same to the spindle for rotation therewith, means for adjusting the boring bar within the opening of the spindle to project one end of the bar beyond the spindle, and an adjustable tool clamped to the lower projected end of the boring bar, and having a complete circular adjustment thereon, substantially as set forth.

4. In a boring machine, the combination with a vertically arranged bearing; of a bar spindle journaled for a fixed rotation in the bearing and having a longitudinal oblique opening therein crossing its central axis, a longitudinally adjustable boring bar mounted to slide in said oblique opening and to rotate with the spindle, said boring bar being provided at its lower end below the spindle with a projected graduated cutter head, the boring tool, a thumb screw adapted to engage a threaded opening in the cutter head, and a circularly-adjustable clamp disk or washer supported on said screw and having in its upper face a tool groove to receive the tool, said disk or washer having a complete circular adjustment to provide for holding the tool projected from any point of the cutter head, substantially as set forth.

5. In a boring machine, the combination with the bed plate or table for the work, of the bearing upright having an off-standing vertically disposed cylindrical bearing, a spindle removably mounted for a fixed rotation in said bearing and having an upper flanged end, an exteriorly threaded lower end projecting below the cylindrical bearing, and an oblique opening extending longitudinally therethrough, a gear wheel attached to said spindle at a convenient point intermediate of its ends, a screw-ring removably engaging the lower exteriorly threaded end of the spindle, and fitting against the lower end of the cylindrical bearing, a boring bar mounted for longitudinal movement in the opening of the spindle and carrying a tool at its lower projected end, beyond the spindle, and a feeding screw connected to the upper end of the boring bar and geared with suitable operating means, substantially as set forth.

521,923. HAY-PRESS. ROBERT H. WALTON, Walnut Springs, Tex. Filed Dec. 11, 1893. Serial No. 493,351. (No model.)

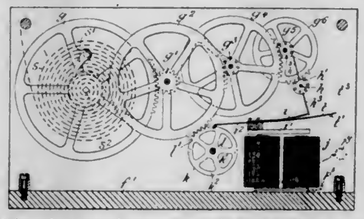
Claim.—1. In a baling-press, the combination with the baling-chamber and its plunger tapered at its outer end, of a sweep fulcrumed between its ends at the front end of the plunger and provided with inner tapered guides at opposite sides thereof, a retracting spring for the plunger, a triangular plate pivoted between its ends in a slot of the plunger, said plate having its front end made T-shaped to engage the guides in the sweep, and means for limiting the oscillations of the plate, substantially as specified.



2. In a baling-press, the combination with the press frame, comprising a series of horizontal beams connected at their outer ends, a bolt passing through the transverse beams, a sweep intermediately pivoted thereon and having an inner tapered end provided at opposite sides with a slot continuing from side to side and around said end, of a plunger arranged in the chamber and having an outer tapered end provided with a horizontal slot, a pivot-bolt passed through the slot, a triangular shifting-plate pivoted upon the bolt and having a front end loosely engaging the slot in the sweep and its rear end recessed, a limiting bolt passing through the slot and the recess, the eye on the plunger, an eye-bolt passed through a part of the framework, a rod loosely connected to the eye and passing through the eye of the plunger, and a coiled spring interposed between the eye-bolt and guide-eye, substantially as specified.

3. In a baling press, the combination with the baling-chamber and its plunger, of a sweep fulcrumed between its ends at the front end of the plunger and provided with inner guides at opposite sides thereof, a retracting spring for the plunger, a triangular plate pivoted between its ends to the plunger, said plate having its front end engaging the guides in the sweep, and means for limiting the oscillations of the plate, substantially as specified.

521,924. TRANSFORMER ELECTRIC-LIGHTING SYSTEM. PETER WRIGHT, Philadelphia, Pa., assignor to the United Gas Improvement Company, same place. Filed Dec. 9, 1893. Serial No. 493,208. (No model.)



Claim.—1. A transformer system of electrical distribution comprising, a line, primary, secondary, and local circuits, positively driven mechanism released by electro magnetic devices in the local circuit and adapted to make and break the local and primary circuits, automatic means for stopping said mechanism, and a switch for controlling the secondary and local circuits, substantially as described.

2. A transformer system of electrical distribution comprising, a line circuit, a primary circuit in parallel with the line circuit, a local circuit, positively driven mechanism released by electro magnetic devices in the local circuit and adapted to make and break the local and primary circuits, automatic means for stopping said mechanism, and a switch for controlling the secondary and local circuits, substantially as described.

3. A transformer system of electrical distribution comprising, a local circuit having three conductors, a switch adapted to make and break the secondary circuit and to connect one of the conductors of the local circuit with each of the other two, positively driven mechanism adapted to automatically check its own motion and provided with a switch for the primary circuit and with a circuit maker and breaker for breaking the local circuit and for connecting one or the other of its two conductors with the third, substantially as described.

4. In a transformer system of electrical distribution, a manual switch provided with top and bottom bridge pieces and with three contacts, whereof one is provided with two rubbing surfaces and the others with one rubbing surface each, in combination with a local circuit having three conductors and an electro magnetic device for controlling positively driven mechanism, substantially as described.

5. In a transformer system of electrical distribution the combination of, positively driven mechanism provided with a three way circuit breaker adapted to make circuit alternately with a pair of contact springs and to intermittently break contact with both, a switch having two bridge pieces and three contacts whereof one is provided with two rubbing surfaces and whereof the other two are provided with one rubbing surface each, and an electric circuit having a conductor extending from its source of electricity to the circuit breaker and having two conductors from said contact springs to the switch contacts having one rubbing surface each, substantially as described.

6. In a transformer system of electrical distribution the combination of, a primary circuit, a switch and its actuating mechanism for said circuit, an armature lever tending to stop said driving mechanism, an electro magnet and circuit connections for attracting said armature, and a positively driven cam-wheel for controlling said armature lever upon the de-magnetization of the electro magnet, substantially as described.

7. In a transformer system of electrical distribution the combination of, a switch for making and breaking the primary circuit, positively driven gearing for actuating said switch, a pivotal armature lever adapted to release and check said mechanism, an electro magnet for causing said armature to release the mechanism, a cam-wheel for permitting said armature lever to check the mechanism, and a circuit breaker adapted to break the circuit of the electro magnet when the armature lever is controlled by the cam-wheel, substantially as described.

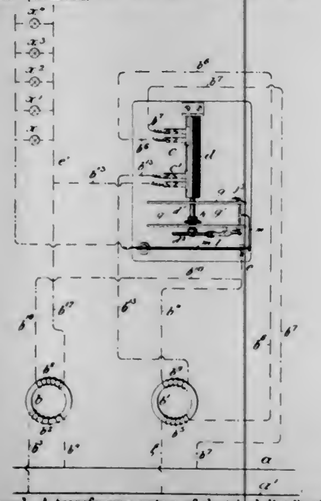
8. A transformer system of electrical distribution comprising, an induction coil and its primary and secondary circuits, a train of positively driven gearing adapted to operate a switch interposed in the primary circuit, and a switch and its connections interposed in the secondary circuit and adapted to set said mechanism in motion in order to effect the breaking of the primary circuit subsequent to the decrease of current in the secondary circuit, substantially as described.

9. In a transformer system of electrical distribution the combination of, positively driven mechanism adapted to make and break the primary circuit, a manual switch for interrupting the secondary circuit or any portion thereof, and mechanical and electrical devices and circuit connections controlled by said switch and adapted to govern said mechanism, substantially as described.

10. In a transformer system of electrical distribution, mechanical and electrical devices for breaking and making the primary circuit, and a manual switch and connections for cutting out in and in the secondary circuit and for controlling said mechanical and electrical devices, substantially as described

---

521,925. TRANSFORMER SYSTEM OF ELECTRICAL DISTRIBUTION. PETER WRIGHT, Philadelphia, Pa., assignor to the United Gas Improvement Company, same place. Filed Jan. 3, 1894. Serial No. 495,519. (No model.)



Claim.—1. A transformer system of electrical distribution comprising, several transformers, and a switch responding to changes in current and adapted to automatically interrupt the secondary circuit before interrupting the primary circuit and to close the primary circuit before closing the secondary circuit of one of the transformers, substantially as described.

2. A transformer system of electrical distribution comprising, several transformers, and a switch responding to changes in current in the secondary circuit and adapted to automatically interrupt the secondary circuit before interrupting the primary circuit and to close the primary circuit before closing the secondary circuit of one of the transformers, substantially as described.

3. A transformer system of electrical distribution comprising, two transformers having independently energized primary coils and having their secondary coils adapted for inclusion in and exclusion from the same secondary circuit, and a switch responding to changes in the current of the secondary circuit and adapted to automatically close the primary circuit of one of the transformers before closing its secondary circuit and to open the secondary circuit before opening the primary circuit of the last mentioned transformer, substantially as described.

4. A transformer system of electrical distribution comprising, a secondary circuit, two or more transformers for supplying current to said circuit, and a switch responding to changes in the current of said circuit and operating to automatically open the secondary circuit and to subsequently cut out one or more of said transformers and to cut one or more of said transformers into action before closing its or their secondary circuit or circuits, substantially as described.

5. In a transformer system of electrical distribution, a switch tending to make and break the primary and secondary circuits of a transformer, and a thermostatic device responding to changes in current and adapted to release said switch, substantially as described.

6. In a transformer system of electrical distribution, a switch tending to make and break the primary and secondary circuits of a transformer, a thermostatic device responding to changes in current and adapted to release said switch, and a positively driven cam-wheel and its sliding bar and stop fingers for automatically arresting said switch, substantially as described.

7. In a transformer system of electrical distribution, a switch operated by positively driven gearing adapted to rotate an endwise movable spindle having radial arms, a shipper rod having arms disposed in range of the ends of said spindle, a sliding bar having stop fingers or pins adapted to contact with said radial arms, and a thermostat and cam-wheel for operating said sliding and shipper bars, substantially as described.

8. In a transformer system of electrical distribution, a transformer, and a device responding to changes of current and adapted to successively include and to successively exclude the primary and secondary coils of said transformer, whereby sparking and disruptive discharges are prevented, substantially as described.

9. In a transformer system of electrical distribution, a transformer, a revoluble shaft, means for actuating said shaft, a thermostatic device for controlling said shaft, and devices operated by said shaft and adapted to cut the said transformer into and out of action, substantially as described.

521,926. FLAX-PULLER. FREDERICK L. BENJAMIN, St. Paul, Minn., assignor, by mesne assignments, to Lucius P. Ordway, same place. Filed Mar. 23, 1891. Serial No. 385,984. (No model.)

Claim.—1. In a device of the class described, the combination of the reel having alternating hinged and fixed ⌊ shaped wings, and means for automatically closing the hinged wings against the fixed wings.

2. In a device of the class described, a horizontally rotating reel having alternating fixed and hinged ⌊ shaped wings, and means for automatically closing the hinged wings against the fixed wings successively at a predetermined point in their rotation.

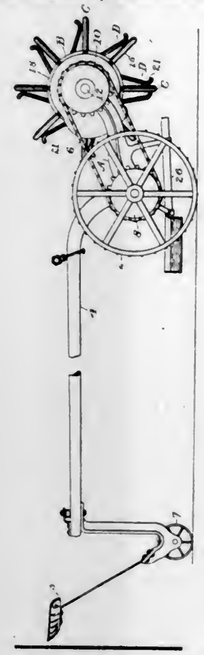
3. The combination of the reel, having fixed wings and hinged wings intermediate of said fixed wings, and eccentric guides engaging said hinged wings at points off set from their pivots and turning them to and from the fixed wings, substantially as and for the purposes set forth.

4. The combination of the reel, having alternating fixed and hinged wings, and eccentric guides engaging said hinged wings at points offset from their pivots whereby with the rotation of the reel, the hinged wings are turned to and from the fixed wings at predetermined points in their rotation, substantially as and for the purposes set forth.

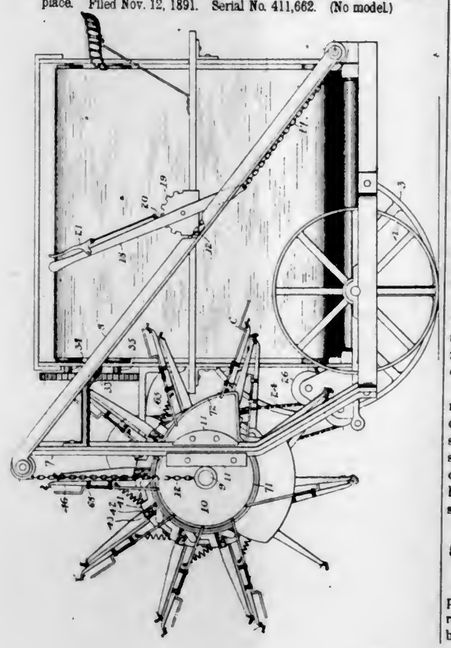
5. The combination of the reel, having fixed and hinged wings arranged alternately thereon, eccentrics engaging said hinged wings and turning each of said hinged wings alternately against the adjacent fixed wings through predetermined arcs of their rotation, substantially as and for the purposes set forth.

6. In a device of the class described, the combination of a suitable vehicle, a horizontal shaft carried in front thereof, connections for driving said shaft from the vehicle axle, a reel upon said shaft having alternating fixed and hinged ⌊ shaped wings, and eccentrics engaging the hinged wings and closing them against the adjacent fixed wings while passing through a predetermined arc, substantially as described.

7. The combination with a suitable vehicle, of a horizontal reel, carried thereon and rotated by the turning of the vehicle wheels, having fixed wings, and hinged wings intermediate of the fixed wings, eccentrics engaging said hinged wheels and automatically turning them through and from the adjacent fixed wings, to a predetermined arc of their rotation, substantially as and for the purposes set forth.



521,927. FLAX-PULLER. FREDERICK L. BENJAMIN, St. Paul, Minn., assignor, by mesne assignments, to Lucius P. Ordway, same place. Filed Nov. 12, 1891. Serial No. 411,662. (No model.)



Claim.—1. In a device of the class described, the combination with the reel, of the fixed wings and the alternating hinged wings having intermeshing angle-iron cross bars, and means for clamping the same together through a predetermined arc of their rotation, substantially as described.

2. In a device of the class described, the combination with the rotating clamps, of meshing angle iron jaws for the clamp members, substantially as described.

3. In a device of the class described, the combination with the reel having fixed wings and alternating, clamping hinged wings, of the "V" shaped cross bars for said fixed wings, and the angle iron cross bars for the hinged wings adapted to mesh therewith in the closing of the wings, substantially as described.

4. In a device of the class described, the combination of the fixed wings of the reel, having V shaped angle iron cross bars, the hinged wings alternating with said fixed wings having angle iron cross bars adapted to fit to the cross bars of the fixed wings and overlap the edges thereof, and means for automatically opening and closing said wings through predetermined arcs of their rotation, substantially as described.

5. In a device of the class described, having a reel provided with a series of fixed wings, and a series of alternating hinged wings, the combination therewith of cranks upon said hinged wings, cams engaging said cranks and serving to turn said hinged wings to and from the adjacent fixed wings through predetermined arcs of their rotation, and spring controlled pressure blocks, serving as the walls of the cams against which said cranks bear while said wings are clamped together, substantially as described.

6. The combination with the reel having the series of fixed wings and the series of alternating hinged wings provided with cranks, of eccentric grooves engaging the pins of said cranks, and closing said hinged wings against the fixed wings through a predetermined arc of rotation, sectional sliding inner walls for said grooves, and springs thrusting said sections outward so as to hold said hinged wings with elastic pressure against the fixed wings, substantially as described.

7. In a device of the class described, the combination with the reel having a series of clamps operative through a predetermined arc of its rotation, of spring actuated clearers working between the jaws of the clamps simultaneously with their opening movement, substantially as described.

8. In a device of the class described, the combination with the pulling reel, having a series of clamping wings, of clearers reciprocating between the clamp members, springs for thrusting said clearers outward beyond the jaws of the clamps, and means for holding said clearers drawn inward against the tension of said springs, while said clamps are closed, substantially as described.

9. In a flax pulling reel, having a series of clamping wings, the combination therewith of a bar arranged between each pair of wings or clamp members, substantially parallel with the cross bars of the wings, and automatic means for thrusting the same outward beyond said cross bars with the opening of the clamp, substantially as described.

10. In a flax pulling reel, the combination of the fixed wings, the alternate hinged wings, means for closing the hinged wings against the fixed wings through a predetermined arc of their rotation, a sliding bail or wing intermediate of each of said fixed and hinged wings, means for normally holding it undrawn from the cross bars of said wings, while the same are closed together, and means for automatically thrusting the bail outward beyond said cross bars, simultaneously with the opening of said wings, substantially as described.

11. In a flax pulling reel, the combination with the clamping wings, of the sliding wing between the same, the cam guides engaging said sliding wing, and the springs tending to thrust the same outward, substantially as described.

12. In a flax pulling reel, the combination with the clamping wings, of a clearer sliding between each pair of clamps, means for normally holding it inward from the clamp jaws, and automatic means for thrusting it outward between said jaws simultaneously with their opening, substantially as described.

13. In a device of the class described, the combination with the reel, its fixed wings, its intermediate hinged wings provided with cranks, and the eccentric guides engaging said cranks, of the clearers slidable upon said hinged wings to and from the axis of the reel, the springs tending to thrust said clearers outward beyond the cross bars of said wings, and the eccentric guides engaging said clearers and holding them against the tension of said springs, substantially as described.

521,928. TIRE-HEATER. JOHN A. CALLAWAY, Lampasas, Tex. Filed Oct. 12, 1893. Serial No. 487,961. (No model.)

Claim.—1. In a tire-heater, the combination of a circular casing provided at its bottom with a hood and at its top with an outlet, a rotary spider arranged within the casing and having a peripheral band of equal width with the interior of the casing to form an an-

nular surrounding heating-chamber, rests carried by the spider to engage the tire, and means for rotating the spider, substantially as specified.

2. The combination with a casing provided in its lower side with a hood and in its upper side with an outlet, of an annular band arranged within the casing to form an annular heating chamber, a spider supporting said band, a slide mounted in a suitable vertical guide and having bearings in which the shaft of said spider is mounted, and adjusting devices for securing the slide, spider and band at the desired vertical adjustment, substantially as specified.

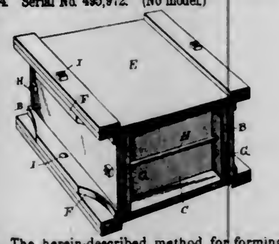


3. The combination with a casing, of a rotary spider, movable rests carried by said spider, and spring-actuated means for automatically adjusting the rests radially, substantially as specified.

4. The combination with a casing, of a rotary spider, extension-bars slidably mounted upon said spider and provided with terminal rests or heads, a sleeve mounted upon the shaft of the spider, and connected by brace-bars with said extension-bars, and a tension device connected to the sleeve to automatically extend the extension-bars, substantially as specified.

5. The combination with a casing, of a rotary spider, extension-bars slidably mounted upon said spider and provided with terminal T-shaped rests or heads, a sleeve slidably mounted upon the shaft of the spider, bracing-bars connecting said sleeve to the extension-bars, an adjustable collar upon the shaft, and a tension spring interposed between said collar and the sleeve, substantially as specified.

521,929. METHOD OF AND APPARATUS FOR MAKING CONCRETE MONUMENTS. NEILL C. CAMERON, Ben Wheeler, Tex. Filed Jan. 6, 1894. Serial No. 495,972. (No model.)



Claim.—1. The herein-described method for forming concrete monuments and the like, which consists in separately molding the base and spire of concrete material in its plastic state, finishing the exterior faces of the molded masses by polishing or other treatment before completely hard, subjecting the same to a preliminary setting for a short period by keeping constantly wet with water, finally completing the setting by allowing the molded masses to remain immersed in water, and then assembling the base and spire, substantially as set forth.

2. The herein-described base mold consisting of separately assembled side and end walls, the side walls being provided at both their upper and lower edges with off-standing bolt flanges F, a removable bottom or base board bolted onto the lower of said off-standing bolt flanges a removable top die plate removably bolted onto the upper of said off-standing bolt flanges and provided on its inner face with a rectangular beveled edge form agreeing with the space inclosed by the side and end walls and fitting snugly therein, and a raised center panel projecting into the top of the mold and located inside of said edge form, and tie rods or bolts H, arranged outside of the end walls of the mold and connecting the directly opposite projecting extremities of the side walls, substantially as set forth.

3. The herein-described spire mold consisting of a series of convergently arranged sides separably interlocked with each other at their meeting edges and provided at their upper ends with top blocks or sections adapted to register with each other to form a temporary closed top, a bottom or base board removably bolted to the bottom of said sides, and different sized rectangular slip clamps adapted to removably fit exteriorly around the assembled sides and provided with inner beveled edges agreeing with the taper of the mold, substantially as set forth.

4. In a spire mold of the class described, the convergently arranged sides, certain of which are provided with inner shouldered edges and short lock-studs projecting therefrom, the other sides registering in said shouldered edges and having stud openings receiving said studs, said convergently arranged sides being provided at their upper inner ends with V-shaped inwardly projecting closely registering top blocks or sections forming a sectional and separable closed top for the mold, and removable clamps for the assembled sides, substantially as set forth

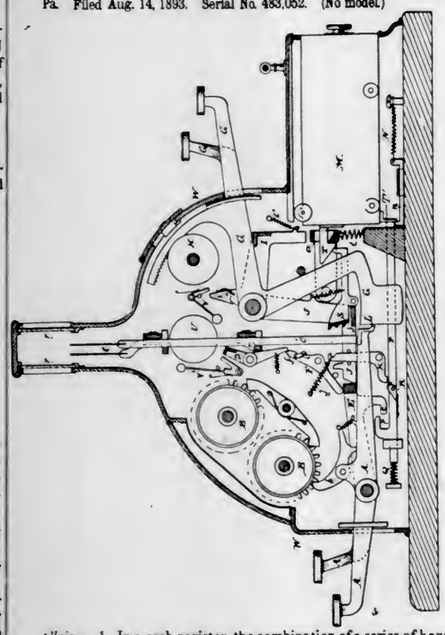
---

521,930. DENTAL PLATE. THOMAS H. GRAHAM, Toronto, Canada. Filed Apr. 6, 1894. Serial No. 506,644. (No model.) Patented in Canada Oct. 27, 1893. No. 44,581.



Claim.—A dental upper set having a plate of flexible rubber attached as an integral part thereof and its margin within the air or vacuum chamber, and having a hole through the center of said flexible plate to communicate with the free and unattached central portion thereof beneath.

521,931. CASH-REGISTER. RUDOLPH M. HUNTER, Philadelphia, Pa. Filed Aug. 14, 1893. Serial No. 483,052. (No model.)



Claim.—1. In a cash register, the combination of a series of keys, a series of indicators adapted to be operated by said keys, a second set of keys locked against movement by the first set of keys except when any key of the first set is moved to expose its indicator, a cash drawer, a lock to hold said cash drawer in a closed position, and means under control of the second set of keys to operate the lock to release the drawer.

2. In a cash register, the combination of a series of keys, a series of indicators adapted to be operated by said keys, a second set of keys locked against movement by the first set of keys except when any key of the first set is moved to expose its indicator, a cash drawer, a lock to hold said cash drawer in a closed position, means under control of the second set of keys to operate the lock to release the drawer, and a spring to force the drawer open when released.

3. In a cash register, the combination of a series of keys, a series of indicators adapted to be operated by said keys, a second set of keys locked against movement by the first set of keys except when any key of the first set is moved to expose its indicator, a cash drawer, a lock to hold said cash drawer in a closed position, means under control of the second set of keys to operate the lock to release the drawer, a latch to lock all of the first mentioned set of keys when any one of them has been operated, and releasing devices under the control of the second set of keys to operate said latch to release all of the said first mentioned keys.

4. In a cash register, the combination of a series of keys, a series of indicators adapted to be operated by said keys, a second set of keys locked against movement by the first set of keys except when any key of the first set is moved to expose its indicator, a cash drawer, a lock to hold said cash drawer in a closed position, means under control of the second set of keys to operate the lock to release the drawer, a latch to lock all of the first mentioned set of keys when any one of them has been operated, releasing devices under the control of the second set of keys to operate said latch to release all of the said first mentioned keys, and connecting devices between the cash drawer and latch device to prevent the releasing of the first mentioned keys until the cash drawer is locked.

5. In a cash register, the combination of a series of keys, a series of indicators adapted to be operated by said keys, a second set of keys locked against movement by the first set of keys except when any key of the first set is moved to expose its indicator, a cash drawer, a lock to hold said cash drawer in a closed position, means under control of the second set of keys to operate the lock to release the drawer, and registering devices for registering the amount of the sales by the operation of the keys.

6. In a cash register, the combination of a series of keys, a series of indicators adapted to be operated by said keys, a second set of keys locked against movement by the first set of keys except when any key of the first set is moved to expose its indicator, a cash drawer, a lock to hold said cash drawer in a closed position, means under control of the second set of keys to operate the lock to release the drawer, a spring to force the drawer open when released, and registering devices for registering the amount of sales by the operation of the keys.

7. In a cash register, the combination of a series of keys, a series of indicators adapted to be operated by said keys, a second set of keys locked against movement by the first set of keys except when any of the first set is moved to expose its indicator, a cash drawer, a lock to hold said cash drawer in a closed position, means under control of the second set of keys to operate the lock to release the drawer, a latch to lock all of the first mentioned set of keys when any one of them has been operated, releasing devices under the control of the second set of keys to operate said latch to release all of the said first mentioned keys, and registering devices for registering the amount of the sales by the operation of the keys.

8. In a cash register, the combination of a series of keys, a series of indicators adapted to be operated by said keys, a second set of keys locked against movement by the first set of keys except when any key of the first set is moved to expose its indicator, a cash drawer, a lock to hold said cash drawer in a closed position, means under control of the second set of keys to operate the lock to release the drawer, a latch to lock all of the first mentioned set of keys when any one of them has been operated, releasing devices under the control of the second set of keys to operate said latch to release all of the said first mentioned keys, connecting devices between the cash drawer and the latch device to prevent the releasing of the first mentioned keys until the cash drawer is locked, and registering devices for registering the amount of the sales by the operation of the keys.

9. In a cash register, the combination of a series of keys, a series of indicators adapted to be operated by said keys, a second set of keys locked against movement by the first set of keys except when any key of the first set is moved to expose its indicator, a cash drawer, a lock to hold said cash drawer in a closed position, means under control of the second set of keys to operate the lock to release the drawer, and separate registering devices under the control of each set of keys.

10. In a cash register, the combination of a series of keys, a series of indicators adapted to be operated by said keys, a second set of keys adapted to be moved independently of the first set or series of keys the movement of which is controlled by the first set of keys, and registering mechanism operated by the operation of said keys.

11. In a cash register, the combination of a series of keys, a series of indicators adapted to be operated by said keys, a second set of keys adapted to be moved independently of the first set or series of keys, the movement of which is controlled by the first set of keys, registering mechanism operated by the operation of said keys, and an alarm adapted to be sounded upon the operation of any key.

12. In a cash register, the combination of a series of keys, a series of indicators adapted to be operated by said keys, a second set of keys adapted to be moved independently of the first set or series of keys the movement of which is controlled by the first set of keys, registering mechanism operated by the operation of said keys, alarm devices and mechanism controlled by each set of keys whereby the operation of any key of either set will sound an alarm.

13. In a cash register, the combination of a series of keys, a series of indicators adapted to be operated by said keys, a second set of keys the movement of which is controlled by the first set of keys, registering mechanism operated by the operation of said keys, a cash drawer controlled by the operation of the said keys, and a lock controlled by the cash drawer to lock the first mentioned set of keys when the cash drawer is open.

14. In a cash register, the combination of a series of keys, a series of indicators adapted to be operated by said keys, a second set of keys the movement of which is controlled by the first set of keys, registering mechanism operated by the movement of said keys, and latching devices controlled by the operation of the said keys for locking the keys of the first set which have not been actuated against movement and to lock the keys of the first set which have been operated in their moved position.

15. In a cash register, the combination of a series of keys, a series of indicators adapted to be operated by said keys, a second set of keys the movement of which is controlled by the first set of keys, registering mechanism operated by the movement of said keys, latching devices controlled by the operation of the said keys for locking the keys of the first set which have not been actuated against movement and to lock the keys of the first set which have been operated in their moved position, a cash drawer and devices controlled by the cash drawer for resetting the latching devices for the purpose of liberating the first set of keys.

16. In a cash register, the combination of a set of keys, mechanism operated thereby for registering or indicating the amount of the sales, a cash drawer, a lock for holding the cash drawer in a locked position, hand operated devices for operating the lock controlled by the movement of any of the first mentioned keys, and registering devices operated by the devices for operating the lock.

17. In a cash register, the combination of a set of keys a cash drawer, a lock for holding the cash drawer in a locked position, hand operated devices for operating the lock controlled by the movement of any of the first mentioned keys, and registering devices operated by the devices for operating the lock.

18. In a cash register, the combination of a set of keys a cash drawer, a lock for holding the cash drawer in a locked position, hand operated devices for operating the lock controlled by the movement of the first mentioned keys, registering devices operated by the devices for operating the lock, and alarm mechanism operated by the movement of the keys.

19. In a cash register, the combination of a set of keys a cash drawer, a lock for holding the cash drawer in a locked position, hand operated devices for operating the lock controlled by the movement of any of the first mentioned keys, registering devices operated by the devices for operating the lock, and indicating devices adapted to be thrown into view during the operation of the machine.

20. In a cash register, the combination of a series of keys, a series of indicating devices adapted to be operated by the said keys, a cash drawer, a lock to lock the said cash drawer, and a series of independent hand operated lock releasing devices the movement of which is controlled by the said keys to release the drawer.

21. In a cash register, the combination of a series of keys, a series of indicating devices adapted to be operated by the said keys, a cash drawer, a lock to lock the said cash drawer, a series of independent hand operated lock releasing devices the movement of which is controlled by the said keys to release the drawer, and registering devices controlled by the operation of the keys for registering the amount of the sales indicated.

22. In a cash register, the combination of one set of keys, indicating and registering devices operated by the said keys, a second set of keys pointing in the opposite direction to the first mentioned set, a cash drawer in connection with the second set of keys, a lock to lock the cash drawer controlled by the second set of keys whereby any one of the second set of keys could be operated to release the cash drawer only when the corresponding key of the first set has been moved.

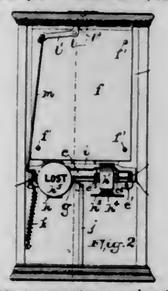
23. In a cash register, the combination of two sets of keys pivoted in two rows and pointing in opposite directions and having their adjacent ends brought into line so that any keys of one set cannot be operated until the corresponding keys of the other set have been moved.

24. In a cash register, the combination of two sets of keys pivoted in two rows and pointing in opposite directions and having their adjacent ends brought into line so that any key of one set cannot be operated until the corresponding key of the other set has been moved, and indicating mechanism controlled by the movement of said keys to make an indication corresponding to the denomination of the key moved.

25. In a cash register, the combination of two sets of keys pivoted in two rows and pointing in opposite directions and having their adjacent ends brought into line so that any key of one set cannot be operated until the corresponding key of the other set has been moved, indicating mechanism controlled by the movement of said keys to make an indication corresponding to the denomination of the key moved, a cash drawer, and a lock for said cash drawer controlled by the movement of said keys.

26. In a cash register, the combination of a series of straight lever keys combined with a series of bell crank shaped pivoted keys pointing in the opposite direction and having their rear ends brought into line with the rear ends of the first mentioned straight lever pivoted keys whereby the bell crank shaped keys are locked against movement until the corresponding straight lever keys are moved, devices controlled by the straight lever keys to indicate the amounts corresponding to said keys moved, a cash drawer, and a lock for said cash drawer controlled by the bell crank shaped keys.

521,932. COIN-CONTROLLED GAME APPARATUS. WILLIAM M. KEANE, Newark, N. J., assignor of three-fourths to Jacob Curl and Anthony Baebi, same place. Filed Jan. 4, 1894. Serial No. 495,531. (No model.)



Claim.—1. In a game apparatus, a casing A having a front provided with two windows, a bracket *c*, indicators *h* and *h'* on a pin in bearings in said bracket, and a coin chute in said casing communicating with two other chutes, whereby the coin is directed into either chute to operate either indicator *h h'*, substantially as and for the purposes set forth.

2. In a game apparatus, a casing A having a front provided with two windows, a bracket *c*, indicators *h* and *h'* on a pin in bearings in said bracket, a coin-chute *c'* and coin chutes c^3 and c^4 extending therefrom, and a diverting piece *d*, whereby the coin is directed into either of said chutes c^3 or c^4 to operate either indicator *h* or *h'*, substantially as and for the purposes set forth.

3. In a game apparatus, a casing A having a front provided with two windows, a bracket *c*, indicators *h* and *h'* on a pin in bearings in said bracket, a coin-chute in said casing communicating with two other chutes, whereby the coin is directed into either chute to operate either indicator *h* or *h'*, a spring-actuated bar *i* and means for operating said bar, substantially as and for the purposes set forth.

4. In a game apparatus, a casing A having a front provided with two windows, a bracket *c*, indicators *h* and *h'* on a pin in bearing in said bracket, a coin-chute in said casing communicating with two other chutes, whereby the coin is directed into either chute to operate either indicator *h* or *h'*, a spring-actuated bar *i*, and means for operating said bar, consisting essentially of a rod *m* connected with a lever i^3 on said bar *i*, a bell-crank, having arms *l'* and l^3, and a post l^4 on said arm l^3 adapted to be operated by a coin, substantially as and for the purposes set forth.

5. In a game apparatus of the class described, the herein described indicators *h* and *h'*, each having a lip h^3, a weighted portion h^2 and an indicator plate or card h^3, in combination, with a bar *i*, a lever i^3 on the one end of said bar, a rod *m*, and a bell-crank, having arms *l'* and l^3, and a post l^4 on said arm l^3 adapted to be operated by a coin, substantially as and for the purposes set forth.

521,933. EYEGLASSES. WILLIAM F. KORNEMANN, New York, N. Y. Filed Oct. 20, 1893. Serial No. 488,692. (No model.)



Claim.—1. A bridge for eyeglasses, consisting of two side bars joined together by a spring, the ends of which are pivotally connected to the side bars, said side bars having guide sleeves at their upper ends, and their lower ends fastened to posts secured to the lenses or their frames, and a bar having a stop at each end and adapted to slide in the guide sleeves substantially as specified.

2. In eyeglasses, a bridge, consisting of two side bars joined together by a spring, the ends of which are fastened to the side bars, said side bars having guide sleeves at their upper ends and a bar having a head or stop at each end and sliding in the guide sleeves, the lower end of each side bar having a hole through it by which it is to be attached by a screw to the posts secured to the lenses or their frames, substantially as specified.

3. In eyeglasses, a bridge, consisting of two side bars joined together by a spring, the ends of which are fastened to the side bars, guide sleeves on the upper ends of the side bars, a bar having a head at each end and a rib or stop at or near its center, said bar being adapted to slide in the guide sleeves, the lower end of each side bar having a hole through it to allow it to be attached to the post upon the lenses or their frames by means of a screw, substantially as specified.

4. In eyeglasses, a bridge consisting of two side bars joined together by a spring, the ends of which are fastened to the side bars, the lower ends of the side bars being secured to posts on the lenses or their frames, guide sleeves on the upper ends of the side bars, a branch arm upon each side bar and a guide sleeve on the free end of each branch arm, a bar passing through the guide sleeves on the side bars and branch arms, such bar having a head or stop at each end, substantially as specified.

5. In eyeglasses, a bridge consisting of two side bars joined together by a spring, the ends of which are secured to the side bars, the lower ends of the side bars being attached to posts on the lenses or their frames, guide sleeves on the upper ends of the side bars, a branch arm upon each side bar and a guide sleeve on the free end of each branch arm, a bar passing through the guide sleeves on the side bars and branch arms, such bar having a head at each end and a rib or stop on its surface at or near its center, substantially as specified.

6. A spring bar bridge for eyeglasses for maintaining the lenses in the same vertical plane, consisting of two side bars joined together by a bowed spring the ends of which are hinged to the side bars, the upper portion of each side bar being curved to conform to the shape of the bowed spring, and each side bar having a hole through it near the lower end to allow it to be attached by a screw to the posts upon the lenses or their frames, guide sleeves upon the upper ends of the side bars, and a headed bar sliding in the guide sleeves, substantially as specified.

7. In eyeglasses, the combination with a pair of lenses, of two side bars joined together by a bowed spring having a barrel at each end and connected to lugs on the side bars by pins which pass through holes in the lugs and through the barrels at the ends of the spring, each side bar having its upper portion curved to conform to the shape of the bowed spring, the lower ends of the side bars being attached to posts secured to the lenses or their frames, guide sleeves at the upper ends of the side bars and a headed bar sliding in the guide sleeves, substantially as specified.

8. In eyeglasses, the combination with a pair of lenses, of two side bars joined together by a bowed spring having a barrel at each end and connected to lugs on the side bars by pins passed through holes in the lugs and through the barrels at the ends of the spring, the lower ends of the side bars being attached to posts secured to the lenses or their frames, a branch arm upon each side bar, guide sleeves upon the upper ends of the side bars and on the free ends of the branch arms, and a bar passing through such guide sleeves, said bar having a head or stop on each end, substantially as specified.

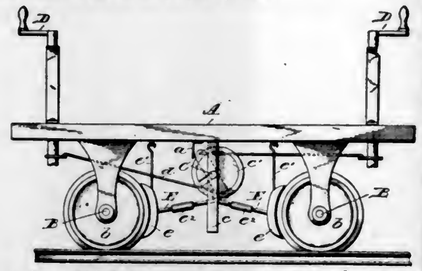
9. In eyeglasses, the combination with a pair of lenses, of two side bars joined together by a bowed spring having a barrel at each end and connected to lugs on the side bars by pins passed through holes in the lugs and through the barrels at the ends of the spring, the lower ends of the side bars being attached to posts secured to the lenses or their frames, a branch arm upon each side bar, guide sleeves upon the upper ends of the side bars and on the free ends of the branch arms, a bar headed at each end and passing through such guide sleeves, and the nose pieces, substantially as specified.

521,934. VEHICLE-BRAKE. WILLIAM T. LINEBACK, Cincinnati, Ohio, assignor of one-half to George H. Fennell, Newport, Ky. Filed Nov. 27, 1893. Serial No. 492,101. (No model.)

Claim.—1. In a vehicle brake, the combination with a truck, of guide plates carried thereby, a shaft mounted in the guide plates, eccentrics on the shaft, and brake levers adapted to be actuated by the eccentrics, substantially as and for the purpose specified.

2. In a vehicle brake, the combination with a truck, of guide plates carried thereby, a shaft mounted in the guide plates, eccentrics on the shaft within the guide plates, and brake levers adapted to be actuated by the eccentrics, substantially as and for the purpose specified.

3. In a vehicle brake, the combination with a truck, of guide plates carried thereby, a shaft mounted in the guide plates, brake levers adapted to reciprocate in the guide plates, eccentrics adapted to actuate the brake levers, and means for actuating the eccentrics, substantially as and for the purpose specified.



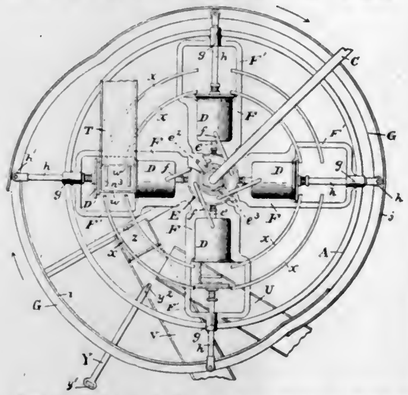
4. In a vehicle brake, the combination with a truck, of guide plates carried thereby, a shaft mounted in the guide plates, jointed brake levers adapted to reciprocate in the guide plates, eccentrics adapted to actuate the brake levers, and means for actuating the eccentrics, substantially as and for the purpose specified.

5. In a vehicle brake, the combination with a truck, of guide plates carried thereby, a shaft mounted in the guide plates, eccentrics mounted on the shaft within the guide plates, brake levers adapted to reciprocate within the guide plates beneath the eccentrics, and means for actuating the eccentrics, substantially as and for the purpose specified.

6. In a vehicle brake, the combination with a truck, of guide plates carried thereby, a shaft mounted in the guide plates, eccentrics mounted on the shaft within the guide plates, jointed brake levers adapted to reciprocate between the guide plates beneath the eccentrics, a yoke on the shaft, and mechanism for operating the yoke, substantially as and for the purpose specified.

7. In a vehicle brake, the combination with a truck, of guide plates carried thereby, a shaft mounted in the guide plates, eccentrics mounted on the shaft within the guide plates, jointed brake levers adapted to reciprocate between the guide plates beneath the eccentric, a yoke mounted on and adapted to rotate the shaft, and crank-shafts for rotating the yoke, substantially as and for the purpose specified.

521,935. CAN-TESTING MACHINE. WILLIAM B. MANN, Baltimore, Md. Filed July 11, 1893. Serial No. 480,134. (No model.)



Claim.—1. The method of testing cans, consisting of sealing the can to be tested and keeping it dry; establishing different pressures on the exterior and the interior of the sealed can, directing any air that may escape from leaks in the can to a receptacle containing liquid so that air-bubbles rising in the liquid will indicate the leak.

2. In a can-testing machine, the combination of a can-sealing device; mechanism to establish different air pressures on the exterior and the interior of the can; a liquid receptacle to indicate leaks by rising air-bubbles; and means to establish communication from the can that is under test to said liquid receptacle.

3. In a machine for testing cans, the combination of an air-tight test-chamber to hold the can; a sealing device to close the mouth of the can while it is in the test-chamber; a pipe connected with the said sealing device; another pipe connected with the test-chamber, and a liquid-receptacle to indicate leaks by rising air-bubbles.

4. In a machine for testing cans, the combination of an air-tight test-chamber to hold the can; a sealing device to close the can; air-pipes connected with the said test-chamber and sealing device to establish different pressures on the exterior and the interior of the can; and a leak-indicator device.

5. In a machine for testing cans, the combination of an air-tight test-chamber to hold the can; a sealing device to close the mouth of the can while it is in the test-chamber; an air-pipe connected with the said sealing device; a receptacle to contain liquid, and a pipe leading from the test-chamber to said liquid receptacle.

6. In a machine for testing cans, the combination of the air-tight test-chamber to hold the can; a can-holder in the chamber with the can to be tested; a sealing device to close the can; an air-pipe entered through the test-chamber and connected with the said sealing device, and a leak-indicator device, substantially as described.

7. In a machine for testing cans, the combination of a can-sealing device; a receptacle containing liquid, and an air-pipe leading from said sealing-device and connecting with the receptacle below the surface of the liquid.

8. In a can testing machine, the combination of a can-sealing device; an air-tight receptacle to inclose the can; mechanism to establish different air-pressures on the exterior and the interior of the can; a receptacle to contain liquid, and a pipe having one end connected with the said can-receptacle and the other end with the liquid-receptacle below the surface of the liquid.

9. In a can-testing machine the combination of a revoluble hollow post; a number of test-chambers mounted to be carried around by the post; a liquid receptacle to indicate leaks by rising air-bubbles; an air-pipe leading from the hollow post to each test-chamber, and a leak-pipe leading from each test-chamber to the liquid receptacle.

10. In a can-testing machine the combination of a revoluble hollow post; a number of test-chambers each adapted to completely inclose a can and mounted so as to be carried around by the post; and a sealing device to close the mouth of each can while it is in the test-chamber.

11. In a can-testing machine the combination of a revoluble hollow post; a number of test-chambers each adapted to completely inclose a can and mounted so as to be carried around by the post; a sealing device to close the mouth of each can while it is in the test-chamber; a can-holder; and a leak-indicator.

12. In a can-testing machine the combination of a revoluble hollow post; a number of test-chambers mounted to be carried around by the post; and each chamber having a movable head; a sealing device to close the mouth of the can; a number of rods each of which is attached to one of the said movable heads; an irregular curved groove, G, co-acting with the rods to open the test-chambers, and a concentric groove co-acting with the rods to close the test-chambers.

13. In a can-testing machine the combination of a revoluble hollow post; a number of test-chambers mounted to be carried around by the post; a sealing device to close the mouth of each can while it is in the test-chamber; curved rails or tracks concentric with the post and connecting between each two test-chambers whereat the ends of the tracks terminate; and a supply-chute whose lower end is immediately above the said tracks.

14. In a can-testing machine the combination of a revoluble hollow post; a number of test-chambers mounted to be carried around by the post; a sealing device to close the mouth of each can while it is in the test-chamber; curved rails or tracks concentric with the post and connecting between each two test chambers whereat the ends of the tracks terminate; a supply chute whose lower end is immediately above the said tracks; and a can holder to receive the can as it drops from the chute.

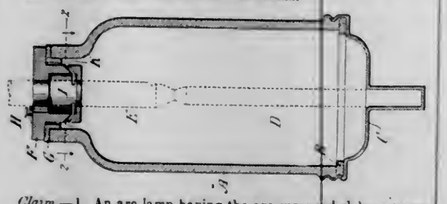
15. In a can-testing machine the combination of a revoluble hollow post; a number of test-chambers mounted to be carried around by a post; a sealing device to close the mouth of each can while it is in the test-chamber; two chutes below the machine—one for defective cans and the other for perfect cans; and a releasing bar to throw the leaky cans into the defective chute.

16. In a can testing machine the combination of a hollow post; a number of air-tight test-chambers mounted together to be revolved around the post; an air-pipe connecting each test-chamber with the hollow post; a controlling cock in each air-pipe, and two stationary studs having position in the circular path of the revolving cocks and co-acting with the handle of said cocks so as to turn them first one way and then the other.

17. In a can testing machine the combination of a hollow post; a number of air-tight test-chambers mounted together to be revolved around the post; an air-pipe connecting each test-chamber with the hollow post; a controlling cock in each air-pipe; a pipe connected with each test-chamber and an end of each pipe pointing downward, and a liquid cup into which the said downward-pointing end of the pipe projects.

18. In a can-testing machine the combination of a hollow air-post; a number of pipes to establish communication with said hollow post; means to establish different pressures on the exterior and the interior of the can; curved rails or tracks concentric with the post and with their ends terminating between every two can-sealing devices, and a supply chute whose lower end is immediately above the said tracks.

521,936. ELECTRIC-ARC LAMP. LOUIS B. MARKS, New York, N. Y., assignor to the Royal Arc Electric Company, same place. Filed Mar. 30, 1894. Serial No. 505,665. (No model.)



Claim.—1. An arc lamp having the arc surrounded by a transparent or translucent inclosure provided with a passage for the egress of gases developed by the arc, and a gas check formed by a body of gas in said passage to decrease the entrance of air to the inclosure.

2. An arc lamp having the arc surrounded by a transparent or translucent inclosure provided with a passage for egress of gases developed by the arc, and an auxiliary passage communicating with the inclosure on one side and with an intermediate portion of the egress passage on the other.

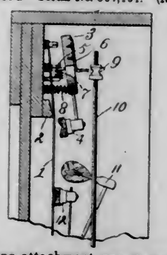
3. An arc lamp having the arc surrounded by a transparent or translucent inclosure provided with a passage for egress of gases developed by the arc, and an auxiliary transverse passage communicating with the inclosure and egress passage.

4. An arc lamp having the arc surrounded by a transparent or translucent inclosure provided with a closely fitting opening through which the movable electrode is fed, and a passage from the inclosure to an intermediate portion of said opening for the purpose described.

5. An arc lamp having the arc surrounded by a transparent or translucent inclosure, and a plug in said inclosure provided with a closely fitting opening for transit of the movable electrode, said opening being enlarged at an intermediate point for the purpose described.

6. An arc lamp having the arc surrounded by a transparent or translucent inclosure, and a plug in said inclosure provided with a closely fitting feed opening for transit of the positive electrode, and an auxiliary transverse passage between the opening and the inclosure for the purpose described.

521,937. PIANO ATTACHMENT. CHARLES NALENCE, Chicago, Ill. Filed Apr. 11, 1894. Serial No. 507,191. (No model.)



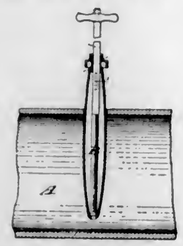
Claim.—1. In a piano attachment, one or more dampers of felt or other soft substance, adapted to be pressed against the strings at the bridge and to be moved along the strings in contact with them, substantially as set forth.

2. In a piano attachment, in combination with a pedal, a series of dampers operated thereby and adapted to be pressed against the strings at the bridge by a pressure on the pedal and to be moved along the strings by a further pressure on the pedal, and one or more springs for returning them to their normal position, substantially as set forth.

3. In a piano attachment, the combination, substantially as set forth, of a bar extending across the strings and connected with a pedal, a series of dampers supported by said bar and adapted by the tilting of said bar to be pressed against the strings at the bridge and to be moved along the same by successive pressures on the pedal, one or more springs to resist the tilting of the bar, and one or more springs to resist the motion of the bar along the strings.

4. In a piano attachment, the combination, substantially as described, of a tilting bar extending across the strings and provided with an arm 9 connected to a pedal for operating the same, hooks 5 secured to the piano frame, eyes 6 on the bar engaging said hooks, springs 7 resisting the downward motion of the bar, springs 8 resisting the tilting of the bar, and dampers 4 carried by the bar and adapted to be pressed against the strings by the tilting of the bar and to be moved along the strings by the downward motion of the bar.

521,938. SHUT-OFF DEVICE FOR PIPES. JOHN F. NELSON, New York, N. Y., assignor of one-half to Eugene Nelson, same place. Filed Feb. 23, 1894. Serial No. 501,094. (No model.)

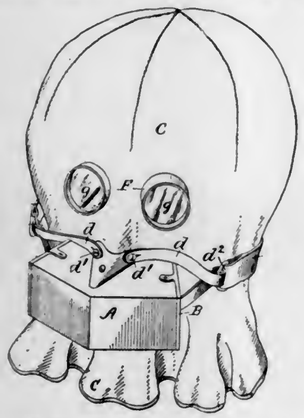


Claim.—1. A shut-off device for pipes, comprising a rod, a sleeve adapted to slide on the rod, spring arms hinged at their outer ends to the rod, and at their inner ends to the sleeve, an impervious flexible material secured to the arms in such a manner as to expand and collapse with the arms and means for holding the arms in expanded adjustment, substantially as set forth.

2. A shut-off device for pipes, comprising a rod, a sleeve adapted to slide on the rod, spring arms hinged at their outer ends to the rod, and at their inner ends to the sleeve, an impervious flexible material secured to the arms in such a manner as to expand and collapse with the arms, and a screw-plug on the rod in position to enter the opening made in the pipe for the insertion of the shut-off device and secure the arms in expanded adjustment, substantially as set forth.

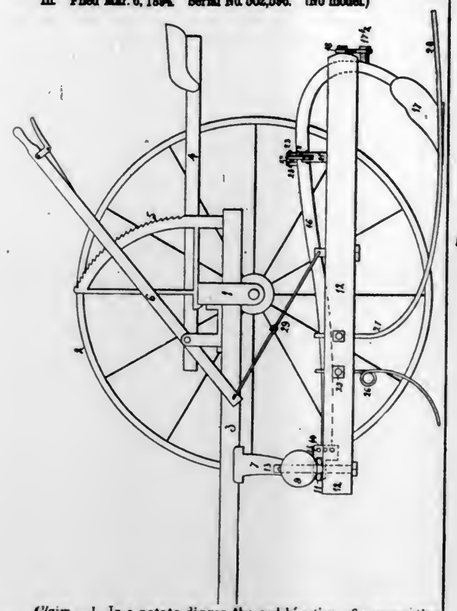
3. A shut-off device for pipes, comprising a rod, a sleeve adapted to slide on the rod, spring arms hinged at their outer ends to the rod, and at their inner ends to the sleeve, an impervious flexible material secured to the arms in such a manner as to expand and collapse with the arms, a catch on the rod for engaging the sleeve and temporarily holding the arms in their expanded position, and a screw-plug on the rod for closing the opening formed in the pipe for the insertion of the shut-off device, the said plug serving to secure the arms in extended adjustment and to prevent the escape of gas through the said opening in the pipe, substantially as set forth.

521,939. FIRE-MASK. GUSTAVE POZDENA and FRANK CHURAN, Chicago, Ill. Filed Oct. 23, 1893. Serial No. 488,969. (No specimens.)



Claim.—The combination with a respirator, having air-passages therethrough from each end and provided in the rear side with a respiratory chamber, of an air-valve, inserted in said respirator and communicating with said chamber, and a hood-attachment, as described, inclosing the respiratory-chamber, but having the air-valve exterior thereto, substantially as set forth.

521,940. POTATO-DIGGER. BLOOMER A. REYNOLDS, Rochelle, Ill. Filed Mar. 6, 1894. Serial No. 502,596. (No model.)



Claim.—1. In a potato digger, the combination of a supporting frame, two drag bars having a pivotal connection therewith, a plow beam located between the drag bars having a connection therewith at each end, and supporting a plow.

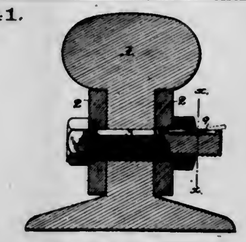
2. In a potato digger, the combination of a supporting frame, two drag bars having a connection therewith, a cross bar connecting the forward ends of the drag bars, a plow beam having a connection with the drag bars at its forward end, and a bar having a pivotal connection with the rear ends of the drag bars and a pivotal connection with the rear end of the plow beam.

3. In a potato digger, the combination of a supporting frame, two drag bars having a connection therewith, a cross bar connecting the forward ends of the drag bars, a plow beam having a connection with the cross bar, a bar having a pivotal connection with the rear ends of the drag bars, and a pivotal connection with the rear portion of the plow beam, and foot levers supported by the drag bars having a link connection with the plow beam.

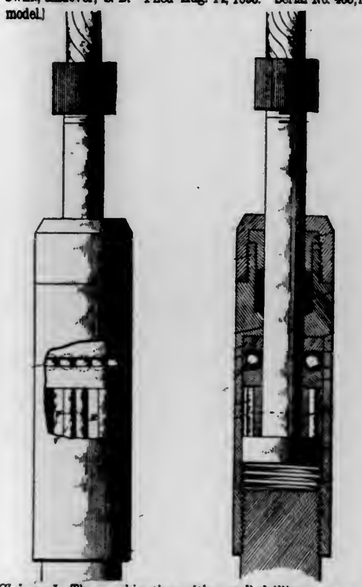
4. In a potato digger, the combination of a supporting frame, two drag bars having a pivotal connection therewith, a plow beam located between the drag bars having a connection therewith, at each end and supporting a plow, and fingers or rods having a connection with the drag bars extending alongside of the plow.

5. In a potato digger, the combination of a supporting frame, two drag bars having a pivotal connection therewith, a plow beam located between the drag bars having a connection therewith at each end, and supporting a plow, and spring teeth having a connection with the drag bars.

521,941.



521,942. BALL-BEARING DRILLING-SWIVEL. WILLIAM W. SWAN, Andover, S. D. Filed Aug. 14, 1893. Serial No. 483,133. (No model.)



Claim.—1. The combination with a well drilling rope or cable; of a cylindrical drilling swivel adapted to have one of its members suspended from the lower end of said rope and its other member connected to the drilling tool, said swivel being adapted to turn bodily with the drilling rope as the same untwists in response to the suspended weight thereon, substantially as set forth.

2. In a drilling swivel for well drilling apparatus, a cylindrical swivel casing or shell having a tool socket at one end adapted to receive one end of the drilling tool, a swivel rod mounted inside of said casing or shell and connected at its outer end to the lower end of the drilling rope, or cable, and a ratchet or clutch device mounted inside of the cylindrical casing and adapted to hold the latter tight on the rod, when the rope twists in one direction, substantially as set forth.

3. In a drilling swivel for well drilling apparatus, a cylindrical swivel casing or shell having a tool socket at one end and a stuffing box at its other end, a swivel rod mounted within the casing, and adapted to be suspended from the lower end of the drilling rope or cable, interior ball bearings for the casing or shell, and a ratchet or clutch device inclosed inside of the swivel casing and rendered active by the turning or twisting of the drilling rope or cable in one direction, substantially as set forth.

4. In a drilling swivel for well drilling apparatus, a cylindrical inclosed casing or shell having a tool socket at its lower end, a stuffing box at its upper end and an interior shoulder, a swivel rod journaled in the inclosed casing or shell and having a head at its inner end, separate removable superposed bearing rings arranged inside of the casing and one of which rests flat against the interior shoulder thereof, said bearing rings having opposing rounded face bearing grooves, and held in their relative positions by the disposition of the swivel rod head thereunder, and bearing balls arranged between the two bearing rings, substantially as set forth.

5. In a drill swivel, the cylindrical swivel casing or shell having a tool socket at one end, a swivel rod journaled in the casing or shell

---

521,941. NUT-LOCK. WILLIS T. RICHARDSON, David City, Nebr. Filed Dec. 21, 1893. Serial No. 494,320. (No model.)

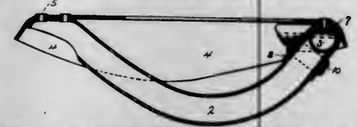
Claim.—1. In a nut lock, the combination with a nut, of a grooved bolt having a shoulder forming an abrupt abutment at the outer end wall of said groove, and a locking pin cam shaped in cross section and provided with a biting edge adapted to rock beyond the groove and engage the inner face of the nut in the manner described.

2. In a nut lock, the combination with a nut, of a longitudinal grooved bolt, provided with a cross-groove forming an abrupt shoulder at the outer end wall of said longitudinal groove and a locking pin cam shaped in cross section and provided with a biting edge adapted to rock beyond the groove and engage the inner face of the nut in the manner described.

3. In a nut lock, the combination of a nut, a grooved bolt, an abrupt shoulder forming the outer end wall of said groove, and a self-locking pin having a biting edge that projects above the walls of the groove in the bolt and cuts an opposite groove in the thread of the nut when said pin is driven into place, said pin being retained in place by the end wall of the groove.

and terminating at its inner end in a head, a clutch hub keyed to the swivel rod at one side of its head and provided with a peripheral series of open inclined cam grooves having curved ends, elongated vertically disposed friction or clutch rollers arranged within said cam grooves, and vertical cylindrical springs located in one of the curved ends of said grooves and normally bearing at one side of said rollers, substantially as set forth.

521,943. SADDLE FOR BICYCLES. FRANKLIN E. WEAVER, Torrington, Conn. Filed Mar. 30, 1894. Serial No. 505,684. (No model.)

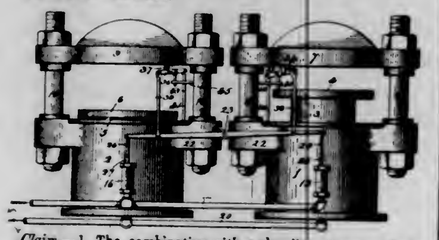


Claim.—1. The combination with a main rod, and a rod transversely across one end thereof of a split T. adapted to interconnect the two rods, and means for clamping the T. to cause it to grasp both rods, substantially as explained.

2. In a saddle frame, a main tube, a cantle tube, a T. split longitudinally and transversely, and a device to cause it to close simultaneously upon both tubes, substantially as herein set forth.

3. A saddle composed of a main tube, a bent cantle tube, a leather seat, and a split T. said T. composing a bent head to surround the cantle tube, and a straight leg to allow telescopic movement of the main tube within it, and means to clamp the tubes and the T. together, substantially as herein specified.

521,944. AUTOMATIC VALVE-GEAR FOR TILE-PRESSES. HOWARD E. BANKER, Western Springs, Ill. Filed July 3, 1893. Serial No. 479,542. (No model.)



Claim.—1. The combination with a plurality of press-cylinders and their plungers or pistons, of an inlet and an outlet valve for each cylinder, rock-arms connecting the inlet-valves in pairs, rock arms connecting the outlet-valves in pairs and tilting levers connected to the rock-arms and actuated alternately by the plungers or pistons, so as to automatically open and close the valves alternately, substantially as set forth.

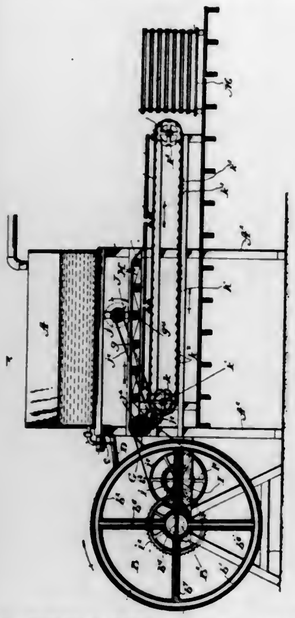
2. The combination with a plurality of cylinders and their pistons or plungers, of an inlet and an outlet valve for each cylinder, rock-arms connecting the inlet-valves in pairs, rock-arms connecting the outlet-valves in pairs, and tilting levers connected to said rock-arms and carrying striker-arms for contact with the pistons or plungers, so as to enable said pistons to automatically open and close the valves alternately, substantially as set forth.

521,945. APPARATUS FOR FORMING GLUE INTO SHEETS. CHARLES W. COOPER, New York, N. Y. Filed June 15, 1891. Serial No. 396,291. (No model.)

Claim.—1. In a machine for forming glue into sheets of jelly, the following elements in combination:—a hollow revoluble cooling cylinder through which a fluid refrigerant is caused to circulate,—a feed for supplying liquid glue to the carrying surface of said cylinder whereon said glue is congealed into a sheet,—and a surface which travels at a speed superior to that of the peripheral surface of the cylinder and strips the sheet from said cylinder,—substantially as set forth.

2. In a machine for forming glue into sheets of jelly, the following elements in combination:—a hollow revoluble cooling cylinder through which a fluid refrigerant is caused to circulate,—a feed for supplying liquid glue to the carrying surface of said cylinder whereon said glue is congealed into a sheet,—and a cylindriform surface axially parallel with the cooling cylinder, which travels at a speed superior to that of the carrying surface of the cylinder and strips the sheet from said cylinder,—substantially as and for the purposes set forth.

3. In a machine for forming glue into sheets of jelly, the following elements in combination:—a hollow revoluble cooling cylinder through which a fluid refrigerant is caused to circulate,—a feed for supplying liquid glue to the carrying surface of said cylinder whereon said glue is congealed into a sheet,—a cylindriform surface axially parallel with the cooling cylinder, which travels at a speed superior to that of the carrying surface of the cylinder and strips the sheet from said cylinder,—cutting mechanism for dividing the sheet transversely into sections,—and traveling nets for carrying off said sections,—substantially as and for the purposes set forth.

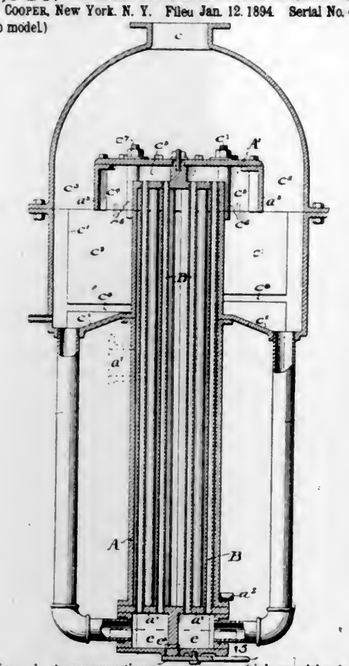


4. In a machine for forming glue into sheets of jelly, the following elements in combination:—a hollow revoluble cooling cylinder through which a fluid refrigerant is caused to circulate,—a feed for supplying liquid glue to the carrying surface of said cylinder whereon said glue is congealed into a sheet,—a roller axially parallel with the cooling cylinder, which travels at a speed superior to that of the carrying surface of the cylinder and strips the sheet from said cylinder, and which serves to drive a sheet-carrying apron,—a sheet-carrying apron upon which the sheet stripped from the cooling cylinder is delivered,—cutting mechanism for dividing the sheet transversely into sections,—and traveling nets for carrying off said sections,—substantially as and for the purposes set forth.

5. In a machine for forming glue into sheets of jelly, the following elements in combination:—a hollow revoluble cooling cylinder through which a liquid refrigerent is caused to circulate,—a feed for supplying a liquid glue to the carrying surface of said cylinder whereon said glue is congealed into a sheet,—a cylindriform surface axially parallel with the cooling cylinder, which travels at a speed superior to that of the carrying surface of the cylinder and strips the sheet from said cylinder,—cutting mechanism for dividing the sheet transversely into sections,—and an endless net-carrying apron adapted upon its carrying face to be provided with a series of removably applied nets to receive the divided sections,—substantially as set forth.

6. In a machine for forming glue into sheets of jelly, the following elements in combination:—a hollow revoluble cooling cylinder through which a fluid refrigerant is caused to circulate,—a feed for supplying liquid glue to the carrying surface of said cylinder whereon said glue is congealed into a sheet,—a roller axially parallel with the cooling cylinder, which travels at a speed superior to that of the carrying surface of the cylinder and strips the sheet from said cylinder, and which serves to drive a sheet-carrying apron,—a sheet-carrying apron upon which the sheet stripped from the cooling cylinder is delivered,—cutting mechanism for dividing the sheet transversely into sections,—traveling nets for carrying off said sections,—and connective driving gearing which occasions the predetermined associated movements of the cooling cylinder, the stripping roller, the cutting mechanism, and the traveling nets,—substantially as set forth.

521,946. APPARATUS FOR EVAPORATING LIQUIDS. CHARLES W. COOPER, New York, N. Y. Filed Jan. 12, 1894. Serial No. 496,625. (No model.)



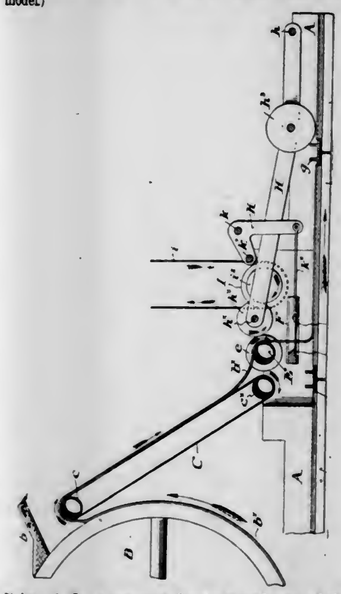
Claim.—1. An evaporating apparatus in which provision is made for the continuous supply, continuous circulation, and continuous discharge, of liquid to be concentrated, and wherein are combined the following elements:—a central heating chamber embodying evaporating tubes;—a vapor and liquid separating chamber of diameter in excess of that of the heating chamber and encompassing the upper portion of said heating chamber;—a series of radially disposed separating compartments formed in the lower portion of the separating chamber, circumscribing the heating chamber, and in communication respectively with given evaporating tubes, and, except as to the first and last, with each other;—a corresponding series of radially-disposed tube-supply compartments located at the base of the heating chamber, corresponding with the separating chambers, and respectively communicating with corresponding given evaporating tubes;—and a series of return conduits corresponding in number with the separating compartments and placing said compartments respectively in communication with corresponding tube-supply compartments;—substantially as set forth.

2. An evaporating apparatus in which provision is made for the continuous supply, continuous circulation, and continuous discharge, of liquid to be concentrated, and wherein are combined the following elements:—a central heating chamber embodying evaporating tubes;—a vapor and liquid separating chamber of diameter in excess of that of the heating chamber and encompassing the upper portion of said heating chamber;—a series of radially disposed separating compartments formed in the lower portion of the separating chamber, circumscribing the heating chamber, and in communication respectively with given evaporating tubes, and, except as to the first and last, with each other;—a corresponding series of radially-disposed tube-supply compartments located at the base of the heating chamber, corresponding with the separating chambers, and respectively communicating with corresponding given evaporating tubes;—and a series of return conduits corresponding in number with the separating compartments and placing said compartments respectively in communication with corresponding tube-supply compartments;—substantially as set forth.

3. An evaporating apparatus in which provision is made for the continuous supply, continuous circulation, and continuous discharge, of liquid to be concentrated, and wherein are combined the following elements:—a central heating chamber embodying evaporating tubes;—a vapor and liquid separating chamber of diameter in excess of that of the heating chamber and encompassing the upper portion of said heating chamber;—a series of radially-disposed tube-discharge compartments located above the heating chamber and in part circumscribing it, and inclosed laterally by a wall of less diameter than the separating chamber in order that an annular opening may be formed;—a corresponding series of radially-disposed separating compartments formed, as continuations of said tube-discharge compartments, in the lower portion of the separating chamber, circumscribing the heating chamber, and in communication respectively with given evaporating tubes, and, except as to the first and last, with each other;—a corresponding series of radially disposed tube-supply compartments located at the base of the heating chamber, corresponding with the separating chambers, and respectively communicating with corresponding given evaporating tubes;—and a series of return conduits corresponding in number with the separating compartments and placing said compartments respectively in communication with corresponding tube-supply compartments;—substantially as set forth.

4. An evaporating apparatus in which provision is made for the continuous supply, continuous circulation, and continuous discharge, of liquid to be concentrated, and wherein are combined the following elements:—a central, vertically erected, heating chamber embodying a series of evaporating tubes or passage ways for liquid which extends completely through it from end to end;—means for supplying a heating medium to the exterior of said evaporating tubes or passage ways;—a vapor and liquid separating chamber of diameter in excess of that of the heating chamber, concentrically disposed relatively thereto, and encompassing the upper portion of said heating chamber;—a series of radially-disposed separating compartments formed in the lower portion of the separating chamber, circumscribing the heating chamber, and in communication respectively with given evaporating tubes, and, except as to the first and last, with each other;—a corresponding series of radially-disposed tube-supply compartments located at the base of the heating chamber, corresponding with the separating chambers, and respectively communicating with corresponding given evaporating tubes,—a series of return conduits corresponding in number with the separating compartments and placing said compartments respectively in communication with corresponding tube-supply compartments;—and liquid inlets and outlets applied respectively to the first and last of the separating compartments;—substantially as set forth.

521,947. APPARATUS FOR MAKING GLUE. CHARLES W. COOPER, New York, N. Y. Filed Apr. 16, 1894. Serial No. 507,695. (No model.)



Claim.—1. In an apparatus for the manufacture of glue, the following elements in combination:—a feed for liquid glue,—a revoluble cooling cylinder upon the surface of which the liquid glue is delivered and congealed into a sheet of jelly,—a stripping roller for stripping the sheet of jelly from the surface of the cylinder,—cutting mechanism for dividing the sheet transversely into sections,—and traveling nets for carrying off said sections,—substantially as and for the purposes set forth.

2. In an apparatus for the manufacture of glue, the following elements in combination:—a feed for liquid glue,—a revoluble cooling cylinder upon the surface of which the liquid glue is delivered and congealed into a sheet of jelly, and from which the sheet is stripped and conducted to the cutting mechanism,—cutting mechanism for dividing the sheet transversely into sections,—mechanism for arresting the forward movement of the advance end of the sheet during the action of the cutting mechanism,—and traveling nets for carrying off said sections,—substantially as and for the purposes set forth.

3. In an apparatus for the manufacture of glue, the following elements in combination:—a feed for liquid glue,—a revoluble cooling cylinder upon the surface of which the liquid glue is delivered and congealed into a sheet of jelly, and from which the sheet is stripped and conducted to the cutting mechanism,—cutting mechanism for dividing the sheet transversely into sections,—mechanism for arresting the forward movement of the advance end of the sheet during the action of the cutting mechanism,—mechanism for occasioning the backward movement of the advance end of the sheet immediately after the action of the cutting mechanism,—and traveling nets for carrying off said sections,—substantially as and for the purposes set forth.

4. In an apparatus for the manufacture of glue, the following elements in combination:—a feed for liquid glue,—a revoluble cooling cylinder upon the surface of which the liquid glue is delivered and congealed into a sheet of jelly,—a stripping roller the surface of which travels at a speed superior to that of the carrying surface of the cylinder and strips the sheet from said cylinder,—a sheet-delivering mechanism for receiving the sheet of jelly from the surface of the stripping roller and delivering it to the cutting mechanism,—cutting mechanism for dividing the sheet transversely into sections,—mechanism for arresting the forward movement of the advance end of the sheet during the action of the cutting mechanism,—and traveling nets for carrying off said sections,—substantially as and for the purposes set forth.

5. In an apparatus for the manufacture of glue the following elements in combination:—a feed for liquid glue,—a revoluble cooling cylinder upon the surface of which the liquid glue is delivered and congealed into a sheet of jelly,—a stripping roller the surface of which travels at a speed superior to that of the carrying surface of the cylinder and strips the sheet from said cylinder,—a sheet-delivering mechanism for receiving the sheet of jelly from the surface of the stripping roller and delivering it to the cutting mechanism,—cutting mechanism for dividing the sheet transversely into sections,—mechanism for arresting the forward movement of the advance end of the sheet during the action of the cutting mechanism,—mechanism for occasioning the backward movement of the advance end of the sheet immediately after the action of the cutting mechanism,—and traveling nets for carrying off said sections,—substantially as and for the purposes set forth.

6. In an apparatus for the manufacture of glue, the following elements in combination:—a feed for liquid glue,—a revoluble cooling cylinder upon the surface of which the liquid glue is delivered and congealed into a sheet of jelly, and from which the sheet is stripped and conducted to the cutting mechanism,—cutting mechanism for dividing the sheet transversely into sections,—mechanism for occasioning the backward movement of the advance end of the sheet immediately after the action of the cutting mechanism,—and traveling nets for carrying off said sections,—substantially as and for the purposes set forth.

7. In an apparatus for the manufacture of glue, the following elements in combination:—a feed for liquid glue,—a revoluble cooling cylinder upon the surface of which the liquid glue is delivered and congealed into a sheet of jelly,—a stripping roller the surface of which travels at a speed superior to that of the cylinder and strips the sheet from said cylinder,—a sheet-delivering mechanism for receiving the sheet of jelly from the surface of the stripping roller and delivering it to the cutting mechanism,—cutting mechanism for dividing the sheet transversely into sections,—mechanism for occasioning the backward movement of the advance end of the sheet immediately after the action of the cutting mechanism,—and traveling nets for carrying off said sections,—substantially as and for the purposes set forth.

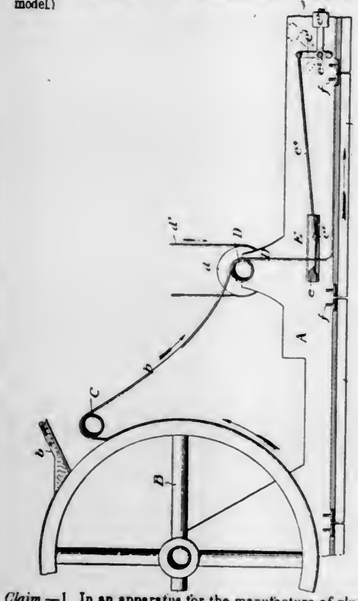
8 In an apparatus for the manufacture of glue, the following elements in combination:—a feed for liquid glue,—a revoluble cooling cylinder upon the surface of which the liquid glue is delivered and congealed into a sheet of jelly, and from which the sheet is stripped and conducted to the cutting mechanism,—cutting mechanism for dividing the sheet transversely into sections,—a take-up roller between the cooling cylinder and the cutting mechanism, over which the sheet is caused to pass,—means for occasioning the predetermined intermittent forward rotation and rest of said roller,—and traveling nets for carrying off the cut sections,—substantially as and for the purposes set forth.

9. In an apparatus for the manufacture of glue. the following elements in combination: a feed for liquid glue,—a revoluble cooling cylinder upon the surface of which the liquid glue is delivered and congealed into a sheet of jelly, and from which the sheet is stripped and conducted to the cutting mechanism,—cutting mechanism for dividing the sheet transversely into sections,—a take-up roller between the cooling cylinder and the cutting mechanism over which the sheet is caused to pass,—means for occasioning the predetermined intermittent forward rotation and rest of said roller,—mechanism for occasioning the partial backward revolution of said roller immediately after the action of the cutting mechanism,—and traveling nets for carrying off the cut sections,—substantially as and for the purposes set forth.

10. In an apparatus for the manufacture of glue, the following elements in combination:—a feed for liquid glue,—a revoluble cooling cylinder upon the surface of which the liquid glue is delivered and congealed into a sheet of jelly, and from which the sheet is stripped and conducted to the cutting mechanism,—cutting mechanism for dividing the sheet transversely into sections,—a take-up roller disposed between the cooling cylinder and the cutting mechanism and operative in connection with a shiftable granular or kindred load, over which the sheet is caused to pass,—means for occasioning the predetermined intermittent rotation and rest of said roller,—and traveling nets for carrying off the cut sections,—substantially as and for the purposes set forth.

11. In an apparatus for the manufacture of glue, the following elements in combination:—a feed for liquid glue,—a revoluble cooling cylinder upon the surface of which the liquid glue is delivered and congealed into a sheet of jelly, and from which the sheet is stripped and conducted to the cutting mechanism,—cutting mechanism for dividing the sheet transversely into sections,—a take-up roller disposed between the cooling cylinder and the cutting mechanism and operative in connection with a shiftable granular or kindred load, over which the sheet is caused to pass,—means for occasioning the predetermined intermittent forward rotation and rest of said roller,—mechanism for occasioning the partial backward revolution of said roller immediately after the action of the cutting mechanism,—and traveling nets for carrying off the cut sections,—substantially as and for the purposes set forth.

521,948. APPARATUS FOR MAKING GLUE. CHARLES W. COOPER, New York, N. Y. Filed Apr. 19, 1894. Serial No. 508,084. (No model.)

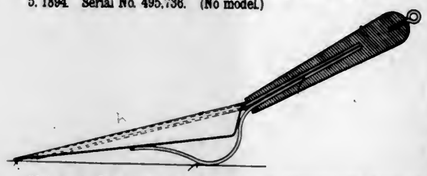


Claim.—1. In an apparatus for the manufacture of glue the following elements in combination:—a feed for liquid glue,—a revoluble cooling cylinder upon the surface of which liquid glue is delivered and congealed into a sheet of jelly,—and an idler roller over which the sheet is led from the cylinder and which is revolved to occasion the stripping of the sheet from the cylinder by the weight of the advance end of the sheet depending from it,—substantially as and for the purposes set forth.

2. In an apparatus for the manufacture of glue, the following elements in combination,—a feed for liquid glue,—a revoluble cooling cylinder upon the surface of which liquid glue is delivered and congealed into a sheet of jelly,—an idler roller over which the sheet is led from the cylinder by the weight of the advance end of the sheet depending from it,—and a directing roller located at such distance from the idler roller as to permit of the sag of the sheet between said rollers,—substantially as and for the purposes set forth.

3. In an apparatus for the manufacture of glue, the following elements in combination,—a feed for liquid glue,—a revoluble cooling cylinder upon the surface of which liquid glue is delivered and congealed into a sheet of jelly,—an idler roller over which the sheet is led from the cylinder and which is revolved to occasion the stripping of the sheet from the cylinder by the weight of the advance end of the sheet depending from it,—a directing roller located at such distance from the idler roller as to permit of the sag of the sheet between said rollers,—cutting mechanism for dividing the sheet transversely into sections,—and traveling nets for carrying off said sections,—substantially as and for the purposes set forth.

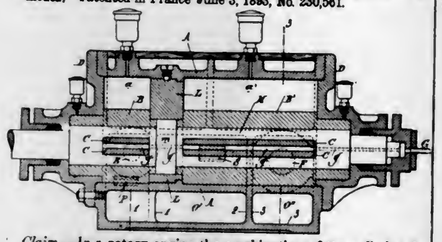
521,949. DUST-PAN. MAJARIQUE CÔTE, Millis, Mass. Filed Jan 5, 1894. Serial No. 495,736. (No model.)



Claim.—1. In a dust-pan a body, a wire incorporated in an edge thereof and bent to form a projection under the rear edge of said body; and a handle secured to said wire.

2. In a dust pan, the body, A, in combination with the wire, C, bent to form the angle-arms, *f*, loop, *g*, fold, *h*, said wire being secured by a fold in the edges of said body and the handle, B, driven onto the fold, *h*, of said wire, all being arranged substantially as described.

521,950. ROTARY STEAM-ENGINE. CHARLES V. DIVAN, Fils, St. Nazaire, France. Filed Jan. 12, 1894. Serial No. 496,658. (No model.) Patented in France June 3, 1893, No. 230,561.



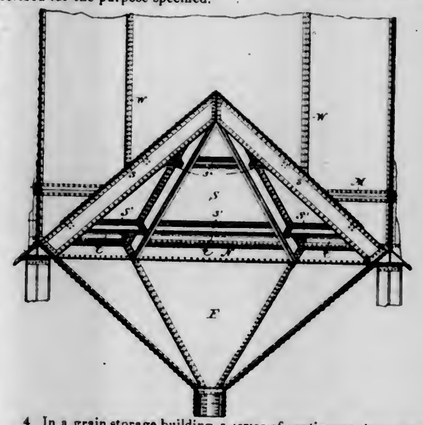
Claim.—In a rotary engine the combination of the cylinder the rotary piston, the sliding partitions in the piston sliding in contact with each other and having opposing faces or shoulders forming a space *g'*, and the steam pipe leading to the shouldered part of the partitions, substantially as described.

521,951. METALLIC GRAIN-STORAGE BUILDING. EDWARD O. FALLIS, Toledo, Ohio. Filed Nov. 3, 1893. Serial No. 489,953. (No model.)

Claim.—1. In a grain storage building, a series of sheet metal bins having partition walls meeting at an angle of one hundred and twenty degrees, in combination with vertical strips (W), bent at a corresponding angle, and suitably secured to each other and to the partition walls in each of the angles of their meeting lines, substantially as shown and described, for the purpose specified.

2. In a grain storage building, a series of contiguous sheet metal bins, hexagonal in horizontal section, and sheet metal hopper bottoms, the said hopper bottoms having at their upper outer edges horizontal flanges which meet under the partition walls of adjacent bins, in combination with angle-irons secured to each other and uniting said walls and hopper bottoms, substantially as and for the purpose specified.

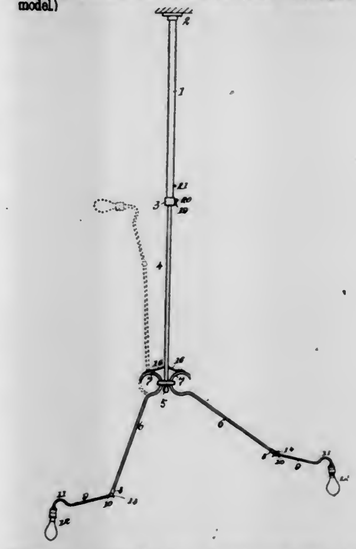
3. In a grain storage building, a series of contignous sheet metal bins, hexagonal in horizontal section and sheet metal hopper bottoms having at their upper outer edges horizontal flanges, in combination with continuous strengthening plates (N) secured to the walls and to the hopper bottoms of the bins, and the angle-irons or plates (M) attached to the walls of said bins, substantially as shown and described for the purpose specified.



4. In a grain storage building, a series of contiguous sheet metal bins, hexagonal in horizontal section, sheet metal hopper bottoms, the said hopper bottoms having at their upper, outer edges horizontal flanges, and angle irons (M) secured to and uniting said walls and bottoms, in combination with strengthening plates (N) secured to said walls and bottoms, and strengthening plates (M) secured to said walls, substantially as and for the purposes specified.

5. In a grain storage building having sheet metal outer walls, the herein described covering for said walls consisting of blocks of terra cotta or like substance having projecting legs on their inner surfaces, whereby an air space is formed next to the exterior of the metal wall, in combination with shelves or ledges secured to said metal wall and adapted to engage said terra cotta covering, substantially as shown and described and for the purpose specified.

521,952. ADJUSTABLE CARRIER FOR ELECTRIC LAMPS. ROBERT FARIES, Decatur, Ill. Filed Feb. 23, 1894. Serial No. 501,086. (No model.)



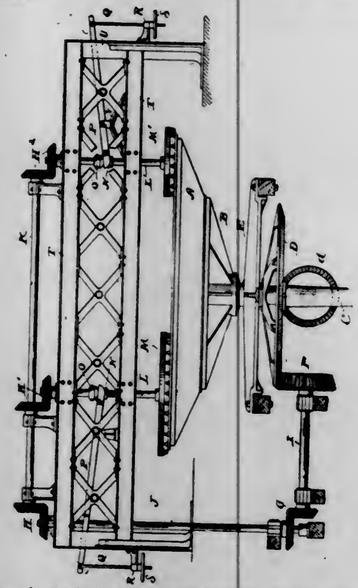
Claim.—1. An arm for electric lamps comprising a bracket or support, having an aperture, a rod one end of which is curved and adapted to the aperture of the support, a lamp socket on the swinging end of the rod, and a lamp cord, or circuit wire, connecting with the lamp socket through a longitudinal aperture in the rod.

2. An arm for electric lamps comprising a bracket or support, having an aperture, a jointed rod one end of which is curved and adapted to the aperture of the support, a lamp socket on the swinging end of the rod, and a lamp cord, or circuit wire, connecting with the lamp socket through a longitudinal aperture in the rod.

3. An adjustable carrier for electric lamps comprising two tubes, one longitudinally adjustable in the other, a bracket on the extended end of the adjustable tube, a rod one end of which is curved and adapted to an aperture in the bracket, and a lamp cord, or circuit wire, extended through both tubes, coiled in the outer one, and connected with a lamp socket, on the swinging end of the rod, through a longitudinal aperture in the rod

---

521,953. GRINDING AND POLISHING MACHINERY. EDWARD FORD, Creighton, Pa., assignor of one-half to the Pittsburg Plate Glass Company, same place. Filed Oct. 16, 1893. Serial No. 488,251. (No model.)



Claim.—1. A grinding or polishing machine, wherein revolving runners, one or more, are confined in their action to a square surface on a revolving table, substantially as and for the purpose set forth.

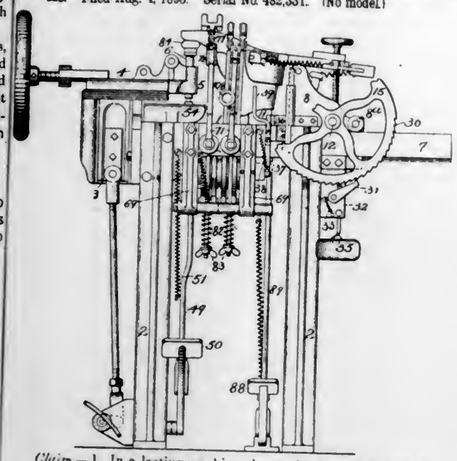
2. In a grinding or polishing machine, the combination with a revolving table and an elongated runner, of a gearing for positively actuating, and maintaining a constant ratio of speed between them, the runner and table associated, substantially as set forth, whereby the runner will act upon, and be practically confined in its action to, a square surface on the table.

3. In a grinding or polishing machine, the combination with a revolving table and an elongated runner of sufficient length to extend over and beyond the axial center of the table, of gearing for positively actuating and maintaining a constant ratio of speed between them, the runner being of such form, and bearing such relation to the table, that, in the operation of the machine, it will act upon, and be confined or practically confined in its action to, a square surface on the table, substantially as and for the purpose shown.

4. In a grinding or polishing machine, the combination with a revolving table, of elongated runners, one of which is of sufficient length to extend over and beyond the axial center of the table, of gearing for positively actuating and maintaining a constant ratio of speed between the table and runners, the latter being of such form, and relatively arranged with respect to the table, that, in the operation of the machine, they will act upon, and be confined or practically confined in their action to, a square surface on the table, substantially as and for the purpose set forth.

5. In a grinding or polishing machine, the combination with a revolving square table and an elongated runner, of gearing for positively imparting two revolutions to the runner to each revolution of the table, said runner being of such form, and bearing such relation to the table, that, in the operation of the machine, it will act upon, and be practically confined in its action to, the square surface of the table, substantially as set forth.

521,954. LASTING-MACHINE. EDWARD F. GRANDY, Everett, Mass., assignor to the Goodyear Shoe Machinery Company, Portland, Me. Filed Aug. 4, 1893. Serial No. 482,331. (No model.)



Claim.—1. In a lasting machine, the combination of a frame supporting the heel lasting mechanism, a slide reciprocating therein, a swinging jack post reciprocating in said slide substantially as described, lever and spring mechanism for raising said jack post pivoted to said slide, a stationary adjustable support fixed to said frame and engaging with said lever, and ratchet and pawl holding mechanism for said jack post, all operating substantially as described, and for the purpose set forth.

2. In a lasting machine, the combination of a frame supporting the heel lasting mechanism, a slide carrying the jack post reciprocating therein, a return spring for said slide, rack and pinion mechanism for moving said slide with reference to said frame, ratchet and pawl mechanism for locking said slide in operative position and a swinging lever for releasing said slide all operating substantially as described.

3. In a lasting machine the combination of a carriage supporting the jacking and heel lasting mechanism, a track upon which said carriage moves, spring catch mechanism which holds said carriage in operative position, a lever connected to the catch mechanism, and a pin for engaging with said lever fixed at the desired angular position upon one of the operating cams, substantially as and for the purpose set forth.

4. In a lasting machine, the combination of operating cams mounted to revolve below the jacked last, substantially as described, treadle operated ratchet and pawl mechanism to revolve said cams and brake mechanism for said cams, lever, roll and suitable connecting mechanism for setting and releasing said brake which is operated by the revolution of said cams, all substantially as described and for the purposes set forth.

5. In a lasting machine, the combination of operating cams mounted to revolve below the jacked last, substantially as described, treadle operated ratchet and pawl mechanism to revolve said cams, swinging side holding clamps mounted above the jacked last, and lever and rod connections between said holding clamps and said operating cams, all substantially as described.

6. In a lasting machine, the combination of swinging stands mounted upon the sides of the machine, swinging levers mounted upon their upper free ends, swinging holding clamps pivoted to said levers, springs and stops for said clamps all adjustably located above the bottom of the last held in the machine, and suitable operating mechanism connected to said levers which move them down and upon said last, all substantially as shown and described.

7. In a lasting machine, holding clamps, having a swinging auxiliary contacting face pivoted thereto, substantially as shown and described.

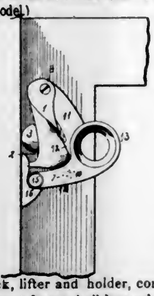
8. In a lasting machine, a toe rest or support provided with a longitudinal reciprocating contacting face, substantially as shown and described and for the purpose set forth.

9. In a lasting machine, the combination of longitudinal swinging stands mounted upon the sides of the machine joints in said stands whereby their top members can be swung crosswise the machine, holding clamps mounted on said top members, a jointed connection between opposing pairs of said top members, and adjusting mechanism adapted to swing said top members in unison, substantially as and for the purpose set forth.

10. In a lasting machine, the combination of a carriage supporting the jacking and heel lasting mechanism, a slide reciprocating

therein, a swinging jack post reciprocating in said slide, lever and spring mechanism for raising said jack post pivoted to said slide, a track which supports said carriage, mechanism for locking said carriage in operative position on said track, treadle and rod mechanism mounted on the frame of the machine and located to engage with the jack post raising lever, when said carriage is locked in position.

521,955. SASH LOCK, LIFTER, AND HOLDER. ROBERT GUY, Ashton, and ORLANDO E. REED, Rochelle, Ill. Filed Jan. 3, 1894. Serial No. 496,570. (No model.)



Claim.—A sash lock, lifter and holder, consisting of a housing having a cavity in its front face, a ball located within the cavity, a lever having a pivotal connection with the housing, provided with a tongue communicating with the cavity, said lever, an arm provided with a cross bar, and a catch for receiving the cross bar secured to the window casing.

521,956. TYPE-WRITER CABINET. LEWIS S. HAYES, Cortland, N. Y. Filed Feb. 1, 1894. Serial No. 498,763. (No model.)



Claim.—1. In a cabinet for type-writing machines, the combination, with the movable top, of the movable machine supporting-shelf and the approximately right angle levers having their long and short arms, connected respectively to the top and shelf, whereby the same are operated simultaneously, substantially as specified.

2. In a cabinet for type writing machines, the combination, with the movable portion of the back thereof, of the movable top connected to said movable portion, the movable machine supporting-table and the connecting mechanism, whereby the table is raised to a horizontal position when the top is opened, substantially as specified.

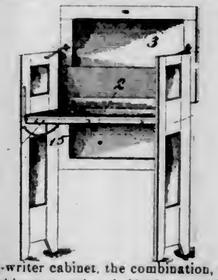
3. In a cabinet for type-writing-machines, the combination, with the movable portion of the back and the movable top, of the movable machine supporting-shelf and the angle levers having their long and short arms connected, respectively, to the top and shelf, whereby the same are operated simultaneously, substantially as specified.

521,957. TYPE-WRITER CABINET. LEWIS S. HAYES, Cortland, N. Y. Filed Feb. 1, 1894. Serial No. 498,764. (No model.)

Claim.—1. The combination, in a type-writer cabinet, with the stationary part of the back, of a movable portion hinged to said stationary part, a movable top hinged to the movable portion of the back, and links pivoted respectively to the body or casing and to the movable top, whereby the said parts may be thrown into a vertical position when said top is opened substantially as described.

2. In a type-writer cabinet, the combination, with the body or casing and a machine supporting shelf, of a gravity falling or sliding front and guides, whereby said front is guided beneath said supporting shelf, substantially as described.

3. In a type-writer cabinet, the combination, with the body or casing and a machine supporting-shelf, of a movable front pivotally connected with the sides of said body or casing, and guides for guiding said front beneath said supporting shelf, substantially as described



4. In a type-writer cabinet, the combination, with the body or casing and a machine supporting-shelf, of a movable front, links having one end pivoted to the upper part of said front and the other end to the sides of the body or casing, and curved guides situated beneath said supporting-shelf, whereby the front is guided into position beneath the shelf when the cabinet is opened, substantially as described.

5. In a type-writer cabinet, the combination, with the movable top hinged to the movable portion of the back of the body or casing, a hook or hasp secured to the movable top, of a gravity falling or sliding front adapted to travel on guides and provided with a catch or lock to be engaged by said hook or hasp, when the parts are closed, substantially as described.

521,958. LUBRICATING DEVICE. HENRY A. HOUSE and HENRY A. HOUSE, Jr., Bridgeport, Conn., assignors of one-half to Robert Rintoul Symon, London, England. Filed Nov. 25, 1893. Serial No. 491,970. (No model.)

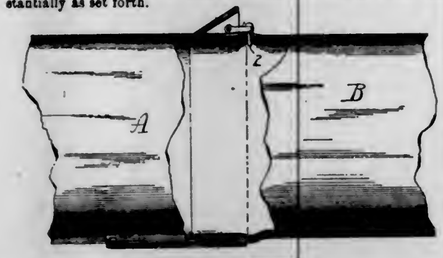
Claim.—In combination in a lubricating device for cross heads and crank pins, the cross head, the crank with its pin, the pitman connecting the cross head with the crank pin, the fixed connector I secured to the frame and having the oil supply pipe connected therewith and the closed oil conduit from the said fixed connector to the cross head pin and thence to the crank pin comprising the telescopic tubes extending from the fixed connector, the pin L connected with the tubes and with the cross head pin which is provided with an axial channel and the conduit M extending from the axial hole in the cross head pin along the pitman to the crank pin and completing the said closed conduit from the fixed connector, substantially as described

---

521,959. STOVEPIPE ATTACHMENT. JOHN H. HUNTRESS, Janesville, Wis. Filed Sept. 6, 1893. Serial No. 484,934. (No model.)

Claim.—1. A thimble for stove pipes comprising a pipe having a socket formed in the wall thereof, and having a dog pivoted to it, at or near the outer end thereof, substantially as set forth.

2. The combination with a thimble having a dog pivoted thereto and provided with a socket in one wall, of a cap or stop provided with an arm adapted to enter and be held in the socket at different positions by frictional contact, said dog adapted to act as an abutment for the cap when the latter is pushed in to the full extent, substantially as set forth.

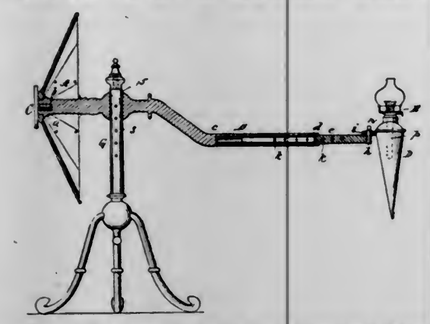


521,960. STEEL TAPE-MEASURE. WILLIE L. E. KRUPPEL, Hoboken, N. J. Filed Jan. 23, 1894. Serial No. 497,754. (No model.)



Claim.—A steel tape or chain provided at the fifty or one hundred foot-mark, or at both, with a temperature-compensating scale having its marks and ordinals formed upon the body of the tape or chain, said scale starting off from the opposite sides of the fifty or one hundred foot-mark which is to be at the standard temperature so as to indicate the correct length of the tape or chain at the various temperatures, substantially as set forth.

521,961. ADVERTISING DEVICE. BENJAMIN D. MILLIKEN, Somerville, Mass. Filed Feb. 7, 1894. Serial No. 499,418. (No model.)



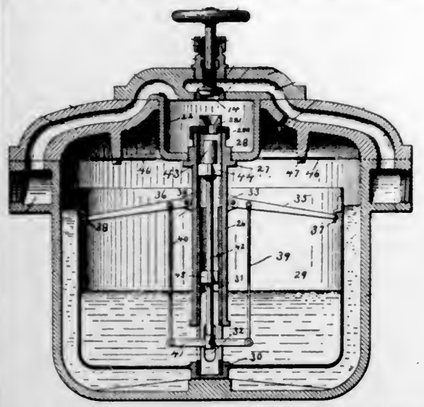
Claim.—1. In an advertising device the combination of a reflector frame having a series of tapering mirror plates around its center and a perforation through said center, a rod B one end of which enters said perforation, a screw located within a screw tapped hole in said end and having its head in the rear of the reflector frame, a light and object holder carried by the opposite end of the rod B, and a standard between the two ends of said rod B and adjustably united therewith substantially as described.

2. The combination of a conical reflector frame and mirror plates therein arranged around its center, a rod B having one end pivotally entering and retained within said center, a tubular sleeve in the opposite end of said rod B, an extension e having one end received by said sleeve, and a light and object holder upon said extension, with a standard between the two ends of the rod B and adjustably connected therewith substantially as described

521,962. STEAM-TRAP. CARLETON W. NASON, New York, N. Y. Filed Feb. 19, 1894. Serial No. 500,666. (No model.)

Claim.—1. In a steam trap, the combination of a float, a valve spindle, a guide or pipe inclosing said spindle, second class levers pivoted to said guide, and operated by the float, and connections between said levers and the valve spindle, substantially as described.

2. In a steam trap, the combination of a casing, a cover for said casing having a central guide or pipe provided with a valve seat, a valve spindle having guide wings located inside of said central guide and pivoted to a cross piece, a float guided by said central guide, second class levers actuated by said float, and links connecting the levers and said cross-piece, substantially as described.



3. In a steam trap, the combination of a casing, a cover for said casing, a central valve spindle, a guide for said valve spindle carried by the cover of the casing, a float, second class levers pivoted to the guide and connected to said float and actuating said valve spindle, substantially as described.

521,963. GRIPPING DEVICE. CARLETON W. NASON, New York, N. Y. Filed Feb. 19, 1894. Serial No. 500,667. (No model.)



Claim.—1. In a gripping device, the combination of a plurality of gripping jaws, a support or ring passing through said jaws, and forming fulcrums therefor, means for securing the jaws in position upon said ring, and means for actuating the jaws to engage a package, substantially as described.

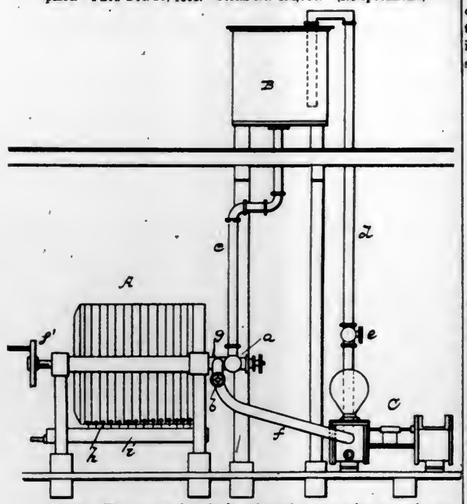
2. In a gripping device, the combination of an odd number of bell crank shaped gripping jaws, a ring or support passing through said jaws and forming fulcrums therefor, collars for securing the jaws in place upon said ring or support, and a hoisting rope connected to said jaws, and adapted to actuate them to engage a package, substantially as described.

3. In a gripping device, the combination of the fulcrum ring, and circumferentially adjustable gripping jaws carried by said ring, substantially as described.

4. In a gripping device, the combination of a fulcrum ring, circumferentially adjustable bell-crank shaped gripping jaws pivoted on said fulcrum ring, clamping collars for holding the gripping jaws in their adjusted positions, and means for actuating the gripping jaws, substantially as described.

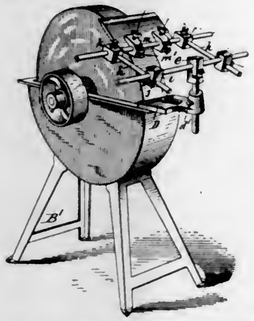
5. In a gripping device, the combination of a fulcrum ring formed of a wrought iron bar having its ends welded together, three circumferentially adjustable bell-crank shaped gripping jaws having radial arms pivoted on said fulcrum ring, clamping collars for holding said gripping jaws in place, links for connecting the radial arms of the gripping jaws with a link carried by the hoisting rope or cable, the hoisting rope or cable and the link carried thereby, all arranged and operating, substantially as described.

521,964. PROCESS OF PURIFYING WATER. BERNHARD REMMERS, New York, N. Y., assignor of one-half to Alex. P. Mende, same place. Filed Dec. 23, 1893. Serial No. 494,580. (No specimens.)



Claim.—The process herein described for separating organic matter from waste liquids and purifying, decolorizing and deodorizing liquids consisting in adding thereto vegetable charcoal or prussiate waste and subjecting the liquid to air pressure for agitation before said liquids are passed into a filtering press and also while said liquids are in the filtering press substantially as described.

521,965. TOOL-HOLDER. JOHN E. SMITH, Buffalo, N. Y. Filed Apr. 9, 1894. Serial No. 506,845. (No model.)



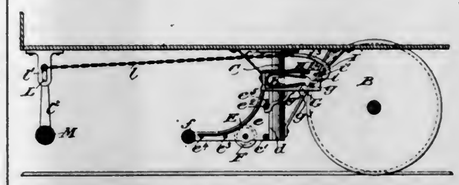
Claim.—1. In a tool holder, the combination with a transverse guide rod, of rear supporting blocks mounted on said guide rod, longitudinal rods attached at their rear portions to said blocks, front supporting blocks attached to the front portions of said longitudinal rods, a transverse rod arranged in front of said guide rod and supported in said front blocks, and a knife supporting clamp or clamps mounted on said transverse front rod, substantially as set forth.

2. In a tool holder, the combination with a transverse guide rod, of rear supporting blocks capable of sliding on said rod, longitudinal rods capable of forward and backward adjustment in said rear blocks, a transverse front rod, front supporting blocks secured to the front ends of the longitudinal rods and capable of lateral adjustment on the transverse front rod, and a knife clamp or clamps adjustably secured to the transverse front rod, substantially as set forth.

3. In a tool holder, the combination with a standard or support, of a transverse guide rod pivoted to said standard by a horizontal bolt, a front supporting rod carrying knife clamps, supporting blocks sliding on said guide rod, and side rods connecting the front supporting rod with said sliding blocks, substantially as set forth.

521,966. SAFETY-GUARD FOR CARS. AUGUST SOFFEL, Brooklyn, N. Y. Filed Feb. 23, 1894. Serial No. 501,097. (No model.)

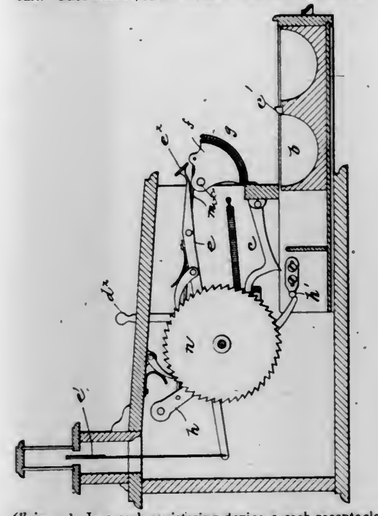
Claim.—1. In combination, a vertically movable cradle, a lever for engaging and releasing the cradle, a dog in position to engage the lever, a spring engaged with the dog and lever and means for operating the dog, the said spring serving—when the parts are in their normal position—to hold the cradle elevated and when the dog is rocked, serving to force the cradle downwardly, substantially as set forth.



2. The combination with the vertically movable cradle, of a U-shaped cradle operating spring and a rocking dog and lever engaged with the spring and with each other for manipulating the spring, whereby the cradle may be held suspended by the force of the spring and also forced downwardly by the spring, substantially as set forth.

3. The combination with the vertically movable cradle and its rollers, of a cradle operating spring, a lever engaged with the spring for holding and releasing the cradle, a rocking dog engaged with the spring and with the lever and a yielding fender in advance of the cradle and connected with the dog for automatically operating the cradle, substantially as set forth

521,967. CASH-REGISTER. RALPH P. THOMPSON, Springfield, Ohio. Filed Mar. 18, 1893. Serial No. 466,601. (No model.)



Claim.—1. In a cash registering device, a cash receptacle and a series of registering keys, means for locking and unlocking said receptacle, and a movable cover adapted to normally inclose said keys, and intermediate mechanism between the cash receptacle and cover, adapted to open said cover when the cash receptacle is opened, substantially as specified.

2. In a cash register a series of registering keys and a cash receptacle, means for locking and unlocking said receptacle, a cover for inclosing said keys, and means, substantially as described, for operating said cover by the opening and closing of said cash receptacle, substantially as and for the purpose specified.

3. In a cash registering device, an outer casing and a cash drawer arranged therein, a series of registering levers in said casing having projecting ends extending into a chamber, having a movable cover, and a connection from said cover to said cash drawer, whereby the opening and closing of said drawer produce a similar opening and closing of the key chamber, substantially as specified.

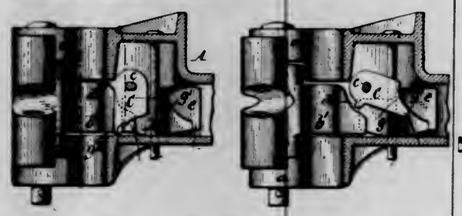
4. The combination with the outer casing, of a sliding drawer arranged therein, and a series of registering keys, a pivoted cover adapted to normally inclose said keys when the drawer is closed, and a connection from said drawer to said pivoted cover, whereby the

opening of said drawer causes a similar movement of said cover, substantially as specified.

5. In a cash registering device, an outer casing, a normally closed cash receptacle arranged therein, a series of registering levers above said receptacle, a spring actuated arm adapted to contact with said receptacle, a pivoted cover adapted to inclose said keys, and a connection from said arm to said cover, substantially as specified.

6. The combination with the drawer *b*, the cover *f*, for the keys *e*, and the intermediate connection from said cover to said drawer, substantially as specified.

521,968. CAR-COUPLING. WILLIAM T. WILSON, Buffalo, N. Y., assignor of one-half to John S. O'Shea, same place. Filed Dec. 18, 1893. Serial No. 493,903. (No model.)



Claim.—1. The combination with the drawhead and the coupling jaw, of a shifting lever having a vertical pivot on which it swings horizontally and provided with a shifting arm for throwing the jaw open and with an actuating arm, and a depending lock supported at its upper end on a horizontal pivot so as to be capable of swinging vertically rearward and upward with its lower end for striking the actuating arm, substantially as set forth.

2. The combination with the drawhead and the coupling jaw, of a shifting lever pivoted to swing horizontally and provided with a shifting arm for throwing the jaw open and with an actuating arm, a horizontal rock shaft journaled transversely in the upper portion of the drawhead, and a pivoted depending lock secured with its upper end to the rock shaft and capable of swinging rearwardly and upwardly with its lower end for striking the actuating arm of the shifting lever, and also downwardly and forwardly for striking the coupling jaw to complete the opening movement thereof, substantially as set forth.

3. The combination with the drawhead and the coupling jaw, of a depending lock pivoted at its upper end, capable of swinging rearwardly and having a shoulder adapted to engage against the drawhead for limiting its forward movement, and a shifting lever having an actuating arm arranged in the path of the lock and a shifting arm adapted to engage with the coupling jaw, substantially as set forth.

4. The combination with the drawhead and the coupling jaw, of a shifting lever having an actuating arm, and a shifting arm adapted to engage against the coupling jaw, and a rearwardly swinging lock pivoted at its upper end and having a recess which permits it to pass said actuating arm during the first portion of its rearward movement, and a nose which engages against said actuating arm during the last portion of its rearward movement, substantially as set forth.

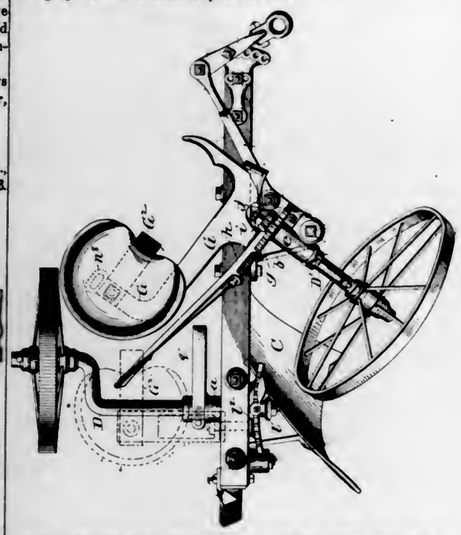
5. The combination with the drawhead and the coupling jaw, of a shifting lever having an arm adapted to engage with said coupling jaw and an actuating arm provided with a convex bearing face, and a vertically swinging lock adapted to engage against the convex bearing face of said lever for shifting the same, substantially as set forth.

521,969. SULKY-PLOW. CHARLES ANDERSON, South Bend, Ind., assignor to the South Bend Iron Works, same place. Filed Feb. 15, 1894. Serial No. 500,244. (No model.)

Claim.—1. In a sulky plow, the combination with a beam and a fixed bracket projecting therefrom, of a swinging bracket mounted on the fixed bracket an axle mounted in the swinging bracket, a wheel on the end of said axle, a clevis pivotally connected to the beam, and a connection between said pivoted clevis and the swinging bracket, substantially as set forth.

2. In a sulky plow, the combination with a beam and a fixed bracket projecting laterally therefrom, of a swinging bracket mounted on said fixed bracket, an axle mounted in said swinging bracket, a wheel on the end of said axle, a pivoted clevis at the forward end of said beam, and an adjustable connection between said pivoted clevis and the swinging bracket, substantially as set forth.

3. In a sulky plow, the combination with a beam and a fixed bracket projecting laterally therefrom, of a swinging bracket mounted on the fixed bracket, an axle mounted in the swinging bracket, a wheel mounted on the axle, a pivoted clevis, an arm projecting from said pivoted clevis, stops on the clevis to limit its movement in one direction, and a connection between said arm of the clevis and the swinging bracket, substantially as set forth.



4. In a sulky plow, the combination with a beam and a fixed bracket projecting laterally therefrom, of a swinging bracket mounted on the fixed bracket, an axle mounted in the swinging bracket, a wheel at the end of said axle, a pivoted clevis, a bar or pitman connected with said swinging bracket and having a screw threaded lug at its other end and a screwthreaded eye bolt connected with the pivoted clevis and adapted to pass through said screwthreaded lug, substantially as set forth.

5. In a sulky plow, the combination with a beam, of a fixed bracket projecting laterally therefrom, a hollow post or journal projecting upwardly from said fixed bracket, a swinging bracket having a sleeve to receive said hollow post or journal, a bolt passing through said hollow post or journal and the fixed bracket and having a head at one end, a nut on the other end of said bolt, a washer between said nut and sleeve, an axle mounted in said swinging bracket, and a wheel on said axle, substantially as set forth.

6. In a sulky plow, the combination with a beam, of an axle having a pivotal relation thereto, a wheel on said axle, a seat bar projecting from said pivotal connection and adapted to move with it, and a seat on said seat bar, substantially as set forth.

7. In a sulky plow, the combination with a beam, of a swinging bracket carried thereby, an axle mounted in said swinging bracket, a wheel on said axle, a seat bar secured to and projecting from said swinging bracket and a seat carried by said seat bar, substantially as set forth.

8. In a sulky plow, the combination with a beam, of an axle having a pivotal connection therewith, a wheel on said axle, a seat connected with and adapted to move with said pivotal connection, and devices between said pivotal connection of the axle and the team whereby when the team turns at an angle to the longitudinal axis of the plow beam, said wheel and seat will be automatically turned, substantially as and for the purpose set forth.

9. In a sulky plow, the combination with a beam, of a swinging bracket carried thereby, an axle mounted in said swinging bracket, a wheel on said axle, a seat bar secured at one end to said swinging bracket and having a laterally projecting arm at its free end, and a seat secured to said laterally projecting arm, substantially as set forth.

10. In a sulky plow, the combination with a beam, of a swinging bracket carried thereby, an axle mounted in the swinging bracket, a wheel on said axle, a seat bar secured to said swinging bracket, a seat secured to one end of said seat bar and a foot rest at the other end thereof, substantially as set forth.

11. In a sulky plow, the combination with the plow beam, of a bracket having pivotal connection with said beam, and an axle sleeved in said bracket whereby it is capable of being rocked axially, said bracket carrying a toothed segment, and operating in connection therewith for rocking the axle, substantially as set forth.

12. In a sulky plow, the combination with a beam, of an axle having a pivotal relation thereto, a wheel on said axle, a removable seat bar projecting rearwardly from said pivotal connection and a seat at the rear end of said seat bar, substantially as set forth.

13. In a sulky plow, the combination with a plow beam, of a bracket having pivotal connection with the beam, an axle connected with the bracket whereby it may be turned axially relative thereto, a segment on the bracket, a lever operating in connection therewith for turning the axle, and a seat carried by the bracket whereby the relative positions of the lever and seat are sustained, substantially as set forth.

14. In a sulky plow, the combination with a plow beam, of a bracket pivotally connected with the beam, an axle capable of rocking axially in said bracket, said axle having a foot lever on its inner end, a segment secured on the bracket, a lever pivoted thereto and adapted to operate to rock the axle, a seat supported by the bracket whereby all of said parts swing with the bracket when the latter is swung on its pivot, substantially as set forth.

15. In a sulky plow, the combination with a plow beam, of a bracket pivotally connected with the beam, a clevis pivoted to the beam, and an extensible connection extending from the bracket to the clevis and pivotally connected to each of said parts, substantially as set forth.

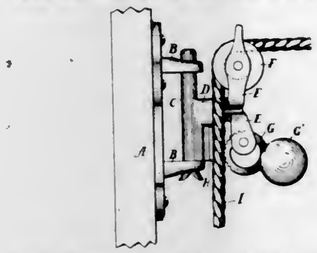
521,970. ACCUMULATOR-PLATE. CHARLES J. BARBIER, Lyons, France. Filed Jan. 12, 1894. Serial No. 496,669. (No model.) Patented in France July 24, 1893, No. 229,934.



Claim.—1. An accumulator plate comprising the flat lead box for containing the active matter, said box having its opposite sides provided with alternately arranged pins overlapping or projecting past each other, the walls of the box having perforations opposite the points of the pins, substantially as described.

2. A box for accumulator plates comprising the plates, having inwardly turned edges secured together, and alternately arranged pointed pins projecting from the inner faces of said walls, said pins extending past each other into proximity to the opposite wall, each wall having perforations arranged opposite the points of the pins carried by the opposite wall, substantially as described.

521,971. CLOTHES-LINE FASTENER. HENRY BETKA, Grand Rapids, Mich. Filed Mar. 19, 1894. Serial No. 504,340. (No model.)



Claim.—In combination, a plate, brackets on said plate, openings in said brackets, a post engaging said openings, the lower end of said post being transversely divided and outwardly bent, and an arm on said post, laterally projecting plates forming a continuous, smooth outer face on said post below said arm, an upwardly turned yoke hanger carrying a pulley and a downwardly turned hanger carrying a cam on said arm, said cam having a corrugated face on one side, and a weight attached at the other side, substantially as described.

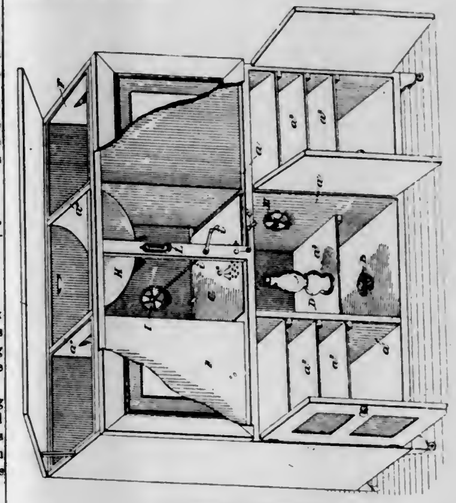
521,972. DOUGH-RAISING APPARATUS. JOHN BOUDRY, Fond du Lac, Wis. Filed Mar. 30, 1894. Serial No. 505,735. (No model.)

Claim.—1. A cabinet for mixing and raising dough, comprising a central heating chamber, a pan depending into said chamber, a locker below said chamber, a heater in said locker a butterfly valve between the locker and the heating chamber, and dampers for the entrance and escape of air, substantially as described.

2. A cabinet for mixing and raising dough consisting of the combination with two removable bins, of a pan depending into the space between said bins, a locker below each bin and below the pan, a heater in said latter locker, a damper in the bottom of said locker, another damper in one side thereof, a butterfly valve forming the top of said locker, and a damper in the back of the cabinet below the pan, substantially as described.

3. In a cabinet for mixing and raising dough, the combination with a pan, of a locker below said pan, a heater in said locker, and a butterfly valve containing a number of small perforations forming the top of said locker, substantially as described.

4. In a cabinet for mixing and raising dough, the combination with the removable bins F, of the curved ribs G in the space between said bins, the pan H supported on said ribs, the deflector K suspended from said ribs, the damper I in the back of the cabinet, the butterfly valve C, the spindles and handles for operating said damper and valve the side lockers, the middle locker below the valve containing the shelf a^3, the heater D supported on said shelf, and the dampers B, E, substantially as described.



521,973. HOT-AIR REGISTER. RUDOLPH R. BUEHLER, Philadelphia, Pa., assignor to Thomas Devlin and Louis J. McGrath, William K. Brown, and Catherine A. McGrath, executors of William V. McGrath, deceased. Filed Mar. 8, 1894. Serial No. 502,816. (No model.)



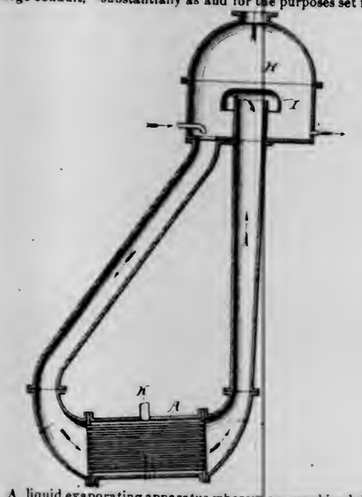
Claim.—1. In combination, a supporting frame, a series of wings or fans having bearing pins *d* adapted to rotate in recesses in the frame and with a projecting arm *h'* carrying an actuating pin *h*; a laterally reciprocating connected rod D in which said actuating pins are mounted and having guide bars *f' f'* and a double curved spring M, secured on its under face by the pin E and the bars *f' f'*; and a guide bracket F provided with guiding recesses *f⁶* adapted to receive the said guide bars *f'* and spring M of the connecting rod, whereby the latter is reciprocated against a yielding spring pressure, and in a horizontal plane parallel to the line of bearing pins; substantially as and for the purpose described.

2. In combination, the supporting frame B, provided with bearing recesses *d'*, the guide bracket F having transverse guide bars *f²* slotted at *f⁶*; a connecting rod D carrying knob *b* and having slots *f*, guide bars *f'*, pins *m*, *m*, and E, and a double curved spring M retained against pressure by said pins and guide bars *f'*; wings or fans provided with bearing pins *d* and a projecting arm *h'* carrying actuating pin *h* adapted to rest in the recess *f* of the connecting rod D, whereby the same may be reciprocated laterally against the yielding pressure of the spring and be guided by the recesses *f⁶* of the guide plate, and the fans actuated by said connecting rod be partially rotated by a spring controlled movement of the rod: substantially as described.

521,974. VACUUM-PAN. CHARLES W. COOPER, New York, N. Y. Filed Apr. 4, 1893. Serial No. 469,044. (No model.)

Claim.—1. A liquid-evaporating apparatus wherein are combined the following elements:—An upper vapor and liquid separating chamber,—a supply conduit leading out and down from the lower part of said separating chamber to a heating chamber,—a heating chamber embodying evaporating tubes or kindred heating surfaces of length not exceeding the length of either conduit with respect to which said chamber has communication, through or in contact with which the liquid is caused to pass and thereby subjected to the heat within the chamber,—and a discharge conduit leading from said heating chamber upward into said separating chamber, and having an outlet therein above the level of the inlet opening of the supply conduit,—substantially as and for the purposes set forth.

2. A liquid evaporating apparatus wherein are combined the following elements:—an upper vapor and liquid separating chamber,—a supply conduit leading out and down from the lower part of said separating chamber to a heating chamber,—a heating chamber embodying evaporating tubes or kindred heating surfaces of length not exceeding the length of either conduit with respect to which said chamber has communication, through or in contact with which the liquid is caused to pass and thereby subjected to the heat within the chamber,—a discharge conduit leading from said heating chamber upward into said separating chamber, and having an outlet therein above the level of the inlet opening of the supply conduit,—and a deflecting device within the separating chamber above the outlet of said discharge conduit,—substantially as and for the purposes set forth.



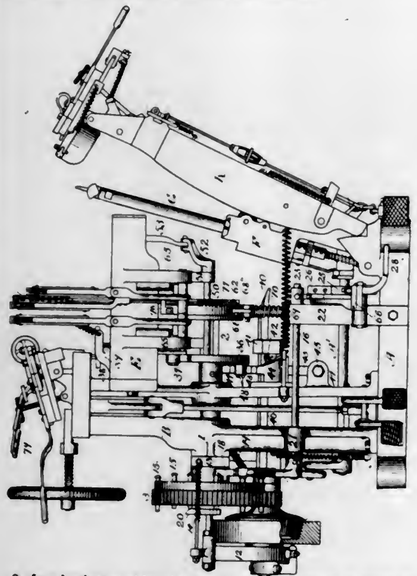
3. A liquid evaporating apparatus wherein are combined the following elements:—an upper vapor and liquid separating chamber,—a supply conduit leading out and down from the lower part of said separating chamber to a heating chamber,—a heating chamber embodying evaporating tubes or kindred heating surfaces of length not exceeding the length of either conduit with respect to which said chamber has communication, through or in contact with which the liquid is caused to pass and thereby subjected to the heat within the chamber,—a discharge conduit leading from said heating chamber upward into said separating chamber, and having an outlet therein above the level of the inlet opening of the supply conduit,—and a semi-circular channel, open as to its under surfaces and connecting the outlet of the discharge conduit with the inlet of the supply conduit,—substantially as and for the purposes set forth.

4. A liquid evaporating apparatus wherein are combined the following elements:—an upper vapor and liquid separating chamber, having a vapor discharge pipe or outlet,—a supply conduit leading downward from the lower part of said separating chamber,—a lower heating chamber of length not exceeding the length of either conduit with respect to which said chamber has communication, adapted to contain steam, and provided at its respective ends with tube heads between which a series of open-ended heating tubes are supported and tightly mounted, and also provided with an inlet chamber and an outlet chamber, a discharge conduit leading upwardly from said heating chamber to the separating chamber and having an outlet therein above the level of the inlet opening of the supply conduit,—and a deflecting device above the outlet of said discharge conduit,—substantially as and for the purposes set forth.

521,975. LASTING-MACHINE. JOSEPH E. CRISP, Somerville, and EDWARD P. GRANDY, Everett, Mass., assignors to the Goodyear Shoe Machinery Company, Portland, Me. Filed Jan. 16, 1893. Serial No. 458,605. (No model.)

Claim.—1. In a lasting machine, the combination with lasting mechanism and a main-shaft with suitable cams for operating said lasting mechanism fixed thereon, of the gear 3 fixed to the main-shaft, the reciprocating pins 15 mounted in the rim of said gear with reference to said operating cams, the incline 18 mounted upon the swinging arms 17, and the incline 20, mounted upon and moving with the clutch shipper lever and suitable supporting and operating mechanism therefor all co-operating to reciprocate the pins 15 with reference to the angular position of the cams fixed upon the main shaft, substantially as and for the purposes described and set forth.

2. In a lasting machine, the combination with lasting mechanism and a main shaft with suitable cams for operating said lasting mechanism fixed thereon, the incline 18, mounted upon the swinging arm 17 and capable of vertical reciprocation thereon, a treadle and suitable connecting mechanism to move said incline and arm to and from operative position, the reciprocating pins mounted in the rim of the driving gear and acting to reciprocate said incline with reference to the operating cams, connecting mechanism, substantially as described between said incline and the driving mechanism to disconnect said driving mechanism from the driven mechanism when said incline is reciprocated substantially as shown and described.



3. In a lasting machine the combination of a centering guide and brace mounted to swing vertically upon its supporting carriage, a supporting carriage horizontally adjustable, and screw adjusting mechanism for said carriage, all mounted upon the toe lasting head substantially as shown and described.

4. In a lasting machine of the class described, the combination of mechanism substantially as described, to draw the opposing pairs or groups of pairs of holding straps alternately and serially, and an adjustable and removable brace, to hold the last in position against the stress of the first drawn strap of the series, substantially as shown and described.

5. In a lasting machine, the combination of standards fixed at each side of the machine, substantially as described, chain guide mechanism at their upper ends located above the surface of the last when fixed in the machine, chains passing through said guides having loops adapted to connect them with the jaws of a pair of lasting pinchers at their free ends, and a treadle and suitable connecting mechanism to operate said loops, substantially as shown and described.

6. In combination with a lasting machine head of the class described, the combination of the transverse adjusting double ended wedge mounted on said head, an operating lever therefor, a catch and spring for said lever, and a segmental rack fixed to said head and engaging with said catch, all substantially as shown and described.

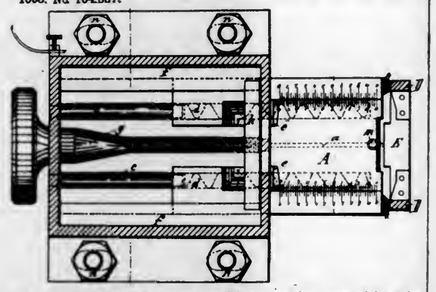
7. In a lasting machine, the combination of the plate 82, mounted to oscillate upon the swinging frame having inclined openings and an operating handle, latches mounted to reciprocate in the swinging frame, springs to press said latches forward, pins fixed in said latches to engage with said plate substantially as described, and catches fixed to the ends of the horizontal ties to engage with said latches and lock the swinging frame in operative position, substantially as shown and described.

8. In a lasting machine of the class described, the combination of the cam 30, fixed to the driving gear, a double ended lever mounted to swing on the pinion shaft and operated by said cam, a bell crank lever fixed to the releasing shaft and operated by the double ended lever, and said releasing shaft, substantially as shown and described.

9. In a lasting machine of the class described, the jacking bar 40, mounted to reciprocate in the post of the machine in line with the jack post, an adjustable collar provided with a cam roll fixed on said bar, a bell crank lever having an inclined segment to engage with said roll pivoted to the post of the machine, an adjustable spring fixed to the frame of the machine and to said lever to operate the jacking bar, a cam shaft mounted to revolve on said post, and a cam roll operated by said shaft to act on said bell crank and react the jacking bar all substantially as described and for the purpose set forth.

10. In a lasting machine, a heel supporting band jointed to the pivots, 91, mounted in the sockets, 92, of the supporting and operating bell crank levers.

521,976. THICKNESS-GAGE FOR PAPER-MAKING MACHINES. OTTO W. THEODOR AM ENDE, Bad Harzburg, Germany. Filed Nov. 10, 1893. Serial No. 490,591. (No model.) Patented in Belgium May 24, 1893. No. 104,801.



Claim.—1. A gage for paper making machine comprising the frame, the graduated slide A movable therein, the springs for forcing the slide forward, the adjusting screw for retracting the slide against the spring pressure, the arms D pivoted to the frame and depending from their pivotal points and having the cross bar E at their lower ends opposite the front end of the slide, the roller carried by the said arms to bear on the pulp cylinder to move the depending arms pivotally, the electric contact carried by the graduated slide and the springs *k* interposed between the lower end of the pivoted frame and the graduated slide, substantially as described.

2. A gage for paper making machines comprising the adjustable graduated slide carrying a contact point, the means for adjusting the slide, the frame in which the slide is movable, the arms D pivoted in said frame and depending from their pivotal points, the cross bar E at the lower ends of said arms opposite the end of the graduated slide and the contact carried thereby and the roller carried by the depending arms to bear on the pulp cylinder to move the pivoted depending arms toward the graduated slide, substantially as described.

521,977. BURNISHING-MACHINE. THOMAS GARE, Stockport, England. Filed Aug. 8, 1893. Serial No. 482,682. (No model.) Patented in England Nov. 21, 1890, No. 18,947; in France Oct. 12, 1891, No. 217,375, and in Germany Nov. 8, 1891, No. 63,264.

Claim.—1. In combination, the tool *a* pivotally supported to the holder *k* and the flange projecting below the lower edge of the burnishing tool *a* to bear on the lower face of the heel and the spring for pressing the flange against the heel face, substantially as described.

2. In combination, the tool holder *k*, the tool *a* pivotally supported at the lower end thereof, the flange arranged at one side of the tool and under spring tension to top iron or set the edge of the lower face of the heel and the seat wheel *q* supported on the opposite side of the tool holder from the flange and the means for raising or lowering the said seat wheel, substantially as described.

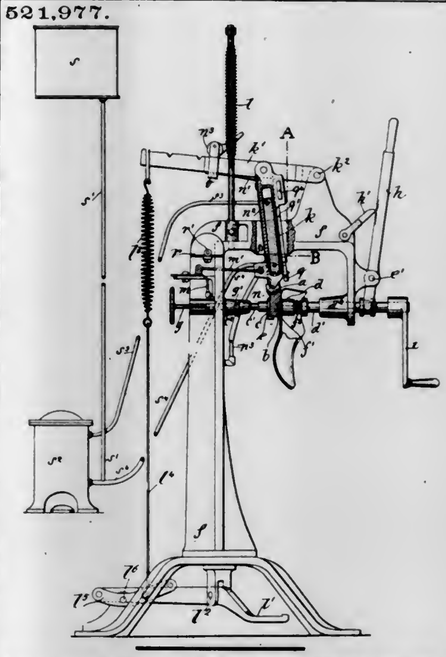
3. In combination, the tool holder *k* the tool carried thereby, the seat wheel *q*, the rod or bar *q'* carrying the same and guided in the tool holder *k* and the slotted plate q^4 arranged to move transversely of the tool holder and engaging a pin projection from the bar *q'* of the seat wheel, substantially as described.

4. In combination, the tool holder pivoted at its upper end and having the tool pivoted thereto and depending therefrom at its lower end, the shoe holder and the rod *m'* and lever *m* in connection with the tool holder for swinging the same on its pivot, substantially as described.

5. In combination, the tool holder, the tool carried thereby, the lever *k'* pivoted to the frame and connected to the tool holder, the spring *l* connected to the lever and tending to lift the same, the means for operating the lever and the connection therefrom to the lever including the spring l^3, substantially as described.

6. In combination, the lever *k'* pivoted to the frame, the tool holder pivoted to the lever and depending therefrom the tool at the lower end of the lever and means for swinging the tool holder on its pivot and the means for raising and lowering the lever *k'*, substantially as described.

521,977.



521,978. STITCH SEPARATING AND INDENTING MACHINE. JOHN B. HADAWAY, Brockton, Mass. Filed Mar. 28, 1894. Serial No. 505,409. (No model.)

Claim.—1. A machine for separating or "pricking up" the stitches in a welted shoe sole comprising the following elements, viz, a work support, a rocking lever or frame mounted upon a movable fulcrum pin, a tool stock pivoted to said rocking lever; a separating tool carried by said tool stock, a tension device constructed and arranged to hold said tool stock in its normal position relative to said rocking lever until moved from said position by the application of power to overcome said tension, a cam and lever for positively moving said rocking lever about its fulcrum in one direction to raise said tool and its stock, a spring to move said parts in the opposite direction, stops to limit the vibrations of the tool stock, a cam and lever for imparting to said rocking lever a positive reciprocation in a direction at right angles to the axis of its fulcrum pin; and a cam and lever for applying force to said rocking lever to force said separating tool into the work.

2. In a machine for separating the stitches of boot or shoe soles, the combination of a work support; an automatically adjustable separator for locating the intervals between the stitches whether of uniform or varying lengths: and means having provision for forcing said tool between the stitches when the point of said tool has located itself in the space between two stitches.

3. In a machine for separating the stitches in the soles of boots or shoes, the combination of a work support to receive the tread surface of the sole; an upper work support or table arranged to bear upon the upper surface of the welt; a separating tool means having provision for pressing said tool lightly upon the line of stitching, and moving it longitudinally thereof, in two steps, whereby said tool is made to automatically locate the intervals or spaces between the stitches whether of uniform or varying lengths; and mechanism having provision for forcing said tool between said stitches to separate them.

4. In a machine for separating the stitches of boot and shoe soles, the combination of a work support to receive the tread surface of the sole; an upper support or table to rest upon the upper surface of the welt; a gage to determine the position of the shoe; a rocking lever mounted on a movable fulcrum, a tool stock pivoted to said lever by its middle; a separating tool adjustably mounted in the lower end of said stock; a tension device for normally holding the upper end of said stock in a given position relative to said rocking lever; adjustable stops for limiting the vibration of said tool about its fulcrum; mechanism having provision for moving said rocking lever about its fulcrum in one direction with a positive and uniform motion; a spring for moving it in the opposite direction and pressing the separating tool lightly upon the stitch; a cam and lever for reciprocating said rocking lever in a direction at right angles to the axis of its fulcrum-pin; and mechanism having provision for applying pressure, in addition to the spring, to said rocking lever to force the separating tool into the work between the stitches.

5. In a machine for separating the stitches of boot and shoe soles, the combination of a revoluble work support to receive the tread surface of the sole; an upper work support or table arranged to bear upon the upper surface of the welt and slotted at its front end for the passage of the separating tool; a gage to guide the work; mechanism having provision for clamping the sole edge between said revoluble work support and the table; a rocking lever or frame mounted upon a movable fulcrum; a tool stock pivoted to said rocking lever; a separating and indenting tool carried by said tool stock; a tension device for holding said tool stock in its normal position relative to said rocking lever; a spring for moving said rocking lever in one direction about its fulcrum; a cam and lever for reciprocating said rocking lever at right angles to its axis of oscillation; a cam and lever for applying pressure in addition to the tension of said spring to force the tool into the material between the stitches; and mechanism having provision for moving said rocking lever about its axis in the opposite direction, against the tension of said spring.

6. In a machine for separating the stitches of boot and shoe soles, the combination of a yielding work support to receive the tread surface of the sole; a ratchet plate connected to said yielding support; an upper work support or table arranged to bear upon the surface of the welt; a lever; a cam constructed and arranged to intermittently vibrate said lever; a pawl pivoted upon said lever and arranged to engage the teeth of said ratchet plate when the pawl end of said lever is moved upward; and a fixed pin to be engaged by said pawl, when it is moved downward, and throw it out of engagement with said ratchet, whereby said yielding work support is alternately locked in a fixed position as to vertical movement, and rendered yielding.

7. In a machine for separating the stitches of a boot or shoe sole, the combination of the vertically movable bar I; the work support L carried thereby; the rod J pendent from said bar; the connection K leading from said rod to a treadle; the sleeve J′ surrounding said rod and adjustable vertically in a fixed bearing; the spring d; the collars a, e, and c', the rubber cushion b; the ratchet plate h; the pawl k' the pivoted lever M; the cam F; and the fixed pin i all constructed arranged and operating substantially as set forth.

8. The combination of the shaft B; the cams E F G and H; the horizontally reciprocating plate O provided with the ears O′ and O^2 and the transverse groove k; the lever P provided with the arms k' and k^2 and the lug l and pivoted to the ear O′; the spring n' connected at one end to the arm k^3 of said lever P and at its other end to some fixed part of the machine; the tool stock Q and the roll S^3 carried by the arm k^3; the tool j adjustably set in said tool stock; the tension rod o pivoted to said tool stock and having a bearing in the lug l; the nuts o' o^3 and o^2 fitted to and adjustable on said rod; the spring o^3; the lever S engaging the roll S^2 to depress the arm k^2 of the lever P and provided with the adjustable screw stop t; the lever R provided with the adjustable stud r' carrying a rectangular block fitted to the groove k; and the lever P constructed and arranged to act upon the upper side of the arm k' of the lever P, all constructed and arranged to operate substantially as described.

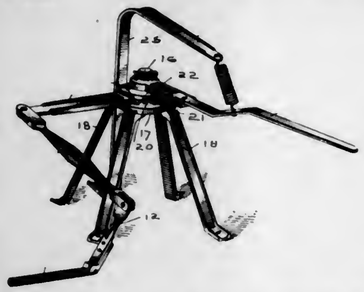
9. In a machine for separating the stitches of boot or shoe soles the combination of a vertically movable work support to receive the tread surface of the shoe sole; mechanism having provision for intermittently locking said work support in its raised position; a vertically oscillating and horizontally reciprocating lever or frame; a separating tool carried by said lever; a spring connected to said lever and adapted to press said tool upon the stitch; mechanism having provision for moving said tool along said stitch under the tension of said spring until the point of said tool drops into the space between two stitches; means having provision for pressing said tool into said space and indenting the welt by a positive pressure in addition to the tension of said spring; mechanism for moving said tool another step in the same direction to feed the work; mechanism having provision for raising said tool from the work and moving it horizontally to the starting point.

10. In a machine for separating the stitches of boot and shoe soles, the combination of a work support; a gage to determine the position of the sole upon said support an automatically adjustable separator for locating the intervals between the stitches; and mechanism having provision for forcing said separator between the stitches when the point of said separator has been located between the stitches.

11. In a machine for separating the stitches of boot and shoe soles, the combination of a work support to receive the tread surface of the sole; an upper work support or table arranged to bear upon the upper surface of the welt; a gage to determine the position of the work on said supports; an automatically operated separating tool adapted to locate the intervals or spaces between the stitches whether of uniform or varying lengths; and mechanism having provision for forcing said tool between said stitches to separate them and indent the welt.

12. In a machine for separating the stitches of boot and shoe soles the combination of a work support to receive the tread surface of the sole; a gage to determine the position of said sole on the support; a vertically and horizontally movable separating tool adapted to automatically locate the spaces between the stitches whether said stitches are of uniform or varying lengths; a spring for moving said tool into contact with the stitches; mechanism for moving said tool horizontally in one direction in two steps with a stand still between them mechanism having provision for moving said tool another step downward by a positive pressure to force said tool into the work between two stitches; and mechanisms for raising said tool and moving it horizontally to its position before being depressed by the spring.

521,979. MINE TRAP-DOOR. GEORGE J. HERTH and GEORGE BOMENBERGER, Evansville, Ind. Filed Apr. 2, 1894. Serial No. 505,995. (No model.)



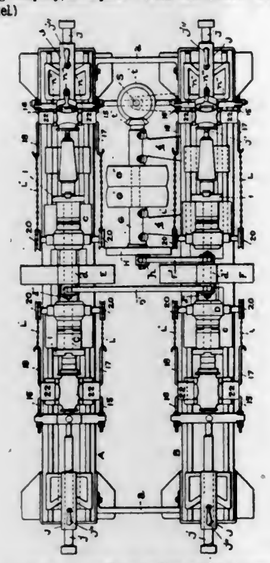
Claim.—1. In a trip for mine trap doors a trip arm loosely mounted on a pin or pintle on each side of the door, the end of each of such arms in the path of passing cars, and a lever also loosely mounted on each of said pintles and connected with mechanism for opening and shutting the door, such lever adapted to be engaged by said trip arm substantially as set forth.

2. In a trip for mine trap doors a trip arm loosely mounted on a pin or pintle on each side of the door the end of each of said arms in the path of passing cars, a lever also mounted on each of said pintles and connected with mechanism for opening and shutting the door, and a lug on each of the trip arms working in a recess in its lever whereby at certain times the two move together substantially as set forth.

3. In a trip for mine trap doors, a trip arm loosely mounted on a pin or pintle on each side of the door, means connected with each of such arms for holding them at right angles to the track and their ends in the path of passing cars, and a lever also loosely mounted on each of said pintles and connected with mechanism for opening and shutting the door, each of such levers adapted to be engaged by its trip arm, substantially as set forth.

4. In a trip for mine trap doors, a trip arm loosely mounted on a pin or pintle on each side of the door, springs connected with each of such arms and holding their ends in the path of passing cars, a lever also loosely mounted on each of said pins and connected with mechanism for opening and shutting the door, and a lug formed on each of said trip arms and a recess or slot in each of said levers whereby the levers are adapted to be operated by said trip arms and the door opened and shut, substantially as set forth.

521,980. MACHINE FOR GRINDING COCKS AUTOMATICALLY. CHARLES M. JARVIS, Erie, Pa., assignor of one-half to the Hays Manufacturing Company, same place. Filed Jan. 4, 1894. Serial No. 495,688. (No model.)



Claim.—1. In a machine for grinding cocks automatically, mechanism substantially as described for rotating the plug a complete revolution and fractional part thereof in one direction and an equal rotary motion in the reverse direction, in combination with a lever disposed in axial alignment with said plug-rotating mechanism and provided with means for attachment to one side of a cock-shell or body, a yielding tension device adapted to be connected to the opposite side of the cock-shell or body and serving to normally move the lever toward the plug-rotating devices, and automatic devices to move the lever and the tension device away from the plug-rotating devices at certain intervals, substantially as and for the purposes described.

2. In a machine for grinding cocks automatically, the combination with a spindle carrying a chuck, a tail stock, and mechanism for imparting alternately-reversed rotary motions to said spindle and chuck, of the coacting lever and tension device arranged between the tail stock and said chuck, to move in axial alignment therewith, and each provided with fastenings adapted to connect with the respective sides of the cock-shell or body, and automatic devices for imparting reciprocating motion to said lever and tension device, whereby the cock-shell can be momentarily withdrawn from the plug and returned, by the tension-device, to have proper engagement, under pressure, with said plug, as described.

3. In a machine for grinding cocks automatically, the combination with a spindle carrying a chuck and mechanism for rotating the same, substantially as described, of a lever having means for attachment to a shell or body, the tension devices also having means for attachment with the shell or body, and mechanism for automatically moving the lever and tension devices a limited distance away from the chuck at certain periods, substantially as and for the purposes described.

4. In a machine for grinding cocks automatically, the combination with means for giving to the plug alternately-reversed rotary motions of equal period, of a shell-sustaining device embodying a movable lever to be connected to one side of a shell and a tension device to be connected to the opposite side of the shell, and which parts coact with the shell to hold the same under tension upon the plug and enable the shell to be withdrawn wholly from the plug, and mechanism for imparting to the shell-sustaining devices a limited reciprocating motion to partially withdraw the shell from the plug at certain regular periods, substantially as and for the purposes described.

5. In a machine for grinding cocks automatically, the combination of the spindles each provided with the chucks, the tail-stocks disposed oppositely to the chucks, a driving mechanism common to said spindles and geared to impart alternately-reversed rotations thereto for equal periods, the shell-sustaining lever and tension device provided with means for engaging with the respective sides of a cock-shell and disposed between each of the chucks and its corresponding tail stock, in axial alignment therewith, and mechanism operated by the driving mechanism and connected with the shell-sustaining levers to impart reciprocating motion thereto in line with the spindles and tail stocks, substantially as and for the purposes described.

6. In a machine for grinding cocks automatically, the combination of the chuck-carrying spindle, the tail stocks in line with said spindles, a driving mechanism geared to said spindle to impart alternate-reversed rotary motions thereto, the coacting lever and tension device between each chuck and its tail-stock and provided with means for engaging opposite sides of the cock-shell, a vertical shaft geared to said driving mechanism, a cam-shaft geared to the vertical shaft, and connections between the levers and said cam-shaft to impart reciprocating motion to each lever at certain periods during the rotation of the corresponding chuck, substantially as and for the purposes described.

7. In a machine for grinding cocks automatically, the combination of the chuck-carrying spindle, a tail-stock, a driving mechanism for imparting alternately-reversed rotary motions to the spindle, the coacting lever and tension device having means for engagement with the cock-shell, and the transmitting automatic mechanism geared to the driving mechanism and provided with adjustable connections for said vibrating lever to vary the throw or movement thereof, substantially as and for the purposes described.

8. In a machine for grinding cocks automatically, the combination with the chuck-carrying spindles, the tail-stocks therefor, and the driving mechanism geared to said spindles, of the coacting lever and tension device between each chuck and its tail-stock and having means for engaging with opposite sides of the cock-shell, the vertical shaft geared to the driving mechanism, the transverse cam-shaft geared to said vertical-shaft, and the reciprocating rods actuated by said cam shaft and having means engaging with the levers to vibrate the same, for the purposes described, substantially as set forth.

9. In a machine for grinding cocks automatically, the combination with the parallel chuck-carrying spindles of a driving shaft between said spindles, the oscillating segments each pivoted at one end and having its arc-shaped surface geared to one of the spindles, connections between the driving shaft and the segments to impart oscillating motion simultaneously thereto, a tail stock opposite to each chuck, a coacting lever and tension device constituting a shell-sustaining device between each chuck and its tail stock, and means for automatically reciprocating each lever and its tension device, substantially as and for the purposes described.

10. The combination with a recessed spindle, and a tail stock in line therewith, of a slidable non-rotatable chuck fitted loosely on said recessed end of the spindle, a spring seated in said recessed spindle and normally pressing against the slidable chuck, and means for making the clutch fast to the spindle by the adjustment of the work between the tail stock and the slidable chuck, substantially as and for the purposes described.

11. The combination with a spindle, and a tail stock in aligoment therewith, of a non-rotatable chuck loosely fitted on said spindle and slidably connected thereto, a spring normally acting on the chuck to force the same to the limit of adjustment permitted by the slidable connection between the chuck and spindle, and a clutch having one member fast to the spindle and the other member fast to the slidable chuck and said members being spaced to engage with each other by the endwise movement of the chuck as the work is adjusted between the chuck and tail stock, substantially as and for the purposes described.

12. The combination of a spindle, a slidable chuck fitted loosely thereon and connected by a slide joint therewith to permit the chuck to have a limited movement on the spindle and to enable the latter to rotate without rotating the chuck, a clutch having its members fast with the spindle and the chuck, respectively, and a spring interposed between the spindle and the chuck, for the purposes described, substantially as set forth.

13. The combination of a spindle provided with a hollow spring-seat in its end, a slidable chuck fitted loosely upon said end of the spindle and connected by a slide joint therewith, a spring seat in the hollow end of the spindle and against the chuck, and the clutch having one member fast with the loose chuck and the other member fast with the spindle, substantially as and for the purposes described.

14. The combination with a spindle, a chuck, and a tail stock, of the slotted lever arranged in line with the spindle and adapted to be fitted on the tail stock, devices for connecting said lever with a shell or body of the cock, the weighted chains guided by suitable rollers and having means to engage with the shell or body of the cock, and the fixed rests disposed to engage with the shell or body and prevent it from rotating on the same as the shell is fitted upon the plug, substantially as and for the purposes described.

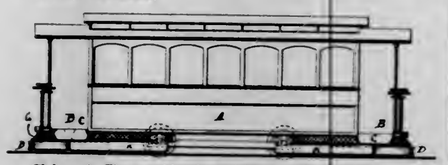
15. In a machine for grinding cocks automatically, the combi-

nation with the spindles, the chucks, and the tail stocks, of the levers and weighted chains arranged to sustain the shells or bodies of the cocks in operative positions relative to the plugs between said chucks and tail stocks, the transverse shaft having the cams for imparting limited movement to the series of levers during certain periods of the grinding operations, a power shaft, and countershaft geared to the power shaft and to the transverse shaft, substantially as and for the purposes described.

16. In a machine for grinding cocks automatically, the combination with mechanism for rotating the plugs, of the shell-sustaining devices having the levers, the power shaft, a transverse cam shaft driven through intermediate gearing from said power shaft, reciprocating rods operated by cams on the transverse shaft, and adjustable connections between said rods and said levers to vary and regulate the throw of the levers and the movement of the shell-sustaining devices, substantially as and for the purposes described.

17. In a machine for grinding cocks automatically, the combination with mechanism for imparting alternately reversed rotary motions to a series of plugs, of the shell sustaining devices having the levers, a transverse shaft provided with cams or eccentrics, the reciprocating rods having means for rocking the levers of the shell-sustaining devices and arranged to be operated by the cams or eccentrics of the transverse shaft, a power shaft, and a countershaft geared to the power and transverse shafts to actuate the rods and levers at certain periods during the rotations of the plug mechanism, substantially as and for the purposes described.

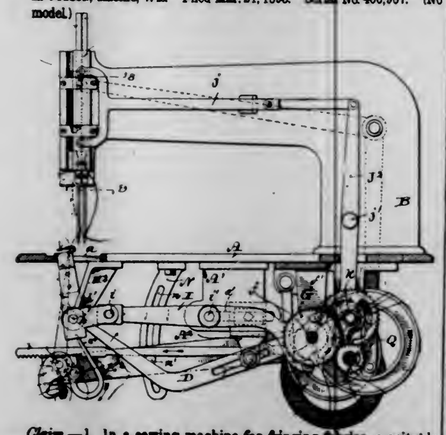
521,981. SAFETY APPLIANCE FOR STREET-RAILWAY CARS. FRANK W. JENKINS, Brooklyn, N. Y. Filed Aug. 4, 1893. Serial No. 482,334. (No model.)



Claim.—1. The combination with a car having the platform rounded, of a wheel mounted loosely and in horizontal position below the platform, the wheel having a diameter equal to the gage of a track on which the car runs, the front parts of the wheel circumference projecting slightly beyond the rounded edge of the car platform and an inclined guard extending from the car platform to the wheel, substantially as set forth.

2. The combination with a car platform having its end rounded and a wheel mounted loosely and in horizontal position below the platform, the diameter of which wheel is equal to the gage of the tracks on which the car runs, and guard plates extending from diametrically opposite points of said loose wheel to the car wheels, substantially as set forth.

521,982. SEWING-MACHINE FOR FRINGING FABRICS. GEORGE A. JUDSON, Racine, Wis. Filed Mar. 21, 1893. Serial No. 466,987. (No model.)



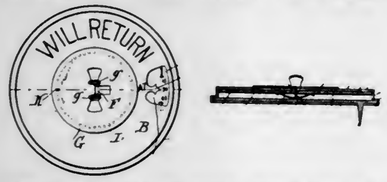
Claim.—1. In a sewing machine for fringing fabrics, a suitable work clamp for engagement with the edge of the fabric and secured to the end of a vibrating arm pivotally supported beneath the machine table, a suitable crank arm secured to said vibrating arm, and a pivoted lever operatively engaged with said crank arm and with the driving mechanism, for producing a reciprocating movement of said arm and the work clamp to carry the edge of the fabric alternately into and out of the path of the needle, in combination with another vibrating arm carrying a hook at its free end for engagement with the loop in the thread or yarn, substantially as set forth.

2. In a sewing machine for fringing fabrics, a suitable work clamp for engagement with the edge of the fabric and secured to the end of a vibrating arm pivotally supported beneath the machine table, a crank arm secured to said vibrating arm, a pivoted lever operatively engaged at one end with said crank arm, and a cam operated by the driving mechanism and operatively engaged with the other end of said pivoted lever, and adapted to vibrate the same to give a reciprocating movement to the arm and the work clamp to carry the edge of the fabric alternately into and out of the path of the needle, in combination with an adjustable vibrating arm carrying a hook at its free end for engagement with the loop in the thread or yarn, substantially as set forth.

3. In a sewing machine for fringing fabrics, a suitable work clamp for engagement with the edge of the fabric and secured to the end of a vibrating arm pivotally supported beneath the machine table, a crank arm secured to said vibrating arm, a pivoted lever operatively engaged at one end with said crank arm, and bifurcated at its other end, and a revoluble cam actuated by the driving mechanism and operatively engaged between the furcations of said lever, said cam being provided with two concentric faces having different radii, and intermediate rises, for producing quick alternate movements of said lever to reciprocate the work clamp so as to carry the edge of the fabric alternately into and out of the path of the needle, with periods of rest between said movements, substantially as set forth.

4. In a sewing machine for fringing fabrics, a suitable work clamp for engagement with the edge of the fabric and suitable means for actuating said work clamp to carry said fabric alternately into and out of the path of the needle so as to be alternately pierced and missed thereby, in combination with a vibrating arm carrying a hook at its free end for engagement with the loop in the thread or yarn, and for drawing said loop downward beneath the fabric in the formation of the fringe.

521,983. OFFICE-DOOR INDICATOR. WILLARD D. LAWRENCE and FRANCIS A. HOPKINS, Chicago, Ill.; said Hopkins assignor to said Lawrence. Filed Mar. 7, 1894. Serial No. 502,723. (No model.)



Claim.—1. A device for the purpose described having in combination a movable dial provided with characters, a plate arranged over said dial and having an opening adapted to expose at one time a number of the characters on said dial and the edge of said opening being provided with an inwardly projecting index pointing to said characters, substantially as set forth.

2. A device for the purpose described having in combination a movable dial provided with characters indicating whole and fractional hours, and a plate arranged over said dial and being provided with an opening of sufficient extent to expose to view at least one whole hour and the fractional hours between such whole hour and the next whole hour, and said opening being provided with an index pointing to said characters, substantially as set forth.

3. A device for the purpose described having in combination a movable dial having characters indicated thereon, a plate covering said dial and having an opening for exposing some of said characters and said opening being provided with an index, a knob for turning said dial and means for checking the rotation of said knob, substantially as set forth.

4. A device for the purpose described having in combination a rotary dial provided with characters, a plate covering said dial and having an opening for exposing some of said characters and the edge of said opening being provided with an index, a plate having a knob for turning said dial, one of said plates being provided with a series of sockets or perforations corresponding to the characters on said dial and the other with a pin or lug for engaging in said perforations or sockets, substantially as set forth.

5. A device for the purpose described having in combination a movable dial provided with characters, a plate covering said dial and having an opening in the line of movement of said characters, a knob

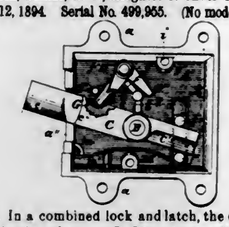
for moving said dial, the said plate and knob being provided the one with a series of perforations or sockets and the other with a pin or lug adapted to engage in said sockets, and a spring for causing said pin or lug to engage, substantially as set forth.

6. A device for the purpose described having in combination a movable dial provided with characters, a plate arranged over said dial and having an opening arranged in the line of said characters, a knob having a stem depending through said first plate and dial, a spring on said stem adapted to draw it in one direction and bearing against said dial, the said plate and knob being provided the one with a lug and the other with a series of perforations or sockets in which said lug engages, substantially as set forth.

7. A device for the purpose described having in combination a face plate provided with an opening, a knob having a stem passing through said face plate, a spring secured on said stem, a dial arranged on said stem between said face plate and spring and having characters arranged to pass said opening, the said face plate and knob being provided the one with a series of perforations or sockets and the other with a pin or lug adapted to engage in said sockets, substantially as set forth.

8. A device for the purpose described having in combination a rotary dial provided with characters, a face plate over said dial having an opening to expose said characters, a plate G having the upset tabs or portions *g* forming a knob and the down turned tongue E forming a stem passing through said dial, substantially as set forth.

521,984. COMBINED LOCK AND LATCH. EUGENE M. MIX and JAMES E. MIX, Buffalo, N. Y., assignors to Oliver F. Swift, same place. Filed Feb. 12, 1894. Serial No. 499,955. (No model.)



Claim.—1. In a combined lock and latch, the combination, with a suitable case having the rugs D D' projecting from its face, of a U-shaped handle pivoted to said lugs; a pinion on the said handle, a slide having on its face a rack engaging said pinion, and on its back a stud, a pivoted bolt having a slotted aperture on its short arm engaging the stud on the slide, and a suitable keeper, as and for the object stated.

2. In a combined lock and latch, the combination, with the casing havings the lugs projecting from its face plate, of a U-shaped handle having the pinion on one of its heads; a slide upon said face-plate having a rack engaging said pinion and studs projecting from its back; and a pivoted bolt the short arm of which engages the said studs on the slide, as and for the purpose stated.

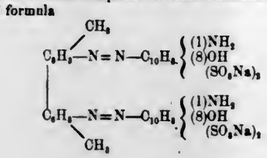
3. In a combined lock and latch, the combination, with the casing having the lugs projecting from its face-plate, of a U-shaped handle having a pinion on one of its heads; a slide upon the face-plate and having a rack engaging said pinion and studs projecting from its back through a slot-hole in the face-plate, a pivoted bolt the short arm of which passes between the studs on the slide, and the long arm of which projects from the casing and engages a keeper, and locking mechanism for the bolt consisting of a bell-crank, the spiral spring, the limiting stops and the double incline, as and for the purpose stated.

4. In a combined lock and latch, the combination, with a suitable casing, of a pivoted bolt actuated by a handle, as described, of locking mechanism for the said bolt consisting of the pivoted bell-crank the spiral spring upon the pivot of the bell-crank, the stops limiting the movement of the bell-crank, and the double incline, as and for the use and purpose specified

---

521,985. BLUE DYE. MAX MOELLER, Berlin, Germany, assignor to the Actien-Gesellschaft für Anilin Fabrikation, same place. Filed Jan. 16, 1894. Serial No. 497,095. (Specimens.) Patented in France Apr. 12, 1893, No. 229,339.

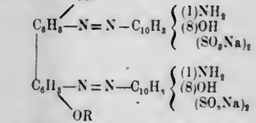
Claim.—The blue dyestuff derived from 1.8 amidonaphtholdisulfoacid and the tetrazo compound of ortho-tolidin and having the constitutional formula



said dye being easily soluble in water, nearly insoluble in alcohol, dissolving with indigo blue color in strong sulfuric acid, which solution turns at first violet-blue on diluting with water and from which then the free color-acid separates in the form of a dark-blue precipitate—substantially as set forth.

521,986. BLUE DYE. MAX MOELLER, Berlin, Germany, assignor to the Actien-Gesellschaft für Anilin Fabrikation, same place. Filed Jan. 16, 1894. Serial No. 497,096. (Specimens.) Patented in France Apr. 12, 1893, No. 229,339.

Claim.—The blue dyestuff derived from 1.8 amidonaphtoldisulfoacid and the tetrazo compound of diamidodiphenolether and having the constitutional formula



(in which formula R signifies methyl or ethyl) said dye being easily soluble in water, nearly insoluble in alcohol, dissolving with indigo-blue color in strong sulfuric acid, which solution turns at first violet-blue on diluting with water and from which then the free color-acid separates in the form of a dark-blue precipitate—substantially as set forth.

521,987. BALL-BEARING. JAMES H. MYERS, Grand Rapids, Mich. Filed Sept. 27, 1893. Serial No. 486,637. (No model.)



Claim.—1. In a ball bearing, for vehicles, an axle A' having grooves around its working bearing and balls to travel therein; in combination with a sleeve divided longitudinally, and having grooves formed around its inner surface, and a supporting box, said sleeve screwed into said box and secured to revolve with the wheel, substantially as, and for the purpose set forth.

2. In a ball bearing, an axle having grooves around its working bearing, and balls to travel in said grooves; in combination with a sleeve divided longitudinally, and having corresponding grooves around its inner surface, each of said grooves being nearly semi-circular in transverse section, a supporting box secured in the hub, and the sleeve screwed into said box, and a jam nut for adjustably securing said sleeve, substantially as, and for the purpose set forth.

3. In a ball bearing, an axle having grooves around its working bearing and balls for traveling in said grooves; in combinationn with a sleeve divided longitudinally into halves, and having grooves around the inner surface of said sleeve corresponding with the grooves in the axle, each of said grooves nearly semicircular in transverse section, an oil chamber between the axle and the sleeve, a closed jam nut at the outer end there being a groove and shoulder at the inner end of the sleeve to form a dust-tight joint, and a supporting box substantially as, and for the purpose set forth

---

521,988. TRACTION-ENGINE. CHARLES QUAST, Marion, Ohio Filed Dec. 5, 1893. Serial No. 492,844. (No model.)

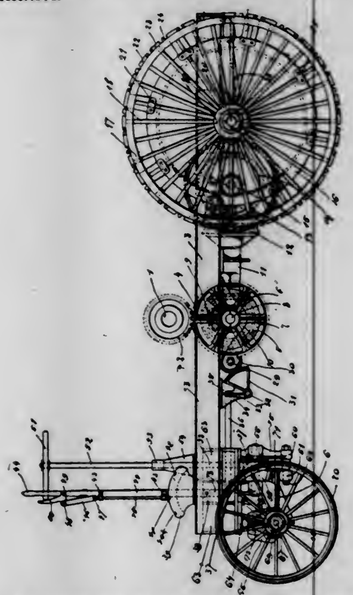
Claim.—1. In a traction engine the motor shaft, the transmitting shaft 8, the shaft 108, the gear 6 fixed thereon, the two gears loose on the shaft 8 and in constant engagement with the gear 6, the clutch shells on the shaft 8, the clutch rings adapted to engage the clutch shells and connected with the loose gears to impel the same, the toggle levers for throwing the clutch rings into engagement with the shells, the means for operating the toggles and the transmitting mechanism between shaft 108 and the axle, substantially as described

2. In combination, in a traction engine the motor shaft the shaft 108, the connections therefrom to the axles, the gear 6 on the shaft 108, the shaft 8 extending transversely of the engine the loose gears thereon in engagement with the gears 6, the clutches outside of the loose gears, the grooved collars intermediate of the loose gears and arranged on the shaft 8, the connections for operating the grooved collars and the connections between the collars and the clutch beyond the loose gears, substantially as described.

3. In combination, the traction wheels, the motor shaft, the transmitting shaft 108, between the same and the traction wheels, the clutch shaft 8, the gearing and clutches thereon, the levers 84 and 91 for operating the said clutches, the grooved cam for operating the levers and means for operating the cam shaft, the arrangement being such

that only one clutch can be brought into action at a time but never both, or both are out of action, substantially as described.

4. In combination in a traction engine, the motor shaft, the transmitting shaft 108, the traction wheels, the clutch shaft 8, the clutch shell rigid thereon, the ring 5, having inclined cheeks, the wedge for spreading said cheeks apart and setting the clutch, the toggle levers connected to the ring at one side and arranged to operate the wedge at the other side, the gear engaging the clutch ring to be turned thereby and the means for operating the toggle arms, substantially as described.



5. In combination, the motor shaft, the traction wheels, the transmitting shaft, the shells on the clutch shaft, the clutch rings thereon, the gears on the clutch shaft between the rings, the toggle levers for operating the rings against the shells, the grooved collars on the clutch shaft between the gears and the levers for operating said collars, the arrangement being such that only one clutch is in action at a time but never both, or both are out of action, substantially as described.

6. In combination in a traction engine, the traction wheels, the shaft 108, the speeding gear, the gears 12 and 13 on the shaft 108 having clutch teeth, the sliding clutch sleeve outside the shaft for engaging the teeth, the bolt moving in a recess in the extreme end of shaft 108 projecting therefrom and connected with the clutch sleeve through a slot in the shaft and means for operating said bolt lengthwise, the arrangement being such that only one gear is in action at one time but never both, or both are out of action, substantially as described.

7. In combination in a traction engine, the traction wheels, the two shafts 27—184 for operating the wheels independently, said shafts being brought together end to end centrally of the machine the gears 125—127 both rigidly fixed on adjacent ends of said shafts, the gear 128 loose on one shaft, the means for operating said gear and the pinions 122 carried by the gear 128 and engaging the gears 125—127 constituting a compensating gearing, substantially as described.

8. In combination, in a traction engine, the traction wheels, the independent shafts for driving them, the compensating gearing for operating the said shafts whereby one wheel may turn faster than the other in turning curves, and the change speed driving means for operating the gearing, including the double gear 128 carrying the pinions 122 and thus constituting a part of the compensating gearing, substantially as described.

9. In a traction engine, the combination of the frame work, the gearing and the traction wheels comprising the two rings and the cross bars connecting them and the cross prongs between the cross bars, both the said cross bars and the cross prongs being external of the wheels periphery, substantially as described.

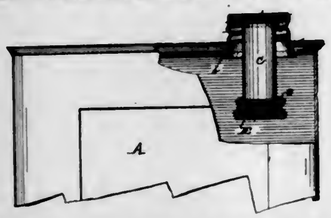
10. In combination in a traction engine, the frame work the gearing and traction wheels, the front truck, the ball bearing, the socket 69 therefor, the segment carried by the truck, the pinion journaled in bearings in the frame and having one end formed as a worm wheel and the gear and hand shaft for turning said worm wheel and pinion, substantially as described.

11. In combination the motor shaft, the shaft 8 extending transversely of the engine, the loose gears thereon, the clutches for fixing either gear to the shaft, the shaft 108 extending lengthwise of the engine and centrally of the same and of the transverse shaft 8, the gear 6 thereon engaging the loose gears of the shaft 8, the two shafts 27 and 184 extending transversely at the rear end of the shaft 108 and having their ends brought together at the center of the engine the gears fixed on said adjacent ends, the pinions meshing with said gears, the double gear 128 loose on the shaft 27 and carrying the said pinions 122, the loose gears 12, 13 at the rear end of the shaft 108, the clutch fixing either of said gears to the said shaft to drive the gear 128 and the means for operating the clutches, substantially as described.

12. In combination, in a traction engine, the traction wheels, the motor shaft and the transmitting connections including the gears connected with the traction wheels, the rolling pinions 122 between and the combined compensating and change speed gear 128 having the double rows of teeth and carrying the pinions 122, substantially as described.

13. In a traction engine the traction wheel comprising the two rings and the cross bars extending between them inclined reversely in relation to each other and forming triangular spaces between them, substantially as described.

521,989. NOZZLE FOR CANS. GEORGE J. RECORD, Conneaut, Ohio. Filed Feb. 26, 1894. Serial No. 501,596. (No model.)



Claim.—The improved drop-spout for cans hereinbefore described consisting of a screw-top body secured to the top of said can and having an inwardly-flaring flange in its apex, and the tube having at its lower end an externally-screw-threaded rim fitting the internal screw-thread of the body, and at its upper end a bead engaging the inwardly-flaring flange, as and for the purpose set forth.

521,990. ADVERTISING DEVICE. ALBERT A. ROOT, Buffalo, N. Y. Filed Feb. 19, 1894. Serial No. 500,640. (No model.)



Claim.—1. In a device for exhibiting advertisements, letters, or other matter, the combination with a holding case secured to a rocking device for giving the necessary oscillating movement, of a feed roller provided with a ratchet wheel on one side and mounted on a shaft secured in said case so that the feed roller can rotate thereon, an arm at each side of the feed roller hung loosely on the shaft, a weight connecting the lower ends of the arms for keeping them in a substantially vertical position while the roller is being rotated, a pivoted pawl for preventing the feed roller from turning back, and a pivoted pawl on the lower part of one weight supporting arm for engaging with the teeth in the ratchet wheel and turning the feed roller by an oscillating movement of the device, substantially as described.

2. In a device for exhibiting letters or other matter, the combination with the arm of a rocking chair, of a holding case secured to said arm, an opening through said arm covered by a plate of glass, an endless ribbon located in said case so that its upper side passes between the glass and over a table or plate having a friction roller pivoted to its front end over which the ribbon passes to and between feed rollers by which it is carried continually around in one direction so as to exhibit the characters upon its face as they pass successively under the glass, and mechanism substantially as above described for giving the main feed roller its proper forward feeding movements, operated by rocking the case in which the mechanism is inclosed substantially as herein set forth.

3. In a device for exhibiting letters or other matter, the combination with a main feeding roller and its connected operating mechanism, of two surrounding peripheral grooves in said feed roller, a wire frame pivoted to the front of the case and extending back through the peripheral grooves and down to the bottom rear portion of the case where the two side portions of the frame are connected by a flat weight, whereby the endless ribbon is prevented from passing down and under said feed roller, substantially as described.

4. In a device for exhibiting letters or other characters, the combination with the arm of a rocking chair having an opening through it covered by a plate of glass through which the characters may be seen, a holding case secured to the under side of said arm, a main feeding roller 6 having a ratchet wheel on one side and a feeding roller 21 mounted in said case so as to rotate easily on a fixed shaft, a swinging weight mounted so as to swing easily on the shaft 5 and provided with a pawl for engaging with the ratchet wheel and rotating the roller, a pawl for preventing the roller from moving backward, a small feed roller mounted on a swinging frame and resting on the main feed roller, an endless ribbon having the characters to be exhibited printed upon its face, a supporting plate located below the glass having a friction roller pivoted to its front end, for supporting the ribbon which passes over it under the glass and between the feed rollers, and means for preventing the ribbon from going under or over the rollers, whereby the ribbon is moved forward during every rocking movement of the chair, substantially as described.

5. In a device for exhibiting letters or other matter, the combination of the supporting plate, the glass covering above it, a main feed roller having a ratchet wheel on one side and a small feed roller resting on the main roller, with an endless ribbon carrying a series of letters or other matter, one side passing around the supporting plate and between the feed rollers, and means substantially as above described for keeping the ribbon in place and feeding it forward every time a rocking movement is given to the device substantially as above set forth.

6. In a device for exhibiting letters or other matter, the combination with the main feed roller, the small feed roller resting on and receiving its motion therefrom, and a hooked frame bar, the hook portions of which clasp around in grooves surrounding the small roller so as to swing lightly thereon, for preventing the ribbon from being carried up around said roller, substantially as described.

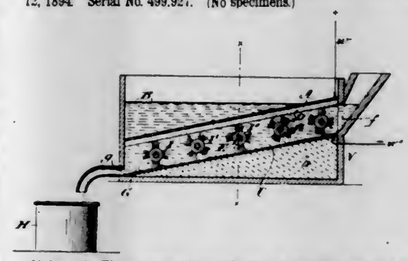
7. In a device for exhibiting letters or other matter, the combination with a main feed roller, a small feed roller resting on and receiving its motion therefrom, a hooked frame bar connected in the grooves in the small feed roller so as to swing easily thereon, a supporting plate mounted in the case below the glass, an endless ribbon having advertisements printed thereon mounted in the case so that one side will pass between the supporting plate and glass and through the feed rollers, and an angle plate over which the ribbon passes on its way back to the supporting plate, for preventing the ribbon from being carried over and between the small roller and the supporting plate substantially as described.

8. In a device for exhibiting letters or other matter, the combination with a rocking chair having on it a case carrying an endless ribbon provided with letters or other matter on its exposed face, a glass covered opening through which the matter may be seen, and mechanism substantially as herein described for giving the ribbon an intermitting forward movement and successively exposing the letters or other matter, the whole being operated by the rocking of the chair substantially as above specified.

9. In a device for exhibiting letters or other matter the combination with suitable rocking or oscillating mechanism of a supporting inclosing case, a main feed roller having two surrounding grooves and provided with a ratchet wheel on one side and suspended on a shaft secured within the supporting case, a pawl pivoted to the inner front end of the supporting case and engaging with the ratchet wheel to prevent it from going backward, a swinging weight suspended on the shaft carrying a pawl for turning the ratchet wheel and roller by means of the weight as the case oscillates, a small feed roller, also having two surrounding grooves, mounted on a light pivoted frame and resting on the main feed roller and receiving its motion therefrom, an endless ribbon having letters or other matter on its exposed face, and one side passed through between the glass, through which the letters are seen, and the supporting plate, then down between the feed rollers and back to the starting point, mechanism substantially as above described for preventing the ribbon from either going below or up on the feed rollers, and keeping it in place, whereby the ribbon is fed forward and the letters or other matter intermittingly presented to view by the rocking or oscillating motion of the supporting inclosing case, substantially as described.

10. In a rocking chair, the combination with a chair arm having a glass covered opening through it, a supporting case below the opening, an endless ribbon mounted below the glass covered opening having a series of letters or other matter on its exposed face, and means for feeding said ribbon intermittingly so as to successively expose the matter as it is moved, the whole being actuated by the rocking of the chair substantially as described.

521,991. PROCESS OF MANUFACTURING METALLIC POWDERS. JOSEPH SACHS and ERNEST HUBER, New York, N. Y. Filed Feb. 12, 1894. Serial No. 499,927. (No specimens.)



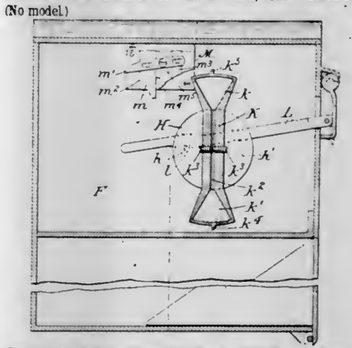
Claim.—1. The process of manufacturing metallic powders which consists in interposing between suitable electrodes during the process of electrolysis a metallic conductor in a finely divided state maintained in motion during said process.

2. The process of manufacturing metallic powders which consists in depositing a shell of metal by electrolysis upon each particle of a metallic conductor while the latter is in a finely divided state and under conditions of constant agitation.

521,992. PROCESS OF MANUFACTURING METALLIC POWDERS. JOSEPH SACHS and ERNEST HUBER, New York, N. Y. Filed Feb. 13, 1894. Serial No. 500,057. (No specimens.)

Claim.—The process of manufacturing metallic powders each particle of which consists of a core of one metal and a shell of another which consists in immersing the cores in a finely divided state and under conditions of constant agitation in a suitable solution of a salt of a metal more electro negative than that of which the cores are composed.

521,993. LETTER-BOX. GRANVILLE L. SAVAGE and WILLIAM H. HARRISON, New York, N. Y. Filed Jan. 2, 1894. Serial No. 495,291. (No model.)



Claim.—1. The combination of a carrier mounted on an axis, a tube fixed to said carrier, a ponderous substance to run from one end to the other of said tube, a device adapted to be moved from its normal position and to be held temporarily in its new position, and a connector intermediate said device and said carrier and adapted to engage the latter whereby said device is held until the carrier moves, substantially as shown and described.

2. The combination of a carrier mounted on an axis, a tube fixed to said carrier, a ponderous substance to run from one end to the other of said tube, a latch to prevent backward movement of said tube and carrier, a device adapted to be moved from its normal position and to be held temporarily in its new position, and a connector intermediate said device and said carrier and adapted to engage the latter whereby said device is held until the carrier moves, substantially as shown and described.

3. The combination of a door, a detent, means to shift said detent at a predetermined time after it has been set, and a connector intermediate said door and detent whereby the detent is set by the movement of the door in one direction and whereby the door is held from movement in the opposite direction until the detent is shifted, substantially as shown and described.

4. The combination of a tube mounted to swing on a transverse axis and containing a ponderous substance adapted to run from one end to the other, a door, and a connector between said door and tube adapted to engage a detent and hold said door in one position and

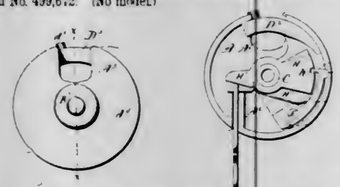
to be disengaged from said detent by the movement of said tube, substantially as shown and described.

5. The combination of a carrier mounted on an axis, pins supported by said carrier, a tube fixed to said carrier, a ponderous substance to run from one end to the other of said tube, a notched rod adapted to engage one of said pins to be held thereby and adapted to be disengaged therefrom by another pin as the carrier is moved by the shifting weight, and a door connected to said rod, substantially as shown and described.

6. The combination of a carrier mounted on an axis, pins supported by said carrier, a tube fixed to said carrier, a ponderous substance to run from one end to the other of said tube, a latch to engage said tube and hold it from backward movement, a notched rod adapted to engage one of said pins to be held by said carrier and adapted to be disengaged therefrom by another pin as the carrier is moved by the shifting weight, and a door connected to said rod, substantially as shown and described.

7. The combination with a letter-box having a receiving slot and a lid to close the same, of a carrier mounted to rotate on an axis, pins supported by said carrier, a tube fixed to said carrier, a ponderous substance to run from one end to the other of said tube, and a notched rod connected to said lid and adapted to engage and be held by one of said pins and to be disengaged therefrom by the other of said pins as the carrier is moved by the shifting weight substantially as shown and described.

521,994. PADLOCK. WILLIAM E. SPARKS, New Haven, Conn., assignor to the Sargent & Company, same place. Filed Feb. 9, 1894. Serial No. 499,672. (No model.)



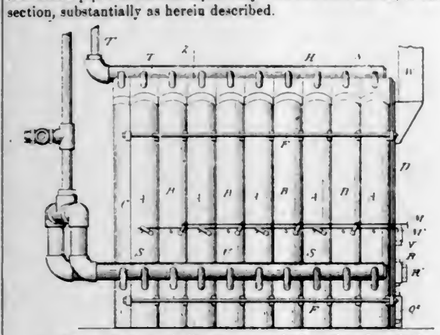
Claim.—1. In a padlock, the combination with the case and cover thereof, of a bolt-plate pivoted within the case, adapted to be operated upon by the lock-key, and provided with a bolt, of a racking dog pivoted upon the said plate and constructed at one end with an outwardly projecting locking lug arranged to take into a locking groove formed in the case, and at the same end with an inwardly projecting racking-finger; a series of tumblers pivoted within the case concentric with the plate and each having an operating face for engagement with the lock-key, and a racking-notch to receive the finger of the racking dog when the same is in its open position, substantially as described.

2. In a padlock, the combination with a circular case and cap, each having a radial open staple opening, of a bolt-plate pivoted in the center of the case, constructed with an operating-arm adapted to be engaged by the lock key, and provided with a bolt which moves back and forth within the case, and is furnished with an outwardly projecting operating pin; a spring-actuated racking-dog carried by the bolt-plate, arranged to swing in the plane thereof, and provided with an outwardly projecting locking lug arranged to take into a locking-groove formed in the flange of the case, and with an inwardly projecting racking-finger; and a series of tumblers pivoted concentric with the bolt-plate and each having an operating-arm adapted to be engaged by the key, and a racking-notch to receive the racking-finger of the dog, substantially as described.

521,995. WATER HEATER OR BOILER. CHARLES Y. TOULMIN, New York, N. Y. Filed Mar. 21, 1894. Serial No. 504,499. (No model.)

Claim.—1. A water heater or boiler constructed of a series of cast vertical sections, each formed with side water legs G G', a transverse steam and water-head H, a transverse water-waist I, and a transverse water-bridge of less thickness than the water-legs and head, the combined spaces below the water-waists I constituting the combustion chamber, and the vertical spaces between the water-bridges a succession of vertical flues, connected with the back of the combustion chamber, a grate placed in said combustion chamber below the water waists I and supply and return pipes connected respectively with the head and water-leg of each section, substantially as herein shown and described.

2. A water heater or boiler constructed of a series of vertical sections, each formed with side water-legs G G', a transverse steam and water-head H, a transverse water-waste I, and a transverse water-bridge J or J' of less thickness than the water legs, the combined spaces below the water-waists I, constituting the combustion chamber, and the alternate sections formed with spaces respectively between the water-bridges J and the water-heads H, and between the water-bridges J', and the water-waists I, said spaces and the vertical spaces between said water-bridges to constitute a vertically zig-zag escape flue connected with the back of the combustion chamber, and supply and return pipes connected respectively with the head and leg of each section, substantially as herein described.



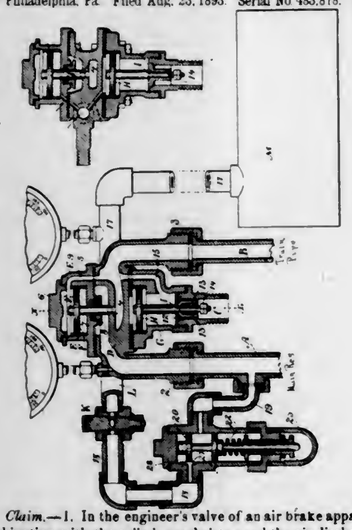
3. A water heater or boiler constructed of a series of vertical sections, each formed with side water-legs G G', a transverse steam and water-head H, a transverse water-waist I, and a transverse water bridge J or J' of less thickness than said water-legs, the combined spaces below the water-waist I constituting the combustion chamber, and the alternate sections formed respectively with spaces between the water bridges J' and the water-waists I, and both above and below the water-bridges J, said spaces and the vertical spaces between said water bridges to form a vertically zig-zag escape flue, cut-offs in the spaces below the water-bridges J, means for operating said cut-offs, and supply and return pipes connected with the head and leg, respectively, of each section, substantially as herein described.

4. The sectional water heater or boiler herein described having water legs G G', and abutting water-waists I forming the sides and top respectively of the combustion chamber, said water legs being formed with ledges T, in combination with a removable tubular water-grid Q sliding on the ledges I' above the grate and below the water-waists I and couplings detachably connecting said grid at opposite ends with the supply and the return pipes respectively, as set forth.

5. In a sectional water heater or boiler as described, the combination with each water-section and the collecting pipe provided with threaded coupling sleeves S^2, S', of a bend S^1 having coupling ends threaded oppositely to the respective coupling sleeves S^2 S', and couplers S^4 S^7, each having its ends oppositely threaded, substantially as and for the purpose hereinbefore set forth

---

521,996. VALVE FOR AIR-BRAKES. JEREMIAH F. VOORHEES, Philadelphia, Pa. Filed Aug. 23, 1893. Serial No. 483,818. (No model.)



Claim.—1. In the engineer's valve of an air brake apparatus, the combination with the cylinder and piston and the air discharge valve

controlled thereby, of a movable seat for the smaller air discharge valve, which movable seat forms the main air discharge valve and has through it air passage ways that are opened and closed by the smaller air discharge valve, there being a passage way or port for admitting air under pressure from the train pipe to lift the air discharge valve, and means for controlling an air pressure acting upon the piston to close such air discharge valve, substantially as set forth.

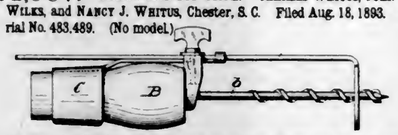
2. The combination in an air brake apparatus with the pipe for supplying air under pressure, and the train pipe, of a valve to admit air to the train pipe, a cylinder and piston connected with the valve for moving the same, a port for admitting air at one side of the piston from the train pipe, a storage reservoir and a connection from the same for admitting air to the other side of the piston, a valve for admitting air under pressure to the storage reservoir, and a gage for indicating the pressure, whereby the pressure in the train pipe will correspond substantially to that indicated by the gage, substantially as set forth.

3. The combination in an air brake apparatus, of a pipe for supplying air under pressure from a reservoir, a small storage reservoir, a pipe from the main supply pipe and a pressure regulator for limiting the pressure of air admitted to the storage reservoir, a valve under the control of the engineer for regulating the pressure in the small storage reservoir, a train pipe, an air inlet valve, an air discharge valve for the same, and automatic mechanism controlled by the pressure of the air in the storage reservoir for regulating the action of the valve, substantially as set forth.

4. In an air brake apparatus, the combination with the train pipe and the pipe that supplies air under pressure, of an intermediate valve body having a seat between the air supply and the train pipe, a removable cylinder bolted to the body of the valve, an air supply valve and its piston within the cylinder, ports for supplying air at opposite sides of the piston to open and close the valve, substantially as set forth.

5. In an air brake apparatus the combination with the train pipe and the pipe that supplies air under pressure, of an intermediate valve body having a seat between the air supply and the train pipe, a removable cylinder bolted to the body of the valve, an air supply valve and its piston within the cylinder, ports for supplying air at opposite sides of the piston to open and close the valve, an air discharge valve, a piston for moving the same, and a cylinder for the piston connected to the body of the valve, there being ports for the admission of air to act upon the piston and regulate the discharge valve substantially as set forth.

521,997. BRACE-AND-BIT GAGE. CHARLES WHITUS, JOHN W. WILKS, and NANCY J. WHITUS, Chester, S. C. Filed Aug. 18, 1893. Serial No. 483,489. (No model.)

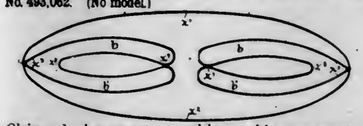


Claim.—1. The bit gage, consisting of the adjustable arm A, having the ring foot *a*, at right angles with said arm; arm *c*, adapted to be adjustably secured to said arm A; open sleeve C, integral with or rigidly secured to the rear end of said arm *c*, and adapted to embrace and clasp a large or small bit chuck, B; and an adjustable slotted slide block D', embracing the arm A, and the arm *c*, having a face bearing against the face of the bit chuck, and having a clamping means securing the relative adjustment of arms A, and *c*, and also securing said slide block to hold the bit chuck between sleeve C, and said block, substantially as shown and described and for the purposes set forth.

2. The bit gage, consisting of the adjustable arm A, having the ring foot *a*, at right angles with said arm; arm *c*, adapted to be adjustably secured to said arm A; adjustable slotted slide block D', having a face bearing against the face of the bit chuck, and a mortise for said arms to work through, and a washer g^3, working in said mortise provided with flanges, and a thumb-screw g^3, for securing said arms together; and loop *f*, for the bit *b*, to work through; and sleeve C, integral with or rigidly secured to the rear end of said arm *c*, and adapted to embrace and clasp a large or small bit chuck, B, substantially as shown and described and for the purposes set forth.

3. The bit gage, consisting of the adjustable arm A, having the ring foot *a*, at right angles with said arm; arm *c*, provided with cross arms to embrace arm A; said arm adapted to be adjustably secured to said arm A; adjustable slotted slide block D', having a face bearing against the face of the bit chuck, and a mortise for said arms to work through, and a washer g^3, working in said mortise provided with flanges, and a thumb screw g^3, for securing said arms together; and loop *f*, for the bit *b*, to work through; and sleeve C, integral with or rigidly secured to the rear end of said arm *c*, and adapted to embrace and clasp a large or small bit chuck, B, substantially as shown and described and for the purposes set forth.

521,998. COMBINED SKIRT AND TROUSERS. BERNHARD ZELLER and HENRY CRAGER, New York, N. Y. Filed Dec. 7, 1893. Serial No. 493,062. (No model.)



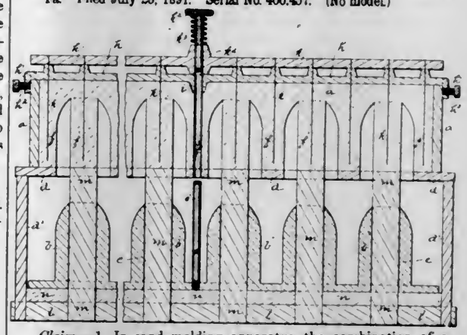
Claim.—1. A garment, comprising a skirt, two enveloping portions within the skirt and secured to the same, and a trouser leg portion sewed in each enveloping portion, substantially as described.

2. A garment, comprising a skirt, two trouser-leg portions, the outer line of the trouser-leg portions being entirely separated from the skirt, an enveloping portion for each trouser-leg portion made integral with the skirt, the inner seams of said enveloping portions, forming the inner seams of said trouser-leg portions, substantially as described.

3. A garment, comprising a skirt composed of front and back portions and trousers having a waist band separate from the waist band of the skirt, each trouser leg being connected with and concealed by an enveloping portion and each enveloping portion being secured to and concealed by the front and back portions of the skirt, substantially as described.

4. A garment comprising front and back skirt portions, said skirt portions at their opposite sides being folded inwardly and then outwardly, whereby double trouser-leg portions are formed, said trouser-leg portions being united at the inner leg seams, substantially as described.

521,999. MOLDING APPARATUS. STEPHEN J. ADAMS, Pittsburg, Pa. Filed July 23, 1891. Serial No. 400,457. (No model.)



Claim.—1. In sand molding apparatus, the combination of a molding table having a series of blocks or upward extensions thereon, a portable pattern plate resting on said table and carrying a series of tubular patterns having vertical inner walls, the blocks of the table corresponding in section to and fitting within the tubular patterns, a portable stripping-plate fitting around the patterns and resting on the pattern plate, and a flask resting on the stripping-plate, substantially as and for the purposes set forth.

2. In sand molding apparatus, the combination with a pattern and a flask, of a guide frame extending over the same, and a supporting wire adapted to pass through the frame into the sand and support the mold formed, substantially as and for the purposes set forth.

3. In sand molding apparatus, the combination of a tubular pattern, a flask, and a frame extending over the flask, and having a wire to enter the core formed within the tubular pattern and support the same, substantially as and for the purposes set forth.

4. In a sand molding apparatus, the combination with a flask and a series of tubular patterns, of a guide frame extending over the flask and a frame having a series of supporting wires adapted to enter through the frame and support the body of the mold and cores formed in the tubular patterns, substantially as and for the purposes set forth.

5. In sand molding apparatus, the combination of a pattern, a bar extending up from the pattern or its plate to the top of the mold, and a frame supported on the mold and carrying a presser adapted to contact with the bar to give the initial dropping movement to the pattern, substantially as and for the purposes set forth.

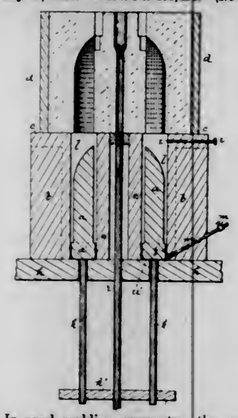
6. In sand molding apparatus, the combination of a flask, a pattern extending up into the same, a frame supported on the mold, and a vertically reciprocating presser or pattern starter mounted in said frame and adapted to impart the initial dropping motion to the pattern, substantially as and for the purposes set forth.

7. In sand molding apparatus, the combination with a portable pattern plate carrying a series of hollow patterns, a portable strip-

ping-plate fitting around the same and a flask supported on the stripping-plate, of a molding table having a series of blocks extending up within the hollow patterns and forming the bases thereof during the molding operation, and a separate pattern removing apparatus having supporting bars extending up and registering with the hollow bases of the patterns to support the sand therein, and a series of standards supporting the stripping-plates, so giving support to the mold when the patterns are withdrawn, substantially as and for the purposes set forth.

8. In sand molding apparatus, the combination with a portable pattern plate carrying a series of tubular patterns, a portable stripping-plate around the same, and a flask, of a dropping apparatus having core supporting bars extending up within the hollow bases of the patterns and supporting the sand therein, and having a series of standards supporting the stripping-plate, said core supporting bars and standards being arranged at such height as to support the body of the mold and the cores within the hollow patterns at the proper level when the patterns are withdrawn, substantially as and for the purposes set forth.

522,000. MOLDING APPARATUS. STEPHEN J. ADAMS, Pittsburg, Pa. Filed July 23, 1891. Serial No. 400,453. (No model.)



Claim.—1. In sand molding apparatus, the combination of a table supporting the flask and having a vertical cylinder extending down therefrom, and a pattern support sliding in the same, said cylinder having a small escape opening, thereby providing for the compression of the air and preventing the rapid dropping of the pattern, substantially as and for the purposes set forth

2. In sand molding apparatus, the combination of a table supporting the flask and having a vertical cylinder a pattern support sliding in the cylinder, said cylinder having a small escape opening and a frame extending up through the cylinder and connected to the pattern support, substantially as and for the purposes set forth.

3. In sand molding apparatus, the combination of a tubular pattern, a table supporting the flask and having a vertical cylinder extending down therefrom, and a post extending up within the cylinder, and so forming an annular chamber within which such tubular pattern fits, said chamber having a small air escape opening leading therefrom, substantially as and for the purposes set forth.

4. In sand molding apparatus, the combination of a tubular pattern, a frame connected to the lower end of and extending down from the pattern, a bar extending centrally from said frame up through the central passage of the pattern and to the top of the flask, and a frame carrying a pattern to be pressed down into contact with the main pattern, said frame fitting over said bar and being guided thereby in its movement, substantially as and for the purposes set forth.

522,001. COMPOSITION FOR MANUFACTURING GLASS. ARTHUR P. AYLING, Milwaukee, Wis. Filed Feb. 3, 1894. Serial No. 499,456. (No specimens.)

Claim.—1. A composition for the manufacture of glass, consisting of clay, sand and salt-cake, substantially as and for the purposes set forth.

2. A composition for the manufacture of glass, consisting of about one hundred parts by weight, of sand, one hundred parts by weight, of clay, and forty parts by weight, of salt-cake, substantially as and for the purposes set forth.

3. A composition for the manufacture of glass, consisting of about equal portions by weight, of sand and broken or pulverized clay brick, and of about one-fifth by weight, of salt-cake, substantially as and for the purposes set forth

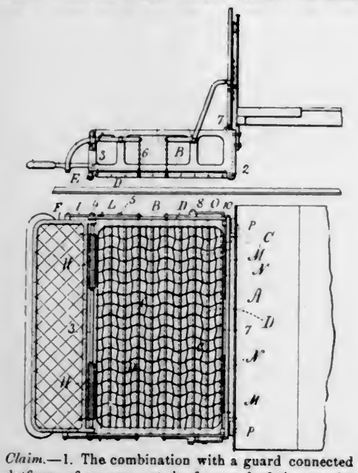
522,002. SHUTTLE FOR SEWING-MACHINES. HENRY A. BATES, Yonkers, N. Y. Filed Dec. 1, 1893. Serial No. 492,437. (No model.)



Claim.—1. The combination with a sewing machine shuttle having a cavity and a fixed central pin and a thread bobbin, of a spring adapted to apply pressure to the thread bobbin, and a removable sleeve fitting closely by friction around the central pin and within the bobbin and adjustable endwise of the pin to compress the spring to a greater or less extent against the interior surface of the shuttle cavity, substantially as set forth.

2. The combination with a shuttle having a cavity for the thread bobbin and a central tubular pin, of a spring within the cavity, a sleeve closely surrounding the tubular pin and held by friction and adjustable lengthwise for compressing the spring to a greater or less extent, a bobbin holder having a pin entering the tubular central pin, and a removable disk surrounding the pin and coming into contact with the bobbin at the opposite side to the spring, substantially as set forth

522,003. GUARD FOR CARS. GUSTAV BOEHM, Long Island City, N. Y. Filed Feb. 12, 1894. Serial No. 499,872. (No model.)



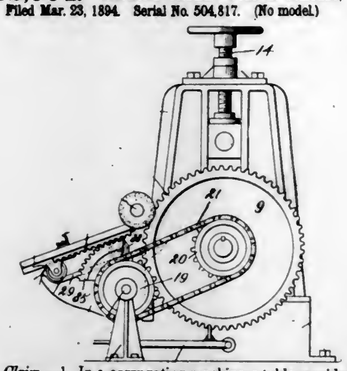
Claim.—1. The combination with a guard connected with the car platform, of an apron at the front end of the guard, springs for throwing up the apron, a sector and blocking lever for holding the apron in position, and means for disconnecting the blocking lever by the weight of the person upon the guard, substantially as set forth.

2. The combination with a guard connected with the car platform, of an apron at the front end of the guard, springs for throwing up the apron, a sector and blocking lever for holding the apron in position, a hinged frame below the guard, and a connection from the hinged frame to the blocking lever, substantially as set forth

3. The combination with the guard having side pieces and yielding interlaced wires, of a rigid frame beneath the guard, pivots for connecting the frame to the guard, an apron and pivotal connections therefor at the front edge of the guard, a spring for swinging the apron upwardly upon its pivots, a blocking lever for holding the apron in a nearly horizontal position, and a connection from the blocking lever to the hinged frame for liberating the apron and allowing the same to be thrown up, substantially as set forth.

4. The combination with a guard connected to the car platform, of a detainer pivoted to the guard, means for holding up the detainer, a spring for throwing down the detainer when liberated by the weight of a person upon the guard, and a holding pawl acting against the detainer for holding the same down, substantially as set forth.

522,004. MACHINE-TABLE. JOHN E. BRADLEY, Chicago, Ill. Filed Mar. 23, 1894. Serial No. 504,817. (No model.)



Claim.—1. In a corrugating machine, a table provided with rollers, inclined tracks adapted to receive said rollers, mechanism for positively feeding said table up said inclined tracks, and means for automatically tripping said mechanism, as and for the purpose set forth.

2. In a corrugating machine a set of inclined tracks, a table carried thereon adapted to be moved toward the machine by positively operating mechanism and away from said machine by gravity, as and for the purpose set forth.

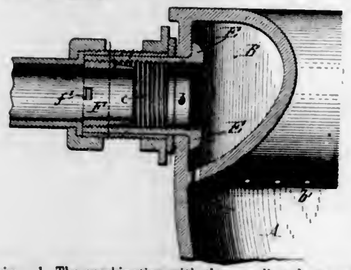
3. In a corrugating machine a feed table, inclined tracks supporting the same, a rock shaft and gearing intermediate said shaft and table, means for rocking said rock shaft positively in one direction and automatic tripping mechanism, as and for the purpose set forth.

4. In a corrugating machine, corrugating rolls, means for rotating the same, a rock shaft, gearing intermediate one of said rolls and said shaft for imparting rotary motion to the latter, a tripping mechanism for automatically arresting the rotary motion of said shaft, an inclined gravity table and gearing between said table and rock shaft for positively feeding the table in one direction as and for the purpose set forth.

5. The combination with corrugating rolls and means for rotating the same, of a shaft, a gear wheel loosely mounted thereon, gears for driving said gear from one of said rolls, a table, inclined tracks supporting said table, gearing between said table and shaft to positively feed the table up said inclined track and tripping mechanism for throwing said first mentioned gear into and out of rotative engagement with said shaft as and for the purpose set forth.

6. In a corrugating machine inclined brackets or castings provided with tracks and also with projections at the lower extremity of said tracks in combination with a gravity table adapted to said tracks and means for positively feeding said table up said tracks and then automatically releasing the same, as and for the purpose set forth

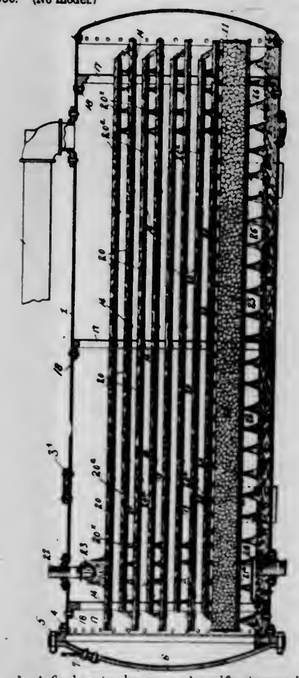
522,005. PIPE-COUPLING. JOHN J. BURKE, Buffalo, N. Y., assignor to Mary A. Burke, same place. Filed Feb. 27, 1894. Serial No. 501,644. (No model.)



Claim.—1. The combination with the coupling sleeve provided on its inner side with a screw-thread and longitudinal grooves extending through said thread, of attaching hooks having shanks arranged in said grooves and provided with sectional screw-threads which correspond with the internal thread of the coupling sleeve, and a locking sleeve having an external screw-thread which engages with the screw-threads of the coupling sleeve and the attaching hooks, substantially as set forth.

2. The combination with the coupling sleeve provided on its inner side with a screw-thread and longitudinal grooves extending through said thread, of attaching hooks having shanks arranged in said grooves and provided with sectional screw-threads which correspond with the internal screw-thread of the coupling sleeve and a locking sleeve having a tapering front portion, for supporting the attaching hooks in an inclined position, and an externally screw-threaded rear portion which engages with the screw-threads of the coupling sleeve and the attaching hooks, substantially as set forth.

522,006. COMBINED FEED-WATER HEATER AND PURIFIER. EDWARD G. T. COLLES, Chicago, Ill. Filed Mar. 7, 1894. Serial No. 502,680. (No model.)



Claim.—1. A feed water heater and purifier having in combination a shell, pans adapted to fit within said shell, brackets secured within said shell and upon which said pans have sliding support; and guides secured to said pans for preventing their movement transversely substantially as set forth.

2. A feed water heater and purifier having in combination, a shell, pans adapted to fit within said shell, shelf-like projections secured within said shell and projecting beneath said pans anti-friction rollers secured to said projections and serving to hold the pans aloof therefrom, and guides for holding the pans against transverse movement, substantially as set forth.

3. A feed water heater and purifier having in combination a shell, the pans adapted to fit within said shell, longitudinal angle-irons secured within said shell and having their flanges arranged in upright and horizontal positions respectively, and anti-friction rollers secured to and projecting partly above and partly below said lateral flanges for supporting the pans over and upon said lateral flanges, substantially as set forth.

4. A feed water heater and purifier having in combination a shell, brackets secured within said shell, the sliding pans, and anti-friction rollers secured at intervals to said brackets and supporting said pans, substantially as set forth.

5. A feed water heater and purifier having in combination a shell, a number of removable pans supported in said shell, and ribs extending entirely across said pans transversely on their upper sides, said ribs being less in height than the sides of the pans, whereby the bulk of the water will flow lengthwise of the pans, substantially as set forth.

6. A feed water heater and purifier having in combination a shell, a number of removable pans having sliding support within said shell, transverse ribs arranged on the upper sides of said pans and longitudinal irons arranged along the bottom of said pans, substantially as set forth.

7. A feed water heater and purifier having in combination a shell, angle-irons supported longitudinally within said shell, pans arranged

to slide on said angle-irons, and pins or bolts depending from said pans and engaging with said angle-irons, substantially as set forth.

8. A feed water heater and purifier having in combination, a shell, a number of tiers of pans supported in said shell, and an independent water inlet pipe having a water seal, discharging into each of said tiers of pans, substantially as set forth.

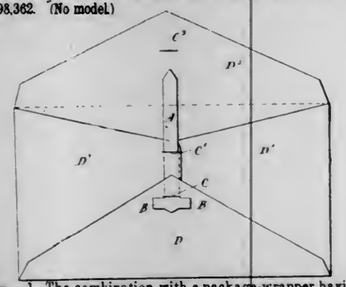
9. A feed water heater and purifier having in combination a shell, a number of tiers of pans adapted to fit within said shell, the uprights 17 extending between said tiers of pans and being secured at their upper and lower ends to the upper and lower sides respectively of said shell, supports on said uprights for the inner edges of said pans, and an independent water supply pipe arranged directly over and leading or discharging directly into the upper pan of each tier, substantially as set forth.

10. A feed water heater and purifier having in combination a shell, a number of tiers of pans within said shell, a water supply nozzle leading to each of said tiers, and a three-way coupling connecting said nozzle to the water supply and being provided with upturned goose-necks forming water seals, substantially as set forth.

11. A feed water heater and purifier having in combination a shell provided at one end with a removable head, water pans arranged within said shell and the lower one of which being provided with perforations, and a filtrant pan arranged under said perforated pan and having sliding support within said shell whereby said filtrant pan may be withdrawn from one end of the shell, substantially as set forth.

12. A feed water heater having in combination a shell, the filtrant pans having perforated bottoms, a discharge pipe leading upward into said shell, and a shield having an imperforate top arranged over said pipe, substantially as set forth.

522,007. FASTENING DEVICE FOR PACKAGE-WRAPPERS. WILLIAM R. COULTER, Waterbury, Conn. Filed Jan. 29, 1894. Serial No. 498,362. (No model.)



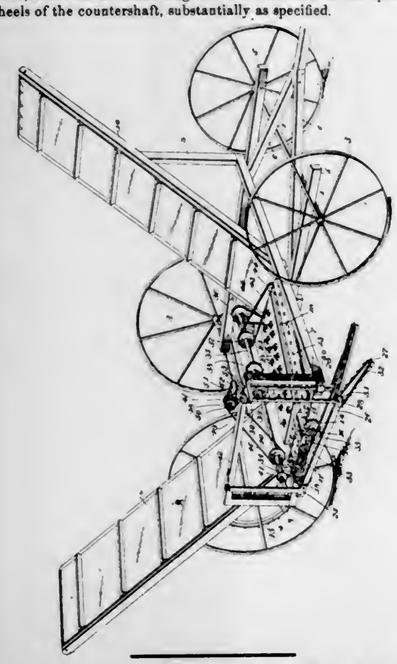
Claim.—1. The combination with a package-wrapper having its body constructed with two slits located in line with each other, and having its flap constructed with a slit arranged to register with the upper slit in the said body: of a fastening device consisting of a long strip of flexible sheet-metal, provided at one end with two oppositely projecting integral flexible fingers, the said device being passed through the slits in the body so as to expose its fingers upon the outer face thereof, and through the slit in the flap, and then bent down between the fingers which are closed upon it to hold it in place, substantially as described.

2. The combination with a package wrapper having its body constructed with two slits located in line with each other, and having its flap constructed with a slit arranged to register, when the flap is closed, with the upper slit in the body: of a fastening device consisting of a long strip of flexible sheet-metal provided at its inner end with two pairs of oppositely projecting flexible fingers, slightly separated from each other, and respectively located, in the application of the device, upon opposite faces of the body of the wrapper, substantially as described.

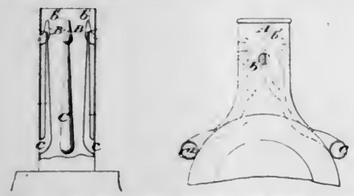
522,008. COMBINATION CORN HARVESTER AND HUSKER. JESSE DRAKE, Jackson, Miss. Filed Mar. 31, 1893. Serial No. 468,463. (No model.)

Claim.—1. In a machine of the class described, the combination with the framework, and gathering-devices, of a series of inclined husking-rolls, a board arranged thereover and provided with a series of pairs of perforations, a series of presser-blocks or plates, bolts rising therefrom and passing through the perforations, nuts for the bolts, and coiled springs interposed between the plates and boards and mounted on the bolts, substantially as specified.

2. In a machine of the class described, the combination with the framework, the divergent gathering-arms, the shafts 28 and 29 at the inner ends thereof, sprocket-wheels on the lower ends of the shafts and at the outer ends of the arms, sprocket-wheels at the upper ends of the shafts, cross-belts for the same, and feed-belts for the lower sprocket-wheels and those of the arms, a sprocket-wheel on the upper end of the inner shaft 29, a short transverse shaft, sprocket-wheels thereon, a belt connecting one of said wheels with the upper sprocket of the shaft 29, a countershaft, a series of sprocket-wheels carried thereby, a chain connecting one of the same with one of the twin sprocket-wheels of the short shaft, a driving-gear, a chain connecting the same with one of the series of sprocket-wheels of the countershaft, a rear and side elevator, chains leading from the sprocket-wheels of the countershaft to the rolls of the elevator, a gathering reel arranged over the gathering-arms, a sprocket-wheel on the shaft, a chain between the same and a sprocket-wheel of the countershaft, and a knife carried by the gathering-arms, of a series of husking-rollers in rear of the reel, gears on the ends of the rollers communicating motion to each other, one of said rollers having a sprocket-wheel, and a chain connecting the latter with one of the sprocket-wheels of the countershaft, substantially as specified.



522,009. DEVICE FOR INCREASING DRAFT IN SMOKE-STACKS. RAY GAUL, Brooklyn, N. Y. Filed Feb. 26, 1894. Serial No. 501,487. (No model.)

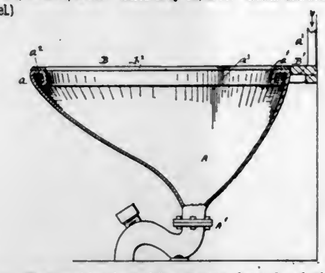


Claim.—1. The combination with a smoke stack, provided with taper tubes opening to the exterior of its wall near its upper end and extending upwardly within it, of supplementary tubes opening to the exterior air at a point lower down than the tubes before referred to and extending upwardly within the stack with their upper ends inserted within the first named tubes, substantially as set forth.

2. The combination with a locomotive smoke stack, provided with taper tubes opening to its exterior and extending upwardly within the stack near its top, of supplementary tubes opening to the front of the locomotive lower down than the tubes aforementioned and extending upwardly and having their upper ends inserted within the tubes near the top, of the stack, substantially as set forth.

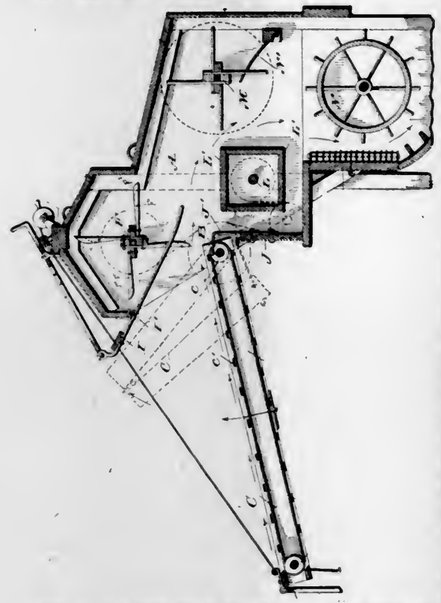
3. The combination with a locomotive smoke stack, provided with taper air-jet tubes extending through its wall near its upper end, of supplementary air-jet tubes opening to the exterior air, both to the front and the rear at a point lower down than the first mentioned tubes and extended upwardly and having their discharge ends inserted within the tubes at the top of the stack, substantially as set forth.

522,010. WATER-CLOSET BOWL AND SEAT. GEORGE F. GREENE, Detroit, Mich. Filed May 18, 1889. Serial No. 311,239. (No model.)



Claim.—The combination with a water closet bowl, the top of which is of substantially a diamond shape with the front portion extended to form an acute angle and the rear portion only extended to form an obtuse angle, a board over the rear portion of the bowl having an obtuse angled notch in its front edge, of two side pieces hinged at their rear ends to the board at the ends of the notch, and joined together at their front ends to form an acute angle to conform with and fit upon the top of the bowl, substantially as described.

522,011. GRAIN CARRIER AND REGULATOR FOR THRASHING-MACHINES. ALBERT G. GREEN, Red Cloud, Nebr. Filed Mar. 30, 1894. Serial No. 505,742. (No model.)

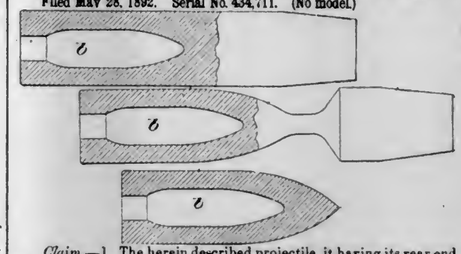


Claim.—1. In a grain carrier and regulator for thrashing machines, the combination of a series of endless carriers, means as described for presenting the stalks of grain lengthwise to the machine, the curved rods J′ or pivoted series of regulating tines, an adjusting lever connected therewith, a band cutter journaled in the sides of the machine frame, the arm prongs with blades attached which pass between the regulator tines, a square revolving beater journaled within the entrance of the machine, an equalizer for presenting the stalks of grain to the cylinder, and a doffer plate to prevent the clogging of the arms of the equalizer, all substantially as shown and described.

2. In combination with the carrier C, the regulator H, I, knives F³ beater L′ and equalizer M, as related to a thrashing machine cylinder, of the removable door adjacent to the said cylinder provided with a series of iron rods which are utilized in thrashing grain, substantially as and for the purpose set forth.

3. In combination with the mechanism of a thrashing machine, as described, a cylinder carrying a series of blades which are pivoted within recesses in the ends of suitable holders, and adapted to fold back within a recess of the holders, and a spring for holding the blade in a fixed position, substantially as shown and described.

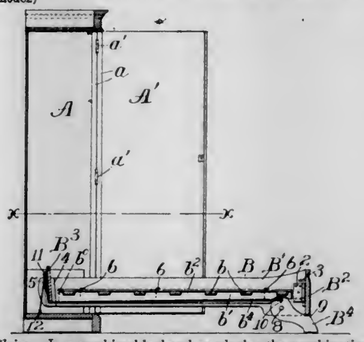
522,012. SHELL. ROBERT A. HADFIELD, Sheffield, England. Filed May 28, 1892. Serial No. 434,711. (No model.)



Claim.—1. The herein described projectile, it having its rear end left in the condition of a casting, and having an integral forged nose or point, substantially as and for the purposes described.

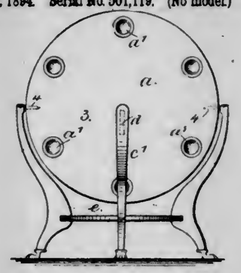
2. A projectile having its chambered rear end left in the condition of a casting, and having an integral forged nose or point, substantially as and for the purposes described.

522,013. WARDROBE-BEDSTEAD. LILLIE HARRIS and MARY JAISER, Richmond, Va. Filed Mar. 21, 1894. Serial No. 504,536. (No model.)



Claim.—In a combined bed and wardrobe, the combination with a wardrobe, of a bedstead having its side rails pivoted to the sides of the wardrobe and inside thereof, the head board normally adapted to press apart said side rails and keep them in engagement with the pivot pins, the foot board and loose pin butts detachably connecting the same to the side rails, the slats and means for holding the slats in place, or detaching them, as desired, the pivoted feet B^4 detachably connected to the side rails and provided with shoulders 9 adapted to support the foot board of the bed when in use, the cords b^4 secured to said feet above said pivots, and passing beneath the lower edge of the head board thence up through staples or pulleys on the back of the same and then down to the bottom of the wardrobe where they are secured, substantially as and for the purposes described.

522,014. GAME-TABLE. GEORGE HUNZINGER, New York, N. Y. Filed Feb. 23, 1894. Serial No. 501,119. (No model.)

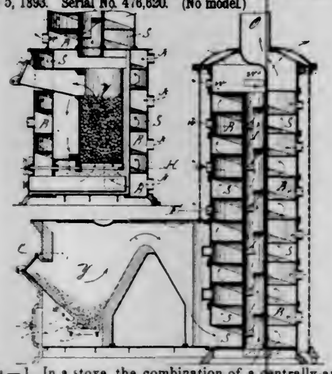


Claim.—1. The combination in a game table with the reversible top, of two opposite legs and pivots connecting said legs and top whereby the top is adapted to be turned over, and two legs intermediate to the aforesaid legs, and spring devices connected to these intermediate legs for engaging and supporting the reversible top at points at right angles to the pivots, substantially as set forth.

2. The combination in a game table, of the reversible top plain on one side and covered with cloth and provided with one or more sunken receptacles on the other side, pivots upon opposite edges, and legs to which said pivots are connected whereby the top is adapted to be turned over, and two intermediate legs and the springs connected with their upper ends for engaging and supporting the reversible top at points at right angles or nearly so to the pivots, substantially as set forth.

3. The combination in a game table with a reversible top *a*, of a base *e*, pairs of equidistant legs *b b'* and *c c'* that extend outwardly upwardly from said base, pivots in the upper ends of the legs *b b'* engaging the top *a* and upon which said top swings, and spring devices in the upper ends of the legs *c c'* for engaging and supporting the top *a* at right angles or nearly so to the pivots, substantially as set forth.

522,015. STOVE. MAX JAHN, Leipsic-Plagwitz, Germany. Filed June 5, 1893. Serial No. 476,620. (No model.)



Claim.—1. In a stove, the combination of a centrally-arranged tube L, a spiral I arranged within said tube, air-inlet openings communicating with the lower end of said tube, air-outlet openings communicating with the upper end of the tube, spirals R and S arranged around the tube L, and extending from the base of the stove to the upper end thereof, air inlet and outlet openings communicating with the spiral R, a fire chamber communicating with the lower end of the spiral S and an outlet for the products of combustion communicating with the upper end of the spiral S as specified.

2. In a stove, the combination of a centrally-arranged vertical tube L, a spiral I arranged vertically within the tube L, an air inlet opening in the base of the stove and communicating with the lower end of the tube L, an air-outlet opening communicating with the upper end of the tube, spirals R and S arranged around the tube L and extending from the base to the top of the stove, a series of air inlet openings communicating with the spiral R at different points in the height thereof, air-outlet openings communicating with said spiral R opposite to the inlet openings a fire chamber Y communicating with the lower end of the spiral S, and an outlet O communicating with the upper end of the spiral S, as and for the purpose specified.

522,016. UMBRELLA-RIB-LOCKING DEVICE. FERDINAND W. T. JEDECK, Berlin, Germany. Filed Nov. 28, 1892. Serial No. 453,303. (No model.) Patented in England Nov. 15, 1892. No. 20,629.

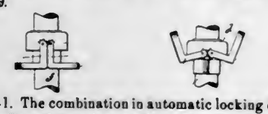


Claim.—1. A locking device for the ribs in umbrellas, consisting of a socket piece adapted to be fixed on the umbrella stick, a casing on said socket piece, a spring in said casing, semicircular bows for locking the ends of the ribs and provided with arms that are perpendicular to the bows, pivots on said arms working in said case and square heads on the pivots adapted to engage said springs so that the bows will be secured in both open and closed positions, substantially as described.

2. The combination with a locking device for the ends of ribs of umbrellas of a socket piece on the umbrella stick, a casing secured thereon, a compressible spring in said casing, and bows adapted to lock the ribs of the umbrella and provided with arms pivoted in said casing and carrying square heads that are adapted to act on said spring, substantially as described.

3. The combination with locking devices for ribs in umbrellas, and with the socket *g* and casing *d*, of a spring in said casing, arms pivoted in said casing and provided with heads having working faces at right angles each to each and adapted to be held by said spring in both the open and closed position, and bows connected with said arms and adapted to lock the ends of the ribs of the umbrella, substantially as described.

522,017. UMBRELLA-RIB-LOCKING DEVICE. FERDINAND W. T. JEDECK, Berlin, Germany. Original application filed Nov. 28, 1892, Serial No. 453,303. Divided and this application filed June 20, 1893. Serial No. 478,232. (No model.) Patented in England Nov. 15, 1892, No. 20,629.



Claim.—1. The combination in automatic locking devices for the ribs of umbrellas of a casing on the stick of the umbrella, bows adapted to lock the ribs of the umbrella, and angular arms on said bows pivoted in said casing and carrying gear like devices on their pivoted portions adapted to act one on the other when one of the bows is turned, and a spring in said casing adapted to be engaged by the pivoted portions of said angular arms, substantially as described.

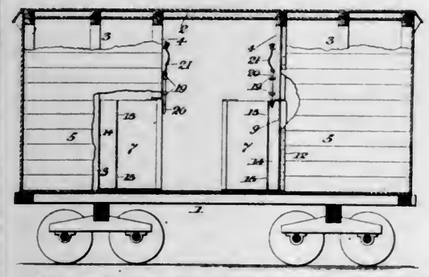
2. In automatic locking devices for the ribs of umbrellas, and in combination with the umbrella stick, casing and springs as described, bows for locking the ends of the ribs furnished with angular arms substantially at right angles to the bows and said angular arms being pivoted in said casing, furnished with heads that are adapted to work on said springs and are provided with gear like projections, whereby the motion of one bow imparts like motion to the other bow, substantially as described.

522,018. BABY-CARRIER. SELMA KEHLENBECK, Pleasant, Ind. Filed Oct. 5, 1893. Serial No. 487,270. (No model.)



Claim.—The herein described baby carrier, consisting of a band or belt the ends of which are secured by a buckle, and having attached to it a pocket for a nursing bottle and cross belt, so that the first belt is adapted to be suspended from the shoulder and diagonally across the body of the wearer, the lower part of the belt affording a seat for the child and the cross belt supporting its back while the nursing bottle is held in convenient position near the child.

522,019. CAR-DOOR. ISAAC V. KELLY, Huntington, W. Va. Filed Sept. 8, 1893. Serial No. 485,068. (No model.)



Claim.—1. In a grain or other car, the combination with the intermediate posts, the door posts cut away on their inner lower sides and with the inner walls of the car forming ways, of the outwardly opening and slidable doors and the extensions or boards to which said doors are hinged, working in said ways, substantially as described.

2. In a grain or other car, the combination with the intermediate posts, the door posts cut away on their inner lower sides and with the inner walls of the car forming ways, of the outwardly opening and slidable doors, the extensions to which said doors are hinged, working in said ways, and the horizontal guide bars secured to said posts, substantially as described.

3. In a grain or other car, the combination with the plates and sills and intermediate posts, and the door posts, cut away at their lower portions, of the inner side walls, the angle bars to which said walls are secured, the flange of said angle bar that stands at right angles to said door posts being cut away at the bottom and the remaining portion from which it was cut bent upward at right angles and secured to the floor of the car, said bar being left entire to the bottom of the inner wall of car, the vertical bars secured to said wall and to the car floor, and the slidable doors and extensions, substantially as described.

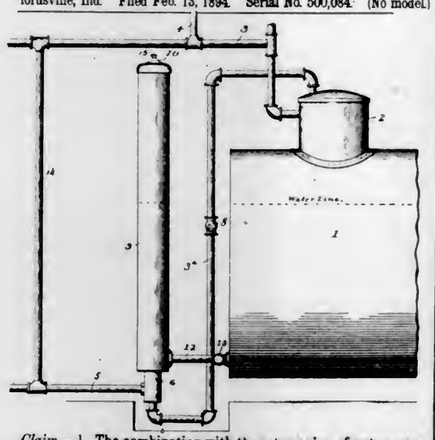
4. In a grain or other car, the combination with the intermediate posts, the door posts cut away at their lower inner sides and the inner walls, of the outwardly opening and slidable doors, the slidable extensions to which said doors are hinged, having a hole in their upper ends, and the vertically movable locking pins secured to the door posts and adapted to engage with the holes in said extensions by gravity, substantially as described.

5. In a grain or other car, the combination with the intermediate posts; the door posts cut away at their lower inner sides, and the inner walls, of the slidable doors and extensions, the hinges secured to said doors and extensions, the outer leaves of which have their ends bent at a right angle forming stops which engage with the door posts when the doors are open, substantially as described.

6. In a grain or other car, the combination with the intermediate posts, the door posts cut away at their lower inner ends or sides and the inner walls, of the slidable extensions having holes in their upper ends, the slidable doors, the hinges connecting said doors and extensions, the outer leaves of which have their free ends bent at a right angle forming stops adapted to engage with the door posts, and the vertically movable gravity pins connected with the door posts, and adapted to engage with the holes in said extensions, substantially as described.

7. In a grain or other car, the combination with the intermediate posts, the door posts cut away at their lower inner sides, and the inner walls, of the slidable extensions having holes in their upper ends, the slidable doors, the hinges connecting said doors and extensions, the outer leaves of which have their free ends bent at a right angle forming stops adapted to engage with the door posts, the vertically movable gravity pins connected with the door posts, and adapted to engage with the holes in said extensions, and the horizontal guide bars secured to said posts, substantially as described.

522,020. STEAM TRAP AND FEEDER. DAVID L. LONG, Crawfordsville, Ind. Filed Feb. 13, 1894. Serial No. 500,084. (No model.)

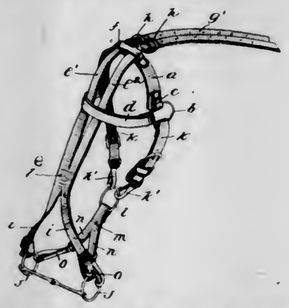


Claim.—1. The combination with the return-pipe of a steam conveyer, of a stand-pipe in communication with said return-pipe, and a live steam-pipe communicating with the stand-pipe at its lower end, whereby the partial condensation of the dry steam increases the circulation in said conveyer, substantially as specified.

2. In a steam-heating system, the combination with a dry steam conveyer having a return-pipe, of a stand-pipe, a nozzle connected with the said return-pipe and arranged axially in the stand-pipe, a cylindrical reservoir inclosing said stand-pipe, the latter being provided at its upper end with an outlet, and a live steam pipe connected with the lower end of the stand-pipe, whereby the water of condensation discharged from the nozzle connected with the return-pipe is elevated by the pressure of steam from the dry-steam pipe and is discharged into the surrounding reservoir, substantially as specified.

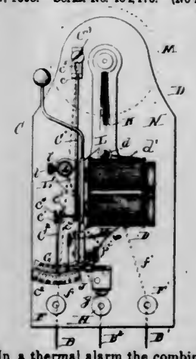
3. In a steam heating system, the combination with a dry steam conveyer having a return-pipe which is arranged below the plane of the water-line in a steam generating boiler, of a stand-pipe provided at its upper end with an outlet, a nozzle connected with the end of the return-pipe and arranged axially in the stand-pipe near its lower end, a cylindrical reservoir surrounding the stand-pipe and provided at its upper end with a vent, a connecting pipe between the lower end of the reservoir and the steam generating boiler, and a dry steam pipe communicating with the lower end of the stand-pipe and adapted to elevate the water of condensation discharged from the nozzle and force the same through the outlet at the upper end of the stand-pipe, substantially as specified.

522,021. BRIDLE. THOMAS MARCUM, Muscogee, Ind. Ter. Filed July 24, 1893. Serial No. 481,316. (No model.)



Claim.—A bridle, consisting of the top band *a*, having the loop *f*, and secured to the temple rings *b;* brow band *d*, secured to said temple rings; throat straps *k*, one end secured to said temple rings and the other terminating in snaps *k';* chin ring *l*, working in said snaps; strap *m*, one end secured to said chin ring, its lower end divided into two parts *n*, and terminating in snaps *o;* said snaps working on bit rings *j;* nose piece *e*, its lower end divided into two parts *i*, and secured to the bit rings *j;* its upper end divided into two parts *e'*, and *e*^{3}, and passing under the loop *f;* and stops *h*, secured on the upper end of said parts *e'*, and *e*^{3}, substantially as shown and described and for the purposes set forth

522,022. THERMAL ALARM. HOSEA F. MAKIM, Norfolk, Va. Filed Aug. 31, 1893. Serial No. 484,476. (No model.)



Claim.—1. In a thermal alarm the combination of the electro-magnetic alarm D, the electro-magnetic alarm I remote from said alarm D, a thermostat bar, a contact G, a contact J and two electric circuits, one circuit comprising said alarm I, said thermostat bar and said contact G, and the other of said circuits comprising said alarm D, said thermostat bar, and said contact J, both said contacts J and G lying in the path of the bar when moving in one direction whereby said electric circuits may be closed at the same time, substantially as and for the purposes set forth.

2. The combination of the electro-magnetic alarm D, the thermostat C having the expansible bar C', the contact movable thereby, the two electric circuits, the adjustable contact J, and the contact G movable relatively to said contact J, and adapted to be moved by means of the expansible bar C' substantially as described.

3. The combination of the electro-magnetic alarm D, the thermostat C, having an expansible bar or arm, the contact movable by said arm, the movable contact G, in the path of the aforesaid contact and adapted to be moved thereby, and the stationary but adjustable contact J, substantially as described.

4. The combination of the electro-magnetic alarm D, the thermostat having an expansible bar C', a stationary contact, and an independently mounted contact interposed between said bar and said stationary contact and adapted to be moved by said bar into engagement with said stationary contact, substantially as set forth.

5. The combination of the thermostat having the bar C', the index having a zero point intermediate of its ends, and subdivisions marked on either side thereof, a movable contact lying normally at said zero point, a contact on one side thereof, and a pointer or contact on the outer side thereof connected to said bar C', the last two said contacts being adjustable toward and from the said zero point on said index, substantially as and for the purposes set forth.

6. The combination of the electro-magnetic alarm, the contact G, the index c^3, the pivoted pointer or contact C^3, adapted to engage or contact with said contact G, the expansible thermostat bar C', and an adjustable connection between said bar and said pointer C^3, to regulate the movement of the latter, substantially as described.

7. The combination of the electro-magnetic alarm D, the contact G, the pivoted pointer or contact C^3, the longitudinally adjustable thermostat bar C', and the electric circuit connected to said bar, said pointer and to said contact G, substantially as described.

8. The combination of the base piece or support N, the expansible thermostat bar C' secured thereto, the vibrating contact C^3, the contact G, the contact J, the electro-magnetic alarm D, the binding posts or connections F, F' and H, the electric circuit connecting said posts respectively with the contacts C^3, J and G, one of said circuits passing through the magnetic alarm, substantially as described.

9. The combination with the index, the pivoted pointer, the thermostat bar connected at its free end to, and actuating said pointer, and an adjustable connection between said bar and said pointer, whereby said pointer may be rendered more sensitive to delicate variations in temperature, substantially as set forth.

10. The combination of the index, the pivoted pointer having a slotted heel, the thermostat bar actuating said pointer, and a bar adjustable on said thermostat bar, and having a projection lying in said slot, substantially as and for the purposes set forth.

522,023. PROCESS OF RECOVERING GLYCERIN AND SALT FROM SPENT SOAP-LYE. EBENEZER K. MITTING, Chicago, Ill., assignor, by mesne assignments, to Albert Domeier, London, England. Filed Aug. 3, 1891. Serial No. 401,490. (No specimens.)

Claim.—1. In the art of recovering glycerine and salt from spent soap lye the improvement which consists in adding lime to the lye and removing the precipitate, boiling the lye with fat, fatty acid or rosin and separating it from the soap thus formed, then adding lime to the lye and removing the precipitate and concentrating the clear liquor, substantially as specified.

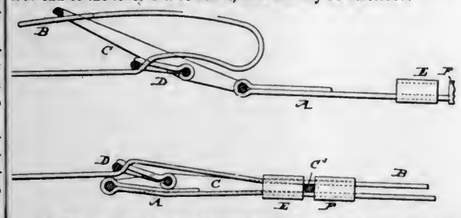
2. In the art of recovering glycerine and salt from spent soap lye the improvement which consists in adding lime to the lye and removing the precipitate, concentrating the clear liquor and boiling it with fat, fatty acid or rosin and separating it from the soap thus formed then adding lime and next removing the precipitate and concentrating the clear liquor, substantially as specified.

3. In the art of recovering glycerine and salt from spent soap lye the improvement which consists in adding lime to the lye and removing the precipitate, concentrating the clear lye and again adding lime and removing the precipitate, then boiling the lye with fat, fatty acid or rosin, removing it from the soap thus formed, again adding lime and removing the precipitate and finally concentrating the clear liquor, substantially as specified.

522,024. STRAP-FASTENER. FRANK I. MOORE, Chatham, N. J. Filed Dec. 5, 1893. Serial No. 492,824. (No model.)

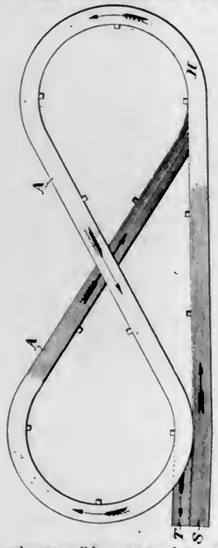
Claim.—1. The combination, with a strap, of a lever C, to one end of which an end A of the strap is attached, a buckle of the character described attached to said lever medially to fasten any point of the free end B of the strap thereto, and a fastening device on the strap end A to secure the free end of the lever C thereto, substantially as shown and described.

2. The combination, with a strap, of a lever C to one end of which an end A of the strap is attached, a buckle attached to said lever C medially, through and to which buckle the free end of the strap is passed and fastened and a keeper on the end A of the strap through which the free end of the strap is tucked, and by which the free end of the lever C is retained, substantially as described.



3. The combined strap fastener and tightener herein described, which consists of a lever C having the strap-attaching pivot C^3, a self fastening end C^3 and a strap-buckle D attached to the lever part-way between the strap-pivot C^3 and the end C^3

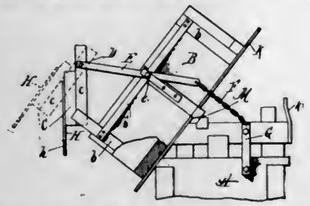
522,025. TOBOGGAN-SLIDE. EDWARD J. MORRIS, Philadelphia, Pa. Filed Mar. 16, 1894. Serial No. 503,849. (No model.)



Claim.—1. A toboggan slide way the intermediate courses or stretches of which are inclined and possess in plan the form of a figure 8, and the terminals of which are disposed side by side upon a practically common lower or ground level,—substantially as set forth.

2. A toboggan slide way consisting of intermediate courses or stretches which are elevated and inclined from a high point to the ground and disposed in reverse curves which form in plan a series of figures 8 overlying and continuous of each other, and the terminals of which exist side by side upon a practically common lower or ground level,—substantially as set forth.

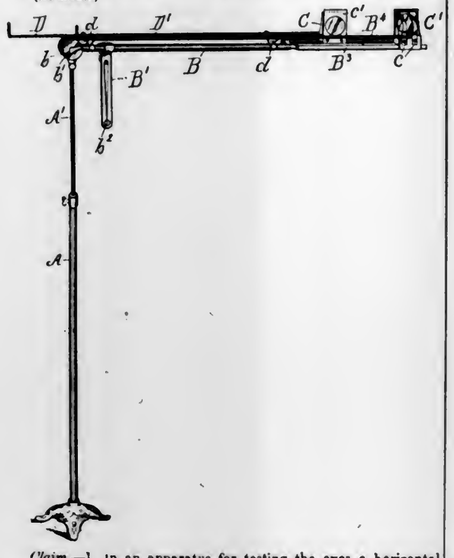
522,026. DUMP-CAR. PETER PETERSON, Chicago, Ill. Filed Mar. 3, 1894. Serial No. 502,238. (No model.)



Claim.—The combination with the truck and the body of a dump car, of a swinging side, C, rocking levers fulcrumed to the ends of the car body for supporting the side, C, chains for connecting the remoter

ends of the levers to the car truck and means for locking the side, C, in place when the car is upright, substantially as described and for the purpose specified.

522,027. APPARATUS FOR TESTING EYES. CHALMER M. C. PRENTICE, Watertown, S. D. Filed Oct. 5, 1891. Serial No. 407,817. (No model.)



Claim.—1. In an apparatus for testing the eyes, a horizontal prism carrier, movable prism holders mounted on said carrier and adapted to be switched independently of each other, substantially as described.

2. In an apparatus for testing the eyes, a horizontal prism carrier, movable prism holders mounted on said carrier and adapted to be switched independently of each other, and switch rods for operating said prism holders, substantially as described.

3. In an apparatus for testing the eyes, a vertical standard, a horizontal prism carrier, movable prism holders mounted on said carrier, and means for moving said holders by the operator from the opposite side of the standard, substantially as described.

4. In an apparatus for testing the eyes, a horizontal prism carrier adapted to carry two prism holders, two prism holders movably mounted on said carrier, one adapted to be inverted in its frame, and the other reversed laterally, substantially as described.

5. In an apparatus for testing the eyes, a horizontal prism carrier, two prism holders one for each eye mounted on said carrier, and a scale in the field of vision adapted to measure the effect of prisms on the binocular vision of a patient, substantially as described.

6. In an apparatus for testing the eyes, a horizontal prism carrier, two prism holders movably mounted on said carrier, and having movement independent of each other, and a scale in the field of vision, adapted to measure the effect of prisms on the binocular vision of a patient, substantially as described.

7. In an apparatus for testing the eyes, a horizontal prism carrier, two prism holders mounted on said carrier, and a reversible scale in the field of vision adapted to measure lateral and vertical deflections produced by prisms, substantially as described.

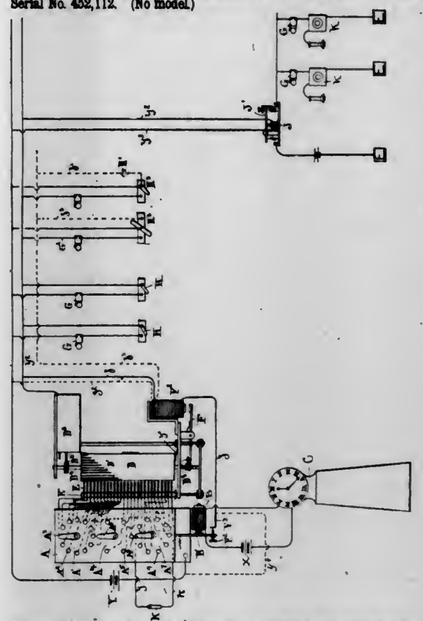
8. In an apparatus for testing the eyes, the combination of a vertically adjustable standard, a prism carrier swiveled to said standard and adapted to be adjusted to said horizontal position, and independently movable prism holders mounted on said carrier adapted to be switched independently of each other, and an index to indicate when said carrier is in a horizontal position, substantially as described.

522,028. PROCESS OF PURIFYING ILLUMINATING-OILS. WALTER B. PRICE, San Francisco, Cal. Filed Sept. 14, 1893. Serial No. 485,456. (No specimens.)

Claim.—1. A new process of purifying oils containing sulphur, which consists in treating the oil with nitric acid, nitrous acid or nitric peroxide and distilling the oil so treated with sulphuric acid.

2. A new process of purifying oils containing sulphur, which consists in distilling the oil, treating the distillate with nitric acid, nitrous acid or nitric peroxide and distilling the oil so treated with sulphuric acid.

522,029. ELECTRIC TIME-SIGNALING SYSTEM AND APPARATUS. WALTER A. PURCELL, Newark, N. J. Filed Nov. 16, 1892. Serial No. 452,112. (No model.)



Claim.—1. In a system for electrically transmitting time signals, the combination of a time switch device divided into circles not concentric, each circle being provided with switch points and a switch arm, brushes wired to said switch points, and a circuit wheel or drum through which one or a series of impulses may be sent, substantially as set forth.

2. A system for electrically transmitting time signals, comprising a time indicator, a time switch, a circuit wheel or drum, means for operating said circuit wheel or drum and said time switch, and means for controlling said operation comprising an electro-magnet in circuit with the time indicator and an electro-magnet in the main circuit or in a separate circuit, said electro-magnets operating armature levers to release the moving mechanism, and brushes connecting said circuit wheel or drum with said time switch, substantially as set forth.

3. A system for electrically transmitting time signals, comprising a time indicator, a time switch provided with contact points divided into series, each series being provided with a contact arm, means for operating said contact arms at suitable intervals, a series of brushes wired to said contact points, a circuit wheel or drum provided with contact ribs, and means for revolving said circuit wheel at proper intervals, substantially as set forth.

4. In a system for electrically transmitting time signals, the combination with a clock, a motor operated by said clock at determined intervals, of a time switch device divided into circles not concentric, each circle being provided with switch points and a switch arm, brushes wired to said switch points, and engaging with contacts upon a circuit wheel or drum, substantially as set forth.

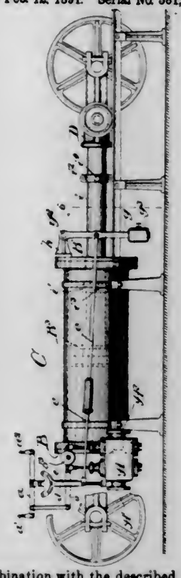
5. The combination with a time switch device provided with two or more series of contacts arranged in line, of a contact arm for each series, a circuit wheel formed as a cylinder adjacent to said time switch device, and brushes for said contact points, contacting with said cylinder to transmit one or a series of impulses through the same, substantially as set forth.

6. The combination with a circuit wheel or drum provided with a series of contact ribs of definite width, of another rib or ribs of greater width, and a circuit breaker wired to the last named rib or ribs, substantially as set forth.

7. In a system for electrically transmitting audible time signals, the combination with a time switch device provided with contact points and electrically actuated switch-arms, of a circuit wheel or drum provided with a series of contact ribs of definite width, and another rib of greater width, brushes for contacting with said ribs and wired to the contacts upon said time switch device, and a circuit

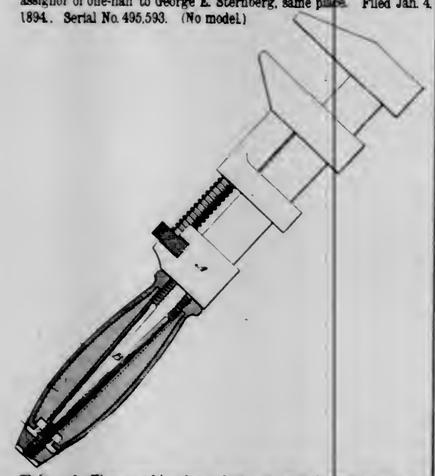
breaker interposed between the contact plate and the brush engaging with the rib or ribs of greater width, substantially as set forth.

522,030. HYDRAULIC ELEVATOR. JOSEPH REICHMANN, Chicago, Ill. Filed Feb. 12, 1891. Serial No. 381,156. (No model.)



Claim.—In combination with the described controlling valve of a hydraulic elevator, a weighted lever *b* connecting the valve-stems, a lever *a* linked to one end of the lever *b* and controlled from the elevator-car, a lever *c* limited as to its extent of motion and having tappets c^4 and c^5 and fulcrumed with relation to the lever *a* to adapt it to engage the same alternately at opposite sides of its fulcrum by the said tappets, a hydraulic engine containing a piston provided with projections on its rod, a rod *e* connected at one end with the lever *c*, and provided toward its opposite end with a weighted lever *g*, and a lever *g'* connected therewith and extending into the path of the said projections, the whole being constructed and arranged to operate substantially as described.

522,031. TOOL-HANDLE. LOUIS H. SCHMITT, New York, N. Y., assignor of one-half to George E. Sternberg, same place. Filed Jan. 4, 1894. Serial No. 495,593. (No model.)



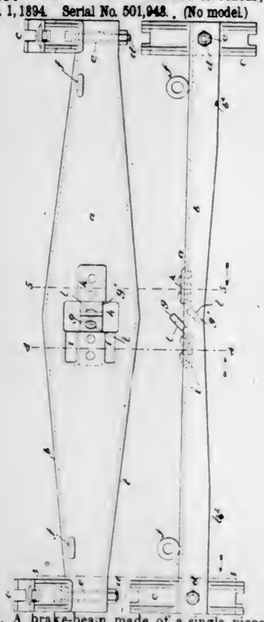
Claim.—1. The combination of the threaded tool-shank, the threaded collar having formed integral therewith the longitudinal tines grasping a channeled handle E with means as described to secure the outer ends of the tines, substantially as described.

2. The combination in a tool handle of the handle E channeled to receive two or more tines, said tines being attached at their inner end to a collar C and having their outer ends bent inwardly at substantially right angles and fastened for the purpose of preventing the handle E from slipping out, substantially as described.

3. The combination in a tool handle of the threaded tool shank adapted to extend entirely through a handle, with the collar C adapted to fit over the tool shank, and the longitudinal tines secured together at the outer end of the handle by a nut provided with an upwardly projecting flange, substantially as and for the purpose described.

4. The combination in a tool handle of the threaded shank, extending through and slightly beyond the handle E, with the collar C screw-threaded to fit over the shank B, and having formed integral therewith the longitudinal tines adapted to lie in channels in the side of the handle, and with the nut adapted to screw on to the tool shank, said nut being provided with the upwardly projecting flange, substantially as and for the purpose described.

522,032. BRAKE-BEAM. CHARLES T. SCHOEN, Allegheny, Pa. Filed Mar. 1, 1894. Serial No. 501,948. (No model.)



Claim.—1. A brake-beam made of a single piece of metal, of double-ended-wedge-shape and provided with side flanges, substantially as described.

2. A brake-beam made of a single piece of metal, widest at the middle and tapering toward its ends, having edge flanges terminating in lines parallel with the body of the beam and adapted to receive the brake-shoe-heads, substantially as described.

3. A brake-beam of metal having attached knee-pieces to receive the brake-lever, ribs between which one of such knee-pieces is received, and a pocket within which the other knee-piece is arranged, substantially as described.

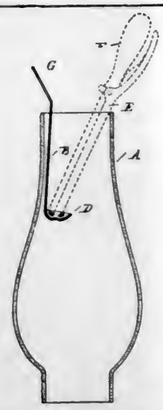
4. The combination of a brake beam made of a single piece of metal, widest at the middle and tapering toward its ends and having edge flanges terminating in parallel portions, brake-shoe-heads, bolts to unite the shoe heads and beam and tubular stay-pieces arranged between the parallel flanges and receiving the bolts, substantially as described.

522,033. CURLING-IRON HOLDER. MARK A. SHELDON, Detroit, Mich. Filed Feb. 13, 1894. Serial No. 500,047. (No model.)

Claim.—1. A curling iron holder consisting of a stem having extended arms at the top adapted to be hung upon the top of a chimney and a perforated foot extending out from one side only of the stem, at the bottom, substantially as described.

2. As a new article of manufacture, a curl-iron holder struck from a single piece of sheet metal and consisting of the stem B, the perforated cup shaped foot D at the lower end, the arms C extending from each side of the stem at the top of the angular ring shaped extension G, the parts combined as and for the purpose set forth.

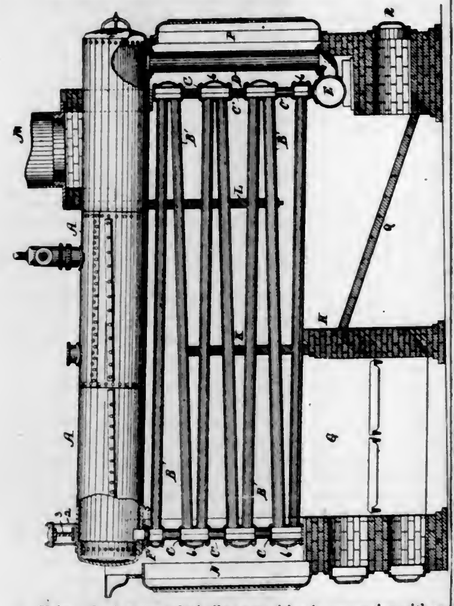
522,033.



522,034. MANUFACTURE OF STEEL. BENJAMIN TALBOT, Pencoyd, Pa. Filed Mar. 23, 1894. Serial No. 504,761. (No specimens.)

Claim.—The herein described improvement in the manufacture of steel which consists in standardizing the scrap charge for open hearth furnaces by casting the scrap with liquid cast iron in suitable molds forming blocks of uniform size and removing the mold when the liquid iron has set and bound the scrap, and charging the furnace with the blocks thus formed while in a heated condition, substantially as and for the purposes described.

522,035. WATER-TUBE STEAM-BOILER. JOHN W. VAN DYKE, Lima, Ohio. Filed July 20, 1893. Serial No. 481,046. (No model.)



Claim.—1. A water tube boiler comprising in connection with an elevated steam and water drum having its lower part exposed to the fire, oppositely inclined water tubes arranged under and lengthwise of said drum, headers through which extend vertical passages corresponding in section with said tubes, and an independent return conduit from the water space of said drum, substantially as described; whereby short circulating systems are provided through said vertical passages and water tubes in addition to the general circulation through the said drum, conduit, water tubes and headers, as set forth.

2. A water tube boiler comprising in connection with a steam and water drum, oppositely inclined water tubes at different levels, the intermediate tubes being connected by passages of corresponding size at one end with the lower ends of higher and lower level tubes and at the other end with the upper ends of higher and lower level tubes, and an independent return conduit from the water space of said drum, substantially as described; whereby in addition to the general circulation through the said drum, return conduit and water tubes, a succession of short circulating systems is provided with the said intermediate tubes common to adjoining systems as a connecting link between them, as set forth.

3. A water tube boiler comprising in connection with a steam and water drum, oppositely inclined water tubes, flexible headers composed of box like castings and connecting nipples through which vertical passages extend, and an independent return conduit from the water space of said drum, substantially as described.

4. A water tube boiler comprising in connection with an elevated steam and water drum having its lower part exposed to the fire, oppositely inclined water tubes arranged under and lengthwise of said drum, headers through which extend vertical passages corresponding in section with said tubes and which open into one end of said drum, and an independent conduit returning from said drum to the bottom part of the water tube system, substantially as described.

5. A water tube boiler comprising an inclined steam and water drum, in connection with oppositely inclined water tubes, headers through which vertical passages extend and which open into the higher end of said drum, and an independent return conduit from the lower end of said drum, substantially as described.

6. A water tube boiler comprising a steam and water drum, water tubes arranged in vertical rows with the tubes in the same vertical row alternately inclined in opposite directions, headers through which vertical passages extend, and an independent return conduit, substantially as described.

7. A water tube boiler comprising a steam and water drum, header boxes, nipples between said boxes, oppositely inclined water tubes connected with each of said boxes, and an independent return conduit, the nipples being of a length to separate said boxes from each other where two oppositely inclined water tubes are widely separated, substantially as described.

8. A water tube boiler comprising a steam and water drum, oppositely inclined water tubes, headers with passages through the same at both ends of the said tubes, and an independent return conduit, the headers at one end of said tubes opening more directly into one end of the said drum, and the headers at the opposite end of said tubes communicating more directly with the return conduit which leads from the opposite end of said drum, substantially as described.

9. A water tube steam boiler comprising oppositely inclined water tubes arranged at different levels, and headers with which said water tubes are connected and through which extend vertical passages corresponding in section with said tubes, in combination with a steam and water drum elevated above and connected with the upper part of said system of water tubes and headers, and an independent return conduit from the water space of said drum to the lower part of said water tube system; the said water tubes and headers forming lower and higher level circulation rings closed on themselves but communicating with each other and constituting together the rising leg of an inverted siphon which opens at both ends into the water space of said drum and whose descending leg is constituted by the said return conduit; substantially as described.

522,036. BUTTON-DRILLING MACHINE. JOSEPH WEBB, Deposit, N. Y. Filed May 6, 1893. Serial No. 473,235. (No model.)

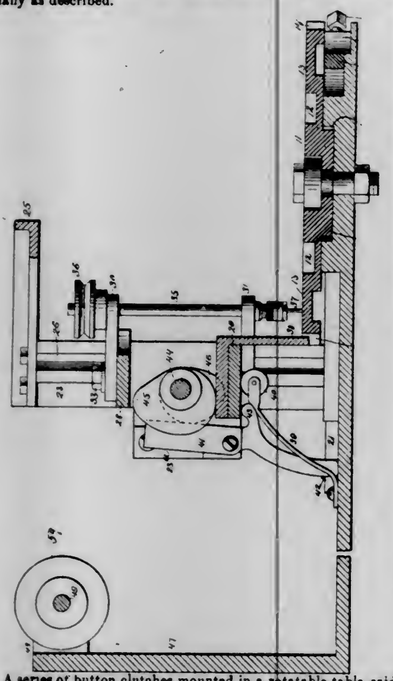
Claim.—1. In button drilling machines, a rotatable table carrying button clutches, each comprising a rigid and a movable member normally held in closed relation by a spring, and a cam-strip adapted to strike against a projection on the movable member and open the chuck; in combination with reciprocating drills, means for rotating the table and raising and lowering the drills, substantially as described.

2. A machine for drilling buttons, comprising an intermittently rotatable table, a number of button-clutching devices mounted radially upon such table and normally closed to grasp the buttons, means for opening such button-clutching devices to release the buttons when drilled, a gang of drills, a carriage for such drills including an open frame, working in upright guides, a cam arranged in the carriage, a shaft on which the cam is mounted and means to rotate such shaft, substantially as described.

3. A drill carriage comprising an open frame working in upright guides, and having drill spindles and drills secured thereto; a shaft carrying cams working in the frame of the carriage, one of said cams being adapted to raise and lower said carriage, and the other adapted to intermittently rotate a button table, in combination with a rotatable table, carrying button chucks, and a ratchet; a link carrying a spring pawl and actuated by a rocking lever manipulated by the feeding cam and the frame of the drill carriage; means for revolving the

drills, and means for revolving the cam shaft, substantially as described.

4. In a button drilling machine, the combination of a rotatable table, a number of button-clutching devices mounted radially upon such table and normally closed to grasp the buttons, means for opening such button-clutching devices to release the buttons when drilled, a gang of reciprocating drills, a carriage therefor mounted above said table and including an open frame working in upright guides, a spring acting upon the carriage normally to hold said drills above the work, a cam arranged in the carriage and adapted to be rotated to lower the drills against the tension of the spring, means for intermittently rotating the table and means for rotating the drills, substantially as described.

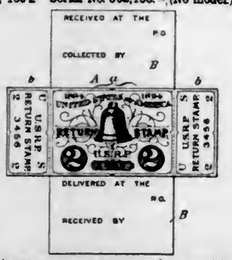


5. A series of button clutches mounted in a rotatable table, said clutches comprising a rigid and a movable member, the latter provided with a projection and normally held in closed relation by a spring; an adjustable cam-strip adapted to engage said projection, and to successively open the clutches to release the buttons, and to hold said clutches more or less open to permit the introduction of buttons, substantially as described.

6. In a button drilling machine, the combination of a rotatable table having a series of peripheral notches, a number of button-clutching devices mounted radially upon such table and normally closed to grasp the buttons, means for opening such button-clutching devices to release the buttons when drilled, a gang of reciprocating drills, a carriage therefor mounted above said table and including an open frame working in upright guides, and having a projection adapted to engage one or another of the notches in the table and to be freed therefrom, a spring acting upon the carriage normally to hold said drills above the work, a cam arranged in the carriage, and adapted to be rotated to lower the drills against the tension of the spring, means for intermittently rotating the table and means for rotating the drills, substantially as described.

7. In a button drilling machine, the combination of a rotatable table, a number of button-clutching devices mounted radially upon such table and normally closed to grasp the buttons, means for opening such button clutching devices to release the buttons when drilled, a gang of independently rotatable drills, set in different relative positions to an equal number of subjacent buttons and adapted to be brought into contact with the buttons to drill each with a hole in the proper relative position to the other holes drilled and to be drilled, a carriage in which said drills are mounted comprising an open frame working in upright guides, a spring acting upon the carriage normally to elevate it and the drills and a rotary cam adapted to act upon the carriage and lower it against the stress of the spring, substantially as described.

522,037. RETURN POSTAGE-STAMP. ROBERT S. WILLIAMS, Merchantville, N. J., assignor to Charles V. Williams, Philadelphia, Pa. Filed Mar. 3, 1894. Serial No. 502,188. (No model.)

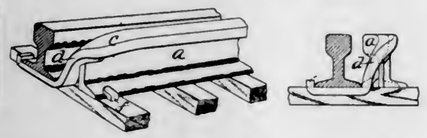


Claim.—1. A return postage stamp for attaching to letters consisting of a body portion, with wings or coupons at each side adapted to be attached to the letter and severed from the body of the stamp, in combination with a return card to which the body of the stamp is secured, substantially as described.

2. A return postage stamp for letters consisting of the body portion having a number thereon, with wings or coupons at each side to be secured to a letter, one or both of said coupons having numbers thereon corresponding to the numbers on the body of the stamp, in combination with a return card to which the body of the stamp is adapted to be secured, substantially as described.

3. The combination with a return card of a return postage stamp, consisting of the body portion secured to the return card, a number thereon, wings or coupons at each side of the stamp and having numbers corresponding to the numbers on the body, the wings or coupons of said stamp being gummed at the back so that the wings can be attached to an envelope or parcel sent by mail, whereby the body of the stamp and return card can be readily severed from the letter or other parcel, substantially as described.

522,038. GUARD-RAIL. GORHAM B. AMES, Laconia, N. H. Filed Aug. 5, 1893. Serial No. 482,451. (No model.)



Claim.—A guard-rail comprising in its construction an arm extending from its tread or top inward and downward, reaching under the base of the rail in service and provided at its end with an upturned part adapted to engage the outer edge of the base of said rail in service, as set forth.

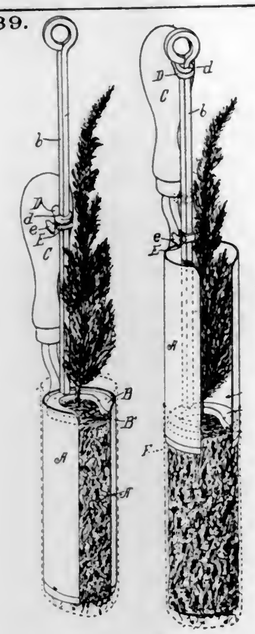
522,039. TRANSPLANTER FOR TREES OR FLOWERS. HERMAN BALDRIDGE, Los Angeles, Cal. Filed June 1, 1893. Serial No. 476,250. (No model.)

Claim.—1. The transplanter set forth consisting of the combination with a tubular blade provided with a handle and having a slot in one side to allow the introduction of the plant into such blade, of a follower arranged to reciprocate in such blade and provided with an opening arranged and adapted to allow the introduction of the plant into such blade through the slot therein, and a suitable plunger arranged to reciprocate the follower.

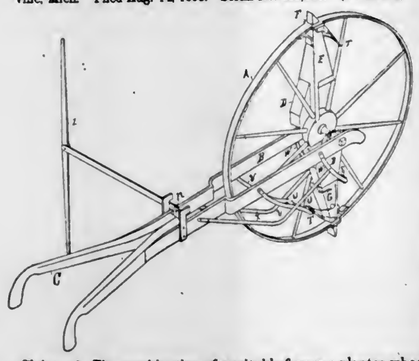
2. The transplanter set forth, comprising a tubular blade having in one side a slot and provided with a handle; a plunger guide fixed to such handle; a follower arranged to reciprocate in such tubular blade and provided with a plant receiving opening arranged to receive a plant therein through the slot in the tubular blade; a plunger arranged in the plunger guide and provided with an adjustable stop adapted for adjustment upon the plunger and to engage the plunger guide to limit the upward movement of the follower.

3. The transplanter set forth comprising the tubular blade provided in one side with the slot and provided with a handle; a plunger guide fixed to such handle and provided with the angular guide opening; a follower arranged to reciprocate in such tubular blade and provided with the plant receiving opening arranged to receive the plant therein through the slot in the tubular blade; the plunger, angular in cross section attached at its lower end to the follower, and arranged in the angular plunger guide, and an adjustable stop arranged for adjustment upon the plunger to engage the plunger guide to limit the upward movement of the follower.

522,039.



522,040. CORN-PLANTER. CHARLES A. BEERSTECHER, Centreville, Mich. Filed Aug. 14, 1893. Serial No. 483,140. (No model.)

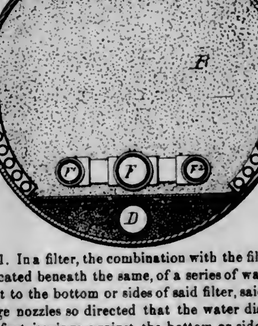


Claim.—1. The combination of a suitable frame, a planter-wheel having bearings in said frame and provided with holes centrally through the rim, said boxes carried by said wheel having the lower portions jogged by the upper portions and passed through said holes in the rim, dropping mechanism in said seed boxes, having the operating U-levers, with the outwardly projecting free ends, said seed boxes having the hinged door at the spade-end, arms pendent from said frame, said arms having the rollers in the lower end, with which the U-lever and the seed box door are brought in contact, to operate the same by the revolution of the wheel; substantially as set forth.

2. The combination of a suitable frame, a planter-wheel having suitable bearings therein, the two-part seed box having a chamber between the two parts where they join, a hole leading out of the upper compartment into said chamber, and a hole leading out of said chamber into the lower compartment, the pivoted, spring-actuated U-lever, provided with a seed pocket and a laterally extending plate at the inner end, the other end extending outwardly by the side of the box, and an arm pendent from said frame, bearing a roller at its free end, with which the free end of said U-lever is brought in contact to operate the same by the revolution of the wheel; substantially as set forth.

3. The combination of a suitable frame, having suitable handles at one end, a planter-wheel having bearings in the other end of said frame and provided with holes centrally through the rim, said boxes carried by said wheel having the lower portions jogged by the upper portions and passed through said holes in the rim, dropping mechanism in said seed boxes, having the operating U-levers, with the outwardly projecting free ends, said seed boxes having the hinged door at the spade-end, arms pendent from said frame, said arms having the rollers in the lower end, with which the U-lever and the seed box door are brought in contact, to operate the same by the revolution of the wheel, and a pawl and ratchet, preventing the planter-wheel from revolving in the wrong direction: substantially as set forth.

522,041. FILTER. JOSEPH BERNSTEIN and MAX KOHN, Philadelphia, Pa. Filed Jan. 2, 1894. Serial No. 495,307. (No model.)



Claim.—1. In a filter, the combination of a vertically-disposed casing provided with an inlet and outlet at or near its bottom and top, respectively, the filtering substance supported in said casing above the inlet, and a cut-away plate arranged below said inlet to form a lower chamber to receive mud and other deposits and to prevent their passage to the filtering substance.

2. In a filter, the combination of a vertically-disposed casing, provided with an inlet and outlet arranged as described, and with a detachable lower head, diaphragms in said casing, filtering substances between the same, a screw-rod fitted to the detachable head to act upon one of said diaphragms, and a plate supported upon said detachable head below the inlet to form a lower chamber to receive the mud and other deposits and to prevent their passage to the filtering substance.

522,042. PROCESS OF PRINTING INDIGO. ANDRÉ BLANCHON and AUGUSTIN ALLEGRET, Lyons, France. Filed Apr. 10, 1894. Serial No. 507,038. (No specimens.)

Claim.—The process herein-described of printing with indigo on textile fabrics or yarns, which consists in mixing refined or crude indigo with a solution of a thickening substance in water, printing the fabrics or yarns with this mixture, passing the same through a reducing bath for reducing the indigo deposited on the fabrics or yarns, and reoxidizing the indigo in the usual manner, substantially as set forth.

522,043. FILTER. JUNIUS A. BOWDEN, Detroit, Mich. Filed Feb. 13, 1890. Serial No. 340,316. (No model.) Patented in England June 3, 1890, No. 8,568.

Claim.—1. In a filter, the combination with the filter bed and an outlet pipe located beneath the same, of a series of washing pipes located adjacent to the bottom or sides of said filter, said pipes having their discharge nozzles so directed that the water discharged from the pipe will first impinge against the bottom or sides of the filter, substantially as described.

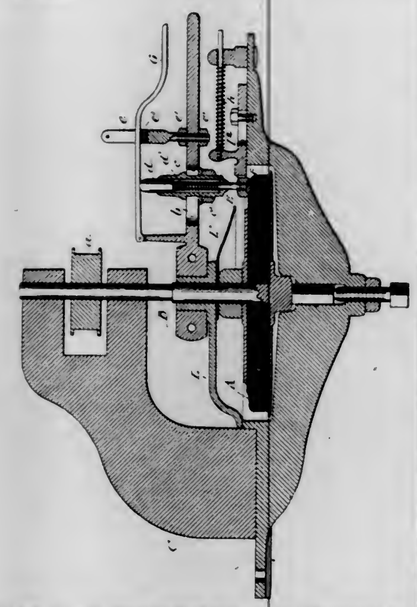
2. In a filter, the combination with the filter bed, the outlet pipe D located beneath the same, and the guard plate E located above the said pipe, of the flushing pipes F—F'—F², said pipes having their openings directed downward, whereby water as it issues from the flushing pipes would impinge against the guard plate E, substantially as described.

3. In a filter, the combination with a filter case, the filter bed, and the washing pipes H, located horizontally immediately above the surface of the filter bed and provided with horizontal nozzles *h*, to direct streams of water across the surface of the bed, of the drain pipe H' located adjacent to the surface of the filter bed, and the valve K, located in the case above the surface of the bed to admit air when water is being drained from the surface of the bed, substantially as described.

4. In a filter, the combination of the filter case, the filter bed, a horizontal outlet pipe located beneath the bed and composed of an open frame-work of ribs *d*, having a wire covering *d'*, and a guard plate located above said outlet pipe, substantially as described.

522,044. APPARATUS FOR FORMING PEARL BUTTONS.

GEORGE CARLYLE, Detroit, Mich., assignor to the Standard Pearl Button Company, Limited, same place. Filed Feb. 10, 1892. Serial No. 421,006. (No model.)



Claim.—1. In a button forming machine, the combination with a grinding wheel having a shaped grinding surface around the edge of one side of the wheel, of a swinging blank holder for moving the blank in a plane parallel with the grinding-wheel, and means for rotating the blank holder, substantially as set forth.

2. In a button making machine, the combination with a grinding wheel having a shaped grinding surface around the edge of one side of the wheel, of a blank holder, a laterally swinging arm carrying said holder, adapted to move the blank in a plane parallel with the grinding wheel, and a curved bar against which said blank holder impinges through which said holder is rotated when moved laterally by the swinging arm, substantially as set forth.

3. In a button making machine, the combination with a grinding wheel having a shaped grinding surface around the edge of one side of the wheel, a laterally swinging arm, a vertically moving blank holder carried by said arm, and means carried by said arm for moving said blank holder to grasp a blank and for retaining such blank in contact with the grinding wheel, substantially as set forth.

4. In a button making machine, the combination with a grinding wheel having a shaped grinding surface around the edge of one side of the wheel, a laterally swinging arm, a vertically moving blank holder carried by said arm, means carried by said arm for moving said blank holder to grasp a blank and for retaining such blank in contact with the grinding surface, and a curved bar against which said blank holder impinges through which said holder is rotated in the swinging arm when moved laterally thereby, substantially as set forth.

5. In a pearl button forming machine, the combination with a horizontal-grinding wheel, of a horizontal feed-table, a vertical blank-holder having a swinging movement over such feed-table and adapted to be depressed upon a blank upon such table and to move the blank while held horizontally off of the feed-table and upon the grinding-wheel, substantially as set forth.

6. In a pearl button forming machine, the combination with a horizontal rotating grinding-wheel and swinging blank-holder, of the scraper for removing the buttons from the wheel, substantially as set forth.

7. In a pearl button forming machine, the combination with the rotating grinding-wheel, of the feed-table, the swinging arm carrying the vertically moving blank-holder, the lever for depressing such blank-holder, and the curved bar for rotating the blank-holder, substantially as set forth.

8. In a button forming machine, the combination with a grinding wheel, a blank holder, a swinging arm for moving the blank in a plane parallel with the grinding wheel, and an adjustable bar against which said blank holder impinges through which said holder is rotated when moved by the swinging arm, substantially as set forth.

522,045. LETTER-BOX.

THOMAS C. CHAPPELL, Baltimore, Md. Filed Feb. 7, 1893. Serial No. 461,310. (No model.)



Claim.—1. The combination of the box having a partly spherical top and a semi-cylindric front with the mouth of the box located at the intersection of said top and front; a spherical guard transversely pivoted to oscillate within the box, and having a pocket formed therein with faces, *b*, *b'*, normally registering with the lower and top-edges of the mouth of the box respectively; a flange, *c*, on the face, *b*, and normally abutting against the mouth of the box and adapted when the guard is oscillated to pass within the top-edge of the mouth of the box; and a lip, *c'*, on the spherical guard adapted to co-act with the stop, c^3, on the box, A, to limit the oscillation of the spherical guard, substantially as described.

2. The combination of the box having a spherical top and a semi-cylindric front, with the mouth of the box located at the intersection of the said top and front; a spherical guard transversely pivoted to oscillate within the mouth of the box and having a pocket formed therein with faces, *b*, *b'*; a flange, *c*, formed on the face, *b*; a lip, *c'*, on the spherical guard and adapted when the spherical guard is oscillated, to abut against the stop, c^3, on the box; and a weight, *d*, disposed on the spherical guard to retain the same in a normal position, wherein the faces, *b*, *b'*, register respectively with the lower and top edges of the mouth of the box, substantially as described.

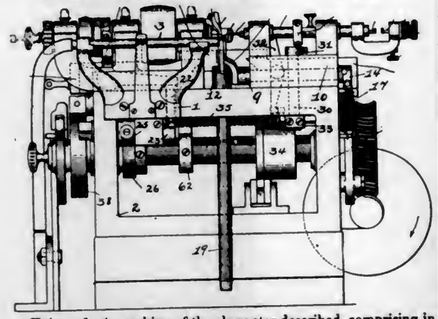
3. An improved mail box having in combination a part-spherical top and a semi-cylindric front; the mouth of the box located at the intersection of said top and front; a spherical guard mounted below said top to oscillate within said box and having a pocket which normally stands open co-incident with the mouth, substantially as described.

4. The combination with a mail box, of a bottom which slopes or slants across from one side to the other, and which in the transverse direction is concave or semi-cylindrical, as set forth.

5. the combination of a letter box having a top and front wall with a mouth at the intersection of said top and front, said mouth standing normally open; a guard pivoted to oscillate within the box and having a surface whereon letters may be placed whenever the mouth is normally open, and provided with an inner and an outer edge which guards the entrance to the box and the mouth-entrance so that when one is open the other is closed, as set forth.

522,046. JEWEL-PIPING MACHINE.

DUANE H. CHURCH, Newton, Mass. Filed Oct. 9, 1893. Serial No. 487,621. (No model.)



Claim.—1. A machine of the character described, comprising in its construction a plunger for carrying the work into the chuck, a calipering device which determines the extent of movement of the plunger, and means for regulating the travel of the tool by the movement of the plunger.

2. In a machine of the character described, the combination of a chuck having a yielding base, a plunger for carrying the work into the chuck, a calipering device which determines the extent of movement of the plunger, and means for regulating the travel of the tool by the movement of the plunger.

522,047. WHEEL-RIM AND METHOD OF MAKING SAME.

CHARLES F. COWDREY, Fitchburg, Mass. Filed Mar. 21, 1894. Serial No. 504,589. (No model.)



Claim.—1. A rim for wheels consisting of a fibrous annular body portion, and an inclosing sheath of fibrous material bent around and cemented to said body portion, substantially as described.

2. A rim for wheels consisting of a fibrous annular body portion having a concave periphery, and an inclosing fibrous sheath bent around said body portion and having its edges bent over upon and cemented to its concave face, substantially as described.

3. A rim for wheels consisting of a body portion composed of a strip of material wound upon itself to form a plurality of continuous layers or plies, and cemented together, and an inclosing sheath of fibrous material bent around and secured to said body portion, substantially as described.

4. A rim for wheels consisting of paper in strip form wound upon itself to form a plurality of layers or plies, and cemented together, and compressed to form a tire groove, the inner or first wound layers being of greater width, the projecting edges being turned over upon the superposed narrower plies and secured thereto, substantially as described.

5. A rim for wheels consisting of paper in strip form wound upon itself to form a plurality of layers or plies, and cemented together, the innermost layer or ply being of greater width than the outer ones, and adapted to be folded thereover, substantially as described.

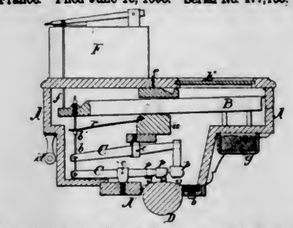
6. A rim for wheels consisting of two strips of similar material wound one upon another to form a plurality of layers or plies, one of said strips being wider than the other, whereby its projecting edges may be turned over upon and to inclose the plies formed by the narrower strip, substantially as described.

7. The herein described method of making wheel rims, which consists in winding a wide and a narrow portion of fabric successively to form an annular blank; cementing contacting faces of adjacent layers or plies; compressing and shaping the blank, and finally turning the projecting edges of the wider portion over upon and securing them to the narrow plies, substantially as described.

8. The herein described method of making wheel rims, which consists in winding a strip of paper upon itself to form a ring; winding thereupon a narrower portion of paper to form a plurality of layers or plies; cementing the plies together; subjecting the blank to pressure to shape it; and finally turning over the projecting edges of the wide portion upon the inner narrower plies, substantially as described.

522,048. MOVABLE KEYBOARD.

LOUIS J. M. DUVIVIER, Nevers, France. Filed June 10, 1893. Serial No. 477,185. (No model.)

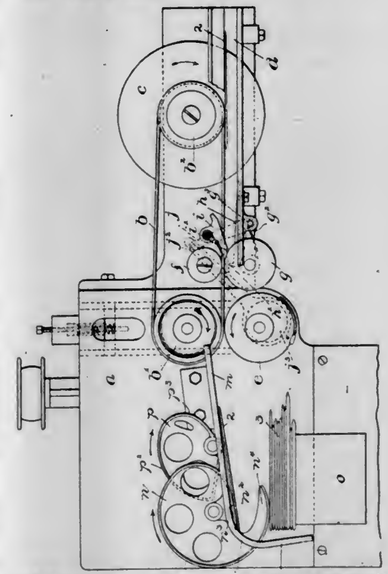


Claim.—1. An attachment for basses or similar instruments, the said attachment comprising a key-board and levers adapted to be actuated by the keys to press on the strings of the instrument, in combination with a stay H hinged to the support to which the ends of the strings are secured, the said stay being provided with a hook to engage with the top of the bridge supporting the strings of the instrument to prevent the bridge being thrown down by the said levers.

2. An attachment for basses or similar instruments comprising a key-board and levers adapted to be actuated by the keys to press on the strings of the instrument, in combination with a trestle hinged to the instrument and adapted to be locked in a position to support the instrument at an inclination suitable for the proper use of the key-board.

522,049. MAIL-MARKING MACHINE.

FRANK N. ETHRIDGE, Boston, Mass., assignor to Albert Leavitt, same place. Filed Nov. 7, 1893. Serial No. 490,252. (No model.)



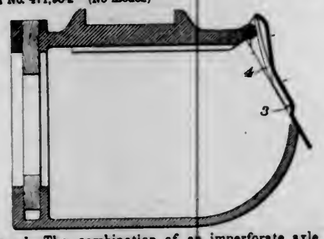
Claim.—1. The combination with an endless conveyer, of a rotary feeding disk or table extending under the acting stretch of said conveyer, for the purpose described.

2. The combination of an endless conveyer, the rotary supports therefor having vertical axes and one of said supports carrying a horizontal table which extends across the acting stretch of the conveyer, substantially as and for the purpose described.

3. A mail-marking machine, comprising in its construction an endless conveyer, a stop to intercept the mail-pieces, a yielding finger adapted to deflect the said pieces and formed with a shoulder, and means for moving the mail-pieces free of the stop and against the shoulder of said finger and into contact with the conveyer.

4. In a mail-marking machine, a rotary disk having a throat to receive the marked mail-pieces and a cam-surface for stacking the said pieces, and an auxiliary rotary stacking-disk adapted to act on a different part of a mail-piece in its length.

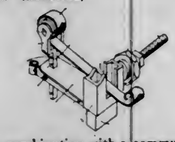
522,050. AXLE-BOX LID. PHILO N. FRENCH, Pittsburg, Pa., assignor to the Morris Box Lid Company, same place. Filed Apr. 26, 1893. Serial No. 471,934. (No model.)



Claim.—1. The combination of an imperforate axle box lid formed of wrought iron or steel and having a groove in its under side, and a closing spring having a portion thereof arranged within the groove, the walls of the latter being pressed tightly around the spring, substantially as set forth.

2. The combination of an axle box lid having parallel ribs formed therein and a closing spring having a portion thereof arranged in the groove formed by the ribs, the latter being pressed tightly against the spring so as to clamp the same in position, substantially as set forth.

522,051. BRUSH-HOLDER FOR DYNAMO-ELECTRIC MACHINES. RODOLPHUS FULLER, Detroit, Mich. Filed Mar. 19, 1894. Serial No. 504,159. (No model.)



Claim.—1. The combination with a commutator of a supporting yoke, a brush holder having a socket therein, a squared stem projecting from the side of the brush holder engaging a corresponding aperture in the yoke, screw-threaded bearings on the stem on both sides of the squared portions nuts thereon to adjust the brush holder longitudinally upon the commutator, a lateral arm extending from the brush holder, a brush slidingly secured in the socket in the brush holder, an adjustable standard on the rear end of the arm, and a spring secured in said standard having its free end engaging over the brush substantially as described.

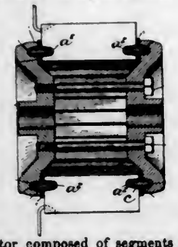
2. In a brush holder, the combination of a brush holding socket having the central transverse guide bearing thereon, the lateral arm extending from the socket, an adjustable standard in the end of the arm and a spring secured in said standard and adapted to engage in the guide bearing of the socket upon the brush, substantially as described.

3. In a brush holder, the combination of a brush holding socket having a transverse guide bearing at the top, a lateral arm projecting from the socket below the bearing, a vertical adjustable standard at the end of the arm, a bifurcation at the top of the standard, a cross-bar, a spring coiled about said cross bar and having its free end extending over the arm and engaging upon the carbon in the guide bearing of the socket, and means for adjustably supporting the socket in the yoke, substantially as described.

4. In a brush holder, the combination of the brush socket, the lateral arm projecting therefrom, the standard N slidingly engaging in a bearing at the end of the arm, a spring secured to the side of the arm and having a pin engaging in any one of a series of notches in said standard, the coil spring S at the top of the standard having the extension S' adapted to engage, upon the brush, the parts being arranged as and for the purpose described.

522,052. COMMUTATOR. JOHN C. FYFE, Chicago, Ill., assignor of one-half to James Hayes, same place. Filed Apr. 14, 1894. Serial No. 507,571. (No model.)

Claim.—1. A commutator composed of segments insulated from each other and arranged in the form of a cylinder and provided with an annular groove in the face or end thereof, a metallic assembling ring adapted to fit into said groove and insulated from the segment, caps located on opposite sides of the segments and insulated from said segments and ring, the said caps adapted to secure the assembling ring in the grooves of the segments, substantially as described.



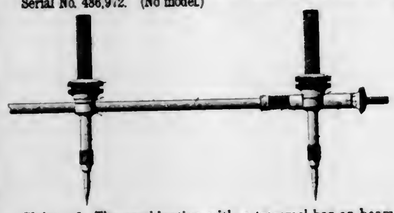
2. A commutator composed of segments insulated from each other and arranged in the form of a cylinder and provided with annular grooves in the faces or ends thereof, caps arranged on the opposite sides of the segments and having annular grooves therein oppositely arranged to the grooves of the segments, a metallic assembling ring arranged to engage the grooves of the segments and grooves of the caps, the said assembling ring being insulated from the grooves and caps, and means connecting the two caps for securing the parts together, substantially as described.

3. A commutator composed of segments insulated from each other and arranged in the form of a cylinder and provided with annular grooves in the faces or ends thereof, in combination with caps arranged on the opposite sides of the segments and having annular grooves therein oppositely arranged to the grooves of the segments, an assembling ring arranged to engage the grooves of the segments and grooves of the caps, the said ring being insulated from the grooves and caps, and bolts connecting the two caps for securing the parts together, substantially as described.

4. A commutator composed of segments insulated from each other and arranged in the form of a cylinder and provided with tapering annular grooves in the faces or ends thereof, in combination with caps arranged on the opposite sides of the segments and having tapering annular grooves therein oppositely arranged to the grooves of the segments, a metallic assembling ring arranged to engage the grooves of the segments and grooves of the caps, the said ring being insulated from the segments and caps, and means connecting the two caps for securing the parts together, substantially as described.

5. A commutator composed of segments insulated from each other and arranged in the form of a cylinder and provided with annular grooves in the faces or ends thereof, in combination with caps arranged on the opposite sides of the segments and having annular grooves therein oppositely arranged to the grooves of the segments, a metallic assembling ring arranged to engage the grooves of the segments and grooves of the caps, the said ring being insulated from the grooves and caps, and bolts connecting the two caps for securing the parts together, substantially as described.

522,053. TRAMMEL. WILLIAM H. GATES, Worcester, Mass., assignor of one-half to Ernest F. Dakin, same place. Filed Oct. 2, 1893. Serial No. 486,972. (No model.)

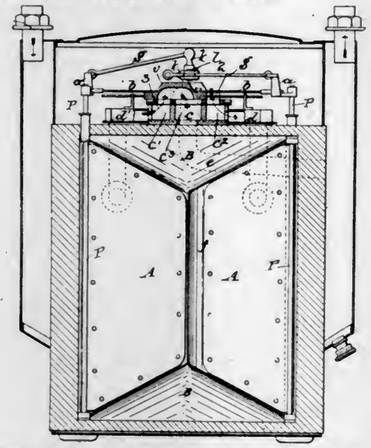


Claim.—1. The combination with a trammel bar or beam, flattened on its top surface, and a slide or head carrying a trammel point, supported and horizontally movable on said bar or beam, of means for adjusting said slide or head, consisting of a thumb nut supported and turning on a screw thread, at one end of the trammel bar, and engaging a collar interposed between said slide and nut, and a coil spring supported on the trammel bar, on the opposite side of said slide from said thumb nut, and bearing at one end against a collar secured upon the trammel bar, and at its other end against a collar loosely supported on the bar between said spring and slide, substantially as shown and described.

2. The combination with a trammel bar or beam, flattened upon its top surface, and having one end of reduced diameter and screw threaded, and two slides or heads carrying trammel points, supported and adapted to move horizontally on said bar, and means for securing said slides or heads to the bar, consisting of a thumb nut, turning on said slides, a collar loosely mounted on said slides, and engaged by said thumb nut, and held against the flattened surface of the trammel bar or beam, of means for obtaining a fine adjustment of one of said slides upon the trammel bar or beam, consisting of a spiral spring supported on the trammel bar, on the inside of the slide, and adapted to act to move the slide toward the end of the bar, and a thumb nut turning on the screw threaded end of the trammel bar, and adapted to move the slide inward against the action of said spring, substantially as set forth.

3. The combination with a trammel bar or beam, flattened on its top surface, and a slide or head supported and horizontally movable on said bar or beam, said slide or head carrying a removable point adapted to extend into a vertical hole therein, with the inner end of the point bearing against the inner end of said hole, and having its upper portion of larger diameter than its lower portion, to form a shoulder on the point, below the end of the slide, and a binding nut or screw, provided with an internal shoulder to engage the shoulder on the point, and screwed onto the end of the slide, to secure the point thereto, of means for obtaining the fine adjustment of the slide upon the trammel bar or beam, consisting of a spiral spring supported on the trammel bar, on the inside of the slide, and adapted to act to move the slide toward the end of the bar, and a thumb nut turning on the screw threaded end of the trammel bar, and adapted to move the slide inward against the action of said spring, substantially as set forth.

522,054. GAS-METER. EMIL HAAS, Mentz, Germany. Filed Nov. 28, 1892. Serial No. 453,369. (No model.)



Claim.—1. In a gas meter the combination of the outer casing having the interior grooves *i*, the measuring chambers having swinging vanes therein, said chambers also having extensions or flanges inclosing the edges of the vane membranes and being seated in the channels *i*, substantially as described.

2. In combination, the diamond shaped chamber having the tubular extensions or enlargements *q* at its ends communicating with the interior the chamber, the vane in the chamber the vane shafts in the tubular extensions for holding the said vanes, the valve and the connections between the valve and the vane shafts, substantially as described.

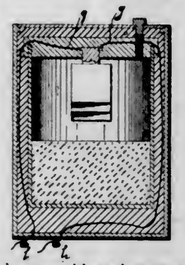
3. In combination, the two chambers arranged side by side, the vibrating vanes in said chambers, the two slide valves arranged side by side, the arms *a* connected with the vane shafts, the crank shaft extending over the slide valves and the rods *g* and *b* for connecting the arms *a* with the crank shaft and slide valves respectively, substantially as described.

522,055. CIRCUIT-MAKER. DANIEL F. HALL, Schenectady, N. Y. Filed Oct. 16, 1893. Serial No. 488,227. (No model.)

Claim.—1. A circuit maker comprising a bracket, a supporting arm pivoted thereto, a battery receptacle having circuit wires secured thereto and in which receptacle, the elements forming the battery are held normally apart and adapted to coalesce when the receptacle is inverted.

2. A circuit maker comprising a bracket, having a lug thereon, a supporting arm having shoulder adapted to engage with said lug on its upper side and pivoted thereto, a receptacle having circuit wires secured thereto and in which receptacle, the elements forming the battery are held normally apart and adapted to coalesce when the receptacle is inverted.

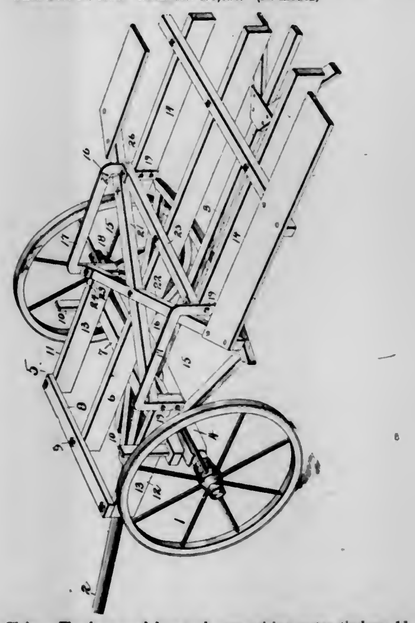
3. A circuit maker forming a bracket, a supporting arm pivoted thereto, a battery receptacle having circuit wires secured thereto, and in which receptacle, the elements forming the battery are held normally apart and adapted to coalesce when the receptacle is inverted, and a fusible strut adapted to hold the battery receptacle upright.



4. A circuit maker comprising a battery receptacle having circuit wires secured thereto, the elements forming the battery held normally apart and adapted to coalesce when said receptacle is inverted and a fusible strut adapted to support said receptacle normally upright.

5. In the circuit maker a battery receptacle comprising a jar having the elements forming the battery normally apart and circuit wires permanently connected to the electrodes, said wires passing around outside of said receptacle, a layer of plaster of paris or similar material covering said wires and a casing as set forth.

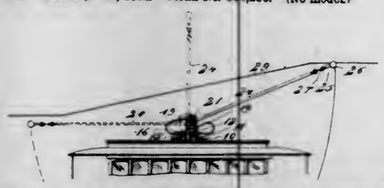
522,056. HAY-RACK. GEORGE HAUSMANN, Washington, Mo. Filed Nov. 13, 1893. Serial No. 490,826. (No model.)



Claim.—The improved hay-rack, comprising outer timbers 11 and 12 formed each in separate short front and rear sections with a space between the adjacent ends of the front and rear sections on each side of the rack, two arches 16 extending upward to a plane above that of the floor of the rack and forming elevated fenders for the front wheels of the wagon, each having a straight horizontal portion 17, vertical portions 18 at the ends of said horizontal portion, the lower ends of said vertical portions being bent up and forming U-shaped spaces thereat, and ears 23, 26 formed upon said vertical portions and projecting therefrom inwardly one directly above each of said U-shaped spaces, the inner ends of said front and rear sections being

located in said U-shaped spaces, a transverse bar 25 extending across said timbers and having its ends bolted to the said ears 26 at the rear portion of said arches, and additional parts bolted to the front ears 23 of said arches, substantially as herein specified.

522,057. TROLLEY-STAND. ELEAZER F. A. HEASTINGS, Avalon, Pa. Filed Apr. 12, 1894. Serial No. 507,238. (No model.)

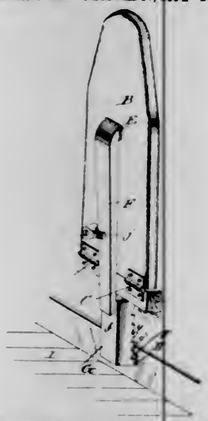


Claim.—1. A trolley stand, comprising a base, a bracket held to turn horizontally thereon, a second pole-carrying bracket pivoted on the first bracket, and bow springs projecting from opposite ends of the first bracket and pivoted to opposite ends of the pole-carrying bracket, substantially as described.

2. A trolley stand, comprising a base adapted to be secured to a car, a pivot post mounted in the base, a bracket journaled on the pivot post and provided with upwardly-extending arms, a second bracket held in the arms of the first one and adapted to carry a pole, and bow springs connecting the two brackets, substantially as described.

3. A trolley stand, comprising a flat topped base, a bracket journaled on the base to turn horizontally and provided with upwardly-extending arms, a second bracket pivoted between the arms of the first bracket and adapted to carry a trolley pole, and bow springs clamped to the lower bracket and having their upper ends pivoted to opposite ends of the second bracket, substantially as described.

522,058. IRONING-BOARD. JAMES W. HIETT and THOMAS C. COLE, Jonesborough, Ark. Filed Jan. 17, 1894. Serial No. 497,174. (No model.)

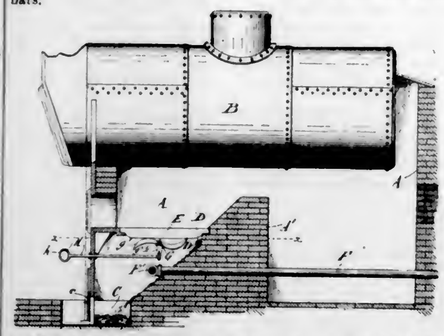


Claim.—The combination with the wall or vertical support A, provided with the horizontal cleat D, of the hinged ironing-board B provided with the hinged prop or brace F and turn-button J, and hinged block G having a series of notches g g'; said prop F being of such length that it will, in its vertical position, overlap the free or upper end of the hinged block G when said block is folded up flat against the wall; substantially as and for the purpose herein shown and set forth.

522,059. STEAM-BOILER FURNACE. ALBERT J. HODGSON, Palmyra, Wis., assignor of two-thirds to Rees W. Dugan and Bradford Shinkle, Covington, Ky. Filed Jan. 20, 1894. Serial No. 497,475. (No model.)

Claim.—1. In a steam boiler furnace, the combination of the grate bars, the closed chamber underneath the grate bars, the ash pit in front of said chamber, the bridge wall inclined from the rear of the grate bars forward to the ash pit, and the blast pipe for delivering air under pressure into said chamber, substantially as shown and described.

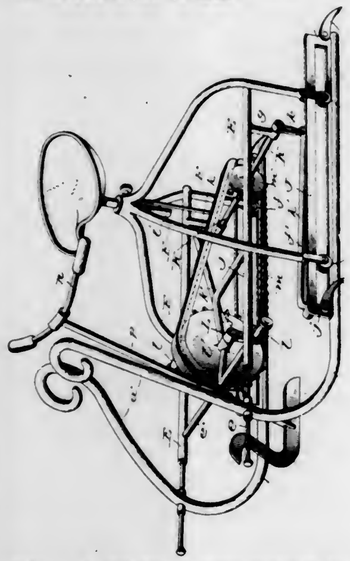
2. The combination of the grate bars, the closed chamber underneath said bars, the bridge wall having inclined front, the ash pit below the inclined front of the bridge wall, the water pipe discharging over said inclined front, the discharge pipe leading from the ash pit, and the blast pipe to deliver air under pressure below the grate bars.



3. In a steam boiler furnace, the combination of the grate bars, the closed chamber below said bars, the blast pipe to deliver air, under pressure, into said chamber, and a transverse shaft provided with blades to pass between the grate bars when the shaft is rotated or vibrated for the purpose of freeing said bars from clinkers, substantially as shown and described.

4. In a steam boiler furnace, the combination of the inclined bridge wall, the grate bars resting thereon and on the front of the furnace, the closed chamber underneath the grate bars, a perforated water pipe crossing the inclined front of the bridge wall near the grate bars, the ash pit C having a discharge pipe leading from it, through which the ashes are carried by the flow of water from said water pipe, the blast pipe F leading from the rear of the furnace through the bridge wall and connected to the transverse perforated branch F' for discharging air under pressure into the inclosed chamber, the rock shaft G having blades g arranged thereon to pass between the grate bars, the arm g^2, the rod H to rock said shaft substantially as and for the purpose set forth.

522,060. SLED. JOSEF HÖFER, Sheboygan, Wis. Filed Feb. 3, 1894. Serial No. 499,006. (No model.)



Claim.—1. In a sled, movable runners, mechanism for advancing the runners, and means for holding the said runners from retrograde movement, substantially as specified.

2. In a sled, movable runners, mechanism for alternately advancing the said runners, and means for holding the runners from retrograde movement during the interval that the moving runner is advancing, substantially as set forth.

3. In a sled, the combination with movable runners and mechanism for advancing the said runners, of pivoted dogs carried by the runners and adapted to bite in the ice to prevent retrograde movement and ride over the ice when the runner is advanced, substantially as set forth.

4. In a sled, the combination with movable runners, of a shaft having cranks extending in diametrically opposite directions and connected with the said runners to alternately operate the same, substantially as set forth.

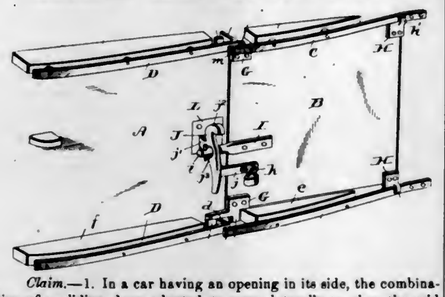
5. In a sled the combination of movable runners, the frame having rollers to travel on the said runners, and mechanism for alternately reciprocating the said runners, substantially as described for the purpose set forth.

6. In a sled, the combination with the movable runners having parallel guide bars, of the frame having rollers to operate in the space between the runners and guide bars, substantially as described for the purpose set forth.

7. In a sled the combination of the frame having forwardly extending guide rods e, movable runners having the said guide rods extending through the horns, and mechanism for reciprocating the said runners, substantially as set forth.

8. In a sled the combination of the frame bars F having their lower cleft ends provided with grooved rollers, runners having parallel guide bars J which extend through the said cleft ends, the grooved rollers operating in the space between the upper edge of the runners and the said guide bars, pivoted dogs carried by the said runners, and mechanism for alternately reciprocating the said runners, substantially as described for the purpose specified

522,061. CAR-DOOR. HENRY E. HOKE and HARRY E. HOKE, Jr., Chambersburg, Pa. Filed May 25, 1893. Serial No. 475,494. (No model.)



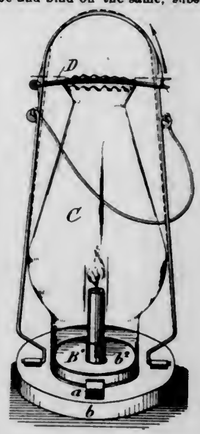
Claim.—1. In a car having an opening in its side, the combination of a sliding door adapted to move laterally to close the said opening and come flush with the side of the car, and from the car to clear the door jamb when it is required to expose the said opening, an upper and a lower rail, each composed of parts C and D lying in different vertical planes, the part D having its end d bent at right angles, and the part C having its inner end projected beyond the bent end d, and irons on the door to guide and support it in its movements, one set of irons being relatively disposed to travel upon the extensions of the parts C beyond the said bent ends d when the door is opened so as to expose the full width of the said opening.

2. In a car having an opening in its side, the combination of a flush door for the said opening, upper and lower rails, each rail composed of sections or parts lying in different vertical planes, and having their inner ends overlapping and spaced apart, one of the parts having its end bent at right angles, and irons on the corners of the said door provided with lugs to embrace the sides of the rails and located at diagonally opposite points, to permit of the free movements of the door when moving the same laterally to and from the said opening in the side of the car, substantially as described.

522,062. LANTERN. GEORGE W. JARMIN, Corpus Christi, Tex., assignor of one-half to Royal Givens, same place. Filed Mar. 15, 1894. Serial No. 503,729. (No model.)

Claim.—1. A lantern, composed of a base having a circular center-portion, a mail-bail pivoted to the base and adapted to extend above the chimney, a handle-bail applied to eyes of the main-bail, and a retaining device pivoted to one side of the main-bail and adapted to be locked at the opposite side of the same, so as to bind on the crown of the chimney and hold the same in position on the base, substantially as set forth.

2. A lantern, consisting of a base provided with a raised circular center-portion having a center opening and a candle-holder extending around said opening, a main-bail pivoted to the base and adapted to extend over the crown of the chimney, a handle-bail pivoted to the said main-bail, and a retaining-device formed of a loop-shaped wire pivoted to an eye at one side of the main-bail, said main-bail having at its opposite side a beveled catch or shoulder with which said retaining device is adapted to engage so as to extend over the crown of the globe and bind on the same, substantially as set forth



522,063. CANOPY FOR BICYCLES. LANCASTER Z. JENKINS, Philadelphia, Pa. Filed Apr. 26, 1893. Serial No. 471,863. (No model.)



Claim.—1. A canopy for bicycle riders consisting of a frame with covering, a center rod with sleeves thereon having ribs pivoted thereto and to the said frame, a stick having a folding upper end to which said center rod is secured, and means for attaching said stick to the handle bars and head of a bicycle, said parts being combined substantially as described.

2. A canopy for bicycle riders consisting of a frame with covering, a center rod with sleeves thereon having ribs pivoted thereto and to the said frame, the ribs pivoted to one sleeve being shorter than those pivoted to the other sleeve a stick having a folding upper end to which said rod is secured, and means for adjustably securing said stick to the handle bars and head of a bicycle, said parts being combined substantially as described.

3. A canopy for bicycle riders, consisting of a wedge-shaped frame with covering, a central stick with sleeves thereon having ribs pivoted thereto and to said frame, a stick with folding upper end having a clamping sleeve, said center rod being secured to said stick above said frame, and means for adjustably securing said stick to the handle bars and head of a bicycle, said parts being combined substantially as described.

4. A canopy for a bicycle formed of a jointed stick adapted to be secured to a suitable part of the same, a collar on said stick, a rod secured to said stick, and a frame fastened to said rod, sleeves on said rod with means for securing the same at any desired point ribs con-

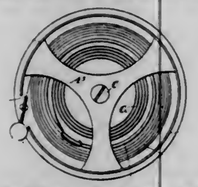
necting said sleeves and frame, a bar secured to the stick above the rod, a covering for the frame and rod, and suitable means for securing the device to a bicycle, substantially as described.

5. A jointed stick, a horizontal rod connected therewith, a flaring frame partly in front and partly in rear of said stick, a runner on said stick and stretchers connected with said runner and frame, in combination with the sliding sleeve H on said rod rearward of said stick, and the sliding sleeve J forward of said stick, and the long and short ribs connecting the sleeves with the rear and front portions of said frame, substantially as described.

6. A jointed stick, a horizontal rod connected therewith, a flaring frame partly in front and partly in rear of said stick, a runner on said stick and stretchers connected with said runner and frame, in combination with the sliding sleeve H on said rod rearward of said stick, and the sliding sleeve J forward of said stick, the long and short ribs connecting the sleeves with the rear and front portions of said frame, and the elevating rod R on the stick above the central rod G, substantially as described

---

522,064. TAPE-MEASURE CASE. WILLIAM L. E. KEUFFEL, Hoboken, N. J. Filed Feb. 17, 1894. Serial No. 500,526. (No model.)



Claim.—1. In a tape-measure case, the outer shell A, having the aperture *a* and internal lips A', A³, at the edges of said aperture, in combination with the shell B, having an aperture *b*, the adjacent edges of the metal matched in the said lips A', A³, and with the tape H, drum D and operating spring G, arranged for joint operation as herein specified.

2. In a tape measure case, the drum D, stamped from a single piece of metal, having teeth D' formed by cutting and bending and with their inner surfaces parallel to lines tangential, to the surface of the drum in combination with the external shells A, B, spring G, tape H and movable stop E, arranged for joint operation as herein specified.

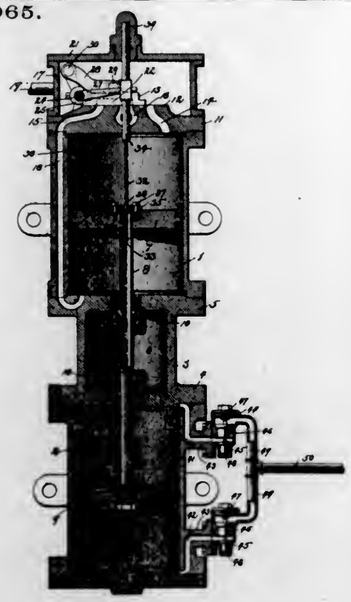
3. In a tape-measure case, the movable stop E, having the spring E' formed integral therewith, in combination with the operating pin E² and button E³, slotted shell B, matched shell A and drum D formed with teeth D', all arranged to serve as herein specified.

4. The tape-measure case described, comprising the shells A, B, with the lips A', A³, insuring that the apertures *a*, *b*, shall be properly matched, the drum D formed of a single piece with its teeth D' cut therefrom and arranged nearly tangential to the drum and mounted on the post B', supported by the shoulder B² and the spider-frame A³ so as to turn with little friction, and the stop E, having the spring E' formed integral, and provisions as the pin E² and button E³ for moving it at will to liberate the drum, all combined and arranged for joint operation substantially as herein specified.

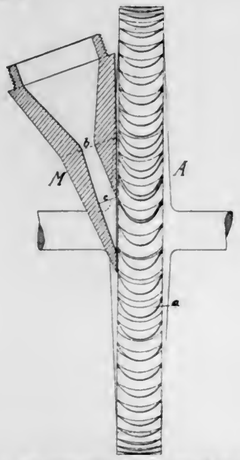
522,065. STEAM-ENGINE FOR AIR-PUMPS. HENRY KRENTZ, St. Louis, Mo. Filed May 29, 1893. Serial No. 475,829. (No model.)

Claim.—In a steam-pump, the combination of two separate cylinders arranged vertically with their bores in alignment, one of the same being a steam cylinder, pistons located in said cylinders, a hollow piston rod connecting said pistons, a slide-valve seat, having steam and exhaust ports and located upon the upper head of said steam cylinder with its face horizontal, a steam chest inclosing said valve seat, a slide-valve mounted in said steam-chest upon said valve-seat, said valve having a bearing for a pin or journal upon its back, a rock shaft 24 mounted in bearings within said steam-chest adjacent one end thereof, an arm 26 having its lower end fixed upon the shaft 24, a lever 27 having one end fixed to the shaft and extending at an angle thereto, a connecting-link connecting said arm 26 to the bearing on the back of the valve, a valve-operating rod 32, the lower end of which is loosely mounted in the hollow piston rod and provided with a head or projection 33 therein, a plate 35 having an aperture 36 and secured upon the upper side of the steam-piston with its aperture engaging said rod, a shoulder or projection 34 formed upon said rod just below the upper head of the steam-cylinder in the path of said plate, said rod extending upward through an aperture or passage formed in the upper head of the steam-cylinder and projecting upward in the said steam chest and provided thereat with a transverse slot 40, said lever 27 engaging said slot in said rod, and operative connections, substantially as herein specified.

522,065.



522,066. STEAM-TURBINE. CARL G. P. DE LAVAL, Stockholm, Sweden. Filed May 1, 1889. Serial No. 309,209. (No model.) Patented in Belgium Sept. 29, 1888, No. 83,196, and in England Apr. 29, 1889, No. 7,143.



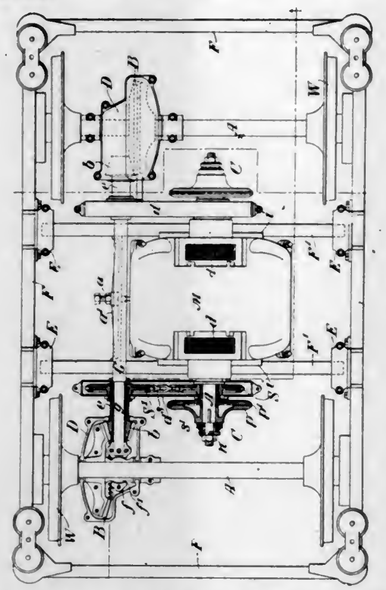
Claim.—1. The combination with a bucket or turbine wheel, of a stationary nozzle opening adjacent to the wheel and having its bore diverging or increasing in area of cross section toward its discharge end, whereby the elastic fluid under pressure is expanded in passing through the diverging nozzle and its pressure is converted into velocity before the jet is delivered against the wheel, substantially as set forth.

2. The combination with a bucket or turbine wheel, of a stationary nozzle opening adjacent to the wheel and provided with a contracted receiving portion and with a discharge portion having its bore diverging or increasing in area or cross section toward its discharge end, substantially as set forth.

3. The combination with a turbine wheel provided with concavo-convex buckets, of a stationary nozzle arranged at an acute angle adjacent to the side of the wheel and provided with a discharge portion having its bore diverging or increasing in area of cross section toward its discharge end, substantially as set forth.

4. The combination of a bucket or turbine wheel, of a stationary nozzle arranged to deliver a jet of expansive fluid against the wheel and having its cross sections increasing in area toward its discharge end in a lesser degree than the increase of the volumes of the fluid passing through the respective cross sections, whereby velocity is imparted to the fluid during its expansion in the nozzle, substantially as set forth.

522,067. MEANS FOR SUSPENDING ELECTRIC MOTORS FROM CARS. ROBERT LUNDELL, Brooklyn, assignor of two-thirds to Edward H. Johnson, New York, N. Y. Filed Sept. 4, 1893. Serial No. 484,725. (No model.)



Claim.—1. A car or vehicle having a single propelling motor yieldingly sustained beneath its frame and the rotary part thereof connected at its opposite ends through sprocket wheels and sprocket chains to shafting which in turn is geared through speed reducing gearing to two of the axles thereof, in combination with a sliding support for the motor and means for compensating for undue stretching of the sprocket chains, substantially as described.

2. An electric motor carried by a pair of bars or supports F' F' yieldingly sustained beneath a car frame and having its armature connected through sprocket wheels and sprocket chains to speed reducing gearing geared to two of the axles of the car, in combination with means for compensating for undue stretching of the sprocket chains, substantially as described.

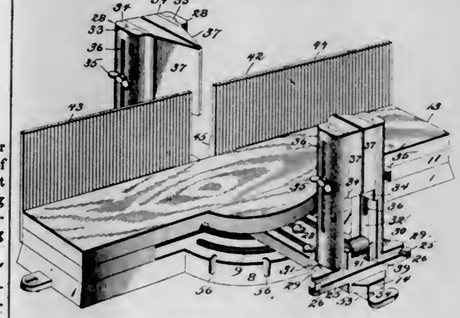
3. An electric motor sustained beneath the body or frame of a car with its armature shaft located in the direction of the length of the body of the car, in combination with sprocket wheels, sprocket chains and speed reducing gearing connecting the opposite ends of the armature shaft to independent car axles, the arrangement being such that strains due to the vibrations of the motor are compensated for through the sprocket chains.

4. An electric motor sustained beneath the body or frame of a car upon yielding supports with its armature shaft located in the direction of the length of the car and sprocket and chain gearing connecting said armature shaft with an additional rotary shaft which in turn is geared through speed reducing gearing to two independent car axles, substantially as described.

5. An electric motor sustained beneath the body or frame of a car upon yielding supports with its armature shaft located in alignment with the length of the body of the car, in combination with a second rotary shaft carried by the frame of the car and sprocket chains, sprocket wheels and speed reducing gearing for connecting the armature shaft through the second shaft to one or more of the car axles, substantially as described.

522,068. ADJUSTABLE MITER-BOX. JOHN LOSCHER, St. Louis, Mo. Filed Dec. 11, 1893. Serial No. 493,317. (No model.)

Claim.—The herein described improved adjustable mitering box comprising the following elements to-wit, a base 1, having a segmental projection 8 formed integral with its front edge, segmental projections 5 and 6 having slots therein formed integral with the rear edge of said base adjacent each end, an enlarged portion 10 having an opening 4 therein formed integral with the rear edge of said base adjacent its center, a block 11 connected to the upper surface adjacent each end of the base, a rectangular table or plate 13 located on and connected to said blocks, a bar 14 pivoted to the base 1 by a bolt 15 passing through the aperture 4 in said base, a bar 17 adjustably connected to said first mentioned bar, a horizontal ear or projection 25 having a groove 26 in its upper surface formed on each corner of the free ends of said bars 14 and 17, a vertical standard 28 having a horizontal projection 29 formed on its lower end connected to each of the projections 25, a tongue formed on the lower surface of each of said projections 29 for engaging the groove 26 so that when said vertical standard is adjusted horizontally, the tongue will guide and hold it in the required plane, a block 34 vertically adjustably connected to the adjacent surface of each of said vertical standards, means for retaining said block in the required position, a guide-block 37 rigidly connected to the adjacent surface of each of said adjustable blocks 34, two vertical projections formed on the upper surface of each of said bars 14 and 17 between the vertical standards 28, a roller 41 located between said projections and having its bearings therein, a locking device connected to the under surface of the front end of the bar 14 which engages the notches 56 in the segmental projection 8 of the base 1, said locking device is to hold the saw-guiding mechanism at the required angle relative to the rectangular plate or table, a back 42 constructed of two pieces 43 and 44, each of said pieces constructed with a downwardly pending projection 45, upon each of which is formed a horizontal perforated ear 46 which is engaged by the bolt 15 for retaining said back in position, a projection 48 formed on each of said pieces 43 and 44 adjacent the free ends thereof, a horizontal slotted ear 49 formed integral with the lower edge of each of said projections and a bolt for engaging the slot in said ear and the slot 7 in the segmental projection 5 and 6 of the base 1 for holding said pieces of the back 43 in the required position, all arranged and combined, substantially as herein specified.



522,069. BOOT-TREE. JAMES MACDONALD, Edinburgh, Scotland. Filed Mar. 2, 1894. Serial No. 502,106. (No model.) Patented in England May 10, 1893, No. 9,340.

Claim.—1. A boot tree divided longitudinally, and also divided crosswise the sections being joined together by springs extending along the outer surfaces of the boot tree, and means for varying the relative positions of such sections, substantially as set forth.

2. In a sectional boot tree comprising three or more sections, yielding connections uniting such sections, a spindle with a traveling wedge for varying the distance between two of the sections, a suitable handle portion connected therewith and extending outside of the boot tree, and a universal joint connecting spindle and handle portion, substantially as set forth.

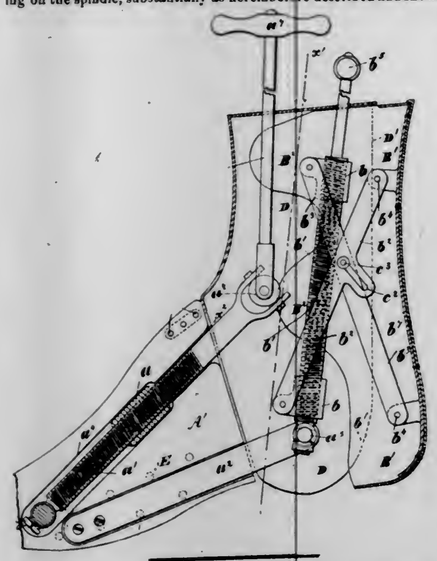
3. In a sectional boot tree, in combination with two of its sections, crossed levers b^3 b^3 fitted therein, screw spindle b' with suitable handle, and traveling nuts *b*, *b* connected to said levers and working on the spindle, substantially as set forth.

4. In a sectional boot tree, in combination with its sections, means for varying their relative positions, and pivoted plate springs yieldingly uniting such sections, substantially as set forth.

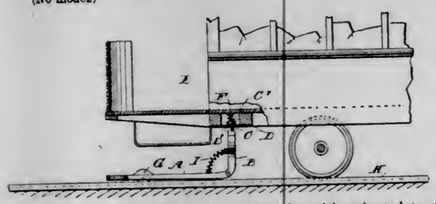
5. In a sectional boot tree, in combination with its sections, means for varying their relative positions, and eyes or lace holes provided in such sections, substantially as set forth.

6. In combination the divided foot portion A, A' made with grooves a^4, screw spindle a' and traveling wedge *a* working in the

grooves, hollow divided heel part B, crossed levers b^2, b^3 fitted therein, screw spindle b' and traveling nuts b connected to said levers and working on the spindle, substantially as hereinbefore described and shown.



522,070. CAR-FENDER. MARGUERITE MAIDHOF and VICTOR F. MAIDHOF, New York, N. Y. Filed Jan. 25, 1894. Serial No. 497,954. (No model.)



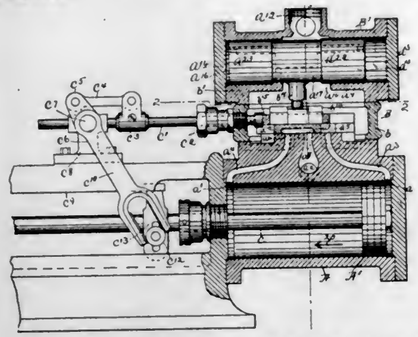
Claim.—1. In a car fender, the combination with a pivot plate attached to the car, of a fender comprising a platform, a back pivotally-connected with the said platform, a vertically-disposed pivot on the said back and engaging the said pivot plate, and wheels journaled on the front end of the said platform and adapted to travel on the track rails, substantially as shown and described.

2. In a car fender, the combination with a pivot plate attached to the car, of a fender comprising a platform, a back pivotally-connected with the said platform, a vertically-disposed pivot on the said back and engaging the said pivot plate, wheels journaled on the front end of the said platform and adapted to travel on the track rails, and a spring connection between the said back and platform, substantially as shown and described.

3. In a car fender, the combination with a pivot plate attached to the car, of a fender comprising a platform, a back pivotally-connected with the said platform, a vertically-disposed pivot on the said back and engaging the said pivot plate, wheels journaled on the front end of the said platform and adapted to travel on the track rails, and a yielding connection between the head of the pivot and the car, substantially as shown and described.

522,071. VALVE MECHANISM. WILLIAM B. MASON, Boston, Mass., assignor to the Mason Regulator Company, same place. Filed Feb. 14, 1894. Serial No. 500,147. (No model.)

Claim.—1. In an engine, the combination of the following instrumentalities, viz:—a main cylinder, a valve chest having a valve seat provided with ports communicating with the said cylinder and with an exhaust for said cylinder, auxiliary cylinders connected to ports in the said valve seat, a reducing port in the valve seat adapted to be connected with the ports in communication with the auxiliary cylinders and also with the exhaust for the main cylinder, pistons in said auxiliary cylinders, a main valve in the valve chest operatively connected to the auxiliary pistons and controlling the said cylinder ports and the said reducing port, an auxiliary or preliminary valve in the valve chest controlling the ports in communication with the auxiliary cylinders, a piston in said main cylinder, and mechanism to operatively connect the said piston with the preliminary valve, substantially as described.



2. In an engine, a valve chest provided with the usual inlet and exhaust ports and with an additional port b^7, combined with a main valve controlling said usual ports and constructed to connect the said additional port with the exhaust port of the valve chest for the purpose specified, substantially as described.

3. In an engine, a main valve chest, and auxiliary cylinder ports in the main valve chest in communication with the auxiliary cylinders, a preliminary valve in the main valve chest controlling in part said ports, a main valve in said valve chest also controlling in part said ports, pistons in the auxiliary cylinders connected to the main valve to move the same, and means to move the preliminary valve and the main valve independent of the auxiliary pistons, substantially as described.

4. In an engine, the combination of the following instrumentalities, viz:—a valve chest, a main valve therein, a cylinder communicating with the valve chest, an auxiliary piston in said cylinder, an intermediate connection joining the said auxiliary piston to the main valve to move the latter for a portion of its stroke or travel, an additional valve controlling in part the movement of the said auxiliary piston, and means to positively move the said additional valve and also the main valve for another portion of its stroke independent of the auxiliary piston, substantially as described.

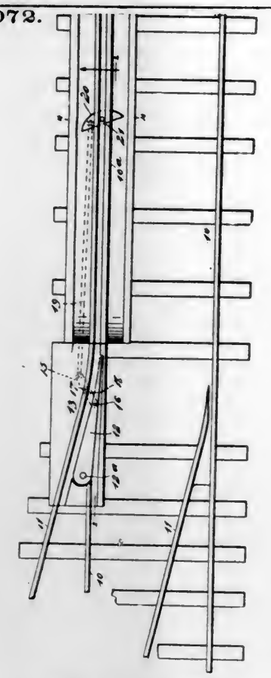
5. In an engine, the combination of the following instrumentalities, viz:—a valve chest, a main valve therein, a cylinder independent of the valve chest, an auxiliary piston in said cylinder controlled in its movement by the main valve and itself operating the main valve for a portion of its movement, a preliminary valve to place the auxiliary piston in condition to be operated by the main valve, and means to positively move the preliminary valve and to also move the main valve for a portion of its travel to place the latter in condition to effect the movement of the auxiliary piston and thereby its own movement for the remaining portion of its travel, substantially as described.

6. In an engine, the combination of the following instrumentalities, viz:—a main cylinder, a piston therein, a valve chest communicating with the main cylinder and with the exhaust therefor, auxiliary cylinders in communication with the valve chest and provided with passages connected with the valve chest, normally balanced auxiliary pistons in said cylinders, a reducing port in the valve chest adapted to be connected with each of the auxiliary cylinders, a preliminary valve to select which auxiliary cylinder the said reducing port is to be connected with, a main valve operatively connected to the auxiliary piston controlling the ports of the main cylinder and also the reducing port, and mechanism operated by the piston rod to move the preliminary valve and also the main valve for a portion of its movement so as to uncover the reducing port and unbalance the auxiliary piston, whereby the said auxiliary piston and the main valve are moved to complete the movement of the said main valve, substantially as described.

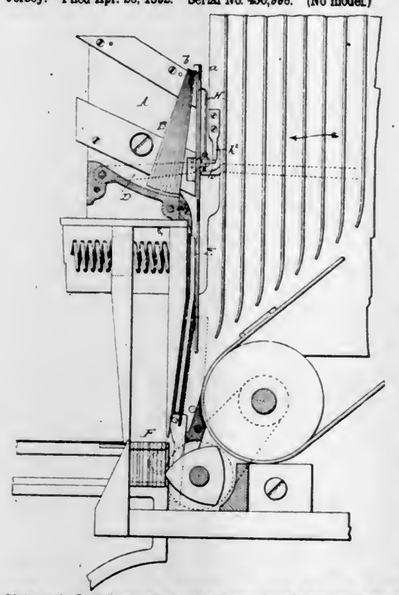
522,072. RAILROAD-SWITCH. HENREY H. MATT, Long Island City, N. Y. Filed Mar. 17, 1894. Serial No. 504,000. (No model.)

Claim.—The combination, with the bed plate having a chamber beneath it and the switch point pivoted on the bed plate, of a horizontally tilting lever fulcrumed in the chamber and connected at one end with the switch point, a guide plate provided with parallel grooves and with a rail section arranged adjacent to the switch point, a lever fulcrumed in the guide plate and projecting into the grooves, and a connecting rod extending from the said lever to the lever of the switch point, substantially as described.

522,072.



522,073. LINOTYPE-MACHINE. OTTMAR MERGENTHALER, Baltimore, Md., assignor to the Mergenthaler Linotype Company, of New Jersey. Filed Apr. 28, 1892. Serial No. 430,998. (No model.)



Claim.—1. In a linotype machine embracing matrices, spaces, and means for assembling them in line, a scraper or cleaner arranged to remove adhering matters from the surface of the spaces.

2. In a linotype machine and in combination with mechanism for delivering spaces to the composed line, a knife or scraper, and mechanism whereby it is caused to act against the spaces to scrape adhering metal therefrom.

3. In a linotype machine, the combination of the space box or magazine, mechanism for delivering the spaces therefrom, and a scraper arranged in the path of the spaces to remove adhering metal therefrom.

4. In combination with the space box, and space delivering devices, the lever D, the scraper H, the spring urging the scraper toward the spaces, and means for retracting the scraper that the spaces may pass thereby.

5. In a linotype machine, in combination with the magazine to contain spacing devices, a scraper to clean said spaces and means for causing said scraper to act on a space in the magazine, and thereafter retract to permit the escape of the space.

522,074. MUSIC-LEAF TURNER. FREDERICK A. MEYER, San Francisco, Cal. Filed Mar. 28, 1894. Serial No. 505,486. (No model.)



Claim.—1. In a music leaf turner, a series of flat plates journaled to turn about a central post having upwardly and outwardly turned arms adapted to carry independent leaves of music, a drum turnable about the central post, having a cord wound around it by which it is turned to the left, and a spring contained within the drum by which it is normally held at the right side, a horizontally semi-circular ring surrounding the central post below the drum, a vertical block sliding loosely through the extension of the drum at one side, having a lug or lugs adapted to engage the turning plates below the ring whereby they are turned successively from right to left as herein described.

2. A music leaf turner consisting of a drum, a cord by which it is rotated to the left about a central post, a spring by which it is returned to the right when released, a series of flat plates turnable about the central post having extensions outwardly which are adapted to engage the leaves to be turned independently, a semi-circular ring connected with a vertical slide at the rear and extending around the central post above the plates which carry the turning arms when said plates are in their normal position at the right, a vertical sliding block movable in a slot in the extension of the drum having a lug projecting below the semi-circular ring sufficiently to engage the first of the plates situated below it, whereby said plate and its arm are turned around the central post until the plate passes the free end of the semi-circle, and allows the latter to drop the thickness of the plate and interposed washer whereby the carrier is returned in position to engage the following plate.

3. In a music leaf turner, a drum rotatable about a central post having a sliding block and lug, leaf carrying arms projecting outwardly from flat plates surrounding the posts and situated beneath the drum, a semi-circular ring connecting with a vertically sliding plate at one end, having the other end free so that when the leaves are turned, the ring is allowed to drop successively the thickness of each plate and washer after it has passed, a second drum movable in the opposite direction having a carrying plate attached to it adapted to engage the arm carrying plates from the opposite side, and a cord

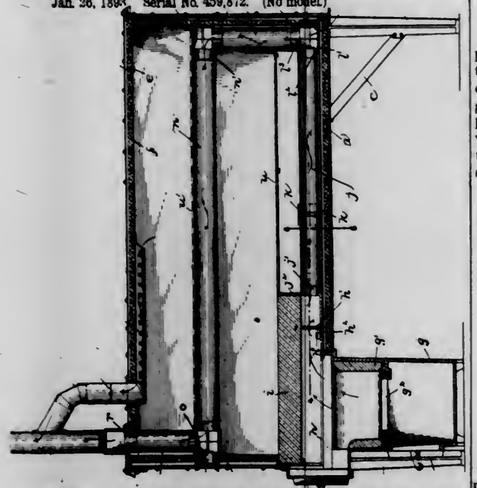
whereby said drum is rotated to move the plates in the opposite direction and return the plates and arms to their original position.

4. In a music leaf turner, the oppositely moving drums with cords adapted to rotate them, one in a direction to turn the leaves to the left and the other in a direction to turn the leaves to the right, flat plates journaled around a central post upon which the drums turn, and between the upper and lower drums, a vertically sliding block connected with the upper drum having a lug adapted to engage the plates and turn them successively to the left, a semi-circular ring situated between the upper drum and the arm carrying plates, having one end connected with a vertically moving slide, and the other terminating at a point beyond which the plates move when the leaves are turned whereby the ring is allowed to drop the thickness of each plate and washer after the leaf has been turned and the plate has passed its free end, a returning plate connected with the lower drum, a lever fulcrumed at the rear of the apparatus having its end connected with the vertical slide which carries the semi-circular ring and having a pulley journaled upon it which acts normally to depress the cord whereby a pull upon the cord first acts to straighten the cord and raise the lever, the slide, and the semi-circular ring, to a position above the arm carrying plates, so that the latter are returned beneath the ring.

5. In a music leaf turner, the oppositely rotating drums turning about a central post and cords by which they are moved, a series of plates turnable about said post between the drums, and carrying arms by which the leaves of music are independently turned, a semi-circular ring surrounding the plates and central post having one end connected with a vertically moving slide and the other end terminating at a point where the plates will pass beyond it in turning the leaves to allow it to drop successively the thickness of a plate, a vertically sliding carrier connected with the upper drum adapted to drop with the ring and engage each successive turning plate and arm to turn a leaf, a second semi-circular ring of larger diameter connected with a second vertically sliding guide plate at one end, and acting as a guide and carrier for the returning plate which is actuated by the lowermost drum, a lever fulcrumed in a vertical post which is turnable about its point of support, said lever having a clutch at the end adapted to engage the vertical sliding carrier of the onter ring when the post is turned in one direction, and having a projection upon the opposite side adapted to engage notches in a stationary vertical post upon the opposite side, whereby the ring is held at any desired elevation.

6. In a music leaf turner, flat plates turnable about a central post and having arms adapted to engage and turn the leaves successively, and washers interposed between the turning plates having extensions at one end which engage notches in a standard exterior to the plates, so that the extensions receive and support the turning arms after the leaves have been turned.

522,075. BAKE-OVEN. JOSEPH MIDDLEBY, Boston, Mass. Filed Jan. 26, 1893. Serial No. 459,872. (No model.)



Claim.—1. In a bake-oven, the combination of a fire-pot; a horizontal plate above the same; a transverse deflector-plate on the said horizontal plate; a hearth resting on said deflector-plate; and flues, whose ends open in front of the deflector-plate in the manner described.

2. In a bake-oven, the combination of a series of flues composed of sections; and fluted straps uniting said sections and connected at one end by a hinge and at the other by a detachable fastening.

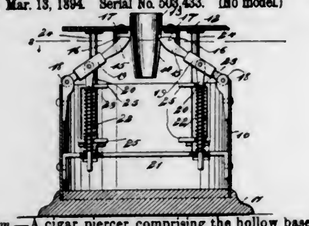
3. In a bake-oven, the combination of two sets of horizontal flues; vertical flues connecting the same; vertical flues leading to the stack; and unions uniting the flues and composed of castings of two patterns, one of rectangular box-like form having oval flanges on one side to receive the flue-ends and a series of semi-oval flanges on a side at right angles to said first-named side, and the other pattern being of a rectangular box-like form with semi-oval flanges on one side: substantially as described.

4. In a bake-oven, the combination of a set of horizontal flues, whose ends open out of the front of the oven; and a plate or plates closing the said flues and detachably secured to the front of the oven.

5. In a bake-oven, the combination of a fire-pot at the front of the oven; a hearth above said fire pot; a set of separate horizontal flues extending along the bottom of the oven and having their front ends opening below said hearth; a set of separate vertical flues extending along the back of the oven and communicating with the said horizontal flues; a second set of separate horizontal flues communicating with the vertical flues and extending to the front of the oven; a set of separate vertical flues communicating with the front ends of said second set of horizontal flues; a box on the top of the oven and communicating with said last-named set of vertical flues; and a stack on said box.

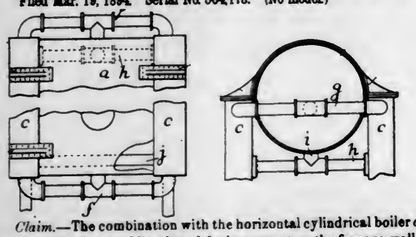
6. In a bake-oven, the combination of a fire-pot at the front of the oven; a hearth above said fire-pot; a set of separate horizontal flues extending along the bottom of the oven and having their front ends opening below said hearth; a set of separate vertical flues extending along the back of the oven and communicating with the said horizontal flues; a second set of separate horizontal flues communicating with the vertical flues and extending to the front of the oven; a set of separate vertical flues communicating with the front ends of said second set of horizontal flues; a box on the top of the oven and communicating with said last-named set of vertical flues; a stack on said box; and an off-take flue, leading from the top part of the oven into the said stack and provided with a damper, for the purpose described.

522,076. CIGAR-PIERCER. JOHN W. MILLER, Dayton, Ohio. Filed Mar. 13, 1894. Serial No. 503,433. (No model.)



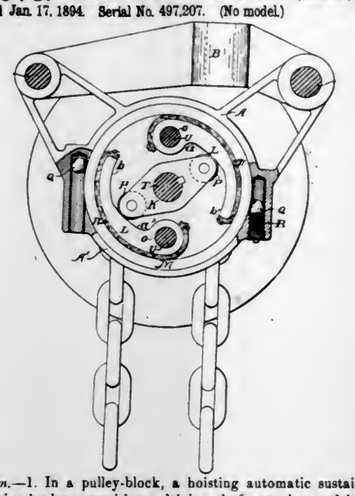
Claim.—A cigar piercer comprising the hollow base, the finger plate thereabove and provided with a depending slotted socket for the cigar, slotted guides depending from the plate at opposite sides of the socket, guide rods extending down from the plate through guides in the base, blades pivoted at their outer ends in the upper portion of the base and projecting through the guide and socket slots, vertical rods mounted in bearings in the base and pivoted at their upper ends to the middle portions of the blades and springs pressing said rods upwardly, substantially as set forth.

522,077. STEAM-BOILER. THOMAS MILLER, Jersey City, N. J. Filed Mar. 19, 1894. Serial No. 504,173. (No model.)



Claim.—The combination with the horizontal cylindrical boiler *a*, provided with the usual brackets *b* for its support on the furnace walls, of the separately constructed water legs *c*, of same length as the boiler or thereabout, said boiler being supported by its brackets on the top of said water legs, and therewith closing the top of the furnace, said boiler and water legs connected at the ends and under the boiler by the circulating pipes substantially as described.

522,078. PULLEY-BLOCK. OLIVER M. MOWAT, Detroit, Mich. Filed Jan. 17, 1894. Serial No. 497,207. (No model.)



Claim.—1. In a pulley-block, a hoisting automatic sustaining and lowering brake comprising a driving shaft, gearing, a driving-chain-wheel mounted on and free to rotate upon said shaft, a driving-chain, a friction-ring retained from rotation in one direction, shoes pivoted on the driving-chain wheel and adapted to engage the inner face of the friction-ring, and a cross-head the ends of which engage the inner faces of the shoes, substantially as set forth.

2. A hoisting, automatic-stopping and lowering mechanism, comprising a driving-chain-wheel mounted on and free to rotate upon the driving shaft, shoes pivoted to said driving-chain-wheel, a ratchet ring capable of rotation in one direction only, a cross-head keyed to the driving shaft, the inner faces of said shoes having an angular inclination to the path of rotation of the extremities of said cross-head, a driving-chain, gearing, and hoisting chain, substantially as set forth.

3. In a pulley-block, a driving-wheel free to rotate upon the driving shaft, a friction-ring mounted within the frame of the machine, ratchet balls or rollers chambered within the frame of the machine, a spring holding one of said balls or rollers up to its work, the other being held down by gravity, a cross-head mounted rigidly upon the driving shaft, shoes mounted upon studs upon the driving-wheel, having external frictional surfaces to engage against the inner surface of said friction-ring and internal angular inclinations to the path of said cross-head, gearing mechanism, driving and driven chain, substantially as set forth.

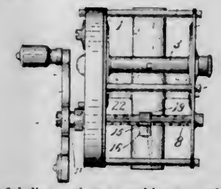
4. In a pulley-block, a hoisting, automatic-sustaining and lowering brake, comprising a driving-wheel free to rotate upon the driving shaft, shoes pivoted to said driving-wheel, a friction-ring mounted within the frame of the machine, a cross-head keyed to the driving shaft, said driving-wheel being adapted to be locked to said driving shaft by means of said shoes, which engage frictionally with said ring and against the ends of said cross-head by means of angular inclinations upon the inner faces of said shoes, which progressively intercept the path of rotation of the extremities of said cross-head, substantially as set forth.

5. In a pulley-block, a driven chain and driven chain-wheel, a gear train, driving shaft, and a cross-head keyed to said driving shaft, a driving chain-wheel, shoes pivoted thereto, a friction-ring, and ratchet mechanism, said gear train being actuated by said driving shaft and automatically controlled by means of said cross-head, the extremities of which are intercepted in rotation by said shoes, which are adapted to automatically lock the driving shaft to the frame by means of said friction-ring and ratchet mechanism, and which release the driving shaft to lower the load by rotation of said driving-wheel, which carries the shoes forward in the path of rotation of the extremities of said cross-head, substantially as set forth.

522,079. FISH-LINE REEL. NELSON H. MCGREGOR, Milwaukee, Wis., assignor of one-half to Cornelius Wheeler, same place. Filed Jan. 29, 1894. Serial No. 498,292. (No model.)

Claim.—1. In a fish line reel, the combination of a supporting frame, a fish line shaft or cylinder journaled therein, said shaft or cylinder having a pinion fixed thereon, a reverse spirally grooved shaft, having a large gear fixed thereon meshing with the pinion of the line shaft or cylinder, a crank applied directly to the reverse spirally grooved shaft, and a line guide engaging the grooves of the shaft and reciprocated thereby, substantially as set forth.

2. In a fish line reel, the combination, of a supporting frame, a fish line shaft or cylinder, journaled therein said shaft or cylinder having a pinion fixed thereon, a reverse spirally grooved shaft having a large gear fixed thereon meshing with the pinion of the line shaft or cylinder, one end of said shaft provided with slits, a crank provided with feathers adapted to engage the slits, and a line guide engaging the grooves of the shaft and reciprocated thereby, substantially as set forth.



3. In a fish line reel, the combination, of a supporting frame, a fish line shaft or cylinder journaled therein, said shaft or cylinder having a pinion fixed thereon, a reverse spirally grooved shaft having a gear fixed thereon meshing with the pinion of the line shaft or cylinder, one end of the grooved shaft terminating in a tubular slitted portion, a crank provided with an inward-extending hub or sleeve having feathers adapted to engage the slits of the tubular end of the grooved shaft, and a line guide engaging the grooves of the shaft, and reciprocated thereby, substantially as set forth.

4. In a fish line reel, the combination, of a supporting frame, a fish line shaft or cylinder journaled therein, a reverse spirally grooved shaft, a guide rod, a ring loose on the grooved shaft, said ring provided with a projecting apertured finger for the passage therethrough of the fish line, said finger provided with a recessed end fitting the guide-rod, and the ring further provided with a projecting apertured boss, a pin loose in the aperture of the boss, the inner end of said pin adapted to project into and travel in the grooves of the shaft, a gearing for rotating shafts, and a crank for operating the gearing, substantially as set forth.

522,080. HAT-PIN. ANDREW J. MULLICAN, Philadelphia, Pa. Filed Jan. 30, 1894. Serial No. 498,456. (No model.)



Claim.—1. A hat pin consisting of a bifurcated body forming limbs, and provided with a handle, in combination with a plate having tongues and an intermediate cross bar, each of said limbs having a shoulder and said body having a stud thereon, substantially as described.

2. A hat pin having a bifurcated body forming limbs with the shoulders D thereon, in combination with a plate having tongues with an intermediate cross bar, one of said tongues being narrower than the other, substantially as described.

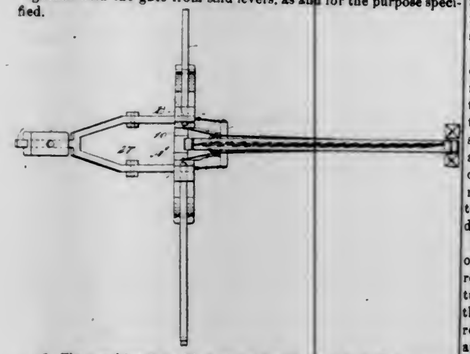
3. A hat pin having a bifurcated body forming limbs, each with shoulders thereon, the main body having a projecting lug thereon, in combination with a plate having tongues with an intermediate cross bar, and an attaching loop, substantially as described.

522,081. GATE. EMIL NEUHAUSER, Gridley, Ill. Filed Feb. 2, 1894. Serial No. 498,910. (No model.)

Claim.—1. In a gate the combination with slotted posts, a gate pivoted between the posts, and pivoted levers connected with the gate for operating it, of a bifucated arm pivoted at the rear of the gate and having its members projecting into the slots of the posts, links connecting the members with the gate, and a counterbalance on the said arm, substantially as described.

2. In a gate, the combination, with posts, a gate pivoted between the posts at one corner thereof and provided with a cross bar at its bottom forward of its pivot point, an arm fulcrumed at the rear of the gate posts, a link connection between the ends of the cross bar and said arm, and a counterbalance weight adjustably located upon

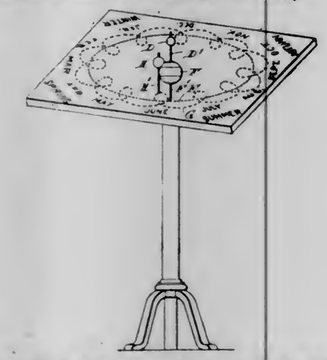
the said arm, of levers fulcrumed at opposite sides of the gate independent thereof, a link connection between the levers and the gate forward of and above its fulcrum, a latch, and a connection between the latch and the links of the levers, whereby the latch is operated together with the gate from said levers, as and for the purpose specified.



3. The combination with a pivoted gate, a crank shaft journaled in the gate in advance of and above the pivot of the gate, and lift levers connected with the crank shaft, of a spring controlled latch having laterally projecting ends to engage opposite keepers in the posts between which the gate swings, and rods secured to the latch and to the crank arms of the said shaft, substantially as herein shown and described.

4. The combination, with parallel slotted pivot posts having a recess in the inner wall of each slot, a gate, a heel block located at one lower corner of the gate and pivoted between the said posts, and a cross bar attached to the bottom of the gate near its pivoted end and extending beyond opposite sides, of a bifurcated balance arm fulcrumed at the rear of the posts, the members whereof extend into the slots of the posts, links connecting the ends of the balance arm with the ends of the said cross bar, an adjustable weight located upon the balance arm, a rock shaft journaled in the gate in advance of and above its fulcrum, provided with crank arms located at opposite sides of the gate and normally pointing in a forward direction, a latch extending beyond opposite sides of the gate and adapted for engagement with keepers, links connecting the latch with the crank arms of the crank shaft, lift levers, and a link connection between the lift levers and the crank arms of the crank shaft, as and for the purpose set forth.

522,082. TELLURIAN. GRANT B. NICHOLS, Wapakoneta, Ohio. Filed Apr. 12, 1894. Serial No. 507,259. (No model.)



Claim.—1. A tellurian, comprising an inclined table provided with a series of vertically disposed apertures or recesses arranged in an ellipse, representing the path of the earth around the sun, and a ball representing the earth and having a vertically disposed projecting rod representing the earth's axis, the said rod being adapted to be inserted in one of the said apertures or recesses, substantially as shown and described.

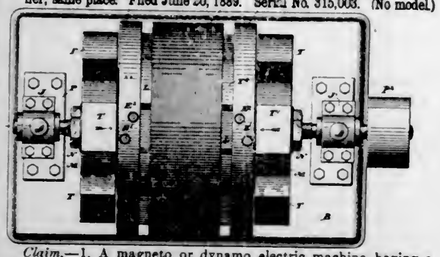
2. A tellurian provided with an inclined table having a series of marked apertures or recesses vertically disposed and arranged in an ellipse, representing the path of the earth around the sun, the apertures corresponding in number to the days in a year, substantially as shown and described.

3. A tellurian provided with an inclined table having a series of marked apertures or recesses arranged in an ellipse, representing the path of the earth around the sun, the apertures corresponding in number to the days in a year, and a second series of apertures arranged in the said table and in a line representing the path of the moon relative to the said elliptical path of the earth, substantially as shown and described.

4. A tellurian comprising an inclined table provided with a series of vertically-disposed apertures or recesses arranged in an ellipse, representing the path of the earth around the sun, a second series of apertures in the said table and arranged in a line representing the path of the moon relative to the said elliptical path of the earth, a ball representing the earth and held on a rod representing the earth's axis, and adapted to be set in one of the first named series of apertures or recesses, and a second ball representing the moon and held on a rod representing the moon's axis and adapted to be set in one of the apertures in the said second set of apertures, substantially as shown and described.

5. A tellurian comprising an inclined table provided with a series of vertically-disposed apertures or recesses arranged in an ellipse, representing the path of the earth around the sun, a second series of apertures in the said table and arranged in a line representing the path of the moon relative to the said elliptical path of the earth, a ball representing the earth and held on a rod representing the earth's axis, and adapted to be set in one of the first named series of apertures or recesses, a second ball representing the moon and held on a rod representing the moon's axis and adapted to be set in one of the apertures in the said second set of apertures, and a third ball representing the sun and held on a rod set in an aperture in the center of the said ellipse, substantially as shown and described.

522,083. DYNAMO OR MAGNETO ELECTRIC MACHINE. LEONARD PAGET, New York, N. Y., assignor of one-half to Charles J. Kintner, same place. Filed June 20, 1889. Serial No. 315,003. (No model.)



Claim.—1. A magneto or dynamo electric machine, having a rotary part with projecting pole pieces in combination with a fixed or stationary part having corresponding projecting pole pieces and a single coil wound about said fixed or stationary part, substantially as described.

2. A magneto or dynamo electric machine, having a rotary part with projecting teeth in combination with a fixed or stationary part which surrounds said rotary part, and is also provided with projecting teeth and a single coil which surrounds both the rotary and the stationary parts, substantially as described.

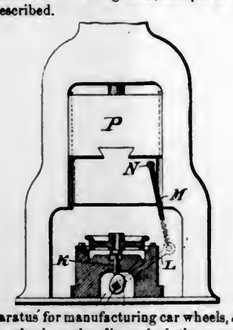
3. In a magneto or dynamo electric machine, the combination of a cylindrical rotary part of magnetic material, having radially projecting teeth at each end, arranged in sets of two, in combination with a core surrounding said rotary part, and having a similar number of pairs of teeth, and a single coil wound about said core, substantially as described.

4. A magneto or dynamo electric machine, having a cylindrical rotary part provided with radially projecting teeth at its ends, in combination with a magnetic cylinder surrounding said rotary part, and carrying a primary inducing coil with a cylindrical fixed or stationary part surrounding said coil, the latter being provided with a single coil, wound in the plane of rotation of the rotary part substantially as described.

5. A magneto or dynamo electric machine, having a cylindrical rotary part of magnetic material in combination with a single coil wound around a cylinder of magnetic material in close proximity to the rotary part with a fixed or stationary core around said coil, and a secondary coil wound around the stationary core, the direction of winding both coils, being in the plane of rotation of the rotary part substantially as described.

522,084. APPARATUS FOR MANUFACTURING CAR-WHEELS. JOHN PARKINSON, Sr., Philadelphia, Pa., assignor of one-half to John Parkinson, Jr., and Gottlieb Schmidt, same place. Filed Oct. 21, 1893. Serial No. 488,731. (No model.)

Claim.—1. An apparatus for manufacturing car wheels having die-blocks with working faces, and annular supplemental dies adapted to encircle and rest on said working faces, said parts being combined substantially as described.

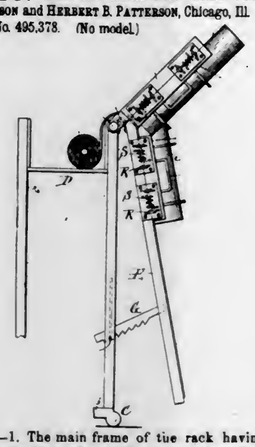


2. In an apparatus for manufacturing car wheels, &c. the steadying guides for the wheel on the die or bed, the same consisting of standards and horizontal pins adjustably connected therewith, said standards being pivotally mounted on the bed, said parts being combined substantially as described.

3. In an apparatus for manufacturing car wheels, &c. a bed having a chamber therein below the working face of the same, a shaft in said chamber, a cam on said shaft below said working face, a vertical pin movably fitted in said bed, adapted to be below the wheel &c. and engaged by said cam, and means for operating said cam, whereby the wheel may be raised, substantially as described.

4. A die or bed having a cam therein, a shaft carrying said cam, a pin adapted to be engaged by said cam, and located below the article on the die or bed, an arm connected with said shaft, and a slotted link attached to said arm and adapted to be connected with the upper die or hammer, substantially as described.

522,085. DISPLAY-RACK FOR WALL-PAPER. CHARLES M. PATTERSON and HERBERT B. PATTERSON, Chicago, Ill. Filed Jan. 2, 1894. Serial No. 495,378. (No model.)



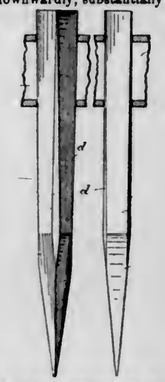
Claim.—1. The main frame of the rack having near its top a receptacle for holding rolls of wall-paper; a frame hinged to the main frame at or near its upper end on which the wall paper is displayed; clamps on each side of the frame E for clamping and holding across the wall-paper the border-paper whereby the wall-paper and border-paper are brought into relative juxtaposition to be displayed, as specified.

2. The frame U; the spring-clamps *a* and *g* hinged to the frame U; the rack A to which the frame U is pivoted; and the front frame E hinged to the frame A, all substantially as specified.

3. In a wall-paper display-rack, the spring-clamps attached to the side of the pivoted frames pivoted to the main rack, in combination with the main rack; and the pivoted frames pivoted to the main rack for clamping and holding the border-paper and ceiling-paper and throwing it in relative juxtaposition to the wall-paper for comparison, substantially as specified.

522,086. HARROW. JAMES PORTEOUS, Fresno, Cal. Filed Jan. 10, 1894. Serial No. 496,422. (No model.)

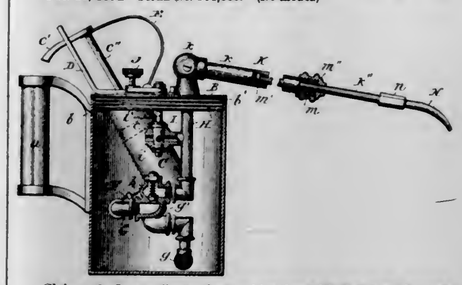
Claim.—1. A harrow tooth having a tapering point and a body of substantially uniform cross section, the corners of said body being chamfered with bevels increasing in width and depth from the upper end of the tooth downwardly, substantially as herein described.



2. In a harrow and in combination with its frame bars having holes, a tooth with a tapering point, and a body having a substantially uniform cross section, said tooth having the corners of its body chamfered with bevels increasing in width and depth from its upper end downwardly, whereby the tooth may be tightened in the holes of the frame bars, substantially as herein described.

3. In a harrow having a frame of tubular iron or gas pipe with holes through it, a tooth having a tapering point and a body with a substantially uniform cross section, the corners of said body being chamfered with bevels gradually increasing in width and depth from its upper end downwardly whereby the tooth may be tightened in the holes in the tubular or gas pipe frame, substantially as herein described.

522,087. OIL-CAN. GEORGE A. RAWHOUSER, York, Pa. Filed Feb. 28, 1894. Serial No. 501,809. (No model.)



Claim.—1. In an oil can the combination with the spout having a sliding extension, of a drainage valve and means for opening and closing the same, whereby the spout may be shortened and the expelled oil delivered to the can, substantially as described.

2. In an oil can the combination with the body having a handle, and with the spout, of a pump for supplying oil to the spout, the piston rod of said pump extending upward and having a thumb-piece at its upper end extending toward the handle, and a guide engaging the thumb-piece to prevent it from turning, substantially as described.

3. In an oil can the combination with the body, the pump, and the spout, of a drainage and discharge regulating valve at the base of the spout, said valve being within the can and having a valve stem extending outside the can and provided with an operating handle, substantially as described.

522,088. BURNER FOR ILLUMINATING-GAS. CHARLES A. SHAW, Revere, Mass. Filed Jan. 4, 1894. Serial No. 495,670. (No model.)



Claim.—1. A gas burner comprising an expansion chamber, an outlet tip therefor, an inlet tip projecting into said chamber, and of

less capacity than said outlet tip and a cone-shaped wire coil disposed between said tips and extending substantially from one tip to the other, substantially as described.

2. In a gas burner, the combination of an expansion chamber provided with an outlet tip, an inlet tip of less capacity than the outlet tip disposed in said chamber, and a cone-shaped wire coil disposed between said tips, substantially as described.

3. In a gas burner, the combination of an expansion chamber provided with an outlet tip, a socket piece, an inlet tip of less capacity than the outlet tip disposed in said socket-piece and detachable therefrom, and a metallic auxiliary-heater for the gas disposed between said tips, substantially as described.

4. A gas burner comprising an expansion chamber having an inner annular groove and provided with inlet and outlet tips, and a cone-shaped wire coil disposed between said inlet and outlet tips, the base of said cone resting in said annular groove and the apex thereof being disposed centrally in said chamber adjacent to the inner opening of one of said tips, substantially as described.

5. In a gas burner, the combination of an expansion chamber provided with an outlet tip, a detachable socket-piece, an inlet tip at the inner end of said socket-piece of less capacity than the outlet tip and normally disposed within said chamber, and a cone-shaped wire coil disposed in said chamber between said tips and terminating at its opposite ends adjacent to said tips, substantially as described.

6. In a gas burner, the combination of an expansion chamber having an annular groove and provided with inlet and outlet tips, the inlet tip being of less capacity than the outlet tip, and a cone-shaped wire coil disposed between said tips, the base of said cone resting in said annular groove and the apex thereof being disposed centrally near the inner end of the inlet tip, substantially as described.

7. In a gas burner, the combination of an expansion chamber provided with an outlet tip, an interiorly disposed annular groove and an interiorly screw-threaded opening; a tubular socket piece interiorly and exteriorly screw-threaded, said socket-piece being turned into said opening in the body and provided with an inlet tip at its inner end of less capacity than said outlet tip, and a cone-shaped wire coil disposed between said tips, substantially as described.

522,089. CHAIR-BOTTOM. CHARLES SINGER, Wichita, Kans. Filed Oct. 21, 1890. Serial No. 368,791. (No model.)



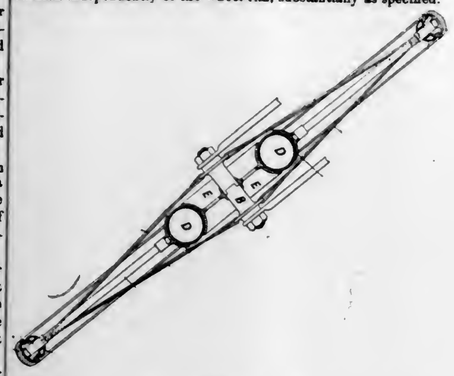
Claim.—1. A chair bottom or back consisting of a frame, a series of wires supported by and crossing the frame at right angles to each other, and of a series of buttons or blocks respectively provided with passages through their body through the greatest diameters thereof at right angles to and one above the other, and supported, to form the seating surface of the bottom or reclining surface of the back, by passing the said wires through said holes in the manner, substantially as set forth.

2. A chair bottom or back consisting of a frame provided with a series of horizontal holes through the bars thereof, with a channel between the outer terminal of said holes and with an overreaching lip or shoulder at the upper outer margin, of a series of wires arranged through said frame holes and passing from one hole to another in said channel and crossing the space within the frame, and of a series of buttons or blocks respectively provided with holes through their body one hole at an angle to and arranged above the other hole, and supported by means of said wires passing through said holes in the manner substantially as and for the purpose set forth.

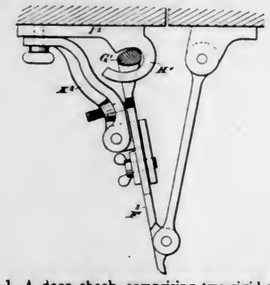
522,090. WHEEL FOR BICYCLES. GEORGE W. SMILEY and FOREST W. DUNLAP, London, England; said Dunlap assignor to said Smiley. Filed Aug. 3, 1893. Serial No. 482,280. (No model.)

Claim.—1. A wheel of the ordinary bicycle type having an annular elastic cushion supported by or immediately around the hub, an external tire movable only in the plane of the wheel independently of the rim, thrust spokes free to slide in, but supported laterally by the rim and terminating in segments supporting the external tire whereby the radial thrust is transmitted directly from the tire to the elastic cushion without passing through the wheel rim, substantially as specified.

2. A wheel of the bicycle type having an annular tubular inflated cushion supported by or around the hub and between the oppositely-splayed tensional spokes, ribs on the external surface of the cushion, shoes embracing such surface between the ribs, thrust spokes connected to the shoes and sliding freely through but guided by the wheel rim, segments (or a continuous rim) attached to the thrust spokes, and a hollow rubber tire encircling and attached to such movable segments or rim and connected to the wheel rim so as to permit of free play and cause radial thrust to be transmitted directly to the cushion independently of the wheel rim, substantially as specified.



522,091. DOOR-CHECK. JACOB SUTER, New York, N. Y. Filed May 9, 1893. Serial No. 473,500. (No model.)



Claim.—1. A door check, comprising two rigid arms pivotally connected with one another and the one pivoted to the door jamb, while the other is adapted for detachable pivotal connection with the door, a bar projected from the latter arm adjacent to the door and adapted to form a brace for the said arm, and means for locking the bar to the door, as and for the purpose set forth.

2. A door check comprising a hinge plate fixed on the door jamb, a check plate for attachment to the door near the free edge thereof, an articulated bolt formed of two arms pivotally connected with each other, the said arms forming an acute angle the apex of which extends from the door when the latter is closed, and arranged approximately in alignment one with the other when the door is opened a vertically disposed pivot pin for connecting one of the said bolt arms with the hinge plate, a second vertically disposed pivot integral with the other bolt arm and removably connected with the said check plate, a lock bar forming a brace for the said second bolt arm and connecting the latter with the said check plate and means for locking the brace bar to hold the door in place when the latter is in a closed position, substantially as described.

522,092. CIGAR-HOLDER. FREDERICK D. VAN WICKEL, Corona, N. Y. Filed Apr. 2, 1894. Serial No. 506,076. (No model.)



Claim.—1. A cigar holder, comprising a drawing tube having a mouth piece, a hollow point or pin on the said tube and provided with a slot, and a supporting band on the said tube and adapted to encircle the cigar at the said point or pin, the said supporting band having a fixed and a hinged member adapted to be locked together at their free ends, substantially as shown and described.

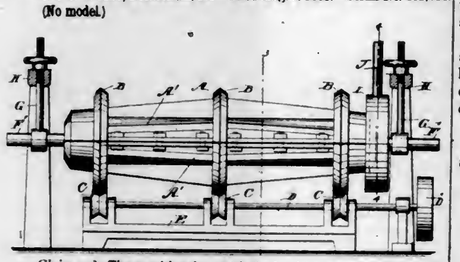
2. A cigar holder, comprising a drawing tube having a mouth piece, a hollow point or pin on the said tube and provided with a slot, a supporting band on the said tube and adapted to encircle the cigar at the said point or pin, the said supporting band having a fixed and a hinged member adapted to be locked together at their free ends,

and an apertured offset in the bottom of the said drawing tube and opposite the said point or pin, substantially as shown and described.

3. A cigar holder, comprising a drawing tube having a mouth piece, a hollow point or pin on the said tube and provided with a slot, a supporting band on the said tube and adapted to encircle the cigar at the said point or pin, the said supporting band having a fixed and a hinged member adapted to be locked together at their free ends, an apertured offset in the bottom of the said drawing tube and opposite the said point or pin, and a cap for closing the said apertured offset, substantially as shown and described.

4. A cigar holder, comprising a drawing tube having a mouth piece, a hollow point or pin on the said tube and provided with a slot, a supporting band on the said tube and adapted to encircle the cigar at the said point or pin, the said supporting band having a fixed and a hinged member adapted to be locked together at their free ends, and a second supporting band made semi-circular and arranged on the forward end of the said drawing tube and in alignment with the first named band, substantially as shown and described.

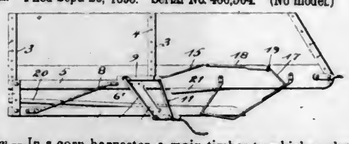
522,093. MEANS FOR MAKING METALLIC BODIES. HARTLEY C. WOLLE, Bethlehem, Pa. Filed Aug. 9, 1893. Serial No. 482,738. (No model.)



Claim.—1. The combination, with the horizontally disposed mold, and means for rotating the same, of a mandrel extending longitudinally through the said mold and projecting at each end thereof, bearings in which the respective ends of the mandrel are journaled, and means for adjusting the said bearings toward and from the axis of the mold, substantially as described.

2. The herein described means for making metallic bodies, comprising a revoluble mold, an adjustable maudrel extending through the said mold, means for imparting motion to the said mold, and a receptacle communicating with the mold and adapted to receive the surplus molten metal therefrom, substantially as shown and described.

522,094. CORN-HARVESTER. WILLIAM F. ZIEGLER, Lincoln, Kans. Filed Sept. 26, 1893. Serial No. 486,564. (No model.)



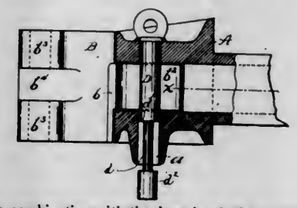
Claim.—In a corn harvester, a main timber to which a platform is connected, a timber 5 connected to the main timber, a runner connected to, and located a suitable distance from, the timber 5 which forms a passage-way between said runner and the timber, a knife located across the passage-way, forwardly leaning standards connected to the runner and the timber 5, a cross-bar connected to the upper ends of said standards, a board connected to said standard adjacent the upper edges of the runner and the timber 5, guide-bars 14 and 15 connected to the upper end of said standard and extending forward therefrom, an inverted U-shaped bar connected to the main timber and extending upwardly and outwardly over the front end of the runner, and a guiding-bar 20 fixed to the cross-bars 7, 13 and adapted to engage the stumps of the cut corn and guide the machine in alignment with the corn rows, substantially as set forth.

522,095. CAR-COUPLING. CHARLES H. ANDRUS, Philadelphia, Pa. Filed Feb. 23, 1894. Serial No. 501,126. (No model.)

Claim.—1. A draw head having a coupling jaw and coupling lever separately pivoted thereto and a coupling pin engaging both jaw and lever to lock the same, substantially as set forth.

2. The combination with the draw head of a coupling jaw and coupling lever separately pivoted thereto, and a coupling pin, said jaw and lever being arranged to engage each other and to jointly engage said coupling pin, substantially as set forth.

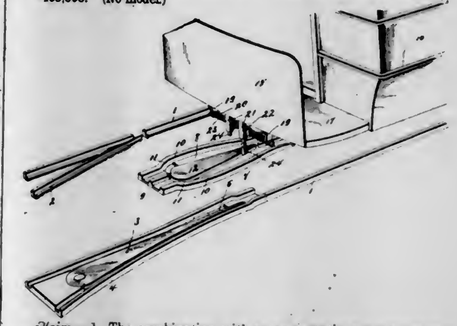
3. The combination with the draw head of a coupling jaw and coupling lever separately pivoted thereto at points 1 and 3 respectively, and a coupling pin located between said pivotal points, said jaw being provided with an arm b and both jaw and lever having corresponding projections b^3 and c^3 to engage said pin, substantially as set forth.



4. The combination with the draw head of a coupling jaw and coupling lever separately pivoted thereto, and a coupling pin, said jaw and lever being arranged to engage each other and to jointly engage said coupling pin and being provided with stops as b' and c' to limit their movement when said pin is withdrawn, substantially as set forth.

5. The combination with a drawhead having a coupling jaw B and a coupling lever C pivoted thereto, of a coupling pin adapted to lock said jaw and lever and having a reduced section intermediate of its length, and an enlarged lower end adapted to fit the hole in the drawhead, substantially as and for the purpose set forth.

522,096. AUTOMATIC SWITCH-OPERATING MECHANISM. CYRUS P. BACHELDER, Pawtucket, R. I. Filed Feb. 23, 1893. Serial No. 463,393. (No model.)



Claim.—1. The combination with a car, a stationary transverse guide-rod supported below the same, a block loosely mounted thereon a vertically-reciprocating spring-actuated pin arranged on the car and connected with the block, and a spring for supporting the block normally at a certain point upon the rod whereby it is adapted to operate a switch-tongue, substantially as specified.

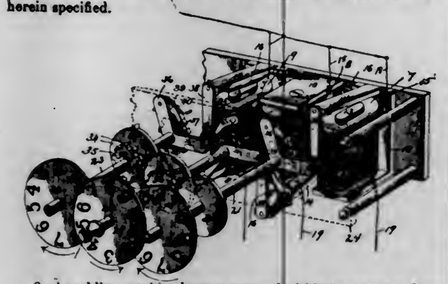
2. The combination with a track mechanism, of a transverse guide-rod carried by the rolling-stock, vertically reciprocable spring-actuated pins slidably connected to said guide-rod and capable of yielding to a lateral strain, and springs arranged on the opposite sides of said pins to normally hold them in certain predetermined relations, substantially as specified.

3. The combination with a transverse guide-rod, guide eyes or blocks slidably fitted upon said rod, vertical tubular guides fixed at their lower ends to said eyes or blocks and carried by the rolling-stock, actuating-springs 23 connected to the said eyes or blocks, pins slidably fitted in the tubular guides and actuating-springs connected thereto, said pins being adapted to operate a track mechanism, substantially as specified.

522,097. ELECTRICALLY-OPERATED ADDING-MACHINE. ROBERT BAUMANN, St. Louis, Mo. Filed Sept. 4, 1893. Serial No. 484,745. (No model.)

Claim.—1. The combination of a series of keys provided with finger-buttons, a series of electro-magnets, an armature for each magnet pivotally connected at one of its ends to the fixed portion of the frame of the machine, a spring for normally holding each armature a distance from the pole-piece of its magnet, electrical connections between said magnets and said keys whereby but one armature will be moved upon movement of one of said keys, a series of separate parallel spindles located each in a horizontal plane to rotate in bearings, a knob formed upon the forward end of each spindle, add-

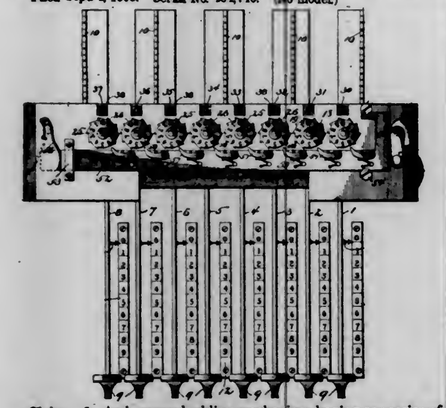
ing disks fixed one upon each of said spindles, one end of each spindle located adjacent a magnet, toothed-wheels fixed one upon each of said spindles adjacent said magnets, bell-crank-levers mounted loosely to rock one upon each of said spindles adjacent said toothed-wheels, pawls located one on each of said bell-crank-levers to move said toothed-wheels one step forward each time said bell-crank-levers are rocked, means for limiting the movement of said bell-crank-levers in each direction, pawls pivotally mounted adjacent said toothed-wheels to engage the teeth thereof and prevent movement of said spindles in a reverse direction, transmitting devices for moving forward each spindle of the series by revolution of the first spindle, and connections between said armatures and said bell-crank-levers, substantially as herein specified.



2. An adding machine having grouped within its casing or frame a series of electro-magnets in a horizontal line, with their pole-pieces projecting in alternate directions throughout such line, armatures for said magnets, located one above each pole-piece which projects in one direction and below each pole-piece which projects in the opposite direction, a series of adding-disks mounted one closely adjacent each of said magnets, mechanical connections between said armatures and said disks for rotating the latter, and electrical-connections for actuating said armatures.

3. An adding machine having grouped within its casing or frame in a horizontal line a series of electro-magnets each elongated in cross-section and constructed with flat opposite sides closely adjacent, a series of adding-disk spindles with ends adjacent said magnets and in the same plane that said magnets are in, and mechanical-connections for rotating said spindles when said magnets are energized, said last-named connections being also in the same horizontal plane that said magnets are located in, substantially as herein specified.

522,098. ADDING-MACHINE. ROBERT BAUMANN, St. Louis, Mo. Filed Sept. 4, 1893. Serial No. 484,746. (No model.)



Claim.—1. An improved adding mechanism, having one series of adding disks upon a series of separate spindles, for use as total adding disks, an additional series of adding disks mounted upon the same spindles, and means which simultaneously return one series of said disks step by step to zero, substantially as herein specified.

2. An adding mechanism constructed with one series of disks mounted each disk upon a separate spindle for use as total adding disks, and an additional series of adding disks, mounted one upon each of the same spindles which carry the first mentioned disks, and means arranged to simultaneously set to zero all of said additional series of disks without disturbing the relative positions of the total adding disks, substantially as herein specified.

3. The combination of a series of separate parallel spindles, a series of adding disks, mounted one upon each of said spindles, an additional series of adding disks, mounted one upon each of the same spindles, so that there are two adding disks mounted upon each spindle, mechanical means applied to each spindle, which imparts to the spindle carrying adding disks of next higher denomination above it a movement one step forward upon one complete rotation of the next adjacent spindle of next lower denomination, a series of finger-buttons, one finger button for each spindle, and mechanical means applied to said finger buttons and said spindles to connect the same for operation, substantially as herein specified.

4. The combination with the front and rear plates of an adding mechanism spaced apart, of a series of separate parallel spindles located each in a horizontal plane to rotate in bearings formed in said front and rear plates, the front ends of said spindles projecting a distance in front of said front plate, and the rear ends of said spindles projecting a distance in the rear of said rear plate, re-setting knobe located one upon each projecting front end of said spindles, a toothed wheel on each rear projecting end of said spindles, separate adding disks having characters upon their faces and mounted two upon each of said spindles, the disks upon said spindles forming two separate series, one of said series being fixed upon the spindles and the other series loose thereon, means for holding each disk of one of said series against movement on their spindles in one direction, means for rotating forward said spindles and the disks carried thereby, and means which simultaneously set all of one series of said disks to zero without disturbing the position of the other series of disks and without rotating said spindles, substantially as herein specified.

5. The combination, in an adding machine, of a rotatable spindle, an adding disk fixed upon said spindle, an additional adding disk loosely mounted on the same spindle, both disks being rotatable with said spindle in one direction, one of said disks having separate peripheral teeth spaced a regular distance apart except that one tooth is omitted, leaving a space between said adjacent teeth, and a reciprocating device which engages said teeth and simultaneously rotates said toothed disks step by step until the point is reached in the periphery of all of said disks at which said tooth is omitted, substantially as herein specified.

6. The combination of a series of separate spindles, two separate series of adding disks having characters on their faces, and mounted upon said spindles, finger buttons for moving said spindles, means constructed to automatically and simultaneously set all of one series of said disks to zero independent of the other series, and means for holding the other series of disks against movement during the resetting of the other series of disks, substantially as herein specified.

522,099. LIFE-GUARD FOR CARS. JOSEPH J. BEALS, Cambridge, assignor of one-half to Wallace L. Broadbent, Boston, Mass. Filed Dec. 26, 1893. Serial No. 494,709. (No model.)



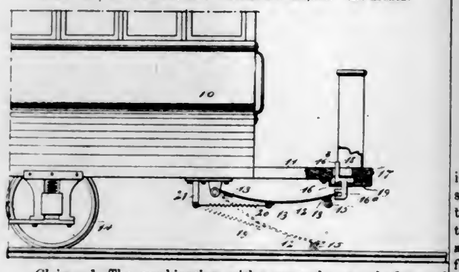
Claim.—1. The net *a* adapted to be connected at its upper end with the car body, and the frame or stretcher connected with the lower end thereof, and braces extending from said stretcher to the car body combined with the guy rope extending along the side edges and across the bottom of the net and having its ends adjustably connected together near the upper end of the net, substantially as and for the purpose described.

2. The net connected at its upper end with the car body, and the frame and stretcher connected with the lower end of the said net, and pivoted braces extending therefrom to the car body, combined with the lifting ropes for said stretcher and weight connected therewith, substantially as and for the purpose described.

3. The net connected at its upper end with the car body and the frame and stretcher connected with the lower end of the said net, and pivoted braces extending therefrom to the car body, combined with the lifting ropes for said stretcher and weight connected therewith, and the catch co-operating with said weight, substantially as and for the purpose described.

4. A life guard for street railway cars comprising net supporting frames one near the top of the dash board and the other near the ground in advance of the former, combined with a net composed of diamond shaped wire loops enchained together in line up and down the net and each loop of a given line of loops being connected by short links with the loops of the adjacent lines at each side thereof, substantially as described.

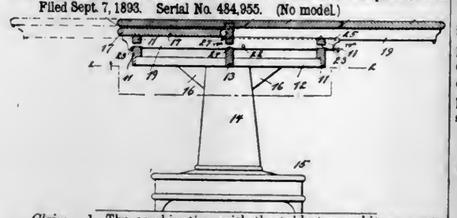
522,100. SAFETY-GUARD FOR CARS. JOSEPH W. BETZ, Brooklyn, N. Y. Filed Dec. 8, 1893. Serial No. 493,075. (No model.)



Claim.—1. The combination, with a car and a car platform, of a fender frame hinged by its rear end upon the car below the car body, rollers on the lower side of the fender frame near its front edge, a spring-pressed latch slidable from the platform, and a retractile spring engaging the car fender andf rame, substantially as described

2. In a safety guard for cars, a latching device for the support of a hinged fender frame, comprising a case beneath the car platform, a slide block therein, a depending latch limb on said slide block, adapted to hook onto the front of the fender frame and slidable in a slot in the case, an upright arm on the slide block, reciprocable in the case and in a slot in the platform, and a spring in the case pressing upon the slide block, substantially as described.

522,101. EXTENSION-TABLE. JOSEPH BOER, Westphalia, Mich. Filed Sept. 7, 1893. Serial No. 484,955. (No model.)



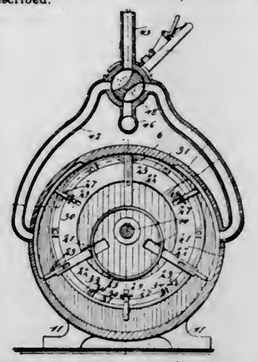
Claim.—1. The combination, with the table top and its supporting frame, the latter having recesses in its upper edge, of a leaf adapted to slide beneath the table top, supporting arms secured to the leaf, and projections on the arms which lie upon the top of the supporting frame, substantially as specified.

2. The combination, with the table top and its supporting frame, the latter having a recess in the upper edge, of its outer portion and a recess in its central portion with a ledge on its upper wall, of a leaf to fit against the edge of the table top, supporting arms secured to the under side of the leaf and adapted to lie in the recesses of the frame, projections on the sides of the arms to rest on the table top, and means, as a notch in the arms, to engage the ledge on the supporting frame, substantially as specified.

3. In a table, the combination with a frame having a cross piece at the center, said frame and cross piece being recessed, and a top supported on the frame, of supporting arms sliding in said recesses and provided with notched inner ends, ledges on the frame for engaging the notches of the arms, and a leaf secured to the said arms, substantially as described.

522,102. MOTOR OR PUMP. CHARLIE E. BROWN, Stayton, Oreg. Filed Oct. 2, 1893. Serial No. 486,982. (No model.)

Claim.—1. The combination with the cylinder having suitable inlet and exhaust ports, of the revoluble piston hung off the center in the cylinder, a plurality of yielding wings projecting from the face of the piston and adapted to be held in continuous contact with the cylinder, and a plurality of supplemental wings also projecting from the piston but striking the cylinder intermittently, substantially as shown and described.



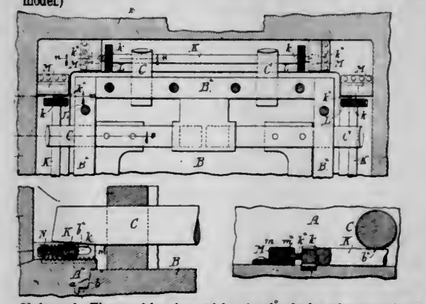
2. The combination, with the piston and the cylinder, of the packing ring in the end of the piston, the ring comprising a plurality of segmental sections having under-cut ends, a wedge-shaped block between each pair of sections, and separate springs interposed between the piston and each of the sections and wedges, the said springs being arranged essentially perpendicular to the end surface of the piston to force the packing ring away from the piston in a direction parallel to the axis thereof, substantially as described.

3. The combination, with the piston and the cylinder, of an inner head arranged parallel to the cylinder head, and means for adjusting it toward and from the cylinder head proper, a split calking ring held on the inner surface of the said inner head adjacent to the piston and to the walls of the cylinder, and means for expanding and contracting the said ring.

4. The combination, with the piston and the cylinder head, of an inner head arranged parallel to the cylinder head a calking ring held on the inner surface of the inner head adjacent to the piston, screws engaging with the said inner head and extending outward through the cylinder head, the screws being held against longitudinal movement pinions secured to the screws on the outside of the cylinder head, a circular rack engaging with the pinions, and means for turning the rack, substantially as described.

5. The combination of the cylinder, the revoluble piston within it, a cylinder head, the split packing ring mounted on the head opposite the end of the piston, rivets for securing the ring to the cylinder head, said rivets passing through elongated, essentially segmental openings in the cylinder head, to permit the ring to move in a plane parallel to the cylinder head, and means for expanding the ring, substantially as shown and described.

522,103. SAFE-LOCK. AUGUSTUS G. BURTON and D'ESTAING S. COVERT, Chicago, Ill. Filed Oct. 14, 1890. Serial No. 368,056. (No model.)



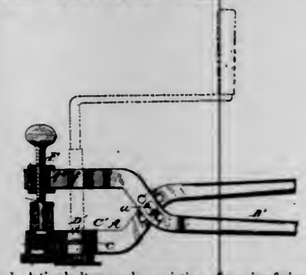
Claim.—1. The combination, with a jamb of a burglar proof safe or vault doorway and a door fitting therein, of bolts on the door engaging the jamb, one or both of the engaging surfaces being so inclined as to cause the bolts to act as wedges to draw the door inward as the bolts are cast, and both of the engaging parts being provided with contact surfaces located in a plane parallel with the face of the door when the bolts are fully cast, in such manner as to prevent outward strain coming on the beveled surface, substantially as described.

2. The combination with the jambs of a safe or vault doorway, and a door fitting therein, said jambs and the door being provided with interfitting beveled surfaces, of bolts on the door engaging the jambs, said jambs and the bolts being provided with engaging surfaces which on one of said parts is beveled or inclined, bodily movable anti-friction rollers located between said parts, and springs applied to throw the rollers toward the door, substantially as described.

3. The combination with the jambs of a safe or vault doorway, and a door fitting therein, said jambs and the door being provided with interfitting beveled surfaces, of bolts on the door engaging the jambs, said bolts and the jambs being provided with engaging surfaces which on one of said parts is beveled or inclined, bodily movable anti-friction rollers located between said parts, springs applied to throw said rollers toward the door, and means for maintaining the said rollers parallel with the jambs, substantially as described.

4. The combination with the jambs of a safe or vault doorway, and a door fitting therein, said jambs and the door being provided with interfitting beveled surfaces, of bolts on the door engaging surfaces which on one of said parts is beveled or inclined, bodily movable anti-friction rollers located between said parts, springs applied to throw said rollers toward the door, and gear-teeth on the rollers and racks on the jambs for maintaining said rollers parallel with the jambs, substantially as described.

522,104. TIRE-BOLT WRENCH. JOSEPH E. CAMPBELL, Fairfax Station, Va., assignor of one-half to Ecca R. Sweetnam, same place. Filed Dec. 14, 1893. Serial No. 493,652. (No model.)



Claim.—1. A tire bolt wrench consisting of a pair of pivoted jaws, one of said jaws being provided with two parallel swiveling and rotatable wrench heads arranged at right angles to the jaws and connected by interlocking wheels, and the other jaw being provided with an adjustable clutch screw arranged to be moved on the jaw into alignment with either wrench head substantially as and for the purpose described.

2. A tire bolt wrench, consisting of a pair of pivoted jaws, one of the jaws carrying two swiveling wrench heads connected by gears, and the other jaw being slotted and provided at its opposite ends with bearings or rests for a turning crank, a sliding frame provided with a clutch screw arranged to be adjusted in line with either wrench head, and a detachable turning crank having its end adapted to pass through either of said rests and be seated in one of the wrench heads substantially as shown and described.

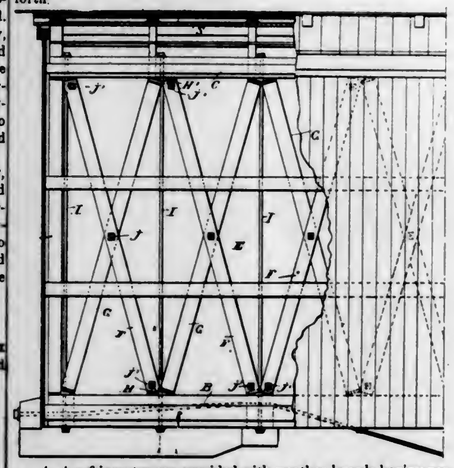
3. A tire bolt wrench consisting of a pair of pivoted jaws, one of which is provided with two swiveling wrench heads having intermeshing gears on their lower ends and one of said wrench heads having a grooved periphery with retaining screw and also a flange underlapping the gear of the other wrench head, and the other jaw being provided with an adjustable clutch screw substantially as shown and described.

522,105. REFRIGERATOR-CAR. FERDINAND E. CANDA, New York, N. Y. Filed Jan. 18, 1893. Serial No. 458,805. (No model.)

Claim.—1. In a refrigerator car, the combination, with the central braces, of insulating linings placed on each side thereof, and braces arranged outside of each of said insulating linings, substantially as herein shown and described, whereby a central independent insulating chamber is formed between said outer braces, as set forth.

2. In a refrigerator car, the combination, with the central braces, of insulating linings placed on each side thereof, forming an interior central independent insulating chamber, outer braces arranged outside of said insulating linings, and insulating linings secured upon the outer surfaces of said outer braces, substantially as shown and described, whereby the said interior insulating chamber is inclosed between two exterior insulating chambers, as set forth.

3. In a refrigerator car, the combination of the following instrumentalities, namely, a frame consisting of inner and outer braces with their adjuncts, insulating linings arranged upon the sides of the inner braces, thereby forming an independent central insulating chamber inclosing the central braces, and insulating linings secured upon the exterior sides of the outer braces, thereby forming two separate independent exterior insulating chambers which inclose the central insulating chamber and also inclose the exterior braces, as herein set forth.



4. A refrigerator car provided with weather boards having vertically-disposed grooves forming air channels, the lower ends of which open to the outside and the upper ends into an air chamber formed in the roof, the said chamber being connected by a downward channel with the outside air, substantially as shown and described.

522,106. BOXING-GLOVE. ROBERT N. CARSON and ARTHUR A. MARTIN, San Francisco, Cal., assignors to the E. T. Allen Company, same place. Filed Jan. 2, 1894. Serial No. 495,444. (No model.)

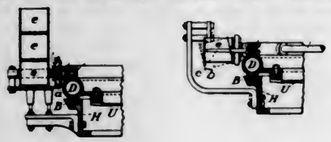


Claim.—1. The improvement in boxing gloves consisting of the back made broadest in the center, tapering toward the ends of the fingers and toward the wrist, in conjunction with the palm piece to which the back is stitched so as to form a curved segment when the glove is finished, substantially as herein described.

2. In a boxing glove, the back made broad in the center and tapering toward the finger ends and wrist, a palm piece to which the back is stitched so as to produce a permanent normal curvature from wrist to finger tip, a thumb fitted into the palm in opposition to the fingers with a reinforce strip extending continuously from the palm up the inside of the thumb, and an inserted gore piece and an elastic band in the front of the wrist, substantially as herein described.

3. As a new article of manufacture, a boxing glove having the back made tapering from the center toward the finger tip and wrist and so stitched to the palm piece as to produce a permanent curvature whereby the finger tips are normally closed down upon the base of the palm and wrist, and a thumb set into the palm to stand normally in opposition with the fingers whereby it closes into the curvature made by closing the hand, without strain upon the stitching, substantially as herein described.

522,107. CAN-TESTING MACHINE. JOHN B. CLOT, San Francisco, Cal. Filed Dec. 27, 1893. Serial No. 494,831. (No model.)



Claim.—1. In a can testing machine, an annular revolving table or wheel having a continuous air passage around and within the rim or periphery thereof, a radial air-exhausting pipe connecting with this air chamber or passage in the rim of the wheel and passing through its axis to an exhausting apparatus, a series of nozzles around the table or wheel communicating with the chamber or passage in its rim and provided with disk-valves closing outward by means of springs and opening inward by pressure of the mouths of the cans, in the manner substantially as and for the purposes specified.

2. In a can-testing machine, a table or wheel having a continuous chamber therein; an exhausting pipe connected thereto and extending to an air exhausting apparatus; a series of nozzles attached to the rim of the table or wheel and connecting with the chamber therein, these nozzles provided with flexible diaphragms closing automatically outward against a fixed collar or valve, in the manner substantially and for the purposes herein set forth and described.

3. In a can-testing machine, a rotary table or wheel; a vacuum chamber therein, and a series of hollow nozzles attached to the wheel and communicating with the vacuum chamber; a flexible diaphragm, forming a stop valve to close and seal the outer end of the nozzles by means of a spring, the force of which opposes and exceeds the inward air pressure on the diaphragm, in the manner substantially and for the purposes described.

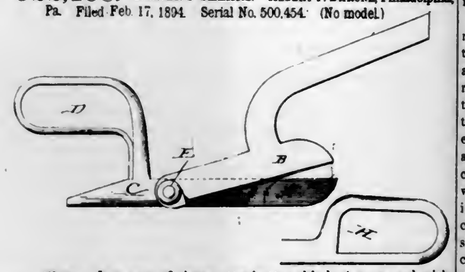
4. In a can-testing machine, a series of nozzles in continuous communication with a chamber in which a partial vacuum is maintained, the outer ends of these nozzles covered by a flexible diaphragm forming a central valve or closing joint, as herein described, the latter adapted to being forced back and opened by pressure of the head of the can applied around a collar or valve; a spring to return the diaphragm, and automatically cutting off communication with the interior of the can when exhausted, in the manner substantially and for the purposes herein described

5. In a can-testing machine, a chambered rotating table, and a series of nozzles attached thereto, in connection with pneumatic apparatus to create a partial vacuum in a chamber of the table and in the nozzles thereto attached; in combination with a guide bar that by pressure on the outer ends of the cans opens communication between their interior and the vacuum chamber in the revolving table, so arranged as to release the can and permit the nozzle to close when the air in the can is exhausted, in the manner substantially and for the purposes described.

6. In a can-testing machine, a rotating table or wheel provided with a series of hollow can-receiving nozzles: devices to apply the cans and devices to automatically exhaust the air from their interior, and retain them by suction on a flexible seat, until their tightness is determined, in combination with a guide or other like mechanism, to deflect the cans, and independent of the pneumatic apparatus, break their contact with the flexible diaphragm to which they are held by suction, in the manner substantially and for the purposes herein described.

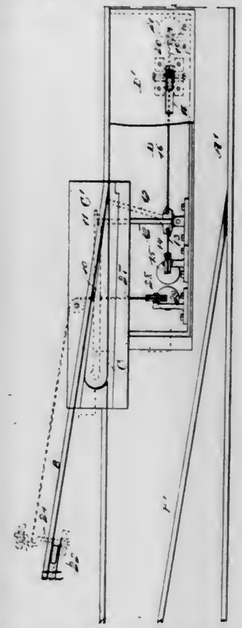
7. In a can-testing machine, a series of moving suction nozzles, in communication with a chamber from which the air is partially exhausted; guide bars to automatically apply the cans by pressure on their ends, and open communication between their interior and the vacuum chamber, by means of a flexible diaphragm and a closing valve or collar as herein described; deflecting guides to mechanically separate the cans from the flexible diaphragm after they are tested, in the manner substantially and for the purposes specified.

522,108. TINNER'S SHEARS. ALBERT P. DARONE, Philadelphia, Pa. Filed Feb 17, 1894. Serial No. 500,454. (No model.)



Claim.—In a pair of shears, the bottom blade A arranged with its cutting edge uppermost and with its back to afford a bearing for the shears, the handle in rear of said lower blade and connected thereto, an upper blade B pivoted at the rear end of the cutting blade A and movable vertically toward and from the same and the handle extending upward and forwardly from the upper cutting blade whereby the shears may be opened and closed by raising and lowering the handle on the upper blade, substantially as described.

522,109. SWITCH-OPERATING DEVICE. WILLIAM F. DERMODY, Brooklyn, N. Y. Filed Apr. 4, 1894. Serial No. 506,325. (No model.)



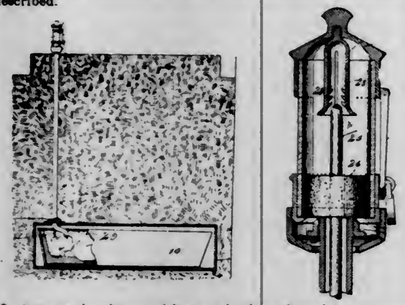
Claim.—1. In a switch operating device, the combination, with a switch point and a shifting arm attached to the pivot of the said point, of a locking bar normally in engagement with the said shifting arm, counterbalance weights connected with opposite sides of the locking bar, and a shifting lever adapted to be operated by a passing car, and connected with the locking bar and located between the weights, and a lever located at the opposite side of the switch point to the shifting lever of the locking bar, the second lever being connected with the shifting arm of the switch point, substantially as shown and described.

2. In a switch operating device, the combination, with a switch point, and a shifting arm attached to the pivot of the said point, of a locking bar normally in locking engagement with the said shifting arm, counterbalance weights connected with opposite sides of the locking bar, a shifting lever adapted to be operated by a passing car, connected with the locking bar and located between the weights, a lever located at the opposite side of the switch point to the shifting lever of the locking bar, the second lever being connected with the shifting arm of the switch point, and a weighted chain or cable connected with the shifting arm of the switch point, the weight acting upon the said arm in a direction opposite to its shifting lever, as and for the purpose specified.

3. The combination, with the main rails of a track, the siding rails and switch point of said track, and an actuating arm attached to the switch point at its pivot point, said arm being provided with a recess in its free end, of a shifting lever located between the main rails opposite the free end of the switch point, a weighted cable attached to the said lever above its pivot point, a second cable attached to the said lever below its pivot, a pivoted locking bar adapted to enter the recessed portion of the switch arm, said locking bar being attached to the said second cable of the shifting lever, and a third cable attached to the opposite side of the locking bar and provided with a weight counterbalancing the weight on the first cable, a shifting lever located near one of the siding rails and connected with the crank shaft, the crank shaft being in cable connection with the outer side of the shifting arm of the switch point, and a weighted cable connected with the opposite side of the said shifting arm, substantially as shown and described, whereby the locking bar holds the switch point in a given position and the weight attached to the shifting arm shifts the switch point when it is not controlled by the locking bar, as and for the purpose specified.

522,110. GRAVE-SIGNAL. HUBERT DEVEAU, New York, N. Y. Filed Jan. 2, 1894. Serial No. 495,319. (No model.)

Claim.—1. A grave signal, comprising an air pipe adapted to communicate with the interior of a coffin, a movable rod extending longitudinally through the pipe and adapted to project into the coffin, and a valve secured to the said rod and adapted to normally cut off the air pipe from communication with the atmosphere, substantially as described.



2. A grave signal, comprising an air pipe adapted to communicate with the coffin near the head end thereof, a movable rod extending longitudinally through the pipe and adapted to project into the coffin to rest on the head of the buried person, a casing located at the upper end of the air pipe and communicating therewith, said casing having openings whereby it may communicate with the surrounding air, and a valve secured to the rod and adapted to normally close the said openings of the casing, substantially as described.

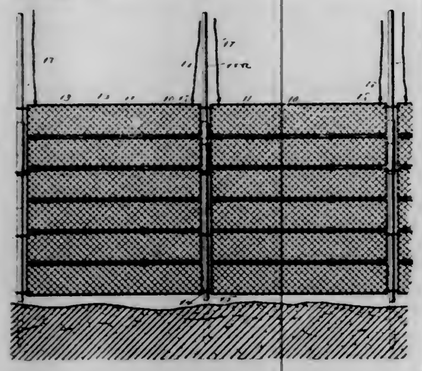
3. A grave signal, comprising an air pipe adapted to communicate with the interior of a coffin, a movable rod extending longitudinally through the pipe and adapted to project into the coffin, a casing located at the upper end of the air pipe and communicating therewith, said casing having openings whereby it may communicate with the surrounding air, the casing being further provided with a transparent middle portion, a valve secured to the rod and adapted to normally lie in the lower portion of the casing and close the openings thereof, and a clutch to engage and hold the rod when raised, substantially as described.

4. A grave signal, comprising an air pipe, a case carried at the upper end of the pipe and provided with air ports in its lower part and with a transparent portion, a valve rod extending longitudinally through the pipe, and a combined valve and signal carried by the rod and adapted to normally close the ports in the case, substantially as described.

5. A grave signal, comprising an air pipe to connect with the top of a coffin, a case at the top of the pipe, the case having a transparent portion, air ports in its lower part and a projecting flange below the ports, a valve rod extending longitudinally through the pipe, a valve carried by the rod and adapted to normally close the ports, and a casing encircling the pipe and the lower end of the transparent case, the case being perforated to admit air, substantially as described.

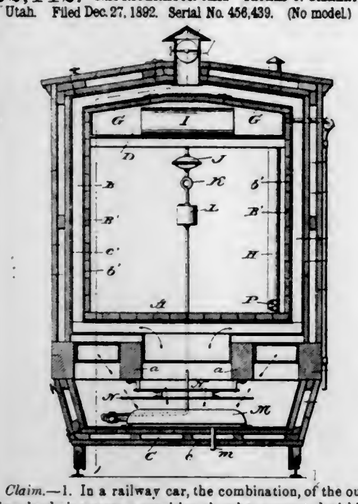
6. The combination, with the case, the longitudinally-movable guide rod and the air pipe containing the rod, of the forked clutch arranged adjacent to the rod and provided with teeth on its inner side to engage the rod, substantially as described.

522,111. FISHING APPARATUS. PETER S. DOWNIE and ALFRED J. DOWNIE, Marinette, Wis. Filed Oct. 12, 1893. Serial No. 487,925. (No model.)



Claim.—In a net fishing apparatus, the combination with a series of vertical stakes arranged in suitable proximity and relation, of a net composed of a series of sections whose adjacent edges are loosely connected by rings, each section having a ring attached at each end, and the rings being arranged contiguous to the upper and lower edges of adjoining sections, and engaging and adapted to slide on the stakes, and hoisting cords attached to the upper section of a series, as shown and described, whereby the net is adapted to be extended vertically and the several sections to fold flatwise upon each other, as specified.

522,112. REFRIGERATOR-CAR. THOMAS J. GILMARTIN, Ogden, Utah. Filed Dec. 27, 1892. Serial No. 456,439. (No model.)



Claim.—1. In a railway car, the combination, of the outer walls having dead-air spaces, a provision chamber supported within the car so as to provide a flue which surrounds said provision chamber, the part of the flue below the floor of the provision chamber increasing in size from the ends of the car toward the center thereof, substantially as shown.

2. In a railway car for the purpose set forth, the combination, of a provision chamber surrounded by flues for the circulation of air, the provision chamber having a receptacle for the reception of a cooling medium, means for connecting said receptacle with the flues surrounding the provision chamber, and a heating means carried by the car and communicating with the flues, whereby the temperature in the car can be either raised or lowered, for the purpose set forth.

3. In a car having a provision chamber which is surrounded by flues substantially as shown, means for connecting the upper flues with a cooling means to cause a down-draft in the flues, and a heating means also carried by the car for causing an up-draft of heated air through the lower flues and upwardly in the side flues, for the purpose set forth.

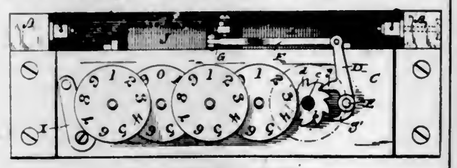
4. In a railway car, the combination, of the air-ducts B, means for cutting off communication between said air-ducts and an ice-chamber and means for connecting the air-ducts with the outer atmosphere, together with heating means carried by and located below the floor of the car, said heating means communicating with the air-ducts by longitudinal flues which have a greater area adjacent to the source of heat than at their point of connection with the air-ducts, substantially as shown.

5. In a railway car for the purpose set forth, the combination, of a provision chamber surrounded by air flues or ducts, an ice-chamber supported in the upper part of the provision chamber, and hinged doors adapted to close the ice-chamber and when opened establish communication between the ice-chamber and said flues or ducts, for the purpose set forth.

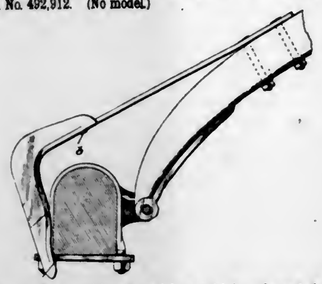
6. In a railway car having a provision chamber which is surrounded by an air-duct connecting with means for raising or lowering the temperature therein, of a vertical flue H leading to the exterior of the car and communicating near its lower end by means of valved openings with the provision chamber and with the surrounding air-duct or flue, substantially as shown and for the purpose set forth.

522,113. ELECTRICALLY-OPERATED REGISTER. SHELDON J. GLASS, Milwaukee, Wis. Filed Oct. 23, 1891. Serial No. 409,610. (No model.)

Claim.—A register of that class employed for counting the movement of a reciprocating, oscillating, or rotary device or the successive production of various articles, the same comprising a series of counters geared in train to indicate arithmetical progression in the order of units, tens, and multiples of ten, a ratchet connected to the units-counter, an actuating lever for the ratchet, another lever linked to the one aforesaid, an armature carried by the second lever, an electro-magnet for the attraction of the armature, and a supplemental electro-magnet for the retraction of said armature, each of these electro-magnets being in independent circuit and automatically cut out prior to the energization of the other, substantially as set forth.



522,114. VEHICLE-SHAFT HOLDER. PHILIP J. HARRAN, Bloomfield, Ind., assignor to Simon Lehman, same place. Filed Dec. 6, 1893. Serial No. 492,912. (No model.)



Claim.—1. The combination with a vehicle axle and shaft, of a holder for said shaft consisting of a spring-arm secured to said shaft at one end, and a fork extending from the free end of said spring arm and bent at right angles thereto, said fork having two arms provided each with a lower reduced end and front curved surfaces which are designed to bear against the lower rear edge of said axle, substantially as set forth.

2. As an improved article of manufacture, the shaft holder hereindescribed, consisting of the fork having two similar arms provided with reduced ends and having their front surfaces curved, a connecting portion for said arms having a recess or cut-away portion in its under side, the spring arm fitted in said recess or cut-away portion, and a bolt or rivet holding the same therein, substantially as set forth.

522,115. WHEEL-FENDER AND SAFETY ATTACHMENT FOR STREET-CARS. FRANK H. HOMAN, Patchogue, N. Y. Filed Jan. 24, 1894. Serial No. 497,904. (No model.)

Claim.—1. A fender of netting for street cars inclosing the wheels and space beneath the floor, having an edge bar of pivotally connected sections provided with rolls and connected by a cross-roll at each end of the car, substantially as described.

2. A fender of netting for street cars inclosing the wheels and space beneath the floor, having an edge bar of pivotally connected sections and connected by a cross-roll at each end of the car, in combination with spring pressed hangers for keeping the netting down, substantially as described.

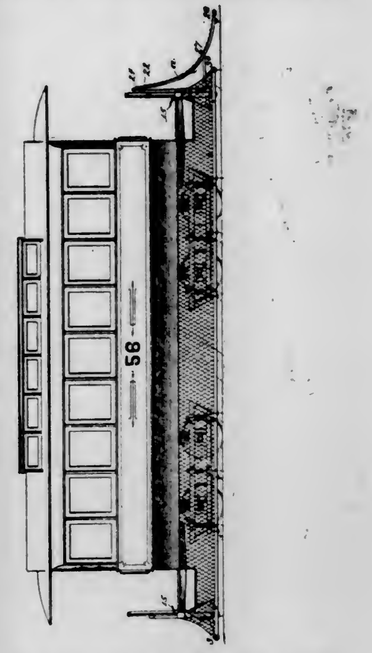
3. The combination, with a netting fender inclosing the wheels and spaces beneath the floor, of a cross-roll at each end of the car connecting said netting, and means for depressing said cross-rolls, substantially as described.

4. A fender netting for street cars having edge bars and rolls at each end of the car connecting the pivoted ends of said fender-bars, in combination with levers connecting each end of the roll, and a treadle connecting said levers for depressing said rolls, substantially as described.

5. A car fender netting having edge frames, in combination, with cross-rolls at each end of the car, levers connecting each end of said cross-rolls and spring pressed hangers; the said parts connected with and carried by said netting frame, substantially as described.

6. A car fender netting having an edge frame and cross-rolls mounted in pivoted sections of said frame at each end of the car, and means for depressing said rolls, substantially as described.

7. In a wheel fender for cars, the combination with the car of the netting hanging all around the frame and a cross-roll connecting the netting at each end of the car, with levers pivoted at each side of the car and connected to the ends of the rolls, and treadles and chains connecting the said levers at each end of the car, substantially as described.



8. The combination with a street car of a take-up safety device, the rods 17, 22 and 23, by which said take-up device is jointed upon the dash-board, a latch on the safety device adapted to engage a fixed part on the dash, and springs arranged to depress the safety device when the latch is released, substantially as described.

9. A safety take-up device for street cars, consisting of a frame constructed on the hanger-bars 16 and the top cross-rod 17, hooked to the top of the dash-board and pinned to brackets beneath the floor, and the curved bars 27 and 29 having the cross-roll 28 and the netting, and loosely hung upon the rod 22, and connected to the pivoted braces 30, the links 24 and 25, the springs connecting the said rods 17, 22 and 23, and the latch, substantially as described.

10. The combination with a street car, of a safety take-up device, consisting of the frame-bars 27, 27, the roll connecting their lower ends, the frame-bars 29, 29 and the netting *a*, the rod 22 connecting the upper ends of said frame-bars, means for jointing said rod to the car dash, means for supporting the lower ends of the frame-bars, upon the car, springs connected to depress said frame-bars, and a latch for holding said safety take-up device in its normal position, substantially as described.

11. The combination, with a street car, of a fender-netting inclosing the wheels and the space beneath the floor and provided with a cross-roll at each end of the car, a take-up safety device supplementing said fender-roll, and means connected for simultaneously depressing both the fender-roll and the take-up safety-device, substantially as described.

12. The combination, with a street car, of a fender netting inclosing the wheels and the space beneath the floor, and provided with a cross-roll at each end of the car, a take-up safety device supplementing said fender-roll and having a jointed connection with the dash-board, a latch for holding said take-up safety device in its normal position, a treadle connected to depress the fender-roll and a trip device connecting said treadle and latch for releasing the take-up safety device, whereby both devices are depressed simultaneously, substantially as described.

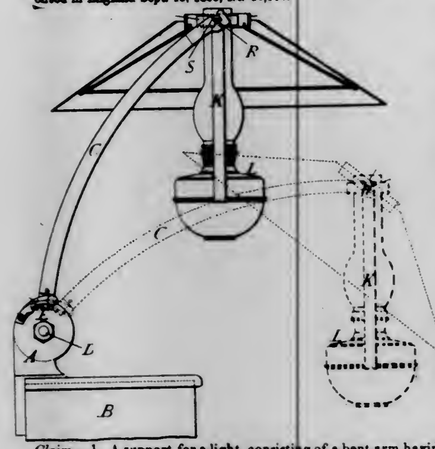
13. The combination, with a street car, of a take-up safety device consisting of a suitable frame having a netting and a cross-roll and hung upon the rod 22 at the top of the dash-board, the links 24 and 25 connecting the rod 23 and the dash-board, the latch 26 adapted to connect the said rod 22 with a fixed part of the dash and

the torsion springs connecting the said fixed part with the said rods, substantially as described, for the purpose specified.

14. The combination, with a street car, of a take-up safety device, means for mounting it upon the dash-board, consisting of the fixed rod 17 and the rods 22 and 23, their connecting links 24 and 25, and the pivoted braces 30, the torsion springs 32 and the latch upon the rod 22 adapted to engage the said fixed rod, substantially as described

15. The combination, with a street car, of a take-up safety device composed of the bars 27, 27, 29, 29, the rods 22, 23 connecting said bars at their upper ends and the roll connecting the bars 27, 27 at their lower ends, the said bars being jointed whereby to fold the lower portion of the device, the braces pivotally connecting the said folding part and the links connecting the said rods 22, 23 with a fixed part of the dash-board, and a device for engaging said rod 22 with said fixed part and releasing said engagement, substantially as described.

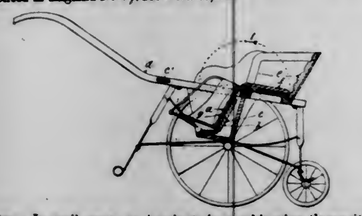
522,116. SUPPORT FOR LIGHTS. JAMES R. HUGHES, London, England. Filed Mar. 29, 1894. Serial No. 505,603. (No model.) Patented in England Sept. 15, 1893, No. 17,397.



Claim.—1. A support for a light, consisting of a bent arm having one end pivoted upon a fixed, horizontal axis, a pawl upon said arm adapted to engage a ratchet rigidly mounted upon the base supporting said axis, a framing pivotally suspended from the elevated end of the bent arm and adapted to sustain the lamp, said framing having a ring at its top provided with oppositely-projecting pins resting in forked arms on the end of the bent arm, a lamp-shade frame having a top ring supported on said pins, and means for locking the pins on the ring of the lamp framing to prevent their disengagement from the forked arms, substantially as described.

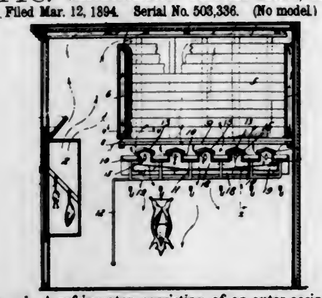
2. The combination with a suitable base having a slotted bracket, of a bent arm pivotally supported on a horizontal pivot on said bracket, a pawl pivoted on the arm and engaging ratchet teeth on the bracket, a lamp-framing having a ring at its top provided with projecting pins lying in an opening in one and a slot in the other of two forked arms on the elevated end of the bent arm, and a disk having a slot adapted to register with the slot receiving one of said pins, said disk being adapted to turn on the forked arm to lock said pin, substantially as described.

522,117. CHILD'S CARRIAGE. HARRY I. HUMPHREY, Birmingham, England. Filed Feb. 6, 1894. Serial No. 499,237. (No model.) Patented in England Nov. 5, 1892. No. 20,110.



Claim.—In mail carts or bassinets in combination therewith, a piece formed in two or more parts and forming one side of the well to one end of which is hinged a seat the other end being hinged to the bottom of the cart so that when in its collapsed or folded position said seat forms a foot rest and when extended a seat, substantially as described.

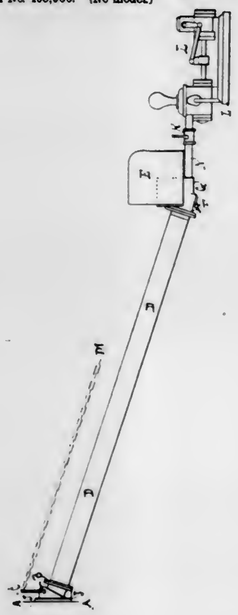
522,118. REFRIGERATOR. FREDERIK JACOBY, Milwaukee, Wis. Filed Mar. 12, 1894. Serial No. 503,336. (No model.)



Claim.—1. A refrigerator consisting of an outer casing, a provision-chamber, an ice-chamber having vertical walls, an ice rack in said chamber, a series of troughs below said ice-chamber, and a series of hoods supported above and between the troughs and spanning the spaces between the same, the ends of the hoods being inclined upwardly and outwardly, as shown, to take the drippings from the walls of the ice-chamber and direct them into the troughs, substantially as described.

2. In a refrigerator, the combination of an outer casing, a provision chamber and an ice-chamber, a series of separated drainage-troughs supported below the ice chamber, bars 16 adjustably supported below the drainage-troughs, said bars being beveled and grooved on their under sides, as shown, and provided with upwardly-extending arms, said arms extending up between the troughs, a series of hoods carried by said upwardly-extending arms and supported above the troughs, wedges supported below and in engagement with the bars 16, said wedges being formed with tongues on their upper and lower edges, a grooved horizontal support for said wedges, the inclined portion of the wedges engaging the beveled portion of the bars 16 and their lower edges engaging the grooved horizontal support, substantially as and for the purpose set forth.

522,119. ASH-EJECTOR. FRANK E. KIRBY, Detroit, Mich., assignor to the Detroit Dry Dock Company, same place. Filed Mar. 14, 1893. Serial No. 465,966. (No model.)

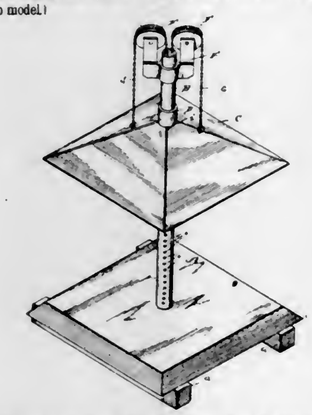


Claim.—1. In an ashes ejector, the combination of a hopper having sides at right angles with each other, and an opening in the lower corner, of a chamber of greater area than said opening connected with said hopper, a nozzle adapted to deliver a stream of water centrally through said chamber close to the corner of said hopper, and a straight pipe leading from said chamber outboard, substantially as shown and described.

2. In a device for removing ashes from a ship's fire room, the combination of the ejector G having a nozzle *h* opening *f* and counterweighted valve F, and means for forcing a stream of fluid through said nozzle, with the hopper E opening into said ejector, a discharge pipe D, and a valve *b*, substantially as and for the purposes set forth.

3. In a device for removing ashes from a ship's fire room, the combination of the ejector G having a nozzle *h*, means for forcing a stream of fluid through said nozzle, the hopper E opening into said ejector, a discharge pipe D provided at its outlet end with a valve *b*, the opening *f* in the lower side of the ejector, and an outwardly opening valve F normally closing said opening but automatically yielding under the pressure of the water contained in the pipe D to permit its escape therefrom upon the stoppage of the ejector, substantially as described.

522,120. BARRACK. WILLIAM A. MCHARRY, Eureka Springs, Ark. Filed June 30, 1892. Renewed Jan. 20, 1894. Serial No. 497,559 (No model.)



Claim.—In a barrack, the combination with a floor or platform, a counterbalanced roof or cover above said platform, an elongated sleeve D in said roof loosely engaging each post or column, a lock in said sleeve designed to engage said post or column and hold the roof to the proper adjustment, and perforations in said posts or columns, substantially as specified.

522,121. BREECH-BOLT. FREDERICK J. PENN and JOHN DEELEY, Sr., Birmingham, England. Filed May 15, 1893. Serial No. 474,318 (No model.) Patented in England Nov. 25, 1890, No. 19,145, and in Belgium Oct. 13, 1892. No. 101,723



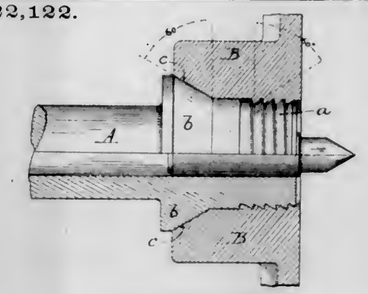
Claim.—In a breech loading small arm, the combination with a sliding and axially rotating bolt having its forward end provided with a screw-threaded socket, of an extractor-carrying head provided with an externally screw-threaded shank screwed loosely into the socket of the bolt and forming a loose screw-threaded connection therewith, whereby the bolt can be rotated independent of the head and without becoming disconnected therefrom, substantially as shown and described

---

522,122. MEANS FOR CENTERING FACE-PLATES FOR LATHES. EDWIN REYNOLDS, Milwaukee, Wis. Filed Dec. 29, 1893. Serial No. 495,119. (No model.)

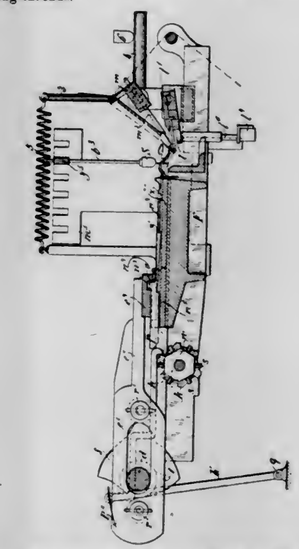
Claim.—In combination with the arbor A having the beveled thread *a* and inclined or beveled collar *b;* the face-plate or chuck B provided with threads to fit those upon the arbor, and provided, also, with a conical seat *c* to fit upon the beveled collar.

522,122.



522,123. WARP-KNITTING MACHINE. CARL B. SANDER, Chemnitz, Germany. Filed Nov. 11, 1891. Serial No. 411,563. (No model.)

Brief.—A pattern-roller controls the engagement of the needles with their actuating-slide, the needles being disengaged from the slide after each backward movement of the latter. A set of cord-guides and actuating means are provided in addition to the guides carrying the knitting-threads.



Claim.—1. The combination of the needles, the slide, its actuating means, the needle bed, the pattern roller and means to actuate it, the needles and slide having provisions in virtue of which the former are disengaged from the latter after each backward movement of the same.

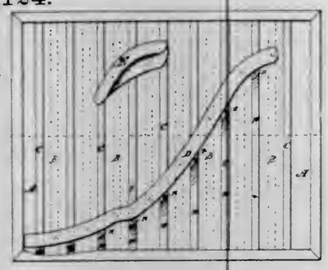
2. In combination, the needles, the slide which actuates the same, devices for reciprocating the slide, the pattern roller, and devices for turning the same at each operation through a definite distance, the pattern roller being provided with elevations for raising the needles into engagement with the slide.

3. The combination of the hooked needles, the slide for actuating the needles, a pressing-bar adapted to force the hook of a needle downward during the backward movement of the needle, a pattern roller provided with elevations for raising the needles into engagement with the slide, the cord-guides, and mechanism for actuating said cord guides, substantially as shown and described.

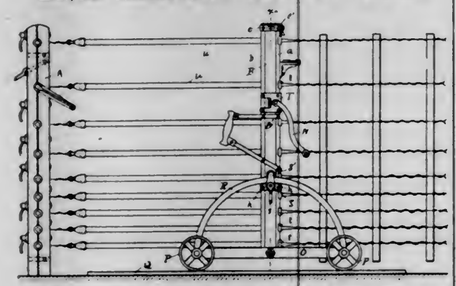
522,124. PIANO SOUNDING-BOARD. EDWARD G. SCHLEICHER, Stamford, Conn., assignor to himself and Andrew J. Schleicher, same place, and George Schleicher and John C. Schleicher, New York, N. Y. Filed Apr. 12, 1894. Serial No. 507,311. (No model.)

Claim.—A sounding board provided with bottom or back ribs B and with top or front ribs C, the top ribs being secured to the sounding board at places intermediate between the places where the bottom or back ribs are secured substantially as described.

522,124.



522,125. FENCE-MACHINE. WILLIAM C. SHOEMAKER, Richmond, Ind. Filed Mar. 15, 1894. Serial No. 503,759. (No model.)

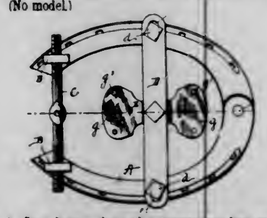


Claim.—1. The combination of the hollow frame composed of the uprights *a*, *b*, *a'*, *b'*, the collar bearings E having ears F provided with studs *g* detachably connected with the inner sides of said hollow frame, the twister wheels D having hubs *e d* journaled in said collar bearings, transmitter wheels H, bevel driving gears K L, crank-shaft M, and the U-shaped clamp plate T adapted to serve as a brace for the hollow frame and as a bearing for the crank-shaft, substantially as described.

2. The combination of the hollow frame composed of the uprights *a*, *b*, *a'*, *b'*, a series of twister wheels and intermediate transmitters journaled within said frame, and the plates *t* having end lugs *t'* and longitudinal slots *r* and secured to the upright *a*, and adapted to serve as braces for the hollow frame, as guides for the wires of the fence, and as bumpers for forcing the pickets in position, substantially as described.

3. The combination with the truck O, the hollow frame pivoted on the truck, and the segmental brace R, of the guide irons S S', the under guide S being T-shaped and bolted to the hollow frame, and the outer iron S' being provided with a stud journaling in the upper end of the other iron and having a tail-nut *s* by which its lower end is clamped against the segmental brace, substantially as described.

522,126. HORSESHOE. JOHN H. SMITH, JAMES R. SMITH, and WILLIAM E. SMITH, Snohomish, Wash. Filed Dec. 30, 1893. Serial No. 495,275. (No model.)

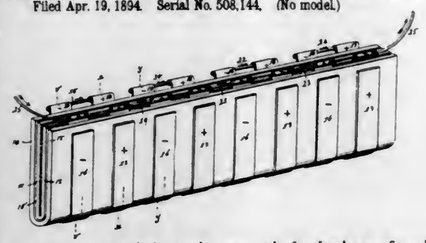


Claim.—1. In a horse shoe, the transverse bar secured thereto about midway the length of the shoe, the screw bolt having a bearing at the central portion of said bar, and the foot plate carried by said screw-bolt, substantially as specified.

2. In a horse shoe, the combination with the shoe formed in two sections pivotally jointed, the transverse bar D, the removable screw-bolts securing said bar to the shoe, said bar having enlarged bearing slots for said bolts, the central bearing in said bar, the screw-bolt engaging said bearing, and the foot plate carried by said last named screw-bolt, substantially as specified.

3. In a horse shoe, formed in two sections jointed, the heel calks capable of a rotary movement, the expanding rod engaging bearings in said calks, the transverse bar D removably secured to the shoe about midway the length thereof, the screw-bolt carried thereby, and the foot plate carried by said screw-bolt, substantially as specified.

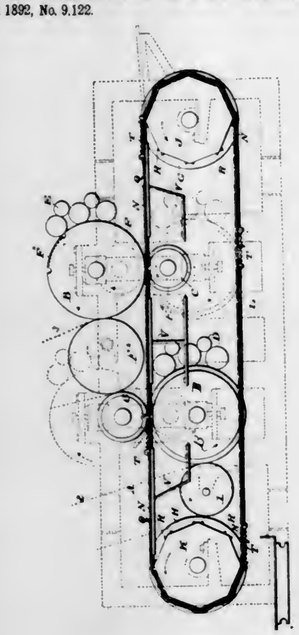
522,127. VOLTAIC BATTERY. HENRY TIMM, New York, N. Y. Filed Apr. 19, 1894. Serial No. 508,144. (No model.)



Claim.—1. A voltaic couple composed of a dry layer of a soluble electrolyte inclosed between two layers 11, 12 of an absorbent material a metallic plate 13 in close contact with the opposite faces of the absorbent layers 11, 12, two absorbent layers 14, 15 placed on the outside faces of the metallic plate 13, a metallic plate 16 which is in close contact with the opposite faces of the absorbent layers 14, 15 and the polarity of which is different from that of the metallic plate 13, and a metallic connection between the plates 13 and 16 substantially as described.

2. A voltaic battery composed of two absorbent layers 11, 12 inclosing a dry layer of a soluble electrolyte, a series of metallic plates 13 16 of different polarity in close contact with the absorbent layers 11, 12, two absorbent layers 14, 15 placed on the outside faces of the metallic plates 13 and 16 a second series of metallic plates 13, 16 of different polarity in close contact with the absorbent layers 14, 15 metallic connections 18, 20, 22, 24 between the outside metallic plates 16, 13 and metallic connections 19, 21, 23 between the inside metallic plates 16. 13 substantially as described

522,128. MULTIPLE-COLOR-PRINTING MACHINE. WILLIAM H. R. TOYE, Philadelphia, Pa., assignor, by direct and mesne assignments, to the Simultaneous Chromogravure Printing Machine and Manufacturing Company, Camden, N. J. Filed Nov. 30, 1891. Renewed Dec. 12, 1893. Serial No. 493,493. (No model.) Patented in England May 13, 1892, No. 9,122.



Claim.—1. In a printing machine the combination with a printing couple, of a flexible carrier composed of separate links, some of which are toothed and adapted to engage with gear on the printing couple, supports for said carrier, and means independent of the carrier for driving the printing couple

2. In a printing press the combination with one or more printing couples consisting of type and impression cylinders, of a flexible carrier consisting of a number of blocks having sockets therein, a band or bands for connecting said blocks together and supporting wheels for the carrier having studs adapted to engage with the socket in the blocks.

3. In a printing press the combination with one or more printing couples consisting of type and impression cylinders, of a flexible carrier consisting of a number of blocks having sockets therein, a band or bands for connecting said blocks together and polygonal sprocket wheels having studs adapted to engage with the sockets in the blocks.

4. In a printing machine a flexible carrier for conveying sheets to be printed between a printing couple, said carrier consisting of a number of blocks abutted together, end to end, a band or bands for holding said blocks together, and gripper mechanisms carried by certain of said blocks.

5. In a printing machine a flexible carrier for conveying sheets to be printed between a printing couple, said carrier consisting of a number of blocks abutted together, end to end, and having intermeshing teeth S, a band or bands for holding said blocks together, and gripper mechanisms carried by certain of said blocks.

6. In a printing machine a flexible carrier for conveying sheets to be printed between a printing couple, said carrier consisting of a number of blocks abutted together end to end, a band or bands for holding said blocks together, means for adjusting the length of said bands and gripper mechanisms carried by certain of said blocks.

7. In a printing machine a flexible carrier for conveying sheets to be printed between a printing couple, said carrier consisting of a number of blocks abutted together end to end, and having intermeshing teeth S, a band or bands for holding said blocks together, means for adjusting the length of said bands, and gripper mechanisms carried by certain of the blocks.

8. In a printing press the combination with a flexible carrier for conveying sheets between a printing couple and consisting of a number of blocks having sockets thereon a band or bands for connecting said blocks, of supports for the carrier having studs adapted to engage with the sockets in the blocks.

9. In a printing press the combination with a flexible carrier for conveying sheets between a printing couple and consisting of a number of blocks having sockets therein and a band or bands for connecting said blocks, of polygonal supports for the carrier having studs adapted to engage with the sockets in the blocks.

10. In a flexible carrier for conveying the sheets to be printed between a printing couple a number of blocks abutted together, grooves in the sides of said blocks, a band or bands adapted to fit in the grooves and hold the blocks together and gripper mechanisms carried by some of the blocks.

11. In a flexible carrier for conveying the sheets to be printed between a printing couple, a number of blocks abutting together, grooves in the sides of said blocks, a band or bands adapted to fit in the grooves and hold the blocks together, nuts fitting on the end of the bands for adjusting their length and gripper mechanisms carried by some of the blocks.

12. In a printing press the combination with type and impression cylinders constituting a printing couple, and means for driving the same, of a flexible carrier consisting of blocks, abutted end to end a band or bands for connecting said blocks and gripper mechanisms carried by certain of the blocks and supports for said carrier journaled on the frame.

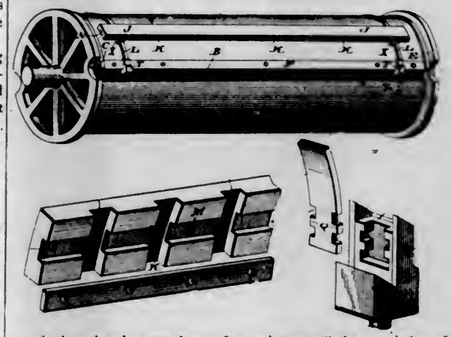
13. In a printing press the combination with type and impression cylinders constituting a printing couple and means for driving the same, of a flexible carrier consisting of blocks, abutted end to end an adjustable band or adjustable bands for connecting said blocks and gripper mechanisms carried by certain of the blocks and supports for said carrier journaled on the same.

522,129. REGISTERING ATTACHMENT FOR PRINTING-PLATES FOR PRINTING-MACHINES. WILLIAM H. R. TOYE, Philadelphia, Pa., assignor, by direct and mesne assignments, to the Simultaneous Chromogravure Printing Machine and Manufacturing Company, Camden, N. J. Filed Nov. 19, 1891. Renewed Dec. 16, 1892. Again renewed Dec. 12, 1893. Serial No. 493,494. (No model.)

Claim.—1. A registering attachment for a printing cylinder, consisting of a frame, binder bars adjustable thereon, and strips carried by said binders and to which a printing plate is adapted to be secured, said parts being combined substantially as described.

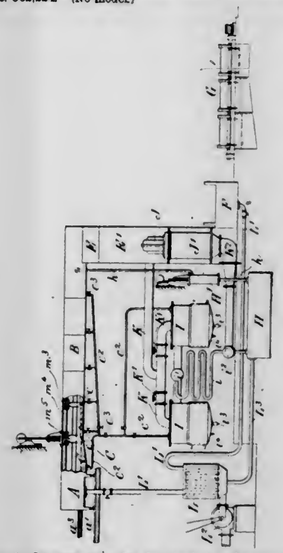
2. A registering attachment for a printing cylinder, consisting of blocks adapted to be attached to the walls of openings in said cylinder, bars adjustable in said blocks, and strips on said bars adapted to have the printing plates secured thereon, substantially as described.

3. A registering attachment for a printing cylinder, consisting of a chase, blocks fitting on said chase, curved bars with end pieces movable in said blocks, and having projecting screw-threaded stems, nuts on said stems, strips movable on said bars, and clamps for securing said strips in place, said parts being combined substantially as described.



4. A registering attachment for a printing cylinder, consisting of adjustable binder bars, a strip having transverse and longitudinal grooves on its bottom, and a bottom strip fitting in said longitudinal groove, said parts being combined substantially as described.

522,130. APPARATUS FOR EXTRACTING OIL FROM WOOL. FREDERICK N. TURNEY, Nottingham, England. Filed Mar. 3, 1894. Serial No. 502,224. (No model.)



Claim.—1. In apparatus for degreasing and scouring wool, the combination with a degreasing chamber B containing a series of tanks C for containing solvent, of rock-shafts *b'* arranged longitudinally over each side of the tanks and carrying pinions *b*, a pinion b^3 mounted on one end of each of said shafts, a reciprocating rod b^6 carrying racks b^4 engaging the opposite sides of the pinion b^3, means for reciprocating said rod, and a series of trays for carrying the materials to be degreased, provided upon their opposite ends with toothed racks adapted to engage said pinions *b*, substantially as described.

2. In apparatus for degreasing and scouring wool, the combination with a degreasing chamber B containing a series of tanks C, of rock-shafts *b'* arranged longitudinally over each side of the tanks and carrying pinions *b* the teeth of which are in alignment with each other, a pinion b^3 mounted on one end of each of said shafts, a reciprocating rod b^6 carrying racks b^4 engaging the opposite sides of the pinions b^3, a crank b^5 for reciprocating said rod, a series of trays for carry-

ing the materials to be degreased provided upon their opposite ends with toothed racks adapted to engage said pinions *b*, and means for moving said trays longitudinally upon the pinions *b* for successively bringing them over the tanks, substantially as described.

3. In apparatus for degreasing and scouring wool, the combination with the degreasing chamber B, of a receiving chamber A provided with a sliding air-tight door a^x arranged between the degreasing and receiving chambers, an air-tight door *a* for closing the entrance to the receiving chamber, mechanism for independently operating said doors, means for transferring the material to be degreased from the receiving chamber to the degreasing chamber, and a condenser communicating with the receiving chamber for recovering the solvent escaping from the degreasing into the receiving chamber, substantially as described

4. In apparatus for degreasing and scouring wool, the combination with the degreasing chamber B, of a receiving chamber A provided with a sliding air-tight door a^x arranged between the degreasing and receiving chambers, an air-tight door *a* for closing the entrance to the receiving chamber, mechanism for independently operating said doors, trays D for carrying the materials to be degreased, and endless chains a^5 carried by spindles a^4 and provided with dogs a^6 for engaging said trays to transfer the same from the receiving chamber to the degreasing chamber, substantially as described.

5. In apparatus for degreasing and scouring wool, the combination with a degreasing chamber and a drying chamber, of air-tight receiving and discharging chambers communicating respectively with said degreasing and drying chambers, air-tight doors for controlling the communication between said chambers, doors for closing the entrance and discharge openings of said receiving and discharge chambers, mechanism for independently operating said doors, and a condensing apparatus for recovering the solvent from the vapor contained in said chambers, substantially as described.

6. In apparatus for degreasing and scouring wool, a drying chamber comprising a chamber E having foraminous side walls, chests E' and E^2 inclosing said side walls, an air inlet communicating with the chest E', an air outlet communicating with the chest E^2, and baffle plates E^3 arranged at intervals in the chest E^2 between the air inlet and the chamber E, substantially as described.

7. In apparatus for degreasing and scouring wool, the combination with the drying chamber comprising the chamber having foraminous side walls and chests E', E^2 inclosing said walls and provided with an air inlet and outlet, said outlet communicating with a condenser, of shafts e^2 journaled in the opposite sides of the chamber E and carrying pinions e^4, means for simultaneously rotating said shafts, a spring platform e^7 arranged in the bottom of the drying chamber, a discharge chamber communicating with the discharge end of the drying chamber, and air-tight doors controlling the communication between said chambers and the outlet of the discharge chamber, substantially as described.

8. The herein described tray for holding the materials to be degreased and scoured, comprising a box having reticulated side, top, and bottom walls and provided at opposite ends with toothed racks, the tops each consisting of two jointed sections hinged to the side walls of the box, said box being provided with buffers and guide rollers, substantially as described and for the purpose specified.

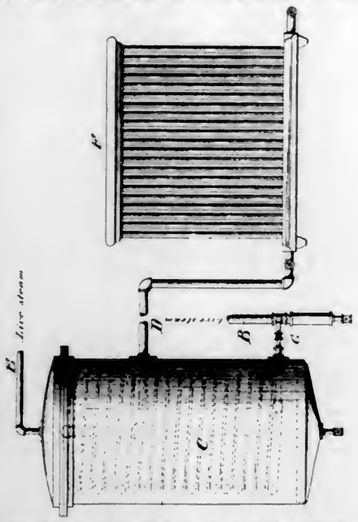
9. In apparatus for degreasing and scouring wool, the combination of a degreasing chamber, a drying chamber communicating therewith, air-tight receiving and discharge chambers communicating respectively with the degreasing and drying chambers, trays for holding the materials to be degreased, mechanism for transferring said trays from one chamber to the other, a condenser communicating with the receiving and discharge chambers and with a solvent reservoir, a pipe and pump for conveying the solvent from said reservoir to the degreasing chamber, a still communicating with the degreasing chamber for vaporizing the spent solvent, a condenser communicating with said still for condensing the vapor and communicating with the solvent reservoir, a heater for supplying heated air to the drying chamber, and a pipe for conveying the air from the drying chamber to the still substantially as described

---

522,131. PROCESS OF PREPARING STEAM. JOSEPH VAN RUYMBEKE, Chicago, Ill., assignor of one-half to William F. Jobbins, same place. Filed Mar. 7, 1894. Serial No. 502,704. (No model.)

Claim.—1. In the art of preparing steam for industrial purposes, the improvement which consists in allowing saturated steam to expand, subjecting the expanded steam to a reheating by live steam in a heating chamber surrounding the passage way of the expanded steam, and passing the expanded and reheated steam to the point of application, as and for the purpose described

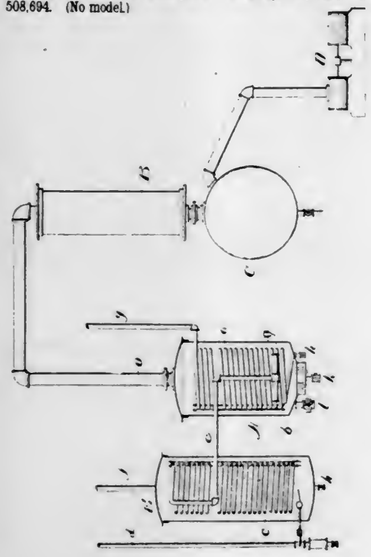
2. In the art of preparing steam for industrial purposes, the improvement which consists in allowing saturated steam to expand, subjecting the expanded steam to a reheating by live steam of the same temperature as the expanded steam previous to expansion, such reheating being effected in a heating chamber surrounding the passage way of the expanded steam, and passing the expanded and reheated steam to the point of application, as and for the purposes described.



3. In the art of preparing steam for industrial purposes, the improvement which consists in generating steam in a boiler, allowing a portion of the steam thus generated to expand, subjecting such expanded steam to a reheating by means of steam from the same boiler, such reheating being effected in a separate heating chamber surrounding the passage way of the expanded steam, and passing the expanded and reheated steam to the point of application, as and for the purposes described.

4. An apparatus for preparing expanded and reheated steam, consisting of a steam delivery pipe, an expansion coil connected therewith having an outlet opening larger than the inlet opening, a heating cylinder surrounding the expansion coil, and a steam pipe for said heating chamber supplying live steam thereto, substantially as described.

522,132. PROCESS OF AND APPARATUS FOR DISTILLING GLYCERIN. JOSEPH VAN RUYMBEKE, Chicago, Ill., assignor of one-half to William F. Jobbins, same place. Filed Apr. 23, 1894. Serial No. 508,694. (No model.)



Claim.—1. In the art of distilling glycerin and similar liquids the improvement which consists in injecting into the liquid in the presence of a vacuum, steam at less than atmospheric pressure and at a temperature sufficient to effect distillation, substantially as and for the purpose set forth.

2. In the art of distilling glycerin or similar liquids, the improvement which consists in maintaining the liquid to be distilled at a high vacuum, and in injecting expanded and reheated steam into the liquid, as and for the purpose described.

3. In the art of distilling glycerin or similar liquids, the improvement which consists in maintaining the liquid to be distilled at a high vacuum, in independently heating the liquid, and in injecting expanded and reheated steam into the independently heated liquid, maintained at distilling temperature, as and for the purpose described.

4. In the art of distilling glycerin or similar liquids the improvement which consists in maintaining the liquid to be distilled at a high vacuum, in heating the liquid by means of confined steam, and, in injecting expanded and reheated steam into the heated liquid, maintained at a distilling temperature, as and for the purpose described.

5. In the art of distilling glycerin or similar materials, the improvements which consist in maintaining the liquid to be distilled at a high vacuum, in heating the liquid by means of confined steam, in expanding free steam before entering the still, in reheating such expanded steam by confined live steam of the same temperature as the expanded steam previous to expansion, so as to compensate for reduction of temperature caused by the expansion, and in injecting the expanded and reheated steam into the heated liquid maintained at distilling temperature, as and for the purpose described.

6. A distilling apparatus, consisting of a still, an expansion coil, the inlet opening of which is smaller than the outlet opening, a heating cylinder for the expansion coil, and a perforated delivery pipe in the still and connected with the expansion coil, substantially as described.

7. A distilling apparatus, consisting of a still, a vacuum pump connected with the still, an expansion coil, the inlet opening of which is smaller than the outlet opening, a heating cylinder for the expansion coil, and a perforated delivery pipe in the still and connected with the expansion coil, substantially as described.

8. A distilling apparatus, consisting of a still, a heating coil in the still, an expansion coil, the inlet opening of which is smaller than the outlet opening, a heating cylinder for the expansion coil, and a perforated delivery pipe in the still and connected with the expansion coil, substantially as described.

9. A distilling apparatus, consisting of a still, a vacuum pump connected therewith, a heating coil for heating the contents of the still, an expansion coil connected with the still, and with a source of steam supply, the inlet opening of said expansion coil being smaller than the outlet opening, and a heating cylinder for reheating the steam in the expansion coil, substantially as described.

10. A distilling apparatus, consisting of a still, a vacuum pump connected therewith; means for heating the contents of the still; an expansion coil connected with the still and with the boiler, the inlet opening of said expansion coil being smaller than the outlet opening, and a reheater for heating the expansion coil, substantially as described.

11. A distilling apparatus, consisting of a still, a vacuum pump connected therewith, a heating cylinder, an expansion coil in said heating cylinder and connected with the still, the inlet opening of said expansion coil being smaller than the outlet opening, and sources of supply for steam in the said heating cylinder and expansion coil, substantially as described.

12. A distilling apparatus, consisting of a still, a vacuum pump connected therewith, a heating cylinder adjacent to the still and connected with a source of steam supply, a heating coil within the still, and an expansion coil in said heating cylinder and connected with the still, the inlet opening of said expansion coil being smaller than the outlet opening, substantially as described.

13. A distilling apparatus, consisting of a still, a vacuum pump connected therewith, a heating cylinder adjacent to the still and connected with a source of steam supply, a heating coil within the still, connected with the same source of steam supply, a distributing pipe within the still, and an expansion coil within the said heating cylinder and connected with said distributing pipe, the inlet opening of said expansion coil being smaller than the outlet opening, substantially as described.

14. A distilling apparatus, consisting of a still, a vacuum pump connected therewith, a heating cylinder adjacent to the still, connected with a source of steam supply, a heating coil within the still, connected with the same source of steam supply, and an expansion coil within said heating cylinder, connected with the still and supplied with steam from the same source of steam supply, the inlet opening of said expansion coil being smaller than the outlet opening, substantially as described.

15. In a distilling apparatus, the combination of the standards F, the braces G and H, bolted to the upper end of the same, the still A and heating cylinder E, supported by said braces, the steam coil *a* within said still, and the expansion coil *c*, within said heating cylinder, the inlet opening of said expansion coil being smaller than the outlet opening, substantially as described.

16. In a distilling apparatus, the combination of the standards F, the braces G and H, bolted to the upper end of the same; the still A and heating cylinder E, supported by said braces, the steam coil *a*, within said still, the expansion coil *c* within said heating cylinder, the inlet opening of said expansion coil being smaller than the outlet opening, and a common source of steam supply for said steam coil, expansion coil and heating cylinder, substantially as described.

522,133. PROCESS OF RECOVERING GLYCERIN FROM GLYCERIN FOOTS. JOSEPH VAN RUYMBEKE, Chicago, Ill., assignor of one-half to William F. Jobbins, same place. Filed Nov. 17, 1893. Serial No. 491,244. (No specimens.)

Claim.—1. In the art of recovering glycerin from glycerin foots the improvement which consists in adding to the glycerin foots a mineral acid in sufficient quantity to liberate the organic acids and subsequently volatilizing the volatile organic acid set free, as and for the purpose described.

2. In the art of recovering glycerin from glycerin foots the improvement which consists in adding to the glycerin foots a mineral acid in sufficient quantity to liberate the organic acids, separating the precipitate formed, and then volatilizing the volatile organic acids as and for the purpose described.

3. In the art of recovering glycerin from glycerin foots the improvement which consists in adding to the glycerin foots a mineral acid in sufficient quantity to liberate the organic acids contained therein, said mineral acid being dissolved in purified spent soap lye, separating the precipitate formed, volatilizing the organic acids, and then distilling the purified glycerin foots as and for the purpose described.

4. In the art of recovering glycerin from glycerin foots the improvement which consists in adding to the glycerin foots sulfuric acid in sufficient quantity to liberate the organic acids and subsequently volatilizing the volatile organic acid set free, as and for the purpose described.

5. In the art of recovering glycerin from glycerin foots the improvement which consists in adding to the glycerin foots sulfuric acid, in sufficient quantity to liberate the organic acids, separating the precipitate formed and then volatilizing the volatile organic acids as and for the purpose described.

6. In the art of recovering glycerin from glycerin foots the improvement which consists in adding to the glycerin foots sulfuric acid in sufficient quantity to liberate the organic acids contained therein, said sulfuric acid being dissolved in purified spent soap lye, separating the precipitate formed, volatilizing the organic acids and then distilling the purified glycerin foots as and for the purpose described.

7. In the art of recovering glycerin from glycerin foots the improvements which consists in adding to the material treated a mineral acid in sufficient quantity to set free the organic acids therein contained, separating the precipitate formed, distilling off and collecting the volatile acids set free, and then distilling the purified glycerine foots as and for the purpose described

---

522,134. PROCESS OF RECOVERING PRODUCTS FROM SPENT SOAP-LYE. JOSEPH VAN RUYMBEKE, Chicago, Ill., assignor of one-half to William F. Jobbins, same place. Filed Mar. 7, 1894. Serial No. 502,703. (No specimens.)

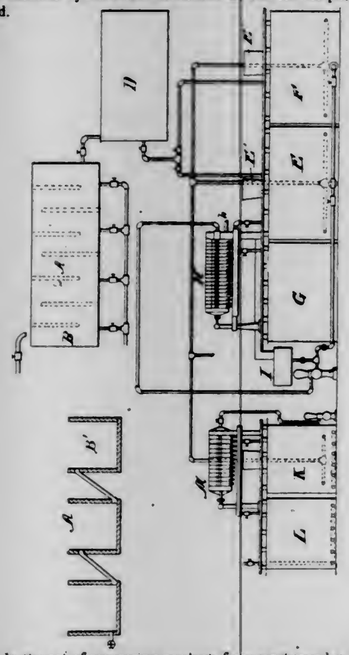
Claim.—1. In the art of recovering products from spent soap lye, the improvement which consists in removing the suspended heavy impurities as a sediment, allowing the lye to cool, whereby suspended soap is brought to the surface and dissolved soap is separated and suspended and as such is brought to the surface, and then skimming off separated soap from the surface, the operation being carried on previous to the addition of any chemical to the lye.

2. In the art of recovering products from spent soap lye, the improvement which consists in first allowing the lye to cool, then removing separately the suspended heavy impurities and part of the soap contained therein, and subsequently liming the lye, as and for the purpose described.

3. In the art of recovering products from spent soap lye, the improvement which consists in adding ferric sulfate to the lye in quantity sufficient to almost neutralize the contained alkaline hydrate and carbonate, and then filtering the lye, as and for the purpose described.

4. In the art of recovering products from spent soap lye, the improvement which consists in separately removing the suspended heavy impurities and part of the soap contained therein, previous to any addition of chemicals, and subsequently adding to the lye sufficient ferric sulfate to almost neutralize the contained alkaline hydrate and carbonate, as and for the purpose described.

5. In the art of recovering products from spent soap lye, the improvement which consists in separately removing the suspended heavy impurities and part of the contained soap, then liming the lye, and adding to the lye sufficient ferric sulfate to almost neutralize its contained alkaline hydrate and carbonate, as and for the purpose described.



6. In the art of recovering products from spent soap lye, the improvement which consists in first separately removing suspended impurities and part of the soap, previous to any addition of chemicals, then adding ferric sulfate to the lye, to almost neutralize its contained alkaline hydrate and carbonate, and then filtering the lye, as and for the purpose described.

7. In the art of recovering products from spent soap lye, the improvement which consists in precipitating fatty and other impurities by addition of ferric sulfate in quantity sufficient to almost neutralize the contained alkaline hydrate and carbonate, passing the lye through a filter press and subsequently steaming the filter cake produced, as and for the purpose described.

8. In the art of recovering products from spent soap lye, the improvement which consists in precipitating fatty and other impurities by addition of ferric sulfate in quantity sufficient to almost neutralize the contained alkaline hydrate and carbonate, passing the lye through a heated filter press and subsequently steaming the filter cake produced, as and for the purpose described.

9. In the art of recovering products from spent soap lye, the improvement which consists in precipitating fatty and other impurities by addition of ferric sulfate in quantity sufficient to almost neutralize the contained alkaline hydrate and carbonate, passing the lye through a filter press, steaming the filter cake while in the filter press removing the filter cake, mixing it with water and passing the mixture through a filter press, as and for the purpose described.

10. In the art of recovering products from spent soap lye the improvement which consists in adding ferric sulfate in sufficient quantity to almost neutralize the contained alkaline hydrate and carbonate, filtering the liquid, bringing it up to boiling point and filtering it again, as and for the purpose described.

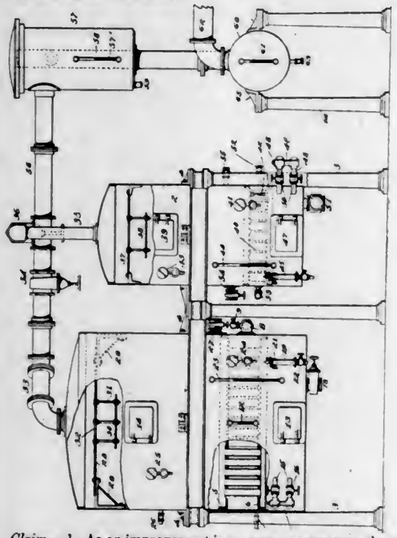
11. In the art of recovering products from spent soap lye, the improvement which consists in adding to the lye ferric sulfate in sufficient quantity to almost neutralize the contained alkaline hydrate and carbonate, filtering the liquid, adding a small quantity of an alkali, bringing it to the boiling point and filtering it again, as and for the purpose described.

12. In the art of recovering products from spent soap lye, the improvement which consists in first adding ferric sulfate in quantity sufficient to almost neutralize the contained alkaline hydrate and carbonate, filtering the liquid, evaporating the liquid, recovering a mixture of sodium sulfate and chlorid, and separating the sulfate from such mixture, as and for the purpose described.

13. In the art of recovering products from spent soap lye, the improvement which consists in first purifying the lye by a suitable precipitating agent, then evaporating the lye, until it reaches a density of about 30° Baumé at 15° centigrade, and separating the mixture of sodium sulfate and chlorid obtained during such evaporation, then continuing the evaporation until the liquid is sufficiently concentrated, and recovering separately the salt obtained in the latter operation, as and for the purpose described.

14. In the art of recovering products from spent soap lye, the improvement which consists in precipitating impurities from the liquid filtering and concentrating the liquid until the solution is anhydrous distilling it, subjecting the first distillate to the action of lime and filtering it to remove volatile impurities, as and for the purpose described.

522,135. APPARATUS FOR RECOVERING GLYCERIN FROM SPENT SOAP-LYE. JOSEPH VAN RUYMBEKE, Chicago, Ill., assignor of one-half to William F. Jobbins, same place. Filed Mar. 17, 1894. Serial No. 504,093. (No model.)



Claim.—1. As an improvement in vacuum evaporators, the combination of an evaporator body, an eduction pipe therefrom connected with a chamber, a perpendicular pipe in said chamber, communicating by means of its upper open end located in the upper part of said chamber with a receiving tank, and a pipe from said tank adapted to be connected with a vacuum pump, substantially as described.

2. As an improvement in vacuum evaporators, the combination of an evaporator body, an eduction pipe therefrom connected with a chamber, a perpendicular pipe in said chamber communicating by means of its upper open end located in the upper part of said chamber with a second chamber, and a pipe leading from the upper part of said second chamber adapted to connect with a vacuum pump, substantially as described.

3. As an improvement in vacuum evaporators, the combination of an evaporator body, a tubular steam heating drum in the lower part thereof, an eduction pipe therefrom, connected with a chamber, a perpendicular pipe in said chamber communicating by means of its upper open end located in the upper part of said chamber with a receiving tank, and a pipe from said tank adapted to be connected with a vacuum pump, substantially as described.

4. As an improvement in vacuum evaporators, the combination of an evaporator body, a tubular steam heating drum in the lower part thereof, draw off pipes arranged one above the other below said drum and located at a distance from the bottom of the evaporator, an eduction pipe from said evaporator connected with a chamber and a perpendicular pipe in said chamber adapted to communicate by means of its upper open end located in the upper part of said chamber, with a vacuum pump, substantially as described.

5. As an improvement in vacuum evaporators, the combination of the evaporator body, an annular dash plate in the upper part of the evaporator, a circular dash plate located beneath the annular dash plate, a tubular steam heating drum in the lower part of the evaporator, and draw-off pipes arranged one above the other below said drum and located at a distance from the bottom of the evaporator, substantially as described.

6. As an improvement in vacuum evaporators, the combination of the evaporator body, an annular dash plate in the upper part of the evaporator, a circular dash plate located beneath the annular dash plate; a tubular steam heating drum in the lower part of the evaporator, an eduction pipe therefrom connected with a chamber, a perpendicular pipe in said chamber communicating by means of its upper open end located in the upper part of said chamber, with a receiving tank and a pipe from said tank adapted to be connected with a vacuum pump, substantially as described.

7. As an improvement in vacuum evaporators, the combination of an evaporator body, an annular dash plate in the upper part thereof, a circular dash plate located beneath the annular dash plate, a tubular steam heating drum in the lower part of the evaporator, draw off pipes in the lower part of the drum arranged one above the other and located at a distance from the lower part of the evaporator, an eduction pipe in said evaporator connected with a chamber, and a perpendicular pipe in said chamber adapted to communicate by means of its upper open end located in the upper part of said chamber, with a vacuum pump, substantially as described.

8. In an evaporating apparatus, the combination of the evaporators 1 and 2, a catch-all 57 common to both evaporators, and a receiving tank 60, beneath said catch-all and connected with the same, substantially as described.

9. In an evaporating apparatus, the combination of the evaporators 1 and 2, a catch all 57 common to both evaporators, tank 60 connected with said catch all and pipe from said tank 60 adapted to be connected with a vacuum pump, substantially as described.

10. In an evaporating apparatus, the combination of the evaporators 1 and 2, a catch all common to both evaporators, a receiving vessel 60 connected with said catch all, and a pipe leading from the upper part of said receiving vessel adapted to be connected with a vacuum pump, substantially as described.

11. In an evaporating apparatus, the combination of the evaporators 1 and 2, a catch all 57 common to both evaporators, a perpendicular pipe 58 in said catch-all, communicating by means of its upper open end located in the upper part of said catch-all with a receiving tank 60, and a pipe from said tank adapted to be connected with a vacuum pump, substantially as described.

12. As an improvement in vacuum evaporators, the combination of an evaporator body, a tubular steam heating drum in the lower part thereof, and two or more draw off pipes 15, arranged vertically one above the other for the purpose mentioned, substantially as described.

13. As an improvement in vacuum evaporators, the combination of an evaporator body, a tubular steam heating drum in the lower part thereof, a door in the evaporator beneath said steam heating drum, and one or more draw off pipes beneath said steam heating drum arranged vertically one above the other for the purpose mentioned, substantially as described.

14. As an improvement in vacuum evaporators, the combination of an evaporator body, a tubular steam heating drum in the lower part thereof, one or more draw-off pipes beneath said steam heating drum; a vacuum draw-off pipe 19 beneath said steam heating drum; a valve 22, at the lower end of said vacuum draw-off pipe 19, a pet cock at the upper end of said vacuum draw-off pipe, and a valved pipe connecting said vacuum draw-off pipe with the evaporator, said valved pipe entering said vacuum draw-off pipe near the upper part of the latter, substantially as described.

15. As an improvement in vacuum evaporators, the combination of an evaporator body, a tubular steam heating drum in the lower part thereof, a door in the lower part of said evaporator beneath said steam heating drum for the purpose mentioned, one or more draw off pipes 15, beneath said steam heating drum; a vacuum draw off pipe 19 beneath said steam heating drum, and a door 14 above said steam heating drum, substantially as described.

16. In an evaporating apparatus, the combination of the evaporators 1 and 2, the pipe 33 from the evaporator 1, and the pipe 35 from the evaporator 2, connected with the pipe 33 at the top of the same for the purpose mentioned, substantially as described.

17. In an evaporating apparatus, the combination of the still, the heater and expansion coil in the heater, a coil in the still and a steam pipe connected with the coil in the still, the expansion coil of the heater and the space in the heater surrounding the expansion coil, substantially as described.

18. In an evaporating apparatus, the combination of the still, a heater and expansion coil in the heater, a coil in the still, a steam pipe connected with the coil of the still, the expansion coil in the heater, and the space in the heater surrounding the expansion coil and a perforated delivery pipe in the still connected with the expansion coil, substantially as described.

19. The combination of a still, a perforated steam delivery pipe in the still, means, substantially as described, for expanding and reheating steam previous to its introduction into the still, an eduction pipe from the still connected with the first of a series of communicating drums, and a perpendicular pipe connected with the last of said drums and with a condenser, as and for the purpose set forth.

20. The combination of a still, a perforated steam delivery pipe in the still; means, substantially as described, for expanding and reheating steam previous to its introduction into the still, an eduction pipe from the still connected with the first of a series of communicating drums, pipes beneath said drums and communicating between said drums and the still, and a perpendicular pipe connected with the last of such drums and with a condenser, as and for the purpose set forth.

21. In an evaporating apparatus, the combination of a still, a catch all drum or drums connected therewith, a condenser 114 connected with said catch all drum or drums, a receiving tank 116 connected with said condenser and a pipe extending from the upper part of said tank adapted to be connected with a vacuum pump, substantially as described.

22. In an evaporating apparatus, the combination of a still, a heater and expansion coil in the heater, a coil in the still, a steam pipe connected with the coil of the still, the expansion coil of the heater and the space in the heater surrounding the expansion coil, a perforated pipe in the still connected with the expansion coil, an eduction pipe connected with the first of a series of communicating drums, and a perpendicular pipe connected with the last of said drums and with a condenser, said condenser being adapted to be connected with a vacuum pump, substantially as described.

23. In an evaporating apparatus, the combination of a still, catch all drums 69 and 70 connected together and with said still; a pipe 101 from each of said catch all drums; a pipe 103 connecting said pipes 101 and communicating with the still; a pipe 105 connected with the pipe 103; a condenser 114 connected with the catch all drum 70; a receiving tank 116 connected with the condenser 114, and a pipe from said tank adapted to be connected with a vacuum pump, substantially as described.

24. In an evaporating apparatus, the combination of the standards 68, the braces 71 at the tops of said standards, the heater 66, still 67 and catch-all drums 69 and 70 supported by said braces, the condenser 114 connected with the catch all drum 70, the receiving tank 116 connected with the condenser 114 and a pipe from said tank adapted to be connected with a vacuum pump, substantially as described.

25. As an improvement in vacuum concentrating apparatus, the combination of a concentrator, an eduction pipe from said concentrator leading into a chamber, a perpendicular pipe in said chamber open at its upper end and communicating with a receiving tank, a pipe from said tank adapted to be connected with a vacuum pump and a pipe connecting said chamber with the concentrator, substantially as described.

26. As an improvement in vacuum concentrating apparatus, the combination of two concentrators communicating with a common catch all, a receiving tank connected with said catch-all and adapted to connect with a vacuum pump and a pipe establishing a communication between said catch all and one of said concentrators, substantially as described.

27. As an improvement in vacuum concentrating apparatus, the combination of a dash plate in the upper part of a still, and having an opening in its center, of an imperforate dash plate located adjacent to and opposite said opening and supported by said perforated dash plate, substantially as described.

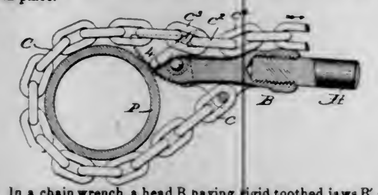
28. As an improvement in vacuum evaporators, the combination of an evaporator body, an annular dash plate in the upper part thereof, a circular dash plate located adjacent to the annular dash plate, and supported therefrom, an eduction pipe from said evaporator body connected with a chamber, and a perpendicular pipe in said chamber with its upper open end located above the level of the eduction pipe, and adapted to communicate with a vacuum pump, substantially as described.

29. An improved dash plate for use in vacuum evaporators or similar chambers in which liquids or fusible solids are heated, comprising a perforated dash plate within the chamber with a clear passage between said dash plate and the interior of said chamber, and an imperforate dash plate adjacent to the perforated dash plate and in line with and larger than the opening therein, substantially as described.

522,136. CHAIN WRENCH. JOHN H. VINTON, Boston, Mass., assignor to the Trimont Manufacturing Company, Portland, Me. Filed Dec. 11, 1893. Serial No. 493,313. (No model.)

Claim.—1. In a chain wrench, a head B having rigid toothed jaws B', and provided with lips *b* concaved at their sides farthest from the said jaws and shaped to present over-hanging portions, said lips at their concaved sides presenting a flat surface upon which may rest the two sides of a chain link while the over-hanging portions of the lips embrace the end of said link, the slot between the lips *d* being extended down below the surface upon which rests the flat link and being

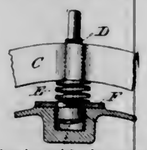
made to intersect a groove, d^3, which shall receive the lower half of a vertically held link to prevent twisting thereof substantially as described, the over-hanging lips and groove positively retaining the chain in place.



2. In a chain wrench, a head B having rigid toothed jaws B' and provided with lips concaved at their sides farthest from the said jaws, to form overhanging portions said head being longitudinally slotted, as at d^3, from a point behind said lips to a point in front of said lips toward said jaws, and a chain having a series of links substantially as shown, one of the links of said chain being adapted to stand vertically between said lips, and also to enter said slot d^3 while the next link of the chain enters by its round end the concavities of the lips and is retained therein by their overhanging portions, substantially as described

---

522,137. LID FOR GAS-RETORTS. CHARLES C. WALKER, Donnington, near Newport, England. Filed Feb. 20, 1894. Serial No. 500,906 (No model.)



Claim.—The combination with the retort mouth-piece and lid and cross bar and screw of an eccentric on the screw engaging in a recess in the lid the said recess being of greater depth than the thickness of the eccentric and of a yielding device between the lid and the cross bar substantially as and for the purpose hereinbefore described and illustrated by the accompanying drawings.

522,138. RUBBER TIRE. CHARLES E. WELCH, London, England. Filed Feb. 13, 1892. Serial No. 421,441. (No model.) Patented in England Sept. 16, 1890, No. 14,563; in France Feb. 5, 1892, No. 219,167; in Belgium Feb. 5, 1892, No. 98,225; in Canada Oct. 11, 1892, No. 40,630; in Denmark Nov. 16, 1892, No. 3,318; in South Australia Nov. 21, 1892, No. 2,360; in Victoria Nov. 22, 1892, No. 10,155; in New South Wales Nov. 23, 1892, No. 4,135; in Queensland Nov. 24, 1892, No. 2,244; in New Zealand Feb. 1, 1893, No. 6,019; in Austria-Hungary Apr. 22, 1893, No. 43 and No. 1,156, and in Italy Oct. 18, 1893, XXVII. 32,310.



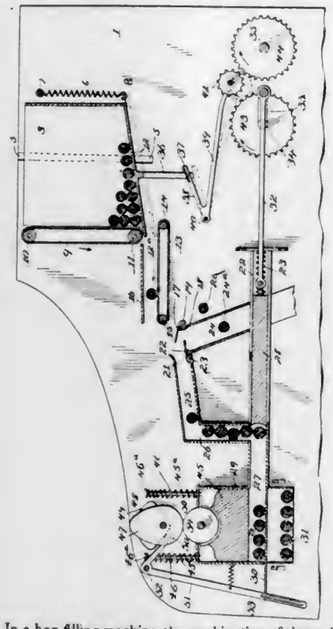
Claim.—1. The combination with a grooved rim, of an inflatable tube, an outer jacket forming a confining chamber for the inflatable tube, reinforcing wires secured to or incorporated with the sides of said jacket, said wires being of greater diameter than the greatest diameter of the rim so as to lie above and along the edges of the same, and secured against lateral displacement with respect thereto.

2. The combination with a grooved rim, of an inflatable tube, an outer jacket forming a confining chamber for said tube, and wires or reinforcements at its sides of greater diameter than the greatest diameter of the rim, said reinforced portions lying in contact with the edges of the rim, but outside the groove therein, and means for securing said wires from being displaced laterally from the rim, as set forth.

3. The combination with a grooved rim, of an inflatable tube, an outer jacket having wires or reinforced portions lying outside the groove along the edges of the same and being united with said tube, as set forth.

522,139. MACHINE FOR SELECTING AND BOXING CIGARETTES. JAMES N. WOOD, Richmond, Va., assignor of one-half to W. P. De Saussure, same place. Filed Jan. 21, 1893. Serial No. 459,210. (No model.)

Claim.—1. In a cigarette boxing machine, the combination of a suitable hopper into which the cigarettes are fed, a holder for holding the box into which the cigarettes are to be packed, a reciprocating receiver adapted to enter said box, means for transferring cigarettes from the hopper to the receiver, means for discharging the cigarettes from the receiver into the box, and suitable operating connections for reciprocating the receiver when the cigarettes are collected therein, substantially as herein described.



2. In a box filling machine, the combination of the reciprocating receiver, suitable means for supplying cigarettes to the receiver, a box holder adapted to hold the box to be filled in proper position to permit the entry of the reciprocating receiver for charging it, and a discharging trip plate adapted to enter behind the cigarettes in the receiver, after the receiver has entered the box, whereby the cigarettes will be discharged from the receiver into the box when the receiver withdraws, substantially as herein set forth.

3. A box filling machine, comprising an open-ended reciprocating receiver, suitable means by which cigarettes are introduced into the receiver, a box holder adapted to present the box in position for the reception of the open end of the receiver, and a reciprocating trip plate adapted to enter behind the cigarettes in the receiver, when the latter is at its forward limit within the box, and to trip the cigarettes from the said receiver when it withdraws, substantially in the manner and for the purposes set forth.

4. In a cigarette boxing machine, the combination of means for holding a box, a reciprocating receiver adapted to receive the cigarettes and enter the box therewith, means for retracting the receiver out of the box and for holding it normally in retracted position, means for moving the receiver forward into the box with the cigarettes at the proper time, a discharging plate adapted to descend behind the cigarettes in the receiver and hold them in the box when the receiver is withdrawn, means for feeding the cigarettes to the receiver, and suitable operating mechanism, substantially as set forth.

5. In a cigarette boxing machine, the combination of suitable means for holding a box to be filled, a reciprocating receiver adapted to receive the cigarettes and carry them into the box, a suitable spring for holding the receiver normally in retracted position, a rack bar carried by the receiver, a gear wheel adapted to engage said rack bar for moving the receiver forward against the action of the spring, a discharging plate adapted to descend behind the cigarettes in the receiver when the latter is moved forward into the box, so as to hold the cigarettes in the box when the receiver is retracted by the spring, means for supplying cigarettes to the receiver, and suitable operating mechanism, substantially as set forth.

6. In a cigarette boxing machine, the combination of a holder having a spring-pressed bottom in which the empty boxes are stacked and fed gradually forward, suitable charging mechanism for filling the boxes with cigarettes, suitable means for supplying cigarettes to

the charging mechanism, a reciprocating discharging bar adapted to displace the top box when it becomes filled, and suitable operating mechanism for properly operating the charging mechanism and discharging bar, substantially as set forth.

7. In a cigarette boxing machine, the combination of a holder adapted to support the boxes in stacked position and feed them gradually forward into position to be filled, a hopper for receiving the cigarettes to be boxed, suitable box charging mechanism interposed between the hopper and the stack of empty boxes, and adapted to receive the cigarettes from the hopper and deposit them in the boxes, means for feeding the cigarettes from the hopper to the box charging mechanism, a reciprocating discharging bar for displacing the top box when it becomes filled, and suitable driving connections for the discharging bar and the box charging mechanism, whereby the former will be operated after the cigarettes have been deposited in the box by the latter, substantially as herein set forth.

8. In a cigarette boxing machine, the combination of a suitable box holder, a box charging device adapted to receive cigarettes from a suitable supply and introduce them into the box, a passage-way or chute through which the cigarettes pass to the charging device, means for supplying cigarettes to the passage-way or chute a reciprocating plunger operating in the passage-way for feeding the cigarettes successively to the charging device, and suitable operating connections, substantially as set forth.

9. In a cigarette boxing machine, the combination of a suitable box holder, a box charging device adapted to introduce cigarettes into the box, a hopper for receiving the cigarettes to be boxed, a passage-way or chute through which the cigarettes pass from the hopper to the box charging device, means for supplying the cigarettes from the hopper to said passage-way, a reciprocating plunger operating in said passage-way for feeding the cigarettes successively to the charging device, and suitable timed driving connections, whereby the charging device will operate after a certain number of cigarettes have been collected therein by the reciprocating plunger, substantially in the manner and for the purposes set forth.

10. In a cigarette boxing machine, the combination of a suitable box holder, a box charging device adapted to receive the cigarettes from a suitable supply and introduce them into the box, a reciprocating box-opener located in rear of the box holder and adapted to advance the slide of the box, means for closing the box after the cigarettes are deposited, and operating mechanism timed to operate, substantially in the manner and for the purpose set forth

11. In a cigarette boxing machine, the combination of a suitable box holder, a box charging device adapted to receive the cigarettes from a suitable supply and introduce them into the box, a reciprocating box-opener located in the rear of the box-holder and adapted to advance the slide of the box for the reception of the cigarettes, means for folding the flap of the inner box after the cigarettes are inserted, means for returning the inner box back into position in the outer box, and suitable operating mechanism timed to operate, substantially in the manner and for the purpose set forth.

12. A device for introducing cigarettes into boxes, comprising a suitable collecting box, means for supplying cigarettes to the collecting box, a box holder adapted to support the box in position to be filled, a charging device adapted to receive the cigarettes from the collecting box and introduce them into the box to be filled, a valve located in the collecting box for interrupting the passage of the cigarettes to the charging device, and suitable timed driving connections for the charging device and valve, substantially as and for the purpose set forth.

13. The device for introducing cigarettes in the boxes, comprising a suitable box holder, a collecting box, means for supplying cigarettes to the collecting box, a receiver adapted to receive the cigarettes from the collecting box and carry them to the box to be filled, a valve located in the collecting box for interrupting the passage of the cigarettes to the receiver, means for discharging the cigarettes from the receiver into the box, and suitable timed connections for reciprocating the receiver and valve, substantially as set forth

14. A device for introducing cigarettes into boxes, comprising a suitable box holder, a collecting box in which a number of cigarettes are collected, a hopper in which the cigarettes are delivered for boxing, a passage or chute leading to the collecting box, means for supplying cigarettes from the hopper to the passage-way or chute, a reciprocating plunger in said passage-way for feeding the cigarettes forward to the collecting box, a reciprocating receiver adapted to receive the cigarettes from the collecting box and carry them forward to the box in which they are to be packed, a valve located in the collecting box for interrupting the passage of the cigarettes to the receiver, means for discharging the cigarettes from the receiver into the box, and suitable timed connections for the reciprocating plunger, valve and receiver, whereby the valve withdraws and permits the collected cigarettes to fall into the receiver after a certain number of movements of the plunger, and the receiver moves forward for depositing the collected cigarettes into the box, substantially as and for the purposes herein specified.

15. In a cigarette boxing machine, the combination of a receiver from which the cigarettes are introduced into the box, a collecting box in which the cigarettes are collected for delivery to the receiver, a valve located in said collecting box above the receiver, a passage-way and chute leading to the collecting box, a hopper from which the cigarettes are supplied to said chute, and a reciprocating plunger operating in the passage-way to feed the cigarettes successively forward; said valve and plunger having driving connections timed so that the valve will be withdrawn to permit the cigarettes to fall into the receiver after a certain number of strokes of the plunger, substantially as and for the purpose specified.

16. In a cigarette boxing machine, the combination of the receiver from which the cigarettes are introduced in bulk into the box, a collecting box in which the cigarettes are collected for delivery to the receiver, a valve in said collecting box for intercepting the passage of the cigarettes to the receiver, a reciprocating block located in said collecting box above the valve, suitable means for supplying the cigarettes to the collecting box, and driving connections for periodically withdrawing the valve and forwarding the reciprocating block in succession, whereby the cigarettes are collected and delivered to the receiver, substantially in the manner and for the purposes set forth.

17. In a cigarette boxing machine, the combination of the box holder, a reciprocating receiver from which the cigarettes are adapted to be introduced in bulk into the box, a collecting box into which the cigarettes are collected for delivery to the receiver, a valve in the collecting box above the receiver, a reciprocating block above the valve, a passage-way through which the cigarettes are introduced to the collecting box above the valve, a reciprocating plunger for forwarding the said cigarettes one at a time, and suitable driving connections for the reciprocating receiver, the valve, the reciprocating block, and the reciprocating plunger; whereby, after a suitable number of strokes of the plunger, the valve is withdrawn and the block is depressed, and after the proper number of cigarettes have been thus introduced into the receiver, said receiver is introduced into the box for the delivery of the cigarettes, substantially in the manner and for the purposes explained.

18. In a cigarette boxing machine, the combination with mechanism substantially as herein described for receiving cigarettes from a suitable supply and introducing them into boxes; the driving connections for said mechanism; and means for controlling said driving connections for throwing the same out of operation when the supply of cigarettes is exhausted; said controlling means consisting of a spring-supported movable hopper adapted to carry the cigarettes to be boxed, a gear wheel interposed in the driving connections, and a lever connected to said hopper and adapted to control the gear-wheel, substantially as herein set forth.

19. In a cigarette boxing machine, the combination of a suitable box holder, a box charging device adapted to receive the cigarettes from a suitable supply and introduce them into the boxes, means for feeding the cigarettes to the charging device from the supply, driving mechanism for actuating the boxing and feeding device, and means for throwing said driving mechanism out of operation when the supply of cigarettes becomes exhausted; said means comprising a spring-supported movable hopper which is adapted to carry the cigarettes to be boxed, a lever controlled by said movable hopper, and a gear wheel interposed in the driving connections, and held into engagement therewith by said lever, substantially as explained..

20. In a cigarette boxing machine, the combination of a suitable hopper formed with an open front through which the cigarettes may pass, an endless traveling belt supported so as to partially close said open front for keeping the cigarettes in the hopper agitated, and suitable mechanism for transferring the cigarettes to the boxes, substantially as set forth.

21. In a cigarette boxing machine, the combination of a vertically movable hopper formed with an open front through which the cigarettes may pass, means for supporting the hopper in raised position when it is nearly or quite empty, and for allowing the hopper to rest in lowered position when there is a sufficient quantity of cigarettes therein, an endless traveling belt supported independently of the movable hopper and adapted to completely close its open front when the hopper is in raised position, and to keep the cigarettes agitated and allow them to pass one by one from the hopper when it is in lowered position, and suitable mechanism for transferring the cigarettes to the boxes, substantially as set forth.

22. In a cigarette boxing machine, the combination of a suitable hopper for supplying cigarettes, means for transferring the cigarettes from the hopper to the boxes, and the herein-described selecting device which comprises two pivoted counter balanced trip plates interposed between the hopper and boxes and on to which the cigarettes are successively dropped, the first of said plates being arranged to oppose tilting by cigarettes that are too light and inclined in a direction to throw such cigarettes out of the course of the cigarettes that

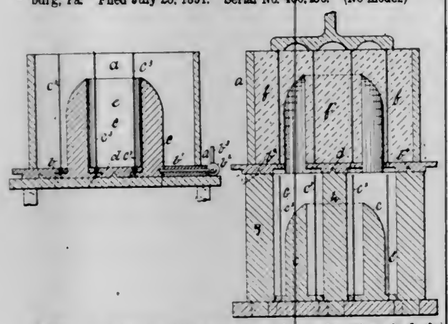
are being passed to the boxes, while the second trip plate onto which the cigarettes are delivered after they tilt and pass the first plate, is inclined in a direction for passing the cigarettes toward the boxes and counterbalanced to oppose tilting by cigarettes of proper weight, and to permit tilting by cigarettes of too great weight, all substantially as herein explained.

23. In a cigarette boxing machine, the combination of the box holder for supporting the boxes to be packed, means for supplying cigarettes to the boxes, and a closing device comprising the pivoted tucker which is adapted to be reciprocated beneath the flap, and the lug with which said tucker engages to cause it to assume a vertical position and fold the flap, substantially in the manner explained.

24. In a cigarette boxing machine, the combination of the box holder adapted to hold a box to be filled, suitable means for introducing cigarettes into the box, and a closing device comprising a reciprocating rod, a pivoted tucker mounted on said reciprocating rod and formed with a right-angled extension which is adapted to bend the end of the flap of the box, and a lug with which the pivoted tucker engages to cause it to assume a vertical position for raising, bending and inserting the flap, substantially in the manner and for the purposes set forth.

25. In a cigarette boxing machine, the combination of the box holder, suitable means for introducing cigarettes into the box, and the box closing device comprising the reciprocating pivoted tucker which is adapted to fold the flap to conform to the end of the box, the lug with which said tucker engages, the reciprocating rod adapted to engage the end of the box after the flap is folded and finish the closing operation, and suitable driving connections for advancing the tucker and reciprocating bar in proper relation to each other, substantially as and for the purposes explained.

522,140. MOLDING APPARATUS. STEPHEN J. ADAMS, Pittsburg, Pa. Filed July 23, 1891. Serial No. 400,456. (No model.)



Claim.—1. In sand molding apparatus, the combination of a flask, a tubular pattern, and a block or disk fitting within and supported by such pattern, so as to close the central passage thereof and form the base to such passage during the molding operation, substantially as and for the purposes set forth.

2. In sand molding apparatus, the combination of a portable stripping plate, a flask supported thereon, a pattern fitting within the stripping plate, and a block or disk fitting within the pattern and forming the base of the central passage thereof during the molding operation, substantially as and for the purposes set forth.

3. In sand molding apparatus, the combination of a portable stripping plate, a flask, a pattern fitting within the stripping plate and a block or disk fitting within the pattern and forming the base of the central passage thereof during the molding operation, and a direct connecting device between such stripping plate and pattern, substantially as and for the purposes set forth.

4. In sand molding apparatus, the combination of a flask, a stripping plate, a pattern fitting within the same, a stripping block fitting within the pattern and movable pins extending from the pattern into the stripping block, and from the stripping plate into the pattern, respectively, to connect such parts during handling, substantially as and for the purposes set forth.

5. In sand molding apparatus, the combination of a flask, a portable stripping plate, a pattern fitting within the stripping plate, and having a seat at the base thereof and a spring-operated pin mounted on the stripping plate and adapted to enter such seat, substantially as and for the purposes set forth.

6. In sand molding apparatus, the combination of a flask, a tubular pattern, stripping disk fitting within the pattern and adapted to form the base of the tubular passage thereof during the molding operation, and a supporting post separate from but directly contacting with such stripping disk and supporting the same when the pattern is withdrawn from the mold, substantially as and for the purposes set forth.

7. In sand molding apparatus, a combination of a flask, a stripping plate, a tubular pattern fitting within such stripping plate, a stripping disk fitting within the pattern, and a separate pattern-withdrawing apparatus having standards for supporting the stripping plate and a central post adapted to contact directly with and support the stripping disk when the pattern is withdrawn from the mold, substantially as set forth.

8. In sand molding apparatus, the combination of a flask, a tubular pattern extending within the same and having ribs on its inner face, a stripping block fitting within the pattern and having recesses to receive such ribs and a skeleton supporting post adapted to support such stripping block, and having wings between which the ribs of the pattern may pass, substantially as and for the purposes set forth.

9. In sand molding apparatus, the combination of a flask, a stripper, a pattern extending into the flask and having a lip or lips at the base thereof, and a wire or wires connected to such lip or lips and passing through the stripper to the top of the flask, substantially as set forth.

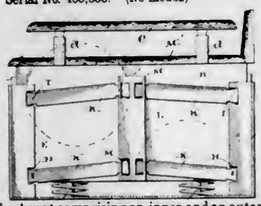
522,141. TIRE FOR BICYCLES. EDEN M. BALLANTINE, Philadelphia, Pa. Filed Jan. 17, 1894. Serial No. 497,189. (No model.)



Claim.—1. In a bicycle or the like, the combination with a tire composed of a wire coiled to a quarter-foliate form one or several of the convolutions of which is provided with loops projecting centrally from its opposite foils, of two draw-bands passed through said loops inside the tire, substantially as and for the purpose set forth.

2. In a bicycle, the combination with a wheel having a slot in its felly, of a tire composed of a helix of spring wire provided with two sets of loops, a draw-band passing through each set of loops, a turn-buckle for each draw-band, into which the draw-bands are threaded, each turn-buckle being slotted, a key passing through both slots in the turn-buckles and in the felly a colter passing through the end of the key inside the felly of the wheel, substantially as described.

522,142. SEAT. OLIVER L. BARRETT, Dalles, Oreg. Filed Sept. 19, 1893. Serial No. 485,835. (No model.)



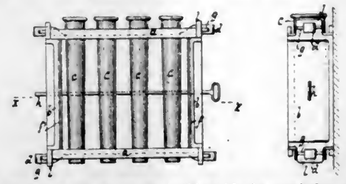
Claim.—1. A seat comprising an inner and an outer box or frame, rocking arms inside of the outer box and outside of the walls of the inner box and extending parallel with the ends and sides thereof, the respective ends of said arms loosely engaging the corners of the outer box, and the centers of the ends and sides of the inner box, whereby the box carrying the seat is wholly supported against endwise and lateral movement by said arms, and supporting springs, substantially as described.

2. A seat comprising an inner and an outer box or frame, rocking arms extending along the sides and ends of and parallel with said boxes and of a length about equal to half of that of the boxes, the respective ends of said arms having rocking bearing surfaces loosely engaging respectively the outer and inner boxes or frames, whereby substantially roller bearings are provided between said boxes by the arms, and supporting springs substantially as shown.

3. A seat comprising an inner and an outer box or frame, rocking arms extending along the sides and ends of and parallel with said boxes and of a length about equal to half of that of the boxes or frames, the respective ends of said arms having vertical curved bearing surfaces formed on the arc of a circle which engage respectively the outer and inner boxes or frames, whereby substantially roller bearings are provided and the seat held firm against lateral movements as it moves up and down, and supporting springs substantially as described.

522,143. BUILDING-BLOCK AND APPARATUS FOR MANUFACTURING SAME. HUGO BEHRENS, Berlin, Germany. Filed Dec. 1, 1893. Serial No. 492,485. (No model.)

Claim.—1. A mold for making cement building blocks, consisting of two side bars *a*, two end bars *b* having their extremities detachably connected with the ends of the side bars, the hollow cores *c* removably arranged in the side bars, and a removable rod *h* extending transversely through the cores and end bars, substantially as described.

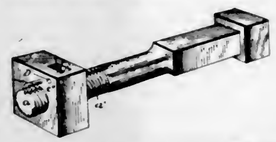


2. A mold for making cement building blocks, consisting of two side bars *a* having end dowels *d*, two end bars *b* having end flanges *l* engaging said dowels, keys *g* holding the flanges on the dowels, cores *c* supported by the side bars, and a removable rod *h* extending transversely through the cores and end bars, substantially as described.

3. A mold for making cement building blocks, consisting of the two side bars *a* having end dowels *d*, two end bars *b* having end flanges *l* engaging said dowels, devices for holding the flanges on the dowels, hollow conoidal cores *c* supported by the side bars, and a removable rod *h* extending transversely through the cores and end bars, substantially as described.

4. A cement-block mold, consisting of the two side bars *a* having end dowels *d*, two end bars *b* having end flanges *l* engaging said dowels, keys for holding the flanges on the dowels, and a series of tapering cores *c* removably mounted in two of said bars to form openings in the body of the molded block, substantially as described.

522,144. NUT-LOCK. DANIEL BOYER, Cressona, Pa. Filed Mar. 8, 1894. Serial No. 502,863. (No model.)



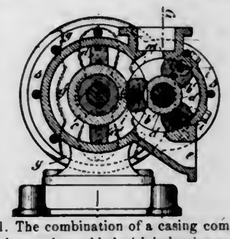
Claim.—1. As an improvement in nut locks, the nut provided in its wall with a recess extending from the outside of the nut to the threaded eye and with an eye or opening extending from the face of the nut and intersecting said recess, and having a plate or pawl pivotally mounted in said recess and provided with an eye or loop upon its upper face, said pawl being adapted to engage horizontally-disposed grooves or channels in the bolt, and a pin inserted in the eye or opening intersecting the recess and adapted to control the position of the pawl; substantially as set forth.

2. As an improvement in nut locks, the nut provided in its wall with a recess, C, extending from the outside of the nut and opening into the threaded eye, and having an eye or opening, *e*, extending from the face of the nut and intersecting the recess C; the flat pawl, D, mounted upon a bar or pin, D′, and housed in the recess, the pawl being provided with an eye or loop, D^2, projecting from its upper face and having a hook or point adapted to engage longitudinally-disposed grooves or channels in the bolt; and a removable pin, E, inserted in the eye or opening *e* and adapted to control the position of the pawl; substantially as set forth.

3. As an improvement in nut locks, the herein described nut provided in its wall with the recess C extending from the outside of the nut to the threaded central eye on a tangential plane, and having the eye or opening *e* extending from the face of the nut and intersecting the front face e^4 of the recess, and the depression or recess e' in its rear face e^5; the bearing bar or pin D′ extending across the recess; the flat plate or pawl D having the bearing eye *d* embracing the bar D′ and the hook or point d^2 adapted to engage longitudinally-disposed grooves or channels in the bolt, the pawl being provided with an eye or loop D^2 projecting from its upper face; and the removable pin E inserted in the eye or opening *e* and having the pointed end e^3 adapted to be received by the depression e'; substantially as and for the purpose set forth.

4. As an improvement in nut locks, the combination, with a longitudinally-grooved or channeled bolt, of a nut provided in its wall with a recess extending from outside the nut and opening into the threaded eye, a pawl pivotally mounted and housed in said recess and having an eye or loop projecting from its top, and a removable pin inserted through an eye or opening intersecting said recess and adapted to control the position of the pawl.

522,145. ROTARY ENGINE. FRIEDRICH BRACKEMANN, Augsburg, Germany. Filed Mar. 23, 1893. Serial No. 467,351. (No model.)



Claim.—1. The combination of a casing composed of two segments of cylinders and provided with induction and eduction orifices, two shafts mounted in said segments coaxially therewith, two wheels, that is to say, the main wheel *a a′* and the auxiliary wheel *b b′*, consisting in disks *a*, *b*, keyed on the respective shafts and having wings *a′*, *b′*, projecting in opposite directions from their faces, the wings *a′* being adapted to engage between the wings *b′*, two flanged bushes *c*, *d*, fixed in the casing and having curved recesses *e′*, *f*, the wings *a′ b′* rotating with their outer edges in contact with the casing and the surfaces of the recesses *e′ f*, while with their terminal and their outer edges they are in contact with the bushes *c d*, and means as described whereby when the wings *a′* engage between the wings *b′*, the wheel *b b′* is rotated through the wheel *a a′*, while in the intervals it is locked, substantially as specified.

2. The combination of a casing composed of two segments of cylinders and provided with induction and eduction orifices, two shafts mounted in said segments coaxially therewith, two wheels, that is to say, the main wheel *a a′* and the auxiliary wheel *b b′* keyed on said shafts and having the respective wings *a′* and *b′*, which rotate in contact with the inner surfaces of the casing, the wings *a′* being adapted to engage between the wings *b′*, the disk *h* keyed on the shaft of the wheel *a a′* and having a cam-groove, and the disk *k* keyed on the shaft of wheel *b b′* and having, opposite to the wings *b′*, studs *i* engaging in said cam-groove, the latter forming, opposite to the wings *a′*, loops *g*, while the portions thereof being between the loops, are concentric to the shaft of the wheel *a a′*, substantially as set forth.

3. In a rotary engine adapted to be employed also as a pump, and having two wheels provided with radial wings and rotatably mounted within a common casing, the wings of the one wheel during the rotation of both being adapted to coincide with the spaces between the wings of the other wheel, a disk mounted in driving connection with the shaft of one of the said wheels and having on its face a cam-groove composed of loop-shaped portions alternating with partly circular portions, and a disk mounted in driving connection with the shaft of the other wheel and having on one of its faces a number of studs adapted during the rotation of the two disks to successively engage, and to be guided in, the said cam-groove of the other disk, substantially as and for the purpose set forth.

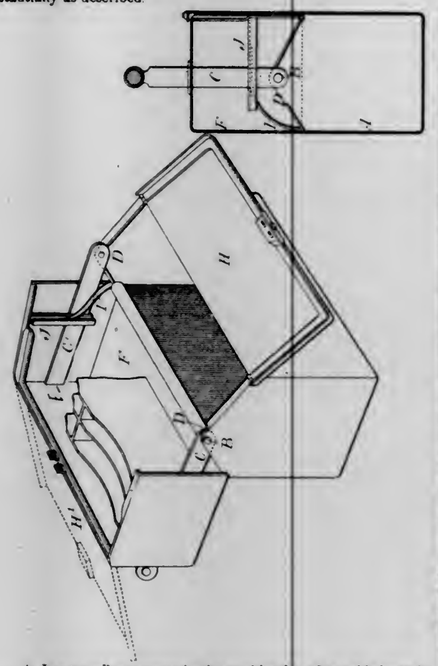
4. In a rotary engine adapted to be employed also as a pump, the combination, with two wheels provided with radial wings as described and rotatably mounted within a common casing, the wings of the one wheel during the rotary movement of both being adapted to coincide with the spaces between the wings of the other wheel, of a stationary flanged bush surrounding the axis of one of the wheels, and conforming to the shape of the inner cylindrical and face portions of the said wheel, the said bush having on its periphery a curved recess conforming to the outer cylindrical surfaces of the other wheel and its wings coming in contact therewith; and two other stationary bushes laterally inclosing the last named wheel and conforming to the inner cylindrical and face portions of the same, each of the said two bushes having on their peripheries a curved recess conforming to the outer cylindrical surfaces of the first wheel and its wings coming in contact therewith, substantially as and for the purpose set forth.

522,146. TRUNK, PORTMANTEAU, &c. EDWARD BRONSDON, London, England, assignor of one-half to Edward Scales, same place. Filed Jan. 3, 1894. Serial No. 495,481. (No model.) Patented in England May 28, 1892, No. 10,204.

Claim.—1. In a traveling receptacle, the combination of two side bars pivoted to the lower part or body of the receptacle and passing through slots in the top of the cover having a hinged connection on one side to the body, and means for supporting the receptacle from the two side bars when carrying, the side bars being made to turn on their pivots when the top is opened, substantially as described.

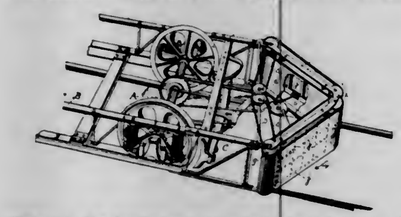
2. In a traveling receptacle the combination of two side bars pivoted to the lower part or body of the bag and passing through slots in the top of the cover having a hinged connection to the body, and a handle connected to the said side bars, substantially as described.

3. In a traveling receptacle the combination of two side bars pivoted to the lower part or body of the receptacle and passing through slots in the top of the cover having a hinged connection to the body, a handle connected to the two side bars, and springs adapted to cause the cover to open automatically when the receptacle is unlocked, substantially as described.



4. In a traveling receptacle, the combination of two side bars pivoted to the lower part or body of the receptacle and passing through slots in the top of the cover having a hinged connection on one side to the body, and open on the other side, a handle connecting the two side bars, springs adapted to cause the cover to open automatically, and a hinged flap on the body adapted to close the open side of the cover when this is shut down.

522,147. FLEXIBLE-BELT FENDER FOR STREET-RAILWAY CARS. RICHARD B. CHAMBERS, Chester, Pa., assignor to Crosby M. Black, same place. Filed Mar. 6, 1894. Serial No. 502,544. (No model.)



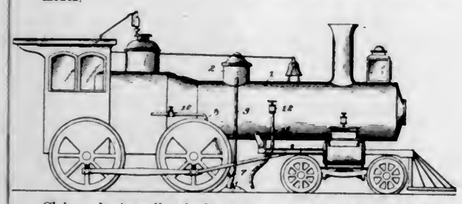
Claim.—1. The flexible traveling endless belts K K, having the adjustable rollers *g g*, arranged in the sliding bearing in slots L L, and the swinging shields or frames *j j* with their connecting rods *p p* and operating the pivoted table or semi rotary yoke R, having recess T, and imparting its motions by the rods S and *y*, to the clutch *t* and friction clutch V, and hand or foot lever W, and the stationary vertical bearing shafts *l l*, substantially as described, combined and operating substantially as set forth.

2. The pivoted or swinging shields or frames *j j* and the traveling endless flexible belts K K, arranged so that any pressure or depression made in or against the flexible belts K K and operating the rods *p p* and lever S with the clutch *t* and wheel E with the chain or belt *f*, the wheel *e* and the shaft D, with the gear wheels *d' d'* and operating the bevel gears *d d*, supported by the vertical shafts *l l*, the sprocket wheels *b b* driven by the belts or chains *c c*, the adjustable wheels and belt rollers *g g*, substantially as described.

3. The swinging or automatic shield frames *j j* in combination with a flexible endless belt fender, with rods *p p*, and the rocking disk table, or yoke R, having recess notch T, or means of operating the clutch rods S and *y*, substantially for the purpose specified.

4. The combination with the shaft D and the adjustable collars 1 2 3 4 mounted thereon; of the vertical adjustable bearing shafts *l l*, mounted on said shaft and located between said collars; having sliding bearings *n n* at their upper ends and having at their lower ends sliding adjustable clamps N N adapted to be adjustably secured to brace M, substantially as described.

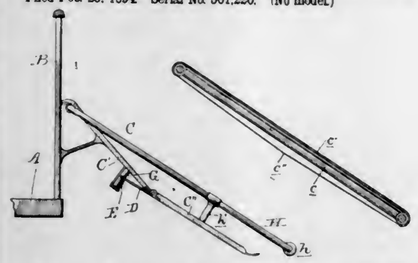
522,148. SANDING DEVICE FOR LOCOMOTIVES. FLOYD T. CHASE, Alvarado, Tex. Filed Mar. 31, 1894. Serial No. 505,873. (No model.)



Claim.—1. A sanding device for locomotives, consisting of a sand-box, a pipe leading therefrom, a tube communicating with the nozzle of the pipe and having a flaring or funnel-shaped end whereby the air is forced into and through the nozzle as the locomotive progresses, and a pipe communicating with the nozzle and with the air-brake system, whereby the air may be similarly forced through the nozzle when not convenient to use the funnel, substantially as described.

2 In a sanding device for locomotives, a sand-box, a pipe leading therefrom and having its lower end terminating directly over the track and immediately forward of the driving wheel of the locomotive to which the sanding device is attached, and a funnel having its flaring end opening forwardly and in communication with the nozzle of the said pipe, whereby as the engine progresses a blast of air will be forced into the funnel and through the nozzle of the pipe, thereby accelerating the delivery of sand to the track and preventing clogging of the nozzle, substantially as described.

522,149. CAR-FENDER. HENRI G. CHATAIN, New York, N. Y. Filed Feb. 23, 1894. Serial No. 501,220. (No model.)



Claim.—1. The combination in a car fender, of the sections C' C'' hinged together, the arm D, spring E and chain F, substantially as described.

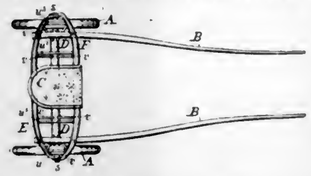
2. The combination with the sections C' C'' and spring E, of the frame H, resting on section C'' and having its lower end set in advance of the lower end of the section C'', substantially as and for the purpose specified.

3. The combination of the section C', having its upper end connected to the front of the car, the section C'' pivotally connected to the lower edge of section C', the arm D connected to the section C'', the spring E, acting on the arm D, the chain G having its opposite end connected to the section C', and the arm D, with the frame H, having roller *h* and hangers *k'*, all constructed and arranged substantially as shown and described.

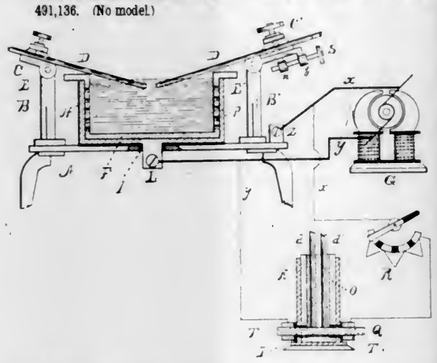
522,150. PNEUMATIC SULKY. GEORGE W. CLARKE, Rochester, N. Y., assignor of one-half to Edward Appel, same place. Filed Dec. 18, 1893. Serial No. 493,979. (No model.)

Claim.—The combination, with the wheels, seat and thills of a pneumatic sulky, of an arch consisting of three curved tubular members, the upper members arranged at angles one in front of and the other behind the lower member, and each parallel to the lower mem-

ber, and with their ends meeting to support the outer ends of the wheel-spindles, and the lower member supporting the inner ends of the wheel spindles, and suitable bracing between the upper members and the lower member at their upper part, substantially as set forth.



522,151. METHOD OF HEATING METALS ELECTRICALLY. CHARLES L. COFFIN, Detroit, Mich. Filed Nov. 16, 1893. Serial No. 491,136. (No model.)

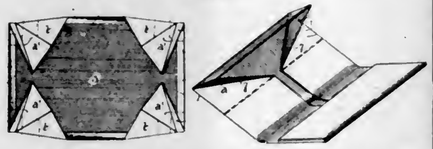


Claim.—1. The herein described method of electrically heating metal, consisting in heating the metal, connecting it with one terminal of a generator of electricity, bringing it in contact with a liquid electrode connected with the other terminal of said generator, and establishing a voltaic arc between the two electrodes.

2. The herein described method of electrically heating metal consisting in heating said metal previous to its immersion in a liquid electrode, connected to one terminal of a source of electric energy, the said metal being connected to the other terminal of the source of electric energy, and establishing a voltaic arc between the electrodes.

3. The herein described mode of heating metal electrically consisting in dipping a heated piece of metal into a liquid, passing an electric current through said metal and liquid, and establishing a voltaic arc between the electrodes.

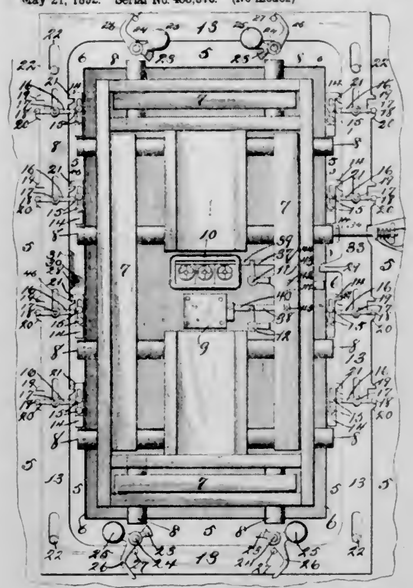
522,152. ADJUSTABLE LOCKING COVER FOR BOOKS. MICHAEL W. CUMMINGS and THOMAS F. JORDAN, Olyphant, Pa. Filed Feb. 10, 1894. Serial No. 499,701. (No model.)



Claim.—1. The herein described lock-joint adjustable cover for books, said cover comprising a body portion, side portions folded over thereon, the double triangular portions folded under the side portions at each end, the end portions folded over upon said body and side portions, and the triangular portions folded under the end portions and upon the side portions, the last named triangular portions, with the ends, and body portion, forming pockets to receive the permanent covers of a book, substantially as specified.

2. The herein described temporary cover for books, said cover comprising a body portion, side and end portions folded over thereon, and joints between the side and end portions, such joints consisting each of two triangular portions folded upon each other and underneath the side portion, and a third triangular portion folded under the end portion and upon the side portion, said triangular portions being an integral part of the blank from which the cover is made, substantially as specified

522,153. SAFE-LOCK. GEORGE L. DAMON, Boston, Mass. Filed May 21, 1892. Serial No. 433,876. (No model.)



Claim.—1. In a vault or safe, the combination of the door the jamb, a bolt carried by the door and projecting over the jamb, and the herein described filling piece and means to move it into and withdraw it from the space between the bolt and jamb independently of the locking and unlocking movement of the bolt, for the purpose explained.

2. In a safe or vault, the combination with a door and its jamb of the locking bolt mounted on the door and engaging the jamb, the gravitating filling piece, arranged to enter the space between the jamb and the projecting end of the bolt, movable independently of the locking movement to draw the door tightly to the jamb, and having means for withdrawing it, substantially as described.

3. The combination with a vault or safe and its door; of the locking mechanism, consisting of suitable bolts to be shot into engagement with the door-jamb and the adjustable bearings or filling-pieces, arranged for entering between the bolts and the door jamb, and the movable frame having connections with the bearings or filling pieces for withdrawing them, substantially as described.

4. In combination with a vault or safe having a door and locking bolts; the bearings or filling pieces movable independently of the locking movement of said bolts, to take up the back lash, the movable frame holding the bearings or filling-pieces normally away from the bolts, a detent for said frame, and a connection between the detent and the bolts, whereby the former is released by the shooting of the latter, substantially as and for the purpose set forth.

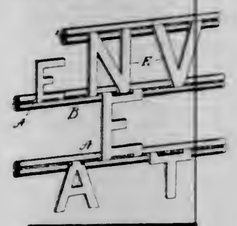
5. In combination with a safe or vault, having a door and jamb locking bolts on one part engaging the other, wedging filling pieces movable independently of the locking movement to bring them into the space between the bolts and the part engaged thereby and the gravitating frame having detents released respectively by the locking and unlocking of the safe, and located to arrest the frame, in its uppermost and in an intermediate position, said frame having working connections with the wedging filling pieces to withdraw them when at its limits of movement, but releasing them at its intermediate position, substantially as and for the purpose set forth

522,154. ADVERTISING-LETTER. THOMAS E. DEAN, Tyldesley, England. Filed May 9, 1893. Serial No. 473,892. (No model.) Patented in England Dec. 21, 1892, No. 23,517, Dec. 23, 1892, No. 23,693, and Feb. 1, 1893, No. 2,215.

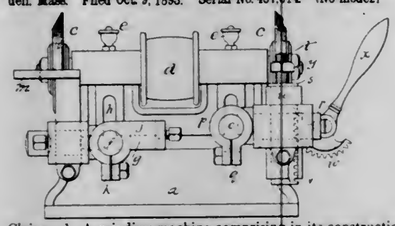
Claim.—1. An advertising sign consisting of one or more supporting bars each composed of a tube having a longitudinal slit, in combination with cut out letters provided with projections or lugs which pass through the slit in the tubes said lugs being formed to fit the interior of the tube.

2. An advertising sign consisting of one or more supporting bars each composed of a tube having a longitudinal slit, in combination

with cut out letters provided with projections or lugs which pass through the slit in the tubes said lugs being formed to fit the interior of the tube, and cement filling said tube between the lugs of the letters.



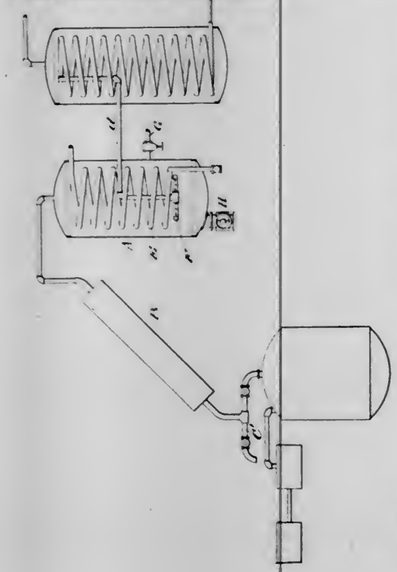
522,155. GRINDING-MACHINE. THOMAS B. DOOLEY, Melrose, assignor to E. Baker Welch, Cambridge, and Joseph Middleby, Jr., Malden, Mass. Filed Oct. 9, 1893. Serial No. 487,614. (No model.)



Claim.—1. A grinding machine comprising in its construction a rotary shaft provided with a grinding-wheel, a frame in which said shaft is journaled, a rod or shaft adjustable in said frame, a bracket-piece adjustable on said rod, a stud adjustably connected with said bracket-piece, and a cutter or blade support adjustably connected with said stud, as set forth.

2. A grinding machine comprising in its construction a rotary shaft provided with a grinding-wheel, a frame in which said shaft is journaled, a rod or shaft adjustable in said frame, a bracket-piece adjustable on said rod, a stud adjustably connected with said bracket-piece, a vertically movable cutter or blade support adjustably connected with said stud, and mechanism for moving said cutter or blade support vertically, as set forth.

522,156. PROCESS OF PURIFYING FIXED OILS, FATS, AND FATTY ACIDS. FRANK L. DYER, Washington, D. C., assignor to William F. Jobbins and Joseph Van Ruymbeke, Chicago, Ill. Filed Mar. 7, 1894. Serial No. 502,694. (No specimens.)



Claim.—1. In the art of purifying fixed oils, fats and fatty acids, the improvement which consists in injecting expanded and reheated steam into the liquid maintained at a temperature below its boiling point, as and for the purpose described.

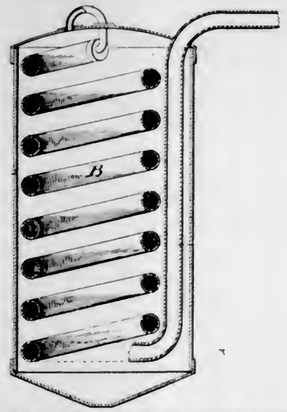
2. In the art of purifying fixed oils, fats and fatty acids, the improvement which consists in independently heating the liquid and injecting expanded and reheated steam into the independently heated liquid maintained at a temperature below its boiling point, as and for the purpose described.

3. In the art of purifying fixed oils, fats and fatty acids, the improvement which consists in injecting expanded and reheated steam into the liquid maintained *in vacuo* at a temperature below its boiling point, as and for the purpose described.

4. In the art of purifying fixed oils, fats and fatty acids, the improvement which consists in injecting expanded and reheated steam into the independently heated liquid, maintained *in vacuo* at a temperature below its boiling point, as and for the purpose described

5. In the art of purifying fixed oils, fats and fatty acids, the improvement which consists in injecting expanded and reheated steam into the independently heated liquid, maintained *in vacuo* at a temperature below its boiling point and subsequently subjecting the material freed from its volatile impurities to distillation by means of injection of expanded and reheated steam into the material kept *in vacuo* at the distilling temperature, as and for the purpose described.

522,157. APPARATUS FOR PREPARING EXPANDED AND REHEATED STEAM. FRANK L. DYER, Washington, D. C., assignor to William F. Jobbins and Joseph Van Ruymbeke, Chicago, Ill. Filed Mar. 7, 1894. Serial No. 502,695. (No model.)



Claim.—1. An apparatus for generating expanded and reheated steam, consisting of a boiler, an expansion pipe or pipes within the boiler, supplied with steam from the boiler, the inlet opening into the expansion pipe or pipes being smaller than the outlet opening thereof, as and for the purposes mentioned.

2. An apparatus for generating expanded and reheated steam, consisting of a boiler, an expansion pipe or pipes within the boiler adapted to be heated by the water and steam within the boiler and supplied with steam from the boiler, as and for the purposes described.

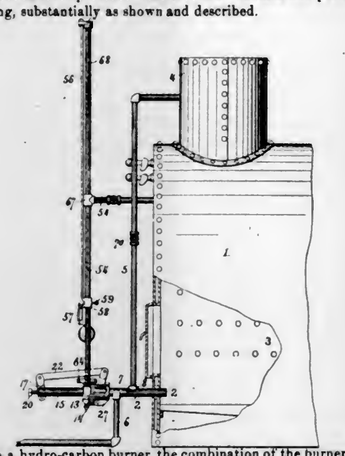
3. An apparatus for generating expanded and reheated steam, consisting of a boiler, an expansion pipe or pipes within the boiler and a steam pipe connecting the boiler with said expansion pipe or pipes, and of a smaller diameter than the same, as and for the purposes described.

4. An apparatus for generating expanded and reheated steam, consisting of a boiler A, an expansion coil B, therein, a steam pipe D, connecting the boiler with said expansion coil, and a pipe C from said expansion coil, of larger diameter than the steam pipe D, substantially as described.

522,158. HYDROCARBON-BURNER. CHARLES S. EDMONDS, Bradford, Pa., assignor to William H. Sendker and Louis Sendker, same place. Filed July 27, 1893. Serial No. 481,664. (No model.)

Claim.—1. In a hydro-carbon burner, the combination of the burner-casing formed with the steam and oil inlets, the sliding-tube provided with the air-inlets working within said casing, a pressure diaphragm for projecting said sliding-tube, means for retaining the tube normally against the diaphragm, and a thermostatic device actuating said retaining device, substantially as and for the purpose set forth.

2. In a hydro-carbon burner, the combination of the burner-casing provided with the steam and oil inlets, the sliding-tube provided with the air-inlets, working in said casing to control the steam and oil inlets, a diaphragm also within the said casing, and suitable means for keeping the tube against the diaphragm consisting of a lever secured to the sliding-tube and pivoted within the casing, and connected with a second lever provided with a counter-balance and pivoted on the casing, substantially as shown and described.



3. In a hydro-carbon burner, the combination of the burner-casing formed with the steam and oil inlets, the diaphragm secured within the casing and the sliding-tube adapted to bear against the diaphragm and formed with the air-inlets and the slot through which the oil passes into the tube, substantially as shown and described.

4. In a hydro-carbon burner, the combination of the burner-casing provided with the steam and oil inlets, the diaphragm secured within the casing and the sliding-tube provided with the air-inlets and the series of annular recesses into which the fluid passes to serve as a packing for the tube, substantially as and for the purpose set forth.

5. In a hydro-carbon burner, the combination of the burner-casing, provided with the steam and oil inlets, the diaphragm mounted within the casing, and the sliding-tube adapted to bear against the diaphragm and provided with the series of annular recesses, into which the fluid passes to serve as a packing for the tube, and openings in some of said recesses through which any surplus fluid passes, substantially as shown and described.

6. In a hydro-carbon burner, the combination of the burner-casing, provided with the steam and oil inlets, the sliding-tube provided with the air and oil openings, working within the casing, and suitable means for turning the tube to regulate the supply of oil to the burner and the diaphragm against which the tube bears for moving the same longitudinally, substantially as shown and described.

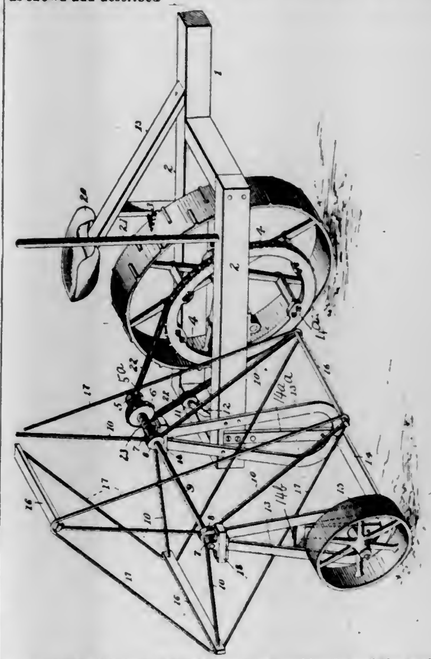
7. In a hydro-carbon burner, the combination of the burner-casing, formed with the steam and oil inlets, the sliding tube formed with the air and oil inlets and provided with the diaphragm plunger working in said casing, said plunger having an annular groove formed on it and a thumb-screw passing through the sliding tube and engaging the annular groove whereby the said sliding tube may be turned to regulate the supply of oil, substantially as shown and described.

8. In combination with a steam-boiler, having a fuel supply, a safety device connected to the boiler and fuel supply to regulate the said supply, consisting of the thermostatic pipe 54, the rod 56, dog 57, lever 60 carrying a counter-balance and the lever 62 normally in engagement with the device actuating the fuel-supply, whereby an expansion in the thermostatic pipe will cause the counter-balance to fall upon the lever 62 releasing the device controlling the fuel supply and thus close the said fuel-supply, substantially as shown and described.

9. In a hydro-carbon burner, the combination of the burner casing formed with the steam and oil inlets, a web in said oil inlet formed with an elongated slot, and a sliding tube in said burner-casing provided with an air inlet and an elongated slot forming an oil opening and adapted normally to register with the slot in the web, and suitable means for adjusting the slot in the tube relatively to the slot in the web for regulating the supply of oil, substantially as and for the purposes set forth.

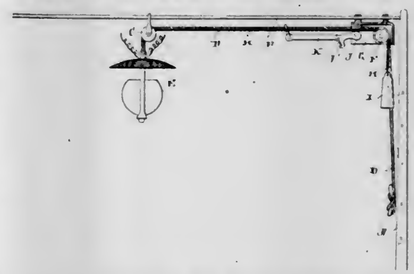
522,159. COTTON-STALK-BREAKING MACHINE. YERBY GRINLAND and JOHN J. RINGNESS, Norse, Tex. Filed Feb. 26, 1894. Serial No. 501,612. (No model.)

Claim.—1. In a machine for breaking stalks the combination with the running gear of a mower or reaper of the main frame the sprocket wheel, a reel having breaker bars operated by said sprocket wheel the reel supports, and the stationary breaker bar, substantially as shown and described



2. In a stalk breaking machine, the combination of the main frame located to one side of the reel, the driving wheel mounted in said frame and adapted to run in the furrow or stubble to one side of said reel, the reel-supports and breaker bar adjustably mounted to one side of said frame and to the caster-wheel, substantially as shown and described for the purposes set forth.

522,160. LAMP-HANGER. THOMAS HANCOCK, Marietta, Ohio. Filed Nov. 15, 1893. Serial No. 491,054. (No model.)



Claim.—1. An improved lamp hanger comprising a lamp supporting line, an auxiliary line secured to the lamp, and a locking device for the last named line over which it passes and which is held in an inoperative position by the lamp supporting line when taut, substantially as shown and described.

2. An improved lamp hanger comprising a lamp supporting line, an auxiliary line secured to the lamp, a cam over which the last named line passes for locking it, and a connection between the cam and the lamp supporting line for the purpose of holding the cam in an inoperative position, substantially as shown and described.

3. An improved lamp hanger comprising a lamp supporting line, an auxiliary line secured to the lamp, and a means for automatically securing said last named line when the supporting line has become broken or loose, substantially as shown and described.

4. An improved lamp hanger comprising a lamp supporting line, an auxiliary line secured to the lamp, a cam over which said line passes, a lever extending outward from the cam, and a connection between the lever and supporting line, substantially as shown and described.

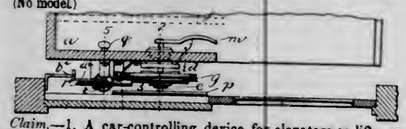
5. An improved lamp hanger comprising a lamp supporting line, an auxiliary line secured to the lamp, a cam over which said line passes, a lever adjustably secured to the cam, and a connection between the lever and supporting line, substantially as shown and described.

6. An improved lamp hanger comprising a lamp supporting line, an auxiliary line secured to the lamp, a cam over which the said line passes, a lever extending from said cam, and a ring in the outer end of the lever which encircles the supporting line, substantially as shown and described.

7. An improved lamp hanger comprising a lamp supporting line, an auxiliary line weighted at its inner end and at its outer end secured to the lamp, a cam over which said line passes, and a connection between the same and the supporting line for holding it in an inoperative position, substantially as shown and described.

8. An improved lamp hanger comprising a lamp supporting line, a frame, a sheave journaled therein over which said line passes a weighted auxiliary line passing over said sheave and secured to the lamp, a cam for locking the last named line in said frame, and a connection between said cam and the supporting line for holding the cam in an inoperative position, substantially as shown and described.

522,161. ELEVATOR-CONTROLLING DEVICE. CHARLES A. HARKNESS, Providence, R. I. Filed Dec. 24, 1892. Serial No. 456,245. (No model.)



Claim.—1. A car-controlling device for elevators or lifts, comprising in its construction a shaft mounted to turn and also to move longitudinally in its bearings, a plate or disk on one end of the said shaft co-acting with the elevator door whereby the shaft is prevented from outward movement except when the said door is closed, a starting rope, a wheel or pulley loose on the said shaft and engaged by the said rope, a clutch arranged to connect the pulley and shaft, and a handle for actuating said shaft.

2. A car-controlling device for elevators or lifts, comprising in its construction a shaft mounted to turn and also to move longitudinally in its bearings, a plate or disk on one end of the said shaft co acting with the elevator floor whereby the shaft is prevented from outward movement except when the said door is closed, a starting rope, a wheel or pulley loose on the said shaft and engaged by the said rope, a clutch-member compounded or connected with the said wheel or pulley, a like clutch-member fast on the shaft and adapted to engage the first-mentioned clutch-member, and a handle for actuating the said shaft.

3. A car-controlling device for elevators or lifts, comprising in its construction a shaft mounted to turn and also to move longitudinally in its bearings, a plate or disk on one end of the said shaft co-acting with the elevator door whereby the shaft is prevented from outward movement except when the said door is closed, a starting rope, a wheel or pulley loose on the said shaft and engaged by the said rope, a clutch-member compounded or connected with the said wheel or pulley, a like clutch-member fast on the shaft and adapted to engage the first-mentioned clutch-member, a cam adapted to engage means connected with the shaft to move the said shaft longitudinally, and a handle for turning the shaft, as set forth.

4. A car-controlling device for elevators or lifts comprising in its construction a starting rope, a rotary pulley engaging the said rope, the said pulley having a gear compounded or connected therewith, a longitudinally movable bolt or pin, a gear on the said bolt or pin adapted to be moved into and out of mesh with the first mentioned gear, and a brake connected with the second mentioned gear to stop it and the first mentioned gear when the two gears are brought into mesh, and so stop the pulley, move the starting rope, and stop the car, as set forth.

5. In an elevator controlling apparatus, the combination of a normally stationary cable associated with so as to control the application of the motor and along which the car moves, with an idler on the car against which such cable always bears, a hand-operated device on the car, and means for engaging and disengaging the hand-operated device and the idler.

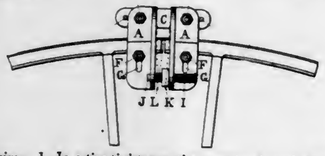
6. In a car-controlling device for elevators or lifts, a starting rope arranged outside of the car, a pulley engaging the said rope, a handle on the inside of the car and a clutch for operatively connecting the handle with the pulley, whereby the pulley may be actuated by the handle, as set forth.

7. In a car-controlling device for elevators or lifts a pulley on the car and engaging the controlling rope, mechanism for stopping the pulley, a spring pressed bolt for throwing said mechanism into and out of operative adjustment, a rod extending through the elevator well and provided with offset portions, and a laterally extending arm on said bolt and arranged to bear against said rod.

8. In a car-controlling device for elevators or lifts, a starting rope, a pulley engaging said rope, a handle and a clutch for operatively connecting the handle with the pulley whereby the pulley may be actuated by the handle.

9. In a car-controlling device for elevators or lifts, a pulley on the car and engaging the controlling rope, mechanism for stopping the pulley, a spring pressed bolt for throwing said mechanism into and out of operative adjustment, and having a lateral extension, and a rod or bar extending through the elevator well in a position to be engaged by the lateral extension of the spring-pressed bolt, and whose continuity in one plane is broken at intervals, substantially as and for the purpose described.

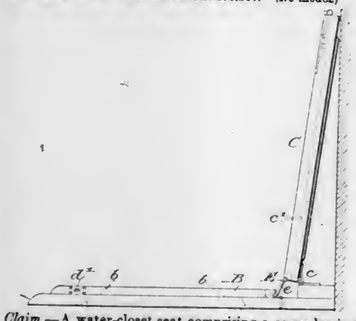
522,162. TIRE-TIGHTENER. EDWARD W. HAYS, Vandiver, and ELI A. THUSTON, Avondale, Ala. Filed Apr. 7, 1894. Serial No. 506,783. (No model.)



Claim.—1. In a tire tightener, the combination of clamping jaws and bolts the clamping bolts operating in oblong holes formed in the clamps, expanding screws with square heads placed in the angle flanges of the jaws the screws provided with nuts to operate the clamps, substantially as and for the purpose described.

2. In a tire tightener, the combination with the rim of a wheel of clamping jaws placed on both sides of a joint in the rim, the jaws clamped on the rim by bolts, a link connecting the clamps at one end, the opposite end of the clamps provided with expanding screws having nuts to operate the clamps, substantially as described.

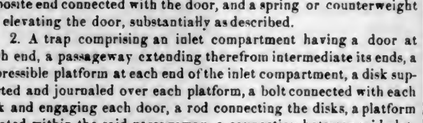
522,163. WATER-CLOSET SEAT. ULYSSES G. JOHNSON, Chicago, Ill. Filed Nov. 7, 1893. Serial No. 490,267. (No model.)



Claim.—A water-closet seat comprising a cover having a recess in its under side, a supplemental seat adapted to fit within said recess and having an opening of comparatively small area, a lower seat having an opening of comparatively large area, and hinges attached to the under side of the supplemental seat and to the rear edge portion of the cover and formed with leaves arranged intermediate of the supplemental seat and cover, whereby when the supplemental seat and cover are locked together, the said leaves will lie flat against the rear under side portions of the cover, and when the said seat is down and the cover raised, the leaves will bridge the space between the said seat and cover, substantially as described.

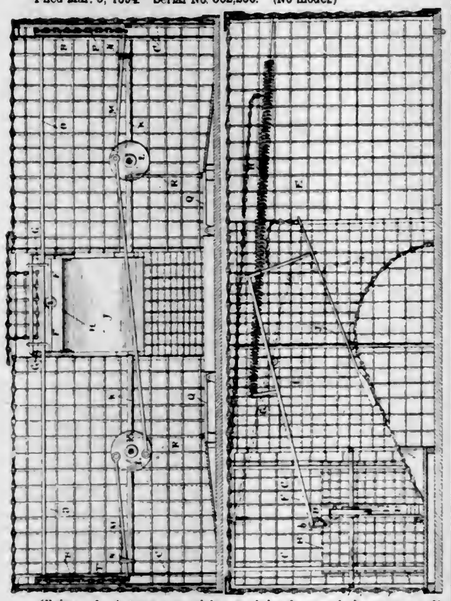
522,164. IMPLEMENT FOR TIGHTENING FENCES. GEORGE D. LOCKWOOD, Stony Creek, assignor of one-half to Henry P. Glover, Ypsilanti, Mich. Filed May 25, 1893. Serial No. 475,446. (No model.)

Claim.—1. A wire crimping tool consisting of the handles A B, fulcrumed together, the handle A provided with a bifurcated jaw having grooves E, and the handle B provided with an intermediate spoon-shaped jaw G having a groove F, substantially as and for the purposes set forth.



2. A wire crimping tool consisting of the handles A B fulcrumed together, the handle A provided with a bifurcated jaw having grooves E, and the handle B provided with an intermediate spoon-shaped jaw G having a groove F, and set screw D, substantially as and for the purposes set forth.

522,165. ANIMAL-TRAP. MARK B. MORRIS, Logansport, Ind. Filed Mar. 3, 1894. Serial No. 502,286. (No model.)



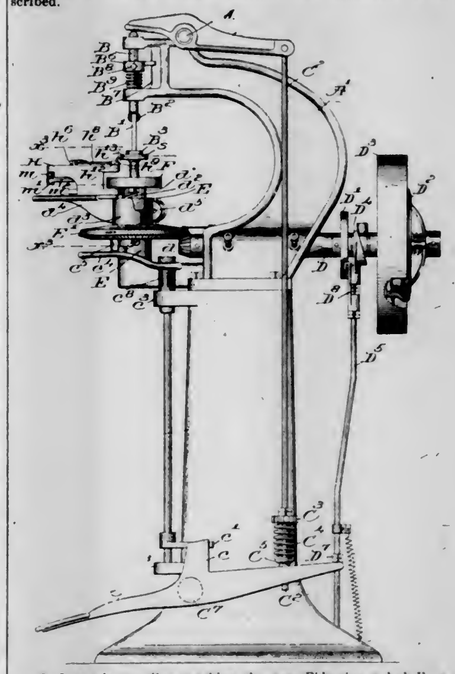
Claim.—1. A trap comprising an inlet door, a bolt engaging directly the door, a platform in the floor connected with and operating the bolt when the platform is depressed, a separate compartment, a passageway communicating therewith a pivoted platform within and closing said passageway, an intermediately pivoted lever above said platform, one end of said lever connected with the platform and its opposite end connected with the door, and a spring or counterweight for elevating the door, substantially as described.

2. A trap comprising an inlet compartment having a door at each end, a passageway extending therefrom intermediate its ends, a depressible platform at each end of the inlet compartment, a disk supported and journaled over each platform, a bolt connected with each disk and engaging each door, a rod connecting the disks, a platform pivoted within the said passageway, a connection between said platform and the doors, and a spring or counterweight for elevating the doors, substantially as specified.

522,166. SOLE-ROUNDING MACHINE. JAMES N. MOULTON, Haverhill, assignor to the Stanley Manufacturing Company, Boston, Mass. Filed Sept. 25, 1893. Serial No. 486,366. (No model.)

Claim.—1. A sole rounding machine containing the following instrumentalities, viz:—a stationary pattern plate upon which the leather to be cut is held fixedly; a stationary cam plate having a cam groove; a rotatable arm as d^4 having a guideway; a bar adapted to slide therein longitudinally; a carriage pivoted to said bar and provided with roller or other studs to enter the groove of the said cam plate; a knife bar fitted to slide in guideways connected with said carriage; a knife holder carried by said knife bar; means to keep the said knife-holder pressed up to the said pattern plate and yet adapt it to follow the contour of the pattern plate of whatever form; and means to rotate said arm and move said carriage with the said knife about the pattern plate, substantially as described.

2. In a sole rounding machine, the following instrumentalities, viz:—a stationary pattern plate; a stationary cam-plate provided with a groove; a pivoted carriage having roller or other studs to enter the grooves of the cam plate and provided with a guideway at its upper side; a knife-bar mounted to slide in said guideway, a knife holder and knife pivotally mounted in said bar; and a lever and link co-operating with said knife-bar; combined with a spring as h^5 whereby great latitude of horizontal movement is permitted to said knife-bar with relation to the longitudinal center of the cam-plate whereby said spring, lever, and connections adapt the knife to co-operate with pattern plates of different sizes, the carriage being under the control of one and the same stationary cam, substantially as described.



3. In a sole rounding machine, the gear E' having a hub E; a post to support said gear hub; combined with an arm as d^4 the hub of which surrounds and is clamped adjustably upon the hub of the gear, said arm forming a support for the knife carriage, the adjustment of the said arm about said hub when not clamped thereto enabling the position of the carriage to be adjusted with relation to the pattern plate, substantially as described.

4. In a sole rounding machine, a stationary pattern plate, a presser bar, and a carrier pivoted thereon, combined with a detachable presser plate, and a locking device therefor, to operate substantially as described.

5. The stationary pattern plate of a sole rounding machine, the presser-bar, and a yoke-shaped carrier pivoted thereon; and its connected presser plate; combined with the evener spring to adapt the presser plate to variations in thickness of the leather lying between it and the pattern plate, substantially as described.

6. In a sole rounding machine, the following instrumentalities, viz;—a stationary pattern plate to sustain the leather to be cut; a cam plate; a knife-bar and knife; a gear E' having a projection; devices actuated by said gear to carry the said knife bar once around said pattern plate; a presser bar having a suitable presser plate; a spring to normally elevate the presser-bar; the main shaft of the machine; a clutch-pulley mounted thereon; means to effect the engagement of said clutch pulleys to start the said main shaft, said means having a collar D^7; a treadle under the control of the foot of the operator; devices intermediate said treadle and said presser-bar to depress the latter; a locking device co operating with a part of said treadle; and a gear connected with said main shaft to rotate the gear E', whereby when the operator actuates the treadle the presser-bar is first depressed to clamp the leather between itself and the pattern plate, and the clutch pulleys are thereafter engaged to effect the rotation of the main shaft, and the said treadle is locked in position by the locking device until the main shaft has rotated the gear E' once, when the

4. An improved lamp hanger comprising a lamp supporting line, an auxiliary line secured to the lamp, a cam over which said line passes, a lever extending outward from the cam, and a connection between the lever and supporting line, substantially as shown and described.

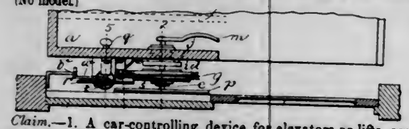
5. An improved lamp hanger comprising a lamp supporting line, an auxiliary line secured to the lamp, a cam over which said line passes, a lever adjustably secured to the cam, and a connection between the lever and supporting line, substantially as shown and described.

6. An improved lamp hanger comprising a lamp supporting line, an auxiliary line secured to the lamp, a cam over which the said line passes, a lever extending from said cam, and a ring in the outer end of the lever which encircles the supporting line, substantially as shown and described.

7. An improved lamp hanger comprising a lamp supporting line, an auxiliary line weighted at its inner end and at its outer end secured to the lamp, a cam over which said line passes, and a connection between the same and the supporting line for holding it in an inoperative position, substantially as shown and described.

8. An improved lamp hanger comprising a lamp supporting line, a frame, a sheave journaled therein over which said line passes a weighted auxiliary line passing over said sheave and secured to the lamp, a cam for locking the last named line in said frame, and a connection between said cam and the supporting line for holding the cam in an inoperative position, substantially as shown and described.

522,161. ELEVATOR-CONTROLLING DEVICE. CHARLES A. HARKNESS, Providence, R. I. Filed Dec. 24, 1892. Serial No. 456,245. (No model.)



Claim.—1. A car-controlling device for elevators or lifts, comprising in its construction a shaft mounted to turn and also to move longitudinally in its bearings, a plate or disk on one end of the said shaft co-acting with the elevator door whereby the shaft is prevented from outward movement except when the said door is closed, a starting rope, a wheel or pulley loose on the said shaft and engaged by the said rope, a clutch arranged to connect the pulley and shaft, and a handle for actuating said shaft.

2. A car-controlling device for elevators or lifts, comprising in its construction a shaft mounted to turn and also to move longitudinally in its bearings, a plate or disk on one end of the said shaft co acting with the elevator floor whereby the shaft is prevented from outward movement except when the said door is closed, a starting rope, a wheel or pulley loose on the said shaft and engaged by the said rope, a clutch-member compounded or connected with the said wheel or pulley, a like clutch-member fast on the shaft and adapted to engage the first-mentioned clutch-member, and a handle for actuating the said shaft.

3. A car-controlling device for elevators or lifts, comprising in its construction a shaft mounted to turn and also to move longitudinally in its bearings, a plate or disk on one end of the said shaft co-acting with the elevator door whereby the shaft is prevented from outward movement except when the said door is closed, a starting rope, a wheel or pulley loose on the said shaft and engaged by the said rope, a clutch-member compounded or connected with the said wheel or pulley, a like clutch-member fast on the shaft and adapted to engage the first-mentioned clutch-member, a cam adapted to engage means connected with the shaft to move the said shaft longitudinally, and a handle for turning the shaft, as set forth.

4. A car-controlling device for elevators or lifts comprising in its construction a starting rope, a rotary pulley engaging the said rope, the said pulley having a gear compounded or connected therewith, a longitudinally movable bolt or pin, a gear on the said bolt or pin adapted to be moved into and out of mesh with the first mentioned gear, and a brake connected with the second mentioned gear to stop it and the first mentioned gear when the two gears are brought into mesh, and so stop the pulley, move the starting rope, and stop the car, as set forth.

5. In an elevator controlling apparatus, the combination of a normally stationary cable associated with so as to control the application of the motor and along which the car moves, with an idler on the car against which such cable always bears, a hand-operated device on the car, and means for engaging and disengaging the hand-operated device and the idler.

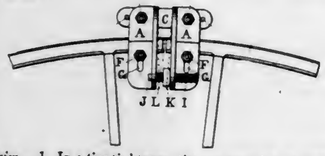
6. In a car-controlling device for elevators or lifts, a starting rope arranged outside of the car, a pulley engaging the said rope, a handle on the inside of the car and a clutch for operatively connecting the handle with the pulley, whereby the pulley may be actuated by the handle, as set forth.

7. In a car-controlling device for elevators or lifts a pulley on the car and engaging the controlling rope, mechanism for stopping the pulley, a spring pressed bolt for throwing said mechanism into and out of operative adjustment, a rod extending through the elevator well and provided with offset portions, and a laterally extending arm on said bolt and arranged to bear against said rod.

8. In a car-controlling device for elevators or lifts, a starting rope, a pulley engaging said rope, a handle and a clutch for operatively connecting the handle with the pulley whereby the pulley may be actuated by the handle.

9. In a car-controlling device for elevators or lifts, a pulley on the car and engaging the controlling rope, mechanism for stopping the pulley, a spring pressed bolt for throwing said mechanism into and out of operative adjustment, and having a lateral extension, and a rod or bar extending through the elevator well in a position to be engaged by the lateral extension of the spring-pressed bolt, and whose continuity in one plane is broken at intervals, substantially as and for the purpose described.

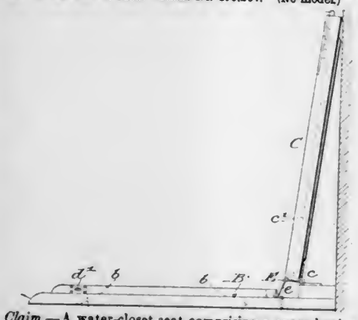
522,162. TIRE-TIGHTENER. EDWARD W. HAYS, Vandiver, and ELI A. THURSTON, Avondale, Ala. Filed Apr. 7, 1894. Serial No. 506,783. (No model.)



Claim.—1. In a tire tightener, the combination of clamping jaws and bolts the clamping bolts operating in oblong holes formed in the clamps, expanding screws with square heads placed in the angle flanges of the jaws the screws provided with nuts to operate the clamps, substantially as and for the purpose described.

2. In a tire tightener, the combination with the rim of a wheel of clamping jaws placed on both sides of a joint in the rim, the jaws clamped on the rim by bolts, a link connecting the clamps at one end, the opposite end of the clamps provided with expanding screws having nuts to operate the clamps, substantially as described.

522,163. WATER-CLOSET SEAT. ULYSSES G. JOHNSON, Chicago, Ill. Filed Nov. 7, 1893. Serial No. 490,267. (No model.)



Claim.—A water-closet seat comprising a cover having a recess in its under side, a supplemental seat adapted to fit within said recess and having an opening of comparatively small area, a lower seat having an opening of comparatively large area, and hinges attached to the under side of the supplemental seat and to the rear edge portion of the cover and formed with leaves arranged intermediate of the supplemental seat and cover, whereby when the supplemental seat and cover are locked together, the said leaves will lie flat against the rear under side portions of the cover, and when the said seat is down and the cover raised, the leaves will bridge the space between the said seat and cover, substantially as described.

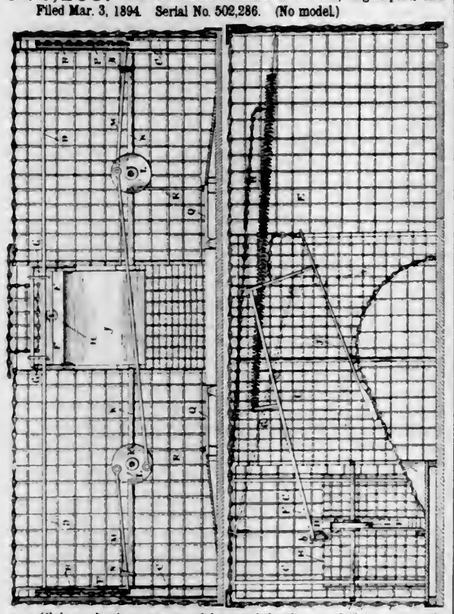
522,164. IMPLEMENT FOR TIGHTENING FENCES. GEORGE D. LOCKWOOD, Stony Creek, assignor of one-half to Henry P. Glover, Ypsilanti, Mich. Filed May 25, 1893. Serial No. 475,446. (No model.)

Claim.—1. A wire crimping tool consisting of the handles A B, fulcrumed together, the handle A provided with a bifurcated jaw having grooves E, and the handle B provided with an intermediate spoon-shaped jaw G having a groove F, substantially as and for the purposes set forth.



2. A wire crimping tool consisting of the handles A B fulcrumed together, the handle A provided with a bifurcated jaw having grooves E, and the handle B provided with an intermediate spoon-shaped jaw G having a groove F, and set screw D, substantially as and for the purposes set forth.

522,165. ANIMAL-TRAP. MARK B. MORRIS, Logansport, Ind. Filed Mar. 3, 1894. Serial No. 502,286. (No model.)



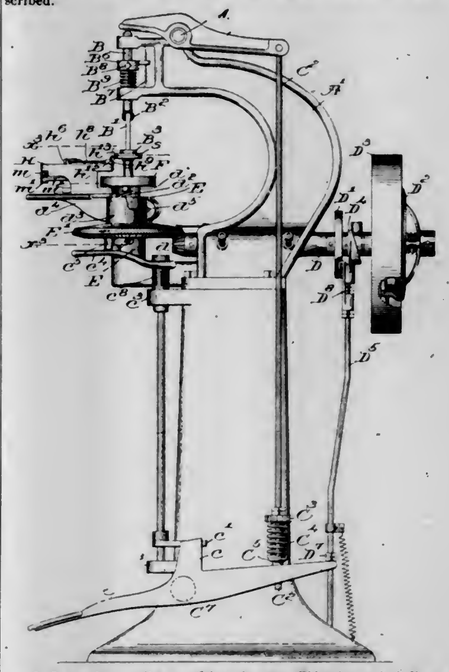
Claim.—1. A trap comprising an inlet door, a bolt engaging directly the door, a platform in the floor connected with and operating the bolt when the platform is depressed, a separate compartment, a passageway communicating therewith a pivoted platform within and closing said passageway, an intermediately pivoted lever above said platform, one end of said lever connected with the platform and its opposite end connected with the door, and a spring or counterweight for elevating the door, substantially as described.

2. A trap comprising an inlet compartment having a door at each end, a passageway extending therefrom intermediate its ends, a depressible platform at each end of the inlet compartment, a disk supported and journaled over each platform, a bolt connected with each disk and engaging each door, a rod connecting the disks, a platform pivoted within the said passageway, a connection between said platform and the doors, and a spring or counterweight for elevating the doors, substantially as specified.

522,166. SOLE-ROUNDING MACHINE. JAMES N. MOULTON, Haverhill, assignor to the Stanley Manufacturing Company, Boston, Mass. Filed Sept. 25, 1893. Serial No. 486,366. (No model.)

Claim.—1. A sole rounding machine containing the following instrumentalities, viz:—a stationary pattern plate upon which the leather to be cut is held fixedly; a stationary cam plate having a cam groove; a rotatable arm as d^4 having a guideway; a bar adapted to slide therein longitudinally; a carriage pivoted to said bar and provided with roller or other studs to enter the groove of the said cam plate; a knife bar fitted to slide in guideways connected with said carriage; a knife holder carried by said knife bar; means to keep the said knife-holder pressed up to the said pattern plate and yet adapt it to follow the contour of the pattern plate of whatever form; and means to rotate said arm and move said carriage with the said knife about the pattern plate, substantially as described.

2. In a sole rounding machine, the following instrumentalities, viz:—a stationary pattern plate; a stationary cam-plate provided with a groove; a pivoted carriage having roller or other studs to enter the grooves of the cam plate and provided with a guideway at its upper side; a knife-bar mounted to slide in said guideway, a knife holder and knife pivotally mounted in said bar; and a lever and link co-operating with said knife-bar; combined with a spring as A^5 whereby great latitude of horizontal movement is permitted to said knife-bar with relation to the longitudinal center of the cam-plate whereby said spring, lever, and connections adapt the knife to co-operate with pattern plates of different sizes, the carriage being under the control of one and the same stationary cam, substantially as described.



3. In a sole rounding machine, the gear E' having a hub E, a post to support said gear hub; combined with an arm as d^4 the hub of which surrounds and is clamped adjustably upon the hub of the gear, said arm forming a support for the knife carriage, the adjustment of the said arm about said hub when not clamped thereto enabling the position of the carriage to be adjusted with relation to the pattern plate, substantially as described.

4. In a sole rounding machine, a stationary pattern plate, a presser bar, and a carrier pivoted thereon, combined with a detachable presser plate, and a locking device therefor, to operate substantially as described.

5. The stationary pattern plate of a sole rounding machine, the presser-bar, and a yoke-shaped carrier pivoted thereon; and its connected presser plate; combined with the evener spring to adapt the presser plate to variations in thickness of the leather lying between it and the pattern plate, substantially as described.

6. In a sole rounding machine, the following instrumentalities, viz;—a stationary pattern plate to sustain the leather to be cut; a cam plate; a knife-bar and knife; a gear E' having a projection; devices actuated by said gear to carry the said knife bar once around said pattern plate; a presser bar having a suitable presser plate; a spring to normally elevate the presser-bar; the main shaft of the machine; a clutch-pulley mounted thereon; means to effect the engagement of said clutch pulleys to start the said main shaft, said means having a collar D^7; a treadle under the control of the foot of the operator; devices intermediate said treadle and said presser-bar to depress the latter; a locking device co operating with a part of said treadle; and a gear connected with said main shaft to rotate the gear E', whereby when the operator actuates the treadle the presser-bar is first depressed to clamp the leather between itself and the pattern plate, and the clutch pulleys are thereafter engaged to effect the rotation of the main shaft, and the said treadle is locked in position by the locking device until the main shaft has rotated the gear E' once, when the

projection movable with said gear effects the unlocking of the treadle and the stopping of the machine.

7. In a sole rounding machine, the gear E' having its hub provided with a projection d^x; an arm d^4 connected with a portion of the hub of said gear and forming a support for a carriage containing a knife-bar and rounding knife; a pattern plate to sustain the material to be cut; a presser plate to rest on said material; its carrying bar and elevating spring, combined with a treadle having a locking projection c, a lever to act on said bar, a rod connected to said lever and extended to said treadle, a spring interposed between said treadle and rod, and with a locking device intermediate said gear and said projection whereby as the said gear completes a rotation, the locking device is turned to effect the release of the treadle, and enable the presser bar and plate to be automatically lifted, substantially as described.

522,167. FISHING-FLOAT. GEORGE H. RAWLINGS, St. Louis, Mo. Filed Aug. 28, 1893. Serial No. 484,187. (No model.)



Claim.—1. The combination of a float having an end socket, extending part way through the float, and a slot cut in one side thereof for the reception of the line and with the walls of which the line has frictional contact, and a bushing located in the socket, adapted to be rotated therein, having a central perforation for the reception of the line, and a side slot for the entrance thereof adapted to register with the side slot of the float; substantially as described.

2. The combination of a float having end sockets, extending part way through the float, and a slot cut in one side thereof for the reception of the line and with the walls of which the line has frictional contact, and bushings located in the sockets, and adapted to be rotated therein, each bushing having a central perforation for the reception of the line and a side slot for the entrance thereof adapted to register with the side slot of the float; substantially as described.

3. The combination of a float having end sockets, extending part way through the float, and a slot cut in one side thereof, for the reception of the line and with the walls of which the line has frictional contact, and bushings located in the sockets, and adapted to be rotated therein; each bushing having a central perforation for the reception of the line of larger diameter than the width of the side slot in the float and a side slot for the entrance of the line adapted to register with the side slot of the float; substantially as described.

522,168. FIREPROOF FLOOR AND CEILING CONSTRUCTION. JACOB SEIPEL, St. Louis, Mo. Filed Feb. 2, 1894. Serial No. 498,875. (No model.)



Claim.—1. In a fire proof structure for buildings, the combination of columns provided with brackets, tagged tension bars supported on the brackets, and means for adjustably securing the bars to the columns to form a balanced construction; substantially as set forth.

2. In a fire proof structure for buildings, the combination of columns provided with brackets, tension bars resting on the brackets, clamps secured to the bars, and tie rings surrounding the clamps of the different bars, whereby the bars are tied to the columns; substantially as and for the purpose set forth.

3. In a fire-proof structure for buildings, the combination of columns provided with brackets, bars resting upon the brackets, and having enlarged ends, clamps formed to fit the bars and being made in sections bolted together, and rings encircling the blocks adjacent to each column; substantially as and for the purpose set forth.

522,169. TILE FOR FLOOR AND CEILING CONSTRUCTION. JACOB SEIPEL, St. Louis, Mo. Filed Feb. 2, 1894. Serial No. 498,876. (No model.)

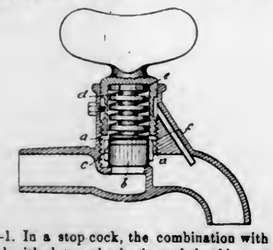


Claim.—1. In a tile for floors and ceilings, a skewback provided with a number of grooves for varying its elevation, relative to its point of support; substantially as and for the purpose set forth.

2. In a tile for floors and ceilings, a skewback provided with a number of grooves on one side for varying its elevation relative to its point of support, and tapered on the other side for supporting prismatic fill tile; substantially as and for the purpose set forth.

3. In a tile for floors or ceilings, a skewback provided with grooves 6 for varying its elevation relative to its point of support, a beveled side 8, in combination with prismatic filling block or tile 9, and bars 2; substantially as and for the purpose set forth.

522,170. VALVE FOR WATER, STEAM, OR OTHER LIQUIDS OR GASES. WILLIAM THOMSON, Glasgow, Scotland. Filed June 2, 1892. Serial No. 435,304. (No model.) Patented in England Mar. 4, 1891, No. 3,864; in France Dec. 22, 1891, No. 218,213; in Belgium Dec. 31, 1891, No. 97,775; in Sweden Jan. 19, 1892, No. 3,889; in Norway Jan. 25, 1892, No. 2,606; in Italy May 11, 1892, No. 134, and in Denmark Aug. 29, 1892, No. 927.



Claim.—1. In a stop cock, the combination with a housing, a plug provided with slots and a horizontal shoulder, a valve provided with gudgeons working in said slots, and the rivet-shaped piece of metal resting on the valve and provided with a shank, and a spiral spring surrounding said shank for pressing the valve upon its seat, substantially as set forth.

2. The combination, with the housing having inlet and outlet ports and the valve-seat, of the valve-stem having a cup or cavity at its lower end, a valve arranged in said cup and having slot-and-pin connection with said stem, and the pressure spring arranged in said cup, and having the central boss *e* bearing upon said valve, substantially as set forth.

3. In a stop-cock, the combination with a housing, a plug working in said housing, a valve working in said plug, a rivet-shaped piece of metal, having its shank surrounded by a spiral spring resting on said valve, and a metal key, all substantially as and for the purpose set forth.

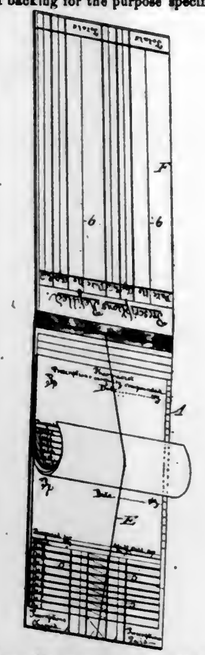
522,171. READY-REFERENCE FILE. WILLIAM L. VAN HARLINGEN, Oakland, Cal. Filed Nov. 9, 1893. Serial No. 490,478. (No model.)

Claim.—1. A ready-reference file comprising a backing having a series of horizontally-ruled lines, that portion of the backing thus ruled being gummed, a blank space below said lines, vertically-ruled debit and credit spaces below the blank space, and a series of loose numbered blanks having vertically-ruled debit and credit spaces on their lower edges, said blanks when filled being designed to be successively so attached to said backing that the debit and credit spaces of one blank will align respectively with those of another and also with the debit and credit spaces on the backing.

2. A ready-reference file comprising a backing, a sheet secured at the upper side of said backing and having a series of horizontally-ruled lines, that portion of the sheet thus ruled being gummed, and a blank space below said lines, a total-footing strip having vertically-ruled debit and credit spaces attached to said backing below said sheet, and a series of loose blanks having vertically-ruled debit and credit spaces on their lower edges, said blanks when filled being designed to be successively so attached to said gummed sheet that the debit and credit spaces of one blank will align respectively with those of another and also with the debit and credit spaces on the total-footing strip.

3. A ready-reference file comprising a backing having a series of horizontally-ruled lines, that portion of the backing thus ruled being gummed, a blank space below said lines, vertically-ruled debit and credit spaces below said blank space, a vertical guide-line at one side of the horizontally-ruled lines, and a series of loose blanks having vertically-ruled debit and credit spaces near their lower edges, said blanks being designed when filled to be successively so attached to said backing that the debit and credit spaces of one blank will align respectively with those of another and also with the debit and credit spaces on the backing.

4. A ready-reference file comprising a backing having a series of horizontally-ruled lines, that portion of the backing thus ruled being gummed, a blank space below said lines, vertically-ruled debit and credit spaces below the blank space, a series of loose blanks having vertically-ruled debit and credit spaces on their lower edges, said blanks when filled being designed to be successively so attached to the backing that the debit and credit spaces of one blank will align respectively with those of another and also with the debit and credit spaces on the backing, and a band passed vertically around or along the face of the said backing for the purpose specified.

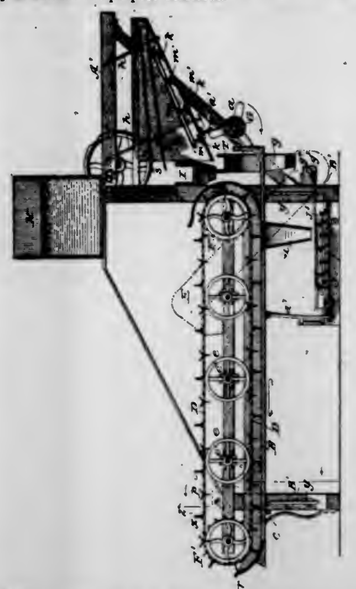


5. A ready-reference file comprising a backing having a series of horizontally-ruled lines, that portion of the backing thus ruled being gummed, a blank space below said line, vertically-ruled debit and credit spaces below the blank space, a series of loose blanks having vertically-ruled debit and credit spaces on their lower edges, said blanks when filled being designed to be successively so attached to the backing that the debit and credit spaces of one blank will align with those of another and also with the debit and credit spaces on the backing, and a cover flexibly attached to the backing and having on its inner surface date, number, and debit and credit spaces.

6. A ready-reference file comprising a backing having a series of horizontally-ruled lines, that portion of the backing thus ruled being gummed, a blank space below said lines, vertically-ruled debit and credit spaces below said blank space, a vertical guide-line at one side of the horizontally-ruled lines, a series of loose blanks having vertically-ruled debit and credit spaces on their lower edges, said blanks when filled being designed to be successively so attached to said backing that the debit and credit spaces of one blank will align respectively with those of another and also with the debit and credit spaces on the backing, a band passed vertically around or over the face of the backing, and a cover flexibly attached to the backing and having on its inner surface date, number, and debit and credit spaces.

522,172. CONCENTRATOR. CHARLES WALLACE, Denver, Colo., assignor of two-thirds to Cyrus A. Payne and William E. Moses. Filed July 29, 1893. Serial No. 481,815. (No model.)

Claim.—1. In a device for amalgamating and concentrating minerals, the combination, with a main frame having an oscillating percussion table or pan mounted therein, and a hopper or feeding device, of a series of rakes and a series of scrapers secured alternately upon an endless apron or sprocket chains mounted immediately above the pan or table, whereby they will traverse its bottom, the rakes being fixed to the belt or chains and the scraper shafts so journaled in bearings therein as to permit them to revolve, and provided at one end with a gig or star, having arms, corresponding with the scraper flanges, and a track at one side of the pan with projections or stops at intervals, on which track the gig of the scraper shaft travels, and is intermittently revolved by contact with the projections, substantially as and for the purpose described.



2. The combination in an amalgamating and concentrating device for minerals, of the main frame, the pan mounted therein on pivotal supports and adapted to oscillate, the spring attached to the pan and to the main frame, the stop or bumper secured to the pan, the hopper or ore receptacle mounted in hangers pivotally attached to the main frame, the projection on the under side of the hopper and the cam wheel mounted at one end of the pan in the main frame and having arms which, in its revolutions impinge against the end of the pan and against the projection on the hopper and cause both to oscillate, all arranged substantially as and for the purpose described.

3. The oscillating percussion pan mounted as described and provided at one side with the track having stops or projections at intervals, in combination with the flanged scraper shafts having gig projections at one end to travel on said track, secured in bearings and carried along over the pan by an endless belt or sprocket chain, substantially as and for the purpose described.

4. In combination with the endless chains or belt, carrying the rakes and scrapers, and the pan provided with the track at one side having the stops or projections, of the carrying rollers mounted in automatically adjustable vertical bearings on the main frame, substantially as and for the purpose set forth.

5. In a concentrating device for minerals, the swinging hopper secured to the main frame by pivoted hangers, and provided with interior screens and having riffles on its bottom, the waste spout I located beneath the end of the screens to receive and discharge the coarser refuse, the collecting spout beneath the hopper and the elevator extending from the bottom of said spout to the pan, and the pan, all combined and arranged substantially as and for the purpose described.

6. In an ore concentrating device, the swinging hopper secured to the main frame by pivoted hangers and provided with interior screens and transverse riffles on its base in combination with a scraper frame provided with teeth resting on the bottom above the riffles, said frame being connected at one end with a centrally pivoted lever slotted at its opposite end to receive a cam wheel whereby said frame is oscillated transversely within the hopper, all combined and arranged substantially as and for the purpose described.

7. In an ore concentrating device, the combination with the pivotally mounted pan having the spring bearing against its outer end and holding it normally forward, and the swinging hopper located in front of the pan, of the cam *a* located upon the main driving shaft between the front end of the pan and rear end of the hopper adapted to alternately engage with each and force them backward, substantially as and for the purposes described.

8. In an ore concentrating device having an oscillating percussion pan pivotally mounted in a main frame, as described, and driven by a cam on the main shaft, the combination with the main driving shaft having the cam *a*, the sprocket wheel G^3 of the pan, the swinging

hopper provided with a projection on its under side, against which cam *a* abuts, the sprocket wheels F^2 F^3 carrying the sprocket chains D, to which are attached the series of rakes and scrapers, the sprocket pulley F and the sprocket chain connecting sprocket pulley F and wheel G^2, substantially as and for the purpose described.

9. In an ore concentrating device, as described, an oscillating pan pivotally mounted in the main frame, driven by a cam on the main shaft, in combination with the said main or driving shaft, the sprocket wheels G' and G^2; the swinging hopper provided with a projection against which cam *a*, abuts; the sprocket wheels F', F^2 carrying a sprocket chain D, the pulley F and the sprocket chain connecting pulley F with wheel G^2, the pulley G^4, and its connection with the pulley G', the elevator with its band connecting with pulley G^4, substantially as and for the purpose described.

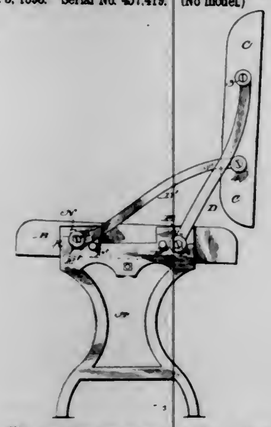
10. In an ore concentrating device, the combination of main shaft G; an oscillating pan pivotally mounted in the main frame and actuated by the cam *a*, sprocket wheels G', G^2; a swinging hopper, also operated by said cam *a*, sprocket wheels F', F^2, carrying sprocket chains D, a sprocket chain connecting pulley F with wheel G^2, pulley G^4, having band connection with pulley G' on the main shaft, the spout *g* and the elevator E with its connections substantially as and for the purpose described.

11. In combination with the main concentrator as hereinbefore described, the auxiliary pan d^5, provided with a transverse trough or depression d^6, and mounted on friction rollers, whereby it is adapted to oscillate, the centrally pivoted lever connecting at one end with the pan of main concentrator and at its opposite end with the auxiliary pan, and the rake frame e^5 provided with a series of fixed rakes and pivoted scrapers mounted over the pan, and adapted to oscillate, substantially as and for the purposes described.

12. In combination with the pan d^5 mounted on friction rollers, and adapted to oscillate, the pivoted lever d^7, the rake frame e^5 provided with a series of fixed rakes and pivotally attached scrapers, operated by the pitman J^5 adapted to be connected with the crank shaft g^4 of the main concentrator, the adjusting bar g^5 pivotally suspended to the shanks of the pivoted scrapers, and the stops i^6 located at the ends of the main frame substantially as and for the purpose described.

13. In an ore concentrator, as described, the combination with the pan d^5, having the transverse trough or depression in its bottom and adapted to oscillate; of the pivoted rake k^5 designed to automatically travel through the trough or depression in the bottom of the pan, substantially as and for the purpose described.

522,173. REVERSIBLE CAR-SEAT. ROBERT H. WEATHERLY, St. Louis, Mo., assignor to the Scarritt Furniture Company, same place. Filed Jan. 5, 1893. Serial No. 457,419. (No model.)



Claim.—1. The combination, to wit: frame A having vertical slots E E' on opposite sides thereof, the seat frame, lugs H H' secured to the seat frame and movable laterally in said slots, back C, intersecting arms or links D D' pivoted to the back and lugs H H', stops F F' on the frame A arranged to serve as a fulcrum for the arms only when the arms are nearly in their normal position to raise the front end of the seat and to support the arms when in the normal position, substantially as set forth.

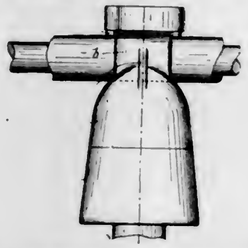
2. The combination, to wit: frame A having vertical slots E E' on opposite sides thereof, the seat frame, lugs H H' secured to the seat frame and movable laterally in said slots, back C, intersecting arms or links D D' connected with the back and lugs H H', stops F F' for the arms, a shoulder D'' on one of each pair of the arms, and lugs N on the frame A arranged so as to be over the shoulder D'' when the back is in its normal position and adapted to hold the links or arm having the shoulder from movement, substantially as set forth.

522,174. BATH-BRUSH. GEORGE W. WORDEN and HUGO HUETTIG, Philadelphia, Pa. Filed May 15, 1893. Serial No. 474,269. (No model.)



Claim.—In a bath-brush the combination with a brush-head having a knob provided with a circumferential groove, of a curved resilient arm provided at one end with a handle and at the opposite end with a continuous loop normally of less diameter than the groove in the knob and adapted to be held therein by frictional contact, the metal of said arm adjacent the loop being bent upon itself to form reinforcing eyes to increase the spring action of the loop, and a keeper slidingly mounted on the arm and designed to retain the loop in operative position with relation to the said groove.

522,175. INSULATOR. JOHAN M. ANDERSEN, Boston, Mass., assignor of one-half to Albert Anderson, same place. Filed Mar. 22, 1894. Serial No. 504,606. (No model.)



Claim.—1. An insulator composed of a body portion of insulating material, a metal crown having upright arms or ears forming a slot or channel for the reception of the conductor to be supported, and a cap fitted upon the said upright arms to close the said slot at its upper end, substantially as described.

2. An insulator composed of a body portion of insulating material, a metal crown having upright arms or ears forming a slot or channel for the reception of the conductor to be supported, a shield or guard fitted in said slot and adapted to engage the upper surface of the said conductor, and a cap fitted upon the said upright arms to close the said slot at its upper end and provided with a depending flange to engage the said shield or guard, substantially as described.

3. An insulator provided with a metal crown having substantially wide upright arms forming a slot or channel for the reception of the conductor to be supported, strengthening ribs connecting said upright arms with the said crown, and a cap provided with a threaded flange to engage screw threads on the upright arms, substantially as described.

4. An insulator composed of a body portion of insulating material, a metal crown having upright arms or ears forming a slot or channel for the reception of the conductor to be supported, and a cap or cover detachably secured to said arms to close the said slot or channel at its top or upper portion, substantially as described.

5. An insulator composed of a body portion of insulating material, a metal crown having upright arms or ears forming a slot or channel for the reception of the conductor to be supported and provided with screw-threads, and a detachable cover or cap having screw-threads to engage the said screw-threaded arms to close the said slot at its upper end, substantially as described.

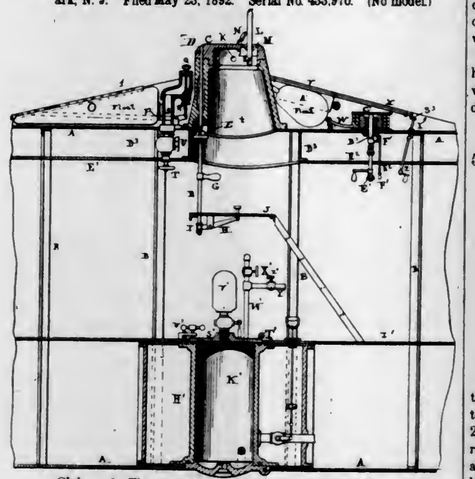
522,176. CURTAIN-HOLDING DEVICE. OLIVER ANDERSON, Deering, assignor to Edward T. Burrowes, Portland, Me. Filed Apr. 30, 1894. Serial No. 509,431. (No model.)



Claim.—1. A curtain holding device consisting of a hollow tube, a spring actuated spindle having a friction tip on its outer end and a worm or screw on its inner end the said spindle being held within the tube in such a manner as to allow it a longitudinal but not a rotatable motion, a sleeve nut in engagement with the said worm or screw and a handle for rotating said sleeve nut whereby the said friction tip is retracted, substantially as described.

2. A curtain holding device consisting of a hollow tube, a spring actuated spindle fitted therein, said spindle being provided on its outer end with a friction tip and at its inner end with a worm or screw, a sleeve nut in engagement with said worm or screw, a handle lever for rotating said sleeve nut, the outer end of said tube being provided with a longitudinal slot, a series of holes in the outer end of said spindle and a pin adapted to fit said holes and to pass through said slot, substantially as described.

522,177. SUBMARINE TORPEDO-BOAT. JOHN P. HOLLAND, Newark, N. J. Filed May 23, 1892. Serial No. 433,970. (No model.)



Claim.—1. The combination with the cover of a torpedo boat, of a universally jointed piece in said cover, and a camera obscura sliding through said piece, all the joints being water tight, substantially as described.

2. The combination with the turret of a submarine boat of a ball-and-socket joint in the shell of said turret, a camera-obscura sliding through the ball, and a spring cover outside the ball, as set forth.

3. The combination with the turret of a submarine boat, of a sliding and oscillating pintle passing into the boat, and a lever within the boat swiveled to the pintle, whereby the cover and pintle may be raised, and the pintle turned on its axis, substantially as described.

4. The combination with the turret of a submarine boat, of a cover, a pintle attached to said cover and passing through the shell or the boat, a lifting lever swiveled to said pintle, and a turning handle and a tightening nut on said pintle, as set forth.

5. A submarine boat, and in combination therewith a ventilating passage having float and valve attachments, said float connected to the valve by a lever, so as to close the valve as the float rises, as set forth.

6. The roof of a torpedo boat having an orifice therein, a stopper valve for said orifice, and a float connected to the valve substantially as described, whereby the valve is opened when the float drops, and is closed when the float is lifted by the water.

7. In combination with the shell of a torpedo boat, a reel attached to said shell, a handle within the boat whereby the reel is operated, a float and hose connecting said float with the reel, and a pipe connection from the interior of the boat to the hose on the reel, substantially as described.

8. In combination with the roof of a submarine boat a hollow ventilating rod pivoted thereto, and having a pipe extending into the boat, and mechanism for elevating and depressing said rod, as set forth.

9. A hollow rod trunnioned to the roof of a torpedo boat, a gear outside the shell of the boat but having its operating handle within the boat, an air tube connecting the interior of the boat with said rod, and a closing valve for said tube, all arranged and combined as set forth.

10. The combination with the hull of a submarine boat and a compensating tank placed amidships of the said boat, of a diving tank centrally inclosed in the same, as set forth.

11. The combination with the shell of a submarine boat of a central cylindrical diving tank built into the structure of the boat and having lower cover of full diameter of tank opening downwardly into the water, and upper cover of full diameter opening upwardly into the boat, as described.

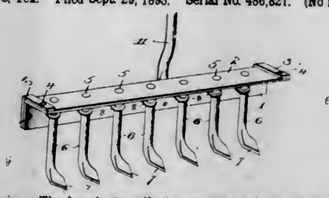
12. The combination with a submarine boat, of a central diving tank built into the permanent structure of the boat and consisting of a vertical cylinder, of a passage opening from said cylinder through the shell, and pipe leading to said tank, by which gas may be forced in and water expelled as set forth.

13. The shell of a torpedo boat having a central compensating tank, a vertically cylinder arranged within the same, a cover outside the boat, and draw-rods and connections by which the same can be operated, passing through the compensating tank.

14. In combination with a submarine boat controllable as to the depth of immersion fixed blade in the bottom of said boat, a movable cutter arranged as described with reference thereto, a shaft from said cutter entering the boat and mechanism substantially as described within the boat for drawing on said shaft, all substantially as set forth.

15. A submarine boat controllable as to its depth of immersion having a cutting blade fixed to its bottom, and in combination therewith a cylinder, piston and operative connections and hooked cutter, driven by said piston, as set forth.

522,178. HARROW ATTACHMENT. BURETTE M. MILLS, Hillsboro, Tex. Filed Sept. 29, 1893. Serial No. 486,821. (No model.)



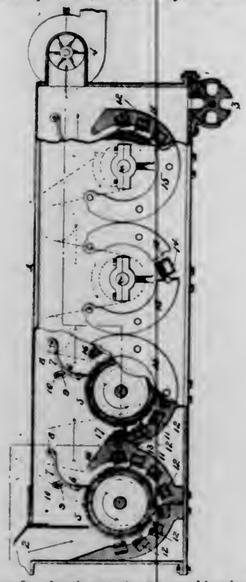
Claim.—The herein described harrow attachment for cultivators, the same consisting of the inverted L-shaped harrow-bar, comprising the independent horizontal and vertically disposed metal strips 1 and 2, the opposite inverted L-shaped metal angle bars 3, embracing and riveted to the ends thereof, the upper horizontal strip being provided at intervals with perforations, and the vertical strip 1 being provided below the same with pairs of perforations, the teeth 6, having their upper ends seated in the perforations of the horizontal strip, the staples 8 embracing the teeth below the horizontal strip and having their terminals extended through the pairs of perforations of the vertical strip, and nuts arranged on the rear ends of the staples, substantially as specified.

522,179. MACHINE FOR CLEANING COTTON OR OTHER SEEDS. MICHAEL MORAN, St. Louis, Mo., assignor to Richard T. Blow and Victoria Moran, same place. Filed Aug. 30, 1893. Serial No. 484,372. (No model.)

Claim.—1. In a machine for cleaning seeds, the combination of the cylinders, recessed concaves, brushes located in the recesses of the concaves, said brushes having their faces set tangential to the

periphery of the cylinders and means for adjusting the brushes, substantially as and for the purpose set forth.

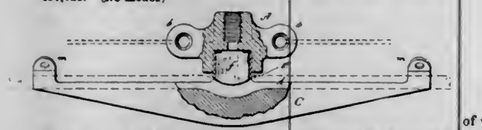
2. In a machine for cleaning seeds, the combination of the cylinders, concaves, brushes fitting in the concaves with their faces at an angle to the periphery of the cylinders, and strips 13 for adjusting the brushes toward the cylinders; substantially as and for the purpose set forth.



3. In a machine for cleaning seeds, the combination of the cylinders, a housing inclosing the cylinders, and having openings 14, concaves arranged within the housing, and having recesses, brushes fitting in recesses of the concaves, and removable plates 15; substantially as and for the purpose set forth

---

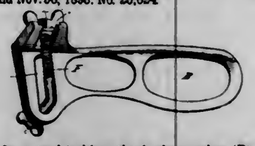
522,180. TROLLEY-WIRE HANGER. THOMAS J. MCTIGHE, New York, N. Y., assignor, by mesne assignments, to Frederick K. Fitch, same place. Filed Jan. 23, 1893. Renewed Jan. 22, 1894. Serial No. 497,723. (No model.)



Claim.—1. A trolley-wire attachment consisting of an ear or casting of suitable shape having a slotted screw-threaded stud adapted to receive the trolley-wire, a flat plug substantially filling the slot, and a screw cap adapted to fit the stud and press the plug against the trolley wire.

2. A trolley-wire attachment consisting of an ear or casting of suitable shape having a slotted screw-threaded stud adapted to receive the trolley-wire, a flat plug substantially filling the slot, the adjacent clamping faces of the slot and plug being curved longitudinally, and a screw cap adapted to fit the stud and press the plug against the trolley wire.

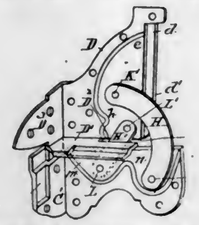
522,181. HANDLE FOR TOOLS. JOHN W. S. NEAL, Paris, France. Filed Apr. 10, 1894. Serial No. 507,062. (No model.) Patented in Belgium Aug. 19, 1893, No. 106,032; in France Aug. 21, 1893, No. 232,297, and in England Nov. 30, 1893, No. 23,024.



Claim.—1. In a tool holder, the body portion (B) having a slot (C) formed therein and the grooved or forked projection (D) in combination with the bent rod (F) screw-threaded at each end, one end of which passes through the slot (C) and the other end in the slot in the projection (D), together with the nuts (H) one upon each end of said rod whereby the tool or implement can be securely fastened between said rod and the body portion substantially as set forth.

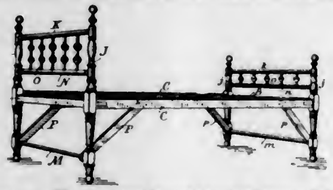
2. In a tool holder, the body portion (B) having a slot (C) formed therein and the grooved or forked projection (D) in combination with the bent rod (F) screw threaded at each end, one end of which passes through the slot (C) and the other end in the slot in the projection (D), together with the nuts (H), one upon each end of said rod whereby the tool or implement can be securely fastened between said rod and the body portion together with a square plate (A) forming a base for the upper nut (H) wedge-shaped in the vertical cross-section and placed with the larger base downward, and which by always having a tendency to slide down the groove toward the handle proper (B) gives automatically a more even grip to the tool or other article held in the above named holder substantially as set forth.

522,182. CORNER AND HINGE PIECE FOR TRUNKS. GEORGE F. POTTLE, Medford, Mass. Filed Mar. 13, 1894. Serial No. 503,476. (No model.)



Claim.—In a trunk reinforcing and hinge-pieces, the combination of a part adapted to form a corner piece for the cover of a trunk, and having a recess as described for the hinge strips and their pivots; with a corner piece for the body of the trunk having a recess for receiving the hinge strips and their pivots, and hinge strips connecting pivotally the said corner pieces substantially as described and for the purpose set forth.

522,183. FOLDING COT. THOMAS SANDS, Nashua, N. H. Filed Sept. 20, 1893. Renewed June 4, 1894. Serial No. 513,484. (No model.)



Claim.—1. The cot frame having a locking groove the rear wall of which is inclined inwardly, said groove being entirely open on its under side, in combination with a folding section having posts which come in contact with stops on said cot frame when in position for use, and a locking bar which enters the open mouth of said groove when said section is swung into its position for use and comes in contact with said inclined wall whereby said posts are wedged tightly against said stops, and links pivotally connected with the side rails of the cot frame and with the posts of the folding section below the said locking bar thereof, substantially as set forth.

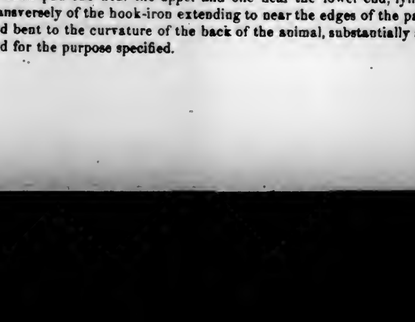
2. The cot frame having side rails and end rails, each end rail being provided with notches at its outer corners, and said cot frame having locking grooves at its ends each locking groove having its rear wall inclined inwardly and each groove being entirely open on its under side, in combination with folding head and foot sections, each having posts connected by cross-bars and each being pivotally connected with the cot-frame by means of links, each link being pivoted at its upper inner end to one of the side rails on the inner side thereof and at its lower outer end to the lower cross bar of one of the folding sections inside of one of the posts, each of the posts of said sections occupying one of said notches when the cot is in position for use, and one of the middle cross bars of each folding section being a locking bar which enters the open mouth of one of said locking grooves when the section is swung into position for use and comes in contact with the inclined wall of said groove whereby the posts of said section are wedged tightly against the end walls of said corner notches, substantially as set forth.

3. The cot frame having an end rail with a locking groove on the under side thereof extending entirely across the cot, in combination with a folding section having a cross locking-bar which enters and is concealed within said groov , substantially as set forth.

4. The cot frame having side rails and end rails, each end rail being provided with a cross locking groove on its under side, and with notches at its outer corners, in combination with folding head and foot sections, each having posts connected by cross bars, and each being pivotally connected with the cot frame by means of links, each link being pivoted at its upper inner end to one of the side rails on the inner side thereof, and at its outer lower end to the lower cross bar of one of the folding sections inside of one of the posts, and one of the middle cross bars of each folding section being a locking bar which enters one of said locking grooves, substantially as set forth.

5. A folding cot, having a cot-frame with side rails and a locking groove, a folding section having a locking bar co-operating with said groove and an upper cross-bar, and links pivotally connected at opposite ends to said side rails and the lower portion of the folding section, in combination with the fastening turn button carried by the cot-frame, one end of which retains said locking bar in said locking groove when the cot is in position for use, and the other end of which engages said upper cross-bar when the cot is folded, substantially as set forth.

522,184. PUMP FOR ORGANS. HENRY SCHWEISINGER and JOHN SCHWEISINGER, Detroit, Mich. Filed Feb. 20, 1893. Serial No. 463,020. (No model.)



Claim.—1. A pump for musical instruments having in combination a rotatable crank, multiple oscillating feeders arranged upon opposite sides of the crank and connected therewith, a common wind trunk with which said feeders communicate, each of said feeders being constructed with compound bellows having an intermediate wind chest leading into said wind trunk, and slotted arms E engaged with said crank and jointedly united with the movable leaves of the corresponding feeders respectively, substantially as set forth.

2. A pump for musical instruments having in combination, a supporting frame, multiple oscillating feeders engaged therewith, a rotatable crank connected with said feeders, a common wind trunk with which the feeders communicate, each of said feeders being constructed with compound bellows and an intermediate communicating air chamber, the movable leaf of each bellows having a hinged engagement with the intermediate air chamber at its base, and arms E engaged with said crank and having a jointed connection with the opposite end of each of the movable leaves of the feeders, said feeders the one acting in advance of the other, substantially as set forth.

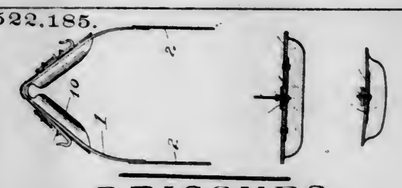
3. The combination of multiple oscillatory feeders, a wind trunk C communicating with said feeders, and an exhaust chamber H communicating with said wind trunk, said chamber provided with a valve controlling its communication with the wind trunk and constructed with orifices "*k*," substantially as described.

4. The combination with a rotatable crank, of a feeder constructed of bellows B', B^2, and an arm E constructed with lateral extensions E', E^2 connected with said bellows respectively, and with a longitudinal slotted arm E^3 connected with said crank, substantially as described.

522,185. HARNESS-SADDLE. CHARLES M. LENKE, Atlanta, Ga., assignor of one-half to Frank A. Powell, same place. Filed July 28, 1893. Serial No. 481,770. (No model.)

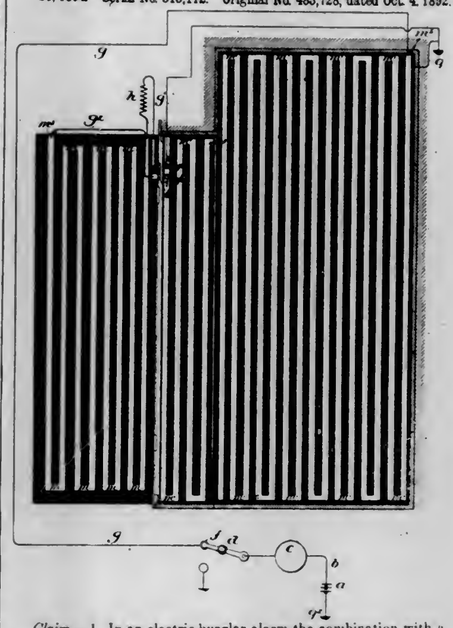
Claim.—A cart saddle consisting of the pads having leather backs sewed together at their upper ends, the hook iron further securing their upper ends together rigidly and extending downwardly along the outer side of each pad, and two bars secured to the leather back of each pad one near the upper and one near the lower end, lying transversely of the hook-iron extending to near the edges of the pad and bent to the curvature of the back of the animal, substantially as and for the purpose specified.

522,185.



REISSUES.

11,423. ELECTRIC BURGLAR-ALARM. ALFRED STROMBERG, Chicago, Ill., assignor of one-half to Mark Simons, same place. Filed May 31, 1894. Serial No. 513,112. Original No. 483,728, dated Oct. 4, 1892.



Claim.—1. In an electric burglar alarm the combination with a battery *a*, one side of which is connected to ground, of suitable alarm recording apparatus connected with said battery, circuit wire *b*, another circuit wire *g* one end of which is connected to ground, said wire *g* crossing said wire *b* and insulated therefrom, the resistance *h* the switch *c* adapted to connect wires *b* and *g* together or to connect wire *b* to ground, substantially as and for the purpose specified.

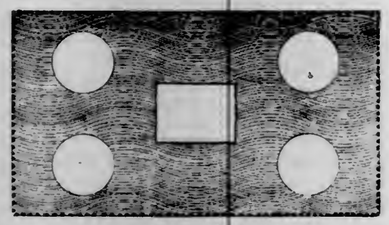
2. In an electric burglar alarm, the combination with the flexible cover of an opening, of flexible metallic conducting strips attached thereto, said strips being folded longitudinally and attached to said covering by one of the free edges thereof, an electric circuit including said conducting strips, a resistance included in said circuit, and circuit breakers adapted to open said circuit when said flexible cover is moved, and responsive device adapted to be actuated when said circuit is broken or when said resistance is cut out of the circuit; substantially as described.

3. In an electric burglar alarm circuit, the combination with a flexible surface, of a series of pliable conducting strips, said strips being folded longitudinally and attached by one of the free edges thereof to said flexible surface, and electrical connections between said strips; substantially as described.

4. In an electric burglar alarm for metal inclosed vaults, the combination with strips of conducting material fastened to the sides and doors of the vault, but insulated therefrom, said strips of conducting material being included in series in an electric circuit, of a battery and a recording device included in said circuit, means for breaking said circuit to give an alarm when the door is opened, the metallic walls of the vault connected at one point to the circuit including the strips of conducting material, and suitable resistance located in said circuit and adapted to be cut out and give alarm when circuit is made between the metallic walls of the vault and the strips of conducting material; substantially as described.

DESIGNS.

23,397. COUPON. WILIE BLOUNT BRYAN, IRBY MORGAN MOORE, and THOMAS MEADE, New York, N. Y. Filed May 4, 1894. Serial No. 510,113. Term of patent 14 years.



Claim.—The design for a coupon herein shown and described.

23,398. BROOCH. WALLACE DURAND, Newark, N. J. Filed May 29, 1894. Serial No. 512,940. Term of patent 3½ years.



Claim.—The design for a brooch or breast-pin herein shown and described.

23,399. BOTTLE. CARLTON H. LEE, Boston, Mass. Filed May 16, 1894. Serial No. 511,485. Term of patent 14 years.



Claim.—The design for a bottle herein shown and described.

23,400. BONBON. WALTER M. LOWNEY, Boston, Mass., assignor to the Walter M. Lowney Company, same place. Filed May 28, 1894. Serial No. 512,816. Term of patent 3½ years.



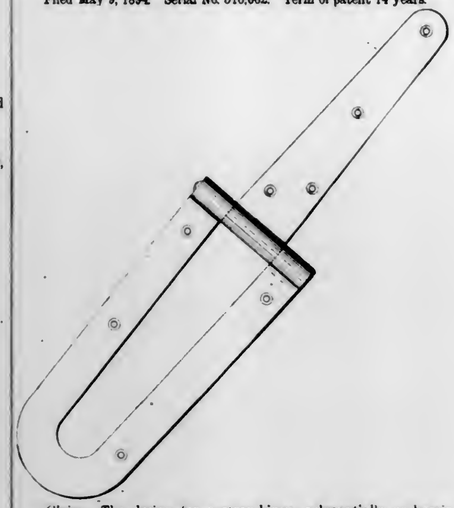
Claim.—The design for a bonbon herein shown and described.

23,401. RAZOR-STROP. FREDERICK KAMPFE, RICHARD KAMPFE, and OTTO KAMPFE, Brooklyn, N. Y. Filed May 22, 1894. Serial No. 512,120. Term of patent 7 years.



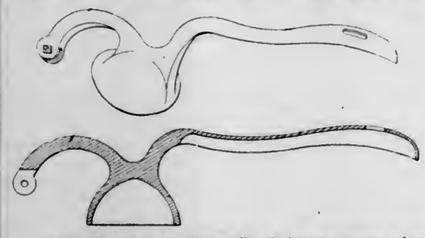
Claim.—The design for a razor-strop substantially as herein shown.

23,402. STRAP-HINGE. WILLIAM H. HART, New Britain, Conn. Filed May 9, 1894. Serial No. 510,662. Term of patent 14 years.



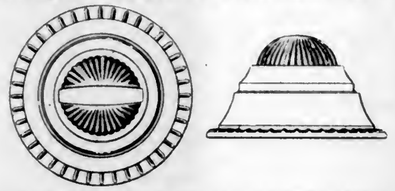
Claim.—The design for a strap-hinge, substantially as herein shown and described.

23,403. LEMON-SQUEEZER HANDLE. AUGUST HANKE, Chicago, Ill. Filed Nov. 8, 1893. Serial No. 490,395. Term of patent 7 years



Claim.—The design for the handle of a lemon squeezer, subetantially as shown and described

23,404. LAMP-BURNER. LEWIS J. ATWOOD, Waterbury, Conn., assignor to the Plume & Atwood Manufacturing Company, same place. Filed May 28, 1894. Serial No. 512,803. Term of patent 7 years.



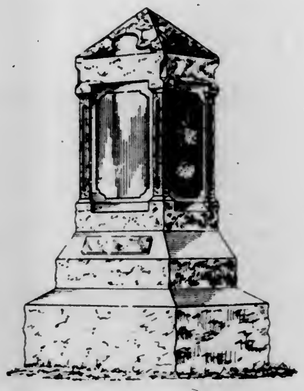
Claim.—The design for a lamp burner substantially as shown and described.

23,405. MONUMENT. WILLIAM H. PERRY, Concord, N. H. Filed May 19, 1894. Serial No. 511,871. Term of patent 7 years.



Claim.—The design for a monument substantially as herein shown and described.

23,406. MONUMENT. WILLIAM H. PERRY, Concord, N. H. Filed May 24, 1894. Serial No. 512,376. Term of patent 7 years.



Claim.—The design for a monument substantially as shown and described

TRADE-MARKS

REGISTERED JUNE 26, 1894.

24,909. ACCORDIONS. WILHELM SPAETHE, Gera, Germany. Filed June 1, 1894.

GLORIA

Essential feature.—The word "GLORIA." Used since June 1, 1893.

24,910. PAPER FOR PHOTOGRAPHIC USE. VEREINIGTE FABRIKEN PHOTOGRAPHISCHER PAPIERE, Dresden, Germany. Filed May 26, 1894.



Essential feature.—The representation of two crossed daggers. Used since May 1, 1874.

24,911. DOESKIN JEANS. THE REYNOLDS MANUFACTURING CO., Davisville, R. I. Filed May 16, 1894.



Essential feature.—The word "WASHINGTON" and the representation of General Washington and a horse. Used since 1876.

24,912. CORSETS AND WAISTS. GEORGE D. NICHOLS, New York, N. Y. Filed May 31, 1894.

HYGEIA

Essential feature.—The word "HYGEIA." Used since December 15, 1887.

24,913. SHIRTS. ALBERT MANLEY STOCKWELL, Leominster, Mass. Filed Nov. 17, 1893.

Knickerbocker

Essential feature.—The word "KNICKERBOCKER." Used since December 4, 1891.

24,914. CIGARS AND CIGARETTES. MANCHESTER CIGAR MANUFACTURING CO., Baltimore, Md. Filed May 24, 1894.

BARNITO

Essential feature.—The word "BARNITO." Used since March 10, 1894.

24,915. LAGER-BEER. BARTHOLOMAY BREWERY COMPANY, Rochester, N. Y. Filed June 1, 1894.

PROGRESS

Essential feature.—The word "PROGRESS." Used since May 29, 1894.

24,916. SCOTCH WHISKY. JOHN ROBERTSON & SON, Dundee, Scotland. Filed May 28, 1894.



Essential feature.—The figure of an equilateral triangle broken by a semi-circle on each side thereof with the capital letters "J R D" and a star or asterisk therein. Used since June 17, 1878.

24,917. COFFEE. FRANK W. DALLINGER, Boston, Mass. Filed Jan. 5, 1894.

LA EVA

Essential feature.—The words "LA EVA." Used since June 1, 1893.

24,918. CANNED AND PRESERVED FRUITS AND VEGETABLES. REEVES, PARVIN & CO., Philadelphia, Pa. Filed May 26, 1894.

PARTRIDGE

Essential feature.—The word "PARTRIDGE." Used since 1887.

24,919. FLOUR AND PREPARED CEREALS. FARWELL & RHINES, Watertown, N. Y. Filed Jan. 30, 1894.



Essential feature.—Two parallel lines, each line crossed obliquely by two like parallel lines. Used since September 1, 1888.

24,920. MATCHES. LEO ROSENSTEIN, New York, N. Y. Filed May 29, 1894.

CAMEL

Essential feature.—The word "CAMEL." Used since May 7, 1894.

24,921. WITHDRAWN.

24,922. LINE OF MEDICAL PREPARATIONS CONSISTING OF LIQUIDS, PILLS, TABLETS, PLASTERS, LOTIONS, SALVES, AND DENTIFRICE. FREDERICK A. PRICE, Syracuse, N. Y. Filed May 7, 1894.

EUREKALINE

Essential feature.—The word-symbol "EUREKALINE." Used since July 1, 1893.

24,923. CERTAIN PILLS. WALLACE C. ABBOTT, Chicago, Ill. Filed Apr. 12, 1894.

BUCKLEY'S

Essential feature.—The word "BUCKLEY'S." Used since December 31, 1892.

24,924. LAXATIVE. F. L. TAFT MEDICAL CO., Burlington, Vt. Filed Mar. 3, 1894.



Essential feature.—The representation of a bird with a fig in its beak, its wings spread, and perched upon a branch. Used since January 1, 1894.

24,925. ANTISEPTIC POWDER. BIRT L. MALTBIE, Buffalo, N. Y. Filed May 18, 1894.

ANAZYME

Essential feature.—The word "ANAZYME." Used since January, 1894.

24,926. LINIMENTS. MATTHEW QUEENAN, Ansonia, Conn. Filed May 31, 1894.

R C R

Essential feature.—The letters "R C R." Used since March 1, 1891.

24,927. LIP-SALVE. OTTO MAGENAU, Denver, Colo. Filed May 24, 1894.



Essential feature.—The representation of a man in the posture of kneeling on one knee and supporting a coin on his shoulder. Used since March, 1894.

24,928. ANIMAL GREASE AND OILS. EMIL WINTER COMPANY, Allegheny and Pittsburk, Pa. Filed Feb. 3, 1894.



Essential feature.—The representation of an ox head partly encircled by a crescent. Used since February, 1892.

24,929. WOOL-FAT. THE WOOL OIL REFINING COMPANY, Pompton Lakes, N. J. Filed May 29, 1894.

LAN-OLA

Essential feature.—The word "LAN-OLA." Used since May 1, 1894.

24,930. PORTLAND-CEMENT. SOCIÉTÉ ANONYME UNION FRATERNELLE, Calonne lez Antoing, Belgium. Filed May 18, 1894.



Essential feature.—The front view of an eagle with laterally extended wings, the same appearing in black on a circular red ground, the ground having a sun-burst, and the eagle bearing in his respective claws a trowel and tile, the ground further having two concentric circles at the border. Used since June 2, 1889.

24,931. CEMENT AND ASPHALT BLOCKS AND SLABS FOR WALKS AND FLOORS. SIMPSON BROTHERS COMPANY, Chicago, Ill. Filed Apr. 20, 1894.



Essential feature.—The representation of a trefoil. Used since March 14, 1894.

24,932. VITREOUS CHINA, INCLUDING PLUMBERS' AND TOILET WARE. MARYLAND POTTERY COMPANY OF BALTIMORE CITY, Baltimore, Md. Filed Apr. 27, 1894.



Essential feature.—A lozenge shaped figure and the word-symbol "HEALTH," having the first and last letters thereof arranged at the angles of the figure. Used since March 24, 1894.

24,933. VITREOUS CHINA, INCLUDING PLUMBERS' AND TOILET WARE. MARYLAND POTTERY COMPANY, Baltimore, Md. Filed Apr. 27, 1894.



Essential feature.—A lozenge shaped figure bearing the word "HEALTH" upon each of its four sides with the initial and final letters "H," at the four corners thereof and inclosing a monogram of the letters "M. P. C.," together with the words "MARYLAND POTTERY CO., BALTIMORE." Used since March 24, 1894.

24,934. ZINC PLATES FOR LITHOGRAPHING PURPOSES. THE PHŒNIX LITHO PLATE COMPANY, New York, N. Y. Filed May 16, 1894.



Essential feature.—The representation of a phœnix rising from flames. Used since April 15, 1894.

24,935. CUTLERY AND CARPENTERS', MACHINISTS', AND FARMERS' TOOLS AND HARDWARE. BECK & GREGG HARDWARE COMPANY, Atlanta, Ga. Filed Apr. 20, 1894.

DIXIE

Essential feature.—The word "DIXIE." Used since January 1, 1890.

24,936. TIE-PLATES. THE CENTRAL OIL AND SUPPLY COMPANY, New York, N. Y. Filed May 21, 1894.

C. A. C.

Essential feature.—The letters "C. A. C." Used since April 1, 1892.

24,937. HEATERS, FURNACES, RANGES, AND STOVES, AND PARTS OF AND APPLIANCES FOR THE SAME. EUSTACE C. FITZ, Chelsea and Mansfield, Mass. Filed May 26, 1894.

CHILSON

Essential feature.—The word "CHILSON." Used since 1850.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

DAILEY *v.* JONES.

Decided May 12, 1894

1. CONCEPTION—LACK OF DILIGENCE—WHEN NOT EXCUSABLE.
While an inventor who is first to conceive and is reasonably diligent in completing his invention should ordinarily prevail over a competitor who subsequently conceives but is first to complete his invention, still, if the first to conceive has means, credit, influence, and friends, and is not brought to a standstill by anything in the nature of compulsion, but chooses delay on business grounds, he thus excludes himself from the advantage which flows from his prior conception.
2. LACK OF DILIGENCE—WHEN EXCUSABLE.
In the cases where delay in completing an invention is excused there is something of compelling power in the circumstances that produce it.

APPEAL from the Examiners-in-Chief.

WIRE-ROD REEL.

Application of Charles I. Dailey filed November 17, 1891, No. 412,239.

Application of Elias Jones filed July 30, 1891, No. 401,161.

Messrs. Hall & Fay for Dailey.

Messrs. W. Bakewell & Sons for Jones.

SEYMOUR, *Commissioner:*

Jones appeals from the decision of the Examiners-in-Chief, affirming that of the Examiner of Interferences, awarding priority of invention to Dailey on the following issues:

1. A reel comprising a rotary shaft carrying a plate rigidly mounted thereon, said plate having holes therein, pins movable in said holes, and mechanism actuated by said shaft for moving said pins
2. A reel comprising a rotary shaft carrying a plate, said plate having holes therein, pins movable in said holes, and a centrifugal weight actuated by said shaft for moving said pins.

Elias Jones began work for Carnegie & Co., at Beaver Falls, Pa., on February 15, 1891, as master mechanic. At that time Mr. Dillon, the general superintendent, was building a rod-reel of a new design, which turned out a failure. Upon Dillon's request to Jones to get up a new reel Jones made a study of the matter and concluded that he could make an automatic reel. He conceived the device in question about the middle of March, 1891. He thereupon took an old Judson governor to Maurice Rahilly, the carpenter, who made two circular plates of wood, upon which Jones used two rows of wire nails or pins, which demonstrated to Dillon that the device would work automatically. Besides Dillon and Rahilly the mill foreman, Joseph Wrigley, and boss rollman, Michael O'Donnell, saw the model some time in April, 1891, and saw its practical working. Dillon at once ordered Jones to make one reel for trial. In a few days Jones had sketches prepared for working purposes, as well as for the draftsman, who, in the latter part of April, 1891, began full drawings.

The original sketch made by Jones and the blue print made under his supervision are in evidence, marked "Jones's Original Sketch" and "Jones's Exhibit Blue Print."

On the 21st of May the draftsman's full drawings were ready, and about the same times Jones had men working on the reel. He put the complete machine into the mill during the third or fourth week in June, 1891. It was run for about six weeks, when four more were built, which were put in place in the mill and started up on the 10th of August, 1891. From that time to the last day of June, 1892, five reels were working, all of them with practical success. Jones's application for a patent was filed July 30, 1891.

Charles L. Dailey, master mechanic for the American Wire Company, at Cleveland, Ohio, conceived this invention in the latter part of May, 1889, and spoke of it to Mr. Fay and Mr. P. L. Day, superintendent of the American Wire Rod Company, and Mr. William Arkless, general manager, about May 28, 1889. He made pencil sketches at different times from May 28, 1889, to March, 1890, but they are lost. He made two separate drawings to build the machine from—"Dailey exhibit March 10, 1890, paper drawing," and "Dailey exhibit March 10, 1890, muslin tracing"—about March 10, 1890.

It was estimated to cost from $1,000 to $1,500 to place a reel, such as is in interference, in the American Wire Company's Belgian mill.

P. S. Balkwill made patterns for Dailey's reel between March 20, 1890, and October, 1890, on Dailey's responsibility. For this purpose "Dailey exhibit pattern-maker blue print," made from "Dailey exhibit March 10, 1890, muslin tracing," was furnished Balkwill. The pit blue print exhibit was made in May, 1890, to illustrate the location of three of the Arkless and Day reels, and at the right hand is a pit to receive the foundations for one of Dailey's reels. The patterns were turned over to the City Foundry Company, as they were completed, which was ordered to make a number of the castings, so that Dailey could do some of the work upon the reel. The castings were ordered on Dailey's responsibility. He had not then permission to place the reel in the Belgian mill except at his own cost. The principal castings were completed by October, 1890, and were taken to the Excelsior Machine Works, whose representative was told that they could do the

work as they were able and notify Dailey when it was completed. They stored the castings and did little of the work until after Jones's reel was installed and successfully operated. The machine work was completed in the latter part of 1891, and the finished castings were turned over to Dailey, most of them at one time, partly assembled when delivered; but there remained considerable work to be done after the delivery. The reel was put in place and started temporarily in November, 1891, and was run at different times after November, 1891, to illustrate its operation; but it was only used for this purpose. Dailey's application for a patent was filed November 11, 1891.

It will be seen that in the Jones case his inventive activities covered a period of less than four months, from the middle of March, 1891, to the last week in June following, during which he conceived the device in question, made sketches, caused working drawings, patterns, and castings to be made, and the machine work to be done, and installed the completed machine in successful operation. During this time Dailey did nothing. This was all within the time when Dailey's castings were at the Excelsior Machine Works, where the evident understanding from Dailey's directions was that they could as they were able do the work, and accordingly they stored the castings.

If Dailey had not perfected the invention at the time Jones had done so, but was reasonably diligent in his efforts to do so, then by reason of his earlier conception he will prevail. If, on the other hand, he falters in his diligence, and, for a stronger reason, if there is what amounts to an election of a different course for his supposed advantage, according to the plainest principles of equity, it must not be invoked to the detriment of another innocent party.

Dailey being the first to conceive, is this delay justifiable under all the circumstances? It is attempted to excuse it by the fact that the management of the Belgian mill was not willing to make trial of the Dailey invention until after another invention by Day and Arkless should be tried, and by the fact that the mill itself was undergoing change and extension, and by the fact that as Day and Arkless were in the management of the mill Dailey thought it best not to antagonize them by unduly pressing his own device. His own regular work was somewhat in arrears at this time on account of a former sickness; but Dailey says he felt warranted to put off the completion of his machine until it should be adopted by the management, but says that had he understood patents as he did later he would have prosecuted it any way.

Doubtless upon the balancing of the advantages of the two courses presented to him Dailey had reason to prefer delay to a quicker prosecution of his work; but the reasons are not such as allow him to keep the advantage of his earlier conception as against another and wholly independent inventor who, although he enters the field later, stops for nothing until his machine is installed in successful operation. In the cases where delay is excused there is something of compelling power in the circumstances that produce it.

In *Smith* v. *Goodyear Dental Vulcanite Company* (93 U. S., 486, 491) Doctor Cummings, the inventor, was in a condition of extreme poverty—utterly unable to bear the necessary expenses of prosecuting his case, compelled to borrow small sums for the necessaries of life, to make applications to friends for advances to enable him to prosecute his application, offering large interests in the patent when obtained, and never remitted his efforts until he succeeded, and even at the last had not the necessary money to pay the final fee.

In the case before me it appears by the plainest inference that, while the machine was somewhat costly, Dailey had means, credit, influnce, and friends, and that he was not brought to a standstill by anything in the nature of compulsion; but the cost of the machine does not enter into the case upon the question of diligence, for substantially all the money obligations had been incurred and closed with the order for the final machine work prior to this year of fatal inactivity. Delay as the chosen alternative to activity, with advantages which, on the whole, are preferred on business grounds, excludes the claim to such prosecution of a conception to successful reduction to practice as enables its author to retain his precedence in conception.

Dailey's sickess, which is also urged in extenuation of his delays, was earlier than the period herein referred to, and in addition it is noted that it was during his sickness that he made most rapid progress with his invention.

Judgment of priority is awarded to Jones, and the decisions of the Examiner of Interferences and of the Examiners-in-Chief are reversed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—First Circuit.

REECE BUTTON-HOLE MACHINE COMPANY *v.* GLOBE BUTTON-HOLE MACHINE COMPANY *et al.*

Decided April 20, 1894.

1. PATENTS—GENERAL PRINCIPLES.
   Theoretically, an inventor in taking out a patent under the statutes of the United States subtracts nothing from and adds nothing to his actual invention, and, except for the provisions which for public interests require in a patent a description and claim, the same unrestricted rules of the common law would protect an inventor's statute right as are relied on to support a trade-mark or business good-will.
2. SAME—CONSTRUCTION OF
   In construing a patent the courts are necessarily subject to the restraints arising from the incorporation into them of the description and claim which the statutes require, but it must be the rule in interpreting these that it is to be presumed the inventor did not intend to split up his invention.
3. SAME—SAME—AMENDMENTS.
   Words which might otherwise be regarded as non-essential may be introduced in such manner as to make them essential, as those introduced by way of amendment.
4. SAME—SAME.
   The maxim *enumeratio unius exclusio alterius* by reason of the doctrine of equivalents does not apply as fully to patents as to instruments in general.
5. SAME—SAME.
   Previous decisions discussed and principles deduced.
6. SAME—SAME—AMENDMENTS—HOW CONSTRUED.
   It would defeat the ends of justice to rigidly hold that phrases inserted or omitted by amendment were emphasized.
7. SAME—SAME—SAME.
   Previous decisions discussed and principles deduced.
8. REECE, No. 240,546—VALID AND INFRINGED.
   Claims 5, 11, 12, 13, and 18 of Patent No. 240,546, to John Reece, discussed and held valid and infringed.

APPEAL from the Circuit Court for the District of Massachusetts.

Mr. J. J. Storrow and *Mr. F. P. Fish*, of the firm of *Fish, Richardson & Storrow*, and *Messrs. Lange & Roberts* for the appellant.

Mr. Chauncey Smith, Mr. C. E. Mitchell, Mr. F. H. Betts, and *Messrs. Clarke & Raymond* for the appellees.

Before COLT, PUTNAM, and NELSON, Judges.

PUTNAM, *J.*:

The bill in this case was framed with reference to two patents, but one was withdrawn before the hearing in the court below, so that all we now have to consider are claims 5, 11, 12, 13, and 18 of No. 240,546, issued to John Reece April 26, 1881. The main question relates to the proposition that this patent can in no event cover a machine of which the frame is stationary and the plate moves. It grows out of the fact that in the specification and claims are many expressions indicating that the frame moves and the plate is fixed. A part of the preamble is as follows:

> This invention relates to sewing-machines for stitching button-holes, and is an improvement upon that class of the said machines wherein the stitching mechanism is made to travel first along one side of the button-hole slit, then about the eye and along the other side of the slit.

The fifth claim also contains the following:

> Whereby the needle-bar, by the movements imparted to it longitudinally and laterally of a button-hole by the said frame, is caused to travel backward, etc.

Other expressions of like character appear, with more or less positiveness and fullness, in nearly all the other claims and in various parts of the specification, and nowhere throughout the patent is found any indicating that the frame might be fixed and the plate movable.

Theoretically, an inventor, in taking out a patent under the statutes of the United States, subtracts and adds nothing from or to his actual invention. The proceedings recognize his incipient ownership, and theoretically they constitute only a division of time, by which there is carved out of the entire estate a holding for a period of years for the inventor, and the fee is left to the public. Thus his patent is not at all akin to the King's grant, which must be expressed "*ex speciali gratia, certa scientia, et mero motu regis*," or be interpreted against the subject who receives it. Except for the provisions which, for public interests, require in a patent a description and claim, the same unrestricted rules of the common law would protect an inventor's statute right as are relied on to support a trade-mark or business good-will. Nevertheless, with reference to patents, the courts are necessarily subject to the restraints arising from the incorporation into them of the description and claim which the statutes require. In interpreting these, however, the rule must be accepted that it is to be presumed the inventor did not intend to split up his invention. This is only an application of the ordinary rule of interpretation, that transactions are to be construed in the light of all the circumstances and of the apparent purposes of the parties to them. Specifications and claims have not yet fallen into such settled forms as to enable the courts to construe them in any considerable part with such certainty as they construe many words and phrases in formal instruments at the common law, but on the whole the entire subject-matter must be taken together for effectuating the true purpose of the transaction, as contracts and wills, which are so frequently drawn informally, are usually construed.

The ordinary rule that if by a literal construction an instrument would be rendered frivolous and ineffectual, and its apparent object frustrated, a different exposition will be applied, if it can be supported by anything in it, requires that words which relate to what may be held non-essentials, however much multiplied, shall not be permitted unnecessarily to control the sense. For the most part such words are merely illustrative or are used through inadvertence. On the other hand, it is true that words and phrases, which might have been omitted on the presumption that they relate to non-essentials, may be introduced in such direct and positive manner as to leave the courts no option, except to regard them as affecting the objects and limitations of the instrument in question. Especially may this be so when words which otherwise might be regarded as unimportant are introduced by the way of amendment. This is a common rule, which, perhaps, has been illustrated more frequently with marine insurance policies than elsewhere. There is no doubt that if into an instrument which has been prepared and submitted additional words are subsequently introduced by mutual consent greater effect may sometimes be attributed to such words than otherwise would be given them, for they then become the immediate language selected by the parties, and may be assumed to have been especially within their intention.

The leading rule which we have given has been constantly restated by the text-writers and the courts as having full application to patents. They make use of such expressions as—

> *Ut res magis valeat quam pereat;*

that—

> a patent should be construed in a liberal spirit, sustaining the just claims of the inventor;

that the titles by which patents are held—

> should not be overthrown upon doubts or objections capable of a reasonable and just solution in favor of their validity;

that—

> in construing a patent the court will remember that the specification and claims are often unskillfully drawn,

and that—

> the claim shall be construed, if possible, to sustain the patentee's right to all that he has invented.

It is true the general rules we have stated include the subordinate principle, which applies everywhere, that they are not to be—

> carried so far as to exclude what is in the patent, or to interpolate anything which it does not contain.

It is impossible, however, to carry this to the extent of applying to patents as fully as it is applied to instruments in general the maxim *enumeratio unius exclusio alterius*. With the aid of the doctrine of equivalents the courts are constantly interpolating in specifications and claims what they do not contain in the same sense in which the letter of ordinary instruments is required to contain matter on which the parties rely. To extend, in disregard of this, the rule against interpolations to any particular case requires either that the claims relate to such mere matters of

form or detail that interpretation by exclusion becomes just and reasonable or that the specifications and claims be so phrased as in fact to contain a clearly-intended exclusion or the equivalent thereof. In the opinion of the Court the ingenious presentation of the defense in this case overlooks this last principle. The defense claims that on account of the numerous expressions to which we have referred the patentee was limited to machines in which the frame travels and the plate remains at rest. It must be conceded that, taking these specifications and the claims as a whole, they show that Reece had present in his own mind at the time of his application a machine with a movable frame and a fixed plate; but if this is all there is of it, and if this is sufficient to establish the defense, the question arises, where does the doctrine of equivalents come in?

The most important parts of the case at bar are within the four corners of the principles we have stated. The Court has no doubt that Reece was the inventor of nearly everything, demanded by the Reece Button-Hole Machine Company in the case at bar, and was entitled to a patent therefor; and the question is whether, by reason of the peculiar phraseology of his specification and claims, as first drawn, or by reason of the making of certain amendments during the progress of his application through the Patent Office, Reece, notwithstanding the rules of interpretation entitle him to a favorable construction, has limited himself to a mechanism in which the frame travels, or whether, if he has thus expressed the literal terms of his patent, he has further so limited himself as to deprive himself of the benefit of the law of equivalents with reference to a machine in all respects a copy of his actual invention as shown in his patent, except as to the non-essential characteristic that the frame remains at rest and motion is given to the plate.

There may be reasons for finding that Reece was the inventor of the entire machine with numerous functions in somewhat the same way in which Morley was such inventor as determined in *Morley Sewing Machine Company* v. *Lancaster*, (47 O. G., 267; 129 U. S., 263.) It is, however, so clear that Reece's claims do not cover the machine as a whole, but only various parts of it, that all the propositions made in his behalf having a different aspect fail to assist us. Yet in some particulars Reece was clearly far in advance of those who preceded him and entitled to the full benefit of whatever may be deduced from that fact. In *Baltimore Traction Company* v. *Baltimore Belt Railroad Company* (151 U. S., 137, 144) the Court said:

> But when in a class of machines so widely used as those in question it is made to appear that at last, after repeated and futile attempts, a machine has been contrived which accomplishes the result desired, and when the Patent Office has granted a patent to the successful inventor, the court should not be ready to adopt a narrow or astute construction, fatal to the grant.

In *Miller* v. *Eagle Manufacturing Company* (66 O. G., 845; 151 U. S., 186, 207) the Court, in laying down the latest, and, to our thinking, the best expression of the rule touching so-called pioneer patents, being in fact a rule, which covers all such and all others, used the following language:

> The range of equivalents depends upon the extent and nature of the invention. If the invention is broad or primary in its character, the range of equivalents will be correspondingly broad, under the liberal construction which the courts give to such inventions.

The practical effect of this defense is to maintain, in substance, that the entire novelty of Reece's fifth claim, which we will use for illustration, turns on the fact that the plate is fixed and the frame moves. In other words, Reece stands no better, practically, on the construction put by the defense on this claim than if he had found a stitching mechanism in all respects the same as that invented by him, with all the elements which go into it, but anticipating him and had combined it with a fixed plate. As this alone might not have been patentable, and as, moreover, the principle of his stitching mechanism is clearly such that the relative movements as between it and the plate form an essential matter, while the absolute movements—that is, whether the plate moves or the frame moves—are non-essential, the proposition of the defense, if maintained, destroys, through the phraseology of the application and claims touching matters thus non-essential, the entire value of this most important, useful, and hitherto profitable invention. A suggestion of such triviality on the part of the Patent Office as is involved in a construction which will produce such a result cannot be well presumed. Among all the cases brought to our attention we have seen none that goes to this extent with reference to the class of inventions described in the extract from *Miller* v. *Eagle Manufacturing Company, ubi supra*, nor do we think any can be found which has authority to bind us.

The citations which we have made from *Baltimore Traction Company* v. *Baltimore Belt Railroad Company, ubi supra*, and *Miller* v. *Eagle Manufacturing Company, ubi supra*, and others which we will hereafter make use of, ought plainly to lay out of the case all rules of interpretation found in the decisions of the courts, or in text-books, which appertain solely to inventions plainly and essentially narrow, and ought thus to sift out easily and render it unnecessary for us to examine a considerable number of the authorities brought to our attention.

We lay aside at this stage all decisions growing out of the fact that amendments were made in the application on its passage through the Patent Office. This includes *Union Metallic Cartridge Company* v. *United States Cartridge Company* (30 O. G., 771; 112 U. S., 624) and all others of that character. We do not mean by this, however, to reject in considering this first question what was thus made new: but we take the specification and claims as they now stand, without reference to the fact that they were changed at any stage. We also lay aside all those in which the court after all, with the aid of the entire case, came down to the essence of the invention and held in substance that the claims covered it fully. Among others of this class appear to be *Brooks* v. *Fiske*, (15 How., 212;) *Klein* v. *Russell*, (19 Wall., 433;) *Goodyear Dental Vulcanite Company* v. *Davis*, (19 O. G., 543; 102 U. S., 222;) *Béné* v. *Jeantet*, (47 O. G., 402; 129 U. S., 683,) and *Gordon* v. *Warder*, (65 O. G., 1403; 150 U. S., 47.) This sifting leaves, however, a number of cases which, if they stood alone, might be regarded as carrying so

far the effect of a literal construction of specifications and claims as to compel us to find for the defense on the proposition in question. Those on which the defense relies, which use the most striking expressions, are *Keystone Bridge Company* v. *Phœnix Iron Company*, (12 O. G., 980; 95 U. S., 274;) *Fay* v. *Cordesman*, (25 O. G., 1276; 109 U. S., 408, 420;) *Yale Lock Manufacturing Company* v. *Sargent*, (35 O. G., 385; 117 U. S., 373, 378,) and *Dryfoos* v. *Weise*, (42 O. G., 490; 124 U. S., 32, 37,) and we may also add *Burns* v. *Meyer*, (100 U. S., 671,) and *Huber* v. *Nelson Manufacturing Company*, (44 O. G., 234; 148 U. S., 270, 291.) Another extreme case of the same character is *Brown* v. *Stilwell & Bierce Manufacturing Company*, (57 Fed Rep., 731,) decided by the Court of Appeals in the Sixth Circuit. Against these cases it is sufficient to put *Winans* v. *Denmead*, (15 How., 330.) That so far as concerns the case at bar this decision is still recognized as law is apparent from the fact that it is cited without disapproval of any part of it in *Sewall* v. *Jones*, (9 O. G., 47; 91 U. S., 171, 183;) *Eddy* v. *Dennis*, (95 U. S., 560, 569;) *Werner* v. *King*, (13 O. G., 176; 96 U. S., 218, 230;) *Western Electric Company* v. *La Rue*, (55 O. G., 571; 139 U. S., 601, 606,) and *Hoyt* v. *Horne*, (145 U. S., 302, 309.) In *Werner* v. *King* and *Hoyt* v. *Horne* it is cited and accepted with reference to the very pith of the matters which we are now considering. It will be noticed that *Winans* v. *Denmead* is thus reaffirmed at later dates than the cases on which the defense relies, and that it comes much closer to the case at bar than any one of them is too apparent to need any explanation at length. In fact the analogy is as close as could be expected to be found in any cases whatever. *Winans* v. *Denmead* related to the peculiar construction of cars for the transportation of coal, and the patent was granted in 1847, after the enactment of all the statute provisions the existence or re-enactment of which the defense can rely on. The specification described only a conical form, and the claim, page 342, was by its letter strictly limited to the frustum of a cone. There was nothing whatever in the patent to show that the patentee ever had in his mind any form except the conical. The alleged infringement was by use of the octagonal form. Yet the Court made the clear distinction appearing on page 343, as follows:

> Undoubtedly there may be cases in which the Letters Patent do include only the particular form described and claimed. *Davis* v. *Palmer* (2 Brock., 309) seems to have been one of those cases: but they are in entire accordance with what is above stated. The reason why such a patent covers only one geometrical form is not that the patentee has described and claimed that form only. It is because that form only is capable of embodying his invention, and consequently if the form is not copied the invention is not used. Where form and substance are inseparable it is enough to look at the form only. Where they are separable, where the whole substance of the invention may be copied in a different form, it is the duty of courts and juries to look through the form for the substance of the invention, for that which entitled the inventor to his patent, and which the patent was designed to secure. Where that is found there is an infringement, and it is not a defense that it is embodied in a form not described and in terms claimed by the patentee.

The Court further remarked (which is a general rule applicable to the case at bar) as follows:

> Patentees sometimes add to their claims an express declaration to the effect that the claim extends to the thing patented, however its form or proportions may be varied; but this is unnecessary. The law so interprets the claim without the addition of these words.

It is not necessary for us to reconcile case by case the expressions relied on by the defense, which, as interpreted by it, are not in harmony with the conclusions or the expressions in *Winans* v. *Denmead*. Very likely they can all be harmonized by following out the distinctions made by us in our references to *Baltimore Traction Company* v. *Baltimore Belt Railroad Company, ubi supra*, and *Miller* v. *Eagle Manufacturing Company, ubi supra*, and by noting the peculiar circumstances of each case. In fact, we think there is nothing to be deduced from any of the decisions which goes beyond the illustrative paragraph in *Walker on Patents*, (2d ed., sec. 350,) as follows:

> But where a patentee states in his specification that a particular part of his invention is to be constructed of a particular material, and states or implies that he does not contemplate any other material as being suitable for the purpose, it is not certain that any other material will be treated by a court as an equivalent of the one recommended in the patent.

However this may be, *Winans* v. *Denmead* leaves sufficient room for the application to the case at bar of the general rules of construction and those relating to equivalents, which we have stated.

Some of the most important inventions in special arts have come from persons unskilled in those arts, and who therefore had no knowledge of the possible equivalents, so that it would involve improbability to assume that they had present in their own minds at the time of the application any matters of form except those incorporated in it. The rules cited from *Winans* v. *Denmead, ubi supra*, are needed to protect not only this class, but all others who have made valuable inventions, and who through their own ignorance or for any other reason have not understood or have overlooked possible equivalents. Without attempting the unnecessary discussion of case by case, it is enough that almost every patent in which this question can arise lies between the expressions in *Winans* v. *Denmead, ubi supra*, on the one hand, and those relied on by the defense, on the other. *Winans* v. *Denmead* clearly goes as far in its direction as the case at bar. Applying the principles of construction and the law of equivalents already stated, in the way in which we are bound to apply them, there is not sufficient in any or all of the expressions in the patent at bar relied on by the defense to justify us in holding that they amount to such a positive exclusion, arising either from the nature of the invention or from the necessary force of the words themselves, as will defeat a charge of infringement of all the claims in controversy, merely on account of a change in the relative movements of the parts, involving in itself no invention and producing no result essentially new. Some of the cases relied on by the defense strengthen these conclusions by the reflex light of the distinctions they make. *Snow* v. *Lake Shore & Michigan Southern Railway Company* (25 O. G., 1280; 121 U. S., 617) held the patentee strictly to the details of his combination in question, because, as shown, page 630, those details, for the reasons there stated, were essential parts. *Sargent* v. *Hall Safe and Lock Company* (31 O. G., 661; 114 U. S., 63, 86) runs back, so far as this point is concerned, to *Union Water-Meter Company* v. *Desper*, (101 U. S., 332,) and so, also, does *Fay* v. *Cordesman*, (25 O. G., 1276; 109 U. S., 408, 421,) already cited. In *Union Water-Meter Company* v. *Desper* (page 336) the Court stated, touching a certain

crank-shaft which was in question, that it could not say that it was an immaterial part of the combination, and continued:

The patent, as it stands, occupies very narrow ground. It requires the presence of every one of the elements specified in the combination secured by it.

On page 335 this rule of interpretation is applied generally to combinations, and in this form the rule is traced through to the latest case named. What is meant by the word "combination" here and in *Fay* v. *Cordesman* (pages 420, 421) may not be easily determined; but it is very certain Reece invented something more than a mere combination as it existed in those cases.

The Corn-Planter Patent (6 O. G., 692; 23 Wall., 181) also supports the conclusion which we have reached. The Court said, page 221:

The only pretense on which it [that is, the alleged infringing machine] can be claimed to be different is that the framework of which it is constructed is not the kind of framework described by Brown in his specification—namely "without gearing, without spoked wheels, and other expensive fixtures, and resembling a drag or sled more than it does a carriage or wagon in its main or general construction." By this description Brown was evidently attempting to show how simply and cheaply the thing could be made, not that it was to be confined to that specific form. It might as well be contended that he intended to confine his invention to wood, and that a machine made of iron or other metal, though made in precisely the same form, would not be an infringement, because it would not have the same quality of cheapness and simplicity which he describes."

Hoyt v. *Horne* (59 O. G., 1,764; 145 U. S., 302) is still more striking. In that case the Supreme Court seems to have met and overruled a defense as nearly like that at bar as appears possible with reference to two different patents. The words in the claim in that case—

consisting in circulating the fibrous material and liquid in vertical planes,

page 304, refer back to the improvement itself, limit it grammatically and literally, and, so far as the mere letter of the claim is concerned, were apparently quite as material a part of it as the words in question in the case at bar. Yet, page 308, the court rejected them, for the reasons there stated, and which need not be recited in this opinion.

The preamble of the patent already cited has been brought especially to the attention of the court, in that it specifically points out the invention as relating to the class of machines—

wherein the stitching mechanism is made to travel, etc.

There is ground for maintaining that this word "travel" in this connection had in mind the relative motions, as it is frequently thus used by persons accustomed to mechanical operations, and also that this part of the preamble had in mind a classification of machines as between those in which the material is held firmly to the plate and the relative movements are automatic, aided by a reciprocating needle-bar, and those in which the material is turned by the hand. It is, however, not necessary to determine this. The preamble states that Reece's invention was an improvement on the class of machines which it names, whatever that class may be; but this does not exclude the truth that it would be an improvement on every other class of machines to which it could be applied. Still, keeping in mind the distinction between a broad invention and a narrow one, it does not follow that because the inventor, if his invention was of the former class, declared it to be available for a certain use or machine, and had present in mind only that specific use or machine, it might be taken by others without restriction for other uses or other machines. On the other hand, the rule is clear that ordinarily a patentee who is first to make an invention is entitled to his claim for all the uses and all the advantages which belong to it, so far as the new application does not itself involve further invention. (*Roberts* v. *Ryer*, 10 O. G., 204; 91 U. S., 150, 157; *Stowe* v. *Chicago*, 21 O. G., 790; 104 U. S., 547, 550; *Miller* v. *Eagle Manufacturing Company*, 66 O. G., 845; 151 U. S., 186, 201.) The rule was laid down clearly, although perhaps as a dictum, in *Western Electric Company* v. *LaRue*, already referred to, (55 O. G., 571; 159 U. S., 601.) On page 606 the court, in connection with a reference to *Winans* v. *Denmead*, said that a certain expression in it, which the Court quotes—

amounts to a declaration that the application of the patented device to another use, where such new application does not involve the exercise of the inventive faculty, is as much an infringement as though the new machine were an exact copy of the old.

Indeed, the whole of the case at bar, so far as we have gone, might on sound principles be put on the single proposition of what is known as the "rule of double use," so far as it can be a ailed of to protect the patentee of a broad invention.

We now come to the effect of the fact that the claims and specification were amended during the progress of the application through the Patent Office. It must be admitted, as already said, that what is thus done may have a special weight beyond the effect of the same words appearing in the application as originally drawn, because whatever may be inserted or stricken out under such circumstances may ordinarily be regarded as especially selected by the parties to the transaction. It is as though by agreement the phrases thus made were emphasized. Nevertheless it defeats the very essence of this rule to extend it to what was inserted inadvertently or to push the construction of what was thus inserted in one direction, when it is plain from the whole transaction that the parties inserting were looking in another.

There is a further consideration, which cannot be overlooked. In transactions between private parties, and indeed in ordinary transactions between the public authorities and private parties resulting in contracts or grants, the rules of equity may be invoked on a proper judicial issue to correct or supply what is erroneous or was omitted through inadvertence; but if the position of the defense is correct and the decisions of the Supreme Court touching this point lay down so rigid a rule as the defense maintains the case of a grant of a patent cannot be relieved on this account and in this particular, except it be by application for a reissue, which is not a judicial proceeding, nor in any of its phases as far-reaching as the relief granted in equity with reference to other matters. Courts ought, therefore, to be the more careful under circumstances like those at bar to give a patentee the benefit of all the equities which can be raised in his behalf, by any reasonable implication, from what appears on the face of the amendments or from the transaction as it passed through the Patent Office.

A suggestion may here be made, that the public at large is not prejudiced by anything in the history of

any amendment, except so far as the result appears on the face of the patent; and this does not show either the fact or time of amendment. If these elements influence any one, it is only that one who examines the file-wrapper; and on such examination he ascertains not only the time and fact of amendment, but the circumstances under which the amendment was made, and therefore cannot be prejudiced, if these circumstances are taken into account in considering its effect. We propose to take them into account in the present instance, and in so doing we consider that we violate no rule of law and prejudice no public or private right.

The case shows numerous amendments at various stages; but we have no occasion to consider any of them except the following: The first claim at one stage contained the words—

and means to change the relative positions of the bed-plate and frame-work longitudinally.

These were objected to by the Examiner for the following specific reason given by him:

as no means is shown and described for moving the bed-plate relatively to the frame-work, as the claim would seem to imply.

Thereupon the words objected to were stricken out, and those were inserted which now appear:

and means to move such frame-work longitudinally upon said bed-plate.

For the same specified reason a similar change was made in the eleventh claim. The twelfth claim was also required to be amended by including means for moving the cutting-bed and frame longitudinally, on the ground, specified by the Examiner, that otherwise the combination covered by the claim would be inoperative and incapable of accomplishing any useful result or function. The thirteenth claim, which was objected to by the Examiner as being for an incomplete combination, was largely modified, the expression which now appears, touching "the movable framework," being inserted with others. The fifth claim was amended only by inserting the words "of a buttonhole," where they appear after the word "laterally." The eighteenth claim is entirely new. Whatever other amendments there were need not be noticed.

The Patent Office record shows no reason for requiring these amendments, so far as concerns the effect of the question we are now discussing, except those already stated. The specification did show one method of putting the invention and all its parts into practical operation. The theory of the Examiner was that the claims must be limited to correspond with the form of operation explained. The extracts which we have made from *Winans* v. *Denmead* (15 How, 330) and other citations which might be made establish the well-known rule that this was erroneous, unless as a mere matter of detail in the practice of the Patent Office, depending on the varying judgments of different Examiners as to the clearness with which the operation of machines should be set out.

No question of novelty was made and no other issue which brought to the attention of the inventor any matter of substance. In *Ball & Socket Fastener Company* v. *Ball Glove Fastening Company* (58 Fed. Rep., 818) this court, in considering the principle now under consideration, said:

The rule touching the effect of such amendments has been several times laid down by the Supreme Court in patent causes, although it is only a peculiar application of the general principles of law relative to the interpretation of instruments. In the case at bar the amendments relate to the very pith and marrow of the alleged improvement, touch directly the question of novelty, and were understandingly and deliberately assented to, so that the rule of interpretation referred to undoubtedly applies.

We do not see that the law requires us at present to go any further or to qualify this statement of the rule, although, of course, its application where the invention is in mere matters of form or detail would be more freely made than where it is of a broad character.

The following cases we believe are all where this rule has come before the Supreme Court, the first being *Leggett* v. *Avery*, (17 O. G., 445; 101 U. S., 256,) decided October term, 1879, and the last *Morgan Envelope Company* v. *Albany Perforated Wrapping Paper Company*, (67 O. G., 271;) in which the opinion was passed down by the Supreme Court March 19, 1894. *Leggett* v. *Avery*, so far as it appertains to this rule, contains only dicta, as in that case there had been an actual disclaimer, on an application for a reissue, of the whole of five claims in the original patent, and the case turned on the effect of that express disclaimer. In *Sargent* v. *Hall Safe & Lock Company*, (31 O. G., 661; 114 U. S., 63;) *Shepard* v. *Carrigan*, (34 O. G., 1157; 116 U. S., 593;) *Sutter* v. *Robinson*, (38 O. G., 230; 119 U. S., 530;) *Crawford* v. *Heysinger*, (42 O. G., 197; 123 U. S., 589;) *Watson* v. *Cincinnati, Indianapolis, St. Louis & Chicago Railway Company*, (49 O. G., 1843; 132 U. S., 161;) *Roemer* v. *Peddie*, (49 O. G., 2187; 132 U. S., 313;) *Phœnix Caster Company* v. *Spiegel*, (50 O. G., 1591; 133 U. S., 360;) *Yale Lock Manufacturing Company* v. *Berkshire National Bank*, (51 O. G., 1291; 135 U. S., 342;) *Dobson* v. *Lees*, (53 O. G., 740; 137 U. S., 258;) *Corbin Cabinet Lock Company* v. *Eagle Lock Company*, (65 O. G., 1066; 150 U. S., 38;) *Knapp* v. *Morss*, (65 O. G., 1593; 150 U. S., 221,) and the latest case, *Morgan Envelope Company* v. *Albany Perforated Wrapping Paper Company*, there were direct issues of novelty, or of interference, based on specific prior patents or pending applications, to which the inventor yielded. Therefore in each of these cases there was a fair issue, formulated and understood by the applicant for the patent, requiring him clearly to yield directly a portion of what he claimed, and the effect of his yielding could not be mistaken.

In *Union Metallic Cartridge Company* v. *United States Cartridge Company* (60 O. G., 771; 112 U. S., 624) the issue was no less distinct, although it came in a different form. It appeared that the patentee had applied on a reissue for the same subject-matter which was disallowed him by the Supreme Court; but the point was distinctly made by the Commissioner that it involved "a substantially new and different invention" from anything embraced in the original patent. In *Goodyear Dental Vulcanite Company* v. *Davis*, (19 O. G., 543; 102 U. S., 222,) which was decided with express reference to *Leggett* v. *Avery*, *ubi supra*, it appeared, page 228, that the subject of controversy at the Patent Office was distinctly as to what the invention covered and as to what claim should be allowed. The Court said there could be no doubt what the patentee understood he had patented, and that both he and the Commissioner regarded it to be—

for a manufacture made exclusively of vulcanites.

The issue was plain, formal, and essential; yet the court did not rest the case wholly on that proposition, but mainly on the ground that what occurred at the Patent Office tended to confirm the conclusions to which the court had otherwise arrived in interpreting the patent. In *Royer* v. *Coupe* (62 O. G., 318; 146 U. S., 524) an entire claim was rejected, and the rejection acquiesced in. This was also apparently put on the ground of want of novelty; but however that may have been the essence of the transaction was plainly the same as though there had been a formal disclaimer after a patent had been obtained, as was the case in *Leggett* v. *Avery, ubi supra*. In no place has the rule been thoroughly discussed by the Supreme Court and its modifications, limitations, and practical application determined. It has grown up without much discussion from *Leggett* v. *Avery, ubi supra*, which was a case on a reissue, and, as already said, involved a formal disclaimer of five specific and entire claims. Under all the circumstances the case at bar is clearly distinguishable in that it presented no direct issue of novelty or invention, and the amendments came in only incidentally and in reference to an incidental matter.

In conclusion, therefore, touching all which appears on the face of the patent with reference to the movability of the frame and the fixedness of the plate, including whatever emphasis can be added by reason of the acquiescence of Reece in the amendments proposed at the Patent Office, we do not find enough to require us to refuse to give him the benefit of the favorable rules we have explained.

We now come to the especial consideration of the several claims. The fifth claim was the successful conclusion of numerous and expensive efforts to stitch automatically a buttonhole in the form in which it is ordinarily desired—that is, with an eye. This had never been accomplished. Those machines whose work in stitching was automatic were unable to form the eye, and those which formed the eye accomplished this only with the aid of the clumsy and slow operation of turning the material with the hand. We do not think it necessary, either with reference to this claim or any other, to proceed at length on the question of novelty. The single fact that so valuable a patent as this, where so large interests were at stake and such heavy expenditures had been made in vain, as is shown by the record, for accomplishing what Reece accomplished, had received the continuous and uniform acquiescence of the public and the trade for a period of nearly ten years, and until the efforts of the respondents below, affords sufficient reason for not prolonging this opinion by an analysis of the alleged anticipatory matters, or by detailed explanations in support of our conclusions that none of them in fact anticipated Reece. This line of defense has been pressed mainly against the fifth claim; but clearly the device to which it relates accomplished what none of the older buttonhole-machines accomplished, and it, its method of operation, and its purpose lie in a different field from the invention of Bonnaz and from all the other earlier mechanisms except those appropriate to the stitching of buttonholes.

The essential feature of this claim is the so-called compound movement given the needle-bar, the result of simultaneous longitudinal and lateral motions. This alone was of course old and common in the arts; yet the suggestion of its application to this purpose, combined with the mechanism devised therefor, constitutes a patentable invention of a fundamental character, highly meritorious, and one to be protected by a liberal construction. So far as this claim is concerned, we have no doubt that the rules which we have laid down fully apply, and that Reece is entitled to the benefit of the invention, without reference to the relative movements as between the frame and the plate.

The elements specified in the fifth claim do not constitute an operative mechanism without the aid of a reciprocating needle-bar, or something which will supply its need, and perhaps, also, not without the spreader. The eighteenth claim covers a reciprocating needle-bar and the twelfth a spreader, and each is fully explained in the specification. The fifth claim falls within that class where reference may be made to the specification to supply in a claim what it is plain to every one skilled in the art is a necessary incident. (*Seymour* v. *Osborne*, 11 Wall., 516, 547; *Day* v. *Fair Haven & Westville Railway Company*, 49 O. G., 1364; 132 U. S., 98, 102.) However, no question was raised on this account, and we refer to the matter simply in order to make clear our conception of the scope of the claim.

Infringement of the fifth claim is hardly contested, except on the ground of the propositions touching its construction and effect which we have rejected; and, so far as concerns it, we must order a decree for the complainant below.

The eleventh, twelfth, and thirteenth claims relate to the cutting and spreading mechanisms and the "stop" devices. They are undoubtedly to be construed as in combination with a stitcher in a buttonhole-machine; and Reece was the first to thus combine all these elements in such way that all should be operated, each in their proper order, by mere mechanical power. The defense urged against these claims is mainly the same as that urged against the fifth. Having disposed of what could be raised by that defense, the court considers the alleged structural differences between Reece and the infringing machines as not material. The majority of the court are of the opinion that Reece has made these operations of cutting, spreading, and stopping automatic in combination with the machine as a whole, and that his invention in that respect is so fundamental and meritorious as to require the application to the eleventh, twelfth, and thirteenth claims of the same rules which we have applied to the fifth.

In view of the state of the art the eighteenth claim cannot be broadly construed, and it must be held to be fully limited by the words "substantially as described." This limitation, however, relates to what concerns this particular device. (*Lake Shore & Michigan Southern Railway Company* v. *National Car-Brake Shoe Company*, 26 O. G., 915; 110 U. S., 229, 235.) Therefore we find nothing in these words which restricts this claim to a machine in which the frame moves. To give such an effect to the word "carries" as is claimed is more for the pundit than the courts. It is as commonly used in all kindred matters to mean supporting without movement as supporting with it. We are not required to give it a narrow interpretation for the purpose of depriving the inventor of any part of his invention. Nor are we constrained by any well-settled or just rule of construction to import phraseology from other claims for the same purpose. Except in the particulars covered by these propositions, we do not understand that there is any question of infringement of this claim even when narrowly construed.

Decree of the circuit court reversed. Case remanded to that court with instructions to enter a decree for an injunction and an account on claims 5, 11, 12, 13, and 18 of appellant's patent, No. 240,546, issued to John Reece April 26, 1881, and for further proceedings in accordance with law.

PATENTS

Expired, June 26 1894.

The term of these patents granted during the week ending June 26, 1877, have expired. The reissues expired at an earlier date.

192,321. REFLECTORS. Henry O. Baker, New York, N. Y. [Filed Apr. 21, 1877.]

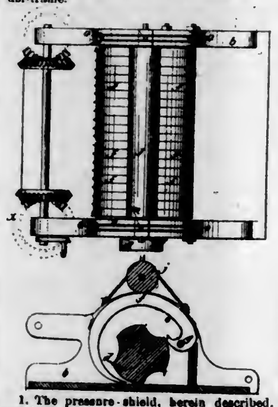


1. A circular reflector, having a hole through its center, and having the edge around the hole turned downward, forming a concavo-convex reflector, as shown, so as to reflect light downward and outward, substantially as specified, and for the purpose described.

2. A concavo-convex ring-reflector that has a hole through its center, and which is provided with the feet or supports D, whereby it can be hung upon the top edge of a globe or shade, substantially as described.

192,322. PLANING-MACHINES. W. W. Brewster, Revere, Mass. [Filed Oct. 27, 1875.]

Brief.—In planers provided with a horizontal rotary or cutting cylinder whose axis is transverse to the machine-bed the lumber, when being planed, is held flat upon the bed, and the tendency of the cutter to draw the lumber toward said cutter or upward from the bed obviated by means of a pressure-shield, formed of a series of crescent-shaped sections pivoted upon a rod passing through the main frame behind the cutter, and pass over the cutter-cylinder near its cutting-edge, and an elastic pressure-roll for producing the requisite pressure of the fingers upon the board, all mounted in a pivoted and vertically-adjustable cylinder-frame.



1. The pressure-shield, herein described, consisting of a series of crescent-shaped sections *f*, which are pivoted behind the cutting-cylinder, and which pass over the cylinder near to its cutting-point, in the manner shown, and for the purposes specified.

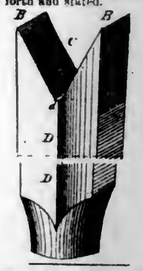
2. In combination with the sectional pressure-shield, the elastic pressure-roll *j* and the pivoted and vertically-adjustable cylinder-frame *b*, constructed to operate substantially in the manner shown and for the purposes specified.

192,323. MORTISE-CHISELS. Edwin Carney, Lockport, N. Y. [Filed Apr. 26, 1877.]

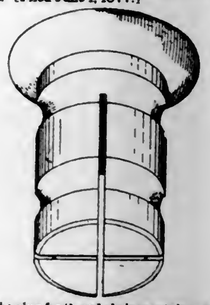
Brief.—A double-edged chisel formed of a solid piece of steel, having a V-shaped excision on its end.

As an improved article of manufacture, a mortise-chisel having two cutting-edges, B B, produced by the excision C, the body of said chisel being made tapering or decreasing in size toward the socket or shank end, and longitudinally swelled along the lines *d* D, the whole constructed and arranged as herein-before set forth and stated.

192,332.



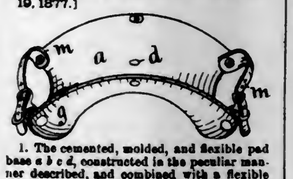
192,324. PIPE-PLUGS. Robert H. Dalzell, Kilbuck Township, Allegheny County, assignor to A. F. Dalzell, trustee, Pittsburg, Pa. [Filed June 1, 1877.]



1. The plug for threaded pipes or tubes, said plug having a head adapted to project beyond the threaded surface, and a compressible and expansible body, substantially as specified.

2. The plug for threaded tubing, having a head adapted to project beyond the threaded surface, and a compressible and expansible body furnished with bearing-rings, substantially as specified.

192,325. HORSE-COLLAR PADS. William Dippert, Des Moines, Iowa. [Filed Mar. 19, 1877.]



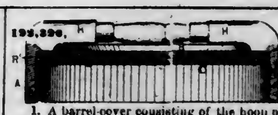
1. The cemented, molded, and flexible pad base *a b c d*, constructed in the peculiar manner described, and combined with a flexible cover, *g g*, of corresponding form, by means of adhesive cement, substantially as and for the purposes shown and described.

2. As an improved article of manufacture, a horse-collar pad composed of the riveted, cemented, molded, and flexible base *a b c d*, the flexible cover *g g*, of corresponding form, united with said base by means of adhesive and medicated cement, and the loops *m m*, secured to the corners of the pad by metallic rivets, substantially as and for the purposes set forth.

192,326. BARREL-COVERS. D. F. Dodge, Lowville, N. Y. [Filed Apr. 9, 1877.]

Brief.—The cover is formed of a main hoop having an inwardly-projecting flange on its upper part, a suitable handle, and a glass disk held between rubber packing-rings, and said flange, by a movable supplemental flange, secured to the inside of the main hoop by nails or screws.

192,330.



1. A barrel-cover consisting of the hoop or rim A, handle H, disk of glass C, and packing-rings R R', the disk and packing-rings being retained in place by the supplemental ring D, or its mechanical equivalent, substantially as described.

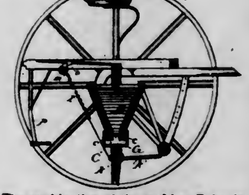
2. A plate-glass barrel-head, C, retained in position and supported by the hoop A, elastic packing-rings R R', and retaining ring D, or their equivalents, as shown and set forth.

192,327. LOCKS FOR SATCHELS, &c. Robert Flocke, Newark, N. J., assignor to R. Neumann & Co., New York, N. Y. [Filed Mar. 22, 1877.]



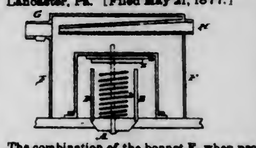
The barrel C, with plate D having an elongation, *w*, acted upon by a suitable spring, *v*, and a projection, J, in combination with the staple or tongue N, arranged to operate in the manner and for the purpose described.

192,328. SEED AND PLASTER SOWERS. Jas. W. Gamble, Aylmer, Ontario, Canada, assignor of one-half his right to Geo. W. Rife and Jonathan White, same place. [Filed Feb. 28, 1876.]



The combination of the seed-box B, having detachable slide C, with the drill attachment, consisting of box G having fixed tubes E, hinged drag-bars K, and drill-tubes k, substantially as and for the purpose herein shown and specified.

192,329. SAFETY-VALVE ATTACHMENTS TO UTILIZE WASTE STEAM. W. H. Garrecht, Lancaster, Pa. [Filed May 21, 1877.]



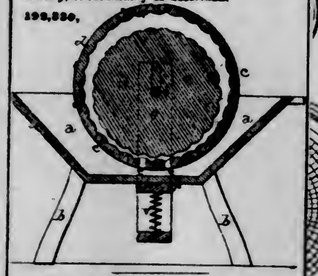
The combination of the bonnet F, when provided with an interior conic tube, H, a horizontal pipe-connection, G J, to a hose-coupling, K, and vertical pipe L, entering the water-tank from above, said bonnet being secured by a simple clamp, lugs, and binding-screw S, disconnected from, but covering, the safety-valve A, cylinder B, and united disks D E, the whole arranged substantially as and for the purpose specified.

192,330. WASHING-MACHINES. Fred. N. Griffith, Shell Rock, Iowa. [Filed Apr. 13, 1877.]

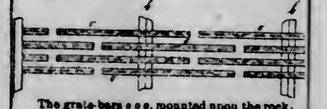
1. The combination of the box *a*, box *c* fastened therein, and provided with a slot, *o*, in each end, the roller *g*, shaft *i*, uprights *l*, guides *r*, and springs *e*, substantially as set forth.

2. The uprights *l*, having the shoulders *n* on their inner sides, so as to catch over the top of the box *a*, guides *r*, cross bar *s*, and springs *p*, in combination with the shaft *i* and roller *g*, substantially as described.

192,230.

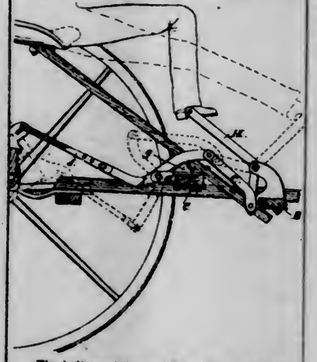


192,231. BOILER-FURNACE GRATE-BARS. R. J. Hancock, Springfield, Mass. [Filed Apr. 10, 1877.]



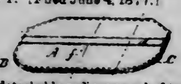
The grate-bars *o o o*, mounted upon the rock-shafts *b b b* to one side of their axis of motion, the under edge of said grate-bars, from near the rock-shaft to the ends of them, being made with a sharp upward pitch, and the bottom edges thereof V-shaped, substantially as and for the purpose set forth.

192,232. HORSE HAY-RAKES. Henry C. Herchelrode and J. B. Schonacker, Dayton, Ohio. [Filed May 19, 1877.]



The bell-crank levers H and *I*, pivoted upon the cross bars B and C, and connected to each other and to the rake-head by the links *e* and *f*, whereby the driver can, by the pressure of his foot, hold the teeth in raking position, or cause them to be elevated to discharge the collected hay, substantially as set forth.

192,233. COPES. B. S. House, New York, assignor to Strahan, Hodgson & Co., Troy, N. Y. [Filed June 4, 1877.]

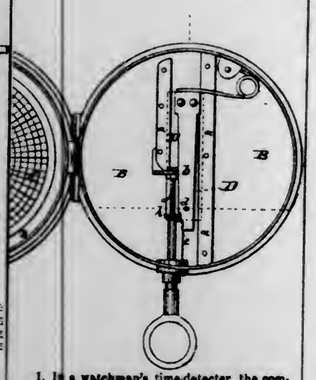


A detachable end composed of two or more thicknesses, of which one outside thickness consists of only a single piece, A, having therein a plait, *d*, in which is a slit, *f*, through which the cuff, after being run along all its edges, is turned right side out, and which plait is afterward stitched to the cuff, substantially as described.

192,234. WATCHMEN'S TIME-DETECTORS. Wm. Imbeauser, Brooklyn, N. Y., assignor to Elias Imbeauser, same place. [Filed May 23, 1877.]

Brief.—A sliding hammer-carrier, to which is attached a spring-hammer having suitable marking device, is operated by a series of keys through a key-opening in the lid.

192,234.

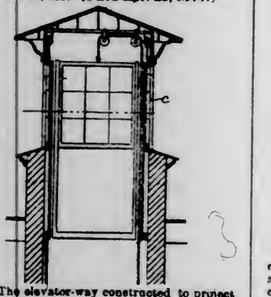


1. In a watchman's time-detector, the combination of the lid or cover B with the slide D, and with the spring or hammer *b* attached thereto, all arranged to operate substantially as herein shown and described.

2. The combination of the lid B and slide D with the perforated projecting lug *h* and key-arbor *j*, substantially as herein shown and described.

3. The lid B of a watchman's time-detector, constructed with a groove or guide-rails, *c c*, on its under side, to receive and guide the slide D, that carries the marking-hammer or spring *b*, substantially as herein shown and described.

192,235. ELEVATOR-WAYS. A. J. Judge, St. Louis, Mo. [Filed Apr. 26, 1877.]



1. The elevator-way constructed to project above the the roof of a building, as and for the purpose set forth.

2. The openings above the roof in the elevator-way, controlled by a sliding window and rope attachment, or equivalent automatic-acting device, as and for the purposes set forth.

3. The combination of the windows, automatically controlled, as shown and described, and the elevator-way, said parts being built and arranged above the roof of buildings, as and for the purposes set forth.

192,236. HYDRANTS. Wm. Kaiser, Wilkesbarre, Pa. [Filed Aug. 16, 1876.]

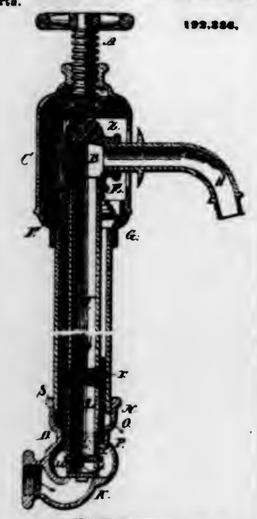
Brief.—By turning the hand-wheel the screw is raised and the L-shaped tube and nozzle are relieved from pressure, allowing the spring to raise the tube, the flange on the prolongation of the lower end of which closes the waste-outlet and allows the free discharge of the water.

1. The quadrilateral portion P and projecting flange *x* of a hollow valve-stem, L, screw-nipple N, its quadrilateral cavity *u* and perforation O, in combination with a valve-casing, K, and pipe-socket *r*, as shown, for the purpose set forth.

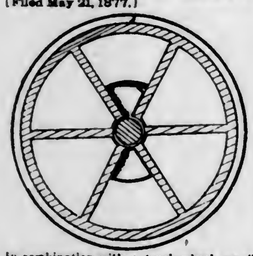
2. The combination, in a valve-casing, K, having contracted portion, and screw-thread D, of enlarged portion S, with a screw-nipple or socket, N, and hydrant casing or tube J, as shown and described, for the purpose set forth.

3. The guide-ring F, cone-spring E, concave cavity, Z on bolt A, in combination with the conical casing or cap C, its base G, elbow B, discharge-pipe I, and nozzle H, all arranged as shown and described, for the purpose set forth.

192,236.

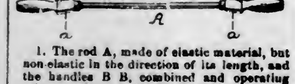


192,237. AXLE-LUBRICATORS FOR RAILWAY-CARS. Geo. Lysle, Jr., Pittsburg, Pa. [Filed May 21, 1877.]



In combination with a truck-wheel, an oil-cup divided into two compartments placed against and on opposite sides of the hub and connected by a groove inside of the hub, into which the said compartments open directly, substantially as and for the purpose described.

192,238. EXERCISING-MACHINES. Wm. M. Marshall, Philadelphia, Pa. [Filed Nov. 20, 1876.]



1. The rod A, made of elastic material, but non-elastic in the direction of its length, and the handles B B, combined and operating substantially as and for the purpose set forth.

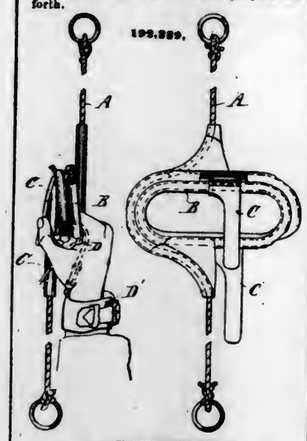
2. The elastic rod A, non-elastic in the direction of its length, in combination with the handles B B, formed with bearing-faces *a a* for the thumbs, substantially as and for the purpose set forth.

192,239. FIRE-ESCAPES. Louis Meyer, St. Louis, Mo. [Filed May 2, 1877.]

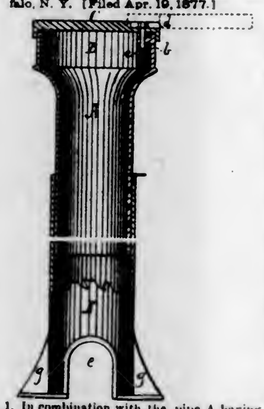
1. The hook D and wristband D', in combination with the hand attachment B, carrying the brake C and the rope A, as and for the purposes set forth.

2. The reversible hand attachment B, provided with two oppositely-positioned brakes, C, all constructed as herein shown and described, in combination with a rope, to operate in the manner and for the purpose set forth.

192,239.



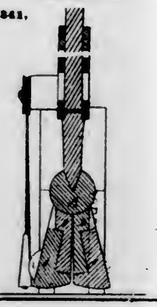
192,240. STREET STOP-COCK BOXES FOR GAS OR WATER. Amos W. Morgan, Buffalo, N. Y. [Filed Apr. 19, 1877.]



1. In combination with the pipe A having the inside lug *b*, the cover C having the counterrank opening, and provided with the vertical brass screw for fastening the same, with the head formed to receive a wrench or key, substantially as and for the purpose specified.

2. In a stop-cock pipe, A, in combination with the pipe openings *c c*, the flanges or shoe *f f*, substantially as and for the purpose specified.

192,241.

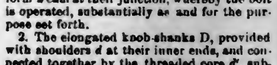


192,241. MACHINERY FOR FORMING BOOT AND SHOE COUNTERS. George F. Moore, Kennebunk, Me., assignor to Mousam Manufacturing Company, same place. [Filed May 28, 1877.]

1. The combination of the convex counter-former with the two rotary concave shapers, arranged to operate therewith, substantially as set forth.

2. The two shaper-carriers, pivoted together and provided with the gears, as described, in combination with the stationary racks and guides therefor, and with the convex counter-former carrier, all being arranged and applied substantially as shown and described.

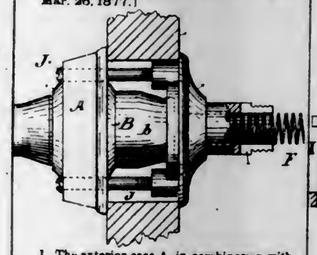
192,242. HORSESHOES. Edward Murraine, Rochelle, Ill. [Filed May 31, 1877.]



1. The strip of soft material *e*, placed between the plate *a* and the shoe *g*, and extending around the rear part of the shoe only, substantially as set forth.

2. The combination of the plate *a*, having the screw-holes *d* and slots *e*, screws *h*, studs *i*, recesses *o*, strips of soft material *s*, that extend around the rear part of the shoe only, and calks *n*, all combined to operate as set forth.

192,243. KNOB-LATCHES. Milton C. Niles and Sidney S. Niles, Oak Park, Ill. [Filed Mar. 26, 1877.]



1. The exterior case A, in combination with the back plate B, provided with a tubular projection, *b*, and spindle C, secured to the case by a screw-thread thereon, substantially as and for the purpose set forth.

2. The case A, in combination with the rose I, back plate B, provided with a tubular projection, *b*, the outer end of which is supported in a bearing in the rose, and the long screws J, extending through the case and door to fasten the several parts together and to the door, substantially as and for the purpose set forth.

3. The spindle C, in combination with the spring F, knob E, and fastening-ring G, all constructed and operating substantially as and for the purpose set forth.

4. The spindle provided with a screw-thread upon its bearing-surface in the lock, in combination with a bearing in the lock, also having a screw-thread, whereby the spindle is fastened to the lock and held in position to operate the bolt, substantially as and for the purpose described.

5. The case A, in combination with the back plate B, provided with a tubular projection, *b*, and the spindle C, having a bearing in both case and tubular projection, and projecting outside of each to form knob-shanks at the ends, substantially as and for the purpose set forth

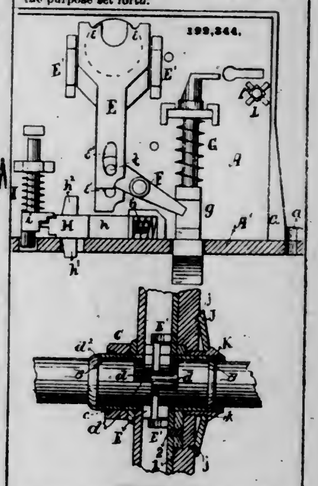
192,244. KNOB-LATCHES. Milton C. Niles and Sidney S. Niles, Chicago, Ill. [Filed Jan. 18, 1877.]

1. The knob-shanks D, elongated to enter the lock-case, connected together at their inner ends within the case, and cut away to form a cam at their junction, whereby the bolt is operated, substantially as and for the purpose set forth.

2. The elongated knob-shanks D, provided with shoulders *d* at their inner ends, and connected together by the threaded core *d'*, substantially as described.

3. The case A, in combination with the knob-shanks D, elongated to enter the case within which they are joined at their inner ends and recessed to provide a cam, and an independent tube, B, passing through the case and inclosing the shanks, substantially as and for the purpose set forth.

192,244.



4. The case A, in combination with the independent tube B, extending through the case and provided with a stop-flange, *b*, arranged to abut against the lock-case within the mortise of the door, and a fastening device, whereby the tube is secured rigidly in position, substantially as and for the purpose set forth.

5. The tube B, in combination with the fixed flange *b*, having a notch, *b'*, and the pin *b²* on the lock-plate, substantially as and for the purpose set forth.

6. A knob-spindle, provided with a central cam, *d*, in combination with the two reciprocating bars E, pivoted lever F, and bolt G, substantially as and for the purpose set forth.

7. The knob-shanks D, in combination with the two reciprocating bars E, and the slide-stop H, provided with recesses *h* and *h'*, substantially as and for the purpose set forth.

8. The sliding spring-stop H, in combination with the spring-catch I, substantially as described.

9. The threaded tube B, provided with a stop-flange, *b*, abutting against the lock-plate, in combination with the independent rosea J and the shouldered screw-rings K, all arranged and operating substantially as described.

10. The adjustable block L, provided with flanges *l*, having wards to accommodate keys with different bits, substantially as and for the purpose set forth.

192,245. MANUFACTURE OF CRUCIBLES. James Park, Jr., Pittsburg, and Geo. Hay, Allegheny, Pa. [Filed Jan. 9, 1877.]

In the manufacture of crucibles or like articles, composed in whole or in part of plumbago, inclosing the article in a closed receptacle, and enveloping it in a solid or gaseous substance, substantially as specified, which will prevent oxidation of the carbonaceous matter of the crucible during the baking or burning, in the manner set forth.

192,246. SOFT-CENTER INGOTS OR SLABS. James Park, Jr., Pittsburg, Pa. [Filed Oct. 16, 1876.]

Brief.—The ingot is made by casting steel upon one side of a slab of wrought-iron, and welding to the other side a slab of wrought or hammered cast steel.

The soft-center ingot or slab, having hard-steel faces or outer surfaces, one of said outer surfaces being wrought cast-steel and the other cast-steel unwrought, substantially as specified.

192,247. COMBINED LAMP AND GAS LIGHTER. J. A. Plant, Danbury, Conn. [Filed Dec. 21, 1876.]

Brief.—Adapted to light or extinguish either a lamp or gas burner.

1. The combination of tube A, provided with the finger-piece B and arms C and C', and the lighter F, connected together substantially as described, and for the purpose set forth.

EXPIRED PATENTS

2. The combination of tube A, provided with the finger-piece B and arms C and C', and clamp D, with the lighter F.

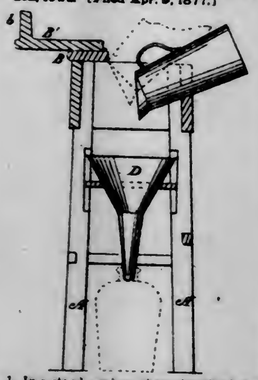
3. The combination of tube A, provided with the finger-piece B and arms C and C', and clamp D, with the lighter F and reversible carved joint G.

4. The combination of tube A, provided with the finger-piece B and arms C and C', connected together by cord or wire *a*, and lighter F and reversible carved joint G.

192,347.



192,348. STANDS FOR HOLDING FUNNELS, MEASURES, &c. Simon M. Preston, Grinnell, Iowa. [Filed Apr. 9, 1877.]



1. In a stand, such as above described, the sliding table C, containing the funnel D, substantially as and for the purpose set forth.

2. The combination in a stand, as above described, of the hinged cover B', having the pendant *b*, and a sliding table C, having the funnel D securely attached, thereto, as and for the purposes described.

192,349. PAVEMENTS. Joseph C. Rook and J. W. Phillips, Washington, D. C. [Filed May 3, 1877.]

Brief.—On a properly-prepared road-bed is placed a course of broken stone or gravel, mixed with a hot solution of chemically-prepared bitumen in the proportion of twenty gallons of bitumen to one cubic yard of stone or gravel, or the following hydraulic-cement concrete, viz., twelve cubic feet broken stone, eight cubic feet gravel, ten cubic feet clean sharp sand, one bushel Portland or other cement. Upon either of the foregoing foundations a two-inch course of finer concrete is placed, into which stone or stone blocks are embedded. Well-warmed fine gravel is then swept over the stones to fill all the interstices, and then into the interstices and over the stones is placed a wearing or top course of the following composition: twenty-four quarts chemically-prepared bitumen, twelve quarts carbo-napanis or asphalt, (artificial or natural distilled to the same consistency,) ten gallons dry powdered stone and clay, four ounces sulphuric acid, ten pounds oxide of iron, twenty-four ounces rolled brimstone.



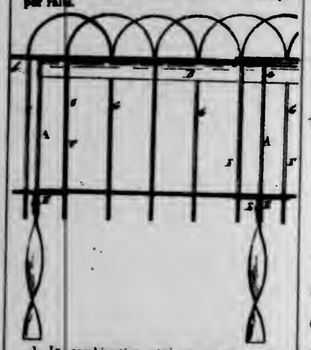
192,349.

1. A street-pavement consisting of a concrete-base course, *c*, a cushion course or layer of finer concrete, *d*, the layer or course of stone *e*, and top or wearing-surface course *a*, composed of the ingredients herein specified, all constructed substantially as and for the purpose set forth.

2. In a street-pavement, the composition of matter consisting of chemically-prepared bitumen, carbonapanis or asphalt (artificial or natural distilled,) dry powdered stone or clay, (hard limestone, cement-stone, or bituminous shales preferred,) sulphuric acid, oxide of iron, and brimstone, treated in the manner specified, and for the purpose set forth.

192,350. FENCES. Corydon A. Root, Andover, Ohio. [Filed Apr. 23, 1877.]

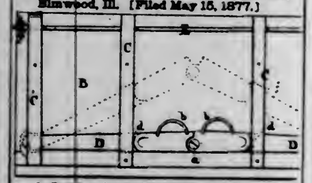
Brief.—The posts and rails consists of thin stripes of metal. The lower rails are secured to the posts by angle-iron. The upper rails are secured in notches in the top of the posts. Pickets pass through the cap-rail on each side of the upper rails, and through the lower rails, thereby preventing lateral deflection of the upper rails.



1. In combination with the post A, the angle-irons E, rails D, and bars or pickets F and G, substantially as herein described, and for the purpose specified.

2. The combination of the posts A, angle-irons E, rails D, rails B C, and bars or pickets F and G, in the manner substantially as described, and for the purpose set forth.

192,351. WAGON END-GATES. E. Rowland, Elmwood, Ill. [Filed May 15, 1877.]

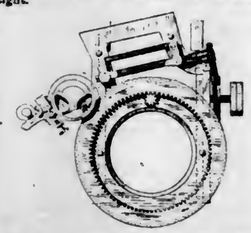


1. In an end-gate for wagons or other vehicles, the bolts D, when constructed to slide loosely in vertical slots on the face of the gate, and mutually confined to an equal extension beyond said gate by means of their respective shoulders or detents *d d*, near their common junction or hinge, substantially as and for the purposes described.

2. The combination, with a gate, B, of the bolts D D, having shoulders or bearings *d d* and guides C C', substantially as and for the purpose described.

192,352. WOOL-COMBING MACHINES. Leonard Smith, Bradford, England. [Filed Mar. 15, 1877.]

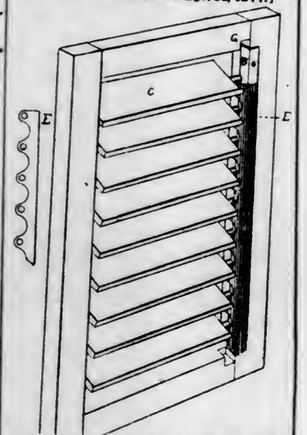
Brief.—In addition to ordinary combing and drawing-off mechanism, an auxiliary comb and a transferring-lifter are used, whereby the "noil" remaining in main comb is transferred to auxiliary comb, with the long wool therein presented in proper position for removal. An auxiliary drawing-off mechanism is also used in connection with the auxiliary comb. In some cases it is desirable to heat the auxiliary comb, and it may therefore be hollow or steam-tight.



1. In a wool-combing machine, the combination, with the main combing mechanism and the main drawing-off mechanism, of an auxiliary comb and a transferring-comb or lifter, substantially as described, whereby the noil remaining in the main comb is transferred to the auxiliary comb, with the long wool thereof in a position for its ready removal from the noil, as set forth.

2. The combination, with the main combing and the main drawing-off mechanism, of an auxiliary comb, a transferring-comb or lifter, and an auxiliary drawing-off mechanism, substantially as described, whereby the noil is transferred from the main comb to the auxiliary comb, and the long wool removed from the noil, as set forth.

192,353. WINDOW-BLINDS. T. A. Smits, New York, N. Y. [Filed Apr. 14, 1877.]



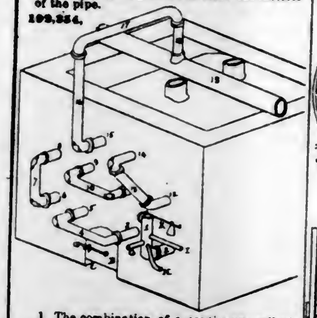
In a window-blind, the slats C, provided with central pivots H and circumferential pivots D formed thereon, in combination with the notched connecting-rod E, substantially as described.

192,354. APPARATUS FOR GENERATING ILLUMINATING-GAS. William W. Upp, Columbia, Pa. [Filed May 8, 1877.]

EXPIRED PATENTS.

Brief.—Steam, oil, and liquefied resin are fed together into a coil of pipe, where, under a proper heat, a fixed gas is made. A weighted safety-valve is fitted to the induction end of the coil of pipe, to guard against accident by explosion. Plates are secured over openings in the bends of the coil of pipe, outside of the furnace, for giving access to clean the interior of the pipe.

192,334.

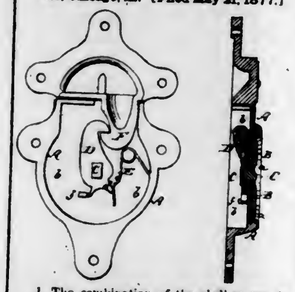


1. The combination of a continuous coil of pipe from the hydraulic main 19 to the external feed-pipe I, with its branch connections, G H I and safety-valve K, the whole arranged substantially as and for the purpose specified.

2. In combination with the sectional pipes, united by rounded elbows, provided with flanged ends and an opening in the turn, the covering plate or cap, L, to close the same, as and for the purpose mentioned.

3. In combination with the feed-pipe 1 and branch or connecting pipes G H I, the safety-valve K, as and for the purpose set forth.

192,335. TRUNK-CATCHES. Herman Vogler, Chicago, Ill. [Filed May 21, 1877.]



1. The combination of the shell or cap A, which has the recess *a* on its outer face and the recess *b* on its inner face, with the handle B, which is placed in said recess *a*, and with the arbor C and catch-bolt D, the handle and bolt being both rigidly united to the arbor, but on opposite sides of the shell A, substantially as herein shown and described.

2. The combination of the shell or cap A, having recess *b* and projecting stop *f*, with the vibrating bolt D, and with the spring E forming shoulder *e*, substantially as herein shown and described.

192,336. HARROWS. Jacob Weber, Allegheny, Pa., assignor of one-half his right to J. M. Stoker, same place. [Filed Mar. 28, 1877.]

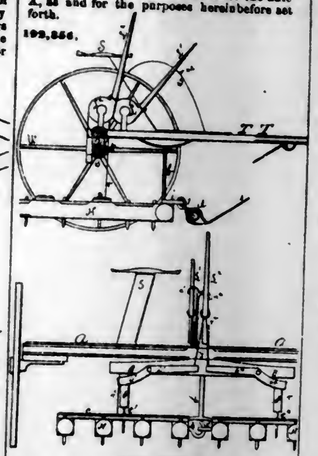
Brief.—A wheel-barrow made in two sections, with a bolster attached beneath the axle, upon which the barrow swings, and with devices to raise it or press it down upon the ground.

1. The combination of the double harrow H, swinging bolster B, levers l^1 l^2, ropes r r^1 r^2, levers L^1 L^2, brace *b*, seat S, tongue T, double-tree *d*, as attached to the sulky-carriage in the manner stated, as and for the purposes hereinbefore specified and described.

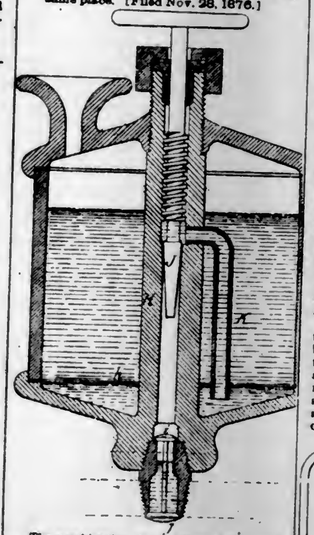
2. The swinging bolsters B, with levers l^1 l^2, ropes r r^1 r^2, iron pins i^1 i^2, collars c^1 c^2, as connected and attached to the levers L^1 L^2, as herein specified and described, and for the purposes set forth.

3. The arrangement of levers l^1 l^2, on the movable or swinging bolster B, with the attachment as connected and attached to the axle A, as and for the purposes hereinbefore set forth.

192,356.



192,357. AUTOMATIC LUBRICATORS FOR STEAM-CYLINDERS. Peter Bloomsburg, Bristol, Pa., assignor to Jonathan Cone, same place. [Filed Nov. 28, 1876.]



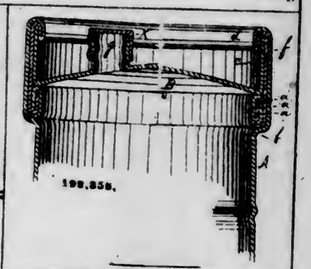
The combination, in an oil-cup, of a tube, H, communicating with the reservoir, and an adjustable valve, J, with the automatic valves *i* and *j* and intermediate chamber, all substantially as and for the purpose set forth.

192,358. CONSTRUCTION OF BARRELS, CASKS, &c. [Filed May 9, 1877.]

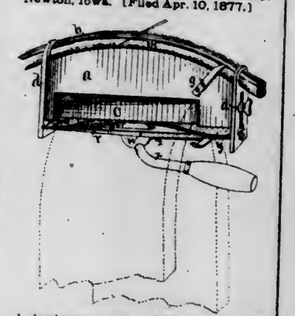
1. As an improvement in metallic barrels, casks, cans, and other like vessels, the shoulder *e*, chine *f*, formed on the edge or end of the barrel by a series of folds or overlaps, *e e' e''* and countersink *b*, substantially as herein shown, and for the purpose set forth.

2. The combination, with the metallic cask A, constructed by means of a series of overlaps or double folds, *e e' e''*, with shoulder *e*, chine *f*, overlap *d*, and countersink *b*, of concavo-convex head B, constructed with rim *e*, outlet *g*, and screw-cap *k*, all substantially as and for the purpose described.

192,355.



192,359. MACHINES FOR HARNESS-MAKERS' USE. Chas. G. Burger and Axel D. Shoup, Newton, Iowa. [Filed Apr. 10, 1877.]



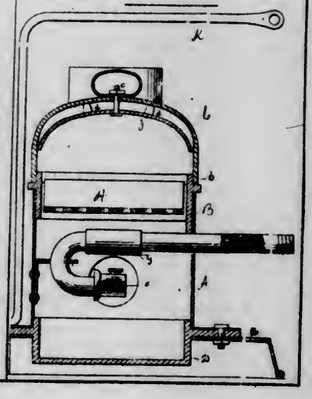
1. In the construction of a harness-maker's work-holder, the block *a*, having a curved and grooved top edge, channel-openers *g*, projecting over said curved edge, and recesses *c* in its side faces, substantially as and for the purpose set forth.

2. The adjustable end pieces *d*, having longitudinal slots and openings or hooks at their top ends to receive rounded work, in combination with the block *a*, substantially as and for the purposes shown and described.

3. The channel-openers *g*, in combination with the block *a*, and the adjustable end pieces *d*, substantially as and for the purposes shown and described.

4. The fulcrum-bar *r*, carrying the latching device *z*, the eccentric *w*, having a lever-handle *x*, and the strut-spring *y*, in combination with the block *a*, and the adjustable end pieces *d*, substantially as and for the purposes shown and described.

5. The block *a*, having a rounded and grooved top edge, the channel-openers *g*, the adjustable end pieces *d*, having hooks at their tops, the eccentric *w*, having a ratchet in its edge and a rigid handle, *x*, the movable bar *r*, carrying the latching device *z*, and the spring *y*, all arranged and combined to operate, substantially as and for the purposes shown and described



192,360. SOLDERING AND HEATING FURNACES. Josiah Burgess, Zanesville, Ohio. [Filed May 12, 1877.]

1. In a furnace for heating soldering-irons, the hood C, provided with an adjustable deflecting device having lugs *d d*, as shown and described.

2. In combination with a furnace for heating soldering-irons, the combination of a hood, C, deflector I, and a perforated resting-plate, H, substantially as described.

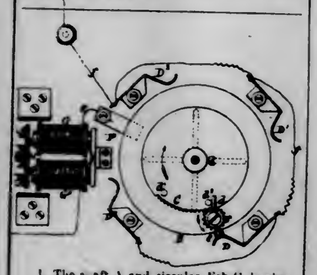
3. In a furnace for heating soldering-irons, a body, B, constructed with flanges *a* and *b*, substantially as described, having a rectangular or round opening, substantially in the manner and for the purpose specified.

4. In a furnace for heating soldering-irons, a water-tank, D, set in a recessed inverted pan, E, in combination with the base A, body B, and hood C, substantially as described.

5. In a furnace for heating soldering-irons, the combination of the hood C, deflector I, body B, perforated resting-plate H, base A, water-tank D, inverted pan E, and handle K, all arranged, constructed, and operating substantially in the manner and for the purpose set forth.

192,361. ELECTRO-MAGNETIC REGISTERING APPARATUS FOR TURNSTILES. B. F. Card, Brooklyn, N. Y. [Filed Mar. 30, 1877.]

Brief.—Motion is communicated from the disk C, fixed to the turnstile-shaft, to the disk B, carrying the circuit-closer, by means of an arrangement of pins and toothed segment on C and pinion and arm on B, permitting a nearly quarter-revolution of turnstile-shaft before movement is communicated to B, thus avoiding registration from accidental movement of the turnstile.



1. The shaft A and circular disk C, having a portion of its periphery cut with cog-teeth and provided with pins d^3 and d^4, in combination with the circular disk B, provided with the pin *d* and pinion-wheel *e*, substantially as described.

2. A turnstile consisting of the shaft A and disks B and C, in combination with the magnets G and G', and connected therewith by means of a current of electricity passing through suitable circuit-closers, and actuating the armature H, pawls O, P, and T, lever L, ratchet-wheel R, and any suitable registering mechanism.

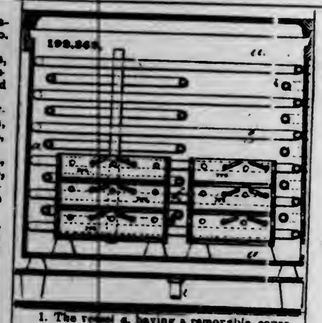
3. A turnstile consisting of shaft A and disks B and C, in combination with the magnets G and G', and connected therewith by means of a current of electricity passing through suitable circuit-closers, and actuating the armature H, pawls O, P, and T, lever L, ratchet-wheel R, index-hand S, and dial-plate S', substantially as described.

4. A turnstile consisting of the shaft A and disks B and C, in combination with the electro-magnets G and G', and connected therewith by means of a current of electricity passing through circuit-closers D, D^1, D^2, and D^3, and pin *e* on disk B, and button F, and actuating the armature H, lever L, pawls O, P, and T, ratchet-wheel R, and any suitable registering mechanism.

5. A turnstile consisting of shaft A and disks B and C, in combination with the electro-magnets G and G', and connected therewith by means of a current of electricity passing through circuit-closers D, D^1, D^2, and D^3, and pin *e* on disk B, and button F, and actuating the armature H, lever L, pawls O, P, and T, ratchet-wheel R, and any suitable registering mechanism.

192,362. DEVICES FOR AND METHODS OF COOKING CEREALS. Lewis S. Chichester, New York, N. Y. [Filed Apr. 20, 1877.]

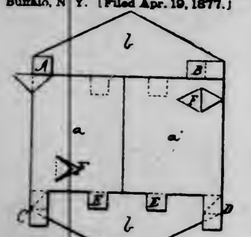
192,363.



1. The vessel *a*, having a removable cover and a steam-jacket; in combination with the range of steam-pipes and the removable perforated trays, substantially as and for the purposes set forth.

2. The method herein specified of preparing cereals, consisting in moistening the crushed or ground cereal, spreading the same upon frames or trays, heating the same in a confined chamber or vessel to cook the cereals, drying the same by the action of the heat and a vacuum, and then removing such cereals from the trays, substantially as set forth.

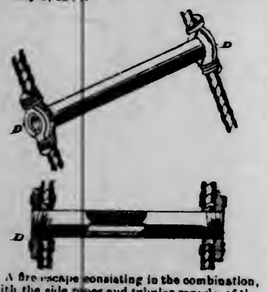
192,363. ENVELOPES. Arthur Christey, Buffalo, N. Y. [Filed Apr. 19, 1877.]



1. In an envelope, the extra corners or supplementary pieces A B C D, attached to or forming part of the envelope, as described, with each piece or extra corner A B C D so folded of itself as to make extra thicknesses and protection at the corners, substantially as specified.

2. The triangular or other shaped pieces F F, formed from the side pieces *a a'*, and bent over and gummed to the flap *b*, substantially as and for the purpose specified.

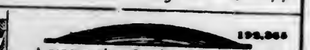
192,364. FIRE-ESCAPES. John P. Duncan, Helena, Ark., assignor of one-half his right to Aurelius F. Mulkey, same place. [Filed May 8, 1877.]



A fire-escape consisting in the combination, with the side ropes and tubular rounds, of the flat, solid, metallic clips D, secured to the outer side of the ropes, both the rope and the clips being formed with sockets, through which the rounds pass, substantially as set forth.

192,365. GLAZING FOR PICTURE-FRAMES. Julius W. Steinkmann, Williamsburg, N. Y. [Filed May 31, 1877.]

192,365



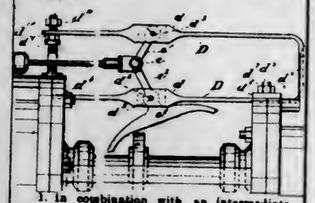
A convex glass for picture-frames, provided at its outer edge with a straight rim or flange, substantially as and for the purposes herein set forth.

192,366. CHEST-PROTECTING GARMENTS. C. A. Fuller, Minneapolis, Minn. [Filed Jan. 23, 1877.]



A chest-protecting garment, as described, consisting of the sleeveless jacket A, provided with the front and back pieces B and C of skin, and connected on the shoulders at *b b* with strips of same, substantially as and for the purpose set forth.

192,367. STEAM-PUMP VALVE-GEARS. Jno. Gates, Portland, Oreg. [Filed May 8, 1877.]



1. In combination with an intermediate valve-piston and toggle-joint, the double spring, adapted to act equally upon each side of the joint, substantially as described.

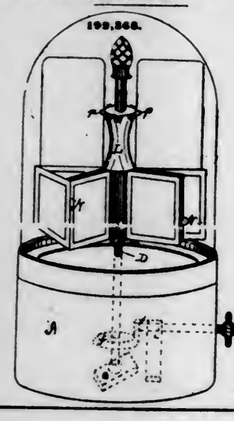
2. In combination with the main piston and its striking-block, the intermediate tappet mechanism, the toggle-joint, and the double spring, adapted to act equally upon each side of the joint, substantially as described.

3. In combination with the double spring, adapted to act equally upon each side of the joint, the standard d^6 and nuts d^{10} d^{10}, for adjusting the power and extent of its thrust, substantially as described.

4. The spring D, having the equal parts *d d*, in combination with the clamping-plate d^5, the recess d^9, and standard d^6, as described.

5. In combination with the striking-block, the tappet c^3, the toggle c^1 c^2, and the spring D, substantially as described.

192,368.

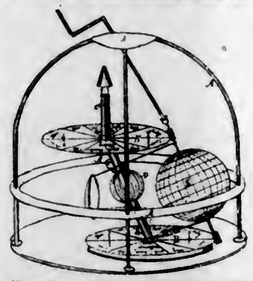


192,368. PICTURE-EXHIBITORS. Henry E. Hezekiah, New Orleans, La. [Filed Feb. 19, 1877.]

The revolving photo-cabinet herein described, consisting of the casing A, shaft D, sleeve L, the latter provided with frames N and lugs *p*, all arranged to operate as described, and for the purpose specified.

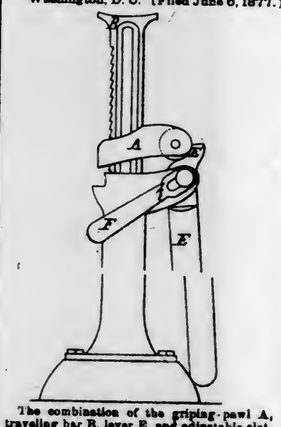
192,369. TELLURIANS. Frederick Howes, Boston, Mass. [Filed May 19, 1877.]

Brief.—The cage upon the central inclined standard, with its reflector, represents the sun.



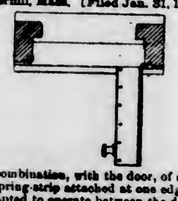
The apparatus above described, consisting of the frame A, dials B and B', standard C, lantern D, and globe E, arranged to operate together, as described.

192,370. LIFTING-JACKS. Geo. W. Hunter, Washington, D. C. [Filed June 6, 1877.]



The combination of the griping-pawl A, traveling bar B, lever E, and adjustable slotted hanging pawl F, arranged to trip pawl A, as described.

192,371. WEATHER-STRIPS. E. T. Ingalls, Haverhill, Mass. [Filed Jan. 31, 1877.]



The combination, with the door, of a sheet-metal spring-strip attached at one edge only, and adapted to operate between the door and its casing to relieve the door from shock when being closed, substantially as described.

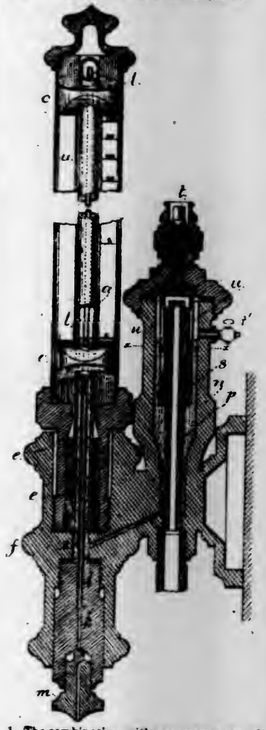
192,372. BUTTER-WORKERS. W. Johnston, Waterloo, Iowa. [Filed May 17, 1877.]

1. The flaring trough A, provided with the slotted roller-standard B, in combination with the reciprocating lever-handle C and ladle D, substantially as shown and described.

2. The arrangment of the flaring trough A, provided with a foot, B, and clutches G G and H, slotted roller-standard B, the angled lever C, and ladle D, the whole forming a butter-worker, substantially as shown and described.



192,373. PRESSURE-GAGES. B. M. Johnson, Brooklyn, N. Y. [Filed Oct. 27, 1876.



1. The combination, with a pressure-gage, of the tube *l* and valve *m*, substantially as and for the purposes set forth.

2. The chamber *s* and tube *p* within it, in combination with the displacer *s* that is screwed upon the tube *p*, the stem *t*, and prongs *u*, passing into the displacer, substantially as and for the purposes set forth.

3. The combination, in a vacuum or pressure gage, of a glass tube closed at the upper and and a tube, *i*, within the same, open at the upper end above the highest level of the mercury, substantially as set forth.

192,374. GRAIN-BINDERS. J. P. Johnson, Acton, Minn. [Filed May 12, 1876.]

1. The spiral cord-carrier D, constructed and operating substantially as described.

2. The combination of the cord-carrier D, lever E, and wheel O, provided with a cam-groove, *m'*, substantially as set forth.

3. The loop-catcher *f f'*, in combination with the arm A, connecting-rod H, lever *i*, and wheel O, provided with the dogs *l k*, substantially as described.

4. The loop-catcher *f f'*, and pivoted bar F, in combination with the cord-carrier D, substantially as specified.

5. The bar or lever G, in combination with the pivoted bar F and wheel C, provided with the cam-groove *n'*, substantially as described.

6. The guard *m*, in combination with the sliding bar M and slotted receiver R, substantially as and for the purpose specified.

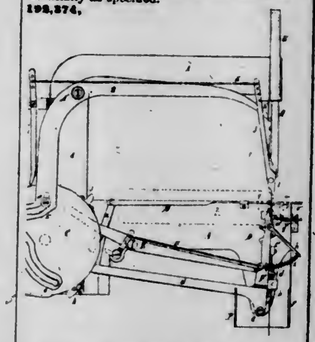
7. The pinchers I, provided with the lever J, in combination with the rod K and lever L, substantially as specified.

8. The pinchers I, sliding bar Q, and guide U in combination with the bars *N N*, rod *t*, and spring *k'*, substantially as and for the purpose specified.

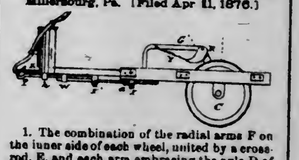
9. The plates *p r*, provided with hooks *s s'*, and spring *g'*, in combination with the operating-rod S, lever T, and upturned end d^5 of the plate d^4, substantially as and for the purpose specified.

10. The combination of the cord-carrier *d*, the point *a'* on the pivoted bar F, and the loop-catcher *f f'*, with the pinchers I and reciprocating arm B, for tying the knot, substantially as specified.

192,374.



192,375. CAR-STARTERS. Jacob R. Johns, Millersburg, Pa. [Filed Apr 11, 1876.]

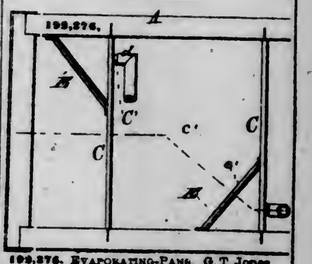


1. The combination of the radial arms F on the inner side of each wheel, united by a cross-rod, E, and each arm embracing the axle D of the wheels, and having their upper end slotted, supporting an eccentric clutch or pawl, R, and actuating-lever G, combined with the draft pole or rod H in such a manner as to cause said clutch R to gripe the upper surface of the car-wheel and carry it forward on starting, said clutch also held in position by a coiled spring, Y, when released, substantially as and for the purpose specified.

2. In combination with the radial arms F and clutch R, the lever-arms G, elevated above and carried down on each side, and converging to a union with the draft rod or pole H, substantially as and for the purpose set forth.

3. In combination with the central draft rod or pole H, the cross-head A, the guide-bars O, and appliances, all substantially arranged as shown and described, for the purpose mentioned.

192,376.



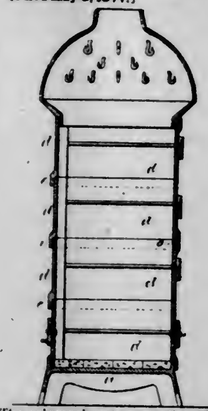
192,376. EVAPORATING-PANS. G. T. Jones, Nashville, Tenn. [Filed Sept. 16, 1876.]

Brief.—The partition-plates of the evaporating-pan have openings at alternate ends,

which openings are fitted with tubes, upon which are sleeved elbow-shaped swinging tubes. The juice is thus caused to flow in a zigzag course through the pan, and the flow may be stopped and re-established by turning the elbow-pipe up and down. The strainer, extending obliquely from the side of the pan to a partition-plate, acts as a brace to strengthen the pan, and as a strainer to keep back the scum from the adjoining apartment.

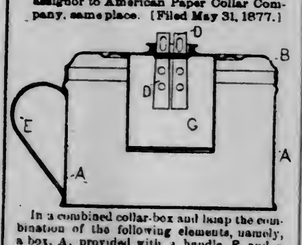
Strainer E provided with downward and outward flange *e'*, and acting as a brace for partition C, substantially as set forth.

192,377. SMOKE-HOUSES. Herman T. C. Kraus, New York, N. Y., assignor to John Matheson and Jas. Jackson, same place. [Filed May 3, 1877.]



The polygonal cast-iron sections *d d*, provided with flanges or laps *e*, and open at one side, and having doors, in combination with the base *a* and cross-bars *c*, substantially as set forth.

192,376. COMBINED COLLAR-BOX AND LAMP. Julius Levine, New York, N. Y., assignor to American Paper Collar Company, same place. [Filed May 31, 1877.]



In a combined collar-box and lamp the combination of the following elements, namely, a box, A, provided with a handle, E, and a cover, B, provided with an oil-fount, C, and wick-tube D, constructed and operating substantially as and for the purposes set forth.

192,379. HYDRANTS. Samuel W. Lewis, Cincinnati, Ohio. [Filed May 15, 1877.]

1. A wasting-hydrant consisting of a moving water-way closing either with or against the pressure, and a duplex or auxiliary valve, which latter is seated only when the main or upper valve is withdrawn bodily, for the purpose described.

2. An improved wasting-hydrant, consisting, essentially, of a suitable valve-chamber, a moving water-way, and an auxiliary or duplex valve, which latter closes automatically and shuts off the supply only when said water-way is withdrawn, substantially as herein described and set forth.

3. In combination with a hydrant-base, a buoyant or floating duplex valve whose upper end is furnished with a ground seat, substantially as herein described, and for the purpose set forth.

4. The combination of valve-chamber D F, buoyant duplex valve G, operating-rod H, and plunger I, the upper end of said valve being provided with a ground joint, substantially as herein described and set forth.

5. In combination with valve-chamber D of a hydrant, the counter-bore B and raised seat *c*, for reception of the controlling-valve *i*, substantially as herein described.

6. A hydrant-lever capable of being secured to the cap or stock in either one of two diametrically-opposite positions by the shiftable fulcrum-bearing T' U, so as to locate said handle either to the right or left, substantially as herein described.

7. The combination of hydrant-cap Q *s s'*, sockets R R', retaining devices T *t* T' *t'*, and shiftable fulcrum-bearing U of handle V, substantially as herein described.

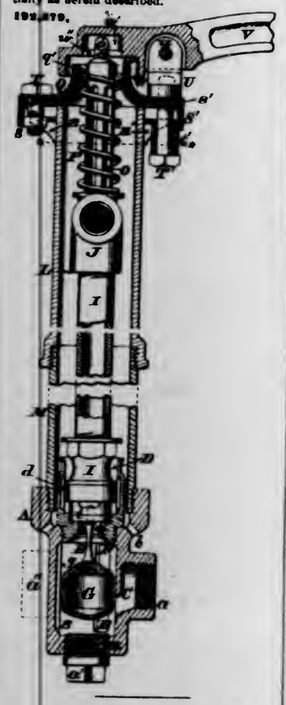
8. The combination of spindle O, neck *o*, T-head *o'*, and chambered hood W *w w' w''* of handle V, substantially as herein described.

9. The combination of spindle O, neck *o*, T-head *o'*, hood W *w w' w''*, handle V, and cap Q *q q'*, substantially as herein described.

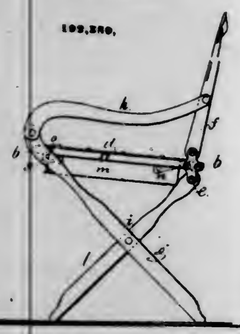
10. The barrier C for deflecting the inflowing current of water toward the bottom of hydrant-base A, substantially as herein described.

11. In combination with the shiftable fulcrum-bearing U and hydrant-handle V, the extension V', pivoted to said bearing, substantially as herein described.

192,378.



192,380.



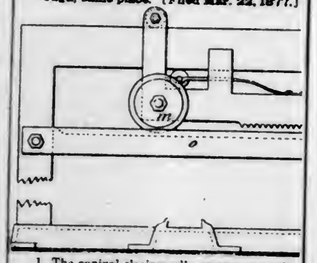
192,380. FOLDING CHAIRS. Wm. Lovell, Jersey City, N. J., assignor to H. P. Tibbals, Brooklyn, N.Y. [Filed Jan. 26, 1877.]

Brief.—By the disengagement of the stops at the upper ends of the back legs from the catches under the front corners of the seat all the parts can be compactly folded. A folding box under the seat forms a portfolio.

1. The folding chair composed of the front legs *l* and back *f*, attached to the seat-frame by the joint-plates *s*, and the back legs *g*, pivoted to the front legs and to the hinged arm-pieces *h*, there being bearing lugs or stops *o* at the junction of the back legs and front part of the seat, substantially as set forth.

2. The seat-frame and folding back and legs hinged to the same, in combination with the portfolio or receptacle, hinged to the seat-frame and closing against the under side of the seat, substantially as set forth.

192,381. SHEET-METAL-SEAMING MACHINES. T. W. McKeever, New York, N. Y., assignor to Benhams & Stoutenborough, same place. [Filed Mar. 22, 1877.]

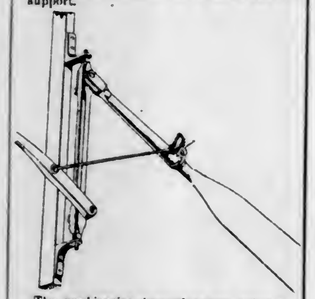


1. The conical closing-roller *m* upon a stock fitted to be moved back and forth, in combination with the beveled bar *o*, that is vertical, or nearly so, at one edge and the top at an inclination, upon which the folded edge of the sheet to be closed is supported, substantially as and for the purposes specified.

2. The rectangular form-block *r* upon the adjustable standard *s*, in combination with the flanged closing-roller *n* upon a stock fitted to be moved back and forth, substantially as and for the purposes specified.

192,382. ROWING-GEAR. J. W. Melcher, Oshkosh, Wis. [Filed Feb. 28, 1877.]

Brief.—The rower faces the bow of the boat. The oar is feathered by the play of a pin connected to the draw-rod in a slot in the oar-support.



The combination, in rowing-gear, substantially as described, of a handle and draw-bar, with slot and pin connected with oar, and rolling bar hung to the rail of boat.

192,383. AUXILIARY WAGON-SPRINGS. A. W. McKown, Himblee, Pa. [Filed Apr. 13, 1877.]

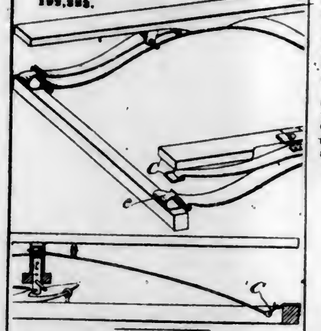
1. The combination, with a wagon-spring having a link detaining or stopping device, of a link, substantially as and for the purpose set forth.

2. In combination with an auxiliary wagon-spring having a link detaining or stopping device, the link C, and a hook, *c*, on the bolster or axle, substantially as shown and described.

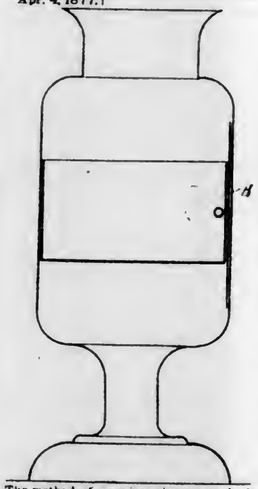
3. Auxiliary wagon-springs, fulcrumed at their rear ends or at a point between their ends, having lifting or lowering devices, substantially as described, adapted to throw or place the springs into or out of action.

4. A lifting or lowering device applied to the rear portions of two or more auxiliary springs, and adapted to place these springs by one act out of or into action.

192,383.



192,384. METHOD OF SECURING PICTURES. Wm. T. Murphy, Brooklyn, N. Y. [Filed Apr. 4, 1877.]



The method of securing pictures to the inside of vases and similar articles, by means of the rubber-spring band B, substantially as and for the purpose set forth.

192,385. MACHINES FOR MAKING PAIL-BOTTOMS AND BARREL-HEADS. G. W. Parker, Gardner, Mass. [Filed Apr. 28, 1876.]

Brief.—The blanks from which the pail-bottoms or barrel-heads are to be formed are placed in an adjustable hopper upon the top of the machine, and fed forward by means of a feeding-piece operated by a longitudinally-reciprocating tongue-piece between vertically-adjustable plates, where the blank is firmly held while the bottom or head is cut and beveled by suitable cutters attached to heads arranged upon a slotted rotating plate, mounted upon the upper part of a vertically-adjustable tubular shaft provided with a pulley, and rotating upon a vertical rod passing through a tubular stand-plate upon a cross-piece in the lower part of the frame.

1. The hopper B'', for holding the blank head-pieces B', constructed from the parts L' L'' N N M M, adjusting arms M' M'', and adjusting nuts and bolts 20 and 21, combined together, substantially as and for the purposes set forth.

2. The combination, with tubular stand D and tubular rotating shaft E, of adjustable spindle A' and plates D' and F, substantially as and for the purposes set forth.

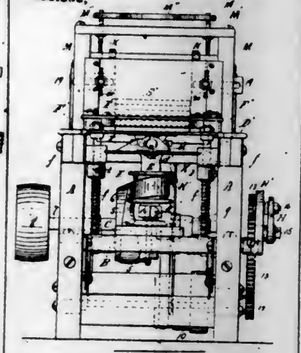
3. The combination, with the rotating plate D' and plates F F'', of the cutter-heads *d*, substantially as and for the purposes set forth.

4. The combination, with tubular standard D and rotating tubular shaft E, of adjusting-nut *a*, substantially as and for the purposes set forth.

5. The combination, with holding-plates F F' and guide-rods F'', of spiral springs *f''*, adjusting-tube I, and depressing and elevating lever G, substantially as and for the purposes set forth.

6. The combination, with head depressing and holding plate F' and reciprocating tongue-piece I', to which feed-piece J is secured, of lever G, arm K', and the mechanism for connecting said levers to rocking-shaft G', substantially as and for the purposes set forth.

192,386.



192,386. VENT-BUNGS. Fredrick Pentlarge and Philipp Hirsch, Brooklyn, N. Y., assignors to said Pentlarge. [Filed June 4, 1877.]

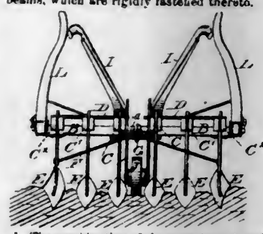


1. The transverse web D in a bung having recesses formed, respectively, upon its inner and outer faces.

2. In a vent-bung, substantially such as described, the recess C on one side of the bung of greater size than the recess B on the other side of the bung, substantially as described.

192,387. WALKING-CULTIVATORS. John Poetz, Shakopee, Minn. [Filed Mar. 1, 1877.]

Brief.—The thills are rigid and secured to two cross-bars in front. The cultivator-beams are pivoted upon the front bar and play loosely upon the rear bar, except the two central beams, which are rigidly fastened thereto.

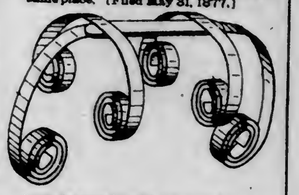


1. The combination of the cross-bars A and B, the rigid beams C, and adjustable beams C' C², provided with the shovels E, the rigid thills L, rigid handles I, and wheel J, as shown and described.

2. In combination with the oblique outside shovels E attached to the swinging beams, the braces F and clamping device G, as shown.

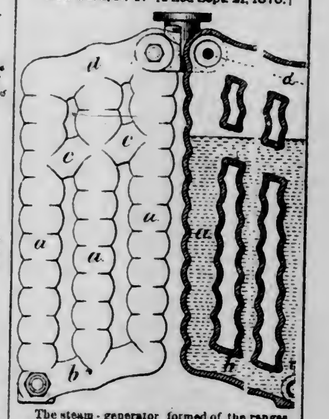
3. In a cultivator, the combination of two cross-bars, A B, having thills L attached, two parallel rigid beams, C, attached to the cross-bars, connected by a bar, *a*, and provided with rigid handles I and outside swinging beams C' C², pivoted to the bar A, and held by the slotted bars D and bolts *c*, as shown.

192,388. PACKAGE HOLDERS OR CARRIERS. Jas. H. Randall, Providence, R. I., assignor of one-half his right to Herbert Phillips, same place. [Filed May 31, 1877.]



As an improved article of manufacture, a package holder or carrier, composed of a suitable handle and paper bands or ribbons, which are secured to the handle, and are provided with means for uniting their ends, substantially as described.

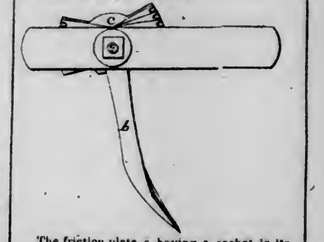
192,389. SECTIONAL STEAM-GENERATORS. John A. Reed, Dunellen, N. J., assignor to Reed's Sectional Safety Boiler Company, New York, N. Y. [Filed Sept. 21, 1876.]



The steam-generator formed of the ranges of vertical tubes *a*, connected in sections by the upwardly-inclined circulating-tubes *b*, downwardly-inclined return circulating-tubes *c*, and steam-tubes *d*, all made as ranges of hollow spheroids, and the sections connected together side by side, substantially as set forth.

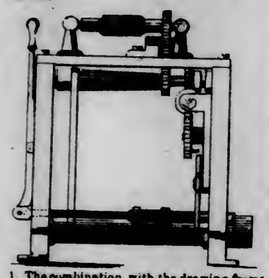
192,390. CULTIVATOR-TEETH. Guilford D. Rowell, Appleton, Wis., assignor to Appleton Manufacturing Company, same place. [Filed May 21, 1877.]

Brief.—The tooth and friction-plate are of equal thickness, the tooth-socket being cut entirely through the plate, and only removable when both are taken out of the beam. The plate has lines and notches as guides for the exact setting of the teeth.



The friction-plate *c* having a socket in its lower edge through the entire thickness of the plate, which socket is largest at its upper end, to receive the enlarged head of the tooth *b*, whereby the tooth and plate can only be separated by a sidewise movement, substantially as shown.

192,381. COMBINED REGISTER AND STOP-MOTION FOR SPINNING MACHINERY. Benj. Saunders, Nashua, N. H. [Filed Mar. 3, 1877.]



1. The combination, with the drawing-frame and the joint measuring and stop-motion mechanism, of the reverse conical band-pulleys, the main driving-shaft, and the intermediate gearing, all constructed and operating substantially as described.

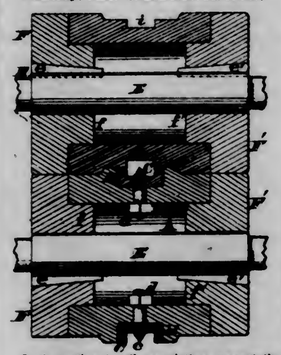
2. The combination, with the drawing-frame and the joint measuring and stop-motion mechanism, of the registering device secured on the outer side of the frame, the same consisting of the double series of cogged disks suitably indexed, and operated by the gear-wheel revolving on the stop-motion shaft, substantially as described.

3. In a drawing-frame adapted to stop with any predetermined measurement of drawing, the combination, with the band-shifter, the sliding collar, and intermediate engaging-stud, of the spring-pressed tripping-lever, substantially as described.

4. In a drawing-frame, the combination, with the joint measuring and stop-motion mechanism, of the tripping-lever, the band-shifter, and the intermediate engaging parts, substantially as described.

5. In a drawing-frame adapted to stop with a predetermined drawing, the combination, with the tripping-lever, the spring-pressed collar, and the band-shifter operated thereby, of the sliding bolt rigidly connected to the said collar, and engaging with the tripping-lever, substantially as described.

192,382. SECTIONAL ROLLS. A. B. Seymour, Portsmouth, assignor to J. Wm. Cheesman, Pomeroy, Ohio. [Filed Nov. 16, 1876.]



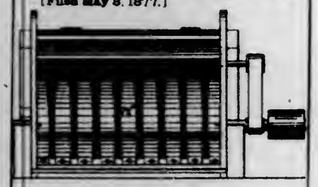
1. A sectional roll, consisting essentially of two heads secured to a driving-shaft, and a cylinder or tube fitted to said heads, the cylinder being armed with two or more removable dies or formers, whose contiguous ends abut, substantially as herein described and set forth.

2. The combination of shaft E, detachable heads F f F', grooved cylinder A B, and retaining devices e e' G g, or their equivalents, substantially as herein described and set forth.

3. The combination of driving-shaft E, detachable heads F f F' f', grooved cylinder A B b, removable dies or formers C D d, and retaining devices e e' and G g, substantially as herein described and set forth.

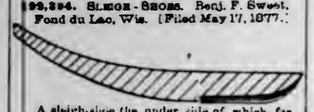
4. In combination with driving-shaft E e e', detachable heads F f F' f', lower cylinder A, and upper cylinder I, the collars J J', shoulders j j', and enlargement K, to prevent either of said cylinders shifting longitudinally in case the head F or F' should become loose, substantially as herein described and set forth.

192,383. COTTON BOLL OR HULL SEPARATORS. James A. Smiley, Prattville, Ala. [Filed May 8, 1877.]



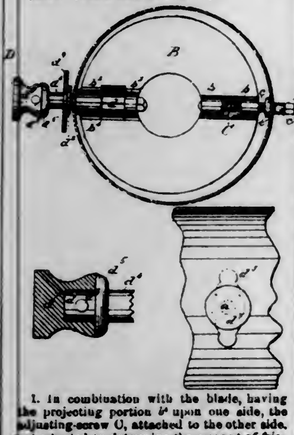
The ribs H, formed as shown, and spaced above and below, for the purposes specified.

192,384. SLEIGH-SHOES. Benj. F. Sweet, Fond du Lac, Wis. [Filed May 17, 1877.]



A sleigh-shoe the under side of which, for a portion of its length from the rear forward, is provided with a groove, diminishing in depth as it approaches the longitudinal center of the shoe, substantially as and for the purpose set forth.

192,385. STOVE-PIPE DAMPERS. Henry B. Todd, West Meriden, Conn., assignor of one-half his right to A. W. Todd, same place. [Filed Mar. 29, 1877.]



1. In combination with the blade, having the projecting portion b^2 upon one side, the adjusting-screw C, attached to the other side, and adapted to determine the amount of friction, substantially as described.

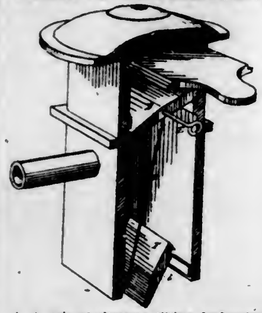
2. In combination with the blade, having the raised projections provided with screw-threads, and the projecting portion b^2, the adjusting-screw C, having the shoulder c^2, as described.

3. In combination with the blade having the angular raised portion, as described, and the stove-pipe having the proper opening, the handle D, having the angular shank d, and also the circular recess d^3, adapted to receive the edge of the stove-pipe opening, as described.

4. In combination with the metal shank d^4, having the flange d^5, the wooden knob d', inclosing the metal, as described.

5. The combination of blade B, the adjusting-screw C, and the handle D, substantially as described.

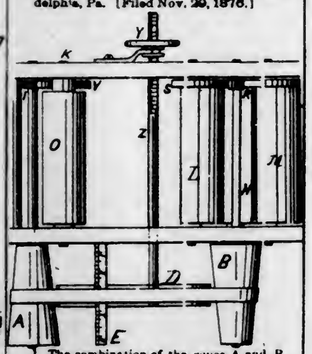
192,386. TUYERES. Isaac S. Van Winkle, San Francisco, Cal. [Filed Mar. 26, 1877.]



1. A pair of alternate tilting draft-valves connected together by rod a, and having the blast-nozzle between them, in combination with a tuyere, substantially as set forth.

2. The valve D near the grate-cap, and the valve F near the open end of the box, in combination with the rod a and handle E, substantially as and for the purpose described.

192,387. DRYING MECHANISMS FOR DRYING-MACHINES. Robert J. Walker, Philadelphia, Pa. [Filed Nov. 29, 1876.]



1. The combination of the cones A and B, fork D, threaded rod Z, and screwed hand-wheel Y with the sizing-rollers O K and drying cylinders L M N, substantially as and for the purpose specified.

2. In combination with the cones A and B, fork D, threaded rod Z, screwed hand-wheel Y, sizing rollers O K, and drying-cylinders L M N, the index H, substantially as and for the purpose set forth.

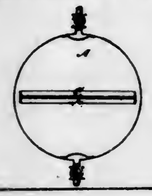
192,388. COMPOUNDS FOR THE MANUFACTURE OF CRUCIBLES. Henry Wile, Philadelphia, Pa. [Filed Apr. 5, 1877.]

Brief.—Lithomarge is mixed with the ingredients commonly used in the manufacture of crucibles.

1. Lithomarge, in combination with the ingredients used in forming compounds for the manufacture of crucibles.

2. A crucible compound composed of black-lead, German clay, sand, ground fire-brick, and lithomarge, in about the proportions given.

192,389. GAS AND AIR CARBURETERS. W. H. Winn, New York, N. Y. [Filed Feb. 2, 1877.]



In a gas or air carbureter dependent for its operation on the forced passage of a current of gas or air therethrough, the pans C C, centrally arranged within the reversible carbureting-cylinder A, substantially as and for the purpose herein set forth.

192,390. METAL-CLAD CEILINGS. William B. Worthen, New York, N. Y. [Filed May 17, 1877.]



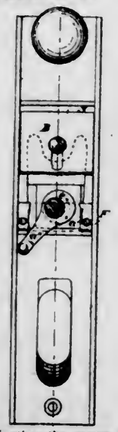
As a new article of manufacture, the before described metal-clad ceiling, consisting of a core of wood and a sheet-metal clothing therefor, constructed and combined substantially as represented and specified.

192,391. PROCESSES FOR SEPARATING COPPER AND THE PRECIOUS METALS FROM COPPER MATTE. Wm. B. Young, Golden, Colo., assignor to himself, G. Board, and F. B. Everett, same place. [Filed Oct. 18, 1876.]

The process of separating copper and the precious metals from copper matte, which consists in roasting the pulverized matte with common salt, dissolving out the chloride of copper with water, and smelting the residue with lead ores, to obtain gold and silver bullion, substantially as herein set forth.

192,392. BENCH-PLANES. C. L. Adancourt, Lansingburg, N. Y. [Filed Dec. 15, 1876.]

Brief.—The body of the plane is provided with adjustable extension-sections attached to its ends for the purpose of increasing the length of its bearing-surface. The reversible cutting-bit is attached by a slotted opening to and rests upon a hinged bank supported upon trunnions in the side walls of the plane, and the lower ends of the bank and bit are raised or depressed by means of an adjustable eccentric pivoted to the base of the plane, and provided with a suitable handle.



1. In combination, the center knife or bit section F of a plane, and the extension-section F' F'', to increase the length and base bearing-lines of the plane, as shown and described.

2. In a bench-plane, the hinged bank C, reversible cutting bit or knife B, actuating-eccentric e, and handle E, arranged to operate as described and shown.

3. In a bench plane, the extension-sections F' and F'', the center or bit section F, the hinged bank C, cutting bit or knife B, the adjusting-eccentric e, and handle E, arranged to operate as herein described and shown.

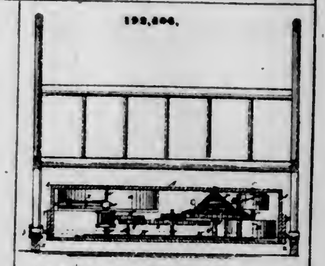
192,393. FIRE-ESCAPES. Isaac H. Allen, Black Creek, Ontario, Canada. [Filed May 28, 1877.]

A flexible fire-escape ladder composed of side supports A A for the rounds B, made of tubular webbing, strengthened, substantially as described.

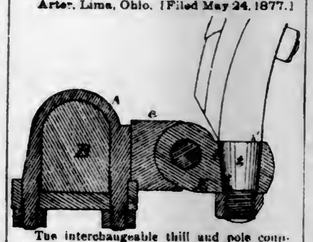
192,394.



192,395.

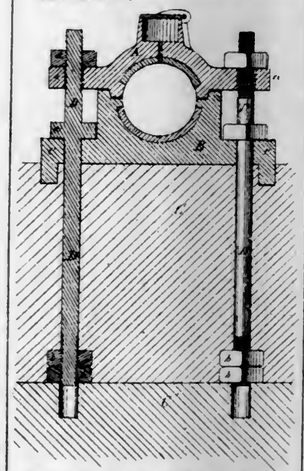


192,394. THILL-COUPLINGS. Francis G. Arter, Lima, Ohio. [Filed May 24, 1877.]



The interchangeable thill and pole coupling, consisting of the clip A, with ears *b* extending, and coupling-piece E, with eye *d'*, through which the coupling-bolt passes, and vertical tapering socket *f*, and the thill or pole iron, with tapering end *h* to enter the socket, to which it is secured, all arranged as shown and described.

192,395. JOURNAL BOXES AND BEARINGS. Jas. S. Atkinson, Pittsburg, Pa., assignor to Jones & Laughlins, same place. [Filed May 28, 1877.]



The combination of box A B, having flanges *a e*, and bolts D, adapted to be tightened on the lower flange by the use of a wrench or like tool applied between the flanges, substantially as set forth.

192,396. AUTOMATIC CRADLES. Charles Barlow, Cookshire, Quebec, Canada, assignor to Miller, Barlow & Co. same place. [Filed Feb. 3, 1877.]

192,396.

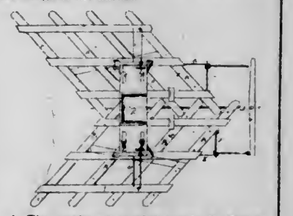
1. The combination of the arm V, the sliding weight W, and the spiral spring X with the chain of gear-wheels driven by the spring B, drum D, cord or chain E, and fusee F, and with the case A, substantially as herein shown and described.

2. The combination of the notched boards Y and the rods Z, provided with the rollers *s'*, with the case A of the apparatus, to adapt it to be applied to the rockers of a cradle, substantially as herein shown and described.

3. The combination of the spring-bar A' and hand-screw B' with the case A and the wheel O of the chain of gear-wheels, substantially as herein shown and described.

192,397. HARROWS. Frank Barnes, Fairmount, Nebr. [Filed Apr. 2, 1877.]

Brief.—A harrow-frame made in two parts, connected in the center, with a rod running through the abutting ends of the tooth-bars; a seat with slotted seat-board and rods to raise the wings of the harrow.



1. The combination of the rods E F with the forward inclined bars B of the parts of the harrow-frame, substantially as herein shown and described.

2. The combination of the tongue I J with the rods E F and the parts of the harrow-frame, substantially as herein shown and described.

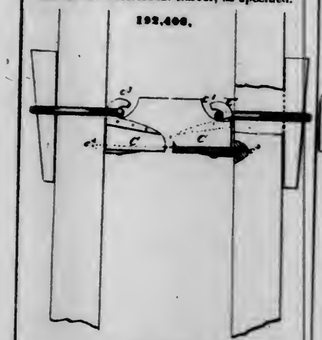
3. The combination of the seat K, the slotted seat-board L, the standards M, and the braces O with the two parts of the harrow-frame, substantially as herein shown and described.

192,398. SHOES FOR SCAFFOLDINGS. Henry Batt, Kentish Town, London, England, assignor to L. G. Tabraham, Boston, Mass. [Filed May 12, 1877.]

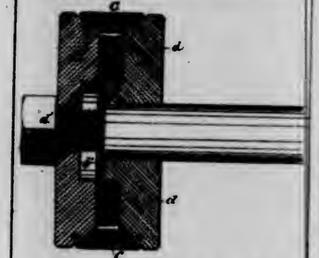
The shoe or box C, provided with the hooks *c'* on the upper corners of its sides, and the teeth *c²* forming an extension of the bottom thereof, as shown and described, whereby the

device is adapted for attachment to a joist or vertical timber, and to receive and support the end of a horizontal timber, as specified.

192,409.

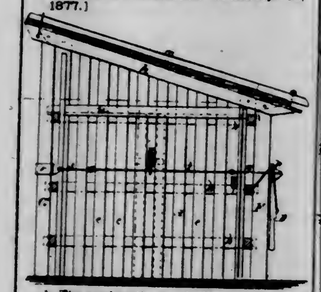


192,409. PISTONS. Robert M. Beck, Westminster, Md., assignor to the Taylor Manufacturing Company, same place. [Filed May 21, 1877.]



The combination of the rigid disk B, having boss *b*, and the loose disk B', having depression *b'*, with the interposed adjusting-washers *d*, arranged upon the boss *b* near the periphery of the piston, and the continuous or jointless expansible metallic packing-ring C, substantially as described, and for the purpose set forth.

192,410. PORTABLE CORN-CRIBS. Benj. F. Bedwell, Overton, Mo. [Filed Apr. 16, 1877.]



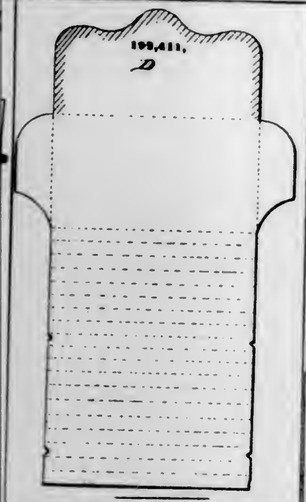
1. The combination, with the sections A A C G, of the bar E and verticals strips *u u*, keyed together, as shown and described, for the purpose specified.

2. The combination, with the posts F G of a crib, constructed as described, of the lever D, loop *q*, rod *t*, link *s*, and strap *r*, substantially as set forth.

192,411. LETTER-SHEET AND ENVELOPE. William T. Berry, Maysville, Ky. [Filed May 12, 1877.]

A combined letter-sheet and envelope, which consists of a letter-sheet having notches or serrations in its edges, short side flaps C, and outer flap D, rectangular in form and gummed on three sides, substantially as described, and for the purposes set forth.

192,411.

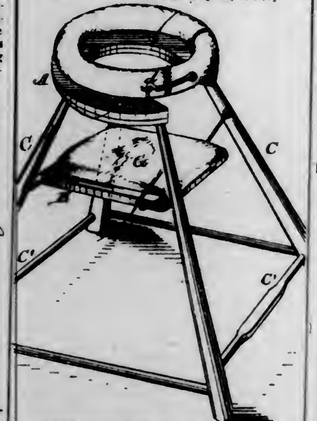


192,412. BUCKLES. De Witt V. Bradley, West Haven, Conn. [Filed Mar. 30, 1877.]



In combination with the plate *a*, the loop *b*, hinged thereto, the hinged side of which is divided, and the ends turned at right angles to the plane of the loop and toward the plate, to form a clamp to engage the strap, substantially as specified.

192,413. BABY-WALKERS. John L. Butler, Osceola, Iowa. [Filed May 12, 1877.]



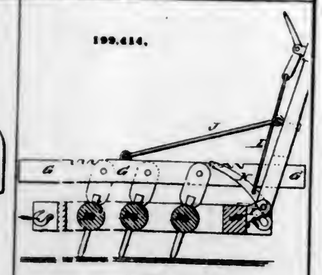
In combination with the rim A and its supporting-legs C C, the folding seat E, having aperture *n*, slide *m*, and sliding cushion G, substantially as and for the purpose described.

192,414. HARROWS. John W. Carpenter, Bridgewater, Va. [Filed May 12, 1877.]

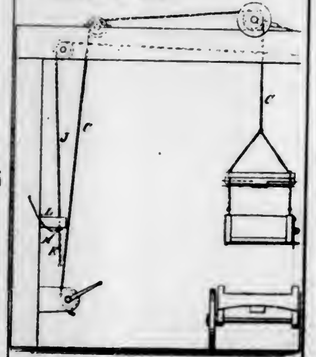
Brief.—The harrow is reversible, and the devices for adjusting the rollers may be attached to either end of the frame to be opposite to the draft.

The combination, with bar G having rack at either end, of the lever and pawl mechanism, connected with said bar by the pivoted braces J, and arranged in a detachable bracket, I, to allow the harrow to be reversed, as specified.

192,414.

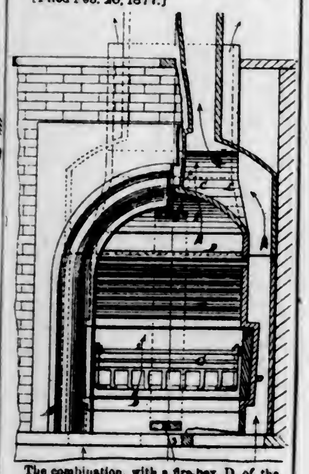


192,415. APPARATUS FOR LOADING AND UNLOADING WAGONS, &c. Jas. W. Castleman, Cumberland Iron-Works, Tenn. [Filed Mar. 10, 1877.]



The combination, with ropes O J winding in opposite directions on the windlass of a loading mechanism, of the hook-chain K, staple L, and the pin M, arranged substantially as and for the purpose specified.

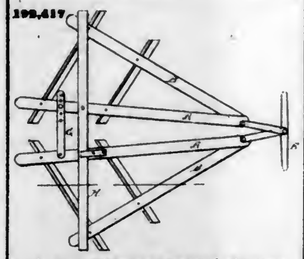
192,416. FIRE-PLACE HEATERS. Columbus M. Coulter, Danville, Ill., assignor to himself and Lysander Johnston, same place. [Filed Feb. 26, 1877.]



The combination, with a fire-box, D, of the tubes E, extended across and entering the air-chamber at the sides thereof, substantially as and for the purpose described.

192,417. ROAD-SCRAPERS. J. T. Currier, Neponset, Ill. [Filed May 26, 1877.]

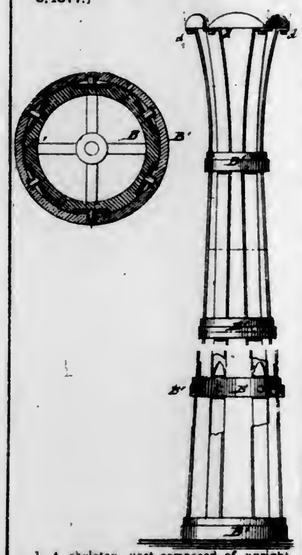
192,417



1. In a road-scraper composed of two sections, the V-shaped sections composed of the beams A B, the inclined and angling bars O C, and the knives D D, the parts being adjustably connected, substantially as and for the purposes herein set forth.

2. The combination of the V-shaped scraper-sections A B O D, chains or bars *a*, doubletree E, perforated adjusting-bar G, lever H, and hook-shaped piece I, all constructed substantially as and for the purposes herein set forth.

192,418. LAMP-POSTS. William De Lany, Cobourg, Ontario, Canada. [Filed Feb. 3, 1877.]



1. A skeleton post composed of upright bars, retained by recessed interior and outer binding rings applied at proper intervals, substantially in the manner and for the purpose set forth.

2. The combination of the perforated bars A with the recessed interior ring B, having tenons *a*, and with the exterior clamping-ring B, having grooves *d'* at the inner circumference, substantially as specified.

3. The combination of the outwardly-curved top parts of bars, having perforated horizontal flanges *d*, with the notched extension-rods of the lamp, substantially as shown, and for the purpose set forth.

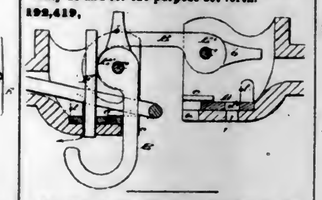
192,419. CAR-COUPLINGS. R. H. Dowling and E. S. Perry, Newark, Ohio, assignors of one-fourth their right to Darwin De Wolf, same place. [Filed Mar. 24, 1877.]

1. The combination of pivoted hook B with draw-head A, having horns or tails *b b* and slide D, substantially as and for the purpose set forth.

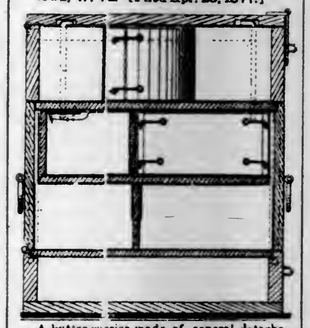
2. The combination of draw-head A, having recess *a*, with pivoted hook B, having sleeve B' and slide D, substantially as and for the purpose set forth.

3. The combination of draw-head A, having hole E, beads *c c*, and recess *a*, with slide D, having hole *d'*, pin F, and hook B, substantially as and for the purpose set forth.

192,419.



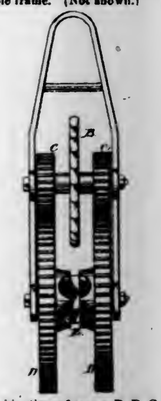
192,420. BUTTER-CARRIERS. William H. Dulaney and Theophilus Dulaney, Petersburg, W. Va. [Filed Apr. 28, 1877.]



A butter-carrier made of several detachable boxes or sections, placed on the top of each other, and being connected by screw-bolts, the lower section or sections having hinge-portions and fastening devices for applying the lid, and forming a carrier of any required size, substantially in the manner and for the purpose specified.

192,421. STUMP-ELEVATORS. August Dunnebacke and Jacob Linden, Lansing, Mich. [Filed Apr. 16, 1877.]

Brief.—The whole lifting apparatus is hung to a suitable frame. (Not shown.)

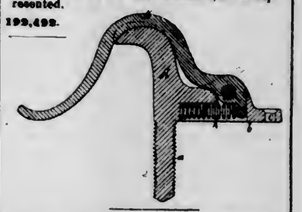


The combination of gears D D C C with the sprocket E and ratchet B, when made as described, substantially as and for the purpose set forth.

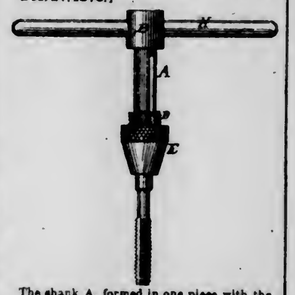
192,422. HOLDBACKS FOR VEHICLES. Chas. J. Ellsworth, Fisherville, N. H. [Filed May 28, 1877.]

The improved holdback, constructed substantially as described—viz., with the vertical hooked and grooved standard A, provided with the spring-chamber *b* and spring *d*, arranged in its arm *b* at a right angle to the fastening-screw *a* thereof, and having the tongue B pivoted to the arm, and extended into the said chamber and against the end of the spring, so as, when down, to rest in the groove of the head of the standard, all as represented.

192,423.



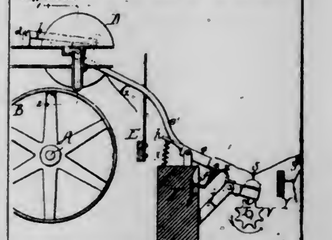
192,422. TAP-WRENCHES. Chas. Eltorich, New York, N. Y., assignor to himself and Andw. H. Briggs, Jersey City, N. J. [Filed Dec. 27, 1876.]



The shank A, formed in one piece with the conical lower end parallel-sided screw-thread D, and the series of parallel slots extending from the conical lower end up through the screw-thread D, in combination with the screw-nut E, having the inner conical end *d*, substantially as described.

192,424. STOP-MOTION ATTACHMENTS FOR SPOOLING-MACHINES. Francis Fearon, Philadelphia, Pa., assignor to Thos. Dolan and R. Williams, Jr., same place. [Filed Jan. 20, 1877.]

Brief.—When a thread breaks, its eyed bell-crank lever falls and engages a fluted roller. Said roller, revolving, presses against said lever, and causes the lever-frame to be turned on its pivot, thereby, through intermediate mechanism, causing the elevation of the long levers, so that they strike the journals of the spool and lift the same clear of the driving-drum.



1. The combination of the driving-drum B and spool D, the fluted roller V, and the pivoted frame J, its levers S and plate P, having a supporting-strip, *n*, with the spring-levers G, adapted to raise the spool, substantially as set forth.

2. The combination of the driving-drum B and spool D with the levers G and their spring-fingers *g*, as described.

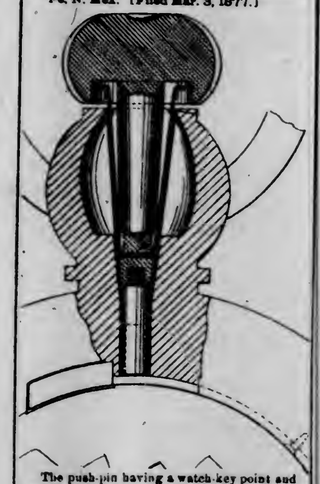
3. The combination of the pivoted frame J, having attached thereto the plate P', which has a supporting-strip, *n*, with the levers G and their adjustable screws *f*, substantially as specified.

4. The combination of the frame J, having openings *v*, with the levers S and pins *t*, as and for the purpose set forth.

5. The combination of the levers S with the frame J and its sliding plate w, substantially as described.

6. The combination of the pivoted frame J, its plate F, and the levers G with the bar F, having shoulder s, as set forth.

192,425. COMBINED PUSH-PIN AND WATCH-KEY. A. A. Fisher and S. H. Lucas, Santa Fé, N. Mex. [Filed Mar. 3, 1877.]



The push-pin having a watch-key point and notched retaining-spring, in combination with the chambered stem of a watch, substantially as and for the purpose herein shown and described.

192,426. SHEARS. Daniel A. Foltz, New Ringgold, and Aaron Miller, Ringtown, Pa.; said Miller assignor to said Foltz. [Filed May 21, 1877.]



The combination, in shears or scissors, substantially as described, of the blades A and B, the handles A' and D, the connecting-bar C, the spring E, and the joints i, k, g, and f.

192,427. MOWER AND REAPER KNIFE-SHARPENERS. Zarda Frost Kinmundy, Ill., assignor to himself and W. H. White, same place. [Filed Mar. 24, 1877.]

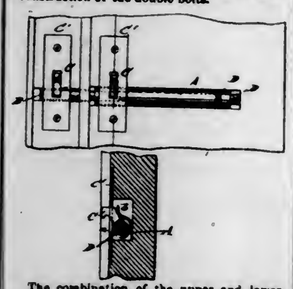
Brief.—The holder support is thrown toward the stone by a treadle, and from it by a spring. The hinged holder is spring-seated. The holder and its support are adjustable in a horizontal arc, which may be graduated.



The combination of a centrally-pivoted base-plate, C, a swinging spring and treadle acted frame, D, and a hinged vibrating and spring-cushioned supporting-bar, E, substantially as specified.

192,428. SASH-FASTENERS. D. T. Garrish, Lewiston, Me. [Filed Apr. 30, 1877.]

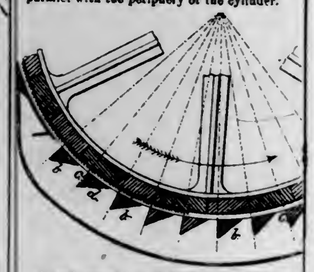
Brief.—Two spring-acted bolts, working one within the other, are provided with locking-catches, and operated by suitable thumb-pieces projecting through the window-casing, the sash being provided with countersunk recesses or sockets to accommodate the peculiar construction of the double bolts.



The combination of the upper and lower sashes of a window, having end recesses or sockets d, with a double fastener, composed of two spring-acted bolts, A and B, working one within the other, and having locking-catches C and operating thumb-pieces D, substantially as specified.

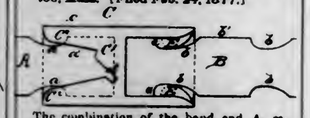
192,429. CARD-SCREENS. S. S. Getchell, Woonsocket, R. I. [Filed Apr. 3, 1877.]

Brief.—The bars of the screen are fixed, and their forward faces form a plane on, or nearly on, radial lines from the center of the cylinder. Their upper surfaces are on lines parallel with the periphery of the cylinder.



A card-screen provided with permanently-fixed bars, the forward faces of which form planes on, or nearly on, radial lines from the center of the cylinder, and their upper surfaces are on lines parallel to the periphery of the cylinder, substantially as and for the purpose described.

192,430. SALE-TIES. J. M. Goldsmith, Boston, Mass. [Filed Feb. 24, 1877.]



The combination of the band end A, recessed at a a, and band end B, having a series of pairs of recesses, b, and open buckle C, having top plate C', recessed, and obliquely slotted, as shown, lugs E, and lips e, as and for the purpose set forth.

192,431. BRICK-MACHINES. W. L. Gross, Philadelphia, Pa. [Filed Apr. 20, 1877.]

Brief.—The top plate, after pressure is given to the brick, is raised above the top of the mold-box, while the plunger also moves upward, carrying the pressed brick out at the top of the mold, from which position it is removed by the ejecting and indexing device. A passage leads back from the mold-box to the hopper, to allow the escape of superfluous clay.

1. The combination, in a brick-machine, of a mold-box, a plunger adapted to be elevated within the same for pressing and discharging the brick, a pressure-plate, closing the top of the mold-box during the pressing operation, but fitted to be raised during that of discharging the finished brick, and a reciprocating sweep for pushing the brick from the top of the mold-box, substantially as herein set forth.

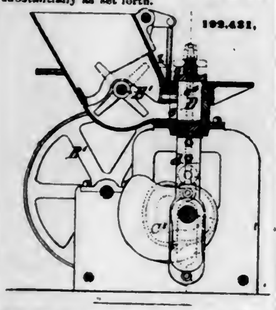
2. The combination, in a brick-machine, of an open-topped mold-box, a reciprocating plunger working therein, a pressure-plate closing the top of the mold-box, a supply-hopper communicating, by a feed-opening, with the mold-box, and a relief passage or passages, connecting the hopper and mold-box between the feed-opening and pressure-plate, substantially as set forth.

3. The combination, in a brick-machine, of an open-topped mold-box, a plunger working therein, an intermittently-moving pressure-plate, which closes the top of the mold-box, and a reciprocating sweep and brush, which remove the finished brick and lubricate the working-surfaces of the pressure-plate and plunger, substantially as set forth.

4. The combination, in a brick-machine, of a mold-box, a feed-hopper, communicating by a feed-opening directly therewith, and provided with a shaft carrying a series of agitator-blades, which pass in their rotation between correspondingly-arranged stationary blades in the hopper, and across the feed-opening leading to the mold-box, substantially as set forth.

5. The combination, in a brick-machine, of an open-topped mold-box and a pressing and discharging plunger with an intermittently-moving pressure-plate, a feed-hopper communicating directly with the mold-box, and a series of revolving and stationary agitating or disintegrating blades, situated in the hopper adjacently to the mold-box feed-aperture, substantially as set forth.

192,431.

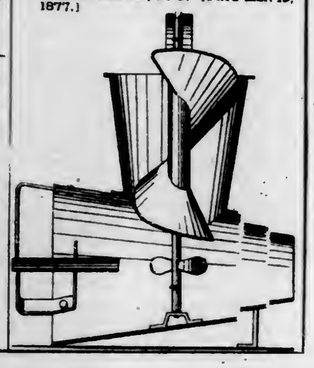


192,432. DOOR-THRESHOLDS. R. B. Hamor, Eden, Me. [Filed Apr. 24, 1877.]



A door-threshold having its open chamber a provided with a series of ribs, and a trough arranged as described, in combination with a flanged cover arranged with and applied thereto, and provided with studs to enter elongated cavities in the ribs, as explained.

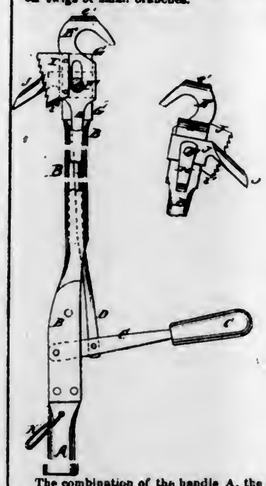
192,433. STEAM FURNACE-BLOWERS. T. J. Hickey, Rondout, N. Y. [Filed Mar. 19, 1877.]



Is a device for increasing the draft of furnaces constructed with a horizontal shell and vertical cylinder, the combination of a helical vane within the vertical cylinder, and vanes within the horizontal shell, arranged to revolve by the force of the steam-jet, and to permit the helical vane to draw the external air through the vertical cylinder into the horizontal shell and to the furnace, substantially as and for the purpose described.

192,434. PRUNING IMPLEMENTS. Jesse R. Hunter, Orange Springs, Fla. [Filed June 11, 1877.]

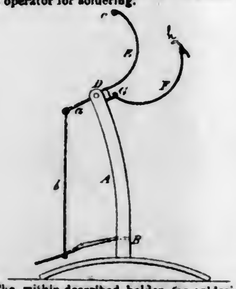
Brief.—A novel combination of old devices, aggregating an unusual number of useful implements, and supplementing the hook with a cutting edge or chisel, and the saw with a downwardly-inclined cutting-edge for lopping off twigs or small branches.



The combination of the handle A, the pipe B, the lever C, the rod D, the slotted hook E, having a cutting-edge or chisel, e', formed upon its top, the screw F, the reversible cutter-plate G, the feed-hook J, and the short tapering saw-plate I, having a cutting-edge, i', formed upon its lower end, substantially as herein shown and described.

192,435. HOLDERS FOR SOLDERING RAVE-TROUGHS. John Huth, Sandyville, Ohio, assignor to himself and John Voelm, same place. [Filed Apr. 7, 1877.]

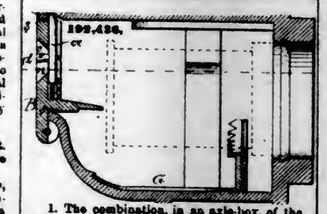
Brief.—The trough is secured between the clamping-arms, which are journaled, so that both sides of the trough may be presented to the operator for soldering.



The within-described holder for soldering rave-troughs, consisting of the frame A B A, with treadle C, rod b, arm a, and cross-head D, with fixed arms E, pivoted clamp-arms F, and hook h, the several parts being arranged and operating substantially as and for the purpose specified.

192,436. AXLE-BOXES. Florens Keiser, Pottstown, Pa., assignor of one-half his right to H. G. Kulp, same place. [Filed Apr. 7, 1877.]

192,436.



1. The combination, in an axle-box, of the door B, hinged at its lower edge to the front of the box, with a spring-latch, c, and packing-strips s, as set forth.

2. The combination of the spring-latch a and its pin d, having an opening, e, with the door B, and the enlarged slot n, in the same, all as described, for the purpose specified.

3. The combination, in an axle-box, of a detachable plate, G, provided with the teeth for the retention of the absorbent material in the box, as described.

192,437. WIRE STRAIGHTENING AND CUTTING MACHINES. Irving A. Kilmer, Cobleskill, N. Y., assignor of one-half his right to Augustus Kilmer, same place. [Filed May 19, 1877.]

Brief.—A double machine, having duplicate devices at each end, and a mediate carriage for taking two wires, one from each end reel toward the other end of the machine, and straightening and cutting off any desired length of each wire. One wire is passed from one—say the left-hand—reel, through a guide and friction rollers, all adjustable to regulate tension, and between the jaws of a one-way clutch, which is held open, (when closed this clutch prevents a forward movement of the wire,) and on through another one-way clutch, (this clutch prevents a backward movement of the wire,) and thence into a die, under a cutter and in a sliding cross-head; and thence into a clutch on one end of a carriage adapted to reciprocate lengthwise of the machine. This carriage, being moved, draws the wire forward to the right till the carriage strikes the right-hand sliding cross-head, which it presses forward close against the right-hand table. Now, another wire, which has been led from the right-hand reel and put through duplicate guides, wheels, and clutches on the right-hand table, and into a duplicate die in the right-hand sliding cross-head, is, by the repression of the cross-head by the carriage, made to project from the die with enough exposure that it may be, and is, seized by the duplicate clutch of the carriage; also, when the carriage strikes the cross-head it closes the first clutch onto the first-mentioned wire, and so prevents that wire from moving forward, and since the carriage clutches the advance end of the same wire, and advances to repress the sliding cross-head, that wire is straightened (and it may be stretched) between the two clutches. The carriage now starting backward, a spring-hook on the right-hand table opens that clutch of the carriage which holds the advanced end of the first wire, and that end of the first wire drops free, the wire remaining sustained in the die in the left-hand cross-head, and being kept from retrogression by the second clutch on the left-hand table. The carriage, continuing to recede to the left, not only draws the second wire to the left, as before the first wire was drawn to the right, but also, by a cam on it striking a lever, actuates a cutter to cut from the first wire the straightened portion, which falls free from the machine; carriage moves on leftward, takes up the slight of the first wire, goes to the right with it, and on its way cuts a straightened length from the second wire, and so on. Should either wire fail to unwind, its reel moves inwardly, and shifts the driving-belt onto a loose pulley, and so stops the carriage.

1. A wire cutting and straightening machine, operating upon two rolls of wire at the same time by a reciprocating carriage, arranged to pull the wire from one roll while moving in the other direction, substantially as set forth.

2. In a machine for straightening and cutting wire, the combination of a reciprocating carriage and a continuously-rotating right-and-left screw-shaft for operating the same, substantially as herein set forth.

3. In a machine for straightening and cutting wire, a spring-slide carrying the reel for the wire-roll, and connected with the mechanism for throwing the machine in and out of gear, substantially as and for the purposes herein set forth.

4. The combination of the spring-slides B^1, carrying the reels U, connecting-rods w w', lever S^1, and slide S with fork K, substantially as and for the purposes herein set forth.

5. The combination of the stationary jaw I and pivoted jaw I^1 with spring s and the pivoted lever I^2, substantially as and for the purposes herein set forth.

6. The sliding head K, operated by the springs p p, and carrying the die h and cutter L_1, substantially as and for the purposes herein set forth.

7. The combination of the sliding head K, the sliding cutter L_1, with stem r and nut v, the slotted lever M, rod t, and spring s, substantially as and for the purposes herein set forth.

8. The combination, with the continuously-rotating right-and-left screw-shaft N, of the sliding carriage O and the centrally-hung arm or lever P, having a tooth or projection, P^1, at each end, substantially as and for the purposes herein set forth.

9. In combination with the shaft N, carriage O, and arm or lever P with teeth P^1, the projecting pins P^2 P^3, guides R R, and beveled spring-slides R' R', constructed and arranged to operate substantially as and for the purposes herein set forth.

10. The jaws O^1 O^2, with springs a' a', arranged in opposite directions on opposite sides of the carriage O, in combination with the shoulders b' b' on said carriage, substantially as and for the purposes herein set forth.

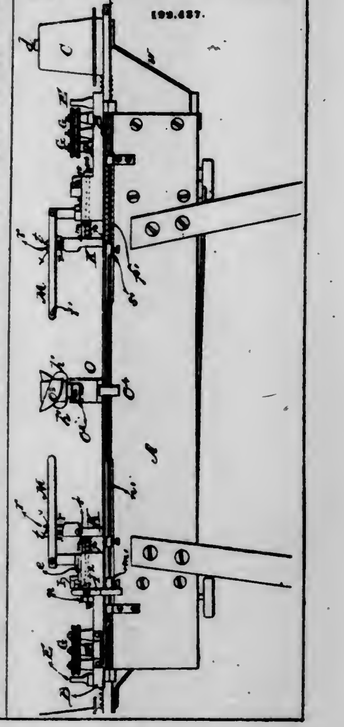
11. The combination, with the carriage O, of the cam-dogs O^3, springs h', and the pins t' on the cutter-levers M, substantially as and for the purposes herein set forth.

12. In combination with the spring-jaw I^1 and pivoted lever I^2, the rod n', with spring p' and adjustable collars m' s', and the arm O^4 on the carriage O, substantially as and for the purposes herein set forth.

13. The spring-hook A', in combination with the jaw O^2, for the purposes described.

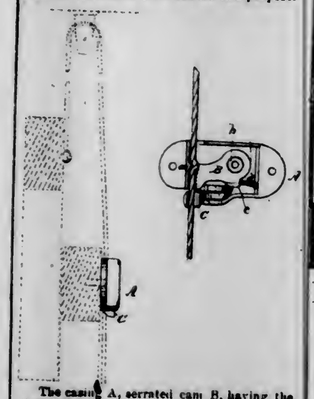
14. The slotted metal bars C, arranged under the platforms B, to operate on the tilting arm or lever P, for the purposes herein set forth.

192,437.



192,436. SASH-BALANCES. Adam Kolb and Charles Osberghaus, Sandusky, Ohio. [Filed May 12, 1877.]

Brief.—A suitable box or casing carries a serrated spring-pawl, and is attached at or near the meeting-rail of the sashes. A cord, led over a pulley from the top of the window-frame, passes through, and is clamped automatically, but released by a slight movement of a handled lever provided for this purpose.



The casing A, serrated cam B, having the beveled lug *c*, the spring *d*, and the lever C, in combination, substantially as shown and described.

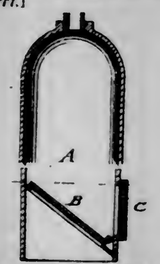
192,439. PEN-HOLDERS. Story B. Ladd, Washington, D. C. [Filed May 24, 1877.]



1. The improved pen-holder, consisting of the handle *a*, constructed substantially as described, and provided with the plug *b*, having the convolute or spiral pen-retaining groove or socket, whereby it is adapted to hold pens of varying sizes and curvatures.

2. An improved pen-holder, consisting of a handle made of wood or other suitable material, with a convolute or spiral pen-retaining groove or socket formed in the end of the pen-holder, substantially as herein described.

192,440. PNEUMATIC TUBES FOR DREDGING. Wm. P. Lewis, Oroville, Cal. [Filed Apr. 23, 1877.]



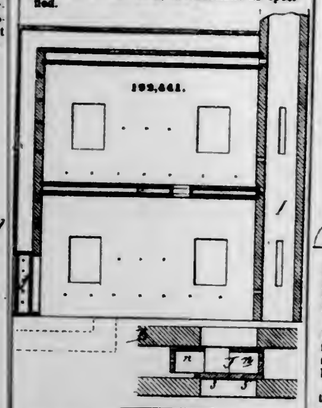
A pneumatic tube for hoisting sand provided with an upwardly-inclined hinge-valve, B, and outwardly-opening door C near the bottom, as shown and described.

192,441. BUILDINGS. Adam W. Louth Philadelphia, Pa. [Filed Apr. 16, 1877.]

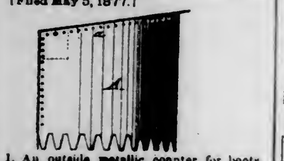
1. A building having double walls or flues, inclosing passages which communicate with the interior of the apartment or apartments in the building, with the windows in the outer wall of the said passages, and with a chimney, I, as set forth.

2. The combination of the chimney I with an apartment having a double ceiling, the interior of which communicates with the apartment and with the said chimney, as described.

3. The combination of the double-walled building with a door composed of outer sliding sections *a a'* and inner sliding sections *a*, of a box-like form, substantially as specified.



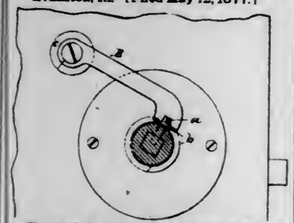
192,442. METALLIC COUNTERS OR STIFFENERS FOR BOOTS AND SHOES. Ira O. Mann and George R. Rankin, Lake City, Colo. [Filed May 5, 1877.]



1. An outside metallic counter for boots and shoes, having perforations along the sides and top edge for sewing into the inside counter, and side and top flanges for lapping over and protecting the seam, substantially in the manner and for the purpose specified.

2. The combination of an outside metallic counter, having perforations and flanges, with the upper and the inside counter, and with an interposed washer, all stitched together and riveted at the corners, substantially as and for the purpose specified.

192,443. KNOB-FASTENERS. Oscar Mayo, Evanston, Ill. [Filed May 12, 1877.]

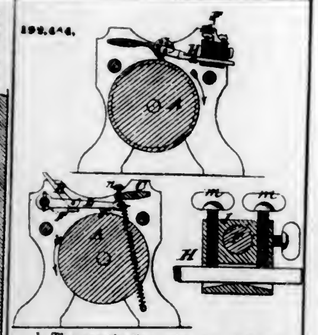


The latch B, having formed upon it the ear *b*, which is perforated to receive a screw, *a*, substantially as and for the purpose herein shown and described.

192,444. RULING-MACHINES. J. McAdams, Brooklyn, N. Y. [Filed Nov. 23, 1876.]

Brief.—A rock-shaft, which carries the pen-lifter, provided with the cam-wheel, is also provided with an arm, extending back under the front edge of the pen-bar, and has an anti-friction roller, upon which a set-screw on pen-bar impinges, and by means of which the pressure of the pens upon the paper can be regulated. The rock-shaft also carries a slotted block, through which the pen-lifter passes, and rests upon the bottom of a slot having the form of a double incline plane, whereby through set-screws, the lifter may be adjusted relative to its pressure upon the cylinder.

192,445.

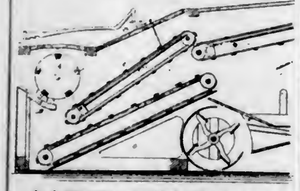


1. The combination, with the oscillating pen-bar C, of the pen-lifter H, and its independent rock-shaft F, and a connection between said pen-bar and rock shaft, substantially as and for the purpose herein described.

2. The combination of the slotted clamping-block I, having the bottom of the slot in the form of a double-inclined plane, the adjusting-screws *m m*, and the pen-lifter H, substantially as and for the purpose set forth.

3. The combination, with the lever L and the pen-bar C, of the friction-roller *r*, the set-screw *n*, and the stop *f*, for the adjustment of said pen-bar, substantially as and for the purpose described.

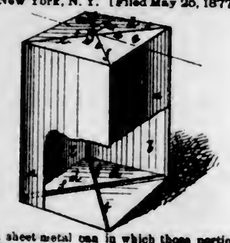
192,446. GRAIN-SEPARATORS. William J. McCulla, Estherville, Iowa. [Filed Mar. 3, 1877.]



1. A separator provided with two carrier-belts, the primary one adjustably inclined with respect to the secondary one, as shown and described.

2. The combination of the threshing-machinery A B with the carrier C, having its upper end adjustable to and from the top of the casing of the machine, substantially as and for the purpose specified.

192,446. SHEET-METAL CANS. H. Miller, New York, N. Y. [Filed May 26, 1877.]



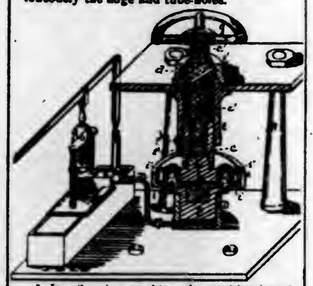
A sheet-metal can in which those portions of the body which are bent over to wholly or partly form either head of the can are united together by inwardly-projecting seams, substantially as described.

192,447. WHIPS. Wm. H. Millikin, Baltimore, Md. [Filed June 13, 1877.]

A whip having a rawhide tip and a rattan stock, and provided also with a wrapping of fabric in stripe wound about the whip-body in the reverse direction from the twist of the rawhide, substantially as described and for the purpose set forth.

192,448. FLANGING-MACHINES. David Morgan and William Godley, Pittsburg, Pa. [Filed May 17, 1877.]

Brief.—The upper die having been adjusted in place, the disk is placed upon the lower die, which is raised by the piston flanging simultaneously the edge and tube-holes.



1. In a flanging-machine, the combination of two flanging dies, *a b*, piston P, cylinder D, adjustable block *c*, stem *c'*, and sleeve *e*, substantially as described.

2. The combination of pressure-block *c*, piston P, and two flanging-dies, having one or more studs, *i*, and recesses or holes *i'*, substantially as described.

3. In a flanging-machine, the combination of two flanging-dies, one having one or more studs, *i*, and a flange, *a*, the other having one or more recesses or holes *i'*, substantially as set forth.

192,449. RECIPROCATING CHURNS. Alfred F. Morgan, Mason City, Iowa, assignor of two-thirds his right to C. B. Seaberry and Joseph A. Case, same place. [Filed Dec. 27, 1876.]



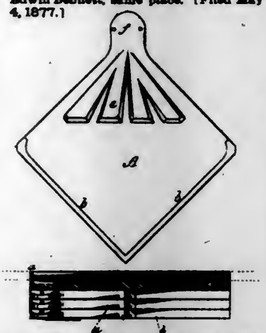
The frame A, provided with the guide-rods E, in combination with the cross-head D, adjustable dasher-handle F, pivoted bar C, crank-arm B, and fly-wheel H, substantially as described, and for the purpose set forth.

192,450.

192,450. BRIDGES. Thos. Mullin, Millersburg, Iowa, assignor to himself and W. H. Roller, same place. [Filed May 21, 1877.]

In a bridge, the combination of the stringers B with the floor-beams B', having notches *a a* at the junctions of said stringers and beams, as shown, and for the purpose set forth.

192,451. ROOFING-TILES. Philip Pointon, Baltimore, Md., assignor to himself and Edwin Bennett, same place. [Filed May 4, 1877.]



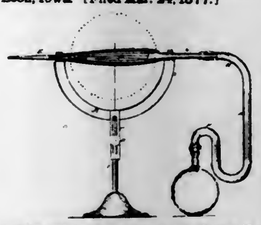
1. A roofing-tile having lips *a* and *b* upon the opposite ends and opposite sides of the same, adapted to couple the adjacent tiles, the outer surface of which lips are upon a level with the plain body portion of the tile, substantially as and for the purpose described.

2. An earthenware tile having the lips *a* and *b*, and provided with an inclined upper face, with a central projecting face or figure raised to the level of the upper lip *a*, substantially as and for the purpose described.

3. The tile having lips *a* and *b* upon opposite sides and ends in the same plane with the opposite plain faces, as described, with the lip *b* extended past the end of the lip *a*, for the purpose described.

4. A roofing-tile provided with a re-enforcing inclined projecting face, *c*, as and for the purpose set forth.

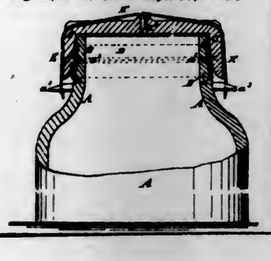
192,452. BLOW-PIPES. Daniel R. Porter, Leon, Iowa. [Filed Mar. 24, 1877.]



1. The combination, with nozzle E, bag F, and tube G, of the rubber tube and ball provided with valves J M, arranged as shown and described, for the purpose specified.

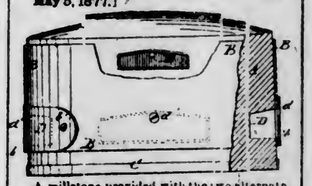
2. The combination of the stand A and the adjustable holder B C D with the nozzle E, rubber bag F, and tube G, substantially as herein shown and described.

192,453. FRUIT-JARS. Hiram Purdy, Burlington, Iowa. [Filed Apr. 30, 1877.]



The combination, with body A, having grooves *a' a'* and lugs *a'*, of the packing B, notched cover, having bead *c'*, and the band E, having holes to receive said lugs, as and for the purpose specified.

192,454. MILLSTONE-BALANCING DEVICES. Luther Read, Henderson, N. Y. [Filed May 5, 1877.]



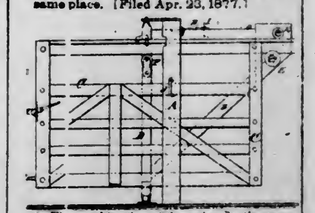
A millstone provided with the two alternate sets of cups D upon its peripheral surface, as described, covered and inclosed by a sheet-metal band, B, having inlet-openings *d'*, as and for the purpose specified.

192,455. ROLLERS FOR SLIDING DOORS. A. K. Rider, Walden, N. Y. [Filed Dec. 16, 1876.]



The loose differential roller B, having duplicate heads or treads *b b*, at a distance apart outside of the central hub *c*, which is of a diameter less than the heads or treads *b*, for operation in connection with a fixed track, and a hanger, D, attached to a door or gate, and having a bearing-surface resting upon and traveling over the central hub of the loose roller, substantially as described.

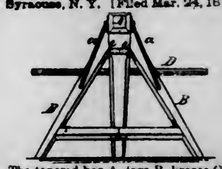
192,456. GATES. William Rinehold, Ari, Ind., assignor to himself and Jacob C. Fair, same place. [Filed Apr. 23, 1877.]



1. The combination of the swing D, the two pulleys E, and the pulley and hook F G, with the gate C and the post A, substantially as herein shown and described.

2. The combination of the brace H and the pin I with the post A, the swing D, and the gate C, substantially as herein shown and described.

192,457. BROOM-HOLDERS. George Sax, Syracuse, N. Y. [Filed Mar. 24, 1877.]



The tapered bar A, legs B, braces C and *c*, rod D, and hinges *e*, combined and arranged substantially as herein shown and described.

192,458. TRACE-FASTENERS. Henry H. Schroeder, New Milford, Conn. [Filed Apr. 30, 1877.]

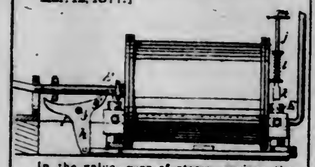
Brief.—The short strap which is used to fasten the trace is attached to the trace itself, instead of to the whiffletree.

A trace for harness having the strap *a'* secured at one end thereof near the eye *a*, and having its free end adapted to pass through an aperture in the whiffletree, substantially as described.



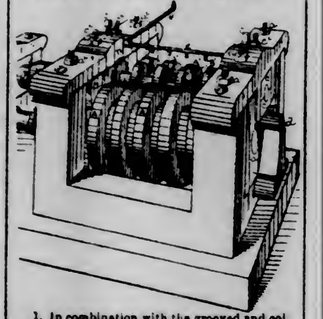
192,458.

192,459. VALVE-GEARS. Albert M. Scott and Jos. J. Roth, Edwardsville, Ill. [Filed Mar. 12, 1877.]



In the valve-gear of steam-engines, the combination of valve E', having square socket in upper end, with the shaft *j*, having squared end, journaled at end of cylinder above valve, and provided with spring *l*, as and for the purpose specified.

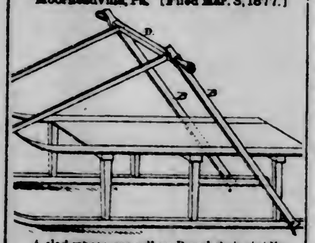
192,460. MACHINES FOR ROUNDING AND STRAIGHTENING RODS. Joseph S. Seaman, Pittsburg, Pa., assignor of two-thirds his right to Jas. B. Young and Robert Sleeth, same place. [Filed Nov. 28, 1876.]



1. In combination with the grooved and collared rolls A A' B B', the end collars a a, arranged outside the ends of the working-rolls as a guiding device thereto, substantially as set forth.

2. The hollow guide *d*, or equivalent guide of like function, as set forth, in combination with a pair of working-rolls, a rest-roll, and a water-supply pipe extending lengthwise of and along the rolls as a means, in connection with the heat of the rod, bar, or shaft, of sealing, finishing, and annealing, substantially as described.

192,461. SLED-PROPELLERS. G. F. Shaver, Moorheadville, Pa. [Filed Mar. 3, 1877.]



A sled whose propellers B and their rigidly-attached handles B' are journaled on extension-end pivots of the cross bar D, as and for the purpose specified

192,462. CULTIVATORS. James Sherrill, Harrisburg, Oreg. [Filed Mar. 3, 1877.]

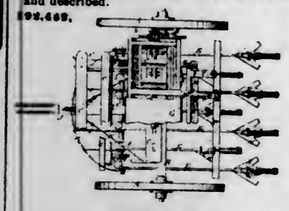
Brief.—Wedge-shaped standard held between bifurcated beam; forward end of plow-beam bent sidewise in U form to receive cross-bar. Curved bar, cross-bar, and parallel bars are secured together, to which the draft is attached.

1. The plow-standard M, pivoted between and at the ends of elastic bifurcations of beam E, and having a wedge-shaped projecting end beyond the pivot, the bifurcations converging from the top downward to hold the standard end, as shown and described.

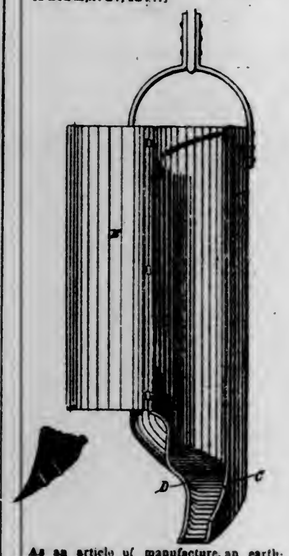
2. The plow-beams E, having their forward ends bent sidewise into U form, to receive the cross-rod F of the draw-frame G H I, substantially as herein shown and described.

3. The draw-frame formed of the cross-rod F, the curved bar G, the cross-bar H, and the parallel bars I, in combination with the plow-beams E, the clevis J, and the adjustable supporting-bars L, substantially as herein shown and described.

192,462.

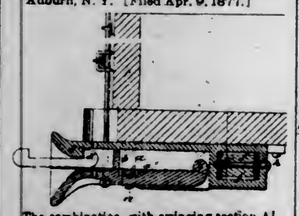


192,463. EARTH-AUGERS. William Shaw, Chicago, Ill., assignor to himself, Benj. L. Honoré, and F. L. Honoré, same place. [Filed Apr. 27, 1877.]



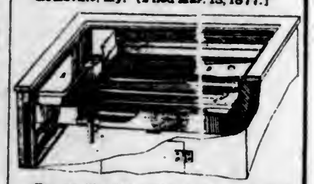
As an article of manufacture, an earth-auger, having the bottom or twist part provided with flanges D C, and the barrel or cylindrical part made and formed of one and the same piece, substantially as shown and described.

192,464. CAR-COUPLINGS. F. P. Shorey, Auburn, N. Y. [Filed Apr. 9, 1877.]



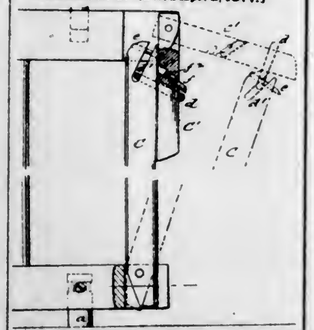
The combination, with swinging section A', of the front guide-band *a*, extended downwardly along its sides, and provided with a cross part extending into recess *a'*, as shown and described, to prevent lateral vibration.

192,465. REFRIGERATORS. H. Siegelstyl, Louisville, Ky. [Filed Mar. 13, 1877.]



The combination, with the ice-pan D, of the trough B, which receives the liquid to be cooled, and the pan C, having a tortuous channel formed on its bottom into which the liquid is delivered at one end and discharged at the other through the elevated discharge C', substantially as set forth.

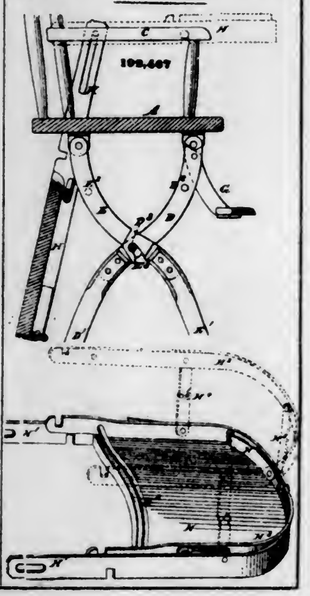
192,466. STANCHIONS. Zalmon W. Smith, Addison, N. Y. [Filed Apr. 2, 1877.]



1. The combination, with the screw *b*, of the lower stanchion-pivot, provided with circumjacent arc recess, as and for the purpose described.

2. The combination, with pivoted sections C C', of the weighted link *d*, working in slot *d'*, the latch *f*, sliding in the inclined slot *f'*, and the stop-pin *f''*, as and for the purpose specified.

192,467



192,467. NURSERY-CHAIRS. A. B. Stevens, Philadelphia, Pa., assignor of one-half his right to Hale & Kilburn Manufacturing Company, same place. [Filed Mar. 29, 1877.]

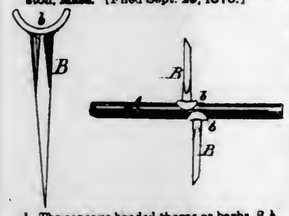
1. In combination with the seat, the crossed legs, supported in the elevated position of the seat by the rod D' and hook E', and in the lower position by the stops D' E', substantially as set forth.

2. In combination with the detachable table and means for securing it to the arms or seat, the adjustable frame B', hinged to the table so as to permit the adjustment of the latter to form a crib with protecting sides, substantially as set forth.

3. In a nursery or child's chair, the adjustable crossed legs, attached to the seat or seat-frame without a pivot at their intersection, in combination with stops for supporting them at various angles, substantially as set forth.

4. The combination of the table, the arms B', forming a rim, the rod H', links H', frame H', and arm H', substantially as set forth.

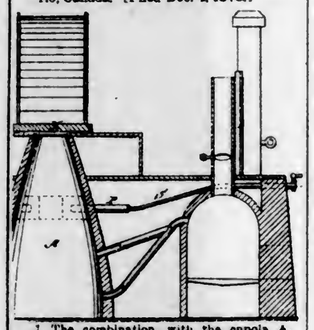
192,468. BARBED FENCE-WIRES. Thomas D. Stetson, New York, N. Y., assignor to himself and Kimball W. Stetson, Kingston, Mass. [Filed Sept. 29, 1876.]



1. The concave headed thorns or barbs B *b*, the part *b* being constructed to conform to the surface of the fence-wire A, as specified.

2. In combination with the fence-wire A, the thorn or barb having a head with a close-fitting surface, matching to the main wire and secured thereto, as herein specified.

192,469. SMELTING-FURNACES. John L. Sturdy and John A. May, Goderich, Ontario, Canada. [Filed Dec. 4, 1876.]



1. The combination, with the cupola A, having the divergent escape-pipes C, of the steam-blast pipes S, converging and discharge pipes P, and dust-chamber Q, the several parts being relatively arranged as described, whereby the furnace-gases are oppositely withdrawn by exhaust and discharged together into a common dust and combustion chamber, as herein set forth.

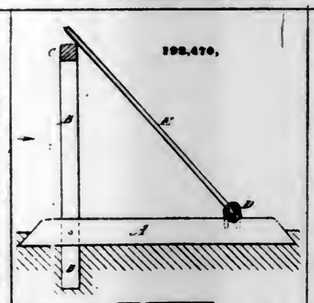
2. The combination of the dust and combustion chambers, Q, having the perforated wall R, with the cupola A and outlet-passages O P, as herein set forth.

192,470. FLOOD-GATES. N. J. Sweeney, Walesborough, Ind. [Filed May 26, 1877.]

Brief.—The gate turns down on the pivoted post when the water rises, so that the "drift" may pass without injuring the gate.

An improved flood-gate, formed by the combination of the sills A, the posts B, the cross beam C, the pivoted shaft D, and the slats E with each other, substantially as herein shown and described.

192,470.

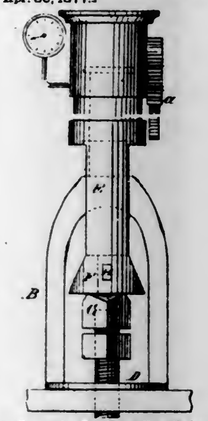


192,471. BARS FOR JAILS, PRISONS, &c. T. J. Tolan, Fort Wayne, Ind. [Filed Mar. 19, 1877.]



An iron bar carbonized only on the surface, substantially as and for the purpose specified.

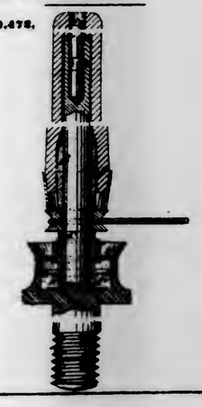
192,472. HYDRAULIC JACKS. D. L. Weaver and George Noble, Hunnewell, Ky. [Filed Apr. 30, 1877.]



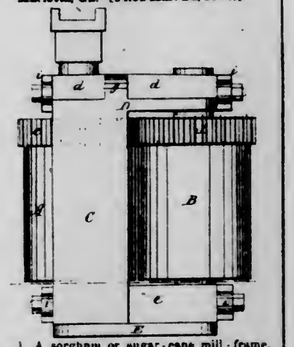
1. The yoke B, piston C, cylinder A, bars E, and mortised head F in combination, substantially as herein shown and described.

2. The combination of the socket-nut G and head F, substantially as and for the purpose shown and described.

192,473.



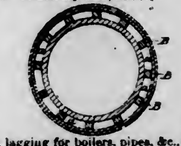
192,473. SORGHUM-MILLS. E. A. Withers, Marietta, Ga. [Filed Mar. 24, 1877.]



1. A sorghum or sugar-cane mill-frame, formed of the standard C and the top and bottom flanges D E, provided with parallel ribs *d d* and *e e*, as shown and described.

2. The improved mill composed of the metallic frame formed of standard C, top and bottom flanges D E, having ribs *d d e e* and cross-rib *g*, the rollers A B, the caps and bearings, and the bolts H, all arranged as shown and described.

192,474. LAGGING FOR COVERING STEAM-PIPES. George B. Wiestling, Mount Aito, Pa. [Filed Apr. 23, 1877.]



A lagging for boilers, pipes, &c., consisting of longitudinal strips B and straw-board C, substantially as shown and described.

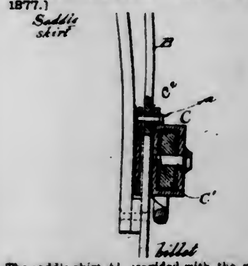
192,475. SPINDLES. Gilbert P. Whitman, Rockport, Mass. [Filed Mar. 12, 1877.]

Brief.—The bobbin is seated in the tapering cup formed on the upper portion of the whirl, and is supported at the upper end by a small spindle, which is loosely inserted in the top of the post.

1. The combination, with bobbin, spindle, and whirl, of the bulged collar guiding the bobbin, holding the whirl in position, and preventing oil from working up, as shown and described.

2. The combination of the combined sleeve, whirl, and cup with an oil-cup at the base of the post, and with a lid having a center sleeve drip-cup and oil-returning drip-hole, substantially as specified.

192,476. COMBINED TUG AND PAD LOOP FOR HARNESS. Henry R. Woodcock, Greene, Iowa, assignor of one-half his right to S. W. Scesbe, same place. [Filed Mar. 24, 1877.]



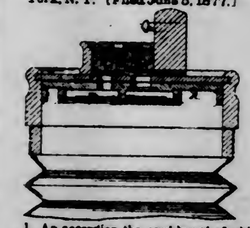
The saddle-skirt A', provided with the upwardly-projecting band B, in combination with the double loop C, having the perforated passages C' C'' at right angles to each other, screw *c*, and pin *a*, substantially as described, and for the purpose set forth.

192,477. BALE-TIES. William A. Wright, Augusta, Ga., assignor of one-half his right to T. R. Porter and Danl. H. Gowing, Syracuse, N. Y. (Filed June 9, 1877.)



The combination of the plain flat double-slotted piece A and a locking-piece, B, having on one edge a curved tongue, *b'*, as described, forming a reversible locking bale-tie, constructed and combined specifically as herein described.

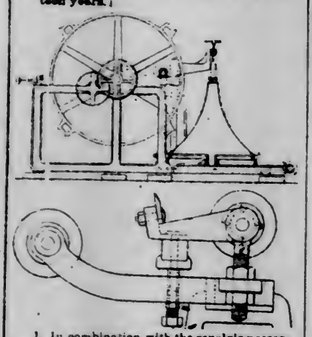
192,478. ACCORDIONS. F. Zoghaum, New York, N. Y. (Filed June 5, 1877.)



1. An accordion the reed-board of which is constructed so as to slide in and out of the body, substantially as described.

2. The combination of the reed-board B, grooved cells, sliding reeds *a*, and removable side rail S, substantially as described.

192,479. FLESHING-MACHINES FOR HIDES AND SKINS. Thos. Wade Appleyard and Walter K. Appleyard, Hunslet Carr, near Leeds, England. (Filed Apr. 9, 1877; patented in England Jan. 20, 1876, for fourteen years.)



1. In combination with the revolving scraper and curved beam that supports the hide, the swinging arm and clamp to hold the hide at the upper part of the curved beam, substantially as set forth.

2. The combination, with the revolving scraper, of a rotary conoidal support for the hide, the section of which support is a curved line corresponding to the path described by the revolving scrapers, substantially as set forth.

3. The combination, with the scraper in the machine for fleshing hides, of a roller in advance of the scraper, and moving with it, substantially as set forth.

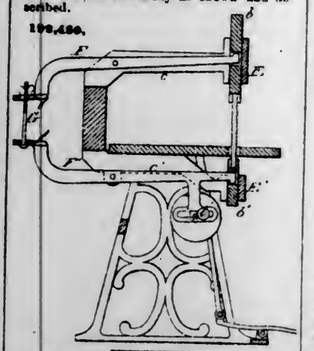
192,480. SCROLL-SAWING MACHINES. John S. Baker, Norristown, assignor of one-half his right to John J. McFadden, Philadelphia, Pa. (Filed Apr. 13, 1877.)

Brief.—The vibrating saw-arms operate in upper and lower arms, slotted their entire length, and provided with tubular sockets having rear vertical slots communicating with the slots in the saw-arms.

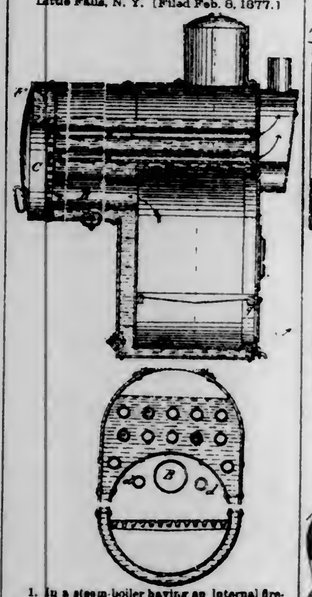
1. The arms *c c'*, slotted their entire length, and formed or provided with tubular sockets E E' at their ends, having vertical slots in their rear sides communicating with the slots in arms *c c'*, for the passage of the vibrating arms or levers F F', substantially as shown and described.

2. The combination of the longitudinally-slotted horizontal arms *c c'*, having the tubular sockets E E' communicating with slots in said arms, levers F F', heads *b b'*, and adjusting-screw G, connecting said levers at their rear ends, substantially as shown and described.

192,480.



192,481. STEAM-BOILERS. Chas. E. Barber and George A. Porter, Syracuse, assignors to Porter Manufacturing Company, (limited,) same place, and Whitman & Burrell, Little Falls, N. Y. (Filed Feb. 8, 1877.)



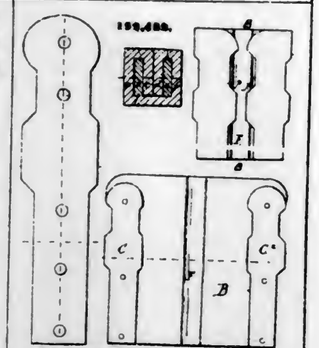
1. In a steam-boiler having an internal fire-box provided with a water-bottom and a removable fire-front, the combination of said fire-box, the large flue B, and its accompanying side tubes *b* with a returning-chamber containing the water-back F, and with the returning-tubes *c*, all constructed and arranged in the manner described.

2. The returning-chamber C, in combination with the central large tube B and side tubes *d* and water-back F, located above and in rear of the water-line of the main boiler, and attached to the shell of the same, in the manner and for the purpose shown and described.

192,482. LOOM-PICKERS. John W. Barlow, Lawrence, Mass. (Filed June 3, 1875.)

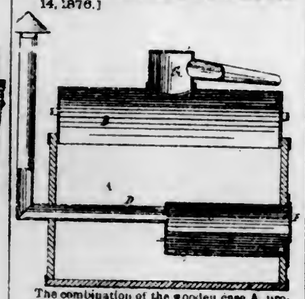
Brief.—Improvement upon the device covered by Letters Patent No. 32,771, July 9, 1861. The covering-sheet is provided with a separate layer at each edge, and with a groove at its center, whereby a more compact picker is secured.

192,482.



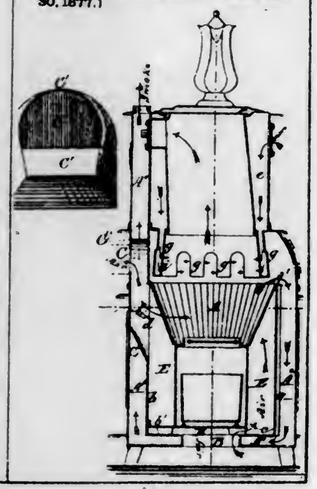
A loom-picker composed of the sheet B, having the central groove F and independent layers C C' attached to the sheet B, and constructed substantially as described, whereby the edges of the layers and the sheet can be doubled over and into the groove F and rivetad together, as and for the purpose described.

192,483. APPARATUS FOR BOILING SUGAR-CANE. John Bromley, Macon, assignor of a part of his right to Sarah E. Smith and James M. Ellis, Atlanta, Ga. (Filed Dec. 14, 1876.)



The combination of the wooden case A, provided with door F, heater C, and flue D, and hinged cover B, provided with the removable cap G and pipe, all constructed substantially as and for the purposes herein set forth.

192,484. MAGAZINE HEATING-STOVES. W. P. Brophy, Bloomington, Ill. (Filed Apr. 30, 1877.)



1. The base-draft flue A^1 A^2 A^3 A^4, the air-heating-chamber E E^1 E^2, the center bottom air-inlet B, the back air-outlet C, and the fire-pot, constructed and arranged in a base-burning stove, as herein set forth.

2. The collar C', arranged across the rear sheet-flue A^4 of the base-draft, combined with the opening *d* in the inner wall *b*, the heating-chamber E E^1 E^2, and the exit C in the rear wall, as set forth.

3. The cross-flues F^1 F^2 at the ends of the fire-box and above the ash-pit, in combination with the air-heating chamber, the bottom inlet, and the rear exit, substantially as herein set forth.

4. The division *b'* in the base air-heating chamber, in combination with entrance and exit openings and the cross and lines of the fire-box, whereby the air in said chamber is caused to pass up the front, around the fire-box ends, and across the rear portion of said chamber to the outlet.

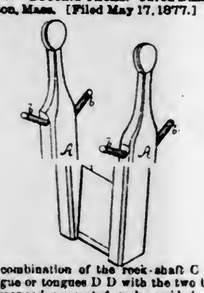
5. The hollow frame and the hollow fingers depending therefrom, in combination with the magazine, the air-chamber *e*, and the combustion-chamber, constructed for use as herein set forth.

6. The hollow fingers *g*, closed at their lower ends, with open spaces between said fingers, and having openings *i* in their opposite edges, whereby the air is delivered in horizontal streams into the spaces between said fingers, as and for the purpose herein set forth.

7. The hollow fingers *g*, having inner straight and outer rounded sides, with openings *i* in their opposite edges, as and for the purpose described.

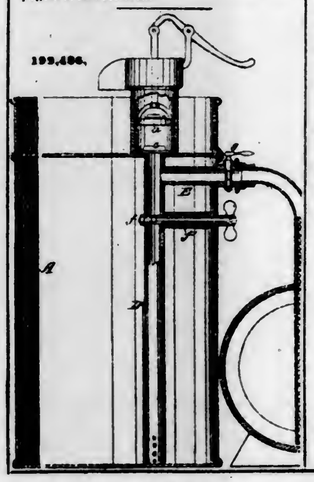
8. The plate *a*, corrugated and extending from the top edge of the fire-pot A to the inner bottom plate *c*, and combined with the corrugated fire-pot plate, between which corrugated plates the front portion of the hot-air chamber E is formed, for the purpose set forth.

192,485. BOOTING-JACKS. Jared Buzzell, Boston, Mass. [Filed May 17, 1877.]



The combination of the rock-shaft C and the tongue or tongues D D with the two bars A A, arranged, connected, and provided with pegs *b b*, as described.

192,486.

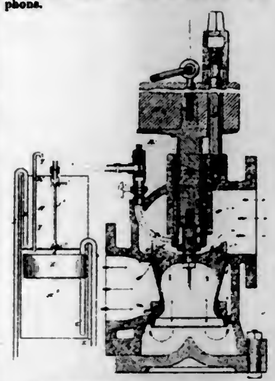


192,486. OIL-CANS. J. F. Coppel, Havana, Ill., assignor to himself and C. H. Long, same place. (Filed May 16, 1877.)

The combination of the can A, having partition B, with a pump provided with a check-valve, and located upon said partition, and the pipes D and E arranged as described, and having the one a valve, *g*, and the other a valve, *f*, with elongated stem arranged in sleeve *f'*, substantially as and for the purpose described.

192,487. APPARATUS FOR AUTOMATICALLY REDUCING OR REGULATING FLUID-PRESSURE. George F. Deacon, Liverpool, England. (Filed June 1, 1877.)

Brief.—The weight or spring assists the auxiliary valve to open the main valve. The auxiliary valve is operated by the float, the rise and fall of which is regulated by the siphons.



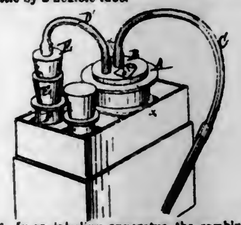
1. The combination, with the double-seated valve-chamber, of the cylindrical equilibrium-valve provided with two annular bearing-surfaces, said surfaces being carved, as described, for the purpose of contracting the water-way at an increasing rate as the valve approaches its seats, whereby shocks are prevented, substantially as described.

2. The combination, with the ram and its weight or spring, of the auxiliary valve and valve-chamber connected with the chamber below the ram, for automatically balancing the pressure on the two ends of the ram, in order to allow the weight or spring to automatically operate the auxiliary valve to open the main valve, substantially as described.

3. The combination, with the chamber K below the ram, of the chambers W W' communicating with each other, the valves *a v* on a common valve-rod provided with a float, Z, the tube Y provided with an opening, *h'*, and the siphon X *x'* leading from the respective cylinders, the whole constructed and arranged substantially as and for the object described.

192,488. INHALERS. Joseph B. De Guise, Detroit, Mich. (Filed Jan. 13, 1877.)

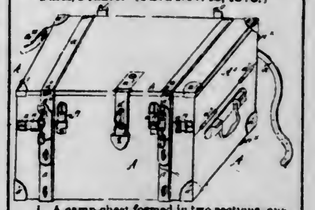
Brief.—One of the bottle-stoppers is made in two parts, either of which will stop the bottle. The lower one forms a cup for containing a small portion of the medicament, and the upper one is connected directly to the wash-bottle by a flexible tube.



1. In an inhaling apparatus, the combination, with the water-bottle A medicament-bottle F, and their flexible connection D', of the double stopple E E', the part E being secured to the end of the said flexible connection, and the cup *e*, and notches *e e* in the said stopple, whereby the medicine can be drawn in small quantities from the said cup *e*, or directly from the bottle, substantially as described.

2. The inhaling apparatus described, consisting of the water-bottle A, medicament-bottle F, cork B, having valve *b*, double stopple E E', and flexible tubes C D', constructed and and arranged substantially as set forth and shown.

192,489. CAMP-CHESTS. B. M. Descomtes, Paris, France. (Filed Nov. 13, 1876.)



1. A camp-chest formed in two sections, one of which is composed of the lid and back, and the other of the bottom, front, and ends, the two sections being hinged together, substantially as described, the locking-strap e^9, the straps a^{11} a^{11} e^{10} a^{11}, and the buckles a^{12}, all combined and operating substantially as and for the purposes specified.

2. The chest A and strengthening-bands *a*, having sockets a^4 a^{13}, the hinged brace-rods a^{11}, in combination with a sectional hinged camp-bed, substantially as described, for the purpose specified.

3. The camp-chest A, having partition a^4 and the hinged sectional ends, substantially as described, for the purpose specified.

4. The camp-chest A, having partition a^4 and hinged sectional ends, to form a compartment, the ledges or shelves a^{14}, and bands *a*, in combination with a folding table-top, to form a second and separate compartment, substantially as described.

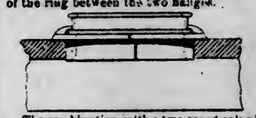
5. The camp-chest A, having strengthening-bands *a* inside and outside, in combination with the detachable loops or staples and chains a^{15}, substantially as described, for the purpose specified.

6. A sectional hinged camp-bed, the side-pieces of which are provided with hooked studs b^1, and so constructed as to fold the sections together by means of the double hinged straps b^2 when the bed is not in use, and when in use hold the head section thereof in an inclined position, in combination with the camp-chest having sockets a^1, substantially as described, for the purpose specified.

7. A folding-table, consisting of two leaves hinged together, and provided on their under side with recesses d^1, a locking-lever or locking-lever and latches, in combination with the hinged sectional supports, and the slotted locking-plates, and the camp-chest, provided with ledges or shelves a^{14}, to adapt the table, when folded, to form a compartment within the chest for the reception of the supports for such table, substantially as described.

192,490. SPINNING-RING HOLDERS. Wm. F. Draper, Hopedale, Mass. (Filed Apr. 30, 1877.)

Brief.—The holder upon which the ring rests, so as to elevate it above the surface of the ring-rail, has hooks to engage a portion of the ring between the two flanges.



The combination, with a two-raced spinning-ring adapted to rest on the holder above the ring-rail, of a necked holder provided with hooks adapted to engage the ring at, and so as to hold it by, its body only, without bearing upon the lower or unused end of the ring, substantially as described.

192,491. MORDANTING TEXTILE FABRICS. Henry D. Dupee, Boston, Mass. (Filed May 7, 1877.)

1. The art of cementing or mordanting coloring matters upon textile fabrics, substantially as described, by means of gelatine combined with chromic acid, and subjected to the action of steam.

2. A textile fabric having coloring matters fixed upon its fibers by means of gelatine combined with chromic acid, substantially as described.

192,492. PRINTED TEXTILE FABRICS. Henry D. Dupee, Boston, Mass. (Filed June 22, 1877.)

A textile fabric having coloring matters fixed upon its fibers by means of gelatine combined with chromic acid, substantially as described.

192,493. SPINDLES AND BOBBINS. George Draper, Hopedale, Mass. (Filed Mar. 21, 1877.)

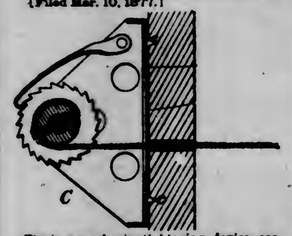
Brief.—The spindle, for some distance above the top of the bolster, is made cylindrical rather than tapering, as usual, whereby the spindle at the top of the bolster is so strengthened that it may be rotated at increased speed without vibration. The bobbin has a single frictional adhesive bearing upon the extreme top of the spindle, increased in size to afford a frictional surface of sufficient extent to drive the bobbin at full speed.



1. The combination, with the bolster, of a spindle constructed substantially as herein before described, it being cylindrical above the top of the bolster for such a distance as to co-operate with the step, as described, to prevent the bobbin adhering thereto, and it being also of such size and taper at or near its top as to carry the bobbin and its load at full speed, as set forth.

2. A bobbin provided with an internal adhesive bearing at or near its upper end, and an internal re-enforce or stop, substantially as described, adapted to co-operate with the cylindrical portion of the spindle, to prevent extreme lateral movement of the bobbin with relation to the spindle, as and for the purpose set forth.

192,494. FENCE-WIRE TIGHTENERS. Geo. Duffey, De Kalb, Ill., assignor of one-half his right to J. F. Glidden, same place. (Filed Mar. 10, 1877.)

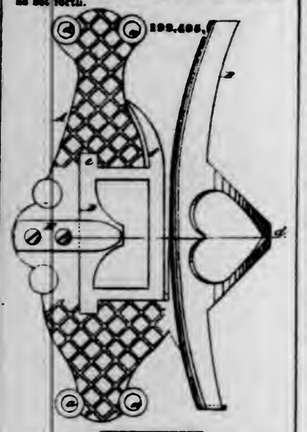


The improved wire-tightening device, consisting of the case C, having spurs *a* for attachment to the post, the windlass and the ratchet-wheel and pawl, all constructed and combined substantially as described.

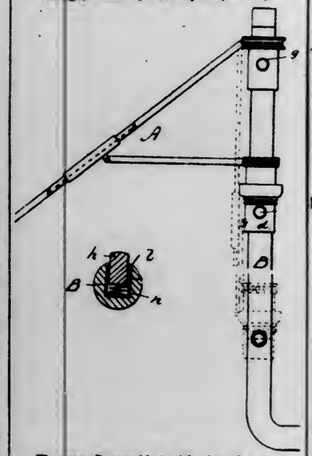
192,495. REIN-HOLDER AND WHIP-SOCKET. Charles T. Ellsworth, Decatur, Ind. (Filed Jan. 13, 1877.)

1. The plate A, with holes *a a*, and the curved whip-socket B having central yoke *d*, all cast in one piece, substantially as set forth.

2. The plate A, provided with holes *a a*, and the curved whip-socket B, of one piece of metal, and the flat spring E, all substantially as set forth.

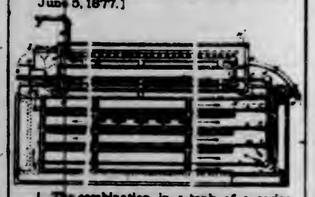


192,496. UMBRELLAS. Henry Falcina, Cambridge, Mass. (Filed Apr. 11, 1877.)



The case B, provided with plugs h, cases *l*, and springs *n*, for operation, in combination with the canopy-frame A, constructed with the top ferrule *e* and sliding sleeve *d*, each having openings *g*, with which the plugs h co-operate, substantially as and for the purpose described.

192,497. ICE-MACHINES. Edward Fixary, New Orleans, La., assignor of one-half his right to A. C. Janin, same place. (Filed June 5, 1877.)



1. The combination, in a tank, of a series of pipes arranged in tubular form, communicating with a forcing and suction pump, so as to cause the gas to be condensed to circulate therein, substantially as herein described, with a water-rose or jet-pipe extending longitudinally the whole length of said condensing-pipe, and a blower located outside but communicating with the interior of the tank, substantially as herein shown and set forth.

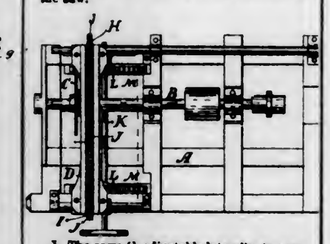
2. In combination with the condensing-tank, its gas-condensing pipes, water-rose, and blower, the liquefying-tank containing two series of pipes, both arranged in tabular form, but one above the other, the former being composed of larger pipes than the latter, but so communicating with the same pump as that the gas to be liquefied shall travel in the two sets of pipes in opposite directions, as herein shown and set forth.

3. The combination, with the condensing-trough and its condensing and jet pipes, and the liquefying-tank and its two sets of condensing and liquefying pipes, of the congealing-tank, containing a series of refrigerating-tubes for the support of or interposition between molds, substantially as herein shown and set forth.

4. The congealing-tank, the same consisting of a series of tables or plates composed of refrigerating-pipes, through which the refrigerating agent is caused to circulate, in combination with a ventilator and valve for withdrawing air from or both forcing the same into and from said congealing-tank, as and for the purpose set forth.

192,498. MACHINES FOR TRIMMING LUMBER. Thomas J. Frazier, Lyons, Iowa. (Filed May 29, 1877.)

Brief.—One of the transfer-chains is mounted directly in the yoke, so that it is always close to the saw, for preventing any unsteadiness or spring in the log when presented to the saw.

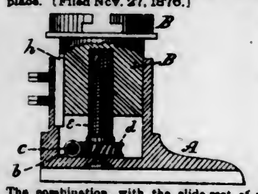


1. The saw C, adjustable laterally, in combination with the yoke or rest D, extending across the frame by the side of the saw and adjustable therewith, and transferring devices for carrying the lumber across the machine, mounted on and moving with the yoke, substantially as and for the purpose set forth.

2. The adjustable yoke or rest D, in combination with the wheels H and I, and transferring-chain J, substantially as and for the purpose set forth.

3. The sliding yoke D, in combination with the shaft K connected thereto, toothed wheels L, fixed on said shaft, and the racks M, substantially as and for the purpose set forth.

192,499. TOOL-HOLDERS FOR LATHES. S. Gissinger, Pittsburg, Pa., assignor of one-half his right to E. W. Swentzel, same place. (Filed Nov. 27, 1876.)



The combination, with the slide-rest of a turning-lathe, of base A, socketed as set forth, shaft *b*, with its worm *c*, wheel *d*, and screw *e*, and the threaded tool-post B, grooved externally and provided with key *h*, all arranged substantially as described.

192,500. FIRE-ESCAPES. Frances B. Goble, St. Louis, Mo. (Filed May 2, 1877.)

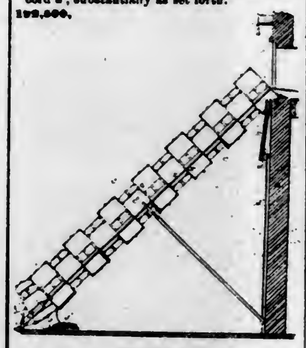
1. The tube C, formed of rings *e* and jointed links *e'*, and secured at the upper end to the house, substantially as and for the purpose set forth.

2. The fire-escape apparatus, composed of the extensible tube C and sled K, substantially as and for the purpose set forth.

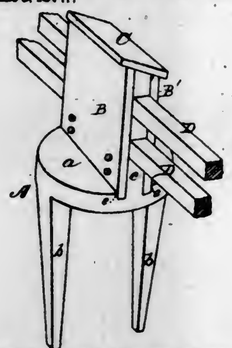
3. The combination, with the tube C and drop-door D', of the weight J and cord J', substantially as set forth.

4. The combination of folding tube C, ball and cord J J', drop-door D', with catch *d* and cord *d'*, substantially as set forth.

192,500.



192,501. PORTABLE-FENCE SUPPORTERS. John R. Gorby, Hiramsburg, Ohio. (Filed June 9, 1877.)



1. The metallic base for the posts of portable fences, consisting of the disk *a*, the drive-spikes *b*, the rib *c*, and the grooves *e* at the base thereof, adapted for use substantially as specified.

2. The combination with the base A, having drive-spikes *b* and a raised transverse rib, *c*, of the side posts or uprights B B', bolted to said rib, and the beveled water-shed C, substantially as specified.

192,502. WINDMILLS. Wm. A. Guseman, Washington, Iowa, assignor to Moses C. Parker and Z. B. P. Guseman, same place. (Filed Apr. 16, 1877.)

Brief.—The lower end of the pitman is cranked and enlarged, so as to serve as a swivel, in connection with the plunging-rod of the pump. Through the center, endwise of this cranked or enlarged end of the pitman, a small hole is drilled, through which passes a small rod connected to the chain. This rod continues on down to the ground, and by pulling down on this rod the governor of the mill is worked, and the speed of the mill regulated. To keep the mill at rest, the lower end of the rod must be attached to a pin or cleat on the plunging-rod. The center-balance is arranged by hinging the weight-bar like a pendulum; which causes little resistance while in a vertical position.

1. The turn-table provided with one arm for supporting the bearings of the wheel-shaft, and another for supporting rigidly the shaft itself, the arms being at right angles to each other, and at one side of the vertical center, as and for the purpose described.

2. A windmill with its vane-shaft G rigidly attached to its turn-table H, and at right angles to the wheel-shaft C, and in front of and parallel with the face of the wheel B, substantially as herein shown and described.

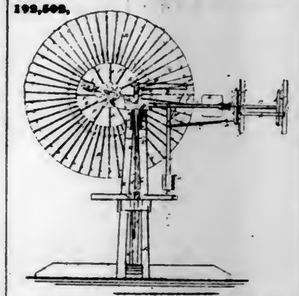
3. The combination of sections J J, constituting the vane, and connected with each other and the weight-bar O by rods K N Q, and projecting arms M R, substantially as described, and for the purpose set forth.

4. The arrangement of the pulley X on the upper end of the bar Y, hinged to the vane-shaft G, and connected by the rod B' to the pulley Z, attached to the upper end of the pitman S, and the chain W, and rod A', traveling with the pitman S, substantially as described, working in the manner and for the purpose named.

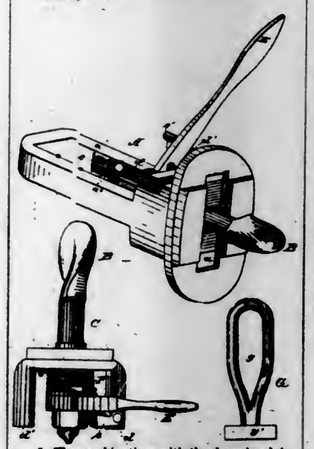
5. The combination, with a solid pitman, having pulley on one end, and connected at the other with swiveled pump-rod, of the chain, passing along its side, and connected with a small rod passing through the perforated swiveled end of pitman, causing the chain, rod, and pitman to travel together, and thus avoid friction, as set forth.

6. The combination of the pitman, counterpoise weight, crank-pin, having anti-friction roller, and slotted lever or walking-beam, the latter pivoted to the turn-table, and having flanges to keep the roller in place, as specified.

192,503.



192,503. CAR-COUPLINGS. Chauncy Hall, Washington Township, Macomb County, assignor of one-half his right to Daniel Woodin, Romeo, Mich. (Filed Oct. 1, 1876.)



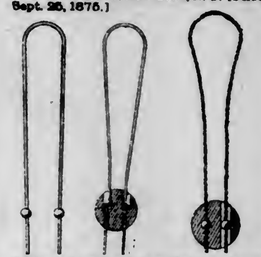
1. The combination, with the draw-head A, having the vertical slot *a* and a space to the rear of the same, of the spiral coupling-hook B and its supporting-frame, when the said hook and frame are adapted to be entirely removed from the draw-head, substantially as described and shown.

2. In a car-coupling, the combination, with the draw-head, of the spiral coupling-hook B, bolt C, lever E, and spring F, substantially as described and shown.

3. The combination, with the spiral coupling-hook, bolt C, and spring F, of the lever E and catch *e*, substantially as described and shown.

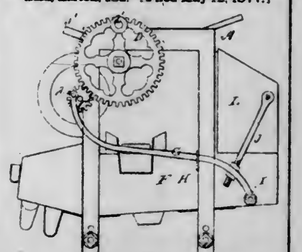
4. The link G, for the purpose set forth, having the oblong body *g*, having an uninterrupted opening extending the whole length of the same, and the rectangular plate *g'*, secured to one end of said body, constructed and arranged substantially as described and shown.

192,504. METALLIC SEALS. Fred C. Hamilton, Brooklyn, assignor, by mesne assignments, to the New York Cording and Sealing Company, New York, N. Y. (Filed Sept. 26, 1876.)



A wire-and-lead seal, provided with beads or fragments of metal applied to the legs of the bow or shackle, for the purpose of securely anchoring the same within the soft-metal disk when the latter is compressed.

192,505. GRAIN-SEPARATORS. Jas. F. Hatfield, Liston, Ind. (Filed May 12, 1877.)



1. The combination, in a fan-mill having the fan B, with disk C and gear-wheel C', provided with wrist-pins *d*, of the curved rods G, spindles I, reciprocating screen-box F, the rods J, chaff-screen frame L, and slotted plates H, substantially as specified.

2. The combination, with the screen-box F and its slideway-brackets F', of the vertically and endwise moving pitmen G and the fulcrum-plates H, substantially as specified.

3. The combination, with the screen-box F and its actuating-pitmen G, of the reciprocating screen-frame L J' and the rods J, rigidly connected with pitmen G, and supporting one end of said frame from the pitmen, substantially as specified.

4. The chaff-screen frame L, having extension J', in combination with the main frame A, having slots *s*, the vertically-adjustable rods J, pitmen G, and the screen-box F, substantially as specified.

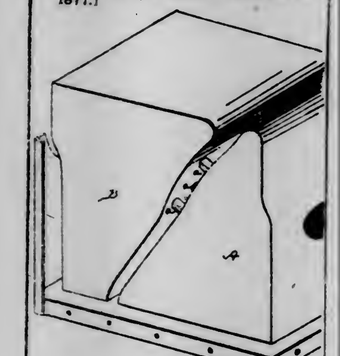
192,506. SHUTTERS. August G. Haumann, Pittsburg, Pa. (Filed Dec. 13, 1876.)



1. A hinged window-shutter provided with one or more glass panels, and one or more sliding or hinged panels on the inside of the same, substantially as set forth.

2. A shutter consisting in the combination, with a shutter-frame, of one or more outer and imperforate hinged doors, and one or more inner hinged or sliding glass panels, as set forth.

192,507. LOCOMOTIVE FIRE-BOXES. John C. Hayward, Selma, Ala. [Filed May 17, 1877.]



The independent boxes A and B, constructed and arranged substantially as represented, and connected together by the flues e e, whereby a water-space is secured around the boxes, as and for the purpose set forth.

192,508. HAIR-DRESSING. N. Helmer, New York, N. Y. [Filed May 5, 1877.]



1. The within-described mode of forming coils of artificial or natural hair—that is, by first forming a weft, A, with braid a at one edge, inserting the weft in the longitudinal slot of a cylinder, B, brushing the fringe round the cylinder, and then removing the weft longitudinally in the form of a coil, as specified.

2. The within-described coil, consisting of the series of wefts, combined to form a heavy, straight braid, a', and fringe b, as and for the purpose set forth.

3. A curling-tool consisting of a cylinder terminating in a square end, having a plain, unobstructed outer face, round which the hair may be wound, and from which it may be slipped longitudinally, and a longitudinal slot, c, extending to one end and communicating with an inner opening, c, adapted to receive the braid, all as set forth.

192,509. TOOLS FOR FORMING LUGS IN THE NECKS OF FRUIT-JARS, &c. Wilhelm Hirt and Joseph Mahler, Pittsburg, Pa.; said Mahler assignor to said Hirt. [Filed June 14, 1877.]

Brief.—A hollow conical head, revolving loosely on the end of a stem, has openings in its sides, which, when the ends of arms pivoted thereto are thrust out, form the fourth side of each of three recesses. The arms are operated by the hand-pressure of two spring-jaws outside of, and fixed to the bottom of, the stem.

1. The hollow conical shell e and recesses f f, in combination with the vibrating arms a a, substantially as and for the purposes set forth.

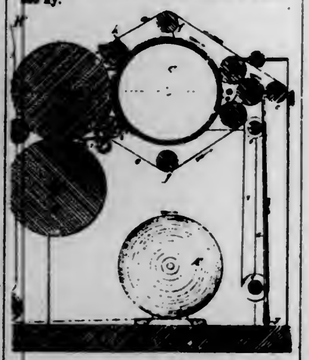
2. In a tool for forming lugs or projections on the insides of glass-jar necks, the arms of the revolving hollow plug or shell, pivoted and arranged therein to form, when thrust out, the fourth side of recesses in the walls of the plug or shell, and to automatically drop inward away from said recesses, when relieved from the action of the thrusting device, to allow of the withdrawal of the tool from the jar-neck over said lugs or projections.

3. The combination, with the pivoted arms a, adapted to form the fourth side of wall-recesses in the conical plug or shell, as described, of the disk H, its connected arum-head F, the spring-arm fingers B B, and the spring t, adapted for co-operation, as set forth.

4. The arms a, provided at their free ends with inclined extensions, whereby to receive the thrusting action of the disk H, and to form stops to limit their outward movement through the plug or shell openings, as set forth.

192,510. DELIVERY APPARATUS FOR PRINTING-MACHINES. Richard M. Hoe and S. D. Tucker, New York, N. Y. [Filed Sept. 7, 1876.]

Brief.—The sheets from the female cutting-cylinder (which is also the second impression-cylinder) are directed by rigid guides to a grooved cylinder, on which they are held by tapes until a determined number are collected, when a switch is rocked into the grooves to throw off the mass which passes down before the fly.



1. The method of delivering sheets of paper by accumulating a number laid one upon another successively on a revolving carrier and then discharging them in a single mass therefrom, substantially as described.

2. A gathering-cylinder or revolving carrier combined with means for directing and retaining many sheets thereon, and means for stripping the accumulated sheets in a single mass therefrom, all substantially as described.

3. The combination of devices for severing a web of paper into sheets with a gathering-cylinder or revolving carrier, devices for directing and retaining many sheets thereon, and means for delivering the accumulated sheets in a single mass therefrom, all substantially as described.

4. The combination of a mechanism for printing a web of paper with a mechanism for severing said web into sheets, a gathering-cylinder or revolving carrier, devices for directing and retaining many sheets thereon, and means for delivering the accumulated sheets in a single mass therefrom, all substantially as described.

5. In combination with a gathering-cylinder or revolving carrier, means for directing and retaining the sheets upon said carrier, and a switch to strip the accumulated sheets from their carrier, all substantially as described.

6. The combination of a gathering-cylinder or revolving carrier, guides for directing and tapes to sustain the sheets upon the carrier, with a switch to strip the accumulated sheets from their carrier, substantially as described.

7. The combination, with a revolving sheet-carrying device, of a switch automatically operated to guide the leading end of a sheet onto and off from said carrying device, substantially as described.

8. The combination of a gathering-cylinder upon which a mass of sheets are accumulated with means for stripping said sheets from the cylinder, and a fly-frame for depositing the same upon the piling-table, all substantially as shown and described.

9. The combination of the guides l and m with the cylinders B and C, substantially as shown and described.

10. The combination of the guides l or m, cylinders B and C, and endless tapes s and o, substantially as shown and described.

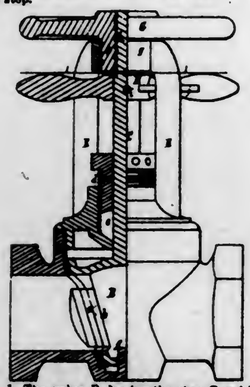
11. The combination of the switch with the gathering-cylinder, substantially as shown and described.

12. The combination, with the revolving sheet-carrying device or gathering-cylinder, of the tapes o and o, the switch O, and guides l and m, substantially as described.

13. The combination, with the revolving sheet-carrying device, of tapes o and o, pulleys b and d, and switch O, substantially as described.

192,511. STOP-COCKS. B. Hoxie, Newburyport, Mass. [Filed Sept. 4, 1876.]

Brief.—The valve is raised from its seat by the combination of a right and left threaded screw, connected to a hand-wheel, and thus revolved by a hand-lever, which indicates the proper position of the valve, and also acts as a stop.



1. The valve B, having the stem C and lever H, in combination with the yoke E F, the screws g and h, and hand-wheel G, substantially as herein before specified.

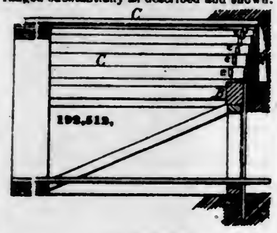
2. The valve B, having the stem C, in combination with the yoke E F, screws g and h, and hand wheel G, all constructed, arranged, and operated substantially as herein before set forth.

3. The valve B, having the stem C, in combination with the yoke E F and lever H, having the flanges f, substantially as and for the purpose herein before specified.

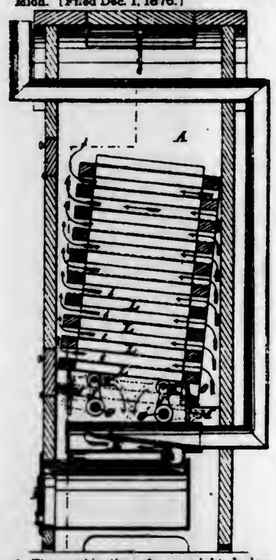
192,512. SHIELDS FOR TUNNELS. T. Joynes, Detroit, Mich. [Filed Apr. 4, 1877.]

1. In a tunnel-shield, the combination of the metal staves C, overlapped in the manner described, and adapted to be advanced bodily independent of each other, constructed and arranged substantially as and for the purpose set forth.

2. The combination, in a tunnel-shield, of the horizontal braced center sill B, overlapped metal staves C, adapted to be advanced separately, and props g, all constructed and arranged substantially as described and shown.



192,513. FRUIT-DRIERS. Chas. W. Jones, Centreville, and Edgar A. Jones, Sturgis, Mich. [Filed Dec. 1, 1876.]



1. The combination of an upright drying-chamber, A, a series of interchangeable trays, L, provided with side cleats l, for forming horizontal passages between them, and suitable supports J J', of unequal height, for sustaining the stack of trays in an inclined position, substantially as and for the purposes set forth.

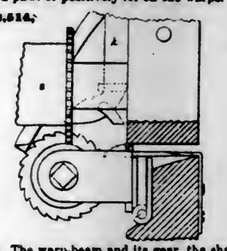
2. The combination, in a drying-apparatus, of a pair of shafts, G G', each furnished with lifting-arms having rollers which bear directly on the tray-frames, in the manner and for the purposes set forth.

3. The self-adjusting slide P, applied on top of the trays to close the air-space at their edge and direct the air-currents through or between them, as explained.

192,514. LET-OFF MECHANISMS FOR LOOMS. Daniel B. Keating, Lowell, Mass., assignor to himself, David Pickman, and Geo. W. Cross, same place. [Filed May 19, 1877.]

Brief.—The supporting-arms of the whip-roll are extended rearward, and upon these extensions are suspended weights. Between the fulcrum-rod and the whip-roll there is secured to one of said arms a vertical rod carrying a catch-pawl. The shaft upon which is the worm and ratchet is mounted in a pivoted frame, held to the loom-framing by a spring-catch. When the aforesaid frame is so held, it is in position to operate the beam. The vertical arm has a projection adapted, when there is an extra strain on the warps, to strike the said catch or latch, and disengage the worm-shaft frame, and throw the worm out of operation. The weight holds the whip-roll up against the under side of the warps with an unvarying pressure. The descent of the roll sets the pawl, and the weight operates the said pawl to positively let off the warps.

192,514.



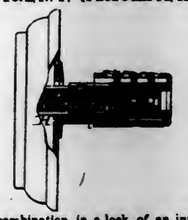
1. The warp-beam and its gear, the shaft a and its worm-wheel, placed at right angles to the axis of the warp-beam and the ratchet on the shaft a, in combination with the whip-roll and the suspended weight and pawl, adapted to operate as described, to move the warp-beam positively to let off the warp as the whip-roll rises.

2. The warp-beam and its operating-gear, the latter supported in a pivoted frame, in combination with devices adapted to disengage the operative-gear from the warp-beam, to release it when the shuttle becomes caught in the shed.

3. The whip-roll, controlled as to its downward position by the strain on the warp, and the leg k connected therewith, in combination with a shaft supported in pivoted bearings, and adapted to operate the warp-beam, whereby, when the strain on the warp is excessive, the warp-beam is left free to rotate, substantially as described.

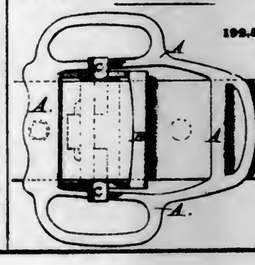
4. The combination, with the lay to beat up the filling and strain the warp according to the diameter of the filling, a whip-roller, and a suspended weight to elevate it in opposition to the strain of the warp after the blow of the lay, of a positively-operating catch-pawl gear and worm, whereby the said mechanism is adapted to move the screw-shaft to operate the warp-beam positively to let off the warp, substantially as described.

192,515. LOCKING-LATCHES. J. J. King, New York, N. Y. [Filed June 14, 1877.]



The combination, in a lock, of an internal stationary cylinder projecting from the lock-case, with a non-rotating external cylinder, adapted to move lengthwise on said internal cylinder, and having an adjusting-screw or other equivalent device for fastening it in place, and with a partially-rotating tumbler-case arranged on the interior of said external cylinder, so as to move therewith, and having a longitudinal shoulder which engages with a segmental arm projecting from the dog of the locking mechanism, substantially as described.

192,516.



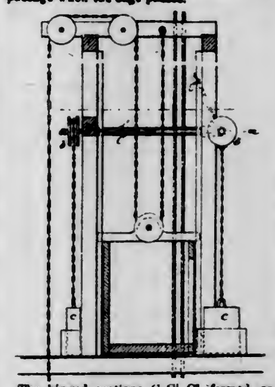
192,516. TUG-BUCKLES. Brastus M. Kinne, Cuba, N. Y. [Filed May 10, 1877.]

1. A tug-buckle, consisting of the frame A, clamping-bail B, and open bail C, having lugs or ears c c, the whole constructed and operating substantially as described.

2. The bail B, provided with the lug b', in combination with bail C, provided with the loop c' and frame A, as and for the purpose set forth.

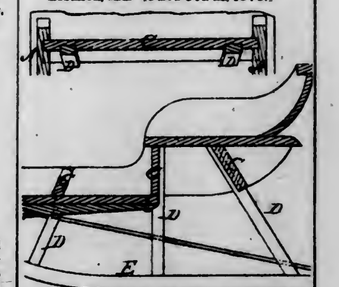
192,517. DAMPERS FOR ELEVATORS. Henry S. Lansdell, Brooklyn, N. Y., assignor to Henry Lansdell and Jno. S. Long, same place. [Filed May 21, 1877.]

Brief.—To prevent fires from spreading, the damper automatically opens and closes the passage when the cage passes.



The hinged sections C C' C², formed, as shown, in combination with weights c, suspended from wheels or arms b on pivot-rods a, substantially in the manner and for the purposes specified.

192,518. SLEIGHS. George H. Lamb, West Lebanon, Ind. [Filed Oct. 21, 1876.]



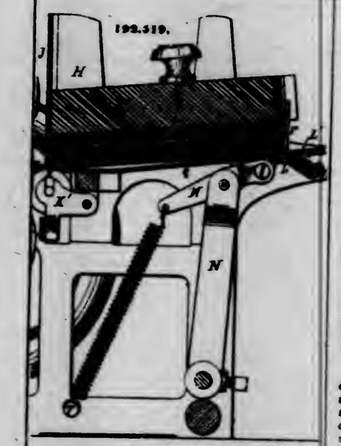
1. The sides A of a sleigh-box transversely grooved at a' to receive the ends of the deep transverse braces C, in combination with the knees D, extending across the said braces let into grooves a formed therein, and rigidly secured thereto, and the inclined tie-rods H secured at their front ends to the runners, and extending through the said braces, substantially as specified.

2. The combination, with the runners E and the cross-bar in front of the bends thereof, of the oblique brace or tie rods running from said cross-bar through the successive knees D to the heels of said runners, substantially as specified.

192,519. POSTMARKING AND CANCELING MACHINES. Thos. Leavitt, Everett, Mass. [Filed Apr. 17, 1876.]

Brief.—A reciprocating slide, jointed on a rocking arm, feeds cards from the bottom of a box into the bite of the printing-cylinders, being held to work by a spring. A yielding roller is mounted under the front of the bite, and a follower upon the cards extends beyond its rear. The inking roller is oscillated by a cam acting on a lever, connected by an adjustable spring-pin to the lever carrying the roller.

192,519.



1. The combination of the plate J and the yielding roll K, arranged opposite the edge of the plate J, with its bearings in the same plane, and forming therewith a contracted but expansible throat, *x*, for the outward passage of the cards, as specified.

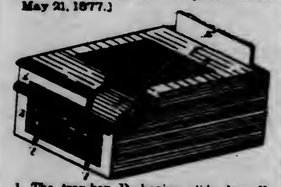
2. The combination of the card-receiver, the bearings *q* below the same, the reciprocating carrier L, and a spring, whereby the carrier is maintained in contact with the lower faces of said bearings, substantially as and for the purpose set forth.

3. The carrier L *l'*, link M, lever N, and spring S are constructed, combined, and arranged relatively to the receiver, substantially as and for the purpose set forth.

4. The combination, with the roll-carrying lever F and actuating cam of the lever F', spring *m*, and adjustable pin *l* for limiting the outward throw of the lever F, as set forth.

5. In combination with the receiver H and a reciprocating feed-plunger, adapted to engage with the rear end of the lower card or letter in the receiver, the follower U having a portion of its width extended beyond the limit of the rearward motion of the carrier, and its under surface in the same plane with the extension, as and for the purpose described.

192,520. BEE-HIVES. John F. Long, Delaware, Ohio, assignor of one-half his right to Harrison W. Huff, same place. [Filed May 21, 1877.]



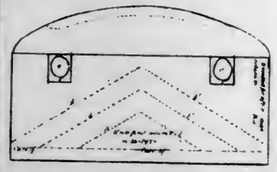
1. The trap-box D, having slide-door E, wire-gauze top *g*, upward-slanting entrances *i i*, and wire-gauze front *h*, substantially as and for the purpose herein shown and specified.

2. In combination with the trap-box D, having top opening F covered with wire-gauze *g*, the bottomless hive-box A, substantially as and for the purpose herein shown and specified.

192,521.



192,522. ENVELOPES. Charles K. Marshall, Vicksburg, Miss. [Filed May 23, 1877.]



The new article of manufacture, consisting of a letter-envelope having two sets of superscription-lines, as at *b* and *b'*, two postage-stamps for prepayment of postage, as at *c* and *c'*, and two sealing-surfaces on its sealing-flap, as at *d* and *d'*, substantially as and for the purposes described.

192,523. COMBINED SPOOL-HOLDER AND PIN-CUSHION. Jas. M. Montgomery, Jr., Columbus, Ohio. [Filed May 21, 1877.]



In a combined spool-holder and pin-cushion, constructed substantially as described, the thread cutters C, consisting of brackets or holders *c* and beveled or triangular cutting-blades *d*, the lower edges of which project slightly beyond holders *c*, so as to be pressed into the wood of the case, substantially as described, for the purpose set forth.

192,524. CAR-AXLE-BOX LIDS. G. W. Morrie, Pittsburg, Pa. [Filed May 26, 1877.]



1. The lid or cover of a journal-box for railroad-cars, made of a thin sheet of steel, and having the clamping-spring integral therewith, substantially as described.

2. The lid or cover of a journal-box for railroad-cars, made of a thin sheet of steel, and having its clamping-spring and hinge-extension pieces integral therewith, substantially as described.

3. The combination, in a journal-box for railroad-cars, of a lid or cover, B, having its clamping-spring *b* and hinge-extensions *a a* integral therewith, with a pivot-pintle, *c*, lugs *c c*, and bearing-surface *d* for said spring, substantially as described.

192,525. PROCESSES OF MANUFACTURING CORN-FLOUR. Albt. L. Murdock, Boston, Mass. [Filed Jan. 27, 1877.]

Brief.—Obtains the meal to be compounded by a dry process, and eliminates from the wheat, &c., the bran and germ.

1. The within-described process of making flour from maize or indian corn, consisting, essentially, of the following steps, viz., hulling the corn in a hominy or other suitable machine, separating the hulls and germs from the decorticated kernels, grinding the said kernels, and bolting the ground products down to a grain or flour free from all fibrous and other impurities, adding to the corn-flour thus obtained the glutinous, sugary, starchy, and other food properties obtained from wheat or other grains rich in said properties, substantially as set forth.

2. As a new article of manufacture, the compound flour obtained by the process within described.

192,526. CIRCULAR SAWS. S. N. Pool, Jr., Alpharetta, Ga. [Filed June 1, 1877.]

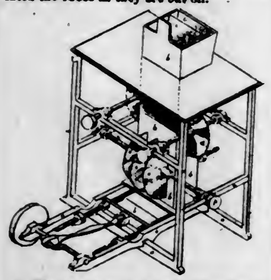
Brief.—The saw has projecting edges formed in the throat and in each side of the blade, which serve as planers.



A circular saw, having teeth B and projecting edges or cutting-blades D D formed in the throat B' and upon both sides of the saw-plate, substantially as herein set forth.

192,527. MACHINES FOR CUTTING SUGAR CAKES. Christopher Rantz, San Francisco, Cal. [Filed Apr. 16, 1877.]

Brief.—The sugar cake is first divided into slabs by a set of saws, and these slabs are cut at right angles by another set of saws into strips, which are divided into cubes by a double-edged reciprocating knife working below the saws. Tables on the frame with the knife catch the cubes as they are cut off.



1. The combination of the reciprocating tables *l* and *e* and two-edged knife *w* with the circular saws *a o o* and *d d*, substantially as and for the purpose herein described.

2. The combination of the saws *a a a* and *d d*, standing at, or nearly at, right angles to each other and the tube *b*, substantially as and for the purposes herein described and set forth.

3. In a sugar-cubing machine, the combination of a tube having the sharp edge *i* at the upper end of one of its sides with the saws *d*, substantially as and for the purposes herein described.

4. The combination, with the frame *o* and the tube *b*, having sharp edge *i*, the sets of saws *d* and *a*, placed one set above the other, and at right angles to each other and the reciprocating tables *l e*, provided with the two-edged knife *w*, substantially as and for the purposes herein set forth.

192,528. MACHINERY FOR SHAPING AND CREASING LEATHER STRAPS. S. B. Randall, Cincinnati, Ohio. [Filed May 26, 1877.]

1. The combination of the shaping-roller G, shaft F, slotted standard D E, pressure-roller I, shaft H, futerumed support C, and adjustable spring or cushion L, substantially as and for the purposes set forth.

2. The standard D, surmounted by the journal-bearing E of the shaping-roller, and slotted at *d* to accommodate the stem *e* of the lever and journal-bearing C *c'* of the pressure-roller, substantially as and for the purpose set forth.

3. The combination, with the principal roller of a leather-creasing machine, of the gravitating and shiftable stripper T *t t'* upon stud B, substantially as and for the purpose set forth.

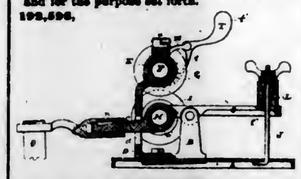
4. The releasable and elastic arm U, hinged at *u* to the frame D E, and having a revolving boss or stud, *u'*, which occupies a cavity in the outer end of the shaping-roller, as and for the purpose set forth.

5. The forked lever C *c'*, constituting the journal-bearing of the supporting-roll, in combination with the treadle-strap connection O at its front end, and with the adjustable spring or cushion L, nut K, and rod J at its rear end, substantially as and for the purpose set forth.

6. In combination with the pressure-lever C, the separable socket extension N, having slot *n'*, for engagement of treadle-strap O, substantially as set forth.

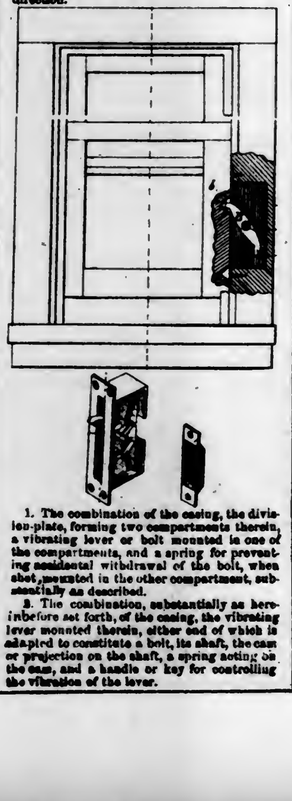
7. The combination of the standard D E, shaft F, pinion Q, and guard or canopy V, as and for the purpose set forth.

192,529.



192,530. SAGE-FASTENERS. Stephen Rush, Tyrone, Pa. [Filed May 26, 1877.]

Brief.—A suitable shell or case, formed into two compartments by a division-plate, carries a two-ended catch-bolt or vibrating lever, and a spring to prevent accidental misplacement. The shaft has a cam or projection, on which the spring acts, and a key or handle, partially hidden in a recess, controls the vibration of the lever, and the shaft, rocking in bearings in the casing, carries a plate, between which and the division-plate the spring is confined, the dovetails being reversible, and the construction such that the act of releasing the bolt to permit movement of the sash in one direction will reset and automatically adapt it to prevent movement of the sash in the opposite direction.

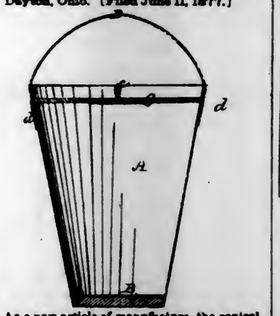


1. The combination of the casing, the division-plate, forming two compartments therein, a vibrating lever or bolt mounted in one of the compartments, and a spring for preventing accidental withdrawal of the bolt, when shot, mounted in the other compartment, substantially as described.

2. The combination, substantially as herein before set forth, of the casing, the vibrating lever mounted therein, either end of which is adapted to constitute a bolt, its shaft, the cam or projection on the shaft, a spring acting on the cam, and a handle or key for controlling the vibration of the lever.

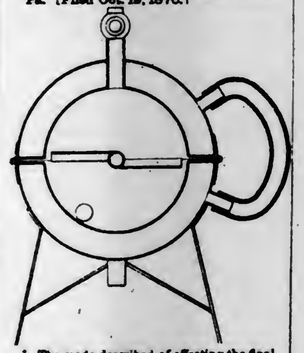
3. The combination of the casing, its division-plate, the shaft rocking in bearings in the casing, the cam mounted thereon, the spring acting on the cam, and a plate carried by the shaft or cam, between which and the division-plate the spring is confined to prevent lateral displacement thereof.

192,530. PAPER BOXES. A. D. Schaeffer, Dayton, Ohio. [Filed June 11, 1877.]



As a new article of manufacture, the conical and cylindrical paper receptacle A, having the textile bail or handle D attached thereto by the glued or pasted disks or strips *d*, the bottom B, with or without a paper lining, and top or cover C, both being adapted to be wedged in place in said receptacle A, substantially as shown and described.

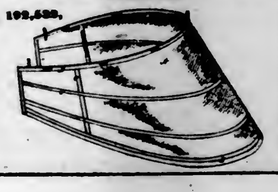
192,531. MANUFACTURE OF SUGAR. Louis B. Schmaln, Canton of Berne, Switzerland, assignor of one-half his right to Elbert A. Corbin, trustee, Philadelphia, Pa. [Filed Oct. 19, 1876.]



1. The mode described of effecting the final concentration and crystallization of partly-concentrated saccharine juices or sirups, which mode consists in subjecting the same, when they have reached a density of from about 30° to 36° Baumé, and while protected from the deteriorating influences of the atmospheric air, to heat and agitation, substantially in the manner described.

2. The mode herein described of effecting the crystallization of partly-concentrated sirups, and drying the crystallized mass to the condition of marketable sugar, by a continuous process—that is to say, by subjecting the partly-concentrated juices to heat and agitation while protected from the deteriorating effects of the atmosphere, and drying the crystallized mass by subjecting it to like treatment under the same conditions, as set forth.

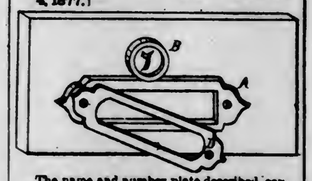
192,532.



192,533. DRESS-TRAIN SUPPORTERS. Gabriel Schwab, New York, N. Y. [Filed May 12, 1877.]

A combined dress-protector and train-extender, the main body of which is formed of tartile fabric supplied with the ordinary dress-protector B, and stiffened and shaped with lateral and cross ribs C, substantially as shown and described.

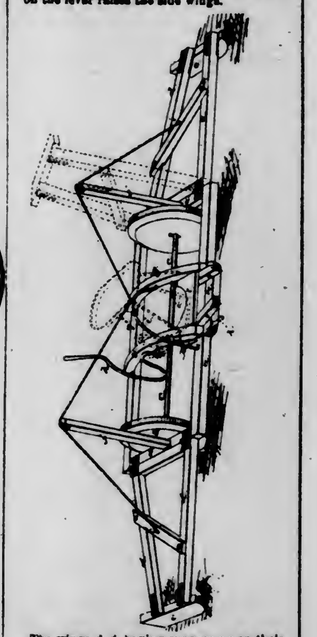
192,534. DOOR AND DRAWER PLATES. F. H. Seymour, Detroit, Mich. [Filed Apr. 4, 1877.]



The name and number plate described, consisting of the plate A, the ring B, and the frame-plate D, constructed and arranged substantially as set forth and shown.

192,535. CORN-MARKERS. Henry C. Sharp and Wm. T. Sharp, Staunton County, Nebr. [Filed Jan. 29, 1877.]

Brief.—The markers are adjustable on the bars and the wheels on the axle. A pressure on the lever raises the side wings.



The wings *d d*, having runners *e e* on their outer ends, hinged to the main frame *a a*, having uprights *j j*, in combination with the levers *h i*, and a cord secured to the lever *i*, and thence passing over pulleys in the uprights *j j*, and secured to the wings *d d*, for elevating said wings, substantially as shown and described.

192,536. SUSPENDERS. James B. Sharp, New York, N. Y. [Filed May 10, 1877.]

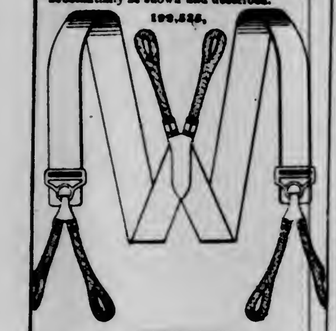
1. A suspender-end made of a flat tape or strip of flexible material, which is bent into a loop or loops, and the parts of which extending up from each loop or loops are laid flatwise upon each other throughout their entire length, and united by stitching through them, substantially as shown and described.

2. The combination of a suspender-end made of a flat tape or strip of flexible material,

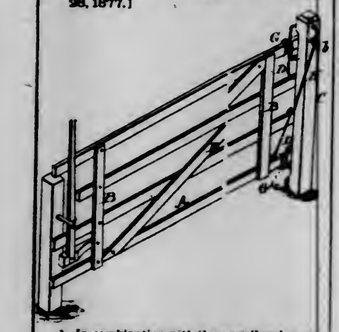
which is bent into a loop or loops, and the parts of which extending up from each loop or loops are laid flatwise upon each other throughout their entire length, and united by stitching through them, with a metallic attaching-piece, having a socket (one or more) for the reception of said suspender-end, substantially as described.

3. A metallic attaching-piece for suspenders, formed out of sheet metal, with a hook-end with a socket (one or more) for receiving the suspender-end, said socket being provided with barbs, stamped out of the metal composing the same, for retaining the suspender-end, as substantially as shown and described.

192,536.



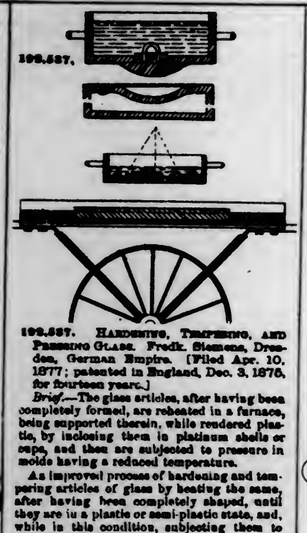
192,536. FARM-GATES. S. S. Sherman and J. G. Sherman, McHenry, Ill. [Filed Apr. 26, 1877.]



1. In combination with the post C and gate A B, the vertical staples D D and the clasps G G, formed with the hooks or eyes *a a*, substantially as and for the purposes herein set forth.

2. The combination, with the clasps G and staples D, for supporting a gate to the gate-post, of the wire H and pin *b*, substantially as and for the purposes herein set forth.

192,537.



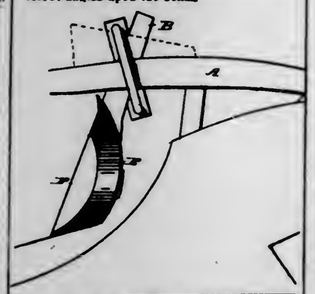
192,537. HARDENING, TEMPERING, AND PRESSING GLASS. Fredk. Siemens, Dresden, German Empire. [Filed Apr. 10, 1877; patented in England, Dec. 3, 1876, for fourteen years.]

Brief.—The glass articles, after having been completely formed, are reheated in a furnace, being supported therein, while rendered plastic, by inclosing them in platinum shells or cups, and then are subjected to pressure in molds having a reduced temperature.

An improved process of hardening and tempering articles of glass by heating the same, after having been completely shaped, until they are in a plastic or semi-plastic state, and, while in this condition, subjecting them to pressure in molds at a lower temperature than the articles, substantially as set forth.

192,538. COMBINED COLTER AND JOINTER, Geo. K. Smith, Freeport, Ill. [Filed June 11, 1877.]

Brief.—A reversible jointer and colter attached to one standard. The latter may be removed and the jointer used alone, set at different angles upon the beam.

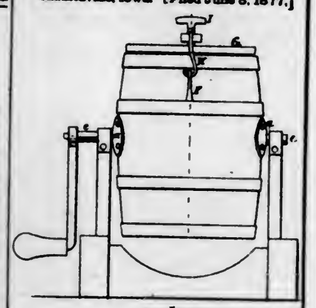


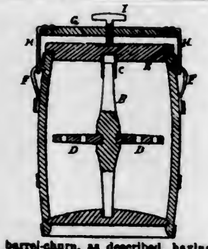
The combination of the plow-beam A, standard B, jointer E, and removable colter F, substantially as shown and described.

192,539. BEER-COOLERS. John Staugler, New York, N. Y., assignor to Albt. Brian, same place. [Filed June 4, 1877.]

A beer-cooling apparatus, consisting of the frame A, having its front legs *a* shorter than the rear legs, the box B having a top, E, the inclined lined bottom, the supports *c c* for the barrel fixed to the bottom, and the former of which is lower than the latter, and the waste-pipe *b* extending through the box, the whole being combined and arranged to operate as and for the purpose described.

192,540. ROTARY CHURNS. A. J. Stoll, Mechanicsville, Iowa. [Filed June 6, 1877.]

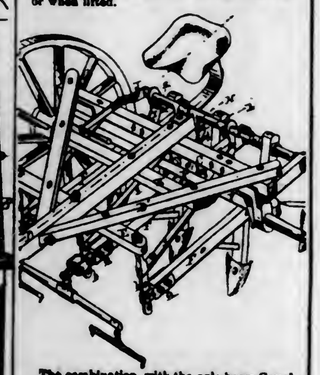




A barrel-churn, as described, having the shaft E, dashers D D, cross-piece G, set-screw I, hooks H, loops F, and top E, constructed and arranged as and for the purpose specified.

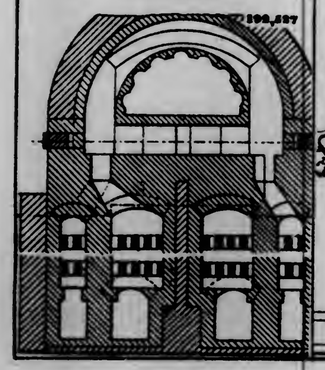
192,541. CULTIVATORS. Garry Storm, Portland, Mich., assignor to himself and Jacob M. Benedict, same place. [Filed Jan. 22, 1876.]

Brief.—The rock-shaft, arms, and curved-link attachment to the plow-beams, whereby the lever is self-locking with the plows at work or when lifted.



The combination, with the axle-beam C and bar F, of the rock-shaft H, brackets I, lever J, arms *d d*, and curved links L, for raising and lowering the shovel-beam and locking the same in either position, substantially as described.

192,542.

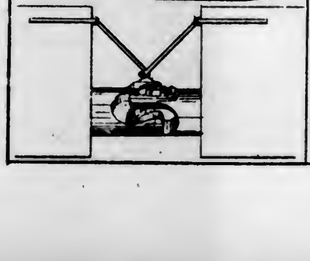


192,542. MANUFACTURE OF VANILLINE. F. Tiemann, Berlin, Germany. [Filed Apr. 26, 1877.]

The process of producing vanilline from oil of cloves, first, by forming an etheric solution of such oil of cloves, adding thereto hydrate of sodium or potassium, and acidulating with sulphuric or hydrochloric acid, eliminating the ether by distillation; second, heating the eugenol so obtained, with the addition of acetic-anhydride, adding warm water to the cooled liquid, and permanganate of potassium, eliminating therefrom the manganese dioxide; third, adding an excess of hydrate of sodium to the filtered liquid, and evaporating; and, finally, adding sulphuric or hydrochloric acid to the concentrated solution, agitating the same with an addition of ether, and purifying the vanilline so obtained by any of the known methods.

192,543. AUTOMATIC HOSE-REELS. Chas. W. Tremain, Chicago, Ill., assignor of one-third his right to Carrie E. De Forest, same place. [Filed June 12, 1877.]

Brief.—In unwinding the hose the water is automatically turned on, the springs under the reel-bars compensating for the expanding of the hose in filling.



1. In a hose-reel, the combination of the sleeve A and conical chamber B, together extending entirely across the reel and supported upon the standard-bearings, and the plug D, having a trunnion, *d*, substantially as and for the purposes set forth.

2. In a hose-reel, the sleeve A, having conical chamber B and hose-connecting pipe I, in combination with the plug D, having trunnion *d*, nut E, sleeve *c*, and rod *b'*, all constructed and arranged substantially as described and shown.

3. In a hose-reel, the combination of the conical chamber B, having flange *g*, the plug D, having trunnion *d* and tooth A, and the standard-bearing O', having hook-latch H, all arranged and operating substantially as described, for the purpose specified.

4. In a hose-reel, the rim K, attached to the hub A by a series of spokes screwed into sockets *a*, and secured in lugs *k* of the rim K, in the manner substantially as described and shown.

5. A hose-reel, having bars *n*, supported each independently by two springs, *m*, so as to yield toward the center of the reel, substantially as and for the purpose described and shown.

6. A hose-reel having T-shaped bars, each guided on the spokes *l* of the reel, so as to yield toward the fulcrum, and being supported by springs *m*, independent of each other, substantially as and for the purpose herein set forth.

192,544. CAR-COUPLINGS. W. J. Trimble, Toledo, Ohio. [Filed Mar. 2, 1877.]

1. The draw-head constructed substantially as hereinbefore set forth, with a horn on one side of both a vertical and horizontal plane passing through the axis of the draw-head, said horn being provided with a slot inclining downward and upward at an angle of forty-five degrees, for the reception of the coupling-pin, as set forth.

2. The draw-head constructed as described, with two horns arranged on opposite sides of both a vertical and horizontal plane passing through the axis of the draw-head, with a slot through at least one of the horns, inclined at an angle of forty-five degrees, for the purposes specified.

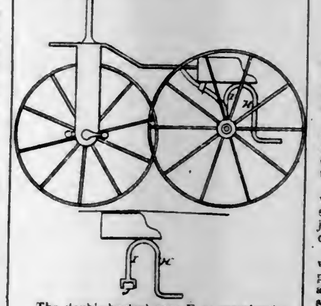
3. The combination, substantially as hereinbefore set forth, of the draw-head, its diagonally-arranged horn, inclined slot, and a spring-pin moving endwise through one of the horns, for the purposes set forth.

4. The car-coupling hereinbefore described, consisting of the combination of two draw-heads having their coupling-pins arranged at an angle of forty-five degrees, and inclined in directions opposite to each other, whereby their uninterrupted coupling is secured.

5. The draw-head hereinbefore described, consisting of the horn arranged above and on one side of the axis of the draw-head, a slot therethrough inclined inwardly and downwardly at an angle of forty-five degrees, the coupling-pin moving endwise through said slot, and the spring-arm jointed to the coupling-pin.

6. The combination, substantially as hereinbefore set forth, of the draw-head, its diagonally-arranged horns, the inclined slot therein, the spring coupling pin, the crank-lever, and the link-connection between the crank-arm and spring-pin, whereby the coupling-pin is retracted.

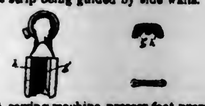
192,545. FOOT-RESTS AND SEATS FOR VELOCIPEDES. Edouard H. Turner, Chicago, Ill. [Filed Jan. 15, 1877.]



The double-backed seat E, in combination with the single rod J H I, formed to support the seat, and terminating in a foot-rest projecting out at the rear of the axle-tree, as and for the purpose set forth.

192,546. PRESSER-FEET FOR SEWING-MACHINES. Charles Turner, Lynn, assignor to M. H. Merriam and B. L. Norton, Boston, Mass. [Filed May 19, 1877.]

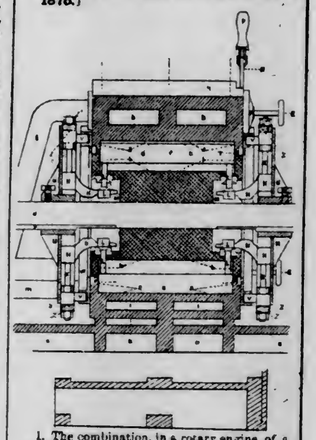
Brief.—The presser-foot has a deep central recession to receive a stay-strip, and the projecting edges of the seam to be covered by the strip, and the sides of such recession are surfaces adapted to rest upon and extend to the edges of, and hold down, the strip, the edges of the strip being guided by side walls.



1. A sewing-machine presser-foot provided at its bottom with a longitudinal recess, *a*, to receive the center of a stay-strip pressed upward therein by the ridge of a seam to which the stay is being applied, and with ledges or faces at the edges of the recess lower than the central recess, to rest upon and extend to the edges of the stay-strip, and with a needle-passage to permit a needle to penetrate the stay-strip between its outside edge and its more elevated central or seam-covering portion, in order that stitches may be formed below the surfaces of the stay-strip, substantially as described.

2. A sewing-machine presser-foot provided with a longitudinal central groove, to receive the center of a stay-strip and allow it to bulge upward therein when applied to cover a seam, and with ledges or faces *g h* at the sides thereof, to bear upon the upper edges of the stay-strip at a lower level than the central portion of the foot, and with edge-guides to guide the outside edges of the strip, substantially as described.

192,547. ROTARY ENGINES. Robert Valle, Auckland, New Zealand. [Filed July 21, 1876.]



1. The combination, in a rotary engine, of a governing-wheel, S, the cross-heads H, the rods L attached to the steam-pistons, the rods K, the studs V, and the cam W, substantially as described, whereby sufficient space is provided to give long and free curves to the cam-guide.

2. The combination of the steam-piston, the connections L H K, the stud V, the cam W, and the cushioning device Z, substantially as described, whereby the pistons are kept steam-tight and are readily adjusted.

3. The combination, with the governing-wheel, of the steam-piston, the cross-head, the stud V, the cushioning device Z, and the adjusting-nuts on the stem K, substantially as described.

4. The combination of the horizontally-divided cylinders *a*, *b*, and *c*, the plates Q, the pistons and abutments, the steam-ports *j j*, and exhaust-passages I, substantially as described.

5. The combination of the hollow steam-valves A, the steam-passages *j j*, the exhaust-passages I, the lever O for connecting the valves, by which they are operated to start, stop, and reverse the engines, substantially as described.

192,548. FIRE-ESCAPES. Albin Warth, Stapleton, N. Y. [Filed May 16, 1877.]

Brief.—A flanged friction-ring, in which the rope is wound, is provided with two spouts for guiding the rope to and from the ring. A cross-bar is passed through the ring, to which the body-belt is secured. A flexible sleeve surrounds the rope, and serves as a protection to the hands of the operator.

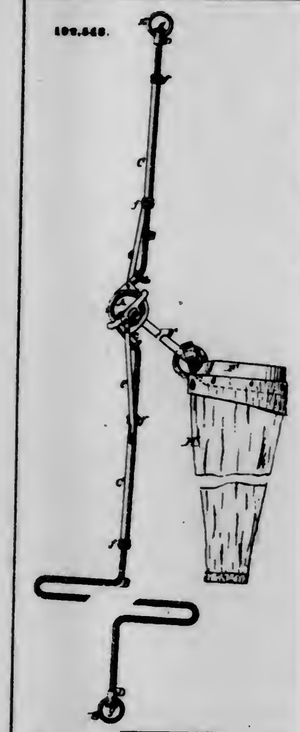
1. The tubular ring A, having spouts *b* and *c*, in combination with the rope B, passing through the tubular ring, and the belt F, having a locking-bar, G, adapted to pass through the ring A, substantially as shown and described.

2. The combination, with the body-belt F, its locking-bar G, the rope B, and the friction-ring A, of a pair of drawers, H, substantially as and for the purpose set forth.

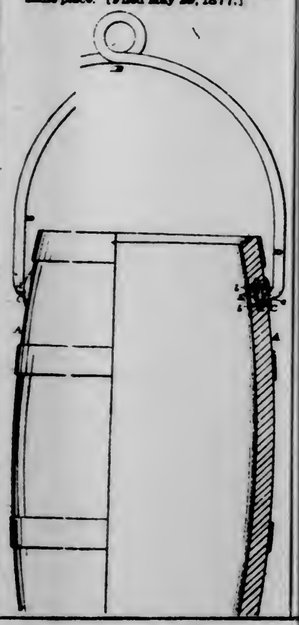
3. The combination of the ring E, having a tapering socket, D, and removable cap *g*, of the rope F, knotted and inserted through the tapering socket, and retained by the removable cap, substantially as described.

4. The combination of the flexible protecting-sleeve C, with the rope B, the tubular ring A, having the spouts *b* and *c*, and a belt for supporting the body, substantially as described.

192,548.

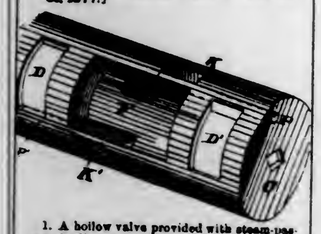


192,549. WELL-BUCKET HARE. J. Waamer, St. Louis, Mo., assignor to Wm. Brown, same place. [Filed May 29, 1877.]



The ear, composed of the perforated head C and barrel B, in combination with a bucket-bail D, with or without cap E, substantially as set forth.

192,550. STEAM-PISTON VALVE. Geo. M. Weisman, Columbus, Ohio. [Filed Mar. 31, 1877.]

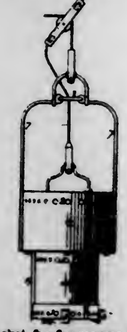


1. A hollow valve provided with steam-passage leading to opposite ends of the valve, and independent exhaust-passages leading from opposite ends of the valve to independent supplemental exhaust-openings, the latter located on opposite sides and ends of the main exhaust-opening, whereby the partial rotation of the valve serves to exhaust steam directly to the main exhaust, and cut off the exit of steam before the valve has reached the limit of its stroke, thereby cushioning the valve, substantially as and for the purpose set forth.

2. A hollow valve constructed with openings H H', steam-passages L L', supplemental exhaust-passages P P' leading to opposite ends of the valve, and independent ports K K', the latter located on opposite sides and ends of the main exhaust-opening F, substantially as and for the purpose set forth.

3. A cylindrical valve provided with steam-ports D D', bridge F, inlet-port G, balance-openings H H', passages P P', supplemental exhaust-ports K K', and grooves L L', substantially as and for the purpose described.

192,551. FIRE-ESCAPES. Joseph Welch, Delphos, Ohio. [Filed June 2, 1877.]



1. A basket for fire-escapes that is formed of two sections, one of which can be closed up within the other, substantially as shown.

2. A basket for fire-escapes made in two sections, each section being provided with a separate rope for operating it, substantially as set forth.

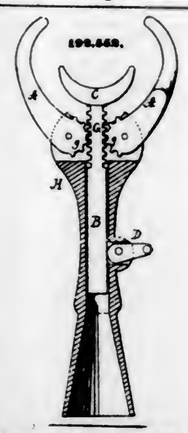
3. A basket for fire-escapes that is made of sheet metal and provided with a double thickness of walls, so as to form an air-chamber around the basket, as described.

192,552. ANIMAL-CATCHERS. J. L. Wiggin, Lyon, Iowa, assignor to himself and Le Roi B. Wadleigh, same place. [Filed June 6, 1877.]

Brief.—A long pole is inserted loosely in the socket, and a strong cord attached to that portion of the dog which projects from the case. The pole, with the device at its end, is held in the right hand, and the animal is struck on the leg, care being taken so that the two arms shall clasp the leg.

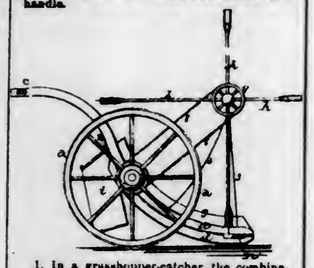
The combination of the case H, bar B, provided with cogs G and plates C, arms A, with cogs g, cam-dog D, the whole arranged substantially as and for the purposes specified.

192,553.



192,553. GRASSHOPPER-CATCHERS. G. S. Wilson, Malvern, and John Rhode, Tabor, Iowa. [Filed Feb. 23, 1877.]

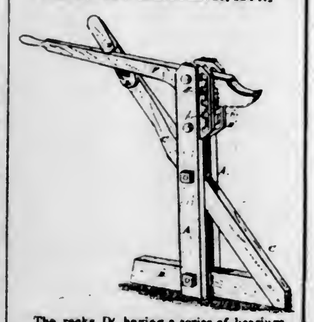
Brief.—A grasshopper-catching machine having a curved floor, to the rear edge of which is secured a receptacle, into which the insects are swept by a reel as the machine is propelled about by pushing from behind on a handle.



1. In a grasshopper-catcher, the combination of a frame that is placed upon wheels, and designed to be pushed from behind, and that is provided with the curved floor e, box 4, lid provided with a flange, 2, and a reel, A, substantially as shown.

2. The frame composed of the two curved timbers d between which the floor is clamped, curved flanges g, handle c, bar x, standards 3, and reel A, substantially as described.

192,554. LIFTING-JACKS. John G. Winters, Warren, Ohio. [Filed June 13, 1877.]



The racks D', having a series of bearings, d, and vertical guiding and retaining arms h, in combination with the two separated standards A, the sill B, the inclined beam C, having notches D, and the elastic lever F, having a pin, E, arranged within the racks, and retained therein by the arm or bar A, substantially as and for the purpose described.

192,555. COPYING-PENCILS. C. Walpuski, Yonkers, assignor to Jos. Reckendorfer, New York, N. Y. [Filed Mar. 3, 1875.]



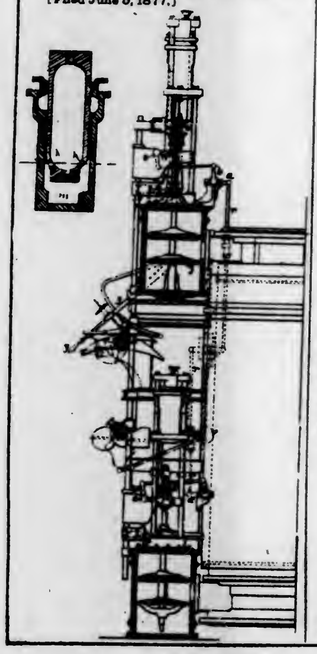
1. An ink-copying pencil having a marking core or slip composed of a soluble coloring-matter whose marks will yield a copy on moist paper in the copying-press, in combination with a suitable base or binding medium, substantially as set forth.

2. The copying-pencil having a marking core or slip composed in the main of an aniline coloring matter, substantially as herein set forth.

3. The within-described composition of matter for marking and copying purposes, consisting of aniline, clay, and gum, in the proportions substantially as set forth.

REISSUES.

7,763. VALVE-GEAR OF STEAM-ENGINES. Edward N. Dickerson, New York, N. Y. Patent No. 68,863, dated Sept. 17, 1867. [Filed June 5, 1877.]



1. The combination of the two lifters on the same lifting-rod, one being fixed to it and the other sliding upon it, and the lever, for the purpose of effecting the reduction of the initial motion of opening steam-valves, substantially as described.

2. The combination of the lever for opening the steam-valve gradually with the fixed and movable lifters, the one being moved by the motion of the lifting-rod, and the other supporting a separate disengaging apparatus, substantially as described.

3. A lever, one end of which is raised by the fixed lifter on the lifting-rod, and by which the steam-valve is pried open gradually, so arranged that it can be adjusted to vary the speed of lifting by shifting the position of the fulcrum on the fixed lifter to which the lifting power is applied, substantially as described.

4. The vibrating tripper, centered upon the lifter itself, which opens the valve, as distinguished from a tripper which is centered on some other part of the machine, substantially as described.

5. The vibrating die for engaging and disengaging the valve-stem to effect a cut-off, so arranged that it will vibrate in an arc whose concave side is presented to the valve-stem, substantially as described.

6. The collar which surrounds the valve-stem, having one or more radial ribs upon it, for the purpose of co-operating with a movable die to effect a cut-off, substantially as described.

7. A dash-pot whose plunger is composed of two cylinders of unequal diameters, the smaller of which is the arresting-plunger, forming the bottom of the larger one, and whose exterior chamber is composed of a cup or secondary reservoir to receive the arresting-plunger, and above it a confining-vessel to guide the larger cylinder of the plunger and to exclude the air, substantially as described.

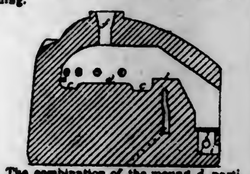
8. The combination, in a rock-shaft, of one false exhaust-toe and one fixed one, by which it is supported, with a stud or prop between them, so arranged that it can be dropped or elevated at pleasure, substantially as described.

9. The vertically-adjustable double bell-crank T, in combination with the two single bell-cranks b b and connecting-rods r r, for the purpose of actuating trippers to unlatch valve-stems from their lifters, to effect a variable cut-off on steam-engines, substantially as described.

10. For the purpose of engaging and disengaging the valve-stem of a cut-off valve with and from the lifter, a collar surrounding the valve-stem, and armed with projecting ribs arranged on opposite sides of the valve-stem, in combination with a solid die acted on by the tripper, supported by the lifter and surrounding the valve-stem, armed with projecting points corresponding with the ribs of the collar, so that the valve-stem shall be equally supported on both sides of the center in lifting the valve, and, at the same time, have a long surface of contact between the die and collar, to endure the abrasion of tripping when the die is moved, substantially as described.

7,764. GLASS-FURNACES. Geo. W. Foster and C. W. Foster, Boston, Mass., assignors, by mesne assignments, to Mary A. Foster and Amanda E. Foster. Patent No. 120,657, dated July 28, 1872; reissue No. 7,219, dated July 11, 1876. [Filed Mar. 23, 1877.]

Brief.—There is an opening in the roof of the tank, directly over the mouad therein, through which the raw material, or "batch," is poured into the tank, or which may be used as a draft to let off heat. The partition between the fire pot or box and the tank is provided with a cooling-space, into or through which air, water, or other cooling substance may be driven, to prevent it from melting or burning.



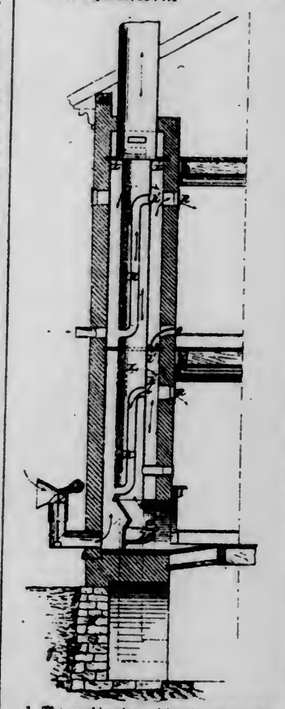
1. The combination of the mouad d, partition l, tank a, and tunnel f, said mouad being placed directly under said tunnel, substantially as specified, and for the purpose hereinbefore described.

2. In a glass-melting tank-furnace, a cooling-space placed between the tank and fire-pot in said furnace, substantially as and for the purpose described.

7,765. PROCESSES OF RESTORING GRAPE, LACES, &c. Aaron J. Shriver, Baltimore, Md., assignor to S. M. Shriver, same place. Patent No. 179,361, dated June 27, 1876. [Filed May 12, 1877.]

That by the hereinbefore described process and solution fixing and preserving the color and texture of all fabrics hereinbefore described, and renovating and restoring the same when defaced or damaged from any cause by first immersing the fabric in a solution consisting of a dye-stuff, alcohol, and a gum soluble in alcohol and insoluble in water, and then subjecting the same to the action of steam, substantially as and for the purposes described.

7,766. COMBINED CHIMNEY AND VENTILATOR. Lovern B. Silver, Cleveland, Ohio. Patent No. 159,265, dated Feb. 2, 1875. [Filed Apr. 10, 1877.]



1. The combination, with a fire-place and a smoke-flue connected therewith, said smoke-flue provided with one or more diagonal pipes, K, of an exterior air-flue, having partitions governed by dampers or valves located therein, said partitions arranged in close proximity to the ceilings and air-registers, substantially as described.

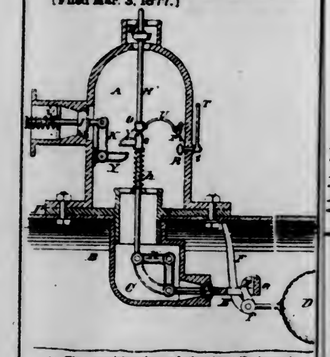
2. The combination, with a fire-place and a smoke-flue connected therewith, of an exterior air-flue, having partitions governed by dampers or valves located therein, said partitions arranged in close proximity to the ceilings of the house, and air-registers leading to the hot-air flue at a point below said partitions, substantially as set forth.

3. The combination, with a fire-place and smoke-flue connected therewith to constitute an air-place around the fire-place and smoke-flue, of an air-pipe leading to the air-flue near the fire-place, a pipe passing diagonally upward through the smoke-flue, and a register located near the ceiling, substantially as set forth.

4. The combination, with a chimney, of an interior smoke-flue, an exterior air-flue partition, U; and valve F, substantially as and for the purposes described.

5. The combination, with a chimney, of an interior smoke-flue surrounded by an exterior air-flue, register R, entering the apartment near the ceiling, and ventilators Q Q', leaving the apartment near the floor, and entering the smoke-flue near the top of the building, substantially as and for the purposes described.

7,767. LOW-WATER ALARM AND FIRE-EXTINGUISHER. B. R. Singleton, Highland, Ill., assignor, by mesne assignments, to Henry S. Hopkins and William McCully. Patent No. 128,795, dated Feb. 20, 1872. [Filed Mar. 3, 1877.]



1. The combination of the float D, bent lever L, slotted bar E, projections *e e'*, and valves G G', substantially as and for the purpose described.

2. The combination of the float D, lever L, bar E, bell-cranks K K', valve-stem H', valves H and I, and springs *h* and *i*, substantially as and for the purpose specified.

3. The combination of the float D, lever L, bar E, crank K, stem H', sleeve O, levers or bars U *r*, cam R, shaft *t*, and lever T, substantially as and for the purpose described.

4. The combination of the lever T, shaft *t*, cam R, rod *r*, rod U, sleeve O, stem H', arm Y, crank K, and valve I, substantially as described.

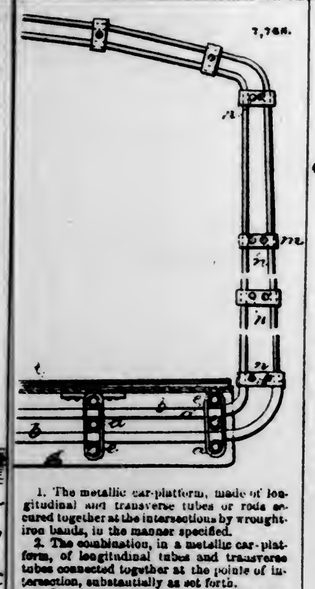
5. The combination of the float D, lever L, rod E, projection *e*, gage-box C, and valve G', substantially as described.

6. The combination of the lever T, shaft *t*, cam R, rods *r* U, sleeve O, stem H', and dome A, substantially as described.

7. The combination of the box C, plate P, bearing *p*, arm Y, valve G', lever K, stem H', and spring *k*, substantially as described.

8. The combination of the levers K K', stem H', arm Y, rod E, lever L, float D, and valve I, substantially as described.

7,768. METALLIC CAR FRAMES AND PLATFORMS. Bernard J. La Mothe, New York, N. Y. Patent No. 180,446, dated Dec. 19, 1876. [Filed May 17, 1877.]



1. The metallic car-platform, made of longitudinal and transverse tubes or rods secured together at the intersections by wrought-iron bands, in the manner specified.

2. The combination, in a metallic car-platform, of longitudinal tubes and transverse tubes connected together at the points of intersection, substantially as set forth.

3. The band *c*, for securing the tubes or rods *a* and *d*, made of a strip of sheet metal, wound up and retained at its ends by the band *c'*, as and for the purposes set forth.

4. The plate *g* at the end of the car-platform, retained upon the longitudinal tubes *a* by such tubes being passed through the said plate and spread, in combination with the transverse tubes *b* of the platform, as set forth.

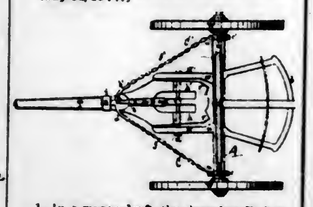
5. The combination, with the draft-bar or a car having a movement limited by the stops 2 and 3, of the spring formed of a circular coil of wire or band metal, and the straps 4 and 5, that pass around the convolutions at opposite sides of the circle, and connect the same together and to the draft-bar and car, respectively, substantially as set forth.

6. The bars or tubes *l*, in combination with the intersection-blocks *m*, of varying length, placed together so that the said bars *l* or tubes *a* converge or diverge, as and for the purposes set forth.

7. The two bars or tubes *n*, passing through between the two bars or tubes *l*, in combination with the intersection-blocks *m*, that are made to receive and sustain such bars or tubes, in the manner and for the purposes set forth.

8. The metallic plate *o*, folded to form double longitudinal ribs *8*, in combination with the flooring-planks *r*, inserted between said ribs and secured, as set forth.

7,769. WAGON HOUNDS AND TONGUES. O. F. Whipple, Grand Rapids, Wis. Patent No. 161,643, dated Apr. 6, 1875. [Filed May 31, 1877.]

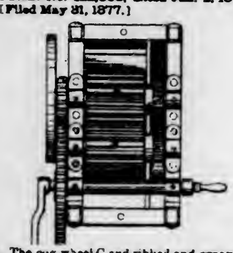


1. In a wagon-draft, the draw-bar D, having a free lateral movement on the tongue, and independent of the tongue, and a longitudinal movement with the tongue, as and for the purpose specified.

2. In a wagon, the combination of the tongue T, the slotted hounds h h' with their beveled ends *r* and *r'*, the large hounds H and H' with their wedges *w* and *w'*, the pin *a*, the pivoted draw bar D, the chains C C', and the hooks *n n'* on the axle A, as and for the purpose specified.

3. The combination of the band *c'* with its lug *p*, having an opening in it, through which passes the hooked end *a'* of the band *c'*, forming a hinged joint, the bolt *s*, and the axle A and draw-chain C, as described.

7,770. CIDER-MILLS. Hiram Willson and Samuel McC. Willson, Harrisburg, Pa., administrators of D. T. Willson, deceased. Patent No. 122,508, dated Jan. 2, 1872. [Filed May 31, 1877.]



1. The cog-wheel C and ribbed and grooved roller B, cast with a groove, *a*, between them for the insertion of the hopper sides, whereby the cog mechanism is on the exterior and the crushing mechanism on the interior of said hopper of a cider-mill, substantially as and for the purposes herein set forth.

2. In a cider-mill, one or more grooved and ribbed rollers, B, cast in one piece with the cog-wheel C and intervening groove *a*, the cogs on the wheel C corresponding in number with the grooves and ribs on the roller, substantially as and for the purposes set forth.

3. The cog wheels outside of the hopper, having as many teeth as there are grooves *a* and ribs *d* on the two lower rolls running with equal velocity.

NATIONAL LITHOGRAPHING CO. WASHINGTON, D.C.

INDEX TO DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS

IN THE MATTER OF

PATENTS, TRADE-MARKS, &c.

OFFICIAL GAZETTE—April-June, 1894.

VOL. 67 O G—2

INDEX TO DECISIONS.

[Decisions of United States courts designated by an asterisk (*).]

	Page.
*Albany Perforated Wrapping Paper Company. Morgan Envelope Company *v*	271
*Allen. Saunders *et al. v*	1330
*Am Ende. Seabury *et al. v*	401
*American Cable Railway Company *v.* Mayor, etc., City of New York *et al*	1334
*Belding Manufacturing Company *v.* Challenge Corn Planter Company	141
*Beshore. Kohler Manufacturing Company *v*	678
*Buckeye Electric Company *et al.* Edison Electric Light Company *et al. v*	529
Busell. Glidden *v*	675
Butz. *Ex parte*	677
Colhoun v. Hodgson	1329
*Challenge Corn Planter Company. Belding Manufacturing Company *v*	141
*Commissioner of Patents. United States *ex rel.* the State of South Carolina *v*	1191
*Covert. Sargent *et al. v*	408
Dailey *v.* Jones	1719
*Daniels. Morgan *v*	811
*Dennison Manufacturing Company. Dunham *v*	1571
*Drawbaugh. *In re*	929
*Dunham *v.* Dennison Manufacturing Company	1571
*Dunlap *et al. v.* Schofield *et al*	139
*Edison Electric Light Company *et al. v.* Buckeye Electric Company *et al*	529
*Excelsior Manufacturing Company. Stirrat *et al. v*	1450
*Forgie *v.* Oil Well Supply Company	1573
*Fraser *et al.* Gates Iron Works *v*	1065
*Gates Iron Works *v.* Fraser *et al*	1065
Glidden *v.* Busell	675
Glidden *v.* Noble	676
*Globe Button-Hole Machine Company *et al.* Reece Button-Hole Machine Company *v*	1720
*Green, Schulze-Berge & Koechl. L. Durand, Huguenin & Co. *v*	814
Greenfield *v.* Prentice	1189
Grove. *Ex parte*	1447
*Hilton. Humphreys Homeopathic Medicine Co *v*	1193
Hisey. Peters *v*	927
Hodgson. Colhoun *v*	1329
*Howard. Social Register Association *v.*	1448
*Humphreys Homeopathic Medicine Co. *v.* Hilton	1193
*Johnson *et al. v.* Johnston	1332
*Johnson Street Steel Rail Company *v* William Wharton, Jr., & Company, Limited, *et al*	274
*Johnston. Johnson *et al. v*	1332
*Johnston *et al.* Masseth *v*	143
Jones Dailey *v*	1719
*Kerry *et al. v.* Toupin	931
*Knickerbocker Company *v.* Rogers *et al*	1448
*Kohler Manufacturing Company *v.* Beshore	678
*L. Durand, Huguenin & Co. *v.* Green, Schulze-Berge & Koechl	814
*Lamson Consolidated Store Service Company. National Cash Register Company *et al. v.*	680
*Masseth *v.* Johnston *et al.*	143
*Masseth *v.* Reiber	143
*Mayor, etc., City of New York *et al.* American Cable Railway Company *v*	1334
*Morgan *v.* Daniels	811
*Morgan Envelope Company *v.* Albany Perforated Wrapping Paper Company	271
*National Cash Register Company *et al. v.* Lamson Consolidated Store Service Company	680
Noble. Glidden *v*	676
*Oil Well Supply Company. Forgie *v*	1573
Penniston. Plummer *v*	928
Peters *v.* Hisey	927
Plummer *v.* Penniston	928
Prentice. Greenfield *v*	1189
*Reece Button-Hole Machine Company *v.* Globe Button-Hole Machine Company *et al*	1720
*Reiber. Masseth *v*	143
*Reynolds *et al.* Richter *v*	404
*Richardson *et al. v.* Shepard *et al*	144
*Richter *v.* Reynolds *et al*	404
*Rogers *et al.* Knickerbocker Company *et al. v*	1448
*Sargent *et al. v.* Covert	408
*Saunders *et al. v.* Allen	1330
*Schofield *et al.* Dunlap *et al. v*	139
*Seabury *et al. v.* Am Ende	401
*Shepard *et al.* Richardson *et al. v*	144
Silvers. *Ex parte*	811
*Social Register Association *v.* Howard	1448
*Stirrat *et al. v.* Excelsior Manufacturing Company	1450
*Toupin. Kerry *et al. v*	931
*United States *ex rel.* the State of South Carolina *v.* Commissioner of Patents	1191
*William Wharton, Jr., & Company, Limited, *et al.* Johnson Street Steel Rail Company *v*	274
Zuber. *Ex parte*	529

SUBJECT-MATTER.

[Decisions of the United States courts are designated by an asterisk (*).]

	Page.
*Abandonment of a patented invention, Masseth v. Johnston *et al*	143
*Amendments, Reece Button-Hole Machine Company v. Globe Button-Hole Machine Company *et al*	1720
Ex parte Zuber	529
*Anticipation, National Cash Register Company *et al.* v. Lamson Consolidated Store Service Company	680
*Apparatus and articles used therewith, Morgan Envelope Company v. Albany Perforated Wrapping Paper Company	271
Apparatus for making seamed metal tubes, Greenfield v. Prentice	1189
*Appeal from the Court of Appeals of the District of Columbia to the Supreme Court of the United States. United States *ex rel.* the State of South Carolina v. Commissioner of Patents	1191
*Appellate courts, review by, Johnson Street Steel Rail Company v. William Wharton, Jr., & Company Limited, *et al*	274
*Assignments, American Cable Railway Company v. Mayor, etc., of the City of New York *et al*	1334
*Gates Iron Works v. Fraser *et al*	1065
*Borated cotton, Seabury *et al* v. Am Ende	401
*Burden of proof, Edison Electric Light Company *et al.* v. Buckeye Electric Company *et al*	529
*Seabury *et al.* v Am Ende	401
*Button-hole sewing machines, Reece Button-Hole Machine Company v. Globe Button-Hole Machine Company *et al*	1720
Cartridge-loading machines, Peters v. Hisey	927
*Cash registers and indicators, National Cash Register Company *et al.* v. Lamson Consolidated Store Service Company	680
Caveat, expired, as evidence of invention, Colhoun v. Hodgson	1329
*Certificate of correction, Edison Electric Light Company *et al.* v. Buckeye Electric Company *et al*	529
*Certified copies, American Cable Railway Company v. Mayor, etc., of the City of New York	1334
*Change of structure, Knickerbocker Company v. Rogers *et al*	1448
*Claims, rejected, Morgan Envelope Company v. Albany Perforated Wrapping Paper Company	271
*Colors or dye-stuffs, L. Durand, Huguenin & Co v. Green, Schulze-Berge & Koechl	814
*Combination of apparatus and articles used therewith, Morgan Envelope Company v. Albany Perforated Wrapping Paper Company	271
*Combined tag and envelope, Dunham v. Dennison Manufacturing Company.	1571
Conception of invention, Colhoun v. Hodgson	1329
Dailey v. Jones	1719
Peters v. Hisey	927
*Construction of act of February 4, 1887, Dunlap *et al.* v. Schofield *et al*	139
Construction of Rule 162, Plummer v. Penniston	928
*Construction of section 4886, Revised Statutes, *in re* Drawbaugh	929
*Construction of section 4888, Revised Statutes, Stirrat *et al.* v. Excelsior Manufacturing Company	1450
*Construction of section 4900, Revised Statutes, Dunlap *et al.* v. Schofield *et al*	139
*Construction of sections 892 and 4898, Revised Statutes, American Cable Railway Company v. Mayor, etc., of the City of New York	1334
*Construction of sections 4919 and 4921, Revised Statutes, Masseth v. Johnston *et al*	143
*Construction of specifications and patents, Gates Iron Works v. Fraser *et al*	1065
*Morgan Envelope Company v. Albany Perforated Wrapping Paper Company	271
*Reece Button-Hole Machine Company v. Globe Button-Hole Machine Company *et al.*	1720
*Richardson *et al.* v. Shepard *et al*	144
*Construction of Statutes, *in re* Drawbaugh	929
*Contract, verbal, Gates Iron Works v. Fraser *et al*	1065
*Copies of record of assignments in the Patent Office not competent evidence of title, American Cable Railway Company v. Mayor, etc., of the City of New York	1334
*Damages and profits, Dunlap *et al.* v. Schofield *et al*	139
*Masseth v. Johnston *et al*	143
*Damages and profits, no allowance for interest on capital invested or for salaries of officers of the corporation, Seabury *et al.* v. Am Ende	401
*Decisions of the Patent Office in regard to priority of invention controlling in the courts, Morgan v. Daniels	811
*Defenses, Masseth v. Johnston *et al*	143
*Masseth v. Reiber	143
Delay, Colhoun v. Hodgson	1329
*Design, infringement of, Dunlap *et al* v. Schofield *et al*	139
*Double use, Knickerbocker Company v. Rogers *et al*	1448
Drawings, amendments to, *ex parte* Zuber	529
*Dust-collectors, Knickerbocker Company v. Rogers *et al*	1448
*Electric lamps, Edison Electric Light Company *et al.* v. Buckeye Electric Company *et al*	529
Employés, Greenfield v. Prentice	1189
*English patent, Edison Electric Light Company *et al.* v. Buckeye Electric Company *et al*	529
*Enlargement of claims, Dunham v. Dennison Manufacturing Company	1571
*Equivalents, Reece Button-Hole Machine Company v. Globe Button-Hole Machine Company *et al*	1720
*Estoppel, Edison Electric Light Company *et al.* v. Buckeye Electric Company *et al*	529
*Morgan Envelope Company v. Albany Perforated Wrapping Paper Company	271
*Evidence of invention, Richardson *et al.* v. Shepard *et al.*	144
*Saunders *et al.* v. Allen	1330
*Evidence of prior use, Knickerbocker Company v. Rogers *et al*	1448
*Evidence of priority of invention, Morgan v. Daniels	811
Peters v. Hisey	927
*Evidence of title, American Cable Railway Company v. Mayor, etc., of the City of New York	1334
Examination of application, *ex parte* Zuber	529
Examiners, *ex parte* Zuber	529
Experimental use, Glidden v. Busell	675
*National Cash Register Company *et al.* v. Lamson Consolidated Store Service Company	680
Expired caveat, Colhoun v. Hodgson	1329
First and original inventor, Colhoun v. Hodgson	1329
*Forgie v. Oil Well Supply Company	1573
Greenfield v. Prentice	1189
*National Cash Register Company *et al.* v. Lamson Consolidated Store Service Company	680
Foot-warmers, Plummer v. Penniston	928
Foreign disclosure, Peters v. Hisey	927
*Former decisions discussed, Reece Button-Hole Machine Company v. Globe Button-Hole Machine Company *et al.*	1720
Function, *ex parte* Butz	677
*Knickerbocker Company v. Rogers *et al*	1448
*Garment-hooks, Richardson *et al.* v. Shepard *et al*	144

Page.

*Guard-rails, Johnson Street Steel Rail Company v. William Wharton, Jr., & Company, Limited, *et al*..... 274
Heel-trimmers, Glidden v. Busell..... 675
Glidden v. Noble..... 676
*Hitching devices, Sargent *et al.* v. Covert..... 408
*Indexes, Johnson *et al.* v. Johnston..... 1332
*Infringement, Gates Iron Works v. Fraser *et al.*..... 1065
*Kohler Manufacturing Company v. Beshore..... 678
*Masseth v. Reiber..... 143
*Morgan Envelope Company v. Albany Perforated Wrapping Paper Company..... 271
*Reece Button-Hole Machine Company v. Globe Button-Hole Machine Company *et al*..... 1720
*Seabury *et al.* v. Am Ende..... 401
*Stirrat *et al.* v. Excelsior Manufacturing Company..... 1450
*Infringement of design patent, Dunlap *et al.* v. Schofield *et al*..... 139
*Injunction, Kohler Manufacturing Company v. Beshore..... 678
*Injunction, dissolution of, Edison Electric Light Company *et al.* v. Buckeye Electric Company *et al*..... 529
Inoperativeness, Glidden v. Noble..... 676
Interference, Colhoun v. Hodgson..... 1329
Dailey v. Jones..... 1719
Glidden v. Busell..... 675
Glidden v. Noble..... 676
Greenfield v. Prentice..... 1189
Peters v. Hisey..... 927
Plummer v. Penniston..... 928
*International Convention for the Protection of Industrial Property, Kerry *et al.* v. Toupin..... 931
Invention, *ex parte* Butz..... 677
*Gates Iron Works v. Fraser *et al*..... 1065
Glidden v. Busell..... 675
*Johnson *et al.* v. Johnston..... 1332
*Knickerbocker Company v. Rogers *et al*..... 1448
*Richardson *et al.* v. Shepard *et al*..... 1443
*Saunders *et al.* v. Allen..... 1330
*Joint invention, Forgie v. Oil Well Supply Company..... 1573
Joint inventors, Greenfield v. Prentice..... 1189
*Judgment of courts *res adjudicata*, Johnson Street Steel Rail Company v. William Wharton, Jr., & Company, Limited, *et al*..... 274
*Jurisdiction of the Supreme Court of the United States, United States *ex rel.* the State of South Carolina v. Commissioner of Patents..... 1191
*License, Gates Iron Works v. Fraser *et al*..... 1065
*Limitation by foreign patent previously granted, Edison Electric Light Company *et al.* v Buckeye Electric Company *et al*..... 529
*Machine and product, Morgan Envelope Company v. Albany Perforated Wrapping Paper Company..... 271
*Machines for coiling wire rods, Morgan v. Daniels..... 811
*Mandamus, United States *ex rel.* the State of South Carolina v. Commissioner of Patents..... 1191
Manufacture of structural material, *ex parte* Butz..... 677
*Marking articles "Patented," Dunlap *et al.* v. Schofield *et al*..... 139
Master's report, Seabury *et al.* v. Am Ende..... 401
*Mode of operation, mystery of, Knickerbocker Company v. Rogers *et al*..... 1448
New matter, *ex parte* Zuber..... 529
Nut-locks, *ex parte* Zuber..... 529
*Ore-crushers, Gates Iron Works v. Fraser *et al*..... 1065
*Packers for shutting off water from oil-wells, Masseth v. Johnston *et al*..... 143
*Masseth v. Reiber..... 143
*Parties to suit, Masseth v. Johnston *et al*..... 143
*Patents, general rule of construction, Reece Button-Hole Machine Company v. Globe Button-Hole Machine Company *et al*..... 1720
*Patented articles, refusal of inventor to furnish, Masseth v. Reiber..... 143
*Pipe-cutters, Saunders *et al.* v. Allen..... 1330
*Practice in the courts, Morgan v. Daniels..... 811
*Reece Button-Hole Machine Company v. Globe Button-Hole Machine Company *et al*..... 1720

Page.

*Preliminary injunction, Edison Electric Light Company *et al.* v. Buckeye Electric Company *et al*..... 529
Printing testimony, Plummer v. Penniston..... 928
*Prior adjudication, Johnson Street Steel Rail Company v. William Wharton, Jr., & Company, Limited, *et al*..... 274
*Prior use, evidence, Knickerbocker Company v. Rogers *et al*..... 1448
Priority of invention, Colhoun v. Hodgson..... 1329
Dailey v. Jones..... 1719
Glidden v. Busell..... 675
Glidden v. Noble..... 676
*National Cash Register Company *et al.* v. Lamson Consolidated Store Service Company..... 680
Peters v. Hisey..... 927
*Priority of invention determined by the Patent Office will be accepted by the courts as controlling, Morgan v. Daniels..... 811
Process, *ex parte* Butz..... 677
*L. Durand, Huguenin & Co. v. Green, Schulze-Berge & Koechl..... 814
*Saunders *et al.* v. Allen..... 1330
*Public recognition evidence of invention, Richardson *et al.* v. Shepard *et al*..... 144
*Public use, *in re* Drawbaugh..... 929
Reduction to practice, Colhoun v. Hodgson..... 1329
Dailey v. Jones..... 1719
Glidden v. Busell..... 675
*National Cash Register Company *et al.* v. Lamson Consolidated Store Service Company..... 680
Peters v. Hisey..... 927
*Refrigerators, Belding Manufacturing Company, v. Challenge Corn Planter Company..... 141
*Reissues, Dunham v. Dennison Manufacturing Company..... 1571
*Res adjudicata, application to judgments of courts, Johnson Street Steel Rail Company v. William Wharton, Jr., & Company, Limited, *et al*..... 274
*Rugs, Dunlap *et al.* v. Schofield *et al*..... 139
*Suits for infringement, Masseth v Johnston *et al*..... 143
*Suits under section 4915, Revised Statutes, Morgan v. Daniels..... 811
*Suits under section 4918, Revised Statutes, National Cash Register Company *et al.* v. Lamson Consolidated Store Service Company..... 680
*Supreme Court of the United States, appeals to from the Court of Appeals of the District of Columbia, United States *ex rel.* the State of South Carolina v. Commissioner of Patents..... 1191
*Telephones, *in re* Drawbaugh..... 929
Testimony, Peters v. Hisey..... 927
Testimony, printed copies in interference cases, Plummer v. Penniston..... 928
Tin cans, Colhoun v. Hodgson..... 1329
*Title to patent, American Cable Railway Company v. Mayor, etc., of the City of New York *et al*..... 1334
*Toilet paper and fixtures and apparatus for holding toilet paper, Morgan Envelope Company v. Albany Perforated Wrapping Paper Company..... 271
*Trade-Marks, Kohler Manufacturing Company v. Beshore..... 678
*United States *ex rel.* the State of South Carolina v. Commissioner of Patents..... 1191
Trade-Marks, division of application for registration of, *ex parte* Silvers..... 811
*Trade-Marks, registration by citizens of Canada, Kerry *et al.* v. Toupin..... 931
*Trade-Marks, registration of numerals, Humphreys Homeopathic Medicine Company v. Hilton..... 1193
*Trade-Marks, registration of the word "Bromo-Quinine" *ex parte* Grove..... 1447
*Trade-Marks, registration of the words "Social Register," Social Register Association v. Howard..... 1448
*Trade-Marks, rights of citizens of Germany to register under the treaty of 1871, Richter v. Reynolds *et al*..... 404
*Use and sale of patented articles, Morgan Envelope Company v. Albany Perforated Wrapping Paper Company..... 271
*Use of patented articles, Masseth v. Johnston *et al*..... 143
*Valid claims, Knickerbocker Company v. Rogers *et al*..... 1448

Page.

*Valid patents, Johnson *et al.* v. Johnston..... 1332
*National Cash Register Company *et al.* v. Lamson Consolidated Store Service Company..... 680
*Reece Button-Hole Machine Company v. Globe Button-Hole Machine Company *et al*..... 1720
*Richardson *et al.* v. Shepard *et al*..... 144
*Seabury *et al.* v. Am Ende..... 401
*Void patents, Belding Manufacturing Company v. Challenge Corn Planter Company..... 141
*Dunham v. Dennison Manufacturing Company..... 1571
*Forgie v. Oil Well Supply Company..... 1573
*Gates Iron Works v. Fraser *et al*..... 1065

Page.

*Morgan Envelope Company v. Albany Perforated Wrapping Paper Company..... 271
*National Cash Register Company *et al.* v. Lamson Consolidated Store Service Company..... 680
*Sargent *et al.* v. Covert..... 408
*Saunders *et al.* v. Allen..... 1330
*Water-heating devices for stoves, Stirrat *et al.* v. Excelsior Manufacturing Company..... 1450
Wire-rod reels, Dailey v. Jones..... 1719
*Witnesses, compulsory, Masseth v. Johnston *et al*..... 143
*Wrench for oil-well tools, Forgie v. Oil Well Supply Company..... 1573

DIGEST OF DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS

IN THE MATTER OF

PATENTS, TRADE-MARKS, &c.

OFFICIAL GAZETTE—April-June, 1894.

VOL. 67 O G—3

DIGEST OF DECISIONS.

[Decisions of the United States courts are indicated by an asterisk (*).]

ABANDONMENT.

(See Validity of Patents.)

AGREEMENT.

(See Assignments, 1.)

AMENDMENTS.

(See Construction of Specifications and Patents, 6, 8.)

1. AMENDMENT—NEW MATTER—PROPER PRACTICE.
When an amendment is filed which in the judgment of the Examiner substantially varies the scope of the application as originally filed and necessitates a change in the drawings, *Held* that the amendment should be entered and rejected on the ground of new matter and for all other reasons which bar its patentability.
[*Ex parte* Zuber, 529.

2. SAME—SAME—SAME—THE DRAWINGS.
In such a case the drawings should not be changed unless and until the question of the new matter in the amendment has been determined in favor of the applicant. [Id.

ANNULMENT OF CERTIFICATES OF CORRECTION.

(See Limitation of United States Patent by Foreign Patent Previously Granted, 1.)

ANTICIPATION.

(See Construction of Specifications and Patents, 2; Priority of Invention, 5.)

APPARATUS AND PRODUCT.

COMBINATION OF APPARATUS AND ARTICLE IT IS DESIGNED TO DELIVER.
Quære. Whether, when a machine is designed to manufacture, distribute, or serve out to users a certain article, the article so dealt with can be said to be a part of the combination of which the machine itself is another part.
[*Morgan Envelope Company *v.* Albany Perforated Wrapping Paper Company, 271.

APPEAL.

(See Prior Adjudication.)

APPEAL TO THE SUPREME COURT OF THE UNITED STATES.

(See Trade-Marks, 14.)

1. JURISDICTION OF THE SUPREME COURT OF THE UNITED STATES—UNDER SECTION 8 OF THE ACT OF FEBRUARY 9, 1893, CHAPTER 74, ESTABLISHING A COURT OF APPEALS FOR THE DISTRICT OF COLUMBIA—MATTER IN DISPUTE, EXCLUSIVE OF COSTS, MUST EXCEED THE SUM OF $5,000.
In order to bring a case by appeal or writ of error from the Court of Appeals of the District of Columbia within the jurisdiction of the Supreme Court of the United States under this alternative, the matter in dispute must be money or some right the value of which can be estimated and ascertained in money and which appears by the record to be of the requisite pecuniary value.
[*United States *ex rel.* the State of South Carolina *v.* Commissioner of Patents, 1191.

2. SAME—SAME—WHEREIN IS INVOLVED THE VALIDITY OF AN AUTHORITY EXERCISED UNDER THE UNITED STATES.
In order that a case may come within this clause, the validity and not the construction only of an authority exercised under the United States must be directly drawn in question.
[*Id.

3. SAME—SAME—PRESUMPTIVE LAWFULNESS OF CLAIM—MANDAMUS—DO NOT INVOLVE THE VALIDITY OF THIS AUTHORITY.
Neither the question whether the Commissioner rightly decided upon the presumptive lawfulness of the right of the State of South Carolina to the Trade-Mark sought to be registered nor the question whether his duty was of such a character that a writ of mandamus would lie to compel its performance involved a question of the validity of the authority exercised by him under the United States. [*Id.

APPLICATIONS.

(See Priority of Invention, 4.)

ASSIGNMENTS.

1. VERBAL LICENSE OR INTEREST FROM INVENTOR—OF NO EFFECT UPON A SUBSEQUENT ASSIGNEE OF A PATENT FOR THE INVENTION WITHOUT NOTICE.
Where an inventor, in consideration of assistance given him, verbally agreed to give an interest in the manufacture of his invention, but did not make an assignment of such interest in legal form, and where he subsequently made an assignment of the patent to another party without notice of the previous verbal interest, *Held* that no effect, as against the assignee, could be given to such verbal license or interest.
[*Gates Iron Works *v.* Fraser *et al.*, 1065.

2. PROOF OF TITLE TO LETTERS PATENT—CERTIFICATION OF COMMISSIONER OF PATENTS TO COPY OF ASSIGNMENT—HOW FAR EVIDENCE.
A copy of an assignment of Letters Patent, certified by the Commissioner of Patents to be a true copy from the records of the Patent Office, if objected to at the time of offer, is not competent evidence of title.
[*American Cable Railway Company *v.* Mayor, etc., City of New York *et al.*, 1334.

BURDEN OF PROOF.

(See Damages and Profits, 3; Injunction.)

CAVEATS.

(See Priority of Invention, 4.)

CERTIFICATES OF CORRECTION.

(See Limitation of United States Patent by Foreign Patent Previously Granted.)

CERTIFIED COPIES OF ASSIGNMENT AS EVIDENCE.

(See Assignments, 2.)

CHANGE OF STRUCTURE.

(See Construction of Specifications and Patents, 2.)

CLAIMS.

(See Construction of Specifications and Patents, 4, 5, 6, 8.)

COMBINATIONS.

(See Apparatus and Product; Infringement, 3.)

COMMISSIONER OF PATENTS.

(See Appeal to the Supreme Court of the United States, 3; Trade-Marks, 14, 15.)

CONCEPTION OF INVENTION.

(See First and Original Inventor, 2.)

CONSTRUCTION OF RULES.

(See Interference, 2.)

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

(See Apparatus and Product; First and Original Inventor; Limitation of United States Patent by Foreign Patent Previously Granted, 1; Particular Patents; Priority of Invention, 1, 2, 3, 5; Reduction to Practice, 3.)

1. BENEFIT OF CANCELED CLAIM—ESTOPPEL.
Where the applicant has acquiesced in the rejection of a claim, he is estopped thereby, when a patentee, to claim the benefit of his canceled claim or such a construction of his patented claim as would be equivalent thereto. This rule is applicable both when the canceled claim is broader and narrower than the patented claim.
[*Morgan Envelope Company v. Albany Perforated Wrapping Paper Company, 271.

2. DOUBLE USE—CHANGE OF FORM—RULE OF NOVELTY.
Where the novelty of an invention resides in the particular form adopted, it is not negatived by prior structures in another art which were not capable of doing its work, though afterward, in the light of that invention, they can be modified to perform its function.
[*Knickerbocker Company v. Rogers *et al.*, 1448.

3. MYSTERY IN MODE OF OPERATION.
An inventor is not to be deprived of the fruit of his invention simply because the physical laws upon which it operates are not susceptible of satisfactory exposition. [*Id.

4. PATENTS—GENERAL PRINCIPLES.
Theoretically, an inventor in taking out a patent under the statutes of the United States subtracts nothing from and adds nothing to his actual invention, and, except for the provisions which for public interests require in a patent a description and claim, the same unrestricted rules of the common law would protect an inventor's statute right as are relied on to support a trade-mark or business good-will.
[*Reece Button-Hole Machine Company v. Globe Button-Hole Machine Company *et al.*, 1720.

5. SAME—CONSTRUCTION OF.
In construing a patent the courts are necessarily subject to the restraints arising from the incorporation into them of the description and claim which the statutes require, but it must be the rule in interpreting these that it is to be presumed the inventor did not intend to split up his invention. [*Id.

6. SAME—SAME.
The maxim *enumeratio unius exclusio alterius* by reason of the doctrine of equivalents does not apply as fully to patents as to instruments in general. [*Id.

7. SAME—SAME—AMENDMENTS.
Words which might otherwise be regarded as non-essential may be introduced in such manner as to make them essential, as those introduced by way of amendment. [*Id.

8. SAME—SAME—AMENDMENTS—HOW CONSTRUED.
It would defeat the ends of justice to rigidly hold that phrases inserted or omitted by amendment were emphasized. [*Id.

CONSTRUCTION OF STATUTES.

(See Construction of Specifications and Patents, 4; Damages and Profits, 1, 2; Public Use; Witnesses.)

CONSTRUCTION OF A STATUTE—RULE AS TO WHERE THE WORDS ARE PLAIN AND NOT INCONSISTENT WITH THE GENERAL OBJECT OF THE ACT AND LEAD TO NO ABSURD RESULT.
It is a sound rule of construction of a statute, where the words of an act or part of an act are plain and clear and not inconsistent with the general object of the statute and lead to no absurd result, that the courts have no right to refuse their operation or to limit their effect by a construction based upon conjecture.
[*In re Drawbaugh, 929.

CONTRACTS.

(See Assignments, 1.)

COURT OF APPEALS OF THE DISTRICT OF COLUMBIA.

(See Appeal to the Supreme Court of the United States, 1, 2.)

DAMAGES AND PROFITS.

1. SECTION 4900 CONSTRUED.
The meaning of section 4900 is that the owner of the patent cannot recover damages of infringers unless he establishes that he has given notice of his patent right either by marking his article "Patented" or by particularly informing infringers of his patent and of their infringement of it.
[*Dunlap *et al.* v. Schofield *et al.*, 139.

2. ACT OF FEBRUARY 4, 1887, (CHAPTER 105,) CONSTRUED.
This statute requires that, in order to charge either a manufacturer or seller of a patented Design, the patentee must prove that the infringer applied the Design or some colorable imitation thereof "with a knowledge of the patent and of his infringement." [*Id.

3. BURDEN OF PROOF ON ACCOUNTING BEFORE A MASTER.
Certain deductions from accountable profits *Held* to be for defendant to clearly establish.
[*Seabury *et al.* v. Am Ende, 401.

4. SAME—INFRINGEMENT—INFRINGER'S PROFITS—COST OF INFRINGING THING—NO ALLOWANCE THEREIN IN THIS CASE FOR INTEREST ON CAPITAL INVESTED IN ITS MANUFACTURE.
Where the infringer's plant and real estate were used for other kinds of manufacture than the infringing article, and the evidence offered by the infringer to distinguish between the profits derived from the use of the plant and real estate for making the infringing thing and those attributable to the other sources of profit was not sufficient to enable the master to apportion the interest between the several kinds of business, *Held* that the infringer could not be allowed as part of the cost of the infringing thing interest on his plant and capital invested.
[*Id.

5. SAME—SAME—SAME—SALARY OF THE PRESIDENT OF THE INFRINGING COMPANY—NO ALLOWANCE THEREFOR IN THIS CASE.
Where the infringer fails to show that the salary of the president of the infringing company was actually paid, *Held* that the salary was properly disallowed, on the ground that to have allowed salaries which had never been paid would have been to permit a dividend of profits under the guise of salaries.
[*Id.

DEFENSE.

(See Infringement, 1, 2.)

DELAY IN COMPLETING AN INVENTION.

(See First and Original Inventor, 2.)

LACK OF DILIGENCE—WHEN EXCUSABLE.
In the cases where delay in completing an invention is excused there is something of compelling power in the circumstances that produce it.
[Dailey v. Jones, 1719.

DESCRIPTION.

(See Construction of Specifications and Patents, 4, 5: Particular Patents, 5.)

DESIGNS.

(See Damages and Profits, 2.)

DILIGENCE.

(See Delay in Completing an Invention; First and Original Inventor, 2.)

DISSOLUTION OF INJUNCTION.

(See Injunction.)

DIVISION OF APPLICATION.

(See Trade-Marks, 11.)

DOUBLE USE.

(See Construction of Specifications and Patents, 2.)

DRAWINGS.

(See Amendments.)

EMPLOYÉ.

(See Priority of Invention, 3.)

ENLARGEMENT OF CLAIMS.

(See Particular Patents, 5.)

EQUIVALENTS.

(See Construction of Specifications and Patents, 7.)

ESTOPPEL.

(See Construction of Specifications and Patents, 1; Limitation of United States Patent by Foreign Patent Previously Granted, 1.)

EVIDENCE OF INVENTION.

(See Invention, 1; Priority of Invention, 4; Public Recognition as Evidence of Invention.)

FOREIGN DISCLOSURE.
A disclosure on board a foreign ship in mid-ocean may be received on the question of conception of an invention.
[Peters v. Hisey, 927.

EVIDENCE OF PRIOR EXISTENCE OF A PATENTED INVENTION.

(See Priority of Invention, 5.)

EXAMINATION OF APPLICATIONS.

(See Amendments; Invention, 2.)

EXHIBITS.

(See Reduction to Practice, 3.)

EXPERIMENTAL MACHINE.

(See Reduction to Practice, 1, 2.)

EXPIRATION OF ENGLISH PATENT.

(See Limitation of United States Patent by Foreign Patent Previously Granted, 2.)

FIRST AND ORIGINAL INVENTOR.

(See Construction of Specifications and Patents, 2, 3; Delay in Completing an Invention; Priority of Invention, 3, 4, 5; Reduction to Practice, 4.)

1. INVENTOR—SUGGESTIONS BY ANOTHER—EMBODYING THE SUGGESTIONS.
Where F suggests the idea to B that a lifting-jack could be altered so as to adapt it to wrench the drill-rods of oil-wells, but gives no explanation of how such adaptation might be brought about, and where B, without further communication, changes the jack to adapt it to the suggested new use, *Held* that whatever of invention may be involved in the change of the jack belongs to B and not to F.
[*Forgie v. Oil Well Supply Company, 1573.

2. CONCEPTION—LACK OF DILIGENCE—WHEN NOT EXCUSABLE.
While an inventor who is first to conceive and is reasonably diligent in completing his invention should ordinarily prevail over a competitor who subsequently conceives but is first to complete his invention, still, if the first to conceive has means, credit, influence, and friends, and is not brought to a standstill by anything in the nature of compulsion, but chooses delay on business grounds, he thus excludes himself from the advantage which flows from his prior conception.
[Dailey v. Jones, 1719.

FOREIGN DISCLOSURE.

(See Evidence of Invention.)

FORMER DECISIONS CONSTRUED.

1. CONSTRUCTION OF FORMER DECISIONS.
Previous decisions discussed and principles deduced.
[*Reece Button-Hole Machine Company v. Globe Button-Hole Machine Company *et al.*, 1720.

2. SAME.
Previous decisions discussed and principles deduced.
[*Id.

FUNCTIONS.

(See Construction of Specifications and Patents, 2; Invention, 2; Particular Patents, 8.)

GERMAN TRADE-MARK TREATY.

(See Trade-Marks, 4.)

INFRINGEMENT.

(See Damages and Profits, 1, 2, 4, 5; Particular Patents, 11, 16; 18, 20; Use and Sale of Patented Articles; Witnesses.)

1. INFRINGEMENT SUITS—DEFENSES.
The use of an infringing device is not justified by the fact that defendant had previously attempted to use one made under complainant's patent, which proved to be useless.
[*Masseth v. Johnston *et al.*, 143.

2. SAME—SAME.
The refusal of a patentee to furnish his device, when requested, does not justify the use of an infringing article.
[*Masseth v. Reiber, 143.

3. COMBINATION—APPARATUS AND ARTICLE DELIVERED—SALE OF THE ARTICLE—WHEN IT IS NOT AN INFRINGEMENT.
Where the article produced is perishable in its nature, which it is the object of the apparatus to deliver, and which must be renewed periodically, whenever the apparatus is used, and where the article so produced is not patented, *Held* that there is no infringement of the combination by the making and sale of the article.
[*Morgan Envelope Company v. Albany Perforated Wrapping Paper Company, 271.

INJUNCTION.

PRELIMINARY INJUNCTION—DISSOLUTION—WHEN GRANTED.
The burden of proof is on defendant to show cause for dissolving a temporary injunction; but nevertheless a dissolution will be granted upon new evidence sufficient to raise grave doubts as to the complainant's right to such injunction.
[*Edison Electric Light Company v. Buckeye Electric Company *et al.*, 529.

INOPERATIVENESS.

(See Interference, 1.)

INTERFERENCE.

(See Evidence of Invention; Priority of Invention, 1, 2, 3, 4; Reduction to Practice.)

1. INTERFERENCE—INOPERATIVENESS—PRIORITY OF INVENTION.
Where the structure of one of the parties to an interference is inoperative, *Held* that priority of invention cannot be awarded to him.
[Glidden v. Noble, 676.

2. SAME—PRINTING TESTIMONY.
Rule 162, requiring printed copies of the testimony to be furnished to the Office and opposing parties, *Held* to be of binding authority.
[Plummer v. Penniston, 928.

INTERNATIONAL CONVENTION FOR THE PROTECTION OF INDUSTRIAL PROPERTY.

(See Trade-Marks, 12.)

INVENTION.

(See Construction of Specifications and Patents, 2; Particular Patents, 8, 17, 19, 21; Public Recognition as Evidence of Invention.)

1. QUESTION OF INVENTION—CIRCUMSTANCES OF GREATEST UTILITY, POPULARITY, AND SUCCESS RESOLVE ANY DOUBTS OF INVENTION IN FAVOR OF THE PATENTEE.
Where the change in the patented hook is beneficial and embodies a new and better mode of operation; where numerous other patents have issued for hooks between the dates of invention of the alleged anticipating hooks and the patented hook, without its having occurred to those skilled in the art to make the change; where the best of the prior inventions met with only moderate success, and where the patented hook has great utility, extensive public use, and marked commercial success, *Held* that these considerations are sufficient to resolve any doubt on the question of patentability in favor of the patentee.
[*Richardson *et al.* v. Shepard *et al.*, 144.

2. METHOD—FUNCTION—ANTICIPATION—PATENTABILITY.
Where the essential feature of the improvement in the method of manufacturing structural material by working the material from the center toward the ends consists in operating upon all parts of the cross-section of the material at every pass, and the best mode of applying the improvement is explained in connection with the applicant's machine for rolling structural material, and the references only indirectly disclose methods for shaping round and convex forms in the art of rolling iron bars, *Held* that the method is not the mere function of applicant's machine nor a discretionary variation of the well-known practices indicated by the references.
[*Ex parte* Butz, 677.

JOINT INVENTORS.

(See First and Original Inventor, 1; Priority of Invention, 3.)

JUDGMENT OF THE COURT.

(See Prior Adjudication)

JURISDICTION.

(See Appeal to the Supreme Court of the United States.)

LICENSES.

(See Assignments, 1.)

LIMITATION IMPOSED BY THE PATENT OFFICE.

(See Construction of Specifications and Patents, 1.)

LIMITATION OF UNITED STATES PATENT BY FOREIGN PATENT PREVIOUSLY GRANTED.

1. EDISON—ATTEMPTED CORRECTION—LIMITING TO EXPIRE WITH FOREIGN PATENTS—ESTOPPEL.
The voluntary act of a patentee in causing his patent to be amended after issuance so as to be limited to expire with a foreign patent secured by him, even though taken under the mistaken view that the law required such limitation to appear on the face of the patent, estops him, as against one who invested money in a manufacturing plant on the faith of his action, from claiming that the amendment was invalid and of no effect or from relying upon a subsequent annulment of the amendment secured by him only a short time before the amended patent would have expired.
[*Edison Electric Light Company v. Buckeye Electric Company *et al.*, 529.

2. SAME—NOTICE.
Where the petition for correction in such case states that, while the inventor's American application was pending, "he applied for and obtained" Letters Patent for the same invention in several foreign countries—enumerating such patents, with their dates—and prays that the American patent may be amended so as to be limited to expire with the expiration of that one of them having the shortest time to run, the petition does not, by reason of the indefiniteness of this language, put the public upon investigation as to the laws of the various countries, so as to affect them with notice that the British patent, which was the one first expiring, did not begin to run on the day of its date, but upon the day of its sealing and issuance.
[*Id.

MANDAMUS.

(See Appeal to the Supreme Court of the United States, 3; Trade-Marks, 15.)

MARKING ARTICLES "PATENTED."

(See Damages and Profits, 1, 2.)

METHOD.

(See Invention, 2.)

MODE OF OPERATION.

(See Construction of Specifications and Patents, 3; Invention, 1.)

NEW MATTER.

(See Amendments.)

NOTICE TO THE PUBLIC.

(See Limitation of United States Patent by Foreign Patent Previously Granted, 2.)

PARTICULAR PATENTS.

1. AM ENDE—BORATED COTTON—NOVELTY AND PATENTABILITY—VALID.
The invention secured by Letters Patent No. 181,024, dated August 15, 1876, to Charles G. Am Ende, for an improvement in borated cotton, examined in view of the state of the art and *Held* to be both novel and patentable.
[*Seabury *et al.* v. Am Ende, 401.

2. BOYER—CASH-REGISTERS—VOID.
Letters Patent No. 416,029, dated November 26, 1889, issued to Israel D. Boyer, for an improvement in cash registers and indicators, *Held* to be void because Charles A. Juengst was the first inventor of the improvement.
[*Id.

3. COVERT—HITCHING DEVICES—LACK OF INVENTION—VOID.
The invention patented to James C. Covert by Letters Patent No. 161,757, dated April 6, 1875, for an improvement in clasps or thimbles for hitching devices, examined in view of the state of the art and *Held* to be void for want of invention.
[*Sargent *et al.* v. Covert, 403.

4. DE LONG—GARMENT-HOOKS—VALID.
Letters Patent No. 411,857, granted October 1, 1889, to Frank E. De Long, for improvement in hooks or fastenings for garments, examined in view of the state of the art and *Held* to be valid.
[*Richardson *et al.* v. Shepard *et al.*, 144.

5. DUNHAM—COMBINED TAG AND ENVELOPE—REISSUE—DIFFERENT INVENTION—VOID.
The reissue No. 10,488, dated June 10, 1884, altering the description throughout and changing the claims of Patent No. 277,345, dated May 8, 1883, to Joseph T. Dunham, for "a combined tag and envelope, consisting of an envelope having at one end a flap of sufficient size to cover one side of the envelope," so as to include a flap of any size or shape, *Held* to be void, as being for a different invention.
[*Dunham v. Dennison Manufacturing Company, 1571.

6. FORGIE—WRENCHES FOR OIL-WELL TOOLS—NOT AN INVENTOR—PATENT VOID.
Letters Patent No. 42',879, dated March 4, 1890, issued to William Forgie, for an oil-well wrench, *Held* to be void, for the reason that Forgie was not the inventor of the wrench.
[*Forgie v. Oil Well Supply Company, 1573.

7. GATES—STONE-CRUSHERS—PUBLIC USE FOR MORE THAN TWO YEARS—VOID.
Letters Patent Nos. 243,343, dated June 21, 1881. 243,545, dated June 28, 1881, and 250,656, dated December 13, 1881, for improvements in stone-crushers, issued to P. W. Gates, *Held* to be void as covering features substantially embodied in a machine built by one Brown and which had been in public use for more than two years prior to Gates's applications for his patents.
[*Gates Iron Works v. Fraser *et al.*, 1065.

8. SAME—ECCENTRIC BEARING-BOX—LACK OF INVENTION—VOID.
Claim 1 in the patent, No. 246,608, dated September 6, 1881, to P. W. Gates, for a depression or groove in the outer bearing-surface of the bearing-box for a shaft in a stone-crusher, with a removable portion of carbon-bronze metal therein to correct the wear, *Held* to be void for the reason that such device is not an invention, as the use of soft metals for that function is old.
[*Id.

9. HAMBROOK—REFRIGERATORS—PATENT VOID.
Letters Patent No. 204,216, dated May 28, 1878, issued to Richard T. Hambrook, for an improvement in refrigerators, examined in view of the state of the art and *Held* to be void for want of patentable novelty.
[*Belding Manufacturing Company v. Challenge Corn Planter Company, 141.

10. HICKS—TOILET PAPER—VOID.
Letters Patent No. 325,410, granted to Oliver H. Hicks September 1, 1885, for a package of toilet paper, known as the "Oval Roll" or "Oval King" package, examined in view of the state of the art and *Held* to be void for want of invention.
[*Morgan Envelope Company v. Albany Perforated Wrapping Paper Company, 271.

11. SAME—TOILET-PAPER FIXTURES AND APPARATUS FOR HOLDING TOILET PAPER—NO INFRINGEMENT.
Letters Patent No. 325,174, dated August 25, 1885, for a toilet-paper fixture, and No. 357,993, dated February 15, 1887, for an apparatus for holding toilet paper, granted to Oliver H. Hicks, which are for a combination of the paper-roll in Patent No. 325,410 and certain fixtures for its support, *Held* not to be infringed by the making, selling, and using of the paper-roll, the latter patent being void.
[*Id.

12. JUENGST—CASH REGISTERS AND INDICATORS—PATENT SUSTAINED—FIRST AND ORIGINAL INVENTOR—SECTION 4918, REVISED STATUTES.
Letters Patent No. 499,294, dated June 13, 1893, granted to Charles A. Juengst, for an improvement in cash registers and indicators, examined and *Held* to be valid.
[*National Cash Register Company *et al.* v. Lamson Consolidated Store Service Company, 680.

13. KOECHLIN—COLORS OR DYE-STUFFS—PATENT CONSTRUED.
Letters Patent No. 253,721, issued to Horace Koechlin February 14, 1882, for the manufacture of colors or dye-stuffs, construed, and *Held* to claim and to cover a process only. The case distinguished from *Goodyear* v. *R. R. Co.*, (1 Fish. Pat. Cas., 626.)
[*L. Durand, Huguenin & Co. v. Green, Schulze-Berge & Koechl, 814.

14. LORD—CASH REGISTERS AND INDICATORS—PATENT VOID—NOT THE FIRST INVENTOR.
Letters Patent No. 398,898, dated March 5, 1889, issued to Charles E. Lord, for an improvement in cash-registers, *Held* to be void for the reason that Charles A. Juengst was the first and original inventor of the devices, etc., covered by the patent.
[*National Cash Register Company *et al.* v. Lamson Consolidated Store Service Company, 680.

15. MORSE—DUST-COLLECTORS—PARTICULAR CLAIMS ADJUDICATED.
Claims 1, 2, and 3 of Patent No. 403,362, dated May 14, claims 1 and 2 of Patent No. 403,363, dated May 21, claim 4 of Patent No. 403,770, and claims 1 and 2 of Patent No. 408,987, dated August 13, 1889, of Orville M. Morse, for improvements in dust-collectors, are all valid.
[*Knickerbocker Company v. Rogers *et al.*, 1448.

16. REECE — BUTTON-HOLE SEWING-MACHINES — VALID AND INFRINGED.
Claims 5, 11, 12, 13, and 18 of Patent No. 240,546, to John Reece, discussed and held valid and infringed.
[*Reece Button-Hole Machine Company v. Globe Button-Hole Machine Company *et al.*, 1720.

17. RUSK—ORE-CRUSHERS—LACK OF INVENTION—VOID.
Letters Patent to John H. Rusk, No. 110,397, dated December 20, 1870, for improvements in stone-crushers, *Held* to be void, on the ground that, the use of safety-pins for saving machinery from the strain of a sudden jar being old, their use for such a purpose, in connection with the driving-gear of a stone-crushing machine, is not patentable.
[*Gates Iron Works v. Fraser *et al.*, 1065.

18. SAME—SAME—INFRINGEMENT.
Rusk having expressly limited himself to a soft-metal safety-pin, and thus limited, the use of wooden safety-pins being old, there is no infringement by the use of a hard cast-iron pin.
[*Id.

19. SAUNDERS—PIPE-CUTTERS—LACK OF INVENTION—VOID.
Claim 2 in Reissue Letters Patent No. 10,021, dated January 31, 1882, to Andrew Saunders, for a pipe-cutter, examined in view of the state of the art, and *Held* to be void for lack of invention, on the ground that there is no invention in placing antifriction-rollers in the jaw of a pipe-cutter having a rotary cutter, it already being old to so use rollers with a fixed cutter.
[*Saunders *et al.* v. Allen, 1330.

20. STIRRAT—WATER-HEATING DEVICES FOR STOVES—INFRINGEMENT.
Letters Patent No. 357,874, for a water-heating device for stoves and ranges, issued February 15, 1887, to Robert J. Stirrat and Robert G. Stirrat, construed, and *Held* to be restricted to a hollow long center in combination with the connecting-pipes, and *Held*, further, not to be infringed by Letters Patent No. 358,123, to O'Keefe and Filley, dated February 22, 1887, in which there is no hollow long center.
[*Stirrat *et al.* v. Excelsior Manufacturing Company, 1450.

21. WATSON—INDEXES—VALID.
Letters Patent No. 461,787, granted October 20, 1891, to Montgomery H. Watson, for an improvement in general indexes to be used in connection with books in which are recorded the names of individuals and facts or transactions connected therewith, *Held* to be for a patentable subject-matter within the term "manufacture" as used in the patent laws.
[*Johnson *et al.* v. Johnston, 1332.

PATENTABILITY.

(See Invention, 1.)

PATENTS.

(See Limitation of United States Patent by Foreign Patent Previously Granted, 1; Priority of Invention, 5; Validity of Patents.)

PRACTICE IN THE COURTS.

(See Assignments, 2; Injunction; Prior Adjudication; Priority of Invention, 1.)

PRACTICE IN THE PATENT OFFICE.

(See Amendments; Interference, 1.)

PRINTED COPIES OF TESTIMONY.

(See Interference, 2.)

PRIOR ADJUDICATION.

(See Priority of Invention, 1.)

THE DOCTRINE OF RES JUDICATA—ITS APPLICATION TO JUDGMENTS OF COURTS OF GENERAL JURISDICTION—NOT AFFECTED BY THE LAW ALLOWING SUCH JUDGMENTS TO BE RE EXAMINED BY THE COURTS.
Where the question upon the merits was determined in a former suit between the parties, though the judgment by reason of the small amount in dispute was not reviewable by a court of appellate jurisdiction, *Held* that the court below did not err in holding that the judgment in the former suit concluded the question between the parties, regardless of the fact that the judgment in the first suit was not subject to review by an appellate court.
[*Johnson Street Steel Rail Company v. William Wharton, Jr., & Company, Limited, *et al.*, 274.

PRIORITY OF INVENTION.

(See Interference, 1; Reduction to Practice.)

1. SUIT UNDER SECTION 4915—PRIORITY OF INVENTION—AWARD BY THE PATENT OFFICE PRIMA FACIE CONTROLLING.
Where the question decided in the Patent Office is one between contesting parties as to priority of invention, the decision there made must be accepted as controlling upon that question of fact in any subsequent suit between the parties, unless the contrary is established by testimony which in character and amount carries thorough conviction.
[*Morgan v. Daniels, 811.

2. INTERFERENCE—PRIORITY OF INVENTION.
Where the testimony is full, explicit, and satisfactory that P conceived the invention in September, 1888, reduced it to practice in November, 1888, and began to put it into extensive public use by March, 1889, and where the testimony of H his opponent, to his own earlier conception is not corroborated save by the recollection of one witness as to a conversation four years and a half in the past, *Held* that P is the prior inventor.
[Peters v. Hisey, 927.

3. ORIGINALITY—EMPLOYÉS—INVENTOR.
Where A, an electrician and inventor, had been attempting to construct a machine and had failed, and thereafter sought B, an expert machinist and inventor, whom he had been informed had invented such a machine, and A confirmed his information by examining a model of B's invention, at the same time showing B a wooden model made by himself that illustrated the invention, but was impracticable, and where subsequently A agreed to furnish the labor and material if B would build a machine, with the understanding that if it worked well A should pay a royalty on the product, to which B consented, provided he be paid mechanic's wages during its construction, and where A then caused B to be engaged under his direction to make the machine in question, *Held* that judgment of originality must be awarded to B.
[Greenfield v. Prentice, 1189.

4. EXPIRED CAVEAT.
Evidence in support of an application assigned to, filed in behalf of, and all expense incident to its prosecution borne by the defeated party to a former interference, for an invention disclosed in an expired caveat of the same inventor, but not reduced to practice until after the reduction by the adverse party to the interference, should be closely scrutinized, and when found to be weak or uncertain where it might have been strong and impregnable should be resolved against the party in interest.
[Calhoun *v.* Hodgson, 1329.

5. PRIOR KNOWLEDGE TO OVERCOME A PATENT—MUST BE BEYOND A REASONABLE DOUBT—RULE OF EVIDENCE.
Evidence of the prior existence of the patented invention, to deprive an inventor of the fruit of his genius, must be so definite as to produce strong belief that the machine existed, and where such machine would naturally be known to more than a few observers the fact that the evidence tends to disclose that it had been known only to a few at a particular time throws doubt upon its existence at that time.
[*Knickerbocker Company *v.* Rogers *et al.*, 1448.

PROCESS.

(See Particular Patents, 13.)

PRODUCT AND APPARATUS.

(See Apparatus and Product.

PUBLIC RECOGNITION EVIDENCE OF INVENTION.

(See Invention, 1.)

INCREASED SALES AS EVIDENCE OF INVENTION.
A pipe-cutter was seemingly without patentable invention; but it was shown that sales thereof had increased from three thousand nine hundred and twenty-six in 1885 to ten thousand seven hundred and twenty-seven in 1891. There was nothing to show to what extent price, workmanship, liberal discounts to dealers, and extensive advertising had contributed to the success in introducing the tool. It appeared, also, that an old form of cutter still remained in very general use, and that there was a strong competitor in another patented cutter. *Held* that the increased use was not sufficient to show patentable invention.
[*Saunders *et al. v.* Allen, 1330.

PUBLIC USE.

(See Particular Patents, 7.)

APPLICATION FOR A PATENT—INVENTION IN PUBLIC USE OR ON SALE FOR MORE THAN TWO YEARS—SECTION 24, ACT OF JULY 8, 1870, (CH. 230, SEC. 4886, R. S.)—INTERPRETATION.
The plain import of the words "not in public use or on sale for more than two years prior to his application" is the creation of a limitation of two years within which a patent for an invention must be applied for after it has gone into public use, either with or without the knowledge, consent, or allowance of the applicant for the patent.
[*In re* Drawbaugh, 929.

REDUCTION TO PRACTICE.

(See First and Original Inventor, 2; Priority of Invention, 2.)

1. INTERFERENCE—REDUCTION TO PRACTICE—EXPERIMENTAL MACHINE IS NOT.
Where one of the parties to an interference had first made a machine upon which the issue can be read, but which was inoperative and was dismantled and not assembled until and except for the purpose of the interference, and, furthermore, after such dismantling the party continued to experiment in that line with other devices and finally was only successful by substituting in his machine a device of another inventor, *Held* that the first machine was an experiment and not a reduction to practice.
[Glidden *v.* Busell, 675.

2. SAME—SAME—SAME—PRIORITY.
Glidden constructed, in 1886, a heel-trimming machine in which the rand-knives were connected with the hollow heel-cutter shaft by a flexible coil-shaft, and with it trimmed and randed a few heels. It was treated as an experimental machine, was dismantled, and never assembled until it became necessary for the purposes of this interference. He experimented with other devices for driving the rand-cutter, and adopted finally the "Winter invention," a small shaft with a universal joint, by which the rand-cutter was driven. *Held* that the flexible-wire coil-shaft is not such a connection for the rand-cutter and the cutter-head as completes the invention, and that the 1886 machine was experimental and does not afford the basis of a judgment of priority in favor of Glidden as against Busell's patent.
[Id.

3. EXHIBIT—REDUCTION TO PRACTICE—EXPERIMENT.
Where the exhibit relied on to establish priority of invention has all the necessary parts to a full-sized working machine, and it fully accomplished at the date of its construction the purpose for which it was intended, and its mode of operation and utility were understood and appreciated by those who saw it operate, *Held* that such exhibit was a reduction to practice, regardless of the question whether the various other mechanisms entering into the machine all worked with practical success or not.
[*National Cash Register Company *et al. v.* Lamson Consolidated Store Service Company, 680.

4. THE FIRST TO CONCEIVE NEGLIGENT—THE SECOND TO CONCEIVE AND FIRST TO REDUCE TO PRACTICE IS THE FIRST INVENTOR.
Where the first to conceive is negligent in reducing to practice, and the second to conceive is so diligent as to put the invention into practice before the date of the reduction to practice by the first to conceive, *Held*, under such facts, that the second to conceive is the first inventor.
[Calhoun *v.* Hodgson, 1329.

REISSUES.

(See Particular Patents, 5, 19.)

REJECTED CASES.

(See Amendments, Construction of Specifications, and Patents, 1.

RES ADJUDICATA.

(See Prior Adjudication.)

SALE OF PATENTED ARTICLES.

(See Public Recognition as Evidence of Invention, Use and Sale of Patented Articles.)

SUITS FOR INFRINGEMENT.

(See Witnesses.)

SUITS UNDER SECTION 4915, REVISED STATUTES.

(See Priority of Invention, 1.)

TERM OF PATENT.

(See Limitation of United States Patent by Foreign Patent Previously Granted.)

TESTIMONY.

(See Interference, 2; Priority of Invention, 2; Witnesses.)

TRADE-MARKS.

1. INTENTION TO ADOPT.
Sales of medical preparations in this country by a foreign manufacturer, to a limited extent, upon special orders, to supply particular customers, do not amount to use in such circumstances as to publicity and to such length of use as show an intention to adopt a symbol placed upon such preparations as a Trade-Mark. (*Kohler Manufg. Co.* v. *Beshore*, 67 O. G., 592; 59 Fed. Rep., 572, followed; Richter *v.* Anchor Remedy Co., 52 Fed. Rep., 455, affirmed.)
[*Richter *v.* Reynolds *et al.*, 404.

2. REGISTRY AS EVIDENCE OF INTENTION.
The registry of a Trade-Mark under the act of March 3, 1881, may be evidence in a suit to restrain infringement of a common-law Trade-Mark used for the same article in domestic commerce to show what complainant really claimed. (*Kohler Manufg. Co.* v. *Beshore*, 59 Fed. Rep., 572, followed.) [*Id.

3. SAME.
The registry of a Trade-Mark, the essential feature of which is described as "the representation of a red anchor in an oval space," is not proof of intention to adopt a Trade-Mark consisting of the word "Anchor" and the symbol of an anchor, irrespective of color and surroundings. (Richter *v.* Anchor Remedy Co., 52 Fed. Rep., 455, affirmed.) [*Id.

4. TREATY WITH GERMANY—CONSTRUCTION.
The treaty of 1871, between the United States and Germany, (article 17, 17 Stat., 961,) which provides that, with regard to the marks of labels of goods or of their packages, the citizens of Germany shall enjoy in the United States the same protection as native citizens, does not give to a citizen of Germany who has acquired the right to a Trade-Mark in that country a similar right to the Trade-Mark in the United States. [*Id.

5. INTENTION TO ADOPT.
Sales of a few dozen bottles of a medicinal preparation, with written labels affixed, bearing a name different from that previously used for such preparation, do not amount to use in such circumstances as to publicity and to such length of use as to show an intention to adopt the written words as a Trade-Mark. (62 O G., 592; 58 Fed. Rep., 262, affirmed.)
[*Kohler Manufacturing Company *v.* Beshore, 678.

6. REGISTRY AS EVIDENCE OF INTENTION.
Although registration of a Trade-Mark under the act of March 3, 1881, may not prevent the adoption of another device as a common-law Trade-Mark for the same article in domestic markets, such registry may be evidence, in a suit to restrain infringement of such common-law Trade-Mark, to show what complainant really claimed. [*Id.

7. STATEMENT TO OBTAIN REGISTRATION.
In such suit the statement filed to obtain registration and attached to the affidavits on motion for a preliminary injunction may be considered on the final hearing. [*Id.

8. INFRINGEMENT.
"One Night Cure," used as a Trade-Mark for a cough remedy and for a corn remedy, is not infringed by the use of the words "Beshore's One Night Cough Cure." (62 O. G., 592; 58 Fed. Rep., 262, affirmed.) [*Id.

9. INJUNCTION—QUACK MEDICINES.
Query whether equity will intervene by injunction to protect the use of words claimed as a Trade-Mark between owners of quack medicines. [*Id.

10. WORDS MAKING FALSE ASSERTION.
It seems that an injunction should not be granted to protect the use of words as the Trade-Mark of a medicinal preparation which assert a manifest falsehood or physiological impossibility. [*Id.

11. APPLICATION FOR REGISTRATION—DIVISION—ONE REGISTRATION MAY EMBRACE SEVERAL DIFFERENT ARTICLES.
There is no authority for requiring division of an application for the registration of a Trade-Mark to accord with the subdivisions of the Office classification.
[*Ex parte* Silvers, 811.

12. TRADE-MARKS—RIGHT TO—ALIENS MAY SUE IN UNITED STATES COURTS.
Citizens of Canada who are engaged in the manufacture of trade-marked articles and who have a place of business in the State of New York, where they make and ship such articles for sale in the United States, are within the International Convention of March 20, 1883, for the protection of industrial property, and they may sue in the United States courts for the infringement of their Trade-Marks by its citizens.
[*Kerry *et al. v.* Toupin, 931.

13. SAME—WHAT CONSTITUTES—INFRINGEMENT.
Complainants manufactured a medicinal compound under the name of "Syrup of Red Spruce Gum," and for some twenty years or more that name was placed conspicuously on the package in which the compound was sold, and in connection therewith appeared a cut of an Indian against a background of spruce-trees and a waterfall. *Held* that the adoption and continuous use of this distinctive name and device entitle complainants to claim it as a Trade-Mark and to be protected against its infringement by persons making similar goods.
[*Id.

14. IN AN APPLICATION FOR THE REGISTRATION OF A TRADE-MARK THE VALUE OF THE REGISTRATION DETERMINES THE AMOUNT OF MONEY INVOLVED.
The refusal of the Commissioner of Patents to register a Trade-Mark does not involve the right to the Trade-Mark, but the registration of the Mark, and it is the value of the registration and not the value of the Trade-Mark that determines the sum of money involved.
[*United States *ex rel.* the State of South Carolina *v.* Commissioner of Patents, 1191.

15. CONTROVERSY AS TO THE EXTENT OF THE AUTHORITY OF THE COMMISSIONER OF PATENTS UNDER THE TRADE-MARK LAW—DOES NOT INVOLVE THE VALIDITY OF AN AUTHORITY EXERCISED THEREUNDER.
Where upon the refusal of the Commissioner to register a Trade-Mark a writ of mandamus was unsuccessfully sought against him, upon the ground that upon the facts submitted his duty was ministerial and not discretionary, no objection to the validity of the Trade-Mark law under which the Commissioner acted being made, nor the existence or lawfulness of his authority thereunder being drawn in question, and the only controversy upon the proceedings being as to the construction of the law as to the extent of the Commissioner's authority, *Held* that such controversy did not draw into question the validity of an authority exercised under the United States. [*Id.

16. NUMERALS APPLIED TO SPECIFIC REMEDIES.
Numerals used by a medicine company to identify specific remedies for various ailments are in effect descriptive terms, and their use will not be protected as a Trade-Mark.
[*Humphreys Homeopathic Medicine Company *v.* Hilton, 1193.

17. "BROMO QUININE"—DESCRIPTION—MISREPRESENTATION—REGISTRATION REFUSED.
"Bromo-Quinine" is a compound word descriptive of the preparation to which it is applied, indicating that it contains bromine or a bromide and quinine. If it does not contain bromide, the description is false, and in either case the term is not a valid Trade-Mark.
[*Ex parte* Grove, 1447.

18. INFRINGEMENT—SOCIAL REGISTER.
The words "Social Register," as applied to a list of persons resident in a certain locality, compiled by its publisher with reference to the personal and social standing of such persons, constitute a valid Trade-Mark, and their use by the publisher of a competing list will be restrained.
[*Social Register Association *v.* Howard, 1448.

USE AND SALE OF PATENTED ARTICLES.

(See Apparatus and Product; Infringement, 2, 3; Public Recognition Evidence of Invention; Witnesses.)

RENEWED USE.
Where the defendant purchased of the patentee an apparatus for toilet paper with which the latter was accustomed to send a roll of paper used in the same. *Held* that the sale of the apparatus carried with it the right to use and sell the apparatus upon a replenishment of the paper.
[*Morgan Envelope Company *v.* Albany Perforated Wrapping Paper Company, 871.

UTILITY.

(See Invention, 1.)

VALID PATENTS.

(See Particular Patents, 1, 4, 12, 13, 15, 16, 20, 21.)

VALIDITY OF PATENTS.

(See Construction of Specifications and Patents, 2, 3, 4; Priority of Invention, 5.)

ABANDONMENT.
The failure of a patentee for some years to manufacture his device does not defeat the rights vested in him by the patent.
[*Masseth *v.* Johnston *et al.*, 143.

VOID PATENTS.

(See Particular Patents, 2, 3, 5, 6, 7, 8, 9, 10, 11, 14, 17, 19.)

WITNESSES.

(See Priority of Invention, 2.)

ACTIONS—WITNESSES—CONSTITUTIONAL LAW.
The vendor of an infringing device, who is not a party to the suit, may be compelled to testify to the purchase and use thereof by the defendant without violating the constitutional provision that no witness shall be compelled to testify against himself in any criminal case, for Revised Statutes, sections 4919, 4921, do not subject an infringer to penalties or forfeitures, but merely authorize the court in its discretion, and "according to the circumstances of the case," to impose additional damages.
[*Masseth *v.* Johnston *et al.*, 143.

ALPHABETICAL LIST OF PATENTEES

FOR

THE QUARTER ENDING JUNE 30, 1894.

[Claims and drawings of Designs do not appear in the Monthly Volumes. Separate indexes for Designs, Trade-Marks, and Prints follow this.]

Name, residence, and invention	No.	Date.	Monthly volume.		Official Gazette.	
			Specification.	Drawing.	Volume.	Page.
A. B. Dick Company. (See Dick, Albert B., assignor.)						
A. B. Dick Company. (See Fuerth, William G., assignor.)						
A. G. Spalding & Brothers *et al.* (See Perkins, Albert, assignor.)						
Abbott, Nathaniel B., assignor of one-half to W. D. Elger, Brooklyn, N. Y. Bottle-sealing and stopper-retaining device	521,752	June 19	1787	424	67	1554
Abbott, Nathaniel B., and H. Rau; said Rau assignor to said Abbott; said Abbott assignor of one-half to W. D. Elger, Brooklyn, N. Y. Apparatus for capping bottles	521,751	June 19	1785	423, 424	67	1554
Abbott, Samuel H., *et al.* (See Murdock, Harvey W., assignor.)						
Abeling, Otto, Burke, Idaho. Plunger-worker for concentrating-jigs	520,287	May 22	2368	575	67	1020
Abercrombie, Charles M., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Hemstitch sewing-machine	520,977	June 5	409	98	67	1271
Abernethy, Harry M., and J. M. Graham, Newark, Ohio. Safety switch signal device	521,690	June 19	1667	391	67	1532
Abney, Diton H., assignor of one-third to H. J. Norton, Atchison, Kans. Watch-bow fastener	521,070	June 5	571	134	67	1300
Abrams, Gustav, Hutchinson, Minn. Superheater	520,288	May 22	2369	575	67	1020
Abshier, Smith H., and G. F. Lacke, Newburg, Ind. Weather-board gage and adjuster	520,472	May 29	2672	646	67	1093
Ackerman, Albert A., U. S. Navy, assignor of one-half to T. T. Crittenden, Washington, D. C. Manufacture of armor-plate	518,908	Apr. 24	2546	629	67	511
Ackley, George D., Fort Worth, Tex. Flushing apparatus	517,718	Apr. 3	513	124	67	99
Acme Machinery Company. (See Bruch and Ellers, assignors.)						
Actien-Gesellschaft für Anilin Fabrikation. (See Moeller, Max, assignor.)						
Actien-Gesellschaft für Zink Industrie, vormals Wilhelm Grillo. (See Schroeder, Max, assignor.)						
Adair, Isaac V., MacDougall's, N. Y. Wire-fence-winding device	519,103	May 1	280	66	67	589
Adam, Edouard, Lucerne, Switzerland. Gazette-holder	517,420	Apr. 3	1	1	67	3
Adams, Austin, New York, N. Y. Bolt	520,227	May 22	2265	551	67	1000
Adams Brothers Company. (See Kwis, Joseph J., assignor.)						
Adams, George E., Providence, R. I. Buckle	517,421	Apr. 3	1	1	67	3
Adams, George E., New Britain, Conn. Clinch-back for suspender-buckles	520,025	May 22	1899	464	67	935
Adams, George E., New Britain, Conn. Suspenders	521,071	June 5	572	134	67	1300
Adams, George E., assignor to Traut & Hine Manufacturing Company, New Britain, Conn. Garment-supporter	521,775	June 26	1833	437	67	1579
Adams, Israel, and J. H. Doswell, Fort Wayne, Ind. Lawn-mower sharpener	519,441	May 8	911	219, 220	67	726
Adams, Joseph H., New York, N. Y. Heater	519,560	May 8	1128	271	67	764
Adams, Lindsley, Atlanta, N. Y. Vent attachment for pump-pipes	518,934	May 1	1	1	67	537
Adams, Stephen J., Pittsburg, Pa. Sand mold and runner	520,101	May 22	2026	495	67	958
Adams, Stephen J., Pittsburg, Pa. Sand mold	521,448	June 19	1245	294	67	1455
Adams, Stephen J., Pittsburg, Pa. Sand mold	521,449	June 19	1247	294	67	1455
Adams, Stephen J., Pittsburg, Pa. Apparatus for forming sand molds	521,450	June 19	1250	294	67	1456
Adams, Stephen J., Pittsburg, Pa. Sand mold	521,451	June 19	1256	294	67	1456
Adams, Stephen J., Pittsburg, Pa. Sand mold	521,452	June 19	1260	295	67	1457
Adams, Stephen J., Pittsburg, Pa. Sand mold	521,453	June 19	1264	295	67	1458
Adams, Stephen J., Pittsburg, Pa. Pouring-ladle	521,454	June 19	1267	295	67	1458
Adams, Stephen J., Pittsburg, Pa. Apparatus for forming molds	521,519	June 19	1377	320	67	1479
Adams, Stephen J., Pittsburg, Pa. Casting sand molds	521,520	June 19	1381	320	67	1479
Adams, Stephen J., Pittsburg, Pa. Sand mold	521,521	June 19	1385	321	67	1480
Adams, Stephen J., Pittsburg, Pa. Molding apparatus	521,753	June 19	1788	424	67	1554
Adams, Stephen J., Pittsburg, Pa. Molding apparatus	521,999	June 26	2239	538	67	1055
Adams, Stephen J., Pittsburg, Pa. Molding apparatus	522,000	June 26	2243	538	67	1056
	522,140	June 26	2473	593	67	1700
Adams, Walter S., assignor to J. A. Brill, Philadelphia, Pa. Signal-bell	519,828	May 15	1571	384, 385	67	859
Adams, William R., *et al.* (See Parman, William S., assignor.)						
Adamson, Daniel, deceased, (J. L. Norris, Washington, D. C., administrator,) assignor to Adamson Gun Syndicate, Limited, London, England. Gun-mounting	519,965	May 15	1789	439	67	900
Adamson Gun Syndicate. (See Adamson, Daniel, assignor.)						
Adamson, John, Fort Worth, Tex. Tile-machine	517,510	Apr. 3	156	34	67	32
Adkins, Andrew A. (See Kahne and Adkins.)						
Adler, Marcus, *et al.* (See Johnson, Charles T., assignor.)						
Adrianson, John, Chicago, Ill. Placket-fastener for garment-skirts	520,761	June 5	1	1	67	1197

ALPHABETICAL LIST OF PATENTEES

FOR

THE QUARTER ENDING JUNE 30, 1894.

[Claims and drawings of Designs do not appear in the Monthly Volumes. Separate indexes for Designs, Trade-Marks, and Prints follow this.]

Name, residence, and invention	No.	Date.	Monthly volume.		Official Gazette.	
			Specification.	Drawing.	Volume.	Page.
A. B. Dick Company. (See Dick, Albert B., assignor.)						
A. B. Dick Company. (See Fuerth, William G., assignor.)						
A. G. Spalding & Brothers *et al.* (See Perkins, Albert, assignor.)						
Abbott, Nathaniel B., assignor of one-half to W. D. Elger, Brooklyn, N. Y. Bottle-sealing and stopper-retaining device	521,752	June 19	1787	424	67	1554
Abbott, Nathaniel B., and H. Rau; said Rau assignor to said Abbott; said Abbott assignor of one-half to W. D. Elger, Brooklyn, N. Y. Apparatus for capping bottles	521,751	June 19	1785	423, 424	67	1554
Abbott, Samuel H., *et al.* (See Murdock, Harvey W., assignor.)						
Abeling, Otto, Burke, Idaho. Plunger-worker for concentrating-jigs	520,287	May 22	2368	575	67	1020
Abercrombie, Charles M., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Hemstitch sewing-machine	520,927	June 5	409	98	67	1271
Abney, Diton H., assignor of one-third to H. J. Norton, Atchison, Kans. Watch-bow fastener	521,690	June 19	1667	391	67	1532
Abrams, Gustav, Hutchinson, Minn. Superheater	521,070	June 5	571	134	67	1300
Abshier, Smith H., and G. F. Lacke, Newburg, Ind. Weather-board gage and adjuster	520,288	May 22	2369	575	67	1020
Ackerman, Albert A., U. S. Navy, assignor of one-half to T. T. Crittenden, Washington, D. C. Manufacture of armor-plate	520,472	May 29	2672	646	67	1093
Ackley, George D., Fort Worth, Tex. Flushing apparatus	518,908	Apr. 24	2546	629	67	511
Acme Machinery Company. (See Bruch and Eilers, assignors.)	517,718	Apr. 3	513	124	67	99
Actien-Gesellschaft für Anilin Fabrikation. (See Moeller, Max, assignor.)						
Actien-Gesellschaft für Zink Industrie, vormals Wilhelm Grillo. (See Schroeder, Max, assignor.)						
Adair, Isaac V., MacDougall's, N. Y. Wire-fence-winding device	519,103	May 1	280	66	67	589
Adam, Edouard, Lucerne, Switzerland. Gazette-holder	517,420	Apr. 3	1	1	67	3
Adams, Austin, New York, N. Y. Bolt	520,227	May 22	2265	551	67	1000
Adams Brothers Company. (See Kwis, Joseph J., assignor.)						
Adams, George E., Providence, R. I. Buckle	517,421	Apr. 3	1	1	67	3
Adams, George E., New Britain, Conn. Clinch-back for suspender-buckles	520,025	May 22	1899	464	67	935
Adams, George E., New Britain, Conn. Suspenders	521,071	June 5	572	134	67	1300
Adams, George E., assignor to Traut & Hine Manufacturing Company, New Britain, Conn. Garment-supporter	521,775	June 26	1833	437	67	1579
Adams, Israel, and J. H. Doswell, Fort Wayne, Ind. Lawn-mower sharpener	519,441	May 8	911	219, 220	67	726
Adams, Joseph H., New York, N. Y. Heater	519,560	May 8	1128	271	67	764
Adams, Lindsley, Atlanta, N. Y. Vent attachment for pump-pipes	518,934	May 1	1	1	67	537
Adams, Stephen J., Pittsburg, Pa. Sand mold and runner	520,101	May 22	2026	495	67	958
Adams, Stephen J., Pittsburg, Pa. Sand mold	521,448	June 19	1245	294	67	1455
Adams, Stephen J., Pittsburg, Pa. Sand mold	521,449	June 19	1247	294	67	1455
Adams, Stephen J., Pittsburg, Pa. Apparatus for forming sand molds	521,450	June 19	1250	294	67	1456
Adams, Stephen J., Pittsburg, Pa. Sand mold	521,451	June 19	1256	294	67	1456
Adams, Stephen J., Pittsburg, Pa. Sand mold	521,452	June 19	1260	295	67	1457
Adams, Stephen J., Pittsburg, Pa. Sand mold	521,453	June 19	1264	295	67	1458
Adams, Stephen J., Pittsburg, Pa. Sand mold	521,454	June 19	1267	295	67	1458
Adams, Stephen J., Pittsburg, Pa. Pouring-ladle	521,519	June 19	1377	320	67	1479
Adams, Stephen J., Pittsburg, Pa. Apparatus for forming molds	521,520	June 19	1381	320	67	1479
Adams, Stephen J., Pittsburg, Pa. Casting sand molds	521,521	June 19	1385	321	67	1480
Adams, Stephen J., Pittsburg, Pa. Sand mold	521,753	June 19	1788	424	67	1554
Adams, Stephen J., Pittsburg, Pa. Molding apparatus	521,999	June 26	2239	538	67	1655
Adams, Stephen J., Pittsburg, Pa. Molding apparatus	522,000	June 26	2243	538	67	1656
Adams, Stephen J., Pittsburg, Pa. Molding apparatus	522,140	June 26	2473	593	67	1700
Adams, Walter S., assignor to J. A. Brill, Philadelphia, Pa. Signal-bell	519,828	May 15	1571	384, 385	67	859
Adams, William R., *et al.* (See Parman, William S., assignor.)						
Adamson, Daniel, deceased, (J. L. Norris, Washington, D. C., administrator,) assignor to Adamson Gun Syndicate, Limited, London, England. Gun-mounting	519,965	May 15	1789	439	67	900
Adamson Gun Syndicate. (See Adamson, Daniel, assignor.)						
Adamson, John, Fort Worth, Tex. Tile-machine	517,510	Apr. 3	156	34	67	32
Adkins, Andrew A. (See Kahne and Adkins.)						
Adler, Marcus, *et al.* (See Johnson, Charles T., assignor.)						
Adrianson, John, Chicago, Ill. Placket-fastener for garment-skirts	520,761	June 5	1	1	67	1197

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Aeolian Organ and Music Company. (See Chase and Tracy, assignors.)						
Ahern, Denis, New York, N. Y. Steam-boiler	521,532	June 19	1403	324	67	1483
Ahrens, Christopher, Cincinnati, Ohio, assignor to American Fire Engine Company, Cincinnati, Ohio, and Seneca Falls, N. Y. Vertical-flue boiler	519,013	May 1	120	29	67	559
Aikin, George D. R., Louisville, Ky. Practice-cartridge	517,719	Apr. 3	515	125	67	100
Ajello, Clement, New York, assignor of one-half to L. Guli, Brooklyn, N. Y. Window	521,356	June 12	1085	255	67	1409
Aktiebolaget Separator. (See Jönsson, Johan L., assignor.)						
Aktieselskabet Norsk Fiskemel Company. (See Waage, Peter, assignor.)						
Alberger, Hattie L., *et al.* (See Alberger, Samuel F., assignor.)						
Alberger, Samuel F., Orchard Park, assignor to J. T. McCready, Buffalo, and H. L. Alberger, Orchard Park, N. Y. Mechanical movement	520,626	May 29	2923	707	67	1140
Albert, David L., San Francisco, Cal. Calculator for wages	518,438	Apr. 17	1744	433	67	352
Albrecht, Charles J. (See Weidaner, Rudolph, assignor.)						
Albro, Frank E., Mayville, N. Y. Eaves-trough hanger	521,357	June 12	1086	255	67	1409
Alden, T. C., *et al.* (See Anderson, Edwin N., assignor.)						
Alexander, Daniel P., *et al.* (See Maley, Fredrick W., assignor.)						
Alexander, Harry, New York, N. Y. Conduit supply system for electric railways	521,326	June 12	1017	240	67	1395
Alexander, Helen L., Washington, D. C. Veil-clasp	517,970	Apr. 10	917	229	67	188
Algeo, Charles C., assignor of one-half to W. I. Steel, Philadelphia, Pa. Sash-fastener	521,691	June 19	1670	392	67	1533
Allegret, Augustin. (See Blanchon and Allegret.)						
Allen, Charles M., Butte, Mont. Converting and smelting precious ores	519,217	May 1	506	....	67	635
Allen, Charles M., Butte, Mont. Converter for smelting ores	519,218	May 1	507	122, 123	67	635
Allen, Charles M., Butte, Mont. Converter	519,219	May 1	508	123	67	636
Allen, Charles M., Butte, Mont. Converter	519,220	May 1	509	123	67	636
Allen, Charles M., Butte, Mont. Smelting-furnace and refining-converter	519,221	May 1	510	124	67	636
Allen, Edward H., Cramer's Hill, N. J. Trolley-wire crossing	519,519	May 8	1067	256	67	753
Allen, Harvey, assignor of one-half to J. J. and J. C. Snyder, Norfolk, Va. Crate	519,222	May 1	511	124	67	636
Allen, John J., Denver, Colo. Picture-frame	520,385	May 22	2529	611	67	1051
Allen, John M., Marion, Mass. Hand-bag	518,478	Apr. 17	1810	448	67	363
Allen, Oscar M., Sr., *et al.* (See Harris, Levi, assignor.)						
Allen, Thomas H., Toronto, Canada. Car-brake	520,384	May 22	2528	611	67	1051
Allen, Walter L., assignor of two-thirds to F. W. Browning, Norwich, Conn. Machine for folding or plaiting paper	519,465	May 8	947	229, 230, 231	67	733
Allen, William P. (See Graham and Allen.)						
Allen, William Y., Boston, Mass. Vibrating target	518,930	Apr. 24	2582	638	67	516
Allen, William Y., Boston, Mass. Traveling target	518,931	Apr. 24	2582	639	67	517
Alley, John F., Norton, Va. Gage-brace	521,579	June 19	1479	346	67	1497
Allmon, Milton, Benton, Ill. Stump-puller or load-lifter	521,251	June 12	885	209	67	1370
Almy, Bradford. (See Terry, Eugene, assignor.)						
Alsop, Charles R., assignor to L. C. Alsop, Middletown, Conn. Electric railway-signal	521,455	June 19	1269	296	67	1459
Alsop, Lucy C. (See Alsop, Charles R., assignor.)						
Alsop, William, and W. Blackall, Newcastle, New South Wales. Apparatus for cooling and drying air	520,130	May 22	2097	509, 510	67	968
Alstrom, Charles, *et al.* (See Johanson, Emil G., assignor.)						
Altham, George J., Swansea, Mass. Governor	519,785	May 15	1506	366, 367	67	847
Althof, Julius H., New York, N. Y. Breech-loading ordnance	519,308	May 1	668	162, 163	67	666
Altpeter, Francis W., Chicago, Ill. Draftsman's rule	521,597	June 19	1513	354	67	1502
Am Ende, Otto W. T., Bad Harzburg, Germany. Thickness-gage for paper-making machines	521,976	June 26	2189	526, 527	67	1647
Ambler, Arthur A., St. Paul, Minn. Book-holder	520,627	May 29	2924	707, 708	67	1140
Ambrose, Robert L., Burden, N. Y. Valve mechanism for rock-drills	518,212	Apr. 17	1347	336	67	279
American Bell Telephone Company. (See Collier, Arthur T., assignor.)						
American Bell Telephone Company. (See Jacques, William W., assignor.)						
American Bell Telephone Company. (See Richards, Wilton L., assignor.)						
American Electric Heating Company. (See Jenkins, Samuel B., assignor.)						
American Extract and Supply Company. (See White and Lagerwall, assignors.)						
American Fire Engine Company. (See Ahrens, Christopher, assignor.)						
American Mosaic Brick and Tile Company. (See Polivka, Thomas, assignor.)						
American Postal Machines Company. (See Ethridge, Frank N., assignor.)						
American Postal Machines Company. (See Ethridge, Martin V. B., assignor.)						
American Railway Electric Light Company. (See Biddle and Kennedy, assignors.)						
American Soda Fountain Company. (See Macksey, Helmer, and Barton, assignors.)						
American Soda Fountain Company. (See Tufts and Helmer, assignors.)						
American Telephone and Telegraph Company. (See Lane and Perrin, assignors.)						
American Tobacco Company. (See Marburg, Charles L., assignor.)						
Ames, Charles L., Oak Park, Ill. Vehicle-wheel	521,692	June 19	1671	392	67	1533
Ames, Franklin, Chicago, Ill. Apparatus for sewing carpet-corners	520,909	June 5	283	68, 69	67	1249
Ames, Franklin, Chicago, Ill. Carpet-stretcher for carpet-sewing apparatus	520,910	June 5	285	69, 70	67	1249
Ames, Gorham B., Laconia, N. H. Guard-rail	522,038	June 26	2299	551	67	1666
Ames Iron Works. (See Armstrong, Edwin J., assignor.)						
Ames, John H. (See Yale and Ames.)						
Amet, Edward H., Chicago, Ill. Erasing attachment for phonographs	521,456	June 19	1270	296	67	1459
Ammon, Charles T., Wooster, Ohio. School desk and seat	520,026	May 22	1900	464	67	935
Amsden, Otho F., Athol, Mass. Relishing-machine	518,017	Apr. 10	1002	251	67	201
Andersen, Johan M., assignor of one-half to A. Anderson, Boston, Mass. Insulator	522,175	June 26	2528	607	67	1710
Anderson, Albert. (See Andersen, Johan M., assignor.)						
Anderson, Alva E., Clarksville, Tex. Baling-press	520,762	June 5	1	1	67	1197
Anderson, Carl A., Lynn Center, Ill. Fastening device for end-gates	517,912	Apr. 10	813	204	67	171
Anderson, Carl A., Lynn Centre, Ill. Brake-lever	521,252	June 12	886	209	67	1371
Anderson, Carl E., Wood's Holl, Mass. Line-chalking apparatus	517,720	Apr. 3	515	125	67	100
Anderson, Carl G. (See Lemp and Anderson.)						
Anderson, Carl P., Boston, Mass. Car-fender	517,638	Apr. 3	367	87	67	71
Anderson, Charles, Detroit, Mich. Side light	521,777	June 26	1835	437	67	1579
Anderson, Charles, assignor to South Bend Iron Works, South Bend, Ind. Sulky-plow	521,969	June 26	2174	522	67	1644
Anderson, David H. (See Foley, Dunshee, and Anderson.)						
Anderson, Edwin N., assignor of two-thirds to T. C. Alden, Lilly Dale, N. Y., and E. W. Morley, Andover, Ohio. Car-coupling	519,520	May 8	1068	256	67	754
Anderson, Frank M., Keokuk, Iowa. Fruit-peeling table	517,511	Apr. 3	158	35	67	32
Anderson, James, Nevada, Mo. Corn-harvester	517,830	Apr. 10	683	170	67	147

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Anderson, John W., assignor to O. N. Anderson, Lancaster, Pa. Damper	517,993	Apr. 10	966	241	67	195
Anderson, Jonah, *et al.* (See Bright, William H., assignor.)						
Anderson, Latham, and L. M. Hosea, Cincinnati, Ohio. Railway-rail joint	517,829	Apr. 10	681	170	67	147
Anderson, Lee, assignor of one-half to J. J. Dickerson, B. H. Denton, and J. H. Johnston, Paris, Tex. Elevated railway	518,170	Apr. 10	1253	315	67	244
Anderson, Oliver, Deering, assignor to E. T. Burrowes, Portland, Me. Curtain-holding device	522,176	June 26	2530	607	67	1711
Anderson, Oliver N. (See Anderson, John W., assignor.)						
Anderson, Thomas E., Jackson, Tenn. Separable button	521,776	June 26	1834	437	67	1579
Anderson, William H. H., *et al.* (See Morton, James F., assignor.)						
Anderson, William W., New York, N. Y. Cuff-holder	520,552	May 29	2807	677	67	1118
Andersson, Gustaf M., Newark, N. J., assignor to United States Butter Extractor Company, New York, N. Y. Centrifugal butter-extractor	519,691	May 15	1353	327	67	819
Andersson, Gustaf M., Newark, N. J., assignor to United States Butter Extractor Company, New York, N. Y. Centrifugal butter-extractor	520,102	May 22	2027	495	67	959
Andersson, Gustaf M., Newark, N. J., assignor to United States Butter Extractor Company, New York, N. Y. Centrifugal butter-extractor	520,131	May 22	2098	510	67	969
Anderton, George P., Concession, La. Excavator	521,693	June 19	1672	392	67	1533
Andrew, Charles. (See Andrew, William and C.)						
Andrew, William and C., Cincinnati, Ohio. Tubular metallic post	519,311	May 8	679	166	67	683
Andrews Demarest Seating Company. (See Demarest, Cornelius B., assignor.)						
Andrews, William, Lowell, Mass. Artificial leg	518,658	Apr. 24	2113	528	67	431
Andrus, Charles H., Philadelphia, Pa. Car-coupling	522,095	June 26	2384	574	67	1683
Andrus, Sallie T., Aurora, Ill. Combination trunk, bureau, and writing-table	521,873	June 26	1978	478	67	1608
Andruss, Eugene D., Seattle, Wash. Automatic pull for water-closets	521,072	June 5	573	134	67	1300
Angus, Alexander, Hartford, Conn. Door-bolt	517,512	Apr. 3	159	35	67	32
Anker, Fannie, Jersey City, N. J. Preserving food compounds	521,694	June 19	1673	393	67	1534
Annenberg, Samuel, and E. Stahl, Naugatuck, Conn. Boot or shoe	518,579	Apr. 24	1965	491	67	409
Ansley, John D., Cambridge, Mass. Trolley-wheel	518,362	Apr. 17	1620	399	67	328
Anthon, Johann, Flensburg, Germany. Stave-jointing machine	520,873	June 5	215	48, 49	67	1236
Anthony, Elliot E., Detroit, Mich. Brace-drill	521,327	June 12	1020	240	67	1395
Appel, Edward. (See Clarke, George W., assignor.)						
Appleby, Joseph, Birmingham, England. Drive-chain	521,007	June 5	457	108, 109	67	1279
Applegate, William C., Sharon, Pa. Line-prop	518,479	Apr. 17	1811	448	67	363
Appleton, Samuel, Newton, Mass. Last	521,305	June 12	983	232	67	1388
Arcade Manufacturing Company. (See Redlinger and Morgan, assignors.)						
Arch, Charles W., assignor of one-half to G. H. Traner, Eagle Grove, Iowa. Machine for grading railways, &c	517,559	Apr. 3	236	55	67	46
Archbutt, Leonard, and R. M. Deeley, Derby, England. Apparatus for purifying water	521,522	June 19	1387	321	67	1480
Archer, George W., assignor to Archer Manufacturing Company, Rochester, N. Y. Headrest	518,771	Apr. 24	2319	576	67	468
Archer Manufacturing Company. (See Archer, George W., assignor.)						
Arlington Manufacturing Company. (See Hunter, Rudolph M., assignor.)						
Armat, Thomas, Washington, D. C. Conduit electric railway	521,562	June 19	1446	336, 337	67	1491
Armbruster, John A., Chicago, Ill. Grader and amalgamator	517,721	Apr. 3	516	125	67	100
Armstrong, Christian D., St. Bernard, La. Sugar-cane-transferring device	520,720	May 29	3093	749	67	1171
Armstrong, Edwin J., assignor to Ames Iron Works, Oswego, N. Y. Device for securing piston-rods to cross-heads	521,695	June 19	1674	393	67	1534
Armstrong, Eliphalet, Bellville, Ohio. Metallic ceiling	521,696	June 19	1676	393	67	1534
Armstrong Manufacturing Company. (See Cash, Arthur W., assignor.)						
Armstrong, Mitchell & Co., W. G. (See Noble and Brankston, assignors.)						
Armstrong, William T., and G. H. Wadsworth, Cleveland, Ohio. Metallic tie and rail fastener	518,439	Apr. 17	1745	433	67	352
Arndt, Theophilus B., Florin, Pa. Washing-machine	520,350	May 22	2475	600	67	1040
Arnemann, Wilhelm, Hamburg, Germany. Keg-rolling machine	518,389	Apr. 17	1661	410	67	336
Arnold, Bion J., Chicago, Ill. Electric-power appliance	517,831	Apr. 10	684	170, 171	67	147
Arnold, Craig R., Sharon Hill, Pa. System of car lighting or heating	520,403	May 29	2559	619	67	1073
Arnold, Henry H., Rockland, assignor to Eppler Welt Machine Company, Boston, Mass. Channeling-machine	520,132	May 22	2102	510	67	970
Arnold, Wilhelm, Gablenburg, near Stuttgart, Germany. Washing apparatus	518,087	Apr. 10	1117	282	67	220
Arper, George W., Oakland, Cal. Oil-can faucet	521,491	June 19	1335	310	67	1471
Arthur, Evan R., Portage, Wis. Adjustable hose-coupling band	519,312	May 8	680	166	67	683
Arthur, Frank D., Scarborough, N. Y. Toy-holder	521,253	June 12	888	210	67	1371
Arthur, Henry. (See Stuckey and Arthur.)						
Ashberry, Philip, and W. Barnes, Sheffield, England. Driving mechanism	519,313	May 8	682	166	67	683
Ashley, Edward E., New York, N. Y. Heating apparatus	520,911	June 5	290	70, 71	67	1250
Ashley, Frank M., Hawthorne, N. J. Steam-trap	517,422	Apr. 3	2	1	67	3
Ashley, Frank M., Hawthorne, N. J. Water-gage	518,171	Apr. 10	1255	316	67	244
Ashley, Frank M., Hawthorne, assignor of one-fourth to W. McKee, Paterson, N. J. Projectile	517,560	Apr. 3	238	55	67	47
Ashton, Henry B., Medford, Mass. Brush	517,994	Apr. 10	969	241	67	195
Aspinwall, Lewis A., assignor to Aspinwall Manufacturing Company, Jackson, Mich. Potato-cutter. (Reissue)	11,417	Apr. 24	2601	643, 644	67	519
Aspinwall Manufacturing Company. (See Aspinwall, Lewis A., assignor.) (Reissue.)						
Atherton, Fisher C., Buffalo, N. Y. Clip	520,553	May 29	2809	678	67	1118
Atherton, Robert, Paterson, N. J. Tension device for spinning-frames	520,473	May 29	2675	646	67	1093
Atkins, Hiram S., Stowe, Vt. Grinding-mill	520,027	May 22	1901	464	67	935
Atkinson, Frank. (See Jackson, Francis, assignor.)						
Atlantic Refining Company. (See Perkins, George H., assignor.)						
Atwater, Richard M. (See Dralle, Robert, assignor.)						
Atwood Crawford Company. (See Morrison, John H., assignor.)						
Atwood, La Motte C. (See Gill and Atwood.)						
Atwood, Lewis J., assignor to Plume & Atwood Manufacturing Company, Waterbury, Conn. Lamp-collar	517,676	Apr. 3	444	107	67	85
Atwood, Lewis J., assignor to Plume & Atwood Manufacturing Company, Waterbury, Conn. Expansible ring for lamp-supports	521,073	June 5	574	135	67	1301
Atzert, Louis, Cassel, Germany. Adjustable desk	519,655	May 8	1295	309	67	793
Aufderheide, Heinrich. (See Aufderheide, Johann H., assignor.)						
Aufderheide, Johann H., Kaiserslautern, Germany, assignor to H. Aufderheide, Brooklyn, N. Y. Shears	518,129	Apr. 10	1185	297	67	232
Aufrecht, Samuel, Berlin, Germany. Folding furniture	519,937	May 15	1745	428	67	891

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol	Official Gazette. Page.
August, Robert J. (See Hay, Frank D., assignor.)						
Aulmann, George W., and W. R. Harris, Des Moines, Iowa. Steam-separator	521,492	June 19	1336	310	67	1471
Ault & Wiborg Company. (See Pope, Wallace M., assignor.)						
Austin, Alexander H., Chicago, Ill. Street-box for water, gas, &c	520,176	May 22	2179	531	67	985
Austin, Eugene, Detroit, Mich. Oil and water separator	521,199	June 12	794	187	67	1354
Austin, Frederick C. (See Bunnell, Morton G., assignor.)						
Austin, John F. (See Douglas and Austin.)						
Austin, Stephen J., Terre Haute, Ind. Scale-beam	521,074	June 5	575	135	67	1301
Austin, Thomas, Brooklyn, N. Y. Stove or furnace	520,978	June 5	412	98	67	1272
Automatic Faucet Company. (See Rubin, Max, assignor.)						
Automatic Folding Bed Company. (See Bostad, Christian, assignor.)						
Automatic Phonograph Exhibition Company of New York. (See Keller, Albert K., assignor.)						
Automatic Switch Company of Baltimore City. (See Whittingham, George H., assignor.)						
Automatic Telephone and Electric Company of Canada. (See Simoneau, Louis E., assignor.)						
Automatic Track Sanding Company. (See Dodd, Matthew M., assignor.)						
Automatic Vending Company. (See Cochran, Frederic B., assignor.)						
Automatic Water Tank Company. (See Sattelkau and Winkelmann, assignors.)						
Axdorfer, Gottfried, assignor of one-half to C. H. F. Sass, Hamburg, Germany. Gas-furnace	520,404	May 29	2561	619	67	1073
Axtel, Spencer T., Oswego, N. Y. Towel-rack	519,490	May 8	996	241	67	740
Ayers, William E., Collett, Ind. Clover-feeder	518,480	Apr. 17	1812	448	67	364
Ayling, Arthur P., Milwaukee, Wis. Composition for manufacturing glass	522,001	June 26	2245	.....	67	1656
Ayres, Augusta N., Beverly, Mass. Utensil for cooking food over lamp-chimneys	517,561	Apr. 3	238	55	67	47
Ayres, Saxton T., Philadelphia, Pa. Machine for mixing, weighing, and packing flour, &c.	518,088	Apr. 10	1118	282, 283	67	220
Babcock, George H., deceased, Plainfield, N. J.: F. B. and J. B. Clarke, J. A. Hubbard, and W. M. Stillman, executors. Tile roofing	517,832	Apr. 10	687	171, 172	67	148
Babcock, Sylvester P., Adrian, Mich. Clutch	519,899	May 15	1686	411	67	881
Bach, Frederick W., New York, N. Y. Horseshoe	518,772	Apr. 24	2320	576	67	468
Bachelder, Cyrus P., Pawtucket, R. I. Automatic switch-operating mechanism	522,096	June 26	2385	574	67	1683
Bachelut, Jacques. (See Schmid and Bachelut.)						
Bachtell, Lewis H. (See Detrick and Bachtell.)						
Backus, Charles L., *et al.* (See Ryan, Michael R., assignor.)						
Backus, James R., New York, N. Y. Figure-punch for checks or other papers	521,358	June 12	1087	255	67	1409
Backus Water Motor Company. (See Shepperd, Sylvanus D., assignor.)						
Bacon, Victor V., Dorr, Mich. Bottle-holder	517,833	Apr. 10	688	172	67	148
Badische Anilin and Soda Fabrik. (See Bernthsen and Julius, assignors.)						
Badische Anilin and Soda Fabrik. (See Bohn, René, assignor.)						
Baebi, Anthony, *et al.* (See Keane, William M., assignor.)						
Baer, Martin H., Hagerstown, Md. Machine for making metallic fence-posts	520,289	May 22	2370	575	67	1020
Baggs, Samuel A., assignor of one-half to J. K. Woodward, Riverside, Cal. Flume-riffle	519,981	May 15	1819	446	67	905
Bahret, Christian, assignor to Western Gas Construction Company, Fort Wayne, Ind. Center-valve	518,172	Apr. 10	1256	316	67	245
Bailey, Charles S. (See Wright and Bailey.)						
Bailey, Herbert L., assignor to Bailey Manufacturing Company, Chicago, Ill. Changeable gearing for bicycles	517,995	Apr. 10	970	242	67	195
Bailey, Herbert L., assignor to Bailey Manufacturing Company, Chicago, Ill. Automatic vehicle-brake	517,996	Apr. 10	972	242	67	196
Bailey, John B., Baltimore, Md. Fender for street-railway cars	519,803	May 15	1534	374	67	852
Bailey Manufacturing Company. (See Bailey, Herbert L., assignor.)						
Bailey, Richard G., assignor of one-half to J. F. Halloran and A. Holman, San Francisco, Cal. Fountain marking-brush	519,223	May 1	512	124	67	637
Baillie, Ellis H., *et al.* (See Sherman, Willis D., assignor.)						
Baird, Edward P., Plattsburg, N. Y. Clock-case	520,979	June 5	413	99	67	1272
Baker, Abraham, South Haven, Mich. Bird-trap	518,173	Apr. 10	1259	316, 317	67	245
Baker, Artemas, assignor of one-half to A. Phelps, Lancaster, Tex. Station-indicator	521,359	June 12	1088	255, 256	67	1409
Baker, Burton E., Bridgeport, Conn. Rheostat	521,843	June 26	1933	463	67	1598
Baker, Edmund K., Springfield, Mass. Spinning machinery	519,491	May 8	997	241, 242	67	740
Baker & Foglesong Manufacturing Company. (See Foglesong, Washington, assignor.)						
Baker, George W., assignor to White Sewing Machine Company, Cleveland, Ohio. Tension device for sewing-machines	521,075	June 5	576	135	67	1301
Baker, James S. (See Hooper, George W., assignor.)						
Baker, Joseph. (See Stevens and Baker.)						
Baker, William H. (See Hall and Baker.)						
Baldridge, Herman, Los Angeles, Cal. Transplanter for trees or flowers	522,039	June 26	2300	551	67	1666
Baldwin, Charles C., assignor of one-half to F. S. Hupp, Momence, Ill. Oil-burner	519,754	May 15	1449	349	67	836
Baldwin, Cyrus W., Yonkers, assignor to Otis Brothers & Company, New York, N. Y. Elevator	519,804	May 15	1536	375, 376	67	852
Baldwin, Frederic E., New Brighton, N. Y. Candle-lamp	520,200	May 22	2222	540	67	992
Baldwin, Judson A., Benton Harbor, Mich., assignor to G. W. Hale, Chicago, Ill. Smoke-preventing furnace	518,576	Apr. 17	1969	487, 488	67	391
Baldwin, Ozra J., Youngsville, and J. L. Kerstetter, Bradford, Pa. Device for suspending stove-lifters, &c	518,174	Apr. 10	1261	317	67	245
Baldwin, William D., administrator. (See Preston, Benjamin.)						
Baldwin, William D., administrator. (See Williams, Peter W.)						
Baldwin, William J., Brooklyn, N. Y. Attachment for radiators	518,801	Apr. 24	2368	586	67	475
Ball, Charles A., Brooklyn, assignor of one-half to C. H. Green, New Rochelle, and H. Knubel, New York, N. Y. Locomotive-engine	520,839	June 5	155	34	67	1225
Ball, Charles A., Brooklyn, assignor to Ball Compound Locomotive Company, New York, N. Y. Compound locomotive-engine	521,254	June 12	889	210, 211	67	1371
Ball Compound Locomotive Company. (See Ball, Charles A., assignor.)						
Ball, Frank C. (See Carr, Robert S., assignor.)						
Ball, Henry P., Bridgeport, Conn. Ceiling-cleat	518,214	Apr. 17	1350	337	67	279
Ball, Henry P., Bridgeport, Conn. Switch	520,474	May 29	2676	646	67	1094
Ball, Henry P., Schenectady, N. Y., assignor to General Electric Company, Boston, Mass. Insulating-turnbuckle	518,213	Apr. 17	1349	336	67	279
Ball, Oscar W. (See Sherwood, Charles L., assignor.)						
Ball, Phinehas, Worcester, Mass. Rotary water-meter	521,493	June 19	1337	310, 311	67	1472
Ballantine, Eden M., Philadelphia, Pa. Tire for bicycles	522,141	June 26	2476	593	67	1700

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol	Official Gazette. Page.
Ballingall, David. (See Mirrlees and Ballingall.)						
Balsley, Upton H., Philadelphia, Pa. Telephone system	518,773	Apr. 24	2321	576	67	468
Balthasar, Curt J., assignor of two-fifths to J. W. Fryer, St. Louis, Mo. Cast-iron conduit for steam or hot-water heaters	520,747	May 29	3135	759	67	1178
Bancroft, Charles E., *et al.* (See Wertheimer, Monroe A., assignor.)						
Bancroft, Harlow P., *et al.* (See Wertheimer, Monroe A., assignor.)						
Bancroft, John S., assignor to William Sellers & Company, Incorporated, Philadelphia, Pa. Operating electric motors	519,686	May 8	1345	324, 325	67	803
Bancroft, John S., assignor to William Sellers & Company, Incorporated, Philadelphia, Pa. Operating electric motors	520,748	May 29	3137	759, 760	67	1178
Bancroft, John S., assignor to William Sellers & Company, Incorporated, Philadelphia, Pa. Chuck for drill-grinding machines	520,749	May 29	3141	760	67	1178
Banholzer, Paul P., Philadelphia, Pa. Electric-railway conduit	518,540	Apr. 17	1912	473	67	381
Banker, George W., Keene, N. Y. Can-faucet	520,840	June 5	157	35	67	1226
Banker, Howard E., Western Springs, Ill. Automatic valve-gear for tile-presses	521,944	June 26	2122	509	67	1636
Bannatyne, Archibald, assignor to Waterbury Clock Company, Waterbury, Conn. Clock-case	520,628	May 29	2927	708	67	1140
Bannister, Louis H., Pasadena, Cal. Detachable casket-handle	520,015	May 15	1874	458	67	914
Bannister, Louis H., Pasadena, Cal. Detachable handle for caskets	520,016	May 15	1876	458	67	914
Barber, Arthur J., assignor of two-thirds to E. J. Whittleton and M. V. Teetor, Sodus, N. Y. Overshoe attachment	519,656	May 8	1297	310	67	794
Barclay, William P., Chicago, Ill. Car-wheel-grinding machine	518,730	Apr. 24	2254	560, 561	67	455
Barbier, Charles J., Lyons, France. Accumulator-plate	521,970	June 26	2176	522	67	1645
Bareis, Albert, assignor to L. Bareis, St. Louis, Mo. Wrench	521,076	June 5	578	136	67	1302
Bareis, Louisa. (See Bareis, Albert, assignor.)						
Barfield, George W., Rome, Ga. Car-coupling	521,094	June 5	614	145	67	1308
Barger, William M., Webster City, Iowa. Machine for stretching or removing fence-wire	520,475	May 29	2677	646	67	1094
Barker, Edward W. (See Speed, Barker, and Frank.)						
Barker, Erastus B., Newark, N. J. Roll-holder camera	518,802	Apr. 24	2369	587	67	476
Barker, Erastus B., New York, N. Y. Photographic-plate holder	520,290	May 22	2371	575, 576	67	1021
Barker, James, Philadelphia, Pa. Leather-skiving machine	521,077	June 5	579	136	67	1302
Barker, Jeremiah J., assignor to R. M. Stivers, New York, N. Y. Vehicle-shaft support	520,750	May 29	3142	761	67	1179
Barker, John T., Seneca, Ill. Harrow-disk sharpener	518,215	Apr. 17	1350	337	67	280
Barlett, Samuel E., Red Bank, assignor of one-half to B. B. Mathews, Bound Brook, N. J. Switch-lock	517,722	Apr. 3	518	125	67	100
Barlow, Herndon O., Duluth, Minn. Vegetable slicer or grater	519,224	May 1	513	124	67	637
Barlow, Howard E. (See Benham and Barlow.)						
Barnard, George E., Fitchburg, Mass. Stamp-canceling machine	518,440	Apr. 17	1746	434	67	352
Barnes, David L., Chicago, Ill. Car-coupling	518,873	Apr. 24	2477	613, 614	67	497
Barnes, David L., Chicago, Ill. Locomotive-boiler	519,315	May 8	684	167	67	684
Barnes, John F. (See Greene, Henry W., assignor.)						
Barnes, Lewis. (See Hopler, Frank H., assignor.)						
Barnes, Ralph G., Syracuse, H. D. Pomeroy and E. W. Keyes, Phœnix, N. Y. Chain-making machine	518,441	Apr. 17	1749	434, 435	67	353
Barnes, Walter. (See Ashberry and Barnes.)						
Barnes, William A., assignor to Browne & Dowd Manufacturing Company, Meriden, Conn. Non-winding door-bell	520,980	June 5	414	99	67	1272
Barnes, William F., assignor to W. F. & John Barnes Company, Rockford, Ill. Lathe	521,754	June 19	1790	425	67	1554
Barnes, William M., Auburn, Ky. Rotary steam-engine	517,513	Apr. 3	159	35	67	32
Barnett, David I. (See Woods and Barnett.)						
Barney, Heman L., Henderson, N. Y. Horse-brush	521,078	June 5	580	136	67	1302
Barnhurst, William, New York, N. Y. Safety-match	521,079	June 5	582	137	67	1302
Barnum, John H. (See Barnum, John N., assignor.)						
Barnum, John N., assignor of one-third to J. H. Barnum, Cleveland, Ohio. Boiler-cleaner	520,250	May 22	2305	559	67	1008
Barnum, William T., New Haven, Conn. Electrotype-block	520,981	June 5	415	99	67	1272
Barr, Frank S., *et al.* (See Werline, Henry E., assignor.)						
Barr, John U., Jr., Penn, assignor of one-fourth to J. I. Kay, R. D. Totten, and J. N. Cooke, Pittsburg, Pa. Top	521,148	June 12	702	164	67	1337
Barr, Mary L., Indianapolis, Ind. Baby-carriage	517,598	Apr. 3	296	69	67	58
Barr, William, Jr., and D. McKay, Kirkcudbright, Scotland. Forming tubular plaquets of india-rubber, &c	519,900	May 15	1688	411	67	882
Barr, William C., Jersey City, N. J., assignor to J. H. Haggerty, New York, N. Y. Wrench	521,428	June 12	1199	284	67	1430
Barr, William H., Tiffin, Ohio. Breast-wall for glass-furnaces	521,147	June 12	701	164	67	1337
Barrett, John C., Oakdale, Pa. Hose-clamp	520,386	May 22	2530	611	67	1052
Barrett, John P. (See Mehren, Jacob F., assignor.)						
Barrett, Oliver L., The Dalles, Oreg. Seat	522,142	June 26	2477	594	67	1700
Barrington, William A., Louisville, Ky. Coffee-pot	519,657	May 8	1298	310	67	794
Barrow, Thomas E., assignor to Mansfield Cash and Package Carrier Company, Mansfield, Ohio. Curved track for store-service apparatus	518,909	Apr. 24	2548	630	67	511
Barrows, Charles H., Willimantic, Conn. System of elevated and surface railways	517,535	Apr. 3	191	43, 44	67	39
Barrows, John F., Saginaw, Mich. Banjo	517,913	Apr. 10	814	205	67	171
Barth, Henry N., Chicago, Ill. Steam-boiler	521,844	June 26	1934	464	67	1598
Bartheimess, Johannes, Nippes, near Cologne, assignor to W. J. Schumacher, Cologne, Germany. Skid for railway-vehicles	519,624	May 8	1244	298	67	785
Bartholomew, Orie Y., Des Moines, Iowa. Veterinary obstetrical forceps	518,580	Apr. 24	1986	491	67	409
Bartlett, George D., Plymouth, Mass. Sheet of metallic shoe-shanks	518,304	Apr. 17	1491	373	67	306
Bartlett, Harvey S. (See Ekman, Oscar C. L., assignor.)						
Bartlett, James. (See Coats, Arthur W., assignor.)						
Bartlett, James F., assignor to W. Boldenwéck, Chicago, Ill. Combination umbrella-holder and stand	518,581	Apr. 24	1987	491	67	409
Bartley, Louis K., Winona, Minn. Adjustable angle-square	518,685	Apr. 24	2160	540	67	440
Bartley, Robert J., Cleveland, Ohio. Curtain-stretcher	521,200	June 12	795	187	67	1354
Bartol, William C., Lewisburg, Pa. Settee-arm	518,130	Apr. 10	1186	297	67	232
Bartolomei, Frank. (See Van den Berghen, Albert L. R., assignor.)						
Barton, Albert E., Ensley, and G. B. McCormack, Pratt Mines, Ala. Refining ores	519,901	May 15	1690	.....	67	882
Barton, Albert E., Ensley, and G. B. McCormack, Pratt Mines, Ala. Refining iron	519,902	May 15	1691	.....	67	882
Barton, George E. (See Macksey, Helmer, and Barton.)						
Barton, Gustavus. (See Shepherd, John, assignor.)						
Bassett, Norman C., Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Railway-car truck	521,778	June 26	1837	437, 438	67	1579
Baswitz, Carl, Berlin, Germany. Life-boat	517,536	Apr. 3	194	44	67	39

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Batchelder, William W., Jr., Boston, Mass., assignor to Phonoharp Company, Berwick, Me. Harp	517,723	Apr. 3	520	126	67	101
Bates, Henry A., Yonkers, N. Y. Thread-cop for sewing-machine shuttles	521,080	June 5	584	137	67	1302
Bates, Henry A., Yonkers, N. Y. Shuttle for sewing-machines	522,002	June 26	2246	539	67	1656
Bates, John W., Hoboken, N. J., assignor of one-half to J. T. Trory, Brooklyn, N. Y. Smokeless boiler-setting	519,658	May 8	1299	310	67	794
	521,580	June 19	1480	{346 347}	67	1497
Bates, Lindon W., Chicago, Ill. Dredger	520,201	May 22	2223	541	67	993
Bath, John, Hyde Park, Mass. Micrometer-indicator						
Battles, Francis M. (See Miller, Joseph, Sr., assignor.)						
Bauer, Albert C. A., and F. D. Johnson, assignors to R. and F. E. Wheeler, Utica, N. Y. Sectional boiler or heater	519,297	May 1	642	156	67	661
Bauer, Friederich R., assignor to Firm of Max Friedheim, Hamburg, Germany. Machine for sharpening saws	518,731	Apr. 24	2256	561	67	456
	519,786	May 15	1508	{367 368}	67	847
Baugh, Benjamin, Birmingham, England. Machine for powdering plates, &c	521,874	June 26	1980	478	67	1608
Bauhard, Alvin L., Bristol, Tenn. Automatic boiler-cleaner	522,097	June 26	2386	{574 575}	67	1683
Baumann, Robert, St. Louis, Mo. Electrically-operated adding-machine	522,098	June 26	2389	575	67	1684
Baumann, Robert, St. Louis, Mo. Adding-machine						
Baumeister, Frederick. (See Baumeister, Frederick S., assignor.)						
Baumeister, Frederick S., assignor of one-half to F. Baumeister, Rockwood, Mich. Splint-cutter	519,982	May 15	1821	446	67	905
Baumert, Christine. (See Pecht, John B., assignor.)						
Baumgarten, Albert, *et al.* (See Redlinger and Morgan, assignors.)						
Baumgarten, Theodore L., assignor of one-half to F. C. Prindle, Hornellsville, N. Y. Slip-shaft coupling	517,787	Apr. 3	624	156	67	121
	517,914	Apr. 10	817	205	67	172
Bavier, Charles S., New York, N. Y. Valve and joint	519,805	May 15	1539	376	67	853
Bavier, Charles S., New York, N. Y. Compression-joint	519,280	May 1	608	148	67	654
Baxter, William, Jr., Baltimore, Md. Electric generator	519,281	May 1	611	149	67	655
Baxter, William, Jr., Baltimore, Md. Electric motor or generator						
Baxter, William C. (See Churchill and Baxter.)						
Bayley, Charles H., Boston, Mass. Skiving-machine	518,774	Apr. 24	2323	576	67	468
Baynes, Edward C., and H. Henderson, Buffalo, N. Y. Nut-lock	518,641	Apr. 24	2086	520	67	426
Beach, John W., New York, N. Y. Heating system for cars, &c	521,008	June 5	459	{109 110}	67	1279
Beadle, Clayton. (See Cross, Bevan, and Beadle.)						
Beals, Joseph J., Cambridge, assignor of one-half to W. L. Broadbent, Boston, Mass. Life-guard for cars	522,099	June 26	2395	576	67	1684
Beaman, Elmer A. (See Smith, George H., assignor.)						
Bean, Hugh R., *et al.* (See Donahoo, Peter B., assignor.)	519,145	May 1	364	87	67	608
Beard, George M., Angola, Ind. Swinging folding gate	520,103	May 22	2030	495	67	959
Beardsworth, Albert C., Cleveland, Ohio. Safety device for elevator-gates						
Beary, Lorenzo D. (See Hudnall and Beary.)						
	519,938	May 15	1746	{428 429}	67	892
Beattie, Frank, Leete Island, Conn. Electric railway-signal	520,291	May 22	2372	576	67	1021
Beaudette, Agide J., Pelican Lake, Wis. Bearing for propeller-shafts	519,031	May 1	151	36	67	565
Beaumont, William W., London, England. Electromagnetic variable-speed gearing	521,228	June 12	847	198	67	1364
Bech, Christian L. G., Bellevue, Wash. Stringed musical instrument	517,514	Apr. 3	160	36	67	33
Bechis, Charles, Turin, Italy. Sight for guns	521,360	June 12	1090	256	67	1410
Bechmann, Albertina, Cincinnati, Ohio. Educational appliance	519,014	May 1	121	29	67	559
Beck, Gustav, Berne, Switzerland. Syringe						
Beck, Jacob J., *et al.* (See Saur, William, assignor.)	518,131	Apr. 10	1187	297	67	233
Beckeman, John U., St. Louis, Mo. Safety release-hook	518,018	Apr. 10	1004	252	67	202
Becker, Edward, Solingen, Germany. Corkscrew						
Becker, Michael, *et al.* (See Walls, William H., assignor.)	520,476	May 29	2678	647	67	1094
Beckert, William, Allegheny, Pa. Vehicle spring and axle attachment						
Beckmann, Henry C., *et al.* (See Fernholtz, Emil, assignor.)						
Beechler, James J. (See Shearer, Thomas J., assignor.)	521,697	June 19	1677	393	67	1534
Beeg, Hans, Durlach, Germany. Filter-press	521,361	June 12	1091	256	67	1410
Beehler, George J., New York, N. Y. Lantern-holder for wagons, &c						
Beem, John H., *et al.* (See Lowry, Austin, assignor.)						
	518,830	Apr. 24	2415	{597 598}	67	484
Beers, Andrew, Dansville, Mich. Paddle-propeller	517,724	Apr. 3	521	126	67	101
Beers, Louis G., Chicago, Ill. Screen	522,040	June 26	2302	551	67	1667
Beerstecher, Charles A., Centreville, Mich. Corn-planter	519,829	May 15	1575	385	67	860
Beery, Samuel M., Chicago, Ill. Hose-coupling						
Begg, Peter B. (See Marsh, John A., assignor.)	521,255	June 12	894	211	67	1372
Behnke, Charles R., Bridgeport, Conn. Tool-holder for thread-cutters	522,143	June 26	2478	594	67	1700
Behrens, Hugo, Berlin, Germany. Building-block and apparatus for manufacturing same.						
Bell, John T., deceased, (H. C. Graves, executor.) and A. T. Stewart, assignors to Ohio Rake Company, Dayton, Ohio. Hay rake and loader	520,422	May 29	2587	{626 627}	67	1078
Bell, Louis, assignor to General Electric Company, Boston, Mass. Means for exciting field-magnets of alternating-current dynamos	518,217	Apr. 17	1353	338	67	280
Bell, Louis, assignor to General Electric Company, Boston, Mass. Regulator for dynamo-electric machines	518,218	Apr. 17	1355	338	67	281
Bell, Louis, Boston, Mass., assignor to General Electric Company, of New York. Multi-phase current motor	520,763	June 5	4	1	67	1197
Bell, Louis, assignor to General Electric Company, Boston, Mass. Method of and means for starting alternating-current motors	520,764	June 5	5	2	67	1197
Bell, William, Murrurundi, J. W. Broomhead and W. A. Jones, Sydney, New South Wales. Animal-shears	518,204	Apr. 10	1327	331	67	259
Bellamy, William H. (See Schnepf, John, assignor.)						
Belliss, George E., and A. Morcom, Birmingham, England. Pump for compressing air or gases	519,225	May 1	514	125	67	637
	519,373	May 8	709	195	67	706
Belmor, George E., San Francisco, Cal. Gas-burning furnace for steam-boilers	517,537	Apr. 3	196	44	67	39
Beltzer, Joseph, assignor to J. H. Butler, Columbus, Ohio. Washing-machine						
Bemis, Daniel D., Eastonville, Colo., and F. H. Bemis, Footville, Wis.; said Daniel D. Bemis assignor to said F. H. Bemis. Transplanter	520,477	May 29	2680	{647 648}	67	1094
Bemis, Fred H. (See Bemis, Daniel D. and F. H.)						
	520,478	May 29	2682	{648 649}	67	1095
Bemis, Fred H., Footville, Wis. Transplanter						
Benagh, Henry C., Nashville, Tenn., assignor, by mesne assignments, to Johnson Company, Johnstown, Pa. Railway-switch	519,298	May 1	643	157	67	661

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bender, Adam, Philadelphia, Pa. Tray for invalids	517,677	Apr. 3	445	107	67	85
Bender, Frederick M., Louisville, Ky. Fire-escape	518,659	Apr. 24	2115	528	67	431
Benham, Elijah B., and H. E. Barlow, Providence, R. I. Grinding-machine	520,665	May 29	2987	722	67	1151
Benjamin, Frederick L., assignor, by mesne assignments, to L. P. Ordway, St. Paul, Minn. Flax-puller	521,927	June 26	2090	502	67	1629
Benjamin, Fredrick L., assignor, by mesne assignments, to L. P. Ordway, St. Paul, Minn. Flax-puller	521,926	June 26	2089	501	67	1628
Benjamin, George H. (See Miller, William H., assignor.)						
Benn, Alfred R., assignor of one-half to E. Reynolds, Brooklyn, N. Y. Rotary engine	520,554	May 29	2810	{678 679}	67	1118
Benner, Lorenzo D., Peoria, Ill. Seed-planter	519,692	May 15	1355	{327 328}	67	819
Bennett, Arthur F. (See Tilford and Bennett.)						
Bennett, Clande W. (See Churchill and Bennett.)						
Bennett, Claude W., Penn, and F. Chapman, Newburg, Mich. Wire fence	517,423	Apr. 3	4	2	67	3
Bennett, Josiah C. (See Whitaker, Clarence E., assignor.)						
Bennett, Ruloff R., Brooklyn, N. Y. Invalid's coach	518,831	Apr. 24	2416	{598 599}	67	484
Bennett, William H., Chicago, Ill. Tenoning-machine	517,599	Apr. 3	297	69	67	58
Bennett, William H., assignor of one-half to J. O'Gorman, Chicago, Ill. Mop-wringer	519,146	May 1	366	87	67	608
Bennum, George W., and J. L. McKim, Georgetown, Del. Eyeglasses	520,028	May 22	1903	464	67	935
Benson, W. M. (See Putt, Harry M., assignor.)						
Bent & Brothers, S. (See Bent, Roderic L., assignor.)						
Bent, Roderic L., Gardner, assignor to S. Bent & Brothers, South Gardner, Mass. Chair-seat	518,339	Apr. 17	1559	387	67	317
Bentley, Joseph J., Sadorus, Ill. Nut-lock	520,512	May 29	2739	663	67	1105
Bentley, Squire, assignor of one-third to A. Woodier, Paterson, N. J. Jacquard attachment for looms	519,374	May 8	801	196	67	706
Benton, Francis E., Stoughton, Mass. Last	517,424	Apr. 3	5	2	67	4
Benton, Francis E., Stoughton, Mass. Last	518,985	May 1	80	21	67	551
Berbecker & Co., Julius. (See Morris, Thomas, assignor.)						
Berdan, Marvin, Plymouth, Mich. Wire fence	521,328	June 12	1021	240	67	1395
Berendt, Maximilian, *et al.* (See Müller, Rudolf, assignor.)						
Berg, Walter G., New York, N. Y. Overhead cable traction	519,561	May 8	1130	{271 272}	67	765
Berger, Friedrich, Pilger, Nebr. Compound for cleaning boilers	517,562	Apr. 3	239	.....	67	47
Berger, Harry A., assignor to Berger Manufacturing Company, Canton, Ohio. Eaves-trough hanger	521,523	June 19	1390	322	67	1480
Berger, Henry A., Brooklyn, N. Y. Button-finishing machine	518,340	Apr. 17	1560	388	67	317
Berger Manufacturing Company. (See Berger, Harry A., assignor.)						
Bergfels, Henry, Newark, N. J. Bicycle-saddle	517,425	Apr. 3	5	2	67	4
Bergfels, Henry, Newark, N. J. Bicycle-saddle	517,538	Apr. 3	197	44, 45	67	39
Berglöf, Algot. (See Hammarberg and Berglöf.)						
Bergman, Oskar W., and E. Ternström, Paris, France. Breech mechanism for ordnance	520,029	May 22	1903	{465 466}	67	936
Bergman, Sigmund. (See Lavens, Erwin, assignor.)						
Berlin Machine Works. (See Thomas, John R., assignor.)						
Berliner, Adolf, assignor to K. Köhler, Berlin, Germany. Advertising apparatus	521,009	June 5	460	110	67	1279
Berliner Brothers *et al.* (See Johnson, Charles T., assignor.)						
Bernreuther, Carl, assignor to P. Esselbach, Berlin, Germany. Apparatus for pitching casks.	517,515	Apr. 3	163	36	67	33
Bernthsen, Heinrich A., Mannheim, and P. Julius, assignors to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Substantive blue dye	521,095	June 5	615	.....	67	1308
Bernthsen, Heinrich A., Mannheim, and P. Julius, assignors to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Substantive violet dye	521,096	June 5	616	.....	67	1308
Berry, Charles M., assignor of one-half to B. F. Millard, San Francisco, Cal. Salt and pepper distributer	518,559	Apr. 17	1940	479	67	386
Berry, John J., Indianapolis, Ind. Hinge	520,629	May 29	2931	708	67	1141
Berry, William H., Eddystone, Pa. Boiler	519,015	May 1	122	29, 30	67	559
Bersch, Carl, Baltimore, Md. Car-fender	519,562	May 8	1131	272	67	765
Bertram, Julius, Leipsic, Germany. Making vanillin	519,693	May 15	1358	.....	67	819
Beseler, Charles, Jersey City, N. J. Electric-arc light for magic lanterns	521,362	June 12	1092	257	67	1410
Besly, Irving, Loadville, Colo. Concentrating-machine	519,316	May 8	686	168	67	684
Bessing, Theodore, Los Angeles, Cal. Gymnastic appliance for school-desks	517,788	Apr. 3	625	156	67	121
Besson, Hyppolite, London, England, assignor to Consolidated Manufacturing Company, Philadelphia, Pa. Brush-machine	521,630	June 19	1508	{366 367}	67	1513
Bessonette Cotton Compress Manufacturing Company. (See Bessonette, William T., assignor.) (Reissue.)						
Bessonette, William T., assignor of two-thirds to C. C. Kirkpatrick and W. P. Rylander, Temple, Tex. Lock-hinge	521,429	June 12	1260	284	67	1430
Bessonette, William T., Temple, assignor to Bessonette Cotton Compress Manufacturing Company, Waco, Tex. Cotton-press. (Reissue)	11,422	June 19	1830	436	67	1502
Betka, Henry, Grand Rapids, Mich. Clothes-line fastener	521,971	June 26	2177	523	67	1645
Bettinger, John J., assignor to C. L. Cornell, Hamilton, Ohio. Wire-stripper	520,818	June 5	113	25	67	1217
Betz, Ernest, Washington, D. C. Hydrocarbon-burner	519,375	May 8	803	196	67	706
Betz, Joseph W., Brooklyn, N. Y. Felling attachment for sewing-machines	520,292	May 22	2374	576	67	1021
Betz, Joseph W., Brooklyn, N. Y. Safety-guard for cars	522,100	June 26	2397	576	67	1685
Beukema, Cornelius. (See Beukema, Jacob, C., and W.)						
Beukema, Jacob, C., and W., Grand Rapids, Mich. Washing-machine	520,841	June 5	159	35	67	1226
Beukema, William. (See Beukema, Jacob, C., and W.)						
Bevan, Edward J. (See Cross, Bevan, and Beadle.)						
Bevan, Thomas, New York, N. Y. Rope-clamp for pulley-lines	518,132	Apr. 10	1188	298	67	233
Bever, Alexander, Spokane, Wash. Parasol or umbrella cabinet	518,390	Apr. 17	1662	410	67	336
Bevitt, Edwin D., Cincinnati, Ohio. Sheet-metal roofing	518,089	Apr. 10	1121	{283 284}	67	220
Beyer, Anton H., London, England. Musical instrument	518,219	Apr. 17	1357	{338 339}	67	281
Bibby, James. (See Bibby, Joseph and J.)						
Bibby, Joseph and J., Liverpool, England. Manufacture of printing-ink	519,032	May 1	153	.....	67	565
Bickmeier, Charles, Bellaire, Ohio. Car-coupling	518,910	Apr. 24	2549	630	67	511
Biddle, William, and P. Kennedy, Brooklyn, assignors to American Railway Electric Light Company, New York, N. Y. Connecting dynamos to car-axles	517,997	Apr. 10	975	242	67	196
Biddle William, and P. Kennedy, Brooklyn, assignors to American Railway Electric Light Company, New York, N. Y. Electric car-lighting system	517,998	Apr. 10	976	243	67	196
Bidelman, Robert M., Adrian, Mich. Apparatus for the manufacture of gas	518,582	Apr. 24	1988	{491 492}	67	409

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Dr'g.	Vol.	Page.
Biden, Lee. (See Kindig, Samuel C., assignor.)						
Bidwell, Jason A., Cleveland, Ohio. Device for separating turnings from finished screws in screw-making machines	519,563	May 8	1134	272, 273	67	765
Bienkowski, Apolinary, San Francisco, Cal. Power-wheel	519,226	May 1	516	125	67	637
Biette, Henry C., assignor of one-half to A. Blackburn, trustee, and F. A. Ramage, Toronto, Canada. Autographic register	521,081	June 5	585	137, 138	67	1302
Biggs, Charles H., Detroit, Mich. Self-mousing hook	520,721	May 29	3095	749	67	1171
Billings, George W., assignor of one-half to F. M. Potter, Cleveland, Ohio. Vapor-burner	519,830	May 15	1576	385, 386	67	860
Billman, Jesse F., Litchfield, Ill. Sewing-machine fan	519,227	May 1	517	125	67	638
Binder, Gottlob, Philadelphia, Pa. Gage-cock	517,426	Apr. 3	7	2	67	4
Bingham, George C. (See Wood, Frederick C., assignor.)						
Binns, William H., assignor to Monarch Cycle Company, Chicago, Ill. Brake mechanism for bicycles	520,017	May 15	1877	459	67	915
Birch, Phillip, Denver, Colo. Combined knife-sharpener and hone-stone holder	521,755	June 19	1792	425	67	1555
Birdsall, David, Jersey City, N. J. Steam-generator	521,329	June 12	1022	240, 241	67	1395
Birner, Joseph, and H. Messing, Elizabeth, N. J. Air-compressor	520,405	May 29	2562	619, 620	67	1073
Birrer, John B., assignor to C. W. Chase, Newton, Kans. Musical instrument	518,775	Apr. 24	2325	577	67	469
Bischoff, Ferdinand F., Milwaukee, Wis. Egg-tray	518,341	Apr. 17	1562	388	67	318
Bishop, Alfred H., assignor to Snell Cycle Fittings Company, Toledo, Ohio. Bicycle	521,363	June 12	1094	257	67	1411
Bishop, Frank, Ogden, Utah Ter. Ore-crusher	519,228	May 1	518	125, 126	67	638
Bittenbender, George H., Plymouth, Pa. Coal-drill	519,466	May 8	957	232	67	734
Blachon, Pétrus, and E. Mimard, St. Etienne, France. Magazine-pistol	520,666	May 29	2988	722, 723	67	1150
Black, Crosby M. (See Chambers, Richard B., assignor.)						
Black, John M., London, England. Punch and fare-register	517,944	Apr. 10	861	217	67	179
Black, John M., London, England. Ticket-punch	518,518	Apr. 17	1877	465	67	375
Black, Stephen S., Pasadena, Cal. Lawn-sprinkler	518,560	Apr. 17	1941	480	67	386
Black, William, Kansas City, Mo. Tension device for paper-rolls	520,874	June 5	216	49	67	1237
Blackall, Robert C. (See Shepheard, John H., assignor.)						
Blackall, William. (See Alsop and Blackall.)						
Blackburn, Andrew, trustee, *et al.* (See Biette, Henry C., assignor.)						
Blackburn, Arthur W. (See Blackburn, William and A. W.)						
Blackburn, William and A. W., Cleckheaton, England. Wool-washing machine	519,625	May 8	1246	299	67	785
Blackford, Atwell J., assignor of one-half to Durand Manufacturing Company, Medina, Ohio. Hydrocarbon-burner	518,305	Apr. 17	1492	374	67	306
Blackford, James. (See Lawrence and Blackford.)						
Blackman, Charles H. (See Blackman, James H., Jr., assignor.)						
Blackman, Jacob. (See Bofird and Blackman.)						
Blackman, James H., Jr., assignor of one-half to C. H. Blackman, Hartaville, Ill. Drag-saw	520,387	May 22	2531	612	67	1052
Blackmore, Henry S., Mount Vernon, N. Y. Filter	520,293	May 22	2375	576	67	1021
Blackmore, James E., Newark, N. J. Motor-opticon	520,030	May 22	1907	467	67	936
Blaine, George E., Alliance, Ohio. Window-screen	518,660	Apr. 24	2116	529	67	432
Blake, Burdine, London, Ohio. Horse-detacher	521,581	June 19	1482	347	67	1497
Blake, Charles M., *et al.* (See Howe, Patrick, assignor.)						
Blake, John F., New Haven, Conn. Electrical contact mechanism	518,133	Apr. 10	1190	298	67	233
Blake, John F., New Haven, Conn. Electrical contact mechanism	518,481	Apr. 17	1813	449	67	364
Blake, John F., New Haven, Conn. Electrical-contact mechanism	520,351	May 22	2476	600	67	1040
Blake, John F., New Haven, Conn. Electric pump-motor	520,722	May 29	3096	749	67	1171
Blake, Solomon E., Indianapolis, Ind. Shoestring-fastener	520,555	May 29	2812	679	67	1119
Blakeman, William N., Jr., New York, N. Y. Preserving or renovating butter	520,513	May 29	2740	.....	67	1105
Blakeney, James, Springfield, Ohio. Cupola-furnace	518,482	Apr. 17	1814	449	67	364
Blakey, John, Leeds, England. Lasting-machine	519,755	May 15	1450	350, 351	67	836
Blanchard, Silas W., and W. A. Lambie, Pittsburg, assignors of one-third to G. W. Porter, Allegheny, Pa. Elevator-hatch	519,299	May 1	644	157	67	662
Blanchard, William M., assignor to Quincy Storm Apron Company, Quincy, Ill. Elastic storm-apron for vehicles	519,564	May 8	1137	273	67	766
Blanchon, André, and A. Allegret, Lyons, France. Printing indigo	522,042	June 26	2304	.....	67	1667
Blatchly, Ambrose, San Francisco, Cal. Drier	519,694	May 15	1358	328, 329	67	820
Blease, Alma F., Hammond, Ind. Vehicle dashboard and fender	520,388	May 22	2532	612	67	1052
Bliss, Aaron T. (See Dunham, Harry E., assignor.)						
Block, Louis, New York, N. Y. Refrigerating-machine	518,541	Apr. 17	1913	473	67	381
Blodget, Hugh A. (See Cox, Cary S., assignor.)						
Bloemendal, Charles, Berlin, Germany. Producing hydraulic mortar	519,599	May 8	1198	289	67	777
Blomshield, John H., West Bay City, Mich. Foot-guard	520,031	May 22	1909	467	67	936
Blood, Maurice E., assignor to Kalamazoo Cycle Company, Kalamazoo, Mich. Attachment for bicycles	521,132	June 5	674	159	67	1319
Bloomberg, Casper, New York, N. Y. Suspender cast-off	520,723	May 29	3097	750	67	1171
Blow, Richard T., *et al.* (See Moran, Michael, assignor.)						
Blue, Charles E., Wheeling, W. Va. Work-holder	518,750	Apr. 24	2287	568	67	461
Blum, John. (See Schachel, John L., assignor.)						
Blumenberg, Henry, Jr., Mt. Vernon, N. Y. Electrolysis	519,400	May 8	848	205	67	715
Blundell, William C., assignor of one-half to G. P. Dold, Wichita, Kans. Barrel-head	521,097	June 5	617	145	67	1308
Blütchen, Ernst, Berlin, Germany. Machine for cutting quill-strips	519,659	May 8	1301	311	67	795
Boardman, Arthur F., Somerville, assignor of one-half to J. D. Leatherbee, Braintree, Mass. Magneto-telephone	520,406	May 29	2564	620	67	1074
Boch, Noah W., Trenton, N. J. Die for the manufacture of earthenware vessels	520,294	May 22	2376	577	67	1022
Bock, Ada F., Akron, Ohio. Safety attachment for brooch-pins	521,598	June 19	1514	354	67	1503
Boeck, Charles H., assignor to Novelty Manufacturing Company, Jackson, Mich. Oil cook-stove	520,407	May 29	2564	620	67	1074
Boegen, John E., assignor to T. E. Webster, Bay City, Mich. Means for operating sectional nuts of vises	521,698	June 19	1677	394	67	1534
Boehm, Gustav, Long Island City, N. Y. Guard for cars	522,003	June 26	2247	539	67	1656
Boeing, William C., and T. P. Stork, Hermann, Mo. Music-leaf turner	521,756	June 19	1793	426	67	1555
Boeri, Joseph, New York, N. Y. Fruit-stoner	519,939	May 15	1748	429	67	892
Boese, Wilhelm A., Berlin, Germany. Manufacturing active material for secondary electric batteries	517,427	Apr. 3	10	.....	67	5
Bofird, Louis, and J. Blackman, New York, N. Y. Ash-chute	521,599	June 19	1515	354	67	1503

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Dr'g.	Vol.	Page.
Böhm, Joseph and R., New York, N. Y. Drilling-machine	518,803	Apr. 24	2371	587	67	476
Böhm, Rudolph. (See Böhm, Joseph and R.)						
Bohn, Joseph M., Dayton, Ky. Suspenders	521,082	June 5	589	138	67	1303
Bohn, René, Mannheim, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany. Blue alizarin dye	519,229	May 1	520	.....	67	638
Bohr, Joseph, Westphalia, Mich. Extension-table	522,101	June 26	2398	576	67	1685
Boldenwéck, William. (See Bartlett, James F., assignor.)						
Bolding, James P., assignor of one-half to J. A. Latimer, Forney, Tex. Churn	520,724	May 29	3098	750	67	1172
Boley, Benjamin, Brooklyn, N. Y. Bottle-stopper	521,779	June 26	1838	438	67	1580
Bolgiano, John, Baltimore, Md. Faucet attachment	519,521	May 8	1069	256	67	754
Bolles, Emerson L., China, La. Car-coupling	521,631	June 19	1573	368	67	1514
Bollman, Oscar H., St. Louis, Mo. Muffler for pianos	519,983	May 15	1822	446	67	905
Bolt, Nicholas. (See Van Kalker and Bolt.)						
Bommarius, Frederick, New Orleans, La. Filter	519,565	May 8	1138	273	67	767
Bonehill, Louis R., assignor to W. H. Swift, St. Louis, Mo. Furnace for smelting and refining ores	518,874	Apr. 24	2479	614	67	497
Bonenberger, George. (See Herth and Bonenberger.)						
Bonjour, Claude, Paris, France. Hydraulic apparatus for controlling fluid-pressure motors	519,168	May 1	408	98, 99, 100	67	616
Bonnans, Benjamin, North Temescal, Cal. Car-coupling	519,600	May 8	1199	289	67	777
Bonney, Edmund J. (See Davis, Francis G., assignor.)						
Boomhower, Eli E., assignor to G. J. Slayton, R. H. Peck, C. J. Slayton, D. Randall, W. S. Cheney, J. W. Spaulding, G. W. Hendee, Lang & Campbell, H. Waite, E. A. Leach, W. H. Slayton, Morrisville, and M. S. Burnell, Wolcott, Vt. Truss	519,882	May 15	1662	405	67	876
Boone, John L. (See Mead and Clemens, assignors.)						
Booth, Theodore F., administrator. (See Stow, Henry W.)						
Borchert, Oscar, Jersey City, N. J. Garment-stand	520,251	May 22	2307	559	67	1008
Bordt, Christian, Camden, N. J. Skylight	519,169	May 1	414	101	67	617
Bornstein, Henry, Boston, Mass. Scarf-pin	517,725	Apr. 3	522	126	67	101
Bose, Nicholas. (See Krebs, Herrmann, assignor.)						
Bosler, Christian L. (See Jackaway, William, assignor.)						
Bosmann, Nicolas, assignor to J. Schneider and J. Katzbach, Chicago, Ill. Fixture for vertically adjusting window-shades	521,280	June 12	933	221	67	1379
Bostad, Christian, assignor to Automatic Folding Bed Company, Chicago, Ill. Folding-bed joint	520,751	May 29	3143	761	67	1179
Boston, James, Du Bois, Nebr. Pulverizing-harrow	518,391	Apr. 17	1663	410	67	337
Bosworth Machine Company. (See Dodge and Richards, assignors.)						
Bouck, Rolland N. (See Gray, John H., assignor.)						
Boudry, John, Fond du Lac, Wis. Dough-raising apparatus	521,972	June 26	2178	523	67	1645
Bourgeois, Abraham A., East Longmeadow, Mass. Boring-bit	521,430	June 12	1201	285	67	1430
Bowyer, John A., San Diego, Cal. Adjustable fastener	519,831	May 15	1577	386	67	860
Bow, Richard, assignor of two-thirds to R. Hampson and J. M. Brown, McKeesport, Pa. Furnace	520,032	May 22	1910	467, 468	67	936
Bowden, Junius A., Detroit, Mich. Filter	522,043	June 26	2305	552, 553	67	1667
Bowen, David F. (See Gray and Bowen.)						
Bowen, George R., San Antonio, Tex. Road-pavement	521,364	June 12	1095	257	67	1411
Bowen, Menard K., Chicago, Ill. Stove for heating street-cars	519,442	May 8	913	220	67	727
Bowles, Richard, Harrison, N. J. Awning attachment	520,556	May 29	2813	679	67	1119
Bowley, Joseph H., assignor of one-half to J. W. Stockwell, Marengo, Ill. Preserving-case for eggs	520,252	May 22	2309	560	67	1009
Bowman, A. C., *et al.* (See Bright, William H., assignor.)						
Bowne, Albert S., Brooklyn, N. Y. Holder for cores of paper-rolls	520,154	May 22	2143	522	67	978
Bowser, Allen A., *et al.* (See Edwards, John J., assignor.)						
Bowser, Sylvanus F., *et al.* (See Edwards, John J., assignor.)						
Boyce, Arthur, St. Louis, Mo. Steam-boiler or hot-water heater	519,418	May 8	874	212	67	720
Boyce, Arthur, St. Louis, Mo. Boiler-furnace and steam-generator	519,419	May 8	876	212	67	720
Boyd, Frederick C., and C. E. Gurding, New Haven, Conn., assignors to New Haven Car Register Company, of Connecticut. Fare-register	520,912	June 5	292	71, 72	67	1251
Boyd, Peter, *et al.* (See Shank, Charles A., assignor.)						
Boyd, Randolph, Galva, Ill. Pipe-hanger	521,149	June 12	703	164	67	1337
Boyden, George A., Baltimore, Md. Car-ventilator	518,220	Apr. 17	1360	339	67	282
Boyens, Carl F., and J. S. Burkholder, Allentown, Pa. Nut-lock	518,049	Apr. 10	1063	268	67	210
Boyer, Allen P., Goshen, Ind. Hay-carrier	517,835	Apr. 10	689	172, 173	67	148
Boyer, Daniel, Cressona, Pa. Car-coupling	520,842	June 5	160	35	67	1226
Boyer, Daniel, Cressona, Pa. Nut-lock	522,144	June 26	2479	594	67	1701
Boyer, Israel D., Dayton, Ohio. Revolving fan	517,428	Apr. 3	11	3	67	5
Bracey, Benjamin. (See Worsley, Windus, and Bracey.)						
Brack, Johann J., Basle, Switzerland, assignor to L. Durand, Huguenin & Co., St. Fons, France, Basle, Switzerland, and Hüningen, Germany. Polyazo yellow dye	519,522	May 8	1070	.....	67	754
Brack, Johann J., Basle, Switzerland, assignor to L. Durand, Huguenin & Co., St. Fons, France, Basle, Switzerland, and Hüningen, Germany. Polyazo yellowish dye	519,523	May 8	1072	.....	67	754
Brackelsberg, Robert E., and G. G. Edwards, Portland, Oreg. Switch-working mechanism	519,230	May 1	522	126	67	639
Brackemann, Friedrich, Augsburg, Germany. Rotary engine	522,145	June 26	2480	594, 595	67	1701
Braddock, Joseph. (See Hawkyard, John, assignor.)						
Braddock, Warren L., assignor to M. C. Clark and A. S. Coon, Boston, Mass. Garter adjuster and fastener	517,678	Apr. 3	445	107	67	86
Bradford, Eugene S., Chicago, assignor to Bradford Machine Company, East St. Louis, Ill. Plate-printing machine	518,134	Apr. 10	1191	299	67	233
Bradford Machine Company. (See Bradford, Eugene S., assignor.)						
Bradish, Frederick T., Boston, Mass. Fastening device for tubs, boxes, &c	517,836	Apr. 10	691	173	67	149
Bradley, Alfred, assignor to L. U. Gill, London, England. Paper-folding machine	521,083	June 5	590	138, 139, 140	67	1303
Bradley, Charles S., Avon, N. Y. Alternating-current transformer	519,376	May 8	805	196	67	707
Bradley, Charles S., Avon, N. Y. Generating and utilizing electric currents of high potential	519,377	May 8	806	196, 197	67	707
Bradley, Christopher C., and T. Faulder, Syracuse, N. Y.; said Faulder assignor to said Bradley. Shifting seat for vehicles	519,832	May 15	1578	386	67	861
Bradley & Hubbard Manufacturing Company. (See Hubbard, Walter, assignor.)						
Bradley, John E., Chicago, Ill. Machine-table	522,004	June 26	2249	539	67	1657

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bradley, Osgood. (See Winsor, Joseph S., assignor.)						
Bradner, William F., assignor to Electric Specialty Company, Denver, Colo. System for controlling electric lights	517,812	Apr. 3	661	165	67	128
Braender, Philip. (See Power, Nicholas, assignor.)						
Bragdon, Benjamin J., Beloit, Kans. Bicycle-wheel	518,090	Apr. 10	1123	284	67	220
Bragunier, Frank J., Topeka, Kans. Animal-trap	518,483	Apr. 17	1815	449	67	364
Brainard, Austin. (See O'Connor, Edward J., assignor.)						
Braman, Frank R., Saltilloville, Ind. Stovepipe-joint	521,875	June 26	1961	479	67	1608
Bramwell, Joseph W., Camden, N. J. Table for draftsmen, &c	520,630	May 29	2932	708	67	1141
Brand, James B., Milwaukee, Wis. Conduit electric-railway system	521,010	June 5	463	111	67	1280
Brand, William, Pittsburg, Pa. Boiler-furnace	519,787	May 15	1512	368	67	848
Brandt, Fred, *et al.* (See Schneider, George L., assignor.)						
Brandt, George, *et al.* (See Schneider, George L., assignor.)						
Brandt, Theodor, Quedlinburg, Germany. Machine for cutting and finishing metal strips	519,903	May 15	1692	412, 413	67	882
Brankston, Ralph T. (See Noble and Brankston.)						
Branson, James L., and S. S. Cook, assignors to Branson Machine Company, Philadelphia, Pa. Circular-knitting machine	519,170	May 1	415	101	67	617
Branson Machine Company (See Branson and Cook, assignors.)						
Braun, Henry, *et al.* (See Kleber, Oscar L., assignor.)						
Braun, John, *et al.* (See Deck, Henry, assignor.)						
Braun, John F., *et al.* (See Deck, Henry, assignor.)						
Braun, Julius E. A., Dautzschen, near Torgau, Germany. Excavating or dredging machine	517,726	Apr. 3	523	126, 127	67	101
Braun, William P. M., *et al.* (See Deck, Henry, assignor.)						
Breaithwaite, Ernest C., and J. W. Hepworth, Philadelphia, Pa. Self-acting fashioning device for circular-knitting machines	521,098	June 5	618	145, 146	67	1308
Breen, Sylvester A., Alexandria, Va. Car-wheel fender	518,642	Apr. 24	2087	520	67	426
Breuneisen, John E. (See Dorsey and Breuneisen.)						
Bresnehan, Maurice V. (See Heys, John J., assignor.)						
Bretherton, Sidney E. (See Engelbach and Bretherton.)						
Brenil-Phillips Manufacturing Company. (See Phillips, William H., assignor.)						
Breul, Richard A., Bridgeport, Conn. Chain	518,484	Apr. 17	1817	450	67	364
Breul, Richard A., Bridgeport, Conn. Snap-hook	518,485	Apr. 17	1818	450	67	364
Brewer, Edward C., Butte, Mont. Washing-machine	520,408	May 29	2566	621	67	1075
Brewer, John B. (See Edens and Brewer.)						
Brewster, Francis W., Bournemouth, England. Adjustably-weighted center-board	521,494	June 19	1340	311	67	1472
Bricker, Solomon E., assignor of one-half to O. G. Puckett, Arco, Idaho. Clevis	518,486	Apr. 17	1818	450	67	365
Brickner, Julius, and A. S. Herr, Tiffin, Ohio. Truss	517,639	Apr. 3	369	87	67	72
Bridge, Horace, Chicago, Ill. Car-coupling	519,231	May 1	524	126	67	639
Bridgeport Brass Company. (See Rhind, Frank, assignor.)						
Bridgman, William H., Brooklyn, N. Y. Razor-wiper	517,971	Apr. 10	918	229, 230	67	188
Brien, James T. and T. R., assignors of one-third to G. F. Rising, Hoosick Falls, N. Y. Soil-pipe	518,583	Apr. 24	1989	492	67	410
Brien, Theodore R. (See Brien, James T. and T. R.)						
Brigg, Thomas H. Bradford, England. Means for connecting draft-animals to vehicles	517,640	Apr. 3	370	87, 88	67	72
Brigg, Thomas Hz. Bradford, England. Means for connecting draft-animals to vehicles	517,641	Apr. 3	372	88, 89	67	73
Briggs, Arthur E., assignor to O. M. Briggs, Bond Hill, Ohio. Automatic filling device	520,557	May 29	2814	679, 680	67	1119
Briggs, Henry, Hasbrouck Heights, N. J., assignor to Goodyear Shoe Machinery Company, Portland, Me. Take-up for shoe-sewing machines	518,911	Apr. 24	2550	630	67	511
Briggs, Olivia M. (See Briggs, Arthur E., assignor.)						
Briggs, Orson, St. Louis, Mich. Hay-lifter	517,945	Apr. 10	864	218	67	179
Briggs, Vanrensselaer T., North Lansing, Mich. Wire-fence machine	517,837	Apr. 10	692	173, 174, 175, 176	67	149
Bright, Annie V., *et al.* (See Bright, William H., assignor.)						
Bright, William H., assignor of eleven-twelfths to P. B. Dunham, J. Anderson, A. V. Bright, F. M. Couden, A. W. Starkey, A. Selzer, D. B. Wilson, A. Rutterer, A. C. Bowman, and E. Dunham, Morrow, Ohio. Multiple gearing	521,133	June 5	676	159	67	1319
Brill, John A. (See Adams Walter S., assignor.)						
Brindle, Robert, assignor of one-half to J. Pohlman, Paterson, N. J. Spring-hinge	519,833	May 15	1579	387	67	861
Brinkerhoff, Warren E., *et al.* (See Schwein, Herman, assignor.)						
Brinkman, Sebastian G., New York, N. Y. Fireproof partition	518,050	Apr. 10	1063	268	67	210
Briody, Thomas P., assignor of one-fourth to W. D. Spillan, South Bethlehem, Pa. Puzzle	520,155	May 22	2145	522	67	978
Bristol, Charles B., assignor to W. & E. T. Fitch Company, New Haven, Conn. Snap-hook	519,524	May 8	1074	257	67	754
Britton, Charles S. (See Britton, Clarence R., assignor.)						
Britton, Clarence R., assignor to C. S. Britton, Cleveland, Ohio. Tin-plating machine	518,312	Apr. 17	1564	389	67	318
Broadbent, Wallace L. (See Beals, Joseph J., assignor.)						
Broadhurst, William H. (See Jacobs, Jonathan, assignor.)						
Broatch, David W., Pepin, Wis. Concave and feed-board for thrashing-machines	520,725	May 29	3100	750	67	1172
Brockhausen, Friedrich. (See Brockhausen, Wilhelm and F.)						
Brockhausen, Wilhelm and F., Riga, Russia. Adjustable bearing for connecting-rods	519,492	May 8	1001	242	67	741
Brockway, Adna F., Pasadena, Cal. Watchmaker's calipers	520,558	May 29	2816	680	67	1120
Brong, George W., Milwaukee, Wis. Check-controlled game apparatus	518,875	Apr. 24	2481	614, 615	67	498
Bronner, Edmond D., Detroit, Mich., assignor to Gould Coupler Company, Buffalo, N. Y. Car-coupling	520,765	June 5	6	2	67	1198
Bronsdon, Edward, assignor of one-half to E. Scales, London, England. Trunk, portmanteau, &c	522,146	June 26	2483	595, 596	67	1701
Brookens, Harry C., assignor of one-half to T. S. Brookens, Bloomington, Wis. Land-pulverizer	518,363	Apr. 17	1620	399	67	329
Brookens, T. S. (See Brookens, Harry C., assignor.)						
Brooking, William, River, Ind. Car-coupling	521,699	June 19	1679	394	67	1534
Brooks, David, Jr., Philadelphia, Pa., assignor to Electric Cable Construction and Maintenance Company, of Pennsylvania. Means for introducing insulating material into conduits	519,171	May 1	418	101	67	618
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Company, New York, N. Y. Seal	520,389	May 22	2533	612	67	1052
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Company, New York, N. Y. Seal	520,390	May 22	2534	612	67	1052

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Company, New York, N. Y. Seal	521,134	June 5	678	159	67	1319
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Company, New York, N. Y. Seal	521,135	June 5	679	159	67	1320
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Company, New York, N. Y. Seal	521,136	June 5	681	160	67	1320
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Company, New York, N. Y. Seal	521,137	June 5	683	160	67	1320
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Company, New York, N. Y. Seal	521,757	June 19	1798	427	67	1555
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Company, New York, N. Y. Seal	521,758	June 19	1800	427	67	1555
Brooks, Franklin W., New York, N. Y. Seal	521,632	June 19	1575	368	67	1514
Brooks, Frederick P., Oxford, N. Y. Punching-tool	519,626	May 8	1247	299	67	785
Brooks, James W., trustee. (See Fairfield, Hadley P., assignor.)						
Brooks, Robert A., Denver, Colo. Hydrant	519,660	May 8	1301	311	67	795
Brooks, Stephen H., assignor to E. A. Peirce, New York, and J. O. Cox, Brooklyn, N. Y. Dental handpiece	518,175	Apr. 10	1262	318	67	246
Broomhead, John W. (See Bell, Broomhead, and Jones.)						
Brower, John. (See Nichols, Emory I., assignor.)						
Brown, Arthur G., Elmira, N. Y. Pill-machine	519,525	May 8	1075	257	67	755
Brown, Charles D., Ames, Iowa. Clock striking apparatus	517,838	Apr. 10	696	176	67	150
Brown, Charles F. (See Ethridge and Waite, assignors.)						
Brown, Charlie E., Stayton, Oreg. Motor or pump	522,102	June 26	2400	576, 577	67	1685
Brown & Co., L. W. (See Gay, Chauncey W., assignor.)						
Brown, Davis, assignor of one-half to Decatur Leader Manufacturing Company, Decatur, Ill. Re-press brick-machine	518,643	Apr. 24	2088	520, 521	67	427
Brown, Edward, Philadelphia, Pa. Pyrometer	520,875	June 5	217	49	67	1237
Brown, Frank, Cincinnati, Ohio. Railway-switch	517,727	Apr. 3	525	127	67	102
Brown, George W., Deering, Me. Commutator-brush	518,913	Apr. 24	2552	631	67	511
Brown, Harold P., New York, N. Y. Electric-motor car	518,221	Apr. 17	1362	339, 340, 341	67	982
Brown, Harold P., assignor to Edison General Electric Company, New York, N. Y. Electric motor	518,561	Apr. 17	1942	480, 481	67	3 6
Brown, Harold P., assignor to Edison General Electric Company, New York, N. Y. Armature for electric motors	518,562	Apr. 17	1948	481	67	387
Brown, Horace F., Chicago, Ill. Ore-roasting furnace	519,317	May 8	687	168, 169, 170	67	684
Brown, James M., *et al.* (See Bow, Richard, assignor.)						
Brown, John J., Baltimore, Md. Tubular boiler	521,150	June 12	704	164, 165	67	1337
Brown, John W., Jr., Philadelphia, Pa. Cherry-stoner	521,011	June 5	466	111	67	1280
Brown, John W., Jr., assignor to Enterprise Manufacturing Company, Philadelphia, Pa. Drilling-machine	518,176	Apr. 10	1264	318	67	246
Brown, John W., assignor to Collins Plow Company, Quincy, Ill. Harrow	518,912	Apr. 24	2552	630, 631	67	511
Brown, Joseph P., Somerset, Ky. Automatic air-brake	520,391	May 22	2535	613	67	1053
Brown, Julius C., Santa Barbara, Cal. Nut-lock	521,845	June 26	1935	464	67	1599
Brown, Morris H., Yonkers, N. Y. Rail or bar bender	520,876	June 5	219	49	67	1237
Brown, Philip C., Brooklyn, N. Y. Combined stool and foot-rest	518,935	May 1	2	1	67	537
Brown, Philip C., Washington, D. C. Car-coupling	519,300	May 1	646	158	67	662
Brown, Thomas M., Cleveland, Ohio. Electric-railway trolley	520,156	May 22	2146	523	67	978
Brown, Walter M. (See Lang, Henry H., assignor.)						
Brown, William K., *et al.*, executors. (See Buehler, Rudolph R., assignor.)						
Browne, Arthur S. (See Robinson, Charles H., assignor.)						
Browne, Arthur W., Prince's Bay, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental chair	519,756	May 15	1452	351, 352	67	836
Browne, Arthur W., Prince's Bay, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental chair	519,757	May 15	1455	352, 353	67	837
Browne, Arthur W., Prince's Bay, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental chair	519,758	May 15	1457	353	67	837
Browne, Arthur W., Prince's Bay, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental chair	519,883	May 15	1664	405	67	876
Browne, Arthur W., Prince's Bay, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental chair	519,884	May 15	1666	405	67	877
Browne, Arthur W., Prince's Bay, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Pulley-block	519,984	May 15	1823	447	67	906
Browne, Arthur W., Prince's Bay, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental chair	520,947	June 5	359	87	67	1262
Browne, Arthur W., Prince's Bay, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental chair	520,948	June 5	360	88	67	1263
Browne, Arthur W., Prince's Bay, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental chair	521,256	June 12	896	211, 212	67	1372
Brown, Arthur W., Prince's Bay, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental chair	521,257	June 12	898	212	67	1373
Browne & Dowd Manufacturing Company. (See Barnes, William A., assignor.)						
Browne, Frank E., Los Angeles, Cal. Appliance for heating, illuminating, or culinary purposes	521,201	June 12	796	187	67	1354
Browning, Frank W. (See Allen, Walter L., assignor.)						
Bruce, James W. (See Morton, Rufus J., assignor.)						
Bruch, Frederick W., and H. P. Eilers, assignors to Acme Machinery Company, Cleveland, Ohio. Bolt-cutter head	518,222	Apr. 17	1306	341	67	282
Bruen, William, assignor to M. Gould's Son & Co., Newark, N. J. Trunk-fastener	517,429	Apr. 3	13	3	67	5
Brulé, Edward, assignor of one-third to T. Thompson, Neillsville, Wis. Attachment for bedsteads	519,301	May 1	648	158	67	662
Brunemeyer, Leonhardt H., Aurora, Ill. Device for attaching pneumatic tires to wheel-rims	519,695	May 15	1361	329	67	820
Bruner, John B. (See Smith and Bruner.)						
Brunswick-Balke-Collender Company. (See Huss, William C., assignor.) (Reissue.)						
Brush, George E., Danbury, Conn. Machine for pouncing brims of hats	518,661	Apr. 24	2117	529, 530	67	432

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Brustlein, Henri A., Unieux, France. Hardening projectiles and apparatus therefor	519,232	May 1	526	127	67	639
Bryant, Alexander, New York, N. Y. Pipe-hanger	519,318	May 8	693	170	67	685
Bryant, Alexander, New York, N. Y. Pipe-coupling	520,514	May 29	2741	664	67	1105
Bryant, Walter F. (See Hurley, Joseph M., assignor.)						
Bryce, Andrew, Allegheny, assignor of nine-twentieths to C. A. O'Brien, Pittsburg, Pa. Spraying-machine	520,766	June 5	8	2	67	1198
Buchanan, John W., Smithville, Ohio. Wire fence	519,759	May 15	1458	353	67	837
Buck, Francena M., Spokane, Wash. Attachment for pails	519,233	May 1	529	127	67	640
Buck, Henry, Mount Morris, Ill. Fence-wire-tightening device	519,940	May 15	1749	429	67	892
Buck, James A., Crescent, N. Y. Potato-digger	517,516	Apr. 3	164	37	67	33
Buckbee, Charles E., assignor of one-half to J. K. Clark, Flushing, Mich. Pendulum-escapement	521,012	June 5	467	111	67	1281
Buckley, Margaret L., Freeport, Pa. Shield for pitchers, &c	517,789	Apr. 3	626	156	67	121
Bucklin Copy-Holder Company. (See Bucklin, John E., assignor.)						
Bucklin, John E., Washington, D. C., assignor to Bucklin Copy-Holder Company, Richmond, Va. Copy-holder	521,633	June 19	1576	368	67	1514
Buckwalter, Charles S., Royersford, Pa. Clothes-line fastener	519,596	May 8	1076	257	67	755
Budington, Albert G., Austin, Tex. Metallic cross-tie	517,915	Apr. 10	818	205	67	172
Buecher, August, Heidelberg, Germany. Preparation for protecting metals against corrosion	521,600	June 19	1515	.....	67	1503
Buehler, Rudolph R., Philadelphia, Pa., assignor to T. Devlin and L. J. McGrath, W. K. Brown, and C. A. McGrath, executors of W. V. McGrath, deceased. Hot-air register	521,973	June 26	2179	523	67	1645
Buffalo Dental Manufacturing Company. (See Lewis, Theodore G., assignor.)						
Buffington, Frank P., and J. T. Sutphen, Middletown, Ohio. Apparatus for coating paper	520,402	May 22	2552	616	67	1056
Buffington, Leroy S., Minneapolis, Minn. Burglar-alarm	521,151	June 12	706	{165 166}	{67}	1338
Buford, James R., and J. Geery, Lancaster, Mo. Hay-derrick	518,584	Apr. 24	1990	492	67	410
Buford, Jefferson L., Birmingham, Ala. Distance-measuring instrument	519,319	May 8	694	{170 171}	{67}	685
Bugbee, Benajah U., and J. Reno, assignors to Southbridge Optical Company, Southbridge, Mass. Eyeglasses	517,430	Apr. 3	14	3	67	5
Bull, Annabell C., Peoria, Ill. Knee-protector	519,760	May 15	1459	354	67	838
Bull, Daniel M. (See Everett, Wilbur F., assignor.)						
Bull, Johannes C., Erith, England. Apparatus for smelting and refining copper	520,631	May 29	2933	709	67	1141
Bunce, George W. (See Schaefer, Peter, assignor.)						
Bunker, Herman, Barrie, assignor of one-third to W. P. Chapman, Hamilton, Canada. Clutch-pulley	521,281	June 12	935	221	67	1379
Bunnell, Morton G., assignor to F. C. Austin, Chicago, Ill. Road-scraper	520,479	May 29	2685	649	67	1095
Bunnell, Morton G., assignor to F. C. Austin, Chicago, Ill. Road-scraper	520,480	May 29	2686	{649 650}	{67}	1096
Burchard, Edward M., Hyattsville, Md. Heater and table	520,632	May 29	2935	709	67	1142
Burdett, Daniel B., *et al.* (See Butterfield, Fessenden C., assignor.)						
Burdett, J. B. (See Rowntree, Harold, assignor.)						
Burge, Walter, *et al.* (See Shank, Charles A., assignor.)						
Burgess, Andrew, Buffalo, N. Y. Inertia-piece, releasing second barrel by recoil of first	520,559	May 29	2817	680	67	1120
Burgess, Andrew, Buffalo, N. Y. Folding gun	521,202	June 12	799	{187 188}	{67}	1355
Burgess, Andrew, Owego, N. Y., assignor to Burgess Gun Company. Recoil-operated fire-arm	520,752	May 29	3144	761	67	1179
Burgess, Andrew, Owego, N. Y., assignor to Burgess Gun Company. Recoil-operated magazine-gun	520,753	May 29	3146	762	67	1180
Burgess, Benjamin A., Hamilton, Canada. Lubricator	518,585	Apr. 24	1992	493	67	410
Burgess Gun Company. (See Burgess, Andrew, assignor.)						
Burgesser, George, *et al.* (See Cook, George, assignor.)						
Burgevin, Francis E., Burgevin, Ind. Ter. Wrench	521,582	June 19	1483	347	67	1498
Burghardt, Christian. (See Sinks, David, assignor.)						
Burgstaller, Georg, Pressburg, Austria-Hungary. Nailless horseshoe	520,409	May 29	2567	621	67	1075
Burk, Henry. (See Norris and Burk.)						
Burke, John J., assignor to M. A. Burke, Buffalo, N. Y. Pipe-coupling	522,005	June 26	2251	540	67	1657
Burke, Mary A. (See Burke, John J., assignor.)						
Burkhart, John D., C. H. Waterman, and J. D. Smith, Dayton, Wash. Plow	518,936	May 1	3	1	67	537
Burkholder, Jacob S. (See Boyens and Burkholder.)						
Burmeister, Frederick, assignor to Kean & Doty Manufacturing Company, Cleveland, Ohio. Sash-fastener	520,754	May 29	3150	763	67	1180
Burnell, Milo S., *et al.* (See Boomhower, Eli E., assignor.)						
Burnett, Henry D., Lynn, and S. E. Doane, Swampscott, Mass., assignors to General Electric Company, of New York. Apparatus for working glass	520,767	June 5	10	3	67	1198
Burnett, Thomas B., Mulvane, Kans. Halter	521,457	June 19	1272	296	67	1460
Burnham, Dorr B. (See Burnham, Frank A., assignor.)						
Burnham, Frank A., assignor of one-half to D. B. Burnham, Battle Creek, Mich. Direct-acting steam-pump	519,857	May 15	1621	{394 395}	{67}	868
Burnham, John P., assignor to T. Wilce, Chicago, Ill. Machine for matching ends of flooring boards	518,804	Apr. 24	2375	588	67	477
Burnham, William W., Newton, Mass., assignor to Electric Gas Lighting Company, Portland, Me. Electric battery	520,033	May 22	1911	468	67	937
Burns, Albert J., Fairport, N. Y. Pneumatic tire	521,330	June 12	1025	241	67	1396
Burns, Arthur H., Penn Yan, N. Y. Oar	517,999	Apr. 10	979	243	67	197
Burns, Philip, Norwich, Conn. Safety-bolt	521,458	June 19	1273	296	67	1460
Burns, Walter G., Fort Wayne, Ind. Game apparatus	517,600	Apr. 3	298	69	67	59
Burns, William M. (See Snead and Burns.)						
Burroughs, George M. (See Roberts and Burroughs.)						
Burrowes, Edward T. (See Anderson, Oliver, assignor.)						
Burrows, Joseph H., Globe, Ariz. Ter., assignor to G. Hyman, San Francisco, Cal. Nut-lock	517,728	Apr. 3	525	127	67	102
Burson, Harvy, Wichita, Kans., assignor of one-third to J. H. Elspass, J. H. Wheeler, Pueblo, Colo., J. M. Ware, Arkansas City, Kans., and T. Russell, Pueblo, Colo. Ore-crushing mill	518,563	Apr. 17	1950	{481 482}	{67}	388
Burson, William W., Chicago, Ill. Bundle-carrier	519,834	May 15	1580	387	67	861
Burt, George H., Milburn, N. J. Billiard-ball	517,972	Apr. 10	919	230	67	188
Burton, Augustus G., and D. S. Covert, Chicago, Ill. Safe-lock	522,103	June 26	2402	{577 578}	{67}	1685
Burton, Charles C., Utica, N. Y., assignor of part to G. M. Ludlow, Chicago, Ill., L. E. Holden, Beloit, Wis., C. G. Hussey, Allegheny, and J. C. des Granges, Pittsburg, Pa. Elevated railway	518,564	Apr. 17	1952	482	67	388

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Burton, Charles C., assignor of part to G. M. Ludlow, Chicago, Ill., L. E. Holden, Beloit, Wis., C. G. Hussey, Allegheny, and J. C. des Granges, Pittsburg, Pa. Railway track and car	518,565	Apr. 17	1955	483	67	388
Burton, George D., Boston, Mass. Electric heating apparatus	521,099	June 5	621	146	67	1308
Burton, William. (See Tranter, Benjamin, assignor.)						
Burton, William L., and H. Meyerding, New Orleans, La. Lumber-drier	521,846	June 26	1936	464	67	1599
Bushell, William P. (See Kline, William H., assignor.)						
Butcher, Robert, New York, N. Y. Machine for heating and mixing asphalt	520,560	May 29	2920	681	67	1121
Butler, Albert. (See Tickner and Butler.)						
Butler, Henry G., Kenosha, Wis. Scraper	519,835	May 15	1583	387	67	862
Butler, James H. (See Beltzer, Joseph, assignor.)						
Butler, Joseph, Marion, Ind. Metallurgic furnace	519,985	May 15	1824	447	67	906
Butler, Joseph B., Brooklyn, N. Y. Ice-cream freezer	521,013	June 5	468	112	67	1281
Butler, Joseph C., New Providence, Iowa. Mechanical movement	521,780	June 26	1840	438	67	1580
Butler, Thomas H. (See Levey, Butler, and MacDonald.)						
Büttel, Harry B., Newark, N. J. Railway-switch	521,014	June 5	469	112	67	1281
Butterfield, Fessenden C., Minneapolis, Minn., assignor of three-fourths to L. S. Cass, Sumner, Iowa, and D. B. Burdett, Minneapolis, Minn. Furnace for treating refractory ores	518,662	Apr. 24	2120	{530 531}	{67}	439
Butz, Walter D., Norristown, Pa. Clutch for machinery	518,051	Apr. 10	1064	269	67	210
Buys, Adrian, Grand Rapids, Mich. Combined barrel truck and stand	520,104	May 22	2032	495	67	960
Buzby, Charles E., assignor to F. A. Riehle, Philadelphia, Pa. Electric apparatus for automatic weighing	521,331	June 12	1026	241	67	1396
Byars, W. H. (See Whipple, William R., assignor.)						
Byers, John F., assignor to John F. Byers Machine Company, Ravenna, Ohio. Pneumatic clutch	517,679	Apr. 3	446	108	67	86
Byler, Oliver C., Holden, Mo. Churn	517,431	Apr. 3	15	3,4	67	5
Byrd, Walter M., Mount Gilead, assignor of one-half to W. D. and A. D. Clark, Fly, N. C. Rotary steam-engine	517,790	Apr. 3	627	157	67	122
Byrne, Michael, New York, N. Y. Thermometer	518,442	Apr. 17	1752	435	67	353
C. B. Cottrell & Sons Company. (See Cottrell, Charles P., assignor.)						
C. & C. Electric Company. (See Fay, Thomas J., assignor.)						
C. F. Zimmermann Company. (See Gery and Dolge, assignors.)						
C. F. Zimmermann Company. (See Richie, Walter J., assignor.)						
Cable, Daniel J., Pittsburg, Pa. Lock	517,729	Apr. 3	527	{127 128}	{67}	102
Caddy, Thomas E., Nottingham, England. Furnace	521,203	June 12	802	{188 189}	{67}	1355
Caffall, Edward M., assignor of one-half to C. W. Jackson, Baltimore, Md. Preserving articles or structures	520,819	June 5	113	.....	67	1217
Cahall, H. E., *et al.* (See Cahall, John, assignor.)						
Cahall, John, assignor to H. E. and W. H. Cahall, Mansfield, Ohio. Steam-boiler	518,519	Apr. 17	1878	465	67	375
Cahall, W. H., *et al.* (See Cahall, John, assignor.)						
Cahen, Marcus, Mülheim, Germany. Skinning-knife	518,223	Apr. 17	1367	342	67	283
Cahill, Thaddeus, New York, N. Y. Pianoforte-action	520,667	May 29	2990	{723 724}	{67}	1152
Cain, Wesley A., Medicine Lodge, Kans. Portable and adjustable support for hose-nozzles	518,986	May 1	81	21	67	551
Caldwell, Edward P., assignor to Heath Rail Joint Company, Minneapolis, Minn. Rail-joint	519,904	May 15	1694	413	67	883
Caldwell, John A., Bay Ridge, N. Y. Steam-boiler	521,204	June 12	804	189	67	1356
Caldwell Manufacturing Company. (See Rosentreter, Frank L., assignor.)						
Caldwell, Peter, Jr., Warrington, England. Spade or shovel	519,104	May 1	281	66	67	589
Calhoun, John C. (See Gause, Benjamin, assignor.)						
Calkins, James H., assignor of one-half to T. J. McHugh, Wakefield, Mass. Self-attaching bolt	519,172	May 1	419	101	67	618
Callaway, John A., Lampasas, Tex. Tire-heater	521,928	June 26	2093	{502 503}	{67}	1629
Calvert, James G., Gothenburg, Sweden. Feed-water heater	518,019	Apr. 10	1005	{252 253}	{67}	202
Cameron, Alexander. (See Clark, Cameron, and Kirk.)						
Cameron, James W., New York, N. Y. Hand-wheel guard	520,410	May 29	2565	621	67	1075
Cameron, Neill C., Ben Wheeler, Tex. Method of and apparatus for making concrete monuments	521,929	June 26	2094	503	67	1630
Camp, James A., Minneapolis, Minn. Siphon	518,663	Apr. 24	2124	532	67	433
Campbell, Andrew C., assignor to Waterbury Farrel Foundry and Machine Company, Waterbury, Conn. Automatic stop-clutch	519,173	May 1	420	102	67	618
Campbell, Andrew C., assignor to Waterbury Farrel Foundry and Machine Company, Waterbury, Conn. Double-acting toggle-press	519,174	May 1	423	{102 103 104}	{67}	619
Campbell, Gardiner, deceased, and G. G.; H. C. and I. Campbell and M. A. Millard, executors and assignors to G. G. and H. E. Campbell, Milwaukee, Wis. Water-supply system for fire pumps or engines	518,776	Apr. 24	2326	577	67	469
Campbell, George G. (See Campbell, Gardiner and G. G.)						
Campbell, Henry. (See Wagner, Marr, and Campbell.)						
Campbell, Henry C., *et al.*, executors. (See Campbell, Gardiner and G. G.)						
Campbell, Henry C., assignor to W. N. Campbell, Tarrytown, N. Y. Closure for barrels, &c	518,052	Apr. 10	1066	269	67	211
Campbell, Henry E., *et al.* (See Campbell, Gardiner and G. G., assignors.)						
Campbell, Henry F., assignor to G. B. James, trustee, Malden, Mass. Hoop-dressing machine	519,401	May 8	849	205	67	715
Campbell, Humphrey B., Atlanta, Ga. Shaft-setting device	521,306	June 12	986	233	67	1388
Campbell, Isabella, *et al.*, executors. (See Campbell, Gardiner and G. G.)						
Campbell, James, Brooklyn, N. Y. Life-guard for street-cars	519,402	May 8	851	206	67	715
Campbell, James W., Ursa, Ill. Seeder and planter	519,986	May 15	1825	447	67	906
Campbell, Joseph E., assignor of one-half to E. R. Swetnam, Fairfax Station, Va. Tire-bolt wrench	522,104	June 26	2406	578	67	1686
Campbell, Lute E., Arkansas City, Kans. Toe-weight	520,352	May 22	2477	600	67	1041
Campbell, Malcolm, Boston, Mass., assignor to Woonsocket Machine and Press Company, Woonsocket, R. I. Clutch	520,949	June 5	361	88	67	1263
Campbell, Mary L., Novan, Canada. Hammer-guard for firearms	521,533	June 19	1405	325	67	1483
Campbell, Thomas R., Cambridge, Mass. Truck	517,642	Apr. 3	374	89	67	73
Campbell, William. (See Lehmann, Carl F. W., assignor.)						
Campbell, William N. (See Campbell, Henry C., assignor.)						
Campbell, William S. (See Johnson and Campbell.)						
Canda, Ferdinand E., New York, N. Y. Refrigerator-car	522,105	June 26	2407	578	67	1686

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Drg.	Vol.	Page.
Canet, Jean B. G. A., Paris, France, assignor of one-half to Sir Joseph Whitworth & Company, Limited, Manchester, England. Safety breech-lock for guns	519,661	May 8	1302	311	67	795
Canet, Jean B. G. A., Paris, France, assignor of one-half to Sir Joseph Whitworth & Company, Limited, Openshaw, England. Automatically-operated breech mechanism for guns.	521,400	June 12	1148	272, 273	67	1421
Cannon, Arnout. (See Florence, George L., assignor.)						
Cannon, Corodon S., Battle Creek, Mich. Metallic vehicle-wheel	517,791	Apr. 3	628	157	67	122
Cantine, Martin. (See Jewett, Francis A., assignor.)						
Capewell, George J., Hartford, Conn. Combination-tool	519,033	May 1	154	36, 37	67	566
Capewell, George J., Hartford, Conn. Nail-puller	519,034	May 1	156	37	67	566
Capital Cash Register Company. (See Cook, George F., assignor.)						
Carbone, Giovanni G., Genoa, Italy. Paper box for matches	518,687	Apr. 24	2162	541	67	441
Card, Frank S. (See Card, William L. and F. S.)						
Card, William L. and F. S., St. Louis, Mo. Apparatus for concentrating ores	519,987	May 15	1827	448	67	906
Cardarelli, Emilio, assignor of one-half to G. W. Dick, Sumter, S. C. Fire-escape truck	519,234	May 1	529	127, 128	67	640
Carey, Augustus C., Lake Pleasant, Mass. Incandescent lamp	517,432	Apr. 3	16	4	67	6
Carlisle, William N., assignor of one-half to G. H. Paine, Detroit, Mich. Toe-weight	518,206	Apr. 10	1329	332	67	260
Carlson, Andrew. (See Stromberg and Carlson.)						
Carlson, Charles, Deer Trail, Colo. Wrench	520,392	May 22	2538	613	67	1053
Carlyle, George, assignor to Standard Pearl Button Company, Limited, Detroit, Mich. Button-machine	520,913	June 5	296	72	67	1251
Carlyle, George, Detroit, Mich., assignor to H. W. Crouse, trustee, New York, N. Y. Button-drilling machine	520,914	June 5	298	72	67	1251
Carlyle, George, assignor to Standard Pearl Button Company, Limited, Detroit, Mich. Apparatus for forming pearl buttons	522,044	June 26	2307	553, 554	67	1668
Carman, Isaac L., North Salem, assignor of one-half to J. H. McGee, Max, Ind. Tire-tightener	517,813	Apr. 3	662	165	67	128
Carmichael, Henry, Malden, Mass. Method of and apparatus for electrochemical decomposition	518,710	Apr. 24	2209	551, 552, 553	67	448
Carmichael, Henry, Malden, Mass. Magnetic separator	521,906	June 26	2046	493	67	1621
Carmichael, William T. (See Waggoner and Carmichael.)						
Carnahan, Charles M., Newport, Ky., assignor to Globe Company, Cincinnati, Ohio. Envelope	521,431	June 12	1202	285	67	1430
Carnes, John, assignor of two-thirds to J. Walters and A. H. Middleton, Youngstown, Ohio. Railway switch-rod	518,020	Apr 10	1008	253	67	202
Carpenter, Adelbert, assignor to Monitor Manufacturing Company, Minneapolis, Minn. Grain-drill	520,843	June 5	102	36	67	1227
Carpenter, Charles F., Louisville, Ky. Electromagnetic tool	519,662	May 8	1304	311	67	795
Carpenter, Charles W., *et al.* (See Crowell, Luther C., assignor.)						
Carpenter, Daniel A., New York, N. Y. Machine for attaching buttons to garments	519,788	May 15	1513	368, 369	67	848
Carpenter, George M., *et al.* (See Chace, James S., assignor.)						
Carpenter, Horatio N., Riley, Mich. Loading apparatus	519,988	May 15	1836	448	67	908
Carpenter, James C., *et al.* (See Markley, John A., assignor.)						
Carpenter, Rolla C., Ithaca, N. Y., assignor to Schäffer & Budenberg, Magdeburg-Buckau, Germany, and New York, N. Y. Apparatus for testing indicator-springs and steam-gages.	519,235	May 1	535	129	67	641
Carr, Charles H., Lynn, Mass. Bicycle	518,777	Apr. 24	2329	577	67	470
Carr, Florence M., assignor to F. M. Carr Manufacturing Company, Chicago, Ill. Ornamental grille-work	519,663	May 8	1305	312	67	796
Carr, Obed W. (See Farrar, William B., assignor.)						
Carr, Oma, Washington, D. C. Apparatus for charging sugar-cane carriers	517,730	Apr. 3	528	128, 129	67	103
Carr, Robert, Newburg, N. Y. Fifth-wheel for vehicles	518,688	Apr. 24	2163	541	67	441
Carr, Robert S., Hamilton, Ohio, assignor to F. C. Ball, Muncie, Ind. Jar-fastening	517,433	Apr. 3	18	4	67	6
Carrick, John. (See Malone, Frank P., assignor.)						
Carroll, John, assignor to Chicago Stamping Company, Chicago, Ill. Machine for flanging sheet metal	519,527	May 8	1077	258, 259	67	755
Carroll, Thomas, assignor to Hubinger Carroll Cash Register Company, New Haven, Conn. Cash-register	521,332	June 12	1027	241, 242, 243	67	1397
Carroll, Thomas, assignor to Hubinger Carroll Cash Register Company, New Haven, Conn. Total-adding cash-register	521,333	June 12	1031	243, 244, 245	67	1397
Carroll, Thomas, assignor to Hubinger Carroll Cash Register Company, New Haven, Conn. Cash register and indicator	521,334	June 12	1043	245	67	1400
Carroll, Thomas P., Franklin Furnace, N. J. Car-coupling	519,696	May 15	1362	329	67	820
Carse, John B., assignor to T. Kane, Chicago, Ill. Gas-engine	518,177	Apr. 10	1266	319	67	246
Carse, John B., assignor to T. Kane, Chicago, Ill. Gas-engine	518,178	Apr. 10	1267	319	67	246
Carson, Robert N., and A. A. Martin, assignors to E. T. Allen Company, San Francisco, Cal. Boxing-glove	522,106	June 26	2410	579	67	1686
Carson, William, Jr., *et al.* (See Lyon, William, assignor.)						
Carstein, Hans L., Cambridge, Mass. Coal-conveyer	520,133	May 22	2104	511, 512	67	971
Carstens, Charles B., administrator. (See Müller, Charles L. F.)						
Carter Car-Brake Company. (See Carter, Clarence W., assignor.)						
Carter, Charles W. (See Seaberg, John A. W., assignor.)						
Carter, Clarence W., assignor to Carter Car-Brake Company, Minneapolis, Minn. Car-brake	520,821	June 5	116	25, 26	67	1218
Carter, Henry C., East Orange, N. J. Cover for butter-receptacles, &c	521,634	June 19	1577	368	67	1514
Carter, Isaac T., Indianola, Iowa. Folding poultry-coop	521,781	June 26	1841	438	67	1580
Carter, John J. (See Carter, William J. and J. J.)						
Carter, Joseph, Blyth, Canada. Checkrein-support	521,015	June 5	470	112	67	1281
Carter, Thomas H., Walnut, Miss. Brake for side-bar vehicles	521,459	June 19	1274	297	67	1460
Carter, William, J. W. Dawson, and J. Meyrick, Jr., assignors of one-fourth to H. F. Donegan, Louisville, Ky. Signal-light fixture	520,820	June 5	114	25	67	1218
Carter, William J. and J. J., Dublin, Ga. Journal-bearing	520,295	May 22	2377	577	67	1022
Carty, John J., New York, N. Y., assignor to Western Electric Company, Chicago, Ill. Telephone-transmitter from secondary batteries	518,392	Apr. 17	1664	410	67	337
Carver Cotton Gin Company. (See Churchill and Baxter, assignors.)						
Carver, Thomas F. (See McMahon and Carver.)						
Cary, Henry B., Los Angeles, Cal. Car-brake	517,601	Apr. 3	300	69	67	59
Case, Estella, New York, N. Y. Bustle	517,434	Apr. 3	19	4	67	6
Casey, James. (See Warren and Casey.)						
Casey, Selden S., London, Canada. Wire-fabric tool	521,635	June 19	1578	369	67	1514

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Drg.	Vol.	Page.
Cash, Arthur W., assignor to Armstrong Manufacturing Company, Bridgeport, Conn. Pipe threading and cutting-off machine	519,175	May 1	425	104	67	620
Casler, Herman, Syracuse, assignor of one-half to H. N. Marvin, Schenectady, N. Y. Camera	517,539	Apr. 3	198	45	67	40
Casper, Charles F., and T. S. Darling, Conewango, N. Y. Clothes-drier	519,378	May 8	808	197	67	707
Cass, Louis S., *et al.* (See Butterfield, Fessenden C., assignor.)						
Cassaday, Ernest R., and W. Weaver, Philadelphia, Pa. Lumber-load binder	518,267	Apr. 10	1330	332	67	260
Cassard, Harry L., Baltimore, Md. Puzzle	519,989	May 15	1836	449	67	908
Cassel, Henry B., *et al.* (See Werline, Henry E., assignor.)						
Cassella & Co., Leopold. (See Weinberg, Arthur, assignor.)						
Casson, John J. (See Casson, William N., assignor.)						
Casson, William N., assignor of one-half to J. J. Casson, Marinette, Wis. Hose-reel	517,731	Apr. 3	531	129	67	103
Casswell, Richard H., assignor to C. H. Slawson, S. King, Ingersoll, and J. S. Pearce, London, Canada. Milk-purifier	517,814	Apr. 3	663	166	67	129
Castleman, William I., assignor of one-half to P. G. Ditterline, Allen's Spring, Ill. Portable furnace	519,236	May 1	536	129	67	642
Castner, Hamilton Y., London, England. Electrolytic apparatus	518,135	Apr. 10	1194	300	67	234
Catanach, Adam A., *et al.* (See Shank, Charles A., assignor.)						
Cates, Owen G., Jr., St. Louis, Mo. Railway-car	517,517	Apr. 3	166	37	67	34
Cates, Owen G., Jr., St. Louis, Mo. Search-light	521,601	June 19	1517	355	67	1503
Cates, Owen G., Jr., St. Louis, Mo. Trolley-pole catcher	521,602	June 19	1518	355	67	1503
Cattlow, Edward, Philadelphia, Pa. Manufacturing chenille	520,400	May 22	2547	615	67	1055
Cavalier, Peter F., Clyde, Ohio. Check-hook	518,937	May 1	5	1	67	537
Cawdery, John W., London, England. Gravity-railway	518,224	Apr. 17	1367	342	67	283
Cawley, George, London, England. Steam-boiler	518,443	Apr. 17	1754	435	67	354
Cayley, Claud T., London, England. Manufacture of metal tubes	520,296	May 22	2378	577	67	1022
Celluloid Company. (See Stevens, John H., assignor.)						
Central Cycle Manufacturing Company. (See Wainwright, Lucius M., assignor.)						
Ceovich, Pasco, Seattle, Wash. Carpet-fastener	521,534	June 19	1406	325	67	1483
Ceramic Paving Stone Company. (See Krahe, Carl, assignor.)						
Cereal Machine Company. (See Perky, Henry D., assignor.)						
Cermak, Vaclav, Cleveland, Ohio. Washing-machine	517,839	Apr. 10	697	177	67	150
Chace, James S., Brockton, assignor of two-thirds to G. M. Carpenter, Everett, and F. W. Sisson, Fair Haven, Mass. Thrust-bearing for wheels, &c	518,393	Apr. 17	1665	411	67	337
Chadwell, James, Defoe, Ky. Hand-planter	520,726	May 29	3102	751	67	1172
Chaloupka, August G. (See Smith, Orson W., assignor.)						
Chamberland, Charles E., Paris, France. Filter	519,664	May 8	1306	312	67	796
Chamberlin, John V. (See Knapp and Chamberlin.)						
Chambers, Frank, and T. Doud, Camden, N. J.; said Chambers assignor to H. K. Thomas, New York county, N. Y. Stop-off motion for knitting-machines	519,690	May 8	1351	326	67	804
Chambers, Richard B., West Chester, assignor to C. M. Black, Chester, Pa. Automatic cycle-support	518,914	Apr. 24	2553	631	67	511
Chambers, Richard B., assignor to C. M. Black, Chester, Pa. Combination pencil sharpener, grinder, protector, and eraser	521,016	June 5	471	112	67	1282
Chambers, Richard B., assignor to C. M. Black, Chester, Pa. Flexible-belt fender for street-railway cars	522,147	June 26	2485	596	67	1702
Chambers, Solomon, assignor of one-half to J. G. Meyers, Bay City, Mich. Reclining-chair	518,751	Apr. 24	2289	569	67	461
Chambers, William. (See Kirker and Chambers.)						
Champion Cash Register Company. (See Geiger, Harry M., assignor.)						
Champlin, Amos F., Waterbury, assignor to Hendey Machine Company, Torrington, Conn. Reversing mechanism for metal shaping and planing machines	519,941	May 15	1750	429, 430	67	892
Chandler, George W., and J. C. Dale, Manhattan, Kans. Car-brake	517,916	Apr. 10	820	205	67	172
Chaplin, Edwin D., Natick, Mass. Vacuum-pump	521,432	June 12	1203	285, 286	67	1430
Chapman, Franklin. (See Bennett and Chapman.)						
Chapman, Harry. (See Graham and Chapman.)						
Chapman, Joseph L., Haddonfield, N. J. Steam-trap	518,053	Apr. 10	1067	269	67	211
Chapman, Walter P. (See Bunker, Herman, assignor.)						
Chappell, Thomas C., Baltimore, Md. Letter-box	522,045	June 26	2309	554	67	1668
Charlton, Thomas Denver, Colo., and K. M. Mitchell, St. Joseph, Mo. Process of and apparatus for manufacturing aqua-ammonia	521,401	June 12	1150	273	67	1422
Chase, Charles A., Houlton, Me. Water-wheel	521,152	June 12	708	166	67	1338
Chase, Charles W. (See Birrer, John B., assignor.)						
Chase, Floyd T., Alvarado, Tex. Sanding device for locomotives	522,148	June 26	2487	596	67	1702
Chase, Henry A., Brooklyn, assignor to W. A. Force & Co., New York, N. Y. Engraving-machine	517,680	Apr. 3	447	108, 109	67	86
Chase, Joseph H. and J. B. Tracy, Meriden, Conn., assignors to Aeolian Organ and Music Company, New York, N. Y. Musical instrument	520,297	May 22	2380	578	67	1022
Chase, Zenas B., Bangor, Me. Lock-hinge	518,021	Apr. 10	1009	253	67	202
Chatain, Henri G., New York, N. Y. Car-fender	522,149	June 26	2488	597	67	1702
Chatten, Thomas E., Bethlehem, Pa. Wrench	520,411	May 29	2568	621	67	1075
Chazotte, Jean F., assignor of two-thirds to G. Maisons, 3d, and A. Roy, Montreal, Canada. Smoke-consuming furnace	517,540	Apr. 3	190	45	67	40
Chazotte, Jean F., assignor of two-thirds to G. Maisons, 3d, and A. Roy, Montreal, Canada. Garbage cremating furnace	520,105	May 22	2033	496	67	960
Cheney, William S., *et al.* (See Boomhower, Eli E., assignor.)						
Chesebro, Denison P., *et al.* (See Maurer, Ludwig, assignor.)						
Chesney, Cummings C. (See Kelly and Chesney.)						
Chicago Corrugated Elbow Company. (See Syversen, Andreas, assignor.)						
Chicago Stamping Company. (See Carroll, John, assignor.)						
Chicago Stamping Company. (See James, William A., assignor.)						
Chichester, Elizabeth H. (See Chichester, Lemuel A., assignor.)						
Chichester, Lemuel A., assignor to National Chair Manufacturing Company, Phœnicia, N. Y. Convertible chair	517,946	Apr. 10	865	218	67	180
Chichester, Lemuel A., assignor to E. H. Chichester, Chichester, N. Y. Child's or invalid's chair	519,443	May 8	913	220	67	727
Childs, A. H., *et al.* (See Curry, James H., assignor.)						
Childs, James, and C. J. Jones, London, England. Apparatus used in making infusions and maintaining supplies of hot water or liquid	521,229	June 12	849	198, 199	67	1364
Childs, Sumner W. (See McTighe and Childs.)						
Childs, William H. H., New York, N. Y. Enameling paper or other fabrics	517,732	Apr. 3	532	129	67	104
Chittenden, Giles E., Niles, Cal. Step-ladder	520,202	May 22	2224	541	67	993
Chittick, S. (See Hayden, Henry A., assignor.)						
Choate, Parker C., New York, N. Y., assignor to Electrical Zinc Company, of New Jersey. Producing metallic zinc	518,711	Apr. 21	2219	553	67	449

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Choate, Parker C., New York, N. Y., assignor to Electrical Zinc Company, of New Jersey. Producing metallic zinc	518,732	Apr. 24	2259	561	67	456
Chormann Ernest G., Philadelphia, Pa. Folding table	519,379	May 8	809	197	67	708
Chouteau, Pierre, St. Louis, Mo. Engine	519,147	May 1	367	87, 88	67	609
Chouteau, Pierre, St. Louis, Mo. Direct-acting engine	520,915	June 5	299	73	67	1252
Christensen, Richard M., New York, N. Y. Line-fastener	521,847	June 26	1938	465	67	1599
Christie, George B., J. Lowe, and G. A. Lederle, Chicago, Ill. Apparatus for excavating ditches	521,700	June 19	1680	394	67	1535
Christie, John. (See Mather and Christie.)						
Christie, Peter H., Clove, N. Y. Fence	521,759	June 19	1802	427	67	1556
Christopher, John M., Baltimore, Md. Electric heater for car sand-boxes	520,253	May 22	2310	560	67	1009
Christy, Enos J., Fremont, Ohio. Knife	519,237	May 1	537	129	67	642
Churan, Frank. (See Pozdena and Churan.)						
Church, Charles A., *et al.* (See English, Carl S., assignor.)						
Church, Duane H., Newton, Mass. Grinding-machine	517,643	Apr. 3	375	89, 90	67	73
Church, Duane H., Newton, Mass. Stem winding and setting watch	520,633	May 29	2936	710	67	1142
Church, Duane H., Newton, Mass. Jewel-piping machine	522,046	June 26	2311	554, 555	67	1669
Church, Dwight M., Willimantic, Conn., assignor of two-thirds to E. B. Foss, Bay City, Mich. Railway-switch	520,254	May 22	2311	560	67	1009
Church, Lawrence J. and M. J., Springfield, Mass. Envelope-machine	521,153	June 12	710	166, 167, 168	67	1338
Church, Michael J. (See Church, Lawrence J. and M. J.)						
Church, Walter C., London, England. Steam or other motive-fluid engine	519,238	May 1	538	129, 130, 131	67	642
Church, Walter C., London, England. Steam-engine	519,239	May 1	542	131, 132, 133	67	642
Churchill, Henry P. (See Scamman and Churchill.)						
Churchill, Newton, and W. C. Baxter, assignors to Carver Cotton Gin Company, East Bridgewater, Mass. Heel-breast finisher	520,768	June 5	11	3	67	1199
Churchill, Orlando E., and C. W. Bennett, Penn, Mich. Fence	519,420	May 8	878	213	67	720
Cinl, George W., and G. Maiwald, San Francisco, Cal. Safety gas-cock	518,091	Apr. 10	1124	284	67	221
Claar, Henry, Hawkeye, Kans. Corn-harvester	519,836	May 15	1585	388	67	862
Clabaugh, William. (See Smith and Clabaugh.)						
Cladley, Frank E., Providence, R. I. Valve	520,203	May 22	2227	541	67	993
Clairmont, Ralph de, San Francisco, Cal. Bicycle stand or holder	519,016	May 1	124	30	67	559
Clark, A. D., *et al.* (See Byrd, Walter M., assignor.)						
Clark, Abner C., Spencer, Mass. Winker-brace	518,876	Apr. 24	2484	616	67	498
Clark, Alexander H., Fond du Lac, Wis., assignor of one-half to I. E. Clark, Denver, Colo. Piston-rod packing	517,563	Apr. 3	240	56	67	47
Clark, Bernard, Susquehanna, Pa. Throttle-valve	519,665	May 8	1308	312	67	796
Clark, Charles P., Jr., Newton, Mass. Freight-blank	520,353	May 22	2478	601	67	1041
Clark, Clement, Sandusky, Ohio, assignor of one-half to J. S Clark, Detroit, Mich. Bottle	521,636	June 19	1579	369	67	1515
Clark, David, Easton, Pa. Anchor	520,177	May 22	2181	531	67	985
Clark, David S., Kingston, Pa. Foot-rest attachment for chairs	518,244	Apr. 24	2090	521	67	427
Clark, Frank I., Baltimore, Md. Safety car-fender	520,255	May 22	2314	561	67	1009
Clark, Franklin D., Escanaba, Mich. Self clamping and locking trace-buckle	517,435	Apr. 3	20	5	67	6
Clark, Frederick O. (See Hazard, Dexter, assignor.)						
Clark, Frederick O. (See Hodgkins, Nelson D., assignor.)						
Clark, Isabella E. (See Clark, Alexander H., assignor.)						
Clark, John, Pontiac, Mich. Hand-pump	519,444	May 8	914	220	67	727
Clark, John H., assignor to Whittier Machine Company, Boston, Mass. Elevator	520,755	May 29	3151	763	67	1180
Clark, John K. (See Buckbee, Charles E., assignor.)						
Clark, John S. (See Clark, Clement, assignor.)						
Clark, Marcus C., *et al.* (See Braddock, Warren L., assignor.)						
Clark, Mason J., Caroline Centre, N. Y. Checkrein-loop	519,991	May 15	1840	449	67	908
Clark, Samuel F., Oil City, Pa. Hitching device for stock	521,782	June 26	1842	439	67	1580
Clark, Theodore E., Cleone, Oreg. Metal-punch	519,240	May 1	547	133	67	643
Clark, Theodore M., Newton, Mass. Camera	520,950	June 5	363	88	67	1263
Clark, W. D., *et al.* (See Byrd, Walter M., assignor.)						
Clark, William, Greenfield, Wis. Type-writing machine	519,320	May 8	697	171, 172	67	686
Clark, William A., Toronto, Canada. Machine for bottling milk	518,306	Apr. 17	1495	374	67	306
Clark, William A., assignor of one-half to T. L. O'Donnell, Rockford, Ill. Clamp for plow-irons	519,806	May 15	1541	376	67	853
Clark, William, A. Cameron, Sydney, and C. Kirk, North Sydney, New South Wales. Automatic flushing apparatus for urinals, &c	521,907	June 26	2050	494	67	1632
Clarke, Charles D., Merrill, Wis. Lumber-jack for railway-cars	521,100	June 5	622	146	67	1309
Clarke, Edward F., Duluth, Minn. Fireproof curtain for elevator-shafts	519,990	May 15	1838	449	67	908
Clarke, Francis B., *et al.*, executors. (See Babcock, George H.)						
Clarke, George W., assignor of one-half to E. Appel, Rochester, N. Y. Pneumatic sulky	522,150	June 26	2489	597	67	1702
Clarke, J. Bennett, *et al.*, executors. (See Babcock, George H.)						
Clarkson, Thomas, Sutton, England. Sampler for grain, minerals, &c	518,915	Apr. 24	2554	631, 632	67	512
Clary, Smith B., *et al.* (See Wylie, Chester L., assignor.)						
Claussen, Edward E. (See Lorenz and Claussen.)						
Claussen, Edward E., assignor to A. H. Walker, trustee, Hartford, Conn. Making paper bags	520,256	May 22	2315	561	67	1010
Claussen, Edward E., assignor to A. H. Walker, trustee, Hartford, Conn. Making paper bags	520,587	May 29	2865	693	67	1129
Claussen, Edward E., assignor to A. H. Walker, trustee, Hartford, Conn. Making paper bags	520,951	June 5	364	89	67	1264
Clawson, Clement C., Newark, N. J. Game apparatus	517,436	Apr. 3	21	5, 6	67	7
Clawson, Clement C., Newark, N. J. Coin-receiving apparatus	517,840	Apr. 10	698	177	67	150
Clawson, Leonard E., and J. A. McKerron, San Francisco, Cal. Sulky-brake	520,877	June 5	220	50	67	1237
Cleal, Joseph P., assignor to National Cash Register Company, Dayton, Ohio. Coin-display	521,637	June 19	1580	369, 370	67	1515
Cleal, Joseph P., assignor to National Cash Register Company, Dayton, Ohio. Cash-register	521,638	June 19	1583	370	67	1516
Cleary, Thomas J., Westfield, Mass. Polishing or buffing wheel	520,515	May 29	2743	664	67	1105
Cleary, Thomas J., Westfield, Mass. Buffing-wheel	520,516	May 29	2743	664	67	1105

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cleckley, Mary M., Augusta, Ga. Knockdown case	521,848	June 26	1939	465	67	1599
Clegg, Ralph, Longsight, England. Car starter and brake	520,134	May 22	2106	512, 513, 514	67	971
Cleland, John W., assignor to Specialty Company, Decatur, Ill. Device for copying manuscripts, &c	518,586	Apr. 24	1994	493	67	410
Clemens, Eliza J. M., Metropolis, Ill. Collapsible trunk	517,841	Apr. 10	701	177, 178	67	151
Clemens, Samuel M. (See Mead and Clemens.)						
Cleveland Faucet Company. (See Weatherhead, Edward H., assignor.)						
Cliff, Edward, Newark, N. J. Car-truck	521,205	June 12	805	189	67	1356
Clifton, Clifton W., New York, N. Y. Attachment for trunks	519,528	May 8	1081	259	67	756
Cline, George J., Goshen, Ind. Wire-stretcher	517,842	Apr. 10	703	178	67	151
Close, Walter R., Bangor, Me. Derrick	518,225	Apr. 17	1369	342	67	283
Closz, Charles, Webster City, Iowa. Grain cleaning and separating sieve	520,878	June 5	221	50	67	1238
Cloud, John W., Chicago, Ill. Wheel-hub	522,107	June 26	2411	579	67	1686
Cloud, John W., Chicago, Ill. Wheel-hub	519,807	May 15	1541	376	67	853
Clouse, William L. (See Jones and Clouse.)	519,808	May 15	1543	377	67	854
Clunies, Arthur B., assignor to Sill Stove Works, Rochester, N. Y. Cooking-stove	521,701	June 19	1681	394	67	1535
Coats, Arthur W., assignor of one-half to J. Bartlett, Ukiah, Cal. Folding crate	521,640	June 19	1585	371	67	1516
Coats, John V., Delhi, N. Y. Cannon-pinion for watches	520,298	May 22	2381	578	67	1022
Coats, Wallace M., Hillsdale Iowa. Door-stop	518,343	Apr. 17	1566	389	67	318
Coburn, Alonzo A., *et al.* (See Fenderson, Edward J., assignor.)						
Coburn, Walter S., Cambridge, Mass. Laundry-hanging rod	519,017	May 1	125	31	67	560
Cochran, Frederic B., Brooklyn, N. Y., assignor to Automatic Vending Company. Coin-actuated vending-machine	520,769	June 5	12	3, 4	67	1199
Cochran, John, Jr., Collins, assignor of one-half to S. F. Hurt, Stockton, Mo. Car-coupling	518,832	Apr. 24	2417	599	67	484
Cochran, Samuel. (See Neer, Harry M., assignor.)						
Cochran, William F., Osborne, Kans. Riding-harrow	519,321	May 8	700	172	67	687
Cochrane, Charles E., New York, N. Y. Hat-rack	520,634	May 29	2938	710	67	1142
Coffey, Barton H., New York, N. Y. Gas-engine valve-gear	517,541	Apr. 3	200	46, 47	67	40
Coffin, Arthur W., San Francisco, Cal. Registering toy bank	521,641	June 19	1587	371, 372	67	1516
Coffin, Charles L., Detroit, Mich. Apparatus for heating metal electrically	520,299	May 22	2382	578	67	1023
Coffin, Charles L., Detroit, Mich. Heating, welding, or working metals electrically	520,300	May 22	2384	579	67	1023
Coffin, Charles L., Detroit, Mich. Heating metals electrically	522,151	June 26	2490	597	67	1703
Coffin, Harvey R. T., Glens Falls, N. Y. Combined cup and base-piece	519,529	May 8	1083	259	67	756
Coghlan, Robert N., Karachi, India. Weighing apparatus	520,301	May 22	2384	579	67	1023
Cohen, Bernard. (See Cox, James M., assignor.)						
Coker, James W., assignor to himself and P. Skalla, Niles, Mich. Grain-meter	519,176	May 1	426	105	67	620
Colby, Caleb K., Brooklyn, N. Y. Watchcase	518,712	Apr. 24	2222	553	67	450
Cole, David S., Washington, Iowa. Photographic-camera multiplying attachment	517,733	Apr. 3	533	130	67	104
Cole, David S., Washington, Iowa. Photographic-camera multiplying attachment	520,034	May 22	1912	468	67	937
Cole, George A., and E. H. Taylor, Lynn, Mass.; said Taylor assignor to said Cole. Machine for grooving insoles	521,583	June 19	1485	347, 348	67	1498
Cole, I. R. (See Seaton, William, assignor.)						
Cole, Thomas C. (See Hiett and Cole.)						
Cole, Warren W., Portland, Me. Window-screen	517,602	Apr. 3	302	70	67	59
Colles, Edward G. T., Chicago, Ill. Combined feed-water heater and purifier	522,006	June 26	2252	540	67	1657
Collier, Arthur T., St. Albans, England, assignor to American Bell Telephone Company, Boston, Mass. Permanent magnet	518,092	Apr. 10	1126	284	67	221
Collier, Page B., and J. H. Dignard, Lakeport, Cal. Boiler	519,241	May 1	548	133, 134	67	643
Collins Automatic Pneumatic Switching Tubes Company. (See Collins, William G., assignor.)						
Collins, Caleb G., Woodsburg, N. Y. Stone and ore crusher	519,566	May 8	1139	274	67	767
Collins, George W., West Lebanon, Pa. Device for loading shocks of corn	518,487	Apr. 17	1819	450	67	365
Collins Plow Company. (See Brown, John W., assignor.)						
Collins, William G., New York, N. Y., assignor to Collins Antomatic Pneumatic Switching Tubes Company, of New Jersey. Dispatch-tube system	518,093	Apr. 10	1127	285	67	221
Collison, Alfred W., Chicago, Ill. Attachment for vertically adjusting window-shades	518,566	Apr. 17	1958	483	67	389
Colomes, Antoine, Clermont-Ferrand, France. Automatic life-preserver, buoy, &c	519,242	May 1	549	134	67	643
Columbian Manufacturing Company. (See Duncan, Samuel Q., assignor.)						
Columbian Pottery and Brick Kiln Company. (See Kunstman, William H. R., assignor.)						
Colvin, Frederick J., Hamden, Conn. Bit-stock	518,938	May 1	5	2	67	537
Comins, Frank B., Providence, R. I. Fire-pail	520,727	May 29	3103	751	67	1172
Comins, Thomas B., Boston, Mass. Device for attaching umbrellas	520,135	May 22	2109	514	67	971
Conant, Albert F., Boston, Mass. Sofa-bed	520,635	May 29	2939	710	67	1142
Conant, George P., assignor of two-thirds to H. B. Tyrrell and W. C. Quigley, Lake Geneva, Wis. Cloth-measuring machine	517,437	Apr. 3	25	6	67	7
Conant, Hezekiah, Lincoln, R. I. Gravity-escapement for clocks	519,421	May 8	880	213	67	721
Conde, Henry T., Indianapolis, Ind. Type-writer cabinet	517,843	Apr. 10	704	178	67	151
Condict, Nathan W., Jersey City, N. J. Pipe-joint	521,017	June 5	472	113	67	1282
Conger, Charles A., San Francisco, Cal. Buckle	520,588	May 29	2867	694	67	1130
Conkling, Allen, Chicago, Ill. Starching-machine	520,668	May 29	3001	724, 725	67	1153
Conkling, Gurdon, Glens Falls, N. Y. Feeding mechanism for magnetic separators	517,734	Apr. 3	534	130	67	104
Connell, William H., Wilmington, Del. Support for electric lights	518,713	Apr. 24	2223	553, 554	67	450
Conner, Charles K., New Philadelphia, Ill. Corn-harvesting machine	521,101	June 5	623	147	67	1309
Conner, Daniel E., Covington, Ky., assignor of one-half to J. W. Gallup, Cleveland, Ohio. Electric conductor for underground conduits	518,939	May 1	6	2	67	538
Connor, David. (See Seberg and Connor.)						
Conover, Chauncy E., Cincinnati, Ohio. Insulator	520,412	May 29	2569	622	67	1075
Conroy, Patrick J., Philadelphia, Pa. Tool for making pins, bolts, and rivets	520,636	May 29	2940	711	67	1143
Consolidated Brake Adjuster Company. (See Marshall, Waldo H., assignor.)						
Consolidated Car-Heating Company. (See McElroy, James F., assignor.)						
Consolidated Fastener Company. (See Raymond, Pierre A., assignor.)						
Consolidated Manufacturing Company. (See Besson, Hyppolite, assignor.)						
Converse, Edmund. (See Turner, William A., assignor.)						
Convert, Charles F. A., Chicago, Ill. Apparatus for releasing carbonic-acid gas	518,587	Apr. 24	1994	493, 494	67	411

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Convert, Charles F. A., assignor to Liquid Carbonic Acid Manufacturing Company, Chicago, Ill. Making fuel-gas from crude oil	517,681	Apr. 3	450	109	67	87
Conway, George M., Milwaukee, Wis. Furnace	520,035	May 22	1913	469	67	937
Conyngham, Philip, and W. R. Gibbons, Wilkes-Barré, Pa. Pulley	519,493	May 8	1002	242	67	741
Cook, Adolph W., *et al.* (See Cook, George, assignor.)						
Cook, Anna M. (See Cook, Hugo, assignor.)						
Cook, Daniel, Philadelphia, assignor of one-half to N. Lossand, Sharon Hill, Pa. Adjustable waiter for invalid bedsteads or chairs	518,733	Apr. 24	2262	562	67	457
Cook, Eugene, Kalamazoo, Mich. Railway cattle-guard	520,178	May 22	2182	531	67	985
Cook, Engene, Kalamazoo, Mich. Railway cattle-guard	520,179	May 22	2183	532	67	985
Cook, George, assignor of three-fourths to A. W. Cook, G. Burgesser, and J. Schnarr, Newark, N. J. Adjustable shade-roller bracket	518,208	Apr. 10	1331	333	67	260
Cook, George F., Lansingburg, assignor to Capital Cash Register Company, Troy, N. Y. Cash-register	519,567	May 8	1141	274, 275	67	767
Cook, Hugo, assignor to A. M. Cook, Dayton, Ohio. Cash register, indicator, and recorder	518,344	Apr. 17	1567	389, 390, 391	67	318
Cook, James F., Mansfield, Pa. Conduit electric railway	519,380	May 8	810	198	67	708
Cook, Owen E., (See Warner and Cook.)						
Cook, Roswell F., Ilion, N. Y. Cane-gun	517,438	Apr. 3	27	6	67	8
Cook, Stephen S. (See Branson and Cook.)						
Cook, Truman D., Topeka, Kans. Windmill	517,542	Apr. 3	204	47	67	41
Cooke, James N., *et al.* (See Barr, John U., Jr., assignor.)						
Cooke, William, Oxton, England. Automatic governor	519,322	May 8	703	173	67	687
Cooley, Charles E. (See McLaughlin and Cooley.)						
Coombs, Frederick M., Aspen, Colo. Car-coupling	520,393	May 22	2539	613	67	1053
Coombs, Frederick M., Aspen, Colo. Car-coupling	520,394	May 22	2540	614	67	1054
Coon, A. Spencer., *et al.* (See Braddock, Warren L., assignor.)						
Cooney, John W., New York, N. Y. Pipe-fitting apparatus	519,568	May 8	1146	275	67	768
Coons, Solomon, and E. O. Rogers, Orbisonia, Pa. Lathe-chuck	518,136	Apr. 10	1195	300	67	234
Cooper, Charles W., New York, N. Y. Apparatus for forming glue into sheets	521,945	June 26	2125	509, 510	67	1636
Cooper, Charles W., New York, N. Y. Apparatus for evaporating liquids	521,946	June 26	2131	510	67	1637
Cooper, Charles W., New York, N. Y. Apparatus for making glue	521,947	June 26	2134	511, 512	67	1637
Cooper, Charles W., New York, N. Y. Apparatus for making glue	521,948	June 26	2139	512	67	1638
Cooper, Charles W., New York, N. Y. Vacuum-pan	521,974	June 26	2180	523, 524	67	1645
Cooper, Edward H., assignor of one-half to F. M. Givens, Fond du Lac, Wis. Horse-cover	518,833	Apr. 24	2419	599	67	485
Cooper, Fredrick W., assignor of one-half to C. H. Merritt, Danbury, Conn. Machine for attaching sweat leathers and bands to hats by means of wire staples	519,885	May 15	1667	406	67	877
Cooper, James B., assignor of one-fourth to C. M. Way, Minneapolis, Minn. Hose-leak stop or jacket	518,805	Apr. 24	2377	588	67	477
Cooper, John H., Milford, Ind., assignor of one-half to S. Lavering, Fairbury, Ill. Base for fence-posts	519,445	May 8	915	221	67	727
Cooper, William, Minneapolis, Minn. Controller for electric motors	518,345	Apr. 17	1579	391	67	321
Coover, Percy K., Mechanicsburg, Pa. Horse-collar	520,413	May 29	2571	622	67	1076
Copeland Rapid Laster Manufacturing Company. (See Crisp, Joseph E., assignor.)						
Corbin Cabinet Lock Company. (See Judd, Edward A., assignor.)						
Corbin, Charles B., assignor of one-half to W. J. Corbin, Grand Rapids, Mich. Fish-line reel	520,517	May 29	2744	665	67	1105
Corbin, George C. and T. A., North Danville, Va. Railway-crossing gate	517,792	Apr. 3	629	157	67	122
Corbin, Thomas A. (See Corbin, George C. and T. A.)						
Corbin, William J. (See Corbin, Charles B., assignor.)						
Cordes, V. A., *et al.* (See Southworth, Walter H., assignor.)						
Corkran, Samuel. (See Funke, Robert C., assignor.)						
Cornell, Charles L. (See Bettinger, John J., assignor.)	518,307	Apr. 17	1496	374	67	306
Corscaden, Thomas, assignor to Stanley Works, New Britain, Conn. Drive-chain	518,308	Apr. 17	1497	375	67	306
Corscaden, Thomas, assignor to Stanley Works, New Britain, Conn. Hinge	519,243	May 1	551	134	67	644
Corscaden, Thomas, assignor to Stanley Works, New Britain, Conn. Manufacture of strap-hinges	521,949	June 26	2141	512	67	1639
Côte, Majarique, Millis, Mass. Dust-pan	517,793	Apr. 3	631	158	67	122
Cottier, William T., Los Angeles, Cal. Ventilator	517,794	Apr. 3	632	158	67	123
Cottier, William T., Los Angeles, Cal. Ventilated freight-car						
Cottrell, Charles P., Stonington, Conn., assignor to C. B. Cottrell & Sons Company, Westerly, R. I., and New York, N. Y. Printing-machine	517,682	Apr. 3	451	109	67	87
Cottrell, Charles P., Stonington, Conn., assignor to C. B. Cottrell & Sons Company, Westerly, R. I., and New York, N. Y. Printing-machine	517,973	Apr. 10	920	230	67	188
Cottrell, Charles W., Washougal, Wash. Lantern or lamp extinguisher	521,642	June 19	1590	372	67	1517
Cottrell, Herbert, Newark, N. J. Telephone-transmitter	518,916	Apr. 24	2557	632	67	512
Couch, Joel, Clayton, N. Y. Centerboard for boats	518,364	Apr. 17	1624	400	67	329
Couden, F. M., *et al.* (See Bright, William H., assignor.)						
Coughlin, Edward W., Baltimore, Md. Railway-switch	520,302	May 22	2385	580	67	1024
Coulston, J. Warren. (See Grier, Matthew J., assignor.)						
Coulter, William B., Waterbury, Conn. Fastening device for package-wrappers	522,007	June 26	2256	540	67	1658
Coup, John, Cleveland, Ohio. Car-coupling	519,105	May 1	281	67	67	589
Coup, John, Cleveland, Ohio. Car-coupling	519,106	May 1	284	68	67	590
Courtland, William A., New York, N. Y. Bicycle	520,728	May 29	3104	751, 752	67	1172
Courtney, John J., Minneapolis, assignor to Walter A. Wood Harvester Company, St. Paul, Minn. Bundle-carrier for harvesters	521,154	June 12	717	168	67	1340
Courtright, Albert S. (See Meggenhofen and Courtright.)						
Courtright, Archibald L., Keokuk, Iowa. Hay ricker or loader	520,180	May 22	2184	532	67	986
Couse, Charles, Belleville, N. J. Lubricator	521,702	June 19	1682	395	67	1535
Covel, Frank B., assignor to Dwight Slate Machine Company, Hartford, Conn. Centering-tool	521,206	June 12	807	189	67	1356
Covert, D'Estaing S. (See Burton and Covert.)						
Cowdrey, Charles F., Fitchburg, Mass. Wheel-rim and making same	522,047	June 26	2313	555	67	1669
Cox, Cary S., Spottiswood, assignor to himself, and H. A. Blodget, Bakersfield, Cal. Condenser	521,783	June 26	1842	439	67	1561
Cox, Harry B., Hartford, Conn. Thermo-electric generator	518,542	Apr. 17	1916	473	67	381
Cox, Harry B., Hartford, Conn. Transmitting sound	520,106	May 22	2034	496, 497	67	960
Cox, J. Otis. *et al.* (See Brooks, Stephen H., assignor.)						
Cox, James M., assignor of one-half to B. Cohen, Buffalo, N. Y. Hose-coupling	520,952	June 5	365	89	67	1264

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Coxe, Charles B., assignor to E. B. Esterbrook, Brooklyn, N. Y. Manufacture of bricks	521,535	June 19	1407	325	67	1484
Coxe, Eckley B. (See Richards, Francis H., assignor.)						
Coxe, Eckley B., Drifton, Pa. Furnace	517,644	Apr. 3	378	91	67	73
Coxe, Eckley B., Drifton, Pa. Furnace	517,645	Apr. 3	381	91	67	74
Coxe, Eckley B., Drifton, Pa. Furnace	518,578	Apr. 17	1978	490	67	392
Coyle, Bernard J., Washington, D. C. System of excavating and refilling	518,394	Apr. 17	1666	411, 412	67	337
Crabb, Fred S., *et al.* (See Crabb, George W., assignor.)						
Crabb, George W., assignor to F. S. Crabb and J. S. Lockerby, Sand Lake, Mich. Churn	520,561	May 29	2824	682	67	1121
Crager, Henry. (See Zeller and Crager.)						
Craig, Franklin P., Kansas City, Mo. Lister-cultivator	518,940	May 1	8	2	67	538
Craig, John B., St. Louis, Mo. Lace-fastener	519,018	May 1	126	31	67	560
Craine, David C. (See Craine, Richard H. and D. C.)						
Craine, Edwin W., Missouri Valley, Iowa. Tube-stopper	518,226	Apr. 17	1369	343	67	283
Craine, Edwin W., Missouri Valley, Iowa. Rein-support	519,666	May 8	1309	312	67	796
Craine, Richard H. and D. C., Rosedale, Kans. Direct-draft bake-oven	517,844	Apr. 10	705	178, 179	67	151
Cramer, Morgan J., Chest Springs, Pa. Envelope	521,760	June 19	1804	428	67	1556
Crampton, John M., New Haven, Conn. Shade-cord fastener	519,148	May 1	369	88	67	609
Crandall, William E., and M. Smith, New York, N. Y. Swing	521,335	June 12	1046	246	67	1401
Crane Company. (See Doolittle, William W., assignor.)						
Crane Company. (See Hayden, James T., assignor.)						
Craney, Thomas, *et al.* (See Fuchs, Nathan, assignor.)						
Craney, Thomas, Bay City, Mich. Air-feeding device for furnaces	518,054	Apr. 10	1068	270	67	211
Craney, Thomas, Bay City, Mich. Grate	518,714	Apr. 24	2224	554	67	450
Craney, Thomas, Bay City, Mich. Electrolytic cell	520,257	May 22	2316	561, 562	67	1010
Cranford, George C., *et al.* (See Rothchild, Joseph, assignor.)						
Cranford, Robert L., *et al.* (See Rothchild, Joseph, assignor.)						
Cranmer, William C., assignor of one-half to R. C. Matlack, Jr., Philadelphia, Pa. Rail-joint	518,834	Apr. 24	2419	599	67	485
Cranmer, William S., Suisun City, Cal. Chart-hanger	519,467	May 8	959	232	67	734
Craven, George H., assignor to J. S. Craven, Philadelphia, Pa. Dyeing-machine	519,323	May 8	704	173, 174	67	687
Craven, James S. (See Craven, George H., assignor.)						
Craven, Phinehas P., Manchester, England. Ring-spinning frame	521,584	June 19	1488	348, 349, 350	67	1499
Crawford, Harvey F. (See Luce, Don C., assignor.)						
Crawford, James G., Boston, Mass., assignor to Crawford Laundry Machinery Company, Portland, Me. Reversing-gearing for washing-machines	517,646	Apr. 3	384	91, 92	67	74
Crawford Laundry Machinery Company. (See Crawford, James G., assignor.)						
Crawford, Robert A., Allegheny, Pa. Pilot or guard for cars	521,307	June 12	987	233	67	1389
Creamer, Albert J., Washington Court-House, Ohio. Blackboard-eraser	521,258	June 12	900	212, 213	67	1373
Creamer, Lewis H., Mechanicsburg, Ohio. Harness	519,149	May 1	370	88	67	609
Crecelius, Louis J., assignor of one-half to W. Grayson, St. Louis, Mo. Clamping device for bicycles	519,667	May 8	1310	313	67	797
Crégut, Emile. (See Tourrasse, Paul, assignor.)						
Cretcher, Paul C., and J. R. Miller, Huntsville, Ohio. Fence-post	521,849	June 26	1940	465	67	1599
Creter, Joseph H., Newcomerstown, Ohio. Grain-separator	520,729	May 29	3106	752	67	1173
Criggal, John E., assignor to Davis Electrical Works, Springfield, Mass. Electric incandescent lamp	518,179	Apr. 10	1269	319	67	247
Crisp, Joseph E., Somerville, Mass., assignor to Copeland Rapid Laster Manufacturing Company, Portland, Me. Lasting-machine	517,947	Apr. 10	866	218, 219	67	180
Crisp, Joseph E., Somerville, and E. F. Grandy, Everett, Mass., assignors to Goodyear Shoe Machinery Company, Portland, Me. Lasting-machine	521,975	June 26	2184	524, 525, 526	67	1646
Crist, William E., Brooklyn, N. Y. Vibrating-piston engine	521,603	June 19	1519	356	67	1504
Cristadoro, Charles, St. Paul, Minn. Box-blocking machine	519,035	May 1	157	37, 38	67	566
Cristand, Johann F., Aix-la-Chapelle, Germany. Spark-catcher	519,886	May 15	1672	407	67	878
Crittenden, Mason H., and F. V. Emery, Minneapolis, Minn. Sheet-metal stud	518,645	Apr. 24	2091	521	67	427
Crittenden, Thomas T. (See Ackerman, Albert A., assignor.)						
Crittenden, William B., *et al.* (See Wanner, Martin, assignor.)						
Crocker, John, assignor of one-half to F. Leach, New York, N. Y. Packing or holding case	521,102	June 5	626	147	67	1310
Cromer, Hiram, Muscatine, Iowa. Rotary harrow	521,103	June 5	627	148	67	1310
Cromer, Thomas W. (See Murray and Cromer.)	518,520	Apr. 17	1880	466	67	375
Crompton, Samuel S., assignor to Moline Scale Company, Moline, Ill. Scale	521,230	June 12	851	199	67	1364
Crompton, William E., Park City, Utah Ter. Carpenter's plane	518,521	Apr. 17	1882	466	67	376
Cron, Bernhard, and W. von Münchhausen, New York, N. Y. Car-fender	520,354	May 22	2479	601	67	1041
Crosby, Robert H. (See Krause and Crosby.)						
Croshaw, Calvin A., Chicago, Ill. Thill-coupling	519,697	May 15	1363	329	67	820
Cross, Charles F., E. J. Bevan, and C. Beadle, London, England, assignors to H. G. Nichols, trustee, Boston, Mass. Plastic compound of cellulose	520,770	June 5	17	.....	67	1199
Cross, John A., New York, N. Y. Dynamometer	517,439	Apr. 3	29	7	67	8
Crossley, Arthur W., Boston, Mass. Child's crib or bed	518,180	Apr. 10	1269	320	67	247
Crossley, Gabriel W., J. W. Stout, and W. Rigdon, Humansville, Mo. Seeding-machine	518,835	Apr. 24	2421	600	67	485
Crossley, Joseph. (See Oddy, Crossley, and Smith.)						
Crosta, Lorenzo W., West Bridgford, assignor to Patent Gully Company, Limited, Nottingham, England. Double-trap surface-water gully	520,036	May 22	1915	469, 470	67	937
Cronch, George, New York, N. Y. Trunk-caster	518,094	Apr. 10	1132	285	67	223
Cronch, George, New York, N. Y. Handle for trunks	518,095	Apr. 10	1133	285	67	223
Crounse, Albert B., and C. A. Rutledge, Passaic, N. J. Trolley-wire hanger	519,446	May 8	916	221	67	727
Crowdus, Walter A., assignor to Turney Electric Manufacturing Company, Chicago, Ill. Electric motor for dental engines	521,138	June 5	684	160, 161	67	1320
Crowell Clutch and Pulley Company. (See Jones, Edward L., assignor.)						
Crowell, Luther C., Brooklyn, assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Wrapping-machine	517,440	Apr. 3	31	7, 8, 9	67	8
Crowell, Luther C., Brooklyn, assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Newspaper-wrapping machine	517,441	Apr. 3	40	9, 10	67	9
Crowell, Luther C., Brooklyn, assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Newspaper-wrapping machine	517,442	Apr. 3	44	10, 11	67	10

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Crowther, Ernest and W. H., Pudsey, England. Scribbler or carding-engine	521,703	June 19	1684	395	67	1536
Crowther, William H. (See Crowther, Ernest and W. H.)						
Crozier, Thomas W., Roanoke, Va. Button	519,668	May 8	1310	313	67	797
Crunkleton, John R., Birmingham, Ala. Bicycle-support	518,022	Apr. 10	1010	254	67	203
Cruser, Van Dyke, Flatbush, N. Y. Trolley-wheel	519,837	May 15	1586	388	67	862
Cummings, Henry H., Malden, Mass. Speed-varying mechanism	517,443	Apr. 3	51	11	67	12
Cummings, Michael W., and T. F. Jordan, Olyphant, Pa. Adjustable locking cover for books	522,152	June 26	2492	597	67	1703
Cuenot, Paul A., Canton, Ohio. Building-block	520,136	May 22	2110	514	67	971
Curl, Jacob, *et al.* (See Keane, William M., assignor.)						
Curley, Thomas, Waltham, Mass. Door-check	520,637	May 29	2941	711	67	1143
Curley, Thomas, Wilmington, Del., assignor of one-half to J. McIlhenny, Philadelphia, Pa. Gas apparatus	518,181	Apr. 10	1271	320	67	247
Currey, Charles F. (See Johnson, Hall, Oakley, and Currey.)						
Curry, James H., assignor of eighty-three one-hundred-and-twenty-eighths to F. B. Tomb, Wilkinsburg, S. J. Graham, A. H. Childs, Pittsburg, Pa., and R. A. Gillispie. Automatic safety-joint for electric wires	521,908	June 26	2053	494	67	1623
Curtis, Albert, *et al.* (See Richardson, Willie A., assignor.)						
Curwen, Samuel H., Salem, Mass. Electric releasing device for doors	518,877	Apr. 24	2485	616, 617	67	498
Cutler, James G., Rochester, N. Y. Mail-box	519,057	May 1	190	45	67	573
Cutter, Henry B. (See Stanley, Lucius T., assignor.)						
Cutter, William M., Marysville, Cal. Voting-machine	519,494	May 8	1004	243	67	741
Cutts, William, Tabernacle, N. J. Warp-frame attachment for knitting-machines	520,303	May 22	2387	580	67	1024
D. M. Goodwillie Company. (See Goodwillie, Charles F., assignor.)						
D. M. Osborne & Company. (See Sharp, Charles S., assignor.)						
D'Ebro, Charles A., Melbourne, Victoria. Water module or delivery regulator	518,227	Apr. 17	1371	343	67	284
Dack, Frederick E., assignor of one-half to E. K. Hayes, Galva, Ill. Heater for hot-water heating systems	517,683	Apr. 3	454	110	67	87
Dahl, Charles A., Lynn, assignor to Globe Button-Hole Machine Company, Boston, Mass., and Kittery, Me. Sewing-machine	521,308	June 12	989	233	67	1389
Dakin, Ernest F. (See Gates, William H., assignor.)						
Dale, Harry P. (See Wimbrow and Dale.)						
Dale, John C. (See Chandler and Dale.)						
Dallas, Madison, New Orleans, La. Can-opener	521,643	June 19	1590	372	67	1517
Dalsheimer, Simon, and A. Greenleaf, Baltimore, Md. Support for cards, pictures, or like articles	517,444	Apr. 3	54	12	67	12
Dalton, Richard, Wilmette, Ill. Excavating-machine	520,916	June 5	301	73, 74	67	1252
Daly, Charles A., assignor of two-thirds to M. C. Williams and W. C. Johnson, Minneapolis, Minn. Automatic jointer-guard	519,698	May 15	1364	330	67	820
Dame, John E., Brooklyn, N. Y. Steam-generator	518,689	Apr. 24	2164	541, 542	67	441
Damon, George L., Boston, Mass. Safe-lock	522,153	June 26	2493	598, 599	67	1703
Dancyger, Simon, Dayton, Ohio. Marking-tag	520,414	May 29	2572	622	67	1076
Dangler, Charles I., and H. Ruppel, Cleveland, Ohio. Heat-radiator	521,139	June 5	668	161	67	1320
Daniell, William H., Philadelphia, Pa. Running-gear for cars	518,752	Apr. 24	2290	569	67	462
Daniels, Richard J. (See Price and Daniels.)						
Danks, Aarou T. (See Ferguson and Danks.)						
Danois, Louis, Paris, France. Flock-paper	518,878	Apr. 24	2487	.....	67	499
Danzenbaker, Francis, Washington, D. C. Beehive	521,876	June 26	1982	479	67	1609
Darby, Benjamin F., Clay's Prairie, Ill. Corn-planter	520,669	May 29	3003	725, 726	67	1154
Darche, Paul, Paris, France. Recoil-operated firearm	519,151	May 1	374	89, 90, 91	67	610
Dark, Thomas, Sr., Buffalo, N. Y. Smoke-consuming furnace	519,079	May 1	241	56, 57	67	582
Darley, John W., Jr., assignor of one-half to D. E. Evans, P. Hamburger, M. Holzman, and L. Hamburger, Baltimore, Md. Music-leaf turner	519,302	May 1	649	158, 159	67	663
Darling, Titus S. (See Casper and Darling.)						
Darono, Albert P., Philadelphia, Pa. Tinner's shears	522,108	June 26	2413	579	67	1687
Dart, Daniel, and T. R. Parker, Binghamton, N. Y. Transportable elevator for goods	519,447	May 8	917	221	67	728
Dart, Daniel W., assignor of one-half to S. B. Doolittle, Binghamton, N. Y. Flue-cleaner for steam boilers	521,155	June 12	719	169	67	1340
Dashiell, Julius M., Jr., Washington, D. C. Coin-controlled and coin-return lock for telephones	517,445	Apr. 3	55	12	67	12
Daugherty, James D., Kittanning, Pa. Numeral adding or subtracting attachment for type-writing machines	517,735	Apr. 3	536	130, 131	67	104
Davee, William, Jersey City, N. J. Compensator	518,488	Apr. 17	1820	451	67	365
Davids, Charles H., Brooklyn, assignor of one-half to J. Stewart, New York, N. Y. Variable crank	520,157	May 22	2147	523	67	979
Davids, E. M. Chisholm. (See Davids, John B., assignor.)						
Davids, John B., assignor to E. M. C. Davids, Dartmouth, Mass. Game-board	519,324	May 8	707	174	67	688
Davids, John B., assignor to E. M. C. Davids, Dartmouth, Mass. Promoting combustion in furnaces	519,325	May 8	708	174	67	688
Davids, John B., assignor to E. M. C. Davids, Dartmouth, Mass. Game or amusement	519,326	May 8	709	174	67	689
Davidson, Alfred E., *et al.* (See Maurer, Ludwig, assignor.)						
Davidson, David J., assignor of two-thirds to A. S. and S. G. Martin, Port Huron, Mich. Separator and grader	521,402	June 12	1154	273	67	1422
Davies, David J. H., Wilkes-Barré, Pa. Washboiler	520,589	May 29	2869	694	67	1130
Davis, Charles E., assignor to J. H. Leslie, Chicago, Ill. System of circuit control for electric machines	520,822	June 5	118	26, 27	67	1219
Davis, Daniel J., Chicago, Ill. Centrifugal separator-bowl	517,603	Apr. 3	303	70	67	59
Davis, Daniel J., Chicago, Ill. Butter-worker	518,588	Apr. 24	1997	494	67	411
Davis, Daniel J., Chicago, Ill. Centrifugal separator for liquids	521,104	June 5	628	148	67	1310
Davis Electrical Works. (See Criggal, John E., assignor.)						
Davis, Francis G., Watertown, N. Y. Device for packing vehicle-wheels	518,395	Apr. 17	1668	412	67	338
Davis, Francis G., assignor to E. J. Bonney, Watertown, N. Y. Garment-supporter	521,259	June 12	902	213	67	1374
Davis, Frank E., Columbus, assignor of one-half to J. B. McCoy, Indianapolis, Ind. Piano-truck	517,543	Apr. 3	207	48	67	42
Davis, George M., Chicago, Ill. Pressure-reducing valve	518,000	Apr. 10	980	244	67	197
Davis, Giles B., White Cloud, Mich. Elevated carrier	521,309	June 12	993	234	67	1390
Davis, Huber R., Cardington, Ohio. Incubator	519,244	May 1	551	134, 135	67	644

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Davis, James H., Secane, Pa. Machine for extracting spokes from hubs of wheels	520,258	May 22	2319	562	67	1010
Davis, John F., assignor of one-half to J. H. Townsend, Sharon, Pa. Sash-fastener	519,905	May 15	1695	414	67	883
Davis, John R., Chicago, Ill. Refrigerator	518,096	Apr. 10	1134	286	67	223
Davis, John W., Washington, D. C. Semaphore	520,756	May 29	3153	763, 764	67	1181
Davis, Leonard D., Erie, Pa. Water-tube steam-boiler	521,850	June 26	1940	466	67	1600
Davis, Michael F., Portland, Me. Row-boat	521,536	June 19	1408	325	67	1484
Davis, Nathan H., Philadelphia, Pa. Dust-guard for car-axle boxes	519,152	May 1	379	91	67	611
Davis, Nathan H., Philadelphia, Pa. Axle-box lid	521,207	June 12	808	190	67	1357
Davis, Nathan H., Philadelphia, Pa. Lid for car-axle boxes	521,231	June 12	851	199	67	1364
Davis, Nathan H., Philadelphia, Pa. Lid for car-axle boxes	521,232	June 12	852	199	67	1365
Davis, Ossian C., Racine, Wis. Boiler	519,887	May 15	1672	407	67	878
Davis, Owen W., Jr., Middlesborough, Ky. Ore-roaster	520,481	May 29	2687	650	67	1096
Davis, Robert B., Altoona, Pa. Steam-engine	521,105	June 5	630	148	67	1310
Davis, Samuel T., Lancaster, Pa. Line-guide for fishing-rods	521,704	June 19	1685	395	67	1536
Davis, Thomas C., Bradenbaugh, Md. Shingle-machine	517,795	Apr. 3	633	158	67	123
Davis, Thomas J., Charlotte, N. C. Regulator for hydraulic steam-pumps	521,365	June 12	1096	257, 258	67	1411
Davis, William P., Rochester, N. Y. Key-seating machine	518,023	Apr. 10	1011	254	67	203
Davis, William W., New York, N. Y. Lock	521,366	June 12	1097	258	67	1411
Davy, William J., London, England. Electric-arc lamp	521,877	June 26	1985	479, 480	67	1609
Dawson, John W. (See Carter, Dawson, and Meyrick.)						
Day, Alfred, assignor to Day & Breithaupt, Philadelphia, Pa. Pasting device for sheets, flies, strips, &c	517,684	Apr. 3	457	110	67	88
Day & Breithaupt. (See Day, Alfred, assignor.)						
Day, Frank L., Glens Falls, N. Y. Machine for sawing blocks from logs	518,589	Apr. 24	1998	494, 495	67	411
Day, George. (See Day and Jenkins.)						
Day, George F., and W. Hunter, San Francisco, Cal. Mud and oil trap and water-purifier	520,670	May 29	3006	726	67	1154
Day, George H., Hartford, Conn., assignor to Pope Manufacturing Company, Boston, Mass. Velocipede	521,761	June 19	1804	428	67	1556
Day, Isaiah N., San José, Cal. Rock drilling and boring machine	517,815	Apr. 3	664	166	67	129
Day, James P., Anniston, Ala. Apparatus for dispensing beer, &c	518,137	Apr. 10	1197	300	67	234
Day, John and G., and J. Jenkins, Maesteg, England. Diving apparatus	521,208	June 12	809	190	67	1357
Day, Wilbur F., *et al.* (See McBride, Henry, assignor.)						
Dayton Manufacturing Company. (See Kirby, John, Jr., assignor.)						
Dayton Paper Novelty Company. (See Schmidt, Theodore F. W., assignor.)						
De Arden, Charles F., New York, N. Y. Automatic shut-off for roof-tanks	521,336	June 12	1047	246	67	1401
De Bevoise, Charles R., Flushing, N. Y. Underwaist	521,403	June 12	1156	274	67	1423
De Grau, Richard X. (See White, Charles E., assignor.)						
De Mott, James Y., Newark, N. J. Connection for electric wires	521,018	June 5	473	113	67	1282
De Saussure, W. P. (See Wood, James N., assignor.)						
De Vlaminck, Edmund J., Vésinet, France. Keyboard mechanism for playing upon stringed instruments	521,851	June 26	1943	466, 467	67	1600
De Voe, William R., Shreveport, La. Conduit electric railway	520,304	May 22	2389	581	67	1024
De Witt, Margaret, Kansas City, Mo. Face-steaming appliance	517,846	Apr. 10	714	180	67	152
Dean, Thomas E., Tyldesley, England. Advertising-letter	522,154	June 26	2496	599	67	1703
Deats, John S., and T. R. Stewart, Phœnix, Ariz. Ter. Axle-nut	519,468	May 8	960	232	67	734
Decatur Leader Manufacturing Company. (See Brown, Davis, assignor.)						
Deck, Henry, assignor to J., W. P. M., and J. F. Braun, Philadelphia, Pa. Lawn-mower	519,080	May 1	243	57	67	582
Deckebach, Henry E., Cincinnati, Ohio. Apparatus for cooling and aerating malt liquors	518,941	May 1	12	3	67	539
Decker, William M., Kingston, N. Y. Nursing-bottle	521,773	June 19	1827	435	67	1561
Deckert, Wilhelm, Vienna, Austria-Hungary. Microphone	517,564	Apr. 3	242	56	67	48
Deeley, John, Sr. (See Penn and Deeley.)						
Deeley, Richard M. (See Archbutt and Deeley.)						
Deere & Company. (See Poole, Staley D., assignor.)						
Deere & Mansur Company. (See White, Charles E., assignor.)						
Defiance Machine Works. (See Seymour, Charles, assignor.)						
Deitz, Henry, Denver, Colo. Car-coupling	521,433	June 12	1209	286	67	1431
Delage, Gideon, Salida, Colo. Amalgamator	521,145	June 5	695	162	67	1321
Delaney, Harry, New Albany, Ind. Smoke-consumer	517,917	Apr. 10	821	206	67	172
Deling, Alois, Stuttgart, Germany. Roll-holding camera	521,563	June 19	1448	337, 338	67	1491
Demarest, Cornelius B., Brooklyn, assignor to Andrews Demarest Seating Company, New York, N. Y. Foot-rest	518,489	Apr. 17	1822	451	67	365
Demeny, Georges, Paris, France. Producing positive phonoscopic plates	521,705	June 19	1687	396	67	1536
Deming, William B., Bentonville, Ark. Hinge	518,309	Apr. 17	1498	375	67	307
Demuth, William, New York, N. Y. Tobacco-pipe	521,404	June 12	1157	274	67	1423
Deninger, Fritz, Berlin Germany. Combined walking-stick and lamp	518,590	Apr. 24	2000	495	67	412
Denis, Edward. Green Bay, Wis. Toy	519,838	May 15	1588	388	67	863
Denison, Sylvester P., Belleville, N. J., assignor to M. R. Dickson, New York, N. Y. Display-rack	518,098	Apr. 10	1136	286	67	223
Dennis, Henry P., assignor of one-half to A. D. Potter, Peoria, Ill. Grain-meter	520,518	May 29	2746	665	67	1106
Dennison, Charles M. (See Hebard, Newton, assignor.)						
Dennison, Robert L., Kansas City, Mo. Self-feeder for thrashing-machines	517,845	Apr. 10	708	179	67	152
Denson, Joseph, assignor of one-half to H. Smith, Stockdale, Tex. Refrigerator	518,396	Apr. 17	1669	412, 413	67	338
Denton, Ben H., *et al.* (See Anderson, Lee, assignor.)						
Denton, Charles E., Peoria, Ill. Button-attaching machine	518,182	Apr. 10	1272	320	67	247
Denton, Samuel G., London, England. Magnifying-thermometer	517,446	Apr. 3	60	13	67	14
Depp, Hezekiah E., assignor to O. M. Ritchey, Sedalia, Mo. Mixed air and steam engine and generator	521,762	June 19	1805	428	67	1556
Derby, Alvan P., South Weymouth, Mass. Removable back for seats	518,097	Apr. 10	1135	286	67	223
Dermody, William F., Brooklyn, N. Y. Switch-operating device	522,109	June 26	2413	579	67	1687
Des Moines Fuel Saving Furnace Company. (See Wilkinson, Joseph W., assignor.)						
Deslauriers, Philip A., St. Paul, Minn. Fireproof building-wall	520,137	May 22	2110	514	67	971
Desmond, John, assignor to Penberthy Injector Company, Detroit, Mich. Automatic controlling device for boiler-feeders	521,644	June 19	1591	372	67	1517
Detrick & Harvey Machine Company of Baltimore City. (See Detrick and Bachtell, assignors.)						
Detrick, J. S. (See Flanigan, Robert, assignor.)						
Detrick, Jacob S., and L. H. Bachtell, Baltimore, assignors to Detrick & Harvey Machine Company of Baltimore City, Md. Feeding device for metal-planing machines	518,183	Apr. 10	1274	321	67	248

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Detroit Dry Dock Company. (See Kirby, Frank E., assignor.)						
Detwiler, George K. (See Torrey, Silas and C. L., assignors.)						
Deutsch-Amerikanischen Maschinen-Gesellschaft. (See Göhring, Paul, assignor.)						
Deveau, Hubert, New York, N. Y. Grave-signal	522,110	June 26	2415	580	67	1687
Devlin, Thomas, *et al.* (See Buehler, Rudolph R., assignor.)						
Devoe, Harry M., New York, N. Y. Wheel-tire	519,177	May 1	427	105	67	620
Devoissaud, John P., Sherman, Tex. Steam-engine governor	519,942	May 15	1751	430	67	893
Devoissaud, John P., Sherman, Tex. Quick-speed steam-engine	519,943	May 15	1754	430, 431	67	893
Dewerth, Emil, Detroit, Mich. Dough-cutting machine	521,140	June 5	689	161	67	1321
Dexter, Charles L., Philadelphia, Pa. Hermetically-sealed package for containing ices, &c.	519,839	May 15	1588	388	67	863
Diamond, Henry B., Albany, N. Y. Indicator for doors	519,699	May 15	1365	330	67	821
Dias, Joseph P., San Francisco, Cal. Automatic uncoupler and car-brake	520,204	May 22	2228	542	67	994
Dick, Albert B., assignor to A. B. Dick Company, Chicago, Ill. Combined desk and type-writer cabinet	518,778	Apr. 24	2329	578	67	470
Dick, George W. (See Cardarelli, Emilio, assignor.)						
Dick, Joseph C. F., Belvidere, Ill. Button-fastening machine	517,604	Apr. 3	304	70, 71	67	60
Dickens, John, assignor to Dickens Manufacturing Company, New Brunswick, N. J. Lawn-sprinkler	517,544	Apr. 3	210	48	67	42
Dickens, John, assignor to Dickens Manufacturing Company, New Brunswick, N. J. Hand-pump for inflating tires, &c	517,736	Apr. 3	542	130	67	105
Dickens Manufacturing Company. (See Dickens, John, assignor.)						
Dickenson, Benjamin, New York, N. Y. Trunk	519,569	May 8	1147	275	67	768
Dickerson, J. J., *et al.* (See Anderson, Lee, assignor.)						
Dickerson, William M., assignor to Indiana Lumber and Veneer Company, Indianapolis, Ind. Indicator for veneer-sawing machines	520,037	May 22	1917	470	67	938
Dickey Automatic Car-Coupler Company. (See Dickey and Harding, assignors.)						
Dickey, George W., and T. A. Harding, assignors to Dickey Automatic Car-Coupler Company, Des Moines, Iowa. Car-coupling	519,700	May 15	1367	330	67	821
Dickinson, Austin R., Syracuse, N. Y. Rake	518,001	Apr. 10	981	244	67	197
Dickinson, Austin R., assignor to Syracuse Specialty Manufacturing Company, Syracuse, N. Y. Rake	519,761	May 15	1460	354	67	838
Dickinson, Daniel A., St. Paul, Minn. Steam and hot-water generator	518,184	Apr. 10	1276	322, 323	67	248
Dickinson, Herbert Y., and A. G. Macculloch, London, England. Coin-actuated automatic mechanism for the delivery of ices	517,847	Apr. 10	715	180	67	153
Dickson, Amos J. (See Pierce and Dickson.)						
Dickson, Mathews R. (See Denison, Sylvester P., assignor.)						
Dickson, Theodore C. (See Hodges and Dickson.)						
Diebold Safe and Lock Company. (See Kirks, Albert, assignor.)						
Dieco, Charles P., Owensborough, Ky. Propelling mechanism for boats	521,405	June 12	1158	274	67	1423
Diehl, Frank, Sheboygan, Wis. Feed-water heater and purifier	521,337	June 12	1048	246	67	1402
Dieterich, Fred G., Washington, D. C., assignor to Lauer Chemical Company, Baltimore, Md. Vending-machine	519,448	May 8	918	221, 222	67	728
Dietz, George H., Louisville, Ky. Letter or bill file	519,327	May 8	710	175	67	689
Dignard, Joseph H. (See Collier and Dignard.)						
Dikeman, Henry E., Berkeley, Cal. Dynamo-electric machine	518,444	Apr. 17	1756	436	67	354
Dill Spool Support Company. (See Dill, Thomas C., assignor.)						
Dill, Thomas C., Philadelphia, Pa., assignor to Dill Spool Support Company, Philadelphia, Pa., and Camden, N. J. Spool-support	519,669	May 8	1311	313	67	797
Dilienback, Alonzo, Palatine Bridge, N. Y. Sliding-door lock	520,415	May 29	2573	622	67	1076
Dillmann, Otto, Munich, Germany. Manufacture of glass paintings	518,806	Apr. 24	2379	588	67	478
Dinkey, Alva C., Allegheny county, Pa. Rheostat	518,365	Apr. 17	1625	400	67	329
Dinsmore, Robert, assignor of one-half to A. Greenstein, Weston, W. Va. Railway-tie	517,447	Apr. 3	60	13	67	14
Dinsmore, Robert, assignor of one-half to A. Greenstein, Weston, W. Va. Car-coupling	517,448	Apr. 3	62	13	67	14
Disc Churn Company. (See Duncan, John H. H., assignor.)						
Diss, Louis P., Ilion, assignor to Wyckoff, Seamans & Benedict, New York, N. Y. Type leveling and aligning device	521,338	June 12	1053	247, 248	67	1402
Ditterline, Plesant G. (See Castleman, William L., assignor.)						
Ditzler, George C., Uniondale, Ind. Bag or fodder tie	518,879	Apr. 24	2488	617	67	499
Divan, Charles V., Fils, St. Nazaire, France. Rotary steam-engine	521,050	June 26	2141	512, 513	67	1639
Dixon, George E., Beacon, Iowa. Wire-reeler	519,789	May 15	1515	360	67	848
Dixon, James A., Bowling Green, Mo. Hasp-lock	517,685	Apr. 3	458	111	67	88
Dixon, John A., East Orange, N. J., assignor, by mesne assignments, to Safety Car Heating and Lighting Company, of New Jersey. Apparatus for separating gas from liquid by-products	520,038	May 22	1918	470	67	938
Dixon, John G., Huddersfield, England. Fog-signal apparatus for railways	520,671	May 29	3008	726, 727, 728	67	1155
Dixon, Samuel W., assignor to Dixon Sanitary Crematory Company, Findlay, Ohio. Cremation-furnace	517,816	Apr. 3	665	166	67	129
Dixon Sanitary Crematory Company. (See Dixon, Samuel W., assignor.)						
Doane, Samuel E. (See Burnett and Doane.)						
Dobbel, Frederick W., San Francisco, Cal. Sight for firearms	518,734	Apr. 24	2263	562	67	457
Dobelin, Charles W. (See Mohroff and Dobelin.)						
Doble, William A., San Francisco, Cal. Sluice-valve	521,106	June 5	631	149	67	1311
Docksteader, Archibald B., *et al.* (See Mackey, William T., assignor.)						
Dodd, Matthew M., Portsmouth, Va., assignor to Automatic Track Sanding Company, of Maine. Automatic track-sanding apparatus	518,715	Apr. 24	2225	554	67	451
Dodge, Arthur B. (See Robinson and Dodge.)						
Dodge, Henry A., Boston, and W. T. Richards, Newton, Mass., assignors to Bosworth Machine Company, Milford, Conn. Wear-compensating device for needle-bars of sewing-machines	518,836	Apr. 24	2422	600	67	485
Dodge, Henry A., Boston, and W. T. Richards, Newton, Mass., assignors to Bosworth Machine Company, Milford, Conn. Trace cutting and trimming machine	519,570	May 8	1148	276, 277	67	768
Dodge, Philip T., Washington, D. C., assignor to Mergenthaler Linotype Company, New York, N. Y. Linotype-machine	520,158	May 22	2148	523	67	979
Doehler, Charles, Philadelphia, Pa. Fire-escape	518,055	Apr. 10	1069	270	67	211
Doerflinger, George, Brooklyn, N. Y. Ore-separator	517,974	Apr. 10	922	231	67	189
Doig, William S., Brooklyn, N. Y. Box-nailing machine	518,002	Apr. 10	982	244, 245	67	198
Dold, George P. (See Blundell, William C., assignor.)						
Dolge, Rudolf. (See Gery and Dolge.)						
Dolliver, Pillsbury C., Augusta, Me. Sash-fastener	517,605	Apr. 3	306	71	67	60

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Domeier, Albert. (See Mitting, Ebenezer K., assignor.)						
Donahoo, Peter B., assignor to G. S. Switzer, San Francisco, Cal., H. R. Bean, and G. B. Sinclair, Chicago, Ill. Street-sweeper	521,852	June 26	1945	467, 468	67	1601
Donahoo, Peter B., assignor to G. S. Switzer, San Francisco, Cal., H. R. Bean, and G. B. Sinclair, Chicago, Ill. Broom-making machine	521,853	June 26	1947	468	67	1601
Donald, William, Saltcoats, Scotland. Making chlorin	518,445	Apr. 17	1759	436	67	355
Donald, William, Saltcoats, Scotland. Making chlorin	518,446	Apr. 17	1761	436, 437	67	355
Donathen, William B., Kansas City, Mo. Corn-popping machine	518,664	Apr. 24	2125	532	67	433
Donegan, Henry F. (See Carter, Dawson, and Meyrick, assignors.)						
Donellan, James S., *et al.* (See Shaw, George V., assignor.)						
Donlon, Thomas, Oneida, N. Y. Animal-trap	518,024	Apr. 10	1013	255	67	203
Donnelly, Joseph C., Philadelphia, Pa. Match-making machine	519,150	May 1	371	88, 89	67	610
Donovan, John J., Kingston, N. Y. Stone-screen	521,209	June 12	812	191	67	1357
Dooley, Thomas B., Melrose, assignor to E. B. Welch, Cambridge, and J. Middleby, Jr., Malden, Mass. Grinding-machine	522,155	June 26	2497	599	67	1704
Doolittle, Sidney B. (See Dart, Daniel W., assignor.)						
Doolittle, William W., assignor to Crane Company, Chicago, Ill. Tumbler	518,735	Apr. 24	2265	562, 563	67	457
Dornberg, Ferdinand A. (See Veen and Dornberg.)						
Dornfeld, John F., Watertown, Wis. Stirring and aerating apparatus	518,665	Apr. 24	2129	533	67	434
Dornfeld, John F., Watertown, Wis. Malting-floor	518,666	Apr. 24	2131	533	67	434
Dorr, Samuel G., Buffalo, N. Y. Apparatus for extracting gold and black sand	519,245	May 1	554	135	67	644
Dorsey, Walter, Dorseyville, and J. E. Brenneisen, Unionville, Md. Butter-mold	519,495	May 8	1007	243	67	742
Doswell, John H. (See Adams and Doswell.)						
Doubleday, Villeroy C. (See Rosenthal and Doubleday.)						
Doud, Thomas. (See Chambers and Doud.)						
Douglas, Frank, Chicago, Ill. Bicycle	518,591	Apr. 24	2001	496	67	412
Douglas, Joseph R. (See Watson and Douglas.)						
Douglas, Robert, and J. F. Austin, Detroit, Mich. Clothes-drier	519,178	May 1	429	105	67	620
Douglas, Thomas P., *et al.* (See Moore, John Y., assignor.)						
Douglass, J. Walter. (See Lockhart, Walter M., assignor.)						
Dow, George E., assignor of one-half to C. M. McCabe, Denver, Colo. Safety device for elevators	520,844	June 5	164	36	67	1227
Dow, Josiah, Philadelphia, Pa. High-speed engine	521,706	June 19	1688	396, 397	67	1537
Downey, William F., Washington, D. C. Horseshoe	521,645	June 19	1592	373	67	1517
Downie, Alfred J. See Downie, Peter S. and A. J.)						
Downie, Peter S. and A. J., Marinette, Wis. Fishing apparatus	522,111	June 26	2416	580	67	1688
Downing, William H., Goodell, Pa. Piston for Artesian or oil wells	518,490	Apr. 17	1823	451	67	365
Downs, George A. (See Fowler and Downs.)						
Downs, Taylor W., St. Louis, Mo. Street-sweeper	518,716	Apr. 24	2227	554	67	451
Dowse, William B. H., Newton, Mass. Buckle-fastener	520,018	May 15	1878	459	67	915
Dozier, Lewis D., St. Louis, Mo., assignor to Traveler's Portfolio Company, of Missouri. Traveler's combined collar and cuff case. (Reissue)	11,421	June 5	697	163	67	1322
Drake, Jesse, Jackson, Miss Combination corn harvester and husker	522,008	June 26	2257	541	67	1658
Dralle, Robert, Berlin, Germany, assignor of one-half to R. M. Atwater, Pittsburg, Pa. Apparatus for compounding and mixing glass batch	520,138	May 22	2111	515	67	972
Draper, George O., assignor to G. Draper & Sons, Hopedale, Mass. Combined bearing for spindles	518,447	Apr. 17	1762	437	67	355
Draper & Sons, George. (See Draper, George O., assignor.)						
Draper & Sons, George. (See Smith, Oberlin, assignor.)						
Draver, Emil R., assignor to F. N. Draver, Alliance, Nebr. Dust-collector	521,604	June 19	1523	356, 357	67	1504
Draver, Florence N. (See Draver, Emil R., assignor.)						
Dressel, Frederick W., New York, N. Y. Rotatable signal-lamp	519,496	May 8	1009	244	67	743
Drew, John W. (See Duchemin, William, assignor.)						
Drewett, William A., Brooklyn, N. Y. Valve device for duplex engines	518,025	Apr. 10	1014	255	67	203
Drewett, William A., Brooklyn, N. Y. Valve device	518,026	Apr. 10	1016	256	67	204
Dréze, Alfred, Pepinster, Belgium. Apparatus for dyeing	518,228	Apr. 17	1372	344	67	284
Drnek, Jakob, Vienna, Austria-Hungary. Braiding-machine	521,019	June 5	474	113	67	1282
Droege, Max D., *et al.* (See Müller, Rudolf, assignor.)						
Drummond, Thomas, Alton, Ill. Box	521,156	June 12	720	169	67	1341
Dryfoos, Alphons, New York, N. Y. Composite bottle	519,601	May 8	1201	290	67	778
Du Bois, John E. (See Miller and Du Bois.)						
Du Pont, Francis G., Wilmington, Del. Manufacture of smokeless powder	519,702	May 15	1371	331	67	822
Dubero, Fred., and P. Mohrdieck, San Francisco, Cal. Electric battery	521,260	June 12	903	213	67	1374
Duchemin, William, Newburyport, assignor to J. W. Drew, Boston, Mass. Copy-guide	519,762	May 15	1461	354	67	838
Ducker, Maria E., *et al.* (See Ducker, William M., assignor.)						
Ducker, William M., New York, assignor to M. E. Ducker and H. D. Dumont, Brooklyn, N. Y. Coin-controlled machine	519,701	May 15	1369	330	67	821
Duckett, Walter G., Washington, D. C. Label-holder	517,545	Apr. 3	212	48, 49	67	42
Dudley, Charles J., Mobile, Ala. Hydraulic elevator	518,491	Apr. 17	1824	452	67	366
Dudley, Plimmon H., New York, N. Y. Testing metal bars	517,975	Apr. 10	924	231	67	189
Dudly, Albert, Menominee, Mich. Nipple-wrench	520,562	May 29	2825	682	67	1121
Duechting, William, Chicago, Ill. Toy pistol	518,987	May 1	82	21	67	551
Duffner, Lucas, assignor to J. O'Brien, St. Louis, Mo. Furnace-door	520,730	May 29	3108	753	67	1173
Dufresne, Napoleon, assignor of one-half to R. White, Montreal, Canada. Leather-skiving machine	519,282	May 1	614	149	67	656
Dugan, Herbert F., *et al.* (See Keithly, Willie C., assignor.)						
Dugan, Rees W., *et al.* (See Hodgson, Albert J., assignor.)						
Dührkop, Fritz, New York, N. Y. Machine for shaping dough	518,942	May 1	13	3	67	539
Dulin, H. R. (See Dulin, William, assignor.)						
Dulin, William, assignor of one-half to H. R. Dulin, Avoca, Iowa. Hand seed planter	521,763	June 19	1807	428	67	1557
Dummer, Edward, Auburndale, Mass. Paper-feeding mechanism	517,518	Apr. 3	167	38	67	34
Dumont, Henry D., *et al.* (See Ducker, William M., assignor.)						
Dunavan, Albert F., Harvey, Ill. Apparatus for shaping horse-collars	519,381	May 8	812	198	67	708
Duncan, George L., Piqua, Ohio. Self-opening gate	521,524	June 19	1391	322	67	1481
Duncan, John H. H., assignor to Disc Churn Company, Limited, London, England. Churn	517,817	Apr. 3	667	167	67	129
Duncan, John L., *et al.* (See Markley, John A., assignor.)						
Duncan, Samuel Q., assignor to Columbian Manufacturing Company, Greenfield, Ohio. Brooder	518,003	Apr. 10	984	245	67	198
Duncan, Samuel Q., assignor to Columbian Manufacturing Company, Greenfield, Ohio. Incubator	520,181	May 22	2185	532, 533	67	986

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Duncan, Thomas, Fort Wayne, Ind. Universal-phase alternate-current motor	518,310	Apr. 17	1499	375, 376	67	307
Duncan, Thomas, Fort Wayne, Ind. Electric meter	518,311	Apr. 17	1503	376, 377	67	307
Dunham, Eugene, *et al.* (See Bright, William H., assignor.)						
Dunham, George, Unionville, Conn. Nut-finishing machine	521,233	June 12	853	200, 201	67	1365
Dunham, Harry E., assignor of one-half to A. T. Bliss, Saginaw, Mich. Dinner-pail cover	519,809	May 15	1544	377	67	854
Dunham, Peter B., *et al.* (See Bright, William H., assignor.)						
Dunish, Adolf, Ravenna, Ohio. Electric fire-alarm transmitter	519,497	May 8	1009	244	67	743
Dunkle, Abraham B., Steelton, Pa. Window-shade holder	521,784	June 26	1843	439	67	1581
Dunlap, Forest W. (See Smiley and Dunlap.)						
Dunlap, John S., Peoria, Ill. Coffee-pot	520,039	May 22	1919	470	67	938
Dunlap, William, assignor of one-half to E. M. Reinhardt, San Diego, Cal. Car-coupling	518,492	Apr. 17	1826	453	67	366
Dunshee, Bertram H. (See Foley, Dunshee, and Anderson.)						
Durand, David L., Birmingham, Conn. Suspender-buckle	521,084	June 5	593	140	67	1304
Durand, Huguenin & Co., L. (See Brack, Johann J., assignor.)						
Durand Manufacturing Company. (See Blackford, Atwell J., assignor.)						
Durfee, Edgar G. (See Gibson, Everett G., assignor.)						
Dürrstein, Johannes, Dresden, Germany. Watchcase	521,210	June 12	813	191	67	1357
Dustrud, Julius. (See Dustrud, Peter P. and J.)						
Dustrud, Peter P. and J., Sacred Heart, Minn. Cutter attachment for forks	517,796	Apr. 3	635	159	67	123
Dutcher, William L., Rome, assignor to P. D. Randall & Son, Troy, N. Y. Bolt-cutter	517,848	Apr. 10	716	180	67	153
Dutton, Charles S. (See Haas and Dutton.)						
Dutton, Rufus, Yonkers, N. Y. Grinding-machine	521,646	June 19	1594	373	67	1518
Dutton, William A., and J. F. Pfetch, Cleveland, Ohio. Motor-car truck	517,565	Apr. 3	243	56, 57	67	48
Duvivier, Louis J. M., Nevers, France. Movable keyboard	522,048	June 26	2315	555, 556	67	1669
Dwight Slate Machine Company. (See Covel, Frank B., assignor.)						
Dyer, Frank L., Washington, D. C., assignor to W. F. Jobbins and J. Van Ruymbeke, Chicago, Ill. Purifying fixed oils, fats, and fatty acids	522,156	June 26	2498	599	67	1704
Dyer, Frank L., Washington, D. C., assignor to W. F. Jobbins and J. Van Ruymbeke, Chicago, Ill. Apparatus for preparing expanded and reheated steam	522,157	June 26	2499	600	67	1704
E. & H. T. Anthony & Company. (See Roche, Thomas C., assignor.)						
E. J. Brooks & Company. (See Brooks, Edward J., assignor.)						
E. T. Allen Company. (See Carson and Martin, assignors.)						
E. & T. Fairbanks Company. (See Paddock, Harvlin, assignor.)						
E. W. Bliss Company. (See Leavitt, Frank M., assignor.)						
Eager, Frank L., Meriden, Conn. Driving mechanism for cycles	520,638	May 29	2943	711	67	1143
Eagle Lock Company. (See Roche, James, assignor.)						
Eagle Pencil Company. (See McIntyre, Frank, assignor.)						
Earll, Charles I., New York, N. Y. Grip mechanism for cable railways	520,259	May 22	2320	562, 563	67	1010
Eastern Paper Bag Company. (See Purvis, William B., assignor.)						
Easting, Eugene M., assignor to N. Gentry, Denver, Colo. Device for tightening woven-wire bed-springs	517,818	Apr. 3	668	167	67	129
Eastman, William E. (See Manwaring, Morris B., assignor.)						
Eaton, Norman, Hopedale, Mass. Combined steam and gas generator and engine	517,606	Apr. 3	307	71, 72	67	60
Eberle, Christina, Chicago, Ill. Ash-screener	519,246	May 1	557	135	67	645
Ebert, Frederick. (See Reyels and Ebert.)						
Ecaubert, Frederic, Brooklyn, N. Y. Tool for ornamenting watchcases	517,686	Apr. 3	460	111	67	88
Ecaubert, Frederic, Brooklyn, N. Y. Mechanism for making spectacle-bows	518,099	Apr. 10	1137	286	67	224
Ecaubert, Frederic, Brooklyn, N. Y. Means for forming spectacle-bow wire or other articles	518,807	Apr. 24	2380	589	67	478
Eckel, Peter, Syracuse, N. Y. Rolls for side-bearing suspension-rails	517,687	Apr. 3	462	111	67	89
Eckley, John, and J. C. Strickland, Wallaceton, Pa. Fire-escape	521,707	June 19	1694	397, 398	67	1538
Economic Sanitary Company. (See Storer, Jacob J., assignor.)						
Economy Feed Water Heater Company. (See McDaniel, Charles W., assignor.)						
Edens, George F., and J. B. Brewer, Xenia, Ohio. Duplex electric-arc lamp	521,434	June 12	1210	287	67	1432
Edgar, Dennis P., Jackson, Mich. Washing-machine	520,771	June 5	18	4	67	1199
Edgar, Thomas S., and C. E. Williams, assignors to Hasker & Marcuse Manufacturing Company, Richmond, Va. Machine for expanding tin boxes	517,738	Apr. 3	546	131, 132	67	106
Edgar, William, Sanford, Fla. Molding-machine	517,737	Apr. 3	544	131	67	105
Edgren, Erik A., New York, N. Y. Keyboard for musical instruments	520,982	June 5	417	99	67	1272
Edison General Electric Company. (See Brown, Harold P., assignor.)						
Edmonds, Charles S., assignor to W. H. and L. Sendker, Bradford, Pa. Hydrocarbon-burner	522,158	June 26	2500	600, 601	67	1704
Edmonds, Joseph S., Eagleville, Tenn. Animal-releasing device	520,395	May 22	2541	614	67	1054
Edmunds, Joel B., Manchester, Iowa. Barber's bottle	517,849	Apr. 10	717	181	67	153
Edsall, William H., Brooklyn, N. Y. Curtain-rod	519,840	May 15	1590	389	67	863
Edward P. Allis Company. (See Reynolds, Irving H., assignor.)						
Edwards, Alonzo L. (See Hobbs and Edwards.)						
Edwards, Charles, Fagg's Manor, Pa. Hearse	521,647	June 19	1595	373	67	1518
Edwards, George G. (See Brackelsberg and Edwards.)						
Edwards, Hubert P., Butte, assignor of five-sixths to C. H. Hand, Pony, Mont., A. W. Hand, Silver City, N. Mex. Ter., J. G. Merrill, G. H. Smith, and I. S. Merrill, Butte, Mont. Method of and apparatus for amalgamating ores	518,543	Apr. 17	1917	474	67	382
Edwards, John J., Grand Rapids, Mich., assignor to S. F. and A. A. Bowser, Fort Wayne, Ind. Screw-driver	520,519	May 29	2748	665	67	1106
Eframson, Carl, assignor of one-half to E. Wiedenbeck, Minneapolis, Minn. Folding-machine	519,058	May 1	191	45	67	573
Egan, Thomas A., Jersey City, N. J. Pneumatic tire for wheels	518,229	Apr. 17	1373	344	67	284
Eggeling, Fredrick W., St. Louis, Mo. Butter-mold	520,917	June 5	303	74	67	1252
Egger, Ernst, and F. A. Wessel, assignors of one-fourth to A. Naumburg, New York, N. Y. Armature	518,312	Apr. 17	1510	377	67	308
Egger, Ernst, and F. A. Wessel, assignors of one-fourth to A. Naumburg, New York, N. Y. Railway-truck	518,313	Apr. 17	1511	378	67	308
Egger, Ernst, and F. A. Wessel, assignors of one-fourth to A. Naumburg, New York, N. Y. Automatic belt-regulator	518,314	Apr. 17	1512	378	67	308
Eggers, Anton C. (See Eggers, William, assignor.)						
Eggers, William, assignor to A. C. Eggers, Brooklyn, N. Y. Atomizer	519,498	May 8	1010	244	67	743
Egry, William L., Dayton, Ohio. Autographic register	518,230	Apr. 17	1374	344	67	284
Ehrlich, Leo, St. Louis, Mo., assignor to National Cash Register Company, Dayton, Ohio. Mechanical movement for calculating-machines	520,040	May 22	1920	471	67	939

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ehrlich, Leo, St. Louis, Mo., assignor to National Cash Register Company, Dayton, Ohio. Cash register and indicator	520,672	May 29	3011	728, 729, 730	67	1155
Ehrlicher, Charles, Watertown, N. Y. Lagging for boilers and pipes	517,850	Apr. 10	719	.....	67	153
Ehrlicher, Charles, Watertown, N. Y. Fireproof sheathing	517,851	Apr. 10	719	.....	67	153
Ehrlicher, Charles, Watertown, N. Y. Covering for pipes and boilers	517,852	Apr. 10	720	.....	67	153
Eiben, Henry, New York, N. Y. Brick-holder for stoves, ranges, &c	518,056	Apr. 10	1070	270	67	212
Eickemeyer, Rudolf, Yonkers, N. Y. Electric locomotive	520,228	May 22	2266	552	67	1000
Eiden, Leo F., East Warren, Pa. Camera-shutter	519,247	May 1	558	136	67	645
Eilers, Hio P. (See Bruch and Eilers.)						
Eisengiesserei and Maschinenfabrik für Schuh and Lederindustrie, vormals Miller & Andreae. (See Göhring, Paul, assignor.)						
Eisenhart, Samuel C., York, Pa. Variable driving-gear for bicycles	517,739	Apr. 3	548	132	67	106
Eklund, John E., Rockford, Ill. Picture-exhibitor	520,953	June 5	367	89, 90	67	1264
Ekman, Oscar C. L., assignor of one-half to H. S. Bartlett, Syracuse, N. Y. Surface-gage	519,703	May 15	1375	331, 332	67	892
Ekström, Axel, Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Electric switch	518,231	Apr. 17	1376	345	67	284
Ekström, Axel, Lynn, Mass., assignor to General Electric Company, of New York. Fuse-box	520,772	June 5	19	4	67	1200
Ekval, John, Fargo, N. D. Photograph-album	518,346	Apr. 17	1582	392	67	392
Elam, James A., Murfreesborough, Tenn. Planter	519,248	May 1	562	136	67	646
Elam, William E., assignor of two-thirds to R. S. Thomas and S. W. Hardwick, Dallas, Tex. Machine for handling and cleaning seed-cotton	518,315	Apr. 17	1513	378, 379	67	309
Elder, Edward H., Chicopee, Mass. Breech-loading firearm	518,448	Apr. 17	1764	437	67	355
Elder, James M., Indianapolis, Ind. Automatic hatchway	521,107	June 5	633	149	67	1311
Eldon, James, Lock Haven, Pa. Electric lock	518,667	Apr. 24	2134	534	67	435
Eldridge, William H., Omaha, Nebr. Envelope	519,944	May 15	1757	431	67	893
Electric Boiler Company. (See Hopkins, Charles S., assignor.)						
Electric Cable Construction and Maintenance Company. (See Brooks, David, Jr., assignor.)						
Electric Gas Lighting Company. (See Burnham, William W., assignor.)						
Electric Gas Lighting Company. (See Ross, Frederick W., assignor.)						
Electric Specialty Company. (See Bradner, William F., assignor.)						
Electrical Zinc Company. (See Choate, Parker C., assignor.)						
Elger, William D. (See Abbott, Nathaniel B., assignor.)						
Elger, William D. (See Abbott and Rau, assignors.)						
Elgin National Watch Company. (See Hunter, George E., assignor.)						
Elgin National Watch Company. (See Jackman and Smith, assignors.)						
Elieson, Chalmsonovitz P., London, England, assignor to himself and F. A. Pellas, Nicaragua, Nicaragua. Storage-battery plate	519,602	May 8	1202	290	67	778
Elkins, William H., Cambridge, Mass. Constant-current dynamo	519,858	May 15	1623	395	67	869
Elkins, William H., Cambridge, Mass. Safety system for railways	520,520	May 29	2752	666	67	1107
Elkins, William H., Cambridge, Mass., assignor to General Electric Company, of New York. Regulator for dynamo-electric machines	518,232	Apr. 17	1376	345	67	285
Eller, James H., Canton, Ohio. Conductor-pipe fastener	518,943	May 1	14	3	67	539
Elliot, Charles, Croydon, England. Machine for attaching postage-stamps to envelopes	517,740	Apr. 3	549	133	67	107
Elliott, Bamford, assignor to J. J. Warren Company, Worcester, Mass. Bicycle-bag	519,107	May 1	286	68	67	590
Elliott, Frank, North Vernon, Ind. Churn-motor	521,282	June 12	937	222	67	1380
Elliott, Sterling, Newton, assignor to Hickory Wheel Company, South Framingham, Mass. Ball-bearing for wheels	518,138	Apr. 10	1198	300	67	234
Elliott, Sterling, Newton, assignor to Hickory Wheel Company, South Framingham, Mass. Ball-bearing	518,139	Apr. 10	1200	301	67	235
Elliott, Sterling, Newton, assignor to Hickory Wheel Company, South Framingham, Mass. Sulky	521,460	June 19	1275	297	67	1460
Elliott, Sterling, Newton, assignor to Hickory Wheel Company, South Framingham, Mass. Sulky	521,878	June 26	1987	480	67	1609
Ellis, Wiatt O., Tekoa, assignor to D. B. Keagy, Farmington, Wash. Fire-escape ladder	519,499	May 8	1011	244, 245	67	743
Ellison, Thomas, Vermont, Ill. Machine for sharpening roller-disk harrows	519,841	May 15	1591	389	67	863
Elspass, John H., *et al.* (See Burson, Harvy, assignor.)						
Ely, Edward O. (See Merritt, William B., assignor.)						
Emery, Charles E., Brooklyn, N. Y. Method of and means for speed regulation of electric locomotives	517,948	Apr. 10	867	219	67	120
Emery, Charles E., Brooklyn, N. Y. Electrohydraulic car-motor	519,469	May 8	961	232	67	734
Emery, Frank V. (See Crittenden and Emery.)						
Emington, William, *et al.* (See Morris, William B., assignor.)						
Empire City Subway Company. (See Philips, James J. E., assignor.)						
Empire Light Company. (See Lewis, Leroy S., assignor.)						
Emshiveller, Osker G. (See Thompson and Emshiveller.)						
Enequist, John, Brooklyn, N. Y. Making porous sulfate of alumina	520,416	May 29	2574	.....	67	1076
Enerson, Ole P., *et al.* (See Wylie, Chester L., assignor.)						
Engberg, John G., Menominee, Mich. Horse-hitching device	518,366	Apr. 17	1626	401	67	330
Engel, Albert W. (See Engel, Henry, assignor.)						
Engel, Henry, Cleveland, Ohio. Safety water-column	519,382	May 8	814	198	67	709
Engel, Henry, New Ulm, Minn., assignor of one-fourth to A. W. Engel, Chicago, Ill. Bag-fastener	520,107	May 22	2038	497	67	960
Engelbach, Augustus L., and S. E. Bretherton, Leadville, Colo. Furnace	518,493	Apr. 17	1828	453	67	367
English, Carl S., assignor of one-half to C. A. Church and O. C. McDannell, Lowell, Mich. Electrical governor for water-wheels	521,085	June 5	595	140	67	1304
English, Charles H., Washington, D. C. Finger-protector	518,027	Apr. 10	1018	256	67	204
Ensign, Charles H., Kekaha, Hawaii. Metallic piston-rod packing and gland	520,954	June 5	369	90	67	1265
Enterprise Manufacturing Company. (See Brown, John W., Jr., assignor.)						
Entz, Justus B. (See Phillips and Entz.)						
Eppler Welt Machine Company. (See Arnold, Henry H., assignor.)						
Epprecht, Herman, New York, N. Y. Gas-burner	520,521	May 29	2753	666	67	1107
Erben, Hermann F. T., Schenectady, N. Y., assignor to General Electric Company, Boston, Mass. Armature for dynamo-electric machines	520,773	June 5	20	5	67	1200
Erbor, Andrew, Coplay, Pa. Washing-machine	519,303	May 1	655	159	67	664
Ersley, Bertha M., Brooklyn, N. Y. Swinging support for clothes-lines	518,397	Apr. 17	1671	413	67	338
Ertel, George, Quincy, Ill. Thermostatic regulator for incubators	518,522	Apr. 17	1882	466	67	376
Esselbach, Paul. (See Bernreuther, Carl, assignor.)						
Estell, Samuel F., Chicago, Ill. Tricycle	517,741	Apr. 3	550	133, 134	67	107

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Esterbrook, Edward B. (See Coxe, Charles B., assignor.)						
Ethridge, Frank N., Boston, Mass., assignor to American Postal Machines Company, Portland, Me. Machine for marking mail-matter	521,564	June 19	1450	338, 339, 340	67	1492
Ethridge, Frank N., Boston, Mass., assignor to American Postal Machines Company, of Maine. Stamp-canceling machine	521,565	June 19	1456	340, 341	67	1493
Ethridge, Frank N., assignor to A. Leavitt, Boston, Mass. Mail-marking machine	522,049	June 26	2316	556	67	1669
Ethridge, Martin V. B., Everett, Mass., assignor to American Postal Machines Company, Portland, Me. Mail-marking machine	521,566	June 19	1459	341, 342	67	1493
Ethridge, Martin V. B., Boston, Mass., assignor to American Postal Machines Company, Portland, Me. Stamp-canceling and postmarking machine	521,605	June 19	1526	357, 358	67	1505
Ethridge, Martin V. B., Everett, Mass., assignor to American Postal Machines Company, Portland, Me. Stamp-canceling and postmarking machine	521,606	June 19	1531	358, 359	67	1506
Ethridge, Martin V. B., Everett, and H. E. Waite, Newton, assignors to C. F. Brown, Reading, Mass. Mail-marking machine	521,764	June 19	1808	429	67	1557
Etienne, Bruneau, Waterbury, Conn. Hot-water boiler	518,592	Apr. 24	2002	496	67	412
Ettinger, Rose, New York, N. Y. Combined folding table and bed	517,607	Apr. 3	309	73	67	61
Euchenhofer, Edward E., C. J. Weinman, and A. L. Stevens; said Euchenhofer and Weinman assignors to said Stevens; said Stevens assignor of two-thirds to J. M. Phelps and C. W. Uthbrok, Dayton, Ohio. Labeling-machine	517,918	Apr. 10	823	206, 207	67	173
Euphrat, Theophile, Darien, assignor of one-eighth to C. S. Trowbridge, South Norwalk, Conn. Guard and shade attachment for windows	521,607	June 19	1534	359	67	1506
Eureka Can Opening Company. (See Kleinfeldt, Arthur, assignor.)						
Eureka Coat Pad Company of Baltimore City. (See Goldman, Edward, assignor.)						
Evans, Arthur K., Toronto, Canada. Rope-grip	518,880	Apr. 24	2489	617	67	499
Evans, Arthur K., Toronto, Canada. Stay-traveler	520,955	June 5	370	90	67	1265
Evans, David E., *et al.* (See Darley, John W., Jr., assignor.)						
Evans, Joseph W., Newburyport, Mass. Sash-holder	518,494	Apr. 17	1829	454	67	367
Evans, Louis C., Springfield, Ohio. Seeder	520,182	May 22	2188	533	67	986
Evans, Robert D., *et al.* (See Knight, Margaret E., assignor.)						
Evans, Samuel W., Jr. (See Gaskill, William H., assignor.)						
Evelyn-Llardét, Wilbraham, Elsternwick, Victoria. Explosive and making same	521,020	June 5	475	.....	67	1282
Everest, Hiram B., Riverside, Cal. Water-sprinkler	519,992	May 15	1841	450	67	909
Everett, Edward H., and A. Samuelson, Newark, Ohio. Glass-melting furnace	521,537	June 19	1409	326	67	1484
Everett, Wilbur F., Reno, assignor to D. M. Bull, Verdi, Nev. Machine for cutting metal bars, &c	521,785	June 26	1844	439	67	1581
Evnon, Benjamin, Pittsburg, Pa. Feed water heater	521,708	June 19	1696	398	67	1539
Eyre, George L. P., London, and T. J. Hopkins, Trowbridge, England; said Hopkins assignor to said Eyre. Wool-washing machine	517,566	Apr. 3	244	57, 58	67	48
F. F. Ide Manufacturing Company. (See Ide, Ferdinand F., assignor.)						
F. M. Carr Manufacturing Company. (See Carr, Florence M., assignor.)						
F. P. Little Electrical Construction and Supply Company. (See Kester, Jesse F., assignor.)						
Fahy, James E., New York, N. Y. Die-stock	518,808	Apr. 24	2382	589	67	478
Faint, George, Indiana, Pa. Easel	518,544	Apr. 17	1919	474	67	382
Fairchild, Frank J., Saginaw, Mich., assignor of one-half to T. Nichels. Fire-escape	521,339	June 12	1061	248	67	1404
Fairfield, Hadley P., West Medford, assignor to J. W. Brooks, trustee, Petersham, Mass. Rotary cutter	518,917	Apr. 24	2559	633	67	512
Falck, Adolph. (See Lewis, Charles F. and W., assignors.)						
Fallis, Edward O., Toledo, Ohio. Metallic grain-storage building	521,951	June 26	2142	513	67	1639
Falor, Noah W., Mogadore, Ohio. Cultivator	521,340	June 12	1062	248	67	1404
Fanta, Ferdinand, assignor to Oxygen Producing Syndicate, Limited, London, England. Apparatus for making oxygen	519,627	May 8	1247	299, 300	67	786
Farbenfabriken, vormals Fr. Bayer & Co. (See Krekeler and Krais, assignors.)						
Farbenfabriken, vormals Fr. Bayer & Co. (See Nastvogel and Reingruber, assignors.)						
Faries, Robert, Decatur, Ill. Adjustable carrier for electric lamps	521,952	June 26	2145	514	67	1639
Faris, Frederick F., Wheeling, W. Va. Hearth-bed for fireplaces	518,100	Apr. 10	1140	287	67	224
Farish, Thomas J., Camp Hill, Ala. Iron fence	518,837	Apr. 24	2423	600	67	485
Farmer, Elkin. (See Mayr, George, assignor.)						
Farmer, James S., Salford, assignor of three-fifths to H. L. and I. H. Storey, Lancaster, England. Machine for the manufacture of solid-color floor-cloths	521,157	June 12	721	169, 170	67	1341
Farmer, John R., assignor of two-thirds to O. M. Schmidt and W. B. Grable, St. Louis, Mo. Automatic electric signal-lamp	521,435	June 12	1212	287, 288	67	1432
Farmer, Julius M., Milwaukee, assignor of one-half to H. and A. L. Reuter, Rice Lake, Wis. Sewing-machine needle	517,853	Apr. 10	720	181	67	153
Farnum, Myra C., Port Jervis, N. Y. Oven	518,057	Apr. 10	1071	271	67	212
Farrar, William B., assignor of one-half to O. W. Carr, Greensborough, N. C. Therapeutic electrode	520,673	May 29	3019	730	67	1157
Farrell, Della, *et al.* (See Farrell, George W., assignor.)						
Farrell, George W., assignor to D. Farrell, Ausable Forks, and A. J. Merrill, Jay, N. Y. Beer-condensing and bottle-filling apparatus	519,888	May 15	1673	407	67	878
Farrer, James F., *et al.* (See Parman, William S., assignor.)						
Farwell, Oscar F., Woodstock, Vt., assignor to Wiley & Russell Manufacturing Company, Greenfield, Mass. Tire-marker	519,249	May 1	563	137	67	646
Faucher, Charles. (See Sego and Faucher.)						
Faulder, Thomas. (See Bradley and Faulder.)						
Faulhaber, Hermann F. A., and C. F. Koch, Schwabisch Hall, Germany. Chimney-cowl	518,398	Apr. 17	1672	413	67	338
Favier, Pierre A., Paris, France. Machine for decorticating ramie, &c	520,983	June 5	417	100	67	1272
Fay, Edgar E., Worcester, Mass. Velocipede-wheel	520,845	June 5	165	36	67	1227
Fay, Thomas J., New York, N. Y., assignor to C. & C. Electric Company, of New Jersey. System of electrical distribution	521,436	June 12	1215	288	67	1433
Fearn, Oris E., assignor of one-half to S. G. Porter, Haigler, Nebr. Razor-handle	519,250	May 1	564	137	67	646
Fearn, William R., Camden, N. J., assignor to J. McLoughlin, New York, N. Y. Bagatelle-table	519,842	May 15	1593	389	67	863
Fee, George, North Bay, Canada. Refrigerator	518,233	Apr. 17	1378	345	67	285
Fee, William R., assignor to A. J. White, Cincinnati, Ohio. Clamp for cutter-blades	520,260	May 22	2323	563, 564	67	1011
Feicker, Fredrick C., Northampton, Mass. Machine for sawing knife-handle blanks	521,606	June 19	1535	359	67	1506
Fell, Ambrose G., New York, N. Y. Obtaining lead salts from native ores	519,704	May 15	1375	.....	67	822
Felldin, Abraham, Auburn, N. Y. Piano	520,139	May 22	2113	515	67	972
Fellows, Samuel R., Hubbard, Ohio. Cooler for cinder-notches	518,495	Apr. 17	1830	454	67	367
Fenderson, Edward J., Lowell, assignor to H. H. Ham, Boston, and A. A. Coburn, Lowell, Mass. Spindle for spinning-machines	521,142	June 5	692	162	67	1321
Feneran, Frederick J., and E. D. Milks, Machias, N. Y. Hay-knife	519,251	May 1	565	137	67	646
Fenn, Katy, Chicago, assignor of one-half to K. V. Lawlor, Joliet, Ill. Multiple record	520,774	June 5	22	5	67	1200

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fennell, George H. (See Lineback, William T., assignor.)						
Fenno, Isaac, *et al.* (See Howe, Patrick, assignor.)						
Ferguson, Robert, and A. T. Danks, Melbourne, Victoria. Milking-machine	518,234	Apr. 17	1379	346	67	285
Fernholtz, Emil, assignor of one-half to J. Stocke and H. C. Beckmann, St. Louis, Mo. Mold for brick-machines	518,185	Apr. 10	1278	323	67	248
Ferris, Edwin D., and G. M. Wheeler, Tacoma, Wash. Automatic water-circulating fire-grate	517,567	Apr. 3	248	58	67	49
Fette, Henry, Goodenow, Ill. Feeder for hay-presses	521,261	June 12	905	213	67	1374
Fetters, William H., Greentown, Ohio. Pump	519,081	May 1	244	57	67	583
Feuerbacher, Frank P., assignor of one-half to J. M. Fightmaster and H. H. Howard, Oklahoma, Okla. Ter. Cross-tie for railways	521,158	June 12	723	171	67	1341
Fidler, James. (See Richardson and Fidler.)						
Fieke, Karl G., Dresden, Germany. Car-brake	519,993	May 15	1842	450	67	909
Field, Rollin D., and E. O. Pratt, Rutland, Vt. Stone-working machine	517,742	Apr. 3	551	134	67	107
Fielding, John, Gloucester, England. Valve-gear	518,593	Apr. 24	2003	496, 497	67	412
Fields, Charles C., assignor of one-half to A. D. Reynolds, Bristol, Tenn. Automatic alarm-register	520,159	May 22	2149	524	67	979
Figgins, Joseph F., Washington, D. C., assignor of one-third to W. F. Zang, Harrisburg, Pa. Wall-desk	518,567	Apr. 17	1959	483	67	389
Fightmaster, John M., *et al.* (See Feuerbacher, Frank P., assignor.)						
Finch, Frederick A., assignor of one-third to G. H. Miller, St. Louis, Mo. Vehicle-wheel	518,881	Apr. 24	2490	617	67	499
Finch, James T., Wellsville, Ohio. Chimney-top and ventilator	517,797	Apr. 3	636	159	67	123
Finch, John M., Hornellsville, N. Y. Fishing-rod support	520,041	May 22	1922	471	67	939
Finch, John M., assignor of one-half to F. Miller, Marysville, Cal. Rotating grain-meter	517,608	Apr. 3	311	73	67	61
Finch, John Q., San Francisco, Cal. Lubricator	518,058	Apr. 10	1072	271	67	212
Finch, John W., Northampton, Mass. Monocycle	521,786	June 26	1845	440	67	1581
Finkel, Benjamin. (See Schoff, Finkel, and Probert.)						
Finklestein, Moris, New York, N. Y. Cooker	520,305	May 22	2392	581	67	1025
Finlayson, Alexander W., assignor, by mesne assignments, of two-thirds to Finlayson Boiler Company, Limited, Detroit, Mich. Steam-generator	519,059	May 1	196	46	67	574
Finlayson Boiler Company. (See Finlayson, Alexander W., assignor.)						
Finley, James H., Buffalo, N. Y. Windlass for grain-shovels	520,956	June 5	371	90, 91	67	1265
Finley, James H., assignor of one-half to G. S. Gatchell, Buffalo, N. Y. Means for operating elevator-legs	518,496	Apr. 17	1831	454	67	367
Firestone, George C., Benicia, Cal. Combination brick-kiln	518,690	Apr. 24	2165	542	67	441
Fischer, Herman, Brooklyn, N. Y. Machine for pasting vamps to uppers	520,590	May 29	2870	694, 695	67	1130
Fish, Sidell E., Greenport, N. Y. Cash-delivering device	519,449	May 8	921	222	67	728
Fisher, Andrew J., Buda, Ill. Manufacturing car-wheels	521,787	June 26	1846	440	67	1582
Fisher, Charles, *et al.* (See Schneider, George L.)						
Fisher, Edward E., Columbus, Ohio. Casket-pedestal	521,211	June 12	814	191	67	1358
Fisher, Ferdinand, Chesaning, Mich. Animal-poke	519,994	May 15	1844	450	67	909
Fisher, Henry, Sacramento, Cal. Comb-cleaner	520,731	May 29	3109	753	67	1173
Fisher, Henry, Sacramento, Cal. Combined pencil-sharpener and eraser	520,732	May 29	3111	753	67	1174
Fisher, James W., Piqua, Ohio. School-seat hinge	518,988	May 1	83	21	67	551
Fisher, Jasper K., Lowell, Mich. Knockdown cutter	517,855	Apr. 10	723	182	67	154
Fisher, John E., assignor of one-half to C. C. Munroe, Boston, and C. F. Hastings, Somerville, Mass. Thill-coupling	519,470	May 8	966	233	67	734
Fisher, Thomas L. (See Williams and Fisher.)						
Fisk, Henry M., Chicago, Ill. Combined annunciator and spring-jack	521,461	June 19	1278	297	67	1461
Fiske, Jonathan P. B., Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Combined truck and hoist	518,235	Apr. 17	1380	346	67	285
Fiske, Jonathan P. B., Lynn, assignor to General Electric Company, Boston, Mass. Rheostat	518,236	Apr. 17	1381	346, 347	67	286
Fitch, Ezra C., Newton, Mass. Watch-movement box	517,647	Apr. 3	386	92	67	75
Fitch, Frederick K. (See McTighe, Thomas J., assignor.)						
Fitch, Thaddeus S., San Francisco, Cal. Fruit-carrier	521,141	June 5	690	162	67	1321
Fitzgerald, Helen M., *et al.* (See Fitzgerald, William, assignor.)						
Fitzgerald, James W., Marysville, Ky. Stallion-shield	521,462	June 19	1279	298	67	1461
Fitzgerald, John H., Frankfort, W. Va., and M. A. Gaugh, Newport, Ky. Curtain-fixture	518,918	Apr. 24	2560	633	67	513
Fitzgerald, John J., *et al.* (See Fitzgerald, William, assignor.)						
Fitzgerald, William, assignor of three-fourths to W. E., J. J., and H. M. Fitzgerald, Everett, Mass. Shaking and dumping grate	518,779	Apr. 24	2330	578	67	470
Fitzgerald, William E., *et al.* (See Fitzgerald, William, assignor.)						
Fitzhugh, Bessie V., Bowling Green, Ky. Combination book-rest and table or stand	518,594	Apr. 24	2004	497	67	413
Fitzhugh, William L., Baltimore, Md. Vacuum-brake	517,819	Apr. 3	669	167	67	130
Fitzhugh, William L., Baltimore, Md., assignor to Russ Car Fender Company, of West Virginia. Car-fender and automatic brake	517,798	Apr. 3	637	159	67	124
Fitzsimmons, Mathew, Ironwood, Mich. Safety-guard for freight-cars	517,519	Apr. 3	169	38	67	35
Fix, Frederick W., Syracuse, N. Y. Machine for molding confections	518,059	Apr. 10	1073	271, 272	67	212
Flagg, George H. P. (See Perry, Austin E., assignor.)						
Flagg, John H. (See Lockwood, William C., assignor.)						
Flanigan, Robert, assignor of one-half to J. S. Detrick, Baltimore, Md. Closure for bottles	521,788	June 26	1847	440	67	1582
Flather, Joseph, Nashua, N. H. Adjustable stop for taper-turning lathes	520,918	June 5	304	74	67	1232
Fleck, Peter. (See Remick and Fleck.)						
Fleming, William, Newberry, Pa. Trigger for double-barreled guns	521,021	June 5	476	114	67	1282
Fletcher, Florence M., Knighton, assignor to C. E. Whitmore and C. D. Price, Leicester, England. Attachment for ladies' dresses for protecting bands of flowers	517,568	Apr. 3	251	58	67	49
Fletcher, Wendell C., St. Louis, Mo., assignor to N. P. Willard, trustee, Chicago, Ill. Electrical train-brake	520,108	May 22	2039	497, 498, 499	67	961
Flexible Door and Shutter Company. (See Spaulding, Algenon S., assignor.)						
Flomerfelt, James A., New York, N. Y. Cuff-button	518,595	Apr. 24	2004	497	67	413
Flood, Edward L., Savoy, Ark. Combined stove-hearth and ash-box	520,591	May 29	2873	695	67	1131
Flood, Matthew, Albany, N. Y. Air-compressing apparatus	519,383	May 8	815	198, 199	67	709
Florence, George L., assignor of one-half to A. Cannon, Poughkeepsie, N. Y. Gate or door	520,261	May 22	2323	564	67	1011
Flower, Walter C. (See Le Gresley-Cox, Ernest, assignor.)						
Flowers, Julius W., Newport, Oreg. Shingle-bracket	518,838	Apr. 24	2424	601	67	486
Floyd, John, Baltimore, Md., assignor of two-fifths to E. Schaefer, Lynchburg, Va. Nail or spike	519,810	May 15	1545	377	67	854

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Foerste, Albert, Berlin, Germany. Form of ships	519,628	May 8	1252	301	67	786
Fogg, George O., Boston, Mass. Sign-staff	518,780	Apr. 24	2332	578	67	470
Foglesong, Washington, assignor to Baker & Foglesong Manufacturing Company, Dayton, Ohio. Machine for making paper vessels	519,153	May 1	380	91, 92, 93	67	611
Foglesong, Washington, assignor to Baker & Foglesong Manufacturing Company, Dayton, Ohio. Fastening device for paper vessels	519,571	May 8	1153	277, 278	67	769
Foland, Charles G., Oneida, N. Y. Culinary frying-frame	520,846	June 5	165	37	67	1227
Foley, John P., B. H. Dunshee, and D. H. Anderson, Phillipsburg, Mont. Ore separator and classifier	517,799	Apr. 3	640	160	67	124
Folsom, George A. (See Folsom, Rufus, assignor.)						
Folsom, Rufus, Chelsea, assignor of one-half to G. A. Folsom, Boston, Mass. Vessel and propelling mechanism therefor	518,028	Apr. 10	1019	257	67	204
Fontineau, Frank, Attleborough, Mass. Press-strainer for tea or coffee pots	519,108	May 1	287	68	67	590
Forbes, Emma L. (See Wendté, William C., assignor.)						
Forbes, George, Niagara Falls, N. Y. Dynamo-electric machine	518,944	May 1	15	4	67	539
Forbes, George, Niagara Falls, N. Y. Dynamo-electric machine	518,945	May 1	16	4,5	67	539
Forbes, George, Niagara Falls, N. Y. Construction of solenoids or coils of wire used in electric machinery	518,946	May 1	18	5	67	540
Forbes, Walter T., Atlanta, Ga. Apparatus for treating ramie	519,422	May 8	882	213	67	721
Forbes, Walter T., Atlanta, Ga. Apparatus for extracting oil from cotton-seed	519,424	May 8	885	214	67	722
Forbes, Walter T., Jersey City, N. J. Apparatus for treating ramie or other fibrous growths.	519,423	May 8	883	214	67	721
Forbes, William H. (See Wendté, William C., assignor.)						
Force & Co., William A. (See Chase, Henry A., assignor.)						
Force & Co., William A. (See Spielmann, Charles, assignor.)						
Ford, Benjamin F., New Castle, Me. Sink	521,406	June 12	1159	275	67	1424
Ford, Charles E., Leavenworth, Kans. Bicycle	519,252	May 1	565	137	67	647
Ford, Edward, assignor of one-half to Pittsburg Plate Glass Company, Creighton, Pa. Grinding and polishing machinery	521,953	June 26	2146	514, 515	67	1640
Ford, Johnson & Co. (See Morris, Henry B., assignor.)						
Ford, Simeon J., Placerville, Cal. Car-coupling	518,140	Apr. 10	1201	301	67	235
Ford, William A., Indianapolis, Ind. Sole	518,060	Apr. 10	1075	272	67	213
Fordham & Smith. (See Lane, Edward S., assignor.)						
Forman, Henry, Chellaston, England. Plow or cultivator	521,022	June 5	478	114	67	1283
Forney, Matthias N., New York, N. Y. Steam-boiler	518,399	Apr. 17	1673	413	67	339
Forrester, William H., assignor of one-half to G. C. Humphrey, Syracuse, N. Y. Folding washbench and clothes-bar	518,186	Apr. 10	1359	323	67	249
Forsgren, Ernst L., New York, N. Y. Trunk	519,179	May 1	430	105, 106	67	621
Forsythe, Andrew J., Kokomo, Ind. Wire-fence machine	519,603	May 8	1203	290	67	778
Fort, Foster W. (See Kellner, Eugene, assignor.)						
Forth, Charles, and H. Glenzer, Cleveland, Ohio, assignors to E. L. Thurston, trustee. Mechanism for justifying matrix-lines	520,140	May 22	2114	515, 516	67	972
Foss, Edgar B. (See Church, Dwight M., assignor.)						
Foss, John H., Passaic, N. J. Inside shoe	520,417	May 29	2575	623	67	1076
Foster, Alfred F., Alton, Ill. Screw-dummy for sewer-pipe dies	521,445	June 12	1239	292, 293	67	1438
Foster, David A., Indianapolis, Ind. Vehicle running-gear	518,909	Apr. 24	2383	589, 590	67	479
Foster, Lucian M., Boston, assignor to B. Poole, Topsfield, Mass. Registering ballot-box	520,482	May 29	2688	651	67	1096
Foster, Morrison, Sewickley, Pa. Pumping machinery	517,449	Apr. 3	63	13, 14	67	14
Foster, Theodore W., Providence, R. I. Combined match-box and cigar-tip cutter	517,546	Apr. 3	213	49	67	43
Fonlds, John, Jr., Lynn, assignor to General Electric Company, Boston, Mass. Splitting mica	518,237	Apr. 17	1383	347	67	286
Fournier, Louis J. B., Marseilles, France. Apparatus for manufacturing hollow candles	521,407	June 12	1161	275, 276	67	1424
Fowler, Alfred B., and G. E. Warren, Exeter, N. H. Tack-pulling attachment for sewing-machines	520,775	June 5	24	5	67	1201
Fowler, Edward C., and G. A. Downs, Forestville, Conn. Clamp for lamp-burners	520,042	May 22	1923	471	67	939
Fowler, Henry A., *et al.* (See Turner, William A., assignor.)						
Fowler & Rockwell. (See Rockwell and Hull, assignors.)						
Fowler, Samuel, *et al.* (See Turner, William A., assignor.)						
Fox, Albert M., *et al.* (See Fox and Yates, assignors.)						
Fox, Edward, assignor of two-thirds to J. Harris and J. J. McCarthy, St. Louis, Mo. Wheel	519,790	May 15	1516	369	67	849
Fox, Frank A., New York, and A. P. Yates, Syracuse, assignors of one-half to D. H. Roberts, New York, N. Y., and A. M. Fox, Fostoria, Ohio. Pyrotechnic railway danger-signal	520,639	May 29	2944	712	67	1144
Fox, George, New York, N. Y. Angle-plate for boiler-fronts	520,674	May 29	3022	731	67	1157
Fox, John C., *et al.* (See Warner, Frank A., assignor.)						
Fox, John C., Chicago, Ill., assignor of two-thirds to P. Thompson, Kansas City, Mo., and F. A. Warner, Chicago, Ill. Elevator	520,043	May 22	1924	471	67	940
Fox, Samson, Harrogate, England, assignor to Fox Solid Pressed Steel Company, Chicago, Ill. Car-truck	521,709	June 19	1697	398, 399	67	1539
Fox Solid Pressed Steel Company. (See Fox, Samson, assignor.)						
Fox, William T., Rochester, N. Y. Water-closet	518,753	Apr. 24	2292	569	67	402
Frame, John, and R. B. Morden, Cooper, Iowa. Electric burglar-alarm	517,450	Apr. 3	65	14	67	14
Frame, Oliver C., Pasadena, Cal. Device for untying bale-wires, &c	518,839	Apr. 24	2425	601	67	486
Frank, Charles P. (See Speed, Barker, and Frank.)						
Franklin, Frank A., Evansville, Wis. Windmill	517,854	Apr. 10	721	181	67	153
Franklin, Robert G. (See McLaughlin, James, assignor.)						
Frasch, Hans A., assignor to Grasselli Chemical Company, Cleveland, Ohio. Petroleum sulfo-acid	518,989	May 1	85	.....	67	552
Frasch, Hans A., assignor to Grasselli Chemical Company, Cleveland, Ohio. Petroleum sulfo-acid	518,990	May 1	87	.....	67	552
Frasch, Hans A., assignor to Grasselli Chemical Company, Cleveland, Ohio. Brown petroleum nitro dye	518,991	May 1	88	.....	67	552
Frasch, Hans A., assignor to Grasselli Chemical Company, Cleveland, Ohio. Petroleum dye	518,992	May 1	90	.....	67	552
Frasch, Hans A., assignor to Grasselli Chemical Company, Cleveland, Ohio. Brown petroleum dye	519,036	May 1	159	.....	67	567
Frazeur, David C., New Market, assignor of one-half to J. A. Frech, Somerville, N. J. Power-transmitting mechanism	521,108	June 5	636	149, 150	67	1312
Frech, John A. (See Frazeur, David C., assignor.)						
Fréchette, Isaïe, Montreal, Canada. Hand lasting-tool	519,859	May 15	1624	395	67	869

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Fredericks, Jacob H., Newark, N. J. Combined carpenter's bench pin, guide, and knife	521,234	June 12	856	201	67	1365
Free, Charles C., Colorado Springs, Colo. Stove	519,705	May 15	1379	332	67	823
Freedley, Louis E., Boston, Mass. Electric operating mechanism for vehicles	518,781	Apr. 24	2332	578, 579	67	470
Freese, Daniel T., and J. D. Gawn, North Amherst, Ohio. Submarine boat	521,854	June 26	1948	468, 469	67	1602
French, Harry C. (See Klein and French.)						
French, Philo N., assignor to Morris Box Lid Company, Pittsburg, Pa. Axle-box lid	522,050	June 26	2318	557	67	1670
Frerichs, Jurgen, Gilman, Ill. Chimney-regulator	517,919	Apr. 10	825	207	67	173
Fretz, Alva B., Caldwell, N. J. Revolving holder for maps, &c	519,763	May 15	1464	355	67	839
Frey, Benedict, assignor to H. Maurer, New York, N. Y. Glaze for clay articles	517,609	Apr. 3	312	...	67	61
Frick, Louis C. S., Buffalo, N. Y. Stuffing-box	519,037	May 1	160	38	67	567
Fridrich, George W., St. Louis, Mo. Hot-air furnace	518,810	Apr. 24	2387	590	67	479
Friede, Samuel M., assignor to Star Coupler Company, St. Louis, Mo. Combination soft and hard metal pipe coupling	519,304	May 1	658	160	67	665
Friedenstein, Joseph, Brooklyn, N. Y. Joint for metal wheel-rims	521,437	June 12	1217	288	67	1433
Friedheim, Firm of Max. (See Bauer, Friederich R., assignor.)	517,610	Apr. 3	313	74	67	62
Friedlander, Ellen. (See Hunter, Wallace B., assignor.)						
Friedman, Joseph L., and J. W. Keller, Paducah, Ky. Bottle	517,800	Apr. 3	641	160	67	125
Friese, Augustus W. (See Hobbs, Horace, assignor.)						
Frisbee, Daniel D., Detroit, Mich. Fence	519,995	May 15	1845	451	67	909
Frisbie, Henry R., assignor to F. Kinsley, Bridgeport, Conn. Steam chime-whistle	520,418	May 29	2576	623	67	1076
Froelich, Christopher, Brooklyn, N. Y. Railway-switch	519,082	May 1	246	58	67	583
Frouholt, Félix J. G., Paris, France. Mechanical sawing and molding stone, marble, &c	518,029	Apr. 10	1020	257	67	205
Frontier Iron Works. (See Symington, Duncan, assignor.)						
Frost, John C., Winston, N. C. Spraying device for tobacco-casing machines	519,425	May 8	887	214	67	722
Frost, John O., Greensburg, assignor of one-half to M. Johnson, Uniontown, Pa. Coin-controlled electrical apparatus	520,044	May 22	1926	472	67	940
Frost, Thomas W., Wayland, Mass. Paint-brush binder	519,996	May 15	1846	451	67	909
Fryer, John W. (See Balthasar, Curt J., assignor.)						
Fuchs, Nathan, assignor of two-thirds to T. Craney and T. C. Stokes, Louisville, Ky. Bung	518,811	Apr. 24	2389	590	67	480
Fuchs, Simon, assignor to D. I. Neudorf, St. Louis Mo. Sash for windows	519,450	May 8	922	222	67	729
Fuerth, William G., Newark, N. J., assignor to A. B. Dick Company, of Illinois. Stencil-printing machine	521,464	June 19	1282	290	67	1462
Fuller, George M. (See Pelkey and St. Louis, assignors.)						
Fuller, Judson M., Oak Park, Ill. Puzzle	518,061	Apr. 10	1077	272	67	213
Fuller, Marie L., New York, N. Y. Garment for dancers	518,347	Apr. 17	1583	392	67	322
Fuller, Rodolphus, Detroit, Mich. Brush-holder for dynamo-electric machines	522,051	June 26	2319	557	67	1670
Füllner, Alwin G. E., Warmbrunn, Germany. Pulp-catcher for paper-manufactories	518,238	Apr. 17	1384	347	67	286
Fulton, Mahlon, Philadelphia, Pa. Smoke-consuming furnace	519,530	May 8	1084	259	67	756
Funke, Robert C., assignor of one-half to S. Corkran, Philadelphia, Pa. Hammock stretcher or spreader	518,568	Apr. 17	1960	484	67	389
Furay, John B. (See McArdle and Furay.)						
Fyfe, John C., assignor of one-half to J. Hayes, Chicago, Ill. Electric-arc lamp	519,283	May 1	615	150	67	656
Fyfe, John C., assignor of one-half to J. Hayes, Chicago, Ill. Commutator	522,052	June 26	2320	557	67	1670
Gaffron, Phillip E., Denver, Colo. Gold-amalgamating machine	520,847	June 5	170	37	67	1228
Gage, Robert, *et al.* (See Weston, Edward D., assignor.)						
Gage, Wellesley W., New York, N. Y. Pipe-coupling	521,465	June 19	1283	290	67	1462
Gair, Robert, Brooklyn, N. Y. Paper box	519,451	May 8	924	223	67	729
Gale, Burton L., assignor to Warren Extension Table Company, Warren, Pa. Knockdown box	521,310	June 12	994	234	67	1390
Gale, Horace B., San Francisco, Cal. Speed and power regulator for motors	518,062	Apr. 10	1078	273	67	213
Gallant, William L. (See McLaughen and Gallant.)						
Galleazzi, Joseph, San Francisco, Cal. Accordion	517,648	Apr. 3	387	92, 93	67	75
Gallup, James W. (See Conner, Daniel E., assignor.)						
Gamewell Fire-Alarm Telegraph Company. (See Kirnan, William H., assignor.)						
Gammons, Welcome P., Jr., New York, N. Y. Machine for sewing sweat-bands into hats	519,038	May 1	162	38, 39	67	567
Garden, Anthony D. (See Walter, Thomas U., assignor.)						
Gardner, Edward. (See Gardner, Thomas H. and E.)						
Gardner, George C., Chicago, Ill. Sash-fastener	521,341	June 12	1063	240	67	1404
Gardner, Marshall, assignor, by mesne assignments, to Gardner Sewing Machine Company, Aurora, Ill. Sewing-machine. (Reissue)	11,412	Apr. 10	1341	344, 345	67	262
Gardner Sewing Machine Company. (See Gardner, Marshall, assignor.) (Reissue.)						
Gardner Sewing Machine Company. (See Levedahl, Axel, assignor.)						
Gardner, Thomas H. and E., Manchester, England. Dental chair	519,109	May 1	288	68, 69	67	590
Gardner, Thomas H. and E., Manchester, England. Retaining or lowering apparatus	519,110	May 1	290	69, 70	67	591
Gardner, William F., Washington, D. C. Time-ball	520,879	June 5	223	50	67	1238
Gare, Thomas, Stockport, England. Burnishing-machine	521,977	June 26	2191	527	67	1617
Garey, Wilbur E., Chicago, Ill. Electric indicator	519,945	May 15	1758	431	67	893
Garfield, Charles M., Minneapolis, Minn. Cigar-moistening device	520,141	May 22	2118	516	67	953
Garland, Michael. (See Thomas, Edwin E., assignor.)						
Garland, Michael, Bay City, Mich. Twin circular sawing machine	518,031	Apr. 10	1022	258	67	205
Garlock, Stephen G., and B. W. Marshall, assignors to W. J. Marshall, St. Louis, Mo. Adjustable desk-bracket for electric lamps	517,569	Apr. 3	252	58	67	49
Garraux, Frederick, assignor to Winship Machine Company, Atlanta, Ga. Apparatus for elevating seed-cotton	521,159	June 12	724	171	67	1341
Garrett, Allison. (See Tanquary, Cassius M., assignor.)						
Garrett, Elmer E., Philadelphia, Pa. Duplicating cash or receipt book	521,879	June 26	1987	480	67	1610
Garrison, William F., Brooklyn, N. Y. Water-regulating valve for condensers	519,083	May 1	248	58	67	583
Gartrell, John H., Penzance, England. Apparatus for indicating and regulating fluid-pressure	517,451	Apr. 3	66	14	67	15
Garver, Abraham L., Roaring Spring, Pa. Book-backing machine	519,997	May 15	1847	451, 452	67	909
Garver, Martin V., Bryan, Ohio. Wheelbarrow	520,919	June 5	304	74	67	1253
Garver, Martin V., Bryan, Ohio. Wheelbarrow-tray	520,920	June 5	305	75	67	1253
Gaskill, William H., Philadelphia, Pa. Ferrule	521,765	June 19	1811	429	67	1558
Gaskill, William H., assignor to S. W. Evans, Jr., Philadelphia, Pa. Ferrule	521,342	June 12	1063	249	67	1404
Gaskins, Thomas, Arcadia, Fla. Cooking stove or range	520,229	May 22	2268	552	67	1001
Gassaway, Benjamin F., Dublin, Tex. Overcoat	519,670	May 8	1312	313, 314	67	797
Gatchell, George S. (See Finley, James H., assignor.)						
Gates, Caleb C., assignor to himself and J. S. Hopkins, Forsyth, Mont. Railway rail or tie distributer	521,023	June 5	479	114	67	1283

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gates, William H., assignor of one-half to E. F. Dakin, Worcester, Mass. Trammel	522,053	June 26	2322	557	67	1670
Gatling, Richard J., Hartford, Conn. Bicycle	519,384	May 8	817	199	67	709
Gaugh, Maria A. (See Fitzgerald and Gaugh.)						
Gaul, Ray, Brooklyn, N. Y. Device for increasing draft in smoke-stacks	522,009	June 26	2359	541	67	1658
Gause, Benjamin, Atlanta, Ga., assignor to J. C. Calhoun, New York, N. Y. Cotton-harvester	520,045	May 22	1928	472, 473	67	940
Gauthier, Albert. (See McKercher, Alphonse C., assignor.)						
Gavey, William S., Brooklyn, N. Y. Electrically-operated railway-switch	517,743	Apr. 3	554	135	67	107
Gawn, James D. (See Freese and Gawn.)						
Gay, Chauncey W., Springfield, Mass. Machine for bending paper-box blanks	519,671	May 8	1313	314, 315	67	797
Gay, Chauncey W., Springfield, assignor of one-half to L. W. Brown & Co., Brightwood, Mass. Paper-box machine	519,531	May 8	1085	260, 261	67	757
Gay, William P., Leominster, Mass. Making tape from leather-board or other material	518,030	Apr. 10	1021	257	67	205
Gazlay, Henry W., Cortland, assignor of one-half to P. B. Spaulding, New Hartford, N. Y. Milk cooler and aerator	521,648	June 19	1597	374	67	1518
Gearhart, Alfred V., Wausau, Wis. Counter for type-writers	519,180	May 1	431	106	67	621
Geery, James. (See Buford and Geery.)						
Geiger, Charles E., Louisville, Ky. Driving mechanism for electric elevators	521,160	June 12	726	171, 172	67	1342
Geiger, Harry M., assignor to Champion Cash Register Company, Grand Rapids, Mich. Actuating device for manual recorders	519,253	May 1	567	138	67	647
Geiger, John H., *et al.* (See Knauer, Cyrus A., assignor.)	519,254	May 1	569	138	67	647
Geisendorfer, John, Weimar, Cal. Pipe-wrench						
Geissinger, Edward J., Philadelphia, Pa., assignor of one-half to George A. Ohl & Company, Newark, N. J. Metal-bending machine	520,262	May 22	2324	564, 565	67	1012
Gelabert, William P., assignor of one-half to T. G. Nelson, Sweet Springs, Mo. Hame-tug fastening	521,567	June 19	1461	342	67	1494
Gelb, Phillip, New York, N. Y. Spool-box	520,355	May 22	2481	601	67	1041
Gem City Manufacturing Company. (See Thies, John B., assignor.)						
Gem City Stove Manufacturing Company. (See Kaempen, Folbert, Jr., assignor.)						
Gemmer, George A., Williamsport, Ind. Hay-rake	519,993	May 1	91	22	67	552
General Electric Company. (See Ball, Henry P., assignor.)						
General Electric Company. (See Bell, Louis, assignor.)						
General Electric Company. (See Burnett and Doane, assignors.)						
General Electric Company. (See Elkins, William H., assignor.)						
General Electric Company. (See Ekström, Axel, assignor.)						
General Electric Company. (See Erben, Hermann F. T., assignor.)						
General Electric Company. (See Fiske, Jonathan P. B., assignor.)						
General Electric Company. (See Foulds, John, Jr., assignor.)						
General Electric Company. (See Gibboney, John W., assignor.)						
General Electric Company. (See Herrick, Albert B., assignor.)						
General Electric Company. (See Holden, Frank, assignor.)						
General Electric Company. (See Knight, Walter H., assignor.)						
General Electric Company. (See Lieb, Charles A., assignor.)						
General Electric Company. (See Priest, Edward D., assignor.)						
General Electric Company. (See Rice, Edwin W., Jr., assignor.)						
General Electric Company. (See Thomson, Elihu, assignor.)						
General Electric Company. (See Wirt, Herbert C., assignor.)						
Gentry, Neil. (See Easting, Eugene M., assignor.)	520,563	May 29	2226	682	67	1122
Genty, Owen B., Vallejo, Cal. Propeller	517,452	Apr. 3	67	.....	67	15
Gentzsch, Adolf, Vienna, Austria-Hungary. Insulating compound						
Geo. F. Blake Manufacturing Company. (See Laval, George de, assignor.)						
George A. Ohl & Company. (See Geissinger, Edward J., assignor.)						
George, Jerome R. (See Miller and George.)						
George Ziegler Company. (See Lucas, Henry, assignor.)						
Gerard, William L., Wichita, Kans. Disinfectant-cup	519,811	May 15	1546	378	67	854
Geran, Francis, Brooklyn, N. Y. Device for registering measures of liquids	519,181	May 1	434	106	67	621
Gerber, Emanuel, Chattanooga, Tenn. Pot or kettle	519,764	May 15	1465	355	67	839
German, Solomon, Wetheredville, Md. Clothes-pin	519,998	May 15	1849	452	67	910
Gery, Aldis J., Dolgeville, and R. Dolge, New York, assignors, by mesne assignments, to C. F. Zimmermann Company, Dolgeville, N. Y. Harp	521,109	June 5	638	150	67	1312
Geselius, John A., Spring Vale, Minn. Drag-saw	520,640	May 29	2947	713	67	1144
Gessner, David, Worcester, Mass. Mechanism for oiling bearings	521,235	June 12	857	202	67	1366
Gibboney, John W., Lynn, assignor to General Electric Company, Boston, Mass. Lightning-arrester	520,776	June 5	26	5	67	1201
Gibbons, William R. (See Conyngham and Gibbons.)						
Gibbs, Edmund D., assignor to National Cash Register Company, Dayton, Ohio. Duplicating order-book	518,400	Apr. 17	1675	414	67	339
Gibbs, James S. (See Pruyn, Henry S., assignor.)	518,596	Apr. 24	2006	497	67	413
Gibbs, Robert R., Utica, N. Y. Die for cutting soles	518,032	Apr. 10	1025	258	67	205
Gibbs, William E., New York, N. Y. Percussion-tool	517,688	Apr. 3	463	112	67	89
Gibson, Everett G., assignor of one-half to E. G. Durfee, Providence, R. I. Car-truck	517,744	Apr. 3	556	135	67	108
Gibson, Everett G., assignor of one-half to E. G. Durfee, Providence, R. I. Car-truck						
Giesen, Andreas. (See Müller and Giesen.)						
Giglio, Giovanni, New York, N. Y. Window	521,585	June 19	1494	350	67	1499
Gilbert, George H., Philadelphia, Pa. Cam for knitting-machines	521,367	June 12	1099	258	67	1412
Gilbert, Henry G., Dayton, Ohio. Brick-machine	518,597	Apr. 24	2006	498	67	413
Gilbert, James R., Kissimee, Fla. Broom-head	521,161	June 12	728	172	67	1342
Gilbert, Matthew C., Columbus, Ga. Motor	517,856	Apr. 10	723	182	67	154
Gildersleeve, Ezra B., New York, N. Y. Clothes-drier	521,368	June 12	1100	258	67	1412
Gill, George C., Chicago, Ill., and L. C. Atwood, St. Louis, Mo.; said Atwood assignor to said Gill. Lantern	519,255	May 1	570	138	67	648
Gill, Leonard U. (See Bradley, Alfred, assignor.)	518,598	Apr. 24	2008	499	67	413
Gill, Thomas, Cleckheaton, England. Gas-reflector						
Gillam, Manly M., Philadelphia, Pa. Art of and apparatus for coloring the printing-surface of cast type	518,063	Apr. 10	1082	273, 274	67	214
Gillispie, Robert A., *et al.* (See Curry, James H., assignor.)						
Gillespie, Thomas W. (See Wynn and Gillespie.)						
Gillet, Alexis F., assignor to himself, G. W. and J. D. Whiteaker, Kearney, Nebr. Steam-generator	518,101	Apr. 10	1140	287	67	224
Gillham, Robert J., Orlando, Fla. Combined measure and funnel	520,307	May 22	2395	582	67	1025
Gilliam, John W. T., Baltimore, Md. Railway-car fender	520,230	May 22	2270	552, 553	67	1001

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gilliland, Ezra T., and F. W. Toppan, New York, N. Y. Attachment for automatically operating phonographs	518,209	Apr. 10	1332	333	67	260
Gilling, Frank E., assignor of two-thirds to F. M. Oliver and F. J. Shovar, Toledo, Ohio. Car-brake	518,401	Apr. 17	1677	414, 415	67	339
Gilmartin, Thomas J., Ogden, Utah Ter. Refrigerator-car	522,112	June 26	2417	580	67	1688
Gindele, Albert H., Jersey City, N. J. Condenser and drip for gas-service pipes	520,675	May 29	3023	731	67	1157
Githens, George M., Brooklyn, N. Y. Rock drilling and splitting	517,689	Apr. 3	464	112	67	89
Githens, George M., Brooklyn, N. Y. Packing for rock-drilling engines	517,690	Apr. 3	466	112	67	90
Givens, Frank M. (See Cooper, Edward H., assignor.)						
Givens, Royal. (See Jarmin, George W., assignor.)						
Glasgow, Arthur G., London, England. Water-gas apparatus	519,039	May 1	165	39	67	568
Glasgow, Arthur G., London, England. Water-gas apparatus	519,040	May 1	166	40	67	568
Glass, Sheldon J., Milwaukee, Wis. Electrically-operated register	522,113	June 26	2419	581	67	1688
Glazier, Elias C., Rochester, N. Y. Headlight	517,920	Apr. 10	826	207	67	173
Glazier, Frank P. (See Welch, Allie R., assignor.)						
Gleason, Benjamin F., Brockport, N. Y. Flower-bracket for burial-caskets	519,426	May 8	889	215	67	722
Gleason, James E. (See Gleason, William and J. E.)						
Gleason, Jedediah F., Quincy, Mass. Device for filling joints of metal pipe	519,672	May 8	1315	315	67	798
Gleason, William and J. E., Rochester, N. Y. Automatic gear-planer	518,497	Apr. 17	1832	455, 456	67	368
Glen Cove Machine Company. (See Stuart, Charles C., assignor.)						
Glenzer, Henry. (See Forth and Glenzer.)						
Globe Button-Hole Machine Company. (See Dahl, Charles A., assignor.)						
Globe Button-Hole Machine Company. (See Thomson, Robert W., assignor.)						
Globe Company. (See Carnahan, Charles M., assignor.)						
Glover, Henry P. (See Lockwood, George D., assignor.)						
Godbey, Thomas K., Waldo, Fla. Fruit-clipper	519,999	May 15	1850	452	67	910
Goddard, Asa, Worcester, Mass. Drilling-machine	520,142	May 22	2118	517	67	973
Godfrey, William S., Providence, R. I. Button	519,946	May 15	1760	431	67	894
Goding, Edwin L., assignor to Holdfast Sole Stay Company, Portland, Me. Shoe	521,789	June 26	1849	440	67	1582
Goehring, Elias A., Beaver Falls, Pa. Fence	517,921	Apr. 10	828	208	67	174
Goertz, August, Newark, N. J. Purse or coin receptacle	519,765	May 15	1468	356	67	839
Goetz, George W., Milwaukee, Wis. Extracting copper from its ores	519,111	May 1	291	.....	67	591
Goff, Frank, Camden, and T. H. Joiner, Burlington, N. J. Magazine-lighter	521,466	June 19	1285	299	67	1462
Goff, Hubbard S., Lordsburg, and A. B. Judkins, Los Angeles, Cal. Fish-hook	519,684	May 8	1342	324	67	802
Göhring, Paul, Ober-Ursel, assignor to Eisengiesserei and Maschinenfabrik für Schuh and Lederindustrie, vormals Miller & Andreae, Bockenheim, near Frankfort-on-the-Main, Germany. Sewing-machine	521,855	June 26	1851	469, 470	67	1602
Göhring, Paul, Ober-Ursel, assignor to Deutsch-Amerikanischen Maschinen-Gesellschaft, Frankfort-on-the-Main, Germany. Sewing-machine	521,856	June 26	1953	470	67	1602
Goldie, William. (See Rounds, Herbert G., assignor.)						
Goldman, Edward, Baltimore, Md. Machine for winding cotton web or similar material	520,420	May 29	2581	624, 625	67	1077
Goldman, Edward, Baltimore, Md., assignor to Eureka Coat Pad Company of Baltimore City, of Maryland. Machine for shaping fleecy masses	520,419	May 29	2578	623, 624	67	1076
Goldmann, Philipp, New York, N. Y. Device for adjusting window-shades, &c	521,408	June 12	1163	276	67	1424
Goldmark, Leo. (See Nienstadt, Ernest, assignor.)						
Goldstein, Philip, Newark, N. J. Leather-cutting machine	521,538	June 19	1411	326, 327	67	1484
Gollins, Edwin, Columbus, Ohio. Bit for cutting rosettes	517,691	Apr. 3	467	112	67	90
Good, Jonathan, deceased, Ridley Park, Pa.; M. P. Good, administratrix. Toy pistol	518,882	Apr. 24	2492	618	67	499
Good, Mary P., administratrix. (See Good, Jonathan.)						
Good, Thomas L., Wanda, Ill. Potato-planter	518,141	Apr. 10	1202	301	67	235
Goode, Edward, assignor of one-half to T. A. Goode, Bartow, Fla. Artificial stone	518,239	Apr. 17	1386	.....	67	286
Goode, Thomas A. (See Goode, Edward, assignor.)						
Goodhand, James E., Baltimore, Md. Distribution system for electric railways	518,782	Apr. 24	2335	579	67	471
Goodlett, Robert D., Nashville, Tenn. Match-safe	518,994	May 1	93	22	67	553
Goodliffe, Walter, Cambridge, England. Bedstead	520,733	May 29	3112	753, 754	67	1174
Goodman, Henry M. (See Goodman, John and H. M.)						
Goodman, Henry M. and J., Louisville, Ky. Telephone-transmitter	520,306	May 22	2393	581	67	1025
Goodman, John. (See Goodman, Henry M. and J.)						
Goodman, John and H. M., Louisville, Ky. Telephone-transmitter	518,142	Apr. 10	1205	302	67	236
Goodnow, Julius S., Brooklyn, N. Y. Store-service apparatus	521,283	June 12	938	222, 223	67	1380
Goodrich, Charles E., assignor of one-half to T. J. Osborne, Pioche, Nev. Curtain-fixture	517,453	Apr. 3	68	15	67	15
Goodsell, Zalmon. (See Grunow, William, Jr., assignor.)						
Goodwillie, Charles F., assignor to D. M. Goodwillie Company, Chicago, Ill. Stamp groove or recess for shipping-cases	520,921	June 5	306	75	67	1253
Goodwin, Albert C. (See Wyman, Horace B., assignor.)						
Goodwin, Richard D., *et al.* (See Howe, Patrick, assignor.)						
Goodwin, William H. J., Raleigh, N. C. Cotton-chopper	517,570	Apr. 3	253	59	67	49
Goodyear, George C., Flint, Mich. Rotary cutter-head	520,046	May 22	1931	473	67	941
Goodyear Shoe Machinery Company. (See Briggs, Henry, assignor.)						
Goodyear Shoe Machinery Company. (See Crisp and Grandy, assignors.)						
Goodyear Shoe Machinery Company. (See Grandy, Edward F., assignor.)						
Gooley, Jacob D., Portland, Oreg. Car-coupling	521,262	June 12	906	214	67	1374
Gordon, Jo. *et al.* (See Keithly, Willie C., assignor.)						
Gordon, John W. (See Gordon, Thomas D., assignor.)						
Gordon, Minthorne T., Stapleton, assignor of one-half to C. Rudman, New York, N. Y. Burglar-alarm spring	517,547	Apr. 3	214	49	67	43
Gordon, Thomas D., Monmouth, Ill., assignor of one-half to J. W. Gordon, Trinidad, Colo. Bridle-bit	519,112	May 1	293	70	67	591
Gordon, Thomas J., assignor of two-thirds to D. W. Moore, Eureka Springs, Ark., and R. J. March, Lower Ridge, Ill. Clothes-pin	520,957	June 5	373	91	67	1265
Gore, John K., Newark, N. J. Apparatus for sorting cards and compiling statistics	518,240	Apr. 17	1387	348, 349	67	287
Goreham, Herbert A., Decatur, Ill. Conduit electric railway	517,692	Apr. 3	468	113	67	90
Gorrell, John B., La Otto, Ind. Steam-actuated valve	519,706	May 15	1380	332	67	823
Goss, Joseph, and W. Varley, Fall River, Mass. Loom for weaving bordered fabrics	520,421	May 29	2585	626	67	1077
Goss Printing Press Company. (See Goss, Samuel G., assignor.)						
Goss, Samuel G., assignor to Goss Printing Press Company, Chicago, Ill. Machine for doubling webs of fabric longitudinally	517,693	Apr. 3	469	113	67	90

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Goss, Samuel G., assignor to Goss Printing Press Company, Chicago, Ill. Delivery apparatus for printing-presses	518,241	Apr. 17	1393	349	67	287
Goss, Samuel G., assignor to Goss Printing Press Company, Chicago, Ill. Delivery apparatus for printing-presses	518,242	Apr. 17	1395	349, 350	67	288
Gotham, Amisa P., Newark, N. J. Heel	520,522	May 29	2754	666	67	1107
Gottschalk, Charles, Fargo, N. D. Cash-receipts-recording apparatus	521,790	June 26	1850	441	67	1582
Gould, Andrew J., Quincy, Cal. Water-wheel	518,599	Apr. 24	2009	499	67	414
Gould Coupler Company. (See Bronner, Edmond D., assignor.)						
Gould Coupler Company. (See Richards, Willard F., assignor.)						
Gould, James, Jr., Oakland, Cal. Machine for making sheet-metal tubes	519,182	May 1	436	107	67	622
Gould, John D., *et al.* (See Tisdale, Charles D., assignor.)						
Gould's Son & Co., M. (See Bruen, William, assignor.)						
Gourd, Ernest D., *et al.* (See Gourd, Ernest W., assignor.)						
Gourd, Ernest W., Quincy, Mass. Circular-knitting machine	521,284	June 12	944	223, 224, 225	67	1381
Gourd, Ernest W., assignor of two-thirds to J. R. and E. D. Gourd, Quincy, Mass. Cutting-off tool	519,183	May 1	438	107	67	622
Gourd, John R., *et al.* (See Gourd, Ernest W., assignor.)						
Gourley, John L., Tarentum, Pa. Steam-engine	520,757	May 29	3155	764	67	1181
Gowing, Earle H., Reading, Mass. Clip for use in making joints in cast-iron pipe	517,611	Apr. 3	315	74	67	62
Grable, W. B., *et al.* (See Farmer, John R., assignor.)						
Graff, Justin J. (See Labataille and Graff.)						
Grafton, William S., and R. R. Spears, assignors to Wheeling Corrugating Company, Wheeling, W. Va. Machine for joining and rolling sheets of metal	519,084	May 1	249	58, 59	67	583
Graham, Andrew, Claremont, N. H. Bridge for stringed instruments	521,909	June 26	2054	494	67	1623
Graham, David F., Springfield, Ohio, and W. P. Allen, Chicago, Ill., assignors of one-third to O. S. Kelly, Springfield, Ohio. Contacting device for electric railways	519,328	May 8	711	175, 176	67	689
Graham, Jesse, Morley, England. Smoke-consuming furnace	521,586	June 19	1496	350, 351	67	1499
Graham, Jesse, and H. Chapman, Morley, England. Miner's safety-lamp	517,520	Apr. 3	170	38	67	35
Graham, John, Albany, Mo. Automatic grain-weighing device	519,707	May 15	1381	333	67	823
Graham, Joseph M. (See Abernethy and Graham.)						
Graham, Samuel J., *et al.* (See Curry, James H., assignor.)						
Graham, Simon P., Detroit, Mich. Lawn-mower	519,860	May 15	1627	396	67	869
Graham, Thomas H., Toronto, Canada. Dental plate	521,930	June 26	2097	503	67	1630
Grand Rapids Brass Company. (See Tobey and Tower, assignors.)						
Grand Rapids Piano Case Company. (See Van Norman, Abe R., assignor.)						
Grandy, Edward F. (See Crisp and Grandy.)						
Grandy, Edward F., Everett, Mass., assignor to Goodyear Shoe Machinery Company, Portland, Me. Lasting-machine	521,954	June 26	2151	515, 516, 517	67	1640
Granger, Alford D., Molena, Ga. Mop or brush holder	519,329	May 8	714	176	67	690
Granger, Alvinza M., Grand Rapids, Mich. Hinge	517,857	Apr. 10	724	182	67	154
Granges, John C. des, *et al.* (See Burton, Charles C., assignor.)						
Grant, Albert E., Troy, N. Y. Stamping-machine	518,402	Apr. 17	1678	415	67	340
Grant, Albert L., Philadelphia, Pa. Horseshoe-pad	521,609	June 19	1537	360	67	1507
Grant Anti Friction Ball Company. (See Grant, Robert H., assignor.)						
Grant, David, Chicago, Ill. Machine for peeling potatoes	521,495	June 19	1342	311	67	1473
Grant, George B., Lexington, Mass. Bevel-gear	519,572	May 8	1154	278	67	769
Grant, Robert H., assignor to Grant Anti Friction Ball Company, Fitchburg, Mass. Grinding-machine	520,019	May 15	1879	459, 460	67	915
Grant, Sidney A., Springfield, assignor to National Cycle Company, Fitchburg, Mass. Bicycle	520,396	May 22	2542	614	67	1054
Grasemann, Otto, Gera, Germany. Surgical table	517,801	Apr. 3	642	160, 161	67	125
Grasselli Chemical Company. (See Frasch, Hans A., assignor.)						
Granert, Edgar, New York, N. Y. Bicycle-tire	518,691	Apr. 24	2168	543	67	442
Graus, Frank. (See Witz, Konrad, assignor.)						
Graves, Henry C., executor. (See Bell and Stewart.)						
Graves, Lorenzo S., Rochester, N. Y. Elevator safety device	520,160	May 22	2152	524	67	979
Graves, William J., Gainesville, Tex. Pendulum-scale	518,545	Apr. 17	1920	474, 475	67	382
Gray, Charles J., Oshkosh, Wis. Pneumatic buffer-truck for railway-trains	518,449	Apr. 17	1766	437, 438	67	356
Gray, Edward F., Bethlehem, Pa. Reverberatory and regenerative furnace	518,523	Apr. 17	1883	467	67	376
Gray, Frank S., Trenton, Ky. Gate	521,880	June 26	1990	480, 481	67	1610
Gray, John H., Elwood, Nebr., assignor of one-half to R. N. Bouck, Jackson, Mich. Metallic hub	518,498	Apr. 17	1842	456	67	368
Gray, Peter, Cambridge, Mass. Signal-lantern	521,162	June 12	729	172	67	1342
Gray, Richard, Bloomington, Ill. Metallic column or pile	520,047	May 22	1932	474	67	941
Gray, William B., and H. Shepley, Halifax, Pa. Railway signal and system	520,161	May 22	2153	524, 525	67	980
Gray, William B., and D. F. Bowen, Denver, Colo. Ticket-printing machine	521,438	June 12	1219	288, 289	67	1433
Grayson, William. (See Crecelius, Louis J., assignor.)						
Grebe, Christian, assignor to S. B. Rowley, Philadelphia, Pa. Apparatus for molding glassware	519,113	May 1	296	70	67	592
Greble, Harvey K., assignor of one-half to H. G. Wallace, Hamilton, Ohio. Book-cover	521,539	June 19	1414	327	67	1485
Greeley, Lewis A., Morenci, Mich. Implement for weaving filler-wires in wire fences	519,154	May 1	388	94	67	612
Green Albert G., Red Cloud, Nebr. Grain carrier and regulator for thrashing-machines	522,011	June 26	2261	542	67	1659
Green, Albert J., assignor to Stoddard Manufacturing Company, Dayton, Ohio. Die for shaping metal press-wheels	518,668	Apr. 24	2135	534	67	435
Green, Albert J., assignor to Stoddard Manufacturing Company, Dayton, Ohio. Press-wheel for grain-drills	518,669	Apr. 24	2136	534	67	435
Green, Alem J. (See McCloskey, William, assignor.)						
Green, Charles H., *et al.* (See Ball, Charles A., assignor.)						
Green, James E., St. Louis, Mo. Steam-boiler	517,745	Apr. 3	556	135, 136	67	108
Green, John, Renovo, Pa. Ironing-table	520,183	May 22	2190	533	67	987
Green, Joseph W., Jr. (See Moore, George C., assignor.)						
Green, Squire, Stretford, assignor to H. E. Wollmer, Manchester, England. Means for attaching handles to heads of brooms	520,984	June 5	421	101	67	1273

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Greene, George F., Detroit, Mich. Water-closet bowl and seat	522,010	June 26	2260	541	67	1659
Greene, Henry W., North Dana, assignor of one-half to J. F. Barnes, Petersham, Mass Glass door-plate	519,256	May 1	571	138	67	648
Greene & Knox Manufacturing Company. (See King, Thomas, assignor.)						
Greenfield Automatic Fastener Company. (See Greenfield, Edwin T., assignor.)						
Greenfield, Edwin T., New York, N. Y. Electric motor	517,858	Apr. 10	725	182	67	154
Greenfield, Edwin T., assignor to Greenfield Automatic Fastener Company, New York, N. Y. Book-stapling machine	520,734	May 29	3112	754	67	1174
Greenfield, Edwin T., assignor to Greenfield Automatic Fastener Company, New York, N. Y. Stapling-machine	520,735	May 29	3116	754, 755	67	1174
Greenfield, Robert S., *et al.* (See Shank, Charles A., assignor.)						
Greenleaf, Abner. (See Dalsheimer and Greenleaf.)						
Greenstein, Adolph. (See Dinsmore, Robert, assignor.)						
Greenwood, Arthur, Leeds, England. Coal-cutting machine	521,263	June 12	907	214	67	1374
Gregory, Fred L., Chicago, Ill. Electric clock striking mechanism	520,184	May 22	2191	534	67	987
Gregory, Nathan B., assignor of one-half to E. B. Hobson and G. E. James, Joplin, Mo. Combined latch and lock	519,284	May 1	619	150	67	657
Grenfell, Hubert H., London, England. Sighting and indicating apparatus for ordnance	517,746	Apr. 3	557	136	67	108
Gressle, Theophilus E., Indianapolis, Ind., assignor of nine-twentieths to F. Hittle, Baltimore, Md. Trolley-wire finder	521,311	June 12	995	234	67	1391
Greve, Bernhard, Cologne, Germany. Siphon	518,064	Apr. 10	1086	274	67	214
Gridley, Wilmer D., Brooklyn, N. Y. Bracket	520,564	May 29	2827	682	67	1192
Grienelsen, Louis, Philadelphia, Pa. Ice-velocipede	521,496	June 19	1343	312	67	1473
Grier, George S., Milford, Del. Combined sleeve-section and cuff	520,308	May 22	2396	582	67	1025
Grier, Matthew J., assignor of one-fourth to J. W. Coulston, Philadelphia, Pa. Slack-adjusting device for brake mechanism	518,919	Apr. 24	2561	633	67	513
Griffin, Edwin C., Newton, Mass. Roll for pulverizing mills	520,958	June 5	374	91	67	1265
Griffin, Ellsworth, assignor of one-half to W. W. Pollock, Milwaukee, Wis. Writing-machine	518,499	Apr. 17	1843	457	67	369
Griffiths, Griffith W., Tecumseh, Mich. Car-axle box	518,524	Apr. 17	1886	467	67	376
Grimland, Yeren, and J. J. Ringuess, Norse, Tex. Cotton-stalk-breaking machine	522,159	June 26	2503	601	67	1705
Griscom, William W., Haverford, Pa. Machine for making storage-battery grids of forced lead	521,791	June 26	1851	441	67	1583
Griswold, Frank B., Troy, N. Y. Wire-bending machine	519,812	May 15	1546	378	67	854
Groff, Diller B. (See Groff, Samuel A., assignor.)						
Groff, Samuel A., assignor of one-half to D. B. Groff, Washington, D. C. Letter-box	519,427	May 8	890	215	67	723
Gros, Christian, Delphi, and J. F. Thomas, Camden, Ind. Fence-post	521,110	June 5	639	150	67	1312
Grote, Ludwig, Landberg-on-the-Lech, Germany. Artificial stone	521,264	June 12	908	.....	67	1375
Gront, John C., Detroit, Mich. Bottle-stopper	521,649	June 19	1598	374	67	1519
Grove, Conrad S., Philadelphia, Pa. Die-throwing device	518,316	Apr. 17	1515	379	67	309
Grundy, William S. (See Lever and Grundy.)						
Gruner, Henry, assignor to Keystone Watch Case Company, Philadelphia, Pa. Engraver's chuck	520,778	June 5	29	6	67	1202
Grüninger, Joseph, New York, N. Y. Newspaper-file	521,236	June 12	858	202	67	1366
Grunow, William, Jr., Mount Vernon, N. Y., assignor to Z. Goodsell, Bridgeport, Conn. Railway sanding device	520,048	May 22	1933	474	67	941
Grunow, William, Jr., Mount Vernon, N. Y., assignor to Z. Goodsell, Bridgeport, Conn. Snow-plow	520,777	June 5	27	6	67	1201
Grunow, William, Jr., Mount Vernon, N. Y., assignor to Z. Goodsell, Bridgeport, Conn. Sanding device	521,467	June 19	1286	300	67	1462
Grusonwerk. (See Henning, Otto, assignor.)						
Grusonwerk. (See Kampf, August, assignor.)						
Grusonwerk. (See Martin, Carl, assignor.)						
Gschwendtner, Georg, Cincinnati, Ohio. Apparatus for one-ball-billiard games	520,423	May 29	2589	627	67	1078
Guarantee Trust and Safe Deposit Company, administrator. (See Siemens, Charles W.)						
Guiher, Frank T. (See Pipes and Guiher.)						
Guiher, Frank T., Waynesburg, Pa. Overshoe-retainer	520,985	June 5	422	101	67	1273
Guli, Lorenzo. (See Ajello, Clement, assignor.)						
Gulickson, George, Chicago, Ill. Self-feeding smokeless furnace	520,986	June 5	422	101, 102	67	1273
Gundlach Optical Company. (See Turner, Henry H., assignor.)						
Gurding, Charles E. (See Boyd and Gurding.)						
Guttery, Lewis C., Lebanon, Ohio. Automatic grain-weigher	519,947	May 15	1761	432	67	894
Guttin, Alphonse, Paris, France. Feeding mechanism for wire-nail-making machines	518,500	Apr. 17	1846	458	67	369
Guy, Robert, Ashton, and O. E. Reed, Rochelle, Ill. Sash lock, lifter, and holder	521,955	June 26	2156	517	67	1641
Guyer, Caleb, Tyrone, Pa. Shingle-marker	520,424	May 29	2591	627	67	1078
Gwynn, William, Jr., and D. Spencer, Napa, Cal. Tub	520,880	June 5	225	51	67	1238
Haag, Robert, Stuttgart, Germany. Wine and beer filtering apparatus	518,102	Apr. 10	1142	287	67	225
Haagen, Louis J., Alton, Ill. Show-stand	521,111	June 5	641	150, 151	67	1312
Haas, Emil, Mentz, Germany. Gas-meter	522,054	June 26	2323	558	67	1671
Haas, Philip M., Youngstown, Ohio. Machine for straightening rods	518,403	Apr. 17	1680	415, 416	67	340
Haas, Philip M., and C. S. Dutton, Youngstown, Ohio. Machine for drawing bars or rods	520,592	May 29	2874	695, 696	67	1131
Habelt, John G., Boston, Mass Tuyere	521,857	June 26	1954	470	67	1603
Habermann, Wilhelm. (See Wagner and Habermann.)						
Haberthür, Robert, assignor of one-half to F. E. Kämmer, West Hoboken, N. J. Combined wrench and pipe and thread cutter	521,265	June 12	910	215	67	1375
Hadaway, John B., Brockton, Mass. Stitch separating and indenting machine	521 978	June 26	2193	528, 529	67	1647
Hadenfeldt, Ernst, *et al.* (See Müller, Rudolf, assignor.)						
Hadfield, Robert A., Sheffield, England. Shell	522,012	June 26	2263	542	67	1659
Häfner, Carl, assignor to C. Reif and J. Kraus, trustee, Chattanooga, Tenn. Filter	521,650	June 19	1539	374	67	1519
Hagen, Ferdinand J., assignor, by mesne assignments, to E. H. Miller, New York, N. Y. Cigar-bunching machine	520,881	June 5	226	51	67	1239
Hagen, Henry A., Berlin, Canada. Shirt	521,610	June 19	1538	360	67	1507
Hageney, Patrick H., Harbor, Ohio. Apparatus for dumping cars	519,257	May 1	572	139	67	648
Hagenow, Emma, New York, N. Y. Pad for violins	519,791	May 15	1517	369	67	846
Hagenson, Olof, *et al.* (See Johanson, Emil G., assignor.)						
Hager, Otto F., Buffalo, N. Y. Tooth-brush	520,593	May 29	2877	696	67	1131
Hagerman, George E., Brooklyn, N. Y. Brick or terra-cotta house	521,710	June 19	1698	399	67	1539
Haggerty, J. Henry. (See Barr, William C., assignor.)						
Hahn, Arthur W., New York, N. Y. Brush	519,948	May 15	1763	432	67	894

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hahn, Henry, Terre Haute, Ind. Beer-cooler	519,708	May 15	1384	333	67	824
Hahn, John W., *et al.* (See Scheuerecker, Joseph, assignor.)						
Hailes, Frederick A., *et al.*, executors. (See Hailes, William.)						
Hailes, William, deceased, Albany, N. Y.; W. H. and F. A. Hailes, executors. Broiler	518,243	Apr. 17	1397	350	67	288
Hailes, William H., *et al.*, executors. (See Hailes, William.)						
Haire, Robert E., London, England. Wall-finish compound	521,143	June 5	693	.....	67	1321
Halbeisen, Frank, Erlin, Ohio. Kiln	520,641	May 29	2948	713	67	1144
Hale, George W. (See Baldwin, Judson A., assignor.)						
Hale, Napoleon B., San Bernardino, Cal. Fruit-peeling knife	518,501	Apr. 17	1848	459	67	370
Hall, Albert E. (See Hall, Edgar and A. E.)						
Hall, Charles, New York, N. Y. Wrench for pipes, rods, &c	521,312	June 12	996	234	67	1391
Hall, Cofran L., San Francisco, Cal. Elevator for buildings	519,114	May 1	297	71	67	592
Hall, Daniel F., Schenectady, N. Y. Circuit-maker	522,055	June 26	2325	558	67	1671
Hall, Edgar and A. E., Cambridge, Mass. Machine for drying matrices	518,569	Apr. 17	1961	484, 485	67	389
Hall, Edward M., and F. Pearse, Dexter, N. Y. Pulp-screen	521,409	June 12	1164	276	67	1425
Hall, Henry E., Youngstown, Ohio. Greenhouse	519,766	May 15	1470	356	67	840
Hall, Hiram P., Chicago, Ill. Apparatus for automatically manufacturing shells for dynamite	520,922	June 5	307	75, 76, 77	67	1253
Hall, Isaac A., *et al.* (See Ramsey, James W., assignor.)						
Hall, James L., Kingston, Mass. Pencil-sharpener	521,313	June 12	997	235	67	1391
Hall, John H., and D. Parry, London, England. Chain mortising-machine	518,646	Apr. 24	2092	522	67	427
Hall, John R., Jr., Fort Recovery, Ohio. Car-coupling	518,754	Apr. 24	2293	569	67	462
Hall, Major, and W. H. Baker, assignors of one-half to J. W. Thompson and M. Vis, St. Paul, Minn. Railway-rail joint	520,425	May 29	2592	627	67	1078
Hall, Marquis L., Omaha, Nebr. Corn-planter	518,840	Apr. 24	2426	601	67	486
Hall, Willard P. (See Johnson, Hall, Oakley, and Currey.)						
Hallman, Victor H., Hot Springs, Ark. Surgical instrument	518,600	Apr. 24	2010	499	67	414
Halloran, J. F., *et al.* (See Bailey, Richard G., assignor.)						
Ham, Herbert H., *et al.* (See Fenderson, Edward J., assignor.)						
Hambay, James T., Boston, Mass. Tension-adjusting device for railway-signals	520,397	May 22	2543	615	67	1054
Hamburger, Leon, *et al.* (See Darley, John W., Jr., assignor.)						
Hamburger, Philip, *et al.* (See Darley, John W., Jr., assignor.)						
Hamerly, Leonard, deceased, Jamaica, Iowa; N. M. Hamerly, administratrix. Hoisting-machine	520,426	May 29	2593	628	67	1079
Hamerly, Nancy M., administratrix. (See Hamerly, Leonard.)						
Hamilton, George D., Innisfail, Canada. Metal fence	519,573	May 8	1155	278	67	769
Hamlet, Noah, Little Rock, Ark. Burglar-alarm	521,024	June 5	482	115	67	1224
Hamlin, Charles S., Los Angeles, assignor of one-half to A. C. Harper, University, Cal. Sheet-metal pipe	518,570	Apr. 17	1963	485	67	390
Hamlin, Charles S., Los Angeles, assignor of one-half to A. C. Harper, University, Cal. Sheet-metal pipe	521,766	June 19	1812	430	67	1558
Hamm, William S., Newton, Mass., assignor to Staple Fastening Machine Company, Saco, Me. Stapling-machine	521,369	June 12	1102	259	67	1412
Hammarberg, Arnold L., and A. Berglöf, Worcester, Mass. Machine for rolling angle-bars	519,452	May 8	925	223, 224	67	729
Hammer, George H., *et al.* (See Saur, William, assignor.)						
Hammond, Charles E. (See Warner and Hammond.)						
Hammond, E. A., *et al.* (See Miller, Wile S., assignor.)						
Hammond, Robert A., Provincetown, assignor of one-half to G. T. McLaughlin, Sandwich, Mass. Combined spring-shackle and oil-distributer	518,502	Apr. 17	1849	459	67	370
Hampe, Albert, St. Louis, Mo. Rotary engine	518,812	Apr. 24	2390	591	67	480
Hampson, Richard, *et al.* (See Bow, Richard, assignor.)						
Hampton, J. W. (See Johnson, John C., assignor.)						
Hampton, William. (See Sabin and Hampton.)						
Hanauer, Joseph. (See Marcy, Alexander, assignor.)						
Hancock, Thomas, Maricita, Ohio. Lamp-hanger	522,160	June 26	2504	601	67	1705
Hand, A. W., *et al.* (See Edwards, Hubert F., assignor.)						
Hand, C. H., *et al.* (See Edwards, Hubert F., assignor.)						
Hand Stitch Broom Sewing Machine Company. (See McCombs, George F., assignor.)						
Hand, Zelopheard, Millville, N. J. Dental appliance	520,357	May 22	2484	602	67	1042
Handele, Joseph, Chicago, Ill. Box-blocking machine	521,025	June 5	483	115	67	1284
Hann, Benjamin, Santa Fé, Okla. Ter. Shingle-gage	521,112	June 5	642	151	67	1312
Hannaford, William S., Pasadena, Cal. Billiard-counter	520,987	June 5	426	102	67	1274
Hanner, George W., Holbrook, Ariz. Ter. Railway-switch	518,755	Apr. 24	2294	570	67	463
Hanscom, Adelbert P., West Medford, and A. C. Spencer, Roslindale, Mass. Inseam-trimming machine	520,020	May 15	1881	460	67	916
Hansen, Alfred, Sidney, Nebr. Match-safe	519,949	May 15	1764	432	67	895
Hardesty, John F., and R. A. Sale, St. Joseph, Mo. Arm for firing fulminated sticks	518,601	Apr. 24	2012	500	67	414
Hardle, James L., assignor of one-half to J. J. Leary, Chester, Pa. Car-truck	517,571	Apr. 3	254	59	67	50
Harding, Thomas A. (See Dickey and Harding.)						
Hardsocg, Martin, Ottumwa, Iowa. Mining-tool	520,000	May 15	1851	452	67	910
Hardwick, Harry, Philadelphia, Pa. Woven pile fabric	518,883	Apr. 24	2493	618	67	500
Hardwick, Sannie W., *et al.* (See Elam, William E., assignor.)						
Hare, Robert W., Allegheny, Pa. Elevator	521,086	June 5	598	141	67	1304
Hargreaves, Joseph, Bolton, England. Spindle and support for spinning and doubling machines	519,532	May 8	1091	261, 262	67	758
Harkless, John O., *et al.* (See Ramsey, James W., assignor.)						
Harkness, Charles A., Providence, R. I. Elevator controlling device	522,161	June 26	2505	601, 602	67	1706
Harlow, John R., Auburn, N. Y. Trolling-spoon	520,594	May 29	2878	696	67	1131
Harman, Abraham. (See Schmidt, George C., assignor.)						
Harman, Stephen S., New York, N. Y. Device for marking balk-lines on billiard-tables	518,450	Apr. 17	1767	438	67	356
Harmon, William D., Marysvile, Ohio. Harvester	519,019	May 1	126	31, 32	67	560
Harper, Arthur C. (See Hamlin, Charles S., assignor.)						
Harrah, Philip J., assignor to S. Lehman, Bloomfield, Ind. Vehicle-shaft holder	522,114	June 26	2420	581	67	1689
Harrington, Albert B. (See Knight and Harrington.)						
Harrington, Edward M., Miller, Ind., assignor of one-half to W. B. Lewis, Chicago, Ill. Machine for making tubular casings	521,792	June 26	1853	442, 443	67	1583
Harrington, Fred J. (See Wheeler, Edgar T., assignor.)						
Harrington, George W., Wakefield, Mass. Fitting for connecting lengths of pipe	520,988	June 5	427	102	67	1274
Harris, Allen M. (See Loomis and Harris.)						
Harris, Anthony, Middlesborough, England. Pile-shoe	521,285	June 12	952	225	67	1382

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Harris, Charles R., Williamsport, Pa. Buckle	519,889	May 15	1675	408	67	879
Harris, Fredrick W., Woodstock, Canada. Lock	518,884	Apr. 24	2494	618	67	506
Harris, John, *et al.* (See Fox, Edward, assignor.)						
Harris, Levi, assignor of two-thirds to O. M. Allen, Sr., and H. B. Peck, Kalamazoo, Mich. Railway-crossing gate	521,881	June 26	1992	481	67	1611
Harris, Lillie, and M. Jaiser, Richmond, Va. Wardrobe-bedstead	522,013	June 26	2264	542	67	1659
Harris, R. Duncan. (See Pendleton, John H., assignor.)						
Harris, Thomas, Detroit, Mich. Supply system for electric railways	521,711	June 19	1699	400	67	1539
Harris, Townsend, Brainerd, Minn. Combination-tool	519,574	May 8	1156	278, 279	67	769
Harris, William E., Niles, Ohio. Roll for metal-rolling	517,747	Apr. 3	560	137	67	109
Harris, William R. (See Aulmann and Harris.)						
Harrison, David E., *et al.* (See Leonard, David, assignor.)						
Harrison, George W. (See Tenney and Harrison.)						
Harrison, James R. (See Weber and Harrison.)						
Harrison, James R., assignor to W. Harrison, Peoria, and V. Weber, Princeville, Ill. Grain-elevator for thrashing-machines	520,185	May 22	2196	534	67	988
Harrison, John H. (See Schleiger and Harrison.)						
Harrison, John J., London, England. Advertising match-box	521,212	June 12	815	191, 192	67	1358
Harrison, John M. (See Harrison, Walton, assignor.)						
Harrison, Walton, Meridian, assignor to J. M. Harrison, Starkville, Miss. Fluid-pressure shaft-support	519,906	May 15	1696	414	67	883
Harrison, William. (See Weber and Harrison, assignors.)						
Harrison, William, *et al.* (See Harrison, James R., assignor.)						
Harrison, William H. (See Savage and Harrison.)						
Hart, Charles W., assignor, by mesne assignments, to Hart Manufacturing Company, Troy, N. Y. Oil-can	521,113	June 5	642	151	67	1313
Hart, Henry C., Detroit, Mich. Billiard-cue lock	518,317	Apr. 17	1516	379	67	310
Hart, Howard S., New Britain, Conn. Drive-chain	520,231	May 22	2272	553	67	1001
Hart Manufacturing Company. (See Hart, Charles W., assignor.)						
Hart Weigher Company. (See Kramer, George W., assignor.)						
Hartford Sanitary Manufacturing Company. (See Kellogg, Charles E., assignor.)						
Hartpence, Phoebe M., Harrison, Ohio. Curtain-stretcher	517,694	Apr. 3	470	113	67	90
Hartshorne, Henry G., *et al.* (See Howe, Patrick, assignor.)						
Harvey, Amasa, Minneapolis, Minn., assignor of one-half to Twin City Iron Works, of Minnesota. Friction-clutch	520,109	May 22	2044	499	67	961
Harvey, Cyrus E., Waterloo, Canada. Fire-escape	518,920	Apr. 24	2564	634	67	513
Harvey, Frank. (See Hebblewhite and Harvey.)						
Harvey, James F. (See Wiley, William A., assignor.)						
Harvey, Wallace E., *et al.* (See Lawlor, Sim C., assignor.)						
Harwood, Thomas T. H., Rockport, Mass. Floating derrick	520,676	May 29	3024	731, 732	67	1158
Hasker & Marcuse Manufacturing Company. (See Edgar and Williams, assignors.)						
Haskins, Caryl D., Lynn, assignor to Thomson-Houston Electric Company, Boston, Mass. Cut-out meter	518,244	Apr. 17	1399	350	67	288
Hasper, Arend, Westfield, N. D. Spark-arrester	519,500	May 8	1013	245	67	743
Hastings, Charles F., *et al.* (See Fisher, John E., assignor.)						
Hastings, Frank N., Meriden, Conn. Steam-heated glue-pot	519,950	May 15	1766	432	67	895
Hastings, Walter W., Jersey City, N. J. Plate for stem-winding watches	520,483	May 29	2692	651, 652	67	1097
Hatcher, Isaiah G., Columbus, Ohio. Shoe last and stand	518,602	Apr. 24	2013	500	67	414
Hatton, Christopher, London, England. Apparatus for producing and containing aerated liquids	519,604	May 8	1204	290	67	778
Haug, Bernhardt, and F. Holler, Philadelphia, Pa. Drawing-pen	519,155	May 1	389	94	67	612
Hausmann, George, Washington, Mo. Hay-rack	522,056	June 26	2326	559	67	1671
Haven, James L. (See Matthews, Edwin S., assignor.)						
Havenstrite, David J. (See Hodges and Havenstrite.)						
Hawk, Jacob, Canton, Ohio. Thrashing-machine	521,497	June 19	1345	312	67	1473
Hawkesworth, Robert W., East Orange, N. J. Contact-trolley	521,163	June 12	730	173	67	1342
Hawkins, Dexter E., North Attleborough, Mass. Light-deflector	518,503	Apr. 17	1851	459	67	370
Hawkins, Millard J., Newport, N. Y. Machine for soldering caps on cans	520,523	May 29	2755	666, 667	67	1108
Hawkins, William M., Trenton, N. C. Back-hand hook	520,162	May 22	2155	525	67	980
Hawkyard, John, Saddleworth, assignor to J. Braddock, Oldham, England. Station gas-governor	518,143	Apr. 10	1206	302	67	236
Hawley, De Witt, Rochester, N. Y. Tailor's measuring implement	518,947	May 1	20	6	67	540
Hay, Frank D., assignor to himself and R. J. August, Keokuk, Iowa. Animal-trap	518,841	Apr. 24	2427	602	67	486
Hay, George, Picton, Canada. Chalk-sharpener	517,922	Apr. 10	829	208	67	174
Hay, Robert. (See Lowther, Toal, and Hay.)						
Hay, William, and W. M. Kearns, assignors of one-third to C. H. Joy, Kansas City, Mo. Air and gas mixing apparatus	518,451	Apr. 17	1768	438	67	356
Hay, William L., and R. L. Johnston, Franklin, Tenn. Mowing-machine attachment	518,842	Apr. 24	2429	602	67	487
Hayden, Henry A., Jersey City, N. J., assignor to S. Chittick, New York, N. Y. Coin-tray	518,948	May 1	21	6	67	540
Hayden, James T., assignor to Crane Company, Chicago, Ill. Steam-actuated valve for pumps	519,843	May 15	1594	390	67	864
Hayes, E. K. (See Dack, Frederick E., assignor.)						
Hayes, Edward, Rochester, N. Y. Water-heater	517,572	Apr. 3	256	59, 60	67	50
Hayes, Eugenio K. (See Swickard, John W., assignor.)						
Hayes, Eugenio K., Galva, Ill. Wagon end-gate	517,649	Apr. 3	389	93, 94	67	75
Hayes, Eugenio K., Galva, Ill. Rotating grain-meter	517,650	Apr. 3	391	94	67	75
Hayes, George, New York, N. Y. Metallic lathing	519,952	May 15	1768	433	67	895
Hayes, George, New York, N. Y. Metallic lathing	521,237	June 12	860	202	67	1366
Hayes, George, New York, N. Y. Metallic lathing	521,498	June 19	1347	312, 313	67	1474
Hayes, George, New York, N. Y. Metallic lathing	521,499	June 19	1348	313	67	1474
Hayes, James. (See Fyfe, John C., assignor.)						
Hayes, James P., Mount Vernon, N. Y. Folding bed	520,779	June 5	30	6, 7	67	1202
Hayes, Lewis S., Cortland, N. Y. Type-writer cabinet	521,956	June 26	2157	518	67	1641
Hayes, Lewis S., Cortland, N. Y. Type-writer cabinet	521,957	June 26	2159	518	67	1641
Hayes, Lynn A., deceased, Bolivar, Mo.; M. C. Hayes, administratrix. Plume-fastener for helmets	521,213	June 12	816	192	67	1358

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hayes Manufacturing Company. (See Jarvis, Charles M., assignor.)						
Hayes, Margaret C., administratrix. (See Hayes, Lynn A.)						
Hayes, Milo E. (See Small, Robert H., assignor.)						
Hayes, Rebecca H., Galveston, Tex. Cooking-stove	521,410	June 12	1165	277	67	1425
Hayes, Thomas A., Waterford, N. Y. Friction-clutch	519,951	May 15	1767	433	67	895
Haygood, John F., and J. H. Roach, near Watkinsville, Ga. Manure-pulverizer	519,629	May 8	1253	301	67	786
Haya, Edward W., Vandiver, and E. A. Thuston, Avondale, Ala. Tire-tightener	522,162	June 26	2509	602	67	1706
Hazard, Dexter, assignor of one-half to F. O. Clark, Marquette, Mich. Saw-sharpening machine	518,187	Apr. 10	1280	324	67	249
Hazard, Dexter, assignor of one-half to F. O. Clark, Marquette, Mich. Saw	521,343	June 12	1064	249	67	1405
Heald, William. (See Riggs, George P., assignor.)						
Healey, Charles, *et al.* (See Tisdale, Charles D., assignor.)						
Healey, Reuben H., London, England. Apparatus for drying matrices	520,642	May 29	2950	714	67	1145
Heastings, Eleazer F. A., Avalon, Pa. Trolley-stand	522,057	June 26	2327	559	67	1672
Heath, Alfred R., Covington, Ind. Car-coupling	519,575	May 8	1159	279	67	770
Heath, Mark A., Providence, R. I. Bale-covering	518,949	May 1	22	6	67	540
Heath Rail Joint Company. (See Caldwell, Edward P., assignor.)						
Heaton, John S., Shelbyville, Ky. Water-heater	521,314	June 12	998	235	67	1391
Hebard, Newton, Amenia, assignor of one-half to C. M. Dennison, Brooklyn, N. Y. Envelope and stationery case	519,673	May 8	1316	315	67	798
Hebblewhite, Thomas P., and F. Harvey, Buffalo, N. Y. Polishing-mitt and dauber	518,144	Apr. 10	1207	303	67	236
Heddy, Miller P., Hillburn, N. Y. Bottling-machine	519,060	May 1	197	46, 47	67	574
Hedgeland, Frederick W., Chicago, Ill. Machine for stringing pianos	520,595	May 29	2878	696	67	1132
Heffron, Isaac, Galveston, Tex. Grease-trap	519,501	May 8	1014	245	67	744
Hefner-Alteneck, Friedrich von, assignor to Siemens & Halske, Berlin, Germany. Carbon switch	520,263	May 22	2329	565	67	1012
Heibling, Joseph, Paris, France. Making potash alum and alumina	521,712	June 19	1703	400	67	1540
Heidel, Gustavos, St. Louis, Mo. Gas-burner	520,309	May 22	2397	582	67	1026
Heil, Charles E., Cleveland, Ohio. Sash-holder	517,695	Apr. 3	472	113	67	91
Heilmann, Jean J., Belfort, France. Electrical propulsion of railway-cars	519,674	May 8	1317	{316 / 317}	67	798
Heim, Samuel S., New York, N. Y. Railway switch and signal	521,611	June 19	1538	360	67	1507
Heimbaugh, Charles C., Momence, Ill. Boat	520,523	June 5	124	27	67	1220
Heinicke, Gustav, Berlin, Germany. Rotary motor	518,145	Apr. 10	1208	303	67	236
Heinrich, Charles, New York, N. Y. Wrist-supporting hand-guide for pianos or organs	519,675	May 8	1319	317	67	799
Heintz, Michel, Detroit, Mich. Cash register and indicator	520,049	May 22	1934	{474 / 475}	67	941
Hellmich, Paul, Benthen-on-the-Oder, Germany. Boiler-feeder	519,709	May 15	1385	334	67	824
Helmer, William. (See Macksey, Helmer, and Barton.)						
Helmer, William. (See Tufts and Helmer.)						
Heme, Claude, Bay City, Mich. Stovepipe-fastener	518,692	Apr. 24	2170	543	67	442
Hemmer, Leopold P., Aix-la-Chapelle, Germany. Plastic material for replacing wood, metal, stone, &c	520,824	June 5	125	.....	67	1220
Hendee, George W., *et al.* (See Boomhower, Eli E., assignor.)						
Henderson, Adoniram J., Toronto, Canada. Cinder-sifter	521,344	June 12	1066	249	67	1405
Henderson, Alexander T., Detroit, Mich. Hot-water heating apparatus	520,677	May 29	3025	732	67	1158
Henderson, Harry. (See Baynes and Henderson.)						
Henderson, John H. (See Schutz and Henderson.)						
Hendey, Henry J., assignor to Hendey Machine Company, Torrington, Conn. Suspension metal-shaper	517,612	Apr. 3	316	74, 75	67	62
Hendey, Henry J., assignor to Hendey Machine Company, Torrington, Conn. Combination metal-shaper	517,613	Apr. 3	319	75, 76	67	62
Hendey Machine Company. (See Champlin, Amos P., assignor.)						
Hendey Machine Company. (See Hendey, Henry J., assignor.)						
Hendey Machine Company. (See Norton, Wendell P., assignor.)						
Hendrich, Robert, Chicago, Ill. Unicycle	520,678	May 29	3027	733	67	1158
Heneault, Narcisse and T., Chicago, Ill. Vegetable-slicer	521,540	June 19	1414	328	67	1425
Heneault, Theresia. (See Heneault, Narcisse and T.)						
Henley, Micajah C., Richmond, Ind. Lawn-mower	518,670	Apr. 24	2137	{534 / 535}	67	436
Henley, Micajah C., Richmond, Ind. Boiler-tube cleaner	518,995	May 1	94	22, 23	67	553
Henneman, John, assignor of one-half to R. E. Stupe, Chicago, Ill. Enamel for coating sheet metal, &c	517,454	Apr. 3	71	.....	67	16
Hennessey, Thomas B., St. Louis, Mo. Casket-trimming table	517,976	Apr. 10	925	{231 / 232}	67	189
Henning, Otto, assignor to Grusonwerk, Magdeburg-Buckau, Germany. Machine for forming screw-threads	518,146	Apr. 10	1210	303	67	237
Henry, Addis M., White Sulphur Springs, Mont. Pen	519,953	May 15	1770	433	67	896
Henry, Archie J., Watertown, N. Y. Time-check receiver	520,848	June 5	171	37	67	1228
Henry, George B., Hartford, Conn. Secondary cell or battery	517,455	Apr. 3	71	15	67	16
Henry, John C., New York, N. Y. Electric motor	518,033	Apr. 10	1036	259	67	206
Henry, John C., Westfield, N. J. Electric-railway-conductor support	519,115	May 1	299	71	67	592
Henry, John C., Westfield, N. J. Electric-motor truck	520,780	June 5	32	7	67	1203
Henry, John C., Westfield, N. J. Electric-railway-car motor	521,651	June 19	1600	{374 / 375}	67	1519
Henry, John S., Manheim, Pa. Sash lock and support	517,456	Apr. 3	72	15	67	16
Hensel, George F., Philadelphia, Pa. Upholstery pendant or ornament	521,370	June 12	1104	260	67	1413
Hensel, John A., Chicago, Ill. Ceiling or wainscoting board	517,521	Apr. 3	171	39	67	35
Henshaw, Frederick V., Brooklyn, N. Y. Electric starting-switch	518,404	Apr. 17	1682	{416 / 417}	67	340
Hepburn, Lewis L., assignor to Marlin Fire Arms Company, New Haven, Conn. Detachably securing barrels to stocks	518,950	May 1	23	6	67	541
Hepp, Daniel, Chicago, Ill. Workman's time-recorder	520,310	May 22	2398	{582 / 583}	67	1026
Hepworth, John W. (See Breaithwaite and Hepworth.)						
Herbolsheimer, Charles F. (See Ream and Herbolsheimer.)						
Hercules Iron Works. (See Levey, Butler, and MacDonald, assignors.)						
Herdman, Frank E., Indianapolis, Ind. Electric motor	519,116	May 1	301	71, 72	67	593
Herdman, Frank E., Indianapolis, Ind. Electric elevator	519,117	May 1	305	72, 73	67	594
Herdman, Frank E., Indianapolis, Ind. Elevator	519,118	May 1	310	73	67	595
Herdman, Frank E., Indianapolis, Ind. Regulator for electric motors	519,120	May 1	315	75	67	597
Herdman, Frank E., Indianapolis, Ind. Controlling device for electric motors	519,121	May 1	319	76	67	598
Herdman, Frank E., Indianapolis, Ind. Controlling device for electric motors	519,122	May 1	321	76	67	599

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Herdman, Frank E., Indianapolis, Ind. Controlling device for electric motors	519,123	May 1	325	77	67	600
Herdman, Frank E., Indianapolis, Ind. Electric-motor-controlling apparatus	519,124	May 1	327	77	67	600
Herdman, Frank E., Winnetka, Ill. Elevator controlling device	519,119	May 1	312	74	67	596
Heritage, Charles. (See Taylor and Heritage.)						
Hermann, Edward A., St. Louis, Mo. Automatic electric signaling device for crossings	518,525	Apr. 17	1887	{467 / 468}	67	377
Hernandez, José R., Havana, Cuba. Cigarette-wrapper holder	521,026	June 5	485	115	67	1284
Heredia, Guillermo, Mexico, Mexico. Device for tightening strings of musical instruments	521,286	June 12	953	226	67	1382
Herr, Abraham S. (See Brickner and Herr.)						
Herr, John, Philadelphia, Pa. Bond for electrical conductors	521,238	June 12	860	203	67	1366
Herrburger, Joseph, Paris, France. Piano-action	520,989	June 5	428	103	67	1274
Herrick, Albert B., Schenectady, N. Y., assignor to General Electric Company, Boston, Mass. Dynamo-electric machine	520,781	June 5	34	8	67	1203
Herring, William H. Wilkes-Barré, Pa. Coal-separator	520,524	May 29	2758	668	67	1108
Herriott, John W., Hubbell, Nebr. Twine-box	518,504	Apr. 17	1853	459	67	370
Hersh, Elmer E., B. F. Woodward, and J. W. Pettee, Denver, Colo. Circuit-switch	518,188	Apr. 10	1282	325	67	249
Hertel, Carl W. A., Berlin, Germany. Galvanic battery	519,330	May 8	715	176	67	690
Herth, George J., and G. Bonenberger, Evansville, Ind. Mine trap-door	521,979	June 26	2198	529	67	1648
Hervieu, Gaston. (See Vidal and Hervieu.)						
Herweyer, Leonard, Vogel Centre, Mich. Barbed-wire fence	517,548	Apr. 3	216	49	67	43
Hesch, Philip M., Jr. (See Wilson and Hesch.)						
Hesel, John, St. Louis, Mo. Razor-strop composition	519,533	May 8	1092	262	67	758
Hess, Frank W., Philadelphia, Pa. Valve	521,027	June 5	485	116	67	1284
Hess, George W. (See Kidd and Hess.)						
Hess, John A., Philadelphia, Pa., assignor to Holyoke Envelope Company, Holyoke, Mass. Cutting-rolls	518,647	Apr. 24	2094	522	67	428
Hewett, Seth M., Minneapolis, Minn. Hoisting and conveying apparatus	517,859	Apr. 10	726	183	67	154
Hewitt, Peter C., New York, N. Y. Process of and apparatus for making glue	521,371	June 12	1105	260	67	1413
Hey, George W., Syracuse, N. Y. Circuit-closer	520,427	May 29	2595	628	67	1079
Heyde, Edward, assignor to Wickes Brothers, East Saginaw, Mich. Steam steering apparatus	521,652	June 19	1602	375	67	1519
Heyde, Edward, assignor to Wickes Brothers, East Saginaw, Mich. Slide-valve	521,653	June 19	1603	376	67	1520
Heyligenstaedt, Louis P. K., Giessen, Germany. Machine for rolling casks	520,305	May 22	2230	542	67	994
Heylman, William T., Muncie, Ind. Buff-wheel	520,679	May 29	3028	733	67	1158
Heymanson, Benjamin, Boise City, Idaho. Bolt-socket	518,405	Apr. 17	1684	417	67	341
Heys, John J., assignor of one-half to M. V. Bresnehan, Lynn, Mass. Sole-cutting machine	521,793	June 26	1855	{443 / 444}	67	1584
Hibbert, George, Gateshead-on-Tyne, England. Pulping and grinding machine	520,680	May 29	3030	733	67	1159
Hickory Wheel Company. (See Elliott, Sterling, assignor.)						
Hicks, Charles W., Ashburn, Ga. Steam-generating appliance	517,949	Apr. 10	876	220	67	181
Hicks, Schuyler C. (See Rose, William E., assignor.)						
Hicks, Thomas H., Detroit, Mich. Armature for dynamo-electric machines or electric motors	518,756	Apr. 24	2295	570	67	463
Hicks, Thomas H., Detroit, Mich. System of electrical conversion and distribution	520,050	May 22	1940	475	67	942
Hiett, James W., and T. C. Cole, Jonesborough, Ark. Ironing-board	522,058	June 26	2328	559	67	1672
Hiffner, Levi R., Grand Rapids, Mich. Corn-popper	519,404	May 8	853	{206 / 207}	67	715
Higgins, Campbell P., Roselle, N. J. Punching and forming machine	521,858	June 26	1955	{471 / 472}	67	1603
Higginson, Henry C., Newburg, N. Y. Manufacture of plaster	519,259	May 1	575	140	67	649
Higham, Daniel, Boston, Mass., assignor to Higham Electric Company, Portland, Me. Electric-arc-lighting system	520,232	May 22	2272	553	67	1001
Higham Electric Company. (See Higham, Daniel, assignor.)						
Highsmith, Lewis C., Canton, Tex. Tool for building wire fences	519,710	May 15	1386	334	67	824
Hildebrand, Henry W., Denver, Colo. Propelling mechanism for canal-boats	521,146	June 5	696	163	67	1322
Hilder, Charles F., London, England. Apparatus for distributing type	517,802	Apr. 3	643	161	67	125
Hilder, Charles F., London, England. Type-setting machine	520,311	May 22	2401	{583 / 584}	67	1026
Hill, Charles W., *et al.* (See Maley, Fredrick W., assignor.)						
Hill, George P., Richmond, Va. Darning or embroidering frame	519,258	May 1	574	{139 / 140}	67	649
Hill, Nicholas S., Jr., *et al.* (See Morton, James F., assignor.)						
Hill, Roland, Meriden, Conn. Butter-dish	519,125	May 1	320	78	67	601
Hill, Warren, Hartford, Conn. Punch	520,990	June 5	429	103	67	1275
Hill, Warren S., Hyde Park, Mass. Electric switch	518,813	Apr. 24	2392	591	67	480
Hillengass, Jacob, Washington, D. C. Scaffold-clamp	520,051	May 22	1942	476	67	942
Hiller, Louis C., assignor to Meriden Silver Plate Company, Meriden, Conn. Cheese or orange holder	521,613	June 19	1542	361	67	1508
Hiller, Louis C., and W. R. Mackay, assignors to Meriden Silver Plate Company, Meriden, Conn. Cheese-holder	521,612	June 19	1541	361	67	1508
Hilliker, William C., Columbus, Ohio. Rain-water cut-off	520,484	May 29	2694	652	67	1097
Himelright, Henry, *et al.* (See Knauer, Cyrus A., assignor.)						
Himrod, Julia A. (See Himrod, William, assignor.)						
Himrod, William, assignor of one-half to J. A. Himrod, Erie, Pa. System of bookkeeping	521,882	June 26	1993	481	67	1611
Hinkle, William A., Forsyth, Ill. Straw-stacker	518,843	Apr. 24	2430	602	67	487
Hinkley, Charles S. W., San Antonio, Tex. Uterus-battery	520,206	May 22	2230	542	67	994
Hinman, Alfred, Olympia, Wash. Electric motor	520,782	June 5	37	8, 9	67	1204
Hinstin, Joseph, Paris, France. Furnace. (Reissue)	11,420	May 22	2554	{617 / 618}	67	1056
Hinton, Charles W., Los Angeles, Cal. Car-coupling	517,950	Apr. 10	878	220	67	181
Hirsch, Feodor, Steinway, assignor to himself, and E. M. Jerome, New York, N. Y. Igniter for gas-engines	518,717	Apr. 24	2229	555	67	451
Hirsch, Ludwig, New York, N. Y. Oiler for bicycles, &c	521,614	June 19	1543	361	67	1508
Hirschmann, Charles, New York, N. Y. Fisherman's appliance	520,052	May 22	1943	476	67	943
Hirschmann, Josef, Linfield, Pa. Tinning-machine	520,428	May 29	2598	{628 / 629}	67	1080
Hirsh, Morris M., *et al.* (See Schweizer, Adolph, assignor.)						
Hirsh, Ralph, Syracuse, N. Y. Refrigerator	519,711	May 15	1387	{334 / 335}	67	824
Hirt, Louis J., Somerville, Mass. Car-wheel	521,587	June 19	1498	351	67	1500
Hirt, Louis J., Somerville, assignor to H. W. Peabody & Co., Boston, Mass. Fuel-economizer	518,718	Apr. 24	2230	555	67	451
Hittle, Frank. (See Gressle, Theophilus E., assignor.)						
Hobbs, Alfred, Syracuse, N. Y. Wall-plaster	520,783	June 5	39	.....	67	1204

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hobbs, George P., and A. L. Edwards, Wheeling, W. Va. Wheel	518,736	Apr. 24	2269	563	67	458
Hobbs, Horace, assignor, by mesne assignments, of one-half to A. W. Friese, Milwaukee, Wis. Ventilating-fan	521,114	June 5	644	151	67	1313
Hobbs, James C. H., Salem, Nebr. Whiffletree	521,028	June 5	487	116	67	1085
Hobson, Elbridge B., *et al.* (See Gregory, Nathan B., assignor.)						
Hobson, James F., New Antioch, Ohio. Burial-case	521,568	June 19	1463	342	67	1494
Hoch, Fred, Wauwatosa, Wis. Cable street-railway	521,500	June 19	1349	314	67	1474
Hoch, Frederick H., Valley Park, Mo. Brake for hay-frames	519,907	May 15	1698	414	67	883
Hocking, Richard P., Mayaguez, Porto Rico. Coffee-drying apparatus	521,859	June 26	1957	472, 473	67	1603
Hodel, Joseph A., Cumberland, Md. Chimney-cowl	519,954	May 15	1771	434	67	896
Hodge, Alexander C., Menasha, Wis. Separable pulley	519,331	May 8	717	177	67	690
Hodge, Leonard M., San José, Cal. Measuring-instrument	518,103	Apr. 10	1144	288	67	225
Hodges, Horace F., and D. J. Havenstrite, assignors to C. B. Southard, trustee, Boston, Mass. Method of and apparatus for distilling water	520,525	May 29	2759	668	67	1108
Hodges, Josiah K., and T. C. Dickson, Cheyenne, Wyo. Combined kitchen-cabinet and churn	517,457	Apr. 3	73	16	67	16
Hodgkins, Nelson D., assignor of one-half to F. O. Clark, Marquette, Mich. Hub-protector for vehicles	518,951	May 1	24	7	67	541
Hodgson, Albert J., Palmyra, Wis., assignor of two-thirds to R. W. Dugan and B. Shinkle, Covington, Ky. Steam-boiler furnace	522,059	June 26	2329	559	67	1672
Hodgson, Isaac and M. A., Chicago, Ill. Geographical globe	519,061	May 1	203	47	67	575
Hodgson, Mary A. (See Hodgson, Isaac and M. A.)						
Hodson, Henry M., Spiceland, Ind. Plant-setter	519,712	May 15	1389	335	67	825
Hoe, Robert, *et al.* (See Crowell, Luther C., assignor.)						
Hoell, Ole E. O., *et al.*, executors. (See Syversen, Andreas.)						
Hoepfner, Carl, Giessen, Germany. Electrolytical apparatus	518,065	Apr. 10	1087	274	67	215
Hofe, John G. von, New York, N. Y. Metal-drilling attachment for fire-hose	518,814	Apr. 24	2393	591	67	480
Höfer, Josef, Sheboygan, Wis. Sled	522,060	June 26	2330	560	67	1672
Hoffman, Jeremiah M., Cressona, Pa. Adjustable window-shade support	518,737	Apr. 24	2270	564	67	458
Hoffman, Nettie S. (See Paine and Hoffman.)						
Hoffman, Robert, Pittsburg, Pa. Pneumatic tire	520,643	May 29	2951	714	67	1145
Hoffman, William, Boston, Mass. Game-board	519,041	May 1	168	40	67	569
Hoffman, William, Salt Lake City, Utah Ter. Pressure-governor for fluids	521,315	June 12	1000	235	67	1392
Hoffmann, Carl, assignor to Siemens & Halske, Berlin, Germany. Electric-arc lamp	518,719	Apr. 24	2232	555, 556	67	452
Hoffmann, Carl, assignor to Siemens & Halske, Berlin, Germany. Commutator	520,264	May 22	2331	566	67	1013
Hoffmann, Ernest G., New York, N. Y. Device for grinding twist-drills	521,615	June 19	1544	361	67	1508
Hogan, John J., Brooklyn, N. Y. Water-tube boiler	520,882	June 5	228	52, 53, 54	67	1239
Hogan, John J., Brooklyn, N. Y. Steam-dome for boilers	520,883	June 5	236	54	67	1240
Hogan, John J., Brooklyn, N. Y. Steam-separator for boiler-tubes	520,884	June 5	239	55	67	1241
Hogan, John J., Brooklyn, N. Y. Boiler in vertical sections	520,885	June 5	240	55, 56, 57	67	1241
Hogan, Thomas J., assignor to Westinghouse Air Brake Company, Pittsburg Pa. Quick-action-valve mechanism for air-brakes	519,908	May 15	1699	415	67	883
Hogbin, Elmer, Camden, N. J. Sectional horseshoe	519,453	May 8	928	224	67	730
Hogeland, Israel, Chicago, Ill. Apparatus for forging tires	518,815	Apr. 24	2395	592	67	481
Hogg, Franklyn S., New York, N. Y. Fender for tram-cars	518,571	Apr. 17	1965	485	67	390
Hogg, Raphael, Neustadt, Germany. Self-waiting table	519,630	May 8	1254	301	67	786
Hoggson, Samuel H., assignor of one-half to W. H. Stevenson, St. Louis, Mo. Electric battery	520,429	May 29	2603	630	67	1081
Hoggson, Samuel H., assignor of one-half to W. H. Stevenson, St. Louis, Mo. Stand, table, or analogous article	520,430	May 29	2604	630	67	1081
Hoke, Harry E., Jr. (See Hoke, Henry E., and H. E., Jr.)						
Hoke, Henry E., and H. E., Jr., Chambersburg, Pa. Car-door	522,061	June 26	2332	560	67	1673
Hoke, John I., South Bend, Ind. Pivoted tooth-bar	518,603	Apr. 24	2014	500	67	414
Hoke, John I., South Bend, Ind. Straddle-row wheel cultivator	519,631	May 8	1255	302	67	787
Holbrook, John B., New York, N. Y. Folding ladder for sleeping-cars	519,184	May 1	439	103	67	622
Holden, David W., Gardiner, Oreg. Hook	518,452	Apr. 17	1771	439	67	356
Holden, Frank, Lynn, assignor to General Electric Company, Boston, Mass. Damping device for electrical measuring-instruments	518,245	Apr. 17	1400	350	67	289
Holden, John W. (See Skipper, James M., assignor.)						
Holden, Louis E., *et al.* (See Burton, Charles C., assignor.)						
Holdfast Sole Stay Company. (See Goding, Edwin L., assignor.)						
Holgate, George H. (See Vogt, Wilhelm, assignor.)						
Holland, Elias C., Austin, assignor to Union Special Sewing Machine Company, Chicago, Ill. End-cap for cylinder sewing-machines	519,909	May 15	1702	415	67	884
Holland, Henry P., San Francisco, Cal. Rotary engine	521,541	June 19	1416	328	67	1485
Holland, Henry P., San Francisco, Cal. Excavator and elevator	521,883	June 26	1995	482	67	1611
Holland, John P., Newark, N. J. Submarine torpedo-boat	522,177	June 26	2531	607, 608	67	1711
Holland, Robert J., Nevada, Cal. Drill-chuck	519,454	May 8	929	224	67	730
Hollar, William H., Philadelphia, Pa. Safe-lock	518,453	Apr. 17	1771	439	67	357
Hollenbeck, Frank A., assignor to Syracuse Arms Company, Syracuse, N. Y. Cocking mechanism for breakdown guns	519,126	May 1	331	78	67	601
Hollenbeck, Frank A., assignor to Syracuse Arms Company, Syracuse, N. Y. Shifting mechanism for cocking-arms of breakdown guns	520,959	June 5	375	92	67	1266
Holler, Frank. (See Haug and Holler.)						
Hollerith, Herman, Washington, D. C. Electrical calculating system	518,604	Apr. 24	2015	500, 501	67	414
Hollerith, Herman, Washington, D. C. Tabulating system	518,885	Apr. 24	2495	618, 619, 620	67	500
Hollerith, Herman, Washington, D. C. Tabulating system	518,886	Apr. 24	2506	621	67	502
Holliger, Daniel J., Canton, Ohio. Oil-can	519,042	May 1	170	41	67	569
Hollingsworth, Daniel H., Brooklyn, N. Y. Shears	521,526	June 19	1395	322	67	1482
Hollis, Charles P., Boston, Mass. Music-turner	520,207	May 22	2231	542, 543	67	994
Holman, Alfred, *et al.* (See Bailey, Richard G., assignor.)						
Holmes, Albro O. (See Tanner, Allen J., assignor.)						
Holmes, Daniel M., Arlington, N. J., assignor to J. R. Van Derveer, New York, N. Y. Machine for forming articles of pastry or confectionery	518,454	Apr. 17	1773	439, 440	67	357

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Holmes, Grant, Danville, Ill. Steam-shovel	519,955	May 15	1772	434	67	896
Holmes, James, and K. Peterson, Jamestown, N. Y. Mortising-machine	519,502	May 8	1015	246	67	744
Holroyd, John, C. B. Hunt, and R. J. Johns, assignors to New Branston Two Reel Sewing Machine Company, Limited, London, England. Sewing-machine	521,372	June 12	1107	260, 261, 262	67	1413
Holt, Frank, South Pittsburg, Tenn. Plumb-level	519,576	May 8	1161	280	67	771
Holyoke Envelope Company. (See Hess, John A., assignor.)						
Holzhauer, Frederick, Detroit, Mich. Pocket-book holder	520,431	May 29	2605	630	67	1081
Hölzle, Franz X., Heidelberg, Germany. Rotating letter-press printing-machine	519,956	May 15	1774	434, 435	67	897
Holzman, Michael, *et al.* (See Darley, John W., Jr., assignor.)						
Homan, Frank H., Patchogue, N. Y. Spring-seat	519,792	May 15	1519	370	67	849
Homan, Frank H., Patchogue, N. Y. Wheel-fender and safety attachment for street-cars	522,115	June 26	2421	581, 582	67	1689
Homer, Chauncey S., assignor to M. T. Homer, Warren, Pa. Flexible cover for tables, blinds, desks, &c	520,526	May 29	2762	668	67	1109
Homer, Mary T. (See Homer, Chauncey S., assignor.)						
Honsucle, William R., Boston, Mass. Artificial leg	519,503	May 8	1018	246	67	749
Hood, John, and S. H. Reynolds, Boston, Mass. Dental chair	518,887	Apr. 24	2511	621	67	503
Hooker, James J., and B. W. Putnam, Cincinnati, Ohio. Twine-holder	520,312	May 22	2403	584	67	1026
Hooper, George W., assignor to J. S. Baker, Rochester, N. Y. Trolley for electric railways	518,952	May 1	25	7	67	541
Hooper, Mary P. C., New York, N. Y. Work-holder	517,860	Apr. 10	727	183	67	155
Hoopes, Clement R., Ogontz, Pa. Burglar-alarm	521,239	June 12	861	203	67	1370
Hope, John, Providence, R. I. Pantograph roll or plate	518,921	Apr. 24	2565	634	67	513
Hopkins, Albert A., Brooklyn, assignor to himself and W. D. Wright, New York, N. Y. Cigar-tip cutter	519,332	May 8	719	177	67	690
Hopkins, Charles S., Arlington, N. J., assignor to Electric Boiler Company, Rochester, N. Y. Boiler	519,285	May 1	621	150, 151	67	657
Hopkins, Francis A. (See Lawrence and Hopkins.)						
Hopkins, George M., New York, N. Y. Turbine	521,713	June 19	1704	400	67	1540
Hopkins, Harvey L. (See Nunamaker, John W., assignor.)						
Hopkins, James S. (See Gates, Caleb C., assignor.)						
Hopkins, Samuel C., U. S. Army. Combined cot and wardrobe	517,458	Apr. 3	75	16	67	17
Hopkins, Thomas J. (See Eyre and Hopkins.)						
Hopkins, William H., St. Louis, Mo. Portable umbrella-holder	520,053	May 22	1944	476	67	943
Hopkins, William J., and T. Stebbins, Boston, Mass., assignors to Thomson-Houston Electric Company, of Connecticut. Electric-motor controller	520,784	June 5	40	9	67	1204
Hopkinson, John A. and J., Huddersfield, England. Guard for water-gages	519,957	May 15	1775	435	67	897
Hopkinson, Joseph. (See Hopkinson, John A. and J.)						
Hopler, Frank H., assignor to L. Barnes, Philadelphia, Pa. Bridge	518,648	Apr. 24	2095	523	67	428
Hopper, William J., assignor of one-half to J. E. Robinson, McLeansborough, Ill. Band-cutter	521,115	June 5	645	152	67	1313
Horn, Eduard, Munich, Germany. Window-shade	518,246	Apr. 17	1401	351	67	289
Horn, Franklin S. (See Maag and Horn.)						
Horn, George A. (See Ricker, John W., assignor.)						
Horne, George A., Syracuse, N. Y. Safety-sear	520,596	May 29	2880	697	67	1132
Horne, John H., Lawrence, Mass. Roll-bar for pulp-engines	520,960	June 5	377	92	67	1266
Hornor, Edward C., Somerville, Tenn. Catamenial sack	520,113	May 22	2050	501	67	963
Horr, Henry R., and D. H. McFall, Red Lodge, Mont. Safety-envelope	518,189	Apr. 10	1284	325	67	250
Horrie, David, Kaukauna, Wis. Railway-frog	519,577	May 8	1163	280	67	771
Horton, Emmet, Dundee, N. Y. Berry-harvester	520,054	May 22	1946	476	67	943
Horton, James A., Greenfield, Mass. Mailing-machine	519,185	May 1	440	108	67	623
Horton, Stephen A., Clarksville, Tex. Bit for well-drilling apparatus	517,459	Apr. 3	77	17	67	17
Horton, Stephen A., Clarksville, Tex. Well-drilling apparatus	519,405	May 8	855	207	67	716
Hosea, Lewis M. (See Anderson and Hosea.)						
Hotchkiss, Seymour E., Wallingford, Conn. Insect-powder distributer	519,471	May 8	967	233	67	735
Hott, William D., Loy's Shop, N. C. Riding-plow	517,923	Apr. 10	830	208	67	174
Houghton, Charles L., Northampton, assignor of one-half to J. L. Woodruff, Westfield, Mass. Pocket package of toilet-paper	520,055	May 22	1942	477	67	943
House, Henry A., and Henry A., Jr., Bridgeport, Conn., assignors of one-half to R. R. Symon, London, England. Tubulous steam-boiler	521,164	June 12	731	173	67	1343
House, Henry A., and Henry A., Jr., Bridgeport, Conn., assignors of one-half to R. R. Symon, London, England. Burner for the combustion of gas or vapor for heating purposes	521,165	June 12	732	173	67	1343
House, Henry A., and Henry A., Jr., Bridgeport, Conn., assignors of one-half to R. R. Symon, London, England. Feed-water and gas supply regulator	521,166	June 12	734	174	67	1343
House, Henry A., and Henry A., Jr., Bridgeport, Conn., assignors of one-half to R. R. Symon, London, England. Lubricating device	521,958	June 26	2160	518	67	1641
House, William D., *et al.* (See Warner, Daniel, assignor.)						
Houseman, Harry A., Philadelphia, Pa. Needle-actuating cam for knitting-machines	521,860	June 26	1960	473	67	1604
Houston, Adelbert D., Brooklyn, N. Y. Folding metal bed	518,996	May 1	96	23	67	553
Houston, Adelbert D., Brooklyn, N. Y. Folding metal bed	518,997	May 1	97	23	67	554
Houze, Luke, Montpelier, Ind. Roasting and calcining kiln	519,063	May 1	210	49	67	576
Hover, Elizabeth. (See Hover, William, assignor.)						
Hover, William, assignor to E. Hover, Freeport, Ill. Carpet-stretcher	520,736	May 29	3120	755	67	1175
Howard, Charles, New York, N. Y. Vulcanizing and drying wood	520,565	May 29	2829	683	67	1122
Howard, Charles, New York, N. Y. Vulcanizing wood	520,597	May 29	2881	697	67	1132
Howard, Daisy D., Jacksonville, Fla. Letter-drier	517,803	Apr. 3	645	162	67	125
Howard, George C., Philadelphia, Pa. Safety device for elevators	519,844	May 15	1596	390	67	864
Howard, Henry H., *et al.* (See Feuerbacher, Frank P., assignor.)						
Howard, Henry J., Paris, Ill. Sleigh-runner attachment	521,794	June 26	1858	444	67	1584
Howard, Louis E., Plainfield, N. J. Electric-arc lamp	520,991	June 5	430	103	67	1275
Howden, James, Glasgow, Scotland. Apparatus for heating air	518,455	Apr. 17	1776	441	67	357
Howe, Henry A., Albion, assignor to himself and J. Norwood, Brooklyn, N. Y. Safety attachment for street-cars	520,233	May 22	2274	553, 554	67	1002
Howe, Patrick, assignor of five-sixths to I. Fenno, R. D. Goodwin, and C. M. Blake, Boston, and M. A. Tolman, administratrix, Newton and H. G. Hartshorne, Wakefield, Mass. Cloth-cutting machine	520,598	May 29	2883	697	67	1133
Howe, Rena M., assignor to T. B. Howe, Scranton, Pa. Closure for bottles or jars	518,953	May 1	26	7	67	541
Howe, Thomas B. (See Howe, Rena M., assignor.)						
Howell, George B., assignor to McCambridge & Company, Limited, Philadelphia, Pa. Water-closet reservoir	520,358	May 22	2485	602	67	1042
Howson, James M. (See Smith and Howson.)						
Hoxsie, Charles A., Richmond, R. I. Artificial fish-pond	518,318	Apr. 17	1517	380	67	310

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hoxsie, Charles A., Richmond, R. I. Nursery-pond for fish culture	518,319	Apr. 17	1520	380	67	310
Hoyle, Ella L. D., New Orleans, La. Batter-dropper	518,035	Apr. 10	1028	260	67	206
Hoyle, Mary E., Chicago, Ill. Lady's hand-bag	518,034	Apr. 10	1027	259	67	206
Hoyt, Andrew J., Philadelphia, Pa. Pedal for crank-powers	518,757	Apr. 24	2297	570	67	463
Hoyt, Buckingham S., New York, N. Y. Fastening device	519,504	May 8	1019	247	67	745
Hoyt, George E., San Francisco, Cal. Reversing and controlling gearing	520,313	May 22	2404	584 585	67	1027
Hubbard, Eber, Chicago, Ill., assignor to Willimantic Linen Company, Hartford, Conn. Machine for molding spools or similar forms from pulp	517,924	Apr. 10	832	209	67	174
Hubbard, Eber, Chicago, Ill., assignor to Willimantic Linen Company, Hartford, Conn. Machine for dressing half-spools	518,954	May 1	27	7, 8	67	541
Hubbard, Eber, Chicago, Ill., assignor to Willimantic Linen Company, Hartford, Conn. Machine for turning spools	521,468	June 19	1288	300 301	67	1463
Hubbard, Joseph A., *et al.*, executors. (See Babcock, George H.)						
Hubbard, Walter, assignor to Bradley & Hubbard Manufacturing Company, Meriden, Conn. Inkstand	518,036	Apr. 10	1029	260	67	206
Hübeler, Charles. (See Schüpple and Hübeler.)						
Huber, Ernest. (See Sachs and Huber.)						
Hubinger Carroll Cash Register Company. (See Carroll, Thomas, assignor.)						
Hudgin, Emily M., Cincinnati, Ohio. Folding basket	518,783	Apr. 24	2337	580	67	471
Hudnall, William, and L. D. Beary, Helena, Mont. Roller grinding-mill	518,955	May 1	30	8	67	542
Hudson, Edmund, Washington, D. C. Stereopticon	518,104	Apr. 10	1145	288	67	225
Hudson, Frank W. (See Murphy, John Z., assignor.)						
Hudson, John H., Marshall, Tex. Type-writing machine	521,616	June 19	1546	362	67	1508
Hueffner, Henry A., and L. Lash, Virginia, Ill. Dust-arrester	519,958	May 15	1777	435 436	67	898
Huettig, Hugo. (See Worden and Huettig.)						
Hughes, Henry C., London, England. Manufacture of stained-glass panels	519,186	May 1	444	109	67	623
Hughes, James R., London, England. Support for lights	522,116	June 26	2425	582	67	1690
Hughes, John M., Knoxville, Tenn. Churn attachment	520,566	May 29	2831	683	67	1122
Hughes, Samuel, Lindsay, Canada. Ventilating railway-carriages	521,316	June 12	1001	235 236	67	1392
Hughes, Samuel, Lindsay, Canada. Ventilating railway-carriages	521,795	June 26	1859	445	67	1585
Hughs, George W., Fort Worth, Tex. Wire-stretcher	518,406	Apr. 17	1685	417	67	341
Hulbert, Milan H., New York, N. Y. Tool for making curves or other forms in Venetian iron	518,816	Apr. 24	2396	592	67	481
Hulbert, Orrin L. (See Stoker, George W., assignor.)						
Hull, Richard B., Milton Junction, Wis. Composition for exterminating Canada thistles	517,861	Apr. 10	729	.....	67	155
Hull, William, Souris, Canada. Combined drag-bar cultivator and drill	517,925	Apr. 10	835	210	67	175
Hull, Wilmot B., Wellington, Kans. Clevis	520,110	May 22	2045	500	67	962
Hull, Wolcott A. (See Rockwell and Hull.)						
Humphrey, George C. (See Forrester, William H., assignor.)						
Humphrey, Harry L., Birmingham, England. Child's carriage	522,117	June 26	2426	582	67	1690
Humphrey, Henry P., assignor to Lowell Oiler Company, Nashua, N. H. Lubricating device	517,748	Apr. 3	561	137	67	109
Humphreys, William J., Crozet, Va. Construction of legged articles	520,432	May 29	2605	630	67	1081
Hünefeld, Julius F. von, Dresden, Germany. Key attachment for locks	519,605	May 8	1205	291	67	778
Hunt, Charles B. (See Holroyd, Hunt, and Johns.)						
Hunt, Charles W., West New Brighton, N. Y. Cable railway	520,644	May 29	2952	714	67	1145
Hunter, George E., Elgin, assignor to Elgin National Watch Company, Chicago, Ill. Mechanism for loading watch-jewels	520,681	May 29	3030	733 734	67	1159
Hunter, James B., Cato, N. Y. Hose-reel	521,796	June 26	1860	445	67	1585
Hunter, John K., Owensborough, Ky. Snap-slide for sewing-machines	519,260	May 1	576	140	67	649
Hunter, Robert L., St. Paul, Minn. Electrical annunciator	518,037	Apr. 10	1030	260 261	67	207
Hunter, Rudolph M., Philadelphia, Pa. Photographic-printing frame	518,922	Apr. 24	2565	634 635	67	513
Hunter, Rudolph M., Philadelphia, Pa. Electric-railway turn-table	520,527	May 29	2764	669	67	1109
Hunter, Rudolph M., Philadelphia, Pa. Cash-register	521,931	June 26	2097	504	67	1630
Hunter, Rudolph M., Philadelphia, Pa., assignor to Thomson-Houston Electric Company, of Connecticut. Electric locomotive	520,111	May 22	2046	500	67	962
Hunter, Rudolph M., Philadelphia, Pa., assignor to Thomson-Houston Electric Company, of Connecticut. Electrical measuring-instrument	520,361	May 22	2494	603	67	1045
Hunter, Rudolph M., Philadelphia, Pa., assignor to Johnson Company, of Pennsylvania. Apparatus for electric welding	520,359	May 22	2486	603	67	1042
Hunter, Rudolph M., Philadelphia, Pa., assignor to Johnson Company, of Pennsylvania. Apparatus for electric welding	520,360	May 22	2490	603	67	1043
Hunter, Rudolph M., Philadelphia, Pa., assignor to Arlington Manufacturing Company, of New Jersey. Collar or cuff	520,823	June 5	126	27	67	1220
Hunter, Wallace B., assignor to E. Friedlander, New York, N. Y. Beam-compass	517,696	Apr. 3	472	114	67	91
Hunter, William. (See Day and Hunter.)						
Huntington, George, *et al.* (See Nall, Frederick W., assignor.)						
Hunton, Robert W., assignor to Pettee Machine Works, Newton, Mass. Machine for applying card-clothing to flats of carding-engines	520,186	May 22	2197	535	67	988
Huntress, John H., Janesville, Wis. Stovepipe attachment	521,959	June 26	2161	519	67	1641
Hunzinger, George, New York, N. Y. Game-table	522,014	June 26	2265	543	67	1659
Hupp, Frank S. (See Baldwin, Charles C., assignor.)						
Hurlburt, Horace, Leavenworth, Kans. Oar-propeller for boats	518,605	Apr. 24	2020	502	67	415
Hurlburt, Samuel W., Creston, Iowa. Window-screen	520,112	May 22	2049	500	67	963
Hurlbut, Seth E., Chicago, Ill. Box	519,578	May 8	1164	280	67	771
Hurley, Joseph M., assignor to W. F. Bryant, Buffalo, N. Y. Mold	518,147	Apr. 10	1211	304	67	237
Hurst, Jakob. (See Rosenberg and Hurst.)						
Hurst, John C. F., Holton, Kans. Vehicle-brake	521,588	June 19	1499	351	67	1500
Hurt, Samuel F. (See Cochran, John, Jr., assignor.)						
Huss, William C., Cincinnati, Ohio, assignor, by mesne assignments, to Brunswick-Balke-Collender Company, of Ohio. Combined arm-rest and guard for counters, bars, &c. (Reissue)	11,414	Apr. 17	1981	490	67	393
Hussey, Curtis G., *et al.* (See Burton, Charles C., assignor.)						
Huston, Arthur L. and W. J., Philadelphia, Pa. Compound for covering belt-pulleys	520,992	June 5	432	103	67	1275
Huston, William J. (See Huston, Arthur L. and W. J.)						
Huston, Winfield L. (See Rickabach, William H., assignor.)						
Hutchins, Carleton C., Detroit, Mich. Ventilating device for cars	521,617	June 19	1548	362	67	1509
Hutchinson, Frederick H., New York, N. Y. Bottle	518,606	Apr. 24	2021	502	67	415

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hutchinson Manufacturing Company. (See Hutchinson and Tyler, assignors.)						
Hutchinson, Samuel P., Philadelphia, Pa., assignor to Hutchinson Steel Company New York, N. Y. Manufacturing steel castings	520,056	May 22	1948	.....	67	943
Hutchinson Steel Company. (See Hutchinson, Samuel P., assignor.)						
Hutchinson, William F., Passaic, N. J. Kindling-wood	518,247	Apr. 17	1401	351	67	289
Hutchinson, William F., and A. J. Tyler, Passaic, N. J., assignors to Hutchinson Manufacturing Company, of New Jersey. Bundling-machine	518,248	Apr. 17	1402	353	67	289
Hutchison, Robert, Cowlairs, Scotland. Gutta-percha or rubber compound	518,817	Apr. 24	2398	.....	67	481
Huxford, Charles H., Brooklyn, N. Y. Coffee pot and filter	519,020	May 1	132	33	67	561
Hyde, Robert, Sheffield, England, assignor to W. Hyde, Philadelphia, Pa. Axle-box	520,314	May 22	2406	585	67	1027
Hyde, Theophilus R., Jr. (See Wolff and Hyde.)						
Hyde, Thomas B., Taylor, Tex. Bicycle	517,697	Apr. 3	473	114	67	91
Hyde, William. (See Hyde, Robert, assignor.)						
Hyman, Gustavus. (See Burrows, Joseph H., assignor.)						
I. L. Ellwood Manufacturing Company. (See Swanburn, Sanford, assignor.)						
Ide, Ferdinand F., assignor to F. F. Ide Manufacturing Company, Peoria, Ill. Bicycle-crank	518,456	Apr. 17	1777	442	67	357
Illingworth, John, Newark, N. J. Ingot-mold	520,923	June 5	319	77	67	1255
Imbaud, Paul M. T., Ambarès, France. Bottle-stopper	519,910	May 15	1702	415	67	884
Indiana Lumber and Veneer Company. (See Dickerson, William M., assignor.)						
Indiana Manufacturing Company. (See Nethery, Joseph W., assignor.)						
Ingersoll, Howard S., deceased, New York, N. Y.; R. H. Ingersoll, administrator. Hand stamping device	521,287	June 12	953	226	67	1383
Ingersoll, Robert H., administrator. (See Ingersoll, Howard S.)						
Ingersoll-Sergeant Drill Company. (See Sergeant, Henry C., assignor.)						
Ingham, Henry, Bellows Falls, Vt. Machine for maintaining air-pressure in chambers of hydraulic rams	521,167	June 12	735	174	67	1343
Ingle, George S., Evansville, Ind. Portable elevating and bag-holding machine	519,261	May 1	577	141	67	649
Ingram, Thomas D., Washington, D. C. Receptacle for small articles	521,116	June 5	646	152	67	1313
Interstate Coupler Company. (See Whitlock, Benjamin M., assignor.)						
Ireland, David M., Detroit, Mich. Float	521,501	June 19	1350	314	67	1474
Ireland, Robert H., New York, N. Y. Beam-framing machine	521,654	June 19	1604	376	67	1520
Irwin, William S., Knoxville, Tenn. Combined chicken-coop and hawk-trap	521,266	June 12	942	215	67	1375
Isaacs, Augusta R., New York, N. Y. Fire box and grate for ranges, stoves, or heaters	518,457	Apr. 17	1778	442	67	358
Isaacs, Isaac A., New York, N. Y. Electrical foot-bath	517,862	Apr. 10	729	183	67	155
Iske, Albert. (See Iske, Anthony and A.)						
Iske, Anthony and A., Lancaster, Pa. Slicing-machine	519,959	May 15	1780	436	67	898
Ives, Frederick A., Grant's Pass, Oreg. Metallic packing	518,844	Apr. 24	2432	602	67	487
J. J. Warren Company. (See Elliott, Bamford, assignor.)						
J. L. Mott Iron Works. (See Reid, John, assignor.)						
Jackaway, William, assignor of one-half to C. L. Bosler, Wankegan, Ill. Cut-off for steam-engines	521,714	June 19	1706	401 402	67	1541
Jackman, Lemuel N., and C. A. Smith, Elgin, assignors to Elgin National Watch Company, Chicago, Ill. Mechanism for loading watch-jewels	521,715	June 19	1707	402 403	67	1541
Jackson, Charles W. (See Caffall, Edward M., assignor.)						
Jackson, Edwin M., and F. Roberts, Chicago, Ill. Pipe-wrench	518,818	Apr. 24	2398	592	67	481
Jackson, Francis, Raisinville, Mich. Device for converting reciprocating into rotary motion	519,064	May 1	213	50	67	577
Jackson, Francis, assignor of one-half to F. Atkinson, Raisinville, Mich. Washing-machine	518,407	Apr. 17	1686	417 418	67	341
Jackson, Oren E. (See Shipley, Peter C., assignor.)						
Jackson Pipe Organ Company. (See Jackson, Richard W., assignor.)						
Jackson, Richard W., assignor to Jackson Pipe Organ Company, Chester, Ill. Pipe-organ	520,924	June 5	321	78 79 80	67	1255
Jackson, Richard W., assignor to Jackson Pipe Organ Company, Chester, Ill. Combination stop-action for pipe-organs	520,925	June 5	329	80	67	1256
Jackson, Thomas A., Easton, Ga. Cotton-seed-separating machine	520,315	May 22	2407	585 586	67	1027
Jackson, William, Plymouth, Ind. Obstetrical apron	519,713	May 15	1391	335	67	825
Jacobs, Jacob, New York, N. Y. Ventilating vault-cover	518,888	Apr. 24	2512	621 622	67	503
Jacobs, Jonathan, assignor of one-half to W. H. Broadhurst, Browningsville, Md. Wagon-brake	520,849	June 5	173	38	67	1228
Jacoby, Frederik, Milwaukee, Wis. Refrigerator	522,118	June 26	2427	583	67	1690
Jacot, Charles H., Stapleton, assignor to Jacot & Son, New York, N. Y. Coin-controlled apparatus	518,720	Apr. 24	2235	556	67	453
Jacot & Son. (See Jacot, Charles H., assignor.)						
Jacques, William W., Newton, assignor to American Bell Telephone Company, Boston, Mass. Multiplex telephony	518,307	Apr. 17	1627	401 402	67	330
Jaeger, Albert, Jersey City, N. J. Boiler	521,655	June 19	1606	376 377	67	1520
Jägel, Louis N., Clarenceville, C. G. Smith and A. B. Pruden, Brooklyn, N. Y. Railway-switch	521,716	June 19	1710	403	67	1541
Jagelitz, Carl, Husum, Germany. Device for stopping runaway horses	520,057	May 22	1949	477	67	944
Jagger, Eli, Oldham, England. Step-protector for spindles	517,573	Apr. 3	259	60	67	51
Jahn, Max, Leipsic-Plagwitz, Germany. Stove	522,015	June 26	2266	543	67	1660
Jaiser, Mary. (See Harris and Jaiser.)						
James, George B., trustee. (See Campbell, Henry F., assignor.)						
James, George E., *et al.* (See Gregory, Nathan B., assignor.)						
James, John E., assignor of one-half to J. M. Williams, Worthington, Pa. Lampblack or carbon-black machine	521,797	June 26	1861	446	67	1585
James, Parker, Vandalia, Mich. Clasp	518,956	May 1	32	9	67	542
James, William A., assignor to Chicago Stamping Company, Chicago, Ill. Faucet for cans	519,534	May 8	1093	262	67	758
Jamison, Samuel W., Boston, Mass., assignor to S. W. Jamison Boot and Shoe Crimping Machine Company, New York, N. Y. Crimping-machine	518,240	Apr. 17	1405	352	67	290
Jandell, Frank W., Mapleton, N. D. Safety attachment for elevators	521,589	June 19	1500	352	67	1500
Janes, Henry, Waterbury, Vt. Vibrator for reed musical instruments	518,957	May 1	33	9	67	542
Janke, Otto, assignor of one-third to J. L. Nelle, St. Louis, Mo. Cane-gun	518,546	Apr. 17	1921	475	67	382
Jarmin, George W., assignor of one-half to R. Givens, Corpus Christi, Tex. Lantern	522,062	June 26	2333	560	67	1673
Jarvis, Charles M., assignor of one-half to Hayes Manufacturing Company, Erie, Pa. Machine for grinding cocks automatically	521,980	June 26	2290	529 530	67	1649
Jedeck, Ferdinand W. T., Berlin, Germany. Umbrella-rib-locking device	522,016	June 26	2267	543	67	1660

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Jedeck, Ferdinand W. T., Berlin, Germany. Umbrella-rib-locking device	522,017	June 26	2268	544	67	1660
Jelly, Arthur H., Cambridge, Mass. Fender for cars	519,472	May 8	968	233, 234	67	735
Jelly, Arthur H., Cambridge, Mass. Car provided with fenders	519,714	May 15	1391	336	67	825
Jeniczek, Ferdinand. (See Jernetz and Jeniczek.)						
Jenkins, Ebenezer C., Shrewsbury, Mass. Elevator-door-operating mechanism	518,408	Apr. 17	1687	418	67	341
Jenkins, Ebenezer C., Shrewsbury, Mass. Elevator-door-operating mechanism	518,409	Apr. 17	1688	418	67	342
Jenkins, Frank W., Brooklyn, N. Y. Safety appliance for street-railway cars	521,981	June 26	2206	530	67	1650
Jenkins, James E., *et al.* (See Tisdale, Charles D., assignor.)						
Jenkins, Jenkin. (See Day and Jenkins.)						
Jenkins, Lancaster Z., Philadelphia, Pa. Canopy for bicycles	522,063	June 26	2335	560, 561	67	1673
Jenkins, Samuel B., assignor to American Electric Heating Company, Boston, Mass. Electric heater	519,043	May 1	172	41	67	569
Jenkins, Wilton F., Richmond, Va. Underground-conduit railway	517,749	Apr. 3	563	137, 138	67	109
Jenkins, Wilton F., Richmond, Va. Conduit electric railway	517,804	Apr. 3	647	162	67	126
Jenks, William H., Brookville, Pa. Valve for engines	517,863	Apr. 10	730	184	67	155
Jenne, Chancy R., Fort Wayne, Ind. Lamp sketching-camera	520,058	May 22	1950	477	67	944
Jennings, Curtis M., St. Louis, Mo. Car-roof	521,087	June 5	599	141	67	1305
Jennings Lace Works. (See Spooner, Spencer, assignor.)						
Jennings, William C., Camden, N. J. Turret-head for drill-machines	520,362	May 22	2497	603, 604	67	1045
Jensen Can Filling Machine Company. (See Jensen, Mathias, assignor.)						
Jensen, Mathias, assignor to Jensen Can Filling Machine Company, Astoria, Oreg. Can-heading machine	518,105	Apr. 10	1148	288, 289	67	226
Jenson, Ole T., Weatherford, Tex. Plow attachment	521,117	June 5	648	152	67	1314
Jernetz, Franz, and F. Jeniczek, Vienna, Austria-Hungary. Contrivance for diminishing the danger to foot-passengers from street-railways	519,911	May 15	1703	415, 416	67	884
Jernigan, Henry R., assignor of one-half to J. H. Wall, Charlton, Ala. Baling-press	521,118	June 5	650	153	67	1314
Jerome, Eugene M. (See Hirsch, Feodor, assignor.)						
Jessup, Nathan C., West Hampton Beach, N. Y. Lee-wing for vessels	517,864	Apr. 10	732	184	67	155
Jewell, Major R., Rochester, N. Y. Ruler	518,758	Apr. 24	2298	571	67	463
Jewell, Major R., Rochester, N. Y. T-square rule	518,759	Apr. 24	2299	571	67	464
Jewett, Francis A., assignor to M. Cantine, Saugerties, N. Y. Rotary display-rack	518,526	Apr. 17	1891	468, 469	67	377
Jilek, John, Monticello, Iowa. Sawing-machine	521,317	June 12	1004	236	67	1392
Jobbins, William F. (See Van Ruymbeke, Joseph, assignor.)						
Jobbins, William F., *et al.* (See Dyer, Frank L., assignor.)						
Jobbins, William F., *et al.* (See Schweizer, Adolph, assignor.)						
Jobin, Louis, Quebec, Canada. Blind-stop	518,368	Apr. 17	1630	402	67	331
Joerissen, Carl A., assignor of one-half to L. F. Joerissen, Ilion, N. Y. Type-cleaning device for type-writing machines	520,850	June 5	176	38	67	1229
Joerissen, Louis F. (See Joerissen, Carl A., assignor.)						
Johanson, Emil G., assignor to C. Alstrom and O. Hagenson, Rockford, Ill. Loom	521,656	June 19	1608	377	67	1521
John F. Byers Machine Company. (See Byers, John F., assignor.)						
Johns, Richard J. (See Holroyd, Hunt, and Johns.)						
Johnson, Alfred, and W. S. Campbell, West Point, Ind. Safety-switch	518,607	Apr. 24	2022	502, 503	67	416
Johnson, Andrew, Manistee, Mich. Car-standard	520,434	May 29	2608	631	67	1082
Johnson, Arthur H., Rahway, N. J. Switch and lock movement	518,721	Apr. 24	2237	557	67	453
Johnson, Arthur H., Rahway, N. J. Lever-controlling device	520,926	June 5	331	80	67	1257
Johnson, Charles B., *et al.* (See Sherman, Willis D., assignor.)						
Johnson, Charles E., Mount Jackson, Ind. Ribbon-reversing mechanism for type-writing machines	521,288	June 12	951	226	67	1383
Johnson, Charles J. (See Stevenson and Johnson.)						
Johnson, Charles T., Brooklyn, assignor to Berliner Brothers, S. Lindenborn, and M. Adler, New York, N. Y. Lock	518,211	Apr. 10	1337	333	67	261
Johnson Company. (See Benagh, Henry C., assignor.)						
Johnson Company. (See Hunter, Rudolph M., assignor.)						
Johnson Company. (See O'Shea, Henry, assignor.)						
Johnson, Edward C., New London, Conn. Steam-pump	519,065	May 1	215	50, 51	67	577
Johnson, Edward H. (See Lundell, Robert, assignor.)						
Johnson, F. N. (See Keller, Thomas C., assignor.)						
Johnson, Frank B., *et al.* (See Sherman, Willis D., assignor.)						
Johnson, Frank B., W. P. Hall, W. Oakley, and C. F. Currey, assignors to Johnson Syndicate Construction Company, Topeka, Kans. Process of and apparatus for the manufacture of gas	520,401	May 22	2548	616	67	1055
Johnson, Frank H. (See Page, Albert G., assignor.)						
Johnson, Frank P., Danville, Pa. Nut and bolt lock	521,470	June 19	1293	301	67	1644
Johnson, Frederick D. (See Bauer and Johnson.)						
Johnson, George W., Floresville, Tex. Seed-sowing attachment for plows	521,542	June 19	1417	328	67	1486
Johnson, James S., Almont, Mich. Tubular sleigh	521,717	June 19	1711	404	67	1542
Johnson, Jeremiah P., Detroit, Mich. Carriage-top	520,433	May 29	2607	631	67	1082
Johnson, John A., Victoria, Ill. Two-wheeled vehicle	520,927	June 5	332	80, 81	67	1257
Johnson, John C., assignor of one-half to J. W. Hampton, Dallas, Tex. Harrow	519,767	May 15	1472	356	67	840
Johnson, Jonathan, Lowell, Mass. Radiator	521,618	June 19	1549	362	67	1509
Johnson, Louis F., Ponghkeepsie, N. Y. Track-circuit	521,412	June 12	1168	277	67	1425
Johnson, Minnie. (See Frost, John O., assignor.)						
Johnson, S. P., Schenectady, N. Y. Electric-arc lamp	521,798	June 26	1863	446	67	1585
Johnson, Samuel A., London, England. Sanitary arrangement for automatically disinfecting water-closets, &c	521,411	June 12	1166	277	67	1425
Johnson, Samuel W., Newport News, Va. Condenser	521,373	June 12	1110	262	67	1414
Johnson, Samuel W., Newport News, Va. Surface condenser	521,469	June 19	1291	301	67	1463
Johnson Syndicate Construction Company. (See Johnson, Hall, Oakley, and Currey, assignors.)						
Johnson, Thomas H., Plymouth, Fla. Animal-muzzle	518,845	Apr. 24	2433	603	67	488
Johnson, Thomas H., Pittsburg, Pa. Slide-rule	520,114	May 22	2050	501	67	963
Johnson, Ulysses G., Chicago, Ill. Water-closet seat	522,163	June 26	2510	602	67	1706
Johnson, William C., *et al.* (See Daly, Charles A., assignor.)						
Johnson, William H. H., La Due, Mo. Automatic bay-press feeder	521,657	June 19	1609	377, 378	67	1521
Johnson, William J., Newton, Mass. Tool-handle	518,106	Apr. 10	1152	289	67	226
Johnston, Charles W., Philadelphia, Pa. Motor	520,316	May 22	2410	586	67	1098

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Johnston, James H., *et al.* (See Anderson, Lee, assignor.)						
Johnston, John, Hyde Park, Mass. Vehicle	520,961	June 5	378	92	67	1266
Johnston, Robert L. (See Hay and Johnston.)						
Johnston, Thomas, Tacoma, Wash. Car-coupling	519,861	May 15	1628	396	67	870
Johnston, William, Allegheny, Pa. Bolt for double doors	519,687	May 8	1348	325	67	803
Joiner, Thomas H. (See Goff and Joiner.)						
Jonasson, Olof M., Uniontown, Pa. Tobacco-pipe	520,599	May 29	2884	698	67	1133
Jones, Augustus M. (See Tilton, James B., assignor.)						
Jones, Budd J., Sioux City, Iowa. Trolley-wire support	520,737	May 29	3121	755	67	1175
Jones, Charles E., *et al.* (See Reed, Franklin M., assignor.)						
Jones, Charles J. (See Childs and Jones.)						
Jones, Dexter J., and W. L. Clouse, Tiffin, Ohio. Screw-cutting machine	521,543	June 19	1418	329, 330	67	1486
Jones, Edgar A., Sturgis, Mich. Step for bicycles	519,579	May 8	1166	280	67	771
Jones, Edward L., assignor to Crowell Clutch and Pulley Company, Westfield, N. Y. Clutch	520,528	May 29	2766	669	67	1110
Jones, George M. (See Reynolds and Jones.)						
Jones, Harvey P., Denver, Colo. Combined rock-break and ore-granulator	520,317	May 22	2412	580, 587	67	1028
Jones, James H., assignor to Rockford Manufacturing Company, Rockford, Ill. Wheeled plow	520,645	May 29	2953	715	67	1145
Jones, James H., assignor to Rockford Manufacturing Company, Rockford, Ill. Mowing-machine	520,646	May 29	2956	715	67	1146
Jones, John T., Utica, N. Y. Cop-holder for sewing-machine shuttles	519,428	May 8	891	215	67	723
Jones, John T., Utica, N. Y. Sewing-machine	519,676	May 8	1321	317, 318, 319	67	799
Jones, Joshua W., New York, N. Y. Scalpel	520,435	May 29	2609	631	67	1082
Jones, Leah D., New Berne, N. C. Pantaloons-protector	519,632	May 8	1257	302	67	787
Jones, Lewis B. (See Koll, Benjamin S., assignor.)						
Jones, Thomas, Chicago, Ill. Plaster	518,784	Apr. 24	2338	.....	67	472
Jones, Walter A. (See Bell, Broomhead, and Jones.)						
Jones, Wilber, *et al.* (See Litchford, Miles, assignor.)						
Jones, William A., *et al.* (See Reed, Franklin M., assignor.)						
Jones, William G., Findlay, Ohio. Machine for manufacturing clay pigeons	519,127	May 1	332	78, 79	67	602
Jönsson, Johan L., assignor to Aktiebolaget Separator, Stockholm, Sweden. Centrifugal liquid-separator	519,085	May 1	251	59	67	584
Jordan, Thomas F. (See Cummings and Jordan.)						
Jordan, William T., Augusta, Ga. Cycle-canopy and support	521,619	June 19	1551	362	67	1509
Joseph, Jacob, Shamokin, Pa. Extensible shade-hanger	517,750	Apr. 3	563	138	67	109
Joy, Charles H. (See Hay and Kearns, assignors.)						
Joy, Robert, assignor to T. Kingsford, Oswego, N. Y. Steam-boiler	520,962	June 5	380	92	67	1266
Judd, Edward A., assignor to Corbin Cabinet Lock Company, New Britain, Conn. Trunk-lock	521,471	June 19	1294	301	67	1464
Judd, Edward C., Boston, Mass. Sole leveling and burnishing machine	519,187	May 1	445	109	67	623
Judkins, Alvin B. (See Goff and Judkins.)						
Judson, George A., Racine, Wis. Sewing-machine for fringing fabrics	521,982	June 26	2207	531, 532	67	1650
Judson, Henry P., Cambridge, Mass. Hot-air heating apparatus	518,250	Apr. 17	1407	352	67	290
Julius, Paul. (See Bernthsen and Julius.)						
Jung, Carl, Berlin, Germany. Ear-protector	520,785	June 5	42	10	67	1205
Jungner, Ernst W., Skara, Sweden. Thermo-electric battery	521,168	June 12	735	174	67	1323
Just, John A., Syracuse, N. Y. Acid-proof composition	520,600	May 29	2886	.....	67	1133
Kaempen, Folbert, Jr., assignor to Gem City Stove Manufacturing Company, Quincy, Ill. Device for operating oven-shelves	519,606	May 8	1206	291	67	775
Kahne, Charles C. and G. F., and A. A. Adkins, Ashland, Ky. Railway-signal	517,751	Apr. 3	565	138	67	110
Kahne, George F. (See Kahne and Adkins.)						
Kailor, John N. (See Reeves and Kailor.)						
Kaiserstein, Helfried B., Vienna, Austria-Hungary. Preparing food for horses	520,682	May 29	3032	.....	67	1159
Kalamazoo Cycle Company. (See Blood, Maurice E., assignor.)						
Kales, John W., Franklinville, N. Y. Can-filling machine	520,683	May 29	3033	734, 735	67	1159
Kalkner, Friedrich, Hildesheim, Germany. Skate	518,251	Apr. 17	1408	352	67	290
Kämmer, Franz E. (See Haberthür, Robert, assignor.)						
Kamp, George, Trenton, assignor of one-half to T. B. Mills, New York, N. Y. Landing-net frame	520,567	May 29	2832	683	67	1123
Kampf, August, Magdeburg, assignor to Grusonwerk, Magdeburg-Buckau, Germany. Controlling-valve for hydraulic pressure	518,149	Apr. 10	1214	304, 305	67	236
Kampfe, Frederick, R., and O., Brooklyn, N. Y. Machine for grooving razor-strops	520,851	June 5	177	38, 39	67	1229
Kampfe, Otto. (See Kampfe, Frederick, R., and O.)						
Kampfe, Richard. (See Kampfe, Frederick, R., and O.)						
Kane, Thomas. (See Carse, John B., assignor.)						
Karnbach, Albert, Barby, Germany. Folding frame for hammocks	519,286	May 1	623	151	67	657
Karrer, John. (See Patton, George M., assignor.)						
Kasper, Christian, Cleveland, Ohio. Ash-sifter	520,886	June 5	244	57	67	1241
Katzbach, John, *et al.* (See Bosman, Nicolas, assignor.)						
Kauffman, Adolf F. (See Wittich, George, assignor.)						
Kaufmann & Bro., Isaac. (See Koll, Gustav, assignor.)						
Kay, James I., *et al.* (See Barr, John U., Jr., assignor.)						
Kay, William G., Brooklyn, assignor of one-half to H. S. Stevens, Cleveland, Ohio. Nut-lock	518,066	Apr. 10	1088	274	67	215
Kaysan, Henry A., Brooklyn, N. Y. Surgical ligature-holder	517,574	Apr. 3	260	60	67	51
Keagy, David B. (See Ellis, Wiatt O., assignor.)						
Kean & Doty Manufacturing Company. (See Burmeister, Frederick, assignor.)						
Keane, William M., assignor of three-fourths to J. Curl and A. Baebi, Newark, N. J. Coin-controlled game apparatus	521,932	June 26	2102	504	67	1631
Kearns, William M. (See Hay and Kearns.)						
Keeling, Richard, Walhalla, N. D. Rattle-rake	517,865	Apr. 10	733	184	67	156
Keene, Albert A., Philadelphia, Pa. Thermometer	521,374	June 12	1112	262	67	1414
Kehlenbeck, Selma, Pleasant, Ind. Baby-carrier	522,018	June 26	2269	544	67	1660
Keiler, John W. (See Friedman and Keiler.)						
Keith, Alexander, Everett, J. P. Tirrell, Boston, Mass., and J. W. Willard, Pittsford, Vt., assignors to said Willard. Coin-controlled vending-machine	519,385	May 8	818	199, 200	67	710
Keith, Ethan B., Galesburg, assignor of one-half to W. R. Ritter, Dowagiac, Mich. Hay-loader	520,059	May 22	1951	477, 478	67	944

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Keith, Jeremiah, Middleborough, Mass., assignor to I. F. Peck, Providence, R. I. Machine for setting lacing-hooks	517,828	Apr. 3	679	169	67	132
Keith, Nathaniel S., San Francisco, Cal. Governor for electric and other motors	517,866	Apr. 10	734	185	67	156
Keithly, Willie C., assignor of one-half to J. Gordon and H. F. Dugan, San Francisco, Cal. Conduit electric railway	517,549	Apr. 3	218	50	67	43
Keller, Albert K., New York, N. Y., assignor, by mesne assignments, to Automatic Phonograph Exhibition Company of New York. Attachment for operating phonographs	518,190	Apr. 10	1285	325 and 326	67	250
Keller, Albert K., New York, N. Y., assignor, by mesne assignments, to Automatic Phonograph Exhibition Company of New York. Machine for operating phonographs	518,191	Apr. 10	1298	326 and 327	67	254
Keller, Albert K., New York, N. Y., assignor, by mesne assignments, to Automatic Phonograph Exhibition Company of New York. Machine or attachment for operating phonographs	518,192	Apr. 10	1304	327 and 328	67	255
Keller, Edmund, Charlottenburg, Germany. Clip for letters, accounts, &c.	518,252	Apr. 17	1409	353	67	290
Keller, Emil E., Chicago, Ill. Hand regulator or switch for motors	519,715	May 15	1393	336	67	826
Keller, G. F. (See Keller, Jeferson, assignor.)						
Keller, Jacob, Basle, Switzerland. Hydraulic brake mechanism	520,001	May 15	1852	453	67	910
Keller, James D., Detroit, Mich. Toe-weight	518,998	May 1	98	24	67	554
Keller, Jeferson, assignor of one-half to G. F. Keller, Frederick, Md. Swinging couch	518,547	Apr. 17	1922	475	67	382
Keller, Thomas C., assignor of one-half to F. N. Johnson, Dixon, Ill. Eaves-trough	520,993	June 5	433	104	67	1275
Kelley, Edward W., Lowell, Mass. Car-coupling	520,601	May 29	2887	698	67	1133
Kelley, James H. (See Rose and Kelley.)						
Kellner, Eugene assignor of one-half to F. W. Fort, Waco, Tex. Perforating mechanism for cylinder printing-presses	518,505	Apr. 17	1854	460	67	371
Kellogg, Charles E., West Hartford, assignor to Hartford Sanitary Manufacturing Company, Hartford, Conn. Cuspidor-holder	518,107	Apr. 10	1153	289	67	227
Kellogg, Dan W., Auburn, N. Y. Reversible eccentric for engines. (Reissue)	11,419	May 15	1896	463	67	912
Kelly, Edward, Lebanon, Ky. Druggist's weighing-scale	517,698	Apr. 3	475	114	67	91
Kelly, George B., Boston, Mass. Perforating-machine	517,752	Apr. 3	566	138 and 139	67	110
Kelly, George B., Boston, Mass. Mechanical musical instrument	517,805	Apr. 3	648	162 and 163	67	126
Kelly, Isaac V., Huntington, W. Va. Grain-door	522,019	June 26	2270	544	67	1660
Kelly, James F. (See Ryan, Michael J., assignor.)						
Kelly, James P., Louisville, Ky. Ax	520,738	May 29	3122	756	67	1175
Kelly, John F., assignor to Stanley Laboratory Company, Pittsfield, Mass. Means for reducing the apparent energy supplied to alternating-current magnets	518,739	Apr. 24	2272	564	67	459
Kelly, John F., assignor to Stanley Laboratory Company, Pittsfield, Mass. Alternating-current dynamo	518,740	Apr. 24	2273	564	67	459
Kelly, John F., and C. C. Chesney, assignors to Stanley Laboratory Company, Pittsfield, Mass. Apparatus for neutralizing the effects of self-induction in alternating-current circuits	518,738	Apr. 24	2271	564	67	458
Kelly, John P., Saco, Me. Device for plumbing top-rail spinning-spindles	519,716	May 15	1395	336	67	826
Kelly, Louise, Rosebank, N. Y. Washing-machine	517,699	Apr. 3	478	114	67	92
Kelly, Oliver S. (See Graham and Allen, assignors.)						
Kelsey, George, Little Falls, N. Y. Cooking device	519,580	May 8	1167	281	67	772
Kennedy, Edward S. T., New York, N. Y. Radial-tube steam-boiler	520,684	May 29	3035	735	67	1160
Kennedy, John S., Chambersburg, Pa. Apparatus for breaking pig-iron	520,685	May 29	3037	735	67	1160
Kennedy, Patrick. (See Biddle and Kennedy.)						
Kennedy, Richard G., *et al.* (See McCall, Harry M., assignor.)						
Kenney, Luke W., New York, N. Y. Skate	521,375	June 12	1113	263	67	1414
Kenny, Hugh E., *et al.* (See Nall, Frederick W., assignor.)						
Kent, William J., New York, N. Y. Machine for making horseshoe-bars	518,608	Apr. 24	2024	503	67	416
Kent, William J., New York, N. Y. Machine for bending horseshoe-blanks	518,609	Apr. 24	2025	503	67	416
Ker, George, assignor to Western Automatic Car Coupling Company, Portland, Oreg. Car-coupling	520,928	June 5	333	81	67	1257
Kerr, Hugh S., Philadelphia, Pa. Knockdown toy	518,067	Apr. 10	1089	275	67	215
Kersberg, Rudolf, Hohenlimburg, Germany. Commutator-brush	519,188	May 1	446	109	67	623
Kerstetter, James L. (See Baldwin and Kerstetter.)						
Kessler, Charles. (See Slyder, William J., assignor.)						
Kessler, Jacques L., Clermont-Ferrand, France. Apparatus for concentrating sulfuric acid by means of heated gases	520,994	June 5	434	104	67	1275
Kester, Jesse F., Buffalo, N. Y., assignor to F. P. Little Electrical Construction and Supply Company, of New York. Electric-arc lamp	519,912	May 15	1704	416	67	884
Ketchum, Henry W. (See Reynolds and Ketchum.)						
Kettmann, Otto, Philadelphia, Pa. Time-indicator for taking medicine	519,913	May 15	1706	416	67	884
Keuffel, William L. E. Hoboken, N. J. Tape-measure case	522,064	June 26	2336	561	67	1674
Keuffel, Willie L. E., Hoboken, N. J. Steel tape-measure	521,960	June 26	2162	519	67	1642
Keyes, Ernest W. (See Barnes, Pomeroy, and Keyes.)						
Keys, John H., West Salem, Ill. Kitchen-cabinet	518,150	Apr. 10	1216	305	67	238
Keystone Watch Case Company. (See Gruner, Henry, assignor.)						
Keystone Watch Case Company. (See Mink, Fritz, assignor.)						
Keyworth, Thomas R., Jr., New York, assignor of one-half to L. Knapp, Long Island City, N. Y. Valve for water-closets, &c	518,004	Apr. 10	986	245	67	199
Kidd, Joseph A., and G. W. Hess, Haskins, Ohio. Adjustable socket-clamp for sucker-rods	521,502	June 19	1351	314	67	1475
Kidd, Robert J., Cincinnati, Ohio. Pail-cover	518,889	Apr. 24	2513	622	67	504
Kilgore, John S., assignor of one-half to W. W. Shay, Salida, Colo. Sole and heel plate	518,923	Apr. 24	2569	635	67	514
Killpack, Frederick A., Ferron, Utah Ter. Device for unloading hay	517,867	Apr. 10	736	185	67	156
Kilmer, Irving A., deceased; W. A. Kilmer, Newburg, N. Y., administrator. Wire-barbing machine	519,633	May 8	1258	302 and 303	67	787
Kilmer, William A., administrator. (See Kilmer, Irving A.)						
Kimball, Adolphus and P., Arkansas City, Ark. Drying-kiln	517,700	Apr. 3	480	115	67	92
Kimball, Grace M., Oakland, Cal. Sash-fastener	518,253	Apr. 17	1409	353	67	290
Kimball, Lewis H. and O. N., Iowa, Iowa. Automatic center-delivery hay-rake	519,262	May 1	579	141	67	649
Kimball, Owen N. (See Kimball, Lewis H. and O. N.)						
Kimball, Phineas. (See Kimball, Adolphus and P.)						
Kindig, Samuel C., assignor of one-half to L. Biden, Baltimore, Md. Car-fender	519,128	May 1	338	80	67	603
Kindl, Frederick H., Pittsburg, Pa. Apparatus for rolling beams	520,060	May 22	1953	478	67	944
King, Edward D., Milwaukee, Wis. Bicycle	520,826	June 5	198	98	67	1220
King, Edward P., Toledo, Ohio. Apparatus for manufacturing plate-glass	517,460	Apr. 3	79	17	67	17
King, George W., Marion, Ohio. Reversing-gear	520,647	May 29	2957	715	67	1146
King, Gertrude M., Nantucket, Mass. Ellipsograph	517,522	Apr. 3	172	39	67	35
King, James C., *et al.* (See Markley, John A., assignor.)						
King, John A., Galesburg, assignor of one-half to S. B. Moody, La Grange, Ill. Buckle	518,999	May 1	100	24	67	554

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
King, John T., Little Rock, Ark. Spark-conductor for steam-engines	520,115	May 22	2052	502	67	963
King, Stephen, *et al.* (See Casswell, Richard H., assignor.)						
King, Thomas, assignor to Greene & Knox Manufacturing Company, Providence, R. I. Eyeglass-holder	520,024	May 15	1896	463	67	918
King, William, Longmont, Colo. Pipe-wrench	521,267	June 12	913	216	67	1376
Kingsford, Thomson. (See Joy, Robert, assignor.)						
Kingsland & Douglas Manufacturing Company. (See Schulze, Andrew, assignor.)						
Kinney, Robert D., Philadelphia, Pa. Heat-motor plant	521,910	June 26	2655	495	67	1623
Kinniburgh, James W., Wellington, New Zealand. Ear-pad for telephone-receivers	520,786	June 5	43	10	67	1205
Kinnie, Henry A. (See McCormick, William H., assignor.)						
Kinsey, Edwin F., Washington, D. C. House mail-box	518,924	Apr. 24	2570	635 and 636	67	514
Kinsley, Frank. (See Frisbie, Henry R., assignor.)						
Kinsman, Frank E., Plainfield, N. J. Railway signal device	520,061	May 22	1954	478 and 479	67	945
Kinsman, Frank E., Plainfield, N. J. Apparatus for controlling the movement of railway trains or vehicles	520,062	May 22	1958	479	67	945
Kintner, Charles J. (See Paget, Leonard, assignor.)						
Kipper, Charles. (See Pero, George W., assignor.)						
Kirby, Frank E., assignor to Detroit Dry Dock Company, Detroit, Mich. Ash-ejector	522,119	June 26	2428	583	67	1690
Kirby, John, Jr., assignor to Dayton Manufacturing Company, Dayton, Ohio. Curtain-rod fixture for sleeping-cars	518,958	May 1	34	9	67	542
Kirby, John, Jr., assignor to Dayton Manufacturing Company, Dayton, Ohio. Lamp	520,265	May 22	2332	566	67	1013
Kirchner, Henry W., and W. A. Spears, Denver, Colo. Flushing-tank for water-closets	520,436	May 29	2610	632	67	1082
Kirchner, Peter A., Fort Wayne, Ind. Water-alarm for steam-boilers	521,169	June 12	736	174	67	1344
Kirk, Charles. (See Clark, Cameron, and Kirk.)						
Kirkbride, Thomas E., and C. E. Ouram, Philadelphia, Pa. Friction-clutch pulley	521,240	June 12	863	203	67	1367
Kirker, Harry L., and W. Chambers, assignors to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Former for winding armature-coils	520,143	May 22	2120	517	67	974
Kirkpatrick, Charles, *et al.* (See Miltonberger, Wynant, and Schott, assignors.)						
Kirkpatrick, Charles C., *et al.* (See Bessonette, William T., assignor.)						
Kirks, Albert, assignor to Diebold Safe and Lock Company, Canton, Ohio. Time-lock	520,144	May 22	2121	518	67	974
Kirlin, Linden, Beattie, Kans. Cultivator or seed-planter	520,002	May 15	1854	453	67	911
Kirnan, William H., Bayonne, N. J., assignor to Gamewell Fire-Alarm Telegraph Company, New York, N. Y. Fire-alarm box	518,722	Apr. 24	2238	557	67	453
Kirnan, William H., Bayonne, N. J., assignor to Gamewell Fire-Alarm Telegraph Company, New York, N. Y. Indicator for fire-alarm or other purposes	520,234	May 22	2275	554	67	1002
Kirsch, Richard, Bay Ridge, N. Y. Window-sash fastener	519,607	May 8	1207	291	67	779
Kirven, Erasmus E., Darlington, S. C. Root-cutter and stump-extractor	520,363	May 22	2198	604	67	1046
Kiskadden, Robert A., Allegheny, Pa. Apparatus for operating railway-brakes	519,688	May 8	1348	325	67	804
Kissinger, Thomas, assignor of one-half to J. F. Sturgis, Lititz, Pa. Alarm match-safe	520,063	May 22	1961	480	67	946
Kitson Machine Company. (See Morton, Albert H., assignor.)						
Kittell, Henry E. (See Plowman and Kittell.)						
Klatte, Emil H. E., Freiburg, Baden, Germany. Electrically-governed switch	519,813	May 15	1548	378 and 379	67	855
Kleber, Oscar L., assignor of one-half to R. J. Stoney, Jr., and H. Brann, Pittsburg, Pa. Printing-telegraph	521,170	June 12	739	175	67	1344
Klees, James A., Reading, Pa. Dumping-wagon	519,455	May 8	930	224	67	730
Klein, George S., Toronto, Canada. Stem-winding watch	521,884	June 26	1998	482	67	1612
Klein, Theodore H., and H. C. French, Cleveland, Ohio; said French assignor to said Klein. Window-shade bracket	520,648	May 29	2958	716	67	1146
Kleinfeldt, Arthur, Brooklyn, N. Y., assignor to Eureka Can Opening Company, of New Jersey. Key for opening metal cans	517,523	Apr. 3	173	39	67	36
Kline, William, Piqua, Ohio. Clamp	521,658	June 19	1613	378	67	1522
Kline, William H., assignor of one-half to W. P. Bushell, Philadelphia, Pa. Toy	517,926	Apr. 10	837	210	67	175
Kling, Peter M., *et al.* (See Sawade, Gustave C., assignor.)						
Klose, Karl A., Richfield, Minn. Wrench	520,529	May 29	2767	669	67	1110
Kloss, Ernst, Stettin, Germany. Electrical temperature-annunciator	519,634	May 8	1260	303	67	788
Kloz, Ludwig, Leadville, Colo. Extracting zinc from ores	518,890	Apr. 24	2514	622	67	504
Knap, Edgar D., Schenectady, N. Y. Combined cut-out and cord-adjuster	520,318	May 22	2414	587	67	1028
Knapp, George W., Baltimore, Md. Attaching spouts to sheet-metal vessels	520,235	May 22	2279	554	67	1002
Knapp, George W., and J. V. Chamberlin, Worcester, Mass. Valve	517,575	Apr. 3	261	60	67	51
Knapp, James C., *et al.* (See Reynolds, Hamline W., assignor.)						
Knapp, Lucien. (See Keyworth, Thomas R., Jr., assignor.)						
Knapp & Stout Co. Company. (See Randall, Frank J., assignor.)						
Knauer, Cyrus A., assignor of two-thirds to J. H. Geiger and H. Himelright, Pottstown, Pa. Chalk-holder for billiard or other cues	518,068	Apr. 10	1093	275	67	215
Knauss, Charles C., and J. E. Krause, Bethlehem, Pa. Rotary engine and pump	519,156	May 1	392	94	67	613
Kneeland, Frank G., *et al.* (See Leonard, David, assignor.)						
Knickerbocker, Dwight W. (See Merritt, James M., assignor.)						
Knight, Alonzo C., *et al.* (See Quackenbush, George, assignor.)						
Knight, Frank. E., New York, and H. S. Smith, Brooklyn, N. Y. Shade for lamps	520,649	May 29	2959	716	67	1146
Knight, George, Brockton, Mass. Machine for creasing boot or shoe uppers	518,410	Apr. 17	1690	419	67	342
Knight, John H., Farnham, England. Vaporizer for hydrocarbon-motors	518,151	Apr. 10	1217	305	67	238
Knight, John R., *et al.* (See Leonard, David, assignor.)						
Knight, Margaret E., South Framingham, assignor to herself, R. D. Evans and J. S. Lockwood, Boston, Mass. Reel	521,413	June 12	1169	277 and 278	67	1426
Knight, Margaret E., and A. B. Harrington, South Framingham, assignors to said Knight and J. S. Lockwood, Boston, Mass. Window frame and sash	519,333	May 8	720	177	67	691
Knight, Walter H., Lynn, assignor to General Electric Company, Boston, Mass. Controller for electric-railway cars	518,254	Apr. 17	1410	353	67	290
Knight, Walter H., Lynn, assignor to General Electric Company, Boston, Mass. Electric locomotive	520,787	June 5	44	10	67	1205
Knower, George, Greenwood, Wis. Finishing-joint in wooden walls or ceilings	517,701	Apr. 3	481	115	67	92
Knowles, Edward R., Middletown, Conn., assignor to Schuyler Electric Company, of Connecticut. Voltmeter	520,789	June 5	50	12	67	1206
Knowles, Edward R., Middletown, Conn., assignor to Schuyler Electric Company, of Connecticut. Electric-switch box	520,852	June 5	181	39	67	1230
Knowles, Edward R., Middletown, Conn., assignor to Schuyler Electric Company, of Connecticut. Ammeter	520,963	June 5	381	93	67	1267
Knowles, Edward R., Middletown, Conn., assignor to Schuyler Electric Company, of Connecticut. Voltmeter	520,964	June 5	382	93	67	1267
Knowles, Edward R., Middletown, Conn., and E. H. Park, Millbury, Mass., assignors to Schuyler Electric Company, of Connecticut. Stand for controlling electric circuits	520,788	June 5	47	10, 11, and 12	67	1205
Knowlton, Ernest J., Ann Arbor, Mich. Compound for waterproofing fabrics	517,927	Apr. 10	838	.....	67	175

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Knubel, Herman, *et al.* (See Ball, Charles A., assignor.)						
Knudtson, Thurston L., and J. Uhri, Chicago, Ill. Machine for making box-blanks	518,038	Apr. 10	1033	261, 262, 263, 264, 265	67	207
Kobliah, Joseph. (See Morfoot, George A., assignor.)						
Kobusch, George J., *et al.* (See Sawade, Gustave C., assignor.)						
Koch, Christoph F. (See Faulhaber and Koch.)						
Koebig, Julius, San Francisco, Cal. Defecating cane-juice	517,820	Apr. 3	670	...?...	67	130
Koehl, Louis. (See Low, Hamilton F., assignor.)						
Koehler, Conrad. (See Koehler, Jacob and C.)						
Koehler, Jacob and C., assignors to H. E. Wollmer, Manchester, England. Hinge for step-ladders, &c	519,535	May 8	1094	262	67	759
Koenemann, Carl, Wiesbaden, Germany. Sash-holder	519,536	May 8	1095	263	67	759
Koeth, Christian, Suhl, Germany. Drum	519,914	May 15	1707	416, 417	67	885
Köhler, Julius, Limbach, Germany. Machine for sewing looped fabrics	520,208	May 22	2233	543, 544	67	995
Köhler, Julius, Limbach, Germany. Machine for sewing looped fabrics	520,209	May 22	2237	544, 545	67	995
Köhler, Karl. (See Berliner, Adolf, assignor.)						
Kohman, William A. (See Potteiger and Kohman.)						
Kohont, Frederick. (See Kohont, Louis and F.)						
Kohont, Louis and F., St. Louis, Mo. Apparatus for dispensing beverages	519,537	May 8	1096	263	67	759
Kolbassieff, Eugenij V., Cronstadt, Russia. Telephone	518,959	May 1	35	10	67	543
Kolf, Hubert, Bonn, Germany. Explosive and making same	521,345	June 12	1067	.....	67	1405
Koll, Benjamin S., St. Louis, Mo. Vapor heating-stove	520,686	May 29	3039	736	67	1161
Koll, Benjamin S., assignor, by mesne assignments, to L. B. Jones, St. Louis, Mo. Meat-broiler gas-stove	521,718	June 19	1711	404	67	1542
Koll, Gustav, assignor to I. Kaufmann & Bro., New York, N. Y. Photograph-album	521,569	June 19	1464	342	67	1494
Kolliker, Robert, Pittsburg, Pa. Bottling-machine	518,597	Apr. 17	1892	469	67	377
Koneman, William A., Chicago, Ill. Gas-making apparatus	520,687	May 29	3041	736	67	1161
Korb, Charles F. (See Korb, John A. and C. F.)						
Korb, John A. and C. F., assignors of one-fourth to C. Long, Altoona, Pa. Carpet-fastener	518,193	Apr. 10	1309	328	67	256
Korff, Francis J., St. Johns, Mich. Elevated railway	520,163	May 22	2156	525	67	980
Kornemann, William F., New York, N. Y. Eyeglasses	521,933	June 26	2103	504	67	1632
Koss, Louis, Indianapolis, Ind. Reversible traversing movement	520,827	June 5	129	28	67	1221
Kraft, John U., assignor of one-half to H. Rave, Milwaukee, Wis. Bung-extracting machine	519,021	May 1	133	33	67	561
Kragen, Moritz, Berlin, Germany. Bung	518,610	Apr. 24	2027	504	67	416
Krahe, Carl, Rossville, N. Y., assignor to Ceramic Paving Stone Company, of New York. Brick-kiln	519,677	May 8	1326	320	67	800
Krais, Paul. (See Krekeler and Krais.)						
Kralik Sohn, Wilhelm. (See Spitzer, Alfons, assignor.)						
Kramer, George W., assignor to Hart Weigher Company, Peoria, Ill. Steering-gear for traction-engines	520,688	May 29	3043	737	67	1161
Kratz, John, assignor of one-half to J. H. Pfister, Baltimore, Md. Transferring cable-cars at intersecting points	520,364	May 22	2499	605	67	1046
Kraus, Charles J. (See Lehman and Kraus.)						
Kraus, John, trustee, *et al.* (See Häfner, Carl, assignor.)						
Krause, James B., and R. H. Crosby, Williamsport, Pa. Fender for cars or locomotives	521,503	June 19	1352	314	67	1475
Krause, James E. (See Knauss and Krause.)						
Krant, Carl, Washington, D. C. Luminous paint	518,320	Apr. 17	1521	.....	67	310
Krant, Julius, Munich, Germany. Apparatus for supporting children	520,929	June 5	334	81	67	1257
Krebs, Herrmann, assignor to himself and N. Bose, San Pedro, Cal. Wrench	520,689	May 29	3044	737	67	1162
Kregel, Louis G., St. Louis, Mo. Combined trocar and embalming-needle	519,635	May 8	1261	303	67	788
Kregel, Louis G., St. Louis, Mo. Coffin-handle	519,678	May 8	1328	321	67	800
Kreh, Ernest C., Jr., Philadelphia, Pa. Window and insect screen	518,069	Apr. 10	1091	275	67	215
Krehbiel, John, Cleveland, Ohio. Platform-gate for cars	519,066	May 1	219	51, 52	67	578
Kreidler, Anton, Stuttgart, Germany. Spool and support therefor	521,241	June 12	865	203	67	1367
Krekeler, Karl, and P. Krais, assignors to Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany. Blue dye	518,458	Apr. 17	1779	.....	67	358
Krentz, Henry, St. Louis, Mo. Steam-engine for air-pumps	522,065	June 26	2337	561	67	1674
Krichbaum, George A., Youngstown, Ohio. Paint-brush	517,868	Apr. 10	737	185	67	156
Kringel, Frank W., Los Angeles, Cal. Action for pianos	517,951	Apr. 10	880	220, 221	67	182
Kryger, Henry H., Minneapolis, Minn. Snow-plow	520,021	May 15	1883	461	67	916
Kuechler, Emil F., and H. Starck, St. Louis, Mo. Machine for polishing table-knives, &c	518,148	Apr. 10	1212	304	67	237
Kuehn, Charles L., St. Louis, Mo. Adjustable rack for stretching lace curtains, &c	520,690	May 29	3046	737	67	1162
Kuehne, Albert, deceased, St. Louis, Mo.; E. and A. Kuehne, executors. Bushing for barrels	518,194	Apr. 10	1310	328	67	256
Kuehne, Emma, *et al.*, executors. (See Kuehne, Albert.)						
Kuhn, George P., Brookside, Ill. Corn-planter	518,459	Apr. 17	1780	442	67	358
Kuhns, William M., New Carlisle, Ohio. Tobacco-planter	520,187	May 22	2199	535, 536	67	988
Kull, Alfred J., New Haven, Conn. Meat-chopping machine	519,000	May 1	101	24	67	555
Künneth, Johann S., Leipsic, Germany. Paddle-wheel boat	518,255	Apr. 17	1412	353	67	291
Kunstman, William H. R., assignor to Columbian Pottery and Brick Kiln Company, Chicago, Ill. Kiln for burning earthenware	519,814	May 15	1549	379, 380	67	855
Kunz, John L., Milwaukee, Wis. Machine for finishing gears	520,995	June 5	436	104	67	1276
Kunze, Charles, Newark, N. J. Lathe for turning irregular forms	518,611	Apr. 24	2027	504	67	417
Kupferle, John C., St. Louis, Mo. Last	519,067	May 1	220	52	67	578
Kurt, Jacob. (See Kurt, Johann and J.)						
Kurt, Johann and J., Richwood, Ohio. Corn-planter	518,960	May 1	37	10	67	543
Kurtz, Samuel E., Greenfield, Iowa. Elevator and dump	517,702	Apr. 3	492	115, 116	67	92
Kwis, Joseph J., assignor to Adams Brothers Company, Findlay, Ohio. Steam-actuated valve	518,846	Apr. 24	2434	603	67	488
Kynoch, Charles, St. Ignace, Mich. Truck for moving heavy bodies	520,319	May 22	2416	588	67	1029
L. W. Pond Machine Company. (See Wood, Aurin, assignor.)						
La Burt, John, assignor of one-half to J. H. Watson, Brooklyn, N. Y. Car-coupling	518,256	Apr. 17	1413	354	67	291
La Casse, Henry. (See Wile and La Casse.)						
La Casse, Henry, Rochester, N. Y. Antifriction ball-bearing	518,321	Apr. 17	1522	380	67	310

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
La Casse, Henry, Rochester, N. Y. Bottle-washer	518,322	Apr. 17	1526	380, 381	67	311
La Casse, Henry, Rochester, N. Y. Bicycle	518,411	Apr. 17	1692	419, 420, 421	67	342
La Chicotte, Henry A. and W. B., New York, N. Y. Machine for making matches	521,029	June 5	488	116, 117	67	1285
La Chicotte, Walter B. (See La Chicotte, Henry A. and W. B.)						
La Fountain, Henry, Cleveland, Ohio. Counting attachment for printing-presses	521,318	June 12	1005	236	67	1393
La Pierre, Frank H., East Orange, N. J. Corkscrew	518,005	Apr. 10	987	246	67	199
La Rue, Abrom, Danville, Pa. Car-coupling	521,376	June 12	1114	263	67	1415
Labataille, Jacques, and J. J. Graff, San Francisco, Cal. Gas-engine	517,821	Apr. 3	671	167	67	130
Lach, Julius, Magdeburg-Neustadt, Germany. Apparatus for refining sugar	518,152	Apr. 10	1218	306	67	239
Lacke, George F. (See Abshier and Lacke.)						
Lade, Johann O., Merrill, Mich. Spoke-tenoning machine	521,214	June 12	817	192	67	1358
Laffer, William L., Cleveland, Ohio. Fork	517,461	Apr. 3	82	17	67	18
Lagerwall, Alexander F. (See White and Lagerwall.)						
Lahan, Edward J., Quincy, Ill. Car-coupling	517,753	Apr. 3	570	140	67	110
Lahann, Henry, Traver, Cal. Releasing device	519,815	May 15	1552	380	67	856
Laird, Fred C., *et al.* (See Winter, Alexander W., assignor.)						
Laird, William H. (See Watson, George A., assignor.)						
Lake, Amariah, Pleasantville, N. J. Theater appliance	520,236	May 22	2280	555	67	1003
Lamb, Edward T. (See Williams, Frank A., assignor.)						
Lamb Knitting Machine Manufacturing Company *et al.* (See Perkins, Albert, assignor.)						
Lamb, Spence H., Jr. (See Lamb, Walter and S. H., Jr.)						
Lamb, Walter and S. H., Jr., Memphis, Tenn. Lock attachment for bicycles	518,323	Apr. 17	1530	381	67	312
Lamb, William R. (See Still, Oliver H., assignor.)						
Lambert, James E. (See Lambert, James R. and J. E.)						
Lambert, James R. and J. E., Indianapolis, Ind. Window-fixture	517,952	Apr. 10	883	221	67	182
Lambert, William A., Evergreen, Ohio. Wire-stretching machine	519,456	May 8	931	225	67	730
Lambie, William A. (See Blanchard and Lambie.)						
Lamboy, Philip, Fonda, N. Y. Machine for removing stems from broom-corn	520,568	May 29	2833	683, 684	67	1123
Lamm, George D., Ackley, Iowa. Hay-rake	520,320	May 22	2417	588	67	1029
Lamm, George D., and W. Sicard, Ackley, Iowa. Band-cutter and feeder	517,754	Apr. 3	571	140, 141	67	111
Lamme, Benjamin G. (See Lange and Lamme.)						
Lamme, Benjamin G. (See Schmid and Lamme.)						
Lamme, Benjamin G., assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Method of and means for starting synchronous motors	519,862	May 15	1629	396	67	870
Lamme, Benjamin G., assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. System of electrical distribution	520,965	June 5	383	93	67	1267
Lamping, John F., Cincinnati, Ohio. Washbasin	519,287	May 1	623	152	67	658
Lancaster, Levi B., Massillon, Iowa. Planter	518,671	Apr. 24	2139	535	67	436
Land, Ole C., *et al.*, executors. (See Syversen, Andreas.)						
Landerer, Albert. (See Schütz and Landerer.)						
Landers, Upton S., Fulford, Md. Axle-box for railway-cars	518,723	Apr. 24	2240	557	67	453
Landgraf, Philip B., Chicago, Ill. Steam-engine	521,504	June 19	1353	315	67	1475
Landis, Frank F., Waynesborough, Pa. Centrifugal discharger for straw-stackers	517,524	Apr. 3	176	39	67	36
Landis, Frank F., Waynesborough, Pa. Centrifugal discharger for pneumatic straw-stackers	517,525	Apr. 3	177	40	67	36
Landis, Frank F., Waynesborough, Pa. Deflector for pneumatic straw-stackers	519,473	May 8	971	235	67	736
Landis, Frank F., Waynesborough, Pa. Mouthpiece for pneumatic straw-stackers	519,474	May 8	972	235	67	736
Landis, George E., La Grande, Oreg. Animal gun-trap	520,164	May 22	2158	526	67	981
Landreth, Leopold, Bristol, Pa. Spike-drawing bar	517,977	Apr. 10	926	232	67	189
Lane, Andrew W., Fredonia, Kans. Wire-and-slat-fence machine	520,321	May 22	2418	588	67	1030
Lane, Cornelius. (See Lane, John and C.)						
Lane, Edward S., Birmingham, assignor of two-thirds to Fordham & Smith, London, England. Fork attachment	519,717	May 15	1396	337	67	826
Lane, John and C., Holly, Mich. Wire fence	518,506	Apr. 17	1857	460	67	371
Lane, William H., Brooklyn, and F. S. Perrin, New York, N. Y., assignors to American Telephone and Telegraph Company, of New York. Visible signal device	520,365	May 22	2500	605	67	1046
Lang & Campbell *et al.* (See Boomhower, Eli E., assignor.)						
Lang, Henry H., Buffalo, assignor to W. M. Brown, Albany, N. Y. Sectional ladder	518,961	May 1	39	11	67	543
Lang, Herbert, Tacoma, Wash. Smelting ores	519,129	May 1	339	.....	67	603
Lang, John W., Los Angeles, Cal. Car-coupling	519,022	May 1	134	33	67	562
Lang, William, Brooklyn, N. Y. Cash register and indicator	520,853	June 5	182	39, 40, 41	67	1230
Langdon, Albert H., Elgin, Ill. Alarm-bell	519,581	May 8	1169	281	67	772
Lange, Philip, Newark, N. J., and B. G. Lamme, assignors to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Controlling-switch for electric railways	518,693	Apr. 24	2171	543, 544	67	442
Langell, Charles F., Fort Scott, Kans. Grain door for box-cars	518,528	Apr. 17	1894	469	67	378
Langfelder, Henry, New York, N. Y., assignor of one-half to F. G. Otto & Sons, Jersey City, N. J. Musical instrument	519,816	May 15	1553	380	67	856
Langfelder, Henry, New York, N. Y., assignor of one-half to F. G. Otto & Sons, Jersey City, N. J. Damping device for music-boxes	521,289	June 12	956	227	67	1383
Langfelder, Henry, Brooklyn, assignor to M. J. Paillard & Co., New York, N. Y. Coin-controlled music-box	521,620	June 19	1553	363	67	1510
Langlais, Joseph T., Berkeley, Cal. Bevel	521,414	June 12	1171	278	67	1426
Lantry, Charles F. (See Smith, Stephen T., assignor.)						
Lantry, Charles F., New York, N. Y. Machine for attaching postage-stamps	518,612	Apr. 24	2029	504, 505	67	417
Lariviere, Jean, Paris, France. Printing-machine for copper or steel plates	519,915	May 15	1708	417, 418, 419	67	885
Larkin, Arthur J., Council Bluffs, Iowa. Stump-puller	519,263	May 1	580	141	67	650
Larkins, Samuel T., Murray, Iowa. Draft-equalizer	520,322	May 22	2420	589	67	1030
Larson, Carl G., Sandviken, Sweden. Device for drawing tubes	519,086	May 1	252	60	67	584
Larson, Lewis. (See Rick and Larson.)						
Lasch, Albin, Penzig, Germany. Device for closing bottles, jars, &c	520,854	June 5	187	41	67	1230
Lash, Levi. (See Hneffner and Lash.)						
Lasher, Charles E., W. J. Webster and D. L. Newton, near Oakdale Station, Pa. Working-barrel protector	518,108	Apr. 10	1154	290	67	227

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Latham, Marquis, Chicago, Ill. Trousers-stretcher	518,760	Apr. 24	2301	571	67	464
Latham, William. (See Vaughan, William, Jr., assignor.)						
Latimer, James A. (See Bolding, James P., assignor.)						
Latta, Thomas, *et al.* (See Loughmiller, Benjamin F., assignor.)						
Latulip, Frederick, assignor of one-half to J. H. Link, Syracuse, N. Y. Rawhide-wound gun	521,911	June 26	2060	495	67	1624
Lauer Chemical Company. (See Dietrich, Fred G., assignor.)						
Laughlin, Joseph M., Paris, France. Machine for preparing and finishing nails	521,242	June 12	866	204, 205	67	1367
Laval, Carl G. P. de, Stockholm, Sweden. Steam-turbine	522,066	June 26	2340	561, 562	67	1674
Laval, George de, Warren, Mass. Direct-acting pumping-engine	520,237	May 22	2282	535	67	1063
Laval, George de, Warren, Mass., assignor to Geo. F. Blake Manufacturing Company, New York, N. Y. Automatic exhaust relief-valve	521,030	June 5	493	117	67	1286
Lavens, Erwin, Brooklyn, assignor to S. Bergman, New York, N. Y. Carbon-holder for arc lamp	519,334	May 8	722	178	67	691
Lavering, Samuel. (See Cooper, John H., assignor.)						
Lavigne, Joseph P., *et al.* (See McBride, Henry, assignor.)						
Lavy, Alphonse, assignor to Society Lepage & Cie., Paris, France. Distilling apparatus	519,087	May 1	254	60	67	584
Lawlor, Kate V. (See Fenn, Katy, assignor.)						
Lawlor, Sim C., assignor of three-fourths to S. G. Stevens, T. W. Lemieux, and W. E. Harvey, Duluth, Minn. Portable burglar-alarm	517,869	Apr. 10	738	185	67	156
Lawrence Electric Company. (See Lawrence, William, assignor.)						
Lawrence, John H., Sterling, Ill. Hinge	518,741	Apr. 24	2275	565	67	459
Lawrence, Reuben, and J. Blackford, St. Joseph, Mo. Lubricator	518,257	Apr. 17	1414	354	67	291
Lawrence, Willard D., and F. A. Hopkins, Chicago, Ill.; said Hopkins assignor to said Lawrence. Office-door indicator	521,983	June 26	2210	532	67	1650
Lawrence, William, New York, N. Y. Conduit-railway trolley	520,758	May 29	3157	764	67	1182
Lawrence, William, assignor to Lawrence Electric Company, New York, N. Y. Car-brake mechanism	517,871	Apr. 10	741	186	67	157
Lawrence, William, assignor to Lawrence Electric Company, New York, N. Y. Electric locomotive	518,006	Apr. 10	988	246, 247	67	199
Lawson, Edward, Birmingham, England. Ship's berth	517,462	Apr. 3	83	18	67	18
Lawson, William, Newton-le-Willows, assignor to J. Riley, Bradford, England. Lime-light apparatus	517,870	Apr. 10	739	186	67	157
Lawton, Edward, Quincy, Mass. Fire-escape	517,872	Apr. 10	742	186, 187	67	157
Lawton, O. E., *et al.* (See Miller, Wile S., assignor.)						
Layman, Estes H., Des Moines, Iowa. Egg-preserving apparatus	517,463	Apr. 3	85	18	67	18
Le Grande, Benjamin M., South Haven, Kans. Draft-equalizer	519,768	May 15	1473	357	67	840
Le Gresley-Cox, Ernest, Covington, assignor of one-half to W. C. Flower, New Orleans, La. Pin	520,165	May 22	2100	526	67	981
Le Sueur, Ernest A., Ottawa, Canada. Electrolytic cell	518,040	Apr. 10	1049	266	67	298
Le Sueur, Ernest A., Ottawa, Canada. Diaphragm for electrolytic cells	518,786	Apr. 24	2340	580	67	472
Le Valley, Henry E., Providence, R. I. Mute for banjos	520,439	May 29	2614	633	67	1083
Leach, Ethan A., *et al.* (See Boomhower, Eli E., assignor.)						
Leach, Frederick. (See Crocker, John, assignor.)						
Leach, Frederick. (See McCay, George A., assignor.)						
Leake Pneumatic Transportation Company. (See Leake, Samuel F., assignor.)						
Leake, Samuel F., assignor to Leake Pneumatic Transportation Company, Philadelphia, Pa. Gate for pneumatic dispatch-tubes	519,718	May 15	1397	337	67	826
Leake, Samuel F., assignor to Leake Pneumatic Transportation Company, Philadelphia, Pa. Pneumatic dispatch-tube system	519,719	May 15	1398	337	67	826
Leake, Samuel F., assignor to Leake Pneumatic Transportation Company, Philadelphia, Pa. Switch-rail for pneumatic dispatch systems	520,064	May 22	1963	480	67	946
Leary, John J. (See Hardie, James L., assignor.)						
Leatherbee, James D. (See Boardman, Arthur E., assignor.)						
Leaver, James M., assignor of one-half to E. J. Vance, Bay City, Mich. Corrugated packing	520,366	May 22	2502	605	67	1047
Leaver, James M., and E. J. Vance, Bay City, Mich. Shipping-case	519,429	May 8	893	215	67	723
Leavitt, Albert. (See Ethridge, Frank N., assignor.)						
Leavitt, Frank M., assignor to E. W. Bliss Company, Brooklyn, N. Y. Adjustable power-press	518,847	Apr. 24	2436	603	67	488
Leavitt, John E., assignor of one-half to J. L. Wesson, Boston, Mass. Trousers	518,369	Apr. 17	1632	402	67	331
Lebeau, Telesphar L., assignor of one-half to J. V. Schaefer, Jr., New York, N. Y. Self-playing attachment for pianofortes	519,157	May 1	392	95	67	613
Lecellier, Leon R., Villedieu, France. Protector for electric or other bells	518,613	Apr. 24	2031	505	67	417
Lechartier, Antoine L. E., Paris, France. Fire-extinguishing apparatus	518,258	Apr. 17	1415	354	67	291
Lederle, George A. (See Christie, Lowe, and Lederle.)						
Lee, Charles S., Troy, N. Y. Sash-holder	517,577	Apr. 3	265	61	67	52
Lee, Elmer, Chicago, Ill. Apparatus for dispensing liquid soap for toilet purposes	517,978	Apr. 10	928	232	67	190
Lee, Henry A., Orange, N. J. Salt-holder for cattle	518,819	Apr. 24	2399	592, 593	67	481
Lee, John. (See Livingston, Andrew W., assignor.)						
Lee, John, San Mateo, Cal. Sheet-metal can and manufacturing same	518,548	Apr. 17	1924	475	67	383
Lee, Joseph, Brooklyn, N. Y. Electric motor	521,799	June 26	1864	446, 447	67	1585
Lee, Thomas A., Kansas City, Mo. Fireproof roof or floor	517,576	Apr. 3	263	61	67	51
Lee, William H., *et al.* (See Winter, Alexander W., assignor.)						
Lee, William R., Nelsonville, Tex. Sad-iron heater	518,370	Apr. 17	1634	403	67	331
Leech, George A., New York, N. Y. Sound-conducting apparatus	521,800	June 26	1867	447	67	1586
Leeman, Frank A. (See Zeiser and Leeman.)						
Legg, B. D., *et al.* (See Weston, Edward D., assignor.)						
Leggett, Clinton H., New York, N. Y. Powder-distributer	519,720	May 15	1399	337, 338	67	827
Lehman, Abraham, and C. J. Kraus, Peru, Ind. Treating jute or other bagging	518,549	Apr. 17	1925	.....	67	383
Lehman, Simon. (See Harrah, Philip J., assignor.)						
Lehmann, Carl F. W., assignor to W. Campbell, New York, N. Y. Machine for printing wall-paper	518,324	Apr. 17	1531	381	67	312
Lehner, Wilhelm, Munich, Germany. Ellipsograph	520,003	May 15	1855	453	67	911
Leidich, Peter C., Ashland, Pa. Tap for drawing liquids from casks	519,430	May 8	894	216	67	723
Leinbrock, Oskar, Gottlenba, Germany. Coffee-mill	517,614	Apr. 3	323	76	67	63
Leininger Augustus, and E. Shreiner, Canton, Ohio. Tricycle	520,790	June 5	52	12	67	1206
Leist, Abraham P., Liberty Centre, Ohio. Evaporating apparatus	520,438	May 29	2613	632, 633	67	1083

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lemaire, Henri F. M., Paris, France. Cigarette-making machine	520,530	May 29	2769	670	67	1110
Lemieux, Timothy W., *et al.* (See Lawlor, Sim C., assignor.)						
Lemke, Charles M., assignor of one-half to F. A. Powell, Atlanta, Ga. Harness-saddle	522,185	June 26	2542	610	67	1713
Lemmon, George F., St. Augustine, Fla. Fastening device for envelopes, letters, &c	518,109	Apr. 10	1154	290	67	227
Lemp, Hermann, Lynn, Mass., assignor to Thomson Electric Welding Company, of Maine. Reactive coil	519,335	May 8	724	178	67	691
Lemp, Hermann, and C. G. Anderson, Lynn, Mass., assignors to Thomson Electric Welding Company, of Maine. Electric welding-machine	519,336	May 8	726	178, 179	67	692
Lencke, John K., St. Paul, Minn. Fluid-pressure brake apparatus	517,953	Apr. 10	885	221, 222	67	183
Lencke, John K., Minneapolis, Minn. Controller and arighter for air-brake retainers	517,955	Apr. 10	894	223, 224	67	184
Lencke, John K., and F. D. Merchant, Minneapolis, Minn.; said Merchant assignor to said Lencke. Controller and arighter for air-brake retainers	517,954	Apr. 10	890	222, 223	67	183
Lenderking, Louis T., Baltimore, Md. Damper for pipes	518,785	Apr. 24	2340	580	67	472
Lennon, Arthur, Fayette, Ohio. Blacksmith's vise	521,505	June 19	1356	305	67	1475
Lennox, Alfred B., Bay City, Mich. Adding-machine	519,960	May 15	1782	436	67	899
Leonard, David, assignor to F. G. Kneeland, D. E. Harrison, and J. R. Knight, St. Louis, Mich. Spring bed-bottom	521,590	June 19	1502	352	67	1500
Leonard, John W., Chicago, Ill. Hair-curler	519,189	May 1	447	109	67	623
Leonhardt, Jacob, St. Louis, Mo. Plunger for brick-machines	518,460	Apr. 17	1783	442	67	358
Leonhardt, Jacob, St. Louis, Mo. Mold for brick-machines	518,461	Apr. 17	1784	443	67	358
Leoni, Philippe, Paris, France. Automatic distributer for liquids	520,531	May 29	2770	670	67	1114
Lepke, Leonhard. (See Sellenscheidt and Lepke.)						
Lerch, William, Albany, N. Y. Button-holder	519,582	May 8	1171	281	67	772
Leresche, Jules, Sens, France. Machine for hollowing razor-blades, &c	517,464	Apr. 3	86	18, 19	67	18
Lesem, Samuel. (See Pickett, George W., assignor.)						
Leslie, Benjamin J., Butler, Ky. Portable fence	518,039	Apr. 10	1048	266	67	208
Leslie, John H. (See Davis, Charles E., assignor.)						
Lester, James F., Atlanta, Ga. Fiber brake, crusher, and cleaner	518,259	Apr. 17	1417	355	67	292
Levedahl, Axel, assignor to Gardner Sewing Machine Company, Aurora, Ill. Finger for cotton-harvesters	517,578	Apr. 3	266	61	67	52
Lever, Oswald, and W. S. Grundy, Philadelphia, Pa. Stop mechanism for spooling-machines	517,615	Apr. 3	324	77	67	63
Leverkus, Carl H. O., Cologne-on-the-Rhine, Germany. Car starter and brake	518,371	Apr. 17	1635	403	67	331
Levey, John, T. H. Butler, and C. A. MacDonald, assignors to Hercules Iron Works, Chicago, Ill. Refrigerating-machine	520,930	June 5	336	82	67	1258
Levin, Rudolph L., Menominee, Mich. Centering device for lathes	517,466	Apr. 3	88	19	67	19
Levy, Joseph L. (See Tisdell, Abner G., assignor.)						
Levy, Max, Philadelphia, Pa. Screen for half-tone process	521,659	June 19	1614	378	67	1522
Lewis, Benjamin F., Amesbury, Mass. Lifting-jack	517,435	Apr. 3	87	19	67	19
Lewis, Charles F. and W., assignors to A. Falck, New York, N. Y. Combined clothes-wringer and washtub	518,412	Apr. 17	1697	421	67	343
Lewis, Franklin F. (See Lewis, Stephen B. and F. F.)						
Lewis Knitting Company. (See Lewis, Stephen B. and F. F., assignors.)						
Lewis, Leroy S., Springfield, Mass., assignor to Empire Light Company, of New Jersey. Apparatus for automatically filling lamps with oil	521,171	June 12	747	176	67	1345
Lewis, Stephen B. and F. F., assignors to Lewis Knitting Company, Janesville, Wis. Bifurcated garment and gusset therefor	517,579	Apr. 3	268	61	67	52
Lewis, Theodore G., assignor to Buffalo Dental Manufacturing Company, Buffalo, N. Y. Gas-regulator	519,845	May 15	1598	390, 391	67	864
Lewis, Willard F., Swampscott, Mass. Block system for trolley-railways	520,323	May 22	2121	589	67	1030
Lewis, William. (See Lewis, Charles F. and W.)						
Lewis, William B. (See Harrington, Edward M., assignor.)						
Lewis, William T., Bay City, Mich., assignor to S. Welsh, Philadelphia, Pa. Coin-controlled machine. (Reissue)	11,415	Apr. 17	1982	490, 491	67	393
Libbey, Hosea W., Boston, Mass. Typograph	520,238	May 22	2284	555	67	1003
Lieb, Charles A., New York, N. Y. Elastic gear	520,791	June 5	53	12	67	1207
Lieb, Charles A., New York, N. Y., assignor to General Electric Company, Boston, Mass. Feed-wire insulator	520,855	June 5	187	41	67	1231
Liechty, Jacob M., Sterling, Ohio. Invalid-bed	517,928	Apr. 10	838	211	67	175
Liesenhoff, Edward. (See Wagner and Liesenhoff.)						
Liggett, William K., Columbus Ohio. Corn-harvester	521,719	June 19	1715	404, 405	67	1542
Lighbody, William, London, England. Hurricane-lantern	519,406	May 8	856	207, 208	67	716
Lillie, Samuel M., Philadelphia, Pa. Process of evaporating liquids in vacuo and apparatus therefor	521,215	June 12	818	193	67	1358
Limbacher, Jacob, Newark, N. J. Satchel or bag	519,721	May 15	1401	338, 339	67	827
Limpus, Sherman E. (See Limpus, William F. and S. E.)						
Limpus, William F. and S. E., Alpine, Ind. Sulky	518,507	Apr. 17	1858	460	67	371
Lincoln, Charles F., *et al.* (See Ryan, Michael B., assignor.)						
Lincoln, Frederick H. (See Nichols and Lincoln.)						
Lindemann, August. (See Lindemann, Charles and A.)						
Lindemann, Charles and A., Milwaukee, Wis. Stovepipe-elbow	521,621	June 19	1554	363	67	1510
Lindenborn, Solomon, *et al.* (See Johnson, Charles T., assignor.)						
Lindner, Emerann, Akron, Ohio. Toy	517,616	Apr. 3	326	77	67	64
Lindner, Heinrich. (See Stahl, Sebald, assignor.)						
Lindstrom, Frank. (See Norlin and Lindstrom.)						
Lineback, William T., Cincinnati, Ohio, assignor of one-half to G. H. Fennell, Newport, Ky. Vehicle-brake	521,934	June 26	2105	505	67	1632
Lingley, John H., *et al.* (See Turner, William A., assignor.)						
Link, John H. (See Latulip, Frederick, assignor.)						
Linscheid, Peter, Kemi, Minn. Band-cutter and feeder	519,722	May 15	1403	339	67	827
Linter, William, Cedar Rapids, Iowa. Cooler	521,119	June 5	652	153	67	1314
Lintner, William T., assignor of one-half to W. L. Sporborg, Gloversville, N. Y. Bearing for speed-indicators	520,792	June 5	54	13	67	1207
Linville, Joseph A. (See McKelvey, Stewart D., assignor.)						
Lippy, David, Mansfield, Ohio. Pump for drilled wells	521,720	June 19	1718	405	67	1543
Lippy, David, assignor to C. T. McCue, Mansfield, Ohio. Store-service apparatus	519,288	May 1	625	152	67	658
Liquid Carbonic Acid Manufacturing Company. (See Convert, Charles F. A., assignor.)						
Litchford, Frederick A., *et al.* (See Litchford, Miles, assignor.)						
Litchford, Miles, assignor of three-fourths to F. A. and N. Litchford and W. Jones, Columbus, Ohio. Stone-saw	519,636	May 8	1262	301	67	788

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Litchford, Neil, *et al.* (See Litchford, Miles, assignor.)						
Little, Orton C., assignor of one-half to D. T. H. McKinnon, Menasha, Wis. Core for casting	519,538	May 8	1097	263	67	759
Little, Peter, assignor to S. G. Scarritt, St. Louis, Mo. Reversible car-chair	521,120	June 5	653	153	67	1314
Little, Peter, assignor to S. G. Scarritt, St. Louis, Mo. Car-seat	521,121	June 5	654	154	67	1315
Little, Piercy, Northumberland, Pa. Barrel-making machine	521,319	June 12	1006	237	67	1393
Little, William M., Vandalia, Ill. Tag-machine	519,264	May 1	581	142	67	650
Littlefield, Thomas E., Hillsborough, Tex. Combined elevator, cleaner, distributer, and feeder for seed-cotton	517,979	Apr. 10	930	233	67	190
Littlefield, Thomas E., Hillsborough, Tex. Combined elevator, cleaner, distributer, and feeder for seed-cotton	517,980	Apr. 10	932	233, 234	67	190
Littlejohn, Charles F., Bridgeport, Conn. Sewing-machine	521,377	June 12	1115	263	67	1415
Livelsberger, Albert M., Kalamazoo, Mich. Hay-loader	520,324	May 22	2423	589	67	1031
Livingston, Andrew W., San Francisco, assignor to J. Lee, San Mateo, Cal. Manufacture of metallic preserving-cans	517,580	Apr. 3	269	62	67	53
Lloyd, Edwin L., Philadelphia, Pa. School-slate	518,761	Apr. 24	2302	571	67	464
Lloyd, Louis H., Lincoln, Ill. Pump-motor	519,608	May 8	1209	291	67	779
Lo Casto, Tony, assignor of one-half to H. Yakel, Marshall, Tex. Axle-box	519,403	May 8	852	206	67	715
Locke, Frank D., Hudson, assignor of one-half to A. H. Rice, Marlborough, Mass. Nailing-machine for boots or shoes	520,437	May 29	2611	632	67	1082
Locke, Fred M., Victor, assignor of one-half to G. A. Paddock, Auburn, and W. C. Page, Palmyra, N. Y. Insulator	520,367	May 22	2503	605	67	1047
Lockerby, Jacob S., *et al.* (See Crabb, George W., assignor.)						
Lockhart, Alexander M., Mitchell, S. D. Thrashing-machine	519,609	May 8	1211	292	67	779
Lockhart, Walter M., assignor of one-half to J. W. Douglass, Philadelphia, Pa. Vapor-burner	518,694	Apr. 24	2175	544	67	443
Lockwood, George D., Stony Creek, assignor of one-half to H. P. Glover, Ypsilanti, Mich. Implement for tightening fences	522,164	June 26	2511	603	67	1706
Lockwood, John S. (See Knight and Harrington, assignors.)						
Lockwood, John S., *et al.* (See Knight, Margaret E., assignor.)						
Lockwood, William C., assignor of one-fourth to J. H. Flagg, New York, N. Y. Telephony	518,742	Apr. 24	2276	565	67	459
Loewenbach, Hugo, Milwaukee, Wis. Check, receipt, or other stub book	519,769	May 15	1475	357	67	840
Lofton, Herbert M., Savannah, Ga. Triple valve for air-brakes	519,679	May 8	1329	321	67	800
Logan, Swift & Brigham Envelope Company. (See Swift, Henry D. and D. W., assignors.)						
Long, C. C. (See Smith, Frank J., assignor.)						
Long, Charles. (See Korb, John A. and C. F., assignors.)						
Long, David L., Crawfordsville, Ind. Steam trap and feeder	522,020	June 26	2272	544	67	1661
Longinus, Joseph, assignor of one-half to M. P. Quinn, Pottsville, Pa. Lubricator	517,467	Apr. 3	90	20	67	19
Look, Frank N., Northampton, Mass. Knife-handle, brush-back, &c	519,068	May 1	222	52	67	579
Loomis, George, Parkersburg, W. Va. Stamp holder and moistener	519,190	May 1	448	110	67	624
Loomis, Gilbert J., Westfield, Mass. Sulky	518,462	Apr. 17	1786	443	67	359
Loomis, Samuel L., Santa Cruz, and A. M. Harris, Watsonville, Cal. Animal-trap	521,378	June 12	1118	264	67	1416
Lorenz, William A., assignor to A. H. Walker, trustee, Hartford, Conn. Making paper bags	517,617	Apr. 3	327	77, 78	67	64
Lorenz, William A., and E. E. Claussen, assignors to A. H. Walker, trustee, Hartford, Conn. Making paper bags	519,916	May 15	1710	420	67	885
Lorimer, John H., Philadelphia, Pa. Apron for textile machinery	521,912	June 26	2061	495	67	1624
Lossand, Nehemiah. (See Cook, Daniel, assignor.)						
Lotspeich, Rhoten F., Los Angeles, Cal. Apparatus for expelling flies from houses	519,793	May 15	1520	370	67	849
Lonchheim, Joseph A., *et al.* (See Rosenfeld, Samuel J., assignor.)						
Lougee, Edwin A., Haverhill, Mass. Snare device for drums	521,379	June 12	1119	264	67	1416
Loughmiller, Benjamin F., assignor, by mesne assignments, of one-half to T. Latta and J. W. Wist, Aspen, Colo. Padlock	517,956	Apr. 10	898	225	67	185
Low, Hamilton F., assignor to L. Koehl, Cleveland, Ohio. Mop-head	519,917	May 15	1712	420	67	886
Lowe, James A., North Branch, N. J. Wrench	518,041	Apr. 10	1051	266	67	209
Lowe, Jesse. (See Christie, Lowe, and Lederle.)						
Lowell Oiler Company. (See Humphrey, Henry P., assignor.)						
Lowry, Austin, assignor of two-thirds to J. H. Beem and G. Lowry, Roseville, Ohio. Pottery-machine for forming oval ware	519,610	May 8	1213	292	67	780
Lowry, George, *et al.* (See Lowry, Austin, assignor.)						
Lowther, Thomas, H. Toal, and R. Hay, Mount Pleasant, Pa. Safety-lamp	521,801	June 26	1858	447	67	1586
Lucas, Henry, Lake, assignor to George Ziegler Company, Milwaukee, Wis. Lozenge-machine	521,660	June 19	1615	379	67	1522
Lucas, James H. and J. D., St. Louis, Mo., Steam-motor	517,981	Apr. 10	935	234	67	191
Lucas, John D. (See Lucas, James H. and J. D.)						
Luce, Don C., assignor of two-thirds to H. F. Crawford, Brockton, Mass. Gas-engine	519,863	May 15	1632	397	67	871
Ludington, Francis H., St. Louis, Mo. Register	519,130	May 1	340	80	67	603
Ludlow, George M., *et al.* (See Burton, Charles C., assignor.)						
Ludlow, Rodney F., Springfield, Ohio. Car-coupling	519,724	May 15	1407	340	67	828
Ludlow, Rodney F., Springfield, Ohio. Car-coupling	519,725	May 15	1408	340	67	828
Ludlow, William E., Cleveland, Ohio. Bucket hoisting and tripping apparatus	519,723	May 15	1405	339, 340	67	828
Ludoxici, Georg W., Cassel, Germany. Self-acting brake for elevators	517,755	Apr. 3	575	141	67	111
Ludwig, Adolf, Hoboken, N. J. Spring-catch	517,703	Apr. 3	481	116	67	93
Luehrs, Michel D., Cleveland, Ohio. Screw-cutting machine	521,172	June 12	750	176	67	1346
Lugrin Flexible Door Company. (See Lugrin, Horatio N. H., assignor.)						
Lugrin, Horatio N. H., Worcester, Mass., assignor to Lugrin Flexible Door Company, Portland, Me. Flexible door	520,065	May 22	1964	480	67	946
Luhn, Johann P., Leipsic, Germany. Rotary printing-press	521,268	June 12	914	216, 217	67	1376
Lund, George R., New York, N. Y. Knockdown barrel	521,290	June 12	957	227	67	1383
Lundahl, Johan F., Homestead, Pa. Metal-sawing machine	518,572	Apr. 17	1966	465, 466	67	390
Lundborg, Charles G., Philadelphia, Pa. Screw-propelled vessel	520,691	May 29	3047	737, 738	67	1162
Lundell, Robert, Brooklyn, assignor of two-thirds to E. H. Johnson, New York, N. Y. Means for suspending electric motors from cars	522,067	June 26	2342	562, 563	67	1675
Lunn, John, Philadelphia, Pa. Apparatus for spinning different-colored rovings into thread or yarn	520,793	June 5	56	13	67	1207
Luscher, John, St. Louis, Mo. Adjustable miter-box	522,068	June 26	2343	563	67	1675
Luscomb, Henry H., Hartford, Conn. Insulator	520,602	May 29	2889	698	67	1134
Lusk, Orson. (See Scarborough, Josiah S., assignor.)						
Lutz, Albert C., Cleveland, Ohio. Making paper boxes	521,031	June 5	495	118	67	1286
Lutz, Ottmar H., Ann Arbor, Mich. Jeweler's anvil	521,802	June 26	1871	448	67	1587

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lutz, William D., Philadelphia, Pa. Electric elevator	520,794	June 5	57	13	67	1207
Lutzner, Maximillian A., Steglitz, Germany. Soot-separator	517,581	Apr. 3	270	62	67	53
Lyford, Francis, Augusta, Me. Trunk	520,692	May 29	3049	739	67	1162
Lyle, Robert W. (See Strusholm, Anders M., assignor.)						
Lynam, John S., Winchester, Mass. Compensator for signal-operating wires	521,885	June 26	2000	482	67	1613
Lynch, Patrick H., Bristol, Conn. Picture-hanger	521,201	June 12	959	227	67	1383
Lynn, Elmore P., Cincinnati, Ohio. Filter	521,591	June 19	1504	352	67	1501
Lyon, Daniel E., Oswego, Ill. Grapple	521,913	June 26	2063	495	67	1624
Lyon, Frederick W., Brooklyn, N. Y. Dress-stay	520,485	May 29	2695	652	67	1007
Lyon, William, assignor of two-thirds to W. Carson, Jr., and H. S. Rand, Burlington, Iowa. Woodworking-machine	518,529	Apr. 17	1894	460	67	378
Lyons, Charles J., assignor of two-thirds to H. J. and J. Weber, Joliet, Ill. Burglar-alarm	518,614	Apr. 24	2032	506	67	417
Lyster, Anthony G., Liverpool, England. Hopper and valve for hopper-dredgers	520,210	May 22	2240	545	67	995
Lytch, Milton, assignor to R. Lytch, Rowland, N. C. Meat-cutting machine	521,886	June 26	2001	483	67	1613
Lytch, Rosanna. (See Lytch, Milton, assignor.)						
M. E. Griswold Company. (See Rudy, Robert C., assignor.)						
M. Ohmer's Sons Company. (See Ohmer, John F., assignor.)						
Maag, August, and F. S. Horn, Baltimore, Md. Warming-safe	518,042	Apr. 10	1052	267	67	209
MacCoy, Andrew T., Boston, Mass. Electric switch	517,957	Apr. 10	900	225	67	185
MacDonald, Charles A. (See Levey, Butler, and MacDonald.)						
MacDonald, Charles A., Chicago, Ill. Pneumatic can-hoist for ice-machines	517,468	Apr. 3	90	20	67	19
MacDonald, Randolph. (See Still, William J., assignor.)						
MacGlashan, Thomas, Salem, Mo. Support for buggy-tops	521,415	June 12	1172	279	67	1426
MacLearn, John P., Philadelphia, Pa. Apparatus for sustaining punching-bags	519,918	May 15	1713	421	67	886
MacRonald, Fred S., Portland, Me. Applying borders or binders to edges of paper-box blanks and articles made thereby	520,066	May 22	1966	481	67	946
Macarthy, Fred, assignor of one-half to Sayre & Fisher Company, Sayreville, N. J. Kiln for baking or burning bricks	518,153	Apr. 10	1220	306	67	239
Macculloch, Andrew G. (See Dickinson and Macculloch.)						
Macdonald, James, Edinburgh, Scotland. Boot-tree	522,069	June 26	2346	564	67	1675
Macfarlane, Thomas W., Ellensburg, Wash. Flanger	517,704	Apr. 3	485	116	67	93
Mack, William A., Norwalk, Ohio, assignor to Standard Sewing Machine Company, of Ohio. Thread-gripping mechanism for sewing-machines	519,539	May 8	1099	263, 264	67	759
Mackay, William R. (See Hiller and Mackay.)						
Mackenstein, Hermann, Paris, France. Registering and marking apparatus for photographic film holders	518,372	Apr. 17	1636	403, 404	67	332
Mackey, William T., assignor of three-fifths to J. W. Weart and A. B. Docksteader, Vanconver, Canada. Tire-tightener	521,661	June 19	1618	379	67	1522
Mackie, Robb, New York, N. Y. Electric switch	517,582	Apr. 3	271	62	67	53
Mackin, Francis M., and C. R. Schmidt, Baltimore, Md. Bath-waste and supply-coupling	518,154	Apr. 10	1223	309	67	239
Macksey, John, W. Helmer, Boston, and G. E. Barton, Somerville, assignors to American Soda Fountain Company, Boston, Mass. Apparatus for making carbonated beverages	518,577	Apr. 17	1973	488, 489	67	391
Macphail, Neil, Glasgow, Scotland. Tobacco-pipe	521,380	June 12	1120	264	67	1416
Madden, James W., Brooklyn, N. Y. Railway-car fender	520,739	May 29	3123	756	67	1176
Maerky, Friedrich. (See Wiederin, Mathäus, assignor.)						
Magenau, Otto, Fremont, Nebr. Display-rack	517,873	Apr. 10	744	187	67	158
Magoris, Anthony E., Binghamton, N. Y. Brush	520,740	May 29	3125	756	67	1176
Magunson, Charles M. (See Ogle and Magunson.)						
Mahoney, Michael F., San Francisco, Cal. Swinging window	521,472	June 19	1295	302	67	1464
Maidhof, Marguerite and V. F., New York, N. Y. Car-fender	522,070	June 26	2347	564	67	1676
Maidhof, Victor F. (See Maidhof, Marguerite and V. F.)						
Maish, Levi, York, Pa. Removing articles from wells, &c	517,806	Apr. 3	651	163	67	127
Maisons, Gustave, 3d, *et al.* (See Chazotte, Jean F., assignor.)						
Maiwald, Gustav. (See Cint and Maiwald.)						
Makepeace, Charles R. (See Praray, Charles A., assignor.)						
Malby, George F. (See Wilson, Charles F., assignor.)						
Maley, Fredrick W., assignor of one-half to C. W. Hill and D. P. Alexander, St. Louis, Mo. Embossing-machine	519,961	May 15	1784	437	67	899
Mallalieu, Frank. (See Tillinghast and Mallalieu.)						
Mallett, Charles E., New York, N. Y. Bale-covering	518,820	Apr. 24	2401	593, 594	67	482
Mallock, Arnulph, London, England. Screw-driver	519,962	May 15	1787	437	67	899
Mallory, Frank B., Flemington, N. J. Ladder	521,381	June 12	1121	264	67	1416
Malone, Frank P., assignor of one-half to J. Carrick, Evanston, Wyo. Slide-valve for steam-engines	521,592	June 19	1505	353	67	1501
Malthy, Frank D., Englewood, N. J., assignor, by mesne assignments, to J. M. Whitney, Brooklyn, N. Y. Machine for cutting out cell-case blanks	517,651	Apr. 3	394	94, 95, 96	67	76
Manley, Horace A., Boston, assignor to W. N. Osgood, Malden, Mass. Coin-controlled mechanism	520,931	June 5	337	82	67	1258
Mann, Marcellus, Clearfield, Iowa. Device for connecting hay rakes and loaders with wagons	520,532	May 29	2771	670	67	1111
Mann, Thomas, Baltimore, Md. Live-box for shell-fish	517,652	Apr. 3	399	96	67	77
Mann, William B., Baltimore, Md. Can-testing machine	521,935	June 26	2106	505, 506	67	1633
Mannlicher, Ferdinand, Vienna, Austria-Hungary. Feed mechanism for magazine-guns	518,821	Apr. 24	2402	594, 595	67	482
Mansfield Cash and Package Carrier Company. (See Barrow, Thomas E., assignor.)						
Manwaring, Morris B., Boston, Mass., assignor of three-fourths to W. E. Eastman, Laconia, N. H. Cracker and making same	518,891	Apr. 24	2515	.....	67	504
Maples, Melvin, Hartwick, N. Y. Vine-stripper	517,469	Apr. 3	92	20, 21	67	20
Marble, Edwin T., *et al.* (See Richardson, Willie A., assignor.)						
Marburg, Charles L., Baltimore, Md., assignor of one-half to American Tobacco Company, of New Jersey. Device for sprinkling casing material upon tobacco	519,191	May 1	450	110	67	624
Marburg, Charles L., Baltimore, Md., assignor of one-half to American Tobacco Company, of New Jersey. Machine for preparing and casing tobacco	519,637	May 8	1263	304	67	788
March, Milo O., Goshen, Ind. Folding stool	517,929	Apr. 10	840	211	67	176
March, R. J., *et al.* (See Gordon, Thomas J., assignor.)						
March, William, London, England. Bolt or rod cutter	518,615	Apr. 24	2033	506	67	418
Marcum, Thomas, Muscogee, Ind. Ter. Bridle	522,021	June 26	2273	545	67	1661
Marcus, Martin H., Baltimore, Md. Stair-pad	521,593	June 19	1506	353	67	1501
Marcy, Alexander, Toronto, Canada, assignor of eleven-twentieths to J. Hanauer, Omaha, Nebr. Transposing keyboard	517,874	Apr. 10	745	187	67	158
Marden, Aldis H., Waltham, Mass. Bell-cord hanger for cars	518,787	Apr. 24	2343	580	67	472

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Markham, Samuel H., Cleveland, Ohio. Machine for forging nuts	520,067	May 22	1967	481, 482, 483	67	947
Markley, John A., assignor of three-fifths to J. C. Carpenter, J. A. Roberts, J. L. Duncan, and J. C. King, Clifton Forge, Va. Safety attachment for car-couplings	521,243	June 12	870	206	67	1368
Markley, John A., assignor of three-fifths to J. C. Carpenter, J. A. Roberts, J. L. Duncan, and J. C. King, Clifton Forge, Va. Fastening for draft-beams	521,803	June 26	1871	448	67	1587
Marks, Louis B., New York, N. Y., and C. Ransom, Passaic, N. J. Electric-arc lamp	520,996	June 5	438	105	67	1276
Marks, Louis B., assignor to Royal Arc Electric Company, New York, N. Y. Electric-arc lamp	521,936	June 26	2110	506	67	1631
Marlin Fire Arms Company. (See Hepburn, Lewia L., assignor.)						
Marquart, Rudolf, assignor of one-half to G. Schneider, New York, N. Y., and L. Tisch, Hoboken, N. J. Insertible diamond saw-tooth	519,475	May 8	973	235	67	736
Marr, John. (See Wagner, Marr, and Campbell.)						
Marriott, Thomas A., Newberry, Mich. Steam-boiler	519,386	May 8	822	201	67	710
Marron, Peter. (See McClimont and Marron.)						
Marsden, Thomas R., Oldham, England. Dust-trunk for cotton-openers	519,457	May 8	931	225	67	730
Marsh, Cyrus, Washington, Miss. Plow	521,032	June 5	495	118	67	1286
Marsh, John A., assignor of one-half to P. B. Begg, St. Louis, Mo. Autographic register	520,022	May 15	1887	461, 462	67	917
Marshall, Bennie W. (See Garlock and Marshall.)						
Marshall, Herbert, Los Angeles, Cal. Saw-set	518,260	Apr. 17	1419	355	67	992
Marshall, James, Fall River, Mass. Mold for forming hats	517,470	Apr. 3	94	21	67	20
Marshall, Waldo H., assignor to Consolidated Brake Adjuster Company, Chicago, Ill. Slack-adjuster for brakes	518,110	Apr. 10	1156	290	67	227
Marshall, William J. (See Garlock and Marshall, assignors.)						
Martens, Carl W. J., Hamburg, Germany. Cowl	520,368	May 22	2504	606	67	1047
Martin, Abraham S., *et al.* (See Davidson, David J., assignor.)						
Martin, Arthur A. (See Carson and Martin.)						
Martin, Carl, assignor to Grusonwerk, Magdeburg-Buckau, Germany. Gun-embraaure joint	518,155	Apr. 10	1225	307	67	239
Martin, Charles E., Baraboo, Wis. Safety-fuse	517,471	Apr. 3	95	21	67	20
Martin, George H., San Francisco, Cal. Envelope	519,864	May 15	1634	398	67	871
Martin, Horace B., Chino, Cal. Undercut plow and subsoiler	520,932	June 5	338	82	67	1258
Martin, Morris, Malden, assignor of one-half to B. W. Wells, Boston, Mass. Electroprotective system for locks	520,795	June 5	61	14	67	1209
Martin, Stephen G., *et al.* (See Davidson, David J., assignor.)						
Martin, William, Dunkirk, N. Y. Pipe-coupling	521,122	June 5	655	154	67	1315
Marvin, Harry N. (See Casler, Herman, assignor.)						
Marvin, Judson L., Mauston, Wis. Dry closet or commode	518,616	Apr. 24	2034	506	67	418
Marzynski, Morris A., Boston, Mass. Can for paint, putty, lard, &c	521,033	June 5	496	118	67	1286
Mason, David, Schenectady, N. Y. Electric-railway system	519,794	May 15	1521	370, 371	67	849
Mason, Edgar T., Kansas City, Mo. Packing-barrel	521,804	June 26	1873	448	67	1587
Mason, John, Petaluma, Cal. Gate	518,743	Apr. 24	2277	565	67	459
Mason, Orlando. (See Parker, Homer N., assignor.)						
Mason Regulator Company. (See Mason, William B., assignor.)						
Mason, Solomon L., Medford, N. J. Corn-stubble cutter	520,068	May 22	1973	483	67	947
Mason, Thomas E. B., Shenandoah, Iowa. Pruning implement	518,649	Apr. 24	2096	523	67	428
Mason, Volney W., Jr., Hyde Park, Mass. Milling-machine	520,486	May 29	2696	653	67	1097
Mason, William, assignor to Winchester Repeating Arms Company, New Haven, Conn. Electrical primer	520,116	May 22	2054	502	67	963
Mason, William B., assignor to Mason Regulator Company, Boston, Mass. Valve mechanism	522,071	June 26	2349	565	67	1676
Massey-Harris Company. (See McBride, Thomas J., assignor.)						
Masterman, William H., Oakland, Cal. Sash-holder	518,413	Apr. 17	1699	421	67	344
Mutern, Herman, Albany, N. Y. Coin-controlled game apparatus	518,617	Apr. 24	2036	506, 507	67	418
Mather & Platt. (See Mather and Christie, assignors.)						
Mather, William, Manchester, England, and J. Christie, Alexandria, Scotland, assignors to Mather & Platt, Limited, Manchester, England. Apparatus for hanging webs in folds in drying-chambers	518,508	Apr. 17	1859	461	67	372
Mathews, Benjamin B. (See Barlett, Samuel E., assignor.)						
Mathews, Gilbert L., Newton, N. J. Bottle-stopper	521,473	June 19	1297	302	67	1464
Mathews, James M. (See Young and Mathews.)						
Mathews, James M., Seattle, Wash. Gate-latch	520,117	May 22	2056	502	67	964
Mathews, William, Alameda, Cal. Discharge attachment for oil-cans	517,618	Apr. 3	328	78	67	64
Mathias, David H., *et al.* (See Van Der Zee, Cornelius, assignor.)						
Mathiesen, Wilhelm, Leipsic, Germany. Electric-arc lamp	519,726	May 15	1410	340	67	829
Matlack, Robert C., Jr. (See Cranmer, William C., assignor.)						
Matt, Henrey H., Long Island City, N. Y. Railway-switch	522,072	June 26	2352	565	67	1676
Matthews, Edwin S., Cincinnati, assignor of one-half to J. L. Haven, Avondale, Ohio. Hydraulic valve	519,638	May 8	1264	305	67	789
Matthews, Edwin S., assignor of one-half to J. L. Haven, Cincinnati, Ohio. Hydraulic valve	519,639	May 8	1270	305	67	789
Matthews, Edwin S., assignor of one-half to J. L. Haven, Cincinnati, Ohio. Hydraulic elevator	520,166	May 22	2161	526	67	981
Matthews, Joseph, Brunswick, Ga. Composition of matter	521,382	June 12	1122	.....	67	1416
Matthews, William N., *et al.* (See Ruebel, Ernst, assignor.)						
Manden, Marion F., Glasgow, Mo. Snow-cleaning attachment for locomotive-engines	521,544	June 19	1420	330	67	1486
Manll, Edward N., Huntington, Fla. Orange-sorting machine	520,440	May 29	2615	633	67	1083
Maurer, Heinrich, Carlsruhe, Germany. Repeating mechanism for pianofortes	519,611	May 8	1214	293	67	780
Maurer, Henry. (See Frey, Benedict, assignor.)						
Maurer, Henry, New York, N. Y. Manufacturing porous bricks	520,266	May 22	2334	.....	67	1014
Maurer, Ludwig, assignor of one-half to D. P. Chesebro and A. E. Davidson, New York, N. Y. Folding pasting-table	517,756	Apr. 3	576	142	67	112
Maurer, Martin, St. Louis, Mo. Device for ornamenting pavements	519,919	May 15	1713	421	67	886
Maxfield, Leverett L., Brooklyn, N. Y. Cigarette-machine	518,261	Apr. 17	1420	355, 356	67	992
Maxim, Hosea F., Norfolk, Va. Thermal alarm	522,022	June 26	2274	545	67	1661
Mayer, Frederick, Baltimore, Md. Gas-holder tank	519,963	May 15	1788	438	67	899
Mayer, John, Amsterdam, N. Y. Car-brake	521,034	June 5	497	118, 119	67	1286
Mayer, John H., Waterloo, Canada. Let-off mechanism for looms	520,603	May 29	2890	698	67	1134

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Mayer, Louis H., Philadelphia, Pa. Pneumatic propeller	520,004	May 15	1856	454	67	911
Mayhew, George S., assignor to C. A. Smith, Minneapolis, Minn. Artificial lumber or composition material	517,822	Apr. 3	672	168	67	130
Maynard, Charles A., Springfield, Mass. Conduit electric railway	518,695	Apr. 24	2177	544	67	443
Mayne, Charles R., Toledo, Ohio. Bicycle	520,796	June 5	68	14	67	1210
Mayo, Samuel P., Richmond, Va. Cooling-channel for ordering tobacco	520,441	May 29	2618	634	67	1084
Mayo Tobacco Drying and Ordering Company. (See Peple, Gustavus A. and C. A., assignors.)						
Mayr, George, Brooklyn, assignor of one-half to E. Farmer, New York, N. Y. Electric lamp for bicycles	521,721	June 19	1719	406	67	1543
McAlpin, Aaron C., Guyton, Ga. Combined cup, funnel, and stopper-securer	518,530	Apr. 17	1897	470	67	378
McArdle, Frank J., and J. B. Furay, Omaha, Nebr. Bracket and card-holder	518,326	Apr. 17	1535	382	67	312
McBride, Henry, assignor to W. F. Day and J. P. Lavigne, New Haven, Conn, Micrometer-gage	519,541	May 8	1102	264	67	760
McBride, John E., New York, N. Y. Fender for railway-cars	520,857	June 5	189	42	67	1231
McBride, Thomas J., Winnipeg, Manitoba, assignor to Massey-Harris Company, Toronto, Canada. Cultivator	517,962	Apr. 10	908	227	67	186
McCabe, Charles M. (See Dow, George E., assignor.)						
McCall, Harry M., Latrobe, assignor of eleven-twelfths to R. G. Kennedy and B. D. Reed, Pittsburg, Pa. Steam-engine	519,588	May 8	1177	283	67	774
McCall, William W., assignor of one-half to W. T. Waite, Kansas City, Mo. Reciprocating fan	518,852	Apr. 24	2445	606	67	490
McCallum, Archibald, Conrad, Pa. Wrench	521,123	June 5	656	154	67	1315
McCambridge & Company. (See Howell, George B., assignor.)						
McCamey, Charles M., and S. H. Root, assignors to N. L. Root, Longmont, Colo. Adjustable electrolier	518,198	Apr. 10	1318	329	67	258
McCarthy, Dennis. (See McCarthy, John J., assignor.)						
McCarthy, Dennis, Miner's Mills, Pa. Car-axle lubricator	521,807	June 26	1876	449	67	1588
McCarthy, John J., Boston, assignor of one-half to D. McCarthy, Newton, Mass. Hame	520,071	May 22	1978	484	67	948
McCarthy, Justin J., *et al.* (See Fox, Edward, assignor.)						
McCarthy, Louis, Boston, Mass. Insulator	517,621	Apr. 3	335	79	67	66
McCarthy, Louis, Boston, Mass. Trolley-wire insulator	518,071	Apr. 10	1092	256	67	216
McCarthy, Louis, Boston, Mass. Strain-insulator	518,373	Apr. 17	1638	404	67	332
McCarthy, Louis, Boston, Mass. Insulator	520,606	May 29	2895	699	67	1135
McCarthy, Louis, Boston, Mass. Trolley-wire support	520,937	June 5	344	84	67	1260
McCarthy, Mitchell F., Chicago, Ill., assignor to Suspension Arch Fire Proofing Company of Illinois. Fireproof building	520,489	May 29	2703	655	67	1098
McCarthy, Mitchell F., Chicago, Ill., assignor to Suspension Arch Fire Proofing Company of Illinois. Fireproof structure	520,490	May 29	2705	655, 656	67	1099
McCarthy, Mitchell F., Chicago, Ill., assignor to Suspension Arch Fire Proofing Company, of Illinois. Construction of fireproof floors, &c	520,491	May 29	2707	656	67	1099
McCarthy, Mitchell F., Chicago, Ill., assignor to Suspension Arch Fire Proofing Company, of Illinois. Fireproof floor, ceiling, &c	520,492	May 29	2709	656, 657	67	1100
McCay, George A., Brooklyn, assignor of one-third to F. Leach, New York, N. Y. Lamp	518,531	Apr. 17	1893	470	67	378
McClanathan, Loren B., St. Louis, Mo. Refrigerator	520,695	May 29	3054	740	67	1163
McClary, Thomas D., Washington, D. C. Apparatus for making mortar	521,507	June 19	1358	316, 317	67	1476
McClimont, John J., and P. Marron, Aspen, Colo. Freight-car	521,036	June 5	501	119	67	1287
McCloskey, William, assignor of one-half to A. J. Green, Essex, Canada. Harvester	517,654	Apr. 3	406	98, 99	67	78
McCloskey, William, assignor of one-half to A. J. Green, Essex, Canada. Harvester	517,655	Apr. 3	408	99	67	78
McClure, Albert E., assignor to McClure Manufacturing Company, Sedalia, Mo. Buckle	519,542	May 8	1103	264, 265	67	760
McClure, Albert E., assignor to McClure Manufacturing Company, Sedalia, Mo. Buckle	519,543	May 8	1105	265	67	761
McClure, Albert E., assignor to McClure Manufacturing Company, Sedalia, Mo. Buckle	519,544	May 8	1107	265	67	761
McClure, Albert E., assignor to McClure Manufacturing Company, Sedalia, Mo. Buckle	519,545	May 8	1108	265, 266	67	761
McClure, Albert E., assignor to McClure Manufacturing Company, Sedalia, Mo. Buckle	519,546	May 8	1110	266	67	761
McClure, Albert E., assignor to McClure Manufacturing Company, Sedalia, Mo. Buckle	519,547	May 8	1111	266	67	761
McClure, Albert E., assignor to McClure Manufacturing Company, Sedalia, Mo. Buckle	520,373	May 22	2511	608	67	1048
McClure, Albert E., assignor to McClure Manufacturing Company, Sedalia, Mo. Buckle	520,374	May 22	2513	608	67	1049
McClure, Albert E., assignor to McClure Manufacturing Company, Sedalia, Mo. Buckle	520,375	May 22	2514	609	67	1049
McClure Manufacturing Company. (See McClure, Albert E., assignor.)						
McCollom, William J., Swaledale, Iowa. Camera-shutter	520,696	May 29	3058	740	67	1164
McCombs, George F., Allegheny, Pa. Door-fastener	521,037	June 5	502	120	67	1287
McCombs, George F., Allegheny, assignor to Hand Stitch Broom Sewing Machine Company, Pittsburg, Pa. Broom-corn-sizing machine	517,761	Apr. 3	582	143, 144	67	112
McConnell, William H., Nelsonville, and F. A. Ray, Congo, Ohio. Ventilating-fan	521,862	June 26	1962	473	67	1604
McCormack, George B. (See Barton and McCormack.)						
McCormick, James H., New Orleans, La. Machine for delinting cotton-seed	519,613	May 8	1216	293	67	780
McCormick, William H., assignor of one-half to H. A. Kinne, Kalamazoo, Mich. Combination railway rail and joint	517,551	Apr. 3	223	51	67	44
McCoy, John B. (See Davis, Frank E., assignor.)						
McCoy, William H., Los Angeles, Cal. Elevator	520,697	May 29	3059	741	67	1164
McCracken, James E., near Bellefontaine, Ohio. Screening-machine	520,119	May 22	2058	503	67	961
McCready, James T., *et al.* (See Alberger, Samuel F., assignor.)						
McCreery, Joseph, Detroit, Mich. House ventilation	521,038	June 5	503	120	67	1288
McCue, Charles T. (See Lippy, David, assignor.)						
McCulloch, Robert, *et al.* (See Surtin, John H., assignor.)						
McCullough, Elmer J., Milford, Mich. Fence-post	520,656	May 29	2976	718	67	1148
McCullough, Samuel G., Sidney, Ohio. Folding chair	517,656	Apr. 3	453	100	67	79
McCurdy, John B., Joplin, Mo. Combined surface condenser and feed-water heater	518,421	Apr. 17	1709	425	67	345
McDaniel, Charles W., Lakeport, N. H., assignor to Economy Feed Water Heater Company, of New Hampshire. Feed-water heater and purifier	520,211	May 22	2241	545, 546	67	996
McDannell, Otto C., *et al.* (See English, Carl S., assignor.)						
McDermid, Julian M. (See Thompson, Thomas J., assignor.)						
McDermott, Henry, Norwich, Conn. Coiler for carding-machines, &c	518,675	Apr. 24	2144	536	67	437
McDonald, Donald, Louisville, Ky. Gas holder and purifier	518,114	Apr. 10	1165	292	67	239
McDonald, Joseph H., New York, N. Y. Apparatus for purifying water	517,552	Apr. 3	224	51	67	44
McDonald, Thomas, Jr., Allegheny, Pa. Nut-lock	519,196	May 1	460	112	67	626
McDowell, Alexander, Lynn, Mass. Heel-cutter	518,043	Apr. 10	1053	267	67	209
McElfresh, Frank P., Kimballton, Iowa. Boat-propeller	518,072	Apr. 10	1094	276	67	216
McElrath, James J. B., Centre, Ala. Dating and stamp-canceling machine	520,698	May 29	3063	741, 742	67	1165
McElroy, James F., Albany, N. Y., assignor to Consolidated Car-Heating Company Wheeling, W. Va. Electric switch	519,338	May 8	731	179, 180	67	693

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol	Official Gazette. Page.
McElroy, James F., Albany, N. Y., assignor to Consolidated Car-Heating Company, Wheeling, W. Va. Steam-pressure gage	519,921	May 15	1716	421	67	886
McElroy, James F., Albany, N. Y., assignor to Consolidated Car-Heating Company, Wheeling, W. Va. Heat-regulator	520,893	June 5	257	61	67	1244
McFall, David H. (See Herr and McFall.)						
McFarland, John, and G. H. Reid, Cleveland, Ohio. Coin-controlled card-exhibiting machine	519,002	May 1	103	25	67	555
McGahey, Richard, Walla Walla, Wash. Mower	519,197	May 1	460	113	67	626
McGee, Joshua H. (See Carman, Isaac L., assignor.)						
McGehe, William J., Bushnell, Ill. Portable drilling-machine	520,118	May 22	2056	503	67	964
McGlehan, Isaac S., New York, N. Y. Postal scale	518,725	Apr. 24	2244	558	67	454
McGowan, John H., Cincinnati, Ohio. Water-ejector	519,728	May 15	1413	341	67	829
McGrath, Catherine A., *et al.*, executors. (See Buehler, Rudolph R., assignor.)						
McGrath, Louis J., *et al.*, executors. (See Buehler, Rudolph R., assignor.)						
McGraw, William T., Detroit, Mich. Cash register, indicator, and recorder	518,267	Apr. 17	1435	359	67	294
McGraw, William T., Detroit, Mich. Cash register and indicator	519,922	May 15	1718	422	67	887
McGregor, Nelson H., assignor of one-half to C. Wheeler, Milwaukee, Wis. Fish-line reel	520,607	May 29	2896	700	67	1135
McGregor, Nelson H., assignor of one-half to C. Wheeler, Milwaukee, Wis. Fish-line reel	522,079	June 26	2363	569	67	1679
McGuire, Henry, Memphis, Mich. Hopple	518,044	Apr. 10	1055	267	67	209
McGuire, John, St. Paul, Minn. Artificial leg	521,446	June 12	1241	293	67	1438
McHarry, William A., Eureka Springs, Ark. Barrack	522,120	June 26	2429	583	67	1691
McHenry, James W., assignor of one-half to W. S. Ritchie, Aspen, Colo. Horse-hitching device	520,608	May 29	2898	700	67	1135
McHenry, John M., Lincolnville, Kans. Vehicle-seat	517,526	Apr. 3	179	40	67	36
McHugh, Timothy J. (See Calkins, James H., assignor.)						
McIlhenny, John. (See Curley, Thomas, assignor.)						
McIlveen, James H., Fairfield, Tex. Portable dairy	519,266	May 1	583	142	67	650
McIntyre, Frank, Brooklyn, assignor to Eagle Pencil Company, New York, N. Y. Pencil-sharpener	518,853	Apr. 24	2446	606	67	490
McIntyre, Royal W., and G. A. H. Sprague, Redlands, Cal. Lubricator	518,823	Apr. 24	2405	595	67	482
McKain, Arthur A., and W. Seburn, Indianapolis, Ind. Pneumatic straw-stacker	518,620	Apr. 24	2043	508	67	419
McKay, David. (See Barr and McKay.)						
McKay, Henry S., Boston, Mass. Electric mechanism for giving reciprocating motion	519,869	May 15	1640	399	67	872
McKay, Henry S., Boston, Mass. Magnetic engine for reciprocating tools	519,870	May 15	1642	399	67	872
McKee, Arthur G., State College, Pa. Pedal-governor for electric motors	520,072	May 22	1978	485	67	949
McKee, Wood. (See Ashley, Frank M., assignor.)						
McKelvey, Stewart D., Canton, Ohio. Magneto-telephone	517,764	Apr. 3	587	144	67	113
McKelvey, Stewart D., assignor of one-third to J. A. Linville, Canton, Ohio. Telephone	517,762	Apr. 3	583	144	67	113
McKelvey, Stewart D., assignor of one-third to J. A. Linville, Canton, Ohio. Magneto-telephone	517,763	Apr. 3	585	144	67	113
McKelvey, Stewart D., assignor of one-third to J. A. Linville, Canton, Ohio. Phonograph	519,614	May 8	1218	293 / 294	67	781
McKenzie, Donald, Cleveland, Ohio. Flour-sifter	519,003	May 1	106	26	67	556
McKenzie, George W., Boston, Mass. Weeding implement	520,212	May 22	2242	546	67	996
McKeown, Joseph B. Cleveland, Ohio. Electric-arc lamp	519,045	May 1	173	41	67	569
McKercher, Alphonse C., assignor to A. Gauthier, Montreal, Canada. Candelabrum	518,650	Apr. 24	2097	523	67	428
McKerron John A. (See Clawson and McKerron.)						
McKim, John L. (See Bennum and McKim.)						
McKinnon, Duncan T. H. (See Little, Orton C., assignor.)						
McKnight, Thomas R., Aurora, Ill., assignor to Western Wheeled Scraper Company, of Illinois. Road-scraper	518,268	Apr. 17	1438	359	67	295
McKnight, Thomas R., Aurora, Ill., assignor to Western Wheeled Scraper Company, of Illinois. Road scraper	518,269	Apr. 17	1440	360	67	296
McLachlan, Duncan, Groton, N. Y. Roll-paper cutter	518,422	Apr. 17	1710	426	67	346
McLaughen, George W., and W. L. Gallant, assignors of one-third to T. C. Pegram, Gastonia, N. C. Burglar-alarm	518,532	Apr. 17	1900	470	67	379
McLaughlin, George M., and C. E. Cooley, Westport, Mo. Wagon-brake	519,729	May 15	1415	341	67	830
McLaughlin, George T. (See Hammond, Robert A., assignor.)						
McLaughlin, James, assignor of one-half to R. G. Franklin, Michigan City, Ind. Automatic gate for elevators	518,374	Apr. 17	1640	404 / 405	67	332
McLaughlin, James E., San Francisco, Cal. Refrigerating-machine	519,730	May 15	1417	342	67	830
McLaughlin, James F., Philadelphia, Pa. Push-button	521,808	June 26	1877	449	67	1588
McLaughlin, James F., Philadelphia, Pa. Electric-lamp lighter	521,809	June 26	1879	449	67	1588
McLaughlin, James F., Philadelphia, Pa. Electric soldering-tool	521,914	June 26	2064	496	67	1625
McLauthlin, George T. (See Naylor, James, Jr., assignor.)						
McLeod, Donald N., South Lancaster, Mass. Fire-escape	519,615	May 8	1227	295	67	782
McLeod, James R., Calgary, Canada. Bridle	518,423	Apr. 17	1711	426	67	346
McLoughlin, John. (See Fearn, William R., assignor.)						
McMahon, Michael F., and T. F. Carver, Worcester, Mass.; said Carver assignor to said McMahon. Clutch	520,447	May 29	2624	635	67	1085
McManis, Charles R., Keokuk, Iowa. Safety railway-car	518,854	Apr. 24	2447	606	67	490
McManus, William V., Baltimore, Md. Car-fender	518,115	Apr. 10	1166	293	67	229
McMaster, Joseph M., Rochester, N. Y. Wheel	521,570	June 19	1465	343	67	1494
McMasters, William P., Munhall, Pa. Miner's lamp	519,616	May 8	1229	295	67	782
McMillan, James, Chicago, Ill. Steam-boiler furnace	519,267	May 1	584	142 / 143	67	651
McMillan, John L., Ilion, N. Y. Method of and machine for justifying type	521,039	June 5	505	120 / 121 / 122	67	1288
McNamara, James, Seattle, Wash. Centering for tunnels	521,767	June 19	1813	430	67	1558
McNaughton, Eliza E., Phœnix, N. Y. Bubble-game apparatus	519,770	May 15	1476	358	67	841
McNaughton, Eliza E., Phœnix, N. Y. Composition for blowing soap-bubbles	519,923	May 15	1721	.....	67	887
McNeil, Catharine, San Francisco, Cal. Necktie-fastener	519,477	May 8	975	236	67	736
McNutt, John F. (See Winfield and McNutt.)						
McPherson, Daniel, Caledonia, N. Y. Grain-binder	521,508	June 19	1361	317	67	1477
McPherson, William, New York, N. Y. Dovetailing-machine	518,824	Apr 24	2405	595 / 596	67	482
McTammany, John, Spencer, Mass. Voting-machine	520,609	May 29	2899	700	67	1135
McTighe, Thomas J., and S. W. Childs, New York, N. Y. Trolley-wire hanger	520,213	May 22	2243	546	67	996
McTighe, Thomas J., assignor by mesne assignments, to F. K. Fitch, New York, N. Y. Trolley-wire hanger	522,180	June 26	2536	609	67	1712
Mead, Martin T., and S. M. Clemens, assignors of one-third to J. L. Boone, San Francisco, Cal. Skating-rink	517,823	Apr. 3	674	.....	67	131

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Mead, Theodore H., *et al.* (See Crowell, Luther C., assignor.)						
Meggenhofen, Charles W., Franklin, and A. S. Courtright, Indianapolis, Ind. Boring-machine	518,262	Apr. 17	1426	356	67	293
Mehren, Jacob F., assignor to J. P. Barrett, Chicago, Ill. Electrical-instrument table	518,788	Apr. 24	2344	581	67	472
Mehrtens, Fred L. N. (See Youngquist, Mehrtens, and Youngquist.)						
Meier, Joseph, Rock Island, Ill. Attachment to cultivators	519,408	May 8	860	208	67	717
Meisel, Francis, Boston, Mass. Machine for cutting, folding, and piling cloth, paper, or other fabrics	517,653	Apr. 3	400	96 / 97 / 98	67	77
Mellin, Carl J., Richmond, Va. Steam-separator	520,604	May 29	2892	699	67	1134
Mellin, Carl J., assignor to Richmond Locomotive and Machine Works, Richmond, Va. Compound locomotive	519,407	May 8	858	208	67	716
Mellinger, Jacob, Baltimore, Md. Composition for removing hair from the skin	520,005	May 15	1659	.....	67	912
Mélotte, Jules, Remicourt, Belgium, and W. Reuther, Hennef-on-Sieg, Germany. Centrifugal creamer	521,722	June 19	1721	407	67	1543
Melville, James J., Northwich, England. Apparatus for treating substances with gases	520,369	May 22	2505	606	67	1047
Mende, Alex. P. (See Remmers, Bernhard, assignor.)						
Mendenhall, Walter S., Covington, Ky., assignor to Samuel C. Tatum Company, Cincinnati, Ohio. Pen-rack	517,757	Apr. 3	557	142	67	112
Mendès, Henri, Paris, France. Apparatus for cooling liquids	518,618	Apr. 24	2040	507 / 508	67	419
Mengel, Joseph A., McKeansburg, Pa. Washing-machine	521,506	June 19	1357	315	67	1476
Mente, Albert, New York, N. Y. Bouquet-holder	520,650	May 29	2960	716	67	1146
Menzenhauer, Fred, Jersey City, N. J. Guitar-zither	520,651	May 29	2961	716 / 717	67	1147
Merchant, Frank D. (See Lencke and Merchant.)						
Mergenthaler Linotype Company. (See Dodge, Philip T., assignor.)						
Mergenthaler Linotype Company. (See Mergenthaler, Ottmar, assignor.)						
Mergenthaler, Ottmar, Baltimore, Md., assignor to Mergenthaler Linotype Company, of New Jersey. Linotype-machine	522,073	June 26	2353	565 / 566	67	1677
Meriden Silver Plate Company. (See Hiller, Louis C., assignor.)						
Meriden Silver Plate Company. (See Hiller and Mackay, assignors.)						
Merker, Robert J., Cleveland, Ohio. Coin-controlled electric machine	518,463	Apr. 17	1788	443 / 444	67	359
Merle, Adrian, *et al.* (See Rodin, Charles F., assignor.)						
Merrick, George H., San Francisco, Cal. Bung and bushing	520,372	May 22	2309	605	67	1048
Merrick, George H., San Francisco, assignor to W. F. Pierce, Oakland, Cal. Bushing and faucet for barrels	520,239	May 22	2286	555	67	1004
Merrick, George H., San Francisco, assignor to W. F. Pierce, Oakland, Cal. Bushing for barrels	520,240	May 22	2289	556	67	1004
Merrill, Albinus J., *et al.* (See Farrell, George W., assignor.)						
Merrill, I. S., *et al.* (See Edwards, Hubert F., assignor.)						
Merrill, J. G., *et al.* (See Edwards, Hubert F., assignor.)						
Merritt, Charles H. (See Cooper, Fredrick W., assignor.)						
Merritt, James M., assignor of one-half to D. W. Knickerbocker, Homer, Mich. Oil-burner	520,997	June 5	441	105	67	1276
Merritt, William B., Braintree, assignor of one-half to E. O. Ely, Boston, Mass. Button-setting apparatus	517,758	Apr. 3	578	142	67	172
Merritt, William H., Minden, Mich. Fence-wire carrier and stretcher	518,672	Apr. 24	2141	535	67	437
Messing, Henry. (See Birner and Messing.)						
Messinger, William T., Boston, Mass. Fluid-discharging apparatus	517,550	Apr. 3	219	51	67	43
Mette, Charles A., Santa Cruz, Cal. Swage	519,817	May 15	1554	381	67	856
Meuser, Alfonso, Longwood, Fla. Implement for straightening rails, bars, &c	519,920	May 15	1715	421	67	886
Meyer, Frederick A., San Francisco, Cal. Music-leaf turner	522,074	June 26	2354	566	67	1677
Meyer, Joseph, Chicago, Ill. Book-leaf holder	519,540	May 8	1101	264	67	760
Meyer, Julius, New York, N. Y. Bond for electric railways	518,414	Apr. 17	1700	421	67	344
Meyerding, Henry. (See Burton and Meyerding.)						
Meyers, Frederick, Brooklyn, N. Y., and M. Stoveken, Hoboken, N. J. Hook and eye	519,612	May 8	1215	293	67	780
Meyers, John G. (See Chambers, Solomon, assignor.)						
Meyrick, Joseph, Jr. (See Carter, Dawson, and Meyrick.)						
Michael, Jacob C., New York, N. Y. Powder holding and delivering device	519,387	May 8	828	202	67	711
Michaels, Leroy J., Tiffin, Ohio. Fence-wire tightener	520,325	May 22	2424	590	67	1031
Michaud, Jules, Paris, France. Rotary printing-press	520,069	May 22	1975	483 / 484	67	948
Michels, Michel. (See Pauly and Michels.)						
Michl, Wenzel R., Wetter-on-the-Ruhr, Germany. Core-attracting solenoid	521,269	June 12	916	217	67	1376
Middlebrooke, Hobart C., Rock Rapids, Iowa. Banjo	519,409	May 8	861	209	67	717
Middleby, Joseph, Boston Mass. Bake-oven	522,075	June 26	2357	566 / 567	67	1678
Middleby, Joseph, Jr., *et al.* (See Dooley, Thomas B., assignor.)						
Middleton, Andrew H., *et al.* (See Carnes, John, assignor.)						
Middletown Machine Company. (See Shartle, Charles W., assignor.)						
Miehle, Robert, Chicago, Ill. Mechanical movement	520,828	June 5	130	28, 29	67	1221
Milbank, Luther A., New York, N. Y. Lamp-burner	519,865	May 15	1635	398	67	871
Milbank, Nichols, assignor to New York Condensed Milk Company, New York, N. Y. Milk-wagon	518,848	Apr. 24	2438	604	67	488
Mildé, Charles, Paris, France. Telephonic apparatus	518,263	Apr. 17	1427	357	67	293
Miles, Edwin G., Detroit, Mich. Toe-weight	517,583	Apr. 3	272	62	67	53
Miles, Erastus M., Chicago, Ill. Electric belt	521,594	June 19	1508	353	67	1502
Miles, W. A., *et al.* (See Scheuerecker, Joseph, assignor.)						
Milks, Elbert D. (See Feneran and Milks.)						
Millar, Haldane. (See Parson, Edward A., assignor.)						
Millard, B. F. (See Berry, Charles M., assignor.)						
Millard, Minnie A., *et al.*, executors. (See Campbell, Gardiner and G. G.)						
Miller, Charles, New York, N. Y. Toy	520,070	May 22	1977	484	67	948
Miller, Charles L., and J. R. George, Chicago, Ill. Blast-furnace cast-house	518,415	Apr. 17	1702	422	67	344
Miller, Charles L., and J. R. George, Chicago, Ill. Machine for breaking pig-iron	518,416	Apr. 17	1703	422 / 423	67	344
Miller, Charles L., and J. R. George, Chicago, Ill. Mold for blast-furnace cast-houses	518,417	Apr. 17	1704	423	67	345
Miller, Charles L., and J. R. George, Chicago, Ill. Foundation for molds	518,418	Apr. 17	1705	424	67	345
Miller, Clinton S., and J. E. Du Bois, Tiffin, Ohio. Refrigerator-car	520,442	May 29	2619	634	67	1084
Miller, Edward H. (See Hagen, Ferdinand J., assignor.)						
Miller, Frank. (See Finch, John M., assignor.)						
Miller, George H. (See Finch, Frederick A., assignor.)						
Miller, Henry F., Lima, Ohio. Evaporating-pan	518,962	May 1	40	11	67	544

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Drg.	Vol.	Page.
Miller, Herman, New York, N. Y. Machinery for seaming metal cans	519,088	May 1	255	60, 61	67	585
Miller, Jacob, deceased; L. Miller, Akron, and R. A. Miller, Canton, Ohio, administrators. Sheaf-carrier for binding and harvesting machines	521,292	June 12	960	227, 228	67	1384
Miller, John E., Linwood, N. C. Cultivator and planter	519,044	May 1	173	41	67	569
Miller, John R. (See Cretcher and Miller.)						
Miller, John W., Dayton, Ohio. Cigar-piercer	522,076	June 26	2359	567	67	1678
Miller, Joseph, Sr., assignor of one-half to F. M. Battles, Huntingburg, Ind. Well or cistern cleaner	519,431	May 8	895	216	67	724
Miller, Lewis, *et al.*, administrators. (See Miller, Jacob.)						
Miller, Louis L., Newport, Ky., assignor to Ross, Moyer Manufacturing Company, Cincinnati, Ohio. Power-transmitter	520,326	May 22	2425	590	67	1031
Miller, Robert A., *et al.*, administrators. (See Miller, Jacob.)						
Miller, Samuel R., Decatur, Ill. Device for chalking lines	520,998	June 5	442	105	67	1277
Miller, Thomas, Jersey City, N. J. Steam-boiler	522,077	June 26	2360	568	67	1678
Miller, Thomas S., South Orange, N. J. Hoisting and conveying apparatus	521,035	June 5	500	119	67	1287
Miller, Wile S., assignor of two-thirds to O. E. Lawton and E. A. Hammond, Spokane, Wash. Car-coupling	520,443	May 29	2620	634	67	1084
Miller, William H., Spring Creek, Va. Saw-set	519,583	May 8	1172	282	67	772
Miller, William H., South Bend, Ind. Sprinkling-head for street-sprinklers	520,693	May 29	3052	739	67	1163
Miller, William H., assignor to G. H. Benjamin, New York, N. Y. Electrical governor	520,267	May 22	2335	566, 567	67	1014
Milligan, Thomas P., South Orange, N. J. Electrical device for towing vehicles	518,673	Apr. 24	2142	535, 536	67	437
Milliken, Benjamin D., Somerville, Mass. Advertising device	521,961	June 26	2163	519	67	1642
Milliron, Samuel F., Baltimore, Md. Hanger for books or papers	520,856	June 5	188	41	67	1231
Milliman, John M., *et al.* (See Wanner, Martin, assignor.)						
Mills, Burette, M., Hillsborough, Tex. Harrow attachment	522,179	June 26	2534	608	67	1711
Mills, Columbus, Gas City, Ind. Device for heating and ventilating rooms	517,759	Apr. 3	579	142, 143	67	112
Mills, George H., Laurel, Mont. Tongue-support	518,744	Apr. 24	2278	566	67	460
Mills, James J. (See Wilkin, Joseph A., assignor.)						
Mills, Thomas B. (See Kamp, George, assignor.)						
Milne, John, New York, N. Y. Fuel-economizer	519,023	May 1	136	33	67	562
Miltonberger, John F. (See Shackelford and Miltonberger.)						
Miltonberger, John F., J. S. Wynant, and C. Schott, assignors to said Wynant and Schott, T. J. Shackleford, and C. Kirkpatrick, Warsaw, Ind. Sash-fastener	519,476	May 8	974	235	67	736
Mimard, Etienne. (See Blachon and Mimard.)						
Miner, Benjamin D. (See Scearce, Jefferson B., assignor.)						
Miner, James H., Biloxi, Miss. Sawmill-dog	521,723	June 19	1723	408	67	1544
Miner, John, Detroit, Mich. Boring-machine	518,195	Apr. 10	1311	328	67	257
Miner & Peck Manufacturing Company. (See Peck, George W., assignor.)						
Mink, Fritz, assignor to Keystone Watch Case Company, Philadelphia, Pa. Engraver's chuck	520,797	June 5	69	14, 15	67	1210
Minney, Almon, Millbury, Mass. Lease-rods for looms	520,444	May 29	2622	635	67	1085
Minnigh, Ephraim H., Gettysburg, Pa. Cash-drawer and manual recorder	518,264	Apr. 17	1428	357, 358	67	294
Mirrlees, William J., and D. Ballingall, Glasgow, Scotland. Apparatus for evaporating liquids	521,724	June 19	1724	408, 409, 410	67	1544
Misell, David, assignor to N. S. Rosenau, New York, N. Y. Electric cigar-lighter	520,445	May 29	2622	635	67	1085
Misell, David, assignor to N. S. Rosenau, New York, N. Y. Electrically-illuminated clock	520,446	May 29	2623	635	67	1085
Mishler, Frank J. (See Mishler, Milton B. and F. J.)						
Mishler, Milton B., Ravenna, and F. J. Mishler, Mogadore, Ohio. Machine for making grave or lot markers	520,652	May 29	2963	717	67	1147
Mitchell, Adolph L., Rockville Centre, N. Y. Cork-shell-cutting machine	520,605	May 29	2894	699	67	1134
Mitchell, Arobine C., Ennis, Mont. Mixer or beater	519,584	May 8	1173	282	67	773
Mitchell, James O., Stewart's Draft, assignor of one-half to S. E. Rankin, Basic City, Va. Car-coupling	521,887	June 26	2002	483	67	1613
Mitchell, Kerr M. (See Charlton and Mitchell.)						
Mitchell, Robert W. S., and J. Murphy, Passaic, N. J. Edge-folder for fabrics	519,131	May 1	341	81	67	603
Mitchell, Rudolph J., Jenkintown, Pa. Window	520,327	May 22	2426	590	67	1032
Mitting, Ebenezer K., Chicago, Ill., assignor, by mesne assignments, to A. Domeier, London, England. Recovering glycerin and salt from spent soap-lye	522,023	June 26	2276	.....	67	1662
Mix, Edgar W., Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Electric measuring-instrument for multiphase systems	518,265	Apr. 17	1430	358	67	294
Mix, Eugene M. and J. E., assignors to O. F. Swift, Buffalo, N. Y. Combined lock and latch	521,984	June 26	2213	532, 533	67	1651
Mix, James E. (See Mix, Eugene M. and J. E.)						
Mober, Charles J., Minneapolis, Minn. Grain-cleaner	520,653	May 29	2964	717	67	1147
Moe, Oscar J., New York, N. Y. Postage-stamp-attaching machine	517,472	Apr. 3	96	22	67	20
Moeller, Max, assignor to Action-Gesellschaft für Anilin Fabrikation, Berlin, Germany. Blue dye	521,985	June 26	2215	.....	67	1651
Moeller, Max, assignor to Actien-Gesellschaft für Anilin Fabrikation, Berlin, Germany. Blue dye	521,986	June 26	2215	.....	67	1651
Mohrdieck, Peter. (See Dubero and Mohrdieck.)						
Mohroff, Edward W., and C. W. Dobelin, Madison, Wis. Conductor-hook	518,196	Apr. 10	1312	329	67	257
Molesworth, Arthur H., London, England. Geocentric astronomical chart	521,725	June 19	1726	410	67	1544
Moline Scale Company. (See Crompton, Samuel S., assignor.)						
Mollart, Lobegott. (See Parks and Mollart.)						
Möller, Carl F., Berlin, Germany. Bottle-stopper	517,958	Apr. 10	901	225	67	185
Molloy, James F., New Haven, Conn. Wire suspender-buckle	517,875	Apr. 10	747	187	67	158
Moloney, John, Jr., Philadelphia, Pa. Flushing-tank	519,337	May 8	728	179	67	692
Monaghan, James. (See Weir, John, assignor.)						
Monarch Cycle Company. (See Binns, William H., assignor.)						
Monitor Manufacturing Company. (See Carpenter, Adelbert, assignor.)						
Monnense, Bernhard H., Brooklyn, N. Y. Musical instrument	521,602	June 19	1619	379	67	1523
Monro, George N., Jr., Pittsburg, Pa. Pneumatic tire	517,584	Apr. 3	273	63	67	54
Moody, Sealy B. (See King, John A., assignor.)						
Moomy, Joseph G., Erie, Pa. Pneumatic tire	518,849	Apr. 24	2440	604	67	489
Moomy, Joseph G., Erie, Pa. Pneumatic tire	518,850	Apr. 24	2442	605	67	489
Mooney, Patrick T., Walnut Springs, Tex. Car-door	521,383	June 12	1123	265	67	1416
Moore, Alfred H., assignor of one-half to G. Whitlock, Brooklyn, N. Y. Box-pile	520,487	May 29	2700	654	67	1098
Moore, Alfred M., Malden, Mass., assignor to Williams & Moore Manufacturing Company, Portland, Me. Gear-case for bicycles	517,959	Apr. 10	901	226	67	185

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Drg.	Vol.	Page.
Moore, Benjamin, Chicago, Ill. Bridge-gate	518,111	Apr. 10	1158	291	67	227
Moore Carving Machine Company. (See Yarnell, Charles S., assignor.)						
Moore, Charles C., Columbus, Ohio. Metallic ceiling	518,464	Apr. 17	1792	444	67	360
Moore, Charles N., Newhall, Cal. Ore grinder and amalgamator	521,663	June 19	1620	379, 380	67	1523
Moore, Clarence W., Peabody, Mass. Last-block fastener	518,509	Apr. 17	1860	461	67	372
Moore, D. W., *et al.* (See Gordon, Thomas J., assignor.)						
Moore, Edwin F., Toronto, Canada. Antifriction wheel-hub	520,933	June 5	340	83	67	1259
Moore, Frank L., Chatham, N. J. Strap-fastener	522,024	June 26	2277	545, 546	67	1662
Moore, George C., Easthampton, Mass. Machine for making shoes or covers for pneumatic tires	518,112	Apr. 10	1159	291, 292	67	228
Moore, George C., Easthampton, Mass. Fabric for bicycle-tires	521,805	June 26	1874	448	67	1587
Moore, George C., assignor of one-half to J. W. Green, Jr., Easthampton, Mass. Elastic fabric	519,727	May 15	1412	341	67	829
Moore, Gideon E., New York, N. Y. Manufacturing pigments	518,963	May 1	41	.....	67	544
Moore, Glaudius W., Gardiner, Oreg. Detaching-block	521,293	June 12	961	228	67	1384
Moore, Harrey, Wellingborough, England. Actuating mechanism for sewing-machine shuttles	520,759	May 29	3157	765	67	1182
Moore, Harvey A., assignor of one-half to S. D. Pray, Indianapolis, Ind. Burglar-alarm	519,265	May 1	583	142	67	650
Moore, Jacob J., Chambersburg, assignor of one-half to C. E. Rönne, Philadelphia, Pa. Valve-operating mechanism	517,807	Apr. 3	654	164	67	127
Moore, John Y., assignor of two-thirds to W. F. Nicol and T. P. Douglas, Kansas City, Mo. Ironing-board	519,410	May 8	863	209	67	717
Moore, Silas H., assignor to himself and A. M. Vernon, New York, N. Y. Gas-governor	521,664	June 19	1622	380	67	1524
Moores, Fenton L., Cincinnati, Ohio. Lime-slaker	520,328	May 22	2429	591	67	1032
Moran, Mary C., Newton, Mass. Garment-fastening	521,384	June 12	1125	265	67	1417
Moran, Michael, assignor to R. T. Blow and V. Moran, St. Louis, Mo. Machine for cleaning cotton or other seeds	522,179	June 26	2535	608	67	1711
Moran, Victoria, *et al.* (See Moran, Michael, assignor.)						
Moran, William T., Atlantic, Mass. Protector-mask	518,822	Apr. 24	2404	595	67	482
Morcom, Alfred. (See Belliss and Morcom.)						
Morden, Robert B. (See Frame and Morden.)						
Morfoot, Benjamin W., Chicago, Ill. Die for cutting and shaping can-heads	518,724	Apr. 24	2241	558	67	453
Morfoot, George A., assignor of one-half to J. Koblish, Chicago, Ill. High chair	518,070	Apr. 10	1091	275	67	215
Morgan, Charles. (See Redlinger and Morgan.)						
Morgan, Doctor F., Akron, Ohio. Hot-water heating-boiler	519,132	May 1	342	81	67	604
Morgan, Doctor F., Akron, Ohio. Hot-water heating-boiler	519,133	May 1	343	81	67	604
Morgan, Edgar H., *et al.* (See Redlinger and Morgan, assignors.)						
Morgan, Henry W., Rochester, N. Y. Grooving-machine	517,705	Apr. 3	486	116, 117, 118	67	93
Morgan, James M., Port Washington, Wis. Revolving chair	519,866	May 15	1636	398	67	871
Morgan, John R., *et al.* (See Morgan, Thomas R., Sr., and W. H., assignors.)						
Morgan, Robert A., Jr., Boston, Mass. Apparatus for transporting mail	517,619	Apr. 3	330	78	67	65
Morgan, Robert W., New York, N. Y. Candle-shade holder	521,726	June 19	1728	410	67	1545
Morgan, Robert W., New York, N. Y. Check-book	521,727	June 19	1729	411	67	1545
Morgan, Thomas R., Sr., and W. H., assignors of one-half to T. R., Jr., and J. R. Morgan, Alliance, Ohio. Charging-crane	520,488	May 29	2701	654	67	1098
Morgan, Thomas R., Sr., and W. H., assignors of one-half to T. R., Jr., and J. R. Morgan, Alliance, Ohio. Ingot-charging apparatus	520,798	June 5	73	15, 16	67	1210
Morgan, William H. (See Morgan, Thomas R., Sr., and W. H.)						
Morgan, William K., Eureka Springs, Ark. Sash-balance	517,760	Apr. 3	580	143	67	112
Morin, Hercules A., San Leandro, Cal. Bridle-rod for railways	518,348	Apr. 17	1584	392	67	322
Morison, Donald B., Hartlepool, England. Steam-boiler or other furnace	518,762	Apr. 24	2303	572	67	464
Morley, E. W., *et al.* (See Anderson, Edwin N., assignor.)						
Morris, Arthur, Rockefeller, Ill. Buckle	518,113	Apr. 10	1164	292	67	228
Morris Box Lid Company. (See French, Philo N., assignor.)						
Morris, Edward J., Philadelphia, Pa. Toboggan-slide	522,025	June 26	2278	546	67	1662
Morris, Henry B., assignor to Ford, Johnson & Co., Michigan City, Ind. Machine for scarfing ends of cane strips for splicing	517,876	Apr. 10	749	188	67	159
Morris, John H., Maquoketa, Iowa. Gate	520,533	May 29	2772	670	67	1111
Morris, Joseph L., Camden, N. J. Canal-towage	521,527	June 19	1396	323	67	1482
Morris, Mark B., Logansport, Ind. Animal-trap	522,165	June 26	2511	603	67	1707
Morris, Thomas, Brooklyn, assignor to J. Berbecker & Co., New York, N. Y. Swivel-bracket for rods	517,620	Apr. 3	335	79	67	65
Morris, William B., assignor to E. I. Upham and W. Emington, Collinsville, Cal. Sulky-plow axle	520,934	June 5	341	83	67	1259
Morrison, James F. (See Winter, John F., assignor.)						
Morrison, John H., assignor to Atwood, Crawford Company, Pawtucket, R. I. Sawing-machine	519,192	May 1	451	110	67	624
Morrison, Reason R., Mineral Point, Ohio. Recuperative tank-furnace	518,851	Apr. 24	2443	605	67	489
Morrison, Thomas, Duquesne, Pa. Edging-guide for rolling-mills	520,935	June 5	342	83	67	1259
Morrison, Walter, and W. H. Purser, Moonee Ponds, near Melbourne, Victoria. Heel	518,266	Apr. 17	1433	358, 359	67	294
Morrow, George, Salt Lake City, Utah Ter. Street-sweeper	521,665	June 19	1623	380, 381	67	1524
Morse, Arthur M. (See Plummer, William S., assignor.)						
Mortlland, George W., Lead, S. D. Rotary engine	518,465	Apr. 17	1793	444, 445	67	361
Mortimer, Charles J., New York, N. Y. Railway-switch	517,877	Apr. 10	752	188	67	159
Morton, Albert H., assignor to Kitson Machine Company, Lowell, Mass. Safety stopping mechanism for lap-machines	518,007	Apr. 10	990	247	67	199
Morton, Albert H., assignor to Kitson Machine Company, Lowell, Mass. Fiber-feeding machine	518,419	Apr. 17	1706	424, 425	67	345
Morton, James F., assignor of one-half to W. H. H. Anderson and N. S. Hill, Jr., Baltimore, Md. Wheel guard or fender for cars	519,289	May 1	626	152, 153	67	658
Morton, Rufus J., North Danville, assignor of one-half to J. W. Bruce, Danville, Va. Bag and twine holder	519,001	May 1	103	25	67	555
Morton, Thomas, Birmingham, England. Cover for tobacco-pipe bowls	521,173	June 12	752	176	67	1347
Mosely, Jeremiah T., Shelbyville, Tex. Felly for wheels	521,385	June 12	1125	265	67	1417
Moses, William E., *et al.* (See Wallace, Charles, assignor.)						
Mosher, Charles P. (See Streeter and Mosher.)						
Mossberg, Frank, Attleborough, Mass. Screw-press	519,867	May 15	1638	398	67	872
Mossberg, Frank, Attleborough, Mass. Roller-bearing	519,868	May 15	1639	399	67	872
Mossop, Isaac, Wiconisco, Pa. Hosiery-cutting apparatus	517,706	Apr. 3	495	118	67	95

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Moulton, James N., Haverhill, assignor to Stanley Manufacturing Company, Boston, Mass. Sole-rounding machine	522,166	June 26	2513	603, 604	67	1707
Mount Washington Glass Company. (See Steffin, Albert, assignor.)						
Mowat, Oliver M., Detroit, Mich. Pulley-block	522,078	June 26	2361	568	67	1679
Mowder, Isaac, Akron, assignor of one-half to T. H. Mowder, Youngstown, Ohio. Sanding device for cars	519,818	May 15	1555	381	67	856
Mowder, Thomas H. (See Mowder, Isaac, assignor.)						
Moxham, Arthur J., Johnstown, Pa. Machine for straightening rails or other metal bars	518,197	Apr. 10	1314	329	67	257
Moxham, Arthur J., Johnstown, Pa. Making chairs for railway-rails	520,654	May 29	2966	717	67	1147
Moxham, Arthur J., Johnstown, Pa. Tongue-switch	520,694	May 29	3053	740	67	1163
Moxley, Richard J., New Haven, Conn. Saw-frame	518,420	Apr. 17	1708	425	67	345
Mudford, Robert S., Texarkana, Ark. Gin-saw-filing machine	520,966	June 5	384	94	67	1267
Mueller, Fred B., Decatur, Ill. Bicycle-stand	518,325	Apr. 17	1534	382	67	312
Mueller, Henry, *et al.* (See Walls, William H., assignor.)						
Muir, Daniel H., Lincoln, Nebr. Shoe-buttoner	518,619	Apr. 24	2042	508	67	419
Muir, Robert, Brooklyn, N. Y. Overhead trolley-conductor	520,329	May 22	2429	591	67	1032
Mullen, James, Providence, R. I. Horse-collar	519,585	May 8	1174	292	67	773
Müller, Adelbert O., and A. Giesen, Fremont, Nebr. Apparatus for pasteurizing and racking off beer	519,193	May 1	452	111	67	624
Müller, August, Magdeburg, Germany. Apparatus for conveying and automatically delivering small articles	520,006	May 15	1860	454, 455	67	912
Müller, Charles L. F., deceased; C. B. Carstens, administrator, Milwaukee, Wis., assignor to Wisconsin Electric Light and Power Company, of Wisconsin. Regulator for dynamo-electric machines	518,349	Apr. 17	1585	392, 393	67	322
Müller, Rudolf, assignor to M. Berendt, M. D. Droege, E. Hadenfeldt, and J. Semler, Hamburg, Germany. Boiler and furnace	520,569	May 29	2835	684	67	1123
Mullican, Andrew J., Philadelphia, Pa. Hat-pin	522,080	June 26	2365	569	67	1679
Mullikin, Levin H., Trappe, Md. Sash-cord fastener	521,806	June 26	1875	449	67	1588
Mullins, William H., Salem, Ohio. Metallic roofing	520,370	May 22	2506	607	67	1047
Mullins, William H., Salem, Ohio. Metallic roofing	520,371	May 22	2508	607	67	1048
Muncaster, Otho M., Washington, D. C. Bait-bucket	521,244	June 12	871	206	67	1368
Münchhausen, Werner von. (See Cron and Münchhausen.)						
Mundell, Addison M., Paola, Kans. Vegetable-parer	519,890	May 15	1676	408	67	879
Mundell, James. (See Schmiedl, Anton I., assignor.)						
Mundry, Peter, and H. Pomtier, Delta, Colo. Trunk-strap fastener	519,505	May 8	1020	247	67	745
Mundt, Laura. (See Mundt, Wilhelm, assignor.)						
Mundt, Wilhelm, assignor to L. Mundt, New York, N. Y. Spool-holder for braiding-machines	520,655	May 29	2966	718	67	1148
Munroe, Cuthbert C., *et al.* (See Fisher, John E., assignor.)						
Murray, Joseph T., New York, N. Y. Lamp-wick	519,795	May 15	1525	371	67	850
Murbarger, William E., Indianapolis, Ind. Combined shaft-support and thill-coupling	518,763	Apr. 24	2304	572	67	465
Murby, Edward, St. Louis, Mo. Machine for making looped fabric	521,728	June 19	1730	411	67	1545
Murdock, Frank. (See Stratton and Murdock.) (Reissue.)						
Murdock, Harvey W., assignor of two-thirds to M. R. Stewart and S. H. Abbott, Ogden, Utah Ter. Gold-washer	519,506	May 8	1021	247	67	745
Murphy, Dennis J., and J. Richardson, Mountain View, Cal. Baling-press	517,930	Apr. 10	841	211	67	176
Murphy, Frank J., assignor of one-half to A. M. Randle, Danbury, Conn. Machine for stiffening hat-brims	519,194	May 1	453	111	67	625
Murphy, Frank J., assignor of one-half to A. M. Randle, Danbury, Conn. Machine for stiffening hat-crowns	519,195	May 1	455	112	67	625
Murphy, John. (See Mitchell and Murphy.)						
Murphy, John. (See Walker and Murphy.)						
Murphy, John Z., assignor of one-half to F. W. Hudson, Chicago, Ill. Cable-replacer	519,586	May 8	1174	282	67	773
Murphy, Thomas, Detroit, Mich. Steam-boiler	520,936	June 5	342	84	67	1259
Murphy, William M., Putnam, Conn. Plumber's blowpipe	518,674	Apr. 24	2144	536	67	437
Murray, George W., Sumter, S. C. Combined furrow-opener and stalk-knocker	517,960	Apr. 10	901	226	67	185
Murray, George W., Rembert, S. C. Cultivator and marker	517,961	Apr. 10	906	226, 227	67	186
Murray, George W., Rembert, S. C. Cotton-chopper	520,888	June 5	247	58	67	1242
Murray, George W., Rembert, S. C. Fertilizer-distributer	520,889	June 5	248	58, 59	67	1242
Murray, George W., Rembert, S. C. Planter	520,890	June 5	251	59	67	1243
Murray, George W., Rembert, S. C. Combined cotton-seed planter and fertilizer-distributer	520,891	June 5	253	59, 60	67	1243
Murray, George W., Rembert, S. C. Reaper	520,892	June 5	255	60	67	1244
Murray, George W., Sumter, S. C. Planter	520,887	June 5	245	57, 58	67	1242
Murray, John W., Jenison, Mich. Automatic switch-stand	517,878	Apr. 10	753	189	67	160
Murray, William W., and T. W. Cromer, Baltimore, Md. Machine for dressing or polishing floors	521,729	June 19	1732	411, 412	67	1545
Muskegon Chemical Fire Engine Company. (See Schumacher, Albert C., assignor.)						
Musser, Frank P., Beaver Falls, Pa. Car-brake	519,587	May 8	1176	283	67	773
Muth, Joseph P., St. Louis, Mo. Hitching device	519,891	May 15	1676	408	67	879
Myers, James H., Grand Rapids, Mich. Ball-bearing	521,987	June 26	2216	533	67	1651
Nadeniczek, Rudolf, Buda-Pesth, Austria-Hungary. Rotary engine	518,327	Apr. 17	1536	382	67	312
Nageldinger, John, New York, N. Y. Pressure-regulating valve	519,089	May 1	256	61	67	585
Nageldinger, John, New York, N. Y. Pressure-regulating valve	520,268	May 22	2337	567	67	1014
Nalence, Charles, Chicago, Ill. Piano attachment	521,937	June 26	2112	506	67	1634
Nall, Frederick W., assignor to G. Huntington, H. E. Kenny, and S. I. Slade, Detroit, Mich. Coin counter and deliverer	518,676	Apr. 24	2146	537	67	438
Nason, Carleton W., New York, N. Y. Steam-trap	521,962	June 26	2165	519	67	1642
Nason, Carleton W., New York, N. Y. Gripping device	521,963	June 26	2166	520	67	1642
Nastvogel, Oscar, and F. Reingruber, assignors to Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany. Blue dye	517,473	Apr. 3	98	.....	67	21
Nation, Enoch, Indianapolis, assignor to W. E. Nation, Kokomo, Ind. Duster	521,174	June 12	752	177	67	1347
Nation, William E. (See Nation, Enoch, assignor.)						
National Cash Register Company. (See Cleal, Joseph P., assignor.)						
National Cash Register Company. (See Ehrlich, Leo, assignor.)						
National Cash Register Company. (See Gibbs, Edmund D., assignor.)						
National Cash Register Company. (See Smyth, Charles G., assignor.)						
National Casket Company. (See Stein and Rappleyea, assignors.)						
National Chair Manufacturing Company. (See Chichester, Lemuel A., assignor.)						
National Company. (See Reynolds, George H., assignor.)						
National Cycle Company. (See Grant, Sidney A., assignor.)						
National Cycle Manufacturing Company. (See Wilcox, Melvin L., assignor.)						
National Electrical Manufacturing Company. (See Walter, Horace E., assignor.)						
National Malleable Castings Company. (See Tower, Clinton A., assignor.)						
Naumann, William A., Brooklyn, N. Y. Rack for musical instruments	520,214	May 22	2244	546	67	996

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Naumburg, Aaron. (See Egger and Wessel, assignors.)						
Naylor, Amos F., Brandywine Hundred, Del. Railway-chair	520,534	May 29	2773	671	67	1111
Naylor, James, Jr., assignor of three-fourths to G. T. McLauthlin, Boston, Mass. Pressure-recorder	520,073	May 22	1982	485, 486	67	949
Neafie, James, Boonton, N. J. Railway-tie	517,585	Apr. 3	274	63	67	54
Neal, John W. S., Paris, France. Handle for tools	522,181	June 26	2537	609	67	1712
Neal, Sarah C., New York, N. Y. Folding crib	520,699	May 29	3066	742	67	1165
Neale, David, Fort Calhoun, Nebr. Mattress for riprap	517,879	Apr. 10	755	189	67	160
Neale, David, Fort Calhoun, Nebr. Pile-point and permanent anchor for piles or cables	517,880	Apr. 10	756	189	67	160
Necker, Karl, Berlin, Germany. Machine for sewing beads to fabrics	518,156	Apr. 10	1226	307, 308	67	240
Neer, Harry M., assignor of two-thirds to S. Cochran, Chicago, Ill. Cash-register	518,892	Apr. 24	2517	622, 623	67	504
Neil, Martha J. (See Neil, Michael, assignor.)						
Neil, Michael, assignor of two-thirds to M. J. Neil, Dayton, Ohio. Mode of and appliance for plashing hedges	518,466	Apr. 17	1794	445	67	361
Neilen, Nels, Sioux City, Iowa. Garment-hanger	519,964	May 15	1789	438	67	900
Nelle, John L. (See Janke, Otto, assignor.)						
Nellis, Jacob H., Canajoharie, N. Y. Case for bottles or cans	520,007	May 15	1862	455	67	912
Nelson Car Coupling Company. (See Nelson, Swen P., assignor.)						
Nelson, Edward, Kansas City, Mo. Twine-holder and take-up	517,474	Apr. 3	100	22	67	21
Nelson, Eugene. (See Nelson, John F., assignor.)						
Nelson, Hans J., and N. M. Nielsen, Tyler, Minn. Clod crusher and pulverizer	520,799	June 5	75	16	67	1211
Nelson, John F., assignor of one-half to E. Nelson, New York, N. Y. Shut-off device for pipes	521,938	June 26	2113	507	67	1634
Nelson, Swen P., assignor to Nelson Car Coupling Company, Omaha, Nebr. Car-coupling	520,376	May 22	2515	609	67	1049
Nelson, Thomas G. (See Gelabert, William P., assignor.)						
Nelson, William C., Santa Rosa, Cal. Car-coupling	521,545	June 19	1421	330	67	1486
Nelson, William O., Baltimore, Md. Lubricator	517,553	Apr. 3	226	52	67	45
Neptune Meter Company. (See Thomson, John, assignor.)						
Nethery, Joseph W., assignor to Indiana Manufacturing Company, Indianapolis, Ind. Pneumatic straw-stacker	517,475	Apr. 3	101	22, 23	67	21
Nethery, Joseph W., assignor to Indiana Manufacturing Company, Indianapolis, Ind. Straw-stacker	519,680	May 8	1533	321, 322	67	801
Neudorf, D. Ind. (See Fuchs, Simon, assignor.)						
Neuhauser, Emil, Gridley, Ill. Gate	522,081	June 26	2366	569	67	1679
Neumann, Hermann, Jersey City, N. J. Weatherproof window-frame	520,330	May 22	2431	591	67	1032
New Branston Two Reel Sewing Machine Company. (See Holroyd, Hunt, and Johns, assignors.)						
New England Automatic Gas Lighting Company. (See Shaw, Nathaniel H. and A. B., assignors.)						
New Haven Car Register Company. (See Boyd and Gurding, assignors.)						
New York Condensed Milk Company. (See Milbank, Nichols, assignor.)						
New York Electrical and Development Company. (See Slocum, Harry F., assignor.)						
New York Electrical Works. (See Smith and Clabaugh, assignors.)						
Newark Watch Case Material Company. (See Richardson, Willis S., assignor.)						
Newberry, Ezra W., Lane, Kans. Shock-compressor	518,350	Apr. 17	1592	394	67	324
Newcomb, Abner S., Worcester Mass. Device for measuring dress-skirts	519,090	May 1	258	61	67	585
Newell, John F., Gardiner, Me. Mechanically compounding an oil or oils with another material, &c	520,493	May 29	2711	.....	67	1100
Newman, Samuel T., Danbury, Conn. Hat-packing ring	520,145	May 22	2124	519	67	974
Newsome, Simeon, assignor of one-half to W. Wright, Detroit, Mich. Oil heater or cooker	520,188	May 22	2202	536	67	989
Newton, Charles C., Philadelphia, Pa. Clamp for circular saws	519,892	May 15	1678	408, 409	67	879
Newton, Charles C., Philadelphia, Pa. Saw-grinding machine	519,893	May 15	1679	409	67	879
Newton, David L. (See Lasher, Webster, and Newton.)						
Nichels, Thomas. (See Fairchild, Frank J., assignor.)						
Nichols, Emory I., San Francisco, Cal. Hydrocarbon-motor	520,858	June 5	191	42	67	1231
Nichols, Emory I., assignor of one-half to J. Brower, San Francisco, Cal. Vapor-burner	519,819	May 15	1557	381	67	857
Nichols, Grant B., Wapakoneta, Ohio. Tellurian	522,082	June 26	2368	570	67	1680
Nichols, Henry B., and F. H. Lincoln, Philadelphia, Pa. Section-insulator	521,124	June 5	657	155	67	1315
Nichols, Henry G., trustee. (See Cross, Bevan, and Beadle, assignors.)						
Nicholson, Emily H. (See Nicholson, Thomas, Jr., assignor.)						
Nicholson, Thomas, Jr., Ashbourne, Pa., assignor of one-half to E. H. Nicholson. Safety-wrench for unloading cars	518,533	Apr. 17	1901	470	67	379
Nickerson, Adoniram J., Argyle, Canada. Boat-knee	518,677	Apr. 24	2149	537	67	438
Nickerson, Truman K., Maquoketa, Iowa. Hydrocarbon-burner	519,339	May 8	734	180	67	693
Nicol, Robert, Jr., Chicago, Ill. Hair-crimping iron	520,859	June 5	193	42	67	1232
Nicol, Willard F., *et al.* (See Moore, John Y., assignor.)						
Niebur, Henry H., Ferndale, Cal. Ballot-box	518,351	Apr. 17	1592	394	67	324
Niedringhaus, George W., assignor to St. Louis Stamping Company, St. Louis, Mo. Attaching handles and covers to vessels	519,069	May 1	223	53	67	579
Nielsen, Nicolaj M. (See Nelson and Nielsen.)						
Nienstaedt, Ernest, assignor of one-half to L. Goldmark, New York, N. Y. Winning metals from magnetic iron sand, metallic ore-dust, and metallic residues	520,377	May 22	2516	.....	67	1049
Nightingale, William R., assignor of one-half to J. H. Simonton, Valley, Nebr. Revolving cleaning-brush	518,352	Apr. 17	1597	395	67	325
Noack, Charles A., St. Louis, Mo. Fire-escape	521,416	June 12	1174	279	67	1426
Noar, Isaac, New York, N. Y. Necktie-fastener	518,855	Apr. 24	2448	607	67	491
Noar, Isaac, New York, N. Y. Necktie-shield	519,268	May 1	586	143	67	651
Noble, Andrew, and R. T. Brankston, assignors to W. G. Armstrong, Mitchell & Co., Limited, Newcastle-on-Tyne, England. Anchor for field-gun carriages	517,476	Apr. 3	103	23	67	22
Noble, Donald, Leeds, England. Portable pumping apparatus	517,881	Apr. 10	758	189	67	161
Noble, Donald, Leeds, England. Portable pumping apparatus	519,871	May 15	1644	400	67	873
Noble, Eldridge H., and J. W. Ward, Postville, Iowa; said Noble assignor to said Ward. Mop-wringer	521,216	June 12	821	193	67	1359
Noble, Franklin, Jersey City, N. J. Dish-cleaner	519,091	May 1	259	61, 62	67	586
Noble, Leander J., Menasha, Wis. Pail	520,074	May 22	1985	486	67	950
Nobs, Charles, Newark, N. J. Watchcase-spring	517,554	Apr. 3	227	52	67	45
Noliey, David D., Wilson, N. C. Car-coupling	519,092	May 1	262	62	67	586
Norlin, Charles G., and F. Lindstrom, Marquette, Kans. Clothes-line support	518,621	Apr. 24	2044	508	67	419
Norris, George E., Troy, N. Y. Machine for turning cuff-blanks	520,535	May 29	2775	671	67	1112
Norris, James L., administrator. (See Adamson, Daniel.)						
Norris, Thomas A., Brockton, Mass. Punching-machine	520,215	May 22	2245	547	67	997

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Drg.	Vol.	Page.
Norris, William M., Princeton, N. J., and H. Burk, Philadelphia, Pa. Tawed skin and making same	518,467	Apr. 17	1797	.....	67	361
North, William C., and S. W. Sessions, Cleveland, Ohio. Bolt	519,411	May 8	866	209	67	718
Northrop, Henry L., Syracuse, N. Y. Glove, &c	519,198	May 1	462	113	67	627
Northrup, Edwin F., Ardmore, assignor to Qneen & Company, Philadelphia, Pa. Galvanic battery	520,120	May 22	2059	503	67	964
Norton, Edwin, Maywood, assignor to himself and O. W. Norton, Chicago, Ill. Key for self-opening cans	517,657	Apr. 3	413	100	67	79
Norton Emery Wheel Company. (See Walker, Oakley S., assignor.)						
Norton, Henry J. (See Abney, Diton H., assignor.)						
Norton, James W., Washington, D. C. Cooking stove or range	518,764	Apr. 24	2305	573	67	465
Norton, Oliver W. (See Norton, Edwin, assignor.)						
Norton, Stephen, assignor of one-half to W. H. Rice, Rochester, N. Y. Safety-guard for street-cars	519,046	May 1	174	42	67	570
Norton, Stephen, and W. H. Rice, Rochester, N. Y. Safety-guard for street-cars	521,294	June 12	962	228	67	1384
Norton, Wendell P., assignor to Hendey Machine Company, Torrington, Conn. Screw-cutting engine-lathe	519,924	May 15	1722	422, 423	67	887
Norwood, Joseph. (See Howe, Henry A., assignor.)						
Novelty Manufacturing Company. (See Boeck, Charles H., assignor.)						
Nunamaker, John W., assignor of one-fourth to H. L. Hopkins, Chicago, Ill. Watch	517,882	Apr. 10	759	190	67	161
Nye, Frederick W., Cincinnati, Ohio. Cabinet or wardrobe bedstead	521,595	June 19	1510	353	67	1502
Nye, George W., Chicago, Ill. Automatic shut-off for grain-elevators	518,622	Apr. 24	2045	509	67	419
Nyström, Carl W., Carlstad, Sweden. Sound recording and reproducing attachment for key-instruments	520,894	June 5	258	61, 62	67	1244
O. S. Kelly Company. (See Wright, Edward T., assignor.)						
O'Brien, Charles A. (See Bryce, Andrew, assignor.)						
O'Brien, John. (See Duffner, Lucas, assignor.)						
O'Brien, Walter, Brooklyn, N. Y. Arch	519,340	May 8	735	181	67	694
O'Brien, Walter, Brooklyn, N. Y. Mouthpiece and stem for smoking apparatus	520,700	May 29	3066	742, 743	67	1166
O'Connor, Edward J., assignor, by mesne assignments, to A. Brainard, Hartford, Conn. Bicycle	519,024	May 1	137	34	67	562
O'Connell, James, New York, and G. Sniffin, Tuckahoe, N. Y. Limekiln	521,295	June 12	963	228	67	1385
O'Donnell & Co., M. J. (See Smith, William C., assignor.)						
O'Donnell, Thomas L. (See Clark, William A., assignor.)						
O'Dwyer, William H., New York, N. Y. Smoker's tray	517,528	Apr. 3	180	41	67	37
O'Gorman, James. (See Bennett, William H., assignor.)						
O'Hara, Henry. (See Wolcott and O'Hara.)						
O'Hara, John H., Chicago, Ill. Air-brake apparatus	519,681	May 8	1335	322	67	801
O'Leary, Joseph, Memphis, Tenn. Train-pipe stop-cock	517,707	Apr. 3	496	119	67	96
O'Meara, Jeremiah, New York, N. Y. Card-table	517,931	Apr. 10	842	211	67	176
O'Neill, Ellis I. (See Paxton and O'Neill.)						
O'Neill, John J., Lawrence, Mass. Making spikes	521,571	June 19	1466	343	67	1495
O'Shea, Henry, Johnstown, Pa., assignor, by mesne assignments, to Johnson Company, of Pennsylvania. Railway-rail chair	520,860	June 5	194	43	67	1232
O'Shea, Henry, assignor to Johnson Company, Johnstown, Pa. Railway-frog	520,861	June 5	195	43	67	1232
O'Shea, John S. (See Wilson, William T., assignor.)						
Oakes, William L., Decatur, Ill. Elevator and dump	521,888	June 26	2003	483, 484	67	1614
Oakey, Edward W., Chatfield, Minn. Wrench and straightener for thrashing-machine teeth	518,328	Apr. 17	1537	383	67	313
Oakley, Walter. (See Johnson, Hall, Oakley, and Currey.)						
Oat, Alfred A., Sr., Philadelphia, Pa. Concealed hinge	521,528	June 19	1397	323	67	1482
Oat, Alfred A., Sr., Philadelphia, Pa. Self-closing concealed hinge	521,546	June 19	1422	330	67	1486
Oddy, Edwin, J. Crossley, E. and A. Smith, Cleckheaton, England. Apparatus for hardening and tempering steel wire	517,527	Apr. 3	180	40	67	37
Oder, Robert S., Kansas City, Mo. Method of and machine for feeding paper	519,341	May 8	737	181, 182, 183	67	694
Odewahn, Arthur, and F. Reichart, Louisville, Ky. Well-digger	521,175	June 12	753	177	67	1347
Offrell, Olof, Middletown, Conn., assignor to Schuyler Electric Company, of Connecticut. Alternating-current motor	520,800	June 5	76	16, 17	67	1211
Offrell, Olof, Middletown, Conn., assignor to Schuyler Electric Company, of Connecticut. Alternating-current regulator	521,666	June 19	1626	381	67	1524
Ogden, Walter, Syracuse, N. Y. Garment-supporter	517,658	Apr. 3	414	100	67	80
Ogle, Alfred N., and C. M. Magunson, Two Harbors, Minn. Steam-engine	519,966	May 15	1790	439, 440	67	900
Ogle, John W., Arcadia, Ill. Mechanism for shocking cornstalks	521,088	June 5	600	142	67	1305
Ogle, Percy J., London, England. Wrapper or envelope	519,158	May 1	394	95	67	613
Ohio Rake Company. (See Bell and Stewart, assignors.)						
Ohlsson, Olof, Newark, N. J. Centrifugal separating-machine	521,730	June 19	1734	412	67	1546
Ohlsson, Olof, Newark, N. J., assignor to United States Butter Extractor Company of New Jersey, of New Jersey. Centrifugal creamer	519,070	May 1	225	53	67	579
Ohmer, John F., assignor to M. Ohmer's Sons Company, Dayton, Ohio. Case or cabinet	517,477	Apr. 3	103	23	67	22
Oie, John, Marshall, Tex. Excavator	519,342	May 8	743	183, 184	67	695
Olán, Johan W. T., New York, N. Y. Electric-current recorder	518,534	Apr. 17	1902	471	67	379
Olds, Ransom E. and W. S., Lansing, Mich. Multiplex vapor-burner	521,622	June 19	1555	363	67	1510
Olds, Wallace S. (See Olds, Ransom E. and W. S.)						
Oliva, Frank A., Alton, Kans. Band-cutter and feeder for thrashing-machines	520,216	May 22	2247	547, 548	67	997
Oliver, Elam A., Belleville, Wis. Band-tightener	519,507	May 8	1023	247	67	745
Oliver, Francis M., *et al.* (See Gilling, Frank E., assignor.)						
Oliver, George, Chicago, Ill. Valve	521,040	June 5	518	122	67	1291
Oliver, Henry and E. Scott, Allegheny, Pa. Apparatus for handling billets, ingots, &c	521,474	June 19	1298	302	67	1464
Oliver Iron and Steel Company. (See Smith and Price, assignors.)						
Oliver, James E., Kansas City, Mo. Work-guiding device for sewing-machines	518,623	Apr. 24	2047	509	67	420
Oliver, John R., assignor of one-half to W. H. Oliver, Portage, Mich. Egg-crate	518,893	Apr. 24	2523	623	67	506
Oliver, Joseph W., Grand Rapids, Mich. Trimming-machine	519,199	May 1	463	113	67	627
Oliver, William H. (See Oliver, John R., assignor.)						
Olsen, Johan L. W., Copenhagen, Denmark. Apparatus for heating ovens by gas	518,624	Apr. 24	2050	510	67	420
Olson, John, Two Harbors, Minn. Track-clearer	517,478	Apr. 3	105	23, 24	67	22
Olson, John, Two Harbors, Minn. Axle-lubricator	518,157	Apr. 10	1228	308	67	240
Onderdonk, William, New York, N. Y. Preparing cereals	517,479	Apr. 3	107	24	67	23

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Drg.	Vol.	Page.
Orcutt, David W., Binghamton, N. Y. Rope-clutch	520,570	May 29	2236	685	67	1123
Ordway, Lucius P. (See Benjamin, Fredrick L., assignor.)						
Orr, David G., and C. E. Thomas, Syracuse, N. Y. Soldering-tool	520,701	May 29	3068	743	67	1166
Orr, James C., Winnipeg, Canada. Machine for bending pipe	521,417	June 12	1176	279, 280	67	1427
Orth, Alfred, Lomnitz, Germany. Collapsible box	518,270	Apr. 17	1442	360	67	296
Orvis, Orel D., Chicago, Ill. Steam-boiler furnace	521,475	June 19	1301	303	67	1465
Orvis, Orel D., Chicago, Ill. Steam-boiler furnace	521,863	June 26	1963	474, 475	67	1605
Osborn, Heman M., Calumet, Mich. Packing for pistons of rock-drills	520,448	May 29	2626	636	67	1085
Osborne, Thomas J. (See Goodrich, Charles E., assignor.)						
Osborne, Thomas J. (See Werner, August, assignor.)						
Osgood, William N. (See Manley, Horace A., assignor.)						
Oswald, Phillip, assignor of one-half to H. A. Wells, Syracuse, N. Y. Handle	521,217	June 12	894	193	67	1360
Oswald, William J., San José, Cal. Faucet	519,508	May 8	1024	248	67	745
Otis Brothers & Company. (See Baldwin, Cyrus W., assignor.)						
Ott, Henry, Ottawa, Kans. Fountain-brush	520,241	May 22	2290	556	67	1005
Otto, Carl. (See Otto, Franz and C.)						
Otto, Franz and C., Zerbst, Germany. Curtain-roller	520,008	May 15	1863	456	67	912
Otto & Sons, F. G. (See Langfelder, Henry, assignor.)						
Ouram, Charles E. (See Kirkbride and Ouram.)						
Overton, Daniel F. and W. E., Solomon's, Md. Apparatus for extracting oil from fish	520,242	May 22	2292	556	67	1005
Overton, Daniel F. and W. E., Solomon's, Md. Apparatus for drying fish-refuse	520,269	May 22	2339	567	67	1014
Overton, Willis E. (See Overton, Daniel F. and W. E.)						
Oviatt, Solomon E., assignor to Oviatt Wagon Company, Lansing, Mich. Sleigh	519,004	May 1	107	26	67	556
Oviatt Wagon Company. (See Oviatt, Solomon E., assignor.)						
Owen, Frederick D., Washington, D. C. Bearing for velocipedes	519,269	May 1	586	143	67	651
Owen, John W. (See Roberts and Owen.)						
Oxygen Producing Syndicate. (See Fanta, Ferdinand, assignor.)						
Paasch, Peter W. A., Hamburg, Germany. Adjustable reflector	519,589	May 8	1178	283, 284	67	774
Pace, Jefferson D., Shreveport, La. Brick-machine	520,023	May 15	1893	462	67	918
Pacific Asphaltum Pipe Company. (See Tipson, William A., assignor.)						
Paddock, George A., *et al.* (See Locke, Fred M., assignor.)						
Paddock, Harvlin, St. Johnsbury, Vt., assignor to E. & T. Fairbanks & Company, of Vermont. Weighing-scale	521,623	June 19	1556	363	67	1510
Padgitt, Thomas B., Dallas, Tex. Child's seat for vehicles	519,731	May 15	1418	342	67	830
Page, Albert G., assignor of one twenty-fourth to F. H. Johnson, San Francisco, Cal. Power-storage apparatus	521,768	June 19	1814	430, 431	67	1558
Page, Carter H., Jr., assignor to United Gas Improvement Company, Philadelphia, Pa. Means for lighting gas ranges, heaters, &c	521,915	June 26	2066	496	67	1625
Page, Carter H., Jr., assignor to United Gas Improvement Company, Philadelphia, Pa. Apparatus for heating water	521,916	June 26	2068	496, 497	67	1625
Page, Carter H., Jr., assignor to United Gas Improvement Company, Philadelphia, Pa. Apparatus for heating water	521,917	June 26	2070	497	67	1626
Paige, James H., assignor of one-half to G. S. Varney, Manchester, N. H. Picker-motion for looms	518,424	Apr. 17	1713	426, 427	67	346
Page, Willard C., *et al.* (See Locke, Fred M., assignor.)						
Paget, Leonard, assignor of one-half to C. J. Kintner, New York, N. Y. Dynamo or magneto electric machine	522,083	June 26	2369	570	67	1680
Paillard & Co., M. J. (See Langfelder, Henry, assignor.)						
Pain, Henry J., New York, N. Y. Pyrotechnic device	519,159	May 1	395	95	67	613
Paine, Charles H., and N. S. Hoffman, Brainerd, Minn. Paper-roll holder	519,343	May 8	745	184	67	695
Paine, George H. (See Carlisle, William N., assignor.)						
Palm, Elmer E., Reading, Pa. Pipe-organ	520,167	May 22	2166	527	67	982
Palmberg, Andreas J., Boston, Mass. School desk and seat	520,702	May 29	3070	743	67	1166
Palmer, Alonzo, Centreville, Mich. Flour-caddy	518,271	Apr. 17	1442	360	67	297
Palmer, Charles H., Amesbury, Mass. Carriage-axle	519,732	May 15	1420	343	67	831
Palmer, Chester M., assignor of one-third to J. M. Palmer, Lamartine, Wis. Animal-shears	520,331	May 22	2433	592	67	1033
Palmer, Dennis W. (See Wonson and Palmer.)						
Palmer, George H., U. S. Army. Soldier's field equipment	518,856	Apr. 24	2449	607	67	491
Palmer, James R., Jr. (See Phillips, Harry C., assignor.)						
Palmer, John M. (See Palmer, Chester M., assignor.)						
Palmer, Lafayette. (See Wright, William A., assignor.)						
Palmleaf, Charles, Seattle, Wash. Dish-cleaner	520,829	June 5	135	29	67	1222
Paoli, John, Hoboken, N. J. Hand-level	518,678	Apr. 24	2150	537	67	439
Parham, Marshall E., Burr Oak, Mich. Mole-trap	517,824	Apr. 3	675	168	67	131
Park, Edwin H. (See Knowles and Park.)						
Park, George W., Quincy, Mass. Cleansing-brush	520,449	May 29	2628	636	67	1086
Parker, Andrew H., Evanston, Ill. Suspensory	521,176	June 12	755	177	67	1347
Parker, George E. (See Tiffany and Parker.)						
Parker, George W., New York, N. Y. Book-rack	518,573	Apr. 17	1967	486	67	390
Parker, George W., Minneapolis, Minn. Garment-supporter	518,964	May 1	43	11	67	544
Parker, Homer N., assignor of one-half to O. Mason, Winchendon, Mass. Vehicle-wheel	519,382	May 8	832	202	67	712
Parker, James M., McAdensville, N. C. Turbine water-wheel	521,386	June 12	1126	265, 266	67	1417
Parker, James W., Viola, Ill. Check-row corn-planter	520,862	June 5	197	44	67	1233
Parker, John M., Pawtucket, R. I. Loop-banding machine	518,425	Apr. 17	1744	427, 428	67	346
Parker, John M., Pawtucket, R. I. Machine for automatically turning bobbins, spools, &c.	519,967	May 15	1792	440, 441	67	901
Parker, Theodore R. (See Dart and Parker.)						
Parker, William H., assignor to J. T. Strickland, Roanoke, Va. Bed-brace	518,696	Apr. 24	2179	545	67	444
Parker, William H., assignor to J. T. Strickland, Roanoke, Va. Bed-brace	518,697	Apr. 24	2180	545	67	444
Parkhurst, Edward G., Hartford, Conn. Sight for ordnance	520,075	May 22	1985	486, 487	67	950
Parkinson, John, Sr., assignor of one-half to J. Parkinson, Jr., and G. Schmidt, Philadelphia, Pa. Apparatus for manufacturing car-wheels	522,084	June 26	2371	570	67	1680
Parks, Charles E., and L. Mollart, Watertown, Wis.; said Mollart assignor to said Parks. Stapling and cutting machine	517,586	Apr. 3	276	63, 64	67	54
Parks, Charles E., and L. Mollart, Watertown, Wis.; said Mollart assignor to said Parks. Stapling and cutting machine	517,587	Apr. 3	278	64, 65	67	55
Parman, William S., assignor of one-half to W. R. Adams and J. F. Farrer, Stillwater, Okla. Ter. Fire-escape	518,272	Apr. 17	1444	361	67	297

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Parrish, Thomas K., Richmond, Va. Manufacture of wooden vessels	518,158	Apr. 10	1229	309	67	240
Parry, Denis. (See Hall and Parry.)						
Parson, Edward A., assignor of one-half to H. Millar, Ottawa, Canada. Multiple-electric-fuse box	520,378	May 22	2517	609	67	1049
Parsons, Joseph A., Rocky River, Ohio. Coin-controlled photograph apparatus	519,872	May 15	1646	400	67	873
Parsons, Romeyn C., Grand Ledge, Mich. Dress-goods rack	520,494	May 29	2712	657	67	1100
Parsons, Winslow R., Chicago, Ill. Attachment-holder for sewing-machines	519,134	May 1	344	82	67	604
Partington, Richard, Patchogue, N. Y. Cloth sizing and drying machine	519,200	May 1	465	114	67	627
Partridge, Charles C., Hyde Park, Mass. Device for liberating animals	519,201	May 1	467	114	67	627
Partridge, Charles C., Hyde Park, Mass. Scarf-pin	520,610	May 29	2901	701	67	1136
Partridge, Charles C., Hyde Park, Mass. Reel	521,245	June 12	873	206	67	1369
Passmore, Everett G., Haverford, Pa. Bearing for shafts of lawn-mowers	518,468	Apr. 17	1799	445	67	361
Patchin, William E., Rochester, N. Y. Damper	520,495	May 29	2713	657	67	1100
Patent Gully Company. (See Crosta, Lorenzo W., assignor.)						
Patterson, Charles M. and H. B., Chicago, Ill. Display-rack for wall-paper	522,085	June 26	2372	571	67	1681
Patterson, Herbert B. (See Patterson, Charles M. and H. B.)						
Patton, George M., assignor of one-half to J. Karrer, Canton, Ohio. Anchor for sheet-metal roofing	517,963	Apr. 10	909	227	67	187
Pattosien, William J., *et al.* (See Schneider, George L., assignor.)						
Paul, A. R., *et al.* (See Schneider, George L., assignor.)						
Paul, Gus A., *et al.* (See Schneider, George L., assignor.)						
Paul, Henry, Forreston, Ill. Combined hand-cutter and feeder	518,159	Apr. 10	1231	309	67	240
Paulsen, Theodore C., Chicago, Ill. Rail connection	517,884	Apr. 10	763	190	67	161
Pauly, Joseph, and M. Michels, Chicago, Ill. Fire-ladder	517,932	Apr. 10	843	212; 213	67	176
Paxton, John B., and E. I. O'Neill, Philadelphia, Pa. Fashioning device for circular-knitting machines	521,218	June 12	825	193; 194	67	1360
Payne, Cyrus A., *et al.* (See Wallace, Charles, assignor.)						
Payne, Thomas O., Vicksburg, Miss. Fire-blower	519,733	May 15	1421	343	67	831
Peabody & Co., Henry W. (See Hirt, Louis J., assignor.)						
Peacock, James H. (See Van De Water, Charles, assignor.)						
Pearce, John S., *et al.* (See Caswell, Richard H., assignor.)						
Pearce, William J., Pilot Point, Tex. Hay-press	518,965	May 1	44	12	67	544
Pearse, Frank. (See Hall and Pearse.)						
Pearson, James T., Burnley, England. Means and apparatus for humidifying fibrous substances	520,703	May 29	3072	743	67	1167
Pearson, William A., Schenectady, N. Y. Making car-wheels	521,321	June 12	1011	238	67	1394
Pease, Lewis E., Abington, Mass. Life-saving apparatus	518,857	Apr. 24	2450	607	67	491
Pecht, John B., assignor to C. Banmert, New York, N. Y. Machine for molding Neufchâtel cheese	518,625	Apr. 24	2050	510	67	420
Peck, George W., assignor to Miner & Peck Manufacturing Company, New Haven, Conn. Drop-press	518,353	Apr. 17	1598	395	67	325
Peck, Horace B., *et al.* (See Harris, Levi, assignor.)						
Peck, Ira F. (See Keith, Jeremiah, assignor.)						
Peck, Luke R., assignor of one-half to R. G. Steel, St. John's, Mich. Incandescent-lamp socket	521,322	June 12	1012	238	67	1394
Peck, Royal H., *et al.* (See Boomhower, Eli E., assignor.)						
Peck, Stow & Wilcox Company. (See Shepard, Amos, assignor.)						
Pegram, T. C. (See McLaughen and Gallant, assignors.)						
Peirce, Edward A., *et al.* (See Brooks, Stephen H., assignor.)						
Pelkey, William H., and A. St. Louis, assignors of one-third to G. M. Fuller, Fair Haven, Vt. Molding metal	520,076	May 22	1991	.....	67	951
Pell, Harry S., Akron, Ohio, assignor to Sterling Company, Chicago, Ill. Steam-boiler	518,858	Apr. 24	2451	607	67	491
Pellas, Francisco A. (See Elieson, Chaimsonovitz P., assignor.)						
Peltier, Alphonse, Brooklyn, N. Y. Fly-trap	521,219	June 12	830	194	67	1360
Pelton, Francis A., assignor of one-half to C. J. White, New Britain, Conn. Pipe-hanger	518,825	Apr. 24	2409	596	67	483
Pelton, George W., Appleton, Wis. Cow-milker	520,398	May 22	2545	615	67	1055
Penberthy Injector Company. (See Desmond, John, assignor.)						
Pendleton, John H., Brooklyn, assignor to R. D. Harris, New York, N. Y. Speed-gearing	520,801	June 5	77	17	67	1211
Penfield & Son, J. W. (See Wallace, William W., assignor.)						
Penn, Frederick J., and J. Deeley, Sr., Birmingham, England. Breech-bolt	522,121	June 26	2430	584	67	1691
Pennink, Johan M. K., Haarlem, Netherlands. Truck	518,535	Apr. 17	1905	471; 472	67	380
Peple, Charles A. (See Peple, Gustavus A. and C. A.)						
Peple, Gustavus A. and C. A., assignors to Mayo Tobacco Drying and Ordering Company, Richmond, Va. Moistening-chamber for tobacco-ordering apparatus	517,825	Apr. 3	676	168	67	131
Percy, Archibald A., Glasgow, Scotland. Cover for tobacco-pipes	521,864	June 26	1966	475	67	1605
Perkins, Albert, Chicopee, Mass., assignor to A. G. Spalding & Brothers, New York, N. Y., and Lamb Knitting Machine Manufacturing Company, Chicopee, Mass. Pedal	520,009	May 15	1864	456	67	913
Perkins, Gardner H., Cazenovia, N. Y. Fence	520,217	May 22	2253	548	67	998
Perkins, George H., assignor of one-half to Atlantic Refining Company, Philadelphia, Pa. Heater for soldering-irons, &c	519,305	May 1	661	160	67	665
Perkins, George H., assignor of one-half to Atlantic Refining Company, Philadelphia, Pa. Oil-valve	519,306	May 1	663	161	67	665
Perkins, George H., assignor to Atlantic Refining Company, Philadelphia, Pa. Apparatus for filling cans	519,307	May 1	665	161	67	666
Perkins, Miles O., Galveston, Tex. Rail-joint	521,667	June 19	1628	381	67	1525
Perky, Henry D., Denver, Colo., assignor to Cereal Machine Company, of Colorado. Machine for the manufacture of food products from cereals	520,496	May 29	2714	657; 658	67	1101
Perky, Henry D., Denver, Colo., assignor to Cereal Machine Company, of Colorado. Machine for the manufacture of food products from cereals	521,810	June 26	1881	450	67	1589
	521,774	June 19	1829	435	67	1561
Perl, John E., Osage Mission, Kans. Animal-spreader	520,450	May 29	2629	636	67	1086
Pero, George W., West New Brighton, assignor of one-half to C. Kipper, Tompkinsville, N. Y. Axle-lubricator						
Perrin, Frederic S. (See Lane and Perrin.)						
Perry, Austin E., Wakefield, assignor to G. H. P. Flagg, Boston, Mass. Knife-holder for sole-rounding machines	518,789	Apr. 24	2345	581	67	472
Perry, Austin E., Wakefield, assignor to G. H. P. Flagg, Boston, Mass. Leather-skiving machine	518,790	Apr. 24	2346	581; 582	67	473
Perry, E. E., *et al.* (See Schenerecker, Joseph, assignor.)	520,077	May 22	1991	487	67	951
Perry, Edward L., Paterson, N. J. Steam-trap	521,246	June 12	874	207	67	1369
Perry, Edward L., Paterson, N. J. Hollow rubber article						
Perry, O. H., *et al.* (See Schenerecker, Joseph, assignor.)						
Petersen, Richard N. B., Vinton, Iowa. Ink-fountain for ruling-machines	519,025	May 1	139	34	67	563

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Peterson, Charles, Dublin, Ireland. Tobacco-pipe	519,135	May 1	346	82	67	604
Peterson, Karl. (See Holmes and Peterson.)						
Peterson, Peter, Chicago, Ill. Dump-car	522,026	June 26	2279	546	67	1662
Petit, Julius C., Fort Worth, Tex. Womb-battery	520,895	June 5	260	62	67	1245
Pettee, John W. (See Hersh, Woodward, and Pettee.)						
Pettee Machine Works. (See Hunton, Robert W., assignor.)						
Petterson, Per E., Minneapolis, Minn. Electric belt	518,894	Apr. 24	2524	624	67	506
Pew, John O., North Bloomfield, Ohio. Fastening for metallic roofs	521,572	June 19	1468	343	67	1495
Pfetch, Jacob F. (See Dutton and Pfetch.)						
Pfister, Joseph H. (See Kratz, John, assignor.)						
Phares, George N., Sheridan, Ind. Brick and tile kiln	517,883	Apr. 10	761	190	67	161
Phelps, Artemas. (See Baker, Artemas, assignor.)						
Phelps, Edwin S., Leavenworth, Kans. Time-lock	520,392	May 22	2434	592; 593	67	1033
Phelps, John M., *et al.* (See Enchenhofer, Weinman, and Stevens, assignors.)						
Phelps, John M., *et al.* (See Stevens, Alfred L., assignor.)						
Phillipps, Martin, Williamsville, N. Y. Transposing-keyboard for musical instruments	519,071	May 1	227	53, 54	67	579
Phillips, James J. E., Brooklyn, N. Y., assignor to Empire City Subway Company, Limited. Electric subway	521,125	June 5	658	155	67	1316
	521,041	June 5	520	123	67	1291
Phillipson, Sigmund, Austin, Tex. Cigar-package	520,571	May 29	2836	685	67	1123
Phillips, David E., Mahanoy City, Pa. Revoluble screen	520,497	May 29	2716	658	67	1101
Phillips, Elwood C., Chicago, Ill. Apparatus for affixing stamps, labels, &c	521,889	June 26	2005	484	67	1614
Phillips, Harry C., assignor of one-half to J. Palmer, Jr., Rochester, N. Y. Game-counter	517,659	Apr. 3	415	100	67	80
Phillips, John E., Syracuse, N. Y. Fence	520,572	May 29	2838	685	67	1124
Phillips, Thomas R., *et al.* (See Quackenbush, George, assignor.)						
Phillips, Walter S., Brooklyn, N. Y. Dumping-wagon	521,439	June 12	1222	289; 290	67	1434
Phillips, William A., U. S. Army, assignor of one-half to T. J. Porter, Miles City, Mont. Lamp	518,966	May 1	46	12	67	544
Phillips, William A., and J. B. Entz, Bridgeport, Conn., assignors to Waddell-Entz Company of West Virginia. Storage-battery	520,078	May 22	1992	487	67	951
Phillips, William H., Jenkintown, assignor to Breuil-Phillips Manufacturing Company, Philadelphia, Pa. Rail-bending tool	520,270	May 22	2340	567; 568	67	1015
Phillips, William R., Milford, Del. Shipping-rack and frame for cars						
Phonoharp Company. (See Batchelder, William W., Jr., assignor.)						
Piccott, Enoch. (See Staples, John H., assignor.)						
Pickett, George W., assignor of nine-sixteenths to S. Lesem, Denver, Colo. Rock-drill	519,202	May 1	469	114; 115	67	628
Pickett, George W., assignor of nine-sixteenths to S. Lesem, Denver, Colo. Rock-drill	519,290	May 1	627	153; 154	67	659
Pickett, Joseph, New Hope, Pa. Snap-hook	521,387	June 12	1127	266	67	1417
Pickles, Charles K., St. Louis, Mo. Furnace-door	521,447	June 12	1242	293	67	1438
Piepenbring, Edward, Washington, D. C. Stilt	521,811	June 26	1882	450	67	1589
Pierce, Andrew J., assignor to Pierce Engine Company, Racine, Wis. Governor	519,412	May 8	867	209; 210	67	718
Pierce Engine Company. (See Pierce, Andrew J., assignor.)						
Pierce, Joseph H., and A. J. Dickson, Glenwood Springs, Colo. Pneumatic tire	520,536	May 29	2777	672	67	1112
Pierce, Octavius, assignor to Underwriters Fire Sprinkler Company, Chicago, Ill. Automatic sprinkler-head	519,846	May 15	1600	391	67	865
Pierce, W. Frank. (See Merrick, George H., assignor.)						
Pierce, W. Frank. (See Schroeder, Richard D., assignor.)						
Pihlstrom, John S. (See Wemple, Andrew, assignor.)						
Pike, Sherman B., *et al.* (See Ruebel, Ernst, assignor.)	519,389	May 8	833	202	67	712
Pilcher, John V., Louisville, Ky. Automatic coupler for pneumatic organs	521,042	June 5	520	123	67	1291
Pilcher, John V., Louisville, Ky. Button	521,418	June 12	1178	280	67	1427
Pilcher, John V., Louisville, Ky. Button						
Pilgram, Ernst A. (See Weyhe, Hermann C. W., assignor.)						
Pinkham, Frederick S., Everett, assignor, by mesne assignments, to A. J. Robinson, Boston, Mass. Clasp for smocking cloth	520,704	May 29	3073	744	67	1167
Pinkham, Frederick S., Everett, Mass., assignor to Pinkham Manufacturing Company, of Maine. Casket-lining	521,419	June 12	1179	280	67	1427
Pinkham Manufacturing Company. (See Pinkham, Frederick S., assignor.)						
Pioneer Thrasher Company. (See Rhodes, John W., assignor.)						
Pipes, William S., and F. T. Guiher, Waynesburg, Pa. Bicycle-support	518,698	Apr. 24	2181	545	67	444
Pirsch, Franz, Brooklyn, N. Y. Making resinates of metals	521,270	June 12	917	.....	67	1377
Pittsburg Plate Glass Company. (See Ford, Edward, assignor.)						
Place, James F., Montclair, N. J., assignor to C. S. Upton, New York, N. Y. Oil-stove	520,498	May 29	2719	658	67	1101
Place, James F., Montclair, N. J., assignor to C. S. Upton, New York, N. Y. Oil stove and lamp	520,499	May 29	2721	659	67	1101
Platt Brothers & Company. (See Richardson and Fidler, assignors.)						
Platt, Irving G., Waterbury, Conn. Button-setting machine	517,622	Apr. 3	337	79	67	66
Platt, Irving G., Waterbury, Conn. Mechanism for assembling button parts	520,999	June 5	443	106	67	1277
Plecker, William J., Peoria, Ill. Bending-machine	518,765	Apr. 24	2307	573	67	465
Plecker, William J., Peoria, Ill. Punch	518,766	Apr. 24	2310	574	67	466
Plecker, William J., Peoria, Ill. Conductor-pipe and joining edges of same	518,767	Apr. 24	2311	574	67	466
Plodeck, Paul, Sr., Cleveland, Ohio. Closed conduit for electric railways	520,938	June 5	346	84	67	1260
Plowman, Joseph G., and H. E. Kittell, White Pigeon, Mich. Grain-cleaner	520,333	May 22	2444	593	67	1035
Plume & Atwood Manufacturing Company. (See Atwood, Lewis J., assignor.)						
Plummer, John E., Waterville, N. Y. Bed-rest	517,623	Apr. 3	338	80	67	66
Plummer, William S., assignor of one-third to A. M. Morse, St. Louis, Mo. Smokeless boiler-furnace	518,160	Apr. 10	1234	310	67	240
Poché, Simeon A., Donaldsonville, La. Evaporating-pan	517,765	Apr. 3	590	145	67	114
Pocock, Francis A., Scranton, Pa. Traction device for canals	521,865	June 26	1967	475	67	1605
Pohlman, James. (See Brindle, Robert, assignor.)						
Polhamus, Albert A., San Diego, Cal. Method of and apparatus for preserving piles	518,354	Apr. 17	1599	395; 396	67	325
Polivka, Thomas, assignor to American Mosaic Brick and Tile Company, Chicago, Ill. Kiln for baking bricks, tiles, pottery, &c	519,344	May 8	746	184; 185	67	695
Pollard, William B., Hot Springs, Ark. Device for administering medicines	518,161	Apr. 10	1237	310	67	241
Pollock, Walter W. (See Griffin, Ellsworth, assignor.)						
Polte, Hubert, Remscheid-Hasten, Germany. Apparatus for coiling wire	517,964	Apr. 10	910	227; 228	67	187
Polukanis, Jerzy, Bloomfield, N. J. Organ	519,925	May 15	1724	423	67	888

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Pomeroy, Harry D. (See Barnes, Pomeroy, and Keyes.)						
Pomeroy, Le Dru R., Cleveland, Ohio, assignor to Van Wagoner & Williams Hardware Company, Jersey City, N. J. Spring-hinge	518,626	Apr. 24	2054	511	67	421
Pomtier, Henry. (See Mundry and Pomtier.)						
Ponten, Anders, New York, N. Y. Centrifugal butter-extractor	521,043	June 5	522	123	67	1292
Pool, James P., Brooklyn, N. Y. Boat-ballasting device	521,388	June 12	1128	266	67	1417
Poole, Benjamin. (See Foster, Lucian M., assignor.)						
Poole, George F., Cleveland, Ohio. Exercising-machine	518,967	May 1	48	13	67	545
Poole, Staley D., assignor to Deere & Company, Moline, Ill. Lister-cultivator	521,547	June 19	1424	331	67	1487
Poole, Staley D., assignor to Deere & Company, Moline, Ill. Wheel-cultivator	521,548	June 19	1425	331	67	1487
Poole, Staley D., assignor to Deere & Company, Moline, Ill. Device for attaching cultivator-shovels	521,549	June 19	1427	331	67	1487
Poor, George H., Boston, Mass. Mechanism for raising or lowering berths	520,760	May 29	3159	765, 766	67	1182
Pope, Edwin, Quebec, Canada. Printing-telegraph	521,550	June 19	1428	332, 333	67	1488
Pope, Harry M. Hartford, Conn., assignor to Pope Manufacturing Company, Boston, Mass. Dust-guard for pedal-bearings	520,537	May 29	2779	672	67	1112
Pope, John L., Cleveland, Ohio. Paving-block	519,873	May 15	1649	401	67	873
Pope Manufacturing Company. (See Day, George H., assignor.)						
Pope Manufacturing Company. (See Pope, Harry M., assignor.)						
Pope, Wallace M., Cincinnati, Ohio, assignor to Ault & Wiborg Company, of Ohio. Composition of matter	521,177	June 12	757	.....	67	1347
Porteous, James, Fresno, Cal. Harrow	522,086	June 26	2373	571	67	1681
Porter, Arthur T., assignor to United States Projectile Company, Brooklyn, N. Y. Process of and apparatus for making gear-wheels	521,178	June 12	757	177, 178	67	1347
Porter, Arthur T., assignor to United States Projectile Company, Brooklyn, N. Y. Making dies for gear-forging	521,179	June 12	760	178	67	1348
Porter, Charles T., Montclair, N. J. Steam-engine	517,982	Apr. 10	936	234, 235, 236	67	191
Porter, Charles T., Montclair, N. J. Steam-engine	517,983	Apr. 10	941	236, 237	67	192
Porter, George W. (See Blanchard and Lambie, assignors.)						
Porter, Henry K., Boston, Mass. Bolt-clippers	520,896	June 5	262	63	67	1245
Porter, Joseph E., Ottawa, Ill. Hay-carrier and track	518,895	Apr. 24	2525	624	67	506
Porter, Joseph E., Ottawa, Ill. Hay elevator and carrier	519,270	May 1	591	143	67	652
Porter, Samuel G. (See Fearn, Otis E., assignor.)						
Porter, Thomas J. (See Phillips, William A., assignor.)						
Post, Andrew D., assignor of one-half to G. E. Post, Keyport, N. J. Oyster-dredge	521,918	June 26	2072	497	67	1626
Post, Garret E. (See Post, Andrew D., assignor.)						
Post, George E., Newark, N. J. Blacksmith's forge	519,072	May 1	230	54	67	580
Postlethwaite, Frederic B., Natchez, Miss. Strainer attachment for barrels	520,168	May 22	2167	527	67	982
Potteiger, Henry W., and W. A. Kohman, Reading, Pa. Photograph-display cabinet	521,668	June 19	1629	381	67	1525
Potter, Albertus D. (See Dennis, Henry P., assignor.)						
Potter, F. M. (See Billings, George W., assignor.)						
Potter, Hobart B., Hilburn, N. Y. Toilet soap server	517,624	Apr. 3	340	80, 81	67	66
Potter, James C., Pawtucket, R. I. Carding-engine	519,640	May 8	1272	305, 306	67	789
Potter, James C., Pawtucket, R. I. Evening mechanism for cotton-openers, &c	520,334	May 22	2447	594	67	1035
Potter, Winfield S., St. Paul, Minn. Extracting impurities from hematite ores	518,510	Apr. 17	1861	462	67	372
Pottle, George F., Medford, Mass. Corner and hinge piece for trunks	522,182	June 26	2538	609	67	1712
Poulson, Niels, Fort Hamilton, N. Y. Column	521,320	June 12	1009	237	67	1393
Powell, Frank A. (See Lemke, Charles M., assignor.)						
Powell, John R., Plymouth, Pa. Miner's squib	518,609	Apr. 24	2182	545	67	444
Power, Nicholas, assignor to P. Braender, New York, N. Y. Fluid-ejector	519,618	May 8	1232	296	67	783
Power, William A., assignor of one-half to P. M. Thomas, Charlotte, Mich. Automatic tension-regulator	519,617	May 8	1230	295	67	782
Powers, James, New York, N. Y. Machine for cutting toothpicks	517,625	Apr. 3	342	81	67	67
Powers, Lyman A., assignor of one-half to H. E. Roethe, Fennimore, Wis. Dust-pan	518,273	Apr. 17	1445	361	67	297
Powter, Nathaniel B., New York, N. Y. Phosphatic fertilizer	517,661	Apr. 3	417	.....	67	80
Powter, Nathaniel B., New York, N. Y. Making fertilizers	517,662	Apr. 3	418	.....	67	80
Pozdena, Gustave, and F. Churan, Chicago, Ill. Fire-mask	521,939	June 26	2115	507	67	1634
Prahar, Louis B., Brooklyn, N. Y. Corner or frame for pocket-books, &c	520,705	May 29	3074	744	67	1167
Praray, Charles A., assignor of one-half to C. R. Makepeace, Providence, R. I. Building	518,274	Apr. 17	1446	361	67	297
Pratt, Eugene O. (See Field and Pratt.)						
Pratt, Nat. W., Brooklyn, N. Y. Device for fastening hand-hole plates	517,885	Apr. 10	763	190, 191	67	102
Pray, Samuel D. (See Moore, Harvey A., assignor.)						
Premo, Albert, Springfield, Mass. Anti-vibratory pressure-bar for woodworking machinery	521,346	June 12	1068	250	67	1405
Prentice, Chalmer M. C., Watertown, S. D. Apparatus for testing eyes	522,027	June 26	2279	546, 547	67	1663
Prentiss Clock Improvement Company. (See Prentiss, Henry S., assignor.)						
Prentiss, Henry S., Elizabeth, N. J., assignor to Prentiss Clock Improvement Company, New York, N. Y., and Jersey City, N. J. Electric synchronizer for clocks	517,480	Apr. 3	109	24, 25	67	23
Prescott, Joseph D., Boston, assignor of one-half to C. H. Wilder, Chelsea, Mass. Oar-lock	521,890	June 26	2006	484	67	1614
Pressey, Jeremiah M., Cleveland, Ohio. Device for producing respiration	517,481	Apr. 3	111	25	67	23
Prest, John E., Whitinsville, Mass. Apparatus for controlling the grinding of flats of carding-engines	519,771	May 15	1478	358, 359	67	841
Preston, Benjamin, deceased, Batley, England; W. D. Baldwin, Washington, D. C., administrator, and assignor to H. Preston, Batley, England. Milling and fulling machine	521,126	June 5	660	155, 156	67	1316
Preston, Hannah. (See Preston, Benjamin, assignor.)						
Preston, John D., Taylorville, assignor of one-half to J. T. Ross, Litchfield, Ill. Composition of matter for plaster	519,548	May 8	1112	.....	67	762
Preusse, Carl E., Leipsic, Germany. Machine for printing and dividing endless lengths of paper	520,010	May 15	1865	456, 457	67	913
Price, C. W. (See Thompson, Ralph P., assignor.)						
Price, Charles D., *et al.* (See Fletcher, Florence M., assignor.)						
Price, David D., and R. J. Daniels, Chicago, Ill. Vehicle	520,830	June 5	136	30	67	1222
Price, Gomer W., San Francisco, Cal. Centrifugal pump	517,529	Apr. 3	182	41	67	37
Price, James M., Philadelphia, Pa., assignor to Price Railway Appliance Company, of Pennsylvania. Girder joint for railway-rails	517,660	Apr. 3	416	101	67	80
Price, James M., Philadelphia, Pa., assignor to Price Railway Appliance Company, of Pennsylvania. Substructure for railway-rails	519,772	May 15	1480	359	67	841

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Price, John G. (See Smith and Price.)						
Price Railway Appliance Company. (See Price, James M., assignor.)						
Price, Walter B., San Francisco, Cal. Purifying illuminating-oils	522,028	June 26	2282	.....	67	1663
Pride, William H., Springfield, Ill. Tile-machine	519,773	May 15	1481	359	67	842
Priest, Edward D., Lynn, assignor to General Electric Company, Boston, Mass. Coupling for electric locomotives	521,669	June 19	1630	382	67	1525
Priest, Joseph K., Nashua, N. H. Hair-clipper. (Reissue)	11,411	Apr. 10	1340	334	67	262
Priestley, Joseph, McKinney, Tex. Combined stalk-cutter and rake	517,766	Apr. 3	590	145	67	114
Probert, Francis E. (See Schoff, Finkel, and Probert.)						
Procter, Alfred S., Denver, Colo. Sack-fastener	518,574	Apr. 17	1968	486	67	391
Proctor, George E., Washington, D. C. Bedstead	517,482	Apr. 3	111	25	67	23
Prox, Frank, Terre Haute, Ind. Steam-boiler	521,812	June 26	1884	450, 451	67	1589
Pruden, Abraham B. (See Jägel, Smith, and Pruden.)						
Pruyn, Henry S., Hoosick Falls, N. Y., assignor to J. S. Gibbs, Chicago, Ill. Electric railway	517,886	Apr. 10	765	191	67	102
Puckett, Ora G. (See Bricker, Solomon E., assignor.)						
Puech, Cécile L., Mazamet, France. Process of and apparatus for unhairing skins	519,345	May 8	748	185	67	696
Pugh, Andrew J., Bowling Green, Mo. Tobacco-pipe	519,641	May 8	1274	306	67	790
Pullman, Herbert S., Meriden, Conn. Oil-regulator for continuously-fed lamps	520,611	May 29	2903	701	67	1136
Pumpelly, James K. (See Sorley and Pumpelly.)						
Pumpelly-Sorley Storage Battery Company. (See Sorley and Pumpelly, assignors.)						
Pupin, Michael I., New York, N. Y. Apparatus for telegraphic or telephonic transmission	519,346	May 8	751	185	67	696
Pupin, Michael I., New York, N. Y. Transformer for telegraphic, telephonic, or other electrical systems	519,347	May 8	757	185	67	697
Pupke, Eberhard L., New York, N. Y. Eyelet	520,538	May 29	2780	672	67	1112
Purcell, Walter A., Newark, N. J. Electric time-signaling system and apparatus	522,029	June 26	2283	547	67	1663
Purdy, Arthur F., Lawrence, Cal. Book for stamps	520,399	May 22	2546	615	67	1055
Purser, William H. (See Morrison and Purser.)						
Purvis, William B., assignor of one-half to H. J. Tibbals, Philadelphia, Pa. Electric railway	519,291	May 1	631	154	67	659
Purvis, William B., Philadelphia, Pa., assignor to Eastern Paper Bag Company, Hartford, Conn. Paper-bag machine	519,348	May 8	759	186	67	697
Purvis, William B., Philadelphia, Pa., assignor to Eastern Paper Bag Company, Hartford, Conn. Paper-bag machine	519,349	May 8	763	187	67	698
Putnam, Benjamin W. (See Hooker and Putnam.)						
Putnam, George W., Lynn, Mass. Fire-curtain or fire-barrier	520,218	May 22	2254	548, 549	67	998
Putnam, Waldo D., assignor of one-half to W. H. Wilkinson, Boston, Mass. Die stock or holder	519,734	May 15	1492	343	67	831
Putnam, William H., Durand, Mich. Mattress-filling machine	519,203	May 1	472	115	67	628
Putt, Harry M., assignor of one-half to W. M. Benson, Huntingdon, Pa. Stove-truck	521,127	June 5	662	156	67	1317
Quackenbush, George, assignor of two-thirds to A. C. Knight and T. R. Phillips, Whitehall, Wis. Elevator	519,292	May 1	633	154	67	660
Quast, Charles, Marion, Ohio. Traction-engine	521,958	June 26	2217	533, 534	67	1651
Queen & Company. (See Northrup, Edwin F., assignor.)						
Quentell, Carl A., New Orleans, La. Mustache-guard for spoons	518,116	Apr. 10	1168	293	67	230
Quentell, William P., Kansas City, Mo. Type-writing machine	517,663	Apr. 3	419	101, 102	67	80
Quigley, Walter C., *et al.* (See Conant, George P., assignor.)						
Quinby, Harry D., assignor to R. M. Quinby, Denver, Colo. Enameling sheet metal and compound therefor	519,968	May 15	1798	.....	67	901
Quinby, I. W. (See Quinby, Jesse C., assignor.)						
Quinby, Jesse C., Norway Ridge, Wis., assignor of one-half to I. W. Quinby, Wilmington, Ohio. Fence	518,896	Apr. 24	2527	625	67	506
Quinby, Rosalie M. (See Quinby, Harry D., assignor.)						
Quincy Storm Apron Company. (See Blanchard, William M., assignor.)						
Quinn, John F., New York, N. Y. Composition for artificial fuel	521,180	June 12	762	.....	67	1348
Quinn, Martha P. (See Longinus, Joseph, assignor.)						
Quint, Alanson D., Hartford, Conn. Turret-head machine	520,079	May 22	1993	487, 488	67	952
Raber, Nathan L., Corvallis, Oreg. Amalgamator	517,767	Apr. 3	592	145, 146	67	114
Rabiger, Emil. (See Rabiger, Robert and E.)						
Rabiger, Robert and E., Philadelphia, Pa. Cigar-tip cutter and dice-throwing apparatus	518,469	Apr. 17	1800	445	67	361
Radcliffe, Charles, Newark, N. J. Button	520,897	June 5	263	63	67	1245
Radick, Mary E., White Plains, N. Y. Cover for frying-pans, &c	517,708	Apr. 3	497	119	67	96
Rahr, Reinhardt, Manitowoc, Wis. Making coffee substitutes	521,509	June 19	1364	.....	67	1477
Ramage, Florence A., *et al.* (See Biette, Henry C., assignor.)						
Ramsey, James W., assignor of two-thirds to I. A. Hall and J. O. Harkless, Cairo, Ill. Car-coupling	518,355	Apr. 17	1600	396	67	326
Rand, Horace S., *et al.* (See Lyon, William, assignor.)						
Rand, Waldron H. (See Rand, William B. and W. H.)						
Rand, William B. and W. H., Boston, Mass. Bottle	520,219	May 22	2256	549	67	999
Randall, Alfred H., Jr., Philadelphia, Pa. Cigar-vending machine	520,243	May 22	2293	556, 557	67	1006
Randall, David, *et al.* (See Boomhower, Eli E., assignor.)						
Randall, Frank J., assignor to Knapp & Stout Co. Company, St. Louis, Mo. Joist-crowning machine	519,682	May 8	1338	323	67	802
Randall & Son, P. D. (See Dutcher, William L., assignor.)						
Randall, Victor E., Burlington, Mich. Heating oil-stove	521,813	June 26	1885	451	67	1590
Randall, William P., Le Roy, N. Y. Wire-fence machine	518,426	Apr. 17	1722	420	67	347
Randleman, Martin C. (See Randleman, Zouave S. and M. C.)						
Randleman, Zouave S. and M. C., Carlisle, Iowa. Adjustable tongs, &c	519,774	May 15	1482	359	67	842
Randolph, Arthur D. F., New York, N. Y. Stand for photographs	518,073	Apr. 10	1095	276	67	216
Randolph, Arthur D. F., New York, N. Y. Photographic dark-box	518,074	Apr. 10	1096	277	67	216
Randolph, Arthur D. F., New York, N. Y. Photographic developing-tray	518,075	Apr. 10	1098	277, 278	67	216
Rankin, Edwin G., Monongahela City, and J. Tempest, Courtney, Pa. Brick-machine	519,590	May 8	1179	284, 285	67	774
Rankin, Sarah E. (See Mitchell, James O., assignor.)						
Ranney, Darwin D., assignor, by mesne assignments, to M. Turner, trustee, Lewistown, Ill. Machine for forming and soldering sheet-metal cans	518,375	Apr. 17	1642	405	67	333
Ranney, Fred. E., Greenville, Mich. Ice-rack for refrigerators	519,432	May 8	897	216	67	724

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ransom, Clarence. (See Marks and Ransom.)						
Ransome, Ernest L., Oakland, Cal. Manufacture of monolithic pipes in situ	517,808	Apr. 3	655	164	67	127
Ransome, Ernest L., Oakland, Cal. Illuminating-door	518,045	Apr. 10	1056	267	67	209
Ransome, Willie L., Roanoke, Va. Car-door	521,296	June 12	965	229	67	1385
Rantz, Edward, New Orleans, La. Machine for removing tin-foil from bottles	518,275	Apr. 17	1448	362	67	290
Rapp, Almire H., San Francisco, Cal. Concentrator	520,939	June 5	347	84	67	1260
Rappleyea, Nicholas. (See Stein and Rappleyea.)						
Rastetter, Louis, Fort Wayne, Ind. Spoke attachment for vehicle-wheels	518,627	Apr. 24	2058	511	67	421
Ratchford, Nicholas, Covington, Ohio. Switch and signal operating mechanism	519,735	May 15	1423	343, 344	67	831
Ran, Albert, Pforzheim, Germany. Appliance for molding concrete	518,076	Apr. 10	1099	278	67	217
Rau, Emannel, Brooklyn, N. Y. Machine for packaging seeds in envelopes	518,427	Apr. 17	1724	429, 430	67	348
Rau, Henry. (See Abbott and Rau.)						
Rau, John H., Cincinnati, Ohio. Vehicle-cover and support therefor	518,376	Apr. 17	1645	406	67	333
Rau, William J., Galveston, Tex. Car-fender	520,335	May 22	2448	594	67	1036
Raubold, Alfred A., Gremsmühlen, Germany. Water-motor	521,814	June 26	1888	451, 452	67	1590
Rave, Henry. (See Kraft, John U., assignor.)						
Rawdon, George L., Cleveland, Ohio. Type-writing machine	519,390	May 8	835	203	67	712
Rawhouser, George A., York, Pa. Oil-can	522,087	June 26	2374	571	67	1681
Rawlings, George H., St. Louis, Mo. Game-bag	519,271	May 1	592	144	67	652
Rawlings, George H., St. Louis, Mo. Fishing-float	522,167	June 26	2516	604	67	1708
Ray, Alfred E. A., London, England. Letter-case, portfolio, &c	518,628	Apr. 24	2060	512	67	421
Ray, Frank A. (See McConnell and Ray.)						
Raymond, Jean M., Paris, France. Composition of matter for vulcanizing rubber	518,046	Apr. 10	1057	.....	67	210
Raymond, John W., San Francisco, Cal. Apparatus for starting gas-engines	521,551	June 19	1433	333	67	1488
Raymond, Pierre A., Grenoble, France, assignor to Consolidated Fastener Company, Portland, Me. Lacing-stud fastener	519,817	May 15	1602	391	67	865
Raymond, Pierre A., Grenoble, France, assignor to Consolidated Fastener Company, Portland, Me. Process of and device for attaching lacing-studs	519,848	May 15	1603	391	67	865
Raymond, Silas H., Grand Rapids, Mich. Carpet-sweeper	518,210	Apr. 10	1336	333	67	261
Rayner, Thomas J., London, England. Evaporating apparatus	519,969	May 15	1799	441	67	901
Rea, Edward J., Washington, D. C. Steam-engine indicator	521,815	June 26	1889	452	67	1590
Reader, James H., Tyrone, Pa. Boiler	521,476	June 19	1302	304	67	1465
Ream, Frank L., and C. F. Herbolsheimer, Ladd, Ill. Earth-auger	519,642	May 8	1275	306	67	790
Reardon, Patrick W., Oakland, Cal. Curb and pavement	520,220	May 22	2258	549	67	999
Record, George J., Conneaut, Ohio. Nozzle for cans	521,989	June 26	2221	534	67	1652
Redlinger, Michael, and C. Morgan, assignors to Arcade Manufacturing Company, Freeport, Ill. Stovepipe-damper	520,379	May 22	2519	609	67	1050
Redlinger, Michael, and C. Morgan, assignors to A. Baumgarten, E. H. and C. Morgan, Freeport, Ill. Bolt-nut	520,802	June 5	79	17	67	1212
Redmond, Edmond, Rochester, N. Y. Printing attachment for bicycles	520,803	June 5	80	18	67	1212
Redmond, Henry, New York, N. Y. Picture-hanging device	520,706	May 29	3075	744	67	1167
Reece, John, Boston, Mass. Sewing-machine	520,657	May 29	2971	719	67	1148
Reed, Albert F., Guthrie, Iowa. Vise attachment for anvils	520,011	May 15	1867	457	67	913
Reed, Benjamin D., *et al.* (See McCall, Harry M., assignor.)						
Reed, Charles E., Chicago, Ill. Pattern tracing and cutting machine	520,500	May 29	2721	659, 660	67	1102
Reed, Charles F. (See Strong and Reed.)						
Reed, Charles J., Orange, N. J., assignor to Reed Electric Company, Philadelphia, Pa. Conduit electric railway	521,891	June 26	2007	484, 485	67	1614
Reed, Charles J., Orange, N. J., assignor to Reed Electric Company, Philadelphia, Pa. Conduit electric railway	521,892	June 26	2011	485	67	1615
Reed Electric Company. (See Reed, Charles J., assignor.)						
Reed, Eli S., and A. J. Stoops, Chattanooga, Tenn. Antifilling device for bottles, &c	520,831	June 5	138	30	67	1222
Reed, Franklin M., assignor of three-fourths to C. E. and W. A. Jones and W. H. Ziegler, Anderson, Ind. Hydrocarbon injector burner	518,897	Apr. 24	2528	625	67	507
Reed, Irvin H., Leadville, Colo. Detachable stock for hand-firearms	517,555	Apr. 3	229	52	67	45
Reed, Irvin H., Leadville, Colo. Girth-ring for saddles	521,552	June 19	1435	333	67	1489
Reed, Orlando E. (See Guy and Reed.)						
Reed, Warren B., New Orleans, La. Electric meter	521,089	June 5	601	142	67	1305
Reese, Jacob, Philadelphia, Pa. Utilizing iron ore	519,391	May 8	836	.....	67	712
Reeves, Arthur L., Jr., Hamilton, Canada. Paper box	519,005	May 1	108	26	67	556
Reeves & Co. (See Reeves, Marshal T., assignor.)						
Reeves & Co. (See Reeves and Kailor, assignors.)						
Reeves, Marshal T., assignor to Reeves & Co., Columbus, Ind. Straw-stacking machine	517,530	Apr. 3	184	42	67	38
Reeves, Marshal T., and J. N. Kailor, assignors to Reeves & Co., Columbus, Ind. Clover-huller feeder	521,347	June 12	1069	250	67	1406
Reeves, William W., Braddock, Pa. Mold for concrete burial-tombs	519,689	May 8	1350	326	67	804
Reffitt, Joseph, Leeds, England. Apparatus for dyeing	521,816	June 26	1891	453	67	1591
Regan, Patrick J., Iowa City, Iowa. Fire-alarm	521,919	June 26	2072	498	67	1626
Rehm, Jacob F., Chicago, Ill. Fruit cutting and pitting machine	517,588	Apr. 3	231	65	67	56
Reich, Freidrich H., Baltimore, Md. Safety car-fender	521,670	June 19	1632	382	67	1526
Reichart, Frederick. (See Odewahn and Reichart.)						
Reichmann, Joseph, Chicago, Ill. Valve device	517,589	Apr. 3	283	66	67	56
Reichmann, Joseph, Chicago, Ill. Hydraulic elevator	522,030	June 26	2286	547, 548	67	1664
Reid, George H. (See McFarland and Reid.)						
Reid, John, Yonkers, assignor to J. L. Mott Iron Works, New York, N. Y. Holder for toilet-paper	520,221	May 22	2259	550	67	999
Reid, John M., Jacksonville, Ill. Hook	520,539	May 29	2781	672	67	1113
Reid, Mary, Fairfax, Iowa. Dish-drainer	519,736	May 15	1425	344	67	831
Reid, Robert, Philadelphia, Pa. Hydrocarbon-burner	519,392	May 8	838	203	67	713
Reif, Charles, *et al.* (See Häfner, Carl, assignor.)						
Reilly, Michael E., Wallace, Idaho. Shade-roller	520,863	June 5	199	45	67	1233
Reinecker, Johannes G., Gablenz, near Chemnitz, Germany. Machine for manufacturing relieved-formed revolving tools	519,820	May 15	1558	381	67	857
Reingruber, Friedrich. (See Nastvogel and Reingruber.)						
Reinhardt, Edward M. (See Dunlap, William, assignor.)						
Reinhardt, James H., Newark, N. J., assignor to J. Wetter, Brooklyn, N. Y. Numbering-machine	521,000	June 5	445	106	67	1277
Reinhardt, James H., Newark, N. J., assignor to J. Wetter, Brooklyn, N. Y. Numbering-machine	521,001	June 5	446	106	67	1277

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Reinhold, Edwin L., *et al.* (See Werline, Henry E., assignor.)						
Reinus, Bernard, Paterson, N. J. Purifying tannic acid	517,626	Apr. 3	344	.....	67	67
Reisse, William, St. Louis, Mo. Pan-lifter	519,549	May 8	1113	267	67	762
Relyea, Charles H. W., North Adams, Mich. Car-coupling	518,745	Apr. 24	2279	566	67	460
Remick, Edward A., Newark, N. J., and P. Fleck, Long Island City, N. Y. Watchcase-spring	519,926	May 15	1726	423	67	888
Remmers, Bernhard, assignor of one-half to A. P. Mende, New York, N. Y. Purifying water	521,964	June 26	2167	520	67	1643
Reniker, James, Dennison, Ohio. Dust-pan	521,044	June 5	524	123	67	1292
Reno, Joseph. (See Bugbee and Reno.)						
Renton, George W., *et al.* (See Rothchild, Joseph, assignor.)						
Renter, Alexander L., *et al.* (See Farmer, Julius M., assignor.)						
Renter, Henry, *et al.* (See Farmer, Julius M., assignor.)						
Reuther, Wilhelm. (See Mélotte and Reuther.)						
Rex, Benjamin F., St. Louis, Mo. Electric railway-signal	518,511	Apr. 17	1863	462, 463	67	372
Reyels, Henry, and F. Ebert, Chicago, Ill. Machine for cutting and cleaning entrails	519,685	May 8	1343	324	67	803
Reynolds, Abram D. (See Fields, Charles C., assignor.)						
Reynolds, Bloomer A., Rochelle, Ill. Potato-digger	521,940	June 26	2115	507, 508	67	1635
Reynolds, David R., Philadelphia, Pa. Toy bank	519,643	May 8	1276	306	67	790
Reynolds, Edwin. (See Benn, Alfred R., assignor.)						
Reynolds, Edwin, Milwaukee, Wis. Means for centering face-plates for lathes	522,122	June 26	2431	584	67	1691
Reynolds, Ella J., *et al.* (See Reynolds, Hamline W., assignor.)						
Reynolds, George H., New York, N. Y., assignor, by mesne assignments, of one-half to National Company, Chicago, Ill. Hydro-engine for operating elevators	518,700	Apr. 24	2184	546, 547	67	445
Reynolds, Hamline W., assignor to A. B. Smith, E. J. Reynolds, and J. C. Knapp, Geneva, N. Y. Boiler	517,826	Apr. 3	677	168, 169	67	131
Reynolds, Henry L., and H. W. Ketchum, Seattle, Wash. Winding-engine	519,619	May 8	1233	296, 297	67	783
Reynolds, Henry S., Brooklyn, N. Y. Machine for forming wire hinges or links	519,160	May 1	396	96	67	614
Reynolds, Henry S., Brooklyn, N. Y. Machine for forming wire bails	520,864	June 5	200	45	67	1233
Reynolds, Irving H., assignor of one-half to Edward P. Allis Company, Milwaukee, Wis. Valve-controlling mechanism	518,651	Apr. 24	2098	523, 524	67	428
Reynolds, Richard J., and G. M. Jones, Springville, Ala. Car-coupling	518,968	May 1	49	13	67	545
Reynolds, Stephen H. (See Hood and Reynolds.)						
Rhind, Frank, Meriden, assignor to Bridgeport Brass Company, Bridgeport, Conn. Signal-lantern for bicyles	520,658	May 29	2976	720	67	1149
Rhind, Frank, Meriden, assignor to Bridgeport Brass Company, Bridgeport, Conn. Signal-lantern for bicyles	520,659	May 29	2977	720	67	1149
Rhodes, John W., Havana, Ill., assignor to Pioneer Thrasher Company, Minneapolis, Minn. Band-cutter and feeder for thrashing-machines	517,887	Apr. 10	768	191, 192	67	162
Ribereau y Marteaux, Louis, Havana, Cuba. Machine for making molds	519,310	May 1	672	163, 164, 165	67	667
Rice, Arthur H. (See Locke, Frank D., assignor.)						
Rice, David H., Brookline, assignor to C. G. Sargent's Sons, Graniteville, Mass. Wool-washing machine	521,817	June 26	1894	454	67	1591
Rice, David H., Brookline, assignor to C. G. Sargent's Sons, Graniteville, Mass. Wool-washing machine	521,818	June 26	1896	454, 455	67	1592
Rice, Edwin W., Jr., Schenectady, N. Y., assignor to General Electric Company, of New York. Armature for dynamo-electric machines	521,671	June 19	1633	383	67	1526
Rice, William, Rome, Pa. Holdback	520,612	May 29	2904	701	67	1136
Rice, William H. (See Norton, Stephen, assignor.)						
Rice, William H. (See Norton and Rice.)						
Richards, Francis H., Hartford, Conn. Antifriction-roller	519,591	May 8	1182	285	67	775
Richards, Francis H., Hartford, Conn., assignor to E. B. Coxe, Drifton, Pa. Furnace	517,627	Apr. 3	345	82	67	67
Richards, Francis H., Hartford, Conn., assignor to W. Wood, Philadelphia, Pa. Turret-lathe	518,969	May 1	52	13	67	546
Richards, Marcius C., assignor to Wilcox Manufacturing Company, Aurora, Ill. Door-hanger	518,276	Apr. 17	1449	362, 363	67	298
Richards, Orlando, Bristol, Wis. Horse hay-rake	521,271	June 12	918	217, 218	67	1377
Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Car-buffer	520,573	May 29	2840	685, 686	67	1124
Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Car-buffer	520,574	May 29	2842	686	67	1125
Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Car-buffer	520,575	May 29	2843	686, 687	67	1125
Richards, William T. (See Dodge and Richards.)						
Richards, Wilton L., Malden, assignor to American Bell Telephone Company, Boston, Mass. Electric telephone	521,220	June 12	831	195	67	1361
Richardson, Charles G., Toronto, Canada. Refining nickel and copper mattes	518,117	Apr. 10	1169	.....	67	230
Richardson, Dwight S., Brooklyn, N. Y. Heater	521,420	June 12	1180	280, 281	67	1427
Richardson, George W., Chicago, Ill. Comb-cleaner	520,613	May 29	2905	701	67	1137
Richardson, Henry, Lichfield, England. Grain-weighing machine	520,336	May 22	2450	595	67	1036
Richardson, Jonathan. (See Murphy and Richardson.)						
Richardson, William, deceased, and J. Fidler, deceased; C. L. Sturtevant, administrator, assignor to Platt Brothers & Company, Limited, Oldham, England. Cotton-opener and stopping mechanism therefor	520,832	June 5	140	30, 31	67	1223
Richardson, Willie A., assignor to A. Curtis and E. T. Marble, Worcester, Mass. Cloth-folding machine	519,073	May 1	231	54	67	580
Richardson, Willis S., assignor to Newark Watch Case Material Company, Newark, N. J. Watchcase-pendant	517,933	Apr. 10	846	213	67	177
Richardson, Willis T., David City, Nebr. Nut-lock	521,941	June 26	2118	508	67	1635
Richie, Walter J., Lima, Ohio, assignor, by mesne assignments, to C. F. Zimmermann Company, Dolgeville, N. Y. Harp	518,512	Apr. 17	1869	463	67	373
Richman, Alfred D., Daretown, N. J. Milk-can attachment	518,550	Apr. 17	1926	476	67	383
Richmond, George B., Lansing, Mich. Dental disk-carrier	518,701	Apr. 24	2192	548	67	445
Richmond Locomotive and Machine Works. (See Mellin, Carl J., assignor.)						
Richter, Friedrich A., Rudolstadt, Germany. Musical instrument	518,329	Apr. 17	1538	383	67	313
Richter, Friedrich A., Rudolstadt, Germany. Musical instrument	519,737	May 15	1426	344	67	831
Richter, Max M. F., Hamburg, Germany. Composition for pacifying waves of the sea	519,161	May 1	399	.....	67	614
Richter, Reinhold, Gablonz, Austria-Hungary. Apparatus for forming sand molds	519,350	May 8	766	187	67	699

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Rick, John J., and L. Larson, Centralia, Wis. Horse-detacher	520,337	May 22	2457	595	67	1036
Rickabach, William H., assignor of one-half to W. L. Huston, Mishawaka, Ind. Elevator	517,768	Apr. 3	563	146	67	115
Ricker, John W., Chelsea, Mass., assignor of one-half to G. A. Horn, Newark, N. Y. Churn-dasher	521,920	June 5	2073	498	67	1626
Ridder, John F., Quincy, Ill. Bill or account holder	517,590	Apr. 3	286	66	67	56
Ridgeway, Otto B., *et al.* (See Shaw, George V., assignor.)						
Ridings, John H., Morris, Ill. Combined hay rake, tedder, and loader	521,247	June 12	875	{207 208}	67	1369
Riedel, Josef, Vienna, Austria-Hungary. Self-acting brake for roller-skates	521,181	June 12	762	178	67	1348
Riegelmann, Emil, Angsburg, Germany. Valve for expansion-cylinders of vapor-compression engines	521,731	June 19	1735	412	67	1546
Riehle, Frederick A (See Buzby, Charles E., assignor.)						
Riemann, Henry A., Hannibal, Mo. Mitering-machine	521,769	June 19	1816	431	67	1559
Ries, Elias E., and G. J. Scott, Baltimore, Md. Electric motor	519,372	May 1	592	{144 145}	67	652
Ries, George A., San Francisco, Cal. Cock for gas-burners	518,536	Apr. 17	1907	472	67	380
Rife, William A., Waynesborough, Va. Hydraulic ram or engine	519,970	May 15	1800	{442 443}	67	901
Rigdon, William (See Crossley, Stont, and Rigdon.)						
Riggs, George P., assignor of one-half to W. Heald, Sistersville, W. Va. Bullet-mold	521,819	June 26	1897	455	67	1592
Riker, Andrew L., New York, N. Y. Dynamo-electric machine or motor	518,768	Apr. 24	2313	{574 575}	67	467
Riker, Andrew L., New York, N. Y. Brush-holder for dynamo-electric machines or motors	520,169	May 22	2167	527	67	982
Riley, Frank. (See Taylor and Riley.)						
Riley, Henry V. (See Selden and Riley.)						
Riley, Joseph. (See Lawson, William, assignor.)						
Riley, Thomas C., Boston, Mass. Soda-fountain	519,433	May 8	899	216	67	724
Riley, Thomas C., Boston, Mass. Soda-fountain	519,434	May 8	900	217	67	724
Riling, Joseph, assignor to S. B. Rowley, Philadelphia, Pa. Cap and locking device for closing pipes or orifices	518,008	Apr. 10	991	248	67	199
Ring, James W., Boston, Mass., assignor, by mesne assignments, to Van Wagoner & Williams Hardware Company, Jersey City, N. J. Pneumatic door-check	521,182	June 12	764	{178 179}	67	1348
Ringheim, Knut, Nevada, Iowa. Spark-arrester	519,026	May 1	140	34	67	563
Ringness, John J. (See Grimland and Ringness.)						
Riordan, John J., Jr., Baltimore, Md. Hat-fastener	520,660	May 29	2078	720	67	1149
Riordan, Joseph A., Harrison, N. J. Combination-tool for carriages	519,550	May 8	1114	267	67	762
Rising, G. Frank. (See Brien, James T. and T. R., assignors.)						
Ritchey, Olivia M. (See Depp, Hezekiah E., assignor.)						
Ritchie, Walter S. (See McHenry, James W., assignor.)						
Ritter, Andrew J., Rahway, N. J. Envelope	519,093	May 1	264	62	67	586
Ritter, William R. (See Keith, Ethan B., assignor.)						
Roach, John H. (See Haygood and Roach.)						
Roake, Stephen A., Peekskill, and F. G. Smith, Williamsbridge, N. Y. Railway-rail	518,679	Apr. 24	2151	538	67	439
Roberts, Andrew J., Boston, Mass. Street-sweeper	520,080	May 22	1995	488	67	952
Roberts, Benjamin, Jacksonville, Fla. Elevated railway	518,925	Apr. 24	2573	{636 637}	67	515
Roberts, Charles E., Oak Park, Ill. Machine for finishing bolt-heads and nuts	521,002	June 5	448	{106 107}	67	1277
Roberts, Charles H. (See Smethurst, Aaron, assignor.)						
Roberts, Charles J., and J. W. Owen, Buford, Ga. Animal-trap	520,804	June 5	80	18	67	1212
Roberts, David H., *et al.* (See Fox and Yates, assignors.)						
Roberts, Frank. (See Jackson and Roberts.)						
Roberts, Frank C., Philadelphia, Pa. Blast-furnace charging apparatus	519,094	May 1	264	63	67	586
Roberts, Frank K., and G. M. Burroughs, Santa Cruz, assignors to Seller Bros. & Co., San Francisco, Cal. Fender for metallic tubs or boilers	517,827	Apr. 3	678	169	67	132
Roberts, Hara, Fort Wayne, Ind. Railway-rail joint	521,866	June 26	1969	476	67	1606
Roberts, John A., *et al.* (See Markley, John A., assignor.)						
Roberts, John W., assignor to Roberts Tinware Company, Cleveland, Ohio. Can-crimping machine	521,893	June 26	2014	486	67	1616
Roberts, John W., assignor to Roberts Tinware Company, Cleveland, Ohio. Can-seaming machine	521,894	June 26	2018	{487 488}	67	1616
Roberts, John W., assignor to Roberts Tinware Company, Cleveland, Ohio. Can-seaming machine	521,895	June 26	2025	{488 489}	67	1618
Roberts, John W., assignor to Roberts Tinware Company, Cleveland, Ohio. Can-soldering machine	521,896	June 26	2031	{489 490}	67	1619
Roberts Tinware Company. (See Roberts, John W., assignor.)						
Roberts, William H. (See Washington and Roberts.)						
Robertson, William A., Cedar Rapids, Iowa. Lathe for relieving taps	521,510	June 19	1365	{317 318}	67	1477
Robeson, Millard F., Elmira, N. Y. Ear for buckets, &c	519,874	May 15	1651	402	67	874
Robinson, Aaron B., Marysville, Ohio. Machine for cutting and shocking standing corn	518,551	Apr. 17	1927	{476 477}	67	384
Robinson, Andrew F., Cambridge, and A. B. Dodge, Allston, Mass. Folding bed	520,244	May 22	2295	557	67	1006
Robinson, Andrew J. (See Pinkham, Frederick S., assignor.)						
Robinson, Arthur W., Milwaukee, Wis. Dredge-bucket	519,551	May 8	1115	267	67	762
Robinson, Charles H., St. Paul, Minn., assignor to A. S. Browne, Washington, D. C. Steam heating apparatus	521,440	June 12	1224	290	67	1434
Robinson, Hanson, Baltimore, Md. Bottle-seal	518,277	Apr. 17	1451	363	67	298
Robinson, Helen A., Clymer, N. Y. Preserving-jar	520,338	May 22	2455	595	67	1037
Robinson, James E. (See Hopper, William J., assignor.)						
Robinson, Mark H., assignor to Willans & Robinson, Limited, Thames Ditton, England. Expansion-gear for engines	521,573	June 19	1469	{343 344}	67	1495
Robinson, Miner, Newton, Mass. Insulating-tube	517,591	Apr. 3	287	66	67	57
Roche, James, assignor to Eagle Lock Company, Terryville, Conn. Master-key lock	520,121	May 22	2063	504	67	965
Roche, Thomas C., Brooklyn, assignor to E. & H. T. Anthony & Company, New York, N. Y. Photographic plate	519,645	May 8	1281	.....	67	791
Roche, Thomas C., Brooklyn, assignor to E. & H. T. Anthony & Company, New York, N. Y. Photographic plate	519,646	May 8	1282	.....	67	791
Rockford Manufacturing Company. (See Jones, James H., assignor.)						
Rockwell, Lucius A., and W. A. Hull; said Rockwell assignor to Fowler & Rockwell, New York, N. Y. Cracker-cutter	519,293	May 1	635	155	67	660
Rodgers, Catharine E., administratrix. (See Rodgers, George W.)						
Rodgers, George W., deceased; C. E. Rodgers, administratrix, assignor of two-thirds to I. Thomas, Bellefonte, Pa., and A. S. Valentine, Atlantic City, N. J. Car-heater	519,644	May 8	1279	307	67	791

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Rodin, Charles F., assignor of one-half to A. Merle and A. Rudgear, San Francisco, Cal. Guiding device for discharge-nozzles	520,222	May 22	2260	550	67	999
Rodman, Charles W., Queens, N. Y. Tenpin-ball	520,898	June 5	265	64	67	1246
Rödmann, Carl. (See Wettstein and Rödmann.)						
Rodriguez, Joseph, New York, N. Y. Separable button	520,122	May 22	2065	504	67	965
Roe, Isaac F. (See Soleau, Edward R., assignor.)						
Roe James P., Pottstown, Pa. Yoke for manhole-covers	521,732	June 19	1737	413	67	1546
Roe, James P., Pottstown, Pa. Manhole-cover	521,733	June 19	1738	413	67	1546
Roedel, Adolph. (See Ward, William M., assignor.)						
Roehl, Charles E., St Joseph, Mo. Induction electric railway	517,531	Apr. 3	185	42	67	38
Roehm, Frank A., *et al.* (See Roehm, William H., assignor.)						
Roehm, William H., Portage, assignor of two-thirds to F. A. Roehm, Durand, and A. H. Tongen, Rio, Wis. Twine-reel	520,189	May 22	2203	536	67	989
Roethe, Henry E. (See Powers, Lyman A., assignor.)						
Roever, Julius, Brooklyn, N. Y. Coin-controlled game	518,726	Apr. 24	2245	559	67	454
Rogers, Charles D., Providence, R. I. Machine for making screw-blanks	520,081	May 22	1997	{488 489}	67	953
Rogers, Enos O. (See Coons and Rogers.)						
Rogers, James W., London, England. Heel	517,965	Apr. 10	911	228	67	187
Rogers, Milton N., Minneapolis, Minn. Soaking-boot	519,047	May 1	176	42	67	570
Rohrbach, Gabriel, Del Rio, Tex. Gate-latch	521,045	June 5	525	124	67	1292
Rolfe, Charles A., Chicago, Ill. Police signal-telegraph system	521,183	June 12	766	179	67	1349
Roney, Will, Independence, Iowa. Expansible differential pulley	517,532	Apr. 3	188	43	67	38
Roney, William R., Boston, Mass., and O. A. Stranahan, Chicago, Ill., assignors to Westinghouse, Church, Kerr & Company, East Orange, N. J. Furnace-grate	519,775	May 15	1483	360	67	842
Ronk, Jacob E., Fort Wingate, N. Mex. Ter. Aquatic bicycle	520,899	June 5	266	64	67	1246
Rönne, C. Emil. (See Moore, Jacob J., assignor.)						
Rooke, George, Emporia, Kans. Garment-protector	518,859	Apr. 24	2452	608	67	491
Rooney, Henry F., Randolph, Mass. Fender for street-cars	518,926	Apr. 24	2576	637	67	515
Roosevelt, James A., Austin, Tex. Car-coupling	520,380	May 22	2520	610	67	1050
Root, Albert A., Buffalo, N. Y. Advertising device	521,990	June 26	2222	535	67	1652
Root, Arthur, Alexandria, Va. Car-coupling	521,529	June 19	1399	{323 324}	67	1482
Root, Nevada L. (See McCamey and Root, assignors.)						
Root, Sebra H. (See McCamey and Root.)						
Rose, Addison B., and J. H. Kelley, Palmyra, Mo. Tongue-support	520,339	May 22	2456	596	67	1037
Rose, Rufus E., Kissimmee, Fla. Apparatus for treating phosphate rock	519,393	May 8	839	203	67	713
Rose, William E., assignor of one-half to S. C. Hicks, New Carlisle, Ind. Sign-printer	518,118	Apr. 10	1171	293	67	230
Rosenau, Nathaniel S. (See Miseli, David, assignor.)						
Rosenberg, Joseph A., and J. Hurst, Syracuse, N. Y. Ejector and mainspring mechanism	519,552	May 8	1116	268	67	762
Rosenblatt, Rudolph A., New York, N. Y. Disinfecting apparatus	520,540	May 29	2782	673	67	1113
Rosenfeld, Louis, assignor to Rosenthal Brothers, New York, N. Y. Cigar-box	519,204	May 1	475	115	67	629
Rosenfeld, Samuel J., New York, N. Y., assignor to himself, and J. A. Louchheim and E. S. Simon, Philadelphia, Pa. Fender for tram-cars	521,672	June 19	1634	383	67	1526
Rosenthal Brothers. (See Rosenfeld, Louis, assignor.)						
Rosenthal, Sigmund A., and V. C. Doubleday, London, England. Element for secondary batteries	520,614	May 29	2006	702	67	1137
Rosentreter, Frank L., assignor to Caldwell Manufacturing Company, Rochester, N. Y. Sash-balance	518,278	Apr. 17	1452	363	67	298
Roslosnik, John, New York, N. Y. Vegetable-cutter	519,095	May 1	268	63	67	587
Ross, Frederick W., Boston, Mass., assignor to Electric Gas Lighting Company, of Maine. Electrical annunciator	521,046	June 5	526	124	67	1292
Ross, Jasper S., Sharon, Pa. Invalid's cuspidor	520,967	June 5	386	94	67	1268
Ross, John T. (See Preston, John D., assignor.)						
Ross, Moyer Manufacturing Company. (See Miller, Louis L., assignor.)						
Ross, Peter S., Newark, N. J. Subaqueous rock-breaker	517,556	Apr. 3	230	52, 53	67	45
Ross, Robert H., Philadelphia, Pa. Copy-holder	518,652	Apr. 24	2101	{524 525}	67	429
Roth, George, Newark, N. J. Hat setting or flanging machine	520,082	May 22	1999	489	67	953
Roth, William, assignor to T. Shriver & Co., New York, N. Y. Hoisting apparatus	519,294	May 1	637	155	67	660
Rothchild, Joseph, Bath Beach, assignor to G. W. Renton, G. C. and R. L. Cranford, Brooklyn, N. Y. Pump-regulator	518,927	Apr. 24	2577	637	67	516
Rothmann, Friederick. (See Strenber, Gustav A. F., assignor.)						
Rounds, Herbert G., West Bay City, Mich., assignor to W. Goldie, Wilkinsburg, Pa. Multiple-plug strip	519,553	May 8	1119	269	67	763
Rourke, John, Norwich, Conn. Cylinder-pin catch for revolvers	519,875	May 15	1651	402	67	874
Rouse, John H., assignor of one-half to J. H. and C. A. Schonhoff, Advance, Mo. Stump-extractor	519,821	May 15	1560	382	67	857
Roust, Joseph, Quincy, Mass. File-holder	519,738	May 15	1427	344	67	832
Routh, Oswald R., Jersey City, N. J. Safety appliance for street-railway cars	521,477	June 19	1303	304	67	1466
Rowell, Hiram C., Berlin, N. H. Apparatus for the construction of chimneys	521,820	June 26	1899	456	67	1592
Rowland, Charles L., Brooklyn, N. Y. Welding apparatus	519,776	May 15	1487	360	67	843
Rowley, Salmon B. (See Grebe, Christian, assignor.)						
Rowley, Salmon B. (See Riling, Joseph, assignor.)						
Rowntree, Harold, assignor of one-half to J. B. Burdett, Kansas City, Mo. Device for operating elevator-doors	520,833	June 5	144	32	67	1223
Roy, Antoine, *et al.* (See Chazotte, Jean F., assignor.)						
Royal Arc Electric Company. (See Marks, Louis B., assignor.)						
Royall, John P., Columbia, Mo. Adding-machine	521,221	June 12	834	{195 196}	67	1361
Rubenstein, Nathan, Chicago, Ill. Cloth-cutting machine	521,003	June 5	450	107	67	1278
Rubin, Max, New York, N. Y. Fan	519,554	May 8	1120	269	67	763
Rubin, Max, New York, assignor to Automatic Faucet Company, Brooklyn, N. Y. Stopper	521,047	June 5	527	124	67	1293
Rudgear, Andrew, *et al.* (See Rodin, Charles F., assignor.)						
Rudman, Charles. (See Gordon, Minthorne T., assignor.)						
Rudy, Robert C., Detroit, Mich., assignor, by mesne assignments, to M. E. Griswold Company, Chicago, Ill. Bicycle mud-guard	520,245	May 22	2298	558	67	1007
Ruebel, Ernst, assignor to himself, S. B. Pike, and W. N. Matthews, St. Louis, Mo. Electrical switch	517,604	Apr. 3	422	{102 103}	67	81
Rueff, Emil, New York, N. Y. Apparatus for distributing carbonic acid	518,513	Apr. 17	1870	463	67	373
Rueff, Emil, New York, N. Y. Apparatus for charging liquids with gas	518,514	Apr. 17	1871	463	67	374
Ruffner, Daniel B., Philadelphia, Pa. Clamp for railway-rails	517,605	Apr. 3	424	103	67	81
Rummel, John C., Sheridan, Wyo. Water-gage	517,483	Apr. 3	113	25, 26	67	24
Runck, Daniel and W., Delhi, Ohio. Garden implement	517,888	Apr. 10	770	192	67	163

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Runck, William. (See Runck, Daniel and W.)						
Rundell, Fred H., Horseheads, N. Y. Chopping-knife	518,279	Apr. 17	1453	363	67	299
Rundle, Anthony M. (See Murphy, Frank J., assignor.)						
Rundquist, William, Elgin, Ill. Feeder for jewel-setting machines	519,027	May 1	141	35	67	563
Ruppel, Henry. (See Dangler and Ruppel.)						
Ruppel, Henry, Cleveland, Ohio. Vapor-burner	520,805	June 5	81	18	67	1213
Ruppel, Henry, Cleveland, Ohio. Vapor-stove	521,128	June 5	664	156, 157	67	1317
Russ Car Fender Company. (See Fitzhugh, William L., assignor.)						
Russell, James R., Hopewell Hill, Canada. Ice-creeper	521,821	June 26	1900	456	67	1593
Russell, John N., Los Angeles, Cal. Advertising-wagon	520,541	May 29	2783	673	67	1113
Russell, Thomas, *et al.* (See Burson, Harvy, assignor.)						
Russo, Mario, assignor of one-half to G. B. Zanardo, Rome, Italy. Reproducing objects in relief or intaglio by the aid of photography	520,707	May 29	3076	.....	67	1167
Rust, Henry A. (See Scheele and Rust.)						
Rutterer, Albert, *et al.* (See Bright, William H., assignor.)						
Rutherford, James R., Paris, Tex. Attachment for locomotives	520,615	May 29	2907	702	67	1137
Rutledge, Charles A. (See Crounse and Rutledge.)						
Ryan, Michael B., Boston, Mass., assignor of two-thirds to C. L. Backus and C. F. Lincoln, Andover, Conn. Folding bicycle	518,330	Apr. 17	1539	384	67	313
Ryan, Michael J., assignor to himself and J. F. Kelly, New Orleans, La. Leather-stripping machine	521,048	June 5	529	124, 125	67	1293
Ryan, Thomas J., Buffalo, N. Y. Stop-cock box	520,542	May 29	2786	673, 674	67	1114
Ryckman, Garrott E., and M. Tucker, Brockton, N. Y. Grape-vine fastener	517,481	Apr. 3	115	26	67	24
Ryding, Herbert C., Johnstown, Pa. Cambering-machine	520,708	May 29	3078	744	67	1167
Ryding, Herbert C., Johnstown, Pa. Apparatus for cambering rails	520,865	June 5	202	45	67	1234
Rylander, William P., *et al.* (See Bessonette, William T., assignor.)						
Ryno, Frederick A., assignor of one-half to A. H. Warren, St. Paul, Minn. Button-attaching machine	517,485	Apr. 3	116	26	67	24
Ryno, Frederick A., assignor of one-half to A. H. Warren, St. Paul, Minn. Button-riveting machine	520,451	May 29	2631	636, 637	67	1086
S S. White Dental Manufacturing Company. (See Browne, Arthur W., assignor.)						
S. W. Jamison Boot and Shoe Crimping Machine Company. (See Jamison, Samuel W., assignor.)						
Sabin, John I., and W. Hampton, San Francisco, Cal. Telephone-exchange system	518,331	Apr. 17	1541	384	67	313
Sabin, John I., and W. Hampton, San Francisco, Cal. Telephone system	518,332	Apr. 17	1544	385	67	314
Sabin, John I., and W. Hampton, San Francisco, Cal. Telephone-exchange system	518,333	Apr. 17	1548	385	67	315
Sabin, John I., and W. Hampton, San Francisco, Cal. Telephone-exchange system	518,334	Apr. 17	1551	384	67	316
Sabin, John I., and W. Hampton, San Francisco, Cal. Telephone trunk-line system	520,083	May 22	2000	489	67	953
Sachers, Ralph J., New York, N. Y. Manufacture of printing plates	518,826	Apr. 24	2409	596	67	483
Sachs, Joseph, and E. Huber, New York, N. Y. Manufacturing metallic powders	521,991	June 26	2225	535	67	1653
Sachs, Joseph, and E. Huber, New York, N. Y. Manufacturing metallic powders	521,992	June 26	2226	.....	67	1653
Sachs, Joseph, and E. Huber, New York, N. Y. Inside-wall covering	520,123	May 22	2066	504	67	965
Sackett, Augustine, New York, N. Y. Unicycle	521,673	June 19	1636	383	67	1526
Sacksteder, Henry J., Louisville, Ky. Safety Car Heating and Lighting Company. (See Dixon, John A., assignor.)						
Sagendorph, Longley L., Philadelphia, Pa. Machine for stamping sheet metal	519,555	May 8	1122	269	67	763
Sale, Robert A. (See Hardesty and Sale.)						
Salisbury, Levi E., Providence, R. I. Knitting-machine	520,452	May 29	2635	637	67	1087
Salisbury, Levi E., Providence, R. I. Knitting-machine	521,248	June 12	881	208	67	1370
Sample, Charles, Valley Grove, W. Va. Vehicle-brake	521,389	June 12	1130	266, 267	67	1418
Samuel C. Tatum Company (See Mendenhall, Walter S., assignor.)						
Samuel, Edward, assignor to William Wharton, Jr., & Company, Incorporated, Philadelphia, Pa. Railway-track structure	521,004	June 5	454	108	67	1278
Samuels, Barney, St. Joseph, Mo. Electric railway-signal	521,553	June 19	1435	334	67	1489
Samuelson, Alexander. (See Everett and Samuelson.)						
Sanchez, Alberto, Gibara, Cuba. Sugar-cane-transferring device	520,271	May 22	2342	568, 569	67	1015
Sander, Carl B., Chemnitz, Germany. Warp-knitting machine	522,123	June 26	2432	584, 585, 586	67	1691
Sanders, Frank, assignor to J. Wetter, Brooklyn, N. Y. Numbering-machine	520,968	June 5	387	94	67	1268
Sanders, Frank, assignor to J. Wetter, Brooklyn, N. Y. Numbering-machine	520,969	June 5	389	95	67	1268
Sandrock, Henry, New York, N. Y. Hose-bridge	519,136	May 1	347	82	67	605
Sands, Thomas, Nashua, N. H. Folding cot	522,153	June 26	2539	610	67	1712
Sanford, Clifford F., Findlay, Ohio. Gas generator and burner	521,822	June 26	1901	456	67	1593
Sankey, Matthew H. P. R., assignor to Willans & Robinson, Limited, Thames Ditton, England. Expansion-gear for engines	521,574	June 19	1471	344, 345	67	1195
Sargent, Allan C. (See Sargent, Frederick G. and A. C.)						
Sargent & Company. (See Sparks, William E., assignor.)						
Sargent, Frederick G., Granitoville, Mass. Wool-washing machine	521,823	June 26	1902	456, 457	67	1593
Sargent, Frederick G. and A. C., Graniteville, Mass. Fiber-drier	521,824	June 26	1904	457	67	1593
Sargent, Willis L., Norwich, Conn. Lubricant for bicycle chains and bearings	519,096	May 1	270	.....	67	587
Sargent's Sons, C. G. (See Rice, David H., assignor.)						
Sarvent, Joseph G., South Englewood, Ill. Releasing-valve for air-brakes	518,199	Apr. 10	1320	330	67	258
Sass, Christian H. F. (See Axdorfer, Gottfried, assignor.)						
Sattelkau, Paul, and H. R. Winkelmann, Brooklyn, N. Y. Storage-reservoir for steam vacuum water-elevators	521,390	June 12	1132	267	67	1418
Sattelkau, Paul, and H. R. Winkelmann, Philadelphia, Pa., assignors to Automatic Water Tank Company, Camden, N. J. Steam vacuum water-elevator	521,441	June 12	1228	290, 291	67	1435
Saunders, Theodore, assignor of one-half to E. Tweedy, Danbury, Conn. Gasket	519,413	May 8	868	210	67	718
Saur, William, assignor of two-thirds to G. H. Hammer, W. H. Yeatman, and J. J. Beck, Washington, D. C. Steam-boiler	520,742	May 29	3126	757	67	1176
Santter, John R., San Francisco, Cal. Door-bell	518,077	Apr. 10	1100	278	67	217
Savage, Granville L., and W. H. Harrison, New York, N. Y. Letter-box	521,993	June 26	2227	535	67	1653
Sawade, Gustave C., assignor of two-thirds to P. M. Kling and G. J. Kobusch, St. Louis, Mo. Curtain guide and stop	519,647	May 8	1283	307	67	791
Sawyer, Willard N., assignor to E. D. Whitney, Winchendon, Mass. Feed-roller for wood-planing machines	519,739	May 15	1428	345	67	832
Sayre & Fisher Company. (See Macarthy, Fred, assignor.)						
Scales, Edward. (See Bronsdon, Edward, assignor.)						
Scales, John C., Chicago, Ill. Hatchet	517,934	Apr. 10	848	213	67	177

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Scamman, Charles F., Deering, Me. Toothpick-machine	521,734	June 19	1740	413	67	1547
Scamman, Charles F., Deering, Me. Apparatus for handling and packing toothpicks	521,736	June 19	1743	414	67	1547
Scamman, Charles F., and H. P. Churchill, Deering, Me. Apparatus for handling and packing toothpicks	521,735	June 19	1741	413	67	1547
Scanlon, Patrick, Chicago, Ill. Drainage system	520,146	May 22	2125	519	67	975
Scarborough, Josiah S., assignor of one-half to O. Lusk, New Philadelphia, Ohio. Combined nut-wrench and lubricator	521,421	June 12	1181	281	67	1427
Scarinci, Beniamino, Philadelphia, Pa. Slipper	518,078	Apr. 10	1101	279	67	217
Scarinci, Beniamino, Philadelphia, Pa. Shoe	518,079	Apr. 10	1102	279	67	217
Scarinci, Beniamino, Philadelphia, Pa. Shoe	519,556	May 8	1123	270	67	763
Scarritt Furniture Company. (See Weatherly, Robert H., assignor.)						
Scarritt, Sanford G. (See Little, Peter, assignor.)						
Scearce, Jefferson B., Chillicothe, Ohio, assignor to B. D. Miner, Indianapolis, Ind. Invalid-bed	520,576	May 29	2845	687	67	1125
Schachel, John L., assignor to J. Blum, New York, N. Y. Game-table	518,860	Apr. 24	2453	608	67	492
Schaefer, Edmund. (See Floyd, John, assignor.)						
Schaefer, John V., Jr. (See Lebeau, Telesphar L., assignor.)						
Schaefer, Louise, Oneida, N. Y. Method of and apparatus for marking patterns	519,927	May 15	1727	424	67	888
Schaefer, Peter, assignor of one-half to G. W. Bunce, St. Peter, Minn. Veterinary drenching-bottle	521,596	June 19	1512	354	67	1502
Schafer, Frederick, London, England. Riding-habit	521,478	June 19	1305	304	67	1466
Schäffer & Budenberg. (See Carpenter, Rolla C., assignor.)						
Schaller, Jules, Paris, France. Ice-cream freezer	518,280	Apr. 17	1454	361	67	299
Schanck, Ephraim L., Lewis Centre, Ohio. Wire fence	519,928	May 15	1728	424	67	888
Schauman, John, Anaheim, Cal. Cultivator	521,272	June 12	919	218	67	1377
Scheele, Henry and J. P., and H. A. Rust, Milwaukee, Wis. Trolley	521,184	June 12	768	180	67	1349
Scheele, John P. (See Scheele and Rust.)						
Scheerer, Wilhelm, Tuttlingen, Germany. Surgical instrument	521,555	June 19	1439	334	67	1490
Schefera, Louis W., St. Louis, Mo. Lamp or lantern	520,866	June 5	203	45, 46	67	1234
Schelp, Fred, Jr., St. Louis, Mo. Thill-coupling	520,834	June 5	147	32	67	1224
Schenck, Silvester B., Newark, N. J. Fertilizer	517,486	Apr. 3	119	.....	67	25
Schendzeles, Paul, Duelm, Minn. Hand corn-planter	517,487	Apr. 3	120	27	67	25
Schermerhorn, George W., Philadelphia, Pa. Vessel	518,702	Apr. 24	2194	548	67	446
Schenerecker, Joseph, Indianapolis, Ind., assignor of seven-eighths to W. A. Miles and O. H. Perry, Columbus, Ohio, E. E. Perry, Indianapolis, Ind., and J. W. Hahn, Toledo, Ohio. Apparatus for manufacturing ice and for refrigerating	518,791	Apr. 24	2348	582	67	473
Schifferdecker, Charles, Fort Assinaboine, Mont. Target and indicator	521,049	June 5	531	125	67	1293
Schifferly, Conrad, Fort Wayne, Ind. Fruit-can	521,921	June 26	2074	498	67	1626
Schindel, Samuel M., Hagerstown, Md. Shield for pneumatic tires	521,005	June 5	454	108	67	1279
Schindel, Samuel M., Hagerstown, Md. Shield for pneumatic tires	521,006	June 5	456	108	67	1279
Schinke, Max G., Milwaukee, Wis. Drawbridge	517,809	Apr. 3	657	164, 165	67	127
Schirman, Moritz, Baltimore, Md. Talking-board	520,616	May 29	2907	702	67	1137
Schlatter, Moses, Burrton, Kans. Feed and band-cutting attachment for thrashing-machines	521,674	June 19	1637	383, 384	67	1527
Schlegelmilch, George E. (See Welch, Robert K., assignor.)						
Schleicher, Andrew J., *et al.* (See Schleicher, Edward G., assignor.)						
Schleicher, Edward G., assignor to himself, A. J. Schleicher, Stamford, Conn., and G. and J. C. Schleicher, New York, N. Y. Piano-sounding board	522,124	June 26	2435	586	67	1691
Schleicher, George, *et al.* (See Schleicher, Edward G., assignor.)						
Schleicher, John C., *et al.* (See Schleicher, Edward G., assignor.)						
Schlieper, John E., and J. H. Harrison; said Harrison assignor to W. D. Webb, Pittsburg, Pa. Smokeless furnace and stoker	519,683	May 8	1341	323, 324	67	802
Schlueter, Adolph H. and T. A., Oakland, Cal. Liquid containing and discharging device	519,478	May 8	976	236	67	737
Schlueter, Theodore A. (See Schlueter, Adolph H. and T. A.)						
Schmadeke, John F., Brooklyn, N. Y. Coal-chute regulator	518,653	Apr. 24	2103	525	67	420
Schmid, Albert, Allegheny, assignor, by mesne assignments, to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Field-magnet for electric machines	519,097	May 1	270	64	67	587
Schmid, Albert, Allegheny, and B. G. Lamme, assignors, by mesne assignments, to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Self-exciting constant-potential electric generator	519,098	May 1	271	64	67	588
Schmid, Jakob, and J. Bachelut, assignors to Society of Chemical Industry in Basle, Basle, Switzerland. Blue dye	519,971	May 15	1804	.....	67	902
Schmidt, Charles G., Cincinnati, Ohio. Switch for overhead-trolley tracks	519,351	May 8	768	188	67	699
Schmidt, Charles R. (See Mackin and Schmidt.)						
Schmidt, Charles R., Baltimore, Md. Core-making machine	519,006	May 1	100	26, 27	67	556
Schmidt, George C., assignor of one-half to A. Harman, Baltimore, Md. Safety car-fender	519,648	May 8	1284	307	67	791
Schmidt, Gottlieb, *et al.* (See Parkinson, John, Sr., assignor.)						
Schmidt, O. M., *et al.* (See Farmer, John R., assignor.)						
Schmidt, Theodore F. W., assignor of one-half to Dayton Paper Novelty Company, Dayton, Ohio. Paper box	518,898	Apr. 24	2530	625	67	507
Schmidt, Theodore F. W., assignor of one-half to Dayton Paper Novelty Company, Dayton, Ohio. Egg-case	518,899	Apr. 24	2530	625	67	507
Schmidt, W. C. (See Titus, John C., assignor.)	518,162	Apr. 10	1238	311	67	241
Schmidt, Wilhelm, Wilhelmshöhe, near Cassel, Germany. Superheating steam	519,162	May 1	400	96	67	615
Schniedl, Anton I., assignor of one-half to J. Mundell, Philadelphia, Pa. Shoe-beading machine	522,031	June 26	2289	548	67	1664
Schmitt, Louis H., assignor of one-half to G. E. Sternberg, New York, N. Y. Tool-handle	519,479	May 8	978	236	67	737
Schmitz, Egon L., New York, N. Y. Safety-razor	520,272	May 22	2344	569	67	1015
Schmitz, Egon L., New York, N. Y. Razor-stropping device						
Schnarr, Joseph, *et al.* (See Cook, George, assignor.)						
Schneider, G., *et al.* (See Marquart, Rudolf, assignor.)						
Schneider, George L., assignor of seven-eighths to W. J. Pattosien, F. L. Waibel, C. Fisher, G. Brandt, G. A. Paul, F. Brandt, and A. R. Paul, San Francisco, Cal. Electric advertising or signaling apparatus	520,223	May 22	2261	550	67	999
Schneider, George P., Cleveland, Ohio. Pumping apparatus for gas, air, water, &c.	521,675	June 19	1640	384	67	1527
Schneider, Jacob, *et al.* (See Bosman, Nicolas, assignor.)						
Schneider, Otto, Berlin, Germany. Fare-indicator for cabs	519,972	May 15	1805	443	67	902
Schneider, Philipp, assignor of one-half to G. C. Witte, Chattanooga, Tenn. Spoke-socket	519,273	May 1	600	145	67	653
Schnell, August, Clinton, Iowa. Spirit-level attachment	517,935	Apr. 10	849	214	67	177
Schnepf, John, assignor of one-half to W. H. Bellamy, New York, N. Y. Pneumatic door-lock opener	518,119	Apr. 10	1172	293	67	230
Schoen Brake Shoe Company. (See Schoen, Charles T., assignor.)						
Schoen, Charles T., Allegheny, Pa. Brake-beam	522,032	June 26	2290	548	67	1664

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Schoen, Charles T., assignor to Schoen Brake Shoe Company. Allegheny, Pa. Brake-shoe	520,900	June 5	267	64	67	1246
Schoenberg, William H., Philadelphia, Pa. Oil-cloth-printing machine	518,120	Apr. 10	1173	294	67	230
Schoenbrun, Samuel, assignor of one-half to A. Sellner, New York, N. Y. Trousers	518,727	Apr. 24	2246	559	67	454
Schoeppl, Joseph F., Pittsburg, Pa. Hook and eye	521,391	June 12	1133	267	67	1418
Schoff, Henry W., B. Finkel, and F. E. Probert, Oak Park, Ill. Self-opening umbrella	521,222	June 12	836	196	67	1362
Schofield, Silas C., Freeport, Ill. Runner attachment for wheeled vehicles	520,806	June 5	83	19	67	1213
Scholten, Paul, Wattenscheid, Germany. Frame for carrying cans or other vessels	521,554	June 19	1438	334	67	1489
Scholz, August, New York, N. Y. Cigar-stump receptacle	518,827	Apr. 24	2410	596	67	483
Schonhoff, C. A., *et al.* (See Rouse, John H., assignor.)						
Schonhoff, J. H., *et al.* (See Rouse, John H., assignor.)						
Schönnig, Gustav, Vienna, Austria-Hungary. Piano for children	518,200	Apr. 10	1322	330	67	259
Schoop, Paul, Zurich, Switzerland. Electric traction apparatus	520,340	May 22	2457	596	67	1037
Schopper, Louis, Leipsic, Germany. Testing-machine	521,323	June 12	1014	238, 239	67	1394
Schott, Cyrus. (See Miltonberger, Wynant, and Schott.)						
Schramm, Bernhard. (See Schramm, Constant and B.)						
Schramm, Constant and B., Harrison, N. J. Bottle-stopper	519,777	May 15	1490	361	67	843
Schreiner, Friedrich, Plainfield, N. J. Stove for drying matrices	520,518	May 29	2848	688	67	1126
Schriver, Oliver P., Newport, Ky. Roller-staple	519,435	May 8	902	217	67	725
Schroder, Nicholas, New York, N. Y. Display-box	521,050	June 5	533	125	67	1294
Schroeder, Max, Dusseldorf, assignor of one-half to Actien-Gesellschaft für Zink-Industrie, vormals Wilhelm Grillo, Oberhausen, Germany. Producing glue and gelatine from bones	518,861	Apr. 24	2455	609	67	492
Schroeder, Richard D., San Francisco, assignor to W. F. Pierce, Oakland, Cal. Beer-pressure apparatus	520,224	May 22	2262	550	67	999
Schroeder, Theodor, New Prague, Minn. Adjustable odometer	519,592	May 8	1184	285, 286	67	775
Schubert, George, Walnut Springs, Tex. Baling-press	517,936	Apr. 10	850	214	67	177
Schuler, Louis, Göppingen, Germany. Stamping-press	518,080	Apr. 10	1103	279	67	217
Schulte, Franz, Hamburg, Germany. Molder's tack	519,161	May 1	403	97	67	615
Schultz, Carl H., Jr., deceased, New York, N. Y., C. H. Schultz, administrator. Filter	517,488	Apr. 3	122	27	67	25
Schultze, George T., Evansville, Ind. Apparatus for drying lumber	519,352	May 8	769	188	67	699
Schulz, Gustav C. (See Tiefel, Charles G., assignor.)						
Schulze, Andrew, Lott, Tex. Breast for cotton-gins	517,937	Apr. 10	850	214	67	178
Schulze, Andrew, Lott, Tex. Governor for seed-cotton-handling apparatus	521,676	June 19	1642	385	67	1527
Schulze, Andrew, Lott, Tex., assignor to Kingsland & Douglas Manufacturing Company, St. Louis, Mo. Dog or stop device for baling-presses	521,511	June 19	1367	318	67	1477
Schumacher, Albert C., Ann Arbor, assignor to Muskegon Chemical Fire Engine Company, Muskegon, Mich. Process of and compound for extinguishing fires	520,012	May 15	1868	.....	67	913
Schumacher, Wwe. J. (See Barthelmess, Johannes, assignor.)						
Schüpple, Charles, and C. Hübeler, Philadelphia, Pa. Cigar-press	519,163	May 1	402	97	67	615
Schurkens, John P., Westphalia, Kans. Corn-husker	519,929	May 15	1728	424	67	888
Schutte, Louis, Philadelphia, Pa. Steam-jet nozzle	519,796	May 15	1525	371	67	850
Schütz, Alwin, and A. Landerer, Leipsic, assignors to W. J. Teufel, Stuttgart, Germany. Bandage for varicose veins	519,894	May 15	1681	410	67	889
Schutz, Emile, and J. H. Henderson, Sierra City, Cal. Hydraulic air-compressor	517,628	Apr. 3	347	82	67	68
Schuyler Electric Company. (See Knowles, Edward R., assignor.)						
Schuyler Electric Company. (See Knowles and Park, assignors.)						
Schuyler Electric Company. (See Offrell, Olof, assignor.)						
Schwaab, Adam, Jr., New York, N. Y. Head-rest	520,577	May 29	2847	687	67	1126
Schwahn, Heinrich F. D., Kansas City, Mo. Apparatus for generating gas	521,479	June 19	1307	304, 305	67	1466
Schwarz, Julius, New York, N. Y. Waistband for trousers	517,984	Apr. 10	944	237	67	192
Schweim, Herman, assignor of one-half to G. Stark and W. E. Brinkerhoff, Detroit, Mich. Pneumatic hoist	519,436	May 8	903	217	67	725
Schwesinger, Henry and J., Detroit, Mich. Pump for organs	522,184	June 26	2541	610	67	1713
Schwesinger, John. (See Schwesinger, Henry and J.)						
Schweizer, Adolph, assignor of two-thirds to M. M. Hirsh and W. F. Jobbins, Chicago, Ill. Extracting fats from animal or vegetable substances	520,743	May 29	3127	757	67	1176
Schwickart, Philip, Brooklyn, N. Y. Trimmer for vault-lights	520,273	May 22	2346	569	67	1015
Scott, Bertie C., Bruges, Belgium. Means for propelling canal-boats	518,680	Apr. 24	2151	538	67	439
Scott, Charles F. (See Westinghouse and Scott.)						
Scott, Charles F., Pittsburg, Pa. System of electrical distribution by alternating currents	521,051	June 5	534	126	67	1294
Scott, Charles F., assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Economizing the energy of alternating currents	520,970	June 5	390	95	67	1268
Scott, Edward. (See Oliver and Scott.)						
Scott, Gordon J. (See Ries and Scott.)						
Scott, Jacob R., New York, N. Y. Leather-scoring machine	520,709	May 29	3079	745	67	1168
Scott, Jacob R., New York, N. Y. Leather-skiving machine	521,090	June 5	604	142, 143	67	1306
Scott, Robert P., Cadiz, Ohio. Bicycle-tire	521,273	June 12	921	218	67	1377
Scott, Robert W. (See Williams, Louis N. D., assignor.)						
Scott, William A., Jr., Pittsburg, Pa. Covering for boilers	519,137	May 1	347	82, 83	67	605
Scovill Manufacturing Company. (See Wolff and Hyde, assignors.)						
Scoville, Horace B., New Waterford, Ohio. Fireplace-heater	518,862	Apr. 24	2458	609	67	492
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Duplex arc lamp	518,792	Apr. 24	2350	582	67	473
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Telephone-circuit	519,876	May 15	1652	402	67	874
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Testing system for multiple switchboards	520,543	May 29	2789	674	67	1114
Scribner, Elmer C., Neversink, N. Y. Combination rubber and steel horseshoe	518,863	Apr. 24	2460	609	67	493
Scully, John, South Amboy, N. J. Coal-chute	521,052	June 5	538	126	67	1294
Seaberg, John A. W., Malden, assignor of one-half to C. W. Carter, Auburndale, Mass. Baby-jumper	519,593	May 8	1186	286	67	775
Seal, Theodore T., Bellaire, Ohio. Mandolin	518,900	Apr. 24	2531	626	67	507
Seaman, Charles H., St. Joseph, Mo. Drying-kiln	519,138	May 1	349	83	67	605
Seaman, George S., Alvarado, Tex. Shoe for bridges	517,938	Apr. 10	852	215	67	178
Seaton, William, Greenfield, assignor of one-half to I. R. Cole, Harrisburg, Ark. Fish-trap	521,053	June 5	539	126	67	1295
Seaverns, Edmund B. V., Brookline, Mass. Controller for alternating-current machines	521,867	June 26	1970	476	67	1606
Seberg, August, and D. Connor, Marshalltown, Iowa. Lamp-shade	517,889	Apr. 10	771	192	67	163
Seburn, William. (See McKain and Seburn.)						
Seck, Willy, Ober-Ursel, Germany. Gas or hydrocarbon motor	517,890	Apr. 10	772	192, 193	67	163

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Seddon, Henry C., London, England. Safety percussion-fuse	521,129	June 5	667	157, 158	67	1318
Sedgwick Bros. Company. (See Sedgwick, Richard, assignor.)						
Sedgwick, Richard, assignor to Sedgwick Bros. Company, Richmond, Ind. Wire-twisting machine	520,617	May 29	2909	703, 704	67	1137
Seely, Obadiah, assignor to E. C. Stearns & Co., Syracuse, N. Y. Wheel-tire	520,901	June 5	268	64	67	1246
Segerdahl, Rudolph, Chicago, Ill. Electric-arc lamp	518,654	Apr. 24	2105	526	67	430
Sego, Joseph, and C. Fancher, Valparaiso, Ind. Bridge-gate	519,274	May 1	600	145	67	653
Segrest, Lewis H., Brandywine, Miss. Car-coupling	517,666	Apr. 3	425	103	67	82
Seibel, William A., Independence, Iowa. Lubricator	519,394	May 8	841	204	67	713
Seiberling, Monroe, Kokomo, Ind. Glass-melting furnace	520,835	June 5	149	33	67	1224
Seibert, Philip, Philadelphia, Pa. Coal-wagon chute	518,121	Apr. 10	1175	294	67	230
Seifert, Otto E., Brooklyn, N. Y. Automatic railway-switch	518,281	Apr. 17	1455	364	67	299
Seipel, Jacob, St. Louis, Mo. Fireproof floor and ceiling construction	522,168	June 26	2517	604	67	1708
Seipel, Jacob, St. Louis, Mo. Tile for floor and ceiling construction	522,169	June 26	2518	605	67	1708
Sejnoha, Frank S., Chicago, Ill. Smoke-consumer	520,453	May 29	2637	637, 638	67	1087
Selden, Charles, and H. V. Riley, Baltimore, Md. Electric railway-signal	520,661	May 29	2979	721	67	1149
Selden, Charles, and H. V. Riley, Baltimore, Md., said Riley assignor of one-fourth to said Selden. Electric railway-signal	520,710	May 29	3080	745	67	1168
Sellenscheidt, Carl, and L. Lepke, Berlin, Germany. Filter	519,275	May 1	601	145, 146	67	653
Seller Bros. & Co. (See Roberts and Burroughs, assignors.)						
Sellers, Coleman, Philadelphia, Pa. Dynamo-electric machinery	520,940	June 5	348	85	67	1260
Sellner, Abraham. (See Schoenbrun, Samuel, assignor.)						
Selowsky, Gustave, New York, N. Y. Necktie	517,769	Apr. 3	597	147	67	116
Selzer A., *et al.* (See Bright, William H., assignor.)	518,356	Apr. 17	1601	396	67	326
Selzer, Daniel F. and H., Akron, Ohio. Pump						
Selzer, Henry. (See Selzer, Daniel F. and H.)						
Semler, Johannes, *et al.* (See Müller, Rudolf, assignor.)						
Sendker, Louis, *et al.* (See Edmonds, Charles S., assignor.)						
Sendker, William H., *et al.* (See Edmonds, Charles S., assignor.)						
Sequeira, Augustus, Hartford, Conn. Variable-speed mechanism	521,512	June 19	1369	318, 319	67	1478
Sergeant, Henry C., Westfield, N. J., assignor to Ingersoll-Sergeant Drill Company, New York, N. Y. Valve-gear for direct-acting engines	520,190	May 22	2204	536, 537	67	989
Serve, Jean P., Lyons, France. Tubular boiler	521,442	June 12	1231	291	67	1436
Sessions, Charles B., and B. C. Van Emon, San Francisco, Cal. Water-wheel-regulating apparatus	518,282	Apr. 17	1457	364, 365	67	299
Sessions, Samuel W. (See North and Sessions.)						
Seter, Michael, assignor to Western Electric Company, Chicago, Ill. Spring-jack cleaner	521,223	June 12	838	196	67	1362
Sewell, James A., Campton, Ky. Calculating-machine	519,973	May 15	1508	443	67	902
Sexton, Isaac, Somerville, Mass. Self-closing can	521,566	June 19	1440	335	67	1490
Seymour, Charles, assignor to Defiance Machine Works, Defiance, Ohio. Woodworking-machine	521,185	June 12	769	180	67	1349
Shaaber, Jacob, Reading, Pa. Molding apparatus	517,489	Apr. 3	123	27	67	25
Shackleford, T. J., *et al.* (See Miltonberger, Wynant, and Schott, assignors.)						
Shackelford, Tiffin J., and J. F. Miltonberger, Warsaw, Ind. Adjustable surgical chair	520,579	May 29	2849	688, 689, 690	67	1126
Shaffer, Richard M., Baltimore, Md. Dough kneader and mixer	519,740	May 15	1429	345	67	832
Shallenberger, Frank. (See Shallenberger, John W., assignor.)						
Shallenberger, John W., Canal Fulton, assignor of one-half to F. Shallenberger, Massillon, Ohio. Coal-drill	518,703	Apr. 24	2195	548	67	446
Shanafelt, Fred P., Canton, Ohio. Electric fountain	518,122	Apr. 10	1176	295	67	230
Shank, Charles A., assignor of seven-eighths to A. A. Catanach, P. Boyd, W. Burge, B. P. Wilson, and R. S. Greenfield, Philadelphia, Pa. Artificial stone or cement composition	520,662	May 29	2981	.....	67	1150
Shank, Thomas M., Kenova, W. Va. Excelsior-machine	520,618	May 29	2911	704	67	1138
Shank, William P., Cairo, Ill. Smoke-arrester	521,054	June 5	540	127	67	1295
Shann, Montague H. C., Brisbane, Queensland. Furnace	518,629	Apr. 24	2061	513	67	422
Shannon, Thomas J., Wolf, Ohio. Folding pie-rack	519,007	May 1	111	27	67	557
Sharp, Charles S., assignor to D. M. Osborne & Company, Auburn, N. Y. Horse-rake	517,490	Apr. 3	424	27, 28	67	26
Sharp, Charles S., assignor to D. M. Osborne & Company, Auburn, N. Y. Horse-rake	517,491	Apr. 3	128	28	67	26
Sharp, John C., Delavan, Wis. Stump-extractor	521,480	June 19	1310	305, 306	67	1466
Shartle, Charles W., Middletown, Ohio, assignor to Middletown Machine Company, of Ohio. Slip-collar for pulleys, shafts, &c	521,055	June 5	541	127	67	1295
Shaw, Al B. (See Shaw, Nathaniel H. and A. B.)						
Shaw, Alton J., Muskegon, Mich. Rheostat	517,770	Apr. 3	598	147	67	116
Shaw, Charles A., Revere, Mass. Burner for illuminating-gas	522,088	June 26	2375	571	67	1681
Shaw, George V., assignor of two-thirds to J. S. Donellan and O. B. Ridgeway, Dubuque, Iowa. Nutmeg-grater	518,704	Apr. 24	2197	548	67	446
Shaw, James C., Hannibal, Mo. Feed-water-pipe heater	517,771	Apr. 3	601	147	67	116
Shaw, James L., Seneca, Ill. Machine for sharpening harrow-disks	517,810	Apr. 3	659	165	67	128
Shaw, Nathaniel H., Somerville, and A. B. Shaw, Medford, Mass., assignors to New England Automatic Gas Lighting Company, Portland, Me. Automatic gas lighting and extinguishing apparatus	520,836	June 5	151	33	67	1225
Shay, Ephraim and L., Harbor Springs, Mich. Hose-cart	521,868	June 26	1973	476	67	1607
Shay, Lette. (See Shay, Ephraim and L.)						
Shay, Wilmot W. (See Kilgore, John S., assignor.)						
Shea, John W., Covington, Ky. Movable arm-rest for writing purposes	520,711	May 29	3083	745	67	1169
Shea, Tim, Knoxville, Tenn. Car-coupling	519,480	May 8	978	236, 237	67	737
Shearer, George B., Oneonta, N. Y. Locking device for piano-pedals	518,163	Apr. 10	1239	311	67	241
Shearer, Thomas J., assignor of one-half to J. J. Beechler, Indianapolis, Ind. Cistern	521,869	June 26	1974	477	67	1607
Shearman, John, New York, N. Y. Valve for air and gas meters	519,481	May 8	980	237	67	737
Sheckler, Peter, Stockton, Kans. Magazine-firearm	521,624	June 19	1557	364	67	1511
Shedlock, William, London, England. Feed-water heater and purifier	520,084	May 22	2002	489, 490	67	954
Sheldon, Herbert F., Melrose, Mass. Bicycle	519,557	May 8	1124	270	67	763
Sheldon, Mark A., Detroit, Mich. Curling-iron holder	522,033	June 26	2291	548	67	1664
Sheldon, Rosecrans, Chicago, Ill. Copy-holder	519,048	May 1	177	42	67	570
Sheldon, William J., Middletown, Pa. Fish-plate splice for connecting railway-rails	521,481	June 19	1316	306	67	1468
Shellaberger, Edward F., De Kalb, Ill. Metal corner-piece for frames	518,828	Apr. 24	2411	597	67	483

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Shellenback, William, Richmond, Ind. Engine turning-lathe	518,164	Apr. 10	1242	311, 312	67	241
Shepard, Amos, Plantsville, assignor to Peck, Stow & Wilcox Company, Southington, Conn. Spring-balance	519,353	May 8	771	188	67	700
Shepard, Amos, Plantsville, assignor to Peck, Stow & Wilcox Company, Southington, Conn. Stove-lid lifter	521,557	June 19	1441	335	67	1490
Shepard, John F., Jackson, Mich. Vehicle-brake	518,928	Apr. 24	2579	638	67	516
Shepheard, John H., assignor of one-half to R. C. Blackall, Albany, N. Y. Rod for slide-valves	519,458	May 8	934	225	67	731
Shepherd, John, assignor of two-thirds to G. Barton, Memphis, Mich. Cistern-cleaning machine	519,074	May 1	234	55	67	581
Shepley, Harry. (See Gray and Shepley.)	518,864	Apr. 24	2460	609	67	493
Sheppard, Edwin, Philadelphia, Pa. Auxiliary heater	519,354	May 8	772	188	67	700
Sheppard, William H., New York, N. Y. Lighting implement	521,443	June 12	1232	291, 292	67	1436
Shepperd, Sylvanus D., assignor to Backus Water Motor Company, Newark, N. J. Gas-engine						
Sheridan, C. B., *et al.* (See Smith, Charles L., assignor.)						
Sheridan, T. W., *et al.* (See Smith, Charles L., assignor.)	520,381	May 22	2521	610	67	1050
Sheriff, Charles G., Hot Sulphur Springs, Colo. Halter	520,341	May 22	2459	596, 597	67	1037
Sherman, Stephen F., Newark, N. J. Folding box	518,335	Apr. 17	1553	386	67	316
Sherman, William P., Butte, Mont. Exhibitor for caskets or coffins						
Sherman, Willis D., assignor to himself, C. B. Johnson, J. J. Wilson, E. H. Baillie, F. B. Johnson, and E. Snedeker, Brooklyn, N. Y. Hoisting and transfer apparatus	518,901	Apr. 24	2532	626, 627	67	508
Sherwood, Charles L., Faribault, assignor of one-third to O. W. Ball, Rice county, Minn. Combined refrigerator and filter	521,559	June 19	1443	336	67	1490
Shinkle, Bradford, *et al.* (See Hodgson, Albert J., assignor.)	517,592	Apr. 3	288	67	67	57
Shipe, Walter S., Brooklyn, N. Y. Sput for boilers						
Shipe, Walter S., Brooklyn, N. Y. Apparatus for inserting, finishing, and securing sputs in boilers	521,825	June 26	1906	457	67	1594
Shipley, John W., Baltimore, Md. Water-motor	517,667	Apr. 3	426	103	67	82
Shipley, Peter C., assignor of one-third to O. E. Jackson, Red Oak, Iowa. Ledger-plate	520,807	June 5	84	19	67	1213
Shoemaker, William C., Richmond, Ind. Fence-machine	522,125	June 26	2436	586	67	1692
Short, Henry L., Larue, Ohio. Hay-stacker	520,808	June 5	85	19, 20	67	1213
Shovar, Frederick J., *et al.* (See Gilling, Frank E., assignor.)	520,454	May 29	2640	638	67	1088
Showell, Edward, Atchison, Kans. Combined pulverizer and planter	519,649	May 8	1285	307	67	792
Shrader, Clarence D., New Albany, Ind. Attachment for coffins						
Shreiner, Edward. (See Leininger and Shreiner.)						
Shriver & Co., T. (See Roth, William, assignor.)	520,085	May 22	2004	490	67	954
Shuart, Benjamin F., Kent, Ohio. Scraper	517,891	Apr. 10	774	193	67	164
Shulerud, Nels, Chicago, Ill. Folding couch	518,970	May 1	54	14	67	546
Shultz, Edward L., Springfield, Mass. Gearing for bicycles	519,741	May 15	1431	345	67	832
Shutt, Joseph, East New York, N. Y. Switch for city railways						
Sicard, William. (See Lamm and Sicard.)	519,822	May 15	1561	382	67	857
Sidebotham, William, New York, N. Y. Hoof boot and pad						
Siemens, Charles W., deceased, Guarantee Trust and Safe Deposit Company, Philadelphia, Pa., administrator. Conduit electric railway	520,356	May 22	2481	602	67	1041
Siemens, Ernst W. von, assignor to Siemens & Halske, Berlin, Germany. Electric railway	520,274	May 22	2347	569, 570	67	1016
Siemens & Halske. (See Hefner-Alteneck, Friedrich von, assignor.)						
Siemens & Halske. (See Hoffmann, Carl, assignor.)						
Siemens & Halske. (See Siemens, Ernst W. von, assignor.)	521,397	June 12	966	229	67	1385
Sigler, John D., San Francisco, Cal. Planer feed-roll	519,742	May 15	1432	345	67	832
Sill, Elmer S., Massena, Iowa. Brake for bicycles						
Sill Stove Works. (See Clunies, Arthur B., assignor.)	517,593	Apr. 3	289	67	67	57
Sills, Samuel, and J. E. Wood, Thornton, R. I. Hosiery						
Simon, Edwin S., *et al.* (See Rosenfeld, Samuel J., assignor.)						
Simons, Mark. (See Stromberg, Alfred, assignor.) (Reissue.)						
Simonson, James H., *et al.* (See Van Der Zee Cornelius, assignor.)						
Simonton, John H. (See Nightingale, William R., assignor.)						
Simmons, George E., East Monroe, Ohio. Wire-and-picket-fence machine	520,544	May 29	2792	674, 675	67	1115
Simoneau, Louis E., assignor to Automatic Telephone and Electric Company of Canada, Montreal, Canada. Automatic telephone system	520,246	May 22	2299	558	67	1007
Simpson Brick Press Company. (See Simpson, Peter L., assignor.)						
Simpson, Peter L., assignor to Simpson Brick Press Company, Chicago, Ill. Sectional mold for brick-presses	520,455	May 29	2642	638	67	1088
Simultaneous Chromogravure Printing Machine and Manufacturing Company. (See Toye, William H. R., assignor.)						
Sinclair, George B., *et al.* (See Donahoo, Peter B., assignor.)	522,089	June 26	2377	572	67	1682
Singer, Charles, Wichita, Kans. Chair-bottom	519,895	May 15	1681	410	67	880
Sinks, David, assignor of one-half to C. Burghardt, Belleville, Ill. Sash-balance	518,865	Apr. 24	2462	610	67	493
Sinning, Charles, assignor to Sinning Lasting Machine Company, St. Louis, Mo. Clutch				639, 640, 641, 642, 643	67	517
Sinning, Charles, St. Louis, Mo., assignor to Sinning Lasting Machine Company, East St. Louis, Ill. Lasting-machine	518,932	Apr. 24	2583			
Sinning Lasting Machine Company. (See Sinning, Charles, assignor.)	520,247	May 22	2301	558	67	1007
Sinsz, Philip, Baltimore, Md. Glazier's diamond						
Sir Joseph Whitworth & Company. (See Canet, Jean B. G. A., assignor.)						
Sisson, Frank W., *et al.* (See Chace, James S., assignor.)	520,225	May 22	2263	551	67	1060
Sittig, Lena, Brooklyn, N. Y. Skirt-protecting garment	518,201	Apr. 10	1323	330	67	259
Skalla, Paul. (See Coker, James W., assignor.)						
Skinner, Daniel M., Centre Sandwich, N. H. Cash and parcel carrier	517,492	Apr. 3	131	28, 29	67	27
Skipper, James M., assignor of one-half to J. W. Holden, Granbury, Tex. Ice-cream freezer	519,778	May 15	1491	361	67	844
Slack, William J., La Grange, Ind. Gate						
Slade, Samuel I., *et al.* (See Nall, Frederick W., assignor.)						
Slawson, Charles H., *et al.* (See Casswell, Richard H., assignor.)						
Slayton, Cortes J., *et al.* (See Boomhower, Eli E., assignor.)						
Slayton, George J., *et al.* (See Boomhower, Eli E., assignor.)						
Slayton, William H., *et al.* (See Boomhower, Eli E., assignor.)	520,013	May 15	1870	457	67	914
Slocum, Harry F., New York, N. Y. Automatic bank or money-changer						

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Slocum, Harry F., New York, N. Y., assignor to New York Electrical and Development Company, of New Jersey. Telephone	520,086	May 22	2007	490	67	955
Slyder, William J., assignor of one-half to C. Kessler, Troy, Ohio. Safety-gate for elevators	519,139	May 1	351	83, 84	67	605
Small, Robert H., assignor of one-half to M. E. Hayes, New London, Conn. Tailpiece for banjos or violins	517,493	Apr. 3	133	29	67	27
Smalley, Joseph. (See Tweedale and Smalley.)						
Smallman, James W., London, England. Pneumatic tire and rim for wheels	521,482	June 19	1316	306, 307	67	1468
Smallwood, Winston T., New Albany, Miss. Churn	520,087	May 22	2008	491	67	955
Smead, Isaac D., Toledo, Ohio. Furnace	520,124	May 22	2067	504, 505	67	965
Smethurst, Aaron, assignor of one-half to C. H. Roberts, Bountiful, Utah Ter. Potato-digger	520,902	June 5	270	65	67	1246
Smiley, George W., and F. W. Dunlap, London, England; said Dunlap assignor to said Smiley. Wheel for bicycles	522,090	June 26	2378	572	67	1682
Smiley, Herbert R., Chicago, Ill. Window-shade fixture	519,437	May 8	904	217, 218	67	725
Smith, Ai. (See Oddy, Crossley, and Smith.)						
Smith, Alonzo D. (See Smith, William, assignor.)						
Smith, Alvia B., Middlebury, Vt. Horseshoe-calk sharpener	521,513	June 19	1371	319	67	1478
Smith, Amos B., *et al.* (See Reynolds, Hamline W., assignor.)						
Smith, Arthur J., assignor of one-half to H. J. Wright, London, England. Electric accumulator or secondary battery	519,482	May 8	981	237	67	737
Smith, Benjamin, and J. M. Howson, Halifax, England. Spindle for spinning machinery	517,772	Apr. 3	601	148	67	116
Smith, Benjamin J., Pottsville, Pa. Automatic display device	519,483	May 8	983	237, 238	67	738
Smith, Benjamin J., Pottsville, Pa. Automatic exhibiting device	519,484	May 8	986	239	67	738
Smith, Brainard F., Represa, Cal. Pen-fender	520,663	May 29	2082	721	67	1150
Smith, Charles A. (See Mayhew, George S., assignor.)						
Smith, Charles G. (See Jägel, Smith, and Pruden.)						
Smith, Charles H., Birmingham, Ala. Car-coupling	519,205	May 1	476	116	67	629
Smith, Charles L., assignor to T. W. and C. B. Sheridan, New York, N. Y. Self-clamping paper-cutter	521,738	June 19	1747	415	67	1548
Smith, Charles S. (See Stewart, William H., assignor.)						
Smith, Curtis A. (See Jackman and Smith.)						
Smith, Dwight L., assignor of one-half to E. A. Smith, Waterbury, Conn. Buckle	518,125	Apr. 10	1180	296	67	231
Smith, Dwight L., assignor of one-half to E. A. Smith, Waterbury, Conn. Supporter	521,249	June 12	882	209	67	1370
Smith, Earl A. (See Smith, Dwight L., assignor.)						
Smith, Edward S., Waterbury, Conn. Garment-fastener	520,545	May 29	2795	675	67	1115
Smith, Elbridge J., Washington, D. C. Fender for street-railway cars	517,894	Apr. 10	779	195	67	164
Smith, Enos. (See Oddy, Crossley, and Smith.)						
Smith, Eugene, Chicago, Ill. Building-block	518,630	Apr. 24	2062	513	67	492
Smith, Frank G. (See Roake and Smith.)						
Smith, Frank J., Marcellus, Mich. Door-securer	521,870	June 26	1974	477	67	1607
Smith, Frank, J., assignor of one-half to C. C. Long, Marcellus, Mich. Locomotive attachment	521,186	June 12	770	180	67	1349
Smith, Frank S., Pittsburg, Pa. Incandescent electric lamp	519,099	May 1	273	65	67	588
Smith, Frank S., Pittsburg, Pa. Incandescent lamp	520,088	May 22	2010	491	67	955
Smith-Fraser, Olive L., Minneapolis, Minn. Invalid-chair	521,463	June 19	1281	298	67	1461
Smith, Fred P., Worcester, assignor to Smith Heating and Ventilating Company, Boston, Mass. Ventilated urinal	519,355	May 8	772	189	67	700
Smith, Frederick D., San Francisco, Cal. Method of and apparatus for preserving condensed milk	520,014	May 15	1872	458	67	914
Smith, G. H., *et al.* (See Edwards, Hubert F., assignor.)						
Smith, George H., assignor of one-half to E. A. Beaman, Providence, R. I. Adjustable friction-clutch	521,677	June 19	1647	385, 386	67	1528
Smith, George P., and J. B. Bruner, Springfield, Ohio. Post-hole auger	517,892	Apr. 10	775	194	67	164
Smith, Hamilton E., New York, N. Y. Ironing-machine	519,974	May 15	1810	444	67	903
Smith, Hamilton E., New York, N. Y. Centrifugal machine	519,975	May 15	1811	444	67	903
Smith Heating and Ventilating Company. (See Smith, Fred P., assignor.)						
Smith, Henry. (See Denson, Joseph, assignor.)						
Smith, Henry W. C., Bristol, England. Game board or apparatus	521,737	June 19	1745	414	67	1548
Smith, Herbert S. (See Knight and Smith.)						
Smith, Isaac, Lexington, Ky. Combined harrow and scraper	521,826	June 26	1908	458	67	1594
Smith, James R. (See Smith, John H., J. R., and W. E.)						
Smith, James W., Rome, Ga. Cotton-seed cleaner and separator	518,124	Apr. 10	1178	295	67	231
Smith, James W., Moscow, Ky. Grate	518,470	Apr. 17	1802	446	67	362
Smith, Job, assignor of one-half to W. J. Werntz, Annapolis, Md. Clock	517,594	Apr. 3	290	67	67	57
Smith, John D. (See Burkhart, Waterman, and Smith.)						
Smith, John E., Buffalo, N. Y. Tool-holder	521,965	June 26	2168	520	67	1643
Smith, John H., J. R., and W. E., Snohomish, Wash. Horseshoe	522,126	June 26	2437	586	67	1692
Smith, John J. C., Passaic, N. J. Bicycle-tire	519,438	May 8	905	218	67	726
Smith, John L., West Hartlepool, England. Construction of puddling or other furnaces	519,620	May 8	1239	297	67	784
Smith, John O., Nashville, Tenn. Feed-mill	518,123	Apr. 10	1177	295	67	231
Smith, John W., Galesburg, Ill. Lightning-rod and coupling	518,793	Apr. 24	2352	583	67	474
Smith, Joseph B., Manchester, N. H. Electric switch	518,471	Apr. 17	1803	446	67	362
Smith, Joseph B., Manchester, N. H. Telephone-switch	521,274	June 12	922	218	67	1377
Smith, Joseph B., Manchester, N. H. Telephone-transmitter	521,325	June 12	1016	239	67	1395
Smith, Joseph H., Plymouth, Ohio. Rock-drill	520,619	May 29	2912	704	67	1138
Smith, Matthias. (See Crandall and Smith.)						
Smith, Miller A., Brooklyn, and W. Clabaugh, assignors to New York Electrical Works, New York, N. Y. Electric-railway overhead switch	520,971	June 5	393	95	67	1269
Smith, Oberlin, Bridgeton, N. J., assignor of one-half to G. Draper & Sons, Hopedale, Mass. Warp stop-motion for looms	521,298	June 12	967	229, 230	67	1385
Smith, Orson W., assignor of one-half to A. G. Chaloupka, Charlevoix, Mich. Grave-stone or monument	518,552	Apr. 17	1929	477	67	384
Smith, Richard H., and W. F. Tripp, Springfield, Mass. Hand printing device	518,515	Apr. 17	1872	464	67	374
Smith, Samuel C. (See White, Albert, assignor.)						
Smith, Samuel K., New Brighton, Pa. Kiln for burning brick, pottery, &c.	517,893	Apr. 10	777	194	67	164
Smith, Stephen T., Darien, Conn., assignor of one-half to C. F. Lantry, New York, N. Y. Car-coupling	518,631	Apr. 24	2063	513	67	492
Smith, Thomas W., and J. G. Price, assignors to Oliver Iron and Steel Company, Pittsburg, Pa. Die for making end-gate rods for wagons	520,837	June 5	152	33	67	1225

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Smith, William, Clarinda, Iowa, assignor of one-half to A. D. Smith, Chicago, Ill. Rotary engine	517,985	Apr. 10	945	237, 238	67	192
Smith, William, Clarinda, Iowa, assignor of one-half to A. D. Smith, Chicago, Ill. Rotary steam-engine	517,986	Apr. 10	948	238	67	192
Smith, William C., assignor to M. J. O'Donnell & Co., Cleveland, Ohio. Controller for elevators	519,459	May 8	935	225, 226	67	731
Smith, William E. (See Smith, John H., J. R., and W. E.)						
Smith, William F., San Francisco, Cal. Telephone-call recorder	521,422	June 12	1182	281, 282	67	1428
Smith, William T., assignor to Wm. Knabe & Co. Manufacturing Company, Baltimore, Md. Upright piano or organ	519,797	May 15	1526	372	67	850
Smyth, Charles G., assignor to National Cash Register Company, Dayton, Ohio. Cash-register	521,678	June 19	1648	386	67	1528
Smyth, William H., Berkeley, Cal. Can-head-soldering machine	519,206	May 1	479	116	67	629
Snead & Company Iron Works. (See Snead and Burns, assignors.)						
Snead, Udolpho and W. R., and W. M. Burns, assignors to Snead & Company Iron Works, Louisville, Ky. Shelf structure	520,191	May 22	2205	537	67	990
Snead, William R. (See Snead and Burns.)						
Snedeker, Elbert, *et al.* (See Sherman, Willis D., assignor.)						
Snediker, William E., Trenton, N. J. Vise	519,008	May 1	112	27	67	557
Snediker, William E., Trenton, N. J. Vise	519,028	May 1	145	35	67	564
Snell Cycle Fittings Company. (See Bishop, Alfred H., assignor.)						
Snell, Luther C., Detroit, Mich. Apparatus for storing and feeding oil	519,439	May 8	908	219	67	726
Sniffin, George. (See O'Connell and Sniffin.)						
Snow, Levi T., New Haven, assignor of one-half to O. D. Woodruff, Southington, Conn. Rotary meat-cutter	518,047	Apr. 10	1058	268	67	210
Snowman, Herman C. F. E. New Paltz, N. Y. Stopple for bottles	518,081	Apr. 10	1104	279	67	217
Snyder, Charles F., St. Louis, Mo., assignor to H. B. and C. F. Stout, Chicago, Ill. Curling-iron	520,903	June 5	272	65	67	1247
Snyder, Charles F., St. Louis, Mo., assignor to H. B. and C. F. Stout, Chicago, Ill. Curling-iron	520,904	June 5	273	66	67	1247
Snyder, Frank E., Massillon, Ohio. Combination-tool	518,283	Apr. 17	1459	365	67	300
Snyder, George C., assignor of one-half to H. D. H. Snyder, Chicago, Ill. Fence	521,275	June 12	923	219	67	1377
Snyder, Henry D. H. (See Snyder, George C., assignor.)						
Snyder, John C., *et al.* (See Allen, Harvey, assignor.)						
Snyder, John J., *et al.* (See Allen, Harvey, assignor.)						
Snyder, Samuel L., Clearfield, Pa. Screw-driver	518,472	Apr. 17	1804	446	67	362
Society Lepage & Cie. (See Lavy, Alphonse, assignor.)						
Society of Chemical Industry in Basle. (See Schmid and Bachelut, assignors.)						
Sodergren, Eric, Brooklyn, N. Y. Sofa-bed	519,207	May 1	483	117	67	631
Soffel, August, Brooklyn, N. Y. Safety-guard for cars	521,966	June 26	2169	520	67	1643
Solean, Edward R., assignor of one-half to I. F. Roe, Newark, N. J. Heating apparatus	521,348	June 12	1070	250, 251	67	1406
Solvay, Ernest, Brussels, Belgium, assignor to Solvay Process Company, Syracuse, N. Y. Purifying ammonia	518,428	Apr. 17	1725	430	67	348
Solvay, Ernest, Brussels, Belgium, assignor to Solvay Process Company, Syracuse, N. Y. Apparatus for causticising ammonia-liquor	518,429	Apr. 17	1728	430	67	349
Solvay Process Company. (See Solvay, Ernest, assignor.)						
Somers, Robert W., Fremont, Nebr. Scrubbing-machine	519,100	May 1	273	65	67	588
Sommer, Henry P., Chicago, Ill. Electric time-alarm	518,971	May 1	56	14	67	546
Sommerfruechte, Emil A., St. Louis, Mo. Carriage-top	518,746	Apr. 24	2280	566	67	460
Sorley, Charles, and J. K. Pumpelly, assignors to Pumpelly-Sorley Storage Battery Company, Chicago, Ill. Forming storage-battery plates	521,897	June 26	2033	490	67	1619
Soucek, Joseph, Allegheny, Pa. Triple valve for fluid-pressure brake systems	518,705	Apr. 24	2199	549	67	446
South Bend Iron Works. (See Anderson, Charles, assignor.)						
Southard, C. B., trustee. (See Hodges and Havenstrite, assignors.)						
Southard, Calvin B., St. Albans, Me. Box-machine	521,234	June 12	839	196, 197	67	1362
Southbridge Optical Company. (See Bugbee and Reno, assignors.)						
Southern Cotton Harvester Company. (See Turner, Leonard R., assignor.)						
Southwell, George, Westport, Mo. Billiard-cue chalker	519,356	May 8	774	189	67	701
Southwick, Charles A., Peabody, Mass. Automatic water-feeder	518,866	Apr. 24	2463	610	67	493
Southworth, Walter H., assignor of two-thirds to V. A. Cordes and J. A. Webb, Memphis, Tenn. Automatic switch	517,595	Apr. 3	291	68	67	57
Spacke, Fred W., Indianapolis, Ind. Centrifugal high-speed governor	521,483	June 19	1318	307	67	1468
Spalding, Zephaniah S., Koalia, Island of Kauai, Sandwich Islands. Filtration of liquids	517,966	Apr. 10	911	228	67	187
Spang, George A., North Tonawanda, N. Y. Pressure-blower	519,650	May 8	1286	308	67	792
Sparks, William E., assignor to Sargent & Company, New Haven, Conn. Padlock	521,994	June 26	2230	536	67	1654
Sparling, Fletcher, Boston, Mass. Switch-actuator for street-cars	518,972	May 1	56	14	67	547
Sparr, Benjamin F., Brooklyn, N. Y. Steam-engine	520,456	May 29	2645	639	67	1089
Spaulding, Algernon S., Worcester, Mass., assignor to Flexible Door and Shutter Company, Portland, Me. Flexible door	520,089	May 22	2011	491	67	955
Spaulding, James W., *et al.* (See Boomhower, Eli E., assignor.)						
Spaulding, Philo B. (See Gazlay, Henry W., assignor.)						
Spear, James, Philadelphia, Pa. Stove or range	521,827	June 26	1909	458	67	1594
Spears, John E., Brooklyn, N. Y. Index	521,324	June 12	1015	239	67	1394
Spears, Ralph R. (See Grafton and Spears.)						
Spears, William A. (See Kirchner and Spears.)						
Specialty Company. (See Cleland, John W., assignor.)						
Speed, Charles F., E. W. Barker, and C. P. Frank, Duluth, Minn. Electric switch	517,773	Apr. 3	602	148	67	116
Spencer, Alvah C. (See Hanscom and Spencer.)						
Spencer, C. Homer. (See Wallace, Fredrick B., assignor.)						
Spencer, David, Shenandoah, Va. Rod or valve packing box	521,575	June 19	1473	345	67	1496
Spencer, Dennis. (See Gwynn and Spencer.)						
Spencer, Joseph, Cornwall, Canada. Paper-cutting machine	519,075	May 1	235	55	67	581
Spencer, Thomas, Philadelphia, Pa. Alternating-current arc-lighting system	519,849	May 15	1604	392	67	865
Sperry, Erwin S., Bridgeport, Conn., assignor, by mesne assignments, to Waldo Foundry, of New Jersey. Liquid-fuel furnace	518,794	Apr. 24	2353	583	67	474
Spielmann, Charles, Brooklyn, assignor to W. A. Force & Co., New York, N. Y. Consecutive-numbering machine	518,632	Apr. 24	2064	513, 514	67	422
Spillan, William D. (See Briody, Thomas P., assignor.)						
Spitzer, Alfons, Buda-Pesth, assignor to W. Kralik Sohn, Eleonoronhain, Austria-Hungary. Making rose-red glass	518,336	Apr. 17	1554	.....	67	316
Spofford, Carlton J., Dolgeville, N. Y. Bicycle-tire	519,976	May 15	1813	444	67	904

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Spofford, Marcellus E., Keene, N. H. Faucet	519,049	May 1	179	43	67	571
Spooner, Spencer, Brooklyn, N. Y., assignor to Jennings Lace Works, of New York. Warp fabric	519,101	May 1	275	65	67	588
Sporborg, W. L. (See Lintner, William T., assignor.)						
Sprague, Charles A., Dayton, Ohio. Stamp-sticking device	517,494	Apr. 3	133	29	67	28
Sprague, Gustavus A. II. (See McIntyre and Sprague.)						
Sprague, James H., Norwalk, Ohio. Self-closing umbrella	521,828	June 26	1910	458	67	1594
Springer Automatic Thrasher Company. (See Springer, William N., assignor.)						
Springer, Lorin C., Chicago, Ill. Automatic boiler-feed	518,009	Apr. 10	993	248	67	200
Springer, William N., Fortville, assignor to Springer Automatic Thrasher Company, Anderson, Ind. Thrashing-machine	518,706	Apr. 24	2201	549	67	446
Springfels, Charles F., Buffalo, N. Y. Snow or ice melting apparatus	520,941	June 5	352	85	67	1261
Squier, Wilbur P., Blair, Nebr. Signal	519,009	May 1	113	27	67	557
Squires, Asa P., Chicopee Falls, Mass. Felly for bicycle-wheels	521,187	June 12	772	181	67	1350
St. George, William H., Ashland, Mass. Automatic tension-regulator for spooling-machines	517,495	Apr. 3	134	29	67	28
St. Louis, Antoine. (See Pelkey and St. Louis.)						
St. Louis Car Coupler Company. (See Wolcott and O'Hara, assignors.)						
St. Louis Stamping Company. (See Niedringhaus, George W., assignor.)						
Staber, George, Brooklyn, N. Y. Wood-embossing machine	518,902	Apr. 24	2534	627	67	508
Stacy, George W., Detroit, Mich. Shoe-holder for nailing-machines	519,208	May 1	485	117, 118	67	631
Stafford, George W., Providence, R. I. Shuttle-box-operating mechanism for looms	521,576	June 19	1474	345	67	1496
Stafford, George W., Providence, R. I. Shuttle-box-operating mechanism for looms	521,577	June 19	1476	345	67	1496
Stahl, Erasmus. (See Annenberg and Stahl.)						
Stahl, Sebald, assignor to H. Lindner, Nuremberg, Germany. Band or cord self-acting up-roller on jalousies	521,276	June 12	923	219	67	1378
Stallard, Sherman R., Merit, Tex. Calculating-machine	518,284	Apr. 17	1461	365, 366	67	300
Stamp, John G., Buffalo, N. Y. Air-injector	517,629	Apr. 3	350	83	67	68
Stamp, John G., Buffalo, N. Y. Hydraulic elevator	518,377	Apr. 17	1646	406, 407	67	333
Stanbrough, Rufus G., New York, N. Y. Dental engine	520,867	June 5	206	46	67	1235
Standard Pearl Button Company. (See Carlyle, George, assignor.)						
Standard Sewing Machine Company. (See Mack, William A., assignor.)						
Stanford, Lewis A., Bradford, Pa. Ditching-machine	517,774	Apr. 3	604	148, 149	67	117
Stanley, James, Newark, N. J. Hame-link	520,457	May 29	2646	639	67	1089
Stanley Laboratory Company. (See Kelly, John F., assignor.)						
Stanley Laboratory Company. (See Kelly and Cheaney, assignors.)						
Stanley Laboratory Company. (See Stanley, William, Jr., assignor.)						
Stanley, Lucius T., Brooklyn, N. Y., assignor to H. B. Cutter, Philadelphia, Pa. Automatic electromagnetic cut-out	521,423	June 12	1187	282	67	1428
Stanley Manufacturing Company. (See Moulton, James N., assignor.)						
Stanley, William, Jr., assignor to Stanley Laboratory Company, Pittsfield, Mass. Alternating-current motor	520,620	May 29	2913	704	67	1138
Stanley Works. (See Corscaden, Thomas, assignor.)						
Staple Fastening Machine Company. (See Hamm, William S., assignor.)						
Staples, John H., Boston, assignor of one-half to E. Piccott, Somerville, Mass. Turbine water-wheel	518,795	Apr. 24	2355	583, 584	67	474
Star Coupler Company. (See Friede, Samuel M., assignor.)						
Starck, Herman. (See Knechler and Starck.)						
Stark, Andrew, Chicago, Ill. Harvester-elevator	521,484	June 19	1320	308	67	1469
Stark, Andrew, Chicago, Ill., assignor of one-half to Warder, Bushnell & Glessner Company, Springfield, Ohio. Grain-binder	520,458	May 29	2646	639, 640	67	1089
Stark, George, *et al.* (See Schweim, Herman, assignor.)						
Starke, August L., New York, N. Y. Rail-tie plate and brace	520,276	May 22	2350	570	67	1017
Starkey, A. W., *et al.* (See Bright, William H., assignor.)						
Starks, Nils O., Madison, Wis. Harrow	521,392	June 12	1134	267, 268	67	1418
Stearns & Co., E. C. (See Seely, Obadiah, assignor.)						
Stearns, De Witte, Chicago, Ill. Gas-generator	518,202	Apr. 10	1324	330, 331	67	259
Stearns, Otis W., Johnson, Vt. Road worker and scraper	518,473	Apr. 17	1805	447	67	362
Stebbins, Theodore. (See Hopkins and Stebbins.)						
Stedman, Nathan, assignor to Stedman's Foundry and Machine Works, Aurora, Ind. Disintegrator	518,010	Apr. 10	994	248	67	200
Stedman, Nathan, assignor to Stedman's Foundry and Machine Works, Aurora, Ind. Disintegrator	518,011	Apr. 10	995	248, 249	67	200
Stedman, Rufus T., Winston, N. C. Tobacco-cutter	518,867	Apr. 24	2465	611	67	494
Stedman's Foundry and Machine Works. (See Stedman, Nathan, assignor.)						
Steel, Robert G. (See Peck, Luke R., assignor.)						
Steel, W. Irving. (See Algeo, Charles C., assignor.)						
Steelman, John C., Linwood, N. J. Cleat	521,056	June 5	542	127	67	1295
Steelman, Joseph C., Philadelphia, Pa. Device for affixing postage or other stamps to envelopes, &c	521,625	June 19	1562	364, 365	67	1511
Steen, Nevada, Corpus Christi, Tex. Gage for bias-cutters	519,509	May 8	1025	248	67	745
Steffin, Albert, assignor to Mount Washington Glass Company, New Bedford, Mass. Decorated glass and decorating same	520,125	May 22	2069	.....	67	966
Stegemann, August, Berlin, Germany. Magazine plate-holder	519,276	May 1	602	146, 147	67	654
Stein, Leo, and N. Rappleyea, Rochester, assignors to National Casket Company, New York, N. Y. Burial-casket	518,553	Apr. 17	1930	477	67	384
Steinbart, Alfred. (See Uehling, Edward A., assignor.)						
Steinbart, Alfred. (See Uehling and Steinbart.) Reissue.						
Steininger, Jacob A., Creston, Iowa. Brake-cylinder pressure graduating and maintaining triple valve	517,895	Apr. 10	781	195	67	165
Steinmann, Frank, St. Louis, Mo. Machine for making hooks for stretching curtains	517,775	Apr. 3	606	149, 150	67	117
Stendel, Ferdinand C., Chicago, Ill. Railway-crossing track-cleaner	520,192	May 22	2207	537	67	990
Stephan, Friedrich C., Crimmitschau, Germany. Apparatus for measuring textile fabrics	519,277	May 1	605	147	67	654
Stephens, George H., London, England. Boot-tree	519,877	May 15	1655	402	67	874
Sterling Company. (See Pell, Harry S., assignor.)						
Sterling, Robert, Hartington, Nebr. Mechanical movement	521,393	June 12	1135	268	67	1418
Sternberg, George F. (See Schmitt, Louis H., assignor.)						
Steur, John J., Albany, N. Y. Portable fire-escape	518,633	Apr. 24	2067	514	67	422

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Stevens, Abram W., and L. D. Swart, assignors to A. W. Stevens & Son, Auburn, N. Y. Transplanting-machine	519,460	May 8	938	226, 227	67	731
Stevens, Alfred L. (See Euchenhofer, Weinman, and Stevens.)						
Stevens, Alfred L., assignor of two-thirds to J. M. Phelps and C. W. Uthbrok, Dayton, Ohio. Labeling-machine	517,896	Apr. 10	783	195, 196	67	165
Stevens, Alfred L., assignor of two-thirds to J. M. Phelps and C. W. Uthbrok, Dayton, Ohio. Labeling-machine	517,897	Apr. 10	785	196, 197	67	165
Stevens, Alfred L., assignor of two-thirds to J. M. Phelps and C. W. Uthbrok, Dayton, Ohio. Can-labeling machine	517,898	Apr. 10	786	197, 198	67	166
Stevens Cask and Barrel Company. (See Stevens and Baker, assignors.)						
Stevens, Harry S. (See Kay, William G., assignor.)						
Stevens, John H., Jr., Cambridge, Mass. Water-closet	519,878	May 15	1656	403	67	875
Stevens, John H., Jr., Cambridge, Mass. Detachable sprinkler for baths	519,879	May 15	1658	403	67	875
Stevens, John H., assignor, by mesne assignments, to Celluloid Company, Newark, N. J. Manufacture of solid compounds of pyroxylin	517,987	Apr. 10	949	.....	67	193
Stevens, Marshall G., Merchantville, N. J. Lantern	521,829	June 26	1912	458	67	1595
Stevens, S. George, *et al.* (See Lawlor, Sim C., assignor.)						
Stevens & Son, A. W. (See Stevens and Swart, assignors.)						
Stevens, Thomas G., Swanscombe, and J. Baker, Greenhithe, assignors to Stevens Cask and Barrel Company, Limited, London, England. Cask	518,537	Apr. 17	1908	472	67	380
Stevens, Willard B., New York, N. Y. Bottle-stopper	519,510	May 8	1026	248	67	746
Stevenson, David, Cold Spring, N. Y. Metal-boring machine	521,922	June 26	2075	498, 499	67	1627
Stevenson, Homer R., Salem, Ill. Corn-harvester	517,899	Apr. 10	789	198, 199	67	166
Stevenson, John, Jr., and C. J. Johnson, New Castle, Pa. Metal-coiling apparatus	520,942	June 5	353	86	67	1261
Stevenson, John L., Chicago, Ill. Corn-broom	520,546	May 29	2706	675	67	1115
Stevenson, William H. (See Hoggson, Samuel H., assignor.)						
Steward, John A., East Clarendon, Vt. Pail	518,707	Apr. 24	2202	550	67	447
Steward, John A., Clarendon, Vt. Mechanism for seaming sheet-metal cans	519,594	May 8	1187	286, 287	67	775
Steward, John F., Lake Odessa, Mich. Knotter for harvesting-machines	519,395	May 8	842	204	67	713
Stewart, Alexander T. (See Bell and Stewart.)						
Stewart, Benjamin F., Canton, Ohio. Grain-binder	518,747	Apr. 24	2221	566, 567	67	460
Stewart, John. (See Davids, Charles H., assignor.)						
Stewart Manufacturing Company. (See Stewart, Samuel, assignor.)						
Stewart, Murray R., *et al.* (See Murdock, Harvey W., assignor.)						
Stewart, Samuel, assignor to Stewart Manufacturing Company, Newark, N. J. Gas water-heater	519,357	May 8	776	189, 190	67	701
Stewart, Thomas R. (See Deats and Stewart.)						
Stewart, William H., assignor of one-half to C. S. Smith, Kansas City, Kans. Wind-engine	519,977	May 15	1814	444, 445	67	904
Stickney, Charles W., Butte, Mont. Converter	517,939	Apr. 10	852	215	67	178
Stiefel, August W., Baltimore, Md. Safety car-fender	518,796	Apr. 24	2356	584	67	474
Stifel, Edward W., Wheeling, W. Va. Pin for attaching flowers to dresses	518,868	Apr. 24	2466	611	67	494
Stiefelhagen, William, Buffalo, N. Y. Tray for displaying chains	520,943	June 5	354	86	67	1262
Stiker, Flavius P., assignor of one-half to A. Van Denvouver, Buffalo, N. Y. Support for rail-joints	518,634	Apr. 24	2069	514, 515	67	423
Stiles, Fred P., Sparta, Wis. Ribbon-reversing mechanism for type-writing machines	521,091	June 5	607	143	67	1306
Still, Edward L., New York, N. Y. Combination furniture	519,930	May 15	1733	425	67	889
Still, Oliver H., assignor of one-half to W. R. Lamb, East Greenwich, R. I. Dress-protector	518,378	Apr. 17	1648	407	67	334
Still, William J., Toronto, Canada. Electric motor	517,669	Apr. 3	431	104, 105	67	82
Still, William J., assignor of one-half to R. MacDonald, Toronto, Canada. Electric motor	517,668	Apr. 3	427	104	67	82
Stillman, William M., *et al.*, executors. (See Babcock, George H.)						
Stimson, Charles W., New York, N. Y. Clasp for garment-supporters	521,830	June 26	1913	459	67	1595
Stivers, Rufus M. (See Barker, Jeremiah J., assignor.)						
Stocke, Jacob, *et al.* (See Fernholtz, Emil, assignor.)						
Stocker, Charles, Jr., Saginaw, Mich. Elevator-gate	517,496	Apr. 3	136	30	67	28
Stocker, Thomas, St. Louis, Mo. Pocket register and indicator	518,797	Apr. 24	2357	584	67	475
Stockwell, John W. (See Bowley, Joseph H., assignor.)						
Stoddard Manufacturing Company. (See Green, Albert J., assignor.)						
Stoker, George W., assignor to O. L. Hulbert, Kansas City, Mo. Adjustable box-cover	518,554	Apr. 17	1932	477	67	384
Stokes Bros. Manufacturing Company. (See Stokes, John H., assignor.)						
Stokes, Isaac N. P., New York, N. Y. Breech-loading gun	521,831	June 26	1916	459	67	1595
Stokes, John H., assignor to Stokes Bros. Manufacturing Company, Freehold, N. J. Machine for making rasps	521,424	June 12	1189	282, 283	67	1428
Stokes, Thomas C., *et al.* (See Fuchs, Nathan, assignor.)						
Stone, Hamilton W., St. Louis, Mo. Steam-radiator	521,832	June 26	1919	460	67	1596
Stone, Henry C., assignor to O. A. Stone, South Evanston, Ill. Frictional clutch for harvesters	521,485	June 19	1323	308	67	1469
Stone, John A., Vail, Iowa. Corn-harvesting machine	521,679	June 19	1650	387	67	1529
Stone, John A., Vail, Iowa. Corn-harvesting machine	521,680	June 19	1653	388	67	1529
Stone, John A., Vail, Iowa. Corn-harvesting machine	521,681	June 19	1655	388, 389	67	1530
Stone, Laura M., Rochester, N. Y. Gas-stove	518,903	Apr. 24	2536	627, 628	67	508
Stone, Laura M., Rochester, N. Y. Water-heater for gas-stoves	519,050	May 1	180	43	67	571
Stone, Olive A. (See Stone, Henry C., assignor.)						
Stoney, R. J., Jr., *et al.* (See Kleber, Oscar L., assignor.)						
Stoops, Andrew J. (See Reed and Stoops.)						
Storer, Jacob J., Helena, Mont., assignor, by mesne assignments, to Economic-Sanitary Company, of Montana. Furnace for treating refuse of cities	518,285	Apr. 17	1464	366	67	301
Storey, Herbert L., *et al.* (See Farmer, James S., assignor.)						
Storey, Isaac H., *et al.* (See Farmer, James S., assignor.)						
Stork, Theodor P. (See Boeing and Stork.)						
Stotsenburg, John H. (See Wyman, Charles E., assignor.)						
Stout, Charles F., *et al.* (See Snyder, Charles F., assignor.)						
Stout, Howard B., *et al.* (See Snyder, Charles F., assignor.)						
Stout, John W. (See Crossley, Stout, and Rigdon.)						
Stoveken, Matthias. (See Meyers and Stoveken.)						
Stover, Cochran C., McKee's Rocks, Pa. Oil-well casing rig	519,651	May 8	1288	308	67	792

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Stow, Henry W., deceased, New Haven, Conn.; T. F. Booth, administrator. Machine for ripping or dividing boards	518,655	Apr. 24	2108	526, 527	67	430
Stowe, Charles E., McAdensville, N. C. Button	520,621	May 29	2915	705	67	1138
Stranahan, Olin A. (See Roney and Stranahan.)						
Strasburg, Charles F., Lincoln, Nebr. Trolley-wire hanger	519,621	May 8	1241	298	67	784
Stratton, Charles H., Buffalo, N. Y. Vehicle	517,988	Apr. 10	956	238, 239	67	193
Stratton, Jairus L., Chicago, Ill., and F. Murdock, Kansas City, Kans. Disinfecting apparatus. (Reissue)	11,418	May 1	676	165	67	668
Straus Theodore, Baltimore, Md. Automatic trolley-wire finder	518,357	Apr. 17	1603	397	67	326
Strauss, Emil, Berlin, Germany. Oil-vapor heating apparatus	519,396	May 8	844	204	67	714
Streator, Henry D., Galesburg, Mich. Preserving-case	518,286	Apr. 17	1467	367	67	301
Strecker, Henry, Marietta, Ohio. Boiler-tube expander	519,278	May 1	606	147	67	654
Streeter, Nelson R., and C. P. Mosher, Groton, N. Y. Chain pipe-wrench	520,712	May 29	3084	746	67	1169
Streuber, Gustav A. F., assignor of one-half to F. Rothmann, Oakland, Cal. Beer-faucet	519,931	May 15	1735	425	67	889
Strickland, James T. (See Parker, William H., assignor.)						
Strickland, Joseph C. (See Eckley and Strickland.)						
Stromberg, Alfred, assignor of one-half to M. Simons, Chicago, Ill. Electric burglar-alarm. Reissue)	11,423	June 26	2543	611	67	1713
Stromberg, Alfred, and A. Carlson, Chicago, Ill. Magneto-telephone	521,188	June 12	772	181	67	1350
Stromberg, Alfred, and A. Carlson, Chicago, Ill. Telephone-switch	521,514	June 19	1373	319	67	1478
Strong, Arthur J., Brooklyn, N. Y. Firearm	517,989	Apr. 10	957	239	67	193
Strong, Rollin M., and C. F. Reed, Omaha, Nebr. Electric railway-signal	519,732	May 15	1737	425, 426	67	889
Strusholm, Anders M., Perth Amboy, N. J. Making enameled brick, tiles, &c	520,868	June 5	207	.....	67	1235
Strusholm, Anders M., Woodbridge, N. J., assignor to R. W. Lyle, New York, N. Y. Downdraft muffle-kiln	518,012	Apr. 10	995	249, 250	67	200
Stuart, Charles C., assignor to Glen Cove Machine Company, Brooklyn, N. Y. Belt-tightener	520,580	May 29	2855	690	67	1127
Stuart, Charles C., assignor to Glen Cove Machine Company, Limited, Brooklyn, N. Y. Power attachment for side cutter-heads	520,581	May 29	2856	691	67	1128
Stuart, Charles C., assignor to Glen Cove Machine Company, Brooklyn, N. Y. Device for weighting feed-rolls	520,582	May 29	2858	691	67	1128
Stubbs, Roland H., Waterford, N. Y. Heating apparatus	518,798	Apr. 24	2359	584, 585	67	475
Stuckey, Henry, Bucyrus, Ohio. Brick-machine	521,349	June 12	1073	251, 252	67	1407
Stuckey, Mortimer, and H. Arthur, Adelaide, South Australia. Apparatus for the concentration or separation of ores	518,082	Apr. 10	1105	280	67	218
Studabaker, Hugh D., Bluffton, Ind. Register for rotations of vehicle-wheels, &c	521,682	June 19	1657	389	67	1530
Stump, Ira E., Richville, assignor of one-half to J. E. Van Nostran, Canton, Ohio. Hay-loader	518,555	Apr. 17	1933	478	67	384
Stupe, Richard E. (See Henneman, John, assignor.)						
Sturdy, Nathan, Chicago, Ill. Potato-digger	521,057	June 5	543	127, 128	67	1295
Sturgis, Julius F. (See Kissinger, Thomas, assignor.)						
Sturgiss, James, Edgerton, Mo. Window-shade exhibitor	519,414	May 8	870	210	67	719
Sturtevant, Charles A., Plainfield, N. J. Fire-escape	519,397	May 8	844	204	67	714
Sturtevant, Charles L., administrator. (See Richardson and Fidler.)						
Sudbrock, Joseph, Jr., Belleville, Ill. Rotating grain-weigher	518,287	Apr. 17	1468	367	67	301
Sullivan, Christine, Cincinnati, Ohio. Model-stand	521,833	June 26	1920	460	67	1596
Sümmermann, Carl, Münster, Germany. Horizontally-sliding window, door, or the like	520,713	May 29	3085	746, 747	67	1169
Suppes, Maximilian M., Johnstown, Pa. Draw-bar	520,090	May 22	2012	491	67	955
Surtin, John H., assignor of two-thirds to R. McCulloch and W. Sutton, St. Louis, Mo. Oil-drawer journal-box	517,776	Apr. 3	607	150	67	118
Suspension Arch Fire Proofing Company. (See McCarthy, Mitchell F., assignor.)						
Sutcliffe, William W., New Orleans, La. Bagasse-furnace	517,497	Apr. 3	137	30	67	28
Suter, Jacob, New York, N. Y. Door-check	522,091	June 26	2379	572, 573	67	1682
Sutphen, John T. (See Buffington and Sutphen.)						
Sutro, Adolph, San Francisco, Cal. Swimming-pool or bath	520,342	May 22	2463	597	67	1038
Sutton, Eugene S., Snohomish, Wash. Clothes-drier	520,501	May 29	2724	660	67	1102
Sutton, Joseph W., Chelmer, Queensland. Process of and apparatus for extraction of gold or silver from ores	521,898	June 26	2034	490, 491	67	1619
Sutton, Joseph W., Chelmer, Queensland. Separating gold from its chlorid solutions	521,899	June 26	2036	.....	67	1620
Sutton, William, *et al.* (See Surtin, John H., assignor.)						
Swain, Hadwen, San Francisco, Cal. Gas-engine	519,880	May 15	1659	403, 404	67	875
Swan, James, Seymour, Conn. Screw-driver	520,091	May 22	2013	492	67	956
Swan, James, Seymour, Conn. Hollow auger	520,502	May 29	2725	660	67	1102
Swan, William W., Andover, S. D. Ball-bearing drilling swivel	521,942	June 26	2119	508	67	1635
Swanbum, Sanford, assignor to I. L. Ellwood Manufacturing Company, De Kalb, Ill. Barb-wire machine	520,459	May 29	2650	640, 641	67	1089
Swart, Lester D. (See Stevens and Swart.)						
Swartz, George W., Florence, Ala. Electric train lighting and braking system	517,498	Apr. 3	140	31	67	29
Swedlund, Erick J., Atwater, Minn. Bicycle-gear	519,803	May 15	1739	426	67	890
Sweet, Frank, Kirksville, Mo. Adding-machine	519,358	May 8	778	190	67	701
Sweet, John E. (See Trump and Sweet.)						
Sweger, George B., Chicago, Ill. Sigmoid irrigator	520,275	May 22	2350	570	67	1017
Sweigard, Emanuel W., Chicago, Ill. Locking hat and coat hook	519,102	May 1	277	66	67	589
Sweitzer, Frank P., Chicago, Ill. Index	519,622	May 8	1242	298	67	785
Swetnam, Ecca R. (See Campbell, Joseph E., assignor.)						
Swickard, John W., assignor to E. K. Hayes, Galva, Ill. Wheel-plow	520,905	June 5	274	66	67	1247
Swift, Charles N., New York, N. Y. Cigar-case	520,092	May 22	2014	492	67	956
Swift, Daniel W. (See Swift, Henry D. and D. W.)						
Swift, Henry D. and D. W., assignors, by mesne assignments, to Logan, Swift & Brigham Envelope Company, Worcester, Mass. Envelope-machine	520,147	May 22	2126	519	67	975
Swift, Oliver F. (See Mix, Eugene M. and J. E., assignors.)						
Swift, William H. (See Bonehill, Louis R., assignor.)						
Swindle, Lafayette, Franklin, Ill. Leaf-turner	519,934	May 15	1740	426	67	890
Switzer, George, Lodi, Ohio. Car-coupling	517,967	Apr. 10	913	229	67	187
Switzer, George S., *et al.* (See Donahoo, Peter B., assignor.)						
Sylvester, Warren B., Portland, Ind. Tub roller and shaper	521,739	June 19	1748	415	67	1548
Symington, Duncan, assignor of one-half to Frontier Iron Works, Detroit, Mich. Steam-engine governor	518,728	Apr. 24	2246	559	67	454

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Symington, Thomas H., Baltimore, Md. Dust-guard for axle-boxes	518,288	Apr. 17	1469	368	67	301
Symon, Robert R. (See House, Henry A. and Henry A., Jr., assignors.)						
Syracuse Arms Company. (See Hollenbeck, Frank A., assignor.)						
Syracuse Specialty Manufacturing Company. (See Dickinson, Austin R., assignor.)						
Syversen, Andreas, deceased; O. E. O. Hoell, O. C. Land, and H. Thompson, executors, assignors to Chicago Corrugated Elbow Company, Chicago, Ill. Stovepipe-elbow machine	519,062	May 1	204	47, 48	67	575
Sznkalski, Marian, Newton, Wis. Mower attachment	518,430	Apr. 17	1731	430	67	349
Tabor, Harris, Elizabeth, N. J. Fluid-brake valve	518,289	Apr. 17	1470	368	67	302
Taft, Cyrus A., assignor to Whitin Machine Works, Whitinsville, Mass. Stop-motion	519,295	May 1	638	155	67	660
Taft, Jerome C., Providence, R. I. Die for the manufacture of twist-drills	518,205	Apr. 10	1328	332	67	260
Talbert, Daniel H., Knightstown, Ind. Fence	519,743	May 15	1433	346	67	833
Talbot, Benjamin, Pencoyd, Pa. Manufacture of steel	522,034	June 26	2291	.....	67	1665
Tanner, Allen J., assignor of one-half to A. O. Holmes, Franklinville, N. Y. Can-filling machine	518,973	May 1	57	14, 15	67	547
Tannewitz, Edward, Grand Rapids, Mich. Pivot-bearing for platform-scales	519,485	May 8	991	240	67	739
Tanquary, Cassius M., assignor of one-half to A. Garrett, Sparland, Ill. Feeder for thrashing-machines	519,029	May 1	146	35, 36	67	564
Tasker, Stephen P. M., Philadelphia, Pa. Rotary-engine	518,635	Apr. 24	2070	{515 {516	67	424
Taylor, Barnett, Forestville, Minn. Beehive	519,652	May 8	1290	308	67	793
Taylor, Benjamin S., and C. Heritage, Hampden, Mass. Stop-motion for looms	520,277	May 22	2351	{570 {571	67	1017
Taylor, Call. (See Taylor, John and C.)						
Taylor, Charles H., South Orange, N. J. Car-coupling	517,670	Apr. 3	436	105	67	83
Taylor, Charles H., Lincoln, Nebr. Corn separator, husker, and fodder-slitter	518,352	Apr. 17	1604	397	67	326
Taylor, Douglas. (See Young, Walter S., assignor.)						
Taylor, Eugene H. (See Cole and Taylor.)						
Taylor, Eugene H., Lynn, Mass. Machine for covering paper boxes	521,299	June 12	974	230	67	1386
Taylor, Frank H., and F. Riley, Joliet, Ill. Oil-cellar for driving-boxes for locomotives	521,515	June 19	1374	319	67	1478
Taylor, Frederick, Lowell, Mass. Coat and hat hook. (Reissue)	11,416	Apr. 24	2600	643	67	519
Taylor, John and C., Detroit, Mich. Apparatus for raising sunken vessels	517,630	Apr. 3	352	83	67	69
Taylor, Robert M., Melrose, Mass. Manufacture of artificial ice	519,359	May 8	779	190	67	702
Teetor, Martin V., *et al.* (See Barber, Arthur J., assignor.)						
Tell, Richard, Milwaukee, Wis. Tobacco-tying machine	521,189	June 12	774	{181 {182	67	1350
Temler, Joseph, Warsaw, Russia. Apparatus for applying gummed ornamental paper strips on pasteboard	521,871	June 26	1976	477	67	1607
Tempest, John. (See Rankin and Tempest.)						
Temple, William, Windsor, N. Y. Horse-boot	520,193	May 22	2207	538	67	990
Tenney, Nason M., and G. W. Harrison, Plano, Ill. Corn-harvester	521,058	June 5	546	{128 {129	67	1296
Ternström, Ernst. (See Bergman and Ternström.)						
Terry, Eugene, assignor of one-half to B. Almy, Ithaca, N. Y. Mucilage-bottle	519,051	May 1	182	43	67	571
Tesla, Nikola, New York, N. Y. Steam-engine	517,900	Apr. 10	792	199	67	167
Tessen, Ewald, Rostock, Germany. Composition for removing paint	521,834	June 26	1921	.....	67	1596
Tetreau, George, Laconia, N. H. Dry-goods board	518,379	Apr. 17	1649	407	67	334
Teufel, George W., Philadelphia, Pa. Ecraseur	519,798	May 15	1527	372	67	851
Teufel, Wilhelm J. (See Schütz and Landerer, assignors.)						
Tewksbury, Andrew J., Haverhill, Mass. Leather-skiving machine	517,631	Apr. 3	353	83, 84	67	69
Tewksbury, Andrew J., Haverhill, Mass. Circular knife for leather-skiving machines	519,744	May 15	1434	346	67	833
Thacher Car and Construction Company. (See Thacher, William A., assignor.)						
Thacher, William A., assignor to Thacher Car and Construction Company, New York, N. Y. Engineer's valve	521,425	June 12	1192	283	67	1429
Thalaker, Edward H., Petersburg, W. Va. Nut-lock	518,165	Apr. 10	1245	312	67	242
Thalmueller, Frank, Jr., Huntingburg, Ind. Fluid-pressure brake	517,901	Apr. 10	794	199	67	167
Thatcher, Charles T., Rochester, N. Y. Cleaning attachment for type-writing machines	521,900	June 26	2038	491	67	1620
Thatcher, Frederick B., Providence, R. I. Bottle-stopper	517,968	Apr. 10	915	229	67	187
Thatcher, Walter R., Oskaloosa, Iowa. Ice-cream freezer	521,426	June 12	1195	284	67	1429
Thayer, Henry J., Boston, Mass. Fishing apparatus	518,013	Apr. 10	997	250	67	260
Theurer, Jacob F., Milwaukee, Wis., assignor to Universal Carbonating Company, Newark, N. J. Apparatus for charging liquids with carbonic acid	519,140	May 1	353	84	67	606
Theurer, Jacob F., Milwaukee, Wis., assignor to Universal Carbonating Company, Newark, N. J. Impregnating beer with carbonic acid	519,141	May 1	355	84, 85	67	606
Thew, John W., Marion, Ohio. Store-service apparatus	518,431	Apr. 17	1732	431	67	350
Thielemann, Oscar, Freiberg, Germany. Baby-carriage	520,622	May 29	2916	705	67	1139
Thies, John B., assignor to Gem City Manufacturing Company, Dayton, Ohio. Liquid-mixer	519,978	May 15	1815	445	67	904
Thofehrn, Hermann, Paris, France. Electrodeposition of metals	519,595	May 8	1190	287	67	776
Thomae, William, Schenectady, N. Y. Fly-trap	519,745	May 15	1434	346	67	833
Thomas, Alexander, Nevada, Mo. Window-screen	519,415	May 8	871	211	67	719
Thomas, Charles F., Buckeystown, Md. Car-fender	518,904	Apr. 24	2538	628	67	509
Thomas, Clifford E. (See Orr and Thomas.)						
Thomas, Clotilde P., Evansville, Ind. Powder-box	520,343	May 22	2464	597	67	1038
Thomas, Clotilde P., Evansville, Ind. Hat-pin retainer	521,683	June 19	1659	389	67	1531
Thomas, Daniel E., Toledo, Ohio. File for keeping records	518,380	Apr. 17	1650	{407 {408	67	334
Thomas, Edwin E., assignor to M. Garland, Bay City, Mich. Circular sawing machine	518,432	Apr. 17	1735	431	67	350
Thomas, Harry K. (See Chambers and Doud, assignors.)						
Thomas, Isaac, *et al.* (See Rodgers, George W., assignor.)						
Thomas, John F. (See Gros and Thomas.)						
Thomas, John R., assignor to Berlin Machine Works, Beloit, Wis. Adjustable bearing for upper feed-rolls of planing-machines	520,714	May 29	3087	747	67	1169
Thomas, John W., Jr., Nashville, Tenn. Pneumatic system of and apparatus for handling railway-switches	520,812	June 5	93	21, 22	67	1215
Thomas, John W., Jr., Nashville, Tenn. Pneumatic system of and apparatus for handling railway-signals	520,813	June 5	100	22, 23	67	1215
Thomas, Joseph C., New Bedford, Mass. Paddle-wheel mechanism for propelling boats	520,944	June 5	355	86	67	1262
Thomas, Joseph M., St. Louis, Mo. Smoke-consuming furnace	519,779	May 15	1492	361	67	844
Thomas, Joshua, Cleveland, Ohio. Governor for feed-pumps	519,360	May 8	780	191	67	702
Thomas, Larkin A., Banning, Ga. Pulp-engine	521,300	June 12	976	231	67	1387
Thomas, Minnie S., Waterville, Wash. Kitchen-cabinet	520,460	May 29	2652	641	67	1090
Thomas, Parliamer M. (See Power, William A., assignor.)						
Thomas, Robert S., *et al.* (See Elam, William E., assignor.)						
Thomas, Theodore B., Quincy, Mass. Hammock	517,557	Apr. 3	232	53	67	46

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Thomas, William H., Taylorsburg, Va. Churn	519,746	May 15	1435	346	67	833
Thompson, Allan P., Minneapolis, Minn. Cigar-tip cutter	520,461	May 29	2654	641	67	1090
Thompson, Caleb A., and O. G. Emshiveller, Tazewell, Va. Book-rest for hotel-registers	521,488	June 19	1327	309	67	1470
Thompson, Edward, assignor, by mesne assignments, to Titus-Gardner Paper and Manufacturing Company, Middletown, Ohio. Paper bag	519,398	May 8	846	205	67	714
Thompson, George L., Chicago, Ill. Curling-iron	519,653	May 8	1291	309	67	793
Thompson, George W., Leadville, Colo. Railway-spike	519,511	May 8	1027	248	67	746
Thompson, Hakon, *et al.*, executors. (See Syversen, Andreas.)						
Thompson, Jacob W., *et al.* (See Hall and Baker, assignors.)						
Thompson, James A., Galveston, Tex. Seed-planter	518,014	Apr. 10	998	{250 {251	67	201
Thompson, La Marcus A., Chicago, Ill. Toboggan-slide	520,248	May 22	2302	559	67	1008
Thompson, Oswald H., Philadelphia, Pa. Awning-lifter	519,780	May 15	1494	362	67	844
Thompson, Percy, *et al.* (See Fox, John C., assignor.)						
Thompson, Percy, *et al.* (See Warner, Frank A., assignor.)						
Thompson, Ralph P., Springfield, Ohio. Cash-register	521,967	June 26	2170	524	67	1043
Thompson, Ralph P., Springfield, assignor to C. W. Price, Greenfield, Ohio. Cash-register	521,558	June 19	1441	335	67	1490
Thompson, Robert R., Bloomington, Ill. Mattress-stuffing machine	520,170	May 22	2169	{527 {528 {529	67	982
Thompson, Robert W., Cleveland, Ohio. Ice-cutting trolley	518,015	Apr. 10	1001	251	67	201
Thompson, Thomas. (See Brulé, Edward, assignor.)						
Thompson, Thomas J., Chicago, Ill., assignor to J. M. McDermid. Annunciator	521,144	June 5	694	162	67	1321
Thomson, William, Chicago, Ill. Book-cover	520,171	May 22	2171	529	67	983
Thomson, Alexander, Fitchburg, Mass. Hame-hook	521,901	June 26	2039	491	67	1620
Thomson Electric Welding Company. (See Lemp, Hermann, assignor.)						
Thomson Electric Welding Company. (See Lemp and Anderson, assignors.)						
Thomson, Elihu, Swampscott, Mass. Electric meter	520,811	June 5	92	21	67	1215
Thomson, Elihu, Swampscott, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Armature for dynamo-electric machines	518,290	Apr. 17	1474	368	67	302
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Mode of cooling electric motors	518,291	Apr. 17	1475	{368 {369	67	302
Thomson, Elihu, Swampscott, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Means for preventing arcing in electric-power stations	520,809	June 5	87	20	67	1214
Thomson, Elihu, Swampscott, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Electric reciprocating motor	520,810	June 5	90	21	67	1214
Thomson, Elihu, Swampscott, assignor to General Electric Company, Boston, Mass. Meter for recording measurements of electric power	521,684	June 19	1660	390	67	1531
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Electric meter	521,685	June 19	1661	390	67	1531
Thomson, Elihu, Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. System of electrical distribution	519,076	May 1	237	56	67	581
Thomson-Houston Electric Company. (See Bassett, Norman C., assignor.)						
Thomson-Houston Electric Company. (See Ekström, Axel, assignor.)						
Thomson-Houston Electric Company. (See Fiske, Jonathan P. B., assignor.)						
Thomson-Houston Electric Company. (See Haskins, Caryl D., assignor.)						
Thomson-Houston Electric Company. (See Hopkins and Stebbins, assignors.)						
Thomson-Houston Electric Company. (See Hunter, Rudolph M., assignor.)						
Thomson-Houston Electric Company. (See Mix, Edgar W., assignor.)						
Thomson-Houston Electric Company. (See Thomson, Elihu, assignor.)						
Thomson, John, Brooklyn, N. Y., assignor to Neptune Meter Company, Newark, N. J. Die for the manufacture of crown gear-wheels	520,194	May 22	2208	538	67	990
Thomson, John, Brooklyn, N. Y., assignor to Neptune Meter Company, Newark, N. J. Disk water-meter	520,195	May 22	2210	{538 {539	67	990
Thomson, John, Brooklyn, N. Y., assignor to Neptune Meter Company, Newark, N. J. Manufacturing hard-rubber articles	520,196	May 22	2213	539	67	991
Thomson, John, Brooklyn, N. Y., assignor to Neptune Meter Company, Newark, N. J. Disk water-meter	520,197	May 22	2215	{539 {540	67	991
Thomson, Robert W., Lynn, Mass., assignor to Globe Button-Hole Machine Company, Boston, Mass., and Kittery, Me. Sewing-machine	521,301	June 12	977	231	67	1387
Thomson, William, Glasgow, Scotland. Apparatus for measuring and recording electric currents	521,394	June 12	1136	{268 {269	67	1419
Thomson, William, Glasgow, Scotland. Valve for water, steam, or other liquids or gases	522,170	June 26	2519	605	67	1708
Thorp, Thomas J., Forest Grove, Oreg. Clutch	521,059	June 5	551	129	67	1296
Thrift, William H., Dubuque, Iowa. Light-concentrator for dentists, surgeons, or others	519,799	May 15	1528	{372 {373	67	851
Thum, Otto and W., Grand Rapids, Mich. Sticky fly-paper	520,715	May 29	3088	747	67	1170
Thum, William. (See Thum, Otto and W.)						
Thunhorst, Frederick J., assignor of one-half to C. J. Weitershansen, Allegheny, Pa. Fire-alarm apparatus	520,547	May 29	2797	676	67	1115
Thurston, E. L., trustee. (See Forth and Glenzer, assignors.)						
Thuston, Eli A. (See Hays and Thuston.)						
Tibbals, Halsey J. (See Purvis, William B., assignor.)						
Tichenor, Herbert W., Irvington, N. J. Self-feeding target-trap	519,512	May 8	1028	249	67	746
Tickner, Herbert F., and A. Butler, Mason, Mich. Mold for water-tanks	518,292	Apr. 17	1476	369	67	303
Tidland, William H., Nicollet, Minn. Grading and ditching machine	518,905	Apr. 24	2539	628	67	509
Tiefel, Charles G., assignor to G. C. Schulz, Bloomington, Ill. Toy parachute	517,671	Apr. 3	438	105	67	84
Tiemann, Gustav G., San Francisco, Cal. Purifying saccharine juices	518,538	Apr. 17	1909	.....	67	380
Tiffany, Eli, Bennington, Vt. Stop-motion for knitting-machines	521,190	June 12	777	182	67	1351
Tiffany, Eli, Bennington, Vt. Stop-motion for straight-knitting machines	521,277	June 12	925	219	67	1378
Tiffany, Eli, Bennington, Vt., and G. E. Parker, Amsterdam, N. Y., assignors to E. Tiffany & Sons, Bennington, Vt. Quarter-saver for flat-rib knitting-machines	521,191	June 12	779	182	67	1351
Tiffany, George S., Tecumseh, Mich. Clay-working mill	518,636	Apr. 24	2074	{516 {517	67	424
Tiffany & Sons, Eli. (See Tiffany and Parker, assignors.)						
Tilford, George H., and A. F. Bennett, Providence, R. I. Attachment for holding ear-jewels	521,192	June 12	781	183	67	1352
Tillinghast, Henry G., Baltimore, Md. Soil or other pipe plug	521,835	June 26	1921	460	67	1596
Tillinghast, Pardon W., and F. Mallalieu, Providence, R. I. Pneumatic tire	521,740	June 19	1749	415	67	1549
Tilton, James B., Fresno, Cal., assignor of one-third to A. M. Jones, Detroit, Mich. Street-sweeper	517,709	Apr. 3	498	{119 {120	67	96
Timm, Charles, Morgan Park, assignor to Union Manufacturing and Plating Company, Chicago, Ill. Sprocket-wheel	519,781	May 15	1496	362	67	844
Timm, Henry, New York, N. Y. Voltaic battery	522,127	June 26	2438	587	67	1692

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Dr'g.	Vol.	Page.
Timmins, William, Wilsonville, Nebr. Hame-tug	519,030	May 1	150	36	67	565
Timmis, William, Pittsburg, Pa. Receptacle or tank for the storage of compressed air, gas, &c	517,777	Apr. 3	609	151	67	118
Tinney, Isaac G., Youngstown, Ohio. Nut and bolt lock	518,974	May 1	61	16	67	547
Tinsley Joseph B., Anthony, Kans. Turn-table	521,060	June 5	553	129	67	1297
Tipson, William A., San Francisco, Cal., assignor to Pacific Asphaltum Pipe Company, of California. Pipe-joining device	518,556	Apr. 17	1935	478	67	385
Tipson, William A., San Francisco, Cal., assignor to Pacific Asphaltum Pipe Company, of California. Removing artificial pipe from mandrels	518,557	Apr. 17	1936	478	67	385
Tipson, William A., San Francisco, Cal., assignor to Pacific Asphaltum Pipe Company, of California. Pipe-making machine	518,558	Apr. 17	1937	479	67	385
Tirrell, Jacob P. (See Keith, Tirrell, and Willard.)						
Tisch, L., *et al.* (See Marquart, Rudolf, assignor.)						
Tisdale, Charles D., Boston, assignor to himself, J. D. Gould, East Boston, and C. Healey and J. E. Jenkins, Lynn, Mass. Electric-railway system	517,940	Apr. 10	855	215	67	178
Tisdale, Charles D., Boston, Mass., assignor of five-sixths to J. D. Gould, New York, N. Y., C. Healey, and J. E. Jenkins, Lynn, Mass. Electric-railway system	518,293	Apr. 17	1477	369	67	303
Tisdell, Abner G., Brooklyn, assignor of one-half to J. L. Levy, New York, N. Y. Photographic-camera shutter	520,972	June 5	394	95, 96	67	1269
Titus-Gardner Paper and Manufacturing Company. (See Thompson, Edward, assignor.)						
Titus, John C., assignor of one-half to W. C. Schmidt, New Bremen, Ohio. Dry-kiln for pottery	520,869	June 5	208	47	67	1235
Toal, Hugh. (See Lowther, Toal, and Hay.)						
Tobey, Fred W., Grand Rapids, Mich. Combined desk support and hinge	520,462	May 29	2655	642	67	1090
Tobey, Fred W., and D. W. Tower, assignors to Grand Rapids Brass Company, Grand Rapids, Mich. Mirror-adjusting device	520,548	May 29	2798	676	67	1116
Tobias, Theodore, Pierpoint, S. D. School seat and desk	518,166	Apr. 10	1246	312	67	242
Tobin, James, Indianapolis, Ind. Car-fender	521,741	June 19	1752	416	67	1549
Todd, Albert H., Senatobia, Miss. Lamp-lighter	521,516	June 19	1375	320	67	1479
Todd, Marquis J., Buffalo, N. Y. Spring-tooth harrow	517,672	Apr. 3	438	106	67	84
Tolman, Elijah, Jr., assignor of one-fourth to E. Tolman, Taunton, Mass. Barber's shears	517,969	Apr. 10	916	229	67	188
Tolman, Martha A., administratrix. (See Howe, Patrick, assignor.)						
Tom, Edward A. (See Tom, Joseph C. and E. A.)						
Tom, Joseph C. and E. A., Pontotoc, Tex. Pump	517,902	Apr. 10	795	200	67	167
Tomb, Frank B., *et al.* (See Curry, James H., assignor.)						
Tongen, A. H., *et al.* (See Roehm, William H., assignor.)						
Toppan, Frank W. (See Gilliland and Toppan.)						
Torchiani, Harry, New York, N. Y. Apparatus for racking beer	519,513	May 8	1031	249	67	747
Torrey, Charles L. (See Torrey, Silas and C. L.)						
Torrey, Jay L., Embar, Wyo. Branding-iron	520,503	May 29	2726	661	67	1102
Torrey, Silas and C. L., assignors of one-fourth to G. K. Detwiler, Toledo, Ohio. Steam-engine	519,850	May 15	1605	392	67	865
Torsch, Edward L., assignor to Torsch & Lee, Baltimore, Md. Seal	521,427	June 12	1198	284	67	1430
Torsch & Lee. (See Torsch, Edward L., assignor.)						
Totman, John J., assignor of one-half to E. G. Wheeler, Amsterdam, N. Y. Sash-balance	519,823	May 15	1562	382	67	858
Totten, Robert D., *et al.* (See Barr, John U., Jr., assignor.)						
Toulmin, Charles T., New York, N. Y. Water heater or boiler	521,995	June 26	2231	536	67	1654
Tourrasse, Paul, assignor to E. Crégut, La Bridoire, France. Wire-gauze for paper-machines	520,906	June 5	279	67	67	1248
Tou-ley, Edgar M., Jamestown, N. Y. Trolley	520,973	June 5	400	97	67	1270
Tower, Clinton A., assignor to National Malleable Castings Company, Cleveland, Ohio. Car-coupling	521,092	June 5	609	144	67	1307
Tower, Daniel L., Brooklyn, N. Y. Type-writing machine	520,172	May 22	2173	529, 530	67	983
Tower, Daniel W. (See Tobey and Tower.)						
Townsend, Jonathan H. (See Davis, John F., assignor.)						
Toye, William H. R., assignor of one-half to G. N. Wright, Philadelphia, Pa. Fretted musical instrument	518,869	Apr. 24	2467	611	67	494
Toye, William H. R., Philadelphia, Pa., assignor to Simultaneous Chromogravure Printing Machine and Manufacturing Company, Camden, N. J. Multiple-color-printing machine	522,128	June 26	2439	587	67	1692
Toye, William H. R., Philadelphia, Pa., assignor to Simultaneous Chromogravure Printing Machine and Manufacturing Company, Camden, N. J. Registering attachment for printing-plates for printing-machines	522,129	June 26	2442	587	67	1693
Tracy, James B. (See Chase and Tracy.)						
Tracy, Milton S., Glastonbury, Conn. Culinary vessel	517,673	Apr. 3	440	106	67	84
Tragethon, Arne S., Kensett, Iowa. Brace and guide for windmill pump-rods	519,514	May 8	1032	250	67	747
Trainer, John W., Fort Wayne, Ind. Reed-organ	519,361	May 8	781	191	67	702
Traner, G. H. (See Arch, Charles W., assignor.)						
Tranter, Benjamin, assignor of one-half to W. Burton, Brooklyn, N. Y. Car-fender	518,126	Apr. 10	1181	296	67	231
Trask, Charles H., Lynn, Mass. Heel-trimming machine	521,770	June 19	1819	431, 432	67	1559
Trask, Charles H., Lynn, Mass. Milling-machine	521,771	June 19	1823	433, 434	67	1560
Traut & Hine Manufacturing Company. (See Adams, George E., assignor.)						
Traveler's Portfolio Company. (See Dozier, Lewis D., assignor.) (Reissue.)						
Treat, Francis H., Chicago, Ill. Steam-boiler	520,945	June 5	356	87	67	1262
Trench, Charles, Boston, Mass. Oil-burner	520,093	May 22	2015	492	67	956
Trench, John T., Dublin, Ireland. Adjustable wrench	520,094	May 22	2016	492	67	957
Trent, Eugene F., Jersey City, N. J. Lamp	519,851	May 15	1606	392, 393	67	866
Trent, Eugene F., Jersey City, N. J. Lamp	519,852	May 15	1609	393	67	866
Trent, Eugene F., Jersey City, N. J. Lamp	519,853	May 15	1612	393	67	866
Trent, Eugene F., Jersey City, N. J. Lamp	519,854	May 15	1615	393, 394	67	867
Trevor, Francis N. (See Trevor, William W. and F. N.)						
Trevor, William W. and F. N., Lockport, N. Y. Machine for barking logs	517,990	Apr. 10	960	240	67	194
Trimble, James A., New York, N. Y. Door-hanger wheel	521,225	June 12	842	197	67	1363
Trimont Manufacturing Company. (See Vinton, John H., assignor.)						
Tripp, Willard F. (See Smith and Tripp.)						
Trory, James T. (See Bates, John W., assignor.)						
Trowbridge, Charles S. (See Enphrat, Theophile, assignor.)						
Trube, Margaret V., Brooklyn, N. Y. Sad-iron	520,583	May 29	2859	692	67	1128
Trump, Edward N., and J. E. Sweet, Syracuse, N. Y. Compressor or vacuum-pump	517,903	Apr. 10	796	200, 201	67	167
Trumpy, Jakob, Hagen, Germany. Storage-battery system	519,077	May 1	238	56	67	581

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Dr'g.	Vol.	Page.
Truslow & Co. (See Truslow, Frederick C., assignor.)						
Truslow, Frederick C., Brooklyn, assignor to Truslow & Co., Brooklyn and New York, N. Y. Machine for cutting corks	520,744	May 29	3129	757, 758	67	1177
Tubach, Emil F. Dushore, Pa. Device for packing furniture	518,167	Apr. 10	1247	313	67	243
Tucker, Major. (See Ryckman and Tucker.)						
Tuckerman, George T. (See Tuckerman, John B. and G. T.)						
Tuckerman, John B. and G. T., Cassville, N. Y. Machine for harvesting corn	521,486	June 19	1324	308	67	1469
Tufts, James W., Medford, and W. Helmer, assignors to American Soda Fountain Company, Boston, Mass. Automatic heat-regulator for hot-soda apparatus	519,440	May 8	910	219	67	726
Turnell, Edward, Elm Creek, Nebr. Band-cutter and feeder	519,279	May 1	607	147, 148	67	654
Turner, Henry H., assignor to Gundlach Optical Company, Rochester, N. Y. Photographic shutter	520,198	May 22	2217	540	67	991
Turner, James H., Pewee Valley, Ky. Locomotive-oiler	521,487	June 19	1326	309	67	1470
Turner, Leonard R., Sing Sing, assignor to Southern Cotton Harvester Company, New York, N. Y. Cotton-harvester	517,596	Apr. 3	294	68	67	58
Turner, Moses, trustee. (See Ranney, Darwin D., assignor.)						
Turner, Robert L., Indianapolis, Ind. Tail-piece for musical instruments	519,416	May 8	872	211	67	719
Turner, Robert R., Columbus, Ohio. Boiler-furnace and smoke-consumer	518,870	Apr. 24	2468	612	67	495
Turner, Walter, London, England. Pneumatic-tired wheel	520,504	May 29	2728	661	67	1103
Turner, William A., assignor to E. Converse, Worcester, Mass. Ball-cock valve	520,148	May 22	2130	520	67	976
Turner, William A., assignor to E. Converse, Worcester, Mass. Ball-cock valve	520,149	May 22	2132	520	67	976
Turner, William A., assignor to E. Converse, Worcester, Mass. Ball-cock valve	520,150	May 22	2134	520	67	976
Turner, William A., assignor to E. Converse, Worcester, Mass. Sheet-metal knob	520,151	May 22	2135	520	67	977
Turner, William A., assignor to H. A. Fowler, J. H. Lingley, Worcester, and S. Fowler, Northbridge, Mass. Adjustable curtain-rod	521,350	June 12	1075	252	67	1407
Turney Electric Manufacturing Company. (See Turney, Eugene T., assignor.)	520,584	May 29	2860	692	67	1128
Turney Electric Manufacturing Company. (See Crowdus, Walter A., assignor.)						
Turney, Eugene T., assignor to Turney Electric Manufacturing Company, Chicago, Ill. Cigar-lighter	520,095	May 22	2017	493	67	957
Turney, Frederick N., Nottingham, England. Apparatus for extracting oil from wool	522,130	June 26	2443	588, 589	67	1693
Turton, Mordecai, Jerry City, Ohio. Grip for polished pump-rods	520,716	May 29	3089	748	67	1170
Tattle, Josiah S., Burns, Kans. Feed attachment for baling-presses	521,193	June 12	782	183	67	1352
Tweedale, Edmund and S., and J. Smalley, Castleton, England. Electric stop-motion drawing-frame	517,778	Apr. 3	610	151	67	118
Tweedale, Samuel. (See Tweedale and Smalley.)						
Tweedy, Edmund. (See Saunders, Theodore, assignor.)						
Twin City Iron Works. (See Harvey, Amasa, assignor.)						
Twitty, William S., Chicago, Ill. Line-fastener	517,597	Apr. 3	295	68	67	58
Tyler, Aaron J. (See Hutchinson and Tyler.)						
Tyler, Radolphus D. S., Washington, D. C. Clip, &c., for mail-bag and other straps	518,681	Apr. 24	2454	539	67	439
Tyrrell, Harry B., *et al.* (See Conant, George P., assignor.)						
Uehling, Edward A., and A. Steinbart, Birmingham, Ala. Pyrometer. (Reissue)	11,413	Apr. 17	1979	490	67	392
Uehling, Edward A., assignor of one-half to A. Steinbart, Birmingham, Ala. Process of and apparatus for analyzing gases	521,444	June 12	1235	292	67	1437
Uhri, Jacob. (See Knudtson and Uhri.)						
Umholtz, Charles W., Bristol, Va. Tube-expander	521,742	June 19	1754	416	67	1549
Unbehend, Jacob J., Waltham, Mass. Riveting-machine	519,782	May 15	1497	362, 363, 364, 365	67	845
Underwood, Francis M., Pasadena, Cal. Compound for and method of preserving eggs	520,549	May 29	2799	676	67	1116
Underwriters Fire Sprinkler Company. (See Pierce, Octavius, assignor.)						
Union Manufacturing and Plating Company. (See Timm, Charles, assignor.)						
Union Special Sewing Machine Company. (See Holland, Elias C., assignor.)						
Union Special Sewing Machine Company. (See Woodward, Russel G., assignor.)						
United Alkali Company. (See Worsley, Windus, and Bracey, assignors.)						
United Gas Improvement Company. (See Page, Carter H., Jr., assignor.)						
United Gas Improvement Company. (See Wright, Peter, assignor.)						
United States Butter Extractor Company. (See Andersson, Gustaf M., assignor.)						
United States Butter Extractor Company of New Jersey. (See Ohlsson, Olof, assignor.)						
United States Projectile Company. (See Porter, Arthur T., assignor.)						
Universal Carbonating Company. (See Theurer, Jacob F., assignor.)						
Unruh, James W., Roxbury, Kans. Car-coupling	519,747	May 15	1437	347	67	833
Upham, E. I., *et al.* (See Morris, William B., assignor.)						
Upton, Charles S. (See Place, James F., assignor.)						
Upton, Charles S., New York, N. Y. Lamp-stove	518,127	Apr. 10	1182	296	67	232
Upton, Charles S., New York, N. Y. Oil-can	520,505	May 29	2729	661	67	1103
Upton, Charles S., New York, N. Y. Lamp-stove	520,506	May 29	2730	661	67	1103
Upton, Charles S., New York, N. Y. Gas-stove	520,507	May 29	2731	662	67	1104
Urban, Anton, Vienna, Austria-Hungary. Machine for making nuts	517,779	Apr. 3	611	151, 152, 153	67	118
Uren, Thomas A., Prineville, Oreg. Ledger-index	520,096	May 22	2020	493	67	957
Uthbrok, Christopher W., *et al.* (See Enchenhofer, Weinman, and Stevens, assignors.)						
Uthbrok, Christopher W., *et al.* (See Stevens, Alfred L., assignor.)						
Vail, Anthony C., Plainfield, N. J. Device for shaping folds of linen collars	521,061	June 5	554	129	67	1297
Vail, Charles E. (See Wilcox and Vail.)						
Valentine, A. S., *et al.* (See Rodgers, George W., assignor.)						
Van Campen, Azeil B., Raymond, Cal. Saw-handle	518,656	Apr. 24	2110	527	67	431
Van Court, Robert E., Elkton, Va. Churn	521,194	June 12	784	183	67	1352
Van DeWater, Charles, assignor of one-half to J. H. Peacock, Auburn, N. Y. Pipe or nut wrench	521,130	June 5	671	158	67	1318
Van den Berghen, Albert L. R., assignor of one-half to F. Bartolomei, Chicago, Ill. Facing bricks, tiles, &c	521,226	June 12	843	.....	67	1363
Van Denvouver, Anna. (See Stiker, Flavius P., assignor.)						
Van Derveer, John R. (See Holmes, Daniel M., assignor.)						
Van Der Zee, Cornelius, assignor of two-thirds to D. H. Mathias and J. H. Simonson, Albany, N. Y. Fruit-basket	520,814	June 5	106	24	67	1216
Van Dyke, John W., Lima, Ohio. Water-tube steam-boiler	522,035	June 26	2292	549	67	1665
Van Emon, Burton C. (See Sessions and Van Emon.)						
Van Eyck, Henry R., Zeeland, Mich. Cheese-forming machine	519,209	May 1	487	118	67	631

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Van Gorder, Isaac D., Niles, Mich. Hat or bonnet holder	519,210	May 1	490	118	67	632
Van Harlingen, William L., Oakland, Cal. Ready-reference file	522,171	June 26	2520	605	67	1708
Van Horn, William L., Norfolk, Nebr. Combination reel and aprinkler	520,815	June 5	107	24	67	1216
Van Kalker, John, and N. Bolt, Grand Rapids, Mich. Fire-extinguisher	517,780	Apr. 3	614	153	67	119
Van Nada, John B., Petersburg, Ind. Gate	520,717	May 29	3090	748	67	1170
Van Nest, Henry J., Florence, Colo. Nut-lock	520,718	May 29	3092	748	67	1170
Van Norman, Abe R., assignor to Grand Rapids Piano Case Company, Grand Rapids, Mich. Knockdown chair	521,395	June 12	1139	269	67	1419
Van Nostran, Joseph E. (See Stump, Ira E., assignor.)						
Van Ruymbeke, Joseph, *et al.* (See Dyer, Frank L., assignor.)						
Van Ruymbeke, Joseph, assignor of one-half to W. F. Jobbins, Chicago, Ill. Preparing steam	522,131	June 26	2447	589	67	1694
Van Ruymbeke, Joseph, assignor of one-half to W. F. Jobbins, Chicago, Ill. Process of and apparatus for distilling glycerin	522,132	June 26	2449	590	67	1694
Van Ruymbeke, Joseph, assignor of one-half to W. F. Jobbins, Chicago, Ill. Recovering glycerin from glycerin foots	522,133	June 26	2452	.....	67	1695
Van Ruymbeke, Joseph, assignor of one-half to W. F. Jobbins, Chicago, Ill. Recovering products from spent soap-lye	522,134	June 26	2434	590	67	1695
Van Ruymbeke, Joseph, assignor of one-half to W. F. Jobbins, Chicago, Ill. Apparatus for recovering glycerin from spent soap-lye	522,135	June 26	2458	591	67	1696
Van Vradenburg, Peter D., Binghamton, N. Y. Car-brake	517,904	Apr. 10	799	201	67	168
Van Wagoner & Williams Hardware Company. (See Pomeroy, Le Dru R., assignor.)						
Van Wagoner & Williams Hardware Company. (See Ring, James W., assignor.)						
Van Wagoner & Williams Hardware Company. (See Wetmore, Jerome W., assignor.)						
Van Wechel, William S., and D. L. Wynia, Orange City, Iowa. Band-cutter and feeder	519,211	May 1	491	119	67	632
Van Wickel, Frederick D., Corona, N. Y. Cigar-holder	522,092	June 26	2381	573	67	1682
Van Wyck, Timothy C., Brooklyn, N. Y. Axle-box	520,907	June 5	279	67	67	1249
Vance, Emery J. (See Leaver, James M., assignor.)						
Vance, Emery J. (See Leaver and Vance.)						
Vandenburgh, Philip, Cleveland, Ohio. Making dry adhesive paste	521,517	June 19	1376	.....	67	1479
Vander Molen, Joe. (See Veen and Dornberg, assignors.)						
Vander Weyde, Henry, London, England. Method of and lens for making photographs	521,064	June 5	557	130	67	1298
Vanderburgh, Charles W., Wellington, Canada. Steam-generator	521,062	June 5	555	130	67	1297
Vanderburgh, J. Harvey, Orono, Canada. Cloth measuring machine	520,463	May 29	2656	642	67	1091
Vanhouweling, Arthur, Olivet, Iowa. Straw-stacker	518,637	Apr. 24	2075	517	67	424
Varley, William. (See Goss and Varley.)						
Varney, George S. (See Paige, James H., assignor.)						
Vaughan, David F., Haddonfield, N. J. Railway-switch	521,743	June 19	1756	416	67	1550
Vaughan, William, Jr., assignor of one-half to W. Latham, Passaic, N. J. Door and hinge	521,772	June 19	1825	435	67	1561
Vauzelle, Emile J., Paris, France. Device for fixing pneumatic tires to wheel-rims	519,165	May 1	404	97	67	615
Veazie, Henry A., New Orleans, La. Pencil holder and sharpener	521,744	June 19	1758	417	67	1550
Veen, John, and F. A. Dornberg; said Dornberg assignor to J. Vander Molen, Grand Rapids, Mich. Roofing-tile	518,294	Apr. 17	1478	369	67	303
Velsor, Elizabeth M., Brooklyn, N. Y. Marble-shooting toy	518,295	Apr. 17	1479	370	67	303
Venison, Harry. (See Zweig, John, assignor.)						
Verley, Horace S. L., Hoboken, N. J. Relay	519,142	May 1	356	85	67	607
Vernon, Alfred M. (See Moore, Silas H., assignor.)						
Vidal, Adolph E., and G. Hervieu, London, England. Electric clock-winding mechanism	521,386	June 12	1140	269, 270	67	1419
Viney, Frederick C., Philadelphia, Pa. Gas-meter	521,745	June 19	1759	417	67	1550
Vinton, John H., Boston, Mass., assignor to Trimont Manufacturing Company, Portland, Me. Chain-wrench	522,136	June 26	2464	591	67	1697
Vis, Martha, *et al.* (See Hall and Baker, assignors.)						
Vogt, Wilhelm, assignor to G. H. Holgate, Philadelphia, Pa. Ice-cream freezer	518,829	Apr. 24	2413	597	67	484
Voigt, Otto H. C., Lubeck, Germany. Sled-propeller	519,596	May 8	1191	288	67	776
Vollrath, Jacob J., Sheboygan, Wis. Vehicle-body	520,196	May 22	2071	505	67	966
Voorhees, Jeremiah F., Philadelphia, Pa. Valve for air-brakes	521,996	June 26	2234	537	67	1654
Voss, Detlef C., Boston, Mass. Incandescent lamp	521,131	June 5	672	158	67	1318
Vraalstad, Edward J., Hillsborough, N. D. Band-cutter and feeder	521,195	June 12	785	184	67	1352
W. Dewees Wood Company. (See Wood, Richard G., assignor.)						
W. & E. T. Fitch Company. (See Bristol, Charles B., assignor.)						
W. F. & John Barnes Company. (See Barnes, William F., assignor.)						
Waage, Peter, assignor to Aktieselskabet Norsk Fiskemel Company, Christiania, Norway. Making fish meal	518,748	Apr. 24	2284	567	67	460
Waddell-Entz Company of West Virginia. (See Phillips and Entz, assignors.)						
Wade, Alzira H., Minneapolis, Minn. Abdominal supporter	517,941	Apr. 10	856	215	67	178
Wadsworth, George H. (See Armstrong and Wadsworth.)						
Waggoner, Jepthy L., Columbus, and W. T. Carmichael, Wallesborough, Ind. Tool-chest	518,296	Apr. 17	1480	370	67	303
Wagner, Albert C., Chicago, Ill. Meat-tenderer	520,173	May 22	2176	530	67	984
Wagner, Alfred B., and E. Liesenhoff, Miamisburg, Ohio. Shelving	521,626	June 19	1563	365	67	1512
Wagner, Caspar, Milwaukee, Wis. Crimping-machine	520,097	May 22	2021	493	67	957
Wagner, George F., Philadelphia, Pa. Lawn edge trimmer	517,942	Apr. 10	857	216	67	179
Wagner, Louis, Baltimore, Md. Expansible bung	517,781	Apr. 3	615	153	67	119
Wagner, Louis, J. Marr, and H. Campbell, Baltimore, Md. Filtering or purification of liquids	517,499	Apr. 3	142	31	67	29
Wagner, Philipp G., Darmstadt, Germany. Coin discharging and delivering device	520,623	May 29	2917	705, 706	67	1139
Wagner, Theodore, and W. Habermann, Milwaukee, Wis. Wagon body	517,500	Apr. 3	144	31	67	30
Waibel, Fred L., *et al.* (See Schneider, George L., assignor.)						
Wain, James R., Manchester, England. Self-acting mule and twiner	518,433	Apr. 17	1738	431	67	356
Wainwright, Lucius M., assignor to Central Cycle Manufacturing Company, Indianapolis, Ind. Bicycle-frame	519,783	May 15	1503	365	67	846
Wait, William B., New York, N. Y. Writing machine	521,397	June 12	1142	270, 271	67	1420
Waite, Frank H., Holley, N. Y. Keg or analogous package	519,486	May 8	992	240	67	739
Waite, Harry F., New York, N. Y. Electric-circuit regulator	520,908	June 5	280	67, 68	67	1249
Waite, Henry, *et al.* (See Boomhower, Eli E., assignor.)						
Waite, Henry E. (See Ethridge and Waite.)						
Waite, William T. (See McCall, William W., assignor.)						
Waldo Foundry. (See Sperry, Erwin S., assignor.)						
Walker, Albert H., trustee. (See Claussen, Edward E., assignor.)						
Walker, Albert H., trustee. (See Lorenz, William A., assignor.)						
Walker, Albert H., trustee. (See Lorenz and Claussen, assignors.)						
Walker, Alexander, What Cheer, Iowa. Self-dumping mechanism for coal-elevators	517,782	Apr. 3	616	153, 154	67	120

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Walker, Charles C., Donnington, near Newport, England. Lid for gas-retorts	522,137	June 26	2465	592	67	1698
Walker, John B., assignor of one-third to R. W. Walker, Kansas City, Kans. Photographic vignetter	519,800	May 15	1529	373	67	851
Walker, Louis B., and J. Murphy, Globe, Ariz. Ter. Wind-jacket for blast-furnaces	520,719	May 29	3093	748	67	1170
Walker, Oakley S., assignor of one-half to Norton Emery Wheel Company, Worcester, Mass. Bearing for emery-wheels	521,836	June 26	1922	461	67	1596
Walker, R. W. (See Walker, John B., assignor.)						
Wall, George H., London, England. Ball-valve for water-gages	521,530	June 19	1402	324	67	1483
Wall, Jesse H. (See Jernigan, Henry R., assignor.)						
Wallace, Charles, Denver, Colo., assignor of two-thirds to C. A. Payne and W. E. Moses. Concentrator	522,172	June 26	2523	605, 606	67	1709
Wallace, Fredrick B., assignor to himself and C. H. Spencer, Orion, Mich. Nut-lock	518,474	Apr. 17	1807	447	67	363
Wallace, Harry G. (See Greble, Harvey K., assignor.)						
Wallace, John, Union, Ill. Windmill	519,362	May 8	785	192	67	703
Wallace, John G., Chicago, Ill. Return postal-card	520,816	June 5	109	24	67	1216
Wallace, William W., Springfield, Mass. Piano-action	519,166	May 1	405	97	67	616
Wallace, William W., assignor to J. W. Penfield & Son, Willoughby, Ohio. Die or mold for clay-product machines	519,801	May 15	1530	373	67	851
Wallenberg, Augustinus, Chicago, Ill. Artificial stone	517,811	Apr. 3	660	.....	67	128
Walls, William H., assignor of one-half to M. Becker and H. Mueller, St. Louis, Mo. Street-sweeper	518,168	Apr. 10	1248	313, 314, 315	67	243
Walmsley, Thomas L., and H. H. Wright, Denver, Colo. Dry placer machine	520,745	May 29	3131	758	67	1177
Walsh, Thomas, Montreal, Canada. Attachment for shovels, spades, &c	519,515	May 8	1033	250	67	747
Walter A. Wood Harvester Company. (See Courtney, John J., assignor.)						
Walter, Horace E., Richfield Springs, N. Y., assignor, by mesne assignments, to National Electrical Manufacturing Company, Milford, Conn. Electric annunciating apparatus	520,127	May 22	2072	505, 506, 507, 508	67	966
Walter, Thomas U., Huntington, assignor of four-ninths to A. D. Garden, Wheeling, W. Va. Shoe-fastening	521,686	June 19	1662	390	67	1531
Walters, John, *et al.* (See Carnes, John, assignor.)						
Walton, Robert H., Walnut Springs, Tex. Hay-press	521,923	June 26	2078	499	67	1627
Wanner, Martin, Denver, Colo., assignor of eleven-twentieths to W. B. Crittenden and J. M. Millman, Bucyrus, Ohio. Regenerative furnace	517,991	Apr. 10	962	240	67	194
Ward, Almon G., and W. C. Winfield, Warren, Ohio. Bath-tub	521,837	June 26	1923	461	67	1597
Ward, Henry C., Greenfield, Tenn. Veneer-mortising machine	517,558	Apr. 3	234	54	67	46
Ward, John W. (See Noble and Ward.)						
Ward, William M., Corunna, assignor of one-half to A. Roedel, Linden, Mich. Carriage	520,746	May 29	3134	758, 759	67	1177
Warder, Bushnell & Glessner Company. (See Stark, Andrew, assignor.)						
Wardle, John F., Pawtucket, R. I. Spool-making machine	520,509	May 29	2733	662	67	1104
Wardwell, Edward H., South Orange, N. J. Condenser	521,838	June 26	1925	461	67	1597
Wardwell, Theodore E., Stamford, Conn. Knob attachment	520,508	May 29	2732	662	67	1104
Ware, Hiram B., Fort Scott, Kans. Composition for degumming flax-straw	517,905	Apr. 10	800	.....	67	169
Ware, John M., *et al.* (See Burson, Harvy, assignor.)						
Warfield, Louis, Detroit, Mich. Car-truck	519,824	May 15	1563	383	67	858
Warner, Charles D., Ansonia, Conn. Electric tower-clock	518,337	Apr. 17	1555	386	67	316
Warner, Charles D., Ansonia, Conn. Electric clock striking mechanism	520,585	May 29	2861	692	67	1129
Warner, Daniel, Bronson, assignor of two-thirds to W. D. House and P. Womer & Son, Buchanan, Mich. Holdback	519,363	May 8	785	192	67	703
Warner, Dwight M., and C. E. Hammond, Sparta, Mich. Brick-truck	521,196	June 12	787	184	67	1353
Warner, Frank A., *et al.* (See Fox, John C., assignor.)						
Warner, Frank A., assignor of two-thirds to J. C. Fox, Chicago, Ill., and P. Thompson, Kansas City, Mo. Rack for barrels or casks	520,098	May 22	2022	494	67	958
Warner, Frederick W., Rochester, N. Y. Body-garment	519,487	May 8	993	240	67	739
Warner, Rody E., Pittsburg, Pa. Powder-blower	518,975	May 1	62	16	67	548
Warner, Sylvester, and O. E. Cook, West Union, Ind. Traction-wheel	521,687	June 19	1664	390	67	1531
Warren, Alvah H. (See Ryno, Frederick A., assignor.)						
Warren Extension Table Company. (See Gale, Burton L., assignor.)						
Warren, George E. (See Fowler and Warren.)						
Warren, Governor D., Dallas, Texas, and J. Casey, Coalgate, Indian Ter. Switch attachment	517,783	Apr. 3	618	154	67	120
Warren, William B., Peoria, Ill. Shifting link-motion for locomotives	521,398	June 12	1146	271	67	1421
Washburn, George F., Boston, Mass. Bicycle-frame	517,501	Apr. 3	146	31	67	30
Washburn, John S., Hackensack, N. J. Lubricating device for car or other axles or shafts	519,212	May 1	493	119	67	633
Washington, Luria, and W. H. Roberts, Coal Creek, Tenn. Automatic railway switch	521,518	June 19	1376	320	67	1479
Waterbury Clock Company. (See Bannatyne, Archibald, assignor.)						
Waterbury Farrel Foundry and Machine Company. (See Campbell, Andrew C., assignor.)						
Waterhouse, Addison G., Hartford, Conn., assignor to Waterhouse Electric Company, of Connecticut. Electric-current regulator	518,359	Apr. 17	1609	398	67	327
Waterhouse, Addison G., Hartford, Conn., assignor to Waterhouse Electric Company, of Connecticut. Regulating electric currents	518,360	Apr. 17	1612	398	67	327
Waterhouse Electric Company. (See Waterhouse, Addison G., assignor.)						
Waterman, Charlie H. (See Burkhart, Waterman, and Smith.)						
Watson, Christopher H., Riverside, Cal. Valve for hydrants	518,475	Apr. 17	1808	447	67	363
Watson, George A., Toronto, Canada, assignor to W. H. Laird, New York, N. Y. Sectional boiler	521,746	June 19	1760	417, 418	67	1550
Watson, J. Herbert. (See La Burt, John, assignor.)						
Watson, James, Liverpool, England. Boiler-tube expander and stopper	519,143	May 1	357	85	67	607
Watson, John B., Toronto, and J. R. Douglas, Ottawa, Canada. Ventilating and furnace-checking device	520,974	June 5	402	97	67	1270
Watters, Charles H., Chicago, Ill. Valve device	519,052	May 1	183	43	67	572
Watts, Elias, Keyport, N. J. Steam heating apparatus	521,093	June 5	612	145	67	1307
Way, Charles M. (See Cooper, James B., assignor.)						
Wayland, James, Newark, N. J. Railway-train gate	520,464	May 29	2658	642, 643	67	1091
Weart, John W., *et al.* (See Mackey, William T., assignor.)						
Weatherby, Wilbert, Detroit, Mich. Device for removing leads from type	520,465	May 29	2661	643	67	1091
Weatherhead, Edward H, assignor to Cleveland Faucet Company, Cleveland, Ohio. Hydraulic air-pump	520,466	May 29	2662	644	67	1091
Weatherly, Robert H., assignor to Scarritt Furniture Company, St. Louis, Mo. Reversible car-seat	522,173	June 26	2526	606	67	1710
Weaver, Franklin E., Torrington, Conn. Saddle for bicycles	521,943	June 26	2121	508	67	1636

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Weaver, Joseph, Canandaigua, N. Y. Circuit-maker	517,502	Apr. 3	147	32	67	30
Weaver, William. (See Cassaday and Weaver.)						
Webb, George B., assignor to Wyckoff, Seamans & Benedict, New York, N. Y. Type-writing machine	520,586	May 29	2863	693	67	1129
Webb, George S., Aurora, Ill. Tire for wheels of vehicles	519,748	May 15	1437	347	67	833
Webb, J. A., *et al.* (See Southworth, Walter H., assignor.)						
Webb, Joseph, Deposit, N. Y. Button-drilling machine	522,036	June 26	2296	549 / 550	67	1665
Webb, Wells D. (See Schleiper and Harrison, assignors.)						
Webb, William J., Sabine Pass, Tex. Trunk-strap fastener	521,227	June 12	845	197	67	1363
Weber, George. (See Weber, William, assignor.)						
Weber, Henry J., *et al.* (See Lyons, Charles J., assignor.)						
Weber, Joseph, *et al.* (See Lyons, Charles J., assignor.)						
Weber, Valentin, *et al.* (See Harrison, James R., assignor.)						
Weber, Valentin, Princeville, Ill. Register for grain weighing and measuring machines	518,083	Apr. 10	1106	280	67	218
Weber, Valentin, Princeville, and J. R. Harrison, assignors of one-third to W. Harrison, Peoria, Ill. Grain-elevator	518,084	Apr. 10	1108	280 / 281	67	218
Weber, Valentin, Princeville, and J. R. Harrison, assignors of one-third to W. Harrison, Peoria, Ill. Grain-weigher and conveyer-spout	520,382	May 22	2522	610	67	1050
Weber, William, assignor of one-half to G. Weber, Philadelphia, Pa. Speaking attachment for telephones	520,467	May 29	2663	644	67	1092
	521,531	June 19	1403	324	67	1483
Webster, Edward, Hartford, Conn. Damper						
Webster, Thomas E. (See Boegen, John E., assignor.)						
Webster, William J. (See Lasher, Webster, and Newton.)						
Wegener, Carl, Berlin, Germany. Fine-fuel furnace	517,632	Apr. 3	356	84, 85	67	70
Wegener, Carl, Berlin, Germany. Coal-dust-firing apparatus	519,784	May 15	1504	365 / 366	67	846
Wehrenberg, Charles, Mound City, Ill. Harrow	520,278	May 22	2352	571	67	1017
Weidauer, Rudolph, assignor of one-half to C. J. Albrecht, Merrill, Wis. Door	520,174	May 22	2176	530	67	984
Weigle, Wilhelm T. F., Stuttgart, Germany. Organ-pipe	520,344	May 22	2466	598	67	1039
Weimar, Andrew, Philadelphia, Pa. Shuttle-operating mechanism for narrow-ware looms	519,896	May 15	1682	410	67	880
Weinberg, Arthur, assignor to L. Cassella & Co., Frankfort-on-the-Main, Germany. Dyeing by the aid of paramidodiphenylamin	517,533	Apr. 3	190	.....	67	38
Weinman, Christian J. (See Euchenhofer, Weinman, and Stevens.)						
Weir, John, assignor of one-half to J. Monaghan, Fall River, Mass. Electric stop-motion	518,297	Apr. 17	1481	370	67	304
Weiss, Rudolph, Nottingham, England. Embroidering-machine	521,197	June 12	788	184 / 185 / 186	67	1353
Weisser, Henry J., Pottstown, Pa. Automatic boiler-feed	521,351	June 12	1077	252	67	1407
Weitershausen, Charles J. (See Thunhorst, Frederick J., assignor.)						
Welch, Abraham T., Washington, D. C. Gas-burner for heaters	519,749	May 15	1439	347 / 348	67	834
Welch, Abraham T., Washington, D. C. Pump and motor therefor	519,825	May 15	1566	383 / 384	67	858
Welch, Allie R., assignor of one-half to F. P. Glazier, Chelsea, Mich. Liquid-gage	517,710	Apr. 3	500	120	67	96
Welch, Charles K., London, England. Rubber tire	522,138	June 26	2466	592	67	1698
Welch, E. Baker, *et al.* (See Dooley, Thomas B., assignor.)						
Welch, Robert K., assignor of one-half to G. E. Schlegelmilch, Philadelphia, Pa. Dynamo-electric machine or electric motor	520,152	May 22	2136	521	67	977
Weldon, George, Mount Vernon, N. Y. Mortising-machine	517,906	Apr. 10	801	201 / 202	67	169
Weller, George L., Elyria, Ohio. Steam-actuated valve	519,826	May 15	1569	384	67	859
Wells, Benjamin W. (See Martin, Morris, assignor.)						
Wells, Elisha F., Louisville, Ky. Grain-binding harvester	520,153	May 22	2138	521 / 522	67	977
Wells, Helen A. (See Oswald, Phillip, assignor.)						
Welsh, Samuel. (See Lewis, William T., assignor.) (Reissue.)						
Wemple, Andrew, assignor of one-half to J. S. Pihlstrom, Chicago, Ill. Band-cutter and feeder for thrashing-machines	518,729	Apr. 24	2248	560	67	454
Wendell, Frederick C., Brooklyn, N. Y. Ironing-machine	518,871	Apr. 24	2470	612	67	495
Wendell, Frederick C., Brooklyn, N. Y. Ironing-machine	518,872	Apr. 24	2474	612 / 613	67	496
Wendté, William C., assignor to E. L. Forbes, Boston, Mass. Multicolor-printing press	517,907	Apr. 10	803	202	67	169
Wendté, William C., assignor to E. L. Forbes, Boston, Mass. Multicolor-printing press	517,908	Apr. 10	806	202 / 203	67	169
Wendté, William C., assignor to E. L. Forbes, Boston, Mass. Multicolor-printing press	519,461	May 8	941	228	67	732
Wendté, William C., assignor to E. L. Forbes, Boston, Mass. Multicolor-printing press	519,462	May 8	943	228	67	732
Wendté, William C., assignor to W. H. Forbes, Boston, Mass. Inking apparatus for printing-presses	520,345	May 22	2467	598	67	1039
Wendté, William C., assignor to W. H. Forbes, Boston, Mass. Inking apparatus for printing-presses	520,346	May 22	2469	598 / 599	67	1039
Wenker, Georg, Marburg, Germany. Book-shelf	517,503	Apr. 3	147	32	67	30
Werline, Henry E., assignor of three-fourths to F. S. Barr, Lancaster, E. L. Reinhold and H. B. Cassel, Marietta, Pa. Electric switch	520,279	May 22	2353	571	67	1017
Werner, August, Brooklyn, N. Y. Method of and apparatus for racking beer	519,558	May 8	1125	270 / 271	67	764
Werner, August, assignor of two-fifths to T. J. Osborne, Pioche, Nev. Pencil-sharpener	517,784	Apr 3	619	154	67	120
Werner, Clement J. (See Werner, Louis A. and C. J.)						
Werner, Emil, Cleveland, Ohio. Typographic machine	519,516	May 8	1034	250 / 251 / 252 / 253	67	747
Werner, Emil, Cleveland, Ohio. Typographic machine and attachment	519,517	May 8	1050	253 / 254 / 255	67	751
Werner, Louis A. and C. J., Boston, Mass. Automatic electric fire-alarm and signal	519,213	May 1	494	119 / 120	67	633
Werntz, Walter J. (See Smith, Job, assignor.)						
Wertheimer, Mauritius, Berlin, Germany. Speculum	519,623	May 8	1244	298	67	785
Wertheimer, Monroe A., San Diego, assignor of two-thirds to C. E. and H. P. Bancroft, San Francisco, Cal. Adjustable desk	517,633	Apr. 3	358	85	67	70
Wescott, Harriet J., Somerville, Mass. Protector for ladies' boots	519,053	May 1	185	44	67	572
Wessel, Ferdinand A. (See Egger and Wessel.)						
Wesson, Daniel B., Springfield, Mass. Revolver-lock mechanism	520,468	May 29	2665	644	67	1092

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wesson, James L. (See Leavitt, John E., assignor.)						
West, Francis H., Portland, Oreg. Dish-cleaner	518,298	Apr. 17	1481	370 / 371	67	304
West, Jonathan B., Rochester, N. Y. Machine for setting tires	520,817	June 5	109	24, 25	67	1216
Westbay, James A. and W. T., McKeesport, Pa. Vending-machine	521,839	June 26	1926	461 / 462	67	1597
Westbay, William T. (See Westbay, James A. and W. T.)						
Westcott, Samuel B., Hill's Grove, R. I. Stop-motion	519,463	May 8	945	228	67	733
Westerhoff, Henry and P. D., Paterson, N. J. Swivel-loom	519,802	May 15	1532	374	67	851
Westerhoff, Peter D. (See Westerhoff, Henry and P. D.)						
Westerlin, John M., Chicago, Ill. Condenser	519,654	May 8	1293	309	67	793
Western Automatic Car Coupling Company. (See Ker, George, assignor.)						
Western Electric Company. (See Carty, John J., assignor.)						
Western Electric Company. (See Scribner, Charles E., assignor.)						
Western Electric Company. (See Seter, Michael, assignor.)						
Western Gas Construction Company. (See Bahret, Christian, assignor.)						
Western Wheeled Scraper Company. (See McKnight, Thomas R., assignor.)						
Westinghouse Air Brake Company. (See Hogan, Thomas J., assignor.)						
Westinghouse, Church, Kerr & Company. (See Roney and Strannahan, assignors.)						
Westinghouse Electric and Manufacturing Company. (See Kirker and Chambers, assignors.)						
Westinghouse Electric and Manufacturing Company. (See Lamme, Benjamin G., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Lange and Lamme, assignors.)						
Westinghouse Electric and Manufacturing Company. (See Schmid, Albert, assignor.)						
Westinghouse Electric and Manufacturing Company. (See Schmid and Lamme, assignors.)						
Westinghouse Electric and Manufacturing Company. (See Scott, Charles F., assignor.)						
Westinghouse, George, Jr., and C. F. Scott, Pittsburg, Pa. Converter system for electric railways	520,975	June 5	404	97	67	1270
	518,929	Apr. 24	2580	638	67	516
Westinghouse, Henry H., Pittsburg, Pa. Quick-action triple valve	517,711	Apr. 3	501	120 / 121	67	97
Westlake, William H. S., Lock 4, Pa. Trunk						
Westlin, Bror E. (See Yeager and Westlin.)						
Weston, Edward D., assignor of one-half to R. Gage and B. D. Legg, Jackson, Mich. Flue-cleaner	518,638	Apr. 24	2077	518	67	425
	518,476	Apr. 17	1809	447	67	363
Weston, Edward L., Washington, D. C. Waste-paper basket	519,597	May 8	1192	288	67	776
Wetmore, Earl P., Helena, Mont. Electrical water-wheel governor						
Wetmore, Jerome W., Erie, Pa., assignor, by mesne assignments, to Van Wagoner & Williams Hardware Company, Jersey City, N. J. Pneumatic door-check	521,747	June 19	1763	418	67	1551
Wetter, Joseph. (See Reinhardt, James H., assignor.)						
Wetter, Joseph. (See Sanders, Frank, assignor.)						
Wetter, Joseph. (See Wicht, Frank W., assignor.)						
Wettstein, Hermann, and C. Rödmann, Philadelphia, Pa. Flag-staff coupling	521,063	June 5	556	130	67	1297
Weyand, Charles L., New York, N. Y. Shoe attachment	518,682	Apr. 24	2156	539	67	439
Weyhe, Hermann C. W., assignor to E. A. Pilgram, Bremen, Germany. Packing or sound-deadening device for windows or doors	520,226	May 22	2264	551	67	1000
	518,799	Apr. 24	2361	585 / 586	67	475
Weyher, Frederic A., Pantin, France. Speed-regulator						
Whalin, John, Schenectady, N. Y. Combination-tool for punching and creasing horseshoes	518,434	Apr. 17	1738	432	67	351
Wheatley, Thomas, Syracuse, N. Y. Wrench	520,099	May 22	2023	494	67	958
Wheeler, Cornelius. (See McGregor, Nelson H., assignor.)						
Wheeler, Cyrenus, Jr., Auburn, N. Y. Clothes-wringer	517,785	Apr. 3	621	155	67	121
Wheeler, Earl G. (See Totman, John J., assignor.)						
Wheeler, Edgar T., assignor to F. J. Harrington, Los Angeles, Cal. Wooden pipe	517,909	Apr. 10	808	203	67	170
Wheeler, Frank E., *et al.* (See Bauer and Johnson, assignors.)						
Wheeler, Gage M. (See Ferris and Wheeler.)						
Wheeler, Joel H., *et al.* (See Burson, Harvy, assignor.)						
Wheeler, Russel, *et al.* (See Bauer and Johnson, assignors.)						
Wheeler, Seth, Albany, N. Y. Toilet-paper fixture	519,167	May 1	407	98	67	616
Wheeler, Walter O., Webster, Mass. Tack-distributer	518,933	Apr. 24	2597	643	67	519
Wheeler, Warren F., Stoneham, Mass. Snow-plow	518,749	Apr. 24	2285	567 / 568	67	461
Wheeler & Wilson Manufacturing Company. (See Abercrombie, Charles M., assignor.)						
Wheeling Corrugating Company. (See Grafton and Spears, assignors.)						
Whelpley, Joseph L., Boston, Mass. Skate	521,489	June 19	1328	309	67	1470
Whipple, George A., Diamond Hill, R. I. Harness-strap	518,575	Apr. 17	1969	487	67	391
Whipple, William R., Kellogg, assignor of one-half to W. H. Byars, Portland, Oreg. Surveying-instrument	519,010	May 1	116	28	67	558
	517,712	Apr. 3	504	121	67	97
Whitaker, Albert E., La Porte, Ind. Motor	518,338	Apr. 17	1558	387	67	317
Whitaker, Clarence E., assignor to J. C. Bennett, Lynn, Mass. Bicycle	519,555	May 15	1618	394	67	868
Whitaker, Clarence E., assignor to J. C. Bennett, Lynn, Mass. Bicycle	520,624	May 29	2919	706	67	1139
Whitcomb, James, and A. Wotring, Ogden Centre, Mich. Tension device for grain-binders	519,364	May 8	787	192	67	704
Whitcomb, William E., Barre, Vt. Derrick	519,144	May 1	359	86, 87	67	607
White, Albert, assignor to S. C. Smith, Lowell, Mass. Heel-nailing machine						
White, Andrew J. (See Fee, William R., assignor.)						
White, Charles E., assignor of seven-twentieths to R. X. De Grau, Kansas City, Mo. Gas apparatus	517,910	Apr. 10	810	204	67	170
White, Charles E., assignor to Deere & Mansur Company, Moline, Ill. Hay rake and loader	518,085	Apr. 10	1111	281 / 282	67	219
White, Charles J. (See Pelton, Francis A., assignor.)						
White, Charles J., New Britain, Conn. Garment-supporter	521,560	June 19	1444	336	67	1491
White, Cornelius A., Carlisle, Ky. Gig-saddle	518,435	Apr. 17	1739	432	67	351
White, Daniel M., Boston, Mass. Tuning device	521,688	June 19	1665	391	67	1532
White, David, and A. F. Lagerwall, assignors to American Extract and Supply Company, New York, N. Y. Machine for forming wire loops	518,381	Apr. 17	1652	408	67	334
	519,054	May 1	186	44	67	572
White, Frank L., Monroe, La. Cotton-press	521,578	June 19	1478	346	67	1497
White, Franklin P., Shallotte, N. C. Axle-lubricator	520,469	May 29	2667	645	67	1092
White, John H., De Witt, Iowa. Railway-track structure						
White, Robert. (See Dufresne, Napoleon, assignor.)						
White Sewing Machine Company. (See Baker, George W., assignor.)						
Whiteaker, George W., *et al.* (See Gillet, Alexis F., assignor.)						
Whiteaker, James D., *et al.* (See Gillet, Alexis F., assignor.)						
Whitehead, Benjamin S., Newark, N. J. Badge	521,198	June 12	793	186	67	1354
Whitehead, John S., Detroit, Mich. Electric alarm-clock	521,065	June 5	560	131	67	1298
Whitin Machine Works. (See Taft, Cyrus A., assignor.)						
Whiting, George L., Waterbury, Nebr. Cultivator	518,683	Apr. 24	2157	539	67	440

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Whiting, Phineas S., Hiawatha, Kans., assignor to Wilson & Company, Des Moines, Iowa. Lubricator	519,055	May 1	188	45	67	572
Whitlock, Benjamin M., New York, N. Y., assignor to Interstate Coupler Company, Jersey City, N. J. Car-coupling	517,504	Apr. 3	149	32	67	30
Whitlock, Benjamin M., New York, N. Y., assignor to Interstate Coupler Company, Jersey City, N. J. Car-coupling	517,505	Apr. 3	150	33	67	31
Whitlock, Benjamin M., New York, N. Y., assignor to Interstate Coupler Company, Jersey City, N. J. Car-coupling	517,506	Apr. 3	152	33	67	31
Whitlock, George. (See Moore, Alfred H., assignor.)						
Whitman, Charles H., Detroit, Mich. Excelsior-cutting machine	519,214	May 1	497	120, 121	67	634
Whitmore, Charles E., *et al.* (See Fletcher, Florence M., assignor.)						
Whitner, Hiram K., Chicago, Ill. Safety apparatus	519,365	May 8	788	193	67	704
Whitney, Albert E., Muncie, Ind. Burial apparatus	518,976	May 1	63	16	67	548
Whitney, Baxter D. (See Sawyer, Willard N., assignor.)						
Whitney, James M. (See Maltby, Frank D., assignor.)						
Whitney, Nina F., Columbus, Ohio. Electric alarm-clock	521,840	June 26	1927	462, 463	67	1597
Whittier Machine Company. (See Clark, John H., assignor.)						
Whittingham, George H., Baltimore, Md., assignor to Automatic Switch Company of Baltimore City, of Maryland. Automatic device for removing resistance in starting electric motors and replacing same	518,906	Apr. 24	2542	629	67	510
Whittingham, George H., Baltimore, Md., assignor to Automatic Switch Company of Baltimore City, of Maryland. Automatic device for removing resistances in starting electric motors and replacing same	520,280	May 22	2355	571, 572	67	1018
Whittleton, Ellera J., *et al.* (See Barber, Arthur J., assignor.)						
Whitus, Charles, and J. W. Wilks, Chester, S. C. Saw-set	519,366	May 8	790	193	67	704
Whitus, Charles, J. W. Wilks, and N. J. Whitus, Chester, S. C. Brace-and-bit gage	521,997	June 26	2237	537	67	1655
Whitus, Nancy J. (See Whitus, Wilks, and Whitus.)						
Whitworth, Mal C. and W. E., Donelson, Tenn. Transplanter	518,657	Apr. 24	2110	527, 528	67	431
Whitworth, William E. (See Whitworth, Mal C. and W. E.)						
Whybrew, Samuel, Richmond, Va. Envelope	519,367	May 8	791	193	67	705
Wicht, Frank W., assignor to J. Wetter, Brooklyn, N. Y. Numbering-machine	520,976	June 5	406	98	67	1271
Wickes Brothers. (See Heyde, Edward, assignor.)						
Wickham, Thomas R., Chicago, Ill. Wine-cooler	517,507	Apr. 3	153	33	67	31
Wiedenbeck, Edwin. (See Eframson, Carl, assignor.)						
Wiederer, Peter, Stapleton, N. Y. Combination-mirror	518,382	Apr. 17	1653	409	67	335
Wiederin, Mathäus, assignor of one-half to F. Maerky, Frastanz, Austria-Hungary. Machinery for inserting screws into leather or other material	519,215	May 1	500	121, 122	67	634
Wieland, Charles F., St. Louis, Mo. Bolt-threading machine	520,175	May 22	2178	530, 531	67	984
Wieland, Friedrich, Brooklyn, N. Y. Suspenders	518,383	Apr. 17	1655	409	67	335
Wilbur, William R., Cleveland, Ohio. Monkey-wrench	518,086	Apr. 10	1116	282	67	219
Wilce, Thomas. (See Burnham, John P., assignor.)						
Wilcox, Cornelius B., Deerfield, Ohio. Portable worm fence	521,627	June 19	1565	365	67	1512
Wilcox, Curtis N., Brooklyn, N. Y. Cover for milk-jars	521,841	June 26	1929	463	67	1598
Wilcox, Frederick K., and C. E. Vail, Plainfield, N. J.; said Vail assignor to said Wilcox. Combined stove and heater	519,750	May 15	1442	348	67	834
Wilcox Manufacturing Company. (See Richards, Marcius C., assignor.)						
Wilcox, Melvin L., assignor to National Cycle Manufacturing Company, Bay City, Mich. Chain adjustment for bicycles	519,056	May 1	180	45	67	573
Wilder, Charles H. (See Prescott, Joseph D., assignor.)						
Wilder, Harlan P., Gardner, Mass. Oil or lamp stove	521,748	June 19	1766	418	67	1551
Wilder, William H., Northampton, Mass. Oven	521,689	June 19	1667	391	67	1532
Wildermuth, La Fayette, Columbus, Ohio. Spring bed-bottom	519,368	May 8	792	194	67	705
Wildermuth, La Fayette, Columbus, Ohio. Bed-spring	520,393	May 22	2526	611	67	1051
Wildt, Henry W., Alexandria, Va. Spectacle-frame	520,347	May 22	2470	599	67	1039
Wile, Sol, and H. La Casse, Rochester, N. Y. Cork-feeder	520,550	May 29	2800	676, 677	67	1116
Wile, Sol, and H. La Casse, Rochester, N. Y. Cork-compressor	520,625	May 29	2920	706, 707	67	1139
Wiley & Russell Manufacturing Company. (See Farwell, Oscar F., assignor.)						
Wiley, William A., assignor of one-half to J. F. Harvey, Rochester, Minn. Lath or shingle hammer	517,911	Apr. 10	812	204	67	170
Wilkin, Joseph A., Matamoras, Pa., assignor to himself, and J. J. Mills, Port Jervis, N. Y. Foot or hand power	521,490	June 19	1332	309, 310	67	1471
Wilkins, Alexander G., assignor to Wilkins Shoe Button Fastener Company, Meadville, Pa. Button-setting machine	518,708	Apr. 24	2203	550, 551	67	447
Wilkins, Bertha S., Los Angeles, Cal. Housekeeping-cabinet	521,628	June 19	1566	366	67	1512
Wilkins Shoe Button Fastener Company. (See Wilkins, Alexander G., assignor.)						
Wilkinson, Burwood M., Camden, N. J. Rotary engine	518,436	Apr. 17	1741	432	67	351
Wilkinson, Francis M., Birmingham, Ala. Window-shade fixture	519,979	May 15	1817	445	67	904
Wilkinson, Joseph W., assignor to Des Moines Fuel Saving Furnace Company, Des Moines, Iowa. Furnace	520,551	May 29	2805	677	67	1118
Wilkinson, William H. (See Putnam, Waldo D., assignor.)						
Wilkinson, William R., Bullock county, Ga. Stump-extractor	521,352	June 12	1078	252, 253	67	1407
Wilks, John W. (See Whitus and Wilks.)						
Wilks, John W. (See Whitus, Wilks, and Whitus.)						
Willans, Edith E. (See Willans, Peter W., assignor.)						
Willans, Peter W., deceased; W. D. Baldwin, Washington, D. C., administrator, assignor to E. E. Willans, London, England. Metallic packing	519,314	May 8	683	166	67	683
Willans & Robinson. (See Robinson, Mark H., assignor.)						
Willans & Robinson. (See Sankey, Matthew H. P. R., assignor.)						
Willard, George, Los Angeles, Cal. Side-hill plow	520,281	May 22	2357	572	67	1018
Willard, John W. (See Keith, Tirrell, and Willard.)						
Willard, Norman P., trustee. (See Fletcher, Wendell C., assignor.)						
Willard, Theadore A., Norwalk, Ohio. Device for regulating electricity generated by means of wind-power	519,881	May 15	1661	404	67	876
William Deering & Company. (See Williams, Farmer R., assignor.)						
William Sellers & Company. (See Bancroft, John S., assignor.)						
William Wharton, Jr., & Company. (See Samuel, Edward, assignor.)						
Williams, Benezette, Western Springs, Ill. Automatically-acting flush-tank	519,369	May 8	793	194	67	705

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Williams, Charles E. (See Edgar and Williams.)						
Williams, Charles V. (See Williams, Robert S., assignor.)						
Williams, Farmer R., Beloit, Wis., assignor to William Deering & Company, Chicago, Ill. Twine and making same	520,249	May 22	2305	559	67	1008
Williams, Frank A., Holley, assignor of one-half to E. T. Lamb, Batavia, N. Y. Wire-fabric machine	517,508	Apr. 3	154	33, 34	67	32
Williams, Harry, Richmond, and T. L. Fisher, Hawthorne, Victoria. Rotary steam-engine	518,299	Apr. 17	1483	371	67	304
Williams, Horace G., Lykens, Pa. Stuffing-box	517,509	Apr. 3	156	34	67	32
Williams, Irvin, Nelson, Mo. Curtain-fixture	518,977	May 1	64	16, 17	67	548
Williams, John M. (See James, John E., assignor.)						
Williams, John M., St. Louis, Mo. Smoke-consuming furnace	521,750	June 19	1784	423, 419, 420	67	1554
Williams, John R., East Orange, N. J. Machine for making cigarettes	521,749	June 19	1768	421, 422, 423	67	1551
Williams, Louis N. D., assignor of one-half to R. W. Scott, Philadelphia, Pa. Knitting machine	521,066	June 5	562	131, 132	67	1298
Williams, Martin C., *et al.* (See Daly, Charles A., assignor.)						
Williams & Moore Manufacturing Company. (See Moore, Alfred M., assignor.)						
Williams, Morgan L., Johnstown, Pa. Machine for forming tuyeres and pipes	518,169	Apr. 10	1251	315	67	243
Williams, Robert S., Merchantville, N. J., assignor to C. V. Williams, Philadelphia, Pa. Return postage-stamp	522,037	June 26	2298	551	67	1666
Williams, Silas J., Floyd, Tex. Cotton-press	518,709	Apr. 24	2207	551	67	448
Williamson, Charles E., Grand Rapids, Mich. Windmill	517,674	Apr. 3	141	106	67	85
Williamson, Frank E., Chicago, Ill. Oil-can	518,539	Apr. 17	1911	473	67	380
Willimantic Linen Company. (See Hubbard, Eber, assignor.)						
Willits, Anna E. (See Willits, John G., assignor.)						
Willits, John G., assignor to A. E. Willits, Haddonfield, N. J. Moistener for stamps, envelopes, &c	521,250	June 12	884	209	67	1370
Willner, August, Germantown, Ohio. Transplanting machine	520,838	June 5	153	34	67	1225
Wills, Arthur J., Milwaukee, Wis. Indexed disk	520,100	May 22	2024	494	67	958
Wilson, Amasa H., Chicago, Ill. Spring-hinge	518,639	Apr. 24	2078	518	67	425
Wilson, Benjamin P., *et al.* (See Shank, Charles A., assignor.)						
Wilson, Charles F., assignor of one-half to G. F. Malby, Brooklyn, N. Y. Railway switch.	519,464	May 8	946	229	67	733
Wilson & Company. (See Whiting, Phineas S., assignor.)						
Wilson, D. B., *et al.* (See Bright, William H., assignor.)						
Wilson, David H., Chicago, Ill. Electric cattle-guard	520,510	May 29	2735	662, 663	67	1104
Wilson, James L., Mountain Peak, Tex. Door-spring	520,282	May 22	2359	572	67	1018
Wilson, James N., Minneapolis, Minn. Planter	518,979	May 1	66	17, 18, 19	67	548
Wilson, John J., *et al.* (See Sherman, Willis D., assignor.)						
Wilson, Martin M., Llandudno, England. Game apparatus	519,078	May 1	239	56	67	581
Wilson, Perry E., and P. M. Hesch, Jr., Titusville, Pa.; said Hesch assignor to said Wilson. Cutting-machine	518,978	May 1	67	17	67	548
Wilson, William T., assignor of one-half to J. S. O'Shea, Buffalo, N. Y. Car-coupling	521,968	June 26	2172	521	67	1644
Wimbrow, Peter A. and R. S., and H. P. Dale, Whaleysville, Md. Berry-crate	517,713	Apr. 3	506	121	67	98
Wimbrow, Robert S. (See Wimbrow and Dale.)						
Winans, Henry E., Newark, N. J. Shot-spreader	519,559	May 8	1128	271	67	764
Winch, Arthur C., Saxonville, Mass. Device for feeding and watering live stock	519,935	May 15	1741	426, 427	67	890
Winchester Repeating Arms Company. (See Mason, William, assignor.)						
Windsor, Frederick E., Warren, Pa. Bag-lock	519,598	May 8	1197	288, 289	67	777
Windus, William. (See Worsley, Windus, and Bracey.)						
Winegarden, Arey V., Anthony, Kans. Windmill	518,300	Apr. 17	1485	371, 372	67	304
Winfield Manufacturing Company. (See Winfield, William C., assignor.)						
Winfield Manufacturing Company. (See Winfield and McNutt, assignors.)						
Winfield, William C. (See Ward and Winfield.)						
Winfield, William C., assignor to Winfield Manufacturing Company, Warren, Ohio. Oil-can	520,871	June 5	212	47	67	1236
Winfield, William C., and J. F. McNutt, assignors to Winfield Manufacturing Company, Warren, Ohio. Machine for forming corrugated elbow-pipes	520,870	June 5	209	47	67	1236
Winkelmann, Herman R. (See Sattelkan and Winkelmann.)						
Winkfield, Fedro G., Quincy, Mass. Buckle	519,518	May 8	1066	256	67	753
Winship Machine Company. (See Garraux, Frederick, assignor.)						
Winslow, George H., Pittsburg, Pa. Pin for insulators	517,634	Apr. 3	361	85, 86	67	71
Winslow, George H., Pittsburg, Pa. Binder for leaves	517,635	Apr. 3	363	86	67	71
Winsor, Joseph S., assignor of one-half to O. Bradley, Worcester, Mass. Apparatus for locking and turning car-seats	519,370	May 8	794	194, 195	67	705
Wint, Thomas L., Kalb, assignor of one-half to S. J. T. Young, Camden, S. C. Weather-board gage	520,511	May 29	2738	663	67	1104
Winter, Alexander W., assignor to J. A. Winter, W. H. Lee, and F. C. Laird, Chicago, Ill. Compound edible fat	519,980	May 15	1818	.....	67	904
Winter, John F., assignor of one-half to J. F. Morrison, Baltimore, Md. Governor for electric motors	517,714	Apr. 3	507	122	67	98
Winter, Josephine A., *et al.* (See Winter, Alexander W., assignor.)						
Wirsching, Philipp, Salem, Ohio. Pipe-organ	518,980	May 1	72	19	67	549
Wirt, Herbert C., assignor to General Electric Company, Boston, Mass. Ceiling-cleat	518,301	Apr. 17	1488	372	67	305
Wisconsin Electric Light and Power Company. (See Müller, Charles L. F., assignor.)						
Wist, J. W., *et al.* (See Loughmiller, Benjamin F., assignor.)						
Witherbee, Thomas F., Port Henry, N. Y. Charging apparatus for filling blast-furnaces	518,769	Apr. 24	2315	575	67	467
Witt, George E., Fresno, Cal. Track or carrier for doors, &c	520,199	May 22	2221	540	67	992
Witte, George C. (See Schneider, Philipp, assignor.)						
Wittemann, Rudolph A., New York, N. Y. Bottle-closing device	519,827	May 15	1570	384	67	859
Witter, Ezra E., Milford Centre, Ohio. Corn-harvester	518,516	Apr. 17	1874	464	67	374
Wittich, George, assignor of one-third to A. F. Kauffman, Freyburg, Tex. Combined cotton and corn planter	520,872	June 5	213	48	67	1236
Witz, Konrad, Hoboken, assignor to himself and F. Graus, Jersey City, N. J. Manufacture of plastic articles	520,283	May 22	2360	573	67	1019

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wm. Knabe & Co. Manufacturing Company. (See Smith, William T., assignor.)						
Wock, John, Canton, Ohio. Lift-pump	518,981	May 1	75	19	67	549
Woebs, Anton, Hanover, Germany. Billiard-table	517,715	Apr. 3	508	122, 123	67	98
Wegan, Michael, U. S. Navy. Ball-bearing	521,399	June 12	1147	271	67	1421
Wolcott, William V., and H. O'Hara, St. Louis, Mo., assignors to St. Louis Car Coupler Company, of Illinois. Car-coupling	519,216	May 1	505	122	67	635
Wolfe, Wiltsie F., Newton, Mass. Ventilator	521,561	June 19	1445	336	67	1491
Wolff, Adrian, and T. R. Hyde, Jr., Waterbury, Conn., assignors to Scovill Manufacturing Company, of Connecticut. Air-pump	518,302	Apr. 17	1489	372	67	305
Wolle, Hartley C., Bethlehem, Pa. Means for making metallic bodies	522,093	June 26	2382	573	67	1683
Wollmer, Hugo E. (See Green, Squire, assignor.)						
Wollmer, Hugo E. (See Koehler, Jacob and C., assignors.)						
Woltmann, Ernst, Chicago, Ill. Electric switch	518,800	Apr. 24	2366	586	67	475
Womer & Son, Peter, *et al.* (See Warner, Daniel, assignor.)						
Wonson, Clara N., Gloucester, Mass., and D. W. Palmer, Hermon Centre, Me. Convertible chair	520,984	May 22	2361	573, 574	67	1019
Wood, Aurin, assignor, by mesne assignments, to L. W. Pond Machine Company, Worcester, Mass. Machine for turning pulleys	521,353	June 12	1079	253	67	1408
Wood, Frederick C., assignor of one-half to G. C. Bingham, Buffalo, N. Y. Combined type-writer case and table	521,067	June 5	564	132	67	1299
Wood, James J., Fort Wayne, Ind. Switchboard for high-tension circuits	520,128	May 22	2089	508	67	967
Wood, James J., Fort Wayne, Ind. Electric-current indicator	520,129	May 22	2091	508, 509	67	967
Wood, James N., assignor of one-half to W. P. De Saussure, Richmond, Va. Machine for selecting and boxing cigarettes	522,139	June 26	2467	592, 593	67	1698
Wood, John E. (See Sills and Wood.)						
Wood, Richard G., Allegheny, assignor to W. Dewees Wood Company, McKeesport, Pa. Rolling-mill	517,716	Apr. 3	510	123	67	99
Wood, Walter. (See Richards, Francis H., assignor.)						
Woodier, Alfred. (See Bentley, Squire, assignor.)						
Woodruff, Frank E., Calis, W. Va. Robe-holder	519,399	May 8	847	205	67	714
Woodruff, John L. (See Houghton, Charles L., assignor.)						
Woodruff, Oliver D. (See Snow, Levi T., assignor.)						
Woods, James W., and D. I. Barnett, Toronto, Canada. Length-indicator for fabrics	520,946	June 5	358	87	67	1262
Woods, William, Frostburg, Md. Sliding gate	518,128	Apr. 10	1184	296	67	232
Woodsum, Daniel R. and F. M., Sunapee, N. H. Engine attachment	519,488	May 8	994	240	67	739
Woodsum, Frank M. (See Woodsum, Daniel R. and F. M.)						
Woodward, Arthur H., Chicago, Ill. Duplicate-whist box	521,302	June 12	979	232	67	1388
Woodward, Benjamin F. (See Hersh, Woodward, and Pettee.)						
Woodward, J. K. (See Baggs, Samuel A., assignor.)						
Woodward, John K., Riverside, Cal. Fruit-gatherer	517,786	Apr. 3	622	156	67	121
Woodward, Russel G., Wankegon, assignor to Union Special Sewing Machine Company, Chicago, Ill. Presser-foot for sewing-machines	519,897	May 15	1684	411	67	881
Woolf, Ellis J., assignor to Woolf Valve Gear Company, Minneapolis, Minn. Engine	521,278	June 12	929	220	67	1378
Woolf Valve Gear Company. (See Woolf, Ellis J., assignor.)						
Woonsocket Machine and Press Company. (See Campbell, Malcolm, assignor.)						
Worden, Charles A., U. S. Army, assignor to Worden Machine Company, Omaha, Nebr., and New York, N. Y. Razor holding and adjusting device for sharpening machines	519,296	May 1	639	156	67	661
Worden, George W., Dover, Del. Shipping-crate	521,354	June 12	1082	254	67	1408
Worden, George W., and H. Huettig, Philadelphia, Pa. Bath-brush	522,174	June 26	2527	606	67	1710
Worden Machine Company. (See Worden, Charles A., assignor.)						
Worsley, Philip J., W. Windus, and B. Bracey, Bristol, assignors to United Alkali Company, Limited, Liverpool, England. Process of and apparatus for absorbing chlorin gas	521,629	June 19	1567	366	67	1513
Worth, Conrad, Los Angeles, Cal. Railway time-indicator	517,943	Apr. 10	859	210	67	179
Wotherspoon, James R., Philadelphia, Pa. Watering-pot	518,437	Apr. 17	1743	433	67	351
Wotring, Amos. (See Whitcomb and Wotring.)						
Wotton, James A., Atlanta, Ga. Busy-test for multiple switchboards	521,303	June 12	982	232	67	1388
Wrede, Friedrich, Dresden, Germany. Glass-melting tank-oven	517,675	Apr. 3	442	107	67	85
Wright, Bushnell A., San Jacinto, Cal. Fruit-picker	519,371	May 8	796	195	67	706
Wright & Colton Wire Cloth Company. (See Wright, George M., assignor.)						
Wright, Daniel M., Scranton, Pa. Vegetable-cutter	521,270	June 12	932	220	67	1379
Wright, Edward T., assignor to O. S. Kelly Company, Springfield, Ohio. Tender for road-engines	518,982	May 1	76	20	67	550
Wright, Elmer A., Monrovia, Cal. Fire-alarm	520,348	May 22	2471	599	67	1040
Wright, George M., assignor of one-half to Wright & Colton Wire Cloth Company, Worcester, Mass. Apparatus for galvanizing wire	518,048	Apr. 10	1061	268	67	210
Wright, George N. (See Toye, William H. R., assignor.)						
Wright, Harry, Kettering, England. Eyelet-hole-punching machine	521,068	June 5	565	132, 133	67	1299
Wright, Henry H. (See Walmsley and Wright.)						
Wright, Henry J. (See Smith, Arthur J., assignor.)						
Wright, Jacob P., New Haven, Conn. Match-box	521,903	June 26	2041	492	67	1621
Wright, Lewis S. N., and C. S. Bailey, Princeton, Mo. Heating-stove	519,011	May 1	117	28	67	558
Wright, Peter, assignor to United Gas Improvement Company, Philadelphia, Pa. Transformer electric-lighting system	521,924	June 26	2079	499	67	1627
Wright, Peter, assignor to United Gas Improvement Company, Philadelphia, Pa. Transformer system of electrical distribution	521,925	June 26	2084	500, 501	67	1628
Wright, Syrus W., Huffman, Ala. Nut-lock	517,534	Apr. 3	190	43	67	38
Wright, Wilkinson D. (See Hopkins, Albert A., assignor.)						
Wright, William. (See Newsome, Simeon, assignor.)						
Wright, William A., Centreton, N. J., assignor of one-third to L. Palmer, Harrisburg, Pa. Combined envelope, letter-sheet, circular, and casing	521,902	June 26	2040	492	67	1620
Wright, William H., Buffalo, N. Y. Car-axle lubricator	518,384	Apr. 17	1656	409	67	335
Wright, William H., Buffalo, N. Y. Dust-guard for car-axle boxes	518,385	Apr. 17	1657	409	67	335
Wurlitzer, Howard E., Cincinnati, Ohio. Stringed musical instrument	519,751	May 15	1443	348	67	835
Wyckoff, Seamans & Benedict. (See Dias, Louis P., assignor.)						
Wyckoff, Seamans & Benedict. (See Webb, George B., assignor.)						
Wylie, Chester L., assignor of two-thirds to O. P. Enerson, Valley City, and S. B. Clary, Fargo, N. D. Grain-meter	521,904	June 26	2043	492	67	1621
Wyman, Charles E., Martinsburg, Ind. Drill for wells, &c	519,012	May 1	118	28, 29	67	558
Wyman, Charles E., Martinsburg, assignor of one-half to J. H. Stotsenburg, New Albany, Ind. Rock-crusher	517,717	Apr. 3	512	124	67	99

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wyman, Horace B., Slingerlands, assignor of one-half to A. C. Goodwin, Albany, N. Y. Cleat for supporting conducting-wires for electric circuits	518,907	Apr. 24	2545	629	67	510
Wynant, John S. (See Miltonberger, Wynant, and Schott.)						
Wynia, Dennes L. (See Van Wechel and Wynia.)						
Wynn, John P., and T. W. Gillespie, Lock Haven, Pa. Pipe-wrench	518,517	Apr. 17	1876	464	67	375
Yakel, Henry. (See Lo Casto, Tony, assignor.)						
Yale, Charles O., New York, N. Y. Locking mechanism for safes	521,842	June 26	1931	463	67	1598
Yale, Charles O., New York, N. Y., and J. H. Ames, St. Paul, Minn. Pneumatic transmitter or store-service	520,664	May 29	2983	721, 722	67	1150
Yancey, Lee, Chicago, Ill. Attachment for adjusting window shades or curtains	519,856	May 15	1619	394	67	868
Yapp, William J., London, England. Flexible support for umbrellas, &c	521,335	June 12	1084	254	67	1409
Yarnell, Charles S., assignor to Moore Carving Machine Company, Minneapolis, Minn. Frame for supporting patterns and material for carving-machines	519,752	May 15	1444	349	67	835
Yates, Arthur P. (See Fox and Yates.)						
Yeager, William, and B. E. Westlin, Brooklyn, N. Y. Clamp	521,872	June 26	1977	477	67	1608
Yeatman, William H., *et al.* (See Saur, William, assignor.)						
Yinger, Frank H., Zanesville, Ohio. Car-coupling	518,684	Apr. 24	2159	540	67	440
Yinger, George, Harrisburg, Pa. Steam cooking device	520,470	May 29	2668	645	67	1092
York, Thomas, Portsmouth, Ohio. Dish-cover	519,417	May 8	874	211	67	720
Young, George W., Cincinnati, Ohio. Calking-hub with soldering nipple or ferrule	519,372	May 8	798	195	67	706
Young, Lonis L., St. Joseph, Mo. Potato-harvester	518,770	Apr. 24	2317	575	67	467
Young, Marcellus H., and J. M. Mathews, Seattle, Wash., said Mathews assignor to said Young. Extension-table	521,905	June 26	2044	492, 493	67	1621
Young, S. J. T. (See Wints, Thomas L., assignor.)						
Young, Simon S., Mount Morris, Ill. Wire fence	521,304	June 12	982	232	67	1388
Young, Walter S., assignor of one-half to D. Taylor, Brodhead, Wis. Hammock-support or tent-frame	519,898	May 15	1685	411	67	881
Young, William J., Lynn, Mass. Heel-stiffener machine	519,936	May 15	1744	427, 428	67	891
Younger, Joshua M., Sloan, Iowa. Dirt-loading machine	519,753	May 15	1447	349	67	835
Youngquist, August. (See Youngquist, Mehrtens, and Youngquist.)						
Youngquist, Louisa, F. L. N. Mehrtens, and A. Youngquist, Milwaukee, Wis. Ash-sifter	517,636	Apr. 3	364	86	67	71
Youngren, Peter L., Oakland, Cal. Continuous kiln	517,637	Apr. 3	365	86, 87	67	71
Zahikian, Gabriel, London, England. Steam-generator	518,016	Apr. 10	1002	251	67	201
Zanardo, Antonio, New York, N. Y. Stone-carving machine	518,640	Apr. 24	2079	518, 519	67	425
Zanardo, Giovanni B. (See Russo, Mario, assignor.)						
Zang, William F. (See Figgins, Joseph F., assignor.)						
Zedler, Friedrich, Cuero, Tex. Apparatus for the treatment of cotton	520,285	May 22	2364	574	67	1019
Zeiser, John, St. Louis, Mo., and F. A. Leeman, Batavia, N. Y. Fastening device	521,861	June 26	1961	473	67	1604
Zeller, Bernhard, and H. Crager, New York, N. Y. Combined skirt and trousers	521,998	June 26	2238	537	67	1655
Zeller, Gustave O., Rahway, N. J. Manufacturing pyroxylin solvents and their products.	518,386	Apr. 17	1659	.....	67	336
Zeller, Gustave O., Rahway, N. J. Manufacturing pyroxylin solvents and their products.	518,387	Apr. 17	1659	.....	67	336
Zeller, Gustave O., Rahway, N. J. Manufacturing solvents of pyroxylin and their products	518,388	Apr. 17	1660	.....	67	336
Zellers, William H., Philadelphia, Pa. Knitting-machine	521,069	June 5	567	133, 134	67	1299
Zennier, Martin, Säckingen, Germany. Slide-window	518,303	Apr. 17	1490	373, 374	67	305
Ziegler, Frank P., Milwaukee, Wis. Thill-coupling	519,489	May 8	995	241	67	739
Ziegler, William F., Lincoln, Kans. Corn-harvester	522,094	June 26	2383	573	67	1683
Ziegler, William H., *et al.* (See Reed, Franklin M., assignor.)						
Zies, Charles, Baltimore, Md. Pump-valve	520,349	May 22	2473	600	67	1040
Zimmer, Frederick W., Rochester, N. Y. Vehicle	518,983	May 1	77	20	67	550
Zimmerman, August H., Milwaukee, Wis. Cold-air-draft regulator for furnaces	518,984	May 1	78	20	67	550
Zimmerman, Casper, Chicago, Ill. Mail or express car	518,477	Apr. 17	1809	448	67	363
Zimmerman, Harry, Frederick, Md. Shutter-bower	520,471	May 29	2670	645	67	1093
Zimmerman, John E., Trinidad, Colo. Bridge-signal	520,286	May 22	2366	574	67	1020
Zweig, John, assignor of one-half to H. Venison, Bellaire, Ohio. Miner's flask	518,203	Apr. 10	1326	331	67	259
Zwermann, Theodor, Baltimore, Md. Enameling sheet-iron ware	517,992	Apr. 10	965	240	67	194
Zwietusch, Otto, Milwaukee, Wis. Method of and apparatus for the recovery of waste gaseous products in breweries	518,361	Apr. 17	1616	398	67	328

ALPHABETICAL LIST OF PATENTEES OF DESIGNS.

Name, residence, and design.	No.	Date.	Official Gazette. Volume.	Page.
Adams, Walter S., Philadelphia, Pa. Axle-box frame	23,278	May 15	67	922
American Type Founders Company. (See Ihlenburg, Herman, assignor.)				
Ancient Order of Foresters of America. (See Finck, William C., assignor.)				
Andersen, Johan M., Boston, Mass. Hanger	23,244	May 1	67	670
Andersen, Johan M., Boston, Mass. Hanger	23,245	May 1	67	670
Andersen, Johan M., Boston, Mass. Hanger	23,246	May 1	67	670
Atwood, Lewis J., assignor to Plume & Atwood Manufacturing Company, Waterbury, Conn. Lamp-burner	23,404	June 26	67	1715
Aylesworth, George M., Collingwood, Canada. Buckle	23,343	June 12	67	1439
Babbitt, Seth W., Meriden, Conn. Metal vessel	23,241	May 1	67	670
Babbitt, Seth W., Meriden, Conn. Box	23,312	May 29	67	1183
Barlow, James, and J. M. Pope, Trenton, N. J. Pitcher, &c	23,353	June 12	67	1440
Barney, Earl, Schenectady, N. Y. Brooder	23,168	Apr. 3	67	133
Bender, Adam, Philadelphia, Pa. Emery-wheel dresser	23,323	May 29	67	1185
Bennett & Peck Heating and Ventilating Company, of Ohio. (See Ensign, William W., assignor.)				
Bensinger, Moses, assignor to Brunswick-Balke-Collender Company, Chicago, Ill. Billiard-table	23,221	Apr. 24	67	522
Bergen, James D., Hartford, assignor to J. D. Bergen Company, Meriden, Conn. Glass vessel	23,316	May 29	67	1183
Bergen, James D., Hartford, assignor to J. D. Bergen Company, Meriden, Conn. Glass vessel	23,317	May 29	67	1184
Berger Manufacturing Company. (See Langenbach, Edward A., assignor.)				
Berry, Henry, Shelton, assignor to Derby Silver Company, Birmingham, Conn. Bowl or similar article	23,313	May 29	67	1183
Berry, Henry, Shelton, assignor to Derby Silver Company, Birmingham, Conn. Bowl or similar article	23,314	May 29	67	1183
Berry, Henry, Shelton, assignor to Derby Silver Company, Birmingham, Conn. Bowl or similar article	23,315	May 29	67	1183
Bievesh, Mathias. (See Merkels and Bievesh.)				
Bigelow Carpet Company. (See Brown, William F., assignor.)				
Bloore, William, Burslem, England. Cover-dish	23,251	May 8	67	805
Brand, Harrison, assignor to A. M. Ross & Co., Ilion, N. Y. Garden-trowel	23,226	Apr. 24	67	523
Brown, William F., Newark, N. J., assignor to Bigelow Carpet Company, New York, N. Y. Carpet	23,207	Apr. 24	67	520
Brown, William F., assignor to Bigelow Carpet Company, Newark, N. J. Carpet	23,261	May 15	67	919
Brunswick-Balke-Collender Company. (See Bensinger, Moses, assignor.)				
Brunt, Henry, Baltimore, Md. Ewer, &c	23,354	June 12	67	1440
Bryan, Willie B., I. M. Moore, and T. Meade, New York, N. Y. Coupon	23,397	June 26	67	1714
Cabot, Harry H., Bristol, assignor to Kent & Stanley Company, Providence, R. I. Spoon	23,194	Apr. 17	67	394
Cabot, Harry H., Bristol, assignor to Kent & Stanley Company, Providence, R. I. Spoon	23,195	Apr. 17	67	394
Calm, Maximillian. (See Lloyd, George, assignor.)				
Campbell, Ernest W., Providence, R. I., assignor to Holmes & Edwards Silver Company, Bridgeport, Conn. Handle for spoons, &c	23,263	May 15	67	919
Candee, Edward D., Brooklyn, N. Y., assignor to Nashawannuck Manufacturing Company, Easthampton, Mass. Clasp for garment-supporters	23,332	June 5	67	1323
Carbo-Alumina Metal Company. (See Stark, Frank G., assignor.)				
Cederstrom, Robert, St. Louis, Mo. Measuring-vessel	23,383	June 19	67	1564
Claudy, Christian, Birmingham, Ala. Monument	23,365	June 12	67	1442
Clulee, John, assignor to Simpson, Hall, Miller & Company, Wallingford, Conn. Handle for spoons, &c	23,171	Apr. 10	67	263
Codman, William C., assignor to Gorham Manufacturing Company, Providence, R. I. Handle for spoons, &c	23,311	May 29	67	1183
Commerford, John, Columbus, Ohio. Car-body	23,206	Apr. 17	67	395
Crane, William F. D., East Orange, N. J. Trolley-wire clip	23,243	May 1	67	670
Crowell, Gilbert L., Jr., Arlington, N. J., assignor to Dominick & Haff, New York, N. Y. Silversmith's stock	23,327	June 5	67	1323
Crowell, Gilbert L., Jr., Arlington, N. J., assignor to Dominick & Haff, New York, N. Y. Silversmith's stock	23,328	June 5	67	1323
Curtiss, Homer A., Meriden, Conn. Ferrule	23,344	June 12	67	1439
Curtiss, Homer A., assignor to Meriden Cutlery Company, Meriden, Conn. Cap for knives or forks	23,345	June 12	67	1439
Dangler, Charles I., and H. Ruppel, assignors to Dangler Stove and Manufacturing Company, Cleveland, Ohio. Air-heater, &c	23,277	May 15	67	922
Dangler Stove and Manufacturing Company. (See Dangler and Ruppel, assignors.)				
Davids, David F., New York, N. Y. Bottle	23,274	May 15	67	921
Davies, Benjamin, Brooklyn, assignor to L. Straus & Sons, New York, N. Y. Ornamentation of glass vessels	23,252	May 8	67	805
Davies, Benjamin, Brooklyn, assignor to L. Straus & Sons, New York, N. Y. Ornamentation of glass vessels	23,253	May 8	67	805
Davies, Benjamin, Brooklyn, assignor to L. Straus & Sons, New York, N. Y. Ornamentation of glass vessels	23,254	May 8	67	806
Davis, Jared G., Lee, Mass. Feed-trough	23,396	June 19	67	1566
Davison, Joseph K., Philadelphia, Pa. Badge	23,279	May 22	67	1057
Derby Silver Company. (See Derby, Henry, assignor.)				
Dominick & Haff. (See Crowell, Gilbert L., Jr., assignor.)				
Dryfoos, Alphons, New York, N. Y. Bottle	23,240	May 1	67	670
Duchemin, Zephiren, Haverhill, Mass. Hammer	23,169	Apr. 3	67	133
Durand, Wallace, Newark, N. J. Watchcase	23,236	May 1	67	669
Durand, Wallace, Newark, N. J. Watchcase	23,237	May 1	67	669
Durand, Wallace, Newark, N. J. Watchcase	23,264	May 15	67	920
Durand, Wallace, Newark, N. J. Watchcase	23,265	May 15	67	920
Durand, Wallace, Newark, N. J. Watchcase	23,266	May 15	67	920
Durand, Wallace, Newark, N. J. Watchcase	23,267	May 15	67	920
Durand, Wallace, Newark, N. J. Watchcase	23,268	May 15	67	920
Durand, Wallace, Newark, N. J. Watchcase	23,269	May 15	67	920

Alphabetical list of patentees of designs, April to June, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Durand, Wallace, Newark, N. J. Watchcase	23,270	May 15	67	921
Durand, Wallace, Newark, N. J. Watchcase	23,271	May 15	67	921
Durand, Wallace, Newark, N. J. Watchcase	23,272	May 15	67	921
Durand, Wallace, Newark, N. J. Watchcase	23,273	May 15	67	921
Durand, Wallace, Newark, N. J. Brooch	23,368	June 19	67	1563
Durand, Wallace, Newark, N. J. Brooch	23,369	June 19	67	1563
Durand, Wallace, Newark, N. J. Brooch	23,370	June 19	67	1563
Durand, Wallace, Newark, N. J. Brooch	23,371	June 19	67	1563
Durand, Wallace, Newark, N. J. Brooch	23,372	June 19	67	1563
Durand, Wallace, Newark, N. J. Brooch	23,373	June 19	67	1563
Durand, Wallace, Newark, N. J. Brooch	23,374	June 19	67	1563
Durand, Wallace, Newark, N. J. Brooch	23,375	June 19	67	1563
Durand, Wallace, Newark, N. J. Brooch	23,376	June 19	67	1563
Durand, Wallace, Newark, N. J. Brooch	23,377	June 19	67	1563
Durand, Wallace, Newark, N. J. Brooch	23,378	June 19	67	1563
Durand, Wallace, Newark, N. J. Brooch	23,398	June 26	67	1714
Durgin, William B. (See Mueller, George A., assignor.)				
Eagle Pencil Company. (See McIntyre, Frank, assignor.)				
Elliot, Ottenheimer & Elliot. (See Fischer, Emil, assignor.)				
Emerson, Ralph W., Rockford, Ill. Table-washstand	23,222	Apr. 24	67	522
Ensign, William W., Cincinnati, Ohio, assignor to Bennett & Peck Heating and Ventilating Company, of Ohio. Rack	23,200	Apr. 17	67	394
Finck, William C., Elizabeth, N. J., assignor to Ancient Order of Foresters of America, Brooklyn, N. Y. Badge	23,342	June 12	67	1439
Fischer, Emil, assignor to Elliot, Ottenheimer & Elliot, Baltimore, Md. Cigar-bunch	23,229	Apr. 24	67	523
Flesch, Julius A., Chicago, Ill. Cooler or refrigerator	23,179	Apr. 10	67	263
Fletcher, John K., Nottingham, England. Lace fabric	23,230	May 1	67	668
Fondeville, August J., West Hoboken, N. J. Lamp-shade	23,177	Apr. 10	67	263
Foster, Alonzo M., Cabot, Vt. Sap-spout	23,392	June 19	67	1566
Fox, Edward B., Bryn Mawr, Pa. Type-border	23,341	June 12	67	1439
Giles, John H., Amsterdam, N. Y. Knit shirt	23,187	Apr. 10	67	265
Gist, John A. L., Curia, Ark., assignor of one-half to R. T. Kerr, Randolph, Tex. Fire-screen	23,337	June 5	67	1324
Golde, Robert, Brooklyn, N. Y., assignor to Royal Metal Manufacturing Company, of New York. Picture-frame	23,183	Apr. 10	67	264
Golde, Robert, Brooklyn, N. Y., assignor to Royal Metal Manufacturing Company, of New York. Picture-frame	23,184	Apr. 10	67	264
Golde, Robert, Brooklyn, assignor to Royal Metal Manufacturing Company, New York, N. Y. Picture-frame	23,249	May 8	67	804
Gooding, Josiah C., Covington, Ind. Desk and seat	23,248	May 1	67	671
Gorham Manufacturing Company. (See Codman, William C., assignor.)				
Graham, Robert S., and W. B. Savell, Newark, N. J. Key-top	23,197	Apr. 17	67	394
Graham, Robert S., and W. B. Savell, Newark, N. J. Key-top	23,198	Apr. 17	67	394
Grey, William S., Bristol, Conn. Lamp-stand	23,329	June 5	67	1323
Gulden, Charles, New York, N. Y. Packing-jar	23,382	June 19	67	1564
Günsel, Theodor, New York, N. Y. Banner-holder	23,258	May 8	67	806
H. L. Judd & Company. (See Von Grave, Lothar, assignor.)				
Hanke, August, Chicago, Ill. Lemon-squeezer handle	23,403	June 26	67	1714
Harrah, Philip J., Bloomfield, Ind. Holder for fire-kindlers	23,355	June 12	67	1440
Harris, William H. (See Yost, Francis H., assignor.)				
Hart, William H., New Britain, Conn. Strap-hinge	23,257	May 8	67	806
Hart, William H., New Britain, Conn. Strap-hinge	23,402	June 26	67	1714
Hayden, William B., New York, N. Y. Tile	23,391	June 19	67	1565
Hero Fruit Jar Company. (See Schrader, Charles F., assignor.)				
Hertlein, Christopher E., New York, N. Y. Trimming	23,325	June 5	67	1322
Hoffman, Edward C. (See Hoffmann and Hoffman.)				
Hoffmann, Jacob, and E. C. Hoffman, Cleveland, Ohio. Clothes-line holder	23,321	May 29	67	1184
Holmes & Edwards Silver Company. (See Campbell, Ernest W., assignor.)				
Holmes & Edwards Silver Company. (See Smith, Sidney, assignor.)				
Homer, George E., Boston, Mass. Spoon	23,319	June 19	67	1563
Horan, Henry, East Orange, N. J., assignor to Lowell Manufacturing Company, Boston, Mass. Carpet	23,233	May 1	67	669
Hotchkiss, Charles A., assignor to Ives & Williams, Bridgeport, Conn. Toy-cap exploder	23,356	June 12	67	1440
Howard Sterling Company. (See Wientge, Charles C., assignor.)				
Hubbell, Harvey, Bridgeport, Conn. Electric wire fastening	23,322	May 29	67	1185
Hullhorst, William G., assignor to Ransom & Randolph Company, Toledo, Ohio. Dental cabinet	23,189	Apr. 10	67	265
Hutchins, William O., Providence, R. I. Finger-ring	23,210	Apr. 24	67	520
Ihlenburg, Herman, Philadelphia, Pa., assignor to American Type Founders Company, Newark, N. J. Font of printing-type	23,164	Apr. 3	67	132
Ives & Williams. (See Hotchkiss, Charles A., assignor.)				
J. D. Bergen Company. (See Bergen, James D., assignor.)				
J. L. Mott Iron Works. (See Peet, William C., assignor.)				
Jacobs, Winthrop L., East Orange, N. J., assignor to Lowell Manufacturing Company, Boston, Mass. Carpet	23,231	May 1	67	668
Jansen, Edward, New York, N. Y. Fancy box	23,330	June 5	67	1323
Juhring, William L., Brooklyn, N. Y. Bottle	23,352	June 12	67	1440
Juhring, William L., Brooklyn, N. Y. Bottle	23,380	June 19	67	1564
Kampfe, Frederick, R., and O., Brooklyn, N. Y. Razor-strop	23,401	June 26	67	1714
Kampfe, Otto. (See Kampfe, Frederick, R., and O.)				
Kampte, Richard. (See Kampfe, Frederick, R., and O.)				
Kemp, Edward M., Rhinelander, Wis. Screen-door	23,338	June 5	67	1325
Kent & Stanley Company. (See Cabot, Harry H., assignor.)				
Kerngood, Herman, Baltimore, Md., assignor to Perfect Clasp Company of Baltimore City, of Maryland. Hasp for garment-fasteners	23,255	May 8	67	806
Kerngood, Herman, Baltimore, Md., assignor to Perfect Clasp Company of Baltimore City, of Maryland. Hook for garment-fasteners	23,256	May 8	67	806
Kerr, Robert T. (See Gist, John A. L., assignor.)				
Kohman, William A. (See Potteiger and Kohman.)				
Krouse, Andrew. (See Mosman, Charles F., assignor.)				
Krouse, Andrew. (See Siebert, George C., assignor.)	23,284	May 22	67	1057
Lambert, William F., Millbrae, Cal. Picture-frame	23,192	Apr. 10	67	266
Landau, Maurice, and A. Traxler, St. Louis, Mo. Shoe-stand	23,224	Apr. 24	67	523
Langenbach, Edward A., Canton, Ohio. Metallic finishing-plate	23,283	May 22	67	1057
Langenbach, Edward A., Canton, Ohio. Metal finishing-plate				

Alphabetical list of patentees of designs, April to June, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Langenbach, Edward A., assignor to Berger Manufacturing Company, Canton, Ohio. Finishing-plate	23,358	June 12	67	1441
Lee, Carlton H., Boston, Mass. Bottle	23,399	June 26	67	1714
Lindner, Ernst, New York, N. Y. Key for gas-cocks	23,225	Apr. 24	67	523
Lloyd, George, Brooklyn, assignor to M. Calm, New York, N. Y. Bottle	23,174	Apr. 10	67	263
Lloyd, John H., Toledo, Ohio. Monument	23,193	Apr. 10	67	266
Lockwood, James F., Philadelphia, Pa. Mirror-frame	23,201	Apr. 17	67	394
Lowell Manufacturing Company. (See Horan, Henry, assignor.)				
Lowell Manufacturing Company. (See Jacobs, Winthrop L., assignor.)				
Lowell Manufacturing Company. (See Sauer, Emil G., assignor.)				
Lowney, Walter M., assignor to Walter M. Lowney Company, Boston, Mass. Bonbon	23,400	June 26	67	1714
Marchetti, Giulio, Halifax, England. Carpet	23,362	June 12	67	1441
Marchetti, Giulio, Halifax, England. Carpet	23,363	June 12	67	1442
Matthews & Willard Manufacturing Company. (See Miller, John C., assignor.)				
McElroy, James F., Albany, N. Y. Radiator	23,339	June 5	67	1325
McIntyre, Frank, Brooklyn, assignor to Eagle Pencil Company, New York, N. Y. Lead-pencil	23,211	Apr. 24	67	520
McIntyre, Frank, Brooklyn, assignor to Eagle Pencil Company, New York, N. Y. Lead-pencil	23,212	Apr. 24	67	520
McNamara, James H., Chicago, Ill. Trunk-fastener	23,178	Apr. 10	67	263
Meade, Thomas. (See Bryan, Moore, and Meade.)				
Meriden Bronze Company. (See Yokel, Franz, assignor.)				
Meriden Cutlery Company. (See Curtiss, Homer A., assignor.)				
Merkels, John B., and M. Bievesh, Chicago, Ill. Combined key-ring and guard	23,242	May 1	67	670
Miles, Alfred S., Brooklyn, N. Y. Hat-brush	23,367	June 19	67	1562
Miller, John C., assignor to Matthews & Willard Manufacturing Company, Waterbury, Conn. Slab for table-tops	23,285	May 22	67	1058
Miller, John C., assignor to Matthews & Willard Manufacturing Company, Waterbury, Conn. Slab for table-tops	23,286	May 22	67	1058
Miller, John C., assignor to Matthews & Willard Manufacturing Company, Waterbury, Conn. Slab for table-tops	23,318	May 29	67	1184
Moon, Robert G. (See Walker, William, assignor.)				
Moore, Irby M. (See Bryan, Moore, and Meade.)				
Mosman, Charles F., assignor to A. Krouse, Bridgeport, Conn. Picture-frame	23,388	June 19	67	1565
Mott, Benjamin I., Brooklyn, N. Y. Bottle	23,275	May 15	67	921
Mueller, George A., assignor to W. B. Durgin, Concord, N. H. Handle for spoons, &c.	24,170	Apr. 10	67	262
Nashawannuck Manufacturing Company. (See Candee, Edward D., assignor.)				
Nathan, Benjamin, New York, N. Y. Boot	23,234	May 1	67	669
Newell, Augustus, Chicago, Ill. Key for musical instruments	23,166	Apr. 3	67	132
Omwake, John, assignor to United States Printing Company, Cincinnati, Ohio. Backs of playing-cards	23,238	May 1	67	669
Osborne, Charles, assignor to Whiting Manufacturing Company, New York, N. Y. Handle for spoons, &c.	23,209	Apr. 24	67	520
Osterman, William J., Richmond, Va. Fork-scraper	23,173	Apr. 10	67	263
Pairpoint Manufacturing Company. (See Ratcliff, Frederick, assignor.)				
Pairpoint Manufacturing Company. (See Roscoe, Albert J., assignor.)				
Palmer, Isaac E., Middletown, Conn. Hammock	23,302	May 22	67	1059
Palmer, Isaac E., Middletown, Conn. Hammock	23,303	May 22	67	1059
Palmer, Isaac E., Middletown, Conn. Hammock	23,304	May 22	67	1060
Palmer, Isaac E., Middletown, Conn. Hammock	23,305	May 22	67	1060
Palmer, Isaac E., Middletown, Conn. Hammock	23,306	May 22	67	1060
Palmer, Isaac E., Middletown, Conn. Hammock	23,307	May 22	67	1060
Palmer, Isaac E., Middletown, Conn. Hammock	23,308	May 22	67	1060
Palmer, Isaac E., Middletown, Conn. Hammock	23,309	May 22	67	1060
Palmer, Isaac E., Middletown, Conn. Hammock-hook	23,349	June 12	67	1439
Palmer, Isaac E., Middletown, Conn. Hammock-hook	23,350	June 12	67	1439
Peet, William C., assignor to J. L. Mott Iron Works, New York, N. Y. Leg for bath-tubs	23,351	June 12	67	1440
Perfect Clasp Company of Baltimore City. (See Kerngood, Herman, assignor.)				
Perry, William H., Concord, N. H. Monument	23,228	Apr. 24	67	523
Perry, William H., Concord, N. H. Monument	23,340	June 5	67	1325
Perry, William H., Concord, N. H. Monument	23,364	June 12	67	1442
Perry, William H., Concord, N. H. Monument	23,405	June 26	67	1715
Perry, William H., Concord, N. H. Monument	23,406	June 26	67	1715
Phillips, Winfield B., Fenton, Mich. Screen-door frame	23,319	May 29	67	1184
Pickard, Lizzie, Toronto, Canada. Sink-strainer	23,199	Apr. 17	67	394
Pitt, Walter H. (See Sittmann and Pitt.)				
Plume & Atwood Manufacturing Company. (See Atwood, Lewis J., assignor.)				
Pope, John M. (See Barlow and Pope.)				
Potteiger, Henry W., and W. A. Kohman, Reading, Pa. Clothes-pounder	23,357	June 12	67	1441
Quimby, William E., Orange, N. J. Screw	23,336	June 5	67	1324
Randall, Silas H., Wyoming, Ohio. Bracket	23,323	Apr. 24	67	522
Ransom & Randolph Company. (See Hullhorst, William G., assignor.)				
Ratcliff, Frederick, assignor to Pairpoint Manufacturing Company, New Bedford, Mass. Pronged standard	23,182	Apr. 10	67	264
Redgrave, Montague, Jersey City, N. J. Musical instrument	23,239	May 1	67	669
Redon, Martial, Limoges, France. Covered dish	23,213	Apr. 24	67	520
Redon, Martial, Limoges, France. Cup	23,280	May 22	67	1057
Redon, Martial, Limoges, France. Cup	23,281	May 22	67	1057
Remington, John O., Hingham, Mass. Shade-tassel	23,259	May 15	67	919
Richards, Willard F., Buffalo, N. Y. Threshold-plate	23,390	June 19	67	1565
Rockwell, George, Meriden, assignor to Rogers & Brother, Waterbury, Conn. Handle for spoons, &c.	23,172	Apr. 10	67	263
Rockwell, George, Meriden, assignor to Rogers & Brother, Waterbury, Conn. Spoon	23,196	Apr. 17	67	394
Rogers & Brother. (See Rockwell, George, assignor.)				
Roscoe, Albert J., assignor to Pairpoint Manufacturing Company, New Bedford, Mass. Box	23,191	Apr. 10	67	265
Rose, Arthur M., Yonkers, N. Y., assignor to M. J. Whittall, Worcester, Mass. Carpet	23,262	May 15	67	919
Ross & Co., A. M. (See Brand, Harrison, assignor.)				
Royal Metal Manufacturing Company. (See Golde, Robert, assignor.)				
Ruppel, Henry. (See Dangler and Ruppel.)				
Sauer, Emil G., Brooklyn, N. Y., assignor to Lowell Manufacturing Company, Boston, Mass. Carpet	23,212	May 1	67	669
Savell, William B. (See Graham and Savell.)				
Schlaepfer, Charles, Paterson, N. J. Pattern for textile fabrics	23,165	Apr. 3	67	132
Schrader, Charles F., assignor to Hero Fruit Jar Company, Philadelphia, Pa. Atomizer-top	23,282	May 22	67	1057
Schuck, Valentine G., assignor to Sutro Bros. Braid Company, New York, N. Y. Braid	23,186	Apr. 10	67	265
Schuck, Valentine G., assignor to Sutro Bros. Braid Company, New York, N. Y. Braid	23,208	Apr. 24	67	520
Schwickart, Philip, Brooklyn, N. Y. Lens for vault-lights	23,348	June 12	67	1439

Alphabetical list of patentees of designs, April to June, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Shiebler, George W., Brooklyn, N. Y. Back for brushes, &c	23,331	June 5	67	1323
Shoudy, Fred G., Rockford, Ill. Cabinet	23,219	Apr. 24	67	521
Shoudy, Fred G., Rockford, Ill. Cabinet	23,220	Apr. 24	67	522
Siebert, George C., assignor to A. Krouse, Bridgeport, Conn. Vase	23,214	Apr. 24	67	520
Silberstein, Samuel, Pittsburg, Pa. Conductor for water	23,227	Apr. 24	67	523
Silberstein, Samuel, Pittsburg, Pa. Eaves-trough	23,247	May 1	67	671
Simpson, Hall, Miller & Company. (See Cluley, John, assignor.)				
Sittmann, Gustav, and W. H. Pitt, Brooklyn, N. Y. Case for coin-controlled machines	23,190	Apr. 10	67	265
Smith, Sidney, assignor to Holmes & Edwards Silver Company, Bridgeport, Conn. Spoon, fork, &c.	23,163	Apr. 3	67	132
Smith, Sidney, Bridgeport, assignor to William Rogers Manufacturing Company, Hartford, Conn. Spoon, fork, or similar article	23,326	June 5	67	1323
Smith, William T., Philadelphia, Pa. Woven fabric	23,324	June 5	67	1322
Stark, Frank G., assignor to Carbo-Alumina Metal Company, St. Louis, Mo. Bicycle-frame	23,395	June 19	67	1566
Stoneburner, George E., Des Moines, Iowa. Dial	23,188	Apr. 10	67	265
Straus & Sons, L. (See Davies, Benjamin, assignor.)				
Sutro Bros. Braid Company. (See Schuck, Valentine G., assignor.)				
Tatum, Charles A., assignor to Whitall, Tatum & Co., New York, N. Y. Bottle-stopper	23,175	Apr. 10	67	263
Tatum, Charles A., assignor to Whitall, Tatum & Co., New York, N. Y. Bottle-stopper	23,176	Apr. 10	67	263
Tatum, Charles A., assignor to Whitall, Tatum & Co., New York, N. Y. Bottle	23,381	June 19	67	1564
Thompson, Charles C., San Diego, Cal. Spoon	23,310	May 29	67	1182
Todd & Co., Edward. (See Todd, Edward, Jr., assignor.)				
Todd, Edward, Jr., assignor to E. Todd & Co., New York, N. Y. Tool-handle	23,346	June 12	67	1439
Totham, James, New Haven, Conn. Slab-support	23,334	June 5	67	1324
Traxler, Armen. (See Landau and Traxler.)				
United States Printing Company. (See Omwake, John, assignor.)				
Van Vleck, John, New York, N. Y. Case for electrical measuring-instruments	23,293	May 22	67	1058
Van Vleck, John, New York, N. Y. Case for electrical measuring-instruments	23,294	May 22	67	1059
Van Vleck, John, New York, N. Y. Case for electrical measuring-instruments	23,295	May 22	67	1059
Van Vleck, John, New York, N. Y. Case for electrical measuring-instruments	23,296	May 22	67	1059
Van Vleck, John, New York, N. Y. Case for electrical measuring-instruments	23,297	May 22	67	1059
Van Vleck, John, New York, N. Y. Case for electrical measuring-instruments	23,298	May 22	67	1059
Van Vleck, John, New York, N. Y. Case for electrical measuring-instruments	23,299	May 22	67	1059
Van Vleck, John, New York, N. Y. Case for electrical measuring-instruments	23,300	May 22	67	1059
Van Vleck, John, New York, N. Y. Case for electrical measuring-instruments	23,301	May 22	67	1059
Von Grave, Lothar, Wallingford, Conn., assignor to H. L. Judd & Company, New York, N. Y. Picture-frame	23,215	Apr. 24	67	521
Von Grave, Lothar, Wallingford, Conn., assignor to H. L. Judd & Company, New York, N. Y. Picture-frame	23,216	Apr. 24	67	521
Von Grave, Lothar, Wallingford, Conn., assignor to H. L. Judd & Company, New York, N. Y. Picture-frame	23,217	Apr. 24	67	521
Von Grave, Lothar, Wallingford, Conn., assignor to H. L. Judd & Company, New York, N. Y. Picture-frame	23,218	Apr. 24	67	521
Von Grave, Lothar, Wallingford, Conn., assignor to H. L. Judd & Company, New York, N. Y. Mirror-frame, &c	23,384	June 19	67	1564
Von Grave, Lothar, Wallingford, Conn., assignor to H. L. Judd & Company, New York, N. Y. Picture-frame, &c	23,385	June 19	67	1564
Von Grave, Lothar, Wallingford, Conn., assignor to H. L. Judd & Company, New York, N. Y. Picture-frame, &c	23,386	June 19	67	1564
Von Grave, Lothar, Wallingford, Conn., assignor to H. L. Judd & Company, New York, N. Y. Picture-frame, &c	23,387	June 19	67	1565
Walker, David. (See Warren and Walker.)				
Walker, William, assignor of one-half to R. G. Moon, Bedford, Iowa. Preserving-vault	23,167	Apr. 3	67	133
Walter M. Lowney Company. (See Lowney, Walter M., assignor.)				
Walther, Charles F., Buffalo, N. Y. Radiator	23,361	June 12	67	1441
Wanner, Albert, Jr., Hoboken, N. J. Support for vases, &c	23,250	May 8	67	805
Warren, Robert H., and D. Walker, Newark, N. J. Stair-carpet button	23,347	June 12	67	1439
Watney, Arthur, Calais, France. Lace fabric	23,185	Apr. 10	67	264
Watney, Arthur, Calais, France. Lace fabric	23,260	May 15	67	919
West, Augustine C., Boston, Mass. Oil or gas heater stand	23,393	June 19	67	1566
West, Augustine C., Boston, Mass. Oil or gas heater stand	23,394	June 19	67	1566
West, Stephen W., New York, N. Y. Shoe	23,366	June 12	67	1442
Weston, Edward, Newark, N. J. Case for electrical measuring-instruments	23,287	May 22	67	1058
Weston, Edward, Newark, N. J. Case for electrical measuring-instruments	23,288	May 22	67	1058
Weston, Edward, Newark, N. J. Case for electrical measuring-instruments	23,289	May 22	67	1058
Weston, Edward, Newark, N. J. Case for electrical measuring-instruments	23,290	May 22	67	1058
Weston, Edward, Newark, N. J. Case for electrical measuring-instruments	23,291	May 22	67	1058
Weston, Edward, Newark, N. J. Case for electrical measuring-instruments	23,292	May 22	67	1058
Whitall, Tatum & Co. (See Tatum, Charles A., assignor.)				
Whiting Manufacturing Company. (See Osborne, Charles, assignor.)				
Whittall, Matthew J. (See Rose, Arthur M., assignor.)				
Wientge, Charles C., assignor to Howard Sterling Company, Providence, R. I. Candelabrum-pedestal	23,181	Apr. 10	67	264
Wientge, Charles C., assignor to Howard Sterling Company, Providence, R. I. Rack	23,333	June 5	67	1323
Wientge, Charles C., assignor to Howard Sterling Company, Providence, R. I. Back plate for racks	23,389	June 19	67	1565
Wildsmith, George H., Leeds, England. Game-board	23,360	June 12	67	1441
William Rogers Manufacturing Company. (See Smith, Sidney, assignor.)				
Withrow, James E., Los Angeles, Cal. Beam for letter-scales	23,335	June 5	67	1324
Wood, Juliana, Philadelphia, Pa. Badge	23,235	May 1	67	669
Yokel, Franz, assignor to Meriden Brouze Company, Meriden, Conn. Slab for table-tops	23,180	Apr. 10	67	263
Yokel, Franz, assignor to Meriden Bronze Company, Meriden, Conn. Slab for table-tops	23,202	Apr. 17	67	395
Yokel, Franz, assignor to Meriden Bronze Company, Meriden, Conn. Slab for table-tops	23,203	Apr. 17	67	395
Yokel, Franz, assignor to Meriden Bronze Company, Meriden, Conn. Slab for table-tops	23,204	Apr. 17	67	395
Yokel, Franz, assignor to Meriden Bronze Company, Meriden, Conn. Slab for table-tops	23,205	Apr. 17	67	395
Yokel, Franz, assignor to Meriden Bronze Company, Meriden, Conn. Lamp-fount	23,276	May 15	67	921
Yost, Francis H., assignor of one-half to W. B. Harris, Philadelphia, Pa. Puzzle-body	23,359	June 12	67	1441

ALPHABETICAL LIST OF REGISTRANTS OF TRADE-MARKS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Abbott, Wallace C., Chicago, Ill. Certain pills	24,923	June 26	67	1717
Aeolian Organ and Music Company, Meriden, Conn., and New York, N. Y. Organs and pianos	24,728	May 15	67	925
Albion Company, Providence, R. I., and New York, N. Y. Certain textile fabrics	24,701	May 15	67	923
Allen & Bro., Philadelphia, Pa. Reclining-chairs	24,699	May 8	67	810
Althans, John H., Providence, R. I. Bread	24,862	June 12	67	1445
American Biscuit and Manufacturing Company, Chicago, Ill. Crackers and biscuits	24,818	June 5	67	1327
American Fibre Chamois Company, New York, N. Y. Imitation chamois-skin	24,656	May 8	67	807
American Safety-Head Match Company, Lebanon, Pa. Wooden and paper matches	24,874	June 12	67	1446
Ames & Frost Company, Chicago, Ill. Hand-tools for the care of cycles	24,767	May 22	67	1063
Amoskeag Manufacturing Company, Manchester, N. H. Cotton fabrics	24,884	June 19	67	1567
Anderson Preserving Company, Camden, N. J. Tomato catsup	24,508	Apr. 10	67	269
Anglo-American Provision Company, Chicago, Ill. Hog and beef products, including lard and tallow	24,457	Apr. 3	67	135
Anglo-American Provision Company, Chicago, Ill. Hog and beef products, including lard and tallow	24,458	Apr. 3	67	136
Anglo-American Provision Company, Chicago, Ill. Sausage	24,510	Apr. 10	67	269
Anglo-American Provision Company, Chicago, Ill. Lard	24,554	Apr. 17	67	399
Anglo-American Provision Company, Chicago, Ill. Lard	24,555	Apr. 17	67	399
Anglo-American Provision Company, Chicago, Ill. Lard	24,556	Apr. 17	67	399
Anglo-American Provision Company, Chicago, Ill. Lard	24,557	Apr. 17	67	399
Anglo-American Provision Company, Chicago, Ill. Lard	24,584	Apr. 21	67	525
Anglo-American Provision Company, Chicago, Ill. Lard	24,585	Apr. 24	67	525
Anglo-American Provision Company, Chicago, Ill. Hams	24,669	May 8	67	808
Anglo-American Provision Company, Chicago, Ill. Hams	24,670	May 8	67	808
Anglo-American Provision Company, Chicago, Ill. Hams	24,671	May 8	67	808
Anglo-American Provision Company, Chicago, Ill. Hams	24,672	May 8	67	808
Anglo-American Provision Company, Chicago, Ill. Hams and sausages	24,673	May 8	67	808
Anglo-American Provision Company, Chicago, Ill. Bacon	24,688	May 8	67	808
Anglo-American Provision Company, Chicago, Ill. Lard	24,751	May 22	67	1062
Anglo-American Provision Company, Chicago, Ill. Hams and side meats	24,752	May 22	67	1062
Anglo-American Provision Company, Chicago, Ill. Lard compound	24,820	June 5	67	1327
Anheuser-Busch Brewing Association, St. Louis, Mo. Tonic medicine	24,641	May 1	67	674
Antikamnia Chemical Company, St. Louis, Mo. Medicinal tablets	24,723	May 15	67	925
Arctic Whalebone Company, New York, N. Y. Whalebone	24,635	May 1	67	673
Arnold, Charles H., New York, N. Y. Whisky	24,661	May 8	67	807
Atwood, Frank H., Boston, Mass. Cloth or canvas backed leather	24,815	June 5	67	1327
B. P. Ducas Company, New York, N. Y. Burned starch made of potatoes	24,863	June 12	67	1445
Bally & Co., Joel J., Philadelphia, Pa. Knit underwear, gloves, hosiery, and neckwear	24,616	May 1	67	672
Baird, Arthur E., New York, N. Y. Meat-softener in the form of a powder	24,463	Apr. 3	67	136
Ball, Webster C., Cleveland, Ohio. Watches and portable clocks	24,711	May 15	67	924
Baptorosses & Cie., F., Paris, France. Agate beads and buttons	24,438	Apr. 3	67	134
Barnard, Sumner & Putnam Company, Worcester, Mass. Hosiery	24,568	Apr. 24	67	521
Barnum, James W., Louisville, Ky. Shampoo for the hair	24,541	Apr. 17	67	397
Bartholomay Brewery Company, Rochester, N. Y. Lager-beer	24,915	June 26	67	1716
Bay State Watch Case Company, Boston, Mass. Watchcases	24,733	May 22	67	1061
Beane, Joshua F., Augusta, Me. Cough-drops	24,470	Apr. 3	67	137
Beck & Gregg Hardware Company, Atlanta, Ga. Cutlery and carpenters', machinists', and farmers' tools and hardware	24,935	June 26	67	1718
Belikan, Valentine, Detroit, Minn. Liquid detergent	24,632	May 1	67	673
Beling, L., and V. L. Tissera, Davenport, Iowa. Tea	24,816	June 5	67	1327
Beling, L., and V. L. Tissera, Davenport, Iowa. Tea	24,817	June 5	67	1327
Benedict, Horace R., New York, N. Y. Jewelry ornamented with precious stones, diamonds excepted	24,524	Apr. 17	67	396
Bermudez, Joaquin A., New Orleans, La. Dental preparations	24,846	June 12	67	1444
Bernheimer & Walter, New York, N. Y. Cotton goods	24,702	May 15	67	923
Berry Bros., Limited, Detroit, Mich. Orange shellac gum	24,491	Apr. 10	67	267
Best, John L., Chicago, Ill. Oysters	24,621	May 1	67	672
Bevan & Co., W. C., Malaga, Spain. Medicated wine	24,625	May 1	67	672
Bickley, Charles D., Boston, Mass. Whisky	24,500	Apr. 10	67	268
Biechele Soap Co., Jos., Canton, Ohio. Bar-soap	24,851	June 12	67	1444
Big Wheel Company, Wheeling, W. Va. Baking-powder	24,716	May 15	67	924
Big Wheel Company, Wheeling, W. Va. Flavoring extracts for culinary purposes	24,717	May 15	67	924
Billings & Spencer Company, Hartford, Conn. Machines, tools, and implements and parts thereof, consisting wholly or in part of forgings	24,771	May 22	67	1064
Binz, Charles A., and F. M. Linderman, Chicago, Ill. Belt stud or fastener	24,835	June 5	67	1328
Birmingham Small Arms and Metal Company, Limited, Birmingham, England. Bicycles, tricycles, velocipedes, and parts thereof	24,732	May 15	67	926
Black, Robert, Brooklyn, N. Y. Remedy for headache and neuralgia	24,644	May 1	67	674
Blumenthal, A. & S., New York, N. Y. Ribbons, piece goods, cloths, and stuffs made of silk	24,811	June 5	67	1326
Boehringer & Söhne, C. F., Waldhof, near Mannheim, Germany. Lactyl derivatives of paraphenetidin	24,643	May 1	67	674
Boehringer & Söhne, C. F., Waldhof, near Mannheim, Germany. Certain named medicinal and chemical compounds	24,869	June 12	67	1445
Bond, Henry W., Fort Wayne, Ind. Wheat-flour	24,581	Apr. 24	67	525
Bostwick, Frank E., American Fork, Utah. Hair-restoratives	24,791	May 29	67	1187
Bowlby & Co., St. Paul, Minn. Children's suits	24,838	June 12	67	1443
Boyer, Mary J., Baltimore, Md. Canned and hermetically-sealed goods	24,461	Apr. 3	67	136
Brady, Ann E., New York, N. Y. Eye-water	24,538	Apr. 17	67	397
Bridgeport Brass Company, Bridgeport, Conn. Bicycle-lantern	24,486	Apr. 10	67	267
Briggs Co., D. F., Attleborough, Mass. Watch and locket chains	24,709	May 15	67	923
Brooks & Co., J. B., Birmingham, England. Leather goods	24,657	May 8	67	807

Alphabetical list of registrants of trade-marks, April to June, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Brown, Edward H., London, England, and Paris, France. Preparation for cleaning and polishing leather	24,517	Apr. 10	67	270
Brown, Edward H., London, England, and Paris, France. Preparation for beautifying and preserving leather	24,518	Apr. 10	67	270
Burnham & Morrill Company, Portland, Me. Canned lobsters	24,459	Apr. 3	67	136
Bursch, Frederick I. W., Brooklyn, N. Y. Salt	24,550	Apr. 17	67	398
Butler, James, New York, N. Y. Tea	24,505	Apr. 10	67	269
C. B. Woodworth Sons Company, Rochester, N. Y., Boston, Mass., and Chicago, Ill. Perfumeries, toilet waters, sachet-powders, and toilet soap	24,896	June 19	67	1568
Cady, Byron E., Springfield, Mass. Cigars	24,515	Apr. 10	67	270
California Eucalyptus Co., Riverside Cal. Medicinal lozenges or tablets	24,789	May 29	67	1187
Callard & Bowser, London, England. Candies and sweetmeats	24,507	Apr. 10	67	269
Callard & Bowser, London, England. Confectionery	24,620	May 1	67	672
Calm & Bro., M., New York, N. Y. Castor-oil	24,473	Apr. 3	67	137
Carballo, Luis J. de, New York, N. Y. Dentifrice	24,640	May 1	67	674
Carter, Frank E., and C. S. Jones, Boston, Mass. Liniment, worm-powders, and elixirs for diarrhea	24,471	Apr. 3	67	137
Central Oil and Supply Company, New York, N. Y. Tie-plates	24,936	June 26	67	1718
Ceylon Spice Co., Philadelphia, Pa. Tapioca	24,549	Apr. 17	67	398
Chambers Glass Company, New Kensington, Pa. Plain or ground sheet-glass	24,558	Apr. 17	67	399
Chambers Glass Company, New Kensington, Pa. Plain, ground, or chipped sheet-glass	24,559	Apr. 17	67	399
Chambers Glass Company, New Kensington, Pa. Plain, ground, or chipped sheet-glass	24,560	Apr. 17	67	399
Chambers Glass Company, New Kensington, Pa. Plain, ground, or chipped sheet-glass	24,561	Apr. 17	67	399
Chase Co., Dr., Philadelphia, Pa. Certain named remedies	24,686	May 8	67	809
Chesapeake Oil Co., Baltimore, Md. Confectioners' oil dressing	24,547	Apr. 17	67	398
Chicago Fire Arms Company, Chicago, Ill. Revolving pistols	24,801	May 29	67	1188
Christian Moerlein Brewing Company, Cincinnati, Ohio. Lager-beer	24,502	Apr. 10	67	269
Christopher Lipps Company, Baltimore, Md. Soap in cakes or bars	24,494	Apr. 10	67	268
Clark, Charles B., Newark, N. J. Bicycles, velocipedes, their parts and attachments	24,613	Apr. 24	67	528
Clark, Samuel B., New York, N. Y. Celery biscuit	24,455	Apr. 3	67	135
Clarkson & Dallas, Pittsburg, Pa. Illuminating-oils and lubricating oils and greases	24,685	May 8	67	809
Clawson, Clement C., Newark, N. J. Coin controlled and operated machines and apparatus	24,772	May 22	67	1064
Cleveland Axle Manufacturing Company, Canton, Ohio. Vehicle-axles	24,836	June 5	67	1328
Cleveland Baking Powder Company, Brooklyn, N. Y. Wheat-flour	24,637	May 1	67	673
Cleveland Faucet Company, Cleveland, Ohio. Air-pumps	24,800	May 29	67	1188
Cleveland Gum Company, Cleveland, Ohio. Chewing-gum	24,666	May 8	67	808
Clover Medicine Company, Augusta, Me. Balsams and ointment	24,757	May 22	67	1063
Cobb, Samuel T., Jr., Boston, Mass. Metal and glass cleaning and polishing preparations	24,684	May 8	67	809
Collins Company, Canton, Conn. Machinists' tools	24,695	May 8	67	810
Collins Company, Canton, Conn. Earth-working tools	24,731	May 15	67	926
Collins Company, Canton, Conn. Machinists' tools	24,769	May 22	67	1064
Collins Company, Canton, Conn. Earth-working tools	24,770	May 22	67	1064
Collins Company, Canton, Conn. Axes and other tools	24,802	May 29	67	1188
Collins Company, Canton, Conn. Plows, shovels, spades, hoes, picks, and mattocks	24,803	May 29	67	1188
Collins, Hester H., New York, N. Y. Ink-erasing fluid	24,601	Apr. 24	67	527
Colt's Patent Fire Arms Manufacturing Company, Hartford, Conn. Pistols, rifles, and sporting-guns	24,696	May 8	67	810
Comar et Fils & Cie., F., Paris, France. Medicinal wines	24,536	Apr. 17	67	397
Cone Export and Commission Company, New York, N. Y. Cotton dress goods and shirtings	24,812	June 5	67	1326
Cone Export and Commission Company, New York, N. Y. Cotton dress goods and shirtings	24,813	June 5	67	1326
Conrad, Jacob, Philadelphia, Pa. Lager-beer	24,852	June 12	67	1444
Cook, Francis L., Springfield, Mass. Pneumatic wheel-tires	24,766	May 22	67	1063
Cora Fratelli, Giuseppe & Luigi, Turin, Italy. Vermouth	24,535	Apr. 17	67	397
Corbin & Son, B. A., Webster, Mass. Leather boots and shoes	24,570	Apr. 24	67	526
Cornell, Charles E., New York, N. Y. Toilet soap and lotions	24,587	Apr. 24	67	527
Coronet Corset Company, Jackson, Mich. Corsets, waists, dress-stays, bustles, and bust-forms	24,704	May 15	67	923
Covert, James C., West Troy, N. Y. Harness-snaps	24,879	June 12	67	1446
Crampton, J. Miller, New York, N. Y. Medicinal tablets	24,734	May 15	67	925
Crane & Co., Dalton, Mass. Writing-paper	24,821	June 5	67	1327
Crane & Co., Dalton, Mass. Certain named paper	24,882	June 19	67	1567
Crane & Co., Dalton, Mass. Writing and other paper	24,883	June 19	67	1567
Crane, Z. & W. M., Dalton, Mass. Writing-paper and envelopes	24,444	Apr. 3	67	134
Cukor, Joseph, New York, N. Y. Cognac	24,626	May 1	67	672
Cummings, Son & Co., Josiah, Boston, Mass. Fiber, leather-board, leatheroid, and trunks and other articles made therefrom	24,843	June 12	67	1443
Curtis, George E., Philadelphia, Pa. Roller-skates	24,645	May 1	67	674
Cushman, Belle V., New York, N. Y. Toilet soap	24,895	June 19	67	1568
Dallinger, Frank W., Boston, Mass. Coffee	24,917	June 26	67	1716
Darby Manufacturing Company of Baltimore City, Baltimore, Md. Chocolate creams, caramels, and candies	24,575	Apr. 24	67	524
Darrow Publishing Co., W. J., Cleveland, Ohio. Pass-books	24,774	May 29	67	1186
Davis, Francis G., Watertown, N. Y. Metal clasps for securing underclothing	24,437	Apr. 3	67	134
De Jean, Anson W., Minneapolis, Minn. Medicinal compound for the prevention and cure of diphtheria	24,498	Apr. 10	67	268
Dessar, Leonard A., New York, N. Y. Vessels for physicians' and surgeons' use	24,878	June 12	67	1446
Dessar, Leonard A., New York, N. Y. Vessels for physicians' and surgeons' use	24,903	June 19	67	1569
Dexter Woolen Mills, Boston, Mass. Repellents or waterproof cloth	24,842	June 12	67	1443
Dittman & Krug, Chicago, Ill. Certain named specialties	24,763	May 22	67	1063
Doig, William S., Brooklyn, N. Y. Box-nailing machine	24,520	Apr. 10	67	270
Dort, Elizabeth, Buffalo, N. Y. Stomachic and carminative medicine	24,827	June 5	67	1328
Downerd, Frank A., Columbus, Ohio. Molders' tools	24,612	Apr. 24	67	528
Drefs, Charles A., Buffalo, N. Y. Corn-plasters, pills, nervines, cough mixtures, headache-powders, and cod-liver oil	24,598	Apr. 24	67	526
Drumheller, Francis E., Sunbury, Pa. Remedy for the asthma	24,787	May 29	67	1187
Dudley, Battelle & Hurd, New York, N. Y. Brown and bleached sheetings and shirtings	24,841	June 12	67	1443
Dunham, Carrigan & Hayden Company, San Francisco, Cal. Certain named cutlery	24,610	Apr. 24	67	528
E. Cusenier Fils Ainé & Compagnie, Paris, Ornans, Charenton, and Marseilles, France, Mulhouse, Germany, and Brussels, Belgium. Crême de menthe	24,642	May 1	67	674
E. Stebbins Manufacturing Company, Springfield, Mass. Faucets	24,804	May 29	67	1188
Eagle and Phenix Manufacturing Company, Columbus, Ga. Cotton plaids and stripes	24,839	June 12	67	1443
Eastman, Erving L., Peabody, Mass. Nerve tonic	24,690	May 8	67	810
Eaton & Hobbs, Lynn, Mass. Manufactured pop-corn and candy of all kinds	24,740	May 22	67	1061
Elsworth & Co., Edward, New York and Buffalo, N. Y. Flour, oatmeal, and crushed cereals	24,551	Apr. 17	67	398
Emil Winter Company, Allegheny and Pittsburg, Pa. Beef, mutton, veal, pork, ham, sausage, and cured meats	24,753	May 22	67	1062

Alphabetical list of registrants of trade-marks, April to June, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Emil Winter Company, Allegheny and Pittsburg, Pa. Fertilizers	24,762	May 22	67	1063
Emil Winter Company, Allegheny and Pittsburg, Pa. Animal grease and oils	24,928	June 26	67	1717
Eppenstein & Co, M. C., Chicago, Ill. Silver tableware	24,525	Apr. 17	67	396
Estey Organ Company, Brattleborough, Vt. Reed-organs	24,729	May 15	67	926
Excelsior Manufacturing Company, Logansport, Ind. Medicinal preparations for the hair and scalp	24,897	June 19	67	1568
Fairbanks, John A., Boston, Mass. Whisky and whisky compounds	24,663	May 8	67	807
Fairbanks, Morse & Company, Chicago, Ill., and Beloit, Wis. Windmills	24,479	Apr. 3	67	138
Fairbanks, Morse & Company, Chicago, Ill., and Beloit, Wis. Windmills	24,480	Apr. 3	67	138
Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany. Pharmaceutical products	24,722	May 15	67	925
Farrell, John T., Providence, R. I. Blood-purifiers	24,784	May 29	67	1187
Farwell & Rhines, Watertown, N. Y. Flour and prepared cereals	24,919	June 26	67	1717
Faultless Chemical Company, Baltimore, Md. Chewing-gum	24,741	May 22	67	1061
Fearey, William H., Albany, N. Y. Boots and shoes	24,441	Apr. 3	67	134
Fearey, William H., Albany, N. Y. Boots and shoes	24,442	Apr. 3	67	134
Fisher & Fairbanks, Boston, Mass. Medicinal preparation for the cure of coughs, consumption, summer complaint, and kidney diseases	24,899	June 19	67	1569
Fitz, Eustace C., Chelsea and Mansfield, Mass. Heaters, furnaces, ranges, and stoves, and parts of and appliances for the same	24,937	June 26	67	1718
Florence Manufacturing Company, Northampton, Mass., New York, N. Y., and Chicago, Ill. Hair and clothes brushes	24,527	Apr. 17	67	396
Flöto's Sons, George, Brooklyn, N. Y. Essence for use with coffee	24,503	Apr. 10	67	269
Foley & Co., Chicago, Ill. Line of proprietary preparations	24,539	Apr. 17	67	397
Forbes & Co., J. P., San Francisco, Cal., and Chicago, Ill. Natural mineral water	24,506	Apr. 10	67	269
Foster, Clarence, Baltimore, Md. Salves, ointments, liniments, and powders	24,692	May 8	67	810
Fourgault, Eugène, Asnières, France. Cleaning and polishing preparation for use on wood and metal	24,905	June 19	67	1569
Francis Medicine Co., Nashville, Tenn. Liver-pills	24,329	June 5	67	1328
Francis T. Witte Hardware Company, New York, N. Y. Refrigerators	24,908	June 19	67	1570
Fuhrman, David M., Wooster, Ohio. Yeast	24,676	May 8	67	808
Furrer, Marie, New York, N. Y. Ladies' hats and bonnets and trimmings thereon	24,487	Apr. 10	67	267
G. D. Dows & Company, Revere and Boston, Mass. Carbonated tonic medicinal beverages	24,898	June 19	67	1568
G. H. Hammond Company, Hammond, Ind., and South Omaha, Nebr. Certain named edibles	24,579	Apr. 24	67	525
Gaitskill, Silas H. (See Van Ness and Gaitskill.)				
Gardner, William J., Buffalo, N. Y. Remedy for rheumatism	24,871	June 12	67	1446
Gary & Christopher, Baltimore, Md. Anestho-anodynes	24,687	May 8	67	809
Gerolsteiner Sprudel W. Castendyck, Gerolstein, Germany. Mineral waters	24,530	Apr. 17	67	396
Gilman, John F., Boston, Mass. Medicines for venereal diseases	24,727	May 15	67	925
Gilpin, Langdon & Co., Baltimore, Md. Remedies for throat and lung diseases	24,594	Apr. 24	67	526
Giron Frères, St. Etienne, France. Velvets	24,443	Apr. 3	67	134
Globe Chemical Company, Cleveland, Ohio. Laundry soap	24,680	May 8	67	809
Globe Register Company, Milwaukee, Wis. Time, sales, and cash registers and serving-machines for stationery	24,698	May 8	67	810
Goll, Bruno H., Chicago, Ill. Cough sirups	24,758	May 22	67	1063
Goll, Bruno H., Chicago, Ill. Remedy for the blood	24,759	May 22	67	1063
Goodman & Macatee, New York, N. Y. Fluid medicine to neutralize the effect of microbes on the physical system	24,540	Apr. 17	67	397
Green, Shipton, New York, N. Y. Wheat-flour	24,552	Apr. 17	67	398
Green, Shipton, New York, N. Y. Wheat-flour	24,746	May 22	67	1062
Green, Shipton, New York, N. Y. Wheat-flour	24,747	May 22	67	1062
Green, Shipton, New York, N. Y. Wheat-flour	24,748	May 22	67	1062
Green, Shipton, New York, N. Y. Wheat-flour	24,749	May 22	67	1062
Greenwoods Company, New Hartford, Conn. Canvas, hose-duck, awning-stripes, sail-duck, sail-twine, seine-twine, sewing-twine, and thread	24,521	Apr. 10	67	270
Guinean, Thomas, Seattle, Wash. Ointment	24,693	May 8	67	810
Guirand, Maxime, New Orleans, La. Cigars and cigarettes	24,664	May 8	67	807
Hanco, William A., Springfield, Ohio. Preparation for beautifying the complexion	24,589	Apr. 24	67	526
Hanson, Edgar F., Belfast, Me. Medicated soaps and plasters and remedies for diseases of the blood, skin, and nerves	24,631	May 1	67	673
Harris, Abram W., Providence, R. I. Lubricating-oil	24,719	May 15	67	924
Harris, Abram W., Providence, R. I. Lubricating-oil	24,904	June 19	67	1569
Harvey Chemical Co., Lafayette, Ind. Polish for metal	24,848	June 12	67	1444
Hathaway, Soule & Harrington, Incorporated, Boston, New Bedford, and Middleborough, Mass. Leather shoes	24,734	May 22	67	1061
Hauthaway & Sons, C. L., Boston, Mass. Liquid shoe-dressing	24,847	June 12	67	1444
Hauthorn & Co., J. O., Astoria, Oreg. Fish and meat packed in tin cans	24,460	Apr. 3	67	136
Havilland, Theodore, Limoges, France, and New York, N. Y. French china	24,773	May 29	67	1186
Hawkins, Edward M., Cuba, Mo. Remedy for chicken-cholera	24,476	Apr. 3	67	138
Hearn & Son, James A., New York, N. Y. Ginghams	24,567	Apr. 24	67	524
Hemsley, Alexander, Philadelphia, Pa. Flash-lamps	24,907	June 19	67	1570
Hernsheim Bros. & Co., S., New Orleans, La. Cigars, all-tobacco cigarettes, cheroots, smoking, chewing, and leaf tobacco and snuff	24,447	Apr. 3	67	135
Hernsheim Bros. & Co., S., New Orleans, La. Cigars, all-tobacco cigarettes, cheroots, smoking, chewing, and leaf tobacco and snuff	24,448	Apr. 3	67	135
Hewson, Robert, San Francisco, Cal. Whisky	24,534	Apr. 17	67	397
Hill Syrup Company, Seattle, Wash., and Barre, Vt. Maple sirup	24,576	Apr. 24	67	524
Hillyer, William R., Citra, Fla. Oranges, lemons, tangerines, and grape fruit	24,548	Apr. 17	67	398
Hood & Co., C. I., Lowell, Mass. Pills	24,865	June 12	67	1445
Hoopes & Townsend, Philadelphia, Pa. Rivets	24,439	Apr. 3	67	134
Household Friend Company, Richmond, Va. Chemical coal-saver	24,850	June 12	67	1444
Howard Sterling Company, Providence, R. I. Table and ornamental silverware	24,713	May 15	67	924
Howe & French, Boston, Mass. Isinglass of a gelatinous nature	24,492	Apr. 10	67	268
Howe & French, Boston, Mass. Isinglass of a gelatinous nature	24,493	Apr. 10	67	268
Howe, Hopkins & Bassett, Rochester, N. Y. Heating and power boilers	24,564	Apr. 17	67	400
Hudnut, Richard, New York, N. Y. Preparation to prevent sea-sickness	24,755	May 22	67	1062
Hurd & Co., George B., New York, N. Y. Writing-paper and envelopes	24,522	Apr. 17	67	396
Hurd & Co., George B., New York, N. Y. Writing-paper and envelopes	24,523	Apr. 17	67	396
I. B. Kleinert Rubber Company, New York, N. Y. Seamless stockinet dress-shields	24,703	May 15	67	923
Illinois Watch Case Company, Elgin, Ill. Watchcases	24,436	Apr. 3	67	134
Indianapolis Drug Co., Indianapolis, Ind. Perfumery	24,845	June 12	67	1444
J. B. Lewis Company, Portland, Me., and Boston, Mass. Leather boots and shoes	24,615	May 1	67	672
J. B. Williams Company, Glastonbury, Conn. Shaving-soap	24,446	Apr. 3	67	134
J. B. Williams Company, Glastonbury, Conn. Toilet soap	24,542	Apr. 17	67	398
Jadwin, Orlando H., New York, N. Y. Insecticides	24,475	Apr. 3	67	137
James, Royal & Co., Boston, Mass. Laundry starch	24,743	May 22	67	1061
James, Royal & Co., Boston, Mass. Laundry starch	24,744	May 22	67	1061

Alphabetical list of registrants of trade-marks, April to June, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Jarrait, Richard, Detroit, Mich. Washing compound for laundry and other purposes	24,742	May 22	67	1061
Jas. S. Mason Company, Philadelphia, Pa. Leather-dressing	24,602	Apr. 24	67	527
Jas. S. Mason Company, Philadelphia, Pa. Dressing for shoes, harness, and fine leathers	24,603	Apr. 24	67	527
John Bird Company, Rockland, Me. Spices and flavoring extracts	24,546	Apr. 17	67	398
John Bird Company, Rockland, Me. Cream of tartar	24,858	June 12	67	1444
Johnson & Co., E. J., New York, N. Y. Slate and slate articles	24,619	May 1	67	672
Johnson & Johnson, New Brunswick, N. J., and New York, N. Y. Medicinal strengthening plaster	24,830	June 5	67	1328
Johnson & Johnson, New Brunswick, N. J., and New York, N. Y. Antiseptic surgeons' dressing	24,831	June 5	67	1328
Johnson & Johnson, New Brunswick, N. J. and New York, N. Y. Medicinal strengthening plasters	24,902	June 19	67	1569
Johnson, William C., Eau Claire, Wis. Liniment	24,537	Apr. 17	67	397
Johnston, Willis, Washington, D. C. Wheat flour	24,861	June 12	67	1445
Jones & Co., W. H., Boston, Mass. Cocktails and punch	24,739	May 22	67	1061
Jones, Cynthia S. (See Carter and Jones.)				
Kalish Pharmacy, New York, N. Y. Medicated distilled water	24,499	Apr. 10	67	268
Keen, Jule, New York, N. Y. Remedy for rheumatism	24,872	June 12	67	1446
Kent & Stanley Company, Providence, R. I. Souvenir articles of silver	24,618	May 1	67	672
Kern & Sons, John B. A., Milwaukee, Wis. Flour, oatmeal, parched wheat, and other cereal foods	24,456	Apr. 3	67	135
Kessler, Edwin F., Milwaukee, Wis. Liniment for internal and external use	24,790	May 29	67	1187
King's Medicine Company, Pittsburg, Pa. Liquid compound of celery-seed and fluid extract of sarsaparilla	24,627	May 1	67	673
Kingsford, Thomson, Oswego, N. Y. Corn-starch	24,715	May 15	67	924
Klein, Max, Allegheny, Pa. Whisky	24,662	May 8	67	807
Kunhardt & Co., New York, N. Y. Wheat-flour	24,638	May 1	67	673
Kunhardt & Co., New York N. Y. Wheat-flour	24,860	June 12	67	1445
Kunhardt & Co., New York N. Y. Wheat-flour	24,890	June 19	67	1568
Kunhardt & Co., New York, N. Y. Wheat-flour	24,837	June 12	67	1443
Kurzman & Son, M., New York, N. Y. Straw hats	24,596	Apr. 24	67	526
La Ville Laboratory Company, Springfield, Ohio. Laxative and diuretic preparations	24,529	Apr. 17	67	396
Lafrique & Pinton, Paris, France. Dyed rabbit-skins				
Laing, Sön & Harrar, Philadelphia, Pa. Blacking, dressing, and rubber and leather cement for boots and shoes	24,477	Apr. 3	67	138
Leisy, Firm of Isaac, Cleveland, Ohio. Lager-beer	24,449	Apr. 3	67	135
Lenz Ku-Ra-Tiv Co., Cleveland, Ohio. Remedy for chilblains	24,873	June 12	67	1446
Lesher, Whitman & Co., New York, N. Y. Sattoons and twills for dress and lining purposes	24,840	June 12	67	1443
Leslie E. Keeley Company, Dwight and Carbondale, Ill. Gold cure for opium, whisky, and tobacco habits and nervous diseases	24,464	Apr. 3	67	136
Levi, Albert F., Cincinnati, Ohio. Chewing-gum	24,888	June 19	67	1567
Lévy, Arthur, Paris, France. Opera-glasses	24,526	Apr. 17	67	396
Lewis, George T., Philadelphia, Pa. Powdered lye	24,681	May 8	67	809
Lewis, George T., Philadelphia, Pa. Powdered lye	24,682	May 8	67	809
Linderman, Frank M. (See Binz and Lindermann.)				
Llou, H. & E., Hamburg, Germany. Portland cement	24,906	June 19	67	1569
Lister & Company, Limited, Bradford, England, and New York, N. Y. Waterproofed silk pile fabric	24,735	May 22	67	1061
Lister & Company, Limited, Bradford, England, and New York, N. Y. Mohair pile fabrics	24,776	May 29	67	1186
Loeb & Co., Leopold, Philadelphia, Pa. Leaf-tobacco	24,665	May 8	67	808
Loeb & Co., Leopold, Philadelphia, Pa. Leaf-tobacco	24,737	May 22	67	1061
Lorenz, George E., Toledo, Ohio. Perfume for toilet uses in liquids, powders, pastes, and soaps	24,445	Apr. 3	67	134
Lundgren, John W., Worcester, Mass. Remedy for certain named diseases	24,265	Apr. 3	67	137
Lowe, Walter A., Allegheny, Pa. Compound of lubricating-oils for external use for veterinary purposes	24,864	June 12	67	1445
Lowell Hosiery Company, Lowell, Mass. Hosiery and underwear	24,806	June 5	67	1326
Lynch, Eugene, Boston, Mass. Whisky	24,779	May 29	67	1186
Lyon Manufacturing Co., Brooklyn, N. Y. Balm or cosmetic	24,590	Apr. 24	67	526
Lyon Manufacturing Co., Brooklyn, N. Y. Preparation for the hair	24,591	Apr. 24	67	526
Lyon Manufacturing Co., Brooklyn, N. Y. Liniment	24,592	Apr. 24	67	526
Mabee, Leonia, Paris, Tex., and St. Louis, Mo. Remedies for catarrh, la grippe, and diseases of the throat and lungs	24,469	Apr. 3	67	137
Macy & Co., R. H., New York, N. Y. Wrapping and writing paper	24,617	May 1	67	672
Magenau, Otto, Denver, Colo. Lip-salve	24,927	June 26	67	1717
Magic Medicine Co., Mansfield, Ohio. Nerve medicine and tonic	24,868	June 12	67	1445
Maltbie, Birt L., Buffalo, N. Y. Antiseptic powder	24,925	June 26	67	1717
Manchester Cigar Manufacturing Co., Baltimore, Md. Cigars and cigarettes	24,914	June 26	67	1716
Manning, Martin, Poughkeepsie, N. Y. Whisky, brandy, gin, rum, and wines	24,780	May 29	67	1186
Manning, Martin, Poughkeepsie, N. Y. Whisky, brandy, gin, rum, and wines	24,781	May 29	67	1187
Manning, Martin, Poughkeepsie, N. Y. Whisky, brandy, gin, rum, and wines	24,782	May 29	67	1187
Mara Nova Tonic Co., Boston, Mass. Medical compound for purifying the blood, an alterative, and tonic	24,595	Apr. 24	67	526
March Bros., Pierce & Co., Boston, Mass. Men's shirts	24,810	June 5	67	1326
Marshall, James, Fall River, Mass. Men's hats and caps	24,808	June 5	67	1326
Marshall, James, Fall River, Mass. Man's hats and caps	24,809	June 5	67	1326
Maryland Pottery Company of Baltimore City, Baltimore, Md. Vitreous china, including plumbers' and toilet ware	24,876	June 12	67	1446
Maryland Pottery Company of Baltimore City, Baltimore, Md. Vitreous china, including plumbers' and toilet ware	24,877	June 12	67	1446
Maryland Pottery Company of Baltimore City, Baltimore, Md. Vitreous china, including plumbers' and toilet ware	24,932	June 26	67	1718
Maryland Pottery Company of Baltimore City, Baltimore, Md. Vitreous china, including plumbers' and toilet ware	24,933	June 26	67	1718
Massachusetts Cotton Mills, Lowell, Mass. Blue denims	24,655	May 8	67	807
Massachusetts Cotton Mills, Lowell, Mass. Woven cotton goods	24,775	May 29	67	1186
McNinch, Charles E., Calais Me. Extract of sarsaparilla, cough cure, pills, salve, and worm-tablets	24,593	Apr. 24	67	526
McKean, Aibert P., Sunbury, Pa. Building, paving, and insulating composition	24,478	Apr. 3	67	138
McKesson & Robbins, New York, N. Y. Remedies for purifying and treating the blood	24,760	May 22	67	1063
McKesson & Robbins, New York, N. Y. Remedies for diseases of the blood	24,761	May 22	67	1063
McLeod, John M., Goderich, Canada. Remedy for certain named diseases	24,467	Apr. 3	67	137
Mechanical Rubber Company, New York, N. Y. Articles of hard and soft rubber	24,658	May 8	67	807
Mechanical Rubber Company, New York, N. Y. Articles of hard and soft rubber	24,659	May 8	67	807
Meuschel, Firm of J. W., Sr., Buchbrunn, near Würzburg-on-the-Main, Germany. Franconian wines	24,501	Apr. 10	67	268
Meyberg, Maude, Chicago, Ill. Preparations for the skin	24,823	June 5	67	1327
Michaelis & Sons, M., New York, N. Y. Sugar and licorice confections	24,453	Apr. 3	67	135
Michaelis & Sons, M., New York, N. Y. Gelatine	24,889	June 19	67	1567

Alphabetical list of registrants of trade-marks, April to June, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Minkota Milling Company, Duluth, Minn. Wheat-flour	24,582	Apr. 24	67	525
Minnesota Packing and Provision Company, Chicago, Ill., and South St. Paul, Minn. Cured meats and lard	24,883	June 19	67	1568
Mooney & Sons, W. W., Columbus, Ind. Harness and saddlery leather	24,708	May 15	67	923
Moore, Henry S., Hudson, Mass. Paint or preparation for the cure of corns, warts, and similar growths	24,833	June 5	67	1328
Moullon & Cie., Cognac, France. Cognac brandy	24,532	Apr. 17	67	397
Moullon & Cie., Cognac, France. Cognac brandy	24,533	Apr. 17	67	397
Mueller & Co., C. F., Jersey City, N. J. Egg-noodles	24,454	Apr. 3	67	135
Muschenheim, William C., New York, N. Y. Wines and liquors	24,572	Apr. 24	67	524
National Starch Manufacturing Company, New York, N. Y. Laundry starch	24,622	May 1	67	672
National Starch Manufacturing Company, New York, N. Y. Laundry starch	24,623	May 1	67	672
National Starch Manufacturing Company, New York, N. Y. Lump-starch for laundry use	24,678	May 8	67	809
National Starch Manufacturing Company, New York, N. Y. Laundry starch	24,679	May 8	67	809
National Starch Manufacturing Company, Covington, Ky., and New York, N. Y. Starch for food and laundry purposes	24,745	May 22	67	1062
National Starch Manufacturing Company, Covington, Ky., and New York, N. Y. Laundry starch	24,894	June 19	67	1568
Nax, Leonard, Philadelphia, Pa. Tobacco-pipes	24,875	June 12	67	1446
Nebraska City Starch Company, Nebraska City, Nebr. Starch	24,580	Apr. 24	67	525
Netter, Charles S., New York, N. Y. Flavoring and perfuming extracts	24,545	Apr. 17	67	398
New Metzger Medicine Company, Decorah, Iowa. Pain-eradicators, ointments, salves, liniments, and pink-eye, distemper, and colic cures	24,901	June 19	68	1569
New Pittsburgh Coal Company, Columbus, Ohio, and Chicago, Ill. Bituminous coal	24,519	Apr. 10	67	270
New York Condensed Milk Company, Jersey City, N. J., and New York, N. Y. Milk, condensed and plain, evaporated cream, butter, and cheese	24,819	June 5	67	1327
Newell, Nelson C., Springfield, Mass. Buttons made of wood, ivory, and metal, and cloth-covered buttons	24,886	June 19	67	1567
Nichols, George D., New York, N. Y. Corsets and waists	24,912	June 26	67	1716
Northumbrian Chemical Company, Limited, Newcastle-on-Tyne, England. Caustic soda	24,718	May 15	67	924
O'Hern, Joseph F., Waltham, Mass. Certain named remedies	24,726	May 15	67	925
Olds, Lyman C., Baltimore, Md. Hair-grower	24,754	May 22	67	1062
Owen Electric Belt and Appliance Company, Chicago, Ill. Electric belt and wearing appliances	24,778	May 29	67	1186
Palmer, John W., New York, N. Y. Builders' cement	24,605	Apr. 24	67	527
Palmer, John W., New York, N. Y. Builders' cement	24,606	Apr. 24	67	527
Palmer, John W., New York, N. Y. Builders' cement	24,607	Apr. 24	67	527
Parker & Co., A. H., Waltham, Mass. Remedy for nervous diseases	24,785	May 29	67	1187
Partridge, Herbert L., La Crosse, Wis. Certain named medical compounds	24,497	Apr. 10	67	268
Pasquier & Stankard, Indianapolis, Ind. Baking-powder	24,855	June 12	67	1444
Peck & Co., F. W., Columbia, Mo. Liniments, ointments, and remedies for dyspepsia, chills, and lung troubles	24,472	Apr. 3	67	137
Peters Cartridge Company, Cincinnati, Ohio. Ammunition	24,609	Apr. 24	67	528
Petree & Co., Peter, near Huntsville, Tex. Medicine for certain named diseases	24,651	May 1	67	674
Pheno-Bromate Chemical Co., Lebanon Springs, N. Y. Medicine for the cure of neuralgia, grip, and fever	24,468	Apr. 3	67	137
Phoenix Litho Plate Company, New York, N. Y. Zinc plates for lithographing purposes	24,934	June 26	67	1718
Plantz & Co., W. M., Chicago, Ill. Compound for removing scale from boilers	24,849	June 12	67	1444
Pohl & Co., E., Baltimore, Md. Corset-waists	24,440	Apr. 3	67	134
Pommery Fils & Co., Veuve, Rheims, France. Champagne-wine	24,573	Apr. 24	67	524
Pommery Fils & Co., Veuve, Rheims, France. Champagne-wine	24,574	Apr. 24	67	524
Prall, Delbert E., Saginaw, East Side, Mich. Toilet preparation	24,720	May 15	67	925
Price, Frederick A., Syracuse, N. Y. Line of medical preparations consisting of liquids, pills, tablets, plasters, lotions, salves, and dentifrice	24,922	June 26	67	1717
Probst & Schomaker, Brooklyn, N. Y. Loaves of bread	24,509	Apr. 10	67	269
Proctor, John C., Rochester, N. Y. Remedy for corns	24,788	May 29	67	1187
Puhlman, Rudolph, Jersey City, N. J. Compounds to remove and prevent scale on boilers	24,825	June 5	67	1327
Pyramid Drug Co., Albion, Mich. Pile cure	24,597	Apr. 24	67	526
Queen & Company, Incorporated, Philadelphia, Pa. Electrical instruments for measuring current, potential, and resistance	24,566	Apr. 17	67	400
Queenan, Matthew, Ansonia, Conn. Liniments	24,926	June 26	67	1717
R. J. Reynolds Tobacco Company, Winston, N. C. Chewing and smoking tobacco	24,571	Apr. 24	67	524
Radlauer, Siegmund, Berlin, Germany. Pharmaceutical preparations	24,866	June 12	67	1454
Rapelje, Katie M., New York, N. Y. Tallow soap	24,639	May 1	67	673
Read Holliday & Sons, Limited, New York, N. Y. Disinfectants	24,633	May 1	67	673
Read Holliday & Sons, Limited, New York, N. Y. Disinfectants	24,650	May 1	67	674
Redgrave, Montague, Jersey City, N. J. Musical instruments	24,611	Apr. 24	67	528
Reeves, Parvin & Co., Philadelphia, Pa. Canned and preserved fruits and vegetables	24,918	June 26	67	1716
Regal Shoe Co., Boston, Mass. Men's boots and shoes	24,706	May 15	67	923
Reitzel & Co., J., Newark, N. J. Tomato catsup	24,577	Apr. 24	67	525
Revel Père et Fils, Lyons, France. Silk piece goods	24,654	May 8	67	807
Reynolds Manufacturing Company, Davisville R. I. Cassimeres	24,885	June 19	67	1567
Reynolds Manufacturing Co., Davisville, R. I. Doeskin jeans	24,911	June 26	67	1716
Rheinstrom, Bettman, Johnson & Co., Cincinnati, Ohio. Whiskies, cordials, wines, and liqueurs	24,738	May 22	67	1061
Richardson Manufacturing Company, Worcester, Mass. Agricultural machines and their parts	24,697	May 8	67	810
Rieser, Alvin F., Philadelphia, Pa. Milk, cream, butter, and cheese	24,674	May 8	67	808
Riley, Michael, London, Ohio. Foot-guards for railway-frogs	24,563	Apr. 17	67	400
Robert-Milton Manufacturing Co., New York, N. Y. Remedies for certain named diseases	24,786	May 29	67	1187
Roberts & Co., A. F., New York, N. Y. Wheat-flour	24,583	Apr. 24	67	525
Roberts & Co., George J., Dayton, Ohio. Water motors or pumps	24,565	Apr. 17	67	400
Robertson & Son, John, Dundee, Scotland. Scotch whisky	24,916	June 26	67	1716
Root-Tea-Na Herb Co., Akron, Ohio. Medicine for the cure of catarrh	24,630	May 1	67	673
Root-Tea-Na Herb Co., Akron, Ohio. Medicine for the cure of the tobacco habit	24,725	May 15	67	925
Rosenheim-Levis-Zukoski Mercantile Company, St. Louis, Mo. Certain named ribbons	24,652	May 1	67	674
Rosenstein, Leo, New York, N. Y. Dried and preserved fruits	24,578	Apr. 24	65	525
Rosenstein, Leo, New York, N. Y. Matches	24,663	May 8	67	809
Rosenstein, Leo, New York, N. Y. Matches	24,920	June 26	67	1717
Royal Remedy and Extract Company, Dayton, Ohio. Bonbons and chewing-gum	24,844	June 12	67	1443
Russ-Suchard et Cie., Neufchâtel, Switzerland. Chocolates and cocoas	24,853	June 12	67	1444
Salomon & Co., Felix, New York, N. Y. Wool fat	24,514	Apr. 10	67	270
Sanchez, Miguel J., New York, N. Y. Iron and steel fireproof safes	24,881	June 12	67	1446
Schieren & Co., Chas. A., New York, N. Y. Leather belting and lace-leather	24,707	May 15	67	923
Schmit, John P. C., Green Bay, Wis. Natural mineral water	24,450	Apr. 3	67	135
Schoultz, Ingeborg, Philadelphia, Pa. Remedies for diseases of the stomach	24,828	June 5	67	1328
Schuelk, Peter, Stevens Point, Wis. Cure for the heaves in horses	24,834	June 5	67	1328
Scientific Suspender Company, Limited, Battle Creek, Mich. Suspenders	24,807	June 5	67	1326

Alphabetical list of registrants of trade-marks, April to June, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Scudder-Gale Grocer Company, St. Louis, Mo. Baking-powder	24,856	June 12	67	1444
Seixax, Alfred M., New York, N. Y. Wheat-flour	24,793	May 29	67	1188
Seixax, Alfred M, New York, N. Y. Wheat-flour	24,794	May 29	67	1188
Seneca Oil Works, Warren, Pa. Lubricating-oils	24,604	Apr. 24	67	527
Shapleigh Coffee Company, Boston, Mass. Coffee and tea	24,504	Apr. 10	67	269
Shaw Brothers, Birmingham, England. Shingles, staves, casks, and barrels	24,799	May 29	67	1188
Shaw Brothers, Birmingham, England. Coloring and finishing paints, kerosene, rosin, turpentine, and lubricants	24,792	May 29	67	1187
Shorey & Co., H., Montreal, Canada. Waterproofed cloths and garments made thereof	24,777	May 29	67	1186
Siegel, Cooper & Company, Chicago, Ill. Sewing-machines	24,730	May 15	67	926
Silvermann & Co., Williamsport, Pa. Garters, hose-supporters, and sleeve-holders	24,488	Apr. 10	67	267
Simpson Brothers Company, Chicago, Ill. Cement and asphalt blocks and slabs for walks and floors	24,931	June 26	67	1718
Sing, Charles T., New York, N. Y. Certain named remedy	24,826	June 5	67	1328
Skilton & Co., N. C., Boston, Mass. Butter	24,750	May 22	67	1062
Small, Herbert M., and H. B. Teed, Baldwinsville, Mass. Soap and saponaceous compounds	24,543	Apr. 17	67	398
Smith, Francis E., New York, N. Y. Flour	24,859	June 12	67	1444
Smith, Hogg & Gardner, New York, N. Y. Sheetings, shirtings, muslins, drillings, and denims	24,814	June 5	67	1326
Société Anonyme Union Fraternelle, Calonne lez Antoing, Belgium. Portland cement	24,930	June 26	67	1717
Southington Cutlery Company, Southington, Conn. Pocket cutlery	24,694	May 8	67	810
Spaethe, Wilhelm, Gera, Germany. Accordions	24,909	June 26	67	1716
Sparks Milling Company, Alton, Ill. Wheat-flour	24,891	June 19	67	1568
Spaulding, Horatio N., Vandalia, Ill. Remedy for kidney, liver, and other diseases	24,628	May 1	67	673
Spivey, Thomas S., Cincinnati, Ohio. Remedy for diseases of the lungs and air-passages	24,900	June 19	67	1569
Sporting Life Publishing Company, Philadelphia, Pa. Printed periodicals	24,653	May 8	67	807
Springsteen Medicine Company, Cleveland, Ohio. Certain named remedies	24,599	Apr. 24	67	527
Standard Brewery, Chicago, Ill. Lager-beer	24,636	May 1	67	673
Stanley Works, New Britain, Conn. Braces, bolts, nails, screws, washers, fastenings, and similar articles of builders' hardware	24,502	Apr. 17	67	399
Stockwell, Albert M. Leominster, Mass. Shirts	24,913	June 26	67	1716
Stone & Forsyth, Boston, Mass. Wrapping, writing, printing, and toilet paper	24,822	June 5	67	1327
Straus, Elise, St. Louis, Mo. Evaporated carrots, parsnips, rutabagas, turnips, and food products made therefrom	24,511	Apr. 10	67	269
Stribley & Co., Cincinnati, Ohio. Ladies' and misses' fine shoes	24,705	May 15	67	923
Swift & Company, Chicago, Ill. Lard	24,512	Apr. 10	67	269
Swift & Company, Chicago, Ill. Lard	24,513	Apr. 10	67	269
T. A. Slocum Company, New York, N. Y. Cod-liver oil and preparations thereof	24,688	May 8	67	809
Taft Medical Co., F. L., Burlington, Vt. Laxative	24,924	June 26	67	1717
Teed, Henry B. (See Small and Teed.)				
Telegram Cycle Manufacturing Company, Milwaukee, Wis. Cycles	24,700	May 8	67	810
Terry, Ware & Alley, Brockton, Mass. Boots and shoes	24,634	May 1	67	673
Tetlow, Henry, Philadelphia, Pa. Face-powder	24,588	Apr. 24	67	526
Thompson Milling Company, Lockport, N. Y. Wheat-flour	24,553	Apr. 17	67	398
Thurmayr, Adolph, Stuttgart, Germany. Insect-powders	24,586	Apr. 24	67	525
Tilghman, William G., Palatka, Fla. Condition-powders	24,756	May 22	67	1062
Tissera, Vincent L. (See Belling and Tissera.)				
Torrey & Bentley Company, Boston, Mass. Soap	24,495	Apr. 10	67	268
Tryon & Co., Edw. K., Jr., Philadelphia, Pa. Bicycle	24,880	June 12	67	1446
Union Cement and Lime Company, Louisville, Ky. Cement, lime, or plaster-of-paris	24,608	Apr. 24	67	528
Union Cement and Lime Company, Louisville, Ky. Cement, lime, and plaster-of-paris	24,649	May 1	67	674
Union Metallic Cartridge Company, Bridgeport, Conn. Paper shot-shells	24,648	May 1	67	674
Union Pacific Salt Company, San Francisco, Cal. Dairy-salt	24,795	May 29	67	1188
Union Pacific Salt Company, San Francisco, Cal. Dairy-salt	24,796	May 29	67	1188
Union Pacific Salt Company, San Francisco, Cal. Dairy-salt	24,797	May 29	67	1188
Union Pacific Salt Company, San Francisco, Cal. Dairy-salt	24,798	May 29	67	1188
Union Pacific Tea Company, Newark, N. J., and New York, N. Y. Coffee	24,854	June 12	67	1444
Vail Brothers, Philadelphia, Pa. Certain named toilet preparations, including soap	24,824	June 5	67	1327
Van Ness, Eugene, and W. P. and S. H. Gaitskill, Baltimore, Md., and McIntosh, Fla. Oranges	24,452	Apr. 3	67	135
Van Ness, William P. (See Van Ness and Gaitskill.)				
Van Wie, Charles H., Albany, N. Y. Medicine for corns and bunions	24,832	June 5	67	1328
Vandeursen, C. S. & M., Chicago, Ill. Sauer-kraut	24,677	May 8	67	808
Vereinigte Fabriken Photographischer Papiere, Dresden, Germany. Paper for photographic use	24,910	June 26	67	1716
Versteeg-Grant Shoe Company, St. Louis, Mo. Boots and shoes	24,528	Apr. 17	67	396
Wallace, Anna W., Allegheny, Pa. Liniment	24,691	May 8	67	810
Walter A. Wood Harvester Company, St. Paul, Minn. Binding-twine	24,736	May 22	67	1061
Ward, William P., New York, N. Y. Cigarettes	24,887	June 19	67	1567
Warrick Brothers, London, England. Capsules, pills, and medicated jujubes	24 689	May 8	67	809
Washburn & Moen Manufacturing Company, Worcester, Mass. Steel, iron, and copper wire	24,805	May 29	67	1188
Watkins, Elijah F., Palatine, W. Va. Liniments	24,474	Apr. 3	67	137
Waukesha-Lithia Spring Company, Chicago, Ill. Natural mineral water	24,531	Apr. 17	67	396
Weber, William A., Waukesha, Wis. Lager-beer	24,660	May 8	67	807
Weber's Medical Tea Co., Brooklyn, N. Y. Blood-purifying herb teas	24,783	May 29	67	1187
Welsh, Samuel, Philadelphia, Pa. Plug-tobacco and snuff	24,516	Apr. 10	67	270
Wheeler, Felix A., Chicago, Ill. Antipyretic and anodyne powders for headache and neuralgia	24,867	June 12	67	1445
Whiting Manufacturing Company, New York, N. Y. Flat and table silverware and jewelry	24,712	May 15	67	924
Whitman & Barnes Manufacturing Company, Akron, Ohio. Wrenches	24,768	May 22	67	1064
Wiebusch & Hilger, Limited, New York, N. Y. Firearms	24,646	May 1	67	674
Wiebusch & Hilger, Limited, New York, N. Y. Firearms	24,647	May 1	67	674
Wilkins & Company, Washington, D. C. Butterine	24,462	Apr. 3	67	136
Williams & Co., R. C., New York, N. Y. Certain named food products	24,892	June 19	67	1568
Williams, Wilford M., Indianapolis, Ind. Washing fluid	24,544	Apr. 17	67	398
Winchester Repeating Arms Company, New Haven, Conn. Paper-shell cartridges	24,764	May 22	67	1063
Winchester Repeating Arms Company, New Haven, Conn. Paper-shell cartridges	24,765	May 22	67	1063
Winkelmann, John H., Baltimore, Md. Nervine, tonic, restorative, and reparative remedy	24,629	May 1	67	673
Winzer & Wecker, Chemnitz, Germany. Knit underwear	24,569	Apr. 24	67	524
Wolf & Sons, S., Philadelphia, Pa. Whisky	24,714	May 15	67	924
Wood, Annie L. (See Wood, Elizabeth and A. L.)				
Wood, Elizabeth and A. L., McGregor, Iowa. Certain named remedies	24,870	June 12	67	1445
Woodcock, Horace, Brookfield, Wis. Medicine for diseases of the bowels and stomach	24,496	Apr. 10	67	268
Wool Oil Refining Company, Pompton Lakes, N. J. Wool-fat	24,929	June 26	67	1717
Woolson Spice Company, Toledo, Ohio. Coffee	24,451	Apr. 3	67	135
Woolson Spice Company, Toledo, Ohio. Spices and baking-powder	24,675	May 8	67	808
Worcester Corset Company, Worcester, Mass. Corsets	24,489	Apr. 10	67	267
Worcester Corset Company, Worcester, Mass. Corset steels and clasps	24,490	Apr. 10	67	267
Worcester Corset Company, Worcester, Mass. Ladies' corsets	24,614	May 1	67	672

Alphabetica. list of registrants of trade-marks, April to June, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Wormley, Emma J., Des Moines, Iowa. Complexion-powerd	24,721	May 15	67	992
Wrisley, Allen B., Chicago, Ill. Toilet and laundry soap	24,624	May 1	67	275
Wyeth & Bro., John, Philadelphia, Pa. Beef-juice	24,667	May 8	67	808
Young, Frederick W., New Orleans, La. Baking-powder	24,857	June 12	67	1444
Zimmerman, Isaiah E., Paterson, N. J. Blood-purifier and liver and kidney regulator	24,466	Apr. 3	67	137
Zizelman & Bartlett, Cleveland, Ohio. Cleaning material for wall-paper	24,600	Apr. 24	67	527
Zurbrugg, Theophilus, Riverside, N. J. Watches and watchcases	24,481	Apr. 10	67	267
Zurbrugg, Theophilus, Riverside, N. J. Watches and watchcases	24,482	Apr. 10	67	267
Zurbrugg, Theophilus, Riverside, N. J. Watches and watchcases	24,483	Apr. 10	67	267
Zurbrugg, Theophilus, Riverside, N. J. Watches and watchcases	24,484	Apr. 10	67	267
Zurbrugg, Theophilus, Riverside, N. J. Watches and watchcases	24,485	Apr. 10	67	267
Zurbrugg, Theophilus, Riverside, N. J. Watchcases	24,710	May 15	67	923

PRINTS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
J. Ottomann Lithographing Company, New York, N. Y. "Dr. Kilmer Swamp Root"	3	June 12	67	1336

ALPHABETICAL LIST OF INVENTIONS.

Invention.	Name.	No.	Date.	Monthly volume. Specification.	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
Abdominal supporter	A. H. Wade	517,941	Apr. 10	856	215	67	178
Accordion	J. Galleazzi	517,648	Apr. 3	3-7	92,93	67	75
Accumulator-plate	C. J. Barbier	521,970	June 26	2176	522	67	1645
Acid. Apparatus for charging liquids with carbonic	J. F. Theurer	519,140	May 1	353	84	67	606
Acid. Apparatus for distributing carbonic	E. Rneff	518,513	Apr. 17	1870	463	67	373
Acid by means of heated gases. Apparatus for concentrating sulfuric	J. L. Kessler	520,994	June 5	434	104	67	1275
Acid. Petroleum sulfo	H. A. Frasch	518,989	May 1	85	.....	67	552
Acid. Petroleum sulfo	H. A. Frasch	518,990	May 1	87	.....	67	552
Acid-proof composition	J. A. Just	520,600	May 29	2886	.....	67	1133
Acid. Purifying tannic	B. Reinus	517,626	Apr. 3	344	.....	67	67
Adding-machine	R. Baumann	522,098	June 26	2389	575	67	1684
Adding-machine	A. B. Lennox	519,960	May 15	1782	436	67	899
Adding-machine	J. P. Royall	521,221	June 12	834	195, 196	67	1361
Adding-machine	F. Sweet	519,358	May 8	778	190	67	701
Adding machine. Electrically-operated	R. Baumann	522,097	June 26	2386	574, 575	67	1683
Adjustable wrench	J. T. Trench	520,094	May 22	2016	492	67	957
Advertising apparatus	A. Berliner	521,009	June 5	460	110	67	1279
Advertising device	B. D. Milliken	521,961	June 26	2163	519	67	1642
Advertising device	A. A. Root	521,990	June 26	2222	535	67	1652
Advertising-letter	T. E. Dean	522,154	June 26	2496	599	67	1703
Advertising match-box	J. J. Harrison	521,212	June 12	815	191, 192	67	1358
Advertising or signaling apparatus. Electric	G. L. Schneider	520,223	May 22	2261	550	67	999
Advertising-wagon	J. N. Russell	520,541	May 29	2783	673	67	1113
Aerated liquids. Apparatus for producing and containing	C. Hatton	519,604	May 8	1204	290	67	778
Air and gas mixing apparatus	W. Hay and W. M. Kearns	518,451	Apr. 17	1768	438	67	356
Air and steam engine and generator. Mixed	H. E. Depp	521,762	June 19	1805	428	67	1556
Air-brake apparatus	J. H. O'Hara	519,681	May 8	1335	322	67	801
Air-brake. Automatic	J. P. Brown	520,391	May 22	2535	613	67	1053
Air-brake retainers. Controller and arighter for	J. K. Lencke	517,955	Apr. 10	894	223, 224	67	184
Air-brake retainers. Controller and arighter for	J. K. Lencke and F. D. Merchant	517,954	Apr. 10	890	222, 223	67	183
Air compressing apparatus	M. Flood	519,383	May 8	815	198, 199	67	709
Air-compressor	J. Birner and H. Messing	520,405	May 29	2562	619, 620	67	1073
Air-compressor. Hydraulic	E. Schutz and J. H. Henderson	517,628	Apr. 3	347	82	67	68
Air cooling and drying apparatus	W. Alsop and W. Blackall	520,130	May 22	2097	509, 510	67	968
Air, gas, &c. Receptacle or tank for the storage of compressed	W. Timmis	517,777	Apr. 3	609	151	67	118
Air-heating apparatus	J. Howden	518,455	Apr. 17	1776	441	67	357
Alarm: *See* Boiler water-alarm. Burglar-alarm. Fire-alarm. Thermal alarm. Time-alarm.							
Alarm-register. Automatic	C. C. Fields	520,159	May 22	2149	524	67	979
Album. Photograph	J. Ekval	518,346	Apr. 17	1582	392	67	322
Album. Photograph	G. Koll	521,569	June 19	1464	342	67	1494
Alumina. Making porous sulfate of	J. Enequist	520,416	May 29	2574	.....	67	1076
Amalgamating machine. Gold	P. E. Gaffron	520,847	June 5	170	37	67	1228
Amalgamating ores. Method of and apparatus for	H. F. Edwards	518,543	Apr. 17	1917	473	67	382
Amalgamator	G. Delage	521,145	June 5	695	162	67	1321
Amalgamator	N. L. Raber	517,767	Apr. 3	592	145, 146	67	114
Ammeter	E. R. Knowles	520,963	June 5	381	93	67	1267
Ammonia-liquor. Apparatus for causticising	E. Solvay	518,429	Apr. 17	1728	430	67	349
Ammonia. Process of and apparatus for manufacturing aqua-	T. Charlton and K. M. Mitchell	521,401	June 12	1150	273	67	1422
Ammonia. Purifying	E. Solvay	518,428	Apr. 17	1725	430	67	348
Anchor	D. Clark	520,177	May 22	2181	531	67	985
Animal gun-trap	G. E. Landis	520,164	May 22	2158	526	67	981
Animal-liberating device	C. C. Partridge	519,201	May 1	467	114	67	627
Animal-releasing device	J. S. Edmonds	520,305	May 22	2541	614	67	1054
Animal-shears	W. Bell, J. W. Broomhead, and W. A. Jones.	518,204	Apr. 10	1327	331	67	259
Animal-shears	C. M. Palmer	520,331	May 22	2433	592	67	1033
Animal-trap	F. J. Bragunier	518,483	Apr. 17	1815	449	67	364
Animal-trap	T. Donlon	518,024	Apr. 10	1013	255	67	203
Animal-trap	F. D. Hay	518,841	Apr. 24	2427	602	67	486
Animal-trap	S. L. Loomis and A. M. Harris	521,378	June 12	1118	264	67	1416
Animal-trap	M. B. Morris	522,165	June 26	2511	603	67	1707
Animal-trap	C. J. Roberts and J. W. Owen	520,804	June 5	80	18	67	1212

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Annunciating apparatus. Electric	H. E. Walter	520,127	May 22	2072	505, 506, 507, 508	67	966
Annunciator	T. J. Thompson	521,144	June 5	694	162	67	1321
Annunciator and spring-jack. Combined	H. M. Fisk	521,461	June 19	1278	297	67	1461
Annunciator. Electrical	R. L. Hunter	518,037	Apr. 10	1030	260, 261	67	207
Annunciator. Electrical	F. W. Ross	521,046	June 5	526	124	67	1292
Antifriction-roller	F. H. Richards	519,591	May 8	1182	285	67	775
Anvil. Jeweler's	O. H. Lutz	521,802	June 26	1871	448	67	1587
Anvil vise attachment	A. F. Reed	520,011	May 15	1867	457	67	913
Apparatus for supporting children	J. Krant	520,929	June 5	334	81	67	1257
Arch	W. O'Brien	519,340	May 8	735	181	67	694
Arm for firing fulminated sticks	J. F. Hardesty and R. A. Sale	518,601	Apr. 24	2012	500	67	414
Arm-rest for writing purposes. Movable	J. W. Shea	520,711	May 29	3083	745	67	1169
Armature	E. Egger and F. A. Wessel	518,312	Apr. 17	1510	377	67	308
Armature-coils. Former for winding	H. L. Kirker and W. Chambers	520,143	May 22	2120	517	67	974
Armature. Electric-motor	H. P. Brown	518,562	Apr. 17	1948	481	67	387
Armature for dynamo-electric machines	H. F. T. Erben	520,773	June 5	20	5	67	1200
Armature for dynamo-electric machines	E. W. Rice, Jr.	521,671	June 19	1633	393	67	1526
Armature for dynamo-electric machines	E. Thomson	518,290	Apr. 17	1474	368	67	302
Armature for dynamo-electric machines or motors	T. H. Hicks	518,756	Apr. 24	2295	570	67	463
Armor-plate. Manufacture of	A. A. Ackerman	518,908	Apr. 24	2346	699	67	511
Ash-ejector	F. E. Kirby	522,119	June 26	2428	583	67	1690
Ash-screener	C. Eberle	519,246	May 1	557	135	67	645
Asphalt heating and mixing machine	R. Butcher	520,560	May 29	2820	681	67	1121
Atomizer	W. Eggers	519,498	May 8	1010	244	67	743
Auger. Earth-	F. L. Ream and C. F. Herbolsheimer	519,642	May 8	1275	306	67	790
Auger. Hollow	J. Swan	520,502	May 29	2725	660	67	1102
Auger. Post-hole	G. P. Smith and J. B. Bruner	517,892	Apr. 10	775	194	67	164
Autographic register	H. C. Bietto	521,081	June 5	585	137, 138	67	1302
Autographic register	W. L. Egry	518,230	Apr. 17	1374	344	67	284
Autographic register	J. A. Marsh	520,022	May 15	1887	461, 462	67	917
Automatic switch	W. H. Southworth	517,595	Apr. 3	291	68	67	57
Auxiliary heater	E. Sheppard	518,864	Apr. 24	2460	609	67	493
Awning attachment	R. Bowles	520,556	May 29	2813	679	67	1119
Awning-lifter	O. H. Thompson	519,780	May 15	1494	362	67	844
Ax	J. P. Kelly	520,738	May 29	3122	756	67	1175
Axle-box	R. Hyde	520,314	May 22	2406	585	67	1027
Axle-box	T. Lo Casto	519,403	May 8	852	206	67	715
Axle-box	T. C. Van Wyck	520,907	June 5	279	67	67	1249
Axle-box	G. W. Griffiths	518,524	Apr. 17	1886	467	67	376
Axle-box dust-guard	N. H. Davis	519,152	May 1	379	91	67	611
Axle-box dust-guard. Car-	W. H. Wright	518,385	Apr. 17	1657	409	67	335
Axle-box dust-guard. Car-	N. H. Davis	521,207	June 12	608	190	67	1357
Axle-box lid	P. N. French	522,050	June 26	2318	557	67	1670
Axle-box lid. Car-	N. H. Davis	521,231	June 12	851	199	67	1364
Axle-box lid. Car-	N. H. Davis	521,232	June 12	852	199	67	1365
Axle-box. Railway-car	U. S. Landers	518,723	Apr. 24	2240	557	67	453
Axle. Carriage-	C. H. Palmer	519,732	May 15	1420	343	67	831
Axle-lubricator	J. Olson	518,157	Apr. 10	1228	308	67	240
Axle-lubricator	G. W. Pero	520,450	May 29	2629	636	67	1086
Axle-lubricator	F. P. White	521,578	June 19	1478	346	67	1497
Axle lubricator. Car-	D. McCarthy	521,807	June 26	1876	449	67	1588
Axle lubricator. Car-	W. H. Wright	518,384	Apr. 17	1656	409	67	335
Axle. Sulky-plow	W. B. Morris	520,934	June 5	341	83	67	1259
Baby-carrier	S. Kehlenbeck	522,018	June 26	2369	544	67	1660
Baby-jumper	J. A. W. Seaberg	519,591	May 8	1186	286	67	775
Back-band hook	W. M. Hawkins	520,162	May 22	2155	525	67	980
Badge	B. S. Whitehead	521,198	June 12	793	186	67	1354
Bag: *See* Bicycle-bag. Hand-bag. Game-bag. Paper bag.							
Bag and twine holder	R. J. Morton	519,001	May 1	103	25	67	535
Bag-fastener	H. Engel	520,107	May 22	2038	497	67	960
Bag-lock	F. E. Windsor	519,598	May 8	1197	288, 289	67	777
Bag or fodder tie	G. C. Ditzler	518,879	Apr. 24	2488	617	67	499
Bagasse-furnace	W. W. Sutcliffe	517,497	Apr. 3	137	30	67	28
Bagatelle-table	W. R. Fearn	519,842	May 15	1593	389	67	863
Balls. Machine for forming wire	H. S. Reynolds	520,864	June 5	200	45	67	1233
Bait-bucket	O. M. Muncaster	521,244	June 12	871	206	67	1368
Balance. Spring-	A. Shepard	519,353	May 8	771	188	67	700
Bale-covering	M. A. Heath	518,949	May 1	22	6	67	940
Bale-covering	C. E. Mallett	518,820	Apr. 24	2401	593, 594	67	482
Bale-wires, &c. Device for untying	O. C. Frame	518,839	Apr. 24	2425	601	67	486
Baling-press	A. E. Anderson	520,762	June 5	1	1	67	1197
Baling-press	H. R. Jernigan	521,118	June 5	650	153	67	1314
Baling-press	D. J. Murphy and J. Richardson	517,930	Apr. 10	841	211	67	176
Baling-press	G. Schubert	517,936	Apr. 10	850	214	67	177
Baling-press dog or stop device	A. Schulze	521,511	June 19	1367	318	67	1477
Baling-press feed attachment	J. S. Tuttle	521,193	June 12	782	183	67	1352
Ball: *See* Billiard-ball. Time-ball. Tenpin-ball.							
Ballot-box	H. H. Niebur	518,351	Apr. 17	1592	394	67	324
Ballot-box. Registering	L. M. Foster	520,482	May 29	2688	651	67	1096
Band-cutter	W. J. Hopper	521,115	June 5	645	152	67	1313

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Band-cutter and feeder	G. D. Lamm and W. Sicard	517,754	Apr. 3	571	140, 141	67	111
Band-cutter and feeder	P. Linscheid	519,722	May 15	1403	339	67	827
Band-cutter and feeder	E. Turnell	519,279	May 1	607	147, 148	67	654
Band-cutter and feeder	W. S. Van Wechel and D. L. Wynia	519,211	May 1	491	119	67	632
Band-cutter and feeder	E. J. Vraalstad	521,195	June 12	785	184	67	1352
Band-cutter and feeder. Combined	H. Paul	518,159	Apr. 10	1231	309	67	240
Band-tightener	E. A. Oliver	519,507	May 8	1023	247	67	745
Bandage for varicose veins	A. Schütz and A. Landerer	519,894	May 15	1681	410	67	880
Banjo	J. F. Barrows	517,013	Apr. 10	814	205	67	171
Banjo	H. C. Middlebrooke	519,409	May 8	861	209	67	717
Banjo-mute	H. E. Le Valley	520,439	May 29	2614	633	67	1083
Banjo or violin tail-piece	R. H. Small	517,493	Apr. 3	133	29	67	27
Bank or money-changer. Automatic	H. F. Slocum	520,013	May 15	1870	457	67	914
Bar: *See* Pivoted tooth-bar.							
Barber's shears	E. Tolman, Jr	517,969	Apr. 10	916	229	67	188
Barrack	W. A. McHarry	522,120	June 26	2429	583	67	1691
Barrel by recoil of first. Inertia-piece, releasing second	A. Burgess	520,559	May 29	2817	680	67	1120
Barrel-head	W. C. Blundell	521,097	June 5	617	145	67	1308
Barrel. Knockdown	G. R. Lund	521,290	June 12	957	227	67	1383
Barrel-making machine	P. Little	521,319	June 12	1006	237	67	1393
Barrel or cask rack	F. A. Warner	520,098	May 22	2022	494	67	958
Barrel. Packing-	E. T. Mason	521,804	June 26	1873	448	67	1587
Barrel, &c. Closure for	H. C. Campbell	518,052	Apr. 10	1066	269	67	211
Barrels to stocks. Detachably securing	L. L. Hepburn	518,950	May 1	23	6	67	541
Bars or rods. Machine for drawing	P. M. Haas and C. S. Dutton	520,592	May 29	2874	695, 696	67	1131
Basin. Wash-	J. F. Lamping	519,287	May 1	623	152	67	638
Basket. Folding	E. M. Hudgin	518,783	Apr. 24	2337	580	67	471
Basket. Fruit-	C. Van Der Zee	520,814	June 5	106	24	67	1216
Basket. Waste-paper	E. L. Weston	518,476	Apr. 17	1809	447	67	363
Bath: *See* Electric foot-bath.							
Bath-sprinkler. Detachable	J. H. Stevens, Jr	519,879	May 15	1658	403	67	875
Bath-tub	A. G. Ward and W. C. Winfield	521,837	June 26	1923	461	67	1597
Batter-dropper	E. L. D. Hoyle	518,035	Apr. 10	1028	260	67	206
Batteries. Manufacturing active material for secondary electric	W. A. Boese	517,427	Apr. 3	10	.....	67	5
Battery: *See* Electric battery. Uterus-battery. Galvanic battery. Voltaic battery. Storage-battery. Womb-battery. Thermo-electric battery.							
Battery element. Secondary	S. A. Rosenthal and V. C. Doubleday	520,614	May 29	2906	702	67	1137
Battery grids of forced lead. Machine for making storage-	W. W. Griscom	521,791	June 26	1851	441	67	1583
Battery plate. Storage-	C. P. Elieson	519,602	May 8	1202	290	67	778
Battery plates. Forming storage-	C. Sorley and J. K. Pumpelly	521,807	June 26	2033	490	67	1619
Battery system. Storage-	J. Trumpy	519,077	May 1	238	56	67	581
Beam-framing machine	R. H. Ireland	521,654	June 19	1604	376	67	1520
Bearing. Antifriction ball-	H. La Casse	518,321	Apr. 17	1522	360	67	310
Bearing. Ball-	S. Elliott	518,139	Apr. 10	1200	301	67	235
Bearing. Ball-	J. H. Myers	521,987	June 26	2216	533	67	1651
Bearing. Ball-	M. Wogan	521,399	June 12	1147	271	67	1421
Bearing for connecting-rods. Adjustable	W. and F. Brockhausen	519,492	May 8	1001	242	67	741
Bearing for shafts of lawn-mowers	E. G. Passmore	518,468	Apr. 17	1799	445	67	361
Bearing for wheels, &c. Thrust-	J. S. Chace	518,393	Apr. 17	1665	411	67	337
Bearing. Roller-	F. Mossberg	519,868	May 15	1639	399	67	872
Bearing. Wheel ball-	S. Elliott	518,138	Apr. 10	1198	300	67	234
Bearings. Dust-guard for pedal-	H. M. Pope	520,537	May 29	2779	672	67	1112
Bed-bottom. Spring	D. Leonard	521,590	June 19	1502	352	67	1500
Bed-bottom. Spring	L. Wildermuth	519,368	May 8	792	194	67	705
Bed-brace	W. H. Parker	518,696	Apr. 24	2179	545	67	444
Bed-brace	W. H. Parker	518,697	Apr. 24	2180	545	67	444
Bed. Folding	J. P. Hayes	520,779	June 5	30	6, 7	67	1202
Bed. Folding	A. F. Robinson and A. B. Dodge	520,244	May 22	2295	557	67	1006
Bed. Folding metal	A. D. Houston	518,996	May 1	96	23	67	553
Bed. Folding metal	A. D. Houston	518,997	May 1	97	23	67	554
Bed. Invalid-	J. M. Liechty	517,928	Apr. 10	838	211	67	175
Bed. Invalid-	J. B. Scearce	520,576	May 29	2845	687	67	1125
Bed joint. Folding-	C. Bostad	520,751	May 29	3143	761	67	1179
Bed-rest	J. E. Plummer	517,623	Apr. 3	338	80	67	66
Bed. Sofa-	A. F. Conant	520,635	May 29	2939	710	67	1142
Bed. Sofa-	E. Sodergren	519,207	May 1	483	117	67	631
Bed-spring	L. Wildermuth	520,383	May 22	2526	611	67	1051
Bed-springs. Device for tightening woven-wire	E. M. Easting	517,818	Apr. 3	668	167	67	129
Bedstead	W. Goodliffe	520,733	May 29	3112	753, 754	67	1174
Bedstead	G. E. Proctor	517,482	Apr. 3	111	25	67	23
Bedstead attachment	E. Brulé	519,301	May 1	648	158	67	662
Bedstead. Cabinet or wardrobe	F. W. Nye	521,595	June 19	1510	353	67	1502
Bedstead. Wardrobe-	L. Harris and M. Jaiser	522,013	June 26	2264	542	67	1659
Beehive	F. Danzenbaker	521,876	June 26	1982	479	67	1609
Beehive	B. Taylor	519,652	May 8	1290	308	67	793
Beer, &c. Apparatus for dispensing	J. P. Day	518,137	Apr. 10	1197	300	67	234
Beer. Apparatus for pasteurizing and racking off	A. O. Müller and A. Giesen	519,193	May 1	452	111	67	624
Beer-condensing and bottle-filling apparatus	G. W. Farrell	519,888	May 15	1673	407	67	878
Beer-cooler	H. Hahn	519,708	May 15	1384	333	67	824

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Beer-pressure apparatus	R. D. Schroeder	520,224	May 22	2262	550	67	999
Beer with carbonic acid. Impregnating	J. F. Theurer	519,141	May 1	355	84, 85	67	606
Bell. Alarm-	A. H. Langdon	519,581	May 8	1169	281	67	772
Bell. Door-	J. R. Santter	518,077	Apr. 10	1100	278	67	217
Bell. Non-winding door-	W. A. Barnes	520,980	June 5	414	99	67	1272
Bell. Signal-	W. S. Adams	519,828	May 15	1571	384, 385	67	859
Bells. Protector for electric or other	L. R. Lecellier	518,613	Apr. 24	2031	505	67	417
Belt. Electric	E. M. Miles	521,594	June 19	1508	353	67	1502
Belt. Electric	P. E. Petterson	518,894	Apr. 24	2524	624	67	506
Belt-regulator. Automatic	E. Egger and F. A. Wessel	518,314	Apr. 17	1512	378	67	308
Belt-tightener	C. C. Stuart	520,580	May 29	2855	690	67	1127
Bench: *See* Washbench.							
Bench pin, guide, and knife. Combined carpenter's	J. H. Fredericks	521,234	June 12	856	201	67	1365
Bending-machine	W. J. Plecker	518,765	Apr. 24	2307	573	67	465
Berth raising or lowering mechanism	G. H. Poor	520,760	May 29	3159	765, 766	67	1182
Berth. Ship's	E. Lawson	517,462	Apr. 3	83	18	67	18
Bevel	J. T. Langlais	521,414	June 12	1171	278	67	1426
Beverage-dispensing apparatus	L. and F. Kohout	519,537	May 8	1096	263	67	759
Beverages. Apparatus for making carbonated	J. Macksey, W. Helmer, and G. E. Barton.	518,577	Apr. 17	1973	488, 489	67	391
Bicycle	A. H. Bishop	521,363	June 12	1094	257	67	1411
Bicycle	C. H. Carr	518,777	Apr. 24	2329	577	67	470
Bicycle	W. A. Courtland	520,728	May 29	3104	751, 752	67	1172
Bicycle	F. Douglas	518,591	Apr. 24	2001	496	67	412
Bicycle	C. E. Ford	519,232	May 1	565	137	67	647
Bicycle	R. J. Gatling	519,384	May 8	817	199	67	709
Bicycle	S. A. Grant	520,396	May 22	2542	614	67	1054
Bicycle	T. B. Hyde	517,697	Apr. 3	473	114	67	91
Bicycle	E. D. King	520,826	June 5	128	28	67	1220
Bicycle	H. La Casse	518,411	Apr. 17	1692	419, 420, 421	67	342
Bicycle	C. R. Mayne	520,796	June 5	68	14	67	1210
Bicycle	E. J. O'Connor	519,024	May 1	137	34	67	562
Bicycle	H. F. Sheldon	519,557	May 8	1124	270	67	763
Bicycle	C. E. Whitaker	518,338	Apr. 17	1558	387	67	317
Bicycle	C. E. Whitaker	519,855	May 15	1618	394	67	868
Bicycle. Aquatic	J. E. Ronk	520,899	June 5	266	64	67	1246
Bicycle attachment	M. E. Blood	521,132	June 5	674	159	67	1319
Bicycle-bag	B. Elliott	519,107	May 1	286	68	67	590
Bicycle-brake	E. S. Sill	519,742	May 15	1432	345	67	832
Bicycle brake mechanism	W. H. Binns	520,017	May 15	1877	459	67	915
Bicycle-canopy	L. Z. Jenkins	522,063	June 26	2335	560, 561	67	1673
Bicycle chain adjustment	M. L. Wilcox	519,056	May 1	189	45	67	573
Bicycle clamping device	L. J. Crecelius	519,667	May 8	1310	313	67	797
Bicycle-crank	F. F. Ide	518,456	Apr. 17	1777	442	67	357
Bicycle. Folding	M. B. Ryan	518,330	Apr. 17	1539	384	67	313
Bicycle-frame	L. M. Wainwright	519,783	May 15	1503	365	67	846
Bicycle-frame	G. F. Washburn	517,501	Apr. 3	146	31	67	30
Bicycle-gear	E. J. Swedlund	519,933	May 15	1739	426	67	890
Bicycle-gear case	A. M. Moore	517,959	Apr. 10	901	226	67	185
Bicycle gearing	E. L. Shultz	518,970	May 1	54	14	67	546
Bicycle-gearing. Changeable	H. L. Bailey	517,995	Apr. 10	970	242	67	195
Bicycle lock attachment	W. and S. H. Lamb, Jr	518,323	Apr. 17	1530	381	67	312
Bicycle mud-guard	R. C. Rudy	520,245	May 22	2298	558	67	1007
Bicycle-saddle	H. Bergfels	517,425	Apr. 3	5	2	67	4
Bicycle-saddle	H. Bergfels	517,538	Apr. 3	197	44	67	39
Bicycle-saddle	F. E. Weaver	521,943	June 26	2121	508	67	1636
Bicycle-stand	F. B. Mueller	518,325	Apr. 17	1534	382	67	312
Bicycle stand or holder	R. de Clairmont	519,016	May 1	124	30	67	559
Bicycle-step	E. A. Jones	519,579	May 8	1166	280	67	771
Bicycle-support	J. R. Crunkleton	518,022	Apr. 10	1010	254	67	203
Bicycle-support	W. S. Pipes and F. T. Guiber	518,698	Apr. 24	2191	545	67	444
Bicycle-wheel	B. J. Braglon	518,090	Apr. 10	1123	284	67	220
Bicycle-wheel	G. W. Smiley and F. W. Dunlap	522,090	June 26	2378	572	67	1682
Bicycles. Variable driving-gear for	S. C. Eisenhart	517,739	Apr. 3	548	132	67	106
Bill or account holder	J. F. Ridder	517,590	Apr. 3	286	66	67	56
Billets, ingots, &c. Apparatus for handling	H. Oliver and E. Scott	521,474	June 19	1298	302	67	1464
Billiard-ball	G. H. Burt	517,972	Apr. 10	919	230	67	188
Billiard-counter	W. S. Hannaford	520,987	June 5	426	102	67	1274
Billiard-cue chalker	G. Southwell	519,356	May 8	774	189	67	701
Billiard-cue lock	H. C. Hart	518,317	Apr. 17	1516	379	67	310
Billiard games. Apparatus for one-ball-	G. Gschwendtner	520,423	May 29	2589	627	67	1078
Billiard or other cues. Chalk-holder for	C. A. Knauer	518,068	Apr. 10	1090	275	67	215
Billiard-table	A. Woebs	517,715	Apr. 3	508	122, 123	67	98
Billiard-tables. Device for marking balk-lines on	S. S. Harman	518,450	Apr. 17	1767	438	67	356
Binder for leaves	G. H. Winslow	517,635	Apr. 3	363	86	67	71
Binding and harvesting machines. Sheaf-carrier for	J. Miller	521,292	June 12	960	227, 228	67	1384
Bird-trap	A. Baker	518,173	Apr. 10	1259	316, 317	67	245
Bit: *See* Boring-bit. Bridle-bit.							
Bit for cutting rosettes	E. Gollins	517,691	Apr. 3	467	112	67	90
Bit-stock	F. J. Colvin	518,938	May 1	5	2	67	537
Blank. Freight	C. P. Clark, Jr	520,353	May 22	2478	601	67	1041
Blind-stop	L. Jobin	518,368	Apr. 17	1630	402	67	331

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Block: *See* Building-block. Paving-block. Detaching-block. Pulley-block. Electrotype-block.							
Blower. Fire-	T. O. Payne	519,733	May 15	1421	343	67	831
Blower. Powder-	R. E. Warner	518,975	May 1	62	16	67	548
Blower. Pressure-	G. A. Spang	519,650	May 8	1286	308	67	792
Blowpipe. Plumber's	W. M. Murphy	518,674	Apr. 24	2144	536	67	437
Board: *See* Dry-goods board. Talking-board. Ironing-board.							
Board ripping or dividing machine	H. W. Stow	516,655	Apr. 24	2108	526, 527	67	430
Boat: *See* Life-boat. Submarine boat. Paddle-wheel boat. Torpedo-boat. Row-boat.							
Boat	C. C. Heimbaugh	520,823	June 5	124	27	67	1220
Boat-ballasting device	J. P. Pool	521,388	June 12	1128	266	67	1417
Boat-knee	A. J. Nickerson	518,677	Apr. 24	2149	537	67	438
Boiler: *See* Heating-boiler. Tubular boiler. Hot-water boiler. Vertical-flue boiler. Locomotive-boiler. Washboiler. Sectional boiler. Water-tube boiler. Steam-boiler.							
Boiler	W. H. Berry	519,015	May 1	122	29, 30	67	559
Boiler	P. B. Collier and J. H. Dignard	519,241	May 1	548	133, 134	67	643
Boiler	O. C. Davis	519,887	May 15	1672	407	67	878
Boiler	C. S. Hopkins	519,285	May 1	621	150, 151	67	657
Boiler	A. Jaeger	521,655	June 19	1606	376, 377	67	1520
Boiler	J. H. Reader	521,476	June 19	1302	304	67	1465
Boiler	H. W. Reynolds	517,826	Apr. 3	677	168, 169	67	131
Boiler and furnace	R. Müller	520,569	May 29	2835	684	67	1123
Boiler-cleaner	J. N. Barnum	520,250	May 22	2305	559	67	1008
Boiler-cleaner. Automatic	A. L. Bauhard	521,874	June 26	1980	478	67	1608
Boiler-cleaning compound	F. Berger	517,562	Apr. 3	239	.....	67	47
Boiler-covering	W. A. Scott, Jr	519,137	May 1	347	82, 83	67	605
Boiler-feed. Automatic	L. C. Springer	518,009	Apr. 10	993	248	67	200
Boiler-feed. Automatic	H. J. Weisser	521,351	June 12	1077	252	67	1407
Boiler-feeder	P. Hellmich	519,709	May 15	1385	334	67	824
Boiler-feeders. Automatic controlling device for	J. Desmond	521,644	June 19	1501	372	67	1517
Boiler-front angle-plate	G. Fox	520,674	May 29	3022	731	67	1157
Boiler-furnace	W. Brand	519,787	May 15	1512	368	67	848
Boiler-furnace and smoke-consumer	R. R. Turner	518,870	Apr. 24	2468	612	67	495
Boiler-furnace and steam-generator	A. Boyce	519,419	May 8	876	212	67	720
Boiler-furnace. Smokeless	W. S. Plummer	518,160	Apr. 10	1234	310	67	240
Boiler furnace. Steam-	A. J. Hodgson	522,059	June 26	2329	559	67	1672
Boiler furnace. Steam-	J. McMillan	519,267	May 1	584	142, 143	67	651
Boiler furnace. Steam-	O. D. Orvis	521,475	June 19	1301	303	67	1465
Boiler furnace. Steam-	O. D. Orvis	521,863	June 26	1963	474, 475	67	1605
Boiler in vertical sections	J. J. Hogan	520,885	June 5	240	55, 56, 57	67	1241
Boiler or other furnace. Steam-	D. B. Morison	518,762	Apr. 24	2303	572	67	464
Boiler-setting. Smokeless	J. W. Bates	519,658	May 8	1299	310	67	794
Boiler-spud	W. S. Shipe	517,592	Apr. 3	288	67	67	57
Boiler steam-dome	J. J. Hogan	520,883	June 5	236	54	67	1240
Boiler-tube cleaner	M. C. Henley	518,995	May 1	94	22, 23	67	553
Boiler-tube expander	H. Strecker	519,278	May 1	606	147	67	654
Boiler-tube expander and stopper	J. Watson	519,143	May 1	357	85	67	607
Boiler water-alarm. Steam-	P. A. Kirchner	521,169	June 12	736	174	67	1343
Boilers. Apparatus for inserting, finishing, and securing spuds in	W. S. Shipe	521,825	June 26	1906	457	67	1594
Boilers or pipes. Lagging for	C. Ehrlicher	517,850	Apr. 10	719	.....	67	153
Bolt: *See* Breech-bolt. Safety-bolt. Door-bolt. Self-acting bolt.							
Bolt	A. Adams	520,227	May 22	2265	551	67	1000
Bolt	W. C. North and S. W. Sessions	519,411	May 8	866	209	67	718
Bolt-clippers	H. K. Porter	520,896	June 5	262	63	67	1245
Bolt-cutter	W. L. Dutcher	517,848	Apr. 10	716	180	67	153
Bolt-cutter head	F. W. Bruch and H. P. Eilers	518,222	Apr. 17	1366	341	67	282
Bolt-head and nut finishing machine	C. E. Roberts	521,002	June 5	418	106, 107	67	1277
Bolt or rod cutter	W. March	518,615	Apr. 24	2033	506	67	418
Bolt-socket	B. Heymanson	518,405	Apr. 17	1684	417	67	341
Bolt-threading machine	C. F. Wieland	520,175	May 22	2178	530, 531	67	984
Book-backing machine	A. L. Garver	519,997	May 15	1847	451, 452	67	909
Book. Check-	R. W. Morgan	521,727	June 19	1729	411	67	1545
Book. Check, receipt, or other stub	H. Loewenbach	519,769	May 15	1475	357	67	840
Book-cover	H. K. Greble	521,539	June 19	1414	327	67	1485
Book-cover	W. Thompson	520,171	May 22	2171	529	67	983
Book-cover. Adjustable locking	M. W. Cummings and T. F. Jordan	522,152	June 26	2492	597	67	1703
Book. Duplicating cash or receipt	E. E. Garrett	521,879	June 26	1987	480	67	1610
Book. Duplicating order-	E. D. Gibbs	518,400	Apr. 17	1675	414	67	339

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Book-holder	A. A. Ambler	520,627	May 29	2924	707, 708	67	1140
Bookkeeping. System of	W. Himrod	521,882	June 26	1903	481	67	1611
Book-leaf holder	J. Meyer	519,540	May 8	1101	264	67	760
Book or paper hanger	S. F. Milliron	520,856	June 5	188	41	67	1231
Book-rack	G. W. Parker	518,573	Apr. 17	1967	4-6	67	390
Book-rest and table or stand. Combination	B. V. Fitzhugh	518,594	Apr. 24	2004	497	67	413
Book-rest for hotel-registers	C. A. Thompson and O. G. Emshiveller.	521,488	June 19	1327	309	67	1470
Book-stapling machine	E. T. Greenfield	520,734	May 29	3112	754	67	1174
Boot or shoe	S. Annenberg and E. Stahl	518,579	Apr. 24	1985	491	67	409
Boot or shoe nailing machine	F. D. Locke	520,437	May 29	2611	632	67	1082
Boot or shoe uppers. Machine for creasing	G. Knight	518,410	Apr. 17	1690	419	67	342
Boot protector. Lady's	H. J. Wescott	519,053	May 1	185	44	67	572
Boot. Soaking	M. N. Rogers	515,047	May 1	176	42	67	576
Boot-tree	J. Macdonald	522,069	June 26	2346	564	67	1675
Boot-tree	G. H. Stephens	519,877	May 15	1655	402	67	874
Boring-bit	A. A. Bourgeous	521,430	June 12	1201	285	67	1430
Boring-machine	C. W. Meggenhofen and A. S. Courtright.	518,262	Apr. 17	1426	356	67	292
Boring-machine	J. Miner	518,195	Apr. 10	1311	328	67	257
Bottle	C. Clark	521,636	June 19	1579	369	67	1515
Bottle	J. L. Friedman and J. W. Keiler	517,800	Apr. 3	641	160	67	125
Bottle	F. H. Hutchinson	518,606	Apr. 24	2021	502	67	415
Bottle	W. B. and W. H. Rand	520,219	May 22	2256	549	67	999
Bottle. Barber's	J. B. Edmunds	517,849	Apr. 10	717	181	67	153
Bottle-capping apparatus	N. B. Abbott and H. Rau	521,751	June 19	1785	423, 424	67	1554
Bottle-closing device	R. A. Wittemann	519,827	May 15	1570	384	67	859
Bottle-closure	R. Flanigan	521,788	June 26	1847	440	67	1582
Bottle. Composite	A. Dryfoos	519,601	May 8	1201	290	67	778
Bottle-holder	V. V. Bacon	517,835	Apr. 10	688	172	67	148
Bottle. Mucilage	E. Terry	519,031	May 1	182	43	67	571
Bottle. Nursing	W. M. Decker	521,773	June 19	1827	435	67	1561
Bottle or can case	J. H. Nellis	520,007	May 15	1862	455	67	912
Bottle or jar closure	R. M. Howe	518,953	May 1	26	7	67	541
Bottle-sealing and stopper-retaining device	N. B. Abbott	521,752	June 19	1787	424	67	1554
Bottle-stopper	B. Boley	521,779	June 26	1838	438	67	1580
Bottle-stopper	J. C. Grout	521,649	June 19	1598	374	67	1519
Bottle-stopper	P. M. T. Imbaud	519,910	May 15	1702	415	67	884
Bottle-stopper	G. L. Mathews	521,473	June 19	1297	302	67	1464
Bottle-stopper	C. F. Möller	517,958	Apr. 10	901	225	67	185
Bottle-stopper	C. and B. Schramm	519,777	May 15	1490	361	67	843
Bottle-stopper	W. B. Stevens	519,510	May 8	1026	248	67	746
Bottle-stopper	F. B. Thatcher	517,968	Apr. 10	915	229	67	187
Bottle-stopple	H. C. F. E. Snowman	518,081	Apr. 10	1104	279	67	217
Bottle-washer	H. La Casse	518,322	Apr. 17	1526	380, 381	67	311
Bottles, &c. Antifilling device for	E. S. Reed and A. J. Stoops	520,831	June 5	138	30	67	1222
Bottles, jars, &c. Device for closing	A. Lasch	520,854	June 5	187	41	67	1230
Bottles. Machine for removing tin-foil from	E. Rantz	518,275	Apr. 17	1448	362	67	298
Bottling-machine	M. P. Heddy	519,060	May 1	197	46, 47	67	574
Bottling-machine	R. Kolliker	518,527	Apr. 17	1892	469	67	377
Bouquet-holder	A. Mento	520,650	May 29	2960	716	67	1146
Box: *See* Advertising match-box. Axle-box. Ballot-box. Cigar-box. Cock-box. Collapsible box. Display-box. Electric-switch box. Fire-alarm box. Folding box. Fuse-box. Knockdown box. Letter-box. Mail-box. Match-box. Miter-box. Music-box. Packing-box. Paper box. Paper match-box. Powder-box. Spool-box. Stuffing-box. Twine-box. Whist-box.							
Box	T. Drummond	521,156	June 12	720	169	67	1341
Box	S. E. Hurlbut	519,578	May 8	1164	280	67	771
Box-blanks. Machine for making	T. L. Knudtson and J. Uhri	518,038	Apr. 10	1033	261, 262, 263, 264, 265	67	207
Box-blocking machine	C. Cristadoro	519,035	May 1	157	37, 38	67	566
Box-blocking machine	J. Handele	521,025	June 5	483	115	67	1284
Box-cover. Adjustable	G. W. Stoker	518,554	Apr. 17	1932	477	67	384
Box-machine	C. B. Southard	521,224	June 12	839	196, 197	67	1362
Box-nailing machine	W. S. Doig	518,002	Apr. 10	982	244, 245	67	198
Box-pile	A. H. Moore	520,487	May 29	2700	654	67	1098
Brace: *See* Gage-brace.							
Brace-and-bit gage	C. Whitus, J. W. Wilks, and N. J. Whitus.	521,997	June 26	2237	537	67	1655
Brace drill	E. E. Anthony	521,327	June 12	1020	240	67	1395
Bracket: *See* Shade-bracket. Shingle-bracket.							
Bracket	W. D. Gridley	520,564	May 29	2827	682	67	1122
Bracket and card-holder	F. J. McArdle and J. B. Furay	518,326	Apr. 17	1535	382	67	312
Braiding-machine	J. Drnek	521,019	June 5	474	113	67	1282
Braiding-machine spool-holder	W. Mundt	520,655	May 29	2966	718	67	1148

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Brake: *See* Air-brake. Bicycle-brake. Car-brake. Elevator-brake. Hay-frame brake. Pressure-brake. Sulky-brake. Train-brake. Vacuum-brake. Vehicle-brake. Wagon-brake.							
Brake apparatus. Fluid-pressure	J. K. Lencke	517,953	Apr. 10	885	221, 222	67	183
Brake-beam	C. T. Schoen	522,032	June 26	2290	548	67	1664
Brake-lever	C. A. Anderson	521,252	June 12	886	209	67	1371
Brake mechanism. Hydraulic	J. Keller	520,001	May 15	1852	453	67	910
Brake mechanism. Slack-adjusting device for	M. J. Grier	518,919	Apr. 24	2561	633	67	513
Brake slack-adjuster	W. H. Marshall	518,110	Apr. 10	1156	290	67	227
Brake-shoe	C. T. Schoen	520,930	June 5	267	64	67	1246
Branding-iron	J. L. Torrey	520,503	May 29	2726	661	67	1102
Breech-bolt	F. J. Penn and J. Deeley, Sr.	522,121	June 26	2430	584	67	1691
Brick and tile kiln	G. N. Phares	517,883	Apr. 10	761	190	67	161
Brick-kiln	C. Krahe	519,677	May 8	1326	320	67	800
Brick-kiln	F. Macarthy	518,153	Apr. 10	1220	306	67	239
Brick-kiln	G. C. Firestone	518,690	Apr. 24	2195	542	67	441
Brick-kiln. Combination	H. G. Gilbert	518,597	Apr. 24	2006	498	67	413
Brick-machine	J. D. Pace	520,023	May 15	1893	462	67	918
Brick-machine	E. G. Rankin and J. Tempest	519,590	May 8	1179	284, 285	67	774
Brick-machine	H. Stuckey	521,349	June 12	1073	251, 252	67	1407
Brick-machine mold	E. Fernholtz	518,185	Apr. 10	1278	313	67	248
Brick-machine mold	J. Leonhardt	518,461	Apr. 17	1784	443	67	358
Brick-machine plunger	J. Leonhardt	518,460	Apr. 17	1783	442	67	358
Brick-machine. Re-press	D. Brown	518,643	Apr. 24	2088	520, 521	67	427
Brick or terra-cotta house	G. E. Hagerman	521,710	June 19	1698	390	67	1539
Brick-presses. Sectional mold for	P. L. Simpson	520,455	May 29	2642	638	67	1088
Brick, tiles, &c. Making enameled	A. M. Strusholm	520,868	June 5	207	.....	67	1235
Brick-truck	D. M. Warner and C. E. Hammond	521,196	June 12	787	184	67	1353
Bricks. Manufacture of	C. B. Coxe	521,535	June 19	1407	325	67	1484
Bricks. Manufacturing porous	H. Maurer	520,266	May 22	2334	.....	67	1014
Bricks, tiles, &c. Facing	A. L. R. Van den Berghen	521,226	June 12	843	.....	67	1363
Bridge	F. H. Hopler	518,648	Apr. 24	2095	523	67	498
Bridge. Draw-	M. G. Schinke	517,809	Apr. 3	657	164, 165	67	127
Bridge-gate	B. Moore	518,111	Apr. 10	1158	291	67	227
Bridge-gate	J. Sego and C. Faucher	519,274	May 1	600	145	67	653
Bridge-shoe	G. S. Seaman	517,938	Apr. 10	852	215	67	178
Bridge-signal	J. E. Zimmerman	520,286	May 22	2366	574	67	1020
Bridle	T. Marcum	522,021	June 26	2273	545	67	1661
Bridle	J. R. McLeod	518,423	Apr. 17	1711	426	67	346
Bridle-bit	T. D. Gordon	519,112	May 1	293	70	67	591
Broiler	W. Hailes	518,243	Apr. 17	1397	350	67	288
Brooch-pin safety attachment	A. F. Bock	521,598	June 19	1514	351	67	1503
Brooder	S. Q. Duncan	518,003	Apr. 10	984	245	67	198
Broom. Corn	J. L. Stevenson	520,546	May 29	2796	675	67	1115
Broom-corn. Machine for removing stems from	P. Lamboy	520,568	May 29	2833	683, 684	67	1123
Broom-corn-sizing machine	G. F. McCombs	517,761	Apr. 3	582	143, 144	67	112
Broom-head	J. R. Gilbert	521,161	June 12	728	172	67	1342
Broom-heads. Means for attaching handles to	S. Green	520,984	June 5	421	101	67	1273
Broom-making machine	P. B. Donahoo	521,853	June 26	1947	462	67	1601
Brush	H. B. Ashton	517,994	Apr. 10	969	241	67	195
Brush	A. W. Hahn	519,948	May 15	1763	432	67	894
Brush	A. E. Magoris	520,740	May 29	3125	756	67	1176
Brush. Bath	G. W. Worden and H. Huettig	522,174	June 26	2527	606	67	1710
Brush binder. Paint	T. W. Frost	519,996	May 15	1846	451	67	909
Brush. Cleansing	G. W. Park	520,449	May 29	2628	636	67	1086
Brush. Fountain	H. Ott	520,241	May 22	2290	556	67	1005
Brush. Fountain marking	R. G. Bailey	519,223	May 1	512	124	67	637
Brush. Horse	H. L. Barney	521,078	June 5	580	136	67	1302
Brush-machine	H. Besson	521,630	June 19	1568	366, 367	67	1513
Brush. Paint	G. A. Krichbaum	517,868	Apr. 10	737	185	67	156
Brush. Revolving cleaning	W. R. Nightingale	518,352	Apr. 17	1597	395	67	325
Brush. Tooth	O. F. Hager	520,593	May 29	2677	696	67	1131
Bubbles. Composition for blowing soap	E. E. McNaughton	519,923	May 15	1721	.....	67	887
Bucket hoisting and tripping apparatus	W. E. Ludlow	519,723	May 15	1405	339, 340	67	828
Buckle	G. E. Adams	517,421	Apr. 3	1	1	67	3
Buckle	C. A. Conger	520,588	May 29	2867	694	67	1130
Buckle	C. R. Harris	519,889	May 15	1675	408	67	879
Buckle	J. A. King	518,999	May 1	100	24	67	554
Buckle	A. E. McClure	519,542	May 8	1103	264, 265	67	760
Buckle	A. E. McClure	519,543	May 8	1105	265	67	761
Buckle	A. E. McClure	519,544	May 8	1107	265	67	761
Buckle	A. E. McClure	519,545	May 8	1108	265, 266	67	761
Buckle	A. E. McClure	519,546	May 8	1110	266	67	761
Buckle	A. E. McClure	519,547	May 8	1111	266	67	761
Buckle	A. E. McClure	520,373	May 22	2511	608	67	1048
Buckle	A. E. McClure	520,374	May 22	2513	608	67	1049
Buckle	A. E. McClure	520,375	May 22	2514	609	67	1049
Buckle	A. Morris	518,113	Apr. 10	1164	292	67	228
Buckle	D. L. Smith	518,125	Apr. 10	1180	296	67	231

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Buckle	F. G. Winkfield	519,518	May 8	1066	256	67	753
Buckle-fastener	W. B. H. Dowse	520,018	May 15	1878	459	67	915
Buckle. Self clamping and locking trace	F. D. Clark	517,435	Apr. 3	90	5	67	6
Buckle. Suspender	D. L. Durand	521,084	June 5	593	140	67	1304
Buckle. Wire suspender	J. F. Molloy	517,575	Apr. 10	747	187	67	158
Buckles. Clinch-back for suspender	G. E. Adams	520,025	May 22	1899	464	67	935
Buff-wheel	W. T. Heylman	520,679	May 29	3028	733	67	1158
Buffing-wheel	T. J. Cleary	520,516	May 29	2743	664	67	1105
Buggy-top support	T. MacGlashan	521,415	June 12	1172	279	67	1426
Building	C. A. Praray	518,274	Apr. 17	1446	361	67	297
Building-block	P. A. Cuenot	520,136	May 22	2110	514	67	971
Building-block	E. Smith	518,630	Apr. 24	2062	513	67	422
Building-block and apparatus for manufacturing same	H. Behrens	522,143	June 26	2478	594	67	1700
Building. Fireproof	M. F. McCarthy	520,489	May 29	2703	655	67	1098
Bullet-mold	G. P. Riggs	521,819	June 26	1897	455	67	1592
Bundle-carrier	W. W. Burson	519,834	May 15	1580	387	67	861
Bundling-machine	W. F. Hutchinson and A. J. Tyler	518,248	Apr. 17	1402	351	67	289
Bung	N. Fuchs	518,811	Apr. 24	2389	590	67	480
Bung	M. Kragen	518,610	Apr. 24	2027	504	67	416
Bung and bushing	G. H. Merrick	520,372	May 22	2509	608	67	1048
Bung. Expansible	L. Wagner	517,781	Apr. 3	615	153	67	119
Bung-extracting machine	J. U. Kraft	519,021	May 1	133	33	67	561
Burglar-alarm	L. S. Buffington	521,151	June 12	706	165, 166	67	1338
Burglar-alarm	N. Hamlet	521,024	June 5	482	115	67	1284
Burglar-alarm	C. R. Hoopes	521,239	June 12	861	203	67	1366
Burglar-alarm	C. J. Lyons	518,614	Apr. 24	2032	506	67	417
Burglar-alarm	G. W. McLaughen and W. L. Gallant	518,532	Apr. 17	1900	470	67	379
Burglar-alarm	H. A. Moore	519,265	May 1	583	142	67	650
Burglar-alarm. Electric	J. Frame and R. B. Morden	517,450	Apr. 3	65	14	67	14
Burglar-alarm. Electric	A. Stromberg. (Reissue)	11,423	June 26	2543	611	67	1713
Burglar-alarm. Portable	S. C. Lawlor	517,869	Apr. 10	738	185	67	156
Burglar-alarm spring	M. T. Gordon	517,517	Apr. 3	214	49	67	43
Burial apparatus	A. E. Whitney	518,976	May 1	63	16	67	548
Burial-case	J. F. Hobson	521,568	June 19	1463	342	67	1494
Burial-casket	L. Stein and N. Rappleyea	518,553	Apr. 17	1930	477	67	384
Burial-casket flower-bracket	B. F. Gleason	519,426	May 8	889	215	67	722
Burner: *See* Gas-burner. Hydrocarbon-burner. Hydrocarbon injector burner. Lamp-burner. Oil-burner. Vapor-burner.							
Burner for the combustion of gas or vapor for heating purposes	H. A. and H. A. House, Jr	521,165	June 12	732	173	67	1343
Burnishing-machine	T. Gare	521,977	June 26	2191	527	67	1647
Bushing and faucet. Barrel	G. H. Merrick	520,239	May 22	2286	555	67	1004
Bushing. Barrel	A. Kuehne	518,194	Apr. 10	1310	328	67	256
Bushing. Barrel	G. H. Merrick	520,240	May 22	2289	556	67	1004
Bustle	E. Case	517,434	Apr. 3	19	4	67	6
Butter-extractor. Centrifugal	G. M. Andersson	519,691	May 15	1353	327	67	819
Butter-extractor. Centrifugal	G. M. Andersson	520,102	May 22	2027	495	67	959
Butter-extractor. Centrifugal	G. M. Andersson	520,131	May 22	2098	510	67	969
Butter-extractor. Centrifugal	A. Ponten	521,043	June 5	522	123	67	1292
Butter-mold	W. Dorsey and J. E. Brenneisen	519,495	May 8	1007	243	67	742
Butter-mold	F. W. Eggeling	520,917	June 5	303	74	67	1252
Butter. Preserving or renovating	W. N. Blakeman, Jr	520,513	May 29	2740	.....	67	1105
Butter-worker	D. J. Davis	518,588	Apr. 24	1997	494	67	411
Button	T. W. Crozier	519,068	May 8	1310	313	67	797
Button	W. S. Godfrey	519,946	May 15	1760	431	67	894
Button	J. V. Pilcher	521,042	June 5	520	123	67	1291
Button	J. V. Pilcher	521,418	June 12	1178	280	67	1427
Button	C. Radcliffe	520,897	June 5	363	63	67	1245
Button	C. E. Stowe	520,621	May 29	2915	705	67	1138
Button-attaching machine	C. E. Denton	518,182	Apr. 10	1272	320	67	247
Button-attaching machine	F. A. Ryno	517,485	Apr. 3	116	26	67	24
Button. Cuff	J. A. Flomerfelt	518,595	Apr. 24	2004	497	67	413
Button-drilling machine	G. Carlyle	520,914	June 5	208	72	67	1251
Button-drilling machine	J. Webb	522,036	June 26	2296	549, 550	67	1665
Button-fastening machine	J. C. F. Dick	517,604	Apr. 3	304	70, 71	67	60
Button-finishing machine	H. A. Berger	518,340	Apr. 17	1560	387, 388	67	317
Button-holder	W. Lerch	519,582	May 8	1171	281	67	772
Button-machine	G. Carlyle	520,913	June 5	296	72	67	1251
Button parts. Mechanism for assembling	I. G. Platt	520,999	June 5	443	106	67	1277
Button-riveting machine	F. A. Ryno	520,451	May 29	2631	636, 637	67	1086
Button. Separable	T. E. Anderson	521,776	June 26	1834	437	67	1579
Button. Separable	J. Rodriguez	520,122	May 22	2065	504	67	965
Button-setting apparatus	W. B. Merritt	517,758	Apr. 3	578	142	67	112
Button-setting machine	I. G. Platt	517,622	Apr. 3	337	79	67	66
Button-setting machine	A. G. Wilkins	518,708	Apr. 24	2203	550, 551	67	447
Buttons. Apparatus for forming pearl	G. Carlyle	522,044	June 26	2307	553, 554	67	1668
Buttons to garments. Machine for attaching	D. A. Carpenter	519,788	May 15	1513	368, 369	67	848
Buttoner. Shoe	D. H. Muir	518,619	Apr. 24	2042	508	67	419
Cabinet. Housekeeping	B. S. Wilkins	521,628	June 19	1566	366	67	1512
Cabinet. Parasol or umbrella	A. Bever	518,390	Apr. 17	1662	410	67	336
Cable-replacer	J. Z. Murphy	519,586	May 8	1174	282	67	773
Cable traction. Overhead	W. G. Berg	519,561	May 8	1130	271, 272	67	765

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Caddy. Flour	A. Palmer	518,271	Apr. 17	1442	360	67	297
Calculating-machine	J. A. Sewell	519,973	May 15	1808	443	67	902
Calculating-machine	S. R. Stallard	518,284	Apr. 17	1461	365, 366	67	300
Calculating-machines. Mechanical movement for	L. Ehrlich	520,040	May 22	1920	471	67	939
Calculating system. Electrical	H. Hollerith	518,604	Apr 24	2015	500, 501	67	414
Calculator for wages	D. L. Albert	518,438	Apr. 17	1744	433	67	352
Calipers. Watchmaker's	A. F. Brockway	520,558	May 29	2816	680	67	1120
Calking-hub with soldering nipple or ferrule	G. W. Young	519,372	May 8	798	195	67	706
Cambering-machine	H. C. Ryding	520,708	May 29	3078	744	67	1167
Camera: *See* Lamp-sketching-camera. Roll-holder camera. Roll-holding camera.							
Camera	H. Casler	517,539	Apr. 3	198	45	67	40
Camera	T. M. Clark	520,950	June 5	363	88	67	1263
Camera-shutter	L. F. Eiden	519,247	May 1	558	136	67	645
Camera-shutter	W. J. McCollom	520,696	May 29	3058	740	67	1164
Can: *See* Fruit-can. Oil-can. Self-closing can. Sheet-metal can.							
Can-crimping machine	J. W. Roberts	521,893	June 26	2014	486	67	1616
Can discharge attachment. Oil	W. Mathews	517,618	Apr. 3	328	78	67	64
Can-filling apparatus	G. H. Perkins	519,307	May 1	665	161	67	666
Can-filling machine	J. W. Kales	520,663	May 29	3033	734, 735	67	1159
Can-filling machine	A. J. Tanner	518,973	May 1	57	14, 15	67	547
Can for paint, putty, lard, &c	M. A. Marzynski	521,033	June 5	496	118	67	1286
Can-head cutting and shaping die	B. W. Morfoot	518,724	Apr. 24	2241	558	67	453
Can-heading machine	M. Jensen	518,105	Apr. 10	1148	288, 289	67	226
Can-key. Self-opening	E. Norton	517,657	Apr. 3	413	100	67	79
Can-opener	M. Dallas	521,043	June 19	1590	372	67	1517
Can-testing machine	J. B. Clot	522,107	June 26	2411	579	67	1686
Can-testing machine	W. B. Mann	521,935	June 26	2106	505, 506	67	1633
Cans, &c. Frame for carrying	P. Scholten	521,554	June 19	1438	334	67	1489
Cans. Key for opening metal	A. Kleinfeldt	517,521	Apr. 3	173	39	67	36
Cans. Manufacture of metallic preserving	A. W. Livingston	517,580	Apr. 3	269	62	67	53
Canal traction device	F. A. Pocock	521,865	June 26	1967	475	67	1605
Candle shade holder	R. W. Morgan	521,726	June 19	1728	410	67	1545
Candles. Apparatus for manufacturing hollow	L. J. B. Fournier	521,407	June 12	1161	275, 276	67	1424
Candelabrum	A. C. McKercher	518,650	Apr. 24	2097	523	67	428
Cane carriers. Apparatus for charging sugar	O. Carr	517,730	Apr. 3	528	128, 129	67	103
Cane-juice. Defecating	J. Koebig	517,820	Apr. 3	670	.....	67	130
Cane strips for splicing. Machine for scarfing ends of	H. B. Morris	517,876	Apr. 10	749	188	67	159
Cane-transferring device. Sugar	C. D. Armstrong	520,720	May 29	3093	749	67	1171
Cane-transferring device. Sugar	A. Sanchez	520,271	May 22	2342	568, 569	67	1015
Car bell-cord hanger	A. H. Marden	518,787	Apr. 24	2343	580	67	472
Car-brake	T. H. Allen	520,384	May 22	2528	611	67	1051
Car-brake	C. W. Carter	520,821	June 5	116	25, 26	67	1218
Car-brake	H. B. Cary	517,601	Apr. 3	300	69	67	59
Car-brake	G. W. Chandler and J. C. Dale	517,916	Apr. 10	820	205	67	172
Car-brake	K. G. Fieke	519,993	May 15	1842	450	67	909
Car-brake	F. E. Gilling	518,401	Apr. 17	1677	414, 415	67	339
Car-brake	J. Mayer	521,034	June 5	497	118, 119	67	1286
Car-brake	F. P. Musser	519,587	May 8	1176	283	67	773
Car-brake	P. D. Van Vradenburg	517,904	Apr. 10	799	200	67	168
Car-brake mechanism	W. Lawrence	517,871	Apr. 10	741	186	67	157
Car-buffer	W. F. Richards	520,573	May 29	2840	685, 686	67	1124
Car-buffer	W. F. Richards	520,574	May 29	2842	686	67	1125
Car-buffer	W. F. Richards	520,575	May 29	2843	686, 687	67	1125
Car-chair. Reversible	P. Little	521,120	June 5	653	153	67	1314
Car-coupling	E. N. Anderson	519,520	May 8	1068	256	67	754
Car-coupling	C. H. Andrus	522,097	June 26	2384	574	67	1683
Car-coupling	G. W. Barfield	521,094	June 5	614	145	67	1308
Car-coupling	D. L. Barnes	518,873	Apr. 24	2477	613, 614	67	497
Car-coupling	C. Bickmeier	518,910	Apr. 24	2549	630	67	511
Car-coupling	E. L. Bolles	521,631	June 19	1573	368	67	1514
Car-coupling	B. Bonnaus	519,600	May 8	1199	289	67	777
Car-coupling	D. Boyer	520,842	June 5	160	35	67	1226
Car-coupling	H. Bridge	519,231	May 1	524	126	67	639
Car-coupling	E. D. Bronner	520,765	June 5	6	2	67	1198
Car-coupling	W. Brooking	521,699	June 19	1679	394	67	1534
Car-coupling	P. C. Brown	519,300	May 1	646	158	67	662
Car-coupling	T. P. Carroll	519,696	May 15	1362	329	67	820
Car-coupling	J. Cochran, Jr	518,832	Apr. 24	2417	599	67	484
Car-coupling	F. M. Coombs	520,393	May 22	2539	613	67	1053
Car-coupling	F. M. Coombs	520,394	May 22	2540	614	67	1054
Car-coupling	J. Coup	519,105	May 1	281	67	67	589
Car-coupling	J. Coup	519,106	May 1	281	68	67	590
Car-coupling	H. Deitz	521,433	June 12	1 09	246	67	1431
Car-coupling	G. W. Dickey and T. A. Harding	519,700	May 15	1367	330	67	821
Car-coupling	R. Dinsmore	517,448	Apr. 3	62	13	67	14
Car-coupling	W. Dunlap	518,492	Apr. 17	1826	453	67	366
Car-coupling	S. J. Ford	518,140	Apr. 10	1201	301	67	235

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Car-coupling	J. D. Gooley	521,262	June 12	906	214	67	1374
Car-coupling	J. R. Hall, Jr	518,754	Apr. 24	2293	569	67	462
Car-coupling	A. R. Heath	519,575	May 8	1159	279	67	770
Car-coupling	C. W. Hinton	517,950	Apr. 10	878	220	67	181
Car-coupling	T. Johnston	519,861	May 15	1628	396	67	870
Car-coupling	E. W. Kelley	520,601	May 29	2887	698	67	1133
Car-coupling	G. Ker	520,928	June 5	333	81	67	1257
Car-coupling	J. La Burt	518,256	Apr. 17	1413	354	67	291
Car-coupling	A. La Rue	521,376	June 12	1114	263	67	1415
Car-coupling	E. J. Lahan	517,753	Apr. 3	570	140	67	110
Car-coupling	J. W. Lang	519,022	May 1	134	33	67	562
Car-coupling	R. F. Ludlow	519,724	May 15	1407	340	67	828
Car-coupling	R. F. Ludlow	519,725	May 15	1408	340	67	828
Car-coupling	W. S. Miller	520,443	May 29	2620	634	67	1084
Car-coupling	J. O. Mitchell	521,887	June 26	2002	483	67	1613
Car-coupling	S. P. Nelson	520,376	May 22	2515	609	67	1049
Car-coupling	W. C. Nelson	521,545	June 19	1421	330	67	1486
Car-coupling	D. D. Nolley	519,092	May 1	262	62	67	586
Car-coupling	J. W. Ramsey	518,355	Apr. 17	1600	396	67	326
Car-coupling	C. H. W. Relyea	518,745	Apr. 24	2279	566	67	460
Car-coupling	R. J. Reynolds and G. M. Jones	518,968	May 1	49	13	67	545
Car-coupling	J. A. Roosevelt	520,380	May 22	2520	610	67	1050
Car-coupling	A. Root	521,529	June 19	1399	323, 324	67	1482
Car-coupling	L. H. Segrest	517,666	Apr. 3	425	103	67	82
Car-coupling	T. Shea	519,480	May 8	978	236, 237	67	737
Car-coupling	C. H. Smith	519,205	May 1	476	116	67	629
Car-coupling	S. T. Smith	518,631	Apr. 24	2063	513	67	422
Car-coupling	G. Switzer	517,967	Apr. 10	913	220	67	187
Car-coupling	C. H. Taylor	517,670	Apr. 3	436	105	67	83
Car-coupling	C. A. Tower	521,092	June 5	609	144	67	1307
Car-coupling	J. W. Unruh	519,747	May 15	1437	347	67	833
Car-coupling	B. M. Whitlock	517,504	Apr. 3	149	32	67	30
Car-coupling	B. M. Whitlock	517,505	Apr. 3	150	33	67	31
Car-coupling	B. M. Whitlock	517,506	Apr. 3	152	33	67	31
Car-coupling	W. T. Wilson	521,968	June 26	2172	521	67	1644
Car-coupling	W. V. Wolcott and H. O'Hara	519,216	May 1	505	122	67	635
Car-coupling	F. H. Yinger	518,684	Apr. 24	2159	540	67	440
Car-coupling safety attachment	J. A. Markley	521,243	June 12	870	206	67	1368
Car-door	H. E. and H. E. Hoke, Jr	522,061	June 26	2332	560	67	1673
Car-door	P. T. Mooney	521,383	June 12	1123	265	67	1416
Car-door	W. L. Ransome	521,296	June 12	965	229	67	1385
Car. Dump	P. Peterson	522,026	June 26	2279	546	67	1662
Car-dumping apparatus	P. H. Hageney	519,257	May 1	572	139	67	648
Car. Electric-motor	H. P. Brown	518,221	Apr. 17	1362	339, 340, 341	67	282
Car-fender	C. P. Anderson	517,638	Apr. 3	367	87	67	71
Car-fender	C. Bersch	519,502	May 8	1131	272	67	765
Car-fender	H. G. Chatain	522,149	June 26	2488	597	67	1702
Car-fender	B. Cron and W. von Münchhausen	520,354	May 22	2479	601	67	1041
Car-fender	A. H. Jelly	519,472	May 8	968	233, 234	67	735
Car-fender	S. C. Kindig	519,128	May 1	338	80	67	603
Car-fender	M. and V. F. Maidhof	522,070	June 26	2347	564	67	1676
Car-fender	W. V. McManus	518,115	Apr. 10	1166	293	67	229
Car-fender	W. J. Rau	520,335	May 22	2448	594	67	1036
Car-fender	C. F. Thomas	518,904	Apr. 24	2538	628	67	509
Car-fender	J. Tobin	521,741	June 19	1752	416	67	1549
Car-fender	B. Tranter	518,126	Apr. 10	1181	296	67	231
Car-fender and automatic brake	W. L. Fitzhugh	517,798	Apr. 3	637	159	67	124
Car fender. Railway	J. W. T. Gilliam	520,230	May 22	2270	552, 553	67	1001
Car fender. Railway	J. W. Madden	520,739	May 29	3123	756	67	1176
Car fender. Railway	J. E. McBride	520,857	June 5	189	42	67	1231
Car-fender. Safety	F. I. Clark	520,255	May 22	2314	561	67	1009
Car-fender. Safety	F. H. Reich	521,670	June 19	1632	382	67	1526
Car-fender. Safety	G. C. Schmidt	519,648	May 8	1284	307	67	791
Car-fender. Safety	A. W. Stiefel	518,796	Apr. 24	2356	584	67	474
Car fender. Safety	H. F. Rooney	518,926	Apr. 24	2576	637	67	515
Car fender. Street	J. B. Bailey	519,803	May 15	1534	374	67	852
Car fender. Street-railway	E. J. Smith	517,894	Apr. 10	779	195	67	164
Car fender. Street-railway	F. S. Hogg	518 571	Apr. 17	1965	485	67	390
Car fender. Tram	S. J. Rosenfeld	521,672	June 19	1614	383	67	1526
Car fender. Tram	J. J. McClimont and P. Marron	521,036	June 5	501	119	67	1287
Car. Freight	C. F. Langell	518,528	Apr. 17	1894	469	67	378
Car grain-door. Box	G. Boehm	522,003	June 26	2247	539	67	1656
Car-guard	G. W. Rodgers	519,644	May 8	1279	307	67	791
Car-heater	J. J. Beals	522,009	June 26	2395	576	67	1684
Car life-guard	J. Campbell	519,402	May 8	851	206	67	715
Car life-guard. Street	C. R. Arnold	520,403	May 29	2559	619	67	1073
Car lighting or heating system	W. Biddle and P. Kennedy	517,598	Apr. 10	976	243	67	196
Car-lighting system. Electric	C. Zimmerman	518,477	Apr. 17	1609	448	67	363
Car. Mail or express	J. C. Henry	521,651	June 19	1600	374, 375	67	1519
Car motor. Electric-railway	C. E. Emery	519,469	May 8	961	232	67	734
Car-motor. Electrohydraulic	J. B. Krause and R. H. Crosby	521,503	June 19	1352	314	67	1475
Car or locomotive fender	R. A. Crawford	521,307	June 12	987	233	67	1389
Car pilot or guard	J. Krehbiel	519,066	May 1	219	51, 52	67	578
Car-platform gate	A. H. Jelly	519,714	May 15	1391	336	67	825
Car provided with fenders	O. G. Cates, Jr	517,517	Apr. 3	166	37	67	34
Car. Railway	C. M. Jennings	521,087	June 5	509	141	67	1305
Car-roof	W. H. Daniell	518,752	Apr. 24	2290	569	67	462
Car running-gear							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Car safety appliance. Street-railway	O. R. Routh	521,477	June 19	1303	304	67	1466
Car safety attachment. Street	H. A. Howe	520,233	May 22	2274	553, 554	67	1002
Car safety-guard	J. W. Betz	522,100	June 26	2397	576	67	1685
Car safety-guard	A. Soffel	521,966	June 26	2169	520	67	1643
Car safety-guard. Freight	M. Fitzsimmons	517,519	Apr. 3	169	38	67	35
Car safety-guard. Street	S. Norton	519,046	May 1	174	42	67	570
Car safety-guard. Street	S. Norton and W. H. Rice	521,294	June 12	962	228	67	1384
Car. Safety railway	C. R. McManis	518,854	Apr. 24	2447	606	67	490
Car sand-boxes. Electric heater for	J. M. Christopher	520,253	May 22	2310	560	67	1009
Car-sanding device	I. Mowder	519,818	May 15	1555	381	67	856
Car-seat	P. Little	521,121	June 5	654	154	67	1315
Car-seat locking and turning apparatus	J. S. Winsor	519,370	May 8	794	194, 195	67	705
Car-seat. Reversible	R. H. Weatherly	522,173	June 26	2526	606	67	1710
Car-standard	A. Johnson	520,434	May 29	2608	631	67	1082
Car starter and brake	R. Clegg	520,134	May 22	2106	512, 513, 514	67	971
Car starter and brake	C. H. O. Leverkus	518,371	Apr. 17	1635	403	67	331
Car switch-actuator. Street	F. Sparling	518,972	May 1	56	14	67	547
Car. Ventilated freight	W. T. Cottier	517,794	Apr. 3	632	158	67	123
Car-ventilating device	C. B. Hutchins	521,617	June 19	1548	382	67	1509
Car-ventilator	G. A. Boyden	518,220	Apr. 17	1360	339	67	282
Car-wheel	L. J. Hirt	521,587	June 19	1498	351	67	1500
Car-wheel fender	S. A. Breen	518,642	Apr. 24	2087	520	67	426
Car-wheel-grinding machine	W. P. Barclay	518,730	Apr. 24	2254	560, 561	67	455
Car-wheel guard or fender	J. F Morton	519,289	May 1	626	152, 153	67	658
Car-wheels. Apparatus for manufacturing	J. Parkinson, Sr	522,084	June 26	2371	570	67	1680
Car-wheels. Making	W. A. Pearson	521,321	June 12	1011	238	67	1394
Car-wheels. Manufacturing	A. J. Fisher	521,787	June 26	1846	440	67	1582
Cars at intersecting points. Transferring cable	J. Kratz	520,364	May 22	2499	605	67	1046
Cars. Controller for electric-railway	W. H. Knight	518,254	Apr. 17	1410	353	67	290
Cars. Curtain-rod fixture for sleeping	J. Kirby, Jr	518,958	May 1	34	9	67	542
Cars. Electrical propulsion of railway	J. J. Heilmann	519,674	May 8	1317	316, 317	67	798
Cars. Flexible belt-fender for street-railway	R. B. Chambers	522,147	June 26	2485	596	67	1702
Cars. Lumber-jack for railway	C. D. Clarke	521,100	June 5	622	146	67	1309
Cars. Means for suspending electric motors from	R. Lundell	522,067	June 26	2342	562, 563	67	1675
Cars. Safety appliance for street-railway	F. W. Jenkins	521,981	June 26	2296	530	67	1650
Cars. Safety-wrench for unloading	T. Nicholson, Jr	518,533	Apr. 17	1901	470	67	379
Cars. Shipping rack and frame for	W. R. Phillips	520,270	May 22	2340	567, 568	67	1015
Cars. Wheel-fender and safety attachment for street	F. H. Homan	522,115	June 26	2421	581, 582	67	1689
Carbon switch	F. von Hefner-Alteneck	520,263	May 22	2329	565	67	1012
Card-table	J. O'Meara	517,931	Apr. 10	542	211	67	176
Cards, pictures, &c. Support for	S. Dalsheimer and A. Greenleaf	517,444	Apr. 3	54	12	67	12
Carding-engine	J. C. Potter	519,640	May 8	1272	305, 306	67	789
Carding-engines. Apparatus for controlling the grinding of flats of	J. E. Prest	519,771	May 15	1478	358, 359	67	841
Carding-engines. Machine for applying card-cloth-ing to flats of	R. W. Hunton	520,186	May 22	2197	535	67	988
Carding-machines, &c. Coiler for	H. McDermott	518,675	Apr. 24	2144	536	67	437
Carpet-fastener	P. Ceovich	521,534	June 19	1406	325	67	1483
Carpet-fastener	J. A. and C. F. Korb	518,193	Apr. 10	1309	328	67	256
Carpet-stretcher	W. Hover	520,736	May 29	3120	755	67	1175
Carpet-sweeper	S. H. Raymond	518,210	Apr. 10	1336	333	67	261
Carriage	W. M. Ward	520,746	May 29	3134	758, 759	67	1177
Carriage. Baby	M. L. Barr	517,598	Apr. 3	296	69	67	58
Carriage. Baby	O. Thielemann	520,622	May 29	2916	705	67	1139
Carriage. Child's	H. I. Humphrey	522,117	June 26	2426	582	67	1690
Carriage-top	J. P. Johnson	520,433	May 29	2607	631	67	1082
Carriage-top	E. A Sommerfruechte	518,746	Apr. 24	2280	566	67	460
Cartridge. Practice	G. D. R. Aikin	517,719	Apr. 3	515	125	67	100
Carving-machines. Frame for supporting patterns and material for	C. S. Yarnell	519,752	May 15	1444	349	67	835
Case:							
See Bottle or can case. Letter-case. Cigar-case. Measure-case. Collar and cuff case. Packing or holding case. Egg-case. Preserving-case. Egg-preserving case. Shipping-case. Knockdown case.							
Case or cabinet	J. F. Ohmer	517,477	Apr. 3	103	23	67	22
Cash and parcel carrier	D. M. Skinner	518,201	Apr. 10	1323	330	67	259
Cash-delivering device	S. E. Fish	519,449	May 8	921	222	67	728
Cash-drawer and manual recorder	E. H. Minnigh	518,264	Apr. 17	1428	357, 358	67	294
Cash-receipts-recording apparatus	C. Gottschalk	521,790	June 26	1850	441	67	1582
Cash-register	T. Carroll	521,332	June 12	1027	241, 242, 243	67	1397
Cash-register	J. P. Cleal	521,638	June 19	1583	370	67	1516
Cash-register	G. F. Cook	519,567	May 8	1141	274, 275	67	767
Cash-register	R. M. Hunter	521,931	June 26	2097	504	67	1630
Cash-register	H. M. Neer	518,692	Apr. 24	2517	622, 623	67	504

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cash-register	C. G. Smyth	521,678	June 19	1648	386	67	1528
Cash-register	R. P. Thompson	521,558	June 19	1441	335	67	1490
Cash-register	R. P. Thompson	521,967	June 26	2170	521	67	1643
Cash register and indicator	T. Carroll	521,334	June 12	1043	245	67	1400
Cash register and indicator	L. Ehrlich	520,672	May 29	3011	728, 729, 730	67	1155
Cash register and indicator	M. Heintz	520,049	May 22	1934	474, 475	67	941
Cash register and indicator	W. Lang	520,853	June 5	182	39, 40, 41	67	1230
Cash register and indicator	W. T. McGraw	519,922	May 15	1718	422	67	887
Cash register, indicator, and recorder	H. Cook	518,344	Apr. 17	1567	389, 390	67	318
Cash register, indicator, and recorder	W. T. McGraw	518,267	Apr. 17	1435	359	67	294
Cash-register. Total-adding	T. Carroll	521,333	June 12	1031	243, 244, 245	67	1397
Cask	T. G. Stevens and J. Baker	518,537	Apr. 17	1908	472	67	380
Cask-pitching apparatus	C. Bernrenther	517,515	Apr. 3	163	36	67	33
Cask-rolling machine	L. P. K. Heyligenstaedt	520,205	May 22	2230	542	67	994
Casket-handle. Detachable	L. H. Bannister	520,015	May 15	1874	458	67	914
Casket-handle. Detachable	L. H. Bannister	520,016	May 15	1876	458	67	914
Casket-lining	F. S. Pinkham	521,419	June 12	1179	280	67	1427
Casket-pedestal	E. E. Fisher	521,211	June 12	814	191	67	1358
Casket-trimming table	T. B. Hennessy	517,976	Apr. 10	925	231, 232	67	189
Caster. Trunk	G. Crouch	518,094	Apr. 10	1132	285	67	223
Casting sand molds	S. J. Adams	521,521	June 19	1385	321	67	1480
Castings. Manufacturing steel	S. P. Hutchinson	520,056	May 22	1948	.....	67	943
Catamenial sack	E. C. Hornor	520,113	May 22	2050	501	67	963
Cattle-guard. Electric	D. H. Wilson	520,510	May 29	2735	662, 663	67	1104
Ceiling. Metallic	E. Armstrong	521,696	June 19	1676	393	67	1534
Ceiling. Metallic	C. C. Moore	518,464	Apr. 17	1792	444	67	360
Ceiling or wainscoting board	J. A. Hensel	517,521	Apr. 3	171	39, 94	67	25
Cell-case blanks. Machine for cutting out	F. D. Maltby	517,651	Apr. 3	394	95, 96	67	76
Cellulose. Plastic compound of	C. F. Cross, E. J. Bevan, and C. Beadle.	520,770	June 5	17	.....	67	1199
Centerboard. Adjustably-weighted	F. W. Brewster	521,494	June 19	1340	311	67	1472
Centerboard. Boat	J. Couch	518,364	Apr. 17	1624	400	67	329
Centering-tool	F. B. Covel	521,206	June 12	807	189	67	1356
Centrifugal machine	H. E. Smith	519,975	May 15	1811	444	67	903
Cereals. Preparing	W. Onderdonk	517,479	Apr. 3	107	24	67	23
Chain	R. A. Breul	518,484	Apr. 17	1817	450	67	364
Chain. Drive	J. Appleby	521,007	June 5	457	108, 109	67	1279
Chain. Drive	T. Corscaden	518,307	Apr. 17	1496	374	67	306
Chain. Drive	H. S. Hart	520,231	May 22	2272	553	67	1001
Chain-making machine	R. G. Barnes, H. D. Pomeroy, and E. W. Keyes.	518,441	Apr. 17	1740	434, 435	67	353
Chain mortising-machine	J. H. Hall and D. Parry	518,646	Apr. 24	2092	522	67	427
Chain-wrench	J. H. Vinton	522,136	June 26	2464	591	67	1697
Chair: *See* Car-chair; Child's or invalid's chair; Convertible chair; Dental chair; Folding chair; High chair; Invalid-chair; Knockdown chair; Reclining-chair; Revolving chair; Surgical chair.							
Chair-bottom	C. Singer	522,089	June 26	2377	572	67	1682
Chair foot-rest attachment	D. S. Clark	518,644	Apr. 24	2090	521	67	427
Chair-seat	R. L. Bent	518,339	Apr. 17	1559	387	67	317
Chalk-sharpener	G. Hay	517,922	Apr. 10	829	208	67	174
Chalking apparatus. Line	C. E. Anderson	517,720	Apr. 3	515	125	67	100
Chalking device. Line	S. R. Miller	520,998	June 5	442	105	67	1277
Channeling-machine	H. H. Arnold	520,132	May 22	2102	510	67	970
Chart. Geocentric astronomical	A. H. Molesworth	521,725	June 19	1726	410	67	1544
Chart-hanger	W. S. Cranmer	519,407	May 8	959	232	67	734
Check-hook	P. F. Cavalier	518,937	May 1	5	1	67	537
Checkrein-loop	M. J. Clark	519,991	May 15	1840	449	67	908
Checkrein-support	J. Carter	521,015	June 5	470	112	67	1281
Chenille. Manufacturing	E. Cattlow	520,400	May 22	2547	615	67	1055
Cherry-stoner	J. W. Brown, Jr	521,011	June 5	466	111	67	1280
Cheese-forming machine	H. R. Van Eyck	519,209	May 1	487	118	67	631
Cheese-holder	L. C. Hiller and W. R. Mackay	521,612	June 19	1541	361	67	1508
Cheese. Machine for molding Neufchâtel	J. B. Pecht	518,625	Apr. 24	2050	510	67	420
Cheese or orange holder	L. C. Hiller	521,613	June 19	1542	361	67	1508
Chest. Tool	J. L. Waggoner and W. T. Carmichael.	518,296	Apr. 17	1480	370	67	303
Child's or invalid's chair	L. A. Chichester	519,443	May 8	913	220	67	727
Chimney-cowl	H. F. A. Faulhaber and C. F. Koch	518,398	Apr. 17	1672	413	67	338
Chimney-cowl	J. A. Hodel	519,954	May 15	1771	434	67	896
Chimney-regulator	J. Frerichs	517,919	Apr. 10	825	207	67	173
Chimney top and ventilator	J. T. Finch	517,797	Apr. 3	636	159	67	123
Chimneys. Apparatus for the construction of	H. C. Rowell	521,820	June 26	1899	456	67	1592
Chlorin gas. Process of and apparatus for absorbing	P. J. Worsley, W. Windus, and B. Bracey.	521,629	June 19	1567	366	67	1513
Chlorin. Making	W. Donald	518,445	Apr. 17	1759	436	67	355
Chlorin. Making	W. Donald	518,446	Apr. 17	1761	436, 437	67	355

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Chopper: *See* Cotton-chopper.							
Chopping-knife	F. H. Rundell	518,279	Apr. 17	1453	363	67	299
Chuck. Drill	R. J. Holland	519,454	May 8	929	224	67	730
Chuck. Drill-grinding-machine	J. S. Bancroft	520,749	May 29	3141	760	67	1178
Chuck. Engraver's	H. Gruner	520,778	June 5	29	6	67	1202
Chuck. Engraver's	F. Mink	520,797	June 5	69	14, 15	67	1210
Chuck. Lathe	S. Coons and E. O. Rogers	518,136	Apr. 10	1195	300	67	234
Churn	J. P. Bolding	520,724	May 29	3098	750	67	1172
Churn	O. C. Byler	517,431	Apr. 3	15	3, 4	67	5
Churn	G. W. Crabb	520,561	May 29	2824	682	67	1121
Churn	J. H. H. Duncan	517,817	Apr. 3	667	167	67	129
Churn	W. T. Smallwood	520,087	May 22	2008	491	67	955
Churn	W. H. Thomas	519,740	May 15	1435	346	67	893
Churn	R. E. Van Court	521,104	June 12	784	183	67	1352
Churn attachment	J. M. Hughes	520,566	May 29	2831	683	67	1122
Churn-dasher	J. W. Ricker	521,920	June 26	2073	498	67	1626
Churn-motor	F. Elliott	521,282	June 12	937	222	67	1380
Chute. Ash	L. Bofird and J. Blackman	521,599	June 19	1515	354	67	1503
Chute. Coal	J. Scully	521,052	June 5	538	126	67	1294
Chute. Coal-wagon	P. Seibert	518,121	Apr. 10	1175	294	67	230
Chute regulator. Coal	J. F. Schmadeke	518,653	Apr. 24	2103	525	67	429
Cigar-box	L. Rosenfeld	519,204	May 1	475	115	67	629
Cigar-bunching machine	F. J. Hagen	520,881	June 5	226	51	67	1239
Cigar-case	C. N. Swift	520,092	May 22	2014	492	67	956
Cigar-holder	F. D. Van Wickel	522,092	June 26	2481	573	67	1682
Cigar-lighter	E. T. Turney	520,095	May 22	2017	493	67	957
Cigar-lighter. Electric	D. Misell	520,445	May 29	2622	635	67	1085
Cigar-moistening device	C. M. Garfield	520,141	May 22	2118	516	67	973
Cigar-package	S. Philipson	521,041	June 5	520	123	67	1291
Cigar-piercer	J. W. Miller	522,076	June 26	2359	567	67	1678
Cigar-press	C. Schüpple and C. Hübeler	519,163	May 1	402	97	67	615
Cigar-stump receptacle	A. Scholz	518,827	Apr. 24	2410	596	67	483
Cigar-tip cutter	A. A. Hopkins	519,332	May 8	719	177	67	690
Cigar-tip cutter	A. P. Thompson	520,461	May 29	2654	641	67	1090
Cigar-tip cutter and dice-throwing apparatus	R. and E. Rabiger	518,469	Apr. 17	1800	445	67	361
Cigar-vending machine	A. H. Randall, Jr	520,243	May 22	2293	556, 557	67	1006
Cigarette-machine	L. L. Maxfield	518,261	Apr. 17	1420	335, 356	67	292
Cigarette-making machine	H. F. M. Lemaire	520,530	May 29	2769	670	67	1110
Cigarette-making machine	J. R. Williams	521,749	June 19	1768	419, 420, 421, 422, 423	67	1551
Cigarette selecting and boxing machine	J. N. Wood	522,139	June 26	2467	592, 593	67	1698
Cigarette-wrapper holder	J. R. Hernandez	521,026	June 5	485	115	67	1284
Circuit-closer	G. W. Hey	520,427	May 29	2595	628	67	1079
Circuit-maker	D. F. Hall	522,055	June 26	2825	558	67	1671
Circuit-maker	J. Weaver	517,502	Apr. 3	147	32	67	30
Circuit-switch	E. E. Hersh, B. F. Woodward, and J. W. Pettee.	518,188	Apr. 10	1282	325	67	249
Cistern	T. J. Shearer	521,869	June 26	1974	477	67	1607
Cistern-cleaning machine	J. Shepherd	519,074	May 1	234	55	67	581
Clamp: *See* Cutter-blade clamp; Hose-clamp; Plow-iron clamp; Railway-rail clamp; Saw-clamp; Scaffold-clamp.							
Clamp	W. Kline	521,658	June 19	1613	378	67	1522
Clamp	W. Yeager and B. E. Westlin	521,872	June 26	1977	477	67	1608
Clasp: *See* Garment-supporter clasp; Veil-clasp.							
Clasp	P. James	518,956	May 1	32	9	67	542
Clay articles. Glaze for	B. Frey	517,609	Apr. 3	312	.....	67	61
Clay pigeons. Machine for manufacturing	W. G. Jones	519,127	May 1	332	78, 79	67	602
Clay-product machines. Die or mold for	W. W. Wallace	519,801	May 15	1530	373	67	851
Clay-working mill	G. S. Tiffany	518,636	Apr. 24	2074	516, 517	67	424
Cleaner: *See* Comb-cleaner; Grain-cleaner; Seed-cleaner; Spring-jack cleaner.							
Cleat	J. C. Steelman	521,056	June 5	542	127	67	1295
Cleat. Ceiling	H. P. Ball	518,214	Apr. 17	1350	337	67	279
Cleat. Ceiling	H. C. Wirt	518,301	Apr. 17	1488	372	67	305
Clevis	S. E. Bricker	518,486	Apr. 17	1818	450	67	365
Clevis	W. B. Hull	520,110	May 22	2045	500	67	962
Clip	F. C. Atherton	520,553	May 29	2809	678	67	1118
Clip for letters, accounts, &c	E. Keller	518,252	Apr. 17	1409	353	67	290
Clip, &c., for mail-bag and other straps	R. D. S. Tyler	518,681	Apr. 24	2154	539	67	439
Clipper. Hair	J. K. Priest. (Reissue)	11,411	Apr. 10	1340	334	67	262
Clock	J. Smith	517,594	Apr. 3	290	67	67	57
Clock-case	E. P. Baird	520,979	June 5	413	99	67	1272
Clock-case	A. Bannatyne	520,628	May 29	2927	708	67	1140
Clock. Electric alarm	J. S. Whitehead	521,065	June 5	560	131	67	1298
Clock. Electric alarm	N. F. Whitney	521,840	June 26	1927	462, 463	67	1597
Clock. Electric tower	C. D. Warner	518,337	Apr. 17	1555	386	67	316
Clock. Electrically-illuminated	D. Misell	520,446	May 29	2623	635	67	1085
Clock striking apparatus	C. D. Brown	517,838	Apr. 10	696	176	67	150
Clock striking mechanism. Electric	F. L. Gregory	520,184	May 22	2191	534	67	987
Clock striking mechanism. Electric	C. D. Warner	520,585	May 29	2861	692	67	1129

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Clock synchronizer. Electric	H. S. Prentiss	517,460	Apr. 3	109	24, 25	67	23
Clock-winding mechanism. Electric	A. E. Vidal and G. Hervieu	521,396	June 12	1140	269, 270	67	1419
Clocks. Gravity-escapement for	H. Conant	519,421	May 8	880	213	67	721
Clod crusher and pulverizer	H. J. Nelson and N. M. Nielsen	520,799	June 5	75	16	67	1211
Closet: *See* Dry closet. Water-closet.							
Cloth-cutting machine	P. Howe	520,598	May 29	2883	697	67	1133
Cloth-cutting machine	N. Rubenstein	521,003	June 5	450	107	67	1278
Cloth-folding machine	W. A. Richardson	519,073	May 1	231	54	67	580
Cloth, paper, &c. Machine for cutting, folding, and piling	F. Meisel	517,653	Apr. 3	400	96, 97, 98	67	77
Cloth sizing and drying machine	R. Partington	519,200	May 1	465	114	67	627
Clothes-drier	C. F. Casper and T. S. Darling	519,378	May 8	808	197	67	707
Clothes-drier	R. Douglas and J. F. Austin	519,178	May 1	429	105	67	620
Clothes-drier	E. B. Gildersleeve	521,368	June 12	1100	238	67	1412
Clothes-drier	E. S. Sutton	520,501	May 29	2724	660	67	1102
Clothes-drier	H. Betka	521,971	June 26	2177	523	67	1645
Clothes-line fastener	C. S. Buckwalter	519,526	May 8	1076	257	67	755
Clothes-line fastener	C. G. Nordin and F. Lindstrom	518,621	Apr. 24	2044	508	67	419
Clothes-line support	B. M. Ersley	518,397	Apr. 17	1671	413	67	338
Clothes-line swinging support	S. German	519,998	May 15	1849	452	67	910
Clothes-pin	T. J. Gordon	520,957	June 5	373	91	67	1265
Clothes-pin	C. Wheeler, Jr	517,785	Apr. 3	621	155	67	121
Clothes-wringer	C. F. and W. Lewis	518,412	Apr. 17	1697	421	67	343
Clothes-wringer and wash-tub. Combined	W. E. Ayers	518,480	Apr. 17	1812	448	67	364
Clover-feeder	M. T. Reeves and J. N. Kailor	521,347	June 12	1069	250	67	1406
Clover-huller feeder	S. P. Babcock	519,899	May 15	1686	411	67	881
Clutch	M. Campbell	520,949	June 5	361	88	67	1263
Clutch	E. L. Jones	520,528	May 29	2766	669	67	1110
Clutch	M. F. McMahon and T. F. Carver	520,447	May 29	2624	635	67	1085
Clutch	C. Sinning	518,865	Apr. 24	2462	610	67	493
Clutch	T. J. Thorp	521,059	June 5	551	129	67	1296
Clutch. Adjustable friction	G. H. Smith	521,677	June 19	1647	385, 386	67	1528
Clutch. Automatic stop	A. C. Campbell	519,173	May 1	420	102	67	618
Clutch. Friction	A. Harvey	520,109	May 22	2044	499	67	961
Clutch. Friction	T. A. Hayes	519,951	May 15	1767	433	67	895
Clutch. Machinery	W. D. Butz	518,051	Apr. 10	1064	269	67	210
Clutch. Pneumatic	J. F. Byers	517,679	Apr. 3	446	108	67	86
Clutch. Rope	D. W. Orcutt	520,570	May 29	2636	685	67	1123
Coach. Invalid's	R. R. Bennett	518,831	Apr. 24	2416	598, 599	67	484
Coal-conveyer	H. L. Carstein	520,133	May 22	2104	511, 512	67	971
Coal-cutting machine	A. Greenwood	521,263	June 12	907	214	67	1374
Coal-drill	G. H. Bittenbender	519,466	May 8	957	232	67	734
Coal-drill	J. W. Shallenberger	518,703	Apr. 24	2195	548	67	446
Coal-dust-firing apparatus	C. Wegener	519,784	May 15	1504	365, 366	67	846
Coal elevators. Self-dumping mechanism for	A. Walker	517,782	Apr. 3	616	153, 154	67	120
Coal-separator	W. H. Herring	520,524	May 29	2758	668	67	1108
Coat and hat hook	F. Taylor. (Reissue)	11,416	Apr. 24	2600	643	67	519
Cock box. Stop	T. J. Ryan	520,542	May 29	2786	673, 674	67	1114
Cock. Gage	G. Binder	517,426	Apr. 3	7	2	67	4
Cock. Gas-burner	G. A. Ries	518,536	Apr. 17	1907	472	67	380
Cock. Safety gas	G. W. Cini and G. Maiwald	518,091	Apr. 10	1124	284	67	221
Cock. Train-pipe stop	J. O'Leary	517,707	Apr. 3	496	119	67	96
Cocks automatically. Machine for grinding	C. M. Jarvis	521,980	June 26	2200	529, 530	67	1649
Coffee-drying apparatus	R. P. Hocking	521,859	June 26	1957	472, 473	67	1603
Coffee-mill	O. Leinbrock	517,614	Apr. 3	323	76	67	63
Coffee-pot	W. A. Barrington	519,657	May 8	1298	310	67	794
Coffee-pot	J. S. Dunlap	520,039	May 22	1919	470	67	938
Coffee-pot	C. H. Huxford	519,020	May 1	132	33	67	561
Coffee pot and filter	R. Rahr	521,509	June 19	1364	.....	67	1477
Coffee substitutes. Making	C. D. Shrader	519,649	May 8	1285	307	67	792
Coffin attachment	L. G. Krege	519,678	May 8	1328	321	67	800
Coffin-handle	H. Lemp	519,335	May 8	724	178	67	691
Coil. Reactive	C. H. Jacot	518,720	Apr. 24	2235	556	67	453
Coin-controlled apparatus	W. M. Ducker	519,701	May 15	1369	330	67	821
Coin-controlled machine	W. T. Lewis (Reissue)	11,415	Apr. 17	1982	490	67	393
Coin-controlled machine	H. A. Manley	520,931	June 5	337	82	67	1258
Coin-controlled mechanism	F. W. Nall	518,676	Apr. 24	2146	537	67	438
Coin counter and deliverer	P. G. Wagner	520,623	May 29	2917	705, 706	67	1139
Coin discharging and delivering device	J. P. Cleal	521,637	June 19	1580	369, 370	67	1515
Coin-displayer	C. C. Clawson	517,840	Apr. 10	698	177	67	150
Coin-receiving apparatus	H. A. Hayden	518,948	May 1	21	6	67	940
Coin-tray	A. Orth	518,270	Apr. 17	1442	360	67	296
Collapsible box	L. D. Dozier. (Reissue)	11,421	June 5	697	163	67	1322
Collar and cuff case. Traveler's combined	P. K. Coover	520,413	May 29	2571	622	67	1076
Collar. Horse	J. Mullen	519,585	May 8	1174	282	67	773
Collar. Horse	R. M. Hunter	520,825	June 5	196	27	67	1220
Collar or cuff	A. F. Dunavan	519,381	May 8	812	198	67	708
Collar-shaping apparatus. Horse	A. C. Vail	521,061	June 5	554	129	67	1297
Collars. Device for shaping folds of linen	N. Poulson	521,320	June 12	1009	237	67	1393
Column	R. Gray	520,047	May 22	1932	474	67	941
Column or pile. Metallic	H. Fisher	520,731	May 29	3109	753	67	1173
Comb-cleaner	G. W. Richardson	520,613	May 29	2905	701	67	1137
Commutator	J. C. Fyfe	522,052	June 26	2380	557	67	1670
Commutator	C. Hoffmann	520,264	May 22	2331	566	67	1013
Commutator-brush	G. W. Brown	518,913	Apr. 24	2352	631	67	511
Commutator-brush	R. Kersberg	519,188	May 1	446	109	67	623
Compass. Beam	W. B. Hunter	517,696	Apr. 3	472	114	67	91
Compensator	W. Daves	518,488	Apr. 17	1820	451	67	365
Composition of matter	J. Matthews	521,382	June 12	1122	.....	67	1416
Composition of matter	W. M. Pope	521,177	June 12	757	.....	67	1347
Compression-joint	C. S. Bavier	519,805	May 15	1539	376	67	853
Compressor or vacuum pump	E. N. Trump and J. E. Sweet	517,903	Apr. 10	796	200, 201	67	167
Concentrating-machine	I. Besly	519,316	May 8	686	168	67	684
Concentrator	A. H. Rapp	520,939	June 5	347	84	67	1260
Concentrator	C. Wallace	522,172	June 26	2523	605, 606	67	1709
Concrete-molding appliance	A. Rau	518,076	Apr. 10	1099	278	67	217
Concrete monuments. Method of and apparatus for making	N. C. Cameron	521,929	June 26	2094	503	67	1630
Condenser	C. S. Cox	521,783	June 26	1842	439	67	1581
Condenser	S. W. Johnson	521,373	June 12	1110	262	67	1414
Condenser	E. H. Wardwell	521,838	June 26	1925	461	67	1597
Condenser	J. M. Westerlin	519,654	May 8	1293	309	67	793
Condenser	J. B. McCurdy	518,421	Apr. 17	1709	425	67	345
Condenser and feed-water heater. Combined surface	S. W. Johnson	521,469	June 19	1291	301	67	1463
Condenser. Surface	E. W. Mohroff and C. W. Dobelin	518,196	Apr. 10	1312	329	67	257
Conductor-hook	F. W. Fix	518,059	Apr. 10	1073	371, 372	67	212
Confections. Machine for molding	P. L. Youngren	517,637	Apr. 3	365	86, 87	67	71
Continuous kiln	C. M. Allen	519,219	May 1	508	123	67	636
Converter	C. M. Allen	519,220	May 1	509	123	67	636
Converter	C. W. Stickney	517,939	Apr. 10	852	215	67	178
Converter for smelting ores	C. M. Allen	519,218	May 1	507	122, 123	67	635
Convertible chair	L. A. Chichester	517,946	Apr. 10	865	218	67	180
Convertible chair	C. N. Wonson and D. W. Palmer	520,284	May 22	2361	573, 574	67	1019
Conveying and automatically delivering small articles. Apparatus for	A. Müller	520,006	May 15	1860	454, 455	67	912
Cooker	M. Finklestein	520,305	May 22	2392	581	67	1025
Cooking device	G. Kelsey	519,580	May 8	1167	281	67	772
Cooking device. Steam	G. Yinger	520,470	May 29	2668	645	67	1092
Cooking food over lamp-chimneys. Utensil for	A. N. Ayres	517,561	Apr. 3	238	55	67	47
Cooler: *See* Beer-cooler. Wine-cooler. Milk-cooler.							
Cooler	W. Linter	521,119	June 5	652	153	67	1314
Cooler for cinder-notches	S. R. Fellows	518,495	Apr. 17	1830	454	67	367
Coop and hawk-trap. Combined chicken	W. S. Irwin	521,266	June 12	912	215	67	1375
Coop. Folding poultry	I. T. Carter	521,781	June 26	1841	438	67	1580
Copper from its ores. Extracting	G. W. Goetz	519,111	May 1	291	.....	67	591
Copy-guide	W. Duchemin	519,762	May 15	1461	354	67	838
Copy-holder	J. E. Bucklin	521,633	June 19	1576	368	67	1514
Copy-holder	R. H. Ross	518,652	Apr. 24	2101	524, 525	67	429
Copy-holder	R. Sheldon	519,048	May 1	177	42	67	570
Copying manuscripts, &c. Device for	J. W. Cleland	518,586	Apr. 24	1994	493	67	410
Core-attracting solenoid	W. R. Michl	521,269	June 12	916	217	67	1376
Core. Casting	O. C. Little	519,538	May 8	1097	263	67	759
Core-making machine	C. R. Schmidt	519,006	May 1	109	26, 27	67	556
Cork-compressor	S. Wile and H. La Casse	520,625	May 29	2920	706, 707	67	1139
Cork-cutting machine	F. C. Truslow	520,744	May 29	3129	757, 758	67	1177
Cork-feeder	S. Wile and H. La Casse	520,550	May 29	2800	676, 677	67	1116
Cork-shell-cutting machine	A. L. Mitchell	520,605	May 29	2894	699	67	1134
Corkscrew	E. Becker	518,018	Apr. 10	1004	252	67	202
Corkscrew	F. H. La Pierre	518,005	Apr. 10	987	246	67	199
Corn cutting and shocking machine	A. B. Robinson	518,551	Apr. 17	1927	476	67	384
Corn-husker	J. P. Schurkens	519,929	May 15	1722	424	67	888
Corn-popper	L. R. Hiffner	519,404	May 8	853	206, 207	67	715
Corn-popping machine	W. B. Donathen	518,664	Apr. 24	2125	532	67	433
Corn separator, husker, and fodder-slitter	C. H. Taylor	518,358	Apr. 17	1604	397	67	326
Corn-shocks. Device for loading	G. W. Collins	518,487	Apr. 17	1819	450	67	365
Cornstalk-shocking mechanism	J. W. Ogle	521,088	June 5	600	142	67	1305
Corn-stubble cutter	S. L. Mason	517,458	Apr. 3	75	16	67	17
Cot and wardrobe. Combined	S. C. Hopkins	522,183	June 26	2539	610	67	1712
Cot. Folding	T. Sands	520,285	May 22	2364	574	67	1019
Cotton. Apparatus for the treatment of	F. Zedler	517,570	Apr. 3	253	59	67	49
Cotton-chopper	W. H. J. Goodwin	520,888	June 5	247	58	67	1242
Cotton-chopper	G. W. Murray	517,979	Apr. 10	930	233	67	190
Cotton. Combined elevator, cleaner, distributer, and feeder for seed	T. E. Littlefield	517,980	Apr. 10	932	233, 234	67	190
Cotton. Combined elevator, cleaner, distributer, and feeder for seed	T. E. Littlefield	521,159	June 12	724	171	67	1341
Cotton-elevating apparatus. Seed	F. Garraux	517,937	Apr. 10	850	214	67	178
Cotton-gin breast	A. Schulze	521,676	June 19	1642	385	67	1527
Cotton-handling apparatus. Governor for seed	A. Schulze	518,315	Apr. 17	1513	378, 379	67	309
Cotton. Machine for handling and cleaning seed	W. E. Elam	520,832	June 5	140	30, 31	67	1223
Cotton-opener and stopping mechanism therefor	W. Richardson and J. Fidler						

Alphabetical list of inventions, April to June, inclusive—Continued.

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cotton-opener dust-trunk	T. R. Marsden	519,457	May 8	931	225	67	730
Cotton-openers, &c. Evening mechanism for	J. C. Potter	520,334	May 22	2447	594	67	1035
Cotton-press	W. T. Bessonette. (Reissue)	11,422	June 19	1830	436	67	1562
Cotton-press	F. L. White	519,054	May 1	186	44	67	572
Cotton-press	S. J. Williams	518,709	Apr. 24	2207	551	67	448
Cotton-stalk-breaking machine	Y. Grimland and J. J. Ringness	522,159	June 26	2503	601	67	1705
Couch. Folding	N. Shulerud	517,891	Apr. 10	774	193	67	164
Couch. Swinging	J. Keller	518,547	Apr. 17	1922	475	67	382
Counters, bars, &c. Combined arm-rest and guard for	W. C. Huss. (Reissue)	11,414	Apr. 17	1981	490	67	393
Coupling: *See* Car-coupling. Pipe-coupling. Flagstaff-coupling. Shaft-coupling. Hose-coupling. Thill-coupling. Locomotive-coupling.							
Cover. Dinner-pail	H. E. Dunham	519,809	May 15	1544	377	67	854
Cover for butter-receptacles, &c	H. C. Carter	521,634	June 19	1577	368	67	1514
Cover for frying-pans, &c	M. E. Radick	517,708	Apr. 3	497	119	67	96
Cover. Milk-jar	C. N. Wilcox	521,841	June 26	1929	463	67	1598
Cowl	C. W. J. Martens	520,368	May 22	2504	606	67	1047
Cracker and making same	M. B. Manwaring	518,891	Apr. 24	2515	.....	67	504
Cracker-cutter	L. A. Rockwell and W. A. Hull	519,293	May 1	635	155	67	660
Crane. Charging-	T. R., Sr., and W. H. Morgan	520,488	May 29	2701	654	67	1098
Crank. Variable	C. H. Davids	520,157	May 22	2147	523	67	979
Crate	H. Allen	519,222	May 1	511	124	67	636
Crate. Berry-	P. A. and R. S. Wimbrow and H. P. Dale.	517,713	Apr. 3	506	121	67	98
Crate. Folding	A. W. Coats	521,640	June 19	1585	371	67	1516
Crate. Shipping-	G. W. Worden	521,354	June 12	1089	254	67	1408
Creamer. Centrifugal	J. Mélotte and W. Reuther	521,722	June 19	1721	407	67	1543
Creamer. Centrifugal	O. Ohlsson	519,070	May 1	225	53	67	579
Cremation-furnace	S. W. Dixon	517,810	Apr. 3	665	166	67	129
Crib. Folding	S. C. Neal	520,699	May 29	3066	742	67	1165
Crib or bed. Child's	A. W. Crossley	518,180	Apr. 10	1269	320	67	247
Crimping-machine	S. W. Jamison	518,349	Apr. 17	1405	352	67	290
Crimping-machine	C. Wagner	520,097	May 22	2021	493	67	957
Cross-tie. Metallic	A. G. Budington	517,915	Apr. 10	818	205	67	172
Crusher: *See* Clod-crusher. Rock-crusher. Ore-crusher. Stone and ore crusher.							
Cuff-blank-turning machine	G. E. Norris	520,535	May 29	2775	671	67	1112
Cuff-holder	W. W. Anderson	520,552	May 29	2807	677	67	1118
Culinary vessel	M. S. Tracy	517,673	Apr. 3	440	106	67	84
Cultivator	N. W. Falor	521,340	June 12	1062	248	67	1404
Cultivator	T. J. McBride	517,962	Apr. 10	908	227	67	186
Cultivator	J. Schauman	521,272	June 12	919	218	67	1377
Cultivator	G. L. Whiting	518,683	Apr. 24	2157	539	67	440
Cultivator and drill. Combined drag-bar	W. Hull	517,925	Apr. 10	835	210	67	175
Cultivator and marker	G. W. Murray	517,961	Apr. 10	906	226 / 227	67	186
Cultivator and planter	J. E. Miller	519,044	May 1	173	41	67	569
Cultivator attachment	J. Meier	519,408	May 8	860	208	67	717
Cultivator. Lister-	F. P. Craig	518,940	May 1	8	2	67	538
Cultivator. Lister-	S. D. Poole	521,547	June 19	1424	331	67	1487
Cultivator or seed-planter	L. Kirlin	520,002	May 15	1854	453	67	911
Cultivator-shovels. Device for attaching	S. D. Poole	521,549	June 19	1427	331	67	1487
Cultivator. Straddle-row wheel-	J. I. Hoke	519,631	May 8	1255	302	67	787
Cultivator. Wheel-	S. D. Poole	521,548	June 19	1425	331	67	1487
Cup: *See* Disinfectant-cup.							
Cup and base-piece. Combined	H. R. T. Coffin	519,529	May 8	1083	259	67	756
Cup, funnel, and stopper securer. Combined	A. C. McAlpin	518,530	Apr. 17	1897	470	67	378
Cupola-furnace	J. Blakeney	518,482	Apr. 17	1814	449	67	364
Curb and pavement	P. W. Reardon	520,220	May 22	2258	549	67	999
Curling-iron	C. F. Snyder	520,903	June 5	272	65	67	1247
Curling-iron	C. F. Snyder	520,904	June 5	273	66	67	1247
Curling-iron	G. L. Thompson	519,653	May 8	1291	309	67	793
Curling-iron holder	M. A. Sheldon	522,033	June 26	2291	548	67	1664
Current circuits. Apparatus for neutralizing the effect of self-induction in alternating-	J. F. Kelly and C. C. Chesney	518,738	Apr. 24	2271	564	67	458
Current machines. Controller for alternating-	E. B. V. Seaverns	521,867	June 26	1970	476	67	1606
Current motor. Alternating-	O. Offrell	520,800	June 5	76	16, 17	67	1211
Current motor. Alternating-	W. Stanley, Jr	520,620	May 29	2913	704	67	1138
Current motor. Multiphase-	L. Bell	520,763	June 5	4	1	67	1197
Current motor. Universal-phase alternate-	T. Duncan	518,310	Apr. 17	1499	375 / 376	67	307
Current motors. Method of and means for starting alternating-	L. Bell	520,764	June 5	5	2	67	1197
Current regulator. Alternating-	O. Offrell	521,666	June 19	1626	381	67	1524
Current transformer. Alternating-	C. S. Bradley	519,376	May 8	805	196	67	707
Currents. Economizing the energy of alternating	C. F. Scott	520,970	June 5	390	95	67	1268
Curtain-fixture	J. H. Fitzgerald and M. A. Gaugh	518,918	Apr. 24	2560	633	67	513
Curtain-fixture	C. E. Goodrich	517,453	Apr. 3	68	15	67	15
Curtain-fixture	I. Williams	518,977	May 1	64	16, 17	67	548
Curtain guide and stop	G. C. Sawade	519,647	May 8	1283	307	67	791
Curtain-holding device	O. Anderson	522,176	June 26	2530	607	67	1711
Curtain-rod	W. H. Edsall	519,840	May 15	1560	389	67	863
Curtain-rod. Adjustable	W. A. Turner	520,584	May 29	2860	692	67	1128
Curtain-roller	F. and C. Otto	520,008	May 15	1863	456	67	912
Curtain-stretcher	R. J. Bartley	521,200	June 12	795	187	67	1354
Curtain-stretcher	P. M. Hartpence	517,694	Apr. 3	470	113	67	90
Curtains, &c. Adjustable rack for stretching lace	C. L. Kuehn	520,690	May 29	3046	737	67	1162
Cuspidor-holder	C. E. Kellogg	518,107	Apr. 10	1153	289	67	227
Cuspidor. Invalid's	J. S. Ross	520,967	June 5	386	94	67	1268

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cut-off. Rain-water	W. C. Hilliker	520,484	May 29	2694	652	67	1097
Cut-out and cord-adjuster. Combined	E. D. Knap	520,318	May 22	2414	587	67	1029
Cut-out. Automatic electromagnetic	L. T. Stanley	521,423	June 12	1187	282	67	1428
Cut-out meter	C. D. Haskins	518,244	Apr. 17	1399	350	67	288
Cutter: *See* Band-cutter. Potato-cutter. Bolt-cutter. Root-cutter. Bolt or rod cutter. Rotary cutter. Cigar-tip cutter. Splint-cutter. Corn-stubble cutter. Stalk-cutter. Cracker-cutter. Thrashing-machine band-cutter. Heel cutter. Meat-cutter. Tobacco-cutter. Paper-cutter. Vegetable-cutter.							
Cutter-blade clamp	W. R. Fee	520,260	May 22	2323	563 / 564	67	1011
Cutter-head. Rotary	G. C. Goodyear	520,046	May 22	1931	473	67	941
Cutter-heads. Power attachment for side	C. C. Stuart	520,581	May 29	2856	691	67	1128
Cutter. Knockdown	J. K. Fisher	517,855	Apr. 10	721	182	67	154
Cutting-machine	P. E. Wilson and P. M. Hesch, Jr	518,978	May 1	67	17	67	548
Cutting-off tool	E. W. Gourd	519,183	May 1	438	107	67	622
Cutting-rolls	J. A. Hess	518,647	Apr. 24	2094	522	67	428
Cycle-canopy and support	W. T. Jordan	521,619	June 19	1551	392	67	1500
Cycle-driving mechanism	F. L. Eager	520,638	May 29	2943	711	67	1143
Cycle-support. Automatic	R. B. Chambers	518,914	Apr. 24	2553	631	67	511
Dairy. Portable	J. H. McIlveen	519,266	May 1	583	142	67	650
Damper	J. W. Anderson	517,993	Apr. 10	966	241	67	195
Damper	W. E. Patchin	520,495	May 29	2713	657	67	1100
Damper	E. Webster	521,531	June 19	2340	580	67	1483
Damper. Pipe-	L. T. Lenderking	518,785	Apr. 24	2340	580	67	472
Damper. Stovepipe-	M. Redlinger and C. Morgan	520,379	May 22	2519	609	67	1050
Darning and embroidering frame	G. P. Hill	519,258	May 1	574	139 / 140	67	649
Dashboard and fender. Vehicle	A. F. Blease	520,388	May 22	2532	612	67	1052
Dating and stamp-canceling machine	J. J. B. McElrath	520,698	May 29	3063	741 / 742	67	1165
Decorticating ramie, &c. Machine for	P. A. Favier	520,983	June 5	417	100	67	1272
Deflector. Light-	D. E. Hawkins	518,503	Apr. 17	1451	459	67	370
Dental appliance	Z. Hand	520,357	May 22	2484	602	67	1042
Dental chair	A. W. Browne	519,756	May 15	1452	351 / 352	67	836
Dental chair	A. W. Browne	519,757	May 15	1455	352 / 353	67	837
Dental chair	A. W. Browne	519,758	May 15	1457	353	67	837
Dental chair	A. W. Browne	519,883	May 15	1664	405	67	876
Dental chair	A. W. Browne	519,884	May 15	1666	405	67	877
Dental chair	A. W. Browne	520,947	June 5	359	87	67	1262
Dental chair	A. W. Browne	520,948	June 5	360	88	67	1263
Dental chair	A. W. Browne	521,256	June 12	896	211 / 212	67	1372
Dental chair	A. W. Browne	521,257	June 12	898	212	67	1373
Dental chair	T. H. and E. Gardner	519,109	May 1	288	68, 69	67	590
Dental chair	J. Hood and S. H. Reynolds	518,887	Apr. 24	2511	621	67	503
Dental disk-carrier	G. B. Richmond	518,701	Apr. 24	2192	548	67	445
Dental engine	R. G. Stanbrough	520,667	June 5	206	46	67	1215
Dental engines. Electric motor for	W. A. Crowdus	521,138	June 5	684	160 / 161	67	1320
Dental handpiece	S. H. Brooks	518,175	Apr. 10	1202	318	67	246
Dental plate	T. H. Graham	521,930	June 26	2097	503	67	1630
Derrick	W. R. Close	518,225	Apr. 17	1369	342	67	253
Derrick	W. E. Whitcomb	519,364	May 8	787	192	67	704
Derrick. Floating	T. T. H. Harwood	520,676	May 29	3024	731 / 732	67	1158
Desk. Adjustable	L. Atzert	519,655	May 8	1295	309	67	793
Desk. Adjustable	M. A. Wertheimer	517,633	Apr. 3	358	85	67	70
Desk and seat. School	C. T. Ammon	520,026	May 22	1900	464	67	935
Desk and seat. School	A. J. Palmberg	520,702	May 29	3070	743	67	1166
Desk and type-writer cabinet. Combined	A. B. Dick	518,778	Apr. 24	2329	578	67	470
Desk support and hinge. Combined	F. W. Tobey	520,462	May 29	2655	642	67	1090
Desk. Wall-	J. F. Figgins	518,567	Apr. 17	1959	483	67	389
Detaching-block	G. W. Moore	521,293	June 12	961	228	67	1384
Diamond. Glazier's	P. Sinsz	520,247	May 22	2301	558	67	1007
Dice-throwing device	C. S. Grove	518,316	Apr. 17	1515	379	67	309
Die: *See* Sole-cutting die.							
Die for shaping metal press-wheels	A. J. Green	518,668	Apr. 24	2135	534	67	435
Die-stock	J. E. Fahy	518,808	Apr. 24	2382	589	67	478
Die stock or holder	W. D. Putnam	519,734	May 15	1422	343	67	831
Digger: *See* Potato-digger.							
Direct-acting engine	P. Chouteau	520,915	June 5	299	73	67	1252
Dish. Butter-	R. Hill	519,125	May 1	329	78	67	601
Dish-cleaner	F. Noble	519,091	May 1	259	61, 62	67	586
Dish-cleaner	C. Palmleaf	520,829	June 5	135	29	67	1222
Dish-cleaner	F. H. West	518,298	Apr. 17	1481	370 / 371	67	304
Dish-cover	T. York	519,417	May 8	874	211	67	720
Dish-drainer	M. Reid	519,736	May 15	1425	344	67	831
Disinfectant-cup	W. L. Gerard	519,811	May 15	1546	378	67	854
Disinfecting apparatus	R. A. Rosenblatt	520,540	May 29	2782	673	67	1113
Disinfecting apparatus	J. L. Stratton and F. Murdock. (Reissue.)	11,418	May 1	676	165	67	668
Disinfecting water-closets, &c. Sanitary arrangement for automatically	S. A. Johnson	521,411	June 12	1166	277	67	1425
Disintegrator	N. Stedman	518,010	Apr. 10	994	248	67	200

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Disintegrator	N. Stedman	518,011	Apr. 10	995	248, 249	67	200
Disk. Indexed	A. J. Wills	520,100	May 22	2024	494	67	958
Dispatch-tube system	W. G. Collins	518,093	Apr. 10	1127	285	67	221
Display-box	N. Schroder	521,050	June 5	533	125	67	1294
Display device. Automatic	B. J. Smith	519,483	May 8	983	237, 238	67	738
Display-rack	S. P. Denison	518,098	Apr. 10	1136	286	67	223
Display-rack	O. Magenau	517,873	Apr. 10	744	187	67	158
Display-rack. Rotary	F. A. Jewett	518,526	Apr. 17	1891	468, 469	67	377
Display-rack. Wall-paper	C. M. and H. B. Patterson	522,085	June 26	2372	571	67	1681
Displaying chains. Tray for	W. Stiefelhagen	520,943	June 5	354	86	67	1202
Distilling apparatus	A. Lavy	519,087	May 1	254	60	67	584
Distilling water. Method of and apparatus for	H. F. Hodges and D. J. Havenstrite	520,525	May 29	2759	668	67	1108
Ditching-machine	L. A. Stanford	517,774	Apr. 3	604	148, 149	67	117
Diving apparatus	J. and G. Day and J. Jenkins	521,208	June 12	809	190	67	1357
Door	R. Weidauer	520,174	May 22	2176	530	67	984
Door and hinge	W. Vaughan, Jr	521,772	June 19	1895	435	67	1561
Door-bolt	A. Angus	517,512	Apr. 3	159	35	67	32
Door bolt. Double-	W. Johnston	519,687	May 8	1348	325	67	803
Door-check	T. Curley	520,637	May 29	2941	711	67	1143
Door-check	J. Suter	522,091	June 26	2379	572, 573	67	1682
Door-check. Pneumatic	J. W. Ring	521,182	June 12	764	178, 179	67	1348
Door-check. Pneumatic	J. W. Wetmore	521,747	June 19	1763	418	67	1551
Door-fastener	G. F. McCombs	521,037	June 5	502	120	67	1287
Door. Flexible	H. N. H. Lugrin	520,065	May 22	1964	480	67	946
Door. Flexible	A. S. Spaulding	520,089	May 22	2011	491	67	955
Door. Grain-	I. V. Kelly	522,019	June 26	2270	544	67	1660
Door-hanger	M. C. Richards	518,976	Apr. 17	1449	362, 363	67	298
Door-hanger wheel	J. A. Trimble	521,225	June 12	842	197	67	1363
Door-indicator	H. B. Diamond	519,699	May 15	1365	330	67	821
Door lock. Sliding-	A. Dillenback	520,415	May 29	2573	622	67	1076
Door-securer	F. J. Smith	521,870	June 26	1974	477	67	1607
Door-spring	J. L. Wilson	520,282	May 22	2359	572	67	1018
Door-stop	W. M. Coats	518,343	Apr. 17	1566	389	67	318
Doors. Electric releasing device for	S. H. Curwen	518,877	Apr. 24	2485	616, 617	67	498
Doors, &c. Track or carrier for	G. E. Witt	520,199	May 22	2221	540	67	992
Doubling webs of fabric longitudinally. Machine for	S. G. Goss	517,693	Apr. 3	469	113	67	90
Dough-cutting machine	E. Dewerth	521,140	June 5	689	161	67	1321
Dough-raising apparatus	J. Boudry	521,972	June 26	2178	523	67	1645
Dough-shaping machine	F. Dührkop	518,942	May 1	13	3	67	539
Dovetailing-machine	W. McPherson	518,824	Apr. 24	2405	595, 596	67	482
Draft-beam fastening	J. A. Markley	521,803	June 26	1871	448	67	1587
Draft-equalizer	S. I. Larkins	520,322	May 22	2420	589	67	1030
Draft-equalizer	B. M. Le Grande	519,768	May 15	1473	357	67	840
Drainage system	P. Scanlon	520,146	May 22	2125	519	67	975
Draw-bar	M. M. Suppes	520,090	May 22	2012	491	67	955
Drawing-frame. Electric stop-motion	E. and S. Tweedale and J. Smalley	517,778	Apr. 3	610	151	67	118
Dredge-bucket	A. W. Robinson	519,551	May 8	1115	267	67	762
Dredger	L. W. Bates	521,580	June 19	1480	346, 347	67	1497
Dredgers. Hopper and valve for hopper-	A. G. Lyster	520,210	May 22	2240	545	67	995
Dress-goods rack	R. C. Parsons	520,494	May 29	2712	657	67	1100
Dress-protector	O. H. Still	518,378	Apr. 17	1648	407	67	334
Dresses for protecting bands of flowers. Attachment for ladies'	F. M. Fletcher	517,568	Apr. 3	251	58	67	49
Drier: *See* Clothes-drier. Fiber-drier. Letter-drier. Lumber-drier.							
Drier	A. Blatchly	519,694	May 15	1358	328, 329	67	820
Drill: *See* Brace-drill. Coal-drill. Grain-drill. Rock-drill.							
Drill for wells, &c	C. E. Wyman	519,012	May 1	118	28, 29	67	558
Drills. Die for the manufacture of twist-	J. C. Taft	518,205	Apr. 10	1328	332	67	260
Drilling-machine	J. and R. Böhm	518,803	Apr. 24	2371	587	67	476
Drilling-machine	J. W. Brown, Jr	518,176	Apr. 10	1264	318	67	246
Drilling-machine	A. Goddard	520,142	May 22	2118	517	67	973
Drilling-machine. Portable	W. J. McGehe	520,118	May 22	2056	503	67	964
Drilling-swivel. Ball-bearing	W. W. Swan	521,942	June 26	2119	508	67	1635
Driving mechanism	P. Ashberry and W. Barnes	519,313	May 8	682	166	67	683
Drop-press	G. W. Peck	518,353	Apr. 17	1598	395	67	325
Drum	C. Koeth	519,914	May 15	1707	416, 417	67	885
Drum snare device	E. A. Longee	521,379	June 12	1119	264	67	1416
Dry closet or commode	J. L. Marvin	518,616	Apr. 24	2034	506	67	418
Dry-goods board	G. Tetrean	518,379	Apr. 17	1649	407	67	334
Dry-kiln for pottery	J. C. Titus	520,669	June 5	208	47	67	1235
Drying-chambers. Apparatus for hanging webs in folds in	W. Mather and J. Christie	518,508	Apr. 17	1859	461	67	372
Drying-kiln	A. and P. Kimball	517,700	Apr. 3	480	115	67	92
Drying-kiln	C. H. Seaman	519,138	May 1	349	83	67	605
Dust-arrester	H. A. Hueffner and L. Lash	519,958	May 15	1777	435, 436	67	898
Dust-collector	E. R. Draver	521,604	June 19	1523	356, 357	67	1504
Dust-pan	M. Côte	521,949	June 26	2141	512	67	1639

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Dust-pan	L. A. Powers	518,273	Apr. 17	1445	361	67	297
Dust-pan	J. Reniker	521,044	June 5	524	123	67	1292
Duster	E. Nation	521,174	June 12	752	177	67	1347
Dye. Blue	K. Krekeler and P. Krais	518,458	Apr. 17	1779	.....	67	358
Dye. Blue	M. Moeller	521,985	June 26	2215	.....	67	1651
Dye. Blue	M. Moeller	521,986	June 26	2215	.....	67	1651
Dye. Blue	O. Naatvogel and F. Reingruber	517,473	Apr. 3	98	.....	67	21
Dye. Blue	J. Schmid and J. Bachelut	519,971	May 15	1804	.....	67	902
Dye. Blue	R. Bohn	519,220	May 1	520	.....	67	638
Dye. Blue alizarin	H. A. Frasch	519,036	May 1	159	.....	67	567
Dye. Brown petroleum	H. A. Frasch	518,991	May 1	88	.....	67	552
Dye. Brown petroleum nitro	H. A. Frasch	518,992	May 1	90	.....	67	552
Dye. Petroleum	J. J. Brack	519,522	May 8	1070	.....	67	754
Dye. Polyazo yellow	J. J. Brack	519,523	May 8	1072	.....	67	754
Dye. Polyazo yellowish	H. A. Bernthsen and P. Julius	521,095	June 5	615	.....	67	1308
Dye. Substantive blue	H. A. Bernthsen and P. Julius	521,096	June 5	616	.....	67	1308
Dye. Substantive violet	A. Dréze	518,228	Apr. 17	1372	344	67	284
Dyeing apparatus	J. Reflitt	521,816	June 26	1891	453	67	1591
Dyeing apparatus	A. Weinberg	517,533	Apr. 3	190	.....	67	38
Dyeing by the aid of paramidodiphenylamin	G. H. Craven	519,323	May 8	704	173, 174	67	687
Dyeing-machine	J. F. Kelly	518,740	Apr. 24	2273	564	67	459
Dynamo. Alternating-current	W. H. Elkins	519,858	May 15	1623	395	67	869
Dynamo. Constant-current	W. Biddle and P. Kennedy	517,997	Apr. 10	975	242	67	196
Dynamos to car-axles. Connecting	J. A. Cross	517,439	Apr. 3	29	7	67	8
Dynamometer	M. F. Robeson	519,874	May 15	1651	402	67	874
Ear for buckets, &c	G. H. Tilford and A. F. Bennett	521,192	June 12	781	183	67	1352
Ear-jewels. Attachment for holding	C. Jung	520,785	June 5	42	10	67	1205
Ear-protector	N. W. Boch	520,294	May 22	2376	577	67	1022
Earthenware vessels. Die for the manufacture of	G. Faint	518,544	Apr. 17	1919	474	67	992
Easel	T. C. Keller	520,893	June 5	433	104	67	1275
Eaves-trough	F. E. Albro	521,357	June 12	1086	255	67	1409
Eaves-trough hanger	H. A. Berger	521,523	June 19	1390	322	67	1480
Eaves-trough hanger	G. W. Teufel	519,798	May 15	1527	372	67	851
Ecraseur	A. Bechmann	521,360	June 12	1090	256	67	1410
Educational appliance	T. F. W. Schmidt	518,899	Apr. 24	2530	625	67	507
Egg-case	J. R. Oliver	518,893	Apr. 24	2523	623	67	506
Egg-crate	E. H. Layman	517,463	Apr. 3	85	18	67	18
Egg-preserving apparatus	J. H. Bowley	520,252	May 22	2309	560	67	1009
Egg-preserving case	F. F. Bischoff	518,341	Apr. 17	1562	388	67	318
Egg-tray	F. M. Underwood	520,549	May 29	2780	676	67	1116
Eggs. Compound for and method of preserving	J. A. Rosenberg and J. Hurst	519,552	May 8	1116	268	67	762
Ejector and mainspring mechanism	N. Power	519,618	May 8	1232	296	67	783
Ejector. Fluid-	J. H. McGowan	519,738	May 15	1413	341	67	829
Ejector. Water-	H. B. Wyman	519,739	May 15	1412	341	67	829
Elastic fabric	A. J. Smith	519,482	May 8	981	237	67	737
Electric accumulator or secondary battery	D. Higham	520,232	May 22	2272	553	67	1001
Electric-arc-lighting system	W. W. Burnham	520,033	May 22	1911	468	67	937
Electric battery	F. Dubero and P. Mohrdieck	521,260	June 12	903	213	67	1374
Electric battery	S. H. Hoggson	520,429	May 29	2603	630	67	1081
Electric battery	H. F. Waite	520,908	June 5	280	67, 68	67	1249
Electric-circuit regulator	H. B. Wyman	518,907	Apr. 24	2545	629	67	510
Electric circuits. Cleat for supporting conducting-wires for	E. R. Knowles and E. H. Park	520,788	June 5	47	10, 11, 12	67	1205
Electric circuits. Stand for controlling	D. E. Conner	518,939	May 1	6	2	67	538
Electric conductor for underground conduits	J. J. Wood	520,129	May 22	2091	508, 509	67	967
Electric-current indicator	J. W. T. Olán	518,534	Apr. 17	1902	471	67	379
Electric-current recorder	A. G. Waterhouse	518,359	Apr. 17	1609	398	67	327
Electric-current regulator	C. S. Bradley	519,377	May 8	806	196, 197	67	707
Electric currents of high potential. Generating and utilizing	A. G. Waterhouse	518,360	Apr. 17	1612	398	67	327
Electric currents. Regulating	F. E. Heilman	519,117	May 1	305	72, 73	67	594
Electric elevator	W. D. Lutz	520,794	June 5	57	13	67	1207
Electric elevator	F. P. Shanafelt	518,122	Apr. 10	1176	295	67	250
Electric fountain	W. Baxter, Jr	519,280	May 1	608	148	67	654
Electric generator	A. Schmid and B. G. Lamme	519,098	May 1	271	64	67	568
Electric generator. Self-exciting constant-potential	S. B Jenkins	519,043	May 1	172	41	67	569
Electric heater	W. E. Garey	519,945	May 15	1758	431	67	893
Electric indicator	W. H. Connell	518,713	Apr. 24	2223	553, 554	67	450
Electric-light support	W. F. Bradner	517,812	Apr. 3	661	165	67	126
Electric lights. System for controlling	P. Wright	521,924	June 26	2079	499	67	1627
Electric-lighting system. Transformer	J. Eldon	518,607	Apr. 24	2134	534	67	435
Electric lock	R. J. Merker	518,463	Apr. 17	1788	443, 444	67	359
Electric machine. Coin-controlled	H. E. Dikeman	518,444	Apr. 17	1756	436	67	354
Electric machine. Dynamo-	G. Forbes	518,944	May 1	15	4	67	539
Electric machine. Dynamo-	G. Forbes	518,945	May 1	16	4, 5	67	539
Electric machine. Dynamo-	A. B. Herrick	520,781	June 5	34	8	67	1203
Electric machine. Dynamo-	L. Paget	522,083	June 26	2369	570	67	1620
Electric machine. Dynamo or magneto	R. K. Welch	520,152	May 22	2136	521	67	977
Electric machine or electric motor. Dynamo-	A. L. Riker	518,768	Apr. 24	2312	574, 575	67	467
Electric machine or motor. Dynamo-	L. Bell	518,218	Apr. 17	1355	338	67	281
Electric-machine regulator. Dynamo-	W. H. Elkins	518,232	Apr. 17	1376	345	67	285
Electric-machine regulator. Dynamo-	C. L. F. Müller	518,349	Apr. 17	1585	392, 393	67	322
Electric machines. Brush-holder for dynamo	R. Fuller	522,051	June 26	2319	557	67	1670
Electric machines or motors. Brush-holder for dynamo-	A. L. Riker	520,169	May 22	2107	527	67	982
Electric machines. System of circuit control for	C. E. Davis	520,822	June 5	118	26, 27	67	1219

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Electric machinery. Construction of solenoids or coils of wire used in	G. Forbes	518,946	May 1	18	5	67	540
Electric machinery. Dynamo-	C. Sellers	520,940	June 5	348	85	67	1260
Electric meter	T. Duncan	518,311	Apr. 17	1503	376, 377	67	307
Electric meter	W. B. Reed	521,089	June 5	601	142	67	1305
Electric meter	E. Thomson	520,811	June 5	92	21	67	1215
Electric meter	E. Thomson	521,685	June 19	1661	390	67	1531
Electric motor	H. P. Brown	518,561	Apr. 17	1942	480, 481	67	386
Electric motor	E. T. Greenfield	517,858	Apr. 10	725	182	67	154
Electric motor	J. C. Henry	518,033	Apr. 10	1026	259	67	206
Electric motor	F. E. Herdman	519,116	May 1	301	71, 72	67	593
Electric motor	A. Hinman	520,782	June 5	37	8, 9	67	1204
Electric motor	J. Lee	521,799	June 26	1864	446, 447	67	1585
Electric motor	E. E. Ries and G. J. Scott	519,272	May 1	592	144, 145	67	652
Electric motor	W. J. Still	517,668	Apr. 3	427	104	67	82
Electric motor	W. J. Still	517,669	Apr. 3	431	104, 105	67	82
Electric-motor controller	W. Cooper	518,345	Apr. 17	1579	391	67	321
Electric-motor controller	W. J. Hopkins and T. Stebbins	520,784	June 5	40	9	67	1204
Electric-motor-controlling apparatus	F. E. Herdman	519,124	May 1	327	77	67	600
Electric-motor-controlling device	F. E. Herdman	519,121	May 1	319	76	67	598
Electric-motor-controlling device	F. E. Herdman	519,122	May 1	321	76	67	599
Electric-motor-controlling device	F. E. Herdman	519,123	May 1	325	77	67	600
Electric-motor governor	J. F. Winter	517,714	Apr. 3	507	122	67	98
Electric motor or generator	W. Baxter, Jr	519,281	May 1	611	149	67	655
Electric-motor regulator	F. E. Herdman	519,120	May 1	315	75	67	597
Electric motors and replacing same. Automatic device for removing resistance in starting	G. H. Whittingham	518,906	Apr. 24	2542	629	67	510
Electric motors and replacing same. Automatic device for removing resistances in starting	G. H. Whittingham	520,280	May 22	2355	571, 572	67	1018
Electric motors. Cooling	E. Thomson	518,291	Apr. 17	1475	368, 369	67	302
Electric motors. Operating	J. S. Bancroft	519,686	May 8	1345	324, 325	67	803
Electric motors. Operating	J. S. Bancroft	520,748	May 29	3137	759, 760	67	1178
Electric motors. Pedal-governor for	A. G. McKee	520,072	May 22	1978	485	67	949
Electric-power appliance	B. J. Arnold	517,831	Apr. 10	684	170, 171	67	147
Electric power. Meter for recording measurements of	E. Thomson	521,684	June 19	1660	390	67	1531
Electric-power stations. Means for preventing arcing in	E. Thomson	520,809	June 5	87	20	67	1214
Electric reciprocating motor	E. Thomson	520,810	June 5	90	21	67	1214
Electric starting-switch	F. V Henshaw	518,404	Apr. 17	1682	416, 417	67	340
Electric subway	J. J. E. Philips	521,125	June 5	658	155	67	1316
Electric switch	A. Ekström	518,231	Apr. 17	1376	345	67	284
Electric switch	W. S. Hill	518,813	Apr. 24	2392	591	67	480
Electric switch	A. T. MacCoy	517,957	Apr. 10	900	225	67	185
Electric switch	R. Mackie	517,582	Apr. 3	271	62	67	53
Electric switch	J. F. McElroy	519,338	May 8	731	179, 180	67	693
Electric switch	J. B. Smith	518,471	Apr. 17	1803	446	67	362
Electric switch	C. F. Speed, E. W. Barker, and C. P. Frank.	517,773	Apr. 3	602	148	67	116
Electric switch	H. E. Werline	520,279	May 22	2353	571	67	1017
Electric switch	E. Woltmann	518,800	Apr. 24	2366	586	67	475
Electric-switch box	E. R. Knowles	520,852	June 5	181	39	67	1230
Electric traction apparatus	P. Schoop	520,340	May 22	2457	596	67	1037
Electric-wire connection	J. Y. De Mott	521,018	June 5	473	113	67	1282
Electric wires. Automatic safety-joint for	J. H. Curry	521,908	June 26	2053	494	67	1623
Electrical apparatus. Coin-controlled	J. O. Frost	520,044	May 22	1926	472	67	940
Electrical-conductor bond	J. Herr	521,238	June 12	860	203	67	1366
Electrical contact mechanism	J. F. Blake	518,133	Apr. 10	1190	298	67	233
Electrical contact mechanism	J. F. Blake	518,481	Apr. 17	1813	449	67	364
Electrical-contact mechanism	J. F. Blake	520,351	May 22	2476	600	67	1040
Electrical conversion and distribution. System of	T. H. Hicks	520,050	May 22	1940	475	67	942
Electrical distribution by alternating currents. System of	C. F. Scott	521,051	June 5	534	126	67	1294
Electrical distribution. System of	T. J. Fay	521,436	June 12	1215	288	67	1433
Electrical distribution. System of	B. G. Lamme	520,965	June 5	383	93	67	1267
Electrical distribution. System of	E. Thomson	519,076	May 1	237	56	67	581
Electrical distribution. Transformer system of	P. Wright	521,925	June 26	2024	500, 501	67	1628
Electrical foot-bath	I. A. Isaacs	517,862	Apr. 10	729	183	67	155
Electrical-instrument table	J. F. Mehren	518,788	Apr. 24	2344	581	67	472
Electrical switch	E. Ruebel	517,664	Apr. 3	422	102, 103	67	81
Electrically-governed switch	E. H. E. Klatte	519,813	May 15	1548	378, 379	67	855
Electrically-operated register	S. J. Glass	522,113	June 26	2419	581	67	1688
Electricity generated by means of wind-power. Device for regulating	T. A. Willard	519,881	May 15	1661	404	67	876
Electrochemical decomposition. Method of and apparatus for	H. Carmichael	518,710	Apr. 24	2209	551, 552, 553	67	448
Electrode. Therapeutic	W. B. Farrar	520,673	May 29	3019	730	67	1157
Electrolier. Adjustable	C. M. McCamey and S. H. Root	518,198	Apr. 10	1318	329	67	258
Electrolysis	H. Blumenberg, Jr	519,40	May 8	848	205	67	715

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Electrolytic apparatus	H. Y. Castner	518,135	Apr. 10	1194	300	67	234
Electrolytic cell	T. Craney	520,257	May 22	2316	561, 562	67	1010
Electrolytic cell	E. A. Le Sueur	518,040	Apr. 10	1049	266	67	208
Electrolytic cells. Diaphragm for	E. A. Le Sueur	518,786	Apr. 24	2340	580	67	472
Electrolytical apparatus	C. Hoepfner	518,065	Apr. 10	1087	274	67	215
Electromagnetic tool	C. F. Carpenter	519,602	May 8	1304	311	67	795
Electrotype-block	W. T. Barnum	520,981	June 5	415	99	67	1272
Elevated carrier	G. B. Davis	521,309	June 12	993	234	67	1390
Elevating and bag-holding machine. Portable	G. S. Ingle	519,261	May 1	577	141	67	649
Elevator: *See* Electric elevator. Grain-elevator. Hay-elevator. Hydraulic elevator. Transportable elevator. Water-elevator.							
Elevator	C. W. Baldwin	519,804	May 15	1536	375, 376	67	852
Elevator	J. H. Clark	520,755	May 29	3151	763	67	1180
Elevator	J. C. Fox	520,043	May 22	1924	471	67	940
Elevator	R. W. Hare	521,086	June 5	598	141	67	1304
Elevator	F. E. Herdman	519,118	May 1	310	73	67	595
Elevator	W. H. McCoy	520,697	May 29	3059	741	67	1164
Elevator	G. Quackenbush	519,292	May 1	633	154	67	660
Elevator	W. H. Rickabach	517,768	Apr. 3	595	146	67	115
Elevator and dump	S. E. Kurtz	517,702	Apr. 3	482	115, 116	67	92
Elevator and dump	W. L. Oakes	521,888	June 26	2003	483, 484	67	1614
Elevator-brake. Self-acting	G. W. Ludovici	517,755	Apr. 3	575	141	67	111
Elevator-controller	W. C. Smith	519,459	May 8	935	225, 226	67	731
Elevator controlling device	C. A. Harkness	522,161	June 26	2505	601, 602	67	1706
Elevator controlling device	F. E. Herdman	519,119	May 1	312	74	67	596
Elevator-door-operating device	H. Rowntree	520,833	June 5	144	32	67	1223
Elevator-door-operating mechanism	E. C. Jenkins	518,408	Apr. 17	1687	418	67	341
Elevator-door-operating mechanism	E. C. Jenkins	518,409	Apr. 17	1688	418	67	342
Elevator driving mechanism. Electric	C. E. Geiger	521,160	June 12	726	171, 172	67	1342
Elevator for buildings	C. I. Hall	519,114	May 1	297	71	67	592
Elevator-gate	C. Stocker, Jr	517,496	Apr. 3	136	30	67	28
Elevator-gate. Automatic	J. McLaughlin	518,374	Apr. 17	1640	404, 405	67	332
Elevator-gate safety device	A. C. Beardsworth	520,103	May 22	2030	495	67	959
Elevator-legs. Means for operating	J. H. Finley	518,496	Apr. 17	1831	454	67	367
Elevator safety attachment	F. W. Jandell	521,589	June 19	1500	352	67	1500
Elevator safety device	G. E. Dow	520,844	June 5	164	36	67	1227
Elevator safety device	L. S. Graves	520,160	May 22	2152	524	67	979
Elevator safety device	G. C. Howard	519,844	May 15	1596	390	67	864
Elevator safety-gate	W. J. Slyder	519,139	May 1	351	83, 84	67	605
Elevators. Hydro-engine for operating	G. H. Reynolds	518,700	Apr. 24	2184	546, 547	67	445
Ellipsograph	G. M. King	517,522	Apr. 3	172	39	67	35
Ellipsograph	W. Lehner	520,003	May 15	1855	453	67	911
Embossing-machine	F. W. Maley	519,961	May 15	1784	437	67	899
Embroidering-machine	R. Weiss	521,197	June 12	788	184, 185, 186	67	1353
Emery-wheel bearing	O. S. Walker	521,836	June 26	1922	461	67	1596
Enamel for coating sheet-metal, &c	J. Henneman	517,454	Apr. 3	71	.....	67	16
Enameling paper or other fabrics	W. H. H. Childs	517,732	Apr. 3	532	129	67	104
Enameling sheet-iron ware	T. Zwermann	517,992	Apr. 10	965	240	67	194
Enameling sheet metal and compound therefor	H. D. Quinby	519,968	May 15	1798	.....	67	901
End-gate-fastening device	C. A. Anderson	517,912	Apr. 10	813	204	67	171
End-gate rods. Die for making wagon	T. W. Smith and J. G. Price	520,837	June 5	152	33	67	1225
End-gate. Wagon	E. K. Hayes	517,649	Apr. 3	389	93, 94	67	75
Engine: *See* Air and steam engine. Carding-engine. Dental engine. Direct-acting engine. Gas-engine. High-speed engine. Locomotive-engine. Magnetic engine. Pulp-engine. Pumping-engine. Rotary engine. Rotary steam-engine. Steam-engine. Traction-engine. Vibrating-piston engine. Wind-engine. Winding-engine.							
Engine	P. Chonteau	519,147	May 1	367	87, 88	67	609
Engine	E. J. Woolf	521,278	June 12	929	220	67	1378
Engine attachment	D. R. and F. M. Woodsum	519,488	May 8	994	240	67	739
Engine cut-off. Steam	W. Jackaway	521,714	June 19	1706	401, 402	67	1541
Engine expansion-gear	M. H. Robinson	521,573	June 19	1469	343, 344	67	1495
Engine expansion-gear	M. H. P. R. Sankey	521,574	June 19	1471	344, 345	67	1495
Engine indicator. Steam	E. J. Rea	521,815	June 26	1889	452	67	1590
Engine starting apparatus. Gas	J. W. Raymond	521,551	June 19	1433	333	67	1488
Engine steering-gear. Traction	G. W. Kramer	520,688	May 29	3043	737	67	1161
Engine tender. Road	E. T. Wright	518,982	May 1	76	20	67	550
Engines. Reversible eccentric for	D. W. Kellogg. (Reissue)	11,419	May 15	1896	463	67	918
Engraving-machine	H. A. Chase	517,680	Apr. 3	447	108, 109	67	86
Entrails. Machine for cutting and cleaning	H. Reyels and F. Ebert	519,685	May 8	1343	324	67	803
Envelope	C. M. Carnahan	521,431	June 12	1202	285	67	1430
Envelope	M. J. Cramer	521,760	June 19	1804	428	67	1556

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Envelope	W. H. Eldridge	519,944	May 15	1757	431	67	893
Envelope	G. H. Martin	519,864	May 15	1634	398	67	871
Envelope	A. J. Ritter	519,093	May 1	264	62	67	586
Envelope	S. Whybrew	519,367	May 8	791	193	67	705
Envelope and stationery case	N. Hebard	519,673	May 8	1316	315	67	798
Envelope, letter-sheet, circular, and casing. Combined	W. A. Wright	521,902	June 26	2040	492	67	1620
Envelope-machine	L. J. and M. J. Church	521,153	June 12	710	166, 167, 168	67	1338
Envelope-machine	H. D. and D. W. Swift	520,147	May 22	2126	519	67	975
Envelope. Safety	H. R. Horr and D. H. McFall	518,189	Apr. 10	1284	325	67	250
Envelopes, lettera, &c. Fastening device for	G. F. Lemmon	518,109	Apr. 10	1154	290	67	227
Eraser. Blackboard	A. J. Creamer	521,258	June 12	900	212, 213	67	1373
Evaporating apparatus	A. P. Leist	520,438	May 29	2613	632, 633	67	1083
Evaporating apparatus	T. J. Rayner	519,969	May 15	1799	441	67	901
Evaporating apparatus. Liquid	C. W. Cooper	521,946	June 26	2.31	510	67	1637
Evaporating apparatus. Liquid	W. J. Mirrlees and D. Ballingall	521,724	June 19	1724	408, 409, 410	67	1544
Evaporating liquids in vacuo and apparatus therefor. Process of	S. M. Lillie	521,215	June 12	818	193	67	1358
Evaporating-pan	H. F. Miller	518,962	May 1	40	11	67	544
Evaporating-pan	S. A. Poché	517,765	Apr. 3	590	145	67	114
Excavating and refilling. System of	B. J. Coyle	518,394	Apr. 17	1666	411, 412	67	337
Excavatiug apparatus. Ditch	G. B. Christie, J. Lowe, and G. A. Lederle.	521,700	June 19	1680	394	67	1535
Excavating-machine	R. Dalton	520,916	June 5	301	73, 74	67	1252
Excavating or dredging machine	J. E. A. Braun	517,726	Apr. 3	523	126, 127	67	101
Excavator	G. P. Anderton	521,693	June 19	1672	392	67	1533
Excavator	J. Oie	519,342	May 8	743	183, 184	67	695
Excavator and elevator	H. P. Holland	521,883	June 26	1995	482	67	1611
Excelsior-cutting machine	C. H. Whitman	519,214	May 1	497	120, 121	67	634
Excelsior-machine	T. M. Shank	520,618	May 29	2911	704	67	1138
Exercising-machine	G. F. Poole	518,967	May 1	48	13	67	545
Exhibiting device. Automatic	B. J. Smith	519,484	May 8	966	239	67	738
Exhibiting machine. Coin-controlled card	J. McFarland and G. H. Reid	519,002	May 1	103	25	67	555
Exhibitor. Casket or coffin	W. P. Sherman	518,335	Apr. 17	1553	386	67	316
Exhibitor. Window-shade	J. Sturgiss	519,414	May 8	870	210	67	719
Explosive and making same	W. Evelyn-Liardét	521,020	June 5	475	.....	67	1282
Explosive and making same	H. Kolf	521,345	June 12	1067	.....	67	1405
Extension-table	J. Bohr	522,101	June 26	2398	576	67	1685
Extension-table	M. H. Young and J. M. Mathews	521,905	June 26	2044	492, 493	67	1621
Extractor: *See* Butter-extractor. Stump-extractor.							
Eyeglass-holder	T. King	520,024	May 15	1896	463	67	918
Eyeglasses	G. W. Bennum and J. L. McKim	520,028	May 22	1903	464	67	935
Eyeglasses	B. U. Bugbee and J. Reno	517,430	Apr. 3	14	3	67	5
Eyeglasses	W. F. Kornemann	521,933	June 26	2103	504	67	1632
Eyes. Apparatus for testing	C. M. C. Prentice	522,027	June 26	2379	546, 547	67	1663
Eyelet	E. L. Pupke	520,538	May 29	2780	672	67	1112
Fabric: *See* Elastic fabric. Tire fabric. Pile fabric.							
Fabric. Machine for making looped	E. Murby	521,728	June 19	1730	411	67	1545
Fan	M. Rubin	519,554	May 8	1120	269	67	763
Fan. Reciprocating	W. W. McCall	518,852	Apr. 24	2445	606	67	490
Fan. Revolving	I. D. Boyer	517,428	Apr. 3	11	3	67	5
Fan. Sewing-machine	J. F. Billman	519,227	May 1	517	125	67	638
Fan. Ventilating	H. Hobbs	521,114	June 5	644	151	67	1313
Fan. Ventilating	W. H. McConnell and F. A. Ray	521,862	June 26	1962	473	67	1604
Fare-indicator for cabs	O. Schneider	519,972	May 15	1805	443	67	902
Fare-register	F. C. Boyd and C. E. Gurding	520,912	June 5	292	71, 72	67	1251
Fastener. Adjustable	J. A. Boyyer	519,831	May 15	1577	386	67	860
Fastening device	B. S. Hoyt	519,504	May 8	1019	247	67	745
Fastening device	J. Zeiser and F. A. Leeman	521,861	June 26	1961	473	67	1604
Fastening device for tubs, boxes, &c	F. T. Bradish	517,836	Apr. 10	691	173	67	149
Fat. Compound edible	A. W. Winter	519,980	May 15	1818	.....	67	904
Fats from animal or vegetable substances. Extracting	A. Schweizer	520,743	May 29	3127	757	67	1176
Faucet	W. J. Oswald	519,508	May 8	1024	248	67	745
Faucet	M. E. Spofford	519,649	May 1	179	43	67	571
Faucet attachment	J. Bolgiano	519,521	May 8	1069	257	67	754
Faucet. Beer	G. A. F. Streuber	519,931	May 15	1735	425	67	889
Faucet. Can	G. W. Banker	520,840	June 5	157	35	67	1226
Faucet. Can	W. A. James	519,534	May 8	1093	262	67	758
Faucet. Oil-can	G. W. Arper	521,491	June 19	1335	310	67	1471
Feed-mill	J. O. Smith	518,123	Apr. 10	1177	295	67	231
Feed-rolls. Device for weighting	C. C. Stuart	520,582	May 29	2858	691	67	1128
Feed-water and gas supply regulator	H. A. and H. A. House, Jr	521,166	June 12	734	174	67	1343
Feed-water heater	J. G. Calvert	518,019	Apr. 10	1005	252, 253	67	202
Feed-water heater	B. Evnon	521,708	June 19	1696	398	67	1539
Feed-water heater and purifier	F. Diehl	521,337	June 12	1048	240	67	1402
Feed-water heater and purifier	C. W. McDaniel	520,211	May 22	2241	545, 546	67	986

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Feed-water heater and purifier	W. Shedlock	520,084	May 22	2002	489, 490	67	954
Feed-water heater and purifier. Combined	E. G. T. Colles	522,006	June 26	2252	540	67	1657
Feed-water-pipe heater	J. C. Shaw	517,771	Apr. 3	601	147	67	116
Feeding and watering live stock. Device for	A. C. Winch	519,935	May 15	1741	496, 497	67	890
Felly. Bicycle-wheel	A. P. Squires	521,187	June 12	772	181	67	1350
Felly-wheel	J. T. Mosely	521,385	June 12	1125	265	67	1417
Fence	P. H. Christie	521,750	June 19	1802	427	67	1556
Fence	O. E. Churchill and C. W. Bennett	519,420	May 8	878	213	67	720
Fence	D. D. Frisbee	519,095	May 15	1845	451	67	909
Fence	E. A. Goehring	517,921	Apr. 10	898	208	67	174
Fence	G. H. Perkins	520,217	May 22	2253	548	67	998
Fence	J. E. Phillips	517,659	Apr. 3	415	100	67	80
Fence	J. C. Quinby	518,896	Apr. 24	2527	625	67	506
Fence	G. C. Snyder	521,275	June 12	923	219	67	1377
Fence	D. H. Talbert	519,743	May 15	1433	346	67	833
Fence. Barbed-wire	L. Herweyer	517,548	Apr. 3	216	49	67	43
Fence. Iron	T. J. Fariss	518,837	Apr. 24	2423	600	67	485
Fence-machine	W. C. Shoemaker	522,125	June 26	2436	586	67	1092
Fence machine. Wire	V. T. Briggs	517,837	Apr. 10	692	173, 174, 175, 176	67	149
Fence machine. Wire	A. J. Forsythe	519,603	May 8	1203	290	67	778
Fence machine. Wire	W. P. Randall	518,426	Apr. 17	1792	429	67	347
Fence machine. Wire-and-picket	G. E. Simmons	520,544	May 29	2792	674, 675	67	1114
Fence machine. Wire-and-slat	A. W. Lane	520,321	May 22	2418	588	67	1030
Fence. Metal	G. D. Hamilton	519,573	May 8	1155	278	67	769
Fence. Portable	B. J. Leslie	518,039	Apr. 10	1048	266	67	208
Fence. Portable worm	C. B. Wilcox	521,627	June 19	1565	365	67	1512
Fence-post	P. C. Cretcher and J. R. Miller	521,849	June 26	1940	465	67	1599
Fence-post	C. Gros and J. F. Thomas	521,110	June 5	639	150	67	1312
Fence-post	E. J. McCullough	520,656	May 29	2970	718	67	1148
Fence-post base	J. H. Cooper	519,445	May 8	915	221	67	727
Fence-posts. Machine for making metallic	M. H. Baer	520,289	May 22	2370	575	67	1020
Fence-tightening implement	G. D. Lockwood	522,164	June 26	2511	603	67	1706
Fence-winding device. Wire	I. V. Adair	519,103	May 1	280	66	67	589
Fence. Wire	C. W. Bennett and F. Chapman	517,423	Apr. 3	4	2	67	3
Fence. Wire	M. Berdan	521,328	June 12	1021	240	67	1395
Fence. Wire	J. W. Buchanan	519,759	May 15	1458	353	67	837
Fence. Wire	J. and C. Lane	518,506	Apr. 17	1857	460	67	371
Fence. Wire	E. L. Schanck	519,928	May 15	1798	424	67	888
Fence. Wire	S. S. Young	521,304	June 12	982	232	67	1388
Fence-wire carrier and stretcher	W. H. Merritt	518,672	Apr. 24	2141	535	67	437
Fence-wire. Machine for stretching or removing	W. M. Barger	520,475	May 29	2677	646	67	1094
Fence-wire tightener	L. J. Michaels	520,395	May 22	2494	590	67	1031
Fence-wire-tightening device	H. Buck	519,940	May 15	1749	429	67	892
Fences. Implement for weaving filler-wires in wire	L. A. Greeley	519,154	May 1	388	94	67	612
Fences. Tool for building wire	L. C. Highsmith	519,710	May 15	1386	334	67	824
Fender: *See* Car-fender. Car-wheel fender. Car or locomotive fender. Pen-fender.							
Ferrule	W. H. Gaskill	521,342	June 12	1063	249	67	1404
Ferrule	W. H. Gaskill	521,765	June 19	1811	429	67	1558
Fertilizer	S. B. Schenck	517,486	Apr. 3	119	.....	67	25
Fertilizer-distributer	G. W. Murray	520,889	June 5	248	58, 59	67	1242
Fertilizer. Phosphatic	N. B. Powter	517,661	Apr. 3	417	.....	67	80
Fertilizers. Making	N. B. Powter	517,662	Apr. 3	418	.....	67	80
Fiber brake, crusher, and cleaner	J. F. Lester	518,259	Apr. 17	1417	355	67	292
Fiber-drier	F. G. and A. C. Sargent	521,824	June 26	1904	457	67	1593
Fiber-feeding machine	A. H. Morton	518,419	Apr. 17	1706	424, 425	67	345
Fifth-wheel. Vehicle	R. Carr	518,688	Apr. 24	2163	541	67	441
File for keeping records	D. E. Thomas	518,380	Apr. 17	1650	407, 408	67	334
File-holder	J. Roust	519,738	May 15	1427	344	67	832
File. Letter or bill	G. H. Dietz	519,327	May 8	710	175	67	689
File. Newspaper	J. Grüninger	521,236	June 12	858	202	67	1366
File. Ready-reference	W. L. Van Harlingen	522,171	June 26	2520	605	67	1708
Filling device. Automatic	A. E. Briggs	520,557	May 29	2814	679, 680	67	1119
Filter	H. S. Blackmore	520,293	May 22	2375	576	67	1021
Filter	F. Bommarius	519,565	May 8	1138	273	67	767
Filter	J. A. Bowden	522,013	June 26	2305	552, 553	67	1667
Filter	C. E. Chamberland	519,664	May 8	1306	312	67	796
Filter	C. Häfner	521,650	June 19	1599	374	67	1519
Filter	E. P. Lynn	521,591	June 19	1504	352	67	1501
Filter	C. H. Schultz, Jr	517,488	Apr. 3	122	27	67	25
Filter	C. Sellenscheidt and L. Lepke	519,275	May 1	601	145, 146	67	653
Filter-press	H. Beeg	521,697	June 19	1677	393	67	1534
Filtering apparatus. Wine or beer	R. Haag	518,102	Apr. 10	1142	287	67	225
Filtering or purification of liquids	L. Wagner, J. Marr, and H. Campbell.	517,499	Apr. 3	142	31	67	29
Filtration of liquids	Z. S. Spalding	517,966	Apr. 10	911	228	67	187
Finger-protector	C. H. English	518,027	Apr. 10	1018	256	67	204
Fire-alarm	P. J. Regan	521,919	June 26	2072	498	67	1626
Fire-alarm	E. A. Wright	520,348	May 22	2471	599	67	1040
Fire-alarm and signal. Automatic electric	L. A. and C. J. Werner	519,213	May 1	494	119, 120	67	633

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Fire-alarm apparatus	F. J. Thunhorst	520,547	May 29	2797	676	67	1115
Fire-alarm box	W. H. Kirnan	518,722	Apr. 24	2238	557	67	453
Fire-alarm or other purposes. Indicator for	W. H. Kirnan	520,214	May 22	2275	554	67	1002
Fire-alarm transmitter. Electric	A. Dunish	519,497	May 8	1009	244	67	743
Firearm	A. J. Strong	517,989	Apr. 10	957	239	67	193
Firearm. Breech-loading	E. Elder	518,448	Apr. 17	1764	437	67	355
Firearm hammer-guard	M. L. Campbell	521,533	June 19	1405	325	67	1483
Firearm. Magazine	P Sheckler	521,624	June 19	1557	364	67	1511
Firearm. Recoil-operated	A. Burgess	520,752	May 29	3144	761	67	1179
Firearm. Recoil-operated	P. Darcho	519,151	May 1	374	89, 90, 91	67	610
Firearm-sight	F. W. Dobbel	518,734	Apr. 24	2263	562	67	457
Firearms. Detachable stock for hand	I. H. Reed	517,555	Apr. 3	229	52	67	45
Fire-curtain or fire-barrier	G. W. Putnam	520,218	May 22	2254	548, 549	67	998
Fire-escape	F. M Bender	518,659	Apr. 24	2115	528	67	431
Fire-escape	C. Doehler	518,055	Apr. 10	1069	270	67	211
Fire-escape	J. Eckley and J. C. Strickland	521,707	June 19	1694	397, 398	67	1538
Fire-escape	F. J. Fairchild	521,339	June 12	1061	248	67	1404
Fire-escape	C. E. Harvey	518,920	Apr. 24	2564	634	67	513
Fire-escape	E. Lawton	517,872	Apr. 10	742	186, 187	67	157
Fire-escape	D. N. McLeod	519,615	May 8	1227	295	67	782
Fire-escape	C. A. Noack	521,416	June 12	1174	279	67	1426
Fire-escape	W. S. Parman	518,272	Apr. 17	1444	361	67	297
Fire-escape	C. A. Sturtevant	519,397	May 8	844	204	67	714
Fire-escape ladder	W. O. Ellis	519,499	May 8	1011	244, 245	67	743
Fire-escape. Portable	J. J. Steur	518,633	Apr. 24	2067	514	67	422
Fire-escape truck	E. Cardarelli	519,234	May 1	529	127, 128	67	640
Fire-extinguisher	J. Van Kalker and N. Bolt	517,780	Apr. 3	614	153	67	119
Fire-extinguishing apparatus	A. L. E. Lechartier	518,258	Apr. 17	1415	354	67	291
Fire-hose. Metal-drilling attachment for	J. G. von Hofe	518,814	Apr. 24	2393	591	67	480
Fire-pail	F. B. Comins	520,727	May 29	3103	751	67	1172
Fireplace hearth-bed	F. F. Faris	518,100	Apr. 10	1140	287	67	224
Fireplace-heater	H. B. Scoville	518,562	Apr. 24	2458	609	67	492
Fireproof curtain for elevator-shafts	E. F. Clarke	519,990	May 15	1838	449	67	908
Fireproof structure	M. F. McCarthy	520,490	May 29	2705	655, 656	67	1099
Fire pumps or engines. Water-supply system for	G. and G. G. Campbell	518,776	Apr. 24	2326	577	67	469
Fires. Process of and compound for extinguishing	A. C. Schumacher	520,012	May 15	1868	....	67	913
Fish culture. Nursery-pond for	C. A. Hoxsie	518,319	Apr. 17	1520	380	67	310
Fish-hook	H. S. Goff and A. B. Judkins	519,684	May 8	1342	324	67	802
Fish-line reel	C. B. Corbin	520,517	May 29	2744	665	67	1105
Fish-line reel	N. H. McGregor	520,607	May 29	2896	700	67	1135
Fish-line reel	N. H. McGregor	522,079	June 26	2363	569	67	1679
Fish. Live-box for shell	T. Mann	517,652	Apr. 3	399	96	67	77
Fish meal. Making	P. Waage	518,748	Apr. 24	2284	567	67	460
Fish-pond. Artificial	C. A. Hoxsie	518,318	Apr. 17	1517	380	67	310
Fish-refuse, Apparatus for drying	D. F. and W. E. Overton	520,269	May 22	2339	567	67	1014
Fish-trap	W. Seaton	521,053	June 5	539	126	67	1295
Fisherman's appliance	C. Hirschmann	520,052	May 22	1943	476	67	943
Fishing apparatus	P. S. and A. J. Downie	522,111	June 26	2416	580	67	1688
Fishing apparatus	H. J. Thayer	518,013	Apr. 10	997	250	67	200
Fishing-float	G. H. Rawlings	522,167	June 26	2516	604	67	1708
Fishing-rod line-guide	S. T. Davis	521,704	June 19	1685	395	67	1536
Fishing-rod support	J. M. Finch	520,041	May 22	1922	471	67	939
Flagstaff-coupling	H. Wettstein and C. Rödmann	521,063	June 5	556	130	67	1297
Flanger	T. W. Macfarlane	517,704	Apr. 3	485	116	67	93
Flask: *See* Miner's flask.							
Flax-puller	F. L. Benjamin	521,926	June 26	2089	501	67	1628
Flax-puller	F. L. Benjamin	521,927	June 26	2090	502	67	1629
Flax-straw. Composition for degumming	H. B. Ware	517,905	Apr. 10	800	....	67	169
Flies from houses. Apparatus for expelling	R. F. Lotspeich	519,793	May 15	1520	370	67	849
Float	D. M. Ireland	521,501	June 19	1350	314	67	1474
Floor and ceiling construction. Fireproof	J. Seipel	522,168	June 26	2517	604	67	1708
Floor, ceiling, &c. Fireproof	M. F. McCarthy	520,492	May 29	2709	650, 657	67	1100
Floor-cloths. Machine for the manufacture of solid color	J. S. Farmer	521,157	June 12	721	169, 170	67	1341
Floor dressing or polishing machine	W. W. Murray and T. W. Cromer	521,729	June 19	1732	411, 412	67	1545
Floor. Illuminating	E. L. Ransome	518,045	Apr. 10	1056	267	67	209
Floors, &c. Construction of fireproof	M. F. McCarthy	520,491	May 29	2707	656	67	1099
Flooring-boards. Machine for matching ends of	J. P. Burnham	518,804	Apr. 24	2375	588	67	477
Flour, &c. Machine for mixing, weighing, and packing	S. T. Ayres	518,088	Apr. 10	1118	282, 283	67	220
Flue-cleaner	E. D. Weston	518,638	Apr. 24	2077	518	67	425
Flue-cleaner. Steam-boiler	D. W. Dart	521,155	June 12	719	169	67	1340
Flue. Safety	C. E. Martin	517,471	Apr. 3	95	21	67	20
Fluid-discharging apparatus	W. T. Messinger	517,550	Apr. 3	219	51	67	43
Flush-tank. Automatically-acting	B. Williams	519,369	May 8	793	194	67	705
Flushing apparatus	G. D. Ackley	517,718	Apr. 3	513	124	67	99
Flushing apparatus for urinals, &c. Automatic	W. Clark, A. Cameron, and C. Kirk	521,907	June 26	2050	494	67	1622
Flushing-tank	J. Moloney, Jr.	519,337	May 8	728	179	67	692
Fly-paper. Sticky	O. and W. Thum	520,715	May 29	3088	747	67	1170
Fly-trap	A. Peltier	521,219	June 12	830	194	67	1360
Fly-trap	W. Thomae	519,745	May 15	1434	346	67	833
Folder for fabrics. Edge	R. W. S. Mitchell and J. Murphy	519,131	May 1	341	81	67	603

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Folding box	S. F. Sherman	520,341	May 22	2459	596, 597	67	1037
Folding chair	S. G. McCullough	517,656	Apr. 3	413	100	67	79
Folding gate. Swinging	G. M. Beard	519,145	May 1	364	87	67	608
Folding-machine	C. Eframson	519,058	May 1	191	46	67	573
Folding table	E. G. Chormann	519,379	May 8	809	197	67	708
Food for horses. Preparing	H. B. Kaiserstein	520,682	May 29	3032	.....	67	1159
Food products from cereals. Machine for the manufacture of	H. D. Perky	520,496	May 29	2714	657, 658	67	1101
Food products from cereals. Machine for the manufacture of	H. D. Perky	521,810	June 26	1881	450	67	1589
Foot-guard	J. H. Blomshield	520,031	May 22	1909	467	67	936
Foot or hand power	J. A. Wilkin	521,490	June 19	1332	309, 310	67	1471
Foot-rest	C. B. Demarest	518,489	Apr. 17	1822	451	67	365
Forge. Blacksmith's	G. E. Post	519,072	May 1	230	54	67	580
Forging machine. Nut	S. H. Markham	520,067	May 22	1967	481, 482, 483	67	947
Fork	W. L. Laffer	517,461	Apr. 3	82	17	67	18
Fork attachment	E. S. Lane	519,717	May 15	1396	337	67	826
Fork cutter attachment	P. P. and J. Dustrud	517,796	Apr. 3	635	159	67	123
Fountain: *See* Electric fountain. Soda-fountain.							
Frames. Metal corner-piece for	E. F. Shellaberger	518,828	Apr. 24	2411	597	67	483
Fruit-can	C. Schifferly	521,921	June 26	2074	498	67	1626
Fruit-carrier	T. S. Fitch	521,141	June 5	690	162	67	1321
Fruit-clipper	T. K. Godbey	519,999	May 15	1850	452	67	910
Fruit cutting and pitting machine	J. F. Rehm	517,588	Apr. 3	281	65	67	56
Fruit-gatherer	J. K. Woodward	517,786	Apr. 3	622	156	67	121
Fruit-picker	B. A. Wright	519,371	May 8	796	195	67	706
Fruit-stoner	J. Boeri	519,939	May 15	1748	429	67	892
Frying-frame. Culinary	C. G. Foland	520,846	June 5	165	37	67	1227
Fuel. Composition for artificial	J. F. Quinn	521,180	June 12	762	.....	67	1348
Fuel-economizer	L. J. Hirt	518,718	Apr. 24	2230	555	67	451
Fuel-economizer	J. Milne	519,023	May 1	136	33	67	562
Furnace: *See* Bagasse-furnace. Boiler-furnace. Boiler or other furnace. Cremation-furnace. Cupola-furnace. Garbage-cremating furnace. Gas-furnace. Gas-burning furnace. Glass-melting furnace. Hot-air furnace. Metallurgic furnace. Ore-roasting furnace. Portable furnace. Regenerative furnace. Reverberatory and regenerative furnace. Smelting-furnace. Smelting and refining furnace. Smoke-consuming furnace. Smokeless furnace. Tank-furnace.							
Furnace	R. Bow	520,032	May 22	1910	467, 468	67	936
Furnace	T. E. Caddy	521,203	June 12	802	188, 189	67	1355
Furnace	G. M. Conway	520,035	May 22	1913	469	67	937
Furnace	E. B. Coxe	517,644	Apr. 3	378	91	67	73
Furnace	E. B. Coxe	517,645	Apr. 3	381	91	67	74
Furnace	E. B. Coxe	518,578	Apr. 17	1978	489	67	392
Furnace	A. L. Engelbach and S. E. Brethertun.	518,493	Apr. 17	1828	453	67	367
Furnace	J. Hinstin. (Reissue)	11,420	May 22	2554	617, 618	67	1056
Furnace	F. H. Richards	517,627	Apr. 3	345	82	67	67
Furnace	M. H. C. Shann	518,629	Apr. 24	2061	513	67	422
Furnace	I. D. Smead	520,124	May 22	2067	504, 505	67	965
Furnace	J. W. Wilkinson	520,551	May 29	2805	677	67	1118
Furnace air-feeding device	T. Craney	518,054	Apr. 10	1068	270	67	211
Furnace cast-house. Blast	C. L. Miller and J. R. George	518,415	Apr. 17	1702	422	67	344
Furnace cast-houses. Mold for blast	C. L. Miller and J. R. George	518,417	Apr. 17	1704	423	67	345
Furnace-charging apparatus. Blast	F. C. Roberts	519,094	May 1	264	63	67	586
Furnace-door	L. Duffner	520,730	May 29	3108	753	67	1173
Furnace-door	C. K. Pickles	521,447	June 12	1242	293	67	1438
Furnace. Fine-fuel	C. Wegener	517,632	Apr. 3	356	84, 85	67	70
Furnace for treating refractory ores	F. C. Butterfield	518,662	Apr. 24	2120	530, 531	67	432
Furnace for treating refuse of cities	J. J. Storer	518,285	Apr. 17	1464	366	67	301
Furnace-grate	W. R. Roney and O. A. Stranahan	519,775	May 15	1483	360	67	842
Furnace. Liquid-fuel	E. S. Sperry	518,794	Apr. 24	2353	583	67	474
Furnace. Self-feeding smokeless	G. Gulickson	520,986	June 5	422	101, 102	67	1273
Furnaces. Charging apparatus for filling blast	T. F. Witherbee	518,769	Apr. 24	2315	575	67	467
Furnaces. Cold-air-draft regulator for	A. H. Zimmerman	518,984	May 1	78	20	67	550
Furnaces. Construction of puddling or other	J. L. Smith	519,620	May 8	1239	297	67	784
Furnaces. Promoting combustion in	J. B Davids	519,325	May 8	708	174	67	688
Furnaces. Wind-jacket for blast	L. B. Walker and J. Murphy	520,719	May 29	3093	748	67	1170
Furniture. Combination	E. L. Still	519,930	May 15	1733	425	67	889
Furniture. Folding	S. Aufrecht	519,937	May 15	1745	428	67	891
Furniture-packing device	E. F. Tubach	518,167	Apr. 10	1247	313	67	243
Furrow-opener and stalk-knocker. Combined	G. W. Murray	517,960	Apr. 10	904	226	67	185
Fuse-box	A. Ekström	520,772	June 5	19	4	67	1200
Fuse box. Multiple-electric	E. A. Parson	520,378	May 22	2517	609	67	1049
Fuse. Safety percussion	H. C. Seddon	521,129	June 5	667	157, 158	67	1318

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gage: *See* Liquid-gage. Surface-gage. Micrometer-gage. Water-gage. Shingle-gage. Weather-board gage. Steam-pressure gage.							
Gage-brace	J. F. Alley	521,579	June 19	1479	346	67	1497
Gage for bias-cutters	N. Steen	519,509	May 8	1025	248	67	745
Galvanic battery	C. W. A. Hertel	519,330	May 8	715	176	67	690
Galvanic battery	E. F. Northrup	520,120	May 22	2059	503	67	964
Game apparatus	W. G. Burns	517,600	Apr. 3	298	69	67	59
Game apparatus	C. C. Clawson	517,436	Apr. 3	21	5,6	67	7
Game apparatus	M. M. Wilson	519,078	May 1	239	56	67	581
Game apparatus	E. E. McNaughton	519,770	May 15	1476	358	67	841
Game apparatus. Bubble	G. W. Brong	518,875	Apr. 24	2481	614, 615	67	498
Game apparatus. Check-controlled	W. M. Keane	521,932	June 26	2102	504	67	1632
Game apparatus. Coin-controlled	H. Matern	518,617	Apr. 24	2036	506, 507	67	418
Game-bag	G. H. Rawlings	519,271	May 1	592	144	67	652
Game-board	J. B. Davids	519,324	May 8	707	174	67	688
Game-board	W. Hoffman	519,041	May 1	168	40	67	569
Game board or apparatus	H. W. C. Smith	521,737	June 19	1745	414	67	1548
Game. Coin-controlled	J. Roeber	518,726	Apr. 24	2245	559	67	454
Game-counter	H. C. Phillips	521,889	June 26	2005	484	67	1614
Game or amusement	J. B. Davids	519,326	May 8	709	174	67	689
Game-table	G. Hunzinger	522,014	June 26	2265	543	67	1659
Game-table	J. L. Schachel	518,860	Apr. 24	2453	608	67	492
Garbage-cremating furnace	J. F. Chazotte	520,105	May 22	2033	496	67	960
Garden implement	D. and W. Runck	517,888	Apr. 10	770	193	67	163
Garment and gusset therefor. Bifurcated	S. B. and F. F. Lewis	517,579	Apr. 3	268	61	67	52
Garment. Body-	F. W. Warner	519,487	May 8	993	240	67	739
Garment. Dancer's	M. L. Fuller	518,347	Apr. 17	1563	392	67	322
Garment-fastener	E. S. Smith	520,545	May 29	2795	675	67	1115
Garment fastening	M. C. Moran	521,384	June 12	1125	265	67	1417
Garment-hanger	N. Neilen	519,964	May 15	1789	438	67	900
Garment-protector	G. Rooke	518,859	Apr. 24	2452	608	67	491
Garment-stand	O. Borchert	520,251	May 22	2307	559	67	1008
Garment-supporter	G. E. Adams	521,775	June 26	1833	437	67	1579
Garment-supporter	F. G. Davis	521,259	June 12	902	213	67	1374
Garment-supporter	W. Ogden	517,658	Apr. 3	414	100	67	80
Garment-supporter	G. W. Parker	518,964	May 1	43	11	67	544
Garment-supporter	C. J. White	521,560	June 19	1444	336	67	1491
Garment-supporter	C. W. Stimson	521,830	June 26	1913	459	67	1595
Garment-supporter clasp	W. L. Braddock	517,678	Apr. 3	445	107	67	86
Garter adjuster and fastener	T. Curley	518,181	Apr. 10	1271	320	67	247
Gas apparatus	C. E. White	517,910	Apr. 10	810	204	67	170
Gas apparatus	E. Rueff	518,514	Apr. 17	1871	463	67	374
Gas. Apparatus for charging liquids with	C. F. A. Convert	518,587	Apr. 24	1994	493, 494	67	411
Gas. Apparatus for releasing carbonic-acid							
Gas. Apparatus for the manufacture of	R. M. Bidelman	518,582	Apr. 24	1988	491, 492	67	409
Gas apparatus. Water-	A. G. Glasgow	519,039	May 1	165	39	67	568
Gas apparatus. Water-	A. G. Glasgow	519,040	May 1	166	40	67	568
Gas-burner	H. Epprecht	520,521	May 29	2753	666	67	1107
Gas-burner	G. Heidel	520,309	May 22	2397	582	67	1026
Gas-burner for heaters	A. T. Welch	519,749	May 15	1439	347, 348	67	834
Gas burner. Illuminating	C. A. Shaw	522,088	June 26	2375	571	67	1681
Gas-burning furnace for steam-boilers	G. E. Belmor	519,373	May 8	799	195	67	706
Gas-engine	J. B. Carse	518,177	Apr. 10	1266	319	67	246
Gas-engine	J. B. Carse	518,178	Apr. 10	1267	319	67	246
Gas-engine	J. Labataille and J. J. Graff	517,821	Apr. 3	671	167	67	130
Gas-engine	D. C. Luce	519,863	May 15	1032	397	67	871
Gas-engine	S. D. Shepperd	521,443	June 12	1232	291, 292	67	1436
Gas-engine	H. Swain	519,880	May 15	1659	403, 404	67	875
Gas-engine igniter	F. Hirsch	518,717	Apr. 24	2229	555	67	451
Gas from crude oil. Making fuel-	C. F. A. Convert	517,681	Apr. 3	450	109	67	87
Gas from liquid by-products. Apparatus for separating	J. A. Dixon	520,038	May 22	1918	470	67	938
Gas-furnace	G. Axdorfer	520,404	May 29	2561	619	67	1073
Gas-generating apparatus	H. F. D. Schwahn	521,479	June 19	1307	304, 305	67	1466
Gas-generator	D. Stearns	518,302	Apr. 10	1324	330, 331	67	259
Gas generator and burner	C. F. Sanford	521,822	June 26	1901	456	67	1593
Gas-governor	S. H. Moore	521,664	June 19	1622	380	67	1524
Gas-governor. Station	J. Hawkyard	518,143	Apr. 10	1206	302	67	236
Gas holder and purifier	D. McDonald	518,114	Apr. 10	1165	292	67	229
Gas-holder tank	F. Mayer	519,963	May 15	1788	438	67	899
Gas lighting and extinguishing apparatus. Automatic	N. H. and A. B. Shaw	520,836	June 5	151	33	67	1225
Gas-making apparatus	W. A. Koneman	520,687	May 29	3041	736	67	1161
Gas-meter	E. Haas	522,054	June 26	2323	558	67	1671
Gas-meter	F. C. Viney	521,745	June 19	1759	417	67	1550
Gas or hydrocarbon motor	W. Seck	517,890	Apr. 10	772	192, 193	67	163
Gas. Process of and apparatus for the manufacture of	F. B. Johnson, W. P. Hall, W. Oakley, and C. F. Currey.	520,401	May 22	2548	616	67	1055
Gas-regulator	T. G. Lewis	519,845	May 15	1598	390, 391	67	864
Gas-retort lid	C. C. Walker	522,137	June 26	2465	592	67	1698
Gas-service pipes. Condenser and drip for	A. H. Gindele	520,675	May 29	3023	731	67	1157

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gases. Apparatus for treating substances with	J. J. Melville	520,369	May 22	2505	606	67	1047
Gases. Process of and apparatus for analyzing	E. A. Uehling	521,444	June 12	1235	292	67	1437
Gaseous products in breweries. Method of and apparatus for the recovery of waste	O. Zwietusch	518,361	Apr. 17	1616	398	67	328
Gasket	T. Saunders	519,413	May 8	868	210	67	718
Gate: *See* Bridge-gate. Railway-crossing gate. Car-platform gate. Railway-train gate. Elevator safety-gate. Self-opening gate. End-gate. Sliding gate. Folding gate.							
Gate	F. S. Gray	521,880	June 26	1990	480, 481	67	1610
Gate	J. Mason	518,743	Apr. 24	2277	565	67	459
Gate	J. H. Morris	520,533	May 29	2772	670	67	1111
Gate	E. Neuhauser	522,081	June 26	2366	569	67	1679
Gate	W. J. Slack	519,778	May 15	1491	361	67	844
Gate	J. B. Van Nada	520,717	May 29	3090	748	67	1170
Gate or door	G. L. Florence	520,261	May 22	2323	564	67	1011
Gazette-holder	E. Adam	517,420	Apr. 3	1	1	67	3
Gear. Bevel-	G. B. Grant	519,572	May 8	1154	278	67	769
Gear. Elastic	C. A. Lieb	520,791	June 5	53	12	67	1207
Gear-finishing machine	J. L. Kunz	520,995	June 5	436	104	67	1276
Gear-forging. Making dies for	A. T. Porter	521,179	June 12	760	178	67	1348
Gear. Reversing	G. W. King	520,647	May 29	2957	715	67	1146
Gear-wheels. Die for the manufacture of crown	J. Thomson	520,194	May 22	2208	538	67	990
Gear-wheels. Process of and apparatus for making	A. T. Porter	521,178	June 12	757	177, 178	67	1347
Gearing. Electromagnetic variable-speed	W. W. Beaumont	519,031	May 1	151	36	67	565
Gearing. Multiple	W. H. Bright	521,133	June 5	676	159	67	1319
Gearing. Reversing and controlling	G. E. Hoyt	520,313	May 22	2404	584, 585	67	1027
Generator: *See* Electric generator. Steam and hot-water generator. Gas-generator. Steam-generator. Thermo-electric generator. Steam and gas generator.							
Gin-saw-filing machine	R. S. Mudford	520,966	June 5	384	94	67	1267
Glass and decdrating same. Decorated	A. Steffin	520,125	May 22	2069	.....	67	966
Glass. Apparatus for manufacturing plate	E. P. King	517,460	Apr. 3	79	17	67	17
Glass batch. Apparatus for compounding and mixing	R. Dralle	520,138	May 22	2111	515	67	972
Glass. Composition for manufacturing	A. P. Ayling	522,001	June 26	2245	.....	67	1656
Glass door-plate	H. W. Greene	519,256	May 1	571	138	67	648
Glass-furnace breast-wall	W. H. Barr	521,147	June 12	701	164	67	1337
Glass. Making rose-red	A. Spitzer	518,336	Apr. 17	1554	.....	67	316
Glass-melting furnace	E. H. Everett and A. Samuelson	521,537	June 19	1409	326	67	1484
Glass-melting furnace	M. Selberling	520,835	June 5	149	33	67	1224
Glass-melting tank-oven	F. Wrede	517,675	Apr. 3	442	107	67	85
Glass paintings. Manufacture of	O. Dillmann	518,806	Apr. 24	2379	588	67	478
Glass panels. Manufacture of stained-	H. C. Hughes	519,186	May 1	444	109	67	623
Glass-working apparatus	H. D. Burnett and S. E. Doane	520,767	June 5	10	3	67	1198
Glassware-molding apparatus	C. Grebe	519,113	May 1	296	70	67	592
Globe. Geographical	I. and M. A. Hodgson	519,061	May 1	203	47	67	575
Glove, &c	H. L. Northrop	519,198	May 1	462	113	67	627
Glove. Boxing	R. N. Carson and A. A. Martin	522,106	June 26	2410	570	67	1686
Glue and gelatine from bones. Producing	M. Schroeder	518,861	Apr. 24	2455	609	67	492
Glue into sheets. Apparatus for forming	C. W. Cooper	521,945	June 26	2125	509, 510	67	1636
Glue-making apparatus	C. W. Cooper	521,947	June 26	2134	511, 512	67	1637
Glue-making apparatus	C. W. Cooper	521,948	June 26	2139	512	67	1638
Glue-pot. Steam-heated	F. N. Hastings	519,950	May 15	1766	432	67	895
Glue. Process of and apparatus for making	P. C. Hewitt	521,371	June 12	1105	260	67	1413
Glycerin and salt from spent soap-lye. Recovering	E. K. Mitting	522,023	June 26	2276	.....	67	1662
Glycerin from glycerin foots. Recovering	J. Van Ruymbeke	522,133	June 26	2452	.....	67	1695
Glycerin from spent soap-lye. Apparatus for recovering	J. Van Ruymbeke	522,135	June 26	2458	591	67	1696
Glycerin. Process of and apparatus for distilling	J. Van Ruymbeke	522,132	June 26	2449	590	67	1694
Gold and black sand. Apparatus for extracting	S. G. Dorr	519,245	May 1	554	135	67	644
Gold from its chlorid solutions. Separating	J. W. Sutton	521,899	June 26	2036	.....	67	1620
Gold or silver from ores. Process of and apparatus for extraction of	J. W. Sutton	521,898	June 26	2034	490, 491	67	1619
Gold-washer	H. W. Murdock	519,506	May 8	1021	247	67	745
Governor	G. J. Altham	519,785	May 15	1506	366, 367	67	847
Governor	A. J. Pierce	519,412	May 8	867	209, 210	67	718
Governor. Automatic	W. Cooke	519,322	May 8	703	173	67	687
Governor. Centrifugal high-speed	F. W. Spacke	521,483	June 19	1318	307	67	1468
Governor. Electrical	W. H. Miller	520,267	May 22	2335	566, 567	67	1014
Governor for electric or other motors	N. S. Keith	517,866	Apr. 10	734	185	67	156
Governor for fluids. Pressure-	W. Hoffman	521,315	June 12	1000	235	67	1392
Governor. Steam-engine	J. P. Devoissaud	519,942	May 15	1751	430	67	893
Governor. Steam-engine	D. Symington	518,728	Apr. 24	2246	559	67	454
Grader and amalgamator	J. A. Armbruster	517,721	Apr. 3	516	125	67	100
Grading and ditching machine	W. H. Tidland	518,905	Apr. 24	2339	628	67	509
Grading railways, &c. Machine for	C. W. Arch	517,559	Apr. 3	236	55	67	46
Grain-binder	D. McPherson	521,508	June 19	1361	317	67	1477
Grain-binder	A. Stark	520,458	May 29	2646	639, 640	67	1089
Grain-binder	B. F. Stewart	518,747	Apr. 24	2281	566, 567	67	460
Grain-binder tension device	J. Whitcomb and A. Wotring	520,624	May 29	2919	706	67	1139

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Grain-cleaner	C. J. Mober	520,653	May 29	2064	717	67	1147
Grain-cleaner	J. G. Plowman and H. E. Kittell	520,333	May 22	2444	593	67	1035
Grain-drill	A. Carpenter	520,843	June 5	162	36	67	1227
Grain-drill press-wheel	A. J. Green	518,669	Apr. 24	2136	534	67	435
Grain-elevator	V. Weber and J. R. Harrison	518,084	Apr. 10	1108	280, 281	67	218
Grain-elevators. Automatic shut-off for	G. W. Nye	518,622	Apr. 24	2045	509	67	419
Grain-meter	J. W. Coker	519,176	May 1	426	105	67	620
Grain-meter	H. P. Dennis	520,518	May 29	2746	665	67	1106
Grain-meter	C. L. Wylie	521,904	June 26	2043	492	67	1621
Grain-meter. Rotating	J. M. Finch	517,608	Apr. 3	311	73	67	61
Grain-meter. Rotating	E. K. Hayes	517,650	Apr. 3	391	94	67	75
Grain-separator	J. H. Creter	520,729	May 29	3106	752	67	1173
Grain-storage building. Metallic	E. O. Fallis	521,951	June 26	2142	513	67	1639
Grapple	D. E. Lyon	521,913	June 26	2063	495	67	1624
Grate	T. Craney	518,714	Apr. 24	2224	554	67	450
Grate	J. W. Smith	518,470	Apr. 17	1802	446	67	362
Grate. Automatic water-circulating fire	E. D. Ferris and G. M. Wheeler	517,567	Apr. 3	248	58	67	49
Grate. Shaking and dumping	W. Fitzgerald	518,779	Apr. 24	2330	578	67	470
Grater. Nutmeg	G. V. Shaw	518,704	Apr. 24	2197	548	67	446
Grave or lot markers. Machine for making	M. B and F. J. Mishler	520,652	May 29	2963	717	67	1147
Grave-signal	H. Devean	522,110	June 26	2415	580	67	1687
Grave-stone or monument	O. W. Smith	518,552	Apr. 17	1929	477	67	384
Grease-trap	I. Heffron	519,501	May 8	1014	245	67	744
Greenhouse	H. E. Hall	519,766	May 15	1470	356	67	840
Grille-work. Ornamental	F. M. Carr	519,663	May 8	1305	312	67	796
Grinding and polishing machinery	E. Ford	521,953	June 26	2146	514, 515	67	1640
Grinding-machine	E. B. Benham and H. E. Barlow	520,665	May 29	2987	722	67	1151
Grinding-machine	D. H. Church	517,643	Apr. 3	375	89,90	67	73
Grinding-machine	T. B. Dooley	522,155	June 26	2407	599	67	1704
Grinding-machine	R. Dutton	521,646	June 19	1594	373	67	1518
Grinding-machine	R. H. Grant	520,019	May 15	1879	459, 460	67	915
Grinding-mill	H. S. Atkins	520,027	May 22	1901	464	67	935
Grinding-mill. Roller	W. Hudnall and L. D. Beary	518,955	May 1	30	8	67	542
Grinding twist-drills. Device for	E. G. Hoffmann	521,615	June 19	1544	361	67	1508
Gripping device	C. W. Nason	521,963	June 26	2166	520	67	1642
Grooving-machine	H. W. Morgan	517,705	Apr. 3	486	116, 117, 118	67	93
Gun. Breech-loading	I. N. P. Stokes	521,831	June 26	1916	459	67	1595
Gun. Cane	R. F. Cook	517,438	Apr. 3	27	6	67	8
Gun. Cane	O. Janke	518,546	Apr. 17	1921	475	67	382
Gun carriages. Anchor for field	A. Noble and R. T. Brankaton	517,476	Apr. 3	103	23	67	22
Gun-embrasure joint	C. Martin	518,155	Apr. 10	1225	307	67	239
Gun feed mechanism. Magazine	F. Mannlicher	518,821	Apr. 24	2402	594, 595	67	482
Gun. Folding	A. Burgess	521,202	June 12	799	187, 188	67	1355
Gun-mounting	D. Adamson	519,965	May 15	1789	439	67	900
Gun. Rawhide-wound	F. Latulip	521,911	June 26	2060	495	67	1624
Gun. Recoil-operated magazine	A. Burgess	520,753	May 29	3146	782	67	1180
Gun-sight	C. Bechis	517,514	Apr. 3	160	36	67	33
Guns. Automatically-operated breech mechanism for	J. B. G. A. Canet	521,400	June 12	1148	272, 273	67	1421
Guns. Cocking mechanism for breakdown	F. A. Hollenbeck	519,126	May 1	331	78	67	601
Guns. Safety breech-lock for	J. B. G. A. Canet	519,661	May 8	1302	311	67	795
Guns. Shifting mechanism for cocking-arms of breakdown	F. A. Hollenbeck	520,959	June 5	375	92	67	1266
Guns. Trigger for double-barreled	W. Fleming	521,021	June 5	476	114	67	1282
Gutta-percha or rubber compound	R. Hutchison	518,817	Apr. 24	2398	.....	67	481
Gymnastic appliance for school-desks	T. Bessing	517,788	Apr. 3	625	156	67	121
Hair-crimping iron	R. Nicol, Jr.	520,859	June 5	193	42	67	1232
Hair-curler	J. W. Leonard	519,189	May 1	447	109	67	623
Hair from the skin. Composition for removing	J. Mellinger	520,005	May 15	1859	.....	67	912
Halter	T. B. Burnett	521,457	June 19	1272	296	67	1460
Halter	C. G. Sheriff	520,381	May 22	2521	610	67	1050
Hame	J. J. McCarthy	520,071	May 22	1978	484	67	948
Hame-hook	A. Thomson	521,901	June 26	2039	491	67	1620
Hame-link	J. Stanley	520,457	May 29	2646	639	67	1089
Hammer. Lath and shingle	W. A. Wiley	517,911	Apr. 10	812	204	67	170
Hammock	T. B. Thomas	517,557	Apr. 3	232	53	67	46
Hammock-frame. Folding	A. Karnbach	519,286	May 1	623	151	67	657
Hammock stretcher or spreader	R. C. Funke	518,568	Apr. 17	1960	484	67	389
Hammock-support or tent-frame	W. S. Young	519,898	May 15	1685	411	67	881
Hand-bag	J. M. Allen	518,478	Apr. 17	1810	448	67	363
Hand-bag. Lady's	M. E. Hoyle	518,034	Apr. 10	1027	259	67	206
Hand-hole plates. Device for fastening	N. W. Pratt	517,885	Apr. 10	763	190, 191	67	162
Handle: *See* Casket-handle. Coffin-handle. Knife-handle. Razor-handle. Saw-handle. Tool-handle. Trunk-handle.							
Handle	P. Oswald	521,217	June 12	824	193	67	1360
Handles and covers to vessels. Attaching	G. W. Niedringhaus	519,060	May 1	223	53	67	579
Hanger: *See* Book or paper hanger. Chart-hanger. Eaves-trough hanger. Garment-hanger. Lamp-hanger. Picture-hanger. Pipe-hanger. Shade-hanger. Trolley-wire hanger.							
Harness	L. H. Creamer	519,149	May 1	370	88	67	609

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Harness-strap	G. A. Whipple	518,575	Apr. 17	1969	486	67	391
Harp	W. W. Batchelder, Jr	517,723	Apr. 3	520	126	67	101
Harp	A. J. Gery and R. Dolge	521,109	June 5	638	150	67	1312
Harp	W. J. Richie	518,512	Apr. 17	1869	461	67	373
Harrow	J. W. Brown	518,912	Apr. 24	2552	630, 631	67	511
Harrow	J. C. Johnson	519,767	May 15	1472	356	67	840
Harrow	J. Porteous	522,086	June 26	2373	571	67	1681
Harrow	N. O. Starks	521,392	June 12	1134	267, 268	67	1418
Harrow	C. Wehrenberg	520,278	May 22	2352	571	67	1017
Harrow	I. Smith	521,826	June 26	1908	458	67	1594
Harrow and scraper. Combined	B. M. Mills	522,178	June 26	2534	608	67	1711
Harrow attachment	J. T. Barker	518,215	Apr. 17	1350	337	67	280
Harrow-disk sharpener	J. L. Shaw	517,810	Apr. 3	659	165	67	128
Harrow-disks. Machine for sharpening	J. Boston	518,391	Apr. 17	1663	411, 412	67	317
Harrow. Pulverizing	W. F. Cochran	519,321	May 8	700	172	67	687
Harrow. Riding	H. Cromer	518,520	Apr. 17	1880	466	67	375
Harrow. Rotary	M. J. Todd	517,672	Apr. 3	438	106	67	84
Harrow. Spring-tooth	T. Ellison	519,841	May 15	1591	389	67	863
Harrows. Machine for sharpening roller-disk	W. D. Harmon	519,019	May 1	126	31, 32	67	560
Harvester	W. McCloskey	517,654	Apr. 3	406	98, 99	67	78
Harvester	W. McCloskey	517,655	Apr. 3	408	99	67	78
Harvester	J. Drake	522,008	June 26	2257	541	67	1658
Harvester and husker. Combination corn	E. Horton	520,054	May 22	1946	476	67	943
Harvester. Berry	J. J. Courtney	521,154	June 12	717	168	67	1340
Harvester bundle-carrier	J. Anderson	517,830	Apr. 10	683	170	67	147
Harvester. Corn	H. Claar	519,836	May 15	1585	388	67	862
Harvester. Corn	W. K. Liggett	521,719	June 19	1715	404, 405	67	1542
Harvester. Corn	H. R. Stevenson	517,899	Apr. 10	789	198, 199	67	166
Harvester. Corn	N. M. Tenney and G. W. Harrison	521,058	June 5	546	128, 129	67	1296
Harvester. Corn	E. E. Witter	518,516	Apr. 17	1874	464	67	374
Harvester. Corn	W. F. Ziegler	522,094	June 26	2383	573	67	1683
Harvester. Cotton	B. Gause	520,045	May 22	1928	472, 473	67	940
Harvester. Cotton	L. R. Turner	517,596	Apr. 3	294	68	67	58
Harvester-elevator	A. Stark	521,484	June 19	1320	308	67	1469
Harvester finger. Cotton	A. Levedahl	517,578	Apr. 3	266	61	67	52
Harvester frictional clutch	H. C. Stone	521,485	June 19	1323	308	67	1469
Harvester. Grain-binding	E. F. Wells	520,153	May 22	2138	521, 522	67	977
Harvester. Potato	L. L. Young	518,770	Apr. 24	2317	575	67	467
Harvesting machine. Corn	C. K. Conner	521,101	June 5	623	147	67	1309
Harvesting machine. Corn	A. Stone	521,679	June 19	1650	387	67	1529
Harvesting machine. Corn	J. A. Stone	521,680	June 19	1653	388, 389	67	1529
Harvesting machine. Corn	J. A. Stone	521,681	June 19	1655	388, 389	67	1530
Harvesting machine. Corn	J. B. and G. T. Tuckerman	521,486	June 19	1324	308	67	1469
Harvesting-machine knotter	J. F. Steward	519,395	May 8	842	204	67	713
Hasp-lock	J. A. Dixon	517,685	Apr. 3	458	111	67	88
Hat and coat hook. Locking	E. W. Sweigard	519,102	May 1	277	66	67	589
Hat-brim-pouncing machine	G. E. Brush	518,661	Apr. 24	2117	529, 530	67	432
Hat-brim-stiffening machine	F. J. Murphy	519,194	May 1	453	111	67	625
Hat-crown-stiffening machine	F. J. Murphy	519,195	May 1	455	112	67	625
Hat-fastener	J. J. Riordan, Jr	520,660	May 29	2978	720	67	1149
Hat-forming mold	J. Marshall	517,470	Apr. 3	94	21	67	20
Hat or bonnet holder	I. D. Van Gorder	519,210	May 1	490	118	67	632
Hat-packing ring	S. T. Newman	520,145	May 22	2124	519	67	974
Hat-pin	A. J. Mullican	522,080	June 26	2365	569	67	1679
Hat-pin retainer	C. P. Thomas	521,683	June 19	1659	389	67	1531
Hat-rack	C. E. Cochrane	520,634	May 29	2938	710	67	1142
Hat setting and flanging machine	G. Roth	520,082	May 22	1999	489	67	953
Hats by means of wire staples. Machine for attaching sweat leathers and bands to	F. W. Cooper	519,885	May 15	1667	406	67	877
Hatch. Elevator	S. W. Blanchard and W. A. Lambie	519,299	May 1	644	157	67	662
Hatchet	J. C. Scales	517,934	Apr. 10	848	213	67	177
Hatchway. Automatic	J. M. Elder	521,107	June 5	633	149	67	1311
Hay-carrier	A. P. Boyer	517,835	Apr. 10	689	172, 173	67	148
Hay-carrier and track	J. E. Porter	518,895	Apr. 24	2525	624	67	506
Hay-derrick	J. R. Buford and J. Geery	518,584	Apr. 24	1990	492	67	410
Hay elevator and carrier	J. E. Porter	519,270	May 1	591	143	67	652
Hay-frame brake	F. H. Hoch	519,907	May 15	1698	414	67	883
Hay-knife	F. J. Feneran and E. D. Milks	519,251	May 1	565	137	67	646
Hay-lifter	O. Briggs	517,945	Apr. 10	864	218	67	179
Hay-loader	E. B. Keith	520,059	May 22	1951	477, 478	67	944
Hay-loader	A. M. Livelsberger	520,324	May 22	2423	589	67	1031
Hay-loader	I. E. Stump	518,555	Apr. 17	1933	477, 478	67	384
Hay-press	W. J. Pearce	518,965	May 1	44	12	67	544
Hay-press	R. H. Walton	521,923	June 26	2078	499	67	1627
Hay-press feeder	H. Fette	521,261	June 12	905	213	67	1374
Hay-press feeder. Automatic	W. H. H. Johnson	521,657	June 19	1609	377, 378	67	1521
Hay-rack	G. Hausmann	522,056	June 26	2326	559	67	1671
Hay-rake	G. A. Gemmer	518,993	May 1	91	22	67	552
Hay-rake	G. D. Lamm	520,320	May 22	2417	588	67	1029

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hay rake and loader	J. T. Bell and A. T. Stewart	520,422	May 29	2587	626, 627	67	1078
Hay rake and loader	C. E. White	518,085	Apr. 10	1111	281, 282	67	219
Hay-rake. Automatic center-delivery	L. H. and O. N. Kimball	519,262	May 1	579	141	67	649
Hay-rake. Horse	O. Richards	521,271	June 12	918	217, 218	67	1377
Hay rake, tedder, and loader. Combined	J. H. Ridings	521,247	June 12	875	207, 208	67	1369
Hay ricker or loader	A. L. Courtright	520,180	May 22	2184	532	67	986
Hay-stacker	H. L. Short	520,808	June 5	85	19, 20	67	1213
Hay-unloading device	F. A. Killpack	517,867	Apr. 10	736	185	67	156
Head-rest	G. W. Archer	518,771	Apr. 24	2319	576	67	468
Head-rest	A. Schwaab, Jr.	520,577	May 29	2847	687	67	1126
Headlight	E. C. Glazier	517,920	Apr. 10	826	207	67	173
Hearse	C. Edwards	521,647	June 19	1595	373	67	1518
Heat-motor plant	R. D. Kinney	521,910	June 26	2055	495	67	1623
Heat-regulator	J. F. McElroy	520,893	June 5	257	61	67	1244
Heater: *See* Auxiliary heater. Car-heater. Electric heater. Feed-water heater. Feed-water-pipe heater. Fireplace-heater. Oil-heater. Sad-iron heater. Tire-heater. Water-heater.							
Heater	J. H. Adams	519,560	May 8	1128	271	67	764
Heater	D. S. Richardson	521,420	June 12	1180	280, 281	67	1427
Heater and table	E. M. Burchard	520,632	May 29	2935	709	67	1142
Heater for soldering-irons, &c	G. H. Perkins	519,305	May 1	661	160	67	665
Heaters. Cast-iron conduit for steam or hot-water	C. J. Balthasar	520,747	May 29	3135	759	67	1178
Heating and ventilating rooms. Device for	C. Mills	517,759	Apr. 3	579	142, 143	67	112
Heating apparatus	E. E. Ashley	520,911	June 5	290	70, 71	67	1250
Heating apparatus	E. R. Soleau	521,348	June 12	1070	250, 251	67	1406
Heating apparatus	R. H. Stubbs	518,798	Apr. 24	2359	584, 585	67	475
Heating apparatus. Electric	G. D. Burton	521,099	June 5	621	146	67	1308
Heating apparatus. Hot-air	H. P. Judson	518,250	Apr. 17	1407	352	67	290
Heating apparatus. Hot-water	A. T. Henderson	520,677	May 29	3025	732	67	1157
Heating apparatus. Oil-vapor	E. Strauss	519,396	May 8	844	204	67	714
Heating apparatus. Steam	C. H. Robinson	521,440	June 12	1224	290	67	1434
Heating apparatus. Steam	E. Watts	521,093	June 5	612	145	67	1307
Heating-boiler. Hot-water	D. F. Morgan	519,132	May 1	312	81	67	604
Heating-boiler. Hot-water	D. F. Morgan	519,133	May 1	343	81	67	604
Heating, illuminating, or culinary purposes. Appliance for	F. E. Browne	521,201	June 12	796	187	67	1354
Heating system for cars, &c	J. W. Beach	521,008	June 5	459	109, 110	67	1279
Heating systems. Heater for hot-water	F. E. Dack	517,683	Apr. 3	454	110	67	87
Hedges. Mode of and appliance for plashing	M. Neil	518,466	Apr. 17	1704	445	67	361
Heel	A. P. Gotham	520,522	May 29	2754	666	67	1107
Heel	W. Morrison and W. H. Purser	518,266	Apr. 17	1433	358, 359	67	294
Heel	J. W. Rogers	517,965	Apr. 10	911	228	67	187
Heel-breast finisher	N. Churchill and W. C. Baxter	520,768	June 5	11	3	67	1199
Heel-cutter	A. McDowell	518,043	Apr. 10	1053	267	67	209
Heel-nailing machine	A. White	519,144	May 1	359	86, 87	67	607
Heel-stiffener machine	W. J. Young	519,936	May 15	1744	427, 428	67	891
Heel-trimming machine	C. H. Trask	521,770	June 19	1819	431, 432	67	1559
High chair	G. A. Morfoot	518,070	Apr. 10	1091	275	67	215
High-speed engine	J. Dow	521,706	June 19	1688	396, 397	67	1537
Hinge	J. J. Berry	520,629	May 29	2931	708	67	1141
Hinge	T. Corscaden	518,308	Apr. 17	1497	375	67	306
Hinge	W. B. Deming	518,309	Apr. 17	1498	375	67	307
Hinge	A. M. Granger	517,857	Apr. 10	724	182	67	154
Hinge	J. H. Lawrence	518,741	Apr. 24	2275	565	67	459
Hinge. Concealed	A. A. Oat, Sr	521,528	June 19	1397	323	67	1482
Hinge for step-ladders, &c	J. and C. Koehler	519,535	May 8	1094	262	67	759
Hinge. Lock-	W. T. Bessonette	521,429	June 12	1200	284	67	1430
Hinge. Lock-	Z. B. Chase	518,021	Apr. 10	1009	253	67	202
Hinge. School-seat	J. W. Fisher	518,988	May 1	83	21	67	551
Hinge. Self-closing concealed	A. A. Oat, Sr	521,546	June 19	1422	330	67	1486
Hinge. Spring-	R. Brindle	519,833	May 15	1579	387	67	861
Hinge. Spring-	L. R. Pomeroy	518,626	Apr. 24	2054	511	67	421
Hinge. Spring-	A. H. Wilson	518,639	Apr. 24	2078	518	67	425
Hinges. Manufacture of strap-	T. Corscaden	519,243	May 1	551	134	67	644
Hinges or links. Machine for forming wire	H. S. Reynolds	519,160	May 1	396	96	67	614
Hitching device	J. P. Muth	519,891	May 15	1676	408	67	879
Hitching device. Horse-	J. G. Engberg	518,366	Apr. 17	1626	401	67	330
Hitching device. Horse-	J. W. McHenry	520,608	May 29	2898	700	67	1135
Hitching device. Stock-	S. F. Clark	521,782	June 26	1842	439	67	1580
Hoist. Pneumatic	H. Schweim	519,436	May 8	903	217	67	725
Hoisting and conveying apparatus	S. M. Hewett	517,859	Apr. 10	726	183	67	154
Hoisting and conveying apparatus	T. S. Miller	521,035	June 5	500	119	67	1287
Hoisting and transfer apparatus	W. D. Sherman	518,901	Apr. 24	2532	626, 627	67	508
Hoisting apparatus	W. Roth	519,294	May 1	637	155	67	660
Hoisting-machine	L. Hamerly	520,426	May 29	2593	628	67	1079
Holdback	W. Rice	520,612	May 29	2904	701	67	1136

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Holdback	D. Warner	519,363	May 8	785	192	67	703
Hoof boot and pad	W. Sidebotham	519,822	May 15	1561	382	67	857
Hook: *See* Back-band hook. Check-hook. Coat and hat hook. Conductor-hook. Fish-hook. Hame-hook. Hat and coat hook. Mousing-hook. Release-hook. Snap-hook.							
Hook	D. W. Holden	518,452	Apr. 17	1771	439	67	356
Hook	J. M. Reid	520,539	May 29	2781	672	67	1113
Hook and eye	F. Meyers and M. Stoveken	519,612	May 8	1215	293	67	780
Hook and eye	J. F. Schoeppl	521,391	June 12	1133	267	67	1418
Hooks for stretching curtains. Machine for making	F. Steinmann	517,775	Apr. 3	606	149, 150	67	117
Hoop-dressing machine	H. F. Campbell	519,401	May 8	849	205	67	715
Hopple	H. McGuire	518,044	Apr. 10	1055	267	67	209
Horse-boot	W. Temple	520,193	May 22	2207	538	67	990
Horse-cover	E. H. Cooper	518,832	Apr. 24	2419	599	67	485
Horse-detacher	B. Blake	521,581	June 19	1482	347	67	1497
Horse-detacher	J. J. Rick and L. Larson	520,337	May 22	2454	595	67	1036
Horse-rake	C. S. Sharp	517,490	Apr. 3	124	27, 28	67	26
Horse-rake	C. S. Sharp	517,491	Apr. 3	128	28	67	26
Horses. Device for stopping runaway	C. Jagelitz	520,057	May 22	1949	477	67	944
Horseshoe	F. W. Bach	518,772	Apr. 24	2320	576	67	468
Horseshoe	W. F. Downey	521,645	June 19	1592	373	67	1517
Horseshoe	J. H., J. R., and W. E. Smith	522,126	June 26	2437	586	67	1692
Horseshoe-bars. Machine for making	W. J. Kent	518,608	Apr. 24	2024	503	67	416
Horseshoe-blanks. Machine for bending	W. J. Kent	518,609	Apr. 24	2025	503	67	416
Horseshoe-calk sharpener	A. B. Smith	521,513	June 19	1471	319	67	1478
Horseshoe. Combination rubber and steel	E. C. Scribner	518,863	Apr. 24	2460	609	67	493
Horseshoe. Nailless	G. Burgstaller	520,409	May 29	2567	621	67	1075
Horseshoe-pad	A. L. Grant	521,609	June 19	1537	360	67	1507
Horseshoe. Sectional	E. Hogbin	519,453	May 8	928	224	67	730
Horseshoes. Combination-tool for punching and creasing	J. Whalin	518,434	Apr. 17	1738	432	67	351
Hose-bridge	H. Sandrock	519,136	May 1	347	82	67	605
Hose-cart	E. and L. Shay	521,868	June 26	1973	476	67	1607
Hose-clamp	J. C. Barrett	520,386	May 22	2530	611	67	1052
Hose-coupling	S. M. Beery	519,829	May 15	1575	385	67	860
Hose-coupling	J. M. Cox	520,952	June 5	365	89	67	1264
Hose-coupling band. Adjustable	E. R. Arthur	519,312	May 8	680	166	67	683
Hose-leak stop or jacket	J. B. Cooper	518,805	Apr. 24	2377	588	67	477
Hose-nozzles. Portable and adjustable support for	W. A. Cain	518,986	May 1	81	21	67	551
Hose-reel	W. N. Casson	517,731	Apr. 3	531	129	67	103
Hose-reel	J. B. Hunter	521,796	June 26	1860	445	67	1585
Hosiery	S. Sills and J. E. Wood	517,593	Apr. 3	289	67	67	77
Hosiery cutting apparatus	I. Mossop	517,706	Apr. 3	495	118	67	95
Hot-air furnace	G. W. Fridrich	519,304	May 1	658	160	67	665
Hot-air register	R. R. Buehler	521,973	June 26	2179	523	67	1645
Hot-water boiler	B. Etienne	518,592	Apr. 24	2062	496	67	412
House: *See* Brick or terra-cotta house.							
Hub. Antifriction wheel	E. F. Moore	520,933	June 5	340	83	67	1259
Hub. Metallic	J. H. Gray	518,498	Apr. 17	1842	456	67	368
Hub protector. Vehicle	N. D. Hodgkins	518,951	May 1	24	7	67	541
Hub. Wheel	J. W. Cloud	519,807	May 15	1541	376	67	853
Hub. Wheel	J. W. Cloud	519,808	May 15	1543	377	67	854
Humidifying fibrous substances. Means and apparatus for	J. T. Pearson	520,703	May 29	3072	743	67	1167
Hydrant	R. A. Brooks	519,660	May 8	1301	311	67	795
Hydraulic elevator	C. J. Dudley	518,491	Apr. 17	1824	452	67	366
Hydraulic elevator	E. S. Matthews	520,166	May 22	2101	526	67	981
Hydraulic elevator	J. Reichmann	522,030	June 26	2286	547, 548	67	1664
Hydraulic elevator	J. G. Stamp	518,377	Apr. 17	1646	406, 407	67	333
Hydrocarbon-burner	E. Betz	519,375	May 8	803	196	67	706
Hydrocarbon-burner	A. J. Blackford	518,305	Apr. 17	1492	373, 374	67	306
Hydrocarbon-burner	C. S. Edmonds	522,158	June 26	2300	600, 601	67	1704
Hydrocarbon-burner	T. K. Nickerson	519,339	May 8	734	180	67	693
Hydrocarbon-burner	R. Reid	519,392	May 8	838	203	67	713
Hydrocarbon injector burner	F. M. Reed	518,897	Apr. 24	2528	625	67	507
Hydrocarbon-motor	E. I. Nichols	520,858	June 5	191	42	67	1231
Ice and for refrigerating. Apparatus for manufacturing	J. Scheuerecker	518,791	Apr. 24	2348	582	67	473
Ice-cream freezer	J. B. Butler	521,013	June 5	468	112	67	1281
Ice-cream freezer	J. Schaller	518,280	Apr. 17	1454	364	67	290
Ice-cream freezer	J. M. Skipper	517,492	Apr. 3	131	28, 29	67	27
Ice-cream freezer	W. R. Thatcher	521,496	June 12	1195	294	67	1429
Ice-cream freezer	W. Vogt	518,829	Apr. 24	2413	597	67	484
Ice-creeper	J. R. Russell	521,821	June 26	1900	456	67	1593
Ice-machines. Pneumatic can-hoist for	C. A. MacDonald	517,468	Apr. 3	90	20	67	19
Ice. Manufacture of artificial	R. M. Taylor	519,359	May 8	779	190	67	702
Ices. Coin-actuated automatic mechanism for the delivery of	H. Y. Dickinson and A. G. Macculloch.	517,847	Apr. 10	715	180	67	153
Incubator	H. R. Davis	519,244	May 1	551	134, 135	67	644
Incubator	S. Q. Duncan	520,181	May 22	2185	532, 533	67	986
Incubators. Thermostatic regulator for	G. Ertel	518,522	Apr. 17	1882	466	67	376
Index	J. E. Speara	521,324	June 12	1015	239	67	1394
Index	F. P. Sweitzer	519,622	May 8	1242	298	67	785

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Index. Ledger	T. A. Uren	520,096	May 22	2020	493	67	957
Indicator: *See* Door-indicator. Length-indicator. Electric indicator. Micrometer-indicator. Electric-current indicator. Office-door indicator. Engine-indicator. Railway time-indicator. Fare-indicator. Station-indicator.							
Indicator-springs and steam-gages. Apparatus for testing	R. C. Carpenter	519,235	May 1	535	129	67	641
Infusions and maintaining supplies of hot water or liquid. Apparatus used in making	J. Childs and C. J. Jones	521,229	June 12	849	198, 199	67	1364
Ingot-charging apparatus	T. R., Sr., and W. H. Morgan	520,798	June 5	73	15, 16	67	1210
Ingot-mold	J. Illingworth	520,923	June 5	319	77	67	1255
Injector. Air-	J. G. Stamp	517,629	Apr. 3	350	83	67	68
Ink. Manufacture of printing-	J. and J. Bibby	519,032	May 1	153	.....	67	565
Inkstand	W. Hubbard	518,036	Apr. 10	1029	260	67	206
Inseam trimming machine	A. P. Hanscom and A. C. Spencer	520,020	May 15	1881	460	67	916
Insect-powder distributer	S. E. Hotchkiss	519,471	May 8	967	233	67	735
Insole-grooving machine	G. A. Cole and E. H. Taylor	521,583	June 19	1485	347, 348	67	1498
Insulating compound	A. Gentzsch	517,452	Apr. 3	67	.....	67	15
Insulating material into conduits. Means for introducing	D. Brooks, Jr.	519,171	May 1	418	101	67	618
Insulating-tube	M. Robinson	517,591	Apr. 3	287	66	67	57
Insulating-turnbuckle	H. P. Ball	518,213	Apr. 17	1349	336	67	279
Insulator	J. M. Andersen	522,175	June 26	2528	607	67	1710
Insulator	C. E. Conover	520,412	May 29	2569	622	67	1075
Insulator	F. M. Locke	520,367	May 22	2503	605	67	1047
Insulator	H. H. Luscomb	520,602	May 29	2889	698	67	1134
Insulator	L. McCarthy	517,621	Apr. 3	335	79	67	66
Insulator	L. McCarthy	520,606	May 29	2895	699	67	1135
Insulator. Feed-wire	C. A. Lieb	520,855	June 5	187	41	67	1231
Insulator-pin	G. H. Winslow	517,634	Apr. 3	361	85, 86	67	71
Insulator. Section-	H. B. Nichols and F. H. Lincoln	521,124	June 5	657	155	67	1315
Insulator. Strain-	L. McCarthy	518,373	Apr. 17	1638	404	67	332
Insulator. Trolley-wire	L. McCarthy	518,071	Apr. 10	1092	276	67	216
Invalid-chair	O. L. Smith-Fraser	521,463	June 19	1281	298	67	1461
Iron: *See* Curling-iron. Sad-iron. Hair-crimping iron.							
Iron. Apparatus for breaking pig-	J. S. Kennedy	520,685	May 29	3037	735	67	1160
Iron-breaking machine. Pig-	C. L. Miller and J. R. George	518,416	Apr. 17	1703	422, 423	67	344
Iron. Tool for making curves or other forms in Venetian	M. H. Hulbert	518,816	Apr. 24	2396	592	67	481
Iron. Refining	A. E. Barton and G. B. McCormack	519,902	May 15	1691	.....	67	882
Ironing-board	J. W. Hiett and T. C. Cole	522,058	June 26	2328	559	67	1672
Ironing-board	J. Y. Moore	519,410	May 8	863	209	67	717
Ironing-machine	H. E. Smith	519,974	May 15	1810	444	67	903
Ironing-machine	F. C. Wendell	518,871	Apr. 24	2470	612	67	495
Ironing-machine	F. C. Wendell	518,872	Apr. 24	2474	612, 613	67	496
Ironing-table	J. Green	520,183	May 22	2190	533	67	987
Jack: *See* Lifting-jack.							
Jalousies. Band or cord self-acting uproller on	S. Stahl	521,276	June 12	923	219	67	1378
Jar: *See* Preserving-jar.							
Jar-fastening	R. S. Carr	517,433	Apr. 3	18	4	67	6
Jewel-piping machine	D. H. Church	522,046	June 26	2311	554, 555	67	1669
Jewel-setting-machine feeder	W. Rundquist	519,027	May 1	141	35	67	563
Jigs. Plunger-worker for concentrating-	O. Abeling	520,287	May 22	2368	575	67	1020
Joint: *See* Compression-joint. Railway-rail joint. Pipe-joint. Stovepipe-joint. Rail-joint.							
Jointer-guard. Automatic	C. A. Daly	519,698	May 15	1364	330	67	820
Joist-crowning machine	F. J. Randall	519,682	May 8	1338	323	67	802
Journal-bearing	W. J. and J. J. Carter	520,295	May 22	2377	577	67	1022
Journal-box. Oil-drawer	J. H. Surtin	517,776	Apr. 3	607	150	67	118
Jute or other bagging. Treating	A. Lehman and C. J. Kraus	518,549	Apr. 17	1925	.....	67	383
Keg or analogous package	F. H. Waite	519,486	May 8	992	240	67	739
Keg-rolling machine	W. Arnemann	518,389	Apr. 17	1661	410	67	336
Key: *See* Can-key.							
Key-instruments. Sound recording and reproducing attachment for	C. W. Nyström	520,894	June 5	258	61, 62	67	1244
Key-seating machine	W. P. Davis	518,023	Apr. 10	1011	254	67	203
Keyboard mechanism for playing upon stringed instruments.	E. J. DeVlaminck	521,851	June 26	1943	466, 467	67	1600
Keyboard. Movable	L. J. M. Duvivier	522,048	June 26	2315	555, 556	67	1669
Keyboard. Transposing-	A. Marcy	517,874	Apr. 10	745	187	67	158
Kiln: *See* Brick-kiln. Drying-kiln. Brick and tile kiln. Limekiln. Continuous kiln. Muffle-kiln. Dry-kiln.							
Kiln	F. Halbeisen	520,641	May 29	2948	713	67	1144
Kiln for baking bricks, tiles, pottery, &c	T. Polivka	519,344	May 8	746	184, 185	67	695
Kiln for burning brick, pottery, &c	S. K. Smith	517,893	Apr. 10	777	194	57	164

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Kiln for burning earthenware	W. H. R. Kunstman	519,814	May 15	1549	379, 380	67	855
Kitchen-cabinet	J. H. Keys	518,150	Apr. 10	1216	305	67	238
Kitchen-cabinet	M. S. Thomas	520,460	May 29	2652	641	67	1090
Kitchen-cabinet and churn. Combined	J. K. Hodges and T. C. Dickson	517,457	Apr. 3	73	16	67	16
Kneader and mixer. Dough	R. M. Shaffer	519,740	May 15	1429	345	67	832
Knee-protector	A. C. Bull	519,760	May 15	1459	354	67	838
Knife: *See* Chopping-knife. Peeling-knife. Hay-knife. Skinning-knife.							
Knife	R. J. Christy	519,237	May 1	537	129	67	642
Knife-handle, brush-back, &c	F. N. Look	519,068	May 1	222	52	67	579
Knitting-machine	L. E. Salisbury	520,452	May 29	2635	637	67	1087
Knitting-machine	L. E. Salisbury	521,248	June 12	881	208	67	1370
Knitting-machine	L. N. D. Williams	521,066	June 5	562	131, 132	67	1298
Knitting-machine	W. H. Zeller	521,069	June 5	567	133, 134	67	1299
Knitting-machine cam	G. H. Gilbert	521,367	June 12	1099	258	67	1412
Knitting machine. Circular-	J. L. Branson and S. S. Cook	519,170	May 1	415	101	67	617
Knitting machine. Circular-	E. W. Gourd	521,284	June 12	944	223, 224, 225	67	1381
Knitting-machine needle-actuating cam	H. A. Houseman	521,860	June 26	1960	473	67	1604
Knitting-machine stop-motion	E. Tiffany	521,190	June 12	777	182	67	1351
Knitting-machine stop-off motion	F. Chambers and T. Doud	519,690	May 8	1351	326	67	804
Knitting machine. Warp-	C. B. Sander	522,123	June 26	2432	584, 585, 586	67	1691
Knitting-machine warp-frame attachment	W. Cutts	520,303	May 22	2387	580	67	1024
Knitting machines. Fashioning device for circular-	J. B. Paxton and E. I. O'Neill	521,218	June 12	825	193, 194	67	1360
Knitting-machines. Quarter-saver for flat-rib	E. Tiffany and G. E. Parker	521,191	June 12	779	182	67	1351
Knitting machines. Self-acting fashioning device for circular-	E. C. Breaithwaite and J. W. Hepworth.	521,098	June 5	618	145, 146	67	1308
Knitting machines. Stop-motion for straight-	E. Tiffany	521,277	June 12	925	219	67	1378
Knob attachment	T. E. Wardwell	520,508	May 29	2732	662	67	1104
Knob. Sheet metal	W. A. Turner	520,151	May 22	2435	520	67	977
Knockdown box	B. L. Gale	521,310	June 12	994	234	67	1390
Knockdown case	M. M. Cleckley	521,848	June 26	1939	465	67	1599
Knockdown chair	A. R. Van Norman	521,395	June 12	1139	269	67	1419
Label-holder	W. G. Duckett	517,545	Apr. 3	212	48, 49	67	42
Labeling-machine	E. E. Euchenhofer, C. J. Weinman, and A. L. Stevens.	517,918	Apr. 10	823	206, 207	67	173
Labeling-machine	A. L. Stevens	517,896	Apr. 10	783	195, 196	67	165
Labeling-machine	A. L. Stevens	517,897	Apr. 10	785	196, 197	67	165
Labeling machine. Can-	A. L. Stevens	517,898	Apr. 10	786	197, 198	67	166
Lace-fastener	J. B. Craig	519,018	May 1	126	31	67	560
Lacing-books. Machine for setting	J. Keith	517,828	Apr. 3	679	169	67	132
Lacing-stud fastener	P. A. Raymond	519,847	May 15	1602	391	67	865
Lacing-studs. Process of and device for attaching	P. A. Raymond	519,848	May 15	1603	391	67	865
Ladder	F. B. Mallory	521,381	June 12	1121	264	67	1416
Ladder. Fire-	J. Pauly and M. Michels	517,932	Apr. 10	843	212, 213	67	176
Ladder for sleeping-cars. Folding	J. B. Holbrook	519,184	May 1	439	108	67	622
Ladder. Sectional	H. H. Lang	518,961	May 1	39	11	67	543
Ladder. Step-	G. E. Chittenden	520,202	May 22	2224	541	67	993
Ladle. Pouring-	S. J. Adams	521,519	June 19	1377	320	67	1479
Lamp	J. Kirby, Jr	520,265	May 22	2332	506	67	1013
Lamp	G. A. McCay	518,531	Apr. 17	1898	470	67	378
Lamp	W. A. Phillips	521,430	June 12	1222	289, 290	67	1434
Lamp	E. F. Trent	519,851	May 15	1606	392, 393	67	866
Lamp	E. F. Trent	519,852	May 15	1609	393	67	866
Lamp	E. F. Trent	519,853	May 15	1612	393	67	866
Lamp	E. F. Trent	519,854	May 15	1615	393, 394	67	867
Lamp. Automatic electric signal	J. R. Farmer	521,435	June 12	1212	287, 288	67	1432
Lamp-burner	L. A. Milbank	519,865	May 15	1635	398	67	871
Lamp-burner clamp	E. C. Fowler and G. A. Downs	520,042	May 22	1923	471	67	939
Lamp. Candle-	F. E. Baldwin	520,200	May 22	2222	540	67	992
Lamp carbon-holder. Arc-	E. Lavens	519,334	May 8	722	178	67	691
Lamp-collar	L. J. Atwood	517,676	Apr. 3	444	107	67	85
Lamp. Duplex arc	C. E. Scribner	518,792	Apr. 24	2350	582	67	473
Lamp. Duplex electric-arc	G. F. Edens and J. B. Brewer	521,434	June 12	1210	287	67	1432
Lamp. Electric-arc	W. J. Davy	521,877	June 26	1985	479, 480	67	1609
Lamp. Electric-arc	J. C. Fyfe	519,283	May 1	615	150	67	656
Lamp. Electric-arc	C. Hoffmann	518,719	Apr. 24	2232	555, 556	67	452
Lamp. Electric-arc	L. E. Howard	520,991	June 5	430	103	67	1275
Lamp. Electric-arc	S. P. Johnson	521,798	June 26	1863	446	67	1585
Lamp. Electric-arc	J. F. Kester	519,912	May 15	1704	416	67	884
Lamp. Electric-arc	L. B. Marks	521,936	June 26	2110	506	67	1634
Lamp. Electric-arc	L. B. Marks and C. Ransom	520,996	June 5	438	105	67	1276
Lamp. Electric-arc	W. Mathiesen	519,726	May 15	1410	340	67	829
Lamp. Electric-arc	J. B. McKeown	519,045	May 1	173	41	67	569
Lamp. Electric-arc	R. Segerdahl	518,654	Apr. 24	2105	526	67	430
Lamp. Electric incandescent	J. E. Criggal	518,179	Apr. 10	1269	319	67	247

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lamp for bicycles. Electric	G. Mayr	521,721	June 19	1719	406	67	1543
Lamp-hanger	T. Hancock	522,160	June 26	2504	601	67	1705
Lamp. Incandescent	A. C. Carey	517,432	Apr. 3	16	4	67	6
Lamp. Incandescent	F. S. Smith	520,088	May 22	2010	491	67	955
Lamp. Incandescent	D. C. Voss	521,131	June 5	672	158	67	1318
Lamp. Incandescent electric	F. S. Smith	519,099	May 1	273	65	67	588
Lamp-lighter	A. H. Todd	521,516	June 19	1375	320	67	1479
Lamp lighter. Electric	J. F. McLaughlin	521,809	June 26	1879	449	67	1588
Lamp. Miner's	W. P. McMasters	519,616	May 8	1229	295	67	782
Lamp. Miner's safety	J. Graham and H. Chapman	517,520	Apr. 3	170	38	67	35
Lamp or lantern	L. W. Schefers	520,966	June 5	203	45, 46	67	1234
Lamp. Rotatable signal	F. W. Dressel	519,406	May 8	1009	244	67	743
Lamp. Safety	T. Lowther, H. Toal, and R. Hay	521,801	June 26	1868	447	67	1586
Lamp-shade	F. E. Knight and H. S. Smith	520,649	May 29	2959	716	67	1146
Lamp-shade	A. Seberg and D. Connor	517,889	Apr. 10	771	192	67	163
Lamp sketching-camera	C. R. Jenne	520,058	May 22	1950	477	67	944
Lamp socket. Incandescent	L. R. Peck	521,322	June 12	1012	238	67	1394
Lamps. Adjustable carrier for electric	L. J. Atwood	521,073	June 5	574	135	67	1301
Lamps. Adjustable desk-bracket for electric	R. Faries	521,952	June 26	2145	514	67	1639
Lamps. Oil regulator for continuously-fed	S. G. Gailock and B. W. Marshall	517,569	Apr. 3	252	58	67	49
Lamps with oil. Apparatus for automatically filling	H. S. Pullman	520,611	May 29	2903	701	67	1136
Lampblack or carbon-black machine	L. S. Lewis	521,171	June 12	747	176	67	1345
Lantern	J. E. James	521,797	June 26	1861	446	67	1585
Lantern	G. C. Gill and L. C. Atwood	519,255	May 1	570	138	67	648
Lantern	G. W. Jarmi	522,062	June 26	2333	560	67	1673
Lantern	M. G. Steven	521,829	June 26	1912	458	67	1595
Lantern. Bicycle signal	F. Rhind	520,658	May 29	2976	720	67	1149
Lantern. Bicycle signal	F. Rhind	520,659	May 29	2977	720	67	1149
Lantern-holder for wagons, &c	G. J. Beehler	521,361	June 12	1091	256	67	1410
Lantern. Hurricane	W. Lighbody	519,406	May 8	856	207, 208	67	716
Lantern or lamp extinguisher	C. W. Cottrell	521,642	June 19	1570	372	67	1517
Lantern. Signal	P. Gray	521,162	June 12	729	172	67	1342
Lanterns. Electric-arc light for magic	C. Beseler	521,362	June 12	1092	257	67	1410
Lap-machines. Safety stopping mechanism for	A. H. Morton	518,007	Apr. 10	990	247, 248	67	199
Last	S. Appleton	521,305	June 12	983	232	67	1388
Last	F. E. Benton	517,424	Apr. 3	5	2	67	4
Last	F. E. Benton	518,985	May 1	80	21	67	551
Last	J. C. Kupferle	519,067	May 1	220	52	67	578
Last and stand. Shoe	I. G. Hatcher	518,602	Apr. 24	2013	500	67	414
Last-block fastener	C. W. Moore	518,509	Apr. 17	1860	461	67	372
Lasting-machine	J. Blakey	519,755	May 15	1450	350, 351	67	836
Lasting-machine	J. E. Crisp	517,947	Apr. 10	866	218, 219	67	180
Lasting-machine	J. E. Crisp and E. F. Grandy	521,975	June 26	2184	524, 525, 526	67	1646
Lasting-machine	E. F. Grandy	521,954	June 26	2151	515, 516, 517	67	1640
Lasting-machine	C. Sinning	518,932	Apr. 24	2583	639, 640, 641, 642, 643	67	517
Lasting-tool. Hand	I. Fréchette	519,859	May 15	1624	395	67	869
Latch and lock. Combined	N. B. Gregory	519,284	May 1	619	150	67	657
Latch. Gate	J. M. Mathews	520,117	May 22	2056	502	67	964
Latch. Gate	G. Rohrbach	521,045	June 5	525	124	67	1292
Lathe	W. F. Barnes	521,754	June 19	1790	425	67	1554
Lathe-centering device	R. L. Levin	517,466	Apr. 3	88	19	67	19
Lathe. Engine turning	W. Shellenback	518,164	Apr. 10	1242	311, 312	67	241
Lathe for relieving taps	W. A. Robertson	521,510	June 19	1365	317, 318	67	1477
Lathe for turning irregular forms	C. Kunze	518,611	Apr. 24	2027	504	67	417
Lathe. Screw-cutting engine	W. P. Norton	519,924	May 15	1722	422, 423	67	887
Lathe. Turret	F. H. Richards	518,969	May 1	52	13	67	546
Lathes. Adjustable stop for taper-turning	J. Flather	520,918	June 5	304	74	67	1252
Lathes. Means for centering face-plates for	E. Reynolds	522,122	June 26	2431	584	67	1691
Lathing. Metallic	G. Hayes	519,952	May 15	1768	433	67	895
Lathing. Metallic	G. Hayes	521,237	June 12	860	202	67	1366
Lathing. Metallic	G. Hayes	521,498	June 19	1347	312, 313	67	1474
Lathing. Metallic	G. Hayes	521,499	June 19	1348	313	67	1474
Laundry-hanging rod	W. S. Coburn	519,017	May 1	125	31	67	560
Lawn-edge trimmer	G. F. Wagner	517,942	Apr. 10	857	216	67	179
Lawn-sprinkler	S. S. Black	518,560	Apr. 17	1941	479	67	386
Lawn-sprinkler	J. Dickens	517,544	Apr. 3	210	48	67	42
Lead salts from native ores. Obtaining	A. G. Fell	519,704	May 15	1375	.....	67	822
Leaf-turner	L. Swindle	519,934	May 15	1740	426	67	890
Leather-cutting machine	P. Goldstein	521,538	June 19	1411	326, 327	67	1484
Leather-scoring machine	J. R. Scott	520,709	May 29	3079	745	67	1168
Leather-skiving machine	J. Barker	521,077	June 5	579	136	67	1302
Leather-skiving machine	N. Dufresne	519,282	May 1	614	149	67	656
Leather-skiving machine	A. E. Perry	518,790	Apr. 24	2346	581, 582	67	473
Leather-skiving machine	J. R. Scott	521,090	June 5	604	142, 143	67	1306
Leather-skiving machine	A. J. Tewksbury	517,631	Apr. 3	333	83, 84	67	69

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Leather-skiving machines. Circular knife for	A. J. Tewksbury	519,744	May 15	1434	346	67	833
Leather-stripping machine	M. J. Ryan	521,048	June 5	529	124, 125	67	1293
Ledger-plate	P. C. Shipley	520,807	June 5	84	19	67	1213
Leg. Artificial	W. Andrews	518,658	Apr. 24	2113	528	67	431
Leg. Artificial	W. R. Honsucle	519,503	May 8	1018	246	67	744
Leg. Artificial	J. McGuire	521,446	June 12	1241	293	67	1438
Leg. Artificial	W. J. Humphreys	520,432	May 29	2605	630	67	1081
Legged articles. Construction of	J. W. Woods and D. I. Barnett	520,946	June 5	358	87	67	1262
Length-indicator for fabrics	T. C. Chappell	522,045	June 26	2309	554	67	1668
Letter-box	S. A. Groff	519,427	May 8	890	215	67	723
Letter-box	G. L. Savage and W. H. Harrison	521,993	June 26	2227	535	67	1653
Letter-box	A. E. A. Ray	518,628	Apr. 24	2060	512	67	421
Letter-case, portfolio, &c	D. D. Howard	517,803	Apr. 3	645	162	67	125
Letter-drier	A. Schnell	517,935	Apr. 10	849	214	67	177
Level attachment. Spirit	J. Paoli	518,678	Apr. 24	2150	537	67	439
Level. Hand	A. H. Johnson	520,926	June 5	331	80	67	1257
Lever-controlling device	C. Baswitz	517,536	Apr. 3	194	44	67	39
Life-boat	A. Colomes	519,242	May 1	549	134	67	643
Life-preserver, buoy, &c. Automatic	L. E. Pease	518,857	Apr. 24	2450	607	67	491
Life-saving apparatus							
Lifter: *See* Pan-lifter. Stove-lid lifter.	B. F. Lewis	517,465	Apr. 3	87	19	67	19
Lifting-jack							
Light: *See* Search-light. Side light.	W. H. Thrift	519,799	May 15	1528	372, 373	67	851
Light-concentrator for dentists, surgeons, or others	J. R. Hughes	522,116	June 26	2425	582	67	1690
Light-support	F. Goff and T. H. Joiner	521,466	June 19	1285	299	67	1462
Lighter. Magazine	W. H. Sheppard	519,354	May 8	772	188	67	700
Lighting implement	T. Spencer	519,849	May 15	1604	392	67	865
Lighting system. Alternating-current arc	J. W. Gibboney	520,776	June 5	26	5	67	1201
Lightning-arrester	J. W. Smith	518,793	Apr. 24	2352	583	67	474
Lightning-rod and coupling	J. O'Connell and G. Sniffin	521,295	June 12	963	228	67	1385
Limekiln	W. Lawson	517,870	Apr. 10	739	186	67	157
Lime-light apparatus	F. L. Moores	520,328	May 22	2429	591	67	1032
Lime-slaker	R. M. Christensen	521,847	June 26	1938	465	67	1599
Line-fastener	W. S. Twitty	517,597	Apr. 3	295	68	67	58
Line-fastener	W. C. Applegate	518,479	Apr. 17	1811	448	67	363
Line-prop	P. T. Dodge	520,158	May 22	2148	523	67	979
Linotype-machine	O. Mergenthaler	522,072	June 26	2353	565, 566	67	1677
Linotype-machine	A. H. and T. A. Schlueter	519,478	May 8	976	236	67	737
Liquid containing and discharging device	H. Mendés	518,618	Apr. 24	2040	507, 508	67	418
Liquid-cooling apparatus	P. Leoni	520,531	May 29	2770	670	67	1111
Liquid-distributer. Automatic	A. R. Welch	517,710	Apr. 3	500	120	67	96
Liquid-gage	J. B. Thies	519,978	May 15	1815	445	67	904
Liquid-mixer	D. J. Davis	521,104	June 5	628	148	67	1310
Liquid-separator. Centrifugal	J. L. Jönsson	519,085	May 1	251	59	67	584
Liquid-separator. Centrifugal	H. N. Carpenter	519,988	May 15	1836	448	67	908
Loading apparatus	J. M. Younger	519,753	May 15	1447	349	67	835
Loading machine. Dirt-							
Lock: *See* Bag-lock. Safe-lock. Door-lock. Sash-lock. Electric lock. Switch-lock. Hasp-lock. Time-lock. Master-key lock. Trunk-lock.							
Lock	D. J. Cable	517,729	Apr. 3	527	127, 128	67	102
Lock	W. W. Davis	521,366	June 12	1097	258	67	1411
Lock	F. W. Harris	518,584	Apr. 24	2494	618	67	500
Lock	C. T. Johnson	518,211	Apr. 10	1337	333	67	261
Lock and latch. Combined	E. M. and J. E. Mix	521,984	June 26	2213	532, 533	67	1651
Lock-key attachment	J. F. von Hünefeld	519,605	May 8	1205	291	67	778
Lock opener. Pneumatic door	J. Schnepf	518,119	Apr. 10	1172	293	67	230
Locks. Electroprotective system for	M. Martin	520,795	June 5	61	14	67	1209
Locomotive attachment	J. R. Rutherford	520,615	May 29	2907	702	67	1137
Locomotive attachment	F. J. Smith	521,186	June 12	770	180	67	1349
Locomotive-boiler	D. L. Barnes	519,315	May 8	684	167	67	684
Locomotive. Compound	C. J. Mellin	519,407	May 8	858	208	67	716
Locomotive-coupling. Electric	E. D. Priest	521,669	June 19	1630	382	67	1525
Locomotive. Electric	R. Eickemeyer	520,228	May 22	2266	552	67	1000
Locomotive. Electric	R. M. Hunter	520,111	May 22	2046	500	67	962
Locomotive. Electric	W. H. Knight	520,787	June 5	44	10	67	1205
Locomotive. Electric	W. Lawrence	518,006	Apr. 10	988	246	67	190
Locomotive-engine	C. A. Ball	520,839	June 5	155	34	67	1225
Locomotive-engine. Compound	C. A. Ball	521,254	June 12	889	210, 211	67	1371
Locomotive sanding device	F. T. Chase	522,148	June 26	2487	596	67	1702
Locomotive shifting link-motion	W. B. Warren	521,398	June 12	1146	271	67	1421
Locomotives. Method of and means for speed regulation of electric	C. E. Emery	517,948	Apr. 10	867	219	67	180
Locomotives. Oil-cellar for driving-boxes for	F. H. Taylor and F. Riley	521,515	June 19	1374	319	67	1478
Log-barking machine	W. W. and F. N. Trevor	517,990	Apr. 10	960	240	67	194
Loom	E. G. Johanson	521,656	June 19	1608	377	67	1521
Loom for weaving bordered fabrics	J. Goss and W. Varley	520,421	May 29	2585	626	67	1077
Loom Jacquard attachment	S. Bentley	519,374	May 8	801	196	67	706
Loom lease-rods	A. Minney	520,444	May 29	2622	635	67	1085
Loom let-off mechanism	J. H. Mayer	520,603	May 29	2890	698	67	1134
Loom picker-motion	J. H. Paige	518,424	Apr. 17	1713	426, 427	67	346
Loom shuttle-box-operating mechanism	G. W. Stafford	521,576	June 19	1474	345	67	1496
Loom shuttle-box-operating mechanism	G. W. Stafford	521,577	June 19	1476	345	67	1496

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Loom stop-motion	B. S. Taylor and C. Heritage	520,277	May 22	2351	570, 571	67	1017
Loom. Swivel-	H. and P. D. Westerhoff	519,802	May 15	1532	374	67	851
Loom warp-stop motion	O. Smith	521,298	June 12	967	229, 230	67	1385
Looms. Shuttle-operating mechanism for narrow-ware	A. Weimar	519,896	May 15	1682	410	67	880
Loop-banding machine	J. M. Parker	518,425	Apr. 17	1714	427, 428	67	346
Lozenge-machine	H. Lucas	521,660	June 19	1615	379	67	1522
Lubricant for bicycle chains and bearings	W. L. Sargent	519,096	May 1	270	.....	67	587
Lubricating device	H. A. and H. A. House, Jr	521,958	June 26	2160	518	67	1641
Lubricating device	H. P. Humphrey	517,748	Apr. 3	561	137	67	109
Lubricating device for car or other axles or shafts	J. S. Washburn	519,212	May 1	493	119	67	633
Lubricator: *See* Axle-lubricator.							
Lubricator	B. A. Burgess	518,585	Apr. 24	1992	493	67	410
Lubricator	C. Couse	521,702	June 19	1682	395	67	1535
Lubricator	J. Q. Finch	518,058	Apr. 10	1072	271	67	212
Lubricator	R. Lawrence and J. Blackford	518,257	Apr. 17	1414	354	67	291
Lubricator	J. Longinus	517,467	Apr. 3	90	20	67	19
Lubricator	R. W. McIntyre and G. A. H. Sprague	518,823	Apr. 24	2405	595	67	482
Lubricator	W. O. Nelson	517,553	Apr. 3	226	52	67	45
Lubricator	W. A. Seibel	519,394	May 8	841	204	67	713
Lubricator	P. S. Whiting	519,055	May 1	188	45	67	572
Lumber-drier	W. L. Burton and H. Meyerding	521,846	June 26	1936	464	67	1599
Lumber-drying apparatus	G. T. Schultze	519,352	May 8	769	188	67	699
Lumber-load binder	E. R. Cassaday and W. Weaver	518,207	Apr. 10	1330	332	67	260
Lumber or composition material. Artificial	G. S. Mayhew	517,822	Apr. 3	672	168	67	130
Machine-table	J. E. Bradley	522,004	June 26	2249	539	67	1657
Magnet for electric machines. Field-	A. Schmid	519,097	May 1	270	64	67	587
Magnet. Permanent	A. T. Collier	518,092	Apr. 10	1126	284	67	221
Magnets. Means for reducing the apparent energy supplied to alternating-current	J. F. Kelly	518,739	Apr. 24	2272	564	67	459
Magnets of alternating-current dynamos. Means for exciting field-	L. Bell	518,217	Apr. 17	1353	338	67	280
Magnetic engine for reciprocating tools	H. S. McKay	519,870	May 15	1642	399	67	872
Magnetic separator	H. Carmichael	521,906	June 26	2046	493	67	1621
Magnetic separators. Feeding mechanism for	G. Conkling	517,734	Apr. 3	534	130	67	104
Mail-box	J. G. Cutler	519,057	May 1	190	45	67	573
Mail-box. House	E. F. Kinsey	518,924	Apr. 24	2570	635, 636	67	514
Mail-marking machine	F. N. Ethridge	522,049	June 26	2316	556	67	1669
Mail-marking machine	M. V. B. Ethridge	521,566	June 19	1459	341, 342	67	1493
Mail-marking machine	M. V. B. Ethridge and H. E. Waite	521,764	June 19	1808	429	67	1557
Mail-matter. Machine for marking	F. N. Ethridge	521,564	June 19	1450	338, 339, 340	67	1492
Mail-transporting apparatus	R. A. Morgan, Jr	517,619	Apr. 3	330	78	67	65
Mailing-machine	J. A. Horton	519,185	May 1	440	108	67	623
Malt liquors. Apparatus for cooling and aerating	H. E. Deckebach	518,941	May 1	12	3	67	539
Malting-floor	J. F. Dornfeld	518,666	Apr. 24	2131	533	67	434
Mandolin	T. T. Seal	518,900	Apr. 24	2531	626	67	507
Manhole-cover	J. P. Roe	521,733	June 19	1738	413	67	1546
Manhole-covers. Yoke for	J. P. Roe	521,732	June 19	1737	413	67	1546
Maps, &c. Revolving holder for	A. B. Fretz	519,763	May 15	1464	355	67	839
Mask. Fire-	G. Pozdena and F. Churan	521,939	June 26	2115	507	67	1634
Mask. Protector-	W. T. Moran	518,822	Apr. 24	2404	595	67	482
Master-key lock	J. Roche	520,121	May 22	2063	504	67	965
Match-box	J. P. Wright	521,903	June 26	2041	492	67	1621
Match-box and cigar-tip cutter. Combined	T. W. Foster	517,546	Apr. 3	213	49	67	43
Match-making machine	J. C. Donnelly	519,150	May 1	371	88, 89	67	610
Match-making machine	H. A. and W. B. La Chicotte	521,029	June 5	488	116, 117	67	1285
Match-safe	R. D. Goodlett	518,994	May 1	93	22	67	553
Match-safe	A. Hansen	519,949	May 15	1764	432	67	895
Match-safe, Alarm	T. Kissinger	520,063	May 22	1961	480	67	946
Match. Safety-	W. Barnhurst	521,079	June 5	582	137	67	1302
Matrix-drying apparatus	R. H. Healey	520,642	May 29	2950	714	67	1145
Matrix-drying machine	E. and A. E. Hall	518,569	Apr. 17	1961	484, 485	67	389
Matrix-lines. Mechanism for justifying	C. Forth and H. Glenzer	520,140	May 22	2114	515, 516	67	972
Mattress-filling machine	W. H. Putnam	519,203	May 1	472	115	67	628
Mattress-stuffing machine	R. R. Thompson	520,170	May 22	2169	527, 528, 529	67	982
Measure and funnel. Combined	R. J. Gillham	520,307	May 22	2395	582	67	1025
Measure case. Tape-	W. L. E. Keuffel	522,064	June 26	2336	561	67	1674
Measure. Steel tape-	W. L. E. Keuffel	521,960	June 26	2162	519	67	1642
Measuring and recording electric currents. Apparatus for	W. Thomson	521,394	June 12	1136	268, 269	67	1419
Measuring dress-skirts. Device for	A. S. Newcomb	519,090	May 1	258	61	67	585
Measuring implement. Tailor's	D. Hawley	518,947	May 1	20	6	67	940
Measuring-instrument	L. M. Hodge	518,103	Apr. 10	1144	288	67	225
Measuring instrument. Distance-	J. L. Buford	519,319	May 8	694	170, 171	67	685
Measuring-instrument. Electrical	R. M. Hunter	520,361	May 22	2494	603	67	1045
Measuring-instrument for multiphase systems. Electric	E. W. Mix	518,265	Apr. 17	1430	358	67	294
Measuring-instruments. Damping device for electrical	F. Holden	518,245	Apr. 17	1400	350	67	289
Measuring machine. Cloth-	G. P. Conant	517,437	Apr. 3	25	6	67	7

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Measuring machine. Cloth-	J. H. Vanderburgh	520,463	May 29	2656	642	67	1091
Measuring textile fabrics. Apparatus for	F. C. Stephan	519,277	May 1	605	147	67	654
Meat-chopping machine	A. J. Kull	519,000	May 1	101	24	67	555
Meat-cutter. Rotary	L. T. Snow	518,047	Apr. 10	1058	268	67	210
Meat-cutting machine	M. Lytch	521,886	June 26	2001	483	67	1613
Meat-tenderer	A. C. Wagner	520,173	May 22	2176	530	67	984
Mechanical movement	S. F. Alberger	520,626	May 29	2923	707	67	1140
Mechanical movement	J. C. Butler	521,780	June 26	1840	438	67	1580
Mechanical movement	R. Miehle	520,828	June 5	130	28, 29	67	1221
Mechanical movement	R. Sterling	521,393	June 12	1135	268	67	1418
Mechanical movement	O. Kettmann	519,913	May 15	1706	416	67	884
Medicine. Time-indicator for taking	W. B. Pollard	518,161	Apr. 10	1237	310	67	241
Medicines. Device for administering	W. F. Everett	521,795	June 26	1844	439	67	1581
Metal bars, &c. Machine for cutting	P. H. Dudley	517,975	Apr. 10	924	231	67	189
Metal bars. Testing	E. J. Geissinger	520,262	May 22	2324	564, 565	67	1012
Metal-bending machine	D. Stevenson	521,922	June 26	2075	498, 499	67	1627
Metal-boring machine	J. Stevenson, Jr., and C. J. Johnson	520,942	June 5	353	86	67	1261
Metal-coiling apparatus	C. L. Coffin	520,299	May 22	2382	578	67	1023
Metal electrically. Apparatus for heating	C. L. Coffin	520,300	May 22	2384	579	67	1023
Metal electrically. Heating, welding, or working	W. S. Grafton and R. R. Spears	519,084	May 1	249	58, 59	67	583
Metal. Machine for joining and rolling sheets of	W. H. Pelkey and A. St. Louis	520,076	May 22	1991	.....	67	951
Metal. Molding	J. F. Lundahl	518,572	Apr. 17	1966	485, 486	67	390
Metal-sawing machine	H. J. Hendey	517,613	Apr. 3	319	75, 76	67	62
Metal-shaper. Combination	H. J. Hendey	517,612	Apr. 3	316	74, 75	67	62
Metal-shaper. Suspension	A. F. Champlin	519,941	May 15	1750	429, 430	67	892
Metal shaping and planing machines. Reversing mechanism for	T. Brandt	519,903	May 15	1692	412, 413	67	882
Metal strips. Machine for cutting and finishing	C. T. Cayley	520,296	May 22	2378	577	67	1022
Metal tubes. Manufacture of	A. Buecher	521,600	June 19	1515	.....	67	1503
Metals against corrosion. Preparation for protecting	C. L. Coffin	522,151	June 26	2490	597	67	1703
Metals electrically. Heating	H. Thofehrn	519,595	May 8	1190	287	67	776
Metals. Electrodeposition of	E. Nienstaedt	520,377	May 22	2516	.....	67	1049
Metals from magnetic iron sand, metallic ore-dust, and metallic residues. Winning	F. Pirschl	521,270	June 12	917	.....	67	1377
Metals. Making resinates of	H. C. Wolle	522,093	June 26	2382	573	67	1683
Metallic bodies. Means for making	W. T. Armstrong and G. H. Wadsworth.	518,439	Apr. 17	1745	433	67	352
Metallic tie and rail fastener	J. Butler	519,985	May 15	1824	447	67	906
Metallurgic furnace							
Meter: *See* Cut-out meter. Electric meter. Gas-meter. Grain-meter. Water-meter.							
Mica. Splitting	J. Foulds, Jr	518,237	Apr. 17	1383	347	67	286
Micrometer-gage	H. McBride	519,541	May 8	1102	264	67	760
Micrometer-indicator	J. Bath	520,201	May 22	2223	541	67	993
Microphone	W. Deckert	517,564	Apr. 3	242	56	67	48
Milk-bottling machine	W. A. Clark	518,306	Apr. 17	1495	374	67	306
Milk-can attachment	A. D. Richman	518,550	Apr. 17	1926	476	67	383
Milk cooler and aerator	H. W. Gazlay	521,648	June 19	1597	374	67	1518
Milk. Method of and apparatus for preserving condensed	F. D. Smith	520,014	May 15	1872	458	67	914
Milk-purifier	R. H. Casswell	517,814	Apr. 3	663	166	67	129
Milker. Cow-	G. W. Pelton	520,398	May 22	2545	615	67	1055
Milking-machine	R. Ferguson and A. T. Danks	518,234	Apr. 17	1379	346	67	285
Mill: *See* Clay-working mill. Coffee-mill. Feed-mill. Grinding-mill. Ore-crushing mill. Rolling-mill. Windmill.							
Milling and fulling machine	B. Preston	521,126	June 5	660	155, 156	67	1316
Milling-machine	V. W. Mason, Jr	520,486	May 29	2696	653	67	1097
Milling-machine	C. H. Trask	521,771	June 19	1823	443, 444	67	1560
Mine trap-door	G. J. Herth and G. Bonenberger	521,979	June 26	2198	529	67	1648
Miner's flask	J. Zweig	518,203	Apr. 10	1326	331	67	259
Mining-tool	M. Hardsocg	520,000	May 15	1851	452	67	910
Mirror-adjusting device	F. W. Tobey and D. W. Tower	520,548	May 29	2798	676	67	1116
Mirror. Combination	P. Wiederer	518,382	Apr. 17	1653	409	67	335
Miter-box. Adjustable	J. Luscher	522,068	June 26	2343	563	67	1675
Mitering-machine	H. A. Riemann	521,769	June 19	1816	431	67	1559
Mixer: *See* Liquid-mixer.							
Mixer or beater	A. C. Mitchell	519,584	May 8	1173	282	67	773
Model-stand	C. Sullivan	521,830	June 26	1920	460	67	1596
Moistener for stamps, envelopes, etc	J. G. Willits	521,250	June 12	884	209	67	1370
Mold: *See* Bullet-mold. Butter-mold. Ingot-mold. Sand mold. Tank-mold.							
Mold	J. M. Hurley	518,147	Apr. 10	1211	304	67	237
Mold-forming apparatus	S. J. Adams	521,520	June 19	1381	320	67	1479
Mold-foundation	C. L. Miller and J. R. George	518,418	Apr. 17	1705	424	67	345
Mold-making machine	L. Ribereau y Marteaux	519,310	May 1	672	163, 164, 165	67	667
Molds. Apparatus for forming sand	R. Richter	519,350	May 8	766	187	67	699
Molder's tack	F. Schulte	519,164	May 1	403	97	67	615
Molding apparatus	S. J. Adams	521,939	June 26	2239	538	67	1655
Molding apparatus	S. J. Adams	522,000	June 26	2243	538	67	1656

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Molding apparatus	S. J. Adams	522,140	June 26	2473	593	67	1700
Molding apparatus	J. Shaaber	517,489	Apr. 3	123	27	67	25
Molding machine	W. Edgar	517,737	Apr. 3	544	131	67	105
Mole-trap	M. E. Parham	517,824	Apr. 3	675	168	67	131
Monocycle	J. W. Finch	521,756	June 26	1845	440	67	1581
Monkey-wrench	W. R. Wilbur	518,086	Apr. 10	1116	282	67	219
Mop-head	H. F. Low	519,917	May 15	1712	420	67	886
Mop or brush holder	A. D. Granger	519,329	May 8	714	176	67	690
Mop-wringer	W. H. Bennett	519,146	May 1	366	87	67	608
Mop-wringer	E. H. Noble and J. W. Ward	521,216	June 12	821	193	67	1359
Mortar-making apparatus	T. D. McClary	521,507	June 19	1358	316, 317	67	1476
Mortar. Producing hydraulic	C. Bloemendal	519,599	May 8	1198	289	67	777
Mortising-machine	J. Holmes and K. Peterson	519,502	May 8	1015	246	67	744
Mortising-machine	G. Weldon	517,906	Apr. 10	801	201, 202	67	169
Mortising machine. Veneer	H. C. Ward	517,558	Apr. 3	234	54	67	46
Motion. Device for converting reciprocating into rotary	F. Jackson	519,064	May 1	213	50	67	577
Motion. Electric mechanism for giving reciprocating	H. S. McKay	519,869	May 15	1640	399	67	872
Motor: *See* Car-motor. Churn-motor. Current-motor. Electric motor. Electric reciprocating motor. Gas or hydrocarbon motor. Hydrocarbon-motor. Pump-motor. Steam-motor. Water-motor.							
Motor	M. C. Gilbert	517,856	Apr. 10	723	182	67	154
Motor	C. W. Johnston	520,316	May 22	2410	586	67	1028
Motor	A. E. Whitaker	517,712	Apr. 3	504	121	67	97
Motor-opticon	J. E. Blackmore	520,030	May 22	1907	467	67	936
Motor or pump	C. E. Brown	522,102	June 26	2400	576, 577	67	1685
Motors. Hand regulator or switch for	E. E. Keller	519,715	May 15	1393	336	67	826
Motors. Hydraulic apparatus for controlling fluid-pressure	C. Bonjour	519,168	May 1	408	98, 99, 100	67	616
Motors. Method of and means for starting synchronous	B. G. Lamme	519,862	May 15	1629	396	67	870
Mousing hook. Self	C. H. Biggs	520,721	May 29	3095	749	67	1171
Movement. Reversible traversing	L. Koss	520,827	June 5	129	28	67	1221
Mower	R. McGahey	519,197	May 1	460	113	67	626
Mower attachment	M. Szukalski	518,430	Apr. 17	1731	430	67	349
Mower. Lawn-	H. Deck	519,080	May 1	243	57	67	582
Mower. Lawn-	S. P. Graham	519,860	May 15	1627	396	67	869
Mower. Lawn-	M. C. Henley	518,670	Apr. 24	2137	534, 535	67	436
Mower sharpener. Lawn-	I. Adams and J. H. Doswell	519,441	May 8	911	219, 220	67	726
Mowing-machine	J. H. Jones	520,646	May 29	2956	715	67	1146
Mowing-machine attachment	W. L. Hay and R. L. Johnston	518,842	Apr. 24	2429	602	67	487
Mud and oil trap and water-purifier	G. F. Day and W. Hunter	520,670	May 29	3006	726	67	1154
Muffle-kiln. Downdraft	A. M. Strusholm	518,012	Apr. 10	995	249, 250	67	200
Mule and twiner. Self-acting	J. R. Wain	518,433	Apr. 17	1738	431	67	350
Music-box. Coin-controlled	H. Langfelder	521,620	June 19	1553	363	67	1510
Music-box damping device	H. Langfelder	521,289	June 12	956	227	67	1383
Music-leaf turner	W. C. Boeing and T. P. Stork	521,756	June 19	1793	426	67	1555
Music-leaf turner	J. W. Darley, Jr	519,302	May 1	649	158, 159	67	663
Music-leaf turner	F. A. Meyer	522,074	June 26	2354	566	67	1677
Music-turner	C. P. Hollis	520,207	May 22	2231	542, 543	67	994
Musical instrument	A. H. Boyer	518,219	Apr. 17	1357	338, 339	67	281
Musical instrument	J. B. Birrer	518,775	Apr. 24	2325	577	67	469
Musical instrument	J. H. Chase and J. B. Tracy	520,297	May 22	2380	578	67	1022
Musical instrument	H. Langfelder	519,816	May 15	1553	380	67	856
Musical instrument	B. H. Monneuse	521,662	June 19	1619	379	67	1523
Musical instrument	F. A. Richter	518,329	Apr. 17	1538	383	67	313
Musical instrument	F. A. Richter	519,737	May 15	1426	344	67	831
Musical instrument. Fretted	W. H. R. Toye	518,869	Apr. 24	2467	611	67	494
Musical-instrument keyboard	E. A. Edgren	520,982	June 5	417	99	67	1272
Musical instrument. Mechanical	G. B. Kelly	517,805	Apr. 3	648	162, 163	67	126
Musical-instrument rack	W. A. Naumann	520,214	May 22	2244	546	67	996
Musical instrument. Stringed	C. L. G. Bech	521,228	June 12	847	198	67	1364
Musical instrument. Stringed	H. E. Wurlitzer	519,751	May 15	1443	348	67	835
Musical-instrument tail-piece	R. L. Turner	519,416	May 8	872	211	67	719
Musical instruments. Device for tightening strings of	G. Heredia	521,286	June 12	953	226	67	1382
Musical instruments. Transposing-keyboard for	M. Philipps	519,071	May 1	227	53, 54	67	579
Musical instruments. Vibrator for reed	H. Janes	518,957	May 1	33	9	67	542
Muzzle. Animal-	T. H. Johnson	518,845	Apr. 24	2433	603	67	488
Nail-making machines. Feeding mechanism for wire-	A. Guttin	518,500	Apr. 17	1846	458	67	360
Nail or spike	J. Floyd	519,810	May 15	1545	377	67	854
Nail-puller	G. J. Capewell	519,034	May 1	156	37	67	566
Nails. Machine for preparing and finishing	J. M. Laughlin	521,242	June 12	866	204, 205	67	1367
Necktie	G. Selowsky	517,769	Apr. 3	597	147	67	116
Necktie-fastener	C. McNeil	519,477	May 8	975	236	67	736
Necktie-fastener	I. Noar	518,855	Apr. 24	2448	607	67	491
Necktie-shield	I. Noar	519,268	May 1	586	143	67	651
Net frame. Landing-	G. Kamp	520,567	May 29	2832	683	67	1123

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Nickle and copper mattes. Refining	C. G. Richardson	518,117	Apr. 10	1169	.....	67	230
Nipple-wrench	A. Dudly	520,562	May 29	2825	682	67	1121
Nozzle. Can-	G. J. Record	521,989	June 26	2221	534	67	1652
Nozzle. Steam-jet	L. Schutte	519,796	May 15	1525	371	67	850
Nozzles. Guiding device for discharge-	C. F. Rodin	520,222	May 22	2260	550	67	999
Numbering-machine	J. H. Reinhardt	521,000	June 5	445	106	67	1277
Numbering-machine	J. H. Reinhardt	521,001	June 5	446	106	67	1277
Numbering-machine	F. Sanders	520,968	June 5	387	94	67	1268
Numbering-machine	F. Sanders	520,969	June 5	389	95	67	1268
Numbering-machine	F. W. Wicht	520,976	June 5	406	98	67	1271
Numbering machine. Consecutive-	C. Spielmann	518,632	Apr. 24	2064	513, 514	67	422
Nut and bolt lock	F. P. Johnson	521,470	June 19	1293	301	67	1464
Nut and bolt lock	I. G. Tinney	518,974	May 1	61	16	67	547
Nut. Axle-	J. S. Deats and T. R. Stewart	519,468	May 8	960	232	67	734
Nut. Bolt-	M. Redlinger and C. Morgan	520,802	June 5	79	17	67	1212
Nut-finishing machine	G. Dunham	521,233	June 12	853	200, 201	67	1365
Nut-lock	E. C. Baynes and H. Henderson	518,641	Apr. 24	2086	520	67	426
Nut-lock	J. J. Bentley	520,512	May 29	2739	663	67	1105
Nut-lock	C. F. Boyens and J. S. Burkholder	518,049	Apr. 10	1063	268	67	210
Nut-lock	D. Boyer	522,144	June 26	2479	594	67	1701
Nut-lock	J. C. Brown	521,845	June 26	1935	464	67	1599
Nut-lock	J. H. Burrowa	517,728	Apr. 3	525	127	67	102
Nut-lock	W. G. Kay	518,066	Apr. 10	1088	274	67	215
Nut-lock	T. McDonald, Jr	519,196	May 1	460	112	67	626
Nut-lock	W. T. Richardson	521,941	June 26	2118	508	67	1635
Nut-lock	E. H. Thalaker	518,165	Apr. 10	1245	312	67	242
Nut-lock	H. J. Van Nest	520,718	May 29	3092	748	67	1170
Nut-lock	F. B. Wallace	518,474	Apr. 17	1807	447	67	363
Nut-lock	S. W. Wright	517,534	Apr. 3	190	43	67	38
Nut-making machine	A. Urban	517,779	Apr. 3	611	151, 152, 153	67	118
Nut-wrench and lubricator. Combined	J. S. Scarborough	521,491	June 12	1181	281	67	1427
Oar	A. H. Burns	517,999	Apr. 10	979	243	67	197
Oar-lock	J. D. Prescott	521,890	June 26	2006	484	67	1614
Obstetrical apron	W. Jackson	519,713	May 15	1391	335	67	825
Odometer. Adjustable	T. Schroeder	519,592	May 8	1184	285, 286	67	775
Office-door indicator	W. D. Lawrence and F. A. Hopkins	521,983	June 26	2210	532	67	1650
Oil and water separator	E. Austin	521,199	June 12	794	187	67	1354
Oil-burner	C. C. Baldwin	519,754	May 15	1449	349	67	836
Oil-burner	J. M. Merritt	520,997	June 5	441	105	67	1276
Oil-burner	C. Trench	520,093	May 22	2015	492	67	956
Oil-can	C. W. Hart	521,113	June 5	642	151	67	1313
Oil-can	D. J. Holliger	519,042	May 1	170	41	67	569
Oil-can	G. A. Rawhouser	522,087	June 26	2374	571	67	1681
Oil-can	C. S. Upton	520,505	May 29	2729	661	67	1103
Oil-can	F. E. Williamson	518,539	Apr. 17	1911	472	67	380
Oil-can	W. C. Winfield	520,871	June 5	212	47	67	1236
Oil from cotton-seed. Apparatus for extracting	W. T. Forbes	519,424	May 8	885	214	67	722
Oil from fish. Apparatus for extracting	D. F. and W. E. Overton	520,242	May 22	2292	556	67	1005
Oil heater or cooker	S. Newsome	520,188	May 22	2202	536	67	989
Oil or oils with another material, &c. Mechanically compounding	J. F. Newell	520,493	May 29	2711	.....	67	1100
Oil storing and feeding apparatus	L. C. Snell	519,439	May 8	908	219	67	726
Oils, fats, and fatty acids. Purifying fixed	F. L. Dyer	522,156	June 26	2488	599	67	1704
Oils. Purifying illuminating-	W. B. Price	522,028	June 26	2282	.....	67	1663
Oiler for bicycles, &c	L. Hirsch	521,614	June 19	1543	361	67	1508
Oiler. Locomotive-	J. H. Turner	521,487	June 19	1396	309	67	1470
Oiling bearings. Mechanism for	D. Gessner	521,235	June 12	857	202	67	1366
Orange-sorting machine	E. N. Maull	520,440	May 29	2615	633	67	1083
Ordnance. Breech-loading	J. H. Althof	519,308	May 1	668	162, 163	67	666
Ordnance breech mechanism	O. W. Bergman and E. Ternström	520,029	May 22	1903	465, 466	67	936
Ordnance-sight	E. G. Parkhurst	520,075	May 22	1985	486, 487	67	950
Ordnance. Sighting and indicating apparatus for	H. H. Grenfell	517,746	Apr. 3	557	136	67	108
Ore-concentrating apparatus	W. L. and F. S. Card	519,987	May 15	1427	448	67	906
Ore-crusher	F. Bishop	519,228	May 1	518	125, 126	67	638
Ore-crushing mill	H. Burson	518,563	Apr. 17	1950	481, 482	67	388
Ore grinder and amalgamator	C. N. Moore	521,663	June 19	1620	379, 380	67	1523
Ore-roaster	O. W. Davis, Jr	520,481	May 29	2687	650	67	1096
Ore-roasting furnace	H. F. Brown	519,317	May 8	687	168, 169, 170	67	684
Ore-separator	G. Doerflinger	517,974	Apr. 10	922	231	67	189
Ore separator and classifier	J. P. Foley, B. H. Dunshee, and D. H. Anderson.	517,799	Apr. 3	640	160	67	124
Ore. Utilizing iron	J. Reese	519,391	May 8	836	.....	67	712
Ores. Apparatus for the concentration or separation of	M. Stuckey and H. Arthur	518,082	Apr. 10	1105	280	67	218
Ores. Extracting impurities from hematite	W. S. Potter	518,510	Apr. 17	1861	462	67	372
Ores. Refining	A. E. Barton and G. B. McCormack	519,901	May 15	1690	.....	67	882
Organ	J. Polukanis	519,925	May 15	1724	423	67	888
Organ combination stop-action. Pipe-	R. W. Jackson	520,925	June 5	329	80	67	1256
Organ. Pipe-	R. W. Jackson	520,924	June 5	321	78, 79, 80	67	1255
Organ. Pipe-	E. E. Palm	520,167	May 22	2166	527	67	982

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Organ. Pipe	P. Wiraching	518,980	May 1	72	19	67	549
Organ-pipe	W. T. F. Weigle	520,344	May 22	2466	598	67	1039
Organ-pump	H. and J. Schwesinger	522,184	June 26	2541	610	67	1713
Organ. Reed	J. W. Trainer	519,361	May 8	781	191	67	702
Organs. Automatic coupler for pneumatic	J. V. Pilcher	519,389	May 8	833	202	67	712
Oven	M. C. Farnum	518,057	Apr. 10	1071	271	67	212
Oven	W. H. Wilder	521,689	June 19	1667	391	67	1532
Oven. Bake	J. Middleby	522,075	June 26	2357	566, 567	67	1678
Oven. Direct-draft bake	R. H. and D. C. Craine	517,844	Apr. 10	705	178, 179	67	151
Oven-shelves. Device for operating	F. Kaempen, Jr	519,606	May 8	1206	291	67	778
Ovens by gas. Apparatus for heating	J. L. W. Olsen	518,624	Apr. 24	2050	510	67	420
Overcoat	B. F. Gassaway	519,670	May 8	1312	313, 314	67	797
Overshoe attachment	A. J. Barber	519,656	May 8	1297	310	67	794
Overshoe-retainer	F. T. Guiher	520,985	June 5	422	101	67	1273
Oxygen. Apparatus for making	F. Fanta	519,627	May 8	1247	299, 300	67	786
Oyster-dredge	A. D. Post	521,918	June 26	2072	497	67	1626
Package for containing ices, &c. Hermetically sealed	C. L. Dexter	519,639	May 15	1588	388	67	863
Package-wrappers. Fastening device for	W. B. Coulter	522,007	June 26	2256	540	67	1658
Packing and gland. Metallic piston-rod	C. H. Ensign	520,954	June 5	369	90	67	1265
Packing box. Rod or valve	D. Spencer	521,575	June 19	1473	345	67	1496
Packing. Corrugated	J. M. Leaver	520,366	May 22	2502	605	67	1047
Packing for rock-drill pistons	H. M. Osborn	520,448	May 29	2626	636	67	1085
Packing for rock-drilling engines	G. M. Githens	517,690	Apr. 3	466	112	67	90
Packing. Metallic	F. A. Ives	518,844	Apr. 24	2432	602	67	487
Packing. Metallic	P. W. Willans	519,314	May 8	683	166	67	683
Packing or holding case	J. Crocker	521,102	June 5	626	147	67	1310
Packing. Piston-rod	A. H. Clark	517,563	Apr. 3	240	56	67	47
Packing vehicle-wheels. Device for	F. G. Davis	518,395	Apr. 17	1668	412	67	338
Pad: *See* Horseshoe-pad. Stair-pad.							
Paddle-wheel boat	J. S. Künneth	518,255	Apr. 17	1412	353	67	291
Paddle-wheel mechanism for propelling boats	J. C. Thomas	520,944	June 5	355	86	67	1262
Padlock	B. F. Loughmiller	517,956	Apr. 10	898	225	67	185
Padlock	W. E. Sparks	521,994	June 26	2230	536	67	1654
Pail	L. J. Noble	520,074	May 22	1985	486	67	950
Pail	J. A. Steward	518,707	Apr. 24	2302	550	67	447
Pail attachment	F. M. Buck	519,233	May 1	529	127	67	640
Pail-cover	R. J. Kidd	518,889	Apr. 24	2513	622	67	504
Paint. Composition for removing	E. Tessen	521,834	June 26	1921	.....	67	1596
Paint. Luminous	C. Kraut	518,320	Apr. 17	1521	.....	67	310
Pan: *See* Evaporating-pan. Vacuum-pan.							
Pan-lifter	W. Reisse	519,549	May 8	1113	267	67	762
Pantaloons-protector	L. D. Jones	519,632	May 8	1257	302	67	787
Pantograph roll or plate	J. Hope	516,921	Apr. 24	2565	634	67	513
Paper bag	E. Thompson	519,398	May 8	846	205	67	714
Paper-bag machine	W. B. Purvis	519,348	May 8	759	186	67	697
Paper-bag machine	W. B. Purvis	519,349	May 8	763	187	67	698
Paper bags. Making	E. E. Claussen	520,556	May 22	2315	561	67	1010
Paper bags. Making	E. E. Claussen	520,557	May 29	2865	693	67	1129
Paper bags. Making	E. E. Claussen	520,951	June 5	364	89	67	1264
Paper bags. Making	W. A. Lorenz	517,617	Apr. 3	327	77, 78	67	64
Paper bags. Making	W. A. Lorenz and E. E. Claussen	519,916	May 15	1710	420	67	885
Paper box	R. Gair	519,451	May 8	924	223	67	729
Paper box	A. L. Reeves, Jr.	519,005	May 1	108	26	67	556
Paper box	T. F. W. Schmidt	518,898	Apr. 24	2530	625	67	507
Paper-box blanks and articles made thereby. Applying borders or binders to edges of	F. S. MacRonald	520,066	May 22	1966	481	67	946
Paper-box blanks. Machine for bending	C. W. Gay	519,671	May 8	1313	314, 315	67	797
Paper-box machine	C. W. Gay	519,531	May 8	1085	260, 261	67	757
Paper boxes. Machine for covering	E. H. Taylor	521,299	June 12	974	230	67	1386
Paper boxes. Making	A. C. Lutz	521,031	June 5	495	118	67	1286
Paper-coating apparatus	F. P. Buffington and J. T. Sutphen	520,402	May 22	2352	616	67	1056
Paper cutter. Roll	D. McLachlan	518,422	Apr. 17	1710	426	67	346
Paper-cutter. Self-clamping	C. L. Smith	521,738	June 19	1747	415	67	1548
Paper-cutting machine	J. Spencer	519,075	May 1	235	55	67	581
Paper-feeding mechanism	E. Dummer	517,518	Apr. 3	167	38	67	34
Paper fixture. Toilet	S. Wheeler	519,167	May 1	407	98	67	616
Paper. Flock	L. Danois	518,878	Apr. 24	2487	.....	67	499
Paper-folding machine	A. Bradley	521,083	June 5	590	138, 139, 140	67	1303
Paper folding or plaiting machine	W. L. Allen	519,465	May 8	947	229, 230, 231	67	733
Paper holder. Toilet	J. Reid	520,221	May 22	2259	550	67	999
Paper-machines. Wire-gauze for	P. Tourasse	520,906	June 5	279	67	67	1248
Paper-making machines. Thickness-gage for	O. W. T. Am Ende	521,976	June 26	2189	526, 527	67	1647
Paper-manufactories. Pulp-catcher for	A. G. E. Füllner	518,238	Apr. 17	1384	347	67	286
Paper match-box	G. G. Carbone	518,687	Apr. 24	2162	541	67	441
Paper. Method of and machine for feeding	R. S. Oder	519,341	May 8	737	181, 182, 183	67	694
Paper. Pocket package for toilet	C. L. Houghton	520,055	May 22	1948	477	67	943
Paper-roll holder	C. H. Paine and N. S. Hoffman	519,343	May 8	745	184	67	695
Paper-roll tension device	W. Black	520,874	June 5	216	49	67	1237
Paper-rolls. Holder for cores of	A. S. Bowne	520,154	May 22	2143	522	67	978

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Paper strips on pasteboard. Apparatus for applying gummed ornamental	J. Temler	521,871	June 26	1976	477	67	1607
Paper vessels. Fastening device for	W. Foglesong	519,571	May 8	1153	277, 278	67	769
Paper vessels. Machine for making	W. Foglesong	519,153	May 1	380	91, 92, 93	67	611
Parer. Vegetable	A. M. Mundell	519,890	May 15	1676	408	67	879
Partition. Fireproof	S. G. Brinkman	518,050	Apr. 10	1063	268	67	210
Paste. Making dry adhesive	P. Vandenburgh	521,517	June 19	1376	.....	67	1479
Pasting device for sheets, flies, strips, &c	A. Day	517,684	Apr. 3	457	110	67	88
Pasting-table. Folding	L. Maurer	517,756	Apr. 3	576	142	67	112
Pastry or confectionery. Machine for forming articles of	D. M. Holmes	518,454	Apr. 17	1773	439, 440	67	357
Pattern tracing and cutting machine	C. E. Reed	520,500	May 29	2721	659, 660	67	1102
Patterns. Method of and apparatus for marking	L. Schaefer	519,927	May 15	1727	424	67	888
Pavement-ornamenting device	M. Maurer	519,919	May 15	1713	421	67	886
Pavement. Road	G. R. Bowen	521,364	June 12	1095	257	67	1411
Paving-block	J. L. Pope	519,873	May 15	1649	401	67	873
Pedal	A. Perkins	520,009	May 15	1864	456	67	913
Pedals for crank-powers	A. J. Hoyt	518,757	Apr. 24	2297	570	67	463
Peeling knife. Fruit	N. B. Hale	518,501	Apr. 17	1848	459	67	370
Peeling machine. Potato	D. Grant	521,495	June 19	1342	311	67	1473
Peeling table. Fruit	F. M. Anderson	517,511	Apr. 3	158	35	67	32
Pen	A. M. Henry	519,953	May 15	1770	433	67	896
Pen. Drawing	B. Haug and F. Holler	519,155	May 1	389	94	67	612
Pen-fender	B. F. Smith	520,663	May 29	2982	721	67	1150
Pen-rack	W. S. Mendenhall	517,757	Apr. 3	577	142	67	112
Pencil holder and sharpener	H. A. Veazie	521,744	June 19	1758	417	67	1570
Pencil-sharpener	J. L. Hall	521,313	June 12	997	235	67	1391
Pencil-sharpener	F. McIntyre	518,853	Apr. 24	2446	606	67	490
Pencil-sharpener	A. Werner	517,784	Apr. 3	619	154	67	120
Pencil-sharpener and eraser. Combined	H. Fisher	520,732	May 29	3111	753	67	1174
Pencil sharpener, grinder, protector, and eraser. Combination	R. B. Chambers	521,016	June 5	471	112	67	1282
Pendulum-escapement	C. E. Buckbee	521,012	June 5	467	111	67	1281
Percussion-tool	W. E. Gibbs	517,032	Apr. 10	1025	258	67	205
Perforating-machine	G. B. Kelly	517,752	Apr. 3	566	138, 139	67	110
Phonograph	S. D. McKelvey	519,614	May 8	1218	293, 294	67	781
Phonograph erasing attachment	E. H. Amet	521,456	June 19	1270	296	67	1459
Phonograph-operating attachment	A. K. Keller	518,190	Apr. 10	1285	325, 326	67	250
Phonograph-operating machine	A. K. Keller	518,191	Apr. 10	1298	326, 327	67	254
Phonograph-operating machine or attachment	A. K. Keller	518,192	Apr. 10	1304	327, 328	67	255
Phonographs. Attachment for automatically operating	E. T. Gilliland and F. W. Toppan	518,209	Apr. 10	1332	333	67	260
Phonoscopic plates. Producing positive	G. Demeny	521,705	June 19	1687	396	67	1536
Phosphate rock. Apparatus for treating	R. E. Rose	519,393	May 8	839	203	67	713
Photograph apparatus. Coin-controlled	J. A. Parsons	519,872	May 15	1646	400	67	873
Photograph-display cabinet	H. W. Potteiger and W. A. Kohman	521,668	June 19	1629	381	67	1525
Photograph-stand	A. D. F. Randolph	518,073	Apr. 10	1095	276	67	216
Photographs. Method of and lens for making	H. Vander Weyde	521,064	June 5	557	130	67	1298
Photographic-camera multiplying attachment	D. S. Cole	517,733	Apr. 3	533	130	67	104
Photographic-camera multiplying attachment	D. S. Cole	520,034	May 22	1912	468	67	937
Photographic-camera shutter	A. G. Tisdell	520,972	June 5	394	95, 96	67	1269
Photographic dark-box	A. D. F. Randolph	518,074	Apr. 10	1096	277	67	216
Photographic developing-tray	A. D. F. Randolph	518,075	Apr. 10	1098	277, 278	67	216
Photographic film-holders. Registering and marking apparatus for	H. Mackenstein	518,372	Apr. 17	1636	403, 404	67	332
Photographic plate	T. C. Roche	519,645	May 8	1281	.....	67	791
Photographic plate	T. C. Roche	519,646	May 8	1282	.....	67	791
Photographic-plate holder	E. B. Barker	520,290	May 22	2371	575, 576	67	1021
Photographic-printing frame	R. M. Hunter	518,922	Apr. 24	2565	634, 635	67	513
Photographic shutter	H. H. Turner	520,198	May 22	2217	540	67	991
Photographic vignetter	J. B. Walker	519,800	May 15	1529	373	67	851
Photography. Reproducing objects in relief or intaglio by the aid of	M. Russo	520,707	May 29	3076	.....	67	1167
Piano	A. Felldin	520,139	May 22	2113	515	67	972
Piano-action	J. Herrburger	520,989	June 5	428	103	67	1274
Piano-action	F. W. Kringel	517,951	Apr. 10	880	220, 221	67	182
Piano-action	W. W. Wallace	519,166	May 1	405	97	67	616
Piano attachment	C. Nalence	521,937	June 26	2112	506	67	1634
Piano, Child's	G. Schömig	518,200	Apr. 10	1322	330	67	259
Pianoforte-action	T. Cahill	520,667	May 29	2990	723, 724	67	1152
Pianoforte repeating mechanism	H. Maurer	519,611	May 8	1214	293	67	780
Pianofortes. Self-playing attachment for	T. L. Lebeau	519,157	May 1	392	95	67	613
Piano-muffler	O. H. Bollman	519,983	May 15	1822	446	67	905
Piano or organ. Upright	W. T. Smith	519,797	May 15	1526	372	67	850
Piano-pedal locking device	G. B. Shearer	518,163	Apr. 10	1239	311	67	241
Piano sounding-board	E. G. Schleicher	522,124	June 26	2435	586	67	1691
Piano-stringing machine	F. W. Hedgeland	520,595	May 29	2878	696	67	1132
Pianos or organs. Wrist-supporting hand-guide for	C. Heinrich	519,675	May 8	1319	317	67	799
Picture-exhibitor	J. E. Eklund	520,953	June 5	367	89, 90	67	1264
Picture-frame	J. J. Allen	520,385	May 22	2529	611	67	1051

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Picture-hanger	P. H. Lynch	521,291	June 12	959	227	67	1383
Picture-hanging device	H. Redmond	520,706	May 29	3075	744	67	1167
Pie-rack. Folding	T. J. Shannon	519,007	May 1	111	27	67	557
Pigments. Manufacturing	G. E. Moore	518,963	May 1	41	.....	67	544
Pile fabric. Woven	H. Hardwick	518,883	Apr. 24	2493	618	67	500
Pile-point and permanent anchor for piles or cables	D. Neale	517,880	Apr. 10	756	189	67	160
Pile-shoe	A. Harris	521,285	June 12	952	225	67	1382
Piles. Method of and apparatus for preserving	A. A. Polhamus	518,354	Apr. 17	1599	395, 396	67	325
Pill-machine	A. G. Brown	519,525	May 8	1075	257	67	755
Pin: *See* Hat-pin. Scarf-pin. Insulator-pin.							
Pin	E. Le Gresley-Cox	520,165	May 22	2160	526	67	981
Pin for attaching flowers to dresses	E. W. Stifel	518,868	Apr. 24	2466	611	67	494
Pins, bolts, and rivets. Tool for making	P. J. Conroy	520,636	May 29	2940	711	67	1143
Pipe: *See* Blowpipe. Tobacco-pipe. Sheet-metal pipe. Wooden pipe. Soil pipe.							
Pipe and boiler covering	C. Ehrlicher	517,852	Apr. 10	720	.....	67	153
Pipe and joining edges of same. Conductor-	W. J. Plecker	518,767	Apr. 24	2311	574	67	466
Pipe-bending machine	J. C. Orr	521,417	June 12	1176	279, 280	67	1427
Pipe. Clip for use in making joints in cast-iron	E. H. Gowing	517,611	Apr. 3	315	74	67	62
Pipe-coupling	A. Bryant	520,514	May 29	2741	664	67	1105
Pipe-coupling	J. J. Burke	522,005	June 26	2251	540	67	1657
Pipe-coupling	W. W. Gago	521,465	June 19	1283	299	67	1462
Pipe-coupling	W. Martin	521,122	June 5	655	154	67	1315
Pipe-coupling	S. M. Friede	521,437	June 12	1217	288	67	1433
Pipe-coupling. Combination soft and hard metal	J. F. Gleason	519,672	May 8	1315	315	67	798
Pipe. Device for filling joints of metal	A. F. Foster	521,445	June 12	1239	292, 293	67	1438
Pipe dies. Screw-dummy for sewer-	J. H. Eller	518,943	May 1	14	3	67	539
Pipe fastener. Conductor-	J. W. Cooney	519,568	May 8	1146	275	67	768
Pipe-fitting apparatus	W. A. Tipson	518,557	Apr. 17	1936	478	67	385
Pipe from mandrels. Removing artificial	R. Boyd	521,140	June 12	703	164	67	1337
Pipe-hanger	A. Bryant	519,318	May 8	603	170	67	685
Pipe-hanger	F. A. Pelton	518,825	Apr. 24	2409	596	67	483
Pipe-hanger	W. A. Tipson	518,556	Apr. 17	1935	478	67	385
Pipe-joining device	N. W. Condict	521,017	June 5	472	113	67	1282
Pipe-joint	G. W. Harrington	520,988	June 5	427	102	67	1274
Pipe-lengths. Fitting for connecting	W. A. Tipson	518,558	Apr. 17	1937	478, 479	67	385
Pipe-making machine	C. Van De Water	521,130	June 5	671	158	67	1318
Pipe or nut wrench	H. G. Tillinghast	521,835	June 26	1921	460	67	1596
Pipe plug. Soil or other	A. W. Cash	519,175	May 1	425	104	67	620
Pipe threading and cutting-off machine	J. Geisendorfer	519,254	May 1	569	138	67	647
Pipe-wrench	E. M. Jackson and F. Roberts	518,818	Apr. 24	2398	592	67	481
Pipe-wrench	W. King	521,267	June 12	913	216	67	1376
Pipe-wrench	J. P. Wynn and T. W. Gillespie	518,517	Apr. 17	1876	464	67	375
Pipe-wrench	N. R. Streeter and C. P. Mosher	520,712	May 29	3084	746	67	1169
Pipe-wrench. Chain	J. Rilling	518,008	Apr. 10	991	248	67	199
Pipes, &c. Cap and locking device for closing	E. L. Ransome	517,808	Apr. 3	655	164	67	127
Pipes in situ. Manufacture of monolithic	W. C. Winfield and J. F. McNutt	520,870	June 5	209	47	67	1236
Pipes. Machine for forming corrugated elbow-	P. Blachon and E. Minard	520,666	May 29	2988	722, 723	67	1151
Pistol. Magazine-	E. J. Armstrong	521,695	June 19	1674	393	67	1534
Piston-rods to cross-heads. Device for securing	M. L. Buckley	517,789	Apr. 3	626	156	67	121
Pitchers, &c. Shield for	J. I. Hoke	518,603	Apr. 24	2014	500	67	414
Pivoted tooth-bar	T. L Walmsley and H. H. Wright	520,745	May 29	3131	758	67	1177
Placer machine. Dry	J. Adrianson	520,761	June 5	1	1	67	1197
Placket-fastener for garment-skirts	W. E. Crompton	518,521	Apr. 17	1882	466	67	376
Plane. Carpenter's	W. and J. E. Gleason	518,497	Apr. 17	1832	455, 456	67	368
Planer. Automatic gear-	J. D. Sigler	521,297	June 12	966	229	67	1385
Planer feed-roll	J. S. Detrick and L. H. Bachtell	518,183	Apr. 10	1274	321	67	248
Planing-machine feeding device. Metal-	J. R. Thomas	520,714	May 29	3087	747	67	1169
Planing-machines. Adjustable bearing for upper feed-rolls of	W. N. Sawyer	519,739	May 15	1428	345	67	832
Planing machines. Feed-roller for wood-	H. M. Hodson	519,712	May 15	1389	335	67	825
Plant-setter	J. A. Elam	519,248	May 1	562	136	67	616
Planter	L. B. Lancaster	518,671	Apr. 24	2139	535	67	436
Planter	G. W. Murfay	520,887	June 5	245	57, 58	67	1242
Planter	G. W. Murray	520,890	June 5	251	59	67	1243
Planter	J. N. Wilson	518,979	May 1	68	17, 18, 19	67	548
Planter and fertilizer-distributer. Combined cotton-seed	G. W. Murray	520,891	June 5	253	59, 60	67	1243
Planter. Check-row corn-	J. W. Parker	520,862	June 5	197	44	67	1233
Planter. Combined cotton and corn	G. Wittich	520,872	June 5	213	48	67	1236
Planter. Corn-	C. A. Beerstecher	522,040	June 26	2302	551	67	1667
Planter. Corn-	B. F. Darby	520,669	May 29	3003	725, 726	67	1154
Planter. Corn-	M. L. Hall	518,840	Apr. 24	2426	601	67	486
Planter. Corn-	G. P. Kuhn	518,459	Apr. 17	1780	442	67	358
Planter. Corn-	J. and J. Kurt	518,960	May 1	37	10	67	543
Planter. Corn-	J. Chadwell	520,726	May 29	3102	751	67	1172
Planter. Hand-	P. Schendzelos	517,487	Apr. 3	120	27	67	95
Planter. Hand corn-	W. Dulin	521,763	June 19	1807	428	67	1557
Planter. Hand seed-	T. L. Good	518,141	Apr. 10	1202	301	67	235
Planter. Potato-	L. D. Benner	519,692	May 15	1355	327, 328	67	819
Planter. Seed-	J. A. Thompson	518,014	Apr. 10	998	250, 251	67	201
Planter. Tobacco-	W. M. Kuhns	520,187	May 22	2199	535, 536	67	988
Plaquets of india-rubber, &c. Forming tubular	W. Barr, Jr., and D. McKay	519,900	May 15	1688	411	67	882
Plaster	T. Jones	518,784	Apr. 24	2338	.....	67	472
Plaster. Composition of matter for	J. D. Preston	519,548	May 8	1112	.....	67	702
Plaster. Manufacture of	H. C. Higginson	519,259	May 1	575	140	67	649
Plaster. Wall-	A. Hobbs	520,783	June 5	39	.....	67	1204
Plastic articles. Manufacture of	K. Witz	520,283	May 22	2360	573	67	1019
Plastic material for replacing wood, metal, stone, &c.	L. P. Hemmer	520,824	June 5	125	.....	67	1220
Plate-holder. Magazine	A. Stegemann	519,276	May 1	602	146, 147	67	654
Plow	J. D. Burkhart, C. H. Waterman, and J. D. Smith.	518,936	May 1	3	1	67	537
Plow	C. Marsh	521,032	June 5	495	118	67	1286
Plow and subsoiler. Undercut	H. B. Martin	520,932	June 5	338	82	67	1258
Plow attachment	O. T. Jensen	521,117	June 5	648	152	67	1314
Plow-iron clamp	W. A. Clark	519,806	May 15	1541	376	67	853
Plow or cultivator	H. Forman	521,022	June 5	478	114	67	1283
Plow. Riding-	W. D. Hott	517,923	Apr. 10	830	208	67	174
Plow seed-sowing attachment	G. W. Johnson	521,542	June 19	1417	328	67	1486
Plow. Side-hill	G. Willard	520,281	May 22	2357	572	67	1018
Plow. Sulky-	C. Anderson	521,969	June 26	2174	522	67	1644
Plow. Wheel-	J. W. Swickard	520,905	June 5	274	66	67	1247
Plow. Wheeled	J. H. Jones	520,645	May 29	2953	715	67	1145
Plug strip. Multiple-	H. G. Rounds	519,553	May 8	1119	269	67	763
Plume-fastener for helmets	L. A. Hayes	521,213	June 12	816	192	67	1358
Pneumatic dispatch systems. Switch-rail for	S. F. Leake	520,064	May 22	1963	480	67	946
Pneumatic dispatch-tube gate	S. F. Leake	519,718	May 15	1397	337	67	826
Pneumatic dispatch-tube system	S. F. Leake	519,719	May 15	1398	337	67	826
Pneumatic-tired wheel	W. Turner	520,504	May 29	2728	661	67	1103
Pneumatic transmitter or store-service	C. O. Yale and J. H. Ames	520,664	May 29	2983	721, 722	67	1150
Pocket-book holder	F. Holzhauer	520,431	May 29	2605	630	67	1061
Pocket-books, &c. Corner or frame for	L. B. Prahar	520,705	May 29	3074	744	67	1167
Pocket register and indicator	T. Stocker	518,797	Apr. 24	2357	584	67	475
Poke. Animal-	F. Fisher	519,994	May 15	1644	450	67	909
Polishing-mitt and dauber	T. P. Hebblewhite and F. Harvey	518,144	Apr. 10	1207	303	67	236
Polishing or buffing wheel	T. J. Cleary	520,515	May 29	2743	664	67	1105
Polishing table-knives, &c. Machine for	E. F. Kuechler and H. Starck	518,148	Apr. 10	1212	304	67	237
Portable furnace	W. I. Castleman	519,236	May 1	536	129	67	642
Post: *See* Fence-post. Tubular metallic post.							
Postal-card. Return	J. G. Wallace	520,816	June 5	109	24	67	1216
Pot: *See* Coffee-pot. Watering-pot. Glue-pot.							
Pot or kettle	E. Gerber	519,764	May 15	1465	355	67	839
Potash alum and alumina. Making	J. Heibling	521,712	June 19	1703	490	67	1540
Potato-cutter	L. A. Aspinwall. (Reissue)	11,417	Apr. 24	2601	643, 644	67	519
Potato-digger	J. A. Buck	517,516	Apr. 3	164	37	67	33
Potato-digger	B. A. Reynolds	521,940	June 26	2115	507, 508	67	1635
Potato-digger	A. Smethurst	520,902	June 5	270	65	67	1246
Potato-digger	N. Sturdy	521,057	June 5	543	127, 128	67	1295
Pottery-machine for forming oval ware	A. Lowry	519,610	May 8	1213	292	67	780
Powder-box	C. P. Thomas	520,343	May 22	2464	597	67	1038
Powder-distributer	C. H. Leggett	519,720	May 15	1399	337, 338	67	827
Powder holding and delivering device	J. C. Michael	519,387	May 8	828	202	67	711
Powder. Manufacture of smokeless	F. G. du Pont	519,702	May 15	1371	331	67	822
Powders. Manufacturing metallic	J. Sachs and E. Huber	521,991	June 26	2295	535	67	1653
Powders. Manufacturing metallic	J. Sachs and E. Huber	521,992	June 26	2226	.....	67	1653
Powdering plates, &c. Machine for	B. Bangh	519,786	May 15	1508	367, 368	67	847
Power: *See* Foot or hand power.							
Power-press. Adjustable	F. M. Leavitt	518,847	Apr. 24	2436	603	67	488
Power-storage apparatus	A. G. Page	521,768	June 19	1814	430, 431	67	1558
Power-transmitter	L. L. Miller	520,326	May 22	2425	590	67	1031
Power-transmitting mechanism	D. C. Frazeur	521,108	June 5	636	149, 150	67	1312
Power-wheel	A. Bienkowski	519,226	May 1	516	125	67	637
Precious ores. Converting and smelting	C. M. Allen	519,217	May 1	506	.....	67	635
Preserving articles or structures	E. M. Caffall	520,819	June 5	113	.....	67	1217
Preserving-case	H. D. Streator	518,286	Apr. 17	1467	367	67	301
Preserving food compounds	F. Anker	521,694	June 19	1673	393	67	1534
Preserving-jar	H. A. Robinson	520,338	May 22	2455	595	67	1037
Press: *See* Baling-press. Power-press. Cigar-press. Printing-press. Cotton-press. Screw-press. Drop-press. Stamping-press. Filter-press. Toggle-press. Hay-press.							
Pressure. Apparatus for indicating and regulating fluid-	J. H. Gartrell	517,451	Apr. 3	66	14	67	15
Pressure brake. Fluid-	F. Thalmueller, Jr	517,901	Apr. 10	794	199	67	167
Pressure-recorder	J. Naylor, Jr	520,073	May 22	1982	485, 486	67	949

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Planter. Seed-	J. A. Thompson	518,014	Apr. 10	998	250, 251	67	201
Planter. Tobacco-	W. M. Kuhns	520,187	May 22	2199	535, 536	67	988
Plaquets of india-rubber, &c. Forming tubular	W. Barr, Jr., and D. McKay	519,900	May 15	1688	411	67	882
Plaster	T. Jones	518,784	Apr. 24	2338	.....	67	472
Plaster. Composition of matter for	J. D. Preston	519,548	May 8	1112	.....	67	702
Plaster. Manufacture of	H. C. Higginson	519,259	May 1	575	140	67	649
Plaster. Wall-	A. Hobbs	520,783	June 5	39	.....	67	1204
Plastic articles. Manufacture of	K. Witz	520,283	May 22	2360	573	67	1019
Plastic material for replacing wood, metal, stone, &c.	L. P. Hemmer	520,824	June 5	125	.....	67	1220
Plate-holder. Magazine	A. Stegemann	519,276	May 1	602	146, 147	67	654
Plow	J. D. Burkhart, C. H. Waterman, and J. D. Smith.	518,936	May 1	3	1	67	537
Plow	C. Marsh	521,032	June 5	495	118	67	1286
Plow and subsoiler. Undercut	H. B. Martin	520,932	June 5	338	82	67	1258
Plow attachment	O. T. Jensen	521,117	June 5	648	152	67	1314
Plow-iron clamp	W. A. Clark	519,806	May 15	1541	376	67	853
Plow or cultivator	H. Forman	521,022	June 5	478	114	67	1283
Plow. Riding-	W. D. Hott	517,923	Apr. 10	830	208	67	174
Plow seed-sowing attachment	G. W. Johnson	521,542	June 19	1417	328	67	1486
Plow. Side-hill	G. Willard	520,281	May 22	2357	572	67	1018
Plow. Sulky-	C. Anderson	521,969	June 26	2174	522	67	1644
Plow. Wheel-	J. W. Swickard	520,905	June 5	274	66	67	1247
Plow. Wheeled	J. H. Jones	520,645	May 29	2953	715	67	1145
Plug strip. Multiple-	H. G. Rounds	519,553	May 8	1119	269	67	763
Plume-fastener for helmets	L. A. Hayes	521,213	June 12	816	192	67	1358
Pneumatic dispatch systems. Switch-rail for	S. F. Leake	520,064	May 22	1963	480	67	946
Pneumatic dispatch-tube gate	S. F. Leake	519,718	May 15	1397	337	67	826
Pneumatic dispatch-tube system	S. F. Leake	519,719	May 15	1398	337	67	826
Pneumatic-tired wheel	W. Turner	520,504	May 29	2728	661	67	1103
Pneumatic transmitter or store-service	C. O. Yale and J. H. Ames	520,664	May 29	2983	721, 722	67	1150
Pocket-book holder	F. Holzhauer	520,431	May 29	2605	630	67	1061
Pocket-books, &c. Corner or frame for	L. B. Prahar	520,705	May 29	3074	744	67	1167
Pocket register and indicator	T. Stocker	518,797	Apr. 24	2357	584	67	475
Poke. Animal-	F. Fisher	519,994	May 15	1644	450	67	909
Polishing-mitt and dauber	T. P. Hebblewhite and F. Harvey	518,144	Apr. 10	1207	303	67	236
Polishing or buffing wheel	T. J. Cleary	520,515	May 29	2743	664	67	1105
Polishing table-knives, &c. Machine for	E. F. Kuechler and H. Starck	518,148	Apr. 10	1212	304	67	237
Portable furnace	W. I. Castleman	519,236	May 1	536	129	67	642
Post: *See* Fence-post. Tubular metallic post.							
Postal-card. Return	J. G. Wallace	520,816	June 5	109	24	67	1216
Pot: *See* Coffee-pot. Watering-pot. Glue-pot.							
Pot or kettle	E. Gerber	519,764	May 15	1465	355	67	839
Potash alum and alumina. Making	J. Heibling	521,712	June 19	1703	490	67	1540
Potato-cutter	L. A. Aspinwall. (Reissue)	11,417	Apr. 24	2601	643, 644	67	519
Potato-digger	J. A. Buck	517,516	Apr. 3	164	37	67	33
Potato-digger	B. A. Reynolds	521,940	June 26	2115	507, 508	67	1635
Potato-digger	A. Smethurst	520,902	June 5	270	65	67	1246
Potato-digger	N. Sturdy	521,057	June 5	543	127, 128	67	1295
Pottery-machine for forming oval ware	A. Lowry	519,610	May 8	1213	292	67	780
Powder-box	C. P. Thomas	520,343	May 22	2464	597	67	1038
Powder-distributer	C. H. Leggett	519,720	May 15	1399	337, 338	67	827
Powder holding and delivering device	J. C. Michael	519,387	May 8	828	202	67	711
Powder. Manufacture of smokeless	F. G. du Pont	519,702	May 15	1371	331	67	822
Powders. Manufacturing metallic	J. Sachs and E. Huber	521,991	June 26	2295	535	67	1653
Powders. Manufacturing metallic	J. Sachs and E. Huber	521,992	June 26	2226	.....	67	1653
Powdering plates, &c. Machine for	B. Bangh	519,786	May 15	1508	367, 368	67	847
Power: *See* Foot or hand power.							
Power-press. Adjustable	F. M. Leavitt	518,847	Apr. 24	2436	603	67	488
Power-storage apparatus	A. G. Page	521,768	June 19	1814	430, 431	67	1558
Power-transmitter	L. L. Miller	520,326	May 22	2425	590	67	1031
Power-transmitting mechanism	D. C. Frazeur	521,108	June 5	636	149, 150	67	1312
Power-wheel	A. Bienkowski	519,226	May 1	516	125	67	637
Precious ores. Converting and smelting	C. M. Allen	519,217	May 1	506	.....	67	635
Preserving articles or structures	E. M. Caffall	520,819	June 5	113	.....	67	1217
Preserving-case	H. D. Streator	518,286	Apr. 17	1467	367	67	301
Preserving food compounds	F. Anker	521,694	June 19	1673	393	67	1534
Preserving-jar	H. A. Robinson	520,338	May 22	2455	595	67	1037
Press: *See* Baling-press. Power-press. Cigar-press. Printing-press. Cotton-press. Screw-press. Drop-press. Stamping-press. Filter-press. Toggle-press. Hay-press.							
Pressure. Apparatus for indicating and regulating fluid-	J. H. Gartrell	517,451	Apr. 3	66	14	67	15
Pressure brake. Fluid-	F. Thalmueller, Jr	517,901	Apr. 10	794	199	67	167
Pressure-recorder	J. Naylor, Jr	520,073	May 22	1982	485, 486	67	949

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Primer. Electrical	W. Mason	520,116	May 22	2054	502	67	963
Printer. Sign-	W. E. Rose	518,118	Apr. 10	1171	293	67	230
Printing and dividing endless lengths of paper. Machine for	C. E. Preusse	520,010	May 15	1865	456, 457	67	913
Printing attachment. Bicycle	E. Redmond	520,803	June 5	80	18	67	1212
Printing device. Hand	R. H. Smith and W. F. Tripp	518,515	Apr. 17	1872	464	67	374
Printing indigo	A. Blanchon and A. Allegret	522,042	June 26	2304	.....	67	1667
Printing-machine	C. P. Cottrell	517,682	Apr. 3	451	109	67	87
Printing-machine	C. P. Cottrell	517,973	Apr. 10	920	230	67	188
Printing-machine for copper or steel plates	J. Lariviere	519,915	May 15	1708	417, 418, 419	67	885
Printing machine. Multiple-color-	W. H. R. Toye	522,128	June 26	2439	587	67	1692
Printing machine. Oil-cloth-	W. H. Schoenberg	518,120	Apr. 10	1173	294	67	230
Printing machine. Plate-	E. S. Bradford	518,134	Apr. 10	1191	298, 299	67	233
Printing-machine printing-plates. Registering attachment for	W. H. R. Toye	522,129	June 26	2442	587	67	1693
Printing-machine. Rotating letter-press	F. X. Hölzle	519,956	May 15	1774	434, 435	67	897
Printing machine. Stencil-	W. G. Fuerth	521,464	June 19	1282	299	67	1462
Printing machine. Ticket-	W. B. Gray and D. F. Bowen	521,438	June 12	1219	288, 289	67	1433
Printing-plates. Manufacture of	R. J. Sachera	518,826	Apr. 24	2109	596	67	483
Printing-press counting attachment	H. La Fountain	521,318	June 12	1005	236	67	1393
Printing-press delivery apparatus	S. G. Goss	518,241	Apr. 17	1393	349	67	287
Printing-press delivery apparatus	S. G. Goss	518,242	Apr. 17	1395	349, 350	67	288
Printing-press inking apparatus	W. C. Wendté	520,345	May 22	2467	598	67	1039
Printing-press inking apparatus	W. C. Wendté	520,346	May 22	2469	598, 599	67	1039
Printing press. Multicolor-	W. C. Wendté	517,907	Apr. 10	803	202	67	169
Printing press. Multicolor-	W. C. Wendté	517,908	Apr. 10	806	202, 203	67	169
Printing press. Multicolor-	W. C. Wendté	519,461	May 8	941	228	67	732
Printing press. Multicolor-	W. C. Wendté	519,462	May 8	943	228	67	732
Printing-press. Rotary	J. P. Luhn	521,268	June 12	914	216, 217	67	1376
Printing-press. Rotary	J. Michaud	520,069	May 22	1975	483, 484	67	948
Printing-presses. Perforating mechanism for cylinder.	E. Kellner	518,505	Apr. 17	1854	460	67	371
Printing wall-paper. Machine for	C. F. W. Lehmann	518,324	Apr. 17	1531	381	67	312
Projectile	F. M. Ashley	517,560	Apr. 3	238	55	67	47
Projectiles and apparatus therefor. Hardening	H. A. Brustlein	519,232	May 1	526	127	67	639
Propeller	O. B. Genty	520,563	May 29	2826	682	67	1122
Propeller. Boat-	F. P. McElfresh	518,072	Apr. 10	1094	276	67	216
Propeller for boats. Oar-	H. Hurlburt	518,605	Apr. 24	2020	502	67	415
Propeller. Paddle-	A. Beers	518,830	Apr. 24	2415	597, 598	67	484
Propeller. Pneumatic	L. H. Mayer	520,004	May 15	1856	454	67	911
Propeller-shaft bearing	A. J. Beaudette	520,291	May 22	2372	576	67	1021
Propelling canal-boats. Means for	B. C. Scott	518,680	Apr. 24	2151	538	67	439
Propelling mechanism. Boat-	C. P. Disco	521,405	June 12	1158	274	67	1423
Propelling mechanism for canal-boats	H. W. Hildebrand	521,146	June 5	696	163	67	1322
Pruning implement	T. E. B. Mason	518,649	Apr. 24	2096	523	67	428
Puller: *See* Flax-puller. Stump-puller.							
Pulley	P. Conyngham and W. R. Gibbons	519,493	May 8	1002	242	67	741
Pulley-block	A. W. Browne	519,984	May 15	1823	447	67	906
Pulley-block	O. M. Mowat	522,078	June 26	2361	568	67	1679
Pulley. Clutch-	H. Bunker	521,281	June 12	935	221	67	1379
Pulley. Expansible differential	W. Roney	517,532	Apr. 3	188	43	67	38
Pulley. Friction-clutch	T. E. Kirkbride and C. E. Ouram	521,240	June 12	863	203	67	1367
Pulley-lines. Rope-clamp for	T. Bevan	518,132	Apr. 10	1188	298	67	233
Pulley. Separable	A. C. Hodge	519,331	May 8	717	177	67	690
Pulley-turning machine	A. Wood	521,353	June 12	1079	253	67	1408
Pulleys. Compound for covering belt-	A. L. and W. J. Huston	520,992	June 5	432	103	67	1275
Pulleys, shafts, &c. Slip-collar for	C. W. Shartle	521,055	June 5	541	127	67	1295
Pulp-engine	L. A. Thomas	521,300	June 12	976	231	67	1387
Pulp-engine roll-bar	J. H. Horne	520,960	June 5	377	92	67	1266
Pulp. Machine for molding spools or similar forms from	E. Hubbard	517,924	Apr. 10	832	209	67	174
Pulp-screen	E. M. Hall and F. Pearse	521,409	June 12	1164	276	67	1425
Pulping and grinding machine	G. Hibbert	520,680	May 29	3030	733	67	1159
Pulverizer and planter. Combined	E. Showell	520,454	May 29	2640	638	67	1088
Pulverizer. Land-	H. C. Brookens	518,363	Apr. 17	1620	399	67	329
Pulverizer. Manure-	J. F. Haygood and J. H. Roach	519,629	May 8	1253	301	67	786
Pulverizing-mill roll	E. C. Griffin	520,958	June 5	374	91	67	1265
Pump	W. H. Fetters	519,081	May 1	244	57	67	563
Pump	D. F. and H. Selzer	518,356	Apr. 17	1601	396	67	326
Pump	J. C. and E. A. Tom	517,902	Apr. 10	795	200	67	167
Pump. Air-	A. Wolff and T. R. Hyde, Jr.	518,302	Apr. 17	1489	372	67	305
Pump and motor therefor	A. T. Welch	519,825	May 15	1566	383, 384	67	858
Pump. Centrifugal	G. W. Price	517,529	Apr. 3	182	41	67	37
Pump. Direct-acting steam-	F. A. Burnham	519,857	May 15	1621	394, 395	67	868
Pump for compressing air or gases	G. E. Belliss and A. Morcom	519,225	May 1	514	125	67	637
Pump for drilled wells	D. Lippy	521,720	June 19	1718	405	67	1543
Pump governor. Feed-	J. Thomas	519,360	May 8	780	191	67	702
Pump. Hand-	J. Clark	519,444	May 8	914	220	67	727
Pump. Hydraulic air-	E. H. Weatherhead	520,466	May 29	2662	644	67	1091
Pump. Lift-	J. Wack	518,981	May 1	75	19	67	549

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Pump-motor	L. H. Lloyd	519,608	May 8	1209	291	67	779
Pump-motor. Electric	J. F. Blake	520,722	May 29	3096	749	67	1171
Pump-pipes. Vent attachment for	L. Adams	518,934	May 1	1	1	67	537
Pump-regulator	J. Rothchild	518,927	Apr. 24	2577	637	67	516
Pump regulator. Hydraulic steam-	T. J. Davis	521,365	June 12	1096	257, 258	67	1411
Pump-rods. Brace and guide for windmill	A. S. Tragethon	519,514	May 8	1032	250	67	747
Pump-rods. Grip for polished	M. Turton	520,716	May 29	3089	748	67	1170
Pump. Steam-	E. C. Johnson	519,065	May 1	215	50, 51	67	577
Pump. Vacuum-	E. D. Chaplin	521,432	June 12	1203	285, 286	67	1430
Pump-valve	C. Zies	520,349	May 22	2473	600	67	1040
Pump-valve. Steam-actuated	J. T. Hayden	519,843	May 15	1594	390	67	864
Pumping apparatus for gas, air, water, &c	G. P. Schneider	521,675	June 19	1640	384	67	1527
Pumping apparatus. Portable	D. Noble	517,881	Apr. 10	758	189	67	161
Pumping apparatus. Portable	D. Noble	519,871	May 15	1644	400	67	873
Pumping-engine. Direct-acting	G. de Laval	520,237	May 22	2282	555	67	1003
Pumping machinery	M. Foster	517,449	Apr. 3	63	13, 14	67	14
Punch	W. Hill	520,990	June 5	429	103	67	1275
Punch	W. J. Plecker	518,766	Apr. 24	2310	574	67	466
Punch and fare-register	J. M. Black	517,944	Apr. 10	861	217	67	179
Punch for checks or other papers. Figure-	J. B. Backus	521,358	June 12	1087	255	67	1409
Punch. Metal-	T. E. Clark	519,240	May 1	547	133	67	643
Punch. Ticket-	J. M. Black	518,518	Apr. 17	1877	465	67	375
Punching and forming machine	C. P. Higgins	521,858	June 26	1955	471, 472	67	1603
Punching-bags. Apparatus for sustaining	J. P. MacLearn	519,918	May 15	1713	421	67	886
Punching-machine	T. A. Norris	520,215	May 22	2245	547	67	997
Punching machine. Eyelet-hole-	H. Wright	521,068	June 5	565	132, 133	67	1299
Punching-tool	F. P. Brooks	519,626	May 8	1247	299	67	785
Purse or coin-receptacle	A. Goertz	519,765	May 15	1468	356	67	839
Push-button	J. F. McLaughlin	521,808	June 26	1877	449	67	1588
Puzzle	T. P. Briody	520,155	May 22	2145	522	67	978
Puzzle	H. L. Cassard	519,989	May 15	1836	449	67	908
Puzzle	J. M. Fuller	518,061	Apr. 10	1077	272	67	213
Puzzle	E. Brown	520,875	June 5	217	49	67	1237
Pyrometer	E. A. Uehling and A. Steinbart. (Reissue.)	11,413	Apr. 17	1979	490	67	392
Pyrometer	H. J. Pain	519,159	May 1	395	95	67	613
Pyrotechnic device	J. H. Stevens	517,987	Apr. 10	949	.....	67	193
Pyroxylin. Manufacture of solid compounds of	G. O. Zeller	518,386	Apr. 17	1659	.....	67	336
Pyroxylin solvents and their products. Manufacturing	G. O. Zeller	518,387	Apr. 17	1659	.....	67	336
Pyroxylin solvents and their products. Manufacturing	G. O. Zeller	518,388	Apr. 17	1660	.....	67	336
Quill-strip-cutting machine	E. Blüthchen	519,659	May 8	1301	311	67	795
Rack: *See* Barrel or cask rack. Hay-rack. Book-rack. Pen-rack. Display-rack. Pie-rack. Dress-goods rack. Towel-rack. Hat-rack. Wall-paper display-rack.							
Racking apparatus. Beer-	H. Torchiani	519,513	May 8	1031	249	67	747
Racking beer. Method of and apparatus for	A. Werner	519,558	May 8	1125	270, 271	67	764
Radiator	J. Johnson	521,618	June 19	1549	362	67	1509
Radiator attachment	W. J. Baldwin	518,801	Apr. 24	2368	586	67	475
Radiator. Heat-	C. I. Dangler and H. Ruppel	521,139	June 5	688	164	67	1320
Radiator. Steam-	H. W. Stone	521,832	June 26	1949	460	67	1596
Rail-bending tool	W. H. Phillips	520,078	May 22	1992	487	67	951
Rail-cambering apparatus	H. C. Ryding	520,765	June 5	202	45	67	1234
Rail connection	T. C. Paulsen	517,884	Apr. 10	763	190	67	161
Rail. Guard-	G. B. Ames	522,038	June 26	2209	551	67	1666
Rail-joint	E. P. Caldwell	519,904	May 15	1694	413	67	883
Rail-joint	W. C. Cranmer	518,834	Apr. 24	2419	599	67	485
Rail-joint	M. O. Perkins	521,667	June 19	1628	381	67	1525
Rail-joint support	F. P. Stiker	518,634	Apr. 24	2069	514, 515	67	423
Rail or bar bender	M. H. Brown	520,876	June 5	219	49	67	1237
Rail-tie plate and brace	A. L. Starke	520,276	May 22	2350	570	67	1017
Rails, bars, &c. Implement for straightening	A. Menser	519,920	May 15	1715	421	67	886
Rails or other metal bars. Machine for straightening	A. J. Moxham	518,197	Apr. 10	1314	329	67	257
Railway bond. Electric-	J. Meyer	518,414	Apr. 17	1700	421	67	344
Railway-brake-operating apparatus	R. A. Kiskadden	519,688	May 8	1348	325	67	804
Railway bridle-rod	H. A. Morin	518,348	Apr. 17	1584	392	67	332
Railway. Cable	C. W. Hunt	520,644	May 29	2952	714	67	1145
Railway. Cable street-	F. Hoch	521,500	June 19	1349	314	67	1474
Railway-carriages. Ventilating	S. Hughes	521,316	June 12	1001	235, 236	67	1392
Railway-carriages. Ventilating	S. Hughes	521,795	June 26	1859	445	67	1585
Railway cattle-guard	E. Cook	520,178	May 22	2182	531	67	985
Railway cattle-guard	E. Cook	520,179	May 22	2183	532	67	985
Railway-chair	A. F. Naylor	520,534	May 29	2773	671	67	1111
Railway-conductor support. Electric-	J. C. Henry	519,115	May 1	299	71	67	592
Railway conduit. Electric-	P. P. Banholzer	518,540	Apr. 17	1912	473	67	381
Railway. Conduit electric	T. Armat	521,562	June 19	1446	336, 337	67	1491
Railway. Conduit electric	J. F. Cook	519,380	May 8	810	198	67	708
Railway. Conduit electric	W. R. De Voe	520,304	May 22	2389	581	67	1024
Railway. Conduit electric	H. A. Gorcham	517,692	Apr. 3	468	113	67	90
Railway. Conduit electric	W. F. Jenkins	517,804	Apr. 3	647	162	67	126
Railway. Conduit electric	W. C. Keithly	517,549	Apr. 3	218	50	67	43

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Railway. Conduit electric	C. A. Maynard	518,695	Apr. 24	2177	544	67	443
Railway. Conduit electric	C. J. Reed	521,891	June 26	2007	484, 485	67	1614
Railway. Conduit electric	C. J. Reed	521,892	June 26	2011	485	67	1615
Railway. Conduit electric	C. W. Siemens	520,356	May 22	2481	602	67	1041
Railway. Conduit electric	F. P. Fenerbacher	521,158	June 12	723	171	67	1341
Railway cross-tie	G. C. and T. A. Corbin	517,792	Apr. 3	629	157	67	122
Railway-crossing gate	L. Harris	521,881	June 26	1992	481	67	1611
Railway-crossing gate	F. C. Stendel	520,192	May 22	2207	537	67	990
Railway-crossing track-cleaner	F. A. Fox and A. P. Yates	520,439	May 29	2944	712	67	1144
Railway danger-signal. Pyrotechnic	H. S. Pruyn	517,886	Apr. 10	765	191	67	162
Railway. Electric	W. B. Purvis	519,291	May 1	641	154	67	659
Railway. Electric	E. W. von Siemens	520,274	May 22	2347	569, 570	67	1016
Railway. Elevated	L. Anderson	518,170	Apr. 10	1253	315	67	244
Railway. Elevated	C. C. Burton	518,564	Apr. 17	1952	482	67	388
Railway. Elevated	F. J. Korff	520,163	May 22	2156	525	67	980
Railway. Elevated	B. Roberts	518,925	Apr. 24	2573	636, 637	67	515
Railway fog-signal apparatus	J. G. Dixon	520,671	May 29	3008	726, 727, 728	67	1155
Railway-frog	D. Horrie	519,577	May 8	1163	280	67	771
Railway-frog	H. O'Shea	520,861	June 5	195	43	67	1232
Railway. Gravity	J. W. Cawdery	518,224	Apr. 17	1367	342	67	283
Railway grip mechanism. Cable	C. I. Earll	520,259	May 22	2320	562, 563	67	1010
Railway. Induction electric	C. E. Roehl	517,531	Apr. 3	185	42	67	38
Railway overhead switch. Electric	M. A. Smith and W. Clabaugh	520,971	June 5	393	95	67	1269
Railway-rail	S. A. Roake and F. G. Smith	518,679	Apr. 24	2151	538	67	439
Railway rail and joint. Combination	W. H. McCormick	517,551	Apr. 3	223	51	67	44
Railway-rail chair	H. O'Shea	520,860	June 5	194	43	67	1232
Railway-rail chairs. Making	A. J. Moxham	520,654	May 29	2966	717	67	1147
Railway-rail clamp	D. B. Ruffner	517,665	Apr. 3	424	103	67	81
Railway-rail girder-joint	J. M. Price	517,660	Apr. 3	416	101	67	80
Railway-rail joint	L. Anderson and L. M. Hosea	517,829	Apr. 10	681	170	67	147
Railway-rail joint	M. Hall and W. H. Baker	520,425	May 29	2592	627	67	1078
Railway-rail joint	H. Roberts	521,866	June 26	1969	476	67	1606
Railway-rail or tie distributer	C. C. Gates	521,023	June 5	479	114	67	1283
Railway-rails. Fish-plate splice for connecting	W. J. Sheldon	521,481	June 19	1316	306	67	1468
Railway-rails. Substructure for	J. M. Price	519,772	May 15	1480	359	67	811
Railway safety system	W. H. Elkins	520,520	May 29	2752	666	67	1107
Railway sanding device	W. Grunow, Jr	520,044	May 22	1933	474	67	941
Railway-signal	C. C. and G. F. Kahne and A. A. Adkins.	517,751	Apr. 3	565	138	67	110
Railway signal and system	W. B. Gray and H. Shepley	520,161	May 22	2153	524, 525	67	980
Railway signal device	F. E. Kinsman	520,061	May 22	1954	478, 479	67	945
Railway-signal. Electric	C. R. Alsop	521,455	June 19	1269	296	67	1459
Railway-signal. Electric	F. Beattie	519,938	May 15	1746	428, 429	67	892
Railway-signal. Electric	B. F. Rex	518,511	Apr. 17	1863	462, 463	67	372
Railway-signal. Electric	B. Samuels	521,553	June 19	1435	334	67	1489
Railway-signal. Electric	C. Selden and H. V. Riley	520,661	May 29	2979	721	67	1149
Railway-signal. Electric	C. Selden and H. V. Riley	520,710	May 29	3080	745	67	1168
Railway-signal. Electric	R. M. Strong and C. F. Reed	519,932	May 15	1737	425, 426	67	889
Railway-signals. Pneumatic system of and apparatus for handling	J. W. Thomas, Jr	520,813	June 5	100	22, 23	67	1215
Railway-signals. Tension-adjusting device for	J. T. Hambay	520,307	May 22	2543	615	67	1054
Railway-spike	G. W. Thompson	519,511	May 8	1027	248	67	746
Railway supply system. Electric	T. Harris	521,711	June 19	1699	400	67	1539
Railway-switch	H. C. Benagh	519,298	May 1	643	157	67	661
Railway-switch	F. Brown	517,727	Apr. 3	525	127	67	102
Railway-switch	H. B. Büttel	521,014	June 5	469	112	67	1281
Railway-switch	D. M. Church	520,254	May 22	2311	560	67	1009
Railway-switch	E. W. Coughlin	520,302	May 22	2385	580	67	1024
Railway-switch	C. Froelich	519,082	May 1	246	58	67	583
Railway-switch	G. W. Hanner	518,755	Apr. 24	2294	570	67	463
Railway-switch	L. N. Jägel, C. G. Smith, and A. B. Pruden.	521,716	June 19	1710	403	67	1541
Railway-switch	H. H. Matt	522,072	June 26	2352	565	67	1676
Railway-switch	C. J. Mortimer	517,877	Apr. 10	752	188	67	159
Railway-switch	D. F. Vaughan	521,743	June 19	1756	416	67	1550
Railway-switch	G. F. Wilson	519,464	May 8	946	229	67	735
Railway-switch	S. S. Heim	521,611	June 19	1538	360	67	1507
Railway switch and signal	O. E. Seifert	518,281	Apr. 17	1455	364	67	299
Railway-switch. Automatic	L. Washington and W. H. Roberts	521,518	June 19	1376	320	67	1479
Railway-switch. Automatic	J. Shutt	519,741	May 15	1431	345	67	832
Railway switch. City	W. S. Gavey	517,743	Apr. 3	554	135	67	107
Railway-switch. Electrically-operated	J. Carnes	518,029	Apr. 10	1008	253	67	302
Railway switch-rod	J. W. Thomas, Jr	520,812	June 5	93	21, 22	67	1215
Railway-switches. Pneumatic system of and apparatus for handling	J. B. Brand	521,010	June 5	463	111	67	1280
Railway system. Conduit electric	D. Mason	519,794	May 15	1521	370, 371	67	849
Railway system. Electric	C. D. Tisdale	517,940	Apr. 10	855	215	67	178
Railway system. Electric	C. D. Tisdale	518,293	Apr. 17	1477	369	67	303
Railway system. Electric	R. Dinsmore	517,447	Apr. 3	60	13	67	14
Railway-tie	J. Neafie	517,585	Apr. 3	274	63	67	54
Railway-tie	C. Worth	517,943	Apr. 10	839	216	67	179
Railway time-indicator	C. C. Burton	518,565	Apr. 17	1955	483	67	388
Railway track and car							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Railway-track structure	E. Samuel	521,004	June 5	454	108	67	1278
Railway-track structure	J. H. White	520,469	May 29	2667	645	67	1092
Railway-train gate	J. Wayland	520,464	May 29	2658	642, 643	67	1091
Railway trains or vehicles. Apparatus for controlling the movement of	F. E. Kinsman	520,062	May 22	1958	479	67	945
Railway trolley. Conduit	W. Lawrence	520,758	May 29	3157	764	67	1182
Railway trolley. Electric	T. M. Brown	520,156	May 22	2146	523	67	978
Railway trolley. Electric	G. W. Hooper	518,952	May 1	25	7	67	541
Railway trolley. Electric	R. M. Hunter	520,527	May 29	2764	669	67	1109
Railway-turntable. Electric	W. F. Jenkins	517,749	Apr. 3	563	137, 138	67	109
Railway. Underground-conduit	J. Barthelmess	519,624	May 8	1244	298	67	785
Railway-vehicle skid	W. F. Lewis	520,323	May 22	2421	589	67	1030
Railways. Block system for trolley	P. Plodeck, Sr	520,938	June 5	340	84	67	1260
Railways. Closed conduit for electric	H. Alexander	521,326	June 12	1017	240	67	1395
Railways. Conduit supply system for electric	D. F. Graham and W. P. Allen	519,328	May 8	711	175, 176	67	689
Railways. Contacting device for electric	F. Jernetz and F. Jeniczek	519,911	May 15	1703	415, 416	67	884
Railways. Contrivance for diminishing the danger to foot-passengers from street	P. Lange and B. G. Lamme	518,693	Apr. 24	2171	543, 544	67	442
Railways. Controlling-switch for electric	G. Westinghouse, Jr., and C. F. Scott	520,975	June 5	404	97	67	1270
Railways. Converter system for electric	J. E. Goodhand	518,782	Apr. 24	2335	579	67	471
Railways. Distribution system for electric	C. H. Barrows	517,535	Apr. 3	191	43, 44	67	39
Railways. System of elevated and surface							
Rake: *See* Hay-rake. Rattle rake. Horse-rake.							
Rake	A. R. Dickinson	518,001	Apr. 10	981	244	67	197
Rake	A. R. Dickinson	519,761	May 15	1460	354	67	838
Rakes and loaders with wagons. Device for connecting hay	M. Mann	520,532	May 29	2771	670	67	1111
Ram or engine. Hydraulic	W. A. Rife	519,970	May 15	1800	442, 443	67	901
Rams. Machine for maintaining air-pressure in chambers of hydraulic	H. Ingham	521,167	June 12	735	174	67	1343
Ramie or other fibrous growths. Apparatus for treating	W. T. Forbes	519,423	May 8	883	214	67	721
Ramie-treating apparatus	W. T. Forbes	519,422	May 8	882	213	67	721
Ranges, heaters, &c. Means for lighting gas	C. H. Page, Jr.	521,915	June 26	2066	496	67	1625
Ranges, stoves, or heaters. Fire-box and grate for	A. R. Isaacs	518,457	Apr. 17	1778	442	67	358
Rasp-making machine	J. H. Stokes	521,424	June 12	1189	282, 283	67	1428
Rattle rake	R. Keeling	517,865	Apr. 10	733	184	67	156
Razor-blades, &c. Machine for hollowing	J. Leresche	517,464	Apr. 3	86	18, 19	67	18
Razor-handle	O. E. Fearn	519,250	May 1	564	137	67	646
Razor. Safety	E. L. Schmitz	519,479	May 8	978	236	67	737
Razor-strop composition	J. Hesel	519,533	May 8	1092	262	67	758
Razor-strops. Machine for grooving	F., R., and O. Kampfe	520,851	June 5	177	38, 39	67	1229
Razor-stropping device	E. L. Schmitz	520,272	May 22	2344	569	67	1015
Razor-wiper	W. H. Bridgman	517,971	Apr. 10	918	230	67	188
Reaper	G. W. Murray	520,892	June 5	255	60	67	1244
Receptacle for small articles	T. D. Ingram	521,116	June 5	646	152	67	1313
Reclining-chair	S. Chambers	518,751	Apr. 24	2289	569	67	461
Record. Multiple	K. Fenn	520,774	June 5	22	5	67	1200
Recorder: *See* Electric-current recorder. Telephone-call recorder. Time-recorder. Pressure-recorder.	H. M. Geiger	519,253	May 1	567	138	67	647
Recorders. Actuating device for manual							
Reel: *See* Fish-line reel. Time-reel. Hose-reel. Wire-reel.							
Reel	M. F. Knight	521,413	June 12	1169	277, 278	67	1426
Reel	C. C. Partridge	521,245	June 12	873	206	67	1369
Reel and sprinkler. Combination	W. L. Van Horn	520,815	June 5	107	24	67	1216
Reflector. Adjustable	P. W. A. Paasch	519,589	May 8	1178	283, 284	67	774
Reflector. Gas	T. Gill	518,594	Apr. 24	2008	499	67	413
Refrigerating-machine	L. Block	518,541	Apr. 17	1913	473	67	381
Refrigerating-machine	J. Levey, T. H. Butler, and C. A. MacDonald.	520,930	June 5	336	82	67	1258
Refrigerating-machine	J. E. McLaughlin	519,730	May 15	1417	342	67	830
Refrigerator	J. R. Davis	518,096	Apr. 10	1134	286	67	223
Refrigerator	J. Denson	518,396	Apr. 17	1669	412, 413	67	338
Refrigerator	G. Fee	518,233	Apr. 17	1378	345	67	285
Refrigerator	R. Hirsh	519,711	May 15	1387	334, 335	67	824
Refrigerator	F. Jacoby	522,118	June 26	2427	583	67	1690
Refrigerator	L. B. McClanathan	520,695	May 29	3054	740	67	1163
Refrigerator and filter. Combined	C. L. Sherwood	521,559	June 19	1443	336	67	1490
Refrigerator-car	F. E. Canda	522,105	June 26	2407	578	67	1686
Refrigerator-car	T. J. Gilmartin	522,112	June 26	2417	580	67	1688
Refrigerator-car	C. S. Miller and J. E. Du Bois	520,442	May 29	2619	634	67	1084
Refrigerator ice-rack	F. E. Ranney	519,432	May 8	897	216	67	724
Regenerative furnace	M. Wanner	517,991	Apr. 10	962	240	67	194
Register: *See* Autographic register. Fare-register. Hot-air register. Cash-register. Pocket-register. Electrically-operated register.							
Register	F. H. Ludington	519,130	May 1	340	80	67	603
Register for rotations of vehicle-wheels, &c	H. D. Studabaker	521,682	June 19	1657	389	67	1530

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Registering measures of liquids. Device for	F. Gervi	519,181	May 1	434	106	67	621
Regulator:							
See Belt-regulator. Chimney-regulator. Chute-regulator. Current-regulator. Electric-circuit regulator. Electric-current regulator. Electric-machine regulator. Electric-motor regulator. Gas regulator. Heat-regulator. Pump-regulator. Speed-regulator. Speed and power regulator.							
Rein-support	E. W. Craine	519,666	May 8	1305	312	67	796
Relay	H. S. L. Verley	519,142	May 1	356	85	67	607
Release-hook. Safety	J. U. Beckeman	518,131	Apr. 10	1187	297	67	233
Releasing device	H. Lahann	519,815	May 15	1552	380	67	856
Relishing-machine	O. F. Amsden	518,017	Apr. 10	1002	251, 252	67	201
Respiration. Device for producing	J. M. Preasey	517,481	Apr. 3	111	25	67	23
Retaining or lowering apparatus	T. H. and E. Gardner	519,110	May 1	290	69, 70	67	591
Reverberatory and regenerative furnace	E. F. Gray	518,523	Apr. 17	1883	467	67	376
Revoluble screen	D. E. Phillips	520,571	May 29	2836	685	67	1123
Revolver-lock mechanism	D. B. Wesson	520,468	May 29	2665	644	67	1092
Revolvers. Cylinder-pin catch for	J. Rourke	519,875	May 15	1651	402	67	874
Revolving chair	J. M. Morgan	519,806	May 15	1636	398	67	871
Rheostat	B. E. Baker	521,843	June 26	1933	463	67	1598
Rheostat	A. C. Dinkey	518,365	Apr. 17	1625	400	67	329
Rheostat	J. P. B. Fiske	518,206	Apr. 17	1381	346, 347	67	286
Rheostat	A. J. Shaw	517,770	Apr. 3	598	147	67	116
Rheostat	S. A. Baggs	519,981	May 15	1819	446	67	905
Riffle. Flume	F. Schafer	521,478	June 19	1305	304	67	1466
Riding-habit							
Ring:							
See Saddle girth-ring.							
Riprap-mattress	D. Neale	517,879	Apr. 10	755	189	67	160
Riveting-machine	J. J. Unbehend	519,782	May 15	1497	362, 363, 364, 365	67	845
Road worker and scraper	O. W. Stearns	518,473	Apr. 17	1805	447	67	362
Roaster:							
See Ore-roaster.							
Roasting and calcining kiln	L. Houze	519,063	May 1	210	49	67	576
Robe-holder	F. E. Woodruff	519,399	May 8	847	205	67	714
Rock-break and ore-granulator. Combined	H. P. Jones	520,317	May 22	2412	586, 587	67	1028
Rock-breaker. Subaqueous	P. S. Ross	517,556	Apr. 3	230	52, 53	67	45
Rock-crusher	C. E. Wyman	517,717	Apr. 3	512	124	67	99
Rock-drill	G. W. Pickett	519,202	May 1	469	114, 115	67	628
Rock-drill	G. W. Pickett	519,290	May 1	627	153, 154	67	659
Rock-drill	J. H. Smith	520,619	May 29	2912	704	67	1138
Rock drilling and boring machine	I. N. Day	517,815	Apr. 3	664	166	67	129
Rock drilling and splitting	G. M. Githens	517,689	Apr. 3	464	112	67	89
Rod:							
See Curtain-rod.							
Rods. Machine for straightening	P. M. Haas	518,403	Apr. 17	1680	415, 416	67	340
Roll-holder camera	E. B. Barker	518,802	Apr. 24	2369	587	67	476
Roll-holding camera	A. Delug	521,563	June 19	1448	337, 338	67	1491
Rolls for side-bearing suspension-rails	P. Eckel	517,687	Apr. 3	462	111	67	89
Roller:							
See Antifriction-roller. Shade-roller.							
Rolling angle-bars. Machine for	A. L. Hammarberg and A. Berglöf	519,452	May 8	925	223, 224	67	729
Rolling apparatus. Beam	F. H. Kindl	520,060	May 22	1953	478	67	944
Rolling-mill	R. G. Wood	517,716	Apr. 3	510	123	67	99
Rolling-mill edging-guide	T. Morrison	520,935	June 5	342	83	67	1259
Rolling roll. Metal	W. E. Harris	517,747	Apr. 3	560	137	67	109
Roof fastening. Metallic	J. O. Pew	521,572	June 19	1468	343	67	1495
Roof or floor. Fireproof	T. A. Lee	517,576	Apr. 3	263	61	67	51
Roofing. Anchor for sheet-metal	G. M. Patton	517,963	Apr. 10	909	227	67	187
Roofing. Metallic	W. H. Mullins	520,370	May 22	2506	607	67	1047
Roofing. Metallic	W. H. Mullins	520,371	May 22	2508	607	67	1048
Roofing. Sheet-metal	E. D. Bevitt	518,089	Apr. 10	1121	283, 284	67	220
Root-cutter and stump-extractor	E. E. Kirven	520,363	May 22	2498	604	67	1046
Rope-grip	A. K. Evans	518,880	Apr. 24	2489	617	67	499
Rotary cutter	H. P. Fairfield	518,917	Apr. 24	2559	633	67	512
Rotary engine	A. R. Benn	520,554	May 29	2810	678, 679	67	1118
Rotary engine	F. Brackemann	522,145	June 26	2480	594, 595	67	1701
Rotary engine	A. Hampe	518,812	Apr. 24	2390	591	67	480
Rotary engine	H. P. Holland	521,541	June 19	1416	328	67	1485
Rotary engine	G. W. Morthland	518,465	Apr. 17	1793	444, 445	67	361
Rotary engine	R. Nadeniczek	518,327	Apr. 17	1536	382	67	312
Rotary engine	W. Smith	517,985	Apr. 10	945	237, 238	67	192
Rotary engine	S. P. M. Tasker	518,635	Apr. 24	2070	515, 516	67	424
Rotary engine	B. M. Wilkinson	518,436	Apr. 17	1741	432	67	351

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Rotary engine or pump	C. C. Knauss and J. E. Krause	519,156	May 1	392	94	67	613
Rotary motor	G. Heinicke	518,145	Apr. 10	1208	303	67	236
Rotary steam-engine	W. M. Barnes	517,513	Apr. 3	159	35	67	32
Rotary steam-engine	W. M. Byrd	517,790	Apr. 3	627	157	67	122
Rotary steam-engine	C. V. Divan, Fils	521,950	June 26	2141	512, 513	67	1639
Rotary steam-engine	W. Smith	517,986	Apr. 10	948	238	67	192
Rotary steam-engine	H. Williams and T. L. Fisher	518,209	Apr. 17	1483	371	67	304
Row-boat	M. F. Davis	521,536	June 19	1408	325	67	1484
Rubber article. Hollow	E. L. Perry	521,246	June 12	874	207	67	1369
Rubber articles. Manufacturing hard	J. Thomson	520,196	May 22	2213	539	67	991
Rubber. Composition of matter for vulcanizing	J. M. Raymond	518,046	Apr. 10	1057		67	210
Rule. Draftsman's	F. W. Altpeter	521,597	June 19	1513	354	67	1502
Rule. Plumb	F. Holt	519,576	May 8	1161	280	67	771
Rule. Slide	T. H. Johnson	520,114	May 22	2050	501	67	963
Rule. T-square	M. R. Jewell	518,759	Apr. 24	2299	571	67	464
Ruler	M. R. Jewell	518,758	Apr. 24	2298	571	67	463
Ruling-machine ink-fountain	R. N. B. Petersen	519,025	May 1	130	34	67	563
Saccharine juices. Purifying	G. G. Tiemann	518,538	Apr. 17	1909		67	380
Sack-fastener	A. S. Procter	518,574	Apr. 17	1968	486	67	391
Sad-iron	M. V. Trube	520,583	May 29	2859	692	67	1128
Sad-iron heater	W. R. Lee	518,370	Apr. 17	1634	403	67	331
Saddle. Gig	C. A. White	518,435	Apr. 17	1749	432	67	351
Saddle girth-ring	I. H. Reed	521,592	June 19	1405	333	67	1489
Saddle. Harness	C. M. Lemke	522,185	June 26	2542	610	67	1713
Safe-lock	A. G. Burton and D. S. Covert	522,103	June 26	2402	577, 578	67	1685
Safe-lock	G. L. Damon	522,153	June 26	2403	598, 599	67	1703
Safe-lock	W. H. Hollar	518,453	Apr. 17	1771	439	67	357
Safe-locking mechanism	C. O. Yale	521,842	June 26	1931	463	67	1598
Safety apparatus	H. K. Whitner	519,365	May 8	788	193	67	704
Safety-bolt	P. Burns	521,458	June 19	1273	296	67	1460
Safety-switch	A. Johnson and W. S. Campbell	518,607	Apr. 24	2022	502, 503	67	416
Salt and pepper distributer	C. M. Berry	518,559	Apr. 17	1940	479	67	386
Salt-holder for cattle	H. A. Lee	518,819	Apr. 24	2399	592, 593	67	481
Sampler for grain, minerals, &c	T. Clarkson	518,915	Apr. 24	2554	631, 632	67	512
Sand mold	S. J. Adams	521,448	June 19	1245	294	67	1455
Sand mold	S. J. Adams	521,449	June 19	1247	294	67	1455
Sand mold	S. J. Adams	521,451	June 19	1256	294	67	1456
Sand mold	S. J. Adams	521,452	June 19	1260	295	67	1457
Sand mold	S. J. Adams	521,453	June 19	1264	295	67	1458
Sand mold	S. J. Adams	521,454	June 19	1267	295	67	1458
Sand mold	S. J. Adams	521,753	June 19	1788	424	67	1554
Sand mold and runner	S. J. Adams	520,101	May 22	2026	495	67	958
Sand molds. Apparatus for forming	S. J. Adams	521,450	June 19	1250	294	67	1456
Sanding device	W. Grunow, Jr.	521,467	June 19	1286	300	67	1462
Sash-balance	W. K. Morgan	517,700	Apr. 3	580	143	67	112
Sash-balance	F. L. Rosentreter	518,278	Apr. 17	1452	363	67	298
Sash balance	D. Sinks	519,895	May 15	1081	410	67	880
Sash-balance	J. J. Totman	519,823	May 15	1562	382	67	858
Sash-cord fastener	L. H. Mullikin	521,806	June 26	1875	449	67	1588
Sash-fastener	C. C. Algeo	521,691	June 19	1670	392	67	1533
Sash-fastener	F. Burmeister	520,754	May 29	3150	763	67	1180
Sash-fastener	J. F. Davis	519,905	May 15	1695	414	67	885
Sash-fastener	P. C. Dolliver	517,605	Apr. 3	306	71	67	60
Sash-fastener	G. C. Gardner	521,341	June 12	1063	249	67	1404
Sash-fastener	G. M. Kimball	518,253	Apr. 17	1409	353	67	290
Sash-fastener	J. F. Miltonberger, J. S. Wynant, and C. Schott.	519,476	May 8	974	235	67	736
Sash fastener. Window	R. Kirsch	519,607	May 8	1207	291	67	779
Sash-holder	J. W. Evans	518,494	Apr. 17	1820	454	67	367
Sash-holder	C. E. Heil	517,685	Apr. 3	472	113	67	91
Sash-holder	C. Koenemann	519,536	May 8	1095	263	67	759
Sash-holder	C. S. Lee	517,577	Apr. 3	265	61	67	52
Sash-holder	W. H. Masterman	518,413	Apr. 17	1699	421	67	344
Sash lock and support	J. S. Henry	517,456	Apr. 3	72	15	67	16
Sash lock, lifter, and holder	R. Guy and O. E. Reed	521,955	June 26	2156	517	67	1641
Sash. Window	S. Fuchs	519,450	May 8	922	222	67	729
Satchel or bag	J. Limbacher	519,721	May 15	1401	338, 339	67	827
Saw	D. Hazard	521,343	June 12	1064	249	67	1405
Saw clamp. Circular	C. C. Newton	519,892	May 15	1678	408, 409	67	879
Saw. Drag	J. H. Blackman, Jr.	520,387	May 22	2531	612	67	1052
Saw. Drag	J. A. Geselius	520,640	May 29	2947	713	67	1144
Saw-frame	R. J. Moxley	518,420	Apr. 17	1708	425	67	345
Saw-grinding machine	C. C. Newton	519,893	May 15	1679	409	67	879
Saw-handle	A. B. Van Campen	518,656	Apr. 24	2110	527	67	431
Saw-set	H. Marshall	518,260	Apr. 17	1419	355	67	292
Saw-set	W. H. Miller	519,583	May 8	1172	282	67	772
Saw-set	C. Whitus and J. W. Wilks	519,366	May 8	790	193	67	704
Saw-sharpening machine	F. R. Bauer	518,731	Apr. 24	2256	501	67	456
Saw-sharpening machine	D. Hazard	518,187	Apr. 10	1280	324	67	249
Saw. Stone	M. Litchford	519,636	May 8	1262	304	67	788
Saw-tooth. Insertible diamond	R. Marquart	519,475	May 8	973	235	67	736
Sawing blocks from logs. Machine for	F. L. Day	518,589	Apr. 24	1998	494, 495	67	411
Sawing knife-handle blanks. Machine for	F. C. Feicker	521,608	June 19	1535	359	67	1506
Sawing-machine	J. Jilek	521,317	June 12	1004	236	67	1392
Sawing-machine	J. H. Morrison	519,192	May 1	451	110	67	624

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sawing machine. Circular	E. E. Thomas	518,432	Apr. 17	1735	431	67	350
Sawing-machine indicator. Veneer	W. M. Dickerson	520,037	May 22	1917	470	67	938
Sawing machine. Twin circular	M. Garland	518,031	Apr. 10	1022	258	67	205
Sawmill-dog	J. H. Miner	521,723	June 19	1723	408	67	1544
Scaffold-clamp	J. Hillengass	520,051	May 22	1942	476	67	942
Scale	S. S. Crompton	521,230	June 12	851	199	67	1364
Scale-beam	S. J. Austin	521,074	June 5	575	135	67	1301
Scale. Druggist's weighing	E. Kelly	517,698	Apr. 3	475	114	67	91
Scale. Pendulum	W. J. Graves	518,545	Apr. 17	1920	474	67	382
Scale. Postal	I. S. McGlehan	518,725	Apr. 24	2244	558	67	454
Scale. Weighing	H. Paddock	521,623	June 19	1556	363	67	1510
Scales. Pivot-bearing for platform	E. Tannewitz	519,485	May 8	991	240	67	739
Scalpel	J. W. Jones	520,435	May 29	2609	631	67	1082
Scarf-pin	H. Bornstein	517,725	Apr. 3	522	126	67	101
Scarf-pin	C. C. Partridge	520,610	May 29	2901	701	67	1136
Scarf-pin safety device	M. Crohn	521,103	June 5	627	148	67	1310
School seat and desk	T. Tobias	518,166	Apr. 10	1246	312	67	242
Scraper	H. G. Butler	519,835	May 15	1583	387	67	862
Scraper	B. F. Shuart	520,085	May 22	2004	490	67	954
Scraper. Road	M. G. Bunnell	520,479	May 29	2685	649	67	1095
Scraper. Road	M. G. Bunnell	520,480	May 29	2686	649, 650	67	1096
Scraper. Road	T. R. McKnight	518,268	Apr. 17	1438	359	67	295
Scraper. Road	T. R. McKnight	518,269	Apr. 17	1440	360	67	296
Screen: *See* Pulp-screen. Revolving screen. Stone-screen. Window-screen. Window and insect screen.							
Screen	L. G. Beers	517,724	Apr. 3	521	126	67	101
Screen for half-tone process	M. Levy	521,659	June 19	1614	378	67	1522
Screening-machine	J. E. McCracken	520,119	May 22	2058	503	67	964
Screw-blanks. Machine for making	C. D. Rogers	520,081	May 22	1997	488, 489	67	953
Screw-cutting machine	D. J. Jones and W. L. Clouse	521,543	June 19	1418	329, 330	67	1486
Screw-cutting machine	M. D. Luehrs	521,172	June 12	750	176	67	1346
Screw-driver	J. J. Edwards	520,519	May 29	2748	665	67	1106
Screw-driver	A. Mallock	519,962	May 15	1787	437	67	899
Screw-driver	S. I. Snyder	518,472	Apr. 17	1804	446	67	362
Screw-driver	J. Swan	520,091	May 22	2013	492	67	956
Screw-making machines. Device for separating turnings from finished screws in	J. A. Bidwell	519,563	May 8	1134	272, 273	67	765
Screw-press	F. Mossberg	519,867	May 15	1638	398	67	872
Screw-thread-forming machine	O. Henning	518,146	Apr. 10	1210	303	67	237
Screws into leather or other material. Machinery for inserting	M. Wiederin	519,215	May 1	500	121, 122	67	634
Scribbler or carding-engine	E. and W. H. Crowther	521,703	June 19	1684	395	67	1536
Scrubbing-machine	R. W. Somers	519,100	May 1	273	65	67	588
Sea. Composition for pacifying waves of the	M. M. F. Richter	519,161	May 1	399	.....	67	614
Seal	E. J. Brooks	520,389	May 22	2533	612	67	1052
Seal	E. J. Brooks	520,390	May 22	2534	612	67	1052
Seal	E. J. Brooks	521,134	June 5	678	159	67	1319
Seal	E. J. Brooks	521,135	June 5	679	159	67	1320
Seal	E. J. Brooks	521,136	June 5	681	160	67	1320
Seal	E. J. Brooks	521,137	June 5	683	160	67	1320
Seal	E. J. Brooks	521,757	June 19	1798	427	67	1555
Seal	E. J. Brooks	521,758	June 19	1800	427	67	1555
Seal	F. W. Brooks	521,632	June 19	1575	368	67	1514
Seal	E. L. Torsch	521,427	June 12	1198	284	67	1430
Seal. Bottle	H. Robinson	518,277	Apr. 17	1451	363	67	298
Seaming machine. Can	J. W. Roberts	521,894	June 26	2018	487, 488	67	1616
Seaming machine. Can	J. W. Roberts	521,895	June 26	2025	488, 489	67	1618
Seaming machinery. Metal-can	H. Miller	519,088	May 1	255	60, 61	67	585
Seaming sheet-metal cans. Mechanism for	J. A. Steward	519,594	May 8	1187	286, 287	67	775
Sear. Safety	G. A. Horne	520,596	May 29	2880	697	67	1132
Search-light	O. G. Cates, Jr	521,601	June 19	1517	355	67	1503
Seat: *See* School-seat. Spring-seat.							
Seat	O. L. Barrett	522,142	June 26	2477	594	67	1700
Seat-back. Removable	A. P. Derby	518,097	Apr. 10	1135	286	67	223
Secondary cell or battery	G. B. Henry	517,455	Apr. 3	71	15	67	16
Sectional boiler	G. A. Watson	521,746	June 19	1760	417, 418	67	1550
Sectional boiler or heater	A. C. A. Bauer and F. D. Johnson	519,297	May 1	642	156	67	661
Seed cleaner and separator. Cotton	J. W. Smith	518,124	Apr. 10	1178	295	67	231
Seed-delinting machine. Cotton	J. H. McCormick	519,613	May 8	1216	293	67	780
Seed. Machine for cleaning cotton or other	M. Moran	522,179	June 26	2535	608	67	1711
Seed-separating machine. Cotton	T. A. Jackson	520,315	May 22	2407	585, 586	67	1027
Seeds in envelopes. Machine for packaging	E. Rau	518,427	Apr. 17	1724	429, 430	67	348
Seeder	L. C. Evans	520,182	May 22	2188	533	67	986
Seeder and planter	J. W. Campbell	519,986	May 15	1825	447	67	906
Seeding-machine	G. W. Crossley, J. W. Stout, and W. Rigdon	518,835	Apr. 24	2421	600	67	485
Self-attaching bolt	J. H. Calkins	519,172	May 1	419	101	67	618
Self-closing can	I. Sexton	521,556	June 19	1440	335	67	1490
Self-opening gate	G. L. Duncan	521,524	June 19	1391	322	67	1481
Self-waiting table	R. Hogg	519,630	May 8	1254	301	67	786
Semaphore	J. W. Davis	520,756	May 29	3153	763, 764	67	1181

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Separating-machine. Centrifugal	O. Ohlsson	521,730	June 19	1734	412	67	1546
Separator: *See* Coal-separator. Corn-separator. Grain-separator. Liquid-separator. Magnetic separator. Oil and water separator. Ore-separator. Soot-separator. Steam-separator.							
Separator and grader	D. J. Davidson	521,402	June 12	1154	273	67	1422
Separator-bowl. Centrifugal	D. J. Davis	517,603	Apr. 3	303	70	67	59
Settee-arm	W. C. Bartol	518,130	Apr. 10	1186	297	67	232
Sewing apparatus. Carpet-stretcher for carpet	F. Ames	520,910	June 5	985	69, 70	67	1249
Sewing beads to fabrics. Machine for	K. Necker	518,156	Apr. 10	1226	307, 308	67	240
Sewing carpet-corners. Apparatus for	F. Ames	520,909	June 5	983	68, 69	67	1249
Sewing looped fabrics. Machine for	J. Köhler	520,208	May 22	2233	543, 544	67	995
Sewing looped fabrics. Machine for	J. Köhler	520,209	May 22	2237	544, 545	67	995
Sewing-machine	C. A. Dahl	521,308	June 12	989	233	67	1389
Sewing-machine	M. Gardner. (Reissue)	11,412	Apr. 10	1341	334, 335	67	262
Sewing machine	P. Göhring	521,855	June 26	1951	469, 470	67	1602
Sewing-machine	P. Göhring	521,856	June 26	1953	470	67	1602
Sewing-machine	J. Holroyd, C. B. Hunt, and R. J. Johns.	521,372	June 12	1107	260, 261, 262	67	1413
Sewing-machine	J. T. Jones	519,676	May 8	1321	317, 318, 319	67	799
Sewing-machine	C. F. Littlejohn	521,377	June 12	1115	263	67	1415
Sewing-machine	J. Reece	520,657	May 29	2371	719	67	1148
Sewing-machine	R. W. Thomson	521,301	June 12	977	231	67	1387
Sewing-machine attachment-holder	W. R. Parsons	519,134	May 1	344	82	67	604
Sewing-machine felling attachment	J. W. Betz	520,292	May 22	2374	556	67	1021
Sewing-machine for fringing fabrics	G. A. Judson	521,982	June 26	2207	531, 532	67	1650
Sewing-machine. Hemstitch	C. M. Abercrombie	520,977	June 5	409	98	67	1271
Sewing-machine needle	J. M. Farmer	517,853	Apr. 10	720	181	67	153
Sewing-machine presser-foot	R. G. Woodward	519,897	May 15	1684	411	67	881
Sewing-machine shuttle	H. A. Bates	522,002	June 26	2246	539	67	1656
Sewing-machine shuttle	H. Moore	520,759	May 29	3157	765	67	1182
Sewing-machine shuttle-actuating mechanism	J. T. Jones	519,428	May 8	891	215	67	723
Sewing-machine shuttle cop-holder	H. A. Bates	521,080	June 5	584	137	67	1302
Sewing-machine shuttles. Thread-cop for	J. K. Hunter	519,260	May 1	576	140	67	649
Sewing-machine snap-slide	A. B. Fowler and G. E. Warren	520,775	June 5	24	5	67	1201
Sewing-machine tack-pulling attachment	H. Briggs	518,911	Apr. 24	2550	630	67	511
Sewing-machine take-up. Shoe	G. W. Baker	521,075	June 5	576	135	67	1301
Sewing-machine tension device	W. A. Mack	519,539	May 8	1099	263, 264	67	759
Sewing-machine thread-gripping mechanism	J. E. Oliver	518,623	Apr. 24	2047	509	67	420
Sewing-machine work-guiding device	E. C. Holland	519,909	May 15	1702	415	67	884
Sewing-machines. End-cap for cylinder	H. A. Dodge and W. T. Richards	518,836	Apr. 24	2422	600	67	485
Sewing-machines. Wear-compensating device for needle-bars of	W. P. Gammons, Jr	519,038	May 1	162	38, 39	67	567
Sewing sweat-bands into hats. Machine for	T. H. Klein and H. C. French	520,648	May 29	2958	716	67	1146
Shade bracket. Window	J. M. Crampton	519,148	May 1	369	88	67	609
Shade-cord fastener	H. R. Smiley	519,437	May 8	904	217, 218	67	725
Shade fixture. Window	F. M. Wilkinson	519,979	May 15	1817	415	67	904
Shade fixture. Window	J. Joseph	517,750	Apr. 3	563	138	67	109
Shade-hanger. Extensible	A. B. Dunkle	521,784	June 26	1843	439	67	1581
Shade holder. Window	M. E. Reilly	520,863	June 5	199	45	67	1233
Shade-roller	G. Cook	518,208	Apr. 10	1331	333	67	260
Shade-roller bracket. Adjustable	J. M. Hoffman	518,737	Apr. 24	2270	564	67	458
Shade support. Adjustable window	E. Horn	518,246	Apr. 17	1401	351	67	289
Shade. Window	A. W. Collison	518,566	Apr. 17	1958	483	67	389
Shades. Attachment for vertically adjusting window	P. Goldmann	521,408	June 12	1163	276	67	1424
Shades, &c. Device for adjusting window	N. Bosmann	521,280	June 12	933	221	67	1379
Shades. Fixture for vertically adjusting window	L. Yancey	519,856	May 15	1619	394	67	868
Shades or curtains. Attachment for adjusting window	T. L. Baumgarten	517,787	Apr. 3	624	156	67	121
Shaft coupling. Slip	P. J. Harrah	522,114	June 26	2420	581	67	1689
Shaft holder. Vehicle	H. B. Campbell	521,306	June 12	986	233	67	1388
Shaft-setting device	W. E. Murbarger	518,763	Apr. 24	2304	572	67	465
Shaft-support and thill-coupling. Combined	W. Harrison	519,906	May 15	1696	414	67	883
Shaft-support. Fluid-pressure	J. J. Barker	520,750	May 29	3142	761	67	1179
Shaft support. Vehicle	E. Goldman	520,419	May 29	2578	623, 624	67	1076
Shaping fleecy masses. Machine for	P. Birch	521,755	June 19	1792	425	67	1551
Sharpener and hone-stone holder. Combined knife	C. A. Worden	519,296	May 1	639	156	67	661
Sharpening-machines. Razor holding and adjusting device for							
Shears: *See* Animal-shears. Barber's shears. Tinner's shears.							
Shears	J. H. Aufderheide	518,129	Apr. 10	1185	297	67	232
Shears	D. H. Hollingsworth	521,526	June 19	1395	322	67	1482
Sheathing. Fireproof	C. Ehrlicher	517,851	Apr. 10	719	.....	67	153
Sheet-metal can and manufacturing same	J. Lee	518,548	Apr. 17	1924	475	67	383
Sheet-metal cans. Machine for forming and soldering	D. D. Ranney	518,375	Apr. 17	1642	405	67	333
Sheet-metal flanging machine	J. Carroll	519,527	May 8	1077	258, 259	67	755
Sheet-metal pipe	C. S. Hamlin	518,570	Apr. 17	1963	485	67	390

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sheet-metal pipe	C. S. Hamlin	521,766	June 19	1812	430	67	1558
Sheet-metal-stamping machine	L. L. Sagendorph	519,555	May 8	1122	269	67	763
Sheet-metal tubes. Machine for making	J. Gould, Jr	519,182	May 1	436	107	67	622
Sheet-metal vessels. Attaching spouts to	G. W. Knapp	520,235	May 22	2279	554	67	1002
Shelf. Book-	G. Wenker	517,503	Apr. 3	147	32	67	30
Shelf structure	U. and W. R. Snead and W. M. Burns.	520,191	May 22	2205	537	67	990
Shelving	A. B. Wagner and E. Liesenhoff	521,626	June 19	1563	365	67	1512
Shell	R. A. Hadfield	522,012	June 26	2263	542	67	1659
Shells for dynamite. Apparatus for automatically manufacturing	H. P. Hall	520,922	June 5	307	75, 76, 77	67	1253
Shingle-bracket	J. W. Flowers	518,838	Apr. 24	2424	601	67	486
Shingle-gage	B. Hann	521,112	June 5	642	151	67	1312
Shingle-machine	T. C. Davis	517,795	Apr. 3	633	158	67	123
Shingle-marker	C. Guyer	520,424	May 29	2591	627	67	1078
Shipping-case	J. M. Leaver and E. J. Vance	519,429	May 8	893	215	67	723
Ships. Form of	A. Foerste	519,628	May 8	1252	301	67	786
Shirt	H. A. Hagen	521,610	June 19	1538	360	67	1507
Shock-compressor	E. W. Newberry	518,350	Apr. 17	1592	394	67	324
Shoe	E. L. Goding	521,789	June 26	1849	440	67	1582
Shoe	B. Scarinci	518,079	Apr. 10	1102	279	67	217
Shoe	B. Scarinci	519,556	May 8	1123	270	67	763
Shoe	C. L. Weyand	518,682	Apr. 24	2156	539	67	439
Shoe attachment	A. I. Schmiedl	519,162	May 1	400	96	67	615
Shoe-beading machine	T. U. Walter	521,686	June 19	1662	390	67	1531
Shoe-fastening	G. W. Stacy	519,208	May 1	485	117, 118	67	631
Shoe-holder for nailing-machines	T. Walsh	519,515	May 8	1033	250	67	747
Shoe. Inside	J. H. Foss	520,417	May 29	2575	623	67	1076
Shoe-shanks. Sheets of metallic	G. D. Bartlett	518,304	Apr. 17	1491	373	67	306
Shoestring-fastener	S. E. Blake	520,555	May 29	2812	679	67	1119
Shot-spreader	H. E. Winans	519,559	May 8	1128	271	67	764
Shovel: *See* Steam-shovel.							
Shovels, spades, &c. Attachment for	L. J. Haagen	521,111	June 5	641	150, 151	67	1312
Show-stand	J. F. Nelson	521,938	June 26	2113	507	67	1634
Shut-off device. Pipe	H. Zimmerman	520,471	May 29	2670	645	67	1093
Shutter-bower	C. Anderson	521,777	June 26	1835	437	67	1579
Side light	C. Closz	520,878	June 5	221	50	67	1238
Sieve. Grain cleaning and separating	C. Kasper	520,886	June 5	244	57	67	1241
Sifter. Ash-	L. Youngquist, F. L. N. Mehrtens, and A. Youngquist.	517,636	Apr. 3	364	86	67	71
Sifter. Ash-	A. J. Henderson	521,344	June 12	1066	249	67	1405
Sifter. Cinder-	D. McKenzie	519,002	May 1	106	26	67	556
Sifter. Flour-	G. B. Sweger	520,275	May 22	2350	570	67	1017
Sigmoid irrigator	G. O. Fogg	518,780	Apr. 24	2332	578, 579	67	470
Sign-staff	W. P. Squier	519,009	May 1	113	27	67	557
Signal: *See* Bridge-signal. Grave-signal. Railway-signal. Railway fog-signal.	H. M. Abernethy and J. M. Graham	521,690	June 19	1667	391	67	1532
Signal	W. H. Lane and F. S. Perrin	520,365	May 22	2500	605	67	1046
Signal device. Safety switch	W. Carter, J. W. Dawson, and J. Mevrick, Jr.	520,820	June 5	114	25	67	1218
Signal device. Visible	J. S. Lynam	521,895	June 26	2000	422	67	1613
Signal-light fixture	E. A. Hermann	518,525	Apr. 17	1887	467, 468	67	377
Signal-operating wires. Compensator for	W. A. Purcell	522,029	June 26	2283	547	67	1663
Signaling device for crossings. Automatic electric	B. F. Ford	521,406	June 12	1159	275	67	1424
Signaling system and apparatus. Electric time-	J. A. Camp	518,663	Apr. 24	2124	532	67	433
Sink	B. Greve	518,064	Apr. 10	1086	274	67	214
Siphon	F. Kalkner	518,251	Apr. 17	1408	352	67	290
Siphon	L. W. Kenney	521,375	June 12	1113	263	67	1414
Skate	J. L. Whelpley	521,489	June 19	1328	309	67	1470
Skate	J. Riedel	521,181	June 12	762	178	67	1348
Skates. Self-acting brake for roller-	M. T. Mead and S. M. Clemens	517,823	Apr. 3	674	.....	67	131
Skating-rink	M. Cahen	518,223	Apr. 17	1367	342	67	283
Skinning-knife	C. L. Puech	519,345	May 8	748	185	67	696
Skins. Process of and apparatus for unhairing	B. Zeller and H. Crager	521,998	June 26	2238	537	67	1655
Skirt and trousers. Combined	L. Sittig	520,225	May 22	2263	551	67	1000
Skirt-protecting garment	C. H. Bayley	518,774	Apr. 24	2323	576	67	468
Skiving-machine	C. Bordt	519,169	May 1	414	101	67	617
Skylight	E. L. Lloyd	518,761	Apr. 24	2302	571	67	464
Slate. School-	J. Höfer	522,060	June 26	2330	560	67	1672
Sled	O. H. C. Voigt	519,596	May 8	1191	288	67	776
Sled-propeller	G. S. Grier	520,308	May 22	2396	582	67	1025
Sleeve-section and cuff. Combined	S. E. Oviatt	519,004	May 1	107	26	67	556
Sleigh	H. J. Howard	521,794	June 26	1858	444	67	1584
Sleigh-runner attachment	J. S. Johnson	521,717	June 19	1711	404	67	1542
Sleigh. Tubular	H. O. Barlow	519,224	May 1	513	124	67	637
Slicer or grater. Vegetable	N. and T. Heneault	521,540	June 19	1414	328	67	1485
Slicer. Vegetable	A. and A. Iske	519,959	May 15	1780	436	67	898
Slicing-machine	W. Woods	518,128	Apr. 10	1184	296	67	232
Sliding gate	B. Scarinci	518,078	Apr. 10	1101	279	67	217
Slipper	J. C. Bull	520,631	May 29	2933	709	67	1141
Smelting and refining apparatus. Copper	L. R. Bonehill	518,874	Apr. 24	2479	614	67	497
Smelting and refining furnace. Ore	C. M. Allen	519,221	May 1	510	124	67	636
Smelting-furnace and refining-converter	H. Lang	519,129	May 1	339	.....	67	603
Smelting ores	F. S. Pinkham	520,704	May 29	3073	744	67	1167
Smocking cloth. Clasp for	W. P. Shank	521,054	June 5	540	127	67	1295
Smoke-arrester	H. Delaney	517,917	Apr. 10	821	206	67	172
Smoke-consumer	F. S. Sejnoha	520,453	May 29	2637	637, 638	67	1087
Smoke-consuming furnace	J. F. Chazotte	517,540	Apr. 3	199	45	67	40
Smoke-consuming furnace	T. Dark, Sr	519,079	May 1	241	56, 57	67	582
Smoke-consuming furnace	M. Fulton	519,530	May 8	1084	259	67	756
Smoke-consuming furnace	J. Graham	521,586	June 19	1496	350, 351	67	1499
Smoke-consuming furnace	J. M. Thomas	519,779	May 15	1492	361	67	814
Smoke-consuming furnace	J. M. Williams	521,750	June 19	1784	423	67	1554
Smoke-preventing furnace	J. A. Baldwin	518,576	Apr. 17	1969	487, 488	67	391
Smoke-stacks. Device for increasing draft in	R. Gaul	522,009	June 26	2259	541	67	1658
Smokeless furnace and stoker	J. E. Schlieper and J. H. Harrison	519,683	May 8	1341	323, 324	67	802
Smoking apparatus. Mouthpiece and stem for	W. O'Brien	520,700	May 29	3066	742, 743	67	1166
Snap-hook	R. A. Breul	518,485	Apr. 17	1818	450	67	364
Snap-hook	C. B. Bristol	519,524	May 8	1074	257	67	754
Snap-hook	J. Pickett	521,367	June 12	1127	266	67	1417
Snow-cleaning attachment for locomotive-engines	M. F. Mauden	521,544	June 19	1420	330	67	1486
Snow or ice melting apparatus	C. F. Springfels	520,941	June 5	352	85	67	1261
Snow-plow	W. Grunow, Jr	520,777	June 5	27	6	67	1201
Snow-plow	H. H. Kryger	520,021	May 15	1883	461	67	916
Snow-plow	W. F. Wheeler	518,749	Apr. 24	2285	567, 568	67	461
Soap for toilet purposes. Apparatus for dispensing liquid	E. Lee	517,978	Apr. 10	928	232	67	190
Soap-lye. Recovering products from spent	J. Van Ruymbeke	522,134	June 26	2454	591	67	1695
Soap server, Toilet-	H. B. Potter	517,624	Apr. 3	340	80, 81	67	66
Soda apparatus. Automatic heat-regulator for hot-	J. W. Tufts and W. Helmer	519,440	May 8	910	219	67	726
Soda-fountain	T. C. Riley	519,433	May 8	899	216	67	724
Soda-fountain	T. C. Riley	519,434	May 8	900	217	67	724
Soda-fountain	J. T. and T. R. Brien	518,583	Apr. 24	1989	492	67	410
Soil-pipe	M. J. Hawkins	520,523	May 29	2755	666, 667	67	1108
Soldering caps on cans. Machine for	J. W. Roberts	521,896	June 26	2031	489, 490	67	1619
Soldering machine. Can-	W. H. Smyth	519,206	May 1	479	116	67	629
Soldering machine. Can-head-	D. G. Orr and C. E. Thomas	520,701	May 29	3068	743	67	1166
Soldering-tool	J. F. McLaughlin	521,914	June 26	2064	496	67	1625
Soldering-tool. Electric	G. H. Palmer	518,856	Apr. 24	2449	607	67	491
Soldier's field equipment	W. A. Ford	518,060	Apr. 10	1075	272	67	213
Sole	J. S. Kilgore	518,923	Apr. 24	2569	635	67	514
Sole and heel plate	R. R. Gibbs	518,596	Apr. 24	2006	497	67	413
Sole-cutting die	J. J. Heys	521,793	June 26	1855	443, 444	67	1584
Sole-cutting machine	E. C. Judd	519,187	May 1	445	109	67	623
Sole leveling and burnishing machine	J. N. Moulton	522,166	June 26	2513	603, 604	67	1707
Sole-rounding machine	A. E. Perry	518,789	Apr. 24	2345	581	67	472
Sole-rounding machines. Knife-holder for	M. A. Lutzner	517,581	Apr. 3	270	62	67	53
Soot-separator	J. K. Gore	518,240	Apr. 17	1387	348, 349	67	287
Sorting cards and compiling statistics. Apparatus for	G. A. Leech	521,800	June 26	1867	447	67	1586
Sound-conducting apparatus	H. B. Cox	520,106	May 22	2034	496, 497	67	960
Sound. Transmitting	P. Caldwell, Jr	519,104	May 1	281	66	67	589
Spade or shovel	A. Hasper	519,500	May 8	1013	245	67	743
Spark-arrester	K. Ringheim	519,026	May 1	140	34	67	563
Spark-arrester	J. F. Cristand	519,886	May 15	1672	407	67	678
Spark-catcher	J. T. King	520,115	May 22	2052	502	67	963
Spark-conductor for steam-engines	F. Ecaubert	518,807	Apr. 24	2380	589	67	478
Spectacle-bow wire or other articles. Means for forming	F. Ecaubert	518,099	Apr. 10	1137	286	67	224
Spectacle-bows. Mechanism for making	H. W. Wildt	520,347	May 22	2470	599	67	1039
Spectacle-frame	M. Wertheimer	519,623	May 8	1244	298	67	785
Speculum	H. B. Galo	518,062	Apr. 10	1078	273	67	213
Speed and power regulator for motors	J. H. Pendleton	520,801	June 5	77	17	67	1211
Speed-gearing	W. T. Lintner	520,792	June 5	54	13	67	1207
Speed-indicator bearing	A. Sequeira	521,512	June 19	1369	318, 319	67	1478
Speed mechanism. Variable-	F. A. Weyher	518,799	Apr. 24	2361	585, 586	67	475
Speed-regulator	H. H. Cummings	517,443	Apr. 3	51	11	67	12
Speed-varying mechanism	L. Landreth	517,977	Apr. 10	926	232	67	189
Spike-drawing bar	J. J. O Neill	521,571	June 19	1466	343	67	1495
Spikes. Making	G. O. Draper	518,447	Apr. 17	1762	437	67	355
Spindle-bearing. Combined	E. Jagger	517,573	Apr. 3	259	60	67	51
Spindle-step protector	J. Hargreaves	519,532	May 8	1091	261, 262	67	758
Spinning and doubling machines. Spindle and support for	J. Lunn	520,793	June 5	56	13	67	1207
Spinning different-colored rovings into thread or yarn. Apparatus for	P. P. Craven	521,584	June 19	1488	348, 349, 350	67	1499
Spinning frame. Ring-	R. Atherton	520,473	May 29	2675	646	67	1093
Spinning-frame tension device	E. J. Fenderson	521,142	June 5	692	162	67	1321
Spinning-machine spindle	E. K. Baker	519,491	May 8	997	241, 242	67	740
Spinning machinery	B. Smith and J. M. Howson	517,772	Apr. 3	601	148	67	116
Spinning-machinery spindle	J. P. Kelly	519,716	May 15	1395	336	67	826
Spinning-spindles. Device for plumbing top-rail	F. S. Baumeister	519,982	May 15	1821	446	67	905
Splint-cutter	L. Rastetter	518,627	Apr. 24	2058	511	67	421
Spoke attachment for vehicle-wheels	P. Schneider	519,273	May 1	600	145	67	653
Spoke-socket							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Drg.	Vol.	Page.
Spoke-tenoning machine	J. O. Lade	521,214	June 12	817	192	67	1358
Spokes from wheel-hubs. Machine for extracting	J. H. Davis	520,258	May 22	2319	562	67	1010
Spool and support thereof	A. Kreidler	521,241	June 12	865	203	67	1367
Spool-box	P. Gelb	520,355	May 22	2481	601	67	1041
Spool-making machine	J. F. Wardle	520,509	May 29	2733	662	67	1104
Spool-support	T. C. Dill	519,669	May 8	1311	313	67	797
Spool-turning machine	E. Hubbard	521,468	June 19	1288	300, 301	67	1463
Spools. Machine for dressing half	E. Hubbard	518,954	May 1	27	7, 8	67	541
Spooling-machine stop mechanism	O. Lever and W. S. Grundy	517,615	Apr. 3	324	77	67	63
Spooling-machines. Automatic tension-regulator for	W. H. St. George	517,495	Apr. 3	134	29	67	28
Spoons. Mustache-guard for	C. A. Quentell	518,116	Apr. 10	1168	293	67	230
Spraying-machine	A. Bryce	520,766	June 5	8	2	67	1198
Spreader. Animal	J. E. Perl	521,774	June 19	1829	435	67	1561
Spring: *See* Bed-spring. Door-spring. Burglar-alarm spring. Watchcase-spring.							
Spring-catch	A. Ludwig	517,703	Apr. 3	484	116	67	93
Spring-jack cleaner	M. Seter	521,221	June 12	838	196	67	1362
Spring-seat	F. H. Homan	519,792	May 15	1519	370	67	849
Spring-shackle and oil-distributer. Combined	R. A. Hammond	518,502	Apr. 17	1849	459	67	370
Sprinkler: *See* Bath-sprinkler. Water-sprinkler. Lawn-sprinkler.							
Sprinkler-head. Automatic	O. Pierce	519,846	May 15	1600	391	67	865
Sprinklers. Sprinkling-head for street	W. H. Miller	520,693	May 29	3052	739	67	1163
Sprocket-wheel	C. Timm	519,781	May 15	1496	362	67	844
Square. Adjustable angle	L. K. Bartley	518,685	Apr. 24	2160	540	67	440
Squib. Miner's	J. R. Powell	518,699	Apr. 24	2182	545	67	444
Stair-pad	M. H. Marcus	521,593	June 19	1506	353	67	1501
Stalk-cutter and rake. Combined	J. Priestley	517,766	Apr. 3	590	145	67	114
Stallion-shield	J. W. Fitzgerald	521,462	June 19	1279	298	67	1461
Stamp-attaching machine. Postage	C. F. Lantry	518,612	Apr. 24	2029	504, 505	67	417
Stamp-attaching machine. Postage	O. J. Moe	517,472	Apr. 3	96	22	67	20
Stamp-book	A. F. Purdy	520,399	May 22	2546	615	67	1055
Stamp-canceling and postmarking machine	M. V. B. Ethridge	521,605	June 19	1526	357, 358	67	1505
Stamp-canceling and postmarking machine	M. V. B. Ethridge	521,606	June 19	1531	358, 359	67	1506
Stamp-canceling machine	G. E. Barnard	518,440	Apr. 17	1746	433, 434	67	352
Stamp-canceling machine	F. N. Ethridge	521,565	June 19	1456	340, 341	67	1493
Stamp groove or recess for shipping-cases	C. F. Goodwillie	520,921	June 5	306	75	67	1253
Stamp holder and moistener	G. Loomis	519,190	May 1	448	110	67	624
Stamp. Return postage	R. S. Williams	522,037	June 26	2298	551	67	1666
Stamp-sticking device	C. A. Sprague	517,494	Apr. 3	133	29	67	28
Stamps, labels, &c. Apparatus for affixing	E. C. Phillips	520,497	May 29	2716	658	67	1101
Stamps to envelopes, &c. Device for affixing postage or other	J. C. Steelman	521,625	June 19	1562	364, 365	67	1511
Stamps to envelopes. Machine for attaching postage	C. Elliot	517,740	Apr. 3	549	133	67	107
Stamping device. Hand	H. S. Ingersoll	521,287	June 12	953	226	67	1383
Stamping-machine	A. E. Grant	518,402	Apr. 17	1678	415	67	340
Stamping-press	L. Schuler	518,080	Apr. 10	1103	279	67	217
Stand: *See* Garment-stand. Show-stand. Model-stand. Trolley-stand. Photograph-stand.							
Stand, table, or analogous article	S. H. Hoggson	520,430	May 29	2604	630	67	1081
Staple. Roller	O. P. Schriver	519,435	May 8	902	217	67	725
Stapling and cutting machine	C. E. Parks and L. Mollart	517,586	Apr. 3	276	63, 64	67	54
Stapling and cutting machine	C. E. Parks and L. Mollart	517,587	Apr. 3	278	64, 65	67	55
Stapling-machine	E. T. Greenfield	520,735	May 29	3116	754, 755	67	1174
Stapling-machine	W. S. Hamm	521,369	June 12	1102	259	67	1412
Starching-machine	A. Conkling	520,668	May 29	3001	734, 735	67	1153
Station-indicator	A. Baker	521,359	June 12	1088	255, 256	67	1409
Stave-jointing machine	J. Anthon	520,873	June 5	215	48, 49	67	1236
Stay. Dress	F. W. Lyon	520,485	May 29	2695	652	67	1097
Stay-traveler	A. K. Evans	520,955	June 5	370	90	67	1265
Steam and gas generator and engine. Combined	N. Eaton	517,606	Apr. 3	307	71, 72	67	60
Steam and hot-water generator	D. A. Dickinson	518,184	Apr. 10	1276	322, 323	67	248
Steam. Apparatus for preparing expanded and reheated	F. L. Dyer	522,157	June 26	2499	600	67	1704
Steam-boiler	D. Ahern	521,532	June 19	1403	324	67	1483
Steam-boiler	H. N. Barth	521,844	June 26	1934	464	67	1598
Steam-boiler	J. Cahall	518,519	Apr. 17	1678	465	67	375
Steam-boiler	J. A. Caldwell	521,204	June 12	804	189	67	1356
Steam-boiler	G. Cawley	518,443	Apr. 17	1754	435	67	354
Steam-boiler	M. N. Forney	518,399	Apr. 17	1673	413	67	339
Steam-boiler	J. E. Green	517,745	Apr. 3	556	135, 136	67	108
Steam-boiler	R. Joy	520,962	June 5	380	92	67	1266
Steam-boiler	T. A. Marriott	519,386	May 8	822	201	67	710
Steam-boiler	T. Miller	522,077	June 26	2360	568	67	1678
Steam-boiler	T. Murphy	520,936	June 5	342	84	67	1259
Steam-boiler	H. S. Pell	518,858	Apr. 24	2451	607	67	491
Steam-boiler	F. Prox	521,812	June 26	1884	450, 451	67	1589

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Drg.	Vol.	Page.
Steam-boiler	W. Saur	520,742	May 29	3126	757	67	1176
Steam-boiler	F. H. Treat	520,945	June 5	356	87	67	1262
Steam-boiler	A. Boyce	519,418	May 8	874	212	67	720
Steam-boiler or hot-water heater	E. S. T. Kennedy	520,684	May 29	3035	735	67	1160
Steam-boiler. Radial-tube	H. A. and H. A. House, Jr	521,164	June 12	731	173	67	1343
Steam-boiler. Tubulous	L. D. Davis	521,850	June 26	1940	466	67	1600
Steam-boiler. Water-tube	J. W. Van Dyke	522,035	June 26	2292	549	67	1665
Steam-boiler. Water-tube	W. C. Church	519,219	May 1	542	131, 132, 133	67	642
Steam-engine	R. B. Davis	521,105	June 5	630	148	67	1310
Steam-engine	J. L. Gourley	520,757	May 29	3155	764	67	1181
Steam-engine	P. B. Landgraf	521,504	June 19	1353	315	67	1475
Steam-engine	H. M. McCall	519,588	May 8	1177	283	67	774
Steam-engine	A. N. Ogle and C. M. Magunson	519,966	May 15	1790	439, 440	67	900
Steam-engine	C. T. Porter	517,982	Apr. 10	936	235, 236	67	191
Steam-engine	C. T. Porter	517,983	Apr. 10	941	236, 237	67	192
Steam-engine	B. F. Sparr	520,456	May 29	2645	639	67	1089
Steam-engine	N. Tesla	517,900	Apr. 10	792	199	67	167
Steam-engine	S. and C. L. Torrey	519,850	May 15	1605	392	67	865
Steam-engine	H. Krentz	522,065	June 26	2337	561	67	1674
Steam-engine for air-pumps	J. P. Devoissaud	519,943	May 15	1754	430, 431	67	893
Steam-engine. Quick-speed	C. W. Hicks	517,949	Apr. 10	876	220	67	181
Steam-generating appliance	D. Birdsall	521,329	June 12	1022	240, 241	67	1395
Steam-generator	J. E. Dame	518,689	Apr. 24	2164	541, 542	67	441
Steam-generator	A. W. Finlayson	519,059	May 1	196	46	67	574
Steam-generator	A. F. Gillet	518,101	Apr. 10	1140	287	67	224
Steam-generator	C. W. Vanderburgh	521,062	June 5	555	130	67	1297
Steam-generator	G. Zahikian	518,016	Apr. 10	1002	251	67	201
Steam-generator	J. H. and J. D. Lucas	517,981	Apr. 10	935	234	67	191
Steam-motor	W. C. Church	519,238	May 1	538	129, 130, 131	67	642
Steam or other motive-fluid engine	J. Van Ruymbeke	522,131	June 26	2447	589	67	1694
Steam. Preparing	J. F. McElroy	519,921	May 15	1716	421	67	886
Steam-pressure gage	G. W. Aulmann and W. R. Harris	521,492	June 19	1336	310	67	1471
Steam-separator	C. J. Mellin	520,604	May 29	2892	699	67	1134
Steam-separator	J. J. Hogan	520,884	June 5	239	55	67	1241
Steam-separator for boiler-tubes	G. Holmes	519,955	May 15	1772	434	67	896
Steam-shovel	W. Schmidt	518,162	Apr. 10	1238	311	67	241
Steam. Superheating	F. M. Ashley	517,422	Apr. 3	2	1	67	3
Steam-trap	J. L. Chapman	518,053	Apr. 10	1067	269	67	211
Steam-trap	C. W. Nason	521,962	June 26	2165	519	67	1642
Steam-trap	E. L. Perry	520,077	May 22	1991	487	67	951
Steam-trap	D. L. Long	522,020	June 26	2272	544	67	1661
Steam trap and feeder	M. De Witt	517,846	Apr. 10	714	180	67	152
Steaming appliance. Face	B. Talbot	522,034	June 26	2291	.....	67	1665
Steel. Manufacture of	E. Heydo	521,652	June 19	1602	375	67	1519
Steering apparatus. Steam	E. Hudson	518,104	Apr. 10	1145	288	67	225
Stereopticon	E. Piepenbring	521,811	June 26	1882	450	67	1589
Stilt	J. F. Dornfeld	518,665	Apr. 24	2129	533	67	434
Stirring and aerating apparatus	J. B. Hadaway	521,978	June 26	2193	528, 529	67	1647
Stitch separating and indenting machine	C. G. Collins	519,566	May 8	1139	274	67	767
Stone and ore crusher	E. Goode	518,239	Apr. 17	1386	.....	67	286
Stone. Artificial	L. Grote	521,264	June 12	908	.....	67	1375
Stone. Artificial	A. Wallenberg	517,811	Apr. 3	660	.....	67	128
Stone. Artificial	A. Zanardo	518,640	Apr. 24	2079	518, 519	67	425
Stone-carving machine	F. J. G. Fromholt	518,029	Apr. 10	1020	257	67	205
Stone, marble, &c. Mechanical sawing and molding	C. A. Shank	520,602	May 29	2981	.....	67	1150
Stone or cement composition. Artificial	J. J. Donovan	521,209	June 12	812	191	67	1357
Stone-screen	R. D. Field and E. O. Pratt	517,742	Apr. 3	551	134	67	107
Stone-working machine	P. C. Brown	518,935	May 1	2	1	67	537
Stool and foot-rest. Combined	M. O. March	517,929	Apr. 10	840	211	67	176
Stool. Folding	C. A. Taft	519,295	May 1	638	155	67	660
Stop-motion	S. B. Westcott	519,463	May 8	945	228	67	733
Stop-motion	J. Weir	518,297	Apr. 17	1481	370	67	304
Stop-motion. Electric							
Stopper: *See* Bottle-stopper. Tube-stopper.							
Stopper	M. Rubin	521,047	June 5	527	124	67	1293
Storage-battery	W. A. Phillips and J. B. Entz	518,966	May 1	46	12	67	544
Store-service apparatus	J. S. Goodnow	521,283	June 12	938	222, 223	67	1380
Store-service apparatus	D. Lippy	519,288	May 1	625	152	67	658
Store-service apparatus	J. W. Thew	518,431	Apr. 17	1752	431	67	350
Store-service apparatus	T. E. Barrow	518,909	Apr. 24	2518	630	67	511
Store-service apparatus. Curved track for	C. C. Free	519,705	May 15	1379	332	67	823
Stove	M. Jahn	522,015	June 26	2266	543	67	1660
Stove	F. K. Wilcox and C. E. Vail	519,750	May 15	1442	348	67	834
Stove and heater. Combined	J. F. Place	520,499	May 29	2721	659	67	1101
Stove and lamp. Oil	A. B. Clunies	521,701	June 19	1681	394	67	1535
Stove. Cooking	R. H. Hayes	521,410	June 12	1165	277	67	1425
Stove. Cooking	F. Schreiner	520,578	May 29	2848	688	67	1126
Stove for drying matrices	M. K. Bowen	519,442	May 8	913	220	67	727
Stove for heating street-cars	L. M. Stone	518,903	Apr. 24	2536	627, 628	67	508
Stove. Gas	C. S. Upton	520,507	May 29	2731	662	67	1104

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Stove-hearth and ash-box. Combined	E. L. Flood	520,591	May 29	2873	695	67	1131
Stove. Heating	L. S. N. Wright and C. S. Bailey	519,011	May 1	117	28	67	558
Stove. Heating oil	V. E. Randall	521,813	June 26	1885	451	67	1590
Stove. Lamp	C. S. Upton	518,127	Apr. 10	1182	296	67	232
Stove. Lamp	C. S. Upton	520,506	May 29	2730	661	67	1103
Stove-lid lifter	A. Shepard	521,557	June 19	1441	335	67	1490
Stove-lifters, &c. Device for suspending	O. J. Baldwin and J. L. Kerstetter	518,174	Apr. 10	1261	317	67	245
Stove. Meat-broiler gas	B. S. Koll	521,718	June 19	1711	404	67	1542
Stove. Oil	J. F. Place	520,408	May 29	2719	658	67	1101
Stove. Oil cook	C. H. Boeck	520,407	May 29	2564	620	67	1074
Stove. Oil or lamp	H. P. Wilder	521,748	June 19	1766	418	67	1551
Stove or furnace	T. Austin	520,978	June 5	413	98	67	1272
Stove or range	J. Spear	521,827	June 26	1909	458	67	1594
Stove or range. Cooking	T. Gaskins	520,229	May 22	2268	552	67	1001
Stove or range. Cooking	J. W. Norton	518,764	Apr. 24	2305	573	67	465
Stovepipe attachment	J. H. Huntress	521,959	June 26	2161	519	67	1641
Stovepipe-elbow	C. and A. Lindemann	521,621	June 19	1554	363	67	1510
Stovepipe-elbow machine	A. Syversen	519,062	May 1	204	47, 48	67	575
Stovepipe-fastener	C. Heme	518,692	Apr. 24	2170	543	67	442
Stovepipe-joint	F. R. Braman	521,875	June 26	1981	479	67	1608
Stove. Vapor	H. Ruppel	521,128	June 5	664	156, 157	67	1317
Stove. Vapor heating	B. S. Koll	520,686	May 29	3039	736	67	1161
Stoves, ranges, &c. Brick-holder for	H. Eiben	518,056	Apr. 10	1070	270	67	212
Stoves. Water-heater for gas	L. M. Stone	519,050	May 1	180	43	67	571
Strainer attachment. Barrel	F. B. Postlethwaite	520,168	May 22	2167	527	67	982
Strainer for tea or coffee pots. Press	F. Fontneau	519,108	May 1	287	68	67	590
Strap: *See* Harness-strap.							
Strap-fastener	F. L. Moore	522,024	June 26	2277	545, 546	67	1662
Straw-stacker	W. A. Hinkle	518,843	Apr. 24	2430	603	67	487
Straw-stacker	J. W. Nethery	519,680	May 8	1333	321, 322	67	801
Straw-stacker	A. Vanhouweling	518,637	Apr. 24	2075	517	67	424
Straw-stacker. Pneumatic	A. A. McKain and W. Seburn	518,620	Apr. 24	2043	508	67	419
Straw-stacker. Pneumatic	J. W. Nethery	517,475	Apr. 3	101	22, 23	67	21
Straw-stackers. Centrifugal discharger for	F. F. Landis	517,524	Apr. 3	176	39	67	36
Straw-stackers. Centrifugal discharger for pneumatic	F. F. Landis	517,525	Apr. 3	177	40	67	36
Straw-stackers. Deflector for pneumatic	F. F. Landis	519,473	May 8	971	235	67	736
Straw-stackers. Mouthpiece for pneumatic	F. F. Landis	519,474	May 8	972	235	67	736
Straw-stacking machine	M. T. Reeves	517,530	Apr. 3	184	42	67	38
Street-sweeper	P. B. Donahoo	521,852	June 26	1945	467, 468	67	1601
Street-sweeper	T. W. Downs	518,716	Apr. 24	2227	554	67	451
Street-sweeper	G. Morrow	521,665	June 19	1623	380, 381	67	1524
Street-sweeper	A. J. Roberts	520,080	May 22	1995	488	67	952
Street-sweeper	J. B. Tilton	517,709	Apr. 3	498	119, 120	67	96
Street-sweeper	W. H. Walls	518,168	Apr. 10	1248	313, 314, 315	67	243
Stringed-instrument bridge	A. Graham	521,909	June 26	2054	494	67	1623
Stud. Sheet-metal	M. H. Crittenden and E. V. Emery	518,645	Apr. 24	2091	521	67	427
Stuffing-box	L. C. S. Frick	518,810	Apr. 24	2387	590	67	479
Stuffing-box	H. G. Williams	517,509	Apr. 3	156	34	67	32
Stump-extractor	J. H. Rouso	519,821	May 15	1560	382	67	857
Stump-extractor	J. C. Sharp	521,480	June 19	1310	305, 306	67	1466
Stump-extractor	W. R. Wilkinson	521,352	June 12	1078	252, 253	67	1407
Stump-puller	A. J. Larkin	519,263	May 1	580	141	67	650
Stump-puller or load-lifter	M. Allmon	521,251	June 12	885	209	67	1370
Submarine boat	D. T. Freese and J. D. Gawn	521,854	June 26	1943	468, 469	67	1602
Sucker-rods. Adjustable socket-clamp for	J. A. Kidd and G. W. Hess	521,502	June 19	1351	314	67	1475
Sugar-refining apparatus	J. Lach	518,152	Apr. 10	1218	306	67	239
Sulky	S. Elliott	521,460	June 19	1275	297	67	1460
Sulky	S. Elliott	521,878	June 26	1987	480	67	1609
Sulky	W. F. and S. E. Limpus	518,507	Apr. 17	1858	460, 461	67	371
Sulky	G. J. Loomis	518,462	Apr. 17	1786	443	67	359
Sulky-brake	L. E. Clawson and J. A. McKerron	520,877	June 5	220	50	67	1237
Sulky. Pneumatic	G. W. Clarke	522,150	June 26	2489	597	67	1702
Superheater	G. Abrams	520,288	May 22	2369	575	67	1020
Supporter	D. L. Smith	521,249	June 12	882	209	67	1370
Surface-gage	O. C. L. Ekman	519,703	May 15	1375	331, 332	67	822
Surgical chair. Adjustable	T. J. Shackelford and J. F. Milton-berger.	520,579	May 29	2849	688, 689, 690	67	1126
Surgical instrument	V. H. Hallman	518,600	Apr. 24	2010	499	67	414
Surgical instrument	W. Scheerer	521,555	June 19	1439	334	67	1490
Surgical ligature-holder	H. A. Kaysan	517,574	Apr. 3	260	60	67	51
Surgical table	O. Grasemann	517,801	Apr. 3	642	160, 161	67	125
Surveying-instrument	W. R. Whipple	519,010	May 1	116	28	67	558
Suspender cast-off	C. Bloomberg	520,723	May 29	3097	750	67	1171
Suspenders	G. E. Adams	521,071	June 5	572	134	67	1300
Suspenders	J. M. Bohn	521,082	June 5	589	138	67	1303
Suspenders	F. Wieland	518,383	Apr. 17	1655	409	67	335
Suspensory	A. H. Parker	521,176	June 12	755	177	67	1347

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Swage	C. A. Mette	519,817	May 15	1554	381	67	856
Swimming-pool or bath	A. Sutro	520,342	May 22	2463	597	67	1038
Swing	W. E. Crandall and M. Smith	521,335	June 12	1046	246	67	1401
Switch: *See* Automatic switch. Carbon switch. Circuit-switch. Electric switch. Electric starting-switch. Electrical switch. Electrically-governed switch. Railway-switch. Railway overhead switch. Safety-switch. Telephone-switch. Tongue-switch.							
Switch	H. P. Ball	520,474	May 29	2676	646	67	1094
Switch and lock movement	A. H. Johnson	518,721	Apr. 24	2237	557	67	453
Switch and signal operating mechanism	N. Ratchford	519,735	May 15	1423	343, 344	67	831
Switch attachment	G. D. Warren and J. Casey	517,783	Apr. 3	618	154	67	120
Switchboard for high-tension circuits	J. J. Wood	520,128	May 22	2089	508	67	967
Switchboards. Busy-test for multiple	J. A. Wotton	521,303	June 12	982	232	67	1388
Switchboards. Testing system for multiple	C. E. Scribner	520,543	May 29	2789	674	67	1114
Switch-lock	S. E. Barlett	517,722	Apr. 3	518	125	67	100
Switch-operating device	W. F. Dermody	522,109	June 26	2413	579	67	1687
Switch-operating mechanism. Automatic	C. P. Bachelder	522,096	June 26	2385	574	67	1683
Switch-stand. Automatic	J. W. Murray	517,878	Apr. 10	753	180	67	160
Switch-working mechanism	R. E. Brackelsberg and G. G. Edwards.	519,230	May 1	522	126	67	639
Swivel-bracket for rods	T. Morris	517,620	Apr. 3	335	79	67	65
Syringe	G. Beck	519,014	May 1	121	29	67	559
Table: *See* Bagatelle-table. Billiard-table. Card-table. Casket-trimming table. Extension-table. Folding table. Game-table. Ironing-table. Machine-table. Pasting-table. Peeling-table. Self-waiting table. Surgical table.							
Table and bed. Combined folding	R. Ettinger	517,607	Apr. 3	309	73	67	61
Table for draftsmen, &c	J. W. Bramwell	520,630	May 29	2932	708	67	1141
Tables, blinds, desks, &c. Flexible cover for	C. S. Homer	520,526	May 29	2762	668	67	1109
Tabulating system	H. Hollerith	518,885	Apr. 24	2495	618, 619, 620	67	500
Tabulating system	H. Hollerith	518,886	Apr. 24	2506	621	67	502
Tack-distributer	W. O. Wheeler	518,933	Apr. 24	2597	643	67	519
Tag-machine	W. M. Little	519,264	May 1	581	142	67	650
Tag. Marking	S. Dancyger	520,414	May 29	2572	632	67	1076
Talking-board	M. Schirman	520,616	May 29	2907	702	67	1137
Tank: *See* Flush-tank. Flushing-tank. Gas-holder tank. Water-closet flushing-tank.							
Tank-furnace. Recuperative	R. R. Morrison	518,851	Apr. 24	2443	605	67	489
Tank mold. Water	H. F. Tickner and A. Butler	518,292	Apr. 17	1476	369	67	303
Tanks. Automatic shut-off for roof	C. F. De Arden	521,336	June 12	1047	246	67	1401
Tap for drawing liquids from casks	P. C. Leidich	519,430	May 8	894	216	67	723
Tape from leather-board or other material. Making	W. P. Gay	518,030	Apr. 10	1021	257	67	205
Target and indicator	C. Schifferdecker	521,049	June 5	531	125	67	1293
Target-trap. Self-feeding	H. W. Tichenor	519,519	May 8	1028	249	67	746
Target. Traveling	W. Y. Allen	518,931	Apr. 24	2582	639	67	517
Target. Vibrating	W. Y. Allen	518,930	Apr. 24	2582	638	67	516
Tawed skin and making same	W. M. Norris and H. Burk	518,467	Apr. 17	1797	.....	67	361
Telegraph. Printing	O. L. Kleber	521,170	June 12	739	175	67	1344
Telegraph. Printing	E. Pope	521,550	June 19	1428	332, 333	67	1488
Telegraph system. Police signal	C. A. Rolfe	521,183	June 12	766	179	67	1349
Telegraphic or telephonic transmission. Apparatus for	M. I. Pupin	519,346	May 8	751	185	67	696
Telegraphic, telephonic, or other electrical systems. Transformer for	M. I. Pupin	519,347	May 8	757	185	67	697
Telephone	E. V. Kolbassieff	518,959	May 1	85	10	67	543
Telephone	S. D. McKelvey	517,762	Apr. 3	583	144	67	113
Telephone	H. F. Slocum	520,086	May 22	2007	490	67	955
Telephone-call recorder	W. F. Smith	521,422	June 12	1182	281, 282	67	1428
Telephone-circuit	C. E. Scribner	519,876	May 15	1652	402	67	874
Telephone. Electric	W. L. Richards	521,220	June 12	831	195	67	1361
Telephone-exchange system	J. I. Sabin and W. Hampton	518,331	Apr. 17	1541	384	67	313
Telephone-exchange system	J. I. Sabin and W. Hampton	518,333	Apr. 17	1544	385	67	315
Telephone-exchange system	J. I. Sabin and W. Hampton	518,334	Apr. 17	1551	385	67	316
Telephone. Magneto	A. F. Boardman	520,406	May 29	2564	620	67	1074
Telephone. Magneto	S. D. McKelvey	517,763	Apr. 3	585	144	67	113
Telephone. Magneto	S. D. McKelvey	517,764	Apr. 3	587	144	67	113
Telephone. Magneto	A. Stromberg and A. Carlson	521,188	June 12	772	181	67	1350
Telephone-receivers. Ear-pad for	J. W. Kinniburgh	520,786	June 5	43	10	67	1205
Telephone speaking attachment	W. Weber	520,467	May 29	2663	644	67	1092
Telephone-switch	J. B. Smith	521,274	June 12	922	218	67	1377
Telephone-switch	A. Stromberg and A. Carlson	521,514	June 19	1373	319	67	1478
Telephone system	U. H. Balsley	518,773	Apr. 24	2321	576	67	468
Telephone system	J. I. Sabin and W. Hampton	518,332	Apr. 17	1544	385	67	314
Telephone system. Automatic	L. E. Simoneau	520,246	May 22	2299	558	67	1007
Telephone-transmitter	H. Cottrell	518,916	Apr. 24	2557	632	67	512
Telephone-transmitter	H. M. and J. Goodman	520,306	May 22	2393	581	67	1025
Telephone-transmitter	J. and H. M. Goodman	518,142	Apr. 10	1205	302	67	236
Telephone-transmitter	J. B. Smith	521,325	June 12	1016	239	67	1395
Telephone-transmitter from secondary batteries	J. J. Carty	518,392	Apr. 17	1664	410	67	337

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Telephone trunk-line system	J. I. Sabin and W. Hampton	520,083	May 22	2000	489	67	953
Telephones. Coin-controlled and coin-return lock for	J. M. Dashiell, Jr	517,445	Apr. 3	55	12	67	12
Telephonic apparatus	C. Mildé	518,263	Apr. 17	1427	357	67	293
Telephony	W. C. Lockwood	518,742	Apr. 24	2276	565	67	459
Telephony. Multiplex	W. W. Jacques	518,367	Apr. 17	1627	401, 402	67	330
Tellurian	G. B. Nichols	522,082	June 26	2368	570	67	1680
Temperature-annunciator. Electrical	E. Kloss	519,634	May 8	1260	303	67	788
Tenoning-machine	W. H. Bennett	517,599	Apr. 3	297	69	67	58
Tenpin-ball	C. W. Rodman	520,898	June 5	265	64	67	1246
Tension-regulator. Automatic	W. A. Power	519,617	May 8	1230	295	67	782
Testing-machine	L. Schopper	521,323	June 12	1014	238, 239	67	1394
Textile-machinery apron	J. H. Lorimer	521,912	June 26	2061	495	67	1624
Theater appliance	A. Lake	520,236	May 22	2280	555	67	1003
Thermal alarm	H. F. Maxim	522,022	June 26	2274	545	67	1661
Thermo-electric battery	E. W. Jungner	521,168	June 12	735	174	67	1343
Thermo-electric generator	H. B. Cox	518,542	Apr. 17	1916	473	67	381
Thermometer	M. Byrne	518,442	Apr. 17	1752	435	67	353
Thermometer	A. A. Keene	521,374	June 12	1112	262	67	1414
Thermometer. Magnifying	S. G. Denton	517,446	Apr. 3	60	13	67	14
Thill-coupling	C. A. Croshaw	519,697	May 15	1363	329	67	820
Thill-coupling	J. E. Fisher	519,470	May 8	966	233	67	734
Thill-coupling	F. Schelp, Jr	520,834	June 5	147	32	67	1224
Thill-coupling	F. P. Ziegler	519,489	May 8	995	241	67	739
Thistles. Composition for exterminating Canada	R. B. Hull	517,861	Apr. 10	729	.....	67	155
Thrashing-machine	J. Hawk	521,497	June 19	1345	312	67	1473
Thrashing-machine	A. M. Lockhart	519,609	May 8	1211	292	67	779
Thrashing-machine	W. N. Springer	518,706	Apr. 24	2201	549	67	446
Thrashing-machine band-cutter and feeder	F. A. Oliva	520,216	May 22	2247	547, 548	67	997
Thrashing-machine band-cutter and feeder	J. W. Rhodes	517,887	Apr. 10	768	191, 192	67	162
Thrashing-machine band-cutter and feeder	A. Wemple	518,729	Apr. 24	2248	560	67	454
Thrashing-machine concave and feed-board	D. W. Broatch	520,725	May 29	3100	750	67	1172
Thrashing-machine feed and band-cutting attachment	M. Schlatter	521,674	June 19	1637	383, 384	67	1527
Thrashing-machine feeder	C. M. Tanquary	519,029	May 1	146	35, 36	67	564
Thrashing-machine grain carrier and regulator	A. G. Green	522,011	June 26	2261	542	67	1659
Thrashing-machine grain-elevator	J. R. Harrison	520,185	May 22	2196	534	67	988
Thrashing-machine self-feeder	R. L. Dennison	517,845	Apr. 10	708	179	67	152
Thrashing-machine teeth. Wrench and straightener for	E. W. Oakey	518,328	Apr. 17	1537	383	67	313
Thread-cutter tool-holder	C. R. Behnke	521,255	June 12	894	211	67	1372
Tie: *See* Bag or fodder tie. Metallic tie.							
Tile for floor and ceiling construction	J. Seipel	522,169	June 26	2518	605	67	1708
Tile-machine	J. Adamson	517,510	Apr. 3	156	34	67	32
Tile-machine	W. H. Pride	519,773	May 15	1481	359	67	842
Tile-presses. Automatic valve-gear for	H. E. Banker	521,944	June 26	2122	509	67	1636
Tile-roofing	G. H. Babcock	517,832	Apr. 10	687	171, 172	67	148
Tile. Roofing	J. Veen and F. A. Dornberg	518,294	Apr. 17	1478	369	67	303
Time-alarm. Electric	H. P. Sommer	518,971	May 1	56	14	67	546
Time-ball	W. F. Gardner	520,879	June 5	223	50	67	1238
Time-check receiver	A. J. Henry	520,848	June 5	171	37	67	1228
Time-lock	A. Kirks	520,144	May 22	2121	518	67	974
Time-lock	E. S. Phelps	520,332	May 22	2434	592, 593	67	1033
Time-recorder. Workman's	D. Hepp	520,310	May 22	2398	582, 583	67	1026
Tin boxes. Machine for expanding	T. S. Edgar and C. E. Williams	517,738	Apr. 3	546	131, 132	67	106
Tin-plating machine	C. R. Britton	518,342	Apr. 17	1564	388, 389	67	318
Tinner's shears	A. P. Daroue	522,108	June 26	2413	579	67	1687
Tinning-machine	J. Hirschmann	520,428	May 29	2598	628, 629, 306, 307	67	1080
Tire and rim for wheels. Pneumatic	J. W. Smallman	521,482	June 19	1316	303	67	1468
Tire. Bicycle	E. M. Ballantine	522,141	June 26	2476	593	67	1700
Tire. Bicycle	E. Grauert	518,691	Apr. 24	2168	543	67	412
Tire. Bicycle	R. P. Scott	521,273	June 12	921	218	67	1377
Tire. Bicycle	J. J. C. Smith	519,438	May 8	905	218	67	726
Tire. Bicycle	C. J. Spofford	519,976	May 15	1813	444	67	904
Tire-bolt wrench	J. E. Campbell	522,104	June 26	2406	578	67	1686
Tire fabric. Bicycle	G. C. Moore	521,805	June 26	1874	448	67	1587
Tire-forging apparatus	I. Hogeland	518,815	Apr. 24	2395	592	67	481
Tire-heater	J. A. Callaway	521,928	June 26	2093	502, 503	67	1629
Tire-marker	O. F. Farwell	519,949	May 1	563	137	67	646
Tire. Pneumatic	A. J. Burns	521,330	June 12	1025	241	67	1396
Tire. Pneumatic	R. Hoffman	520,643	May 29	2951	714	67	1145
Tire. Pneumatic	G. N. Monro, Jr	517,584	Apr. 3	273	63	67	54
Tire. Pneumatic	J. G. Moomy	518,849	Apr. 24	2440	604	67	489
Tire. Pneumatic	J. G. Moomy	518,850	Apr. 24	2442	605	67	489
Tire. Pneumatic	J. H. Pierce and A. J. Dickson	520,536	May 29	2777	672	67	1112
Tire. Pneumatic	P. W. Tillinghast and F. Mallalieu	521,740	June 19	1749	415	67	1349
Tire. Pneumatic wheel	T. A. Egan	518,229	Apr. 17	1373	344	67	284
Tire. Rubber	C. K. Welch	522,138	June 26	2466	592	67	1698
Tire-setting machine	J. B. West	520,817	June 5	109	24, 25	67	1216
Tire shield. Pneumatic	S. M. Schindel	521,005	June 5	454	108	67	1279
Tire shield. Pneumatic	S. M. Schindel	521,006	June 5	456	108	67	1279

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Tire-tightener	I. L. Carman	517,813	Apr. 3	662	165	67	128
Tire-tightener	E. W. Hays and E. A. Thuston	522,162	June 26	2509	602	67	1706
Tire-tightener	W. T. Mackey	521,661	June 19	1618	379	67	1522
Tire. Vehicle-wheel	G. S. Webb	519,748	May 15	1437	347	67	833
Tire. Wheel	H. M. Devoe	519,177	May 1	427	105	67	620
Tire. Wheel	O. Seely	520,901	June 5	268	64	67	1246
Tires, &c. Hand-pump for inflating	J. Dickens	517,736	Apr. 3	542	131	67	105
Tires. Machine for making shoes or covers for pneumatic	G. C. Moore	518,112	Apr. 10	1159	291, 292	67	228
Tires to wheels. Device for attaching pneumatic	L. H. Brunemeyer	519,695	May 15	1361	329	67	820
Tires to wheels. Device for fixing pneumatic	E. J. Vanzelle	519,165	May 1	404	97	67	615
Tobacco-casing machines. Spraying device for	J. C. Frost	519,495	May 8	887	214	67	722
Tobacco. Cooling-channel for ordering	S. P. Mayo	520,441	May 29	2618	634	67	1084
Tobacco-cutter	R. T. Stedman	518,867	Apr. 24	2465	611	67	494
Tobacco. Device for sprinkling casing material upon	C. L. Marburg	519,191	May 1	450	110	67	624
Tobacco. Machine for preparing and casing	C. L. Marburg	519,637	May 8	1263	304	67	788
Tobacco-ordering apparatus. Moistening-chamber for	G. A. and C. A. Peple	517,825	Apr. 3	676	168	67	131
Tobacco-pipe	W. Demuth	521,404	June 12	1157	274	67	1423
Tobacco-pipe	O. M. Jonasson	520,599	May 29	2884	698	67	1133
Tobacco-pipe	N. Macphail	521,380	June 12	1120	264	67	1416
Tobacco-pipe	C. Peterson	519,135	May 1	346	82	67	604
Tobacco-pipe	A. J. Pugh	519,641	May 8	1274	306	67	790
Tobacco-pipe bowls. Cover for	T. Mortou	521,173	June 12	752	176	67	1347
Tobacco-pipe cover	A. A. Percy	521,864	June 26	1966	475	67	1605
Tobacco-tying machine	R. Tell	521,189	June 12	774	181, 182	67	1350
Toboggan-slide	E. J. Morris	522,025	June 26	2278	546	67	1662
Toboggan-slide	L. A. Thompson	520,248	May 22	2302	559	67	1008
Toe-weight	L. E. Campbell	520,352	May 22	2477	600	67	1041
Toe-weight	W. N. Carlisle	518,206	Apr. 10	1329	332	67	260
Toe-weight	J. D. Keller	518,998	May 1	98	24	67	554
Toe-weight	E. G. Miles	517,583	Apr. 3	272	62	67	53
Toggle-press. Double-acting	A. C. Campbell	519,174	May 1	423	102, 103, 104	67	619
Tombs. Mold for concrete burial	W. W. Reeves	519,689	May 8	1350	326	67	804
Tongs, &c. Adjustable	Z. S. and M. C. Randleman	519,774	May 15	1482	359	67	842
Tongue-support	G. H. Mills	518,744	Apr. 24	2278	566	67	460
Tongue-support	A. B. Rose and J. H. Kelley	520,339	May 22	2456	596	67	1037
Tongue-switch	A. J. Moxham	520,694	May 29	3053	740	67	1163
Tool. Combination	G. J. Capewell	519,033	May 1	154	36, 37	67	566
Tool. Combination	T. Harris	519,574	May 8	1156	278, 279	67	769
Tool. Combination	E. E. Snyder	518,983	Apr. 17	1459	365	67	300
Tool for carriages. Combination	J. A. Riordan	519,550	May 8	1114	267	67	762
Tool-handle	W. J. Johnson	518,106	Apr. 10	1152	289	67	226
Tool-handle	J. W. S. Neal	522,181	June 26	2537	609	67	1712
Tool-handle	L. H. Schmitt	522,031	June 26	2289	548	67	1664
Tool-holder	J. E. Smith	521,965	June 26	2168	520	67	1643
Tools. Machine for manufacturing relieved-formed revolving	J. G. Reinecker	519,820	May 15	1558	381	67	857
Toothpick-cutting machine	J. Powers	517,625	Apr. 3	342	81	67	67
Toothpick-machine	C. F. Scamman	521,734	June 19	1740	413	67	1547
Toothpicks. Apparatus for handling and packing	C. F. Scamman	521,736	June 19	1743	414	67	1547
Toothpicks. Apparatus for handling and packing	C. F. Scamman and H. P. Churchill	521,735	June 19	1741	413	67	1547
Top	J. U. Barr, Jr.	521,148	June 12	702	164	67	1337
Torpedo-boat. Submarine	J. P. Holland	522,177	June 26	2531	607, 608	67	1711
Towage. Canal	J. I. Morris	521,527	June 19	1396	323	67	1482
Towel-rack	S. T. Axtell	519,490	May 8	996	241	67	740
Towing vehicles. Electrical device for	T. P. Milligan	518,673	Apr. 24	2142	535, 536	67	437
Toy	E. Denis	519,838	May 15	1588	388	67	863
Toy	W. H. Kline	517,926	Apr. 10	837	210	67	175
Toy	E. Lindner	517,616	Apr. 3	326	77	67	64
Toy	C. Miller	520,070	May 22	1977	484	67	948
Toy bank	D. R. Reynolds	519,643	May 8	1276	306	67	790
Toy bank. Registering	A. W. Coffin	521,641	June 19	1587	371, 372	67	1516
Toy-holder	F. D. Arthur	521,253	June 12	888	210	67	1371
Toy. Knockdown	H. S. Kerr	518,067	Apr. 10	1089	275	67	215
Toy. Marble-shooting	E. M. Velsor	518,295	Apr. 17	1479	370	67	303
Toy parachute	C. G. Tiefel	517,671	Apr. 3	438	105	67	84
Toy pistol	W. Duechting	518,987	May 1	82	21	67	551
Toy pistol	J. Good	518,882	Apr. 24	2492	618	67	499
Trace-cutting and trimming machine	H. A. Dodge and W. T. Richards	519,570	May 8	1148	276, 277	67	768
Track-circuit	L. F. Johnson	521,412	June 12	1168	277	67	1425
Track-clearer	J. Olson	517,478	Apr. 3	105	21, 24	67	22
Track-sanding apparatus. Automatic	M. M. Dodd	518,715	Apr. 24	2225	554	67	451
Traction-engine	C. Quast	521,988	June 26	2217	533, 534	67	1651
Traction-wheel	S. Warner and O. E. Cook	521,687	June 19	1664	390	67	1531
Train-brake. Electrical	W. C. Fletcher	520,108	May 22	2039	497, 498, 499	67	961
Train lighting and braking system. Electric	G. W. Swartz	517,498	Apr. 3	140	31	67	29
Trammel	W. H. Gates	522,053	June 26	2322	557	67	1670
Transplanter	D. D. and F. H. Bemis	520,477	May 29	2680	647, 648	67	1094
Transplanter	F. H. Bemis	520,478	May 29	2682	648, 649	67	1095
Transplanter	M. C. and W. E. Whitworth	518,657	Apr. 24	2110	527, 528	67	431

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Transplanter. Tree or flower	H. Baldridge	522,039	June 26	2300	551	67	1666
Transplanting-machine	A. W. Stevens and L. D. Swart	519,460	May 8	938	226, 227	67	731
Transplanting-machine	A. Willner	520,838	June 5	153	34	67	1225
Transportable elevator for goods	D. Dart and T. R. Parker	519,447	May 8	917	221	67	728
Trap:							
See Animal-trap. Animal gun-trap. Bird-trap. Fish-trap. Fly-trap. Grease-trap. Mole-trap. Mud and oil trap. Steam-trap. Target-trap.							
Tray. Invalid	A. Bender	517,677	Apr. 3	445	107	67	85
Tray. Smoker's	W. H. O'Dwyer	517,528	Apr. 3	180	41	67	37
Tricycle	S. F. Estell	517,741	Apr. 3	550	133, 134	67	107
Tricycle	A. Leininger and E. Shreiner	520,790	June 5	52	12	67	1206
Trimmer:							
See Lawn-edge trimmer.							
Trimming-machine	J. W. Oliver	519,199	May 1	463	113	67	627
Trocar and embalming-needle. Combined	L. G. Kregel	519,635	May 8	1261	303	67	788
Trolley	H. and J. P. Scheele and H. A. Rust	521,184	June 12	768	180	67	1349
Trolley	E. M. Tonsley	520,973	June 5	400	97	67	1270
Trolley-conductor. Overhead	R. Muir	520,329	May 22	2429	591	67	1032
Trolley. Contact	R. W. Hawkesworth	521,163	June 12	730	173	67	1342
Trolley. Ice-cutting	R. W. Thompson	518,015	Apr. 10	1001	251	67	201
Trolley-pole catcher	O. G. Cates, Jr	521,602	June 19	1518	355	67	1503
Trolley-stand	E. F. A. Heastings	522,057	June 26	2327	559	67	1672
Trolley-tracks. Switch for overhead	C. G. Schmidt	519,351	May 8	768	188	67	699
Trolley-wheel	J. D. Ansley	518,362	Apr. 17	1620	399	67	328
Trolley-wheel	V. Cruser	519,837	May 15	1586	388	67	862
Trolley-wire crossing	E. H. Allen	519,519	May 8	1067	256	67	753
Trolley-wire finder	T. E. Gressle	521,311	June 12	995	234	67	1391
Trolley-wire finder. Automatic	T. Straus	518,357	Apr. 17	1603	397	67	326
Trolley-wire hanger	A. B. Crounse and C. A. Rutledge	519,446	May 8	916	221	67	727
Trolley-wire hanger	T. J. McTighe	522,180	June 26	2536	609	67	1712
Trolley-wire hanger	T. J. McTighe and S. W. Childs	520,213	May 22	2243	546	67	996
Trolley-wire hanger	C. F. Strasburg	519,621	May 8	1241	298	67	784
Trolley-wire support	B. J. Jones	520,737	May 29	3121	755	67	1175
Trolley-wire support	L. McCarthy	520,937	June 5	344	84	67	1260
Trolling-spoon	J. R. Harlow	520,594	May 29	2878	696	67	1131
Trousers	J. E. Leavitt	518,369	Apr. 17	1632	402	67	331
Trousers	S. Schoenbrun	518,727	Apr. 24	2246	559	67	454
Trousers-stretcher	M. Latham	518,760	Apr. 24	2301	571	67	464
Truck	T. R. Campbell	517,642	Apr. 3	374	89	67	73
Truck	J. M. K. Pennink	518,535	Apr. 17	1905	471, 472	67	380
Truck and hoist. Combined	J. P. B. Fiske	518,235	Apr. 17	1380	346	67	285
Truck and stand. Combined barrel	A. Buys	520,104	May 22	2032	495	67	960
Truck. Car	E. Cliff	521,205	June 12	805	189	67	1356
Truck. Car	S. Fox	521,709	June 19	1697	398, 399	67	1539
Truck. Car	E. G. Gibson	517,688	Apr. 3	463	112	67	89
Truck. Car	E. G. Gibson	517,744	Apr. 3	556	135	67	108
Truck. Car	J. L. Hardie	517,571	Apr. 3	254	59	67	50
Truck. Car	L. Warfield	519,824	May 15	1563	383	67	858
Truck. Electric-motor	J. C. Henry	520,780	June 5	32	7	67	1203
Truck for moving heavy bodies	C. Kynoch	520,319	May 22	2416	588	67	1029
Truck for railway-trains. Pneumatic buffer	C. J. Gray	518,449	Apr. 17	1766	437, 438	67	356
Truck. Motor-car	W. A. Dutton and J. F. Pfetch	517,565	Apr. 3	243	56, 57	67	48
Truck. Piano	F. E. Davis	517,543	Apr. 3	207	48	67	42
Truck. Railway	R. Egger and F. A. Wessel	518,313	Apr. 17	1511	378	67	308
Truck. Railway-car	N. C. Bassett	521,778	June 26	1837	437, 438	67	1579
Truck. Stove	H. M. Putt	521,127	June 5	662	156	67	1317
Trunk	B. Dickenson	519,569	May 8	1147	275	67	768
Trunk	R. L. Forsgren	519,179	May 1	430	105, 106	67	621
Trunk	F. Lyford	520,692	May 29	3049	739	67	1162
Trunk	W. H. S. Westlake	517,711	Apr. 3	501	120, 121	67	97
Trunk attachment	C. W. Clifton	519,528	May 8	1081	259	67	756
Trunk, bureau, and writing-table. Combination	S. T. Andrus	521,873	June 26	1978	478	67	1608
Trunk. Collapsible	B. J. M. Clemens	517,841	Apr. 10	701	177, 178	67	151
Trunk-corner and hinge piece	G. F. Pottle	522,182	June 26	2538	609	67	1712
Trunk-fastener	W. Bruen	517,429	Apr. 3	13	3	67	5
Trunk-handle	G. Crouch	518,095	Apr. 10	1133	285	67	223
Trunk-lock	E. A. Judd	521,471	June 19	1294	301	67	1464
Trunk, portmanteau, &c	E. Bronsdon	522,146	June 26	2483	595, 596	67	1701
Trunk-strap fastener	P. Mundry and H. Pomtier	519,505	May 8	1020	247	67	745
Trunk-strap fastener	W. J. Webb	521,227	June 12	845	197	67	1363
Truss	E. E. Boomhower	519,882	May 15	1662	405	67	876
Truss	J. Brickner and A. S. Herr	517,639	Apr. 3	369	87	67	72
Tub:							
See Bath-tub.							
Tub	W. Gwynn, Jr., and D. Spencer	520,880	June 5	225	51	67	1238
Tub roller and shaper	W. B. Sylvester	521,739	June 19	1748	415	67	1548
Tubs or boilers. Fender for metallic	F. K. Roberts and G. M. Burroughs	517,827	Apr. 3	678	169	67	132
Tube:							
See Insulating-tube.							
Tube-drawing device	C. G. Larson	519,086	May 1	252	60	67	584
Tube-expander	C. W. Umholtz	521,742	June 19	1754	416	67	1549
Tube-stopper	E. W. Craine	518,226	Apr. 17	1369	343	67	283

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Tubular boiler	J. J. Brown	521,150	June 12	704	164, 165	67	1337
Tubular boiler	J. P. Serve	521,442	June 12	1231	291	67	1436
Tubular casings. Machine for making	E. M. Harrington	521,792	June 26	1853	442, 443	67	1583
Tubular metallic post	W. and C. Andrew	519,311	May 8	679	166	67	683
Tug fastening. Hame	W. P. Gelabert	521,567	June 19	1461	342	67	1494
Tug. Hame	W. Timmins	519,030	May 1	150	36	67	565
Tumbler	W. W. Doolittle	518,735	Apr. 24	2265	562, 563	67	457
Tuning device	D. M. White	521,688	June 19	1665	391	67	1532
Tunnels. Centering for	J. McNamara	521,767	June 19	1813	430	67	1558
Turbine	G. M. Hopkins	521,713	June 19	1704	400	67	1540
Turbine. Steam	C. G. P. de Laval	522,066	June 26	2340	561, 562	67	1674
Turn-table	J. B. Tinsley	521,060	June 5	553	129	67	1297
Turning bobbins, spools, &c. Machine for automatically	J. M. Parker	519,967	May 15	1792	440, 441	67	901
Turret-head for drill-machines	W. C. Jennings	520,362	May 22	2497	603, 604	67	1045
Turret-head machine	A. D. Quint	520,079	May 22	1993	487, 488	67	952
Tuyeres	J. G. Habelt	521,857	June 26	1954	470	67	1603
Tuyeres and pipes. Machine for forming	M. L. Williams	518,169	Apr. 10	1251	315	67	243
Twine and making same	F. R. Williams	520,249	May 22	2305	559	67	1008
Twine-box	J. W. Herriott	518,504	Apr. 17	1853	459	67	370
Twine-holder	J. J. Hooker and B. W. Putnam	520,312	May 22	2403	584	67	1026
Twine holder and take-up	E. Nelson	517,474	Apr. 3	100	22	67	21
Twine-reel	W. H. Roehm	520,189	May 22	2203	536	67	989
Type. Art of and apparatus for coloring the printing-surface of cast	M. M. Gillam	518,063	Apr. 10	1082	273, 274	67	214
Type. Device for removing leads from	W. Weatherby	520,465	May 29	2661	643	67	1091
Type-distributing apparatus	C. F. Hilder	517,802	Apr. 3	643	161	67	125
Type leveling and aligning device	L. P. Diss	521,338	June 12	1053	247, 248	67	1402
Type. Method of and machine for justifying	J. L. McMillan	521,039	June 5	505	120, 121, 122	67	1288
Type-setting machine	C. F. Hilder	520,311	May 22	2401	583, 584	67	1026
Type-writer cabinet	H. T. Conde	517,843	Apr. 10	704	178	67	151
Type-writer cabinet	L. S. Hayes	521,956	June 26	2157	518	67	1641
Type-writer cabinet	L. S. Hayes	521,957	June 26	2159	518	67	1641
Type-writer case and table. Combined	F. C. Wood	521,067	June 5	564	132	67	1299
Type-writer counter	A. V. Gearhart	519,180	May 1	431	106	67	621
Type-writing machine	W. Clark	519,320	May 8	697	171, 172	67	686
Type-writing machine	J. H. Hudson	521,616	June 19	1546	362	67	1508
Type-writing machine	W. P. Quentell	517,663	Apr. 3	419	101, 102	67	80
Type-writing machine	G. L. Rawdon	519,390	May 8	835	203	67	712
Type-writing machine	D. L. Tower	520,172	May 22	2173	529, 530	67	983
Type-writing machine	G. B. Webb	520,586	May 29	2863	693	67	1129
Type-writing machines. Cleaning attachment for	C. T. Thatcher	521,900	June 26	2038	491	67	1620
Type-writing machines. Numeral adding or subtracting attachment for	J. D. Daugherty	517,735	Apr. 3	536	130, 131	67	104
Type-writing machines. Ribbon-reversing mechanism for	C. E. Johnson	521,288	June 12	954	226	67	1383
Type-writing machines. Ribbon-reversing mechanism for	F. P. Stiles	521,091	June 5	607	143	67	1306
Type-writing machines. Type-cleaning device for	C. A. Joerissen	520,850	June 5	176	38	67	1229
Typograph	H. W. Libbey	520,238	May 22	2284	555	67	1003
Typographic machine	E. Werner	519,516	May 8	1034	250, 251, 252, 253	67	747
Typographic machine and attachment	E. Werner	519,517	May 8	1050	253, 254, 255	67	751
Umbrella-attaching device	T. B. Comins	520,135	May 22	2109	514	67	971
Umbrella holder and stand. Combination	J. F. Bartlett	518,581	Apr. 24	1987	491	67	409
Umbrella-holder. Portable	W. H. Hopkins	520,053	May 22	1944	476	67	943
Umbrella-rib-locking device	F. W. T. Jedeck	522,016	June 26	2267	543	67	1660
Umbrella-rib-locking device	F. W. T. Jedeck	522,017	June 26	2268	544	67	1660
Umbrella. Self-closing	J. H. Sprague	521,828	June 26	1910	458	67	1594
Umbrella. Self-opening	H. W. Schoff, B. Finkel, and F. E. Probert.	521,222	June 12	836	196	67	1362
Umbrellas, &c. Flexible support for	W. J. Yapp	521,355	June 12	1084	254	67	1409
Uncoupler and car-brake. Automatic	J. P. Dias	520,204	May 22	2228	542	67	994
Underwaist	C. R. De Bevoise	521,403	June 12	1156	274	67	1423
Unicycle	R. Hendrich	520,678	May 29	3027	733	67	1158
Unicycle	H. J. Sacksteder	521,673	June 19	1636	383	67	1526
Upholstery pendant or ornament	G. F. Hensel	521,370	June 12	1104	260	67	1413
Urinal. Ventilated	F. P. Smith	519,355	May 8	772	189	67	700
Uterus-battery	C. S. W. Hinkley	520,206	May 22	2230	542	67	994
Vacuum-brake	W. L. Fitzhugh	517,819	Apr. 3	669	167	67	130
Vacuum-pan	C. W. Cooper	521,974	June 26	2180	523, 524	67	1645
Valve	F. E. Claffey	520,203	May 22	2227	541	67	993
Valve	F. W. Hess	521,027	June 5	485	116	67	1284
Valve	G. W. Knapp and J. V. Chamberlin	517,575	Apr. 3	261	60	67	51
Valve	G. Oliver	521,040	June 5	518	122	67	1291
Valve. Air and gas meter	J. Shearman	519,481	May 8	980	237	67	737

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Valve. Air-brake	J. F. Voorhees	521,996	June 26	2234	537	67	1654
Valve and joint	C. S. Bavier	517,914	Apr. 10	817	205	67	172
Valve. Antomatic exhaust relief	G. de Laval	521,030	June 5	493	117	67	1226
Valve. Ball-cock	W. A. Turner	520,148	May 22	2130	520	67	976
Valve. Ball-cock	W. A. Turner	520,149	May 22	2132	520	67	976
Valve. Ball-cock	W. A. Turner	520,150	May 22	2134	520	67	976
Valve. Ball-cock	W. A. Turner	521,350	June 12	1675	252	67	1407
Valve. Brake-cylinder pressure graduating and maintaining triple	J. A. Steininger	517,895	Apr. 10	781	195	67	165
Valve. Center	C. Babret	518,172	Apr. 10	1256	{316 / 317}	67	245
Valve-controlling mechanism	I. H. Reynolds	518,651	Apr. 24	2098	{523 / 524}	67	428
Valve device	W. A. Drewett	518,026	Apr. 10	1016	256	67	204
Valve device	J. Reichmann	517,589	Apr. 3	293	66	67	56
Valve device	C. B. Watters	519,052	May 1	183	43	67	572
Valve device for duplex engines	W. A. Drewett	518,025	Apr. 10	1014	255	67	203
Valve. Engine	W. H. Jenks	517,863	Apr. 10	730	184	67	155
Valve. Engineer's	W. A. Thacher	521,425	June 12	1192	283	67	1429
Valve. Fluid-brake	H. Tabor	518,289	Apr. 17	1470	368	67	302
Valve for air-brakes. Releasing	J. G. Sarvent	518,199	Apr. 10	1320	330	67	258
Valve for air-brakes. Triple	H. M. Lofton	519,679	May 8	1329	321	67	800
Valve for condensers. Water-regulating	W. F. Garrison	519,083	May 1	248	58	67	583
Valve for expansion-cylinders of vapor-compression engines	E. Riegelmann	521,731	June 19	1735	412	67	1546
Valve for fluid-pressure brake systems. Triple	J. Soucek	518,705	Apr. 24	2199	549	67	446
Valve for hydraulic pressnre. Controlling	A. Kampf	518,149	Apr. 10	1214	{304 / 305}	67	237
Valve for water-gages. Ball	G. H. Wall	521,530	June 19	1402	324	67	1483
Valve for water, steam, or other liquids or gases	W. Thomson	522,170	June 26	2519	605	67	1708
Valve-gear	J. Fielding	518,593	Apr. 24	2003	{496 / 497}	67	412
Valve-gear for direct-acting engines	H. C. Sergeant	520,190	May 22	2204	{536 / 537}	67	989
Valve-gear. Gas-engine	B. H. Coffey	517,541	Apr. 3	200	46, 47	67	40
Valve. Hydrant	C. H. Watson	518,475	Apr. 17	1808	447	67	363
Valve. Hydraulic	E. S. Matthews	519,638	May 8	1264	305	67	789
Valve. Hydraulic	E. S. Matthews	519,639	May 8	1270	305	67	789
Valve mechanism	W. B. Mason	522,071	June 26	2349	565	67	1676
Valve mechanism for air-brakes. Quick-action	T. J. Hogan	519,908	May 15	1699	415	67	883
Valve mechanism. Rock-drill	R. L. Ambrose	518,212	Apr. 17	1347	336	67	279
Valve. Oil	G. H. Perkins	519,306	May 1	663	161	67	665
Valve-operating mechanism	J. Moore	517,807	Apr. 3	654	164	67	127
Valve. Pressnre-reducing	G. M. Davis	518,000	Apr. 10	980	244	67	197
Valve. Pressure-regulating	J. Nageldinger	519,089	May 1	256	61	67	585
Valve. Pressure-regulating	J. Nageldinger	520,268	May 22	2337	567	67	1014
Valve. Quick-action triple	H. H. Westinghouse	518,929	Apr. 24	2580	638	67	516
Valve rod. Slide	J. H. Shepheard	519,458	May 8	934	225	67	731
Valve. Slide	E. Heyde	521,053	June 19	1603	376	67	1520
Valve. Sluice	W. A. Doble	521,106	June 5	631	149	67	1311
Valve. Steam-actuated	J. B. Gorrell	519,706	May 15	1380	332	67	823
Valve. Steam-actuated	J. J. Kwis	518,846	Apr. 24	2434	603	67	488
Valve. Steam-actuated	G. L. Weller	519,826	May 15	1569	384	67	859
Valve. Steam-engine slide	F. P. Malone	521,592	June 19	1505	353	67	1501
Valve. Throttle	B. Clark	519,665	May 8	1308	312	67	796
Vamps to uppers. Machine for pasting	H. Fischer	520,590	May 29	2870	{694 / 695}	67	1130
Vanillin. Making	J. Bertram	519,693	May 15	1358	.....	67	819
Vapor-burner	G. W. Billings	519,830	May 15	1576	{385 / 386}	67	860
Vapor-burner	W. M. Lockhart	518,694	Apr. 24	2175	544	67	443
Vapor-burner	E. I. Nichols	519,819	May 15	1557	381	67	857
Vapor-burner	H. Ruppel	520,805	June 5	81	18	67	1213
Vapor-borner. Multiplex	R. E. and W. S. Olds	521,622	June 19	1555	363	67	1510
Vaporizer for hydrocarbon-motors	J. H. Knight	518,151	Apr. 10	1217	305	67	238
Vault-cover. Ventilating	J. Jacobs	518,888	Apr. 24	2512	{621 / 622}	67	503
Vault-light trimmer	P. Schwickart	520,273	May 22	2346	569	67	1015
Vegetable-cutter	J. Roslosnik	519,095	May 1	268	63	67	587
Vegetable-cutter	D. M. Wright	521,279	June 12	932	220	67	1379
Vehicle	J. Johnston	520,961	June 5	378	92	67	1266
Vehicle	D. D. Price and R. J. Daniels	520,830	June 5	136	30	67	1222
Vehicle	C. H. Stratton	517,988	Apr. 10	956	{238 / 239}	67	193
Vehicle	F. W. Zimmer	518,983	May 1	77	20	67	550
Vehicle-body	J. J. Vollrath	520,126	May 22	2071	505	67	966
Vehicle-brake	J. C. F. Hurst	521,588	June 19	1499	351	67	1500
Vehicle-brake	W. T. Lineback	521,934	June 26	2105	505	67	1632
Vehicle-brake	C. Sample	521,389	June 12	1130	{266 / 267}	67	1418
Vehicle-brake	J. F. Shepard	518,928	Apr. 24	2579	638	67	516
Vehicle-brake. Automatic	H. L. Bailey	517,996	Apr. 10	972	242	67	196
Vehicle brake. Side-bar	T. H. Carter	521,459	June 19	1274	297	67	1460
Vehicle-cover and support therefor	J. H. Rau	518,376	Apr. 17	1645	406	67	333
Vehicle runner attachment. Wheeled	S. C. Schofield	520,806	June 5	83	19	67	1213
Vehicle running-gear	D. A. Foster	518,809	Apr. 24	2383	{589 / 590}	67	479
Vehicle-seat	J. M. McHenry	517,526	Apr. 3	179	40	67	36
Vehicle shifting seat	C. C. Bradley and T. Faulder	519,832	May 15	1578	386	67	861
Vehicle spring and axle atttachment	W. Beckert	520,476	May 29	2678	647	67	1094
Vehicle. Two-wheeled	J. A. Johnson	520,927	June 5	332	80, 81	67	1257
Vehicle-wheel	C. L. Ames	521,692	June 19	1671	392	67	1533
Vehicle-wheel	F. A. Finch	518,881	Apr. 24	2490	617	67	499
Vehicle-wheel	H. N. Parker	519,388	May 8	832	202	67	712

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Vehicle-wheel. Metallic	C. S. Cannon	517,791	Apr. 3	628	157	67	122
Vehicles. Child's seat for	T. B. Padgitt	519,731	May 15	1418	342	67	830
Vehicles. Elastic storm-apron for	W. M. Blanchard	519,564	May 8	1137	273	67	766
Vehicles. Electric operating mechanism for	L. E. Freedley	518,781	Apr. 24	2382	{578 / 579}	67	470
Vehicles. Means for connecting draft-animals to	T. H. Brigg	517,640	Apr. 3	370	87, 88	67	72
Vehicles. Means for connecting draft-animals to	T. H. Brigg	517,641	Apr. 3	372	88, 89	67	73
Veil-clasp	H. L. Alexander	517,970	Apr. 10	917	229	67	188
Velocipede	G. H. Day	521,761	June 19	1804	428	67	1556
Velocipede-bearing	F. D. Owen	519,269	May 1	586	143	67	651
Velocipede. Ice	L. Grieneisen	521,496	June 19	1743	312	67	1473
Velocipede-wheel	E. E. Fay	520,845	June 5	165	36	67	1227
Vending-machine	F. G. Dieterich	519,448	May 8	918	{221 / 222}	67	728
Vending-machine	J. A. and W. T. Westbay	521,839	June 26	1926	{461 / 462}	67	1597
Vending-machine. Coin-actuated	F. B. Cochran	520,769	June 5	12	3, 4	67	1199
Vending-machine. Coin-controlled	A. Keith, J. P. Tirrell, and J. W. Willard.	519,385	May 8	818	{199 / 200}	67	710
Ventilating and furnace-checking device	J. B. Watson and J. R. Douglas	520,974	June 5	402	97	67	1270
Ventilation. House	J. McCreery	521,038	June 5	503	120	67	1288
Ventilator: *See* Car-ventilator.							
Ventilator	W. T. Cottier	517,703	Apr. 3	631	158	67	122
Ventilator	W. F. Wolfe	521,561	June 19	1445	336	67	1491
Vertical-flue boiler	C. Ahrens	519,013	May 1	120	29	67	559
Vessel	G. W. Schermerhorn	518,702	Apr. 24	2194	548	67	446
Vessel and propelling mechanism therefor	R. Folsom	518,028	Apr. 10	1019	257	67	204
Vessel. Screw-propelled	C. G. Lundborg	520,691	May 29	3047	{737 / 738}	67	1162
Vessels. Apparatus for raising sunken	J. and C. Taylor	517,630	Apr. 3	352	83	67	69
Vessels. Lee-wing for	N. C. Jessup	517,864	Apr. 10	732	184	67	155
Veterinary drenching-bottle	D. Schaefer	521,596	June 19	1512	354	67	1502
Veterinary obstetrical forceps	O. Y. Bartholomew	518,580	Apr. 24	1986	491	67	409
Vibrating-piston engine	W. E. Crist	521,603	June 19	1519	356	67	1504
Vine fastening. Grape	G. E. Ryckman and M. Tucker	517,484	Apr. 3	115	26	67	24
Vine-stripper	M. Maples	517,469	Apr. 3	92	20, 21	67	20
Violin-pad	E. Hagenow	519,791	May 15	1517	369	67	849
Vise	W. E. Snediker	519,008	May 1	112	27	67	557
Vise	W. E. Snediker	519,028	May 1	145	35	67	564
Vise. Blacksmith's	A. Lennon	521,505	June 19	1356	315	67	1475
Vises. Means for operating sectional nuts of	J. E. Boegen	521,698	June 19	1677	394	67	1534
Voltaic battery	H. Timm	522,127	June 26	2438	587	67	1692
Voltmeter	E. R. Knowles	520,789	June 5	50	12	67	1206
Voltmeter	E. R. Knowles	520,964	June 5	382	93	67	1267
Voting-machine	W. M. Cutter	519,494	May 8	1004	243	67	741
Voting-machine	J. McTammany	520,609	May 29	2699	700	67	1135
Wagon-body	T. Wagner and W. Habermann	517,500	Apr. 3	144	31	67	30
Wagon-brake	J. Jacobs	520,849	June 5	173	38	67	1228
Wagon-brake	G. M. McLaughlin and C. E. Cooley	519,729	May 15	1415	341	67	830
Wagon. Dumping	J. A. Klees	519,455	May 8	930	224	67	730
Wagon. Dumping	W. S. Phillips	520,572	May 29	2838	685	67	1124
Wagon. Milk	N. Milbank	518,848	Apr. 24	2438	604	67	488
Waistband for trousers	J. Schwarz	517,984	Apr. 10	944	237	67	192
Waiter for invalid bedsteads or chairs. Adjustable	D. Cook	518,733	Apr. 24	2362	562	67	457
Walking-stick and lamp. Combined	F. Deninger	518,590	Apr. 24	2000	495	67	412
Wall covering. Inside	A. Sackett	520,123	May 22	2066	504	67	965
Wall-finish compound	R. E. Haire	521,143	June 5	693	.....	67	1321
Wall. Fireproof building	P. A. Deslauriers	520,137	May 22	2110	514	67	971
Walls or ceilings. Finishing-joint in wooden	G. Knower	517,701	Apr. 3	481	115	67	92
Warming-safe	A. Maag and F. S. Horn	518,042	Apr. 10	1052	267	67	209
Warp fabric	S. Spooner	519,101	May 1	275	65	67	588
Washbench and clothes-bar. Folding	W. H. Forrester	518,186	Apr. 10	1279	323	67	249
Washboiler	D. J. H. Davies	520,589	May 29	2869	694	67	1130
Washer: *See* Bottle-washer. Gold-washer.							
Washing apparatus	W. Arnold	518,087	Apr. 10	1117	282	67	220
Washing-machine	T. B. Arndt	520,350	May 22	2475	600	67	1040
Washing-machine	J. Beltzer	517,537	Apr. 3	196	44	67	39
Washing-machine	J., C., and W. Benkema	520,841	June 5	159	35	67	1226
Washing-machine	E. C. Brewer	520,408	May 29	2566	621	67	1075
Washing-machine	V. Cermak	517,839	Apr. 10	697	177	67	150
Washing-machine	D. P. Edgar	520,771	June 5	18	4	67	1199
Washing-machine	A. Erbor	519,303	May 1	655	159	67	664
Washing-machine	F. Jackson	518,407	Apr. 17	1686	{417 / 418}	67	341
Washing-machine	L. Kelly	517,699	Apr. 3	478	114	67	92
Washing-machine	J. A. Mengel	521,506	June 19	1357	315	67	1476
Washing-machine reversing-gearing	J. G. Crawford	517,646	Apr. 3	384	91, 92	67	74
Waste and supply coupling. Bath	F. M. Mackin and C. R. Schmidt	518,154	Apr. 10	1223	307	67	239
Watch	J. W. Nunamaker	517,882	Apr. 10	759	190	67	161
Watch-bow fastener	D. H. Abney	521,070	June 5	571	134	67	1300
Watch cannon-pinion	J. V. Coats	520,298	May 22	2231	578	67	1022
Watchcase	C. K. Colby	518,712	Apr. 24	2222	553	67	450
Watchcase	J. Dürrstein	521,210	June 12	813	191	67	1357
Watchcase-pendant	W. S. Richardson	517,933	Apr. 10	846	213	67	177
Watchcase-spring	C. Nobs	517,554	Apr. 3	227	52	67	45
Watchcase-spring	E. A. Remick and P. Fleck	519,926	May 15	1726	423	67	888
Watchcases. Tool for ornamenting	F. Ecaubert	517,686	Apr. 3	460	111	67	88
Watch-jewels. Mechanism for loading	G. E. Hunter	520,681	May 29	3030	{733 / 734}	67	1159
Watch-jewels. Mechanism for loading	L. N. Jackman and C. A. Smith	521,715	June 19	1707	{402 / 403}	67	1541
Watch-movement box	E. C. Fitch	517,647	Apr. 3	386	92	67	75

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Watch. Stem-winding	G. S. Klein	521,884	June 26	1998	482	67	1612
Watch. Stem winding and setting	D. H. Church	520,633	May 29	2936	710	67	1142
Watches. Plate for stem-winding	W. W. Hastings	520,483	May 29	2692	651, 652	67	1097
Water-closet	W. T. Fox	518,753	Apr. 24	2292	569	67	462
Water-closet	J. H. Stevens, Jr	519,878	May 15	1656	403	67	875
Water-closet bowl and seat	G. F. Greene	522,010	June 26	2260	541	67	1659
Water-closet flushing-tank	H. W. Kirchner and W. A. Spears	520,436	May 29	2610	632	67	1082
Water-closet reservoir	G. B. Howell	520,358	May 22	2485	602	67	1042
Water-closet seat	U. G. Johnson	522,163	June 26	2510	602	67	1706
Water-closets. Automatic pull for	E. D. Andruss	521,072	June 5	573	134	67	1300
Water-closets, &c. Valve for	T. R. Keyworth, Jr.	518,004	Apr. 10	986	245	67	199
Water-column. Safety	H. Engel	519,382	May 8	814	198	67	709
Water-elevator. Steam vacuum	P. Sattelkau and H. R. Winkelmann	521,441	June 12	1228	290, 291	67	1435
Water-elevators. Storage-reservoir for steam vacuum	P. Sattelkau and H. R. Winkelmann	521,390	June 12	1132	267	67	1418
Water-feeder. Automatic	C. A. Southwick	518,866	Apr. 24	2463	610	67	493
Water-gage	F. M. Ashley	518,171	Apr. 10	1255	316	67	244
Water-gage	J. C. Rummel	517,483	Apr. 3	113	25, 26	67	24
Water-gage guard	J. A. and J. Hopkinson	519,957	May 15	1775	435	67	897
Water, gas, &c. Street-box for	A. H. Austin	520,176	May 22	2179	531	67	985
Water gully. Double-trap surface	L. W. Crosta	520,036	May 22	1915	469, 470	67	937
Water-heater	E. Hayes	517,572	Apr. 3	256	59, 60	67	50
Water-heater	J. S. Heaton	521,314	June 12	998	235	67	1391
Water-heater. Gas	S. Stewart	519,357	May 8	776	189, 190	67	701
Water heater or boiler	C. T. Toulmin	521,995	June 26	2231	536	67	1654
Water-heating apparatus	C. H. Page, Jr.	521,913	June 26	2068	496, 497	67	1625
Water-heating apparatus	C. H. Page, Jr.	521,917	June 26	2070	497	67	1626
Water-meter. Disk	J. Thomson	520,195	May 22	2210	538, 539	67	990
Water-meter. Disk	J. Thomson	520,197	May 22	2215	539, 540	67	991
Water-meter. Rotary	P. Ball	521,493	June 19	1337	310, 311	67	1472
Water module or delivery regulator	C. A. D'Ebro	518,227	Apr. 17	1371	343	67	284
Water-motor	A. A. Raubold	521,814	June 26	1888	451, 452	67	1590
Water-motor	J. W. Shipley	517,667	Apr. 3	426	103	67	82
Water. Purifying	B. Remmers	521,964	June 26	2167	520	67	1643
Water-purifying apparatus	L. Archbutt and R. M. Deeley	521,522	June 19	1387	321	67	1480
Water-purifying apparatus	J. H. McDonald	517,552	Apr. 3	224	51	67	44
Water-sprinkler	H. B. Everest	519,992	May 15	1841	450	67	909
Water-tube boiler	J. J. Hogan	520,882	June 5	228	52, 53, 54	67	1239
Water-wheel	C. A. Chase	521,152	June 12	708	166	67	1338
Water-wheel	A. J. Gould	518,599	Apr. 24	2009	499	67	414
Water-wheel governor. Electrical	C. S. English	521,085	June 5	595	140	67	1304
Water-wheel governor. Electrical	E. P. Wetmore	519,597	May 8	1192	288	67	776
Water-wheel-regulating apparatus	C. B. Sessions and B. C. Van Emon	518,282	Apr. 17	1457	364, 365	67	299
Water-wheel. Turbine	J. M. Parker	521,386	June 12	1126	265, 266	67	1417
Water-wheel. Turbine	J. H. Staples	518,795	Apr. 24	2355	583, 584	67	474
Watering-pot	J. R. Wotherspoon	518,437	Apr. 17	1743	433	67	351
Waterproofing fabrics. Compound for	E. J. Knowlton	517,927	Apr. 10	838	.....	67	175
Weather-board gage	T. L. Wint	520,511	May 29	2738	662	67	1104
Weather-board gage and adjuster	S. H. Abshier and C. F. Lacke	520,472	May 29	2672	646	67	1093
Weeding implement	G. W. McKenzie	520,212	May 22	2242	546	67	996
Weigher and conveyer spout. Grain	V. Weber and J. R. Harrison	520,382	May 22	2522	610	67	1050
Weigher. Automatic grain	L. C. Guttery	519,947	May 15	1761	432	67	894
Weigher. Rotating grain	J. Sndbrock	518,287	Apr. 17	1468	367	67	301
Weighing and measuring machines. Register for grain	V. Weber	518,083	Apr. 10	1106	280	67	218
Weighing apparatus	R. N. Coghlan	520,301	May 22	2384	579	67	1023
Weighing device. Automatic grain	J. Graham	519,707	May 15	1381	333	67	823
Weighing. Electric apparatus for automatic	C. E. Buzby	521,331	June 12	1026	241	67	1396
Weighing machine. Grain	H. Richardson	520,336	May 22	2450	595	67	1036
Welding apparatus	C. L. Rowland	519,776	May 15	1487	360	67	843
Welding apparatus. Electric	R. M. Hunter	520,359	May 22	2486	603	67	1042
Welding apparatus. Electric	R. M. Hunter	520,360	May 22	2490	603	67	1042
Welding-machine. Electric	H. Lemp and C. G. Anderson	519,336	May 8	726	178, 179	67	692
Well-casing rig. Oil	C. C. Stover	519,651	May 8	1288	308	67	792
Well-digger	A. Odewahn and F. Reichart	521,175	June 12	753	177	67	1347
Well-drilling apparatus	S. A. Horton	519,405	May 8	855	207	67	716
Well-drilling apparatus. Bit for	S. A. Horton	517,459	Apr. 3	77	17	67	17
Well or cistern cleaner	J. Miller, Sr	519,431	May 8	895	216	67	724
Wells. Piston for Artesian or oil	W. H. Downing	518,490	Apr. 17	1823	451	67	365
Wells, &c. Removing articles from	L. Maish	517,806	Apr. 3	651	163	67	127
Wheel. *See* Bicycle-wheel. Buff-wheel. Buffing-wheel. Car-wheel. Door hanger wheel. Fifth-wheel. Grain-drill pressure-wheel. Pneumatic-tired wheel. Power-wheel. Sprocket-wheel. Traction-wheel. Trolley-wheel. Turbine water-wheel. Vehicle-wheel. Water-wheel.							
Wheel	E. Fox	519,790	May 15	1516	369	67	849

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wheel	G. P. Hobbs and A. L. Edwards	518,736	Apr. 24	2269	563	67	458
Wheel	J. M. McMaster	521,570	June 19	1465	343	67	1494
Wheel guard. Hand	J. W. Cameron	520,410	May 29	2568	621	67	1075
Wheel-rim and making same	C. F. Cowdrey	522,047	June 26	2313	555	67	1669
Wheel-rims. Joint for metal	J. Friedenstein	517,610	Apr. 3	313	74	67	62
Wheelbarrow	M. V. Garver	520,919	June 5	304	74	67	1253
Wheelbarrow-tray	M. V. Garver	520,920	June 5	305	75	67	1253
Whiffletree	J. C. H. Hobbs	521,028	June 5	487	116	67	1285
Whist box. Duplicate	A. H. Woodward	521,302	June 12	979	232	67	1388
Whistle. Steam chime	H. R. Frisbie	520,418	May 29	2576	633	67	1076
Wick. Lamp	J. T. Murray	519,795	May 15	1525	371	67	850
Wind-engine	W. H. Stewart	519,977	May 15	1814	444, 445	67	904
Winding cotton web, &c. Machine for	E. Goldman	520,420	May 29	2581	624, 625	67	1077
Winding-engine	H. L. Reynolds and H. W. Ketchum	519,619	May 8	1233	296, 297	67	783
Windlass. Grain-shovel	J. H. Finley	520,956	June 5	371	90, 91	67	1265
Windmill	T. D. Cook	517,542	Apr. 3	204	47	67	41
Windmill	F. A. Franklin	517,854	Apr. 10	721	181	67	153
Windmill	J. Wallace	519,362	May 8	785	192	67	703
Windmill	C. E. Williamson	517,674	Apr. 3	441	106	67	85
Windmill	A. V. Winegarden	518,300	Apr. 17	1485	371, 372	67	304
Window	C. Ajello	521,356	June 12	1085	255	67	1409
Window	G. Giglio	521,585	June 19	1494	350	67	1499
Window	R. J. Mitchell	520,327	May 22	2426	590	67	1032
Window and insect screen	E. C. Kreh, Jr	518,069	Apr. 10	1091	275	67	215
Window, door, or the like. Horizontally-sliding	C. Sinnmermann	520,713	May 29	3085	746, 747	67	1169
Window-fixture	J. R. and J. E. Lambert	517,952	Apr. 10	883	221	67	182
Window frame and sash	M. E. Knight and A. B. Harrington	519,333	May 8	720	177	67	691
Window-frame. Weatherproof	H. Neumann	520,330	May 22	2431	591	67	1032
Window guard and shade attachment	T. Euphrat	521,607	June 19	1534	359	67	1506
Window-screen	G. E. Blaine	518,660	Apr. 24	2116	529	67	432
Window-screen	W. W. Cole	517,602	Apr. 3	302	70	67	59
Window-screen	S. W. Hurlburt	520,112	May 22	2049	500	67	963
Window-screen	A. Thomas	519,415	May 8	871	211	67	719
Window-screen	M. Zennier	518,303	Apr. 17	1490	373	67	305
Window. Slide	M. F. Mahoney	521,472	June 19	1295	302	67	1464
Window. Swinging	H. C. W. Weyhe	520,226	May 22	2264	551	67	1000
Windows or doors. Packing or sound-deadening device for	T. R. Wickham	517,507	Apr. 3	153	33	67	31
Wine-cooler	A. C. Clark	518,876	Apr. 24	2484	616	67	498
Winker-brace	E. Oddy, J. Crossley, E. and A. Smith.	517,527	Apr. 3	180	40	67	37
Wire. Apparatus for hardening and tempering steel	I. A. Kilmer	519,633	May 8	1258	302, 303	67	787
Wire-barbing machine	F. B. Griswold	519,812	May 15	1516	378	67	854
Wire-bending machine	H. Polte	517,964	Apr. 10	910	327, 328	67	187
Wire-coiling apparatus	F. A. Williams	517,508	Apr. 3	154	33, 34	67	32
Wire-fabric machine	S. S. Casey	521,635	June 19	1578	369	67	1514
Wire-fabric tool	G. M. Wright	518,048	Apr. 10	1061	268	67	210
Wire-galvanizing apparatus	D. White and A. F. Lagerwall	518,381	Apr. 17	1652	408	67	334
Wire loops. Machine for forming	S. Swanbum	520,459	May 29	2650	640, 641	67	1089
Wire machine. Barb	H. Frick	519,037	May 1	160	38	67	367
Wire reel and stretcher	G. E. Dixon	519,789	May 15	1515	369	67	848
Wire-reeler	G. J. Cline	517,842	Apr. 10	703	178	67	151
Wire-stretcher	G. W. Hughs	518,406	Apr. 17	1685	417	67	341
Wire-stretcher	W. A. Lambert	519,456	May 8	931	225	67	730
Wire-stretching machine	J. J. Bettinger	520,818	June 5	113	25	67	1217
Wire-stripper	R. Sedgwick	520,617	May 29	2909	703, 704	67	1137
Wire-twisting machine	J. C. Petit	520,895	June 5	260	62	67	1245
Womb-battery	G. Staber	518,902	Apr. 24	2534	627	67	508
Wood-embossing machine	W. F. Hutchinson	518,247	Apr. 17	1401	351	67	289
Wood. Kindling	C. Howard	520,597	May 29	2881	697	67	1132
Wood. Vulcanizing	C. Howard	520,565	May 29	2829	683	67	1122
Wood. Vulcanizing and drying	E. T. Wheeler	517,909	Apr. 10	808	203	67	170
Wooden pipe	T. K. Parrish	518,158	Apr. 10	1229	309	67	240
Wooden vessels. Manufacture of	W. Lyon	518,529	Apr. 17	1494	469	67	378
Woodworking-machine	C. Seymour	521,185	June 12	769	180	67	1349
Woodworking-machine	A. Premo	521,346	June 12	1068	250	67	1405
Woodworking machinery. Anti-vibratory pressure-bar for	F. N. Turney	522,130	June 26	2443	588, 589	67	1693
Wool. Apparatus for extracting oil from	W. and A. W. Blackburn	519,625	May 8	1246	299	67	785
Wool-washing machine	G. L. P. Eyre and T. J. Hopkins	517,566	Apr. 3	244	57, 58	67	48
Wool-washing machine	D. H. Rice	521,817	June 26	1894	454	67	1591
Wool-washing machine	D. H. Rice	521,818	June 26	1896	454, 455	67	1592
Wool-washing machine	F. G. Sargent	521,823	June 26	1902	456, 457	67	1593
Work-holder	C. E. Blue	518,750	Apr. 24	2287	568	67	461
Work-holder	M. P. C. Hooper	517,860	Apr. 10	727	183	67	155
Working-barrel protector	C. E. Lasher, W. J. Webster, and D. L. Newton.	518,108	Apr. 10	1154	290	67	227
Wrapper or envelope	P. J. Ogle	519,158	May 1	394	95	67	613
Wrapping-machine	L. C. Crowell	517,440	Apr. 3	31	7, 8, 9	67	8
Wrapping machine. Newspaper	L. C. Crowell	517,441	Apr. 3	40	9, 10	67	9
Wrapping machine. Newspaper	L. C. Crowell	517,442	Apr. 3	44	10, 11	67	10

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr'g.	Vol.	Page.
Wrench:							
See Adjustable wrench. Nut-wrench.							
Chain-wrench. Pipe-wrench.							
Monkey-wrench. Pipe or nut wrench.							
Nipple-wrench. Tire-bolt wrench.							
Wrench	A. Bareis	521,076	June 5	578	136	67	1302
Wrench	W. C. Barr	521,428	June 12	1199	284	67	1430
Wrench	F. E. Burgevin	521,582	June 19	1483	347	67	1498
Wrench	C. Carlson	520,392	May 22	2538	613	67	1053
Wrench	T. E. Chatten	520,411	May 29	2568	621	67	1075
Wrench	K. A. Klose	520,529	May 29	2767	669	67	1110
Wrench	H. Krebs	520,689	May 29	3044	737	67	1162
Wrench	J. A. Lowe	518,041	Apr. 10	1051	266	67	209
Wrench	A. McCallum	521,123	June 5	656	154	67	1315
Wrench	T. Wheatley	520,099	May 22	2023	494	67	958
Wrench and pipe and thread cutter. Combined	R. Haberthür	521,265	June 12	910	215	67	1375
Wrench for pipes, rods, &c	C. Hall	521,312	June 12	996	234	67	1391
Wringer:							
See Clothes-wringer. Mop-wringer.							
Writing-machine	E. Griffin	518,499	Apr. 17	1843	457	67	369
Writing-machine	W. B. Wait	521,397	June 12	1142	270, 271	67	1420
Zinc from ores. Extracting	L. Klöz	518,890	Apr. 24	2514	622	67	504
Zinc. Producing metallic	P. C. Choate	518,711	Apr. 24	2219	553	67	449
Zinc. Producing metallic	P. C. Choate	518,732	Apr. 24	2259	561	67	456
Zither. Guitar	F. Menzenhauer	520,651	May 29	2961	716, 717	67	1147

ALPHABETICAL LIST OF DESIGNS.

Design.	Name.	No.	Date.	Official Gazette.	
				Volume.	Page.
Air-heater, &c	C. I. Dangler and H. Ruppel	23,277	May 15	67	922
Atomizer-top	C. F. Schrader	23,282	May 22	67	1057
Axle-box frame	W. S. Adams	23,278	May 15	67	922
Badge	J. K. Davison	23,379	May 22	67	1057
Badge	W. C. Finck	23,342	June 12	67	1439
Badge	J. Wood	23,235	May 1	67	669
Banner-holder	T. Günsel	23,258	May 8	67	806
Bath-tub leg	W. C. Peet	23,351	June 12	67	1440
Bicycle-frame	F. G. Stark	23,395	June 19	67	1566
Billiard-table	M. Beusinger	23,221	Apr. 24	67	522
Bonbon	W. M. Lowney	23,400	June 26	67	1714
Boot	B. Nathan	23,234	May 1	67	669
Bottle	D. F. Davids	23,274	May 15	67	921
Bottle	A. Dryfoos	23,240	May 1	67	670
Bottle	W. L. Juhring	23,352	June 12	67	1440
Bottle	W. L. Juhring	23,380	June 19	67	1564
Bottle	C. H. Lee	23,399	June 26	67	1714
Bottle	G. Lloyd	23,174	Apr. 10	67	263
Bottle	B. I. Mott	23,275	May 15	67	921
Bottle	C. A. Tatum	23,381	June 19	67	1564
Bottle-stopper	C. A. Tatum	23,175	Apr. 10	67	263
Bottle-stopper	C. A. Tatum	23,176	Apr. 10	67	263
Bowl or similar article	H. Berry	23,313	May 29	67	1183
Bowl or similar article	H. Berry	23,314	May 29	67	1183
Bowl or similar article	H. Berry	23,315	May 29	67	1183
Box	S. W. Babbitt	23,312	May 29	67	1183
Box	A. J. Roscoe	23,191	Apr. 10	67	265
Box. Fancy	E. Jansen	23,330	June 5	67	1323
Bracket	S. H. Randall	23,223	Apr. 24	67	522
Braid	V. G. Schuck	23,186	Apr. 10	67	265
Braid	V. G. Schuck	23,208	Apr. 24	67	520
Brooch	W. Durand	23,368	June 19	67	1563
Brooch	W. Durand	23,369	June 19	67	1563
Brooch	W. Durand	23,370	June 19	67	1563
Brooch	W. Durand	23,371	June 19	67	1563
Brooch	W. Durand	23,372	June 19	67	1563
Brooch	W. Durand	23,373	June 19	67	1563
Brooch	W. Durand	23,374	June 19	67	1563
Brooch	W. Durand	23,375	June 19	67	1563
Brooch	W. Durand	23,376	June 19	67	1563
Brooch	W. Durand	23,377	June 19	67	1563
Brooch	W. Durand	23,378	June 19	67	1563
Brooch	W. Durand	23,398	June 26	67	1714
Brooder	E. Barney	23,168	Apr. 3	67	133
Brush. Hat-	A. S. Miles	23,367	June 19	67	1562
Brushes, &c. Back of	G. W. Shiebler	23,331	June 5	67	1323
Bucklo	G. M. Aylesworth	23,343	June 12	67	1439
Cabinet	F. G. Shoudy	23,219	Apr. 24	67	521
Cabinet	F. G. Shoudy	23,220	Apr. 24	67	522
Candelabrum-pedestal	C. C. Wientge	23,181	Apr. 10	67	264
Car-body	J. Commerford	23,206	Apr. 17	67	395
Card back. Playing-	J. Omwake	23,238	May 1	67	669
Carpet	W. F. Brown	23,207	Apr. 24	67	520
Carpet	W. F. Brown	23,261	May 15	67	919
Carpet	H. Horan	23,233	May 1	67	669
Carpet	W. L. Jacobs	23,231	May 1	67	668
Carpet	G. Marchetti	23,362	June 12	67	1441
Carpet	G. Marchetti	23,363	June 12	67	1442
Carpet	A. M. Rose	23,262	May 15	67	919
Carpet	E. G. Sauer	23,232	May 1	67	669
Carpet button. Stair-	R. H. Warren and D. Walker	23,347	June 12	67	1439
Cigar-bunch	E. Fischer	23,220	Apr. 24	67	523
Clasp for garment-supporters	E. D. Candee	23,332	June 5	67	1323
Clothes-line holder	J. Hoffmann and E. C. Hoffman	23,321	May 29	67	1184
Clothes-pounder	H. W. Potteiger and W. A. Kohman	23,357	June 12	67	1441
Coin-controlled-machine case	G. Sittmann and W. H. Pitt	23,190	Apr. 10	67	265
Cooler or refrigerator	J. A. Flesch	23,179	Apr. 10	67	263
Coupon	W. B. Bryan, I. M. Moore, and T. Meade.	23,397	June 26	67	1714
Cup	M. Redon	23,280	May 22	67	1057
Cup	M. Redon	23,281	May 22	67	1057
Dental cabinet	W. G. Hullhorst	23,189	Apr. 10	67	265
Desk and seat	J. C. Gooding	23,248	May 1	67	671
Dial	G. E. Stoneburner	23,188	Apr. 10	67	265
Dish. Cover-	W. Bloore	23,251	May 8	67	805
Dish. Covered	M. Redon	23,213	Apr. 24	67	520
Door. Screen-	E. M. Kemp	23,338	June 5	67	1325
Door frame. Screen-	W. B. Phillips	23,319	May 29	67	1184
Eaves-trough	S. Silberstein	23,247	May 1	67	671
Electric-wire fastening	H. Hubbell	23,322	May 29	67	1185
Emery-wheel dresser	A. Bender	23,323	May 29	67	1185

Alphabetical list of designs, April to June, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Ewer, &c	H. Brunt	23,354	June 12	67	1440
Feed-trough	J. G. Davis	23,396	June 19	67	1566
Ferrule	H. A. Curtiss	23,344	June 12	67	1439
Finger-ring	W. O. Hutchins	23,210	Apr. 24	67	520
Finishing-plate	E. A. Langenbach	23,358	June 12	67	1441
Fire-kindler holder	P. J. Harrah	23,355	June 12	67	1440
Fire-screen	J. A. L. Gist	23,337	June 5	67	1324
Fire-scraper	W. J. Osterman	23,173	Apr. 10	67	263
Glass-board	G. H. Wildsmith	23,360	June 12	67	1441
Gas-cock key	E. Lindner	23,225	Apr. 24	67	523
Glass vessel	J. D. Bergen	23,316	May 29	67	1183
Glass vessel	J. D. Bergen	23,317	May 29	67	1184
Glass vessels. Ornamentation of	B. Davies	23,252	May 8	67	805
Glass vessels. Ornamentation of	B. Davies	23,253	May 8	67	805
Glass vessels. Ornamentation of	B. Davies	23,254	May 8	67	806
Hammer	Z. Duchemin	23,169	Apr. 3	67	133
Hammock	I. E. Palmer	23,302	May 22	67	1059
Hammock	I. E. Palmer	23,303	May 22	67	1059
Hammock	I. E. Palmer	23,304	May 22	67	1060
Hammock	I. E. Palmer	23,305	May 22	67	1060
Hammock	I. E. Palmer	23,306	May 22	67	1060
Hammock	I. E. Palmer	23,307	May 22	67	1060
Hammock	I. E. Palmer	23,308	May 22	67	1060
Hammock	I. E. Palmer	23,309	May 22	67	1060
Hammock	I. E. Palmer	23,349	June 12	67	1439
Hammock-hook	I. E. Palmer	23,350	June 12	67	1439
Hammock-hook	J. M. Andersen	23,244	May 1	67	670
Hanger	J. M. Andersen	23,245	May 1	67	670
Hanger	J. M. Andersen	23,246	May 1	67	670
Hanger	H. Kerngood	23,255	May 8	67	806
Hasp for garment fasteners	A. C. West	23,393	June 19	67	1566
Heater stand. Oil or gas	A. C. West	23,394	June 19	67	1566
Heater stand. Oil or gas	W. H. Hart	23,257	May 8	67	806
Hinge. Strap	W. H. Hart	23,402	June 26	67	1714
Hinge. Strap	H. Kerngood	23,256	May 8	67	806
Hook for garment-fasteners	J. B. Merkels and M. Bievesh	23,242	May 1	67	670
Key-ring and guard. Combined	R. S. Graham and W. B. Savell	23,197	Apr. 17	67	394
Key-top	R. S. Graham and W. B. Savell	23,198	Apr. 17	67	394
Key-top	H. A. Curtiss	23,345	June 12	67	1439
Knife or fork cap	J. H. Giles	23,187	Apr. 10	67	265
Knit shirt	J. K. Fletcher	23,230	May 1	67	668
Lace fabric	A. Watney	23,185	Apr. 10	67	264
Lace fabric	A. Watney	23,260	May 15	67	919
Lace fabric	L. J. Atwood	23,404	June 26	67	1715
Lamp-burner	F. Yokel	23,276	May 15	67	921
Lamp-fount	A. J. Fondeville	23,177	Apr. 10	67	263
Lamp-shade	W. S. Grey	23,329	June 5	67	1323
Lamp-stand	A. Hanke	23,403	June 26	67	1714
Lemon-squeezer handle	J. Van Vleck	23,293	May 22	67	1058
Measuring-instruments. Case for electrical	J. Van Vleck	23,294	May 22	67	1059
Measuring-instruments. Case for electrical	J. Van Vleck	23,295	May 22	67	1059
Measuring-instruments. Case for electrical	J. Van Vleck	23,296	May 22	67	1059
Measuring-instruments. Case for electrical	J. Van Vleck	23,297	May 22	67	1059
Measuring-instruments. Case for electrical	J. Van Vleck	23,298	May 22	67	1059
Measuring-instruments. Case for electrical	J. Van Vleck	23,299	May 22	67	1059
Measuring-instruments. Case for electrical	J. Van Vleck	23,300	May 22	67	1059
Measuring-instruments. Case for electrical	J. Van Vleck	23,301	May 22	67	1059
Measuring-instruments. Case for electrical	E. Weston	23,287	May 22	67	1058
Measuring-instruments. Case for electrical	E. Weston	23,288	May 22	67	1058
Measuring-instruments. Case for electrical	E. Weston	23,289	May 22	67	1058
Measuring-instruments. Case for electrical	E. Weston	23,290	May 22	67	1058
Measuring-instruments. Case for electrical	E. Weston	23,291	May 22	67	1058
Measuring-instruments. Case for electrical	E. Weston	23,292	May 22	67	1058
Measuring-instruments. Case for electrical	R. Cederstrom	23,383	June 19	67	1564
Measuring-vessel	E. A. Langenbach	23,224	Apr. 24	67	523
Metallic finishing-plate	E. A. Langenbach	23,283	May 22	67	1057
Metal finishing-plate	S. W. Babbitt	23,241	May 1	67	670
Metal vessel	J. F. Lockwood	23,201	Apr. 17	67	394
Mirror-frame	L. Von Grave	23,384	June 19	67	1564
Mirror-frame, &c	C. Clandy	23,365	June 12	67	1442
Monument	J. H. Lloyd	23,193	Apr. 10	67	266
Monument	W. H. Perry	23,228	Apr. 24	67	523
Monument	W. H. Perry	23,340	June 5	67	1325
Monument	W. H. Perry	23,364	June 12	67	1442
Monument	W. H. Perry	23,405	June 26	67	1715
Monument	W. H. Perry	23,406	June 26	67	1715
Monument	M. Redgrave	23,239	May 1	67	669
Musical instrument	A. Newell	23,166	Apr. 3	67	132
Musical-instrument key	C. Gulden	23,382	June 19	67	1564
Packing-jar	C. Schlaepfer	23,165	Apr. 3	67	132
Pattern for textile fabrics	F. McIntyre	23,211	Apr. 24	67	520
Pencil. Lead	F. McIntyre	23,212	Apr. 24	67	520
Pencil. Lead	R. Golde	23,183	Apr. 10	67	264
Picture-frame	R. Golde	23,184	Apr. 10	67	264
Picture-frame	R. Golde	23,249	May 8	67	804
Picture-frame	W. F. Lambert	23,284	May 22	67	1057
Picture-frame	C. F. Mosman	23,388	June 19	67	1565
Picture-frame	L. Von Grave	23,215	Apr. 24	67	521
Picture-frame	L. Von Grave	23,216	Apr. 24	67	521
Picture-frame	L. Von Grave	23,217	Apr. 24	67	521
Picture-frame	L. Von Grave	23,218	Apr. 24	67	521
Picture-frame	L. Von Grave	23,385	June 19	67	1564
Picture-frame, &c	L. Von Grave	23,386	June 19	67	1564
Picture-frame, &c	L. Von Grave	23,387	June 19	67	1565

Alphabetical list of designs, April to June, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Pitcher, &c	J. Barlow and J. M. Pope	23,353	June 12	67	1440
Preserving-vault	W. Walker	23,167	Apr. 3	67	133
Puzzle-body	F. H. Yost	23,359	June 12	67	1441
Rack	W. W. Ensign	23,200	Apr. 17	67	394
Rack	C. C. Wientge	23,333	June 5	67	1323
Racks. Back plate for	C. C. Wientge	23,389	June 19	67	1565
Radiator	J. F. McElroy	23,339	June 5	67	1325
Radiator	C. F. Walther	23,361	June 12	67	1441
Razor-strop	F., R., and O. Kampfe	23,401	June 26	67	1714
Sap-spout	A. M. Foster	23,392	June 19	67	1566
Scale beam. Letter	J. E. Withrow	23,335	June 5	67	1324
Screw	W. E. Quimby	23,336	June 5	67	1324
Shoe	S. W. West	23,366	June 12	67	1442
Shoe-stand	M. Landau and A. Traxler	23,192	Apr. 10	67	266
Silversmith's stock	G. L. Crowell, Jr	23,327	June 5	67	1323
Silversmith's stock	G. L. Crowell, Jr	23,328	June 5	67	1323
Slab-support	J. Totham	23,334	June 5	67	1324
Spoon	H. H. Cabot	23,194	Apr. 17	67	394
Spoon	H. H. Cabot	23,195	Apr. 17	67	394
Spoon	G. E. Homer	23,379	June 19	67	1563
Spoon	G. Rockwell	23,196	Apr. 17	67	394
Spoon	C. C. Thompson	23,310	May 29	67	1182
Spoon, fork, &c	S. Smith	23,163	Apr. 3	67	132
Spoon, fork, or similar article	S. Smith	23,326	June 5	67	1323
Spoons, &c. Handle for	E. W. Campbell	23,263	May 15	67	919
Spoons, &c. Handle for	J. Clulee	23,171	Apr. 10	67	263
Spoons, &c. Handle for	W. C. Codman	23,311	May 29	67	1183
Spoons, &c. Handle for	G. A. Mueller	23,170	Apr. 10	67	262
Spoons, &c. Handle for	C. Osborne	23,209	Apr. 24	67	520
Spoons, &c. Handle for	G. Rockwell	23,172	Apr. 10	67	263
Standard. Pronged	F. Ratcliff	23,182	Apr. 10	67	264
Strainer. Sink	L. Pickard	23,199	Apr. 17	67	394
Table-top slab	J. C. Miller	23,285	May 22	67	1058
Table-top slab	J. C. Miller	23,286	May 22	67	1058
Table-top slab	J. C. Miller	23,318	May 29	67	1184
Table-top slab	F. Yokel	23,180	Apr. 10	67	263
Table-top slab	T. Yokel	23,202	Apr. 17	67	395
Table-top slab	T. Yokel	23,203	Apr. 17	67	395
Table-top slab	T. Yokel	23,204	Apr. 17	67	395
Table-top slab	T. Yokel	24,205	Apr. 17	67	395
Tassel. Shade	J. O. Remington	23,259	May 15	67	919
Threshold-plate	W. F. Richards	23,390	June 19	67	1565
Tile	W. B. Hayden	23,391	June 19	67	1565
Tool-handle	E. Todd, Jr	23,346	June 12	67	1439
Toy-cap exploder	C. A. Hotchkiss	23,356	June 12	67	1440
Trimming	C. E. Hertlein	23,325	June 5	67	1322
Trolley-wire clip	W. F. D. Crane	23,243	May 1	67	670
Trowel, Garden	H. Brand	23,226	Apr. 24	67	523
Trunk-fastener	J. H. McNamara	23,178	Apr. 10	67	263
Type. Font of printing	H. Ihlenburg	23,164	Apr. 3	67	132
Type-border	E. B. Fox	23,341	June 12	67	1439
Vase	G. C. Siebert	23,214	Apr. 24	67	520
Vases, &c. Support for	A. Wauner, Jr	23,250	May 8	67	805
Vault-light lens	P. Schwickart	23,348	June 12	67	1439
Washstand. Table	R. W. Emerson	23,222	Apr. 24	67	522
Watchcase	W. Durand	23,236	May 1	67	669
Watchcase	W. Durand	23,237	May 1	67	669
Watchcase	W. Durand	23,264	May 15	67	920
Watchcase	W. Durand	23,265	May 15	67	920
Watchcase	W. Durand	23,266	May 15	67	920
Watchcase	W. Durand	23,267	May 15	67	920
Watchcase	W. Durand	23,268	May 15	67	920
Watchcase	W. Durand	23,269	May 15	67	920
Watchcase	W. Durand	23,270	May 15	67	921
Watchcase	W. Durand	23,271	May 15	67	921
Watchcase	W. Durand	23,272	May 15	67	921
Watchcase	W. Durand	23,273	May 15	67	921
Water-conductor	S. Silberstein	23,227	Apr. 24	67	523
Woven fabric	W. T. Smith	23,324	June 5	67	1322

ALPHABETICAL LIST OF TRADE-MARKS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Accordions	W. Spaethe	24,909	June 26	67	1716
Agate beads and buttons	F. Bapterosses & Cie	24,438	Apr. 3	67	134
Agricultural machines and their parts	Richardson Manufacturing Company	24,697	May 8	67	810
Ammunition	Peters Cartridge Company	24,609	Apr. 24	67	528
Anestho-anodynes	Gary & Christopher	24,687	May 8	67	809
Antipyretic and anodyne powders for headache and neuralgia	F. A. Wheeler	24,867	June 12	67	1445
Antiseptic powder	B. L. Maltbie	24,925	June 26	67	1717
Antiseptic surgeons' dressing	Johnson & Johnson	24,831	June 5	67	1328
Axes and other tools	Collins Company	24,802	May 29	67	1188
Axles. Vehicle	Cleveland Axle Manufacturing Company.	24,836	June 5	67	1328
Bacon	Anglo-American Provision Company.	24,668	May 8	67	808
Baking-powder	Big Wheel Company	24,716	May 15	67	924
Baking-powder	Pasquier & Stankard	24,855	June 12	67	1444
Baking-powder	Scudder-Gale Grocer Company	24,856	June 12	67	1444
Baking-powder	F. W. Young	24,857	June 12	67	1444
Balm or cosmetic	Lyon Manufacturing Co	24,590	Apr. 24	67	526
Balsams and ointment	Clover Medicine Company	24,757	May 22	67	1063
Beef, mutton, veal, pork, ham, sausage, and cured meats	Emil Winter Company	24,753	May 22	67	1062
Beef-juice	J. Wyeth & Bro	24,667	May 8	67	808
Beer. Lager	Bartholomay Brewery Company	24,915	June 20	67	1716
Beer. Lager	Christian Moerlein Brewing Company.	24,502	Apr. 10	67	269
Beer. Lager	J. Conrad	24,852	June 12	67	1444
Beer. Lager	Firm of Isaac Leisy	24,449	Apr. 3	67	135
Beer. Lager	Standard Brewery	24,636	May 1	67	673
Beer. Lager	W. A. Weber	24,660	May 8	67	807
Belt stud or fastener	C. A. Binz and F. M. Linderman	24,835	June 5	67	1328
Belts and wearing appliances. Electric	Owen Electric Belt and Appliance Company.	24,778	May 29	67	1187
Bicycles	E. K. Tryon, Jr., & Co	24,880	June 12	67	1446
Bicycles, tricycles, velocipedes, and parts thereof	Birmingham Small Arms and Metal Company.	24,732	May 15	67	926
Bicycles, velocipedes, their parts and attachments	C. B. Clark	24,613	Apr. 24	67	528
Biscuit. Celery	S. B. Clark	24,455	Apr. 3	67	135
Blacking, dressing, and rubber and leather cement for boots and shoes.	Laing, Son & Harrar	24,477	Apr. 3	67	138
Blood-purifier and liver and kidney regulator	I. E. Zimmerman	24,466	Apr. 3	67	137
Blood-purifiers	J. T. Farrell	24,784	May 29	67	1187
Blood-purifying herb teas	Weber's Medical Tea Co	24,783	May 29	67	1187
Boilers. Compound for removing scale from	W. M. Plantz & Co	24,849	June 12	67	1444
Boilers. Compound to remove and prevent scale on	R. Puhlman	24,825	June 5	67	1327
Boilers. Heating and power	Howe, Hopkins & Bassett	24,564	Apr. 17	67	400
Bonbons and chewing-gum	Royal Remedy and Extract Company.	24,844	June 12	67	1443
Books. Pass	W. J. Darrow Publishing Co	24,774	May 29	67	1186
Boots and shoes	W. H. Fearey	24,441	Apr. 3	67	134
Boots and shoes	W. H. Fearey	24,442	Apr. 3	67	134
Boots and shoes	Terry, Ware & Alley	24,634	May 1	67	673
Boots and shoes	Versteeg-Grant Shoe Company	24,528	Apr. 17	67	396
Boots and shoes. Leather	B. A. Corbin & Son	24,570	Apr. 24	67	524
Boots and shoes. Leather	J. B. Lewis Company	24,615	May 1	67	672
Boots and shoes. Men's	Regal Shoe Co	24,706	May 15	67	923
Braces, bolts, nails, screws, washers, fastenings, and similar articles of builders' hardware.	Stanley Tool Works	24,562	Apr. 17	67	399
Brandy. Cognac	Moullon & Cie	24,532	Apr. 17	67	307
Brandy. Cognac	Moullon & Cie	24,533	Apr. 17	67	397
Bread	J. H. Althans	24,862	June 12	67	1445
Bread. Loaves of	Probst & Schomaker	24,509	Apr. 10	67	269
Brushes. Hair and clothes	Florence Manufacturing Company	24,527	Apr. 17	67	396
Building, paving, and insulating composition	A. P. McKean	24,478	Apr. 3	67	138
Butter	N. C. Skilton & Co	24,750	May 22	67	1062
Butterine	Wilkins & Company	24,462	Apr. 3	67	136
Buttons made of wood, ivory, and metal, and cloth-covered buttons.	N. C. Newell	24,886	June 19	67	1567
Candies and sweetmeats	Callard & Bowser	24,507	Apr. 10	67	269
Canned and hermetically-sealed goods	M. J. Boyer	24,461	Apr. 3	67	136
Canned and preserved fruits and vegetables	Reeves, Parvin & Co	24,918	June 26	67	1716
Canned lobster	Burnham & Morrill Company	24,459	Apr. 3	67	136
Canvas, hose-duck, awning-stripes, sail-duck, sail-twine, seine-twine, sewing-twine, and thread.	Greenwoods Company	24,521	Apr. 10	67	270
Capsules, pills, and medicated jujubes	Warrick Brothers	24,689	May 8	67	809
Cartridges. Paper-shell	Winchester Repeating Arms Company.	24,764	May 22	67	1063
Cartridges. Paper-shell	Winchester Repeating Arms Company.	24,765	May 22	67	1063
Cassimeres	Reynolds Manufacturing Company	24,885	June 19	67	1567
Catsup. Tomato	Anderson Preserving Company	24,508	Apr. 10	67	269
Catsup. Tomato	J. Reitzel & Co	24,577	Apr. 24	67	525

Alphabetical list of trade-marks, April to June, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Celery-seed and fluid extract of sarsaparilla. Liquid compound of	King's Medicine Company	24,627	May 1	67	673
Cement and asphalt blocks and slabs for walks and floors	Simpson Brothers Company	24,931	June 26	67	1718
Cement. Builders'	J. W. Palmer	24,605	Apr. 24	67	527
Cement. Builders'	J. W. Palmer	24,606	Apr. 24	67	527
Cement. Builders'	J. W. Palmer	24,607	Apr. 24	67	527
Cement, lime, and plaster-of-paris	Union Cement and Lime Company	24,649	May 1	67	674
Cement, lime, or plaster-of-paris	Union Cement and Lime Company	24,608	Apr. 24	67	528
Cement. Portland	H. & E. Lion	24,906	June 19	67	1569
Cement. Portland	Société Anonyme Union Fraternelle	24,930	June 26	67	1717
Certain named specialties	Dittman & Krug	24,763	May 22	67	1063
Chains. Watch and locket	D. F. Briggs Co	24,709	May 15	67	923
Chairs. Reclining	Allen & Bro	24,699	May 8	67	810
Chamois-skin. Imitation	American Fibre Chamois Company	24,656	May 8	67	807
China. French	T. Haviland	24,773	May 29	67	1186
China, including plumbers' and toilet ware. Vitreous	Maryland Pottery Company of Baltimore City.	24,876	June 12	67	1446
China, including plumbers' and toilet ware. Vitreous	Maryland Pottery Company of Baltimore City.	24,877	June 12	67	1446
China, including plumbers' and toilet ware. Vitreous	Maryland Pottery Company of Baltimore City.	24,932	June 26	67	1718
China, including plumbers' and toilet ware. Vitreous	Maryland Pottery Company of Baltimore City.	24,933	June 26	67	1718
Chocolate creams, caramels, and candies	Darby Manufacturing Company of Baltimore City.	24,575	Apr. 24	67	524
Chocolates and cocoas	Russ-Suchard et Cie	24,853	June 12	67	1444
Cigars	B. E. Cady	24,515	Apr. 10	67	270
Cigars, all-tobacco cigarettes, cheroots, smoking, chewing, and leaf tobacco and snuff.	S. Hernsheim Bros. & Co	24,447	Apr. 3	67	135
Cigars, all-tobacco cigarettes, cheroots, smoking, chewing, and leaf tobacco and snuff.	S. Hernsheim Bros. & Co	24,448	Apr. 3	67	135
Cigars and cigarettes	M. Gulrand	24,664	May 8	67	807
Cigars and cigarettes	Manchester Cigar Manufacturing Co.	21,914	June 26	67	1716
Cigarettes	W. P. Ward	24,887	June 19	67	1567
Clasp for securing underclothing. Metal	F. G. Davis	24,437	Apr. 3	67	134
Cleaning and polishing preparations. Metal and glass	S. T. Cobb, Jr	24,684	May 8	67	809
Cloth or canvas backed leather	F. H. Atwood	24,815	June 5	67	1327
Coal. Bituminous	New Pittsburgh Coal Company	24,519	Apr. 10	67	270
Coal-saver. Chemical	Household Friend Company	24,850	June 12	67	1444
Cocktails and punch	W. H. Jones & Co	24,739	May 22	67	1061
Coffee	F. W. Dallinger	24,917	June 26	67	1716
Coffee	Union Pacific Tea Company	24,854	June 12	67	1444
Coffee	Woolson Spice Company	24,451	Apr. 3	67	135
Coffee and tea	Shapleigh Coffee Company	24,504	Apr. 10	67	269
Coffee. Essence for use with	G. Floto's Sons	24,503	Apr. 10	67	269
Cognac	J. Cukor	24,626	May 1	67	672
Coin controlled and operated machines and apparatus	C. C. Clawson	24,772	May 22	67	1064
Condition-powders	W. G. Tilghman	24,756	May 22	67	1062
Confectioners' oil dressing	Chesapeake Oil Co	24,547	Apr. 17	67	398
Confectionery	Callard & Bowser	24,620	May 1	67	672
Confections. Sugar and licorice	M. Michaelis & Sons	24,453	Apr. 3	67	135
Corn-plasters, nervines, cough mixtures, headache-powders, and cod-liver oil.	C. A. Drefs	24,598	Apr. 24	67	526
Corn-starch	T. Kingsford	24,715	May 15	67	924
Corset steels and clasps	Worcester Corset Company	24,490	Apr. 10	67	267
Corset-waists	E. Pohl & Co	24,440	Apr. 3	67	134
Corsets	Worcester Corset Company	24,489	Apr. 10	67	267
Corsets and waists	G. D. Nichols	24,912	June 26	67	1716
Corsets. Ladies'	Worcester Corset Company	24,614	May 1	67	673
Corsets, waists, dress-stays, bustles, and bust-forms	Coronet Corset Company	24,704	May 15	67	923
Cotton dress goods and shirtings	Cone Export and Commission Company.	24,812	June 5	67	1326
Cotton dress goods and shirtings	Cone Export and Commission Company.	24,813	June 5	67	1326
Cotton fabrics	Amoskeag Manufacturing Company	24,884	June 19	67	1567
Cotton goods	Bernheimer & Walter	24,702	May 15	67	923
Cotton goods. Woven	Massachusetts Cotton Mills	24,775	May 29	67	1186
Cotton plaids and stripes	Eagle and Phenix Manufacturing Company.	24,839	June 12	67	1443
Cough-drops	J. F. Beane	24,470	Apr. 3	67	137
Cough sirups	B. H. Goll	24,758	May 22	67	1063
Crackers and biscuits	American Biscuit and Manufacturing Company.	24,818	June 5	67	1327
Cream of tartar	John Bird Company	24,858	June 12	67	1444
Crème de menthe	E. Cusenier Fils Aîné & Compagnie	24,642	May 1	67	674
Cure for the heaves in horses	P. Schuelk	24,834	June 5	67	1328
Cure. Pile	Pyramid Drug Co	24,597	Apr. 24	67	526
Cutlery and carpenters', machinists', and farmers' tools and hardware.	Beck & Gregg Hardware Company	24,935	June 26	67	1718
Cutlery. Certain named	Dunham, Carrigan & Hayden Company.	24,610	Apr. 24	67	528
Cutlery. Pocket	Southington Cutlery Company	24,694	May 8	67	810
Cycles	Telegram Cycle Manufacturing Company.	24,700	May 8	67	810
Denims. Blue	Massachusetts Cotton Mills	24,655	May 8	67	807
Dental preparations	J. A. Bermudez	24,846	June 12	67	1444
Detergent. Liquid	V. Belikan	24,632	May 1	67	673
Dentifrice	L. J. de Carballo	24,640	May 1	67	674
Disinfectants	Read Holliday & Sons	24,633	May 1	67	673
Disinfectants	Read Holliday & Sons	24,650	May 1	67	674
Doeskin jeans	Reynolds Manufacturing Co	24,911	June 26	67	1716
Dress-shields. Seamless stockinet	I. B. Kleinert Rubber Company	24,703	May 15	67	923
Edibles. Certain named	G. H. Hammond Company	24,579	Apr. 24	67	525

Alphabetical list of trade-marks, April to June, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Electrical instruments for measuring current, potential, and resistance.	Queen & Company	24,566	Apr. 17	67	400
Evaporated carrots, parsnips, rutabagas, turnips, and food products made therefrom.	E. Straus	24,511	Apr. 10	67	269
Extracts. Flavoring and perfuming	C. S. Netter	24,545	Apr. 17	67	398
Extracts for culinary purposes. Flavoring	Big Wheel Company	24,717	May 15	67	924
Eye-water	A. E. Brady	24,538	Apr. 17	67	397
Face-powder	H. Tetlow	24,588	Apr. 24	67	526
Faucets	E. Stebbins Manufacturing Company.	24,804	May 29	67	1188
Fertilizers	Emil Winter Company	24,762	May 22	67	1063
Fiber, leather-board, leatheroid, and trunks and other articles made therefrom.	J. Cummings, Son & Co	24,843	June 12	67	1443
Firearms	Wiebusch & Hilger	24,646	May 1	67	674
Firearms	Wiebusch & Hilger	24,647	May 1	67	674
Fish and meat packed in tin cans	J. O. Hauthorn & Co	24,400	Apr. 3	67	136
Flour	F. E. Smith	24,859	June 12	67	1444
Flour and prepared cereals	Farwell & Rhines	24,919	June 26	67	1717
Flour, oatmeal, and crushed cereals	E. Elsworth & Co	24,551	Apr. 17	67	398
Flour, oatmeal, parched wheat, and other cereal foods	J. B. A. Kern & Sons	24,456	Apr. 3	67	135
Flour. Wheat	H. W. Bond	24,581	Apr. 24	67	525
Flour. Wheat	Cleveland Baking Powder Company	24,637	May 1	67	673
Flour. Wheat	S. Green	24,552	Apr. 17	67	398
Flour. Wheat	S. Green	24,746	May 22	67	1062
Flour. Wheat	S. Green	24,747	May 22	67	1062
Flour. Wheat	S. Green	24,748	May 22	67	1062
Flour. Wheat	S. Green	24,749	May 22	67	1062
Flour. Wheat	W. Johnston	24,861	June 12	67	1445
Flour. Wheat	Kunhardt & Co	24,638	May 1	67	673
Flour. Wheat	Kunhardt & Co	24,860	June 12	67	1445
Flour. Wheat	Kunhardt & Co	24,890	June 19	67	1568
Flour. Wheat	Minkota Milling Company	24,582	Apr. 24	67	525
Flour. Wheat	A. F. Roberts & Co	24,583	Apr. 24	67	525
Flour. Wheat	A. M. Seixax	24,793	May 29	67	1188
Flour. Wheat	A. M. Seixax	24,794	May 29	67	1188
Flour. Wheat	Sparks Milling Company	24,891	June 19	67	1568
Flour. Wheat	Thompson Milling Company	24,553	Apr. 17	67	398
Flour. Wheat	R. C. Williams & Company	24,892	June 19	67	1568
Food products. Certain named	L. Rosenstein	24,578	Apr. 24	67	525
Fruits. Dried and preserved	Silvermann & Co	24,488	Apr. 10	67	267
Garters, hose-supporters, and sleeve-holders	M. Michaelis & Sons	24,889	June 19	67	1567
Gelatine	J. A. Hearn & Son	24,567	Apr. 24	67	524
Ginghams	Chambers Glass Company	24,559	Apr. 17	67	399
Glass. Plain, ground, or chipped sheet	Chambers Glass Company	24,560	Apr. 17	67	399
Glass. Plain, ground, or chipped sheet	Chambers Glass Company	24,561	Apr. 17	67	399
Glass. Plain, ground, or chipped sheet	Chambers Glass Company	24,558	Apr. 17	67	399
Glass. Plain or ground sheet	Leslie E. Keeley Company	24,464	Apr. 3	67	136
Gold cure for opium, whisky, and tobacco habits and nervous diseases.	Emil Winter Company	24,928	June 26	67	1717
Grease and oils. Animal	Cleveland Gum Company	24,666	May 8	67	808
Gum. Chewing	Faultless Chemical Company	24,741	May 22	67	1061
Gum. Chewing	A. F. Levi	24,888	June 19	67	1567
Gum. Chewing	L. C. Olds	24,754	May 22	67	1062
Hair-grower	Lyon Manufacturing Co	24,591	Apr. 24	67	526
Hair. Preparation for the	F. E. Boatwick	24,791	May 29	67	1187
Hair-restoratives	Anglo-American Provision Company.	24,669	May 8	67	808
Hams	Anglo-American Provision Company.	24,670	May 8	67	808
Hams	Anglo-American Provision Company.	24,671	May 8	67	808
Hams	Anglo-American Provision Company.	24,672	May 8	67	808
Hams	Anglo-American Provision Company.	24,673	May 8	67	808
Hams and sausages	Anglo-American Provision Company.	24,752	May 22	67	1062
Hams and side meats	J. C. Covert	24,879	June 12	67	1446
Harness-snaps	M. Furrer	24,487	Apr. 10	67	267
Hats and bonnets and trimmings thereon. Ladies'	J. Marshall	24,808	June 5	67	1326
Hats and caps. Men's	J. Marshall	24,809	June 5	67	1326
Hats and caps. Men's	M. Kurzman & Son	24,837	June 12	67	1443
Hats. Straw	E. C. Fitz	24,937	June 26	67	1718
Heaters, furnaces, ranges, and stoves, and parts of and appliances for the same.	Anglo-American Provision Company.	24,457	Apr. 3	67	135
Hog and beef products, including lard and tallow	Anglo-American Provision Company.	24,458	Apr. 3	67	136
Hog and beef products, including lard and tallow	Barnard, Sumner & Putnam Company.	24,568	Apr. 24	67	524
Hosiery	Lowell Hosiery Company	24,806	June 5	67	1326
Hosiery and underwear	H. H. Collins	24,601	Apr. 24	67	527
Ink-erasing fluid	A. Thurmayr	24,586	Apr. 24	67	525
Insect-powders	O. H. Jadwin	24,475	Apr. 3	67	137
Insecticides	Howe & French	24,492	Apr. 10	67	268
Isinglass of a gelatinous nature	Howe & French	24,493	Apr. 10	67	268
Isinglass of a gelatinous nature	H. R. Benedict	24,524	Apr. 17	67	396
Jewelry ornamented with precious stones, diamonds excepted	Winzer & Wecker	24,569	Apr. 24	67	524
Knit underwear	J. J. Baily & Co	24,616	May 1	67	672
Knit underwear, gloves, hosiery, and neckwear	C. F. Boehringer & Söhne	24,643	May 1	67	674
Lactyl derivatives of paraphenetidin	A. Hemsley	24,907	June 19	67	1570
Lamp. Flash	Anglo-American Provision Company.	24,554	Apr. 17	67	399
Lard	Anglo-American Provision Company.	24,555	Apr. 17	67	399
Lard	Anglo-American Provision Company.	24,556	Apr. 17	67	399
Lard	Anglo-American Provision Company.	24,557	Apr. 17	67	399
Lard	Anglo-American Provision Company.	24,584	Apr. 24	67	525
Lard	Anglo-American Provision Company.	24,585	Apr. 24	67	525
Lard	Anglo-American Provision Company.	24,751	May 22	67	1062
Lard	Swift & Company	24,512	Apr. 10	67	269
Lard	Swift & Company	24,513	Apr. 10	67	269
Lard compound	Anglo-American Provision Company.	24,820	June 5	67	1327

Alphabetical list of trade-marks, April to June, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Lanterns. Bicycle	Bridgeport Brass Company	24,486	Apr. 10	67	267
Laxative	F. L. Taft Medical Co	24,924	June 26	67	1717
Leather beautifying and preserving preparation	E. H. Brown	24,518	Apr. 10	67	270
Leather belting and lace-leather	C. A. Schieren & Co	24,707	May 15	67	923
Leather cleaning and polishing preparation	E. H. Brown	24,517	Apr. 10	67	270
Leather-dressing	Jas. S. Mason Company	24,602	Apr. 24	67	527
Leather goods	J. B. Brooks & Co	24,657	May 8	67	807
Leather. Harness and saddlery	W. W. Mooney & Sons	24,708	May 15	67	923
Liniment	W. C. Johnson	24,537	Apr. 17	67	397
Liniment	Lyon Manufacturing Co	24,592	Apr. 24	67	526
Liniment	A. W. Wallace	24,691	May 8	67	810
Liniment for internal and external use	E. F. Kessler	24,790	May 29	67	1187
Liniments	M. Queenan	24,926	June 26	67	1717
Liniments	E. F. Watkins	24,474	Apr. 3	67	137
Liniments, ointments, and remedies for dyspepsia, chills, and lung troubles.	F. W. Peck & Co	24,472	Apr. 3	67	137
Liniments, worm-powders, and elixirs for diarrhea	F. E. Carter & C. S. Jones	24,471	Apr. 3	67	137
Lithographing purposes. Zinc plates for	Phoenix Litho Plate Company	24,934	June 26	67	1718
Lye. Powdered	G. T. Lewis	24,681	May 8	67	809
Lye. Powdered	G. T. Lewis	24,682	May 8	67	809
Machines, tools, and implements and parts thereof, consisting wholly or in part of forgings.	Billings & Spencer Company	24,771	May 22	67	1064
Matches	L. Rosenstein	24,683	May 8	67	809
Matches	L. Rosenstein	24,920	June 26	67	1717
Matches. Wooden and paper	American Safety-Head Match Company.	24,874	June 12	67	1446
Meats and lard. Cured	Minnesota Packing and Provision Company.	24,893	June 19	67	1568
Meat-softener in the form of a powder	A. E. Baird	24,463	Apr. 3	67	136
Medical compound for purifying the blood, an alterative, and tonic.	Mara Nova Tonic Co	24,595	Apr. 24	67	526
Medical compounds. Certain named	H. L. Partridge	24,497	Apr. 10	67	268
Medical preparations consisting of liquids, pills, tablets, plasters, lotions, salves, and dentifrice. Line of	F. A. Price	24,922	June 26	67	1717
Medicated distilled water	Kalish Pharmacy	24,499	Apr. 10	67	268
Medicated soaps and plasters and remedies for diseases of the blood, skin, and nerves.	E. F. Hanson	24,631	May 1	67	673
Medicated wine	W. C. Bevan & Co	24,625	May 1	67	672
Medicinal and chemical compounds. Certain named	C. F. Boehringer & Söhne	24,869	June 12	67	1445
Medicinal beverages. Carbonated tonic	G. D. Dowa & Company	24,898	June 19	67	1568
Medicinal compound for the prevention and cure of diphtheria.	A. W. De Jean	24,498	Apr. 10	67	268
Medicinal lozenges or tablets	California Eucalyptus Co	24,789	May 29	67	1187
Medicinal preparation for the cure of coughs, consumption, summer complaint, and kidney diseases.	Fisher & Fairbanks	24,899	June 19	67	1569
Medicinal preparations for the hair and scalp	Excelsior Manufacturing Company	24,897	June 19	67	1568
Medicinal strengthening-plaster	Johnson & Johnson	24,830	June 5	67	1328
Medicinal strengthening-plasters	Johnson & Johnson	24,902	June 19	67	1569
Medicinal tablets	Antikamnia Chemical Company	24,723	May 15	67	925
Medicinal tablets	J. M. Crampton	24,724	May 15	67	925
Medicinal wines	F. Comar et Fils & Cie	24,536	Apr. 17	67	397
Medicine and tonic. Nerve	Magic Medicine Co	24,868	June 12	67	1445
Medicine for certain named diseases	P. Petree & Co	24,651	May 1	67	674
Medicine for corns and bunions	C. H. Van Wie	24,832	June 5	67	1328
Medicine for diseases of the bowels and stomach	H. Woodcock	24,496	Apr. 10	67	268
Medicine for the cure of catarrh	Root-Tea-Na Herb Co	24,630	May 1	67	673
Medicine for the cure of neuralgia, grip, and fever	Pheno-Bromate Chemical Co	24,468	Apr. 3	67	137
Medicine for the cure of the tobacco habit	Root-Tea-Na Herb Co	24,725	May 15	67	925
Medicine. Stomachic and carminative	E. Dort	24,827	June 5	67	1328
Medicine to neutralize the effect of microbes on the physical system. Fluid	Goodman & Macatee	24,540	Apr. 17	67	397
Medicine. Tonic	Anheuser-Busch Brewing Association.	24,641	May 1	67	674
Medicines for venereal diseases	J. F. Gilman	24,727	May 15	67	925
Milk, condensed and plain, evaporated cream, butter, and cheese.	New York Condensed Milk Company.	24,819	June 5	67	1327
Milk, cream, butter, and cheese	A. F. Rieser	24,674	May 8	67	808
Mineral water. Natural	J. P. Forbes & Co	24,506	Apr. 10	67	269
Mineral water. Natural	J. P. C. Schmit	24,450	Apr. 3	67	135
Mineral water. Natural	Waukesha-Lithia Spring Company	24,531	Apr. 17	67	396
Mineral waters	Gerolsteiner Sprudel W. Castendyck.	24,530	Apr. 17	67	396
Molders' tools	F. A. Downerd	24,612	Apr. 24	67	528
Musical instruments	M. Redgrave	24,611	Apr. 24	67	528
Nailing machines. Box	W. S. Doig	24,520	Apr. 10	67	270
Nervine, tonic, restorative, and reparative remedy	J. H. Winkelmann	24,629	May 1	67	673
Noodles. Egg	C. F. Mueller & Co	24,454	Apr. 3	67	135
Oil and preparations thereof. Cod-liver	T. A. Slocum Company	24,688	May 8	67	809
Oil. Castor	M. Calm & Bro	24,475	Apr. 3	67	137
Oil. Lubricating	A. W. Harris	24,719	May 15	67	924
Oil. Lubricating	A. W. Harris	24,904	June 19	67	1569
Oils and greases. Illuminating and lubricating	Clarkson & Dallas	24,685	May 8	67	809
Oils for external use for veterinary purposes. Compound of lubricating	W. A. Lowe	24,864	June 12	67	1445
Oils. Lubricating	Seneca Oil Works	24,604	Apr. 24	67	527
Ointment	T. Guinean	24,693	May 8	67	810
Opera-glasses	A. Lévy	24,526	Apr. 17	67	396
Oranges	E. and W. P. Van Ness and S. H. Gaitskill.	24,452	Apr. 3	67	135
Oranges, lemons, tangerines, and grape-fruit	W. R. Hillyer	24,548	Apr. 17	67	398
Organs and pianos	Aeolian Organ and Music Company	24,728	May 15	67	925
Organs. Reed	Estey Organ Company	24,729	May 15	67	926
Oysters	J. L. Best	24,621	May 1	67	672

Alphabetical list of trade-marks, April to June, inclusive—Continued

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Pain-eradicators, ointments, salves, liniments, and pink-eye, distemper, and colic cures.	New Metzger Medicine Company	24,901	June 19	67	1569
Paint or preparation for the cure of corns, warts, and similar growths.	H. S. Moore	24,833	June 5	67	1328
Paints, kerosene, rosin, turpentine, and lubricants. Coloring and finishing.	Shaw Brothers	24,792	May 29	67	1187
Paper and envelopes. Writing	Z. & W. M. Crane	24,444	Apr. 3	67	134
Paper and envelopes. Writing	G. B. Hurd & Co	24,522	Apr. 17	67	396
Paper and envelopes. Writing	G. B. Hurd & Co	24,523	Apr. 17	67	396
Paper. Certain named	Crane & Co	24,882	June 19	67	1567
Paper. Wrapping and writing	R. H. Macy & Co	24,617	May 1	67	672
Paper. Wrapping, writing, printing, and toilet	Stone & Forsyth	24,822	June 5	67	1327
Paper. Writing	Crane & Co	24,821	June 5	67	1327
Paper. Writing and other	Crane & Co	24,883	June 19	67	1567
Perfume for toilet uses in liquids, powders, pastes, and soaps	G. E. Lorenz	24,445	Apr. 3	67	134
Perfumeries, toilet waters, sachet-powders, and toilet soap	C. B. Woodworth Sons Company	24,896	June 19	67	1568
Perfumery	Indianapolis Drug Co	24,845	June 12	67	1444
Periodicals. Printed	Sporting Life Publishing Company	24,653	May 8	67	807
Pharmaceutical preparations	S. Radlauer	24,866	June 12	67	1445
Pharmaceutical products	Farbenfabriken, vormals Fr. Bayer & Co.	24,722	May 15	67	925
Photographic use. Paper for	Vereinigte Fabriken Photographischer Papiere.	24,910	June 26	67	1716
Pile fabrics. Mohair	Lister & Company	24,776	May 29	67	1186
Pills	C. I. Hood & Co	24,865	June 12	67	1445
Pills. Certain	W. A. Abbott	24,923	June 26	67	1717
Pills. Liver	Francis Medicine Co	24,829	June 5	67	1328
Pistols. Revolving	Chicago Fire Arms Company	24,801	May 29	67	1188
Pistols, rifles, and sporting-guns	Colt's Patent Fire Arms Manufacturing Company.	24,696	May 8	67	810
Plows, shovels, spades, hoes, picks, and mattocks	Collins Company	24,803	May 29	67	1188
Polish. Metal	Harvey Chemical Co	24,848	June 12	67	1444
Pop-corn and candy of all kinds. Manufactured	Eaton & Hobbs	24,740	May 22	67	1061
Powder. Complexion	E. J. Wormley	24,721	May 15	67	924
Preparation for beautifying the complexion	W. A. Hance	24,589	Apr. 24	67	526
Preparation. Toilet	D. E. Prall	24,720	May 15	67	925
Preparation to prevent sea-sickness	R. Hudnut	24,755	May 22	67	1062
Preparations for the skin	M. Meyberg	24,823	June 5	67	1327
Preparations, including soap. Certain named toilet	Vail Brothers	24,824	June 5	67	1327
Preparations. Laxative and diuretic	La Ville Laboratory Company	24,596	Apr. 24	67	526
Preparations. Line of proprietary	Foley & Co	24,539	Apr. 17	67	397
Pumps. Air	Cleveland Faucet Company	24,800	May 29	67	1188
Railway-frog foot-guards	M. Riley	24,563	Apr. 17	67	400
Refrigerators	Francis T. Witte Hardware Company.	24,908	June 19	67	1570
Registers and serving-machines for stationery. Time, sales, and cash	Globe Register Company	24,698	May 8	67	810
Remedies. Certain named	Dr. Chase Co	24,686	May 8	67	809
Remedies. Certain named	J. F. O'Hern	24,726	May 15	67	925
Remedies. Certain named	Springsteen Medicine Company	24,599	Apr. 24	67	527
Remedies. Certain named	E. and A. L. Wood	24,870	June 12	67	1445
Remedies for catarrh, la grippe, and diseases of the throat and lungs.	L. Mabee	24,469	Apr. 3	67	137
Remedies for certain named diseases	Robert-Milton Manufacturing Co	24,786	May 29	67	1187
Remedies for diseases of the blood	McKesson & Robbins	24,761	May 22	67	1063
Remedies for diseases of the stomach	I. Schoultz	24,828	June 5	67	1328
Remedies for purifying and treating the blood	McKesson & Robbins	24,760	May 22	67	1063
Remedies for throat and lung diseases	Gilpin, Langdon & Co	24,594	Apr. 24	67	526
Remedy. Certain named	C. T. Sing	24,826	June 5	67	1328
Remedy for certain named diseases	J. W. Lundgren	24,465	Apr. 3	67	137
Remedy for certain named diseases	J. M. McLeod	24,467	Apr. 3	67	137
Remedy for chicken-cholera	E. M. Hawkins	24,476	Apr. 3	67	138
Remedy for chilblains	Lenz Ku-Ra-Tiv Co	24,873	June 12	67	1446
Remedy for corns	J. C. Proctor	24,788	May 29	67	1187
Remedy for diseases of the lungs and air-passages	T. S. Spivey	24,900	June 19	67	1569
Remedy for headache and neuralgia	R. Black	24,644	May 1	67	674
Remedy for kidney, liver, and other diseases	H. N. Spaulding	24,628	May 1	67	673
Remedy for nervous diseases	A. H. Parker & Co	24,785	May 29	67	1187
Remedy for rheumatism	W. J. Gardner	24,871	June 12	67	1446
Remedy for rheumatism	J. Keen	24,872	June 12	67	1446
Remedy for the asthma	F. E. Drumheller	24,787	May 29	67	1187
Remedy for the blood	B. H. Goll	24,759	May 22	67	1063
Repellents or waterproof cloth	Dexter Woolen Mills	24,842	June 12	67	1443
Ribbons. Certain named	Rosenheim-Levis-Zukoski Mercantile Company.	24,652	May 1	67	674
Ribbons, piece goods, cloths, and stuffs made of silk	A. & S. Blumenthal	24,811	June 5	67	1326
Rivets	Hoopes & Townsend	24,439	Apr. 3	67	134
Rubber. All articles of hard and soft	Mechanical Rubber Company	24,658	May 8	67	807
Rubber. All articles of hard and soft	Mechanical Rubber Company	24,659	May 8	67	807
Safes. Iron and steel fireproof	M. J. Sanchez	24,881	June 12	67	1444
Salt	F. I. W. Bursch	24,550	Apr. 17	67	398
Salt. Dairy	Union Pacific Salt Company	24,795	May 29	67	1188
Salt. Dairy	Union Pacific Salt Company	24,796	May 29	67	1188
Salt. Dairy	Union Pacific Salt Company	24,797	May 29	67	1188
Salt. Dairy	Union Pacific Salt Company	24,798	May 29	67	1188
Salve. Lip	O. Magenau	24,927	June 26	67	1717
Salves, ointments, liniments, and powders	C. Foster	24,692	May 8	67	810
Sarsaparilla, cough cure, pills, salve, and worm-tablets. Extract of	C. E. McIninch	24,593	Apr. 24	67	526
Sateens and twills for dress and lining purposes	Lesher, Whitman & Co	24,840	June 12	67	1443
Sauer-kraut	C. S. & M. Vandeursen	24,677	May 8	67	808
Sausage	Anglo-American Provision Company	24,510	Apr. 10	67	269
Sewing-machines	Siegel, Cooper & Company	24,730	May 15	67	926
Shampoo for the hair	J. W. Barnum	24,541	Apr. 17	67	397

Alphabetical list of trade-marks, April to June, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Sheetings and shirtings. Brown and bleached	Dudley, Battelle & Hurd	24,841	June 12	67	1443
Sheetings, shirtings, muslins, drillings, and denims	Smith, Hogg & Gardner	24,814	June 5	67	1326
Shellac gum. Orange	Berry Bros	24,491	Apr. 10	66	267
Shells. Paper shot	Union Metallic Cartridge Company	24,648	May 1	67	674
Shingles, staves, casks, and barrels	Shaw Brothers	24,799	May 29	67	1188
Shirts	A. M. Stockwell	24,913	June 26	67	1716
Shirts. Men's	March Bros., Pierce & Co	24,810	June 5	67	1326
Shoe-dressing. Liquid	C. L. Hauthaway & Sons	24,847	June 12	67	1444
Shoes, harness, and fine leather. Dressing for	Jas. S. Mason Company	24,603	Apr. 24	67	527
Shoes. Ladies' and misses' fine	Stribley & Co	24,705	May 15	67	923
Shoes. Leather	Hathaway, Soule & Harrington	24,734	May 22	67	1061
Silk piece goods	Revel Père et Fils	24,654	May 8	67	807
Silver. Souvenir articles of	Kent & Stanley Company	24,618	May 1	67	672
Silver tableware	M. C. Eppenstein & Co	24,525	Apr. 17	67	396
Silverware and jewelry. Flat and table	Whiting Manufacturing Company	24,712	May 15	67	924
Silverware. Table and ornamental	Howard Sterling Company	24,713	May 15	67	924
Sirup. Maple	Hill Syrup Company	24,576	Apr. 24	67	524
Skates. Roller	G. E. Curtis	24,645	May 1	67	674
Skins. Dyed rabbit	Lafrique & Pinton	24,529	Apr. 17	67	396
Slate and slate articles	E. J. Johnson & Co	24,619	May 1	67	672
Soap	Torrey & Bentley Company	24,495	Apr. 10	67	268
Soap and lotions. Toilet	C. E. Cornell	24,587	Apr. 24	67	526
Soap and saponaceous compounds	H. M. Small and H. B. Teed	24,543	Apr. 17	67	398
Soap. Bar	J. Biechele Soap Co	24,851	June 12	67	1444
Soap in cakes or bars	Christopher Lipps Company	24,494	Apr. 10	67	268
Soap. Laundry	Globe Chemical Company	24,680	May 8	67	809
Soap. Shaving	J. B. Williams Company	24,446	Apr. 3	67	134
Soap. Tallow	K. M. Rapelje	24,639	May 1	67	673
Soap. Toilet	B. V. Cushman	24,895	June 19	67	1568
Soap. Toilet	J. B. Williams Company	24,542	Apr. 17	67	398
Soap. Toilet and laundry	A. B. Wrisley	24,624	May 1	67	672
Soda. Caustic	Northumbrian Chemical Company	24,718	May 15	67	924
Spices and baking-powder	Woolson Spice Company	24,675	May 8	67	808
Spices and flavoring extracts	John Bird Company	24,546	Apr. 17	67	398
Starch	Nebraska City Starch Company	24,580	Apr. 24	67	525
Starch for food and laundry purposes	National Starch Manufacturing Company.	24,745	May 22	67	1062
Starch for laundry use. Lump	National Starch Manufacturing Company.	24,678	May 8	67	809
Starch. Laundry	James, Royal & Co	24,743	May 22	67	1061
Starch. Laundry	James, Royal & Co	24,744	May 22	67	1061
Starch. Laundry	National Starch Manufacturing Company.	24,622	May 1	67	672
Starch. Laundry	National Starch Manufacturing Company.	24,623	May 1	67	672
Starch. Laundry	National Starch Manufacturing Company.	24,679	May 8	67	809
Starch. Laundry	National Starch Manufacturing Company.	24,894	June 19	67	1568
Starch made of potatoes. Burned	B. P. Ducas Company	24,863	June 12	67	1445
Suits. Children's	Bowlby & Co	24,838	June 12	67	1443
Suspenders	Scientific Suspender Company	24,807	June 5	67	1326
Tapioca	Ceylon Spice Co	24,549	Apr. 17	67	398
Tea	L. Beling and V. L. Tissera	24,816	June 5	67	1327
Tea	L. Beling and V. L. Tissera	24,817	June 5	67	1327
Tea	J. Butler	24,505	Apr. 10	67	269
Textile fabrics. Certain	Albion Company	24,701	May 15	67	923
Tie-plates	Central Oil and Supply Company	24,936	June 26	67	1718
Tires. Pneumatic wheel	F. L. Cook	24,766	May 22	67	1063
Tobacco and snuff. Plug	S. Welsh	24,516	Apr. 10	67	270
Tobacco. Chewing and smoking	R. J. Reynolds Tobacco Company	24,571	Apr. 24	67	524
Tobacco. Leaf	L. Loeb & Co	24,665	May 8	67	808
Tobacco. Leaf	L. Loeb & Co	24,737	May 22	67	1061
Tobacco-pipes	L. Nax	24,875	June 12	67	1446
Tonic. Nerve	E. L. Eastman	24,690	May 8	67	810
Tools. Earth-working	Collins Company	24,731	May 15	67	926
Tools. Earth-working	Collins Company	24,770	May 22	67	1064
Tools for the care of cycles. Hand	Ames & Frost Company	24,767	May 22	67	1063
Tools. Machinists'	Collins Company	24,695	May 8	67	810
Tools. Machinists'	Collins Company	24,769	May 22	67	1064
Twine. Binding	Walter A. Wood Harvester Company	24,736	May 22	67	1061
Velvets	Giron Frères	24,443	Apr. 3	67	134
Vermouth	Giuseppe & Luigi Fratelli Cora	24,535	Apr. 17	67	396
Vessels for physicians' and surgeons' use	L. A. Dessar	24,878	June 12	67	1446
Vessels for physicians' and surgeons' use	L. A. Dessar	24,903	June 19	67	1569
Wall-paper. Cleaning material for	Zizelman & Bartlett	24,600	Apr. 24	67	527
Washing compound for laundry and other purposes	R. Jarrait	24,742	May 22	67	1061
Washing fluid	W. M. Williams	24,544	Apr. 17	67	398
Watchcases	Bay State Watch Case Company	24,733	May 22	67	1061
Watchcases	Illinois Watch Case Company	24,436	Apr. 3	67	134
Watchcases	T. Zurbrugg	24,710	May 15	67	923
Watches and portable clocks	W. C. Ball	24,711	May 15	67	924
Watches and watchcases	T. Zurbrugg	24,481	Apr. 10	67	267
Watches and watchcases	T. Zurbrugg	24,482	Apr. 10	67	267
Watches and watchcases	T. Zurbrugg	24,483	Apr. 10	67	267
Watches and watchcases	T. Zurbrugg	24,484	Apr. 10	67	267
Watches and watchcases	T. Zurbrugg	24,485	Apr. 10	67	267
Water motors or pumps	G. J. Roberts & Co	24,565	Apr. 17	67	400
Waterproofed cloths and garments made thereof	H. Shorey & Co	24,777	May 29	67	1187
Waterproofed silk pile fabric	Lister & Company	24,735	May 22	67	1061
Whalebone	Arctic Whalebone Company	24,635	May 1	67	673
Whiskies, cordials, wines, and liqueurs	Rheinstrom, Bettman, Johnson & Co	24,738	May 22	67	1061
Whisky	C. H. Arnold	24,661	May 8	67	807
Whisky	C. D. Bickley	24,500	Apr. 10	67	268

Alphabetical list of trade-marks, April to June, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Whisky	R. Hewson	24,534	Apr. 17	67	397
Whisky	M. Klein	24,662	May 8	67	807
Whisky	E. Lynch	24,779	May 29	67	1186
Whisky	S. Wolf & Sons	24,714	May 15	67	924
Whisky	J. A. Fairbanks	24,663	May 8	67	807
Whisky and whisky compounds	M. Manning	24,780	May 29	67	1186
Whisky, brandy, gin, rum, and wines	M. Manning	24,781	May 29	67	1187
Whisky, brandy, gin, rum, and wines	M. Manning	24,782	May 29	67	1187
Whisky, brandy, gin, rum, and wines	J. Robertson & Son	24,916	June 26	67	1716
Whisky. Scotch	Veuve Pommery Fils & Co	24,573	Apr. 24	67	524
Wine. Champagne	Veuve Pommery Fils & Co	24,574	Apr. 24	67	524
Wine. Champagne	W. C. Muschenheim	24,572	Apr. 24	67	524
Wines and liquors	Firm of J. W. Meuschel, Sr	24,501	Apr. 10	67	268
Wines. Franconian	Fairbanks, Morse & Company	24,479	Apr. 3	67	138
Windmills	Fairbanks, Morse & Company	24,480	Apr. 3	67	138
Windmills	Washburn & Moen Manufacturing Company.	24,805	May 29	67	1188
Wire. Steel, iron, and copper	E. Fourgault	24,905	June 19	67	1569
Wood and metal. Cleaning and polishing preparation for use on	F. Salomon & Co	24,514	Apr. 10	67	270
Wool fat	Wool Oil Refining Company	24,929	June 26	67	1717
Wool-fat	Whitman & Barnes Manufacturing Company.	24,768	May 22	67	1064
Wrenches	D. M. Fuhrman	24,676	May 8	67	808
Yeast					

PRINTS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"Dr. Kilmer Swamp Root"	J. Ottomann Lithographing Company.	3	June 12	67	1336

OFFICIAL GAZETTE

UNITED STATES PATENT OFFICE

VOL. 67

APR. - JUN.

1894

MICRO PHOTO INC.
CLEVELAND, OHIO

F
S